



Satellite data acquisition requirements for monitoring of permafrost in polar regions

Annett Bartsch and the PSTG Permafrost Requirements Review Team
Zentralanstalt für Meteorologie und Geodynamik, Vienna, Austria (annett.bartsch@zamg.ac.at)

Requirements for space based monitoring of permafrost features had been already defined within the IGOS Cryosphere Theme Report at the start of the IPY in 2007 (IGOS, 2007).

In 2012 the Polar Space Task Group (PSTG, http://www.wmo.int/pages/prog/sat/pstg_en.php) has been established as the coordinating body of space agencies, in particular the Space Task Group (STG), for space -based observations of Polar Regions after the International Polar Year (IPY) and under the auspices of the World Meteorological Organization's (WMO) Executive Council Panel of Experts on Polar Observations Research and Services (EC-PORS). The PSTG identified the need to review the requirements for permafrost monitoring and to update these requirements as necessary in 2013.

Relevant surveys with focus on satellite data are already available from the ESA DUE Permafrost User requirements survey (2009), the United States National Research Council (2014) and the ESA – CliC – IPA – GTN -P workshop in February 2014. These reports have been reviewed and specific needs discussed within the community. Acquisition requirements for monitoring of especially terrain changes (incl. rock glaciers and coastal erosion) and lakes (extent, ice properties etc.) with respect to current satellite missions have been specified. Of special interest for these applications are SAR missions. Current acquisition strategies for space borne SAR data only partially cover polar permafrost regions and some of the longterm in-situ measurement sites. Many stations are located in the proximity to coastal areas and glaciers which to some extent may allow joint usage by different cryosphere applications but requirements may deviate. The results of the discussion are presented in this paper.