

## Field trip to Clots de la Menera rock glaciers, Envalira mountains, Andorra

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**Maximum:** 60 participants

**Time start-end:** 8-19 h

**Topics:** rock glaciers, geophysical methods, remote sensing, glacial and periglacial geomorphology, deglaciation.



### Stops

- 1- **Port d'Envalira.** Presentation of the geographical setting, glacial landscape and chronology of the Ariège and Valira paleoglaciers (North and South slope respectively). Hiking to Clots de la Menera rock glaciers and Grau Roig (4 h).
- 2- **Clots de la Menera rock glaciers.** Glacial geomorphology in the Clots de la Menera Cirque. Local geology and hidrogeology. Discussion about rock glacier activity; a) InSAR (remote sensing); b) geophysical methods (VES-electrical resistivity sounding and SNMR – surface nuclear magnetic resonance). On-site demo; c) water isotopes. Lunch (Grau Roig).
- 3- **El Forn de Canillo.** Giant landslide and paraglacial slope failures (Encampanada mountain) in the main valley (Valira paleoglacier).
- 4- **Engolasters Lake.** Different moraine systems, discussion of the deposits of the Andorra la Vella overdeepened basin, glacial phases detected and chronology of the last glacial cycle) on the Valira paleoglacier. SHED and <sup>10</sup>Be dating. Return to Puigcerdà through the Envalira and Puimorens tunnels.
- 5- **La Massana glacial complex.** Formation of a paleolake by the obturation of the main glacier (Valira paleoglacier) between 32 and 17 ka cal BP. Till deposits, glacio-lacustrine, lacustrine and deltaic sediments. Return to Puigcerdà through the Envalira and Puimorens tunnels.

