GROUND MOTION CATALOG V2.0

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 format of ground motion catalog is made in the same manner as catalog of seismic events

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);
- **`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 "PGA" values in all rows must be present.

field	type	Unit	description	fieldType	Data format	Comments
RID	3		Registration ID		text	**required field. ID must be linked to name of signal accelerogram.**
EID	3		Event ID		text	required field. ID should be linked to catalog EID.
SID	3		Station ID		text	
S_name	3		Station name		text	
S_Lat	24,25	[deg]	Station latitude		double	
S_Long	24,25, 34,35	[deg]	Station longitude		double	
S_Elevation	10	[m]	Station elevation		double	
R_Time	5	days	Registration occurrence time		double	required field
PGA-x	13	[m/s^2]	Peak ground acceleration of x component	PGA	double	required field
PGA-y	13	[m/s^2]	Peak ground acceleration of y component	PGA	double	
PVA	13	[m/s^2]	Peak vertical acceleration	PGA	double	
PHA	13	[m/s^2]	Peak horizontal acceleration	PGA	double	
PGA	13	[m/s^2]	Total peak ground acceleration	PGA	double	
RMS_A	21	[m/s^2]	Root-mean-square acceleration	PGA	double	
PGV-x	13	[cm/s]	Peak ground velocity of x component	PGV	double	
PGV-y	13	[cm/s]	Peak ground velocity of y component	PGV	double	
PVV	13	[cm/s]	Peak vertical velocity component	PGV	double	
PHV	13	[cm/s]	Peak horizontal velocity	PGV	double	
PGV	13	[cm/s]	Total peak ground velocity	PGV	double	
RMS-V	21	[cm/s]	Root-mean-square velocity	PGV	double	
PGD-x	13	[mm]	Peak ground displacement of x component	PGD	double	
PGD-y	13	[mm]	Peak ground displacement of y component	PGD	double	
PVD	13	[mm]	Peak vertical displacement component	PGD	double	
PHD	13	[mm]	Peak horizontal displacement	PGD	double	
PGD	13	[mm]	Total peak ground displacement	PGD	double	
RMS-D	21	[mm]	Root-mean-square displacement	PGD	double	
AI	6	[m/s]	Arias Intensity		double	
NED	6	[m/s^2]	Normalized Energy Density		double	
ABD	21	[s]	Absolute bracketed duration	Duration	double	A problem with absolute durations relies in that one must prescribe for them absolute criteria. Maybe they should not be included in the catalog but to implement an appropriate service to evaluate them?
AUD	21	[s]	Absolute uniform duration	Duration	double	
AED	21	[s]	Absolute effective duration	Duration	double	
RBD	21	[s]	Relative bracketed duration	Duration	double	For relative durations criteria must be prescribed too but here there is a general agreement for 5%
RUD	21	[s]	Relative uniform duration	Duration	double	
RED	21	[s]	Relative effective duration	Duration	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”