10-14 December 2007, Monday - Friday

Moscone West, 800 Howard Street
Moscone South, Howard Street (between 3rd and 4th streets)

San Francisco, CA, USA

About Paper Numbers

Program & Abstracts

PROGRAM SUMMARIES - Browse session details and abstracts

- Union [U]
- Atmospheric Sciences [A]
- Atmospheric and Space Electricity [AE]
- Biogeosciences [B]
- Cryosphere [C]
- Earth and Space Science Informatics [IN]
- Education and Human Resources [ED]
- Geodesy [G]
- Geomagnetism and Paleomagnetism [GP]
- Global Environmental Change [GC]
- Hydrology [H]
- Mineral and Rock Physics [MR]
- Near-Surface Geophysics [NS]
- Nonlinear Geophysics [NG]
- Ocean Sciences [OS]
- Paleoceanography and Paleoclimatology [PP]
- Planetary Sciences [P]
- Public Affairs [PA]
- Seismology [S]
- SPA-Aeronomy [SA]
- SPA-Solar and Heliospheric Physics [SH]
- SPA-Magnetospheric Physics [SM]
- Study of the Earth's Deep Interior [DI]
- Tectonophysics [T]
- Volcanology, Geochemistry, Petrology [V]

AGU

1340h

S33A-1047 **[Abstracts]**

Elastic-Anelastic properties beneath the Aegean inferred from long period Rayleigh Waves

Kassaras, I

kassaras@geol.uoa.gr

Department of Geophysics, University of Athens, Faculty of Geology and Geoenvironment, Panepistimiopolis, Zografou, Athens, 15784, Greece

Louis, F

flouis@geol.uoa.gr

Department of Geophysics, University of Athens, Faculty of Geology and Geoenvironment, Panepistimiopolis, Zografou, Athens, 15784, Greece

Makropoulos, K

kmacrop@geol.uoa.gr

Department of Geophysics, University of Athens, Faculty of Geology and Geoenvironment, Panepistimiopolis, Zografou, Athens, 15784, Greece

*** Kaviris, G**

gkaviris@geol.uoa.gr

Department of Geophysics, University of Athens, Faculty of Geology and Geoenvironment, Panepistimiopolis, Zografou, Athens, 15784, Greece

This work is towards contributing to the better knowledge of the deep structure of the Aegean by introducing experimental elastic and anelastic parameters via the study of long period Rayleigh waves. For this scope path- average phase velocities and attenuation coefficients of fundamental Rayleigh waves crossing the Aegean were extracted over the period range 10-100 s. It is mean worth that it is the first time that anelastic parameters of the long period wavefield are determined for the region. The wavetrains were recorded at the broadband stations installed some years ago in the Aegean region for the SEISFAULTGREECE project. The stochastic inversion algorithm has been used to derive 36 path-average models of shear velocity and 19 path-average models of inverse shear Q down to 200 km. Average over the study region shear Q values at depths from 0 to 200 km range between 29±13. The observed low shear Q likely indicate that fluids reside in lower crustal, as well as upper mantle depths. Furthermore, the elastic and anelastic 1-D path-average models were combined in a continuous regionalization tomographic scheme to obtain a 3-D model of shear velocity variation down to 200 km and a 3-D model of inverse shear Q variation down to 120 km. The most prominent features in the tomograms are: a) A low shear velocity zone in the back-arc region, especially in the central and north Aegean. This region is located south of the North Aegean Trough (the western edge of the North Anatolian Fault) and correlates well with the derived anelastic tomograms which present high attenuation in this area. b) A high velocity/low attenuation zone in South Aegean indicating the subducted African lithosphere beneath the Aegean. The zone in central and north Aegean characterized by low velocities/high attenuation is compatible with a region of high extensional strain rates, recent volcanism and high heat flow. These observations suggest a hot or perhaps partially molten upper mantle and/or distributed deformation beneath the study region, probably related with the slab roll-back that has accompanied back-arc extension. ACKNOWLEDGMENTS The present study was co-funded by the European Social Fund and National Resources - (EPEAEK II) PYTHAGORAS, contract No. 70/3/7306.

7200 SEISMOLOGY

7218 Lithosphere (1236)

7270 Tomography (6982, 8180)

Seismology [S]

2007 Fall Meeting