Appendix I

Magnetic Susceptibilities of Rocks and Minerals

The following table is prepared using the maximum volume susceptibility values from the standard charts compiled by Clark and Emerson (1991) and Hunt et al. (1995).

Rock types	Maximum Volume Susceptibility (SI Units)
Igneous Rocks	
Andesite	0.17
Basalt	0.18
Dolerite	0.062
Diabase	0.16
Diorite	0.13
Gabbro	0.09
Norite	0.09
Dacite	0.05
Granite	0.05
Granodiorite/Tonalite	0.062
Peridotite	0.2
Quartz porphyries/Quartz-feldspar porphyries	0.00063
Pyroxenite/Hornblendite (Alaskan Type)	0.25
Rhyolite	0.038
Dunite	0.125
Trachyte/Syenite	0.051
Monzonite	0.1
Phonolite	0.0005
Spilites	0.0013
Avg. Igneous Rock	0.27
Avg. Acidic igneous rock (pegmatites)	0.082
Avg. Basic igneous rock (komatiites, tholeiite)	0.12

Sedimentary Rocks	
Clay	0.00025

Coal	0.000025
Silt/Carbonates	0.0012
Dolomite	0.00094
Limestone	0.025
Red sediments	0.0001
Sandstone	0.0209
Shale	0.0186
Tuffs	0.0012
Conglomerate/arkose/pelites	0.0012
Arenites/Breccia	0.0012
Avg. Sedimentary rock	0.05

Metamorphic Rocks			
Amphibolite			0.00075
Gneiss			0.025
Granulite			0.03
Acid granulite			0.03
Basic granulite			0.1
Phyllite			0.0016
Quartzite			0.0044
Schist			0.003
Serpentine			0.018
Slate			0.038
Marble			0.025
Metasediments			0.024
Migmatites			0.025
Charnockite (pyroxene granulite)			0.03
BIF (anisotropic) hematite rich (~7% magnetite)			0.25
Magnetite rich (>20% magnetite)			1.8
Magnetite Skarn			1.2
Avg. Metamorphic Rock			0.073
Magnetite	~	0.1 %	0.0034
	~	0.5 %	0.018
	~	1 %	0.034
	~	5 %	0.175
	~	10 %	0.34
	~	20 %	0.72

Minerals	
Biotite	0.0029
Garnet	0.0027
Orthopyroxene	0.0018

Graphite	0.0002
Fayalite	0.0055
Olivine	0.0016
Magnetite	5.7

Appendix II

Continental crustal composition

The continental crustal composition is shown in the Table (II.A) and the Archean crustal composition in the Table (II.B) (Taylor and McLennan, 1985).

Table II.A

	Upper crust	Lower crust	Total crust
SiO_2	66.0 %	54.4 %	57.3 %
TiO_2	0.5 %	1.0 %	0.9 %
Al_2O_3	15.2 %	16.1 %	15.9 %
FeO	**4.5 %**	**10.6 %**	**9.1 %**
MgO	2.2 %	6.3 %	5.3 %
CaO	4.2 %	8.5 %	7.4 %
Na_2O	3.9 %	2.8 %	3.1 %
K_2O	3.4 %	0.34 %	1.1 %

Table II.B

	Upper crust	Total crust
SiO_2	60.1 %	57.0 %
TiO_2	0.8 %	1.0 %
Al_2O_3	15.3 %	15.2 %
FeO	**8.0 %**	**9.6 %**
MgO	4.7 %	5.9 %
CaO	6.2 %	7.3 %
Na_2O	3.3 %	3.0 %
K_2O	1.8 %	0.9 %

Appendix III

Susceptibility distribution for Cathaysian-Indian craton

The parameters used for deriving vertically integrated susceptibility model for the Cathaysian-Indian craton is shown in the following table. Tectonic map is shown in Figure (2.1) for the Cathaysian craton and in Figure (2.8) for the Indian craton.

Cathaysian craton

Geological Region	GIS (name)	Maximum Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
East Qinling range	Qinlg	0.047		Goodwin (1991)
Wutai district	Wutai	0.034	4.0	
Yinshan district	Yinsa	0.044		
Yanshan district	Yansa	0.037		
Dabie uplift	Dabia	0.065	15.0	
Shandong district	Shndg	0.023		
Liaoning and Jilin	Li-ji	0.023		
Tarim basin	Tarpa	0.045		
Early Proterozoic				
Wutai-Taihang district	Wutae	0.020	16.3	Goodwin (1991)
Yinshan district	Yinse	0.050	6.0	
Yanshan district	Yanse	0.034	4.65	
Tarim basin	Tarpe	0.010		
Songliao Massif	Smasf	0.045		Zhang et al. (1984)
Mid Proterozoic				
Yanshan mountains	Yansm	0.006	9.8	Goodwin (1991)
Western Henan	Henan	0.051	7.0	
Eastern border	Ebrdr	0.010	4.2	
Quruktagh	Quktg	0.004	6.0	
Western Hubei	Whubi	0.021	6.6	
Kham-Yunan	Yunan	0.019	2.5	
Jiangnan	Jiang	0.064	20.0	
Tarim basin	Tarpm	0.001		
Lower Proterozoic				
Gorge	Gorge	0.006	1.095	Goodwin (1991)
Eastern Yunan	Eyunn	0.006	1.095	

Northern Sichuan	Schun	0.006		Goodwin (1991)
Southern China	Schna	0.003	4.0	
Southeast Maritime	Smepr	0.016	10.0	
Tarim mountains	Tarim	0.028	5.0	
Kunlun-Qilian-Qinling	Kunln	0.021	6.0	
Greater Khingan	Khign	0.013		
Changan	Chage	0.029	1.0	
Nantuo	Nan12	0.023	2.285	
Luoquan	Luoqe	0.001	0.35	
Songliao Massif	Songl	0.040		Zhang et al. (1984)
Greater Balkan	Gtbal	0.050 0.085	20.0 sediment cover	Khain (1994)
West Turkmenistan	Wturk	"	15.0 sediment cover	

Indian craton

Geological Region	GIS (name)	Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
E-trending Gneiss-Granulite zone	Egntz	0.066		Goodwin (1991)
Eastern Dharwar	Esdwr	0.055		
Closepet granite	Clspt	0.025		
Granulite domain	Grnul	0.047		
Western Dharwar	Wsdwr	0.063		
Eastern Ghat belts	Esgha	0.014		
Singhbhum craton	Srhgh	0.045		
Rajasthan and Budelkhand blocks	Rajas	0.041		
Sri Lanka highland	Srlka	0.030		
Sri Lanka southwest	Srlkb	0.033		
Sri Lanka Vijayan complex	Srlkc	0.077		
Early Proterozoic				
Chotanagpur plateau	Chota	0.041	20.0	Goodwin (1991)
Aravalli belt	Aravl	0.017		
Delhi belt	Delhs	0.014	10.0	
South Delhi belt	Sdels	0.037		
Dongargarh	Dngar	0.039		
Sakoli	Sakol	0.067		
Sausar	Sausr	0.008		
Mid Proterozoic				
Cuddapah basin	Cudph	0.014	7.00	Goodwin (1991)
Nalamalli basin	Nalla	0.027	1.20	
Kurnool basin	Kurnl	0.013	0.60	
Kaladgi basin	Kaldg	0.041	2.00	
Bhima basin	Bhima	0.002		
Godavari basin	Godvr	0.010	7.01	
Chattisgarh basin	Chats	0.022	2.00	
Eastern Ghats belt	Esghm	0.021		

Lower Proterozoic				
Vindhyan basin	Vndhy	0.016	7.80	Goodwin (1991)
Indo-Gangetic plains (Phanerozoic)	Ganga	0.005 0.045	7.00	
Deccan Traps (Phanerozoic)	Decal	0.050 0.016	4.00	
Aravalli	Arvll	0.017 0.045		
Himalaya fold belts	Himla	0.006	20.0	
Tibetan plateau	Tibep	0.006	20.0	

Appendix IV

Susceptibility distribution for Siberian craton

The parameters used for deriving vertically integrated susceptibility model for the Siberian craton is shown in the following table. Tectonic map for the Siberian craton is shown in Figure (2.2).

Geological Region	GIS (name)	Maximum Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
Basement	Sbptt	0.035		Goodwin (1991)
Aldan shield	Aldna	0.065 0.014 0.036	12.0	
Stanovoy fold belt	Stanv	0.020		
Siberian Trap	Sbtrp	0.035		
Anbar shield	Anbar	0.057	15.0	
Baikal fold belt	Bakln	0.029		
Sayan fold belt	Sayan	0.027 0.035 (base)		
Yenisei fold belt	Ynsia	0.020		
Okhotsk block	Okhsk	0.031		
Kolyma block	Kolym	0.031		Goodwin (1991) (Sweeney, 1981; Howell and Wiley, 1987;Condie, 1989)
Omolon block	Omlon	0.031		
Taigonos block	Taign	0.031		
Early Proterozoic				
Baikal fold belt	Baike	0.022	13.5	Goodwin (1991)
Muya group	Muyae	0.073	13.5	
Ulkan Trough	Ulkan	0.032	4.45	
East Sayan fold belt	Sayae	0.001		
Yenisei fold belt	Yense	0.030	5.00	
Taymyr fold belt	Taymr	0.028	12.0	
Mid Proterozoic				
Patom highlands	Patom	0.033	1.80	Goodwin (1991)
Baikalian highlands	Nbaik	0.029	6.00	
South Baikal range	Sbaik	0.046	6.00	
Ulkan trough	Ulkam	0.038	5.50	
Yudoma-Maya trough	Yudma	0.011		
Uchur-Maya region	Umaya	0.006		
Olenek uplift	Olnek	0.006		
Lower Proterozoic				

Uchur-Maya	Umayl	0.031 0.001	3.00 0.40	Goodwin (1991)
Yenisei ridge	Yensl	0.018	4.50	Goodwin (1991)
Patom highlands	Patol	0.031 0.013	3.00 1.70	
Olenek uplift	Olnel	0.001	0.65	
Anbar shield	Anbal	0.001	0.65	
Tienshan	Tnshl	0.001	4.20	
Kazakhstan	Kazak	0.001	2.70	
Yudoma	Yudml	0.001	1.00	
East Sayan fold belt	Sayal	0.010	1.50	
Western Baikal	baikn	0.001	1.30	

Appendix V

Susceptibility distribution for East European craton

The parameters used for deriving vertically integrated susceptibility model for the East European craton is shown in the following table. Tectonic map for the East European craton is shown in Figure (2.3).

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known to depth of (km)**	**Reference**
Archean				
Dnieper complex	Dnepr	0.047		Goodwin, (1991) Khain, (1985)
Kola peninsula	Kolap	0.037		
Belomorian province	Belmr	0.058		
Kamennozero belt	Kamnz	0.045		
Koikary belt	Kokry	0.010	3.50	
Hautavaara belt	Hutvr	0.028	5.50	
Himola-Kostomuksa belt	Hm-kt	0.085	4.50	
Suomussalmi-Ilomantsi-Kuhmo-Tipasjarvi	Sukit	0.033	5.00	
Basement	Pltfa	0.045		
Belorussian anteclise	Pltfm	0.045	1.00 sediment cover	
Moscow syneclise	Mosms	0.045	6.00 sed. cover	
Pelchma trough	Pelch	0.045	8.00 sed. cover	
Volga-Uralian anteclise	Vl-ur	0.045	1.50 sed. cover	
North Caspian syneclise	nrcsp	0.045	30.0 sed. cover	
Glasov syneclise	Glasv	0.045	3.00 sed. cover	
Early Proterozoic				
Lapponian (Karelian)	lapon	0.032	1.40	Goodwin, (1991)
Sumian (Tunguda-Nadvoitsa)	Smian	0.047		
Sariolian (Sariolan)	Sarln	0.032	1.70	
Jatulian (Segozero-Onega)	Jatul	0.031		
Karelia-Kola peninsula	Kr-kl	0.062		
Suisaarian	Susrn	0.015	4.00	
Ladoga (Soviet Karelia)	Ladgo	0.017	4.00	
Kalevian	Kalvn	0.083		
Bergslagen (southern Sweden)	Brgle	0.032	10.0	
Southern Norrland (central Sweden)	Snrld	0.074	10.0	
Vasterbotten (central Sweden)	Vstbn	0.002		

Norrbotten (northern Sweden) East and north of Kiruna	Norbn	0.103		Goodwin, (1991)
Tampere (Western Finland)	Wfnld	0.038	11.5	
Lapland granulite belt	Lapln	0.044		
Krivoy Rog	Krvoy	0.028	8.50	
Voronezh Massif	Vornz	0.059	5.50	
Mid Proterozoic				
Rapakivi granites	Rapkv	0.056		Goodwin, (1991)
Bergslagen	Brgl1	0.037		
Metasediments	Msedi	0.024		
Central Norrland	Cnrld	0.050		
Norbotten	Nrbtn	0.044		
Smaland-Varmland belt	Sm-vl	0.058		
West coast (Sweden)	Wswdn	0.015		
Lake Vanern (Sweden)	Lvarn	0.046		
South western domain	Swdmn	0.044		
Volyn block	Volyn	0.079		
Voronezh Massif	vormz	0.067		
Bashkir Anticlinorium	Bashr	0.016	14.0	
Lower Proterozoic				
Bashkir (south urals)	Bashl	0.012	3.58	Goodwin, (1991)
South Urals	Sural	0.001	0.60	
Middle Urals	Mural	0.001	4.00	
Northern Norway	Nnrwy	0.008	1.20	
West of MTP (British Isles)	wsmtp	0.012	9.00	
Northern highland	Nohld	0.022		
Dalradian	Daldn	0.010	17.0	
Midland craton	Midld	0.032		
Charnwood forest-Cardington hill	Cf-ch	0.041	3.00	
Lizard peninsula	Lpnin	0.101		
SE Ireland	Irlnd	0.034		
Pentevrian (Armorican Massif)	Pntvr	0.011		
Brioverian	Brvrn	0.022	12.0	
Auvergne core (Central Massif)	Avgne	0.028	15.0	
Limousin-Rouergue zone	Lrgue	0.032		
Montagne Noire-Cevennes zone	Mn-cz	0.014		
Moldanubicum (Bohemian Massif)	Moldb	0.007		
Krusne Hory	Kruhy	0.037		
Ossa-Morena (Iberian Massif)	Os-mr	0.001		
Central Iberian zone	Cibrn	0.020		
West Asturian-Leonese	As-le	0.017		

Appendix VI

Susceptibility distribution for North American craton

The parameters used for deriving vertically integrated susceptibility model for the North American craton is shown in the following table. The tectonic map for the North American craton is shown in Figure (2.5).

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known to depth of (km)**	**Reference**
Archean				
Minto subprovince (Ungava craton)	Minto	0.038 0.062		Goodwin, (1991)
Ashuanipi complex	Ashnp	0.042		
Massive plutons (South western Superior province)	Mplut	0.051 0.062		
Meta supracrustal region	Msupr	0.019 0.062		
Abitibi belt	Abiti	0.052	11.0	
Wabigoon region	Wabgn	0.052	16.0	
Sachigo subprovince	Sachg	0.052		
Plutonic suites (central superior province)	Plutn	0.049		
Metasedimentary (English river belt)	Metas	0.044		
Point Lake (Slave craton)	Point	0.042		
Yellowknife	Yelow	0.046	13.0	
Hackett river	Hackt	0.021		
High Lake belt	Hghlk	0.032		
Back river	Bckrv	0.069	13.0	
Saglek Fjord (Nain province)	Saglk	0.004		
Hopedale block	Hopdl	0.072		
Committee Bay and Armit Lake (Churchill province)	Cm-ar	0.015 0.042		
Ennadai-Tulemalu blocks	En-tl	0.026		
Minnesota river valley	Mortn	0.037		
Wisconsin-Michigan gneiss	Ws-mh	0.017 0.062		
Wyoming uplift	Wyomg	0.060		
Still water complex	Still	0.070	6.00	

Newfoundland	Nwfnd (base Egren)	0.017 0.012 0.090	0.50 1.50 3.00	Colmann-Sadd, (1980)
Golcond-Roberts (bimodal volcanics, west USA)	Gl-rb	0.025		Condie, (1989)
Columbia river basalt	Colmb	0.022		
Brooks range	Chuks	0.032		Sweeney, (1981)
Alaska-Yukon	Al-yk	0.048		Goodwin, (1991)
Baffin Island	Baffn	0.062		
Mid Proterozoic province	Gra1s	0.050		Anderson, (1983)
Wopmay-extension	Wmyp5	0.028		Condie, (1989)
Basement central US	Cntms	0.029		Goodwin, (1991)
Basement Ungava	Ungav	0.037		
Basement West Sup. Prov.	Westn	0.045		
Early Proterozoic				
Lake Huron	Huron	0.017	16.0	Goodwin, (1991)
Sudbury Structure	Sudby	0.030	7.50	
Aphebian Supracrustal	Laphb	0.050	2.00	
Michigan-Wisconsin	Mh-ws	0.050	7.50	
Marquette range	Marqt	0.050		
North western segment (Animikie basin)	Nwank	0.035	6.00	
South eastern segment	Seank	0.059 0.013	11.0	
Mistassini-Otish basin	Ms-ot	0.115	6.80	
Kaniapiskau supergroup (Labrador trough)	Kanip	0.023	6.50	
Doublet-Laporte	Db-lp	0.028	5.00	
Cape Smith fold belt	Capes	0.044	5.35	
Belcher fold belt	Belch	0.032	8.00	
Sutton lake Inlier	Suton	0.069		
Fox river belt	Foxrv	0.082	5.50	
Thompson belt	Thoms	0.098		
Kapuskasing structural zone	Shawm	0.058 0.028	20.0	
Hudsonian Mobile zone	Hdcmp	0.022	3.00	
Rottenstone-la Ronge belt	Hdrot	0.036	3.00	
Cree lake zone	Crelk	0.049		
Amer lake zone	Amerl	0.043		
Wopmay zone 1	Wpmy1	0.001	0.60	
Wopmay zone 2	Wpmy2	0.010	3.00	
Wopmay zone 3	Wpmy3	0.031	9.00	
Wopmay zone 4	Wpmy4	0.048	8.00	
Kilohigok basin	Kiloh	0.006	7.00	
Athapuscow Aulacogen	Athap	0.036	5.50	
Wyoming uplift	Wyome	0.012	12.8	
Black hills	Black	0.042		
Mid Proterozoic				
Midcontinental belt	Midcn	0.034		Goodwin, (1991)
Anorogenic complexes	Anorg	0.064		
Anorthosite massifs	Anrth	0.010		

Sioux Quartzites	Sioux	0.002	0.50	Goodwin, (1991)
Baraboo Quartzite	Baroo	0.062	1.50	
Athabasca basin	Athas	0.003	1.50	
Baker lake	Baker	0.012	7.35	
Coppermine river	Coper	0.057	3.00	
Bathurst Inlet basin	Bathr	0.002	5.00	
Parry Bay formations	Parry	0.001	0.22	
Grenville Front Tectonic	Grenf	0.001		
Central gneiss belt	Cngne	0.001		
Central metasedimentary	Cnmet	0.030	5.00	
Central granulite belt	Cntgr	0.004		
Baie Comeau segment	Baiec	0.001		
Eastern Grenville province	Egren	0.007		
Fury and Hecla basin	Furyh	0.017	6.00	
Somerset Island area	Somst	0.007	3.00	
Rae Sediments	Raesd	0.011	5.00	
Troy Quartzites (Cordilleran fold belt)	Troyq	0.013	8.00	
Unkar-Chuar	Unkch	0.015	3.70	
Crystal spring	Cryst	0.010	1.50	
Cottonwood-Unita fms.	Co-un	0.007	6.00	
Belt-Purcell	Beltp	0.005	9.40	
Purcell	Purcl	0.008	11.2	
Wernecke	Wernk	0.005	13.0	
Lake Superior rift	Lksup	0.045	20.5	
Bruce river	Bruce	0.028	5.80	
Late Proterozoic				
Amundsen Embayment	Amnds	0.011	4.00	Goodwin, (1991)
Mackenzie mountain	Mcknz	0.005	2.00	
Snake river	Snake	0.029	1.56	
Windmere	Winde (base Purcell gr)	0.007	1.20	
Unita mountains	Unita	0.018	4.00	
Canadian Appalachians	Canad	0.060		
Avalon zone	Avaln (base egren)	0.015		
US Appalachian (western)	Wbgla	0.003	12.6	
US Appalachian (eastern)	Ebgla	0.028	9.00	

Appendix VII

Susceptibility distribution for South American craton

The parameters used for deriving vertically integrated susceptibility model for the South American craton is shown in the following table. The tectonic map for the South American craton is shown in Figure (2.6).

Geological Region	GIS (name)	Maximum Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
Pakairama	Pakar	0.018		Goodwin, (1991)
Imataca complex	Imtca	0.025		
Xingu (southern)	Xingu	0.037		
Serra dos Carajas	Serra	0.022		
Gois median massif	Goism	0.016		
Gois granulite belt	Goisg	0.080		
San Francisco craton	Sanfr	0.015		
Belo Horizonte	Beloh	0.029	7.00	
Rio das Velhas	Riode	0.025		
Luis Alves	Luisa	0.037		
Metamorphic grade rocks	Metag	0.017		
Rio Negro-Juruena belt (extension)	Riext	0.036		
Xingu belt (extension)	Xnext	0.017		
Ribera belt	Ribra	0.037		
Borborema	Borbn	0.037		
Pakaraima Nuleus	Parnl	0.036		
Greenstone belts	Grenb	0.042		
Granitoids, metamorphic rocks	Grant	0.032		
Early Proterozoic				
Maroni-Itacaiuhas	Ma-it	0.032		Goodwin, (1991)
Goias massif	Goise	0.001	0.30	
Quadrilatero	Quadr	0.033	9.63	
Contendas-Mirante	Co-mi	0.020	5.00	
Serrinha greenstone belt	Serhn	0.041	9.50	
Jacobina belt	Jacbn	0.003		

Mid Proterozoic				
Uatuma volcanics	Uatum	0.046	5.50	Goodwin, (1991)
Central Brazil shield	Cbrzl	0.051		
Roraima	Rormi	0.027	8.70	
Goritore	Gorit	0.002		
Rio Negro-Juruena belt	Riong	0.036		
Aguapei belt	Aguap	0.056		
San Ignacio belt	Sanig	0.027		
Northern Espinhaco	Noesp	0.010	7.00	
Eastern Espinhaco	Esesp	0.002	0.70	
Southern Espinhaco	Soesp	0.031	3.00	
Uruacu	Uruac	0.003	4.09	
Lower Proterozoic				
Paraguay-Araguaia fold belt (northern)	Baixo	0.019	4.00	Goodwin, (1991)
Southern segment	Soseg	0.020	5.50	
Brasilia fold belt	Brsil	0.002	7.85	
Sao Francisco craton	Macau	0.002	1.25	
Bambui group	Bambi	0.003	0.82	
Atlantic shield	Margn	0.003		
Atlantic shield (interior)	Inter	0.019		
Aracuai fold belt	Aracu	0.038		
Don-Feliciano belt	Dn-fe	0.059		
Sao Luis craton	Saolu	0.017		

Appendix VIII

Susceptibility distribution for African craton

The parameters used for deriving vertically integrated susceptibility model for the African craton is shown in the following table. African craton is divided into four units: East Africa, West Africa, Central Africa and South Africa. The tectonic map for Africa is shown in Figure (2.7). The susceptibility value for the Gabon craton, Central Africa is computed in section (2.2.1) and is marked here in greyshade.

East Africa

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known to depth of (km)**	**Reference**
Early Proterozoic				
Uweinant block	Umint	0.029		Goodwin, (1991)
Tibesti block	Tibst	0.029		
Arabian shield	Araba	0.032		
Nubian shield	Nubia	0.032		
Mid Proterozoic				
Tchad block	Tchad	0.016		Goodwin, (1991)
Lower Proterozoic				
Nubian shield	Nubil	0.043		Goodwin, (1991)
Arabian shield	Arabl	0.035		

West Africa

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known to depth of (km)**	**Reference**
Archean				
Liberian	Libra	0.057	9.50	Goodwin, (1991)
Amsaga belt	Amsga	0.033 0.065		
Ouzzal (western Hoggar)	Ouzal	0.049		
Oumelalen (central Hoggar)	Oumln	0.010		
Early Proterozoic				
Eburnean	Eburn	0.023		Goodwin, (1991)
Yetti (Reguibat shield)	Yetti	0.043		
Western Hoggar	Wshgr	0.016		

Central Hoggar	Cnhgr	0.020		Goodwin, (1991)
Benin-Nigeria shield	Be-ng	0.033		
Anti Atlas	Antas	0.024		
Mid Proterozoic				
Darfur	Drfur	0.022		Goodwin, (1991)
Central Hoggar	Cnhgm	0.010		
Lower Proterozoic				
Taudeni basin	Taupt	0.010	4.00	Goodwin, (1991)
Anti Atlas	Antal	0.013	9.00	
Western Hoggar	Wshgl	0.025 0.035	13.5	
Central Hoggar	Cnhgl	0.011		
Eastern Hoggar	Eshgr	0.011	1.50	
Benin-Nigeria	Bn-nl	0.040		
Togo belt	Togob	0.012	2.80	
Volta basin	Voltp	0.016	2.20	
Gourma Aulacogen	Gurmp	0.001	8.00	

Central Africa

Geological Region	GIS (name)	Maximum Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
Gabon craton	Gabon	0.089		Goodwin, (1991)
Chaillu block	Chail	0.079		
Kasai craton	Kasai	0.036		
Bouca block	Bouca	0.089		
Kibalian	Kibal	0.087		
Bomu block	Bomuc	0.012		
Tanzania	Tanzn	0.048		
Early Proterozoic				
Ubendian	Ubend	0.021		Goodwin, (1991)
Ruwenzori	Ruwnz	0.021		
Francevillian	Frvln	0.021		
Angolan craton	Angol	0.013		
Kunene region	Kunen	0.080	14.0	
Zambian block	Zmbia	0.054		
Usagaran	Usgrn	0.022	7.50	
Mid Proterozoic				
Kibaran	Kibup	0.007 0.015 0.028 0.027 0.035	1.70 3.00 5.50 3.00	Goodwin, (1991)
Burundian	Burdu	0.002 0.003 0.002 0.065	1.30 2.50 8.60	Goodwin, (1991)
Irumides	Irmdu	0.001 0.001 0.001 0.035	2.00 4.00 4.00	

Lower Proterozoic				
Katangan	Katgu	0.001 0.008	5.80 1.50	Goodwin, (1991)
West Congo	Wcngz	0.045 0.047 0.011 0.050	3.50 4.90 4.60	
Lindian	Lindn	0.012	2.70	
Bukoban	Bkbnl	0.012 0.067 0.013	2.20 0.70	
Mozambique belt (Kenya-Tanzania)	Mzktz	0.051	3.00	
Malawi belt	Mzmlw	0.041		
Mozambique	Mzmzm	0.034		
Zambezi	Mzzmb	0.013		
Madagascar central	Mgcnt	0.011		
Madagascar south-central	Mgsnt	0.037		
Madagascar Malagsy	Mgmsy	0.035		
Central African belt South Cameroon	Cscmn	0.039		
North Cameroon	Cncmn	0.021		
Central African Precambrian belt	Cafpm	0.012		
Central African Proterozoic belt	Cafpt	0.039		
Oubanguides	Oubng	0.039		Pin and Poidevin, (1987), Goodwin, (1991)
Congo basin	Cnbsm	0.0001 0.001 0.008 0.020	1.30 9.00	Goodwin, (1991)

Southern Africa

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known to depth of (km)**	**Reference**
Archean				
Swaziland	Swazl	0.029		Goodwin, (1991)
Barberton	Bartl	0.024 0.029 0.026 0.071	3.50 2.00 8.00 4.00	
Murchison	Murhn	0.044		Goodwin, (1991)
Pongola	Pngll	0.073 0.069	7.00 1.80	
Witwatersrand	Watal	0.098 0.024	2.60 0.10	

Ventersdorp	Vntrl	0.056 0.006 0.064	2.00 2.00 1.20	Goodwin, (1991)
Limpopo (northern)	Lmpon	0.062		
Limpopo (central)	Lmpoc	0.068		
Limpopo (southern)	Lmpos	0.049		
Zimbabwe	Zimbl	0.081 0.078 0.040	4.50 20.3	
Early Proterozoic				
Transvaal	Twlbl	0.036 0.092 0.034	2.00 3.50 7.00	Goodwin, (1991)
Cape Botswana	Btswl	0.044 0.077 0.001	1.50 3.50 2.00	
Bushveld	Bvelu	0.151 0.037	7.50 6.80	
Matsap	Mtsap	0.033	3.80	
Magondi	Mgndi	0.027	3.50	
Kheis	Kheis	0.053	3.00	
Mid Proterozoic				
Richersveld	Rchld	0.031		Goodwin, (1991)
Bushmanland	Bsman	0.023		
Gordania	Gdnia	0.018		
Natal Province	Natal	0.033		
Ghanzi	Ghnzi	0.041	11.0	
Lower Proterozoic				
Swakop	Swkop	0.021	10.0	Goodwin, (1991)
Otavi	Otavi	0.010	6.00	
Gariep	Garip	0.001	5.50	
Saldania	Saldn	0.002		
Nama	Namam	0.010	1.50	
Zambezi	Zambz	0.010		

Appendix IX

Susceptibility distribution for Australian craton

The parameters used for deriving vertically integrated susceptibility model for the Australian craton is shown in the following table. The tectonic map for the Australian craton is shown in Figure (2.9).

Geological Region	GIS (name)	Maximum Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
Pilbara craton	Pilbr	0.074	30.2	Goodwin, (1991)
Hamersley basin	Hmsly	0.048	7.20	
Western gneiss Terrain (Yilgarn)	Wsgne	0.044		
Narryer gneiss	Naryr	0.065		
Kalgoorlie area	Kalgr	0.035	15.0	
Murchison	Murch	0.040		
Southern cross	Socro	0.044	10.0	
Eastern gold fields	Egold	0.044	15.0	
Basement (Yilgarn block)	Yilgl	0.032		
Gawler block	Gawlm	0.047		
Nullarbor block	Nulbr	0.047		
Great Australian bight	Asgcr	0.001		
Mt. Isa Inlier (Extension)	In-bl	0.047		Goodwin, (1996)
Region west of Musgrave block	Wsmgl	0.048		Proposed (This work)
Early Proterozoic				
Gascoyne province	Gscyn	0.019		Goodwin, (1991)
Ashburton trough	Ashbn	0.043	10.0	
Nabberu basin	Nabru	0.017	6.00	
Glengarry sub-basin	Gleng	0.043	6.00	
Halls Creek Inlier	Halls	0.048	19.0	
Pine Creek Inlier	Pinec	0.023	13.0	
Murphy Inlier	Murpy	0.001		
Tenant Creek-Davenport Inlier	Te-da	0.022	10.0	
George Town Inlier	Gorge	0.047		
Gawler domain	Gawlr	0.100 0.047		
Willyama domain	Wilym	0.045	8.00	
Mid Proterozoic				

Mc Arthur basin	Mcarh	0.023	18.0	Goodwin, (1991)
Kathleen group	Katln	0.022	3.00	
Mount Isa inlier	Mtisa	0.082	13.5	
South Nicholson	Nchln	0.001	6.00	
Leichardt river	Lchrt	0.001	20.0	
Birrindudu basin	Brndu	0.021	6.00	
Kimberley basin	Kmbly	0.043	16.0	
Gawler range	Gwlrr	0.039		
Musgravian division	Musgv	0.007	3.50	
Western Bangemall basin	Wbang	0.005	8.00	
Northern facie	Nbang	0.007	4.50	
Eastern facie	Ebang	0.007	1.00	
Western gneiss	Wg-fr	0.044		
Eastern gneiss	Esgne	0.047		
Transition zone	Trans	0.056		
Arunta domain	Arnta	0.048		
Musgrave domain	Musgr	0.048		
Lower Proterozoic				
Adelaide Geosyncline	Adeld	0.011 0.050	15.0	Goodwin, (1991)
Amadeus	Amads	0.001	1.20	
Officer	Ofcer	0.022	9.22	
Kimberley region	Kimly	0.008	2.50	
Rocky cape & Tyenna (Tasmania)	Tyena	0.005	5.00	

Appendix X

Susceptibility distribution for Greenland

The parameters used for deriving vertically integrated susceptibility model for Greenland is shown in the following table. The tectonic map for Greenland is shown in Figure (2.4).

Geological Region	GIS (name)	Maximum Susceptibility (SI units)	Stratigraphy known to depth of (km)	Reference
Archean				
Isua-Akilia region	Isuaa	0.050		Goodwin, (1991)
Amîtsoq gneiss	Amtsq	0.001		
Ameralik dikes	Amrlk	0.040		
Fiskenaesset complex	Fiskn	0.075		
Umivik & Tingmiarmivt	Umivk	0.054		
Southern Archean block	IAAFU	0.053		
Southern Greenland block	Grenr	0.040		
Northern Greenland block	Grenu	0.040		
Early Proterozoic				
Nagssugtoqidian mobile belt	Nagss	0.030		Goodwin, (1991)
Rinkian mobile belt	Rinkn	0.079 0.037		
Umanak-Rinks area	Umank	0.019	9.70	
Upernavik-Kraulshavn area	Uprnk	0.044		
Northern border (Ketilidian belt)	Nobic	0.059	5.60	
Central granite zone	Cngrn	0.036		
Folded Migmatite	Fldic	0.029		
Mid Proterozoic				
Eriksfjord formation	Eriks	0.036	2.00	Goodwin, (1991)
Dike swarms	Dikes	0.054		
Central complexes	Ccmpl	0.017		
Charcot land window	Charc	0.031	2.00	
Central metamorphic complex	Cmetn	0.007	2.50	
Northern complexes	Ncmpl	0.030	6.30	
Lower Proterozoic				
Eleonore bay	Eleon	0.006	14.6	Goodwin, (1991)
Hagen Fjord group	Hfjrd	0.010	4.50	
Thule basin	Thule	0.018	4.50	

Appendix XI

Susceptibility distribution for Antarctic craton

The parameters used for deriving vertically integrated susceptibility model for Antarctic craton is shown in the following table. The tectonic map for Antarctica is shown in Figure (2.10).

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known to depth of (km)**	**Reference**
Archean				
Dronning Maud land	Drong	0.040		Goodwin, (1991)
Napier complex	Naper	0.052		
Prince Charles mountains	Chrls	0.040		
Vestfold hills	Vestf	0.040		
Shackelton range	Shack	0.040		
Bunger hills	Bungr	0.040		
Early Proterozoic				
Rayner complex	Rainr	0.072		Goodwin, (1991)
Prince Charles mountains	Chrle	0.072		
Vestfold hills	Veste	0.072		
Enderby land	Endry	0.072		
Western Wilkes land	Wilks	0.072		
Bunger hills	Bnger	0.072		
Dronning Maud land	Dmaud	0.072		
Mid Proterozoic				
Southern Prince Charles mountains	Chrlm	0.068		Goodwin, (1991)
Shackleton range	Skltn	0.024		
Coats land	Coats	0.038		
Windmills Island	Windm	0.066		
Marie Byrd land	Ptz1a	0.068		
Lower Proterozoic				
Denman glacier	Denmn	0.018		Goodwin, (1991)
Enderby land	Endrb	0.062		
Sør Rondane mts.	Rndan	0.062		

Appendix XII

Susceptibility distribution for Oceanic crust and plateaus

The parameters used for deriving vertically integrated susceptibility model for the Oceanic crust and plateaus are shown in the following table.

Geological Region	**GIS (name)**	**Maximum Susceptibility (SI units)**	**Stratigraphy known from other sources (km)**	**Reference**
Oceanic crust				
Young oceanic crust	Ocn-y	0.120 0.090	2.11 4.97	White et al. (1992)
Old oceanic crust	Ocn-o	0.120 0.090	2.11 5.37	
Oceanic plateaus				
Iceland	iceld	0.120 0.090		3SMAC model
Flemish cap	flmsh	0.012 0.090 0.200		
Cape Verde plateau	Verde	"		
South Georgia rise	Georg	"		
Hess rise	Hessr	"		
Buton-Seron	Bt-sr	"		
Maud bank	Maudb	"		
Walvis ridge	Walvs	"		
Crozet land	Crozt	0.120 0.090 0.200		
Conrad rise	Conrd	"		
Kerguelen ridge	Krgln	"		
Bahamas	Bahma	0.560 0.090		
Porcupine bank	Porpn	0.056 0.090	10.0 18.0	Carlson et al. (1980) Nur and Ben-Avraham (1982)
Madeira plateau	Mader	0.120 0.090 0.200	5.00 4.00 10.0	

Shatsky rise	Stksy	“	2.00 6.00 8.00	
Ontong-Java plateau	On-jv	“	2.00 9.00 21.0	
Broken ridge	Brokn	0.120 0.090 0.200	5.00 7.00 6.00	
Naturliste plateau	Natul	0.056 0.065	8.00 10.0	Carlson et al. (1980) Nur and Ben-Avraham (1982)
Lord Howe rise	Hower	“	10.0 12.0	
Norfolk plateau	Norfk	“	8.00 6.00	
Agulhas plateau	Aglhs	0.120 0.056 0.200	3.00 9.00 10.0	
Mozambique	Mzmbq	0.120 0.056 0.200	3.00 5.00 11.0	
Alpha-Mendeleev ridge	Alpha	“	4.00 6.00 4.00	
Alpha-Canada basin	Al-cn	“	3.00 6.00 4.00	
Alpha-Markov basin	Al-ma	“	3.00 5.00 4.00	Jackson and Johnson (1986)
Markov basin	Markv	“	3.00 4.00 3.00	
Canada basin	Cndbs	0.120 0.090	5.00 3.00	