Magma chamber inflation discovered in Cascades

South Sister, Oregon

InSAR inflation started in 2001

From: Wicks et al., 2001

Confirmed by subsequent GPS ground observations

From: Dzurisin et al., 2006
Deformation of Aleutian Volcanoes by Zhong Lu et al.
Volcanoes of the central Andes

~1000 of the 1113 volcanoes < 20 Ma
All 53 of the 53 “potentially active”

Hualca Hualca, Peru - (related to Sabancaya?)

Ticsani region, Peru -
1 month(?) deflation 2005

Uturuncu, Bolivia - inflating since 1992
(Pritchard & Simons, 2002, 2004; Sparks et al., 2008)

Lascar, Chile - pyroclastic flow & intracrater
deformation (Pavez et al., 2006; Whelley et al., 2008)

Cerro Overo, Chile - hydrothermal system?

Lazufre, Chile - inflating since 1998
(Pritchard & Simons, 2002, 2004; Froger et al., 2007; Ruch et al., 2008)

Lastarria, Chile
inflating hydrothermal system (Froger et al., 2007)

Cerro Blanco, Argentina -
Why cares? Some of InSAR’s greatest hits

The Ups and downs of Las Vegas
(From Groundwater Pumping)

Enhanced oil recovery detected in the San Jorge Basin, Argentina

Envisat interferogram spans 2004-2006

Antarctica ice stream velocities from InSAR/feature tracking

From: Amelung et al., 2000

From: Bamber et al., 2000
No deforming volcanoes found in central America, but we did see other deformation:

Guatamala City
Wetlands in Nicaragua
San Salvador, El Salvador
Toluca, Mexico

B-perp 1.5 km
The San Andreas Fault System
Creep on the San Andreas Fault

Stack of 12 ERS interferograms spanning May 1992-Jan 2001

Figures from Isabelle Ryder
UC Berkeley
Line of sight velocities from stacked InSAR data

35 interferograms


Fialko, Nature 2006