



CRC for **SPATIAL INFORMATION**



# Mapping the Coast From the Sky

Dr Nathan Quadros



Australian Government  
Geoscience Australia



think spatial



Australian Government

Department of Industry, Innovation,  
Climate Change, Science, Research  
and Tertiary Education



Land & Property  
Management Authority

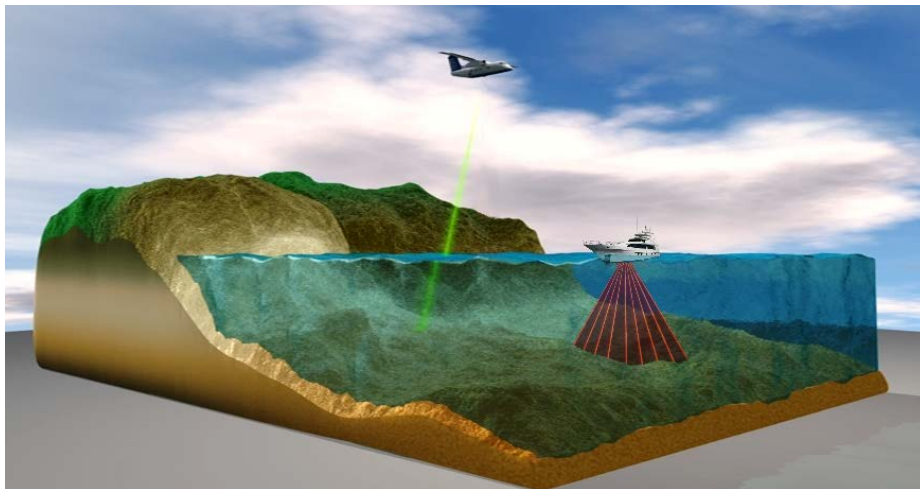
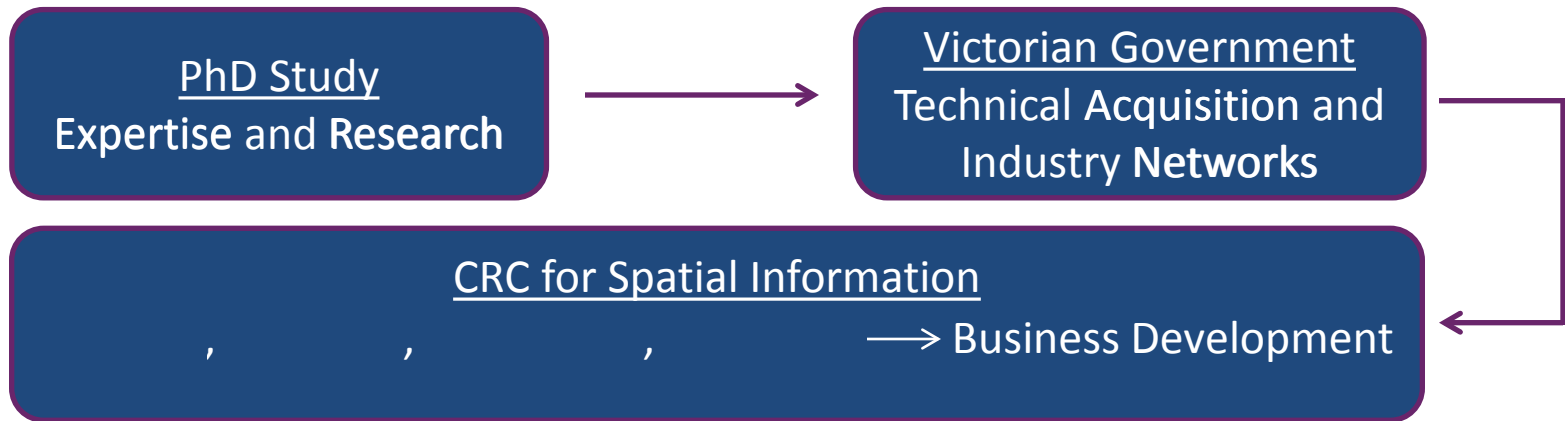
Department of  
Environment and  
Primary Industries



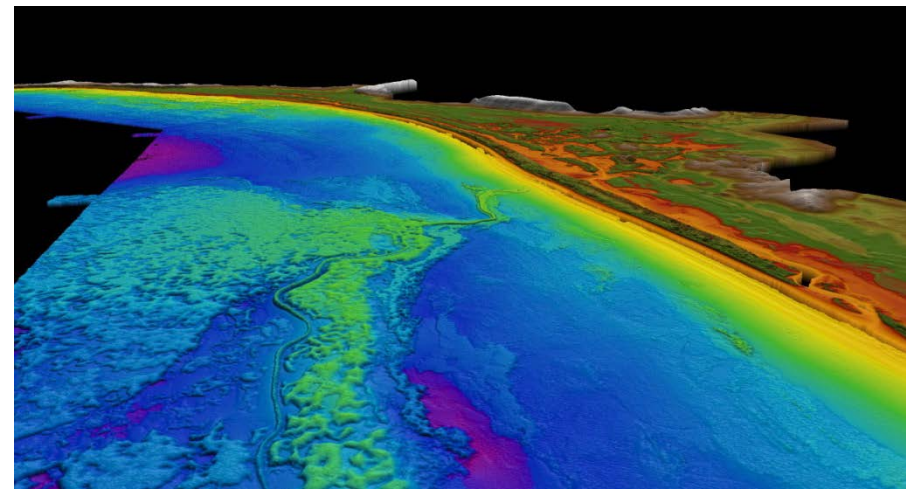
Queensland  
Government



# My Path: PhD to Vic. Gov. to CRCSI



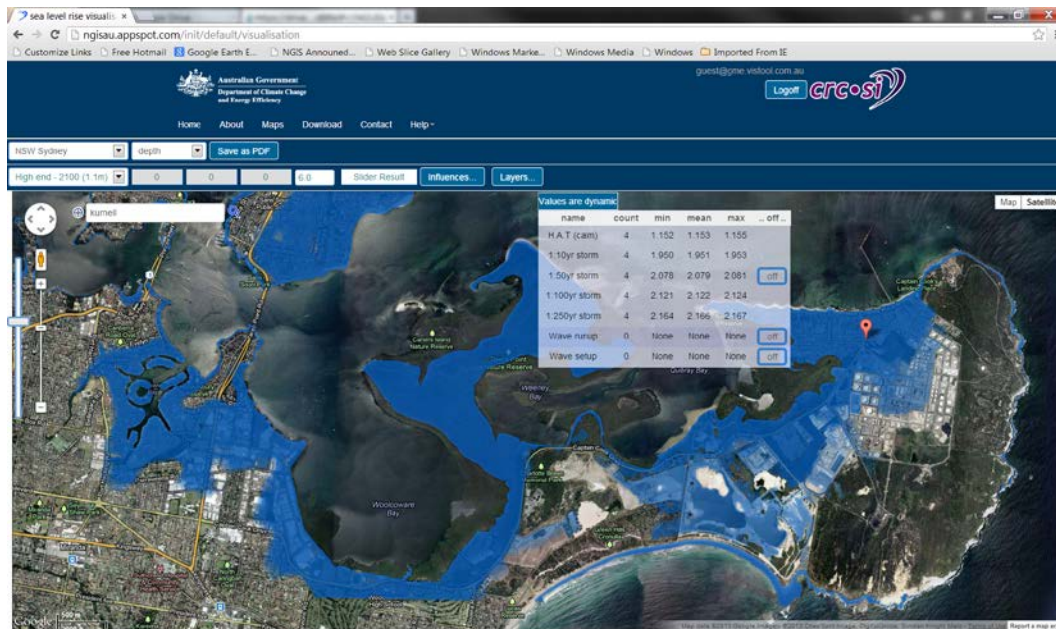
**LiDAR Technology**



**LiDAR Data - Tyrendarra Lava Flow, Portland**

# My Niche: LiDAR Acquisition and Quality

- LiDAR technology supports Council of Australian Governments (COAG) **priority** for coastal elevation data.
- My unique specialty is LiDAR bathymetry (seafloor depths).
- Goal: Bathymetry acquisition expert in Australia, Pacific and South-East Asia



**LiDAR Supporting Coastal Inundation Modelling**



**LiDAR 3D Model**

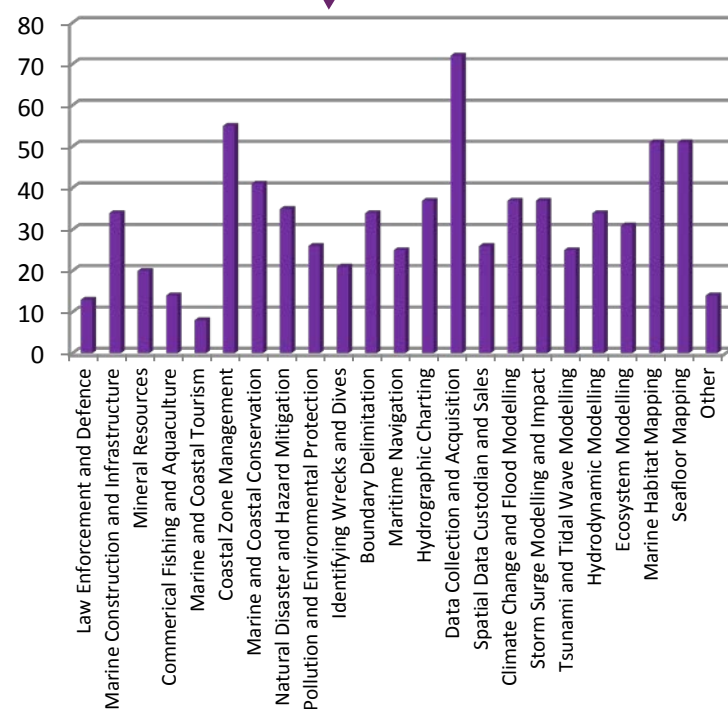
# My Very Special Niche: Bathymetry

## Recent Commissioned Research Reports

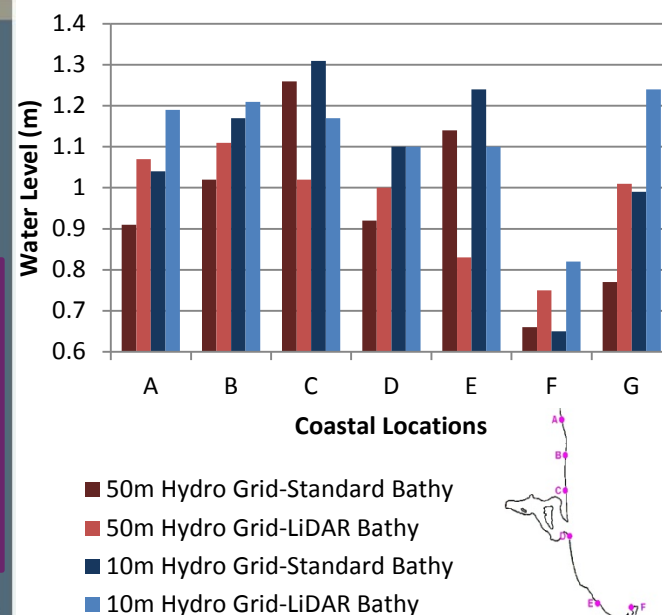
### National User Needs and Challenges

### Survey Strategies and Contract Specifications

### "Best Value" Elevation Data for Flood Modelling



### Storm Surge + Wave Setup



# My Ideas: National Data Quality Standards

- LiDAR Quality Assurance Software Tool
  - Automating government process
- ↓ My Role
- Project proposal
  - IP development and requirements
    - Coordinating departments
    - Acceptance by ICSM as a national standard

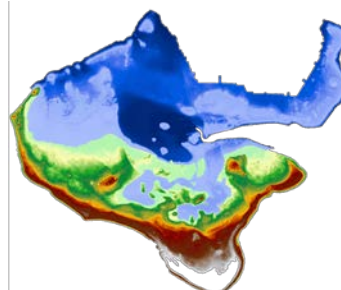


# My Expertise: Adaptation in the Pacific Islands

'Nathan's technical knowledge and ability to communicate that knowledge to a non-technical audience, including stakeholders from our Pacific Island project partners, has proven invaluable to the success of the project. '

Lalage Cherry  
Director, International Adaptation Strategies  
Department of Innovation, Industry, Climate Change, Science,  
Research and Tertiary Education

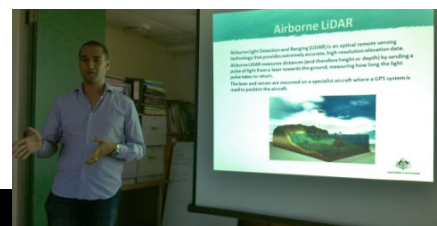
Survey Design



Impact



Capacity Building



Communication



Nuku'alofa, Tonga



Vanimo, PNG

# My Latest Passion: Great Barrier Reef

- Lack of shallow water bathymetry for the GBR hampers environmental models
- New satellite imagery techniques to derived bathymetry for the entire 26,000km<sup>2</sup> GBR shallow water
- GBR Foundation priority to map habitat structure
- Awaiting approval of my EOI response to tackle GBR priority



**Improve environmental modelling applications such as....**

Coral  
Community  
Maps

Storm Surge  
Modelling

Crown-of- Thorns  
Starfish Tracking

Habitat  
Structure

Water Quality  
Research