

*ISO 19131 SMAPVEX16-MB MA
Weather Station Dataset – Data Product
Specifications*

Revision: A

Data product specifications: SMAPVEX16-MB MA Weather Station Dataset

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Data product specifications: SMAPVEX16-MB MA Weather Station Dataset / Spécifications de contenu informationnel

1. Overview

1.1. Informal description

The Soil Moisture Active/Passive Validation Experiment 2016-Manitoba (SMAPVEX16-MB) was conducted in the Carman/Elm Creek region. The purpose of the experiment was to collect a variety of ground measurements with coincident remotely-sensed data to calibrate and increase the accuracy of the National Aeronautics and Space Administration (NASA)'s Soil Moisture Active/Passive (SMAP) soil moisture products.

The dataset supplied from Manitoba Agriculture (MA) was used for the field campaign planning, mapping and analysis associated with the SMAPVEX16-MB project. MA operates a permanent network of 60 weather stations throughout Manitoba. This table supplies meteorological data from the Carman and Elm Creek MA weather stations.

1.2. Data product specification - metadata

This section provides metadata about the creation of this data product specification

Data product specification – title:	SMAPVEX16-MB MA Weather Station Dataset
Data product specification - reference date:	May 2, 2016 to September 30, 2016
Data product specification - responsible party:	AAFC STB
Data product specification – language:	English
Data product specification - topic category:	geoscientificInformation

1.3. Terms and definitions

- Feature attribute
characteristic of a feature
- Class
description of a set of objects that share the same attributes, operations, methods, relationships, and semantics [UML Semantics]
NOTE: A class does not always have an associated geometry (e.g. the metadata class).
- Feature
abstraction of real world phenomena
- Object
entity with a well-defined boundary and identity that encapsulates state and behaviour [UML Semantics]
NOTE: An object is an instance of a class.

- Package
grouping of a set of classes, relationships, and even other packages with a view to organizing the model into more abstract structures

1.4. Abbreviations

AAFC	Agriculture and Agri-Food Canada
MA	Manitoba Agriculture
NASA	National Aeronautics and Space Administration
SMAP	Soil Moisture Active/Passive
SMAPVEX16-MB	Soil Moisture Active/Passive Experiment 2016-Manitoba
STB	Science and Technology Branch

2. SPECIFICATION SCOPE

This data specification has only one scope, the general scope.

NOTE: The term 'specification scope' originates from the International Standard ISO19131. 'Specification scope' does not express the purpose for the creation of a data specification or the potential use of data, but identifies partitions of the data specification where specific requirements apply.

3. DATA PRODUCT IDENTIFICATION

3.1. Data series identification

Title	SMAPVEX16-MB MA Weather Station Dataset
Alternate Title	SMAPVEX16-MB Weather Station Data
Abstract	SMAPVEX16-MB was conducted to assess and increase the overall accuracy of the soil moisture retrievals produced using the SMAP satellite. Air temperature, relative humidity, precipitation and soil temperature was recorded by the MA weather stations to contribute to the overall understanding of ground conditions coincident with SMAP overpasses.
Purpose	This dataset is used to assess and increase the overall accuracy of the SMAP soil moisture product.
Topic Category	geoscientificInformation
Spatial Representation Type	textTable
Spatial Resolution	
Geographic Description	Carman/Elm Creek, Manitoba, Canada
Supplemental Information	<p>Principle Investigators: Heather McNairn - Agriculture and Agri-Food Canada; Tom Jackson - United States Department of Agriculture; Co-Investigators(Canada): Amine Merzouki, Anna Pacheco, Jarrett Powers - Agriculture and Agri-Food Canada; Stephane Belair, Peter Toose - Environment and Climate Change Canada; Monique Bernier - Institut National de la Recherche Scientifique(INRS); Aaron Berg, Tracy Rowlandson - University of Guelph; Paul Bullock - University of Manitoba; RoTimi Ojo - Manitoba Agriculture; Alexandre Roy - University of Montreal; Ramata Magagi - University of Sherbrooke; Co-Investigators(United States): Alicia Joseph, Peggy O'Neill - NASA Goddard Space Flight Centre; Andreas Colliander, Sab Kim - NASA Jet Propulsion Lab; Mike Cosh - United States Department of Agriculture; Co-Investigators(International): Giuseppe Satalino - National Research Council of Italy (ISSIA-CNR)</p>
Constraints	SMAPVEX16-MB field data will be placed on the University of Sherbrooke website. Access will be limited by password that will be provided to principle and co-investigators listed below. Principle and Co-Investigators are to ensure that staff, graduate students and post docs respect the terms of the agreement on usage and distribution. Access to the website will be restricted until August 1, 2017 for preliminary research and quality control. After

	August 1, 2017 all field data will be transferred to the National Snow and Ice Data Centre to be made publically available.
Keywords	SMAPVEX16-MB, Manitoba Agriculture, weather station, precipitation
Scope identification	series

3.2. Data product identification

3.2.1. SMAPVEX16-MB Weather Station Dataset

Title	SMAPVEX16-MB MA Weather Station Dataset
Alternate Title	SMAPVEX16-MB Weather Station Data
Abstract	This dataset contains air temperature, relative humidity, precipitation and soil temperature information recorded from the MA weather stations.
Purpose	SMAP produces global soil moisture products. This dataset is used to assess and increase the overall accuracy of the SMAP soil moisture product.
Topic Category	geoscientificInformation
Spatial Representation Type	textTable
Spatial Resolution	
Geographic Description	Carman/Elm Creek, Manitoba, Canada
Supplemental Information	<p>Principle Investigators: Heather McNairn - Agriculture and Agri-Food Canada; Tom Jackson - United States Department of Agriculture; Co-Investigators(Canada): Amine Merzouki, Anna Pacheco, Jarrett Powers - Agriculture and Agri-Food Canada; Stephane Belair, Peter Toose - Environment and Climate Change Canada; Monique Bernier - Institut National de la Recherche Scientifique(INRS); Aaron Berg, Tracy Rowlandson - University of Guelph; Paul Bullock - University of Manitoba; RoTimi Ojo - Manitoba Agriculture; Alexandre Roy - University of Montreal; Ramata Magagi - University of Sherbrooke; Co-Investigators(United States): Alicia Joseph, Peggy O'Neill - NASA Goddard Space Flight Centre; Andreas Colliander, Sab Kim - NASA Jet Propulsion Lab; Mike Cosh - United States Department of Agriculture; Co-Investigators(International): Giuseppe Satalino - National Research Council of Italy (ISSIA-CNR)</p>
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Keywords	SMAPVEX16-MB, Manitoba Agriculture, weather station, precipitation
Scope Identification	dataset
Feature Attribute Names	STATION, TIMESTAMP, AIR_TEMP, REL_HUM, PRECIP, SOIL_TEMP_5

4. DATA CONTENT AND STRUCTURE

4.1. Feature-based application schema

Figure <#> - <Insert dataset title> UML Class Diagram

4.2. Feature catalogue – SMAPVEX16-MB MA Weather Station Dataset

Title	SMAPVEX16-MB MA Weather Station Feature Catalogue
Scope	series
Version Number	1
Version Date	December 12, 2016
Producer	AAFC

System-generated attributes (for example, OBJECTID, Shape, Shape Length and Area) are not defined in the feature catalog.

4.2.1. Feature attributes

4.2.1.1. STATION

Name	Station (STATION)		
Definition	Name of the weather station.		
Aliases	STATION		
Producer	AAFC		
Value Data Type	String		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.2. TIMESTAMP

Name	Timestamp (TIMESTAMP)		
Definition	Time of sampling CDT (YYYY-MM-DD HH:MM).		
Aliases	TIMESTAMP		
Producer	AAFC		
Value Data Type	Date and time		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.3. AIR_TEMP

Name	Air Temperature (AIR_TEMP)
Definition	Average hourly air temperature.

Aliases	AIR_TEMP		
Producer	AAFC		
Value Data Type	Double		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.4. REL_HUM

Name	Relative Humidity (REL_HUM)		
Definition	Average hourly relative humidity.		
Aliases	REL_HUM		
Producer	AAFC		
Value Data Type	Double		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.5. PRECIP

Name	Precipitation (PRECIP)		
Definition	Hourly precipitation totals (mm).		
Aliases	PRECIP		
Producer	AAFC		
Value Data Type	Double		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.6. SOIL_TEMP_5

Name	Soil Temperature (SOIL_TEMP_5)		
Definition	Average hourly soil temperature (°C) measured by Stevens Hydra-probe at the 5cm depth.		
Aliases	SOIL_TEMP_5		
Producer	AAFC		
Value Data Type	Double		

Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

5. REFERENCE SYSTEMS

5.1. Spatial reference system

Not applicable.

5.2. Temporal reference system

Gregorian calendar

6. DATA QUALITY

6.1. Completeness

Measure not used at this time.

6.2. Logical consistency

Measure not used at this time.

6.3. Positional accuracy

Measure not used at this time.

6.4. Temporal accuracy

Measure not used at this time.

6.5. Thematic accuracy

Measure not used at this time.

6.6. Lineage statement

Lineage Statement	This dataset contains meteorological data from 2 permanent MA weather stations situated within the SMAPVEX16-MB study area. Data recorded by the MA weather stations between May 2, 2016 and September 30, 2016 has been included in this dataset.
Scope	

7. DATA CAPTURE

Air temperature, relative humidity, precipitation and soil temperature at the 5cm depth has been recorded and stored within this dataset. All data within the corresponding dataset has been supplied by MA.

8. DATA MAINTENANCE

Not applicable.

9. PORTRAYAL

Not applicable.

10. DATA PRODUCT DELIVERY

Csv
Format name: Comma Delimited
Format version: 1.0
Specification: A delimited data format that has fields/columns separated by the comma character.
Languages: eng
Character set: utf8

11. METADATA

Not applicable.