ISO 19131 SMAPVEX16-MB Crop Height Dataset – Data Product Specifications

Revision: A

Data product specifications: SMAPVEX16-MB Crop Height Dataset

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Data product specifications: SMAPVEX16-MB Crop Height 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.

This dataset summarizes crop height and growth stage data that was collected on vegetation days for the field campaign SMAPVEX16-MB project.

1.2. Data product specification - metadata

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

Data product specification – title:	SMAPVEX16-MB Crop Height Dataset
Data product specification - reference date:	June 13 – July 20, 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
BBCH	Biologische Bundesanstalt, Bundessortenamt and Chemical Industry
GPS	Global Positioning System
NASA	National Aeronautics and Space Administration
SMAP	Soil Moisture Active/Passive
SMAPVEX16-MB	Soil Moisture Active/Passive Validation 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 Crop Height Dataset
Alternate Title	SMAPVEX16-MB Crop Height Data
Abstract	SMAPVEX16-MB was conducted to assess and increase the overall accuracy of the soil moisture retrievals produced using the SMAP satellite. Crop height measurements were taken to address the influence of the crop on the calculation of the soil moisture value.
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	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)
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	Crop Height, SMAPVEX16-MB, geoscientificInformation, BBCH, Vegetation Growth
Scope identification	series

3.2. Data product identification

3.2.1. SMAPVEX16-MB Crop Height Dataset

Title	SMAPVEX16-MB Crop Height Dataset
Alternate Title	SMAPVEX16-MB Crop Height Data
Abstract	This dataset contains crop height data that was

	collected for the SMAPVEX16-MB experiment.
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	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)
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Keywords	Crop Height, SMAPVEX16-MB, geoscientificInformation, BBCH, Vegetation Growth
Scope Identification	dataset
Feature Attribute Names	DATE, CROP, SITE_ID, GROWTH_STAGE, CROP_HEIGHT

4. DATA CONTENT AND STRUCTURE

4.1. Feature-based application schema

N/A

4.2. Feature catalogue – SMAPVEX16-MB Crop Height Dataset

Title	SMAPVEX16-MB Crop Height Feature Catalogue
Scope	series
Version Number	1
Version Date	March 30, 2017
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. DATE

Name	Date (DATE)		
Definition	Date of sampling (YY-MM-DD).		
Aliases	DATE		
Producer	AAFC		
Value Data Type	Date		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.2. CROP

Name	Crop (CROP)		
Definition	Crop that was grown in 2016.		
Aliases	CROP		
Producer	AAFC		
Value Data Type	String		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.3. SITE_ID

Name	Site Identification (SITE_ID)
Definition	Unique ID to identify the site where sampling occurs. Each field has 16 sampling locations.

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

4.2.1.4. GROWTH_STAGE

Name	Growth Stage (GROWTH_STAGE)		
Definition	Growth stage (BBCH Scale – median).		
Aliases	GROWTH_STAGE		
Producer	AAFC		
Value Data Type	String		
Value Domain Type	0 (not enumerated)		
Value Domain			
	Feature Attribute Value		
	Label	Code	Definition

4.2.1.5. CROP_HEIGHT

Name	Crop Height (CROP_HEIGHT)		
Definition	Average crop height (cm).		
Aliases	CROP_HEIGHT		
Producer	AAFC		
Value Data Type	Integer		
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

The location of the crop height measurements has been recorded with a handheld Garmin Global Positioning System (GPS) device. The device is accurate to within approximately 3m.

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	The date each crop height dataset was recorded has been and stored within the DATE field of the dataset.
Scope	

7. DATA CAPTURE

Crop height and growth stage data was collected during vegetation sampling days of the SMAPVEX16-MB experiment.

8. DATA MAINTENANCE

Unknown.

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.