

DEPOSITS AND GENERAL QUESTIONS:

UBC/SFU: Debris avalanche and flow deposits. Slide 29 shows the Jamapa deposit grading from a debris avalanche to a flow to a hyperconcentrated flow. What mechanism caused the dilution of the flow down slope (was it flowing through a river valley)? How are the hummocks associated with the main deposit? (Nat)

Colima: Lahar Deposits - Slide 39

We think that this is a lahar deposit based on the matrix support, the variety of clast types and their rounding, and the lack of jigsaw-fit clasts. Are we right?

UNAM: Dating

In the absence of paleosols between these kinds of deposits, how can we date the deposits? (Natalia)

Colima: Tectonic Setting - Slide 7

Why is the distribution and composition of the volcanoes on the Mexican volcanic belt the way it is? What is the reason for the N-S chains? Why is it different from the Andes, for example? How is the slab subducting?

UNAM: Slide 33

The changes in the volcano alignment trends imply changes in the directions of the local stress. If that is incident on the direction of each collapse, and taking in account that the hydrothermal alterations is preferentially distributed along fractures, does it mean that the main factor of instability still the structural geology? Are the other factors (Slide 2) always subordinated to the structural geology? (Natalia)

GLACIAL INTERACTIONS AND WEATHER:

McGill: If part of the glacier is incorporated into the debris flow, could you tell from its deposit? Is there a way of knowing how much ice was incorporated into a flow?

UNAM: General

On a worldwide scale, had any direct relationship between the collapse events and the main stage of glacier ages in the historical time been observed? (Victor)

UBC/SFU: Hydrothermal Alteration & Glacial Ice- 1993 paper (figure 3) & 2006 paper (figure 7)

Can you explain the methods used to calculate the 'degree of hydrothermal alteration'? The papers suggest that this 'measure of hydrothermal alteration is subjective'- but is there a quantifiable relationship that could be made? (R-E)

UBC/SFU: Same figure (3 and 7)

It seems that there is some relationship between degree of alteration and area covered by glacial ice, is there a similar relation between degree of hydrothermal alteration and annual rainfall? Is there any way to predict the degree of alteration that might be present at a particular volcano? Do glacier and/or rainfall derived waters cause alteration to be more intense in the upper portions of edifices? (Heather)

McGill: What is the effect of the glacier's size on weakening of the edifice? Would a large glacier create a buttress and support the volcano from severe collapse? Would a smaller glacier increase the risk and magnitude of collapse since a part of the weakened edifice could fail along with the entire glacier? Is there a threshold where a glacier is considered dangerous or buttressing?

McGill: Is the location of glacier a significant influence on size of collapse? Would a glacier located on the flanks be more likely to fail as a large block than one located on the top?

UNAM: Carrasco-Núñez et al., 1993

In the articles it is mentioned that the volcanoes in Central America don't present alterations because of their lack of ice, nevertheless, the weather conditions are extreme. How the extreme weather affects the volcanic buildings? (Nacho)

UNAM (EXTRA): Mineralization - Slide 18 and Carrasco-Núñez et al., 2006

Smectite is actually a group that contains three minerals (montmorillonite, beidellite and nontronite). The nontronite is not a mineral formed by hydrothermal alteration and the montmorillonite and beidellite can be formed by others processes like weathering, or diagenesis. Is the kind of smectite determined in these studies and is it possible that the presence of smectite may not be indicative of a strong hydrothermal alteration? (Hugo Murcia)

HAZARDS:

MTU: We are interested in the level of hazard mitigation in the Cofre de Perote-Citlatpetl area: How receptive has Civil Defense been to volcanic hazard studies? Now that many hazard maps are available (for landslides as well as other volcanic hazards), has land use or zoning changed at all?

Colima: Hazard Mitigation - Slide 44

What hazard mitigation measures are in place in the town of Orizaba, which is located in a high-risk position within a barranca?

MTU: How much monitoring (systematic or real-time), exists for the CCPVR region? Is there an early warning system in place in the CCPVR? (Based on seismicity, rainfall, or deformation?) What recommendations would you make for such a system?

Buffalo: Lahar Hazards and Magmatic Activity

Your discussion of lahar hazards appears to be based upon the lack of any sign of associated magmatic activity. In a high rainfall, high erosion tropical environment how can you be sure that there was no syn-depositional volcanic eruption or intrusion?

MTU: I am interested in how much risk is contributed by flank spreading or slope creep in this region: Is slope deformation occurring at measurable rates? Would that data be valuable or would you prioritize other mitigation efforts? (Julie)