

# Processing and Analysis of GeoEarthScope and Other Community LiDAR Topography Datasets

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## Summary

LiDAR—Light Detection and Ranging (also Airborne Laser Swath Mapping-ALSM) topographic data are of broad interest to earth scientists. Many datasets are or will be available freely to the scientific community, especially for fault systems in the western United States via the GeoEarthscope project. These data have exciting and powerful applications in geomorphology, active tectonics, and geoscience education. Participants in this course will learn about LiDAR technology, access to publicly available datasets, software and hardware considerations for working with the data, data processing (raw or classified point clouds, digital elevation models, other derived products), and approaches for analyzing the data to answer their research questions.

## Related web sites

<http://lidar.asu.edu> - ASU managed site includes information related to this short course, our GEON LiDAR Workflow, and related research.

[http://facility.unavco.org/project\\_support/es/geearthscope/](http://facility.unavco.org/project_support/es/geearthscope/) - UNAVCO site for management of GeoEarthScope Project.

<http://www.geongrid.org/> - GEON site including portal access to the GEON LiDAR Workflow

<http://www.ncalm.ufl.edu/> - National Center for Airborne Laser Mapping

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- This course takes advantage of free and/or open source software. LViz (<http://lidar.asu.edu/LViz.html>) was developed by Jeff Conner (ASU). GEON Points 2Grid (<http://lidar.asu.edu/points2grid.html>) was developed by Newton Alex (ASU) using an algorithm developed by Han Kim (UCSD). LasTools (<http://www.cs.unc.edu/~isenburg/lastools/>) were developed by Martin Isenburg and Jonathan Shewchuk (UNC). ALDPAT (Airborne LIDAR Data Processing and Analysis Tools - <http://mitigation.fiu.edu/lidartool.html>) were developed at Florida International University by Keqi Zhang and Zheng Cui. GDAL (Geospatial Data Abstraction Library - <http://www.gdal.org/>) is released under an Open Source license by the Open Source Geospatial Foundation..
- Datasets analyzed in this course include NoCal GeoEarthScope (UNAVCO/NCALM/OSU), B4 (OSU/USGS/NCALM/UNAVCO), NSAF and West Ranier Seismic Zone (NASA/USGS).