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Geoscience data visualization and analysis using GeoMapApp

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Increased availability of geoscience data resources has resulted in new opportunities for developing visualization and analysis tools that not only promote data integration and synthesis, but also facilitate quantitative cross-disciplinary access to data. Interdisciplinary investigations, in particular, frequently require visualizations and quantitative access to specialized data resources across disciplines, which has historically required specialist knowledge of data formats and software tools.

GeoMapApp (www.geomapapp.org) is a free online data visualization and analysis tool that provides direct quantitative access to a wide variety of geoscience data for a broad international interdisciplinary user community. While GeoMapApp provides access to online data resources, it can also be packaged to work offline through the deployment of a small portable hard drive. This mode of operation can be particularly useful during field programs to provide functionality and direct access to data when a network connection is not possible.

Hundreds of data sets from a variety of repositories are directly accessible in GeoMapApp, without the need for the user to understand the specifics of file formats or data reduction procedures. Available data include global and regional gridded data, images, as well as tabular and vector datasets. In addition to basic visualization and data discovery functionality, users are provided with simple tools for creating customized maps and visualizations and to quantitatively interrogate data. Specialized data portals with advanced functionality are also provided for power users to further analyze data resources and access underlying component datasets. Users may import and analyze their own geospatial datasets by loading local versions of geospatial data and can access content made available through Web Feature Services (WFS) and Web Map Services (WMS). Once data are loaded in GeoMapApp, a variety options are provided to export data and/or 2D/3D visualizations into common formats including grids, images, text files, spreadsheets, etc. Examples of interdisciplinary investigations that make use of GeoMapApp visualization and analysis functionality will be provided.