CanEx-SM10 soil roughness measurements

For each field sampled over Kenaston agricultural area, the soil roughness measurements were made at one selected site, in the look directions of RADARSAT-2 (descending mode, 282 º) and UAVSAR (152 º).

At each site, 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 and UAVSAR). This 3 meter profile was replicated three times per site, at a distance of approximately five metres (Point 1, Point 2, and Point 3). A digital camera recorded the pin meter profiles.
For each SAR sensor and at each measurement point, 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 and the correlation lengths.

The Excel file **Soil Roughness_measurements.xls** contains the measured standard deviation of surface heights (cm) and the correlation lengths (cm). For each field, the measurements were given for 3 measurement points (Point 1, Point 2, and Point 3), in the look directions of RADARSAT-2 (descending mode, 282 º) and UAVSAR (152 º).

Contact regarding data:

Ramata Magagi
Professeure agrégée
Département de géomatique appliquée/CARTEL
Université de Sherbrooke
2500 Boul. de l'Université
Sherbrooke (Quebec) J1K 2R1
Canada