

Preservation of continental successions in mountain basins

(Proposer: Prof. Cristina Stefani)

Mountain valleys in uplifted orogens like the Alps usually act as transfer zones and have very low storage potential due to dominant erosion processes. This is why valley-fill sediments are commonly spatially scattered and temporally discontinuous. Moreover, valley fills inside mountain chains are usually characterized by coarse-grained texture, thus the remnants are difficult to be correlated each other along the valleys. Nevertheless, instances of long-lived fluvial successions in uplifted mountain belts often occur in intermountain basins, abandoned valley reaches and valleys whose spatial stability has been influenced by tectonics.

In the eastern Southern Alps, remnants of ancient continental deposits are scattered in reaches of the Piave and Tagliamento valleys. They are mostly related to Quaternary alluvial deposition, but the interaction with glacial and gravitational processes may have influenced the preservation and distribution of these ancient successions.

The present project aims at investigating old, mainly cemented continental successions, located in the major mountain basins of this stretch of the Alps, in order to assess the main preservation mechanisms, such as uplift and/or changes in drainage systems due to river piracy, and occurrence of large landslide-dammed lakes. These are to be considered key records in continental successions thanks to the presence of biochronological markers.

This study will involve mainly field and lab work, including provenance analysis and facies analysis.

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