

Susceptibility to Deep-Seated Landslides in California

CGS Map Sheet 58

Arc GRID Integer

Tags

Deep-seated Landslides, Landslide Susceptibility, Landslide Hazard

Summary

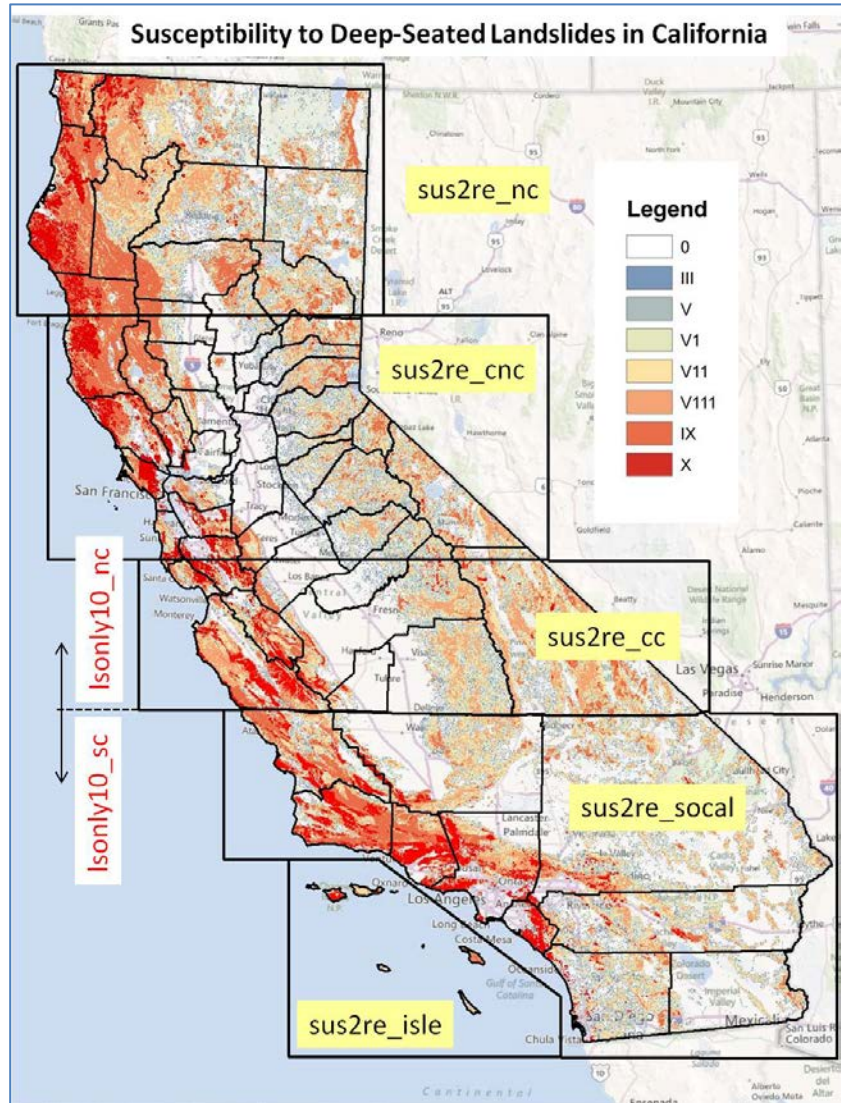
This map shows the relative likelihood of deep-seated landsliding based on regional estimates of rock strength and steepness of slopes. On the most basic level, weak rocks and steep slopes are most likely to generate landslides. The map uses detailed information on the location of past landslides, the location and relative strength of rock units, and steepness of slope to estimate susceptibility to deep-seated landsliding (0 to X, low to high).

The USGS 2009 National Elevation Dataset (NED) with 10-m grid size was used as the basemap. This landslide susceptibility map is intended to provide infrastructure owners, emergency planners and the public with a general overview of where landslides are more likely to occur. It is not appropriate for evaluation of landslide potential at any specific site.

Description

The Susceptibility to Deep-Seated Landslides grid map covers the entire state of California and originally published in May of 2011 as CGS Map Sheet 58. It made use of several data layers such as Landslide Inventory, Geology, Rock Strength and Slope of varying scales and formats. For the statewide analysis of landslide susceptibility, the methodology of Wilson and Keefer (1985) was used in combining the rock strength and slope data layers as implemented by Ponti, et al. (2008) to create classes of landslide susceptibility. These classes express the generalization that on very low slopes, landslide susceptibility is low even in weak materials, and that landslide susceptibility increases with slope and in weak rocks.

The landslide susceptibility matrix based on rock strength (RS) category and slope steepness (SS) in degrees is described below:



RS(1) & SS(<3 to 10); RS(2) & SS(<3); RS(3) & SS(<3) = susceptibility 0.
RS(1) & SS(10 to15) = susceptibility III.
RS(2) & SS(3 to10) = susceptibility V.
RS(1) & SS(15 to 20) – susceptibility VI.
RS(1) & SS(20 to 30); RS(3) & SS(3 to 10) = susceptibility VII.
RS(1) & SS(30 to >40); RS(2) & SS(10 to 15) = susceptibility VIII.
RS(2) & SS(15 to >40); RS(3) & SS(10 to 15) = susceptibility IX.
RS(3) & SS(15 to >40) = susceptibility X.

The grid map is composed of two datasets:

Landslide Susceptibility - with cell value from 0 to 10 (low to high) representing susceptibility classes and consists of 5 tiles (*sus2re_nc*, *sus2re_cnc*, *sus2re_cc*, *sus2re_socal*, and *sus2re_isle*).

Existing Landslides - with cell value of 10 (assigned to the highest susceptibility class) and consists of 2 tiles (*Ionly10_nc* and *Ionly10_sc*).

Data Specifications: Landslide Susceptibility/Existing Landslides.

Data Type: Unsigned integer.
Projection: NAD_1983_UTM Zone_11N/NAD_1983_Albers.
Datum: D_North_America_1983.
Linear Unit: Meter.
Angular Unit: Degree.
Cellsize: 10.
Format: Arc GRID.
Uncompressed Size: 3.88GB(*sus2re_nc*); 5.69GB(*sus2re_cnc*); 4.12GB(*sus2re_cc*);
9.36GB(*sus2re_socal*); 1.30GB(*sus2re_isle*)/
6.38GB(*Ionly10_nc*); 15.51GB (*Ionly10_sc*).

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Credits

Wills C.J., Perez, F., Gutierrez, C., 2011, Susceptibility to deep-seated landslides in California: California Geological Survey Map Sheet 58
(<http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS58.pdf>)

Access and use limitations

Access Constraints: None. Use Constraints: The State of California, the Department of Conservation and the California Geological Survey make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Department shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of or arising from the use of data or maps. Users should cite the California Geological Survey as the original source of the data, but

clearly denote cases where the original data have been updated, modified, or in any way altered from the original condition. Distribution: There are no restrictions on distribution of the data or reproduction of maps created from the graphics files. However, users are encouraged to refer others to the California Geological Survey to acquire the data, in case updated data become available. CGS Map Sheet 58, the original source of the grid map, can be viewed at: <http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS58.pdf>.

Printed copies of Map Sheet 58 can be ordered at the locations below at \$12.00 per copy (Shipping and handling is \$8.00).

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