

# 2014-2015 P MEC-SETS TRIAXYS Data README File

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This document is included with every dataset from the 2014-2015 TRIAXYS deployment at P MEC-SETS test site.

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# 1 Quality Control Warning

The only quality control that has been performed on this data is removing datasets from times that the TRIAXYS was either not installed or known to be adrift. The following table details how the data was filtered.

Date	TRIAXYS Directional Wave Buoy	Result
11/8/2014	TRIAXYS deployed at SETS at the surface in 68 meters of water.	Good data begins at 1500 UTC on 11/8.
12/11/2014	Off station alert reported during storm. TRIAXYS then stopped moving and remained within the designated study area collecting data.  <b>DATA POSSIBLY COMPROMISED BY BROKEN BUNGEE SECTION OF MOORING.</b>	This data has not been altered or removed as it may still be OK.
1/23/2015	21:30 off station alert reported. Subsequent alerts showed that the TRIAXYS was adrift.	Data files from 0300 UTC on 1/24 to the end of January have been removed.
1/24/2015	06:30 Newport fishermen alerted and assistance requested. TRIAXYS successfully recovered by 10:00.	No data from 2015-01-24 to 2015-05-15
5/16/2015	Serviced TRIAXYS redeployed during pre-scheduled service trip.	Good data begins at 1700 UTC on 5/15.
12/29/2015	TRIAXYS torn off mooring by tug/tow vessel at approximately 13:02. First off station alert received at 13:20. Second alert at 14:20 confirmed TRIAXYS adrift. Newport fishermen alerted. Buoy recovered by 16:50.	Data files from 2000 UTC on 12/29 to the end of December 2015 have been removed.

## 2 Data File Descriptions

### 2.1 DIRSPEC

- These files are named yyyyymmddHHMM.DIRSPEC
- Each file has the 2D directional spectra of each hourly recording
  - 0-360°, 3° spacing
  - 0-0.64 Hz, 0.005 Hz spacing
  - Note the Resolveable Frequency Range parameter at the top of the file. This is not always the same.

### 2.2 FOURIER

- These files are named yyyyymmddHHMM.FOURIER
- Each file has Fourier coefficients a1, b1, a2, and b2 for the given frequency range for each recording.
- Note the Resolveable Frequency Range parameter at the top of the file. This is not always the same.

### 2.3 HNE

- These files are named yyyyymmddHHMM.HNE
- Each file has the Heave (vertical), North, and East displacement info in meters for each hourly recording
- The first column indicates the number of seconds past the top of the hour.
- Typically 1382 samples, sampling every 0.78 seconds

### 2.4 MEANDIR

- These files are named yyyyymmddHHMM.MEANDIR
- Each file has the spectral density, mean wave direction, and directional spread for a range of frequencies for each hourly recording
- Note the Resolveable Frequency Range parameter at the top of the file. This is not always the same.

### 2.5 NONDIRSPEC

- These files are named yyyyymmddHHMM.NONDIRSPEC
- Each file has the spectral density for a range of frequencies for each hourly recording

## 2.6 RAW

- These files are named yyyyymmddHHMM.RAW
- Each file has the raw sensor data from the TRIAXYS for each sample in each hourly recording
- Includes sample number, compass value (heading); x, y, and z acceleration; and perhaps the pitch, yaw, and roll rates? (Rx, Ry, Rz, all in °/s)
- The meaning of the last row in the file is unknown.

## 2.7 STATUS

- Various diagnostic info in a tab-delimited format with one row per hour
- First column is the time the post-processing took place, not the message timestamp
- Timestamp format is yymmddHHMM
- Location format is [D]DDMM.MMMM[N/S][D]DDMM.MMMM[E/W]
- The Location value is sometimes missing.

## 2.8 UVH

- These files are named yyyyymmddHHMM.UVH
- Similar to HNE, except instead of North and East displacement, the third and fourth columns are North and West velocity.
- Number of samples is higher (7761) and sample interval (0.14 s) is smaller than the HNE files.

## 2.9 WAVE

- Include various cumulative wave info like significant wave height, peak period, and mean wave direction in tab-delimited format, one row for each hourly recording.
- First column is the time the post-processing took place, not the message timestamp
- Year, MonthDay (mmdd) and Time (HHMMSS) are separate columns
- Location format is [D]DDMM.MMMM[N/S][D]DDMM.MMMM[E/W]
- Mean True Direction, Te, and Wave Steepness seem to always stay at 0 (no data?)

## 3 Scripts

Included in each zip file is a sample MATLAB script for parsing that type of data.