

# Station\_Soil\_Moisture\_MAFRI

## File Geodatabase Table

Thumbnail Not Available

### Tags

SMAPVEX12, MAFRI, precipitation, soil moisture, soil temperature, real dielectric constant, calibration

### Summary

This table was generated for use in analysis and validation associated with the SMAPVEX12 (Soil Moisture Active-Passive Validation Experiment 2012) project.

### Description

This table presents data recorded at hourly intervals during the course of the SMAPVEX12 field campaign between June 7 and July 19 at four permanent soil moisture stations operated by Manitoba Agriculture, Food and Rural Initiatives (MAFRI). Data include recorded and calibrated soil moisture, real dielectric constant, soil temperature, and total precipitation.

### Credits

Grant Wiseman Senior Geomatics Scientist – Scientifique principal en géomatique Agriculture and Agri-Food Canada – Agriculture et Agroalimentaire Canada Telephone - Téléphone: 204-259-4006 Cellular - Cellulaire: 204-293-6074 Facsimile - Télécopieur: 204-259-4055 200-303 Main Street, Winnipeg, MB R3C 3G7 grant.wiseman@agr.gc.ca

### Use limitations

All SMAPVEX12 data (except those already on public domain servers) will be placed on the University of Sherbrooke site. Access will be limited by password that will be provided to principle investigators and co-investigators listed below. It will be up to the principle investigators and co-investigators 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 July 1, 2013 for preliminary research and quality control. After July 1, 2013 all data will be transferred to a SMAP DAAC. Principle Investigators Heather McNairn, Agriculture and Agri-Food Canada Tom Jackson, USDA, ARS Hydrology and Remote Sensing Laboratory Co-Investigators Aaron Berg, University of Guelph Amine Merzouki, Agriculture and Agri-Food Canada Andreas Colliander, JPL Anne Walker, Environment Canada Brenda Toth, Environment Canada/MSCHAL Catherine Champagne, Agriculture and Agri-Food Canada Craig Smith, Environment Canada Dara Entekhabi, MIT Eni Njoku, JPL Grant Wiseman, Agriculture and Agri-Food Canada Jarrett Powers, Agriculture and Agri-Food Canada Jiali Shang, Agriculture and Agri-Food Canada John Fitzmaurice, Agriculture and Agri-Food Canada Mahta Moghaddam, University Southern California Mike Cosh, USDA, ARS Hydrology and Remote Sensing Laboratory Narendra Das, JPL Paul Bullock, University of Manitoba Peggy O'Neill, NASA GSFC Ramata Magagi, University of Sherbrooke Rotimi Ojo, University of Manitoba Sab Kim, JPL Stéphane Bélair, Environment Canada - NWP and Data Assimilation Alicia Joseph, NASA GSFC Erika Podest, JPL John Kimball, University of Montana Kalifa Goïta, University of Sherbrooke Marco Carrera, Environment Canada, Meteorological Research Division Steven Chan, JPL Vanessa Escobar, NASA GSFC

## ArcGIS Metadata ►

### Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE   environment, geoscientificInformation

\* CONTENT TYPE   Downloadable Data

*Hide Topics and Keywords ▲*

### Citation ►

\* TITLE   Station\_Soil\_Moisture\_MAFRI

PRESENTATION FORMATS   \* digital table

*Hide Citation ▲*

### Resource Details ►

DATASET LANGUAGES   \* English (CANADA)

DATASET CHARACTER SET   utf8 - 8 bit UCS Transfer Format

SPATIAL REPRESENTATION TYPE   \* text table

\* PROCESSING ENVIRONMENT   Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; ESRI ArcGIS 10.0.5.4400

#### CREDITS

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#### ARCGIS ITEM PROPERTIES

\* NAME   Station\_Soil\_Moisture\_MAFRI

\* LOCATION

file:///\\mbwinnfs106\\gis\$\\data8\\projects\\land\\soil\\SMAPVEX12\\data\\Geodatabase\\SMAPVEX\_MASTER.gdb

\* ACCESS PROTOCOL Local Area Network

[Hide Resource Details ▲](#)

## Resource Points of Contact ►

### POINT OF CONTACT

INDIVIDUAL'S NAME Grant Wiseman

ORGANIZATION'S NAME Agriculture and Agri-Food Canada – Agriculture et Agroalimentaire Canada

CONTACT'S POSITION Senior Geomatics Scientist – Scientifique principal en géomatique

CONTACT'S ROLE point of contact

### CONTACT INFORMATION ►

#### PHONE

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#### ADDRESS

##### TYPE

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[Hide Contact information ▲](#)

[Hide Resource Points of Contact ▲](#)

## Resource Maintenance ►

### RESOURCE MAINTENANCE

UPDATE FREQUENCY    as needed

[Hide Resource Maintenance ▲](#)

## Resource Constraints ►

### CONSTRAINTS

#### LIMITATIONS OF USE

All SMAPVEX12 data (except those already on public domain servers) will be placed on the University of Sherbrooke site. Access will be limited by password that will be provided to principle investigators and co-investigators listed below. It will be up to the principle investigators and co-investigators 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 July 1, 2013 for preliminary research and quality control. After July 1, 2013 all data will be transferred to a SMAP DAAC. Principle Investigators Heather McNairn, Agriculture and Agri-Food Canada Tom Jackson, USDA, ARS Hydrology and Remote Sensing Laboratory Co-Investigators Aaron Berg, University of Guelph Amine Merzouki, Agriculture and Agri-Food Canada Andreas Colliander, JPL Anne Walker, Environment Canada Brenda Toth, Environment Canada/MSC/HAL Catherine Champagne, Agriculture and Agri-Food Canada Craig Smith, Environment Canada Dara Entekhabi, MIT Eni Njoku, JPL Grant Wiseman, Agriculture and Agri-Food Canada Jarrett Powers, Agriculture and Agri-Food Canada Jiali Shang, Agriculture and Agri-Food Canada John Fitzmaurice, Agriculture and Agri-Food Canada Mahta Moghaddam, University Southern California Mike Cosh, USDA, ARS Hydrology and Remote Sensing Laboratory Narendra Das, JPL Paul Bullock, University of Manitoba Peggy O'Neill, NASA GSFC Ramata Magagi, University of Sherbrooke Rotimi Ojo, University of Manitoba Sab Kim, JPL Stéphane Bélair, Environment Canada - NWP and Data Assimilation Alicia Joseph, NASA GSFC Erika Podest, JPL John Kimball, University of Montana Kalifa Goïta, University of Sherbrooke Marco Carrera, Environment Canada, Meteorological Research Division Steven Chan, JPL Vanessa Escobar, NASA GSFC

[Hide Resource Constraints ▲](#)

## Data Quality ►

### SCOPE OF QUALITY INFORMATION ►

RESOURCE LEVEL    non-geographic dataset

[Hide Scope of quality information ▲](#)

[Hide Data Quality](#) ▲

## Geoprocessing history ►

### PROCESS

PROCESS NAME

DATE 2012-11-22 13:40:17

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx>DeleteField

COMMAND ISSUED

```
DeleteField Station_Soil_Moisture_MAFRI2  
NoName;NoName_1;NoName_12;NoName_12_13;NoName_12_13_14
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

### PROCESS

PROCESS NAME

DATE 2012-11-26 10:11:04

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

```
CalculateField Station_Soil_Moisture_MAFRI2 Rain_mm "NULL" VB #
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

### PROCESS

PROCESS NAME

DATE 2012-11-26 10:11:18

TOOL LOCATION c:\program files (x86)\arcgis\desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

COMMAND ISSUED

```
CalculateField Station_Soil_Moisture_MAFRI2 Rain_mm NULL VB #
```

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

### PROCESS

PROCESS NAME

DATE 2012-11-27 15:55:20

TOOL LOCATION C:\Program Files (x86)\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

#### COMMAND ISSUED

CalculateField Station\_Soil\_Moisture\_MAFRI Field\_ID2 [Field\_ID] VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

#### PROCESS

PROCESS NAME

DATE 2012-11-27 15:56:00

TOOL LOCATION C:\Program Files (x86)\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management Tools.tbx\CalculateField

#### COMMAND ISSUED

CalculateField Station\_Soil\_Moisture\_MAFRI Field\_ID [Field\_ID2] VB #

INCLUDE IN LINEAGE WHEN EXPORTING METADATA No

*Hide Geoprocessing history ▲*

## Distribution ►

DISTRIBUTION FORMAT

\* NAME File Geodatabase Table

*Hide Distribution ▲*

## Fields ►

DETAILS FOR OBJECT Station\_Soil\_Moisture\_MAFRI ►

\* TYPE Table

\* ROW COUNT 3153

DEFINITION

Data recorded at four permanent MAFRI soil moisture stations during the SMAPVEX12 field campaign.

DEFINITION SOURCE

AAFC

FIELD OBJECTID ►

\* **ALIAS** OBJECTID

\* **DATA TYPE** OID

\* **WIDTH** 4

\* **PRECISION** 0

\* **SCALE** 0

\* **FIELD DESCRIPTION**

Internal feature number.

\* **DESCRIPTION SOURCE**

ESRI

\* **DESCRIPTION OF VALUES** Sequential unique whole numbers that are automatically generated.

*Hide Field OBJECTID ▲*

**FIELD** Field\_ID ►

\* **ALIAS** Field\_ID

\* **DATA TYPE** String

\* **WIDTH** 10

\* **PRECISION** 0

\* **SCALE** 0

**FIELD DESCRIPTION**

Identification number of the field in which the soil moisture station was situated.

**DESCRIPTION SOURCE**

AAFC

*Hide Field Field\_ID ▲*

**FIELD** Sample\_Date ►

\* **ALIAS** Sample\_Date

\* DATA TYPE   Date

\* WIDTH   8

\* PRECISION   0

\* SCALE   0

FIELD DESCRIPTION

Date of recording.

DESCRIPTION SOURCE

AAFC

*Hide Field Sample\_Date ▲*

FIELD Sample\_Time ►

\* ALIAS   Sample\_Time

\* DATA TYPE   Date

\* WIDTH   8

\* PRECISION   0

\* SCALE   0

FIELD DESCRIPTION

Time of recording (military).

DESCRIPTION SOURCE

AAFC

*Hide Field Sample\_Time ▲*

FIELD Crop\_Type ►

\* ALIAS   Crop\_Type

\* DATA TYPE   String



\* WIDTH 255

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Amount of precipitation (mm).

DESCRIPTION SOURCE

AAFC

*Hide Field Crop\_Type ▲*

FIELD Rain\_mm ►

\* ALIAS Rain\_mm

\* DATA TYPE String

\* WIDTH 255

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Amount of precipitation (mm).

DESCRIPTION SOURCE

AAFC

*Hide Field Rain\_mm ▲*

FIELD SM\_5cm ►

\* ALIAS SM\_5cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Proportional soil moisture measured at a depth of 5 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field SM\_5cm ▲*

FIELD Temp\_5cm ►

\* ALIAS Temp\_5cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Temperature (°C) measured at a depth of 5 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field Temp\_5cm ▲*

FIELD RDC\_5cm ►

\* ALIAS RDC\_5cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Real dielectric constant measured at a depth of 5 cm.

DESCRIPTION SOURCE

AAFC

[Hide Field RDC\\_5cm ▲](#)

FIELD Calib\_5cm ►

\* ALIAS Calib\_5cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Calibrated soil moisture at a depth of 5 cm. The following calibrations were used, depending upon clay percent content and real dielectric constant value:  $0.09704\sqrt{x} - 0.12478$  (< 20% clay);

$0.07642\sqrt{x} - 0.05692$  (20-40% clay);  $(-0.0007x^3 + 0.0725x^2 - 1.64x + 39.39)/100$  (> 40% clay);  $(0.687x + 16.276)/100$  (RDC<14 or RDC>52).

DESCRIPTION SOURCE

AAFC

[Hide Field Calib\\_5cm ▲](#)

FIELD SM\_20cm ►

- \* ALIAS SM\_20cm
- \* DATA TYPE Double
- \* WIDTH 8
- \* PRECISION 0
- \* SCALE 0

FIELD DESCRIPTION

Proportional soil moisture measured at a depth of 20 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field SM\_20cm ▲*

FIELD Temp\_20cm ►

- \* ALIAS Temp\_20cm
- \* DATA TYPE Double
- \* WIDTH 8
- \* PRECISION 0
- \* SCALE 0

FIELD DESCRIPTION

Temperature (°C) measured at a depth of 20 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field Temp\_20cm ▲*

FIELD RDC\_20cm ►

- \* ALIAS RDC\_20cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Real dielectric constant measured at a depth of 20 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field RDC\_20cm ▲*

FIELD Calib\_20cm ►

\* ALIAS Calib\_20cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Calibrated soil moisture at a depth of 20 cm. The following calibrations were used, depending upon clay percent content and real dielectric constant value:  $0.09704\sqrt{x} - 0.12478$  (< 20% clay);  $0.07642\sqrt{x} - 0.05692$  (20-40% clay);  $(-0.0007x^3 + 0.0725x^2 - 1.64x + 39.39)/100$  (> 40% clay);  $(0.687x + 16.276)/100$  (RDC<14 or RDC>52)

DESCRIPTION SOURCE

AAFC

*Hide Field Calib\_20cm ▲*

FIELD SM\_50cm ►

\* ALIAS SM\_50cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Proportional soil moisture measured at a depth of 50 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field SM\_50cm ▲*

FIELD Temp\_50cm ►

\* ALIAS Temp\_50cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Temperature (°C) measured at a depth of 50 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field Temp\_50cm ▲*

FIELD RDC\_50cm ►

\* ALIAS RDC\_50cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Real dielectric constant measured at a depth of 50 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field RDC\_50cm ▲*

FIELD Calib\_50cm ►

\* ALIAS Calib\_50cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Calibrated soil moisture at a depth of 50 cm. The following calibrations were used, depending upon clay percent content and real dielectric constant value:  $0.09704\sqrt{x} - 0.12478$  (< 20% clay);  $0.07642\sqrt{x} - 0.05692$  (20-40% clay);  $(-0.0007x^3 + 0.0725x^2 - 1.64x + 39.39)/100$  (> 40% clay);  $(0.687x + 16.276)/100$  (RDC<14 or RDC>52)

DESCRIPTION SOURCE

AAFC

*Hide Field Calib\_50cm ▲*

FIELD SM\_100cm ►

\* ALIAS SM\_100cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Proportional soil moisture measured at a depth of 100 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field SM\_100cm ▲*

FIELD Temp\_100cm ►

\* ALIAS Temp\_100cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

FIELD DESCRIPTION

Temperature (°C) measured at a depth of 100 cm.

DESCRIPTION SOURCE

AAFC

*Hide Field Temp\_100cm ▲*

FIELD RDC\_100cm ►



\* ALIAS RDC\_100cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

#### FIELD DESCRIPTION

Real dielectric constant measured at a depth of 100 cm.

#### DESCRIPTION SOURCE

AAFC

[Hide Field RDC\\_100cm ▲](#)

#### FIELD Calib\_100cm ►

\* ALIAS Calib\_100cm

\* DATA TYPE Double

\* WIDTH 8

\* PRECISION 0

\* SCALE 0

#### FIELD DESCRIPTION

Calibrated soil moisture at a depth of 100 cm. The following calibrations were used, depending upon clay percent content and real dielectric constant value:  $0.09704\sqrt{x} - 0.12478$  (< 20% clay);  $0.07642\sqrt{x} - 0.05692$  (20-40% clay);  $(-0.0007x^3 + 0.0725x^2 - 1.64x + 39.39)/100$  (> 40% clay);  $(0.687x + 16.276)/100$  (RDC<14 or RDC>52)

#### DESCRIPTION SOURCE

AAFC

[Hide Field Calib\\_100cm ▲](#)

[Hide Details for object Station\\_Soil\\_Moisture\\_MAFRI](#) ▲

[Hide Fields](#) ▲

## Metadata Details ►

\* METADATA LANGUAGE English (CANADA)

METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

METADATA IDENTIFIER 8096C3BE-980E-465F-9040-36BC9A608679

SCOPE OF THE DATA DESCRIBED BY THE METADATA \* non-geographic dataset

SCOPE NAME \* dataset

\* LAST UPDATE 2013-03-19

### ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0

METADATA STYLE FGDC CSDGM Metadata

STANDARD OR PROFILE USED TO EDIT METADATA FGDC

CREATED IN ARCGIS FOR THE ITEM 2012-12-20 12:37:02

LAST MODIFIED IN ARCGIS FOR THE ITEM 2013-03-19 10:28:30

### AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes

LAST UPDATE 2013-03-19 10:28:30