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▪ Lecturer1 March 9, 2009 (14:00-15:30)

### W phaseの津波警報への応用 “Use of W phase for fast tsunami warning”

--- Abstract ---

Although modern seismic networks provide excellent data for general seismological research, they failed to provide rapid tsunami warning for the 2004 Sumatra-Andaman earthquake because of clipping of records and the lack of appropriate methods for rapid source parameter retrieval. A use of W phase can rectify this situation. NEIC (US National Earthquake Information Center) has successfully implemented an on-line method using the W phase for rapid hazard assessment purposes. In this presentation, the basic concept and its application will be discussed in detail.

▪ Lecturer2 March 17, 2009 (10:00-11:30)

### アウターライズに起こる大きな正断層と逆断層地震 “Large normal-fault and thrust earthquakes in the outer-rise”

--- Abstract ---

Large normal-fault earthquakes in the subducting slab, such as the 1933 Sanriku earthquake, are fairly well known, but intra-slab large thrust earthquakes are rare. However, such large thrust earthquakes have occurred in some subduction zones like Tonga, Chile and Kuril Is. These earthquakes provide an important clue to the state of stress in a subducting slab. A recent intra-slab thrust earthquake ( $M_w=7.4$ ) in the Kuril Is., near the rupture zone of the January 13, 2007, great normal-fault outer-rise earthquake ( $M_w=8.1$ ) provides an interesting case for study. In Sanriku, no such intra-slab large thrust earthquake is known to have occurred. Both intra-slab normal-fault and thrust earthquakes have much stronger radiation of high-frequency energy than mega-thrust earthquakes with comparable magnitudes on the subduction boundary, and have an important implication for ground-motion hazard.

▪ Lecturer3 March 23, 2009 (10:00-11:30)

### 古い地震記録を将来の防災に役立てる - 1907年スマトラ地震の例 - “Study of old seismograms for a better understanding of future seismic hazard - The case of the 1907 Sumatra earthquake - ”

--- Abstract ---

History of instrumental seismology is short. High-quality seismograms are available only for the last 50 years. Thus, our understanding of seismic hazard on the basis of instrumental data is limited, and it is desirable to extend our study as far back in time as possible. To do this we need to use old seismograms. The 1907 Sumatra earthquake appears to be an unusual event. Despite its moderate seismic magnitude,  $7\frac{1}{2}$ , the tsunami caused by this earthquake affected large areas extending over 900 km along the Sumatran coast. Studies of old seismograms recorded at Osaka, Tokyo, Mizusawa, and Uppsala suggest that it was a moderate thrust earthquake on the subduction-zone boundary, but it triggered large slow slip on the adjacent area on the plate boundary. The 1605 Keicho Nankaido earthquake may be similar to this.