

## FY 2018 Joint Technology Transfer Initiative

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## 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 2018 Joint Technology Transfer Initiative

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-OWAQ-2018-2005496

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 electronically no later than 5:00 p.m. Eastern Time (ET) on February 19, 2018. LOIs received after the deadline will not be reviewed, but in such cases PIs are still permitted to submit a full proposal. Response letters to PIs will be sent from NOAA by March 5, 2018. Complete application packages must be submitted through Grants.gov no later than 5:00 p.m. Eastern Time on April 9, 2018. Expected project start date is October 1, 2018.

Funding Opportunity Description: Through the Joint Technology Transfer Initiative (JTTI) Program, OAR's Office of Weather and Air Quality (OWAQ) is soliciting proposals to conduct research and development activities related to advancing data assimilation of new observations and data assimilation techniques for convective-scale weather prediction, improving water prediction capabilities through enhancements to National Water Model, improving daily to subseasonal scale prediction of Arctic sea ice, and communicating forecast uncertainty.

## FULL ANNOUNCEMENT TEXT

## I. Funding Opportunity Description

## A. Program Objective

The National Oceanic and Atmospheric Administration (NOAA) Office of Oceanic and Atmospheric Research (OAR) Office of Weather and Air Quality (OWAQ) is seeking proposals to develop and test potential new weather technologies for possible transition into NWS operations through the Joint Technology Transfer Initiative (JTII). As described in the Weather Research and Forecasting Innovation Act of 2017 (P.L. 115-25), the JTII ensures continuous development and transition of the latest scientific and technological advances into operations of the NWS. The scope of this FFO has several themes: advancing data assimilation of new observations and data assimilation techniques for convective-scale weather prediction, improving water prediction capabilities through enhancements to National Water Model, improving subseasonal scale prediction of Arctic sea ice, and communicating uncertainty in weather forecasts.

In an average year, U.S. residents face a spectrum of high-impact, environmental hazards which include tornadoes, hurricanes, large hail, damaging wind, lightning, winter storms, floods, wildfires, poor air quality and drought. The past year is an example of how some of these extreme high impact weather phenomena can create a havoc on people's lives and the national economy. Through improved forecasting of these high impact events and better preparedness, loss of lives and property damage can be reduced. While NOAA is the sole U.S. government authority for issuing official weather and water warnings for life-threatening events and holds a key role in the nation's disaster response plan, the broader weather enterprise plays an important role in the communication and dissemination of this information as well as other types of weather information tailored to specific customers. Despite thousands of warnings NOAA's National Weather Service (NWS) issues every year, hundreds of American lives are lost in weather related events. NOAA and the rest of the U.S. weather enterprise must not only continue to improve the prediction of high impact events to meet the demands of an increasingly sophisticated society, in terms of their expectations for information content, flow and service delivery, but improve the communication of this information in such a way that the average citizens can take appropriate steps to save lives and property.

Through this announcement, OAR is seeking proposals to support further development and evaluation of weather research that has the potential for improving operational forecasting capabilities across the U.S. weather enterprise, particularly NOAA, in the areas of advancing data assimilation of new observations and data assimilation techniques for convective-scale

weather prediction, improving water prediction capabilities through enhancements to National Water Model, improving daily to subseasonal scale prediction of Arctic sea ice, and communicating uncertainty in weather forecasts. Toward that end, research projects that use datasets, models, observations, and other weather-related technologies that are openly available to the weather enterprise are strongly encouraged. Applicants are encouraged to visit the NWS website (<http://www.weather.gov/>) to learn more about the NWS current capabilities ((<http://www.emc.ncep.noaa.gov/mmb/.php>),(<https://nosc.noaa.gov/>), ([http://www.dtcenter.org/eval/data\\_assim/](http://www.dtcenter.org/eval/data_assim/))) and future plans (<http://nws.noaa.gov/sp/>). This FFO does not include projects associated with improving global modeling that are covered under NOAA-NWS-NWSPO-2018-2005325.

As part of NOAA's policy of transitioning research to operations, NOAA uses Readiness Levels (RLs) to identify transition stages and monitor the progress of transition projects, a similar scale to the Technical Readiness Levels (TRLs) used by NASA and other federal agencies.

| Readiness Level   | Description                                                                                      |
|-------------------|--------------------------------------------------------------------------------------------------|
| 1 (Research)      | Basic principles have been observed and reported                                                 |
| 2 (Research)      | Technology concept and/or application have been formulated                                       |
| 3 (Development)   | Analytical and experimental critical function and/or characteristic proof-of-concept             |
| 4 (Development)   | Component/ subsystem validation in laboratory environment                                        |
| 5 (Development)   | System/subsystem/component validation in relevant environment                                    |
| 6 (Demonstration) | System/subsystem model or prototyping demonstration in a relevant end-to-end environment         |
| 7 (Demonstration) | System prototyping demonstration in an operational environment                                   |
| 8 (Demonstration) | Actual system completed and “mission qualified” through test and demo in operational environment |
| 9 (Deployment)    | Actual system “mission proven” through successful mission operations                             |

In order to successfully transition new technology to NOAA operations shortly after the completion of selected projects, this opportunity will focus on projects associated with RLs 4-8. As such, proposals under the announcement should be at a stage in which the research has already been shown to demonstrate some potential for further prototype development and testing in a pseudo-operational environment. Proposals for studying basic principles or initial development of a new concept or new technology will not be supported under this announcement.

In order for NOAA to successfully transition the new technologies developed as a result of this funding opportunity into NOAA operations, applicants must identify a NOAA/NWS operational office (receiving party) that will be responsible for testing and evaluation for feasibility to implement the research into operations. Ultimately, the implementation decision lies with the NWS. Proposals that involve testing in a NOAA testbed (<http://www.testbeds.noaa.gov>), must include a plan to evaluate the capability in one of the NOAA testbeds, which must be coordinated with the appropriate NOAA testbed manager after the award is made. Applicants are highly encouraged to collaborate with the NOAA/NWS scientists throughout the project.

## B. Program Priorities

The NOAA OAR through this JTTI FFO is soliciting research to operations proposals in the following four priority areas in support of the convective scale modeling, water prediction, subseasonal scale prediction of Arctic sea ice, and communicating forecast uncertainty:

1. Improving convective scale modeling through data assimilation, post-processing, and verification capabilities include:

(a) Efforts leading to improvement of convective-scale forecasting through advancement of improved assimilation of new and current observations. The assimilation techniques preferably include development and testing of hybrid Gridpoint-Statistical-Interpolation based ensemble data assimilation techniques for convective scale models and ensembles. The data assimilation efforts should be able to integrate in the Joint Center for Satellite Data Assimilation's Joint Effort for Data assimilation Integration (JEDI) system (<http://www.jcsda.noaa.gov/>). The new data sets may include in-situ data or remotely sensed data from ground-based, aircraft, unmanned aerial systems, space-based platforms, or high resolution cloud impacted radiances from current and future NOAA operational satellite such as GOES-16, GOES-S and JPSS.

(b) Development, testing and evaluation of high resolution ensemble post processing tools for the prediction of hazardous weather associated with convective storms, such as significant rainfall, flash flooding, hail, and strong winds. Also post-processing efforts leading to development of forecast verification techniques and tools for convective scale storms based on comparison of forecasts with analyses and observational data sets. These techniques and tools must be compatible to be used in Developmental Testbed Center's (DTC) Model Evaluation tools (MET) (<http://www.dtcenter.org/met/users/>).

2. Improving water prediction capabilities include:

(a) Efforts to enhance hydrologic prediction through improved data assimilation and model extension for hydrological data sets into the NWS National Water Model or other operational hydrologic model. These data sets include rainfall, snow, soil moisture, stream flow, groundwater, and anthropogenic data (e.g. reservoir releases and diversions).

(b) New observing capabilities that can improve NOAA's simulation of hydrologic variables and use of hydrologic data. These new capabilities may include new hydrologic variables that are not currently used in NWS operations, or new observing instruments, sensors, or observational techniques that enhance the current NWS operational hydrologic observational network as long as there is operational continuity of these data. New satellite sensors are out of scope of this initiative although observations from NOAA's current and future operational satellites such as GOES-16, GOES-S, and JPSS may be within the scope.

(c) Efforts leading to improved data fusion techniques, including hydroinformatics, to create new hydrological data sets such as rainfall, snow, and soil moisture that may be input into NWS operational hydrological models such as the National Water Model (WRF-Hydro). These techniques may increase spatial and temporal resolution and/or accuracy of the new multisensor products such as rainfall, snow and soil moisture.

(d) Post-processing efforts leading to development of hydroinformatics-based tools and techniques for water model simulation and forecasts. Also included are efforts that support the evaluation of hydrologic forecasts and characterization of uncertainties across the NOAA suite of water information.

(e) Improving coastal total water prediction by coupled modeling of surge, river flow and local precipitation. Preferred models in a coupled system are the National Water Model and Adcirc or Finite Volume Community Ocean Model (FVCOM) coastal models, both augmented with local rain input where needed.

3. Improving daily to subseasonal scale Arctic sea ice forecasting include:

(a) Activities leading to the development, testing and evaluation of daily to subseasonal scale Arctic sea ice forecasting, including development, testing and evaluation of statistical/dynamical modeling techniques that align with the NWS unified modeling system, particularly, working through the newly formed CICE consortium for ice modeling.

(b) Efforts leading to development and evaluation of reanalysis data sets of Arctic sea ice for model initialization. Also, efforts leading to development, testing and evaluation of data

assimilation techniques of Arctic sea ice thickness, concentration, coverage, velocity etc. on daily to subseasonal time scales.

4. Improving communication of forecast uncertainty (time scales ranging from hourly to subseasonal) and probabilistic information include:

a) Activities to improve the visual display of confidence, uncertainty, and/or probabilistic information targeted to forecasters, emergency managers, and/or the public. Visual displays may include the use of static, interactive, GIS, or other creative means that can be implemented into operations. Visual displays may explicitly or implicitly convey probabilistic information.

b) Efforts leading to improved decision support services of communicating uncertainty, confidence, and or probabilistic information. Potential focus areas could include: how to communicate uncertainty, confidence, and/or probabilistic information (visually and or verbally) during decision support (for example, web or PDF briefings, onsite decision support, and or social media posts); understanding differences in how forecasters, emergency managers, and/or the public process probabilities (perhaps utilizing numeracy scales); how to utilize and convey ensemble probabilistic information to inform forecasters, emergency managers, and/or the public's decision making, etc.

c) Efforts leading to improved inter-office communication during events to better understand forecast uncertainty across the entire weather enterprise to create a consistent message for emergency managers, broadcasters, and the public. These efforts may include developing communication guidance on conveying forecast uncertainty between forecast operations and forecasters deployed in the field. Possible efforts could also explore the utilization of current or new tools, such as NWS Chat, and other screen sharing technologies.

d) Efforts leading to new social observation data collection capabilities to gauge partner and/or public understanding of uncertainty during events. Data collection techniques may include tools to analyze any kind of repository that has social data available for analysis, such as, NWS Chat, social media ( i.e. Twitter or Facebook), or office logs (i.e. documents that summarize forecast activities such as forecast and warning decisions, and phone calls from media and emergency managers).

#### C. Program Authority

15 USC 8512(c)(1)

## II. Award Information

### A. Funding Availability

In FY 2018, approximately \$2,000,000 will be available to fund 7-13 new projects. The anticipated range of funding per proposal per year is approximately \$150,000 to \$300,000. Funding of any proposals is contingent upon availability of these funds.

### B. Project/Award Period

The period of award is up to two years. Funding for the second year will be contingent upon a favorable performance review near the end of the prior year and the availability of funds. All funded Principal Investigators (PIs) will be required to submit written semiannual progress 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.

A project reaches its completion in one of two ways. A two-year project may end after approximately one year, if the operational office and OWAQ Director decide, 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 submissions by the PI(s) of a final report and all research results and tested prototypes available for transition at the conclusion of the original agreed-upon project duration. Based upon this report, and reports from the operational office's staff and from project points of contact at the operational office, the National Weather Service will subsequently make a decision on whether or not operational implementation of the project deliverables will occur. Decisions on implementation are at the sole discretion of the National Weather Service.

### C. Type of Funding Instrument

The funding instrument for awards will be a grant. If, however, it is anticipated that NOAA will be substantially involved in the implementation of the project, the grant may be administered as a cooperative agreement. Examples of substantial involvement may include, but are not limited to, applications for collaboration between NOAA scientists and a recipient scientist or contemplation by NOAA of detailing Federal personnel to work on proposed projects. NOAA will make decisions regarding the use of a cooperative agreement on a case-by-case basis. Funding for contractual arrangements for services and products for delivery to NOAA is not available under this announcement.

## III. Eligibility Information

### A. Eligible Applicants

Eligible applicants are institutions of higher education; other nonprofit organizations; and commercial organizations. Commercial organizations are not allowed to make profit (that is, increments above cost) on these awards.

B. Cost Sharing or Matching Requirement

No cost sharing is required under this program

C. Other Criteria that Affect Eligibility

Applicants are required to partner with NOAA organizations and employees for proposed projects through clearly-defined work components for NOAA organizations as described in the proposal.

IV. Application and Submission Information

A. Address to Request Application Package

Application packages for full proposals for all applicants are available at: <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>. The instructions for application packages from principal investigators are described below in section IV.B.2. There is no application package for Letters of Intent (LOIs).

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. Letter of Intent (LOI)

Prior to submitting a full proposal, applicants are strongly encouraged to submit a LOI for each planned proposal. The LOI should provide a concise description of the proposed work and a brief budget. The purpose of the LOI process is to provide information to potential applicants on the relevance of their proposed project to the competition in advance of preparing a full application. In consultation with NWS, a LOI review committee will be formed. Each LOI will be reviewed, following the criteria specified in section V.A, by the LOI review committee. Full applications will be encouraged only for LOIs deemed relevant to this announcement's top priorities. However, applicants who do not submit a LOI or who are not encouraged to submit a proposal will not be precluded from submitting a full proposal.

(a) The LOI must be no more than two pages in length, using a 12-point font and one inch margins, and it must include a project title, the name(s) of the PI(s), their home institution(s), and the name of the NOAA competition to which they are applying.

(b) The LOI must contain a brief description of the intended project, methodology, current RL, projected end-state RL, deliverables, its relevance to the specified program priorities, and the expected receiving operational entity in NOAA.

(c) 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].

(d) All applicants 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, an applicant is not precluded from submitting a full proposal. Applicants can receive a short synthesis of factors that led to the recommendation regarding their own reviewed LOI(s), upon request.

## 2. Full Proposals

A complete and full proposal will be a proposal that contains all of the following information. Failure to include all mandatory information will result in rejection of the proposal.

(a) The application must include a title page that identifies each PI and institutional representative by full name, title, organization, telephone number, mailing address, and e-mail address; and the total requested Federal funds for each period for each institution. If there are several institutions submitting separate applications for the same project, the names of all institutions along with their lead PI information and requested total funding must appear there for each period.

(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, up to two years;

(2) A description of the project, with prior research results (including references) to

demonstrate sufficient maturity and potential for a successful transition to operations at operational offices;

(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 identification of a path to transition the end result to NOAA/NWS operations. Proposals that involve testing of the capability in a NOAA testbed must include a plan to evaluate the capability in one of the NOAA testbeds;

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

(5) A description of appropriate travel associated with project testing and evaluation, project meetings, and/or presentation of results at scientific conferences;

(6) Estimates of operational office staff requirements in terms of on-site (or off-site) facilitator efforts, and estimated computational, communication, and/or display requirements at the researcher's home institution and/or at the operational office via remote access and data transfer;

(7) The current RL of the project, as well as the projected end-state RL;

(8) Identification of a proposed receiving office in the NOAA/NWS of the end product;

(9) If the proposed project is a continuation of a previously funded JTTI project, provide the project details with title, PI and Co-PI information, NOAA grant award number, number of readiness levels advanced at the time of preparation of the proposal, and if there has been a NOAA approved transition plan.

The above Statement of Work items in 2.(c).1-9 must be fully contained within no more than TEN PAGES (excluding references) using a 12-point font and one-inch margins.

(d) An abbreviated Curriculum Vitae for PI(s) with a reference list of all publications and experience with research to operations projects within at least the last three years must be included.

- (e) Each investigator must submit a list of current and pending financial assistance support that includes project title, supporting agency, investigator months, total dollar value and duration. Requested amounts should be listed for pending support.
- (f) The proposal package includes the information described above as well as the required forms: (1) Application for Federal Assistance (SF-424), (2) Budget Information – Non-Construction Programs (SF-424A), (3) Certifications (CD-511), (4) Assurances – Non-Construction Program (SF-424B), and (5) Disclosure of Lobbying Activities (Standard Form LLL).
- (g) All applicants must submit a detailed itemized Budget Table broken out by year and a Budget Justification that includes the PIs scientific and technical support staff salaries and fringe benefits, facility requirements, computing and communications, supplies and travel. For multiple applications associated with the same project, the Lead PI should additionally include a budget table that displays the total budget for all partners. All partners, including the Lead PI and any co-PIs, should include a separate budget for their portion of the project. Applicants must use the Standard Form SF 424A Budget Information – Non-Construction Programs that is contained in the standard NOAA Grants and Cooperative Agreement Package. Please refer to the GMD Budget Narrative Guidance at <http://www.ago.noaa.gov/grants/training.html>.
- If indirect charges are included in the budget, applicants must have an approved negotiated Indirect Cost Rate Agreement. For more information on indirect cost rates see ‘Administrative and National Policy Requirements’ in Section VI.B. below.
- The information on the SF-424A should only include the amount of funding that will be provided to the institution submitting the proposal, not co-PI’s at other institutions who must submit a separate budget for their portion of the joint project’s funding.
- (h) Proposals submitted in response to this Announcement must include a Data Management Plan (up to 2 pages). See Section VI.B., Administrative and National Policy Requirements, below for additional information on what the plan should contain.
- (i) Proposals must show proven business processes for identifying, monitoring, evaluating, testing, and reporting success with one or more of the priority areas identified in the competitive announcement.

#### C. Unique Entity Identifier and System for Award Management (SAM)

Each applicant is required to :

- (i) Register in SAM before submitting an application;
- (ii) Provide a valid unique entity identifier in the application; and
- (iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by NOAA (or any other Federal agency).

NOAA may not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements. If an applicant has not fully complied with the requirements by the time NOAA is ready to make a Federal award, NOAA may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.

#### D. Submission Dates and Times

LOIs must be received by email to [oar.owaq.competition@noaa.gov](mailto:oar.owaq.competition@noaa.gov) no later than 5:00 p.m. ET on February 19, 2018. NOAA determines whether an LOI has been submitted before the deadline by the date and time indication on the e-mail. LOIs received after the deadline will not be reviewed, but in such cases applicants are still permitted to submit a full proposal. It is expected that response letters to all applicants who submitted LOIs will be sent via e-mail from NOAA by March 5, 2018.

Full application packages must be received no later than 5:00 p.m. ET on April 9, 2018. Any applications received after that time based on the relevant Grants.gov receipt date-time stamp will not be accepted.

#### E. Intergovernmental Review

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

#### F. Funding Restrictions

None.

#### G. Other Submission Requirements

Applicants should submit applications electronically through <http://www.Grants.gov>. Applicants should note that it can take between 3-5 business days or as long as 3 weeks to register with Grants.Gov if all steps are not completed in a timely manner, and registration is required only once. Users of Grants.gov will be able to download a copy of the application package, complete it off line, and then upload and submit the application via the Grants.gov

site. If an applicant has problems downloading the application forms from Grants.gov, contact Grants.gov Customer Support at 1-800-518-4726 or support@Grants.gov. To use Grants.gov, applicants must have a DUNS number and current registration in the Federal Funding Opportunity Page 18 of 24 System for Award Management (SAM) system. Applicants should allow a minimum of five days to complete the SAM registration; registration is required only once, but must be renewed periodically. In all, there are approximately five steps needed to set up your organization's Grants.gov account (see [http://www.grants.gov/applicants/get\\_registered.jsp](http://www.grants.gov/applicants/get_registered.jsp)). If an applicant cannot use Grants.gov, paper applications will be accepted. Paper applications must be submitted with completed, signed, original forms in hard copy and an electronic copy of the entire application on CD, including scanned signed forms. If the applicant has completed the entire application in Grants.gov but is unable to submit it via Grants.gov, then this application package should be provided via CD along with printed and signed versions of forms SF-424, SF-424B, and CD-511. The authorized representative MUST sign and date these forms over the printed signature that will appear in the signature box. Paper applications should be printed on one side only, on 8.5" x 11" paper, and should not be bound in any manner. Paper applications must be postmarked or provided to a delivery service and documented with a receipt and sent to

Dr. Chandra Kondragunta, R/WA;  
Office of Weather and Air Quality/OAR/NOAA;  
R.No. 10321, SSMC-3;  
1315 East West Highway;  
Silver Spring; MD 20910;  
e-mail:Chandra.Kondragunta@noaa.gov

If there are co-PIs from different institutions, the statement of work must describe the contributions by each co-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-424A budget forms should only list the amount being requested by the specific institution.

If the applicant is a university that has a NOAA Joint or Cooperative Institute (CI), the institution is encouraged to submit a proposal on behalf of the CI. The proposal must specify the name of the CI, its 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 main 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 on behalf of the CI; (2) that the 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.

If there are collaborators from NOAA and/or other federal agencies, the proposal must accompany letters of commitment from all federal collaborators. Such letters of commitment should clearly identify any additional funding that would be required for NOAA or the agency to support the collaboration and substantial involvement of the federal agency, such as costs associated with hosting the PI in a federal office space or providing federal computer access. This funding SHOULD NOT be included in the applicant's budget since the funding will be provided directly to the federal agency and not the applicant, if the proposal is selected. Such funding cannot include salary support or associated salary costs of federal employees.

National Environmental Policy Act (NEPA): NOAA must analyze the potential environmental impacts, as required by the NEPA, of each applicant's project that is seeking NOAA federal funds. Detailed information on NOAA's compliance with NEPA can be found at the following NOAA NEPA website [http://www.nepa.gov/NAO216\\_6\\_TOC.pdf](http://www.nepa.gov/NAO216_6_TOC.pdf), and the Council of Environmental Quality implementation regulations [http://ceq.eh.doe.gov/nepa/regs/ceq/toc\\_ceq.htm](http://ceq.eh.doe.gov/nepa/regs/ceq/toc_ceq.htm). No NEPA information is required with the initial application. However, after review of the application, NEPA information may be requested of the PIs if NOAA determines that such information is required to do an environmental assessment (see section VI.B).

## V. Application Review Information

### A. Evaluation Criteria

All qualified applications are reviewed in two stages (described in Section V.B. below) in accordance with the following evaluation criteria.

1. Importance/relevance and applicability of proposal to the program goals (stage=2, score=30 points)

This criterion ascertains whether there is intrinsic value in the proposed work and relevance to NOAA's program priorities listed in section I.B. The reviewers will consider the following questions in their assessment of this criterion:

How does the proposed activity have relevance to NOAA's program priorities listed in section I.B?

Is the proposed work feasible to transition to NWS operations? If so, could the proposed work be implemented in NOAA's operational environment within 2-3 years after completion of the project?

Has the PI correctly assessed the Readiness Level of the project? If so, is the current readiness level of the proposed project between four and eight?

Does the proposal identify a NOAA/NWS operational office (receiving party) to receive the end result?

If the proposal involves testing the capability in one of the NOAA testbeds, does it have a test plan to test in one of the NOAA testbeds?

Does this activity identify gaps in current NOAA operations (including need for consideration of production suite) and try to address those gaps?

If this project is continuation of a previously funded JTTI project, has it advanced at least one RL (provided in IV.B.2.c (9)) and does it have a NOAA approved transition plan?

## 2. Technical merit (stage=1, score=45 points)

This criterion assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives. The reviewers will consider the following questions in their assessment of this criterion:

Is the conceptual framework, design methodology, and proposed analysis adequately developed, well-integrated, and appropriate for the goal of the project?

Does the study address an important priority problem?

How will scientific knowledge be advanced?

Will this activity improve concepts or methods that drive the field of study?

Does the project employ novel concepts, approaches or methods?

Does the applicant acknowledge potential problem areas and consider alternatives?

Does the proposal identify a path to transition the end result to NOAA/NWS operation?

Does the proposal include metrics that measure and evaluate the success or failure of the project?

Does the proposal include appropriate milestones and deliverables for this project?

Is the scope of the proposal appropriate for a short-duration grant?

### 3. Overall qualifications of applicants (Stage=1, score=15 points)

This ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. The reviewers will consider the following questions in their assessment of this criterion:

Does the environment in which the work will be done contribute to the probability of success?

Do the proposed activities take advantage of unique features of the intended environment or employ useful collaborative arrangements?

Does the applicant have prior experience in transitioning research to operations?

### 4. Project costs (stage=1, score=10 points)

The project's budget is evaluated to determine if it is realistic and commensurate with the project needs and time-frame. The reviewers will consider the following questions in their assessment of this criterion:

Are the requested costs realistic, reasonable, allowable, allocable, necessary and commensurate with the project needs and time period?

Has the applicant proposed cost-efficient ways of accomplishing the project?

## B. Review and Selection Process

Once a full application has been received, an administrative review will first be conducted to determine compliance with requirements and completeness of the application. All compliant and full proposals will then receive an objective review in two stages. In stage 1, independent peer mail reviews consisting of both Federal and /or non-Federal experts will evaluate applications. Each application is reviewed independently by a team of at least three subject matter experts in the field using the following three evaluation criteria specified in section V.A: Technical merit, Overall qualifications of applications, and Project costs. The three independent reviewers' scores will be averaged to obtain stage-1 average score for each application. Applications that received stage-1 average score of 42 or higher (out of 70) will advance to stage 2 review process.

In stage-2 review process, a panel of at least three Federal and/or non-Federal subject matter experts will evaluate each application for the evaluation criterion, Importance/relevance and applicability of proposal to the program goals. Each panel reviewer will provide a relevance score ranging between 0-30 for each application. Stage -2 panel reviewers will also have access to stage-1 review scores and comments for each application. All stage-2 panel reviewers' scores for each application will be averaged to obtain stage-2 average score for each application.

To determine the final score for each application, stage-1 average score will be added to the stage-2 average score. These final scores for each application will be used to determine the rank order of the proposals for the competition. Based on the project's final rank order, the OWAQ Director, will make a fund or do-not-fund recommendation to the NOAA Grants Officer.

Any application considered for funding may be required to address the issues raised in the evaluation of the application by the reviewers, program officer, selecting official, and/or grants officer before the award is issued. Successful and unsuccessful applicants will be notified of the selection recommendations upon completion of the review and selection process. All applicants will receive their average review scores for their application.

## C. Selection Factors

The OWAQ Director shall recommend awards in the rank order of the review unless the applications 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.

D. Anticipated Announcement and Award Dates

Final funding award decisions are expected in June 2018 with an expected start date of October 1, 2018.

VI. Award Administration Information

A. Award Notices

Applicants will receive notification from OWAQ that their application has either been recommended or not recommended for funding to the NOAA Grants Management Division after completion of the review process. Notices of recommendation for funding are 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.

Successful applicants will receive notification that the application has been approved for funding by the NOAA Grants Management Division with the issuance of an award signed by a NOAA Grants Officer. This is the authorizing document that allows the project to begin.

After selection of the proposal for funding, OWAQ will identify a NOAA/NWS person whose office or operational entity who will be responsible for receiving the final product of the project. The PIs of the selected proposals, in coordination with the NOAA/NWS operational office identified by the OWAQ, must develop a high level research to operations transition plan within six months of commencement of the project. The transition plan must at least identify key milestones, and final deliverables to advance to the next readiness level.

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 (2013), [http://www.ecfr.gov/cgi-bin/text-idx?SID=1ccffb4c1d4de03addd6a041113460f9&mc=true&node=se2.1.200\\_1300&rgn=div8](http://www.ecfr.gov/cgi-bin/text-idx?SID=1ccffb4c1d4de03addd6a041113460f9&mc=true&node=se2.1.200_1300&rgn=div8)

#### B. Administrative and National Policy Requirements

DEPARTMENT OF COMMERCE PRE-AWARD NOTIFICATION REQUIREMENTS FOR GRANTS AND COOPERATIVE AGREEMENTS. The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of December 30, 2014 (79 FR 78390) are applicable to this solicitation and may be accessed online at <http://www.gpo.gov/fdsys/pkg/FR-2014-12-30/pdf/2014-30297.pdf>.

LIMITATION OF LIABILITY. Funding for programs listed in this notice is contingent upon the availability of appropriations. Applicants are hereby given notice that funds may not have been appropriated yet for the programs listed in this notice. 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 or to obligate any available funds.

REVIEW OF RISK. After applications are proposed for funding by the Selecting Official, the Grants Office will perform administrative reviews, including an assessment of risk posed by the applicant under 2 C.F.R. 200.205. These may include assessments of the financial

stability of an applicant and the quality of the applicant's management systems, history of performance, and the applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-Federal entities. Special conditions that address any risks determined to exist may be applied. Applicants may submit comments to the Federal Awardee Performance and Integrity Information System (FAPIIS) about any information included in the system about their organization for consideration by the awarding agency.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA). If recommended for funding, applicants whose proposed projects may have an environmental impact will be asked to furnish sufficient information to assist NOAA in assessing the potential environmental consequences of supporting the project. NOAA must analyze the potential environmental impacts, as required by the National Environmental Policy Act (NEPA), for each project which seeks NOAA funding. Detailed information on NEPA can be found at the following NOAA NEPA web site: [www.nepa.noaa.gov](http://www.nepa.noaa.gov), including our NOAA Administrative order 216-6 for NEPA, [www.nepa.noaa.gov/NAO216\\_6.pdf](http://www.nepa.noaa.gov/NAO216_6.pdf), and the Council on Environmental Quality implementation regulations, [http://ceq.hhs.doe.gov/nepa/regs/ceq/toc\\_ceq.htm](http://ceq.hhs.doe.gov/nepa/regs/ceq/toc_ceq.htm).

If needed by NOAA for NEPA assessment, applicants will be asked 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 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.

UNPAID OR DELINQUENT TAX LIABILITY. In accordance with Section 523 of Division B and Sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) or a future public law, an authorized representative of the selected applicant(s) will be required to provide certain pre-award representations regarding federal felony and federal criminal tax convictions, unpaid federal

tax assessments, and delinquent federal tax returns. The form must be completed and submitted with grant applications for: (a) all for-profit and non-profit organization applicants (Part I, and if required, Part II); and (b) all non-Federal entity applicants anticipating receipt of \$5 million or more in the current Federal Fiscal Year appropriated funding (Part II only). The form can be found at <http://www.ago.noaa.gov/grants/forms.html>.

**UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS.** Through 2 C.F.R. § 1327.101, the Department of Commerce adopted Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards in this program. Refer to <http://go.usa.gov/SBYh> and <http://go.usa.gov/SBg4>.

**DOC TERMS AND CONDITIONS.** Successful applicants who accept a NOAA award under this solicitation will be bound by Department of Commerce Financial Assistance Standard Terms and Conditions. This document will be provided in the award package in NOAA's Grants Online system at <http://www.ago.noaa.gov> and at <http://go.usa.gov/hKbj>.

**MINORITY SERVING INSTITUTIONS.** The Department of Commerce/National Oceanic and Atmospheric Administration (DOC/NOAA) is strongly committed to increasing the participation of Minority Serving Institutions (MSIs), i.e., Historically Black Colleges and Universities, Hispanic-serving institutions, Tribal colleges and universities, Alaskan Native and Native Hawaiian institutions, and institutions that work in underserved communities.

#### **DATA SHARING PLAN.**

1. Environmental data and information collected or created under NOAA grants or cooperative agreements must be made discoverable by and accessible to the general public, in a timely fashion (typically within two years), free of charge or at no more than the cost of reproduction, unless an exemption is granted by the NOAA Program. Data should be available in at least one machine-readable format, preferably a widely-used or open-standard format, and should also be accompanied by machine-readable documentation (metadata), preferably based on widely used or international standards.

2. Proposals submitted in response to this Announcement must include a Data Management Plan of up to two pages describing how these requirements will be satisfied. The Data Management Plan should be aligned with the Data Management Guidance provided by NOAA in the Announcement. The contents of the Data Management Plan (or absence thereof), and past performance regarding such plans, will be considered as part of proposal review. A typical plan should include descriptions of the types of environmental data and

information expected 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; methods for providing data access; approximate total volume of data to be collected; and prior experience in making such data accessible. The costs of data preparation, accessibility, or archiving may be included in the proposal budget unless otherwise stated in the Guidance. Accepted submission of data to the NOAA National Centers for Environmental Information (NCEI) is one way to satisfy data sharing requirements; however, NCEI is not obligated to accept all submissions and may charge a fee, particularly for large or unusual datasets.

3. NOAA may, at its own discretion, make publicly visible the Data Management Plan from funded proposals, or use information from the Data Management Plan to produce a formal metadata record and include that metadata in a Catalog to indicate the pending availability of new data.

4. Proposal submitters are hereby advised that the final pre-publication manuscripts of scholarly articles produced entirely or primarily with NOAA funding will be required to be submitted to NOAA Institutional Repository after acceptance, and no later than upon publication. Such manuscripts shall be made publicly available by NOAA one year after publication by the journal.

FREEDOM OF INFORMATION ACT. (FOIA). In the event that an application contains information or data that you do not want disclosed prior to award for purposes other than the evaluation of the application, mark each page containing such information or data with the words "Privileged, Confidential, Commercial, or Financial Information - Limited Use" at the top of the page to assist NOAA in making disclosure determinations. DOC regulations implementing the Freedom of Information Act (FOIA), 5 U.S.C 552, are found at 15 C.F.R. Part 4, which sets forth rules for DOC to make requested materials, information, and records publicly available under FOIA. The contents of funded applications may be subject to requests for release under the FOIA. Based on the information provided by the applicant, the confidentiality of the content of funded applications will be maintained to the maximum extent permitted by law.

### C. Reporting

The Federal Funding Accountability and Transparency Act, 31 U.S.C. 6101 note, includes a requirement for awardees of applicable Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards. All awardees of applicable grants and cooperative agreements are required to report to the Federal Sub-award Reporting System (FSRS) available at <https://www.fsrs.gov/> on all sub-awards over \$25,000. Refer to 2 CFR Parts 170.

Award recipients will be required to submit financial and performance (technical) progress reports via NOAA's electronic Grants Online system. 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 become the property of the U.S. Government.

## VII. Agency Contacts

For questions about this announcement contact Dr. Chandra Kondragunta at [Chandra.Kondragunta@noaa.gov](mailto:Chandra.Kondragunta@noaa.gov).

## VIII. Other Information