Supplementary material for

Scale matters: the influence of structural inheritance on fracture patterns

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This file set contains data used to interpret outcrop-scale fractures in the manuscript titled "The scale-dependent influence of structural inheritance on fracture patterns."

Photogrammetry

This folder contains files related to the generation of UAV-derived orthophotos used for interpreting outcrop-scale fracture traces. The following files for the Harmers Haven North, Harmers Haven South, Eagles Nest, the Caves–Flat Rocks, and Inverloch localities are included:

- Downward-looking (nadir) photographs (.jpg)
- Agisoft PhotoScan project file (.psx)
  Not available for Harmers Haven South
- Agisoft PhotoScan project report (.pdf)
- Table of ground control point (GCP) coordinates (.csv)
- Orthophoto (.tif)

The orthophoto for the Shark Stack locality is available for download from https://doi.org/10.26180/5c653193efa25 (Vollgger and Cruden, 2019).

Interpretation

This folder contains vector shapefiles of interpreted basin-scale (Samsu et al., 2019) and outcrop-scale fracture traces. The files can be opened in any geographic information system (GIS).

At the Harmers Haven North, Harmers Haven South, Eagles Nest, the Caves–Flat Rocks, and Inverloch localities, fractures were semi-automatically traced using the GeoTrace plugin implemented in QGIS (Thiele et al., 2017). The fractures were simplified using the Douglas-

Peucker method with a tolerance of 0.1 m ("Simplify" tool in QGIS 3.2.1) prior to the generation of length-coloured rose diagrams. Fractures at the Harmers Haven North and Shark Stack localities were traced manually in QGIS. All fractures were traced at a "zoom level" of 1:500 in the GDA94 MGA Zone 55 (EPSG:28355) coordinate reference system. For each outcrop locality, the following shapefiles are included:

- fractures_geotrace
  Traced with GeoTrace
- fractures_geotrace_simp0.1
  Traced with GeoTrace, simplified using Douglas-Peucker method with a tolerance of 0.1 m
- fractures_manual (Harmers Haven North and Shark Stack only)
  Traced manually

Also included is a vector shapefile of Australian coast and state and territory borders, which are derived from the GEODATA Coast 100k 2004 dataset (Geoscience Australia, 2004). The coordinate reference system is GDA94 (EPSG:4283).

QGIS Project

This QGIS project, created in QGIS Desktop 3.2.1 (QGIS Development Team, 2019), links to all of the datasets above. The project coordinate reference system is GDA94 MGA Zone 55 (EPSG:28355).

References

Geoscience Australia, 2004. GEODATA Coast 100k 2004.

QGIS Development Team, 2019. QGIS Geographic Information System. Open Source Geospatial Foundation Project.

Samsu, A., Cruden, A.R., Hall, M., Micklethwaite, S., Denyszyn, S.W., 2019. The influence of basement faults on local extension directions: Insights from potential field geophysics and field observations. Basin Research 00, 1–26. doi:10.1111/bre.12344

Thiele, S.T., Grose, L., Samsu, A., Micklethwaite, S., Vollgger, S.A., Cruden, A.R., 2017. Rapid, semi-automatic fracture and contact mapping for point clouds, images and geophysical data. Solid Earth 8, 1241–1253. doi:10.5194/se-8-1241-2017

Vollgger, S., Cruden, A., 2019. Cape Liptrap orthomosaic. doi:https://doi.org/10.26180/5c653193efa25