



SMAPVEX16 Iowa Temporary Network Soil Moisture and Temperature, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

Cosh, M. 2021. *SMAPVEX16-Iowa Temporary Network Soil Moisture and Temperature, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. <https://doi.org/10.5067/CP6MNQ7I7ZRC>. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT NSIDC@NSIDC.ORG

FOR CURRENT INFORMATION, VISIT https://nsidc.org/data/SV16_TNET



National Snow and Ice Data Center

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1 DATA DESCRIPTION

1.1 Parameters

Parameters for this data set include soil moisture and temperature.

These data consist of soil moisture and soil temperature measurements recorded by the temporary soil moisture network deployed to SMAPVEX16-Iowa for the summer season of 2016. The sites were spread out over an experiment domain of about 30 km by 40 km located about 30 km north of Ames, Iowa.

1.2 File Information

1.2.1 Format

Data provided in comma-separated values, (.csv) file. Data volume approximately 2.0 MB.

1.2.2 File Contents

The data file contains the soil moisture and soil temperature measurements for each station. The data file has eighty-one columns and two header rows.

	A	B	C	D	P	Q
1		IA_731_SF04_1_2016	IA_731_SF04_1_2016	IA_732_SF10_2016	IA_738_LTAR Soy_2016	IA_738_LTAR Soy_2016
2	TIMESTAMP	TempC	VWC	TempC	TempC	VWC
3	5/18/16 11:00 AM					
4	5/18/16 11:30 AM					
5	5/18/16 12:00 PM					
6	5/18/16 12:30 PM					
7	5/18/16 1:00 PM					
8	5/18/16 1:30 PM				22.8	0.307
9	5/18/16 2:00 PM				20.9	0.309
10	5/18/16 2:30 PM				19.9	0.314
11	5/18/16 3:00 PM	23	0.211		19.7	0.313
12	5/18/16 3:30 PM	21.9	0.211		19.5	0.313
13	5/18/16 4:00 PM	20.7	0.21		20.3	0.312

Figure 1. Sample Data with header rows shaded for emphasis. Columns E-0 hidden to show variation with respect to station names.

First Header (Row 1) Explained:

- Station ID for each location. Use the first six characters in the Station ID column to identify the coordinates of the location when paired with station location data, see Table 1. Note: The use of an underscore appears in Station ID in the data sample only.

Second Header (Row 2) Explained:

- Timestamp: (mm/dd/yyyy HH:MM; time in local time (UTC-6),

- TempC: soil temperature in degrees Celsius, and
- VWC: volumetric water content

Note: Time in local time (UTC-6).

1.2.3 Naming Convention

File Name: SMAPVEX16_IA_TempNet_v0.csv

File Name Components:

- Campaign: SMAPVEX16
- Site: IA; Iowa
- Experiment: TempNet
- Version:v[N]
- File format or extension: .csv

1.3 Spatial Information

1.3.1 Coverage

The Iowa experiment domain may be defined by the following coordinates:

Latitude: 42.29N – 42.64N
Longitude: 93.22W – 93.57W

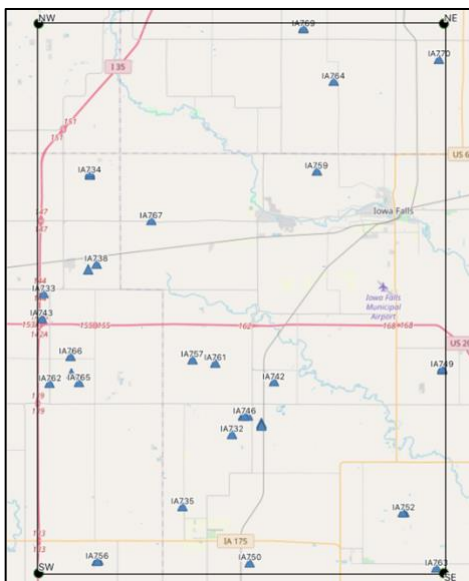


Figure 2. SV16I-TNET station location (triangles) within experiment domain.

Table 1. Station Location Coordinates

Station	Latitude	Longitude
IA731	42.54468	-93.52571
IA732	42.37901	-93.40297
IA733	42.46854	-93.56523
IA734	42.54411	-93.52573
IA735	42.33278	-93.44556
IA736	42.54555	-93.52573
IA737	42.38591	-93.3776
IA738	42.4876	-93.51996
IA739	42.38512	-93.37761
IA740	42.42108	-93.22169
IA741	42.48348	-93.52708
IA742	42.41227	-93.36707
IA743	42.45288	-93.56722
IA744	42.39045	-93.38928
IA745	42.39044	-93.39386
IA746	42.39042	-93.39203
IA747	42.41978	-93.22169
IA748	42.38441	-93.37762
IA749	42.42032	-93.22168
IA750	42.297	-93.38747
IA751	42.32886	-93.2541
IA752	42.32885	-93.25497
IA753	42.32883	-93.25551
IA754	42.29829	-93.51846
IA755	42.29783	-93.51977
IA756	42.29783	-93.51924
IA757	42.42669	-93.43731
IA758	42.4174	-93.54172
IA759	42.54676	-93.33008
IA760	42.63727	-93.34119

Station	Latitude	Longitude
IA761	42.42451	-93.4176
IA762	42.41129	-93.55999
IA763	42.29342	-93.22656
IA764	42.60381	-93.3154
IA765	42.41174	-93.53489
IA766	42.42861	-93.54204
IA767	42.51501	-93.47271
IA768	42.63727	-93.34119
IA769	42.63727	-93.34119
IA770	42.61801	-93.22428
Coordinate Reference System: WGS 84		

1.3.2 Resolution

Does not apply.

1.4 Temporal Information

1.4.1 Coverage

Start: 18 May 2016

End: 17 August 2016

1.4.2 Resolution

Hourly

2 DATA ACQUISITION AND PROCESSING

2.1 Acquisition

Stevens HydraProbes, installed in the soil horizontally at a depth of 5 cm, recorded soil moisture and soil temperature hourly.

2.2 Processing

The soil moisture values reported here represent HydraProbe sensor outputs. The soil moisture probes were set to “loam” to convert the dielectric constant to soil moisture.

2.3 Quality, Errors, and Limitations

The “loam” calibration of the HydraProbe best reflects soil type of the experiment domain. Therefore, it is assumed that using the generic calibration would not cause any excessive errors in the soil moisture estimates. The fit of the model used in the “loam” calibration is about 0.02 m³/m³; (Seyfried et al. 2005).

2.4 Instrumentation

2.4.1 Description

Stevens HydraProbe

3 SOFTWARE AND TOOLS

Access the data with software capable of reading comma-separated values, .csv, files.

4 RELATED DATA SETS

[SMAP Validation Data 2016](#)

5 RELATED WEBSITES

[Soil Moisture Active Passive Data](#)

[Soil Moisture Active Passive Validation Data](#)

6 CONTACTS AND ACKNOWLEDGMENTS

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7 REFERENCES

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8 DOCUMENT INFORMATION

8.1 Publication Date

07 January 2021

8.2 Revision Date

11 January 2021