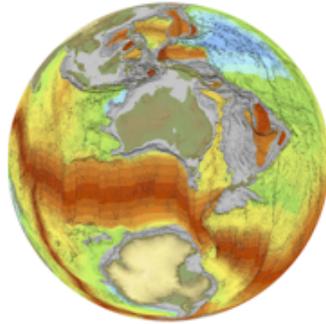


# Data Processing and Plotting Using Generic Mapping Tools (GMT)



## Overview

This course is designed to introduce students to different types of spatial data, data processing and interpolation functions and data plotting using GMT (Generic Mapping Tools). GMT is a set of public domain tools that will be used in conjunction with UNIX general processing tools (awk, grep) and basic shell programming. The examples presented in the course will focus on marine geophysical data, however many of the principles are applicable to other scientific data.

The learning outcomes for the course include:

- An understanding of the differences between vector and raster data
- Knowledge and critical assessment of map projections and datums
- An understanding of processing techniques used for vector and raster data, with a particular focus on data interpolation techniques
- The ability to use basic shell programming, UNIX commands and awk programming
- The ability to use common GMT commands to plot, process and manipulate both vector and raster data

The course is targeted towards Honours (fourth year) students with a background in geosciences and an interest in developing skills in data processing and data visualisation. The course is designed for new users of GMT. A background in UNIX is useful but not essential. Postgraduate students and staff are welcome. In addition, this course is offered to participants of the Basin GENESIS Hub.

## Course Structure

The course will run over 6 days (9am-5pm) between Tuesday 18<sup>th</sup> - Wednesday 26<sup>th</sup> April, 2017. It is arranged in a computer laboratory setting with lectures and hands-on examples.

Day 1: GMT and UNIX introduction, GMT Basics and a review of map projections

Day 2: Vector data plotting and processing and an introduction to shell scripting

Day 3: Raster data plotting and processing with a focus on grid interpolation

Day 4: Independent work on assessment

## Assessment

The assessment for this course will include the submission of publication quality maps and associated shell scripts as well as a series of short answers. It will be due by 5pm 3<sup>rd</sup> May, 2017. Please e-mail a PDF no larger than 10 Mb to Maria – or alternatively send via Dropbox or other large file transfer system (such as CloudStor if you are a student or staff member of the University: <https://cloudstor.aarnet.edu.au/filesender/>).

## Recommended Reading

We recommend that you download the GMT Technical Reference and Cookbook from the GMT website: <http://gmt.soest.hawaii.edu/> and follow the links.

You can also complete the online GMT Tutorial which you can also access from the GMT website.

An **easier and highly recommended approach** to get some background insight is to watch at least some of the “Novice”-level video podcasts made by the creators of GMT, which are available via iTunes University and the following link: <https://itunes.apple.com/us/itunes-u/gmt-the-generic-mapping-tools/id805972861?mt=10>

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