



# Volcano geodesy applied to recent Icelandic eruptions

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*Iceland is a laboratory to study magmatic processes, with recent eruptions providing opportunities to improve our understanding of how volcanoes work.*

*Extensive geodetic measurements of ground deformation using GPS and satellite radar interferometry (InSAR) as well as other techniques have revealed clear signals that have been interpreted in terms of subsurface magma movements.*

*For the Eyjafjallajökull 2010 explosive eruption that closed Europe's airspace the measurements show that episodic recharging of the volcano occurred by sill intrusions for 18 years preceding the eruption; the mingling of basaltic magma with silicic magma then provided a trigger for the explosive eruption.*

*During the 2011 Grímsvötn eruption a continuously recording GPS station and a tiltmeter at the volcano allowed a correlation between pulsating eruption plume and pressure variations in a shallow magma chamber. For the most recent eruption, the 2014-2015 eruption in the Bárðarbunga volcanic system the geodetic data set gave constraints on the formation of 50 km long lateral dyke, allowing improved understanding of propagation of magma filled cracks, and constraints on the mechanism of slow collapse of over 60 m of the Bárðarbunga caldera, that fed the largest effusive lava eruption in Iceland since 1783.*

**Jeudi 19 novembre 2015 à 11h**  
**Salle de conférences d'ISTerre**

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