

# Strong motion zone estimated from damage of wooden structures by the 2004 Niigataken-Chuetsu Earthquake

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M6.8 earthquake arose in the Chuetsu district in Niigata Prefecture at 17:56 October 23rd, 2004. Present damage becomes the large disaster of fatalities 40 persons, serious or slight injury person 4657 persons, complete collapsed house 2802, half collapsed house 11971, partly failure house 92892 at February 21th. Damage such as Kawaguchi town and Ojiya City, which recorded seismic intensity of 7, is mal-distributed. The localization of this damage seemed to appear by many factors such as strong motion, surface geology, structure of the houses and distribution. The concentration of building damage by the strong motion is reported. Though seismic intensity of 7 of Kawaguchi towns and Ojiya Cities, etc. are recorded, the building damage of the wood structure not always agrees with the distribution of seismic intensity. This can be estimated with that combined element has caused characteristics of earthquake motion input and characteristics of the ground, etc. In this study, building damage and subsurface exploration of the disaster center were carried out. Generally, it is difficult, because various elements intermingle on estimating the concentration of the damage from wood structure such as the housing. It may be a farming village in the heavy snowfall region in the center area of the damage by present earthquake, and wood structure group which constitutes the colony can classify it into; 1. 2-story wooden garages, 2. Two-story wooden house, 3. Two-story wooden house with high-floored RC understructure. From this damage ratio, the degree of the damage by strong motion of each colony was compared. Considering the features of the ground, it became clear that the region where a complete collapse rate of the wood structure. These receive the effect of the strong motion near the hypocenter, and the damage of the building seems to be big. This damage is concentrated in the west part of Shin-doujima in Unum City, southern part of the Wanadu in Kawaguchi town and the Tamugiyama district in the Kawaguchi town. It was changed the strong motion zone, because these regions ranged on the straight line of about 6km with about 500m widths. The boundary in the east end of this zone agrees with lineament and direction of syncline, and is indicated a concealed fault or the fault which develops in the hinge of syncline.

This strong motion zone seemed to appear in the range, which it was almost slender on the straight line by the seism in which main shock is very strong being related to the concealed fault. In the future, ground and geological structure will be examined from field investigations, seismic prospecting, etc. per concentration area of this strong motion.