



Flow directions and interaction with topography of large volume caldera-forming ignimbrites: the case of Cerro Galán ignimbrite (Puna plateau, NW Argentina)

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Flow directions of the Cerro Galán ignimbrite (CGI) were determined integrating anisotropy of magnetic susceptibility (AMS) and petrographic fabric analyses. The CGI is the youngest and more voluminous ignimbrite of the Cerro Galán volcanic system (Puna plateau, NW Argentina), one of the largest caldera in the world. Flow directions are defined in 35 sites, distributed at different distances and azimuth from the caldera and at different stratigraphic heights along the same section. AMS results show a strong uniformity throughout the ignimbrite, with the exception of sites where the topographic control on the emplacement mechanism is dominant. Flow directions results show a radial pattern around the caldera, in proximal sites, whereas in distal sites the directions are strongly deviated by the paleotopography. The strong control of the paleotopography revealed in this study, together with field evidences of low level of turbulence and high emplacement temperatures estimations, indicate that the flow was highly concentrated throughout the flow path.