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Variability in interpretations when picking fractures from satellite images

Francesca Watson, Jonathan Long, Max Wilkinson, and Zak Javis

Geospatial Research Ltd., Department of Earth Sciences, Durham University, Durham, United Kingdom
(f.e.watson@durham.ac.uk)

Real world geological datasets, such as fracture networks, are restricted spatially and have limited resolution at all scales of observation. These limited observations may be interpreted to provide information regarding general trends which can subsequently be applied to geological models. The interpretation of geological data almost always involves human input which introduces interpreter bias into the workflow.
We investigated the effect of interpreter bias on interpretations of fractures picked from satellite data. Participants were asked to digitise the fractures seen in a satellite image and were asked to fill in a questionnaire to assess their level of prior knowledge or experience, with respect to structural geology and fracture picking. People's experience level included aspects such as time spent studying geology and in particular structural geology, as well as their level of fracture picking experience.
The fracture data were then processed to derive statistics for fracture length, orientation, density and intensity, all characteristics which could be used as inputs for a discrete fracture network model. We considered the variability in results produced by different interpreters and the effect of this variability on discrete fracture network models.