

**Permanent Continuous Dual-Frequency GPS Stations
USGS, Cascades Volcano Observatory (CVO)**

Permanent continuous dual frequency GPS stations collect ground position data to measure subtle deformation of the flanks of the volcano in response to magma entering or leaving the magma reservoir at depth. Having multiple high precision GPS receivers in place on the volcano allows the distance and changes in distance between the receivers to be measured within less than a centimeter prior to, during and after an eruption and yield information on the volume of the magmatic intrusion. Additionally, GPS data collected at GPS stations can help determine whether local earthquakes are caused by intrusion of magma or are of tectonic origin.

Currently, CVO operates 7 permanent GPS stations within the Mt. St. Helens National Volcanic Monument.



Existing permanent GPS Station JRO1 located on the roof of the Johnston Ridge Observatory.



Photograph of an existing Permanent GPS Station located on Mt. St. Helens.