

The distribution of interplate earthquakes from off Miyagi to east off Kanto

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NIED F-net section has calculated Moment tensor mechanism over Mj 3.5 using data of our broadband seismograph network (F-net) and unified source information of earthquakes, and has released the calculation result by our homepage. From off Fukushima to east off Kanto (the northern part than trench-trench-trench triple junction), we found lower seismic activity outer rise regions from the distribution of earthquake mechanisms which we have calculated, than off Sanriku.

There were repetitive large earthquakes which were larger magnitude 7, in the off Miyagi and off Fukushima. But in the off Ibaraki - east off Kanto region, it is not known either there were the repetitive large earthquakes over magnitude 7 or not.

It is presumed that the difference of these regions is the distribution of asperities of large earthquakes.

In this study, we calculated the slip vectors from MT solutions of 15-80km depth interplate earthquakes, from January 1, 2000 to December 31, 2005. And we characterized the distribution of these slip vectors.

The one year distributions of slip vectors in off Miyagi - off Fukushima region indicated that slip vectors of this study were almost parallel to the slip vector by DeMets (2003). The one year distributions of slip vectors in the Ibaraki - Kanto region indicated that more slip vectors were not parallel than the vectors in off Miyagi - off Fukushima region.

The one year distributions did not indicate any regulations of these slip vectors distributions. But the 5 years distributions of these slip vectors indicated regulation that almost of these slip vectors divided into many small regions, as it were clusters. These clusters were composed by earthquakes which were accumulated for 5 years.

The territories of clusters in the off Miyagi - off Fukushima region are smaller than in the Ibaraki - Kanto. Some territories of clusters in the Ibaraki - Kanto region, were under the land. And some of these clusters included large earthquakes which were over magnitude 7.

We speculate that these clusters were asperities of small earthquakes. We thought the cluster - earthquake scenario that destruction of small asperity in cluster region is occurred and next the destruction is spread to the next region which was not earthquake, if the next regions are asperities of large earthquakes. But if the next regions are creep region or asperity which does not satisfy the condition for destruction spreading, destruction of small asperity stops within the small asperity region.