

## 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 2015 Joint Hurricane Testbed

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-OWAQ-2015-2004200

Catalog of Federal Domestic Assistance (CFDA) Number: 11.459, Weather and Air Quality Research

Dates: Letters of Intent (LOIs) submitted by Principal Investigators (PIs) must be received at the Joint Hurricane Testbed (JHT) in Miami, Florida no later than 5:00 p.m. Eastern Daylight Time (EDT) on Friday, 15 September 2014. 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 Friday, 31 October 2014. For full proposals submitted through Grants.gov, a date and time receipt indication is included and will be the basis of determining timeliness.

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 Friday, 5 December 2014. 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 under the United States Weather Research Program (USWRP), as administered 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) experimental environment, their own scientific and technological research applications. The experimental test environment includes capabilities for real-time demonstration testing based on links to operational observational and model data streams. Projects satisfying metrics for success and operational constraints may be selected for operational implementation by the operational center(s) after the completion of the USWRP-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 USWRP within the OAR's Office of Weather and Air Quality (OWAQ) seeks to accelerate the rate at which promising and relevant research and technology benefit operational tropical cyclone analysis and forecasting, via the USWRP JHT. 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, evaluation and maintenance 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 USWRP-funded work.

JHT Projects: The operational forecast centers where JHT projects could be tested and evaluated include the NOAA National Hurricane Center (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) experimental 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) 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 selection of a proposal for funding, JHT staff will provide project administration and facilitation. The JHT Director will coordinate with each project PI, as soon as possible after selection, 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 information technology (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 NHC operational IT environments can be found on the JHT website at: <http://www.nhc.noaa.gov/jht/index.php>. 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) experimental 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) experimental, real-time testing and evaluation during the hurricane season(s) in the JHT environment. Researchers should anticipate that their funded work period will include their involvement during (quasi-operational) experimental 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 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. PIs may be required to provide to the JHT the steps required for maintenance of their projects. 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 NHC of the National Centers for Environmental Prediction (NCEP) and CPHC have identified their operational forecast improvement needs. The NHC, CPHC, and JTWC hurricane forecaster priorities involve the following 18 areas of need (the number indicates the order of priority from highest to lowest):

NHC-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.

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

NHC-3/JTWC-8. 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.

NHC-4/JTWC-9. Enhancements to the operational environment (e.g., ATCF, AWIPS-II) to increase forecaster efficiency, by expediting analysis, forecast, coordination, and/or communication activities.

NHC-5/JTWC-11. Techniques or products to support pre-genesis disturbance track, intensity, size, and wind speed probability forecasts.

NHC-6/JTWC-15. Advanced coastal inundation modeling and/or applications, visualization, or dissemination technology that enhances operational storm surge forecast accuracy or delivery.

NHC-7/JTWC-4. 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--especially elevated terrain, and extratropical transition.

NHC-8/JTWC-5. Guidance for tropical cyclone genesis at both the short-range (0-48 hours) and the medium-range (48-120 hours) that exhibits a high probability of detection and a low false alarm rate for, and/or provides probability of, genesis.

NHC-9/JTWC-12. Modernize the satellite-based classification system used for monitoring subtropical cyclones (e.g., the Hebert-Poteat Technique).

NHC-10/JTWC-17. Develop techniques for incorporating tropical cyclone predictions within the NWS National Digital Forecast Database.

NHC-11/JTWC-18. Develop guidance on the best flight track strategies for synoptic surveillance missions that take into account hurricane forecaster use as well as data assimilation needs.

NHC-12/JTWC-7. 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.

NHC-13/JTWC-10. Guidance for changes in tropical cyclone size/wind structure and related parameters, including combined sea heights.

NHC-14/JTWC-6. Single-model track or intensity ensembles that have skill comparable to multi-model consensus techniques.

NHC-15/JTWC-3. Techniques to improve the utility of microwave satellite and radar data for tropical cyclone intensity and location analysis (e.g. develop a "Dvorak-like" technique using microwave imagery).

NHC-16/JTWC-14. Guidance for precipitation amount and distribution associated with tropical cyclones and tropical disturbances.

NHC-17/JTWC-13. Improved techniques for estimating the intensity of tropical cyclones passing over and north of sea-surface temperature gradients.

NHC-18/JTWC-16. Develop tropical cyclone climatology software that provides statistics on closest point of approach to a station, bearing and distance to a station, cyclone intensity statistics for a point or location, return period statistics, etc.

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 and to increased computational capability. 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 NCEP/EMC's ftp site: <ftp://ftp.emc.ncep.noaa.gov/exper/nova/model-review/> and the Hurricane Weather Research and Forecast model (HWRF) website at <http://www.emc.ncep.noaa.gov/index.php?branch=HWRF>. 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 with focus on reducing track forecast error growth beyond day 4.

EMC-2 Diagnostic techniques to further increase the utility of operational global models and their ensembles (e.g., NCEP, ECMWF, UKMO, NAVGEM in forecasting tropical cyclone genesis

EMC-3 Improvements specific to operational HWRF modeling system:

1) Development of new methods or improving existing techniques for vortex initialization and data assimilation (including all sky satellite radiance data, airborne tail Doppler radar, Stepped Frequency Microwave Radiometer, flight-level winds, dropsonde observations and other data from newly emerging platforms) in the hurricane core region. Emphasis is on improved vortex analysis using observations and reduce the short-range intensity forecast errors.

2) Improvements to physics suitable for high resolution (~3 km or less) modeling, including air-sea transfer physics in high wind conditions, representation of convection, moist cloud physics, planetary boundary layer and radiation. Emphasis is on improved predictive skill for rapid intensity changes. Development and or application of scale-aware and stochastic physics for hurricane applications is of high priority.

3) Development of new methods or improving existing techniques for tracking multiple storms and multi-scale interactions in a basin-scale HWRF.

4) Development of advanced diagnostic tools to compare high resolution (temporal and spatial) model output with available observations from aircraft and satellites.

5) Development of or transition existing hurricane forecast techniques in the Nonhydrostatic Multiscale Model on B-grid/ NOAA Environmental Modeling System framework with emphasis on model scalability for multiple two-way interactive nests coupled to ocean and wave models.



### 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 2015 is \$700,000, which will likely be used to fund 6-9 new projects. Award amounts mostly between \$50,000 and \$150,000 per year are 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 and will be consistent with the Department of Commerce requirements for the submission of performance reports by award recipients. Two-year projects will be reviewed by the JHT Steering Committee, the JHT Director, and the OWAQ Director 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 and the OWAQ Directors 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 PI(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 USWRP-funded project period have been met. For example, the 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. Proposals from NOAA scientists selected for funding shall be affected 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.

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.

#### 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. Application packages for full proposals from non-federal investigators are available through < <http://www.grants.gov/web/grants/applicants/apply-for-grants.html> >. The application package for Federal principal investigators is described in section IV.

#### 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 requirements 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, journal publications 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, who will make their recommendations to the JHT and OWAQ Directors.

(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) or federal agency, such as a director of the PI's office. 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/NHC and EMC operational IT environments can be obtained from the JHT website: <http://www.nhc.noaa.gov/jht>. Final work plans for approved projects will be reached by agreement between the PI, the JHT Director, and the OWAQ Director;

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

(5) A 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 typically occurs in 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 and labeled to satisfy the Statement of Work requirements.

(d) All applicants must submit a budget that includes PI, 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 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. The information on the SF 424A should only include the

amount of funding that will be provided to the institution submitting the proposal, not non-Federal co-PI's at other institutions that will be submitting a separate proposal for their portion of the funding (See section IV.F).

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

(f) An abbreviated Curriculum Vitae for all 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 National Environmental Policy Act (NEPA) checklist is required in the proposal.

### C. Submission Dates and Times

LOIs submitted must be received no later than 5:00 p.m. EDT on Friday, 15 September 2014. JHT 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 JHT 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. EDT on Friday, 5 December 2014. A date and time receipt on non-Federal submissions to Grants.gov will be the basis of determining timeliness. The date and time stamped on the email package sent to the program office from Federal submissions will be the basis of determining timeliness. 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

##### 1. Letters of Intent (LOIs)

The LOIs are to be submitted to the JHT Director, Dr. Chris Landsea by email at: Chris.Landsea@noaa.gov. LOIs submitted must be received no later than 5:00 p.m. EDT on 15 September 2014.

##### 2. Full Proposals

For non-federal Principal Investigator(s), full proposal packages should be submitted through the < <http://www.grants.gov/web/grants/applicants/apply-for-grants.html> > website. For federal applicants, full proposal packages need to be sent to the JHT Director, Dr. Chris Landsea, via e-mail: Chris.Landsea@noaa.gov.

If a non-federal co-Principal Investigator is seeking funds under a federal Principal Investigator proposal, the non-federal Principal Investigator must submit the full proposal package via < <http://www.grants.gov/web/grants/applicants/apply-for-grants.html> > website. The full proposal package includes the information described in section IV.B as well as the required federal forms: (1) Application for Federal Assistance (SF-424), (2) Budget

Information - Non-Construction Programs (SF-424A), (3) Certifications (CD-511), and (4) Assurances - Non-Construction Program (SF-424B).

If there are co-PIs from different institutions, the statement of work must describe the contributions by each PI and include a budget that clearly describes the exact amount being requested by each institution. The same proposal must be submitted separately by each institution, but the SF-424 forms should only list the amount being requested by the specific institution.

If the applicant is a university that has a NOAA Cooperative Institute (CI), the institution is encouraged to submit a proposal that will be associated with the CI. The proposal must specify the name of the CI, its most recent award number, and the NOAA-approved research theme applicable to the work to be performed in the proposal's project narrative. The proposal will use the facilities and administrative rate (F&A or Indirect cost rate) associated with most recent CI award. If the proposal is selected for funding, NOAA will notify the university that a separate competitive award will be issued with its own award number. However, the competitive award will include a Special Award Condition (SAC) that evidences the link between it and the CI award. The SAC would provide (1) that the university has submitted the proposal to be associated with the CI; (2) that any existing University/NOAA MOA will be incorporated by reference into the terms of the competitive award, and (3) that any progress report(s) for the competitive award must follow the timetable of and be submitted by the CI directly to the funding program. Copies of these progress reports will be attached to the CI's performance report as an appendix.

## V. Application Review Information

### A. Evaluation Criteria

The JHT Steering Committee 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 (30 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:

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 significantly 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 (50 points)

This criterion assesses whether the approach is technically sound, if the methods are appropriate, and whether there are clear project goals and objectives. 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?

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

Operational usage (15 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 (15 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 JHT, 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 JHT, 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 funds for this announcement?

### 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 JHT, 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 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 member's 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 and OWAQ Directors. 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 and the OWAQ Director for final funding recommendations. The OWAQ 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 Test bed 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. Adequacy of information necessary for NOAA staff to make a NEPA determination and draft 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 NOAA and will become the property of the U.S. Government.

#### D. Anticipated Announcement and Award Dates

Funding is anticipated to begin during summer 2015 for most approved projects. Projects should not be expected to begin prior to September 1, 2015, 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 OWAQ and JHT Directors 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 OWAQ for a period of 12 months, then destroyed.

To enable the use of a universal identifier and to enhance the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act of 2006, to the extent applicable, any proposal awarded in response to this announcement will be required to use the Central Contractor Registration and Dun and Bradstreet Universal Numbering System and be subject to reporting requirements, as identified in OMB guidance published at 2 CFR Parts 25, 170 (2010), [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr25\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl), [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr170\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr170_main_02.tpl).

#### B. Administrative and National Policy Requirements

The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of December 17, 2012 (77 FR 74634) are applicable to this solicitation. <http://www.gpo.gov/fdsys/>.

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.

In accordance with current Federal appropriations law, NOAA will provide a successful corporate applicant a form to be completed by its authorized representatives certifying that the corporation has no Federally-assessed unpaid or delinquent tax liability or recent felony criminal convictions under any Federal law.

### C. Reporting

The Federal Funding Accountability and Transparency Act of 2006 includes a requirement for awardees of applicable Federal grants to report information about first-tier sub-awards and executive compensation under Federal assistance awards issued in FY 2011 or later. All awardees of applicable grants and cooperative agreements are required to report to the Federal Sub-award Reporting System (FSRS) available at [www.FSRS.gov](http://www.FSRS.gov) on all sub-awards over \$25,000.

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. Non-federal PIs will also submit a copy of their reports to the Grants online web site.

### VII. Agency Contacts

Please visit the JHT website for further information at:  
<http://www.nhc.noaa.gov/jht/index.php> or contact Dr. Chris Landsea, Director, Joint Hurricane Testbed, National Hurricane Center, 11691 SW. 17th Street, Miami, FL 33165, phone (305) 229-4446, or via e-mail at [Chris.Landsea@noaa.gov](mailto:Chris.Landsea@noaa.gov). Any technical questions addressed by Dr. Landsea (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/index.php>).

### VIII. Other Information

Environmental data and information, collected and/or created under NOAA grants/cooperative agreements must be made visible, accessible, and independently understandable to general users, free of charge or at minimal cost, in a timely manner (typically no later than two (2) years after the data are collected or created), except where limited by law, regulation, policy or by security requirements.

1. Unless otherwise noted in this federal funding announcement, a Data/Information Sharing Plan of no more than two pages shall be required as part of the Project Narrative. A typical plan may include the types of environmental data and information to be created during the course of the project; the tentative date by which data will be shared; the standards to be used for data/metadata format and content; policies addressing data stewardship and preservation; procedures for providing access, data, and security; and prior experience in publishing such data. The Data/Information Sharing Plan will be reviewed as part of the NOAA Standard Evaluation Criteria, Item 1 -- Importance and/or Relevance and Applicability of Proposed Project to the Mission Goals.

2. The Data/Information Sharing Plan (and any subsequent revisions or updates) will be made publicly available at time of award and, thereafter, will be posted with the published data.

3. Failing to share environmental data and information in accordance with the submitted Data/Information Sharing Plan may lead to disallowed costs and be considered by NOAA when making future award decisions.