

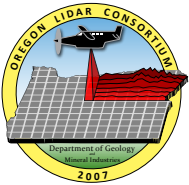
DOGAMI Fact Sheet: Lidar Data Acquisition, Uses, & Partners



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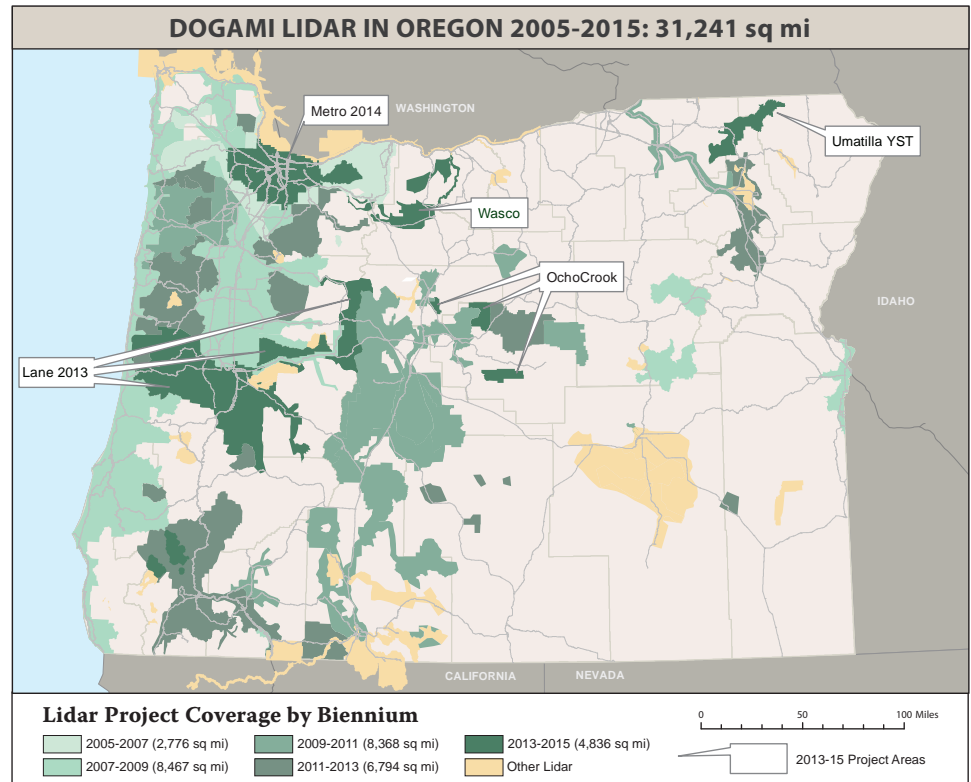
The Oregon Lidar Consortium



This program represents a major focus of DOGAMI staff. The Business Plan for the consortium is based on pooling funds and needs of Consortium partner agencies for data to leverage the best price for data collection and guarantee the highest standards and quality assurance. Need for lidar data and visualization materials is not limited to DOGAMI; lidar data contain vital information for natural resource and land management organizations, cities, counties and engineers.

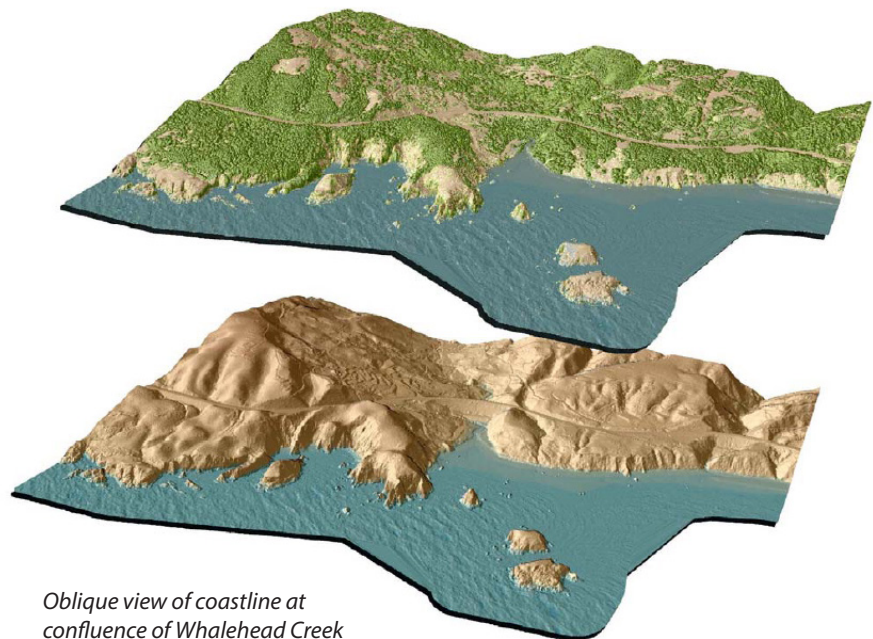
OLC lidar data on the Web:

<http://www.oregongeology.org/sub/lidardataviewer/index.htm>



What is lidar?

Lidar data are collected from a light aircraft carrying a highly accurate laser scanner. The scanner makes over 100,000 measurements each second to build up a three-dimensional "point cloud" model of the surface of the earth and the vegetation and structures on it. A computer sorts the points, separating those that measure the ground from those that measure trees and buildings. Ground points are used to make a "bare-earth" image showing topography, and the other points are used to make a "highest-hit" surface showing vegetation and structures. Images derived from these sets of points are then merged with aerial photography and other forms of digital map data to create final map imagery.



Oblique view of coastline at confluence of Whalehead Creek and Pacific Ocean. Upper image derived from highest-hit lidar, lower image derived from bare-earth lidar. Image from November 21, 2008, Watershed Sciences Southwestern Oregon report to DOGAMI.



Two ways to use lidar data: (top) Hillshade of lidar-derived 1-m digital elevation model (DEM): Carpenters Island on the Rogue River, Oregon. View to the east. (bottom) Lidar point cloud with RGB extraction from 2009 NAIP imagery: City of Grants Pass, Oregon. View to the north. Images from November 5, 2012, Watershed Sciences, Inc. OLC Rogue River report to DOGAMI.

Uses of Lidar

Lidar provides very high resolution digital data that are vital components of a myriad of natural resource and land-use assessment and planning activities, including:

- Forest inventory, canopy analysis, and operations planning and management (ODF, USFS, BLM)
- Riparian habitat recovery and watershed restoration (OWEB)
- Civil infrastructure risk assessment, including dams, levees, and power lines (USACE)
- Forest fire fuel load assessment and mitigation planning (ODF, counties)
- Locating and measuring location and type of impervious surfaces (cities)
- Transportation corridor planning, for highways, rail lines and connective services (ODOT)
- Natural hazard assessment, including landslides, earthquakes, flooding, channel migration, coastal erosion, volcanic debris deposition, and tsunami inundation (USGS, DOGAMI)

DOGAMI uses lidar to build new-generation topographic maps as a base for geological maps, and especially for natural hazard assessment, as listed above.

DOGAMI has had success building federal, tribal, state, and community lidar funding partnerships. So far, these partnerships have allowed us to acquire and process lidar data **for 31,241 square miles —covering over 95% of the state's population.**

DOGAMI Lidar Funding Partners 2011-2015

Federal Partners		Total Funding		Cities/Local Municipalities		Total Funding	
• USDA Forest Service			\$1,016,501	• Eugene			\$27,706
• U.S. Geological Survey			\$1,219,983	• Springfield			\$39,928
• USDA Natural Resources Conserv. Service			\$254,683	• Hillsboro			\$23,057
• U.S. Department of Energy			\$112,774	• Beaverton			\$60,109
• U.S. Fish and Wildlife			\$77,287	• Clean Water Services			\$35,856
• Bureau of Land Management			\$3,177,502	• Tigard			\$8,207
• Federal Emergency Management Agency			\$326,616	Other Organizations			
• Environmental Protection Agency			\$210,059	• Metro Regional Government			\$764,000
• U.S. Army Corps of Engineers			\$96,137	• Wasco County Soil & Water Conserv. Dist.			\$80,000
State Partners				• Emerald Peoples Utility District			\$29,712
• Oregon Department of Transportation			\$250,636	• Long Tom Watershed Council			\$972
• DOGAMI			\$346,906	• Weyerhaeuser			\$142,592
County Partners				• Ducks Unlimited			\$28,755
• Lane			\$37,302	Total Funding 2011-2015			
• Lincoln			\$100,641				\$8,511,513
• Benton			\$8,592				
• Polk			\$35,000				