Real-Time GPS Data from the EarthScope Plate Boundary Observatory (PBO) and Related Networks

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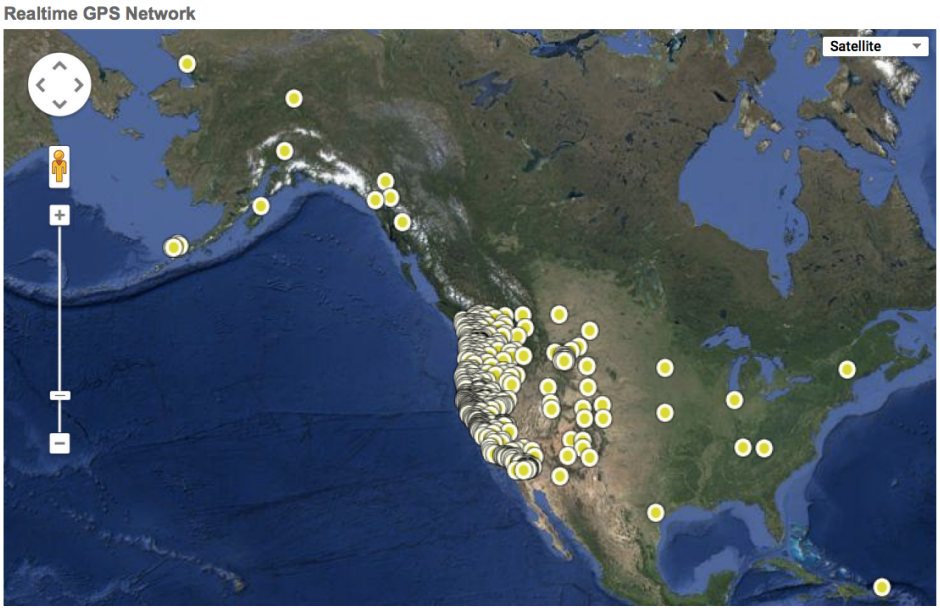
UNAVCO operates a real-time GPS (RT-GPS) network of ~450 stations allowing the collection and distribution of high-rate (1 Hz), low-latency (<2 s) data streams. RT-GPS has the potential to enhance our understanding of earthquakes, seismic wave propagation, volcanic eruptions, magmatic intrusions, movement of ice, landslides, and the dynamics of the atmosphere. Beyond its increasing uses for science and engineering, RT-GPS also has the potential to provide early warning of hazards to emergency managers, utilities, other infrastructure managers, first responders and others.

The majority of streaming stations come from the National Science Foundation (NSF) EarthScope Plate Boundary Observatory (PBO) network through an NSF-ARRA funded Cascadia Upgrade Initiative that upgraded 282 stations focused in the Pacific Northwest on top of the original 100 backbone stations located throughout the PBO footprint. Stations installed by UNAVCO for the NSF-funded COCONet and TLALOCNet projects also provide RT-GPS streams. Additional contributions from NOAA (~30 stations in Southern California) and USGS (8 stations at Yellowstone) networks account for the other RT stations. Approximately 15 RT-GPS stations in southern California have been augmented with accelerometers to facilitate studies producing very broad band waveforms to support earthquake hazard applications.

In addition to raw data streams, UNAVCO also now provides real-time PPP positions for all RT-GPS stations using Trimble's PIVOT RTX software. There are currently more than 350 registered data users from academic, government and commercial entities. Commercial users represent the largest group of registered users, but academic and government access greater volumes of data via streams.



Map of Real-Time GPS (RT-GPS) stations delivering high-rate (1 Hz), low-latency (<2 s) data streams from the NSF EarthScope Plate Boundary Observatory (PBO) provided by UNAVCO.