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The relevance of studying the areal and thickness distribution in the Mediterranean Sea of Campanian Ignimbrite, Campi Flegrei, Italy

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The study of large scale explosive eruptions and their deposits is essential to understand the eruptive dynamics of active volcanoes as Campi Flegrei. Campanian Ignimbrite (CI) is the largest caldera forming eruption of Campi Flegrei, which occurred 39 ka (Giaccio et al. 2017). The main CI is interpreted as emplaced by a highly energetic and dilute PDC that travelled more than 80 km from the source, over an area of > 30.000 km2, and surmounted ridges more than 1000 m high (Fisher et al. 1993). Despite the large number of works regarding volume estimation of the eruption, the calculation of volume DRE ranges from 23 to 300 km3 (Scarpati et al. 2014).

Isopach map is a significant work instrument intended to show the dispersion of pyroclastic deposits, as well as the thickness of deposits and dispersal area in relationship to paleotopography. In the Napoli Bay CI is more than 100 m thick (Milia 1999; Rolandi et al. 2003), but data about Pozzuoli Bay and Mediterranean area are still missing. Seismic study data exist for the Napoli Bay, however, there is a lack of borehole data to gather the physical properties of CI (e.g. seismic velocity) to convert travel times to unit thicknesses across the survey areas. Furthermore, it is difficult to recognize CI compared to other volcanic deposits from Campi Flegrei or Vesuvio in the seismic data so tying to borehole data is necessary.

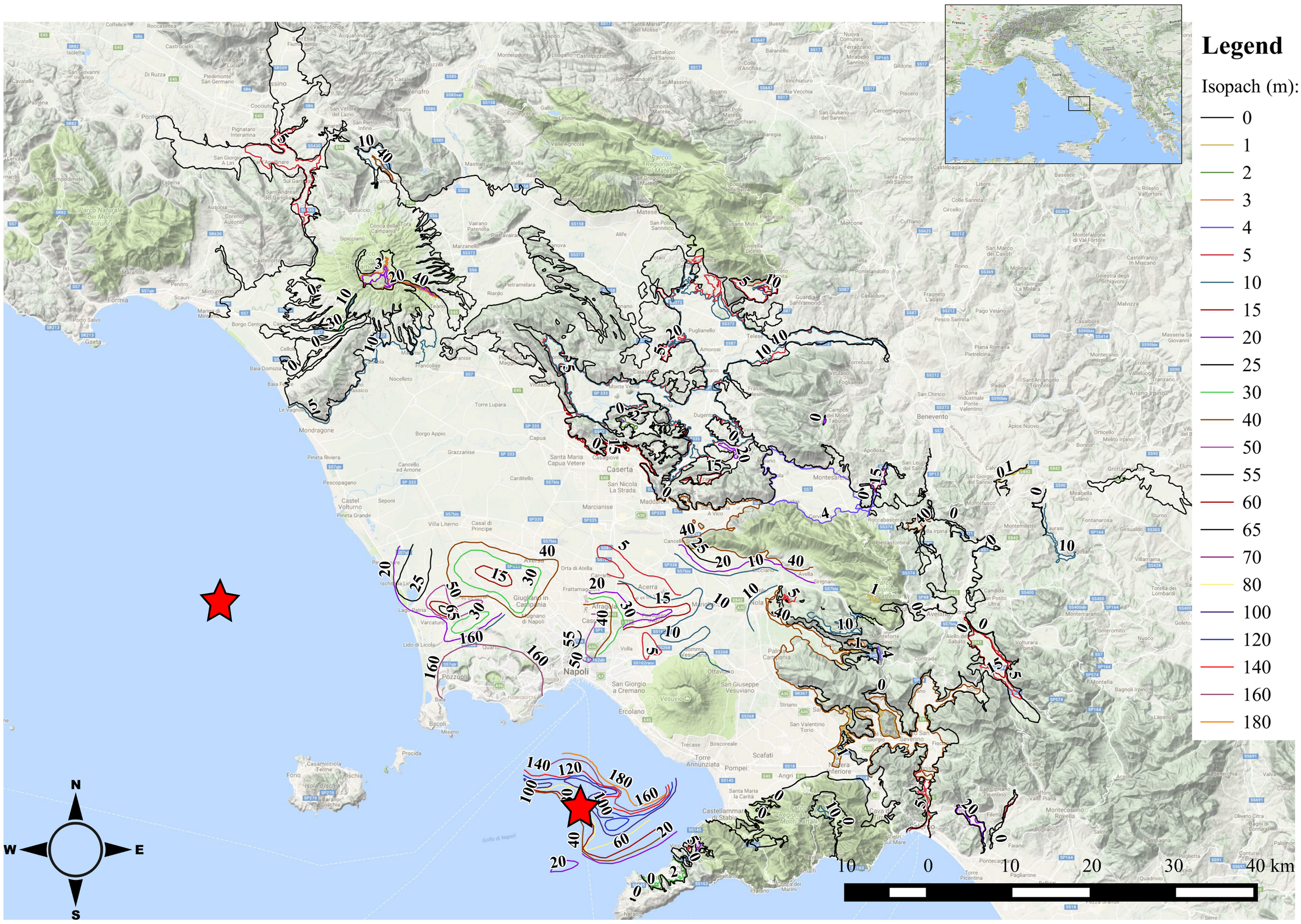

Fig. 1 Preliminary isopach map of Campanian Ignimbrite, Campi Flegrei. Isopach lines in the Campanian plain and Mediterranean Sea are from bibliography (Scandone et al. 1991; Rolandi et al. 2003). Red stars point out possible areas for ocean drilling, which could fasten seismic lines already performed. Google Terrain on QGIS was used like a base map for this work.

Define the paleo environment and the position of coastline 40 ka

Calculate a new accurate volume value

Figure out the physical properties, the thickness and the areal distribution of Campanian Ignimbrite

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