Quantitative fracture characterization in the damage zone of the Victoria Fault, Malta

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Fault damage zones can be preferential conduits for geofluids, depending on the secondary permeability developed with fracturing. Large-scale outcrop analogues allow a complete characterization of fracture networks, that cannot be satisfactorily imaged in the subsurface (e.g. with seismics). In this project we mapped fractures in the damage zone of the Victoria Fault, a major normal fault crosscutting Miocene shallow-water carbonates of Malta, combining field analysis and a high resolution photogrammetric Digital Outcrop Model (DOM). This allowed characterizing (i) the damage zone width, (ii) its spatial organization, (iii) geometrical parameters of the fracture network and (iv) its connectivity, and (v) the variability of these parameters in different stratigraphic units.