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Paleomagnetic and rock magnetic study to determine the emplacement temperatures of the ~3580 BC Chachimbiro pyroclastic deposits, Ecuador

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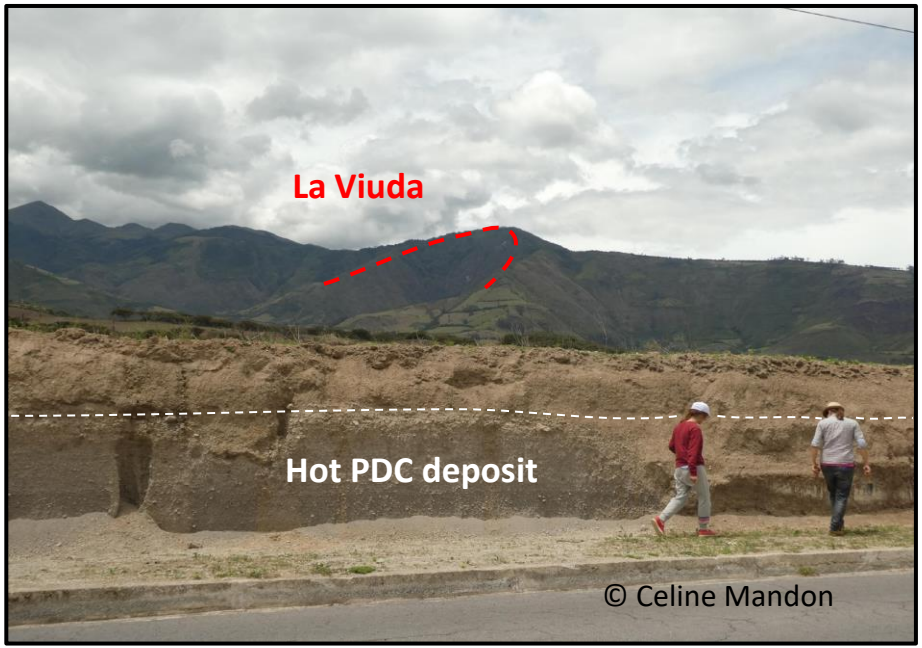

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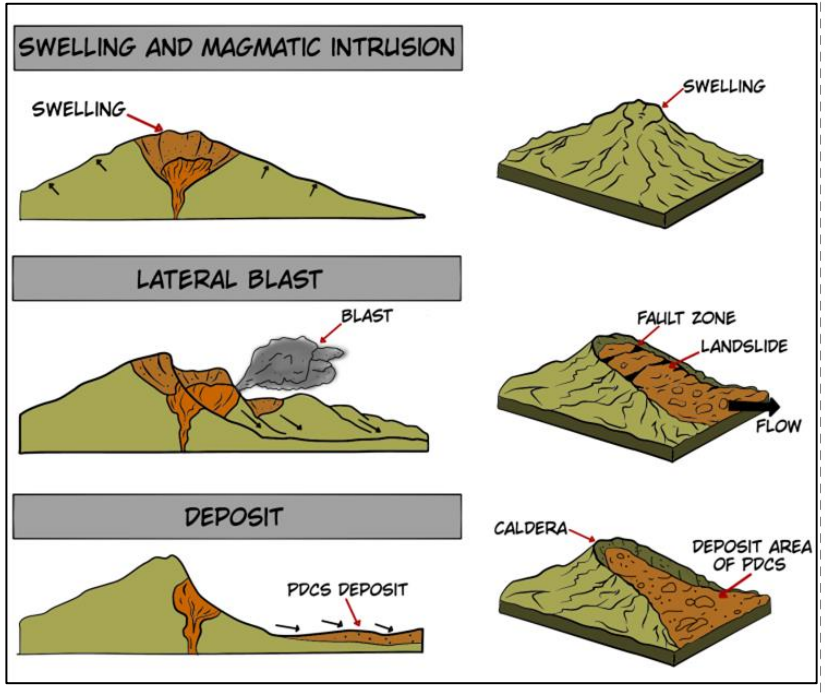
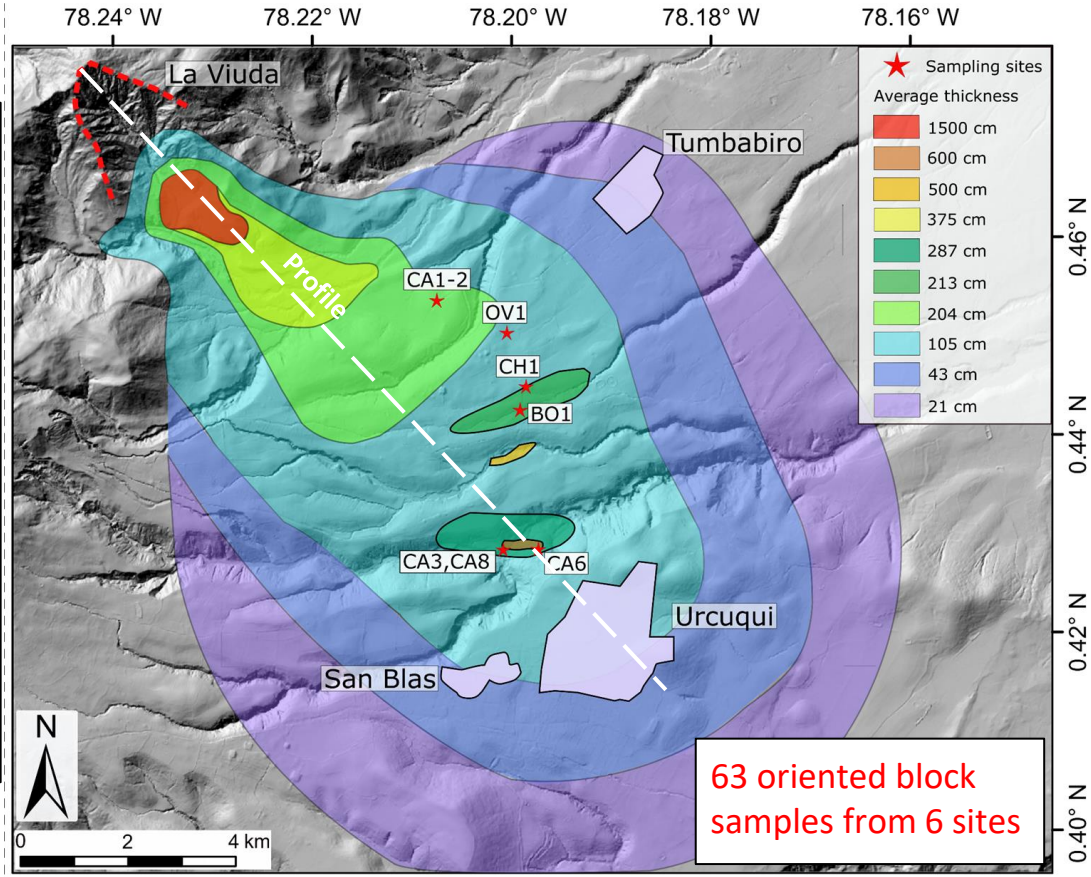
Lateral blast, areal distribution, thickness and sampling sites



Modified after Leyrit & Meteneat 2000



Modified after Bernard et al. 2014

Magnetization process in PDCs

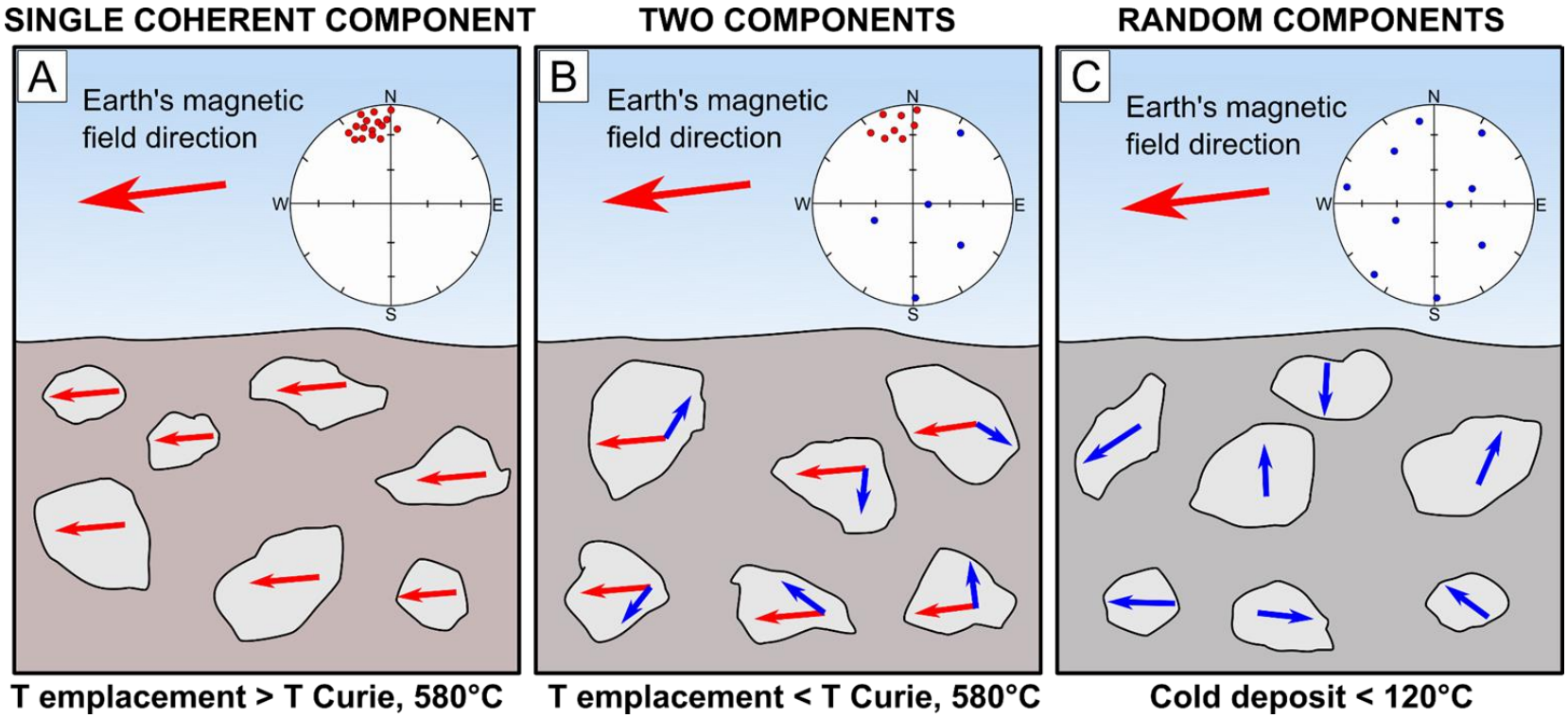
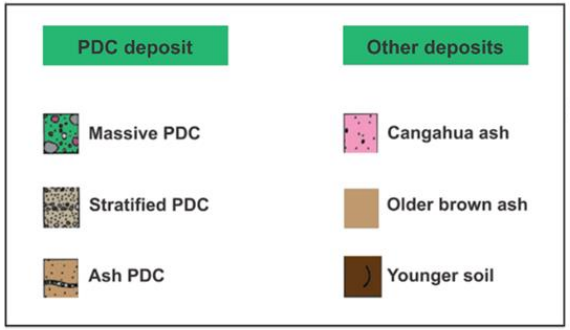
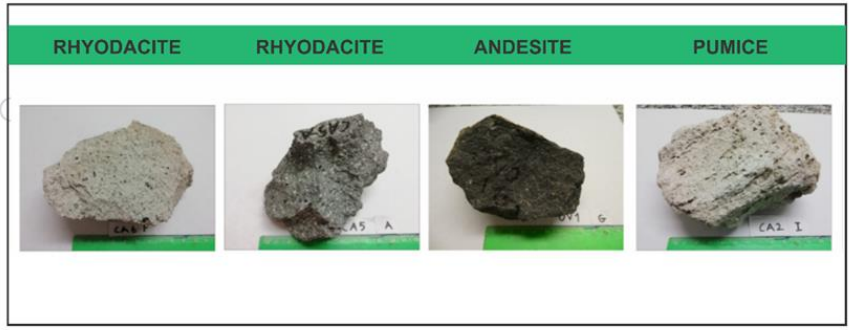
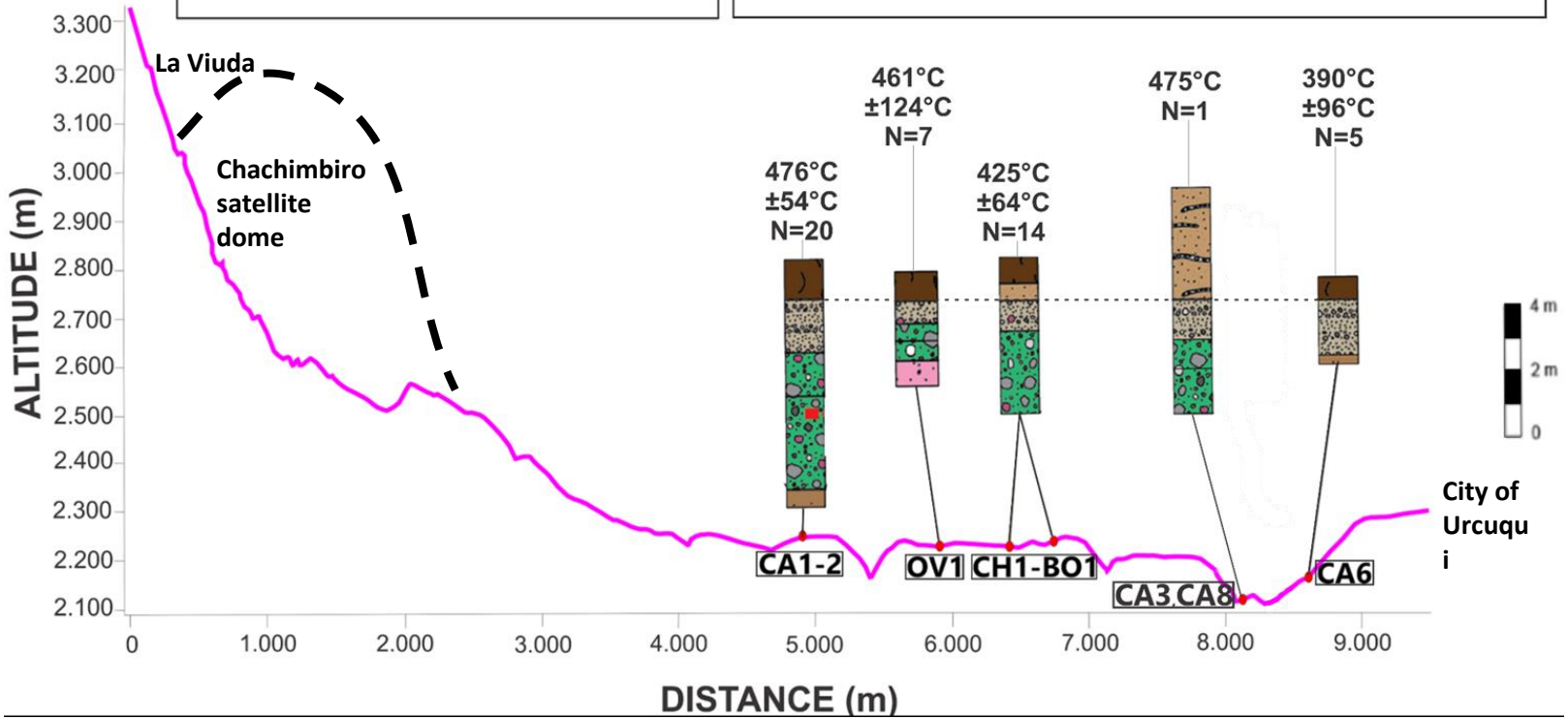


Image by E.Piispa

Estimated emplacement temperatures







Conclusions

1. Emplacement temperature estimate ~450°C (N = 48/54)

1. Consistent with Ts in the magmatic reservoir from geothermometry (679-858°C) and the fast growth of the lava dome (13-49 days) (Bernard et al. 2014)

1. Hazard aspect:
   - Even at 8 km distance from the dome the clasts show approximately 390°C average T
   - E.g. Pompei PDC has been estimated at 240-340°C (Cioni et al. 2004)
   - A similar directed blast (PDC) in the Inter-Andean valley now would be devastating due to higher present-day population density

If you are interested in hearing more about this study here is my contact information:

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