



Impact of land cover changes in the TU Wien soil moisture retrieval algorithm

Sebastian Hahn, Thomas Melzer, and Wolfgang Wagner

Department of Geodesy and Geoinformation, TU Wien, Vienna, Austria (sebastian.hahn@geo.tuwien.ac.at)

The TU Wien soil moisture retrieval algorithm relates backscatter changes to variations of the topmost soil water content. At the moment, the algorithm is applied to backscatter measurements from the Advanced Scatterometer (ASCAT) on-board the series of Metop satellites deriving surface soil moisture in near real-time.

Until recent, the characterization of the incidence angle dependence of backscatter has been computed as a climatology in the TU Wien soil moisture retrieval algorithm. Meanwhile, a new dynamic approach has been developed allowing to compute a time series directly accounting for internannual vegetation effects and, at the same time, considering land cover changes as well. The impact of land cover changes in the TU Wien soil moisture retrieval has not been studied, since these effects have been assumed to be static so far.

In this study we analyze the new dynamic dry and wet backscatter reference and its importance in the TU Wien soil moisture retrieval. We will also revisit the assumption that backscatter observed under frozen soil can be used as an approximation of backscatter under dry soil conditions.