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: Office of Weather and Air Quality Hazardous Weather and Hydrometerology Testbed Competitions

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-OWAQ-2015-2004230

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

Dates: Letters of Intent (LOIs) must be emailed by principal investigators (PIs) and received no later than 5:00 p.m. Eastern Time (ET) on 10 November 2014, as determined by the date and time of the email. 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 24 November 2014. For full proposals submitted through Grants.gov, a date and time receipt indication is included and will be the basis of determining timeliness. Full Application packages 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 Time (ET) on 30 January 2015. Full proposals received from federal employees only must be emailed and received by the same deadline as non-federal applications. 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 administrated by the Hydrometeorology Testbed (HMT) and Hazardous Weather Testbed (HWT). HMT advances hydrometeorological methods, models, observations, and decision support tools and leads the transfer of relevant research and technology advances to NWS operations at local, regional, or national levels. HWT focuses on the transfer of relevant research and technology advances in hazardous weather, severe convection, and related forecast operations.

This notice also provides guidelines for the submission of full proposals and describes opportunities and application procedures for research that supports the overall mission of HMT

and HWT. Eligible applicants are institutions of higher education; other nonprofits; commercial organizations; 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.

Proposals aimed at tools and/or applications are encouraged to plan for and use these annual experiments as a testing mechanism during the 2016 calendar year. If a tool/technique is selected for testing, associated projects are expected to visit the testbed to explain the tool/technique, and help facilitate testing. 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

Through the U.S. Weather Research Program (USWRP), the Office of Weather and Air Quality (OWAQ) is soliciting proposals to conduct research and development activities for NOAA's Hydrometeorology Testbed (HMT) and Hazardous Weather Testbed (HWT) in FY2015. The objective of this competitive announcement is to test and evaluate, and modify if necessary, in a (quasi-operational) experimental environment, scientific and technological research applications to improve operational forecasts and warnings.

#### 1. Hydrometeorlogy Testbed (HMT)

HMT conducts research on precipitation and land surface processes associated with high-impact weather that can lead to flooding and fosters transition of scientific advances and new tools into forecasting operations. HMT's outputs help decision makers balance water resource demands and flood mitigation strategies in a changing climate and support the National Weather Service's (NWS) goal of delivering a broad suite of improved water forecasting services to support management of the Nation's water supply. The testbed has five major activity areas, including quantitative precipitation estimation (QPE), quantitative precipitation forecasting (QPF), snow information (SI), hydrologic and surface processes (HASP), and decision support tools (DST). HMT focuses on precipitation and surface processes, particularly in complex terrain, with activities in California and in the Southeast. HMT also partners with the National Weather Service (NWS) local forecast offices and River Forecast Centers and the NOAA Weather Prediction Center (WPC).

Upon selection of the proposal for funding, HMT and OWAQ staff will provide project administration and facilitation. HMT staff will coordinate with each project PI, as soon as possible after selection, a timeline and well-defined metric(s) for success in terms of scientific performance and time constraints. Note that, for tools and applications, 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 entity director.

HMT will make available IT infrastructure (computer hardware, software, and data) to funded projects in order to facilitate the testing and evaluation in an environment that closely matches that of the operational entity. An overview of the HMT can be found at the http://hmt.noaa.gov/.

The PI and his/her project colleagues will work with HMT and NWS personnel to ensure that the project is relevant to improving operational hydrometeorological products and services. Specific projects aimed at developing tools and application will be setup so that their proposed system may be run within a quasi-operational environment utilized by the operational center forecasters and PIs, and tested and evaluated quantitatively and qualitatively in this environment. The WPC-HMT Winter Weather Experiment and Flash Flood and Intense Rainfall experiments in 2016 provide excellent opportunities to test and evaluate new tools and applications. In preparation for the testing and evaluation, if necessary, the PI must provide documentation and instructions on how the evaluation will be performed, how the PI will be involved with the evaluation and how the operational forecaster should be involved. PIs are expected to be involved directly in the evaluation as well as the process to make any necessary system adjustments when preparing the research capability for testing in the HMT.

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

A successful HMT operational demonstration project will lead to: (1) quantification of precipitation and/or streamflow monitoring or forecast performance and processes responsible for performance variability (2) a guidance product or technique leading to improved weather analyses and/or forecasts associated with extreme precipitation, and/or (3) 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 new products will be the responsibility of, and at the sole discretion of, the operational forecast entity. If the project is accepted for operational implementation by the operational entity, the HMT staff will work with the PI and operational entity to develop 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 entity.

As described below, this FFO seeks proposals that address one or more of the HMT major activity areas with emphasis on projects that demonstrate significant potential for improving hydrometeorological products and services in the NWS. This ranges from quantification of regional precipitation or hydrologic forecast errors to applications that could be transitioned to NWS operations. Proposals aimed at applications should involve initial testing and/or evaluation in an operational setting (e.g., NWS/WPC, a local Weather Forecast Office or River Forecast Center).

2. Hazardous Weather Testbed (HWT)

The HWT serves as a critical step in the process of bringing new hazardous weather science to National Weather Service (NWS) operations. The purpose of this opportunity is to encourage scientists to develop and demonstrate various possible applications for the improvement of real-time analysis and forecasting capabilities for severe convective weather. Projects satisfying metrics for success and operational constraints may be selected for operational implementation by NWS operational office after the completion of the project.

The HWT mission is to foster a two-way exchange of information between the research and operational communities, including research-to-operations (R2O) transitions and operations-to-research (O2R) communications that are enabled through organized experimentation in a simulated operational NWS environment and/or ongoing, informal collaboration between researchers and operational forecasters. This mission will be accomplished via the following activities (as relevant to each project):

1. Utilizing the quasi-operational environment of the HWT to facilitate the testing and evaluation of research products and techniques by PIs, operational center forecasters and HWT support staff, subject to metrics mandating good scientific performance while meeting ease-of-use needs and time constraints, and;

2. Facilitating the transfer of tested and evaluated forecast guidance products, research code, and observations into the computing, communication, and display systems of

NWS operations, while incorporating adjustments necessary to generate forecast guidance products that are forecaster-friendly and time-efficient.

Upon selection of the proposal for funding, HWT and OWAQ staff will provide project administration and facilitation. HWT staff will coordinate with each project PI, as soon as possible after selection, a timeline and well-defined test metric(s) for potential operational 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 entity director.

The HWT will provide the funded projects access to the HWT IT infrastructure (computer hardware, software, and data) to facilitate the testing and evaluation in an environment that closely matches that of the operational entity. An overview of the HWT can be found at the HWT website, http://hwt.nssl.noaa.gov/.

The PI and his/her project colleagues, working with HWT personnel, will modify (if necessary) their proposed system so that it may be run during open and supportable HWT periods in FY15 and FY16, if approved. The proposed system, technique or applied science will be utilized by the operational forecasters and PIs, and tested and evaluated quantitatively and qualitatively in a quasi-operational environment. In preparation for the testing and evaluation, the PI, HWT staff and operational center forecasters will determine collaboratively how each group will be involved in the evaluation process, including necessary documentation, training, and instructions. PIs must be involved directly in the evaluation as well as the process to make any necessary system adjustments when preparing the research capability for testing in the HWT.

Experience gained from current and previous HWT projects indicates that the process of testing and evaluation often uncovers opportunities to make some improvements to the capability during its lifetime, and a project advances most rapidly and with most relevance to operations when researchers, the HWT staff, and operational forecasters remain flexible and collaborate closely. Therefore, it is desirable for PIs to work closely and consult with operational forecasters during all stages of the project.

A successful HWT project will lead to: (1) a guidance product or technique leading to improved hazardous weather 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, evaluation/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 entity. If the project is accepted for operational implementation by the operational entity, the HWT staff may be available to assist the operational entity in developing appropriate documentation and training for the new technique or product, but this is not guaranteed. Long-term maintenance and support of the new technique or product will then become the responsibility of the operational forecast entity. The "Spring Experiment" in May to early June is a well-established, time-honored cornerstone of the HWT. As such, internal SPC/NSSL activities planned for that period may or may not be conducive to concurrent participation by proposed experiments. PIs are encouraged to coordinate with HWT Leadership to ensure their proposed project is either compatible with Spring Experiment operations or can be conducted at another time of the year.

B. Program Priorities

This announcement supports research through two individual competitions: Hydrometeorology Testbed (HMT) and Hazardous Weather Testbed (HWT).

1. The HMT, in coordination with WPC and National Weather Service Weather Forecast Offices (WFOs), through their respective Regional Scientific Services Divisions, have identified operational forecast improvement needs. The forecaster priorities involve seven areas of need:

- Identify and validate new methods, models, or decision support tools to improve flash flood monitoring and forecasting;

- Identify and validate new methods, models, or decision support tools to support ensemble precipitation and/or hydrologic prediction (this could include evaluation of existing models);

- Identify and validate assimilation of observations into hydrologic models to improve initial states;

- Identify and validate tools, methods, models, or evaluation of data fusion techniques for improved QPE;

- Identify and validate tools, models, or methods to improve heavy rainfall, snowfall, winter storm and icing forecasts and warnings, to be subjectively and objectively evaluated in a pseudo-operational environment;

- Identify and validate new methods, observations, models to improve understanding or evaluate performance of extreme precipitation events;

- Apply and integrate relevant social and behavioral science methodologies into the aforementioned HMT priorities so as to improve forecasters' use of the data, techniques, and guidance; to improve the ability of forecasters to depict, convey, and otherwise communicate anticipated hazards; and/or to improve end-users' ability to receive, assess, understand, and respond to forecasts and warnings for heavy precipitation events.

2. The HWT, in coordination with the Storm Prediction Center (SPC) and National Weather Service Weather Forecast Offices (WFOs), through their respective Regional Scientific Services Divisions, have identified operational forecast improvement needs. The forecaster priorities involve seven areas of need:

- Identify and validate concepts and techniques to improve convection-allowing ensemble forecast system performance through the Day 1 and/or Day 2 periods for tornado, large hail, damaging wind, and lightning applications, including sensitivity to factors such as number of ensemble members, data assimilation methodology, experimental observation systems, scale-appropriate IC/LBC perturbations, and physics diversity;

- Identify and validate post-processing techniques for deterministic models and ensembles to create skillful and reliable probabilistic thunderstorm and severe hazard threat guidance for the Day 1 through Day 8 forecast periods, including assessment of the limits to predictability for these hazards;

- Identify and validate innovative verification techniques/scale-appropriate metrics for thunderstorm and severe weather forecasts applicable to operational products and/or convective storm guidance from convection-allowing, regional, and global modeling systems;

- Identify and validate very short-term (up to 3 hrs) convection-resolving prediction systems and techniques to provide very high temporal and spatial resolution probabilistic guidance for convective warning operations, including incorporation of advanced mesoscale and convective scale data assimilation, rapidly updated storm-resolving NWP, extraction of

relevant storm characteristics and hazard information, and post-processing to provide reliable and skillful guidance;

- Identify and validate techniques to efficiently and effectively utilize very high temporal and spatial resolution multi-sensor (including Doppler radar and emerging observational systems), dynamically consistent 3-D objective analyses to provide the best "state of the environment" to support improved warnings and short-term forecasts for convective hazards;

- Identify and validate next-generation, short-fuse, convective storm forecasting tools and techniques that can be applied to environmental and uncertainty fields in a high spatial- and temporal-resolution, four-dimensional, gridded database;

- Apply and integrate relevant social and behavioral science methodologies into the aforementioned HWT areas so as to improve forecasters' use of the data, techniques, and guidance; to improve the ability of forecasters to depict, convey, and otherwise communicate anticipated hazards; and/or to improve end-users' ability to receive, assess, understand, and respond to forecasts and warnings for convective weather hazards.

C. Program Authority

The program authority is 49 U.S.C. 44720(b) and 15 U.S.C. 313.

## II. Award Information

### A. Funding Availability

In FY 2015, approximately $1.4 million will be available for a total of 6-12 new projects, which includes HMT funding of approximately $700,000 for 3-6 projects and HWT funding of $700,000 for 3-6 projects.

Award amounts between $50,000 and $125,000 annually are expected for this announcement. Initial and renewal funding of any proposal 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 for any HWT or HMT project. 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 timeline. A final report must also be submitted at the conclusion of the project. The due dates for these reports will be coordinated with management 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 testbed management and the OWAQ Director near the end of the first year for suitability for continuation into the second year. This review is 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 timeline, (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 funds. Given a favorable review and availability of funding, each two-year project may be funded for a second year.

A project reaches its completion in one of two ways. A two-year project may end after approximately one year, if the testbed management decides, as described above, that insufficient progress has been made to justify continuation of the project into year two. A 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 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.

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 project testing and evaluation will involve close collaboration, facilitated by the testbed staff, between 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; international organizations; state, local and Indian tribal governments; and Federal agencies. Applications from non-Federal and Federal applicants will be competed against each other, but each application must include at least one federal employee. Non-federal applicants are required to identify at least one NOAA employee who will participate in the proposed project.

### 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 at: www.grants.gov/web/grants/applicants/apply-for-grants.html

The application package for Federal principal investigators is described in section IV.B.2

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), their home institution(s) or federal agency, and the name of the competition to which they are applying.

(c) The LOI must contain a brief description of the intended project, how the researchers intend to interact with the testbed, and the name of the federal participants in the project if the PI is a non-federal scientist.

(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 is not available for secretarial support.

(e) Each LOI will be reviewed, following the criteria specified below in Section V.A. of this notice, by the respective testbed leadership, and OWAQ 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) or federal agency, such as a director of the PI's office if the PI is a federal employee. 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 and it must clearly describe the name of the testbed competition to which the PI is applying.

(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) or federal agency.

(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 timeline 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;

(4) A timeline for delivering scientific and technical documentation and training materials over the course of the project that enables and evaluates potential operational maintenance of the proposed techniques. If the proposal is funded, researchers are expected to coordinate with testbed management to formalize this timeline;

(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;

(6) Estimates of testbed staff requirements in terms of on-site (or off-site) testbed facilitator efforts, and estimated computational, communication, and/or display requirements at the researcher's home institution and/or at the testbed 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, the names of federal participants and the federal affiliation (if the PI is a non-federal scientist), testbed facility requirements, computing and communications funding, equipment funding (provide justification), indirect charges, and travel. Note that funding for secretarial support 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) A letter from each federal employee participant confirming their participation, if the PI is a non-federal scientist.

(i) Additional proposal requirements include:

(1) Each proposal must be dated and contain page numbers;

(2) Statement of Work (items c1-c6 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 emailed received no later than 5:00 p.m. ET on 10 November 2014. Management determines whether an LOI has been submitted before the deadline by the date and time indication on the email. 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. ET on 30 January 2015. 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

Secretarial support is disallowed.

F. Other Submission Requirements

1. Letters of Intent (LOIs)

All LOIs must be submitted to noaa.uswrp.competitions@noaa.gov.

2. Full Proposals

For non-federal Principal Investigator(s), full proposal packages should be submitted through the Grants.gov website at: www.grants.gov/web/grants/applicants/apply-for-grants.html. For federal applicants, full proposal packages need to be emailed to noaa.uswrp.competitions@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 at http://www.grants.gov/web/grants/applicants/apply-for-grants.html

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 competition review 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. This includes the following questions:

Priority-to-payoff factors (25 points) - Is the proposal directed toward an operational priority item and is there potential for significantly improving operational forecast analysis, accuracy, and/or effectiveness?

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

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. This includes:

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/offices, 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, forecast tool or insight that is practical or beneficial within an operational forecast and warning environment?

Technical compatibility (15 points) - Is the project compatible with the communications, computing, data, and display environments of one of the operational organizations? (Note that in cases where the technological advances of the project require cutting-edge hardware or software not yet in place at the testbed and at one of the operational centers, support for such enhancement 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. 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.

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. 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 a panel 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 reviewers will provide their scores and any comments to the testbed management and OWAQ 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 testbed objectives are considered.

C. Selection Factors

Merit review ratings shall be provided from the competition review committee in rank order based on normalized scoring to the testbed management 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

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 testbed activity with 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 begin prior to September 1, 2015, unless otherwise directed.

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 initiate 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 by the OWAQ Director and testbed management to 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 and 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) at: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl and

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 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

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 on all sub-awards over $25,000.

Award recipients will be required to submit performance (technical) reports. Performance reports should be submitted to testbed Management. 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 testbed 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

1. For more information regarding the Hydrometeorology Tested (HMT), please visit the HMT website at: http://hmt.noaa.gov or contact Rob Cifelli via e-mail at Rob.Cifelli@noaa.gov.

For more information regarding the Hazardous Weather Testbed (HWT), please visit the HWT website at: http://hwt.nssl.noaa.gov/ or contact Lans Rothfusz via e-mail at Lans.Rothfusz@noaa.gov.

2. General questions about the competition can be submitted to John Cortinas, Director of the OAR Office of Weather and Air Quality, via e-mail at John.Cortinas@noaa.gov.

## VIII. Other Information

1. Please note that on December 26, 2013, OMB published final guidance titled Uniform Administrative Requirements, Cost Principles, and Audit Requirements (OMB Uniform Guidance) (https://www.federalregister.gov/articles/2013/12/26/2013-30465/uniform-administrative-requirements-cost-principles-and-audit-requirements-for-federal-awards), which streamlines the language from eight existing OMB circulars, including Cost Principles (OMB Circulars A-21, A-87, A 122) and administrative requirements (OMB Circulars A-102 and A 110), into one consolidated set of guidance applicable to federal assistance awards. Once adopted, the OMB Uniform Guidance will supersede DOC's uniform administrative requirements set out at 15 C.F.R. parts 14 and 24. The DOC expects to adopt the OMB Uniform Guidance by December 26, 2014, meaning that the OMB Uniform Guidance will apply to all new awards and to additional funding to existing awards made after December 26, 2014. In addition, the audit requirements of the OMB Uniform Guidance will apply to audits of non Federal entities beginning on or after December 26, 2014. Therefore, applicants should familiarize themselves with the OMB Uniform Guidance. Additional information on the substance of and transition to the OMB Uniform Guidance may be found at https://cfo.gov/cofar/.

2. 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.

a. 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.

b. 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.

c. 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.