

The **2008 Volcano Deformation and Temporal Gravity Change Workshop** was held May 13–15 in Vancouver, Washington, near the USGS David A. Johnston Cascades Volcano Observatory. The workshop, hosted by the USGS Volcano Hazards Program, included more than 40 participants from the United States, European Union, and Canada. Goals were to promote (1) collaboration among scientists working on active volcanoes, and (2) development of new tools for measuring, modeling, and analyzing volcano deformation. The workshop focused on conventional and emerging geodetic techniques, including GPS, borehole strain, and InSAR. Also included were presentations on hydrothermal fluids and gases, precision gravity, and electromagnetic techniques.

Standing committees will pursue two intended workshop outcomes. First is development of deformation modeling software capable of: (1) using diverse data types, (2) calculating forward and inverse models based on realistic Earth rheology and mathematically rigorous error assessments, and (3) displaying results in a user-friendly manner. Second is design of multidisciplinary investigations to better constrain the causes of deformation at Kilauea volcano, Hawaii (**Kilauea-Multidisciplinary Research Investigation, Kilauea-MRI**), and at the Yellowstone caldera, Wyoming (**Yellowstone-MRI**). These investigations would study the magmatic plumbing system active between the summit area and East Rift Zone at Kilauea, and improve understanding of the roles played by magmatic and aqueous fluids in ground deformation of the Yellowstone caldera.

Participants endorsed the following concepts and community needs:

- Open data policy
 - Community research needs are best served by an open data policy for volcano deformation data that facilitates timely access, including near-real time access to continuously recorded data whenever possible. Philosophical differences and technical challenges remain, but the trend is toward more timely dissemination of data for research purposes, while recognizing volcano observatories' responsibilities for issuing timely hazards assessments and warnings.
- On-line archive for volcano data and modeling software
 - Funding will be sought to establish and maintain an archive for volcano data and software that are not served by existing archives at UNAVCO and IRIS. GPS, InSAR, and seismic data for volcanoes will be archived at UNAVCO and IRIS. Other types of data and software included in the new archive will be calibrated and authenticated to facilitate wide use among the volcano research community. The need for an additional archive would be addressed by the National Volcano Data Center component of the proposed National Volcano Early Warning System (NVEWS, <http://pubs.usgs.gov/of/2005/1164/2005-1164.pdf>). Such a facility would be operated in coordination with the EarthScope geodetic data center that already archives GPS and strainmeter data for some U.S. volcanoes.
- Community deformation modeling system
 - There was strong support for developing a scientifically designed, professionally engineered deformation modeling application to serve the needs of volcano scientists and educators. The application should be modular and extensible, with realistic source and Earth models, a suite of inversion and optimization algorithms, and a user-friendly visualization (GIS) platform. The code should be open source, platform independent, and freely available, with robust code validation and version control.

Additional information and progress reports will be posted at: <http://volcanoes.usgs.gov/insar/>.