

Activities Concerning Disaster Prevention by Shinshu University

Students

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1. Introductions

I have done a variety of activities concerning disaster prevention at the Department of Earth Sciences, Faculty of Science, Shinshu University. In this paper, I will report the content of the activities which I have taken part in, and consider how to raise the awareness of preventing disasters of those who are not interested in the topic.

2. Activities

These are the activities which I have participated in:

- Activities at *Petit Agora*
- Activities at *Science Agora*
- Observations at Earthquake Disaster Sites
- Colloquium of Earth Sciences II

2.1 Activities at *Petit Agora*

This is a program based on the undermentioned *Science Agora*, held at the *Shinmai Media Garden* in *Matsumoto* city, *Nagano* prefecture, Japan. It is an event where students from senior high schools and universities form groups along with adults, have conversations about disaster prevention, and come up with ideas for future activities. This program has meaning in that conversation enables people to come up with, and extend various ideas, which cannot be done single-handedly. For example, we have discussed the problem of people not attending evacuation drills in their local area. I could not think of a solution to the problem myself. However, a volunteer performing in disaster prevention remarked that many people attended evacuation drills when they are held together with sports festivals or cherry blossom viewing parties. From this statement, I came up with the idea of raising awareness by performing a demonstration of emergency feeding, and distributing emergency food to the attendants. In this way, the *Petit Agora* was an event where new ideas can be acquired and extended.

2.2 Activities at *Science Agora*

The *Science Agora* is an event of which its purpose is for a variety of people concerned to converse and collaborate in ways that they can lead to policies, solutions to problems, and further knowledge (Japan Science and Technology Agency, 2020). In this program, we talked about how to develop local regions with disaster prevention. First, I asked the participants whether or not they take disasters as a problem of their own. Then, I gave out topics relating to disaster prevention. After that, I divided the participants into groups, and let them think about “actions that can be done immediately”, and “actions that the local people can enjoy”. Examples of what they thought as an “action that can

be done immediately” is to check the hazard maps of the local region, and search for the origin of the name of said region. Examples of what they thought as an “actions that the local people can enjoy” is to hold contests for the tastiest, and most useful emergency meal, and to strengthen the community bond through festivals and events.

I felt that holding programs for making disaster prevention enjoyable can help those who are not interested in the topic attend these programs.

2.3 Observations at Earthquake Disaster Sites

Tours and observations at sites of previous earthquake disasters have a purpose of understanding them through observing the actual site and listening to former victims talking about their experience. I will write about the tour of the Nov. 12th, 2014 *Nagano Prefecture Kamishiro Fault Earthquake* site as an example. This earthquake occurred with its hypocenter in the vicinity of the *Kamishiro* fault, a fault line which forms the northern edge of the *Itoigawa-Shizuoka Tectonic Line*, and wreaked havoc on surrounding buildings and houses in, most notably, *Otani* and *Hakuba Villages*, *Kita-Azumino District, Nagano Prefecture* (Kondo et al., 2014).

In this tour, we observed the surface fault of the *Shiojima* Region, *Hakuba* Village. Moreover, the mayor of the *Horinouchi* Region, *Hakuba* Village gave us a speech of what the town was like just after the disaster, and the lives of the townspeople afterwards. The most important lesson I learned was that the locals have to work together when disaster strikes. I thought so, when the mayor told us that there were no fatalities, thanks to the townspeople, such as the local firefighting party, worked together to help rescue people from collapsed buildings.

2.4 Colloquium of Earth Sciences II

Colloquium of Earth Sciences II is a required course for the third-year students in the Department of Earth Sciences, *Shinshu* University. It is a class in which students use their knowledge of geology to think of ways to contribute to society, such as preventing, or reducing the number of disasters. In this paper, I will present the example of creating hazard maps regarding floods and earthquakes in class.

For the flood map, I considered regions where water may flood during high flow, such as current and former rice patties, and areas surrounding rivers, to be hazardous, and divided the danger zones into three categories (Fig. 1). I evaluated the danger using information from maps by the Geographical Survey Institute, and by investigating the site.

I made the earthquake map using the flood map, the *Matsumoto* City Disaster Prevention Map (*Matsumoto* City, 2017), and the *Matsumoto* City Vibration Susceptibility Map (*Shinshu* University Vibration Investigation Group, 2014) (Fig. 2). I divided the region into three zones. Zone 1 indicates the areas where there is no hazard index on neither the Vibration Susceptibility Map nor the Disaster Prevention Map. As with the flood map, I considered areas such as current and former rice patties, and those near rivers to have softer ground, and evaluated the danger with that in mind. Zone 2 indicates the areas with a hazard index on either the Vibration Susceptibility Map or the Disaster Prevention Map. I evaluated the danger using the sum of the two indexes. Zone 3 indicates areas which only has an index on the Vibration Susceptibility Map. I evaluated the danger with that index only.

According to the two hazard maps, there are houses constructed on hazardous areas. I felt the need to inform the residents of the risk of disaster.

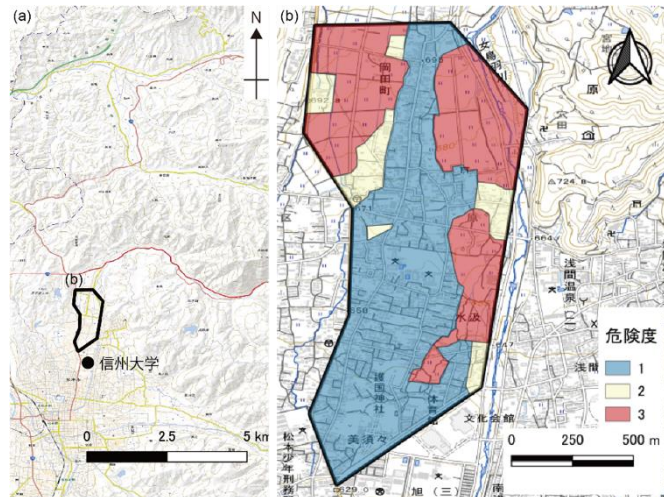


Fig. 1 (a)Area of Hazard Map (b)Flood Hazard Map

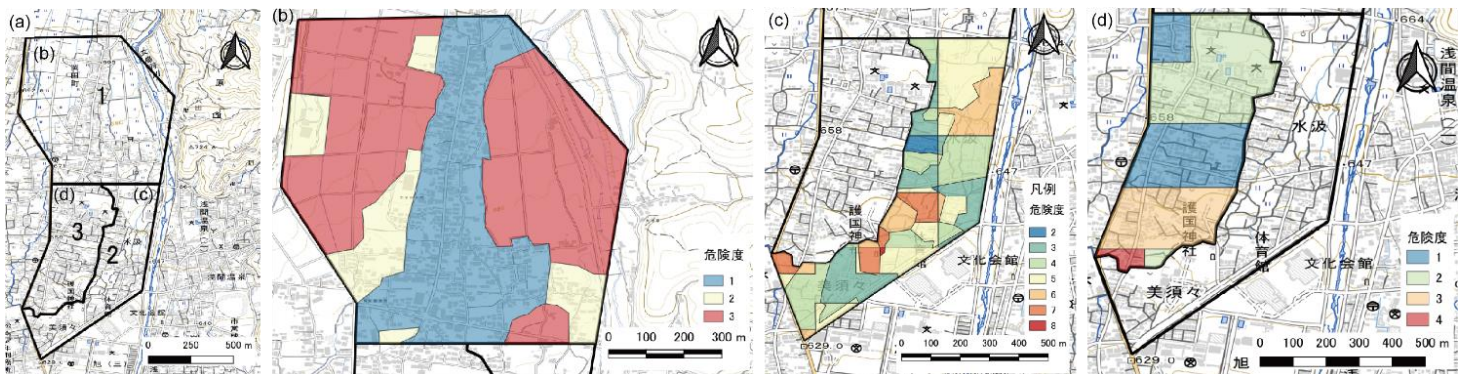


Fig. 2 (a)Hazard Map Zones (b)Hazard Map of Zone 1
(c) Hazard Map of Zone 2 (d) Hazard Map of Zone 3

3.Methods to Raise Awareness of Disaster Prevention

Looking back at the activities that I have participated in, I have considered it necessary for residents to enjoy disaster prevention, and make connections with other participants, in order to raise awareness of prevention in local regions. The reason is that those who are not interested in the topic do not attend evacuation drills or have conversations about said topic. I think that local areas can be more aware about prevention by 1) learning about the area that they live on, and 2) take up matters related to prevention during local events.

Method 1) is to get ignorant people involved in the topic by using their inquisitiveness such as learning the geological characteristics of their land, or the origin of their region. For example, residents of regions reclaimed from reservoirs can learn that they live on soft ground, which can cause liquefaction during an earthquake. In this manner, disasters can be prevented by holding events for learning about the characteristics of the local area. However, it may be difficult for the local residents to hold these events by themselves, because expert knowledge will be needed. Therefore, it will be necessary for the local areas to collaborate with educational institutions, such as universities, and senior high schools.

Method 2) is to have ignorant people participate in matters related to prevention by taking them up

during local events, such as sports festivals and cherry blossom viewing parties. For example, people can be interested in prevention by experiencing disaster situations, such as experiencing vibrations on an earthquake generating truck, and cooking and/or distributing emergency meals, as a part of an event. Moreover, these events can be opportunities for local residents to be better prepared for disasters by having conversations about the topic, such as checking evacuation routes with each other, or finding out where those who need assistance during evacuation live.

Using inquisitiveness and local events can help residents participate in disaster prevention activities, and make connections with other participants to prepare for future disasters.

4. Conclusion

To summarize the activities I have done, I have took part in conversation events such as the *Petit Agora*, and the *Science Agora*. From touring disaster sites, I have understood the importance of the local residents working together. Colloquium of Earth Sciences II has taught me to inform the risk of disaster to the local people.

I have considered 1) learning about the local area, and 2) take up matters about disaster prevention as a part of local events, as two methods to raise awareness about the topic.

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