

Notice to Data Users:
The documentation for this data set was provided solely by the Principal Investigator(s) and was not further developed, thoroughly reviewed, or edited by NSIDC. Thus, support for this data set may be limited.

SMEX03 ALMNet and SCAN Soil Moisture Data: Alabama

Summary

This data set includes precipitation, soil temperature, and soil moisture data measured during the Soil Moisture Experiment 2003 (SMEX03), conducted during June and July 2003 in northern Alabama and southern Tennessee, USA. The output parameters include precipitation; and soil temperatures and volumetric soil moisture at depths of 5 cm, 10 cm, 20 cm, 30 cm, 40 cm, 60 cm, and 100 cm. Data were collected at crop, pasture and forested sites. Those sites are part of the Alabama MesoNet (ALMNet) network, which is run by the Soil Climatology and Remote Sensing Center (HSCaRS) of Alabama A & M University that is part of the USDA NRCS Soil Climate Analysis Network (SCAN) network. Data are provided in an Excel spreadsheet and an ASCII text file, and are available via FTP.

Citing These Data

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Overview Table

Category	Description
Data format	Microsoft Excel workbook and as a separate text files.
Spatial coverage	34.68° - 35.16° N Latitude; 85.78° - 87.07° W Longitude
Temporal coverage and resolution	1 June 2003 to 15 July 2003; 15-min or hourly measurements
File size	The Excel file size is 4.6 MB. The text file sizes are 3.9 MB for ALMNet and .8 MB for SCAN.
Parameter(s)	Precipitation; and soil temperatures and volumetric soil moisture at depths of 5 cm, 10 cm, 20 cm, 30 cm, 40 cm, 60 cm, and 100 cm.
Procedures for obtaining data	Data are available through FTP.

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1. Contacts and Acknowledgments:

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2. Detailed Data Description:

Format

Data are provided in a Microsoft Excel file and as a separate text files for the ALMNet and SCAN data. The text files contain the same data as the Excel file. In the text files, data are in tab-delimited format.

File and Directory Structure:

There are no sub-directories.

File Naming Convention:

The Excel file is named 'SMEX03_AL_ALMNet_SCAN.xls'. The text files are named 'SMEX03_AL_ALMNet.txt' and 'SMEX03_AL_SCAN.txt'.

File Size:

The Excel file size is 4.6 MB.
The text file sizes are 3.9 MB for ALMNet and .8 MB for SCAN.

Spatial Coverage:

Southernmost Latitude: 34.68° N
Northernmost Latitude: 35.16° N
Westernmost Longitude: 87.08° W
Easternmost Longitude: 85.78° W

The following table contains the locations of the ALMNet sites:

ALMNet Site Number	Latitude	Longitude
PS01 34.90121		-86.88663
PS02 34.70003		-86.89100
PS03 34.58902		-86.86073
PS04 34.48211		-86.75878
PS05 34.84108		-86.76664
PS06 34.89372		-86.60244

PS07 34.66867		-86.73831
PS08 34.53347		-86.39000
PS09 34.74514		-86.51239
PS10 34.78581		-86.44728
PS11 34.56897		-86.37147
PS12 34.84008		-86.31675
PS13 34.93692		-86.34433
PS14 34.75961		-86.20514
PS15 34.53108		-86.25111
PS16 34.51594		-86.57311

Temporal Coverage:

1 June 2003 to 15 July 2003

Temporal Resolution:

Readings were taken hourly in the USDA NRCS SCAN Sites and every 15 minutes in the Alabama MesoNet (ALMNet) Sites.

Parameter or Variable

Parameter Description

Parameters in this data set include precipitation; and soil temperature and volumetric soil moisture at depths of 5 cm, 10 cm, 20 cm, 30 cm, 40 cm, 60 cm, and 100 cm.

Parameter Range:

The following table details the column headings in the Excel file.

Column Heading	Description
DATE_HOUR	Date readings made in format YYYY/MM/DD:Hour:Minutes
PR_PS01 (mm)	Precipitation in millimeter at the Alabama A&M PS site number 1
ST5_PS01	Soil temperature in Degrees Celsius at the Alabama A&M PS site number 1 at 5 cm depth
SM10_PS01	Volumetric soil moisture (fraction) at the Alabama A&M PS site number 1 at 10 cm depth
ST10_PS01	Soil temperature in Degrees Celsius at the Alabama A&M PS site number 1 at 10 cm depth
SM20_PS01	Volumetric soil moisture (fraction) at the Alabama A&M PS site number 1 at 20 cm depth
ST20_PS01	Soil temperature in Degrees Celsius at the Alabama A&M PS site number 1 at 20 cm depth
SM30_PS01	Volumetric soil moisture (fraction) at the Alabama A&M PS site number 1 at 30 cm depth
SM40_PS01	Volumetric soil moisture (fraction) at the Alabama A&M PS site number 1 at 40 cm depth
SM60_PS01	Volumetric soil moisture (fraction) at the Alabama A&M PS site number 1 at 60 cm depth
SM100_PS01	Volumetric soil moisture (fraction) at the Alabama A&M PS site number 1 at 100 cm depth

These data columns were repeated for all Alabama MesoNet (ALMNet) sites as well as the SCAN sites. If the suffix after the hyphen in the heading starts with a PS then a number, this means that the site is one of the Alabama MesoNet (ALMNet) sites, which has 15-min readings; otherwise it is one of the USDA SCAN sites, which has hourly readings. Data that were not collected are shown as -9999.

The Letters in the Prefix (Before the Hyphen) of the column heading represents the measured parameter: **(PR)** for Precipitation in Millimeters; **(ST)** for Soil Temperature (Degrees Celsius); and **(SM)** for Soil Moisture. The Number in the Prefix (Before the Hyphen) of the column heading represents the Depth in Centimeters. The Letters and Numbers in the Suffix (After the Hyphen) of the column heading represent the Site ID (The ALMNet sites IDs start with PS then a number).

Sample Data Record

The following is a sample from the data file "Soil_Temps_AL.txt":

DATE_HOUR_	PR_PS01 (mm)	ST5_PS01	SM10_PS01	ST10_PS01	SM20_PS01	ST20_PS01	SM30_PS01	SM40_PS01	SM60_PS01	SM100_PS01
2003/6/1:0:0	0.0000 19.	1000	0.3100 21.	6000	0.3500 21.	1000	0.2800 0.	2100 0.	3300 0.	4300
2003/6/1:0:15	0.0000 19.	1000	0.3100 21.	5000	0.3500 21.	1000	0.2800 0.	2100 0.	3300 0.	4300
2003/6/1:0:30	0.0000 19.	1000	0.3100 21.	4000	0.3500 21.	0000	0.2800 0.	2100 0.	3300 0.	4300
2003/6/1:0:45	0.0000 19.	1000	0.3100 21.	4000	0.3500 20.	9000	0.2800 0.	2100 0.	3300 0.	4300

Data that were not collected are shown -9999.

3. Data Access and Tools:

Data Access:

Software and Tools:

Microsoft Excel is required to view the spreadsheet file. A word-processing program or Web browser is sufficient for viewing the text files.

4. Data Acquisition and Processing:

Theory of Measurements:

Sensor or Instrument Description:

Investigators used a tipping bucket device to measure precipitation, a dielectric-measuring device to measure soil moisture, and an encapsulated thermistor to measure soil temperature.

5. References and Related Publications:

Please see the Alabama MesoNet (ALMNet) site <http://wx.aamu.edu/ALMNet.php> and the USDA NRCS site <http://www.wcc.nrcs.usda.gov/publications/> for more information and to access data.

6. Document Information:

Glossary and Acronyms:

Please see the EOSDIS Glossary of Terms <<http://www-v0ims.gsfc.nasa.gov/v0ims/glossary.of.terms.html>> for a general list of terms.

Please see the EOSDIS Acronyms <<http://harp.gsfc.nasa.gov/v0ims/acronyms.html>> list for a general list of acronyms. The following acronyms are used in this document:

FTP – File Transfer Protocol

ALMNet – Alabama MesoNet

LST – Land Surface Temperature

SCAN – Soil Climate Analysis Network

NRCS – Natural Resources Conservation Service

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