

# Volcanic Impact Study Group (VISG) Update

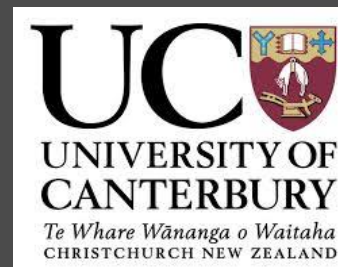
*Subcommittee of the Auckland Engineering Lifelines Group*



**Dr. Natalia Irma Deligne**

*VISG coordinator*

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# Volcanic Impact Study Group *Overview*

- “ **Focus: Impacts of volcanic hazards on lifelines and mitigation measures**
  - . Facilitate uptake of knowledge
  - . Support research
- “ **National focal point for infrastructure-related volcanic impacts research**
- “ **Part of AELG since 2003**



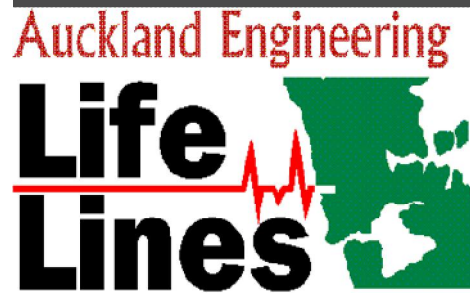
# VISG 2012 – 2013

## “ Ash impact poster launch

- Revised and expanded poster series

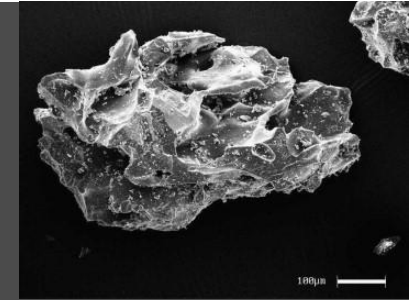
## “ Students:

- Completed: 1 PhD (electricity), 1 MS (clean up)
- Current: 3 PhD (fragility functions, transportation & evacuation, probabilistic map perception), 3 MS (GenSets, Auckland clean up, ash hazard maps)



# Ash impact posters

## *Why ash?*



- “ **Volcanic ash is the most likely volcanic hazard to affect people and infrastructure; most widespread volcanic hazard**
- “ **Typically disruptive, rather than destructive**
  - . Other volcanic hazards (lava flows, lahars, pyroclastic flows/surge) tend to have bimodal impact (structure/asset fine or destroyed)
  - . Because ash disruptive rather than destructive, can take preventive measures / actions to lessen or mitigate impacts

# Ash impact posters

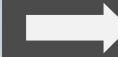
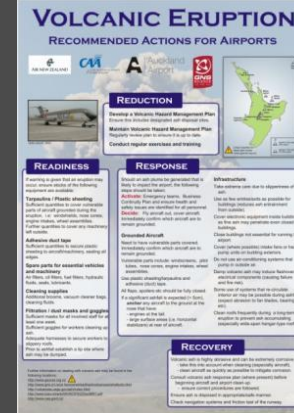
## *Series revised and expanded*

### “ Series 1: 2006 – 2010

- Provide content in long detailed reports in short, well summarised, authoritative reference for individual sectors
- 5 posters (Airports, Electricity, Rooding, Water Supply, Wastewater)

### “ Series 2: released Sept 2013 (2 years in the making)

- Leaders: Tom Wilson (University of Canterbury), Carol Stewart (Massey University / GNS)
- Revised and expanded series (10 posters)
  - “ Electricity divided into Power Plant Operators, Transmission / Distribution
  - “ 4 new posters (Facilities Managers . Buildings, Gensets & HVAC, Computers & Electronics; Urban Clean-up)



# Ash impact posters Content and design

## Content source

- “ International best practices
- “ National and overseas impact assessment trips
- “ Laboratory testing

## Specialised content

- “ Deliberately designed as fact- and advice-rich resources for a specialised audience
  - Sector specific terminology
- “ Uncertainty addressed
- “ Volcano jargon minimised

## Common Design

- “ Consistent layout
- “ Modernise
- “ Foster recognition



# Ash impact posters

## *Freely available*

Email  
[N.Deligne@gns.cri.nz](mailto:N.Deligne@gns.cri.nz)  
for print quality files

“ Hosted on the GNS website

· [www.gns.cri.nz/Home/Learning/Science-Topics/Volcanoes/Eruption-What-to-do/Ash-impacts](http://www.gns.cri.nz/Home/Learning/Science-Topics/Volcanoes/Eruption-What-to-do/Ash-impacts)

· Three clicks from GNS homepage:

1. Volcano icon on homepage
2. Left sidebar . Eruption: What to do
3. Left sidebar . Ash impacts

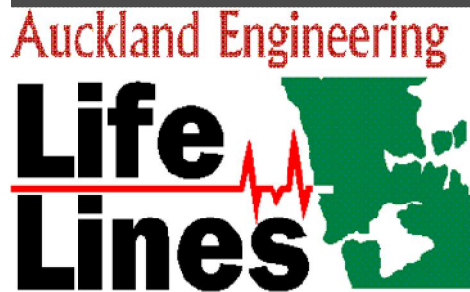
“ During volcanic crises, those checking GeoNet or GNS will quickly come across posters

“ Posters will be hosted on new AELG website

“ Cross-links

· USGS / GNS volcanic ash page (international reference)

· Internal links within GNS and GeoNet websites



# Student projects concerning volcanic impacts

*Completed in past year (University of Canterbury)*

## Johnny Wardman, PhD

- “ Ash impacts to electricity transmission and distribution networks
- “ What conditions lead to flashover



## Marlene Villemure, MS

- “ Analysis of Christchurch liquefaction clean-up
  - . Liquefaction is fine grained sediment . some similar characteristics to ash



# Student projects concerning volcanic impacts

## *PhD projects*

### Grant Wilson (UC)

- “ Fragility functions for main volcanic hazards
  - . Ash, lava flows, lahars, pyroclastic density currents
  - . Examine both damage AND functionality



### Daniel Blake (UC)

- “ Ash impacts on transport (road, vehicles, etc.)
- “ Given transport impacts, impacts on evacuation



### Mary Anne Thompson (UofA)

- “ Probabilistic ash hazard modelling for Auckland



# Student projects concerning volcanic impacts

## *Masters projects (University of Canterbury)*

**Daniel Hill**

“ (Experimental) ash impacts to  
GenSets



**Josh Hayes**

“ Auckland clean up following distant or  
local eruption

- Follows on from Marlene Villemure's project
- GIS based



**Nate Baird**

“ What is most effective way to communicate  
ash hazard information?

Contact: [N.Deligne@gns.cri.nz](mailto:N.Deligne@gns.cri.nz)

## Summary

“ Ash impact posters fantastic resource, freely available

- [www.gns.cri.nz/Home/Learning/Science-Topics/Volcanoes/Eruption-What-to-do/Ash-impacts](http://www.gns.cri.nz/Home/Learning/Science-Topics/Volcanoes/Eruption-What-to-do/Ash-impacts)
- Email me for print quality files

“ Active exciting research in New Zealand on volcanic impacts

