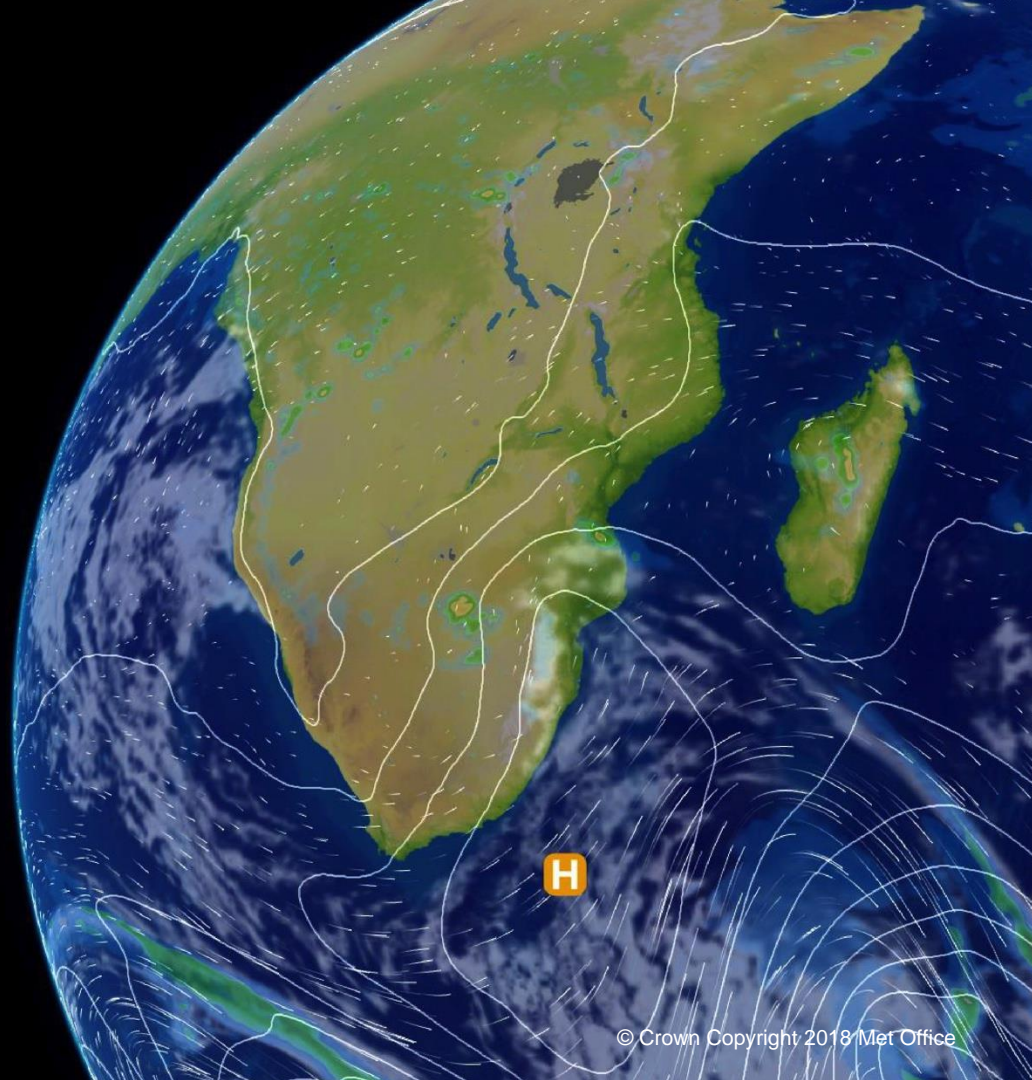Met Office

South African Weather Service

WCSSP South Africa funding opportunities October 2019

Newton Fund

Work Package 1: Underpinning Science Development

SA/1 Seamless Numerical Modelling Workshop

- This workshop that will focus on seamless numerical modelling in South Africa (regional and global scale) support interests in South Africa as well as SAWS.

- The target participants will include researchers across South Africa together with PhD students, international experts and individuals involved in operational meteorology and provision of climate services.

- The workshop will be inclusive, with representation from previously disadvantaged institutions, and increased participation from women to address some of the South African government priorities.

- The workshop should focus on the current challenges in the simulation of weather and climate as well as ongoing research to deal with known challenges. It should also enable a wider group of researchers and users in South Africa to exploit the UM on the CHPC cluster, e.g., through running simulations, post-processing UM output and using South African observations.

Anticipated Outputs:

- The awardee would be expected to provide everything associated with the costs of the workshop: venue, travel and accommodation, if needed, for participants, as well as scoping and organising the workshop itself.

- One or more of the following:
    - agreed plans for activities for the wider South African research community to engage in exploiting and using the UM, its post-processed data and South African observation on CHPC
    - development of a wider UM research community in South Africa (e.g. to support SAWS research)
    - a plan to evaluate or develop UM physics aimed at improving atmospheric processes or parameterisations over southern Africa

Work Package 2: Strengthening Institutional Capability

SA/2 Metocean Forecast Improvement

- The South Africa Weather Service Marine Unit have access to their own (local) observations and deterministic models as well as predictions from other operational global weather centres, including the European Centre for Medium Range Weather Forecasts, and both the German and United States National Weather Services.

- Although only employed in a very limited capacity at present, the use of these additional data has the potential for producing bias-corrected, optimally-blended, products capable of outperforming those based on just a single source.

- This activity will principally look to develop new capability to exploit marine multi-model ensemble data via the application of statistical / machine learning techniques for eliciting valuable insights within the medium-range (i.e. beyond three to five days ahead), with a particular focus on site-specific tailoring.

Anticipated Outputs:

- Report of study into the extent of which the use of multi-model ensemble data can improve the forecast accuracy, and selection of the optimal forecast.

- SAWS capable of blending multi-centre / multi-model forecast data, with production of report on initial tests conducted to date.

- Host a visiting scientist from SAWS Marine Unit for 1 or 2 weeks to develop skills in post-processing of marine forecast data

- This additional post-processing of model data will contribute more accurate marine) as well as providing the background, confidence and experience for handling longer-range (and climate) projections in the future.

Work Package 2: Strengthening Institutional Capability

SA/3 Marine and Coastal Applications

- Since, ultimately, any forecast (no matter how skilful) only has value if users can derive some benefit from it, this activity will build on the earlier forecast improvements, considering more explicitly the transition of science into services.
- This is particularly important in the context of the increased use of multi-model ensemble data, which provides not only the opportunity for characterising the inherent uncertainty associated with deterministic (single) forecasts, but also the challenge of distilling these complex data into a binary decision / warning that is able to be easily communicated.
- A particular focus on the interpretation of 'standard' wave, tide and surge model outputs within the context of particular user applications, this activity will look to make these data more useful and usable, developing probabilistic risk warnings to improve coastal and maritime safety (e.g. overtopping, rip currents, and keel clearance).

Anticipated Outputs:

- Report on study of how marine probabilistic forecast data can be used and communicated effectively in providing marine probabilistic warning services for various user applications.
- Warning for coastal hazard product/service(s) in development (e.g. rip current forecasting).
- Workshop/visit(s) to SAWS to train meteorologists on how to use and effectively communicate probabilistic marine forecasts and warnings.

Summary of upcoming funding opportunities

Lot Number	Title	Amount
SA/1	Seamless Numerical Modelling Workshop	£80,000
SA/2	Metocean Forecast Improvement	£100,000
SA/3	Marine and Coastal Applications	£100,000

Indicative timetable

Stage	Target Times
Deadline for submitting clarification questions	15th November 2019
Call return date through the Met Office Procurement Portal	29th November 2019
Evaluation period	2nd December - 31st January
Outcome notification	Early February 2020
Grant award target start date	1st April 2020
Grant award end date	31st March 2021

WCSSP South Africa partners