

## Geographic characteristics information of hazard area in large earthquake

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Geospatial Information Authority of Japan (GSI) has been developing the system which provides a governmental disaster countermeasures office with the information about the expected disasters based on the geographical characteristics of the large seismic intensity area within 30 minutes. GSI had developed the system which automatically accepts seismic intensity and outputs the expected results based on 1-km grid about the possibility of earth surface deformation, such as slope collapse, landslide and liquefaction, using existing information such as DEM, landform classification, geological map and landslide distribution maps. Now, GSI is just going to improve the anticipation algorithm of this system by comparing the output of the system with the disaster situation of the past large earthquake.

The geographic characteristic information of the large seismic intensity area is required by a governmental disaster countermeasures office. Then GSI has been trying to produce the outline sheets of the local geographic characteristic information such as landform and geology, and to send the sheets of the large seismic intensity areas to the office when large earthquake has occurred. The fundamental view of the creation of local geographic characteristic information sheets is introduced here.

At first, the quick report of seismic intensity will be announced and corresponding sheets, which are divided several geographic divisions in each prefecture, e.g. "northern Ibaraki Prefecture" and "southern Ibaraki Prefecture", will be sent.

Next, the observation data of every seismograph placed at each city, town and village are announced and corresponding sheets, which are divided a number of geographic divisions in each prefecture, will be sent. Because the distribution of seismographs is too dense for government level, the geographic division will be summarized over some cities, towns and villages. The summarize area will be decided to consider the large scale landform classification and the geological structure zone. It is more desirable for geographic divisions to have undivided local governments, but natural boundary such as large scale landform classification or geological structure zone will be given higher priority. The trial division of Ibaraki Prefecture is shown in Fig. 1. The authors think it is appropriate to divide by large scale landforms, such as plains, basins, hills and mountains first, and to divide mountains by geology second.

Northern Ibaraki Prefecture is divided into mountains area and "Central Ibaraki Hill" division which consists of plains and hills around Mito City first. Mountains area is divided into four divisions by geology as follows: "Northern part Pacific Coast and Abukuma Mountains" division is the area of the Abukuma granite and the Hitachi metamorphic rocks. "Kuji river and Sato River, Neogene" division is Neogene sedimentary rocks area. "Yamizo Mountains" division and "Keisoku Mountains" division are the areas of Jurassic sedimentary rocks.

Keywords: large earthquake, geographical characteristics, seismic intensity, large scale landform classification, geological structure zone

