

# ADVICE FOR AIRPORT OPERATORS

VOLCANIC ASH IS: HARD, HIGHLY ABRASIVE, MILDLY CORROSIVE AND CONDUCTIVE WHEN WET.

## ASH IMPACTS TO AIRPORTS

### ASH IS HAZARDOUS TO AIRCRAFT.

- It can cause engine failure and severe abrasion to exposed surfaces

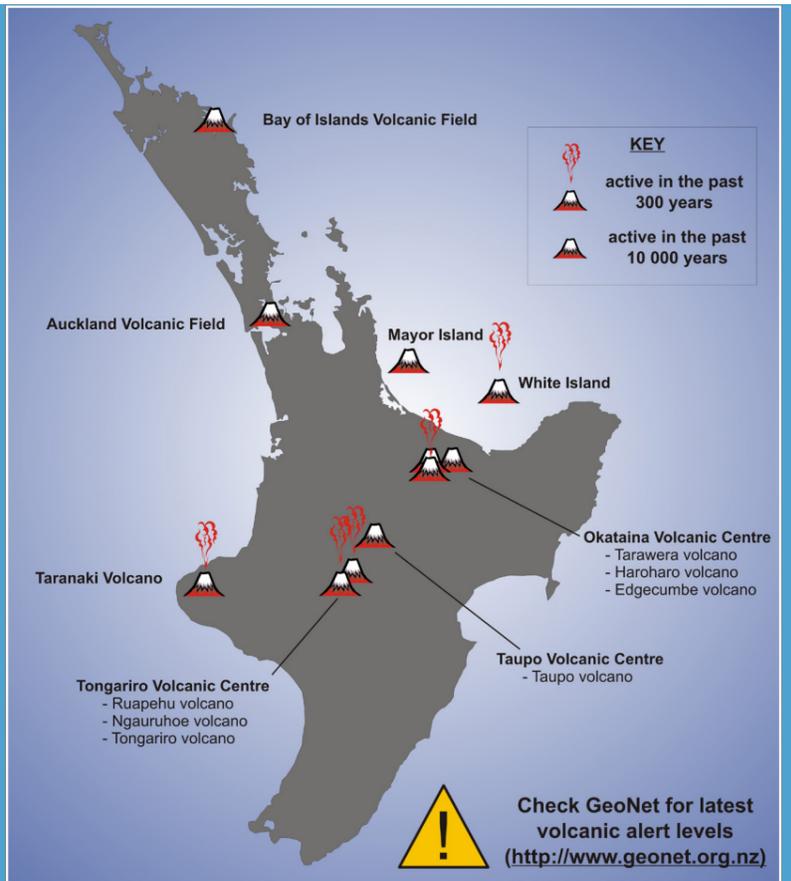
### ASHFALL MAY REQUIRE AIRPORTS TO CLOSE. TYPICAL IMPACTS INCLUDE:

- Difficult landing conditions due to reduced runway friction, especially when ash is wet.
- Loss of local visibility when ash on the ground is disturbed by engine exhausts during takeoff and landing.
- Ingestion of remobilised ash into jet engines during taxi-ing, takeoff and landing.
- Deposition of ash on hangars and parked aircraft, with structural loading considerably worsened if ash becomes wet.
- Contaminated ground-support systems.

### ASH ACCUMULATIONS OF LESS THAN 1 MILLIMETRE MAY BE SUFFICIENT TO TEMPORARILY CLOSE SOME AIRPORTS.

Cleaning up airports after an ashfall is a time-consuming, costly and resource intensive operation. The complexity and immensity of this task should not be underestimated.

### ASH IN AIRSPACE IN THE VICINITY OF AIRPORTS MAY ALSO CAUSE DISRUPTIONS TO AIRPORTS EVEN IF IT DOES NOT ACCUMULATE ON THE GROUND.



3-5 mm of ash fall at Mariscal Sucre International Airport in Quito, Ecuador, following the 3 November 2002 eruption of Reventador volcano. The airport closed for 8 days due to the ash deposition on aircraft and runways.



5-10 mm of ash fall at San Carlos de Bariloche International Airport in Bariloche, Argentina, following the June 2011 eruption of Peyuhue Cordon-Caulle volcano in Chile. The airport closed for 31 days due to the on-going ash falls, remobilisation of ash and cleanup.

## WARNING INFORMATION

### WHERE TO FIND WARNING INFORMATION

- **ASH CLOUD FORECAST** (ash suspended in atmosphere): The Wellington Volcanic Ash Advisory Centre (VAAC) will issue Volcanic Ash Advisories (VAA) and Graphics (VAG) forecasts on suspended ash in the atmosphere affecting aviation. See: <http://vaac.metservice.com/>
- **ASHFALL FORECAST** (ash falling to ground): GeoNet (GNS Science) will provide ashfall forecasts in the event of an explosive eruption (see: [geonet.org.nz](http://geonet.org.nz)).
- **AVIATION COLOUR & VOLCANO ALERT LEVEL** (ash falling to ground): GeoNet (GNS Science) sets the Aviation Colour Codes and Volcano Alert Level for New Zealand's volcanoes (see: [geonet.org.nz](http://geonet.org.nz)).



## RECOMMENDED ACTIONS

### HOW TO PREPARE

At-risk airports should develop comprehensive operational plans for ashfall events (including cleanup – see companion “Advice for Urban Clean-Up Operations” poster). These plans should, where possible, be integrated with airline plans.

A more comprehensive summary of ashfall consequences to airports and detailed planning guidelines are available from:

- ICAO: [www.paris.icao.int/news/pdf/9691.pdf](http://www.paris.icao.int/news/pdf/9691.pdf)

The ICAO resource provides guidance on:

- a) standing arrangements prior to volcanic eruptions;
- b) responses during an eruption
- c) post-eruption cleanup and re-opening of the airport.

Field crews should use safe operating procedures when operating in an ‘ashy’ environment.

- Protective clothing (full-length clothing, face masks and goggles) should be worn and care must be taken on ash-covered surfaces, particularly roofs.
- See [www.IVHNN.org](http://www.IVHNN.org) for further advice on protecting people from ash hazards.

### ROLES AND RESPONSIBILITIES

The NZ Civil Aviation Authority (CAA) has a comprehensive document outlining roles and responsibility in managing volcanic ash in New Zealand for the aviation sector.

- [www.caa.govt.nz/meteorology/living\\_with\\_volcanic\\_ash.pdf](http://www.caa.govt.nz/meteorology/living_with_volcanic_ash.pdf)

### FURTHER INFORMATION ON DEALING WITH VOLCANIC ASH MAY BE FOUND IN THE FOLLOWING LOCATIONS:

- <http://www.geonet.org.nz>
- <http://www.ivhnn.org>
- <http://volcanoes.usgs.gov/ash/trans/index.php#airports>
- <http://www.caa.govt.nz/>

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7 February 2013