

# Vanuatu Meteorology & Geohazards Department



**Detection, Observation, Monitoring Analysis and Forecasting**  
**09/07/25**

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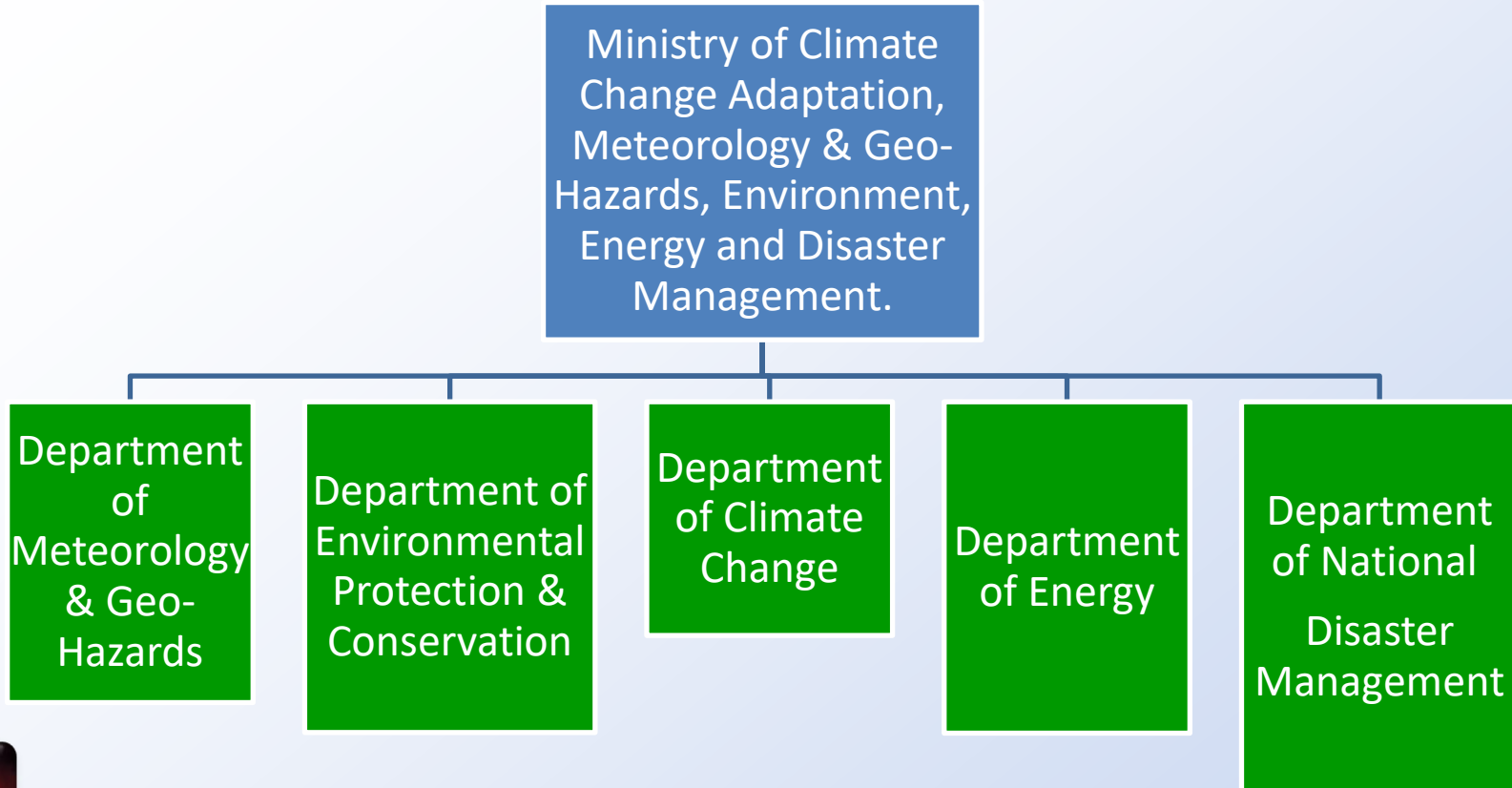


# Presentation overview

- ☐ Governance
- ☐ Introduction
- ☐ Volcano monitoring system
- ☐ Ambae Volcano eruption
- ☐ Vanuatu volcanic alert level system
- ☐ Type of products and services
- ☐ Dissemination platforms
- ☐ 17<sup>th</sup> December 2024 EQ



# Governance

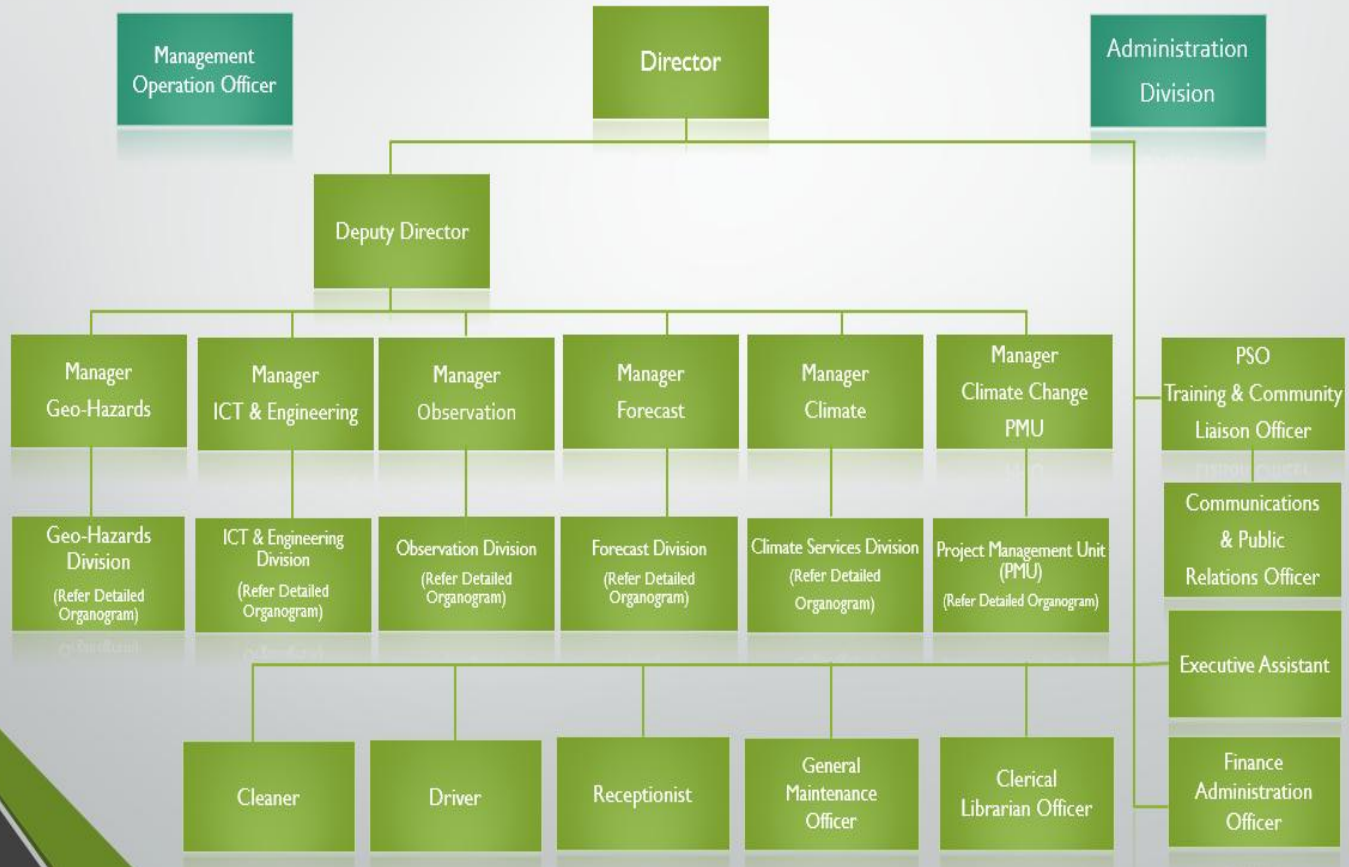


This Ministry was created by the Government of Vanuatu in 2014 for the purpose of strategically aligning Departments responsible for the response to natural disasters and sustainable development of the environment: <https://mocca.gov.vu/>



# Governance

## Vanuatu Meteorology and Geohazards Department

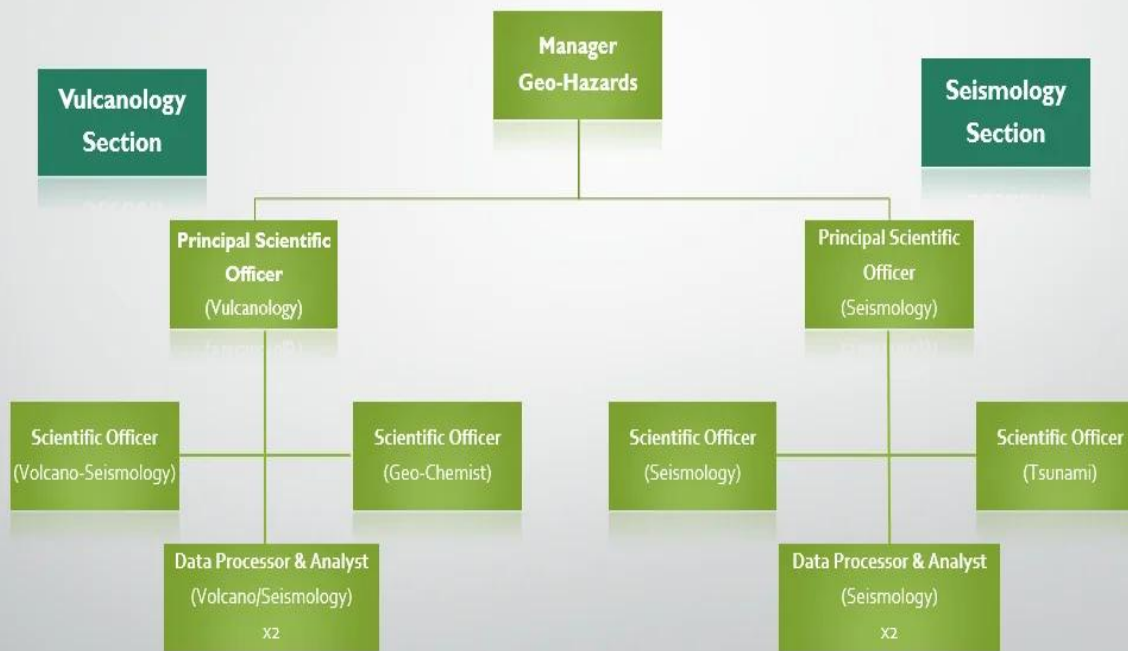




# Governance

## Vanuatu Meteorology and Geohazards Department

### Geo Hazards Division



# Geo-Hazards Division

## Mandate:

1. Earthquakes
2. Tsunami (operations led by Forecast Division)
3. **Volcanoes**

## Six (6) active aerial volcanoes :

- Suretamai volcano: stratovolcano
- Mont Garet: stratovolcano
- **Lombenben/Mt Vui: Shiled Volcano**
- Benbow and Marum : Shield Volcanoes
- **Lopevi**: stratovolcano
- Yasur: Strato Volcano

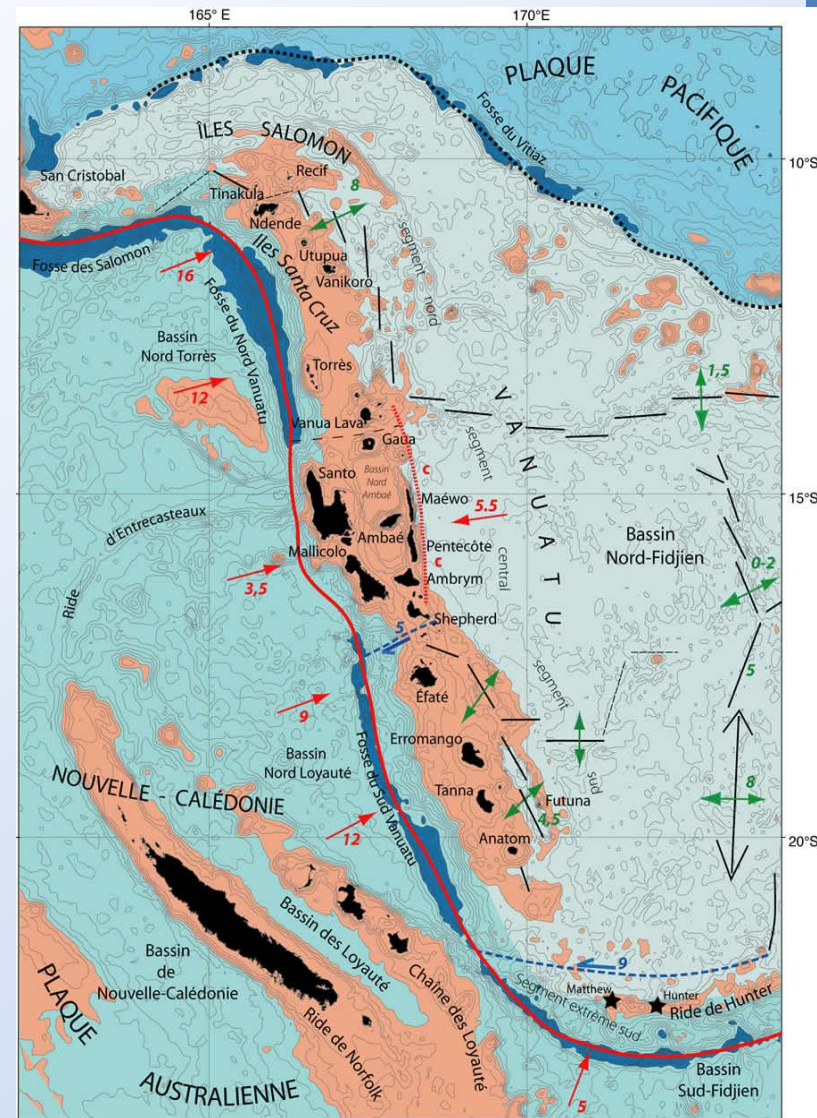
## Three (3 ) active sub-marine volcanoes

Mont -Gemini, Karua and East Epi

## Three (3) dormant Volcano

Erromango, North Efate and Mere Lava

- Most volcanoes with **indigenous communities** living near and around the volcanoes. Tourist attraction



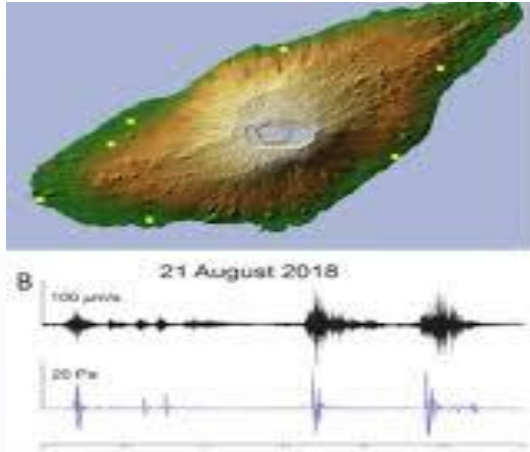
# Volcano monitoring system

- **Real-time monitoring system:**
  - 23 Seismic station (Tele transmitted): 4 installed near volcanoes.
  - Webcam
  - Local Point of contact
- **Online data source**
  - Thermal anomaly
  - [SO<sub>2</sub>] flux
  - InSAR
- **Human resource 5 staffs:**
  - Operations, assessments, awareness activities and participate in Research.
  - Vandalism of equipment's





# Ambae 2017-18 Eruption



- Series of Phreatic and phreatomagmatic eruptions
- Mass Emission of Ash and SO<sub>2</sub>
- Lahars and erosion
- Contamination of the Water supply and food source
- No immediate deaths
- Whole Island evacuation despite the decision of locals to stay (Beliefs)
- Collaboration was crucial to successfully monitor and update the public.





# 4. Vanuatu Volcanic Alert Level System (VVAL)

- One system for all volcanoes
- Based on currently occurring phenomena
- Two levels of unrest
- Three levels of eruption
- Simple wording
- Guide to response
- Danger Zones not always linked to VVAL

## Vanuatu Volcanic Alert Level System

Title	Level of Alert	Description Area / Distance
<b>Very Large Eruption</b>	5	Danger beyond caldera, on entire and surrounding islands and also chance of flank eruption
<b>Moderate Eruption</b>	4	Danger on volcanic cone, caldera and all island, possibility of very large eruption and also chance of flank eruption
<b>Minor Eruption</b>	3	Danger on volcanic cone, within caldera and other specific area, possibility of moderate eruption and also chance of flank eruption
<b>Major Unrest</b>	2	Danger around the crater rim and specific area, notable/large unrest, considerable possibility of eruption and also chance of flank eruption
<b>Signs of Volcanic Unrest</b>	1	Notable signs unrest Possible danger near eruptive vents
<b>Normal</b>	0	No signs of change in the activity Limited danger

**An eruption may occur at any level and levels may not move in sequence as activity can change rapidly**



This system applies to all Vanuatu's volcanoes.  
The Volcanic Alert Level is set by the National Geohazards Observatory within the Vanuatu Meteorology and Geohazards Department based on the level of volcanic activity.  
For more information, see [www.geohazards.gov.vu](http://www.geohazards.gov.vu) or email at [www.geohazards.gov.vu](mailto:www.geohazards.gov.vu) or call at 24686 for alert levels and current volcanic activity.  
Version 2.0, 2014.



# 5. Types of Products and Services

## \*Volcanic activity:

- Volcano Alert Bulletin - Public and scientific community; (Crisis vs Normal time)
- Volcano Update information - Directors and Director general
- Media release - Public
- Update on the volcano activity – Public and VAAC (Wellington)
- Short messaging - sms

## \*Education information:

- Brochures - distribution
- Presentation and awareness - Evacuation centres
- Maps : Safety maps, background maps, visitors Fact sheets
- Key messages :
  - \* Volcanic Gas and Ash Key messages
  - \* Heavy Ash fall Key messages



# 6. Dissemination platforms

Means of communication :

- ❖ Email list



- ❖ Website – [www.vmgd.gov.vu](http://www.vmgd.gov.vu)



- ❖ Facebook profile :

- Vanuatu Meteorology and Geohazards Department
- Vanuatu Geohazards Observatory



- ❖ Radio stations and television broadcasting – VBTC, FM107, FM 98,

- ❖ Talk back show – emission at the radio FM 107

- ❖ TVL and Digicel network subscribers

- ❖ Other Media – Daily Post, Vanuatu Independent.....

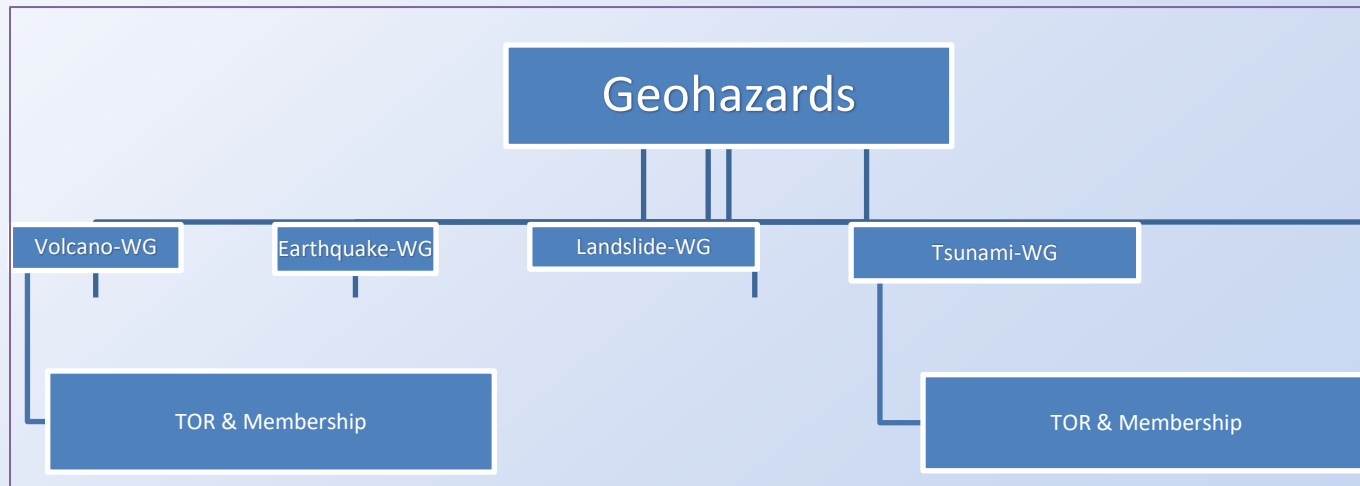
- ❖ International radio stations – Radio New Zealand/Australia, NC 1ere





# Collaborations

- **VDAP:** 2 sets of Volcano monitoring equipment's
  - **GNS:** Volcano safety signage design and installation
  - **Projects:** SATREPS (Geology and Monitoring),
  - **Research:** Scientific community and institutes
- Regional:**
- **Melanesian volcano Network**
  - **ORSNET**
    - *PTWC*
    - *Seismic data sharing*
  - **Geohazards Framework initiative**



# Challenges

- Funding
  - *Station Maintenance*
  - *Upgrades (Monitoring, Assessment, Capacity Building, products and services)*
- Geography dispersion and accessibility
  - *Instrumentation logistics*
  - *Assessments*
- Data and communication
  - *Cost of Telemetry medium*
  - *Ownership of medium*
- Human Resource
  - *Operations Vs Research*





**Thank you!!**

**Follow us on :  
[www.vmgd.gov.vu](http://www.vmgd.gov.vu)**

**FB pages : Vanuatu Meteorology and Geohazards Department  
Vanuatu Geohazards Observatory**

