Parametric Information Schema

Version 1.2

Zuzlewski Stéphane @1997 Berkeley Seismological Laboratory

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1.- Introduction :

This paper is about the schema of the NCEDC Database for the parametric information. This schema was designed to be able to store all the information from the CNSS format, following as much as possible the CSS 3.0 schema.

2.- Overview :

The following figure gives an overview of the schema. The schema is composed of eleven tables:

1. *Event* : Event table.
2. *Name* : Event name table.
3. *Origin* : Origin table.
4. *Netmag* : Magnitude table.
5. *Arrival* : Phase table.
6. *AssocArO* : Association table between origins and arrivals.
7. *Amp* : Amplitude table.
8. *AssocAmO* : Association table between origins and amplitudes.
9. *AssocAmM* : Association table between magnitudes and amplitudes.
10. *Mec* : Moment tensor table.
11. *Remark* : Comment table.

3.- Keys :

The following figure shows the links between the different tables. Only primary and foreign keys are shown.

4.- Tables & Fields :

4.1.- Table *Event* : Event information

Field	***Type***	***Description***
evid	int	Event identifier
prefor	int	Preferred origin
prefmag	int	Preferred magnitude
prefmec	int	Preferred mechanism
commid	int	Comment identifier
source	char(8)	Source/originator [1]
subsource	char(8)	Subsystem source [2]
remarks	char(2) *	Event indications (felt, quarry, ...) [3]
totalarr	int	Total number of arrivals [3]
totalamp	int	Total number of amplitude readings [3]
lddate	date	Load date

[1] Modification from the original CNSS format (char(3)).
[2] Adjunction requested by Doug Neuhauser & Rob Clayton.
[3] Adjunction requested by Lind Gee.
* To be discussed.

4.2.- Table *Name* : Event name information

Field	***Type***	***Description***
evid	int	Event identifier
evname	char(15)	Event name

4.3.- Table *Origin* : Hypocenter information

Field	*Type*	*Description*
orid	int	Origin identifier
evid	int	Event identifier
prefmag	int	Preferred magnitude
prefmec	int	Preferred mechanism
commid	int	Comment identifier
date	date	Origin date
lat	float	Latitude
lon	float	Longitude
depth	float	Depth
type	char(2)	Type of location
source	char(8)	Source code of location information [1]
subsource	char(8)	Subsystem source [2]
dattype	char(8) *	Datum type of location [3]
gap	int	Azimuthal gap
distance	float	Distance to nearest station
rms	float	RMS residual of phases used in location
ertime	float	Origin time error
erhor	float	Horizontal error
erdepth	float	Depth error
nbps	int	Number of valid P&S readings
nbs	int	Number of S readings
nbp	int	Number of P first motions
azismall	int	Azimuth of smallest principal error
dipsmall	int	Dip of smallest principal error
magsmall	float	Magnitude of smallest principal error
aziinter	int	Azimuth of intermediate principal error
dipinter	int	Dip of intermediate principal error
maginter	float	Magnitude of intermediate principal error
azilarge	int	Azimuth of largest principal error
diplarge	int	Dip of largest principal error
maglarge	float	Magnitude of largest principal error
erlat	float	Error in latitude
erlon	float	Error in longitude
locevid	int	Local event identifier
lddate	date	Load date

[1] Modification from the original CNSS format (char(3)).

[2] Adjunction requested by Doug Neuhauser & Rob Clayton.

[3] Adjunction requested by Lind Gee.

* To be discussed.

4.4.- Table *Netmag* : Magnitude information

Field	*Type*	*Description*
magid	int	Magnitude identifier
orid	int	Origin identifier
evid	int	Event identifier
commid	int	Comment identifier
magnitude	float	Magnitude
magtype	char(2)	Magnitude type
source	char(8)	Source code of magnitude information [1]
subsource	char(8)	Subsystem source [2]
nbobs	int	Number of observations
ermag	float	Error in magnitude estimate
total	float	Total of magnitude weights
gap	float	Maximum azimuthal gap of stations [3]
distance	float	Minimum distance of stations [3]
lddate	date	Load date

[1] Modification from the original CNSS format (char(3)).

[2] Adjunction requested by Doug Neuhauser & Rob Clayton.

[3] Adjunction requested by Lind Gee.

4.5.- Table *Arrival* : Seismic arrival information

Field	***Type***	***Description***
arid	int	Arrival identifier
evid	int	Event identifier
commid	int	Comment identifier
date	date	Pick date
staname	char(5)	Station name
network	char(2)	Network code
phtype	char(8)	Phase type
source	char(8)	Source code of pick information [1]
subsource	char(8)	Subsystem source [2]
instid	int	Instrument identifier
seed	char(3)	SEED stream name
phonset	char(1)	Description of phase onset
fmotion	char(1)	Description of first motion
emergence	int	Emergence angle at source
incidence	float	Angle of incidence [3]
ertt	float	Error in traveltime [3]
erangle	float	Error in angle [3]
erazimuth	float	Error in azimuth [3]
weight	float	Weight code [4]
lddate	date	Load date

[1] Modification from the original CNSS format (char(3)).
[2] Adjunction requested by Doug Neuhauser & Rob Clayton.
[3] Adjunction requested by Lind Gee.
[4] Modification from the original CNSS format (int).

4.6.- Table *AssocArO* : Data associating arrivals with origins

Field	*Type*	*Description*
orid	int	Origin identifier
arid	int	Arrival identifier
commid	int	Comment identifier
importance	float	Importance of phase [1]
epidist	float	Epicentral distance
azimuth	int	Azimuth to station
ttweight	float	Travel time weight
ttres	float	Travel time residual
lddate	date	Load date

[1] Adjunction requested by Dave Oppenheimer.

4.7.- Table *Amp* : Amplitude information

Field	*Type*	*Description*
ampid	int	Amplitude identifier
evid	int	Event identifier
commid	int	Comment identifier
date	date	Amplitude date
staname	char(5)	Station name
network	char(2)	Network code
amplitude	float	Amplitude
source	char(8)	Source code of amplitude information [1]
subsource	char(8)	Subsystem source [2]
instid	int	Instrument identifier
seed	char(3)	SEED stream name
amptype	char(3)	Amplitude type
units	char(4)	Units of amplitude
ampmeas	char(1)	Amplitude measure
eramp	float	Error in amplitude [3]
flagamp	char(8) *	Flag to indicate wether amplitude is over P packet, S packet, entire waveform, ... [3]
frequency	float	Frequency
lddate	date	Load date

[1] Modification from the original CNSS format (char(3)).
[2] Adjunction requested by Doug Neuhauser & Rob Clayton.
[3] Adjunction requested by Lind Gee.
* To be discussed.

4.8.- Table *AssocAmO* : Data associating amplitudes with origins

Field	*Type*	*Description*
orid	int	Origin identifier
ampid	int	Amplitude identifier
commid	int	Comment identifier
epidist	float	Epicentral distance
azimuth	int	Azimuth to station
importance	float	Importance of amplitude [1]
lddate	date	Load date

[1] Adjunction requested by Lind Gee.

4.9.- Table *AssocAmM* : Data associating amplitudes with magnitudes

Field	*Type*	*Description*
magid	int	Magnitude identifier
ampid	int	Amplitude identifier
commid	int	Comment identifier
weight	float	Weight code [1]
mag	float	Magnitude for this station reading
magres	float	Magnitude residual
lddate	date	Load date

[1] Modification from the original CNSS format (int).

4.10.- Table *Mec* : Moment tensor information

Field	*Type*	*Description*
mecid	int	Mechanism identifier
oridin	int	Origin identifier (input)
oridout	int	Origin identifier (output)
evid	int	Event identifier
commid	int	Comment identifier
mechtype	char(2)	Mechanism/moment type
scalar	float	Scalar moment
exp	int	Exp of moment tensor elements
mxx	float	m_xx
myy	float	m_yy
mzz	float	m_zz
mxy	float	m_xy
mxz	float	m_xz
myz	float	m_yz
unmxx	float	Uncertainty in m_xx [3]

unmyy	float	Uncertainty in m_yy [3]
unmzz	float	Uncertainty in m_zz [3]
unmxy	float	Uncertainty in m_xy [3]
unmxz	float	Uncertainty in m_xz [3]
unmyz	float	Uncertainty in m_yz [3]
srcduration	float	Source half-duration [3]
source	char(8)	Source code of mechanism information [1]
subsource	char(8)	Subsystem source [2]
strike1	int	Strike 1 of best double couple
dip1	int	Dip 1 of best double couple
rake1	int	Rake 1 of best double couple
strike2	int	Strike 2 of best double couple
dip2	int	Dip 2 of best double couple
rake2	int	Rake 2 of best double couple
unstrike1	float	Uncertainty in strike 1 [3]
undip1	float	Uncertainty in dip 1 [3]
unrake1	float	Uncertainty in rake 1 [3]
unstrike2	float	Uncertainty in strike 2 [3]
undip2	float	Uncertainty in dip 2 [3]
unrake2	float	Uncertainty in rake 2 [3]
nbsta	int	Number of stations used in solution
percent	int	Percent double couple
date	date	Date solution created
lddate	date	Load date

[1] Modification from the original CNSS format (char(3)).

[2] Adjunction requested by Doug Neuhauser & Rob Clayton.

[3] Adjunction requested by Lind Gee.

4.11.- Table *Remark* : Comments

Field	***Type***	***Description***
commid	int	Comment identifier
lineno	int	Comment line number
remark	char(80)	Free format comment
lddate	date	Load date