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The Earthquakes around Northern part of Ibaraki Prefecture and Coastal Area of Fukushima Prefecture

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The seismicity around northern part of Ibaraki Prefecture and Coastal Area of Fukushima Prefecture made active right after "the 2011 off the Pacific coast of Tohoku Earthquake". It occurred on an earthquake with JMA magnitude 6.1 on March 19, those of M6.0 and M5.8 on March 23, that of M7.0 on April 11 (hereinafter shortened to '4th large shock') and that of M6.4 on April 12 (likewise '5th large shock'). Earthquakes have occurred actively and the number of earthquakes with magnitude of 3.0 or more was over 700 until April 21.

We relocated their hypocenters with accuracy by Double Difference Method and solved CMT about some large earthquakes. In addition, we solved source process about the above 5 earthquakes using K-NET and KiK-net strong motion waveforms by NIED. These analyses revealed:

1) Hypocenter distributions are separated certain seismic zone. Specially, the hypocentral distributions around the areas of aftershocks of 4th and 5th large shocks are separated into upper and lower zones.

2) Focal mechanisms of most of large earthquakes were normal fault mechanisms with strikes of about N-S direction. It is worth notice because, in the eastern Japan, most of major earthquakes occurred in recent or geological age had reverse fault mechanisms. On the other hand, the mechanism of 5th large shock had reverse fault mechanism.

3) Slip areas of principle 5 earthquakes have filled in the area where earthquakes have occurred frequently by degree. Slip by 5th large shock filled only northern part of the lower seismic zone. Therefore the strain may remain on the southern part of it.

The active fault called 'the Idosawa Fault' is located around the aftershock area of 4th and 5th large shocks. We will show the relation between this activity and the fault on the session. In addition we will try to do the result why the earthquake with reverse fault mechanism occurred one day after the large earthquake with normal fault mechanism.

Keywords: source process, Double Difference Method, the Idosawa Fault, the 2011 off the Pacific coast of Tohoku Earthquake, aftershocks activity