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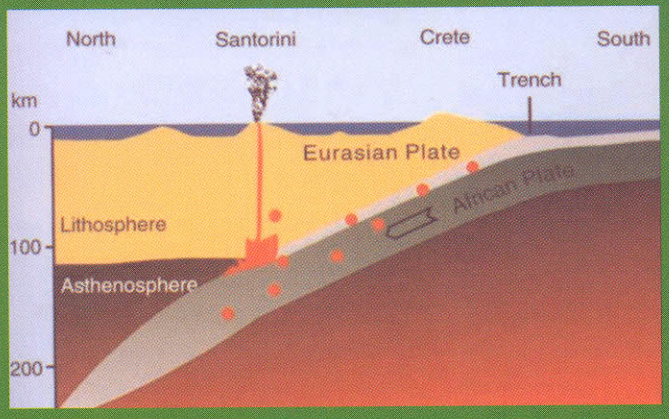

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etalon soil. Refusing Nakamura's assumption that H/V ratio for etalon soils equals 1, we have applied the measured ratio to other H/V spectra as correcting function of frequency. Using such modified Nakamura technique, we have obtained very good similarity for results of both approaches in frequency range from 0.1 to 10 Hz. This work was supported by leading scientific schools # 799.2008.5 and 2973.2008.5

Combined Seismic and Gravity Surveys in Fault Detection and Liquefaction Risk Assessment. Case study of Nafplion city, Greece

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An efficient and cost effective site characterization with regards to the seismic hazard and liquefaction risk, was realized with the aid of geophysics, in the area where the Nafplion city of Greece, is expanding. The geophysical techniques considerably contributed to the detection and characterization of possible seismic faults with the implementation of gravity and seismic methods. Additionally they provided the near surface velocity structure for the calculation of the amplification of the expected Peak Ground Acceleration (PGA), also required for the final estimation of the liquefaction risk. The seismic methods (seismic reflection, seismic refraction, seismic modeling, MASW, multichannel analysis of microtremors and crosshole investigations), if combined with geotechnical borehole testing enhance their reliability, and cover large areas in a cost-effective way in comparison with the standard borehole tests. Special emphasis was given in seismic depth migration and particularly in construction of valid velocity models, in order to calculate the dips of the possible faults as close as possible to the real ones. In Nafplion area, evidence was found for a low factor of safety against liquefaction at specific sites within the study area. The results show that, depending on selected earthquake scenario, the investigated sites of Nafplion city may show liquefaction features with low (between 0 and 5 %) or high (up to 80 %) probability mainly at depths between 5 and 10 meters. That should be considered as highly important information for making risk-based design decision in this region of Peloponnesus.

Zipingpu Dam Failures (Sichuan Prefecture, China) Caused by the 7.9R Earthquake on the 12th May 2008

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The 7.9R earthquake that struck Sichuan on the 12th of May 2008, in the district of Chengdu of Southern China resulted in tenths of thousands casualties, the complete destruction of many towns and extended damages to public works. The earthquake was triggered by a reverse fault of NNE-SSW trend, more than 100 km long, that divides morphologically the affected area in two sections, the eastern one with mild low topography and the western one with intense relief representing the boundary of Tibet Mountains. This mountainous section is characterized by a rich drainage network that drains the greater region of the Tibet plateau. Along the trace of this high-stand for thousands of years numerous hydraulic works have been attempted in order to manage the water supply. Especially during the past decades, 400 small and large dams have been constructed. The main dam is the Zipingpu dam that has a height of 150m, a capacity of 1.2 billion m^3 and includes a hydroelectric plant of 3.4 billion Kwh power.

The Zipingpu dam is located 10km east of the earthquake epicenter and after the earthquake of 7.9R, the following failures were recorded:

- Subsidence of the crown in the central part of the dam, of the order of 50cm in relation to the side survey control points.
- Deformation of the lower face of the dam, an area of approximately 1000. m^2.
- Deviations and deformations of the construction elements throughout the face of the dam
- Widening of construction joints (approximately 15 cm on the upper face)
- Extended massive landslides throughout the reservoir
- Landslides on both left and right abutments of the dam causing further damages to secondary constructions.

After the evaluation of the dam damages, the discharge of the reservoir was ordered through the emergency spillway in order to minimize the risk of a potential disaster for the nearby towns and especially Dujiangyan. Finally, the causes of the failures are investigated based on the available data.

Earthquake ML=6,5R 08.06.2008 Northwestern Peloponnesus Cross- Correlation of Seismic Intensities, with Existing Seismotectonic,Geological and Geotechnical Conditions

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At the 8th of June 2008, 12:25:28.0 UTC, earthquake of ML=6,5R and D=15-21km stroke at the Northwestern Peloponnesus area (37.97N, 21.48E). According to the existing data, the earthquake was expressed by a fault trending N20°E, of dextral strike slip character, in 15-21km depth, while the aftershocks arrangement follows the same general trend. From the investigation that took place in the area, the expression of the seismic faults on the surface that pertain with the instrumental data were allocated, while the geological and geotechnical status of the area was determined as well. A detailed mapping and study of the damage distribution, as well geodynamic phenomena took place. Combining all the above mentioned, the intensities for every residential area came along according to EMS scale (1998) and so the intensity distribution in the misoseismal area. Based on the cross-correlation of all the existing data it is concluded that the seismotectonic, geological and geotechnical regime were determinant to the damage and intensities distribution.

The Relative Importance of Site Effects in Seismic Hazard Analysis

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Damage from strong earthquakes often exhibits local variation. Ground motion prediction equations have been developed that take account of such so-called site effects and they have been used in assessing seismic hazard. However, many authors have concluded that the ability to accurately reflect site effects in prediction equations is limited. This work describes a method for assessing the importance of site effects relative to that of magnitude, distance and residual uncertainty in predicting strong ground motion. The ideas are illustrated by carrying out some