Study on a real-time volcanic hazard mapping system

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This paper, first of all, evaluates Usu Volcano Hazard Map as a case study for the examination of the validity of currently available volcanic hazard maps, by checking the actual eruption of the Usu Volcano in 2000. Although the result of this case study shows that the hazard map is useful in various aspects, it also suggests that paper-based hazard maps have a limitation in usability during volcanic activity. It was definitely shown that a real-time volcanic hazard map using GIS is essential for crisis management during volcanic activity changing with time.

To cope with the problem of paper-based hazard maps, the author went through working at research and development of the prototype of a real-time volcanic hazard map, taking Usu volcano as model. One of the main features of the proposed real-time volcanic hazard map is prediction of impact by variable simulation models. The author's unique simulation was made by establishing conditions to be provided for the next possible eruption. The other feature of the proposed real-time volcanic hazard map is management of disaster control information by GIS, i.e., database capability. Past volcanic disaster data, volcanic disaster predictive information, maintenance security data, disaster control data for the administration, and so on were mainly built in the database.

Although it is a prototype model, it can be useful enough to obtain chronological volcanic activities and warn their hazards by further efforts of improvement.