

## **Geomorphological map and preliminary analysis of Quaternary sediments in the Planica-Tamar valley (Julian Alps, NW Slovenia)**

Andrej Novak (1) and Andrej Šmuc (2)

(1) University of Ljubljana, Faculty of Natural Science and Engineering, Department of Geology, Aškerčeva 12, 1000 Ljubljana, Slovenia, andrej.i.novak@gmail.com, (2) University of Ljubljana, Faculty of Natural Science and Engineering, Department of Geology, Privoz 11, 1000 Ljubljana, Slovenia, andrej.smuc@geo.ntf.uni-lj.si

The Planica-Tamar valley is located in the Julian Alps in north-west Slovenia. The Planica-Tamar valley represents typical mountain glacial valley bounded by steep, mainly carbonate cliffs with some glacial deposits still preserved. The valley is currently being filled with numerous Holocene sediments deposited by rock falls, landslides, mass gravity flows and fluvial flows. These deposits are forming active or inactive interfingering talus slopes, alluvial and debris-flow fans, all of them with a complex history of sedimentation and erosion forming unconformity bounded sedimentary units. In order to make a thorough analysis of these deposits a detailed geomorphological map in a scale of 1:10 000 has been made. Six different types of sedimentary deposits were defined and mapped. These are moraines, lacustrine sediments, fluvio-glacial deposits, talus slopes, debris fans and alluvial fans. Other mapped features also include shape of ravines, their depths, ridges and direction of sedimentary flow. Additionally areas of active, semi-active and inactive sedimentation were marked. Moraines forms a ridge in the bottom of the valleys and are composed of unconsolidated, poorly sorted, subangular grains ranging from clay size to a few cubic meters big blocks. Lacustrine sediments are represented by laminated well sorted sand and silt, while fluvio-glacial deposits are composed of washed out subrounded sands and gravels. Talus slope deposits are characterised by clast-supported poorly sorted very angular gravel. Debris flow fans are represented by extremely poorly sorted matrix-supported gravels with grain size ranging from clay to few cubic meters big blocks. Alluvial fans are composed by variety of sedimentary textures. Sediments at the fan apex are clast-supported poorly sorted very angular gravels with up to a few cubic meters big block. In the middle part of the fan the sieve deposits are common, while in the distal parts a few centimeters thick layers of sand and moderately sorted clast or sandy matrix-supported angular gravels occur. In cross-sections of alluvial fans distinct palaeosoil horizons are present indicating longer inactivity of that part of the fan. The geomorphological map forms a base for further research and thorough analysis of Quaternary deposits in order to reconstruct the Holocene dynamic of triggering and sedimentation of different types of slope deposits and relate them to base rock geology, tectonic and local/regional climate events.

**Key words:** geomorphological mapping, Holocene slope deposits, alluvial fans, debris fans, Alpine geomorphology.