

## ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

### EXECUTIVE SUMMARY

Federal Agency Name(s): Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce

Funding Opportunity Title: FY 11 Joint Hurricane Testbed

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-OWAQ-2011-2002602

Catalog of Federal Domestic Assistance (CFDA) Number: 11.431, Climate and Atmospheric Research

Dates: Letters of Intent (LOIs) submitted by Principal Investigators (PIs) must be received at the Tropical Prediction Center/National Hurricane Center (TPC/NHC) in Miami, Florida no later than 5:00 p.m. Eastern Daylight Time (EDT) on 30 July 2010. LOIs received after the deadline will not be reviewed, but in such cases PIs are still permitted to submit a full proposal. Response letters will be sent from NOAA no later than 17 September 2010. For full proposals submitted through Grants.gov, a date and time receipt indication is included and will be the basis of determining timeliness. Hard copy proposals will be date and time stamped when they are received in the program office. Applications with all additionally required forms must be time stamped by Grants.gov or received by the program office no later than 5:00 p.m. Eastern Daylight Time (EDT) on 29 October 2010. Complete proposal application packages received after the deadline will not be considered for funding.

Please note: Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

Funding Opportunity Description: The Office of Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), is soliciting LOIs (Letters of Intent) under the United States Weather Research Program (USWRP), as administrated by the USWRP Joint Hurricane Testbed (JHT). This notice also provides guidelines for the submission of full proposals. This notice describes opportunities and application procedures for the transfer of relevant research and technology advances into tropical cyclone analysis and forecast operations. Eligible applicants are institutions of higher education; other nonprofits; commercial organizations; foreign governments; organizations under the jurisdiction of foreign governments; international organizations; state, local and Indian tribal governments; and Federal agencies. This notice calls for researchers to submit proposals to test and evaluate, and modify if necessary, in a quasi-operational environment, their own scientific and technological research applications. Projects satisfying metrics for success and operational constraints may be selected for

operational implementation by the operational center(s) after the completion of the JHT-funded work. The period of the award is from one to two years.

## FULL ANNOUNCEMENT TEXT

### I. Funding Opportunity Description

#### A. Program Objective

The NOAA United States Weather Research Program (USWRP), via the USWRP Joint Hurricane Testbed (JHT), seeks to accelerate the rate at which promising and relevant research and technology benefit operational tropical cyclone analysis and forecasting. The goal of this notice is to promote the development and demonstration by government, universities, and other organizations, in coordination with the JHT, of various operational models and applications for the improvement of real-time tropical cyclone analysis and forecasting capabilities determined to be most desirable. Federal assistance is provided to Principal Investigators (PIs ? note, in this document "PI" also sometimes refers to co-investigators and other staff) to allow them to tailor their techniques for the operational environment. Depending upon the nature of the proposed research and technology, PIs may need to provide documentation and instructions to facilitate the testing and evaluation of their techniques by operational center staff. Projects satisfying metrics for success and operational constraints may be selected for operational implementation by the operational center(s) after the completion of the JHT-funded work.

JHT Projects: The operational forecast centers where JHT projects could be tested and evaluated include the NOAA Tropical Prediction Center/National Hurricane Center (TPC/NHC), the NOAA Central Pacific Hurricane Center (CPHC), the NOAA Environmental Modeling Center (EMC), the Joint Typhoon Warning Center (JTWC) operated by the United States Navy and Air Force, or the Fleet Numerical Meteorology and Oceanography Center operated by the United States Navy. These will collectively be known as "operational centers" for brevity. Use of other facilities is possible depending on requirements, workload, and opportunity.

The JHT mission is to facilitate the rapid and smooth transfer of new technology, research results, and observational advances of agencies, the academic community, and other groups into improved tropical cyclone analysis and prediction at operational centers. This mission will be accomplished by funded PIs and their support staffs, in collaboration with operational center forecasters and other staff, and facilitated by JHT staff, via the following activities (as relevant to each project):

- (1) Utilizing a quasi-operational environment to facilitate the testing and evaluation by operational center forecasters and support staff of research products and techniques provided by the PIs, subject to metrics that mandate good scientific performance while meeting forecaster ease-of-use needs and time constraints;
- (2) Funded researchers preparing scientific and technical documentation that is sufficient to facilitate the testing and evaluation of the new product or technique;

- (3) Utilizing advanced statistical and numerical model output and stimulating model improvement in tropical cyclone analysis and forecast applications;
- (4) Completing tests of codes provided by the PIs that preferably follow established and open programming standards for ease of portability; and
- (5) Facilitating the transfer of tested and evaluated forecast guidance products, research codes, and observations into the computing, communication, and display systems of the operational forecast center, while incorporating adjustments necessary to generate forecast guidance products that are forecaster-friendly and time-efficient.

Upon acceptance of a proposal, JHT staff will provide project administration and facilitation. The JHT Director will coordinate with each project PI, as soon as possible after acceptance, a time line and well-defined operational metric(s) for success in terms of scientific performance, ease of use, and time constraints. Note that meeting the metric(s) for success does not, after the project is concluded, ensure acceptance for operational implementation, which is at the sole discretion of the operational center(s). The time line and progress toward success will be monitored and updated during the project. Additionally, the appropriate operational center Director will designate for each project the forecaster and/or technical point(s) of contact from their staff.

The JHT will provide to the funded projects access to the JHT IT infrastructure (computer hardware, software, and data) to facilitate the testing and evaluation in an environment that closely matches that of the operational center. An overview of the JHT and TPC/NHC operational IT environments can be found on the JHT website at:

<http://www.nhc.noaa.gov/jht/index.shtml>. Copies of operational codes may be made available to prospective applicants as needed, but without guaranteed support.

The PI and his/her research staff, working with JHT personnel, will modify (if necessary) their proposed system so that it may be run during the hurricane season, utilized by the operational center forecasters, and tested and evaluated quantitatively and qualitatively in a quasi-operational environment. In preparation for testing and evaluation, if necessary, the funded researcher must provide documentation and instructions to the JHT staff and operational center forecasters and technical point(s) of contact that are sufficient to enable them to conduct the tests and evaluations. Following any necessary modifications to make the researcher's proposed system functional in the JHT environment, the proposed system is to be configured for quasi-operational, real-time testing and evaluation during hurricane season in the JHT environment. Researchers should anticipate that their funded work period will include their involvement during quasi-operational testing where tuning and adjustment may be required.

Experience gained from current and previous JHT projects indicates that the process of testing and evaluation often uncovers opportunities to make modest improvements to a project during its lifetime, and a project advances most rapidly when researchers, the JHT staff, and operational center forecasters and technical points of contact remain flexible and

collaborate closely.

A successful JHT project will result in one or both of the following: (1) A guidance product or technique leading to improved tropical cyclone analyses and/or forecasts; and/or (2) operational availability of data from a new observational system that has provided documented evidence of positive diagnostic or forecast impact.

Final testing, validation, and decision on acceptance for operational implementation of the new product will be the responsibility of, and at the sole discretion of, the operational forecast center(s); for example, see section II. B. of this notice for the criteria used by the TPC/NHC Director in making operational implementation decisions at that operational center. If the project is accepted for operational implementation by an operational center, the JHT staff will then provide materials for the operational center to develop its own documentation and training for the new technique or product. Long-term maintenance and support of the new technique or product will then become the responsibility of the operational forecast center.

## B. Program Priorities

The TPC/NHC and CPHC of the National Centers for Environmental Prediction (NCEP) has identified its operational forecast improvement needs. The TPC/NHC and CPHC hurricane forecaster priorities involve the following 15 areas of need (listed in order of priority from highest to lowest, the JTWC priorities of the items are also listed):

(TPC/CPHC-1 (JTWC-1)) Guidance for tropical cyclone intensity change, especially for the onset, duration, and magnitude of rapid intensification events, as well as for over-water rapid weakening events.

(TPC/CPHC-2 (JTWC-2)) Improved capability to observe the tropical cyclone and its environment to support forecaster analysis and model initialization.

(TPC/CPHC-3 (JTWC-5)) Statistically based real-time guidance on guidance to assist in the determination of official track and intensity forecasts. This could include multi-model consensus approaches, provided in probabilistic and other formats.

(TPC/CPHC-4 (JTWC-10)) Advanced coastal inundation modeling and/or applications, visualization, or dissemination technology that enhances operational storm surge forecast accuracy or delivery.

(TPC/CPHC-5 (JTWC-6)) Improved and extended track guidance. Identification, and then reduction of, the occurrence of guidance and official track outliers, focusing on both large speed errors (e.g., accelerating recurvers and stalling storms) and large direction errors (e.g., loops), and on specific forecast problems, including interactions between upper-level troughs and tropical cyclones, track forecasts near/over land or elevated terrain, and extratropical transition.

(TPC/CPHC-6 (JTWC-4)) Enhancements to the operational environment (e.g., ATCF, AWIPS-II) to increase forecaster efficiency, by expediting analysis, forecast, coordination,

and/or communication activities.

(TPC/CPHC-7 (JTWC-3)) Guidance for tropical cyclone genesis that exhibits a high probability of detection and a low false alarm rate, and/or provides probability of genesis.

(TPC/CPHC-8 (JTWC-15)) An extended (seven-day or longer) climatology-persistence skill baseline model for tropical cyclone track and intensity.

(TPC/CPHC-9 (JTWC-9)) Operational analysis of the surface wind field in tropical cyclones, including the analysis of the maximum sustained winds, and winds affecting elevated terrain and high-rise buildings.

(TPC/CPHC-10 (JTWC-8)) Guidance for changes in tropical cyclone size/wind structure and related parameters, including combined sea heights.

(TPC/CPHC-11 (JTWC-11)) Single-model track or intensity ensembles that have skill comparable to multi-model consensus techniques.

(TPC/CPHC-12 (JTWC-7)) Techniques to improve the utility of microwave satellite and radar data for tropical cyclone analysis.

(TPC/CPHC-13 (JTWC-12)) Guidance for precipitation amount and distribution associated with tropical cyclones and tropical disturbances.

(TPC/CPHC-14 (JTWC-13)) Improved techniques for estimating the intensity of tropical cyclones passing over and north of sea-surface temperature gradients (e.g., in the eastern North Pacific Ocean and the Atlantic Gulf Stream).

(TPC/CPHC-15 (JTWC-14)) Quantitative guidance tools for seasonal tropical cyclone forecasts for the Atlantic and eastern North Pacific basins, using statistical and/or dynamical methodologies.

Much of the improvement in tropical cyclone forecasting is attributed to advances in numerical weather prediction (NWP). These advances are mainly the result of improvements in observations, data assimilation techniques, and improved model physics in global forecast systems and high resolution regional models, in addition to the development of ensemble-based model guidance. Most individual proposals directed toward the NWP issues will be expected to be closely coordinated with the Environmental Modeling Center (EMC) of NCEP. For NCEP/EMC's hurricane modeling activities go to a site on NCEP/EMC's web page: <http://www.emc.ncep.noaa.gov/annualreviews/2009Review/index.html> . Work should be concluded within a two year period. High priority areas of work associated with NWP advancements for tropical cyclone forecasting are the following:

EMC-1 General model improvements to advance hurricane track in the NCEP global model. Model improvements should address extending useful track skill for NHC from five day to seven day forecasts.

EMC-2 Diagnostic techniques to further increase the utility of global models (e.g., NCEP, UKMO, NOGAPS) in forecasting tropical cyclone genesis

EMC-3 Improvements specific to operational HWRF modeling system:

- o Development of new methods or improving existing GSI techniques to assimilate satellite data and airborne doppler radar, SFMR, flight-level winds and dropsonde observations in the hurricane core region for initialization of the hurricane vortex. Initialization of the vortex with satellite data is of the highest priority.
- o Develop diagnostic capabilities to compare model output to satellite derived datasets (including NASA A-Train, CloudSat, AIRS, AMSU, AQUA MODIS etc.) and evaluate their potential use in vortex initialization
- o Diagnose and improve HWRF wind-pressure relationship in comparison to NHC best track estimates
- o Improvements to physics suitable for high resolution (~3 km or less) including air-sea transfer physics in high wind conditions, representation of convection, moist cloud physics, and radiation.
- o Diagnostics on HWRF analyses and forecasts for evolution of both large scale hurricane environment and evolving storm scale structure throughout tropical storm life cycle

### C. Program Authority

The program authority is 49 U.S.C. 44720(b), 33 U.S.C. 883d.

## II. Award Information

### A. Funding Availability

The estimate for total JHT funding that will be available in FY 2011 is \$1,250,000, which will likely be used to fund 10-15 new projects. Award amounts for previous JHT grants have been mostly between \$50,000 and \$200,000 per year. A similar range is expected for this announcement. Initial and renewal funding of any JHT proposals is contingent upon availability of these funds. In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs.

### B. Project/Award Period

The period of awards is from one to two years. All funded PIs are required to submit written semiannual reports during the project to describe the progress made toward the goals and deliverables established in the original proposal and agreed-upon time line. A final report must also be submitted at the conclusion of the project. The due dates for these reports will be coordinated with the JHT Director upon project initiation. Two-year projects will be reviewed by the JHT Steering Committee, and/or other designated reviewers, and the JHT and operational center Directors near the end of the first year for suitability for continuation into the second year. The due date for renewal proposals will be established by the JHT

Director and will usually be soon after the date for the first semiannual report. The renewal proposal must provide updates to the project work plan, deliverables, time line, IT requirements, budget, documentation and training plans, etc. This review is also based upon the semiannual reports and upon feedback received from the operational center's point(s) of contact. The criteria upon which the renewal review are based are the following: (1) The progress toward milestones in the original time line, (2) the potential for completing the testing and evaluation process and providing the stated deliverables by the end of the second year, and (3) appropriateness and reasonableness of the budget with respect to available JHT funds. Given a favorable review, each project may be funded for a second year.

A JHT project reaches its completion in one of two ways. A two-year project may end after approximately one year, if the JHT Director and the JHT Steering Committee (and/or other designated reviewers) decide, as described above, that insufficient progress has been made to justify continuation of the project into year two. A JHT project ends more conventionally with the submission by the principal investigator(s) of a final report at the conclusion of the original agreed-upon project duration. Based upon this report, and reports from the JHT staff and from project points of contact at the operational center, the operational center Director will subsequently make a decision on whether or not operational implementation of the project deliverables will occur. Decisions on operational implementation are at the sole discretion of the operational center Director. Operational implementation may or may not occur, irrespective of whether metrics for success defined during the JHT-funded project period have been met. For example, the TPC/NHC Director's decision to implement the new science or technology at the end of the operational demonstration period is based on a cost-benefit analysis that includes consideration of the following four criteria:

1. Forecast or analysis benefit: expected improvement in operational forecast and/or analysis accuracy
  2. Efficiency: adherence to forecaster time constraints and ease of use needs
  3. Compatibility: IT compatibility with operational hardware, software, data, communications, etc.
  4. Sustainability: availability of resources to operate, upgrade, and/or provide support
- Note that these criteria are not identical to those used in the evaluation of the proposals.

### C. Type of Funding Instrument

The funding instrument for non-Federal applicants will be a Cooperative Agreement based on the envisioned substantial involvement of NOAA scientists in projects funded by this notice. NOAA collaborates on cooperative research activities and provides financial support to enhance the public benefits to be derived from these research activities. NOAA envisions that JHT project testing and evaluation will involve close collaboration, facilitated by the JHT staff, between JHT-funded researchers and operational center forecasters and point(s) of contact. For example, operational forecasters may actually run or utilize output

from the experimental technique during their operational shifts or at other times, and they may then provide direct feedback to the researchers for possible modifications.

### III. Eligibility Information

#### A. Eligible Applicants

Eligible applicants are institutions of higher education; other nonprofits; commercial organizations; foreign governments; organizations under the jurisdiction of foreign governments; international organizations; state, local and Indian tribal governments; and Federal agencies. Applications from non-Federal and Federal applicants will be competed against each other. Proposals selected for funding from non-Federal applicants will be funded through a cooperative agreement as described above in section II. C. of this notice. Proposals from NOAA scientists selected for funding shall be effected by an intra-agency fund transfer. Proposals from a non-NOAA Federal agency selected for funding will be funded through an inter-agency transfer. PLEASE NOTE: Before non-NOAA Federal applicants may be funded, they must demonstrate that they have legal authority to receive funds from another Federal agency in excess of their appropriation. The only exception to this is governmental research facilities for awards issued under the authority of 49 USC 44720(b). Because this announcement is not proposing to procure goods or services from applicants, the Economy Act (31 USC 1535) is not an appropriate legal basis.

#### B. Cost Sharing or Matching Requirement

No cost sharing is required under this program.

#### C. Other Criteria that Affect Eligibility

Nothing listed in the announcement.

### IV. Application and Submission Information

#### A. Address to Request Application Package

There is no application package for LOIs. Applications for full proposals are available through <http://grants.gov/Apply>. If an applicant does not have Internet access, hard copy applications can be requested from Dorothy Fryar, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 10312, Silver Spring, MD 20910, phone (301) 734-1179, e-mail: [Dorothy.Fryar@noaa.gov](mailto:Dorothy.Fryar@noaa.gov).

## B. Content and Form of Application

The guidelines for preparation of LOIs and full proposals provided below are mandatory (except where otherwise noted). Failure to adhere to these guidelines will result in LOIs and/or full proposals being returned without review.

### 1. LOIs

- (a) Prior to submitting a full proposal, PIs are strongly encouraged to submit a LOI for each planned proposal. However, PIs who do not submit a LOI will not be precluded from submitting a full proposal.
- (b) The LOI must be no more than two pages in length, using a 12-point font and one inch margins, and it must include the name(s) of the PI(s) and their home institution(s).
- (c) The LOI must contain a brief description of the intended project.
- (d) The LOI must include a brief budget which summarizes how resources will be allocated [e.g., salaries, computing and communications, equipment (provide justification), indirect charges, and travel]. Note that funding for secretarial support and IT improvements at the PI's home institution is not generally available.
- (e) Each LOI will be reviewed, following the criteria specified below in Section V.A. of this notice, by members of the JHT Steering Committee, and/or other designated reviewers, who will make their recommendations to the JHT Director.
- (f) All PIs will be notified whether a full proposal is encouraged or discouraged based on the review of their LOI. Even though a full proposal may be discouraged, a PI will not be precluded from submitting a full proposal. All PIs will receive a short synthesis of the factors that led to the recommendation regarding their own reviewed LOI(s).

### 2. Full Proposals

- (a) The proposal must include a title page signed by the PI(s) and the appropriate representatives(s) of their home institution(s). Each PI and institutional representative should be identified by full name, title, organization, telephone number, mailing address, and e-mail address. There should be a separate title page per institution represented in the proposal.
- (b) A one-page abstract must be included and must contain a brief summary of the proposed work to be completed. The abstract must appear on a separate page, headed with the proposal title and the name(s) of the PI(s) and their home institution(s).
- (c) All proposals must provide a Statement of Work that includes:
  - (1) The proposed duration of the project, from one to two years;
  - (2) A brief description of the project, with prior research results (including references) to demonstrate sufficient maturity and potential for a successful transition to operations at operational centers;
  - (3) A proposed work plan for the project, including hardware and software needs, the testing

and evaluation approach, metric(s) for success, project deliverables, a time line with key milestones, real-time operational data needed as input, and a plan to port necessary codes to the operational environment of the operational center. An overview of the JHT and TPC/NHC operational IT environments can be obtained from the JHT website: [http://www.nhc.noaa.gov/jht/emc\\_JHT\\_IT\\_structure\\_2010.pdf](http://www.nhc.noaa.gov/jht/emc_JHT_IT_structure_2010.pdf). For applicants without Internet access, this information can be obtained by contacting: Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, National Hurricane Center, 11691 SW. 17th Street, Miami, FL 33165, phone (305) 229-4443, or via e-mail at [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov). Final work plans for approved projects will be reached by agreement between the PI and the JHT Director;

(4) A time line for delivering scientific and technical documentation and training materials over the course of the project that will enable testing and evaluation of the proposed techniques. If the proposal is funded, researchers are expected to coordinate with the JHT Director to formalize this time line;

(5) Schedule and needs for expected travel. PIs are strongly encouraged to plan and budget during each year of the project to describe their work at the annual Interdepartmental Hurricane Conference (IHC), which occurs in early March, sponsored by the Office of the Federal Coordinator for Meteorological Services and Supporting Research. Additionally, visits by PIs and/or their support staff to the operational center(s) as necessary, may be beneficial for training JHT staff and the forecaster and technical point(s) of contact in preparation for project testing and evaluation; and

(6) Estimates of JHT staff requirements in terms of on-site (or off-site) JHT facilitator efforts, and estimated computational, communication, and/or display requirements at the researcher's home institution and/or at JHT via remote access and data transfer. All six sections must be included to satisfy the Statement of Work requirements.

(d) All applicants must submit a budget that includes PI and scientific and technical support staff salaries, JHT facility requirements, computing and communications funding, equipment funding (provide justification), indirect charges, and travel. Note that funding for secretarial support, journal publications, and IT improvements at the PI's home institution is not generally available. Non-federal applicants must use Standard Form 424A, Budget Information--Non-Construction Programs that is contained in the standard NOAA Grants and Cooperative Agreement Application Package.

(e) Non-federal applicants must submit additional forms included in the standard NOAA Grants and Cooperative Agreement Application Package (see section IV.A above).

(f) An abbreviated Curriculum Vita for the PI(s) must be included. Reference lists should be limited to all publications in the last three years with up to five other relevant papers.

(g) Current and pending Federal support: Each investigator must submit a list that includes project title; supporting agency with grant number, investigator months, dollar value and duration. Requested amounts should be listed for pending Federal support.

(h) Additional proposal requirements include:

- (1) Each proposal must be dated and contain page numbers;
- (2) Items 2b and 2c above must be contained within no more than ten pages, using a 12-point font and one-inch margins.
- (3) No reference to the NEPA checklist is required in the proposal

#### C. Submission Dates and Times

LOIs submitted must be received no later than 5:00 p.m. Eastern Daylight Time (EDT) on 30 July 2010. TPC/NHC determines whether an LOI has been submitted before the deadline by the date and time indication on the email or by date and time stamping the applications as they are physically received in the NHC office. LOIs received after the deadline will not be reviewed, but in such cases PIs are still permitted to submit a full proposal.

Full proposal packages must be submitted no later than 5:00 p.m. Eastern Daylight Time (EDT) on 29 October 2010. A date and time receipt on the submission to Grants.gov will be the basis of determining timeliness. For those without Internet access, hard copy proposals will be date and time stamped when they are received in the program office. Applications received after that time will not be reviewed.

Please note: Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

#### D. Intergovernmental Review

Applications under this program are not subject to Executive Order 12372, "Intergovernmental Review of Federal Programs."

#### E. Funding Restrictions

None.

#### F. Other Submission Requirements

LOIs are to be submitted to the JHT Director, Dr. Jiann-Gwo Jiing preferably by email at: Jiann-Gwo.Jiing@noaa.gov. LOIs submitted must be received no later than 5:00 p.m. Eastern Daylight Time (EDT) on 30 July 2010. Those without email access should send a printed copy to: Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, National Hurricane Center, 11691 SW. 17th Street, Miami, FL 33165.

For federal applicants, full proposal packages need to be sent to the JHT Director, Dr. Jiann-Gwo Jiing via e-mail: [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov). If a non-federal co-Principal Investigator is seeking funds under a federal Principal Investigator proposal, the non-federal Principal Investigator will need to submit the full proposal package via <http://grants.gov/Apply> website.

For non-federal Principal Investigator(s), full proposal packages should be submitted through the <http://grants.gov/Apply> website.

For those without Internet access, please provide a hard copy of the proposal to Dorothy Fryar, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 10312, Silver Spring, MD 20910.

The address for submitting full proposals for federal applicants, full proposal packages need to be sent to the JHT Director Dr. Jiann-Gwo Jiing via e-mail: [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov). If a non-federal co-Principal Investigator is seeking funds under a federal Principal Investigator proposal, the non-federal Principal Investigator will need to submit the full proposal package via <http://grants.gov/Apply> website.

For non-federal Principal Investigator(s), full proposal packages should be submitted through the <http://grants.gov/Apply> website.

For those without Internet access, hard copy proposals should be addressed to Dorothy Fryar, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 11209, Silver Spring, MD 20910.

## V. Application Review Information

### A. Evaluation Criteria

The JHT Steering Committee, and/or other designated reviewers, will base their recommendations regarding each LOI and each full proposal upon the extent to which the

following criteria (listed with assigned weights) are satisfied:

1. Importance/relevance and applicability of proposal to the program goals (40 points)

This criterion ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, federal, regional, state, or local activities. For the JHT, this includes the following questions:

Research maturity (10 points) - If the proposed transition is for a new analysis or forecast tool at one of the operational centers is the research/science at a sufficiently mature level that evaluation and testing can occur during the proposed timetable? If the proposed transition is for an extension of existing analysis or forecast tool at one of the operational centers, or for continued improvement of an operational modeling system, is the scientific basis for the proposed extension sufficiently established that a successful implementation and testing can occur during the proposed timetable?

Priority-to-payoff factors (25 points) - Is the proposal directed toward an operational center priority item listed in section I.B and is there potential for improving operational tropical cyclone analysis and forecast accuracy?

Other agency use (5 points) - Is the technique likely to be used at more than one operational forecast center?

2. Technical merit (40 points)

This criterion assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives. For the Joint Hurricane Testbed, this includes the following questions:

Risk-to-payoff factors (10 points) - If the proposed transition is relatively straightforward technically, is the likely impact on operations sufficiently high to merit support? If the proposed transition has unresolved technical issues, is the likely payoff so high as to justify the risk?

Testing (10 points) - Has the technical merit of the research been established by testing with appropriate prototype (including operational) data sets?

Operational usage (10 points) - Will this transition lead to an analysis or forecast tool that is practical or beneficial for the operational forecast environment in terms of timeliness and forecaster-friendliness?

Technical compatibility (10 points) - Is the project compatible with the communications,

computing, data, and display environments of one of the operational centers? (Note that in cases where the technological advances of the project require cutting-edge hardware or software not yet in place at the JHT and at one of the operational centers, support for such enhancement from the NOAA USWRP may be considered.)

### 3. Overall qualifications of applicants (10 points)

This ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. For the Joint Hurricane Testbed, this includes the following questions: Has the PI and his/her team accomplished similar transition projects successfully in the past? Has the PI demonstrated research excellence in the peer-reviewed journals on topics closely related to the transition project being proposed?

### 4. Project costs (10 points)

The project's budget is evaluated to determine if it is realistic and commensurate with the project needs and time-frame. For the Joint Hurricane Testbed, this includes the following questions: What is the appropriateness and reasonableness of the budget with respect to the proposed transition tasks and the benefit to be gained? Would investment in this project require an inappropriate fraction of the available JHT funds?

### 5. Outreach and education (0 points)

This assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. For the Joint Hurricane Testbed, this criterion does not apply for the technical transition projects considered here.

## B. Review and Selection Process

All full proposals will receive an independent, objective review in accordance with the criteria specified above in Section V.A. of this notice. Such review will be conducted by the JHT Steering Committee, and/or other designated reviewers, consisting of at least three experts (which can be federal and/or non-federal). Each member of the independent review panel will individually evaluate and score the proposals. The Steering Committee members' scores will be used to produce a rank ordering of the projects by overall mean total scores, after normalizing by individual reviewer's mean total scores. The reviewers will provide their scores and any comments to the JHT Director. The reviewers may include in their comments a recommendation of "Do not fund" along with the reason(s) for that conclusion based on their overall assessment of the proposal when the review criteria, other proposals, and JHT objectives are considered.

### C. Selection Factors

Merit review ratings shall be provided from the JHT Steering Committee in rank order based on normalized scoring to the JHT Director for final funding recommendations. The JHT Director shall recommend awards in the rank order unless the proposals are justified to be selected out of rank order based upon one or more of the following factors:

1. Availability of funding (for the Joint Hurricane Testbed this includes operational center resources).
2. Balance/distribution of funds:
  - a. Geographically
  - b. By type of institutions
  - c. By type of partners
  - d. By research areas
  - e. By project types
3. Whether this project duplicates other projects funded or considered for funding by NOAA or other federal agencies.
4. Program priorities and policy factors (see section I. B.).
5. Applicant's prior award performance.
6. Partnerships and/or Participation of targeted groups.
7. National Environmental Policy Act (NEPA) determination and draft of necessary documentation before recommendations for funding are made to the Grants Officer.

Successful applicants are then notified. Funded projects become a JHT activity with a duration of one to two years. Note that two-year proposals are initially funded for one year, with funding for a second year contingent upon a favorable review near the end of the first year and upon available NOAA funds. Unsuccessful applicants will be notified of the final selection upon completion of the review and selection process. All applicants will receive their normalized average scores and rankings (by criteria and total) regarding their application. Copies of all submitted LOIs and proposals will be retained by the JHT staff and will become the property of the U.S. Government.

### D. Anticipated Announcement and Award Dates

Funding is anticipated to begin during summer 2011 for most approved projects. Projects should not be expected to begin prior to August 1, 2011, unless otherwise directed by the JHT Director.

## VI. Award Administration Information

## A. Award Notices

Although successful applicants will receive notification that the application has been recommended for funding to the NOAA Grants Management Division, this notification is not an authorization to begin performance of the project. Official notification of funding, signed by a NOAA Grants Officer, is the authorizing document that allows the project to begin. Notifications will be issued to the JHT Director and the Principal Investigator of the project. Unsuccessful applicants will be notified that their proposal was not selected for recommendation. Unsuccessful applications will be kept on file by the JHT Director for a period of 12 months, then destroyed.

## B. Administrative and National Policy Requirements

The Department of Commerce. Pre-Award Notification of Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of "February 11, 2008 (73 FR 7696)" is applicable to this solicitation.

**Limitation of Liability.** In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs. Publication of this announcement does not oblige NOAA to award any specific project.

**National Environmental Policy Act (NEPA).** NOAA must analyze the potential environmental impacts, as required by the NEPA, for applicant projects or proposals which are seeking NOAA federal funding opportunities. Detailed information on NOAA compliance with NEPA can be found at the following NOAA NEPA website: <http://www.nepa.noaa.gov/>, including our NOAA Administrative Order 216-6 for NEPA, [http://www.nepa.noaa.gov/NAO216\\_6.pdf](http://www.nepa.noaa.gov/NAO216_6.pdf), and the Council on Environmental Quality implementation regulations, [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=a46b9e8fc700febbc53c0ed334753fba&tpl=/ecfrbrowse/Title40/40cfr1501\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=a46b9e8fc700febbc53c0ed334753fba&tpl=/ecfrbrowse/Title40/40cfr1501_main_02.tpl)

Consequently, as part of an applicant's package, and under their description of their program activities, applicants are required to provide detailed information on the activities to be conducted, locations, sites, species and habitat to be affected, possible construction activities, and any environmental concerns that may exist (e.g., the use and disposal of hazardous or toxic chemicals, introduction of non-indigenous species, impacts to endangered and threatened species, aquaculture projects, and impacts to coral reef systems). In addition to providing specific information that will serve as the basis for any required impact analyses, applicants may also be requested to assist NOAA in drafting of an environmental assessment, if NOAA determines an assessment is required. Applicants will also be required to cooperate with NOAA in identifying feasible measures to reduce or avoid any identified

adverse environmental impacts of their proposal. The failure to do so shall be grounds for not selecting an application. In some cases if additional information is required after an application is selected, funds can be withheld by the Grants Officer under a special award condition requiring the recipient to submit additional environmental compliance information sufficient to enable NOAA to make an assessment on any impacts that a project may have on the environment.

### C. Reporting

Award recipients will be required to submit performance (technical) reports. Performance reports should be submitted to the JHT Director. Electronic submission of performance reports is preferred. All reports will be submitted on a semi-annual schedule and must be submitted no later than 30 days following the end of each 6-month period from the start date of the award. The comprehensive final report is due 90 days after the award expiration. Copies of all submitted reports will be retained by the JHT staff and will become the property of the U.S. Government.

## VII. Agency Contacts

Please visit the Joint Hurricane Testbed website for further information at: <http://www.nhc.noaa.gov/jht/index.shtml> or contact Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, Tropical Prediction Center, 11691 SW. 17th Street, Miami, FL 33165, phone (305) 229-4443, or via e-mail at [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov). Any technical questions addressed by Dr. Jiing (or his authorized representative) about this JHT funding opportunity and the answers will be posted on the JHT website (<http://www.nhc.noaa.gov/jht>).

## VIII. Other Information

N/A

submissions if the applicant has not been authorized or if credentials are incorrect. Authorizations and credential corrections can take several days to establish. Please plan your time accordingly to avoid late submissions. For further information please visit the Central Contractor Registration Web site (<http://www.ccr.gov/>). Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

**Address for Submitting Proposals:** Pre-proposal submissions can be either by e-mail, which is the preferred submission method to [OAR.OE.FAQ@noaa.gov](mailto:OAR.OE.FAQ@noaa.gov), or by hard-copy (send one copy to the mailing address below). If by e-mail, please put your last name in the subject heading along with the words OER Pre-proposal, e.g., "Smith OER Pre-proposal." Adobe PDF format is preferred. No facsimile pre-proposals will be accepted. Full proposal submissions must be submitted through Grants.gov. Applicants without internet access may submit hard-copies to the address below. Please refer to important information in submission dates and times above to help ensure your application is received on time. No e-mail or facsimile full proposal submissions will be accepted. Address for Hard-Copy Submissions: ATTN: Dr. Nicolas Alvarado, NOAA Office of Ocean Exploration & Research, SSMC III, 10th Floor, 1315 East West Highway, Silver Spring, Maryland 20910. Hard copy applications should be binder-clipped together (not bound or stapled) and printed on one-side only. One signed, hard copy original is required (use blue/black ink). Since reviewers will require access to an electronic copy, applicants submitting hard copies are highly encouraged to also submit a digital version in one Adobe PDF file on CD-ROM.

**Information Contacts:** For further information contact the NOAA Office of Ocean Exploration and Research at (301) 734-1015 or submit inquiries via e-mail to the Frequently Asked Questions address: [OAR.OE.FAQ@noaa.gov](mailto:OAR.OE.FAQ@noaa.gov). E-mail inquiries should include the Principal Investigator's name in the subject heading. Inquiries can be mailed to ATTN: Dr. Nicolas Alvarado (Proposal Manager) NOAA Office of Ocean Exploration 1315 East West Highway SSMC3, 10th Floor, Silver Spring, Maryland 20910

**Eligibility:** Eligible applicants are institutions of higher education; other nonprofits; commercial organizations;

state, local and Indian tribal governments.

**Cost Sharing Requirements:** Cost-sharing is not required.

**Intergovernmental Review:** Applications under this program are subject to Executive Order 12372, "Intergovernmental Review of Programs." Applicants must contact their State's Single Point of Contact (SPOC) to find out about and comply with the State's process under EO 12372. The names and addresses of the SPOC's are listed in the Office of Management and Budget's Web site: <http://www.whitehouse.gov/omb/grants/spoc.html>.

#### 6. Fiscal Year 2011 Joint Hurricane Testbed

**Summary Description:** The Office of Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), is soliciting Letters of Intent (LOIs) under the United States Weather Research Program (USWRP), as administrated by the USWRP Joint Hurricane Testbed (JHT). This notice also provides guidelines for the submission of full proposals. This notice describes opportunities and application procedures for the transfer of relevant research and technology advances into tropical cyclone analysis and forecast operations. This notice calls for researchers to submit proposals to test and evaluate, and modify if necessary, in a quasi-operational environment, their own scientific and technological research applications. Projects satisfying metrics for success and operational constraints may be selected for operational implementation by the operational center(s) after the completion of the JHT-funded work. The period of the award is from one to two years.

**Funding Availability:** The estimate for total JHT funding that will be available in FY 2011 is \$1,250,000, which will likely be used to fund 10-15 new projects. Award amounts for previous JHT grants have been mostly between \$50,000 and \$200,000 per year. A similar range is expected for this announcement. Initial and renewal funding of any JHT proposals is contingent upon availability of these funds. In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs.

**Statutory Authority:** The program authority is 49 U.S.C. 44720(b), 33 U.S.C. 883d.

**Catalog of Federal Domestic Assistance (CFDA) Number:** 11.431, Climate and Atmospheric Research.

**Application Deadline:** LOIs submitted must be received no later than 5 p.m. Eastern Daylight Time (EDT) on 30 July 2010. TPC/NHC determines whether an LOI has been submitted before the deadline by the date and time indication on the e-mail or by date and time stamp imprinted on the applications as they are physically received in the NHC office. LOIs received after the deadline will not be reviewed. Although LOIs are strongly recommended, they are not required in order to submit a full application. Full proposal packages must be submitted no later than 5 p.m. Eastern Daylight Time (EDT) on 29 October 2010. A date and time receipt on the submission to Grants.gov will be the basis of determining timeliness. For those without Internet access, hard copy proposals will be date and time stamped when they are received in the program office. Applications received after that time will not be reviewed. **Please Note:** Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

**Address for Submitting Proposals:** LOIs may be submitted via e-mail or hard copy to the JHT Director Dr. Jiann-Gwo Jiing via e-mail: [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov), DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 11209, Silver Spring, MD 20910.

Federal applications must submit their full proposals to the JHT Director Dr. Jiann-Gwo Jiing via e-mail: [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov). If a non-federal co-Principal Investigator is seeking funds under a Federal Principal Investigator proposal, the non-federal Principal Investigator will need to submit the full proposal package via <http://grants.gov/Apply> Web site. For non-Federal Principal Investigator(s), full proposal packages should be submitted through the <http://grants.gov/Apply> Web site. For those without Internet access, hard copy proposals should be addressed to Dorothy Fryar, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 11209, Silver Spring, MD 20910.

**Information Contacts:** Please visit the Joint Hurricane Testbed Web site for further information at: <http://www.nhc.noaa.gov/jht/index.shtml> or contact Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, Tropical Prediction Center, 11691 SW. 17th Street, Miami, FL 33165, phone (305) 229-4443, or via e-mail at [Jiann-Gwo.Jiing@noaa.gov](mailto:Jiann-Gwo.Jiing@noaa.gov). Any technical questions addressed by Dr. Jiing (or his

authorized representative) about this JHT funding opportunity and the answers will be posted on the JHT Web site (<http://www.nhc.noaa.gov/jht>).

**Eligibility:** Eligible applicants are institutions of higher education; other nonprofits; commercial organizations; foreign governments; organizations under the jurisdiction of foreign governments; international organizations; state, local and Indian tribal governments; and agencies. Applications will be competed against each other. Proposals selected for funding from applicants will be funded through a cooperative agreement as described in section II. C. of the FFO announcement. Proposals from NOAA scientists selected for funding shall be effected by an intra-agency fund transfer. Proposals from a non-NOAA agency selected for funding will be funded through an inter-agency transfer. **Please Note:** Before non-NOAA applicants may be funded, they must demonstrate that they have legal authority to receive funds from another agency in excess of their appropriation. The only exception to this is governmental research facilities for awards issued under the authority of 49 U.S.C. 44720(b). Because this announcement is not proposing to procure goods or services from applicants, the Economy Act (31 U.S.C. 1535) is not an appropriate legal basis.

**Cost Sharing Requirements:** No cost sharing is required under this program.

**Intergovernmental Review:** Applications under this program are not subject to Executive Order 12372, "Intergovernmental Review of Programs."

Office of the Under Secretary (USEC)

#### 1. Environmental Literacy Grants for Formal K–12 Education

**Summary Description:** The goal of this funding opportunity is to support K–12 education projects that advance inquiry-based Earth System Science learning and stewardship directly tied to the school curriculum, with a particular interest in increasing climate literacy. To address this goal, this solicitation will support service-learning and professional development projects related to NOAA's mission in the areas of ocean, coastal, Great Lakes, weather and climate sciences and stewardship. A successful project will catalyze change in K–12 education at the state, regional and national level through development of new programs and/or revision of existing programs to improve the environmental literacy of K–12 teachers and their students. A successful project will also leverage

NOAA assets, although use of non-NOAA assets is also encouraged. The target audiences for this funding opportunity are K–12 students, pre- and in-service teachers, and providers of pre-service teacher education and in-service teacher professional development. There is a special interest in projects that address reaching groups traditionally underserved and/or underrepresented in Earth System science. One group that has been identified as underserved is elementary level teachers and students. This funding opportunity has two priorities, which are equal in their importance for funding. Priority 1 is for innovative proof-of-concept projects that are one to two years in duration, for a total minimum request of \$200,000 and a total maximum request of \$500,000. Priority 2 is for full-scale implementation of educational projects that are three to five years in duration, for a total minimum request of \$500,001 and a total maximum request of \$1,500,000. This opportunity meets NOAA's Mission Support goal to provide critical support for NOAA's mission. It is anticipated that awards under this announcement will be made by June 30, 2011 and that projects funded under this announcement will have a start date no earlier than July 1, 2011. **Note:** a PDF version of this announcement is available at [http://www.oesd.noaa.gov/funding\\_opps.html](http://www.oesd.noaa.gov/funding_opps.html).

**Funding Availability:** NOAA anticipates the availability of approximately \$8,000,000 of total financial assistance in FY 2011 for this solicitation. Approximately 5 to 10 awards total among both priorities in the form of grants or cooperative agreements will be made. For Priority 1, the total amount that may be requested from NOAA shall not exceed \$500,000 for all years including direct and indirect costs. The minimum amount that must be requested from NOAA for all years for the direct and indirect costs for this priority is \$200,000. Applications requesting support from NOAA of less than \$200,000 or more than \$500,000 total for all years will not be considered for funding. For Priority 2, the total amount that may be requested from NOAA shall not exceed \$1,500,000 for all years including direct and indirect costs. The minimum amount that must be requested from NOAA for all years for the direct and indirect costs for this priority is \$500,001. Applications requesting support from NOAA of more than \$1,500,000 or less than \$500,001 total for all years will not be considered for funding. The amount of funding

available through this announcement will be dependent upon final FY11 appropriations. Publication of this notice does not oblige DOC/NOAA to award any specific project or to obligate any available funds. If an applicant incurs any costs prior to receiving an award agreement from an authorized NOAA Grants Officer, the applicant would do so solely at one's own risk of such costs not being included under the award. The exact amount of funds that may be awarded will be determined in pre-award negotiations between the applicant and NOAA representatives.

**Statutory Authority:** Authority for this program is provided by the following 33 U.S.C. 893a(a), the America COMPETES Act.

**Catalog of Federal Domestic Assistance (CFDA) Number:** 11.008, NOAA Mission-Related Education Awards

**Application Deadline:** An informational teleconference with the program officers will occur on July 28 2010, 3 to 5 p.m. EDT. Interested applicants should register by contacting [oed.grants@noaa.gov](mailto:oed.grants@noaa.gov), including in the Subject line of the e-mail: "Interested in FFO Teleconference—Need Details". Please provide the interested parties' name, institution and telephone number in the body of the e-mail. Whenever possible, people from the same institution should try to call in through the same phone line.

**Pre-proposal Submission Dates and Times:** Pre-proposals are required for all applications and must be received by 5 p.m., EDT, September 8, 2010. Late pre-proposals will not be merit reviewed. Pre-proposals should be submitted via <http://www.Grants.gov>. Pre-proposals submitted through Grants.gov will generate an automated receipt indicating the date and time of submission. For pre-proposals submitted through Grants.gov, there will be two automated e-mail receipts sent to the application submitter with the date and time of submission (the first e-mail confirms receipt, the second e-mail confirms that there are no errors with your pre-proposal submission and it has been forwarded to NOAA for further processing). If both e-mail confirmation receipts are not provided within two (2) days of pre-proposal submission, contact the Grants.gov Help Desk and [oed.grants@noaa.gov](mailto:oed.grants@noaa.gov). **Please Note:** It may take Grants.gov up to 48 hours to validate or reject the pre-proposal. Please keep this in mind in developing your submission timeline. Applicants are responsible for ensuring that all required elements have been appropriately submitted. Additional instructions for Grants.gov can be found