

Loading/Saving Data and Changing Colours

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Aim

This tutorial is designed to teach the user how to:

- 1) Load data
- 2) Save data
- 3) Experiment with colours

Screen shots have been included to illustrate how to complete new steps within each exercise.

Included files

The data bundle for this tutorial, 'Loading_Saving_Colouring', includes the following GPlates compatible feature files:

- EarthByte Global Coastline File
- EarthByte Global Mid Ocean Ridge File

See www.earthbyte.org/Resources/earthbyte_gplates.html for EarthByte data sets.

Background

Feature Collections

Data files loaded into GPlates are referred to as Feature Collections. This is because all data in GPlates are regarded as 'features' (e.g. MORs, volcanoes, etc) — whether geological or reconstructed data. For example, the EarthByte Global Coastline File contains the outlines of all the present day coastlines of the world, these coastlines can be thought of as features and therefore when we load the coastline file we are loading a 'feature collection'. Basins, Cratons, Faults, Hotspots, Isochrons, Mid-Ocean Ridges, Seamounts, Subduction Zones, Sutures and Volcanoes are just some of the other many feature types handled by GPlates. Alternatively a feature can remain 'unclassified'. Rotation files are also loaded as a Feature Collection.

File Formats

GPlates is able to load and save a number of data-file formats, including PLATES4 line (*.dat *.pla), GPlates Markup Language (*.gpml) and ESRI shape files (*.shp). Additionally data can be exported in the GMT xy (*.xy) format.

See the GPlates online manual for further information:
www.gplates.org/user-manual/LoadingAndSaving.html

Exercise 1 – Loading Data

In this exercise we will be loading into GPlates the EarthByte Coastline File and the EarthByte Global Mid Ocean Ridge File.

1. Open GPlates

2. File → Open Feature Collection... (Figure 1) → locate and select **Global_EarthByte_GPlates_Coastlines_20091014.gpml** and **Global_EarthByte_GPlates_Mid_Ocean_Ridges_20091015.gpml** in the Loading_Saving_Colouring data bundle* → Open

*Hold down the Control (PC) or Command (Mac) key to select multiple files.

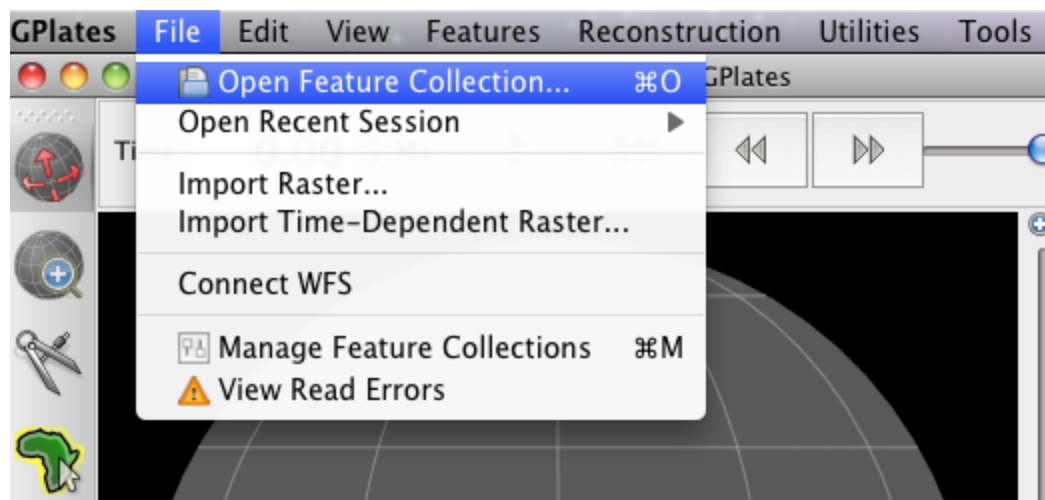


Figure 1. How to load a Feature Collection into GPlates from the menu bar.



Drag Globe tool

The coastlines and spreading ridges of the world are now displayed on the globe. Using the Drag Globe tool (see above) from the Tool Palette spend some time interacting with the globe; rotating it to see the different features. Once you have clicked this icon, click (and hold) anywhere on the globe and drag it (move the mouse around). While this tool is selected you can drag the globe as many times as you like and rotate it in any direction. You will learn more about controlling the view of the globe in the next tutorial.

The Manage Feature Collections (Figure 2) window is an alternative way to upload data sets. This useful option also enables you to save and unload

data sets.

1. File → Manage Feature Collections

You should be able to see all the layers you have loaded thus far. You can also load more file from this window. When data sets are loaded, a separate window, the Layers Window (Figure 3) should appear, where you can click on the 'Eye' symbol next to the layer name to switch it on/off, ie visible or invisible.

This option is useful because layers can be made visible/invisible without being unloaded (ejected). This is a useful, time-saving feature that is especially handy when many different data sets are being viewed and analysed. It can reduce clutter on the globe and help the user to compare data sets without being overwhelmed with too many points, lines or polygons. We will make use of the Manage Feature Collections window and the Layers window in Exercise 2.

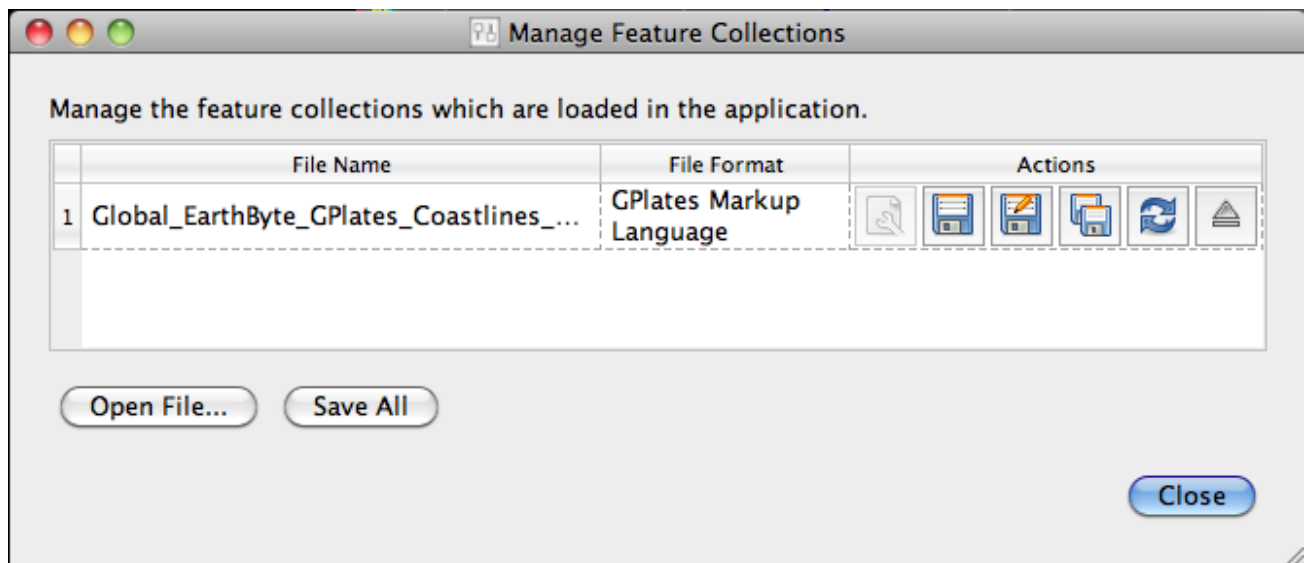


Figure 2. The 'Manage Feature Collections' window.

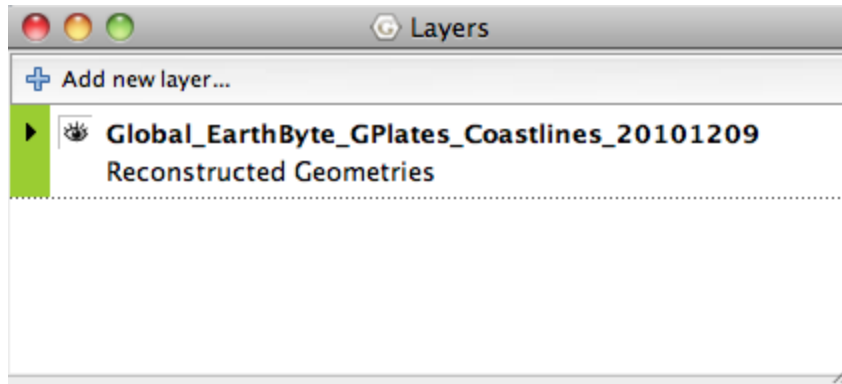


Figure 3. The 'Layers' window, where you can make layers visible/invisible by clicking on the "Eye" icon next to the layer name.

Exercise 2 – Saving Data Sets

This exercise continues on from the previous exercise. We will now see the different options available for saving data.

Open the Manage Feature Collections window and have a look at the different available actions.

1. File → Manage Feature Collections (Figure 2)

As you can see, the Manage Feature Collections dialog contains a table of controls and status information about the feature collections that are loaded in GPlates; each row corresponds to a single feature collection, and lists file name, format and available actions. There are three options ('Actions') available for saving data:



Save – This first option simply saves the data file using its current name.

Save As – This second option saves the data file using a new name.

Save a Copy – This third option saves a copy of the file using a new name. If this option is selected then the original file will remain loaded in GPlates and the copy will be made in the selected destination.

In order to practice saving data we will save our coastline file with a new name – 'EarthByte_Coastlines_Copy' (for example). Click the 'Save As' icon and enter the new file details in the Save File As window that appears (Figure 4), leave the file format as GPlates Markup Language (*.gpml).

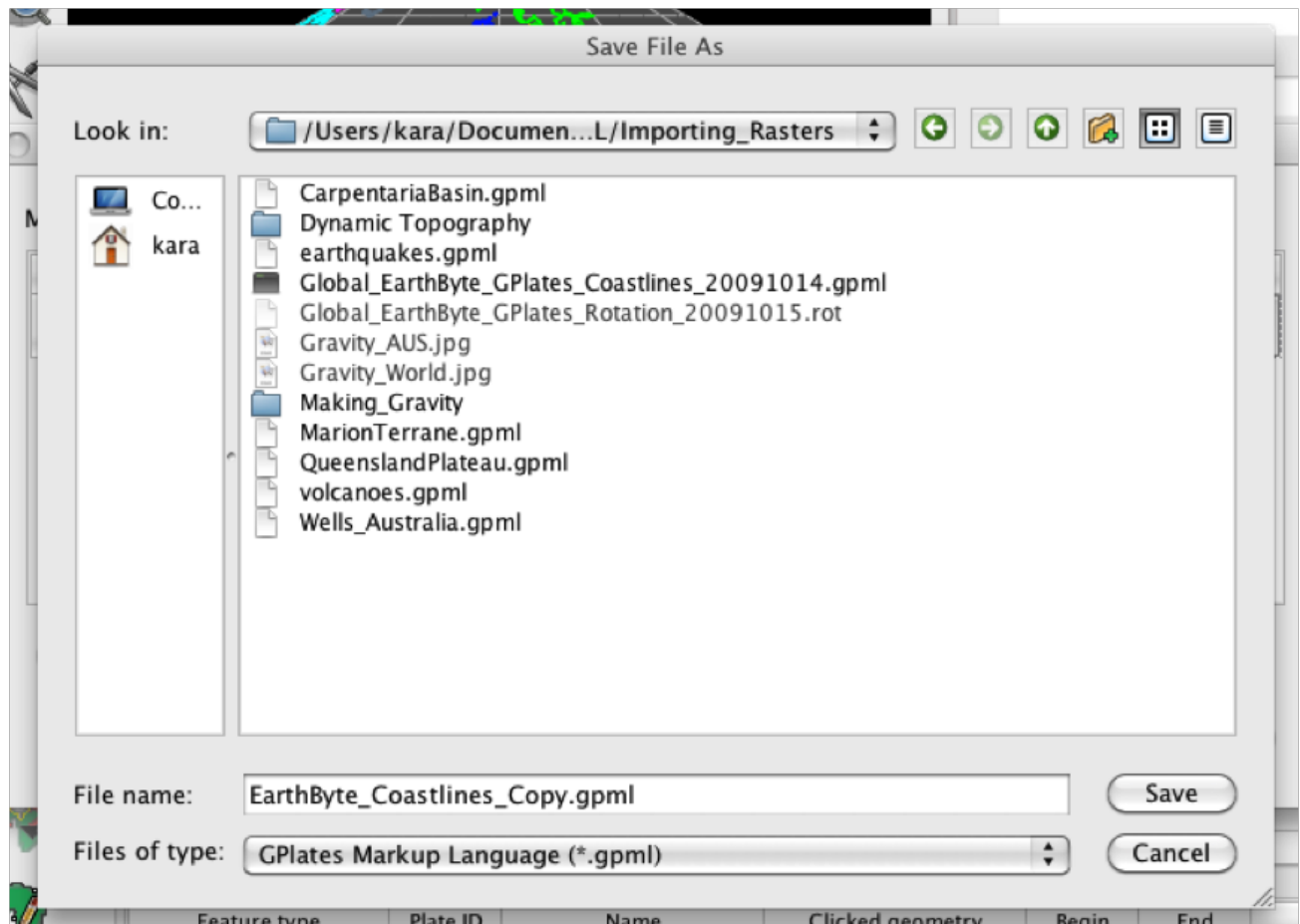


Figure 4. The 'Save As' window where a new file name, and optionally a new file format, are specified.

Notice that the File Name in the Manage Feature Collections window has updated itself. You could now work on this file, for example add features to it, and not have to worry about modifying the original contents of the file.

We will leave the current feature collections loaded ready for the next

exercise.

Exercise 3 – Changing Feature Colours

In this exercise we will learn how to experiment with feature colours. Features in GPlates can be coloured according to their attributes or they can be assigned a single colour scheme. This functionality improves the user's ability to effectively view and analyse data, particularly multiple data sets. By default features are coloured by Plate ID. Other colouring options include: Plate ID (by region), Single Colour, Feature Type and Feature Age. Note that you can only change the colour scheme for all features, not individual features.

As a first example we will colour our feature collections using a single colour.

1. Features → Manage Colouring → select All from the Feature Collection drop down menu → Single Colour → Blue (Figures 5 and 6)

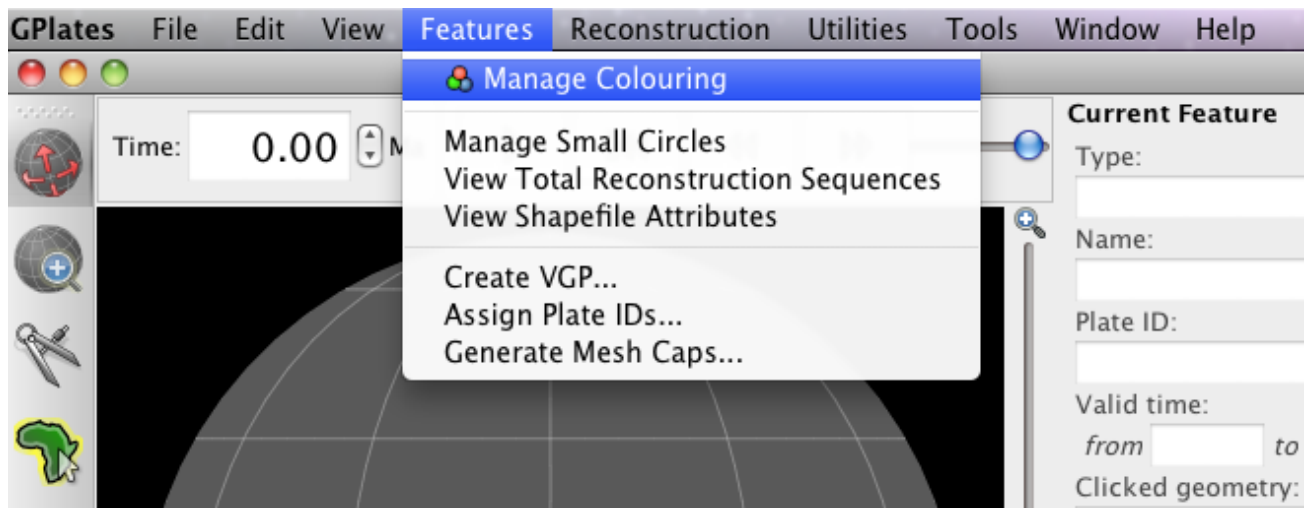


Figure 5. How to experiment with different feature geometry colours using the 'Manage Colouring' options.

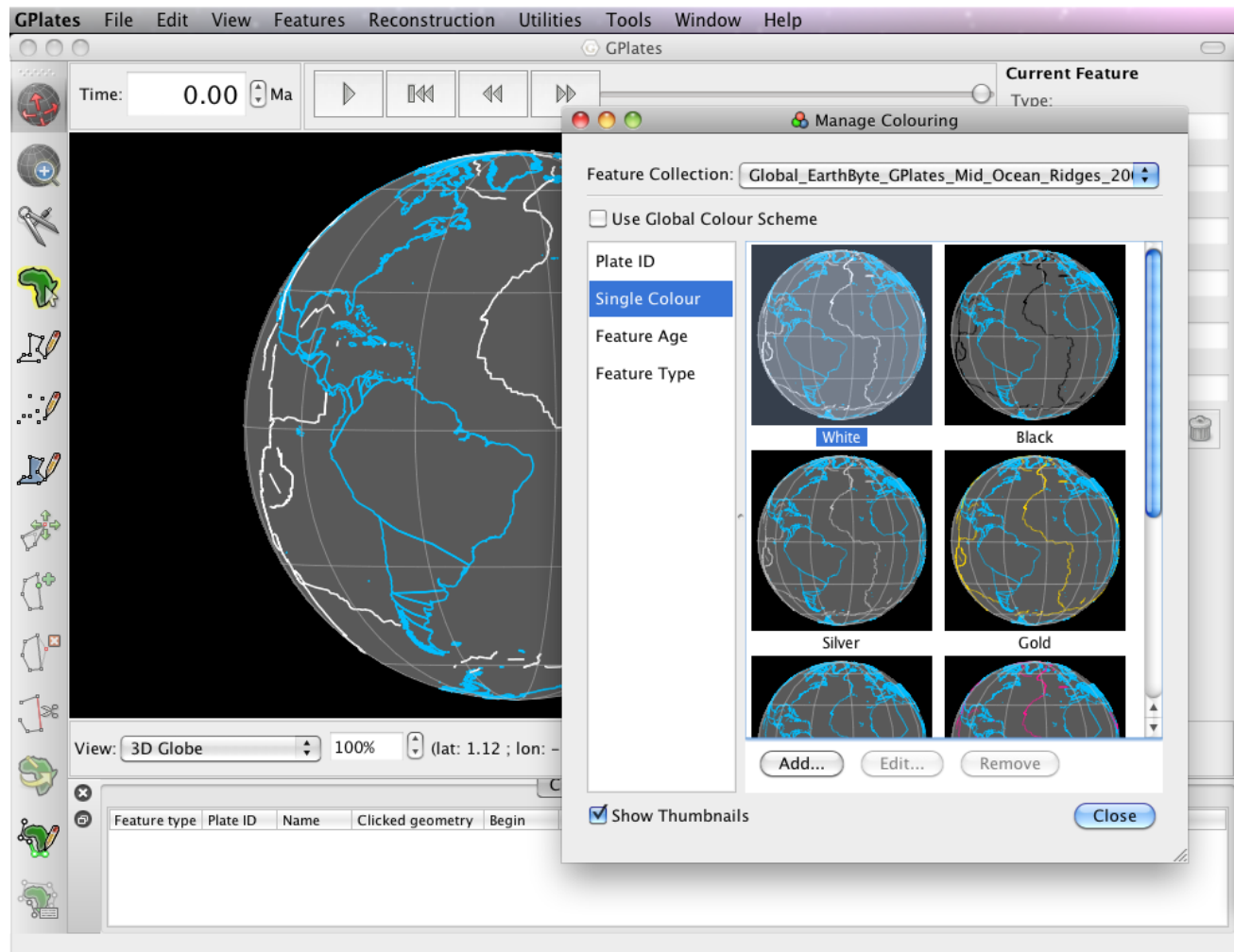
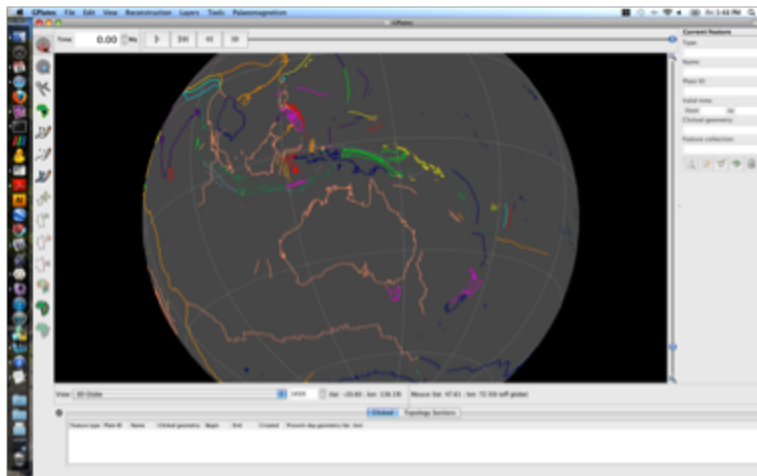
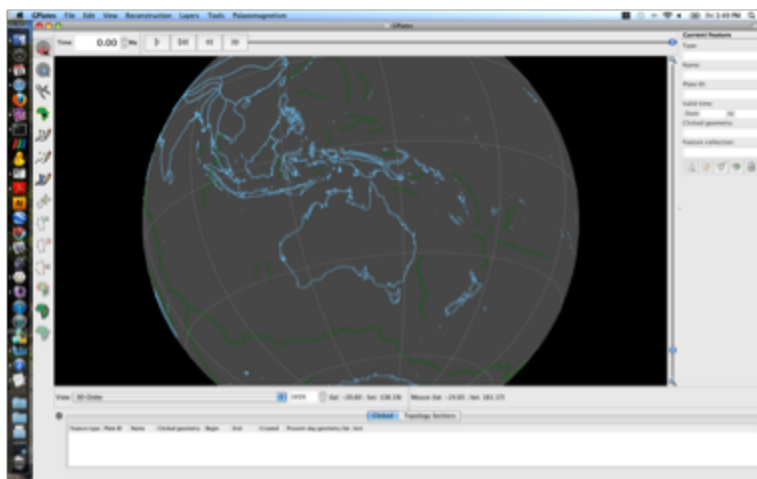


Figure 6. The Manage Colouring window. Here we have made Coastlines and spreading ridges coloured blue.

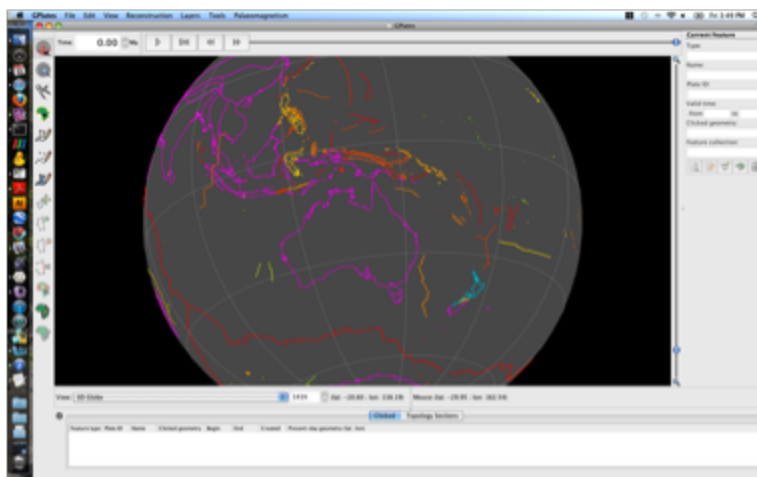
Now spend some time trying the different colouring options (Figure 7).



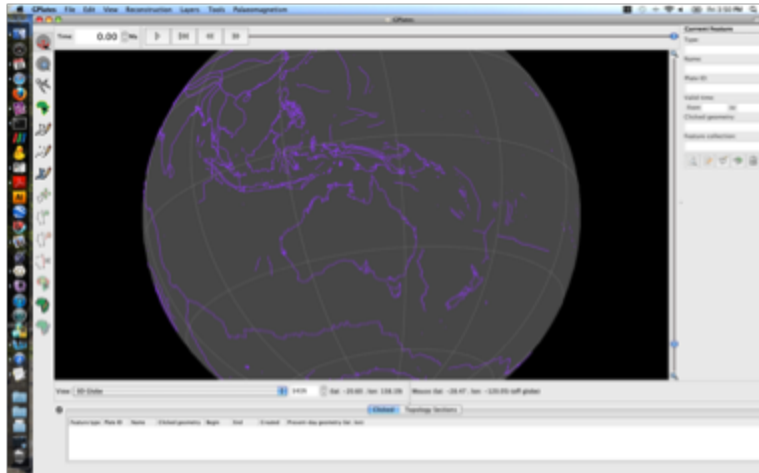
A



B



C



D

Figure 7. Globe coloured by: (A) Plate ID (by region), (B) Feature Type, (C) Feature Age (default) and (D) Single Colour (customised: Add → choose colour from colour wheel).

GPlates also allows the user to colour data sets separately. So in this current example our coastlines can be coloured using a different scheme from our ridges (Figure 8).

2. Features → Manage Colouring → select the data set that you would like to colour differently from the Feature Collection drop down box → untick the Use Global Colour Scheme Box → now select the colour scheme → Choose.

Now spend some time playing around with the various colouring options.

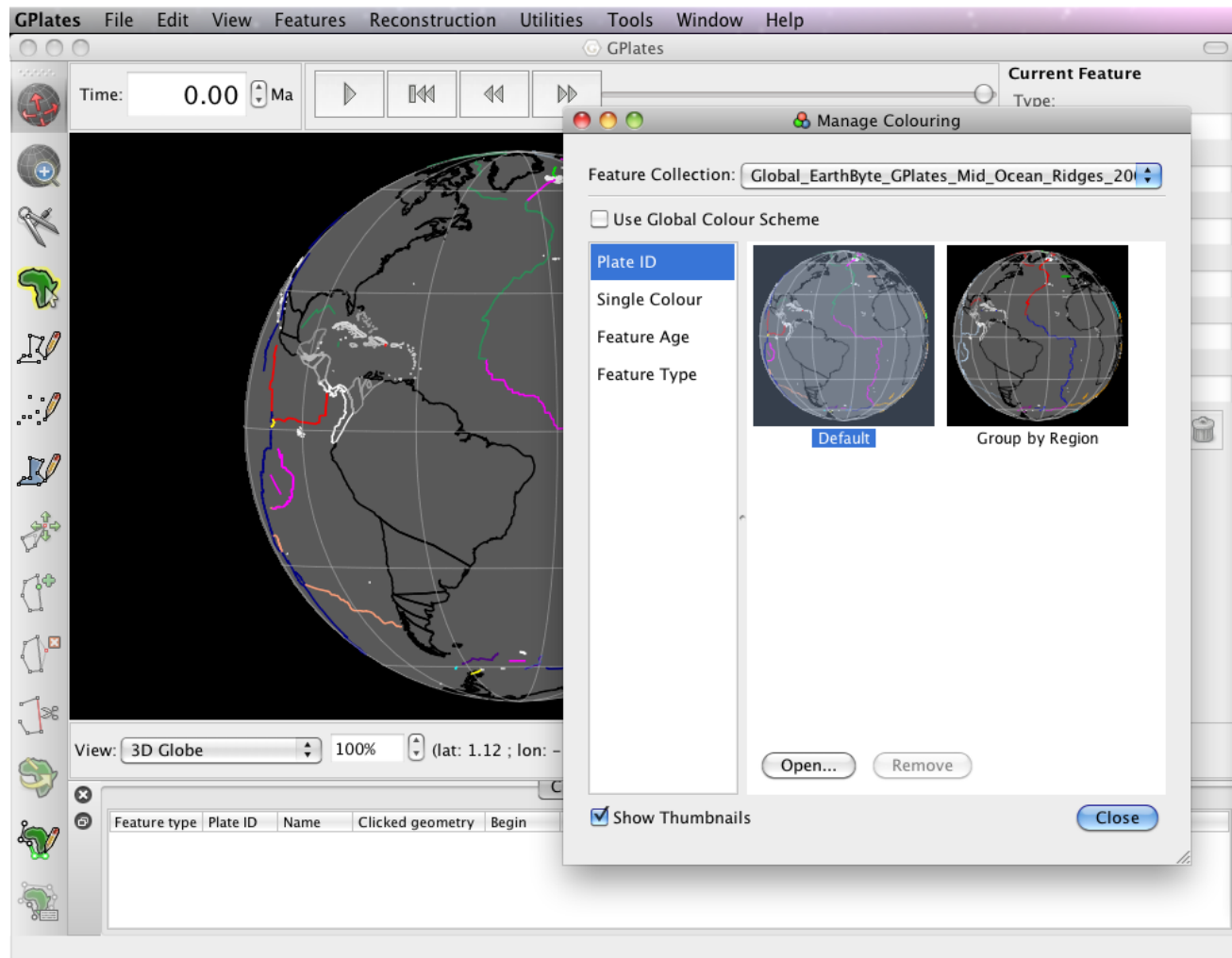


Figure 8. The coastlines are coloured according to age using a monochrome colour scheme, while the present-day spreading ridges are coloured according to plate ID.

To end this exercise we will unload all our data leaving the globe empty. The Manage Feature Collections window (Figure 2) allows us to 'eject' the data file.

3. File → Manage Feature Collections → Eject (click this icon for both data sets) → Close

Your globe now appears empty and no data files are loaded into GPlates.