CONTENTS

CATALOG V2.0 – GENERAL DESCRIPTION

The catalogue is a variable in the Matlab format file and it is kept in a file MAT. The structure is array with named fields that can contain data of various types and sizes. In the file there is only one variable, the file name and variable name are optional.

The variable describing the catalogue is a vector of structures, consisting of fields:

- **field** – name of field in the catalogue (text value);
- **type** – type of field in the catalogue and way of showing the field (numeric value); the numbers description is shown below
- **val** – column array of values. For the text the column is an array type cell with text fields. For the remaining value the column is a numeric column.
- **unit** – description of unit for individual data (text value).
- **description** – short description of the parameter (text value).
- **fieldType** – semantic meaning of the field. When some field values are similar/related then fieldType name is entered and for another case [] is entered.

The fundamental is a full catalogue i.e. the variable contains the definitions of all specified fields. When some field values are missing then for the numeric data NaN (not specified) is entered and for the text null [] is entered. In the fields "ID", "Time" and at least one of the fields "Mw" or "ML" values in all rows must be present.

Table The general parameters in catalogue MAT format

field	type	val	unit	description	fieldType	Comments	Data format
ID	3	data vector	[char]	Event ID	[]	**required field**	text
Time	5	data vector	[datenum]	Event origin time	[]	**required field**, Matlab serial numerical time	double
Lat	14,15,24,25	data vector	[deg]	Latitude	[]	[°] – North positive	double
Long	14,15,24,25, 34,35	data vector	[deg]	Longitude	[]	[°] – East positive	double
Depth	11-13	data vector	[km]	Hypocenter depth measured from the ground level	[]		double
Elevation	13	data vector	[km]	Hypocenter elevation measured over the see level	[]		double
X	10	data vector	[m],[km]	X coordinate	[]	Original coordinates if other than geographical. Description of coordinates in the metadata	double
Y	10	data vector	[m] ,[km]	Y coordinate	[]		double
Z	10	data vector	[m] ,[km]	Z coordinate	[]		double
EPI_err	10	data vector	[m]	Epicentral error	[]		double
Depth_err	10	data vector	[m]	Depth error	[]		double
Nl	2	data vector	[dimensionless]	No of stations used in the localisation	[]		double
M0	222	data vector	[Nm]	Scalar moment	[]		double
Mw	4	data vector	[dimensionless]	Moment magnitude	'Magnitude'	**Mw or ML must be for all event**	double 0.1[1]
ML	4	data vector	[dimensionless]	Local magnitude	'Magnitude'	**Mw or ML must be for all event**	double 0.1

[1] The values rounded to 0.1.

field	type	val	unit	description	fieldType	Comments	Data format
Ns_decomp	2	data vector	[dimensionless]	No of stations used in MT inversion	[]		double
DecompMethod	3	data vector	[char]	Method used to decompose moment tensor	[]		text
MTrr	222	data vector	[Nm]	Full solution: Moment tensor rr component (r – up)	[]		double
MTss	222	data vector	[Nm]	Full solution: Moment tensor ss component (s – South)	[]		double
MTee	222	data vector	[Nm]	Full solution: Moment tensor ee component (e – East)	[]		double
MTrs	222	data vector	[Nm]	Full solution: Moment tensor rs component	[]		double
MTre	222	data vector	[Nm]	Full solution: Moment tensor re component	[]		double
MTse	222	data vector	[Nm]	Full solution: Moment tensor se component	[]		double
MT_err	222	data vector	[Nm]	Full solution: Moment tensor error	[]		double
ISO	120	data vector	[%]	Isotropic MT component	[]	[%] - positive or negative	double
CLVD	120	data vector	[%]	CLVD component	[]	[%] - positive or negative	double
DC	20	data vector	[%]	Double-Couple component	[]	[%] - only positive	double
StrikeA	30	data vector	[deg]	Strike of nodal plane A	[]	The values range from 0 to 360	double
DipA	20	data vector	[deg]	Dip of nodal plane A	[]	The values range from 0 to 90	double
RakeA	130	data vector	[deg]	Rake of nodal plane A	[]	The values range from -180 to 180	double
SlopeA	20	data vector	[deg]	Inclination for nodal plane A	[]	The values range from 0 to 90	double
StrikeB	30	data vector	[deg]	Strike of nodal plane B	[]	The values range from 0 to 360	double

field	type	val	unit	description	fieldType	Comments	Data format
DipB	20	data vector	[deg]	Dip of nodal plane B	[]	The values range from 0 to 90	double
RakeB	130	data vector	[deg]	Rake of nodal plane B	[]	The values range from -180 to 180	double
SlopeB	20	data vector	[deg]	Inclination for nodal plane B	[]	The values range from 0 to 90	double
Strike_err	10	data vector	[deg]	Strike error	[]		double
Dip_err	10	data vector	[deg]	Dip error	[]		double
Rake_err	10	data vector	[deg]	Rake error	[]		double
Slope_err	10	data vector	[deg]	Inclination error	[]		double
Plunge_T	10	data vector	[deg]	Plunge of T-axis	[]	The values range from 0 to 360	double
PlungeT_err	10	data vector	[deg]	T-axis plunge error	[]		double
Trend_T	10	data vector	[deg]	Trend of T-axis	[]	The values range from 0 to 90	double
TrendT_err	10	data vector	[deg]	T-axis trend error	[]		double
Plunge_P	10	data vector	[deg]	Plunge of P-axis	[]	The values range from 0 to 360	double
PlungeP_err	10	data vector	[deg]	P-axis plunge error	[]		double
Trend_P	10	data vector	[deg]	Trend of P-axis	[]	The values range from 0 to 90	double
TrendP_err	10	data vector	[deg]	P-axis trend error	[]		double
DCrr	222	data vector	[Nm]	Double-Couple solution: Moment tensor rr component (r - up)	[]		double

field	type	val	unit	description	fieldType	Comments	Data format
DCss	222	data vector	[Nm]	Double-Couple solution: Moment tensor ss component (s - South)	[]		double
DCee	222	data vector	[Nm]	Double-Couple solution: Moment tensor ee component (e - East)	[]		double
DCrs	222	data vector	[Nm]	Double-Couple solution: Moment tensor rs component	[]		double
DCre	222	data vector	[Nm]	Double-Couple solution: Moment tensor re component	[]		double
DCse	222	data vector	[Nm]	Double-Couple solution: Moment tensor se component	[]		double
DC_err	222	data vector	[Nm]	Double-Couple solution: Moment tensor error	[]		double
DCStrikeA	30	data vector	[deg]	Double-Couple solution: Strike of nodal plane A	[]	The values range from 0 to 360	double
DCDipA	20	data vector	[deg]	Double-Couple solution: Dip of nodal plane A	[]	The values range from 0 to 90	double
DCRakeA	130	data vector	[deg]	Double-Couple solution: Rake of nodal plane A	[]	The values range from -180 to 180	double
DCStrikeB	20	data vector	[deg]	Double-Couple solution: Strike of nodal plane B	[]	The values range from 0 to 90	double
DCDipB	30	data vector	[deg]	Double-Couple solution: Dip of nodal plane B	[]	The values range from 0 to 360	double
DCRakeB	20	data vector	[deg]	Double-Couple solution: Rake of nodal plane B	[]	The values range from 0 to 90	double
DCStrike_err	10	data vector	[deg]	Double-Couple solution: Strike error	[]		double
DCDip_err	10	data vector	[deg]	Double-Couple solution: Dip error	[]		double
DCRake_err	10	data vector	[deg]	Double-Couple solution: Rake error	[]		double

field	type	val	unit	description	fieldType	Comments	Data format
DCPlunge_T	10	data vector	[deg]	Double-Couple solution: Plunge of T-axis	[]	The values range from 0 to 90	double
DCPlungeT_err	10	data vector	[deg]	Double-Couple solution: T-axis plunge error	[]		double
DCTrend_T	10	data vector	[deg]	Double-Couple solution: Trend of T-axis	[]	The values range from 0 to 360	double
DCTrendT_err	10	data vector	[deg]	Double-Couple solution: T-axis trend error	[]		double
DCPlunge_P	10	data vector	[deg]	Double-Couple solution: Plunge of P-axis	[]	The values range from 0 to 90	double
DCPlungeP_err	10	data vector	[deg]	Double-Couple solution: P-axis plunge error	[]		double
DCTrend_P	10	data vector	[deg]	Double-Couple solution: Trend of P-axis	[]	The values range from 0 to 360	double
DCTrendP_err	10	data vector	[deg]	Double-Couple solution: P-axis trend error	[]		double
TNrr	222	data vector	[Nm]	TN solution: Moment tensor rr component (r - up)	[]		double
TNss	222	data vector	[Nm]	TN solution: Moment tensor ss component (s - South)	[]		double
TNee	222	data vector	[Nm]	TN solution: Moment tensor ee component (e - East)	[]		double
TNrs	222	data vector	[Nm]	TN solution: Moment tensor rs component	[]		double
TNre	222	data vector	[Nm]	TN solution: Moment tensor re component	[]		double
TNse	222	data vector	[Nm]	TN solution: Moment tensor se component	[]		double
TN_err	222	data vector	[Nm]	TN solution: Moment tensor error	[]		double
TNStrikeA	30	data vector	[deg]	TN solution: Strike of nodal plane A	[]	The value range from 0 to 360	double
TNDipA	20	data vector	[deg]	TN solution: Dip of nodal plane A	[]	The value range from 0 to 90	double

field	type	val	unit	description	fieldType	Comments	Data format
TNRakeA	130	data vector	[deg]	TN solution: Rake of nodal plane A	[]	The value range from -180 to 180	double
TNStrikeB	20	data vector	[deg]	TN solution: Strike of nodal plane B	[]	The value range from 0 to 90	double
TNDipB	30	data vector	[deg]	TN solution: Dip of nodal plane B	[]	The value range from 0 to 360	double
TNRakeB	20	data vector	[deg]	TN solution: Rake of nodal plane B	[]	The value range from 0 to 90	double
TNStrike_err	10	data vector	[deg]	TN solution: Strike error	[]		double
TNDip_err	10	data vector	[deg]	TN solution: Dip error	[]		double
TNRake_err	10	data vector	[deg]	TN solution: Rake error	[]		double
TNPlunge_T	20	data vector	[deg]	TN solution: Plunge of T-axis	[]	The value range from 0 to 90	double
TNPlungeT_err	10	data vector	[deg]	TN solution: T-axis plunge error	[]		double
TNTrend_T	30	data vector	[deg]	TN solution: Trend of T-axis	[]	The value range from 0 to 360	double
TNTrendT_err	10	data vector	[deg]	TN solution: T-axis trend error	[]		double
TNPlunge_P	20	data vector	[deg]	TN solution: Plunge of P-axis	[]	The value range from 0 to 90	double
TNPlungeP_err	10	data vector	[deg]	TN solution: P-axis plunge error	[]		double
TNTrend_P	30	data vector	[deg]	TN solution: Trend of P-axis	[]	The value range from 0 to 360	double
TNTrendP_err	10	data vector	[deg]	TN solution: P-axis trend error	[]		double
NsP	2	data vector	[dimensionless]	No of stations used in the P-wave spectral analysis	[]		double
E	222	data vector	[J]	Total seismic energy	[]		double

field	type	val	unit	description	fieldType	Comments	Data format
E_err	222	data vector	[J]	Total seismic energy error	[]		double
Ep	222	data vector	[J]	P-wave energy	[]		double
Ep_err	222	data vector	[J]	P-wave energy error	[]		double
fp	12	data vector	[Hz]	P-wave corner frequency	[]		double
fp_err	12	data vector	[Hz]	P-wave corner frequency error	[]		double
rad_eff_P	12	data vector	[dimensionless]	Radiation efficiency P	[]		double
Qp	10	data vector	[dimensionless]	Quality factor Pwaves	[]		double
NsS	2	data vector	[dimensionless]	No of stations used in the S-wave spectral analysis	[]		double
Es	222	data vector	[J]	S-wave energy	[]		double
Es_err	222	data vector	[J]	S-wave energy error [J]	[]		double
fs	12	data vector	[Hz]	S-wave corner frequency [Hz]	[]		double
fs_err	12	data vector	[Hz]	S-wave corner frequency error [Hz]	[]		double
Qs	10	data vector	[dimensionless]	Quality factor Swaves	[]		double
rad_eff_S	12	data vector	[dimensionless]	Radiation efficiency S	[]		double
R	10	data vector	[m]	Source radius	[]		double
R_err	10	data vector	[m]	Source radius error	[]		double
R_model	3	data vector	[char]	Source radius model used (Brune, Madariaga, Sato&Hirasawa)	[]		text

field	type	val	unit	description	fieldType	Comments	Data format
rad_eff	12	data vector	[dimensionless]	Radiation efficiency	[]		double
sigma_a	13	data vector	[MPa]	Apparent stress	[]		double
delta_sigma	13	data vector	[MPa]	Static stress drop	[]		double
sigma_d	13	data vector	[MPa]	Dynamic stress drop	[]		double
sigma_rms	13	data vector	[MPa]	RMS dynamic stress drop	[]		double
vr	10	data vector	[m/s]	Rupture velocity	[]		double
vr_model	3	data vector	[char]	Rupture velocity model (unilateral etc.)	[]		text
SW_eff	12	data vector	[dimensionless]	Savage-Wood efficiency	[]		double
u	12	data vector	[m]	Fault slip	[]		double

The Numbers of Data type:
1 – the real data without limits,
2 – the integer data,
3 – text value,
4 – the real number rounded to 0.1 (shown as 11),
5 – time in Matlab format serial time – the time display format; seconds with accuracy 1/10,
6 – the real data display in an engineering manner with one decimal place, e.g.: 3.5E6, (obsolete, recommended 2cd)
7 – the real data display in an engineering manner with two decimal place, (obsolete, recommended 2cd)
bc – (*b* and *c* are code digits) the real data display in fix-point manner with at minimum *b* places before decimal and *c* decimal place
e.g. For number 3.149.
10: „3”

11: „3.1”
12: „3.15”
20: „03”
23: „03.149”

1*bc*– the same manner as *bc*, but with place for a sign (space for sign „+”, sign - for sign „-”)

2cd– (c and d are code digits), the real data is displayed in an engineering manner, with place for a sign (space for sign „+”, sign ‘-’ for sign „-”), with c decimal place and exponent expressed by d places. The sign in exponent is always displayed.

e.g. For number 0.001:
211: „1.0E-3”
221: „1.00E-3”
212: „1.0E-03”
222: „1.00E-03”

e.g. For number 1000:
211: „1.0E+3”
221: „1.00E+3”
212: „1.0E+03”
222: „1.00E+03”

BOBREK CATALOG

field	type	val	unit	description	fieldType
ID	3	data vector	[char]	Event ID	[]
Time	5	data vector	[datenum]	Event occurrence time	[]
Lat	25	data vector	[deg]	Latitude	[]
Long	25	data vector	[deg]	Longitude	[]
Depth	13	data vector	[km]	Hypocenter depth measured from the ground level	[]
Elevation	13	data vector	[km]	Hypocenter elevation measured over the see level	[]
X	10	data vector	[m]	X coordinate	[]
Y	10	data vector	[m]	Y coordinate	[]
Z	10	data vector	[m]	Z coordinate	[]
ML	4	data vector	[dimensionless]	Local magnitude	'Magnitude'
E	222	data vector	[J]	Total seismic energy	[]

LGCD CATALOG

field	type	val	unit	description	fieldType
ID	3	data vector	[char]	Event ID	[]
Time	5	data vector	[datenum]	Event occurrence time	[]
Lat	24	data vector	[deg]	Latitude	[]
Long	24	data vector	[deg]	Longitude	[]
Depth	13	data vector	[km]	Hypocenter depth measured from the ground level	[]
Elevation	13	data vector	[km]	Hypocenter elevation measured over the see level	[]
M0	222	data vector	[Nm]	Scalar moment	[]
Mw	4	data vector	[dimensionless]	Moment magnitude	'Magnitude'
MTrr	222	data vector	[Nm]	Full solution: Moment tensor rr component (r – up)	[]
MTss	222	data vector	[Nm]	Full solution: Moment tensor ss component (s – South)	[]
MTee	222	data vector	[Nm]	Full solution: Moment tensor ee component (e – East)	[]
MTrs	222	data vector	[Nm]	Full solution: Moment tensor rs component	[]
MTre	222	data vector	[Nm]	Full solution: Moment tensor re component	[]
MTse	222	data vector	[Nm]	Full solution: Moment tensor se component	[]
MT_err	222	data vector	[Nm]	Full solution: Moment tensor error	[]
ISO	120	data vector	[%]	Isotropic MT component	[]
CLVD	120	data vector	[%]	CLVD component	[]
DC	20	data vector	[%]	Double-Couple component	[]
StrikeA	30	data vector	[deg]	Strike of nodal plane A	[]
DipA	20	data vector	[deg]	Dip of nodal plane A	[]
RakeA	130	data vector	[deg]	Rake of nodal plane A	[]

field	type	val	unit	description	fieldType
SlopeA	20	data vector	[deg]	Inclination for nodal plane A	[]
StrikeB	30	data vector	[deg]	Strike of nodal plane B	[]
DipB	20	data vector	[deg]	Dip of nodal plane B	[]
RakeB	130	data vector	[deg]	Rake of nodal plane B	[]
fp	12	data vector	[Hz]	P-wave corner frequency	[]
fs	12	data vector	[Hz]	S-wave corner frequency [Hz]	[]

SONG TRANH CATALOG

field	type	val	unit	description	fieldType
ID	3	data vector	[char]	Event ID	[]
Time	5	data vector	[datenum]	Event occurrence time	[]
Lat	24	data vector	[deg]	Latitude	[]
Long	24	data vector	[deg]	Longitude	[]
Depth	13	data vector	[km]	Hypocenter depth measured from the ground level	[]
Elevation	13	data vector	[km]	Hypocenter elevation measured over the see level	[]
M0	222	data vector	[Nm]	Scalar moment	[]
Mw	4	data vector	[dimensionless]	Moment magnitude	'Magnitude'
ML	4	data vector	[dimensionless]	Local magnitude	'Magnitude'
MTrr	222	data vector	[Nm]	Full solution: Moment tensor rr component (r – up)	[]
MTss	222	data vector	[Nm]	Full solution: Moment tensor ss component (s – South)	[]
MTee	222	data vector	[Nm]	Full solution: Moment tensor ee component (e – East)	[]
MTrs	222	data vector	[Nm]	Full solution: Moment tensor rs component	[]
MTre	222	data vector	[Nm]	Full solution: Moment tensor re component	[]
MTse	222	data vector	[Nm]	Full solution: Moment tensor se component	[]
MT_err	222	data vector	[Nm]	Full solution: Moment tensor error	[]
ISO	120	data vector	[%]	Isotropic MT component	[]
CLVD	120	data vector	[%]	CLVD component	[]
DC	20	data vector	[%]	Double-Couple component	[]
StrikeA	30	data vector	[deg]	Strike of nodal plane A	[]
DipA	20	data vector	[deg]	Dip of nodal plane A	[]
RakeA	130	data vector	[deg]	Rake of nodal plane A	[]
SlopeA	20	data vector	[deg]	Inclination for nodal plane A	[]
StrikeB	30	data vector	[deg]	Strike of nodal plane B	[]
DipB	20	data vector	[deg]	Dip of nodal plane B	[]
RakeB	130	data vector	[deg]	Rake of nodal plane B	[]
fp	12	data vector	[Hz]	P-wave corner frequency	[]
fs	12	data vector	[Hz]	S-wave corner frequency [Hz]	[]