Geophysical Research Abstracts,
Vol. 10, EGU2008-A-07867, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-07867
EGU General Assembly 2008

Volcano spreading and stress interaction with intrusion events

T. R. Walter (1)
(1) GFZ Potsdam, Germany

The activity of many ocean island volcanoes is characterized by eruptive fissures that propagate into rift zones. Also, those large volcanoes are often subject to gravitational spreading and experience deformation of the flanks associated with destructive earthquakes. Here I elucidate the processes of coupling of volcano spreading and intrusion events. Examples are coming from the Canary Islands, Reunion and Hawaii, including long term and short term deformation processes. Using three-dimensional numerical models, I demonstrate that elastic stress transfer can explain the observed interaction. The models show that deformation of an island flank is affecting the occurrence and dimension of dike intrusions. On the other hand, dike intrusions are affecting the distribution of earthquakes and faulting processes of a volcano flank.