FY2020 Office of Weather and Air Quality Research Programs

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ANNOUNCEMENT OF NOTICE OF 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: FY2020 Office of Weather and Air Quality Research Programs

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-OWAQ-2020-2006188

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

Dates: For each of the three competitions within this Fiscal Year 2020 funding opportunity, full applications must be received by 5:00 pm Eastern Time (ET) on November 20, 2019. Applications received after this deadline will not be considered. Pre-proposal Letters of Intent (LOIs) are being solicited by two competitions (see the full announcement for details). For these competitions, LOIs are strongly encouraged and must be received by 5:00 pm ET on September 17, 2019, in order to receive a pre-proposal review. Grant period length and recommended start dates for the funded projects will vary with each competition as listed in Section II.B "Project/Award Period".

Funding Opportunity Description: NOAA's Office of Weather and Air Quality (OWAQ) is soliciting proposals for weather, air quality, and earth-system modeling research reflecting multiple science objectives spanning time scales from hours to seasons, and from weather and water observations and earth system modeling to social and behavioral science. There will be three grant competitions from this notification valued at approximately $7,000,000 as follows: 1) Joint Technology Transfer Initiative (JTTI), 2) Verification of the Origins of Rotation in Tornadoes Experiment - Southeast U.S. (VORTEX-SE), and 3) Climate Testbed (CTB).

In alignment with the Weather Forecasting and Innovation Act of 2017 (Public Law 115-25), the funded projects should improve NOAA's understanding and ultimately its services of weather and water forecasting through engagement with the external scientific community on key science gaps of mutual interest. Through this funding opportunity, NOAA will support new weather, water, climate, earth system, and air quality observing and forecasting applications, including improved analysis techniques, better statistical or dynamic forecast models and techniques, and communication of that information to better inform the public.

To achieve success with these objectives, selected projects should focus on advancing science

and technology from the research stage to commercialization or prototype products that NOAA could further develop into practical applications and operations. For the purposes of NOAA-funded projects, the maturity of projects is broadly classified using Readiness Levels (RLs), as adopted by NOAA and other federal agencies. The numerical RL scale from 1 to 9 is designed to track project maturity across the progressive spectrum from research to development to demonstration to deployment. RLs are defined in the context of NOAA's overall process for transitioning funded research into operations, commercialization, or other applications in NOAA's Policy on Research and Development Transitions described in NOAA Administrative Order 216-105B at http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_216/216-105B.html, and in Appendix A.

Depending on the program objectives, the individual competitions within this notice of funding opportunity may favor projects at specific stages of maturity as signified by their estimated current RL. Program-specific project maturity considerations for funding are included in Section I.A "Program Objective." While all programs in this funding opportunity encourage an acceleration of research toward operationalization, commercialization, and/or other application, no program directly supports an actual research-to-NOAA operations transition (i.e., the RL 8-to-9 transition) itself; however, any projects that produce output that may be adopted into NOAA operations after their conclusion are expected to work with NOAA operational center representatives to develop strategies for the potential transition performed by NOAA.

NOAA's National Weather Service (NWS) is also announcing a companion Fiscal Year (FY) 2020 federal grant funding opportunity to this OAR opportunity through their Collaborative Science, Technology, and Applied Research (CSTAR) Program in September 2019. Though there can be overlap, CSTAR funds research that is often directed toward local forecasting applications at individual or regional NWS Weather Forecast Offices (WFOs), while OWAQ funds research that is more often directed toward broadly applicable forecasting applications, such as at NWS national forecast centers or multiple WFOs.

NOAA, OAR, and OWAQ encourage applicants and awardees to support the principles of diversity and inclusion when writing their proposals and performing their work. Diversity is defined as a collection of individual attributes that together help organizations achieve objectives. Inclusion is defined as a culture that connects each employee to the organization. Promoting diversity and inclusion improves creativity, productivity, and the vitality of the weather and water research community in which OWAQ engages.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

1. Joint Technology Transfer Initiative (JTTI)

The U.S. faces a spectrum of high impact environmental hazards that cause havoc on people's lives and the nation's economy. Through improved forecasting of the events, better communication and preparedness, loss of lives and property damage can be reduced. While NOAA is the sole U.S. government authority for issuing official weather forecasts and warnings for life threatening events, the broader weather enterprise plays an important role in communication and dissemination of information tailored to specific customers.

Through this Joint Technology Transfer Initiative (JTTI) announcement, OWAQ is seeking proposals to support further development, testing and evaluation of mature weather research that has potential for improving NOAA's NWS operational capabilities, with particular emphasis on (i) developing improved methods for incorporating data into forecast modeling and for model coupling to improve weather forecasting operations, (ii) testing for the coupled (hourly to sub-seasonal time scales) Unified Forecast System (UFS), and (iii) improving forecasts of extreme weather and high impact weather events. 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/)) and future plans (http://nws.noaa.gov/sp/).

In order to successfully transition new technology to NOAA operations following the completion of selected projects, the JTTI program will focus on projects associated with RLs 4-8. As such, projects that are best suited to submit to JTTI are at a stage where the concept has already been proven to work successfully in the local environment and has potential for further prototype development and testing in a pseudo-operational environment. The potential investigators are highly encouraged to contact one of the NOAA testbed managers if they plan to test their products in NOAA testbeds. See the appropriate NOAA testbed website for additional information. Ultimately, the implementation decision lies with the NWS. Applicants are highly encouraged to collaborate with the NOAA/NWS scientists through all stages of the project.

For additional program information on JTTI and this competition, please review the supplemental Information Sheet for the JTTI competition in the grant package associated

with this announcement at https://www.grants.gov.

2. Verification of the Origins of Rotation in Tornadoes Experiment in the Southeast U.S. (VORTEX-SE)

When examining measures of the threat posed by tornadoes to life and property, the southeastern U.S. has six of the eight most vulnerable states. Some of the vulnerability is due to issues such as a relatively large proportion of the population residing in mobile homes, which are known to be unsafe even in moderate strength tornadoes. Another above-normal risk in the Southeast is that many tornadoes occur during nighttime hours, associated with over half the deaths and injuries. Further, tornado casualties are disproportionately in the late fall and winter months, which is a time of year not typically associated with tornadoes according to conventional understanding or public perception; and they often occur under conditions of marginal thermodynamic instability and very strong vertical wind shear (high shear/low CAPE or HSLC). Hence, there are many issues in the continuum spanning meteorological understanding to public awareness and perception that must be addressed in order to reduce the high tornado vulnerability in the Southeast.

For additional program information on VORTEX-SE and this competition, please review the supplemental Information Sheet for the VORTEX-SE competition in the grant package associated with this announcement at https://www.grants.gov.

3. Climate Testbed (CTB)

In partnership with the Climate Prediction Center (CPC) and the Environmental Modeling Center (EMC), OWAQ is soliciting proposals involving the external community to advance NOAA’s operational subseasonal to seasonal prediction capabilities via the Climate Test Bed (CTB). CTB projects should improve NOAA’s operational S2S (two weeks to two years) prediction capability, via:

1. Development and maturation of the S2S portions of the Unified Forecast System (UFS);

2. Maturation and implementation of data assimilation (DA), monitoring products, and data quality control (QC); and

3. Post-processing, diagnostic and verification tools, and innovative statistical

techniques leading to improvement of S2S operational predictions.

The portfolio will emphasize capabilities that will improve operational prediction systems or products, or research that intend to transition to operations, with a preference toward activities that enhance precipitation outlooks. Proposed ideas that begin at RL 6-7 (i.e., those in the demonstration stage), with high potential for an eventual transition to operations (the RL 8-to-9 transition) after the two-year funding period will be favored (please see Appendix A for RL definitions). Projects that are projected to end at or below RL 6 may still apply; however, they must consider additional funding sources at the end of the two-year CTB funding period.

For additional program information on CTB and this competition, please review the supplemental Information Sheet for the CTB competition in the grant package associated with this announcement at https://www.grants.gov.

B. Program Priorities

NOAA's highest priorities for each of the three separate competitions funded through this announcement are identified below. Applicants for a given competition below should clearly indicate and address in their proposal one or more of the associated priorities for that specific competition. Proposals not directly associated with one or more of these priorities are discouraged.

1. JTTI

OWAQ, in collaboration with the NWS, developed the following three priorities (each with sub-priorities) for the JTTI Program.

JTTI-1: Develop improved methods for incorporating data into forecast modeling and for model coupling to improve weather forecasting operations, to include:

JTTI-1 (a): Test and improve methods for coupling atmospheric dynamics and physics schemes to assure accurate, convergent and efficient solutions, and improve interface coupling between the different components of the coupled UFS model for better predictions at weather and subseasonal time scales. The focus is intended to be on physics within the UFS model: for example, advanced planetary boundary layer schemes or aerosol feedbacks in physics and data assimilation.

JTTI-1(b): Develop, test and evaluate artificial intelligence (AI) and machine learning (ML) methods to post-process ensemble weather model datasets on global and convective-allowing model (CAM) scales. For instance, improve best-guess estimates of conventional model outputs from ensembles based on AI methods, develop AI/ML techniques for applications such as atmospheric chemistry predictions, radiation computations, data selection/quality control for data assimilation, or use AI/ML techniques for systematic error analysis, data mining and feature extraction of numerical weather prediction (NWP) systems.

JTTI-1(c): Develop, test and evaluate improved AI methods to process large observational datasets, such as creating new products, capturing more comprehensive datasets needed for forecast model initialization, understanding or parameterizations / forecast tools, and improve quality assurance/quality control (QA/QC) methods for observations, to improve NWP data assimilation and verification.

JTTI-2: Testing for the coupled (sub-hourly to sub-seasonal timescale) Unified Forecast System (UFS), to include:

JTTI-2(a): Develop, test and evaluate metrics and diagnostics tools to quantify the strengths and weaknesses in modeling the coupled processes across the components of the UFS (FV3, MOM6, CICE5 and WW3) and within the coupled system. Diagnostics should be integrated into MET+ Validation and Verification (V&V) in collaboration with the UFS V&V Working Group, and assure that models output/document all relevant metadata.

JTTI-2(b): Develop, test and evaluate methodologies and approaches to best use both operational in situ and operational satellite observations to develop process-oriented diagnostics to identify the cause of (systematic) model errors, correct the errors and improve the various components of the UFS and their interactions.

JTTI-2(c) Improve modeling aspects for subseasonal to seasonal (S2S) applications of the UFS, including development of ensemble strategies for coupled reanalysis/reforecasts and S2S model applications and prototype high-resolution weather forecast using coupled atmosphere-ocean-ice-wave model.

JTTI-3: Improve forecasts of extreme weather and high impact weather events, to include:

JTTI-3(a): Develop, test and evaluate tools that can assist forecasters in diagnosing and

messaging the magnitude of high impact and extreme weather events.

JTTI-3(b): Utilize social and behavioral science and develop improved products that can be used to message forecast uncertainty of high impact and extreme events, and assess end user understanding of this new uncertainty output.

2. VORTEX-SE

Priorities for VORTEX-SE are established by considering input from a VORTEX-SE Scientific Steering Committee and through participation of the broader research and operational community in annual workshops and an online community forum. The forum can be joined at https://vlab.ncep.noaa.gov/web/vortexse, and the latest version of the Science Plan is available at http://www.nssl.noaa.gov/projects/vortexse/science2018.pdf. The VORTEX-SE program priorities, briefly described here, can be found in more detail in the competition Information Sheet in the grant package associated with this announcement at https://www.grants.gov.

VORTEX-SE-1: Storm processes affecting tornado potential. Processes that are associated with the occurrence of non-classical tornadoes (e.g., QLCS, convective clusters, embedded supercells, etc.) continue to be of special interest in the VORTEX-SE. Studies that can inform future observing strategies (time and space scales, depth, required near-ground fields, etc.) will be especially useful. See the VORTEX-SE Information Sheet for details regarding possible future observing campaigns and existing data sets.

VORTEX-SE-2: Clarification of the scales and character of mesoscale processes that are associated with forecast uncertainty on all operational time scales. For example, 1) numerical studies using approaches such as Observing System Simulation Experiments (OSSE), Ensemble Sensitivity Analysis (ESA), data denial experiments, etc. to help inform future observation needs for both fundamental research (e.g. the Non-Classic Tornadic Storm experiment; see the Information Sheet) and efforts to improve numerical prediction; 2) verification of the importance of variations in CAPE, thermodynamic stability, and vertical wind shear on scales of considerably smaller than 200 km in ways that locally enhance tornado potential in otherwise more benign-appearing environments. See the VORTEX-SE Information Sheet on Grants.gov for details regarding possible future observing campaigns and existing data sets.

VORTEX-SE-3: Studies of the interactions of the co-evolution of draft structure, radar and satellite signatures, and lightning flash character and frequency (e.g., using LDM and/or LNA data) in non-classic (potentially) tornadic storms.

VORTEX-SE-4: Studies that compare the validity of three-dimensional winds obtained through single-Doppler data assimilation versus dual- or multi-Doppler wind synthesis in non-classic (potentially) tornadic storms.

VORTEX-SE-5: Understanding and reducing societal vulnerability to tornadoes. This topic has three main emphases that are of a strongly interdisciplinary nature: 1) investigating how physical, social, and economic factors interact to contribute to harm from tornadoes in the Southeast, and which intersections of factors are the most important contributors in different local and household circumstances; 2) understanding different populations' capacities and current practices that can be utilized and leveraged to alleviate vulnerabilities and reduce harm from tornadoes in the Southeast; and 3) understanding the factors and decisions that enhance individual survival of tornadoes under different circumstances. Emphases on the subregions being studied in the Non-Classic Tornadic Storms experiment are encouraged; see the Information Sheet.

VORTEX-SE-6: Research on operational NWS and partners' forecast and warning decision-making process, and public response. The two main emphases in this topic are 1) investigating forecasters' interpretations and use of different types of information in decisions about whether, when, and how to issue warnings and other products; and 2) understanding how probabilistic hazard and warning information affects the forecast and warning process and information gaps that contribute to uncertainty and challenges in decision making.

VORTEX-SE-7: Risk communication, risk perception, and information use in protective decision making (with a focus on members of the public and other end-users). This topic has three primary emphases: 1) understanding the interpretations and uses of probabilistic hazard information, warnings and other information by different members of the public in different circumstances; 2) investigating intersections among information, vulnerabilities and capacities, and protective decision making. Emphases on the subregions being studied in the

Non-Classic Tornadic Storms experiment are encouraged; see the Information Sheet.

3. CTB

Specific priorities being targeted for transition to operations by the Climate Testbed encompass the following items.

CTB-1: Model post-processing via innovative statistical techniques and applications of existing statistical techniques, including Artificial Intelligence (AI)/Machine Learning (ML) methods. Techniques should be applicable to existing operational NOAA numerical models and ensemble modeling suites, such as those included in North American Multi-Model Ensemble (NMME) and NOAA Subseasonal Experiment (SubX). Ideal projects will support concepts such as multi-model combinations, extraction of information above currently employed methods, and potentially inform future ensembling strategies by informing optimization strategies.

CTB-2: Developmental activities to accelerate the S2S portion of the Unified Forecast System (UFS), with specifics in the Strategic Implementation Plan Emphasis areas. Project concepts can include new methods or improvements to existing scale- and aerosol aware parameterizations using the Common Community Physics Package (CCPP), physically based marine component stochastic perturbations for UFS S2S ensemble applications, mathematical methods for process level diagnostics and verifications as related to climate-scale modes of variability (such as Madden-Julian Oscillation, North Atlantic Oscillation, Quasi-Biennial Oscillation, El Nino-Southern Oscillation, etc.), improvements to UFS model components.

CTB-3: Enhancements to data assimilation systems that support climate monitoring and prediction, specifically related to ocean, sea ice, and land data assimilation using the Joint Effort for Data-Assimilation Integration (JEDI). Enhancements to current data assimilation (DA) systems toward a more strongly coupled DA system may also be considered, depending on the readiness level. Additionally, enhancements to methods used to create long-term reanalyses, or enhancements to existing reanalysis datasets, that improve current climate monitoring products, including drought monitoring.

C. Program Authority

Public Law 115-25 Weather Research and Forecasting Act of 2017, 15 U.S.C. 8512(c).

II. Award Information

A. Funding Availability

The total available funding and total per-project or per-project-per-year funding limits for each project for each competition are identified below and vary by competition. These estimates are based on anticipated or actual NOAA funding availability. For the case of collaborative multi-institution projects, the amounts identified below are per-project (or annual project total) amounts and not per-institution amounts. Please confirm that the requested funding amounts in your application's budget satisfy these stated maximum limits before submitting your application to a particular competition. Any proposal that exceeds the stated per-project or per-project-per-year funding limit below for the competition to which it is submitted will be rejected and not reviewed. For information on the maximum project time period for each competition, please see Section II.B "Project/Award Period" below.

Funds allocated for each competition may be altered depending on the number and quality of proposals submitted within each competition. Funding of any proposal is contingent upon the availability of these NOAA funds. "M" refers to millions of U.S. dollars. "K" refers to thousands of U.S. dollars.

1. Joint Technology Transfer Initiative

Approximate total grant funding: $2.5M
Expected number of funded projects: 9
Maximum funding limit per project per year: $300K

2. VORTEX-SE

Approximate total grant funding: $3.0M
Expected number of funded projects: 8
Maximum funding limit per project over total project duration: $400K (please refer to the VORTEX-SE Information Sheet for information regarding appropriate budgets)

3. Climate Testbed

Approximate total grant funding: $1.5M
Expected number of funded projects: 5-7
Maximum funding limit per project per year: $250K

B. Project/Award Period

The maximum time period of awards is identified below for each competition. Any proposal that exceeds the stated duration below for the competition to which it is submitted will be rejected and not reviewed. The recommended project start date is also defined below for each competition. We recommend that you use this date as your project start date in your proposal.

The formal grant award is subject to the availability of funds. It is possible that NOAA may delay the start of some grant awards due to delays in Congressional budget appropriations or other circumstances that would prevent formal grant award by the start date defined by the Principal Investigator (PI) in the proposal package. In these instances, the PI will be informed of any schedule revisions. In the event of a lapse in government appropriations, assume that there is no change to the regularly scheduled start date unless a revised schedule has been announced.

1. JTTI
Period of Award: 2 years
Start Date: 1 September 2020

2. VORTEX-SE
Period of Award: 2 years
Start Date: 1 September 2020

3. CTB
Period of Award: 2 Years
Start Date: 1 August 2020

C. Type of Funding Instrument

The funding instrument for these awards will be either a grant or a cooperative agreement. If it is proposed or anticipated that NOAA employees will be substantially involved in the research or implementation of the project, the funding instrument will be 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 or grant on a case-by-case basis based on the nature of the work proposed in the application package. All awards funding projects intending to utilize one of NOAA's testbeds are expected to be awarded as a cooperative agreement due to the planned involvement of NOAA staff in the testbed demonstration testing.

Proposals from NOAA federal employee scientists selected for funding shall be awarded by an intra-agency fund transfer. Proposals from a non-NOAA federal agency (where eligible) selected for funding will be funded through an inter-agency transfer. Any eligible federal agencies requiring an inter-agency transfer should specify such in the proposal. 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 for funding non-NOAA federal applicants.

For collaborative projects involving investigators from multiple, separate institutions, separate awards will be issued to each institution that submits an approved proposal for those projects.

III. Eligibility Information

A. Eligible Applicants

Applicants must ensure that they are eligible for the competition for which they are applying. If applicants are ineligible, the application(s) will be rejected. Applications from non-federal and federal applicants will be competed against each other.

Eligible applicants are U.S. institutions of higher education; other nonprofits; U.S.-based commercial organizations; state, local and Indian tribal governments in the U.S.; and other

U.S. non-profit organizations. Federal Government employees (including NOAA federal employees) may serve as co-PIs or co-Investigators (co-Is) but are ineligible for their salary costs and are required to partner with one or more eligible non-federal institution(s) who would submit the application for the competition through Grants.gov per instructions in Section IV.G “Other Submission Requirements”. Restrictions on requesting federal employee salary and other costs are described in Section IV.F “Funding Restrictions”.

Any NOAA federal employee listed as a co-PI, co-I, or collaborator on the title page of a proposal (if eligible) must have provided explicit pre-approval to the PI to be identified as a contributor to the proposed project prior to submission of the application. Do not add a NOAA federal employee to the application without their explicit agreement to participate in your project.

All funded investigators must assure and verify if requested that they will not be allocated for greater than 100% of their annual employment time should their proposal be selected for funding. NOAA will verify this requirement if funding is recommended.

B. Cost Sharing or Matching Requirement

No cost sharing is required under this announcement.

C. Other Criteria that Affect Eligibility

None.

IV. Application and Submission Information

A. Address to Request Application Package

Application packages for full proposals are available at: https://www.grants.gov/web/grants/applicants/apply-for-grants.html. There is no similar official application package for Letters of Intent (LOIs) other than the requirements identified below in Section IV.B.1.

B. Content and Form of Application

Applicants are required to submit a full proposal and are strongly encouraged (but not

required) to submit an LOI. Applicants for the VORTEX-SE competition will not submit LOIs. The requirements for preparation of full applications provided below are mandatory. Failure to adhere to these instructions will result in LOIs and/or full proposals being rejected and returned without review. Some helpful resources for applicants can be found here: owaq.noaa.gov/nofo.

For joint projects spanning multiple applications and institutions, all applications for that project must identify the same Lead PI, co-PIs and co-Is on the applications' title page. The designated Lead PI and their associated institution will be responsible for additional documents in the event of multi-organization applications, as described in Section IV.B.2.h.

1. Letter of Intent (LOI)

Prior to submitting a full application package (proposal) for the competitions identified in this announcement (with the exception of VORTEX-SE), all PIs are strongly encouraged (but not required) to submit a pre-application to NOAA in the form of an LOI for each planned project. For joint projects from more than one institution, the Lead PI must submit only one LOI. The LOI should provide a concise description of the proposed work and a summary budget table.

The purpose of the LOI review process is to provide feedback to PIs regarding whether NOAA encourages them to submit a full application by assessing relevance and value of their proposed project to the Program's objectives in advance of preparing a more lengthy full application. Following a review, NOAA will respond to all PIs who submit an LOI either encouraging or discouraging a full proposal. Full applications will be encouraged only for LOIs deemed most relevant to this announcement's priorities and potentially valuable to NOAA. However, PIs who do not submit an LOI or who are not encouraged by NOAA to submit a proposal after review of their LOI will not be precluded from submitting a full proposal. PIs will be provided, upon request, a short synthesis of the factors from the review that led to the recommendation.

The LOI should be submitted via email to oar.owaq.competitions@noaa.gov by September 17, 2019. Refer to Section IV.D for LOI submission information.

(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 header at the top with the following information: title, the name(s) of all PI(s) and co-PIs, their home institution(s), and the name of the

specific funding competition identified in Section I to which they are applying.

(b) The LOI must contain a brief description of the intended project, methodology, timelines, and deliverables or project outcomes, in addition to its relevance to one or more of the specified priorities identified in Section I.B. Identify which specific NOAA organization is expected to be the recipient beneficiary of the project outcomes (e.g., a specific local weather forecast office, river forecast office, national forecast service center, etc.).

(c) Briefly describe the current Readiness Level (see Section I.A) of the proposed project at start-up and the expected Readiness Level at project completion. Also briefly describe any future steps recommended to advance the project output(s) to its ultimate application, operationalization (by NOAA), or commercialization. Clearly state whether the project intends to leverage resources from a NOAA testbed.

(d) The LOI must include a simple budget table to summarize funding allocation (for example, salaries, computing and communications, indirect charges, and travel). If there are any unusual allocation requests, include a brief justification.

(e) For LOIs that include a request for NOAA high performance computing resources, PIs must include an estimate of needed processing and storage requirements. Due to NOAA's shortage of high performance computing and storage for research, investigators are strongly encouraged to seek computing resources, including cloud computing resources, from other sources and should be aware that these NOAA resources may not be available for their project.

(f) LOIs will be reviewed by the Program Office following the criteria specified in Section V.A to assess the potential value of the proposed research to NOAA.

2. Full Proposal

(a) Format. All pages should be single-spaced and set in 12-point font with one-inch margins on 8 ½ x 11 inch paper. The proposal should be submitted as a PDF file. It must be

dated and display page numbers. The Statement of Work should not exceed 10 pages.

(b) Title Page. The full proposal must include a title page that identifies all of the following information:

-each PI and the respective institutional representative by full name, title, organization, telephone number, email address;

-the mailing address for the institution's PI;

-the total requested funds for each annual period for each institution; and

-the competition to which it is being submitted.

If there are several institutions submitting separate applications for the same joint project, the names of ALL institutions along with their PI information and total requested funding for each annual period for each institution MUST appear on the title page of EACH of the separate applications.

(c) Abstract. A one-page abstract must be included and must contain a brief, plain-language summary of the proposed work to be completed. It should address the primary project outputs, their relevance to NOAA operations, and intended long-term societal and/or research benefits and be written for an intended audience of non-experts. The abstract must appear on a separate page, headed with the proposal title and the names of all PIs and collaborators and their institution(s).

(d) Statement of Work. All proposals must provide a Statement of Work that includes the following components.

(1) The proposed duration of the project (must be compliant with Section II.B limits).

(2) A complete description of the proposed work, including:

-identification of the problem to be addressed and its relevance to one or more of the specific NOAA science priorities identified in Section I.B;

-the conceptual framework, scientific hypotheses and objectives;

-results from prior relevant research, proposed methodology, and work plan;

-operational applicability and past collaborations with the operational community; and

-if possible, an estimate quantifying expected improvement over existing capabilities (e.g., a percentage improvement in forecast skill).

Proposals that involve testing in one of the NOAA testbeds should state so clearly, including which specific NOAA testbed will be used. Development of a more comprehensive testbed test plan will be required within 6 months after the project start date if the project is selected for an award and intends to leverage NOAA testbed resources. Test plan guidance will be provided by NOAA for these funded projects.

Applicants submitting proposals that involve the use of human test subjects should state so clearly in their application. These proposed research activities require approval of the applicant's Institutional Review Board (IRB) before such research can proceed. Applicants are responsible for obtaining IRB approval from their institution and providing that documentation to NOAA once the approval is obtained and prior to any NOAA-funded human subject testing.

(3) Project technology transfer outcomes, intended advancement in Readiness Level, and your performance measures of success. The benefits of the proposed project to the general public and the scientific community should also be discussed. Identify which specific weather enterprise group or organization is expected to be the ultimate recipient(s) and beneficiary (end-users) of these project outcomes (e.g., local weather or river forecast offices, a national operational forecast center, etc.).

(4) A brief assessment of the current RL of the project at start-up as well as projected RL at project end. There should be adequate description to justify why these RLs were selected. Per NOAA policy, development of a more comprehensive research-to-operations transition plan in coordination with NOAA will be required within 6 months after the project start date if the project is selected for an award and intended to transition at some point or has a start-up or end-point RL of 5 or above. Transition plan guidance will be provided by NOAA for applicable projects once the project begins.

(5) A timeline with key milestones for conducting the project and delivering the scientific and technical results throughout the course of the project. Proposals intending to use human test subjects should specify clearly in the timeline approximately when IRB

approval will be obtained and when the testing is expected to occur.

(6) A brief description of travel associated with data collection, project meetings, testbed planning meetings, testbed experiments, and the presentation of results at scientific conferences as appropriate.

(7) If the proposed project is a continuation of a previously-funded NOAA project, a reference to the project grant award number, title, and period of performance.

(8) A Statement of Diversity and Inclusion. This section should include a statement listing any efforts related to this project supporting diversity and inclusion. NOAA values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally-competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

(9) A reference list with the most important references (optional). This reference list does not count toward the application’s page limit.

The above Statement of Work items in IV.B.2.(d).1-8 must be not exceed TEN PAGES (including figures but excluding the reference list). For separate applications from multiple institutions for the same joint project, an identical Statement of Work is required in each institution’s application, but they must clearly describe the work contributions of each funded PI. Additional required application content described below is not included in the page count defined above.

(e) Data Management Plan. 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. Also refer to your institution's data storing and sharing policies and regulations.

(f) Curriculum Vitae (CV). A CV of 3 pages or less for all PIs, co-PIs, and co-Is. The CV should include a reference list of all publications and conference presentations relevant to the proposed work within at least the last three years. CVs are not required for collaborator partners.

(g) Current and Pending Financial Support. Each investigator requesting funding support must submit a list that includes project title, supporting agency, funding start and end months, investigator months, total dollar value and duration. Requested amounts should be listed for pending support.

(h) Budget. In addition to the SF-424A Budget Information form, applicants must submit a detailed itemized Budget Table organized by year and a Budget Justification that demonstrates cost effectiveness. It should include the PI's scientific and technical support staff salaries and fringe benefits, facility requirements, computing and communications, supplies and travel. The information on the SF-424A and this separate budget table must be consistent and should include only the amount of funding that will be provided to the institution submitting the proposal. SF-424A should not include budget information for PIs or co-Is at other institutions who may be contributing to a joint project. Any eligible federal agency requiring an inter-agency transfer should explicitly state such.

For collaborative joint projects involving multiple institutions, each institution should provide its own budget table, justification, and SF-424A in its application. The joint project's Lead PI should additionally include a separate summary Budget Table in his/her institution's application that displays the total summary budget for all partners on a joint project in addition to the detailed budget for his/her own institution. The summary budget table may be included on the proposal's title page as described in Section IV.B.2.b.

If indirect charges are included in the budget, the applicant must have an approved negotiated Indirect Cost Rate Agreement and must include it as a part of the application package. If an applicant has not previously established an indirect cost rate with a federal agency they may choose to negotiate a rate with the Department of Commerce or use the de minimis indirect cost rate of 10% of Modified Total Direct Cost (MTDC; as allowable under 2 C.F.R. §200.414). The negotiation and approval of a rate is subject to the procedures required by NOAA and the Department of Commerce Standard Terms and Conditions

Section B.06. The NOAA contact for indirect or facilities and administrative costs is:

Lamar Revis, Grants Office
NOAA Grants Management Division
1325 East West Highway
9th Floor
Silver Spring, Maryland 20910
lamar.revis@noaa.gov

(i) High-Performance Computing Request. For applications requesting the use of NOAA's high-performance computing (HPC) platform, include the estimated processing and storage requirements, including expected core hours. It is strongly recommended that any proposal leveraging NOAA HPC include strong collaboration with a NOAA institution. Due to NOAA's shortage of high performance computing and storage for research, investigators are strongly encouraged to seek computing resources, including cloud computing resources, from other sources and should be aware that these NOAA resources may not be available for their project.

(j) The full proposal package includes the information described above as well as the required federal forms:

(1) Standard Form 424 - Application for Federal Assistance
(2) Standard Form 424A - Budget Information - Non-Construction Programs
(3) Standard Form 424B - Assurances - Non-Construction Program
(4) Form CD-511 - Certifications Regarding Lobbying
(5) Standard Form LLL - Disclosure of Lobbying Activities

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. Pay careful attention to show the yearly budget breakout on page 1A of the SF-424A for multi-year proposals.

(k) This announcement does not require any National Environmental Policy Act (NEPA) questions to be answered as part of the application. This will be done after project selection if NOAA needs additional information beyond what is described in the proposal package. For additional information on NEPA, see section VI.B.

For multi-institution collaborative proposals with no subaward agreements, separate proposal packages with identical project titles, title pages, Statements of Work, and project start dates must be submitted to Grants.gov by each collaborative partner or PI who wishes to be funded by NOAA. All proposal package components must be identical among all separate proposal submissions to Grants.gov for a multi-institution collaborative project, with two exceptions: 1) each institution's separate budget information tables and justification (which will apply only to their own institution's portion of the collaborative project and not the budgets for any other funded institution), and 2) any other institution-specific documents. Each identical title page must clearly list all funded and unfunded PIs and their institutional affiliation, even if from a separate funded institution, for a given joint project. If a subaward agreement has been arranged with their funded co-PIs, only one project proposal must be submitted (by the Lead-PI's institution) to Grants.gov.

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

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, 31 U.S.C. 6101 note, to the extent applicable, any proposal awarded in response to this announcement will be required to use the System for Award Management (SAM), which may be accessed online at https://www.sam.gov/portal/public/SAM/. Applicants are also required to use the Dun and Bradstreet Universal Numbering System (DUNS), as identified in OMB guidance published at 2 CFR Parts 25, which may be accessed at http://www.ecfr.gov/cgi-bin/text-idx?SID=2dae4a7dcd5848a6364bb94d2d7786dd&mc=true&tp1=/ecfrbrowse/Title02/2subtitleA.tpl.

Applicants should allow a minimum of five days to complete the SAM registration. Registration is required only once, but must be renewed periodically. 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. It is recommended that these requirements are satisfied by the application deadline, and 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.

In all, there are approximately eight steps needed to set up your organization's Grants.gov account. It can take between 3-5 business days or as long as 3 weeks to register with if all steps are not completed in a timely manner. Organizations already registered with Grants.gov are not required to re-register but should ensure their Grants.gov password is up-to-date. Additional information about the Grants.gov registration process can be found online at https://www.grants.gov/web/grants/applicants/registration.html.

Users of Grants.gov will be able to download a copy of the application package, complete it offline, 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 Customer Support at 1-800-518-4726 or support@grants.gov.

D. Submission Dates and Times

LOIs for the CTB and JTTI competitions must be received by NOAA via oar.owaq.competitions@noaa.gov no later than 5:00 p.m. Eastern Time (ET) on 17 September 2019. The VORTEX-SE competition is not utilizing LOIs. NOAA determines whether an LOI has been submitted before the deadline by the date and time 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. On or about 16 October 2019, applicants submitting an LOI will receive an email response from NOAA encouraging or discouraging a full submission proposal.

Full application packages for all competitions must be submitted via Grants.gov no later than 5:00 p.m. ET on 20 November 2019. Applications received after that time or via other means (including email) will be rejected and will not be reviewed. The date and time receipt indication from Grants.gov will be the basis of determining acceptance for review processing by NOAA.

In the event of a lapse in government appropriations or other extenuating circumstances precluding NOAA from executing the competitions in a timely manner, assume that there is no change to the regularly scheduled deadlines unless a revised deadline has been announced and published on Grants.gov.

LOI due date: 17 September 2019
Expected NOAA response date on LOIs: 16 October 2019
Full application package due date: 20 November 2019

Applicants are strongly encouraged to not wait until the application deadline date to begin the application process through Grants.gov. Please also consider the amount of time required by your institutional representative to process and submit your application. Plan your time accordingly to avoid being disqualified for a late submission.

E. Intergovernmental Review

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

F. Funding Restrictions

Funding beyond the first year will be dependent upon satisfactory performance and the continued availability of funds. NOAA is not responsible for proposal preparation costs.

NOAA cannot, by federal regulation (31 U.S.C 6303), fund any research work through a federal grant or cooperative agreement in which the grantee proposes to develop or deliver to NOAA any tangible product deliverable beyond research results as reported in standard semi-annual progress reports and final reports, including, for example, software modules that the recipient might wish that NOAA would use for its operational forecasting mission. NOAA cannot fund nor accept any such award deliverables that would be more appropriately funded through a procurement mechanism. However, NOAA may possibly pursue such follow-on contract mechanisms with the recipient after the award ends if the project is successful and follow-on contractual work is warranted. Do not propose to provide NOAA any deliverables other than semi-annual progress reports and final reports as that is prohibited by federal regulations.

NOAA will not fund federal salary costs for federal government employees (NOAA or otherwise) who may propose to serve as a principal investigator, co-I, or collaborator. However, travel or other reasonable and justified costs for federal employee PIs, co-Is or collaborators may be requested to be funded as eligible costs only if directly related to the funded project and if approved by NOAA. In these approved cases, funds will be transferred directly from NOAA to the federal employee's organization through either an inter-agency fund transfer (if statutory authority allows) or an intra-agency fund transfer from NOAA (see

Section II.C). Any and all eligible costs associated with supporting a federal employee for a given project must be clearly identified in a separate federal budget table to be included with the application and be justified in an associated federal budget justification section but excluded from the non-federal applicant's budget tables and budget forms.

For projects desiring to use one of the NOAA testbeds, funding requests for NWS forecaster travel to any of the NOAA testbeds to support the evaluation and demonstration testing of those testbed projects should not be included in this funding application. The need for any such support must be coordinated separately with the relevant testbed manager(s) who will request this funding for their testbed through a separate OWAQ proposal process for those grant projects that are ultimately funded.

Applicants may submit proposals to multiple competitions if the proposals are on different topics and the Lead PI is eligible for each competition. If submitting multiple proposals with the same PI, please acknowledge the other application(s) and, if they are similar, describe the differences between them. NOAA will not accept more than one proposal for any one or more of these NOAA competitions in Section I with identical (or effectively identical) statements of work (i.e., institutions or PIs cannot submit or be considered for more than one funded award among all three competitions for the same or predominantly similar project, as determined by the Program Manager, and must abide by the per-project total funding limits specified in Sect. II.A). If NOAA determines that identical or predominantly identical proposals have been submitted to one or more than one competition, the one that is submitted first to Grants.gov will be accepted by NOAA for consideration and all others will be rejected without review. Multiple proposals on different topics submitted to one or more competitions from the same PI or institution are permitted.

NOAA will not accept separate related proposals for collaborative projects among multiple PIs and/or institutions that are critically dependent on successful funding of another separate proposal from the same or another PI at the same or different institution to accomplish the respective proposed project objectives. In other words, NOAA funding decisions for any given submitted proposal should not and will not be contingent upon funding decisions of any other separate submitted proposal unless it is a collaborative project with all contributing funded PIs identified on the title page and with funding requested in each respective institution's application that satisfies the maximum per-project (or per-project per-year) funding limits defined in Sect. II.A. For these collaborative projects, a coordinated project proposal must identify all funded PIs and co-PIs from all partnering funded institutions on the title page that will contribute toward a portion of that project proposal's collaborative objectives or outcomes (though each participating institution requesting funding must submit this application to Grants.gov separately from their own

institution). OWAQ will group each of these separate applications together as a joint proposal based on the similar title pages.

Proposal packages that do not satisfy the above restrictions will be rejected and will not be reviewed.

G. Other Submission Requirements

If a NOAA organization will be hosting a non-federal PI or co-I at a NOAA federal facility (e.g., a NOAA Cooperative Institute employee), the proposal must include a signed letter of commitment from that NOAA host organization's director if there is additional funding that they require to support the non-federal investigator(s) at their facility, such as costs for federal office space or computer access. These costs should be clearly identified and justified in the letter but not included in the non-federal PI's budget documents. The request for these funds will be considered by the Program Manager and, if approved, will be provided directly to the NOAA organization if the proposal is selected.

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 the main CI award. If the CI 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 Specific 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 Memorandum of Agreement 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 the funding program 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

1. Importance/Relevance and Applicability of Proposed Project to 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 criterion is not intended to evaluate technical or scientific merit. The reviewers will consider the following questions in their assessment of this criterion:

(1) Does the proposal identify a clear problem or opportunity to be addressed that is highly relevant to the NOAA Program Objective and Priorities identified in Section I?

(2) Does the proposal clearly identify how it will address the problem or opportunity relevant to the Program Priorities?

(3) Are the proposed end-users identified and appropriate to the Program Priorities? Does the proposal identify and sufficiently collaborate with a NOAA operational unit familiar with proposed end-user needs?

(4) Is the current (i.e., at project start) state (in terms of RLs) of the project appropriate for the competition to which it is applying?

(5) If the proposed project results in a proposed transition of output to NOAA or other weather/water enterprise operational service capability, is the proposed transition feasible within 2-5 years of project completion? Is the proposed application, operationalization, and/or commercialization path realistic and achievable? If the proposed transition is to NWS operations, does it leverage the framework of existing NWS infrastructure and concepts of operations?

2. Technical/Scientific Merit (35 points)

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

(1) Given the current state of the proposed area of study, are the proposal methods and proposed solution to the scientific problem technically sound and achievable?

(2) Will the proposed project improve technology, concepts, or methods that advance

the field of study and/or eventually improve NOAA operations?

(3) Does the proposal employ novel concepts, approaches, or methods?

(4) Does the proposal include a clear schedule for milestones, deliverables, and advancing Readiness Levels (RLs)?

(5) Does the proposal identify metrics for evaluating the success or failure?

3. Overall Qualifications of Applicants (20 points)

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

(1) Does the applicant have the necessary education, experience, training, facilities, and resources to accomplish the project?

(2) Does the applicant propose effective collaborative arrangements and partnerships to accomplish the project?

(3) Has the applicant demonstrated the ability to conduct successful research and publish peer reviewed articles?

(4) Do the applicant and co-investigators possess experience in transitioning research to operations related to the NOAA priorities in Section I.B?

4. Project Costs (10 points)

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

(1) Are the requested costs realistic, reasonable, allowable, allocable, necessary and

commensurate with the project benefits, deliverables, and time period?

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

5. Outreach, Education, Diversity, and Inclusion (5 points)

This criterion assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. The reviewers will consider the following questions in their assessment of this criterion:

(1) Does the proposal include a plan for sharing project progress and results with the general public through a web site?

(2) Does the proposal include the publication of the results in a peer-reviewed publication and presenting results at a national conference or workshop?

(3) Does the proposal promote the education and field experience of undergraduate and graduate students, and/or are opportunities developed to share with K-12 educators?

(4) Does the proposal promote diversity and inclusion, as defined in Section IV.2.d.(8)?

B. Review and Selection Process

Once a full application package has been received, an administrative review will first be conducted to determine compliance with all submission requirements, completeness of the application, and general responsiveness to the NOAA priorities in Section I.B. If all requirements are satisfied and the application is responsive to at least one of the NOAA priorities, the application will move to the next stage of review. If not, the application will be rejected and the PIs will be notified.

All compliant applications (proposals) will then receive an objective peer review within one of the three competition category pools to which it was submitted. All proposals within a given competition category pool will be competed and ranked against each other. Independent peer reviews consisting of at least three subject matter experts per proposal who may be Federal and non-Federal Government employees will evaluate applications using the evaluation criteria specified in Section V.A.

In the JTTI and CTB competitions, there will be one independent peer review panel of at least 3 reviewers per proposal for Evaluation Criterion #1 in section V.A and a separate independent peer review panel of at least 3 other reviewers for Evaluation Criteria #2-5. For the VORTEX-SE competition, the same independent peer review panel of at least 3 reviewers will review all the evaluation criteria for a given proposal. In both cases, the independent reviewers' scores will be averaged for each evaluation criteria and summed to obtain the average total score for each application. These final scores for each application will be used to determine the rank order of the proposals for each of the competitions. The OWAQ Director, who is the designated Selection Official for all competitions in this announcement, will make the final selection recommendations 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 a selection recommendation decision is made and/or before an award is made.

C. Selection Factors

The merit review ratings shall provide a rank order to the Selection Official for final funding recommendations. He/she 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.

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

Applications should use the recommended date defined in Sect. II.B for a given competition as the start date for their proposed project. Review of applications will occur during the 2-3 months following the full application due date. OWAQ anticipates that funding recommendation decisions on applications will be made in April 2020. Such decisions are contingent upon the final FY 2020 appropriation to NOAA by Congress and the final allocation of funds to OAR by NOAA and actions by the NOAA Grants Officer. NOAA’s Grants Management Division will normally make award offers approximately one month before the planned start date for each of the competitions (Section II.B). Significant Congressional funding delays after the fiscal year begins may result in delays in the dates of both award recommendation decisions and the awards themselves and could result in awards offers not being distributed until after the proposed project start dates.

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. All applicants will receive their average scores for their application and overarching reviewer comments. Notices of recommendation for funding are not an authorization to initiate the project. Official notification of funding of the grant award, signed by a NOAA Grants Officer, will come typically two to three months later if approved and is the only official document that authorizes the project to begin.

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 continuing Congressional appropriations. Applicants are hereby given notice that funds have not yet been appropriated 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 website: http://www.nepa.noaa.gov/, including our NOAA Administrative order 216-6A for NEPA, http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_216/216-6A.html and the Council on Environmental Quality implementation regulations.

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 https://grantsonline.rdc.noaa.gov/flows/home/Login/LoginController.jpf 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, 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 must 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 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. Applicants 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 the 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.

NOAA SEXUAL ASSAULT AND SEXUAL HARASSMENT POLICY. If NOAA-operated, leased, or owned facilities are involved in any awards funded under this announcement, such awards are subject to the NOAA Sexual Assault and Sexual Harrassment Prevention and Response Policy Applicable to Financial Assistance Awards Involving NOAA-Operated Facilities (May 2018) available at http://ago.noaa.gov/grants/facilities_assault_policy.html.

C. Reporting

Award recipients will be required to submit project performance (technical) and financial reports via NOAA’s Grants Online system. Performance reports must follow a content template and guidance provided by OWAQ. PIs of collaborative projects should provide an identical report from each of the separate collaborating institutions clearly identifying the work performed by each institution. 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.

As part of OWAQ's commitment to sharing research results and other accomplishments, it is anticipated that final project reports and interim summaries will be shared publicly. Grantees must mark personally/organizationally identifying information, confidential/proprietary technology, processes, and/or financial information in these reports. Performance reporting guidance will be provided for funded projects.

While not required, project teams are encouraged to increase project and program visibility by publicly sharing progress and results throughout the course of the project. For example, a locally-hosted website could be developed to display examples of product output. These visibility endeavours should be included in NOAA progress reports.

All dissemination of results, including publications and written or oral presentations, supported by this funding opportunity should acknowledge OWAQ and the specific program supporting the project.

The Federal Funding Accountability and Transparency Act, 31 U.S.C. 6101, 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 Subaward Reporting System (FSRS) available at https://www.fsrs.gov/ on all subawards over $25,000. Refer to 2 CFR Parts 170.

VII. Agency Contacts

For general questions about this announcement, please contact OWAQ at oar.owaq.competitions@noaa.gov. For specific questions about a specific competition, please contact the designated Federal Program Office identified below for each competition:

JTTI: Dr. Chandra Kondragunta (chandra.kondragunta@noaa.gov; 301-734-1034)

VORTEX-SE: Richard Fulton (richard.fulton@noaa.gov; 301-734-1289)

Climate Testbed: Dr. Jessie Carman (jessie.carman@noaa.gov; 301-734-1022)

VIII. Other Information

None.