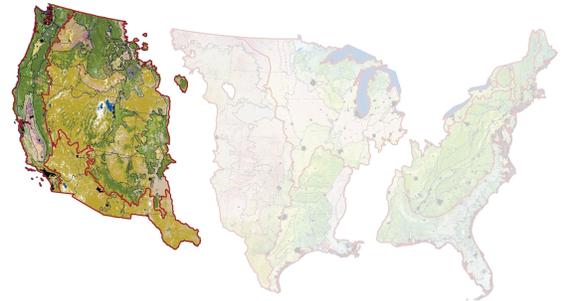


Western Geographic Science Center

The Western Geographic Science Center (WGSC) conducts geographic research on the environmental and societal consequences of a changing landscape. We develop tools and models to help decision makers better understand complex scientific information so that alternative options/scenarios can be assessed. Our work is multi-disciplinary, collaborative, and integrative, involving many partners and communities. We link natural science and social science to analyze human/environmental interactions both spatially and temporally. WGSC is funded by programs in the USGS Climate and Land Use Change Mission Area: Land Change Science, Land Remote Sensing, Research and Development, and Biological Carbon Sequestration.

Western US ►
Ecoregion
Land Cover
Trends



The WGSC develops and implements innovative tools and technology to address issues of importance to the nation. These tools include: remote sensing (data types, algorithm development, new platforms, and sensor development), decision tools for managers, measurement instruments for assessing qualities of light that will affect plants' ability to grow, simulation models of landscape change run on supercomputer platforms, and other GIS-based spatial models, particularly those operating at a landscape or watershed scale.

Applying sound science to help society maximize benefits of, minimize risks from, preserve, restore, and adapt to our natural environment

Water Availability & Sustainability



- Water sustainability for humans and ecosystems
- Cropland mapping and monitoring
- Agricultural management practices
- Water as an ecosystem service
- Arid lands water harvesting impact
- Coastal fog as a water resource
- Surface and subsurface water resources

Climate Change



- Ecosystem vulnerability and resilience
- Natural and anthropogenic adaptation and mitigation
- Biophysical and phenological trends
- Carbon stocks and flux estimates
- Land cover distribution, extent, and species composition
- Responses of coupled human-environment systems

Landscape Change Impacts



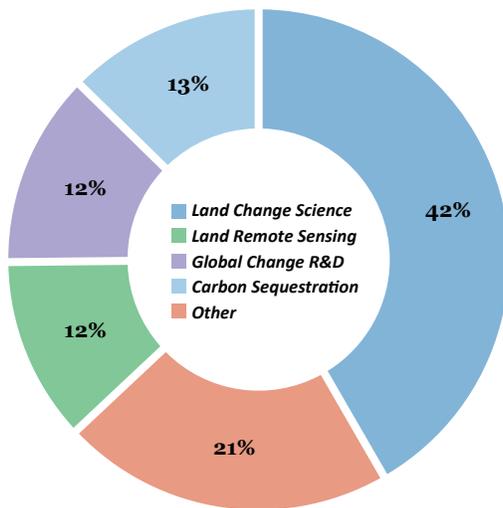
- Rates of land-use/land-cover (LULC) change
- Causes of LULC change
- Consequences of LULC change
- LULC change scenario modeling
- Terrestrial carbon sequestration scenarios
- Biological vegetation processes
- Wildfire impacts on humans and ecosystems

Natural Hazards & Society



- Natural hazards events:
 - Sudden-onset (earthquakes, tsunamis, volcano lahars)
 - Chronic (sea level rise, coastal erosion)
- Consequences of multiple hazard scenarios
- Population vulnerability and evacuation
- Economic impacts and resilience
- Risk communication

WGSC BUDGET



Our annual budget of more than \$6M comes primarily from allocations from four programs in the USGS Climate and Land Use Mission Area: Land Change Science, Land Remote Sensing, Global Change R&D, and Biologic Carbon Sequestration. We have reimbursable projects funded by NASA, DOE, and the USGS National Climate Science Center network.

WGSC STAFF APPROACH PROBLEMS FROM DIFFERENT ACADEMIC PERSPECTIVES

- Geography
- Hydrology
- Environmental Science
- Biology
- Ecology
- Operations Research Analysis
- Computer Science
- Geophysics

WGSC PUBLISHES RESULTS IN MANY DIFFERENT OUTLETS

- Earth and Space Science
- Earth Interactions
- EOS
- Natural Hazards
- Photogrammetric Engineering and Remote Sensing
- PLOS One
- Remote Sensing
- Science
- Seismological Research Letters
- USGS Professional Paper
- USGS Scientific Investigations Report
- USGS Techniques and Methods Report

PARTNERS

Our work is done collaboratively with other USGS science centers, and also with partners from academia, other federal agencies, state and local governments, non-profit organizations, international organizations, and commercial firms.

WGSC OFFICE LOCATIONS



WGSC is one of several USGS science centers located in the Pacific Region. We have about 50 employees, contractors, students, and volunteers at locations from Seattle, WA to Tucson, AZ.

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