

PETROGRAPHIC EVIDENCE OF DRAINAGE BASIN CHANGES IN THE SE ALPS FROM THE MESSINIAN TO PLEISTOCENE: THE TAGLIAMENTO PALAEOVALLEY (NE ITALY)

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As most valleys in the Southern Alps, the Tagliamento valley was deeply entrenched as a result of Late Messinian sea level drop.

In the valley-filling deposits six different unconformity-bounded Stratigraphic Units have been distinguished, which can be traced along the valley for several kilometres and allow reconstruction of the palaeo-drainage during the considered time span. The sedimentary bodies have been classified as intra-valley coarse-grained fluvial and piedmont alluvial fan related to braided fluvial systems, and Gilbert-type delta conglomerates and sandstones.

Sandstone and pebble petrography supported the stratigraphic subdivision evidencing the evolution of the catchment with time. The older units are characterised by a high carbonate fraction, mostly dolostone and limestone rock fragments, suggesting a drainage basin confined in the Prealps sector where these types of rocks largely crop out. A sharp change in composition occurs

between the second and the third unit (Messinian-Pliocene boundary), when the river deposits became more polymict and richer in non carbonate rock fragments, indicating an extension of the catchment towards north, in the Carnian Alps. The fourth unit is characterised by an increase in carbonate elements; this could suggest a new extension of the drainage basin in the Prealps and a likely enhance of sediment supply supported by the Pliocene tectonic activity in the prealpine area. In the younger units of middle Pleistocene age a spread of non-carbonate rock fragments is visible.

To sum up, the trends of the main rock fragment classes show an increase of the limestone fragment ratio and a similar growth of the siliciclastic elements towards the younger units. These types of rock fragments were eroded from the Palaeozoic successions, cropping out in the Carnian Alps, from the early Pliocene and it was probably intensified by the spread of the glaciers from middle Pleistocene onwards.