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[Abstract Title]

Framework of Volcanic Early Warning System (VEWS) for aviation in Japan

[Abstract]

Volcanic hazards not only pose significant threat to lives on ground, but also imperil aviation safety in air, which was somberly exemplified by 2010 Eyjafjallajökull eruption. Japan is home to one-tenth of active volcanoes in the world, meaning the safety of aviation operation in Japan is also at stake. However, Japan's aviation community does not have a readily available emergency plan for large-scale eruption, nor a sophisticated alert system. We build the VEWS from the perspective of risk governance and crisis management, aiming to strike a balance between bottom-up participatory imperative and top-down command and control. Throughout the development of VEWS, we prioritize user's need and meanwhile acknowledge the uncertain nature of volcanic unrest. We inclusively involve multiple stakeholders during the development process in order to clear roles and responsibilities and create communication protocols. The core of our proposed VEWS is hazard maps and a 3 stage alert level system. Hazard maps are used to raise situational awareness, communicate potential and ongoing risks; alert level system guides crisis response.

We further proposed action plan in correspondence to alert levels. VEWS can help community govern volcanic risks sensibly, evacuate aircraft at appropriate time precautionarily as desired from alerted airports.



[Keywords]

Risk governance; Crisis management; Early warning; Volcanic hazards;
Aircraft evacuation