[EJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS08]Active faults and paleoseismology

convener:Mamoru Koarai(Earth Science course, College of Science, Ibaraki University), Hisao Kondo(Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology), Ryosuke Doke(神奈川県温泉地学研究所, 共同), Nobuhisa Matsuta(Okayama University Graduate School of Education)

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Geologic and historic information on seismic cycles and on the magnitude and source faults of past earthquakes is essential information to understand future large earthquakes. The study of past faulting and seismicity is an important issue for an interdisciplinary community of seismologists, geologists, geomorphologists, archaeologists, and historians.

[SSS08-P29]Source Parameters of Moderate and Strong Earthquakes for Turkey and its Surrounding Area (1938-2017)

*Dogan Kalafat[1] (1.Bogazici University Kandilli Observatory and Earthquake Research Institute Cengelkoy, Istanbul Turkey)

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Turkey is located in the eastern Mediterranean sector of the Alpine-Himalayan orogenic belt. This area comprises the technically most active in the Mediterranean region. Because the country is located at the junction of the main tectonic plates namely, African, Arabian and Eurasian. Global kinematic models based on the analysis of oceanic spreading, fault system, and earthquake slip vectors indicate that Arabian plate is moving in the north-northwest direction relative to Eurasian at an average rate of about 25 mm/yr. Turkey is escaping from Eastern Anatolia due to collision between Arabia and Eurasian, and trust over the African oceanic plate along the Hellenic arc. The motion is taken up by strike-slip deformation along the North Anatolian and East Anatolian faults. As a consequence of the above condition the direct impact to this country leads to continuous earthquake events. According to the statistics, over 15.000 earthquakes occur per year in Turkey. An important part of these earthquakes is felt by people. This requires quick information about the earthquake, especially earthquake source parameters, specific fault type and moment magnitude.

The main goal of this study, calculating earthquake source parameters with inversion technique and preparing Focal Mechanism–Moment Tensor–faulting types data bank of Turkey and surrounding area and performing regional stress analysis. Source parameters–faulting mechanisms occurred in Turkey and surrounding area, compiling them and collecting in a complete data base in order to present the researchers attention from the date which the instrumental seismology started of 1938 until these days, consist the main work package of this research.

This research was aimed to complete the previously made researches and updating of them. Approximately 60% of the fault parameters of all earthquakes were calculated within the scope of this study. Homogeneous and integrated data set preparation by calculating all missing parameters belonging to previous earthquakes was aimed within the scope of research. Regional faulting type map prepared with moment tensor set, regional stress analysis and axial directions at regions belonging different tectonic regimes in Turkey by using parameters for each earthquake (direction, strike, dip, rake, seismic moment Mo; P and T axes azimuth and plunge). In this context, a total of 1900 earthquakes ($M \geqq 4.0$) source parameters and fault plane solutions have been compiled and a large part of them have been calculated within the scope of the study.