Parametric Information Schema

Version 1.3.1

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. *Significant_Event* : Significant event 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
auth	char(15)	Source/originator
subsource	char(8)	Subsystem source [1]
totalarr	int	Total number of arrivals [2]
totalamp	int	Total number of amplitude readings [2]
etype	char(7)	Event type [3]
lddate	date	Load date

[1] Adjunction requested by Doug Neuhauser & Rob Clayton.
[2] Adjunction requested by Lind Gee.
[3] Adjunction requested at the UCB Meeting.

4.2.- Table *Significant_Event* : Significant event information

Field	***Type***	***Description***
evid	int	Event identifier
evname	char(80)	Event name
remarks	char(2)	Event indications (felt, damage, ...) [1] *
nfelt	int	Number of felt reports [1]
mmi	float	Maximum MM instensity [1] *
pga	float	Peak acceleration [1] *

[1] Adjunction requested by Lind Gee.
* To be discussed.

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	Estimated latitude
lon	float	Estimated longitude
depth	float	Estimated depth
type	char(2)	Type of location
algorithm	char(15)	Location algorithm used [2]
auth	char(15)	Source/originator
subsource	char(8)	Subsystem source [1]
dattype	char(8)	Datum type of location [2] *
gap	int	Azimuthal gap
distance	float	Distance to nearest station
sdobs	float	Standard error of observations
stime	float	Origin time error
erhor	float	Horizontal error
sdepth	float	Depth error
erlat	float	Error in latitude
erlon	float	Error in longitude
ndef	int	Number of locating phases
nbs	int	Number of S readings
nbp	int	Number of P first motions
sxx	float	Covariance matrix element [2]
syy	float	Covariance matrix element [2]
szz	float	Covariance matrix element [2]
stt	float	Covariance matrix element [2]
sxy	float	Covariance matrix element [2]
sxz	float	Covariance matrix element [2]
syz	float	Covariance matrix element [2]
stx	float	Covariance matrix element [2]
sty	float	Covariance matrix element [2]
stz	float	Covariance matrix element [2]
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
locevid	int	Local event identifier
quality	float	Quality of solution [3]
fdepth	char	Fixed depth [3]
fepi	char	Fixed epicenter [3]
ftime	char	Fixed time [3]
vmodelid	int	Velocity model identifier [2]
lddate	date	Load date

[1] Adjunction requested by Doug Neuhauser & Rob Clayton.
[2] Adjunction requested by Lind Gee.
[3] Adjunction requested at the UCB Meeting.
[*] 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(6)	Magnitude type
auth	char(15)	Source/originator
subsource	char(8)	Subsystem source [1]
malgorithm	char(15)	Magnitude algorithm [2] [*]
nsta	int	Number of stations used
uncertainty	float	Magnitude uncertainty
gap	float	Maximum azimuthal gap of stations [2]
distance	float	Minimum distance of stations [2]
lddate	date	Load date

[1] Adjunction requested by Doug Neuhauser & Rob Clayton.
[2] Adjunction requested by Lind Gee.
[*] To be discussed.

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 *
sta	char(6)	Station code
net	char(8)	Network identifier
iphase	char(8)	Reported phase
auth	char(15)	Source/originator
subsource	char(8)	Subsystem source [1]
seed	char(3)	SEED stream name *
qual	char(1)	Signal onset quality
fm	char(2)	First motion
ema	float	Emergence angle
azimuth	float	Observed azimuth [2]
slow	float	Observed slowness [2]
deltim	float	Delta time [2]
delinc	float	Error in angle [2] *
delaz	float	Delta azimuth [2]
delslo	float	Delta slowness [2]
quality	float	Quality [3]
snr	float	Signal to noise ratio [2]
lddate	date	Load date

[1] Adjunction requested by Doug Neuhauser & Rob Clayton.
[2] Adjunction requested by Lind Gee.
[3] Modification requested at the UCB Meeting.
* To be discussed.

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

Field	***Type***	***Description***
orid	int	Origin identifier
arid	int	Arrival identifier
commid	int	Comment identifier
phase	char(8)	Associated phase [2]
importance	float	Importance of phase [1] [*]
delta	float	Station to event distance
seaz	int	Station to event azimuth
wgt	float	Location weight
timeres	float	Time residual
azres	float	Azimuth residual [2]
emares	float	Incidence angle residual [2]
slores	float	Slowness residual [2]
vmodelid	int	Velocity model identifier [2]
scorr	int	Station correction in seconds [2]
lddate	date	Load date

[1] Adjunction requested by Dave Oppenheimer.
[2] Adjunction requested by Lind Gee.
[*] To be discussed.

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 *
sta	char(6)	Station code
net	char(8)	Network identifier
iphase	char(8)	Reported phase [2]
amplitude	float	Amplitude
auth	char(15)	Source/originator
subsource	char(8)	Subsystem source [1]
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 [2]
flagamp	char(8)	Flag to indicate wether amplitude is over P packet, S packet, entire waveform,.. [2] *
per	float	Period
snr	float	Signal to noise ratio [2]
lddate	date	Load date

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

[2] 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
delta	float	Station to event distance
seaz	int	Station to event azimuth
importance	float	Importance of amplitude [1] *
lddate	date	Load date

[1] Adjunction requested by Lind Gee.

* To be discussed.

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
mag	float	Magnitude for this station reading
magres	float	Magnitude residual
magcorr	float	Magnitude correction for this station [1]
lddate	date	Load date

[1] Adjunction requested by Lind Gee.

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