

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

Vicki S. McConnell, State Geologist

The mission of the Oregon Department of Geology and Mineral Industries is to provide earth science information and regulation to make Oregon safe and prosperous.

NEWS RELEASE: August 21, 2009

New maps, data show unprecedented detail of Portland metro landscape

Portland, Oregon: A new digital map series and a new digital data series are being rolled out today by the Oregon Department of Geology and Mineral Industries (DOGAMI).

“These new maps and data we’re releasing are some of the most detailed and accurate map images in the United States due to the use of high-tech laser based terrain mapping called lidar,” said Vicki McConnell, State Geologist and Director of DOGAMI. “They also don’t look like anything you’ve ever seen before.”

That’s because the new maps of Portland’s landscape aren’t derived from photographs or from past topographic maps, but are made from millions of “data points” from the lidar terrain mapping program. The equipment used for lidar mapping is mounted in an airplane. The plane then flies over the area to be mapped and the laser shines down on the landscape. Sensors on the aircraft record the precise time and location of the light that bounces back up to the plane.

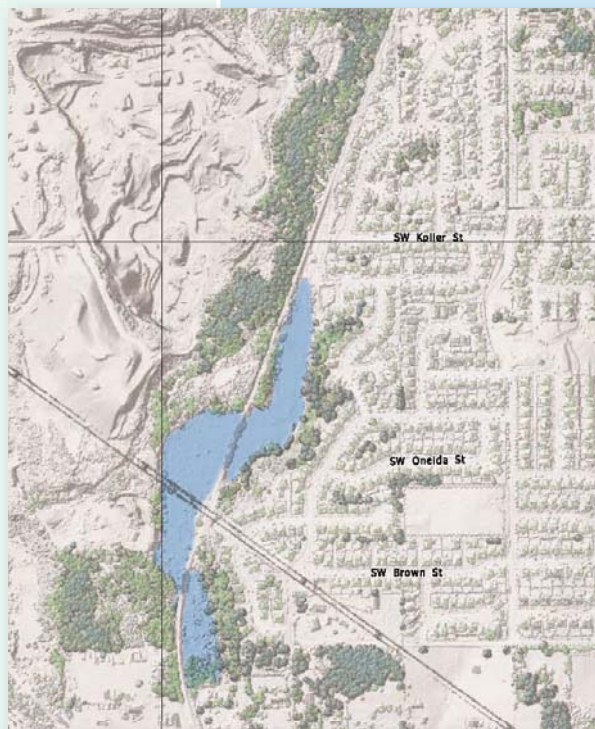
Lidar data provide a three dimensional map of the land surface, buildings and vegetation that has unprecedented detail and accuracy.

“Lidar is vitally important in all types of land use planning, forest and farm management, building and infrastructure inventory, flood and landslide mapping,

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Detail from the Sherwood quad shows a quarry, lake, roads, homes, vegetation and even high transmission lines. This is a “highest hit” image.

and watershed management,” said Ian Madin, Chief Scientist with DOGAMI. “It can be used for a variety of engineering applications as well, from road building to dam construction. In fact, any application that needs a topographic map, needs lidar data to make it more accurate and complete.”

“We’re using lidar data right now to identify and characterize landslides in Portland, Silverton, Oregon City and Astoria,” said Bill Burns, an engineering geologist with DOGAMI. “We’re also able to use this new data to create landslide susceptibility maps, identifying areas we think have the potential for landslides in the future. We’ve published the first of these maps in the Beaverton area for Washington County.”

The new Lidar Imagery Series (LIS)

The new Lidar Imagery Series (LIS) maps are made up of the four quarter-quadrants of a USGS 7.5’ topographic quadrangle. This first release includes:

LIS-2009-45122D4-Damascus

LIS-2009-45123C1-Dundee

LIS-2009-45122C3-Estacada

LIS-2009-45123E-ForestGrove

LIS-2009-45123D1-Laurelwood

LIS-2009-45122C8-Newberg

LIS-2009-45122C4-Redland

LIS-2009-45122D3-Sandy

LIS-2009-45122D8-Scholls

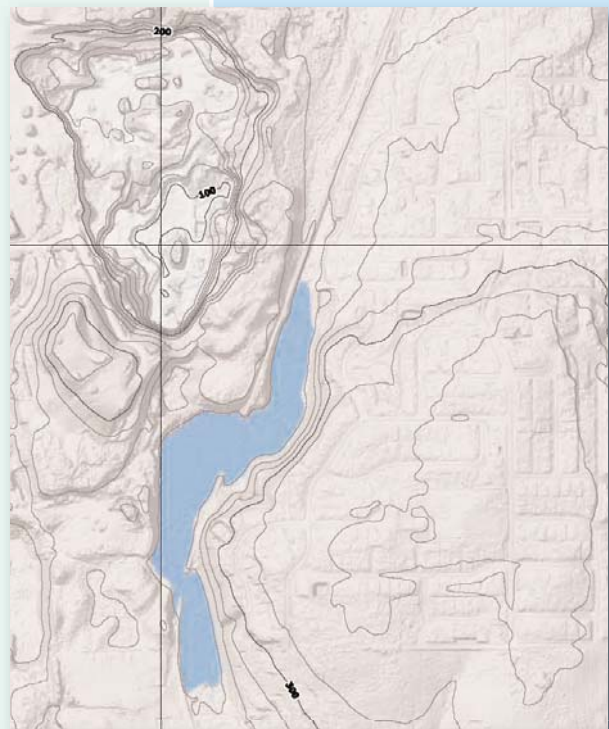
LIS-2009-45122C7-Sherwood

The price for each LIS series CD-ROM is \$30 and includes 8 digital maps on 4 sheets as Adobe Acrobat PDFs. Printed copies of each of the 4 quarter-quadrangle PDF sheets containing 2 images (highest hit and bare earth) are \$25 each and must be ordered separately. See the “How To Order” section at the end of this release for more information.

Each of the 4 map sheets contain 2 map images. The first map is called a highest hit image and is all the lidar data points gathered to create a digital representation of the landscape. This map image shows features such as trees, buildings, roads and streams. The detail is so precise, you can make out individual trees, houses and even cars. Major streets, cultural features, and water bodies are labeled.

Most people are familiar with RADAR (Radio Detection and Ranging). RADAR is a system that uses radio waves to detect, determine the direction and distance and/or speed of objects such as aircraft, ships, or rain, and then map them.

Lidar (Light Detection and Ranging) is similar to RADAR but uses rapid pulses of laser light (150,000 pulses of light per second) instead of radio waves.



This detail from the Sherwood quad is the “bare earth” image where vegetation and buildings have been digitally stripped away.

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The second map image is called a bare earth image. This map is a digital representation of the earth's surface literally stripped of vegetation and man-made objects such as buildings and bridges. It gives you an unobstructed look at the surface of the earth as never seen before. This is achieved by post-processing lidar point data. This map image includes 20-ft contour lines.

The new Lidar Data Quadrangle Series (LDQ)

The initial release in the LDQ series (data only) covers most of the Portland metro area (25 USGS quadrangles). The data in the LDQ series however, are designed specifically for use with specialty Geographic Information Systems (GIS) software. The data that DOGAMI is now releasing comprise the first installment of a data publication series that will eventually provide complete lidar data for most of the inhabited areas of the state. The LDQ series publications include only raster based data. In other words, a file with a regular grid of elevation values. Lidar data originate as large numbers of measured points which have been filtered and processed to produce the rasters in the LDQs. The point data (point cloud) requires special software and expertise to use, and creates very large files, so it is not included in this publication series. LDQ quadrangles include:

LDQ-2009-45122D7-Beaverton
LDQ-2009-44122H1-Bull of the Woods
LDQ-2009-45122E4-Camas
LDQ-2009-45122C6-Canby
LDQ-2009-45122D4-Damascus
LDQ-2009-45122F8-Dixie Mountain
LDQ-2009-45123C1-Dundee
LDQ-2009-45122C3-Estacada
LDQ-2009-44122A1-Fish Creek Mountain
LDQ-2009-45123E1-Forest Grove
LDQ-2009-45122D5-Gladstone
LDQ-2009-45122E8-Hillsboro
LDQ-2009-45122D6-Lake Oswego
LDQ-2009-45123D1-Laurelwood
LDQ-2009-45122E7-Linnton
LDQ-2009-45122E5-Mount Tabor
LDQ-2009-45122C8-Newberg
LDQ-2009-45122C5-Oregon City
LDQ-2009-45122E6-Portland
LDQ-2009-45122C4-Redland
LDQ-2009-45122G7-Saint Helens
LDQ-2009-45122D3-Sandy
LDQ-2009-45122F7-Sauvie Island
LDQ-2009-45122D8-Scholls
LDQ-2009-45122C7-Sherwood

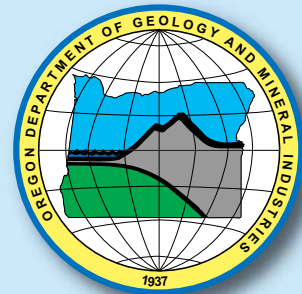
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The price for each LDQ series DVD-ROM (data only) is \$200.

Future LDQ releases will cover the remainder of the Portland urban area, the Willamette Valley and Medford urban areas, the entire Oregon coast, and numerous other areas around the state. Efforts to collect more lidar data are underway in other parts of the state as well, including the Klamath, Deschutes and Umatilla Basins.

How to order

All LIS and LDQ series digital publications can be purchased from the Nature of the Northwest Information Center (NNW), 800 NE Oregon Street, Suite 177, Portland, Oregon, 97232. You may also call NNW at (503) 872-2750 or order online at <http://www.naturenw.org>. There is a \$4 shipping and handling charge for all mailed items.

The price for each LIS series CD-ROM is \$30 and includes 8 digital map images on 4 sheets as Adobe Acrobat PDFs. Printed copies of each of the 4 quarter-quadrangle PDF sheets containing 2 images (highest hit and bare earth) are \$25 each and must be ordered separately.

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Learn more about lidar and the Oregon Lidar Consortium by going online at: <http://www.oregongeology.com/sub/projects/olc/default.htm>

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