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The Geometry and Coseismic Slip of 2017 Mw6.6 Bodrum-Kos Earthquake Inferred from Geodetic, Seismic Data and Aftershocks

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We analyzed the fault geometry and coseismic slip distribution of the 2017 Mw6.6 Bodrum-Kos Earthquake using seismicity and geodesy. Since the south and north dipping fault planes generate very similar deformation patterns, it is not clear which fault plane ruptured during the 2017 event. In order to solve this problem, we studied the seismicity and the slip distribution of the earthquake. We re-examined the locations first three days of seismicity by hand-picking all the arrival times. The analysis shows that the mainshock has started quite deep ($\sim$17 km); however, the seismicity following the mainshock is shallower and quite complex and spreads toward north with increasing time. The distribution of seismicity implies a north-dipping fault plane more likely. We performed a grid-search of GPS and Interferometric Synthetic Aparture Radar (InSAR) data to obtain the best-fitting fault geometry, fault location and slip distribution on the fault. In this talk, we will discuss possible geometries and how their misfit to the GPS and InSAR data changes and how they fit the seismicity distribution as we play with the location and the geometry of the fault. The geodetic data indicated that most of the slip has occurred to the south-east of the hypocenter.