



## Web-cam Strain Measurement at Mount St. Helens from 2004–2008

Thomas R. Walter

GFZ Potsdam, Germany (twalter@gfz-potsdam.de)

This work describes web-cam images taken from the 2004–2008 eruption period at Mount St. Helens. Dome growth was thought to be characterized by sustained, near-linear rates of a solid dacite plug. Through spatial digital image correlation (DIC) analysis of the web-cam images, new evidences arise that the deformation and strain rate of the spine was more complex. DIC yielded cumulative and incremental displacements, strain and shear planes at decimeter resolution. It was found that dome extrusion rates are highly non-linear, decelerating prior to partial collapse, followed by a pronounced dome extrusion increase and direction change. Associated processes have been identified through DIC, such as shallow landslides and reworking of talus apron material. The work highlights the strengths of web-cam strain monitoring, and illustrates that dome growth and collapse is a very dynamic process complexly interplaying with the surrounding.