

Summary of SMAPVEX12 datasets

Datasets	Description	Processing level	Contact
Satellite acquisitions			
Optical	Spot and rapidEye	Ortho-rectified and atmospherically corrected	Heather McNairn, AAFC
Radar	RADARSAT-2 and TerraSAR-X	RADARSAT-2 QP (SLC) TerraSAR-X (MGD, Stripmap, HH/VV)	
Passive microwave	SMOS	L1B (505), L2 (501)	Ramata Magagi, Université de Sherbrooke
Airborne measurements			
PALS Low and high altitudes	Radiometer 1.41 GHz TBH, TBV at 40°	Version 1	Andreas Colliander, JPL
	Thermal infrared TS	Raw	
	Radar 1.26 GHz Sigma0 HH, HV, VV, VH at 40°	Version Beta	
UAVSAR	Radar 1.26 GHz Sigma0 HH, HV, VH, VV at 25-65°		Tom Jackson, USDA

Datasets	Description	Processing level	Contact
Ground networks- Agricultural sites			
AAFC permanent network (7 stations)	Soil moisture profiles at 0-6, 5, 20, 50 and 100 cm depths	90 %	Grant Wiseman, AAFC
MAFRI temporary network (3 stations)	Soil moisture profiles at 0-6, 5, 20, 50 and 100 cm depths	100 %	
USDA temporary network (35 stations)	Soil moisture and temperature at 3-7 cm depth	100 %	Mike Cosh, Tom Jackson, USDA
Ground network- Pasture			
USDA temporary network (2 stations)	Soil moisture and temperature at 3-7 cm depth	100 %	Mike Cosh Tom Jackson USDA
Ground networks- Forested sites			
MAFRI temporary network (1 station)	Soil moisture profiles at 0-6, 5, 20, 50 and 100 cm depths	100 %	Grant Wiseman, AAFC
USDA temporary network (3 stations)	Soil moisture and temperature at 3-7 cm depth	100 %	Mike Cosh Tom Jackson USDA

Datasets	Description	Processing level	Contact
Ground data collection- Agricultural and pasture sites			
Soil	Dielectric constant and temperature at 0-6 cm depth from hydra-probes	100 %	Aaron Berg, U of Guelph Heather McNairn, AAFC Paul Bullock, U of Manitoba Ramata Magagi, Université de Sherbrooke
	Gravimetric measurements for hydra-probe calibration and soil texture and bulk density derivation)	100 %	
	Surface and sub-surface temperatures (0, 5 and 5 cm depths) from thermal infrared and digital thermometers, respectively	100 %	
	Roughness parameters (standard height and correlation length)	100 %	Ramata Magagi, Université de Sherbrooke
Vegetation	Water content, biomass, LAI, crop structures (height, leaf, stem and stalk sizes, angles, density, etc.), plant phenology, crop reflectance (CROPSCAN), row orientation, row width, etc.	100 %	Aaron Berg, U of Guelph A. Joseph, NASA GSFC, Heather McNairn, AAFC P. O'Neill, NASA GSFC
	Temperature		

Datasets	Description	Processing level	Contact
Ground data collection- Forested sites			
Soil	Dielectric constant and temperature at 0-6 cm depth from hydra-probes	100 %	Aaron Berg, U of Guelph Mahta Moghaddam, University of Southern California
	Gravimetric measurements (soil texture and bulk density derivation)	100 %	Grant Wiseman, AAFC Mahta Moghaddam, University of Southern California
	Soil organic depth	100 %	
	Soil temperature at 0, 5 and 10 cm depths	100 %	
	Roughness parameters (standard height and correlation length)	100 %	Ramata Magagi, Université de Sherbrooke
Vegetation	Dielectric constant, gravimetric measurements, trees identification, trees geomety (DBH, height, angles, etc.), density, fractional cover, Understory height, etc.		Mahta Moghaddam, University of Southern California

Datasets	Description	Processing level	Contact
Ancillary data			
Weather stations (MAFRI, Weatherfarm, Environment Canada)	Air temperature, total precipitation, wind speed, relative humidity Additional data: net radiation, snow accumulation, soil temperature		MAFRI/Mike Wroblewski Weatherfarm/ Andy Nadler Environment Canada/web site *
Crop maps	Land cover	Classified map	Heather McNairn, AAFC
Documentation	Crop phenology and identification		Heather McNairn, AAFC

*www.climate.weatheroffice.gc.ca/climateData/canada_e.html