ESTIMATION OF SEISMIC INTENSITY DYE TO THE 2008 WENCHUAN EARTHQUAKE

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1. INTRODUCTION

The great earthquake that occurred in Sichuan, China on May 12, 2008 claimed about 90,000 precious lives. It is necessary to quickly pinpoint the areas where extensive damage is expected when such a big earthquake occurs and quickly input limited resources. As an attempt to instantaneously pinpoint the areas where extensive damage is expected, we classified land form of Sichuan Province, China using Shuttle Radar Topographic Mission (SRTM-3) and estimated the amplification factor and distribution of seismic intensity of Great Wenchuan Earthquake(2008) based on our results.

2. LANDFORM CLASSIFICATION USING SRTM-3 AND APPLY TO GREAT WENCHUAN EARTHQUAKE(MAY 12, 2008)

Based on the landform classification method using a Digital Elevation Model (DEM) [1],[2], we classified landform of Sichuan Province, China using SRTM-3 and estimated the amplification factor. However, since there is no parameters for landform in Sichuan, China, we use modified parameters after Midorikawa and Matsuoka[3]. Furthermore, we adopted USGS's epicenter information and attenuation curve derived by Si and Midorikawa[4] for estimation of PGV. Figure 1 shows estimation process of amplification factor using SRTM-3
To generate modified mercalli intensity (MMI) Map, we used the relation between peak ground velocity (PGV) and instrumental intensity derived by Wald et al. [5]. Figure 2 shows the estimated seismic intensity overlay on seismic intentity reported by China.
Estimated seismic intensity distribution by the proposed method comparatively agreed with observed one. On the other hand, our result by a simple attenuation curve, cannot give the directivity effect in the northeastern side of the fault and the effect of the hanging-wall fault (northwestern side). As the estimated seismic intensity is great on the southern side of the fault, we will verify the obtained landform classification, amplification factor, and earthquake motion distribution through future field surveys.

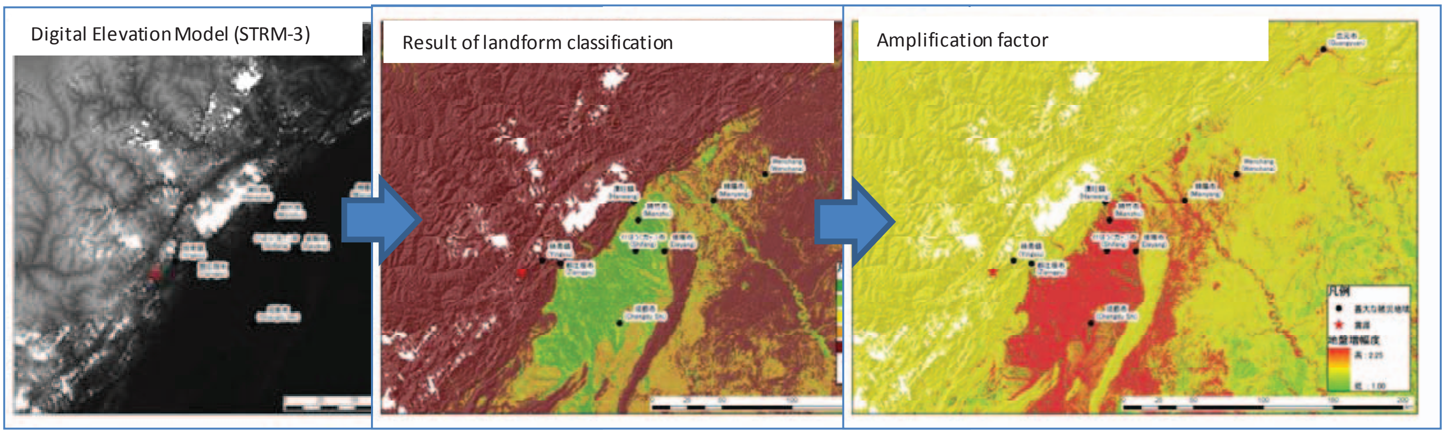

Fig.1 Estimation process of Amplification factor

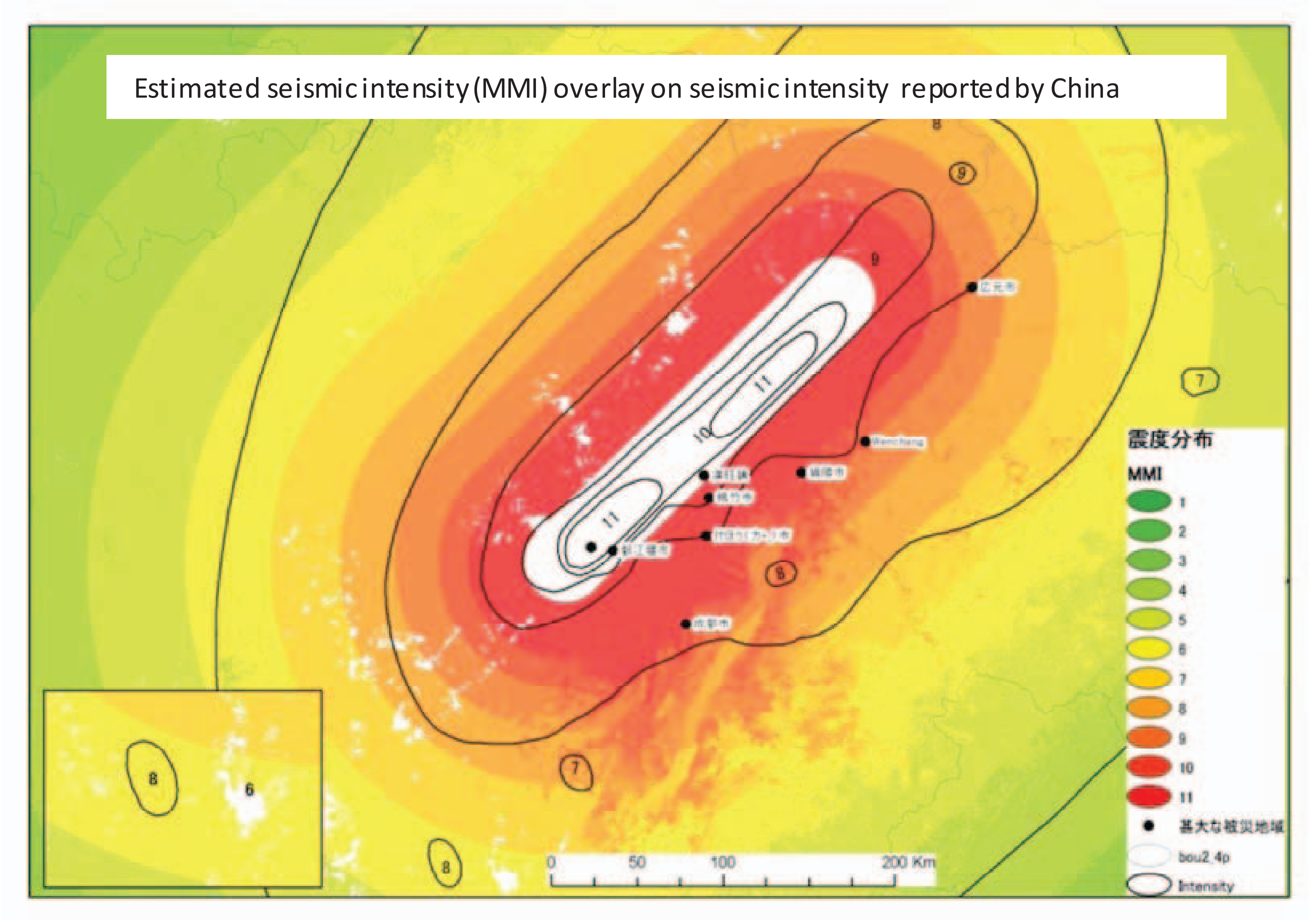

Fig.2 Distribution of estimated seismic intensity (MMI)

3. REFERENCES

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