

A resistivity survey at the Alid geothermal prospect in Eritrea

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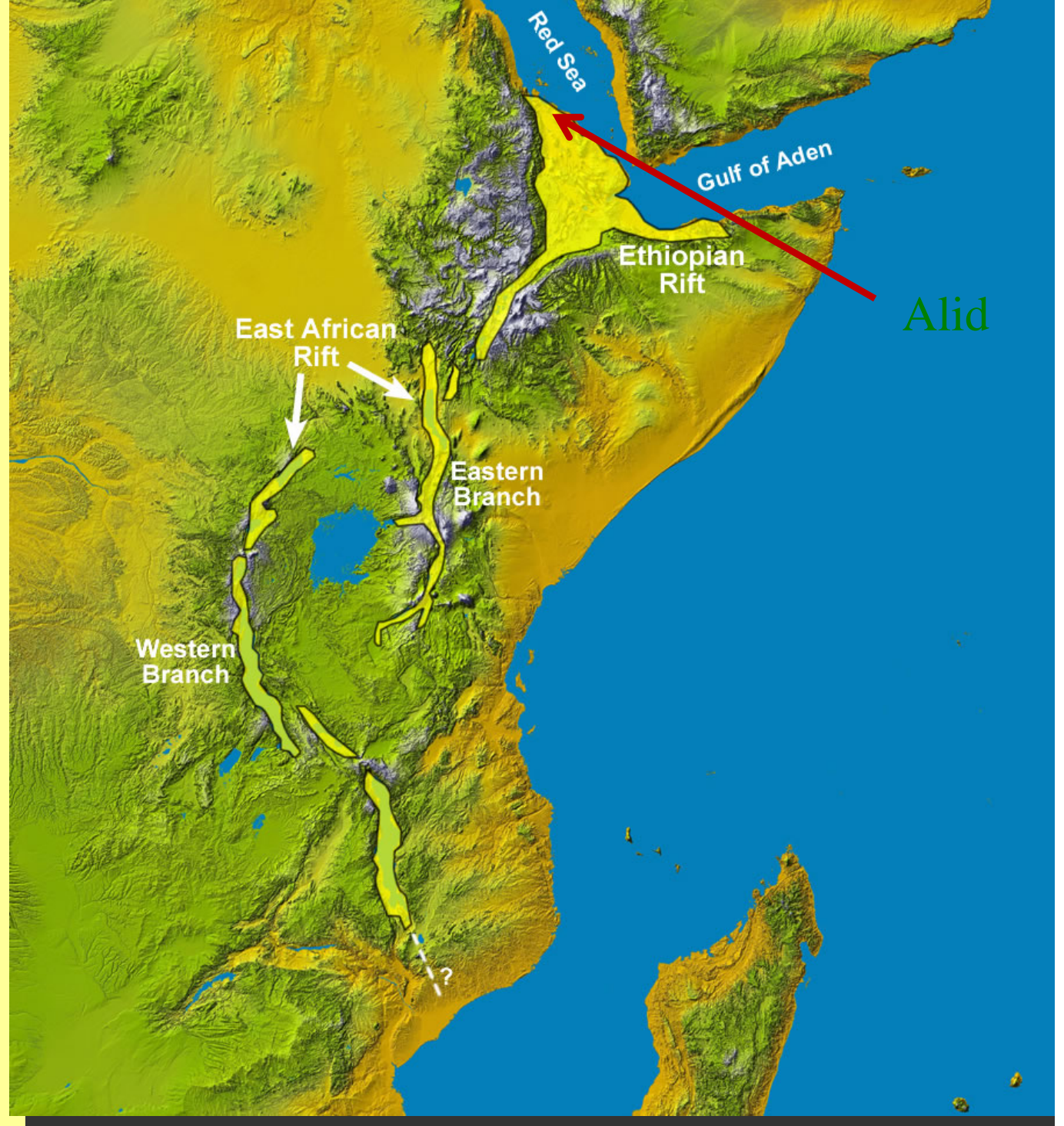
Ermias Yhannes Berhane

Andemariam Teklesembet



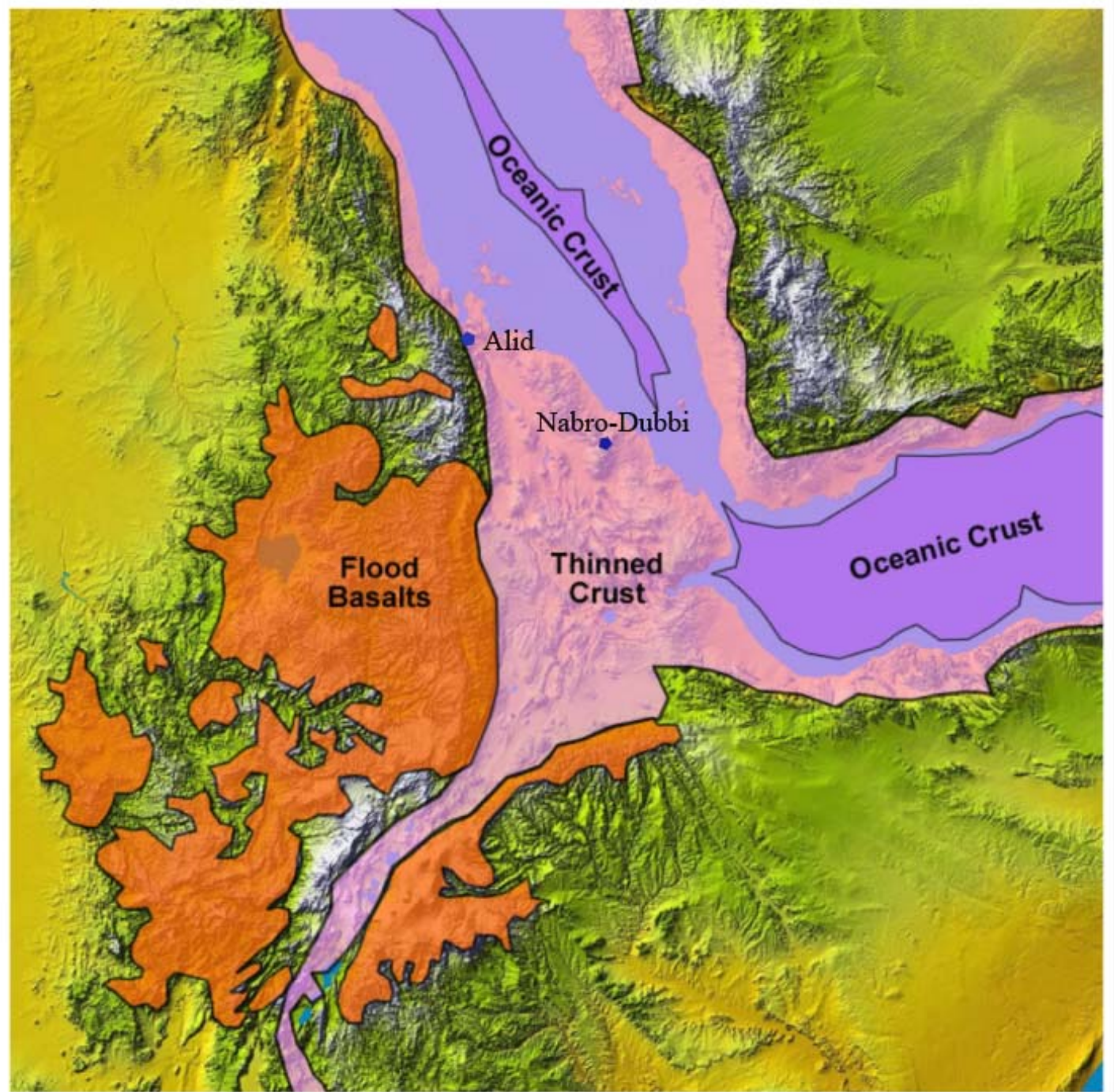
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General tectonic setting



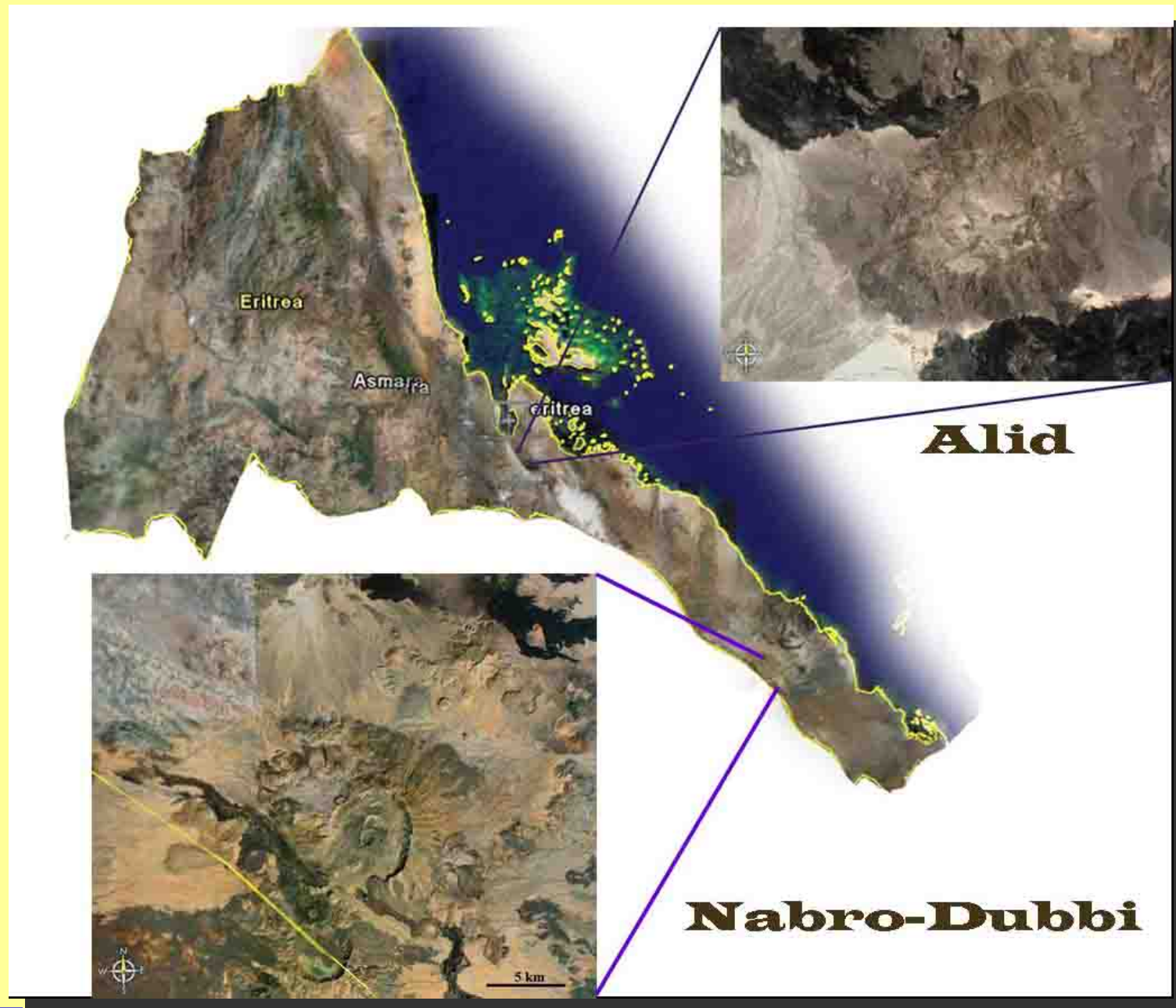
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Simple geological map of the Afar triangle



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Location of the Alid and Nabro-Dubbi prospects



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Areal photo of the Alid dome



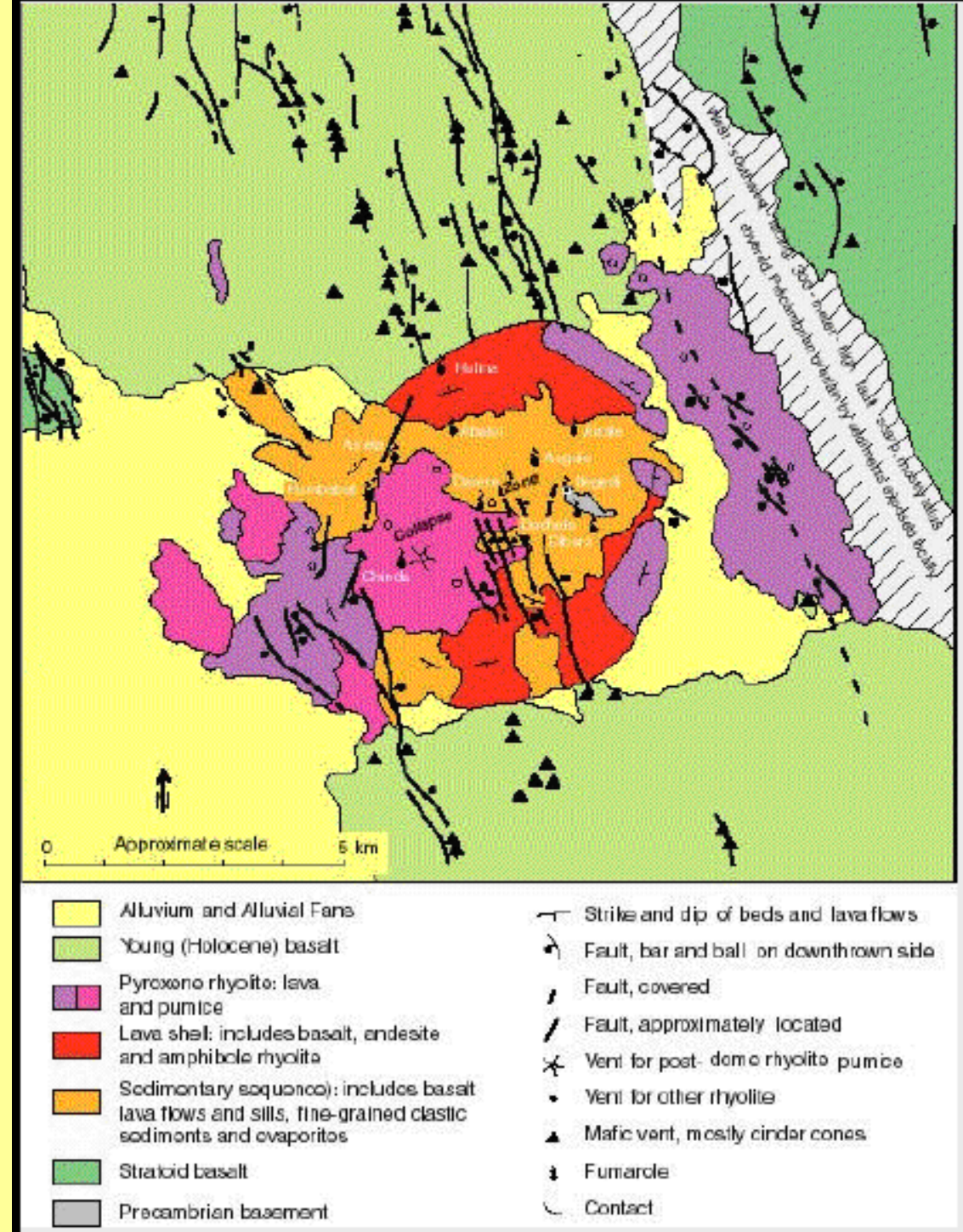
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Previous studies

1. **Geothermal assessment was initiated during 1902 by Angelo Marini (Marini, 1938).**
2. **UNDP sponsored work was carried out a reconnaissance survey in 1973 by a Geological Survey of Ethiopia team (UNDP, 1973).**
3. **In 1992, the late Prof. Giorgio Marinelli and a staff member from the Department of Energy visited Alid area.**
4. **In 1994, Mikhail Beyth of the Geological Survey of Israel surveyed the Alid hydrothermal area.**
5. **A team of staff from the United States Geological Survey (USGS) and the Ministry of Energy and Mines of Eritrea (MEM) carried out a geological and geochemical investigation at Alid and its surroundings during in 1996 (Clynne et al., 1996).**
6. **Reinterpretation of the chemistry of water and gas samples (Yohannes, 2004).**
7. **Fault and fracture analysis (Yohannes et al., 2006), resistivity survey (Goitom et al, 2006) and hydrogeological investigation (Andemariam et al., 2006) was carried out on Alid and surroundings.**



A geological map of Alid



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Tilted rocks in the slopes of Alid



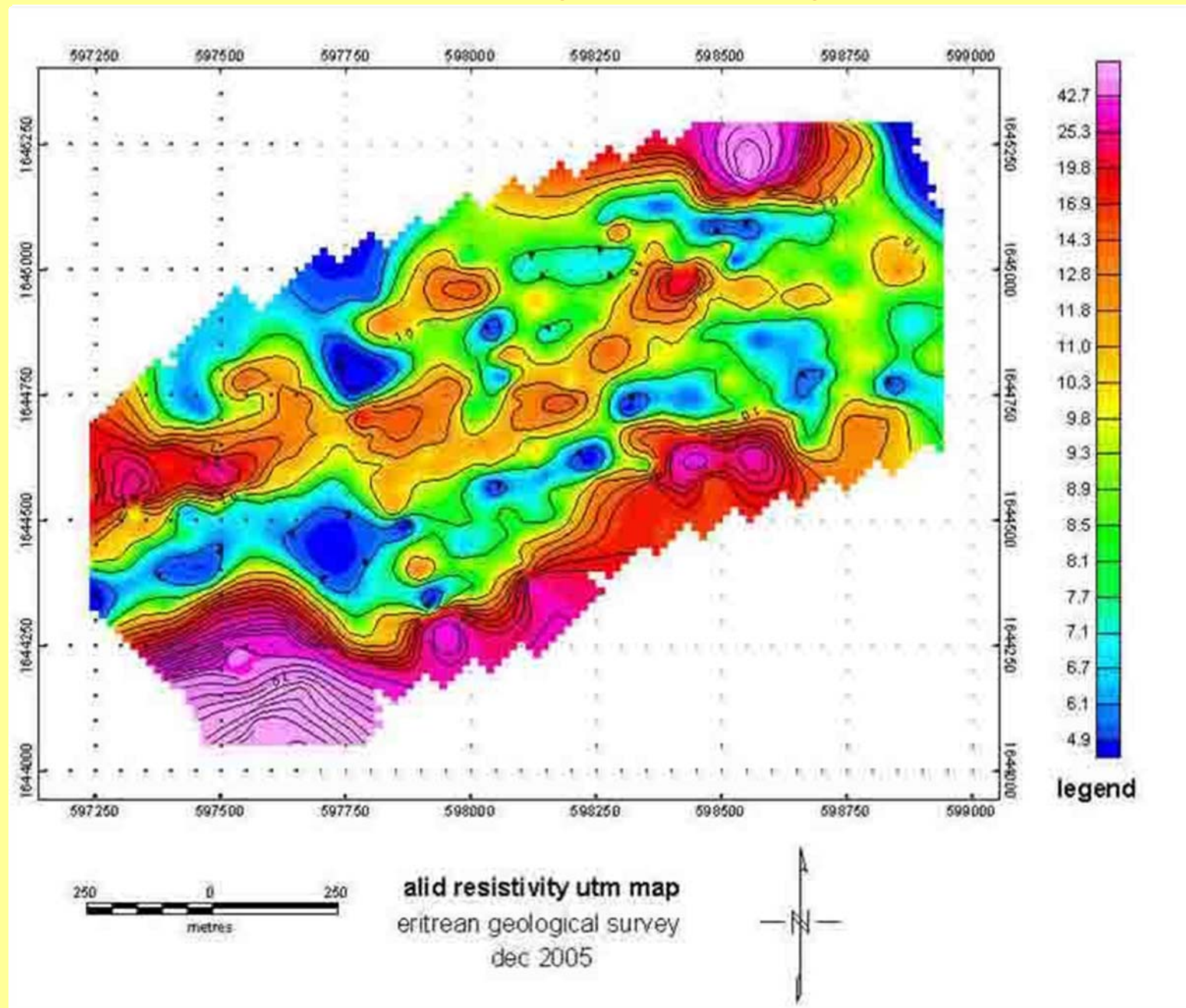
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Surface manifestations



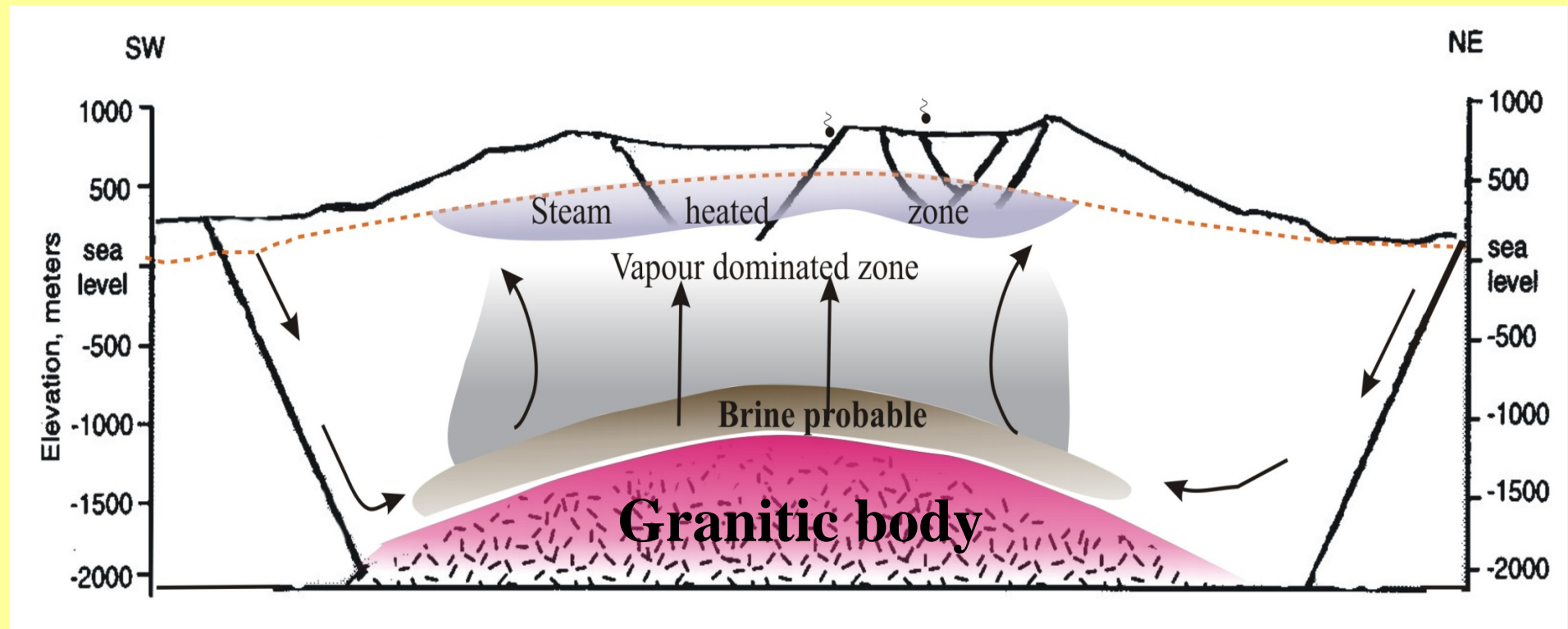
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Shallow resistivity survey (Goitom et al, 2006)



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Conceptual model



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Ongoing resistivity survey

Financed by **ICEIDA** under the ARGeo umbrella

Carried out by ISOR (2) and the geological survey of Eritrea (3)

Field work Nov. – Dec. 2008

Results early 2009.



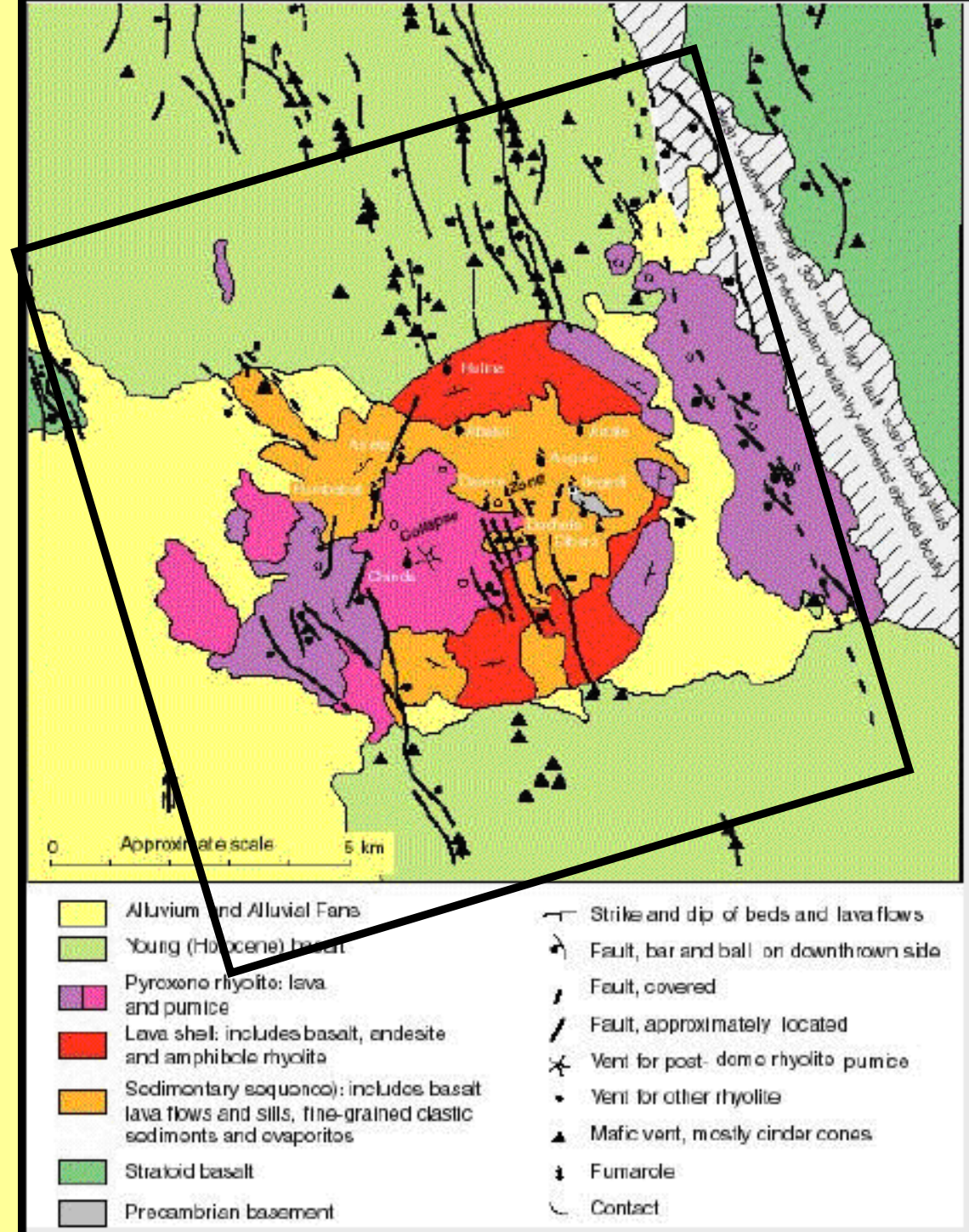
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Resistivity survey

Survey area about
100 km²

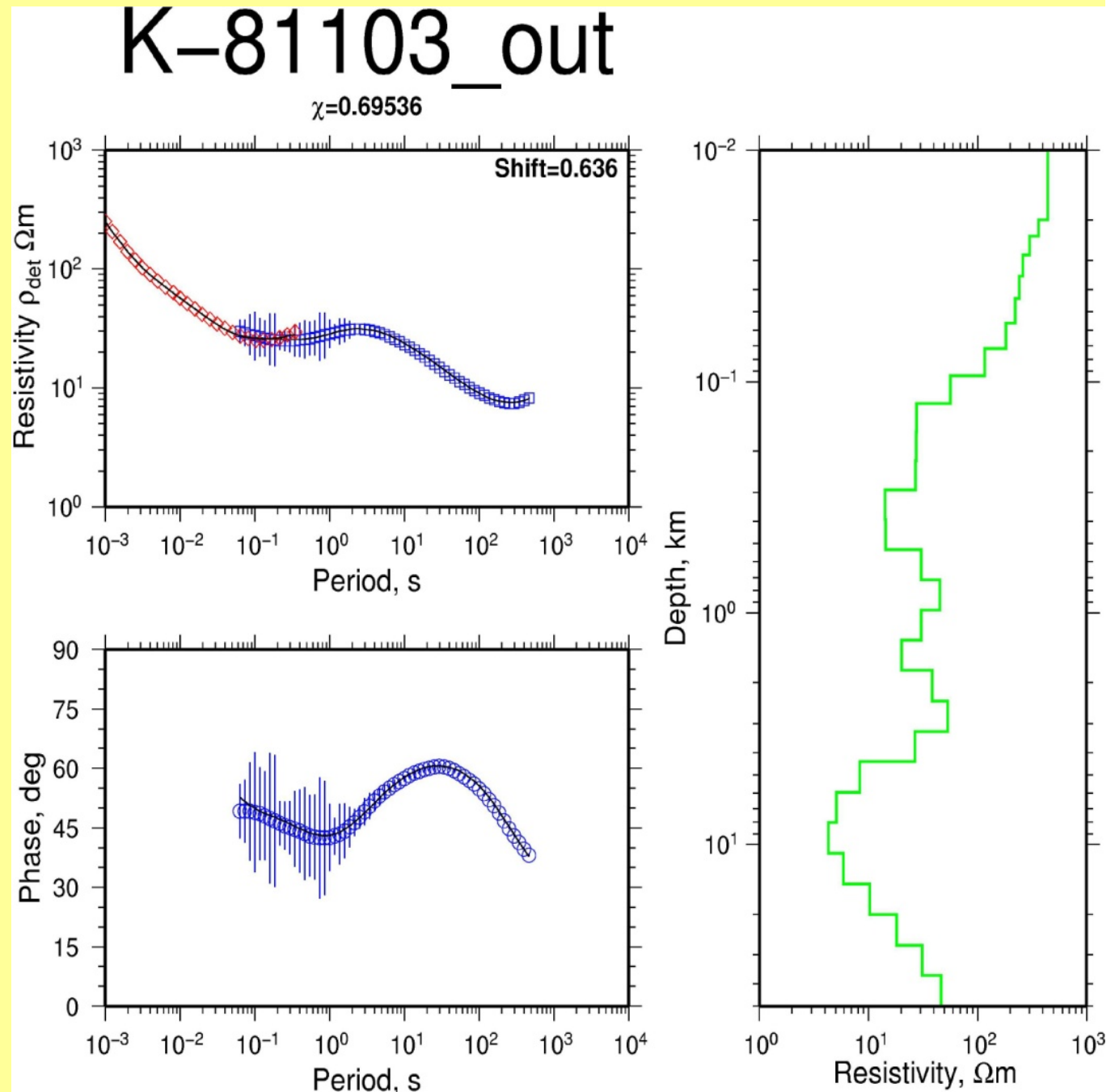
About TEM
and MT soundings
at the same
locations.

Joint inversion



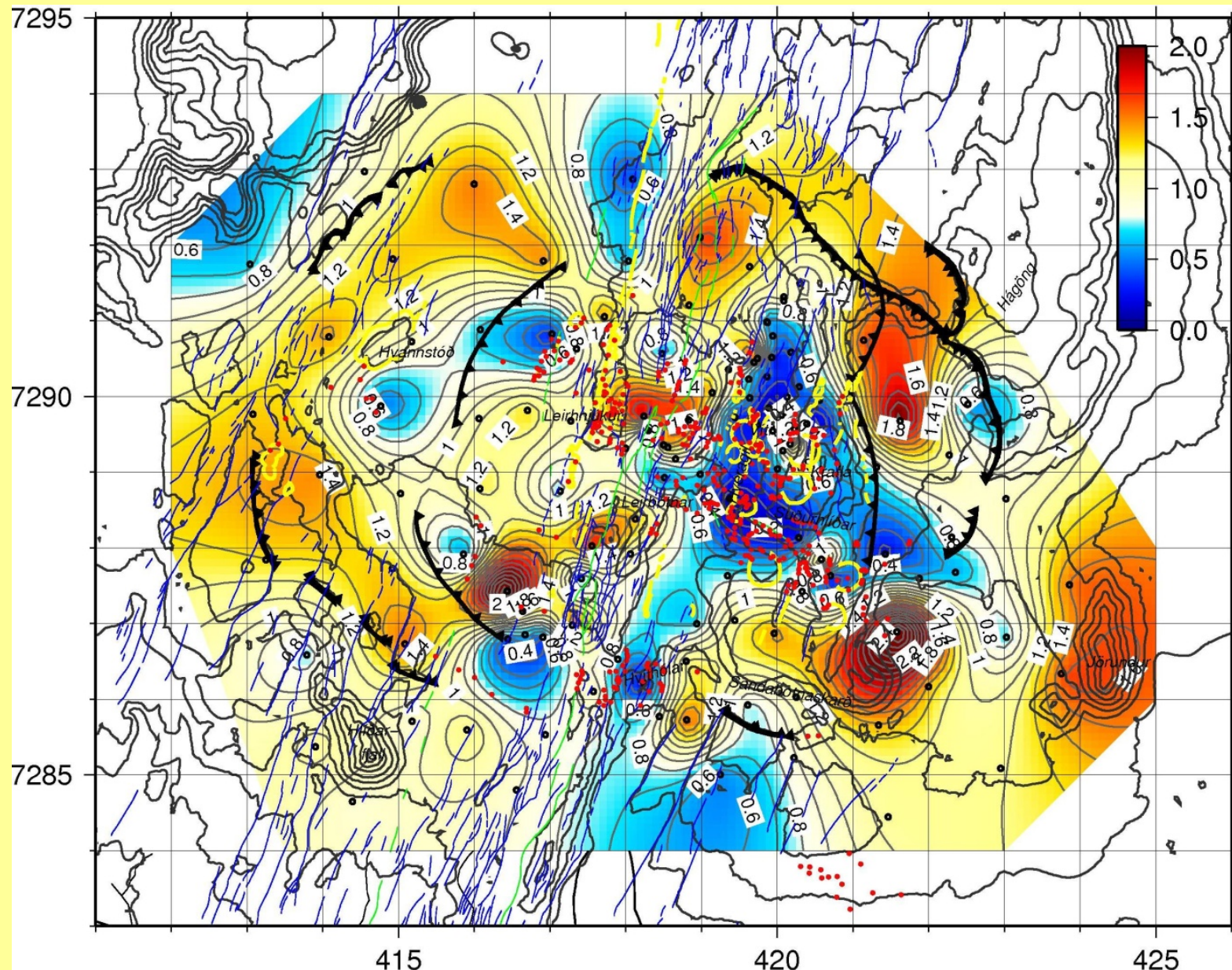
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Joint inversion of TEM and MT and static shift correction



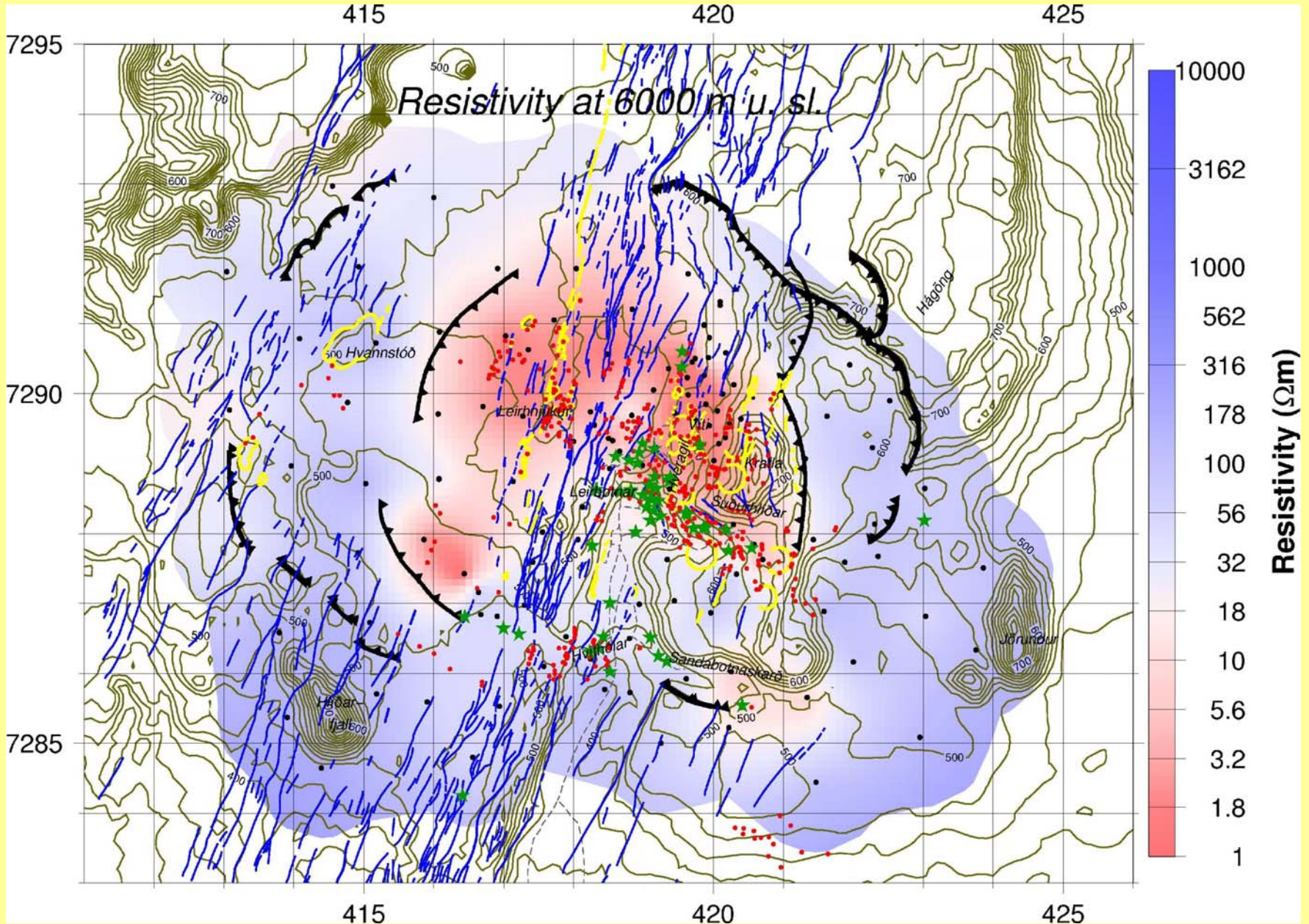
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MT static shifts in Krafla NE Iceland



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Sample result; Krafla Ne Iceland



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Expected outcome

- **Delineate the reservoir in Alid and estimate its potential**
- **Site exploration wells**
- **Advance the Alid prospect in the ARGeo pipeline**



Thank you!



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