



NEES at UCSB Data Portal data-formats

Overview

This paper describes the format of the data files available from the [NEES@UCSB](http://nees.ucsb.edu) data-portal.

The formats available are:

- Miniseed
- SAC
- ASCII
- RDV
- Matlab comma-seperated ascii
- COSMOS

As appropriate timestamps can be selected to be absolute or relative, and the data can be selected to be in raw data-acquisition 'counts' or in physical units.

Miniseed

This format delivers non-multiplexed miniseed (MiniSEED data is a stripped down version of SEED (http://www.iris.edu/manuals/SEED_chpt1.htm) data which only contains waveform data.

Miniseed data is always in integer counts with absolute timestamping.

SAC

This format delivers data in files suitable for use in the SAC (Seismic Analysis Code) tool. SAC (<http://www.iris.edu/software/sac>) is a general purpose interactive program designed for the study of sequential signals, especially time series data. Emphasis has been placed on analysis tools used by research seismologists in the detailed study of seismic events. Analysis capabilities include general arithmetic operations, Fourier transforms, three spectral estimation techniques, IIR and FIR filtering, signal stacking, decimation, interpolation, correlation, and seismic phase picking. SAC also contains an extensive graphics capability.

SAC data is always absolute time and usually the data is in physical units but counts can be selected.

ASCII

This is the most straightforward human readable, one file per channel, fixed format text file-format. The data can be selected as either raw counts of calibration applied physical units. Time can be absolute or relative.

Example:

RDV

RDV is a visualization environment for scientific and engineering data created and maintained by NEES.

The RDV file format input file should begin with a metadata header that describes the active channels and their units. Each line following the metadata header represents a single point in time (always in UTC) and contains the value of each channel at that point in time. Times should be reported in ISO8601 format: YYYY-MM-DDTHH:MM:SS.NNNZ. Values are separated by tab characters (\t) and missing values are indicated with a sequence of two tabs in a row with no intervening spaces. Note the use of scientific notation for the values. Below is a short sample file. To use the file for test

purposes, replace all \t's with actual tab characters before importing it into RDV.

Alternatively, the time column can be given as the number of seconds elapsed since the start time. In this case the start time must be indicated in the header, as shown below.

Active Channels: SB_HEO_HNE_00

Channel units: cm/s/s

Time SB_HEO_HNE_00

2007-07-02T19:58:43.929Z -76.3830048745

2007-07-02T19:58:43.934Z -76.3889744731

2007-07-02T19:58:43.939Z -76.3919592725

Matlab-CSV

This is a fixed format ascii text file that contains all the selected channels for a given event in a comma-separated format for each sample along with a descriptive header section that given event and channel meta-data.

EVID: 51183708

Mag: 4.2

Lat: 36.8795 Lon: -121.622

Depth: 8.46km

SampleInterval: 0.005s

Starttime: 2007-07-02 19:58:43.929

Num of Samples: 44400

SB_HEO_HNZ_00,SB_HEO_HNN_00,SB_HEO_HNE_00,SB_HEO_HNZ_05

cm/s/s,cm/s/s,cm/s/s,cm/s/s

911.085354461,-88.4725675337,-76.3830048745,28.4953092242

911.071035443,-88.46057735,-76.3889744731,28.542127227

911.076149378,-88.462575714,-76.3919592725,28.4999910245

COSMOS

http://www.strongmotioncenter.org/NCESMD/reports/cosmos_format_1_20.pdf