

## 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: FY2022 Weather Program Office Research Programs

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-WPO-2022-2006969

Federal Assistance Listings Number: 11.459, Weather and Air Quality Research

Dates: For each of the six competitions within this Fiscal Year 2022 funding opportunity, full applications must be received by 5:00 pm Eastern Time (ET) on November 17, 2021.

Applications received after this deadline will not be considered. Pre-proposal Letters of Intent (LOIs) are strongly encouraged for potential applicants to all competitions and must be received by 5:00 pm ET on September 14, 2021, in order to receive a pre-proposal review. Award decisions are expected in May 2022. Financial awards for all competitions will be up to two to three years in length and are recommended to begin either August 1 or September 1, 2022, as described in Section II.B “Project/Award Period”.

Funding Opportunity Description: NOAA’s Weather Program Office (WPO; formerly OWAQ, the Office of Weather and Air Quality) is soliciting proposals for weather, atmospheric composition, and earth system modeling and observations research reflecting multiple science objectives spanning time scales from hours to seasons, and from weather and water observations and earth system modeling to fire weather and social, behavioral, and economic science. There will be six grant competitions from this notification valued at approximately \$16,500,000 per year as follows: 1) Fire Weather & Atmospheric Composition (FWAC), 2) Climate Testbed (CTB), 3) Weather Testbeds, 4) Joint Technology Transfer Initiative (JTTI), 5) Subseasonal-to-Seasonal (S2S) , and 6) Verification of the Origins of Rotation in Tornadoes Experiment in the United States (VORTEX-USA).

In alignment with the Weather Forecasting and Innovation Act of 2017 (Public Law 115-25), the funded projects should improve the weather community’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.

Forecast model improvements must focus on developing the Unified Forecast System (UFS), with an aim towards addressing forecaster priorities. These priorities were articulated in a recent series of workshops, and the top priorities are listed at <https://www.weather.gov/media/sti/Final%20Consolidated%20Forecasters%20requests%20April%202021.pdf>.

To achieve success with these objectives, selected projects should focus on advancing science and technology from the research stage to transitionable outputs or prototype products that NOAA or external partners 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 and in Section VIII. Additional information can be found in the Procedural Handbook for NOAA's Policy on Research & Development Transitions at <https://www.noaa.gov/organization/administration/nao-216-105b-policy-on-research-and-development-transitions>, or at the website for the OAR Office of Research, Transition, and Application (ORTA) at <https://orta.research.noaa.gov/>.

Depending on the program objectives, the individual competitions within this notice of funding opportunity (NOFO) 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 Objectives." While all programs in this funding opportunity encourage an acceleration of research toward operationalization and/or other application, no program directly supports an actual research-to-NOAA operations transition (i.e., the RL 8-to-9 transition) itself; the funded projects are, however, expected to work with NOAA operational center representatives to develop strategies if future transitions to NOAA are anticipated.

NOAA, OAR, and WPO encourage applicants and awardees to write their proposals and perform their work in a manner consistent with NOAA's core values, including those on **diversity, inclusion, accessibility, civil rights, and scientific integrity**. Applicants and awardees are urged to consider their ability to expand and diversify NOAA capabilities for all Americans in an equitable and just manner. 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, and the recognition, appreciation, and use of the talents and skills of employees of all backgrounds. The term "accessibility" means the design, construction, development, and maintenance of facilities, information and communication technology,

programs, and services so that all people, including people with disabilities, can fully and independently use them. Promoting diversity and inclusion improves creativity, productivity, and the vitality of the weather and water research community in which WPO engages.

## EVALUATION CRITERIA

### V. Application Review Information

#### A. Evaluation Criteria

##### 1. Importance/Relevance and Applicability of Proposed Project to Program Goals (30 points)

This criterion determines if 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) How clearly defined is the problem and/or opportunity for scientific advancement targeted by the proposal?

(2) How relevant is the proposed project to the NOAA program objectives and priorities in Section I?

(3) How clearly does the proposal address the problem and/or opportunity for scientific advancement?

(4) How clearly does the proposal link to operational/application needs, gaps, and opportunities?

(5) How appropriate are the proposed end-users in relation to the Program Priorities?

(6) If the applicants intend to collaborate with NOAA (including NWS) or other operational units, how robust is the proposed collaboration (i.e. operational Co-PI, collaborator, letter of support) relative to the project plan?

(7) If the applicants intend to collaborate with NOAA federal laboratories, centers, or testbeds, how complete is the information contained in the NOAA Collaborator Acknowledgement Form(s) or letters of support? Is the NOAA Collaborator Acknowledgement Form(s) or letter of support signed by a NOAA host organization's director or otherwise appropriate collaborator?

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

(9) How realistic and achievable is the proposed preliminary path to operationalization, commercialization, or other application?

(10) If the project builds on a previous NOAA financial assistance award, did operational/application stakeholders recommend continuation of the project?

(11) If the proposed transition is to NWS operations, does the proposal consider leveraging existing NWS framework(s), infrastructure, and/or concept(s) of operations?

(12) If the project proposes to transition an output to NOAA or other weather/water enterprise operational service capability, how feasible is the proposed transition within 2–5

years of project completion?

(13) How specific and appropriate are the project outputs and products in supporting the program objectives and priorities?

(14) How compelling and impactful are the project benefits and outcomes in supporting the program objectives and priorities?

(15) How relevant to and consistent with NOAA's core values, including those on diversity, inclusion, civil rights, and scientific integrity, is the proposed project? How well does the proposal consider its ability to expand and diversify NOAA capabilities for all Americans in an equitable and just manner?

## 2. Technical/Scientific Merit (35 points)

This criterion assesses if the proposed approach is technically sound and/or innovative, if the methods are appropriate, and clarity of project schedule and outputs. The reviewers will consider the following questions in their assessment of this criterion:

(1) How technically sound are the proposed methods and solutions to the scientific problem?

(2) How achievable are the proposed methods and solutions to the scientific problem?

(3) How does the proposed project improve technology, concepts, or methods and advance the field of study?

(4) If applicable, how clearly does the proposed project advance technology, concepts, or methods to eventually improve NOAA operations?

(5) How clear and feasible is the schedule for milestones, outputs, and advancing Readiness Levels (RLs)?

(6) How clearly defined are metrics to evaluate project success and/or failure?

## 3. Overall Qualifications of Applicants (15 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) How will the applicant's education, experience, training, facilities, and/or resources help accomplish the project?

(2) How effective are the collaborative arrangements and partnerships described, and are they sufficient to accomplish the project goals?

(3) How effectively has the applicant demonstrated the ability or the potential to conduct successful research?

(4) How effectively has the applicant demonstrated the ability or the potential to publish

peer reviewed articles and/or otherwise present or disseminate their research findings in professional and/or outreach settings?

(5) How effectively have the applicant and co-investigators demonstrated experience or potential in transitioning research to operations related to the NOAA priorities in Section I.B?

#### 4. Project Costs (10 points)

This criterion evaluates the budget (considering both financial and time costs) 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 outputs/products and outcomes/benefits, and time period? Are the proposed FTEs reasonable and adequate to successfully complete the proposed work?

(2) How impactful are the potential benefits relative to the cost?

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

#### 5. Outreach and Education (5 points)

This criterion assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's weather mission to provide weather, water, and climate data, forecasts and warnings for the protection of life and property and enhancement of the national economy. This section will be scored out of 5 points. The reviewers will consider the following questions in their assessment of this criterion:

(1) How well does the proposal include activities or outputs for sharing project progress and results with the general public(s) and/or scientific community through a website, hosting workshops, developing training materials, or other engagement activities?

(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 this proposal utilize educational scholarship or internship programs?

(5) How well does the proposal describe its Data Management Plan and intentions for sharing data generated during the project?

#### 6. Diversity and Inclusion (5 points).

This criterion assesses the project's compliance with NOAA's policy on diversity and inclusion, as defined in Section IV.B.2.j of this NOFO (and in the 2020-24 NOAA Diversity

and Inclusion Strategic Plan), and its potential broader impact on D&I. This section will be scored out of 5 points. The reviewers will consider the following elements in their assessment of this criterion:

(1) How clearly does the proposal's D&I statement describe how the project will address and promote diversity, inclusion, and accessibility?

(2) Does the proposal provide specifics on how the applicants have already implemented D&I in their group, at their institution, or in the preparation of the proposal?

(3) Does the proposal provide specifics on how the applicants will further advance D&I in the context of their project?