

**Deformation effects in a shocked quartz pebble
from the Araguainha impact structure, Brazil,
investigated by CL and EBSD**

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Shear fractures pervasively crosscutting shocked quartz pebbles from conglomerates of the Devonian Furnas Formation in the central uplift of the 40 km Araguainha impact structure, Brazil were reported by [1] and recently reinvestigated by [2]. The latter interpreted these fractures are result of post-shock but still impact-related brittle deformation.

In thin sections, the fractures revealed to consist of fine-grained cataclastic shear zones, with angular clasts of quartz embedded in a fine-grained quartz matrix. High-resolution cathodoluminescence (CL) and electron back-scatter diffraction (EBSD) over large areas of one of such pebbles allowed the characterization of the microstructure, revealing a pattern of subparallel fractures filled by grinded quartz, twinning in the larger clasts and host, and thin pressure-solution lines, oriented 60° from the main set of shear fractures. Further investigations to constrain the deformation history of these pebbles are planned.

[1] von Engelhardt et al. (2025) *Meteoritics* 27, 442–457.

[2] King et al. (2025) *MaPS* 60, 124–132.