

PRELIMINARY DATA ON THE TECTONOSTRATIGRAPHIC RECONSTRUCTION OF THE INTERNAL PIEDMONT ZONE META-OPHIOLITE IN THE STURA DI VIÙ VALLEY (WESTERN ALPS)

Marcello De Togni* ✉, Marco Gattiglio*, Stefano Ghignone*

* Dipartimento di Scienze della Terra, Università degli Studi di Torino, Via Valperga Caluso 35, 10125 Torino, Italy

✉ Corresponding author, email: marcello.detogni@edu.unito.it

Keywords: *tectonostratigraphy, Piedmont Zone, meta-ophiolite, Western Alps, intra-oceanic tectonics*

Meta-ophiolites outcropping in the axial sector of the Western Alps are classically interpreted as remnants of the Late Jurassic Alpine Tethys (i.e., the Internal Piedmont Zone, IPZ). In the Lanzo Valleys (in particular the Stura di Viù Valley), meta-ophiolites widely crop out, and represent a portion of oceanic basement with its metasedimentary cover. Several meso-scale evidences, which escaped the strong deformation and the related alpine metamorphic overprint, allow reconstructing the original setting of the oceanic lithosphere of the IPZ around Malciaussia Lake.

In the study area, the IPZ consists of a meta-ophiolitic basement (serpentinized peridotite, metabasalts and rare Mg-Al metagabbros) and its metasedimentary cover (quartzite, grey marble and calcschist). The succession was deformed mostly by the D1 and D2 Alpine folding phases, both parallelizing the original stratigraphy to the S1 and S2 respective foliations. Lithostratigraphic contacts, preserved by the deformation, permitted to define different litho-stratigraphic cross-sections, whose correlation highlights the variable physiography of the ocean floor at Jurassic time.

As a preliminary result, we interpreted the different sequences as expression of Jurassic extensional intra-oceanic tectonics, realizing discontinuous and pronounced high and low structural sectors of the exhumed mantle (pre-rift step), above which volcanites (with their reworked products) and the pelagic cover (quartzite and marble) mainly remain confined in the low structural sectors (syn-rift to post-rift step).

The subsequent thick calcschist succession seals off the morphology inherited from the extensional tectonics (post-rift step). In particular, the presence of a structural high sector, consisting of serpentinites, surrounded by lower basins with different bathymetry is very evident. The occurrence of deep sectors, wherein mafic meta-greywacke and quartzite deposited, adjacent to higher sectors, wherein serpentinitic basement are directly in contact with the higher portions of the calcschist succession, suggest that the intra-oceanic tectonics, related to the opening of the Alpine Tethys, may were driven by transtensive (transform) tectonic regimes. Low structural sectors may represent original pull-apart basins, separated in the adjacent sectors by the higher sectors through high-angle faults.