



An initiative of the African, Caribbean and Pacific Group,
funded by the European Union, and implemented by:



CARIBBEAN INSTITUTE FOR METEOROLOGY AND HYDROLOGY

EXPANDED WEATHER AND CLIMATE FORECASTING AND INNOVATIVE PRODUCT AND SERVICE DEVELOPMENT AND DELIVERY IN THE CARIBBEAN PROJECT

CONSULTANCY SERVICES FOR BUILDING THE CAPACITY OF YOUNG PROFESSIONALS IN CLIMATOLOGY, METEOROLOGY, HYDRO-METEOROLOGY AND RELATED FIELDS

REQUEST FOR EXPRESSIONS OF INTEREST

The *Caribbean Institute for Meteorology and Hydrology (CIMH)* has received financing from the Caribbean Development Bank (CDB) in an amount equivalent to *EUR773,025* towards the cost of Expanded Weather and Climate Forecasting and Innovative Product and Service Development and Delivery in the Caribbean Project and intends to apply a portion of the proceeds of this financing to eligible payments under a contract for which this invitation is issued. Payments by CDB will be made only at the request of *the CIMH* and upon approval by CDB, and will be subject in all respects to the terms and conditions of the Financing Agreement. The Financing Agreement prohibits withdrawal from the financing account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import, to the knowledge of CDB, is prohibited by a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than *the CIMH* shall derive any rights from the Financing Agreement or have any claim to the proceeds of the Financing.

The CIMH, the Implementing Agency, now wishes to procure two (2) young Caribbean professional who will support research and development activities of CIMH.

The objective of the attachments is to continue the process of developing the next generation of regional professionals specialising in climatology, meteorology, hydrology and related disciplines through

attachment and mentorship programmes focused on developing new innovative technologies and methodologies that address regional and global objectives. The duration is for a period of three (3) month attachments.

The CIMH now invites interested eligible individual young professionals to submit Expressions of Interest inclusive of a letter of motivation indicating qualifications and experience required to provide research and development activities at CIMH.

Consultants (young professionals) shall be eligible to participate if:

1. The persons are citizens or *bona fide* residents of an eligible country; and
2. In all cases, the consultant has no arrangement and undertakes not to make any arrangements, whereby any substantial part of the net profits or other tangible benefits of the contract will accrue or be paid to a person not a citizen or *bona fide* resident of an eligible country.

Eligible countries are outlined in Appendix 1 below.

The attention of interested Consultants is drawn to paragraph 1.9 of CDB's Guidelines for the Selection and Engagement of Consultants (2011), setting forth CDB's policy on conflict of interest.

The Terms of Reference for the vacancy assignments have been provided as Appendix 2. In the assessment of submissions, consideration will be given to qualifications and experience on similar assignments. All information must be submitted in English. Further information may be obtained from the first email address below between 8:00 and 16:00 hours, Monday to Friday.

Submissions in PDF format of the Expressions of Interest must be received at the email address, projects@cimh.edu.bb and copied to procurement@caribank.org, no later than 16:00 AST on Monday, 25th February, 2019. The email containing each submission should include the name and address of the applicant and shall be clearly marked "**Expression of Interest -- Consultancy Services for Capacity Development of Young Caribbean Professionals**" and the position/vacancy assignment for which the application is submitted.

Following the assessment of submissions, the most technically capable and appropriately experienced applicant will be invited to negotiate a contract to provide the consultancy services. *The CIMH* reserves the right to accept or reject late applications or to cancel the present invitation partially or in its entirety. It will not be bound to assign any reason for not engaging the services of any applicant and will not defray any costs incurred by any applicant in the preparation and submission of Expressions of Interest.

1. *Address 1*

Project Officer
Caribbean Institute for Meteorology and Hydrology
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St. James BB23006
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Tel: 1-(246) 425-1362/63
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2. *Address 2*

Procurement Officer
Procurement Policy Unit
Caribbean Development Bank
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EUROPEAN UNION ELIGIBILITY RULES
AFRICAN CARIBBEAN PACIFIC – EUROPEAN UNION
NATURAL DISASTER RISK MANAGEMENT

PARTICIPATION IN PROCEDURES FOR THE AWARDING OF
PROCUREMENT CONTRACTS OR GRANT CONTRACTS

1. Participation in procedures for the award of procurement contracts financed under the EU Contribution Agreement for the Implementation for the Action entitled: “Africa Caribbean Pacific – European – Caribbean Development Bank (ACP-EU-CDB) Natural Disaster Risk Management in CARIFORUM Countries” (ACP – EU NDRM Resources)¹, is open to international organisations and all natural persons who are nationals of, or legal persons who are established in, an eligible country.

2. Eligible countries¹ are deemed to be:

(a) Caribbean Development Bank member countries:

Anguilla, Antigua and Barbuda, Barbados, Belize, Brazil, British Virgin Islands, Canada, Cayman Islands, China, Columbia, Dominica, Germany, Grenada, Guyana, Haiti, Jamaica, Italy, Mexico, Montserrat, St Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines, Suriname, The Bahamas, Trinidad and Tobago, Turks and Caicos Islands, the United Kingdom and Venezuela.

(b) Members of the “African, Caribbean and Pacific (ACP) Group of States”²:

Africa:

South Africa³, Angola, Benin, Botswana, Burkina Faso, Burundi, Central African Republic, Cameroon, Cape Verde, Chad, Comoros Islands, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Zambia and Zimbabwe.

¹ Note some countries may be eligible by virtue of more than one category

² Cotonou Partnership Agreement of 23 June 2000 (as amended by the provisional application of Decision No 1/2000 of the ACP-EC Council of Ministers of 27 July 2000, Decision No 1/2000 of the ACP-EC customs cooperation committee of 18 October 2000, Decision No 1/2001 of the ACP-EC customs cooperation committee of 20 April 2001, Decision No 2/2001 of the ACP-EC customs cooperation committee of 20 April 2001, Decision No 3/2001 of the ACP-EC customs cooperation committee of 10 May 2001, Decision No 4/2001 of the ACP-EC customs cooperation committee of 27 June 2001, Decision No 5/2001 of the ACP-EC customs cooperation committee of 7 December 2001, Decision No 2/2002 of the ACP-EC customs cooperation committee of 28 October 2002, Decision No 1/2003 of the ACP-EC Council of Ministers of 16 May 2003, Council

Decision (EC) of 19 December 2002, Decision No 1/2004 of the ACP-EC Council of Ministers of 6 May 2004, Decision No 2/2004 of the ACP - EC customs cooperation committee of 30 June 2004 and Decision No 4/2005 of the ACP-EC customs cooperation committee of 13 April 2005).

- ³ Natural and legal South African persons are eligible to participate in contracts financed by the 10th/11th EDF. However, the 10th/11th EDF does not finance contracts in South Africa.

Caribbean:

Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago.

Pacific:

Cook Islands, East Timor, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, the Solomon Islands, Western Samoa, Tonga, Tuvalu, Vanuatu.

Overseas Countries and Territories:

Anguilla, Antarctic, Netherlands Antilles, Aruba, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Falkland Islands (Malvinas), French Polynesia, French Southern Territories, Greenland, Mayotte, Montserrat, New Caledonia, Pitcairn, Saint Helena, Saint Pierre and Miquelon, South Georgia and South Sandwich Islands, Turks and Caicos, Wallis and Futuna Islands.

- (c) A Member State of the European Union:

Austria, Belgium, Bulgaria, Croatia, Czech republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

An official candidate country of the European Union:

The Former Yugoslav Republic of Macedonia, Turkey, Iceland, Montenegro.

A Member State of the European Economic Area: Iceland, Lichtenstein, Norway.

- (d) All natural persons who are nationals of, or legal persons who are established in, a Least Developed Country as defined by the United Nations:

Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Dem. Rep. Congo, Equatorial Guinea, Eritrea, Ethiopia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao PDR, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Djibouti, Solomon Islands, Somalia, South Sudan, Sudan, Tanzania, The Gambia, Timor-Leste, Togo, Tuvalu, Uganda, Vanuatu, Yemen, Rep. and Zambia.

- (e) Participation in procedures for the award of procurement contracts or grants financed from the Facility shall be open to all natural persons who are nationals of, or legal persons established in, *any country other than those referred to in paragraph 1, where reciprocal access to external assistance has been established*. Reciprocal access in the Least Developed Countries as defined by the United Nations (UN) shall be automatically granted to the OECD/DAC members: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.

3. Services under a contract financed from the Facility may be provided by experts of any nationality, without prejudice to the qualitative and financial requirements set out in the Bank's procurement rules.

4. Supplies and materials purchased under a contract financed from the Facility must originate in a State that is eligible under paragraph 1. In this context, the definition of the concept of 'originating products' shall be assessed by reference to the Bank's prevailing procurement guidelines/procedures, and supplies originating in the EU shall include supplies originating in the Overseas Countries and Territories.

5. Whenever the Facility finances an operation implemented through an international organisation, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons who are eligible under paragraphs 1, care being taken to ensure equal treatment of all donors. The same rules apply for supplies and materials.

6. Whenever the Facility finances an operation implemented as part of a regional initiative, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons who are eligible under paragraph 1, and to all natural and legal persons from a country participating in the relevant initiative. The same rules apply for supplies and materials.

7. Whenever the Facility finances an operation co-financed with a third entity, participation in procedures for the award of procurement contracts or grants shall be open to all natural and legal persons eligible under paragraph 1, and to all persons eligible under the rules of the third entity. The same rules shall apply to supplies and materials.

Caveat: The Bank and EU eligibility requirements are subject to change by the Bank and the EU. The applicant is responsible for checking whether there have been any updates on the eligibility requirements, as well as the UN's list of Least Developed Countries.

TERMS OF REFERENCE

CONSULTANCY SERVICES FOR BUILDING THE CAPACITY OF YOUNG PROFESSIONALS IN CLIMATOLOGY, METEOROLOGY, HYDRO-METEOROLOGY AND RELATED FIELDS

1. Introduction

Recognising the importance of building critical mass in weather, climate and hydro-meteorological professionals to the region's resilience to climate change, increasing climate variability and extreme weather, the Caribbean Institute for Meteorology and Hydrology (CIMH) initiated a young professionals programme in 2006 focused on students in the B.Sc. Programme in Meteorology at the University of the West Indies Cave Hill Campus. The programme subsequently expanded to include individuals from different disciplines including civil engineering, water resources management, climate science and remote sensing - all closely linked to the core programmes of the CIMH. In recent years, the programme has been further expanded to include individuals from the social sciences in recognition of the fact that engaging persons in these disciplines is critical to building professional relationships that are essential for understanding and better defining sectoral needs for applications of weather, climate and hydro-meteorological information. Currently, the programme caters to young professionals in undergraduate and graduate programmes. The attachments last between three months to two years depending on the nature of the investigation.

Three-month attachments generally focus on exposing young professionals in undergraduate programmes to interesting and challenging problems with well constrained solution strategies that can be implemented in the requisite timeframe. The individuals are introduced to basic elements of research that builds their independent problem solving skills and expands their knowhow and knowledge base. The outputs from several of these attachments have been converted by the CIMH into products and services used by the international community. For example, the CIMH Terminal Aerodrome Forecast software which is used by National Meteorological and Hydrological Services (NMHSs) in the Caribbean, has been translated into Spanish, and now used by NMHSs in Central and South America started out as a summer attachment project. Several young professionals have also extended their projects into research projects for graduate degrees.

Longer attachments, usually on in the order of 1–2 years are undertaken by recent graduates seeking to extend their skillsets before either seeking employment or entering graduate programmes. These attachments focus on building prototypes of either new products or services. A good example is the implementation of the Wavewatch-3 software to build an operational high-resolution marine significant wave height forecasting platform for the Caribbean Sea and adjacent oceans (<http://ww3.cimh.edu.bb>). The young professionals support their supervisors by conducting a significant portion of the basic work required to complete and operationalise the project. Several young professionals in recent years have supported investigations into boundary problems related to climate and (a) tourism, (b) energy and (c) agriculture. For example, one individual is currently investigating how geological hazards, when integrated with meteorological processes, can disrupt renewable energy production and civil aviation. Another individual is examining the application of virtual reality to meteorological and hydrological training and situational awareness and risk-informing the disaster management community. The results from these attachments have been quite promising. Several individuals have converted their opportunities into graduate research projects.

2. 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 CIMH member states. 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);

The CIMH has strong collaborations with other Regional Institutions, national organizations in CMO Member States and the international community. Since 2006, the CIMH has been providing internships opportunities to graduate and undergraduate students registered at regional and international universities. While the majority of internships have supported research and development in Earth and Atmospheric Sciences, in recent years the areas of focus have been expanded to include Social Sciences, Computer Science and Information Technology. Internships commonly range from 3-months to 1-year with the potential for an increase to two years. Many interns have converted their projects to publications and conference presentations as well as M.Sc. and PhD graduate research programmes.

Position 1: *Computer Science Intern - CID* – To support the improvement of the content and functionality of the Caribbean Climate Impacts Database (CID)

3. Scope of Work

The impacts of climate variability and change pose a serious threat to the social and economic development of the Caribbean region. This has been well demonstrated by past weather and climate-related events in the Caribbean which are associated with more economic damage and loss cumulatively than other types of natural hazards. Projections suggest that weather and climate events are likely to continue to incur losses, providing a compelling socio-economic case for action, especially in key sectors that remain highly sensitive to climate.

Insufficient climate impacts reporting has limited our understanding of the full extent of the impacts of climate on the performance of key social and economic sectors and ultimately the Caribbean's socio-economic development. In response to this gap, the Caribbean Institute for Meteorology and Hydrology (CIMH) in collaboration with the Caribbean Disaster Emergency Management Agency (CDEMA) and national disaster management agencies in the Caribbean have developed the Caribbean Climate Impacts Database (CID). The CID is an open-source geospatial inventory which archives among other things, historical sector-based climate impacts. Hosted and managed by the CIMH, the CID provides a centralized evidence-based information archive that supports the forecasting and modelling of climate risk.

The successful candidate will work with the IT Technical Officer, Social Scientist, and the Climate Product Development Specialist to improve the content and functionality of the CID. Specifically, the Intern will:

- (i) Ingest positive and negative impacts data and metadata into the CID;
- (ii) Implement an Application Programming Interface (API) for the CID database to support development and integration with other products and services;
- (iii) Design and implement quality checks and assurance mechanisms for data in the CID;
- (iv) Perform application stress tests and browser (Safari, Chrome, Mozilla Fox, Internet Explorer, Opera) functionality and compatibility testing; as well as
- (v) Any other duties.

4. Deliverables

- (i) A comprehensive, geo-referenced, searchable inventory of positive and negative climate impacts in the CID;
- (ii) Functional API technology linked to the CID; and
- (iii) A summary report documenting among other things, the results of the stress testing and quality checks, as well as any relevant recommendations on improving the CID and its use.

5. Qualifications

Candidates applying for the position should have as a minimum, a BSc degree in Computer Science and/or Information Technology.

6. Experience

Candidates should have strong working knowledge of Python Programming Language; HTML, CSS and PHP; and MySQL databases. Experience working with GIS based technology and writing reports would be considered an asset.

Given the regional and interdisciplinary nature of CIMH's work, the successful intern should also possess:

- Strong cultural and social IQ;
- Excellent written and oral communication skills;

7. Duration

The duration of the internship is three (3) months.

8. Reporting

The successful candidate will be required to submit monthly progress reports and a final report within two weeks following the completion of the assignment detailing the activities performed under the internship.

Position 1: *Computer Science Intern - CAROGEN* – To support the implementation software fixes to ensure smooth back-end operations of the Caribbean Regional Climate Centre (RCC)'s Caribbean Climate Outlook Forum (CariCOF) Outlook Generator (CAROGEN) Platform.

9. Scope of Work

- (i) Work with the CAROGEN back-end operations expert to provide trouble-shooting assistance and document solutions for back-end operation errors in CAROGEN with respect to its use in generating and viewing CariCOF's regional and national climate outlook maps as needed;
- (ii) Implement necessary fixes to the CAROGEN system for a smoother operation in the absence of a back-end operations expert.
- (iii) Assist in the preparation of a catalogue of back-end operation errors in CAROGEN;
- (iv) Implement necessary fixes to the system's documented problems with respect to the preparation of CPT scripts, ensuring correct ingestion of input data into CPT, manual validation of test results on CAROGEN server, and back-end troubleshooting for National Meteorological Service and CIMH users;
- (v) Implement residual fixes as needed to ensure a smooth back-end operation of CAROGEN with respect to CariCOF's regional and national climate outlook maps generation and viewing;
- (vi) Document and rigorously annotate* implemented fixes into an annex to the catalogue of back-end operation errors in CAROGEN for the benefit of CAROGEN IT and non-IT administrative users.
- (vii) Porting, upgrading and testing of the map generation code from Windows to Linux for single operability within a Linux environment.

*By "rigorously annotate" the following is meant: both annotations using technical terms targeting IT staff as well as annotations using non-technical descriptions for non-IT CAROGEN administrative users.

10. Deliverables

- (i) All fixes documented in the catalogue of back-end operation problems in CAROGEN implemented;
- (ii) Annex to the catalogue of back-end operation problems in CAROGEN containing implemented fixes delivered;
- (iii) Map generation code for operability in Linux.

11. Qualifications

Candidates applying for the position should have as a minimum, a BSc degree in Computer Science and/or Information Technology.

12. Experience

Candidates should have strong working knowledge of Python Programming Language; HTML, CSS and PHP; and MySQL databases. Experience working with GIS based technology and writing reports would be considered an asset.

Given the regional and interdisciplinary nature of CIMH's work, the successful intern should also possess:

- Strong cultural and social IQ;
- Excellent written and oral communication skills;

13. Duration

The duration of the internship is three (3) months.

14. Reporting

The successful candidate will be required to submit monthly progress reports and a final report within two weeks following the completion of the assignment detailing the activities performed under the internship.