

Crowd modelling: Launching an open gravity-modelling call to challenge the Balmuccia peridotite body

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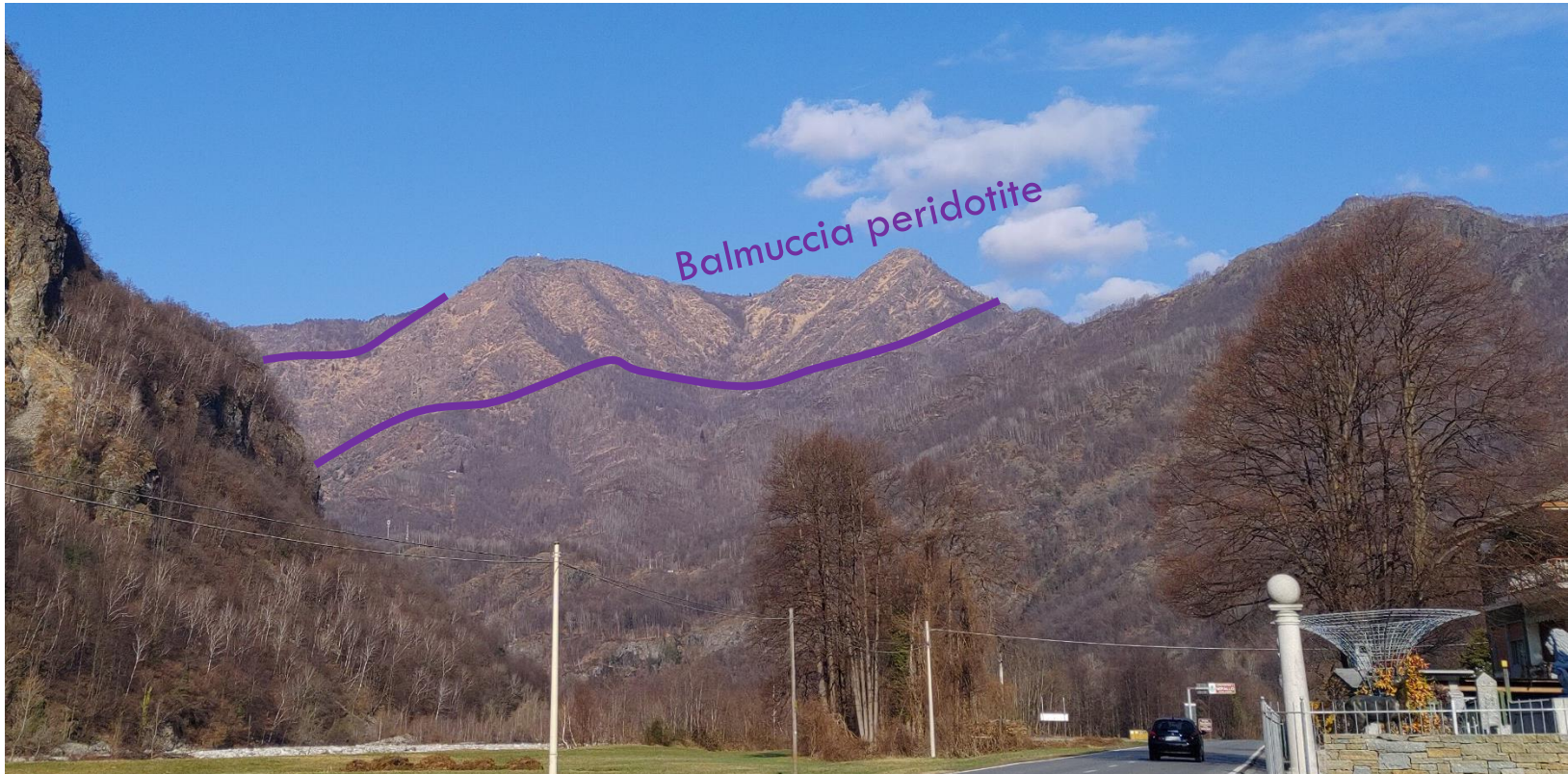
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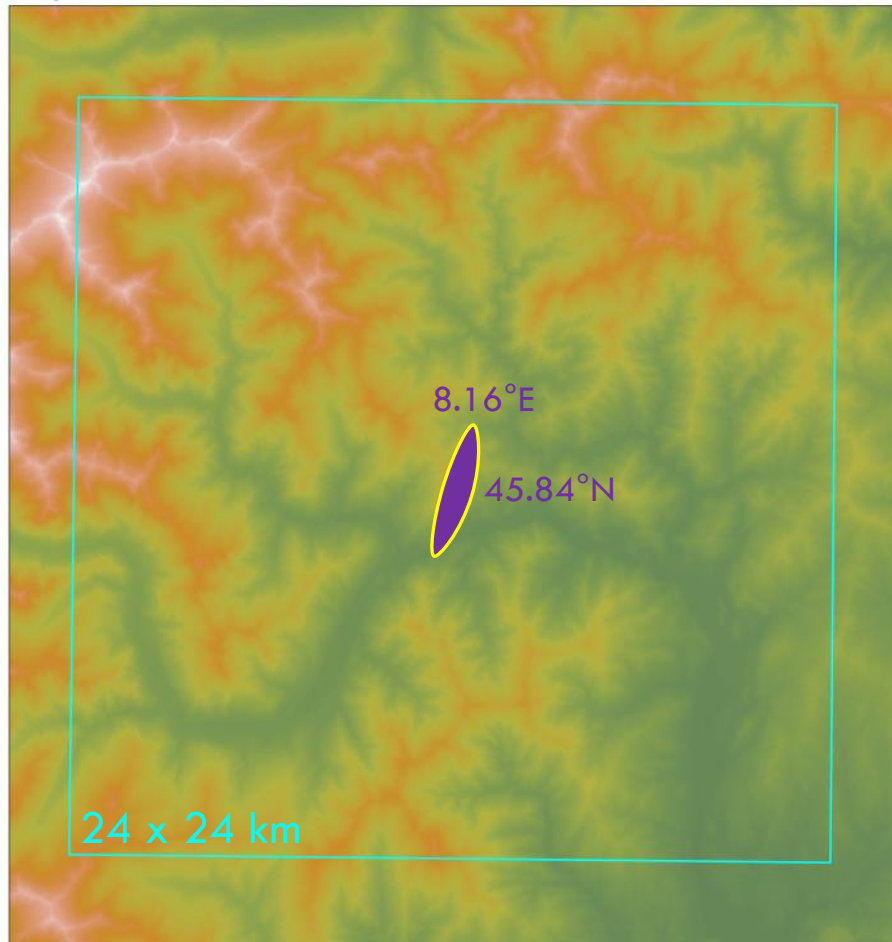
Balmuccia: what, why, where?



- What: a massive peridotite outcrop
- Why: target of the Drilling the Ivrea-Verbano zoneE , phase II

www.dive2ivrea.org

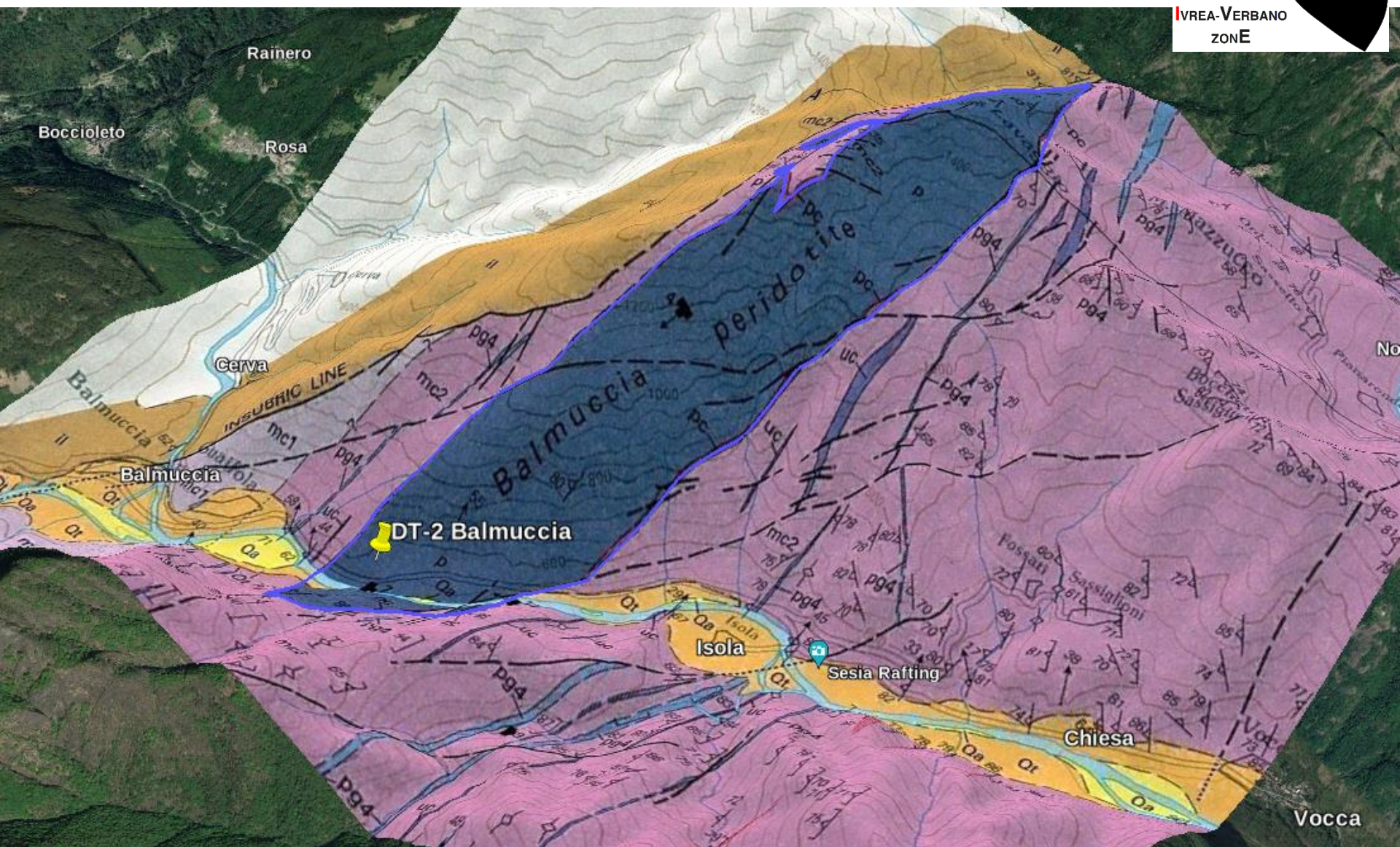
Open gravity-modelling challenge



Goals:

- **3D density modelling fitting new gravity data**
- **Avoid personal bias in structural constraints, inversion procedure**

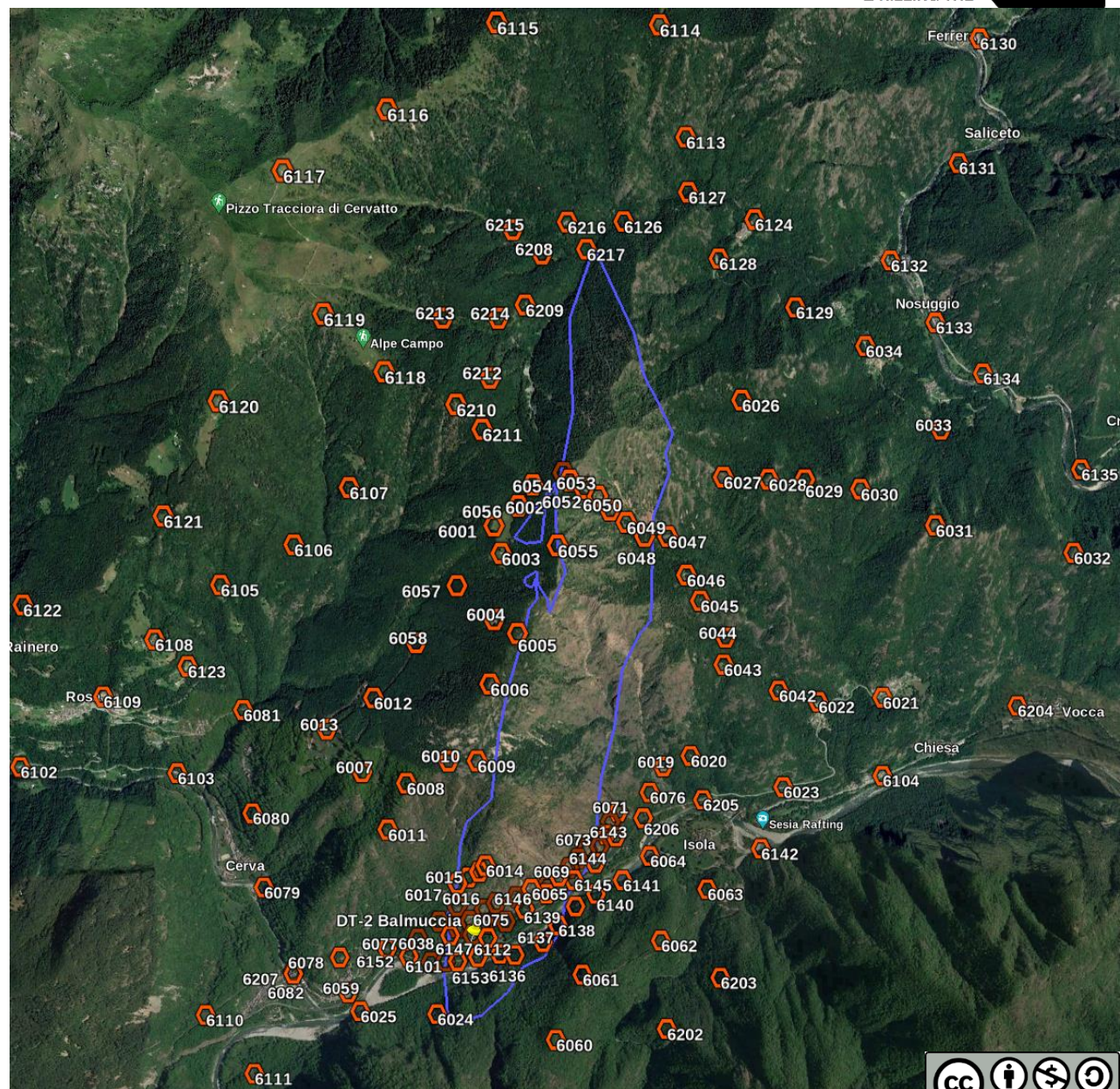
Peridotite outcrop: ca. 4.4 x 0.6 x 1.0 km



Geological map from Quick et al. 2003 draped over GoogleEarth© topography

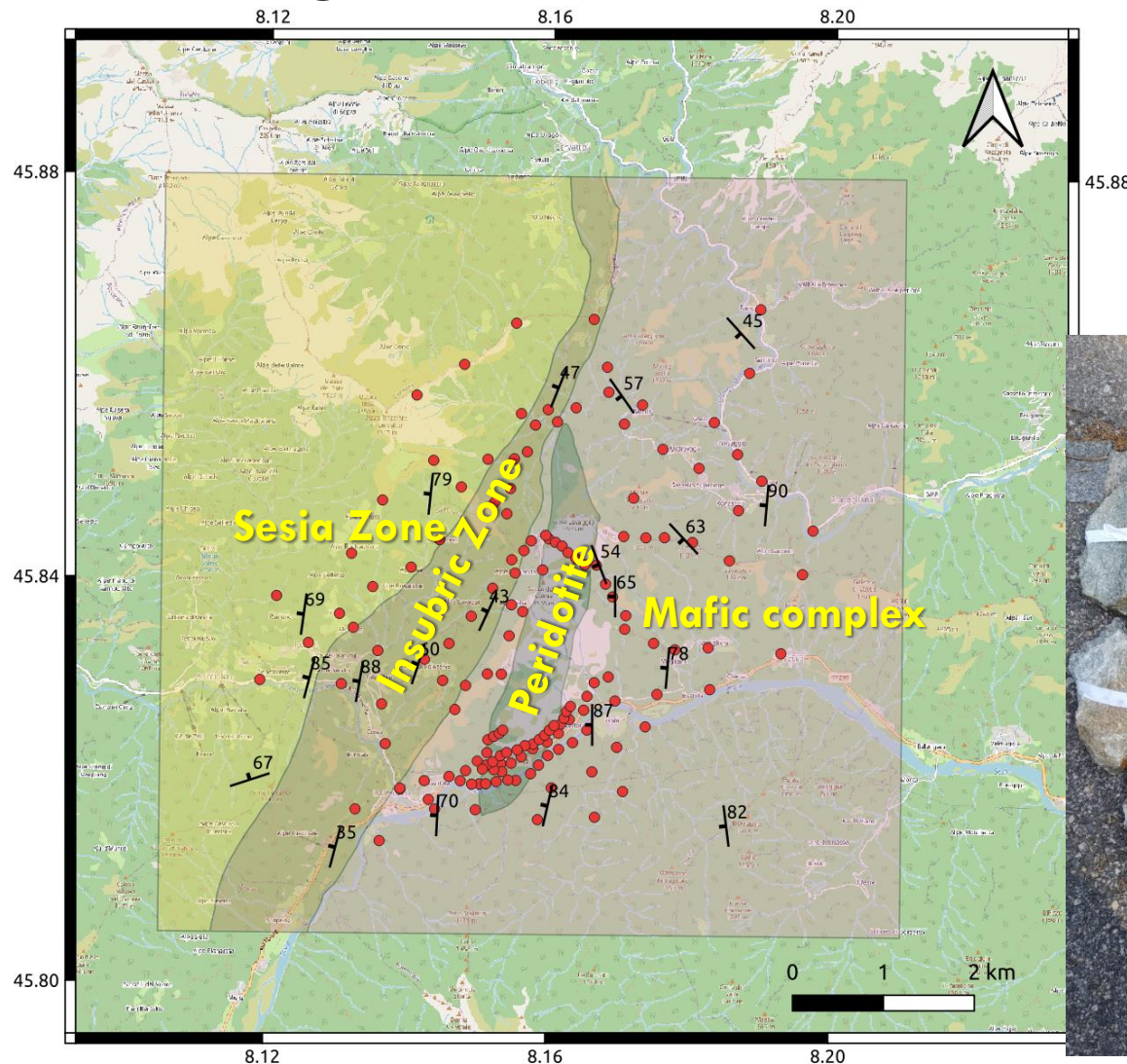
New gravity dataset

- CG-5 gravimeter
- 150 data points, tied to a ref. point
- dGPS location ($\delta z \sim \text{few cm}$)
- 18 field days
- 2-3-person teams
- 20 kg equipment



Lithologies and rock densities

- 3 lithologies have good density constraints
- 1 lithology will be constrained using recently collected field samples

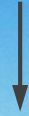


Open gravity-modelling challenge

- late Summer
- 1) Share data:
 - gravity data: pre-processed →
 - lithology: 4 units and structural indicators, compiled from maps ✓
 - rock densities: compiled from literature ✓ , new field samples ✓
 - DEM: 10 m resolution, to 12 km distance, from Regione Piemonte ✓
 - Autumn/
Winter 2) Computations by researchers, groups → submission of solutions
 - Spring 3) Comparison workshop, joint publication
- (tentative)

You are cordially invited to participate!

Cima di Lavaggio
 1595.06 ± 0.16 m



peridotite Balmuccia