



**Asia-Pacific
Economic Cooperation**

2018/SOM1/EPWG/016

Agenda Item: 11.10

Kadovar Eruption: Multi-Hazard Monitoring and Response

Purpose: Information

Submitted by: Papua New Guinea



**13th Emergency Preparedness Working
Group Meeting
Port Moresby, Papua New Guinea
24-25 February 2018**

Kadovar Eruption: Multi-Hazard Monitoring and Response

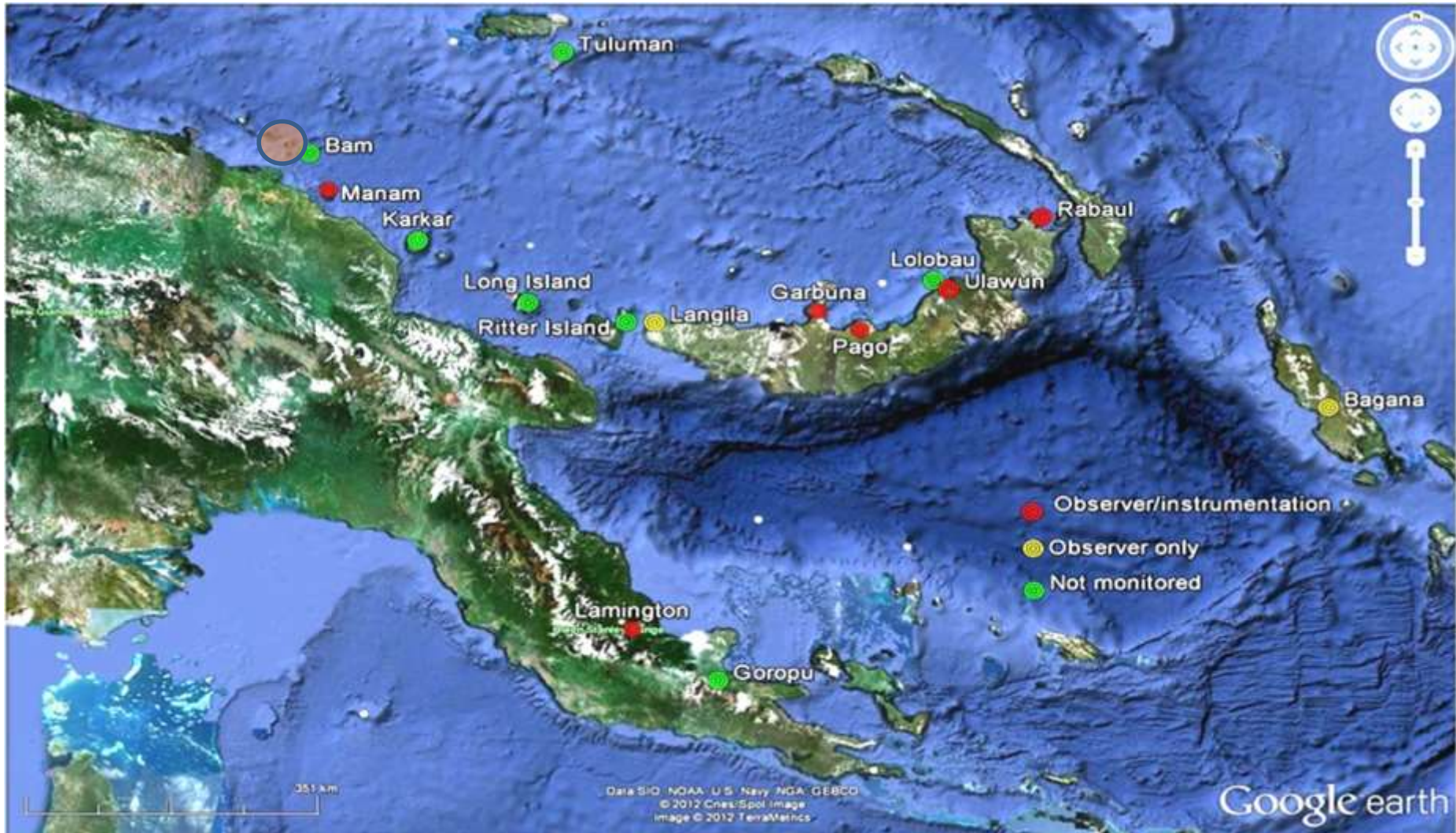


Courtesy of B. Buser



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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: $\approx 1500\text{m}$; 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

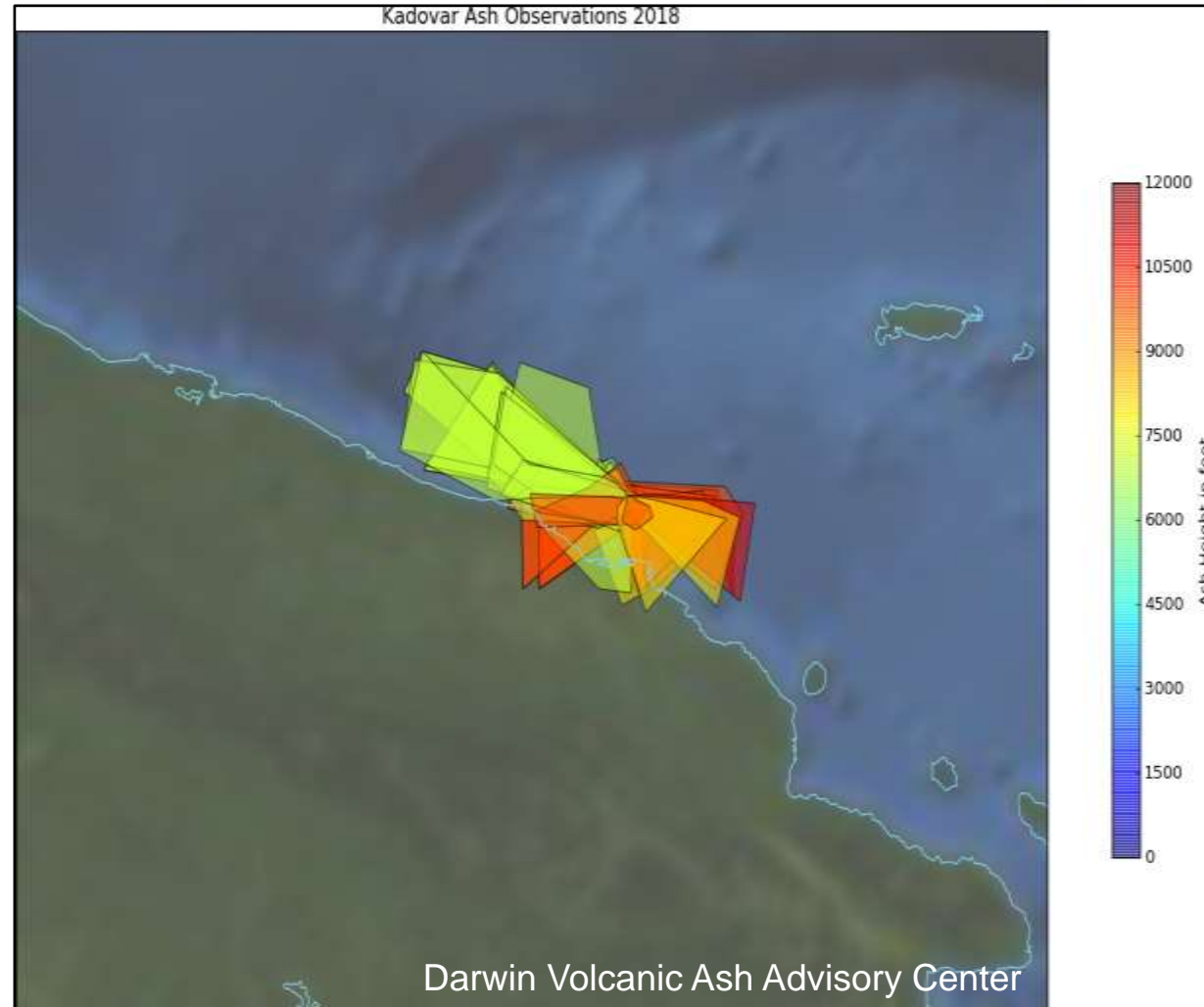
- Areas downwind of Kadovar
- Aviation flight routes and airports (Wewak)

➤ 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





RESPONSE TO KADOVAR VOLCANO DISASTER

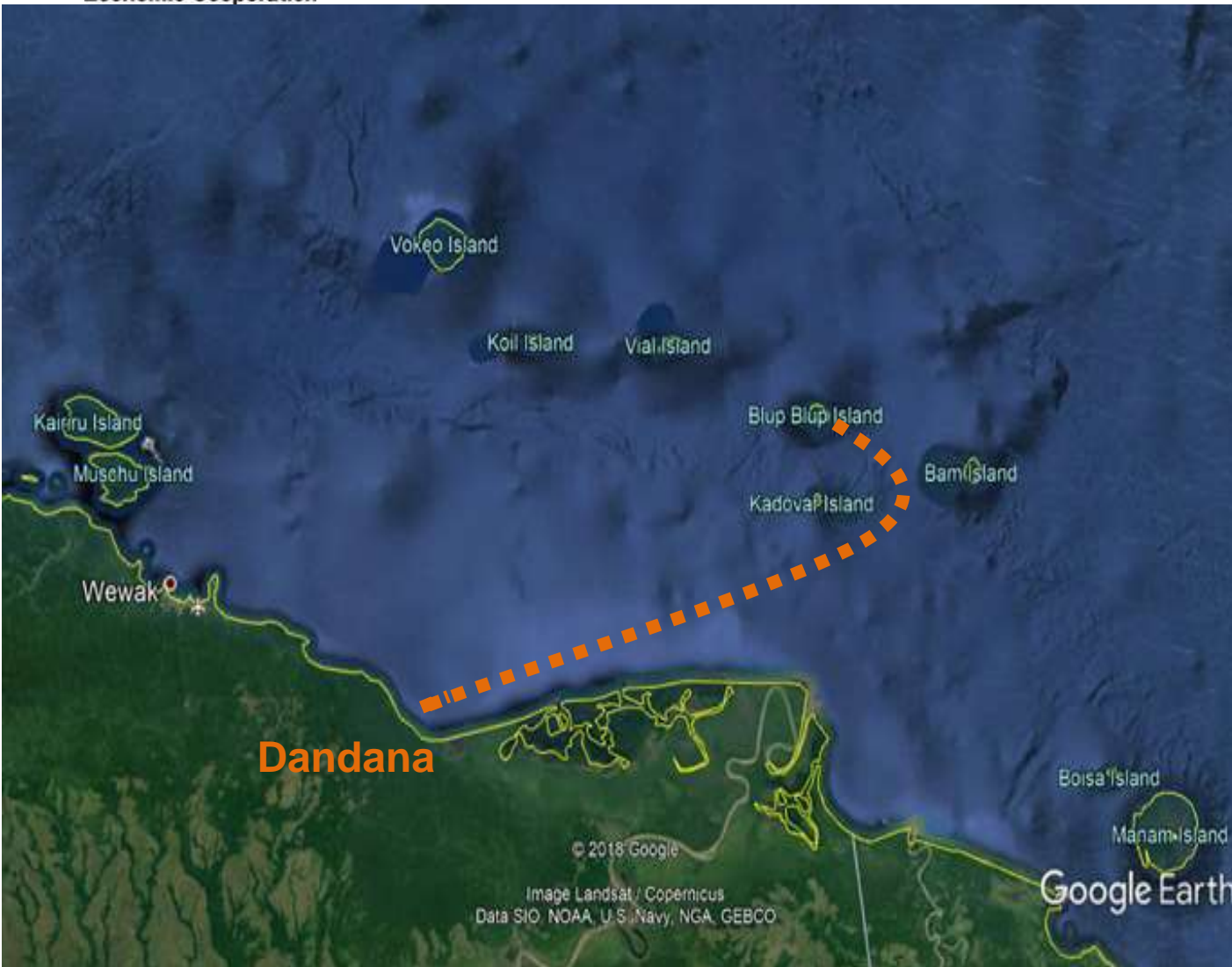


- Islanders self-evacuated to neighbouring Ruprup island across 12 km of sea
- Coordination by Ward Councillors
- Ruprup residents took in displaced and provided immediate assistance
- Government, non-government and private sector responded with immediate assistance
- Challenges due to distance of Ruprup from mainland; weather conditions
- Coordinating system established by provincial government, including Emergency Operations Centre
- Additional support sent from Port Moresby

- **Decision to evacuate 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

