

# Format of the output parameter files (evt-Files)

The evt-file contains all available phase picks and analysis parameters of the SHM program. It is a plain text file and is pretty good self-explaining. It has one information per line with the general format

```
<descriptive text>: <value>
```

## Used available parameters

### Station code

name of the station where a phase pick was made. Taken from trace when phase pick is done. Possible values: text string of maximum length 10.

### Onset time

time of phase pick. Taken from trace where phase pick is done. Possible values: absolute time in SH time format

### Onset type

type of phase onset. Taken from phase dialog box. Possible values: keywords 'emergent', 'impulsive'.

### Phase name

name of picked phase. Taken from phase dialog box. Possible values: text string of maximum length 20.

### Sign

sign of first onset of specified phase. Taken from phase dialog box. Possible values: keywords 'positive', 'negative'.

### Component

component where phase was picked. Taken from trace where phase pick is done. Possible values: single character.

### Period (sec)

dominant period of phase in s. Measured via amplitude/period menu entries (e.g. Ampl & Period auto Peak). Possible values: floating point number.

### Amplitude (nm)

estimated displacement amplitude of measured signal in nm. The determined signal amplitude is divided by the amplitude transfer function of the recording equipment at the signal period. Measured via amplitude/period menu entries. Possible values: floating point number.

### Amplitude Time (sec)

time (s) relative to phase pick where amplitude was measured. Determined via amplitude/period menu entries. Possible values: floating point number.

### Vel. Amplitude (nm/sec)

estimated velocity amplitude of measured signal in nm/s. The determined signal amplitude is divided by the amplitude transfer function of the recording equipment at the signal period. Measured via amplitude/period menu entries. Possible values: floating point number.

BB amplitude (nm/sec)  
broadband amplitude in nm/s measured on unfiltered broadband records. Measured via amplitude/period menu entries. Possible values: floating point number.

BB period (sec)  
signal period in s. Measured via amplitude/period menu entries on unfiltered broadband records. Possible values: floating point number.

Beam-Slowness (sec/deg)  
slowness of phase in s/deg (modulus of horizontal slowness vector) measured using array algorithms (Plane Wave, FK). Possible values: floating point number.

Beam-Azimuth (deg)  
azimuth of phase in deg (complementary to Beam-Slowness) measured using array algorithms. Possible values: floating point number.

Epi-Slowness (sec/deg)  
corrected slowness in s/deg (modulus of horizontal slowness vector) of phase computed via Calibration menu entry. Used on P phases for location purposes. Possible values: floating point number.

Epi-Azimuth (deg)  
corrected azimuth of phase in deg (complementary to Epi-Slowness). Possible values: floating point number.

Distance (deg)  
epicentral distance in deg. Computed in location programs. Possible values: floating point number.

Distance (km)  
epicentral distance in km. Computed in location programs. Possible values: floating point number.

Quality number  
phase quality number between 1 (=bad) and 9 (=good). Taken from phase dialog box. Possible values: integer numbers 1 to 9.

Magnitude ms  
magnitude ms computed via magnitude menu entries. Possible values: floating point number.

Magnitude mb  
magnitude mb computed via magnitude menu entries. Possible values: floating point number.

Magnitude ml  
magnitude ml computed via magnitude menu entries. Possible values: floating point number.

Magnitude mw  
magnitude mw. Possible values floating point number.

Broadband Magnitude  
broadband magnitude computed via magnitude menu entries. Possible value: floating point number.

User Magnitude

Used available parameters

user defined magnitude value. Not used by SHM. Possible values: floating point number.

User Magn. Description

Description text to above user magnitude. Possible values: text string of maximum length 40.

Source Region

name of epicentral region. Usually computed in location programs. Possible values: text string of maximum length 80.

Comment

arbitrary text to comment an event. Possible values: text string of arbitrary length.

Latitude

epicentre latitude in deg. Computed in location programs. Possible values: floating point number.

Longitude

epicentre longitude in deg. Computed in location programs. Possible values: floating point number.

Location method

which algorithm used to get location. Set by location program. Possible values: keywords 'array beam (calibrated)', 'array beam (uncorrected)', 'array beam (resid. corr.)', 'hypoellipse', 'locsats', 'hypocenter', 'hypo71', 'hyposat', 'relative travel times', 'external'.

Location quality

describes quality of location. Taken from parameter box. Possible values: keywords 'too weak', 'incoherent', 'no bearing', 'region', 'reliable'.

Velocity model

velocity model used for location of epicentre. Possible values: text string of maximum length 40.

Location Input Params

additional input parameters for external location programs. Possible values: text string of maximum length 80.

Applied filter

filter applied to trace when phase pick was done. Possible values: text string of maximum length 80.

Depth (km)

source depth in km. Computed in location programs or set by user. Possible values: floating point number.

Depth type

type of depth given. Possible values: keywords '(n) preset', '(g) estimated', '( ) free', '(?) poorly constrained', '(\*) less well constrained', '(d) reliable'.

Origin time

origin time of event. Computed by location programs. Possible values: absolute in SH time format.

Event ID

unique event ID assigned automatically by SHM in menu entry Final Parameters. Possible values: integer number.

Used available parameters

#### Weight

phase weight derived from phase quality number. Meanwhile obsolete. Possible values: integer numbers 1 to 4.

#### Reference Latitude

latitude in deg of reference point (used in array location method). Possible values: floating point number.

#### Reference Longitude

longitude in deg of reference point (used in array location method). Possible values: floating point number.

#### Reference Location Name

name of reference location (reference station name). Possible values: text string of maximum length 10.

#### Analyst

initials of analyst. Prompted at startup of SHM if requested. Possible values: text string of maximum length 10.

#### No. of Stations used

number of stations used in location. Set in location programs. Possible values: integer number.

#### Region Table

name of region table used. Possible values: keywords 'Flinn-Engdahl', 'GEO\_REG', 'SEIS\_REG'.

#### Region ID

ID number of source region. Computed in location programs. Possible values: integer number.

#### Event Type

type of event analysed. Taken from phase dialog box. Possible values: keywords 'teleseismic quake', 'nuclear explosion', 'regional quake', 'local quake', 'quarry blast', 'mining event'.

#### Source of Information

agency reporting the event, taken from menu entry Info Source. Possible values: text string of maximum length 10.

#### Ampl&Period Source

where the amplitude measurement was done. Possible values: keywords 'direct', 'beam trace', 'align trace'.

#### Onset Window Left

time resolution of onset pick. SHM allows the specification of onset time errors. This specifies the left inaccuracy time window in s relative to pick. Possible values: floating point number.

#### Onset Window Right

time resolution of onset pick. SHM allows the specification of onset time errors. This specifies the right inaccuracy time window in s relative to pick. Possible values: floating point number.

#### Error in Latitude (km)

Used available parameters

location error in km in latitude direction. Computed by the location program. Possible values floating point number.

Error in Longitude (km)

location error in km in longitude direction. Computed by the location program. Possible values floating point number.

Error in Depth (km)

depth error in km. Computed by the location program. Possible values: floating point number.

Error in Origin Time

origin time error ins. Computed by location program. Possible values: floating point number.

Error Ellipse Major

error ellipsis major axis in km. Computed by the location program. Possible values: floating point number.

Error Ellipse Minor

error ellipsis minor axis in km. Computed by the location program. Possible values: floating point number.

Error Ellipse Strike

strike angle of error ellipsis in deg. Computed by location program. Possible values: floating point number.

Max Azimuthal Gap (deg)

maximum azimuthal gap in observing stations. Possible values: floating point number.

RMS of Residuals (sec)

root mean square of time residuals quantifying the location fit. Possible values: floating point number.

Phase Flags

flags set on phase. Possible values: text string of maximum length 6.

Signal/Noise?

signal to noise ratio, determined with S/N menu entries. Possible values: floating point number.

Residual Time

residual time of phase in s. Computed by location programs. Possible values: floating point number.

Residual Correction

empirical corrections to residual times (experimental). Possible values: floating point number.

Pick Type

type of phase pick. Possible values: keywords 'manual', 'automatic', 'theoretical'.

## Unused parameters

LP component::

not used. Possible values: single character.

LP period (sec)::

not used. Possible values: floating point number.

LP amplitude::

not used. Possible values: floating point number.

Onset Accuracy

not used. Possible values: keywords 'seconds', 'milliseconds'.

Corner Frequency

not used. Possible values: floating point number.

Low Frequency Level

not used. Possible values: floating point number.

Moment Tensor Elements

not used. Possible values: text string of maximum length 80.

Moment Tensor Descr.

not used. Possible values: text string of maximum length 80.

Scalar Moment

not used. Possible values: floating point number.

Fault Plane Solution

not used. Possible values: text string of maximum length 80.

FPS Description

not used. Possible values: text string of maximum length 80.

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