FY2023 Weather Program Office Research Programs

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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: FY2023 Weather Program Office Research Programs

Announcement Type: Initial

Funding Opportunity Number: NOAA-OAR-WPO-2023-2007516

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

Dates: For each of the four competitions within this Fiscal Year 2023 funding opportunity, full applications must be received by 5:00 pm Eastern Time (ET) on November 17, 2022. 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 15, 2022, in order to receive a pre-proposal review. Award decisions are expected in May 2023. Financial awards for all competitions will be a maximum of two to three years in length, depending on the competition, and are recommended to begin in August or September 2023, as described in Section II.B “Project/Award Period.”

Funding Opportunity Description: NOAA’s Weather Program Office (WPO) is soliciting proposals for four grant competitions from this notification valued at approximately $13.5 million per year as follows: 1) Innovations for Community Modeling, 2) Observations (Obs), 3) Social, Behavioral, and Economic Sciences (SBES), and 4) Verification of the Origins of Rotation in Tornadoes Experiment in the United States (VORTEX-USA; inclusive of VORTEX-Southeast).

In alignment with the Weather Forecasting and Innovation Act of 2017 (Public Law 115-25), this funding opportunity will allow NOAA to support new weather, water, and earth system 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. In particular, projects are sought that are responsive to the Priorities articulated in the Science Advisory Board's 2021 Priorities for Weather Research Report (https://sab.noaa.gov/wp-content/uploads/2021/12/PWR-Report_Final_12-9-21.pdf).

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. Some competitions and science priorities in this announcement may target research at a specific maturity level and restrict proposals to specific RL ranges. Additional information can be found in the Program Objectives (Section I.A) and Priorities (Section I.B), and definitions of RLs can be found in the NOFO Information Sheet accompanying this announcement.

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. Promoting diversity and inclusion improves creativity, productivity, and the vitality of the weather and water research community in which WPO engages.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

The following four competitions are accepting proposals for funding as part of this Notice of Funding Opportunity.

1. Innovations for Community Modeling

The U.S. faces a spectrum of high-impact environmental hazards that can disrupt people's lives and the nation's economy. To meet these challenges, NOAA has created the Unified Forecast System (UFS) to develop the best environmental information using large observational datasets, high-performance computing (HPC), and advanced Numerical Weather Prediction (NWP) systems. The UFS is being developed in collaboration with the larger public-private weather, water, and climate research and academic enterprise, following a unified modeling system approach based on open-source, open-development principles.

The WPO Innovations for Community Modeling Competition funds an energized and committed community that includes researchers from the full weather enterprise - academia, government, and industry - partnering with NOAA to improve scientific understanding and forecasting through innovation. We seek high-risk/high-reward projects accelerating scientific research and modeling contributions through continuous and sustained community engagement. Proposals must address the ultimate goal of improving forecast skill, in close alignment with NOAA’s vision and mission towards advancing the UFS to become the world's most accurate and reliable operational modeling system in the world. Successful proposals must articulate how their research is addressing the forecast system deficiencies derived from the 2021-22 NWS Office of Science and Technology Integration (OSTI) Forecasters Workshops (https://www.weather.gov/media/sti/Final%20Consolidated%20Forecasters%20requests%20April%202021.pdf), priorities set out in NOAA’s Science Advisory Board’s Priorities for Weather Research (https://sab.noaa.gov/wp-content/uploads/2021/12/PWR-Report_Final_12-9-21.pdf), and community priorities identified in the UFS Strategic Plan (https://vlab.noaa.gov/documents/12370130/12437941/20210406_UFS_Strategic_Plan_2021-2025_v1.0.pdf).

By adding a focus on innovative research to the objectives and priorities from other competitions in this notice of funding opportunity, WPO seeks to strengthen an open

partnership between NOAA and the external community, enabling the co-development of high-quality modeling systems reflecting cutting-edge science. Approaches that benefit portability across HPC resources that are easier to transition across the research-to-operations funnel are encouraged. Although focusing on high-risk/high-reward projects at the lower readiness level, this competition will also accept innovative proposals with potential for operational transition at higher readiness levels.

To qualify as innovative, the proposals must focus on substantially new approaches and not on incremental changes. Model developments should focus on UFS systems that are expected to be implemented into operations in 5 years or later, i.e. “next plus one” generations of the UFS. Projects that propose introduction of new systems into the UFS must make a compelling case for why and how this new approach will advance forecast skill and efficiency as well as enhance community engagement. Project awards will include an optimal balance of smaller high-risk, low-cost proof-of-concept ideas as well as larger collaborative proposals. At the end of the period of performance, successful and promising innovation projects with higher potential for transition to NOAA operations will be further evaluated by a panel of experts and selected for further funding by the JTTI and/or EPIC program dependent upon available federal budget appropriations.

The research themes which will receive particular emphasis in this competition shall fall within priorities associated with three program areas, Numerical Weather Prediction Capabilities, Western States Hydrology, and Fire Weather Subseasonal-to-Seasonal Forecasting.

Numerical Weather Prediction Capabilities

NOAA is embracing a fundamental change in the development and advancements of the UFS to become a fully-coupled Earth prediction system addressing all scales from the mesoscale short range to the seasonal-to-subseasonal predictions across the linked weather-water-climate domain. The effort requires a collaborative development approach across NOAA in partnership with external research communities to create the best operational earth-system model forecast capabilities to address a wide range of extreme weather, water, and climate events.

The UFS is a community based, coupled, comprehensive Earth modeling system that can be configured to provide predictive information for weather, ocean, air quality, and coastal systems spanning time scales from a few hours to two years. Further innovation will improve high-resolution, coupled forecasts and extend forecast information for severe weather, including tropical storms, heavy precipitation, extreme temperatures, to Earth system

processes that drive predictability of weather systems at subseasonal-to-seasonal timescales. Envisaging high-risk/high-reward opportunities that may accelerate the development of such capabilities in the UFS, projects funded by this program area will develop next-plus-1-generation capabilities, such as atmospheric physics or dynamics, coupled data assimilation, coupling the atmosphere to the ocean, ice and/or land systems, for example.

Proposals may include an optional whitepaper-style section on improving computational performance and/or working with alternative next-generation (next-gen) HPC systems, as it relates to the UFS scientific component of the project. The computational whitepaper section should include an estimation of required resources, including computing or software engineering. Proposals selected for the science component will be subsequently considered for the computational performance component in a follow-on process. Examples include: improve computational performance of the UFS code and coupling infrastructure, flexible workflow, parallel performance, and multiplatform capabilities. Innovative approaches such as code refactoring for HPC efficiency and next-gen computer performance, updating code language, and developing and using cloud-computing infrastructure for UFS applications, and proposals addressing needs towards converging community modeling systems in the long term are also strongly encouraged.

Western States Hydrology

NOAA’s Office of Oceanic and Atmospheric Research (OAR) seeks to support the resiliency of the nation’s economy, infrastructure, and security over the subseasonal to seasonal (S2S) time frame (two weeks to two years out) by improving understanding and prediction of hydrological changes in the US western states. The U.S. Seasonal Drought Outlook currently indicates a severe drought in the US western states; reservoirs that maintain the snowmelt water also show historic record low levels. Even with the low snowfall, a rapid increase in the spring air temperature and regional torrential precipitation cause abrupt floods. Through WPO, OAR will address a spectrum of precipitation and hydrology issues on the S2S time frame at the early stages of research readiness.

The S2S temporal range covers a wide range of phenomena with significant global and regional impacts on economies and human safety. The portfolio will support NOAA’s community-based Unified Forecast System (UFS) coupled prototype and its components most crucial for improving western-US hydrologic forecasts, which should benefit the nation's agricultural production and industrial adaptations in this changing weather and climate.

Successful projects must propose innovative improvements to the predictive capability of

precipitation or drought or their Earth system precursors within the NOAA UFS global coupled modeling suite via the two topics included in this NOFO priorities section. While the topic must use the global UFS, it should aim for predictive skill at basin scales. Proposals must demonstrate a focused goal of improving hydrological prediction such as drought and flood, particularly through precipitation improvement, with secondary emphasis on global land hydrology in the UFS, including infiltration of rainfall and snowmelt, and routing of the surface and subsurface water flows. Projects to improve global land hydrology must also include coupling and feedback to the global system.

Fire Weather Subseasonal-to-Seasonal Forecasting

Projects in this program area shall aim to improve the ability to provide timely and accurate guidance to safeguard lives and property and manage downstream air quality impacts associated with the marked increase in the number of acres burned by hazardous wildfire and in the wildfire-urban interface region. The number of wildfires and the acres burned is projected to increase as the climate warms, with profound changes to certain ecosystems. Wildfires threaten forest and grasslands, housing and communities, crops, aquatic and soil ecosystems, and air quality near and far from the fires. They ultimately cost the Nation billions of dollars a year when accounting for the damage to buildings and communities and the impacts on human health associated with smoke and poor air quality.

Proposals are encouraged to address uncertainty, data assimilation, and core processes in the UFS or its components needed to forecast S2S fire activity or fire conditions in the United States. Model development projects must focus primarily on the UFS addressing fire-weather modeling for subseasonal-to-seasonal timescales. Fire-weather forecast product development may work with multi-model ensemble systems, but must include the UFS as one member.

Additional Information

Project selections will balance among themes listed below and will be highly dependent upon finalized federal budget appropriations. LOIs and proposals are expected to clearly specify the priorities to be addressed. Collaboration with NOAA Laboratories and Centers is encouraged but not required. Engagement with the Earth Prediction Innovation Center (EPIC) program and contract is strongly encouraged, aiming to develop high-quality, well-tested, well-documented software using continuous integration and continuous delivery methods. EPIC projects may also perform developments in-cloud HPC and may budget for cloud time in the proposals (see the HPC guidance section below).

For additional information on the JTTI, EPIC, S2S, and Fire Weather and Atmospheric Composition Programs and more details about this competition, please review the supplemental information sheets in the grant package associated with this announcement at https://www.grants.gov. See also the EPIC website (https://epic.noaa.gov) for further information on the EPIC program and contract and how to engage.

2. Observations

The aim of this competition is to develop, demonstrate, and/or analyze innovative sensor and observing technologies and strategies that have high potential for advancing an observation systems portfolio that is mission-effective, integrated, adaptable, and affordable. Proposed research should demonstrate relevance and support to the weather enterprise.

Observations from the surface through the troposphere serve as critical inputs for the analysis and forecasts of the operational weather enterprise for the protection of life and property and enhancement of the national economy. Given that the relative scarcity of high resolution surface and planetary boundary layer/tropospheric observations impedes progress in skillful predictions of high-impact and disruptive weather, proposals should focus on technologies with the potential to improve the accuracy, reliability, spatial coverage, cost effectiveness, deployability, safety, and sustainability of observations for eventual use by the operational weather enterprise including NOAA, the National Mesonet Program, the private sector, and other government sectors.

Realizing that surface through boundary layer and tropospheric weather-related observations are unevenly distributed in space, time and purpose, proposals of particular interest should leverage in-situ surface, profiling, balloon-borne, radar, airborne, and/or UxS based observing technologies for use in sampling and/or sensing adverse weather phenomena beyond just severe thunderstorms and tornadoes, such as extreme precipitation, extreme temperatures, floods, tropical cyclones, atmospheric rivers, transitional ice precipitation, and fire weather, and that are cost-effective, widely available, and/or affordably available for purchase, independent of investment beyond the grant award period. Satellite-sensors are not included in this scope except to calibrate, validate, or integrate in-situ observations as a secondary objective.

The strongest proposals should (1) include substantial collaboration with one or more operational weather stakeholder(s) with the potential to benefit from the work and deliver sample data to the stakeholders for evaluation during the practical portion of the award period, (2) clearly document linkage to operational weather needs and demonstrate or

allocate effort to understand how new observations may be used in the operational weather enterprise, e.g. NOAA National Weather Service, National MesoNet Program, State Climatologist Programs, and tailor aspects of the observation collection and instrument design accordingly, and (3) demonstrate potential to transition to operations, applications, commercialization, or a final product, and, if applicable (e.g., the path to operations is not commercialization), explain how NOAA can sustain the observational capabilities and outcomes of the proposed work in an operational capacity. Additional information and examples regarding operational relevance and collaboration are listed in the FY23 Observations competition information sheet.

Projects appropriate for this competition range from Readiness Level (RL) 5 to RL 7 and have potential to transition to operations, application, commercialization, or final product at either NOAA or the weather enterprise within the next 3 to 6 years. The NOAA Readiness Levels are defined in the FY23 WPO General Information Sheet.

For additional information on this WPO Observations Program funding opportunity, including complete, detailed descriptions for each priority, please review the FY23 Observations Program information sheet for the Observations competition in the grant package associated with this announcement at https://www.grants.gov.

3. Social, Behavioral, and Economic Sciences (SBES)

Recent societal impacts from hurricanes, floods, snow storms, tornadoes, and wildfires demonstrates that although there have been considerable advances in weather prediction and forecasting, there is a continual need to understand the intersection of human behavior and meteorology. A variety of social, behavioral, and environmental factors “affect how we prepare for, observe, predict, respond to, and are impacted by weather hazards” (NASEM, 2018. doi:10.17226/24865). Thus, social, behavioral, and economic science (SBES) research plays a critical role in connecting NOAA's weather forecast information and improvements to the public’s growing forecast needs. The Weather Research and Forecasting Innovation Act of 2017 further recognizes the importance of SBES science integration within the larger weather enterprise by emphasizing the need to improve our understanding of how people (e.g., NWS stakeholders, forecasters, the public) receive, interpret, and respond to warnings and forecasts of weather events that endanger life and property, as well as how to best communicate weather events to various stakeholders. And, most recently, the NOAA Science Advisory Board published a report titled Priorities in Weather Research with a recommendation to “Increase investments in social and human behavioral data collection and sciences to better understand how weather products are used and to support co-

development of improved products" (p.6 https://sab.noaa.gov/wp-content/uploads/2021/12/PWR-Report_Final_12-9-21.pdf).

The Weather Program Office (WPO) Social Science Program (SSP) is dedicated to finding, funding, and fostering collaborative SBES weather research and helps translate findings into potential NOAA applications. Through this funding announcement, WPO SSP solicits SBES research proposals that benefit the overall weather community. The WPO SSP seeks to involve SBES researchers and social science led, interdisciplinary teams to integrate SBES into meteorological research, forecasting, information displays, communication of uncertainty, and understanding of individual and community vulnerabilities to weather. These disciplines include (but are not limited to) anthropology, communication, economics, geography, political science, psychology, and sociology. Specifically, this funding call supports interdisciplinary work, applied research, and more broadly, social science research that will advance theoretical findings into applications for the operational forecast community.

Projects appropriate for this competition range from Readiness Level (RL) 2 to RL 8 and have potential to transition to operations at either NOAA or the weather and water enterprise within the next 3 to 7 years. Social science projects aimed at theory and methodological development with respect to a particular application area fall between RL2–3. Projects advancing existing products or enhancing a well-established methodology likely fall between RL4–8. NOAA Readiness Levels are defined in the WPO FY23 information sheet.

All projects that involve the use of human test subjects must clearly state so in their application (see Section IV.B.3). Any projects involving NWS Federal employees in the development or distribution of methods (i.e., survey advertisement) may require OMB/PRA approval with the NWS (see WPO FY23 information sheet) and should account for this in their project timeline. If the project includes using secondary data sources and/or analysis of previously collected data, please state so clearly in the proposal.
For additional program information on this competition, please review the supplemental Information Sheet for the Social Science competition in the grant package associated with this announcement at https://www.grants.gov.

4. VORTEX-USA

VORTEX-Southeast (VORTEX-SE) is a Congressionally authorized research program that has been ongoing since 2015. 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 moderately strong tornadoes. Another principal 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.

The Weather Research and Forecasting Innovation Act of 2017 (Public Law 115-25) authorized the implementation of a tornado warning improvement and extension program, codified in the Consolidated Appropriations Act, 2021, as VORTEX-USA. VORTEX-USA continues the work of the VORTEX-SE program and also expands it by seeking to increase our knowledge of meteorological processes and societal impacts of tornadoes nationwide, while gaining improved understanding of unique regional challenges that heighten tornado vulnerability. VORTEX-USA will integrate research findings into NOAA's Forecasting a Continuum of Environmental Threats (FACETs) framework to ensure that this research effort improves NOAA's operational forecast and warning capacity and improves societal response to tornado threats and impacts.

For additional program information on VORTEX-USA and this competition, please review the supplemental Information Sheet for the VORTEX-USA 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 four 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. Innovations in Community Modeling

WPO invites proposals that address one or more of the topics below (including at least one subtopic) within priorities associated with three competition program areas - Numerical Weather Prediction Capabilities, Western States Hydrology, and Fire Weather Subseasonal-

to-Seasonal Forecasting; the LOI's and proposals must specify the primary topics to be addressed.

Program Area I: Numerical Weather Prediction Capabilities

JEIC-1: Develop next-plus-1-generation atmospheric physics, dynamical core, and/or their interfaces for the UFS and its applications.

JEIC-2: Develop next-plus1-generation component models or systems for the UFS that are modular/interoperable, computationally efficient, and/or scale aware on next-gen computing platforms. Component improvements must demonstrably improve the skill and efficiency of the coupled system and forecast system.

JEIC-3: Develop faster and more efficient initialization of coupled model forecasts through improved and innovative use of observations and advances in coupled data assimilation algorithms for the UFS.

JEIC-4: Develop innovative approaches to establish high-resolution global ensembles using UFS applications.

JEIC-5: Develop innovative post-processing capabilities of the UFS. Improve the quantification of model uncertainty in ensemble forecasts.

Program Area II: Western States Hydrology

S2SIC-1: Community-based approaches to improve Earth system models via development and evaluation of individual model components and coupling within the community-based UFS S2S prototypes crucial for improved prediction of western states hydrometeorology. Development and evaluation may focus on processes occurring within one component of the UFS Earth system, but non-atmospheric components must include coupling and feedback to the atmosphere.

S2SIC-2: Improved coupled data assimilation (DA) techniques leveraging observations in one UFS Earth system component (e.g. cryosphere, ocean, waves, land surface, and atmospheric composition) to improve another, and the incorporation of new observation types critical for improved predictions on the S2S time scale while being consistent with coupled DA for other global UFS-based applications. Foci include coupled DA techniques, where observations in one component of the Earth system are allowed to directly impact the state estimation in other components, and subsequent post-processing of derived model

output and analysis of DA schema impacting precipitation, drought, and streamflow forecasts.

Program Area III: Fire Weather Subseasonal-to-Seasonal Forecasting

FWIC-1: Representing, investigating, and diagnosing processes in the global UFS or its components in order to forecast S2S fire activity or fire conditions in the United States.

FWIC-2: Data assimilation improvements in the global UFS to improve forecasts of S2S fire activity in the United States.

FWIC-3: Representing uncertainty in the forecasts of fire weather on S2S time scales.

2. Observations

The WPO Observations Program, in collaboration with the NWS and other NOAA stakeholders, developed the following six priorities. The priorities can be found in more detail in the Observations competition Information Sheet in the grant package associated with this announcement at https://www.grants.gov.

Obs-1: Analyses of existing weather observations. In addition to exploring and developing new types of observations, NOAA invests in the maintenance and operation of a diverse and geographically distributed array of weather observations for situational awareness and environmental modeling. However, the unique impact of individual observations, or one type of observations, from legacy platforms on weather predictions is less understood as the portfolio of various observations has grown. The development of tools that enable the examination of a network of weather observations or various observation deployment scenarios, especially those that account for cost, is highly desired. Secondarily, research that examines the relative benefit of different observations through Observing System Experiments (OSEs) with numerical weather prediction models is sought. Examples include: analysis of the importance of aircraft and radiosonde observations; strategies for reconnaissance missions; and strategies for optimization of radiosonde launches.

Obs-2: Analyses of gaps in current observations. Observing System Simulation Experiments (OSSEs) involving the operational NOAA modeling framework that evaluate the impact of spatial and temporal data gaps in the current observational network on numerical weather prediction model output are sought. The strongest

proposals in this category will conduct OSSEs for several different types of current observational gaps that might inform NOAA decisions related to improving the robustness of its network. OSSEs involving future potential observing systems that are not currently deployed are outside of the scope of this priority.

Obs-3: Fire Weather. As documented by the National Wildfire Coordination Group, Fire Environment Committee's analysis in 2017, and reinforced in the 2022 ICAMS and USGEO report (Observation and Information Shortfalls in Support of Wildland Fire Activities Report) observations and decision support tools are critical priorities for improvements in the forecasting, nowcasting, and mitigation of Wildfire events. This priority seeks proposals that fall under at least one of the following categories: (1) Decision Support - the capability for a system to integrate, graphically display, and analyze fire weather observations that be used and sustained across collaborating agencies and partners, (2) Observations - for the development, demonstration and establishment of operational protocols for relevant boundary layer and fire perimeter observations, and (3) Smoke Plumes and Fire Weather Environment - expanding the capability of deployed lidar data up to and including 50,000 ft cloud height and ceiling.

Obs-4: Mesonet Boundary Layer Observations. The NOAA Science Advisory Board (SAB) Priorities for Weather Research (PWR) report documents the need for efforts to improve and expand planetary boundary layer observations. This priority solicits proposals that aim to develop and demonstrate capabilities for sustained boundary layer profile observations within formal mesonet programs to improve the operational detection and forecasts of severe weather.

Obs-5: Tropical Cyclone Observations. Tropical cyclones are extreme weather events that are capable of imparting long lasting structural, economical, and social devastation on coastal communities. This priority seeks proposals that address one or more of the following sub bullets for advancing tropical cyclone observing capabilities that aim to improve tropical cyclone predictions, situational awareness, and understanding of these systems, particularly for the tropical cyclone boundary layer. Examples include wind measurement improvements, demonstration of uncrewed systems, analysis of existing or emerging technologies, enhancing WSR-88D algorithms, and data assimilation strategies using NOAA Unified Forecast Systems.

Obs-6: Innovative observing technologies including observations of opportunity. Innovative and nontraditional observing technologies are key in the continued advancement of current observing systems, techniques, and data delivery to improve

forecast challenges, situational awareness, and critical data gaps. This priority seeks proposals that fall under at least one of the following categories: (1) Innovative Observing Technologies - proposals recommending cost effective observing technologies targeting the planetary boundary layer that hold high potential for improving severe weather forecasts and services and (2) Observations of Opportunity - nonconventional observations that are being collected by commercial industry, states, local authorities, and private citizens, not presently part of an operational weather observing network. These nonconventional observations include data collected in densely populated urban areas, gaps in the United States and territories' observing networks, and surrounding oceans.

3. SBES

The WPO Social Science Program (SSP), in collaboration with NWS, developed the following three priorities:

SBES-1: Develop and test methodologies that systematically collect data to understand end-users' information ecosystems in support of weather-related decision making. Information ecosystems are broadly defined as a system of people and organizations sharing, distributing, and/or transforming information in support of an action or decision. This may include projects that advance understanding of how various end-users access, gather, use, or value weather and other types of information from a variety of public, private, and academic sources (i.e., NOAA data, other federal data, private sector, traditional knowledge, etc.), the frequency with which end-users would like weather information updated to optimize information flow, how weather information transforms into an externally communicated message, the role of social networks and key influencers, and/or how information supports weather-related decision-making for a variety of end users.. End users include (but are not limited to) emergency managers, operational meteorologists, broadcast meteorologists, public(s), including vulnerable and/or under-represented populations, and other weather and water decision makers (e.g., water managers, utility/public works managers, insurance sector, recreational industries, etc.). Project outputs may include data, methods, and research guided recommendations that:

SBES-1(a): Identify, develop, test, and validate methodologies that systematically collect data to understand information ecosystems in support of weather-related decision making associated with flooding, precipitation (e.g., rain, snow, etc.), and/or fire weather products and services.

SBES-1(b): Identify, develop, test, and validate methodologies that systematically collect data to understand operational meteorologists' information ecosystems in support of forecast-related decision making including workflows, technology and tools (such as models or observing systems), modes of communication, and the role of practical knowledge ("know-how").

SBES-1(c): Identify, develop, test, and validate methodologies that systematically collect data to understand information ecosystems in support of weather-related decision making among vulnerable and/or under-represented populations. This may include ways to understand how people and communities find, share, value, and trust weather information in their own local or social contexts.

SBES-1(d): Identify, develop, test, and validate methodologies that systematically collect data to understand the socioeconomic value of current and future improvements to weather and water information ecosystems (such as product or service enhancements) in support of weather-related decision making.

SBES-2: Improve understanding of how to personalize and localize visual and verbal communication of forecast risk and uncertainty, including probabilistic forecast information, for weather hazards at various spatial and temporal time-scales and lead times (e.g., ranging from minutes to subseasonal). Many forecast products display risk at a regional or national scale. While this is effective for users who have a regional or national focus, recent user feedback to NOAA suggests that this information is not "personal" or "local" enough. Rather, users need personal situation context to understand their risk. Project outputs may include data, methods, and research-guided recommendations that:

SBES-2(a): Improve the personalization or localization of NOAA's visual displays of weather risk, confidence, uncertainty, or probabilistic information for emergency managers, and/or the public. Personalization or localization may include, but are not limited to, testing features such as zoom functions, zip code lookups, or adding vulnerability information to orient the user. Visual displays may include the use of static or interactive maps, graphics, virtual reality, or other creative visualizations. Visual displays may explicitly or implicitly convey probabilistic information.

SBES-2(b): Improve the personalization or localization of weather risk, confidence, uncertainty, or probabilistic information through the lens of verbal communication, such as providing storm summaries or key messages that offer context and/or

tailored messaging approaches that provide local forecast information for emergency managers and/or the public.

SBES-2(c): Improve the understanding of how naming storms (for any hazard type) and/or using categories, indices, or risk levels affect the personalization or localization of weather risk.

SBES-3: Improve understanding of how emergency managers integrate climate-scale considerations in short-term weather planning to improve the effectiveness of impact-based decision support services. With extreme weather events exacerbated by climate change, emergency managers need to prepare for more frequent and intense weather-related impacts, relying less on historical meteorological impacts to plan for and/or communicate weather-related risks. Projects may include, but are not limited to, understanding how emergency managers might: evaluate and/or manage their risk perceptions, frame weather risk communication messages, develop or adapt weather-related emergency operations plans, and/or use innovative approaches to conduct short-term, weather-related hazard mitigation planning; to address future weather-related impacts in a changing climate. Project outputs may include data, methods, and/or research-guided recommendations to improve climate-scale considerations within impact-based decision support for short-term weather hazards.

4. VORTEX-USA

The VORTEX-USA 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. The latest version of the VORTEX Science Plan is available at https://inside.nssl.noaa.gov/vsecommunity/wp-content/uploads/sites/34/2020/11/Science_Assessment_Sep2020_formatted_V2.pdf.

VORTEX-USA-1: 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-USA-2: 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, and which intersections in particular contribute to severity of impact in different regional, 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 other regions; and 3) understanding the factors and decisions that enhance individual survival of tornadoes under different circumstances.

VORTEX-USA-3: Explore processes relevant to low-level vorticity generation and tornado formation utilizing data from previous VORTEX-SE field campaigns.

VORTEX-USA-4: Explore refined or novel predictors of tornadoes in the Southeast utilizing the sounding archive developed through previous VORTEX-Southeast field campaigns and other appropriate data.

VORTEX-USA-5: 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-USA-6: 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 3) protective decision making, which needs to take account of sheltering options that exist and the alternatives, especially for vulnerable populations and underserved living in vulnerable structures.

C. Program Authority

Public Law 115-25 Weather Research and Forecasting Innovation 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 either actual or anticipated 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, and federal funding appropriations. 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. Innovations for Community Modeling
   Approximate total award funding per year: $5.0 M
   Expected number of funded projects: 10–15
   Maximum funding limit per project per year: $500 K

2. Observations
   Approximate total award funding per year: $4.5 M
   Expected number of funded projects: 10–16
   Maximum funding limit per project per year: $300 K

3. SBES
   Approximate total award funding per year: $1.5 M
   Expected number of funded projects: 7–10
   Maximum funding limit per project per year: $250 K

4. VORTEX-USA
   Approximate total award funding per year: $2.5 M
   Expected number of funded projects: 4–7
   Maximum funding limit per project per year: $500 K

B. Project/Award Period

The maximum time period of awards is 2 years, except for the VORTEX-USA program,

which supports awards of up to 3 years. Any proposal that exceeds the stated duration for the competition to which it is submitted will be rejected and not reviewed. The recommended project start date for all programs is August 1, 2023. Applicants are advised to use this date as the project start date in their proposal.

Maximum Award Length: 2 years (3 years for VORTEX-USA)
Start Date: August 1, 2023

The formal award is subject to the availability of funds. It is possible that NOAA may delay the start of some awards due to delays in Congressional budget appropriations or other circumstances that would prevent the formal 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.

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, 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 that fund 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. Funding for contractual arrangements for services and products for delivery to NOAA is not available under this announcement.

Approved funding allocated for collaborators at federal NOAA institutions shall be awarded by an intra agency fund transfer. Inter-Agency Agreement (IAA) fund transfers to non-NOAA federal agencies are not permitted under the funding opportunities in this notice.

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

III. Eligibility Information

A. Eligible Applicants

Applicants are responsible for ensuring that they are eligible for the competition for which they are applying. If any applicants requesting funding are ineligible, the application(s) will be rejected without review.

Eligible applicants are:

- -U.S. institutions of higher education;
- -Cooperative Institutes;
- -U.S.-based commercial organizations;
- -State, local and Indian tribal governments in the U.S.; and
- -U.S. non-profit organizations.

No foreign (based outside of the U.S.) applicants may request funding.

Applicability to Federal Employees and Contractors: Federal employees may serve as co-PIs or co-Investigators (co-Is) but their salary costs are ineligible expenses to be covered by awards from this NOFO. Any NOAA Federal applicant is 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.” Eligibility also depends on the statutory authority that permits NOAA to fund the proposed activity. For the purposes of this funding announcement, contractors for the Federal government have the same eligibility restrictions as Federal employees. Costs incurred by NOAA federal collaborators are eligible for funding through this NOFO only if they fit into one of the categories listed below. Further details are provided in the attached NOFO Information Sheet.

- Allowed: NOAA federal collaborator travel is only eligible in critical project-dependent cases, not including conference or workshop travel.
- Allowed: NOAA Federal funding may also cover project-critical equipment, indirect (overhead) costs for NOAA affiliate institutions, infrastructure, and testbed-related costs.
- NOT Allowed: Any other direct funding for federal institutions, including employee salaries or other costs not listed as eligible in Section III.A, will not be considered as part of this funding opportunity.

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 the proposal is recommended for funding.

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 (LOI) other than the requirements identified below in Section IV.B.2.

B. Content and Form of Application

Applicants to all competitions are required to submit a full proposal and are strongly encouraged to submit an LOI. Failure to adhere to these instructions will result in full proposals being rejected without review. Some helpful resources for applicants can be found at this website: wpo.noaa.gov/nofo.

1. SPECIAL INFORMATION

MULTI-INSTITUTION PROPOSALS. For joint projects involving applications from multiple institutions, a PI must be identified for each institution submitting an application. All applications for that project must have the same title and identify the same Lead PI, co-PIs, and co-Is on the applications' title page. The designated Lead PI and their associated institution will then be responsible for additional documents as described in Section IV.B.3.

For collaborative proposals that include multiple applications, each partner or PI institution wishing to receive funds directly from NOAA is responsible for submitting to Grants.gov separate proposal packages with identical project titles, title pages, project narratives, and project start dates. If any non-federal institution proposed to receive funding directly from

NOAA as part of a multi-institution collaborative project fails to submit a full proposal, then all partner proposals may be rejected without review, unless a subaward agreement has been arranged. Federal institutions may not submit a proposal.

All external 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 budget 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 list all funded and unfunded PIs and their institutional affiliation(s), even if from a separate funded institution, for a given joint project.

SUBAWARDS. If a subaward agreement has been arranged with their funded co-PIs such that the full award amount will be distributed directly from NOAA to one institution, then only one project proposal must be submitted (by the Lead-PI's institution) to Grants.gov. Any institutions receiving funding through a subaward by another institution and not directly from NOAA should not submit a full proposal. However, the subaward should be clearly listed in the full proposal's budget narrative immediately below the budget table (Section IV.B.3.m).

REQUIREMENTS FOR NOAA FEDERAL COLLABORATORS. 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. Proposals including a federal collaborator should include a signed letter of support, a completed collaborator form, or both, depending on whether the federal collaborator is requesting funding.

If a federal collaborator is requesting funding:
-a signed letter of support is required, and
-a collaborator form is optional.

If a federal collaborator is NOT requesting funding:
-a collaborator form is required, and
-a letter of support is optional.

This applies to all unique collaborating federal institutions (including NOAA centers, laboratories, and testbeds). Only one letter and/or collaborator form is required from each institution on each proposal. For multi-institution proposals, the letter(s) and/or collaborator form(s) only need to be submitted with the Lead-PI's application.

Letters of support should be signed by the NOAA collaborating organization's director outlining their funding request or other nature of collaboration. Federal collaborator costs should be included in the budget summary on each application's title page and be identified in the Lead-PI institution's budget summary and budget justification described in Section IV.B.3. However, federal institution costs should not be included in the non-federal PI's SF-424 budget documents.

If institutional indirect (overhead) 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. Any NOAA Laboratory overhead costs at this pre-agreed-upon rate (such as those required of affiliated NOAA Cooperative Institutes) may be requested as part of the proposal's budget.

All funding requested by a federal institution, to cover overhead or otherwise, will count against the maximum total project cost as specified for the competition (Section II.A), and the proposed project-total cost must not exceed that limit. Requested costs for federal collaborators (excluding indirect overhead costs) must not exceed 20% of the project total cost. The request for these funds will be considered by the WPO Program Manager and, if approved, will be provided directly to the NOAA organization if the proposal is selected. If this proposed funding is not properly and clearly documented, the application may be rejected without review.

2. LETTER OF INTENT (LOI)

Prior to submitting a full application package (proposal) for the competitions identified in this announcement, 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, only one LOI should be submitted, by the Lead PI. The LOI should provide a concise description of the proposed work and a summary budget table. There is no limit to the number of unique LOIs that may be submitted by a single applicant.

The purpose of the LOI process is to provide information to potential applicants on the merits and value of their proposed project to the competition in advance of preparing a full application. Full applications will be encouraged only for LOIs deemed to be high merit and value. Applicants who have not been encouraged may still submit a full application. While LOIs are strongly encouraged, applicants are not required to submit them and may submit a full application even if they have not submitted an LOI.

LOIs will be reviewed by WPO against the Program Objectives and Priorities of the relevant funding competition to assess potential value of the proposed research to NOAA and/or other targeted partners in the weather enterprise. PIs will be provided, upon request, a short synthesis of the factors from the review that led to the recommendation.

Each LOI should be submitted through a form at the following address: tinyurl.com/FY23WPOCompetition, or by email to oar.wpo.competitions@noaa.gov, by the deadline specified in Section IV.D below. The LOI should provide a concise description of the proposed work and a statement regarding its relevance to the targeted competition. The LOI should be no more than two pages in length and should include the items listed below. If these items are not included or the LOI is submitted late, the LOI may not be considered:

-Proposal Title
-The name(s) of all PI(s) and co-PIs, their home institution(s)
-The NOFO competition to which the proposal is applying, and that competition's priority(ies) this project will address
-The planned outputs/products
-The planned outcomes/impacts/benefits
-The planned methodology and timelines
-The proposed starting and ending Readiness Levels (RL), any proposed use of a NOAA Testbed or Proving Ground, and if a NOAA Transition Plan has been developed for earlier work on this topic
-The potential operational, commercial, or other end-user adopter(s) of the project outputs
-A simple budget table to summarize the funding allocation

3. FULL PROPOSAL

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 final proposal must include the following items that are described below:

PROJECT NARRATIVE (14 pages plus Other Attachments)
-Title Page
-Abstract page
-Problem/Opportunity Statement
-Products/Outputs/End Users
-Impacts/Benefits/Outcomes

-Methods and Activities
-Schedule
-Outreach and Education
-Diversity and Inclusion
-Data Management Plan
-Other Attachments

BUDGET

STANDARD FORMS
-Standard Form 424 - Application for Federal Assistance
-Standard Form 424A - Budget Information - Non-Construction Programs
-Standard Form 424B - Assurances - Non-Construction Program
-Form CD-511 - Certifications Regarding Lobbying
-Standard Form LLL - Disclosure of Lobbying Activities

PROJECT NARRATIVE: (14 pages plus Other Attachments)

The project narrative should not exceed 14 pages, including Sections IV.B.3.(a–i) below (including the title page, abstract, and figures). Other Attachments that should be included are not included in this 14 page limitation (i.e., the Data Management Plan, Curricula Vitae (CVs), reference list, and Letters of Support, Collaboration Forms). For separate applications from multiple institutions for the same joint project, an identical project narrative is required in each institution's application, but they must clearly describe the work contributions of each funded PI.

The Project Narrative must contain the following elements:

a) TITLE PAGE (one page): Provide 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 the project as a whole, and for each individual institution (including each internal federal and external non-federal institution), including indirect costs; 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. If the requested information does not fit onto a single title page with reasonable effort, then a second title page that does not count against the proposal page limit may be added.

b) ABSTRACT (one page): The abstract must appear on a separate page, headed with the proposal title and the names of all PIs, co-PIs, and collaborators, and their affiliation(s). The abstract text must contain a brief, plain-language summary of the proposed work including,

-primary project products/outputs and potential end-users;
-intended impacts/benefits/outcome, including how the outputs will (or may) be applied;
-the NOFO competition to which the proposal is applying and the relevance to that competition's priority(ies); and
-the total funds requested by the proposal.

c) PROBLEM/OPPORTUNITY STATEMENT: Identify the problem and/or the opportunity, and its relevance to one or more of the competition's science priorities identified in Section I.B. Please reference only priorities listed under the specific competition to which you are applying. If appropriate, concisely cite results from prior relevant research and/or previously-funded NOAA projects that contributed to the proposed research concept, and if applicable, provide the NOAA project award number, title, and period of performance for any previously-funded NOAA projects performed either by you or other researchers. Indicate if a NOAA Transition Plan has been developed for earlier work on this topic.

d) PROJECT PRODUCTS/OUTPUTS: Identify the primary planned products/outputs (e.g., instruments, sensors or observing platforms; tools, widgets, and technologies; model codes, software, or algorithms and associated documentation; published data sets or databases; reports, research-guided recommendations, or other formal summary documents; methodologies; visual displays or other graphical prototypes; inventions, patent applications, and/or licenses; audio or video products; outreach, education, and training events; websites; publications, conference papers, and presentations). Provide the current/starting and target/project-completion readiness level (RL) with an explanation of how each level was determined.

Any project outputs or products other than those required for standard progress reporting are not considered project deliverables but should still be described as key planned outputs. More information can be found under Funding Restrictions (Section IV.F).

e) PROJECT IMPACT/BENEFITS/OUTCOMES: Identify the planned impacts/benefits/outcomes (e.g. improvements in detection, accuracy, reliability,

coverage, latency, lead time, skill, processing speed, efficiency, cost, knowledge). Identify which specific weather enterprise group or organization is expected to be the ultimate recipient(s) and beneficiary(ies) and/or end users of these project outcomes (e.g., local weather or river forecast offices, a national operational forecast center, community code repository, a state mesonet, a commercial organization, etc.). Provide any metrics or success indicators as appropriate.

f) SCHEDULE: Provide a table or chart with a schedule for completing key milestones, products, and expected progression of or iteration through RLs.

g) METHODS AND ACTIVITIES: Concisely describe the key activities and methods that will be conducted to successfully complete the project. This may include information on model frameworks, simulations, HPC availability, data collection, analysis, collaborations needed (including needed operational collaborations for transition), and necessary travel (associated with data collection, project meetings, testbed planning meetings, testbed experiments, and the presentation of results at scientific conferences as appropriate). Applicants are encouraged to consider contingencies in the event of scenarios that restrict travel, such as those resulting from the COVID-19 pandemic.

If applicable, the methods section should also include information on:

-Institutional Review Board (IRB): Applicants submitting proposals that involve the use of human test subjects should state so clearly in their Methods, and also include appropriate milestones in the schedule for completion of the Institutional Review Board (IRB). If the recipient seeks agency assistance conducting or sponsoring any collection of information, the recipient must obtain Office of Management and Budget (OMB) clearance. Additional information about requirements for human subject testing, including applicability to focus groups and testbed experiments, can be found in the Information Sheet;

-High-performance computing (HPC): The availability of HPC the project has access to to ensure success; and

-Use of Testbeds: Any proposed testing in one of the NOAA Testbeds or Proving Grounds.

h) OUTREACH AND EDUCATION: Describe how the project team plans to share project progress and results with the scientific community and/or general public, including but not limited to, publications, presentations, website, hosting workshops, developing training materials, code repository, or other engagement

activities. Also describe any activities that promote the education and field experience of undergraduate and graduate students, and/or are opportunities developed to share with students and K–12 educators, as well as any educational scholarship or internship opportunities presented by this project.

i) DIVERSITY, EQUITY, INCLUSION, ACCESSIBILITY (DEIA): Articulate how the proposed project furthers their institution's commitment to diversity, equity, inclusion, and accessibility (DEIA). A strong DEIA statement communicates that creating and fostering a diverse and inclusive workforce is a priority for the applicant and their institution. Proposals should include, and will be evaluated on (among other criteria; see Section V.A), specifics on ongoing or planned project activities that encourage diversity, accessibility, and an inclusive research environment, including, but not limited to:

-a diverse project team;
-utilization of educational and research partnerships with institutions serving minority and underrepresented populations (such as Historically Black Colleges and Universities, Tribal Colleges and Universities, Minority Serving Institutions, NOAA Cooperative Science Centers, and institutions that work in underserved communities; Minority Serving Institution is defined and qualifications are listed in the Information Sheet);
-utilization of active collaborative programs seeking diversity in science, technology, engineering, and mathematics (STEM);
-involvement with existing education and outreach programs (such as the NOAA Educational Partnership Program);
-the provision of accommodations and modifications to ensure equal access to employment and participation in activities for people with disabilities, the reduction or elimination of physical and attitudinal barriers to equitable opportunities, a commitment to ensuring that individuals with disabilities can independently access every outward-facing and internal activity or electronic space, and the pursuit of best practices such as universal design;
-project team or individual training, such as for awareness and prevention of sexual assault and sexual harassment (SASH); and
-any other initiatives that build the capacity of and materially foster a diverse and inclusive research team and environment.

j) DATA MANAGEMENT PLAN. Proposals submitted in response to this announcement must include a Data Management Plan with details on how the data collected in the project will be made publicly available. 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. The Data Management Plan does not count towards the 14-page proposal limit.

k) OTHER ATTACHMENTS: Additional attachments described below do not count towards the 14-page count defined above. The 14-page count only applies to Sections IV.B.3.(a–i).

i. Curriculum Vitae (CV): (Required) 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.

ii. Letters of Support (Optional): In addition to any letters supporting funding requests by federal collaborators, optional Letters of Support from key stakeholders or potential operational end-users may be included to help document the relevance of the project to the NOFO priorities and potential pathways for transition.

iii. Documentation of NOAA Collaboration Form (Required if applicable): If NOAA unfunded collaboration is proposed, a NOAA Collaboration Form is required from the relevant NOAA Director or their delegate. The form should indicate specific NOAA staff, laboratory, HPC, testbed, or other resources the project is leveraging.

vi. National Environmental Policy Act (NEPA): This announcement does not require any NEPA questions to be answered as part of the application. A NEPA evaluation will be completed after project selection. The applicant(s) may be required to answer additional NEPA-related questions if NOAA needs additional information beyond what is described in the proposal package.

l) CURRENT AND PENDING 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. Amounts requested as part of the current proposal must be included as pending support.

m) BUDGET. In addition to the title page budget table and SF-424A Budget Information Form, each individual proposal must include a Budget section that includes a full Budget Table and Budget Justification. The information in the Budget Table, Budget Justification, and the SF-424A Budget Information form must be consistent. Unlike the title page, neither the Budget Table in this section nor the SF-424A should include budget information for PIs or co-Is at other institutions

who may be contributing to a joint project. The Budget Narrative must include:

i. a detailed itemized budget table organized by year; and

ii. a budget justification that demonstrates the cost is appropriate. This budget summary should include the PI's scientific and technical support staff salaries and fringe benefits, facility requirements, computing and communications, supplies and travel. Only include the funding requested by the institution submitting the proposal. The information in this table must exactly match the SF-424A.

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 their application that shows a breakout of the budget for all partners on the joint project in addition to the detailed budget for their own institution. Total funding requested by other institutions (including any federal institutions) must be included in the budget summary table on the title page (see Section IV.B.3). Any subaward agreements should be clearly identified in the budget justification and listed immediately below the budget table.

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. Federal or contractor salaries, materials, equipment, and travel expenses are not appropriate to classify as indirect costs. 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

n) STANDARD FORMS. The full proposal package includes the information described above as well as the required federal forms:

i. Standard Form 424 - Application for Federal Assistance
ii. Standard Form 424A - Budget Information - Non-Construction Programs
iii. Standard Form 424B - Assurances - Non-Construction Program
iv. Form CD-511 - Certifications Regarding Lobbying
v. 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.

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

The new Unique Entity Identifier (UEI) has replaced the DUNS number and is now the primary means of identifying entities registered for federal awards government-wide in the System for Award Management (SAM), which may be accessed online at https://www.sam.gov. The UEI is important for enhancing the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act (31 U.S.C. 6101 note). If your entity is already registered in SAM, it has been assigned a UEI and is viewable in SAM. While the UEI is assigned by and viewable within SAM, applicants can also find it listed under their organization profile in Grants.gov.

To apply through Grants.gov, users 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.
Additional information about SAM registration and submitting through Grants.gov can be found in the Information Sheet attached to this announcement in Grants.gov.

D. Submission Dates and Times

Deadlines to submit LOIs and full applications are at 5:00 p.m. Eastern Time (ET) on the following dates.

LOI due date: September 15, 2022
Expected NOAA response date on LOIs: October 19, 2022
Full application package due date: November 17, 2022

In the event of a lapse in government appropriations or other extenuating circumstances that

may preclude NOAA from executing the competitions in a timely manner, assume that there is no change to the regularly scheduled deadlines in this section unless a revised deadline has been announced and published on Grants.gov.

i) LETTERS OF INTENT (LOI)

LOIs are optional and the feedback from WPO is non-binding.

In order to receive feedback, the LOI must be received by NOAA by completing the submission form at tinyurl.com/FY23WPOCompetition. Alternatively, LOIs may be submitted via email at oar.wpo.competitions@noaa.gov no later than 5:00 p.m. ET on September 15, 2022. LOIs should be submitted as PDF documents. If applicants do not receive a confirmation of receipt within 24 hours of submitting their LOI, it is recommended that they contact the WPO competitions email address and appropriate Program Manager (Section VII) to confirm receipt of their LOI. NOAA determines whether an LOI has been submitted before the deadline by the date and time on the email. PIs are still permitted to submit a full proposal if their LOI is received after the deadline. On or about October 19, 2022, applicants submitting an LOI will receive an email response from NOAA encouraging or discouraging a full submission proposal.

ii) FULL APPLICATION PACKAGES

Full application packages for all competitions must be submitted via Grants.gov no later than 5:00 p.m. ET on November 17, 2022. Applications received after that time or via other means (including email) will be rejected without review. The date and time receipt indication from Grants.gov will be the basis of determining acceptance for review processing by NOAA.

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

i) Multiple Proposals. Applicants may submit proposals to multiple competitions if the proposals are on different topics and the Lead PI is eligible for each competition. However, duplicate work with different federally funded projects is not permitted. 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. NOAA funding decisions for any given submitted proposal must not be contingent upon funding decisions of any other separate submitted proposal unless it is clearly identifiable as part of a collaborative project.

ii) Federal Costs. NOAA will not fund federal salary costs for federal government employees (NOAA or otherwise) who may propose to serve as a PI, co-I, or collaborator. Other eligible costs for federal NOAA collaborators are listed in Section IV.B. Funds for these approved costs will be transferred directly to the federal employee's organization through an intra-agency fund transfer within NOAA (see Section II.C). Requested costs for federal collaborators (excluding indirect overhead costs) must not exceed 20% of the project total cost.

iii) Deliverables. NOAA cannot fund nor accept any 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. Any proposed transitions to NOAA cannot be completed using funds awarded through this NOFO; as a result, please include planned transitions to NOAA as follow-on work and not as a deliverable for this award.

iv) Multi-Year Projects. 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.

G. Other Submission Requirements

Full proposals should be submitted online at grants.gov. Additional submission information can be found in Section IV.D of this NOFO.

V. Application Review Information

A. Evaluation Criteria

1. Relevance of Proposed Project to Program Goals (Relevance, Impact and Stakeholder Support) (33 points)

Reviewers will consider the following questions:

Relevance and alignment with competition priority(ies)

i) How clearly defined is the problem and/or opportunity?

ii) How aligned is the proposal with a competition's priority(ies)?

iii) How appropriate for the competition is the proposal's expected Readiness Level (RL) progression, given the competition's relevant RL range?

Potential impact/benefit/outcomes

iv) How relevant to the competition's desired outcomes are the project outputs/products?

v) How impactful or beneficial would this project's outcomes be, if successful?

Stakeholder support and/or involvement

vi) How robust is the proposed collaboration with operational stakeholders and/or potential adopters (i.e. operational Co-PI, collaborator, Letters of Support, NOAA Collaborator Acknowledgement Form(s), existing Transition Plans, Testbed involvement)? This question should be addressed with a focus on quality over quantity of collaboration. This means that having a large number of the examples provided above does not always indicate a robust collaboration.

2. Technical or Scientific Merit and Project Design (33 points)

This criterion assesses if the proposal is well-designed, technically sound and/or innovative. Reviewers will consider the following questions:

Technical /Scientific Merit

i) How rigorous are the proposed methods and solutions?

ii) How much does the proposed project improve technology, knowledge, or methods and advance the field of study?

Project Design

iii) How well defined are the proposed project milestones, outputs, and timeline?

iv) How achievable are the proposed methods and solutions, given the project milestones and timeline?

3. Qualifications of Applicants and Collaborative Environment (14 points)

This criterion assesses whether the research team possesses the necessary experience, education, training, facilities, collaboration environment, and administrative resources to accomplish the proposed project. Reviewers will consider the following questions:

Research Team Qualifications

i) How will the research team's experience, education, training, facilities, and/or resources help accomplish the project?

ii) How effectively has the research team demonstrated the ability or potential to conduct successful research, development, and/or transition?

iii) How effectively has the research team demonstrated the ability or potential to publish peer reviewed articles and/or otherwise present or disseminate their research findings in professional and/or outreach settings?

Collaborative Environment

iv) How effective are the proposed collaboration efforts and partnerships, and are they sufficient to accomplish the proposed project goals?

4. Project Costs (10 points)

This criterion evaluates the budget (considering both financial and time costs) to determine if it is realistic, efficient, and aligns with project needs and proposed timeline. Reviewers will consider the following questions:

i) How reasonable, realistic, allocable, and necessary are the requested costs, and do they align with project outputs/products, outcomes/benefits, and time period (assuming that institutional costs such as projected salary increases are set by institutions and not controlled by the applicants)?

ii) How reasonable are the proposed staffing resources, and are they sufficient to successfully complete the proposed work?

iii) How impactful are the potential benefits relative to the cost?

iv) Will the project be accomplished in a cost-efficient way?

5. Outreach and Education (5 points)

This criterion assesses whether the project provides a focused and effective education and outreach strategy. This section will be scored out of 5 points. Reviewers will consider the following questions:

i) How well does the proposed project engage in knowledge sharing activities with the scientific community and/or the weather enterprise? Examples include peer-

reviewed publications, presenting at a national conference, hosting or attending a workshop, etc.

ii) How well does the proposal describe the management of data in the Data Management Plan? This includes data storage during the project, plans for sharing and public availability of data at the conclusion of project (with specific mention of locations), and the format of data, metadata, and documentation that will be provided with publicly available data.

iii) How well does the proposed project engage in knowledge sharing activities with relevant stakeholders and/or the general public? This might include: hosting workshops, developing training materials, developing a website, engaging with K–12 educators and students, etc.

iv) How well does the project proposal incorporate student involvement and engagement? This might include training, mentoring, scholarship, internship and/or development opportunities for students throughout their educational career.

6. Diversity, Equity, Inclusion and Accessibility (5 points).

This criterion assesses the project's compliance with NOAA's policy on diversity, equity, inclusion, and accessibility (DEIA), as defined in Section IV.B.2.i, and its potential broader impact on DEIA. Reviewers will consider the following questions:

i) How strong is the potential of the project outputs and outcomes to directly benefit one or more traditionally underserved and/or vulnerable populations?

ii) How strong is the potential of this project to broaden the participation of one or more traditionally underserved and/or vulnerable populations?

iii) How well does the proposal describe how the applicants will further advance DEIA in the context of their project? Examples include, but are not limited to: easy-to-use tools or products, new community engagement approaches, incorporating social science and evaluation capacity.

iv) How well does the research team prioritize and advocate for DEIA throughout the proposed project? This could include how DEIA principles are interwoven into their work culture, their research group, their community, their institution, or in the preparation of the proposal.

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.

Independent peer reviews consisting of at least three subject matter experts per proposal who may be Federal and non-Federal Government employees will evaluate all compliant applications (proposals) using the evaluation criteria specified above in Section V.A. All proposals within each competition category pool will then be competed and ranked against each other, according to the average of the reviewer scores. These final scores for each application will be used to determine the rank order of the proposals for each of the competitions. Final selections will be based on the rank order and Selection Factors described below in Section V.C.

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 a grants officer before a selection recommendation decision is made, before an award is made.

The WPO Director is the designated Selection Official for all competitions in this announcement and will make the final selection recommendations to the NOAA Grants Officer.

C. Selection Factors

The merit review ratings shall provide a rank order to the selecting official for final funding recommendations. The selecting official 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/program areas/themes
   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 Section 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. WPO anticipates that funding recommendation decisions on applications will be made in May 2023. Such decisions are contingent upon the final FY 2023 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 formal award offers approximately one month before the planned start date for each of the competitions (listed in Section II.B). Significant Congressional funding delays after the fiscal year begins, or delays in NOAA's processing of awards, may result in delays in the dates of both award recommendation decisions and the awards themselves and could result in award offers not being distributed until after the proposed project start dates.

VI. Award Administration Information

A. Award Notices

Applicants will receive notification from WPO that their application has either been recommended or not recommended for funding to the NOAA Grants Management Division immediately 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 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

UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS. Through 2 C.F.R. § 1327.101, the Department of Commerce adopted Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards in this program. Refer to

http://go.usa.gov/SBYh and http://go.usa.gov/SBg4.

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

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.

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. Minority Serving Institution is defined and qualifications are listed in the Information Sheet.

DATA MANAGEMENT AND SHARING PLAN.

1. As stated in NOAA's directive on data sharing (https://nosc.noaa.gov/EDMC/PD.DSP.php), environmental data, including socio-economic data, 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. It is recommended that data are stored in a widely-used online data archiving platform or repository.

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 data and information expected to be created during the course of the project;

-procedures for storing collected data during the project;
-the tentative location of shared data; 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. Other data archiving platforms are available to PIs for data publishing and sharing, including (but not limited to) Converge/DesignSafe-CI and Harvard Dataverse. The sharing of data collection instruments is also highly recommended, if appropriate and if the chosen data platforms allow the submission of methodological instrument(s) in addition to the data.

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 FOIA. Based on information provided by the applicant, the

confidentiality of the content of funded applications will be maintained to the maximum extent permitted by law.

PAPERWORK REDUCTION ACT (PRA) – This notification involves collection-of-information requirements subject to the Paperwork Reduction Act (PRA). Use of Standard Forms 424, 424A, 424B, and SF-LLL and CD-346 has been approved by the Office of Management and Budget (OMB) under control numbers 0348-0043, 0348-0044, 0348-0040, and 0348-0046 and 0605-0001. Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of PRA unless that collection of information displays a currently valid OMB control number.

SEXUAL HARASSMENT, OTHER FORMS of HARASSMENT, or SEXUAL ASSAULT. WPO will not tolerate sexual harassment, other forms of harassment or sexual assault within the agency, at awardee organizations, or anywhere WPO-funded science and education are conducted. As a primary funding agency of fundamental and applied science research in the U.S., WPO is committed to promoting safe, productive research and education environments for current and future scientists and engineers. WPO considers the PI and any co-PI(s) identified on a WPO award to be in positions of trust. The PI and all award personnel must comport themselves in a responsible and accountable manner during the performance of award activities whether at the grantee organization, online, or conducted outside the organization, such as at field sites, or facilities, or during conferences and workshops.

Organizations that receive WPO funds are responsible for fully investigating complaints and for compliance with federal non-discrimination laws, regulations and executive orders. WPO expects all research organizations to establish and maintain clear and unambiguous standards of behavior to ensure harassment-free workplaces wherever science is conducted. A community effort is essential to eliminate sexual and other forms of harassment in science and to build a scientific workspace where people can learn, grow and thrive. For more information on NOAA’s workplace and conduct expectations of financial award recipients, see https://www.noaa.gov/organization/acquisition-grants/noaa-workplace-harassment-training-for-contractors-and-financial.

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 WPO. 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 120 days after the award expiration. Copies of all submitted reports will become the property of the U.S. Government.

As part of WPO'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 endeavors 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 WPO 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 WPO at oar.wpo.competitions@noaa.gov. For specific questions about a specific competition, please contact the appropriate Federal Program Manager below:

1) Innovations: Henrique Alves (henrique.alves@noaa.gov; (302-751-6557)
-NWP priorities: Chandra Kondragunta (chandra.kondragunta@noaa.gov; 202-603-2567)
Maoyi Huang (maoyi.huang@noaa.gov; 202-853-6776)
-Fire Weather priorities: Jordan Dale (jordan.dale@noaa.gov; 240-475-7182)

-Western States Hydrology priorities: Jessie Carman (jessie.carman; 202-381-7037)

2) Observations: Mark Vincent (mark.vincent@noaa.gov; 240-499-6413)

3) SBES: Gina Eosco (gina.eosco@noaa.gov; 301-734-1068)

4) VORTEX-USA: Alan Gerard (alan.e.gerard@noaa.gov; 405-325-6477)

VIII. Other Information

For additional information about the FY23 WPO Funding Opportunity, please see the attached Information Sheets and our website: wpo.noaa.gov/nofo.