

On the distribution of seismic foci in the Japanese islands and neighborhoods- About the Wadati-Benioff zone

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In this presentation we examine features of distribution of seismic foci in the Japanese islands and neighborhoods, and show some examples of seismic units based on the Research Group of Deep Structure of the Island Arc(2009). We will do a few investigation about Wadati- Benioff zone (Wadati,1935; Usami et al.,1958; Utsu, 1974,1986 another).

The distribution of seismic foci in the Japanese islands and neighborhoods

In the area from west part of Kuril islands to Hokkaido the iso-depth focal contours run in the direction of ENE-WSW or NE-SW and get deeper to NW trend gradually. In the area of Honshu and surrounding area, and in the Japan sea, the iso-depth focal contours run in the direction of ENE-WSW or NE-SW and get deeper to NW trend gradually. In Kyusyu and in the Southwest islands and surrounding areas have a tendency to get deeper from the Ryukyu trench to N-W trend. The outline of the distribution of seismic foci is mentioned above, and by examining minutely we found that very often the iso-depth contours are displaced discontinuously. Displaced parts are straight or arc and its length are 10km or more. Units of the distribution of seismic foci are distinguished from the others on the displaced boundary.

The distribution of seismic foci and seismic unit

We will show the seismic unit on the Kuril basin, Izu-Ogasawara islands and adjacent area, and the central Honshu as a few examples.

The seismic unit around the Kuril basin. There is seismic unit shaped like a half basin getting deeper to the center of the basin and it keeps up with the unit of topography of the Kuril basin. The width of the units divided with displacement line like steps are 50-150km. We recognized these small rectangular units and large units. A large unit is formed with several small units.

The seismic unit around the Izu-Ogasawara Islands and neighborhoods. As a whole, in Izu, Ogasawara Islands and neighborhoods, the iso-depth contours show the direction of NS to NNW-SSE direction, but when some units are distinguished by ENE-WSW direction, the stepped displacement lines of EW direction, and the expanse of these units is number 10-200km.

The seismic unit around the center part of the Honshu. In the direction of iso-depth contour lines, ENE-WSW direction can distinguish some earthquakes area to have an expanse of 100-200km by these in NS to NNW-SSE direction in the Honshu central part whereas the general direction changes to the iso-depth contours in the Honshu central part greatly, and the direction of the iso-depth contours in northeastern Honshu.is displaced step-like after the line of NW-SE direction in NS to NNE-SSW direction.

On the Wadati-Benioff zone

The Wadati-Benioff zone is assumed as a board-shaped thing having the thickness that there is often, but it is divided into the small unit (earthquake area, earthquake sub-region, earthquake region; Adachi,2009) of some that was drawn a boundary with by a stepped displacement line near perpendicularly letting block structure. We want to really reexamine the significance of the Wadati-Benioff zone in future.

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Keywords: earthquake, seismic foci, seismic unit, iso-depth contour, Wadati-Benioff zone, Japanese islands