

ESM 0.1

USER INFO

INTRODUCTION

Using the ESM portal search tools the parameters of interest can be set and specific events, stations, waveforms and their metadata can be retrieved.

Processed time-series and response spectra and unprocessed time-series are available from the download pages. Hereafter, "unprocessed" indicates the raw waveform converted to cm/s^2 ; physical units of "processed" data are reported into each file header, it can be: cm/s^2 , cm/s or cm . Processing is performed following the Paolucci et al. (2011) scheme (ISBN: 978-94-007-0151-9).

The waveform files contain a 64 rows header and a data vector. Response spectra files contain a 64 rows header and pairs of period - response spectra ordinates at 105 periods (from 0.01s to 10s).

File names

Following the standard of the SEED Reference Manual (SEED Format Version 2.4, www.fdsn.org), the file names have the following structure:

net_code.station_code.location_code.channel_code.D.date.time.processing_type.waveform_type.format

where:

'*net_code*' is the FDSN network code (<http://www.fdsn.org/networks/>)

'*station_code*' is the station code (3 to 5 characters)

'*location_code*' is the channel location code (e.g. free field, different depths or heights).

'*channel_code*' indicates the waveform type and the component and has 3 digits:

- 1) 1 digit for the band code (in our case H = High Broad Band)
- 2) 1 digit to indicate the instrument code: N, L, G = accelerometer (the codes are the ones used by different networks)
- 3) 1 digit to indicate the orientation code: e.g. Z N E (traditional Vertical, North-South, East-West), Z 2 3 (orthogonal components but non-traditional orientations), etc.

'*date*' is the event date as YYYYMMDD

'time' is the event origin time as hhmmss

'processing_type' is either X (unprocessed) or C (processed)

'waveform_type' is either ACC (acceleration) VEL (velocity) DIS (displacement) SA (acceleration spectrum) PSV (pseudo-velocity spectrum) SD (displacement spectrum)

'format' is the file format (.ASC for ASCII format)

Example: the acceleration time series recorded by the Italian Civil Protection Department seismic network (IT) at San Giuliano di Puglia (SGIUB), N-S component, occurred on 2002-11-12 at 09:27:48 GMT (event origin time), unprocessed, ASCII format, will have the following name:

IT.SGIUB..HNN.D.20021112.092748.X.ACC.ASC

ASCII HEADER

The ASCII records (acceleration, velocity, displacement or response spectra) have a header of 64 rows, containing information in order to make the record self-consistent.

1	EVENT_NAME	Name of the seismic event
2	EVENT_ID	Event ID in the database
3	EVENT_DATE_YYYYMMDD	GMT event date (YYYYMMDD)
4	EVENT_TIME_HHMMSS	GMT event origin time (hhmmss)
5	EVENT_LATITUDE_DEGREE	Event Latitude (decimal degrees)
6	EVENT_LONGITUDE_DEGREE	Event Longitude (decimal degrees)
7	EVENT_DEPTH_KM	Event depth (km)
8	HYPOCENTER_REFERENCE	Hypocentre reference
9	MAGNITUDE_W	Moment magnitude (Mw)
10	MAGNITUDE_W_REFERENCE	Moment magnitude reference
11	MAGNITUDE_L	Local magnitude (MI)
12	MAGNITUDE_L_REFERENCE	Local magnitude reference
13	FOCAL_MECHANISM	Focal mechanism (NF, SS, TF, U, etc.)
14	NETWORK	Network code
15	STATION_CODE	Station code
16	STATION_NAME	Station name
17	STATION_LATITUDE_DEGREE	Station Latitude (decimal degrees)
18	STATION_LONGITUDE_DEGREE	Station Longitude (decimal degrees)
19	STATION_ELEVATION_M	Station elevation (m.a.s.l.)
20	LOCATION	Code indicating the location
21	SENSOR_DEPTH_M	Sensor depth below ground level (m)
22	VS30_M/S	$V_{s,30}$ (m/s)
23	SITE_CLASSIFICATION_EC8	Geotechnical classification (EC8): A, A*, B, B*, etc.; where the * indicates that site classification is not based on a direct $V_{s,30}$ measurement

24	MORPHOLOGIC_CLASSIFICATION	Morphologic classification
25	EPICENTRAL_DISTANCE_KM	Epicentral distance (km)
26	EARTHQUAKE_BACKAZIMUTH_DEGREE	Earthquake backazimuth (degrees)
27	DATE_TIME_FIRST_SAMPLE_YYYYMMDD_HHM MSS	Time (GMT) of the first sample (YYYYMMDD_hhmmss.dec)
28	DATE_TIME_FIRST_SAMPLE_PRECISION	seconds / milliseconds
29	SAMPLING_INTERVAL_S	Sampling interval (s)
30	NDATA	Number of observations
31	DURATION_S	Duration (s)
32	STREAM	Channel code (3 digits, e.g. HNE)
33	UNITS	Units (cm/s ² , cm/s or cm)
34	INSTRUMENT	Instrument (sensor and digitizer)
35	INSTRUMENT_ANALOG/DIGITAL	Flag to indicate whether the instrument is digital or analog
36	INSTRUMENTAL_FREQUENCY_HZ	Instrument Frequency (Hz)
37	INSTRUMENTAL_DAMPING	Instrument Damping
38	FULL_SCALE_G	Fullscale (g)
39	N_BIT_DIGITAL_CONVERTER	Number of bits of the Analog to Digital Converter
40	PGX_UNITS	PGA, PGV or PGD (cm/s ² , cm/s or cm)
41	TIME_PGX_S	Time corresponding to the PGA, PGV, PGD
42	BASELINE_CORRECTION	Flag indicating the baseline correction
43	FILTER_TYPE	Filter type (Butterworth, etc.)
44	FILTER_ORDER	Filter order
45	LOW_CUT_FREQUENCY_HZ	LP1 (low-cut frequency)
46	HIGH_CUT_FREQUENCY_HZ	LP2 (roll-on frequency)
47	LATE/NORMAL_TRIGGERED	LT/NT
48	DATABASE_VERSION	Database version
49	HEADER_FORMAT	Header format version
50	DATA_TYPE	Data type ("ACCELERATION", "ACCELERATION RESPONSE SPECTRUM", "VELOCITY", "PSEUDO-VELOCITY RESPONSE SPECTRUM", "DISPLACEMENT" or "DISPLACEMENT RESPONSE SPECTRUM")
51	PROCESSING	Processing reference. "converted to cm/s ² " indicates unprocessed acceleration.
52	DATA_TIMESTAMP_YYYYMMDD_HHMMSS	Date of file creation (metadata in the header may change over time)
53	DATA_LICENSE:	License for data use
54	DATA_CITATION:	Citation for data use
55	DATA_CREATOR:	ESM working-group
56	ORIGINAL_DATA_MEDIATOR_CITATION:	Mediator citation
57	ORIGINAL_DATA_MEDIATOR:	Entity that mediates access to the waveform
58	ORIGINAL_DATA_CREATOR_CITATION:	Network citation
59	ORIGINAL_DATA_CREATOR:	Network and owner names
60	USER1	User defined fields
...	...	
64	USER5	