Abstract Sheet - Abstract number: 7

Author Nam   Kenyi, Lado-Wani
Organisatio   Joanneum Research
Country: AUSTRIA
Authors: Kenyi, Lado-Wani, Joanneum Research, AUSTRIA (P)
              Kenyi, Lado-Wani, Joanneum Research, AUSTRIA
              Schardt, Mathias, Joanneum Research, AUSTRIA
                        Topic: 5 Land

Assessment of ENVISAT ASAR Data for Mapping of Alpine Forest Parameters

The advantage of ENVISAT ASAR over its predecessors, namely ERS-1 and ERS-2, as a land observation tool resides in its multiple polarization and multi-look angle capabilities. As a microwave sensor the ASAR backscattering coefficient is sensitive to the moisture content of the terrain media and the geometrical parameters of the scatterers in the media (i.e. size, shape, roughness, and orientation).

In this paper, analysis of ENVISAT ASAR multiple polarization backscattering data for the mapping of alpine forest parameters, i.e. forest area and types are presented. ENVISAT ASAR data acquired during the period April to December 2003 over forested areas in Salzburg (Central Alps) and East Styria (Eastern Alps) in Austria were compiled and processed. The processing included geo-referencing, backscattering coefficients retrieval and topographic normalisation.

The ASAR backscattering coefficients averaged over reference polygons of homogeneous forest stands were extracted and statistically analysed. The ASAR Multiple polarisation data were found to discriminate forest from non-forest with very good degree of accuracy although some high grass are confused with forest. But for forest types separation the measured ASAR backscattering coefficients were generally found to perform some limited discrimination of some of the forest types. Additionally, the image statistics for various forest land-cover and non-forest categories were examined with respect to their ability in class separation.