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Temporal Variations of the Background Seismicity along the Main Marmara Fault

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Long term (∼5years) and large scale (∼50km) variations of seismicity are investigated in order to understand the response of the Main Marmara Fault to tectonic loading. A high resolution seismicity catalog compiled for the period of 2007-2012 implies three segments of the fault with different seismic behaviour. The eastern segment (Çınarcık Basin) is the most active and shows diffuse seismicity. The seismicity in the Çınarcık Basin (CB) clustered in three sub regions also shows variations on the rate, mechanism and spatial distribution. The segment of Kumburgaz basin is bounded in the east by a seismic activity which corresponds to the kink of the MMF and in the west to the transition to the Central Basin. This segment is characterized by a very low level of seismic activity. The western segment (WM) has experienced 3 largest earthquakes with magnitudes greater 5 during the observation period. We compared cumulative seismicity of two segments (WM and CB) with the regional seismicity of the western Anatolia. It appears that the activity rate of the CB and WM significantly increased during the observation period. Striking clustering of eathquakes in time may indicate possible influence of large scale deformation.