PhD in Physical Geography / Geoscience

Applications are invited for a fully funded PhD available in the Geosciences Group at Massey University, Palmerston North, New Zealand, on the topic of: **river catchment erosion and flood histories using geochemical fingerprinting of sediment archives**

The project will use floodplain coring to unlock sediment archives in the Whanganui and Manawatu catchments, North Island, New Zealand. These archives record the legacy effects of major erosion events, notably storms and floods. It is the timing, magnitude, nature and origin of these episodes in the catchment that this research seeks to understand. A key tool to unlock these records will involve characterizing the geochemistry of floodplain cores using ITRAX core scanning and ICPMS on selected core samples. Sediment fingerprinting techniques will be deployed to establish sub-catchment sources of this material. This project will also provide an understanding of background (pre-disturbance) rates of erosion in these catchments, serving to establish baseline, or reference conditions for contemporary erosion rates, which are the focus of a wider research programme with Manaaki Whenua Landcare Research.

This research is part of an MBIE funded Research Programme with Manaaki Whenua Landcare Research (MWLR) on Smarter Targeting of Erosion Control (STEC). The successful candidate will contribute to annual reporting and provide feedback on project progress to MWLR, and be expected to work collaboratively with scientists at MWLR, as well as local catchment stakeholders and iwi. The research will build on and bring together a programme of sediment fingerprinting research and palaeoflood reconstruction, which is ongoing.

Requirements

Candidates will have an excellent (ideally 1st class) Honours degree and / or Masters degree in Physical Geography or a related subject, with a strong background in fluvial geomorphology / alluvial histories / sediment geochemistry. Fieldwork using coring equipment will be required and a good level of fitness and willingness to work with machinery in a range of challenging conditions is expected. Extended laboratory work will be necessary, and travel away from the university will be needed to core-scanning facilities to undertake ITRAX analysis in Dunedin. The successful candidate will have a high level of computational, numerical and analytical skills, be proficient in written and spoken English, and have a full, clean driver's license. All who are interested in this PhD opportunity should also ensure they meet the university's generic PhD eligibility criteria before applying.

Award

This project is funded as part of a MWLR subcontract to Massey University. The three year PhD scholarship includes an annual, tax-free stipend of NZ$25,000, with tuition fees and resource costs provided in addition to this. Exceptional candidates may be eligible for a stipend of up to NZ$30,000.

Supervision Team

The candidate will join Physical Geography & Geology, functioning as the Geosciences Group situated in the School of Agriculture and Environment, Massey University, Palmerston North. The supervisory team will comprise Professors Ian Fuller, Mark Macklin, Georg Zellmer and Dr Sam McColl from Massey University. Dr Simon Vale will provide supervision from MWLR. Prof. Sean Fitzsimons from Otago University will supervise ITRAX core scanning and analysis, which will take place using the facility in Dunedin. Massey and Otago Geography (as a natural science) have been ranked in the top 240 in the latest QS Global Rankings. You will be joining a world-class team of researchers.

Application Procedure

To apply, please email Prof. Ian Fuller (I.C.Fuller@massey.ac.nz) with a full C.V. (with the contact details of three academic referees), a copy of any relevant academic transcripts (i.e. list of completed courses with grades), and an accompanying letter of application detailing how your experience, background and qualification are suited to this position. Shortlisted candidates will be notified within two weeks of the closing date.

Closing date

20 September 2020.

Start date

No later than 1 January 2021. Funding is available immediately.

More information

If you have any questions, please do not hesitate to contact Prof. Ian Fuller (I.C.Fuller@massey.ac.nz), Professor in Physical Geography, School of Agriculture & Environment, Massey University +64 6 9517852.