



## **Defining the structure of calderas and resurgences: evidence for reverse faults under volcanoes**

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The structure of calderas and resurgences is often interpreted in the classical literature as being the product of extensional structures. Typical cross-sections at large magmatic systems highlight graben-like (in the case of calderas) or horst-like (in the case of resurgences) structures. Several sets of analogue models devoted to understand caldera and resurgence structure have been produced in the last decade, under different conditions and using different materials. However, their overview shows remarkably consistent results. In particular, experimental collapses and resurgences are constantly bordered, at depth, by high angle reverse faults. Their widespread development results from the curved trajectories of the maximum stress developed in a differential uplift. Normal faults form only after a certain slip along the reverse faults and are always controlled by gravity; therefore, they appear to be secondary, local features. The results from analogue models are then compared to nature, highlighting very close consistencies with calderas and resurgences worldwide, at various scales.