

The L-Band PALSAR instrument on Japan's DAICHI satellite has opened up much more of the world to InSAR studies since its launch in 2006. I will present the results of two volcano deformation studies where PALSAR Interferometry data is the only geodetic data available. The first area of study is Chaitén volcano, in Chile's southern volcanic zone. Chaitén erupted with very little warning in May of 2008. The second area is in the Sulu volcanic range, in north central New Britain Island in Papua New Guinea, where an apparent massive dike intrusion caused a seismic crisis in July of 2006.

Chaitén volcano last erupted ~9400 years ago and was the first rhyolitic eruption since the eruption of Alaska's Novarupta volcano in 1912. The first signs of unrest were apparent only two days before Chaitén erupted. PALSAR interferograms reveal an interesting pattern of deformation, showing about 45 cm of range change consistent with fault involvement in the eruption.

In July of 2006 an intense seismic swarm struck the Sulu Range in Papua New Guinea. Despite large baselines (over two km) and heavy vegetation, two PALSAR interferograms reveal a pattern of deformation, showing over one meter of range change that is consistent with intrusion of about 0.5 cubic km of material during an active dike intrusion event. Modeling also requires slumping of material above the dike consistent with normal faulting.