

## 5 Post - The Quaternary evolution of Sulmona basin, central Italy

**Excursion Leaders:** **Biagio Giaccio** (IGAG-CNR), **Giovanni Zanchetta** (University of Pisa). With the collaboration of **Paolo Galli** (DPC, Roma), **Sebastien Nomade** (LSCE-CNRS, Gif-sur-Yvette), **Elonora Regattieri** (IGG-Pisa), **Leonardo Sagnotti** (INGV-ROMA).

Proposed Excursion Dates: 21-23 July 2023

Definitive cost per head: € ~ 400-450

Accommodation arrangements: Hotel

### Proposer Contact Details:

#### Biagio Giaccio

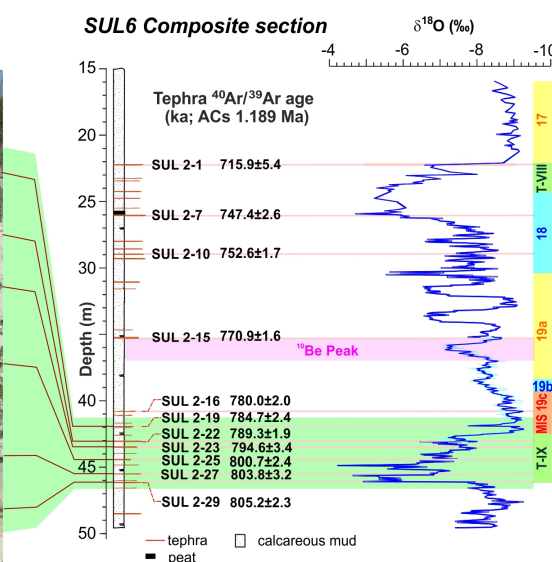
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### Description

The Quaternary tectonic basin of Sulmona, central Italy, hosts a unique, tephrochronologically well-constrained, lacustrine-fluvial sedimentary succession of the Pleistocene, discontinuously spanning through MIS 21-MIS 3 (~810-30 ka).  $\delta^{18}\text{O}$  isotopes analyses of the carbonate from different stratigraphic intervals of the Sulmona sedimentary successions, including MIS 19-18, MIS 12-11 and MIS 5, indicate a strong Mediterranean-North Atlantic climate teleconnection characterized by a close phase relationship between temperature change in North Atlantic and hydrological variability in Mediterranean regions. Particular relevant is the interval recording the Glacial Termination IX and the MIS 19 period, the best orbital analogue for the Holocene, which also document the increase of the  $^{10}\text{Be}$  related to the Matuyama-Brunhes geomagnetic reversal, whose abrupt termination is here

precisely dated by  $^{40}\text{Ar}/^{39}\text{Ar}$  method at c. 771 ka (Fig. 1).



During the field trip, the participants will be introduced to the general tectonic and sedimentary evolution framework of the basin with specific focuses and stops on the sections documenting the paleoclimatic, paleomagnetic and  $^{10}\text{Be}$  records of the MIS 19, MIS 11 and MIS 5 periods.

*Picture of basal interval of the outcropping Sulmona lacustrine succession (left) and composite section of the unit SUL6 documenting the MIS 20-MIS 17 interval with related  $^{40}\text{Ar}/^{39}\text{Ar}$  dating and  $\delta^{18}\text{O}$  record (right). The position of the  $^{10}\text{Be}$  peak is also shown.*