

Plenary 2: From Groundwater to the Ionosphere (Christensen, Arrowsmith)

In this session we heard how EarthScope facilities have advanced our knowledge of a variety of atmospheric and non-tectonic near-surface phenomena. Seismic, GPS, MT, Pressure, and Infrasound data have produced interesting and sometimes unexpected results related to the hydrosphere, cryosphere, and atmosphere. This session started with an interesting summary of the uses of TA pressure and infrasound data to observe atmospheric gravity waves and a variety of infrasonic sources by Michael Hedlin (UCSD). Observations that were only possible due to the extensive network of the TA stations. Adrian Borsa (UCSD) used PBO data to study the drought in the western US. Vertical ground motions from the GPS network could be related to elastic rebound due to the removal of ground water mass during the recent drought. Tim Bartholomaeus (UTAustin) showed how seismic and GPS data could be used to understand glacial dynamics. Seismic and GPS observations can be related to various mechanisms of glacier movement and calving. These three extended talks were followed by three shorter talks. Alexander Jacques (U. of Utah) showed how the TA surface pressure observations could be used to observe atmospheric phenomena in real time, in support of aviation, fire weather, road weather and other public safety issues. Attila Komjathy (JPL) introduced the use of ionospheric perturbations as recorded on GPS sensors to study natural-hazards such as tsunamis and volcanic eruptions. And finally, Meredith Kraner (Stony Brook Univ.) looked at continuous GPS measurement to determine seasonal loading as a potential trigger of the Napa Earthquake. Together, these talks demonstrated the great diversity and broad scope of EarthScope related studies.

Summarized by Doug Christensen