

## Readme File for CPEX Dropsonde Data

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The dropsonde system used during CPEX was the High Definition Sounding System (HDSS) and eXpendable Digital Dropsonde (XDD) developed through ONR by Yankee Environmental Systems and which was previously used during the 2015 Tropical Cyclone Intensity (TCI) experiments and the 2014-2015 Polar Winds campaigns. The HDSS system provided wind measurements at a 4-Hz rate from the top of the aircraft to the surface (in most cases). Over 300 dropsondes were attempted from the DC-8 during CPEX with between 10 and 31 launches during each individual mission when the DAWN was operating.

The dropsonde data files for CPEX provided in this archive were not further QC'd or altered from the original data sets except for post-mission correction of infrequent GPS (latitude/longitude) errors.

The naming convention for the file names are as follows:

File name        Dropsonde\_20170619-173527-6-A-4291.txt

                  where 2017019 is YYYYMMDD

                          173527 is HHMMSS (GMT)

                          6-A-4291 is a dropsonde identifier

The first 30 records of each file contain header information with the most pertinent records being the following:

Line 19                    NRecords (Number of data records starting at Line 31)

Line 29                    Variable names

Line 30                    Variable units

Lines 31 – xxxx            Data (number of records varies with each dropsonde)

It is recommended to not start using the Dropsonde Data until Fall Speed (9 below) levels are consistently > 15 m/s. This varies by dropsonde depending on how long it was waiting in the launch shoot before being launched. The most accurate height to use is the Hydrostatic Altitude (28 below).

## CPEX DROPSONDE DATA COLUMNS

1	Date (YYYY/MM/DD)
2	Time (HH:MM:SS)
3	Pressure (mb)
4	Temp (deg C)
5	RH (%)
6	V (m/s)
7	U (m/s)
8	Fall Speed (m/s)
9	GPS Altitude (m)
10	Surface Temp (deg C)
11	Longitude Difference (deg)
12	Latitude Difference (deg)
13	Internal Temp (deg C)
14	RH Sensor Temp (deg C)
15	IR Sensor Temp (deg C)
16	Battery (Volts)
17	GPS Lock (seconds)
18	Sonde ID (number)
19	Be
20	Accel Temp (deg C)
21	Accel RH (%)
22	Dew Point (deg C)
23	Theta (deg K)
24	ThetaE (deg K)
25	Wind Speed (m/s)
26	Wind Direction (deg)
27	F_Altitude (m)
28	Hydrostaic Altitude (m)
29	Latitude (deg)
30	Longitude (deg)

