Statistical characteristics of seismicity in the Kanto region detected by the 3D-ETAS model

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We apply the 3D-ETAS model in which the focal depth follows beta distribution to JMA catalog in the Kanto region. By stochastic reconstruction method, we find that the deep main shocks tend to trigger aftershocks at larger time and epicenter ranges than shallow main shocks. To the east of 140.5° E, the shallow main shocks are more productive, while it seems the opposite with the western part. The background seismicity increased to about 5 ˜10 times in three months following the Tohoku earthquake, but recovered to pre-Tohoku level rapidly except for the shallow part of the east of 140.5° E, where the background seismicity remained about 3 times of the pre-Tohoku level. We carry out the simulation algorithm of the 3D-ETAS model, according to our results, the probability of a M7.0 event in southern Kanto region within 30 years is about 76.8 percent.