

SMAPVEX-12 Soil roughness measurements

Over both agricultural and forested sites, the soil roughness measurements were made at 2 locations per site in the look directions of RADARSAT-2 (descending mode), UAVSAR, and PALS.

At each location, the surface roughness was measured using a digital camera and a 1-m long pin profilometer consisting of 200 needles spaced from an interval of 5 mm. To adequately measure the correlation length, the roughness measurements were taken over a 3-metre profile created by placing the one metre profiler end to end in the look direction of each SAR sensor (RADARSAT-2 descending mode, UAVSAR, and PALS). A digital camera recorded the pin meter profiles.

For each SAR sensor and at each location, the photographs of the three separate profiles were joined into a single profile using a matlab application, post data collection, to provide the two roughness parameters: the standard deviation of surface heights (or the RMS heights) and the correlation lengths.

The content of the soil roughness file is as follow :

Column A : Site_ID is the site identifier

Column B : UAVSAR_Angle is the look direction of UAVSAR in °

Column C : UAVSAR_RMS_Height is the RMS height in cm measured in the look direction of UAVSAR

Column D : UAVSAR_Corr_Length is the correlation length in cm measured in the look direction of UAVSAR

Column E : PALS_Angle is the look direction of PALS in °

Column F : PALS_RMS_Height is the RMS height in cm measured in the look direction of PALS

Column G : PALS_Corr_Length is the correlation length in cm measured in the look direction of PALS

Column H : RADARSAT2_Angle is the look direction of RADARSAT-2 (descending mode) in °

Column I : RADARSAT2_RMS_Height is the RMS height in cm measured in the look direction of RADARSAT-2

Column J : RADARSAT2_Corr_Length is the correlation length in cm measured in the look direction of RADARSAT-2

Notes: - Due to their bad quality, few pictures were not processed. The cells ‘-’ refer to these measurements.

- In some cases, the software fails to estimate the correlation length. The cells 'F' refer to these measurements.

Contact for questions regarding data:

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