

Station Description Sheet **W03**

1. General Information
2. Geographical Information / Geomorphology
3. Geological Information
4. Geotechnical Site Characterization
5. Geophysical Site Characterization
6. Site Response
7. References

1. GENERAL INFORMATION



Photo 1: Outside view of the hosting shelter



Photo 2: The W03 station

Station Code: W03

Network: Euroseis

Instrumentation: Check the up-to-date EUROSEISTEST stations history file at <http://euroseisdb.civil.auth.gr/stations>

Power supply: AC

Housing: in a water pump house in the western part of the Mygdonian basin

2. GEOGRAPHICAL INFORMATION / GEOMORPHOLOGY



Figure 1: Location map of W03 station

Location: in the Mygdonian basin

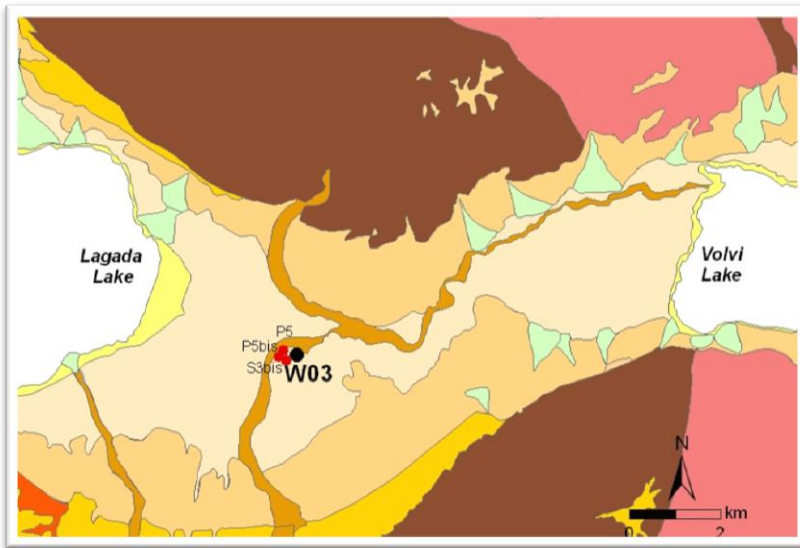
Elevation (from sea level): 73 m

Station coordinates: 23.250868°E / 40.659671°N

Projection system: WGS84

Site morphology: Valley center (west part of the valley)

3. GEOLOGICAL INFORMATION



Legend

- Holocene**
 - Lacustrine sediments
 - River deposits/torrent beds
 - Valley deposits
- Pleistocene**
 - Lacustrine sediments
 - Terrestrial (river and flood) red beds
- Quaternary**
 - Alluvial fans
- Alpine formations**
 - Two-mica and biotite granite
 - Two-mica gneiss

Figure 2: Geological map of the central Mygdonian basin (IGME, 1978). The available geological boreholes (P5, P5bis and S3bis) in the vicinity of station W03 are also shown.

Surface geology (from geological map): on Holocene valley deposits

Reference for geological map: Geological map of Greece - Scale 1:50000, Map Sheets of "Thermi" and "Zagliverion", (IGME, 1978)

Boreholes (with core description) in the proximity of the station: three geological boreholes drilled for BRGM during 1970 – 1971 with names P5, P5bis & S3bis (BRGM, 1971). The borehole P5 is the deepest (407m depth) geological borehole in the valley. Their soil description is available in the following table.

Table 1: Geological soil description of the three boreholes P5, P5bis & S3bis

Borehole P5bis		Borehole S3bis	
Depth (m)	Soil description	Depth (m)	Soil description
0-12	gravels and angular pebbles, predominant quartz, gneiss and black shales	0-10	Gravels and roll pebbles, quartz, gneiss, shales with few clay
12-16	grey clay, sand and gravels	10-12	Yellowish clay
16-21	clayey sands with gravels	12-14	Yellowish argilous gravels
21-26	blue-black plastic clay with sands	14-21	Gravels and pebbles with clay
		21-26	blue-black plastic clay with gravels

Borehole P5	
Depth (m)	Soil description
0-1	Pebbles, coarse sand
1-5	Coarse sand, beige-black color
5-6	Sand, gravels, pebbles
6-10	Mid-coarse sand, beige-black color
10-12	Gravels, Ø 1-2 mm
12-15	Grey clay and gravels
15-18	Coarse sand and gravels
18-21	Pebbles, Ø 1-2 mm
21-26	Plastic clay, black color

26-27	Sandy clay, blue-black color
27-31	Coarse argillaceous sand and pebbles
31-39	Clay, blue-black color with gravels and pebbles
39-152	Plastic clay with grey, grey-beige, white, grey-blue color and gravels lenses
152-160	Mid-coarse argillaceous sand, brown color
160-161	Argillaceous sand, grey color
161-173	Coarse argillaceous sand, grey-green color
173-183	Argillaceous sand, brown color
183-199	Plastic clay, brown-red color with gravels
199-217	Sandy clay, beige color with gravels
217-229	Plastic clay, beige color
229-232	Argillaceous sand and gravels
232-260	Sandy clay and gravels
260-263	Mid-coarse argillaceous sand
263-284	Sandy clay, beige-pink color
284-288	Plastic clay, beige color
288-304	Sandy clay, beige-pink color with gravels and pebbles
304-307	Mid-coarse argillaceous sand
307-309	Plastic clay, grey-beige color
309-344	Sandy clay, beige-red color
344-347	Sands and argillaceous gravels
347-365	Clay, brown-red color with sand and gravels
365-407	Coarse sands, brown color, not very argillaceous, quartzo-feldspathic gravels, pebbles \varnothing 1-2 mm, angular and little rolled. Black shale elements

4. GEOTECHNICAL SITE CHARACTERIZATION

Geotechnical site characterization data for station W03 include:

1. Cone penetration test (EUROSEISRISK project reports, 2002 – 2005).

Data are available in ascii format in:

http://euroseisdb.civil.auth.gr/uploads/station/geotechnical/26/Site_characterization_geotechnical_W03.txt

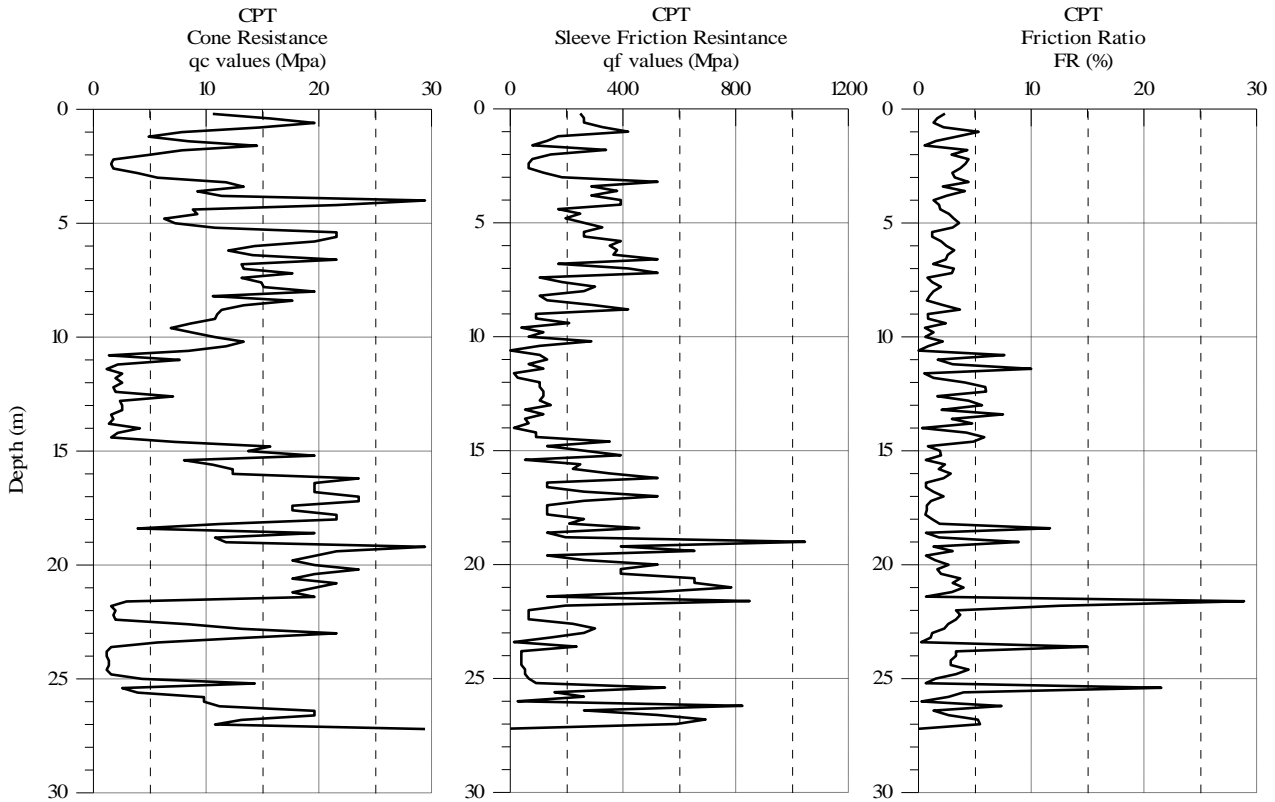


Figure 3: Geotechnical data at station W03

5. GEOPHYSICAL SITE CHARACTERIZATION

Geophysical site characterization data for station W03 include:

1. Shear wave velocity values (V_s) / determined by array SPAC microtremor measurements (Manakou et al., 2010).

Data are available in ascii format in:

http://euroseisdb.civil.auth.gr/uploads/station/geophysical/26/Site_characterization_geophysical_W03.txt

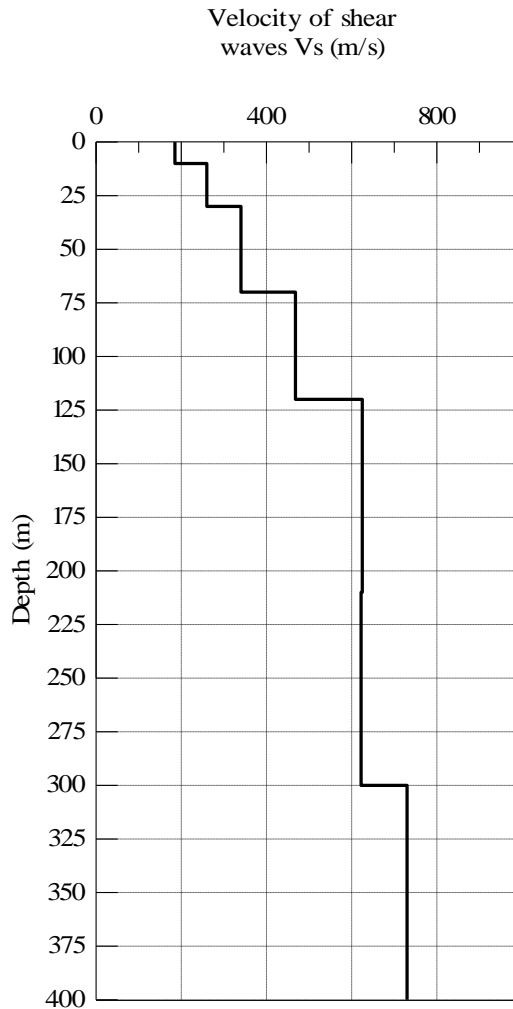


Figure 4: Shear wave velocity values at station W03

6. SITE RESPONSE

Site response data for station W03 include:

1. Standard Spectral Ratio technique (SSR) / applied on the S part of earthquakes recorded in a temporary station close to station W03 (Raptakis et al., 2005)

Data are available in ascii format in:

http://euroseisdb.civil.auth.gr/uploads/station/response/26/Site_response_W03.txt

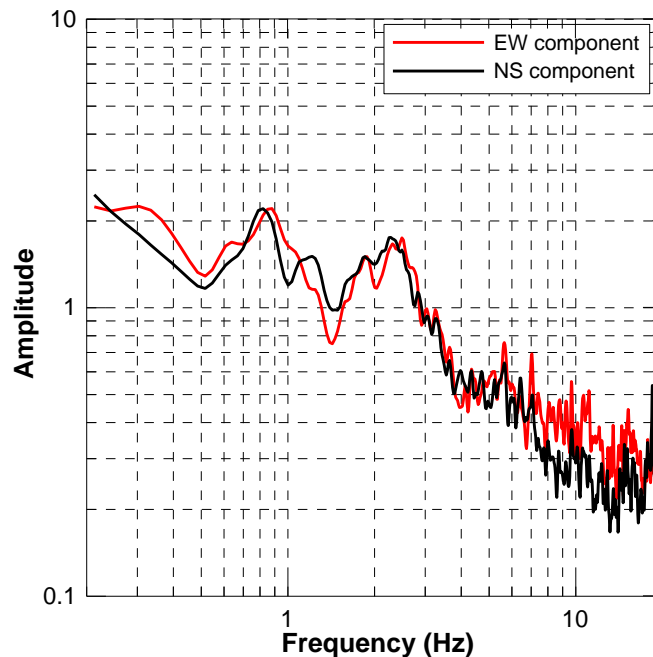


Figure 5: Standard Spectral Ratios (SSR) for the two horizontal components close to station W03. Ratios are based on the S-part of earthquakes recorded in a temporary station close to the station W03

7. REFERENCES

- BRGM (Bureau de Recherche Géologiques et Minières), 1971. Etude Hydrogéologique du Bassin de Mygdonia. O.A.E.S., pp.53.
- Manakou M., D. Raptakis, F. J. Chavez-Garcia, P. Apostolidis and K. Pitilakis, 2010. 3D soil structure of the Mygdonian basin for site response analysis. *Soil Dynamics and Earthquake Engineering*, Vol.30, pp. 1198-1211.
- Raptakis D., M. Manakou, F.-J. Chavez-Garcia, K. Makra and K. Pitilakis, 2005. 3D configuration of Mygdonian basin and preliminary estimate of its site response. *Soil Dynamics and Earthquake Engineering* Vol. 25, pp. 871-887.