

Experimental hazard map for accurate communication

*Ryo Endo¹, Takayuki Nakano¹

1. GSI of Japan

Hazard maps have been prepared and published in each local government in order to utilize them for disaster prevention measures and evacuation in the event of a disaster. Color representation is often used for the map representation of the hazard map. However, there are some cases in which visibility deteriorates due to excessive information and mixed colors. In this report, we tried to create a hazard map considering the following matters, with the aim of improving the accuracy and understanding of hazard map information. The prototype is a paper hazard map of liquefaction.

1. Background map

A lot of kinds of maps are used as background maps of hazard maps. However, some background maps are difficult to read because of low-resolution. In order to ensure the legibility of the background diagram, we use vector data.

2. Information

Disaster related organizations (e.g. government offices, fire departments, police), evacuation routes / evacuation centers, hospitals, etc. are usually listed in hazard maps. but in order to prevent deterioration of visibility due to excessive information, we only list risk information of each hazard on the area and information on evacuation .

3. Color scheme

In the hazard map, many colors are used for map expression including disaster risk. However, there are individual differences in the characteristics of color vision, not everyone recognizes the color in the same way. For example, it has been pointed out that about 5% of men and about 0.2% of women have color vision characteristics that are difficult to distinguish between red and green (for example, Ito (2012)). Therefore, avoiding combinations of red and green, focusing on expressions of disaster risk degree, we tried to make a hazard map with attention to lightness and saturation etc. We confirmed whether people with color vision abnormality can properly read information of prototype hazard map using simulation images created with Adobe photoshop CC 2018.

Keywords: hazard map, universal design, color scheme