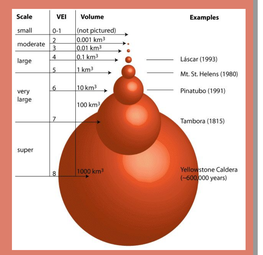
Help us Advance Basic Research & Preparedness at Taal

We can't predict much about the timing or details of the next eruption.

But preparation goes a long way

Taal Eruptive History



Source: OSU - What is a Supervolcano?

First recorded eruption - 1572

Largest eruption -

- 1749 to 1753 VEI: 4
- Eyjafjallajökull 2010 VEI: 4
- Pinatubo 1995: VEI 6

1754 blocking of Pansipit River - Taal becomes landlocked causing Tawilis sea snakes to evolve into freshwater species.

January 1911 - 1100 killed (mainly residents of the island

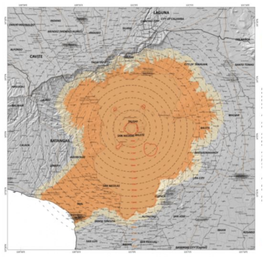
1965 to 1977 - 5 Explosive eruptions, 2 non-explosive eruptions

1990s - Taal included within the list of decade volcanoes volanoes by IAVCEI

Information and preparedness

My Recommendations:

Rotary Clubs within and near defined Danger Zones should have a means of coordination in case of emergency.



Source: UN ReliefWeb

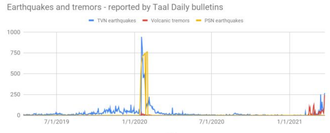
Rotary District 3820 could consider how such an approach may be transferable to nearby volcanoes such as Mayon and Pinatubo

Source: Rappler Jan 16, 2020 Update

Author Informal/Unaffiliated Projects

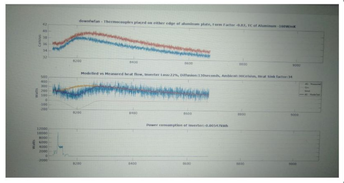
Graphical representation of Taal Daily Bulletins

Language Parsing of daily Phivolcs Bulletins to help provide historical context to daily reports



Heat flow modelling of low speed electric vehicle inverter

Heat flow modelling is a basic activity within geothermics and many engineering design disciplines



Author Publications

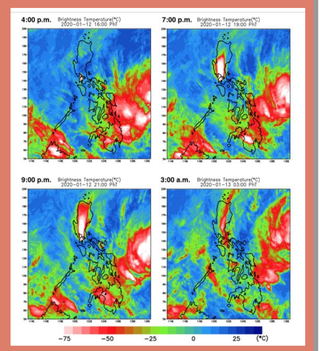
- Investigation of the geothermal state of sedimentary basins using oil industry thermal data: Case study from Northern Alberta exhibiting the need to systematically remove biased data
- Geothermal energy as a source of heat for oil sands processing in Northern Alberta, Canada
- Implications of Post-Glacial Warming for Northern Alberta Heat Flow— Correcting for the Underestimate of the Geothermal Potential

LMU and Ash Collection

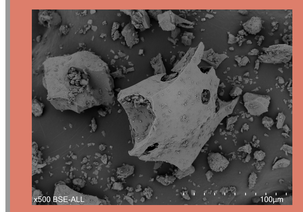
Ludwig-Maximilians-Universität München (LMU)

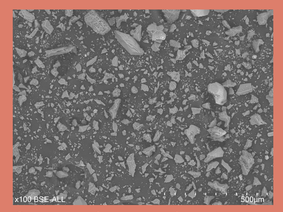
Ash samples collected from the 2020 eruption have been sent to LMU for in-depth mineralogical analyses (see SEM images below).

The lab is focused on the relationship between mineralogy, rheology & chemistry within explosive volcanic systems



Source: Manila Observatory - Taal Volcano 2020 Eruption Impact on Air Quality, Part II: Air Quality Measurements and Current Plume Conditions





SEM images of ash samples from LMU

My Recommendations:

Near (automated), medium (stackable) and far (permanent outdoor, plastic bottles) range ash collection programs co-ordinated via Rotary 3820.

MOU between LMU, PhiVolcs Rotary 3820, in order to further understanding of relationship between seismicity and explosive volcanism

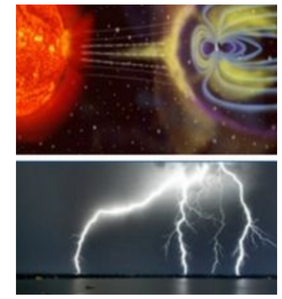
Bernard 2013 - Journal of Applied Volcanology

Selected Publications

- Roman et al - Nature 2021 - Earthquakes indicated magma viscosity during Kīlauea's 2018 eruption D.C.
- Carnegie Institution for Science. ScienceDaily 2016 - Volcanoes get quiet before they erupt

Magnetotellurics

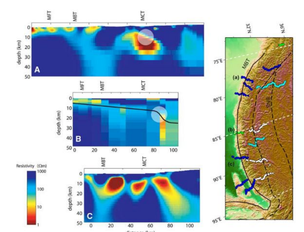
- A frequency-domain electrical geophysics technique for imaging the earth's subsurface
- Used in geothermal exploration and monitoring
- Also used in regional & continental-scale academic studies



Source: http://geophysmethod.com/

"Magnetotellurics are important in geothermal studies, and as you know, Philippines is 2nd or 3d in the world in geothermal. That would be a great field to specialize in graduate studies. Unfortunately, I don't know anyone at NIGS or in other Philippine universities who have done magnetotelluric work, except of course in the geothermal companies"

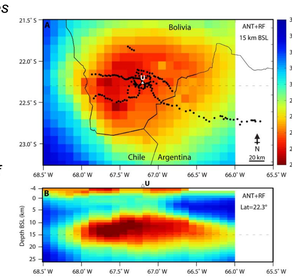
- *Dr Caloy Arcilla, Director of National Institute for Geosciences*



Unsworth, MJ - 2010 - Magnetotelluric studies of active continent-continent collisions, *Surveys in Geophysics*

"this idea has value, so do keep the idea moving forward. Lake bottom sites would be needed, so let me think who might be capable of that"

- *Dr Martyn Unsworth, Professor of Geophysics, University of Alberta*



Comeau, MJ - 2015 - Electrical Resistivity Structure of the Altiplano-Puna Magma Body and Volcan Uturuncu from Magnetotelluric Data

Want to get involved?

Rtn Allan Gray - allan.gray@sunEtrike.com

Rotary Club of Calamba

+63 917 371 6101