Sensing the earth- field-based adaptive management approaches

CEE 410/510 Fridays 11 AM– 3:00 PM (4 units) with Geologist Dr. Jill A. Marshall

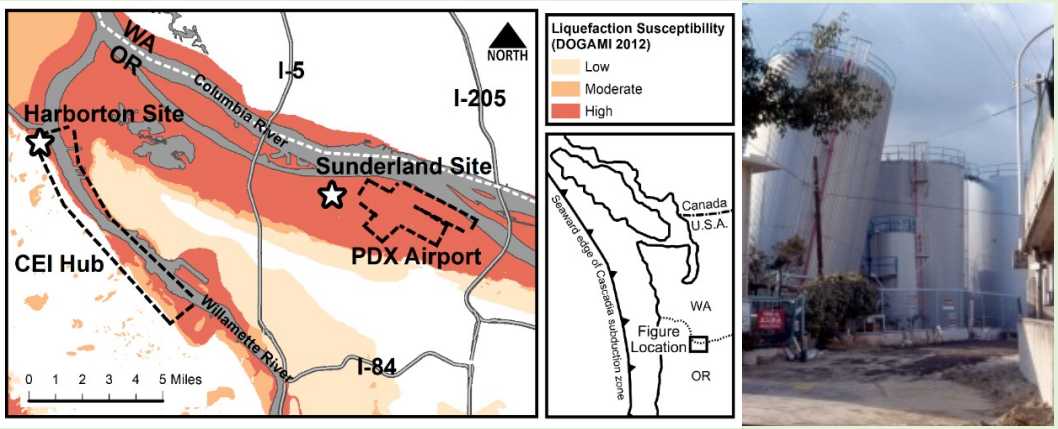
Geologists, engineers and planners increasingly rely on a combination of available spatial and environmental sensor data to assess:

- site characteristics,
- risk and/or degradation, and
- mitigation potential

This class will introduce students to many of the techniques used to determine how best to deploy site-specific sensor arrays- aimed at two local sites.

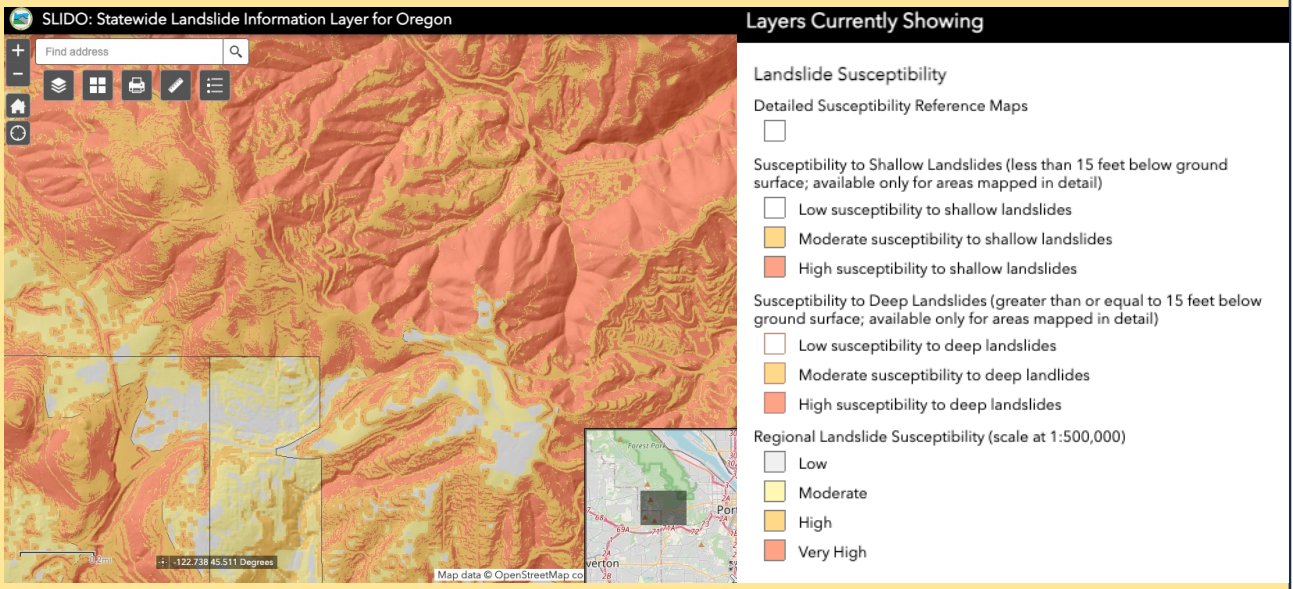
Teams will use their shared expertise to evaluate monitoring and risk assessment design options for 1) liquefaction and 2) landslide risk.

Class will consist of field trips, lectures (including guest speakers), data analyses, sensor deployment considerations, and group project site assessment and recommendations.



Liquified ground under tanks, 1985 Kobe Japan earthquake. Source: https://research.engineering.ucdavis.edu/gpa/earthquake-hazards/liquefaction-tanks/

Project 1 - Class field site – note the high liquefaction potential! (Map from Moug et al., 2022)



Project 2 – Regional setting for class field site – note the high landslide potential! (Map created in SLIDO –The Statewide Landslide Information Layer for Oregon)

No requirements but recommend exposure to one or more of the following: GIS, surface processes, soil mechanics, site assessment, or hydrology through coursework or experience. Questions? **jillmar@pdx.edu**