CARIBBEAN INSTITUTE FOR METEOROLOGY AND HYDROLOGY

VACANCY NOTICE

MARINE MODELING SPECIALIST

Deadline for submission of applications is April 8, 2022 at 11:59 PM AST

1.   ABOUT THE CARIBBEAN INSTITUTE FOR METEOROLOGY AND HYDROLOGY

The CIMH is an Institution of the Caribbean Community (CARICOM) and the technical Organ of the Caribbean Meteorological Organization (CMO). The mandate of the CIMH is "to assist in improving and developing the Meteorological and Hydrological Services as well as providing the awareness of the benefits of Meteorology and Hydrology for the economic well-being of the Member States of the CMO. This is achieved through training, research, investigations, and the provision of related specialized services and advice".

In achieving its mandate, the CIMH in 1973 established an affiliation with the University of the West Indies in which its primary responsibility is the delivery of the B.Sc. programme in Meteorology in the Faculty of Pure and Applied Sciences. The CIMH is recognized regionally and globally as:

- The World Meteorological Organization (WMO) Regional Training Centre for the Caribbean;
- A centre for applied research and development in meteorology, hydrology/water resources, climatology and related areas including disaster risk reduction and impacts forecasting;
- The WMO Regional Instrument Centre for the Caribbean;
- A WMO Centre of Excellence for Training in Satellite Meteorology;
- The WMO Regional Climate Centre (RCC) for the Caribbean;
- The Caribbean Centre for Climate and Environmental Simulations;
- The Climate Data Archive for CMO Member States;
- The Pan American Centre for the WMO Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS);
- Caribbean Regional Marine Forecast Support Centre.

2. ABOUT THE CARIBBEAN REGIONAL MARINE FORECAST SUPPORT CENTRE

The Caribbean consists of many Small Island Developing States (SIDS) that have Exclusive Economic Zones (EEZ) that are substantially larger than their land masses. While the states derive much of their wealth and nutrition from the marine environments, the socio-economic development of all Caribbean SIDS is extremely vulnerable to marine and marine-influenced hazards. Unfortunately, the state of marine science and marine early warning systems are relatively weak and, as a result, marine management and associated policy development, planning and decision-making require support. In an effort to reduce these deficiencies and improve marine management and related decision-making, the Board of Governors of the CIMH and the Caribbean Meteorological Council in 2021 agreed to the establishment of the Caribbean Regional Marine Forecast Support Centre at CIMH.

The foci of the Marine Forecast Support Centre include:
- Building on existing marine modelling work at the CIMH to expand the range of products and services offered to support:
  - Marine meteorological forecasting and marine observation and early warning systems;
  - Marine research and development aimed at supporting policy and planning activities in the marine and related sectors including fisheries, transportation, energy and pollution among others;
- Building on the regional and international training programme at the CIMH, and work already started expanding marine modelling capability and the capacity of professionals in the Caribbean to effectively integrate marine modelling products into planning and decision-making across all time scales:
  - Develop and expand the capacity of the National Meteorological and Hydrological Services (NMHSs) as well as other regional stakeholders to deploy marine models and to integrate the results into planning and decision-making processes.
- Assess the impacts of climate change and climate variability on marine processes and services.
- Support marine observations and marine data archiving as required.

3. SPECIFIC OBJECTIVES

The Marine Modeling Specialist will work with CIMH staff and interns to support the CIMH's marine modeling and monitoring activities including (i) the implementation of marine models for the Caribbean in part through building on existing work, (ii) the enhancement of regional capacity to implement the modeling platforms, maintain the platforms and interpret data generated and (iii) the development of capacity to integrate model data into decision support systems.

4. SCOPE OF WORK

The scope of this project is limited to enhancing CIMH's capabilities to develop marine products and services for the Caribbean region through the contracting of a marine modeling specialist and product developer. The specialist will design, develop and implement a suite of marine products and services that meet regional needs following consultations with regional stakeholders and CIMH staff. The specialist will transfer all relevant knowledge and knowhow to CIMH staff through day-to-day work activities as well as scheduled in-house workshops with participation extended to regional NMHS partners.

5.   DUTIES AND RESPONSIBILITIES

The specific duties and responsibilities of the Marine Modeling Specialist:

- Work with CIMH staff and regional partners to identify required marine modeling support products and services;
- Design, build and implement the requisite marine modeling-based products and services in collaboration with CIMH staff and interns to ensure appropriate levels of knowledge transfer required to maintain and sustain the products and services;
- Identify data needs and data collection methodologies to support calibration and verification of marine modeling outputs including but not limited to earth observation data;
- Design, schedule and conduct training to CIMH staff, interns, NMHSs and regional partners on the marine modeling as well as related product and service development and implementation.

Implemented marine forecast/prediction models for the Caribbean Sea and adjacent Oceans should account for and simulate:
- Physical, chemical and biological ocean processes;
- Transport processes in the marine environment inclusive of sargassum, sediment and volcanic ash.

Examples of models to be considered for implementation or enhancement include HYCOM, MOM6, Telemac, WaveWatch-3, SWAN among others. The implementation will be performed with relevant CIMH staff and interns with the modeling platforms being installed on computational infrastructure hosted or managed by the Caribbean Centre for Climate and Environmental Simulations (CCCES);

The successful candidate will develop training materials and conduct training to NMHSs of the Caribbean Meteorological Organization, other professionals and students focussed on the application and interpretation of (i) marine model outputs and (ii) earth observation data to support a range of activities that may include:
- Marine forecasting to support early warning processes;
- Marine pollution tracking;
- Marine search and rescue;
- Simulation of climate-related impacts on marine processes, coastal zones and marine habitats;
- Marine energy forecasting;
- Marine freshwater flux, ocean currents, sea surface temperature and salinity modeling;

The successful candidate will have access to a rich marine dataset from the EUREC4A-ATOMIC-OA field campaign conducted during January-February, 2020. The candidate will also have access to CIMH's daily high-resolution Numerical Weather Prediction (NWP) outputs for the Caribbean which can be used to drive marine models.

6.   QUALIFICATIONS

The successful candidate should possess an MSc or PhD in Marine or Oceanographic Science with a strong background in marine modeling. Five years' experience applying marine and oceanographic models to supporting areas of marine forecasting and decision-making will be an asset.

7. EXPERIENCE

Candidates should have (i) a strong working knowledge of common marine modeling platforms, their strengths and weaknesses and underlying assumptions; (ii) experience training persons in the application of marine models and associated platforms and (iii) experience integrating marine models into products to support downstream applications as well as planning and decision-making. The successful candidate should also have experience with common programming languages (e.g., Python Programming Language; C, C++ and Fortran among others). Experience working with GIS/Remote Sensing applications and writing reports would be considered an asset.

Given the regional and interdisciplinary nature of CIMH's work, the successful candidate should also possess:
- Strong cultural and social IQ;
- Excellent written and oral communication skills;
- Strong motivation to work in a dynamic, diverse, multi-ethnic, high-performance team.

8. DURATION & EXPECTED START DATE

The duration of the contract is for an initial period of 9-months, starting preferably in 1st May, 2022 or as soon as possible thereafter. Extending the contracting arrangement will depend on the availability of funding. The successful candidate is expected to spend a significant portion of the period of the contract stationed in Barbados.

9. APPLICATIONS

Interested candidates are required to submit an application letter accompanied with a Curriculum Vitae to:

David A. Farrell, Ph.D.
Principal
Caribbean Institute for Meteorology and Hydrology (CIMH)
Husbands, St. James BB23006
Barbados

Send via email to hrdept@cimh.edu.bb by the deadline for the submission, April 8, 2022 at 11:59 PM AST.

- Letters from two professional references should be addressed directly to the Principal and received on or before the closing date of applications.

- Applications will be required to produce evidence (a copy) of any educational and professional qualifications to support the application.

- All appointments are subject to satisfactory background checks and references.

NB: Only satisfactory applications will be acknowledged.