Kadovar Eruption: Multi-Hazard Monitoring and Response

Purpose: Information
Submitted by: Papua New Guinea
Kadovar Eruption: Multi-Hazard Monitoring and Response

Courtesy of B. Buser
Volcanoes and Papua New Guinea
Background – Kadovar Volcano

- Explorers witnessed possible Kadovar eruption in 1700s
- Known volcanic unrest:
  - 1900s; 1976 – 1978; 2015
- Seafloor diameter - 6-8 km
- Height: ≈1500m; Summit at 365 m als
- Home to over 600 people
- No instrument monitoring or observers on island before eruption
Initial Activity

- Few weeks of increased seismicity before January 5 eruption
- Residents self-evacuated to neighboring Ruprup Island before eruption due to increased seismic activity
- Eruption began with moderate explosions from summit vents producing ash clouds rising 600 to 800m.
- Official word of eruption received on 6 January
Recent Activity

- Lava surfaced SE of island on January 11th.
- Lava dome grew and then collapsed, disappeared completely on February 9th following strong explosions.
- Activity has declined but continuous low level volcano seismicity and lava dome growth demonstrate activity is continuing.

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Volcanic Multi-Hazards

- **Ashfall**
  - Areas downwind of Kadovar
  - Aviation flight routes and airports (Wewak)

- **Collapse & Tsunamis**
  - Potential tsunamis on island, neighboring islands and coastlines along the mainland

- **Hazards on the island included:**
  - Pyroclastic flows
  - Volcanic bombs
  - Lava flows
  - Landslides & Mudflows
  - Volcanic gases
Challenges

- Funding constraints delayed rapid set up of instruments & on-site monitoring
- Social media rumors of new eruptions; other misinformation
- Bad weather/rough seas hampered field work
- Need for long-term cost-effective real-time monitoring of volcano
Islanders self-evacuated to neighbouring Ruprup island across 12 km of sea
Coordination by Ward Councillors
Ruprup residents took in displaced and provided immediate assistance
Government, non-government and private sector responded with immediate assistance
Challenges due to distance of Ruprup from mainland; weather conditions
Coordinating system established by provincial government, including Emergency Operations Centre
Additional support sent from Port Moresby
Decision to Evacuate to Mainland

• Decision to evacuate residents to mainland due to severity of eruption and uncertainty on length of event

• Extensive consultation held by officials
  • With affected population on need for relocation
  • With land owners at relocation site
Sea Evacuation – 105 Km
Challenges

- Land issues – ownership and availability
- Communication Infrastructure
- Gap in understanding of warmings & misinformation
- Capacity to concurrently monitor multiple hazards
- Longer term support – transition to recovery, resettlement
- However, is displacement temporary or permanent?
- Decision making complicated by need to consider multiple hazards and social factors
Kadovar Eruption: Multi-Hazard Warning and Response

Thank you.

Questions welcome

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