

## G-VI10

### A NEW GRAVITY AND MAGNETIC STUDY OF THE EAST CRETAN SEA

S. BRYLKA<sup>(1)</sup>, M. HARTUNG<sup>(1)</sup>, J. MAKRIS<sup>(1)</sup> and P. PAVLAKIS<sup>(2)</sup>

- (1) Institute of Geophysics, University, Bundesstrasse 55, Hamburg (F.R.G.)  
(2) National Centre for Marine Research (EKOE), Ajios Kosmas, Ellinikon, Athens (Greece)

In April 1986 a new geophysical study of the eastern Cretan Sea between the volcano of Santorin and Crete was conducted with the RV-Sonne. Aim of this study is to reevaluate the tectonic elements of the Cretan Sea and to establish their connection to the volcanic activity of the southern Aegean Sea. A total of 3600 km of bathymetry, gravity, magnetics, 3.5 KHz sediment echograph (subbottom profiler) and seabeam were recorded. The ship used integrated navigation consisting of GPS, transit satellite and Loran C. The positioning accuracy was better than  $\pm 50$  m. The evaluation of the 3.5 KHz profiles and the bathymetry are discussed by Anagnostou et al. The results of all maps which have been processed and evaluated show significant differences from older surveys. In particular, the gravity and magnetic data demonstrate clearly that the new possibilities in navigation and modern geophysical instruments (e.g. the marine gravity meter system KSS 30) permit accuracy comparable to land surveys, and much higher resolution of the different fields. This has consequences for the interpretation of previous surveys and for the detection of effects which had not been detected in the past. Accuracies of the new data and their differences from older data will be discussed.

## G-VI11

### DEEP SEISMIC SOUNDINGS, CRUSTAL STRUCTURE AND TECTONICS OF THE CRETAN SEA, REVISED

S. BRYLKA<sup>(1)</sup>, M. HARTUNG<sup>(1)</sup>, J. MAKRIS<sup>(1)</sup> and P. PAVLAKIS<sup>(2)</sup>

- (1) Institute of Geophysics, University, Bundesstrasse 55, Hamburg (F.R.G.)  
(2) National Centre for Marine Research (EKOE), Ajios Kosmas, Ellinikon, Athens (Greece)

During the geophysical study of the Cretan Sea with the RV-Sonne in March 1986 the crustal structure along a NS profile was studied by deep seismic soundings. Along a 75 km line 15 Ocean Bottom Seismographs were deployed and 20kg/40kg shots fired at 600 m intervals. A large shot (80 kg dispersed charge) was fired at each end. In addition, the shallow structures were studied by covering the profile with airgun shots fired from 4 x 8 litres at 2000 PSI. The shot spacing was 150 m, and both penetration and resolution were high enough to permit a reliable study of the sedimentary thickness and geometry of the basement. The results were compared to older studies and it could be established that the crust is stretched continental, and the Pn-velocity is lower than normal. However, due to the better resolution and measurement of the sediments the new model differs from previous ones. The evaluation took both traveltimes and amplitude computations into consideration. The new models will be discussed in connection with the gravity and magnetic data.

