

## Seismicity of Microearthquakes in the Uplifted Mountains by the Ohchigata Fault Zone

# Yoshihiro Hiramatsu[1]; Yoshiteru Kono[2]; Haruo Yamazaki[3]; Hideki Katagawa[4]

[1] Natural Sci., Kanazawa Univ.; [2] none; [3] Dep. Geography, Tokyo Metropolitan Univ.; [4] Civil Eng., Rikuden

The Sekidoh-Hohdatsu mountains is a uplifted mountains by the movement of reverse faults called by the Ohchigata fault zone whose total length is 44 km and assumed to cause a large earthquake of M7.6 (The Headquarters for Earthquake Research Promotion, 2006). Katagawa et al. (2002) reported that the Sekidoh-Hohdatsu mountains showed block structures and the Quaternary uplift movement occurred differently in each block. These blocks are divided by E-W oriented geological structures, the Sano-Iori fault, the Korosa fault, the Inoyama-Yabuta line, and the Hohdatsusan fault from north to south. These blocks and geological structures are confirmed by dense gravity observations (Katagawa et al., 2002; Sudo et al., 2005; Kono et al., 2006). In this study, we investigate seismicity of microearthquakes in the Sekidoh-Hohdatsu mountains and discuss the segmentation of the Ohchigata fault zone based on spatial relationships among the distribution of the hypocenters, the blocks and the geological structures.

We use the hypocentral catalogue during 1986-2004 of the Kamitakara Observatory, Disaster Prevention Research Institute, Kyoto University. We analyze microearthquakes whose hypocentral depths are in a range of 3-30 km (Figure 1). We can recognize zone-like distribution of microearthquakes oriented NE to SW in southern Noto Peninsula, while no such a distribution is found in the northern area to the Ohchi plain. This feature is confirmed quantitatively by a density distribution of earthquakes, in which a number of earthquakes is counted in a mesh of 0.25 degree x 0.25 degree in horizontal.

The seismicity is low in the northern area of the Noto peninsula, north to the Ohchi plain, except for the aftershock area of the 1993 off-Noto earthquake and some clusters. We find also no distinct seismic activity in the Ohchi plain.

In the Sekidoh-Hohdatsu mountains, we recognize two high seismicity areas parallel to the fault zone shown by two rectangles in Figure 1. These high seismicity areas are located to the southeast from the fault zone with offset of about 10km. The northern rectangle area is located between the Korosa fault and the Hohdatsusan fault and the southern one to the south of the Hohdatsusan fault, implying that these distributions of microearthquakes are related to the block structures in the Sekidoh-Hohdatsu mountains. The northern high seismicity area corresponds to the north Himi tectonic line pointed by gravity analysis (Sunami and Kono, 1988; Sudo et al., 2004).

We recognize three clusters in the northern high seismicity area. These clusters seem to be located at the Korosa fault, the Inoyama-Yabuta line and the Hohdatsusan fault, respectively. These clusters shows high activity not in the same period but in a different period. These facts suggest that the seismicity of the microearthquakes in the Sekidoh-Hohdatsu mountains relates to the block structures and the Korosa fault and the Hohdatsusan fault may be, especially, the segment boundaries of the Ohchigata fault zone.

