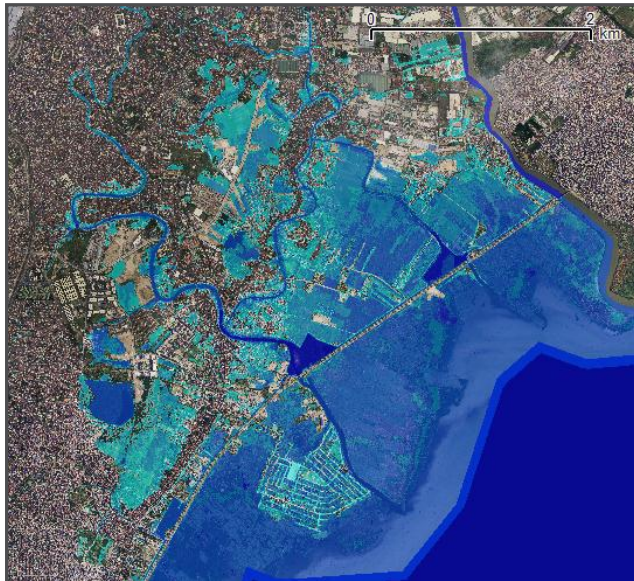




Australia Government Geospatial Capacity Building Efforts in Asia and the Pacific

Dr John Dawson



Presentation Overview

About Geoscience Australia

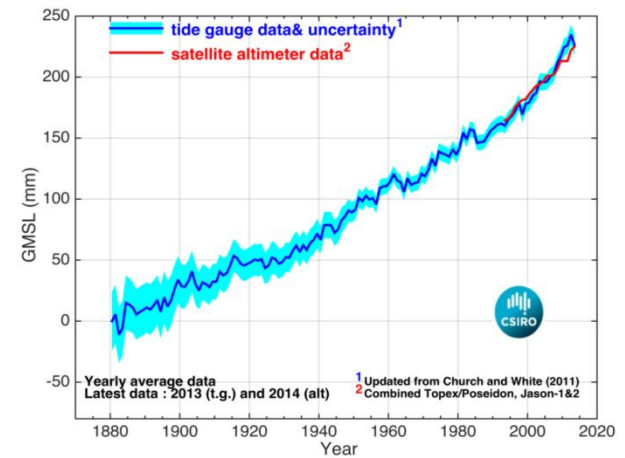
Examples of Geospatial Capacity Building Activity

- Geodesy for Sea Level Monitoring
- Pacific Geospatial and Surveying Council
- Geodesy for Volcano Monitoring
- Maritime Boundaries
- Disaster Risk Reduction

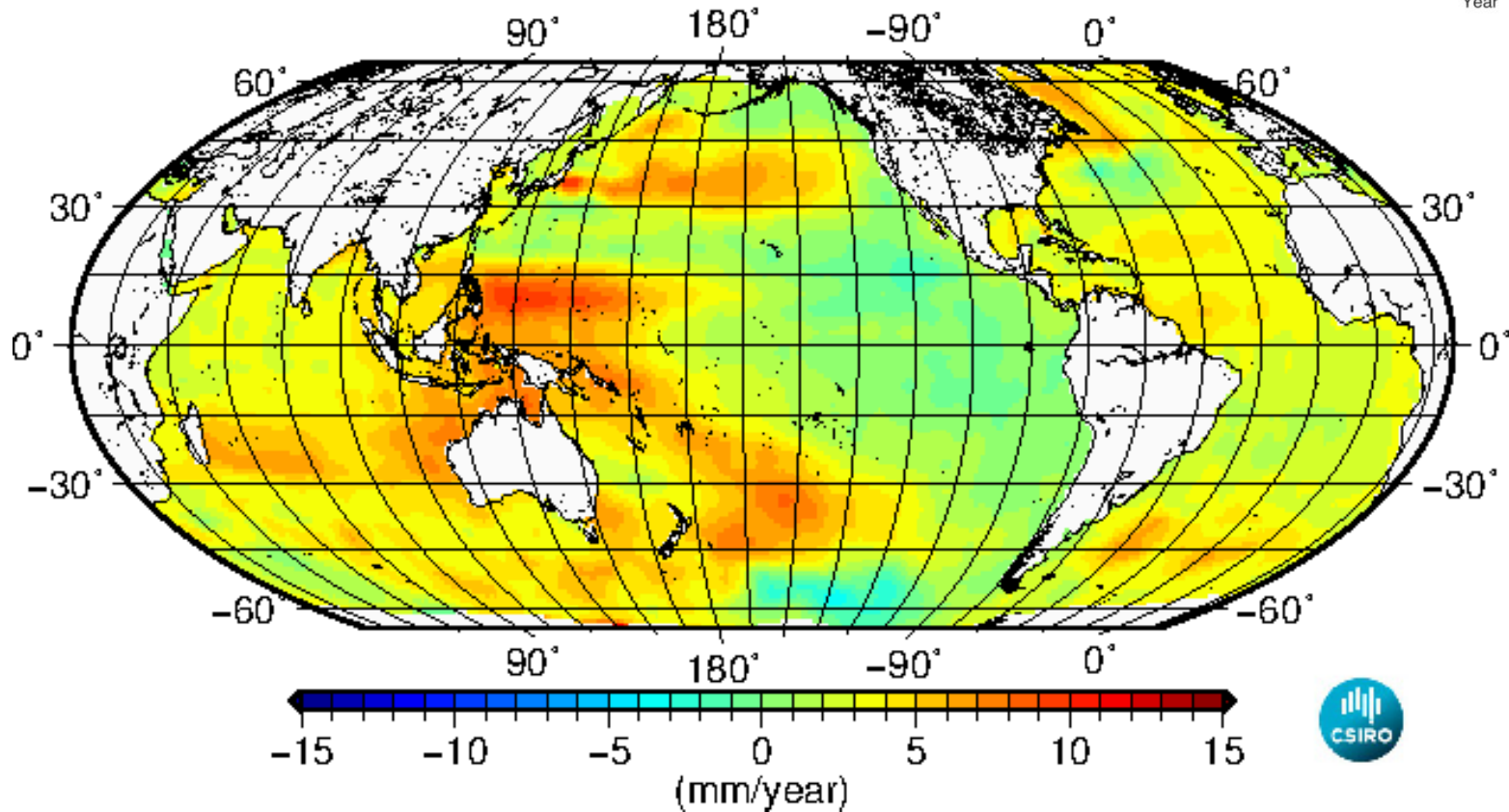
About Geoscience Australia

- Australian Government Agency within the Industry, Innovation and Science portfolio
- Use geoscientific information and knowledge for the economic, social and environmental benefit of Australia, includes:
 - Ensuring Australia's Community Safety
 - Managing Australia's Marine Jurisdictions
 - Providing Fundamental Geographic Information
- GA partners with the Department of Foreign Affairs and Trade (formerly known as AusAID) to bring our capabilities to the Asia-Pacific region

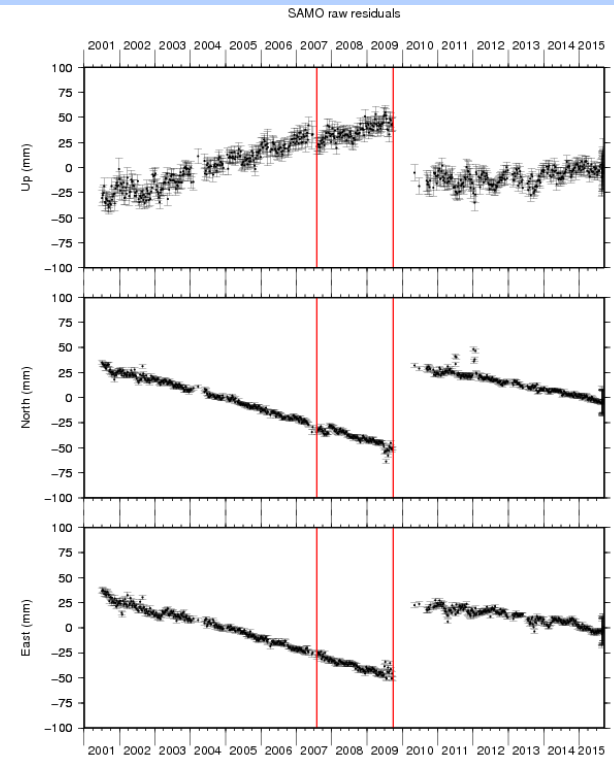
Sea Level Change



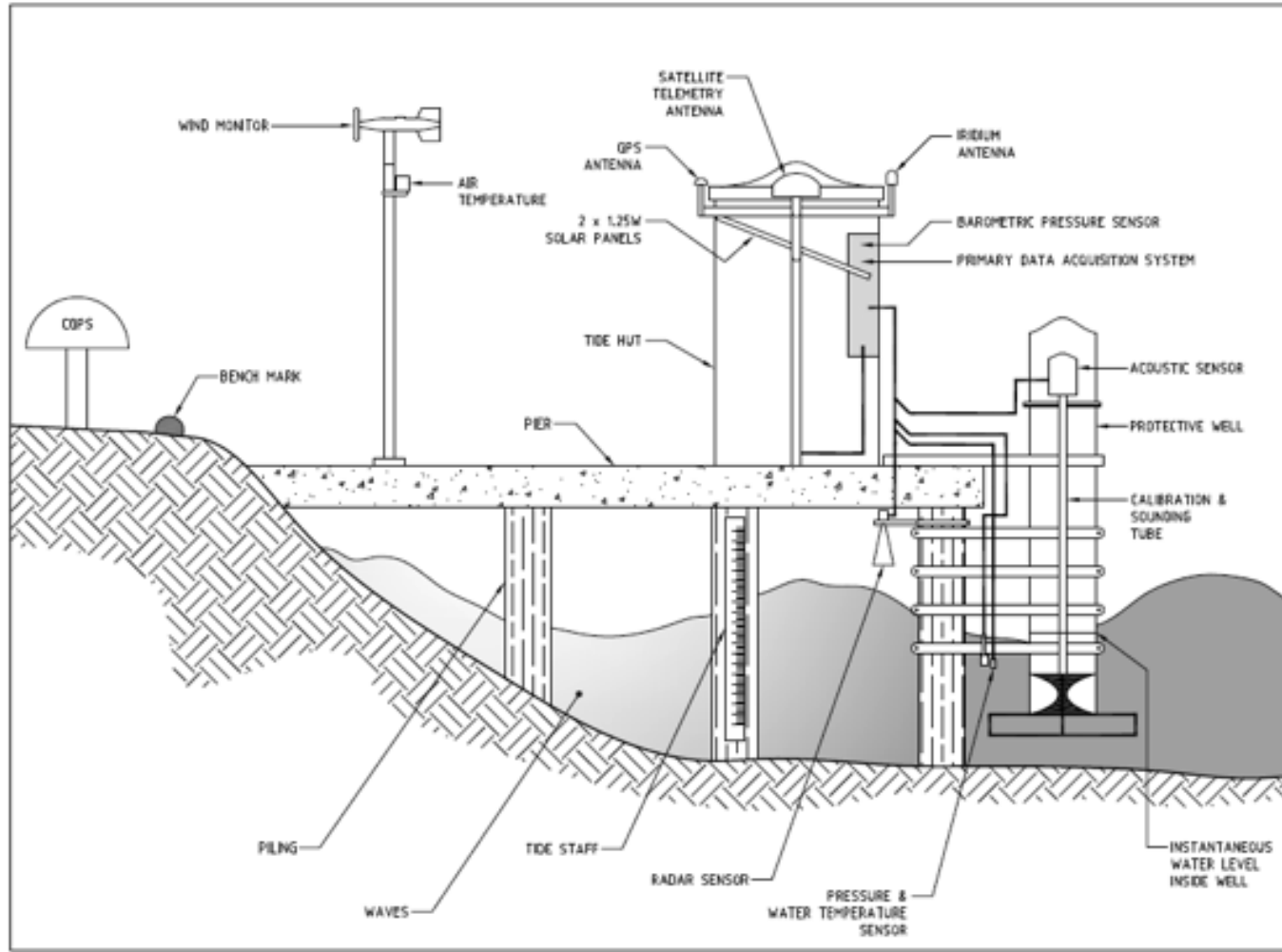
Sea level trend 1993 to 2014



Samoa – GNSS Station



Tide Gauge and GNSS Station



Pacific Geospatial and Surveying Council

Pacific Geospatial and Surveying Council

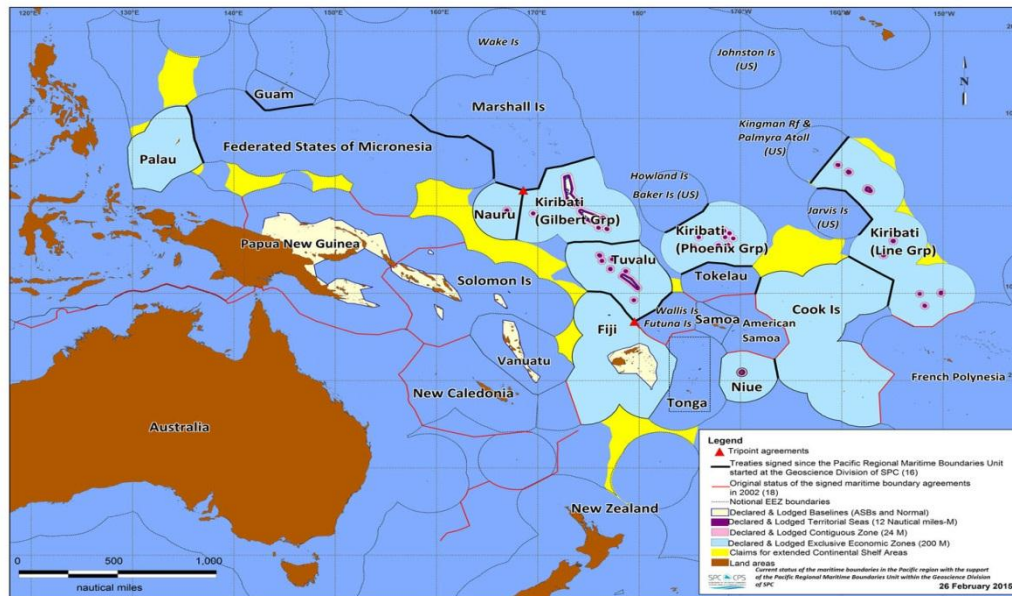
Sustainable development in the Pacific enabled by world class geospatial information and surveying services



Name	Pacific Geospatial and Surveying Council (PGSC)
Vision	Sustainable development in the Pacific enabled by world class geospatial information and surveying services
Mission	The PGSC will provide a regional network and forum for the geospatial information and survey authorities of Pacific Island Countries and Territories (PICTs) to address regional challenges, such as building the capacity of surveyors, improving and standardising geospatial information gathering and dissemination, maximising economic growth, alleviating poverty, improving natural resource management, disaster risk management and climate change adaptation. This will be achieved by coordinating, communicating, and collaborating activities, sharing resources and applications of location information through regional and global partnerships.

Maritime Boundaries

- Pacific Island Countries formalising their maritime boundaries and securing rights over their resources
- A regional effort to fix baselines and maritime boundaries to ensure the impact of climate change and sea-level rise does not result in reduced jurisdiction of Pacific Island Countries



Maritime Boundaries

- Partnership with the Secretariat of the Pacific Community, the Forum Fisheries Agency, GRID-Arendal, the Commonwealth Secretariat and the University of Sydney
- Provides the necessary technical and legal input to
 - assist the Island Forum countries to negotiate maritime boundary treaties
 - declare the outer limits of their maritime zones
 - to submit and defend claims to areas of extended continental shelf beyond 200 nautical miles to UN Commission on the Limits of the Continental Shelf

Disaster Risk Reduction Projects

- **The Philippines**

- Pilot earthquake impact analysis for Iloilo City (completed)
- A national spatial data infrastructure road map (completed)
- The Greater Metro Manila Area (GMMA) multi-hazard (flood, severe wind, & earthquake) Risk Analysis Project
- Also substantial technical advice to DFAT-Manila Post

- **Indonesia - The Australia-Indonesia Facility for Disaster Reduction**

- Development of a Indonesian National Earthquake Hazard Map
- Earthquake strong-motion network and ShakeMap support
- Volcanic ash impact forecasting
- National probabilistic tsunami hazard assessment
- Engineering Vulnerability – follow up from 2009 Padang earthquake

- **Papua New Guinea**

- Pilot multi-hazard (earthquake, tsunami & volcanic ash) risk analysis for East New Britain
- Develop further earthquake and landslide hazard assessment capabilities

Greater Metro Manila Area Risk Analysis

- Project started in response to Typhoon Ondoy (Ketsana) in 2009 and is part of a broader Australian Aid initiative known as BRACE
- Geoscience Australia is working with 10+ Philippine Government agencies plus Local Government Units (LGUs) in the Greater Metro Manila Area (GMMA)
- Objective is to assess the potential impact from flood, cyclone and earthquake in the Greater Metro Manila Area by developing fundamental datasets and information



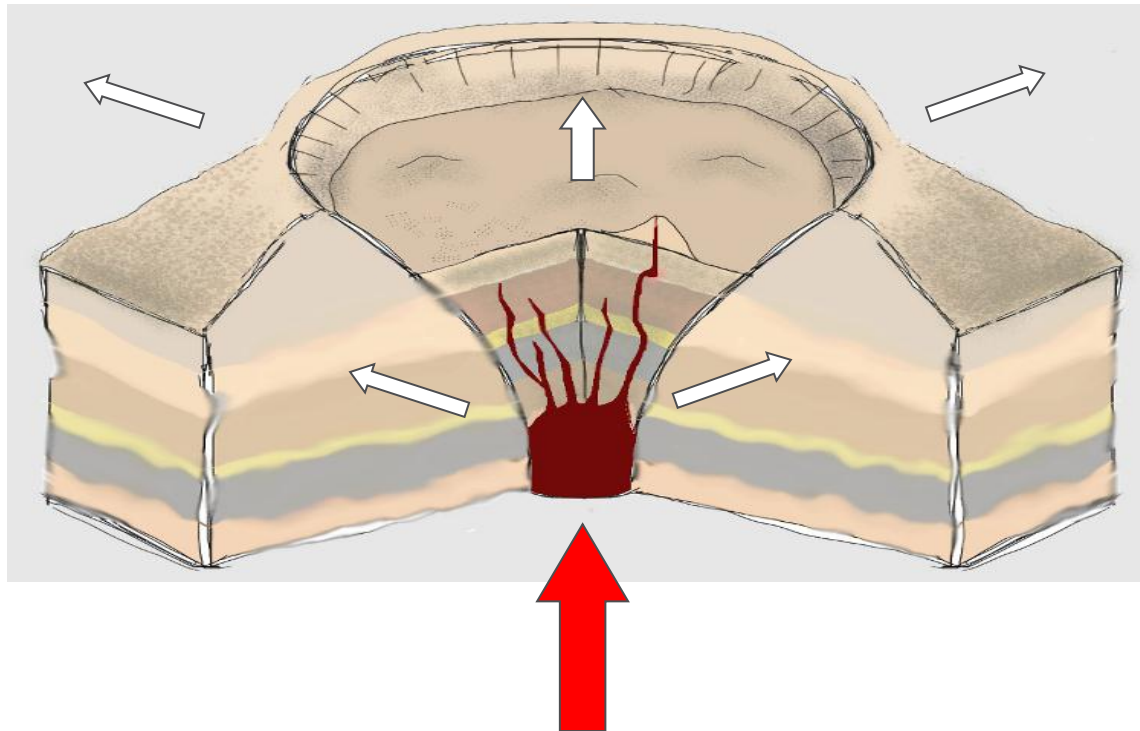
Project Components

- Collection and management of high-resolution digital elevation data
- Development of exposure information for the Greater Metro Manila Area
- Development of hazard models and associated risk analyses for:
 - Flood (Pasig-Marikina River Basin)
 - Tropical Cyclone Severe Wind (typhoons impacting on GMMA)
 - Earthquake (emanating from the West Valley Fault)
- Conduct of an Information, Education and Communication (IEC) campaign with LGUs in GMMA

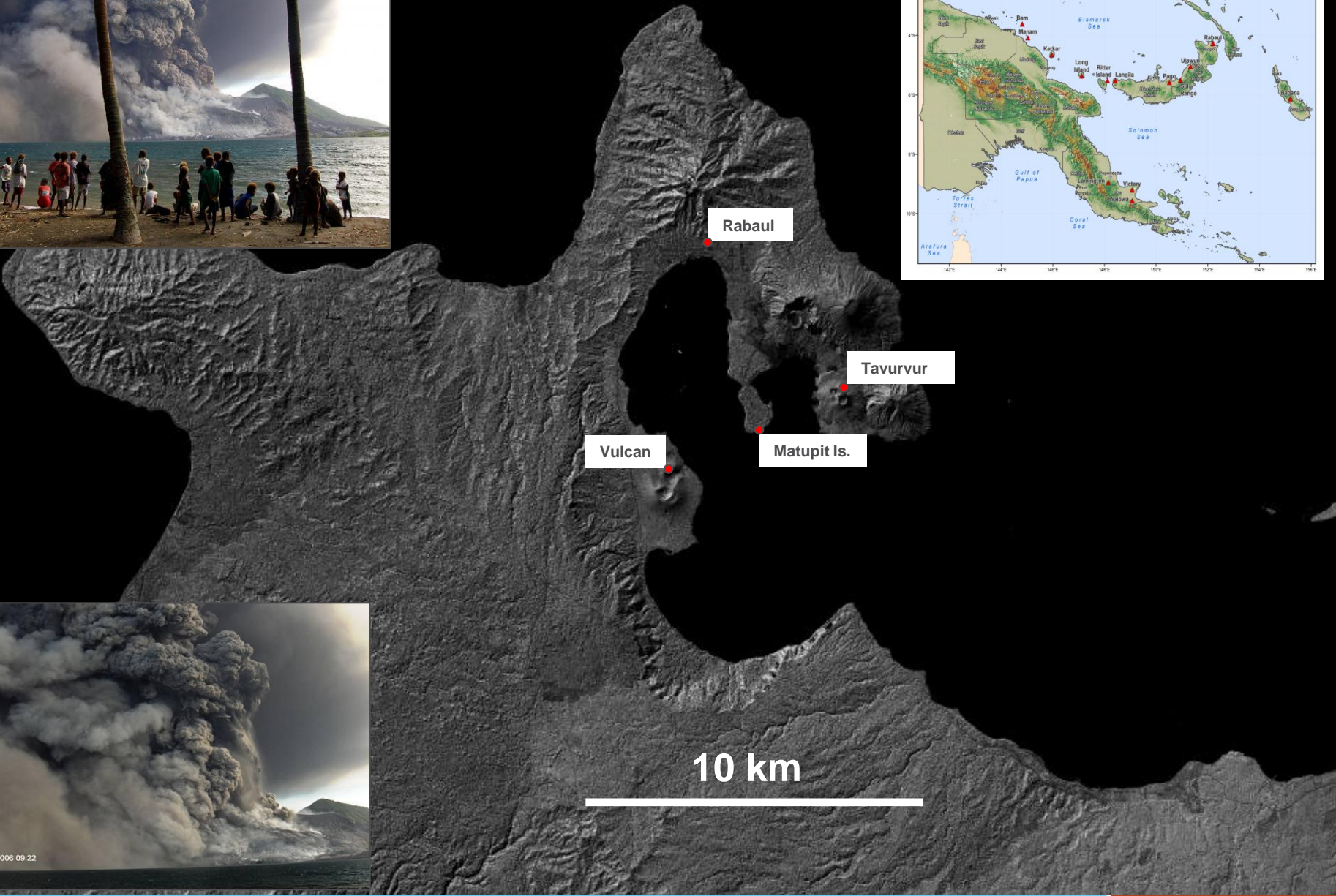
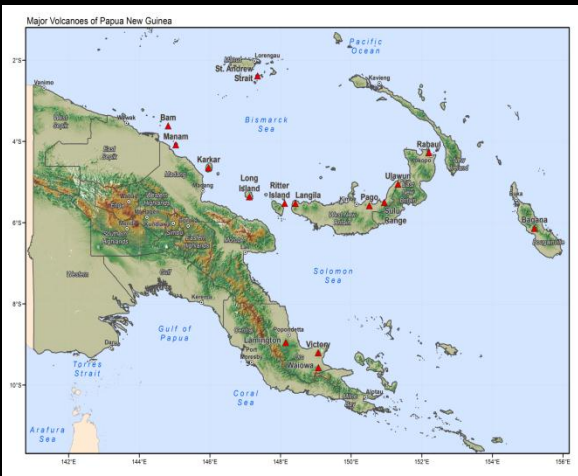


Geodetic Monitoring of Volcanoes

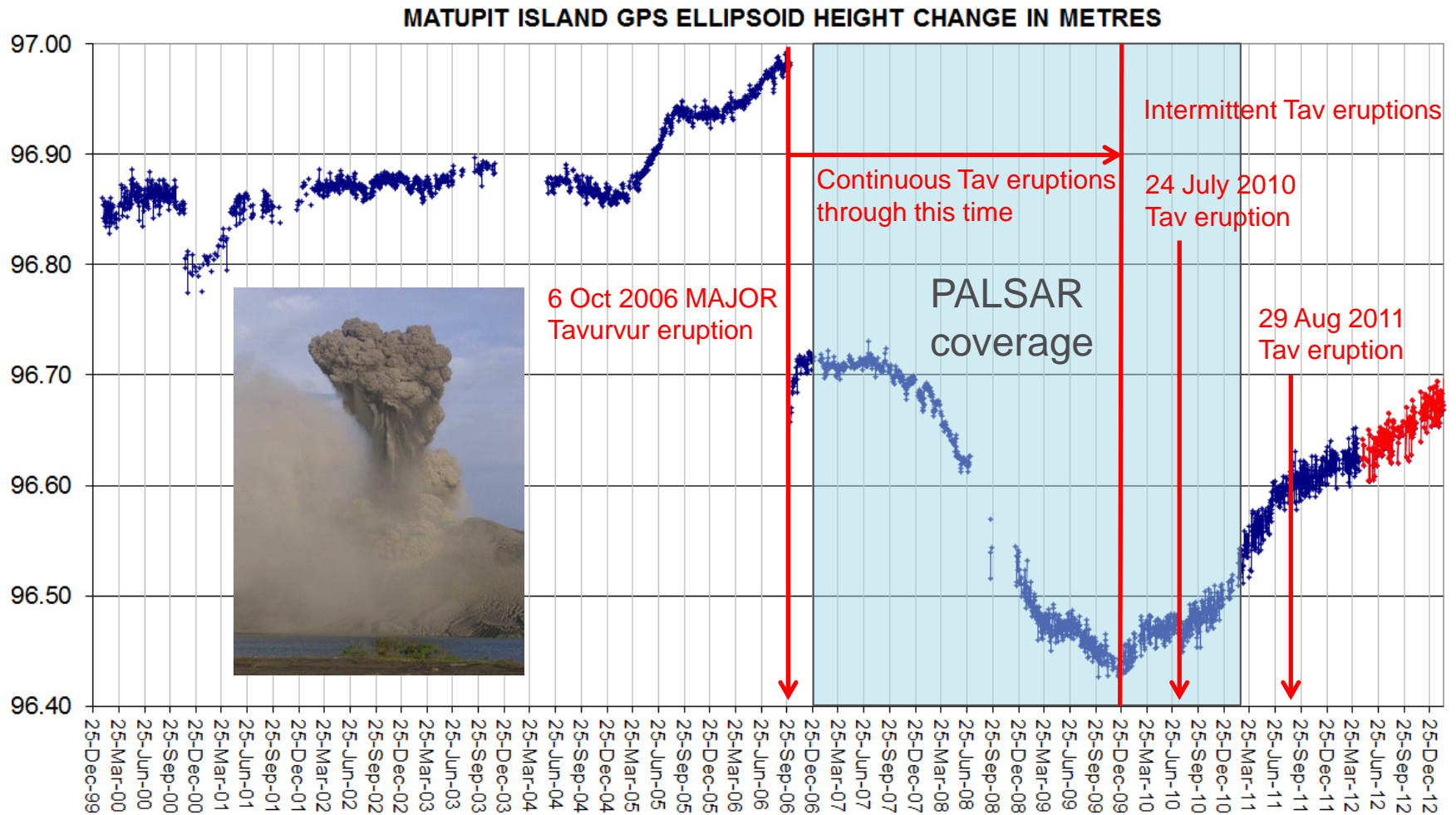
Surface deformation → volcanic plumbing



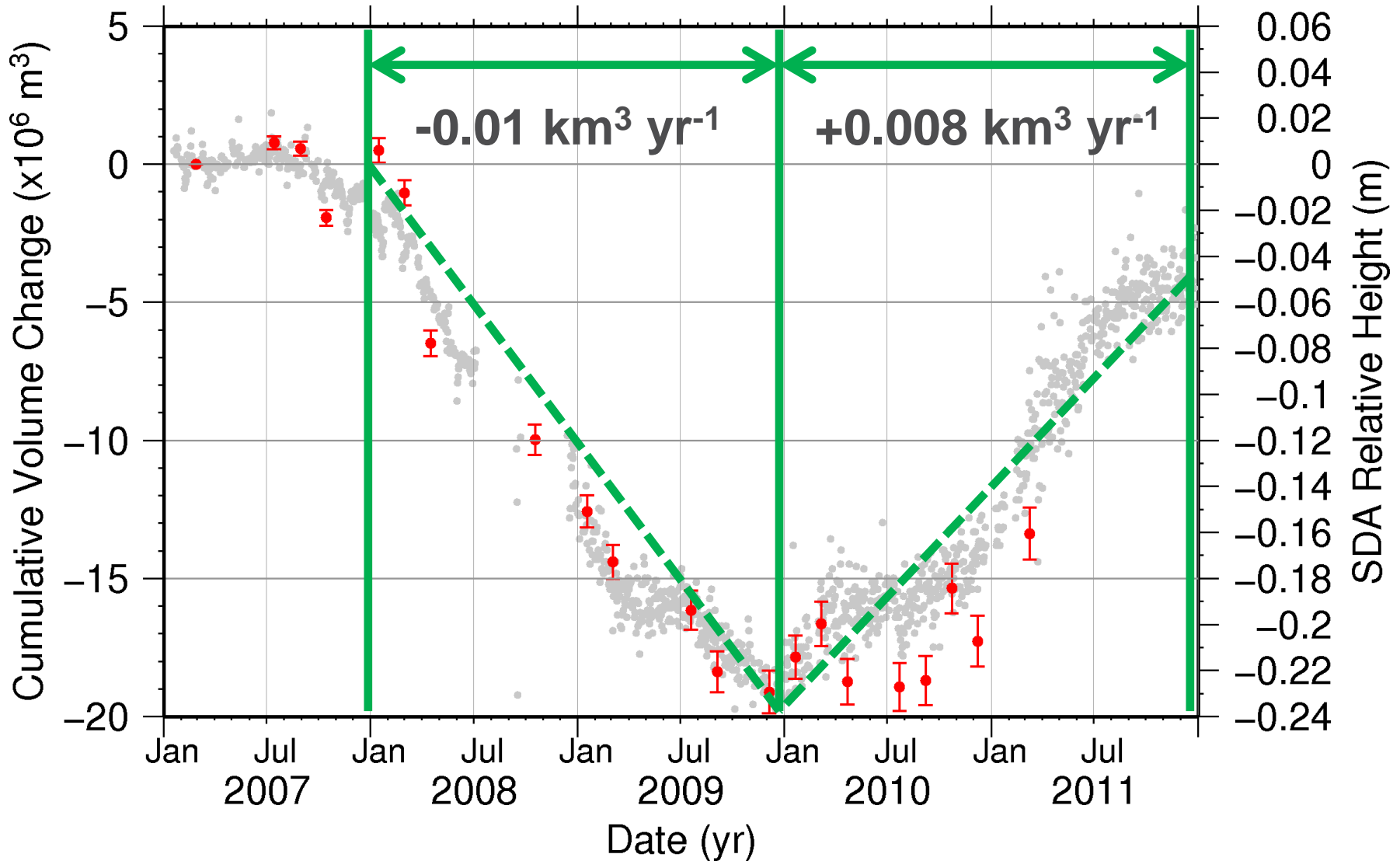
Magma Chamber Inflation/Deflation



Recent eruptive activity at Rabaul



Time series of volume change



Concluding Remarks

Geoscience Australia with support from Department of Foreign Affairs and Trade will continue to provide support for geospatial capacity building in the Asia-Pacific





Australian Government

Geoscience Australia



Australia Government Geospatial Capacity Building Efforts in Asia and the Pacific

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