Talk 1:

ANUGA - Underlying Algorithms and Potential Future Development

Stephen Roberts[1]
Department of Mathematics, Mathematics Sciences Institute, Australian National University, Canberra ACT 0200 AUSTRALIA, stephen.roberts@anu.edu.au

ANUGA is based on a finite-volume method for solving the Shallow Water Wave equation. The study area is represented by a large number of triangular cells, and water depths and horizontal momentum are tracked over time by solving the governing equation within each cell using a central scheme for computing fluxes. An important capability of the software is that it can model the process of wetting and drying as water enters and leaves an area. This means that it is suitable for simulating water flow onto a beach or dry land and around structures such as buildings. It is also capable of resolving hydraulic jumps well due to the ability of the finite-volume method to handle discontinuities. This talk describes the mathematical and numerical models used, and the architecture of the tool. I will also describe possible future directions in the development of the underlying algorithms.

Talk 2:

Parallelising ANUGA

Stephen Roberts[1]
Department of Mathematics, Mathematics Sciences Institute, Australian National University, Canberra ACT 0200 AUSTRALIA, stephen.roberts@anu.edu.au

I will describe the parallelisation of the code using a domain decomposition strategy where the Metis graph partitioning library is used to decompose the finite volume meshes.