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"Terra Antiqua" : a paleogeographic reconstruction plugin for QGIS

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Paleogeographic reconstructions are essential across disciplines in Earth and Environmental Science from geodynamics to climate, as well as related fields of biology and ecology. They are at the foundation of many academic as well as industrial applications. As for geologic maps, paleogeographic reconstructions integrate a vast amount of multidisciplinary data and interpretations. Building such reconstructions thus requires a large set of sequential procedures to position around the globe various oceanic and continental features and to modify their topographies, bathymetries and shorelines according to the considered dataset included.

We present here a tool that enables to perform simply these operations. It is under development as a plugin for QGIS. With a graphical user interface, preset options can be readily applied to generate quickly multiple reconstructions with varying parameters. This makes project data management and treatment considerably easier, more intuitive and user-friendly. As most tools in GIS do, Terra Antiqua includes help texts incorporated to its interface to guide the user through each module. The Plugin is divided into modules and this format allows a high degree of flexibility in the order of the reconstruction steps. These are: the compilation of topography and bathymetry, the definition of the paleoshorelines, the topography modification and the interpolation. Resulting paleogeography digital elevation model (DEM) can be visualized and exported in any GIS-supported format – NetCDF, GeoTIFF, Grid (.grd) or as PDF, JPEG, SVG etc. for publication. The tool is tested to make global reconstructions at 50 and 30 Ma.