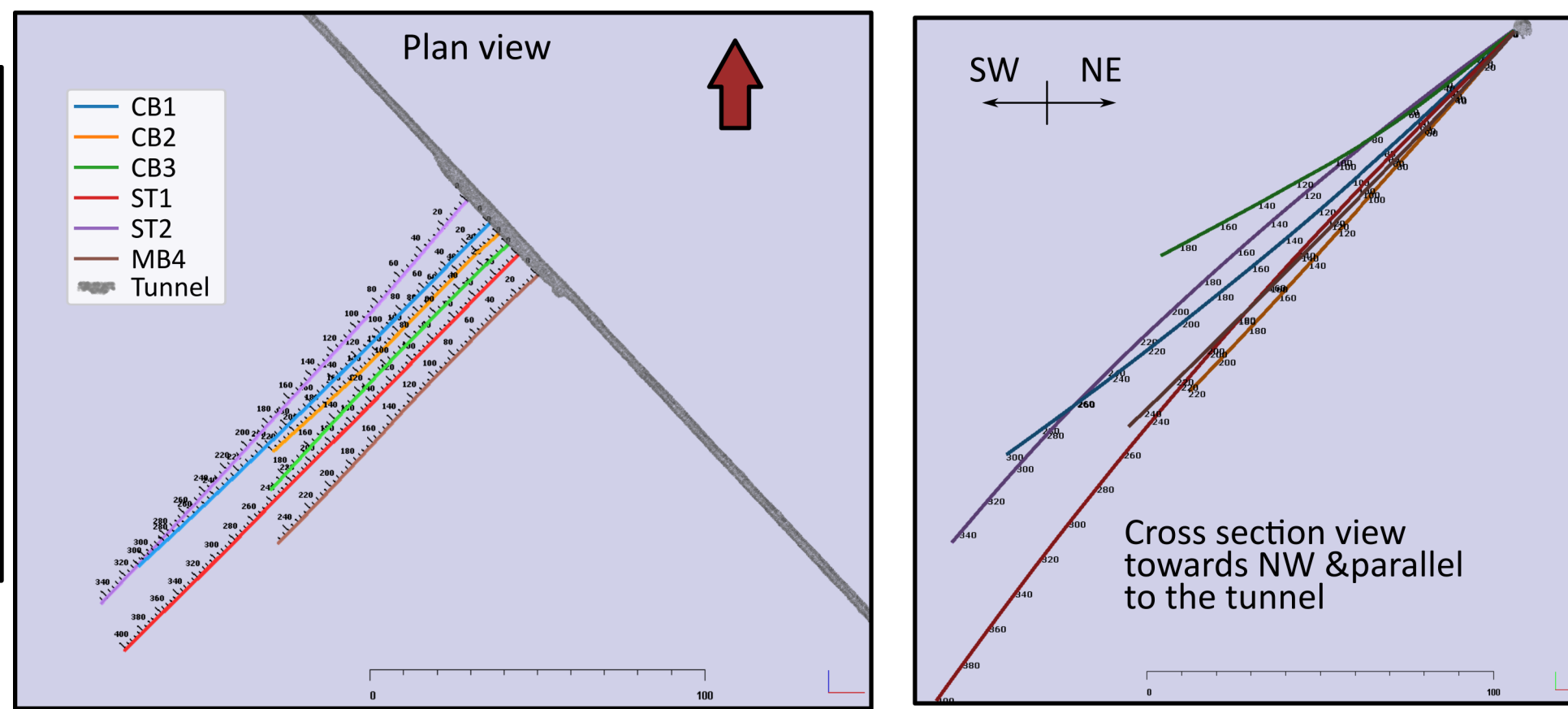
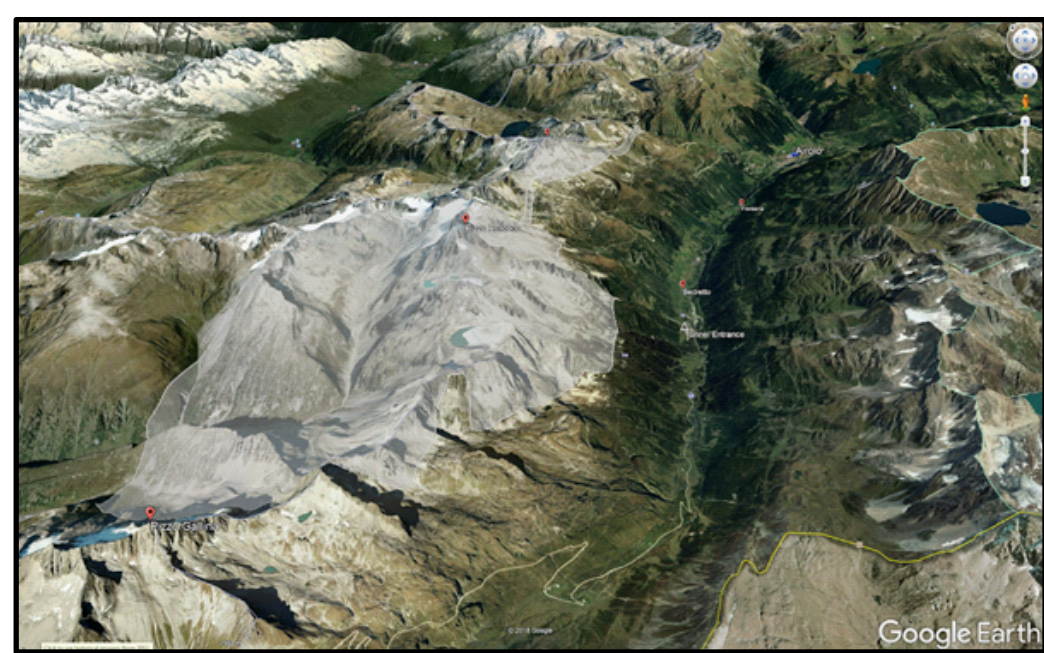


R. Castilla¹, F. Serbeto¹, P. Meier¹

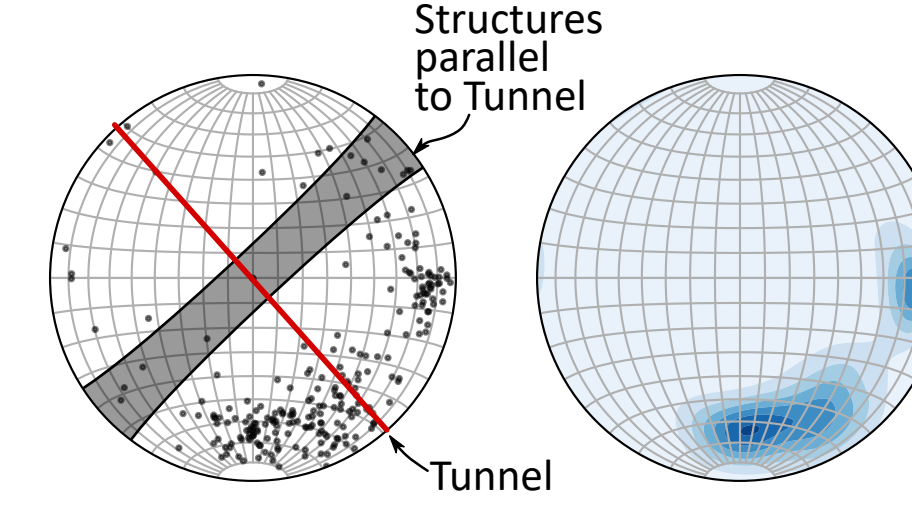
¹Geo-Energie Suisse AG, Reitergasse 11, 8004 Zürich

The Lab



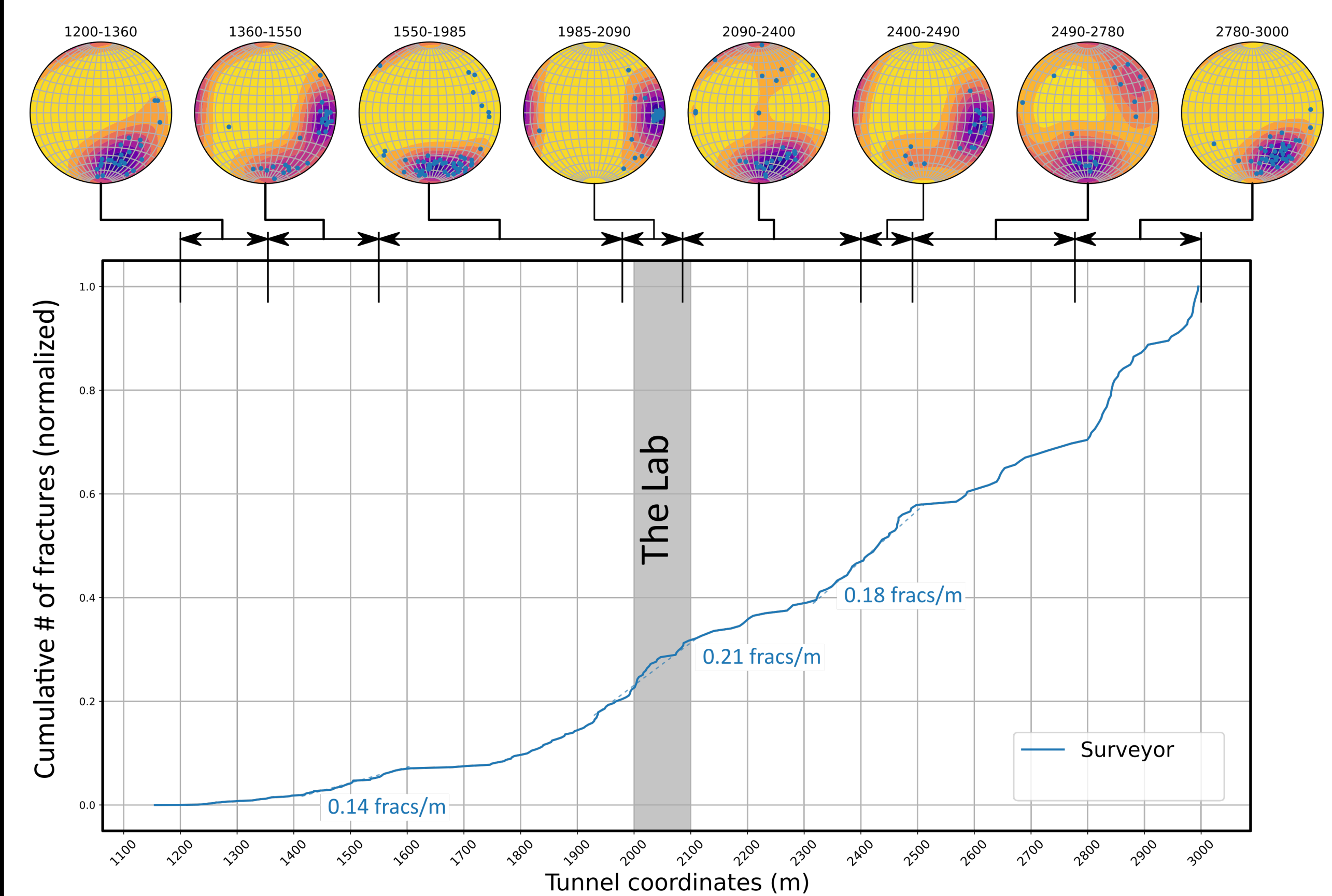
Structures in the tunnel wall

All structures

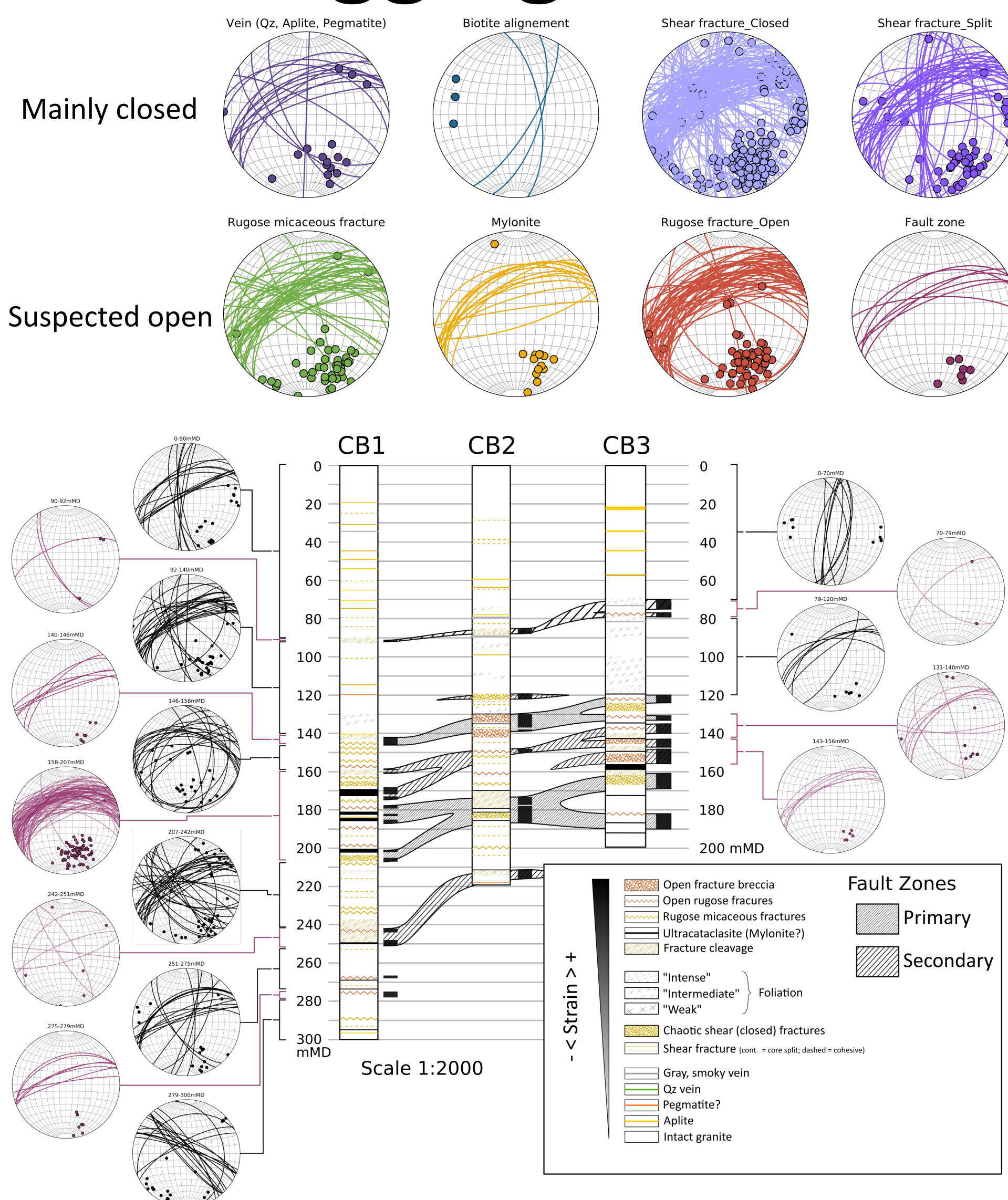
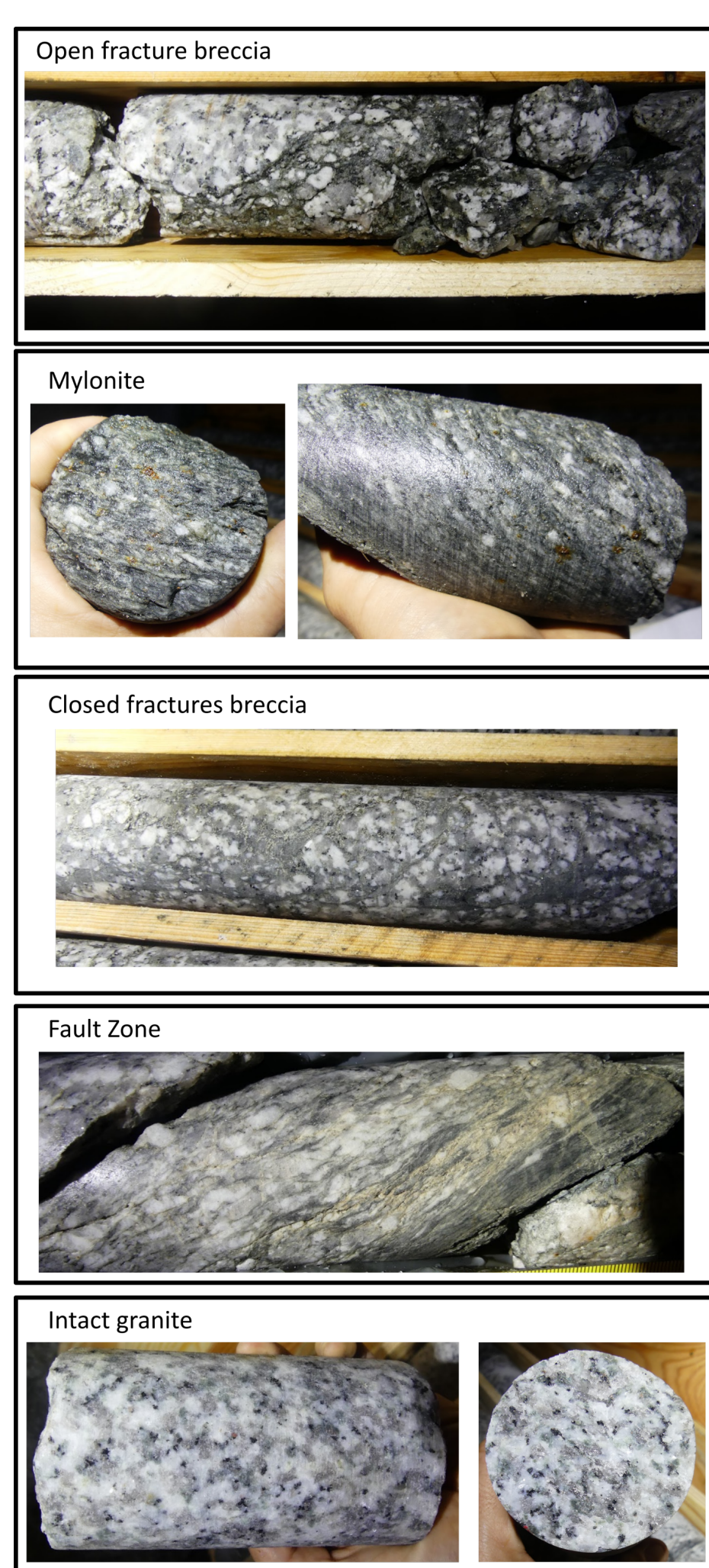


Main messages:

- Two dominant sets:
 - * NE-SW & E-W (dipping north)
 - * N-S (dipping West)
- The sets are arranged in clusters of 100m to 400m length.
- The lab is located in a segment where the dominant direction is N-S.



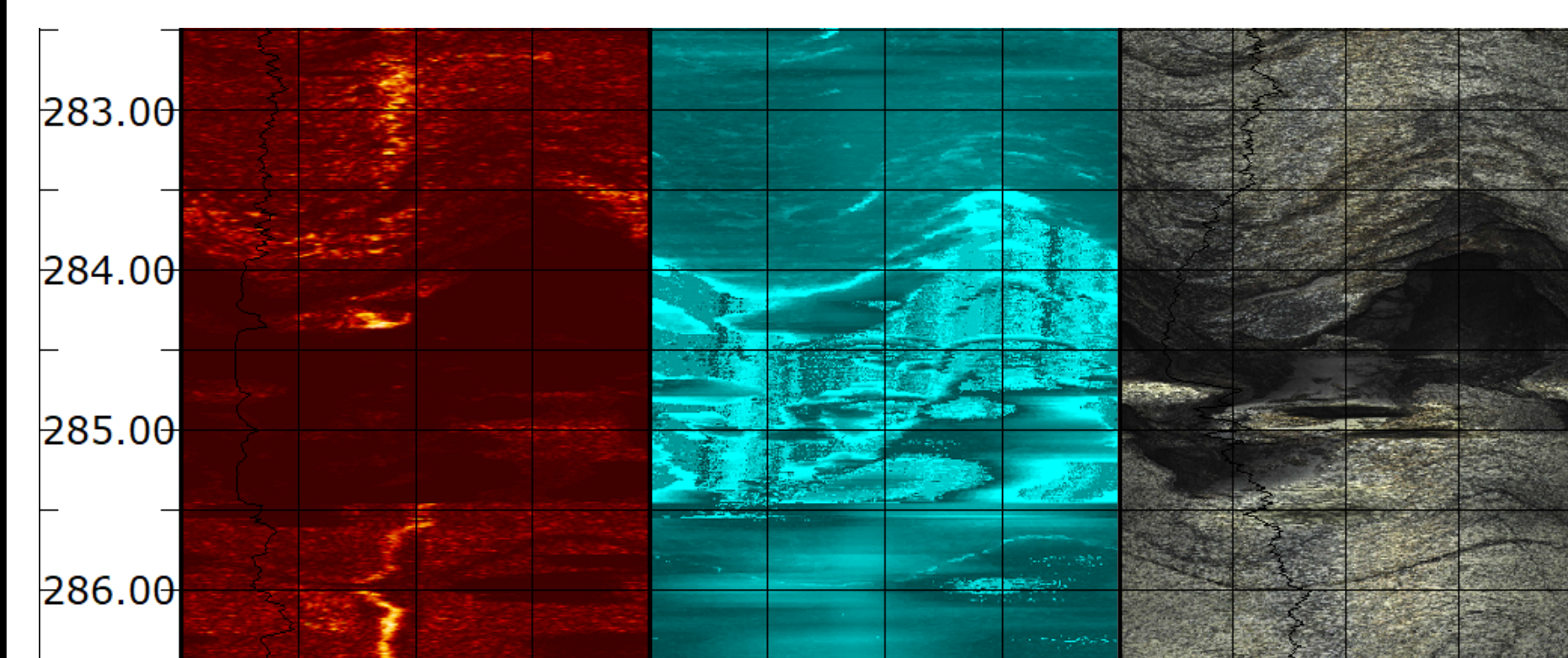
Boreholes - Core logging



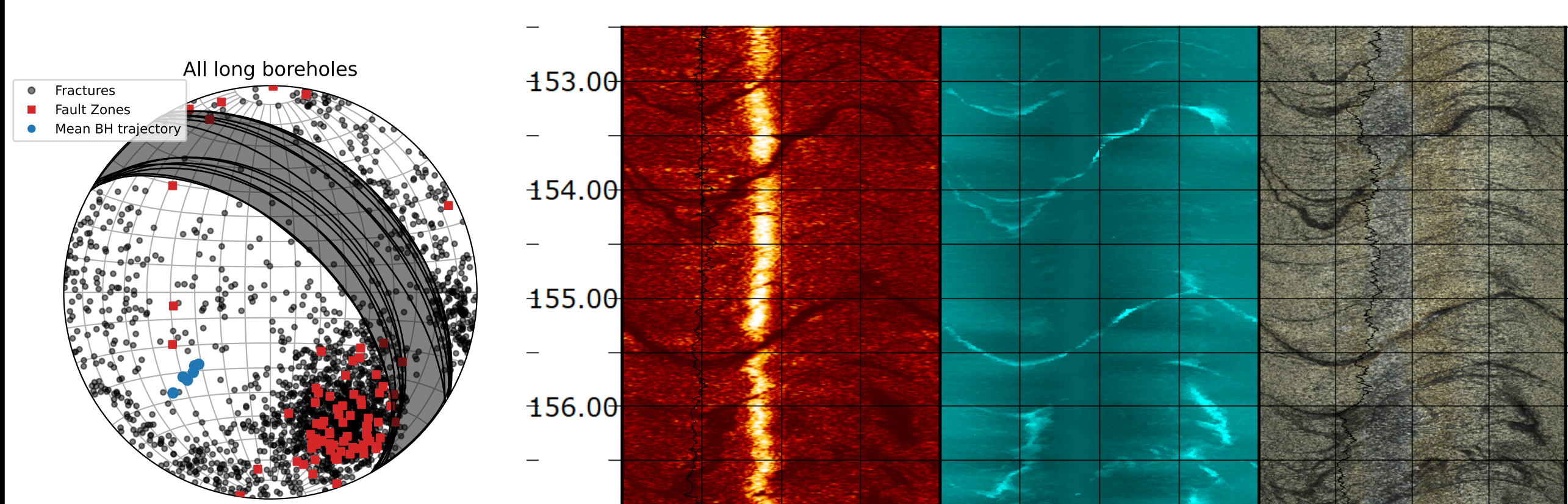
Main messages:

- Same orientation sets as identified in the tunnel.
- High strain (and overall open) structures are oriented NE-SW.
- Shallower 50-100m section shows scarce structures and N-S orientation as in tunnel.

Boreholes - Image logging



Fault zones
VS.
Fractures

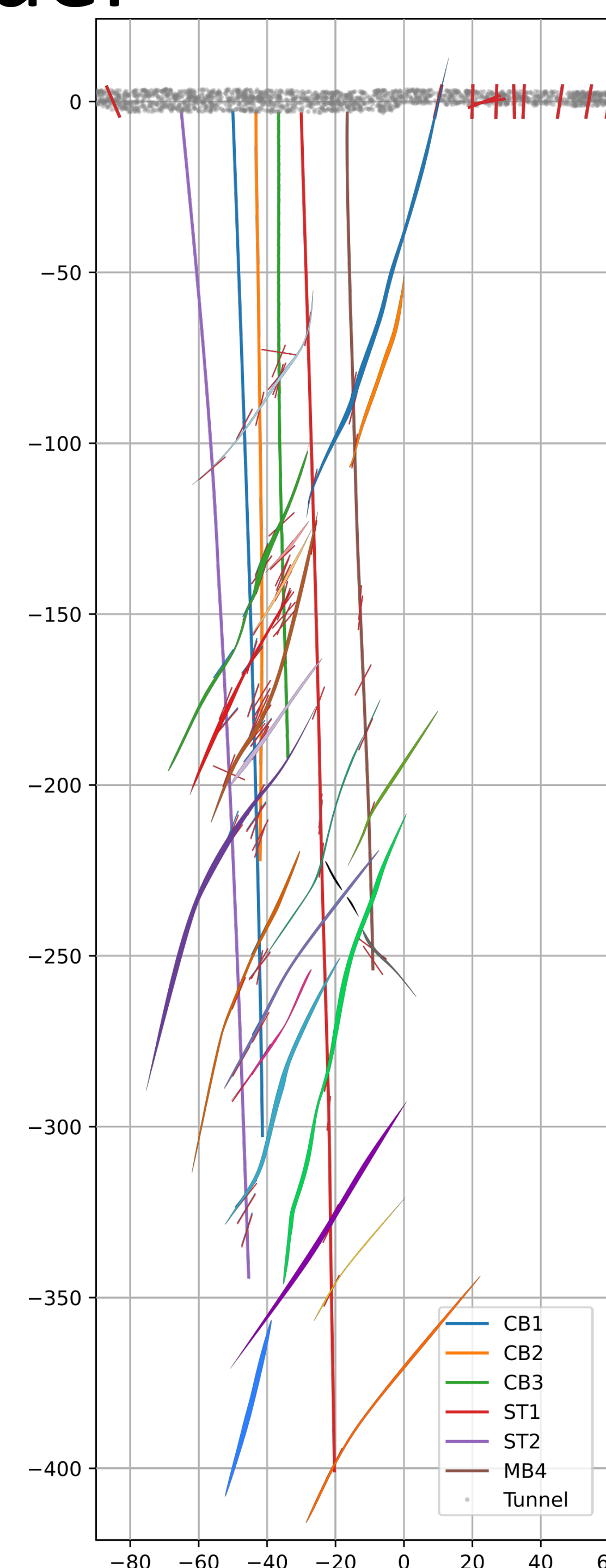
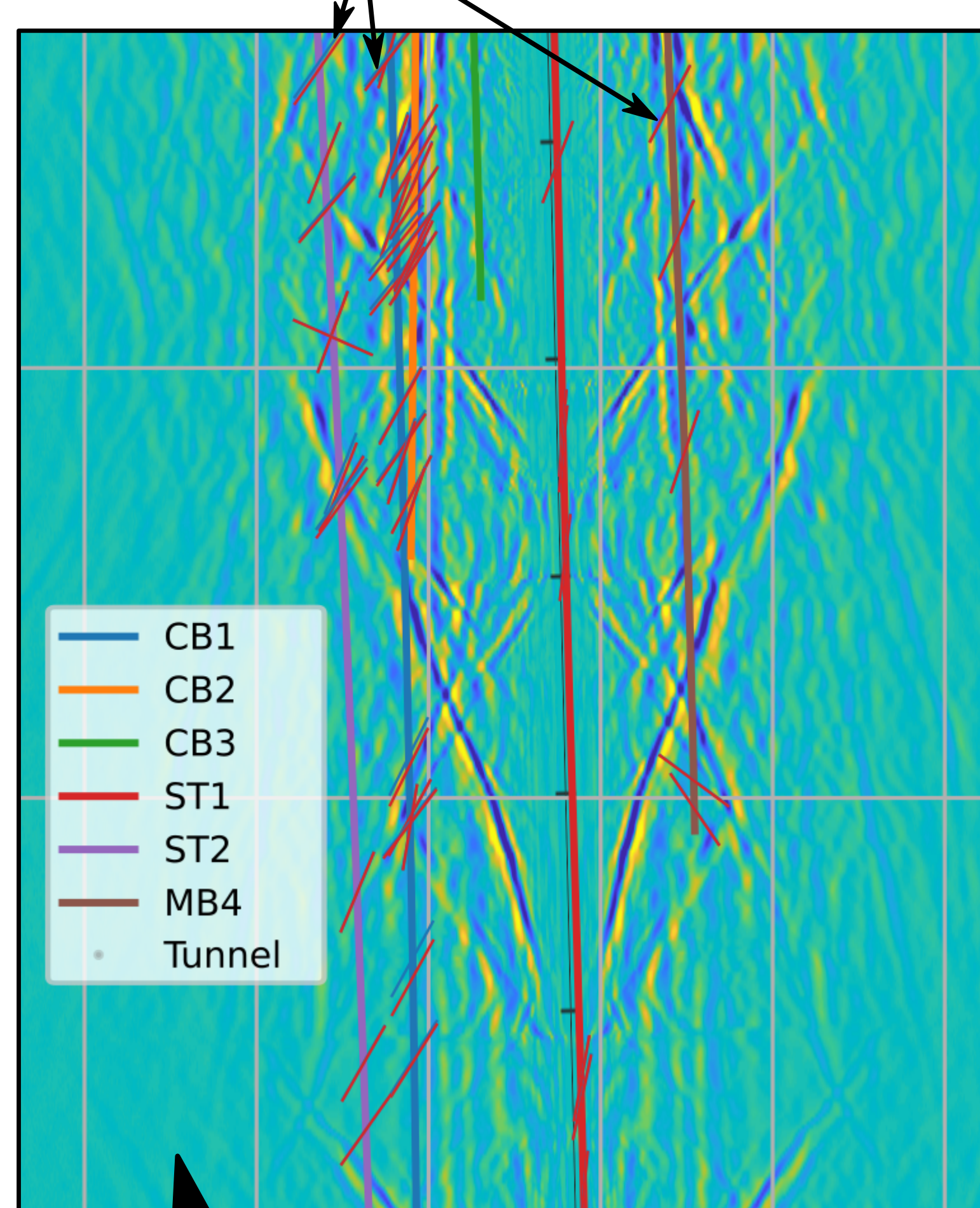


Main messages:

- Two categories were identified and picked on image logs:
 - * Fault zones: Several cm thick, internal structures sometimes visible, considerable borehole damage.
 - * Generic fractures: Only some mm thick, borehole maintains its cylindrical shape.
- Fault zones are oriented NE-SW (only few exceptions)

Interpretation & Model

Structures picked on image logs



Ground Penetrating Radar (GPR)
by A. Shakas et. al (SCCER-SoE, ETH)

Conclusions

- The two main structural sets are
 - 1) NE-SE to EW and, 2) N-S.
- Different structural orientations are segregated in distinct clusters well segregated in space.
- The clusters seem to extend over distances of several hundreds of meters (100m-400m). N-S clusters are probably smaller than those oriented NE-SW.
- Main structures are oriented NE-SW and dip to the NW.