Gravimetric Catalog

Gravimetric Catalog – General Description

The catalog is a variable in the Matlab format file and it is kept in a file MAT. The structure is an 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 the gravimetric catalog is made in the same manner as a catalog of seismic events.

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

- **field** – name of field in the catalog (text value);
- **type** – type of field in the catalog 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 catalog 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", "Dg", "V" and "P" values in all rows must be present.

Field	Type	Unit	Description	FieldType	Comments	Data format
RID	3		Registration ID		**required field. ID must be linked to name of piezometer record**	text
EID	3		Event ID		**required field. ID should be linked to catalog EID**	text
Time	5		Event origin time		**required field**, Matlab serial numerical time	double
SID	3		Station ID		**required field**	text
S_name	3		Station name		**required field**	text
S_Lat	24,25	deg	Station latitude		**required field**	double
S_Long	24,25,34,35	deg	Station longitude		**required field**	double
S_Elevation	34	m	Station elevation		**required field**	double
R_Time	5	days	Registration occurrence time		**required field**	double
Dg	23	uGal	Gravity field acceleration change		**required field**	double
V	23	um/s	Velocity of ground motion change due to gravity (vertical component)		**required field**	double
P	23	um	Position - displacement of ground due to gravity (vertical component)		**required field**	double

Table 1. The general parameters in catalog MAT format.

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”
1bc– 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”

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