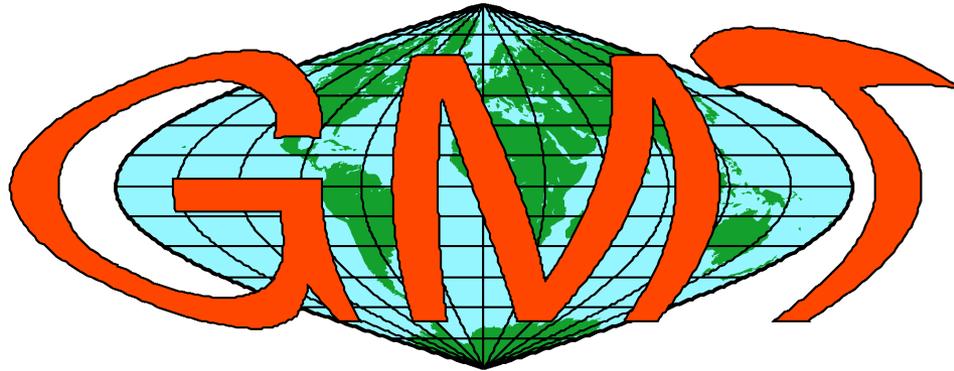


Data Processing and Plotting Using Generic Mapping Tools



Generic Mapping Tools Graphics

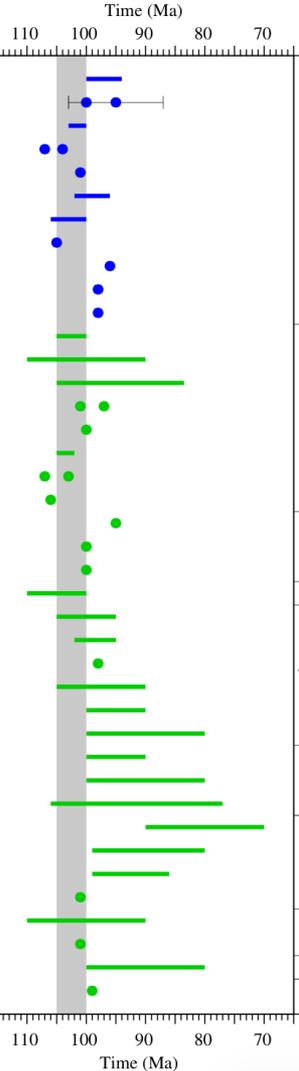
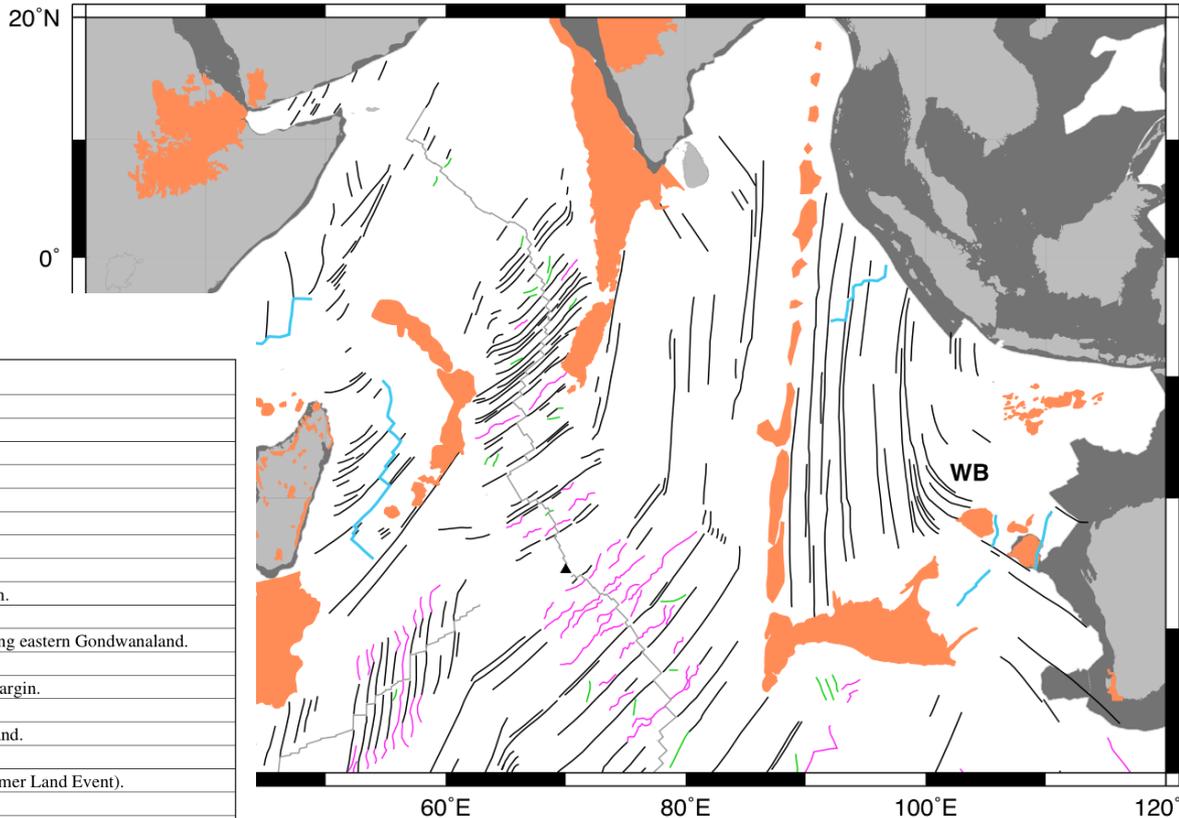
Maria Seton and Sabin Zahirovic

EarthByte Group

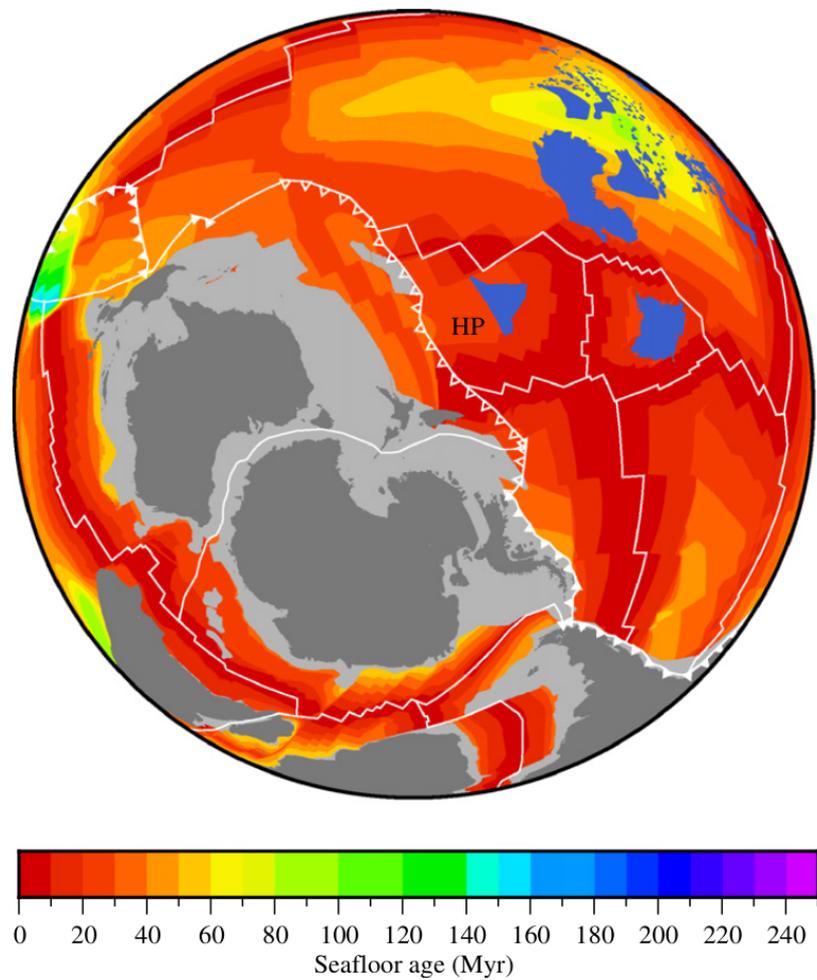
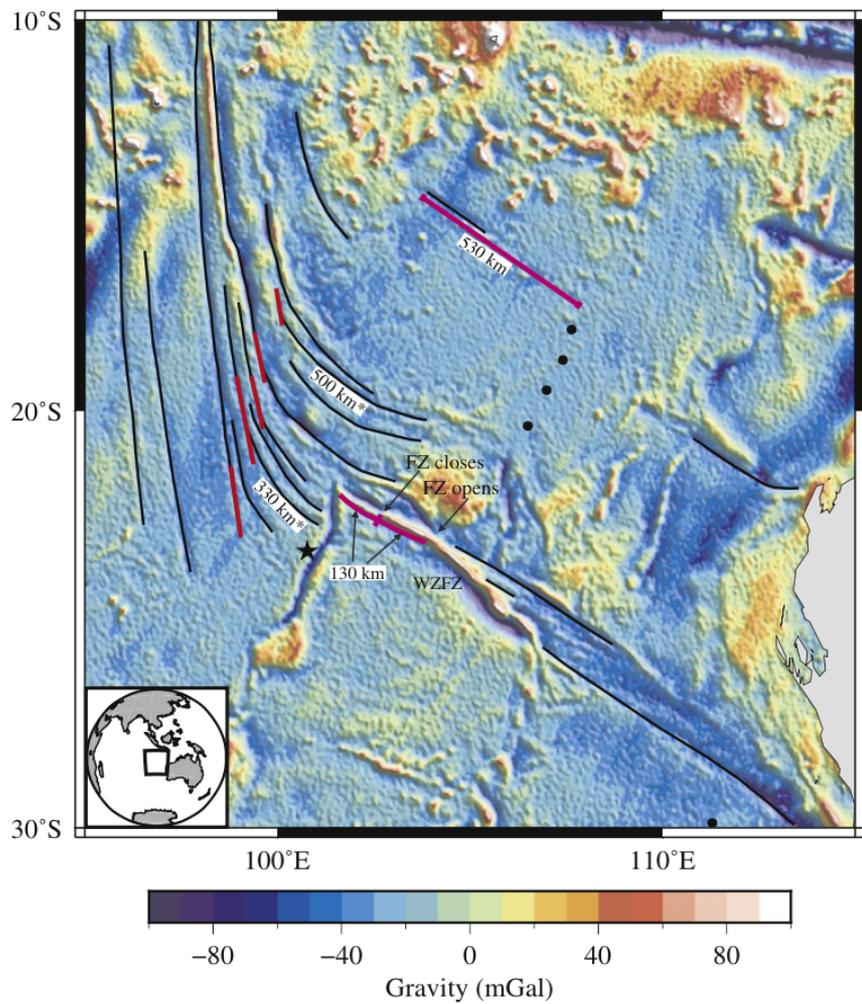
School of Geosciences, University of Sydney

Aim of the course

- Learn basic UNIX commands
- Plot maps and graphs of geo-data
- Process vector and raster data
- Convert between various file formats
- Make animations



Area	Observation
OB	Bouvet plume eruption.
	Change in absolute Pacific plate motion*.
	Pacific FZ bends form.
	Wharton Basin FZ bends form.
	Spreading rate increase in the Central Atlantic.
	Spreading rate increase in the South Atlantic.
	Equatorial Atlantic separation.
	Weddell Sea FZ bends form.
	Southwest Indian Ridge FZ bends form.
	Enderby Basin and Bay of Bengal FZ bends form.
	India–Madagascar separation.
EG	Subduction is replaced by strike–slip motion along eastern Gondwanaland.
	Uplift and denudation in eastern Australia.
	Accelerated subsidence at southern Australian margin.
	A–type magmatic events in New Zealand.
	Major angular unconformity forms in New Zealand.
	A–type magmatism begins in Marie Byrd Land.
	Antarctic Peninsula compressional episodes (Palmer Land Event).
	Alexander Island uplift.
WSA	Rocas Verdes Basin closure.
	Andean compressional regime initiates.
C	Deformation event in the northern Andes.
WNA	Caribbean subduction polarity reversal.
	Increase in compressional stress at the Peninsular Ranges Batholith.
	Changes in faulting patterns at the Sierra Nevada Batholith.
	Idaho Batholith magmatism commences.
	Main phase of deformation at the Western Idaho shear zone.
EA	Thrusting at the Coast Mountains Batholith.
	High flux magmatism at the Coast Mountains Batholith.
	Transpression at the Tan–Lu fault zone.
A	Uplift in eastern Asia: Japan, Korean Peninsula, eastern China, Mongolia.
	Okhotsk–Chukotka volcanic belt forms.
WE	Pulse of alkaline magmatism in southern Africa.
	Exhumation of southern Cape region of South Africa.
	Rapid tectonic subsidence in marginal African basins.
NT	Folding events in the West and Central African Rift System.
	Uplift and exhumation in the North Sea region.
G	Regional unconformity in Iberia.
	Magmatic pulse and possible MOR subduction event in southern Eurasia.
	Global distribution of unconformities.



Course Information

- Course will consist of lectures with practical exercises imbedded
- Two sessions:
 - 9am - 12pm
 - 1pm - 5pm
- Assessment
 - Due 5 May
 - Read handout carefully!

Assessment

- Assessment is a final practical assignment
- Any questions:
 - Maria (Rm 400) email
maria.seton@sydney.edu.au
 - Sabin (Rm 403) email
sabin.zahirovic@sydney.edu.au

Day 1 outline

- Installation and setup of GMT and other useful programs
- Introduction to GMT podcast by Prof. Paul Wessel
- Basic UNIX commands
- GMT default parameters
- GMT file formats

Installation and set-up

- Who needs help?
- Those that are set-up, just go ahead and watch the podcast

Podcast

- Watch a podcast:

- Background: 20 Years with GMT – The Generic Mapping Tools

- <https://itunes.apple.com/au/itunes-u/gmt-the-generic-mapping-tools/id805972861?mt=10#>

- Or type “GMT podcast iTunes University” in google and select the first podcast

IMPORTANT

- In some of the slides, you will see a GMT command that has a “\” (backslash)
 - This just means that the command could not fit on one line on screen, but you should type it out on one line without the backslash
- Depending on your version of GMT, and how you installed it, you may need to call GMT tools using:
 - `psxy ...` (Typically GMT4)
 - `gmt4 psxy ...` (GMT4)
 - `gmt psxy ...` (Typically GMT5)
 - `gmt5 psxy ...` (GMT5)

Download GMT Course file bundle

 Files required can be downloaded from:

 LECTURES

https://www.earthbyte.org/webdav/ftp/Training_Outreach/Courses/2017/GMT/GMT_Course_Lecture_PDFs.zip

 DATA

https://www.earthbyte.org/webdav/ftp/Training_Outreach/Courses/2017/GMT/GMT_Course_Data.zip