

BugPlates: Linking Biogeography and Palaeogeography

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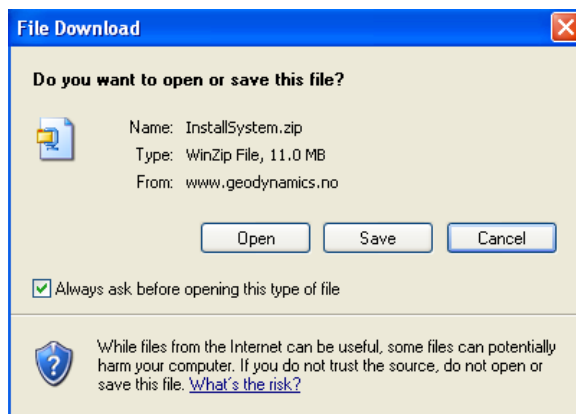
The Centre for Geodynamics at NGU develops advanced GIS-orientated reconstruction software for StatoilHydro. BugPlates is a stripped-down version of our first software development; it only operates between 540 and 400 Ma but interfaces with fossil databases. BugPlates (courtesy of StatoilHydro) is offered to the IGCP 503 Project: Early Palaeozoic biogeography and palaeogeography. The project aims to develop a better understanding of the environmental changes that influenced the biodiversity trends in Ordovician and Early Silurian times. The major objective is to attempt to find the possible physical and/or chemical causes (e.g. related to changes in climate, sea level, volcanism, plate movements and extraterrestrial influences) of Ordovician biodiversification, end-Ordovician extinction and the Silurian radiation.

Software Installation:

This Manual can be found at www.geodynamics.no (follow link to 'Software and Databases'):

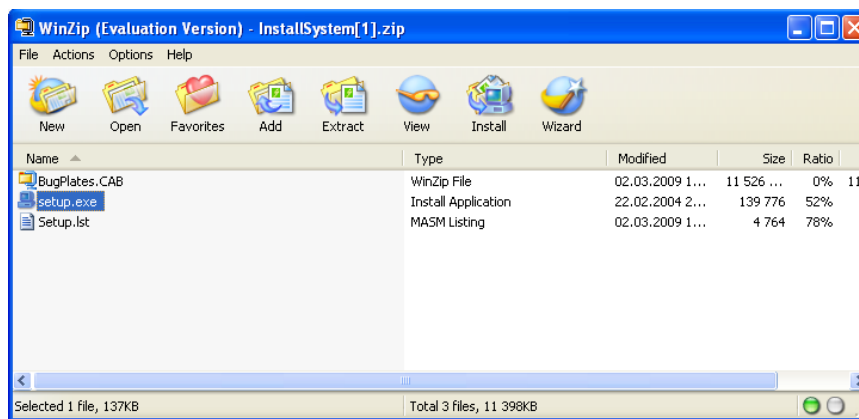
(A) INSTALL SYSTEM (CLICK ON LINK BELOW):

<http://www.geodynamics.no/bugs/InstallSystem.zip>

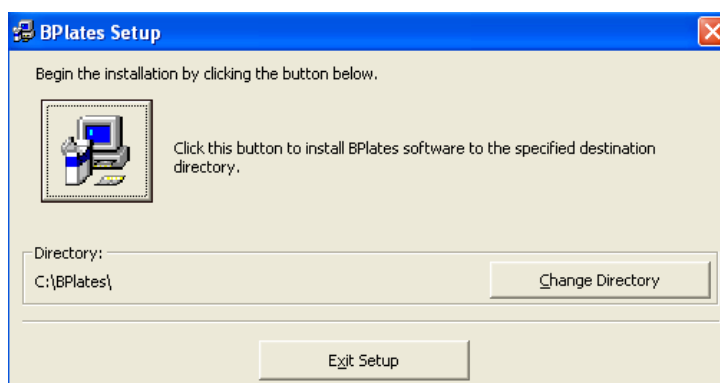


(1) Click 'Open' in File Download Box (see above)

(2) After the File has been downloaded and WinZip has fired up, click 'setup.exe' (see below).



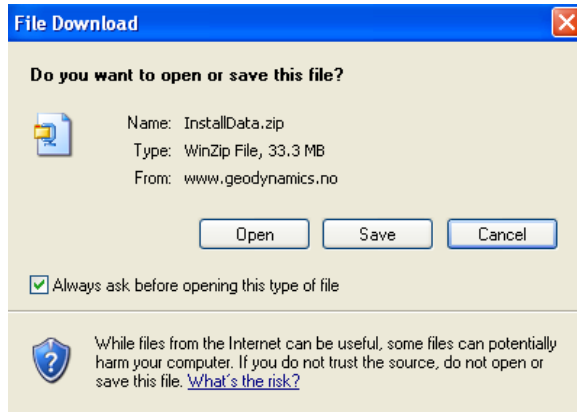
(3) During 'setup' the software must be installed to c:\bplates (default, see below)



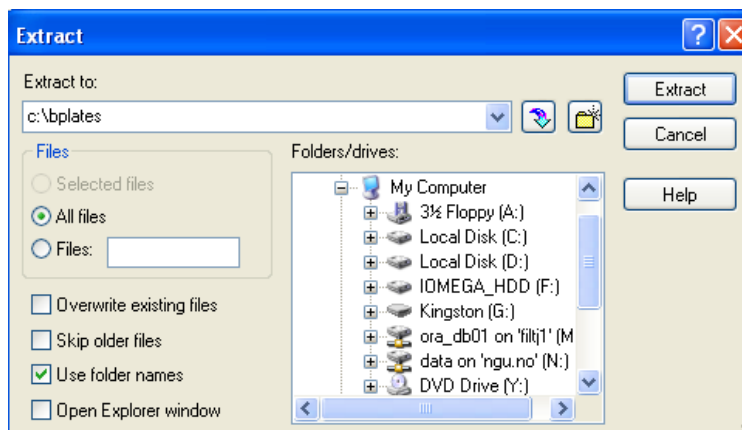
(B) INSTALL DATA (CLICK ON LINK BELOW):

<http://www.geodynamics.no/bugs/InstallData.zip>

(1) Click 'Open' in File Download Box (see below)



(2) After the File has been downloaded and WinZip has fired up click 'Extract' and type c:\bplates in the 'Extract to' box (see below).



If these steps were successful the c:\bplates directory should look like below:

Name	Size	Type	Date Modified
ST6UNST.LOG	4 KB	Text Document	02.03.2009 16:45
BugPlates.exe	548 KB	Application	01.03.2009 15:10
GRID32.OCX	88 KB	ActiveX Control	12.01.1996 00:00
Bugs		File Folder	02.03.2009 16:58
System		File Folder	02.03.2009 16:57
Data		File Folder	02.03.2009 16:57

Start the program by 'Start', 'Programs' and 'BugPlates'

Start-up menu

During start-up a dialog box with some project information will appear and simply click on 'continue' to proceed. All continents and terranes are loaded to memory (will take a little time on slow computers) and the main menu with the world reconstructed in orthographic projection will appear. At start-up the centre of the globe is set to 0,0 (latitude, longitude) and the world is reconstructed to 400 Ma (Fig. 1). The operator can drag the globe (change globe centre) by holding the left mouse button pressed while dragging the globe or use vertical and horizontal arrows around the picture box. You can also type any value of globe centre in the zoom box followed by clicking 'apply' (see Fig. 2). Zooming is performed by clicking the left (zoom out) or right (zoom in) arrow in the Zoom box.

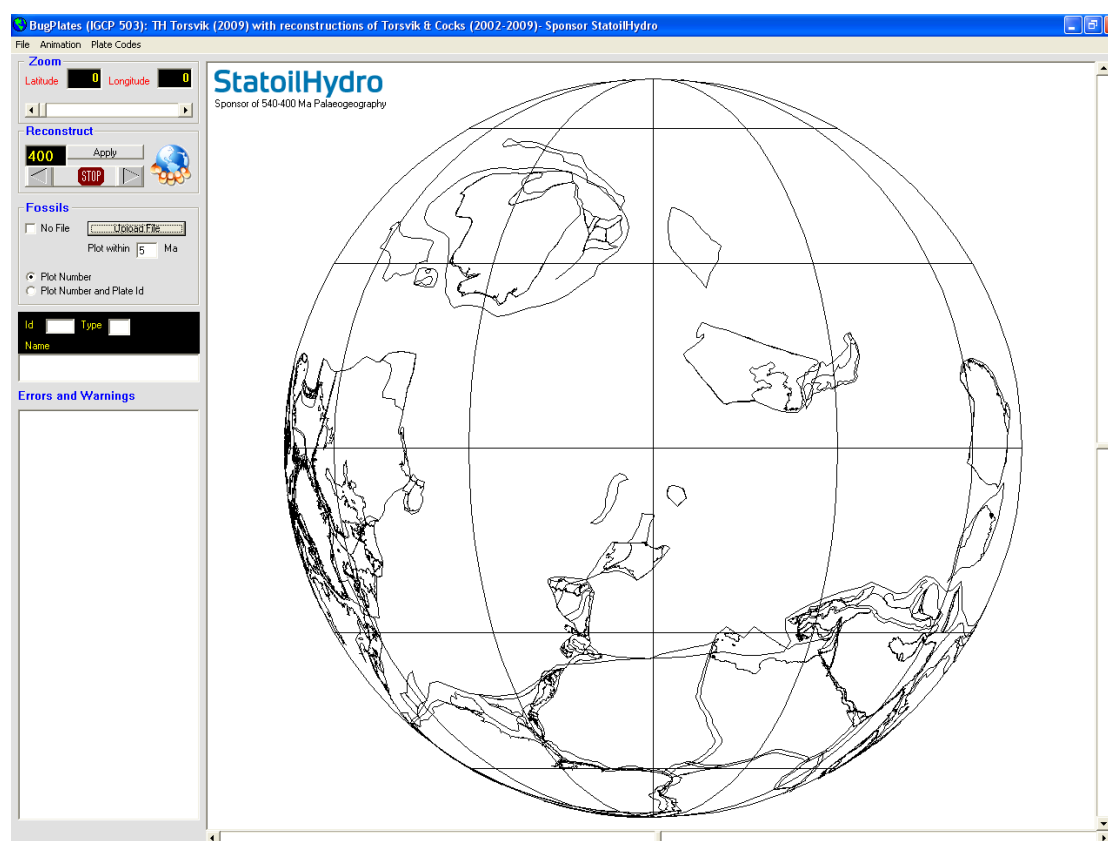


Figure 1 Start-up menu and screen

The program is very easy to use and most program options are shown in Figure 2. To make a reconstruction at any given time (between 400 and 540 Ma) simply type the age in the 'reconstruct' box followed by 'Apply'. You can increase or decrease the age by clicking the arrows beneath the age box. The increment interval is set to 5 Ma by default but this can be changed to any number by using the 'Animation' function at the top Menu (Fig. 2). Below the Fossil Box there is an information panel that will show the Plate Code for a particular continent or terrane if you click on it at the screen.

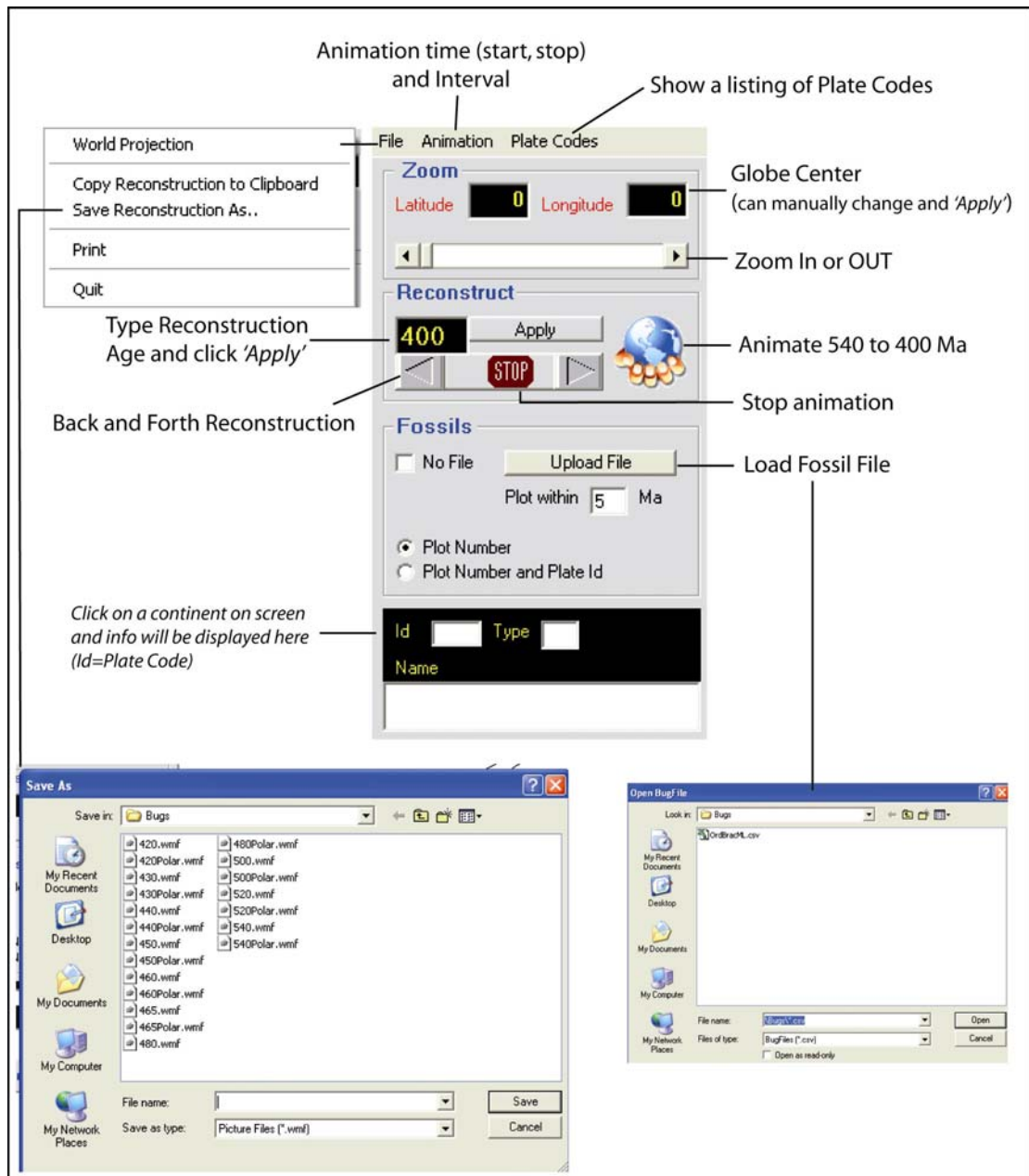


Figure 2 Description of various options at the start menu.

Interacting with a Fossil Database

You can build your own fossil database (e.g. using MS Excel) but the data must be in a strict format: No header and each line must contain 6 variables separated by commas (Fig. 3). If you use MS Excel save your data to .csv format to produce comma-separated outputs (see Fig. 3 top). Latitudes are inputted in degree.degree and you must give the fossile locality a plate code (see list in top menu: Plate Codes; Also listed in Appendix 1). As examples, we use 101 for North America, 102 for Greenland and 302 for Baltica. You can also find the continent code by clicking on the continent you need.

In Excel export as comma delimited .csv File

File name: OrdBracML.csv Save
Save as type: CSV (Comma delimited) (*.csv) Cancel

Info (e.g. stage)	Age	Locality	Latitude (Deg.Deg)	Longitude (Deg.Deg)
Dapingian-Darriwillian	465, 1	Shinbrook	46.13	-68.58, 150
Dapingian-Darriwillian	465, 2	Tetagouche1	46.47	-66.92, 150
Dapingian-Darriwillian	465, 3	Tetagouche2	46.47	-66.92, 150
Dapingian-Darriwillian	465, 4	Summerford	49.48	-54.83, 101
Dapingian-Darriwillian	465, 5	CNFLD	48.35	-56.45, 152
Dapingian-Darriwillian	465, 6	IndianBay	48.98	-53.78, 150
Dapingian-Darriwillian	465, 7	Tagoat	52.23	-6.38, 376
Dapingian-Darriwillian	465, 8	Anglesey	53.30	-4.45, 376
Dapingian-Darriwillian	465, 9	Otta	61.77	9.53, 379
Dapingian-Darriwillian	465, 10	Smøla	63.38	8.00, 380
Dapingian-Darriwillian	465, 11	Hølonda	63.12	9.93, 380

StatoilHydro
Sponsor of 540-400 Ma Palaeogeography

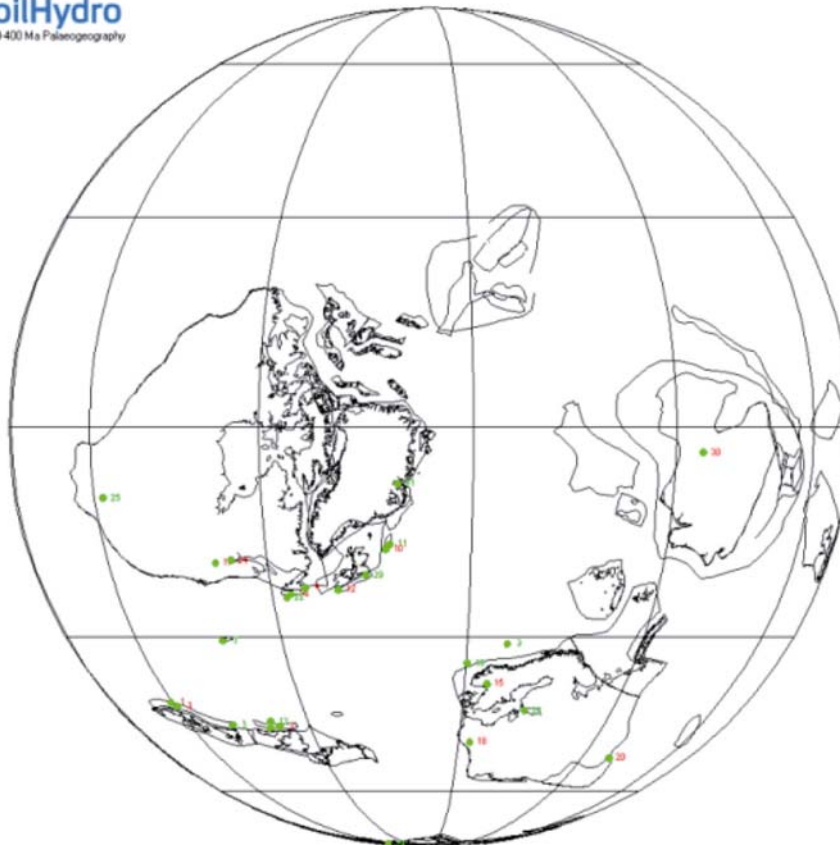


Figure 3 Example of Fossil database format (from Maria Liljerøth, Copenhagen) and plotting of fossil on the screen.

World Projection

The program starts in orthographic projection where you can spin the globe to your desire. By accessing 'World Projection' you can also select between three global projections, namely Mollweide, Galls and Samson (Fig. 4). Here you can also 'Zoom' and 'Print' the reconstruction.

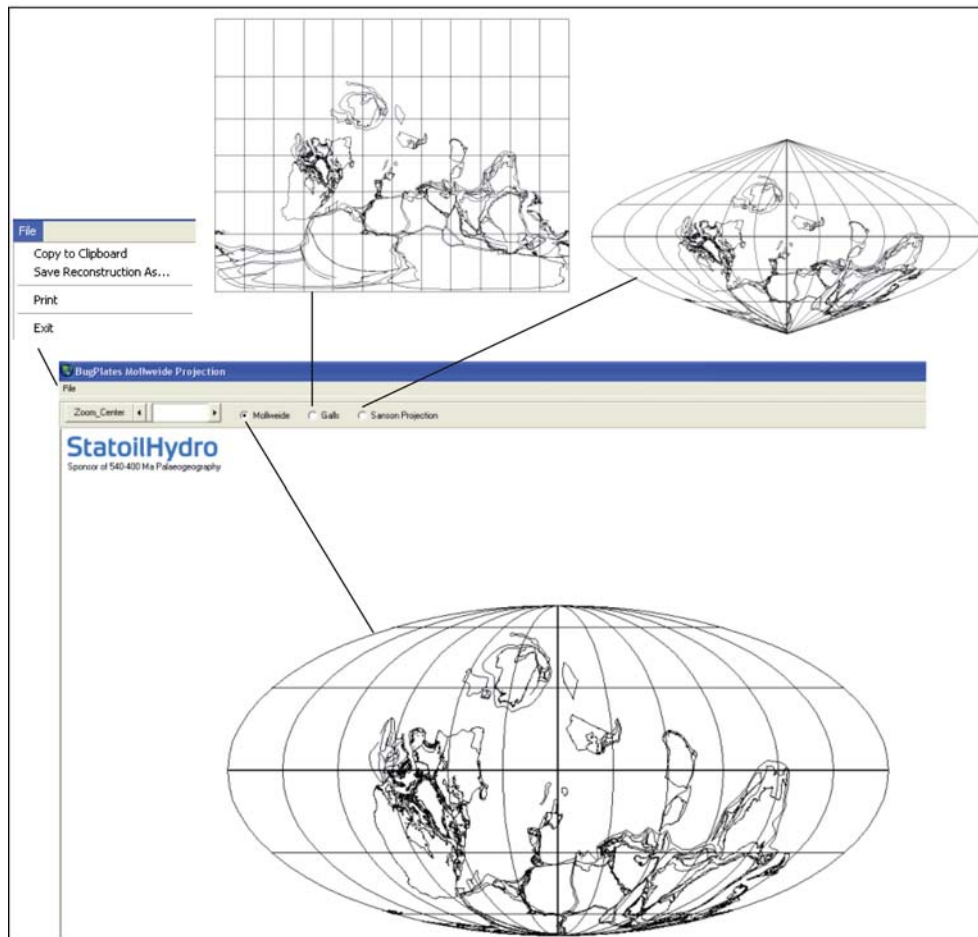


Figure 4 Examples of World Projections

Copy to Clipboard & Save Reconstruction As...

These functions are very important in order to export your reconstruction into other drawing packages. If you use 'Copy to Clipboard' your reconstruction can be pasted into any drawing package for modification. 'Save Reconstruction As...' works in a similar way but you save the reconstruction as a vector .wmf file that can later be imported to your favourite drawing package.

Lower Palaeozoic maps and Index Map

With L. Robin M. Cocks

New reconstructions made for the Copenhagen meeting 2009 follow for the Cambrian (540, 520, 500 Ma), Ordovician (480, 465, 460, 450 Ma) and Silurian (440, 430, 420 Ma), at times requested by David Harper. These can all be reproduced in BugPlates.

Be aware that they show units of the crust and not the distribution of land and sea. All the boundaries shown are largely the result of post-Palaeozoic tectonics and thus do not necessarily reflect their shapes at the dates of the maps. Some modern coastlines are included (e.g. in Baltica) to aid recognition.

Also remember that most major units are palaeomagnetically constrained latitudinally and in their orientation, but not longitudinally; however, if you wish to move them longitudinally, the effect on earlier and later maps should be considered.

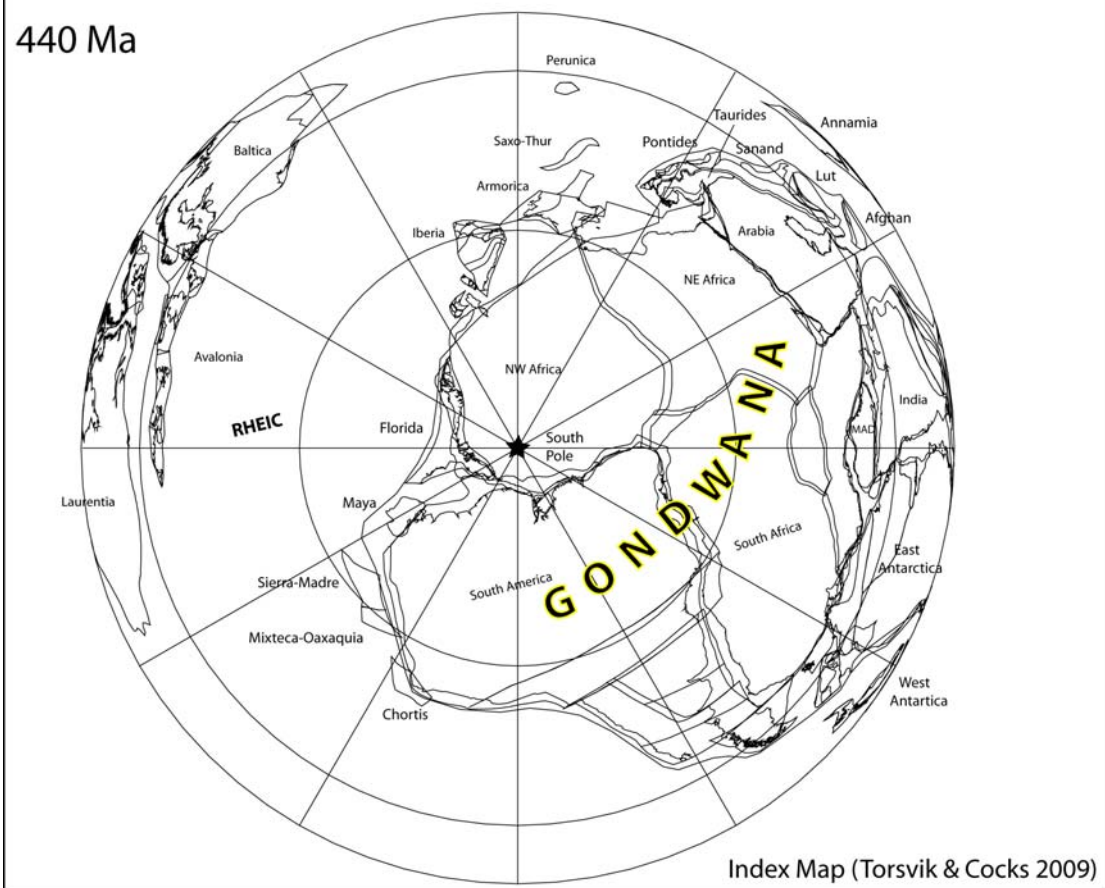
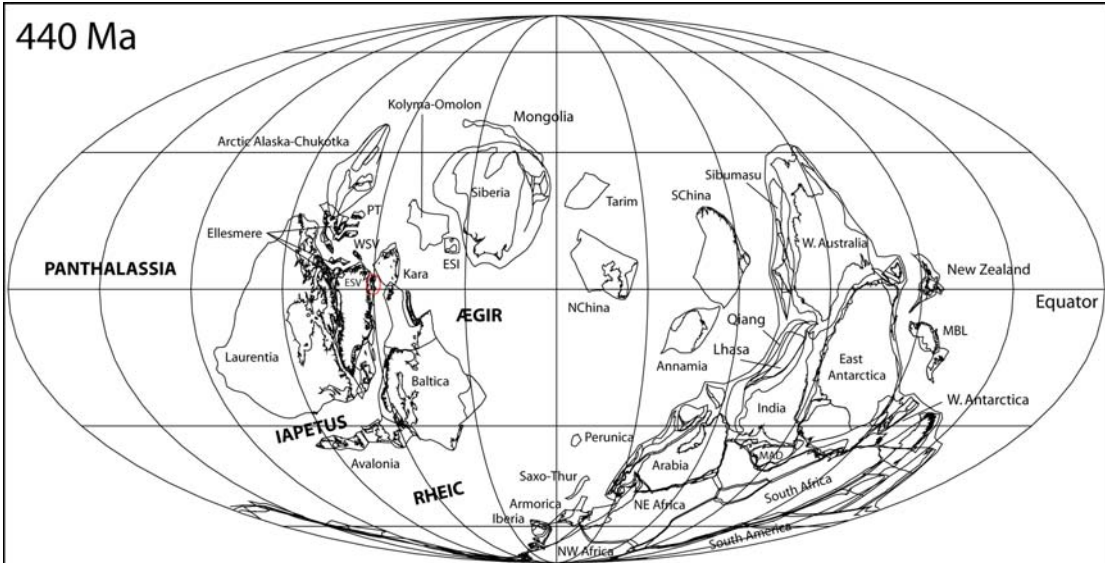
Some Lower Palaeozoic reconstructions were published by Cocks and Torsvik (2002) in *Journal of the Geological Society, London*, **159**, 631-44, but the following areas have since been substantially revised.

1. Baltica and Kara (Northern Taimyr and Severnaya Zemlya).
2. Siberia, which now includes the peri-Siberian and adjacent Mongolian and Kolyma-Omolon terrane areas.
3. Laurentia, which now includes revision of the Arctic area, Svalbard, Bjørnøya, and the adjacent Arctic-Alaska-Chukotka terrane unit, among others.
4. Gondwana: its northern and eastern margins from Iberia to New Zealand (including South China and Sibumasu), and also the Mexican terranes. Within Gondwana the margins of various earlier (e.g. in Africa) and later (e.g. India) units are shown.

Units which remain poorly constrained are Annamia (Indochina) and Tarim, particularly in their relationships to North China (Sinokorea).

Absent from these maps are island arcs (some of which contain Precambrian cores), apart from three in the Iapetus Ocean for which there are reliable palaeomagnetic data. Also absent are the many terranes which eventually amalgamated to become the Kazakhstania continent, but not until the Upper Palaeozoic; although the Chu-Ili Terrane of Kazakhstan is shown provisionally on the 465 and 460 maps only to the E of Baltica. Also absent are subduction zones, spreading ridges and various other tectonic boundaries, particularly those within the oceans.

Abbreviations on the map keys on the next page are: ESI, East Siberian Islands, ESV, East Svalbard; MAD, Madagascar; MBL, Marie-Byrd Land; PT, Pearya; Saxo-Thur, Saxothuringia; WSV, West Svalbard.



Index Map (Torsvik & Cocks 2009)

Appendix 1: Plate Codes

Number Abbreviation Description

North America

101	NAM	North American craton
102	GRN	Greenland
103	NSL	North Slope Alaska
104	MEX	Mexico
105	BAJ	Baja California
106	NBJ	Northern Baja California
107	BIS	Baffin Island
108	AVA	Avalon-Acadia
109	PDM	Piedmont-Florida
110	ALR	Alpha Cordillera Ridge
111	MNR	Mendeleev Ridge
112	CHP	Chukchi Plateau
113	NWR	Northwind Ridge
114	LMN	Lomonosov Ridge
115	CBM	Canada Basin Microplate
116	MVR	Marvin Spur Ridge
117	OAX	Oaxaca (Mexico)
118	FLM	"Flemish Cap, Northwest Atlantic"
119	CLT	Carolina Terrane (eastern North America)
120	CAI	Canadian Arctic Islands
121	ELA	East Ellesmere Island
122	ELB	East central Ellesmere Island
123	ELC	West central Ellesmere Island
124	ELD	West Ellesmere Island
125	STT	Stikine Terrane
126	SAP	Southern Alaskan Peninsula Terrane
127	FRP	Faeroe Plate (trapped Greenland crust N. of Faero Islands)
128	GV1	Trapped Greenland crust off Voring Plateau Plate 1
129	GV2	Trapped Greenland crust off Voring Plateau Plate 2
130	WRTN	Wrangellia Terrane North (western North America)
131	WRTS	Wrangellia Terrane South (western North America)
132	ALX	Alexander (Wrangellia) Terrane (western North America)
133	SACC	South Alaska Composite Terrane (Chugach) East
134	SACP	S. Alaska Composite Terrane (Prince William Terrane)
135	SACG	S. Alaska Composite Terrane (Ghost Rocks Terrane)
136	JAB	"Jeanne d' Arc Basin region, Grand Banks"
137	ORN	"Orphan Knoll, off Grand Banks"
138	PRY	"Pearya Terrane, northern Ellesmere Island"
139	YAKE	Yakutat Terrane (Southern Alaska) East
140	OAM1	Oceanic Angayucham Terrane 1 (Alaska)
141	OAM2	Oceanic Angayucham Terrane 2 (Alaska)
142	OTZ1	Oceanic Tozitna Terrane 1 (Alaska)
143	OTZ2	Oceanic Tozitna Terrane 2 (Alaska)
144	OTZ3	Oceanic Tozitna Terrane 3 (Alaska)

145	OTZ4	Oceanic Tozitna Terrane 4 (Alaska)
146	OIN	Oceanic Innoko Terrane (Alaska)
147	OGD	Oceanic Goodnews Terrane (Alaska)
148	RBY1	Ruby Terrane 1 (Alaska)
149	RBY2	Ruby Terrane 2 (Alaska)
150	TKY1	Koyukuk Terrane 1 (Alaska)
151	TKY2	Koyukuk Terrane 2 (Alaska)
152	TNY	Nyac Terrane (Alaska)
153	TTG	Togiatic Terrane (Alaska)
154	CCT1	Central Composite Terrane of Alaska 1 (includes Crazy Mtns)
155	CCT2	Central Composite Terrane of Alaska 2 (Nixon Fork & Minchumina)
156	CCT3	Central Composite Terrane of Alaska 3 (includes Dillinger & Mystic)
157	CCT4	Central Composite Terrane of Alaska 4 (fixed to CCT2)
158	CCT5	Central Composite Terrane of Alaska 5 (fixed to CCT2)
159	KHT	Kahiltna Terrane (Alaska)
160	YCT1	Yukon Composite Terrane 1 (Alaska)
161	YCT2	Yukon Composite Terrane 2 (Alaska)
162	UCT	Undifferentiated Cassier Terrane (Alaska)
163	KIL	Kilbuck Terrane (Alaska)
164	AXC1	Alexander-Craig Subterrane 1 (Alaska)
165	AXC2	Alexander-Craig Subterrane 2 (Alaska)
166	OCM1	Oceanic Slide Mountain Terrane 1 (Alaska)
167	OCM2	Oceanic Slide Mountain Terrane 2 (Alaska)
168	UQN	Undifferentiated Quesnella Terrane (Alaska)
169	UFNS	Undifferentiated French/Nakina/Sentinel Terrane (Alaska)
170	PET1	Peninsular Terrane 1 (Alaska)
171	PET2	Peninsular Terrane 2 (Alaska)
172	UWM	Undifferentiated Windley-McKinley Terrane (Alaska)
173	TRA	Tracy Arm Terrane (Alaska)
174	KLU	Kluane Terrane (Alaska)
175	TAKU	Taku Terrane (Alaska)
176	WRTM	Wrangellia Terrane Middle (western North America)
177	BST	Batholith between Stikine and Taku terranes (western North America)
178	SWD	"Seward Peninsula, Alaska"
179	CCH	"Cache Creek, western North America"
180	YAKW	Yakutat Terrane (Southern Alaska) West
181	SACW	South Alaska Composite Terrane (Chugach) West
182	PTA	Porcupine Terrane Alaska
199	LAR	Laurentia (Paleozoic North America)

South America and Caribbean

201	SAM	South American Craton
202	PRB	Parana Basin Plate South America
204	HON	Honduras-Chortis
205	YUC	Yucatan

206	CUB	Cuba
207	BTR	Beata Ridge
208	CHI	Chiapas
209	CUC	Cuchumantanes
210	POM	Polochic-Motahua
211	SCR	Santa Cruz
212	GYP	Guayape
213	MGJ	Motagua-Jocotan
214	QTS	Quinto Sueno
215	GUE	Guerrero
216	EYB	Eastern Yucatan Basin
217	WCT	West Cayman Trough
218	ECT	East Cayman Trough
219	THK	Thunder Knoll
220	RSB	Rosiland Bank
221	PDB	Pedro Bank
222	JBM	(East) Jamaica Blue Mountains
224	COF	Caribbean Ocean Floor
225	MRB	Maricaibo
226	RML	Romeral
227	STM	Santa Marta
228	PRJ	Perija
229	EPN	Eastern Panama
230	CPN	Central Panama
231	WPN	Western Panama
232	JMC	(West) Jamaica
233	FLS	Florida Straits Block
234	LAA	Lesser Antilles Arc
235	AVR	Aves Ridge
236	SCB	Saint Christopher Block
237	PTR	Puerto Rico
238	EPR	East Puerto Rican Trough
239	WPR	West Puerto Rican Trough
240	MUT	Muertos Trough
241	HESS	Hess Escarpment
242	EPTR	Eastern Puerto Rico
243	STCR	St. Croix (Virgin Islands)
246	AAB	Accreted Antilles Barbados
250	NHCO	Northern Hispaniola Cordillera
251	SPHI	"Samana Peninsula, Northeast Hispaniola"
252	SHI	Southern Hispaniola
253	SJH	San Juan/Hispaniola
254	HCO	Hispaniola Cordillera
255	NHI	Northern Hispaniola
256	GUAN	"Guaniguanico, Western Cuba"
257	BTB	"Gulf of Batabano Block, Western Cuba"
258	SCL	"Santa Clara Block, West South Central Cuba"
259	CAM	"Camaguey Block, East South Central Cuba"

260	ORT	"Oriente Block, Southeast Cuba"
261	TBG	"Tobago, Caribbean"
262	MRG	"Marguerite Island, southern part of Lesser Antilles Arc"
263	HAV	"Havana Block, Northwestern Cuba"
264	WNC	Western North Central Cuba (Sabana Archipelago)
265	ENC	Eastern North Central Cuba (North of Camaguey Block)
267	PINO	"Pinos Block (Pinar Island), Cuba"
268	ESC	"Escambray Block, Cuba"
269	CMT	"Caribbean Mountains, Venezuela"
270	CUR	"CuraDao Block, Venezuela"
271	SIB	Sigsbee Block
272	B4C	"Beta=4, Central Gulf of Mexico"
273	PRT	Puerto Rico Trench
274	NCT	North Cuban Thrust Sheet
275	SCT	South Cuban Thrust Sheet
277	WSS	Western Scotia Sea
279	RVB	"Rocas Verdes Basin, southernmost South America"
280	SJP	"San Jorge Plate, southernmost South America"
281	NSW	North Scotia Ridge West
282	NSE	North Scotia Ridge East
283	SRW	Shag Rock West
284	SRE	Shag Rock East
285	SGR	South Georgia
286	SPW	Sandwich Plate West
287	SSI	South Sandwich Islands
288	FLI	Falkland Islands
289	FIM	Falkland Islands microplate
290	SSS	Salado subplate on South America
291	CSS	Colorado subplate on South America
292	GSA	"Gastre Plate, Southern South America"
293	WCP	"West Congo Proterozoic craton, Brazil"
294	RPP	"Rio Plata Rroterozoic craton, South America"
295	AQM	"Arequippa Massif, South America"
296	FPF	"Falkland Plateau, first block east of Falkland Islands"
297	FPS	"Falkland Plateau, second block east of Falkland Islands"
298	MEB	"Maurice Ewing Bank, Falkland Plateau"
299	SAS	South American subplate

Europe

301	EUR	N European Craton
302	BAL	Baltic Shield
303	NHL	Northern Highlands (Scotland)
304	SPN	Iberia
305	AMR	Amorica (France)
306	CSD	Corsica/Sardinia
307	ITL	"Apulia/Adria, Italy"
308	DIN	"Dinardes, Greece"
309	WSV	Western Svalbard

310	CSV	Central Svalbard
311	FJL	"Franz Josef Land (part of Pechora, north of Baltica)"
312	GRM	Grampian Highlands
313	MDV	Midland Valley
314	SUP	Southern Uplands
315	ENG	"England-Brabant (Southern Ireland & England, northern France)"
316	GLB	"Galicia Bank, off Iberia"
317	POR	Porcupine Plate
318	RKL	"Rockall Bank, Rockall Plateau"
319	MOS	Moesia
320	BLE	Balearics
322	CAL	Calabria
323	SIC	Northern Sicily
324	VPT	Vöring Plateau
325	GAP	Greenland Abyssal Plain (trapped Eurasia crust)
326	HVR	Hovgaard Ridge (North Atlantic)
327	PLG	Pelagonia (Greece)
328	VAR	Vardar (Greece)
329	BET	Betic (Spain)
330	TOB	Tornquist Block on Eurasia
331	UKB	United Kingdom Block on Eurasia
333	APP	Central Appenines (Italy)
335	EALP	Eastern (Calcareous) Alps (Europe)
336	CARP	Carpathia (Europe)
337	TISA	Tisa (Europe)
338	ROD	Rhodopes (Europe)
344	WALP	Western Alps (Europe)
345	ION	Ionia (Greece)
346	GRC	Greece
347	CRT	Crete (Greece)
348	TSV	Transylvania
349	SMD	Serbo-Macedonia (Europe)
350	ERT	"Eratosthenes Block, Eastern Mediteranean"
351	SXT	Saxo-Thuringian (between N. Holy Cross & Amorica)
352	STH	Scythian (East-west strip south of Baltica)
353	GCM	Greater Caucasus Massif (between Black and Caspian seas)
354	MPH	Malopolska High (east of Amorica)
360	PCB1	"Porcupine Bank (East of United Kingdom), North Atlantic"
361	PCB2	"Porcupine Bight, North Atlantic"
362	FRI	"Faero Islands, North Atlantic"
363	RKL2	"Bill Bailey's Bank, Rockall Plateau, North Atlantic"
364	RKL3	"Faeroe Bank, Rockall Plateau, North Atlantic"
365	RKL4	"Hatton Bank, Rockall Plateau, North Atlantic"
366	RKL5	"Hatton Bank East, Rockall Plateau, North Atlantic"
367	RKL6	"Feni Ridge, Rockall Plateau, North Atlantic"
371	KNB	Kanin (Northern Baltica)
372	TMN	Timan (Northern Baltica)

373	NVZ	Novaya Zemlya (north of Baltica)
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Russia

401	SIB	Siberian Craton
402	KAZ	Kazakhstan
403	KOL	Kolyma
404	DLG	"DeLong Block (Northeast of New Siberia Islands), Arctic"
405	OMK	"Omulevka Terrane, east of Siberia"
406	SKP	Southern Kamchatka Peninsula
407	CKP	Chukotsky peninsula
408	OMO	Omolon block
409	NES	Northeast Siberia
410	MNG	Mongolia Block
411	GSR	"Gissar (North of Afghanistan, South of Kazakhstan)"
412	KBG	Kara Bogaz (between Black and Caspian seas)
413	UST	Ust-Urt (East of North Caspian Sea)
414	KKM	Kara-Kum (Northeast of Iran)
415	KAM	Northern part of Kamchatka Peninsula
416	PKM	Prikolyma Block
417	TMR	Taimyr
418	KOT	"Kotel'nyy (western part), New Siberia Islands"
419	NVS	"Novaya Sibir, easternmost New Siberia Island"
420	VRG	"Vrangelya Island, north of Chukhotsky Peninsula"
421	KLN	"Kamchatka Terranes, Late Neocomian"
421	KLS	"Kamchatka Terranes, Late Senonian"
421	KEE	"Kamchatka Terranes, Early Eocene"
424	WCKP	Western Chukhotsky Peninsula
425	UTS	"Ulakhan-Tas-Selennyakh Terrane, east of Siberia"
426	TKT	"Tas-Khayakhtakh Terrane, east of Siberia"
427	CHM	"Chemalginский Terrane, east of Siberia"
428	UCHA	"Ucha Terrane, east of Siberia"
429	ALZ	"Alazeya Terrane, east of Siberia"
430	KNR	"Kular-Nera pericratonic terrane, Siberia"
431	KNR2	"Kular-Nera 2 pericratonic terrane, south of Siberia"
432	VLG	"Viliga pericratonic terrane, south of Siberia"
433	OKH	"Okhotsk cratonic terrane, south of Siberia"
434	ZLG	"Zolotogorskiy pericratonic terrane, east of Siberia"
435	AKV	"Alkatvaam turbidite terrane, Kamchatka"
436	MNSK	"Mainitskiy island arc terrane, Kamchatka"
437	KNM	"Kony-Murgal island arc terrane, Kamchatka"
438	TLV	"Talovskiy accretionary wedge terrane, Kamchatka"

India and the Middle East

501	IND	India
502	SLK	Sri Lanka (Ceylon)
503	ARB	Arabia
504	TAR	Taurus (southern Turkey)
505	LUT	Lut (Southeastern Iran)

506	AFF	Farah (Northern Afghanistan)
507	AFS	"Helmand (Sistan, Central Afghanistan)"
508	SIN	Sinai
509	LEB	Lebanon
510	GTI	Greater India
511	CIB	Central Indian Basin
512	CMP	Cuvier Microplate (East Indian Ocean)
513	GMP	Gascoyne Microplate (East Indian Ocean)
514	LAX	"Laxmi Ridge, West of India"
515	MKR	Makran (Southernmost Afghanistan)
520	WPT	West Pontides (northern Turkey)
521	SKT	Sakhariya (Turkey)
522	MND	Menderes (Turkey)
523	LYC	Lycia (Turkey)
524	BEY	Bey Daglari (Turkey)
525	KRS	Kirsehir (Turkey)
526	EPT	East Pontides (northeastern Turkey)
527	LDK	Ladakh (North of India)
528	KOH	Kohistan (North of India)
529	SPM	Southern Pamir (North of Kohistan)
530	NPM	Northern Pamir (North of Kohistan)
531	AFH	"Herat (North of Farah, northern Afghanistan)"
532	BLC	Baluchistan (Southern Afghanistan)
533	SKD	"Southern Kopet Dagh (Aghdarband, North of Lut)"
534	KDG	Kopet Dagh (North of Lut)
535	WTM	West Turkmen/Caspian Basin
536	ABC	Alborz (Central Iran)
537	ABS	Alborz South Caspian Basin
538	SCG	Southern Caspian (Godin) Microcontinent
539	SCC	Southern Cheleken Caspian Basin
540	KCB	Southwestern/Lower Kura Caspian Basin
541	TAL	Talesh (North Central Iran)
542	LCC	Lesser Caucasus (Northwestern Iran)
543	TCC	Transcaucasus/Greater Caucasus (bet. Black & Caspian seas)
544	SRJ	Sanandaj-Sirjan (Southwest strip of Iran)
550	EAA	Eastern Anatolian Accretionary Complex (North of Arabia)
551	GGG	Gagra-Shatsky (northeast of Black Sea)
580	TRM	Tarim

South-East Asia

601	NCH	North China Platform
602	SCH	South China Platform
603	SBM	Sino/Burma/Malaya
604	ICH	Indochina
606	STB	South Tibet
607	BMP	Burma (Myanma) Plate
608	NPS	North Phillipine Sea
609	SPS	South Phillipine Sea

610	EPV	East Parece Vela
611	WPV	West Parece Vela
612	NSC	Northside South China Sea
613	SCS	Southside South China Sea
614	KLM	Kalimantan
615	PNG	Papua-New Guinea
616	NTB	North Tibet
617	RDB	Reed Bank
618	MAC	Macclesfield Bank
619	SIK	Sikhate Alin
620	VLA	Vladivostok sliver
621	CSA	North Central Sikhate Alin sliver
622	NSA	North Sikhate Alin sliver
623	NMS	N-most Sikhate Alin sliver
624	SAK	Sakhalin
625	CHK	Central Hokkaido
626	WHK	West Hokkaido
627	NEH	Northeast Honshu
628	CHN	Central Honshu
629	KAN	Kanto Region
630	NSH	North Southwest Honshu and Kyushu
631	SSH	South Southwest Honshu and Kyushu
632	TSO	Tsushima-Strati Block
633	NKO	North Korean Plate
634	SKO	South Korean Plate
635	KYR	Kita-Yamato Ridge
636	YAM	Yamato Ridge
637	OKI	Oki Ridge
638	SAD	Sado Ridge
639	NKM	North Korean Margin Banks
640	NEJ	Northeast Margin-Japan Basin
641	JBS	Japan Basin Spreading Center
642	YBS	Yamato Basin Spreading Center
643	LSM	Laptev Sea Margin
644	PCI	Paracel Islands
645	CEL	Celebes Basin
646	ZAM	Zamboanga Peninsula of Phillipines
647	MLP	Malay Peninsula
648	SOT	South Okinawa Trough
649	NOT	North Okinawa Trough
650	MPR	Mapia Ridge
651	LSI	Lombok-Sumbawa Islands
652	FAI	Flores-Alor Islands
666	SUL	Sulu Basin
667	ESW	East Sulawesi
668	WSW	West Sulawesi
669	NSU	North Sulawesi
670	SLA	Sula-Banggai

671	MCH	Manchuria
672	BGB	Bangka-Belitung
673	NSM	North Sumatra
674	WPH	West Philippines
675	SMB	Sumba
676	BDA	Banda Arc
677	PAL	Palawan Block
678	EPH	East Philippines
679	WHA	West Halmahera Block
680	EHA	East Halmahera Block
681	CER	Ceram
682	KTB	Kep Tanimbar
683	WET	Wetar
684	TIM	Timor
685	GNA	General Asia
686	BSS	Barisan - South Sumatra
687	AND	Andaman-Nicobar Ridge
688	WCB	South West Caroline Basin
689	SEC	Southeast Caroline Basin
690	NEC	Northeast Caroline Basin
691	CLB	Central Luzon Block
692	WCR	West Caroline-Eauripik Ridge
693	CAR	Caroline Ridge
694	NLA	North Luzon Arc
695	AMM	Amami Plateau
696	BON	Bonin Ridge
697	NNG	North New Guinea
698	CNG	Central New Guinea
699	MAR	Mariana Ridge

Africa

701	AFR	African Craton
702	MAD	Madagascar
703	MDR	Madagascar Ridge
704	SEY	Seychelles
705	MAS	Saya de Maya-Mascarene
706	ORA	Oran Meseta
707	MOR	Moroccan Meseta
708	KAL	Kalbylies (north Africa)
709	SOM	Somalia plate
710	DAN	Danakil plate
711	SOCT	"Socotra, Somalia, Africa"
712	LVB	Lake Victoria block
713	NMZ	North Mozambique
714	NWA	Northwest Africa
715	NEA	Northeast Africa
716	KPC	Kalahari Proterozoic craton
717	CPC	Congo Proterozoic craton

718	TEL	"Tell Plate, north Africa"
719	MLT	"Hyblean/Malta plate, north of Africa"
720	ALB	"Alboran Plate, north Africa"
721	RIF	"Rif Plate, north Africa"
722	MED	"Medina (SE of Sicily), Mediterranean"
750	MAL	Malvinas Plate

Australia and Antarctica

801	AUS	Australian craton
802	ANT	East Antarctic craton
803	APN	Antarctic Peninsula
804	MBL	Marie Byrdland (Ross Terrane)
805	ELL	Ellsworth Mts.
806	NNZ	North New Zealand (Western Province)
807	SNZ	South New Zealand/Chatham Rise (Western Province)
808	THR	Thurston Island
809	WHT	Whitmore Mountains
810	BRK	Berkner Island
811	STI	South Shetland Islands
812	SOB	South Orkney Islands Block
813	CBP	Campbell Plateau (Southern part)
814	BEL	Bellinghausen
815	BBK	Bruce Bank
816	DBW	Discovery Bank West
817	DBE	Discovery Bank East
818	HDB	Herdman Bank
819	OBW	Orkney Bank West
820	WSE	Western Scotia southeast
821	TON	Tonga-Kermadec
822	NLB	North Lau Basin
823	LAU	Lau Ridge
824	VIT	Vityaz
825	FIJ	Fiji
826	MNF	Mid-North Fiji (Basin)
827	NHB	New Hebrides
828	JST	Johnson Trench (western Vitiaz Trench)
829	NWB	North Woodlark Basin
830	SBK	South Bismark Basin
831	NKG	North Kerguelen
832	LHRN	Lord Howe Rise North
833	LHR	"Lord Howe Rise ("Central")"
834	NFR	Norfolk Ridge
835	TKR	Three Kings Rise
836	NCS	North Coral Sea
837	KMR	Kermadec Ridge
838	WSF	West South Fiji
839	ESF	East South Fiji
842	MNF	Mid (piece) Norfolk (Ridge)

843	ENF	East Norfolk (Ridge)
844	LTI	Loyalty Islands (east of Australia)
845	NCD	New Caledonia
846	EPC	East Papuan Composite Terrane
847	NBK	North Bismark Basin
848	NTF	Norfolk Transform Line
849	NAT	"Naturaliste Plateau, Western Australia"
850	TSM	Tasmania
851	WST	Western South Tasman Rise
852	EST	Eastern South Tasman Rise
853	EBK	Elan Bank (Kerguelen Plateau)
854	SKG	Southern Kerguelen
855	SLB	South Loyalty Basin (east of Australia)
856	CHF	"Chesterfield Plateau, Tasman Sea"
857	NDR	"North Dampier Ridge, Tasman Sea"
858	M1DR	"Middle 1 (northern) Dampier Ridge, Tasman Sea"
859	M2DR	"Middle 2 (southern) Dampier Ridge, Tasman Sea"
860	SDR	"Southern Dampier Ridge, Tasman Sea"
861	PBS	Perth Basin Southern Microplate
862	PBN	Perth Basin Northern Microplate
863	WBW	Wharton Basin Western Microplate
864	WBE1	Wharton Basin Eastern Microplate1
865	WBE2	Wharton Basin Eastern Microplate2
866	BOL	Bollons
867	GSC	Gilbert Seamount Complex (southeast of Tasmania)
868	CLP	Challenger Plateau
869	LHCP	Microplate between Lord Howe Rise and Challenger Plateau
870	ATMB	"Amundsen Terrane, Marie Byrdland"
871	NCBP	Northern Campbell Plateau
872	EPS1	"Eastern Province, southern South Island, New Zealand"
873	MTZ1	"Median Tectonic Zone, southern part South Island, New Zealand"
874	EPS2	"Eastern Province, northern South Island, New Zealand"
875	MTZ2	"Median Tectonic Zone, northern part South Island, New Zealand"
876	ETP	East Tasman Plateau
877	QPL	"Queensland Plateau, Eastern Australia"
878	MPL	"Marion Plateau, Eastern Australia"
880	WSC	West Scotia East (Central Scotia Sea)
881	CMG	"Coatsland-Maudheim-Grunehogna Plate, East Antarctica"
882	RON	"Ronne Plate (Weddell Sea, Antarctica)"
883	SOC	South Orkney Block 2 (central)
884	SOS1	South Orkney Block 3 (south 1)
885	SOS2	South Orkney Block 4 (south 2)
886	SOE1	South Orkney Block 5 (east)
887	SOE2	South Orkney block

World Oceans

901	PAC	Pacific plate
902	NAZ	Nazca (Farallon) plate
903	VAN	Vancouver (North Pacific) plate
904	ALU	Aluk plate
905	NSJ	Northern part of South Jan Mayen
906	CSJ	Central part of South Jan Mayen
907	SSJ	Southern part of South Jan Mayen
908	NJM	Northern Jan Mayen
909	COC	Cocos plate
910	JFC	Juan de Fuca plate
911	CPT	Clipperton (west of North Pacific Rise)
912	NMG	North Magellan
913	SMG	South Magellan
914	ORZ	Orozco (west of Mexico)
915	MTH	Mathematician
916	RIV	Rivera
917	GLP	Guadelupe
918	KUL	Kula
919	PHX	Phoenix
920	MSI	Malaita/Santa Isabel (Solomon Islands)
921	IDM	Indiaman
922	EAS	Easter
923	JFD	Juan Fernandez
924	HHP	Henry Hudson plate
925	LEF	Leif plate
926	IZ1	Izanagi 1 (North Pacific) plate
927	IZ2	Izanagi 2 (North Pacific) plate
928	MPP	"Malpelo plate (south of Panama Basin, Colombia)"
929	CRW	Cocos Ridge West (Abandoned part of Nazca Plate)
930	NCP	"North Coiba plate (Panama Basin, Colombia)"
931	SCP	"South Coiba plate (Panama Basin, Colombia)"
932	BVT	Buenaventura plate (eastern Central Pacific)
933	BOWR	"Bowers microplate, Bering Sea"
934	SHIR	"Shirshov Plateau, Bering Sea"
935	UMNK	"Umnak Plateau, Bering Sea"
936	BERS	Bering Sea
937	NGLP	"Northern Guadelupe Plate, Eastern Pacific"
938	FRAN	Franciscan Plate (Western North America)
939	VALP	Valparaiso Plate (southeastern part of Nazca Plate)
940	CCIN	Cocos Island North (abandoned part of Cocos Plate)
941	CCIS	Cocos Island South (abandoned part of Nazca Plate)
942	COCR	Cocos Ridge (abandoned part of Nazca Plate)