ANUGA

Open Source

Hydrodynamic Modelling

Ole Nielsen

What is ANUGA

Tsunami Inundation

Riverine Flooding

Hydraulic Engineering

Dam Breaks

GEOSCIENCE AUSTRALIA
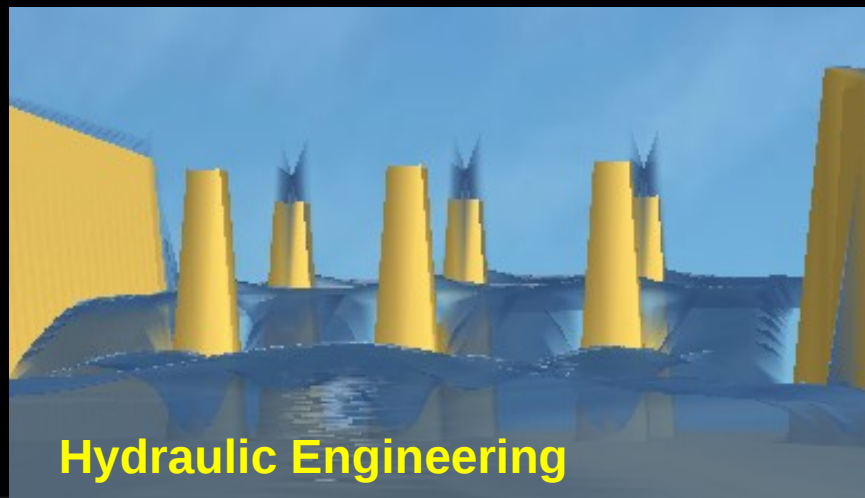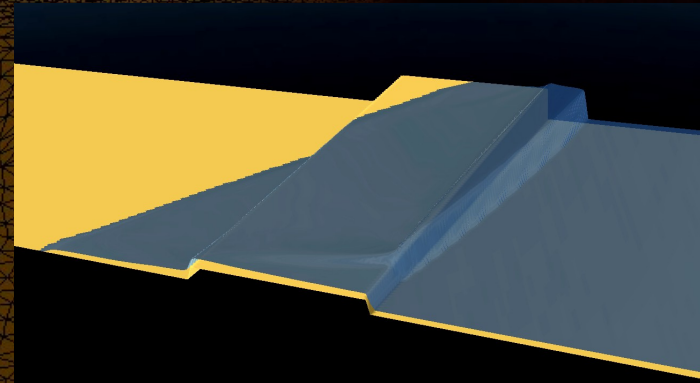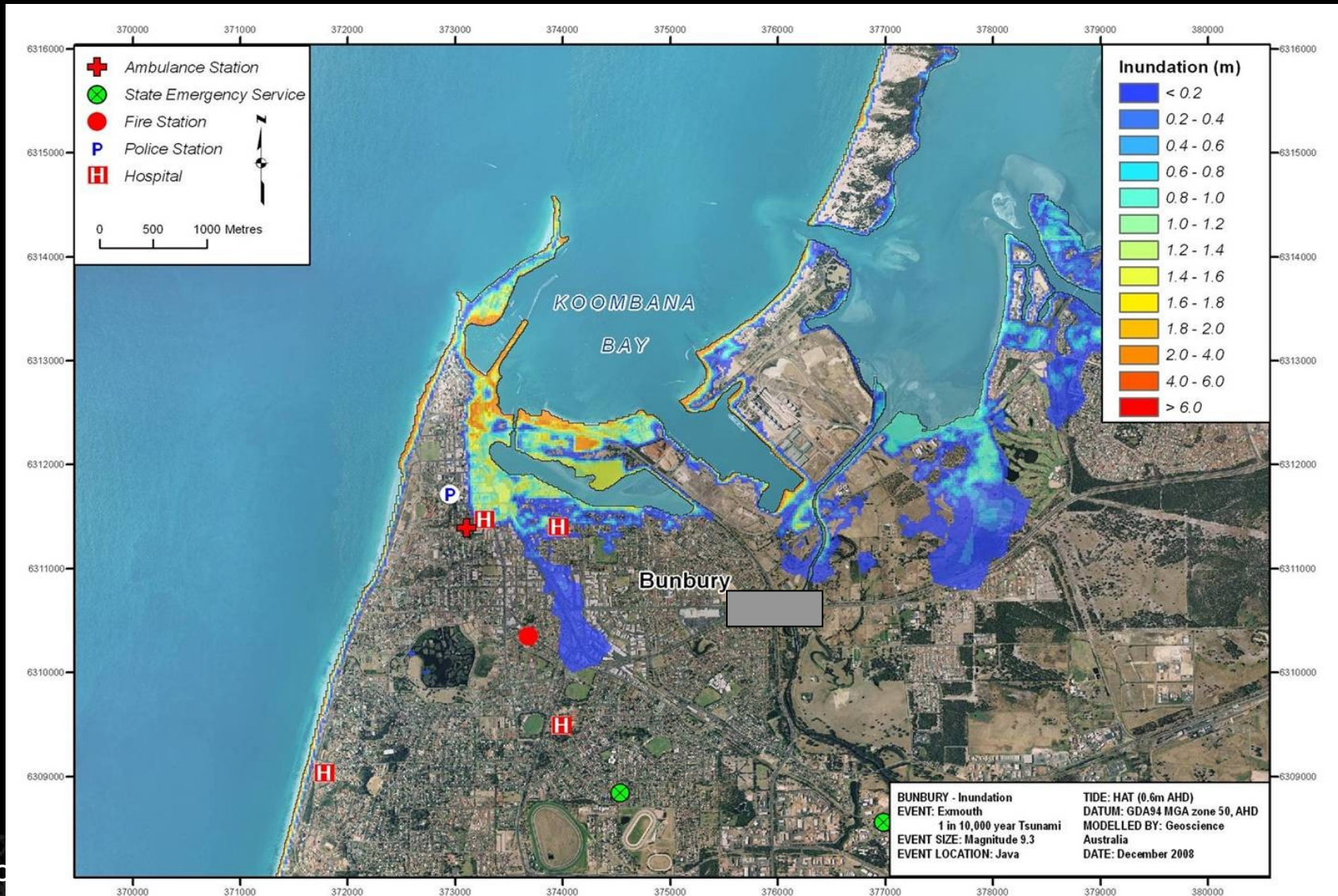
ANUGA Capabilities

- Shallow Water Equations/Finite Volumes
- Resolution of Hydraulic shocks
- Transitions from sub- to super critical flows
- Robust wetting/drying capability

Tsunami Inundation Map Examples
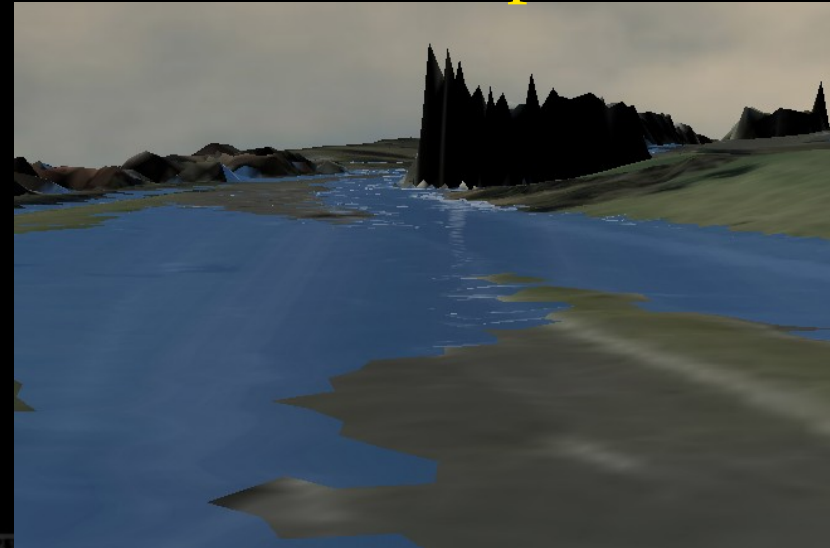
- 110km2 Full 2-D Model

- Investigating existing Flood problems…

Real World Flood…

ANUGA interpretation

Predicting Tsunami Run Up –
The Importance of Modelling
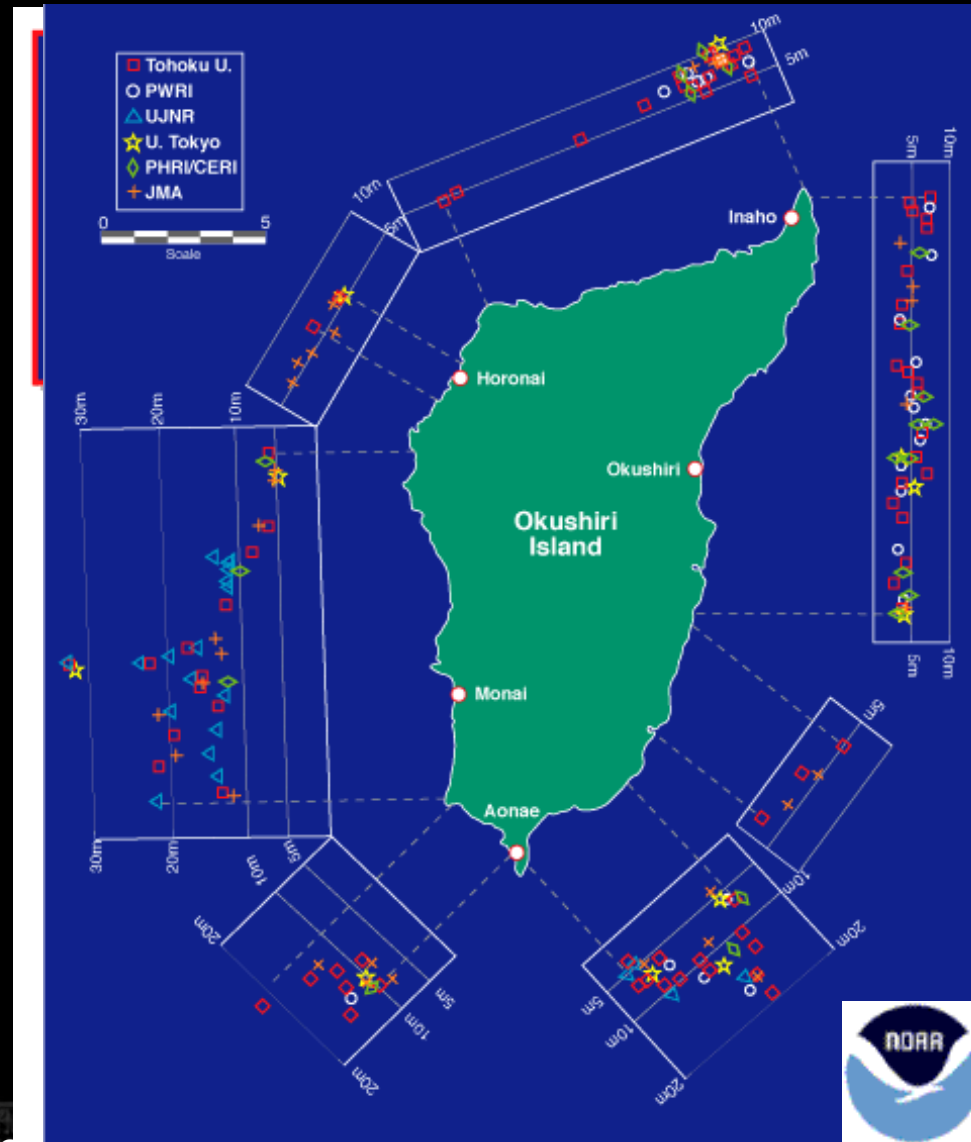
Okushiri Island 1993 Tsunami

- **Magnitude 7.8 earthquake**
- **32 m run up height**
- **Numerical Simulation of wave tank experiment shows why**
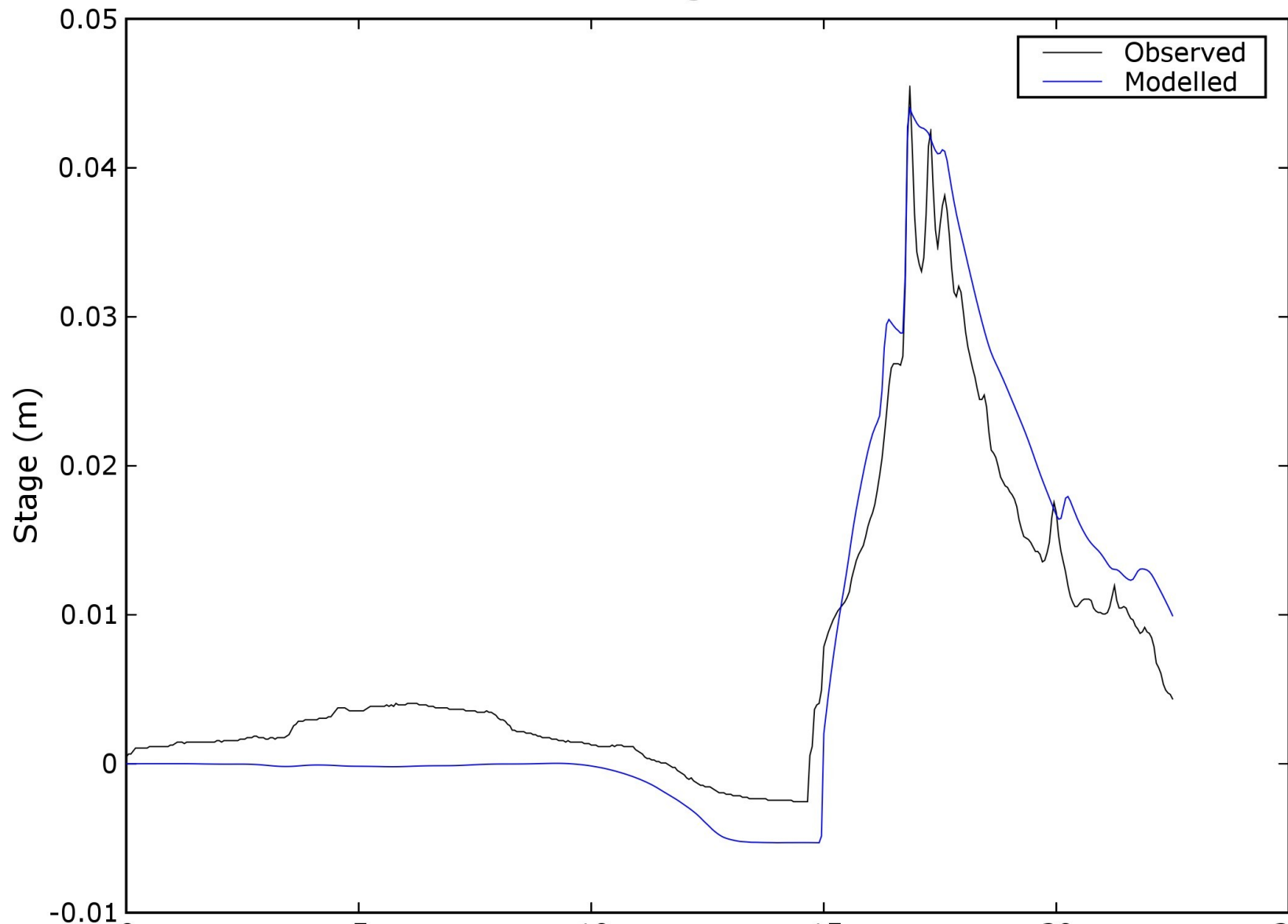
Animation

Stills

Testing and validation

- 890 individual unit tests
- Numerous wave tank experiments
- 2004 Tsunami impact on Patong Beach

Gauge ch9

Thank You!

Further information:
Email: Ole.Nielsen@ga.gov.au
          Stephen.Roberts@anu.edu.au

Google Search: ANUGA software
(ANUGA by itself will get German food fair)

GEOSCIENCE AUSTRALIA