

WPO4 Empirical evaluation meeting

Rome (Italy), 23 October 2002

This meeting mainly focused on Data Compilation and deliverable D04.04. The aims of the WP04 Meeting in Rome are:

- the presentation of the Final Standard Information Sheet (SIS) for Ambient Noise & Earthquake Recordings and SAF dataset
- the establishment /adoption of a SIS – DATABASE
- the submission of D04.04 – New Date

The aforementioned issues were discussed and resolutions were taken as presented in the minutes.

I Partners attending the meeting

INGV (Roma), CSGAQ-CNR (Milan), LGIT (Grenoble), ITSAK (Thessaloniki), ETHZ (Zürich)

II Scientific matters

II.1 Presentation of the Final Standard Information Sheet (SIS) for Ambient Noise & Earthquake Recordings and SAF dataset

The initial SIS was as follows:

SITE INFORMATION SHEET (SIS) FOR EARTHQUAKE & NOISE RECORDINGS	Information	Remarks/Notes
Site		
Name	Almiros/Greece	
Code (up to 6 characters)	alm1	
Latitude (xxx.xxxx degrees) North(+)South(-)		
Longitude (xxx.xxxx degrees) East(+)West(-)		
Noise Recordings		
Available		Continuous
Extracted for SESAME (min)		
Earthquake Recordings		
Weak Motion (velocity) - No. Records		
Reference Site Code (up to 6 characters)	alm9	
Reference Site - No. Records		
Weak Motion (acceleration) - No. Records		
Reference Site Code (up to 6 characters)	alm9	
Reference Site - No. Records		
Strong Motion (PGA >0.1g) - No Records		
Reference Site Code (up to 6 characters)	alm9	
Reference Site - No. Records		
Magnitude minimum (Mw)		
Magnitude maximum (Mw)		
Epicentral Distance minimum (km)		
Epicentral Distance maximum (km)		
Geological Data		
Surface Geology (Rock/Stiff/Soft)	STIFF	
Stratigraphy & Lithology [Y/N]	Y	
Bedrock Depth (m)		

Geotechnical - Geophysical Data		
SPT-values [Y/N]	Y	
CPT-values [Y/N]	N	
Vp (m/sec) [Y/N]	Y	
Vs (m/sec) [Y/N]	Y	
O [Y/N]	Y	
ρ (gr/cm**3) [Y/N]	Y	
Basin Geometry		
Shape		
fo (Hz)	1.5	Ranging from 1.3 to 1
Width (km)		
Depth (km)		
Length (km)		
Closest Distance from Edge (km)		
Surface Topography		
Surface (Flat.Mountaineous. etc.)	Flat	
Site Description		
Area (Urban, Industrial, Agricultural, etc.)	Urban	
Ground Coupling		
Earthquake Recording Sensor	Ciment	
Noise Recording Sensor	Ground	
Information on Noise Recordings		
Recorder Type	CityShark	A/D 24bits
Sensor Type	Lennartz/3D-5sec	
Sampling Frequency (Hz)		
Gain	1024	
Data Format (saf or gse)	saf	converted from Citysh
Recording Period from (European format)		
Recording Period to (European format)		
Information on Earthquake Recordings		
Recorder Type	SMA-1	
Sensor Type	FBA	
Sampling Frequency (Hz)		
Gain		
Data Format	saf	converted from Kiner
Recording Period from (European format)		
Recording Period to (European format)		
GPS time [Y/N]	N	
Contact Information		
Institute	ITSAK	
Person	N. Theodulidis	

After discussion it was decided:

- All available SIS and the corresponding earthquake or/and noise recordings have to be sent to the WP04 leader by the end of November.
- For earthquake recordings, where possible, at least one minute (1min) pre-event noise should be kept in SAF files.
- In the Comments for Geotechnical - Geophysical data it must be noted whether Array Noise Measurements were performed and they are available.
- All fields of the second column (Information) that show the number of earthquake or/and noise recordings have to be completed, even in case there is no record (put 0). In addition, in case of cells where [Y/N] is required it is obligatory to write Y or N.
- The Partner [CSGAQ-CNR: Alberto Marcellini] asked and agreed to participate in the deliverable D20.04 as well as to fulfil the corresponding SIS, using data from Fabriano site.
- In this WP04 dataset of earthquake and noise recordings no instrument response will be provided. Hence, in a first stage only uncorrected data will be given and corresponding correction factors will be asked from the owner of the data (responsible Institute). However, it must be mentioned in the SIS comments column whether data are corrected or not. It will be examined in the future whether dataset will be converted to corrected SAF data.

- The SIS row "GPS time [Y/N]" will be replaced by "Absolute time [Y/N]".
- All contributors of data sets to WP04 must provide maps showing their stations.

The data (headings, SAF or GSE) of ambient noise & earthquake recordings was also discussed. In the following example of a SAF file it was decided that:

- Rows with **red colour** are MANDATORY for the input of the code "HV_PROC".
- Rows with **green colour** are MANDATORY comments useful to users of SAF files.
- Rows with black colour are NOT MANDATORY comments and data provider may put as many as she/he wishes.
- The hush # symbol in the beginning of the row means comment row. To separate headings from data four ##### hushes have to be set (MANDATORY in SAF format).

• Example of finally suggested SAF file

```

SESAME ASCII data format (saf) v. 1
#Noise Recording [or Earthquake Recording]
#[If earthquake recording] Source Coordinates & Magnitude
#
# Station Coordinates =30.4531N 23.2536E
STA_CODE = arc1
START_TIME = 2001 09 23 23 59 58.4
SAMP_FREQ = 62
NDAT = 112501
CH0_ID = Z
CH1_ID = N
CH2_ID = E
UNITS = (e.g. microvolts)
#
#North Rotation (if needed)
NORTH_ROT = 50.
#East Rotation (if needed)
#VANG (Polarity if needed)
#
# Original file name: 012662359t.arc1
#Data Conversion Factor (e.g. from units --> SI units)
#Digitiser Type & Sensor Type (e.g. City Shark & Le5s)
#####-----
-348.5 338.5 101.25
-352.5 266.75 87.
-342.5 256.75 37.
    
```

The final number of SIS to be provided is as following:

"FINAL" number of sites with earthquake & noise recordings

CR7	[ITSAK]	80
CR9	[INGV]	36
AC10.9	[CSGAQ-CNR]	~40
CR6	[ETHZ]	22
AC12.1	[CETE]	
CR14	[LCPC]	~60
Total		~238

II.2 Establishment / Adoption of a SIS – DATABASE

After the presentation of a demo of SESAME database by the WP04 leader, the following comments/remarks were decided to be incorporated as well:

- Since for the majority of SIS sites there is no velocity profile information site characterization by ROCK/STIFF/SOFT is mainly based on surface geology and judgment. However, in case that the provider has more information about site characterization (e.g. category A, B, C, D, E according to NEHRP) it must be mentioned in the corresponding column of Remarks/Notes.
- Resonant frequency row f_0 (Hz) should be set as selection criterion within a certain range, for instance, $1.2\text{Hz} \leq f_0 \leq 1.8\text{Hz}$.
- In Site Selection Criteria the Site Code Name should be added as a criterion.
- Magnitude should be set instead of Moment Magnitude.
- Absolute Time should be set instead of GPS Time.
- A table should be given by each Partner that connects each earthquake with the corresponding recording Site Codes, as in the following example:

Earthquake Origin Time	Lat. - Long.	Depth (km)	M	Site Code	Recording Start Time
19860210121530.5	42.2330 15.3561	12.0	6.3	Arc1	19860210121552.3
				Rov1	19860210121600.5
				Rov2	19860210111602.0
19980623141612.6	40.3450 22.5434	8.0	5.8	Lef1	19980623141630.4
				Agr1	19980623141642.2
				Vas1	19980623141645.6
				Pre1	19980623141655.1
				Igm1	19980623141702.5
.....
			
			

II.3 Submission of D04.04 – New Date

After discussion it was decided that:

- A four (4) months submission delay of the D04.04 will be asked (by the Coordinator) from the EC-Brussels, that is, this deliverable will be sent to Brussels by the end of Dec. 2002.
- The general form/contents of the D04.04 Report will be as following:

Deliverable D04.04
Homogeneous Data Set of Noise and Earthquake Recordings at Many Sites
SESAME WP04 - H/V Technique: Empirical Evaluation

1. Introduction - Aim of the D04.04 - Partners
2. Standard Information Sheets (SIS) per Partner
 - 2.1 Discussion / Remarks
3. SIS Database Presentation
 - 3.1 Selected Data Base - Reports
 - 3.2 Discussion / Remarks