

Global continental and ocean basin reconstructions since 200 Ma

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Guide for downloading and utilizing the data accompanying the paper

The plate polygons and associated rotation file described in this paper are freely available to download from the EarthByte website. This document provides step-by-step instructions on how to download the data and utilize the plate motion model in *GPlates*. *GPlates* (www.gplates.org) is a free, open source program for plate tectonic reconstructions.

1. Downloading the data files

- a. Enter the following link into a web browser (Figure 1)

ftp://ftp.earthbyte.org/papers/Seton_etal_Global_ESR/Seton_etal_Data.zip

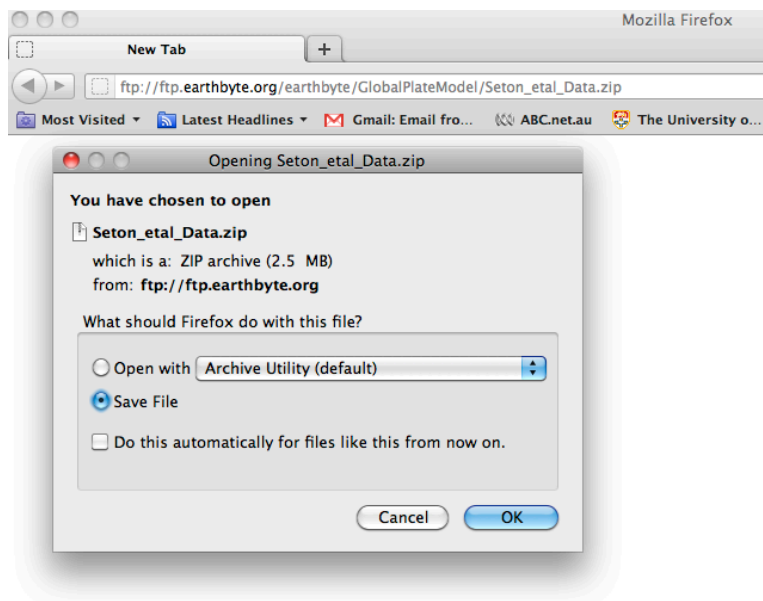


Figure 1: Downloading the data from the EarthByte ftp.

- b. Save the file on your system
- c. Navigate to the downloaded file and double-click to unzip the file (the process of unzipping a file may vary depending on your operating system).

Once unzipped, seven files will appear in the Seton_etal_Data directory:

- Seton_etal_ESR2012_PP_2012.1.gpml - contains a topological network of plate polygons with dynamic geometries (see <https://docs.google.com/View?docID=0AQMDXTrn52haZGZtcDU0azdfMz>)

[c3ZjRmamo4NDM&revision= latest](#) for a description of topologies.

- Seton_etal_ESR2012_2012.1.rot - contains the reconstruction poles that describe the motions of the continents and oceans
- Seton_etal_ESR2012_Coastline_2012.1.gpml - contains the geometries of the present day coastlines
- Seton_etal_ESR2012_ContinentOceanBoundaries_2012.1.gpml - contains the geometries of the continent-ocean boundaries
- Seton_etal_ESR2012_PlateIDs.pdf - contains a list of all the plate IDs used in the rotation and geometry files and their corresponding plate names.
- README.txt – README file as a quick guide to the data
- Seton_etal_ESR2012_Instructions_For_Data.pdf – this detailed guide

The gpml files are in the native GPlates format, similar to xml. The .rot file is a simple text file. Although these files can be viewed in a text editor, visualizing the data spatially and temporally requires specialist software such as GPlates.

2. GPlates Installation

In order to best utilize and visualize the data, we recommend that you download and install *GPlates*.

- a. Download the latest version of *GPlates* by typing the following link in a web browser: <http://www.gplates.org/>
- b. Click on the Download GPlates link and select the file appropriate for your operating system. *GPlates* can be installed on Windows, Mac and Linux. This document will explain installation on a Mac OSX.
- c. Once downloaded, double click the package locally on your computer and click agree after reading the License Agreement.
- d. Drag the GPlates-1.1.1 folder to the applications folder (Figure 2). *GPlates* is now installed on your computer and resides in the Applications directory.

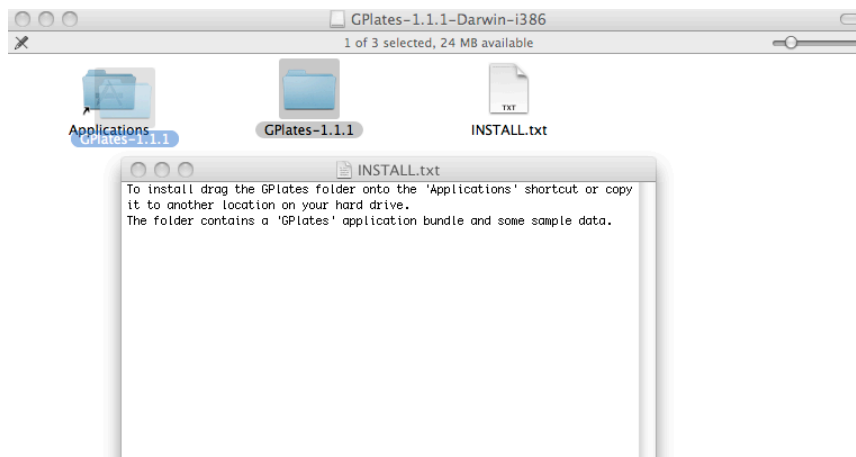


Figure 2: Drag the GPlates directory into the Applications folder.

- e. Navigate to the Applications folder, double-click the *GPlates* folder and then double-click the *GPlates* logo to open *GPlates*.

3. Loading the plate polygon data in *GPlates*

- a. Open *GPlates* by navigating to the Applications folder and clicking the *GPlates* logo
- b. Go to File → Open Feature Collection (Figure 3) and navigate to the Seton_etal_Data directory. Select the rotation file and the plate polygon file and click Open

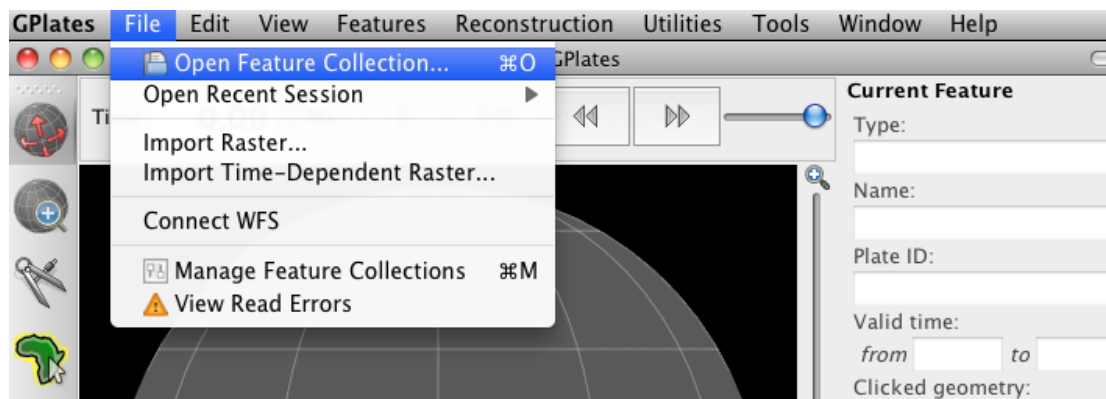


Figure 3: Opening and loading files in *GPlates*

You will now all the files contained in the topological plate polygon file displayed on the screen. These include both the plate polygons and the intersecting lines that make up the plate polygons. For the purpose of visualization, we only want to display the plate polygon data.

- c. Go to the Layers toolbar on the right hand side of the screen (Figure 4). Click on the eye next to green tab labelled Seton_etal_ESR2012_PP_2012.1.gpml . This will make all the lines that make up the plate polygons invisible, allowing only the plate polygons to be displayed. To switch the lines back on, just click the filed again.

- d. To load additional data, go to File → Open Feature Collection and select the coastline and continent-ocean boundary files and click Open

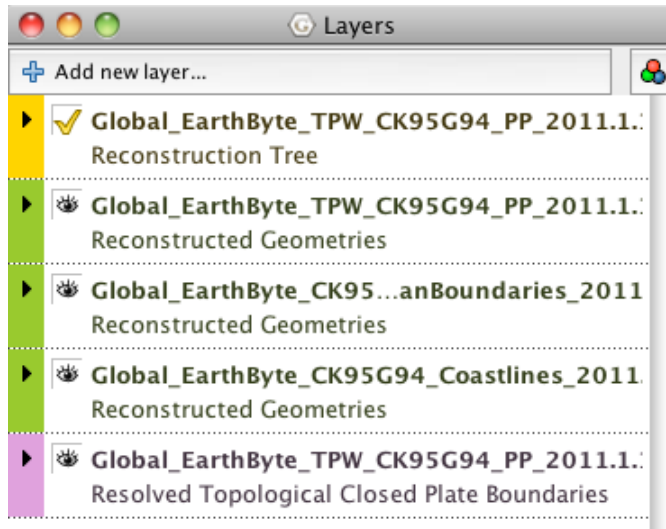


Figure 4: The layers window

4. Reconstructing the plate polygon data in *GPlates*

To reconstruct the plate polygons from 200 Ma to the present day in one million year time intervals:

- a. Double-click the time field in the top-left corner of the screen (Figure 5) and enter 200
- b. Press play

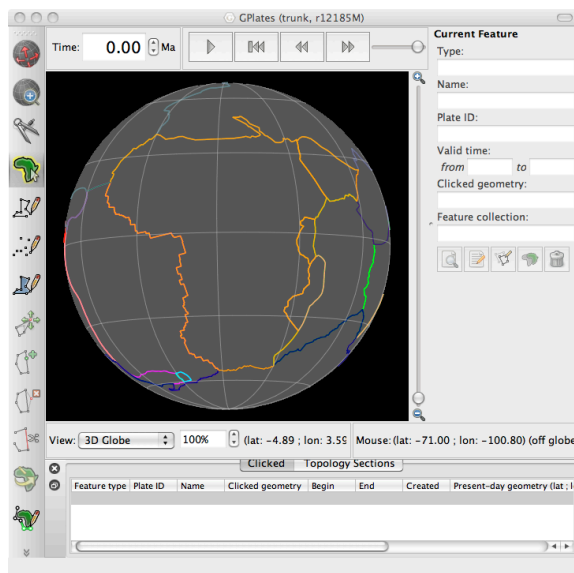


Figure 5: Type 200 in the Time field and then press play to begin the animation.

More comprehensive information about *GPlates* including tutorials for usage can be downloaded at:

<https://sites.google.com/site/gplatestutorials/>

