



## **Intended long-term permafrost monitoring in Austria: Observations from eight years (2006-2014) of ground temperature monitoring in the Tauern Range, Central Austria**

Andreas Kellerer-Pirklbauer and Michèle Lintschnig

University of Graz, Department of Geography and Regional Science, Graz, Austria (andreas.kellerer@uni-graz.at)

At present permafrost monitoring in Austria is carried out by several institutions at some 20 sites in the Austrian Alps. However, so far this monitoring is not coordinated and institutionalised in terms of monitoring strategy, organization, data management and funding. Within the currently running permAT project such an institutionalization is in progress. Permafrost in the Austrian mountains is rather warm and hence sensitive to present climate change. Consequently permafrost conditions and changes are of increasing importance also for the public. Therefore, it is evident that a coordinated and institutionalised long-term monitoring of ground temperature in Austria is essential for permafrost understanding and people's safety. In this contribution we present up to eight years of field data from nine different study sites in Austria. All sites are located in the highest mountain range in Austria, the Tauern Range (maximum elevation 3798 m asl) covering some 9000 km<sup>2</sup> of the national territory. The nine different study sites are located between latitude 46°55' to 47°22' and longitude 12°44' to 14°41'. Altogether 57 ground temperature monitoring sites have been installed in 2006 and 2007 at the nine study sites using one- (at 23 sites) and three-channel (at 34 sites) miniature temperature dataloggers produced by GeoPrecision, Germany. Therefore, more than 120 ground temperature data series are available from between the ground surface to maximum depths of 2.75 m. The 57 monitoring sites range from 1922 to 3002 m asl in elevation and consider flat terrain as well as step rock walls. All slope aspects are adequately considered. Relevant research questions we intend to address in this contribution include (a) general ground thermal conditions in 2006-2014, (b) the influence of different substrates and aspects on ground temperatures, (c) potential permafrost occurrence, (d) changes or stable conditions during the observation period, (e) regional pattern, and (f) possible influence on weathering and geomorphological processes.