



Multiplet analysis of the present seismic activity within the Cinarcik basin, Turkey.

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The CINNET seismological network aims at monitoring the microseismic activity in the Eastern Marmara Sea, Turkey. It has been especially designed in order to focus on the seismicity of the Cinarcik Basin. This basin is located between the western part of the 1999 Izmit earthquake rupture zone and the well-identified seismic gap along the main Marmara fault. Consequently, studying this area is essential to our understanding of the seismic hazard along the North Anatolian Fault, in the vicinity of Istanbul. CINNET deployment started during the summer of 2007 and now consists in a dense network of 5 short-period seismometers and 1 broadband sensor. In the following, we present our search and analysis of earthquake multiplets extracted from the seismic activity that took place during 2009 in the Cinarcik area.

Our main results reveal that ten years after the Izmit earthquake, the seismic activity appears now clustered into seismic swarms, rather than along the main branch of the North Anatolian Fault. We also identified several multiplets, which allow an accurate relocation of the main seismic swarms. Among these, two swarms are located close to the cities of Tuzla and Yalova. Two regions that have been previously activated by the Izmit earthquake. Finally, we discuss implications of this new set of relocations for the understanding of current active seismogenic structures within and around the Cinarcik Basin.