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3-D tomography of the Cinarcik basin (Marmara Sea, Turkey) from ocean bottom recording of dense seismic profiles

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The earthquakes of Izmit and Duzce in 1999 are the last events of a westward propagating sequence of ruptures along the North Anatolian dextral strike slip fault (NAF). The western continuation of the fault in the Marmara Sea and its relation with the opening of this basin are still debated. It is an important issue as the structures related to the motion of the NAF within the Marmara Sea basin are expected to be loaded and to experience potentially destructive earthquakes in a close future. The area has thus been the subject of active studies in recent years, among which the 2001 SEISMARMARA survey which aims to investigate the deep structure of the basin and the underlying crust. Multichannel seismics was acquired and 37 ocean bottom seismometers (OBS) were deployed across the basin to record seismicity and active seismic shots. The second leg of the campaign was focused on the Cinarcik basin, at the eastern end of Marmara Sea, and consisted in a dense seismic profiling comprising 82 lines. Seventeen OBSs recorded the shots, allowing us to derive a velocity structure of the basin by means of 3-D travel time inversion. The first results of this tomography will be presented and correlated with the coincident multichannel seismic lines. Inferences

regarding the functioning and the evolution of the basin will be discussed.