



## **Modeling stress field around the 2016 Kumamoto earthquake sequence (M7.3) from seismic moment tensor data**

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The 2016 Kumamoto earthquake sequence (maximum magnitude 7.3) occurred in the Beppu-Shimabara area, Kyushu, Japan. The sequence was located at one of the highest background seismicity region in the Kyushu Island. Pre-state of stress in this area revealed spatial heterogeneous feature and the largest earthquake fault slipped to follow the maximum shear stress direction on the fault under the heterogeneous stress. However, it remains several points about generation of the sequence. Those are, for example, 1) whether the main shock occurred on the stress concentrated fault? and 2) how much differential stress act on the fault? The high background activity enables us to estimate stress field before and after the sequence. In this study, we attempted to model stress field and stress concentration at the fault by using moment tensor data before and after the sequence. The parameters of the estimation were stress concentration factor at the main shock and regional stress parameter. The regional stress is characterized by principal direction and differential stress between vertical and minimum horizontal stress in the spatially distributed blocks. The result showed spatial heterogeneous background stress field. The differential stress was estimated to be order of 10 MPa. The stress concentration at the fault is about half magnitude of the released stress. These result suggests that stress condition in the hypocentral area of the sequence is complex and unstable due to low stress and strong heterogeneity.