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## VACANCY ANNOUNCEMENT

### Modelling Expert (Consultant Contract - CTC)

<b>Organizational Unit</b>	:	United Nations University - Institute for Environment and Human Security (UNU-EHS)
<b>Location</b>	:	Remote/home-based
<b>Reference Number</b>	:	2020/UNU/EHS/CTC/ME/26
<b>Applications to</b>	:	<a href="mailto:hrbonn@vie.unu.edu">hrbonn@vie.unu.edu</a>
<b>Closing Date</b>	:	<b>22 March 2020</b>

#### About UN University

For the past four decades, UNU has been a go-to think tank for impartial research on the pressing global problems of human survival, conflict prevention, development, and welfare. With more than 400 researchers in 13 countries, UNU's work spans the full breadth of the 17 Sustainable Development Goals, generating policy-relevant knowledge to effect positive global change. UNU maintains more than 200 collaborations with UN agencies and leading universities and research institutions across the globe. For more information, please visit <http://unu.edu>.

**United Nations University Institute for Environment and Human Security (UNU-EHS)** established in December 2003, is part of the UNU system, a worldwide network of Research and Training Institutes. Its mission is to advance human security through knowledge-based approaches to reducing vulnerability and environmental risks. For more information, please visit [www.ehs.unu.edu](http://www.ehs.unu.edu). **Munich Climate Insurance Initiative (MCII)**: MCII was initiated as a charitable organisation by representatives of insurers, research institutes and NGOs in April 2005 in response to the growing realization that insurance solutions can play a role in adaptation to climate change, as suggested in the UN Framework Convention on Climate Change and the Kyoto Protocol. This initiative is hosted at the United Nations University Institute for Environment and Human Security (UNU-EHS). As a leading think tank on climate change and insurance, MCII is focused on developing solutions for the risks posed by climate change for the poorest and most vulnerable people in developing countries. [www.climate-insurance.org](http://www.climate-insurance.org)

**The Climate Risk Adaptation and Insurance in the Caribbean (CRAIC)** project assists Caribbean countries in their efforts to increase social resilience and adapt to climate change by incorporating climate risk insurance within a broader framework of disaster risk reduction strategies. The project aims to refine and expand the index-based parametric Livelihood Protection Policy (LPP) to make it more affordable and accessible to all people in the Caribbean, especially individuals and communities vulnerable to climate risk. Currently in its second phase, CRAIC is continuing in Jamaica, Saint Lucia, Grenada, Belize, and Trinidad & Tobago, and intends to serve all interested countries in the Caribbean. The project is funded by the International Climate Initiative (ICI) of the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU). To safeguard the implementation results of Phase I and II achieved so far as well as to sustainably continue and improve the risk transfer mechanisms employed, the

aim is to transfer the implementation measures into a regional body. The overall aim is to institutionalize CRAIC within CCRIF SPC in order to sustainably establish micro- and meso- insurance markets in the Caribbean.

**Project Partner CCRIF SPC:** In 2007, the CCRIF SPC (formerly known as the Caribbean Catastrophe Risk Insurance Facility) was formed as the first multi-country risk pool in the world and was the first insurance instrument to successfully develop parametric policies backed by both traditional and capital markets. It was initially designed as a regional catastrophe fund for Caribbean governments to limit the financial impact of devastating hurricanes and earthquakes by quickly providing financial liquidity when a policy is triggered. CCRIF SPC was developed under the technical leadership of the World Bank and with a grant from the Government of Japan. It was capitalized through contributions to a multi-donor Trust Fund by the Government of Canada, the European Union, the World Bank, the governments of the United Kingdom and France, the Caribbean Development Bank and the governments of Ireland and Bermuda, as well as through membership fees paid by participating governments.

In 2014, the facility was restructured into a segregated portfolio company (SPC) to facilitate expansion into new geographic areas and the development of new products and is now named CCRIF SPC. The new structure, in which products are offered through a number of segregated portfolios, allows for total segregation of risk. In April 2015, CCRIF SPC signed an MOU with COSEFIN - the Council of Ministers of Finance of Central America, Panama and the Dominican Republic - to enable Central American countries to formally join the facility. The expansion into Central America and the Caribbean is supported through the World Bank administered Central America and Caribbean Catastrophe Risk Insurance Program Multi-Donor Trust Fund (MDTF) established for that purpose. The MDTF channels resources from various donors, including: Canada, through the Department of Foreign Affairs, Trade and Development, the United States, through the Department of the Treasury; the European Union, through the European Commission, and Germany through the Federal Ministry for Economic Cooperation and Development.

## **Responsibilities:**

### **1. Objectives**

As a risk management strategy, an independent peer review of the CRAIC model in its entirety and the technical documentation is being commissioned to obtain independent and comprehensive understanding of the model and of each underlying assumption. This model has been developed for the consortium by a company referred to herein as “the Developer”. The consortium intends to have the model, documentation and other deliverables from the Developer peer reviewed by technical experts. This TOR refers specifically to the peer review of the extreme precipitation and wind modules which underpins the micro insurance policies issued by the consortium.

### **2. Scope of the Assignment**

The peer review is a technical review of

(a) The model assumptions of the Hazard Module of the CRAIC model, including:

- Different scenarios on accumulation periods
- Different scenarios on areal averaging of the hazard
- Assumptions made in the extreme value analysis of hazard data;

(b) A technical report explaining the assumptions and methodology followed to build the CRAIC model.

### 3. Services

The expected services from a successful Peer Reviewer are the following:

- (i) **Read the Model Documentation (3b) and evaluate the related deliverables of the Hazard Module as indicated in section (3a).** The consortium will provide the Peer Reviewer information necessary/requested for the peer review. The documentation may consist of, but is not limited to the most recent model evaluation report provided by the modeler:
  - a. A description of the underlying datasets, assumptions used and justifications, methodology followed for the hazard modeling work of each module
  - b. Maps or other exhibits with findings
  - c. Digital files with deliverables, including the models and data used to develop the models, as necessary

Before receiving any such material, the Peer Reviewer will be required to sign a Non-Disclosure Agreement with the Model Developer and the consortium. The modeler will also conduct a comparison of the outputs from <http://calamityeye.com/1/1> to the outputs from the NASA model. The consultant may use the following sources to conduct the comparison:

<https://pmm.nasa.gov/data-access/tutorials>

<https://pmm.nasa.gov/precip-apps>

<https://pmm.nasa.gov/data-access/global-viewer>

[https://worldview.earthdata.nasa.gov/?v=-62.0521383431366,13.336041821597508,-59.9405660775116,14.343488110660008&t=2019-12-04-T10%3A00%3A00Z&l=GMI\\_Rain\\_Rate\\_Dsc,GMI\\_Rain\\_Rate\\_Asc\(hidden\),Reference\\_Labels\(hidden\),Reference\\_Features\(hidden\),Coastlines,VIIRS\\_SNPP\\_CorrectedReflectance\\_TrueColor,MODIS\\_Aqua\\_CorrectedReflectance\\_TrueColor,MODIS\\_Terra\\_CorrectedReflectance\\_TrueColor\(hidden\)](https://worldview.earthdata.nasa.gov/?v=-62.0521383431366,13.336041821597508,-59.9405660775116,14.343488110660008&t=2019-12-04-T10%3A00%3A00Z&l=GMI_Rain_Rate_Dsc,GMI_Rain_Rate_Asc(hidden),Reference_Labels(hidden),Reference_Features(hidden),Coastlines,VIIRS_SNPP_CorrectedReflectance_TrueColor,MODIS_Aqua_CorrectedReflectance_TrueColor,MODIS_Terra_CorrectedReflectance_TrueColor(hidden))

- (ii) **Interaction with the model Developer.** The Peer Review is to be conducted remotely and the peer reviewer is expected to interact with the Developer via electronic mail, Webex and other means for clarifications. If the interactions occur via electronic mail, the Peer Reviewer will carbon copy a designated person at CCRIF SPC and MCII. If the interactions occur via phone, the designated CCRIF SPC person will be notified so that he/she can participate in the call, if needed. A summary of the meeting should also be sent to the consortium. CCRIF SPC will provide the Peer Reviewer with the point of contact of the Developer to address any such request. A focus is set on the interaction with the statistician on the underlying assumptions of the extreme value analysis.
- (iii) **Interaction with the consortium.** The Peer Reviewer is expected to interact with the designated person at the consortium regarding the Peer Review. Although the Peer Reviewer will not have direct access to the Developer's catastrophe model, he/she may ask the consortium designated person to carry out specific analyses with the Developer's model and to report back the model output, if appropriate. The consortium may also provide the Peer Reviewer with comments and feedback about the peer review findings, which should be addressed in the Final Report.
- (iv) **Reporting.** The Peer Reviewer is expected to deliver the following reports:
  - a. Interim Reports after the review of the material specified in 3(a) and 3(b)

- b. A concise letter report of five or fewer pages with an executive summary of the findings. This concise report will be used by the consortium to interact with insurance regulators, primary insurance companies and customers. Therefore, this letter report will include the primary findings of the review highlighting on the positive aspects of the model and recommendations for future improvements.
- c. A Final Report for internal use of the consortium, where all the findings are reported at the level of detail necessary for the implementation of ameliorating actions in the successive releases of the catastrophe risk model by the developer. This report will not be shared by the consortium with any third party with the exception of the Developer. The report should include an analysis to determine (i) the quality, robustness and level of calibration of the hazard model and (ii) the implications for basis risk.

**Required Qualifications and Experience:**

- A degree in Meteorology with a specialty in catastrophe modeling for the (re)insurance sector, or an equivalent and suitable set of qualifications.
- Solid understanding of statistical extreme value analysis.
- At least 5 years of proven experience as a developer or reviewer of (re)insurance risk estimation models.
- Excellent analytical skills, and ability to prepare professional narrative reports summarizing observations and conclusions.
- Good oral and written communication abilities in English are required.
- Experience and knowledge of the Caribbean context.
- Understanding of peculiarities of the micro insurance sector preferred.

UNU is committed to diversity and inclusion within its workforce, and encourages all candidates, irrespective of gender, nationality, religious and ethnic backgrounds, including persons living with disabilities to apply and become part of the organization.

UNU has a zero-tolerance policy on conduct that is incompatible with the aims and objectives of the United Nations and UNU, including sexual exploitation and abuse, sexual harassment, abuse of authority and discrimination.

**Remuneration:**

Remuneration will be commensurate with qualifications and experience.

**Duration of Contract:**

The successful candidate will work on a remote basis under a Consultant Contract (CTC). The assignment is expected to commence in March 2020 upon execution of the contract and the expected level of effort (LOE) is no more than 15 days over a one-month period. The specific dates for deliverables will be agreed by contract. Delays are justified if caused by the proven tardiness in receiving the requested information or the results of the model runs by either the Developer, MCII, or CCRIF SPC.

**Starting Date:**

As soon as possible

**Application Procedure:**

Interested applicants should submit their applications by e-mail (to [hrbonn@vie.unu.edu](mailto:hrbonn@vie.unu.edu)), and must include the following:

- a cover letter setting out how the qualifications and experience match the requirements of the position;
- a curriculum vitae and a completed and signed [UNU Personal History \(P.11\) form](#) downloadable from the [UNU website](#). Please avoid using similar forms provided by other United Nations organizations;
- an indication of the reference number of the vacancy announcement (2020/UNU/EHS/CTC/ME/26)