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For over 25 years the volcano remote sensing group at the Geophysical Institute has built a system of tools and techniques to effectively mitigate hazards from volcanoes in the North Pacific. The startup company, V-ADAPT (Volcano-Ash Detection Avoidance and Preparedness for Transportation) was founded in 2013 apply these tools and techniques globally and provide these products to customers worldwide.

The company supports itself through three primary efforts, the company grows. Further modules range from near real-time ash mass determination and restocking of ash tracking models based on this data to long term probabilistic modeling for planning where volcanic ash is likely to be present. Feedback from the volcanic-monitoring community is valued to build design tools to meet the needs of a financially strained transportation system.

RESEARCH AND DEVELOPMENT

Support through grants and contracts, consultancy with stakeholders

The company uses access via web and through remote sensing to forecast volcanic ash using three data streams and sustain the business model. Three-pronged approach to provide software and data to customers to help them in their decision making process:

OPERATIONAL SERVICES

PUFF PLUME TRACKING

Prototype: running to SMS
Split window based Spatial statistics
Ash Mass
Prototype: in testing
Split window retrieval Modified by size distribution

ASH ALERT

Prototype: running to SMS
Split window based Spatial statistics

SO2 Alert
Prototype: in development
Detection Tracking

HOTSPOT ALERT

Prototype: running to SMS
Credit-based based Unique for each volcano

SAR / InSAR
Prototype: in development
Medium term Forecasts Change detection

Webcam Tools
Prototype: in development
Arch. Glow and ash detection

RESEARCH SERVICES

Monitoring Research
Prototype: in development Interdisciplinary instruments and software

Fuzzy Forecast
Prototype: in development Interdisciplinary Data integration

UAV Application
Prototype: in development
Ash sampling Test flights

SCENARIO PLANNING

Based on the 20 year archive of volcanic activity in North Pacific, the 60 year archive of wind field data, the historic records of volcanic eruptions and the current volcano activity determines the potential for volcanic ash to impact a region. Further, because this database is time dependent, V-ADAPT can forecast where potential hazards will develop with time, permitting planning to be in place ahead of a crisis.

What V-ADAPT is not, does not do

• Does not give official warnings about activity
• Does not perform monitoring
• Does not provide short term alerts (minutes)

What V-ADAPT is, can, does do

• Does perform tracking of ash events
• Provides research data and tools

Volcanic-Ash Detection, Avoidance and Preparedness for Transportation