

Questions provided by Falk Amelung are in **RED**.

Could you please explain the principle of InSAR. How does this time series analysis work? What data are available (slides 2-5)?

CHRIS/SFU:

INSAR questions

1-Problem of the vegetation noise. (Slide 12) What is the disadvantage of reducing the sensitivity of the signal to vegetation? C-Band vs L-Band.? (Slide3) fringe discontinuity, deformation interpretation as per interferograms color legend LOS displacements (cm) Fig. 1. What kinds of post-processing are done?

OREGON

What are your thoughts on the geometry of the magma intrusion under the trapdoor faulting? Is the magma flux asymmetric or is it controlled by the caldera geometry? Additionally, do you see any evidence on the opposite side of the caldera (hinge?) for this trapdoor faulting such as compression or subsidence? (Slide 7)

FOLLOW UP on slide 7

REBECCA/UBC:

How accurate is this inversion?

McGill

JGR, Fig 9

What is the deeper magmatic plumbing system? Where does the magma injection, following the earthquake originate from? Deeper magma chamber in the edifice, or the crust? From the mantle below, despite the compressional stress field beneath the decollement?

Could you please explain the principles of the stress transfer models used to study earthquake-earthquake interaction ? (slides 13-14)

Could you please explain those interactions between earthquakes and eruptions or intrusions at Mauna Loa ? What do you mean with encouraging dike intrusions, encouraging earthquakes and could you please explain the proposed cycle for Mauna Loa ? (slides 18-22)

TERRY/SFU:

Clamping/declamping (JGR - conclusion 4) (slide20) Explain the mechanics of the process of earthquake induced rift zone clamping/declamping as the trigger for dyke inclusion/propagation of pathways for magma flow.

Compression vs. Expansion

OREGON

JGR 2006 Fig. 5 pg 9 SLIDE 21

Why is shallow dike emplacement discouraging earthquakes in the proximity of rifting structures?

MTU

Slide#22 We are interested in how much contribution from compression triggers an eruption. While the likelihood of an eruption increases as the magma chamber expands (possibly due to an earthquake), is there a correlation between compression (from pre-earthquake stress?) and the increased probability of an eruption?

BUFFALO

Walter and Amelung JGR

How were the data cutoffs selected ($M > 6.0$, $V > 100 \text{M m}^3$, $t = 2\text{y}$)?

Is it realistic to link an earthquake and a rift zone eruption 670 days apart?

How do you envision the stress transfer taking place? (Marc)

UNAM

Is there correlation between earthquake magnitude size and the delay of days, months or years after an earthquake to trigger an eruption? (Ana)

McGill University

Several post-earthquake eruptions seemed to occur outside the modeled extensional stress field, why? (GSA, Fig 3)

Could you please explain your study of the recent inflation period of Mauna Loa (slides 27-30).

MTU Questions:

Criteria for Selecting Volcanoes:

We have a question about the strategy you used for selecting volcanoes from the historic record in order to detect changes above background eruption rates. Volcanoes that erupted continuously were removed but what about volcanoes that erupt based on a known pattern? If a volcano erupts roughly every 20 years (eg. Mauna Loa will have a rift eruption roughly every 20-25 years), shouldn't it be assessed differently from a volcano that does not have a known cycle?

UNAM Questions:

Is there a direct relationship between the magnitude of an earthquake (then magnitude of fault displacement) and eruption volume? Can we predict, calculate or estimate possible eruption volumes based on earthquakes magnitude? (Natalia)

OTHER QUESTIONS

Buffalo

Referring to the Geology paper, how much influence do

seismic body waves (or dynamic deformation) have in triggering an eruption, as opposed to static deformation in cases where eruption occurs 1-2 days after the initial earthquake? (Erik)

UNAM

Walter and Amelung, 2006

Can we envisage a similar pattern of earthquakes-eruption sequences in a monogenetic volcanic field, where there are no shallow magma chambers that could be decompressed, but where there are well developed vent alignments that suggest a structural control on volcanism? (Natalia)

SFU UBC

HEATHER/UBC:

Earthquakes triggering eruptions.

What implications do different faulting styles (e.g. normal vs subduction) have on eruption triggering? Are the magnitudes of the earthquakes and fault displacement more important factors?

McGill University

GSA, in press

Comparing post-earthquake eruption with eruption which occurred prior the seismic event, is there any noticeable change in eruption style, volume, petrology, etc., and is there any further evidence (e.g. petrologic) indicating decompression followed by extensive gas exsolution as trigger mechanism?

OREGON

Since models generated from the interferograms have multiple possible solutions, have you considered refining your models by using gravitational studies looking for Bouguer anomalies to help pinpoint the depth and shape of the magma intrusion?

UNAM

Walter and Amelung, in press

The volumetric expansion and contraction after megathrust earthquakes depend, among others, on the regional lithological characteristics. Could the boundary element models of earthquake deformation be extrapolated to others places? (Hugo Murcia)