



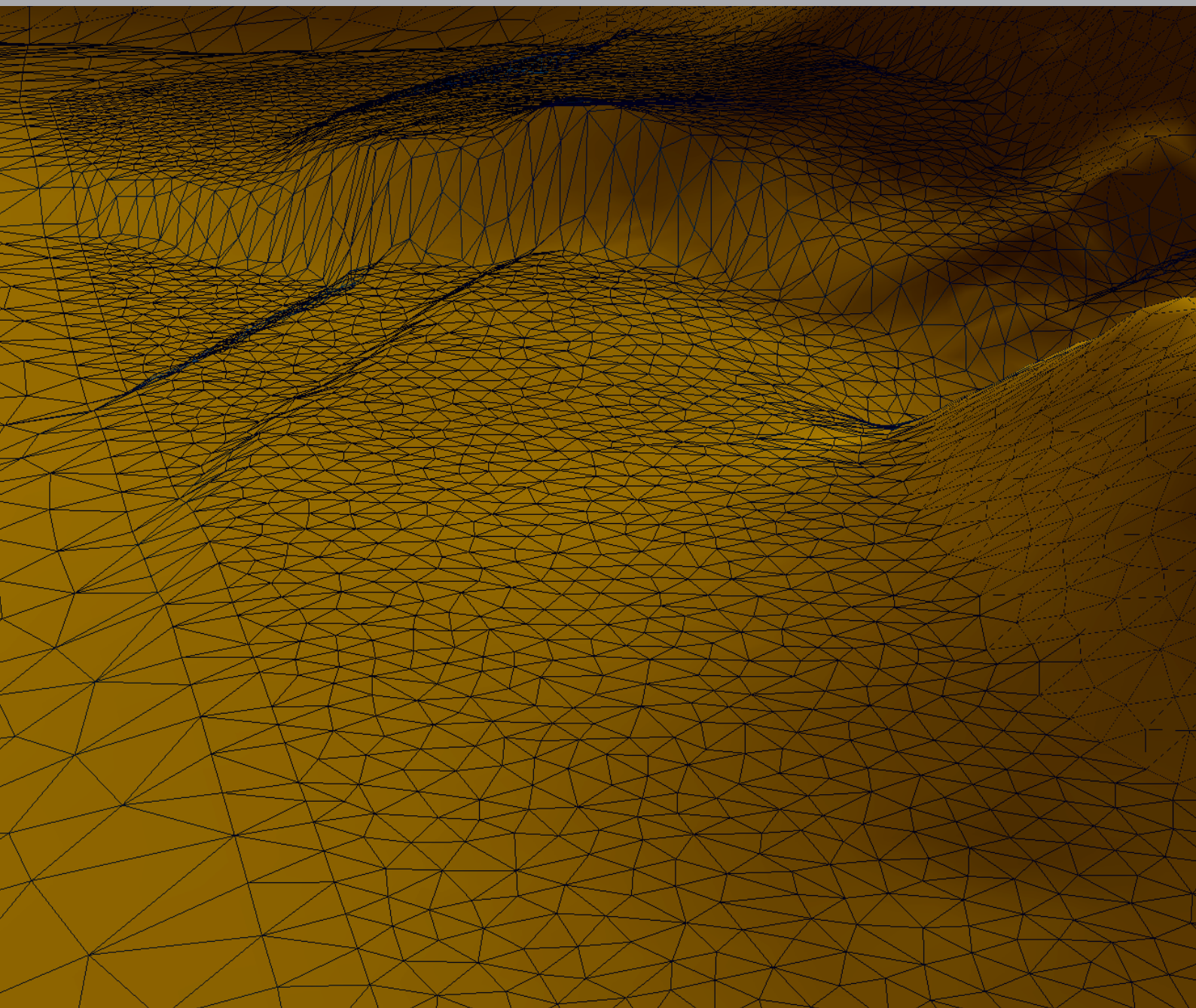
THE AUSTRALIAN NATIONAL UNIVERSITY

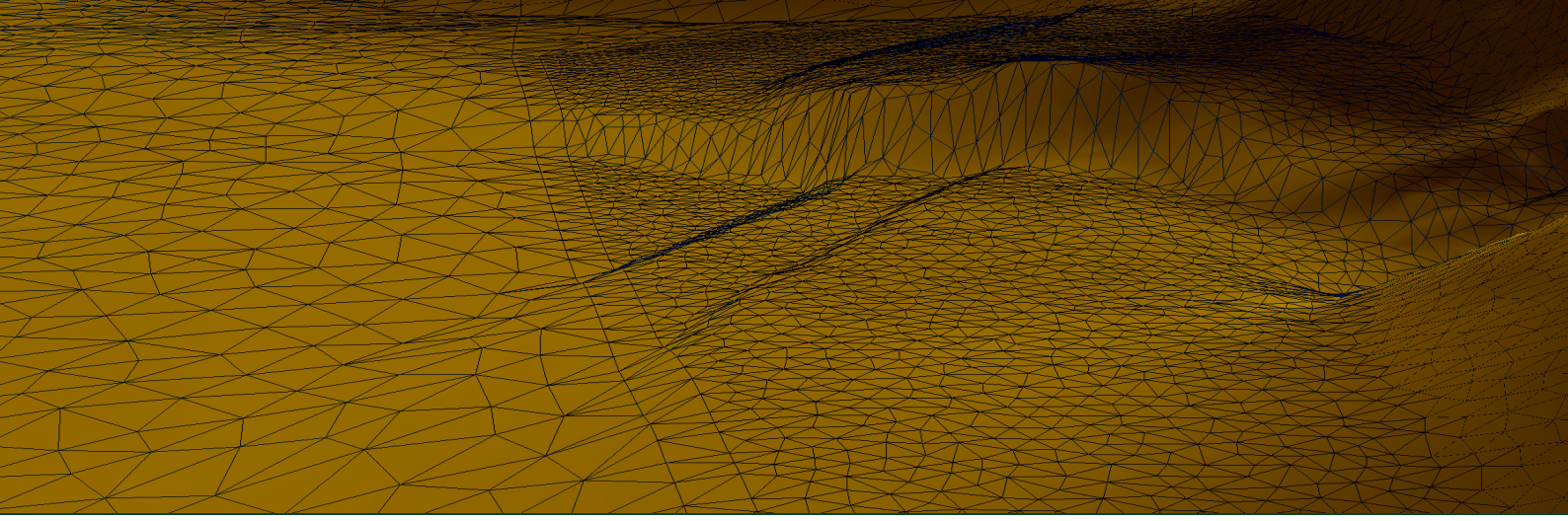
Public Lecture

Avoiding Disaster:

Predicting water flow from tsunamis and dam bursts

Associate Professor Stephen Roberts
Department of Mathematics





Predicting tsunami and dam burst water flow

Modelling the effects on the built environment of natural hazards, such as riverine flooding, storm surges and tsunamis, is critical for understanding the economic and social impact of these hazards on our urban communities.

As part of this process, Australian National University (ANU) and Geoscience Australia (GA) have collaboratively developed an open source software program called ANUGA, to model water flow and in particular inundation events. Using this software we can help draft evacuation plans, design protective levees and design cities safely - reducing casualties and damage to property in communities affected by such disasters.

In this talk I will give an overview of the way tsunamis are generated, and how the resulting flow propagates. It is critically important to understand the geometry and hydraulics of a particular problem - the sea bed and coastline can contribute in complicated ways to amplify a tsunami. For instance, why did some regions sustain catastrophic loss during the 2004 Boxing Day Tsunami, whereas neighbouring regions survived relatively unscathed? I will also discuss how we go about modelling these complicated flows on the computers.

Associate Professor Stephen Roberts

Stephen Roberts is currently Head of the Department of Mathematics at the Australian National University. He is heavily involved in the computational science community in Australia. From 2003-2006 he was the national coordinator of the Australian Partnership for Advanced Computing (APAC) Education, Outreach and Training program.

Stephen works on finding efficient and robust methods for the solution of fluid flow problems associated with dam breaks, tsunamis, storm surge and flooding. In collaboration with members of the Risk Assessment group at Geosciences Australia, his work has been incorporated into an open source tsunami and flood modeling computer program called ANUGA.

Used by local, state and commonwealth government to model risk from tsunamis and flooding, this work was recently presented on the ABC The New Inventors program.

Tuesday 20 April, 5.30-6.30pm

Launceston College theatre

107-119 Paterson St

Launceston

Thursday 22 April, 5.30-6.30pm

Churchill Room

Salamanca Inn

10 Gladstone St

Hobart