Surface Meteorological Data from the SSEC Portable Atmospheric Research Center (SPARC) during the Plains Elevated Convection At Night (PECAN) field projedct.

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1. Data set overview

This dataset contains the surface meteorological observations taken by the SPARC during the PECAN field experiment. Temperature, pressure, and humidity data are taken with sensors mounted at 2 m while wind data are taken at 3 m. These sensors are not permanently mounted to the SPARC. Attempts were made to deploy them sufficiently far away from the SPARC as to avoid unrepresentativeness errors.

The data associated with this dataset are a corrected version of the original dataset corrected in the field. Subsequent analysis of the surface data indicated a 1.1 C warm bias in our observations. These data have had that bias removed.

Data collected from IOPs are from the following locations:

IOP1	2 June	39.186	-100.872	Oakley KS
IOP2	3 June	38.5536	-99.5657	McCracken KS
IOP3	4 June	39.2919	-96.8305	Rielly KS
IOP4	5 June	39.1966	-99.1587	Codell KS
IOP5	6 June	38.5803	-100.0687	Ness City KS
IOP6	8 June	37.809	-100.346	Cimarron KS
IOP7	10 June	38.5536	-99.5658	McCracken KS
IOP8	11 June	40.4824	-97.3877	Milligan NE
IOP9	12 June	37.524	-99.760	Kingsdown KS
IOP10	15 June	36.993	-98.653	2 km s Hartner NE
IOP11	17 June	40.533	-100.384	Stockville NE
IOP12	20 June	38.5535	-99.5658	McCracken KS
IOP13	22 June*	38.5535	-99.5658	KcCracken KS
IOP14	24 June	40.0112	-98.0582	Superior NE

IOP15	25 June*	41.0218	-95.2286	Red Oak IA
IOP16	26 June	37.8273	-96.2809	Eureka KS
IOP17	1 July	38.6857	-96.4927	Council Grove KS
IOP18	4 July	38.4883	-100.4664	Dighton KS
IOP19	5 July*	40.6873	-100.400	Moorefield NE
IOP20	6 July	43.1547	-97.7103	Scotland SD
IOP21	9 July	split deployment, participated in IOP22 instead		
IOP22	9 July	40.1329	-99.8334	Beaver City NE
IOP23	10 July	split deployment, participated in IOP24 instead		
IOP24	10 July	39.1105	-97.7154	Minneapolis KS
IOP25	11 July	39.3756	-99.7850	Hill City, KS
IOP26	12 July	did not participate due to repositioning		
IOP27	13 July	42.6401	-92.0384	Fairbank, IA
IOP28	14 July	did not participate due to repositioning		
IOP29	14 July	did not participate due to repositioning		
IOP30	15 July	38.4745	-100.8961	Scott City KS
IOP31	16 July	38.3623	-98.3308	Chase KS

* Dates with an asterisk had missions that actually started before 0000 UTC on the date listed. Therefore they officially began on the day before the listed date.

Additional information about SPARC can be found at the system's web site: www.ssec.wisc.edu/sparc

2. Instrument description

Temperature and humidity are provided by a R. M. Young model 41382VC sensor and model 43502 aspirated shield. The temperature / humidity sensors are mounted on a moveable tripod at 2 meters above ground. Wind data are obtained from a R. M. Young model 05103 prop-vane style wind monitor mounted atop a 10 ft (3 m) tower. The pressure sensor is a Vaisala model PTA 427.

3. Data collection and processing

The data are ingested by a Campbell CR1000 datalogger with a 5 second temporal resolution. The datalogger program also calculates a gust value, which is the highest wind speed of the most recent 24 data points (2 minutes).

4. Data format

The data are stored in a comma-separated value plaintext file. The file naming convention is: sparc_surfacemet_YYYYMMDD_metdata.csv. The first 4 lines of the files are column labels, which are reproduced here:

time	"YYYY-MM-DD HH:MM:SS"
record number	
datalogger OS	
datalogger program	
program version	
pressure	mb
temperature	C
relative humidity	%
wind speed	m s^{-1}
wind direction	degrees
wind gust	m s^{-1}

5. Data remarks

As noted above, this is an updated version of the original dataset with a 1.1 C bias removed from the surface data.