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New observations on the geomorphological evolution of the Nave de Santo António (Serra da Estrela, Portugal).

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The Estrela mountain range shows the most developed glacial and periglacial landforms in Portugal. Despite its moderate height in the context of the Iberian mountains, rising to 1,993 m a.s.l., its morphostructural features and paleoclimatic setting promoted the formation of a plateau ice field that radially fed several valley glaciers. Two glaciation periods have been identified in the Serra da Estrela: the Penultimate (c. 140 ka) and the Last Glaciation (c. 30 ka).

The study area is the Nave de Santo António and the Covão das Vacas glacial cirque. Nave de Santo António is a col located between two glacial valleys (Zêzere and Alforfa) and shows significant glacial evidence, namely moraine ridges, boulders and till outcrops. The site is also located along the Bragança – Unhais da Serra strike-slip fault, increasing its complexity. These factors contributed to its classification as a geosite within the Estrela UNESCO Global Geopark. There remain several questions regarding the timing and provenance of some of the glacial deposits, as well as the postglacial evolution. The Nave de Santo António col is enclosed by two lateral moraines, promoting a thick sedimentary infill that may reach up to 60m in depth according to

Espinha Marques et al. (2019). Daveau (1971) proposed the hypothesis of the existence of a proglacial lake that with time would've been filled with sediments. Vieira (2004) based on geomorphological mapping presented a model of the deglaciation of the site.

The present study aims to clarify the pending questions on the evolution of the Nave de Santo António, through the application of: detailed geomorphological mapping (field surveys, Worldview-2 satellite imagery analysis and ultra-high resolution drone surveys), relative age dating (Schmidt hammer and gamma morphology analysis), geophysical surveying (ground penetrating radar and electrical resistivity tomography) and shallow sediment coring.

This poster shows the new results of the geomorphological analysis of the Nave de Santo António col, allowing for the valuing and better management of this important and ecologically sensitive geosite.