

Task 1: ITACA

Responsabili task:
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OBIETTIVO GENERALE

TRASFORMARE ITACA

- IN UNO STRUMENTO PER LA DIFFUSIONE DEL DATOACCELEROMETRICO IN AMBITO NAZIONALE E INTERNAZIONALE
- IN UNO STRUMENTO DI LAVORO RIVOLTO SIA ALLA COMUNITA' SISMOLOGICA CHE INGEGNERISTICA

OBIETTIVI SPECIFICI

Aggiornare la BANCA DATI ACCELEROMETRICA ITALIANA - ITACA

- A) Inserendo nuovi dati accelerometrici (dati DPC e altri Gestori, da $M > 2.5$)
- B) Arricchendo la banca dati con informazioni aggiornate e qualificate sia sugli eventi che sulle stazioni

ITACA versione beta

- The “beta” version of ITACA [ITACA v1.0b], i.e., the revised final product of the past Project S6, will be released in the first few months of the project. (→ [Deliverable D1](#)). This release will be progressively updated during the life time of the project.

Tutti i “buchi” sono da segnalare ad attana@mi.ingv.it

La versione beta di ITACA sarà presentata l'8 Luglio al congresso MERCEA08

<http://www.mercea08.org/>

ITACA VERSIONI SUCCESSIVE

- Educational pages (instrumentation principles, data processing, seismic site effects, strong-ground motion parameters)
- web-GIS interface, allowing the interactive exploration of geographical data and the related attributes
- New data layers, such as administrative boundaries, 1:100.000 scale geological map and a digital elevation model. The latter activity will be made in cooperation with the S3 project
- New queries to search strong motion data

Nuovi dati

The DPC strong-motion data in the time span 2005-2007 will be collected and processed, and the new events, stations, waveforms and instrument metadata will be added, to bring the data collection up to date.

Data from other organizations will be also included

Nuovi dati

Formato binario per scambio dati

“Si propone l’utilizzo del formato MSEED in quanto consente l’interscambio con reti e databases internazionali e consente l’utilizzo di software condiviso per l’archiviazione e la revisione dei dati” da TTC INGV-5.2.

IMPLICAZIONI

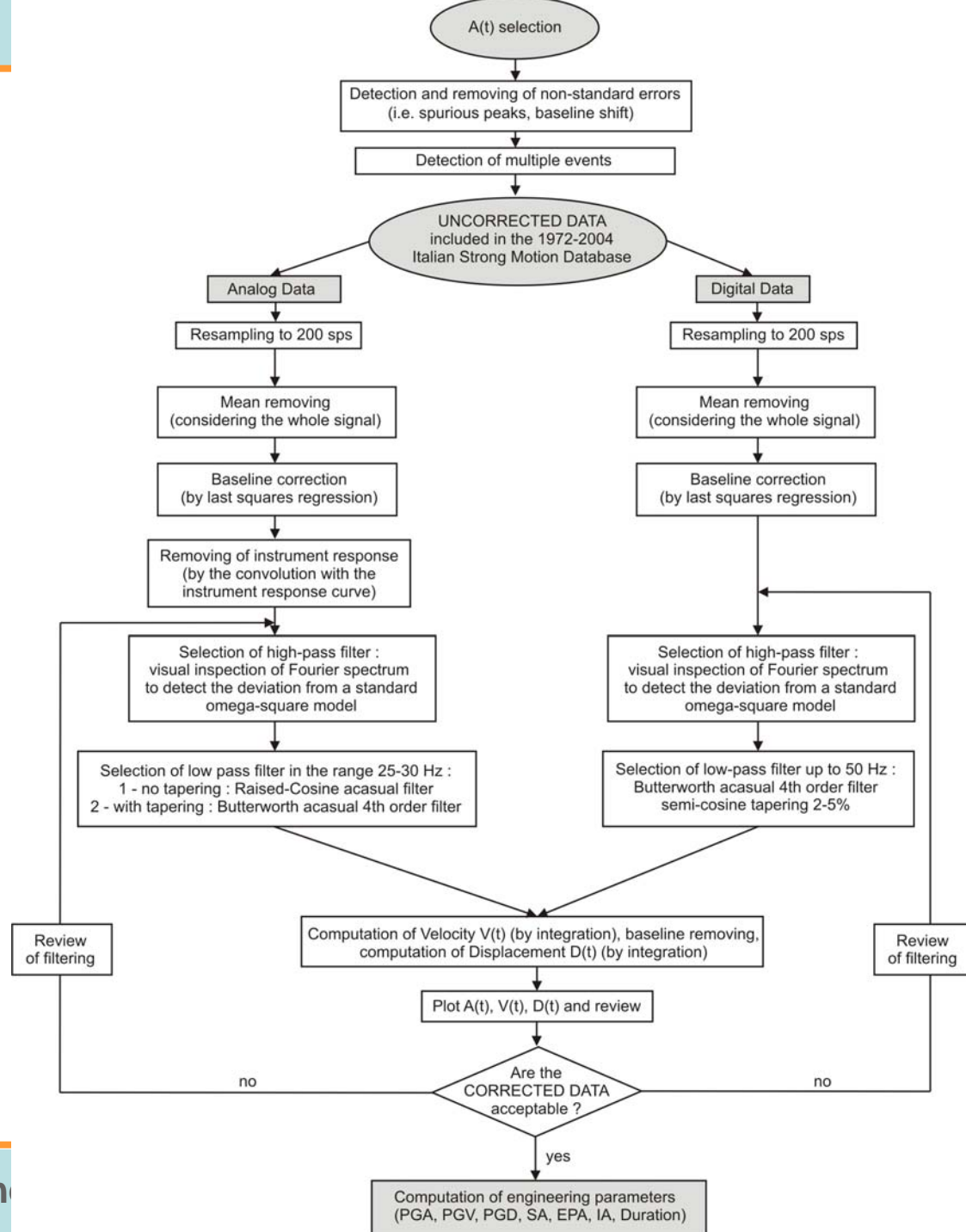
Da ITACA spariscono i Dati in formato SAC;
Necessità cambio nome file ITACA

Protocolli SCAMBIO DATI

- Dati provenienti da reti INGV-MI; INGV-CNT, OGS, RAF, TRENTO, BASILICATA, AMRA da $M > 2.5$
- Trasferimento dati su sito ftp Milano
- Protocollo di INTESA con DPC per disporre dei dati in 1-2 settimane in caso evento sismico

PROCESSAMENTO DATI

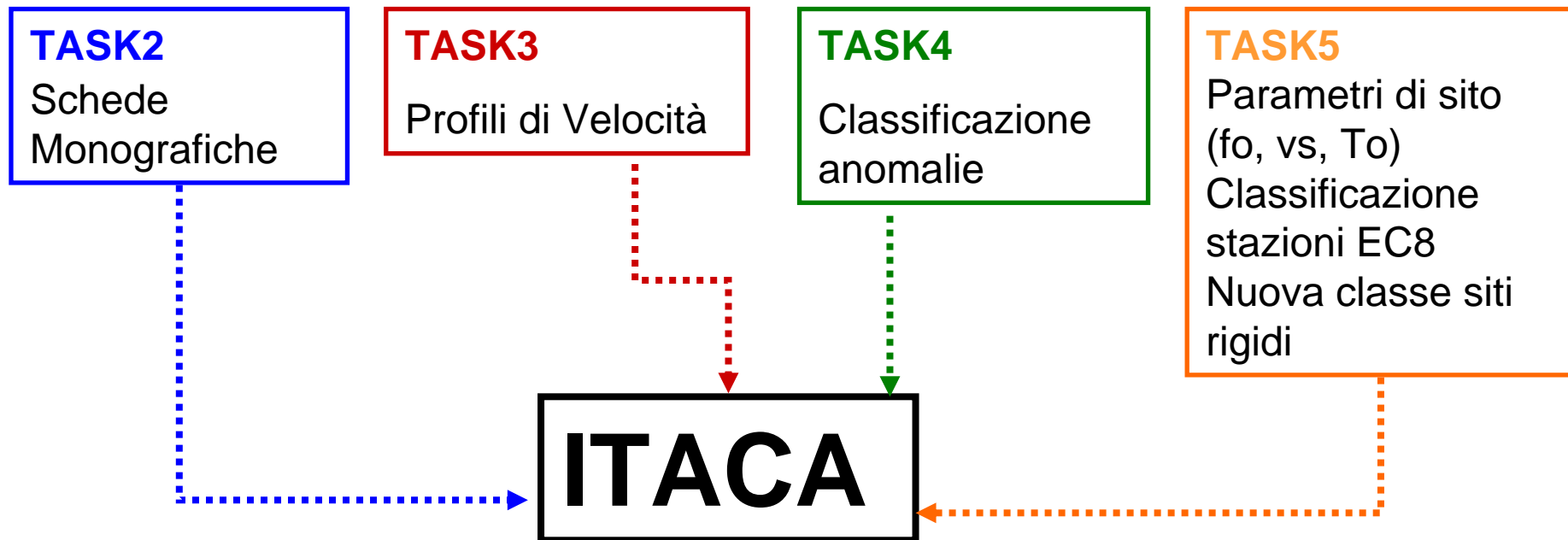
The presently available routines for data processing will be further improved and tested.



SISMOGRAMMI SINTETICI

- Verifica possibilità di inserire sismogrammi sintetici in ITACA, per compensare mancanza di dati in *near source* e su bedrock. Attività trasversale svolta in collaborazione con S3 e S2.
- Ricerca di criteri per stabilire l'attendibilità dei sismogrammi sintetici.
- Verifica di possibilità di deconvolvere per la funzione di trasferimento teorica per disporre di registrazioni “*outcropping bedrock site*”.

NUOVE INFORMAZIONI



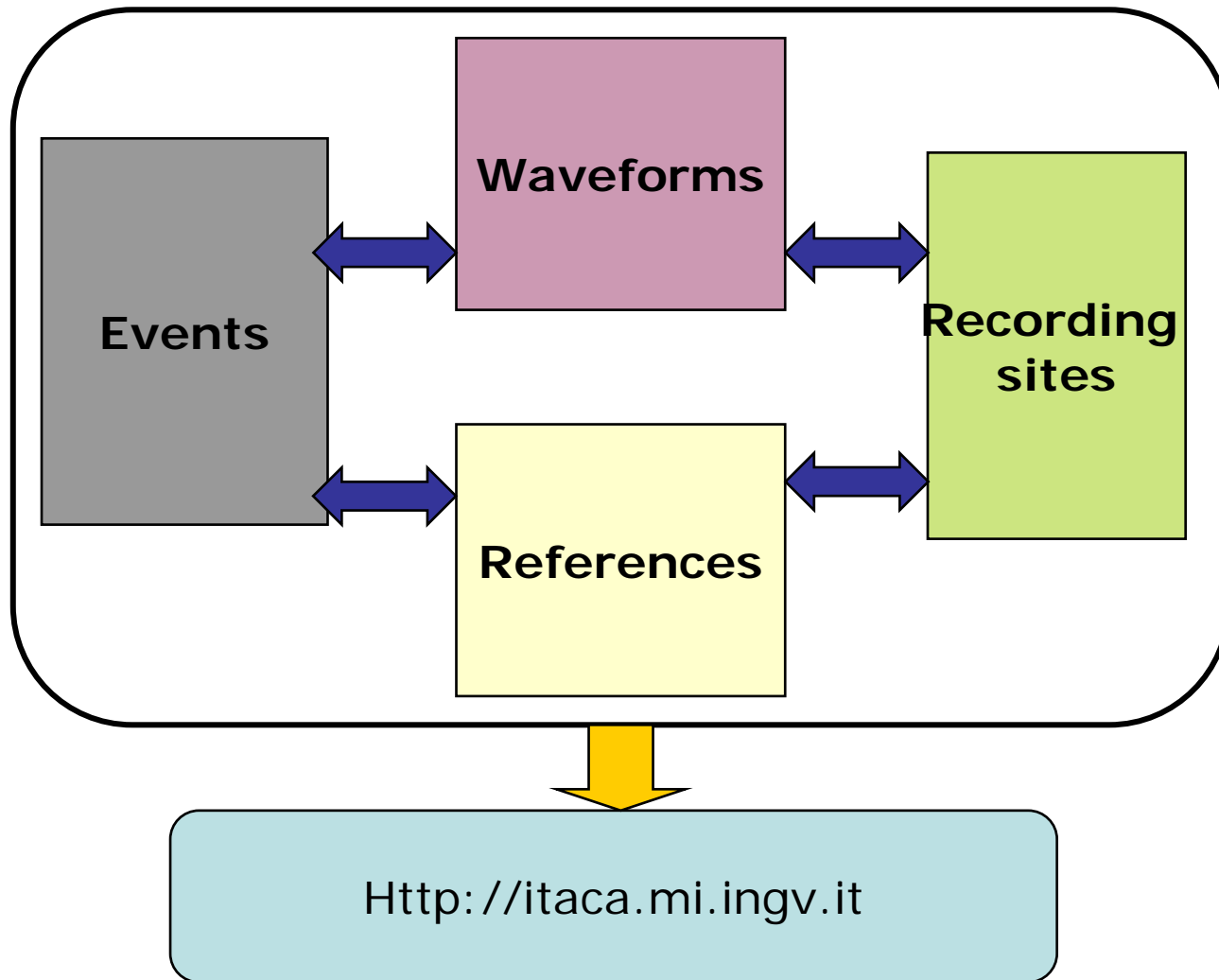
STRUTTURA

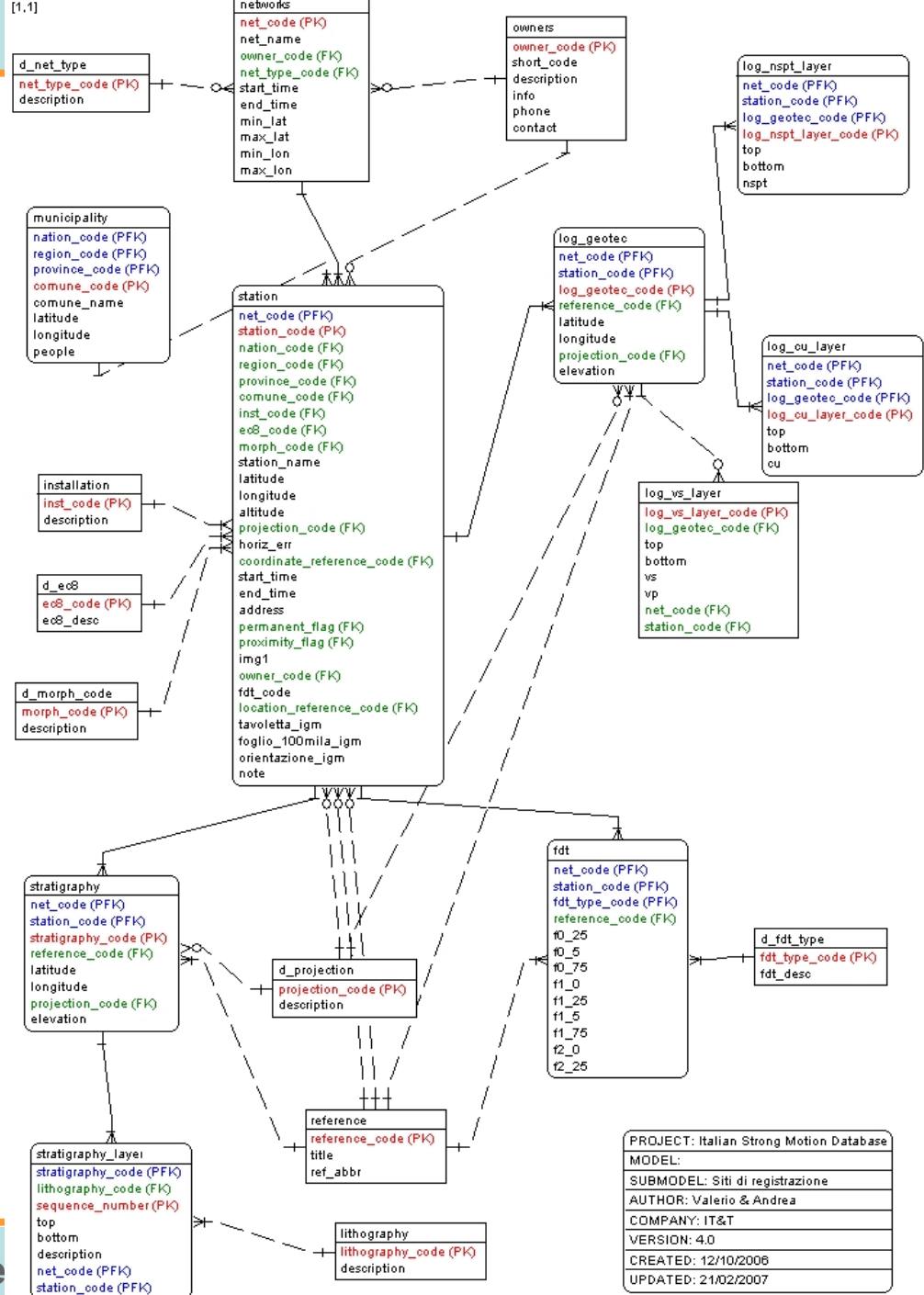
- Modulo di data entry in locale
- Pubblicazione su web
- Implementazione in linguaggio Java 6 e Visual Basic for Applications
- Application server Apache Tomcat
- Applet lato client per la visualizzazione degli accelerogrammi e spettri

STRUTTURA

- DBMS relazionale (Ms Access per CD-ROM e data entry e Mysql per il web)
- Definizione architettuale della banca dati e delle tabelle usando la metodologia Entità-Relazione
- Creazione di standard relativi ai dati

STRUTTURA





Structure of the *recording site* block:

The main table (*station*) is linked to other tables through one to one relationship or one to many relationship

PROJECT: Italian Strong Motion Database
MODEL:
SUBMODEL: Siti di registrazione
AUTHOR: Valerio & Andrea
COMPANY: IT&T
VERSION: 4.0
CREATED: 12/10/2006
UPDATED: 21/02/2007



PROJECT: Italian Strong Motion Database
MODEL: Itaca
SUBMODEL: Events
AUTHOR: Andrea Spinelli, Morgan Rota Stabelli
COMPANY: Events
VERSION: 8.0
CREATED: 06/07/2007
UPDATED: 07/05/2008

magnitude
event_time Varchar(n)19 NN (PFK)
mag_type_code Varchar(n)20 NN (PFK)
method_code Varchar(n)16 NN (PFK)
reference_code Integer NN (FK)
mag_value Double precision
err_mag Double precision

mag_type
mag_type_code Varchar(n)6 NN (PK)
description Varchar(n)64

d_mag_method
method_code Varchar(n)16 NN (PK)
description Varchar(n)64
long_description Text

events
event_time Varchar(n)19 NN (PK)
nation_code Varchar(n)3 (FK)
region_code Varchar(n)2 (FK)
province_code Varchar(n)3 (FK)
comune_code Varchar(n)6 (FK)
event_name Varchar(n)100
latitude Double precision
longitude Double precision
depth_m Double precision
hyp_reference Integer (FK)
other_hypocenter Text
i0 Double precision
i0_reference Integer (FK)
other_i0 Text
fm_method_code Varchar(n)5 (FK)
fm_type_code Varchar(n)2 (FK)
fm_reference Integer (FK)
fault_flag_yesno_code Integer (FK)
fault_reference Integer (FK)
strike Double precision
dip Double precision
rake Double precision
surface_flag_yesno_code Integer (FK)
other_faults Text
err_lat Double precision
err_long Double precision
err_depth Double precision
located_code Varchar(n)16 NN (FK)

reference
reference_code Integer NN (PK)
title Text
ref_abbr Varchar(n)255

d_fm_method
fm_method_code Varchar(n)5 NN (PK)
description Varchar(n)100

d_fm_type
fm_type_code Varchar(n)2 NN (PK)
description Varchar(n)100

d_yesno
yesno_code Integer NN (PK)
description Varchar(n)3

d_located
located_code Varchar(n)16 NN (PK)
description Varchar(n)255

municipality
nation_code Varchar(n)3 NN (PFK)
region_code Varchar(n)2 NN (PFK)
province_code Varchar(n)3 NN (PFK)
comune_code Varchar(n)6 NN (PK)
comune_name Varchar(n)100
latitude Double precision
longitude Double precision
people Integer

province
nation_code Varchar(n)3 NN (PFK)
region_code Varchar(n)2 NN (PFK)
province_code Varchar(n)3 NN (PK)
province_abbr Varchar(n)2
province_name Varchar(n)50

region
region_code Varchar(n)2 NN (PK)
nation_code Varchar(n)3 NN (PFK)
region_name Varchar(n)50

nation
nation_code Varchar(n)3 NN (PK)
nation_name Varchar(n)50

PROJECT: Italian Strong Motion Database
MODEL: Itaca
SUBMODEL: Recordings
AUTHOR: Andrea Spinelli, Morgan Rota Stabelli
COMPANY: Events
VERSION: 8.0
CREATED: 06/07/2007
UPDATED: 07/05/2008

instrument			
net_code	Varchar(n)(2)	NN	(PFK)
station_code	Varchar(n)(5)	NN	(PFK)
installation_start_time	Varchar(n)(19)	NN	(PK)
generic_instrument_code	Integer	NN	(FK)
sensor_serial_number	Varchar(n)(64)	NN	
digitizer_serial_number	Varchar(n)(64)	NN	
installation_end_time	Varchar(n)(19)		
samples_per_second	Text		
number_bits_adc	Integer		

d_flag_digit			
flag_digit_code	Varchar(n)(3)	NN	(FK)
description	Varchar(n)(100)		

mag_type			
mag_type_code	Varchar(n)(6)	NN	(FK)
description	Varchar(n)(64)		

magnitude			
event_time	Varchar(n)(19)	NN	(PFK)
mag_type_code	Varchar(n)(20)	NN	(PFK)
method_code	Varchar(n)(16)	NN	(PFK)
reference_code	Integer	NN	(FK)
mag_value	Double precision		
err_mag	Double precision		

d_mag_method			
method_code	Varchar(n)(16)	NN	(FK)
description	Varchar(n)(64)		
long_description	Text		

reference			
reference_code	Integer	NN	(FK)
title	Text		
ref_abbr	Varchar(n)(255)		

events			
event_time	Varchar(n)(19)	NN	(PK)
nation_code	Varchar(n)(3)	(FK)	
region_code	Varchar(n)(2)	(FK)	
province_code	Varchar(n)(3)	(FK)	
comune_code	Varchar(n)(6)	(FK)	
event_name	Varchar(n)(100)		
latitude	Double precision		
longitude	Double precision		
depth_m	Double precision		
hyp_reference	Integer	(FK)	
other_hypocenter	Text		
i0	Double precision		
i0_reference	Integer	(FK)	
other_i0	Text		
fm_method_code	Varchar(n)(5)	(FK)	
fm_type_code	Varchar(n)(2)	(FK)	
fm_reference	Integer	(FK)	
fault_flag_yesno_code	Integer	(FK)	
fault_reference	Integer	(FK)	
strike	Double precision		
dip	Double precision		
rake	Double precision		
surface_flag_yesno_code	Integer	(FK)	
other_faults	Text		
err_lat	Double precision		
err_long	Double precision		
err_depth	Double precision		
located_code	Varchar(n)(16)	NN	(FK)

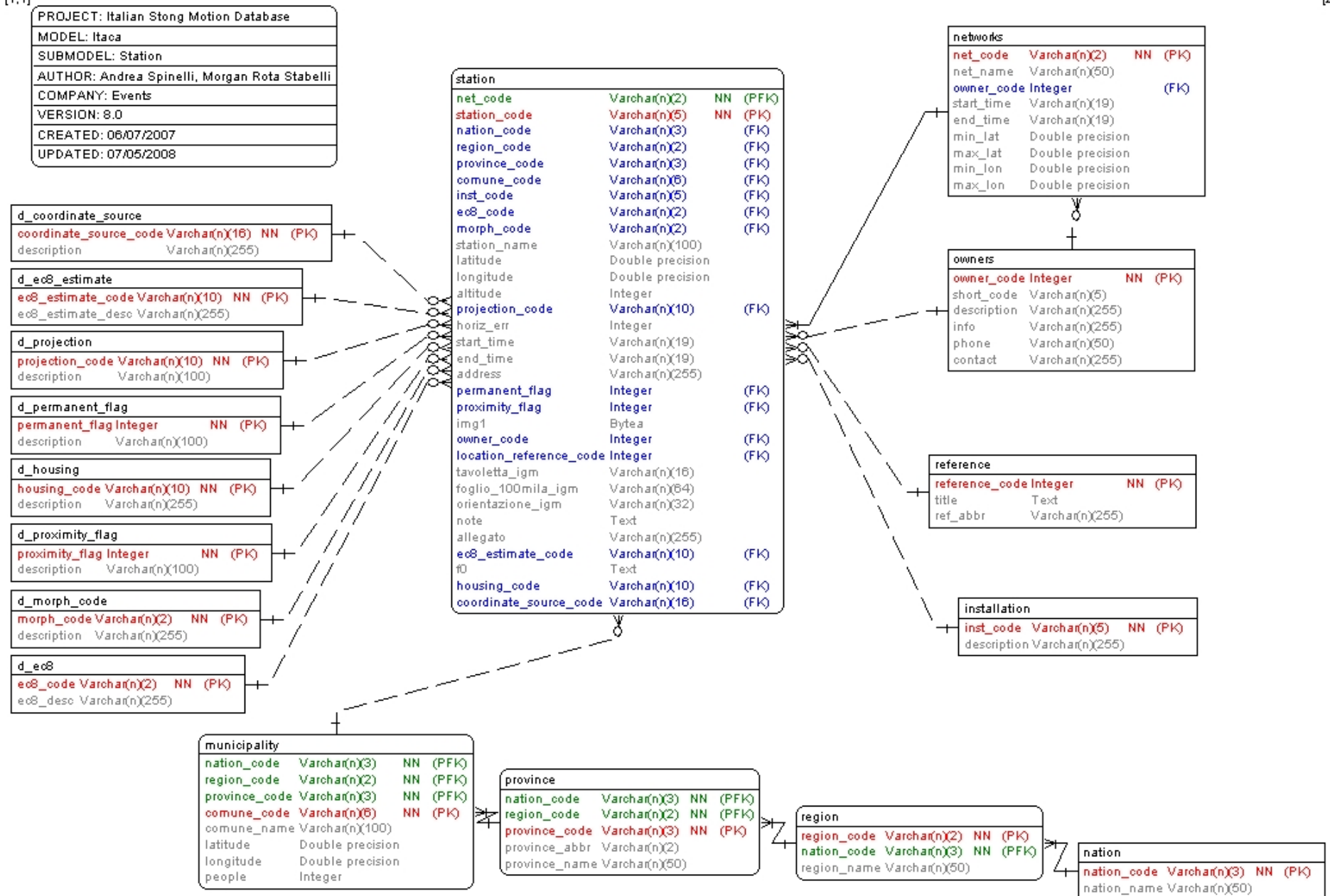
d_fm_method			
fm_method_code	Varchar(n)(5)	NN	(FK)
description	Varchar(n)(100)		

d_fm_type			
fm_type_code	Varchar(n)(2)	NN	(FK)
description	Varchar(n)(100)		

d_located			
located_code	Varchar(n)(16)	NN	(FK)
description	Varchar(n)(255)		

d_yesno			
yesno_code	Integer	NN	(FK)
description	Varchar(n)(3)		

waveform			
event_time	Varchar(n)(19)	NN	(PFK)
net_code	Varchar(n)(2)	NN	(PFK)
station_code	Varchar(n)(5)	NN	(PFK)
installation_start_time	Varchar(n)(19)	NN	(PFK)
flag_digit_code	Varchar(n)(3)	NN	(FK)
corrected_npt_ns	Integer		
corrected_npt_we	Integer		
corrected_npt_up	Integer		
corrected_dt	Double precision		
units	Varchar(n)(10)		
hp_ns	Double precision		
hp_we	Double precision		
hp_up	Double precision		
lp2_ns	Double precision		
lp2_we	Double precision		
lp2_up	Double precision		
pga_ns	Double precision		
pga_we	Double precision		
pga_up	Double precision		
pga_max	Double precision		
pgv_ns	Double precision		
pgv_we	Double precision		
pgv_up	Double precision		
pgd_ns	Double precision		
pgd_we	Double precision		
pgd_up	Double precision		
dur_ns	Double precision		
dur_we	Double precision		
dur_up	Double precision		
epa_ns	Double precision		
epa_we	Double precision		
epa_up	Double precision		
ia_ns	Double precision		
ia_we	Double precision		
ia_up	Double precision		
pga_ns_time	Double precision		
pga_we_time	Double precision		
pga_up_time	Double precision		
epl_dist	Double precision		
epl_az	Double precision		
fault_dist	Double precision		
lp1_ns	Double precision		
lp1_we	Double precision		
lp1_up	Double precision		
hp2_ns	Double precision		
hp2_we	Double precision		
hp2_up	Double precision		
hp1_ns	Double precision		
hp1_we	Double precision		
hp1_up	Double precision		
filttype	Varchar(n)(15)		
uncorrected_npt_ns	Integer		
uncorrected_npt_we	Integer		
uncorrected_npt_up	Integer		
uncorrected_dt	Double precision		
uncorrected_pga_ns	Double precision		
uncorrected_pga_we	Double precision		
uncorrected_pga_up	Double precision		
uncorrected_pga_ns_time	Double precision		
uncorrected_pga_we_time	Double precision		
uncorrected_pga_up_time	Double precision		
flag_fc	Varchar(n)(2)		



PROJECT: Italian Strong Motion Database
 MODEL: Itaca
 SUBMODEL: Station and curves
 AUTHOR: Andrea Spinelli, Morgan Rota Stabelli
 COMPANY: Events
 VERSION: 8.0
 CREATED: 06/07/2007
 UPDATED: 07/05/2008

reference
 reference_code Integer NN (PK)
 title Text
 ref_abbr Varchar(n)(255)

dispersion_curve
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 dispersion_curve_code Integer NN (PK)
 dispersion_curve_method_code Varchar(n)(5) (FK)
 reference_code Integer (FK)

d_dispersion_curve_method
 dispersion_curve_method_code Varchar(n)(5) NN (PK)
 description Varchar(n)(255)

dispersion_curve_values
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 dispersion_curve_code Integer NN (PFK)
 dispersion_curve_sequence Integer NN (PK)
 frequency Double precision
 phase_velocity Double precision

stratigraphy
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 stratigraphy_code Integer NN (PK)
 reference_code Integer NN (FK)
 latitude Double precision
 longitude Double precision
 projection_code Varchar(n)(10) (FK)
 elevation Double precision

stratigraphy_layer
 stratigraphy_code Integer NN (PFK)
 sequence_number Integer NN (PK)
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 lithography_code Varchar(n)(5) NN (FK)
 top Double precision
 bottom Double precision
 description Varchar(n)(255)

d_lithography
 lithography_code Varchar(n)(5) NN (PK)
 description Varchar(n)(255)

station
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PK)
 nation_code Varchar(n)(3) (FK)
 region_code Varchar(n)(2) (FK)
 province_code Varchar(n)(3) (FK)
 comune_code Varchar(n)(6) (FK)
 inst_code Varchar(n)(5) (FK)
 ec8_code Varchar(n)(2) (FK)
 morph_code Varchar(n)(2) (FK)
 station_name Varchar(n)(100)
 latitude Double precision
 longitude Double precision
 altitude Integer
 projection_code Varchar(n)(10) (FK)
 horiz_err Integer
 start_time Varchar(n)(19)
 end_time Varchar(n)(19)
 address Varchar(n)(255)
 permanent_flag Integer (FK)
 proximity_flag Integer (FK)
 img1 Bytea
 owner_code Integer (FK)
 location_reference_code Integer (FK)
 tavoletta_igm Varchar(n)(16)
 foglio_100mila_igm Varchar(n)(64)
 orientazione_igm Varchar(n)(32)
 note Text
 allegato Varchar(n)(255)
 ec8_estimate_code Varchar(n)(10) (FK)
 id Text
 housing_code Varchar(n)(10) (FK)
 coordinate_source_code Varchar(n)(16) (FK)

log_geotec
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 log_geotec_code Integer NN (PK)
 reference_code Integer NN (FK)
 latitude Double precision
 longitude Double precision
 projection_code Varchar(n)(10) (FK)
 elevation Double precision

log_nspt_layer
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 log_geotec_code Integer NN (PFK)
 log_nspt_layer_code Integer NN (PK)
 top Double precision
 bottom Double precision
 nspt Integer

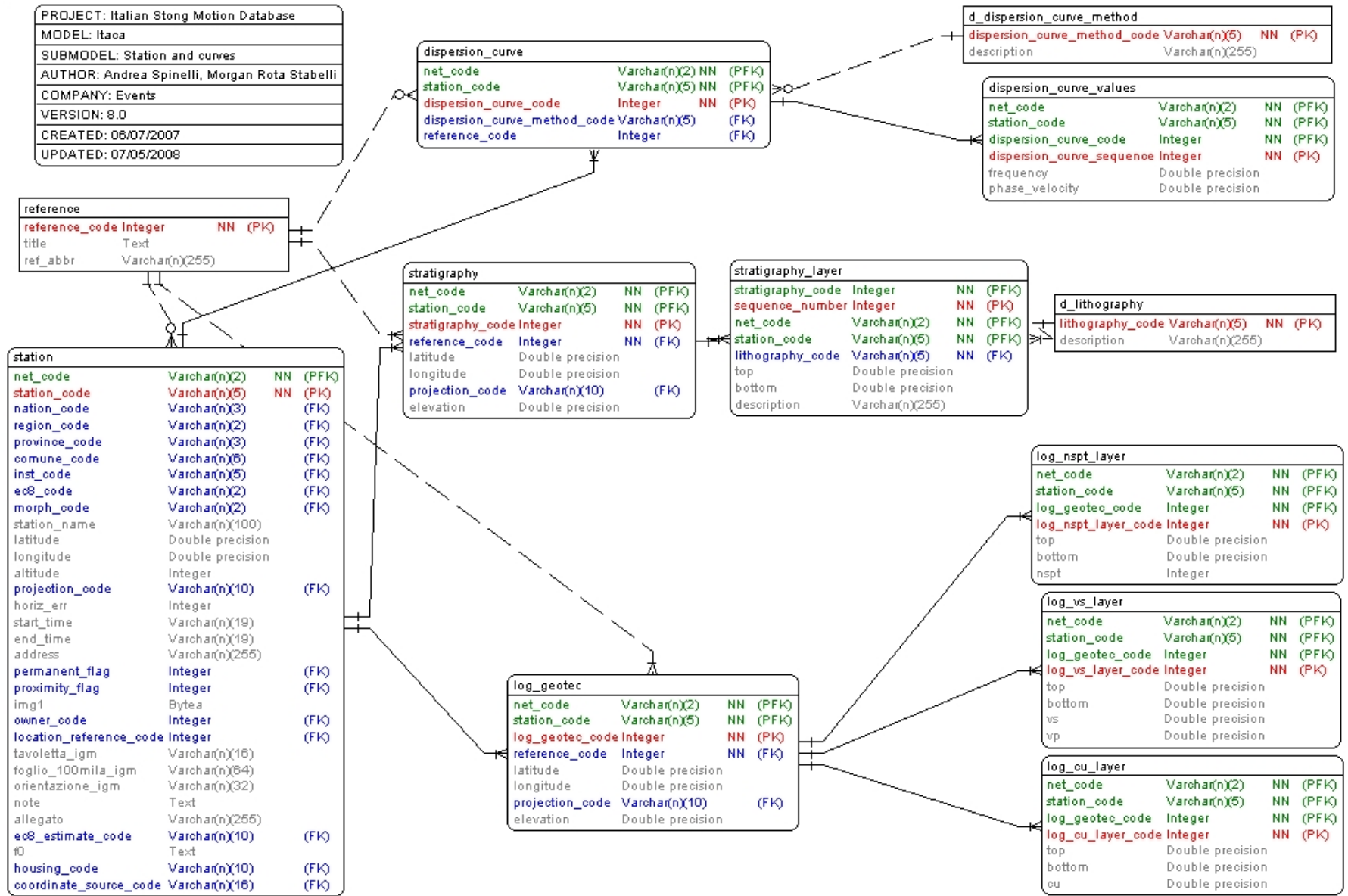
log_vs_layer
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 log_geotec_code Integer NN (PFK)
 log_vs_layer_code Integer NN (PK)
 top Double precision
 bottom Double precision
 vs Double precision
 vp Double precision

log_cu_layer
 net_code Varchar(n)(2) NN (PFK)
 station_code Varchar(n)(5) NN (PFK)
 log_geotec_code Integer NN (PFK)
 log_cu_layer_code Integer NN (PK)
 top Double precision
 bottom Double precision
 cu Double precision

Task 1: ITACA

[1.1]

[2.1]



[1.2]

[2.2]



PROJECT: Italian Stong Motion Database
MODEL: Itaca
SUBMODEL: Station and Instrumentaton
AUTHOR: Andrea Spinelli, Morgan Rota Stabelli
COMPANY: Events
VERSION: 8.0
CREATED: 06/07/2007
UPDATED: 07/05/2008

station			
net_code	Varchar(n)2	NN	(PFK)
station_code	Varchar(n)5	NN	(PK)
nation_code	Varchar(n)3		(FK)
region_code	Varchar(n)2		(FK)
province_code	Varchar(n)3		(FK)
comune_code	Varchar(n)6		(FK)
inst_code	Varchar(n)5		(FK)
eo8_code	Varchar(n)2		(FK)
morph_code	Varchar(n)2		(FK)
station_name	Varchar(n)100		
latitude	Double precision		
longitude	Double precision		
altitude	Integer		
projection_code	Varchar(n)10		(FK)
horiz_err	Integer		
start_time	Varchar(n)19		
end_time	Varchar(n)19		
address	Varchar(n)255		
permanent_flag	Integer		(FK)
proximity_flag	Integer		(FK)
img1	Bytea		
owner_code	Integer		(FK)
location_reference_code	Integer		(FK)
tavoletta_igm	Varchar(n)16		
foglio_100mila_igm	Varchar(n)64		
orientazione_igm	Varchar(n)32		
note	Text		
allegato	Varchar(n)255		
eo8_estimate_code	Varchar(n)10		(FK)
fd	Text		
housing_code	Varchar(n)10		(FK)
coordinate_source_code	Varchar(n)16		(FK)

fdt			
net_code	Varchar(n)2	NN	(PFK)
station_code	Varchar(n)5	NN	(PFK)
fdt_type_code	Varchar(n)7	NN	(PFK)
reference_code	Integer	NN	(FK)

instrument			
net_code	Varchar(n)2	NN	(PFK)
station_code	Varchar(n)5	NN	(PFK)
installation_start_time	Varchar(n)19	NN	(PK)
generic_instrument_code	Integer	NN	(FK)
sensor_serial_number	Varchar(n)64	NN	
digitizer_serial_number	Varchar(n)64	NN	
installation_end_time	Varchar(n)19		
samples_per_second	Text		
number_bits_adc	Integer		

channel			
net_code	Varchar(n)2	NN	(PFK)
station_code	Varchar(n)5	NN	(PFK)
installation_start_time	Varchar(n)19	NN	(PFK)
orientation_code	Varchar(n)2	NN	(PFK)
azimuth	Double precision		
inclination	Double precision		
sensitivity	Double precision		
sensitivity_unit	Integer		(FK)
gain	Double precision		
frequency	Varchar(n)50		
damping	Double precision		
full_scale	Double precision		

reference			
reference_code	Integer	NN	(PK)
title	Text		
ref_abbr	Varchar(n)255		

d_fdt_type			
fdt_type_code	Varchar(n)7	NN	(PK)
description	Varchar(n)255		

fdt_values			
net_code	Varchar(n)2	NN	(PFK)
station_code	Varchar(n)5	NN	(PFK)
fdt_type_code	Varchar(n)7	NN	(PFK)
fdt_sequence	Integer	NN	(PK)
frequency	Double precision		
amplitude	Double precision		
std_deviation	Double precision		

generic_instrument			
generic_instrument_code	Integer	NN	(PK)
sensor_manufacturer	Varchar(n)64		
sensor_model	Varchar(n)64		
digitizer_manufacturer	Varchar(n)64		
digitizer_model	Varchar(n)64		
instrument_type_code	Varchar(n)8		(FK)

d_instrument_type			
instrument_type_code	Varchar(n)8	NN	(PK)
description	Varchar(n)16		

pole			
net_code	Varchar(n)2	NN	(PFK)
station_code	Varchar(n)5	NN	(PFK)
installation_start_time	Varchar(n)19	NN	(PFK)
orientation_code	Varchar(n)2	NN	(PFK)
pole_type_code	Varchar(n)8	NN	(FK)
real_part	Double precision		
imaginary_part	Double precision		

d_pole_type			
pole_type_code	Varchar(n)8	UNNN	(PK)

d_orientation			
orientation_code	Varchar(n)2	NN	(PK)
description	Varchar(n)16		

d_units_sensitivity			
units_code	Integer	NN	(PK)
description	Varchar(n)100		