

3MC

Introduction to Fluid Modeling and Shallow Water Equations

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Abstract

The goal of this course is to provide an introduction to the modeling and the mathematical analysis of fluid flows, and more particularly flows in the so-called "shallow water" regime. This regime is relevant for the modeling of coastal flow, rivers, avalanches, etc.

The second part of the course will be dedicated to the mathematical analysis of the one-dimensional shallow water (or Saint Venant) equations. We will therefore introduce the main notions associated to the class of hyperbolic systems of conservation laws, which is the class the shallow water equations fall into. Finally, we will address issues related to the numerical discretization of the shallow water equations.

3MC Overview

3MC (Mathematical Modelling Mini course) provides an online platform to equip postgraduate students and junior researcher with modelling skills and some fundamental mathematical tools needed to analyse a mathematical model. Participants will have opportunities to meet and interact with senior researchers.

3MC activities take place every four months, registrations are done online. Only accepted participants will have access to the zulip platform for interactions with lecturers and peers.

Program details

Date: 08 – 09 September 2022

Place: Online only

Registration deadline: 01 July 2022

<https://natural-sciences.nwu.ac.za/paa/3MC-Course-FD>

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