Mini Grant

Investigating Mercury's Tectonics with geophysical modelling and earth structural analogues (iMeT)

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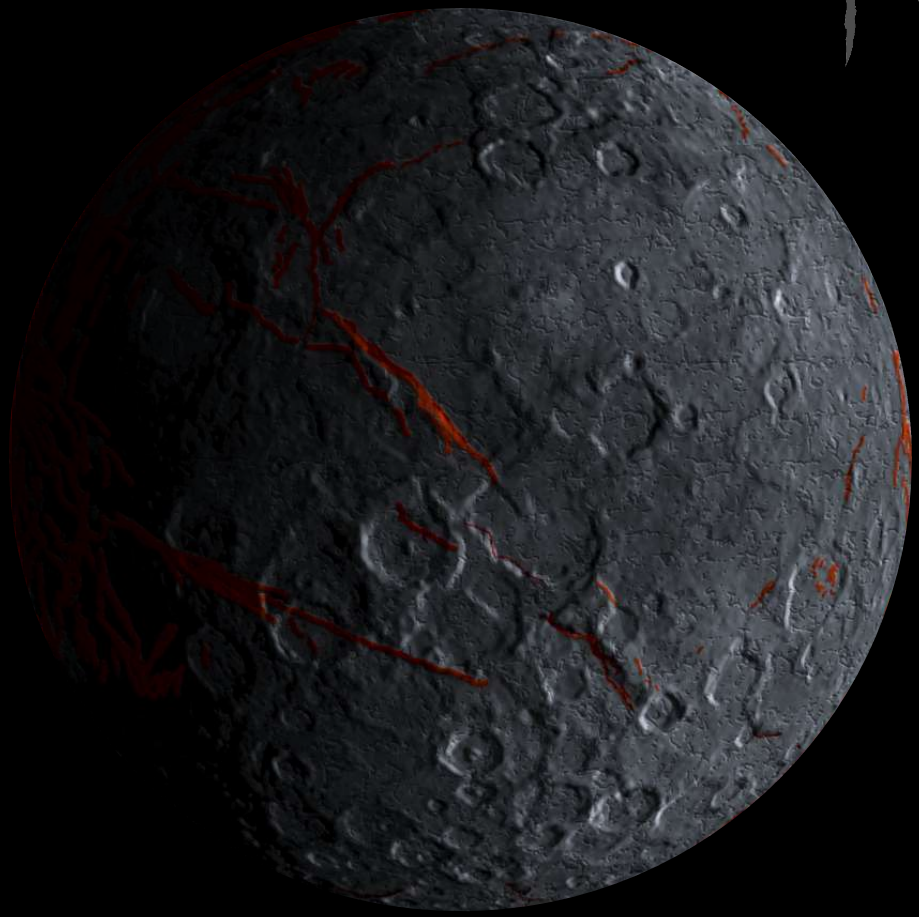
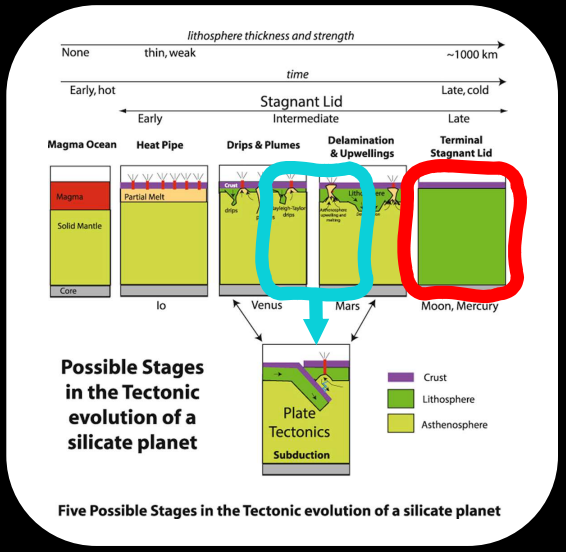


Mercury's Stagnant Lid Tectonics



Stern et al. (2018)

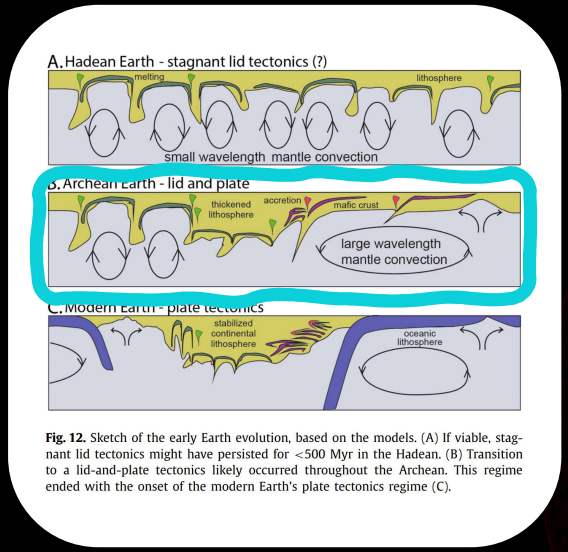
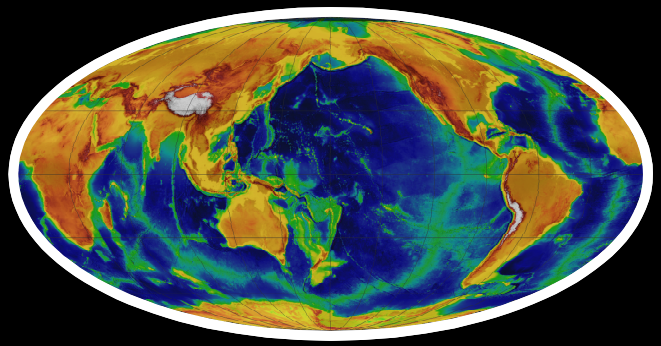
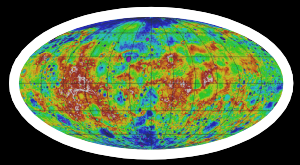
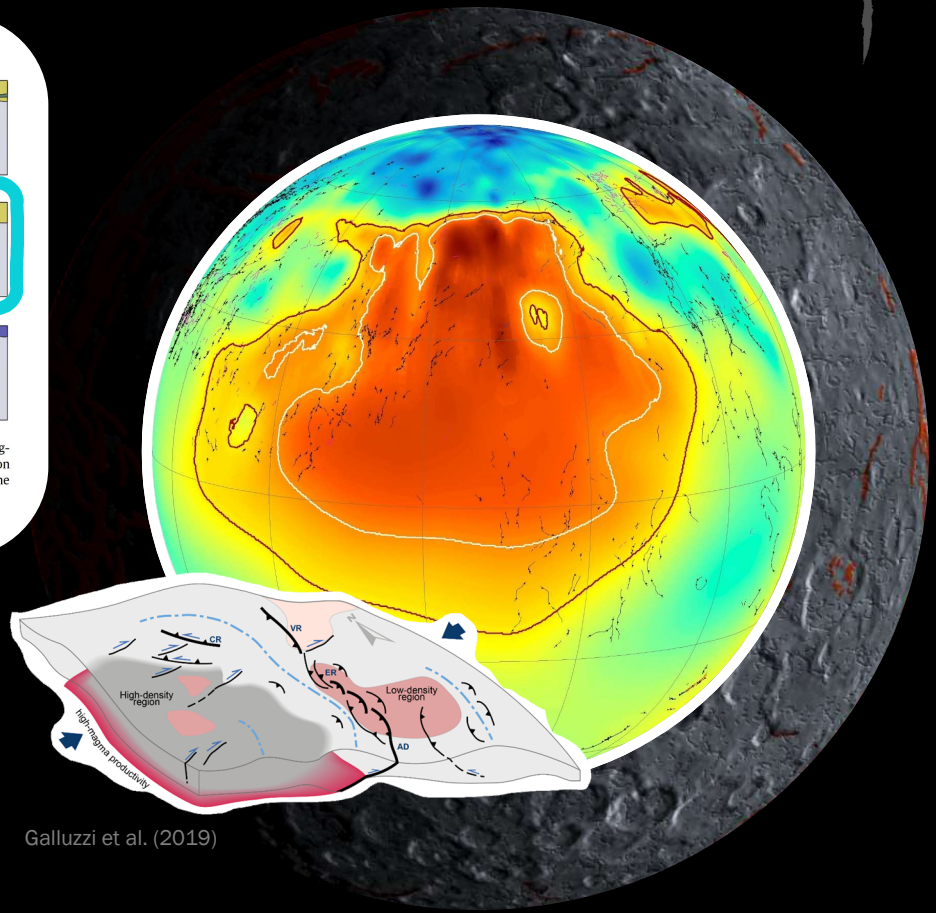


Fig. 12. Sketch of the early Earth evolution, based on the models. (A) If viable, stagnant lid tectonics might have persisted for <500 Myr in the Hadean. (B) Transition to a lid-and-plate tectonics likely occurred throughout the Archean. This regime ended with the onset of the modern Earth's plate tectonics regime (C).

Capitanio et al. (2019)





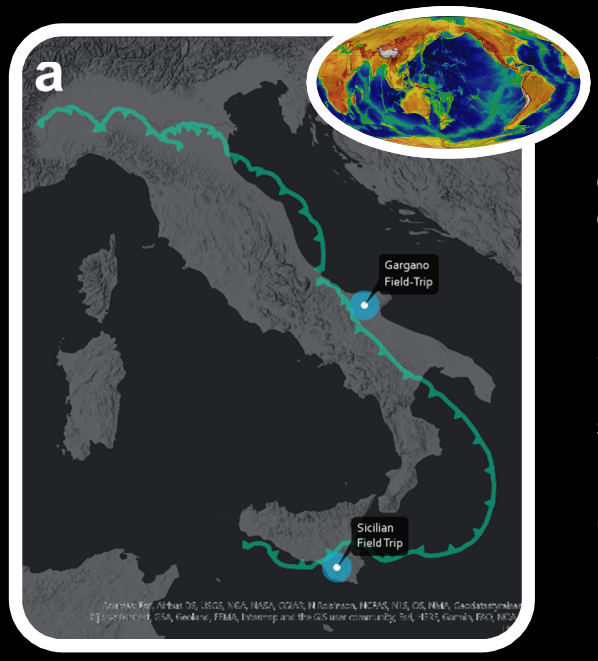


Galluzzi et al. (2019)

Mercury-Earth as Each Other's Analogues

Our comparative planetological study aims at using Mercury and Earth as each other's analogues:

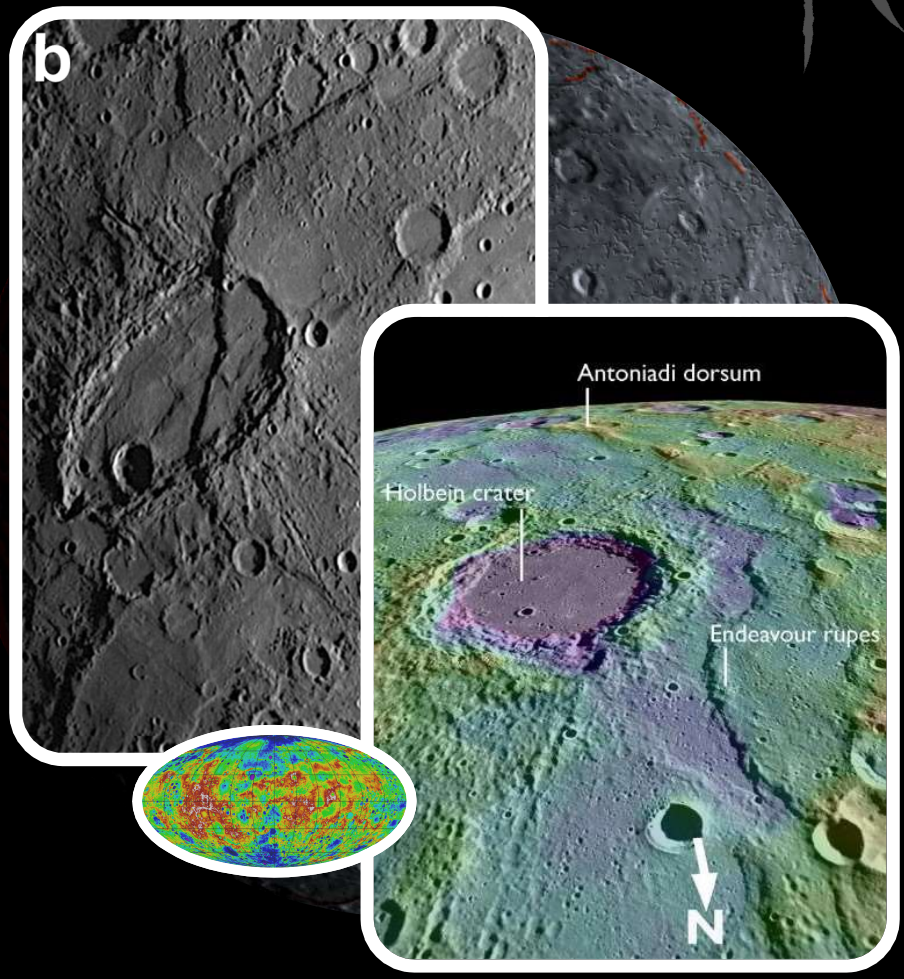
1. Mercury's tectonic frame as an analogue for the early tectonic evolution of the Earth;
2. Earth's deformed foreland areas as an analogue for Mercury's thrusts.



Field Activity | It will be possible to collect evidence that will allow a comparison with the geometry and kinematics of Mercury's lobate scarps

Mercury Tectonics | Mapping and analysis of Mercury structures on a Geographic Information System (GIS) software using MESSENGER data and basemaps.

Geophysical Modelling | Applied on Mercury and Earth gravity and magnetic satellite data will allow us to identify the subsurface location of faults and compare the results.



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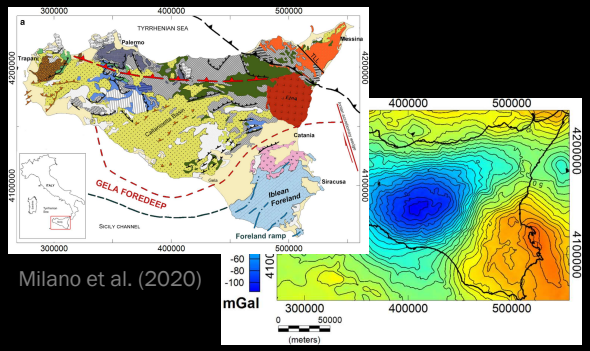

Milano et al. (2020)

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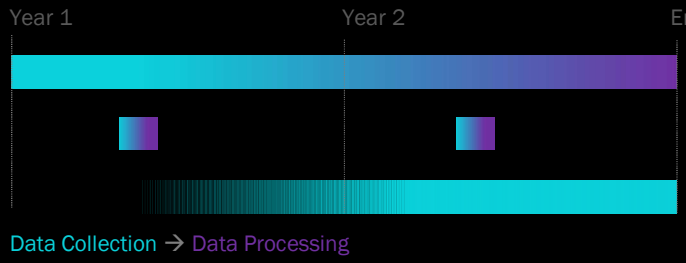
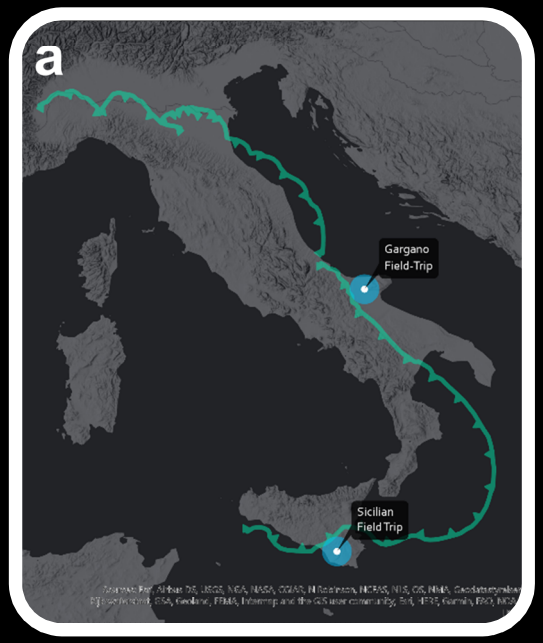
ESA GOCE Mission data exploitation
(Gravity field and steady Ocean Circulation Explorer)

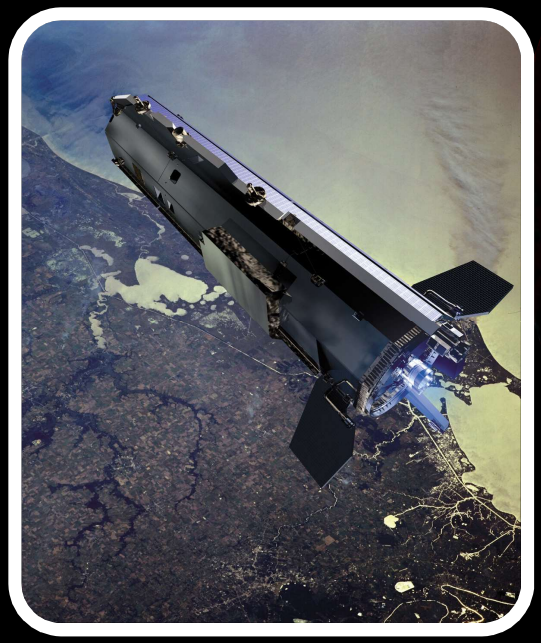
iMeT: Investigating Mercury's Tectonics



16k €

field trips
hardware/software
congresses
publications





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