Geophysical Research Abstracts
Vol. 14, EGU2012-13998, 2012
EGU General Assembly 2012

OpenTopography

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OpenTopography is a cyberinfrastructure-based facility for online access to high-resolution topography and tools. The project is an outcome of the Geosciences Network (GEON) project, which was a research project funded several years ago in the US to investigate the use of cyberinfrastructure to support research and education in the geosciences. OpenTopography provides online access to large LiDAR point cloud datasets along with services for processing these data. Users are able to generate custom DEMs by invoking DEM services provided by OpenTopography with custom parameter values. Users can track the progress of their jobs, and a private myOpenTopo area retains job information and job outputs. Data available at OpenTopography are provided by a variety of data acquisition groups under joint agreements and memoranda of understanding (MoU). These include national facilities such as the National Center for Airborne Lidar Mapping, as well as local, state, and federal agencies. OpenTopography is also being designed as a hub for high-resolution topography resources. Datasets and services available at other locations can also be registered here, providing a "one-stop shop" for such information.

We will describe the OpenTopography system architecture and its current set of features, including the service-oriented architecture, a job-tracking database, and social networking features. We will also describe several design and development activities underway to archive and publish datasets using digital object identifiers (DOIs); create a more flexible and scalable high-performance environment for processing of large datasets; extend support for satellite-based and terrestrial lidar as well as synthetic aperture radar (SAR) data; and create a "pluggable" infrastructure for third-party services. OpenTopography has successfully created a facility for sharing lidar data. In the next phase, we are developing a facility that will also enable equally easy and successful sharing of services related to these data.