



The 30 July 2005 ($M_w=5.4$) and the 20 - 26 December 2007 ($M_w=5.5$; $M_w=5.3$) Afsar-Bala (Ankara) Earthquake Series in Central Turkey

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The first moderate sized earthquake of the sequence recorded by the broadband network of KOERI occurred on 31 July 2005 at 00:45 local time and was felt strongly in Bala district of Ankara city and its surrounding villages. This mainshock was followed by an activity of 40 small aftershocks within the range of $2.6 < M < 3.6$. The source region is about 12 kilometers south of Afsar town of Bala district. No people were killed, but the damage were considerably high in the villages including, Saripinar, Bahcekaradalak, Yenyapanseyhli that have adobe and soil-roof buildings. The second major activity commenced on 20 December 2007 at 11:48 local time with $M_w=5.5$ earthquake followed by $M_w=5.3$ event that occurred at 01:47 local time on 27 December. The epicenters of the earthquakes took place in the vicinity of Saripinar and Yenyapan villages of Afsar district. About 500 adobe houses were damaged in the Afsar district and its surrounding villages. In general, the region experiences internal deformation within the Anatolian Block. There are several active faults generating moderate earthquakes in the region quite often. A characteristic earthquake size of such series within the Anatolian block ranges between $4.7 < M < 5.7$ depending on the dimensions and the number of the activated faults. The fault plane solutions of the earthquakes were retrieved from the digital broadband stations of Kandilli Observatory and Earthquake Research Institute (KOERI) using regional moment tensor inversion method (Dreger, 2002). The analysis results suggest that the earthquake activity occurred on NW-SE and NE-SW trending strike slip faults with oblique components

that could be interpreted as failure on conjugate transverse oblique faults. The distribution of the aftershocks in the region coincides with this result. We call the earthquake activity that initiated about three years ago as Afsar-Bala (Ankara) earthquake series. The total number of the events that we have recorded until present is 2000. Such a data set will contribute to understand the nature of intraplate earthquakes.