



# SMEX02 Soil Climate Analysis Network (SCAN) Station 2031, Ames, Iowa, Version 1

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## USER GUIDE

### How to Cite These Data

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

Jackson, T. 2003. *SMEX02 Soil Climate Analysis Network (SCAN) Station 2031, Ames, Iowa, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. <https://doi.org/10.5067/Z0HKNKTVBXM0>. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT [NSIDC@NSIDC.ORG](mailto:NSIDC@NSIDC.ORG)

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/NSIDC-0142>



National Snow and Ice Data Center

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# 1 DETAILED DATA DESCRIPTION

## 1.1 Format

Data are in ASCII text format. The hourly data contain 32 columns; the daily data contain 8 columns. The following table is a key to the column headings and units of measure for the hourly data. The daily measurements (shown in the Label column) are a small subset of the hourly columns.

Table 1. Hourly Data Column Descriptions

Label	Measurement Type	Description	Units
PCPIN	CURRENT	Global Precipitation Sensor	inches
ATHC6	CURRENT	Air temperature	Celsius
ATHX6 (hourly) ATX6 (daily)	MAXIMUM	Air temperature	Celsius
ATHN6 (hourly) ATN6 (daily)	MINIMUM	Air temperature	Celsius
ATHA6 (hourly) ATA6 (daily)	AVERAGE	Air temperature	Celsius
SRHA	AVERAGE	Solar radiation	W/m <sup>2</sup>
WSPHA (hourly) WSPDA (daily)	AVERAGE	Wind speed	m/h
WDHA (hourly) WDDA (daily)	AVERAGE	Wind direction	degree
WSPHX	MAXIMUM	Wind speed	m/h
RH1C1	CURRENT	Relative humidity	percentage
RH1N1	MINIMUM	Relative humidity	percentage
RH1X1	MAXIMUM	Relative humidity	percentage
BPHGC	CURRENT	Barometric Pressure	inch of Hg
c1rdc	CURRENT	Real dielectric constant 2"	unitless
c1smv	CURRENT	Percent water by volume-2"	percentage
c1tmp	CURRENT	Soil temperature at depth of 2"	Celsius
c2rdc	CURRENT	Real dielectric constant at depth of 4"	unitless
c2smv	CURRENT	Percent water by volume at depth of 4"	percentage
c2tmp	CURRENT	Soil temperature at depth of 4"	Celsius
c3rdc	CURRENT	Real dielectric constant at depth of 8"	unitless
c3smv	CURRENT	Percent water by volume at depth of 8"	percentage

Label	Measurement Type	Description	Units
c3tmp	CURRENT	Soil temperature at depth of 8"	Celsius
c4rdc	CURRENT	Real dielectric constant at depth of 20"	unitless
c4smv	CURRENT	Percent water by volume at depth of 20"	percentage
c4tmp	CURRENT	Soil temperature at depth of 20"	Celsius
c5rdc	CURRENT	Real dielectric constant at depth of 40"	unitless
c5smv	CURRENT	Percent water by volume at depth of 40"	percentage
c5tmp	CURRENT	Soil temperature at depth of 40"	Celsius

## 1.2 File Naming Convention

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Files are named for the SCAN site and the frequency of data collection. The file names are "SCAN2031\_daily.txt" and "SCAN2031\_hourly.txt."

## 1.3 File Size

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The file "SCAN2031\_daily.txt" is 4 KB, "SCAN2031\_hourly.txt" is 380 KB.

## 1.4 Volume

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Combined file size is 385 KB.

## 1.5 Spatial Coverage

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Measurements were taken at the SCAN site number 2031 in Ames, Iowa, USA. Latitude: 42.01° N, Longitude: 93.73° W.

## 1.6 Temporal Coverage

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Measurements were taken between 1 June 2003 and 31 August 2003.

### 1.6.1 Temporal Resolution

Measurements are given daily and hourly

## 1.7 Parameter or Variable

### 1.7.1 Unit of Measurement

The units of measurement for each parameter are given in the Format section.

### 1.7.2 Parameter Source

The following table describes the parameters measured by each sensor:

Table 2. Sensor Description

Sensor	Parameter	Description
Global precipitation sensor	Precipitation	This instrument records daily cumulative inches of precipitation.
Shielded thermistor	Air temperature	Raised 6 feet off of the ground, this device reports the current temperature and the previous hourly maximum, hourly minimum, and hourly average.
Soil sensors	Soil moisture, soil temperature	The soil moisture and soil temperature data were recorded by sensors located at 5 depths, 2", 4", 8", 20", and 40".
Thin film capacitance-type sensor	Relative humidity	This sensor is six feet above the surface. The value is a percentage, reported as current, previous hourly maximum, and previous hourly minimum.
Anemometer	Wind speed and direction	This sensor is 10 feet above the surface. It provides an hourly average from continuously sampled data.
Pyranometer	Solar radiation	This silicon cell sensor is 10 feet above the surface. It provides hourly average readings of total incoming solar energy in terms of Watts per square meter.
Silicon capacitive pressure sensor	Barometric pressure	This sensor measures hourly barometric pressure.

### 1.7.3 Sample Data Record

The following is a sample from the hourly data:

Table 3. Sample Hourly Data

Year	Month	Day	ATX6	ATN6	ATA6	WSPDA	WDDA
2002	6	1	32.43	17.07	25.32	5.16	280.26
2002	6	2	35.12	17.73	26.94	4.66	28.75
2002	6	3	26.18	15.68	20.34	9.99	108.66
2002	6	4	27.72	14.8	21.39	9.17	90.46

## 2 SOFTWARE AND TOOLS

View the data in a Web browser or text editor.

## 3 REFERENCES AND RELATED PUBLICATIONS

Please see [Soil Climate Analysis \(SCAN\)](#).

## 4 CONTACTS AND ACKNOWLEDGMENTS

Thomas J. Jackson, Hydrologist, and Mike Cosh, General Physical Scientist, USDA ARS Hydrology Lab.

### **Acknowledgements:**

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) <http://www.nrcs.usda.gov/>

## 5 DOCUMENT INFORMATION

### 5.1 Publication Date

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09 June 2003

### 5.2 Date Last Updated

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02 March 2021