

OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES

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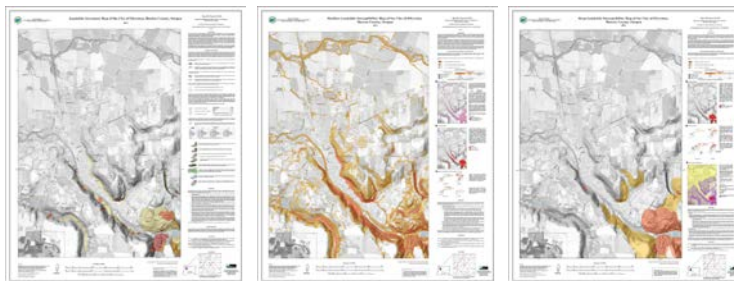
New procedure for mapping shallow-landslide susceptibility uses lidar data; Silverton area an example

Portland, Oregon: The Oregon Department of Geology and Mineral Industries (DOGAMI) has released two more publications that expand its series of lidar-based landslide mapping being done to aid Oregon communities.

Landslides are one of the most significant natural hazards in Oregon and cause millions of dollars in damage annually. Identifying areas susceptible to future landslides is a critical step in reducing landslide risk. **DOGAMI Special Paper 45, Protocol for Shallow-Landslide Susceptibility Mapping** describes a standardized procedure for developing shallow-landslide susceptibility maps. Shallow landslides in Oregon are typically slumps, translational slides, earth flows, or combinations of these types. By identifying areas prone to future damaging landslides, this protocol and products produced by following this protocol can be used to help Oregon communities become more resilient to the impacts of landslide hazards.

An example of the protocol in action is **DOGAMI Open-File Report O-12-05, Regional Landslide Hazard Maps of the City of Silverton, Marion County, Oregon**. This report indicates that roughly 3% of the City of Silverton is mapped as landslide deposit—110 landslide deposits were located. 25 of these are within or directly adjacent to the city. Of the 25, nine are classified as shallow, seven as deep, and two as debris flow deposits. The average shallow-landslide area is roughly 12,000 square feet, which is about the size of one quarter of a football field. The average deep landslide area is roughly 740,000 square feet, or about the area of 13 football fields.

(left) Landslide inventory and (middle and right) shallow- and deep-landslide susceptibility mapped in the Silverton area. Actual map scale is 1:8,000 and 36 x 43 inches. You can see larger versions of these maps at <http://www.oregongeology.org/pubs/ofr/p-O-12-05.htm>



Maps produced using the SP-45 protocol are intended to provide users with basic information regarding landslides and the susceptibility to landslides within the mapped area. They contain useful information to guide site-specific investigations for future

DOGAMI's mission is to provide earth science information and regulation to make Oregon safe and prosperous.

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development, to assist in regional planning and development, to mitigate existing landslides and slopes, and to prepare for emergency situations, such as storm events and earthquakes.

The maps are not appropriate for site-specific evaluations; however, the GIS landslide inventory, shallow-landslide susceptibility, and deep-landslide susceptibility data contained in the CD-ROM are valuable for regional screening for landslides and selection of appropriate areas on which to focus further site-specific studies. The data are particularly suitable for incorporation and consideration into regional Graphic Information System (GIS) databases for a multitude of purposes, including city and county hillside development ordinances, issuance of building permit conditions, public works planning and operations, and environmental and sustainability issues.

Preview **DOGAMI Special Paper 45, Protocol for Shallow-Landslide Susceptibility Mapping** here: www.oregongeology.org/pubs/sp/p-SP-45.htm

Preview **DOGAMI Open-File Report O-12-05, Regional Landslide Hazard Maps of the City of Silverton, Marion County, Oregon** here: <http://www.oregongeology.org/pubs/ofr/p-O-12-05.htm>

These publications can be purchased on CD-ROM for \$15 each. These and other DOGAMI publications can be purchased from the Nature of the Northwest Information Center (NNW), 800 NE Oregon Street, Suite 965, Portland, Oregon, 97232. You may also call NNW at (971) 673-2331 or order online at <http://www.naturenw.org>. There is a \$4.95 shipping and handling charge for all mailed items. Color plots of maps plates are also available for purchase.

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The Oregon Department of Geology and Mineral Industries is an independent agency of the State and has a broad responsibility in developing an understanding of the state's geologic resources and natural hazards. The Department then makes this information available to communities and individuals to help inform and reduce the risks from natural hazards, such as earthquakes, tsunamis, landslides, floods and volcanic eruptions. The Department assists in the formulation of state policy where an understanding of geologic materials, geologic resources, processes, and hazards is key to decision-making. The Department is also the lead state regulatory agency for mining, oil, gas and geothermal exploration, production and reclamation.

Learn more about Oregon's geology online: <http://www.OregonGeology.org>

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