

山口大学理学部
ゴンドワナ資料室標本カタログ
実物で見る地球史 40 億年

南極・オーストラリア・インド・
スリランカ・マダガスカル・南部アフリカの
先カンブリア時代とヒマラヤの岩石



2012 年

加納 隆

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まえがき

およそ6億年の昔、南極・インド・オーストラリア・アフリカ・南米は1つの巨大な大陸「ゴンドワナ」を形成していた。

地球史46億年の中で、大陸の岩石は約40億年前に出現した。それらは花崗岩質の岩石であり、その後の地殻変動で変成岩（片麻岩）となって、現在の東南極ナピア岩体やカナダ北部のアカスタ地域などに残っている。鉱物にはもっと古い記録がある。西オーストラリアのイルガンクラトン北部ナリア地域には、約36億年前にできた石英に富む砂岩があり、その中には44~40億年前のジルコンが含まれる。ジルコンや石英は花崗岩を構成する鉱物であり、背後に極めて古い花崗岩質地塊の存在を暗示する。

38億年前くらいになると、火山活動と堆積作用、花崗岩形成と変成作用がセットになって、顕生代の島弧―海溝系に似た付加体や島弧地殻が形成されはじめた。こうした活動は、オーストラリア・インド・アフリカなどの35~25億年前の大陸地塊（始生代クラトン）に広く認められ、グリーンストーン帯（グリーンストーン―花崗岩帯）と呼ばれる地帯を形成した。ただし火成活動の性質は顕生代島弧とは異なり、原始マントルが融けて急冷したようなコマチアイト質の火山岩とTTG（トータル岩・トロニウム岩・花崗閃緑岩）で特徴づけられる。

その後、小さな大陸地塊や島弧地殻は集合・合体して大きな大陸地塊に成長し、25億年前の始生代末になると、さしわたし2000kmもあるような大陸地塊（例えばカナダ楯状地のスペリオール区）が出現した。現在の大陸地殻の大半は地球史初期にでき、その後は部分的につけ加わったり、再変動するだけだ、という主張もある。

最初に系統的な大陸移動説を提唱したウェーゲナーは、ほとんどの大陸が古生代後半に1つの超大陸「パンゲア」を形成していたと考えた。パンゲアは中生代前半には分裂を開始し、まず南極・インド・オーストラリア・アフリカ・南米からなるゴンドワナと北米・グリーンランド・ユーラシアからなるローラシアに別れた。両者の間が古地中海（テチス）である。なおゴンドワナとは、インド内陸部に住む少数民族「ゴンド族」にちなんだ名称であり、パンゲアから分かれた「ゴンドワナ」と6億年前の「ゴンドワナ」とは語が同じで紛らわしいが、構成する大陸塊とその接合関係はほぼ同じである。ゴンドワナから分かれたインド陸塊は北上し、新第三紀にはアジア大陸と衝突して偉大なヒマラヤ山脈を形成した。

現在の知識では、大陸は地球深部のマントルあるいはコアの運動に起因するプレート運動によって離合集散を繰り返す。いったんパンゲアから分かれたゴンドワナの各大陸地塊はユーラシアに向かって集合しつつあり、2億年後くらいには再び1つの超大陸が出現するという。超大陸の出現周期はおおよそ4億年くらいとされ、新しいほ

うからパンゲア・ Gondwana・ ロディニアと名付けられている。地球史の上で最初に超大陸と言えるサイズの大陸塊が出現したのは、約 19 億年前のヌーナであると考えられている。

大陸塊が集合する際には、間にヒマラヤのような衝突型の造山帯（変成帯）が生じる。過去の大陸の接合関係は、大陸の核となる古い地塊の性質・構造と、その周囲に生じた造山帯（変成帯）の性質・構造・年代などに基づいて復元される。約 6 億年前の Gondwana の形成にはパンアフリカン変動が、約 10 億年前のロディニアの形成にはグレンビル変動が関わっていると考えられている。当然、時代が古くなるほど未知の要素が大きくなるが、解明の手がかりは適切に選定された地域での野外調査と岩石試料の分析にある。

山口大学に、このような大陸の地質に夢を抱いた研究者がいた。彼らのある者は飛騨山脈や日高山脈の調査に、ある者は九州の火山岩の調査に打ち込んだが、どうしても真の大陸の岩石を自分自身の足で調査したかった。そしていずれも南極観測隊への参加によって、本格的な大陸地殻の調査研究の機会を実現し、その後も試料を求めて各大陸奥地に分け入った。

大陸地殻の大半は先カンブリア時代の楕状地であり、さらにその中でも始生代クラトンの花崗岩や変成岩が中核をなしている。彼らの活動により、期せずして南極・オーストラリア・インドを中心に、スリランカ・マダガスカル・南部アフリカの Gondwana 各地（正確には東 Gondwana）の先カンブリア時代岩石とヒマラヤの岩石が集積した。それらは、大がかりな国家事業の一環であったり、調査困難な僻地であったり、現地研究者との連携なくしては採集できない試料も多く、学術資産そのものと言えるものである。

本資料室には、それらの標本が約 5000 点余、整理・収納されている。花崗岩・変成岩に関して言えば、40 億年前の初期地殻のものから世界で最も新しい飛騨山脈の穂高の花崗岩（100 万年前）までそろっている。本書のタイトル「実物で見る地球史 40 億年」とはそういう意味である。世界的に有名な地球史初期の資料が、本や論文としてだけでなく、実際に現地に行って採集された実物としてここにあり、Gondwana 各地の試料がいつでも見比べられるようになっている。

本書の主体は、登録された岩石のカタログであり、英文と略号で記載されているが、学習の便宜のため各地域毎に和文の簡単な解説を付している。参考文献と合わせて、世界の地質を理解する資料として頂きたい。

略号表 Abbreviations used in description

<u>Rock name</u>	<u>Colour</u>
r rock	p pink or pinkish
gr granite or granitic	w white
gd granodiorite or granodioritic	leuco leucocratic
dio diorite or dioritic	inter intermediate
gab gabbro or gabbroic	mela melanocratic
tonal tonalite or tonalitic	<u>Grain size</u>
trond trondhejemite or trondhejemitic	vf very fine-grained
sye syenite or syenitic	f fine-grained
monzo monzonite or monzonitic	m medium-grained
qp quartz porphyry	c coarse-grained
gp granite porphyry	vc very coarse-grained
peg pegmatite or pegmatitic	<u>Texture, Structure and Lithology</u>
apl aplite or aplitic	por porphyritic
mig migmatite or migmatitic	por bla porphyroblastic
gn gneiss or gneissic/gneissose	(ori) orientation/oriented sample
sht schist or schistose	F foliation
phyl phyllite or phyllitic	L lineation
charnock charnockite or charnockitic	J joint
myl mylonite or mylonitic	mass massive
blast myl blastomylonite	homo homogeneous
ultramyl ultramylonite	hetero heterogeneous
cgl conglomerate	calc calcareous or calcic
ss sandstone	calc silic calc silicate
mud mudstone	psam psammitic
ls limestone	<u>General terms</u>
Mg marble magnesian marble	- to, and/or
<u>Mineral name</u>	(e.g. gr-gd r: grnitic to granodioritic rock)
common minerals : cf. Kretz's symbols	bear bearing
feld feldspar or feldspathic	N north
px pyroxene	S south
amph amphibole	E east
*	W west
+	rd road
#	

1. 東南極

East Antarctica

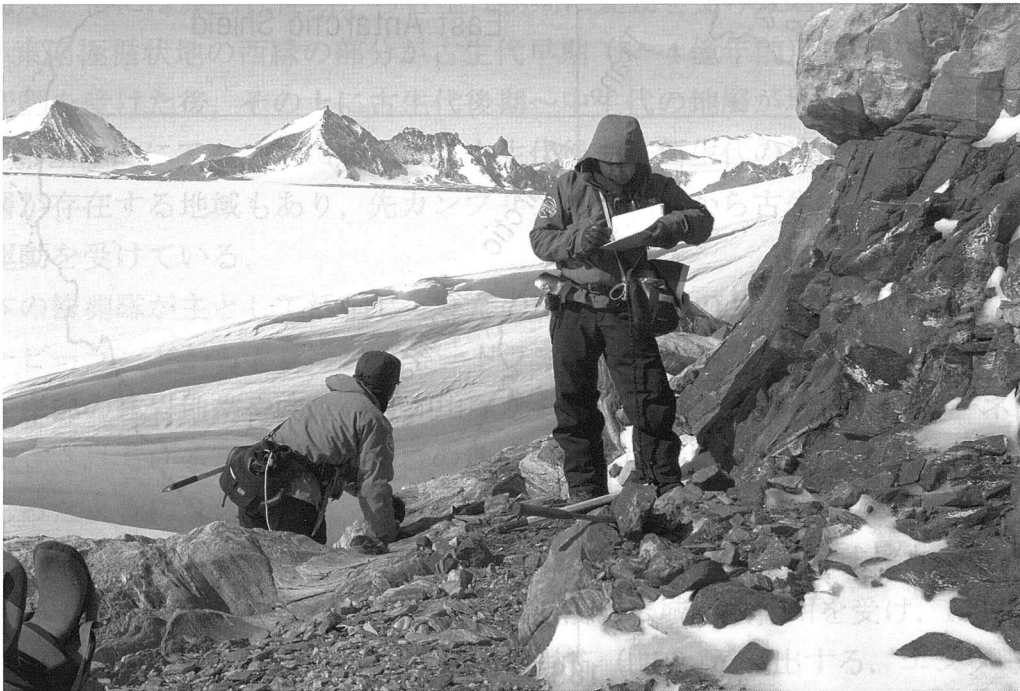


Photo 1. Field Survey in Sør-Rondane mountains, East Antarctica (from Owada, M.).

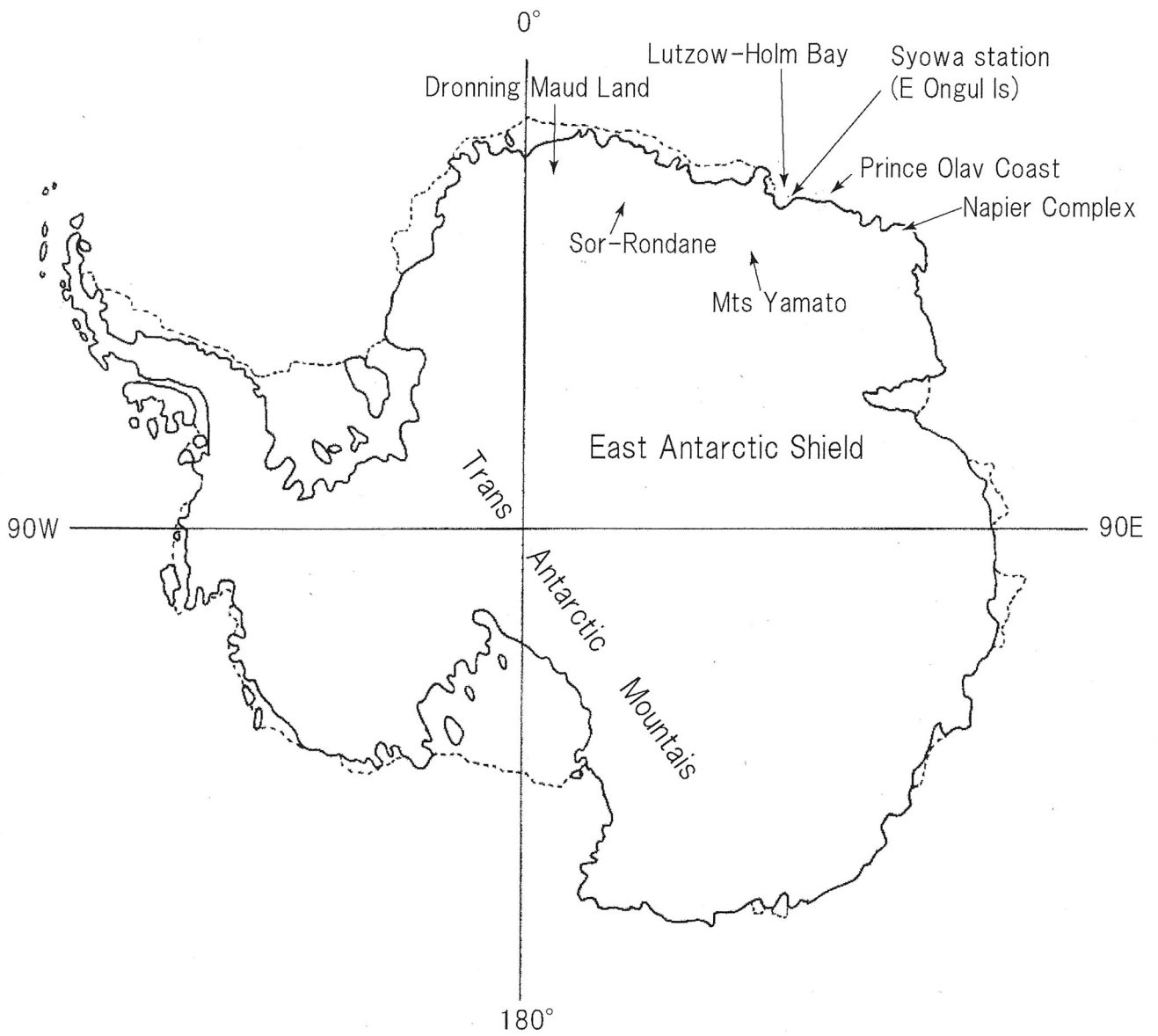


Fig.1-1. Antarctic Continent (Antarctica).

1. 東南極 East Antarctica

南極大陸 Antarctica は、面積約 1230 万 km^2 余、日本の 30 倍以上の大陸である (Fig. 1-1). オーストラリアと同様、他の大陸と直接接していない孤立した大陸である. その大半は平均厚さ 2000m に達する大陸氷床に覆われるが、海岸部や内陸山地にわずかに露岩域があり、そこを手掛かりに内部の地質構造が知られる. 東側に半円状に大きく張り出した部分を東南極 East Antarctica といい、西側の尻尾状に湾曲した部分を西南極という. 東南極の西のへり、おおむね 30 度 - 150 度の経線に沿って南極横断山脈 Trans Antarctic Mountains が走り、東南極と西南極とを分ける地形的・地質的な境界となっている.

東南極は大半が先カンブリア時代の岩石からなり、東南極楕状地 East Antarctic shield という. 25 億年前以前の始生代 (または太古代) の岩石は、エンダービーランドのナピア Napier 岩体やプリンスチャールズ山地など東南極に知られている. 原生代 (25 億年前から 5.42 億年前) の岩石は、東南極各地に広く存在し、プリンスオラフ海岸一帯には原生代後期から古生代初期に変動を受けた岩石が多い. 南極横断山脈は、東南極楕状地の西縁の部分が古生代早期 (5~4 億年前) にロス造山運動という地殻変動を受けた後、その上に古生代後期~中生代の地層が堆積した地帯である. 西南極は、基本的にアンデス山脈に続く中生代後期~新生代の造山帯であるが、原生代の地層が存在する地域もあり、先カンブリア時代末期から古生代・中生代に何度かの造山運動を受けている (cf. 国立極地研究所, 1986).

日本の観測隊が主として活動してきたのは、東南極のリュツォホルム湾を中心にエンダービーランドからドロニングモードランド一帯の地域であり、各年次の観測隊により海岸部の露岩地帯や内陸の大和山脈からベルジカ山脈~セルロンダーネ山脈などが調査されている (Fig. 1-2). この地域一帯には、片麻岩や花崗岩および両者が入り混じったように見えるミグマタイトなど、地殻深部を示す岩石が広く分布する.

ナピア岩体には、約 40 億年前の年代を示す岩石が分布し、地球最古の岩石を含む地質体の 1 つである. この地域には、25 億年前に広域変成作用を受け、 1000°C 以上に達する超高温の変成温度で特徴づけられる岩石 (UHT) が産出する. エンダービーランドからドロニングモードランドにかけて分布する岩石は、11~10 億年前後の年代と 6~5 億年前後の年代を示すことが多い. ナピア岩体を取りまく地域 (レイナー Rayner 岩体) には、11~10 億年前の岩石が分布する. プリンスオラフ海岸からリュツォホルム湾周辺には 6~5 億年前の岩石が多く、この地域をリュツォホルム岩体と呼んでいる. この年代は、アフリカ全土からゴンドワナ各地の岩石に広く認められ、「パンアフリカン変動 Pan-African」と呼ばれ、この時に各大陸塊が集合して超大陸ゴンドワナが形成されたと考えられる.

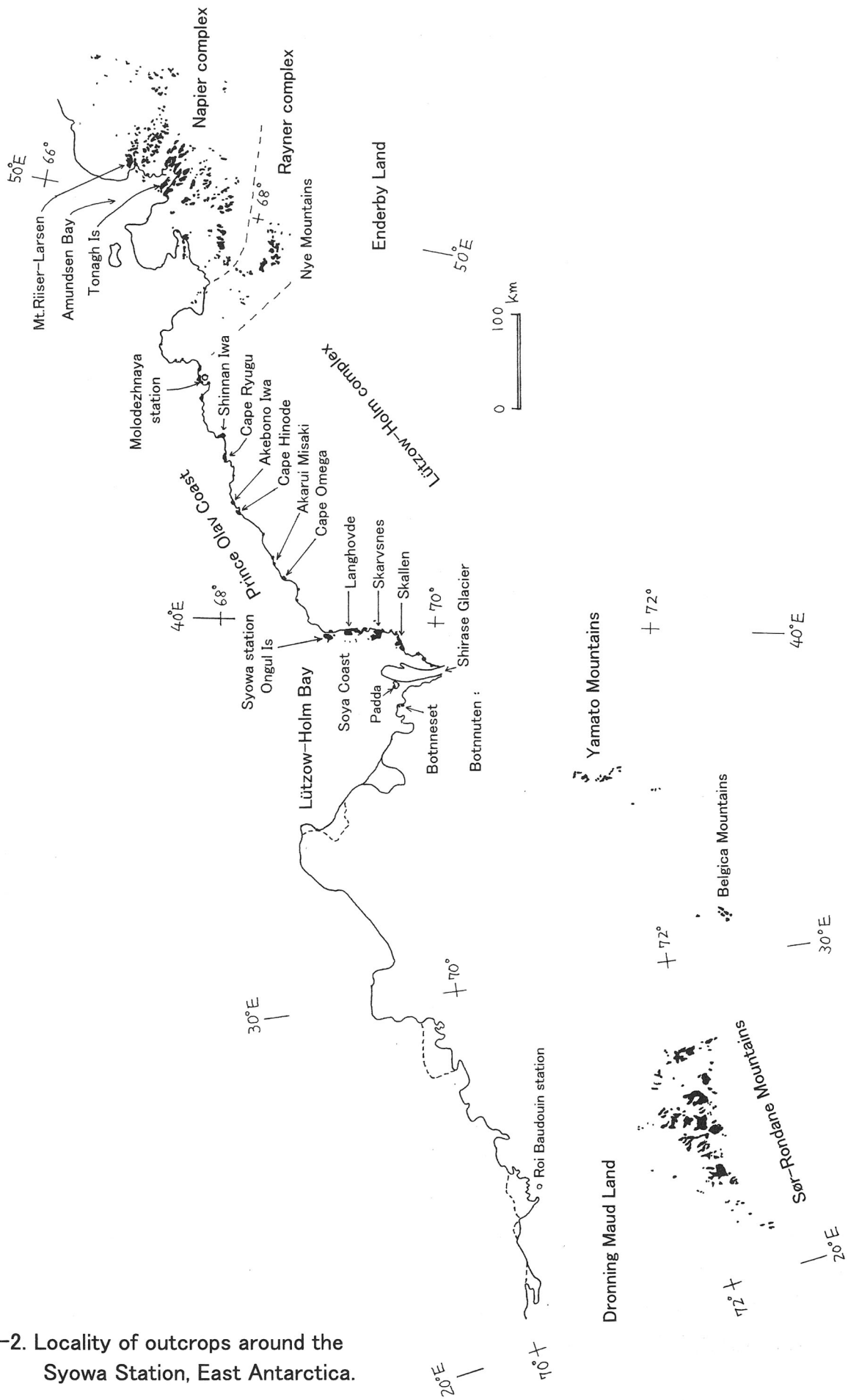


Fig.1-2. Locality of outcrops around the Syowa Station, East Antarctica.

南極大陸を中心にゴンドワナを復元すると、ちょうど昭和基地の対岸あたりがスリランカ～インドにあたる (Fig. 1-3). ゴンドワナは一度に集合したのではなく、まず南極・インド・オーストラリアなどからなる東ゴンドワナとアフリカの主要部と南米からなる西ゴンドワナができた後、両者が合体したと考えられている。両者の境界は、マダガスカル～アフリカ南東部からセルロンダーネ山地あたりにあると考えられ、ゴンドワナの復元や形成機構の解明には、こうした地域の地質情報が欠かせない。このため、日本の南極地質グループの活動範囲は、インド・スリランカをはじめ、ゴンドワナ世界の各地に広がることとなった。本資料室のアフリカやマダガスカルなどの試料もそうしたラインの上で開かれた国際集会の巡検などで採集されたものである。

本資料室に収蔵されている標本は、リュツォホルム湾一带の露岩域を含むとともに、東はナピア岩体、西はドロニングモードランド、南は大和山脈、つまり日本の南極観測隊の主たる活動域のほぼ全域をカバーしている。

山口大学の教員が参加した観測隊の年次と主たる活動範囲は以下のとおりであり、標本は年次ごとに登録番号をうち、収納されている。

- 16 次隊 (JARE16, 1974-75, 越冬隊) 松本徕夫 (当時長崎大学)
リュツォホルム湾～プリンスオラフ海岸一带および大和山脈
- 19 次隊 (JARE19, 1977-78, 夏隊) 加納 隆
プリンスオラフ海岸 (竜宮岬, 奥岩), リュツォホルム湾 (テーレン)
- 32 次隊 (JARE32, 1990-91, 夏隊) 大和田正明
セルロンダーネ山脈
- 39 次隊 (JARE39, 1997-98, 夏隊) 大和田正明
リュツォホルム湾 (スカーレン), ナピア岩体 (トナー島, アムンゼン湾)
- 43 次隊 (JARE43, 2001-02, 夏隊, 国際共同隊) 大和田正明
中央ドロニングモードランド
- 50 次隊 (JARE50, 2008-09, 夏隊) 大和田正明
セルロンダーネ山脈

[合計 1732 点]

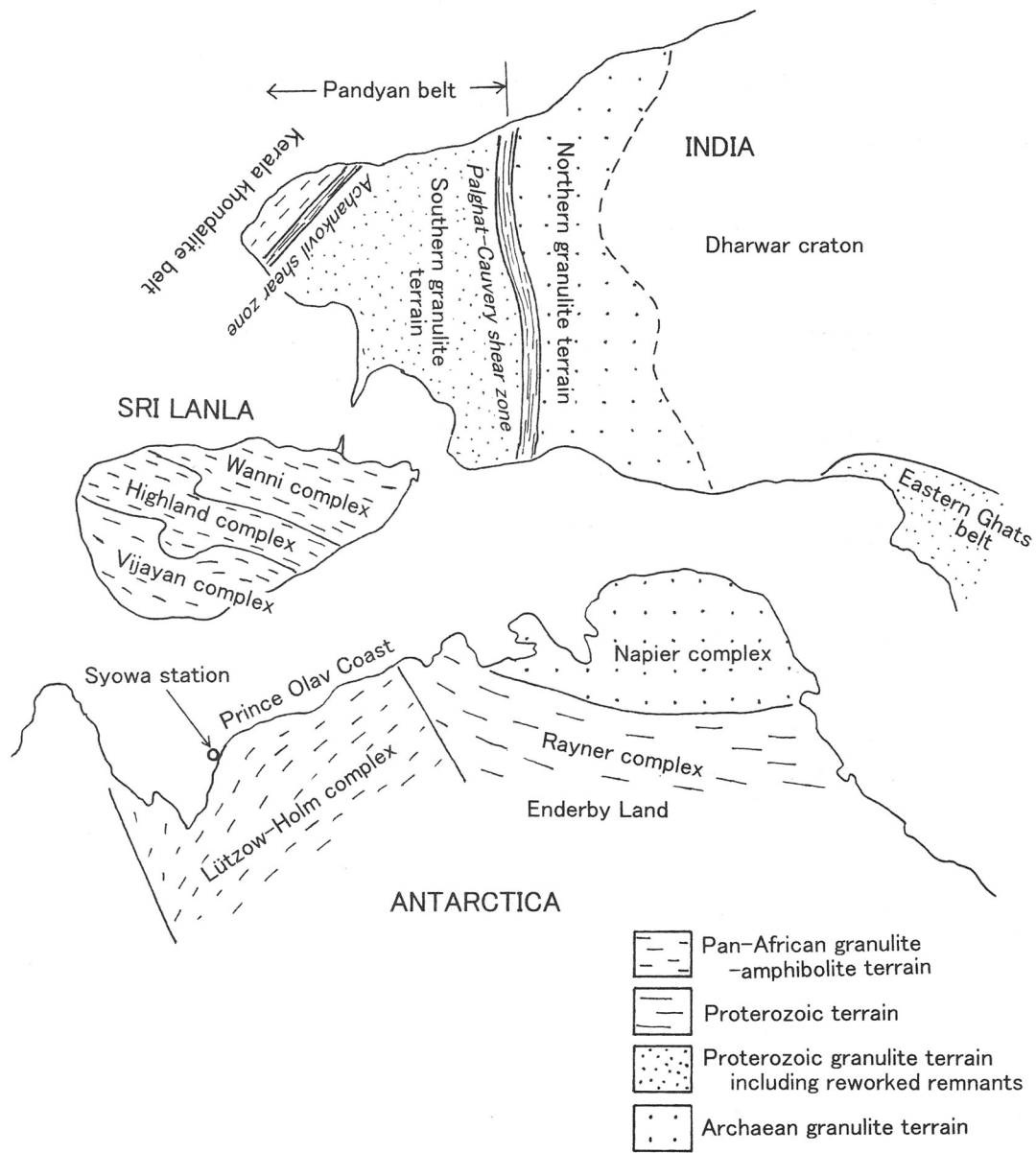


Fig.1-3. Gondwana reconstruction around East Antarctica, Sri Lanka and India.
 (compiled from NIPR, 1986 ; Ramakrishnan and Vaidyanadhan, 2008)

JARE 16 Lützow-Holm Bay and Mts. Yamato (1974-1975 : Matsumoto, Y.)

Reg. No	Original No	Rock name	[Locality]	Locality
16Y01	75012201	(leuco Grt gn gr-gr gn)		W Ongul
16Y02	75012202	f homo mass Grt Bt gn		W Ongul
16Y03	75012203	Hbl Bt gn gr		W Ongul
16Y04	75012204	px gn (charnock gn)		W Ongul
* 16Y05	75012205	Mc gr (dyke, 399Kb)		W Ongul
16Y06	75012206	c Grt Bt gn		W Ongul
16Y07	75012207	Grt bear gr gn		
16Y08	75012208	px Hbl gn (charnock gn)		E Ongul
16Y09	75012209	Hbl gn (tonal gn)		E Ongul
16Y10	75012701	Grt gn (Grt leuco gn)		Skarvsnes
16Y11	75012703	f Grt Bt gn (-Grt gr gn)		Skarvsnes
16Y12	75012704	px gn (charnock gn)		Skarvsnes
16Y13	75012705	(f Bt clot schistose hornfels)		Skarvsnes
16Y14	75012706	f psam sht-schistose hornfels)		Skarvsnes
16Y15	75012707	Bt Grt leuco gn		Skarvsnes
16Y16	75012710	(green mica bear quartzose r)		Austhovde
16Y17	75012801	(f Grt bear leuco gr gn)		Skarvsnes
16Y18	75012802	(Grt leuco gn or gr)		Skarvsnes
16Y19	75012803	(Cpx marble)		Skarvsnes
16Y20	75012804	(Mag Grt bear f p gn gr)		Skarvsnes
16Y21	75012805	dark charnok gn		Skarvsnes
16Y22	75012806	(f Grt leuco gn & Grt Bt gn)		Skarvsnes
16Y23	75012901	Grt bear peg		Skarvsnes
16Y24	75012902	Grt bear p gr (Grt Bt gn gr)		Skarvsnes
16Y25	75012903	metabasite (Grt bear Bt amphibolite)		Skarvsnes
16Y26	75012905	(Bt bear charnock gn)		Skarvsnes
16Y27	75012906	(f-m gr gn)		Skarvsnes
16Y28	75012907	(Mag bear f p gr)		Skarvsnes
16Y29	75012908	(Hbl crystal)		Skarvsnes
16Y30	75012909	amphibolite		Skarvsnes
16Y31	75012910	(amphibolite)		Skarvsnes
16Y32	75013101	(amphibolite)		Skarvsnes
16Y33	75013102	c Hbl gn (-dio gn)		Skarvsnes, Raicho Toge
16Y34	75013103	(Ep red Kfs r)		Skarvsnes
16Y35	75013104	(Bt Hbl gn-charnock gn)		Skarvsnes
16Y36	75013105	px gn (charnock gn)		Skarvsnes
16Y37	75013106	metabasite (c amphibolite)		Skarvsnes
16Y38	75013107	(Magnetite)		Skarvsnes
16Y39	75013108	Bt gn		Skarvsnes, U-ji Wan
16Y40	75020101	(Grt bear leuco apl gr-Grt leuco gn)		
16Y41	75020102	(Grt bear green feldspathic peg)		
* 16Y42	75020103	(Grt symplectic Qtz feld peg)		
16Y43	75020104	(Grt)		
16Y44	75020106	(foliate f Grt Bt leuco gr)		
* 16Y45	75020107	(folded Grt Bt gn-mig gn)		
16Y46	75020601	(flaky Gr bear charnock gn-peg)		E Ongul
16Y47	75020601	(Gr bear charnock gn)		E Ongul
16Y48	75020602	Grt gn (Grt leuco gn-Grt leuco gr)		E Ongul

16Y49	75020603	Hbl px r (-peg)	E Ongul
16Y50	75020604	weathered sulphides	E Ongul
16Y51	75020605	large Hbl-px peg	E Ongul
* 16Y52	75020606	feldspathic gn (f Bt leuco gr)	E Ongul
16Y53	75020607	px gn (charnock gn)	E Ongul
16Y54	75020608	Bt bear green px rock in 75020607	E Ongul
16Y55	75020609	Pl mega porbla in 75020607	E Ongul
16Y56	75020610	px in 75020607	E Ongul
* 16Y57	75020701	Hbl gn (gn tonal)	Antena Zima
* 16Y58	75020702	p gn gr -gr gn	Antena Zima
16Y59	75020901	(Mag bear peg)	E Ongul
16Y60	75020902	smoky Qtz	E Ongul
16Y61	75020903	(Grt leuco gn-Grt Bt gn)	E Ongul
16Y62	75020904	pyrrhotite (weathered)	E Ongul
16Y63	75020905	pyrrhotite, chalcopyrite	E Ongul
16Y64	75020906	(Gr bear f Bt gr)	E Ongul
16Y65	75020907	(Gr bear f Bt gn-gr gn)	E Ongul
* 16Y66	75021001	(Grt Sil gn)	E Ongul
16Y67	75021002	basalt	E Ongul
16Y68	75021003	Qtz & Hbl poikilitic	Ongul
16Y69	75021004	Mag in peg	W Ongul
16Y70	75021006	large Hbl in peg	Antena Zima
16Y71	75021201	pyrrhotite	Ongul
16Y72	75021202	pyrrhotite	Ongul
16Y73	75021203	augite	Ongul
16Y74	75021801	(Hbl in peg)	Ongul
16Y75	75021802	metabasite in px gn (amphibolite)	Ongul
16Y76	75021803	(pyroxenite-charnock gn)	Ongul
* 16Y77	75021804	metabasite in px gn (black amphibolite)	Miharasi dai
16Y78	75021805	peg in px gn	E Ongul
16Y79	75021806	(f leuco Ms Bt gn)	E Ongul
16Y80	75021807	large grey feldspar	E Ongul
16Y81	75021808	metabasite in px gn (px r-px gn)	E Ongul
16Y82	75021901	metabasite (Bt bear green px r)	Ongul
16Y83	75021902	basic inclusion (green and brown px r)	Ongul
16Y84	75021903	(c-vc Grt amphibolite, banded type)	Ongul
16Y85	75021904	(c-vc Grt amphibolite, banded type)	Ongul
* 16Y86	75021904	(c Grt amphibolite, mass type)	Ongul
16Y87	75022101	(ilmenite in peg)	E Ongul
16Y88	75022102	Mag in peg	E Ongul
16Y89	75022103	basic nodule (Hbl+px) in Hbl gn	E Ongul
16Y90	75022104	basic nodule (large Hbl) in Hbl gn	E Ongul
* 16Y91	75022105	(ilmenite peg)	E Ongul
16Y92	75022106	(ilmenite) in 75022105	E Ongul
16Y93	75022107	metabasite in px gn (green amphibolite)	E Ongul
16Y94	75022108	metabasite in px gn (black amphibolite)	E Ongul
16Y95	75022109	(leuco Grt Bt gn or Sil Grt Bt leuco gn)	Ongul
16Y96	75022110	(Grt Bt gn)	Ongul
16Y97	75022111	(copper disseminated Ep quartzose r)	Ongul
16Y98	75022201	porbla gn (gn Bt gr-gr gn)	W Ongul
16Y99	75022202	Mag	Ongul
16Y100	75022203	Mag	Ongul
16Y101	75022204	concretional jaspur	Ongul

16Y102	75022205	ferrohastingsite (grey feld+amph r, skarn?)	Ongul
16Y103	75022206	Hbl jasper (needle amph bear feldspathic gn)	Ongul
16Y104	75022207	(spherulitic mica aggregate bear Qtz feld r)	Ongul
16Y105	75022208	rose Qtz vein in px r	Ongul
16Y106	75022301	Grt crystal	E Ongul
16Y107	75022401	(ilmenite)	E Ongul
16Y108	75022402	pyrrhotite	E Ongul
16Y109	75022403	large green px [Loc=75091804]	E Ongul, Midori Ike
16Y110	75022404	px	Minami ike
16Y111	75022405	Hbl Bt gn	E Ongul
16Y112	75022406	green px	E Ongul
16Y113	75022801	(large px)	E Ongul No1 dam S
* 16Y114	75022802	metabasite (vc Grt px amphibolite, Grt amphibolite)	E Ongul No1 dam S
16Y115	75030101	Grt amphibolite (ori 25E 65E)	E Ongul
16Y116	75030102	metabasite (charnock Hbl gn) (ori F 20E 52E)	E Ongul
* 16Y117	75030103	Grt gn (ori F 20E, 48E)	E Ongul
* 16Y118	75030104	Hbl bear px gn (charnock gn-tonal gn)	E Ongul, base W
16Y119	75030105	Hbl amphibolite-eclogite (Grt amphibolite)	E Ongul, base W
16Y120	75030107A	Hbl px exsolution in Hbl peg	E Ongul, base W
16Y121	75030107B	Hbl in Hbl peg	E Ongul, base W
16Y122	75030108	(f Grt bear leuco Bt gn) (ori F 28E 45E)	Antena Zima
16Y123	75030109	(vc leuco tonal gn)	Antena Zima
16Y124	75030110	(banded Bt Hbl gn)	Antena Zima
16Y125	75030111	pyrrhotite bear altered r	Antena Zima
16Y126	75030112	(sulphides in altered r)	Antena Zima
16Y127	75030113	(Gr, banded Grt Hbl gn)	Antena Zima
16Y128	75030114	metabasite (banded Grt amphibolite)	Antena Zima
16Y129	75030115	Hbl Bt gn gr-gd	
16Y130	75030116	chromian px metabasite (Grt, Hbl, green & brown px)	E Ongul
16Y131	75030117	large Hbl peg	E Ongul
16Y132	75030118	amethystic Qtz	E Ongul
16Y133	75030119	(black amphibolite)	E Ongul
16Y134	75030301	p gn gr (ori N30E, E40)	Nesøya
16Y135	75030302	px gn (Bt bear charnock gn) (ori 35E 40E)	Nesøya
* 16Y136	75030303	Hbl gn (tonal gn)	Nesøya
16Y137	75030304	metabasite (vc Grt amphibolite)	Nesøya
16Y138	75030305	(Gr in peg)	Nesøya
16Y139	75030306	(Grt leuco gn)	Nesøya
16Y140	75030307	ferrohastingsite (grey feld)	Nesøya
16Y141	75030308	ferrohastingsite (clot amph Pl r)	Nesøya
16Y142	75030309	Ep bear p gr	Nesøya
16Y143	75031001	pyrrhotite+pyrite	Nesøya
16Y144	75031002	(tonal gn)	Nesøya
16Y145	75031003	(green px in px gn)	Nesøya
	75031005	euxenite ?	Nesøya
16Y146	75031006	scapolite (Mg marble: Spl Fo bear marble)	Nesøya
16Y147	75031007	(tonal gn)	Nesøya
** 16Y148	75031008A	(c Grt amphibolite, banded Grt amphibolite)	Nesøya
** 16Y149	75031008B	(Hbl bear charnock gn)	Nesøya
	16Y150	75031008C (banded Grt amphibolite)	Nesøya
	16Y151	75031301 (tonal gn)	Kalven (Ongulkalven)
* 16Y152	75031402	(Mg marble)	E Ongul
16Y153	75031405	(green px, brown Pl, Opx? pyroxene r)	E Ongul

16Y154	75031801	Grt gn (ori 30E 50E)	
16Y155	75031802	(c leuco tonal-gd gn) folded (ori 75E 40E)	
16Y156	75031803	px gn (leuco charnock gn) (ori 5E 40E)	
16Y157	75031804	(feldspar)	
16Y158	75031805	metabasite (Grt rich amphibolite)	
16Y159	75031806	(ilmenite)	
16Y160	75031808	hornfels	
16Y161	75032302	(Mag bear marble)	
16Y162	75032802	(f-m amphibolite)	Tottuki Misaki
16Y163	75032803	(f-m amphibolite)	Tottuki Misaki
16Y164	75041701	(f Bt Grt gr)	Ongulkalven
16Y165	75041702	porbla gn (leuco Grt Bt gn)	Ongulkalven
16Y166	75041703	Grt gn (c Grt leuco gn)	Ongulkalven
16Y167	75041704	Bt gn (f leuco Bt gr gn-gn gr)	Ongulkalven
16Y168	75041705	px gn (charnock gn)	Ongulkalven
16Y169	75041706	(Hbl gn-amphibolite)	Kurumi Zima SW isl
16Y170	75041707	Hbl gn (charnock gn)	Kurumi Zima SW isl
16Y171	75041708	Grt Bt gn	Kurumi Zima SW isl
16Y172	75041709	(Grt bear c leuco gr gn)	Kurumi Zima SW isl
16Y173	75041710	px gn (charnock gn)	Kurumi Zima SW isl
16Y174	75050601	(f Grt bear leuco gr gn)	Langhovde, Ko-minato N
16Y175	75050602	(Grt bear leuco gr gn)	Langhovde, Ko-minato N
16Y176	75050603	(f Grt Bt gn)	Langhovde, Ko-minato N
16Y177	75051201A	metabasite (Hbl pyroxenite)	Langhovde, Ko-minato
* 16Y178	75051201B	large Bt in MB in 75051201	Langhovde
16Y179	75051202	(f Hbl px gn)	Langhovde, Ko-minato E
16Y180	75051202	metabasite (Hbl green px r)	Langhovde, Ko-minato E
16Y181	75051203	c px gn (c Bt bear charnock gn)	Langhovde, Ko-minato E
16Y182	75051301	metabasite (Hbl pyroxenite-px amphibolite)	Langhovde, Ko-minato S
16Y183	75051302	metabasite (green Hbl amphibolite-meta gab?)	Langhovde, Ko-minato S
16Y184	75051303	metabasite (amphibolite)	Langhovde, Ko-minato S
16Y185	75051304	(p gn gr)	Langhovde, Ko-minato S
16Y186	75051305	(tonal gn)	Langhovde, Ko-minato
16Y187	75051401	(Grt leuco gn)	Langhovde, Yatude Zawa
16Y188	75051402	(Grt Bt leuco gn)	Langhovde, Yatude Zawa
16Y189	75051403	metabasite (amphibolite)	Lang, Raicho/Yatude half point
16Y190	75051501	(f amphibolite)	Langhovde A Is
16Y191	75051502	(f Grt Bt gn)	Langhovde B Is
16Y192	75051503	(Grt Bt gn)	Langhovde B Is
16Y193	75051504	(Grt bear c leuco Bt gn)	Langhovde B Is
16Y194	75051505	(c Grt leuco gn-c Grt Bt leuco gr gn)	Langhovde B Is
16Y195	75051506	(c-m Hbl Bt gn)	Langhovde C Is
16Y196	75051507	(Grt bear c leuco Bt gn-gr gn)	Langhovde C Is
16Y197	75051508	(m Grt Bt leuco gn-gn gr)	Langhovde E Is
16Y198	75051509	(Grt leuco gn)	Langhovde E Is
16Y199	75051510	(f leuco Bt gn-f leuco gr gn)	Langhovde F Is
16Y200	75051511	(f p-leuco gn gr-gr gn)	Langhovde F Is
16Y201	75051511	(Grt bear f gr gn)	Langhovde F Is
16Y202	75051512	(Bt rich Grt bear amphibolite-charnock gn)	Langhovde F Is
16Y203	75051513	(Grt bear Bt rich amphibolite-charnock gn)	Langhovde
16Y204	75051514	(Grt Bt gn slight charnock)	Langhovde
16Y205	75051601	(px gn-charnock gn)	Langhovde, YatudeZawa S ridge
16Y206	75051602	(Hbl Bt gn-tonal gn)	Langhovde, YatudeZawa S ridge

16Y207	75051603	(Grt bear c Bt gn)	Langhovde, YatudeZawa S ridge
16Y208	75051604	chalcopy +Cu oxide in Grt gn (weathered gr gn)	Langhovde, YatudeZawa
16Y209	75051701	(Bt Hbl bear charnock gn)	Langhovde, upper RaichoZawa
16Y210	75051702	(Hbl bear charnock gn)	Langhovde, upper RaichoZawa
16Y211	75051703	(c Bt gn)	Langhovde, upper RaichoZawa
16Y212	75051704	(Grt Bt gn)	Langhovde, RaichoZawa
16Y213	75051705	(c Bt gn)	Langhovde, YatudeZawa camp
16Y214	75051901	mig gr	Breivågnipa NE
16Y215	75051902	Spl? Mag bear marble	Breivågnipa NE
16Y216	75051903	scapolite marble (Ol Spl Chu? Mg marble)	Breivågnipa NE
16Y217	75051904	c Mg marble (Ol Chu Spl Mag Phl bear)	Breivågnipa NE
16Y218	75051905	(c Grt Bt gn)	Breivågnipa NE
16Y219	75052101	Mc gr gn (f-m p gr) +amphibolite band	Breivågnipa NE
16Y220	75052102	metabasite (Hbl bear px r +Inishi like r)	Breivågnipa
16Y221	75052301	Hbl gn-amphibolite	Byvågåsane
16Y222	75052302	Hbl gn-amphibolite	Byvågåsane
16Y223	75052303	(f Grt Bt leuco gn)	Byvågåsane
16Y224	75052304	(charnock gn)	Byvågåsane
16Y225	75052305	peg (Hbl ? peg)	Byvågåsane
16Y226	75052701	(vf Grt bear c Bt gn)	Byvågåsane
16Y227	75052702	(c leuco Grt gn)	Byvågåsane
16Y228	75052703	(f-m Grt Bt gn)	Byvågåsane
16Y229	75071301	metabasite (large Grt amphibolite-charnock gn)	Nesøya
16Y230	75071302	(Grt amphibolite)	Nesøya
16Y231	75071303	graphic Grt in peg (Grt Qtz symplectite)	Nesøya
16Y232	75071401	pyrrhotite	E Ongul base W
16Y233	75071402	pyrrhotite	E Ongul base W
16Y234	75071403	charnock feldspathic gn in metabasite	E Ongul base W
16Y235	75072401	(c-m Bt gn gr)	Rumpa survey point
16Y236	75072402	(charnock gn-gr gn)	Rumpa penguin rookery
16Y237	75072601b	smoky Qtz	Nesøya
16Y238	75072602	smoky Qtz bear c sand	Nesøya
16Y239	75072606	Pl (large feld)	Nesøya
16Y240	75072607a	px cryst	Nesøya
16Y241	75072607b	feld cryst	Nesøya
16Y242	75072608	Hbl ? (large Hbl in peg)	Nesøya
16Y243	75072609	graphic Grt Qtz symplectite	Nesøya
16Y244	75072610	metabasite (Hbl Cpx r)	Nesøya
16Y245	75072901	pyrrhotite	Nesøya
16Y246	75072902	pyrite	Nesøya
16Y247	75072903	(Grt Bt gn)	Nesøya
16Y248	75080103	metabasite (large Grt Hbl px r)	Nesøya
16Y249	75080104	(ilmenite) in peg	E Ongul (cross to AntenaZima)
16Y250	75080106	Mag peg	E Ongul
16Y251	75080107	(Ep bear p gr peg)	E Ongul
16Y252	75081501	px gn (charnock gn)	Mitudomoe Zima
16Y253	75081502	Hbl gn (f-m leuco Grt Bt gn)	Mitudomoe Zima
16Y254	75081503	(black amphibolite)	Mitudomoe Zima
16Y255	75081801	(amphibolite with greyish leuco band)	Strandnibba A Is
16Y256	75081802	(f-m amphibolite-mafic granulite)	Strandnibba A Is
16Y257	75081803	purple Qtz	Strandnibba A Is
16Y258	75081804	c pyroxenite	Strandnibba A Is
16Y259	75081805	Hbl gn (Hbl bear charnock gn)	Strandnibba

16Y260	75081806	Hbl gn	Strandnibba B Is
16Y261	75081901	(charnock gn)	Insteodden
16Y262	75081902	(f leuco gr gn including Grt amphibolite)	Insteodden
16Y263	75081903	metabasite (black amphibolite)	Ytstekleppane
16Y264	75081904	(charnock gn)	Ytstekleppane
16Y265	75081905	Hbl in Hbl peg	Ytstekleppane
16Y266	75081906	Hbl gn (leuco charnock gn)	Strandnibba new survey point
16Y267	75082101	metabasite (f Grt bear Bt amphibolite)	Strandnibba east side Is
16Y268	75082102	Hbl gn (-amphibolite)	Strandnibba east side Is
16Y269	75082103	malachite coated amphibolite	Strandnibba east side Is
16Y270	75082104	metabasite (black amphibolite)	Strandnibba
16Y271	75082105	Hbl gn (-amphibolite)	Strandnibba left side Is
16Y272	75082106	(black amphibolite)	Strandnibba
16Y273	75082301	Grt Bt gn	Insteodden
16Y274	75082302A	(Cpx marble)	Insteodden
16Y275	75082303	(f px gn, calc silic gn)	Insteodden
16Y276	75082401	metabasite (f amphibolite)	Strandnibba
16Y277	75082402	(charnock gn)	Strandnibba
16Y278	75082403	(black amphibolite)	Strandnibba
* 16Y279	75082501	(dotted charnock f-m leuco gn: incipient char)	Skallevikshalsen Dairi Ike
16Y280	75082502	(dotted charnock f-m leuco gn: incipient char)	Skallevikshalsen Dairi Ike
16Y281	75082503	Grt gn (f Grt bear leuco gn)	Skallevikshalsen Dairi Ike
16Y282	75082505	basalt	Skallevikshalsen
16Y283	75082701	Hbl gn (-dio gn)	Yomogiri Zima
16Y284	75082702	metabasite (amphibolite)	Yomogiri Zima
16Y285	75082703	metabasite (pyroxenite ?)	Yomogiri Zima
16Y286	75082704	(Grt bear aplitic gn)	Yomogiri Zima
16Y287	75082705	peg (c Grt bear quartzose gn)	Yomogiri Zima
16Y288	75091802	pyrrhotite in metabasite	Nesøya (=75031005)
16Y289	75091804	smoky Qtz	Midori Ike east
16Y290	75091805	Hbl bear peg	E Ongul
16Y291	75091806	Mag +green px	E Ongul
16Y292	75091807	amphibolite	E Ongul
16Y293	75092201	(green px r)	E Ongul
16Y294	75092202	large Hbl in Hbl peg	E Ongul
16Y295	75092701	(f Grt Bt leuco gn)	Mukai Iwa
16Y296	75092702	(c Grt Bt gn)	Mukai Iwa
16Y297	75092703	(Grt Bt leuco gn)	Mukai Iwa
16Y298	75092704	Grt Bt gn	Mukai Iwa
16Y299	75092705	px gn	Mukai Iwa ?
16Y300	75092706	magnetite	Mukai Iwa ?
16Y301	75092707	Hbl gn (charnock gn)	Matukawa Iwa
16Y302	75092708	(Grt leuco gn)	Matukawa Iwa
16Y303	75092709	(charnock gn)	Matukawa Iwa
16Y304	75092710	(f charnock gn)	Matukawa Iwa
16Y305	75092801	px gn (charnock gn, Bt Hbl bear charnock gn)	Naka-zima
16Y306	75092802	Hbl gn	Naka-zima
* 16Y307	75092803	px gn (Hbl bear charnock gn)	Kita Zima
16Y308	75092804	px gn (Hbl bear charnock gn)	Kita Zima west Is
16Y309	75092901	(Grt Bt gn-gr gn)	Iwa-zima C
16Y310	75092902	px gn (charnock gn)	Iwa-zima C
16Y311	75092903	px gn (charnock gn)	Iwa-zima C
16Y312	75092904	px gn (charnock gn)	Mitu Iwa

	16Y313	75092905	pyrrhotite	Mitu Iwa
*	16Y314	75092906	ls (micaceous marble)	Mitu Iwa moraine
	16Y315	75092907	px gn (f leuco charnock gn)	between Mitu/Matukawa Iwa
	16Y316	75092908	Hbl gn (tonal-charnock gn)	between Mitu/Matukawa Iwa
	16Y317	75092909	Grt Cal r	between Mitu/Matukawa Iwa
	16Y318	75092910	Hbl gn (tonal-charnock gn)	no name Is
	16Y319	75092911	(Hbl gn-charnock gn)	no name Is
	16Y320	75092912	Mag Cal	no name Is
	16Y321	75093001	Grt Bt gr gn	W Ongul
	16Y322	75093002	red Mc crystal	W Ongul
	16Y323	75093003	Hbl gn (slight charnock)	Meholmen
	16Y324	75093004	px gn (f leuco charnock gn)	Meholmen
	16Y325	75093005	large Hbl bear peg	Meholmen
	16Y326	75093006	Grt bear metabasite (black amphibolite)	Meholmen
	16Y327	75093007	Grt porbla metabasite (Grt Bt amphibolite)	Meholmen
	16Y328	75093008	px gn (band Hbl bear charnock gn)	Utholmen main Is
	16Y329	75093009	px gn (Hbl bear charnock gn)	Utholmen E Is
	16Y330	75100101	(f Grt Bt gr gn)	Iwa-zima C
	16Y331	75100102	px gn (leuco charnock gn)	Iwa-zima C
	16Y332	75100103	metabasite (Grt bear amphibolite)	Iwa-zima C
	16Y333	75100201	px gn (c leuco charnock gn)	Hatusima
	16Y334	75100202	undetermined mineral (Grt?)	Hatusima
	16Y335	75100204	Grt gn (greyish charnock Grt gn)	Hatusima
	16Y336	75100205	Grt bear gr gn	Hatusima
	16Y337	75100206	(charnock gn)	Hatusima
*	16Y338	75100207	(green px-black amph intergrowth)	Hatusima
	16Y339	75100301	px gn (charnock gn)	Ondori Zima N Is
	16Y340	75100302	(Grt leuco charnock gn)	Ondori Zima
	16Y341	75100303	px gn (charnock gn)	Ondori Zima
	16Y342	75100304	Grt gn (c Grt slight charnock gn +leuco band)	Ondori Zima
**	16Y343	75100305	Grt amphibolite, Grt Bt Hbl gn	Ondori Zima
	16Y344	75100305	Grt crystal	Ondori Zima
	16Y345	75100305B	(c Grt Bt Hbl gn)	Ondori Zima
	16Y346	75100306	Grt gn	Ondori Zima
	16Y347	75100307	Hbl gn (-tonal gn)	Ondori Zima E Is
	16Y348	75100308	Grt gn (slight greyish Grt gn)	Ondori Zima N Is
	16Y349	75100310	px gn (f mela charnock gn)	Mendori Zima
	16Y350	75100401	px gn (Hbl charnok gn)	Wakadori Zima
	16Y351	75100402	(Grt bear f-m p gn gr)	Wakadori Zima
*	16Y352	75100403A	c Grt Bt Hbl gn	Wakadori Zima
	16Y353	75100403B	c Grt Hbl Bt gn	Wakadori Zima
	16Y354	75100501	pyrrhotite	E Ongul observatory
	16Y355	75101801	Hbl gn	E Ongul tidal observatory
	16Y356	75101901	c Grt gn	Kurumi Zima
	16Y357	75102001	porbla gn (c Grt Bt gn)	Mukai Iwa
	16Y358	75102002	(Grt Bt gn, Grt leuco gr gn banded)	Mukai Iwa
	16Y359	75102003	(Grt bear f gr gn)	Mukai Iwa
	16Y360	75102004	basalt	Mukai Iwa
	16Y361	75102005	marble (Mag Ol bear c marble)	Mukai Iwa
	16Y362	75102006	actinolitic amph	Mukai Iwa
	16Y363	75102007	skarn	Mukai Iwa moraine
	16Y364	75102301	Hbl gn (Hbl gn, slight charnock)	Tottuki Misaki
	16Y365	75102302	(Hbl bear charnock gn)	Tottuki Misaki

16Y366	75102303	metabasite (Hbl bear charnock gn)	Tottuki Misaki
16Y367	75102601	Hbl & px	E Ongul
16Y368	75110101	px gn (Hbl bear charnock gn)	Breivåggnipa
16Y369	75110102	(f p gr gn)	Breivåggnipa
16Y370	75110103	c gr gn	Breivåggnipa
16Y371	75110104	(large Hbl peg)	Breivåggnipa
16Y372	75110105	Mag	Hamnenabben
16Y373	75110106	basalt	Hamnenabben
16Y374	75110107	(rose Qtz+Cal aggregate bear feldspathic r)	Hamnenabben
16Y375	75110301	metabasite (Bt bear Hbl r)	
16Y376	75110302	pyrrhotite bear Bt gn	
16Y377	75110303	(band Hbl gn-Hbl bear charnock gn)	
16Y378	75110304	(f Bt Qtz feld gn)	
16Y379	75113001	p c gn gr	
16Y380	75120401	(p-red gn sye)	Mts Yamato
16Y381	75120403	(p f-m gn gr-sye)	Mts Yamato
16Y382	75120404	p gr-gd	Mts Yamato
16Y383	75120405	(p-red gn sye)	Mts Yamato
16Y384	75120406	(gn tonal-gn dio or sye?)	Mts Yamato
16Y385	75120407	(banded Bt gn-tonal gn)	Mts Yamato
16Y386	75120408	(band Hbl Bt gn)	Mts Yamato
16Y387	75120409	(f Bt Hbl gn)	Mts Yamato
16Y388	75120410	(p gr gn)	Mts Yamato
16Y389	75120501	(p gn sye)	Minamikaze Iwa
16Y390	75120502	(c gn sye)	Mts Yamato
16Y391	75120503	(f p sye)	Mts Yamato
16Y392	75120504	(feld euhedral c inter-mela gn sye)	Mts Yamato
16Y393	75120505	(feld euhedral p gn sye)	Mts Yamato
16Y394	75120506A	(p sye)	Mts Yamato
16Y395	75120506B	(Hbl Cpx mig gr =Inishi like r +c marble)	Mts Yamato
16Y396	75120507	(slight por dio: mela part of sye)	Mts Yamato
16Y397	75120508	(c gn tonal-gn dio)	Mts Yamato
16Y398	75120509	(m-c mela dio: mela part of sye)	Mts Yamato
16Y399	75120510	(m-c dio: mela part of sye)	Mts Yamato
16Y400	75120601	(c gn tonal or c por gn sye)	Mts Yamato
16Y401	75120602	(f meta dio+gr; synplutonic dyke ?)	Mts Yamato
16Y402	75120603	(Bt rich Bt gn)	Mts Yamato
16Y403	75120605	(green px bear peg)	Mts Yamato
16Y404	75120701	(vc por sye)	Mts Yamato
16Y405	75120702	(c peg part of leuco sye)	Mts Yamato
16Y406	75120703A	(vc por sye, pinkish)	Mts Yamato
* 16Y407	75120703B	(grey feld por c sye)	Mts Yamato
16Y408	75120704	(peg -vc por sye)	Mts Yamato
* 16Y409	75120705	(euhedral feld por c sye; rapakivi feld)	Mts Yamato
16Y410	75120706	(mafic enclave ? in 120705)	Mts Yamato
16Y411	75120801	(f gn dio: mela part of sye)	Mts Yamato
16Y412	75120802	(p gn sye +mafic part)	Mts Yamato
16Y413	75120803	(p gn leuco sye)	Mts Yamato
16Y414	75120901	(Gr Bt gn)	Mts Yamato
16Y415	75120902	(f-m amphibolite or dio: mafic part of sye)	Mts Yamato
16Y416	75120903	(strong foliate f p gn gr)	Mts Yamato
16Y417	75120905	(p augen gn)	Mts Yamato
16Y418	75121001	(p gn sye)	Mts Yamato

16Y419	75121002	(Hbl meta porphyrite)	Mts Yamato
16Y420	75121003	(p gn sye including Hbl rich enclave)	Mts Yamato
16Y421	75121004	(p c gr-p Kfs rich gr-peg)	Mts Yamato
16Y422	75121005	(euhedral feld c-m p sye)	Mts Yamato
16Y423	75121006	(euhedral feld rapakivi ? c p sye)	Mts Yamato
16Y424	75121007	(Bt amphibolite: mafic part of sye)	Mts Yamato
16Y425	75121008	(f dio)	Mts Yamato
16Y426	75121009	(vf metadiabase)	Mts Yamato
16Y427	75121010A	(f-m p gn sye +peg)	Mts Yamato
16Y428	75121010B	(c Cpx bear peg sye +brown mineral ?)	Mts Yamato
16Y429	75121011	(f dio brecca & f p gr-sye, synplutonic dyke ?)	Mts Yamato
16Y430	75121012	(p augen gn)	Mts Yamato
16Y431	75121501	(p f-m sye)	Mts Yamato
16Y432	75121502	(p f-m sye)	Mts Yamato
16Y433	75121503	(p gn gr, p f-m sye)	Mts Yamato
16Y434	75121504	ovoidal feld (grey core, p margin) p-red c sye	Mts Yamato
16Y435	75121505	(ovoidal p feld r in amphibolite matrix)	Mts Yamato
16Y436	75121506	(p peg)	Mts Yamato
16Y437	75121507	(p-red sye +p peg)	Mts Yamato
16Y438	75121508	(well foliate amphibolite, mafic enclave ?)	Mts Yamato
16Y439	75121509	(black amphibolite)	Mts Yamato
16Y440	75121801	(euhedral feld bear dio r, mafic part of sye ?)	Mts Yamato
16Y441	75121803	(Mag bear peg)	Mts Yamato
16Y442	75121804	(Mag bear peg)	Mts Yamato
16Y443	75121805	(c gr gn)	Mts Yamato
16Y444	75121806	(leuco peg gr)	Mts Yamato
16Y445	75121807	(c band Bt gn-c gn tonal)	Mts Yamato
16Y446	75121808	(f Bt Hbl gn or f dio: mafic part of sye ?)	Mts Yamato
16Y447	75121809	(f-c tonal-dio: mafic part of dio)	Mts Yamato
16Y448	75121810	(f p gr)	Mts Yamato
16Y449	75121811	(f-m Bt gn-tonal gn)	Mts Yamato
16Y450	75121902	(feld por mela-inter gn sye, rapakivi feld)	Mts Yamato
16Y451	75122001	scapolite (calc r in sye, Cpx, amph, Wo)	Mts Yamato
16Y452	75122002	(c Qtz grey feld r including Mg skarn & Tr)	Mts Yamato
16Y453	75122301	(f gn gr-gr gn)	Mts Yamato
16Y454	75122302	(c-m dio: mafic part of sye)	Mts Yamato
16Y455	75122303	(folded leuco gr gn)	Mts Yamato
16Y456	75122304	(f Bt gn)	Mts Yamato
16Y457	75122305	(c gn gd gn or mela-inter gn sye)	Mts Yamato
16Y458	75122306	(c gn sye, slight charnock)	Mts Yamato
16Y459	75122307	(f gn gd)	Mts Yamato
* 16Y460	75122308	(f-m Bt bear gab, charnock ?)	Mts Yamato
16Y461	75122309	(f amphibolite)	Mts Yamato
16Y462	75122501	(gab-mela dio)	Mts Yamato
16Y463	75122502	(gab ?)	Mts Yamato
16Y464	75122504	(f apl leuco gr)	Mts Yamato
16Y465	75122505	(f-m dio)	Mts Yamato
16Y466	75122506	(f-m gn dio enclave in tonal)	Mts Yamato
16Y467	75122507	(m gn tonal)	Mts Yamato
16Y468	75122508	(Bt rich mela dio or Bt gn)	Mts Yamato
16Y469	75122509	(f-m mela dio-gab)	Mts Yamato
16Y470	75122510	(c trond r)	Mts Yamato
16Y471	75122701	(c meta gab)	Mts Yamato

16Y472	75122702	(f-m charnock gn)	Mts Yamato
16Y473	75122703	(f mela Bt gn)	Mts Yamato
16Y474	75122704	(charnock gn)	Mts Yamato
16Y475	75122705	(f dio)	Mts Yamato
16Y476	75122706	(Qtz vein in f p gn gd)	Mts Yamato
16Y477	75122707	(m Hbl Bt gn-gn tonal)	Mts Yamato
16Y478	75122708	(banded Hbl Bt gn-gn toanl)	Mts Yamato
16Y479	75122709	(m Hbl Bt gn gd-gn tonal)	Mts Yamato
16Y480	75122710	(f Bt metadiabase)	Mts Yamato
16Y481	75122711	(f Bt gn +leuco band)	Mts Yamato
16Y482	75122712	(m gn gd-gn tonal)	Mts Yamato
16Y483	75122713	(m dio)	Mts Yamato
16Y484	75122714	(m leuco gd)	Mts Yamato
16Y485	75122715	(large Hbl cryst)	Mts Yamato
16Y486	75122716	(m foliate gn gd-gn tonal)	Mts Yamato
16Y487	75122717	(feld por f dio: mafic part of sye ?)	Mts Yamato
16Y488	75122801	(leuco gn sye-gn tonal)	Mts Yamato
16Y489	75122802	(m gn gd)	Mts Yamato
16Y490	75122803	(f-m euhedral Pl foliate dio, cumulate? of sye)	Mts Yamato
16Y491	75122804	f meta dio -meta diabase	Mts Yamato
16Y492	75122805	f Bt leuco gr-gd	Mts Yamato
16Y493	75122806	m gn tonal (part of sye?)	Mts Yamato
16Y494	75122807	(m leuco gn gr)	Mts Yamato
16Y495	75122808	(banded charnock gn)	Mts Yamato
16Y496	75122809	(f mela dio: mafic part of sye?)	Mts Yamato
16Y497	75122810	(m mela gn dio: mafic part of sye)	Mts Yamato
16Y498	75122811	(c Bt gn-gr gn)	Mts Yamato
16Y499	75122812	(euhedral feld mela gn sye)	Mts Yamato
16Y500		Ep red gr	Iwa-zima
16Y501		rose Qtz	Iwa-zima
16Y502		(Grt leuco gn)	
16Y503		Bt crystal	
* 16Y504		Bt bear green px rock	E Ongul
* 16Y505		Phl marble	
16Y506	75031005	euxenite ?	Nesøya

(Total : 506)

JARE 19 Ryugu Misaki (Cape Ryugu), Oku-iwa, Telen (1977-1978 : Kano, T.)

Reg. No	Original No	Rock name	[Locality]	Locality
W401	7801	Grt Sil gn		Ryugu Misaki (Cape Ryugu)
W402	780107-5'	amphibolite		Ryugu Misaki, Prince Olav Coast
W403	780106-2	Bt gn		Ryugu Misaki, Prince Olav Coast
* W404	780102-5	peg		Ryugu Misaki, Prince Olav Coast
W405	7802	Mg skarn		Telen, Lützow-Holm Bay
W406	780131TK2	Grt gn		Telen, Lützow-Holm Bay
W407	78020111	Grt charnock gn		Telen, Lützow-Holm Bay
W408	78020111	charnock gn		Telen, Lützow-Holm Bay
		non		
W410	771231	Grt Bt gn		Ryugu Misaki, Prince Olav Coast
* W411	771231	Grt Sil Bt gn		Ryugu Misaki, Prince Olav Coast
W412	780107	Ep amphibolite		Ryugu Misaki, Prince Olav Coast
W413	780101	Grt Cpx r (skarn)		Ryugu Misaki, Prince Olav Coast
W414	771231	Grt Cpx r (skarn)		Ryugu Misaki, Prince Olav Coast
W415	78010402	Cpx Hbl gn		Ryugu Misaki, Prince Olav Coast
W416	78010501B	Cpx gn		Ryugu Misaki, Prince Olav Coast
W417	78010507	Cpx Hbl gn		Ryugu Misaki, Prince Olav Coast
W418	780103	c gd gn (Hbl Bt gn)		Ryugu Misaki, Prince Olav Coast
* W419	780103	c gd gn (Hbl Bt gn)		Ryugu Misaki, Prince Olav Coast
W420	78010206	tonal gn		Ryugu Misaki, Prince Olav Coast
* W421	780104T	augen gn		Ryugu Misaki, Prince Olav Coast
W422	78010504C	f gd gn		Ryugu Misaki, Prince Olav Coast
W423	780101T	banded p gr gn		Ryugu Misaki, Prince Olav Coast
W424	78010501T	rose Qtz		Ryugu Misaki, Prince Olav Coast
W425	780101	p Kfs crystal		Ryugu Misaki, Prince Olav Coast
W426	780101	p Kfs crystal		Ryugu Misaki, Prince Olav Coast
W427	78010405	Kfs crystal		Ryugu Misaki, Prince Olav Coast
W428	78010205	Kfs crystal		Ryugu Misaki, Prince Olav Coast
W429	780103	Kfs crystal		Ryugu Misaki, Prince Olav Coast
W430	78010404	feld crystal		Ryugu Misaki, Prince Olav Coast
W431		Mag		Ryugu Misaki, Prince Olav Coast
W432	78010704B	Ep Cpx +Grt		Ryugu Misaki, Prince Olav Coast
W433	78010705	Cpx +Grt		Ryugu Misaki, Prince Olav Coast
* W434		Hbl Ep		Ryugu Misaki, Prince Olav Coast
W435		Grt		Ryugu Misaki, Prince Olav Coast
W436	780128-M1	Hbl gn (mig series-1)		Oku-iwa (Okuiwa-rock)
W437	780128-M2	Hbl gn +tonal gn (mig series-2)		Oku-iwa, Prince Olav Coast
W438	780128-M3	mela tonal gn (mig series-3)		Oku-iwa, Prince Olav Coast
W439	780128-M4	c tonal gn (mig series-4)		Oku-iwa, Prince Olav Coast
W440	780128-M5	c tonal gn (mig series-5)		Oku-iwa, Prince Olav Coast
W441		folding of banded Hbl gn		Oku-iwa, Prince Olav Coast
W442		amphibolite		Oku-iwa, Prince Olav Coast
W443	780126	grey feldspathic r		Oku-iwa, Prince Olav Coast
* W444		f red gr		Oku-iwa, Prince Olav Coast
W445	780124	c red gr		Oku-iwa, Prince Olav Coast
W446	780125	leuco gr & molybdenite		Oku-iwa, Prince Olav Coast
W447		red peg & Kfs		Oku-iwa, Prince Olav Coast
W448	78012503	p Kfs crystal		Oku-iwa, Prince Olav Coast

non			
W450	78020105B	Bt gn & Grt bear leuco vein	Telen, Lützow-Holm Bay
W451	78020105B	mafic granulite (enclave in Bt gn)	Telen, Lützow-Holm Bay
W452	78020106'	Grt Bt gn	Telen, Lützow-Holm Bay
W453	78020107B	charnock gn	Telen, Lützow-Holm Bay
W454	78020107	Grt Bt gn band in charnock gn	Telen, Lützow-Holm Bay
W455	78020107	Bt gn	Telen, Lützow-Holm Bay
* W456	78020108T	Mg skarn	Telen, Lützow-Holm Bay
W457	78020111	charnock gn	Telen, Lützow-Holm Bay
* W458	78020112A	augen gn	Telen, Lützow-Holm Bay
W459	78020112	Grt Bt gn	Telen, Lützow-Holm Bay
W460		Cpx gn (calc silc gn)	Telen, Lützow-Holm Bay
W461	78020111	Grt crystal in charnock gn	Telen, Lützow-Holm Bay
W462		Grt crystal in charnock gn	Telen, Lützow-Holm Bay
W463	780202T	Mag	Telen, Lützow-Holm Bay
W464	780131	feld crystal	Telen, Lützow-Holm Bay
W465		Grt gn (charnock gn)	Shyowa station, E Ongul Is
W466		charnock	Shyowa station, E Ongul Is
W467		mafic granulite (amphibolite)	Shyowa station, E Ongul Is
W468		charnock gn	Shyowa station, E Ongul Is
W469		charnock gn (peg)	Shyowa station, E Ongul Is
* W470		Bt bear Cpx r	Shyowa station, E Ongul Is
W471		Bt bear Cpx r	Shyowa station, E Ongul Is
W472		Bt Cpx Grt r (eclogitic r)	Shyowa station, E Ongul Is
W473		Grt Bt gn	Telen, Lützow-Holm Bay

(Total : 71)

JARE 32 Sør-Rondane Mountains (SRM) (1990–1991 : Owada, M.)

Reg No	Original No	Rock name	[Locality]	Locality
				Brattnipane
32Y01	O90122601A	charnock		Brattnipane
32Y02	O90122601B	charnock		Brattnipane
32Y03	O90122601C	Grt Hbl peg		Brattnipane
32Y04	O90122601E	px amphibolite		Brattnipane
32Y05	O90122602A	px amphibolite		Brattnipane
32Y06	O90122602B	px amphibolite		Brattnipane
32Y07	O90122602C	charnock		Brattnipane
32Y08	O90122603E	Grt Hbl peg		Brattnipane
32Y09	O90122603F	Grt peg		Brattnipane
32Y10	O90122603G	charnock r		Brattnipane
32Y11	O90122603H	amphibolite		Brattnipane
32Y12	O90122603I	Grt Hbl gn		Brattnipane
32Y13	O901226T	Grt Hbl gn		Brattnipane
32Y14	O90122701A	Grt charnock		Brattnipane
32Y15	O90122701B	Grt charnock		Brattnipane
32Y16	O90122702	Grt peg		Brattnipane
32Y17	O90122801A	Hbl Bt gn		Brattnipane
32Y18	O90122801B	amphibolite		Brattnipane
32Y19	O90122801C	Grt Bt Hbl gn		Brattnipane
32Y20	O90122801D	leuco Hbl Bt gn		Brattnipane
32Y21	O90122901A	Grt Bt gn		Brattnipane
32Y22	O90122901B	Grt bear Bt gn (mela)		Brattnipane
32Y23	O90122901C	Grt leuco gn		Brattnipane
32Y24	O90122902	psam sht		Brattnipane
32Y25	O90123001A	Bt Hbl gn		Walnumfjellet
non	O90123001B	Bt gr		Walnumfjellet
32Y27	O90123001C	banded f Bt gn with pygmatic vein		Walnumfjellet
32Y28	O90123001E	well banded f Hbl gn +leuco vein		Walnumfjellet
32Y29	O90123004E	Pl spotted green sht (ori)		Walnumfjellet
32Y30	O90123005A	amphibolite		Walnumfjellet
32Y31	O90123005B	Pl spotted f Hbl Bt gn		Walnumfjellet
32Y32	O90123005E	Bt gn		Walnumfjellet
32Y33	O90123101Ky?	Grt Bt mig		Brattnipane
32Y34	O90123101KySp	Grt leuco gn		Brattnipane
32Y35	O90123101Ky1/2	Grt Bt banded leuco gn		Brattnipane
32Y36	O90123101A	Grt Sil Bt gn		Brattnipane
32Y37	O90123101B	f Bt gn		Brattnipane
32Y38	O90123101C	Grt Sil Bt gn		Brattnipane
32Y39	O90123101D1	Grt gr–Grt leuco gn		Brattnipane
32Y40	O90123101D2	Grt gr–Grt leuco gn		Brattnipane
32Y41	O90123101E	Grt Crd Sil gn		Brattnipane
32Y42	O90123101F	Grt Crd Sil gn		Brattnipane
32Y43	O90123101F1/2	Grt Crd Sil gn		Brattnipane
32Y44	O90123102A	syé		Brattnipane
32Y45	O90123102B	leuco syé		Brattnipane
32Y46	O901231morain	Grt f amphibolite		Brattnipane
32Y47	O91010101B	f Bt Hbl gn		Walnumfjellet
32Y48	O91010101P	f Bt Hbl gn		Walnumfjellet

32Y49	O91010101Q	f Bt Hbl gn	Walnumfjellet
32Y50	O91010101R	f Bt Hbl gn	Walnumfjellet
32Y51	O91010101S	f Bt Hbl gn	Walnumfjellet
32Y52	O91010103A	meta dolerite	Walnumfjellet
32Y53	O91010103B	tonal gn-leuco dio gn	Walnumfjellet
32Y54	O91010103C	gab (-dio gn)	Walnumfjellet
32Y55	O91010103D	amphibolite	Walnumfjellet
32Y56	O91010202	lamprophyre	Lunckeryggen
32Y57	O91010203A	gn tonal	Lunckeryggen
32Y58	O91010203B	f amphibolite	Lunckeryggen
32Y59	O91010203C	Hbl peg	Lunckeryggen
32Y60	O91010204A	amphibolite (-amph sht)	Lunckeryggen
32Y61	O91010204B	f calc silc gn-banded Hbl Bt gn	Lunckeryggen
32Y62	O91010204C	Bt gn	Lunckeryggen
32Y63	O91010204D	calc silic gn	Lunckeryggen
32Y64	O91010205A	calc silic gn	Lunckeryggen
32Y65	O91010205B	amphibolite	Lunckeryggen
32Y66	O91010205C	amphibolite	Lunckeryggen
32Y67	O91010205D	calc silic gn (including Grt rich part)	Lunckeryggen
32Y68	O91010205E	calc silic r (Cpx bear Grt r)	Lunckeryggen
32Y69	O91010205F	sheared Bt gn	Lunckeryggen
32Y70	O91010206A	calc silic r (Grt Cpx r)	Lunckeryggen
32Y71	O91010208A	Grt Bt gn	Lunckeryggen
32Y72	O91010209A	amphibolite	Lunckeryggen
32Y73	O91010209B	meta gab, c-f banded	Lunckeryggen
32Y74	O91010209C	meta gab	Lunckeryggen
32Y75	O91010209D	meta gab (-f amphibolite)	Lunckeryggen
32Y76	O91010209E	meta gab (-f amphibolite)	Lunckeryggen
32Y77	O91010209F	meta gab (-f amphibolite)	Lunckeryggen
32Y78	O91010209G	meta gab (-f amphibolite)	Lunckeryggen
32Y79	O91010209H	meta gab (-f amphibolite)	Lunckeryggen
32Y80	O91010209I	Hbl Bt gr (tonal)	Lunckeryggen
32Y81	O91010209J	calc silic r (Hbl bear c leuco r)	Lunckeryggen
32Y82	O91010301A	f Hbl? Bt gn	Walnumfjellet
32Y83	O91010301B	foliate amphibolite	Walnumfjellet
32Y84	O91010301C	tonal	Walnumfjellet
32Y85	O91010302A	leuco gn gr-gr gn	Walnumfjellet
32Y86	O91010302B	Grt Crd Bt gn	Walnumfjellet
32Y87	O91010302C	Hbl gn	Walnumfjellet
32Y88	O91010302D	Hbl Bt gn	Walnumfjellet
32Y89	O91010302E	amphibolite	Walnumfjellet
32Y90	O91010303A	Bt Hbl gn	Walnumfjellet
32Y91	O91010303B	Grt Bt gn	Walnumfjellet
32Y92	O91010303C	tonal gn	Walnumfjellet
32Y93	O91010303D	Bt Hbl porphyrite	Walnumfjellet
32Y94	O91010304A	amphibolite	Walnumfjellet
32Y95	O91010304B	leuco gr gn	Walnumfjellet
32Y96	O91010304C	Bt Hbl gn	Walnumfjellet
32Y97	O91010401A	leuco gr-peg including f Hbl gn band	Walnumfjellet
32Y98	O91010401B	Grt Bt gn	Walnumfjellet
32Y99	O91010402A	Bt gn	Walnumfjellet
32Y100	O91010402B	Grt Bt gn	Walnumfjellet
32Y101	O91010402C	Hbl Bt gn	Walnumfjellet

32Y102	O91010402D	Grt amphibolite	Walnumfjellet
32Y103	O91010402E	Grt Bt gn	Walnumfjellet
32Y104	O91010402G	Bt peg	Walnumfjellet
32Y105	O91010402H	Hbl Bt foliate peg	Walnumfjellet
32Y106	O91010403A	Grt gn gr	Walnumfjellet
32Y107	O91010404A	leuco gr gn	Walnumfjellet
32Y108	O91010404C	banded Bt Hbl gn	Walnumfjellet
32Y109	O91010404D	p gr	Walnumfjellet
32Y110	O91010404H	amphibolite	Walnumfjellet
32Y111	O91010404I	Grt Bt Hbl gn	Walnumfjellet
32Y112	O91010501A	calc silic r (Cpx, Hbl)	Lunckeryggen
32Y113	O91010501B	calc silic r (Cpx, Hbl)	Lunckeryggen
32Y114	O91010501C1	Hbl Bt leuco gr	Lunckeryggen
32Y115	O91010501C2	Hbl Bt leuco gr	Lunckeryggen
32Y116	O91010501D	Bt peg (foliate)	Lunckeryggen
32Y117	O91010501E	por gn gr—augen gn (rapakivi)	Lunckeryggen
32Y118	O91010501F1	Bt peg (foliate)	Lunckeryggen
32Y119	O91010501F2	Bt peg (foliate)	Lunckeryggen
32Y120	O91010501G	hornblendite	Lunckeryggen
32Y121	O91010501H	Hbl Bt gn	Lunckeryggen
32Y122	O91010502A	Hbl Bt leuco gn	Lunckeryggen
32Y123	O91010502B	Hbl Bt gn	Lunckeryggen
32Y124	O91010502C	folded Hbl Bt gn	Lunckeryggen
32Y125	O91010503A	calc silic r (Bt Cpx)	Lunckeryggen
32Y126	O91010503B	calc silic r (Bt Cpx)	Lunckeryggen
32Y127	O91010503C	Grt amphibolite (Hbl bear Bt rich gn)	Lunckeryggen
32Y128	O91010503D	Grt Hbl Bt gn	Lunckeryggen
32Y129	O91010503E	Bt amphibolite	Lunckeryggen
32Y130	O91010503F	Hbl Bt leuco gr	Lunckeryggen
32Y131	O91010507C	sy	Lunckeryggen
32Y132	O91010601A	Bt gn	Lunckeryggen
32Y133	O91010601B	amphibolite	Lunckeryggen
32Y134	O91010602A	Bt Hbl gn (tonal gn)	Lunckeryggen
32Y135	O91010602B	Bt amphibolite	Lunckeryggen
32Y136	O91010603A	banded Hbl Bt gn	Lunckeryggen
32Y137	O91010603B	banded Grt Bt gn & Sil ?	Lunckeryggen
32Y138	O91010603C	banded Grt Bt gn	Lunckeryggen
32Y139	O91010603D	Grt Bt gn	Lunckeryggen
32Y140	O91010603E	amphibolite	Lunckeryggen
32Y141	O91010603F	Hbl Bt leuco gr	Lunckeryggen
32Y142	O91010603G	f-c Bt gn	Lunckeryggen
32Y143	O91010701A	Hbl Bt gr	Lunckeryggen
32Y144	O91010702A	sy	Lunckeryggen
32Y145	O91010703A	sy	Lunckeryggen
32Y146	O91010703B	f amphibolite	Lunckeryggen
32Y147	O91010704A	sy	Lunckeryggen
* 32Y148	O91010705A	sy	Lunckeryggen
32Y149	O91010705B	f amphibolite	Lunckeryggen
32Y150	O91010705D	mela sy	Lunckeryggen
32Y151	O91010706A	sy	Lunckeryggen
32Y152	O91010801A	gn tonal	Walnumfjellet
32Y153	O91010801B	gn Qtz dio	Walnumfjellet
32Y154	O91010801C	dio	Walnumfjellet

32Y155	O91010801D	Cpx bear dio	Walnumfjellet
32Y156	O91010801E	dio	Walnumfjellet
32Y157	O91010801F	f Bt gn	Walnumfjellet
32Y158	O91010802A	dio	Walnumfjellet
32Y159	O91010802B	dio	Walnumfjellet
32Y160	O91010802C	dio-Hbl gab	Walnumfjellet
32Y161	O91010802C'	dio	Walnumfjellet
32Y162	O91010802D	m gn tonal	Walnumfjellet
32Y163	O91010804A	dio gn	Walnumfjellet
32Y164	O91010902A	banded f dio gn +f leuco gr gn	Brattnipane
32Y165	O91010902B	c Hbl gn	Brattnipane
32Y166	O91011101A	hetero tonal-dio	Mefjell
32Y167	O91011101B	Bt amphibolite	Mefjell
32Y168	O91011101C	amphibolite	Mefjell
32Y169	O91011101D	lamprophyre	Mefjell
32Y170	O91011101E	Bt amphibolite	Mefjell
32Y171	O91011101F	f two mica gr	Mefjell
32Y172	O91011101G	tonal-gd gn	Mefjell
32Y173	O91011102A	peg	Mefjell
32Y174	O91011201TB	f amphibolite	Mefjell
32Y175	O91011202A	Bt Hbl gd-tonal	Mefjell
32Y176	O91011202B	f Hbl gn +p gn gr vein	Mefjell
32Y177	O91011203A	gn tonal	Mefjell
32Y178	O91011203B	gn tonal	Mefjell
32Y179	O91011203C	gn tonal	Mefjell
32Y180	O91011203D	gn tonal-tonal gn	Mefjell
32Y181	O91011204A	gn tonal-tonal gn	Mefjell
32Y182	O91011204B	hornblendite	Mefjell
32Y183	O91011204C	hornblendite	Mefjell
32Y184	O91011204-T	meta gab	Mefjell
32Y185	O91011205A	f gn leuco Ms gr	Mefjell
32Y186	O91011205B	gn tonal-tonal gn	Mefjell
32Y187	O91011205C	gn tonal-tonal gn +leuco gr-peg vein	Mefjell
32Y188	O91011301A	f leuco gn gr +gn tonal	Mefjell
32Y189	O91011301B	f Bt amphibolite	Mefjell
32Y190	O91011302A	Grt gr	Mefjell
32Y191	O91011303A	f gn tonal	Mefjell
32Y192	O91011303B	f Bt gn gr-gd	Mefjell
32Y193	O91011304A	f Bt gn gr-gd	Mefjell
32Y194	O91011304B	amphibolite	Mefjell
32Y195	O91011304C	p gn Bt gr	Mefjell
32Y196	O91011304D	f-m leuco Ms gr	Mefjell
32Y197	O91011305A	amph sht	Mefjell
32Y198	O91011401A	f Bt gn	Brattnipane
32Y199	O91011401B	p gr gn +peg	Brattnipane
32Y200	O91011401C	calc silic gn	Brattnipane
32Y201	O91011402A	Opx amphibolite	Brattnipane
32Y202	O91011403A	gn tonal-tonal gn	Brattnipane
32Y203	O91011405A	amphibolite	Brattnipane
32Y204	O91011405B	amphibolite	Brattnipane
32Y205	O91011405C	amphibolite	Brattnipane
32Y206	O91011406A	Grt bear sheared peg	Brattnipane
32Y207	O91011406B	Grt Hbl Bt gn	Brattnipane

32Y208	O91011501A	banded f Bt Hbl gn	Lunckeryggen
32Y209	O91011501B	banded Hbl gn	Lunckeryggen
32Y210	O91011501C	banded f Bt Hbl gn	Lunckeryggen
32Y211	O91011501D	Grt peg +leuco gr gn	Lunckeryggen
32Y212	O91011503A	gd gn-tonal gn	Mefjell
32Y213	O91011503B	two mica gr-p gn gr	Mefjell
32Y214	O91011503C	banded Hbl gn	Mefjell
32Y215	O91011504B	gn tonal-tonal gn	Mefjell
32Y216	O91011504C	tonal gn	Mefjell
32Y217	O91011504D	tonal-dio gn	Mefjell
32Y218	O91011504E	gn dio-dio gn	Mefjell
32Y219	O91011504F	gn tonal	Mefjell
32Y220	O91011701A	tonal	Mefjell
32Y221	O91011701B	hetero f-m dio gn-tonal gn	Mefjell
32Y222	O91011701C	f mass dio (-amphibolite)	Mefjell
32Y223	O91011701D	Bt Hbl banded gn	Mefjell
32Y224	O91011701E	Bt gn-tonal gn	Mefjell
32Y225	O91011701T-A	Grt Bt Hbl gn	Mefjell
32Y226	O91011701T-B1	Grt Bt gn	Mefjell
32Y227	O91011701T-B2	Grt Bt gn	Mefjell
32Y228	O91011702A	gn tonal	Mefjell
32Y229	O91011702T-2	peridotite (serpentinite)	Mefjell
32Y230	O91011702T-A	f amphibolite	Mefjell
32Y231	O91011901C	amphibolite	Menipa
32Y232	O91011902A	tonal-gd gn	Menipa
32Y233	O91011902B	Hbl Bt gn-tonal gn	Menipa
32Y234	O91011902C	Grt Bt gn	Menipa
32Y235	O91011903A	Hbl Bt gn (gd gn)	Menipa
32Y236	O91011904A	Bt Hbl gn (c gn dio-dio gn)	Menipa
32Y237	O91011904B	Grt Hbl gn	Menipa
32Y238	O91011904D	pyroxenite	Menipa
32Y239	O91011904E	banded Hbl gn	Menipa
32Y240	O91011904F	banded Hbl Bt gn	Menipa
32Y241	O91012001A	f gd	Mefjell
32Y242	O91012001TA	tonal-dio	Mefjell
32Y243	O91012002B	c charnock r	Mefjell
32Y244	O91012002C	c tonal	Mefjell
32Y245	O91012002D	c tonal	Mefjell
32Y246	O91012002fune-a	charnock	Mefjell
32Y247	O91012002fune-b	c tonal	Mefjell
32Y248	O91012003A	c tonal-charnock +mafic enclave	Mefjell
32Y249	O91012003B	c tonal	Mefjell
32Y250	O91012003C	charnock	Mefjell
32Y251	O91012003D	lamprophyre	Mefjell
32Y252	O91012003E	f amphibolite	Mefjell
32Y253	O91012003G	c tonal	Mefjell
32Y254	O91012003H	f tonal gn	Mefjell
32Y255	O91012003TA	tonal	Mefjell
32Y256	O91012003TB	charnock	Mefjell
32Y257	O91012201A	mig f dio-dio gn + gd gn	Komsa
32Y258	O91012201B	f-m p gr	Komsa
32Y259	O91012201C	gr gn	Komsa
* 32Y260	O91012202A	mig gn (Hbl clot rich)	Komsa

32Y261	O91012203A	Bt peg	Komsa
32Y262	O91012203B	banded Bt Hbl gn	Komsa
32Y263	O91012203C	Bt gn (tonal gn)	Komsa
32Y264	O91012204A	f Bt gn gr-gr gn	Komsa
32Y265	O91012205A	gr gn (augen gn)	Komsa
32Y266	O91012205B	f Bt gn	Komsa
32Y267	O91012401A	Grt peg-Grt gn	Menipa
32Y268	O91012401B	c sheared gr-peg	Menipa
32Y269	O91012401C	Grt Bt gn	Menipa
32Y270	O91012401D	Grt amphibolite	Menipa
32Y271	O91012402A	Grt amphibolite	Menipa
32Y272	O91012402B	Grt leuco gn	Menipa
32Y273	O91012403A	Grt amphibolite	Menipa
32Y274	O91012404A	Grt Bt gn	Menipa
32Y275	O91012404Bfune	Act bear Qtz	Menipa
32Y276	O91012405A	Ms Bt gn gr	Menipa
32Y277	O91012407A	Ms Bt leuco gr	Menipa
32Y278	O91012408A	Gr rich Bt gn & Gr grain	Menipa
32Y278f	O91012408Afune	Gr rich Bt gn & Gr grain	Menipa
32Y279	O91012409A	Grt Bt gn	Menipa
32Y280	O91012409B	f Bt hornfels	Menipa
32Y281	O91012409gold-bg	altered Gr Ep quartzose r (gold bear ?)	Menipa
32Y282	O91012501A	amphibolite	Menipa
32Y283	O91012501B	f Bt gn	Menipa
32Y284	O91012501C	f Bt gn	Menipa
32Y285	O91012501TA	f-m mela dio	Menipa
32Y286	O91012502A	meta dio-gab	Menipa
32Y287	O91012502B	Grt Bt gn	Menipa
32Y288	O91012503A	calc silic r	Menipa
32Y289	O91012504A	f dio	Menipa
32Y290	O91012504C	f dio	Menipa
32Y291	O91012504D	Hbl Bt peg	Menipa
32Y292	O91012601A	Hbl Bt peg-apl	Menipa
32Y293	O91012601B	leuco Bt gr	Menipa
32Y294	O91012601C	leuco Bt gr	Menipa
32Y295	O91012601D	f tonal gn	Menipa
32Y296	O91012701A	Grt Bt peg	Menipa
32Y297	O91012701B	Grt Hbl Bt gn-tonal gn	Menipa
32Y298	O91012701C	two px amphibolite	Menipa
32Y299	O91012701D	gn peg in Grt Bt gn	Menipa
32Y300	O91012701E	two px Grt amphibolite	Menipa
32Y301	O91012701F	Bt hornblendite	Menipa
32Y302	O91012701G	f Grt Hbl gn	Menipa
32Y303	O91012701H	Grt Bt gn	Menipa
32Y304	O91012701I	Grt two px Qtz amphibolite	Menipa
32Y305	O91012701J	Grt Bt gn	Menipa
* 32Y306	O91012701K	Grt bear peg-vc Pl blast Bt gn	Menipa
32Y307	O91012701T-A	c Grt Bt gn	Menipa
32Y308	O91012702A	amphibolite	Menipa
32Y309	O91012702B	c peg & Bt gn (vc Pl blast Bt gn)	Menipa
32Y310	O91012702C	c peg & Bt gn (vc Pl blast Bt gn)	Menipa
32Y311	O91012702D	vc Pl blast Bt gn	Menipa
32Y312	O91012702TAfune	calc silic r (Cpx bear Grt skarn)	Menipa

32Y313	O91012703A	augen gn, rapakivi feld	Menipa
32Y314	O91012703B	p peg	Menipa
32Y315	O91012703C	augen gn, rapakivi feld	Menipa
32Y316	O91012801A	f gr gn +Hbl gn	Austkampane
non	O91012801B		Austkampane
32Y318	O91012801C	Bt amphibolite (dio ?)	Austkampane
32Y319	O91012802A	amphibolite	Austkampane
32Y320	O91012802B	calc silic r	Austkampane
32Y321	O91012802C	calc silic r	Austkampane
32Y322	O91012802D	calc silic r	Austkampane
32Y323	O91012802E	f Hbl Bt gn	Austkampane
32Y324	O91012802F	Bt Hbl gn or tonal-dio gn	Austkampane
32Y325	O91012803A	Grt Bt peg	Austkampane
32Y326	O91012803B	Bt peg	Austkampane
32Y327	O91012803C	calc silic r	Austkampane
32Y328	O91012803D	Bt Hbl gn	Austkampane
32Y329	O91020101Afunne	calc silic r (Cpx crystal)	Austkampane
32Y330	O91020101B	Hbl Bt gr	Austkampane
32Y331	O91020102A	Hbl Bt gr	Austkampane
32Y332	O91020102A'	Hbl Bt gr-gd	Austkampane
32Y333	O91020102B	Grt Bt gr in banded gn	Austkampane
32Y334	O91020102C	Grt Bt gn	Austkampane
32Y335	O91020102D	gn Grt peg in Bt gn	Austkampane
32Y336	O91020102E	Sil Grt Bt gn	Austkampane
32Y337	O91020102F	Grt Bt gn	Austkampane
32Y338	O91020104A	Bt peg	Austkampane
32Y339	O91020104B	meta dio-gab	Austkampane
32Y340	O91020104C	c gr gn	Austkampane
32Y341	O91020105A	Sil Grt gn	Austkampane
32Y342	O91020105B	f Bt gn	Austkampane
32Y343	O91020105C	Grt Bt gn	Austkampane
32Y344	O91020105D	Bt Grt gr gn	Austkampane
32Y345	O91020105E	Grt Bt gn	Austkampane
32Y346	O91020105F	Grt Bt peg	Austkampane
32Y347	O91020105F'	Grt peg	Austkampane
32Y348	O91020105G	Bt Hbl gn	Austkampane
32Y349	O91020105H	amphibolite-f mela dio	Austkampane
32Y350	O91020105I	f mela dio	Austkampane
32Y351	O91020105T-A	Grt leuco gr-Grt gn, Grt Bt gn	Austkampane
32Y352	O91020105T-B	Sil Grt Bt gn	Austkampane
32Y353	O91020105T-C	Sil Grt Bt gn	Austkampane
32Y354	O91020201A	Grt Bt gn	Brattnipane
32Y355	O91020201B	calc silic r (Cpx Grt r)	Brattnipane
32Y356	O91020201B'	calc silic r	Brattnipane
32Y357	O91020201B''	calc silic r	Brattnipane
32Y358	O91020201B'''	f Bt gn (calc silic or psam gn)	Brattnipane
32Y359	O91020201C	apl +leuco Bt gn	Brattnipane
32Y360	O91020201D	Grt Bt gn	Brattnipane
32Y361	O91020201E	Grt gr	Brattnipane
32Y362	O91020201F	Grt Bt gr	Brattnipane
32Y363	O91020201G	Grt Bt gn	Brattnipane
32Y364	O91020201H	Grt Bt gn	Brattnipane
32Y365	O91020201I	Grt Bt gn	Brattnipane

32Y366	O91020201J	f Grt Bt gn +leuco vein	Brattnipane
32Y367	O91020201J'	Grt Bt gn +leuco vein	Brattnipane
32Y368	O91020201K	Grt Bt gn	Brattnipane
32Y369	O91020201L	Grt Bt gn	Brattnipane
32Y370	O91020201T-A	Grt Bt mig	Brattnipane
32Y371	O91020201T-B	Grt Bt gr	Brattnipane
32Y372	O91020301A	Hbl Bt gn	Brattnipane
32Y373	O91020301B	Bt amphibolite	Brattnipane
32Y374	O91020301C	Bt amphibolite	Brattnipane
32Y375	O91020301D	Hbl Bt gr	Brattnipane
32Y376	O91020301E	calc silic r (large Bt bear)	Brattnipane
32Y377	O91020301F	calc silic r (Hbl Cpx)	Brattnipane
32Y378	O91020301G	Hbl Cpx bear peg	Brattnipane
32Y379	O91020301H	Hbl including Cpx	Brattnipane
32Y380	O91020301T-A	Grt Bt gn	Brattnipane
32Y381	O91020302A	Hbl gn	Brattnipane
32Y382	O91020302B	Hbl gn +c leuco band	Brattnipane
32Y383	O91020302C	hornblendite	Brattnipane
32Y384	O91020302D	Hbl Bt sheared peg	Brattnipane
32Y385	O91020302E	Grt Hbl Bt gn	Brattnipane
32Y386	O91020303A	Grt Bt gn	Brattnipane
32Y387	O91020303B	Bt peg	Brattnipane
32Y388	O91020303C	f-c banded Bt gn	Brattnipane
32Y389	O91020303D	Grt Bt gn	Brattnipane
32Y390	O91020303E	Grt Bt gn +Grt leuco gn	Brattnipane
32Y391	O91020303F	Grt Bt gn	Brattnipane
32Y392	O91020303G	Grt Bt gn	Brattnipane
32Y393	O91020303H	Grt Bt gn	Brattnipane
32Y394	O91020303I	Hbl Grt Bt gn	Brattnipane
32Y395	O91020303J	Hbl Bt gn	Brattnipane
32Y396	O91020303T-A	Sil Grt Bt gn	Brattnipane
32Y397	O91020303T-B	Sil Grt Bt gn	Brattnipane
32Y398	O91020303T-C	Hbl gn	Brattnipane
32Y399	O91020304A	two px amphibolite	Brattnipane
32Y400	O91020304B	f leuco Bt gr gn	Brattnipane
32Y401	O91020304C	spotted amphibolite	Brattnipane
32Y402	O91020304D	c-m Bt gr +Bt gn band	Brattnipane
32Y403	O91020304E	f Hbl Bt gn	Brattnipane
32Y404	O91020304F	f p Bt gn gr	Brattnipane
32Y405	O91020401A	charnock	Brattnipane
32Y406	O91020401B	c charnock	Brattnipane
32Y407	O91020402A	Grt charnock	Brattnipane
32Y408	O91020402A'	Grt charnock	Brattnipane
32Y409	O91020402B	charnock	Brattnipane
32Y410	O91020403A	charnock-tonal gn	Brattnipane
32Y411	O91020403B	leuco charnock	Brattnipane
32Y412	O91020403C	two px amphibolite	Brattnipane
32Y413	O91020404A	px amphibolite	Brattnipane
32Y414	O91020404B	px amphibolite	Brattnipane
32Y415	O91020405A	charnock	Brattnipane
32Y416	O91020405B?	two px amphibolite	Brattnipane
32Y417	O91020405C	Grt charnock	Brattnipane
32Y418	O91020405D	Grt charnock	Brattnipane

32Y419	O91020405E	charnock	Brattnipane
32Y420	O91020405T-A	charnock	Brattnipane
32Y421	O91020405TA-1	charnock	Brattnipane
32Y422	O91020405TA-2	charnock	Brattnipane
32Y423	O91020406A	leuco charnock	Brattnipane
32Y424	O91020406B	f Bt gn	Brattnipane
32Y425	O91020406C	leuco charnock	Brattnipane
32Y426	O91020406D	px amphibolite	Brattnipane
32Y427	O91020406E	charnock	Brattnipane
32Y428	O91020406F	Bt gn-gr gn	Brattnipane
32Y429	O91020406G	amphibolite	Brattnipane
32Y430	O91020406H	amphibolite +gn gr	Brattnipane
32Y431	O91020501A	charnock	Brattnipane
32Y432	O91020501B	charnock	Brattnipane
32Y433	O91020501C	tonal gn (-charnock)	Brattnipane
32Y434	O91020501D	tonal gn	Brattnipane
32Y435	O91020502A	charnock	Brattnipane
32Y436	O91020502B	leuco tonal gn	Brattnipane
32Y437	O91020502C	charnock-tonal gn	Brattnipane
32Y438	O91020502D	amphibolite-f Hbl gn	Brattnipane
32Y439	O91020502E	felsic gn (gd-gr gn)	Brattnipane
32Y440	O91020503A	two mica gn gr-gr gn	Brattnipane
32Y441	O91020503B	px amphibolite	Brattnipane
32Y442	O91020503T-A	Grt gr	Brattnipane
32Y443	O91020503T-B	Grt Bt gn	Brattnipane
32Y444	O91020503T-C	peg band in Bt gn	Brattnipane
32Y445	O91020504A	Grt Bt gn	Brattnipane
32Y446	O91020504B	Grt Bt gn	Brattnipane
32Y447	O91020504C	amphibolite +leuco vein	Brattnipane
32Y448	O91020504D	Grt Bt gn +c gn leuco gr band	Brattnipane
32Y449	O91020504E	Grt leuco gr	Brattnipane
32Y450	O91020701A	Bt gn gab	Brattnipane
32Y451	O91020701B	pyroxenite	Brattnipane
32Y452	O91020701C	tonal gn-Hbl gn	Brattnipane
32Y453	O91020701D	Grt Bt gn +tonal gn band	Brattnipane
32Y454	O91020701E	Grt Bt gn	Brattnipane
32Y455	32KYB01	charnock	Brattnipane
32Y456	32KYB02	Grt charnock	Brattnipane
32Y457	32KYB03T	f leuco Grt gr	Brattnipane
32Y458	32KYB04T	c leuco Grt gn	Brattnipane
32Y459	32KYB05T	c Grt gn	Brattnipane
32Y460	32KYB06T	f leuco Grt gn	Brattnipane
32Y461	32Ong-1	Grt sand Ongle Is	Brattnipane
32Y462	S91012001D	c Hbl gab	Mefjell
32Y463	S91012001G	c Hbl px r	Mefjell
32Y464	T90122901D	Sil Grt Bt gn (khondalite)	Brattnipane
32Y465	T90122901E	Sil Grt gn (khondalite) orient	Brattnipane
32Y466	T90123001D	banded f tonal gn	Walnumfjellet
32Y467	T90123101B	Sil Grt Bt gn (khondalite)	Brattnipane
32Y468	T90123101C	Sil Grt Bt gn (khondalite)	Brattnipane
32Y469	T90123101C'	Sil Grt Bt gn (khondalite)	Brattnipane
32Y470	T90123101D	Sil Grt Bt gn (khondalite)	Brattnipane
32Y471	T90123101E	Grt leuco gr gn	Brattnipane

32Y472 T90123102B m p sye +mafic band

Brattnipane

(Total : 471)

JARE 39 Skallen (1997 : Owada, M.)

Reg No	Original No	Rock name	[Locality]	Locality
39Y01	C97121901A	Opx amphibolite block in gn gr		Skallen
39Y02	C97121901B	c Grt bear gn gr		Skallen
39Y03	C97121901C	Grt Bt gn		Skallen
39Y04	C97121901D	Grt peg		Skallen
39Y05	C97121901Hb	Grt crystal		Skallen
39Y06	C97121902	Tur bear peg (Tur Qtz symplektite)		Skallen
39Y07	C97121902B	gr gn		Skallen
39Y08	C97122001A	Grt bear gn gr (charnockitic)(ori)		Skallen
39Y09	C97122001B	Grt bear gn gr		Skallen
39Y10	C97122001C	px rich mafic gn block		Skallen
non	C97122001D	Bt bear amphibolite (dyke?)		Skallen
39Y12	C97122001E	Crn Phl r		Skallen
** 39Y13	C97122001F	Spl Phl r (Crn ?)		Skallen
39Y14	C97122001G	Crn bear Bt clot vc leuco Bt gn		Skallen
39Y15	C97122001H	Crn bear Bt rich band +vc leuco Bt gn		Skallen
39Y16	C97122002A	Phl bear pyroxenite		Skallen
39Y17	C97122002B	pyroxenite		Skallen
39Y18	C97122002C	serpentinite		Skallen
39Y19	C97122003A	Spl bear Grt Bt gn		Skallen
39Y20	C97122003B	Wo Di calc silc gn		Skallen
non	C97122004A	Sil bear Grt Bt gn		Skallen
39Y22	C97122004B	f Bt Hbl gn		Skallen
39Y23	C97122004C	Grt peg		Skallen
39Y24	C97122101	Grt Opx amphibolite		Skallen
39Y25	B97122101B	fluorite		Skallen
39Y26	C97122102A	Grt Bt gn (brownish, charnockitic)		Skallen
39Y27	C97122102B	Grt Opx amphibolite		Skallen
39Y28	C97122103A	Grt Opx amphibolite		Skallen
39Y29	C97122103B	Opx amphibolite		Skallen
39Y30	C97122104	Grt Bt gn (brownish)		Skallen
39Y31	C97122201A	Grt Bt gn (brownish)		Skallen
39Y32	C97122201B	Opx Hbl gn (brownish)		Skallen
39Y33	C97122201C	Grt Bt gn (brownish)		Skallen
39Y34	C97122201D	c Grt gn (Grt rich)		Skallen
39Y35	C97122201E	Grt Bt gn (brownish)		Skallen
39Y36	C97122201F	Grt Opx amphibolite		Skallen
39Y37	C97122202	Opx amphibolite, amph rich		Skallen
39Y38	C97122203A	Di bear calc silc gn		Skallen
non	C97122203B	gn gr		Skallen
39Y40	C97122204	marble (ori F 60W 38S)		Skallen
39Y41	C97122301A	Bt gn (charnockitic) (ori)		Skallen
39Y42	C97122301B	Grt Bt gn (ori)		Skallen
* 39Y43	C97122302A	Mg marble (Phl rich +Spl Dio)		Skallen
39Y44	C97122302B	calc silc gn (Phl Opx? Hbl)		Skallen
39Y45	C97122302C	Phl bear calc silc gn (Crn? Phl Qtz r)		Skallen
39Y46	C97122302D	Wo Di Spl calc silc gn		Skallen
39Y47	C97122302E	Grs Spl calc silc gn		Skallen
39Y48	C97122303	Opx amphibolite		Skallen

39Y49	C97122304A	Grt Bt leuco gn	Skallen
39Y50	C97122304B	Grt Bt gn Grt, Bt rich	Skallen
39Y51	C97122305	Grt Bt gn (peg)	Skallen
39Y52	C971223101B	c Grt Bt rich gn	Skallen
39Y53	C97122401A	Grt Bt gn (charnock gn)	Skallen
39Y54	C97122401B	Grt Bt leuco gn (ori F 25W 10W)	Skallen
39Y55	C97122401C	Opx amphibolite	Skallen
39Y56	C97122401D	Opx amphibolite	Skallen
non	C97122401E	Grt Opx gn	Skallen
39Y58	C97122402A	Sil Grt gn	Skallen
39Y59	C97122402B	Grt Opx amphibolite	Skallen
39Y60	C97122402C	Spl Crn bear vc Bt gn +mica rich mela band	Skallen
39Y61	C97122402C	Spl Crn bear vc Bt gn +mica rich mela band	Skallen
39Y62	C97122402D	Di Grs calc silc gn	Skallen
39Y63	C97122402E	amph Di calc silc gn	Skallen
39Y64	C97122402F	Di Spl calc silc gn	Skallen
39Y65	C97122402G	Mg marble (Gr Spl Ol Chu bear)	Skallen
39Y66	C97122403A	Grt Bt gn (charnock gn)	Skallen
39Y67	C97122403B	Grt leuco gn	Skallen
39Y68	C97122501A	Opx amphibolite	Skallen
39Y69	C97122501B	Bt rich Opx amphibolite	Skallen
39Y70	C97122501C	Grt Bt bear Opx amphibolite	Skallen
39Y71	C97122501D	Grt Bt bear Opx amphibolite (same as C)	Skallen
39Y72	C97122502A	Sil Grt Bt gn	Skallen
39Y73	C97122502B	Grt Bt gn	Skallen
39Y74	C97122502C	Grt Sil leuco gn	Skallen
39Y75	C97122601A	Grt Bt leuco gn	Skallen
39Y76	C97122601B	Grt Opx amphibolite	Skallen
39Y77	C97122601C	hematite bear Opx amphibolite	Skallen
39Y78	C97122601D	Grt Bt gn	Skallen
39Y79	C971226T01	Grt Sil Qtz feldspathic gn	Skallen
39Y80	C97122602A	Grt amphibolite	Skallen
39Y81	C97122602B	Opx amphibolite	Skallen
39Y82	C97122602C	Opx amphibolite	Skallen
39Y83	C97122700A	c black amphibolite	Skallen
39Y84	C97122701A	c spotted amphibolite	Skallen
39Y85	C97122701B	Grt amphibolite	Skallen
39Y86	C97122701C	Grt peg	Skallen
39Y87	C97122701D	c Grt Bt gn	Skallen
39Y88	C97122701E	Sil Grt gn	Skallen
39Y89	C97122702A	Grt Bt gn	Skallen
39Y90	C97122702B	Sil Grt Bt gn	Skallen
39Y91	C97122702C	gr myl-gr gn	Skallen
39Y92	C97122703A	Bt bear amphibolite	Skallen
39Y93	C97122703B	f Opx amphibolite	Skallen
39Y94	C97122703C	Grt Opx amphibolite	Skallen
39Y95	C97122801A	Grt Bt gn (brownish)	Skallen
39Y96	C97122801B	Grt Crd Bt gn	Skallen
39Y97	C97122801C	Bt amphibolite	Skallen
39Y98	C97122802A	Grt Opx amphibolite & Grt gn	Skallen
39Y99	C97122802B	Grt leuco gn	Skallen
non	C97122802C	gr dyke	Skallen
39Y101	C97122802D	Gr Opx amphibolite	Skallen

39Y102	C97122803A	Crđ Grt gn	Skallen
39Y103	C97122803B	Spl Grt gn	Skallen
39Y104	C97122803C	Grt Opx amphibolite	Skallen
39Y105	C97122803D	Opx amphibolite	Skallen
39Y106	C97122803E	Phl Di calc silc gn	Skallen
39Y107	C97123001A	Sil Grt gn	Skallen
39Y108	C97123001B	Sil Grt gn	Skallen
39Y109	C97123001C	Grt Spl Sil gn (khondalite)	Skallen
39Y110	C97123001D	Spl Di calc silc gn	Skallen
39Y111	C97123001E	Spl Di calc silc gn	Skallen
39Y112	C97123001F	marble with Phl vein	Skallen
39Y113	C97123001G	Gr bear Grt leuco gn	Skallen
39Y114	C97123001H	px bear calc silc gn with Phl vein	Skallen
39Y115	C97123001I	Mg marble (Grs Di Phl Spl bear)	Skallen
39Y116	OW 3T	Grt Bt gn	Skallen
39Y117	A97122801A	large Grt Bt gn	Skallen
39Y118	A97122801J	Crn ? r	Skallen

(Total : 113)

JARE 39 Tonagh Island and Amundsen Bay in Napier complex (1998 : Owada M.)

Reg No	Original No	Rock name	[Locality]	Locality
39Y201	C98012801A	Qtz feld px gn		Tonagh isl
39Y202	C98012801B	two px mafic gn (including large px)		Tonagh isl
39Y203	C98012802	px gab (discordant dyke)		Tonagh isl
39Y204	C98012803A	Grt Opx gn		Tonagh isl
39Y205	C98012803B	Grt Opx Ksp gn		Tonagh isl
39Y206	C98012803C	f dolerite (discordant dyke)		Tonagh isl
39Y207	C98012803D	Grt Opx Phl gn		Tonagh isl
39Y208	C98012803E	pyroxenite (block)		Tonagh isl
39Y209	C98012803F	Grt two px gn		Tonagh isl
39Y210	C98012804A	Qtz feld Grt Opx gn		Tonagh isl
39Y211	C98012804B	Qtz feld Opx gn		Tonagh isl
39Y212	C98012901A	Qtz feld Opx gn		Tonagh isl
39Y213	C98012901B	Opx Grt gn (Grt rich)		Tonagh isl
39Y214	C98012901C	Qtz feld Grt gn		Tonagh isl
39Y215	C98012901D	Qtz feld Grt Opx gn		Tonagh isl
39Y216	C98012901E	Qtz feld Grt gn (greyish)		Tonagh isl
39Y217	C98012901F	f dolerite (discordant dyke)		Tonagh isl
39Y218	C98012901G	vf mafic myl band in myl gn (along F-dyke)		Tonagh isl
39Y219	C98012901H	Grt Opx gn (mafic part)		Tonagh isl
39Y220	C980129T01	Qtz feld Grt Opx gn		Tonagh isl
non	C98012902A	Opx Grt r (same block A to D)		Tonagh isl
39Y222	C98012902B	Opx Spr Grt r		Tonagh isl
non	C98012902C	Spr Grt r		Tonagh isl
non	C98012902D	Grt bear Qtz feld r		Tonagh isl
39Y225	C98012902E	two px mafic gn (host r of F)		Tonagh isl
non	C98012902F	Grt bear Qtz feld r (same block F to J)		Tonagh isl
39Y227	C98012902G	Qtz feld Opx Grt r		Tonagh isl

39Y228	C98012902H	Spr Opx Grt r	Tonagh isl
39Y229	C98012902I	Opx Spr Grt r (Spr rich)	Tonagh isl
39Y230	C98012902J	Spr Opx Grt r (including large Opx)	Tonagh isl
* 39Y231	C98012902T	Spr Opx Grt r	Tonagh isl
39Y232	C98012903A	Phl bear pyroxenite (concordant)	Tonagh isl
* 39Y233	C98012903B	Spr Opx Qtz feld gn (greyish)	Tonagh isl
39Y234	C98012903B'	mela granulite (black layer)	Tonagh isl
39Y235	C98012904A	lherzolite (chromian Di ?, large px)	Tonagh isl
39Y236	C98012904B	lherzolite (chromian Di ?, large px)	Tonagh isl
39Y237	C98012904C	lherzolite (Ol rich)	Tonagh isl
39Y238	C98012904D	Qtz feld Opx gn (host r of A to C)	Tonagh isl
non	C980129T01		Tonagh isl
39Y240	C980129T02	f pyroxenite	Tonagh isl
39Y241	C980130T01	Qtz feld Spr Grt r (Grt surrounded by Spr)	Tonagh isl
39Y242	C980130T02	Spl Grt bear Qtz feld r (one Kfs augen)	Tonagh isl
39Y243	C980130T03	Grt Opx gn	Tonagh isl
39Y244	C980130T04	Spl Opx bear Qtz feld r	Tonagh isl
39Y245	C980130T05	Spr Opx Grt r	Tonagh isl
39Y246	C980130T06	px Grt r	Tonagh isl
39Y247	C980130T07	Grt two px mafic gn	Tonagh isl
39Y248	C980130T08	Grt Opx mafic gn (Grt surrounded by Pl Opx Spl)	Tonagh isl
39Y249	C980130T09	Spr Opx r	Tonagh isl
39Y250	C98013001	two px mafic gn	Tonagh isl
39Y251	C98013002A	two px mafic gn	Tonagh isl
39Y252	C98013002B	Qtz feld Opx gn	Tonagh isl
39Y253	C98013002C	f Qtz feld Opx gn	Tonagh isl
39Y254	C98013002D	Phl Spr bear mafic gn	Tonagh isl
39Y255	C98013002E	pyroxenite (block)	Tonagh isl
39Y256	C98013002F	Phl two px gn	Tonagh isl
39Y257	C98013002G	Grt pyroxenite (block)	Tonagh isl
39Y258	C98013003A	Qtz feld myl	Tonagh isl
39Y259	C98013003B	Mag bear Qtz feld myl	Tonagh isl
39Y260	C98013003C	Qtz feld gn with shear band	Tonagh isl
39Y261	C98013101A	charnock gn	Tonagh isl
39Y262	C98013101B	two px mafic gn	Tonagh isl
39Y263	C98013101C	px bear sye r (purplish grey)	Tonagh isl
39Y264	C98013102A	Qtz feld Opx Grt gn	Tonagh isl
39Y265	C98013102B	Qtz feld Grt gn (greyish)	Tonagh isl
39Y266	C98013102C	Ms Tur peg	Tonagh isl
39Y267	C98013103A	two px mafic r (Pl euhedral zoning)	Tonagh isl
39Y268	C98013103B	pyroxenite (concordant with 03A)	Tonagh isl
39Y269	C98013104A	Qtz feld myl	Tonagh isl
39Y270	C98013104B	f Mag rich r	Tonagh isl
39Y271	C98020301A	Opx Grt gn (myl-ultramyl band)	Tonagh isl
39Y272	C98020301B	Opx Grt leuco myl (ori)	Tonagh isl
39Y273	C98020301C	ultra myl (along shear zone)	Tonagh isl
39Y274	C98020301D	two px mafic gn (myl, close to B)	Tonagh isl
39Y275	C98020301E	mafic granulite (discordant)	Tonagh isl
39Y276	C98020301F	pyroxenite (concordant)	Tonagh isl
39Y277	C98020301G	two px mafic gn	Tonagh isl
39Y278	C98020301H	Qtz feld Grt Opx gn	Tonagh isl
39Y279	C98020401A	two px myl (ori EW 30N)	Tonagh isl
39Y280	C98020401B	Qtz feld Opx myl (ori)	Tonagh isl

39Y281	C98020401C	two px myl (ori 55W 48N)	Tonagh isl
39Y282	C98020401D	two px mafic gn (weak deformation)	Tonagh isl
39Y283	C98020402A	Qtz feld Opx gn	Tonagh isl
39Y284	C98020402B	two px mafic gn	Tonagh isl
39Y285	C98020403A	Qtz feld Opx gn	Tonagh isl
39Y286	C98020403B	Qtz feld Opx gn (Opx rich layer in A)	Tonagh isl
39Y287	C98020403C	Grt Opx leuco gn	Tonagh isl
39Y288	C98020403D	Qtz feld gn (greyish)	Tonagh isl
39Y289	C98020404A	amph px bear myl	Tonagh isl
39Y290	C98020404B	Opx Bt leuco gn (Crd ? bear)	Tonagh isl
39Y291	C98020404C	Grt Opx Bt Qtz feld gn (Crd ? bear)	Tonagh isl
39Y292	C98020404D	Qtz feld Opx gn (greyish feld)	Tonagh isl
39Y293	C98020405A	Grt Opx gn (lense in Qtz feld gn)	Tonagh isl
39Y294	C98020405B	Grt Opx r	Tonagh isl
39Y295	C98020405C	Grt Opx r	Tonagh isl
39Y296	C98020601A	dolerite (discordant dyke)	Tonagh isl
39Y297	C98020601A'	dolerite	Tonagh isl
39Y298	C98020601B	Grt Opx gn (contact with 01A)	Tonagh isl
39Y299	C98020601B'	Grt Opx gn	Tonagh isl
39Y300	C98020602A	Phl Spr Grt gn	Tonagh isl
39Y301	C98020602B	Qtz feld Grt Opx gn	Tonagh isl
39Y302	C98020602B'	leuco band in 602B	Tonagh isl
39Y303	C98020602C	pyroxenite	Tonagh isl
* 39Y304	C98020602D	Grt bear Qtz feld gn with psuedotachylite	Tonagh isl
39Y305	C98020701A	Phl Opx Grt gn	Tonagh isl
39Y306	C98020701B	Phl Opx gn (lense in 01A)	Tonagh isl
39Y307	C98020701C	Grt Opx r (lense in 01A)	Tonagh isl
39Y308	C98020701D	Spl bear Grt Opx gn (lense in 01A)	Tonagh isl
39Y309	C98020702A	Grt Opx gn	Tonagh isl
39Y310	C98020702B	Grt Opx gn (block in 01A)	Tonagh isl
39Y311	C98020703A	Grt bear Qtz feld gn	Tonagh isl
39Y312	C98020703B	Phl bear Grt Opx gn (Spl ?)	Tonagh isl
39Y313	C98020703C	Phl bear Grt Opx gn	Tonagh isl
39Y314	C98020703D	Qtz feld Opx gn	Tonagh isl
39Y315	C980207T01	Spr Opx Sil gn	Tonagh isl
39Y316	C98020704	Grt Qtz feld gn (Grt break down reaction)	Tonagh isl
39Y317	C98020705	Opx Grt r (mafic lense)	Tonagh isl
39Y318	C98020706	Grt Opx myl	Tonagh isl
39Y319	C98020801A	Mag Qtz gn	Tonagh isl
39Y320	C98020801B	two px Mag pyroxenite (block in 01A)	Tonagh isl
39Y321	C98020802	Grt Opx r (Spr ?)	Tonagh isl
39Y322	C98020803A	Grt Opx gn (Sil ?)	Tonagh isl
39Y323	C98020803B	two px gn	Tonagh isl
39Y324	C98020804A	Qtz feld myl	Tonagh isl
39Y325	C98020804B	Qtz feld myl	Tonagh isl
39Y326	C98020804C	Qtz feld myl	Tonagh isl
39Y327	C98020804D	Qtz feld myl (ori EW 28N)	Tonagh isl
39Y328	C98020804E	Grt bear pyroxenite	Tonagh isl
39Y329	C98020804F	Qtz feld Opx gn	Tonagh isl
39Y330	C980208T01	Opx bear Qtz feld myl	Tonagh isl
39Y331	C980208T02	Qtz feld myl	Tonagh isl
39Y332	C98020901	Qtz feld gn	Tonagh isl
39Y333	C98020902A	Grt Qtz feld gn	Tonagh isl

39Y334	C98020902B	Phl bear pyroxenite (block in 01A)	Tonagh isl
39Y335	C98020902C	Ol bear pyroxenite (block in 01A, center)	Tonagh isl
39Y336	C98020902D	Ol bear pyroxenite (block in 01A)	Tonagh isl
39Y337	C98020902E	pyroxenite (block in 01A, Cpx rich)	Tonagh isl
39Y338	C98020902F	two px gn	Tonagh isl
39Y339	C98020902G	Phl Opx Spr ? r (block in 01A)	Tonagh isl
39Y340	C98020903A	Grt Opx gn (Spr ?)	Tonagh isl
39Y341	C98020903B	Grt Opx gn (Sil ?)	Tonagh isl
39Y342	C98020903C	Grt bear Qtz feld gn	Tonagh isl
39Y343	C98020904	Grt Opx gn	Tonagh isl
39Y344	C98020905A	Grt Opx gn	Tonagh isl
39Y345	C98020905B	Grt leuco gn	Tonagh isl
39Y346	C98020905C	Qtz feld myl	Tonagh isl
39Y347	C98020906A	Qtz feld gn	Tonagh isl
39Y348	C98020906B	Grt Opx gn	Tonagh isl
39Y349	C98020906C	Grt Opx gn	Tonagh isl
39Y350	C98020907A	Grt bear leuco gn	Tonagh isl
39Y351	C98020907B	Opx Sil gn	Tonagh isl
* 39Y352	C98021001A	Spr Grt Opx gn (Spr Qtz symplectite)	Tonagh isl
39Y353	C98021001B	Grt Opx gn (Spr free part of A)	Tonagh isl
39Y354	C98021001C	Sil Opx gn	Tonagh isl
39Y355	C98021001D	Grt Crd gn	Tonagh isl
39Y356	C98021001E	Crd bear Grt Opx gn	Tonagh isl
39Y357	C98021001F	Phl bear Crd Grt Opx gn	Tonagh isl
39Y358	C98021001G	Phl bear Crd Grt Opx gn (large Phl)	Tonagh isl
39Y359	C98021002A	Mag rich band & gn felsic granulite band (ori 115 44N)	Tonagh isl
39Y360	C98021002B	Grt bear leuco gn	Tonagh isl
39Y361	C98021002C	Bt Opx Grt gn (ori 50W 20N)	Tonagh isl
39Y362	C98021002D	Phl Grt Mag gn (boudinage)	Tonagh isl
39Y363	C98021002E	leuco peg (nek of boudin)	Tonagh isl
39Y364	C98021003A	Spr Grt Opx gn (Spr Qtz symplectite)	Tonagh isl
* 39Y365	C98021003B	Spr Grt Opx gn (Spr rich layer)	Tonagh isl
39Y366	C98021003C	Spl Grt Opx gn (Spr rich layer)	Tonagh isl
39Y367	C98021003D	Sil Opx Grt gn	Tonagh isl
* 39Y368	C98021003E1	Spr Grt Opx gn (banded)	Tonagh isl
39Y369	C98021003E2	Spr Grt Opx gn (platy)	Tonagh isl
39Y370	C98021003E3	Spr Grt Opx gn (massive, mela)	Tonagh isl
39Y371	C98021003F	Sil Grt gn	Tonagh isl
39Y372	C98021003G	Qtz feld Opx gn	Tonagh isl
39Y373	C98021003H	two px gn (interlayer with G)	Tonagh isl
39Y374	C98021003I	pyroxenite	Tonagh isl
39Y375	C98021004	Qtz feld gn (myl) (ori 40W 65E)	Tonagh isl
non	C98021101A	Grt Opx mafic gn (meta dyke)	Tonagh isl
39Y377	C98021101B	f Qtz feld gn (myl) (ori 138 68N)	Tonagh isl
39Y378	C98021101C	Grt Opx myl	Tonagh isl
39Y379	C98021101D	px rich mafic myl	Tonagh isl
39Y380	C98021101E	Spr Grt Opx r (block in 01A)	Tonagh isl
39Y381	C98021101F	Spr Grt Opx r (block in 01A)	Tonagh isl
non	C98021101G	Grt Opx mafic gn	Tonagh isl
39Y383	C98021101H	dolerite	Tonagh isl
non	C98021101I	dolerite (discordant dyke)	Tonagh isl
39Y385	C98021102A	ultramyl (ori 70W 55N)	Tonagh isl
39Y386	C98021102B	ultramyl & pseudotachylite in dolerite (ori 50W 50W)	Tonagh isl

39Y387	C98021103A	Qtz feld px gn (Qtz rich)	Tonagh isl
39Y388	C98021103B	Grt bear leuco gn (Crd ?)	Tonagh isl
39Y389	C98021103C	Grt bear leuco gn with pseudotachylite vein	Tonagh isl
39Y390	C98021104A	Qtz feld gn / two px gn	Tonagh isl
39Y391	C98021104B	Qtz feld Grt gn	Tonagh isl
39Y392	C98021104C	Phl bear pyroxenite	Tonagh isl
39Y393	C98021104D	Grt Opx gn (Crd ?)	Tonagh isl
39Y394	C98021104E	Bt Grt Opx gn	Tonagh isl
39Y395	C98021104F	Grt two px mafic gn	Tonagh isl
39Y396	C98021104G	clinopyroxenite	Tonagh isl
39Y397	C98021104H	peg	Tonagh isl
39Y398	C98021105	Bt Grt gn	Tonagh isl
39Y399	C98021106	Phl bear pyroxenite	Tonagh isl
39Y400	C98021201	dolerite (discordant dyke)	Tonagh isl
39Y401	C98021301A	Grt bear leuco gn with psuedotachylite (ori 20E 50E)	Tonagh isl
39Y402	C98021301B	two px gn (ori 12E 70N)	Tonagh isl
39Y403	C98021301C	f Grt Opx gn (meta dyke)	Tonagh isl
39Y404	C98021301D	Grt bear leuco gn (myl) (ori 51W 49N)	Tonagh isl
39Y405	C98021301E	ultramyl or pseudotachylite in Qtz feld gn	Tonagh isl
39Y406	C980213T01	Opx Crd gn	Tonagh isl
39Y407	C98022201A	Grt bear leuco gn	Tonagh isl
39Y408	C98022201B	Sil Grt Opx gn	Tonagh isl
39Y409	C98022201C	Mag Qtz gn	Tonagh isl
39Y410	C98022201D	Qtz feld gn	Tonagh isl
39Y411	C98022201E	two px amphibolite	Tonagh isl
39Y412	C98022201F	Phl bear pyroxenite	Tonagh isl
39Y413	C98022202A	Qtz feld Grt Opx gn	Tonagh isl
39Y414	C98022202B	Grt Opx gn	Tonagh isl
39Y415	C98022202C	two px gn	Tonagh isl
39Y416	C98022202D	Spr Phl bear pyroxenite	Tonagh isl
39Y417	C98022202E	Spr Phl bear pyroxenite	Tonagh isl
39Y418	C98022202F	pyroxenite	Tonagh isl
39Y419	C98022203A	Grt bear leuco gn	Tonagh isl
39Y420	C98022203B	two px gn	Tonagh isl
39Y421	C98022203C	Grt Opx gn	Tonagh isl
39Y422	C98022203D	two px gn	Tonagh isl
39Y423	C98022203E	Phl bear pyroxenite (marginal facies of F)	Tonagh isl
39Y424	C98022203F	pyroxenite (central part)	Tonagh isl
39Y425	C98022204A	Qtz feld myl	Tonagh isl
39Y426	C98022204B	Qtz feld myl	Tonagh isl
39Y427	C98022204C	Qtz feld myl	Tonagh isl
39Y428	C98022204D	Spr Opx gn	Tonagh isl
39Y429	C98022204E	Spr Opx gn	Tonagh isl
39Y430	C98022204F	Spr Opx gn	Tonagh isl
39Y431	C98022204G	Qtz feld Grt Spl gn	Tonagh isl
* 39Y432	C980222T01	Crn Spl Bt gn	Tonagh isl
39Y433	C980222T02	Sil Grt leuco gn	Tonagh isl
39Y434	C980222T03	Qtz feld Grt Spl gn	Tonagh isl
39Y435	OW98 1	grey feld peg	Tonagh isl
39Y436	OW0219A	Mag bear tonal gn	Tonagh isl
39Y437	OW0219B	Mag bear leuco tonal gn	Tonagh isl
39Y438	OW0219C	Grt leuco gn	Tonagh isl

39Y451	A98013107A1	Spr Qtz (Phl osumilite)	Tonagh isl
39Y452	A98013107A2	Spr Qtz (Phl osumilite)	Tonagh isl
39Y453	A021105	Opx Spr gn	Tonagh isl
39Y454	A021106-1	Spl Spr gn	Tonagh isl
39Y455	A021106-2	Spl Spr gn	Tonagh isl
39Y456	A021106-3	Spr leuco gn	Tonagh isl
39Y457	A021106-4	pyroxenite	Tonagh isl
39Y458	A021106-5	green px (chromian Di?) Qtz feld gn	Tonagh isl
39Y501	OW980223Bu 1	Spr leuco gn	Amundsen Bay
39Y502	OW980223Bu 2	Opx Spr gn	Amundsen Bay
39Y503	OW980223Bu 3	Opx gn	Amundsen Bay
39Y504	OW980223Bu 4	Opx gn	Amundsen Bay
39Y505	OW98022302H	Opx leuco gn	Amundsen Bay
39Y506	OW98022302Q	Opx leuco gn	Amundsen Bay
39Y507	OW98022407	Qtz feld gn	Amundsen Bay

(Total : 245)

JARE 43 Central Dronning Maud Land (CDML) (2001–2002 : Owada, M.)

Reg No	Original No	Rock name	[Locality]	Locality
non	01121801A	Opx bear gr		Hochlinfjellet
43Y02	01121801B	f Hbl Bt gd		Hochlinfjellet
43Y03	01121802A	f p gr gn		Hochlinfjellet
43Y04	01121802B	c leuco Hbl Bt gd		Hochlinfjellet
43Y05	01121802C	Bt Hbl tonal (host r of 02B, Ttn bear)		Hochlinfjellet
43Y06	01121802X	f red gd +red peg		Hochlinfjellet
non	01121901A	amphibolite block		Hochlinfjellet
non	01121901B	Grt Hbl gn		Hochlinfjellet
non	01121901C	amphibolite		Hochlinfjellet
43Y10	01121901D	Grt Bt gr (latest facies)		Hochlinfjellet
non	01121901E	Grt Bt gn		Hochlinfjellet
non	01121901F	Grt Bt felsic gn		Hochlinfjellet
non	01121901G	Grt Bt gn (Crd ?)		Hochlinfjellet
non	01121901H	Grt Bt gn (Crd ?)		Hochlinfjellet
non	01121901I	Hbl Bt layerd gn with mafic block		Hochlinfjellet
43Y16	01121901J	p Bt gr (A type ?)		Hochlinfjellet
non	01121902A	amphibolite		Hochlinfjellet
non	01121902B	Grt Bt gn		Hochlinfjellet
non	01121903	Grt felsic gn		Hochlinfjellet
43Y20	01121904A	c-m p Bt gr		Hochlinfjellet
43Y21	01121904B	f Bt gr-gd		Hochlinfjellet
43Y22	01121904C	f Bt gd		Hochlinfjellet
43Y23	01121904D	f-m Bt Hbl tonal		Hochlinfjellet
non	01122001A	leuco layered gn (xenolith)		Hochlinfjellet
non	01122001B	amphibolite (xenolith)		Hochlinfjellet
43Y26	01122001C	px bear Qtz monzonite		Hochlinfjellet
43Y27	01122001D	f Bt gr-apl in c Bt gr		Hochlinfjellet
non	01122001T01A	foliate anorthosite		Hochlinfjellet
non	01122001T01B	Grt two px f mafic gn		Hochlinfjellet
non	01122001T01C	Opx amphibolite		Hochlinfjellet
non	01122002A	amphibolite (xenolith)		Hochlinfjellet
43Y32	01122002B	f gn Bt gr (host r)		Hochlinfjellet
non	01122002C	amphibolite (xenolith)		Hochlinfjellet
non	01122002D	calc Silc gn (xenolith)		Hochlinfjellet
43Y35	01122003A	f px gab (-f dio) (inclusion)		Hochlinfjellet
43Y36	01122003B	Hbl Bt gn gd		Hochlinfjellet
43Y37	01122003C	Qtz monzonite (Fa bear ?)		Hochlinfjellet
43Y38	OW01122101	Grt Bt Sil gn		Hochlinfjellet
43Y39	OW01122102	Grt bear gr-peg including Grt Bt Sil gn		Hochlinfjellet
43Y40	OW01122103	leuco Grt gr		Hochlinfjellet
43Y41	OW01122104	f leuco Grt gr (Crd ?)		Hochlinfjellet
43Y42	OW01122105	Opx bear mafic gn lens		Hochlinfjellet
43Y43	OW01122106A	Grt Opx Crd gn (Grt replaced by Crd Bt)		Hochlinfjellet
43Y44	OW01122106B	Opx Crd peg		Hochlinfjellet
43Y45	OW011221T01	Grt Sil Spl leuco gn (Gr bear, khondalitic ?)		Hochlinfjellet
43Y46	OW011221T02	Crd fels gn		Hochlinfjellet
43Y47	OW011221T03	Grt Crd Sil gn with ms bear peg		Hochlinfjellet
43Y48	OW01122107	Bt Hbl dio to MME in gd (f)		Hochlinfjellet

non	B01122101	Grt Crd gn	Hochlinfjellet
non	B01122102A	Grt Opx gn	Hochlinfjellet
non	B01122102B	Grt Crd Sil gn	Hochlinfjellet
non	B01122102C	Grt Crd Sil gn	Hochlinfjellet
non	B01122103	Grt Sil gn	Hochlinfjellet
non	B01122104	calc silc gn	Hochlinfjellet
non	B01122105	mela Grt Sil gn	Hochlinfjellet
non	B01122106	Grt px mafic gn	Hochlinfjellet
non	B01122107	mela Grt Sil gn	Hochlinfjellet
non	B01122108	Grt Crd Sil gn	Hochlinfjellet
non	B01122109	Grt px mafic gn	Hochlinfjellet
non	B01122110	Grt felsic gn	Hochlinfjellet
non	B01122111	f gr	Hochlinfjellet
43Y62	01122201A	p Hbl Bt gn gr	Hochlinfjellet
43Y63	01122201B	leuco amph bear px monzonite	Hochlinfjellet
43Y64	01122201C	px monzonite (dark grey, MME ?)	Hochlinfjellet
43Y65	01122201T01	long Hbl? & Bt bear dio (-monzonite ?)	Hochlinfjellet
43Y66	01122202	Bt gr with monzonite (p-brownish sye)	Hochlinfjellet
43Y67	01122203A	f Bt gr +c red gr	Hochlinfjellet
43Y68	01122203B	f p Bt gd-gr	Hochlinfjellet
43Y69	01122203C	amph bear monzonite-sye	Hochlinfjellet
43Y70	01122203D	Hbl dio inclusion in 03C	Hochlinfjellet
non	01122203T01	amphibolite (foliate, block in Bt gr)	Hochlinfjellet
43Y72	OW01122601A	f px sye	Mühlig-Hofmannfjella
43Y73	OW01122601B	px sye/Bt sye	Mühlig-Hofmannfjella
43Y74	OW01122601C	Kfs por Bt sye	Mühlig-Hofmannfjella
43Y75	OW01122602	px sye	Mühlig-Hofmannfjella
43Y76	OW01122603	Kfs por Bt sye	Mühlig-Hofmannfjella
43Y77	OW01122604	px sye	Mühlig-Hofmannfjella
43Y78	OW01122605	Kfs por Bt sye	Mühlig-Hofmannfjella
43Y79	OW01122606A	Kfs por Bt sye	Mühlig-Hofmannfjella
43Y80	OW01122606B	px sye	Mühlig-Hofmannfjella
43Y81	OW01122607	Kfs por Bt sye	Mühlig-Hofmannfjella
43Y82	OW01122608A	p Qtz sye	Mühlig-Hofmannfjella
43Y83	OW01122608B	f p-grey gr	Mühlig-Hofmannfjella
43Y84	OW01122608C	vc Kfs por Bt sye	Mühlig-Hofmannfjella
43Y85	OW01122609	vc Kfs por Bt sye (foliate-augen gn)	Mühlig-Hofmannfjella
43Y86	OW01122610	vc Kfs por Bt sye	Mühlig-Hofmannfjella
non	B01122601A	gr	Mühlig-Hofmannfjella
non	B01122601B	micro dio (mafic block in sye)	Mühlig-Hofmannfjella
non	B01122602	py sye	Mühlig-Hofmannfjella
non	B01122603	Qtz sye (myl) (ori)	Mühlig-Hofmannfjella
non	01122701A	Grt Bt gn	Mühlig-Hofmannfjella
non	01122701B	Bt Hbl mafic gn	Mühlig-Hofmannfjella
non	01122701C	Bt felsic gn Opx?	Mühlig-Hofmannfjella
non	01122701D	Bt felsic gn (ortho gn)	Mühlig-Hofmannfjella
43Y95	01122701E	f gd-dio dyke	Mühlig-Hofmannfjella
43Y96	01122701F	foliate peg +f gr	Mühlig-Hofmannfjella
non	01122701G	leuco Grt felsic gn (gr gn)	Mühlig-Hofmannfjella
non	01122701H	amphibolite	Mühlig-Hofmannfjella
non	01122701I	Grt felsic gn (Opx?)	Mühlig-Hofmannfjella
non	01122701J	amphibolite (Grt?)	Mühlig-Hofmannfjella
non	01122701K	Bt gn (Opx?)	Mühlig-Hofmannfjella

non	01122701L	Bt Hbl gn (boundary J/K)	Mühlig-Hofmannfjella
non	01122701M	Bt Hbl gn (Opx?)	Mühlig-Hofmannfjella
non	01122702A	Bt gr gn (ortho gn)	Mühlig-Hofmannfjella
non	01122702B	Bt Hbl gn in 01A	Mühlig-Hofmannfjella
non	01122702C	Grt Bt gn (Opx?)	Mühlig-Hofmannfjella
non	01122702D	Kfs por Bt felsic gn	Mühlig-Hofmannfjella
non	01122702E	Bt gn (Opx?)	Mühlig-Hofmannfjella
43Y109	01122801	Kfs por Qtz sye	Mühlig-Hofmannfjella
43Y110	01122802	f Bt bear px sye	Mühlig-Hofmannfjella
43Y111	01122803	f Hbl gab-dio	Mühlig-Hofmannfjella
43Y112	01122804	Kfs por Qtz sye	Mühlig-Hofmannfjella
43Y113	01122805	Hbl Bt gr +peg	Mühlig-Hofmannfjella
non	01123101A	Grt Bt gn	Filchnerfjella
non	01123101B	Opx Bt gn (leucosome Opx bear)	Filchnerfjella
non	01123101C	Grt Bt gn (Opx?)	Filchnerfjella
non	01123101D	Grt Bt gn (Opx?)	Filchnerfjella
non	01123101T01A	Grt amphibolite (corona tex)	Filchnerfjella
non	01123101T01B	Grt Bt gn (host)	Filchnerfjella
non	01123101T01C	Grt Sil gn	Filchnerfjella
non	01123101T01D	Grt Bt gn (Crd?)	Filchnerfjella
non	01123101T01E	Sil Grt gn Spl bear (khondalitic)	Filchnerfjella
non	01123101T01F	Opx Bt gn	Filchnerfjella
non	01123102	mela Grt Bt gn (shear zone?)	Filchnerfjella
non	02010201A	Opx bear Bt Hbl gn	Filchnerfjella
non	02010201B	Opx bear Bt Hbl gn	Filchnerfjella
non	02010201C	Grt Bt gn	Filchnerfjella
43Y128	02010201D	f Bt gd (dyke)	Filchnerfjella
43Y129	02010201E	Bt gd with peg dyke	Filchnerfjella
non	02010202A	leuco Grt Bt gn	Filchnerfjella
non	02010202B	Grt Bt gn (mafic rich lens)	Filchnerfjella
43Y132	02010202C	f dio dyke	Filchnerfjella
non	02010202D	Grt Bt gn Bt rich (ori)	Filchnerfjella
non	02010202E	Grt Bt gn	Filchnerfjella
non	02010202F	ultra	Filchnerfjella
non	02010202G	ultra	Filchnerfjella
non	02010202H	ultra with Bt gn	Filchnerfjella
non	02010202I	ultra with peg	Filchnerfjella
non	02010202J	amphibolite (Opx?)	Filchnerfjella
non	02010203A	Bt Opx gn	Filchnerfjella
non	02010203B	two px amphibolite block	Filchnerfjella
non	02010203C	3px amphibolite block	Filchnerfjella
non	02010203D	f Grt Opx gn	Filchnerfjella
non	02010203E	Opx Bt gn with peg	Filchnerfjella
non	02010203F	Opx bear mela Bt Hbl gn	Filchnerfjella
43Y146	02010204A	f dio (composite dyke)	Filchnerfjella
43Y147	02010204B	f gd dyke	Filchnerfjella
non	02010301A	Hbl gn	Filchnerfjella
non	02010301B	Grt Bt gn, Bt rich	Filchnerfjella
non	02010301C	Grt Bt gn	Filchnerfjella
non	02010301D	Grt Bt gn	Filchnerfjella
non	02010301E	Grt Bt gn	Filchnerfjella
non	02010301F	Grt Bt gn	Filchnerfjella
non	02010301G	leuco Grt Bt gr	Filchnerfjella

non	02010301H	Opx amphibolite block	Filchnerfjella
non	02010301I	Opx amphibolite (Bt & Ath bear, block)	Filchnerfjella
non	02010301J	Opx amphibolite block	Filchnerfjella
non	02010301K	Grt Bt gn (Crd?)	Filchnerfjella
non	02010401A	Bt Hbl gn with Grt peg	Filchnerfjella
non	02010401B	Opx bear Bt Hbl gn	Filchnerfjella
non	02010401C	Opx bear Bt Hbl gn	Filchnerfjella
non	02010401D	Opx bear Bt Hbl gn	Filchnerfjella
non	02010401E	Opx Grt leuco gn	Filchnerfjella
43Y164	02010402A	c por sye, brownish	Filchnerfjella
43Y165	02010402B	c por sye (bleached part)	Filchnerfjella
43Y166	02010402C 1	Hbl Bt apl in por sye	Filchnerfjella
43Y167	02010402C 2	f foliate gd	Filchnerfjella
43Y168	02010402D	large ovoidal feld bear f dio (block)	Filchnerfjella
non	02010402T01	Bt felsic gn	Filchnerfjella
43Y170	02010403	c por sye	Filchnerfjella
non	02010501A	Grt Bt gn	Filchnerfjella
non	02010501B	Grt Bt gn	Filchnerfjella
non	02010501C	Opx amphibolite	Filchnerfjella
non	02010501D	Grt Bt gn	Filchnerfjella
non	02010501E	Grt Hbl gn	Filchnerfjella
non	02010501F	Grt Bt gn mafic rich	Filchnerfjella
non	02010502A	Grt leuco gn	Filchnerfjella
non	02010502B	Hbl leuco gn (Ath?)	Filchnerfjella
non	02010502C	Opx bear Bt gn	Filchnerfjella
non	02010502D	impure Qtz (Opx bear)	Filchnerfjella
non	02010502E	Opx Bt gn (Crd bear?)	Filchnerfjella
non	02010502F	Opx Bt gn (Crd bear?)	Filchnerfjella
non	02010502G	Crd Opx gn	Filchnerfjella
non	02010502H	Phl r (Crd ? Crn ?)	Filchnerfjella
non	02010601A	Grt amphibolite (block, inner part)	Filchnerfjella
non	02010601B	Grt amphibolite (Spl+Pl symplektite)	Filchnerfjella
non	02010601C	Grt amphibolite (layered part)	Filchnerfjella
non	02010601D	Grt two px f amphibolite	Filchnerfjella
non	02010601E	Grt two px amphibolite	Filchnerfjella
non	02010601F	amphibolite	Filchnerfjella
non	02010601G	Grt amphibolite, feld rich part	Filchnerfjella
non	02010601H	Opx peg	Filchnerfjella
non	02010601I	Grt Hbl leuco gn dio	Filchnerfjella
non	02010601T01	Phl sht (ultramafic ?)	Filchnerfjella
non	02010602A	px Grt amphibolite	Filchnerfjella
non	02010602B	px amphibolite	Filchnerfjella
non	02010602C	Grt leuco gn (host r of 02A, 02B)	Filchnerfjella
non	02010602D	Sil Grt leuco gn	Filchnerfjella
non	02010602E	Crd bear Sil Grt gn	Filchnerfjella
non	02010602F	Grt Bt gn (Crd?)	Filchnerfjella
non	02010701A	Opx Bt gn	Filchnerfjella
non	02010701B	Opx Bt gn dyke	Filchnerfjella
non	02010701C	Crd Grt leuco gn	Filchnerfjella
non	02010701D	Sil Grt gn	Filchnerfjella
non	02010701T01	Crd Sil Grt gn	Filchnerfjella
non	02010701T02	Opx Bt gn	Filchnerfjella
non	02010701T03	Grt Bt gn (Crd?)	Filchnerfjella

non	02010701T04	Opx Bt gn (Crd?)	Filchnerfjella
43Y209	02010701T05	Qtz sye	Filchnerfjella
non	02010701T06	Grt Opx gn (Crd?)	Filchnerfjella
43Y211	02010901A	Hbl gab-c dio	Drygalskifjella
43Y212	02010901B	c por Qtz sye	Drygalskifjella
43Y213	02010901C	Hbl dio +f gr (composite)	Drygalskifjella
43Y214	02010901D	f-m Bt gd (-sye)	Drygalskifjella
43Y215	02010901E	banded myl sye	Drygalskifjella
43Y216	02010902A	c por Qtz sye	Drygalskifjella
43Y217	02010902B	p Bt gr-sye	Drygalskifjella
non	02010902C	Bt gn	Drygalskifjella
non	02011001A	Hbl Bt felsic gn (Opx ?)	Drygalskifjella
non	02011001B	Hbl Bt felsic gn (Opx ?)	Drygalskifjella
non	02011002A	lamprophyre margin	Drygalskifjella
non	02011002B	lamprophyre amph rich	Drygalskifjella
non	02011002C	lamprophyre Bt rich	Drygalskifjella
non	02011002D	lamprophyre feld rich	Drygalskifjella
non	02011002E	lamprophyre feld & Bt rich	Drygalskifjella
non	02011002F	lamprophyre amph rich	Drygalskifjella
non	02011002G	lamprophyre Bt rich (close to margin)	Drygalskifjella
non	02011002H	lamprophyre Cpx rich	Drygalskifjella
non	02011002I	lamprophyre amph rich	Drygalskifjella
non	02011002J	lamprophyre amph rich	Drygalskifjella
non	02011002K	lamprophyre amph rich	Drygalskifjella
non	02011002L	Qtz sye host	Drygalskifjella
non	02011002M	p Bt gr dyke	Drygalskifjella
non	02011002T01	Bt Hbl gn (xenolith)	Drygalskifjella
non	02011003	sye	Drygalskifjella
43Y236	02011401A	c por sye	Mühlig-Hofmannfjella
43Y237	02011401B	c-m mass Hbl Bt gd-sye ?	Mühlig-Hofmannfjella
43Y238	02011401C	m leuco gr	Mühlig-Hofmannfjella
43Y239	02011402A	c Hbl Bt gr (brownish)	Mühlig-Hofmannfjella
43Y240	02011402B	f-m Bt gn tonal	Mühlig-Hofmannfjella
non	02011402T01	impure Qtz	Mühlig-Hofmannfjella
non	02011402T02	Bt gr gn	Mühlig-Hofmannfjella
non	02011402T03	Bt mafic gn	Mühlig-Hofmannfjella
non	02011402T04	Bt bear amphibolite	Mühlig-Hofmannfjella
non	02011402T05	Bt bear amphibolite including Opx ?	Mühlig-Hofmannfjella
non	02011701A	Bt gn felsic layer	Mühlig-Hofmannfjella
non	02011701B	Bt gn mafic layer	Mühlig-Hofmannfjella
non	02011701C	Bt gn	Mühlig-Hofmannfjella
non	02011701D	amphibolite	Mühlig-Hofmannfjella
43Y250	02011701E	Bt gr	Mühlig-Hofmannfjella
43Y251	02011702	c por Bt Hbl sye (charnockitic)	Mühlig-Hofmannfjella
non	02011702T01	Opx amphibolite	Mühlig-Hofmannfjella
43Y253	02011702T02	Kfs por sye	Mühlig-Hofmannfjella
43Y254	02011702T03	c por sye (Kfs megacryst)	Mühlig-Hofmannfjella

[DML around Troll]

43Y261	020125T01	f amphibolite	Gjelsvikfjella
43Y262	020125T02	banded calc silc gn	Gjelsvikfjella
43Y263	020125T03	m-c mela dio-amphibolite	Gjelsvikfjella

43Y264	020125T04	c Bt bear Hbl gab-hornblendite	Gjelsvikfjella
43Y265	020125T05	c Bt bear Hbl gab	Gjelsvikfjella
43Y266	020125T06	f & c Hbl r-amphibolite	Gjelsvikfjella
43Y267	020125T07	f mela dio (mafic enclave in c gn gd)	Gjelsvikfjella
43Y268	020125T08	c foliate mela sye r	Gjelsvikfjella
43Y269	020125T09	c-m sye gn	Gjelsvikfjella
43Y270	020125T10	dolerite	Gjelsvikfjella
43Y271	02012601	band Bt gn	Gjelsvikfjella
43Y272	02012701	f mela Bt gn	Gjelsvikfjella

(Total : 99)

JARE 50 Sør-Rondane Mountains (SRM) (2008–2009 : Owada, M.)

Reg No	Original No	Rock name	[Locality]	Locality
50Y01	M08120301A	banded Hbl gn (-amphibolite)		Widerøefjellet
50Y02	M08120301B	calc silic gn		Widerøefjellet
50Y03	M08120301C	f Hbl gn (-amphibolite)		Widerøefjellet
50Y04	M08120501A	amphibolite		Widerøefjellet
50Y05	M081205T01A	amphibolite		Widerøefjellet
50Y06	M081205T01B	Grt Bt gn		Widerøefjellet
50Y07	M081205T01C	Grt Crd Bt gn		Widerøefjellet
50Y08	M08120502A	c Cpx Qtz feld gn-mig		Widerøefjellet
50Y09	M08120502B	f Cpx gn-mig (layered ortho gn)		Widerøefjellet
50Y10	M08120502C	Tur bear sheared peg +f Cpx gn-mig		Widerøefjellet
50Y11	M08120701A	c-m dio gn		Widerøefjellet
50Y12	M08120701B	deformed c gd-c tonal		Widerøefjellet
* 50Y13	M08120701C	Grt amphibolite		Widerøefjellet
50Y14	M08120702A	amphibolite		Widerøefjellet
50Y15	M08120702B	Bt rich r (fluid related)		Widerøefjellet
50Y16	M08120801A	f Bt Hbl gn (-amphibolite)		Widerøefjellet
50Y17	M08120801B	f Hbl gn (-amphibolite)		Widerøefjellet
50Y18	M08120801C	amphibolite		Widerøefjellet
50Y19	M081208T01	calc silic gn (f Cpx Ep Hbl bear Grt gn)		Widerøefjellet
50Y20	M08120802A	amphibolite		Widerøefjellet
50Y21	M08120802B	red gr & pseudotachylite vein		Widerøefjellet
50Y22	M08120802C	pseudotachylite		Widerøefjellet
50Y23	M08120901A	amphibolite		Widerøefjellet
50Y24	M08120901B	dolerite		Widerøefjellet
50Y25	M081209T01A	dolerite		Widerøefjellet
50Y26	M081209T01B	dolerite		Widerøefjellet
50Y27	M081209T01C	dolerite		Widerøefjellet
50Y28	M08120902BT	dolerite		Widerøefjellet
50Y29	M08120902CT	dolerite		Widerøefjellet
50Y30	M08120902DT	dolerite		Widerøefjellet
50Y31	M08121101A	ultracataclasite		Widerøefjellet
50Y32	M08121101B	carbonate r (tuff breccia)		Widerøefjellet
50Y33	M08121101C	f myl Hbl gn		Widerøefjellet
50Y34	M081211T	dolerite		Widerøefjellet
50Y35	M08121201A	dolerite		Widerøefjellet
50Y36	M08121201B	dolerite		Widerøefjellet
50Y37	M08121201C	dolerite		Widerøefjellet
50Y38	M081212T01	Hbl gab		Widerøefjellet
50Y39	M08121301A	amphibolite		Widerøefjellet
50Y40	M08121301B	foliate amphibolite		Widerøefjellet
50Y41	M08121301C	Cpx bear amphibolite		Widerøefjellet
50Y42	M08121301D	Di Grs calc silic gn		Widerøefjellet
50Y43	M08121302A	Di Grs calc silic gn		Widerøefjellet
50Y44	M08121302B	Hbl Cpx gn		Widerøefjellet
50Y45	M08121302C	amphibolite		Widerøefjellet
50Y46	M081213T01	amphibolite		Widerøefjellet
* 50Y47	M081220T01A	meta gab		Nils Larsenfjellet
50Y48	M081220T01B	p gn gr		Nils Larsenfjellet

50Y49	M081220T01C	Grt Hbl gn	Nils Larsenfjellet
50Y50	M081220T01D	Grs Ep calc silic gn	Nils Larsenfjellet
50Y51	M081220T01E	amphibolite	Nils Larsenfjellet
* 50Y52	M081220T01F	amphibolite	Nils Larsenfjellet
50Y53	M08122101A	meta gab (margin)	Nils Larsenfjellet
50Y54	M08122101B	meta dolerite	Nils Larsenfjellet
50Y55	M08122101C	meta dolerite	Nils Larsenfjellet
50Y56	M08122101D	meta dolerite	Nils Larsenfjellet
50Y57	M08122101E	meta dolerite	Nils Larsenfjellet
50Y58	M08122101F	meta dolerite (core)	Nils Larsenfjellet
50Y59	M08122101G	meta dolerite	Nils Larsenfjellet
50Y60	M08122101H	meta dolerite	Nils Larsenfjellet
50Y61	M08122101I	meta dio	Nils Larsenfjellet
50Y62	M08122101J	meta dolerite	Nils Larsenfjellet
50Y63	M08122101K	sheared dio gn-tonal gn	Nils Larsenfjellet
50Y64	M08122101L	sheared dio gn-tonal gn (Grt bear)	Nils Larsenfjellet
50Y65	M08122101M	sheared dio gn-tonal gn (with Grt bear enclave)	Nils Larsenfjellet
50Y66	M08122101N	sheared dio gn-tonal gn (with Grt bear enclave)	Nils Larsenfjellet
50Y67	M08122201A	amphibolite	Widerøefjellet
50Y68	M08122201B	amphibolite	Widerøefjellet
50Y69	M08122201C	calc silic gn (coherent with D)	Widerøefjellet
50Y70	M08122201D	amphibolite	Widerøefjellet
50Y71	M08122201E	calc silic gn (coherent with F)	Widerøefjellet
50Y72	M08122201F	amphibolite	Widerøefjellet
50Y73	M08122301A	meta dolerite with tonal vein (syn plutonic)	Nils Larsenfjellet
50Y74	M08122301B	meta dolerite (amphibolite) (syn plutonic)	Nils Larsenfjellet
50Y75	M08122301C	meta dolerite (syn plutonic)	Nils Larsenfjellet
50Y76	M08122301D	amphibolite (syn plutonic)	Nils Larsenfjellet
50Y77	M08122301E	dolerite (syn plutonic)	Nils Larsenfjellet
50Y78	M081223T01A	Grt amphibolite	Nils Larsenfjellet
50Y79	M081223T01B	Grt amphibolite	Nils Larsenfjellet
50Y80	M08122601A	amphibolite (dyke)	Nils Larsenfjellet
50Y81	M08122601B	amphibolite (dyke)	Nils Larsenfjellet
50Y82	M08122601C	Pl por foliate meta dolerite	Nils Larsenfjellet
50Y83	M08122602A	dolerite	Nils Larsenfjellet
50Y84	M08122602B	dolerite	Nils Larsenfjellet
50Y85	M08122602C	dolerite	Nils Larsenfjellet
50Y86	M08122602D	dolerite	Nils Larsenfjellet
50Y87	M08122602E	dio gn-gn dio with f amphibolite band	Nils Larsenfjellet
50Y88	M08122602F	schistose meta dolerite in 02E	Nils Larsenfjellet
50Y89	M08122701A	amphibolite	Widerøefjellet
50Y90	M08122701B	amphibolite	Widerøefjellet
50Y91	M08122701C	amphibolite	Widerøefjellet
50Y92	M08122702A	Bt Opx gn (charnock gn)	Widerøefjellet
50Y93	M08122702B	Bt Opx gn (charnock gn) +gn gr	Widerøefjellet
50Y94	M08122702C	Bt Opx gn (charnock gn)	Widerøefjellet
50Y95	M08122702D	amphibolite	Widerøefjellet
50Y96	M08122702E	Grt Opx gn (charnock gn)	Widerøefjellet
50Y97	M08122702F	Grt Opx gn (charnock gn)	Widerøefjellet
non	M081227T01	dolerite	Widerøefjellet
50Y99	M081227T01a	dolerite	Widerøefjellet
50Y100	M081227T01b	dolerite	Widerøefjellet
50Y101	M081227T01c	dolerite	Widerøefjellet

50Y102	M081227T01d	dolerite	Widerøefjellet
50Y103	M081227T01e	dolerite	Widerøefjellet
50Y104	M081227T01-1	dolerite	Widerøefjellet
* 50Y105	M081227T01-2	dolerite	Widerøefjellet
50Y106	M081227T01-3	meta dolerite	Widerøefjellet
50Y107	M08122801A	amphibolite	Widerøefjellet
50Y108	M08122801B	f Bt amphibolite with calc silic r	Widerøefjellet
50Y109	M08122801C	calc silic gn (Grs Di)	Widerøefjellet
50Y110	M08122801D	amphibolite	Widerøefjellet
50Y111	M08122801E	Grt Opx gn	Widerøefjellet
non	M08122801T01	Grt Sil gn	Widerøefjellet
50Y113	M081228T02	Bt gn	Widerøefjellet
50Y114	M09010601A	Grt Cpx mafic granulite	Brattnipane
50Y115	M09010601B	Opx Sil gn	Brattnipane
50Y116	M090106T01A	Opx Sil gn	Brattnipane
50Y117	M090106T01B	Opx Sil gn	Brattnipane
50Y118	M090106T01C	Opx Sil gn	Brattnipane
50Y119	M090106T01D	Grt Sil gn (Spr bear ?)	Brattnipane
50Y120	M090106T01E	Opx Sil Bt gn	Brattnipane
50Y121	M090106T02A	Grt Sil Ky gn	Brattnipane
50Y122	M090106T02B	Grt leuco gr	Brattnipane
50Y123	M09010701	banded f Hbl gn	Walnumfjellet
50Y124	M09010702	meta dolerite-amphibolite (dyke)	Walnumfjellet
50Y125	M09010703A	meta dolerite-amphibolite (dyke)	Walnumfjellet
50Y126	M09010703B	meta dolerite-amphibolite (MME marginal facies)	Walnumfjellet
50Y127	M09010801	Bt bear lamprophyre (xenolith bear)	Lunckeryggen
50Y128	M09010801 2	Bt bear lamprophyre	Lunckeryggen
50Y129	M09010802A	Bt bear lamprophyre	Lunckeryggen
50Y130	M09010802B	Bt bear lamprophyre	Lunckeryggen
50Y131	M09010802C	amphibolite (MME in tonal)	Lunckeryggen
50Y132	M09010802D	Bt bear lamprophyre (comptonite, xenolith bear)	Lunckeryggen
50Y133	M09011001A	amphibolite	Lunckeryggen
50Y134	M09011001B	calc silic gn	Lunckeryggen
50Y135	M09011001C	Cpx amphibolite with calc silic gn	Lunckeryggen
50Y136	M09011001D	amphibolite & tonal	Lunckeryggen
50Y137	M09011001E	amphibolite with calc silic gn	Lunckeryggen
50Y138	M09011101	amphibolite (syn plutonic dyke in tonal)	Lunckeryggen
50Y139	M09011T01A	Bt bear lamprophyre	Lunckeryggen
non	M09011T01B	Hbl Bt gr	Lunckeryggen
non	M09011102	Hbl Bt gr	Walnumfjellet
50Y142	M09011301A	amphibolite (green sht)	Walnumfjellet
50Y143	M09011301B	amphibolite (MME in tonal)	Walnumfjellet
50Y144	M09011401	mafic granulite (amphibolite)	Brattnipane
50Y145	M09011402A	mafic granulite (amphibolite)	Brattnipane
50Y146	M09011402B	mafic granulite (amphibolite) with Opx bear leuco part	Brattnipane
50Y147	M09011402C	calc silic gn (Grs Di)	Brattnipane
50Y148	M09011402D	Grt Cpx mafic granulite	Brattnipane
50Y149	M09011403A	Bt Sil Spl r (Grt Bt gn)	Brattnipane
50Y150	M09011403B	Bt rich gn	Brattnipane
50Y151	M09011404	f Bt amphibolite with marble layer	Brattnipane
50Y152	M09011501A	grey feld por c p leuco sye	Lunckeryggen
50Y153	M09011501B	grey feld por c mela sye	Lunckeryggen
50Y154	M09011501C	c-m mela sye	Lunckeryggen

50Y155	M09011501D	c-m grey & p feld foliate mela-inter sye	Lunckeryggen
50Y156	M09011501E	f-m mela sye	Lunckeryggen
50Y157	M090115T01A	c grey-brown feld por mela sye	Lunckeryggen
50Y158	M090115T01B	c grey-brown feld por mela sye	Lunckeryggen
50Y159	M090115T01C	f-m hetero gn mela sye	Lunckeryggen
50Y160	M090115T01D	f-m grey feld mela sye	Lunckeryggen
50Y161	M090115T01E	c por sye (mantled grey-brown feld)	Lunckeryggen
50Y162	M090115T01F	c leuco sye (c grey-brown feld rich)	Lunckeryggen
50Y163	M09011502A	f Bt amphibolite	Lunckeryggen
50Y164	M09011502B	Bt rich r (restite ?)	Lunckeryggen
50Y165	M09011601A	amphibolite (layered type)	Walnumfjellet
50Y166	M09011601B	amphibolite (block type)	Walnumfjellet
50Y167	M09011602A	amphibolite (thin layer)	Walnumfjellet
50Y168	M09011602B	amphibolite (mela type)	Walnumfjellet
50Y169	M09011602C	Grt amphibolite	Walnumfjellet
50Y170	M09011602D	Grt Cpx amphibolite	Walnumfjellet
50Y171	M09011602E	f Grt Bt gn (Crd ?)	Walnumfjellet
50Y172	M09011602F	Grt Bt gn	Walnumfjellet
non	M09011602G	Grt Cpx amphibolite	Walnumfjellet
50Y174	M09011602H	Grt Cpx amphibolite	Walnumfjellet
non	M090116T01	Grt Cpx amphibolite	Walnumfjellet
50Y176	M09011603A	amphibolite	Walnumfjellet
50Y177	M09011603B	Bt rich r	Walnumfjellet
50Y178	M09011603C	calc silic gn (Grs Dio Ep r)	Walnumfjellet
50Y179	M09012201A	green sht	Walnumfjellet
50Y180	M09012201B	Chl sht	Walnumfjellet
50Y181	M090122T01	dolerite	Walnumfjellet
50Y182	M09012202A	amphibolite	Walnumfjellet
50Y183	M09012202B	vc gr gn with Grt Bt gn band	Walnumfjellet
50Y184	M09012202C	Grt Bt gn	Walnumfjellet
50Y185	M09012202D	Grt Cpx amphibolite	Walnumfjellet
50Y186	M09012202E	Grt amphibolite	Walnumfjellet
50Y187	M09012202F	Grt amphibolite	Walnumfjellet
50Y188	M090123T01A	amphibolite (MME in tonal)	Walnumfjellet
50Y189	M090123T01B	dolerite	Walnumfjellet
50Y190	M090123T01C	lamprophyre	Walnumfjellet
50Y191	M090123T01D	lamprophyre	Walnumfjellet
50Y192	M09012301A	f Bt Hbl gn (-amphibolite)	Walnumfjellet
50Y193	M09012301B	f Bt Hbl gn (-amphibolite, Opx ?)	Walnumfjellet
50Y194	M09012301C	Grt amphibolite	Walnumfjellet
50Y195	M09012301D	Grt Bt gn (Crd ?)	Walnumfjellet
50Y196	M09012301E	f Grt Hbl Bt gn (Opx ?)	Walnumfjellet
50Y197	M09012301F	Grt Hbl Bt gn	Walnumfjellet
50Y198	M09012301G	Grt Sil Bt gn	Walnumfjellet
50Y199	M09012301H	Grt Sil Bt gn (Crd bear)	Walnumfjellet
50Y200	M09012301I	Grt Sil Bt gn	Walnumfjellet
50Y201	M09012301J	Grt Bt gn	Walnumfjellet
50Y202	M09012301K	Grt Sil Bt leuco gn (melt ?)	Walnumfjellet
50Y203	M090123T02A	c Bt rich r	Walnumfjellet
50Y204	M090123T02B	Grt Sil Bt gn	Walnumfjellet
50Y205	M090123T02C	Grt amphibolite	Walnumfjellet
50Y206	M09012401A	amphibolite (MME)	Widerøefjellet
50Y207	M09012401B	porphyrite	Widerøefjellet

50Y208	M09012401C	f dio gn	Widerøefjellet
50Y209	M09012401D	calc silic gn	Widerøefjellet
50Y210	M09012401E	calc silic gn with marble and f Hbl gn band	Widerøefjellet
50Y211	M09012401F	marble	Widerøefjellet
50Y212	M09012401G	calc silic gn (f Cpx gn)	Widerøefjellet
50Y213	M09012401H	calc silic gn (f Hbl Cpx leuco gn)	Widerøefjellet
50Y214	M09012401I	calc silic gn	Widerøefjellet
50Y215	M09012401J	green sht (schistose vf dio gn)	Widerøefjellet
50Y216	M09012401K	f schistose gd gn-myl gn	Widerøefjellet
50Y217	M09012401L	f Bt gd gn	Widerøefjellet
50Y218	M09012401M	f gn gr dyke	Widerøefjellet
50Y219	M09012501A	amphibolite	Widerøefjellet
50Y220	M09012501B	Crn Phl r (inclusion in Bt gr)	Widerøefjellet
50Y221	M09012501B2	Spl in marble	Widerøefjellet
50Y222	M09012501C	sheared f dio gn +blast myl band (in tonal)	Widerøefjellet
50Y223	M09012501D	Grt Bt gn +blast myl band (in tonal)	Widerøefjellet
50Y224	M09013101A	amphibolite	Widerøefjellet
50Y225	M09013101B	amphibolite with leuco vein	Widerøefjellet
50Y226	M09013101C	Cpx bear amphibolite	Widerøefjellet
50Y227	M090131T01	Bt gn with leucosome	Widerøefjellet
non	M09013102	Hbl Bt gr	Widerøefjellet
50Y229	50SRM-9-1	p gr myl	
50Y230	50SRM-9-2	f mela schistose dio (myl f amphibolite)	
50Y231	50SRM10-1	marble	
50Y232	C-3	mela sye r (mantled feld)	
50Y233	C-3	p gr peg (amazonite) +amphibolite (or c mela sye)	
50Y234		Bt px r	

(Total : 227)

2. オーストラリア Australia



Photo 2. The flat country of Australia: Northern Yilgarn craton.

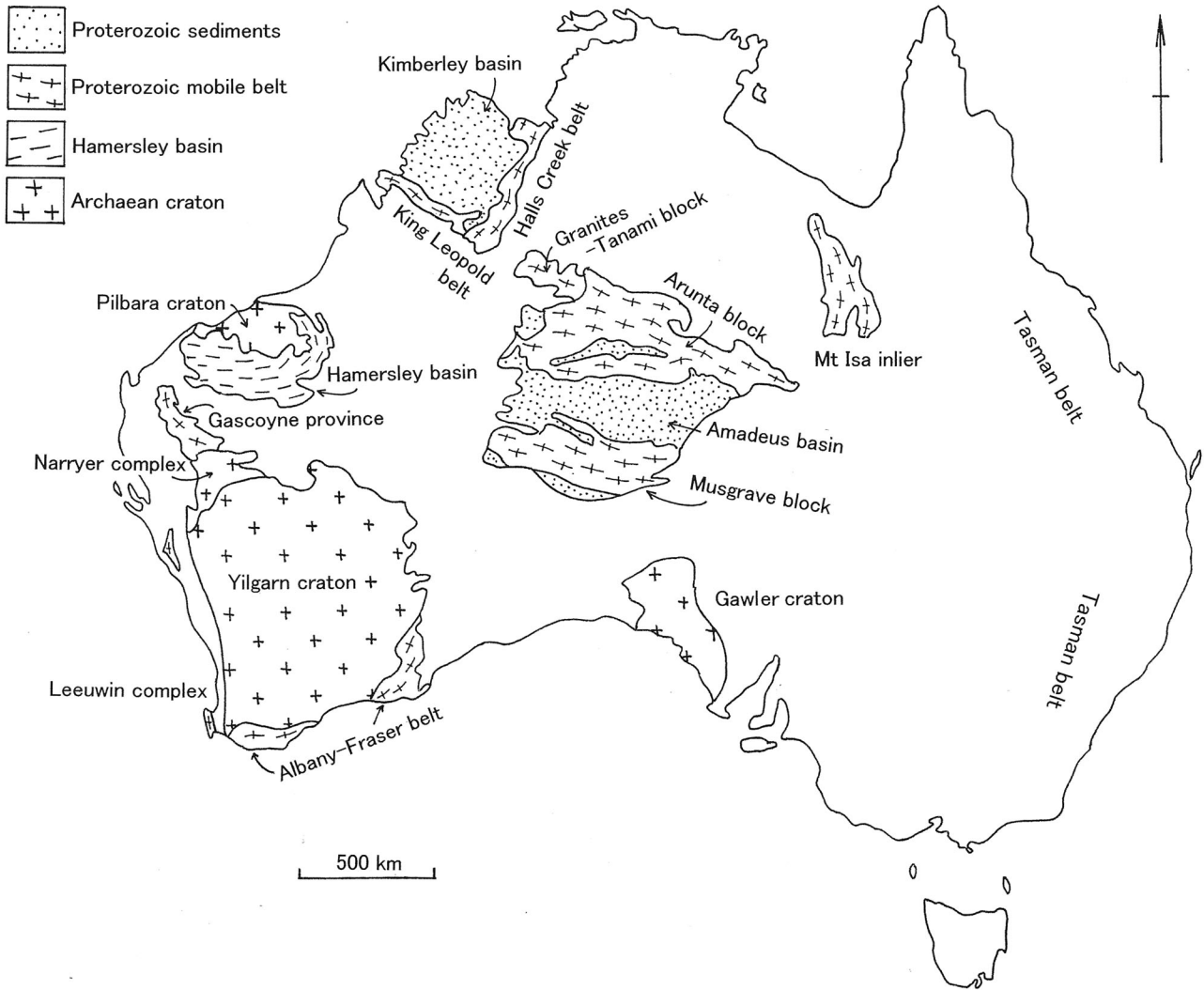


Fig.2-1. Archaean and Proterozoic units of Australia in description.
 (based on Solomon and Groves, 1994)

2. オーストラリア Australia

オーストラリア大陸は、面積約 760 万 km^2 、東縁の大分水嶺山脈 Great Dividing Range にそって古生代～中生代に変動を受けたタスマン造山帯 Tasman belt があるが、その西方の大半の地域は先カンブリア時代の岩石とその上を覆う顕生代以降の被覆岩層からなり、これらをオーストラリア楕状地 Australian shield という。その中でもとりわけ古い始生代の岩石が分布する地域が、西オーストラリアのピルバラクラトン Pilbara craton とイルガンクラトン Yilgarn craton、南部のガウラークラトン Gawler craton である (Fig. 2-1)。前 2 者は典型的なグリーンストーン帯 (Greenstone-granite belt) として著名であり、本資料室の標本も主にこの 2 地域から採集されたものである。

西オーストラリア北部のピルバラクラトン (Fig. 2-2) (Geological Survey of Western Australia, 1990) は、35～25 億年前の花崗岩類とその間のグリーンストーン帯から構成され、比較的変成度が低く (緑色片岩相程度)、始生代の岩相や構造がよく保存されている。ピルバラ地域の南部には、ハマーズレーの地層群 Hamersley basin が分布する。それらは 28-27 億年前に Fortescue Group の大規模な玄武岩溶岩の噴出に始まる。その上位には 25 億年前前後の Hamersley Group が重なり、世界最大の縞状鉄鉱床 (BIF: Banded Iron Formation) が存在し、Mt. Newman 等で大規模な露天掘り採掘がおこなわれている。

南部のイルガンクラトン (Fig. 2-3) は、主として 28～26 億年前の花崗岩とグリーンストーン帯からなる。内部は東から Eastern Goldfields province, Norseman-Wiluna belt, Southern Cross province, Murchison province, Western gneiss terrain の 5 つの地帯に区分される (Solomon and Groves, 1994)。このうち Western gneiss terrain には、30 億年を超す変成岩類 (Jimperding belt) がある。また北部の Narryer gneiss complex は特に古く、36 億年前の Meeberrie gneiss や BIF, 37 億年前の An 成分に富んだ斜長岩を含む斑れい岩体 (Manfred complex) があり、Jack Hills には 44～40 億年前のジルコンを含む珪岩がある (Aaron et al., 2007)。Eastern Goldfields, Norseman-Wiluna, Southern Cross, の 3 地帯は一大鉱産地であり、特に Kargoorlie 一帯には大規模な露天掘り金鉱山が多数あり、南の Kambalda にはニッケルの大鉱山がある。いずれもグリーンストーン帯の komatiite に伴われる。長柱状に伸びたかんらん石からなる急冷組織を持つ岩相を spinifex komatiite というが、それはこの地域一帯の乾燥地帯にはえる植物の形態にちなんでいる。当資料室には 20cm 以上に達する spinifex を含む komatiite やイルガンクラトン各地の金鉱床とその母岩、グリーンストーン帯の構成岩相の一式 (超塩基性～塩基性～中～酸性の火山岩・火山砕屑岩, 含金礫岩など) が収納されている。

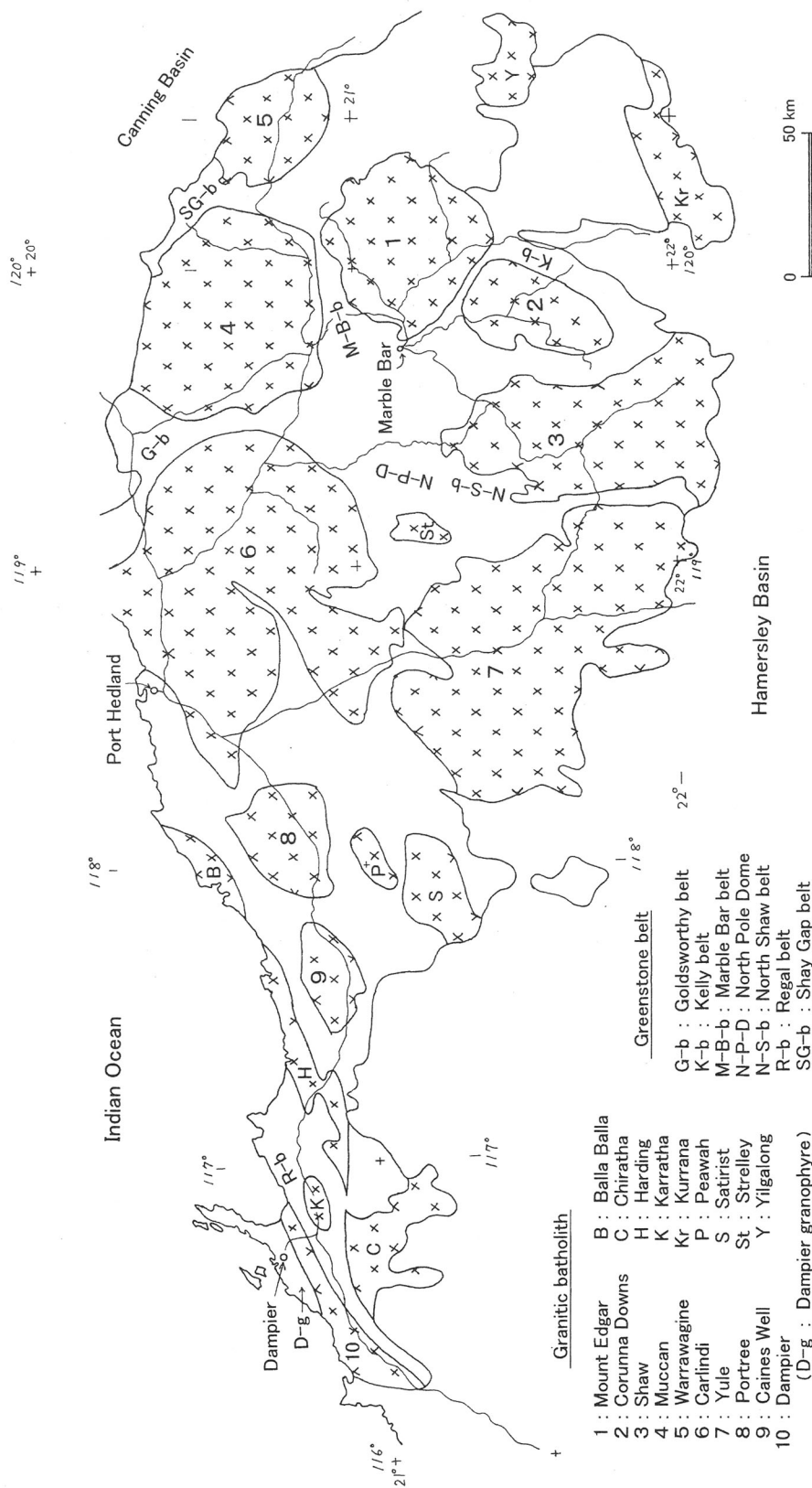


Fig.2-2. Major granitic plutons and greenstone belts of the Pilbara craton.
(based on Geological Survey of Western Australia, 1990)

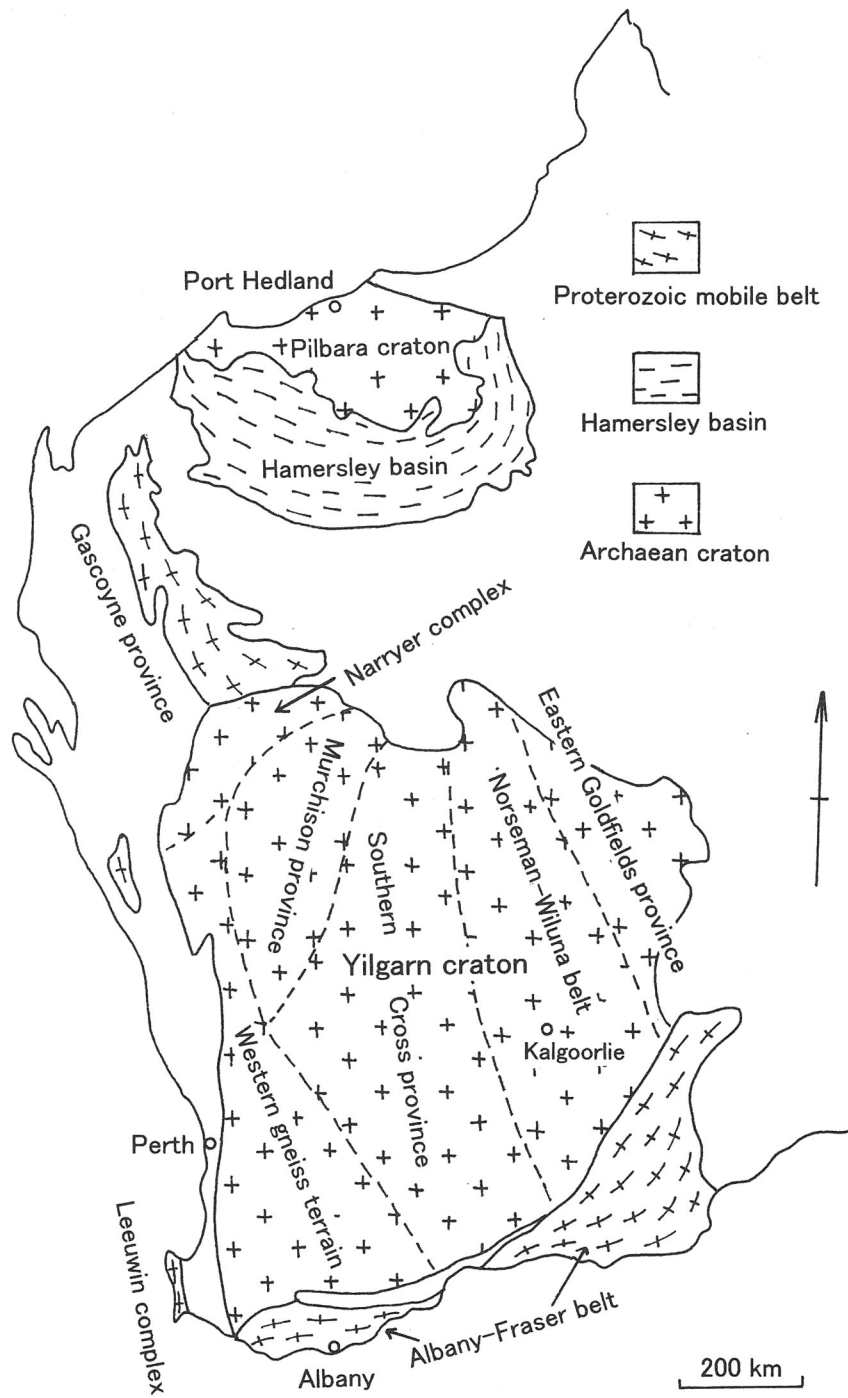


Fig.2-3. Subdivision of the Yilgarn craton and surrounding area.
 (based on Solomon and Groves, 1994)

ピルバラとイルガン両地塊に挟まれた地域では、20～16 億年前くらいに両地塊の衝突により Capricorn 造山帯が生じ、その中の Gascoyne province には変形した花崗岩 (augen gneiss) が産出する。イルガンクラトンの南部から西部のインド洋岸に沿って原生代後期の造山帯 Albany-Fraser belt が分布する。ゴンドワナを復元すると、この地帯の延長上に中央インド構造帯～Meghalaya があると考えられる (Harris, 1993)。Leeuwin complex は、オーストラリアの南西端にあり、Albany belt の一部を構成し、主にグラニュライト相変成岩と charnockite からなる。

大陸中央部には、原生代後期の Amadeus basin の堆積岩類が分布し、その下位には原生代中期の変成岩や花崗岩からなる Arunta 地塊や Musgrave 地塊が分布する。観光地として有名な Uluru (Ayers rock) や Mt. Olga は Amadeus basin の石英に富む粗粒砂岩や礫岩からなる。そのため、Uluru の急崖もフリクションを利かして登ることができるが、時には転落して死者も出る。

北部の Kimberley 地域には、玄武岩や珪岩などからなる Kimberley basin がある。これらは原生代早期～中期の platform 的な被覆岩層であり、ダート道を 500km 走破してもほとんど水平な地層が連続し、下位に始生代の安定地塊が伏在することを暗示する。キンバリー地塊の東側は Halls Creek belt、西側は King Leopold belt という 20～18 億年前前後の造山帯に取り巻かれる。東側では、原生代早～中期の地層を貫いてダイヤモンドを含む 12～10 億年前の lamproite の岩脈があり、Argyle 鉱山が稼動している (Hughes, 1990)。

クインズランド州北部の Mt. Isa 地域には、原生代早期の地層が 19 億年前前後に Barramundi 造山運動を受けてできた変成岩類とそれらを貫く花崗岩類からなる地塊 (Mt. Isa Inlier) と、その両側に原生代中期の rift 的な堆積層が分布する。Mt. Isa 鉱山は、16 億年前の rift の堆積層 Mt. Isa Group の黒色泥岩中にある層序規制型 strata bound type の銅・鉛・亜鉛・銀の世界的な大鉱山である (Hughes, 1990)。また Mary Kathleen Group には U 鉱床がある。

以上の地域の岩石標本は、主として 1995 年に著者が在外研究員として西オーストラリア大学の Dr. L. Harris 氏のもとに滞在中に採集したものであるが、きっかけは 1977 年の第 19 次南極観測隊にある。当時は砕氷艦ふじに乗船し、往路フリーマントルに寄港した。その機会に、同大学の Prider 教授の案内で仲井 豊・吉倉紳一隊員とともに行ったパース近郊の巡検とカンバルダ鉱山の見学が始まりである。その後、2002 年に大和田正明とオーストラリア中央部～北部を巡る走行距離 1 万 km 近い大巡検を行い、また少数の試料は 2004 年の山口地学会巡検の際採集したものである。

[合計 860 点]

Pilbara Craton (1995, 2002, 2004 : Kano, T.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
<u>1. Mount Edgar batholith</u>				
[along Marble Bar rd]				
AP101	95090801	c p Kfs bear gr-gd		Mt Edgar
AP102	95090802	mass-weak foliate c p Kfs gr		Mt Edgar
AP103	95090803A	c-m p Kfs gd-gr		Mt Edgar
AP104	95090803B	vf apl r		Mt Edgar
AP105	95090804	f p Kfs (euhedral) por gd		Mt Edgar
AP106	95090805	f banded gd gn-tonal gn (ori J NS 60W)		Mt Edgar
AP107	95090806	m slight mela gd-tonal		Mt Edgar
AP108	95090807A	f slight mela tonal		Mt Edgar
AP109	95090807B	w feld leuco gn gd		Mt Edgar
AP110	95090807C	c leuco peg		Mt Edgar
* AP111	95090808	[W205] f mela band bear f-m gd-tonal		Mt Edgar
AP112	95090809	micro gab-dio (dyke)		Mt Edgar
AP113	95090810A	p feld gd (unaltered)		Mt Edgar
AP114	95090810B	p feld gd (Ep altered)		Mt Edgar
AP115	95090811	strong foliate banded f-c gd or gd gn		Mt Edgar
AP116	95090812	foliate c tonal (ori F 30E 30E)		Mt Edgar
AP117	95090813A	strong foliate c tonal		Mt Edgar
non	95090813B	peg		Mt Edgar
AP119	95090814	c-m foliate tonal-gd		Mt Edgar
AP120	95090815	c foliate tonal-gd		Mt Edgar
AP121	95090816	c-m foliate tonal-gd (Shimonomoto-like r)		Mt Edgar
AP122	95090817	c-m foliate tonal		Mt Edgar
AP123	95090818A	f-m dio-micro gab		Mt Edgar
AP124	95090818B	vf apl gr		Mt Edgar
AP125	95090819	c sheared gr		Mt Edgar
AP126	95090820	f-m foliate dio		Mt Edgar
AP127	95090821	red fracture network c-m weak gn gd		Mt Edgar
AP128	95090822	foliate m-c gd (-tonal)		Mt Edgar
* AP129	95090823	[W206] banded p por c gn gd & foliate f p apl gr		Mt Edgar
[to Meetheena rd]				
AP130	95090901	weak foliate c-m tonal-gd		Mt Edgar
AP131	95090902	c gn gd-tonal (f p gr injection)		Mt Edgar
AP132	95090903	c tonal -p Kfs bear slight por gd		Mt Edgar
non	95090904			Mt Edgar
AP134	95090905	p Kfs c weak foliate gd		Mt Edgar
AP135	95090906A	p Kfs c weak foliate gd		Mt Edgar
AP136	95090906B	p apl gr vein		Mt Edgar
AP137	95090907	c mass tonal with w feld		Mt Edgar
AP138	95090908	c gd (in foliate m tonal)		Mt Edgar
AP139	95090909A	c gn tonal-gd		Mt Edgar
AP140	95090909B	w feld spotted f tonal		Mt Edgar
AP141	95090910A	c-m foliate tonal		Mt Edgar
AP142	95090910B	f ap		Mt Edgar
AP143	95090911A	m foliate p gd-gr		Mt Edgar
AP144	95090911B	f micro p gr injection in m gn gd		Mt Edgar

non	95090912	vc qp	Mt Edgar
AP146	95090913	m-c weak foliate tonal-gd [to Bamboo Creek & Coppin Gap rd]	Mt Edgar
AP147	95091101A	w Kfs por Bt gd	Mt Edgar
non	95091101B	Kfs por peg	Mt Edgar
AP149	95091102A	f-m leuco micro gr-gd	Mt Edgar
AP150	95091102A'	m-c leuco gr	Mt Edgar
AP151	95091102B	c-m hetero p Kfs bear gr	Mt Edgar
AP152	95091103A	f weak foliate micro gr-gd	Mt Edgar
AP153	95091103B	c gn tonal-gd +c gr mixed	Mt Edgar
AP154	95091104	f micro dio-gd + leuco vein	Mt Edgar
AP155	95091105A	f foliate gr	Mt Edgar
non	95091105B	Kfs peg	Mt Edgar
AP157	95091106	c leuco gd	Mt Edgar
AP158	95091107	f-m w-pale p feld gd	Mt Edgar
AP159	95091108	w Pl & pale p Kfs por m gd	Mt Edgar
AP160	95091109A	w feld c mass gd-gr	Mt Edgar
AP161	95091109B	f-m tonal with p-red feld	Mt Edgar
AP162	95091109C	pinkish gr (altered part)	Mt Edgar
AP163	95091110A	weak foliate p Kfs gd-gr	Mt Edgar
AP164	95091110B	p peg-apl	Mt Edgar
AP165	95091111	p m mass gr	Mt Edgar
AP166	95091113A	c mass p gr	Mt Edgar
AP167	95091113B	Hbl phenocryst bear mela andestic r	Mt Edgar
AP168	95091114	m por Bt gr	Mt Edgar
AP169	95091115	silicified brecciate vein	Mt Edgar
AP170	95091116	m-c mass red gr	Mt Edgar
AP171	95091118	m p Kfs mass gr	Mt Edgar
AP172	95091213	strong foliate c leuco Bt gn gd (ori F=J NS 90)	Mt Edgar
AP173	95091214	f gn tonal-gn gd	Mt Edgar
AP174	95091215	c leuco foliate gd (ori J,L NS 10N)	Mt Edgar
AP175	95092306	f-m foliate Bt gd	Mt Edgar

2. Corunna Downs batholith

AP201	95091301	vc p-red Kfs por gd-gr	Corunna Downs
AP202	95091302A	vc-c mass-weak foliate gd	Corunna Downs
AP203	95091302B	f-m mela dio (mafic dyke)	Corunna Downs
AP204	95091303	f Bt gd (w-pale p Kfs por)	Corunna Downs
AP205	95091304	f-m gd with w por Kfs	Corunna Downs
AP206	95091305A	foliate Bt rich gd	Corunna Downs
AP207	95091305B	f Bt gr-gd	Corunna Downs
AP208	95091306	w feld por m-c Bt gd (similar to Hofu gp)	Corunna Downs
* AP209	95091307	p mass-weak foliate c red gr (partly por)(ori J 20W80Wback)	Corunna Downs
AP210	95091308	vc p por gr	Corunna Downs
AP211	95091309	vc peg and c p gr (brecciate, silicified)	Corunna Downs
AP212	95091310	p-red mass c-m gr	Corunna Downs
* AP213	95091311	euohedral Hbl feld por gr or gp	Corunna Downs
AP214	95091312	Ep bear altered gr	Corunna Downs
AP215	95091313	m p Kfs mass gr	Corunna Downs
AP216	95091314	vf qp -rhyolitic r (felsite), silicified	Kelly belt
AP217	95091315	gp	Kelly belt

AP218	95091316	green mineral (malachite?)	Kelly belt
AP219	95091317A	Pl por f dio	Corunna Downs
AP220	95091317B	vc por gr	Corunna Downs
AP221	95091318	schistose or phyllonitic r (sericite Qtz sht)(ori J NS 45E)	Corunna Downs
AP222	95091319	c mass leuco Bt gd	Corunna Downs
AP223	95091320	m mass leuco Bt gd-tonal	Corunna Downs
AP224	95091401	c foliate tonal	Corunna Downs
AP225	95091402	hetero vf-m slight mela gd (recrystallize)	Corunna Downs
AP226	95091403	c-m p Kfs bear gd	Corunna Downs
AP227	95091404	p-red mass gr (network EW shear)	Corunna Downs
AP228	95091405A	c p Kfs mass (-weak foliate) gr (ori L NS 0)	Corunna Downs
AP229	95091405B	c weak foliate Bt gr (ori J L 10E 0)	Corunna Downs
AP230	95091406	f amph sht & leuco gr vein banded	Corunna Downs
AP231	95091407	c mass-weak foliate w feld por Bt gd-gr	Corunna Downs
AP232	95091408	weak foliate c por gd	Corunna Downs
AP233	95091409	leuco f gn apl r	Corunna Downs
AP234	95091410	pale p feld bear c por gd	Corunna Downs
AP235	95091411	mafic dyke (micro dio-gab, altered)	Corunna Downs
AP236	95091412	c-m foliate tonal	Corunna Downs

3. Shaw batholith

[Marble Bar - Hillside rd]

AP301	95091501	c p Kfs bear greenish gd-tonal	Shaw
AP302	95091502	sheared strong foliate leuco tonal-gd (ori J 40W 60E)	Shaw
AP303	95091503	f qp-felsite (dyke)	Shaw
AP304	95091504	strong foliate p gr-gr gn	Shaw
AP305	95091505	mafic dyke (micro gab)	Shaw
AP306	95091506A	banded gr gn	Shaw
AP307	95091506B	f mela micro gd-tonal (recrystallize)	Shaw
AP308	95091507A	p banded Bt gr gn	Shaw
AP309	95091507B	meta gab	Shaw
AP310	95091508	banded Hbl Bt tonal gn & leuco gr gn	Shaw
AP311	95091509	f p mass gn gr	Shaw
AP312	95091510	c mass leuco gr-gd	Shaw
AP313	95091511	f foliate gn gr-gd	Shaw
AP314	95091512A	strong foliate tonal-gd gn (ori J 80E 80S)	Shaw
AP315	95091512B	peg	Shaw
AP316	95091513	amphibolite	Shaw
AP317	95091514	c mass leuco gr-gd (w feld por)	Shaw
AP318	95091515	c leuco mass gr-gd	Shaw
AP319	95091516	f-m gn gd	Shaw
AP320	95091517	weak foliate f micro gr	Shaw
AP321	95091518	f gn micro gr-gd	Shaw
AP322	95091519	f weak foliate micro gr	Shaw
AP323	95091520	f-m leuco Bt gr-gd (w feld por)	Shaw
AP324	95091521	f-m mela Bt gn gd	Shaw
AP325	95091522	banded gd-tonal gn	Shaw
AP326	95091523	meta dio-gab	Shaw
[Hillside - Tambourah rd]			
AP327	95091701	c leuco gr	Shaw
AP328	95091702	mass f-m gd	Shaw

AP329	95091702p	peg Kfs	Shaw
AP330	95091703	f-p micro gr	Shaw
AP331	95091704A	f-m mela gn gd, banded with leuco gr	Shaw
AP332	95091704B	f-m p gn gr	Shaw
AP333	95091704C	micro gab (mafic dyke)	Shaw
AP334	95091705A	f-m Hbl gn-amphibolite, banded with leuco gr	Shaw
AP335	95091705B	foliate f micro gd-tonal	Shaw
AP336	95091706	f micro gd (mela part in f leuco mass gr)	Shaw
AP337	95091707	strong foliate micro gd-gd gn (ori J 20E 50E)	Shaw
AP338	95091708A	strong foliate micro gd-gd gn (ori L NS 5S)	Shaw
AP339	95091708B	strong foliate c leuco gr gn-gr myl (ori L NS 5S)	Shaw
AP340	95091709	strong foliate f gd	Shaw
AP341	95091710	banded gr gn and peg	Shaw
	[Hillside to E]		
AP342	95091711	micro gab (Black Range)	Shaw
AP343	95091712	f leuco mass homo micro gr	Shaw
non	95091713	f leuco mass homo micro gr	Shaw
AP345	95091714	f-c mass leuco-p gr	Shaw
AP346	95091715A	p Kfs por c leuco gr including Bt rich schlieren & peg	Shaw
AP347	95091715B	f leuco micro gr	Shaw
AP348	95091715C	peg Kfs	Shaw
AP349	95091716	f leuco micro gr-gd	Shaw
AP350	95091717	f-m p Kfs bear gr	Shaw
AP351	95091718	f mass gr-gd	Shaw
	[Split Rock, North Show rds]		Shaw
AP352	95092201	c foliate Bt tonal-gd	
AP353	95092202	sheared foliate p f-m gd-gd gn	Shaw
AP354	95092203	strong foliate gd-tonal or myl gd-tonal gn (ori F 30W 50E)	Shaw
AP355	95092204	strong foliate gd-tonal or myl gd-tonal gn (ori F 45W 60E)	Shaw
AP356	95092205	vc mass p gr	Shaw
AP357	95092206	vc mass p gr	Shaw
non	95092207	foliate banded gr gn	Shaw
AP359	95092208	m mass altered tonal-gd	Shaw
AP360	95092209	f-m altered mela felsite like r ?	Shaw
AP361	95092210	c weak foliate leuco tonal-gd	Shaw

4. Muccan batholith

	[Marble Bar - Shay Gap rd]		
AP401	95091201A	banded tonal-gd gn (gn tonal & gn gd)	Muccan
AP402	95091201B	f-m foliate tonal	Muccan
AP403	95091202A	c foliate tonal-gd	Muccan
AP404	95091202B	f-m mass-gn tonal	Muccan
AP405	95091203	p peg Kfs	Muccan
AP406	95091204A	f tonal, including leuco part	Muccan
AP407	95091204B	meta gab-dio (mafic dyke)	Muccan
AP408	95091205	mass-weak foliate f tonal-gd	Muccan
AP409	95091206	f weak foliate tonal	Muccan
AP410	95091207A	c gn gd, including w Kfs augen	Muccan
AP411	95091207B	Hbl bear andesite dyke	Muccan
AP412	95091208	w-pale p Kfs (euhedral) por hetero gd	Muccan
AP413	95091209A	f mela mass tonal-dio with w euhedral feld	Muccan

AP414	95091209B	c weak foliate p Kfs gr	Muccan
AP415	95091210	amphibolite (meta gab)	Muccan
AP416	95091211A	mass-weak foliate f tonal (recrystallize)	Muccan
AP417	95091211B	c p feld gn gd-gd gn (ori J 75E 90)	Muccan
AP418	95091212A	f foliate tonal & p gn gr banded	Muccan
AP419	95091212B	c feld blastic gn tonal-tonal gn	Muccan
AP420	95091212C	qp [Warrawagine rd]	Muccan
AP421	95091801	p Kfs foliate m-c gr	Muccan
AP422	95091802A	f mela gn gd-tonal	Muccan
AP423	95091802B	m-c Bt gd	Muccan
AP424	95091802C	p gr including Bt gd	Muccan
AP425	95091803A	w feld por foliate tonal-gd	Muccan
AP426	95091803B	f leuco Bt gr	Muccan
non	95091804	quartzite [Southeastern part]	Shay Gap belt
AP428	95091901T	f mass leuco gr	Muccan
AP429	95091902T	f homo mass micro gr-gd	Muccan
AP430	95091903T	f micro gr-gd (mass homo)	Muccan

5. Warrawagine batholith

AP441	95091805	p Kfs rich foliate hetero gr	Warrawagine
AP442	95091806	foliate f p-red gr	Warrawagine
AP443	95091807	f-m p foliate gr with flinty mela part	Warrawagine
AP444	95091808	p feld bear mela weak foliate gd (ori J 15E 80W)	Warrawagine
AP445	95091809	weak foliate tonal-gd with m-c Kfs rich vein	Warrawagine
AP446	95091810	f-m gn tonal with flinty vf part	Warrawagine
AP447	95091811	p-red mass c-m gr	Warrawagine

6. Carlindi batholith

[Northern part: Great Northern HWY]

AP501	95091905A	foliate c Hbl Bt tonal including pale p Kfs	Carlindi
AP502	95091905B	f leuco mass gr	Carlindi
non	95091905C	peg	Carlindi
AP504	95091906	pale p Kfs por-mass weak gn gr	Carlindi
AP505	95091907	c weak foliate tonal-gd [Beebingarra mass]	Carlindi
AP506	95091908T	f micro gd [Tabba Tabba rd]	Carlindi
AP507	95092101T	f-m pale p leuco gr	Carlindi
AP508	95092102A	f mela dio (most mela part of 92102)	Carlindi
AP509	95092102B	f foliate tonal (mela part)	Carlindi
AP510	95092102C1	foliate c-m tonal-gd (leuco part)	Carlindi
* AP511	95092102D2	[W207] f dio-leuco gr (mig-hetero part)	Carlindi
AP512	95092102E	f whitish apl gr	Carlindi
AP513	95092102F	peg in whitish f gr	Carlindi
AP514	95092102G	peg Kfs	Carlindi
AP515	95092103	hetero c gr gn-mig gr with fluidal banding	Carlindi
AP516	95092104A	f red gr (xenolith in 2104B)	Carlindi
AP517	95092104B	gp or dacite (host)	Carlindi

AP518	95092105	w feld por f micro gd	Carlindi
non	95092106	mig gr (weathered)	Carlindi
AP520	95092107A	c Bt gd gn (in banded mig gr & peg)	Carlindi
AP521	95092107B	f gn leuco gd	Carlindi
AP522	95092107C	peg	Carlindi
AP523	95092108	weak foliate f gd	Carlindi
AP524	95092109	m leuco weathered gr	Carlindi
AP525	95092110A	well foliate leuco Bt gr-gn gd	Carlindi
AP526	95092110B	grey-brown Qtz grain f-m gn gd-gr	Carlindi

7. Yule batholith

[Tambourah – Great Northern HWY]

AP601	95092001	foliate micro gd	Yule
AP602	95092002	f micro gd and leuco vein	Yule
AP603	95092003	f micro gd	Yule
AP604	95092004	f-m foliate leuco gr (sheared, silicified)	Yule
AP605	95092005	f micro gr	Yule
AP606	95092006	f foliate homo leuco gd	Yule
AP607	95092007	m leuco mass Bt gr	Yule
AP608	95092008	f p micro gr	Yule
AP609	95092009A	f mela micro gd-tonal	Yule
AP610	95092009B	f-m leuco gr with Mag spot	Yule
AP611	95092010	m-f mass leuco gr with w-p feld	Yule
AP612	95092011	f weak foliate leuco gr-gd	Yule
AP613	95092012	w feld por c-m Bt gr	Yule
AP614	95092013	f mass homo micro gd	Yule
AP615	95092014	f-m homo Bt gr	Yule
AP616	95092015	vc por leuco gr	Yule
AP617	95092016	c leuco Bt gr	Yule
AP618	95092017	w feld por c leuco gr	Yule
non	95092401	f Bt gr and peg	Yule
AP620	95092402A	c Kfs bear gn gr-gr gn	Yule
AP621	95092402B	banded Bt gd gn	Yule
AP622	95092402C	f p mass gr	Yule
AP623	95092402D	peg Kfs	Yule

Northwestern Pilbara region

[along West Coastal HWY]

AP631	95092601	f-m gn gd-gr	8. Portree
non	95092602		8. Portree
AP633	95092603A	m weak foliate greyish gr-gd	8. Portree
non	95092603B	f apl vein	8. Portree
AP641	95092604A	greyish vc gd (charnockitic ?)	9. Caines Well
AP642	95092604B	strong foliate greyish gd-tonal (recrystallize)	9. Caines Well
AP643	95092605	f grey gn gr-gd (charnockitic)	9. Caines Well
AP644	95092606	micro gab	9. Caines Well
AP651	95092705	micro gab-diabase (mafic dyke)	10. Dampier
AP652	95092706	w feld por c leuco gr	10. Dampier

AP653	95092707	m foliate leuco gd & m gd-tonal	10. Dampier
* AP661	95092701	gp (Proterozoic intrusives, post Hamersley)	Dampier granophyr
AP662	95092702	gp (Proterozoic intrusives, post Hamersley)	Dampier granophyr
AP663	95092703	porphyrite (dyke ?)	Dampier granophyr
AP664	95092704	graphic gr & mafic enclave	Dampier granophyr

Pilbara Craton (2002: Kano, T. and Owada, M.)

02AP02	02082402	mass m p Kfs Bt gr (Hiroshima gr like)	Northern Mt Edgar
02AP04	02082502	f-m schistose myl gr	Shaw
02AP05	02082503	f slight mela gd-micro gd [near Black Range]	Shaw
02AP06	02082504	5-3mm Mag bear f leuco gr +slight mela gd	Yule
02AP07	02082505	sheared strong foliate gn gd-gd gn	Shaw
02AP08	02082506	f gn gd-gd gn	Shaw
02AP09	02082507	c mass-weak foliate gd	W part Mt Edgar
02AP10	02082508	c p gd with p c gr & f gn gd +peg	centre of Mt. Edgar
02AP11	02082509	p c Kfs gr	centre of Mt. Edgar
02AP12	02082601	gp-porphyrite	Marble Bar S100kn

Greenstone belt

AP01	95090701	red chert	Marble Bar belt
AP02	95090702	white-grey chert [Jasper mine]	Marble Bar belt
AP03	95091112	meta basalt, amygdal tex (Salgash G) [Bamboo Creek]	Marble Bar belt
non	95091117	BIF chert	Marble Bar belt
* AP05	95091904	BIF & red chert, banded	Goldsworthy belt
* AP06	95091909	[W204] meta basalt (pillow lava)	North Pole dome
AP07	95092301	aplite or recrystallize felsite?	Marble Bar belt
AP08	95092302	meta basalt [Marble Bar rd]	Marble Bar belt
AP09	95092303	meta basalt including pyrite	Marble Bar belt
AP10	95092304	hornfelsic silicified ? felsite	Marble Bar belt
AP11	95092305	f-m meta dio-gab	Marble Bar belt
non	95092607	BIF (Cleaverville F ?) [Karratha]	Regal belt
*+ AP13		red, grey, white banded chert	North Pole
02AP01	02082401	green schist (metabasalt) [Marble Bar rd]	Marble Bar belt
02AP03	02082501	pillow basalt (core)	Marble Bar belt
04AP01	040820(2)	metabasalt	Marble Bar belt
04AP02	040820(3)-1	red chert [Jasper mine]	Marble Bar belt
04AP03	040820(3)-2	white chert [Jasper mine]	Marble Bar belt
04AP04	040820(3)-3	red & white banded chert [Jasper mine]	Marble Bar belt
non	040820(4)	qp	Black Range side
04AP06	040820(5)	metabasalt	Marble Bar belt

Hamersley basin

* AP21	95090601A	[W243] high grade iron ore of Mt. Whaleback mine	Mt Newman
* AP22	95090601B	[W244] high grade iron ore of Mt. Whaleback mine	Mt Newman

AP23	95090602	BIF	[near Mt Newman town]	Mt Newman
* AP24	95092403	BIF (Hamersley Range)		Hamersley G
04AP07	040821(6)	BIF	[Whittenoorm rd]	Hamersley G
04AP08	040821(7)	silt stone in BIF	[Whittenoorm rd]	Hamersley G
04AP09	040822(8)	BIF		Mt Newman

(Total : 395)

Yilgarn Craton (1977, 1995, 2002 : Kano, T.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
<u>Western gneiss terrain around Perth and Kambalda mine</u>				
(1977 : Kano, T., Nakai, Y., Yoshikura, S. and Prof. Prider)				
[around Perth]				
W220	771212-1	kaolinized dolerite		Perth
W221		kaolinized dolerite		Perth
W222		kaolin		Perth
W223	771212-2	Mundaving Weir gr (2700Ma)		Perth
W224	771212-2	dolerite (dyke)		Perth
W225	771212-3	Mag grunerite Qtz r (jaspilite in granulite facies)		Clackline
W226	771212-4	gr (3300Ma)		Clackline
W227	771212-4	dolerite (dyke, 500-550Ma)		Clackline
W228	771212-5	Bt gn		Coorinja
W229	771212-5	gr gn		Coorinja
W230	771212-6	amphibolite (metabasalt with amygdaloidal tex)		Windmil railway cutting
W231	771212-6	mafic granulite (banded with quartzite)		Windmil railway cutting
W232	771212-6	quartzite		Windmil railway cutting
W233	771212-6	banded quartzite		Windmil railway cutting
W234	771212-6	fuchsite quartzite		Windmil railway cutting
[Kambalda mine, under ground, Hunt shoot]				
W235	771214-2	mineralized basalt (country r, nickeliferous sulphides ore)		Kambalda mine
W236	771214-3	footwall basalt		Kambalda mine
W237	771214-5	hanging wall basalt		Kambalda mine
W238	771214-6	altered komatiitic basalt		Kambalda mine
W239	771214-6	ore & altered komatiitic basalt		Kambalda mine
W240	771214-7	mineralized basalt (country r, nickeliferous sulphides ore)		Kambalda mine
W241	771214-8	massive nickeliferous sulphides ore		Kambalda mine
W242		spinifexed komatiite replaced by nickeliferous ore		Kambalda mine
W243		spinifexed komatiite		Kambalda mine
<u>Western gneiss terrain around Perth</u>				
[southeast Perth]				
AY01	95061101	f-m Bt leuco gd (+mafic enclave)		SE Perth
AY02	95061102	m gd-c leuco gr		SE Perth
non	95061103	Kfs peg dyke (1m wide) in homo gd		SE Perth
AY04	95061104	c greyish gr		SE Perth
AY05	95061105	m-c dio-Hbl gab & c greyish gd-gr		SE Perth
AY06	95061106	mixed r (hybrid : c leuco gd +Hbl gab)		SE Perth
AY07	95061107T	p feld augen bear mela gn (dio gn ?)		SE Perth
AY08	95111901A	mass c p gr (Ep altered)		SE Perth (Armadale)
AY09	95111901B	foliate p Kfs gr		SE Perth (Armadale)
AY10	95111902	strong foliate c gd-gd gn (ori J NS 50E)		SE Perth (Armadale)
* AY11	95111903T	mela dio gn-gn dio intruded by w c mass Bt gr		SE Perth (Armadale)
AY12	95111904A	tonal gn including mela schlieren		SE Perth (Armadale)
AY13	95111904B	pale p f-m mass gr including mela dio schlieren		SE Perth (Armadale)

* AY14	95111904C	mig, mela dio-gab + f foliate tonal (=A) +leuco vein	SE Perth (Armadale)
AY15	95111905	strong foliate gd-gd gn (=1902) [Albany - Perth rd]	SE Perth (Armadale)
AY16	95120407	f-m mass-weak foliate p gd	near Tunney
AY17	95120408	w Kfs por gr	near Dellyanine
AY18	95120409	f-m p gr including m gd & peg	near Williams
{northern Perth - northeast Perth - Toody area}			
(Chittering belt) (Perth-Tooday gr complex) (Jimperding belt)			
AY21	95061501A	Ky bear pelitic sht (ori F NS 30E)	Chittering belt
AY22	95061501B	pelitic sht	Chittering belt
non	95061502	foliate gr-gr gn with gr myl	Chittering belt
non	95061503	gr myl	Chittering belt
*+ AY25	95061504	And porbla sht (ori F 30W 35E)	Jimperding belt
AY26	95061505A	sheared myl gr (ori F 10W 10E)	Jimperding belt
AY27	95061505B	sheared myl gr	Jimperding belt
AY28	95061701	c leuco slight por gr (mass type)	P-T gr, Red Hill
AY29	95061702	m mass p gr	P-T gr, Red Hill
AY30	95061703	meta dolerite dyke in gr	P-T gr, Red Hill
AY31	95061704	c-m mass leuco Bt gr	P-T gr, Red Hill
AY32	95061705	c-m mass Bt gr	P-T gr, Red Hill
AY33	95061706	w Kfs por c-m leuco Bt gr	P-T gr, Red Hill
AY34	95061707	dolerite dyke	P-T gr, Red Hill
AY35	95061708	m leuco mass gr	P-T gr, Red Hill
AY36	95061709TA	green-black schist (hornfelsic), xenolith in m leuco mass gr	P-T gr, Red Hill
AY37	95061709TB	f-m gd including f greyish part	P-T gr, Red Hill
AY38	95061710T	f-m leuco gd	P-T gr, Red Hill
AY39	95061711	p f-m gr-gd	P-T gr complex
AY40	95061801	sheared mela por gd	Jimperding belt
AY41	95061802A	c dio (mafic dyke)	Jimperding belt
AY42	95061802B	f marginal part of mafic dyke	Jimperding belt
AY43	95061803	f-m mass leuco gr	P-T gr complex
AY44	95062201	weak foliate c-m gd (ori J 30W 80W)	P-T gr complex
AY45	95070501	f leuco apl gr	P-T gr complex
AY46	95070502	f mass leuco gr	P-T gr complex
AY47	95070503-1	sheared gd-gd gn-augen gn (ori J 30E 90)	P-T gr complex
AY48	95070503-2	sheared gd-gd gn-augen gn (gr myl) (ori J 30E 20E)	P-T gr complex
* AY49	95070503-3	sheared gd-gd gn-augen gn (gr myl) (ori J NS 10W)	P-T gr complex
AY50	95070504	c-m sheared gd (ori L 50E 10N)	P-T gr complex
AY51	95070505	non-sheared f mass gr	P-T gr complex
AY52	95070506	sheared c-m gd	P-T gr complex
AY53	95070507	f p mass gr (non-sheared)	P-T gr complex
AY54	95071601A	f p gr	P-T gr complex
AY55	95071601B	Pl por micro gn dio with gr vein	P-T gr complex
AY56	95071601C	f-m Bt leuco gr	P-T gr complex
AY57	95071602	f mass p gr	P-T gr complex
AY58	95071603	f-m mass leuco gr	P-T gr complex
AY59	95071604T	f leuco gr	P-T gr complex
AY60	95071605	weak foliate-mass m-c p gr (ori J 40E 10E back)	P-T gr complex
AY61	95071606	f-m leuco-p mass gr	P-T gr complex
AY62	95071607T	altered recrystallize dio	P-T gr complex
AY63	95071701T	w Kfs augen gn-myl gr	Chittering belt

AY64	95071702	highly sheared myl gd gn (ori F 20E 70E)	Chittering belt
non	95071702T	phyllite-pelitic sht	Chittering belt
non	95071703	highly foliate myl	Chittering belt
AY67	95071703T-1	amph sht	Chittering belt
AY68	95071703T-2	amph sht-amphibolite	Chittering belt
non	95071703T-3	quartzite	Chittering belt
AY70	95071704	myl gr-peg with oriented fracture (ori J 30W 80W back)	Chittering belt
AY71	95071705	schistose amphibolite (ori F 10E 85E)	Chittering belt
AY72	95071706	augen bear myl gd gn (ori J 72E 82S back)	Chittering belt
AY73	95071707	Qtz mica sht or micaceous quartzite	Chittering belt
AY74	95071708A	banded, mela dio gn with leuco vein (ori F 45E 80W)	Chittering belt
AY75	95071708B	schistose apl gr or f gr gn (ori L 30E 0)	Chittering belt
non	95071708C	dio gn?	Chittering belt
AY77	95071708D	mica sht (phylionite ?) (ori F 15E 85W)	Chittering belt
AY78	95080201	f leuco mass gr	P-T gr, Toody rd
AY79	95080202A	w feld por weak foliate tonal	P-T gr, Toody rd
AY80	95080202B	f leuco gr vein in A	P-T gr, Toody rd
AY81	95080202C	f-vf leuco apl gr	P-T gr, Toody rd
non	95080301T	sheared gr	Chittering belt
AY83	95080302-1	mica sht (or phylionite, gr origin ?) (ori F 16E 78W)	Chittering belt
AY84	95080302-2	mica sht (or phylionite, gr origin ?) (ori F 18E 75W)	Chittering belt
AY85	95080302-3'	quartzose sht (gr myl) (ori F 25E 80W)	Chittering belt
AY86	95080303-1	ultramyl (gr origin) (ori F NS 75W)	Chittering belt
AY87	95080303-2	ultramyl (gr origin) (ori F NS 90)	Chittering belt
AY88	95080304	gr myl (blast myl) (ori F 25E 80W)	Chittering belt
AY89	95080305	mica sht-phyllite (sheared f dio ?)	Chittering belt
AY90	95080306	w feld augen gn (gr myl)	Chittering belt
AY91	95080307	strong foliate f gd-gd gn	Chittering belt
non	95080401	pelitic micaceous sht	Chittering belt
non	95080402	pelitic micaceous sht	Chittering belt
AY94	95080403	calc silic gn	Chittering belt
[Brockman river area, northern Perth]			
AY101	95102201T	well banded f Bt gn	Chittering belt
AY102	95102202T	Bt sht	Chittering belt
AY103	95102203	mica sht or gr phylionite (ori J 10W 35W)	Chittering belt
AY104	95102204A	Bt sht including schistose gr (gr phylionite)	Chittering belt
AY105	95102204B	f gd myl (banded, with augen)	Chittering belt
AY106	95102205T	strong foliate gr myl (ultra-blast myl)	Chittering belt
AY107	95102206	sheared vc leuco Bt gn	Chittering belt
AY108	95102301	f foliate p micro gr	Chittering belt
AY109	95102302	well foliate (lineate) tonal gn & leuco vein	Chittering belt
AY110	95102303	schistose amphibolite	Chittering belt
AY111	95102304	f foliate red gr	Chittering belt
AY112	95102305	f schistose felsic r (or vf recrystallize gr myl?)	Chittering belt
AY113	95102306A	vf schistose hornfels	Chittering belt
AY114	95102306B	m Bt gn	Chittering belt
AY115	95102307T	c gd myl -gd gn	Chittering belt
AY116	95102308	lineate vf Bt Qtz feld schistose r (ori J 5E 85E back)	Chittering belt
AY117	95102309T	f schistose gr -gr myl	Chittering belt
AY118	95102310	banded Bt gn (ori J 60E 90)	Chittering belt
AY119	95102311	f-m Bt gn (f dio gn) (ori J 55E 45E)	Chittering belt
AY120	95102312	mica sht or phylionite (weathered, ori F 20E 90)	Chittering belt
AY121	95102401TA	black mica sht	Chittering belt

AY122	95102401TB	Bt sht	Chittering belt
AY123	95102402-1	ultra-blast myl (ori F 10E 70W)	Chittering belt
AY124	95102402-2	ultra-blast myl (ori F 10E 70W)	Chittering belt
AY125	95102402-3	f leuco myl gr gn (ori F NS 47W)	Chittering belt
AY126	95102402-4	f Bt gn (ori F 10W 45W)	Chittering belt
AY127	95102402-5	banded, mica sht & phyllonitic gn (ori F NS 50W)	Chittering belt
AY128	95102402-6	f Bt gn + leuco vein (ori F NS 50W)	Chittering belt
AY129	95102402-7	c gr gn +micaceous layer (ori F 5W 75W)	Chittering belt
AY130	95102402-8	mafic sht (ori F 10E 65W back)	Chittering belt
AY131	95102402-8	dio gn	Chittering belt
AY132	95102403	catacrastic tonal-gd gn (ori F 20E 83E back)	Chittering belt
AY133	95102404	f weak foliate p micro gd	P-T gr complex
AY134	95102405A	Bt gn	P-T gr complex
AY135	95102405B	f Bt gr	P-T gr complex
non	95102405C	peg	P-T gr complex
AY137	95102406	f weak foliate-mass micro gr	P-T gr complex
AY138	95102407	meta dolerite	P-T gr complex
AY139	95102408	altered m dio	P-T gr complex
AY140	95102409A	augen bear c gd gn (mig gn)	P-T gr complex
AY141	95102409B	c hetero gr (mig gr)	P-T gr complex
	[Tooday area]		
AY142	95102501	f-m foliate gr-gd	Jimperding belt
AY143	95102502T	amphibole sht-mela dio gn	Jimperding belt
AY144	95102503	mica sht	Jimperding belt
AY145	95102504	mica sht	Jimperding belt
AY146	95102505	BIF	Jimperding belt
AY147	95102505	BIF	Jimperding belt
AY148	95102506T	f gr gn	Jimperding belt
AY149	95102507-1	mig tonal gn	Jimperding belt
AY150	95102507-2	mass f leuco gr	Jimperding belt
AY151	95102507-3	f gn gd-gd gn	Jimperding belt
AY152	95102507-4	hetero foliate c gd-tonal	Jimperding belt
AY153	95102507-5	banded gn (Hbl gn, gd-tonal gn, trond gn)(ori F45W 90)	Jimperding belt
AY154	95102507-6	amphibolite (mafic part of mig gn)	Jimperding belt
AY155	95102507-7	c dio r in mig gn	Jimperding belt
AY156	95102507-8	well banded leuco gn gd-gd gn with Mag (ori J 20E 80W)	Jimperding belt
AY157	95102507-9	banded amphibolite (ori F 65W 85S)	Jimperding belt
AY158	95102507-10	leuco peg	Jimperding belt
non	95102507-11	peg Kfs	Jimperding belt
AY160	95110301A	Bt Hbl gn or dio gn (mela band)	Jimperding belt
AY161	95110301B	foliate leuco p gr gn (leuco band)	Jimperding belt
AY162	95110302	f foliated gd-gd gn (recrystallize)	Jimperding belt
AY163	95110303	micro gab (dyke?)	Jimperding belt
AY164	95110304A	strong foliate f gd or gd gn (ori J 30E 50E)	Jimperding belt
AY165	95110304B	gr myl-blast myl gd	Jimperding belt
AY166	95110305	c foliate myl leuco gr	Jimperding belt
AY167	95110306	f-m mass dio	Jimperding belt
AY168	95111001	f whitish gr	P-T gr, Tooday rd
AY169	95111002	m mass gr	P-T gr, Tooday rd
AY170	95111003	c hetero gn gd	P-T gr, Tooday rd
AY171	95111004T	w feld por gd (green Ep bear matrix)	P-T gr, Tooday rd
AY172	95111005	f foliate micro gr	Jimperding belt
non	95111006	f foliate micro gr	Jimperding belt

AY174	95111007	f-m gab	Jimperding belt
AY175	95111008	f amph sht	Jimperding belt
AY176	95111009	f-m leuco gr	Jimperding belt
non	95111201	mica sht	Jimperding belt
non	95111202	weathered mica sht	Jimperding belt
non	95111203T	mica sht	Jimperding belt
non	95111204T	mica sht	Jimperding belt
AY181	95111205	m-c por weak gn gr	P-T gr complex
AY182	95111206	c por hetero gd	P-T gr complex
AY183	95111207	c por leuco gr	P-T gr complex
non	95111208	mica sht (weathered)	Jimperding belt
+ AY185	95111209	And porbla mica sht	Jimperding belt
AY186	95111210	c por gr-gd (ori F 45E 25W)	Jimperding belt
+ AY187	95111211	gr myl-augen gn (ori J1:75W60N,2:60W60N,3:80W80N,4:,5:)	Jimperding belt
AY188	95111401	f-m leuco Ms gr + peg	Jimperding belt
non	95111402	mica sht	Jimperding belt
AY190	95111403	f sheared gr (ori F 40E 25E)	Jimperding belt
AY191	95111404TA	f-m leuco gn gd-gd gn	Jimperding belt
AY192	95111404TB	f-m hetero p gn gr (fluidal str, recrystallize +p apl vein)	Jimperding belt
AY193	95111405T	c catacrastic gr	Jimperding belt
AY194	95111406T	m leuco gr	P-T gr complex ?
AY195	95111407	m Bt gr	P-T gr complex
AY196	95111408	f-m mass leuco gr	P-T gr complex
AY197	95111409-1	quartzite-mica Qtz sht (ori F 40E 20S)	Jimperding belt
AY198	95111409-2	quartzite-mica Qtz sht (ori F 40E 25S)	Jimperding belt
		[NE Perth - Tooday]	
AY199	95111601	dolerite	P-T gr complex
AY200	95111602	micro gab	P-T gr complex
AY201	95111603A	hetero f gd-leuco gr	P-T gr complex
AY202	95111603B	m mass gr-por gr	P-T gr complex
AY203	95111604	f strong foliate Bt gr-gr gn (ori J,L NS 0)	P-T gr complex
AY204	95111605	Morangap meta basalt	P-T gr complex
AY205	95111606	c-m mass leuco Bt gr	P-T gr complex
AY206	95111607T	m mass Bt gd	P-T gr complex
AY207	95111607B	dolerite-micro gab	P-T gr complex
non	95111608	Kfs euhedral mass por gr	P-T gr complex
AY209	95111801	c-m mass leuco gr-por gr	P-T gr complex
AY210	95111802	f p micro gr	P-T gr complex
non	95111803(B)	schistose amphibolite	Chittering belt
non	95111805(B)		Chittering belt
		[Bindoon - Tooday]	
AY213	95112001	f Bt schistose hornfels (=AY116) (ori F 10E 85W)	Chittering belt
AY214	95112002T	f Bt gn	Chittering belt
AY215	95112003T	f myl & recrystallize gd	Chittering belt
AY216	95112004	f-m mass leuco micro gr	P-T gr complex
AY217	95112005T	f-m dio-tonal gn + p gr vein	Chittering belt
AY218	95112006	strong foliate c gn gr-gr gn (ori L 20E 0)	Chittering belt
AY219	95112007	f mass leuco gr	P-T gr complex
AY220	95112008	f banded BIF	Jimperding belt
AY221	95112009	foliate c gn tonal-tonal gn (ori J 80W 15N)	Jimperding belt
AY222	95112010T	c-vc Cpx Hbl mig gr (Inishi like) + f Hbl gn band	Jimperding belt

Kalgoorlie – Southern Cross area

{Norseman – Wiluna belt}

[Lindsay mine (Coolgardie gold mine)]

non	95062801	Au-bear arsenopyrite rich ore	Lindsay pit
AY302	95062802	Au-bear arsenopyrite rich Qtz vein in meta basalt	Lindsay pit
AY303	95062802	Au-bear arsenopyrite rich Qtz vein	Lindsay pit
AY304	95062802	arsenopyrite Qtz vein in calc silic r	Lindsay pit
AY305	95062803A	f-m gabbritic r (amphibolite)	Greenfield pit
AY306	95062803B	meta doleritic r	Greenfield pit
AY307	95062804	doleritic-gab r with long Hbl (Matsuba-ishi)	Greenfield pit

[Mt Charlotte mine (Kalgoorlie Consolidated golden mine: KCGM)]

AY308	950629A1	Py Ccp ore (Qtz vein)	under ground (Loc 1)
AY309	950629A2	Py Ccp Qtz vein (sulphide zone)	under ground (Loc 2)
AY310	950629A3	Py Ccp ore & Qtz vein	under ground (Loc 2)
AY311	950629A4	carbonate bear vein	under ground (Loc 2)
non	950629A5	Qtz vein cut by Charlotte fault	under ground (Loc 3)
AY313	950629A6	Py mineralised dolerite (silicified r)	under ground (Loc 4)

[New Celebration mine: Hampton Boulden open pit]

AY314	950629B1	siliceous sht (large shear zone)	Hampton Boulden pit
AY315	950629B2	mica Qtz sht	Hampton Boulden pit
AY316	950629B3	slate	Hampton Boulden pit
AY317	950629B4	f p qp-felsite	Hampton Boulden pit

[Kanowana Belle gold mine]

non	950630A1	altered felsic r (qp ?) in shear zone	Kanowana Belle mine
* AY319	950630A2-1	[W211] polymictic cgl including qp like pebble	Kanowana Belle mine
*+ AY320	950630A2-2	cgl including large qp pebble	Kanowana Belle mine
AY321	950630A2-3	large pebble of qp, in cgl	Kanowana Belle mine
* AY322	950630A3	[W210] cgl-c ss-tuff r including ultramafic fragment	Kanowana Belle mine
AY323	950630A4	highly silicified ore in altered zone	Kanowana Belle mine
AY324	950630A5	altered f qp	Kanowana Belle mine

[Paddington gold mine]

AY325	950630B1	carbonaceous shale	Paddington 2
AY326	950630B2	sheelite, arsenopyrite bear Qtz vein	Paddington 2
AY327	950630B3	sheared silicified basalt (Au ore, main mineralised zone)	Paddington 2
AY328	950630B4	serpentine-clay mineral and magnesite	Paddington 2

[Kalgoorlie – Kambalda]

*+ AY329	950701-1	altered spinifexed komatiite	Kalgoorlie S Loc 1
non		Mg-rich basalt	Kalgoorlie S Loc 2
AY331	950701-2	red chert (shale?)	Kalgoorlie S Loc 3
AY332	950701-3	basalt (amygdal tex)	Kalgoorlie S Loc 4
AY333	950701-4	Cpx spinifexed high Mg basalt	Kalgoorlie S Loc 5

[Kambalda mine: 123 North open pit]

AY334	950702-1	meta basalt	123 North open pit
AY335	950702-2	Ap bear Qtz Ab peg vein	123 North open pit
AY336	950702-3	amphibolite	123 North open pit
AY337	950702-4	Ni pyrrhotite ore (sulphides bear altered schistose r)	123 North open pit
AY338	950702-5	Ni secondary mineral	123 North open pit
*+ AY339	950702-6	[W209] felsic volcanic r (welded tuff ?)	Kambalda Loc 2
AY340	950702-7	black carbonaceous shale-ss	Kambalda Loc 3

{Southern Cross province}

AY341	950702-8	BIF	S Cross motel hill
AY342	950702-9	f-m foliate leuco gr, flatt foliation and peg Kfs [Marble Loch mine]	S Cross (salt lake)
AY343	95070301	sulphides bear Di Act Qtz vein	Marble Loch mine
AY344	95070302	f Bt Hbl sht (calc silic r)	Marble Loch mine
AY345	95070303	peg vein (large Kfs =9836W)	Marble Loch mine
AY346	95070304	ultramafic sht	Marble Loch mine
AY347	95070305	sheared meta gab	Marble Loch mine
AY348	95070306	fuchsite sht [Griffins Find North mine]	Marble Loch mine
AY351	95100901	Grt px gn + disminated arsenopyrite + pyrrhotite	G F N open pit
AY352	95100902	Cpx Opx (?) gn + sulfides	G F N open pit
non	95100903	px gn cut by peg	G F N open pit
non	95100903'	peg in px gn	G F N open pit
non	95100904	calc r (marble)	G F N open pit
non	95100905	Cpx bear Qtz feld r (peg part, Inishi like r)	G F N open pit
non	95100906	amazonite feld peg	G F N open pit
non	95100907	c Kfs por gr	Hyden
AY359	95101001A	mass m-c leuco gr +peg vein	East Hyden
non	95101001B	weak foliate peg r [Bounty Gold mine]	East Hyden
AY361	95101002	BIF +pyrrhotite	Bounty Gold mine
non	95101003	peg vein	Bounty Gold mine
		[Yilgarn Star Gold mine]	
AY363	95101101	Ol Cal r (Mg skarn)	Yilgarn Star Gold mine
* AY364	95101102	[W208] fuchsite sht	Yilgarn Star Gold mine
AY365	95101102	Qtz vein in Bt sht-gn (Sil ?) [Ghooli dome]	Yilgarn Star Gold mine
non	95101103A	m gr	S end of Ghooli dome
non	95101103B	peg in m gr	S end of Ghooli dome
non	95101104	peg intruding amph sht (Ghooli/greenstone boundary) [Polaris South mine]	Ghooli dome margin
AY369	95101201	foliate whitish gr (dyke)	Polaris South
* AY370	95101202	spinifexed komatiite [Fraser mine]	Polaris South
AY371	95101203	sheared felsic sht (ori J 45W 65W)	Fraser mine
AY372	95101203	felsic sht, Bt sht, calc sht boundary	Fraser mine
AY373	95101203	serpentinite	Fraser mine
AY374	95101204	schistose komatiitic r (meta ultramafic) (ori F 45W 50W)	Fraser mine
AY375	95101205	Qtz vein or lens including Ap needle	Fraser mine
AY376	95101206A	Greenstone lode (pyrrhotite Qtz vein in greenstone)	Fraser mine
non	95101206B	Fraser Lode ore stone [Ghooli dome]	Fraser mine
AY378	95101207A	m leuco mass gr	NE of Ghooli dome
non	95101207B	p gr-peg	NE of Ghooli dome
AY380	95101208A	c gr myl	NE of Ghooli dome
AY381	95101208B	f gr myl (blast myl)	NE of Ghooli dome
AY382	95101209A	f foliate leuco gr with mela shear band	N of SouthernCross
non	95101209B	peg [highly sheared gr contact to greenstone belt on western Ghooli dome]	N of SouthernCross
AY384	95101301A	c sheared leuco Ms gr (gr myl)	western Ghooli dome

non	95101301B	mass f leuco (red?) gr	western Ghooli dome
non	95101301C	peg in sheared gr	western Ghooli dome
AY387	95101302A	mafic sht (ori J 40W 80W back)	western Ghooli dome
AY388	95101302B	mica Qtz sht or blast myl	western Ghooli dome
non	95101302C	w vein (network carbonate)	western Ghooli dome

Northern Yilgarn Craton

Sothorn Cross province, Kalgoorlie area (Norseman–Wiluna belt), Eastern Goldfields province
Murchison province, Narryer gneiss complex, Western gneiss terrain

		[Perth – Northern HWY]	
AY401	95090501	greenschist	Murchison province
AY402	95090502	m leuco gr	[Mt Magnet, The granite] Murchison province
AY403	95090503	f–m gn tonal +leuco peg vein	Murchison province
		[Perth – Burakin – Pynes Find – Sandstone – Wiluna]	
AY404	95120801	c–m mass Bt gr	Murchison prov
AY405	95120901A	m–f mass leuco gr	near M/S boundary
AY406	95120901B	f mass leuco micro gr	near M/S boundary
AY407	95120902	f–m mass leuco gr	near M/S boundary
AY408	95120903	f–m mass mela gd–tonal	Southern Cross
AY409	95120904	strong foliate sheared gd with augen	Southern Cross
AY410	95120905	mass f micro gr (weathered)	Southern Cross
		[Wiluna – Menzies – Kalgoorlie – Southern Cross]	
AY411	95121001	c pale p Kfs mass gr	Norseman–Wiluna
AY412	95121002	c meta gab (Hbl gab)	Norseman–Wiluna
AY413	95121003	weak foliate micro gr–gd	Norseman–Wiluna
AY414	95121004	f–m foliate p–red gr	Norseman–Wiluna
AY415	95121005	f mass Ms gr + p peg	Norseman–Wiluna
AY416	95121006	calc part in green r (Mg marble, green Ves ?)	Norseman–Wiluna
		[Southern Cross – Bornie rock – Burakin – Perth]	
AY417	95121101A	f foliate leuco gr	Southern Cross
AY418	95121101B	c mass leuco gr	Southern Cross
AY419	95121101T	c mass p gr	Southern Cross
AY420	95121102	f–m mass p gr (partly Kfs por)	Southern Cross
AY421	95121103	f mass micro Bt gr–gd (with dotted leuco part)	Southern Cross
AY422	95121104	f–m p gr +peg part	Southern Cross
AY423	95121105	m mass leuco Bt gr	Southern Cross
AY424	95121106	m mass leuco gr	Southern Cross
AY425	95121107	weathered c–p Kfs por mass gr	Southern Cross
AY426	95121108	c leuco gn gr	Western gneiss t

Yilgarn Craton (2002 : Kano, T. and Owada, M.)

Sothorn Cross province, Kalgoorlie area (Norseman–Wiluna belt), Eastern Goldfields province
Murchison province, Narryer gneiss complex

02AY01	02081001A	vc ovoidal feld por gn gr	Southern Cross
02AY02	02081001B	c sheared gr with f mela band	Southern Cross
02AY03	02081002	c–m leuco–greyish gr	Southern Cross
02AY04	02081003	c por Bt gr	Southern Cross
* 02AY05	02081101	[W212] c mass Bt gr	Southern Cross
02AY06	02081102	vc mass p Kfs slight por gr	Southern Cross

	02AY07	02081103A	leuco gr-apl	Southern Cross
	02AY08	02081103B	m-c mass Pl rich peg	Southern Cross
	02AY09	02081103C	amphibolite-meta gab	Southern Cross
	02AY10	02081104	green sht (psammitic sht or metabasalt ?)	Southern Cross
	*+ 02AY11	02081301A	altered spinifexed komatiite	Norseman-Wiluna
	02AY12	02081301B	mass meta basalt	Norseman-Wiluna
	02AY13	02081302	iron chert (silicified basalt?) with chalcedony	Norseman-Wiluna
	02AY14	02081303	m leuco por Bt gr	Norseman-Wiluna
	02AY15	02081304	green stone (metabasalt)	Norseman-Wiluna
	02AY16	02081401	f-m mass red gr +red apl (shear band ?)	Eastern Goldsfield
	02AY17	02081402	p-red homo f mass gr	Eastern Goldsfield
	02AY21	02082701	f mass equigranular Bt gr	Norseman-Wiluna
	02AY22	02082702	c-vc greyish gr-gd (grey Qtz)	Norseman-Wiluna
	02AY23	02082703	f mass gd	Southern Cross
	02AY24	02082704A	c-m slight por (1cm white feld) mass Bt gr (grey Qtz)	Southern Cross
	02AY25	02082704B	equigranular (recrystallize) f Bt gn gr	Southern Cross
	02AY26	02082705A	f-m leuco Bt gn gr +peg	Southern Cross
	02AY27	02082705B	apl + peg	Southern Cross
	02AY28	02082801A	f homo gd	Murchison province
	02AY29	02082801B	m-c Bt gr including f mela (gd) band	Murchison province
	* 02AY30	02082801C	mass gp like r (dyke?)/c-m Bt gr boundary	Murchison province
	02AY31	02082802A	foliate f-m gd-gd gn (Pl blastic)	Murchison province
	02AY32	02082802B	sheared peg	Murchison province
	02AY33	02082803A	f weak foliate homo gd	Murchison province
	02AY34	02082803B	w feld por Bt gr	Murchison province
	02AY35	02082804	f equigranular gn gd including mela schlieren	Murchison province
	02AY36	02082806	f equigranular (recrystallize) homo gd-tonal	Murchison province
	04AY01	040823(9)	fuchsite disseminated tonal ?	Murchison province
	04AY02	040823(10)	f gn gd-tonal	Murchison province

Narryer gneiss complex (along Murchison rd)

	AY501	95093001	quartzite (ori J 60E 85N)	Narryer gneiss c
	AY502	95093002A	f-m gd gn with nebulitic f Qtz feld gn	Narryer gneiss c
	AY503	95093002B	f-m gd gn with nebulitic f Qtz feld gn	Narryer gneiss c
	+ AY504	95093003A	banded c Grt Bt gn with Pl blast	Narryer gneiss c
	AY505	95093003B	banded-mig Bt gn with leuco gr layer	Narryer gneiss c
	AY506	95093003C	w feld por c Bt gn	Narryer gneiss c
	AY507	95093004A	quartzite	Narryer gneiss c
	non	95093004B	pelitic r	Narryer gneiss c
	AY509	95093005A	f-m foliate amphibolite	Narryer gneiss c
	AY510	95093005B	Grt bear amphibolite (mafic granulite)	Narryer gneiss c
	non	95093005C	peg Kfs	Narryer gneiss c
	AY512	95093006	c schistose gd-gd gn (ori J 20E 60E)	Narryer gneiss c
	AY513	95093007	c schistose gd-gd gn (ori J 20E 55W back)	Narryer gneiss c
	AY514	95093008	w feld pb gn gd (greyish, charnock ?) (ori J NS 35W)	Narryer gneiss c
	*+ AY515	95100201A	euohedral Pl bear gab (foliate type)	Narryer gneiss c
	* AY516	95100201B	euohedral Pl bear gab (mass type)	Narryer gneiss c
	+ AY517	95100201C	euohedral Pl bear gab (por type)	Narryer gneiss c
	AY518	95100201D	euohedral Pl bear gab (por type)	Narryer gneiss c

AY519	95100201E	gab (mass-por type)	Narryer gneiss c
+ AY520	95100202A	strong foliate c p gr gn with partly augen	Narryer gneiss c
AY521	95100202B	f-m hetero dio-porphyrite (dyke)	Narryer gneiss c
AY522	95100202C	Ep r	Narryer gneiss c
AY523	95100203	sheared leuco-grey gr gn	Narryer gneiss c
* AY524		BIF	Narryer gneiss c
* 02AY37	02082807	[W201] c quartzite	Narryer gneiss c
02AY38	02082808A	green quartzite	Narryer gneiss c
02AY39	02082808B	amphibolite	Narryer gneiss c
+ 02AY40	02082809A	well banded Grt Bt gn	Narryer gneiss c
02AY41	02082809B	BIF	Narryer gneiss c

(Total : 370)

Proterozoic mobile belts and sediments in Australian Shield

Reg No	Original No	Rock name	[Locality]	Locality/Geology
<u>Leeuwin complex and Albany belt (1995 : Kano, T.)</u>				
[Leeuwin complex]				
AL01	95120201	foliate c gr (slight charnock)		northern Leewin c
AL02	95120202	mass charnock		northern Leewin c
AL03	95120203	f charnock leuco gr		northern Leewin c
* AL04	95120204	mass charnock		northern Leewin c
non	95120204	p peg		northern Leewin c
AL06	95120205	f equigranular gr gn with thin mafic band (ori J 10W 45E)		northern Leewin c
AL07	95120206	c leuco charnock (greenish) gr		central Leewin c
AL08	95120207	f-m p gr		central Leewin c
AL09	95120208	foliate p c-m gr		central Leewin c
+ AL10	95120209	banded f p gr gn		central Leewin c
AL11	95120210	foliate c tonal-gd (slight charnock)		central Leewin c
AL12	95120301	foliate c tonal (syne ?)		southern Leewin c
AL13	95120302	c tonal-gd gn (ori J,L 10W 10N)		southern Leewin c
AL14	95120303	f-m foliate p gr-gr gn (slight charnock)		southern Leewin c
AL15	95120304	foliate (Hbl clot oriented) vc gd gn (slight charnock)		southern Leewin c
AL16	95120305A	banded Bt Hbl gn (xenolith)		southern Leewin c
AL17	95120305B	banded Grt Bt gn +Qtz feld gn		southern Leewin c
AL18	95120305C	whitish c gr-peg		southern Leewin c
AL19	95120306	f-m p gr + c gr banded		southern Leewin c
[Albany belt]				
AL20	95120307	Grt bear sheared gr-myl gr gn		Albany belt
non	95120308	foliate gn por gr (-augen gn) + peg		Albany belt
AL22	95120309	mass leuco charnock		Albany belt
+ AL23	95120310A	strong foliate-sheared c gr gn (grey feld por-augen)		Albany belt
AL24	95120310B	f-m Bt gn-gr gn		Albany belt
non	95120310C	mass m-c gr		Albany belt
AL26	95120311	w feld c gr gn (-augen gn)		Albany belt
AL27	95120312T	m por Bt gr		Albany belt

[Albany -Route 1- Perth]

AL28	95120401A	Grt bear augen gn-tonal gn	Albany belt
AL29	95120401B	f foliate leuco gr (banded with 401A)	Albany belt
AL30	95120401C	f foliate gd-gd gn	Albany belt
AL31	95120401D	schistose amphibolite	Albany belt
AL32	95120402	c leuco gr (mass-slight foliate and por)	Albany belt
+ AL33	95120403	c gn tonal-gd +f-m foliate leuco gd	Albany belt
AL34	95120404	w Kfs por weak foliate gr	Albany belt
AL35	95120405	w Kfs por gn gd	Albany belt
* AL36	95120406	w large feld por c gn gd	[Albany in town] Albany belt

Gascoyne province (1995 : Kano, T.)

AG01	95092708	m p mass gr	Gascoyne (Nanutarra)
AG02	95092709	f weak foliate leuco Bt gr	Gascoyne (Nanutarra)
AG03	95092710	foliate c leuco Bt gd (ori J L 30W 0)	Gascoyne (Nanutarra)
* AG04	95092711	augen gn (large 4-5cm augen)	Gascoyne (Nanutarra)
04AG01	040819(1)	augen gn	Gascoyne (Nanutarra)

Mt Isa inlier (1995 : Kano, T.)

[Mt Isa mine]

* AM01	950725	[W245] banded folded Pb-Zn ore	Mt. Isa under ground
AM02	95072502	Cu ore (Ccp vein network brecciated shale)	Mt. Isa under ground
AM03	95072502	Cu ore (Ccp vein network brecciated shale)	Mt. Isa under ground
AM04		banded sulphides ore (pyrrhotite)	Mt. Isa under ground
AM05		chalcopyrite	Mt. Isa under ground
AM06		Pb-Zn ore (galena, sphalerite)	Mt. Isa under ground
* AM07	95072504	[W246] black shale (Mt Isa Group)	east side hill, Mt Isa
AM08		graphite bear black shale (Mt Isa Group)	east side hill, Mt Isa

[Mt Isa - Cloncurry]

AM11	95072601	p leuco apl gr	Naraku batholith
* AM12	95072602	p peg Kfs	Naraku batholith
AM13	95072603	f apl leuco gr	Naraku batholith
AM14	95072604T	f slight foliate p gr	Naraku batholith
AM15	95072605T	leuco Bt gn gr	Naraku batholith
AM16	95072606	p apl (dyke)	Naraku batholith
AM17	95072607	strong foliate f-m p gr-gr gn	Naraku batholith
AM18	95072608	f-m p gr	Naraku batholith
AM19	95072609	f p-red gr	Naraku batholith
AM20	95072610	f p-red gr	Naraku batholith
AM21	95072611T	c px (Hbl) Qtz feld r	Marry Kathleen G ?
AM22	95072612T	banded calc silic sht-gn	Marry Kathleen G
AM23	95072613	c-m tonal gn with w feld porbla	Wonga batholith
AM24	95072614	schistose amphibolite	Marry Kathleen G ?
AM25	95072615	foliate c tonal-tonal gn	Kalkadoon batholith
AM26	95072616	c leuco gn tonal	Kalkadoon batholith
AM27	95072617	c mela-inter tonal gn	Kalkadoon batholith
AM28	95072618	apl gn gr	Kalkadoon batholith
		[Mt Isa to north]	
+ AM29	95072701	c red Bt gr & red apl gr vein	Sybella batholith

+ AM30 95072702 c-vc flaky Bt gn gd-gd gn Sybella batholith

Western Australia to Northern Territory (2002 : Kano, T. and Owada, M.)

Amadeus basin, Musgrave block, Arunta block, Granites-Tanami block,
Halls Creek belt, Kimberley basin, King Leopold belt

02AN01	02081501	f hornfelsic ss-shale	Amadeus basin ?
02AN02	02081601A	sheared myl red gr	Musgrave block
02AN03	02081601B	mica sht or gr myl	Musgrave block
02AN04	02081701	ss (felsite ?)	Amadeus basin
02AN05	02081702A	banded dio gn	Arunta block
02AN06	02081702B	banded dio-tonal gn	Arunta block
02AN07	02081702C	c leuco gn gr	Arunta block
02AN08	02081801	mica sht-gn (Grt Sil bear ?)	Arunta block
02AN09	02081802A	c-m p Kfs gd-gr	Arunta block
02AN10	02081802B	f-m leuco gd	Arunta block
02AN11	02081802C	p feld bear leuco-greyish gd	Arunta block
* 02AN12	02081803A	large Kfs (5-8cm) bear vc por gr	Arunta block
02AN13	02081803B	f-m dio (mafic enclave in 803A)	Arunta block
02AN14	02081804	p Kfs por gd-gp (euhedral Kfs in dark matrix)	Granites
02AN15	02081901	cherty slate or silicified mud [near Tanami mine]	Proterozoic cover ?
02AN16	02081902	quartzite-quartzose ss	Proterozoic cover ?
02AN17	02082001	c foliate tonal	Halls Creek belt
02AN18	02082002A	amphibolite	Halls Creek belt
02AN19	02082002B	f leuco gn tonal-gn gd (leuco band in A)	Halls Creek belt
02AN20	02082003	augen gn (rapakivi feld vc Bt gr gn)	Halls Creek belt
02AN21	02082004	f two mica leuco gr	Halls Creek belt
02AN22	02082004T	Crd ? porbla f Bt gn	Halls Creek belt
02AN23	02082201	quartzite-arkose ss	Kimberley basin
02AN24	02082301	meta basalt under quartzite	Kimberley basin
02AN25	02082302	large w feld por leuco gp	King Leopold belt
02AN26	02082303	c gp or gd (meta gp ?)	King Leopold belt
02AN27	02082304A	augen gn with rapakivi feld	King Leopold belt
02AN28	02082304B	f-m gn gd	King Leopold belt
02AN29	02082304C	blast myl gr gn (ori F 40W 65S)	King Leopold belt

(Total : 95)

3. インド

India

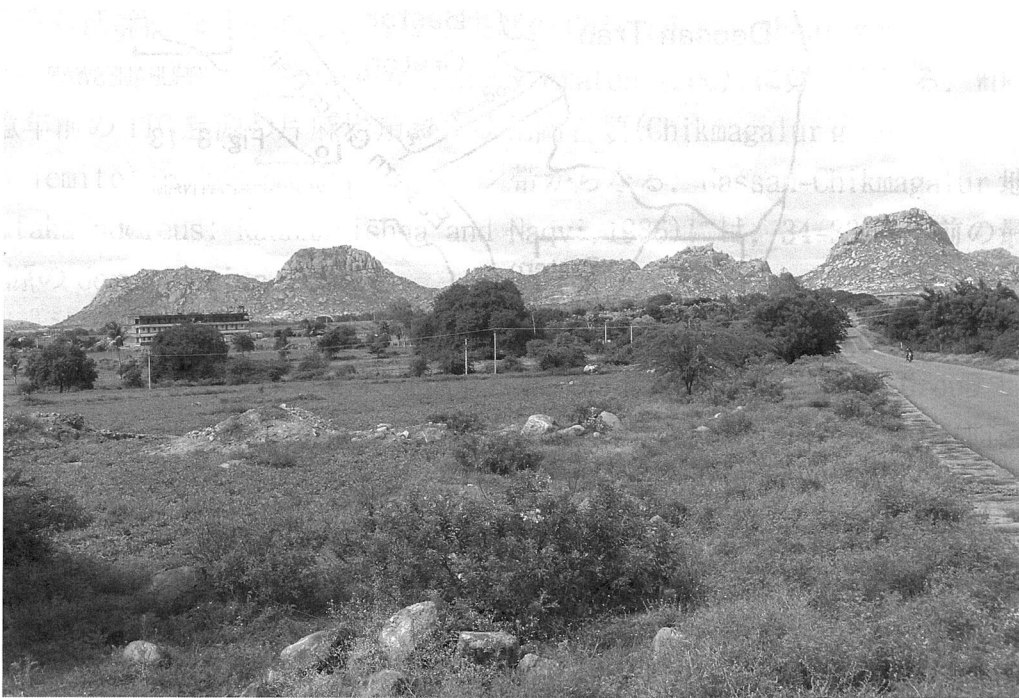


Photo 3. Rocky hills of Closepet granites in the Dharwar craton.

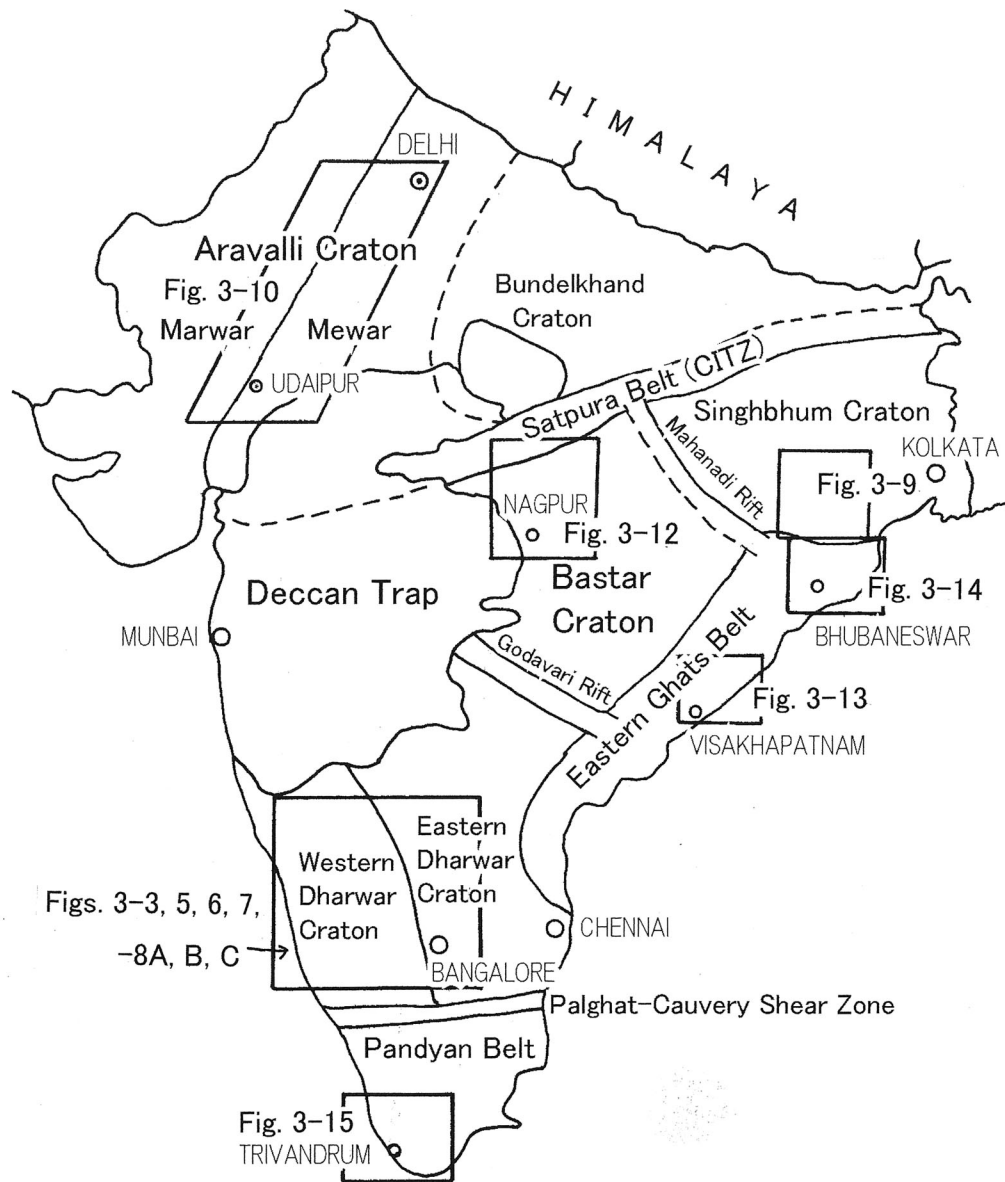


Fig.3-1. Geologic units of the Indian shield.
 (based on Ramakrishnan and Vaidyanadhan, 2008)

3. インド India

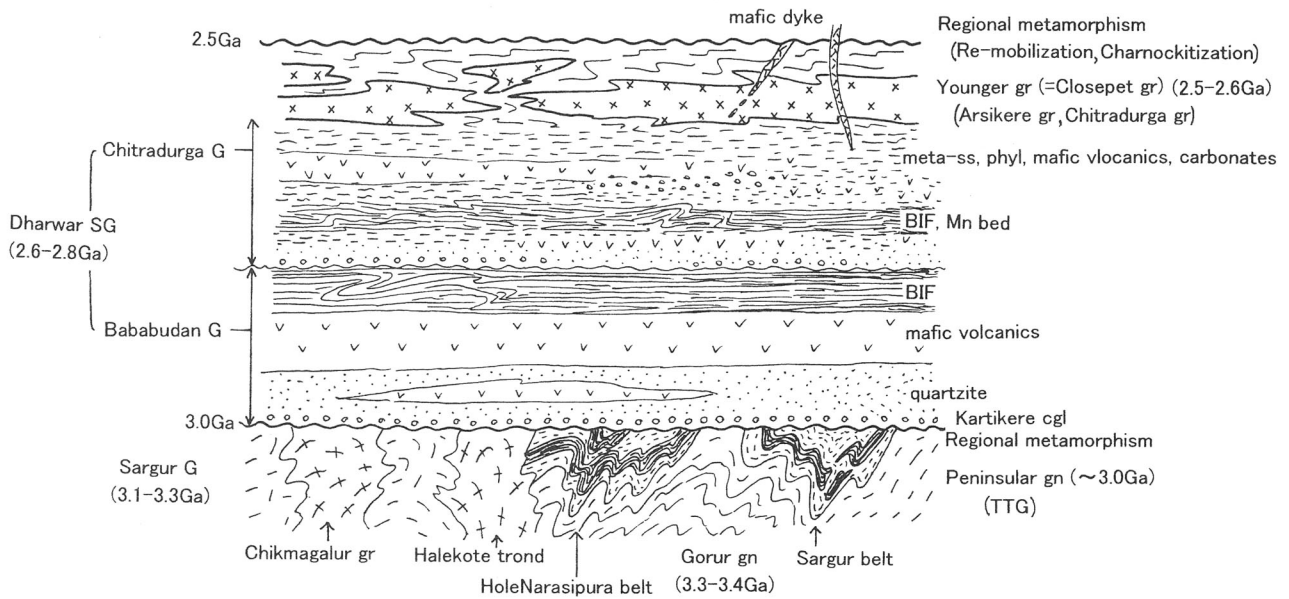
ヒマラヤ山脈の南、インド半島の大半は先カンブリア時代の岩石から構成され、これらをインド楕状地 Indian shield という。中央部のデカン高原には約 50 万 km^2 にわたって玄武岩台地が広がるが、その下位は楕状地である。インド楕状地の中で始生代クラトンは 5 地域あり、南部の Dharwar craton, 中央部の Bastar craton, 東部の Singhbhum craton, 北部の Aravalli craton と Bundelkhand craton である (Fig. 3-1)。始生代クラトンは原生代の変動帯で連結あるいはせん断帯で境される。主要な変動帯は、東海岸に沿った Eastern Ghats belt, 中央インド構造帯 Cenral Indian Tectonic Zone (CITZ あるいは Satpura belt), 南部の Pandyan belt (Kerala khondalite belt を含む) である (cf. Ramakrishnan and Vaidyanadhan, 2008)。

始生代クラトンの中で最も広く露出し、岩相がよくそろっているのが Dhrwar craton であり、主として花崗質岩 (TTG: Tonalite-Trondhjemite-Granodiorite) 起源の片麻岩 Peninsular gneiss と表成岩類からなるグリーンストーン帯から構成される。主要な構造は南北方向を示し、ほぼ中央部の Chitradurga shear zone で Western Dharwar craton (WDC) と Eastern Dharwar craton (EDC) に分けられる。WDC は、34 ~ 30 億年前の TTG 起源の片麻岩類および花崗岩類 (Chikmagalur granite や Halekote trondhjemite) と 3 期のグリーンストーン帯からなる。Hassan-Chikmagalur 地域 (Karnataka nucleus: Radhakrishna and Naqvi, 1986) には、34-33 億年前の最も古い TTG 起源の Gorur gneiss がある。

グリーンストーン帯は、komatiite 等の苦鉄質火山岩と珪岩・泥質岩・石灰岩 (QPC) やチャート・BIF からなる。それらは最古期 (33 億年前) の Sargur Group と中~新期 (28~26 億年前) の Bababudan Group と Chitradurga Group に区分され (Fig. 3-2), 中~新期の 2 者をあわせて Dharwar Supergroup という。Bababudan Group は、珪岩に富む基底礫岩 Kartikere cgl で TTG 起源の片麻岩類を不整合におおい、30 億年前前後に広域変成作用が想定される。グリーンストーン帯は全域に多数あり (Figs. 3-3, 4), 変成度や岩相によって区分されたものもあり、今後の時代論上の進展が期待される。

一方 EDC には、全域的に 27~25 億年前前後の TTG 起源の片麻岩とほぼ同時期の花崗岩類が多く (Dharwar batholith という) (Fig. 3-2), グリーンストーン帯は少ない (ほとんどが新期)。WDC に近い部分では古期の TTG の残存片 remnants が見られることもある。始生代末の 25 億年前には、WDC・EDC 合わせて全域的に花崗岩形成があり、EDC には南北 300km に達する Closepet 花崗岩体が形成された。さらに引き続いて全域的に広域変成作用を受け、北部は緑色片岩相で、南に向かって変成度が上昇し、クラトン南部はグラニュライト相となる (Northern granulite belt)。Bangalore 郊外の Kabbaldurga では、Closepet 花崗岩の一部がチャーノカイト化している様子が観察で

Geological Succession of the Western Dharwar Craton



Geological Succession of the Eastern Dharwar Craton

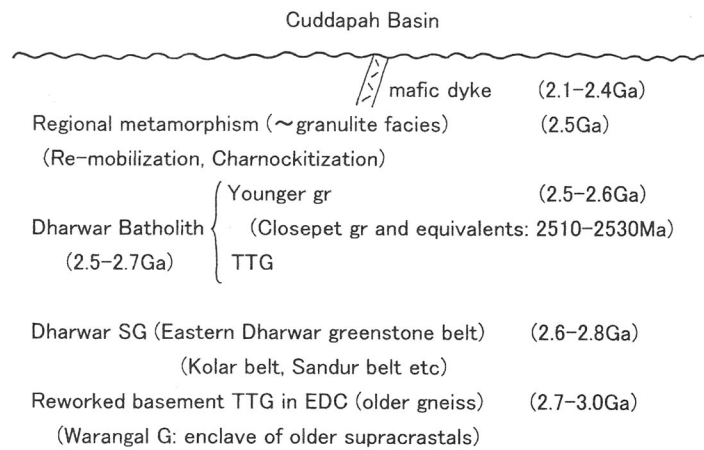


Fig.3–2. Geological successions of the Dharwar craton (upper: WDC, lower: EDC). (compiled from Ramakrishnan and Vaidyanadhan, 2008)

きる。クラトン東部は、原生代中期以降 Cuddapah basin におおわれる。Figs. 3-5, 6, 7, 8 に地質略図上にサンプル位置を示す

シンブムクラトン Singhbhum craton にも古期岩類が良く残っている (Fig. 3-9) 。最古期岩相は、始生代前期の塩基性火山岩起源の角閃岩と TTG 起源の片麻岩で、上位に始生代中期の Iron Ore Group が分布する。これは文字通り BIF からなり、インド鉄鋼業の発祥の地として開発されてきた。クラトンには、始生代中期の Singhbhum granite が広く分布し、原生代の地層群 Kolhan Group や火山岩類に覆われる。

インド西部の Rajasthan には、25 億年前の片麻岩類 (Mewar gneiss あるいは Banded gneiss complex) があり、上位に原生代早期～中期の Aravalli Supergroup とさらに原生代中～後期の Delhi Supergroup が分布する (Figs. 3-10, 11)。基盤岩類は始生代末にグラニュライト相の変成作用を受け、また上位層には原生代中期と原生代後期に褶曲と変成作用・花崗岩の貫入があり、Aravalli-Delhi 褶曲帯となって中央インド構造帯の一部を構成する。

インド中央部の Nagpur 一帯には、始生代 Bastar craton の片麻岩類と原生代の表成岩類からなる Sakoli belt と Sausar belt が分布する。Sakoli belt は、基盤の Bastar craton を構成する Amgaon gneiss の上位にある砂泥質岩と火山岩からなる地層で、三角形をした分布域をもつ。Sausar belt は砂泥質岩や石灰珪質岩とともにマンガンを富む珪質岩 gondite を含み、マンガニ鉄床を形成する。また基盤の片麻岩が再変成した Tirodi gneiss を挟む。原生代中～後期に変動を受け、Satpura belt (中央インド構造帯) を構成する。基盤および Sausar belt 内にはグラニュライト地帯もある。両地帯の関係や年代論にはまだ未解決の点が多い。

Eastern Ghats belt は、Godavari rift と Mahanadi rift によって分断されるが、インド東岸に沿って 1000km も続く原生代変動帯である。UHT (超高温変成岩) を含むグラニュライト相の変成岩 (khondalite) や charnockite で特徴づけられる。変成時期は何度かあり、全体に 10 億年代が多く見られるが、20 億年を超えるものや 14 億年の斜長岩 (Chilika lake) も知られている。Singhbhum craton とは shear zone で境され、基盤の角礫を含む浅所貫入火成岩を伴う。

Pandyan belt は、インド南端の原生代変動帯で、Palghat-Cauvery shear zone で Dharwar craton と境される (Fig. 1-3)。主にグラニュライト相の変成岩と charnockite よりなる。以前は Southern granulite terrain の一部とされたが、これには Dharwar craton 南部の始生代のグラニュライト地域も含まれていて混乱が生じるので、Dharwar craton の方は Northern granulite terrain として区別し、Pandyan belt と呼ぶようになった。この地帯の内部も複雑で、多数の shear zone で区切られたブロックからなる。北部には始生代の年代や 20 億年以上の年代が知られるが、全体には 7～5 億年前の Pan-African の変動を受けている。特に最南端の Achankovil shear zone

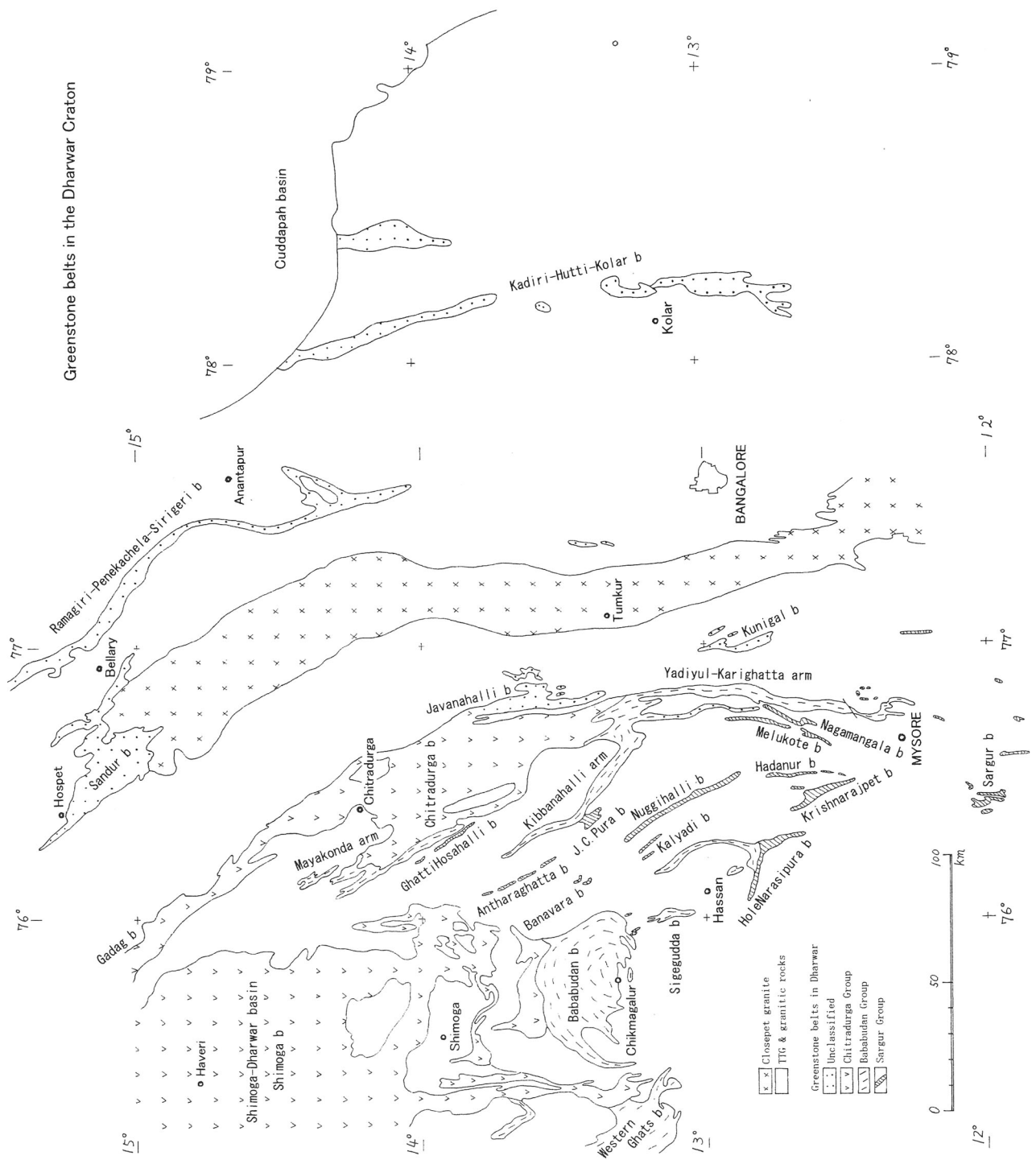


Fig.3-3. Greenstone belts in the Dharwar craton.

(based on GSI Map, 1981 ; Ramakrishnan and Vaidyanadhan, 2008)

Greenstone belts in the Dharwar Craton

Name of greenstone belt	Locality	Remarks (correlation)
(S: Sargur Group, B: Bababudan Group, C: Chitradurga Group)		
Antharaghatta b (Shivani b)	WDC	S
Bababudan b	WDC	mainly B +C, enclave S
Banavara b	WDC	S
Chitradurga b	WDC	mainly C +B, S
Gadag b (northern part of Chitradurga b)	WDC	mainly C
Ghatti Hosahalli b	WDC	S in Chitradurga b
Hadanur b	WDC	S
Hole Narasipura b	WDC	S +partly B ?
Hungund (Kushtagi) b	EDC	C
Javanahalli b	EDC	S ?
Jayachamarajpura b (JC Pura b)	WDC	S in Chitradurga b
Kalyadi b	WDC	S
Kibbanahalli arm (Chitradurga b)	WDC	B
Kolar-Kadiri-Hutti b	EDC	C
Krishnarajpet b (KR Pet b)	WDC	S
Kunigal b	EDC	S ?
Mayakonda band (Chitradurga b)	WDC	B
Melukote b	WDC	S
Nagamangala b	WDC	S
Nuggihalli b	WDC	S
Raichur b	EDC	C
Ramagiri-Penekacherla-Sirigeri b	EDC	C
Sandur b	EDC	C +B
Sargur b	WDC	S
Shimoga b (Shimoga-Dharwar basin)	WDC	mainly C +minor B, enclave S
Sigegudda b	WDC	B
Western Ghats b	WDC	B +C
Yadiyur-Karighatta arm (Chitradurga b)	WDC	B

Fig.3-4. Classification of greenstone belts in the Dharwar craton.
(based on Ramakrishnan and Vaidyanadhan, 2008)

以南の Kerala khondalite belt は、UHT を含む Pan-African のグラニュライト相変成帯である。

著者の始生代クラトン初見参は、1970年ヒマラヤ調査の帰途に立ち寄った Madras 近郊であった。1980・1982年にも南インドを訪れたが、いずれも短期間であり、本格的な地質観察と試料採集は、1992年に当時大阪市立大学の吉田 勝教授の海外学術調査プロジェクトに参加させて頂いて以降のことである。その後も同教授のプロジェクトにより、Rajasthan (Aravalli, Delhi), Nagpur とインド全域に対象を広げることができた。またこれをきっかけに、現地 Bangalore および Mysore 大学の研究者の知遇を得て、調査・採集は格段に進展した。特に Bangalore 大学 (現在 Delhi 大学) の M. Jayananda 氏とは数度にわたって Dharwar 全域の調査観察を行ってきた。

試料採集の年次と地域は以下のとおりである。

- 1970年 Dharwar craton (Madras 近郊)
- 1980年 Dharwar craton (Mysore, Nilgiri hill)
- 1982年 Dharwar craton (Hyderabad 近郊, Belgaum-Goa)
- 1992年 Kerala, Dharwar, E. Ghats (Visakhapatnam, Bhubaneswar), Singhbhum
(Figs. 3-5, 9, 13, 14, 15) (cf. Yoshida et al., 1994)
- 1994年 Dharwar craton (Fig. 3-6) (cf. Yoshida et al., 1995)
- 1995-96年 Dharwar craton (Fig. 3-7)
- 1999年 Aravalli craton, Aravalli-Delhi belt (Fig. 3-10)
(cf. Kano et al., 2000)
- 1999-2000年 Nagpur (Sakoli and Sausar belts) (Fig. 3-12)
(cf. Kano et al., 2001)
- 2006年 Dharwar craton (Fig. 3-8ABC)
- 2008年 Dharwar craton (Fig. 3-8ABC)
- 2009年 Dharwar craton (Fig. 3-8ABC)

[合計 1241点]

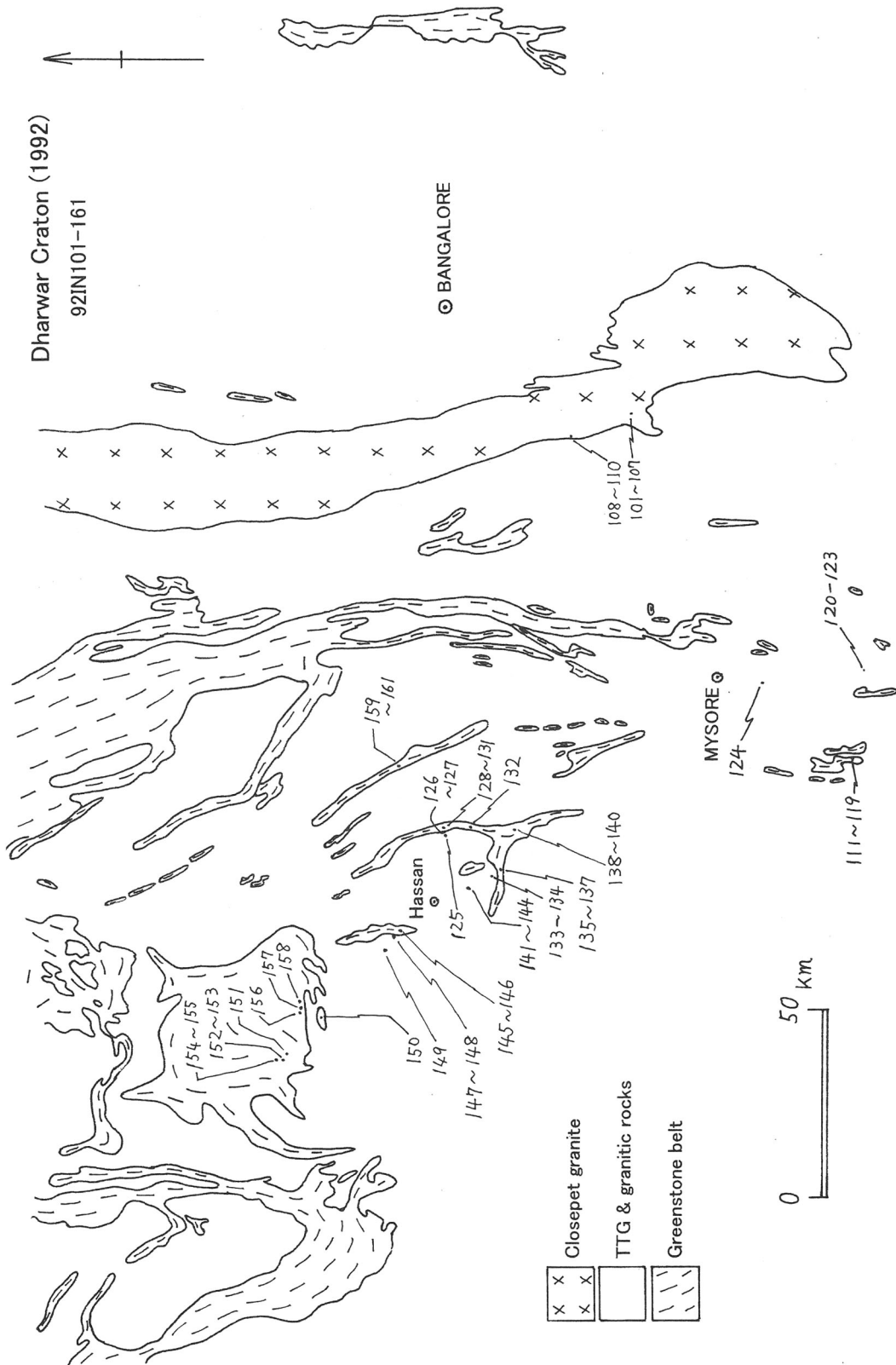


Fig.3-5. Sampling points in the Dharwar craton at 1992. (based on GSI Map, 1981)

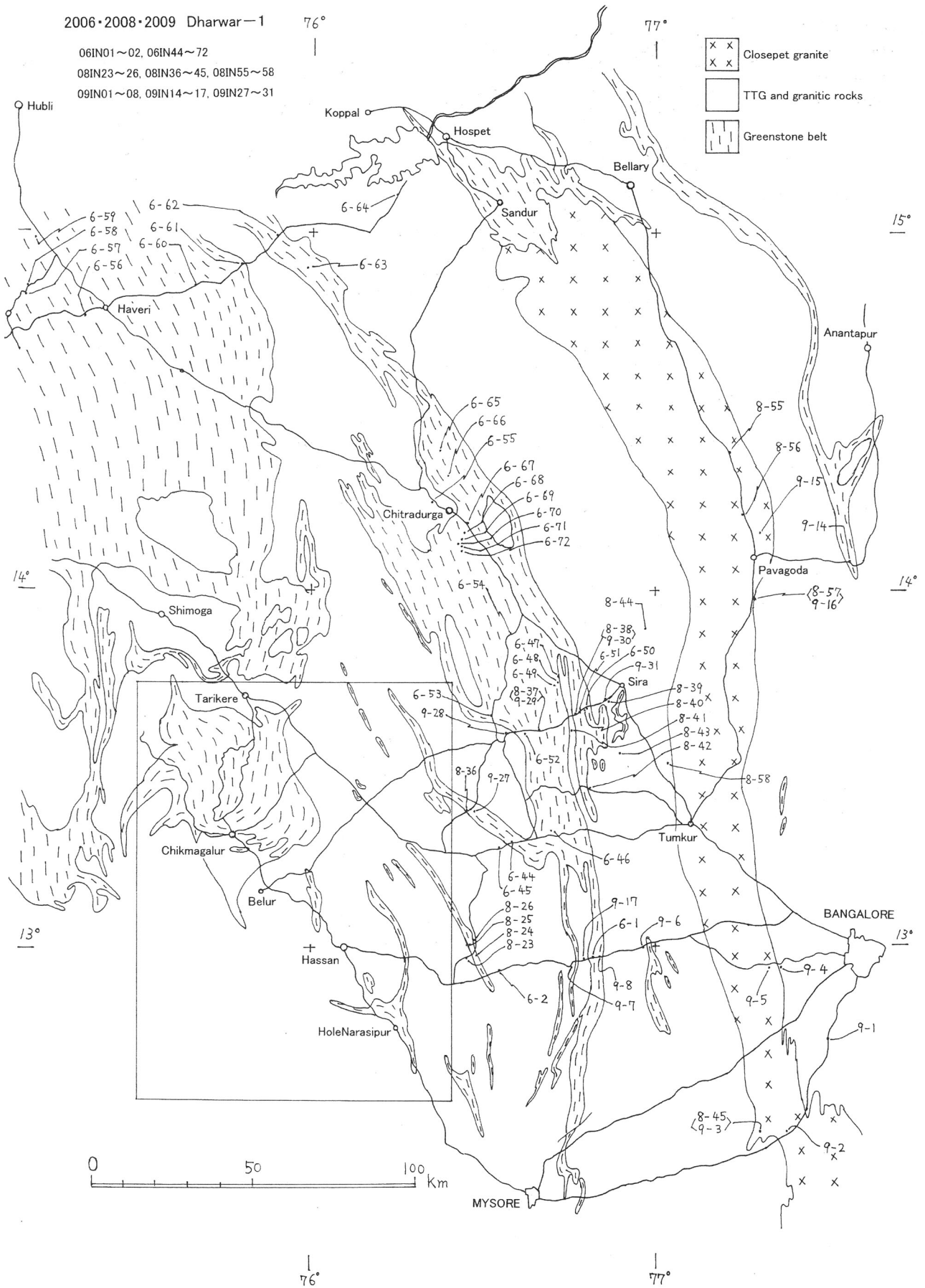


Fig.3-8A. Sampling points in the Dharwar craton at 2006, 2008, 2009 (Main area).
(based on GSI Map, 1981)

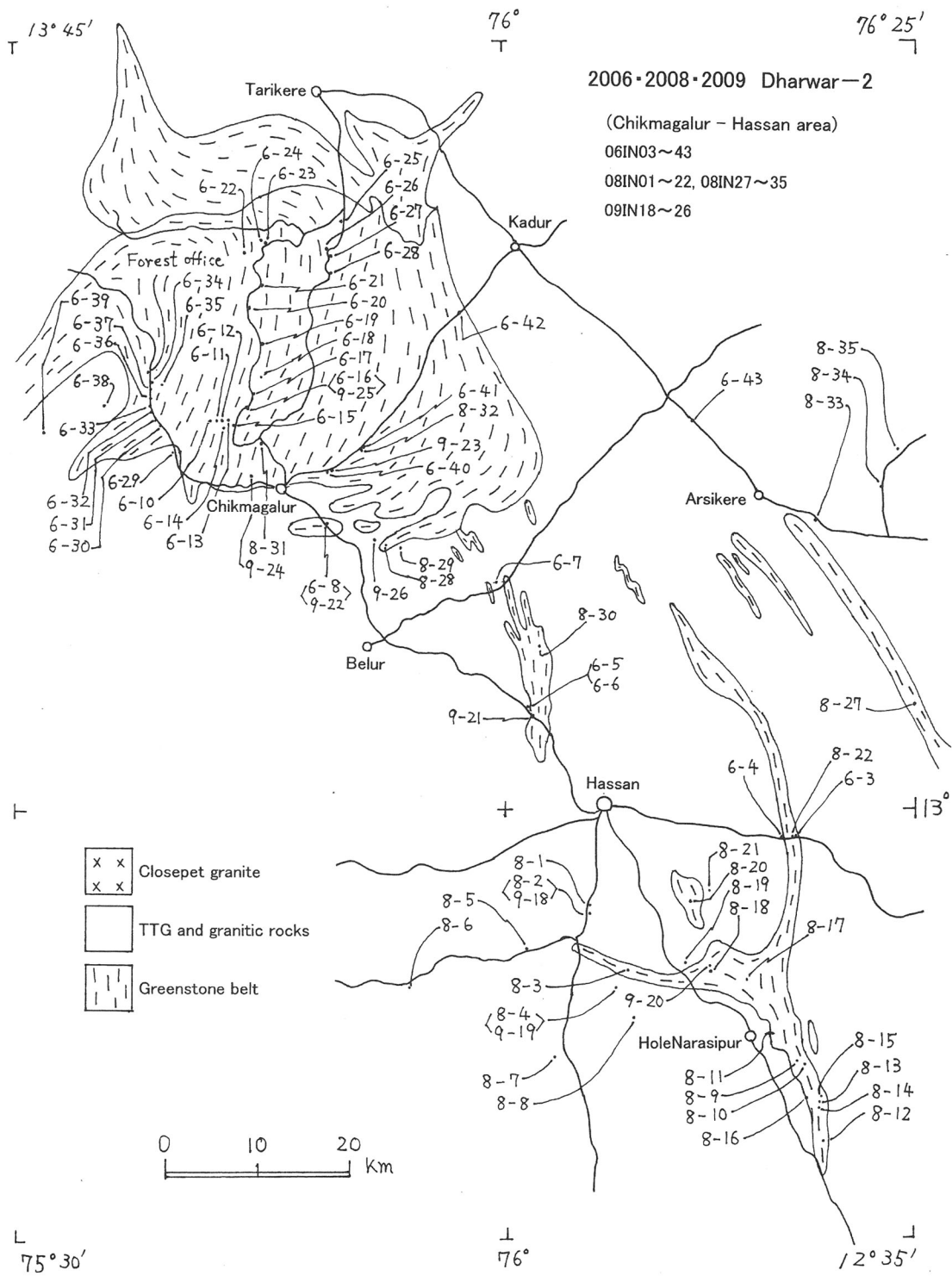


Fig.3-8B. Sampling points in the Dharwar craton at 2006, 2008, 2009
 (Chikmagalur-Hassan area in WDC corresponding to the rectangle in 8A)
 (based on GSI Map, 1981)

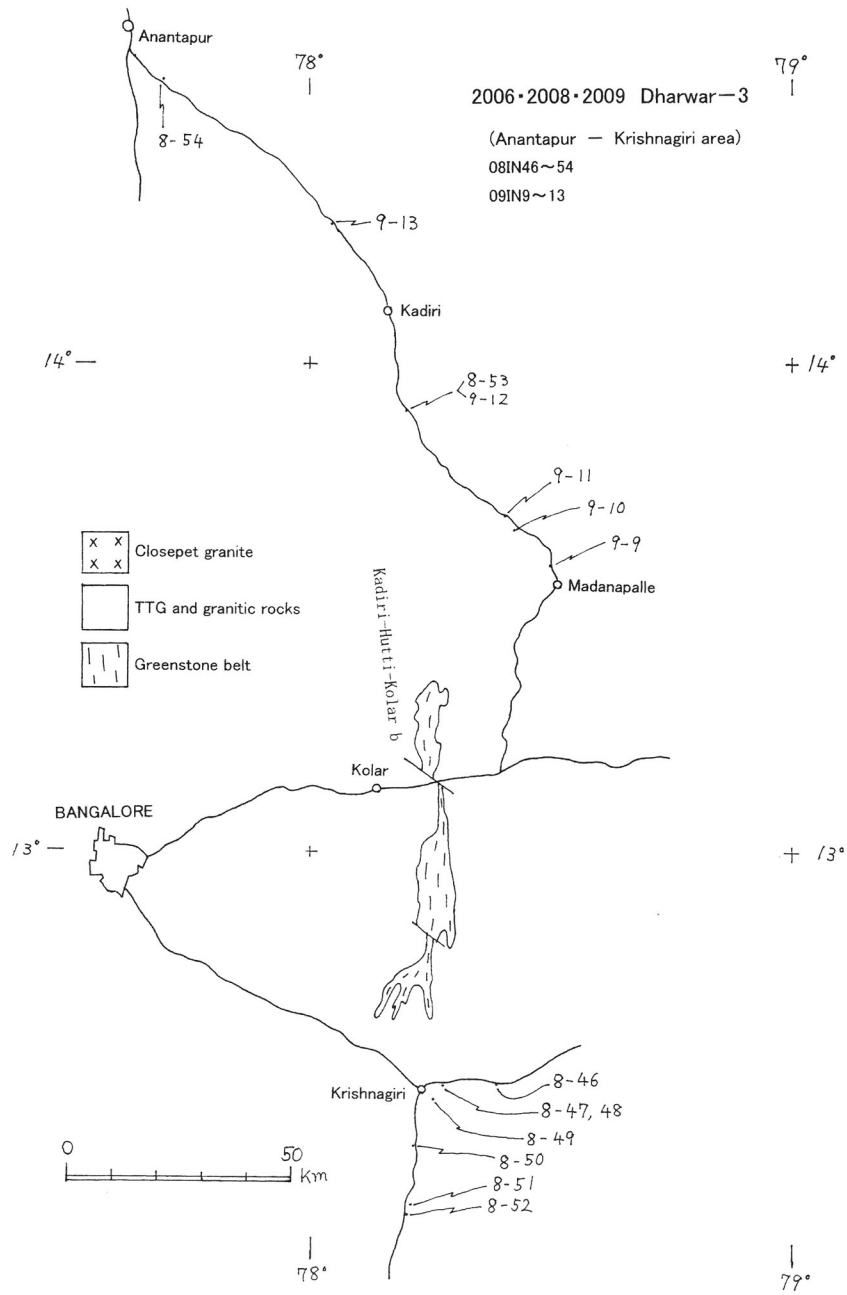


Fig.3-8C. Sampling points in the Dharwar craton at 2006, 2008, 2009 (eastern Bangalore). (based on GSI Map, 1981)

Singhbhum Craton (92IN401~429)

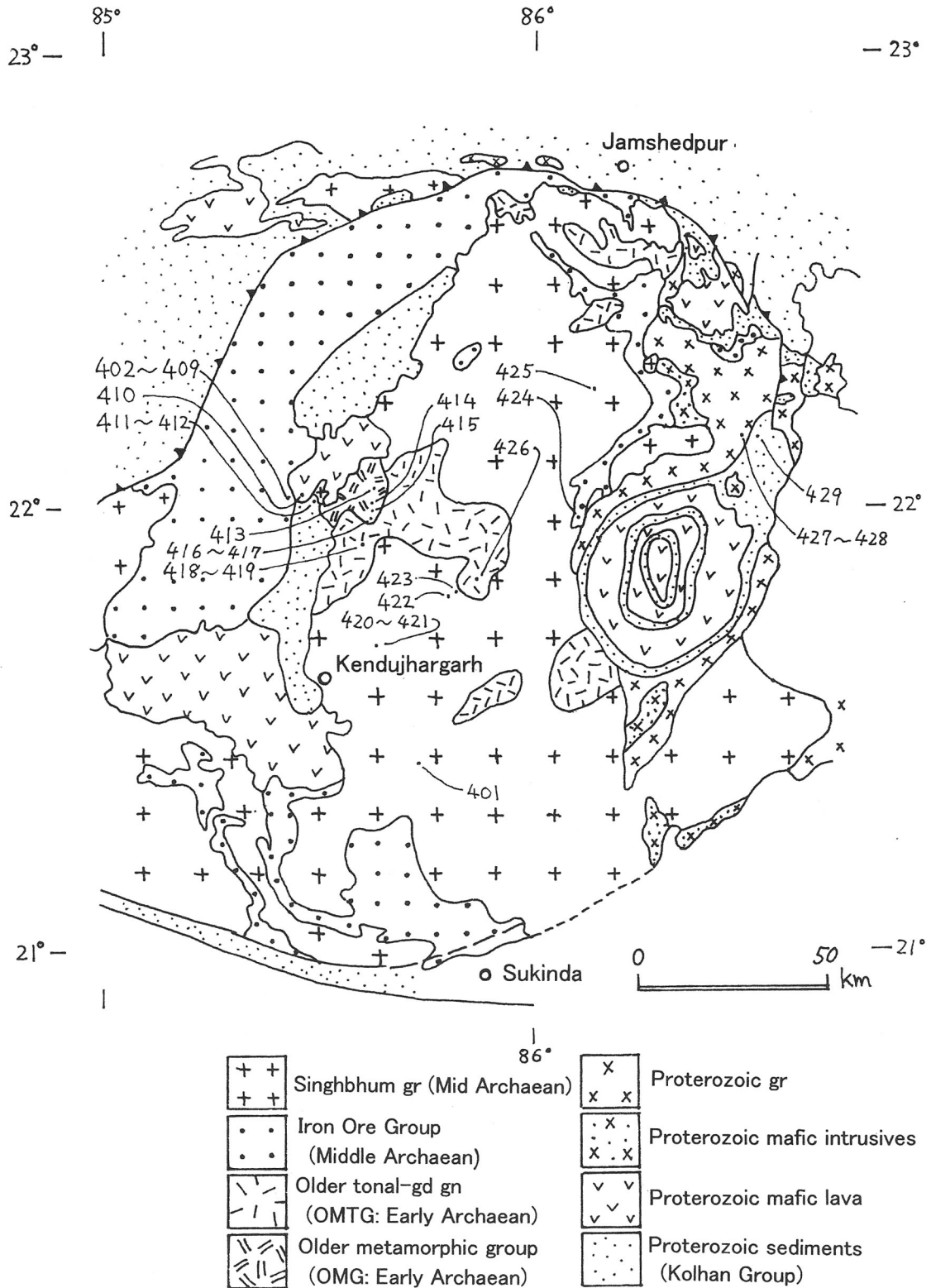
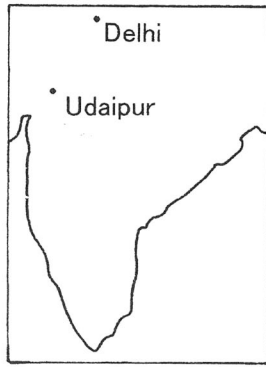


Fig.3-9. Geological map of the Singhbhum craton and sampling points at 1992. (from Yoshida et al., 1994; based on Saha, unpublished map)

Aravalli Craton and Aravalli-Delhi Belt
(99IN01 ~ 132)

Delhi ⊙



NDFB: North Delhi Fold Belt
SDFB: South Delhi Fold Belt

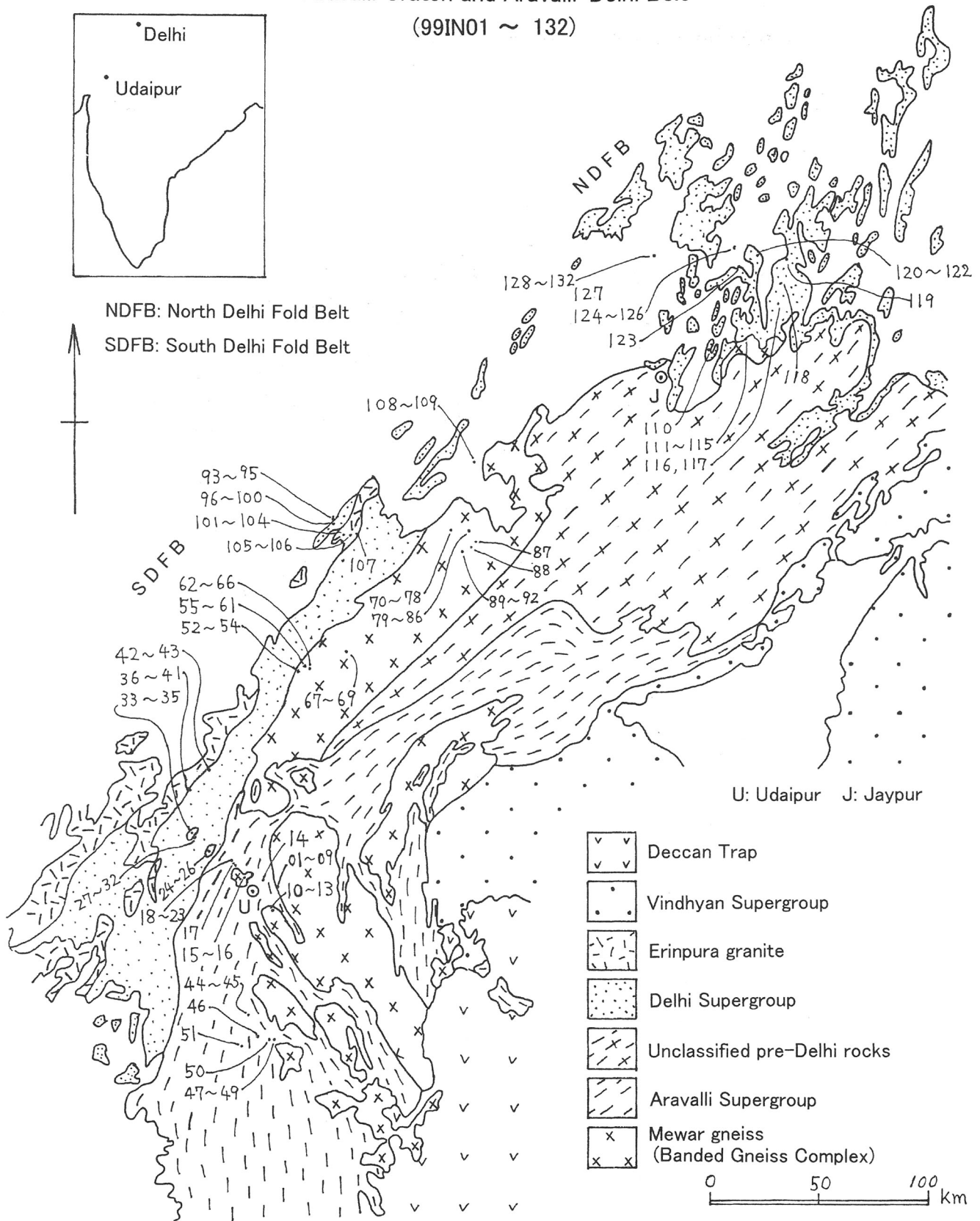


Fig.3-10. Geological map of the Aravalli-Delhi belt and sampling points at 1999.
(based on Roy, 1988)

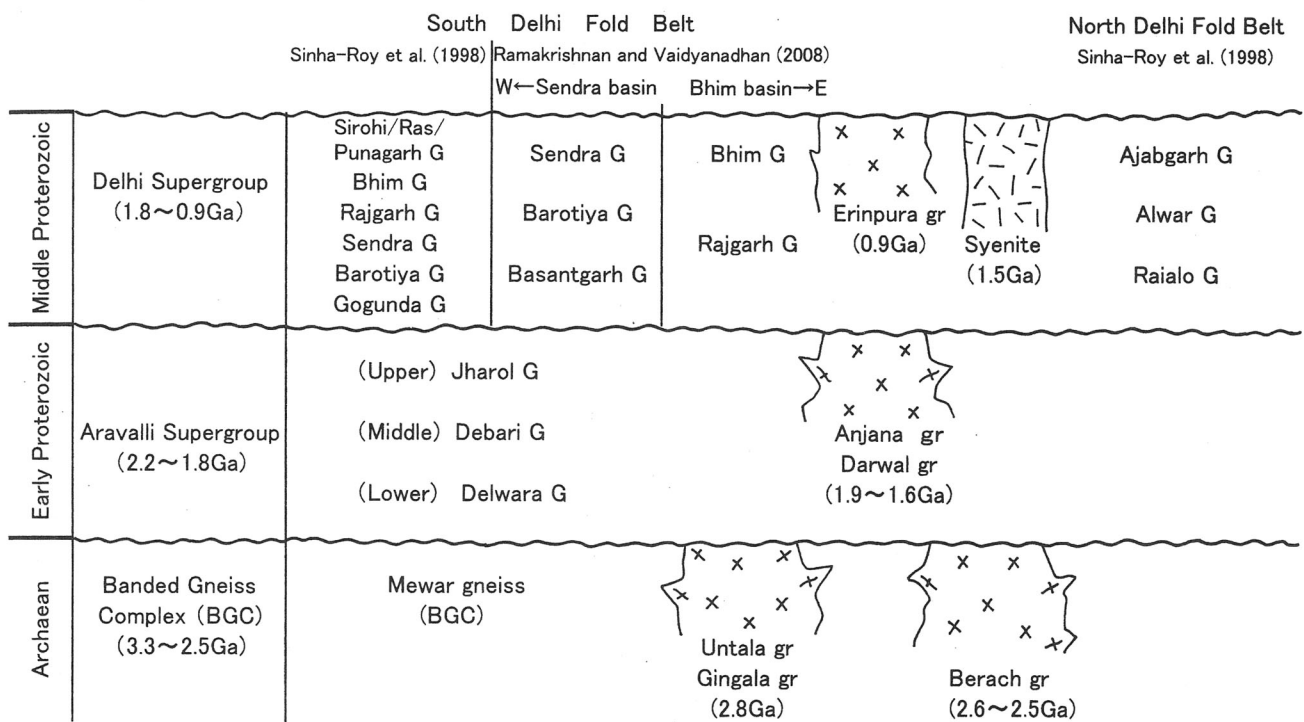


Fig.3-11. Stratigraphic framework of the Aravalli-Delhi belt.

(based on Sinha-Roy et al., 1998 ; Ramakrishnan and Vaidyanadhan, 2008)

Sakoli and Sausar Belts around Nagpur
in the Central Indian Tectonic Zone (00IN01 ~ 64)

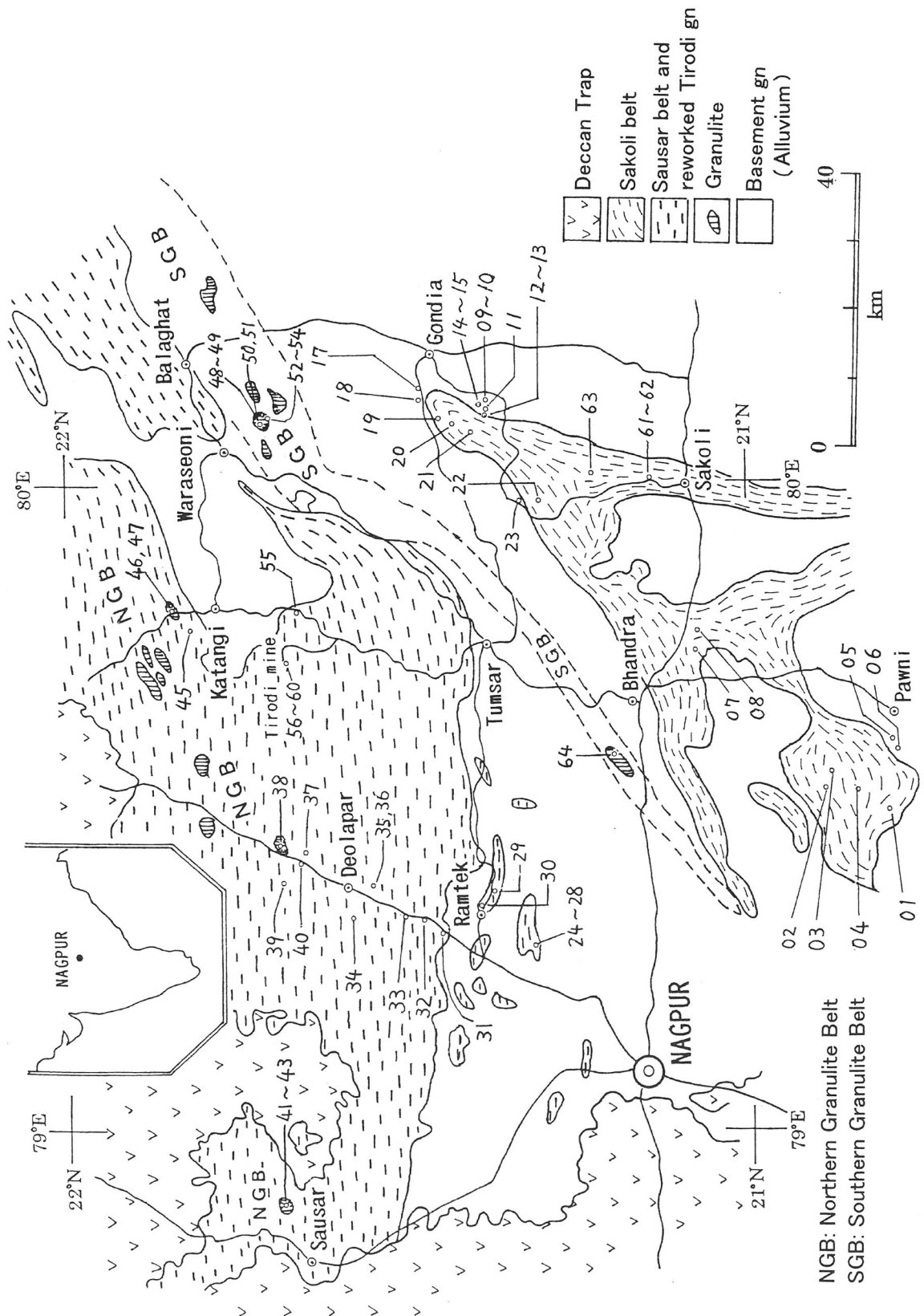


Fig.3-12. Geological map of the Sakoli and Sausar belts and sampling points at 1999-2000. (from Kano et al., 2001; based on the geological map by Nagpur branch of GSI)

Eastern Ghats Belt around Visakhapatnam (92IN201~229)

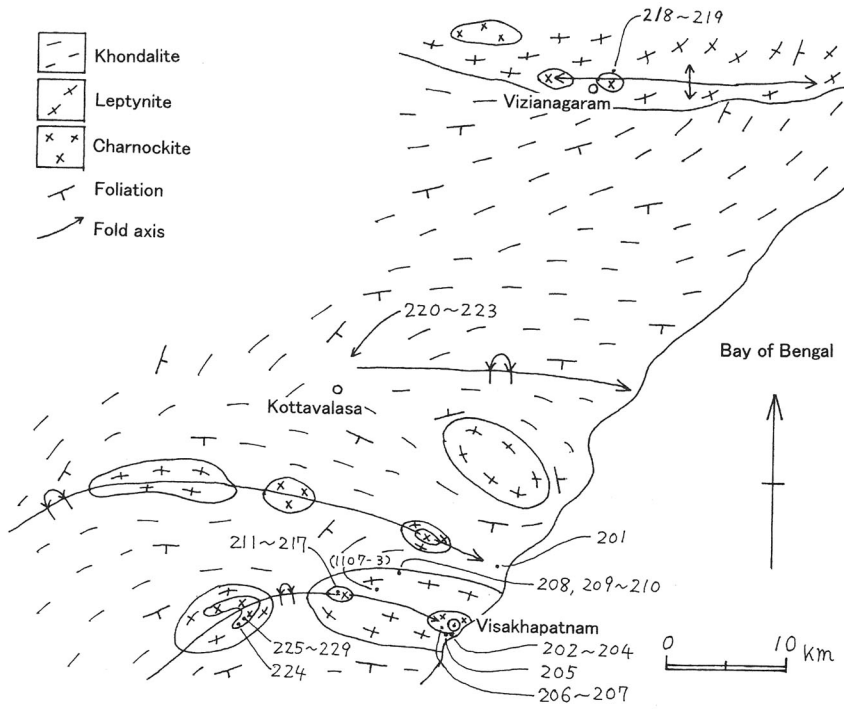


Fig.3-13. Geological map of the Eastern Ghats Belts around Visakhapatnam and sampling points at 1992. (from Yoshida et al., 1994; based on Sriramadas and Rao, 1979; Rao, 1991)

Eastern Ghats Belt around Bhubaneswar (92IN301~332)

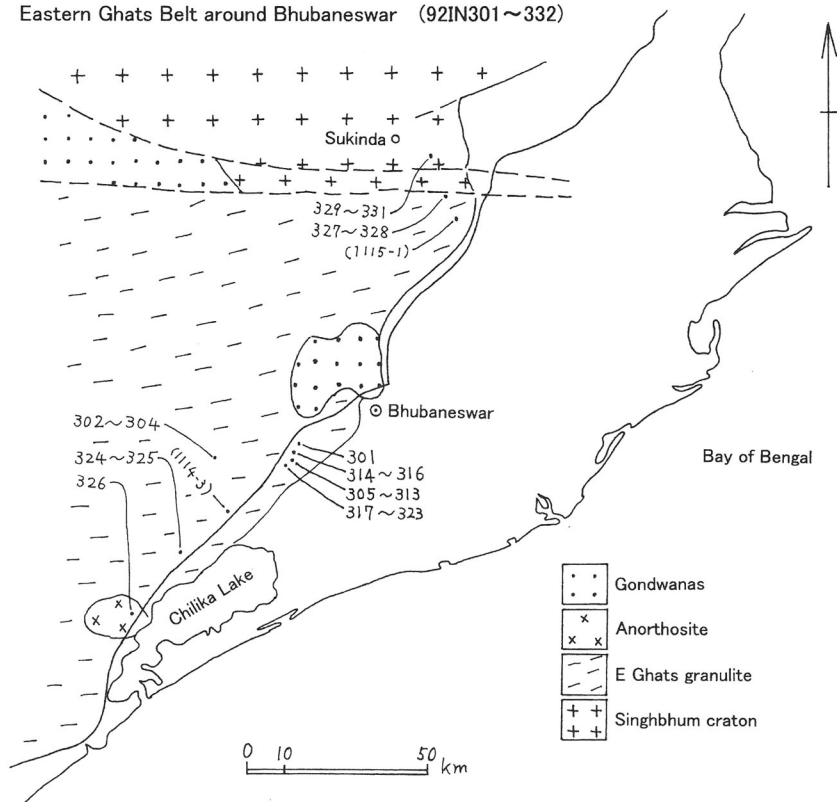


Fig.3-14. Geological map of the Eastern Ghats belts around Bhubaneswar and sampling points at 1992. (from Yoshida et al., 1994; based on Mahalik, 1990)

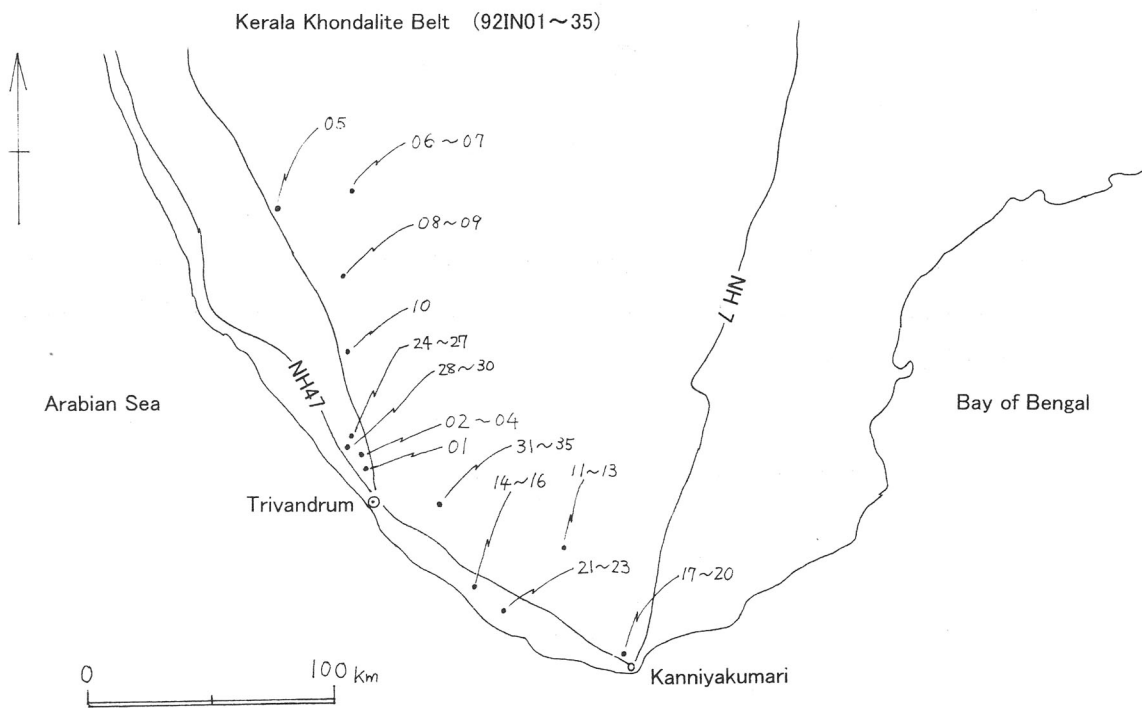


Fig.3-15. Sampling points in Kerala at 1992.

Dharwar Craton (1970, 1980, 1982 : Kano, T.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
[Madras]				
70IN01		[W122] Grt bear mafic granulite		Madras block
70IN02		[W123] amphibolite		Madras block
70IN04		[W124] Grt Bt gn		Madras block
70IN05		[W125] Grt gn		Madras block
70IN06		[W126] graphic gr		Madras block
70IN07		[W127] charnock & mafic granulite		Madras block
70IN09		[W128] c peg charnock		Madras block
70IN11		[W129] amphibolite		Madras block
[Mysore]				
80IN01	80123001	c red gr		Chamundi hill gr
80IN02	80123002	c p por gr		Chamundi hill gr
80IN03	80123003	c p por gr		Chamundi hill gr
80IN04	80123004	c p gd, p Kfs peg		Chamundi hill gr
80IN05	80123005	c p peg		Chamundi hill gr
* 80IN06	80123006	[W111] c p gd, p Kfs peg		Chamundi hill gr
[Ooty and Mt Doddabetta in Nilgiri hill]				
80IN07	80123101(1)	Grt amphibolite (mafic granulite)		Nilgiri block
80IN08	80123101(2)	c charnock		Nilgiri block
80IN09	80123101(3)	f Grt bear charnock		Nilgiri block
80IN10	80123102	charnock		Nilgiri block
80IN11	80123103(1)	c charnock		Nilgiri block
80IN12	80123103(2)	c peg charnock (large Grt bear)		Nilgiri block
80IN13	80123103(3)	vc peg charnock		Nilgiri block
80IN14	80123104T1	charnock		Nilgiri block
80IN15	80123104T2	f-m leuco charnock		Nilgiri block
80IN16	80123104T3	mela charnock & T2/T3 boundary		Nilgiri block
80IN17	81010101	quartzose charnock		Nilgiri block
80IN18	810101T	Grt charnock		Nilgiri block
80IN19	810101	[W109] peg charnock		Nilgiri block
80IN20	81010103	charnock	[Madrimand lake]	Nilgiri block
80IN21	81010104	charnock	[Madrimand lake]	Nilgiri block
80IN22	81010105	mafic charnock (norite)	[Mysore city]	WDC
80IN23	810102	c gd gn	[Bangalore city]	EDC
[Hyderabad to Nagarjuna sagar, Belgaum to Goa]				
82IN01	H1(821226)	c-m gr	[Hyderabad to Nagarjuna]	EDC
82IN02	H2(821226)	f leuco gr-gd	[Nagarjuna]	EDC
82IN03	H3(821226)	diabase	[Nagarjuna]	EDC
82IN04	H4(821226)	bedded quartzite (Cuddapah basin)	[Nagarjuna]	Cuddapah basin
82IN05	H5(821226)	quartzite (Cuddapah basin)	[Nagarjunakonda]	Cuddapah basin
82IN06	G2(821227)	c red gr	[Hyderabad city]	EDC
82IN07	G3(821227)	c red gr-gd	[Hyderabad city]	EDC
82IN08	G4(821227)	m-c leuco-p gr	[Hyderabad city]	EDC
82IN09	G4(821227)	dio-dolerite	[Hyderabad city]	EDC
82IN10	G5(821227)	m-c leuco p gr	[Hyderabad city]	EDC

82IN11 821230 dolerite [road side, Belgaum to Goa] WDC

(Total : 42)

Kerala – Dharwar – Eastern Ghats – Singhbhum (1992)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
<u>Kerala khondalite belt around Trivandrum to Kanniyakumari</u>				
(Kano, T., Santosh, M. and Yoshida's party)				
{northern Trivandrum – Pathanamthitta}				
[Mannantala : patchy & vein shaped local charnockitization in Grt bear leuco gn (leptynite)]				
92IN01	TK1018-1	leuco m Grt gn & incipient charnock		Mannantala
[Kunnampara : making ? and breaking charnockite]				
92IN02	TK1018-2(1)	mafic granulite (folded metabasite, dyke origin?)		Kunnampara
92IN03	TK1018-2(2)	leuco Grt gn & incipient charnock		Kunnampara
92IN04	TK1018-2(3)	Grt Sil Bt gn (host r)		Kunnampara
[Paranthal : typical khondalite including "primary cordierite" and graphite?]				
92IN05	TK1018-3	Grt Sil Crd gn (well banded, contain Crd rich pelitic bands)		Paranthal
[Nellikala : two stage Crd formation at regional granulite metamorphism & later charnockitization]				
92IN06	TK1018-4A	c charnockitized Grt Bt gn, Grt gn & charnock boundary		Nellikala
92IN07	TK1018-4B	peg vein with molybdenite (including poikiloblast Opx)		Nellikala
[Kottavattom : a type locality of incipient charnockite]				
92IN08	TK1019-1(1)	incipient charnock (tube str) in Grt Bt gn		Kottavattom
92IN09	TK1019-1(2)	leuco Grt Bt gn or Grt gr (host, mass-mig appearance)		Kottavattom
* 92IN10	TK1019-2	c Grt Bt augen gn (partly charnockitized)		Ayur
{Trivandrum to Kanniyakumari}				
[Nuliyam : calc silic gn and charnockitization along Bt peg and fault]				
92IN11	TK1020-1(1)	calc silic gn with Wo Cpx layer & Cpx bear leuco r		Nuliyam
92IN12	TK1020-1(2)	Grt bear charnock part (including relict feature of Grt Bt gn)		Nuliyam
92IN13	TK1020-1(3)	Grt Bt gn with Kfs augen (homo leuco Grt gn)		Nuliyam
[Myladipara quarry, 1km N of Kuzhittura : retrogression (hydration) of charnock along peg vein]				
non	TK1020-2(1)	Grt Bt gn		Mayladipara
92IN15	TK1020-2(2)	Grt charnock		Mayladipara
92IN16	TK1020-2(3)	amphibolite (mafic dyke)		Mayladipara
[Kottaram : mass charnock (ig origin?) with meta pelite band, 480Ma Rb-Sr isochron]				
92IN17	TK1021-1(1)	mass (-gn) charnock part		Kottaram
92IN18	TK1021-1(2)	boundary zone of Grt Bt gn and charnock		Kottaram
92IN19	TK1021-1(3)	f Bt c Grt gn (khondalite near boundary)		Kottaram
92IN20	TK1021-1(4)	Bt Sil band in Grt gn (Sil rich band)		Kottaram
[Puttetti : "Pan-African" syenite (540Ma) associated with massive charnockite]				
* 92IN21	TK1021-2(1)	banded Cpx sye & vc peg sye		Puttetti
92IN22	TK1021-2(2)	banded, Cpx rich sye with large Zrn & Pl rich peg layer		Puttetti
92IN23	TK1021-2(3)	banded Cpx sye		Puttetti

{near Trivandrum}

		[Koliakode : khondalite, two stage Crd : early Grt rich pelitic band & later cross cut peg]	
92IN24	TK1022-1(1)	Grt rich Crd Sil Bt gn (peg part)	Koliakode
92IN25	TK1022-1(2)	banded Sil Grt Bt gn	Koliakode
92IN26	TK1022-1(3)	Sil rich band in Grt Bt gn	Koliakode
92IN27	TK1022-1(4)	Grt quartzite (quartzose band)	Koliakode
		[Chittikara : khondalite, mass Grt gn or Grt gr (products of partial melt or mig ?)]	
* 92IN28	TK1022-2(1)	Crd Grt Bt gn (peg part, Gr? bear)	Chittikara
92IN29	TK1022-2(2)	ghost of folded Bt gn in Grt gn	Chittikara
* 92IN30	TK1022-2(3)	mass Grt gn or Grt gr	Chittikara
		[Malayinkil : two step charnock, old banded, folded, boudin in Grt gr/young in leuco gr with Mnz]	
non	TK1024-1(1)	dark charnock part (folded granulite band)	Malayinkil
92IN32	TK1024-1(2)	boundary between dark granulite and leuco part	Malayinkil
92IN33	TK1024-1(3)	Grt bear leuco gr	Malayinkil
92IN34	TK1024-1(4)	Mnz bear leuco gr	Malayinkil
non	TK1024-1(5)	Grt bear leuco gr (behind side quarry)	Malayinkil

Dharwar craton in Karnataka

(Kano, T., Jayananda, M. and Kunugiza, K.)

[Kabbaldurga : Closepet granite, mixed zone with TTG and incipient charnockite]

[92IN101-107 = 95IN90-105, 08IN45, 09IN03]

92IN101	TK1028-1(1)	dioritic part (earlier phase of Closepet)	in Closepet gr
92IN102	TK1028-1(2)	dark greyish granitic part	Closepet gr
92IN103	TK1028-1(3)	gneissisc part (TTG : Peninsular gn)	TTG in Closepet
92IN104	TK1028-1(4)	p gr to peg (later part of Closepet)	Closepet gr
92IN105	TK1028-1(5)	partly charnockitized Peninsular gn and p gr	TTG+Closepet
92IN106	TK1028-1(6)	partly charnockitized Peninsular gn	TTG in Closepet
92IN107	TK1028-1(7)	p gr	Closepet gr
		[augen gn along shear zone of Closepet gr]	
92IN108	TK1028-2(1)	augen gn to sheared Bt gr	Closepet gr
92IN109	TK1028-2(2)	hetero c-f red gr	Closepet gr
92IN110	TK1028-2(3)	foliated gd in red gr	Closepet gr

{Sargur area in southern Mysore}

[Nugu dam : BIF and amphibolite of Sargur belt]

92IN111	TK1029-1(1)	thin BIF (15cm thick)	Sargur belt
92IN112	TK1029-1(2)	Grt amphibolite	Sargur belt
92IN113	TK1029-1(2)'	amphibolite	Sargur belt
92IN114	TK1029-1(3)	thick BIF (1.5-2m) with thin (0.5-1mm) banding	Sargur belt
92IN115	TK1029-1(4)	Grt rich part of amphibolite	Sargur belt
92IN116	TK1029-1(5)	mass thick amphibolite	Sargur belt
non	TK1029-1(6)	thick BIF	Sargur belt
92IN118	TK1029-1(7)	amphibolite near boundary of BIF (6)	Sargur belt
92IN119	TK1029-1(8)	Grt amphibolite including whitish minerals	Sargur belt
		[Begur cross : TTG]	
non	TK1029-2(1)	f-m folded metabasite	TTG in WDC
* 92IN121	TK1029-2(2)	TTG	TTG in WDC
92IN122	TK1029-2(3)	folded TTG	TTG in WDC
non	TK1029-2(4)	p peg	TTG in WDC
		[TATA steel magnesite mine]	
92IN124	TK1029-3	network magnesite vein & weathered serpentinite	Sargur equivalent

{Hole Narasipura belt in southern Hassan}

[TTG and supracrustals in Hole Narasipura belt]

92IN125	TK1030-1	TTG		TTG in WDC
92IN126	TK1030-2(1)	Chr bear meta ultramafic r (amphibolite)	[100m N of TTG]	HoleNarasipura b
		(upper greenschist to lower amphibolite facies)		
92IN127	TK1030-2(2)	meta ultramafic r (amphibolite)		HoleNarasipura b
		[BIF, TTG, meta sediments at road cut on NH-48 near 1030-1,2]		
92IN128	TK1030-3(1)	BIF, red & black bands including 1-2mm Qtz lens		HoleNarasipura b
92IN129	TK1030-3(2)	BIF		HoleNarasipura b
92IN130	TK1030-3(3)	BIF		HoleNarasipura b
92IN131	TK1030-3(4)	BIF		HoleNarasipura b
92IN132	TK1030-4	quartzite		HoleNarasipura b
		[Halekote trondhjemite body, ca. 3.0Ga]		
92IN133	TK1030-5(1)	m gn trond or trond gn		Halekote, WDC
92IN134	TK1030-5(2)	c gn trond		Halekote, WDC
		[meta rhyolite and basalt in Hole Narasipura belt]		
92IN135	TK1030-6(1)	mica (Ms) schist (Qtz blast por, leptite like, rhyolite origin)		HoleNarasipura b
92IN136	TK1030-6(2)	metabasalt (mafic schist)		HoleNarasipura b
* 92IN137	TK1030-7	[W103] Grt Cld r		HoleNarasipura b
92IN138	TK1030-8	Tattekere quartzite cgl (matrix : fuchsite schist)		HoleNarasipura b
92IN139		mica schist (psam schist)		HoleNarasipura b
92IN140	TK1030-9	Ky bear pelite (Ky St Bt schist)		HoleNarasipura b
92IN141	TK1030-10(1)	f inter-mela tonal gn (TTG)	[Hassan south]	TTG in WDC
92IN142	TK1030-10(2)	trond dyke	[Hassan south]	TTG in WDC
* 92IN143	TK1030-10(3)	[W101] TTG (gneissic)	[Hassan south]	TTG in WDC
non	TK1030-10(4)	mafic dyke in TTG	[Hassan south]	TTG in WDC

[Shigegudda greenstone sequence near Hassan to Chikmagalur]

92IN145	TK1031-1(1)	mass amphibolite (intrusive origin?)		Shigegudda belt
non	TK1031-1(2)	vc quartzose ss or quartzite breccia bearing cgl		Shigegudda belt
92IN147	TK1031-2(1)	TTG under quartzite bed		Shigegudda, WDC
92IN148	TK1031-2(2)	vc quartzite cgl		Shigegudda belt
92IN149	TK1031-3	banded TTG		Shigegudda, WDC
92IN150	TK1031-4	quartzose ss, cgl (Kartikere unconformity =94-263,06-08,09-22)		Bababudan belt

[Bababudan belt in Chikmagalur area]

92IN151	TK1101-1	quartzite		Bababudan belt
92IN152	TK1101-2(1)	metabasalt (greenstone, under BIF)		Bababudan belt
92IN153	TK1101-2(2)	diamafic r (dyke)		Bababudan belt
92IN154	TK1101-3(1)	[W106] BIF [=94IN290, 06IN16, 09IN25]	[Kavikalgandi cross]	Bababudan belt
92IN155	TK1101-3(2)	BIF	[Kavikalgandi cross, a pass at Mt Bababudan]	Bababudan belt
non	TK1101-4	quartzose ss or cgl		Bababudan belt
92IN157	TK1101-5	metabasalt (volcanics intercalated with quartzite)		Bababudan belt
92IN158	TK1101-6	[W105] quartzite (showing ripple mark and cross lamination)		Bababudan belt

[Thagadur chromite mine in Nuggihalli schist belt]

92IN159	TK1102-1(1)	Chr in serpentinite		Nuggihalli belt
92IN160	TK1102-1(2)	Act Tr schist with chromitite layer		Nuggihalli belt
92IN161	TK1102-1(3)	Chr layer in schistose r		Nuggihalli belt

Eastern Ghats belt around Visakhapatnam

(Kano, T., Rao, A.T. and Yoshida's party)

non	TK1106-1	weathered khondalite, leptynite, folding and re-folding D1,2,3,4 [in town : leptynite including px granulite lens or band, partly charnockitized]	Kailasa hill
92IN202	TK1106-2(1)	Grt bear leptynite (quartz feldspathic gn)	Visakh town
92IN203	TK1106-2(2)	Grt free leptynite (partly charnockitized)	Visakh town
92IN204	TK1106-2(3)	charnockitized leptynite	Visakh town
92IN205	TK1106-3	Grt leptynite (folded and migmatized leptynite) [in town : incipient charnockite in leptynite and red gr-peg]	Visakh town
92IN206	TK1106-4(1)	red peg & gr, partly charnockitized	Visakh town
92IN207	TK1106-4(2)	boundary, leptynite to charnockitized part [Kailasa hill : main quartzite & calc silic band, boundary zone upper khondalite to lower leptynite]	Visakh town
92IN208	TK1107-1	pyroxenite band in calc silic gn	Kailasa hill
92IN209	TK1107-2(1)	calc silic gn (Scp Cpx Pl gn)	Kailasa hill
non	TK1107-2(2)	peg vein or pool (Ba feldspar bear) [Air port hill : basement charnockite in core of anticline]	Kailasa hill
92IN211	TK1107-4(1)	Grt bear vc charnock (tonalitic)	Air port hill
92IN212	TK1107-4(2)	boundary between c-f charnock	Air port hill
92IN213	TK1107-4(3)	f-m mass charnock (tonalitic)	Air port hill
92IN214	TK1107-4(4)	f-m mass charnock (tonalitic)	Air port hill
92IN215	TK1107-4(5)	c por charnock (Grt bear c gn syenitic r)	Air port hill
non	TK1107-4(6)	c por charnock (Grt bear c gn syenitic r)	Air port hill
92IN217	TK1107-4(7)	peg syenitic r (including large Grt, allanite) [Vizianagaram : Saphirine bearing Grt Crd gn in leptynite zone]	Air port hill
92IN218	TK1108-1(1)	Grt Crd gn (Spl Spr bear ?)	Vizianagaram
92IN219	TK1108-1(2)	Grt Crd gn (Spl Spr bear ?) [Kantakapalli, in Kottavalasa area : Crd gn in leptynite]	Vizianagaram
92IN220	TK1108-2(1)	Bt Crd gn band	Kottavalasa
92IN221	TK1108-2(2)	leuco f Bt gn (leptynite part)	Kottavalasa
92IN222	TK1108-2(3)	Crd Bt gn band	Kottavalasa
92IN223	TK1108-2(4)	p gn gr [Aganampuri (east of Visakhapatnam) : core of anticline in leptynite]	Kottavalasa
92IN224	TK1109-1	gr myl (L tectonite)	Aganampuri
92IN225	TK1109-2(1)	deformed charnock (L tectonite)	Aganampuri
92IN226	TK1109-2(2)	c and f charnock gn (ultramyl?)	Aganampuri
92IN227	TK1109-2(3)	deformed charnock (L tectonite)	Aganampuri
92IN228	TK1109-2(4)	Grt bear charnock augen gn (Kfs elongate along L, por gr origin ?)	Aganampuri
non	TK1109-2	Grt charnock	Aganampuri

Eastern Ghats belt around Bhubaneswar

(Kano, T., Mahalik, N.K., Sen, S.K. and Yoshida's party)

{southern Bhubaneswar}

non	TK1113-1	folding and re-folding in weathered khondalite [Dongarpara : felsic charnockite of leptynite origin with folded mafic granulite band]	
92IN302	TK1113-2(1)	mafic granulite (Bt+Hbl layer)	Dongarpara
92IN303	TK1113-2(2)	c leuco charnock with mafic part	Dongarpara
92IN304	TK1113-2(3)	gohst (relict) of leptynitic part in charnock and peg [Hatia east quarry : charnockitization along shear band in leptynite]	Dongarpara
92IN305	TK1113-3(1)	incipient charnock in Kfs por c Grt gn or gr	Hatia

92IN306	TK1113-3(2)	[W113] Grt bear leptynite (L-tectonite, partly augen)	Hatia
92IN307	TK1113-3(3)	Grt bear sheared graphic peg	Hatia
92IN308	TK1113-3(4)	mafic granulite layer	Hatia
		[Hatia west : patchy or roddy charnockitization along shear, fracture, myl & peg formation]	
92IN309	TK1113-3(5)	sheared peg and charnockitization in f Grt gn	Hatia
92IN310	TK1113-3(6)	charnock part in f Grt gn	Hatia
92IN311	TK1113-3(7)	charnockitization along joint in f Grt gn	Hatia
92IN312	TK1113-3(8)	roddy charnock in leptynite (f Grt gn)	Hatia
92IN313		ferruginous cement material	Hatia
		[south of Khordha : khondalite, leptynite and mafic charnockite]	
92IN314	TK1114-1(1)	khondalite (Sil Crd bear, migmatized)	Khordha S
92IN315	TK1114-1(2)	Grt rich boundary, mafic granulite and leptynite	Khordha S
92IN316	TK1114-1(3)	mafic granulite (mafic dyke origin?)	Khordha S
		[Tapan quarry, north of Naranghar]	
92IN317	TK1114-2(1)	two px granulite	Naranghar N
92IN318	TK1114-2(2)	boundary, whitish Grt leptynite and (1)	Naranghar N
92IN319	TK1114-2(3)	boundary, dioritic and charnockitized parts	Naranghar N
92IN320	TK1114-2(4)	dio gn	Naranghar N
92IN321	TK1114-2(5)	Grt bear whitish leptynite (Grt gn or Grt gr)	Naranghar N
92IN322	TK1114-2(6)	dotty to roddy charnockitized leptynite (Grt gn)	Naranghar N
92IN323	TK1114-2(7)	leptynite including banded incipient charnock	Naranghar N
		[Chilika lake]	
92IN324	TK1114-4(1)	Bt rich Spr bear pelitic band in leptynite (Spr Opx Crd Bt Grt)	Chilika lake
92IN325	TK1114-4(2)	leptynite	Chilika lake
92IN326	TK1114-5	anorthosite (1400Ma)	[Balkul near Chilika lake] Chilika lake
		[northern most part of Eastern Ghats belt and boundary of Singhbhum craton]	
92IN327	TK1115-2(1)	mass charnock	E Ghats granulite
non	TK1115-2(2)	foliated rock (khondalite?)	E Ghats granulite
		[north of Brahmani river : mylonite zone at southern margin of Singhbhum craton, vent breccia of shallow seated acid igneous r]	
92IN329	TK1115-3(1)	cataclastic gp (granite porphyry, matrix of xenolith)	S margin Singh
non	TK1115-3(2)	angular block of gr in gp	S margin Singh
92IN331	TK1115-3(3)	angular block of greenschist in gp	S margin Singh
92IN332	TK1115-4	Grt Px granulite	E Ghats granulite

Singhbhum craton around Kendujhargarh

(Kano, T., Saha, A.K., Ray, S.L.. and Yoshida's party)

non		Shingbhum gr (tonal to trond partly gr, deformed and migmatized)	Shingbhum gr
		[Iron ore Group in Kendujhargarh to Joda : railway- and road-cut near Joda]	
92IN402	TK1117-1(1)	BIF (Iron ore Group, middle Archaean)	Iron ore Group
92IN403	TK1117-1(2)	BIF (Iron ore Group, middle Archaean)	Iron ore Group
92IN404	TK1117-1(3)	BIF (Iron ore Group, middle Archaean)	Iron ore Group
92IN405	TK1117-1(4)	BIF (Iron ore Group, middle Archaean)	Iron ore Group
92IN406	TK1117-2,2'	mafic volcanics under BIF	Iron ore Group
92IN407	TK1117-3(1)	jasper (red iron chert)	Iron ore Group
92IN408	TK1117-3T	BIF (Iron ore Group, middle Archaean)	Iron ore Group
92IN409	TK1117-3(3)	BIF (Iron ore Group, middle Archaean)	Iron ore Group
92IN410	TK1117-4	metabasalt (Proterozoic Jagannathpur lava, 2.1-2.2Ga)	Dhanjori G

	[across Baitarani river : unconformity of Kolhan Group on Singhbhum gr]		
92IN411	TK1117-5(1)	ferruginous c ss (Kolhan Group, middle Proterozoic, ca.1.6Ga)	Kolhan Group
92IN412	TK1117-5(2)	p por gn gr-augen gn (Singhbhum gr, mid Archaean, 3.4-3.1Ga)	Singhbhum gr
	[Champua, under Baitarani river bridge :		
	OMG : older metamorphic group, para-amphibolite (3.8Ga, xenolithic block in tonal-gd gn)]		
92IN413	TK1117-6	schistose amphibolite or calc silic gn (partly Grt bear)	OMG
92IN414	TK1117-7	cherty or silicified r in OMG (angular chert in Qtz rich matrix)	OMG
92IN415	TK1117-8	newer dolerite dyke [2-3Km south of -7]	
92IN416	TK1117-9(1)	well banded f amphibolite or calc silic gn [2-3Km south of -8]	OMG
92IN417	TK1117-9(2)	mass amphibolite	OMG
	[near Parsora junction : OMTG; older metamorphic tonal-gd gn, 3.8Ga?]		
92IN418	TK1117-10(1)	cataclastic tonal r	OMTG
92IN419	TK1117-10(2)	mass f trond-tonal	OMTG
	[east of Kendujhargarh, 330km from Calcutta on the NH-6 :		
	Singhbhum gr, Kendujhargarh unit (phase A : older gr)]		
92IN420	TK1118-1	por gr (gneissic)	Singhbhum gr
92IN421	TK1118-1	Kfs	Singhbhum gr
	[river side between Kendujhargarh to Mayurbhanj : same unit of 18-1; 3.3Ga]		
92IN422	TK1118-2	f tonal-gd (foliated, nebulitic, leuco & mela parts)	Singhbhum gr
	[1-2Km east of 18-2 : phase B of Singhbhum gr (younger may be 3.1Ga.)]		
92IN423	TK1118-3	f tonal-gd, foliate, banded with leuco and mela parts	Singhbhum gr
	[near Jashipur : quartzite in Iron ore Group]		
92IN424	TK1118-4	cherty quartzite with fucite	Iron ore Group
	[near Rairangpur : Singhbhum gr, relation between older and younger phase]		
92IN425	TK1118-6	leuco c-m gd with mela part (gn Qtz dio, folded sheared mig str)	Singhbhum gr
	[6-7Km east of 18-3 : newer dolerite, differentiated mafic part, Cpx Opx Ol r]		
92IN426	TK1118-7	dolerite	Proterozoic dyke
	[Kendujhargarh to Calcutta, on NH-6]		
92IN427	TK1119-1	red-grey f Bt gr (Mayurbhanj gr, Proterozoic, ca. 2.2Ga)	Mayurbhanj gr
92IN428	TK1119-2	micaceous green sht (Singhbhum Group : Proterozoic meta sed)	Singhbhum G
92IN429	TK1119-3	vf qp or felsite like r (silicified r in fault breccia, Singhbhum G)	Singhbhum G

(Total : 169)

Dharwar Craton (1994 : Kano, T., Swamy, N. S., Kato, Y. and Kunugiza, K.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
{Sargur Group (Sargur belt and equivalents) in southern Mysore}				
[Bettadabidu]				
# 94IN01	220-1	marble (calc silic layer) (ori, F 15E 90)		Sargur equivalent
# 94IN02	220-2	calc silic layer with Grt Bt gn (ori F NS 75 back)		Sargur equivalent
+ 94IN03	220-3	[W108] c Grt Bt gn		Sargur equivalent
+ 94IN04	220-4	amphibolite (ori F NS 60E)		Sargur equivalent
[Mavinahalli]				
+ 94IN05	221-1	Ky bear pelitic sht		Sargur equivalent
	94IN06	px bear amphibolite		Sargur equivalent
	94IN07	ultrtamafic r (sagvandite)		Sargur equivalent

94IN08	221-4	w magnesite		Sargur equivalent
non	221-5	sagvandite		Sargur equivalent
94IN10	221-6	Opx sagvandite		Sargur equivalent
94IN11	221-7	fuchs site quartzite		Sargur equivalent
94IN12	221-8	f leuco tonal-tonal gn (TTG, ori J 55E 70E)		Sargur equivalent
	[Motha]			
94IN13	221-9	diamafic r (mafic dyke near BIF)		Sargur belt
94IN14	22110	ultrtamafic r (sagvandite)		Sargur belt
94IN15	22111	sagvandite		Sargur belt
# 94IN16	22112T	BIF		Sargur belt
+ 94IN17	22113T	Opx bear layer in BIF		Sargur belt
+ 94IN18	22114T	BIF well micro banded		Sargur belt
+ 94IN19	222-1	Madapura gr (ca. 800Ma)		Madapura gr
	[Sargur belt at Nugu dam]			
94IN20	222-2	mafic granulite (Cpx Grt Hbl Pl amphibolite)	[Chakkur]	Sargur belt
94IN21	222-3A	Cpx Opx pyroxenite	[3km north from Nugu dam]	Sargur belt
94IN22	222-3B(T)	Cpx Opx pyroxenite		Sargur belt
94IN23	222-4A	amphibolite (ori 40E, 90)		Sargur belt
94IN24	222-4B	Grt bear amphibolite		Sargur belt
94IN25	222-5(1)	f mafic dyke in amphibolite & BIF		Sargur belt
94IN26	222-5(2)	c Grt Px amphibolite in BIF		Sargur belt
94IN27	222-5(3)	BIF (Mag Px amph r)		Sargur belt
# 94IN28	222-5(4)	BIF (Mag Px amph r)		Sargur belt
94IN29	222-6TA	large Grt amphibolite	[2-3km from Nugu dam]	Sargur belt
94IN30	222-6TB	BIF	[2-3km from Nugu dam]	Sargur belt
	[continuous section of a bed of BIF at Nugu dam]			
94IN31	N31-34	BIF at Nugu dam		Sargur belt
94IN31	N47-49	BIF at Nugu dam		Sargur belt
94IN31	N48	BIF at Nugu dam		Sargur belt
94IN31	N49	BIF at Nugu dam		Sargur belt
94IN31	N50	BIF at Nugu dam		Sargur belt
94IN31	N-1 ~ N50	continuous specimens of a bed of BIF at Nugu dam		Sargur belt
		N-1, N-2, N-3, N-4, N-5, N-6		Sargur belt
		N26-30, N26, N27/28, N29,		Sargur belt
		N30, N31, N32, N33, N34, N35, N36, N38, N39,		Sargur belt
		N40, N41/42, N43, N44, N45, N46-50, N48, N49, N50		Sargur belt
	[Gundalpet]			
+ 94IN32	223-1	Cpx amphibolite	[Terakanambi near Gudalpet]	Sargur equivalent
94IN33	223-2	semi pelite (Grt Bt Pl Qtz gn) (ori L 70E 10N)	[Terakanambi]	Sargur equivalent
+ 94IN34	223-3	calc silic r with thin amphibolite	[Terakanambi near Gudalpet]	Sargur equivalent
94IN35	223-4TA	spessartine Qtz r (Mn rich rock)		Sargur equivalent
94IN36	223-4TB	spessartine Qtz r (Mn rich rock)		Sargur equivalent
94IN37	223-5	banded manganese formation		Sargur equivalent
94IN38	223-6	amphibolite (partly Grt bear)		Sargur equivalent
# 94IN39	223-7	banded manganese formation		Sargur equivalent
94IN40	223-8T	BIF near manganese r		Sargur equivalent
94IN41	223-9(1)	BIF (ori 55E, 40E)		Sargur equivalent
# 94IN42	223-9(2)	BIF		Sargur equivalent
* 94IN43	22310(1)	folded BIF (=W107)		Sargur equivalent
94IN44	22310(2)	BIF		Sargur equivalent

94IN45	22311	amphibolite in BIF		Sargur equivalent
+ 94IN46	22312	Mn band		Sargur equivalent
94IN47	22313	TTG		TTG in WDC
+ 94IN48	22314(1)	Grt amphibolite in TTG	[Kandegala near Gundalpet]	Sargur equivalent
94IN49	22314(2)	mass amphibolite	[Kandegala near Gundalpet]	Sargur equivalent
94IN50	22315	sagvandite		Sargur equivalent

[Karighatta belt : southern most part of Chitradurga belt]

94IN51	224-1A	fuchsite quartzite (ori F 40E 70-80W)		Karighatta belt
94IN52	224-2	schistose Grt amphibolite		Karighatta belt
94IN53	224-3A	pelite-psammite (sht)		Karighatta belt
94IN54	224-3B	Mn rich layer in pelitic r		Karighatta belt
# 94IN55	224-4	fuchsite quartzite		Karighatta belt
+ 94IN56	224-5	vc p Kfs por gn gr (ori J 30W 90)	[Ramanagaram]	Closepet gr

[Kolar Gold Field]

94IN61	225-1(1)	homo gd (ori NS, 10W, 5W) (2632Ma & 2613Ma)		TTG in EDC
94IN62	225-1(2)	gd-tonal boundary		TTG in EDC
94IN63	225-1(3)	mela tonal gn -gn tonal		TTG in EDC
94IN64	225-2A	greenschist -vf amphibolite	[Nandidurg mine]	Kolar belt
94IN65	225-2B	Cal Qtz vein	[Nandidurg mine]	Kolar belt
94IN66	225-3A	f mass metabasalt		Kolar belt
94IN67	225-3B	f amphibolite		Kolar belt
# 94IN68	225-4A	folded chert with thin ferruginous shale		Kolar belt
94IN69	225-4B	band chert + ferruginous shale		Kolar belt
94IN70	225-4C	band chert + ferruginous shale		Kolar belt
94IN71	225-4D	folded chert +ferruginous shale		Kolar belt
94IN72	225-4E	folded chert +ferruginous shale		Kolar belt
94IN73	225-5	f meta diabase-f amphibolite (100m east from -4)		Kolar belt
94IN74	225-6	vf meta diabase		Kolar belt
94IN75	225-7	vf meta diabase		Kolar belt
94IN76	225-8A	c gn gd (ori F 5E, 50back)		Kolar TTG in EDC
94IN77	225-8B	f-m mass gd (so-called pyroclastic gn ?)		Kolar TTG in EDC
94IN78	225-9	f-m gd (TTG, ori J10W, 60W)		Kolar TTG in EDC

{Chitradurga belt and Chitradurga Group :

lower Vanivilas F, middle Ingaldhal F, upper Guddada Rangavanahalli F =GR Halli F}

[around Chitradurga]

94IN101	227-1	dolerite dyke in meta volcanics		Chitradurga belt
94IN102	227-2(1)	metabasalt (pillow lava of Ingaldhal F) [road cut on NH-4, 194km from Bangalore]		
# 94IN103	227-2(2)	silicified part of metabasalt (pillow lava, Ingaldhal F)	[do]	Ingaldhal F
94IN104	227-2(3)	amygdal part of metabasalt (pillow lava, Ingaldhal F)	[do]	Ingaldhal F
94IN105	227-2(4)	metabasalt (Ingaldhal F)	[do]	Ingaldhal F
+ 94IN106	227-3(1)	cherty dolomite (stromatolite? GR Halli F) [Bangarakkanahalli]		GR Halli F
+ 94IN107	227-3(2)	cherty dolomite (stromatolite? GR Halli F) [Bangarakkanahalli]		GR Halli F
94IN108	227-4(1)	banded white chert	[Bangarakkanahalli]	GR Halli F
# 94IN109	227-4(2)	brecciate chert +BIF	[Bangarakkanahalli]	GR Halli F
+ 94IN110	227-4(3)	white chert	[Bangarakkanahalli]	GR Halli F
94IN111	227-4(4)	ferruginous shale including quartzite breccia or cgl	[do]	GR Halli F
# 94IN112	227-4(5)	ferruginous shale including quartzite breccia	[do]	GR Halli F
94IN113	227-4(6)	weathered ferruginous shale	[do]	GR Halli F

[Ingaldhal copper mine=Hutti Gold Mine Co.Ltd., in lower Vanivilas F)]

+ 94IN114	228-1A	Cu ore (Ccp Qtz vein)		Ingaldhal Mine
94IN115	228-1B	malachite coated metabasalt		Ingaldhal Mine
+ 94IN116	228-2	Ccp Qtz vein in phyl		Ingaldhal Mine
+ 94IN117	228-3	malachite sphalerite bear Qtz vein		Ingaldhal Mine
+ 94IN118	228-4A	Py Ccp sphalerite Qtz vein		Ingaldhal Mine
+ 94IN119	228-4B	Py malachite Qtz vein in metabasalt		Ingaldhal Mine
94IN120	228-5	phyllitic metabasalt		Ingaldhal Mine
# 94IN121	228-6A	banded chert +MnFe band (ori J 80W 80N) (lower part of Vanivilas		Vanivilas F
# 94IN122	228-6B	well banded chert +MnFe band	[Bhimasamudra]	Vanivilas F
# 94IN123	228-6C	skeleton banded chert +Mn ore	[Bhimasamudra]	Vanivilas F
+ 94IN124	228-7	banded chert with Mn rich part (manganite)	[Bhimasamudra]	Vanivilas F
+ 94IN125	228-8	silicified carbonite r with stromatolitic str	[Bhimasamudra]	Vanivilas F
# 94IN126	228-9	Mn ore		Vanivilas F
# 94IN127	22810	Mn ore with oolitic str		Vanivilas F
*# 94IN128	22811	vc Bt gr (Chitradurga gr, 2.4Ga?)		Chitra gr, WDC
*# 94IN129	22812	red gr (Ilkal gr)		Ilkal gr, WDC
94IN130	22813	pelitic-psam semi sht		Chitradurga belt
		[GhattiHosahalli belt (Sargur equivalents in Chitradurga belt)]		
+ 94IN131	301-1A	[W104] fuchsite quartzite		GhattiHosahalli b
94IN132	301-1B	Grt bear quartzite +pelite (Ky bearing ? mica sht)		GhattiHosahalli b
94IN133	301-2	barite vein		GhattiHosahalli b
+ 94IN134	301-3A	fuchsite quartzite (deep green)		GhattiHosahalli b
94IN135	301-3B	fuchsite quartzite		GhattiHosahalli b
94IN136	301-4A	Tur bear amphibolite or ultramafic in -3B	[Kumangutta]	GhattiHosahalli b
94IN137	301-4B	spinifexed ultramafic r in TTG	[Kumangutta]	GhattiHosahalli b
		[Vanivillas dam, Veda cement]		
+ 94IN138	302-1	folded BIF with chert		Vanivillas F
# 94IN139	302-1(1)	BIF at Vanivillas dam (ori J 25W 60E)		Vanivillas F
# 94IN140	302-1(2)	BIF at Vanivillas dam (ori J 25W 60E)		Vanivillas F
+ 94IN141	302-1(3)	BIF at Vanivillas dam (ori J 75W 60S)		Vanivillas F
# 94IN142	302-1(4)	BIF at Vanivillas dam (ori J 30W 60E)		Vanivillas F
94IN143	302-1(5)	red shale		Vanivillas F
94IN144	302-2(1)	BIF at Vanivillas dam		Vanivillas F
+ 94IN145	302-2(2)	BIF at Vanivillas dam		Vanivillas F
94IN146	302-2(3)	BIF at Vanivillas dam		Vanivillas F
+ 94IN147	302-2(4)	BIF at Vanivillas dam		Vanivillas F
# 94IN148	302-3(1)	cherty dolomite		Vanivillas F
+ 94IN149	302-3(2)	green phyllite		Vanivillas F
94IN150	302-3(3)	red shale (302-1(5))		Vanivillas F
# 94IN151	302-4	banded Mn ore +manganite	[dam to Veda]	Vanivillas F
*# 94IN152	302-5	banded Mn ore +manganite	[dam to Veda]	Vanivillas F
+ 94IN153	302-6	muddy dolomitic ls (Veda Cement Ltd)	[Madadakere]	Vanivillas F ?
		[cross section from Chiknayakanahalli through MadalinganaGudda (equivalent to Vanivillas F ?)]		
+ 94IN154	303-1	soup stone mine	[Chiknayakanahalli]	Chitradurga belt
94IN155	303-2	green sht near -1	[Chiknayakanahalli]	Chitradurga belt
# 94IN156	303-3(1)	green sht-amphibolite (25cm from BIF)		Chitradurga belt
# 94IN157	303-3(2)	green sht +quartzose ss?		Chitradurga belt
94IN158	303-3(3)	BIF 20cm from boundary (folded BIF)		Chitradurga belt
+ 94IN159	303-3(4)	Qtz vein		Chitradurga belt
94IN160	303-3(5)	BIF (thin iron ore, thick quartzite)		Chitradurga belt
*# 94IN161	303-3(6)	BIF (faulting)		Chitradurga belt
* 94IN162	303-4	green sht (mafic sht)		Chitradurga belt
# 94IN163	303-5(1)A	carbonate layer (Mn rich part) (stromatolite ?) [near MadGu]		Chitradurga belt

94IN164	303-5(1)B	carbonate layer (Mn rich brecciate r)	[near MadalinganaGudda]	Chitradurga belt
94IN165	303-5(2)	Cal band in cherty dolomite	[near MadalinganaGudda]	Chitradurga belt
# 94IN166	303-5(3)	banded cherty dolomite	[near MadalinganaGudda]	Chitradurga belt
# 94IN167	303-5(4)	banded cherty dolomite	[near MadalinganaGudda]	Chitradurga belt
+ 94IN168	303-6(1)	green-black phyl	[near MadalinganaGudda]	Chitradurga belt
+ 94IN169	303-6(2)	banded chert	[near MadalinganaGudda]	Chitradurga belt
*# 94IN170	303-7A	dolomite (upper)	[near MadalinganaGudda]	Chitradurga belt
# 94IN171	303-7B	dolomite (lower)	[near MadalinganaGudda]	Chitradurga belt
# 94IN172	303-8(1)	BIF (large sample)	[near MadalinganaGudda]	Chitradurga belt
non	303-8(2)	BIF(ori J 30W, 90?)	[near MadalinganaGudda]	Chitradurga belt
# 94IN174	303-9	mafic dyke in TTG (ori J N80E 80N)		dyke in EDC/WDC
94IN175	30310	TTG (ori J 5W, 75W back)		TTG in EDC/WDC

[Jayachamarajpura schist belt (JC Pura belt : Sargur equivalent in WDC)]

+ 94IN176	304-1	dio-tonal gn (TTG mela-inter) (ori J 30W, 0)	[Mailanahalli]	TTG in WDC
94IN177	304-2	ultramafic r including spotted feld ? (xenolithic mass in TTG)		TTG in WDC
# 94IN178	304-3	ultramafic r (thermal meta serpen, pillow? komatiite?)		JC Pura belt
# 94IN179	304-4A	ultramafic r (spinifex? pillow?, fracture?)	[Rampura]	JC Pura belt
+ 94IN180	304-4B	ultramafic r (serpentinite) (cf. Geol Ind. P136)	[Rampura]	JC Pura belt
+ 94IN181	304-4C	ultramafic r (mass serpentinite)	[Rampura]	JC Pura belt
94IN182	304-5A	Bt anorthositic r		JC Pura belt
# 94IN183	304-5B	actinolitic amphibolite +white band		JC Pura belt
94IN184	304-5C	serpentinite		JC Pura belt

[Kalyadi copper mine (Hutti Gold Mine Co. Ltd) in Kalyadi belt (Sargur equivalent)]

# 94IN185	305-1A	Cu ore bear mafic sht		Kalyadi belt
+ 94IN186	305-1F	mafic (-psam ?) sht (footwall)		Kalyadi belt
94IN187	305-1B	Cu Qtz vein parallel with schistosity in mafic-psam ? sht		Kalyadi belt
94IN188	305-1C	Cu Qtz vein parallel with schistosity in mafic-psam ? sht		Kalyadi belt
94IN189	305-1D	Cu ore		Kalyadi belt
94IN190	305-1H	mafic sht		Kalyadi belt
94IN191	305-2	cherty-psam sht		Kalyadi belt
94IN192	305-3A	ore bear mafic sht		Kalyadi belt
94IN193	305-3B	cherty sht +Cu Qtz vein		Kalyadi belt
94IN194	305	p gn gr-gr gn (layer parallel injection)		Kalyadi belt

# 94IN195	307-1	BIF	[Kunigal schist belt]	Kunigal belt
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[continuous section of HoleNarasipura belt at Hassan road cut on NH48, 162.4km from Bangalore]

94IN201	308-1	greenstone (mass metabasalt)		HoleNarasipura b
+ 94IN202	308-2	green sht		HoleNarasipura b
94IN203	308-3	green sht		HoleNarasipura b
+ 94IN204	308-4	schistose amphibolite		HoleNarasipura b
94IN205	308-5	m amphibolite		HoleNarasipura b
94IN206	308-6	diabase		HoleNarasipura b
+ 94IN207	308-7	metabasalt		HoleNarasipura b
94IN208	308-8	green sht		HoleNarasipura b
+ 94IN209	308-9	clay, carbonate ?		HoleNarasipura b
+ 94IN210	308-10	green sht (amph sht)		HoleNarasipura b
+ 94IN211	308-11	Bt sht		HoleNarasipura b
+ 94IN212	308-12	green phyl		HoleNarasipura b
+ 94IN213	308-13	green sht (amph sht)		HoleNarasipura b

+ 94IN261	309-1A	Chikmagalur gr (ori 30E 80E back)		Chikmag gr, WDC
+ 94IN262	309-1B	Chikmagalur gr		Chikmag gr, WDC
94IN263	309-2	Kartikere cgl (quartzose matrix & pebble =92-150,06-08,09-22)		Bababudan belt
94IN264	309-3	quartzite (ori J 75W, 20N)		Bababudan belt
94IN265	309-4(1)	quartzite (ori F 80E 45N back)		Bababudan belt
+ 94IN266	309-4(2)	quartzite (ori F 85E 40N)		Bababudan belt
# 94IN267	309-5A	schistose-mass metabasalt (ori F 15W, 50W) [Bababudan fall]		Bababudan belt
94IN268	309-5B	por metabasalt		Bababudan belt
94IN269	309-5C	deep green metabasalt		Bababudan belt
94IN270	309-5D	mass metabasalt		Bababudan belt
+ 94IN271	309-5E	deep green metabasalt		Bababudan belt
+ 94IN272	309-6	BIF (at Mt Bababudan)		Bababudan belt
# 94IN273	310-1	mass metabasalt		Bababudan belt
+ 94IN274	310-1T	green sht		Bababudan belt
+ 94IN275	310-2	green-black sht		Bababudan belt
+ 94IN276	310-3	chert +BIF band		Bababudan belt
+ 94IN277	310-4	chert +BIF band		Bababudan belt
+ 94IN278	310-5(1)	BIF		Bababudan belt
# 94IN279	310-5(2)	folded BIF +chert		Bababudan belt
+ 94IN280	310-5(3)	chert, BIF banded		Bababudan belt
94IN281	310-5(4)	white chert (not quartzite) banded		Bababudan belt
# 94IN282	310-6	chert +BIF banded		Bababudan belt
+ 94IN283	310-7(1)	BIF, chert banded		Bababudan belt
+ 94IN284	310-7(2)	BIF, chert		Bababudan belt
+ 94IN285	310-8	chert +thin BIF		Bababudan belt
# 94IN286	310-9T1	folded BIF		Bababudan belt
94IN287	310-9T2	BIF		Bababudan belt
# 94IN288	31010(1)	BIF		Bababudan belt
+ 94IN289	31010(2)	BIF		Bababudan belt
# 94IN290	31011	BIF [=92IN154,155, 06IN16, 09IN25] [at Kavikalgandi cross]		Bababudan belt
# 94IN291	Bab	well folded BIF, chert		Bababudan belt
# 94IN292	Bab 2	BIF		Bababudan belt
+ 94IN293	311-1	Closepet gr	[Tiptur]	Closepet gr

(Total : 255 +continuous specimens)

Dharwar Craton (1995-1996 : Kano, T. and Jayananda, M.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
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[Abbreviation on locality; C : Closepet gr, T : TTG]

Closepet granite, TTG and granitic rocks in EDC

{south to central part of Closepet granite}

[Tumkur]

95IN01	122301	p Kfs bear foliate m gd (mixed facies of Closepet with TTG)		Tumkur S, C+T
95IN02	122302	p Kfs rich band in 01		Tumkur S, C
95IN03	122303A	p Kfs rich gr & c-m dio, mixed f (mig margin of Closepet)		Tumkur S, C
95IN04	122303B	m-f mass gd intruding into -A		Tumkur S, C

non	122303C	p peg	Tumkur S, C
95IN06	122303D	m gn dio-tonal (TTG like mela part)	Tumkur S, C
95IN07	122303E	p Kfs rich gr (mass pool-veinlet)	Tumkur S, C
non	122303F	p peg	Tumkur S, C
95IN09	122304	pale p Kfs por gn gr (with red-brown mineral)	Tumkur S, C
95IN10	122305	ultra-blast myl band (sheared band in por gr)	Tumkur S, C
95IN11	122306	c-m grey f (tonal) in por gr	Tumkur S, C
95IN12	122308B	banded tonal gn (TTG)	Tumkur S, T in C
	[Madhugiri – Sira]		
95IN13	122401A	homo weak foliate por gr (Closepet main facies)	Madhugiri S, C
95IN14	122401B	leuco gr vein in A	Madhugiri S, C
95IN15	122402A	p Kfs por gr (Closepet)	Sira E, C
95IN16	122402B	[W110] pale p por pr (Closepet)	Sira E, C
95IN17	122403	Kfs por weak gn gd (with two set of shear plane)	Sira E, C
95IN18	122404A	banded p Kfs gn gr + tonal gn (TTG)	Sira E, C+T
95IN19	122404B	f Bt tonal-gd (TTG)	Sira E, T in EDC
95IN20	122404C	leuco gr band (2-3cm wide) in TTG	Sira E, T in EDC
95IN21	122404D	c leuco Qtz feld r	Sira E, T?
95IN22	122405	p Kfs weak foliate por gr (Closepet)	Sira E, C
95IN23	122406(T)	f mela gd band & p gr (marginal mixed facies with TTG)	Sira E, C+T
95IN24	122407A	f dio (most mafic part of TTG)	Sira E, T in EDC
95IN25	122407B	leuco layer (trond ?) banded with f dio	Sira E, T in EDC
95IN26	122407C	m Bt tonal (transition facies), (407D : w Kfs in C)	Sira E, T in EDC
95IN27	122408A	f-m mass dio (mafic enclave in TTG)	Sira E, T in EDC
* 95IN28	122408B	TTG (main part), orbicular like str	Sira E, T in EDC
non	122408C	p c gr (\cong Closepet), 30cm wide	Sira E, gr in EDC
non	122408D	w feld pool in tonal	Sira E, T in EDC
95IN31	122408E	c gn dio	Sira E, T in EDC
95IN32	122408F	c leuco peg in TTG	Sira E, T in EDC
95IN33	122408G	orbicular str in TTG	Sira E, T in EDC
* 95IN34	122408	typical TTG	Sira E, T in EDC
	[Magadi – Ramanagaram]		
	(122501 : marginal TTG , mixed with anatectic melt from TTG at Closepet stage)		
95IN35	122501A	homo f-m leuco gr (anatectic melt from TTG)	Magadi W, TinEDC
95IN36	122501B	banded TTG	Magadi W, TinEDC
95IN37	122501C	leuco band (whitish gr) in TTG	Magadi W, TinEDC
95IN38	122501D	f leuco mass gd (sheet injection of Closepet grey facies)	Magadi W, C
95IN39	122502A	p gr (veinlet of Closepet in f gn dio) (marginal Closepet)	Magadi W, C
95IN40	122502B	p m gr vein & f gn mela dio (greyish, mantle derived Closepet ?)	Magadi W, C
	(122503 : marginal Closepet, including mafic enclave & p gr)		
95IN41	122503A	f dio (mafic enclave near C-1)	Magadi W, C
95IN42	122503B	pale p Kfs por gr (major part)	Magadi W, C
95IN43	122503C-1	p c-m gr (vein)	Magadi W, C
95IN44	122503C-2	p mass peg gr (T)	Magadi W, C
95IN45	122504	common p por gr (Closepet)	Magadi W, C
95IN46	122505A	red large Kfs por gr (Closepet)	Magadi E, C
95IN47	122505B	mass-weak gn p c por gr -m gr	Magadi E, C
95IN48	122505C	p Kfs rich peg gr	Magadi E, C
95IN49	122506A	common homo c mass red gr (Closepet)	Magadi S, C
95IN50	122506A'	m-c mass red gr	Magadi S, C
95IN51	122506B	mafic enclave & m-c mass red gr	Magadi S, C
95IN52	122507A	mass leuco c Bt gr (normal gr) including white Kfs	Magadi S, C
95IN53	122507B	c leuco Bt gr	Magadi S, C

95IN54	122507C	p peg	Magadi S, C
	[Ramanagaram north (122508) : p gr permian & f equigranular part in Closepet]		
95IN55	122508A	p gr rich part	Ramanag N, C
95IN56	122508B	f foliate gd & p gr	Ramanag N, C
95IN57	122508C	f leuco mass gr	Ramanag N, C
95IN58	122508D	f p gr gn	Ramanag N, C
95IN59	122509	large Kfs por gr	Ramanag N, C
95IN60	122510A	Cpx bear dio r (most mela part of Closepet)	Ramanag N, C
95IN61	122510B	p Kfs bear mela-inter gd (p Kfs bear dio r in A)	Ramanag N, C
95IN62	122510C	p mass c gr (fluidal vein or pool)	Ramanag N, C
95IN63	122511	f-m mass-weak foliate gd (partly including p Kfs)	Ramanag N, C

{TTG and granitic rocks in EDC around Bangalore}

[Nagarabhavi road cut (near Bangalore Univ)]

95IN64	122601A	tonal-dio (f mafic part of TTG)	TTG in EDC
95IN65	122601B	Bt gn tonal with Qtz feld layer (TTG, partaly melted mobilized)	TTG in EDC
95IN66	122601C	c leuco peg part of TTG	TTG in EDC
	[Uttrahalli quarry]		
95IN67	122602A	c tonal r (TTG)	TTG in EDC
95IN68	122602B	Grt or Ttn bear c leuco peg vein, 20cm wide	TTG in EDC
95IN69	122602C	banded TTG	TTG in EDC
95IN70	122602C'	c-vc feldspathic part	TTG in EDC
95IN71	122602D	f mass Bt gr (50cm wide vein in mafic part bear mig TTG)	TTG in EDC
non	122602E	w peg in central D	TTG in EDC
non	122602F	f dio	TTG in EDC
95IN74	122602G	c tonal (host part of dyke D)	TTG in EDC
95IN75	122602H	dio-tonal (host part of dyke D)	TTG in EDC
	[Township quarry : mig TTG & discordant dyke of c foliate dio r (Closepet)]		
95IN76	122603A	typical banded TTG	TTG in EDC
95IN77	122603B	banded TTG with leuco band	TTG in EDC
95IN78	122603C	c foliate dio-tonal (Closepet equivalent)	gr in EDC
95IN79	122603D	f-m mass leuco gr in dio	gr in EDC
95IN80	122603E	w feld peg in C (0.5-1m wide)	gr in EDC

{southern most part of Closepet granite in amphibolite-granulite transition zone}

[Kanakapura west (2701) : mixed facies of TTG & Closepet]

95IN81	122701A	f mela Bt dio (mafic fragment in TTG)	TTG in C
non	122701B	mafic-inter part (TTG)	TTG in C
95IN83	122701C	mixed facies of TTG & p gr	T+C
95IN84	122701D	m p gr	Closepet
95IN85	122701E	p peg	Closepet

[Kanakapura west (2702) : p gr=Closepet into TTG, charnockitization induced by Closepet]

95IN86	122702A	TTG main part	TTG in C
95IN87	122702B	p gr vein penetrated into weak banded TTG (charnockitized)	T+C
95IN88	122702C	charnockitic TTG including p c gr layer	T+C
95IN89	122702D	p peg gr vein 2-3m wide (p gr+leuco gr banded, non charnock)	Closepet

[Kabbaldurga : mixed facies of Closepet with TTG and charnockitization]

[95IN90-105 = 92IN101-107, 08IN45, 09IN03]

95IN90	122703A	leuco banded Bt gn (homo well banded TTG)	TTG in C
95IN91	122703B	slight charnockitic TTG (inter part)	TTG in C
95IN92	122703C	charnockitic TTG (pale green-greyish)	TTG in C

95IN93	122703D	boundary, p-grey gr & mafic part (m dio)	Closepet
95IN94	122703D1	mafic c dio & vc p gr	Closepet
non	122703D2	mafic & p gr boundary	Closepet
95IN96	122703D3	p gr & m gn gd (TTG)	C+T
non	122703D4	p gr	Closepet
95IN98	122703D5	p gr & gn gd	Closepet
95IN99	122703D6	f-m p gd & TTG (slight charnockitic)	C+T
95IN100	122703D7	transition, f gd to m-c p gr	C+T
95IN101	122704	p gr +f-m tonal gn, partly charnockitic	C+T
* 95IN102	122705	banded c gn tonal (TTG), partly charnockitic	TTG in C
95IN103	122706	c gn tonal (TTG), partly charnockitic	TTG in C
95IN104	122707	c gn tonal (TTG), partly charnockitic	TTG in C
95IN105	122708	charnockitic TTG	TTG in C
[Kabbaldurga north : charnockitization associated with p gr injection, an example]			
95IN106	122709A	p Kfs rich gr including Opx	Closepet
95IN107	122709B	c charnock & p gr, boundary	Closepet
[Ramanagaram south : marginal zone, mixed facies of augen gn & red gr]			
95IN108	122710A	Kfs partly blastic banded TTG (-augen gn)	T+C
95IN109	122710B	patchy red gr +whitish gr	Closepet
95IN110	122710C	Grt bear vc blastic r	C+T?
95IN111	122710D	p por gn gr & m gn tonal, boundary	C+T
95IN112	122710E	large Grt rich peg	Closepet
95IN113	122710F	tonal gn (TTG) & dark grey charnockitic part, boundary	TTG in EDC
[south to central part of Closepet granite]			
[Tumkur]			
95IN114	122801A	f dio gn (banded mafic part in TTG) +leuco layer	TTG in EDC
95IN115	122801B	p c gr (1-0.5m wide, partly concordant & discordant vein)	Closepet
95IN116	122801C	c p peg vein +TTG	C+T
95IN117	122802A	gn por gr-augen gn with red mineral (shear band in por gr)	Closepet
95IN118	122802B	p gn gr-por gr	Closepet
95IN119	122803	p Kfs por gn gr-mass gr	Closepet
[marginal part of Closepet]			
non	122804A	earliest monzo-dio (most earliest phase of Closepet)	Closepet
non	122804B	mass type gr	Closepet
non	122804C	peg vein, 2-3cm wide	Closepet
95IN123	122804D	Kfs por gd	Closepet
non	122804E	mass c-m p-red gr	Closepet
95IN125	122804F	f-m granular p gr	Closepet
[marginal part]			
95IN126	122805A	banded TTG fragment in B	TTG in C
95IN127	122805B	m red gr	Closepet
non	122805C	p peg vein	Closepet
[122806 : hybrid zone same as 122805]			
95IN129	122806A	foliate monzo-dio (most earliest, mafic part)	Closepet
95IN130	122806B	leuco Bt gr	Closepet
non	122806C	p m gr	Closepet
95IN132	122806D	p peg (20cm wide, sharp cut)	Closepet
95IN133	122806E	f-m p gr (small schlieren-nelpulitic TTG include)	C+T
95IN134	122807	monzo-dio (earliest facies of Closepet, "lamprophyric")	Closepet
95IN135	122808	mass c-m dio ("mantle facies") with round mafic enclave	Closepet
95IN136	122809A	Kfs por gn gr	Closepet

95IN137	122809B	p c gr layer in A	Closepet
95IN138	122810	well foliate p Kfs gn gr	Closepet
95IN139	122811	por p gn gr	Closepet
95IN140	122812A	p por gn gr, strongly foliate	Closepet
95IN141	122812B	p Kfs rich peg	Closepet
95IN142	122813	pale p Kfs por gn gr	Closepet
* 95IN143	122814	w-pale p vc Kfs por gn gr (including well banded gn)	C+T

{central part of Closepet granite}

[around Pavagada]

95IN144	123001	mass homo por gr (p Kfs 1-3cm)	Closepet
95IN145	123002	slight foliate p gr, including mafic fragment (TTG?)	C+T?
95IN146	123003	homo f-m foliate p gr (matrix of 123002), near TTG boundary	Closepet
95IN147	123004	m weak foliate p gr, same as 123003	Closepet
95IN148	123005	f homo foliate tonal-gd (original=low grade part of TTG)	TTG in EDC
95IN149	123006	p foliate f-m gr (mixed with Closepet +TTG)	C+T
95IN150	123007T	large Crd Sil hornfelsic r (Ath Crd Sil r) [2km from Palavalli]	pelite in Closepet
95IN151	123008f	f homo foliate p gr with mafic inclusion	Closepet
95IN152	123008c	c p gr	Closepet
95IN153	123009	p kf por gn gr (Ep Chl bear matrix)	Closepet
		(123010 : c leuco gr including xenolith or schlieren of banded r =TTG ?)	
95IN154	123010A	f dio-mela tonal (TTG or mafic part of Closepet)	C+T? in C
95IN155	123010B	c pale p foliate leuco gr	Closepet
non	123010C	peg vein, 20-30cm wide	Closepet
95IN157	123010D(T)	Kfs por gn gr (major facies around A-C)	Closepet
		(123011 : p c mass-weak foliate gr-por gr including mafic part)	
95IN158	123011A	por gr	Closepet
95IN159	123011B	m p gn gr	Closepet
95IN160	123012	homo weak foliate c gr	Closepet
95IN161	123013	white Kfs por weak foliate-mass c gr	Closepet
95IN162	123014	p Kfs por gn gr	[Laorahalli] Closepet
95IN163	123015A	strong foliate (sheared) c leuco gr	Closepet
95IN164	123015B	c leuco gr (whitish part)	Closepet
95IN165	123016A	vc Kfs por gn gr	Closepet
95IN166	123016B	f-m mass micro gd intruding A (-C : Tur bear whitish vein)	Closepet
95IN167	123017	vc Kfs strong foliate por gr	Closepet
95IN168	123018A	p-red Kfs por gn gr	Closepet
95IN169	123018B	nearly mass p-red gr	Closepet
		(12310 : c mass p gr with foliation by Bt clot)	
95IN170	123101A	pale p c Bt gr (most common facies)	Pavagada N, C
95IN171	123101B	mass m p gr (pinkish part)	Pavagada N, C
95IN172	123101C	mass w c gr	Pavagada N, C
		(123102) : p c gr including mafic fragment)	
95IN173	123102A	f mela dio (mafic part)	Pavagada N, C
95IN174	123102B	f-m leuco Bt gr banded with foliate tonal-gd	Pavagada N, C
95IN175	123102C	m-c p gr	Pavagada N, C
95IN176	123102D	p c gr & p peg	Pavagada N, C
		[north of Pavagada, into Andhra Pradesh]	
95IN177	123103	mafic rich strong foliate c gd with p Kfs	into AP, C
		[Kalyandurg (123104) : mixed facies of Closepet including TTG fragment]	
non	123104A	banded TTG (tonalitic?)	TTG in C
non	123104A'	leuco part of banded TTG	TTG in C

non	123104B	w feld blast in A	TTG in C
95IN181	123104C	boundary, f dio-tonal gn (TTG) & p-w gr	T+C
95IN182	123104D	p-whitish hetero gr	Closepet
95IN183	123104E	p c gr & c dio-tonal mafic part	Closepet
95IN184	123104F	p c mass gr-p peg	Closepet
	[Kalyandurg (123105) : mixed facies of Closepet including TTG]		
95IN185	123105A	c leuco Bt gr including f dio	Closepet
95IN186	123105B	c mass p gr	Closepet
95IN187	123105C	micro gr-gd intruding into p gr	Closepet

{northern part of Closepet granite}

[Rayadurg]

95IN188	123106	homo f-m tonal gn (TTG) (ori J 10W 15W) (123107 : mixed facies of TTG & p gr)	TTG in C
non	123107A	leuco part of TTG	TTG in C
non	123107B	leuco Bt gr (transitional part of TTG to p peg gr)	C to T
95IN191	123108	homo mass c leuco gr	Closepet

[Bellary south]

95IN192	123109	homo mass c Bt gr	Closepet
95IN193	123110A	c foliate leuco gr (major part)	Closepet
95IN194	123110B	c dio part (agmatic-schlieren-nebulitic)	Closepet
95IN195	123110C	f homo tonal (schlieren)	Closepet
95IN196	123110D	grey-w Kfs peg (w=10-20cm)	Closepet

[Bellary - Rommagondanakere - Rampura - Kudligi - Sandur]

non	10101	f homo mass gd (micro gd) (10102 : c well foliate homo gd, with partly c leuco band)	Bellary S, C
96IN02	10102A	f-m gn gd (most common facies)	Bellary S, C
96IN03	10102B	leuco gn gd	Bellary S, C
96IN04	10103	homo weak foliate-mass c leuco gr, partly banded	Bellary S, C
96IN05	10104A	f mass gd (slight mafic part, with network apl & peg)	Bellary S, C
96IN06	10104B	f gd including Mag	Bellary S, C
non	10104C	m Bt gr (most leuco part)	Bellary S, C
96IN08	10104D	f micro gd (most leuco part near -C)	Bellary S, C
96IN09	10105	homo mass c leuco Bt gr (with weak foliate Bt rich shlieren)	Bellary S, C
96IN10	10106A	homo c weak foliate Bt gr (most common facies)	Bellary S, C
96IN11	10106B	m-c leuco gr (leuco layer banded with -A) (10107 : western margin of Closepet : foliate leuco gr including TTG enclave)	Bellary S, C
non	10107A	well banded TTG (1x3m enclave in -B)	Bellary S, T in C
96IN13	10107B	homo c-m leuco gr	Bellary S, C
96IN14	10107C	f foliate micro gd	Bellary S, C
96IN15	10108	homo foliate leuco gr	Bellary S, C
96IN16	10109	homo mass leuco-pale p m gr (similar to "Hiroshima gr")	Bellary S, C
96IN17	10110	f-m leuco Bt gr (Mag spot include)	Bellary S, C
96IN18	10111A	p Kfs por gn gr	Bellary S, C
96IN19	10111B	p apl-peg in -A	Bellary S, C
96IN20	10112	p Kfs slight por c gr & p peg	Bellary S, C
96IN21	10113	homo leuco c foliate gr	Bellary S, C
96IN22	10114	BIF (Sandur belt)	Sandur belt

{northern most part of Closepet granite, TTG and granitic rocks in Bellary-Hospet-Hampi}

[Bellary northwest (10201) : mainly TTG with Closepet penetration and injection]

96IN23	10201A	well banded tonal-trond gn	TTG in EDC
96IN24	10201B	p leuco c gn gr (Clospet equivalent)	gr in EDC
		[Torangallu village (10202) : Hospet gr, isolate stock (2-300m wide) in greenstone b (ca 2.3 Ga) vc p Kfs (rapakivi) in dark green matrix, including mafic enclave with vc Kfs]	
* 96IN25	10202A	large Kfs por gr (common facies, euhedral Kfs, max 5-10cm)	Hospet gr
* 96IN26	10202B	mafic enclave (f mass dio, 0.5-1m wide) including Kfs megacryst	Hospet gr
96IN27	10202C	vf apl vein 5-20cm wide	Hospet gr
96IN28	10203A	p Kfs bear f-m gn gd (gp like)	Hospet E, C
96IN29	10203B	porphyrite like r (dyke?)	Hospet E, C
96IN30	10204A	Kfs por foliate gd (same as 10203)	Hospet E, C
96IN31	10204p	p peg-apl network	Hospet E, C
96IN32	10205	homo m-c mass Bt gr	Hampi, C
96IN33	10206	homo m-c mass-weak foliate Bt gr (partly w feld por)	Hampi E, C
96IN34	10207	f homo mass Bt gr (micro gr)	Hampi E, C
96IN35	10208A	weak foliate por gd & dark inclusion	Hampi E, C
96IN36	10208B	most common c mass leuco Bt gr	Hampi E, C
96IN37	10208C	mafic enclave (f dio) boundary	Hampi E, C
96IN38	10208D	f slight mela mass-foliate micro gd	Hampi E, C
96IN39	10209	Kfs por gn gr, strong foliation (ori J 40W 70W)	Hampi E, C
		[Hospet]	
96IN40	10301A	well foliate f-m gn (TTG ?) & c leuco part in por gr-gd	TTG in C+C
96IN41	10301B	por (gn) gr	Closepet
96IN42	10301C	f-m gd	Closepet
		[Koppal syenitic mass : (10302 : mela-inter gn sye including f mafic enclave), (10303 : marginal facies of syenite body, mafic margin, felsic core)]	
96IN43	10302A	p Kfs rich strong foliate mela-inter gn sye (major part)	Koppal sye
96IN44	10302B	pale p-leuco c gn sye	Koppal sye
96IN45	10303A	foliate c gn sye	Koppal sye
96IN46	10303B	p foliate aplitic (f sye) dyke	Koppal sye
96IN47	10303C	strong foliate (sheared) sye (mela & leuco part, in margin)	Koppal sye
96IN48	10304	foliate c sye (dio r) (behind side of 03)	Koppal sye
		[Koppal to Gangawati]	
96IN49	10305	homo c leuco gr, partly nebulitic mafic layer	Koppal E, C
96IN50	10306	homo mass p gr	Koppal E, C
96IN51	10307	mass p Kfs c gr-por gr	Gangawati W, C
96IN52	10308	mass-weak foliate p Kfs c gr, partly por gr	Gangawati W, C
96IN53	10309A	homo mass f gd (micro gd) (Ilekal gr)	Gangawati, C
		(10310 : mainly TTG, intruded by foliated gd & penetration by p gr)	
96IN54	10310A	white feld blastic tonal-trond & dio gn (banded TTG)	TTG in EDC
96IN55	10310B	c foliate (grey ?) gr intruding into -A	TTG in EDC
96IN56	10311A	foliate c red gr (partly graphic tex)	Gangawati NW, C
96IN57	10311B	c-m red gr	Gangawati NW, C
		(10312 : mainly p c gr, including schlieren of f gd like r with grey feld)	
96IN58	10312A	f slight mela micro gd	Gangawati NW, C
96IN59	10312B	c leuco gr (common facies)	Gangawati NW, C
96IN60	10312C	f apl-micro gr (dyke in -A,B)	Gangawati NW, C
96IN61	10401	f foliate gr (micro gr, leuco & slight mela part)	gr in T in EDC

TTG and granitic rocks in WDC

96IN62	10402	c leuco Bt gr, partly por (Chitradurga gr)	Chitra gr, WDC
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		[Bangalore to Hassan]	
96IN63	10601A	strong foliate sheared gr (S-extension Chitra gr, ori F20E28W)	gr in WDC
96IN64	10601B	pale p foliate c sheared gr (2.55–2.7Ga)	gr in WDC
96IN65	10602A	well banded TTG (3.0–3.1Ga, Rb–Sr, 3.3 Zrn) [Metikere]	TTG in WDC
96IN66	10602B	c leuco gn trond–trond gn [Metikere]	TTG in WDC
		(10603, 1km east from Madihally : Typical TTG)	
96IN67	10603A	whitish folded f trond r	TTG in WDC
	10603B	c tonal gn (blastic part)	TTG in WDC
96IN68	10603B'	band tonal–trond gn	TTG in WDC
96IN69	10603C	homo–mass–foliate f gd (micro gd slight mela)	TTG in WDC
96IN70	10603D	vc leuco peg	TTG in WDC
96IN71	10604	f mass gd in banded TTG [before Valyuru, 1km]	TTG in WDC
		[Hassan – Belur – Chikmagalur area]	
		(10605, Hassan east : TTG, same lithology as 3.3Ga Zrn age TTG)	TTG in WDC
96IN72	10605A	mela tonal gn (ori J 40E 25E)	TTG in WDC
96IN73	10605B	f–m leuco gn tonal–trond (whitish apl layer) (ori J NS 0)	TTG in WDC
96IN74	10605C	peg vein (w large feld)	TTG in WDC
96IN75	10605D	greenish phyllitic r (shear zone in A–C)	TTG in WDC
96IN76	10606A	c–m tonal gn	Hassan, T in WDC
96IN77	10606B	f mela tonal gn	Hassan, T in WDC
96IN78	10606C	trond vein	Hassan, T in WDC
96IN79	10607A	banded TTG (f gn tonal–tonal gn) (ori J 40W 25E)	Hassan, T in WDC
96IN80	10607B	f leuco gn gr (leuco layer) & f gn tonal (mela layer)	Hassan, T in WDC
96IN81	10607C	peg part (trond vein)	Hassan, T in WDC
		(10608, around Belur : w trond vein network agmatitic TTG)	
96IN82	10608A	f mela gn tonal–dio	TTG in WDC
96IN83	10608A'	f mela–inter mass tonal	TTG in WDC
96IN84	10608B	w apl–peg vein (f–c trond?) & f dio	TTG in WDC
96IN85	10608A/B	f mela tonal–dio & c leuco peg trond vein	TTG in WDC
96IN86	10608D	c leuco peg (trond)	TTG in WDC
96IN87	10609A/B	f gd gn (A) & c leuco peg gn (B), banded	TTG in WDC
96IN88	10609C	c leuco peg (trond)	TTG in WDC
96IN89	10609D	vc peg (3–5cm w feld)	TTG in WDC
96IN90	10701	Kfs por mass–weak foliate gr (Chikmagalur gr, 3.2Ga, original igneous feature well remain)	Chik gr, WDC
		(10702, Chikmagalur south : TTG mixed with Chik gr, outcrop 1=A–E, 2=F–p)	
96IN91	10702A	f dio–amphibolite (mafic enclave with f dio margin)	TTG in WDC
96IN92	10702B	f dio gn in banded TTG	TTG in WDC
96IN93	10702C	c trond–peg (leuco layer in banded TTG)	TTG in WDC
96IN94	10702D	weak foliate f Bt gr (1m wide dyke intruding into A,B,C)	TTG in WDC
96IN95	10702D/E	peg intruding into A–D (D/E boundary)	TTG in WDC
96IN96	10702F	f foliate tonal–dio	TTG in WDC
96IN97	10702G	f mela dio gn & leuco trond vein (partly banded)	TTG in WDC
96IN98	10702H	vc leuco feld layer	TTG in WDC
96IN99	10702p	c leuco peg	TTG in WDC
96IN100	10703A	f mela dio gn (mafic part of TTG ?) [Belur east]	TTG in WDC
96IN101	10703B	c leuco foliate gr & f dio gn (TTG ?)	TTG in WDC
96IN102	10703C	c leuco foliate Bt gr (part of TTG or Chikmag gr ?)	TTG in WDC
96IN103	10703p	peg vein	TTG in WDC
		(10704, Belur east : whitish gr including TTG fragment or mafic enclave)	
96IN104	10704A	c Bt gn gd–gd gn (most common, strong foliate facies)	TTG in WDC
96IN105	10704B	f gn tonal & f–c gn gd (dyke)	TTG in WDC

96IN106	10704C	peg vein		TTG in WDC
96IN107	10704D	same as -A		TTG in WDC
96IN108	10704E	leuco gn gd-trond (more leuco than -A)		TTG in WDC
96IN109	10704F	f leuco Bt gn gr or trond (vein)		TTG in WDC
96IN110	10704G	peg vein		TTG in WDC
96IN111	10705A	f slight mafic part of Chikmagalur gr	[Chikmagalur south]	Chik gr, WDC
96IN112	10705B	c leuco gr part	[Chikmagalur south]	Chik gr, WDC
		(10706, Chikmagalur south : brownish feld rich gr, at 3.2Ga dated small quarry)		
96IN113	10706A	brown feld rich c-m gr		Chik gr, WDC
96IN114	10706B	f-m gr (whitish part)		Chik gr, WDC
96IN115	10706C	f Bt gr in -B		Chik gr, WDC
96IN116	10706D	large brown feld bear peg		Chik gr, WDC
96IN117	10707	c-m foliate gr (part of Chikmag gr?) including banded gn (TTG)		Chik gr-T, WDC
96IN118	10708	c foliate peg r		Chik gr, WDC
96IN119	10709	slight foliate m-c leuco gr (Chikmagalur gr)		Chik gr, WDC
96IN120	10710A	homo-mass m leuco Bt gr (in map TTG)	[Chikmagalur west]	gr in WDC
96IN121	10710B	p c leuco gr	[Chikmagalur west]	gr in WDC
96IN122	10711	c mass p gr	[Chikmagalur west]	gr in WDC

[western Chikmagalur : Balehonnur shear zone - Koppa -Tirthahalli]

96IN123	10801T	amphibolite (Bababudan belt)		Bababudan b
96IN124	10802A	c-m foliate leuco Bt gr (equivalent to Chik gr)	[Balehonnur east]	gr or T in WDC
96IN125	10802B	ditto (from rolling block)	[Balehonnur east]	gr or T in WDC
96IN126	10803	Kfs por gn Bt gr-gd (equivalent to Chikmag gr)	[Balehonnur]	gr or T in WDC
96IN127	10804	strong foliate myl gr (sheared f gr) (ori F 35E 50W)	[Baleh W]	gr or T in WDC
96IN128	10805	c foliate gd (at Ardikoppa bus stop) (ori J 70W 70S)	[Koppa S]	gr or T in WDC
96IN129	10806	strong foliate c sheared gr (augen gn)	[Kopaa]	TTG in WDC
96IN130	10807A	f-m Bt gn gd gn (TTG mixed with -B)	[Tirthahalli SE]	TTG in WDC
96IN131	10807B	strong foliate leuco peg gr (with slight brown feld)	[do]	TTG in WDC
96IN132	10808	strong foliate leuco gr-gr gn (ori L 40W 0)	[do]	TTG in WDC
		(with vc perthitic brown feld bear peg)		
96IN133	10809A	strong foliate leuco gr-gr gn (=10808) (ori L 25W 0)	[Tirthahalli]	TTG in WDC
96IN134	10809B	p foliate peg	[Tirthahalli]	TTG in WDC
96IN135	10810	p Kfs rich sheared gr (weathered)	[Koppa east]	gr or T in WDC
96IN136	10811	strong sheared gr (weathered)	[Koppa southeast]	gr or T in WDC
96IN137	10812	Mag bear c-m strong foliate gd gn & leuco peg	[Balehonnur N]	TTG in WDC
96IN138	10813	Grt bear amph sht (deep green and pale green-Act? band)		Bababudan b
		(Nd-Sm 2430Ma indicating age of Balehonnur shear zone)		

{basement granites in Shimoga basin and Honnali dome}

[Bhadravati (10901) : TTG + gr ? (Shimoga gr)]

96IN139	10901A	f mela tonal r		Shimoga gr, WDC
96IN140	10901B	p tonal-gd including p vein		Shimoga gr, WDC
		[Bhadravati (10902) : TTG like f gn r +p gr network-penetration (Shimoga gr)]		
96IN141	10902A	f mela tonal r (mafic part)		Shimoga gr, WDC
96IN142	10902B	mixed part (f mela tonal-dio & p c gr) & peg vein (10902C)		Shimoga gr, WDC
96IN143	10903A	c foliate slight p gd (Shimoga gr)	[Shimoga]	Shimoga gr, WDC
96IN144	10903B	nearly same as A	[Shimoga]	Shimoga gr, WDC
96IN145	10904	c leuco tonal-gd (Ep Chl altered, fractured : Shimoga gr)		Shimoga gr, WDC
		(so-called typical greenschist facies granitoids)		
		[Shimoga (10905) : fluidal banding with tonal & p c leuco gr (Shimoga gr)]		
96IN146	10905A	c foliate tonal r (mela part)		Shimoga gr, WDC

non	10905B	c foliate leuco tonal, banded with A	Shimoga gr, WDC
96IN148	10905C	slight altered p c foliate gr-slight por gr	Shimoga gr, WDC
96IN149	10905D	p apl pool	Shimoga gr, WDC
		[Honnali south (10906-908) : granitic r in Honnali dome]	
96IN150	10906A	c pale green leuco gr (main facies), altered with Ep, Chl	Honnali gr, WDC
96IN151	10906B	f altered Ep bear leuco gr-apl	Honnali gr, WDC
96IN152	10907	whitish peg or c trond ? (gr in Honnali dome)	Honnali gr, WDC
96IN153	10908	foliate c leuco gr-peg or trond (Honnali dome gr)	Honnali gr, WDC
96IN154	10909	highly fractured mass-foliate p m gd (Shimoga gr, p gr),	Shimoga gr, WDC

(Total : 324)

Aravalli Craton and Aravalli-Delhi Belt

(1999 : Kano, T., Gyani, K.C., Pandit, S.K. and Yoshida's party)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
[Udaipur - Debari : basement (BGC) to Aravalli (A) contact lithology, Banded Gneiss Complex (BGC, 3.2Ga) and lower Aravalli Supergroup (Delwara Formation)]				
[1-1 : Tulsinala : basement (BGC)-Aravalli contact]				
99IN01	990105-1A	sheared gr (basement) (ori F 70W 40W)		BGC
99IN02	990105-1B	pyrophyllite sht (high alumina sht layer on gr boundary)		Delwara F (A)
99IN03	990105-1C	mica sht on B		Delwara F (A)
99IN04	990105-1D	green mica (fuchsite) sht on C		Delwara F (A)
99IN05	990105-1E	quartzite		Delwara F (A)
[1-2 : 3km N Debari : Debari cgl & quartzite]				
99IN06	990105-2	elongate quartzite cgl		Debari F (A)
[1-3 : basal metabasalt (Delwara Formation)]				
99IN07	990105-3A	metabasalt		Delwara F (A)
99IN08	990105-3B	Grt bear Bt amphibolite		Delwara F (A)
[1-4 : quartzite in Delwara Formation]				
99IN09	990105-4	quartzite		Delwara F (A)
[1-5 : 7km stone to Jharkotra : Banded Gneiss Complex (BGC)]				
99IN10	990105-5A	well banded tonal-trond gn		BGC
99IN11	990105-5B	well banded gn (mela tonal gn)		BGC
99IN12	990105-5C	mela tonal gn & trond gn banded		BGC
99IN13	990105-5D	well banded f dio gn & tonal gn		BGC
[1-6 : Pratapnagar : Jhamarkotra F (=Aravalli SG)]				
99IN14	990105-6	carbonaceous shale		Jhamarkotra F (A)
[Udaipur - Iswal - Gogunda -Saera - Ranakpur : upper part of Aravalli to Delhi Supergroup and intrusive rocks in Delhi SG]				
[2-1 : near Kabita, sheared granite with intercalation of greenschist (BGC)]				
99IN15	990106-1A	highly sheated and chrolitized gr		BGC
99IN16	990106-1B	intercalation of greenschist in A		BGC
[2-2] pisolitic laterite between Raialo and Delhi SG [Iswal]				
[2-3 : 5km NW from Iswal : turbiditic facies in Jharol F =upper Aravalli SG]				
99IN17	990106-2	alternation of black phyl & quartzose ss		Jharol F (A)
[2-4 : 7km NW Iswal]				
99IN18	990106-3	Grt bear mica sht (with Mag bear mica sht)		Jharol F (A)

		[2-5 : 7km NW Iswal : ultramafic rocks and chert in mica phyllite in Jharol F]	
99IN19	990106-4A	Mn rich layer (Mn carbonate)	Jharol F (A)
99IN20	990106-4B	banded chert (intercalate Mn band & ultramafic lens)	Jharol F (A)
99IN21	990106-4C	Hbl gab	Jharol F (A)
99IN22	990106-4D	ultramafic r (talc sht)	Jharol F (A)
99IN23	990106-4E	greenschist (metabasalt ?)	Jharol F (A)
		[2-6 : near Gogunda : leuco granite intrusion in quartzite (Delhi SG : SDFB=SD)]	
99IN24	990106-5A	f mass Ms Bt gr	gr in SDFB
99IN25	990106-5B	peg (Tur bear, 10cm wide)	gr in SDFB
non	990106-5C	Kfs	gr in SDFB
		[2-7 : 22km NW Gogunda : calc silicate of Delhi SG and grey peg gr vein]	
99IN27	990106-6A	Cpx Hbl bear foliate gr (banded with calc silic r)	gr in SDFB
99IN28	990106-6B	p apl-peg (pool in calc silic)	gr in SDFB
99IN29	990106-6C	grey gr-peg	gr in SDFB
99IN30	990106-6D	grey-reddish mass-weak foliate c gr	gr in SDFB
99IN31	990106-6E	grey peg intrude in calc silic r	gr in SDFB
99IN32	990106-6F	banded f Cpx, f Hbl gn (calc silic gn; Gogunda Group=SDFB)	Gogunda G (SD)
		[2-8 : 3km from 2-7 : Padrara granite (=Erinpura granite)	
99IN33	990106-7A	foliate non pinkish gr (tonalitic)	Padrara gr in SD
99IN34	990106-7B	slight p c gn gd	Padrara gr in SD
99IN35	990106-7C	f p-reddish gr (same as Erinpura gr)	Padrara gr in SD
		[2-9 : Elephant bridge, 20km NW from Saera : rapakivi granite with mafic rocks]	
99IN36	990106-8A	rapakivi por gr (equivalent to Erinpura gr)	gr in SDFB
99IN37	990106-8B	f strong foliate p-red gr-gd	gr in SDFB
99IN38	990106-8C	f-m mass dio	gr in SDFB
99IN39	990106-8D	ocellar m dio	gr in SDFB
99IN40	990106-8E	m dio	gr in SDFB
99IN41	990106-8F	mela f dio	gr in SDFB
		[2-10 : Ranakpur valley : ultramafic rocks in Delhi SG]	
99IN42	990106-9A	Ep serpentinite (ultramafic r in gr)	SDFB
99IN43	990106-9B	strong foliate f red gr	gr in SDFB
		{Udaipu - Rikhabde - Khairwara - Dungarpur : ultramafic rocks in Aravalli SG and talc mine}	
		[3-1 : Rikhabde, 60km south from Udaipur : serpentinite (1.49Ga), talc schist]	
99IN44	990107-1A	serpentinite	Aravalli SG
99IN45	990107-1B	magnesite vein	Aravalli SG
		[3-2 : Mandwa, near 3-1 : serpentinite-Aravalli contact]	
99IN46	990107-2	Chl sht including Mag crystal (5-10mm)	Aravalli SG
		[3-3 : 5km NE from Khairwara : Dhelana serpentinite stone mining]	
99IN47	990107-3A	serpentinite	Aravalli SG
99IN48	990107-3B	talc	Aravalli SG
99IN49	990107-3C	long Act	Aravalli SG
99IN50	990107-4	f calc r in Aravalli SG [3-4 : near 3-3]	Aravalli SG
99IN51	990107-5	long asbest [3-5 : 4km N from Deval, Khandmin talc mining]	Aravalli SG
		{Udaipur - Devgarh - Sandmata - Karera - Bhim - Beawar : gneiss-granulite terrane (BGC) in central Rajasthan}	
non		[4-1 : Devgarh] ultramafic rocks on Delhi-BGC boundary	
		[4-2 : 10km E Devgarh]	
99IN52	990108-1A	large w Kfs augen gn (Anjana gr gn)	Anjana gr
99IN53	990108-1A'	p augen gn (Anjana gr : 1.6-1.9Ga)	Anjana gr

99IN54	990108-1B	peg in A [4-3 : Sandmata : mafic granulite-gneiss]	Anjana gr
99IN55	990108-2A	mafic granulite	BGC
99IN56	990108-2B	schistose amphibolite (in shear zone near A)	BGC
99IN57	990108-2C	black amphibolite	BGC
99IN58	990108-2D	f dio & m gn dio	BGC
99IN59	990108-2E	f mass gn gd	BGC
99IN60	990108-2F	c gr gn banded with E	BGC
99IN61	990108-2G	c gn grey gr & augen gn [4-4 : Sandmata hill : meta pelite(Grt Bt gn) and norite body]	BGC
99IN62	990108-3A	Grt Bt gn (meta pelite)	BGC
99IN63	990108-3B	noritic gab intruding into pelite (3B' : slight c)	BGC
99IN64	990108-3C	chilled margin, contact with 3D	BGC
99IN65	990108-3D	Ms peg	BGC
99IN66	990108-3F	Grt gn or gr gn (nearly=A) [4-5 : Gyagarh : 13Km SE from Bhim, charnockite]	BGC
99IN67	990108-4A	mass c charnok	BGC
99IN68	990108-4B	mass c charnok	BGC
99IN69	990108-4C	mass c charnok (slight weathered)	BGC

{Beawar-Masuda-Bandanwara-Bhinai-Bijayanagar : granulite-migmatite terrain in central Rajasthan

		[5-1 : Bandanwara : charnockite, augen gneiss]	
99IN70	990109-1A	mass charnock (most common facies)	BGC
99IN71	990109-1A'	mass charnock (most common facies)	BGC
99IN72	990109-1B	f mass charnock	BGC
99IN73	990109-1C	large w feld bear charnock	BGC
99IN74	990109-1D	ovoidal feld in por charnock	BGC
99IN75	990109-1E	p peg vein	BGC
99IN76	990109-1F	large ovoidal feld bear c charnock (in norite)	BGC
99IN77	990109-1G	p f gr vein (20-30cm wide) in charnock	BGC
99IN78	990109-1H	highly gn gr-gr gn (ori F 70E 80N)	BGC
		[5-2 : Bandanwara : augen gneiss, granulite, lody migmatite]	
99IN79	990109-2A	augen gneiss (distinct augen str)	BGC
99IN80	990109-2B	strong foliate flattened augen gn (ori J 10W 38W)	BGC
99IN81	990109-2C	two px mafic granulite (f mafic r, amphibolite)	BGC
non	990109-2D	Grt bear slight leuco granulite	BGC
99IN83	990109-2E	Grt bear granulite	BGC
99IN84	990109-2F	strong foliate tonal-dio gn including mafic enclave	BGC
99IN85	990109-2G	p Kfs augen Hbl Bt gn (schistose gr gn)	BGC
99IN86	990109-2H	dio-gd gn including augen-loddy pink gr	BGC
		[5-3 : Bhinai : Bhinai gn-mig] [5-4 : Bhinai : mafic granulite]	
99IN87	990109-3	strong foliate Grt Bt gn (ori F22E 40W)	BGC
99IN88	990109-4	Grt amphibolite (sheared mafic r)	BGC
		[5-5 : Sukrani : grey gneiss]	
99IN89	990109-5A	f grey-brown gr gn (recrystallize?)	BGC
99IN90	990109-5B	red-brown mass Bt gn-gr gn	BGC
99IN91	990109-5C	sheared peg gr	BGC
99IN92	990109-5D	p peg in sheared zone	BGC

{Beawar - Bar - Sendra : Bar-Sendra section of SDFB in central Rajasthan}

[6-1 : 20km W from Beawar : Western granite (BGC)]

99IN93	990110-1A	two mica gr gn (major facies of western gr)	BGC
99IN94	990110-1B	f dio (ovoidal mafic enclave)	BGC
non	990110-1C	Tur bear peg	BGC
		[6-2 : near 6-1 : Barotiya Group in SDFB : Barr conglomerate, mica schist, calc silicate schist, green schist]	
99IN96	990110-2A	micro gr pebble in sht	Barotiya G (SD)
99IN97	990110-2B	peg in cgl sht	Barotiya G (SD)
99IN98	990110-3A	calc silic sht	Barotiya G (SD)
99IN99	990110-3B	Grt bear Bt sht	Barotiya G (SD)
99IN100	990110-4	green sht (Bt amph sht)	Barotiya G (SD)
		[6-3 : 16Km W from Beawar : Sendra granite, 0.84Ga (Rb/Sr, w.r)]	
99IN101	990110-5A	flakey two mica gr gn (highly sheared margin)	Sendra gr in SD
99IN102	990110-5B	leuco apl gr (20cm wide vein)	Sendra gr in SD
99IN103	990110-5C	peg (10-20cm wide)	Sendra gr in SD
99IN104	990110-5D	marginal sheared gr (gr gn) (ori F 25E, 65W)	Sendra gr in SD
		[6-4 : 10km W from Beawar : margin of Sendra granite and schist]	
99IN105	990110-6A	Grt bear two mica leuco gr-apl (other mass of Sendra gr)	Sendra gr in SD
99IN106	990110-6B	calc silic sht (amph Cpx)	SDFB
		[6-5 : 9km W from Beawar : porphyritic facies of Sendra granite]	
99IN107	990110-7	augen feld Bt gn gr-gr gn	Sendra gr in SD
		[Beawar - Jaipur : Kishangarh (7-1) : nepheline syenite (1.5Ga, post Aravalli pre Delhi intrusion)]	
99IN108	990111-1	banded Ne sye gn-gn sye, strong foliate (ori J 65E 45N)	Kishangarh sye
99IN109	990111-2	f mela band in -1 (amphibolite layer ?)	Kishangarh sye
		[Jaipur - Ajabgarh - Sariska (Tiger Den) : lower succession of NDFD (=ND) in Alwar basin]	
99IN110	990112-1	[8-1] quartzite with distinct ripple mark in Alwar Group	Alwar G (ND)
		[8-2, 8-3 : Sand Kotra : basement gr, lower most Raialo quartzite, limestone]	
99IN111	990112-2A	p Kfs gn gr [8-2]	BGC
99IN112	990112-2B	f leuco apl [8-2]	BGC
99IN113	990112-2C	Kfs in leuco peg [8-2]	BGC
99IN114	990112-2D	Act bear marble (siliceous ls) [8-2]	Raialo G (ND)
99IN115	990112-3	Tr-Act bear w marble (Raialo siliceous marble) [8-3 : quarry]	Raialo G (ND)
		[8-4 : Tehra]	
99IN116	990112-4	Serete quartzite (Raialo G)	Raialo G (ND)
		[8-5 : Tehra : meta volcanics (upper most Raialo G)	
99IN117	990112-5	micro gab (co-magmatic ? with meta volcanics) [8-5]	in Raialo G (ND)
non		thick boulder cgl of Alwar G [8-6 : Sariska sanctuary]	Alwar G (ND)
99IN118	990112-6	meta dolerite (metabasalt of upper most Raialo) [8-7 : near 8-6]	Raialo G (ND)
		[Tiger Den - Thanagazi - Bairath - Bahror : upper succession of Alwar basin and granite intrusions in NDFB]	
		[9-1 : Kushalgarh : alternation of pelitic and calc bands of Kushalgarh F]	
99IN119	990113-1	alternation of pelitic & calc bands, radiator like	Ajabgarh G (ND)
		[9-2 : a hill at Thanagazi : black sht (carbonaceous shale), spherulitic acid tuff,	
99IN120	990113-2A	skarn-like r with spherulitic Act (mixed with shale+mafic r)	Ajabgarh G (ND)
99IN121	990113-2B	rhyolitic tuff	Ajabgarh G (ND)
99IN122	990113-2C	Grt amphibolite (meta diabase)	Ajabgarh G (ND)
		[9-3 : Meenon Ki Dhani : basal Raialo conglomerate-Bairat granite boundary]	
99IN123	990113-3	pebble in basal Raialo cgl	Raialo G (ND)
		[9-4 : Bairat : Bairat granite (1.65Ga)/quartzite boundary]	

99IN124	990113-4A	Kfs por gn gr (augen) (300m from boundary)	Bairat gr
99IN125	990113-4B	strong foliate apl gr (Kfs por)	Bairat gr
99IN126	990113-4C	foliate quartzite	
		[9-5 : meta volcanics of Raialo G]	
99IN127	990113-5	Bt Hbl sht with flatten spherulite (Qtz feld)	Raialo G (ND)
		[9-6 : Ajitgarh : Ajitgarh granite (1.65Ga)]	
99IN128	990113-6A	leuco gr (white gr)	Ajitgarh gr
99IN129	990113-6B	p mass gr (f Hbl bear)	Ajitgarh gr
99IN130	990113-6B'	p mass gr (f Hbl bear)	Ajitgarh gr
99IN131	990113-6C	peg in A (20cm wide)	Ajitgarh gr
99IN132	990113-6C'	peg Kfs in A (20-30cm wide)	Ajitgarh gr
99IN133		serpentinite (polished)	Aravalli ?

(Total : 130)

Sakoli and Sausar Belts in CITZ, and Bastar Craton around Nagpur
(1999-2000 : Kano, T., Abhinaba, R., Bandhopadyay, B.K. and Yoshida's party)
CITZ : Central Indian Tectonic Zone

Reg No	Original No	Rock name	[Locality]	Locality/Geology
{Sakoli belt and basement (Bastar craton)}				
[Nagpur - Bhiwapur - Pawni]				
00IN01	991228-1	meta rhyolite of Bhiwapur F		Sakoli belt
non	991228-2	meta rhyolite at Gothangaon		Sakoli belt
non	991228-3	meta rhyolite		Sakoli belt
non	991228-4	abandoned Au-Cu mine in upper margin of meta rhyolite		Sakoli belt
[Nagpur - Bhiwapur - Gondia]				
non	991229-1	abandoned chromite mine in ultramafic rocks in basement		Bastar craton
non	991229-2	basement Bt gn		Bastar craton
non	991229-3	Ms sht with And porbla in Pawni Group		Sakoli belt
non	991229-4	two mica p gr & gab		Sakoli belt
[Gondia - eastern Sakoli shear zone (boundary zone of Sakoli/basement)]				
* 00IN09	991230-1A	augen gn (Amgaon gn, basement : augen-schistose gr)		Bastar craton
00IN10	991230-1B	mafic band in Amgaon gn		Bastar craton
00IN11	991230-2	c Bt gr gn-gn gr (with Crd gn ?)		Bastar craton
00IN12	991230-3A	amphibolite in sheared gr		Bastar craton
00IN13	991230-3B	sheared gr-gr gn (augen gn with strong lineation)		Bastar craton
00IN14	991230-4A	f Grt amphibolite (ultramafic r) in Borunda village		Bastar craton
00IN15	991230-4B	vc Bt amphibolite		Bastar craton
non	991230-5	banded f gr myl		Bastar craton
[Gondia - Bhandra - Nagpur]				
00IN17	991231-1	Sil quartzite (1km N from Gangajhari)		Bastar craton
00IN18	991231-2	St Ky sht in pre Sakoli basement		Bastar craton
00IN19	991231-3	BIF (Grt grunerite) in Sakoli G		Sakoli belt
00IN20	991231-4	carbonaceous phyl-black shale		Sakoli belt
00IN21	991231-5	matabasalt (with pillow str)(Dhabetekri F)		Sakoli belt
00IN22	991231-6	quartzite pebble bear meta cgl (cgl gn)		Sakoli belt
non	991231-7	gr myl (near boundary Bastar craton)		Bastar craton ?

{cross section of Sausar belt, reworked basement (Tirodi gneiss) and granulite}

[Nagpur – Ramtek – Seoni Road – Deolapar : southern cross section]

(102-1, Satak mine : stratiform manganese ore in Sausar belt]

00IN24	000102-1A	gondite (banded Mn iron quartzite)	Sausar belt
00IN25	000102-1B	c Qtz feld r +Mn ore	Sausar belt
00IN26	000102-1T1	c Qtz feld r +Mn ore (manganite)	Sausar belt
00IN27	000102-1T2	stratiform Mn ore (gondite)	Sausar belt
* 00IN28	000102-1T3	[9055W] Mn garnet (spessartine)	Sausar belt
00IN29	000102-2	piedmontite quartzite (Ramtek fold in quartzite at Ramtek dam)	Sausar belt
00IN30	000102-3	foliate f gr (Ramtek gr)	Sausar belt
00IN31	000102-4	phyl & lenz or boudin of schistose gr ? [at NH-7 road]	Sausar belt
00IN32	000102-5	c Bt gr gn (Tirodi gn, reworked basement)	Sausar belt
00IN33	000102-6	calc silic gn in Tirodi gn	Sausar belt

[Deolapar – Seoni Road – Pindkapar : northern half cross section]

00IN34	000103-1	weathered p gr (Pauni gr, late- or post kinematic gr in Sausar b)	Sausar belt
00IN35	000103-2	calc silic gn	Sausar belt
00IN36	000103-3	flaky Bt gn	Sausar belt
00IN37	000103-4	pelitic-psam gn or tonal gn	Sausar belt
00IN38	000103-5	Grt amphibolite in pelitic-psam gn	NGB
00IN39	000103-6	Sil rich pelitic gn (distinct L-tectonite)	Sausar belt
00IN40	000103-7	dolomitic marble	Sausar belt

[Nagpur – Sausar – Chhindwara road : northern granulite belt (NGB) in Sausar belt]

00IN41	000104-1	dolomitic marble (Ramakona granulite)	NGB
00IN42	000104-2	Grt Bt amphibolite (mafic granulite) & charnock	NGB
00IN43	000104-3	dolomitic marble including Ol or Chu	NGB
00IN44	000104-4	Sil Bt gn	Sausar belt ?

[Nagpur – Ramtek – Tumsar – Katangi : northeastern margin of NGB]

00IN45	000105-1	Grt Cpx Hbl gn (calc silic gn, Lohangi F on the hill top)	Sausar belt
00IN46	000105-2	Grt amphibolite in Bt gn & augen gn	NGB
00IN47	000105-3	meta dolerite	NGB

[Bhandara – Tumsar – Katangi – Waraseoni : NE end of southern granulite belt (SGB)]

(SGB : Bhandara – Balaghat granulite belt)

00IN48	000106-1A	augen gn (tectonized Bt gn at Lingmala village)	SGB
00IN49	000106-1B	green amphibolite in augen gn -1A	SGB
00IN50	000106-2	meta gab or charnock (metamorphosed mafic-ultramafic r)	SGB
00IN51	000106-3	Grt Crd r (khondalite, granulite of pelitic r)	SGB
00IN52	000106-4	meta dio (or dolerite to micro gab)	SGB
00IN53	000106-5A	meta-quartzite or BIF in granulite facies	SGB
00IN54	000106-5B	meta iron chert in granulite facies	SGB

[Bhandara – Tumsar – Katangi : contact, basement Tirodi gn/ Sausar supracrustals]

00IN55	000107-1	banded gn (reworked basement Tirodi gn)	Sausar belt
(107-2, Tirodi mine : cross section, Sausar supracrustals to reworked basement Tirodi gneiss]			
00IN56	000107-2A	Mn ore, banded with meta chert	Sausar belt
00IN57	000107-2B	micaceous sht including piedmontite ?	Sausar belt
00IN58	000107-2C	p gr in mig gn (Tirodi gn)	Sausar belt
00IN59	000107-2D	mig gn (Tirodi gn)	Sausar belt
00IN60	000107-2E	banded Bt gn (Tirodi gn)	Sausar belt

[Bhandara – Sakoli – Nagpur : eastern marginal shear zone of Sakoli belt and SGB]

00IN61	000108-1	quartzite myl (eastern shear zone) (ori J 35W 80E)	Sakoli belt
00IN62	000108-1T	folded meta chert-iron chert (BIF)	Sakoli belt

00IN63	000108-2	metabasalt of Dhabetheke F	Sakoli belt
00IN64	000108-3	Grt two px granulite (meta gab -norite ?) 3100Ma	SGB

(Total : 55)

Dharwar Craton (2006 : Kano, T., Jayananda, M., Kato, Y. and Kunugiza, K.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
[Bangalore - Hassan (1/7)]				
06IN01	0601-1	BIF (Yadiyur belt, Bababudan G)		Yadiur b (Bab G)
06IN02A	0601-2A	m-c tonal gn (TTG in Bhukanabetta belt)		TTG in WDC
06IN02B	0601-2B	f tonal gn (TTG in Bhukanabetta belt)		TTG in WDC
06IN03A	0601-3A	c amphibolite [=08IN22, road cut, near Hassan]		HoleNarasipura b
06IN03B	0601-3B	Bt bear metabasalt (komatiitic)		HoleNarasipura b
06IN04	0601-4	tonal gn at boundary of HoleNarasipura belt		TTG in WDC
[Hassan - Chikmagalur - Mt Bababudan (1/8)]				
06IN05A	0601-5A	tonal gn (TTG in Shigegudda belt, 3.6 Ga by Kunugiza =92103106)		TTG in WDC
06IN05B	0601-5B	c quartzite cgl		Shigegudda belt
06IN06	0601-6	Bt tonal gn +vc leuco part (TTG)		TTG in WDC
06IN07	0601-7	banded Bt gn (TTG)		TTG in WDC
06IN08	0601-8	[=92-150,94-263,09-22, Karthikere] basal quartzite cgl, Bab G		Bababudan belt
non	non	(0601-9, quartzite)		Bababudan belt
06IN10	0601-10	BIF		Bababudan belt
non	0601-11	BIF		Bababudan belt
non	0601-12	BIF		Bababudan belt
non	0601-13	BIF		Bababudan belt
non	0601-14	green r (metabasalt)		Bababudan belt
[Chikmagalur - Bababudan area (1/9)]				
non	0601-15	metabasalt		Bababudan belt
non	0601-16	BIF [=92IN154,155, 09IN25, at Kavikalgandi cross]		Bababudan belt
non	0601-17	BIF		Bababudan belt
non	0601-18	BIF		Bababudan belt
non	0601-19	BIF		Bababudan belt
non	0601-20	BIF		Bababudan belt
non	0601-21	BIF		Bababudan belt
non	0601-22	BIF [Kemmannagundi]		Bababudan belt
non	0601-23	BIF		Bababudan belt
non	0601-24	BIF (folding or fluidcast? ripple?)		Bababudan belt
non	0601-25	metabasalt (Bababudan G, Sm-Nd 2911 lower, 2840 upper)		Bababudan belt
non	0601-26	metabasalt		Bababudan belt
non	0601-27	metabasalt		Bababudan belt
non	0601-28	metabasalt		Bababudan belt
[Chikmagalur - Bababudan area (1/10)]				
06IN29	0601-29	m-c p gr (equivalent to Chikmagalur gr)		Bababudan belt gr in WDC
06IN30	0601-30	metagabbro (deeper part of basalt?)		in Bababudan b
non	0601-31	metabasalt		Bababudan belt
non	0601-32	BIF (-clastic ?)		Bababudan belt

non	0601-33	BIF	Bababudan belt
non	0601-34	metabasalt	Bababudan belt
non	0601-35	BIF [at guest house]	Bababudan belt
non	0601-36	BIF	Bababudan belt
non	0601-37	BIF	Bababudan belt
06IN38	0601-38	c leuco por gr (equivalent to Chikmagalur gr)	gr in WDC
06IN39	0601-39	homo c por gr (equivalent to Chikmagalur gr)	gr in WDC
[Chikmagalur – Tumkur (1/11)]			
06IN40	0601-40	metabasalt	Bababudan b
06IN41	0601-41	quartzite	Bababudan b
non	0601-42	greenschist	Bababudan b
06IN43A	0601-43A	small augen gn gd (mafic part Banavara gr, 2.617Ga, =Arsikere gr)	Arsikere gr, WDC
06IN43A'	0601-43A'	w feld por gn gr (gp-like r in Banavara gr)	Arsikere gr, WDC
06IN43B	0601-43B	c p gr	Arsikere gr, WDC
non	0601-44	(Kibbanahalli arm of Bababudan G, Tiptur-KB section)	Kibbanahalli arm
* 06IN45A	0601-45A	homo mass gd-gr (slight por mela part) (Karadi gr, 3.0Ga)	Karadi gr, WDC
06IN45B	0601-45B	c leuco homo Bt gr (leuco part of Karadi gr)	Karadi gr, WDC
06IN46	0601-46	BIF [Lakhsminarasimha swamy temple hill] (equivalent to Bababudan Group in Chitradurga belt)	Chitradurga belt
[Tumkur – Chitradurga (1/12)]			
non	0601-47	BIF (gold mine) [Bukkapatna]	Chitradurga belt
06IN48A	0601-48A	grey chert & BIF (cherty BIF) [Ajjanahalli gold mine open pit]	Chitradurga belt
06IN48B	0601-48B	w chert with thin BIF [Ajjanahalli gold mine open pit]	Chitradurga belt
06IN48C	0601-48C	dolomitic band [Ajjanahalli gold mine open pit]	Chitradurga belt
06IN48D	0601-48D	argirite-tuffite [Ajjanahalli gold mine open pit]	Chitradurga belt
06IN49	0601-49	sulphide bear BIF & chert [western wing of Ajjanahalli mine]	Chitradurga belt
non	0601-50	metabasalt-amphibolite (with c marble intercaration)	Javanahalli belt
06IN51	0601-51	c amphibolite-amph sht	Javanahalli belt
non	0601-52	BIF	Chitradurga belt
06IN53	0601-53	BIF	Chitradurga belt
06IN54	0601-54	Py bear metabasalt	Chitradurga belt
[1/13 Chitradurga – Haveri : Dharwar-Simoga basin (1/13)]			
06IN55	0601-55	f tonal (Chitradurga gr, 2614±5Ma)	Chitra gr, WDC
06IN56A	0601-56A	BIF (upper Chitra G on Haveri-Hanagal section in Shimoga b) [Gaurapura village]	
06IN56B	0601-56B	Py bear metabasalt ? Greywacke ?	Shimoga belt
* 06IN57A	0601-57A	psam sht (greywacke or tuffaceous r) +shale band	Shimoga belt
06IN57B	0601-57B	psam sht (greywacke or tuffaceous r)	Shimoga belt
06IN58A	0601-58A	greywacke (f ss +pelite) [Gundur quarry]	Shimoga belt
06IN58B	0601-58B	BIF	Shimoga belt
06IN59	0601-59	BIF +calc silic gn ?	Shimoga belt
[Haveri – Hampi : Dharwar-Simoga basin and northern Chitradurga belt (1/14)]			
non	0601-60	meta volcanics (2605, 2600Ma in felsic volcanics)	Shimoga belt
06IN61	0601-61	quartzite with thin BIF [Kattibasaveswara tremples at Hirehadayali] [Gadag schist belt = northern part of Chitradurga belt]	Shimoga belt
06IN62A	0601-62A	BIF +white chert	Gadag belt
06IN62B	0601-62B	metabasalt	Gadag belt
06IN63	0601-63	BIF	Gadag belt
06IN64A	0601-64A	c gr-gd gn (TTG in EDC, between Sandur-Chitra belt)	TTG in EDC
06IN64B	0601-64B	leuco c part in TTG	TTG in EDC

		[Hampi – Chitradurga (1/14)]	
06IN65A	0601-65A	cherty BIF (GR Halli F in Chitradurga belt)	Chitradurga belt
06IN65B	0601-65B	sandy BIF	Chitradurga belt
06IN66	0601-66	metabasalt	Chitradurga belt

		[Chitradurga – Bangalore (1/16)]	
06IN67	0601-67	Py bear metabasalt (near Hutti gold mine)	Chitradurga belt
non	0601-68	metabasalt	Chitradurga belt
non	0601-69	cherty (jaspar like) BIF	Chitradurga belt
06IN70	0601-70	red chert with thin BIF (jaspar like BIF)	Chitradurga belt
06IN71	0601-71	metabasalt	Chitradurga belt
06IN72A	0601-72A	quartzite or chert	Chitradurga belt
06IN72B	0601-72B	banded tuffaceous r	Chitradurga belt

(Total : 54)

Dharwar Craton (2008 : Kano, T. and Jayananda, M.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
		{old TTG and greenstone belt of WDC in Hassan – Gorur – Chikmagalur}		
		[Hassan – Gorur section (8/26)]		
08IN01A	08IN01A	f homo gd (cut by trond vein 20-30cm wide)		Gorur gn, WDC
08IN01B	08IN01B	f-m trond r		Gorur gn, WDC
08IN01C	08IN01C	vc peg vein		Gorur gn, WDC
08IN02A	08IN02A	[=09IN18] f amphibolite (ultramafic of HoleNarasipura G)		HoleNarasipura G
08IN02B	08IN02B	[=09IN18] f homo Bt tonal-gd		Gorur gn, WDC
08IN02C	08IN02C	[=09IN18] f Bt gd		Gorur gn, WDC
08IN02D	08IN02D	[=09IN18] mafic dyke in B,C		dyke in WDC
08IN03	08IN03	f amphibolite (ultramafic)		HoleNarasipura b
* 08IN04	08IN04	[=09IN19] Grt Ky Bt gn (metapelite of HoleNarasipura Group)		HoleNarasipura G
		(HoleNarasipura Group : equivalent to HoleNarasipura belt)		
		[Hassan area (8/27)]		
08IN05A	08IN05A	mass homo c tonal r		TTG in WDC
08IN05B	08IN05B	p peg gr		TTG in WDC
08IN06A	08IN06A	homo f gd weakly foliate		TTG in WDC
08IN06B	08IN06B	mass p gd-gr		TTG in WDC
08IN06C	08IN06C	p peg (10-15cm wide)		TTG in WDC
08IN07	08IN07	f homo tonal-gd		TTG in WDC
08IN08	08IN08	altered ultramafic (HoleN Group, greenstone)		HoleNarasipura G
08IN09	08IN09	greenschist (highly tectonized, pencil str, HoleN belt)		HoleNarasipura b
08IN10A	08IN10A	schistose amphibolite (meta ultramafic r)		HoleNarasipura b
08IN10B	08IN10B	f tonal gn (TTG)		TTG in WDC
08IN11A	08IN11A	amphibolite (main facies in ultramafic)		HoleNarasipura b
08IN11B	08IN11B	black amphibolite		HoleNarasipura b
		[Hassan area (8/28)]		
08IN12	08IN12	ultramafic in southern part of HoleN belt		HoleNarasipura b
08IN13	08IN13	amphibolite (meta dio-gab)		HoleNarasipura b
08IN14	08IN14	vf talc sht (meta ultramafic)		HoleNarasipura b

08IN15A	08IN15A	deep green sht	HoleNarasipura b
08IN15B	08IN15B	light green sht	HoleNarasipura b
08IN16A	08IN16A	tonal gn	TTG in WDC
08IN16B	08IN16B	trond vein in tonal gn	TTG in WDC
08IN17	08IN17	c mass gab r	HoleNarasipura b
08IN18A	08IN18A	c amphibolite banded with f part	HoleNarasipura b
08IN18B	08IN18B	amph sht (meta ultramafic)	HoleNarasipura b
08IN19	08IN19	leuco gn tonal-trond (3.2Ga Halekote trond, Mavinakere gr)	Halekote
08IN20	08IN20	f amph sht	HoleNarasipura b
08IN21	08IN21	c gab (mafic dyke)	dyke in WDC
08IN22A	08IN22A	f mass gab-amphibolite [road cut on NH-48 near Hassan]	HoleNarasipura b
08IN22B	08IN22B	m flaky green amphibolite (Act ?) [Hassan - Chikmagalur (8/29)]	HoleNarasipura b
08IN23	08IN23	hetero tonal-gd gn (Jambur Chr mine, open pit)	TTG in WDC
08IN24A	08IN24A	chromitite in ultramafic r (Mag, Chr)	Nuggihalli b
08IN24B	08IN24B	Ol Chr r	Nuggihalli b
08IN24C	08IN24C	f ultramafic r (green r)	Nuggihalli b
08IN24D	08IN24D	flaky serpentinite	Nuggihalli b
08IN24E	08IN24E	schistose Ol serpentinite (Thagadur chromite mine)	Nuggihalli b
08IN25A	08IN25A	Ti-magnetite	Nuggihalli b
08IN25B	08IN25B	chromite ore (northern pit)	Nuggihalli b
08IN25C	08IN25C	chromite ore (southern pit)	Nuggihalli b
08IN25D	08IN25D	amph sht (meta ultramafic)	Nuggihalli b
08IN25E	08IN25E	amph sht (meta ultramafic)	Nuggihalli b
08IN25F	08IN25F	serpentinite (near boundary of Nuggihalli belt)	Nuggihalli b
08IN26A	08IN26A	①homo TTG +②foliate vc leuco vein +③f leuco gd vein	TTG near Nug b
08IN26A'	08IN26A'	①homo TTG +②foliate vc leuco vein	TTG near Nug b
08IN26B	08IN26B	①homo TTG	TTG near Nug b
08IN26C	08IN26C	②highly foliate vc leuco vein	TTG near Nug b
08IN26D	08IN26D	③f leuco gd vein	TTG near Nug b
	non	[08IN26D] ④f leuco gd (Byrapura chromite mine)	TTG near Nug b
08IN27A	08IN27A	Chr bear mass serpentinite	Nuggihalli belt
08IN27B	08IN27B	chromitite in serpentinite	Nuggihalli belt
08IN27C	08IN27C	Kaemmererite bear feldspathic vein [Chikmagalur area (8/30)]	Nuggihalli belt
08IN28	08IN28	Tlc Chl sht (remnant of Sargur in TTG, base of Bababudan b)	Sargur equivalent
08IN29A	08IN29A	m mela dio (mela part of classic TTG) [base of Bababdan belt]	TTG in WDC
* 08IN29B	08IN29B	leuco gr-trond vein (leuco part of TTG) +f mela dio	TTG in WDC
08IN29C	08IN29C	hybrid facies (hetero, ocelli, ovoid feld)	TTG in WDC
08IN29D	08IN29D	vc ovoidal feld r	TTG in WDC
08IN29E	08IN29E	f-m gd, associated with C	TTG in WDC
08IN29F	08IN29F	foliate mela dio (most mafic part, dyke?)	TTG in WDC
08IN30	08IN30	amphibolite-amph sht (Sargur r ? in Sigegudda belt)	in Sigegudda belt
08IN31	08IN31	metabasalt on basal cgl formation of Bababudan	Bababdan belt
08IN32	08IN32	greenschist (metabasalt-ultramafic of Bababudan)	Bababdan belt

[cross section from WDC to EDC]

[Chikmagalur - Sira (8/31)]

08IN33A	08IN33A	f homo tonal (SHRIMP age; 3.315Ga)	TTG in WDC
08IN33B	08IN33B	c gd (-migmatitic)	TTG in WDC
08IN33C	08IN33C	c gd (more granitic)	TTG in WDC
08IN33D	08IN33D	p gr vein	TTG in WDC
08IN34	08IN34	mafic dyke (norite ?)	dyke in WDC
08IN35	08IN35	homo foliate gd-gd gn	TTG in WDC
08IN36	08IN36	serpentinite (ultramafic, Gr bear ?)	JC pura belt ?
08IN37	08IN37	[=09IN29] green sht (schistose mafic-inter meta volcanics)	Chitradurga belt
08IN38	08IN38	[≠09IN30] green sht (sheared mafic meta volcanics)	Javanahalli belt
08IN39	08IN39	[≠09IN31] f homo gd (Maddakkanuhalli pluton, 2505Ma, younger than Closepet)	
		[Sira (9/1)]	
08IN40	08IN40	chert (Chitradurga Group ? in Javanahalli belt)	Javanahalli belt
08IN41	08IN41	c-vc sheared gr (Bukkapatna gr, 3.0 Ga, re-worked basement ?)	WDC/EDC
08IN42	08IN42	mafic dyke (younger than 2.5Ga)	dyke in EDC
08IN43	08IN43	f homog gd (flat foliation gn or Sira falat gn)	flat gn in EDC
08IN44	08IN44	tonal gn cut by leuco peg-ap (flat gn type loc, SHRIMP 2559Ma)	flat gn in EDC

[Sira - Bangalore - Kabbaldurga - Bangalore (9/2)]

[Kabbaldurga : Closepet gr, TTG, charnockitization and synplutonic dyke,
(08IN45 = 92IN101-107, 95IN90-105, 09IN03)]

non	non	(08IN45-1A, incipient charnock in p f-m fluidal banded gn)	Closepet+TTTG
non	non	(08IN45-1B, p f-m fluidal banded gn around -A)	Closepet+TTTG
08IN45-2A	08IN45-2A	incipient charnock tonal-gd gn (in m p banded gd gn)	TTG+Closepet
08IN45-2B	08IN45-2B	m p gr	Closepet
08IN45-2C	08IN45-2C	p peg vein	Closepet
08IN45-3	08IN45-3	ultramafic enclave (peridotite, mantle origin ?)	xenolith in Close
non	non	(08IN45-4, mafic dyke with sharp contact, 15cm wide)	dyke in Closepet
08IN45-5A	08IN45-5A	mafic dyke & m gr (5-10cm wide, synplutonic dyke, echelon)	dyke in Closepet
08IN45-5B	08IN45-5B	vf mass mafic r	dyke in Closepet
08IN45-6A	08IN45-6A	m p gr (country r around synplutonic dyke, non-charnockitic)	Closepet
08IN45-6B	08IN45-6B	marginal part of mafic dyke (synplutonic dyke)	dyke in Closepet
08IN45-6C	08IN45-6C	middle-core of mafic dyke (synplutonic dyke)	dyke in Closepet
08IN45-6D	08IN45-6D	charnockitic part of mafic dyke (synplutonic dyke)	dyke in Closepet
08IN45-7A	08IN45-7A	p gr-apl (country r around charnockitized synplutonic dyke= 6)	Closepet
08IN45-7B	08IN45-7B	charnockitized synplutonic dyke	dyke in Closepet
08IN45-7C	08IN45-7C	charnockitized synplutonic dyke (amphibolite)	dyke in Closepet
08IN45-7D	08IN45-7D	charnockitized synplutonic dyke (m homo)	dyke in Closepet
08IN45-7E	08IN45-7E	c peg part of charnockitized dyke	dyke in Closepet
08IN45-8A	08IN45-8A	f mafic granulite (amphibolite, charnockitized mafic dyke, margin)	dyke in Closepet
08IN45-8B	08IN45-8B	charnockitized country r around mafic dyke	Closepet

{granitic rocks on amphibolite-granulite transition zone in TN}

[Bangalore - Krishnagiri (TN : Tamil Nadu) - Bangalore (9/5) :

08IN46A	08IN46A	homo c gd (most acidic part)	Krishnagiri, EDC
08IN46B	08IN46B	c-m homo gd	Krishnagiri, EDC
08IN46C	08IN46C	hybrid ? around mafic r	Krishnagiri, EDC
08IN46D	08IN46D	c gab-amphibolite	Krishnagiri, EDC
non	non	(08IN46E, banded mafic gn, exsotic ?)	Krishnagiri, EDC
08IN47A	08IN47A	latest irregular vein of c gd (2557Ma-2530Ma) [Orappam quarry]	Krishnagiri, EDC
08IN47B	08IN47B	m gn gd (most common facies)	Krishnagiri, EDC
08IN47C	08IN47C	f leuco gd	Krishnagiri, EDC
08IN47D	08IN47D	hybrid around mafic r	Krishnagiri, EDC

08IN47E	08IN47E	p feld bear mela tonal with conjugate shear band	Krishnagiri, EDC
08IN47F	08IN47F	Cpx bear amphibolite or meta gab (mafic enclave)	Krishnagiri, EDC
08IN48A	08IN48A	f p gn gr or gr gn	Krishnagiri, EDC
08IN48B	08IN48B	f p gr – leuco gr–gd	Krishnagiri, EDC
08IN48C	08IN48C	c–m leuco gd	Krishnagiri, EDC
08IN48D	08IN48D	c gabbroic r	Krishnagiri, EDC
08IN48E	08IN48E	f amphibolite (–f mela dio)	Krishnagiri, EDC
08IN48F	08IN48F	banded Bt Cpx bear mafic r	Krishnagiri, EDC
08IN48G	08IN48G	incipiently charnockitized r	Krishnagiri, EDC
08IN48H	08IN48H	greyish f tonal (matrix of 48G)	Krishnagiri, EDC
08IN49A	08IN49A	leuco f–m gd gn	Krishnagiri, EDC
08IN49B	08IN49B	m mass gd–tonal (partly charnockitized)	Krishnagiri, EDC
08IN49C	08IN49C	Grt Bt gn (charnockitized part)	Krishnagiri, EDC
08IN50A	08IN50A	most common p gd gn	Krishnagiri, EDC
08IN50B	08IN50B	f brown feld gd (equigranular)	Krishnagiri, EDC
08IN50C	08IN50C	brown–grey feld c gd	Krishnagiri, EDC
08IN50D	08IN50D	slight charnockitized part in gd–gn gd	Krishnagiri, EDC
08IN50E	08IN50E	charnockitized part	Krishnagiri, EDC
08IN50F	08IN50F	Grt amphibolite (mafic enclave, px bear ?)	Krishnagiri, EDC
08IN50G	08IN50G	p peg	Krishnagiri, EDC
08IN51	08IN51	c charnock gn	Krishnagiri, EDC
08IN52A	08IN52A	f Bt bear mass siliceous charnock	Krishnagiri, EDC
08IN52B	08IN52B	c Bt bear mass siliceous charnock	Krishnagiri, EDC

{granitic rocks and synplutonic dyke in EDC}

[Bangalore – Madanapalle –Anantapur road – Anantapur (9/6)]

08IN53A	08IN53A	hetero gd, hybrid, matrix of synpl dyke [5km after Kokkanti]	gr in EDC
08IN53B	08IN53B	[=09IN12] hetero gd, hybrid, with mafic enclave	gr in EDC
08IN53C	08IN53C	[=09IN12] c gab r (dyke)	dyke in EDC
08IN53D	08IN53D	[=09IN12] f–m p gr	gr in EDC
08IN54A	08IN54A	f–m dio (synplutonic dyke) [14km before Anantapur]	dyke in EDC
08IN54B	08IN54B	f–m gab–dio	dyke ? in EDC
08IN54C	08IN54C	c tonal (major facies)	gr in EDC
08IN54D	08IN54D	c leuco gr	gr in EDC
08IN54E	08IN54E	peg	gr in EDC
[Anantapur – Bangalore (9/7)]			
08IN55A	08IN55A	p gr [Kalyandurga–Pavagoda road, 5km N Kamsaduru]	Closepet
08IN55B	08IN55B	f dio (synplutonic mafic dyke)	dyke in Closepet
08IN55C	08IN55C	tonal gn (TTG, major part)	TTG in Closepet
08IN55D	08IN55D	f tonal gn (TTG, major part)	TTG in Closepet
08IN56	08IN56	f tonal gn +f dio (synplutonic dyke)	TTG in Closepet
(08IN57 : synplutonic dyke : Amidalagondi exposure on Pavagoda–Madaka–Sira road)			
08IN57A	08IN57A	[=09IN16] c gd gn (TTG)	TTG in EDC
08IN57B	08IN57B	[=09IN16] f gd (TTG)	TTG in EDC
08IN57C	08IN57C	f dio–leuco tonal mixed (ghost like part of synplutonic dyke)	dyke in EDC
08IN57D	08IN57D	[09IN16] f mass dio (mafic dyke)	dyke in EDC
non	non	(08IN57E, foliate c gd, matrix of mafic dyke)	TTG or gr in EDC
08IN57F	08IN57F	p gr	Closepet
08IN57G	08IN57G	metabasalt (final intrusion of mafic dyke)	dyke in EDC
08IN58	08IN58	m mela dio (mafic dyke, N–S trend)	dyke in EDC

(Total : 150)

Dharwar Craton (2009 : Kano,T., Jayananda, M., Owada, M. and Kamitomo, I.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
{TTG and Closepet granite in EDC and western boundary to WDC}				
[Bangalore – Kanakapura road – Kabbaldurga (11/17)]				
(09IN01 : TTG in EDC, mostly ca 2.7Ga, old TTG (3.0Ga) remnants remain near WDC)				
09IN01A	09IN01A	banded dio & tonal gn (TTG)		TTG in EDC
* 09IN01B	09IN01B	f dio & leuco vein (trond ?) mixed r (TTG)		TTG in EDC
09IN01C	09IN01C	f apl & peg (TTG)		TTG in EDC
09IN01D	09IN01D	dolerite (dyke 2.3Ga)		dyke in EDC
09IN02	09IN02	p gr (Closepet) +f mass mela dio (synplutonic dyke)		Closepet
[Kabbaldurga : 09IN03 = 92IN101–107, 95IN90–105, 08IN45]				
* 09IN03A	09IN03A	[=08IN45] mig gn, partly charnockitized		TTG in Closepet
* 09IN03B	09IN03B	[=08IN45] euhedral Pl bear f dio (synplutonic dyke)		dyke in Closepet
	non	(09IN04 : mig facies of Closepet boundary with remobile TTG)		
[Bangalore – Kunigal to west (11/18) : Closepet/basement EDC boundary]				
09IN05A	09IN05A	f mass dio (Cpx Hbl Qtz monzonite)		Closepet
09IN05B	09IN05B	f mass-weak gn p gr-gd (hybrid)		Closepet
* 09IN05C	09IN05C	p Kfs por gn gr (Closepet main facies, 2518Ma)		Closepet
* 09IN05D	09IN05D	p Kfs por strong gn gr (-augen gn)		Closepet
09IN05E	09IN05E	Kfs por gn gr		Closepet
[west of Kunigal b, near western margin of EDC, agmatitic or synplutonic dyke]				
* 09IN06A	09IN06A	Grt amphibolite		EDC
09IN06B	09IN06B	Grt amphibolite		EDC
09IN06C	09IN06C	amphibolite (Grt free)		EDC
09IN06D	09IN06D	m-c Grt amphibolite		EDC
09IN06E	09IN06E	m-c Grt amphibolite		EDC
09IN06F	09IN06F	f mass amphibolite (Grt free)		EDC
09IN06G	09IN06G	m leuco tonal gn (remelting of old TTG?)		TTG in EDC
09IN06H	09IN06H	c-m foliate Grt amphibolite =06E		EDC
06A-B	09IN06A-B	Grt amphibolite		EDC
09IN06K	09IN06K	Grt amphibolite		EDC
(09IN07 : high K gr, 3.0Ga SHRIMP age, reworking of 3.3Ga TTG origin, Ep bear)				
09IN07A	09IN07A	w Kfs por c gn gd		gr in WDC
09IN07B	09IN07B	m-c strong foliate leuco gn gd		gr in WDC
non	non	(09IN08 : shale, Bababdan G)		Yadiyul arm
{granitic rocks and synplutonic dyke in EDC}				
[Bangalore – Horsley hill (11/19) : TTG basement in EDC is 2.7–2.6Ga & gr is 2.55Ga]				
09IN09A	09IN09A	w Kfs por gn gr (2.78 Ga)		gr in EDC
09IN09B	09IN09B	f leuco gr-gd including c Ttn (2.7 Ga basement ?)		gr in EDC
09IN09C	09IN09C	homo f-m leuco gr-gd (2.55 Ga)		gr in EDC
09IN09D	09IN09D	large Ttn bear leuco gr		gr in EDC
09IN09E	09IN09E	dolerite (mafic dyke)		dyke in EDC
09IN10A	09IN10A	f-m homo Bt gr (Horsley hill gr, 2.55Ga)		gr in EDC
09IN10B	09IN10B	dolerite (mafic dyke)		dyke in EDC
[Horsley hill – Anantapur (11/20) : TTG and gr in EDC & synplutonic dyke]				

09IN11A	09IN11A	c Ttn bear Hbl tonal-tonal gn & c Bt gn gd	TTG in EDC
09IN11B	09IN11B	f foliate leuco gr	gr in EDC
09IN11C	09IN11C	Hbl bear leuco gr-gd, weak foliate	gr in EDC
09IN11D	09IN11D	f leuco Ttn bear Bt gr	gr in EDC
* 09IN12	09IN12	[=08IN53] c Hbl gab (hybrid type)	in EDC
09IN13	09IN13	sheared gd (pseudotachylite ?)	gr in EDC
		[Anantapur – Pavagoda – Bangarole (11/21) : around Closepet gr]	
09IN14	09IN14	amph sht (Penukonda b, greenstone b in EDC 2.7Ga as Kolar)	Ram-Pen-Siri b
09IN15	09IN15	Crđ Sil Spl gn (UHT?) (ca 2.6Ga)	pelite in EDC
non	non	(09IN16=08IN57, synplutonic dyke)	dyke in EDC

{old TTG and greenstone belt in WDC, and cross section from WDC to EDC}

[Bangalore – Hassan (11/24) : oldest TTG in WDC & Hole Narasipura b (3.25Ga)]

* 09IN17	09IN17	p Bt gn gr-gr gn (3.0Ga, L-tectonite, Ep bear) (Belur pluton ?)	gr in WDC
* 09IN18A	09IN18A	f gd-tonal gn & leuco gr-trond vein (Gorur gn, 3370–3360Ga)	Gorur gn, WDC
* 09IN18B	09IN18B	[=08IN02] f gd-tonal gn & leuco gr-trond vein (Gorur gn)	Gorur gn, WDC
* 09IN18C	09IN18C	[=08IN02] c trond vein in gd-tonal gn	Gorur gn, WDC
* 09IN18D	09IN18D	[=08IN02] f Grt amphibolite (mafic dyke)	dyke in WDC
	09IN18E	[=08IN02A] f amphibolite (ultramafic of HoleNarasipura G)	HoleNarasipura G
* 09IN19	09IN19	[=08IN04] Ky Grt Bt gn (HoleNarasipura G)	HoleNarasipura G
* 09IN20	09IN20	blast por mica sht (meta rhyolite, 3.3Ga, HoleNarasipura belt)	HoleNarasipura b
		[Hassan – Chikmagalur (11/25) : TTG basement in WDC & Bababudan belt]	
	09IN21A	f-m tonal-gd gn (3.3Ga TTG)	TTG in WDC
	09IN21B	gd gn (3.3Ga TTG)	TTG in WDC
	09IN21C	trond vein in tonal gn	TTG in WDC
* 09IN22	09IN22	[=92–150,94–263,06–08] Kartikere quartzite cgl (Bababudan G)	Bababudan belt
* 09IN23	09IN23	green sht (metabasalt, Bababudan G, 2911–2840 Nd/Sm)	Bababudan b
* 09IN24	09IN24	banded quartzite-chert (meta quartzite, Bababudan G)	Bababudan b
	09IN25	[=92IN154,155, 94IN290, 06IN16] BIF (upper Bababudan G)	Bababudan b
* 09IN26A	09IN26A	c w Kfs por gd (3.23Ga undeformed oldest basement)	in Chikmagalur gr
* 09IN26B	09IN26B	homo m-c gd +c leuco (trond) vein	in Chikmagalur gr
		[Hassan – Sira – Bangalore (11/26) : WDC/EDC bounary & Chitradurga belt]	
	09IN27	green sht (meta basalt, 2.9Ga) [Kibbanahalli arm]	Kibbanahalli arm
	09IN28	mig gn (f tonal +c tonal-trond gn, highly foliate east margin WDC)	TTG in WDC
* 09IN29A	09IN29A	[=08IN37] green sht (deformed meta basalt, Chitradurga b)	Chitradurga b
	09IN29B	[=08IN37] f Bt mela dio +leuco trond gn	Chitradurga b
	09IN30	[=08IN38] green sht (deformed metabasalt, Janagondanahalli b)	=Javanahalli belt
	09IN31	[=08IN39] f mass homo leuco Bt gr (Maddakkanahalli gr, 2.507Ga)	gr in EDC
		(just below Sira flat gn : 2560Ma)	

(Total : 62)

4. スリランカ

Sri Lanka

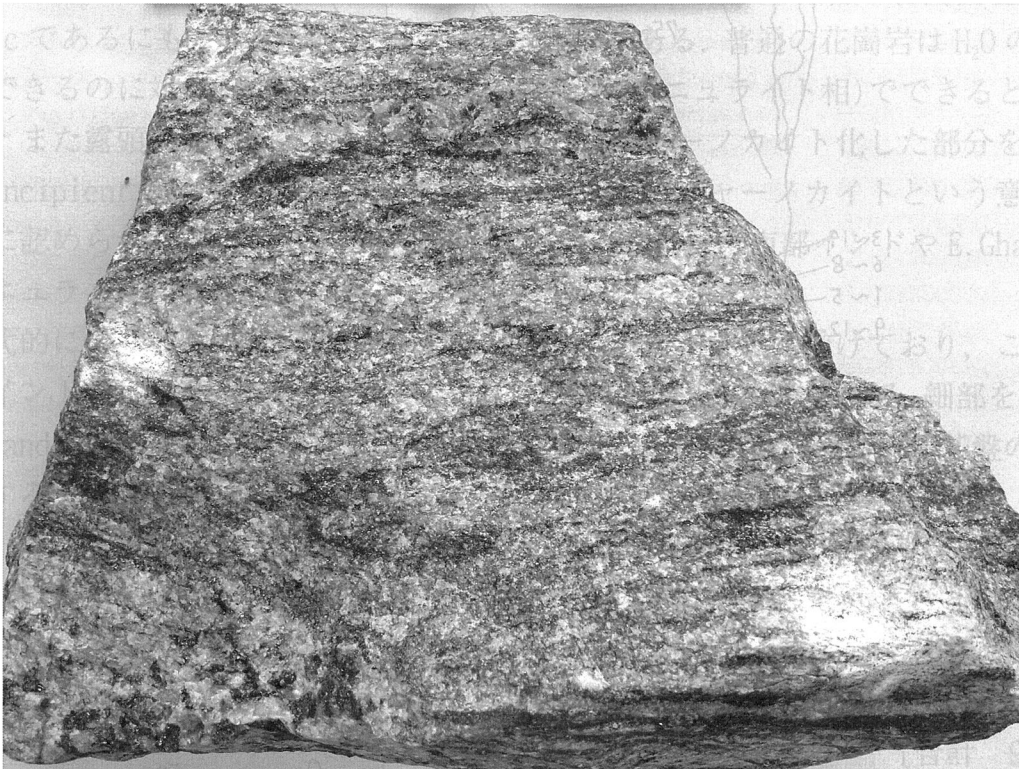


Photo 4. Garnet biotite gneiss from the Wanniyambolu complex, Sri Lanka (Reg No: SL07).

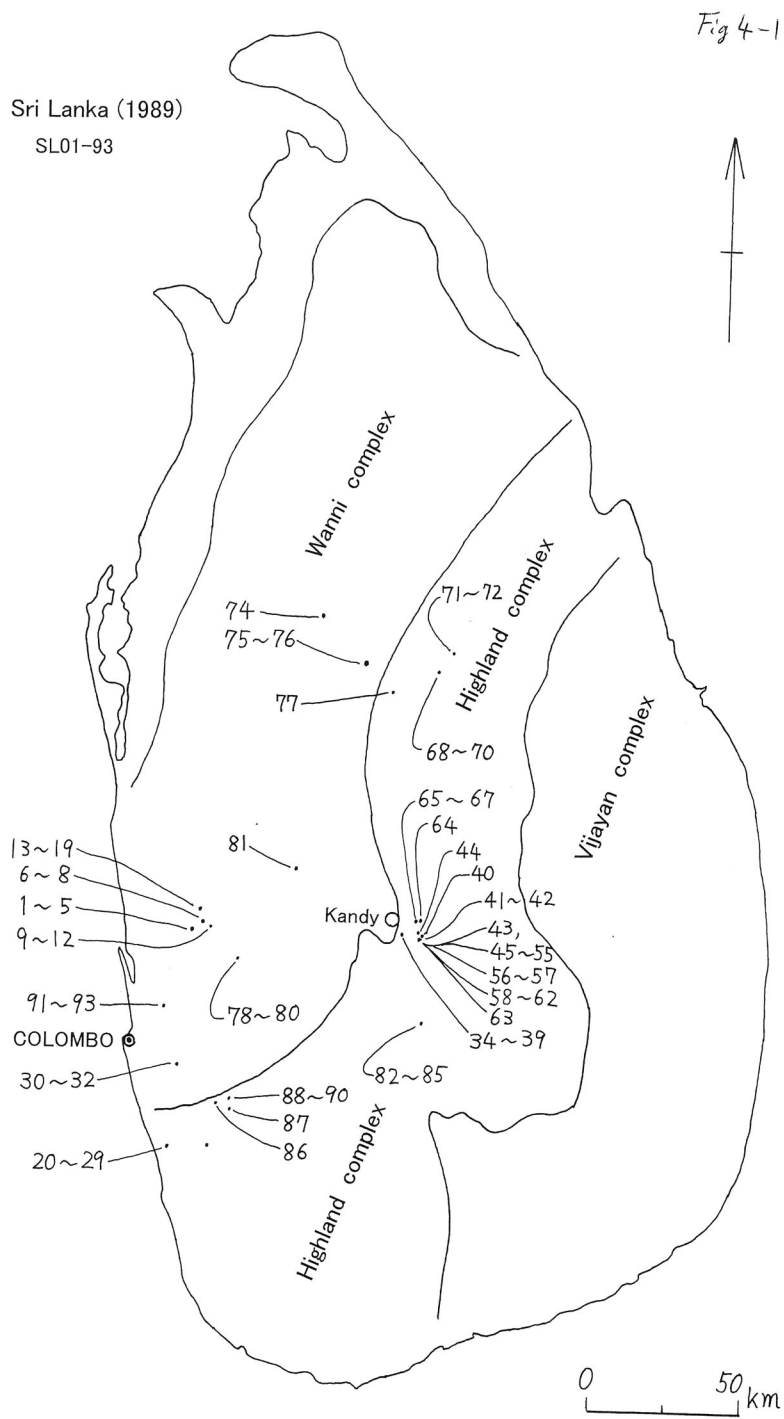


Fig.4-1. Geologic units and sampling points in Sri Lanka at 1989.
(based on Hiroi and Motoyoshi, 1990)

4. スリランカ Sri Lanka

スリランカは、海岸部を除いて大半の地域が先カンブリア時代の基盤岩類から構成される。これらは、構成岩石の特徴により、西から Wannii complex, Highland complex, Vijayan complex に区分される (Fig. 4-1)。Wannii complex は、ミグマタイト質～花崗岩質片麻岩やザクロ石黒雲母片麻岩などが多い。Highland complex は、charnockite や花崗岩質片麻岩、泥質片麻岩 (khondalite など) のほかに、大理石や珪岩を含む。Vijayan complex には花崗岩質～ミグマタイト質の岩石が多い。変成度では Vijayan と Wannii が角閃岩相、Highland がグラニュライト相とされているが、実際に採集された岩石を見ると Wannii complex にも charnockite やグラニュライト的な岩石が多く、角閃岩相～グラニュライト相と言ったほうが良いように思われる。

Highland complex には、グラニュライト相変成岩類や charnockite が発達する。チャーノカイト charnockite とは、簡単に言えば、斜方輝石を含む花崗質岩であり、felsic であるにもかかわらず暗灰色をした岩石である。普通の花崗岩は H_2O のある環境でできるのに対して、 H_2O に乏しい高温条件 (グラニュライト相) でできると考えられる。また露頭において、部分的に (斑紋状に) チャーノカイト化した部分を含む岩石 - incipient charnockite (初性的な、なりかけのチャーノカイトという意味) が各地に認められる。以上のような Sri Lanka の岩石には、南部インドや E. Ghats 帯のグラニュライト相変成岩類と共通した性質が多い (Fig. 1-3)。

年代的にも全域的に 6～5 億年前の Pan-African 変動を強く受けており、この点でも南インドの Kerala や東南極のリュツォホルム岩体との共通性がある。細部を見ると、Highland complex には、Nd モデル年代やジルコンの U-Pb 年代に始生代基盤の存在を暗示するデータがあり、他の 2 帯より起源が古い可能性がある。

本資料室には、1989 年に大和田正明が廣井美邦千葉大学教授を代表者とする海外学術調査に参加し、本吉洋一極地研究所教授ら日本人研究者と現地研究者とともに採集した試料が収納されている (Fig. 4-1)。 (cf. Hiroi and Motoyoshi, 1990)

[合計 93 点]

Sri Lanka (1989 : Owada, M.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
SL01	OW89081301A-1	f Grt bear Bt gn-mig Bt gn		Wanni complex
SL02	OW89081301B-3	large Crd bear peg Qtz feld gn with c-m Bt gn schlieren		Wanni complex
SL03	OW89081301C	f homo tonal gn or felsic granulite (leptynitic ?)		Wanni complex
SL04	OW89081301D-1	p c gn gr including f Grt Bt gn schliern		Wanni complex
SL05	OW89081301I	f Bt gn & Grt bear c Bt gn, banded		Wanni complex
#+ SL06	OW89081302C	f-c Grt Bt gn-Grt Bt bear charnock gn		Wanni complex
SL07	OW89081302D	c Grt Bt gn banded with Grt bear c leuco layer		Wanni complex
SL08	OW89081302F	c Grt Bt bear charnock gn		Wanni complex
SL09	OW89081401A	large Hbl bear vc charnock		Wanni complex
SL10	OW89081401B	banded Grt Bt gn with c Grt bear leuco layer		Wanni complex
SL11	OW89081401C	charnock gn with Grt Bt rich band		Wanni complex
SL12	OW89081401D	felsic mass charnock (leptynitic ?)		Wanni complex
SL13	OW89081402A	brownish (charnock) gn		Wanni complex
SL14	OW89081402C	c-vc banded Grt Bt gn		Wanni complex
SL15	OW89081402D	c-vc banded Grt Bt gn		Wanni complex
SL16	OW89081402E	Bt bear Grt leuco gn (Grt gn, slight charnock)		Wanni complex
SL17	OW89081402F	c banded Grt Bt gn		Wanni complex
SL18	OW89081402H	banded-mig c Grt Bt gn		Wanni complex
SL19	OW89081402I	Bt bear c-vc charnock		Wanni complex
SL20	OW89081801A	banded Grt Bt gn		Highland complex
SL21	OW89081801B	c Bt Grt gn-mig gn		Highland complex
SL22	OW89081801C	Grt bear whitish gr (Qtz feld r)		Highland complex
#+ SL23	OW89081801D	banded Grt Bt gn, with mass-gn Grt charnock part		Highland complex
SL24	OW89081801E	Grt bear charnock r, transition charnock to country r		Highland complex
SL25	OW89081801①	Grt bear felsic charnock mass r (leptynitic ?)		Highland complex
SL26	OW89081801②	Grt bear felsic charnock gn (leptynitic ?)		Highland complex
SL27	OW89081801⑤	Grt bear felsic charnock gn (leptynitic ?)		Highland complex
SL28	OW8908180107	Grt bear charnock		Highland complex
SL29	OW89081801T	mass felsic charnock		Highland complex
SL30	OW89081803A	c-vc Grt Bt gn with leuco band		Wanni complex
SL31	OW89081803B	Crd rich band Sil Grt Bt gn (khondalite) & c Grt Bt gn		Wanni complex
SL32	OW89081803C	p c gr-peg dyke in Grt Bt gn		Wanni complex
SL33	OW89082001C	banded Grt Bt gn		
SL34	OW89082102B	f mass mafic granulite		Highland complex
SL35	OW89082102C	Mg skarn layer & mafic granulite		Highland complex
SL36	OW89082102C-1	Mg skarn layer & mafic granulite, boundary		Highland complex
SL37	OW89082102C-2	Mg skarn (Ol or Chu bear marble)		Highland complex
SL38	OW89082102D-2	Grt bear mafic granulite-amphibolite		Highland complex
SL39	OW89082102D-3	Grt bear mafic granulite-hornblendite		Highland complex
SL40	OW89082103Air	flaky Phl vc blue Spl ? bear calc r		Highland complex
SL41	OW89082104	charnock gn		Highland complex
SL42	OW89082104A	charnock gn		Highland complex
SL43	OW89082105	Gr bear Grt porbla Sil gn (khondalite)		Highland complex
SL44	OW89082106	Grt Bt c-vc Qtz feld gn		Highland complex
SL45	OW89082201A	Grt charnock gn with Bt rich layer		Highland complex
SL46	OW89082201B	c flaky Ms rich marble		Highland complex
SL47	OW89082201C	c flaky Ms rich marble		Highland complex
SL48	OW89082201D	large Grt bear peg vein in 2201A		Highland complex

SL49	OW89082201D-2	Spl ? bear mica marble	Highland complex
SL50	OW89082201E	large Spl bear calc to Qtz feld peg	Highland complex
SL51	OW89082201F	Hbl bear mafic charnock gn	Highland complex
SL52	OW89082201F	marble including Ms rich nodule	Highland complex
SL53	OW89082201G	Spl bear Ms rich marble	Highland complex
SL54	OW89082201G	Grt porbla Bt Sil gn (khondalite)	Highland complex
SL55	OW89082201I	Grt Bt Sil gn (khondalite)	Highland complex
SL56	OW89082202A	weatherd Grt Bt gn (khondalite)	Highland complex
SL57	OW89082202	Grt Sil rich whitish gn	Highland complex
SL58	OW89082203	Grt bear Hbl gn including Grt porbla with corona	Highland complex
SL59	OW89082203A-1	banded Grt Bt gn with Grt bear Qtz rich layer	Highland complex
SL60	OW89082203A-2	vc Grt Sil Bt gn (5-6cm Grt+Bt aggregate)	Highland complex
SL61	OW89082203B	banded Bt gn	Highland complex
SL62	OW89082203C-2	banded Bt gn with vc Qtz feld layer (mig gn)	Highland complex
SL63	OW89082204	f Bt Sil Qtz feld gn	Highland complex
SL64	OW89082205	banded Grt Bt gn	Highland complex
SL65	OW89082206A	f amphibolite or f mafic granulite	Highland complex
SL66	OW89082206B	Grt px (Opx ?) r	Highland complex
SL67	OW89082206C	Mg marble (including Chu, sepeptinize Ol or Chu)	Highland complex
SL68	OW89082301B	Grt Bt gn	Highland complex
SL69	OW89082301C	f mass felsic charnock	Highland complex
SL70	OW89082301D	Grt Bt gn and Grt bear c Qtz feld band	Highland complex
SL71	OW89082302	large Grt porbla Sil gn (khondalite)	Highland complex
SL72	OW89082302	f-m mass felsic charnock	Highland complex
SL73	OW89082304	weathered large Grt Sil gn (khondalite)	
SL74	OW89082401	large Grt peg & feld	Wanni complex
SL75	OW89082405A	vc peg charnock	Wanni complex
SL76	OW89082405B	m mass brownish charnock	Wanni complex
SL77	OW89082407	banded Grt Bt gn (with p feld bear leuco layer)	Highland complex
SL78	OW89082601A	c banded Grt Bt gn, partly charnockitic	Wanni complex
SL79	OW89082601B	c banded Grt Bt gn (non charnockitic)	Wanni complex
SL80	OW89082601D	Bt Grt Crd ? gn (khondalite)	Wanni complex
SL81	OW89082605	mafic charnock + Bt bear peg vein	Wanni complex
SL82	OW89082701A	mafic granulite +Qtz feld charnock, banded	Highland complex
SL83	OW89082701B	Bt bear charnock including pyroxenite block	Highland complex
SL84	OW89082701C	Bt bear charnock including pyroxenite block	Highland complex
SL85	OW89082701C	Qtz feld rich charnock r	Highland complex
SL86	OW89090201	Grt leuco gn (Grt Qtz feld gn)	H near H/W
SL87	OW89090202	Grt Bt gn-Qtz feld gn	H near H/W
SL88	OW89090203A	Grt Bt bear Qtz feld gn	H near H/W
SL89	OW89090203B	Grt Bt bear Qtz feld gn	H near H/W
SL90	OW89090203C	Grt leuco gn (Grt Qtz feld gn)	H near H/W
SL91	OW89090302A	f-c mass felsic charnock	Wanni complex
SL92	OW89090302C	f mass felsic charnock +c Grt Bt bear peg	Wanni complex
SL93	OW89090302D	c banded Bt gn with p feld peg layer	Wanni complex

(Total : 93)

5. マダガスカル Madagascar



Photo 5. Synplutonic dyke in granitic gneiss, the Archaean basement of Antananarivo.

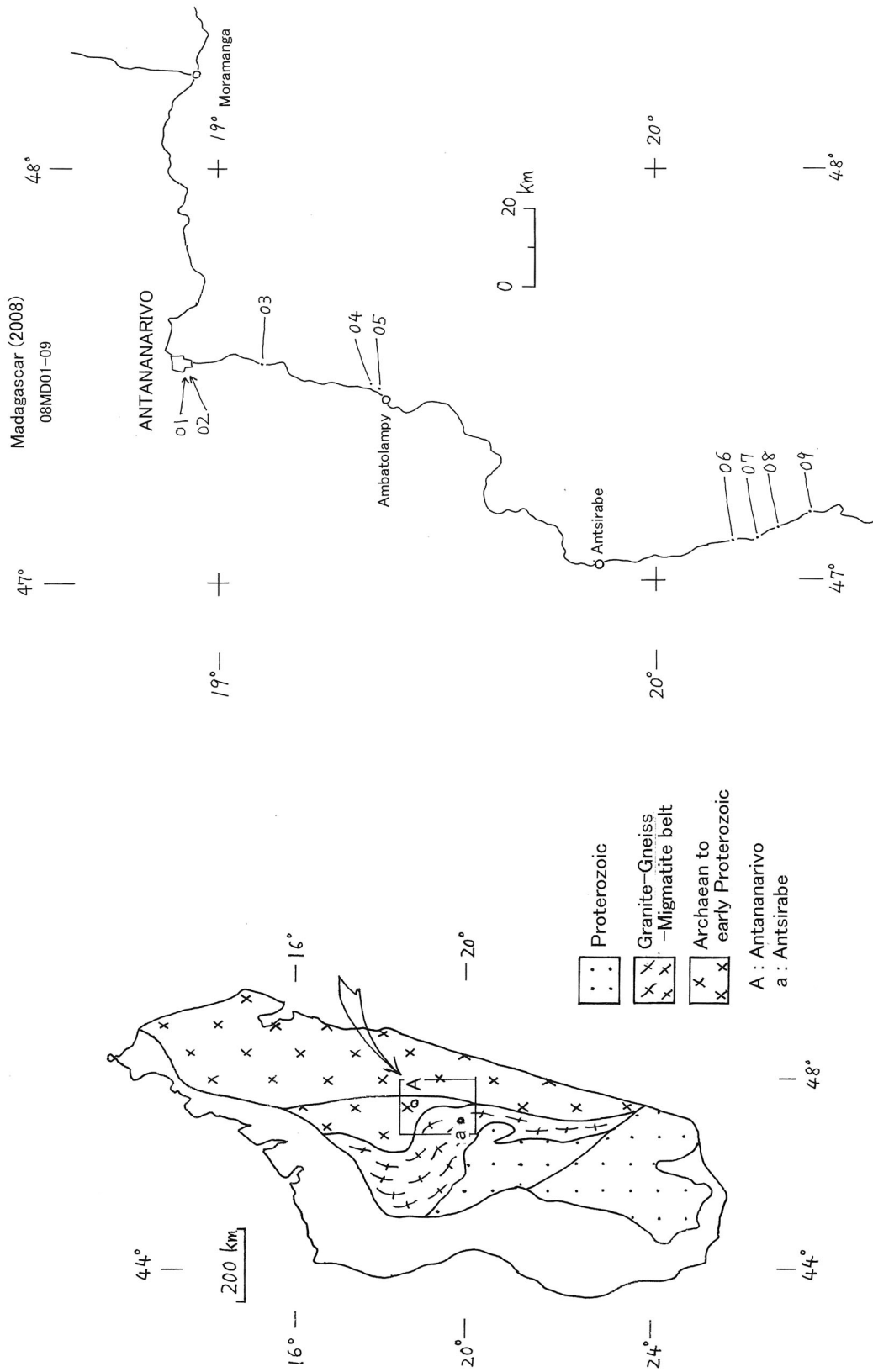


Fig.5-1. Geologic units and sampling points in Madagascar at 2008.
(Geologic units: based on Rambeloson et al., 2003)

5. マダガスカル Madagascar

マダガスカル島は、面積約 60 万 km^2 、グリーンランド、ニューギニア、ボルネオに次ぐ世界第 4 番目の島であり、日本の 1.5 倍ある。アフリカ大陸とはモザンビーク海峡により隔てられる。地質的には対岸のモザンビーク帯と共通した性質が多いが、文化的・民族的にはむしろはるか東方のアジアとの関連が深いといわれている。島の東側に南北方向の中央高地があり、2500m を超える山がある。首都アンタナナリブ Antananarivo や Antsirabe などの主要都市は高原上にある。中央高地東側のインド洋側は急で、アフリカ側に向かって緩やかである。アフリカ側の海岸部には古生代以降の堆積岩類が分布し、保存良好なアンモナイトなどを産することで有名である。

中央高地一帯から東海岸にかけては、先カンブリア時代の基盤岩類が分布する (Fig. 5-1) (Rambeloson et al., 2003)。アンタナナリブ周辺から北東部一帯には、始生代～原生代の岩石が分布し、25 億年以前の岩石やグリーンストーン帯もあるが、各地に 8 億年から 6～5 億年代の岩石が知られている。アンタナナリブの石切場では、Dharwar craton の Kabbaldurga とよく似た岩相と斑紋状のチャーノカイトが観察できる。高地の中央部には、花崗岩～ミグマタイト質の岩石が多く分布し、8 億年代の花崗岩体がある。南部一帯には、原生代後期の角閃岩相～グラニュライト相の変成岩が分布する。

このようにマダガスカルの先カンブリア時代基盤岩には、南インドと同様の始生代クラトンがあるとともに、全域的に Pan-African 変動の影響を受けている。

本資料室の標本は、2008 年に著者がアンタナナリブ大学で開かれたシンポジウムに参加した際、有馬 眞・石川正弘氏 (横浜国立大学) らとともに現地巡検を行い、採集したものである (Fig. 5-1)。

[合計 27 点]

Madagascar (2008 : Kano, T., Arima, M., Ishikawa, M. and Ichiki, T.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
{around Antananarivo city area (10/26)}				
[MD01: Ambatomaro quarry: strongly foliate c dio gn, mafic dyke, incipient charnockite]				
08MD01A	08MD01A	f mass charnock (mafic granulite)		Antananarivo
08MD01B	08MD01B	c charnock		Antananarivo
08MD01C	08MD01C	charnock-c tonal gn boundary		Antananarivo
08MD01D	08MD01D	c tonal gn		Antananarivo
08MD01E	08MD01E	f dio dyke & tonal gn boundary		Antananarivo
08MD01F	08MD01F	c-m p gr		Antananarivo
08MD01G	08MD01G	f mass mela dio (synplutonic mafic dyke)		Antananarivo
08MD01H	08MD01H	p c gr-gr gn surrounding G		Antananarivo
[MD02: opposite side quarry from MD01]				
08MD02A	08MD02A	mafic granulite		Antananarivo
08MD02B	08MD02B	m mass charnock (intermediate part from A)		Antananarivo
08MD02C	08MD02C	f mass gr r		Antananarivo
08MD02D	08MD02D	grey feld rich vein		Antananarivo
{Antananarivo - Antirabe road (11/3)}				
08MD03	08MD03	vc grey-p Bt gr (sye ?)	[140km mile stone from Antirabe]	
[MD04: before Ambatolampy, at 105km mile stone]				
08MD04A	08MD04A	m p gn gr-gr gn		Ambatolampy
08MD04B	08MD04B	m p gn gr-gr gn & p peg		Ambatolampy
[MD05: before Ambatolampy, 105km mile stone, Miadamanjaka villege east quarry]				
08MD05A	08MD05A	Cpx-bear amphibolite (synplutonic mafic dyke)		Ambatolampy
08MD05B	08MD05B	amphibolite		Ambatolampy
08MD05C	08MD05C	c dio gn including p Kfs (folded with D,E)		Ambatolampy
08MD05D	08MD05D	c p foliate gr-gr gn (main facies)		Ambatolampy
08MD05E	08MD05E	augen gneiss in C		Ambatolampy
08MD05F	08MD05F	p foliate gr (dyke)		Ambatolampy
08MD05G	08MD05G	mafic dyke (f-m dio, slight charnockitic?)		Ambatolampy
[Antirabe - Ambositra road - Antananarivo (11/4)]				
08MD06	08MD06	c foliate leuco gr	[Fiadamana]	Antirabe south
08MD07	08MD07	f leuco gr (schistose)	[Antirabe south 43km]	Antirabe south
08MD08	08MD08	strong foliate gn gr -gr gn		Antirabe south
08MD09A	08MD09A	large Kfs por gn gr (Ilaka gr, 790-800Ma)	[60km from Antirabe]	Antirabe south
08MD09B	08MD09B	meta diabase (mafic dyke in A)		

(Total : 27)

6. 南部アフリカ Southern Africa (Zimbabwe, Mozambique)

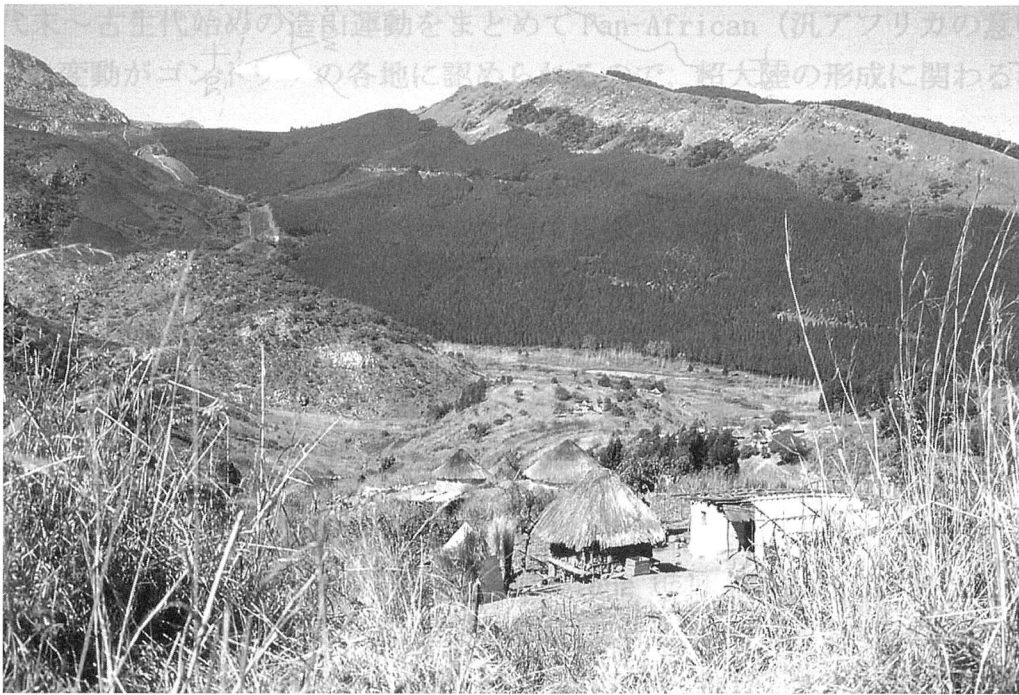


Photo 6. Distant view of the Armours Gap, the Mozambique border. Steep slopes on both sides of the gap are sheared quartzite of the Umkondo Group overlying on the reworked (sheared) granitic basement. The boundary is a thrust contact.

Southern Africa (Zimbabwe and Mozambique, 1998)

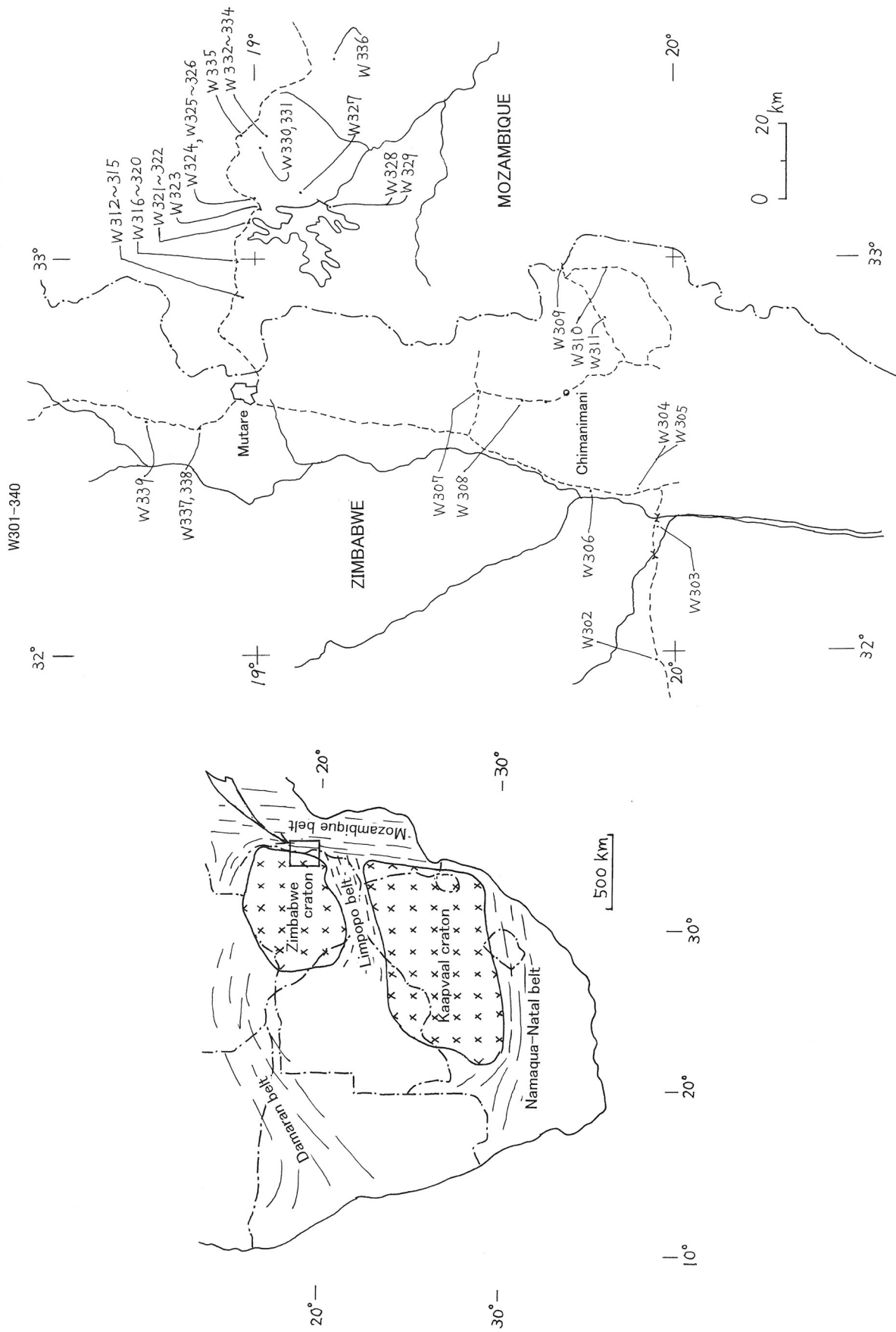


Fig.6-1. Geologic units and sampling points in southern Africa at 1998.
(Geologic units: based on Hunter, 1981)

6. 南部アフリカ Southern Africa (Zimbabwe, Mozambique)

アフリカ大陸は、面積約 2900 万 km^2 余、全アジアの 2/3 の広さがある。北西端のアトラス山脈（アルプス造山帯）と南端のケープ褶曲帯（古生代）を除いて、大半は先カンブリア時代の岩石を基盤とするアフリカ楕状地 African shield からなる。このうち始生代クラトンは 3 地域あり、南部の Karahari craton, 中央部の Congo craton, 西部の West African craton である。Karahari craton は、約 27 億年前の Limpopo belt で南側の Kaapvaal (Transvaal) craton と北側の Zimbabwe craton に区分される

(Fig. 6-1)。Congo craton は、13~11 億年前の Kibaran belt によって 2 分され、西側を Angola-Kasai craton という。東側はさらに 19~18 億年前の Ubendian belt により南側の Zambian craton と北側の Tanzania craton に区分される。これらのクラトンの間には、Mozambique belt や Damaran belt などの 6~5 億年前の造山帯があり、全体を結合して巨大な African shield を形作っている (cf. Hunter, 1981)。そこで原生代末~古生代始めの造山運動をまとめて Pan-African (汎アフリカの意味) と言い、この変動が Gondwana の各地に認められるので、超大陸の形成に関わる現象と考えられている。

南極・インド・オーストラリアは、スリランカ・マダガスカルとともに東 Gondwana を構成するが、その西端はアフリカ大陸の東縁にかかると考えられる。また Gondwana 全体の形成に関しても、西 Gondwana との結合関係を知る上で Zimbabwe craton から Mozambique belt にかけての地域は重要なフィールドである。

Zimbabwe craton は、主に花崗岩類とグリーンストーン帯からなる。Mutare 周辺のグリーンストーン帯では、蛇紋岩化した超塩基性岩や含金礫岩が産出する。東縁には始生代岩層の上位に、原生代早期~中期の Umkondo Group が分布する。これらは、玄武岩・ドロマイト・砂泥質岩等からなり、一部は変成するがほとんど非変成に近いものもある。Zimbabwe craton の東縁から Mozambique belt にかけて、変形・再変成した花崗岩（花崗片麻岩）が分布する。クラトンに近い側には 32~25 億年前の古い Rb/Sr 年代と 10 億年の Ar/Ar 年代を示す Vumba 花崗岩、次いで 23 億年の Rb/Sr 年代と 5 億年の Ar/Ar 年代を示す Messica 花崗岩、同じく 9~10 億年と 4.7 億年の Nhansife 花崗岩、というように西から東へ Mozambique belt に向かって順次時代が若くなる傾向があり、Zimbabwe craton を構成している古い花崗岩が、Pan-African 変動を受けて行く様子が分かる。Umkondo Group の一部 (Frontier F) は、再変成した花崗岩に挟み込まれ、強く変形する。また境界から 50~70km 東方の Vanduzi 片麻岩や Chimoio 片麻岩では、変形とともに新旧 2 回のミグマタイト化が認められ、新期の方は Pan-African 期の部分溶融に対応すると考えられる。

本資料室の標本は, 1998 年に表記のような問題設定のもとに開かれたシンポジウムの現地巡検に, 著者が吉田 勝 (大阪市立大学) 小山内康人 (当時岡山大学) 氏らとともに参加した際, 採集したもので, Zimbabwe craton の東縁から Mozambique belt にかけての一連の岩石が収納されている (Fig. 6-1). また Limpopo 帯のチャーノカイト質片麻岩も 1 点ある. 上記説明は, その時の巡検案内書 (Grantham and Dirks, 1998) を参考に行っている.

[合計 41 点]

Southern Africa (Zimbabwe, Mozambique) (1998 : Kano, T., Yoshida, M. and Osanai, Y.)

Reg No	Original No	Rock name	[Locality]	Locality/Geology
[Great Zimbabwe – Masvingo (Zimbabwe)]				
W301	98071201	m weak gn gd	[southern margin Zimbabwe craton]	Zimbabwe craton
W302	98071202	c-m mass gr (2.5Ga)	[southern margin Zimbabwe craton]	Zimbabwe craton
[Umkondo Group, Mid Proterozoic sediments 1.8Ga on Zimbabwe craton]				
W303	98071203	tuff-shale (non meta sed of Umkondo G)	[Masvingo E 155km]	Umkondo G
W304	98071204	f gab-dio intruding Umkondo G	[Masvingo E 170km]	Umkondo G
W305	98071205	dolerite dyke intruding Umkondo G	[Masvingo E 170km]	Umkondo G
W306	98071206	amygdaloidal basalt of Umkondo G	[Masvingo ENE200km]	Umkondo G
W307	98071207	dolerite (f dio, 1100Ma sill)	[Masvingo ENE 200km]	Umkondo G
W308	98071208	dolomite (upper part Zimbabwe Formation)	[Masvingo ENE 200km]	Umkondo G
[near Chimanimani, Mozambique border in Zimbabwe]				
W309	98071301	schistose gr (550Ma reworked basement)	[Armours Gap]	Zimbabwe craton
W310	98071401	shale (non meta sediments of Umkondo G)		Umkondo G
W311	98071402	f gab-dio		
[from reworked Z craton to Moz b, in Mozambique 25–60 km E from Zimbabwe border (Mutare)]				
[Vumba gr: reworked basement, Rb/Sr 3231 ± 391Ma, 2560 ± 249Ma, Ar/Ar 1067,1084 ± 4Ma]				
W312	98071503-1	Pl por f dio (in Vumba gr)	[25km E from border]	Z craton in Moz b
W313	98071503-2	c gn gd (Vumba gr main facies)		Z craton in Moz b
W314	98071503-3	c leuco gr of Vumba gr main facies		Z craton in Moz b
W315	98071503-4	c leuco gr (Vumba gr)		Z craton in Moz b
[Messica gr: reworked basement, Rb/Sr 2348 ± 267Ma, Ar/Ar 534 ± 2.5]				
W316	98071504-1	c por gn gr (main facies)	[35km E from border]	Z craton in Moz b
W317	98071504-2	por gn gr (main facies)		Z craton in Moz b
W318	98071504-3	large Kfs in por gr (main facies)		Z craton in Moz b
W319	98071504-4	c p Kfs gd		Z craton in Moz b
W320	98071504-5	p Kfs bear gd		Z craton in Moz b
[45km, 50–60km east from border, Frontier Formation: a part of Umkondo Group]				
W321	98091505A	amphibolite (meta dolerite dyke)	[45km E]	Mozambique belt
W322	98091506B	mafic granulite (-gab)		Mozambique belt
W323	980715-7	pelitic-psam hornfels (Frontier F, Ms 468Ma)	[50–60km E]	Mozambique belt
W324	980715-8	Messica gr gn	[50–60km E]	Z craton in Moz b
W325	980715-9A	Grt Sil Bt gn (Frontier F)	[50–60km E]	Mozambique belt
W326	980715-9B	talc sht (Frontier F)		Mozambique belt
[to Chicamba dam: basement and Frontier F]				
W327	98071601	gn gr-gr gn (Messica gr gn)		Z craton in Moz b
W328	98071602	Kfs por gn gr (Messica gr gn)	[dam site]	Z craton in Moz b
W329	98071603	quartzite (Frontier F)	[dam site]	Mozambique belt
[Vanduzi mig gn: two stage mig, later Pan-African mig]				
W330	98071604①	Bt gn (Vanduzi mig gn)		Mozambique belt
W331	98071604②	c leuco part of Vanduzi mig gn		Mozambique belt
[Nhansife megacrystic gr gn: Rb/Sr 981 ± 33Ma, Ar/Ar 467,465 ± 2Ma]				
W332	98071605	Kfs por Bt gn (Nhansife megacrystic gr gn)		Mozambique belt
W333	98071605	amphibolite (mafic enclave in Nhansife gr gn)		Mozambique belt
W334	98071605	Hbl Bt bear peg in Nhansife gr gn		Mozambique belt
W335	98071606	Grt bear f-m leuco gr gn (in Nhansife gr gn)	[50–60km E]	Mozambique belt
[Matsinho quarry: Chimoio mig gn, Rb/Sr 1236 ± 203Ma, Ar/Ar 558,553 ± 2.5Ma]				
W336	98071607	mig gr gn	[70km E from border]	Mozambique belt

	[north of Mutare in Zimbabwe (71701: 15km N), (71702 : 25km N)]		
W337	98071701	cgl (Mutare greenstone belt 3.2Ga, including Au deposits)	Zimbabwe craton
W338	98071701	psam-pelitic (Mutare greenstone belt)	Zimbabwe craton
W339	98071702	silicified r (with Au mineralization, Mutare greenstone belt)	Zimbabwe craton
	[Messina south 12km, 25km south from Zimbabwe/S Africa border]		
W340	98071801	charnock banded gn (Sandriver Formation)	Limpopo belt

(Total : 41)

7. ネパールヒマラヤ

Nepal Himalayas

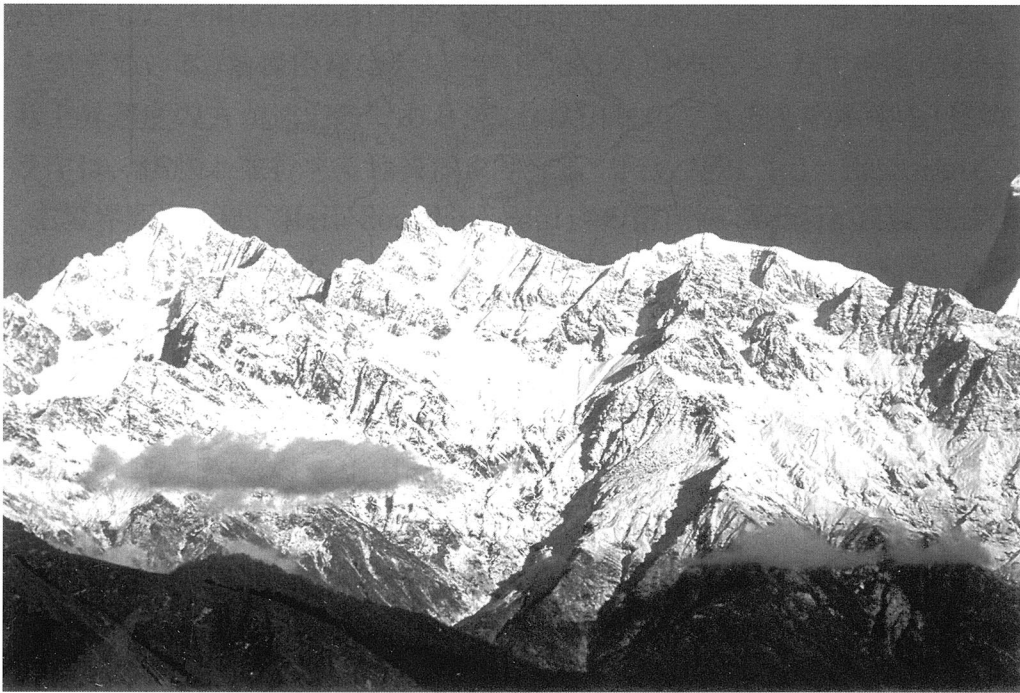


Photo 7. The vertical country of Nepal: Manaslu Himal.

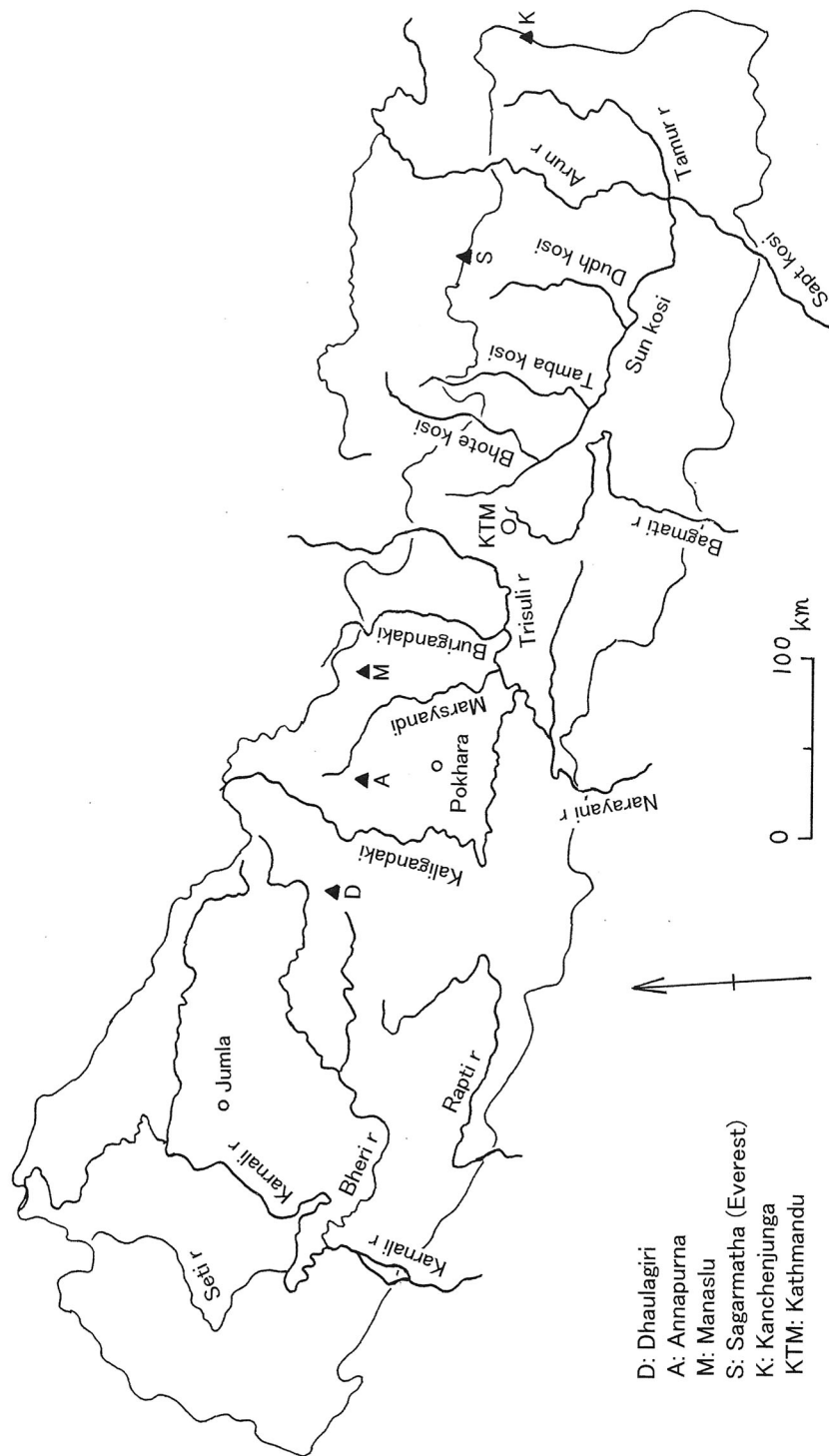


Fig.7-1. River system in the Nepal Himalayas. (based on Mezaki, 1988)

7. ネパールヒマラヤ Nepal Himalayas

インド楕状地の北、ガンジス平原の彼方にそびえる白雪頂く大ヒマラヤは、まさに神々のおわすところにふさわしい。およそ2億年前、ゴンドワナの分裂に伴って北上したインド陸塊は、新第三紀にアジア大陸と衝突してヒマラヤを生じた。大陸が集合して超大陸を形成する際には、境界に衝突型の造山帯ができるという。ヒマラヤはゴンドワナのもう一つの顔であるといえるだろう。

ヒマラヤ造山運動の範囲は中国南部から中央アジアに及ぶが、ヒマラヤ山脈の範囲としては、地理的に顕著な境界で区切って、東をインド東端のブラマプトラ川の大屈曲、西をインダスの峡谷としておこう。その間2300km余、ネパールヒマラヤはその中央部の1/3を占め、もっとも高峰の集中する核心地帯である。

ヒマラヤを流れる大河川 (Fig. 7-1) は、チベット高原に源を発して8000mの巨峰を連ねた主稜線を横断し、高度差5000mの大渓谷を形成する。分水嶺は主稜線ではなく背後のチベット高原にある。ここでは山脈の上昇力より河川の浸食力が優っている。ところが南下した河川は、前縁山地 (Mahabharat Lekh) に行く手を遮られ、西へ東へ流路を変えている。前縁山地は大した高度ではないのに (それでも2-3000mある)、侵食より上昇速度の方が速いのである。これは山脈のでき方を暗示する (目崎, 1988)。

ヒマラヤは、山脈と並行する地質体よりなる (Fig. 7-2) (cf. Hashimoto et al., 1973)。主境界断層 (MBF: Main Boundary Fault) の南側がSiwalik丘陵で、新第三系～第四系の砂泥層や礫層からなる。山脈本体の中腹部には主中央衝上断層 (MCT: Main Central Thrust) があり、MBFとMCTの間をMidland (あるいはLesser Himalayas) といい、MCTの北がGreat Himalayas (Higher Himalayas) である。Midlandは、主として原生代末～古生代の砂岩・泥岩と石灰岩・珪岩を挟む地層からなり、弱変成 (緑色片岩相低度) しているのでMidland meta-sedimentという。MBFに沿ってMidland帯の南縁には、狭い範囲で変成度が上昇し、地質図で見ると中央部にレンズ状の花崗岩体が分布する帯状の地帯 (Mahabharat zone) がある。カトマンズの北側には、もう一帯花崗岩の貫入と片麻岩の分布する地帯があり、Sheopuri zoneとよばれる。

MCTは1枚の断層ではなく、かなりの幅を持った断層帯MCT-zoneをなす。ここでは変成度が上がり、結晶片岩と特徴的に眼球状の長石を含むmylonite質の眼球片麻岩からなる。結晶片岩にはstauroliteやkyaniteが含まれる。眼球片麻岩は、断続的ではあるがヒマラヤの全領域にわたって出現する。

MCTの北側はKyaniteを含む片麻岩帯 (Himalayan gneiss) となり、高峰に近づくにつれて一部融けたようなmigmatiteや黒い鉛筆の芯のような電気石を含む優白質の花崗岩が現れる。この部分にも眼球片麻岩が出現し、長径50cmを超すような巨大なカリ長石結晶を含むことがある。さらに北側は、チベットテーチス層群の堆積岩層と

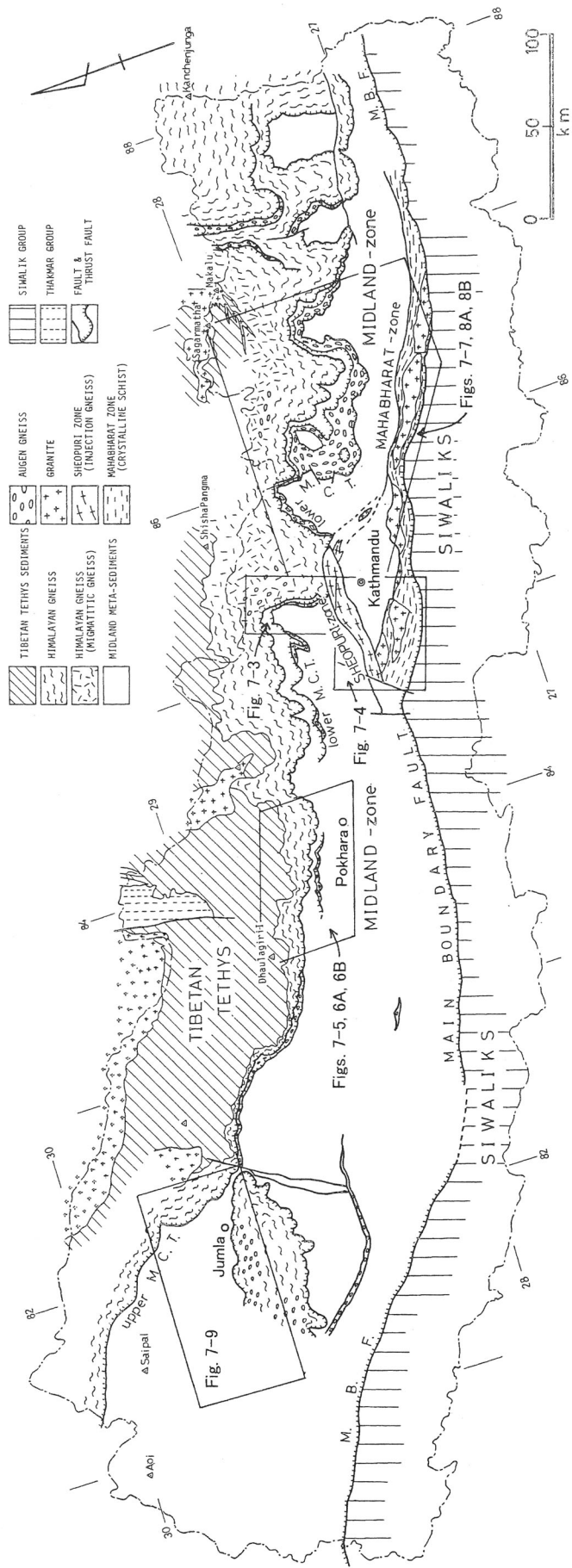


Fig.7-2. Geologic divisions and surveyed area in the Nepal Himalayas.
(from Kano, 1984)

なる。エベレスト山腹の巨大な崖には、電気石花崗岩が網目のように貫入している様子が遠望できる。

MCT を境に、北側の地質体が南側にのし上げる（逆に南側がもぐりこむ）ような運動をしている。Himalayan gneiss からは、20 億年を超える古い年代と 2000～1500 万年の新しい年代が知られている。新しい年代は電気石花崗岩の年代と一致する。ヒマラヤの基盤は、もともとインド楕状地の先カンブリア系であり、その一部が大陸衝突の際に新たな造山運動に巻き込まれ、再変成したと考えられる。電気石花崗岩はその時、一部が溶けて花崗岩マグマとして貫入したものである。また眼球片麻岩は、基本的に衝上断層帯に貫入した花崗岩が、種々の程度に変形しながら固結あるいは再結晶したのと考えられる (Kano, 1984; 加納, 1988)。

ヒマラヤは高い。日本の山は丸 1 日も歩くとたいてい頂上は足の下になるが、1 日 1000m 以上を登り下って 10 日間歩き続け、やっと辿り着いたベースキャンプのはるか頭上 4000m に圧倒的なスケールでそびえている。ヒマラヤの地質調査は、大渓谷にそった細い道をたどって尾根を登り支谷を渡り、現地の村々で手に入れた粗末な飯を食って 1 ヶ月のテント暮らしが続く。だんだん重くなる荷物をいやがるポーターをなだめながら人の背で運んだサンプルを、なんで捨てられようか。

著者のヒマラヤ調査は以下に示す 4 回であるが、中でも当時琉球大学の木崎甲子郎教授によるヒマラヤの上昇に関する学術調査（略して CMH80, CMH82 : 木崎, 1988）に参加させて頂いたことにより、系統的な調査と試料採集が格段に進展した。

1970 年 日本山岳会東海支部マカルー学術遠征隊（学術隊）

Central-East Nepal Himalayas, Sheopuri-Mahabharat zone (Figs. 7-3, 4)

1980 年 (CMH80) Central Nepal Himalayas (Figs. 7-5, 6AB) (cf. Kano, 1982)

1982 年 (CMH82) East and West Nepal Himalayas (Figs. 7-7, 8AB, 9)

(cf. Kano, 1984)

1996 年 トリブバン大学在外研究員

[合計 1165 点]

[以上総計 5159 点]

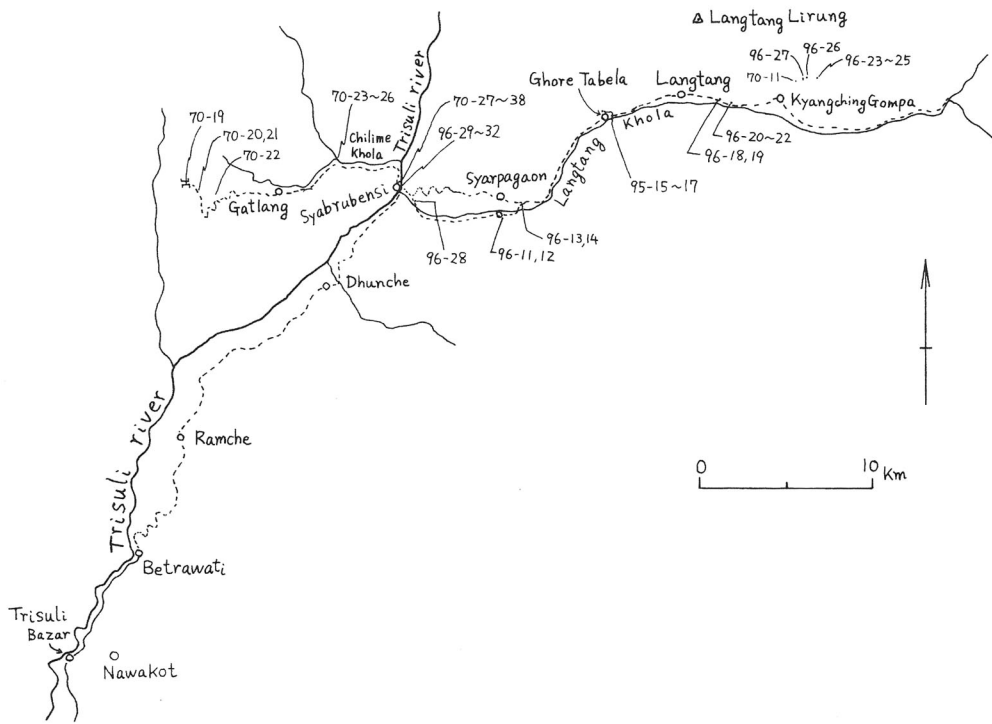


Fig.7-3. Route map along the Trisuli river at 1970, 1996.

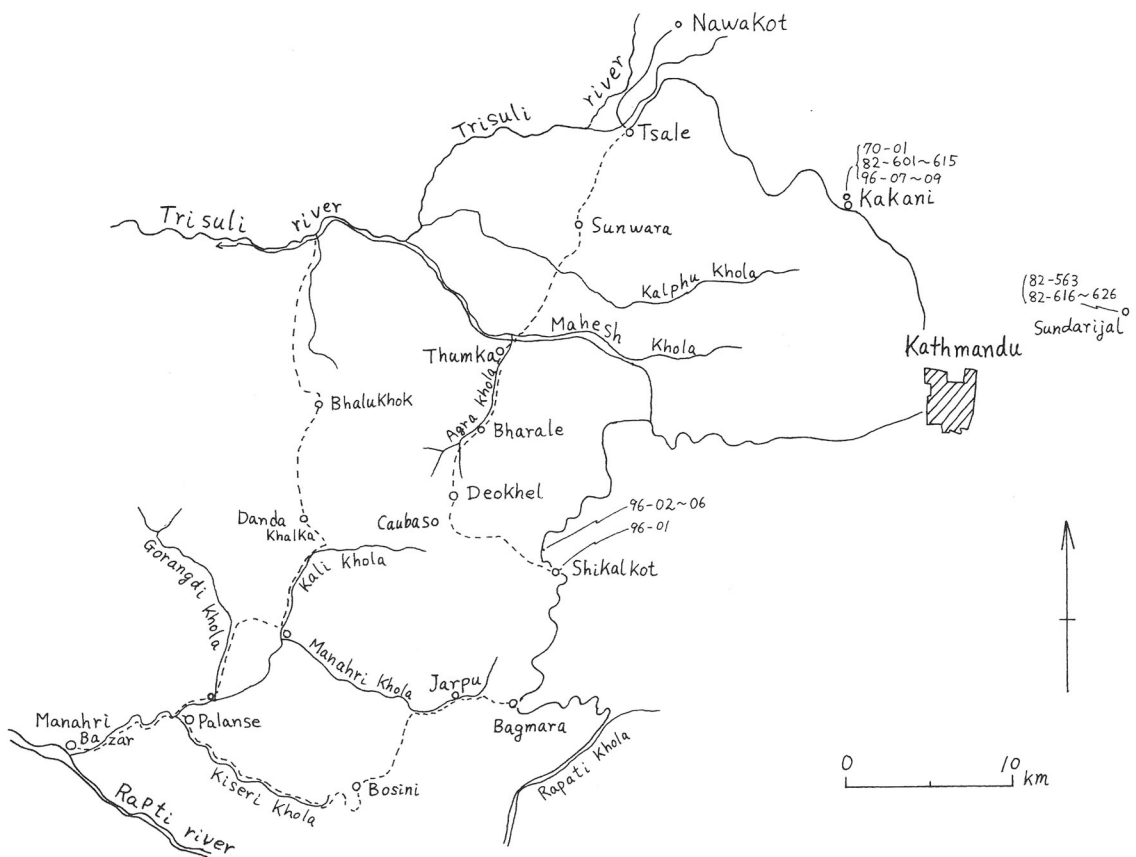


Fig.7-4. Route map across the Sheopuri to Mahabharat zone at 1970.

GEOLOGICAL MAP of THE ANNAPURNA RANGE,
NEPAL HIMALAYAS.

(1981. J. Kano)

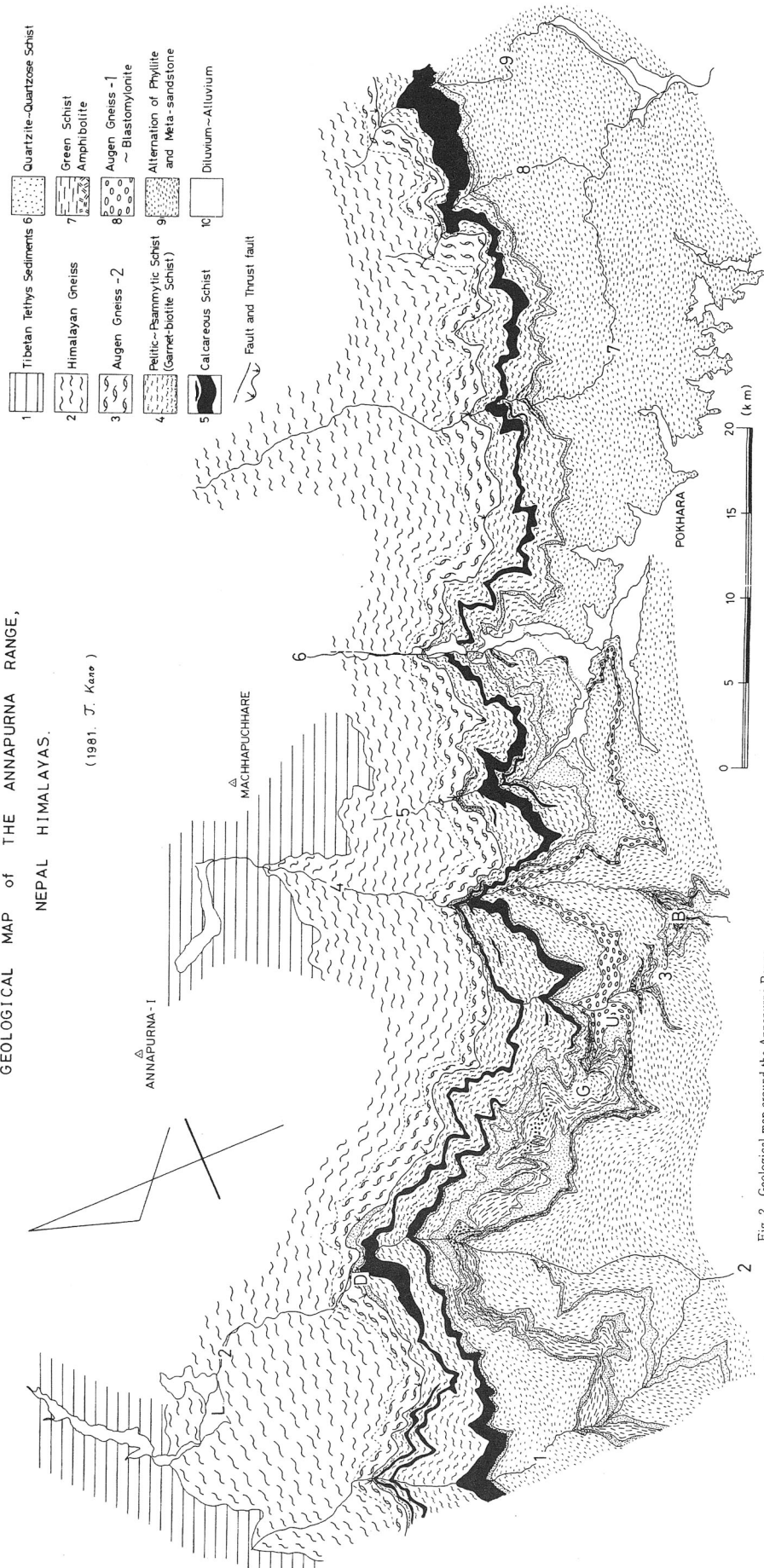


Fig.7-5. Geological map of the Annapurna Range, central Nepal Himalayas.
(from Kano, 1982)

Fig. 2 Geological map around the Annapurna Range.

Location:

- 1: Thulo Khola
- 2: Kali Gandaki
- 3: Bhurungdi Khola
- 4: Modi Khola
- 5: Mardi Khola
- B: Birethanti
- D: Dana
- G: Ghorepani
- L: Lete
- U: Ulleri

- 6: Seti Khola
- 7: Madi Khola
- 8: Rudi Khola
- 9: Midam Khola

Central Nepal Himalayas (1980-1)

80H01-223. 446-473

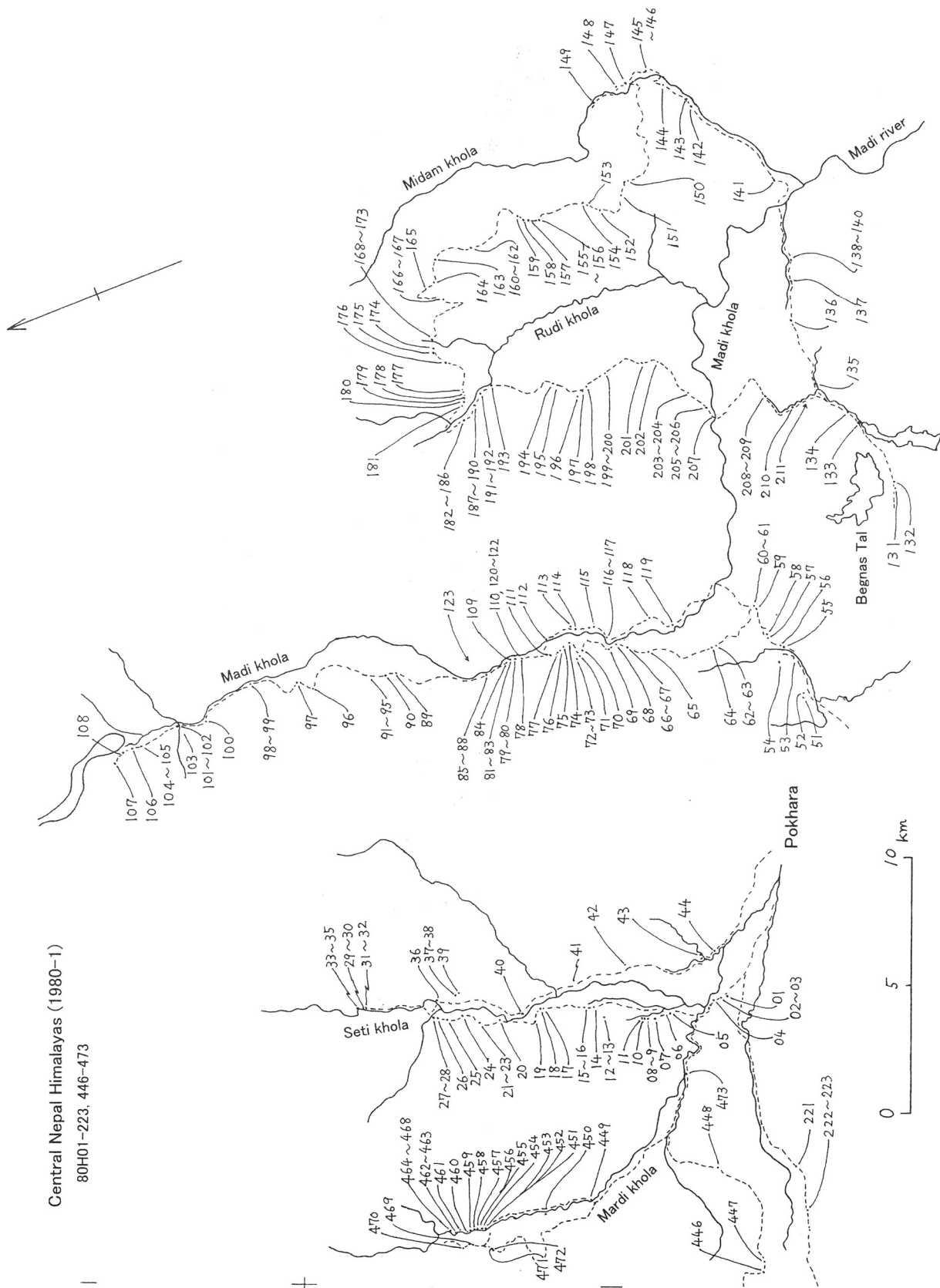


Fig.7-6A. Route map in the Annapurna Range, central Nepal Himalayas at 1980.

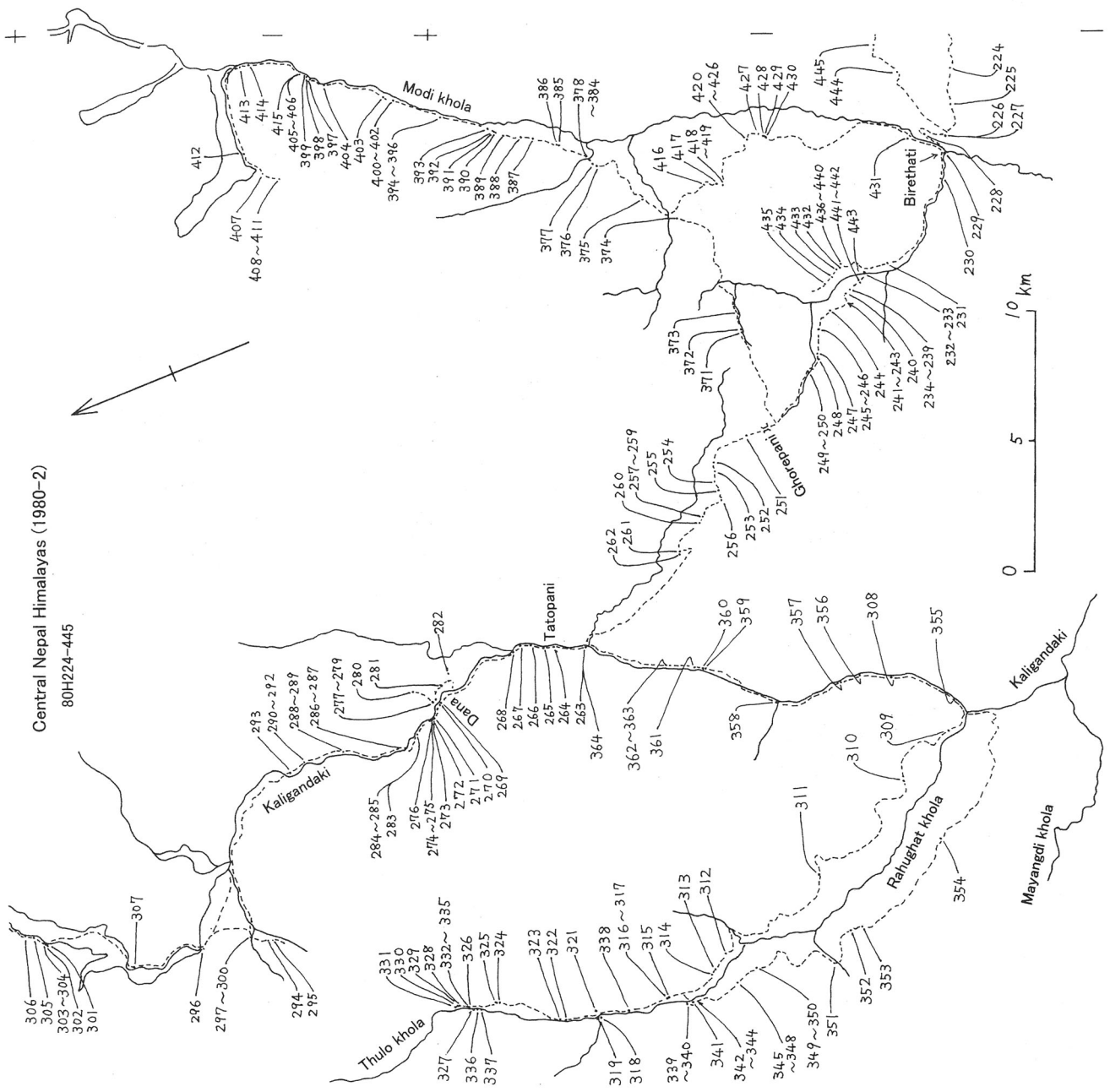


Fig.7-6B. Route map in the Annapurna Range, central Nepal Himalayas at 1980.

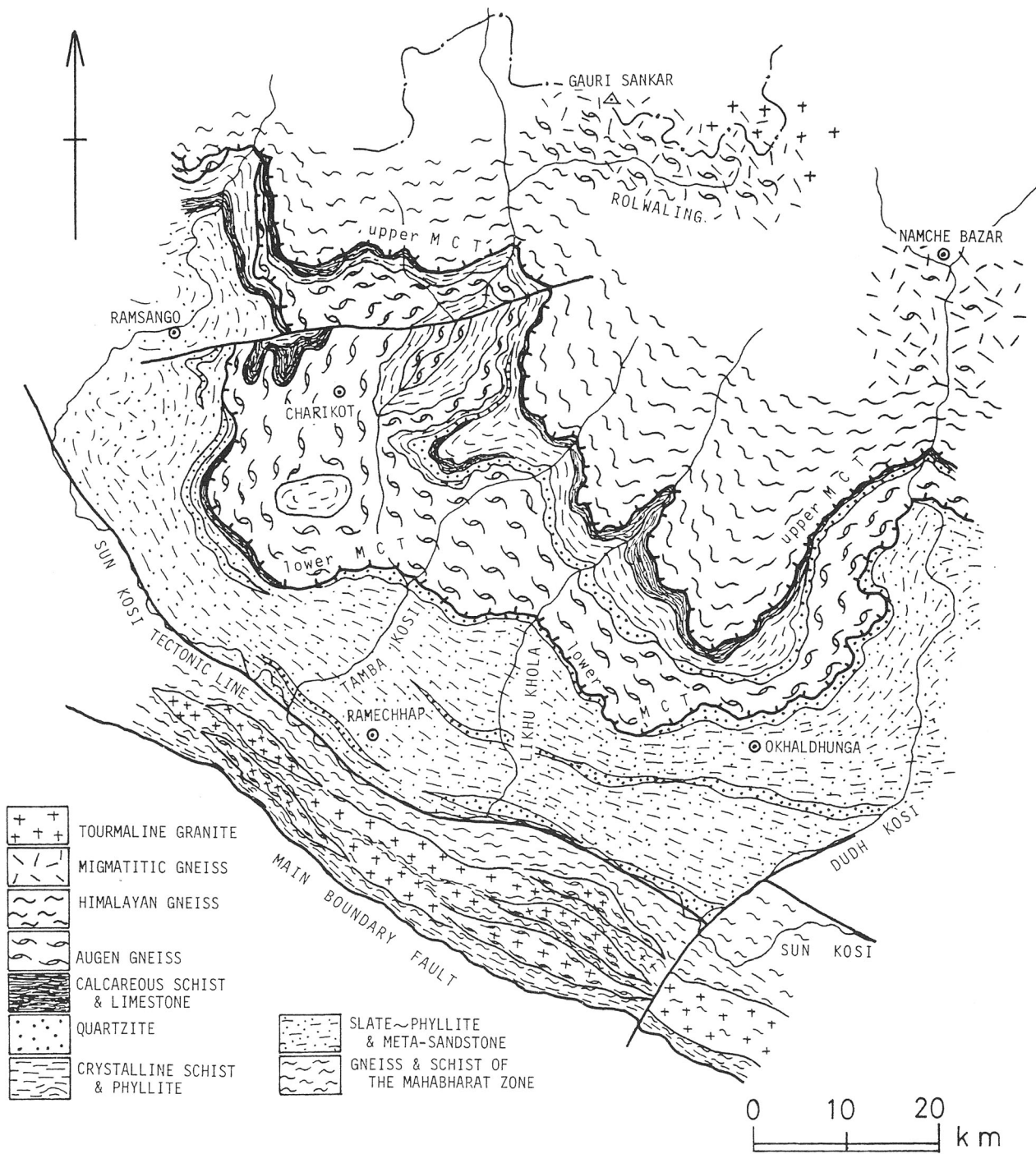


Fig.7-7. Geological map of the Tamba kosi - Dudh kosi area, east Nepal Himalayas.
(based on Hashimoto et al., 1973 ; Kano, 1984)

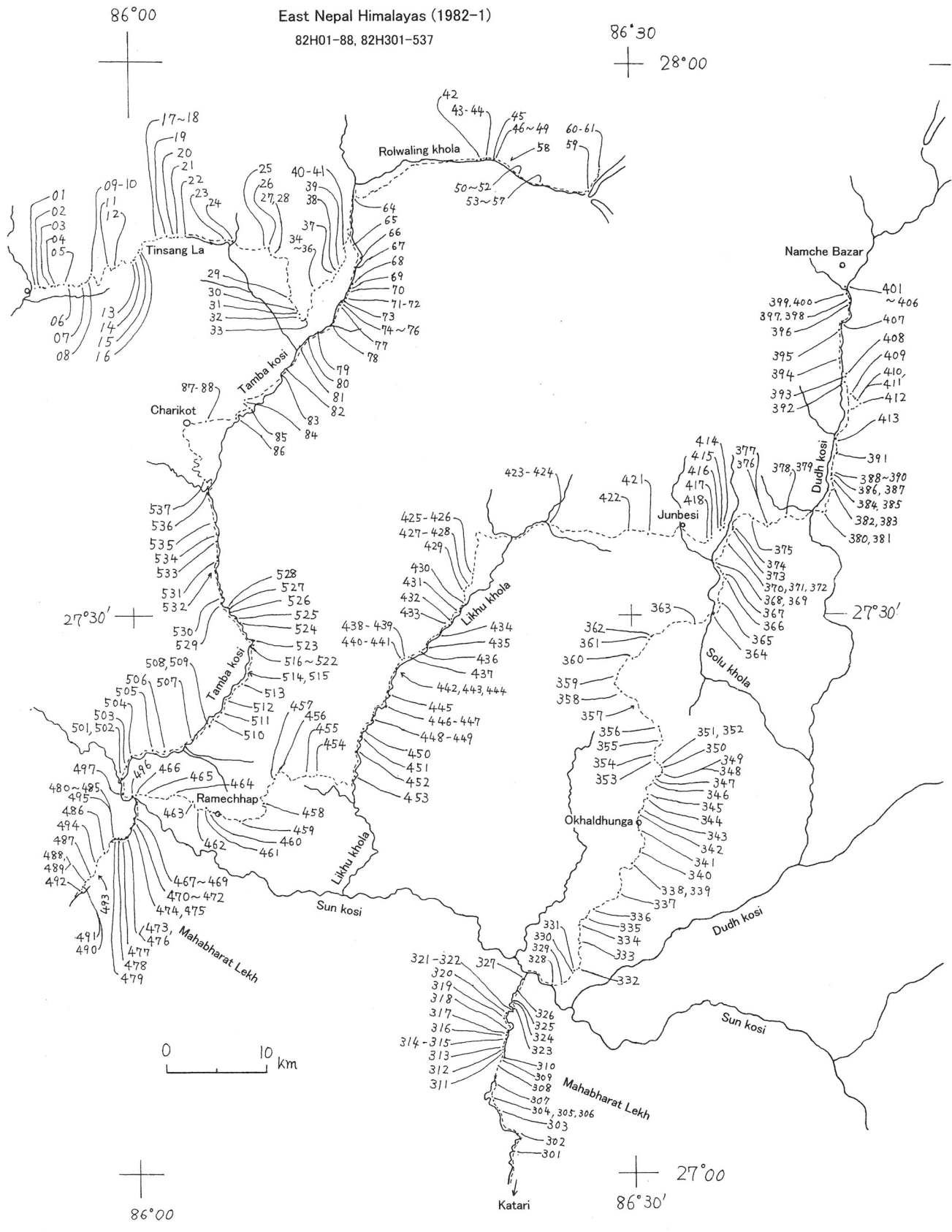


Fig.7-8B. Route map in the east Nepal Himalayas at 1982.

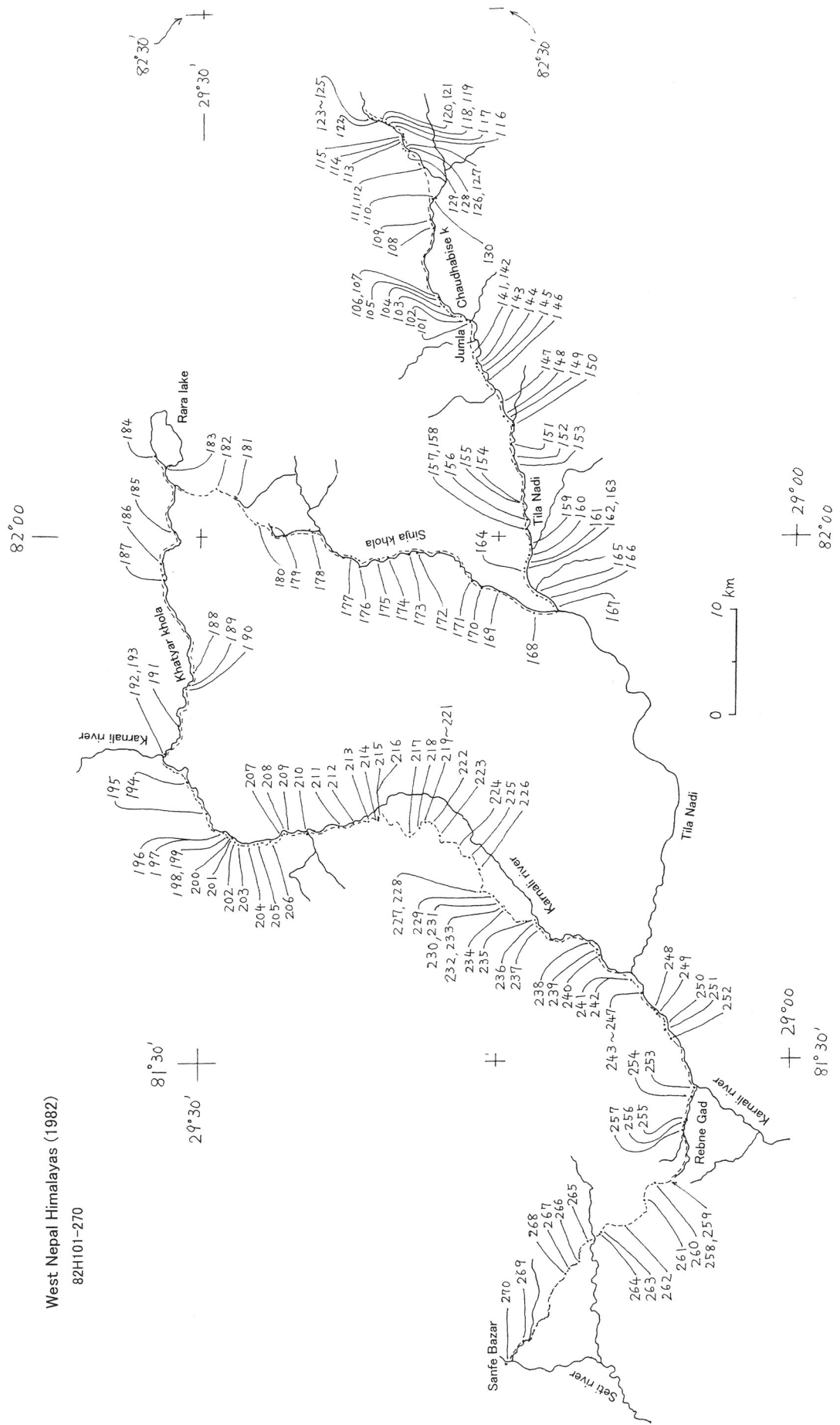


Fig.7-9. Route map in the west Nepal Himalayas at 1982.

**Trisuli river – Langtang valley, Northern Pokhara,
Mahabharat zone in SW Kathmandu (1970 : Kano, T.)**

Reg No	Original No	Rock name	[Locality]	Locality
* 70H01	701006	calc silic gn (well banded f Hbl Cpx gn)	[Kakani hill]	Sheopuri zone
<u>Trisuli river – Langtan valley</u>				
[(Kathmandu) – Betrawati – Ramche]				
* 70H02	701008-2	Bt psam sht		Trisuli river
[Trisuli river east side : Dhunche – Syabru benshi]				
70H03	701010-1	[W130] mica psam sht (ori F 40W 22E)		Trisuli river
70H04	701010-3T	f Bt Hbl sht		Trisuli river
70H05	701010-4	siliceous ls (ori F 26W 47E back)		Trisuli river
70H06	701010-5	Phl bear siliceous ls (ori F 23W 46E)		Trisuli river
70H07	701010-6	mica sht-phyl (ori L 73E 66N)		Trisuli river
[Syabru benshi – Syarpagaon]				
70H08	701011-1	Bt gn		Langtang khola
[Syarpagaon – Langtang]				
70H09	701012-1T	calc silic sht-gn		Langtang khola
70H10	701012-2T	f Sil Bt gn		Langtang khola
[Langtang – Kyangching Gompa]				
70H11	701013-1	f Bt psam gn-sht		Langtang khola
[Langtang – Syarpagaon – Syabru benshi]				
70H12	701014-1	[W131] Sil spotted Bt gn		Langtang khola
70H13	701014-2	f leuco Bt gn including Sil rich part		Langtang khola
* 70H14	701014-4	[W118] Sil porbla Bt gn		Langtang khola
70H15	701014-5	[W132] Grt Hbl porbla Qtz feld r (Grt pseudomorph)		Langtang khola
70H16	701014-6	f Grt bear banded Bt gn		Langtang khola
[Syabru benshi – Gatlang]				
70H17	701015-1	Bt gn (matrix of augen gn)		Chilime khola
[Gatlang – Khurpu Danda pass h=3700m]				
70H18	701016-1T	psm sht		KhurpuD pass
70H19	701016-2	black phyl		KhurpuD pass
70H20	701016-3	Bt sht		h=3500
70H21	701016-4	[W133] mica sht (ori F 87W 52N, two lineation)		KhurpuD pass
70H22	701016-5	psam & calc silic sht		KhurpuD pass
[Gatlang – Syabru benshi]				
70H23	701017-1T	quartzite		Gatlan river bed
70H24	701017-2T	psam sht or meta quartzose ss		Gatlan river bed
70H25	701017-3T	amph sht		Gatlan river bed
70H26	701017-4T	Grt porbla Bt sht		Gatlan river bed
70H27	701017-6T	[W134] augen gn – myl gr gn		Trisuli river bed
70H28	701017-7T	f Bt psam banded gn		Trisuli river bed
* 70H29	701017-10T	[W135] vc gr augen gn		Trisuli river bed
* 70H30	701017-10T	[W136] large augen in augen gn		Trisuli river bed
70H31	701017-11T	Ky Bt gn		Trisuli river bed
70H32	701017-12T	Ky Bt gn		Trisuli river bed
70H33	701017-13T	Bt Hbl gn		Trisuli river bed
70H34	701017-15T	f meta arkose ss-psam sht		Trisuli river bed
70H35	701017-16T	c quartzite		Trisuli river bed
70H36	701017-17T	[W137] f quartzite		Trisuli river bed

* 70H37	701017-18T	large typical augen Kfs bear gr augen gn	Trisuli river bed
* 70H38	701017-19T	large augen-euhedral Kfs bear gr gn	Trisuli river bed
* 70H39	7010T	Bt psam sht	Trisuli river

Pokhara – Ghorepani pass

[Pokhara – Peti]			
70H51	701024-1	leuco Grt Bt gn	Pokhara-Peti
70H52	701024-2	banded Bt Hbl gn (calc silic gn)	Pokhara-Peti
70H53	701024-4	calc silic gn	Pokhara-Peti
[Birethati – Ulleri]			
70H54	701026-1	green quartzite	Birethati-Ulleri
70H55	701026-2T	m amphibolite	Birethati-Ulleri
70H56	701026-3T	c amphibolite-amph sht	Birethati-Ulleri
70H57	701026-4T	green sht	Birethati-Ulleri
70H58	701026-5T	Cld? mica sht	Birethati-Ulleri
70H59	701026-6	Grt bear c amphibolite & schistose amphibolite	Birethati-Ulleri
[Ghorapani – Tirkhedungha]			
70H60	701028-1T	augen gn (L tectonite)	Ghora-Tirkhe
70H61	701028-2T	blast myl gr gn	Ghora-Tirkhe
[Tirkhedungha – Naudanda]			
70H62	701029-1	quartzite-Qtz sht	Tirkh-Naudan
70H63	701029-2	pale greenish Ms psam sht	Tirkh-Naudan
70H64	701029T	carbonate cemented material on surface dep	Tirkh-Naudan
[Naudanda – Hyanja (1T-16T: in building stone deposit) – Pokhara]			
70H65	701030-1T	calc silic sht -gn (banded f Bt Hbl Cpx gn)	Hyanja
70H66	701030-2T	f Hbl Bt gn (1T-16T: in building stone deposit at Hyanja)	Hyanja
70H67	701030-3T	f Bt gn	Hyanja
70H68	701030-6T	[W117] f Grt Bt gn with Ky bear Bt rich band	Hyanja
70H69	701030-7T	c gr gn +augen	Hyanja
70H70	701030-8T	f Grt Bt gn & leuco Grt gn	Hyanja
70H71	701030-9T	c gr gn-augen gn	Hyanja
70H72	701030-10T	[W138] c Tur Ms gr	Hyanja
70H73	701030-11T	grey ls (non meta)	Hyanja
70H74	701030-12T	f Bt gn	Hyanja
70H75	701030-13T	calc silic r	Hyanja
* 70H76	701030-15T	Grt Bt gn (c flaky Ms Bt)	Hyanja
* 70H77	701030-16T	[W139] c gr gn -augen gn	Hyanja
70H78	701030-17	carbonate cemented breccia (surface dep on Pokhara plane)	Hyanja
* 70H79	701031-1T	[W140] f Tur Ms gr (building stone deposits)	Pokhara airport

Sheopuri to Mahabharat zone in southwest Kathmandu

[Sheopuri zone]			
[Tsale (Tadi khola, near Trisuli river junction) –Mahaderkharka– Sumwara]			
70H101	701107-1	f Hbl ? Bt sht-gn	Tsale-Sumwara
70H102	701107-2	banded f Bt gn-sht or calc silic gn	Tsale-Sumwara
70H103	701107-3	f Bt gn-sht	Tsale-Sumwara
70H104	701107-4	Kfs augen	Tsale-Sumwara
[Sumwara – Kalphu khola – Chakmake pass – Mahesh khola – Thumka]			
70H105	701108-1	[W141] euhedral Kfs megacryst in por gr	Sum-Thumka

70H106	701108-2A	[W142] Kfs megacryst-augen in por gn gr	Sum-Thumka
70H107	701108-3	Bt psam gn	Sum-Thumka
70H108	7011T	w Kfs peg	
{Mahabharat zone}			
[Thumka - Agra khola - Bharale]			
70H109	701109-1	quartzose meta ss (ori F 67W 73S)	Agra khola
70H110	701109-2	quartzose meta ss -quartzite	Agra khola
70H111	701109-3	psam sht-meta ss	Agra khola
70H112	701109-4A	[W143] talc sht	Agra khola
70H113	701109-4B	[W144] actinolite	Agra khola
70H114	701109-5	psam sht	Agra khola
70H115	701109-6	psam sht (ori F 30W 54N)	Agra khola
70H116	701109-7	quartzite	Agra khola
70H117	701109-8	calc silic gn-sht	Agra khola
[Bharale - Deokhel - Chaubas]			
70H118	701110-1	skarn (Grs +Cpx)	Agra khola
70H119	701110-2	por Bt gr	Agra khola
70H120	701110-3	meta ss	Deokhel-Chaub
[Chaubas - Sikalkot, Sikalkot - Bagmara -Manahari khola - Jarpu]			
[Jarpu - Tuwasan - Bosini]			
70H121	701113-1	marble	Jarpu-Bosini
70H122	701113-2	marble	Jarpu-Bosini
70H123	701113-3	quartzite-ss	Jarpu-Bosini
70H124	701113-4	marble	Jarpu-Bosini
70H125	701113-5	quartzite	Jarpu-Bosini
70H126	701113-6	mica quartzite-mica Qtz sht	Jarpu-Bosini
70H127	701113-7	quartzite	Jarpu-Bosini
70H128	701113-8	calc sht (-bedded ls)	Jarpu-Bosini
70H129	701113-9	psam sht	Jarpu-Bosini
[Bosini - Kiseri khola - Churling khola - Palanse]			
70H130	701114-2T	quartzite	Kiseri khola
70H131	701114-3T	white quartzite	Churling khola
[Palanse - Manahri Bazar - Churling/Manahari k junction - Mnahari/Gorangdi k junction]			
70H132	701115-1	ss (Siwalik)	Manahari khola
70H133	701115-2	black shale-calc shale (ori F 36W 74N)	Manahari khola
70H134	701115-3	thin bedded shale (ori F 17E 46W)	Manahari khola
70H135	701115-4	green phyl (ori F 55W 78N back)	Manahari khola
70H136	701115-5	amph sht	Manahari khola
70H137	701115-6	amphibolite	Manahari khola
70H138	701115-7	quartzite-quartzose sht (ori F 55W 50N)	Manahari khola
70H139	701115-8	quartzite	Manahari khola
70H140	701115-9	amph sht	Manahari khola
70H141	701115-10	siliceous ls	Manahari khola
70H142	701115-11	muddy ls	Manahari khola
70H143	701115-12	carbonate cemented material	Manahari khola
[Gorangdi khola - Kali khola]			
70H144	701116-1	pure quartzite (ori F 65W 75N)	Gorangdi khola
70H145	701116-2	long amph mica sht (ori F 60W 80N)	Gorangdi khola
70H146	701116-3A	leuco amph sht	Gorangdi khola
70H147	701116-3B	Hbl Bt sht	Gorangdi khola
* 70H148	701116-4	[W120] Grt long Hbl mica sht	Gorangdi khola
70H149	701116-5	f Bt psam sht (ori)	Gorangdi khola

70H150	701116-6	f Bt meta ss	Kali khola
70H151	701116-7	calc silic r	Kali khola
	[Kali khola - Kali/Changdung khola junction - Danda khalka]		
70H152	701117-1	psam Bt sht (ori F 59W 35N)	Kali khola
70H153	701117-2A	psam Bt sht (ori F 85W 45N)	Kali khola
70H154	701117-2B	f Tur Ms gr	Kali khola
70H155	701117-3	large Kfs & vc por gn gr-augen gn	Kali khola
70H156	701117-4	Tur two mica gr	Kali khola
70H157	701117-5	quartzite	Kali-Danda khal
70H158	701117-6	psam sht	Kali-Danda khal
	[Danda khalka - Bhalukhok]		
70H159	701118-1	quartzite-quartzose ss	Danda k-Bhal
70H160	701118-2	calc silic sht	Danda k-Bhal
70H161	701118-3T	greenish quartzite	Danda k-Bhal
70H162	701118-4T	c-m Tur gr	Danda k-Bhal
70H163	701118-5T	Grt Ep skarn	Danda k-Bhal
70H164	701118-6	weathered por gr & f Bt sht xenolith	Danda k-Bhal
70H165	701118-7	Bt gr	Danda k-Bhal
	[Sheopuri zone]		
	[Bhalukhok - Dendagaon - Darial khola - Kathmandu]		
70H166	701119-1	meta ss-psam sht	Bhal-Dendagaon
70H167	701119-2	meta ss-psam sht	Bhal-Dendagaon
70H168	701119-3	Ms sht-psam sht	Bhal-Dendagaon
70H169	701119-4T	f Bt gn (psam-pelitic)	Dariral khola
70H170	701119-5T	banded calc silic gn	Dariral khola
* 70H171	701119-6T	[W146] banded calc silic gn (f Cpx gn)	Dariral khola
70H172	701119-7T	banded calc silic gn	Dariral khola
70H173	701119-8T	[W147] Bt bear calc sht (Cal spotted)	Dariral khola

(Total : 141)

**Central Nepal Himalayas in Northern Pokhara
to Kaligandaki area (CMH80) (1980 : Kano,T.)**

Reg No	Original No	Rock name	[Locality]	Locality
<u>Northern Pokhara : Seti khola</u>				
[Pokhara - Ghachok]				
80H01	80101201	meta ss-psam sht (ori F 56E 23N)		Seti khola
80H02	80101202(1)	phyl-mica sht (ori F 30E 20W)		Seti khola
80H03	80101202(2)	meta ss (ori F 70E 24N)		Seti khola
80H04	80101203	phyl with Qtz-feld lens		Seti khola
80H05	80101205	mica sht-phyl (ori F 40E 20N)		Seti khola
80H06	80101208T	Bt sht-phyl		Seti khola
[Ghachok - Dhiprang]				
80H07	80101301	psam sht-meta ss (ori F 77E 22N)		Seti khola
80H08	80101302(1)	Qtz lens in phyl (ori J 23E 65S)		Seti khola
80H09	80101302(2)	mica sht including Qtz lens		Seti khola
80H10	80101303	mica sht including blast myl layer (ori L 15E 10N back)		Seti khola
80H11	80101304	psam sht or blast myl (ori F 50E 36N)		Seti khola

80H12	80101305(1)	black phyl (Gr sht)	Seti khola
80H13	80101305(2)	black phyl (Gr sht) (ori F 78E 62S)	Seti khola
80H14	80101306	black phyl (Gr sht) (ori F 40E 19N)	Seti khola
80H15	80101307T1	Grt porbla black mica sht	Seti khola
80H16	80101307T2	Grt mica black sht	Seti khola
80H17	80101308T	Hbl porbla mica sht	Seti khola
80H18	80101309	mica sht-phyl (ori F 33W 18E)	Seti khola
80H19	80101310	meta quartzose ss (ori F J 70W 32N)	Seti khola
	[Dhiprang – Kharwa – Shandal]		
80H20	80101401	mica sht-phyl (ori F 76W 20N)	Seti khola
80H21	80101402	marble (ori F 70W 17N)	Seti khola
80H22	80101403	siliceous marble-calc sht (ori F 52W 21N)	Seti khola
80H23	80101404	quartzite (ori F 78W 26N)	Seti khola
80H24	80101405T	Grt mica sht & meta quartzose ss, banded	Seti khola
80H25	80101406	psam & pelitic sht (ori J 30E 58E)	Seti khola
80H26	80101407	vc flaky Bt gn (ori F 80E 43N back)	Seti khola
80H27	80101408	c Grt Bt gn (ori F 42W 30N)	Seti khola
80H28	80101408T	large Grt bear c flaky Bt gn	Seti khola
80H29	80101409	f Bt gn (ori F 37W 23E)	Seti khola
80H30	80101410	f Grt Bt gn (ori F 27W 23E)	Seti khola
+ 80H31	80101411	Ky Grt Bt gn	Seti khola
+ 80H32	80101412	c Bt gn including Ky bear Qtz feld lens (ori J NS 60W)	Seti khola
80H33	80101413T2	w feld lens in Ky Bt gn	Seti khola
80H34	801014T1	Hbl Grt feld r (skarn ?)	Seti khola
80H35	801014T2	banded calc silic gn	Seti khola
	[Shandal – Bharaburi – Bhurjung khola]		
80H36	80101501	Ky bear c flaky Bt gn (ori J 65W 45S)	Seti khola
80H37	80101502	Grt Bt sht (ori J EW 80S)	Seti khola
80H38	80101502	large Grt porbla Bt sht	Seti khola
80H39	80101503	psam Bt gn	Seti khola
80H40	80101504	Qtz vein in mica sht	Seti khola
80H41	801015T1	Ky Grt Bt gn	Seti khola
	[Bhurjung khola – Pokhara]		
80H42	80101601	quartzite-meta quartzose ss (ori F 9E 36E)	Seti khola
80H43	80101602	meta ss-psam sht (ori F 38W 41E)	Seti khola
80H44	80101603	psam sht (ori F 26W 15E)	Seti khola

Northern Pokhara : Madi khola

	[Pokhara – Chetopani]		
80H51	80101901	meta ss (ori F 73W 7N)	Madi khola
80H52	80101902	meta ss (ori J 14E 80E)	Madi khola
80H53	80101903	meta ss-psam sht (ori J 20E 72E)	Madi khola
80H54	80101904	meta ss-psam sht (ori F 21E 21E)	Madi khola
80H55	80101905	meta ss-psam sht (ori F 60E 50S)	Madi khola
80H56	80101906	Qtz feld clasts bear psam sht (ori F 54E 37S)	Madi khola
80H57	80101907	cataclastic gr	Madi khola
80H58	80101908	Bt gr-gr gn	Madi khola
80H59	80101909	mica phyl (ori F 10W 34E)	Madi khola
80H60	80101910	mica phyl (ori F 8W 10E, two lineation)	Madi khola
80H61	80101910T	mica phyl	Madi khola
	[Chetopani – Taplang]		

80H62	80102001	c psam sht (ori F 82E 60N)	Madi khola
80H63	80102002	c meta ss (ori F 80E 65N)	Madi khola
80H64	80102003	psam mica phyl (ori F EW 42N)	Madi khola
80H65	80102004	psam mica phyl (ori F 38W 27E)	Madi khola
80H66	80102006(1)	mica phyl & psam sht (ori F 85W 32N)	Madi khola
80H67	80102006(2)	psam mica sht (ori J NS 90)	Madi khola
80H68	80102007	meta ss-psam sht (ori F 80W 23N)	Madi khola
80H69	80102008	amph sht	Madi khola
+ 80H70	80102009T	large augen gr gn	Madi khola
80H71	80102010	quartzite	Madi khola
80H72	80102011	Bt sht (ori F 85W 26N)	Madi khola
80H73	80102011T	marble	Madi khola
		[Tapleng – Siklis]	
80H74	80102101	calc ss (ori F 30W 35E)	Madi khola
80H75	80102102	mica marble-clac sht (ori F 30W 22E)	Madi khola
80H76	80102103	mica marble-clac sht (ori 40W 25E)	Madi khola
80H77	80102104	mica ls-calc sht (ori F 43W 30E)	Madi khola
80H78	80102105T	Bt sht	Madi khola
80H79	80102106A	banded siliceous Bt gn & Grt Bt gn (ori J 55W 45N)	Madi khola
80H80	80102106B	myl-phylloitic Grt Bt gn	Madi khola
80H81	80102107(1)	cataclastic Grt Bt gn with large augen (ori J 20E 70E)	Madi khola
80H82	80102107(2)	cataclastic Grt Bt gn with large Grt & augen (ori J 75E 80N)	Madi khola
80H83	80102107(3)	banded Bt gn & siliceous gn (ori J 36E 65E)	Madi khola
80H84	80102108	f Grt Bt leuco gn (ori J75E 45N)	Madi khola
80H85	80102109(1)	c Grt Bt gn with leuco lens (ori J 42E 80S)	Madi khola
80H86	80102109(2)	Grt Bt gn (ori J 32E 90)	Madi khola
80H87	80102109(3)	large Grt porbla Bt gn	Madi khola
80H88	80102109(4)	large Grt bear Bt gn (ori J 40E 20E)	Madi khola
80H89	80102110	f Grt Bt gn	Madi khola
80H90	80102111	f Grt Bt gn (ori J 72E 50N)	Madi khola
80H91	801021T1	Cpx Grt skarn	Madi khola
80H92	801021T2	banded calc silic gn (f Cpx Hbl gn)	Madi khola
80H93	801021T3	cataclastic Ky Grt Bt gn	Madi khola
80H94	801021T4	Grt bear Qtz sht	Madi khola
80H95	801021T5	p Qtz sht	Madi khola
		[Siklis – Hogo]	
80H96	80102201	f Grt Bt gn (ori F 50W 15N)	Madi khola
80H97	80102202	f Grt Bt gn	Madi khola
80H98	80102203(1)	flaky Bt gn (Ky or Sil bear ?) (ori F 80E 20N)	Madi khola
80H99	80102203(2)	f Grt Bt gn (ori J 40W 80W)	Madi khola
80H100	80102204	Ky Grt Bt gn (ori J 50W 50N)	Madi khola
80H101	80102205(1)	f Bt gn or gd gn +f leuco Bt gr vein (ori J 60W 50N)	Madi khola
80H102	80102205(2)	m Bt gn or gr gn (ori J 76E 80S)	Madi khola
80H103	801022T1	well banded f Bt Hbl gn (calc silic gn)	Madi khola
		[Hogo – h=3000m]	
80H104	80102301T1	banded siliceous ls	Madi khola
80H105	80102301T2	f Cpx gn	Madi khola
80H106	80102302	Grt bear banded c Bt gn (ori F 40E 48W back)	Madi khola
80H107	80102303T	f Bt gn	Madi khola
		[Madi khola: around Hogo – Sikilis]	
80H108	801024T	gr gn-augen gn	Madi khola
		[Madi khola (east side) : Sikilis – Chetopani]	
80H109	80102501	cataclastic Grt Bt gn (ori J 25W 60E)	Madi khola

+ 80H110	80102502T	Ky Grt Bt gn, Ky bear peg, Ky Grt crystals	Madi khola
80H111	80102503	dolomitic ls	Madi khola
80H112	80102504	Bt sht	Madi khola
80H113	80102505	muddy (dolomitic ?) ls (ori J 75W 47S)	Madi khola
80H114	80102506	black sht (ori F 39W 34E)	Madi khola
80H115	80102508T	calcareous ss	Madi khola
80H116	80102509(1)	quartzite (ori J EW 85S back)	Madi khola
80H117	80102509(2)	quartzite (ori F 76W 24N)	Madi khola
80H118	80102510	meta ss-psam sht (ori 20E 80E)	Madi khola
80H119	80102511	meta ss	Madi khola
80H120	801025T1	quartzite	Madi khola
80H121	801025T2	amphibolite +Grt Bt gn band	Madi khola
80H122	801025T3	Grt megacryst in Bt rich gn	Madi khola
* 80H123	8010T	[W119] large Grt Ky bear peg gn	Siklis

Northern Pokhara : Midam khola to Rudi khola

[Pokhara – Siswa, Begnas Tal – Sagarabus]			
80H131	80102901	phyl-mica sht (ori F EW 20S, two lineation)	Begnas Tal east
80H132	80102902	phyl-mica sht	Begnas Tal east
80H133	80102903	psam sht	Begnas Tal east
80H134	80102904	meta mud-shale	Begnas Tal east
80H135	80102905	c ss	Begnas Tal east
[Sagarabus – Nalwapeti up]			
80H136	80103001	meta shale including mica flake (Chl ?) (ori F 85W 50S)	Begnas Tal east
80H137	80103002	meta shale (ori F EW 18S)	Begnas Tal east
80H138	80103003(1)	meta shale including mica flake (Chl ?) (ori F 43W 8S)	Begnas Tal east
80H139	80103003(2)	meta shale including mica flake (Chl ?) (ori L 20E 7S)	Begnas Tal east
80H140	80103003(3)	greenish meta ss (ori J 45E 80W)	Begnas Tal east
80H141	80103004	muddy ss (ori J 60E 90)	Midam khola
80H142	80103005	meta ss (ori L NS 2S)	Midam khola
80H143	80103006	Bt bear meta ss (ori J 40W 90)	Midam khola
80H144	80103007	meta ss (ori F 70E 23S)	Midam khola
80H145	80103008(1)	greenish meta ss (ori F 23W 13E)	Midam khola
80H146	80103008(2)	greenish meta c ss (ori J 14E 70W)	Midam khola
80H147	80103009	meta shale (ori F 80E 28N, green mica lineation)	Midam khola
80H148	80103010	meta c ss (ori F 70E 21N)	Midam khola
[Nalwapeti – Midam/Rudi khola ridge – Daruwa]			
80H149	80103101	meta ss	Midam khola
[Midam/Rudi khola ridge : Daruwa – h=1960m]			
80H150	80110101	meta ss-psam sht (ori F 75E 32N)	Midam/Rudi ridge
80H151	80110102	meta ss-psam sht (ori L 5W 3N)	Midam/Rudi ridge
80H152	80110103	meta ss-psam sht (ori F 85E 17N)	Midam/Rudi ridge
80H153	80110104	meta ss-psam sht (ori F 76W 20N)	Midam/Rudi ridge
80H154	80110105	phyl (ori EW 25N)	Midam/Rudi ridge
80H155	80110106(1)	meta ss -psam sht (ori F 55W 55N)	Midam/Rudi ridge
80H156	80110106(2)	phyl (ori F 64W 50N)	Midam/Rudi ridge
80H157	80110107	quartzite (ori F 20E 30W)	Midam/Rudi ridge
80H158	80110108	meta quartzose ss (ori F 4W 38E)	Midam/Rudi ridge
80H159	80110109	quartzite (ori F 56W 26N)	Midam/Rudi ridge
80H160	80110110T	marble	Midam/Rudi ridge
80H161	80110111	shistose siliceous mica marble	Midam/Rudi ridge

80H162	80110112T	quartzite [Midam/Rudi khola ridge : h=1960m – Singdi]	Midam/Rudi ridge
80H163	80110201T	c Bt gn	Midam/Rudi ridge
80H164	80110202	Grt porbla Ky Bt gn	Midam/Rudi ridge
* 80H165	80110203T	[9116W] Ky crystals	Midam/Rudi ridge
80H166	80110204(1)	c Bt gn (ori J 30W 50S)	Rudi k east side
80H167	80110204(2)	banded psam Bt gn (ori F 45E 10N)	Rudi k east side
80H168	80110205(1)	Grt Bt gn (ori F 60E 30N)	Rudi k east side
80H169	80110205(2)	Grt Bt gn including large feld lens (ori F 30E 35N)	Rudi k east side
80H170	80110205(3)	feld lens	Rudi k east side
80H171	80110205(4)	Qtz feld lens	Rudi k east side
80H172	80110205(5)	feld lens	Rudi k east side
80H173	80110205T	large feld lens	Rudi k east side
80H174	80110206	Ky Bt gn	Rudi k east side
80H175	80110208	Ky bear feld lens	Rudi k east side
80H176	80110209	f Bt gn [Rudi khola : Singdi – Porgi]	Rudi k east side
80H177	80110301	banded Grt Bt gn (ori F 72E 12N)	Rudi k west side
80H178	80110302	psam f Bt gn (ori F 62E 21N)	Rudi k west side
80H179	80110303	flaky c Bt gn (ori F 45E 40N)	Rudi k west side
80H180	80110304	c Bt gn (ori J 12W 30W)	Rudi k west side
80H181	80110305	c Bt gn (ori F 32E 22W)	Rudi k west side
80H182	80110306(1)	c Ky Bt gn including Qtz feld lens (ori J 60E 55S)	Rudi k west side
80H183	80110306(1)'	c flaky Bt gn (ori J 50E 47S)	Rudi k west side
80H184	80110306(3)	Ky bear Qtz feld lens	Rudi k west side
80H185	80110306(4)	Qtz feld lens	Rudi k west side
80H186	80110306(5)	Ky Bt gn (ori J 75E 48S)	Rudi k west side
80H187	80110307(1)	c Ky Bt gn (ori F 33E 39W)	Rudi k west side
80H188	80110307(2)	c Grt Bt gn (ori F 5E 35W)	Rudi k west side
80H189	80110307(3)	f Bt gn (ori F 54E 38N)	Rudi k west side
80H190	80110307(4)	c leuco Ms gr gn (ori J 50E 70S)	Rudi k west side
80H191	80110308(1)	Grt porbla Bt sht (ori J 30E 80W)	Rudi k west side
80H192	80110308(2)	quartzite (ori F 60W 30N)	Rudi k west side
80H193	80110309	two mica sht [Rudi khola west side ridge : Porgi – Madi khola bridge]	Rudi k west side
80H194	80110401	mica sht with Cal band (ori F 20W 12E)	Rudi west ridge
80H195	80110402	mica quartzite-quartzose ss (ori F 65E 12N)	Rudi west ridge
80H196	80110403	Bt sht (ori F 80W 18N)	Rudi west ridge
80H197	80110404	Grt porbla Bt sht (ori F 80E 20N)	Rudi west ridge
80H198	80110405	quartzite (ori J 35E 80W)	Rudi west ridge
80H199	80110406(1)	Qtz lens in phyl (ori F 70W 20N)	Rudi west ridge
80H200	80110406(2)	meta ss-psam sht (ori J 60W 64S)	Rudi west ridge
80H201	80110407	meta quartzose ss-psam sht (ori F 77E 15N)	Rudi west ridge
80H202	80110408	meta ss (ori F 70E 22N)	Rudi west ridge
80H203	80110409(1)	meta ss-psam sht (ori F 47W 23E)	Rudi west ridge
80H204	80110409(2)	phyl	Rudi west ridge
80H205	80110410(1)	phyllitic ss (ori F 62W 36N)	Rudi west ridge
80H206	80110410(2)	meta ss (ori F 60W 34N)	Rudi west ridge
80H207	801104T	quartzite [Madi khola bridge – Pokhara]	Rudi west ridge
80H208	80110501(1)	meta ss (ori F 66E 32N)	NE Begnas Tal
80H209	80110501(2)	psam sht (ori F 60W 20N)	NE Begnas Tal
80H210	80110502	phyl including green mica clot (ori F 72W 12N)	NE Begnas Tal

80H211 80110502T phyl including green mica clot NE Begnas Tal

Kaligandaki area : Pokhara – Kaligandaki (Tukche) – Rahughat/Thulo khola – Tatopani

		[Naudanda – Birethati]	
80H221	80110901	phyl	Naudana-Bireth
80H222	80110902(1)	phyl-psam sht (ori F 32W 15W)	Naudana-Bireth
80H223	80110902(2)	meta ss (ori F 64W 18S)	Naudana-Bireth
80H224	80110903T	cataclastic augeg gn	Naudana-Bireth
80H225	80110904	green phyl (ori F 50W 18N)	Naudana-Bireth
80H226	80110905	Ms phyl (ori F 40W 10N, two lineation)	Naudana-Bireth
80H227	80110906	quartzite (ori F 30E 20E)	Naudana-Bireth
80H228	80110907	green sht (ori F 10W 9E)	Naudana-Bireth
		[Birethati – Ulleri]	
80H229	80111001	green quartzite-quartzose ss (ori J EW 60S)	Bireth-Urelli
80H230	80111002	Mag bear green sht (ori F 54W 20N)	Bireth-Urelli
80H231	80111003	Cld ? bear green sht (ori F 40W 30N)	Bireth-Urelli
80H232	80111004(1)	amphibolite-schistose amphibolite (ori J 70E 82S)	Bireth-Urelli
80H233	80111004(2)	mass amphibolite (ori J 33W 70W)	Bireth-Urelli
80H234	111005-1(1)	myl augen gn (Ulleri gn) (ori J 35E 70E)	Bireth-Urelli
80H235	111005-1(2)	quartzite	Bireth-Urelli
80H236	80111005-2	myl augen gn (Ulleri gn) (ori J 20E 63E)	Bireth-Urelli
80H237	80111005-3	myl augen gn (Ulleri gn) (ori J 28E 68E)	Bireth-Urelli
80H238	80111005-4	myl augen gn (Ulleri gn) (ori J 30E 90)	Bireth-Urelli
80H239	80111005-5	phyllonitic gr	Bireth-Urelli
80H240	80111006	myl gr gn (matrix of augen gn) (ori J 20W 80E)	Bireth-Urelli
80H241	801110T1	myl augen gn (Ulleri gn)	Bireth-Urelli
80H242	801110T2	myl augen gn (Ulleri gn)	Bireth-Urelli
80H243	801110T3	myl augen gn (Ulleri gn)	Bireth-Urelli
		[Ulleri – Ghorepani – Sikha]	
80H244	80111101	quartzite (ori F 40E 44S)	Ulleri-Ghorepani
80H245	80111102(1)	schistose gr (Bt lineation) (ori L 40E 0)	Ulleri-Ghorepani
80H246	80111102(2)	myl augen gn (Ulleri gn) (ori J 10E 50W)	Ulleri-Ghorepani
80H247	80111103	myl augen gn (Ulleri gn) (ori L 30E 2S back)	Ulleri-Ghorepani
80H248	80111104	myl augen gn (Ulleri gn) (ori F 20W 27E)	Ulleri-Ghorepani
80H249	80111105(1)	quartzose sht or shistose gr (ori J 50W 77S)	Ulleri-Ghorepani
80H250	80111105(3)	quartzite (ori J 70W 85N)	Ulleri-Ghorepani
80H251	80111106	micaceous quartzite (ori F 12W 14W)	Ghorepa-Sikha
80H252	80111107	spotted green sht (ori F 61W 21N)	Ghorepa-Sikha
80H253	80111108	spotted green sht (ori J 50E 70N)	Ghorepa-Sikha
80H254	80111109T	Hbl tonal	Ghorepa-Sikha
80H255	80111110	amphibolite	Ghorepa-Sikha
80H256	80111111	green quartzite (ori J 30W 80E)	Ghorepa-Sikha
80H257	80111112(1)	folded Ms quartzite (ori L 57E 10S)	Ghorepa-Sikha
80H258	80111112(2)	green sht	Ghorepa-Sikha
80H259	80111112(3)	Bt Hbl sht (ori L 72E 5W)	Ghorepa-Sikha
80H260	80111113	quartzite (ori F 45W 15W)	Ghorepa-Sikha
		[Sikha – Kaligandaki – Tatopani – Dana]	
80H261	80111201	mica marble (ori J 45W 70W)	Sikha-Kaligan
80H262	80111202	talc sht (ori F 60W 30N)	Sikha-Kaligan
80H263	80111203	f amphibolite-schistose amphibolite (ori F 40W 50E)	Kaligandaki
80H264	80111204	green sht (ori F 45W 30E)	Kaligandaki

80H265	80111205	mica sht (ori F 45W 40E)	Tatopani-Dana
80H266	80111206	siliceous ls (ori F 70W 48N)	Tatopani-Dana
80H267	80111207	mica sht-phyl (ori F 35W 50E)	Tatopani-Dana
80H268	80111208	Bt sht (ori F 50W 54N)	Tatopani-Dana
		[around Dana (Kaligandaki west side)]	
80H269	80111301	Bt gn (ori J 12E 85W back)	Dana
80H270	80111302	Bt gn (ori J 10E 60E)	Dana
80H271	80111303	c flaky Bt gn (ori F 15W 50E)	Dana
80H272	80111304	quartzite (ori F 70W 60N)	Dana
80H273	80111305	f Ms Bt gn (psam gn) (ori 72W 56N)	Dana
*+ 80H274	80111306-1	[W115] Ky bear Qtz feld lens & Ky Grt Bt gn	Dana
80H275	-1306-2,3,4	Ky bear Qtz feld lens	Dana
80H276	80111307	Ky bear Qtz feld lens in Ky Grt Bt gn (ori F 52W 50N)	Dana
80H277	80111308(1)	Ky Bt gn (ori F 63W 40N)	Dana
80H278	80111308(2)	f Bt gn (ori J 40W 90)	Dana
80H279	80111309	Bt gn	Dana
80H280	80111310	banded Hbl gn	Dana
		[around Dana, Kaligandaki left side]	
80H281	80111401	c Ms sht (schistose gr or mica quartzite ?)	Kaligan east side
80H282	80111402	myl gr gn-small augen gn	Kaligan east side
		[Dana - 5-6km N from Dana]	
80H283	80111701	Bt gn-gr gn (ori J 5E 80W back)	Kaligandaki
80H284	80111702(1)	Bt gn (ori F 40W 32E)	Kaligandaki
80H285	80111702(2)	f Bt gn-gr gn	Kaligandaki
80H286	80111703(1)	f Grt Bt gn (ori J EW 60S)	Kaligandaki
80H287	80111703(2)	Qtz feld lens in Bt gn	Kaligandaki
80H288	80111704(1)	f Grt Hbl Bt gn (ori J 40W 40W)	Kaligandaki
80H289	80111704(2)	banded marble & f Bt gn in (1) (ori F 50W 42N)	Kaligandaki
		[5-6km N from Dana - Lete]	
80H290	80111801	impure banded marble (ori J 15E 70E back)	Kaligandaki
80H291	80111803	banded Cpx Hbl gn (calc silic gn) (ori J 40E 60E back)	Kaligandaki
80H292	80111804	large Hbl and leuco part	Kaligandaki
80H293	80111805	calc silic gn (Cpx Hbl gn) (ori J 60W 32S)	Kaligandaki
		[Lete - Larjung]	
80H294	80111901T	banded f Cpx Bt gn (calc silic gn)	Kaligandaki
80H295	80111902	calc silic gn	Kaligandaki
80H296	80111903	Bt gn-gr gn	Kaligandaki
80H297	801119T1	Grt Ms gr gn-Tur gn gr	Kaligandaki
80H298	801119T2	large Hbl crystal and white feld	Kaligandaki
80H299	801119T3	two mica gr gn with small augen	Kaligandaki
80H300	801119T4	calc silic gn (Grt Cpx r)	Kaligandaki
		[Larjung - Tukche - Ghasa]	
80H301	80112001	black shale (carbonaceou) (ori F 60W 15N)	Kaligandaki
80H302	80112002	black shale (carbonaceou) (ori F 80W 6N)	Kaligandaki
80H303	80112003(1)	micaceous ls or calc sht (Bt ? spotted) (ori F 44W 12N)	Kaligandaki
80H304	80112003(2)	micaceous ls or calc sht (ori F 65W 20N)	Kaligandaki
80H305	80112004	micaceous calc sht in ls (ori F 40E 9E)	Kaligandaki
80H306	80112005	grey marble (ori J 65E 70S)	Kaligandaki
80H307	80112007	marble-micaceous calc sht (ori F 30W 30E)	Kaligandaki
		[Tatopani - Rahughat]	
80H308	80112202	grey phyl (ori F 70W 10S)	Kaligandaki
		[Rahughat khola east side : Rahughat - Darmila]	
80H309	80112301	black phyl (ori L EW 8E back)	Rahughat k east

80H310	80112302	black shale-phyl (ori F 50E 13S)	Rahughat k east
80H311	80112303	green sht (ori F 70W 17N)	Rahughat k east
		[Rahughat khola east side : Darmila – Dhar]	
80H312	80112401	green phyl (ori F 80E 7N)	Rahughat k east
80H313	80112402	meta ss, phyl alternation (ori F 5W 17W)	Rahughat k east
80H314	80112403	black shale-phyl (ori F EW 35N)	Rahughat k east
80H315	80112404	green sht (ori F EW 38N)	Rahughat k east
80H316	80112405(1)	Bt green sht	Rahughat k east
80H317	80112405(2)	psam sht-muddy sht (ori F 80W 30N)	Rahughat k east
80H318	80112406	calc sht +muddy layer (ori F EW 28N)	Rahughat k east
80H319	80112407	calc muddy shale-sht (ori F 80W 35N)	Rahughat k east
non	80112408	black shale	Rahughat k east
		[Thulo khola (upper Rahughat khola) : Dhar – Peti]	
80H321	80112501	black slate-Gr sht	Thulo khola
80H322	80112502	Gr sht	Thulo khola
80H323	80112503	Gr sht (ori EW 30N)	Thulo khola
80H324	80112504T	schistose marble	Thulo khola
80H325	80112505	black sht (ori F 80W 50N)	Thulo khola
80H326	80112506	mica sht	Thulo khola
80H327	80112507	schistose siliceous marble (ori F EW 65N back)	Thulo khola
80H328	80112508	vc Qtz feld pool (ori F 62W 40E)	Thulo khola
80H329	80112509	vc flaky Ms Bt gn (ori F 65W 30N)	Thulo khola
80H330	80112510	Qtz feld lens & vc flaky Ms Bt gn (ori F 40W 55E back)	Thulo khola
80H331	80112511	Qtz feld lens	Thulo khola
80H332	801125T1	Grt Ky Bt gn +leuco lens	Thulo khola
80H333	801125T2	Qtz feld lens in Ky Bt gn	Thulo khola
80H334	801125T3	w feld peg in Bt gn	Thulo khola
80H335	801125T	mica sht including black spot	Thulo khola
		[Thulo khola : Peti – 3km north from Ching khola junction]	
80H336	80112601	Gr Bt sht (ori F 85W 58N)	Thulo khola
80H337	80112602	mica sht	Thulo khola
80H338	80112603	psam sht	Thulo khola
80H339	80112604(1)	spotted green sht	Thulo k west
80H340	80112604(2)	green sht	Thulo k west
80H341	80112605	psam sht	Thulo k west
80H342	801126T1	Qtz feld lens	Thulo k west
80H343	801126T2	Qtz feld lens in Bt gn	Thulo k west
80H344	801126T3	large Grt porbla	Thulo k west
		[Thulo khola west side : Nov 26 site to 7km from Rahughat]	
80H345	80112701(1)	meta ss-psam sht (ori J 30E 80E)	Thulo k west
80H346	80112701(2)	phyl-sht (ori F 63W 38N)	Thulo k west
80H347	80112701(3)	psam sht (ori F 50W 60N)	Thulo k west
80H348	80112701(4)	psam sht (ori J 25E 85W)	Thulo k west
80H349	80112702(1)	phyl (ori F 70W 20N)	Thulo k west
80H350	80112702(2)	quartzite (ori F 85W 18N)	Thulo k west
80H351	80112703	green sht (ori F 3E 23W)	Thulo k west
80H352	80112704	green sht or Bt sht (ori L 5E 2N)	Thulo k west
80H353	80112705	quartzite (ori J 10W 60E)	Thulo k west
		[Thulo khola west side – Kaligandaki : Nov 27 site – Rahughat – Banduk]	
80H354	80112801T	phyl	Thulo k west
80H355	80112802	phyl (ori F 70W 30S)	Kaligandaki
80H356	80112803	shale-black sht (ori F 62E 17S)	Kaligandaki
80H357	80112804	carbonaceous shale-Gr sht (ori F 34E 11E)	Kaligandaki

80H358	80112805	meta ss (ori F 85W 5N) [Kaligandaki : Banduk – Tatopani]	Kaligandaki
80H359	80112901	phyl with mica spot (ori F EW 20N)	Kaligandaki
80H360	80112902	meta ss (ori F 45W 10N)	Kaligandaki
80H361	80112903	meta ss-psam sht (ori F 65W 30N)	Kaligandaki
80H362	80112904(1)	psam sht (ori F 56W 19N)	Kaligandaki
80H363	80112904(2)	phyl-mica sht (ori F 40W 50E)	Kaligandaki
80H364	80112905	f amph sht (ori J 60E 64N)	Kaligandaki

Tatopani – Ghorepani – Modi khola (Annapurna BC) – Mardi khola – Pokhara

[Ghorepani – Kaligandaki/Modi ridge – Kyumnu (Modi khola)]			
80H371	80120201	black sht (ori F 55W 20N)	Kalig/Modi ridge
80H372	80120202	black sht (Grt bear ?) (ori F 86E 20N)	Kalig/Modi ridge
80H373	80120203	banded marble (ori F EW 11N)	Kalig/Modi ridge
80H374	80120204	large Grt porbla mica sht (ori F 50W 20N) [Kyumnu – 4km north from Chumuru]	Modi khola
80H375	80120301	blast myl gr gn (matrix of Ulleri gn) (ori F5E 20E)	Modi khola
80H376	80120302	c flaky Ms Bt gn (ori J 80W 80N back)	Modi khola
80H377	80120303	feld in peg	Modi khola
80H378	80120304(1)	large Qtz feld lens in Grt vc flaky Ms Bt gn (ori F 45W 30N)	Modi khola
80H379	80120304(1)'	large Qtz feld lens in Grt vc flaky Ms Bt gn	Modi khola
80H380	80120304(2)	large Qtz feld lens in Grt vc flaky Ms Bt gn (ori J 70W 55S)	Modi khola
80H381	80120304(3)	Qtz feld lens in Grt vc flaky Ms Bt gn (ori J 80E 80S)	Modi khola
80H382	80120304(4)	Qtz feld lens in Grt vc flaky Ms Bt gn (ori F 45W 55E)	Modi khola
80H383	80120304(5)	Qtz feld lens in Grt vc flaky Ms Bt gn	Modi khola
80H384	80120304(6)	Qtz feld lens in Grt Sil vc flaky Ms Bt gn	Modi khola
80H385	80120305	banded Bt gn	Modi khola
80H386	80120306	Grt Bt gn (ori F 15W 15E)	Modi khola
80H387	80120307	f quartzose Bt gn (ori F 33W 35E)	Modi khola
80H388	80120308	f Grt Bt gn (ori J 40E 55E)	Modi khola
80H389	80120309	f Bt gn (ori F 60W 50N) [4km N from Chumuru – 4km N from Hinku]	Modi khola
80H390	80120401	Grt bear quartzose gn (ori J 62E 90)	Modi khola
80H391	80120402	f quartzose Ms Bt gn (ori J 75W 80N)	Modi khola
80H392	80120403	Grt leuco gr	Modi khola
80H393	80120404	c Bt gn (ori F 36W 30E)	Modi khola
80H394	80120405(1)	f banded Bt bear Hbl gn (calc silic gn) (ori F 70W 40N)	Modi khola
80H395	80120405(2)	f banded Bt bear Hbl gn (calc silic gn) (ori F 73W 40N)	Modi khola
80H396	80120405(3)	f banded calc silic gn (ori F 70W 35N)	Modi khola
80H397	80120407	quartzite – quartzose gn	Modi khola
80H398	80120408	Tur bear feld crystal	Modi khola
80H399	80120409	Phl bear banded marble (ori F 85W 35N)	Modi khola
80H400	801204T1	f psam Bt gn	Modi khola
80H401	801204T2	Grt Bt bear gr gn	Modi khola
80H402	801204T3	Tur bear gr gn & Cpx Hbl gn	Modi khola
80H403	801204T4	w feld	Modi khola
80H404	801204T5	leuco f Hbl Bt bear banded gn	Modi khola
80H405	801204T6	f Bt schistose hornfels +Tur micro gr intrusion	Modi khola
80H406	801204T7	f Bt schistose hornfels +Tur peg intrusion [4km N from Hinku – Annapurna BC]	Modi khola
80H407	80120501	meta calcareous ss-sht (ori F 72W 44N)	Modi khola

80H408	80120502(1)	f quartzose ss (ori J 20E 76W)	Modi khola
80H409	80120502(2)	meta calcareous shale-ss (ori J 40E 60W)	Modi khola
80H410	80120502(3)	meta calcareous shale-ss (ori J 60W 75N back)	Modi khola
80H411	80120502(4)	meta calcareous shale-ss +thin marble bed	Modi khola
80H412	801205T	meta calcareous shale (radiator sht)	Modi khola
	[Annapurna BC – Chumuru]		
80H413	80120601	Bt spotted meta ss (ori F 65W 27N)	Modi khola
80H414	80120602	Bt (Phl) bear banded marble (ori J 35E 90)	Modi khola
80H415	801206T	well banded calc silic gn	Modi khola
	[Chumuru – Ghandrung]		
80H416	80120701	Grt ? bear Bt sht (oriJ 40W 90)	Modi khola
80H417	80120702	micaceous quartzite (ori F 5E 34E)	Modi khola
80H418	80120703T1	Cal augen bear calc sht including vf Py Ms Grt	Modi khola
80H419	80120703T2	banded ls	Modi khola
	[Ghandrung – Birethati]		
80H420	80120801(1)	blast myl augen gn (Ulleri gn) (ori L 30E 0)	Modi khola
80H421	80120801(2)	blast myl augen gn (Ulleri gn) (ori L 20E 5N back)	Modi khola
80H422	80120801(3)	blast myl augen gn (Ulleri gn) (ori J 5W 90)	Modi khola
80H423	80120801(4)	blast myl augen gn (Ulleri gn) (ori J 85W 76N)	Modi khola
80H424	80120801(5)	blast myl gr gn (matrix of Ulleri gn) (ori J 4W 90)	Modi khola
80H425	80120801(6)	blast myl gr gn (matrix of Ulleri gn)	Modi khola
80H426	80120801(7)	blast myl gr gn (matrix of Ulleri gn)	Modi khola
80H427	80120802	Bt sht (ori J 12W 60E)	Modi khola
80H428	80120803	psam sht (ori J 10W 75E)	Modi khola
80H429	80120804	mica quartzite (ori L 40E 5S)	Modi khola
80H430	80120805	psam sht-quartzose ss (ori J NS 90)	Modi khola
80H431	80120806	quartzite (ori EW 38N)	Modi khola
	[Birethati – Bhurungdi khola]		
80H432	80120901	blast myl gr gn (ori F 80W 10S)	Bhurungdi k
80H433	80120902	blast myl gr gn (ori L 35E 3N)	Bhurungdi k
80H434	80120903T	blast myl augen gn	Bhurungdi k
80H435	80120904T	blast myl gr gn-sheared Ms peg	Bhurungdi k
80H436	80120905-1	blast myl augen gn (ori F 34E 10W)	Bhurungdi k
80H437	80120905-2	blast myl gr gn (ori F 25E 10W)	Bhurungdi k
80H438	80120905-3	blast myl augen gn	Bhurungdi k
80H439	80120905-4	blast myl augen gn	Bhurungdi k
80H440	80120905T	blast myl augen gn	Bhurungdi k
80H441	80120906-1	psam-quartzose sht (ori F 68W 22N)	Bhurungdi k
80H442	80120906-2	Bt sht (ori F 40W 20E back)	Bhurungdi k
80H443	80120907T	Qtz lens in sht	Bhurungdi k
	[Bhurungdi/Modi khola – Birethati – Deorali]		
80H444	80121001T	blast myl augen gn	Dhampus ridge
80H445	80121002	blast myl gr gn (ori F 72W 16S)	Dhampus ridge
80H446	80121003	blast myl gr gn	Dhampus ridge
80H447	80121004T	blast myl gr gn	Dhampus ridge
	[Deorali – Dhampus – Mardi khola – 1km N from Siding]		
80H448	80121101	blast myl gr gn (ori F 60W 18S)	Dhampus ridge
80H449	80121102	quartzite (ori F 75E 3N)	Mardi khola
80H450	80121103	banded calc sht (radiator str) (ori F 80E 15N back)	Mardi khola
	[Mardi khola : 1km N from Siding – Peti]		
80H451	80121201-1	Grt porbla Bt sht (ori F 70W 30N)	Mardi khola
80H452	80121202	Bt gn (ori J 85W 70S)	Mardi khola
80H453	80121203	psam gn & quartzose psam gn (ori J 15E 60E)	Mardi khola

80H454	80121204-1	c flaky Grt Bt gn (ori J 85W 57S)	Mardi khola
80H455	80121204-2	vc flaky Ms Bt gn with feld lens, Grt porbla (ori F 60W 15N)	Mardi khola
80H456	80121205	c Grt Bt gn with feld lens (ori J 65W 90)	Mardi khola
80H457	80121206	feld lens in 1205	Mardi khola
80H458	80121207-1	feld lens in c Bt gn (ori J 70E 50S)	Mardi khola
80H459	80121207-3	feld lens in c Bt gn	Mardi khola
80H460	80121208	Bt gn (ori F 50W 22N)	Mardi khola
80H461	80121209	Gr sht (ori F EW 5N)	Mardi khola
80H462	80121210-1	f Bt quartzose gn (ori F 80W 32N)	Mardi khola
80H463	80121210-2	f Bt quartzose gn (ori F 70W 32N)	Mardi khola
80H464	80121211T1	Qtz feld lens in c Bt gn	Mardi khola
80H465	1211T2-T7	Qtz feld lens in c Bt gn	Mardi khola
80H466	80121212T1	Qtz feld lens	Mardi khola
80H467	80121212T2	Qtz feld lens	Mardi khola
80H468	80121212T3	Qtz feld lens, Tur bear	Mardi khola
		[Mardi khola : 1km N from Siding - Gibli -west side- Korumu (Mardi river bed)]	
80H469	80121301	f Bt gn (ori F 72W 19N)	Mardi k west
80H470	80121302T	f Grt Bt gn	Mardi k west
80H471	80121303	large Grt porbla	Mardi k west
80H472	80121304	c Bt gn (ori F 15W 10E)	Mardi k west
		[Mardi khola: Korumu - Pokhara]	
80H473	80121401	psam sht (ori J 50W 85W back)	Mardi khola

(Total : 444)

**Rolwaling, Jumla-Karnali river area, Khumbu-Tamba kosi area,
Sheopuri zone (CMH82) (1982 : Kano, T.)**

Reg No	Original No	Rock name	[Locality]	Locality
<u>Rolwaling valley : Kathmandu - Sun kosi - Bhote kosi - Rolwaling - Charikot</u>				
[Kathmandu - Bahrabise - Karthali]				
82H01	82100101	Grt porbla Bt sht		Sun kosi
82H02	82100102T	f Grt Bt Ms sht with grey spot		Sun kosi
82H03	82100103	Grt Bt sht (ori L 2E 10S)		Sun kosi
82H04	82100104	amph sht (ori L 20E 20N)		Sun kosi
82H05	82100105T	rhodochrosite bear Qtz lens in Bt gn		Sun kosi
82H06	82100106T	myl gr gn & augen feld		Sun kosi
[Karthali - Tinsang La - h=3100m]				
82H07	82100201	weathered mica sht		before TinsangL
82H08	82100202T	c-m gr gn		before TinsangL
82H09	82100203T1	micaceous schistose ls		before TinsangL
82H10	82100203T2	large feld in myl augen gn		before TinsangL
82H11	82100204	myl augen gn		before TinsangL
82H12	82100205T	black Gr sht		before TinsangL
82H13	82100206T	Tlc sht		before TinsangL
82H14	82100207T	black Gr sht		before TinsangL
82H15	82100208	quartzite-quartzose ss		before TinsangL
82H16	82100209	Bt sht		before TinsangL
[Tinsang La - Bulukpa]				
82H17	82100301-1	black Gr sht (ori F 50W 25N)		after TinsangLa

82H18	82100301-2	siliceous ls +mica layer	after TinsangLa
82H19	82100302	Tlc	after TinsangLa
82H20	82100303T	Grt Bt black sht	after TinsangLa
82H21	82100304	f Ms quartzite	after TinsangLa
82H22	82100305	Tlc sht	after TinsangLa
82H23	82100306	schistose grey ls +Bt sht	after TinsangLa
82H24	82100307	Bt sht +calc layer	after TinsangLa
		[Bulukpa - Gulkute]	
82H25	82100401	Bt sht or myl gr gn	Sangawa khola
82H26	82100402	Phl bear quartzite	Sangawa khola
82H27	82100403T1	black sht (Gr rich)	Sangawa khola
82H28	82100403T2	Grt porbla Bt sht	Sangawa khola
82H29	82100404	blast myl gr gn	Sangawa khola
82H30	82100405	blast myl gr gn	Sangawa khola
82H31	82100406	Bt sht	Sangawa khola
82H32	82100407T	augen feld	Sangawa khola
82H33	82100408	Grt Bt sht	Bhote kosi
82H34	82100409	blast myl gr gn (ori F 43W 29N)	Bhote kosi
82H35	82100409T1	blast myl augen gn & augen feld	Bhote kosi
82H36	82100409T2	blast myl augen gn	Bhote kosi
		[Gulkute - Simigaon]	
82H37	82100501	Bt sht	Bhote kosi
82H38	82100502	Gr sht (ori F 56W 50N)	Bhote kosi
82H39	82100503T	Bt gn	Bhote kosi
82H40	82100504(1)	Grt leuco Bt gn	Bhote kosi
82H41	82100504(2)	Kfs in 504(1)	Bhote kosi
		[Nyimare (before Beding) - Na]	
82H42	82100701T	augen feld	Rolwaling
82H43	82100702T	Sil porbla (altered to Ms) in f Bt gn	Rolwaling
82H44	82100703T	Bt gn-gr gn	Rolwaling
82H45	82100704T	por gn gr or gr augen gn	Rolwaling
82H46	82100705T1	Tur bear peg	Rolwaling
82H47	82100705T2	Tur bear peg	Rolwaling
82H48	82100705T3	f two mica gr	Rolwaling
82H49	82100705T4	f Grt two mica gr	Rolwaling
82H50	82100706TA	Kfs augen (grain 2,3,4,5,6,7,8,9,10,11,12)	Rolwaling
82H51	82100706TB	large Kfs augen in gr augen gn (grain 13)	Rolwaling
82H52	82100706TC	large Kfs augen (grain 14)	Rolwaling
82H53	82100707	Bt gr gn (matrix of gr augen gn)	Rolwaling
82H54	82100707T1	large augen	Rolwaling
82H55	82100707T2	large augen	Rolwaling
82H56	82100707T3	Tur bear peg	Rolwaling
82H57	82100707T4	Kfs augen (grain 2,3,4)	Rolwaling
* 82H58	821007T	[W116] large Kfs gr augen gn	Rolwaling
		[Na - Ripimo Shar glacier h=5080m - Beding]	
82H59	82100801T	Kfs in gr	Rolwaling
82H60	82100802(1)	f Bt gn	Rolwaling
82H61	82100802(2)	leuco micro gr & gr gn	Rolwaling
non	821008T	augen feld in augen gn	Rolwaling
		[Beding - Simigaon]	
non	821009T	augen feld in augen gn	Rolwaling
		[Simigaon - Suri Dhoban]	
82H64	82101001	f-m Bt gn (ori F 50W 45N)	Bhote kosi

82H65	82101002	Grt Bt gn	Bhote kosi
82H66	82101003T	augen gn-vc gr gn	Bhote kosi
82H67	82101004T	Grt Ky Bt gn	Bhote kosi
82H68	82101005	Bt sht	Bhote kosi
82H69	82101006	Gr sht	Bhote kosi
82H70	82101007	Bt psam sht (ori F 39W 35E)	Bhote kosi
82H71	82101008	myl augen gn (Ulleri gn) (ori J 60W 65N)	Bhote kosi
82H72	82101008T	augen feld (grain 1,4,5)	Bhote kosi
* 82H73	82101009T	blast myl augen gn & augen feld (grain 1,4,6,7,8)	Bhote kosi
82H74	82101010(1)	myl gr gn (matrix of augen gn) (ori F 46W 45E back)	Bhote kosi
82H75	82101010(2)	f myl gr gn (matrix of augen gn) (ori F 57W 42N)	Bhote kosi
82H76	82101010(3)	sheared Tur Ms gr	Bhote kosi
82H77	82101011	psam sht	Bhote kosi
82H78	82101012	myl augen gn, augen feld (grain 2,3,6,7,8) [Suri Dhoban – Charikot]	Bhote kosi
82H79	82101101	Kfs augen	Bhote kosi
82H80	82101102	Bt sht (greenish)	Bhote kosi
82H81	82101103	myl gr gn (ori F 80W 10S)	Bhote kosi
82H82	82101104	Bt psam sht (ori F 80W 23S)	Tamba kosi
82H83	82101105	phyl (ori F 60E 40S)	Tamba kosi
82H84	82101106	Bt sht-phyl	Tamba kosi
82H85	82101107	phyl	Tamba kosi
82H86	82101108	mica sht -phyl	Tamba kosi
82H87	82101109T	feld in myl augen gn	Tamba kosi
* 82H88	82101109T	myl augen gn	Tamba kosi

Jumla northeast toward Sisne Himal

[Jumla – Chaudhabise khola (toward E to NE from Jumla) – Chaurgaon]			
82H101	82101801	green quartzose sht	Chaudhabise k
82H102	82101802	black Gr sht	Chaudhabise k
82H103	82101803	green sht +green-black sht band	Chaudhabise k
82H104	82101804	amph sht	Chaudhabise k
82H105	82101805	f Bt gn	Chaudhabise k
82H106	82101806	flaky Grt Bt gn	Chaudhabise k
82H107	82101807	feld lens =augen	Chaudhabise k
82H108	82101808	black Gr sht	Chaudhabise k
82H109	82101809	black Gr sht	Chaudhabise k
[Chaurgaon – Hari khola – Maharigaon]			
82H110	82101901	green mica sht	Chaudhabise k
82H111	82101902	Grt Ms Qtz sht (-schistose quartzite)	Hari khola
82H112	82101903	mica Qtz sht (weathered)	Hari khola
82H113	82101904	c-f Hbl (Cpx ?) leuco gr gn (Inishi like r)	Hari khola
82H114	82101905T	myl augen gn	Hari khola
82H115	82101906	small augen bear myl gr gn	Hari khola
[Maharigaon – h=3680m – Chaurgaon]			
82H116	82102001	augen bear gr gn	Hari khola
82H117	82102002	f gr gn	Hari khola
82H118	82102003T1	cataclastic c gr gn	Hari khola
82H119	82102003T2	Tur bear Ms gr-peg	Hari khola
82H120	82102004T1	f-m two mica gr	Hari khola
82H121	82102004T3	grey gr-peg	Hari khola

82H122	82102005T	Kfs in Tur gr-peg (grain 1,2,3,4,5,6,7,8)	Hari khola
82H123	82102006T1	f two mica gr	Hari khola
82H124	82102006T2	two mica gr-peg	Hari khola
82H125	82102006T3	Kfs in peg (grain 1,2,3,4,5,6)	Hari khola
82H126	82102007	weathered leuco Grt Bt gn	Hari khola
82H127	82102008T	Grt mica quartzose gn-sht	Hari khola
82H128	82102009	f Grt Bt gn	Hari khola
82H129	82102010	Bt gn	Hari khola
82H130	82102011	Bt sht (-black Gr sht)	Chaudhabise k

Jumula – Rara lake – Karnali river – Sanfe Bazar

[Jumla – Tila Nadi (Tila river) – Tatopani]

82H141	82102401A	Ms Qtz sht-schistose quartzite (white)	Tila Nadi
82H142	82102401B	Ms Qtz sht-schistose quartzite (green)	Tila Nadi
82H143	82102402	two mica gr gn (ori F 24W 34W)	Tila Nadi
82H144	82102403	Grt porbla mica sht	Tila Nadi
82H145	82102404	f Grt bear Bt sht	Tila Nadi
82H146	82102405T	large Grt in Bt gn	Tila Nadi
82H147	82102406	feld in Bt gn	Tila Nadi
82H148	82102407	banded Bt gn	Tila Nadi
82H149	82102408	Tur bear Ms gr gn (with augen)	Tila Nadi
82H150	82102409T	f psam gn	Tila Nadi
82H151	82102410	Tur bear Ms gr gn & augen feld (grain 1,2,3) (ori F 75W 53S)	Tila Nadi
82H152	82102411	augen feld (grain 1,2,3,4,5)	Tila Nadi
82H153	82102412	augen feld (grain 1,2,3,4,5)	Tila Nadi

[Tatopani – before Kuru]

82H154	82102501	f Cpx Bt gr gn	Tila Nadi
82H155	82102502	grey feld	Tila Nadi
82H156	82102503	f Cpx ? Bt gn & feld grain	Tila Nadi
82H157	82102504A	f Bt gn	Tila Nadi
82H158	82102504B	augen feld (grain 1,2,3,4,5)	Tila Nadi
82H159	82102505	f Bt gn (ori F 64W 31S)	Tila Nadi
82H160	82102506	Tur bear Ms gn gr	Tila Nadi
82H161	82102507	augen feld in Bt gr gn (grain 1,2,3,4,5,6,7,8,9)	Tila Nadi
82H162	82102508	augen feld in augen gn (grain 1,2,5,6)	Tila Nadi
82H163	82102508p	Kfs in peg	Tila Nadi
82H164	82102509	f two mica gr	Tila Nadi
82H165	82102510	two mica gr gn	Tila Nadi
82H166	82102511	feld in gr gn (grain 1,2,3)	Tila Nadi
82H167	82102512	two mica gr gn	Tila Nadi
82H168	82102513	feld in gr gn	Sinja khola

[before Kuru – Sinja khola – Ranukana]

82H169	82102601	c two mica gr gn	Sinja khola
82H170	82102602	augen in gr gn	Sinja khola
82H171	82102603	c flaky Ms Bt gn	Sinja khola
82H172	82102605	micaceous schistose marble-calc sht (ori F EW 60S)	Sinja khola
82H173	82102606	f Bt gn	Sinja khola
82H174	82102607	micaceous schistose marble-calc sht	Sinja khola
82H175	82102608	Grt mica sht	Sinja khola

[Ranukana – Sinja khola – upper most Chatta khola]

82H176	82102701	folded Bt sht	Sinja khola
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82H177	82102702T	meta schistose porphyrite	Sinja khola
82H178	82102703	mica sht	Sinja khola
82H179	82102704	quartzite-Qtz sht	Sinja khola
82H180	82102705	schistose ls	Sinja khola
[Chatta khola – Chuchemara Danda (Churchi Lekh) – Rara Daha (lake)]			
82H181	82102801	black shale-sht	Churchi Lekh
82H182	82102802	Gr sht	Churchi Lekh
82H183	82102803	mica Qtz sht-phyl	Rara lake
[Rara lake – Khatyar khola – Kharak]			
82H184	82102901	psam sht-phyl	Rara lake
82H185	82102902	Qtz sht-quartzite	Khatyar khola
82H186	82102903	Ms phyllitic quartzite-Qtz sht	Khatyar khola
82H187	82102904	calc quartzite	Khatyar khola
[Kharak – Khatyar khola – Sukathik (Karnali r junction)]			
82H188	82103001	grey quartzite	Khatyar khola
82H189	82103002	slate	Khatyar khola
82H190	82103003	black slate-coaly shale	Khatyar khola
82H191	82103004	black phyl-slate	Khatyar khola
82H192	82103005A	slate-phyl (ori L EW 70E)	Khatyar khola
82H193	82103005B	black slate	Khatyar khola
[Sukathik – Karnali river – Kunda khola junction]			
82H194	82103101	grey calc quartzite	Karnali river
82H195	82103102	black shale	Karnali river
82H196	82103103	amph sht	Karnali river
82H197	82103104T	Bt gn-myl gr gn (L tectonite)	Karnali river
82H198	82103105A	Grt Bt sht	Karnali river
82H199	82103105B	Ms Qtz sht	Karnali river
82H200	82103107	myl augen gn & augen feld (grain 1,2,4,6,7)	Karnali river
[Kunda khola junction – Karnali river – Bhuka Gad junction]			
82H201	82110101	myl gr gn (ori F 80E 43S)	Karnali river
82H202	82110102	augen feld in augen gn (grain 1,2,3,4,7)	Karnali river
82H203	82110103T	f Bt gn, Grt Bt gn	Karnali river
82H204	82110104T	Grt Bt gn	Karnali river
82H205	82110106	Bt sht-gn	Karnali river
82H206	82110107T	Sil Bt gn	Karnali river
82H207	82110108T	Ms gr-gr gn	Karnali river
82H208	82110109	myl gr gn-augen gn	Karnali river
82H209	82110110	myl gr gn-augen gn, augen feld	Karnali river
82H210	82110111	micro folded Bt sht, psam sht banded	Karnali river
82H211	82110112	Grt bear Bt augen gn, myl gr gn, feld (grain 1-12, 14-18)	Karnali river
82H212	82110113	flaky Bt gn	Karnali river
[Bhuka Gad junction – Karnali river – Bolunanikot]			
82H213	82110201	Grt Bt gn-sht	Karnali river
82H214	82110202	two mica gr gn (ori L 47E 10E)	Karnali river
82H215	82110203	myl augen gn & augen feld (grain 1,2,3,4,5)	Karnali river
82H216	82110204	flaky Bt sht-gn	Karnali river
82H217	82110205	flaky Bt sht-gn	Karnali river
82H218	82110206	banded Bt gn	Karnali river
82H219	82110207	two mica gr gn	Karnali river
82H220	82110207T1	augen feld in gr gn (augen gn) (grain 1,2,3,6,7)	Karnali river
82H221	82110207T2	augen feld (grain 1,2,3,4,5,6)	Karnali river
82H222	82110208T	Bt gn	Karnali river
82H223	82110209	Grt Bt gn (ori F 33W 57E)	Karnali river

[Bolunanikot – Karnali river – Sani Gad junction]			
82H224	82110301	banded Grt Bt gn	Karnali river
82H225	82110302	f micaceous schistose marble–calc sht (ori F 50W 20S)	Karnali river
82H226	82110303	f micaceous schistose marble–calc sht	Karnali river
82H227	82110304T1	Grt Ms gr gn	Karnali river
82H228	82110304T2	augen feld in Bt gn	Karnali river
82H229	82110305	f Grt Bt gn	Karnali river
82H230	82110306	augen feld in gr gn	Karnali river
82H231	82110306T	augen feld (grain 1,4,5,6,8,10,11)	Karnali river
82H232	82110307T1	gr augen gn	Karnali river
82H233	82110307T2	augen feld (grain 1,2,3,4,5,6)	Karnali river
82H234	82110308T	augen feld in gr augen gn (grain 1,2,3,5)	Karnali river
82H235	82110309	schistose gr gn (ori L 65E 0 back)	Karnali river
[Sani Gad junction – Karnali river – Jatra Gad junction]			
82H236	82110401T	gr augen gn	Karnali river
82H237	82110402	augen feld in gr augen gn (grain 3,4,5,6,7,8)	Karnali river
82H238	82110403	gr augen gn (ori F 10E 25E)	Karnali river
82H239	82110404	banded calc silic gn (f Bt Hbl Grt Cpx band)	Karnali river
82H240	82110405	Grt f Bt gn	Karnali river
82H241	82110406	f Bt gn (ori F 35E 49E)	Karnali river
82H242	82110407	Grt two mica gr	Karnali river
[Jatra Gad junction – Karnali river – Rebne Gad]			
82H243	82110501	quartzite & Bt gn banded	Karnali river
82H244	82110502	Grt Bt sht–gn	Karnali river
non	82110503A	Bt sht	Karnali river
82H246	82110503B	augen gn (myl gr gn) (ori F 10E 50E)	Karnali river
82H247	82110503T	augen feld (grain 1,3,4,5,7)	Karnali river
82H248	82110504	Grt Bt sht	Karnali river
82H249	82110505	Bt psam sht	Karnali river
82H250	82110506	Bt sht	Karnali river
82H251	82110507	Grt Bt sht, micro folded	Karnali river
82H252	82110508	Bt sht (ori L 23W 13N)	Karnali river
82H253	82110509	myl gr gn & augen feld (grain 2,3,5)	Karnali river
82H254	82110510	myl gr gn	Rebne Gad
[Rebne Gad – before Kalagaon]			
82H255	82110601	amph sht	Rebne Gad
82H256	82110602	augen in gr augen gn	Rebne Gad
82H257	82110603	myl leuco Ms gr gn	Rebne Gad
82H258	82110604A	Gr sht	Rebne W ridge
82H259	82110604B	Ms sht	Rebne W ridge
82H260	82110605	Grt Bt sht	Rebne W ridge
82H261	82110606	micaceous schistose marble–calc sht	Rebne W ridge
[Kalagaon – Kailash khola – Chhidiya khola – Sanfe Bazar]			
82H262	82110701	Bt sht	Kail/Chhid ridge
82H263	82110702T	myl augen gn	Kail/Chhid ridge
82H264	82110703	cataclastic augen gn & augen feld (grain 1,2,3,4,5)	Kail/Chhid ridge
82H265	82110704T	augen feld in myl augen gn (grain 1,2,3,4,5,6,7,8,9)	Kail/Chhid ridge
82H266	82110705T	Bt sht	Kail/Chhid ridge
82H267	82110706	mica sht or phyllonitic gr gn ?	Kail/Chhid ridge
82H268	82110707	Grt porbla Ms sht	Kail/Chhid ridge
82H269	82110708T	myl augen gn & augen feld (grain 1,2,4,5,6,7,8,9)	Chhidiya khola
82H270	82111101T	myl gr gn & augen feld (grain 1,2,4,6,8)	Sanfe Bazar

East Nepal (Dudh kosi area : Katari – Okhaldhunga – Namche Bazar – Junbesi)

[Katari – Sinkoute, Mahabharat zone]

82H301	82111801T	Py ore in skarn ?	Mahabharat
82H302	82111802	red chert	Mahabharat
82H303	82111803	black slate	Mahabharat
82H304	82111804	black slate-Gr sht	Mahabharat
82H305	82111805	amph sht	Mahabharat
82H306	82111806	meta quartzose ss-psam sht (ori L 62E 16E)	Mahabharat
82H307	82111808	myl gr gn	Mahabharat

[Sinkoute – Mahabharat zone – Harkapung (Sun kosi junction)]

82H308	82111901T	ls-calc sht	Mahabharat
82H309	82111902	Bt psam sht-gn	Mahabharat
82H310	82111903T	c gr gn	Mahabharat
82H311	82111904	two mica gn gr-gr gn	Mahabharat
82H312	82111905	two mica gr	Mahabharat
82H313	82111906	Bt psam sht	Mahabharat
82H314	82111907T1	augen feld (grain 1,2,3,4,5,6)	Mahabharat
82H315	82111907T2	gr augen gn	Mahabharat
82H316	82111908	f amph Bt sht	Mahabharat
82H317	82111909T	c Bt gr	Mahabharat
82H318	82111910	micaceous schistose black ls (ori F NS 50E)	Mahabharat
82H319	82111911	Bt psam gn	Mahabharat
82H320	82111912	Tur bear two mica gr gn-gn gr	Mahabharat
82H321	82111913	gr augen gn & augen feld (grain 1,2,4,5) (ori F 45E 44E)	Mahabharat
82H322	82111913T	gr augen gn	Mahabharat
82H323	82111914	augen feld in gr augen gn (grain 1,2,3,4,5,6)	Mahabharat
82H324	82111915	banded Hbl Bt gn (calc silic gn)	Mahabharat
82H325	82111916	banded calc silic gn (f Bt, f Hbl gn) (ori F 65W 73S)	Mahabharat
82H326	82111917	Bt gn-gr gn	Mahabharat
82H327	82111918	Grt Bt gn-gr augen gn	Mahabharat

[Harkapung – before Kaitar, NS ridge to Okhaldunga]

82H328	82112001T	calc shale	ridge to Okhal
82H329	82112002T	phyl	ridge to Okhal
82H330	82112003	green phyl	ridge to Okhal
* 82H331	82112004T	folded calc-psam phyl (distinct axial cleavage)	ridge to Okhal
82H332	82112005	green phyl	ridge to Okhal
82H333	82112006	calc shale-phyl	ridge to Okhal
82H334	82112007	Bt sht	ridge to Okhal
82H335	82112008	coaly shale-Gr sht (ori F 70E 15N)	ridge to Okhal
82H336	82112009	psam sht-phyl with micro folding	ridge to Okhal

[Kaitar – NS ridge to Okhaldunga]

82H337	82112101	meta ss-psam sht	ridge to Okhal
82H338	82112102TA	slate	ridge to Okhal
82H339	82112102TB	psam sht	ridge to Okhal
82H340	82112103	slate-phyl (ori F 57W 32N)	ridge to Okhal
82H341	82112104	green phyl	ridge to Okhal

[Okhaldunga – NS ridge – Jantarkhami]

82H342	82112201	meta ss-psam sht (ori F 47W 47E)	ridge to Taptung
82H343	82112202	green phyl	ridge to Taptung
82H344	82112203	green psam phyl	ridge to Taptung

82H345	82112204	green phyl (ori F 82W 36N)	ridge to Taptung
82H346	82112205	c cataclastic gr gn	ridge to Taptung
82H347	82112206T	black phyl	ridge to Taptung
82H348	82112208	Gr sht	ridge to Taptung
82H349	82112209T	myl augen gn & augen feld (grain 1,2,3,4,5,6,7)	ridge to Taptung
82H350	82112210	Tur bear Ms sht (ori F 60W 10N)	ridge to Taptung
82H351	82112211(1)	augen feld (grain 1,2,3,4)	ridge to Taptung
82H352	82112211(2)	augen feld (grain 1,2,3,4,5,6)	ridge to Taptung
82H353	82112212	Hbl gn-myl dio gn	ridge to Taptung
82H354	82112213	myl gr gn	ridge to Taptung
82H355	82112214	myl gr gn-small augen gn	ridge to Taptung
82H356	82112215	black phyl	ridge to Taptung
		[Jantarkhani - Taptung]	
82H357	82112301	black phyl	ridge to Taptung
82H358	82112302T	Gr sht	ridge to Taptung
82H359	82112303T	Grt porbla mica sht	ridge to Taptung
		[Taptung - Phaphlu]	
82H360	82112401T	Grt porbla black sht-phyl	Taptung
82H361	82112402T	slag (old mining site)	Taptung
82H362	82112403T	myl gr gn	Taptung
82H363	82112404T	augen in myl gr gn	Taptung
82H364	82112405T	myl gr gn & augen feld (grain 1,2,3,4,5)	Taptung
82H365	82112406	myl-phyltonitic gr gn (ori) & augen feld (grain 1-6,8-10)	Solu khola
		[Phaphlu - Nuntala]	
82H366	82112501	myl gr gn	Solu khola
82H367	82112502	f two mica gr	Solu khola
82H368	82112503-1	augen gn, augen feld (grain 1,2,3,4,5,6) (ori L 12E 8S)	Solu khola
82H369	82112503-2	Tur bear sheared Ms gr-peg gr gn	Solu khola
82H370	82112504	quartzite (ori F 22E 36W)	Solu khola
82H371	82112505	spotted mica sht	Solu khola
82H372	82112506	Bt sht (ori F 44E 28W)	Solu khola
82H373	82112507	Bt black sht (ori F 35E 22W)	Solu khola
82H374	82112508	Gr sht	Solu khola
82H375	82112509T	banded Bt gn & Grt leuco gn	Ringmo
82H376	82112510	Grt mica sht	Ringmo
82H377	82112511	black Gr sht	Ringmo
		[Nuntala - Dudh kosi - before Surke]	
82H378	82112601	augen feld (grain 1,2,3,4,5)	to Jubing
82H379	82112601p	feld in peg	to Jubing
82H380	82112602TA	gr augen gn & augen feld (grain 1,2,3)	Dudh kosi
82H381	82112602TB	myl gr gn	Dudh kosi
82H382	82112603	f psam gn (ori F 43E 27S)	Dudh kosi
82H383	82112604	Gr sht	Dudh kosi
82H384	82112605	f psam gn	Dudh kosi
82H385	82112605T	Grt mica sht	Dudh kosi
82H386	82112606T	gr gn	Dudh kosi
82H387	82112607	feld in gr augen gn (grain 1,2,4)	Dudh kosi
82H388	82112608	Grt bear c flaky Bt gn with Qtz feld lens	Dudh kosi
82H389	82112609	f Bt gn	Dudh kosi
82H390	82112609T	c Grt Bt gn	Dudh kosi
82H391	82112610	gr augen gn	Dudh kosi
		[before Surke - Chaunri kharka (Luglha)]	
		[Chaunri kharka - Namche Bazar]	

82H392	82112801T	f Grt Bt gn	Dudh kosi
82H393	82112802T	gr augen gn	Dudh kosi
82H394	82112803T	por gr-gr augen gn	Dudh kosi
82H395	82112804T	gr gn-mig	Dudh kosi
82H396	82112805	leuco Grt Bt gn (-Grt bear gn gr)	Dudh kosi
82H397	82112806T	gr augen gn-mig	Dudh kosi
82H398	82112806T	peg	Dudh kosi
82H399	82112807	f Bt gn (mass)	Dudh kosi
82H400	82112808T	Tur bear leuco gr	Dudh kosi
		[Namche Bazar - Luglha]	
82H401	82112901A	Grt Sil Bt gn	Dudh kosi
82H402	82112901B	Sil Grt Bt gn	Dudh kosi
82H403	82112901C	Grt Bt gn +Grt leuco gr band	Dudh kosi
82H404	82112901D	two mica gr	Dudh kosi
82H405	82112902A	Grt Bt gn	Dudh kosi
82H406	82112902B	Sil bear leuco gr	Dudh kosi
82H407	82112903T	f Bt gr	Dudh kosi
82H408	82112904T	f Bt gn	Dudh kosi
82H409	82112905T	Sil porbla Bt gn	Dudh kosi
82H410	82112907A	gr augen gn & augen feld (grain 1,2,3,4,5,17)	Dudh kosi
82H411	82112907B	Bt gn	Dudh kosi
82H412	82112908T	gr augen gn & augen feld (grain 1,3,4)	Dudh kosi
		[Luglha - Jubing]	
82H413	82113001T	Bt gn-gr augen gn	Dudh kosi
		[Jubing - Ringmo]	
		[Ringmo - Junbesi]	
82H414	82120201	psam sht with calc band	Ringmo-Junbesi
82H415	82120202	radial Act	Ringmo-Junbesi
82H416	82120203	amph sht	Ringmo-Junbesi
82H417	82120204	Bt sht	Ringmo-Junbesi
82H418	82120205	two mica gr gn-gn gr	Ringmo-Junbesi

East Nepal (Junbesi - Likhu khola - Ramechhap - Sindhuli Garhi - Kirantichhap)

		[Junbesi - Kenja (Likhu khola junction)]	
82H421	82120301T	c flaky Bt gn	ridge from Junb
82H422	82120302T	c Ms Bt gn	ridge from Junb
82H423	82120303-1	spotted (Sil, Ms) Bt gn (ori F 15E 40E)	ridge from Junb
82H424	82120303-2	Bt gn	ridge from Junb
		[Kenja - Likhu khola - Kansthali]	
82H425	82120401T	c flaky Bt gn	Likhu khola
82H426	82120401T	Qtz feld lens in c Bt gn (1,2,3,4,5)	Likhu khola
82H427	82120402	Bt sht	Likhu khola
82H428	82120402T	Grt Bt sht	Likhu khola
82H429	82120403	black Gr sht	Likhu khola
		[Kansthali - Likhu khola - Chilaune]	
82H430	82120501	black Gr sht	Likhu khola
82H431	82120502T	Bt sht	Likhu khola
82H432	82120503	Bt sht	Likhu khola
82H433	82120504	Bt sht	Likhu khola
82H434	82120505	blast myl augen gn (ori J 64E 75S)	Likhu khola
82H435	82120506	myl gr gn	Likhu khola

82H436	82120507T	augen feld in myl gr gn	Likhu khola
82H437	82120508T	augen feld in myl gr gn	Likhu khola
82H438	82120509A	psam sht	Likhu khola
82H439	82120509B	f blast myl gr gn-ultra myl	Likhu khola
82H440	82120510T1	myl gn & augen feld (grain 1,2,3,4,6)	Likhu khola
82H441	82120510T2	myl augen gn	Likhu khola
	[Chilaune - Likhu khola - Sangutar]		
82H442	82120601	f gn gr	Likhu khola
82H443	82120602T1	augen feld (grain 1,2,3,4,7,9)	Likhu khola
82H444	82120602T2	myl augen gn, myl gr gn	Likhu khola
82H445	82120603	green phyl	Likhu khola
82H446	82120604A	phyl	Likhu khola
82H447	82120604B	psam sht	Likhu khola
82H448	82120606A	green phyl	Likhu khola
82H449	82120606B	psam sht-meta ss	Likhu khola
82H450	82120607	psam sht	Likhu khola
82H451	82120608	green phyl	Likhu khola
82H452	82120609	green phyl	Likhu khola
82H453	82120610	green phyl	Likhu khola
	[Sangutar - EW ridge to Ramechhap]		
82H454	82120701	green phyl	ridge to Rame
82H455	82120702	shale-phyl	ridge to Rame
82H456	82120703	green phyl	ridge to Rame
82H457	82120704	green phyl-psam sht	ridge to Rame
82H458	82120705	psam sht-meta ss	ridge to Rame
	[Ramechhap - Mahabharat zone]		
82H459	82120801	green sht-phyl (ori F 60E 25N)	Ramechhap
82H460	82120802	red shale	Ramechhap
82H461	82120803	green phyl (ori F 60W 24N)	Ramechhap
82H462	82120804	psam sht (ori F 45W 22N)	Ramechhap
82H463	82120805	green phyl	Ramechhap
82H464	82120806	spotted vf Bt sht	Ramechhap
82H465	82120807	slate	Ramechhap
82H466	82120808	black phyl (ori F 33E 40E)	Sun kosi
82H467	82120809-1	black Gr sht with micaceous layer	Mahabharat
82H468	82120809-2	spotted Gr Bt sht (ori F 13W 66W back)	Mahabharat
82H469	82120809-3	spotted Gr Bt sht	Mahabharat
82H470	82120810-1	Tur bear Ms gn gr	Mahabharat
82H471	82120810-2A	gr augen gn, augen feld (grain 1,2,3)	Mahabharat
82H472	82120810-2B	two mica leuco gr	Mahabharat
82H473	82120811	well banded calc silc gn	Mahabharat
82H474	821208T1	long Tur bear peg	Mahabharat
82H475	821208T2	c por Bt gr	Mahabharat
	[Mahabharat zone - Sindhuli Garhi (before Sindhuli bazar)]		
82H476	82120901	Tur c leuco gr	Mahabharat
82H477	82120902	c-m Bt gr	Mahabharat
82H478	82120903	Tur Grt bear two mica gn gr	Mahabharat
82H479	82120904	gp or por gr	Mahabharat
82H480	82120905	Tur bear two mica gn gr	Mahabharat
82H481	82120906	blast myl augen gn (ori F 80E 16N)	Mahabharat
82H482	82120907	gp-por gr	Mahabharat
82H483	82120908	large augen feld (grain 1,2,3) & myl augen gn	Mahabharat
82H484	82120909	blast myl gr gn	Mahabharat

82H485	82120910	f Bt gn (ori F 20W 18W)	Mahabharat
82H486	82120911	blast myl augen gn	Mahabharat
82H487	82120912T	c Bt gn	Mahabharat
* 82H488	82120913T	large Ky in Ms sht	Mahabharat
82H489	82120914	Grt mica sht	Mahabharat
82H490	82120915	Gr sht	Mahabharat
82H491	82120916	black sht-Gr sht	Mahabharat
82H492	82120917	Bt sht	Mahabharat
82H493	821209T1	Cpx Grt, Grt Ep skarn	Mahabharat
		[Sindhuli bazar – Sun kosi/Tama kosi (Tamba kosi) junction]	
82H494	82121001T	augen feld (grain 1,2,5)	Mahabharat
82H495	82121002	blast myl gr gn	Mahabharat
82H496	82121003	folded phyl	Sun kosi
82H497	82121004T	psam sht	Sun kosi
		[Sun kosi/Tamba kosi junction – Tamba kosi – Katahare]	
82H501	82121101	black phyl	Tamba kosi
82H502	82121102	green phyl	Tamba kosi
82H503	82121103T	red shale-phyl	Tamba kosi
82H504	82121104T	green phyl	Tamba kosi
82H505	82121105	green phyl	Tamba kosi
82H506	82121106	psam sht-meta ss	Tamba kosi
82H507	82121107	green phyl (ori F 80E 27N)	Tamba kosi
82H508	82121108A	green phyl	Tamba kosi
82H509	82121108B	psam sht with elongate Chl clot (ori L 60W 28W)	Tamba kosi
82H510	82121109	green phyl	Tamba kosi
82H511	82121110	green phyl (ori F 53W 50N)	Tamba kosi
82H512	82121111	green phyl	Tamba kosi
		[Katahare – Tamba kosi – Ghyang khola junction]	
82H513	82121201	psam sht	Tamba kosi
82H514	82121202	green phyl	Tamba kosi
82H515	82121203	psam sht	Tamba kosi
82H516	82121204	myl augen gn	Tamba kosi
82H517	82121205	myl augen gn & augen feld (grain 1,2,3,4)	Tamba kosi
82H518	82121206-1	psam sht-quartzose ss	Tamba kosi
82H519	82121206-2	psam sht (ori F 60W 50N)	Tamba kosi
82H520	82121206-3	cataclastic augen gn (ori F 50W 40N back), augen (grain 1,2,3,4)	Tamba kosi
82H521	82121206-4	quartzite-Qtz sht (ori F 63W 43N)	Tamba kosi
82H522	82121207	mica sht	Tamba kosi
82H523	82121208	myl augen gn, augen feld (grain 1,2,3,4,5,6,7,8)	Tamba kosi
82H524	82121210	myl augen gn-gn por gr	Tamba kosi
82H525	82121211	myl gr gn (ori F 85E 40N)	Tamba kosi
82H526	82121212	myl augen gn-gn por gr	Tamba kosi
82H527	82121213	foliate por gr	Tamba kosi
82H528	82121214	Ms sht or schistose gr	Tamba kosi
82H529	82121215	schistose gr (ori F 45E 52W)	Tamba kosi
* 82H530	82121216	foliate por gr-schistose gp & feld (grain 1,2,4,5,6,1',2',3')	Tamba kosi
82H531	82121217	strong foliate gr gn	Tamba kosi
82H532	821212T	f Bt gn with myl gr gn band	Tamba kosi
		[Ghyang khola – Tamba kosi – Kirantichhap (- Lamsango)]	
82H533	82121301	blast myl gr gn, augen feld (grain 1,2,3,4,5)	Tamba kosi
82H534	82121302	leuco myl gr gn	Tamba kosi
82H535	82121303	myl augen gn (ori J EW 60S), augen (grain 1-8,10,12,13)	Tamba kosi
82H536	82121304	blast myl gr gn-augen gn	Tamba kosi

82H537 82121305 mica sht Tamba kosi

Sheopuri zone in northern Kathmandu

[(Lamsango –) Panchkhal – Bahunepati]

82H541 82121401 black-Gr sht Indrawati
 82H542 82121402T1 feld (in peg) Indrawati
 82H543 82121402T2 feld (grain 1,2,3,4,5) Indrawati
 82H544 82121403 Bt sht Indrawati
 82H545 82121404A Bt sht Indrawati
 82H546 82121404B myl gr gn (ori F 36W 36W) Indrawati
 82H547 82121405 flaky Bt gn Indrawati
 82H548 82121406 f Bt gn Indrawati

[Bahunepati – upper Talarang khola]

82H549 82121501T c Bt gn Indrawati
 82H550 82121502 f Bt gr gn with small augen (ori F 70E 41N) Indrawati
 82H551 82121504T Grt porbla Bt gn Indrawati
 82H552 82121505 two mica gr gn Indrawati left
 82H553 82121506T large augen in gr augen gn (grain 1,2,3,4,5) Indrawati left
 82H554 82121507 Qtz feld lens bear Bt gn (ori F 20E 43W) Indrawati left
 82H555 82121508 feld in gr gn Talarang k
 82H556 82121509 Grt Bt bear leuco gn Talarang k
 82H557 82121510 Grt bear quartzose gn (ori F 55E 72N) Talarang k

[Talarang khola – Patibhanjang – Chisapani – Sundarjal]

82H558 82121601 f two mica gn gr Pati/Chisa ridge
 82H559 82121602 banded Bt gn (ori F NS 18W) Pati/Chisa ridge
 82H560 82121603 c two mica leuco gr Pati/Chisa ridge
 82H561 82121604T augen feld in gr gn (grain 1,2,3,4,5,6,7,8) Pati/Chisa ridge
 82H562 82121605 feld in peg Pati/Chisa ridge
 82H563 82121606 augen feld (grain 1,2,3,4,5,6) Sudarjal

[Kakani hill road, top to down]

82H601 82121801 Kfs in peg Kakani hill road
 82H602 82121802 Tur bear two mica gr Kakani hill road
 82H603 82121803T c gr gn-Bt gn Kakani hill road
 82H604 82121804T Tur bear two mica gr Kakani hill road
 82H605 82121805 augen feld Kakani hill road
 82H606 82121806 Kfs in peg Kakani hill road
 82H607 82121807 augen feld in augen gn (grain 1,2,3,4,5,6) Kakani hill road
 82H608 82121809 gr augen gn & augen feld Kakani hill road
 82H609 82121810 Tur leuco gr & peg Kakani hill road
 82H610 82121811 feld in peg Kakani hill road
 82H611 82121812 Tur leuco gr-peg Kakani hill road
 82H612 82121813T1 large Kfs in peg Kakani hill road
 82H613 82121813T2 large Kfs in peg Kakani hill road
 82H614 82121814 f Bt gn Kakani hill road
 82H615 82121815 green sht & psam sht Kakani hill road

[Sundarjal]

82H616 82121901T large augen feld in gr augen gn (grain 1,2,3,4,5,6) Sundarjal
 82H617 82121902T large augen feld in gr augen gn (grain 1,2,3,4,5,6) Sundarjal
 82H618 821219T Bt gn Sundarjal
 82H619 821219Ta large augen feld in gr augen gn Sundarjal

82H620	821219Tb	large augen feld in gr augen gn	Sundarijal
82H621	821219Tc	large augen feld in gr augen gn (typical augen shape)	Sundarijal
82H622	821219Td	large augen feld in gr augen gn	Sundarijal
* 82H623	821219Te	v large euhedral feld megacryst in gr augen gn	Sundarijal
* 82H624	821219Tf	v large augen feld in gr augen gn (typical augen shape)	Sundarijal
* 82H625	821219Tg	v large augen feld in gr augen gn	Sundarijal
* 82H626	821219Th	v large euhedral Kfs por gr	Sundarijal

(Total : 526)

Sheopuri zone, Langtang valley, Khumbu area (1996 : Kano, T.)

Reg No	Original No	Rock name	[Locality]	Locality
			[Kathmandu – Naubise – Tistung]	
96H01	96013001T	c mass leuco Tur Ms Bt gr		Sheopuri zone
96H02	96013002T	c mass leuco Tur Ms Bt gr		Sheopuri zone
96H03	96013003T	c mass leuco Tur Ms Bt gr		Sheopuri zone
96H04	96013004T	f-m mass leuco Tur Ms Bt gr		Sheopuri zone
96H05	96013005T	f-m mass leuco Tur Ms Bt gr		Sheopuri zone
96H06	96013006T	c leuco mass gr including radial large Tur (10cm)		Sheopuri zone
			[Kathmandu – Kakani]	
96H07	96020201	augen gn (w feld, ca 1-2cm)		Sheopuri zone
96H08	96020202	c peg gr		Sheopuri zone
96H09	96020203	Tur bear peg & w feld		Sheopuri zone
			<u>Langtang valley</u>	
			[Syabru benshi – Lama hotel]	
96H11	96020601T	Qtz feld lens in psam gn		Langtang khola
96H12	96020602T	psam Bt gn & leuco layer		Langtang khola
96H13	96020603T	Ky Bt gn		Langtang khola
96H14	96020604T	small augen (1cm) gr gn		Langtang khola
			[Lama hotel – Ghore Tabela – Langtang]	
96H15	96020701T	w peg		Langtang khola
96H16	96020702T	Qtz feld lens bear c Bt gn with large Sil rich band		Langtang khola
96H17	96020703T	w large feld peg (grain 1,2,3)		Langtang khola
			[Langtang – Kyangching Gompa]	
96H18	96020801T	w peg Kfs		Langtang khola
96H19	96020802T	leuco gr gn		Langtang khola
96H20	96020803T	f Ms Bt gr injection in meta sediment		Langtang khola
96H21	96020804T	f-m weak foliate Ms Bt gr		Langtang khola
96H22	96020805T	f foliate leuco Ms Bt gr (partly pinkish)		Langtang khola
			[Kyangching Gompa – Langtang]	
96H23	96020901	f Ms Bt mass leuco gr		Langtang khola
96H24	96020902	f-m leuco Bt gr		Langtang khola
96H25	96020903	c leuco Tur Ms Bt gr		Langtang khola
96H26	96020904	f mass Tur Ms Bt gr		Langtang khola
96H27	96020905	f leuco Tur Ms Bt gr		Langtang khola
			[Langtang – Syabru benshi]	

96H28	96021101	myl-phyllonitic augen gn (Urelli type, sheared gr)	Langtang khola
96H29	96021102	sheared phyllonitic gr gn (ori F 10W 70E)	Langtang khola
96H30	96021103T	myl gr gn (L tectonite)	Langtang khola
96H31	96021104T	myl-phyllonitic augen gn (Urelli type, sheared gr)	Langtang khola
96H32	96021105T	myl-phyllonitic gr gn (sheared gr)	Langtang khola

Khumbu area

[Phakding – Namche Bazar]			
96H41	96022201T	c gr augen gn	near Gumila
96H42	96022202T	f weak foliate leuco gr	near Gumila
96H43	96022203	Tur clot f mass leuco gr (dyke, 50–60cm wide in Grt Bt gn)	near Gumila
96H44	96022204T	c foliate leuco gr	near Gumila
[Namche Bazar – Deboche]			
96H45	96022301	Tur bear, Sil rich m mass whitish gr	2km NE Nam
96H46	96022302	c Ms Bt gr	2.5km NE Nam
96H47	96022303	f-m foliate Bt gr	2.5km NE Nam
[Deboche – Pangboche – Dingboche]			
96H48	96022401	f mass leuco Ms Bt gr	Dingboche
96H49	96022402T	peg	Dingboche
96H50	96022403T	w mineral in pelitic gn	Dingboche
96H51	96022404T	peg Kfs in Tur Ms gr	Dingboche
96H52	96022405T	foliate Tur Ms gr	Dingboche
96H53	96022406T	f foliate whitish gr	Dingboche
96H54	96022407T	peg	Dingboche
[Lobche – Pheriche]			
96H55	96022601T	f-m Bt gn (-gr gn)	Lobche
96H56	96022602T	f-m needle-like Tur leuco gr	Lobche
96H57	96022603T	f-m needle-like Tur leuco gr	Lobche
[Phortse – Monla – Khumjung]			
96H58	96022801	f-m Tur leuco gr	Mon La
[Syangboche]			
96H59	96030101	strong foliate leuco gn gr-gr gn	Khumjung
96H60	96030102	peg	Khumjung
96H61	96030103	Tur bear f mass Ms Bt gr	Khumjung
96H62	96030104T	w Kfs	Khumjung
96H63	96030105T	weak foliate leuco Bt gr	Khumjung

(Total : 54)

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あとがき

南極の石は捨てられない。多額の国費を投じて採集された貴重な資料であり、研究所や大学にきちんと整理保存されているに違いない。普通の人にはきっとそう考えることだろう。南極のみならず、手元にはインド・オーストラリアなど世界各地の、40億年前にさかのぼる地球史を記録した岩石が集積している。大和田正明氏の採集品と合わせると、6億年前に存在していたという Gondwana 大陸の大半の地域をカバーする一大コレクションとなる。

これだけのものを、捨てたり、他の博物館にやってしまうことはないだろう、何とか学内で保存したい。そのようなお願いをしたところ、学術資産継承委員会を通じて2010年・11年と続けて学長裁量経費の援助を頂き、理学部からは1室を資料室として使用することを許された。地球科学教室では、標本整理のため実験室の一面を使用させて頂いた。また山口大学教育研究後援財団から、本書の刊行のため資金援助を頂いた。担当者が1人でかんでも、こうした援助がなければ、Gondwana 資料室は実現できなかった。ご理解とご助力を頂いた関係各位に厚く感謝したい。

岩石標本というのは、地質学上の重要な1次資料であるとともに、日本あるいは海外のある土地の一部を切り取ってきたものであり、地質図と実物を合わせると、この場にその地域を再現することができる。各国の自然博物館にあっても、地質標本はその中心に鎮座している。山口大学においても大学博物館ができる時には、この標本はきっと核の1つになるに違いない。Gondwana 資料室は、見かけは狭いが容れ物さえできれば、たちまち2倍3倍に拡張できる充実した内容を持っている。

標本室は利用されなければ、ほこりだらけの倉庫になってしまう。これまでも理学部地球科学標本室は、学生への実物教育や大学公開の機会に、また地元の博物館との提携事業などにより公開してきたが、Gondwana 資料室と合わせて一層充実した内容となったので、大いに利用して頂きたい。

現地調査と採集においては、各地の大学の研究者、同行した日本人研究者や学生の皆さんから多くの協力を頂いた。ここに1人ずつ記して謝辞とすべきであるが、いつ誰とどこでどうしたか多岐にわたるので、文中および登録リストに主なメンバーを記すことでお許しいただきたい。

もの言わぬ石にものを言わせるのが、担当者の仕事である。このコレクションが、誰かになにがしかものを言ってくれば幸いである。

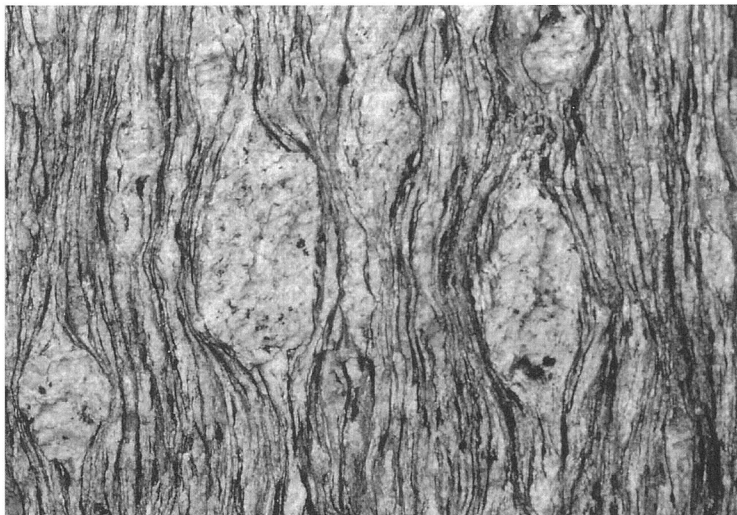
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加納 隆

Catalogue of basement rocks in Gondwana:

Records for the 4.0 Ga earth's history
from East Antarctica, Australia, India,
Sri Lanka, Madagascar, Southern Africa
and Nepal Himalayas

- Collections of the geological museum
in Yamaguchi University -



Augen gneiss (MCT zone, Nepal)

March 2012

Takashi KANO

(E-mail: kano@yamaguchi-u.ac.jp)

Department of Earth Sciences,

Faculty of Science,

Yamaguchi University,

1677-1Yoshida, Yamaguchi 753-8512, Japan

Tel: 083-933-5700, Fax: 083-933-5273

Financially supported by the Yamaguchi University Foundation.

Outline of Collection

The collection includes Precambrian rocks of East Antarctica, Australia, India, Sri Lanka, Madagascar and southern Africa, and basement rocks of Nepal Himalayas. The total number of rock samples reaches more than five thousand specimens, all of which are from the Gondwana related regions (East Gondwana, exactly). The rocks collected are the records for 4.0Ga earth's history from the formation of continental nucleus, such as in the Napier complex of East Antarctica, the Pilbara and Yilgarn cratons of Western Australia and the Dharwar craton of south India, to the nearly recent mountain building in the Himalayas as the result of dispersion and assembly of Gondwana.

1. East Antarctica

The Antarctic continent is divided into two parts; East Antarctica and West Antarctica (Fig.1-1). The most part of East Antarctica is underlain by Precambrian rocks, and called the east Antarctic shield, while West Antarctica is basically a part of the Mesozoic to Cenozoic mobile belt continued from the Andean belt. The Trans Antarctic Mountains is a topographic and geologic boundary between East and West Antarctica, formed along the western margin of the shield at the early Paleozoic Ross orogeny. The geological field survey of the Japanese Antarctic Research Expedition (JARE) has been carried out in the east Antarctic shield from the central Dronning Maud Land in the west to the Enderby Land in the east, including Mts. Yamato and Sør-Rondane, mainly around the Lützow-Holm Bay to Prince Olav Coast area (Fig.1-2) (cf. NIPR, 1986).

These areas include the early Archaean Napier complex (ca. 4.0-2.5Ga), late Proterozoic Rayner complex (ca. 1.1-1.0Ga), Lützow-Holm complex (ca. 600-500Ma), and mostly consist of metamorphic, granitic and migmatitic rocks. The Napier gneiss complex contains one of the earth's earliest rocks of 4.0Ga, and is characterized by the ultra-high temperature metamorphism (UHT) at the late Archaean time. The Lützow-Holm complex and further widespread areas toward the west are influenced by the Pan-African movement under the amphibolite to granulite facies metamorphism. These areas around the Syowa station are supposed to be located at the opposite bank of Sri Lanka and India on the Gondwana juxtaposition (Fig.1-3).

Rock specimens listed in tables were collected by JARE-16, 19, 32, 39, 43 and

50, respectively, from nearly whole area of JARE's major activities.

[Total: 1732 specimens]

2. Australia

The most part of the Australian continent consists of Precambrian rocks with supracrustal cover sediments, except the Tasman orogenic belt along the eastern coast side. Within this Australian shield, there known three Archaean cratons; the Pilbara craton in the northwest, Yilgarn craton in the southwest and Gawlar craton in the south, several Proterozoic orogenic belts and sedimentary basins (Fig.2-1).

The Pilbara and Yilgarn cratons represent a typical greenstone-granite belt. The Pilbara craton is composed of several plutonic complexes of 3.5 to 2.5Ga tonalitic, granodioritic and granitic rocks, and supracrustal sequence of komatiitic metabasalt, chert and BIF of nearly same age (Fig.2-2) (cf. Geological Survey of Western Australia, 1990). The Yilgarn craton is also made up of granitic plutons and greenstone belts mostly of 2.8-2.6Ga in age, and subdivided into five tectonic units (Fig.2-3) (cf. Solomon and Groves, 1994). Among these units, the Western gneiss terrain has earlier records of more than 3.0Ga, such as the Jimperding belt and Armadale migmatitic gneiss, both in near Perth. The Narryer gneiss complex of the northernmost part is the oldest component of the terrain including 3.7Ga Manfred gabbroic suite and 3.6Ga Meeberrie gneiss (Geological Survey of Western Australia, 1990), and further, meta-quartzite in the complex carries very old zircon grains more than 4.0Ga in age (Aaron et al., 2007). The Norseman-Wiluna belt, particularly around Kalgoorlie, is a large mining area of gold and nickel deposits embedded in komatiite lava of greenstone belt (cf. Hughes, 1990; Solomon and Groves, 1994).

The Halls Creek belt, King Leopold belt, Mt. Isa inlier, Arunta block and Gascoyne province are the early to middle Proterozoic orogenic terrains, and the Musgrave block, Albany-Fraser belt and Leeuwin complex are the middle to late Proterozoic mobile belts. The Albany-Fraser belt can be correlated with the Central Indian Tectonic Zone on the Gondwana reconstruction (Harris, 1993). The Hamersley basin is the late Archaean to early Proterozoic formation overlaying on the Pilbara craton, and intercalates largest BIFs in the world. The Kimberley basin is the early Proterozoic sedimentary succession of flat-lying beds probably on the stable basement. The Amadeus basin forms the late

Proterozoic sedimentary cover on central Australia, and coarse-grained quartz rich sandstone and conglomerate are well seen on the hills of Uluru and Mt. Olga.

[Total: 860 specimens]

3. India

The large part of the Indian subcontinent is underlain by Precambrian rocks, and named the Indian shield. The northern part of the shield is bordered by the Himalayan orogenic belt and the central portion is covered by the Deccan Trap. Several Archaean cratons and Proterozoic mobile belts are distinguished in the shield area (cf. Ramakrishnan and Vaidyanadhan, 2008). The Archaean cratons are exposed in five areas; the Dharwar in the south, Bastar in the centre, Singhbhum in the east, Aravalli in the northwest and Bundelkhand in the north (Fig.3-1). The Aravalli-Delhi and Satpura belts constitute the Central Indian Tectonic Zone (CITZ: Radhakrishna and Naqvi, 1986). The Eastern Ghats belt along the east coast side and the Pandyan belt in the southern most are middle to late Proterozoic granulite terrains.

The Dharwar craton forms a large outcrop of greenstone-granite belt composed of three components; supracrustal greenstone belts, Peninsular gneisses of TTG (tonalite-trondhjemite-granodiorite) origin and granitoids. The greenstone belts are divided into three groups; the oldest Sargur, middle Bababudan and younger Chitradurga Groups, and the latter two are called the Dharwar Supergroup ranging 2.8-2.6Ga in age (Figs.3-2, 3, 4). The craton is subdivided into the Western Dharwar Craton (WDC) and Eastern Dharwar Craton (EDC) by the N-S trending Chitradurga shear zone. The WDC includes an old nucleus consisting of 3.4Ga TTG (Gorur gneiss) and 3.3Ga Sargur belt and equivalents. The old basements are metamorphosed and intruded by granitic rocks, such as the Chikmagalur granite and Halekote trondhjemite, at ca. 3.0Ga, and unconformably overlain by quartzose conglomerate of the Bababudan Group at Kartikere.

On the other hand, the EDC is predominant in 2.7-2.5Ga granitic gneiss or granitoids called the Dharwar batholith, and rather poor in greenstone belts. The Closepet granite is the largest among them, which intrudes at ca. 2.5Ga trending in N-S direction with ca. 300km long. Both of the WDC and EDC are regionally metamorphosed after the intrusion of granites. The thermal structure in the craton, from greenschist facies condition in the north to granulite facies

terrain in the south through amphibolite-granulite transition zone, is completed at the end of Archaean. Finally, the EDC is overlain by the Proterozoic Cuddapah basin. The collection covers the most part of the cratonic area in Karnataka (Figs.3-5, 6, 7, 8ABC).

The Singhbhum craton is also one of the oldest crust in India (Fig.3-9). The older metamorphic group (OMG) and older metamorphosed tonalitic-granodioritic gneiss (OMTG) are the early Archaean. The Iron Ore Group overlain on the OMG and OMTG is the middle Archaean sequence including BIFs, which have been the source of the earliest steel industry of India. The middle Archaean Singhbhum granite is widespread in the craton, and unconformably covered by the Proterozoic Kolhan Group.

In Rajasthan, the Mewar gneiss is exposed as a part of the Archaean basement (Banded Gneiss Complex), and the early Proterozoic Aravalli Supergroup and middle Proterozoic Delhi Supergroup are sedimentary successions on the basement (Figs.3-10, 11). The lithology of Aravalli and Delhi rocks are variable. A part of them intercalates tectonized ultramafic rocks, chert and turbiditic sediments, and indicates a similar occurrence to the Phanerozoic accretionary complex. The Aravalli-Delhi belt is folded and metamorphosed associated with intrusions of granitic rocks at the middle and late Proterozoic to make the northwestern part of the CITZ. The stratigraphic correlation between the northern and southern Delhi fold belts is still controversial.

The Nagpur area, the geographical centre of India, is geologically situated in the Satpura mobile belt (CITZ) developed along the northern margin of the Bastar craton. In the area, the Proterozoic Sakoli and Sausar belts are distributed on the Archaean basement (Fig.3-12). The Sausar belt is predominant in quartzite, pelite and calcareous rock, embedded with stratiform manganese ore (gondite). The Tirodi gneiss is another constituent of the belt. It is considered as a reworked basement folded together with Sausar schists. The Sakoli belt occurs in a triangular area on the craton, and consists of metapelite, felsic and mafic volcanics. The belt is contact with the basement Amgaon gneiss in shear zone. Granulite facies rocks are found in the northern granulite belt in the Sausar belt (Ramakona-Katangi belt) and southern granulite belt in the basement (Bhandara-Balghat belt) (Ramakrishnan and Vaidyanadhan, 2008).

The Eastern Ghats belt is characterized by granulite facies metamorphism including UHT rocks, extending in ca. 1000km long. Khodalite, leptinite and charnockite are common in the belt (Figs. 3-13, 14). The age of the belt is diverse

and still remains unsettled. Several events are recorded in different units of the belt from more than 2.0Ga, 1.0Ga and 0.6 to 0.5Ga. The Chilika lake anorthosite near Bhubaneswar indicates 1400Ma. The Pan-African age is rather widespread in the belt. The belt is in tectonic contact with the Singhbhum craton, and cataclastic porphyrite like rock carrying angular blocks of granite occurs in the shear zone.

The Pandyan belt in south India is also the Proterozoic granulite facies terrain, bounded from the Dharwar craton by the Palghat-Cauvery shear zone (Figs.1-3, 3-1). Formerly, the term Southern Granulite Terrain (SGT) has been commonly used for the granulite facies region of south India, but the name Pandyan belt is recommended in order to avoid misleading (Ramakrishnan and Vaidyanadhan, 2008), because the SGT includes the granulite facies terrain of the Archaean Dharwar craton. The belt is subdivided into several blocks by shear zone. In the northern block, there found older ages indicating reworked remnants, however, Pan-African ages are widely overprinted in the belt. The Kerala Khondalite Belt (KKB), the southern part of the Achankovil shear zone, is the typical Pan-African granulite terrain in south India, associated with UHT rocks and charnockite (Fig.3-15).

Geological field works related to the collection are outlined by Yoshida et al. (1994, 1995) and Kano et al. (2000, 2001).

[Total: 1241 specimens]

4. Sri Lanka

The most part of Sri Lanka is made up of Precambrian rocks, and divided into three geologic units; the Wannai complex, Highland complex and Vijayan complex (Fig. 4-1). The Wannai complex is composed of migmatitic to granitic gneiss, garnet biotite gneiss (Photo 4) and charnockitic rocks. The Highland complex has rather wide lithology ranging granitic gneiss, pelitic gneiss (khondalite), marble, quartzite and charnockite. Granitic to migmatitic rocks are dominant in the Vijayan complex. The Highland complex is the granulite facies terrain characterized by charnockite formation and UHT rocks. The rocks collected in the Wannai complex indicate amphibolite to granulite facies condition, while the Vijayan complex is an amphibolite facies region. The charnockite formation with patchy and vein-shaped appearance known as the incipient charnockite is frequent in the granulite facies terrain of Sri Lanka as well as in the Kerala

Khondalite Belt of south India. These three units are widely influenced by the 600-500Ma Pan-African movement, although some indications of older remnants are found in the Highland complex.

Geological field works related to the collection are reported in Hiroi and Motoyoshi (1990).

[Total: 93 specimens]

5. Madagascar

Precambrian basement rocks are widely exposed around the central highland to east coast side of Madagascar. The basement is divided into three parts (Rambelison et al., 2003) (Fig.5-1). The central to northern part is Archaean to early Proterozoic in age, and intercalates several greenstone belts. At the city area of Antananarivo, granitic to tonalitic gneiss (Archaean ?) associated with charnockite formation and synplutonic mafic dyke is exposed in the basement. These rocks exhibit similar occurrences to the southern part of Closepet granite in the Dharwar craton. The central to southern part of Madagascar is predominant in granitic to migmatitic rocks intruded by several plutons of ca. 800Ma in age. The southern part is the late Proterozoic amphibolite to granulite facies terrain. As a whole, Archaean rocks remain in the central to northern part of Madagascar, however, the Pan-African overprints are widespread over the area.

[Total: 27 specimens]

6. Southern Africa (Zimbabwe and Mozambique)

The southern part of the African continent comprises two basic components; the Archaean Kalahari craton and Pan-African mobile belts. The Kalahari craton is divided into the Zimbabwe craton in the north and the Kaapvaal craton in the south by the Limpopo belt of ca. 2.7Ga, and the cratonic area is surrounded by the Mozambique and Damaran belts of Pan-Africans (Hunter, 1981) (Fig.6-1). The Zimbabwe craton consists of a greenstone-granite belt. Serpentinite-talc rocks and gold bearing conglomerate are seen in the Mutare greenstone belt within the eastern part of the craton. According to the general views on Gondwana reconstruction, the area from the eastern margin of Zimbabwe craton to the Mozambique belt corresponds to the boundary between East and West

Gondwana. Towards the east from the craton to mobile belt, the basement granites are tectonized, and the younging trend and Pan-African overprints are distinct in isotopic ages (cf. Grantham and Dirks, 1998). The middle Proterozoic Umkondo Group, a supracrustal sequence on the craton, is also tectonized and intercalated within the reworked basement.

[Total: 41 specimens]

7. Nepal Himalayas

The Nepal Himalayas is located in the central portion of the Himalayan Range, where giant peaks are concentrated. The Nepal Himalayas is divided into four major geologic units by thrust faults; from south to north, the Siwalik Group, Midland zone (Lesser Himalayas), Great Himalayas (Higher Himalayas) and Tibetan Tethys (Figs.7-1, 2). The geologic divisions are corresponding to the topographic feature, and the major geologic units and thrust faults are traceable over the whole Himalayan Range. The Siwalik Group on the Siwalik Hill is a Neogene to Quaternary sedimentary pile including boulder conglomerate derived from the Himalayan Range. The Siwalik Hill is bounded from the Terai plane (northern part of the Ganges plane) by the Himalayan Front Fault (HFF) in the south, and from the Lesser Himalayas by the Main Boundary Fault (MBF) in the north.

The Midland zone is composed mainly of Eocambrian to Paleozoic sediments which are weakly metamorphosed into meta-sandstone, phyllite to greenschist with intercalations of quartzite and limestone. These rocks are totally called the Midland meta-sediments. The southern border of the Midland zone in east Nepal is marked by a steep and narrow mountain range called the Mahabharat Lekh. Crystalline schists and lenticular granitic bodies are major components, and constitute a distinct subunit named the Mahabharat zone. The Sheopuri zone in the northern mountains around the Kathmandu basin is another subunit in the Midland. The zone is characterized by intrusions of tourmaline granite, augen gneiss, calc silicate gneiss and migmatitic gneiss.

The Main Central Thrust (MCT) is the boundary between the Midland and Great Himalayas. The MCT is not a single thrust but a tectonic zone made up of several thrust sheets intercalating crystalline schists under the amphibolite facies condition of staurolite-kyanite assemblage. Augen gneiss is the most characteristic rock of the MCT-zone. It is mylonitic to blastomylonitic rock

including K-feldspar megacrysts, and represents a good marker for the lower limit of the MCT-zone. The origin of augen gneiss has been argued in different ways, but it is ascertained to be basically granitic rocks injected along the thrust plane, and then, crystallized and/or recrystallized under shear stress (Kano, 1984; 1988).

The Himalayan gneiss constitutes the crystalline basements of giant peaks in the Great Himalayas. The gneiss contains kyanite in the neighbor of MCT, and grades into sillimanite bearing migmatitic gneiss in the northern periglacial region. In this region, granitic augen gneiss including very large K-feldspar (sometimes more than 50cm in diameter of single grain) and intrusions of tourmaline granite are frequent. Some of the Himalayan gneiss indicate two different isotopic ages, for example, ca. 2.0Ga in Rb/Sr whole rock age and 15-20Ma in K-Ar age. The older age suggests that the Himalayan gneiss is originally a part of the Precambrian basement of Indian craton, and the younger age corresponds to the reworking at the Himalayan orogeny and thermal affection by tourmaline granite. The Tibetan Tethys sediments overlie on the Himalayan gneiss, and are distributed from the high top of giant peaks to the Tibetan plateau.

The collection covers the eastern, central and western Nepal Himalayas from the Mahabharat zone to Great Himalayas (Figs.7-3, 4, 5, 6AB, 7, 8AB, 9). Geology and field works in the Nepal Himalayas related to the collection are referred from Hashimoto et al. (1973), Kizaki (1988) and Kano (1982, 1984).

[Total: 1165 specimens]

[All total: 5159 specimens]

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先カンブリア時代とヒマラヤの岩石

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著者：加納 隆

e-mail：kano@yamaguchi-u.ac.jp

〒753-8512 山口市吉田1677-1

山口大学理学部

Tel:083-933-5700

Fax:083-933-5273

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Takashi KANO