

Exciting PhD opportunities with Deakin University and The University of Melbourne, Australia.

Along the shorelines of South-eastern Australia, there is concern that a lack of sediment supply, rising sea level and climate change will impact sediment circulation patterns, leading to the destabilization of nearshore-beach-dune systems through erosion, overwash, and backshore transgression. We aim to explore the fundamental interconnectedness that drives shoreline change in Victoria, Australia. Despite the acknowledgment of coastal sediment dynamics being critical to sustainable management knowledge of shoreline behaviour and sediment movement is limited. The determination of sediment volume, type, quantity (i.e. extent and thickness) and morphology will be important to better understand the coastal sediment budgets and shoreline evolution. As a result the Victorian Government, through the Department of Environment, Land, Water & Planning has formed a partnership with Deakin University and The University of Melbourne to develop the Victorian Coastal Monitoring Program. The aim of this program is to develop predictive models of future shoreline behaviour through understanding sediment dynamics derived from the latest innovative technologies from multibeam and subbottom sonar mapping, citizen-science UAV/Drones and disciplines including remote sensing, marine sedimentology and habitat mapping.

Project 1 (Deakin University) Coastal sediment dynamics and the role of benthic habitats and geomorphic characteristics on transport processes:

The project will include seagoing and shore based sampling and make use of a variety of data sources to investigate coastal sediment dynamics. The project will develop novel methods to characterise seafloor substrate and habitat based on high-resolution remotely sensed data to better understand sediment sources and sinks to inform coastal evolution.

Project Aim: The aim of this project is to develop novel approaches to habitat characterisation in the marine and coastal zone using the latest advances in habitat mapping including unmanned aerial vehicles and multibeam echosounders. This project will generate a better understanding of the role of benthic flora and fauna in stabilising sediment surfaces. The project will determine the utility of novel technologies for the fine scale characterisation of geomorphological complexity and community structure in the littoral and sublittoral zone. The project will fill important knowledge gaps regarding sediment source and sinks in forecasting shoreline change.

Submission Deadline: 22th April 2018

Further information and link to application: <http://www.deakin.edu.au/courses/scholarships/find-a-scholarship/hdr-scholarship-coastal-sediment-dynamics>

Project 2 (The University of Melbourne) Littoral and shallow marine sedimentology of a temperate high-energy shelf:

The project will include seagoing and shore based sampling and make use of a variety of data sources to investigate coastal sediment dynamics. The project will focus on the sedimentology, micropalaeontology, and mineralogy of the shoreline of Victoria, Australia, in order to quantify the connectiveness between sediment compartments in order to understand past and future coastal dynamics.

Project Aim: The aim of the project is to quantify the compositional and textural characteristics of the Victorian marine zone, from beyond wave base to the coastal dunes. It will identify the connection between sediment source and depositional areas as well as assess the current rates of sediment supply to the coast.

Qualifications: Knowledge of physical geography/marine mapping /geomorphology and/or marine geology. Experience with the temperate marine systems would be an advantage.

Submission Deadline: 22th April 2018

Further information regarding PhD admission at the University of Melbourne: <http://science-courses.unimelb.edu.au/study/degrees/doctor-of-philosophy-science/overview>

Application process can be found at <https://kennedylab.com/2018/03/13/phd-opportunities-in-the-victorian-coastal-monitoring-project/>