The last explosive eruption of *La Primavera caldera*, Jalisco, Mexico

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Introduction

The Primavera caldera :

- Late Pleistocene rhyolitic center emplaced between 143.5 and 25.5 ka in the TMVB
- Caused by the subduction of the Rivera and Cocos plates beneath the North American plate
- Last effusive episode between 31.9 and 29 ka (Colli dome, [1, 2])
- 15 post-caldera pyroclastic eruptions between 86.4 and 25.6 ka (uGP to uN, [3])

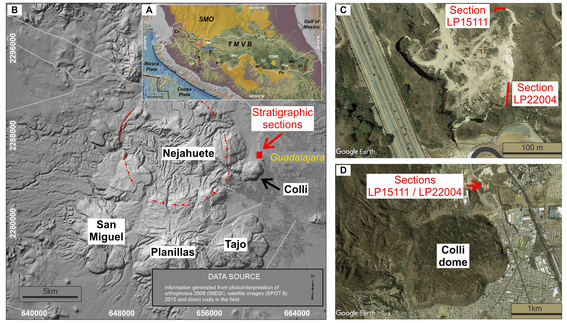

Figure 1. A-B) Location of the Colli dome in the La Primavera caldera volcanic complex and Trans-Mexican Volcanic Belt (TMVB). C-D) Location of the stratigraphic sections north of Colli in the Guadalajara Metropolitan Area.

However, a sequence of pyroclastic deposit younger than the N pyroclastic unit was found north of the Colli dome (LP15111 and LP22004 stratigraphic sections).

Results - Chemistry

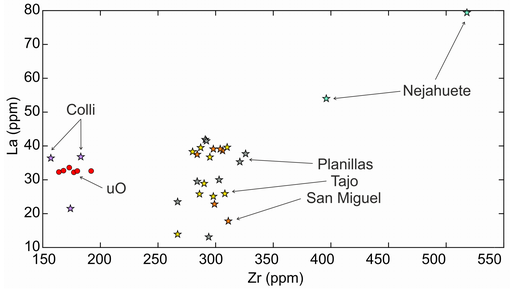

Figure 2. La vs. Zr binary graph of the O eruption with the San Miguel, Planillas, Tajo, Nejahuete, and Colli volcanic centers.

Results - Stratigraphy

uO pyroclastic unit:

- Hydromagmatic event formed by wet and dry dilute PDCs and dense PDC deposits

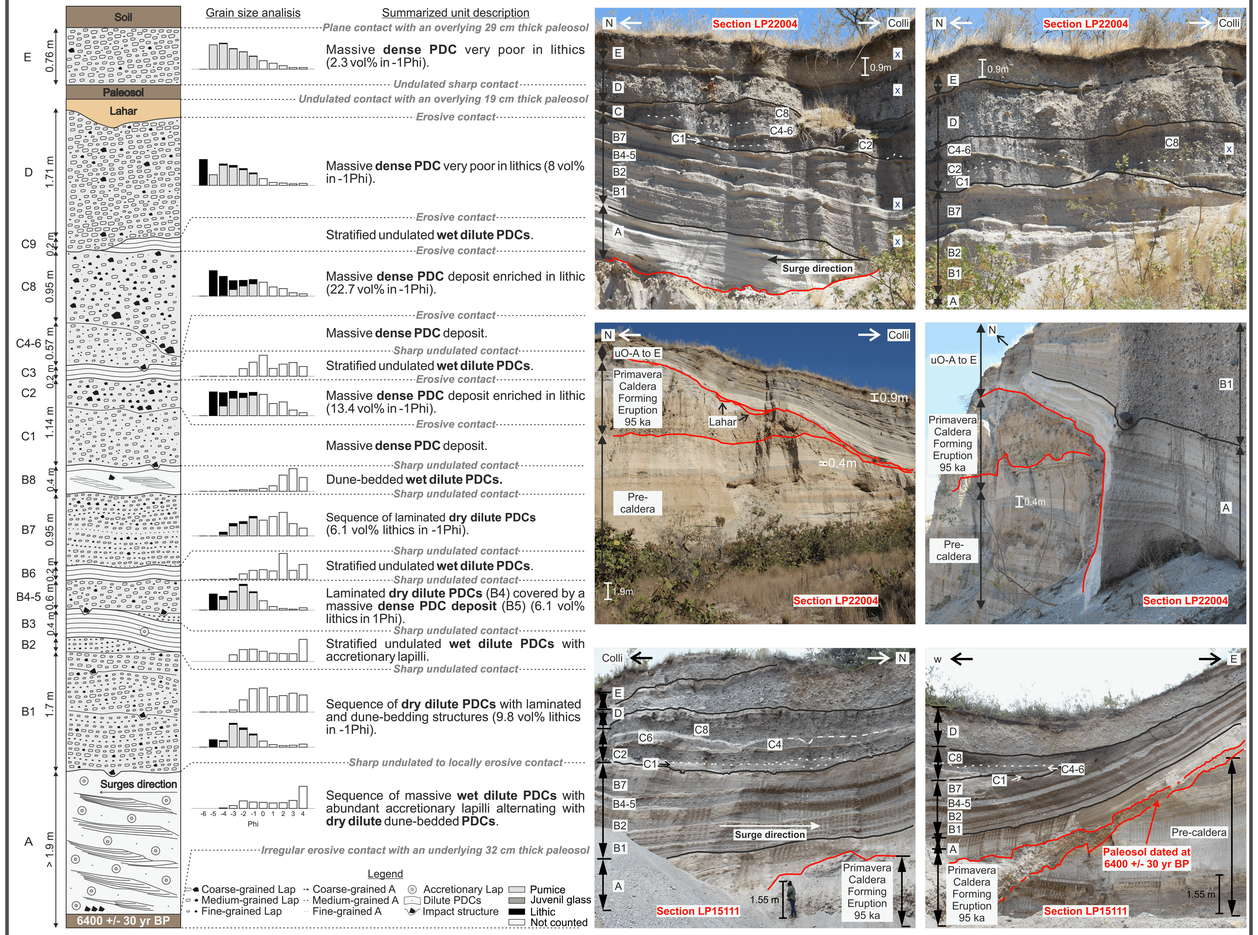

Figure 3. Left side: LP22004 stratigraphic section with grain size and unit descriptions. Abbreviations: Lap (lapilli) and A (ash). Right side: Photographs of the LP22004 and LP15111 stratigraphic sections showing the O hydromagmatic eruption (A-D) younger than 64000 +/- 30 yr BP. The x indicate the subunits with pumice whole-rock chemitry.

Results - ^{14}C Age

Sample	Laboratory analyses	Coordinates UTM 13Q X	Y	Variable $d^{13}C$	Calibrated date (cal BC)	Probability %	Conventional radiocarbon age (CRA)
PMV14417	Beta-476489	660538	2286425	-17,2	5469 - 5321 cal BC	95,64	6400 ± 30 BP
LP1714417	Beta-479678	660538	2286425	-16,6	5469 - 5321 cal BC	95,64	6400 ± 30 BP

Figure 4. ^{14}C age of the paleosol below the O pyroclastic eruption (Beta Analytic Radiocarbon Dating (Miami, Florida).

Discusion

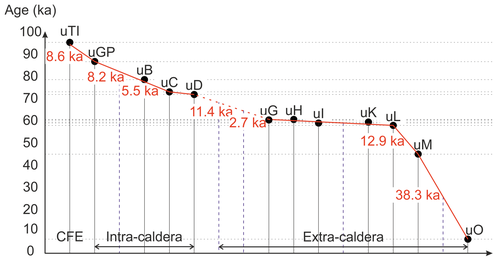

Figure 5. Evolution of the age of the La Primavera pyroclastic eruptions after the Tala Ignimbrite (TI) caldera-forming eruption (CFE).

Conclusion

From field description, direction of the dilute PDCs, whole-rock chemistry of the pumice, and proximity of the pyroclastic deposits with the Colli dome, we propose that the O eruption was sourced from the Colli dome by a hydromagmatic eruption some 6.4 kyr BP. The lack of crater on top of Colli indicate that the crater formed during the eruption was filled with younger lava flows.

Acknowledgements

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