A PhD Scholarship offer at Curtin University, Perth, Western Australia

The Remote Sensing and Satellite Research Group (**RSSRG**) is seeking applicants for a PhD project. Details provided below.

The student will be supervised under RSSRG, which is under the Faculty of Science and Engineering (SAE), School of Earth and Planetary Sciences (EPS).

The location is: **Curtin University**, Bentley Campus, Bentley (**Perth**), WA 6102

The start for the project is: as soon as practicable, and no later than July 2024.

Applications are to be sent to david.antoine@curtin.edu.au

Please include your CV, references if any, a cover letter, and your answers to the selection criteria.

Note: if you apply from overseas, please make yourself familiar with the Curtin requirements for being enrolled as a HDR student ("Higher Degree by Research", which here means a PhD). A proof of English language proficiency (IELTS Academic with an overall score of 6.5 with no band less than 6.0), a minimum average rank of 70% and some demonstrated experience with research (e.g., publications or evidence of a Master by research) are among the important criteria.

Selection criteria:

- Honours / Master's degree or equivalent qualification in a relevant area (e.g., satellite ocean colour remote sensing, modelling of phytoplankton primary productivity, physical or biogeochemical oceanography, coupled physical-biogeochemical ocean modelling)
- Evidence of emerging independent research work, for example, a master thesis with an associated peer-reviewed publication or draft manuscript.
- Excellent skills in processing and analysing satellite remote sensing datasets.
- Excellent oral and written communication skills
- Demonstrated programming skills in a Unix/Linux environment (use of, e.g., shell scripts, Fortran, Python, R or Matlab programming)
- Some evidence of capability to collaboratively work within a research team.

Curtin University

Project title: **Marine heat waves off Western Australia and their impacts on marine ecosystems**

Supervisor: Prof. David Antoine

Context:

- The scholarship is provided by Curtin University in support to a project funded by the Western Australia (WA) Department of Jobs, Tourism, Science and Innovation (JTSI) in the frame of the UN Decade of Ocean Science.
- The project is called "Advancing predictions of WA marine heatwaves and impacts on marine ecosystems". It involves the four Perth Universities, with University of Western Australia (UWA) being the lead organisation.
- The overall objective is to develop an advanced understanding and predictive tools to accurately forecast extreme temperature events and their impact on marine ecosystems along WA, to empower management agencies and other stakeholders with the knowledge and tools to develop effective responses.

PhD project summary:

- The project aims at identifying and characterising coastal heatwaves off Western Australia over the past 30 years using a combination of long-term in situ and satellite observations, literature surveys and ocean data reanalyses. The goal is also to identify large-scale physical drivers of these heatwaves. The results will be combined with other ecosystem observations from the other parts of the overall project.
- Data will include long-term (~25 years) records of satellite ocean colour. The ocean colour record will not only be analysed in terms of phytoplankton chlorophyll concentration; the phytoplankton functional groups will also be derived from several existing approaches, in search of possible impacts of heat waves on the composition of the phytoplankton community.
- Data from the upcoming NASA PACE mission (Plankton, Aerosol, Cloud, ocean Ecosystem) might also be used when available (mission launched early 2024).
- Another part of the work might consider the impact of variations in water bulk optical properties and of reflective properties of the seafloor on heat deposition and the corresponding heating of the water column. This work will be in collaboration with physical oceanographers at UWA.