



SMEX02 Aircraft Polarimetric Scanning Radiometer (PSR) Data, Version 1

USER GUIDE

How to Cite These Data

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

Bindlish, R. and T. Jackson. 2002. *SMEX02 Aircraft Polarimetric Scanning Radiometer (PSR) Data, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. <https://doi.org/10.5067/4N9BFV091ZXH>. [Date Accessed].

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

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/NSIDC-0205>



National Snow and Ice Data Center

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1 DETAILED DATA DESCRIPTION

1.1 Format

Data are provided in ASCII text format.

1.2 File and Directory Structure

The main directories are regional and watershed, for the two different regions studied. Subdirectories under each of these are gridded and ungridded. The gridded directory contains brightness temperatures. Within the gridded directory is the sm directory, which contains the estimated soil moisture based on the PSR observations. The ungridded directory contains the raw brightness temperature observations.

1.3 File Naming Convention

Gridded files have names such as "IA629.txt" and "WC629.txt." The two-letter prefix indicates the area (IA=regional, WC=Walnut Creek watershed), followed by the month and day.

Ungridded files use the same convention as above, with the addition of a letter A-D, which designates the number of times (1-4) the flight line was flown that day.

1.4 Spatial Coverage

Southernmost Latitude: 41.694°N

Northernmost Latitude: 42.732°N

Westernmost Longitude: 93.841°W

Easternmost Longitude: 93.161°W

1.5 Temporal Coverage

This study was conducted 25 June through 12 July 2002.

1.5.1 Temporal Resolution

Flights took place on June 25, 27, 29 and July 1, 4, 8, 9, 10, 11, and 12 of 2002. All six flight lines were flown every day.

1.6 Parameter or Variable

1.6.1 Parameter Description

The first two columns in the data columns are the UTM (northing and easting) and the next four columns are the brightness temperatures: C-band (7.32 GHz) (V and H) and X-Band (10.7 GHz) (V and H) observations, respectively. The files in the sm directory have the UTM location followed by the estimated soil moisture.

1.6.2 Sample Data Record

The following is a sample from the watershed gridded data table "WC627.txt."

435685.00	4648265.00	286.60	278.17	284.91	279.16
435685.00	4648065.00	288.28	279.96	287.29	281.20
435685.00	4647865.00	290.35	281.95	290.68	285.93
435685.00	4647665.00	0.00	0.00	0.00	0.00
435685.00	4647465.00	291.95	283.68	293.42	288.32

2 DATA ACQUISITION AND PROCESSING

2.1 Sensor or Instrument Description

The PSR/CX instrument was integrated onto the NASA WFF P3B aircraft in the aft portion of the bomb bay. The PSR scans at a constant incidence angle of 45°. In SMEX02, PSR was flown over the watershed and regional areas. There were four regional flight lines at an altitude of ~8000 m. Two watershed lines at an altitude of ~1500 m covered the Walnut Creek watershed area. Flights took place on June 25, 27, 29 and July 1, 4, 8, 9, 10, 11, and 12 of 2002. All six flight lines were flown every day.

3 REFERENCES AND RELATED PUBLICATIONS

Please see the [SMEX02](#) site for more information, and the [AMSR-E](#) site to access data.

Rajat Bindlish, Thomas J. Jackson, Albin J. Gasiewski, Marian Klein and Eni G. Njoku. 2003. *Soil Moisture Mapping and AMSR-E Validation using the PSR in SMEX02*. Submitted to Remote Sensing of Environment.

4 CONTACTS AND ACKNOWLEDGMENTS

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5 DOCUMENT INFORMATION

5.1 Publication Date

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5.2 Date Last Updated

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