

V4R4: Acoustic Surveillance of Hazardous Volcanic Eruptions in Asia

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The ASHE Asia project is an international collaboration between National Data Centers, operational agencies, and research organizations to improve early notification of potentially hazardous eruptions in Asia and the Western Pacific. The increased availability of open seismo-acoustic data in the ASEAN region and recent advances in mobile distributed sensors networks can reduce notification latency of hazardous volcanic eruptions. We use the IMS network in combination with established technologies and next-generation smartphone sensing systems to detect and characterize eruptions in the Asia-Pacific region that can inject volcanic ash at aircraft cruising altitudes. The Volcano Explosivity Index (VEI) is an operational metric traditionally used in the monitoring community, where a VEI 4 eruption injects ash above 10 km. The initial ASHE Asia V4R4 technical objective is to automatically detect and report eruptions with a VEI 4 and above within a maximum notification latency of 4 hours (~4,000 km range). We will implement standardized metrics to provide actionable reports with the eruption location, time, duration and VEI-equivalent energy. These reports would provide relevant eruption characteristics that can be used to trigger ash dispersion models by Volcanic Ash Advisory Centres or individual meteorological services for ash and aviation safety.

Primary author: GARCES, Milton (Defense Threat Reduction Agency, Nuclear Arms Control Technology Program)

Presenter: GARCES, Milton (Defense Threat Reduction Agency, Nuclear Arms Control Technology Program)

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