

FIRE:

**WP4 Computation of a density
model using gravity**

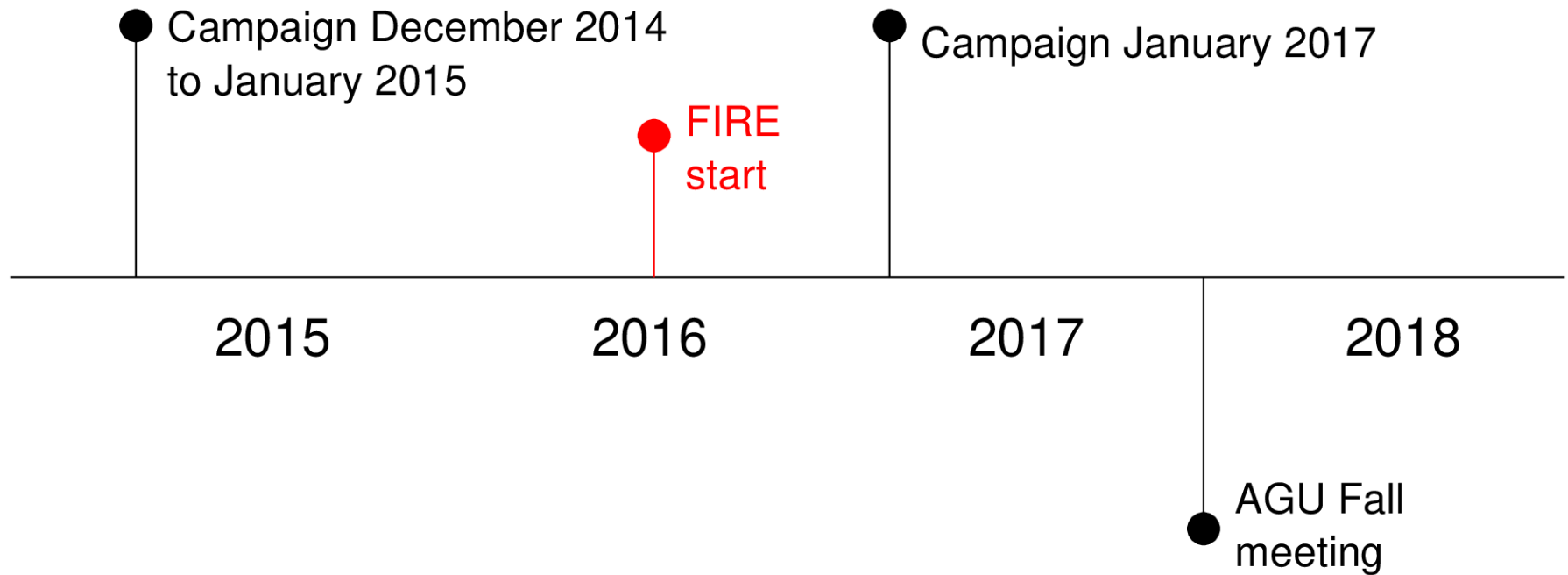
Pedro Almeida, **Machiel Bos**, João Catalão
Stephanie Dumont, Clara Lazaro



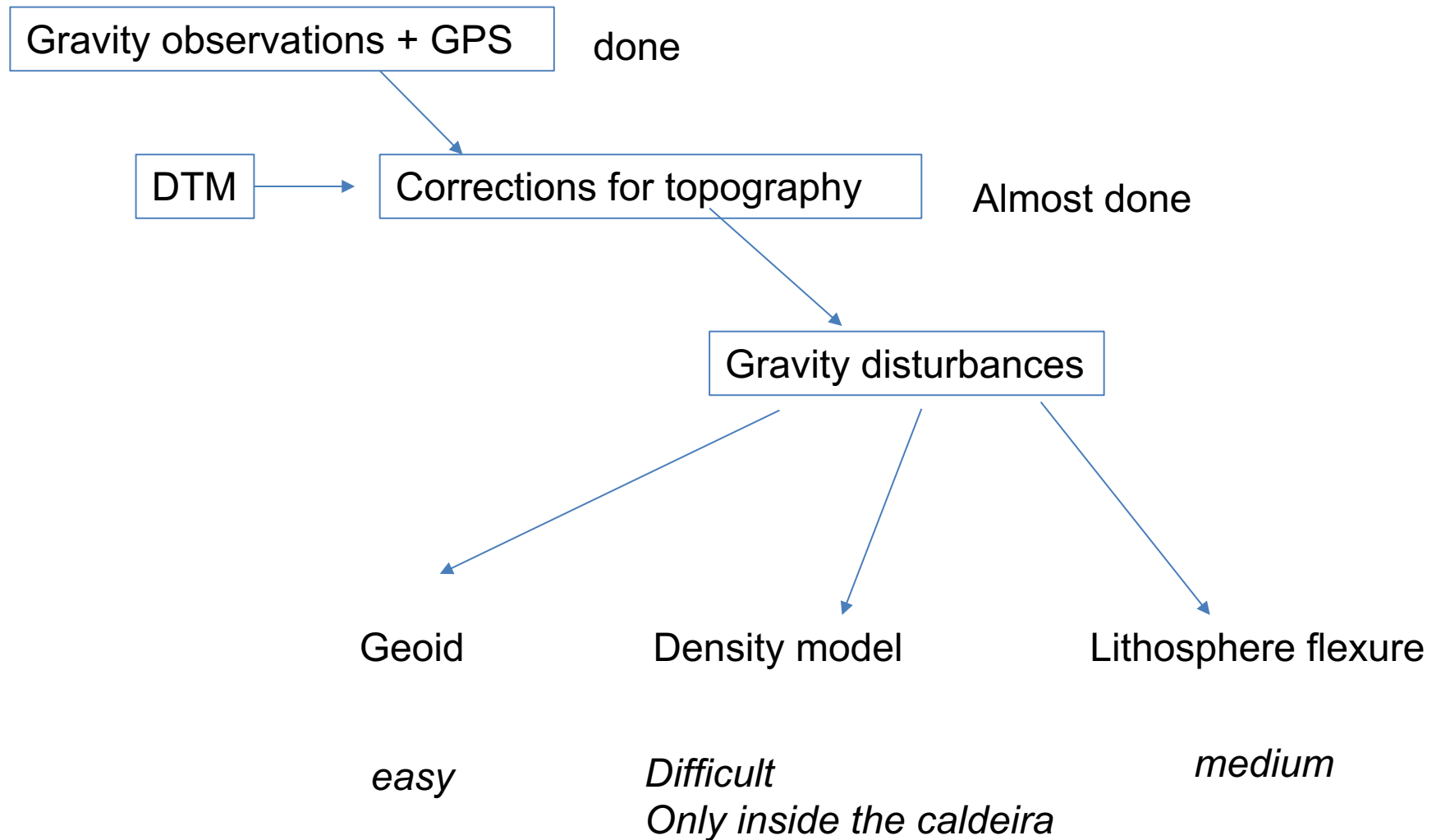
Tasks & Deliverables

- T4.1 Preprocessing of gravity data – **DONE**
 - T4.2 Computation of a density contrast model - **Starting**
-
- D4.1 Homogeneous gravity data set for Fogo Island, including marine data (M24) - **DONE**
 - D4.2 3D contrast density model (M30)

What has been done?

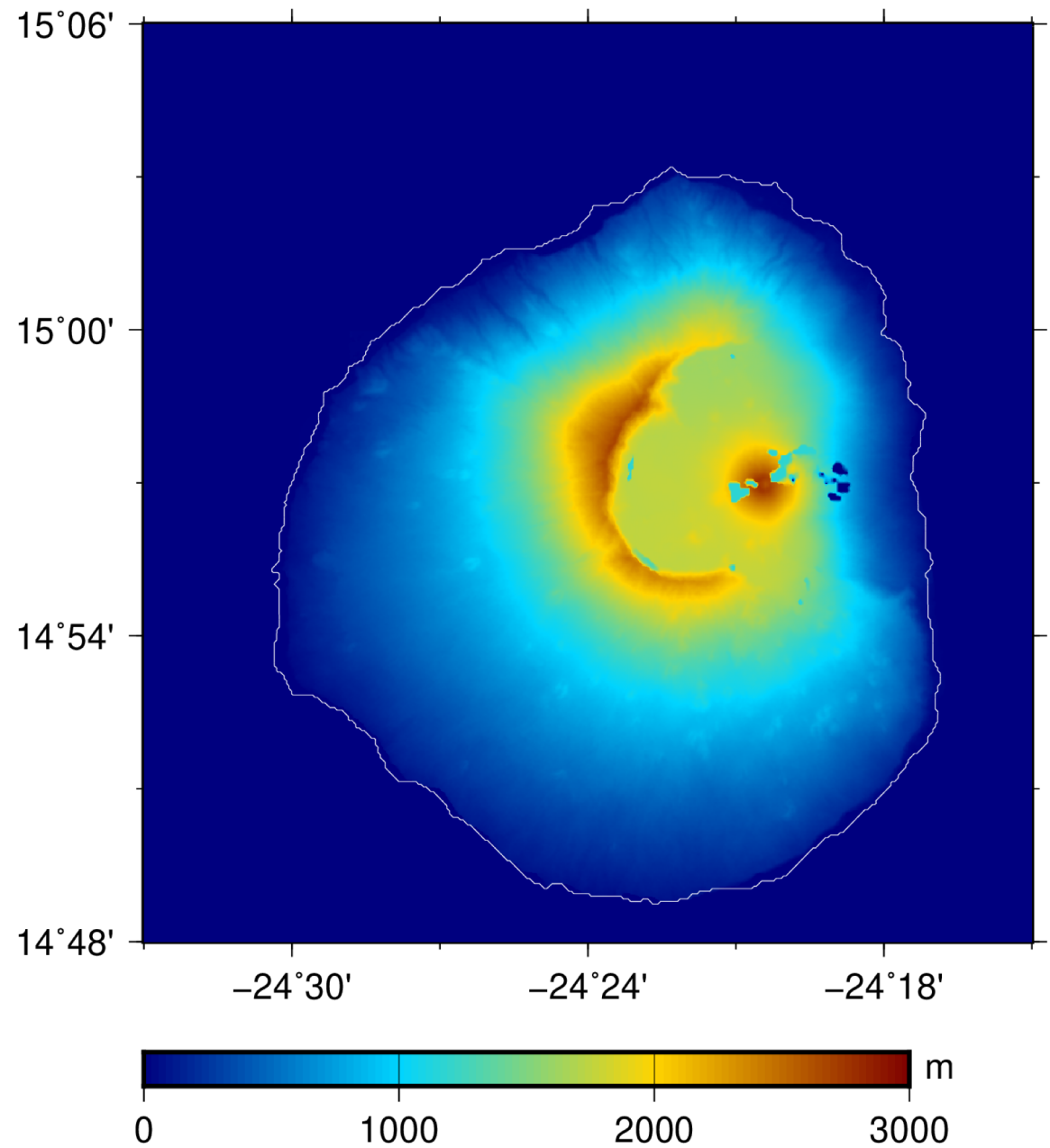


Steps from observations to papers



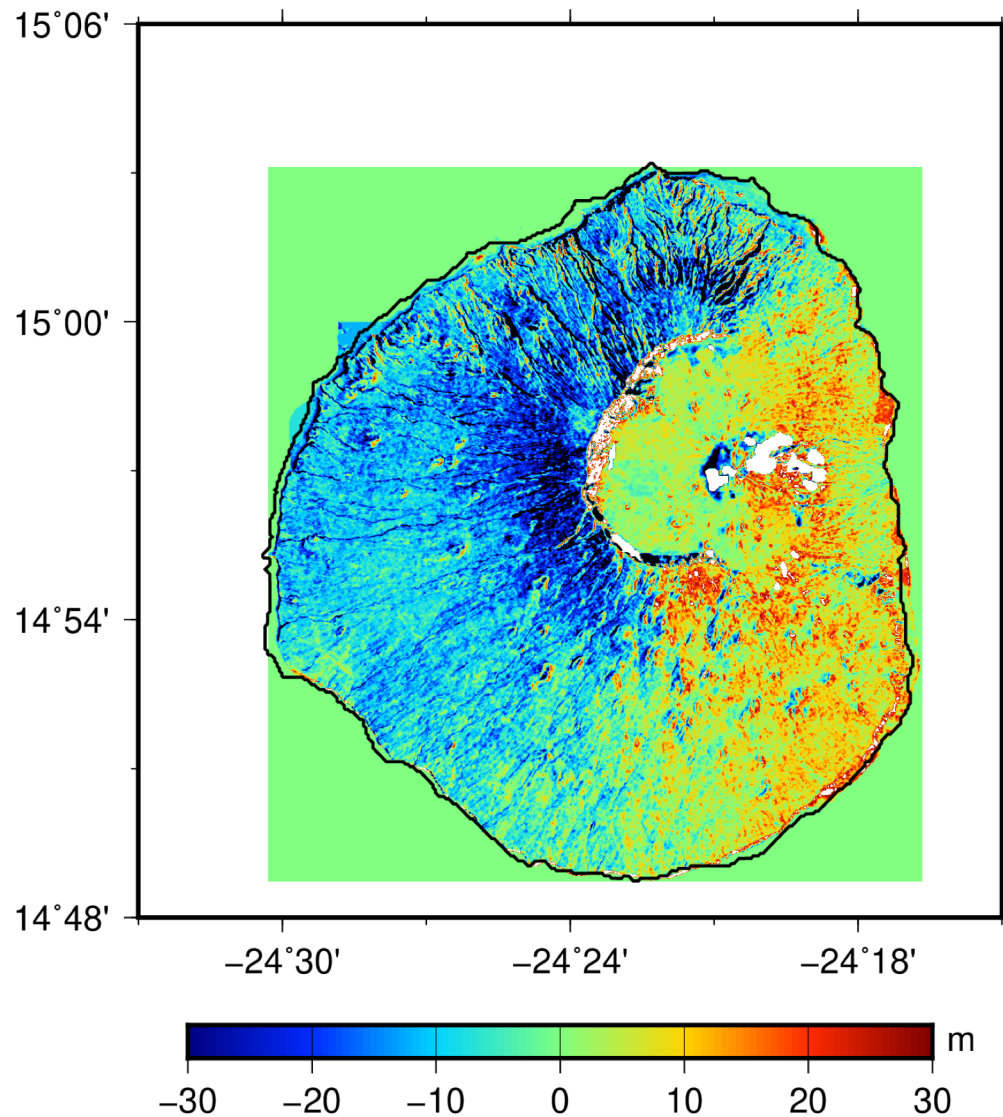
DTM Aster

30 m resolution



<https://asterweb.jpl.nasa.gov/gdem.asp>

Aster – FOGO DTM (10m)

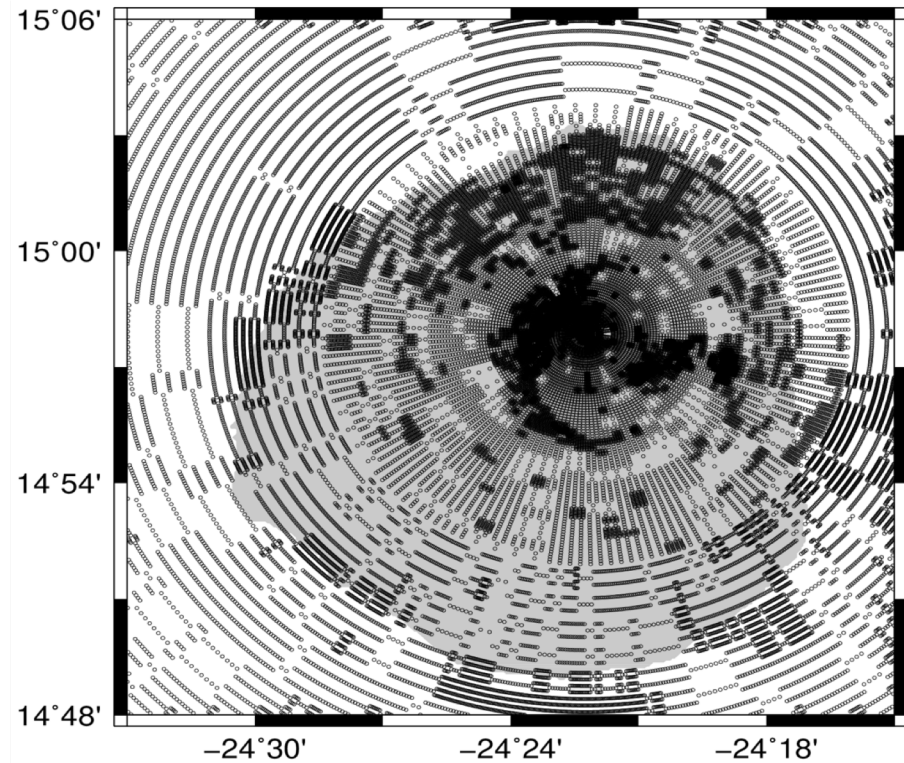
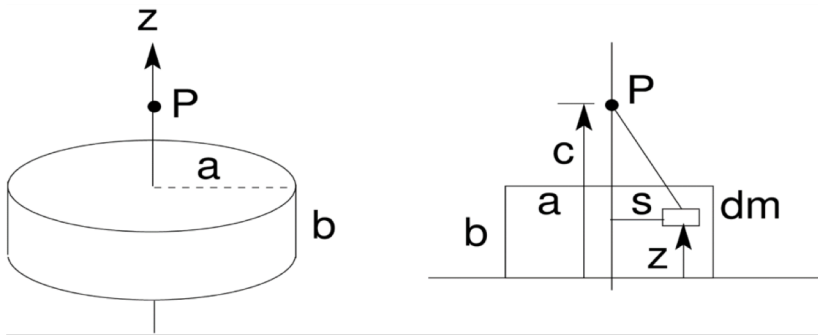


GEO referencing
problem?

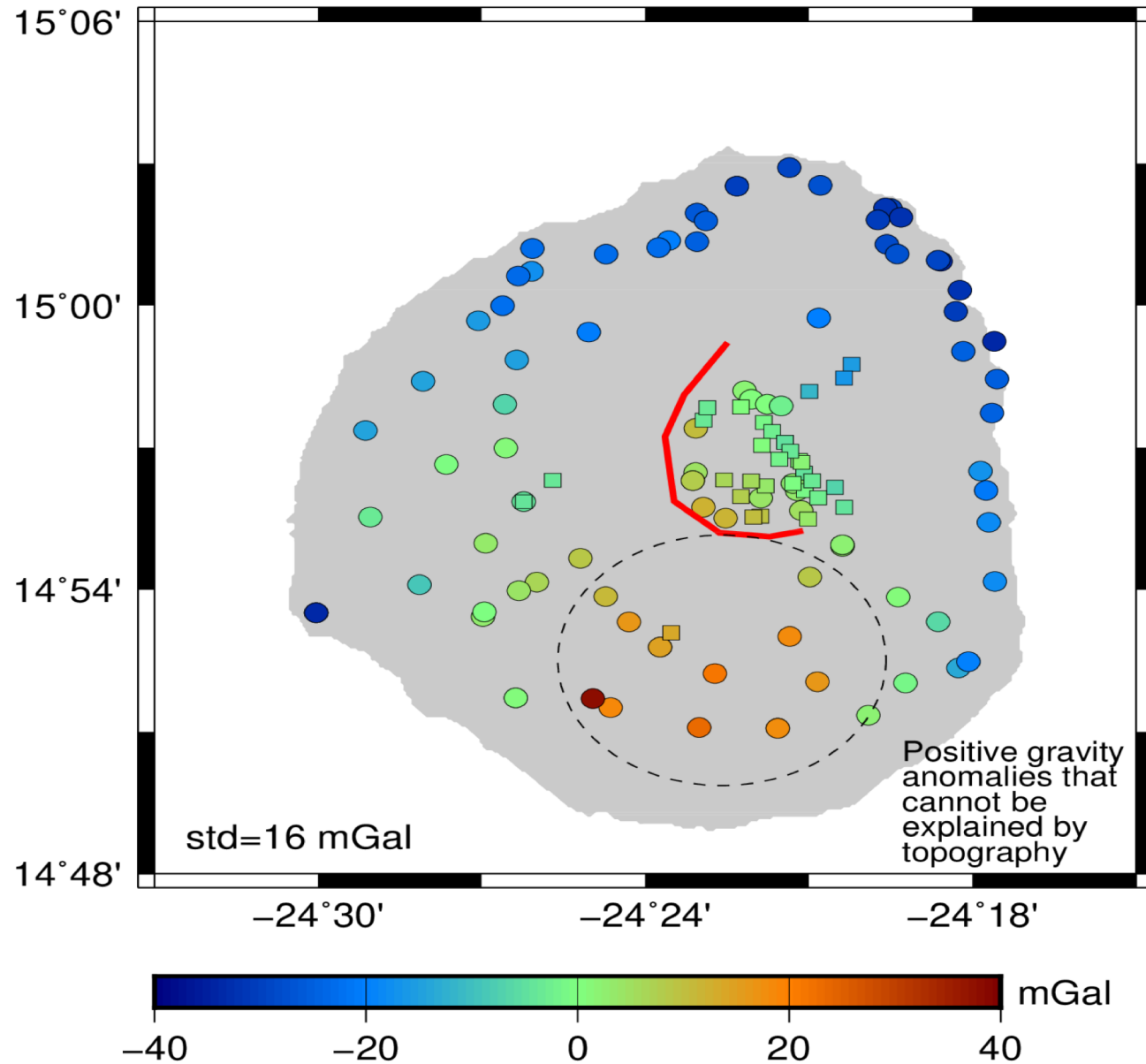
Provided by:
Gonçalo Vieira et al.

Also thanks to:
Stephanie Dumont
Bento Martins

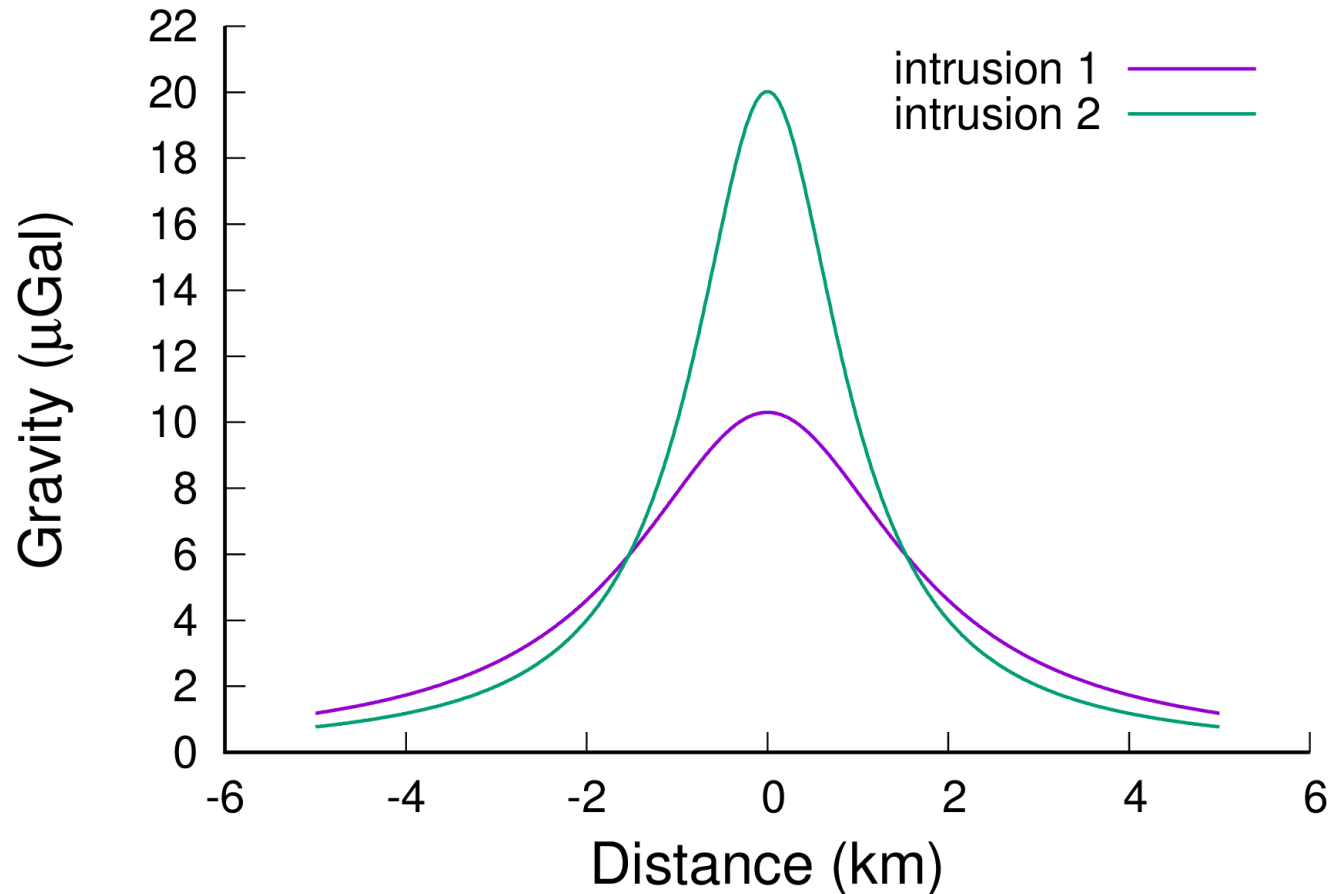
How we compute the gravity effect of the topography



Topography corrected gravity residuals

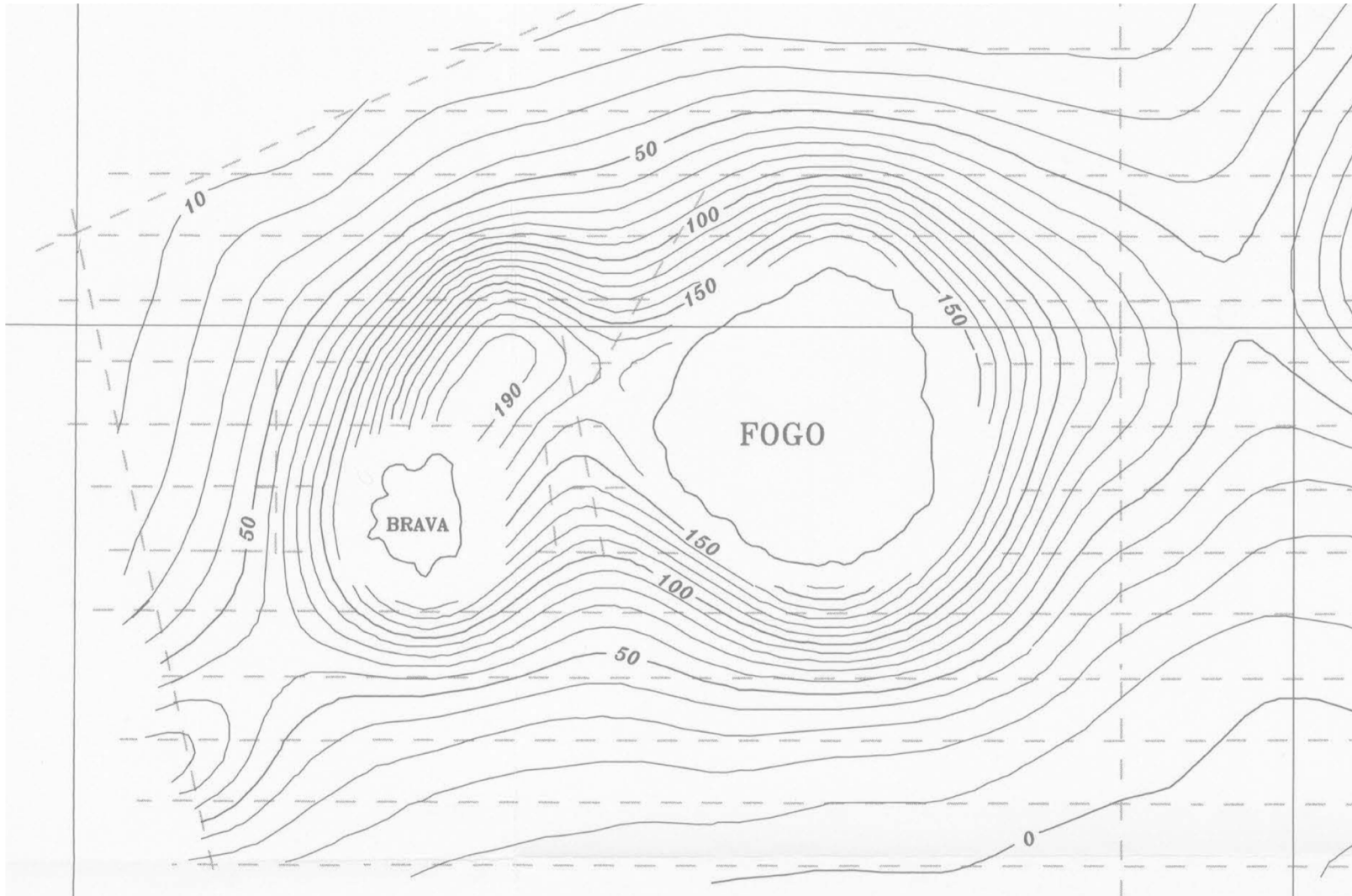


Gravity should be able to discriminate between the two intrusion models



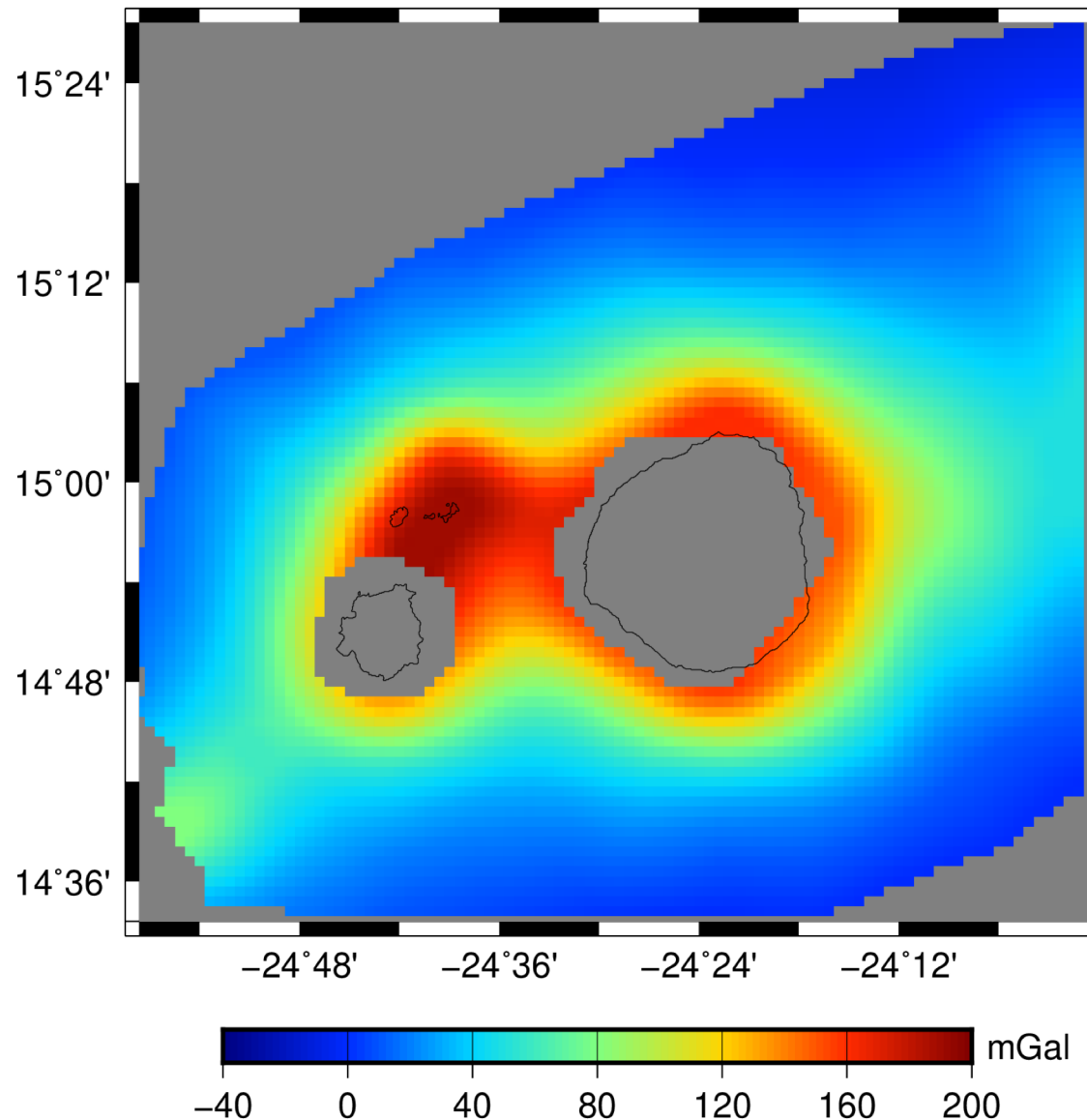
Gravity profile directly over the dyke intrusion

Marine gravity - Folger et al. (1990)




U.S. Geological Survey campaign in 1987 (tracks were shown during kick-off meeting)

Marine gravity - Folger et al. (1990)



Thanks to Pedro Almeida
for digitizing



Challenges/issues encountered/anticipated

- *The lack of an absolute gravity point on Fogo is annoying. (For the work that is planned in the scope of FIRE such a point is not necessary but prevents good integration with other gravity values in the area.)*
- *For density model some first guess of layers underneath the surface of FOGO (provided by seismology) would be welcome.*

Both items were mentioned each time since the kick off meeting. Sorry for the repetition!



Plans for coming months

- *Writing papers*



Dissemination

Number of papers:

- in prep. : 1-3
- submitted: 0
- published: 0

Number of communications (national and international):

- planned: 1
- done: 1

Number of outreach: 0