



# Volcanic Impacts Study Group

Overview

2007 National Lifelines Forum  
October 2007



## VISG

### *Objectives*

- ◆ Facilitate knowledge about the impacts of volcanic hazards on lifelines and mitigation options
- ◆ Support research
- ◆ Assist lifelines assess research applicability
- ◆ Facilitate reconnaissance investigations and advocate for lifelines representation
- ◆ National focal point for volcanic impacts research



## VISG – Annual Seminar

- ◆ Annual Seminar
  - Bringing researchers and lifelines together
  - Identify research directions
  - Student workshop

Auckland Engineering Lifelines Group  
- Volcanic Impacts Study Group



## RECENT RESEARCH ON VOLCANIC HAZARDS AND RISK

### VISG ANNUAL SEMINAR

Wednesday, 7 November 2007



[www.aelg.org.nz](http://www.aelg.org.nz)

Old Government House  
cnr Princes St & Waterloo Quadrant  
The University of Auckland

- Volcanic impacts research – update
- Resources on the web
- Exercise Ruauumoko
- Self-evaluation of Lifelines response plans
- Scientific Advisory Group meeting

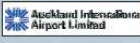

# AELG / VISG projects

- ◆ Volcanic Ash Review – impacts on lifeline services and collection/disposal issues (2001)
  - ARC study on disposal sites
- ◆ Volcanic Ash Impacts Reconnaissance Investigation (2002)
- ◆ Volcanic Ash and Water Supply (2004)
  - Watercare
- ◆ Health and Safety Ash Issues (2005)
- ◆ Volcanic Ash and Wastewater (2006/07)
- ◆ Volcanic Ash and Airports (2006/7)
- ◆ Volcanic Ash and Roads (2007/8)

## VOLCANIC ERUPTION

### Recommended Actions for Airports

#### Reduction

**Develop a Volcanic Hazard Management Plan**  
 Ensure this includes: - designated ash disposal sites

**Maintain Volcanic Hazard Management Plan**  
 - Regularly review plan to ensure it is up to date


**Conduct regular exercises and training**

#### Response

Should an ash plume be generated that is likely to impact the airport, the following steps should be taken

**Activate:** Emergency teams, Business Continuity Plan and ensure health & safety issues are identified for all personnel.

**Decide:** fly aircraft out, cover aircraft



#### Readiness

If warning is given that an eruption may occur, ensure stocks of the following equipment are available:


**Tarpaulins / Plastic sheeting:**  
 Sufficient quantities to cover vulnerable parts of aircraft grounded during the eruption,  
 i.e.: windshields, nose cones, engine intakes, wheel assemblies  
 Further quantities to cover any machinery left outside

**Adhesive tape (duct tape)**  
 Sufficient quantities to secure plastic sheeting to aircraft/machinery, sealing all edges.

**Spare parts for essential vehicles & machinery**  
 Air filters, oil filters, fuel filters, hydraulic fluids, seals, lubricants

**Cleaning supplies**  
 Additional brooms, vacuum cleaner bags, cleaning fluids

**Filtration/dust masks & goggles**  
 Sufficient masks for all involved staff for at least one week  
 Sufficient goggles for workers clearing up ash  
 Adequate harnesses to secure workers to slippery roofs.  
 Prior to ashfall establish a tip site where ash may be dumped.



#### Grounded Aircraft

- Need to have vulnerable parts covered. Immediately confirm which aircraft are to remain grounded.
- Vulnerable parts include: windscreens, pitot tubes, nose cones, engine intakes, wheel assemblies
- Use plastic sheeting/tarpaulins and adhesive (duct) tape
- All flaps, spoilers etc should be fully closed
- If a significant ashfall is expected (> 5cm), **anchor** any aircraft to the ground at the nose that have:
  - engines at the tail
  - large surface areas (i.e. horizontal stabilizers) at rear of aircraft

#### Infrastructure

- Use as few entries/exits as possible for buildings (reduces ash entrainment from outside).
- Cover electronic equipment inside buildings as fine ash may penetrate even closed buildings
- Close buildings not essential for running the airport
- Cover (where possible) intake fans or heat pump units on building exteriors
- Do not use air-conditioning systems that pump in outside air
- Damp volcanic ash may induce flashover on electrical components (causing failure and fire risk)
- Some use of systems that re-circulate interior air may be possible during ashfall (expect abrasion to fan blades, bearings etc).
- Clean roofs frequently during a long-term eruption to prevent ash accumulating (especially wide-span hangar-type roofs).
- Take extreme care due to slipperiness of ash

#### Recovery

- Volcanic ash is highly abrasive and can be extremely corrosive
  - take this into account when cleaning (especially aircraft)
  - clean aircraft as quickly as possible to mitigate corrosion
- Consult volcanic ash response plan (where present) before beginning aircraft and airport clean-up
  - ensure correct procedures are followed
- Ensure ash is disposed in appropriate/safe manner

Further information on dealing with volcanic ash may be found in the following locations:  
<http://www.auckland.org.nz>  
<http://www.gns.cri.nz/en/home/whats/newspapers/volcanoes/whatsbooks.html>  
<http://volcanoes.usgs.gov/ash/index.html>  
<http://www.icao.int/ahb/AWOPSGA/Doc991.pdf>  
<http://www.caa.govt.nz/>

