

Plains Elevated Convection at Night (PECAN) Texas Tech University Radiosonde Data Set

1.0 Contacts:

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2.0 Dataset Overview

Texas Tech University (TTU) operated a radiosonde system that released soundings when there were thunderstorms in the vicinity of Lubbock, Texas. During PECAN, they released soundings on 29 June and 4, 6, 7, and 10 July. This data set includes the high resolution TTU soundings released to the northwest of Lubbock (Figure 1). A total of 6 high vertical resolution (2-second) soundings are contained in the final PECAN data set.

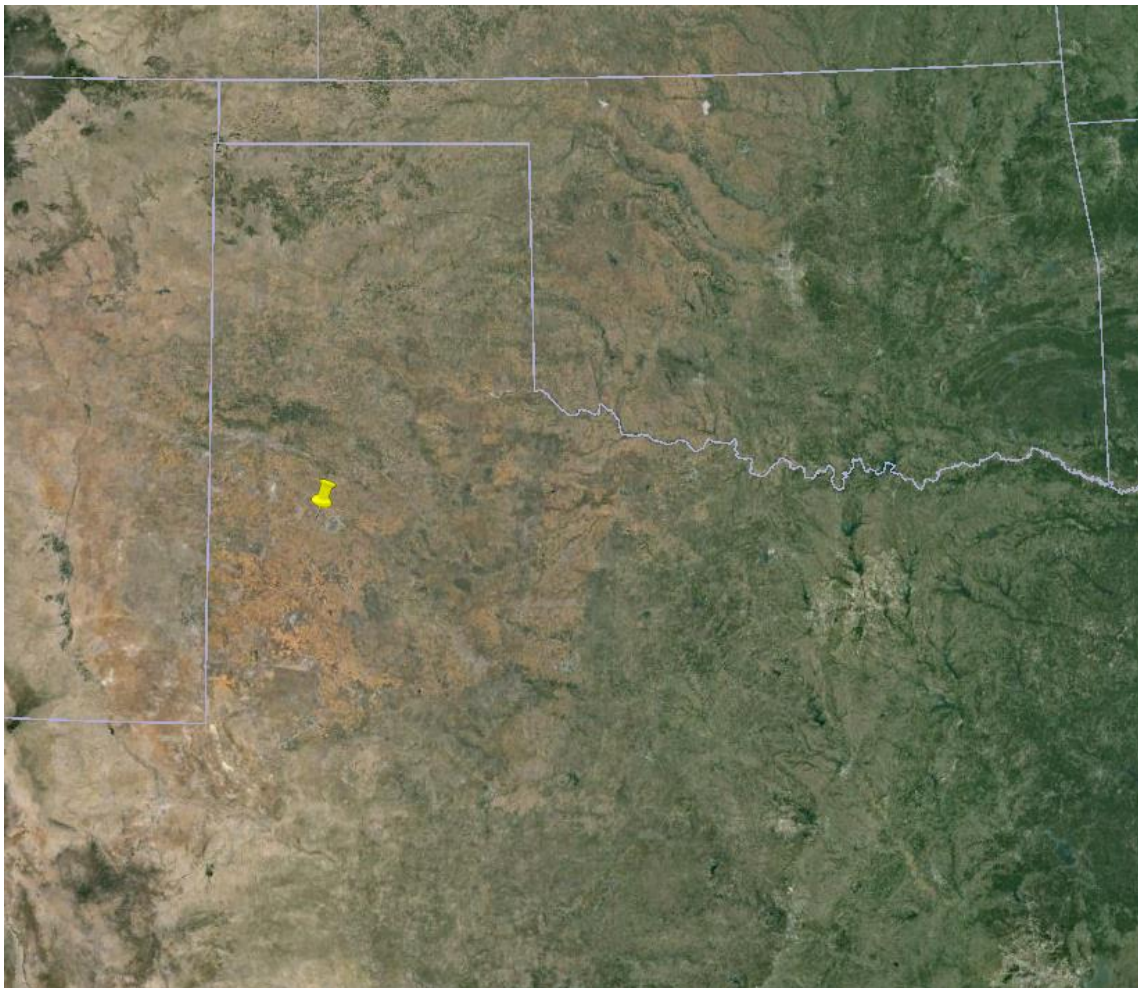


Figure 1. TTU radiosonde release location during PECAN.

3.0 Project Overview

Plains Elevated Convection At Night (PECAN) was a multi-agency project designed to advance the understanding of continental, nocturnal, warm season precipitation. It focused on nocturnal convection in conditions over the central United States plains states with a stable boundary layer (SBL), a nocturnal low-level jet and the largest convective available potential energy located above the SBL. Three aircraft (University of Wyoming King Air, NOAA P-3, and NASA DC-8) as well as a large array of fixed and mobile ground instrumentation were deployed out of Kansas from 1 June to 15 July 2015. Further information on PECAN is available at the PECAN web site: https://www.eol.ucar.edu/field_projects/pecan and information on PECAN operations is available at the PECAN Field Catalog: <http://catalog.eol.ucar.edu/pecan>.

4.0 Vaisala tsv File Format Description

These data are in the Vaisala tsv (tab-separated values) ASCII format.

4.1 Header Records

The header records in the Vaisala tsv file format are as shown in Figure 2.

```
Information about map: EDT
=====
Map name (internal)      : EDT000
Sounding set (internal) : 0
RS-Number                : J1833789
Data record length      : 40 bytes
Number of data records   : 1876
Max filemap size        : 1876 bytes
Data header size        : 12504 bytes
Free space in map       : -85668 bytes (107372040 records)
Status flag (not used)  : 1

Record name:   Unit:           Data type:           Divisor:  Offset:
-----
time          sec             float (4)            1          0
Pscl          ln                short (2)            1          0
T             K                  short (2)            10         0
RH            %                  short (2)            1          0
v             m/s                short (2)            -100       0
u             m/s                short (2)            -100       0
Height        m                  short (2)            1          30000
P             hPa                short (2)            10         0
TD            K                  short (2)            10         0
MR            g/kg                short (2)            100        0
DD            dgr                short (2)            1          0
FF            m/s                short (2)            10         0
AZ            dgr                short (2)            1          0
Range         m                  short (2)            0.01       0
Lon           dgr                short (2)            100        0
Lat           dgr                short (2)            100        0
SpuKey        bitfield           unsigned short (2)  1          0
UsrKey        bitfield           unsigned short (2)  1          0
RadarH        m                  short (2)            1          30000
*****
```

Figure 2. Sample Vaisala tsv file header records.

The second section of the header records specifies the column headings and units. The file standard header lines are as follows:

4.2 Data Records

A sample section of the data records is shown in Figure 3 (with line wrapping).

Figure 3. Sample data records from Vaisala tsv data files.

4.3 Data Specifics

The files contain data at two-second intervals.

The TTU used Vaisala RS92-SGP radiosondes during PECAN.

The files follow the naming convention: YYMMDD_HHmm.tsv
 Where YYMMDD is the UTC date (year, month, and day of month) and HHmm is the UTC time of release (hour and minute). The tsv extension specifies that this is in the Vaisala tab separated ASCII format.

4.4 Station List

Site ID	WMO ID	Site Name	State	Latitude	Longitude	Elev (m)
TTU	N/A	TTU	TX	33.61	-102.05	1018

5.0 Data Quality Control Procedures

These data are provided in the original form as provided by TTU. NCAR/EOL has conducted no additional processing or quality control to these data.

6.0 References