Education, Training, and Capacity Development for Weather, Water and Climate Forecasting (ETCD)

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NOTICE OF FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

Federal Agency Name(s): National Weather Service (NWS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce

Funding Opportunity Title: Education, Training, and Capacity Development for Weather, Water and Climate Forecasting (ETCD)

Announcement Type: Initial

Funding Opportunity Number: NOAA-NWS-NWSPO-2021-2006770

Catalog of Federal Domestic Assistance (CFDA) Number: 11.467, Meteorologic and Hydrologic Modernization Development

Dates: Full applications must be received by 5:00 p.m. Eastern Daylight Time (EDT) on May 3, 2021. Applications received after this deadline will not be considered. For applications submitted via Grants.gov, a date and time receipt indication will form the basis for determining timeliness. For those applicants not having access to the Internet, one signed original and two hard copy applications must be submitted. Use of U.S. mail or another delivery service must be documented with a receipt. Note that late-arriving hardcopy applications provided to a delivery service on or before 5:00 p.m. EDT on the closing date for applications will be accepted for review if the applicant is able to document that the application was provided to the guaranteed delivery service by the specified closing date and time and if the application is received by NWS no later than 5:00 p.m. EDT, two business days following the closing date. No facsimile or electronic mail applications will be accepted. Applications submitted after 5:00 p.m. EDT, on May 3, 2021, will not be reviewed or considered for funding. Expected project start date is September 1, 2021.

Funding Opportunity Description: NOAA's National Weather Service Office of the Chief Learning Officer is soliciting proposals for Education, Training, and Capacity Development (ETCD) for Weather, Water, and Climate Forecasting. The ETCD program's goal is to improve performance of all operational meteorologists and hydrologists worldwide. Improving human performance for enhanced decision support services is done through collaborative training and education. ETCD is accomplished through collaboration between operational hydrologists/meteorologists, scientists, and academic staff with expertise across a wide range of environmental, educational, and social and behavioral sciences. These activities engage operational hydrologists, meteorologists, researchers, instructors, and students in applied training and simulation exercises which are pivotal to the operational climate, water, and weather communities. The goal of improving performance is achieved through a competency-based

education and training program. By meeting the goal of ETCD, forecasts and warnings of environmental hazards will be improved.

All funding is contingent upon the availability of Federal appropriations. NOAA anticipates that up to $8,000,000.00 will be available annually. The actual annual funding that the awardee receives may be less than the anticipated amount and will depend on the projects that are approved by NOAA after the main award begins, the availability of funding, the quality of the deliverables, the satisfactory progress in achieving the stated goals described in project proposals, and continued relevance to program objectives.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

The objective of the Education, Training, and Capacity Development (ETCD) Program is to improve forecast and warning capabilities of the weather, water, and climate communities. This improvement is achieved by addressing human performance improvement activities through collaborative efforts between NOAA, the World Meteorological Organization (WMO), other agencies, and universities. The primary goal of ETCD is to enhance the performance of its workforce, partners, and users. ETCD addresses NOAA's goals, as stated in NOAA's Next Generation Strategic Plan (https://www.performance.noaa.gov/ngsp/). The Vision includes a Weather Ready Nation in which society is prepared for and responds to weather-related events, and for Climate Adaptation and Mitigation in which an informed society anticipates and responds to climate and its impacts. A key international objective of the ETCD program is to support Weather Ready Nations (WRNs), which provides training and related services to selected developing countries to advance their hydrometeorological and disaster management agencies' transitions to impact-based forecasting.

The ETCD Program supports the goals of the World Meteorological Organization (WMO). The WMO provides a framework for international cooperation in the development of meteorology and operational hydrology and their practical application. Under WMO leadership and within the framework of WMO programs, National Meteorological and Hydrological Services (NMHSs) contribute substantially to the protection of life and property against natural disasters, to safeguarding the environment, to support for the development of impact-based forecasting in developing countries, and to enhancing the economic and social well-being of all sectors of society in areas such as food security, water resources, and transport.

The WMO promotes cooperation in the establishment of networks for making meteorological, climatological, hydrological, and geophysical observations, as well as the exchange, processing and standardization of related data, and assists technology transfer, training and research. It also fosters collaboration between the NMHSs of its members and furthers the application of meteorology to public weather services, agriculture, aviation, shipping, the environment, and water issues, and the mitigation of the impacts of natural disasters.

The WMO facilitates the free and unrestricted exchange of data and information, products,

and services in real- or near-real time on matters relating to safety and security of society, economic welfare, and the protection of the environment. It contributes to policy formulation in these areas at national and international levels. In the specific case of weather-, climate-, and water-related hazards, which account for nearly 90% of all natural disasters, WMO's programs provide vital information for the advanced warnings that save lives and reduce damage to property and the environment. The WMO plays a leading role in international efforts to monitor and protect the environment through its programs.

ETCD supports the forecast process, consisting of distinct components: Observation, Analysis, Modeling, Forecasting, Dissemination, and Decision Support. Having a complete and timely set of remote and in situ observations worldwide is an essential step in the forecast process. Many countries require assistance to develop their capacity in taking observations and transmitting observations through worldwide telecommunication networks. This capacity development assistance includes the design, acquisition, deployment, and management of cost-effective observing technologies, hardware and software enhancements, maintenance and repairs, logistics, cost management, technical data verification, and life-cycle replacements of observational platforms. Capacity development also includes coupled atmosphere/ocean prediction models, sub seasonal to seasonal climate models, and ensemble systems.

Specifically, ETCD supports the goals of improved weather decision services for the National Weather Service and selected developing countries for events that threaten lives and livelihoods and for enhanced climate services to help communities, businesses, and governments understand and adapt to climate-related risks. ETCD supports the goals of enabling integrated environmental forecast and decision services supporting healthy communities and ecosystems, and sustaining a highly skilled, professional workforce equipped with the necessary training, tools, and infrastructure.

Providing enhanced decision support services is accomplished through collaborative training and education with the university community, other federal and state agencies, select private/non-profit technical organizations, and the broader weather, water, and climate community. This community supports the Nation's need for job creation, economic growth, sustainable development, and improved living standards for all Americans. ETCD is accomplished by involving operational hydrologists and meteorologists, scientists and academic staff with expertise across a wide range of environmental, educational, and social and behavioral sciences. These activities engage operational hydrologists, meteorologists, researchers, instructors and students in applied training and simulation activities that are pivotal to the operational climate, water and weather communities. ETCD focuses on improving the accuracy, timeliness, and utility of impact-based forecasts and warnings of

environmental hazards by enhancing human performance.

The goals are to maintain an efficient and effective national and international workforce and facilitate the transfer of scientific developments and upgrades into operations in the United States and other countries. The vision for the program is to develop and deliver effective education and training in response to national and international workforce needs and human performance improvement goals. The following goals specify how this mission is realized:

GOAL 1: Establish a logical, flexible, and responsive infrastructure to quickly translate training and education competency requirements, learning objectives, and performance needs into easily accessible, usable, and effective training, employing contemporary best practices in adult learning methods and delivery.

GOAL 2: Provide impact-based forecast and disaster mitigation education and training services to hydrometeorological and disaster management agencies in developing countries.

GOAL 3: Implement an efficient, open, and consistent process for defining and establishing priorities for training and education requirements.

GOAL 4: Establish an easy to use, easy to find resource to clearly specify and monitor training and professional development activities available to operational meteorologists and hydrologists.

GOAL 5: Develop an annual project plan for education and training to ensure responsiveness to the requirements and competency needs.

GOAL 6: Create a process to facilitate rapid response to emerging or changing training priorities within any fiscal year; identify requirements which cannot be met due to resource limitations.

GOAL 7: Establish an effective, continuous evaluation process to ensure the intended benefits of training and the desired competencies are achieved.

Multiple programs are underway facilitating the ongoing shift from solely producing hydrometeorological products to also assisting users and partners in their decision processes. As a result, the demand for training in science and technology to support the United States and international decision support services and impact-based messaging is increasing. Without such training, maintaining a highly trained, professional national and international workforce that performs at the required levels to protect life and property will be

compromised.

Many developing and developed nations are transitioning to a competency framework of training for hydrologists, climatologists, and meteorologists to foster long-term improvement in their services, and the ETCD program aims to build international capacity in this transition. For example, the United States National Weather Service employs a competency-based training structure, defined by multiple "Professional Development Series" (PDS) (https://training.weather.gov/pds.php). Each PDS is composed of a series of Professional Competency Units (PCU) which describe specific job duties. Each PCU has several components:
- Description of the job duty competency to be achieved
- Description of need for the job duty
- Specific job duty skills and knowledge
- Instruction components
- Evaluation measures

The basic idea behind the PDS concept is that individuals with a specific job responsibility can, for each associated job duty, easily find training resources (or instructional components) to help bring his/her performance of that job duty up to a sufficient level. The delivery methods used for each instructional component can vary from residence courses to virtual courses/teletraining to web-based instruction or combinations of blended learning. The active PDSs are: Aviation, Climate, Impact-based Decision Support Services, Fire Weather, Hydrology, Marine, Severe Convection, Tropical, and Winter Weather. New PDSs will include Public Weather and Space Weather.

Aviation: Provide aviation weather services in support of aviation customer decision making. This includes coordinating and communicating with aviation system operational partners, continuously assessing and forecasting the aviation weather environment, providing aviation weather information and services, performing outreach to the aviation community and ensuring the quality of aviation meteorological information and services.

Climate: Facilitate operational meteorologists’ understanding and messaging of climate products and services, including subseasonal to seasonal time scales. Skills needed for operational meteorologists include the ability to create and manage climate data sets, derive products from climate data, interpret climate forecasts and projections, ensure quality of climate information and services, and communicate climate information with users.

Impact-based Decision Support Services: Build United States and international community resilience in the face of increasing vulnerability to extreme weather by providing superior

decision support services in all phases of the disaster life cycle. This identifies the professional competencies needed to perform the responsibilities of an Emergency Response Specialist, along with an inventory of instructional components available to build those skill sets.

Fire Weather: Provide operational personnel with an understanding of fire partners and the elements and products which support fire weather. The Fire Weather Forecaster has the role of developing fire weather elements for gridded databases and analyzing these elements along with terrain to determine sub-gridscale influences of terrain. They need to recognize patterns and monitor weather conditions and fuels to detect potential for large fire growth or erratic behavior. They transfer this information to the fire weather user community through products and Decision Support Services. The content of these products is driven by a comprehension of partner needs. The fire community relies on this information to make strategic and tactical decisions for both prescribed burns and wildfire activity. The personnel work with local agencies and incident management teams to ensure that these services are timely and effective through liaison, training and verification. They ensure office situational awareness is maintained on fuel conditions and fire activity. Support to users can be elevated through deployment of Incident Meteorologists (IMETs) who work onsite. The onsite presence of an IMET comes with an expectation of elevated awareness of fire operations and an ability to rapidly assess terrain impacts on local weather conditions and fire behavior. IMET duty can be arduous and requires continued preparation and training to ensure that effective service can be provided during a spectrum of operational environments.

Hydrology:
- Provide Hydrologic Services: Provide hydrologic and hydrometeorological services, data and information, and river flow/stage forecasts and flood/flash flood warnings to support the decision-making process of internal and external hydrologic customers. Partners and users depend on these products to make decisions related to navigation, water management, floodplain management, ecosystem management, recreation, etc. Those partners and users include federal, state, tribal, and local agencies, private entities, and the general public.
- Develop, Implement, and Maintain Models and Tools: Offices are dependent upon effective and well maintained hydrologic/hydraulic models and tools to support operational services.
- Support continued international implementation of the Global Flash Flood Guidance System.
- Manage a Hydrology Program: In support of hydrologic forecast and warning operations, managing the Office hydrology program ensures the integrity and relevancy of hydrologic services for partners and users. The Hydrology Program Manager (HPM) provides hydrologic leadership, expertise and outreach for flooding, drought, water supply and other

local hydrologic issues. Duties are to build and maintain situational awareness and coordination between hydrology forecast centers and partner agencies as well as maintain the local data program, conduct field work, and configure software. Responsibilities also include training staff to support delivery of hydrologic information during normal and backup operations in addition to gathering and analyzing post event information to improve services.

Marine: Provides forecasters with a baseline standard of knowledge, skills, abilities, and proficiencies. In conjunction with local office requirements, these competencies will allow a marine forecaster to work an operational shift; issuing marine forecasts and warnings and providing valuable decision support services.

Severe Convection: Outlines eight competencies of the forecast process for severe convection and include optimizing office strategies for convective operations, assessing climatology, assessing the synoptic environment, analyzing and assessing the mesoscale environment, analyzing the structure of convective storms, the warning decision process, composing and disseminating the convective warning process, and post-event assessment.

Tropical: Provides pertinent tropical weather forecast and warning services to make timely and effective decisions to protect life and property and support the nation's economic wellbeing. This includes fundamentals of tropical weather and tropical forecast operations, forecasting tropical cyclones, assessing the threat of associated hazards and recognizing potential impacts, forecasting extra-tropical transition and potential impact, effectively communicating the potential impacts from tropical cyclones, and ensuring smooth tropical cyclone operations.

Winter Weather: Identifies the competencies required to execute successful winter weather forecasts, watches, advisories, and warnings, and includes available educational and other resources. To get the forecast right requires a team effort where the members know the meteorology of winter weather, applies modern methods to create an impact-based forecast, and effectively communicates with users.

Space Weather: Identifies the competencies needed to properly understand the science behind space weather products and advisories (advisories is here used in a general sense to describe the various levels of information products) in international and domestic use, understanding the range of impacts of space weather hazards on the public, and using the information to properly message space weather sourced impacts and any possible mitigations to the general public.

Public Weather: Identifies the competencies needed to properly understand the science

behind non-precipitation weather (NPW) such as dust storms, extreme temperatures, fog, frost, freeze, and strong winds. Competencies include methods for developing impact-based products and services, understanding the range of impacts of NPW, and effective methods for communicating the impacts.

NOAA supports the education, training and capacity development efforts to create a WMO Global Campus. WMO stated that the work should be carried out via collaboration with national and international partners and special emphasis should be placed on promoting and supporting the exchange and sharing of training resources and expertise, including e-learning. WMO supports the proposal for a consortium of Regional Training Centers (RTC), NMHSs and other institutions to develop an accredited online course that would meet the Basic Instruction Package for Meteorology requirements. The purpose of the WMO Global Campus is to provide a framework or mechanism for the many WMO affiliated institutions (particularly RTCs) involved in providing education and training support to Members to learn from each other, coordinate courses and training resources, and collaborate to develop and deliver courses in multiple languages for members. The first steps will be the development of three demonstration activities: a searchable online calendar that brought together in one website as many as possible education and training activities offered by WMO RTCs and WMO affiliated institutions to assist Members in identifying education and training opportunities for the staff of their NMHSs; further development and delivery of teaching and learning resources that would result in a course or courses supporting aeronautical meteorological personnel competencies in multiple languages suitable for face-to-face and/or online delivery; and, commence the development of a course or courses supporting climate services in multiple languages suitable for face-to-face and/or online delivery. The climate services course or courses, initially focusing on climate and adaptation issues would build upon the lessons learned from the existing collaborative developments, further enhancement of the aeronautical meteorological course(s) and outcomes regarding competencies for personnel involved in the provision of climate services. Translation of education and training materials into multiple languages enhances the adoption of competency frameworks and assessments.

Capacity Development in support of the WMO observing requirement includes a host of activities to facilitate the observational, dissemination and impact based forecasting and disaster mitigation capabilities of developing nations. These include:
- RANET (Radio and Internet for the Communication of Hydro-Meteorological and Climate Related Information): Climate and weather play a vital role in many human activities such as agriculture, energy production, wildlife management, disaster mitigation, health and a host of other areas. Technological and scientific advances in recent decades have produced a variety of products that can help humans manage systems sensitive to meteorological events

and seasonal variability. Unfortunately, rural and technologically disadvantaged populations often those most in need of this information do not always possess the means or training with which to access meteorological products already produced by national, regional and various international organizations and government agencies.
- Continued and expanded implementation of the international Weather Ready Nations (WRNs) initiative.
- Training Workshops on Climate Variability and Prediction: Goal is to increase the capacity of developing countries in climate monitoring and predictions to enhance climate services.
- Flash Flood Guidance Systems: Installs modern river flood forecasting systems to regionalize capabilities by applying it to key rivers/streams. Improved rainfall monitoring leads to enhanced landslide predictions during extreme precipitation events.
- International Extension and Public Alert Systems (IEPAS): Uses small scale and low cost fabrication technologies to help NMHSs develop and maintain basic equipment such as weather stations. By manufacturing and assembling unique components, the cost of the devices is often reduced, repair is simplified and quicker, the network is deployed in a manner consistent with local capabilities and NMHSs have more control.
- Flash flood forecasting modernization and upgrading of storm surge models to assist the Weather Ready Nations initiative to build WRN capability in developing countries.
- Expanded use of polar-orbiting and geostationary environmental satellite data by government agencies, universities, and international organizations. Current and future users, such as emergency managers, coastal managers, private sector, state and local land managers, and the transportation industry, will benefit from greater use of these data. Environmental satellite training needs to focus on the integration of data into operational applications by including examples and training in relevant learning resources.

An outreach program wherein a university/academic or private, non-profit researcher and students work collaboratively with an operational weather forecast office or center is an effective learning tool. Sub-awards are encouraged to be submitted, especially with regard to international decision support services, local challenging forecast phenomena, and new cutting-edge theories and applications. Training is an integral part of the research-to-operations transition. These sub-awards could be for one or multiple years to support local and international collaborative research but only where a local weather forecast office/center is actively involved and, internationally, where a country’s disaster management agency is involved.

B. Program Priorities

NOAA will give sole attention to proposals addressing the identified priorities as listed below. Proposals must clearly specify which primary priorities are addressed. The proposal must address the major areas listed under the following sections. The proposal must also

clearly articulate the instructional design or implementation methodologies proposed. These designs and methods should employ contemporary best practices in adult learning. Principal investigators (PIs) must clearly address the evaluation and quality assurance processes within their proposal.

The top ETCD priorities for education and training which are ongoing and planned for the next five years are as follows:

- Improved region-specific conceptual models for tornadoes, hail, high winds, flash floods, and localized heavy snow events, including roles of mesoscale phenomena such as waves, thermal and moisture boundaries, and localized instabilities during these events.
- Improved training, education, and related services associated with impact-based forecasting for selected developing countries.
- Improved understanding of cloud physics and associated microphysical processes associated with fog, ceilings, clouds bases, cloud tops, snow and mixed precipitation, and surface visibility, and associated advanced techniques for forecasting these phenomena.
- Improved forecasts and warnings of severe weather and heavy precipitation during tropical cyclones and other extreme weather events.
- Improved forecasts and warnings of non-precipitation events such as dust storms, extreme temperatures, fog, frost, and freeze.
- Improved forecasting of high resolution aviation parameters such as ceiling, visibility, winds, Instrument Flight Rules conditions, and low level wind shear.
- Improved understanding and modeling of snowmelt and river ice formation and breakup processes.
- Improved forecasts and warnings of storm surge, waves, and flooding during tropical cyclone events, including geospatial depictions of inundation and landslide predictions.
- Improved coordination among interagency partners, academia, and within the NWS on the implementation of the Consumer Option for an Alternative System to Allocate Losses (COASTAL) Act and on the measurement of High Water Marks (HWMs) following a landfalling tropical cyclone.
- Improved National Weather Service Science and Operations Officer (SOO) performance through the SOO Development Course.
- Improved forecaster comprehension, use, and engagement with the NOAA National Blend of Models to develop calibrated and consistent forecasts.
- Improved training on visualization tools for Numerical Weather Prediction, ensemble, blend, and post-processed data
- Improved hydrologic modeling and prediction for rivers and streams, including calibration of models, improved distributive modeling techniques, and improved soil moisture accounting.

- Improved methods for forecasting high impact weather events through the use and development of high-resolution rapidly-refreshing numerical models, convection-allowing models, and the application of model ensemble techniques in the forecast process on both a national and international basis.
- Improved methods for communicating weather, water, and climate information to the public and decision makers incorporating forecast uncertainty and risk.
- Improved forecaster comprehension and communication of calibrated, objective probabilistic forecast information and societal impacts in areas including severe, fire, public, winter, climate, aviation, space and tropical weather, hydrology, marine, and tsunami.
- Improved forecaster comprehension and operational use of Mutli-Radar/Multi-Sensor (MRMS) in providing real-time support and generating forecasts to save lives and property.
- Improved Research to Operations coordination, readiness level training, and transition plan development for the NOAA operational and research communities.
- Improved winter weather forecasting included mixed precipitation, timing of onset of events and impacts to users for decision support.
- Improved hydrological modeling, through use of emerging techniques, such as distributed hydrologic modeling, ensemble and probabilistic forecasts, dynamic and static flood inundation mapping, and rain/snowmelt processes in complex terrain.
- Improved use of geostationary and polar-orbiting environmental satellite data and derived products in hydrometeorological analysis and forecasting.
- Improved methods of communicating water, weather, and climate information to public and decision makers, particularly for high impact events.
- Improved communication of uncertainty and risk associated with hazardous mesoscale weather for partners and decision makers.
- Improved high-latitude arctic forecasts and sea ice forecasting.
- Improved sub seasonal to seasonal weather, and seasonal to interannual climate information for public and private decision makers.
- Improved dispersion forecasts for smoke, volcanic ash, and radioactive sources.
- Improved forecasts for tsunami source characterization, wave onset, height, timing, and impacts.
- Improved Numerical Weather Prediction training to include global models, convection-allowing models, ensemble systems, model blends, coupled ocean-atmosphere models (including currents), and climate models.

Specific High-Priority Capacity Development Support Required:
- Support the World Meteorological Organization (WMO) efforts to implement the Competency based assessments worldwide.
- Support WMO for Global Campus activities and support the feasibility studies.
- Support for RANET to improve communications of meteorological/hydrological

observations, forecasts and warnings
- Support to WRNs for improving understanding and communication of impact based forecasting and mitigation services for developing countries.
- Support Capacity Development in taking meteorological and hydrological observations in developing countries.
- Support Capacity Development for improved rainfall monitoring and prediction systems to enhance flood, flash flood and landslide predictions.
- Support IEPAS to help developing countries fabricate low-cost weather stations and equipment.
- Improved translation efforts of many training materials, with translation of materials into Spanish and French.

Distribution and User Access of Education and Training Materials: Several critical functions are needed for the ETCD infrastructure to provide the necessary services. One of the primary requirements is for a robust, user friendly and continuously updated ETCD Website. The Website and underlying infrastructure must support the following:
- Demonstrated capacity to support one million registered users
- Demonstrated capacity to support 5,000 users simultaneously taking training modules each day
- Robust, reliable and secure registration and tracking system
- 24 hour by 7 day support (automated online and human)
- System available and accessible at a minimum of 99% uptime
- Data storage and data access for case studies and simulations
- Real-Time data feed, storage and distribution which includes all NOAA operational NWP, satellite, and radar data

Instructional Design Process and Training Requirements:
The proposal must clearly articulate the Instructional Design methodology proposed and how this methodology will be utilized to maximize student retention and performance improvement to meet Competency Assessments. Principal investigators (PIs) must clearly address the evaluation and quality assurance processes within their proposal. The following areas need to be addressed:
- Sound instructional approach: provide an approach that includes clear design, needs assessment, analysis, performance objectives and rapid development – with a focus on effective distance learning/training and on collaborative simulations.
- Simulations: Develop, maintain and update comprehensive training, education and simulation system with the infrastructure to support a wide range of users across many disciplines.
- Searchable catalog of instructional objects for seasonal readiness training.

- Incorporate Social Media and mobile device access to training materials and modules.
- Use of outside Subject Matter Experts throughout development process to ensure latest cutting-edge science and technology are incorporated into training and simulations
- Synchronous and asynchronous delivery of material via web training, simulations and teletraining through blended learning.
- Manage an extensive searchable library of training materials organized into cohesive topics with evaluations and assessments and the ability to provide customized learning paths for various disciplines and users.
- Utilize and develop enhanced environmental simulations in support of a wide variety of climate, water and weather scenarios and services.
- Utilize high quality animations, digital video/audio, augmented reality, virtual reality and other innovative technologies.
- Develop and maintain training materials in a manner that allows for ready access and use by a broad and growing user community both domestic and international.
- Provide assessment with levels of evaluation capability and a reporting system to provide metrics.
- Provide for seamless transfer of student completion records to the Commerce Learning Center (CLC) Learning Management System which supports over 50,000 users.
- Develop and maintain a registration/tracking system that is robust, reliable, and verifiable and which can expand to include a growing worldwide community of over one million users.

Outreach Sub-Awards:
An Outreach Program's goal is to improve local forecast and warning services by providing financial support for applied mesoscale and synoptic-scale research. This includes creating partnerships between the academic research community and operational hydrometeorologists that allow the exchange of ideas to the benefit of both groups. This activity needs to be with PIs in the academic and operational communities collaborating on the joint proposal. The proposals usually address a local or regional hydrometeorological forecast problem.

C. Program Authority

NOAA's authority to support the research and associated activities anticipated by this FFO is contained in one or more of the following:
-- 15 U.S.C. § 313, the Weather Service Organic Act;
-- 49 U.S.C. § 44720, which authorizes NOAA, inter alia, to maintain agreements and support research projects in meteorology through the use of private and Governmental research facilities; and
-- 33 U.S.C. § 893a, the provision of the America COMPETES Act which authorizes NOAA to conduct, develop, support, promote, and coordinate formal and informal educational activities at all levels to enhance public awareness and understanding

II. Award Information

A. Funding Availability

NOAA anticipates up to $8,000,000.00 per year will be made available annually for this award. The actual annual funding that the awardee receives may be less than the anticipated amount and will depend on the actual projects that are approved by NOAA after the main award begins, the availability of funding, the quality of the deliverables, the satisfactory progress in achieving the stated goals described in project proposals, and continued relevance to program objectives.

B. Project/Award Period

This program announcement is for projects to be conducted by a collaborative program of investigators for a five-year period, with an anticipated start date of September 1, 2021 unless otherwise directed. When a proposal for a multi-year award is approved, funding will initially be provided for only the first year of the program. Future funding will be contingent upon satisfactory progress in relation to the stated goals of the proposal to address specific science needs and training priorities. Applications must include a scope of work and a budget for the entire award period.

C. Type of Funding Instrument

The funding instrument for extramural awards will be a cooperative agreement since one or more NOAA components will be substantially involved in implementation of the project. Examples of substantial involvement may include, but are not limited to, review of sub-award announcements, NOAA participation on panels reviewing sub-award applications, and matching of NOAA Subject Matter Experts with instructional designers. NOAA believes its warning and forecast mission will benefit significantly from enhancing the performance of its workforce through a strong partnership with outside investigators in the academic community. Current program plans assume the total resources provided through this announcement will support extramural efforts through the broad academic community. Matching of NOAA's scientists, researchers, and instructional designers through this program’s activities will foster broader research and development collaborations beneficial to NOAA’s mission.

III. Eligibility Information

A. Eligible Applicants

Eligible applicants must be academic institutions of higher learning which offer doctoral degrees in atmospheric sciences, or consortia of academic institutions of higher learning which offer doctoral degrees in atmospheric sciences. This restriction is needed because the results of the collaboration are to be incorporated into training and educational processes which ensure academic multidisciplinary peer review.

B. Cost Sharing or Matching Requirement

No cost sharing is required under this program.

C. Other Criteria that Affect Eligibility

A university consortia should select one PI for the proposal. Collaboration between the academic community and the government within the project is highly encouraged. In addition, collaboration with PIs at different universities or university consortia is permitted. The PI must have experience as a university professor or those with comparable qualifications with substantial documented involvement in the proposal.

Proposals should clearly state the role of the PI in the project. Except for researchers who are associate, assistant, or full professors at the Naval Postgraduate School, federal government employees are not allowed to be listed as PIs or receive funding.

IV. Application and Submission Information

A. Address to Request Application Package

The standard application package is available at http://www.grants.gov.

An application package may also be requested by contacting:
David Myrick, Deputy Chief Learning Officer
Office of the Chief Learning Officer, NOAA/NWS
1325 East-West Highway, Room 14222
Silver Spring, Maryland 20910
Phone: 301-427-9455
email: David.Myrick@noaa.gov

B. Content and Form of Application

Proposals should total no more than 50 pages in length, single spaced, with one inch margins on 8 1/2 x 11 inch paper. The proposal should use Times New Roman 12 point font. Federally-mandated forms, tables of content, PI and staff vitae, budget tables, and any letters of support are not included within the page count.

Multi-year proposals up to a maximum of five years will be considered; however, funding beyond the first year will be dependent upon satisfactory performance and the availability of funds. September 1, 2021 is to be used as the proposed start date on proposals unless otherwise directed by the NOAA Program Officer.

The application elements listed below are required before an award can be made. Failure to submit elements 1, 4, and 5 by the deadline will result in the application not being reviewed if the omissions are not corrected prior to the deadline. The program office will make an effort to notify the applicant of any omissions, but there is no guarantee this can occur prior to the application deadline. The aforementioned application elements are as follows:

1. Title Page. The title page must be officially authorized by the institutional representative. The PI and institutional representative should be identified by full name, title, organization, telephone number, and address. It is requested that the title page clearly indicate which project areas are being addressed and the total amount of requested Federal funds be listed for each budget period.

2. Abstract Page. An abstract should be included and should contain an introduction of the problem, rationale, and a brief summary of work to be completed. The abstract should appear on a separate page, headed with the proposal title, institution's investigators, total proposed cost, and budget period.

3. Results from Prior Training and/or Research. The results of relevant projects should be described, including their relation to the currently proposed work. Reference to each prior award should include the title, agency, award number, PIs, period of award, and total award. The section should be a brief summary and should not exceed five pages total.

4. Project description. The proposed project must be completely described, including identification of the problem; scientific and training objectives; proposed methodology; relevance to the priorities of operational hydrometeorology; operational applicability; scientific merit; proposed technology transfer; past collaborations with operational hydrometeorologists; cost effectiveness of training materials and approaches; and the program priorities listed above. Benefits of the proposed project to the general public and the broader scientific and educational community must be discussed. A year-by-year summary of proposed work must be included. Technical description of the infrastructure proposed for user access of the education and training materials must be provided. Specific plans for Capacity Development in support of WMO Objectives must be included.

5. Budget and Proposed Budget Justification. Applicants must submit a Standard Form (SF) 424, Application for Federal Assistance, including a detailed budget using the SF 424A, Budget Information--Non-Construction Programs. (The forms are available on grants.gov.) Applicants should pay careful attention to show the yearly budget breakout on the SF 424A for multi-year proposals. In addition, the body of the proposal should include a separate table showing total and annual budgets (if multi-year) corresponding with the project description. Additional text to justify expenses should be included as necessary.

6. Vitae. Abbreviated curriculum vitae are sought with each proposal. Reference lists should be limited to all publications in the last five years with up to five other relevant papers.

7. Current and Pending Support. For each investigator, submit a list which includes project title, supporting agency with grant number, investigator months, dollar value, and duration. Requested values should be listed for pending support.

8. National Environmental Policy Act (NEPA) Questionnaire: NOAA has determined that applicants do not need to provide answers to the NEPA Questionnaire at this time.

9. Data Management Plan (up to 2 pages): See Section VI.B.4, Administrative and National Policy Requirements, for additional information on what the plan should contain.

10. The full proposal package includes the information described above as well the following required federal forms: (1) Application for Federal Assistance (SF-424); (2) Budget Information--Non-Construction Programs (SF-424A): For multi-year proposals, pay careful attention to show the yearly budget breakout on the SF-424A; (3) Certification Regarding Lobbying (CD-511); (4) Assurances - Non Construction Programs (SF-424B); (5) Disclosure of Lobbying Activities (SF-LLL). Current versions of these forms are available on Grants.gov.

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

To enable the use of a universal identifier and to enhance the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act, 31 U.S.C. 6101 note, any proposal awarded in response to this announcement will be required to use the System for Award Management (SAM), which may be accessed online at https://www.sam.gov/SAM/. Applicants are also required to use the Dun and Bradstreet Universal Numbering System, as identified in OMB guidance published at 2 CFR Parts 25, which may be accessed at: https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl .

Applicants should allow a minimum of five days to complete the SAM registration. Registration is required only once, but must be renewed periodically. Each applicant is required to:
(i) Register in SAM before submitting an application;
(ii) Provide a valid unique entity identifier in the application; and
(iii) Continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by NOAA (or any other Federal agency).

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

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

Users of Grants.gov will be able to download a copy of the application package, complete it offline, and then upload and submit the application via the Grants.gov site. If an applicant has problems downloading the application forms from Grants.gov, contact Customer Support at 1-800-518-4726 or support@grants.gov .

D. Submission Dates and Times

Full applications must be received by 5:00 p.m. Eastern Daylight Time (EDT) on May 3, 2021. Applications received after this deadline will not be considered. For applications submitted via Grants.gov, a date and time receipt indication will form the basis for determining timeliness. For those applicants not having access to the Internet, one signed original and two hard copy applications must be submitted. Use of U.S. mail or another delivery service must be documented with a receipt. Note that late-arriving hardcopy applications provided to a delivery service on or before 5:00 p.m. EDT on the closing date for applications will be accepted for review if the applicant is able to document that the application was provided to the guaranteed delivery service by the specified closing date and time and if the application is received by NWS no later than 5:00 p.m. EDT, two business

days following the closing date. No facsimile or electronic mail applications will be accepted. Applications submitted after 5:00 p.m. EDT, on May 3, 2021, will not be reviewed or considered for funding. Expected project start date is September 1, 2021.

E. Intergovernmental Review

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

F. Funding Restrictions

NOAA will not consider expenses associated with fees, fund-raising activities, travel for activities not directly related to project implementation, travel or salaries for Federal employees, or profit as allowable costs in the proposed budget. The total costs of a project consist of all allowable costs incurred in accomplishing project activities during the project period. Project costs can only include support for activities conducted between the effective start date and end date of the award, and cannot include activities undertaken either before or after the agreed upon dates. Applicants will not be reimbursed for time expended or costs incurred in developing a project or in preparing an application, or in any discussions or negotiations with the agency prior to the award. Funding beyond the first year may be dependent upon satisfactory performance and continued availability of funds. NOAA is not responsible for proposal preparation costs.

G. Other Submission Requirements

Federal employees are not allowed to assist in the preparation of an application or proposal. Because this is a competitive program, Federal employees will not provide assistance in conceptualizing, developing, or structuring proposals, or write letters of support for an application or proposal.

All applicants are strongly encouraged to submit proposals through the Grants.gov portal. For applicants without Internet access, hard copy proposals will be accepted. The hard copies must be submitted by postal mail, commercial delivery service, or hand-delivery. Hard copy proposals must be submitted to:

NOAA/NWS
ATTN: David Myrick, Deputy Chief Learning Officer
1325 East-West Highway, Room 14222
Silver Spring, Maryland 20910

V. Application Review Information

A. Evaluation Criteria

Proposals will be evaluated using the standard NOAA evaluation criteria. Various questions under each criterion are provided to ensure that the applicant includes information that NOAA will consider important during the evaluation, in addition to any other information provided by the applicant.

1. Importance/Relevance and Applicability of Proposal (30 percent): This criterion ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, Federal, regional, state, or local activities. For ETCD competition this includes:
- What is the historical track record of the applicant in collaborative outreach between the operational and research weather, water, and climate communities?
- What is the likelihood of the proposed science training and education activities to improve performance in support of operational hydrometeorological services?
- Are Capacity Development projects in line with past practices used successfully in developing countries?
- What is the degree of collaboration with multiple participating organizations throughout the project?
- What is the level of planning to integrate sound instructional design concepts into complex scientific material for use by a broad user community successfully and efficiently?

2. Technical/Scientific Merit (25 percent): This criterion assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives. For the ETCD competition this includes:
- What is the intrinsic scientific value and maturity of the training subject matter as they relate to specific competency assessments for professional development series?
- Were focused human performance improvement objectives and strategies, including instructional design, needs assessment, and formulative evaluations used?
- Are the proposed Capacity Developments in line with the technical/scientific capabilities of the country?

3. Overall Qualification of Applicants (25 percent): This criterion ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. For the ETCD competition this includes:
- Do PIs clearly document past scientific and instructional collaborations and Capacity Development with operational hydrologists, meteorologists and other environmental scientists and managers?
- Have past interactions been successful?
- Are instructors and scientists likely to maintain effective and consistent interactions with

operational hydrometeorologists and other scientists throughout the course of the proposed ETCD program?
- Have instructors and scientists demonstrated the ability to conduct successful training and education of large numbers of students synchronously, and asynchronously, through virtual and simulation approaches?

4. Project Costs (20 percent): This criterion evaluates the budget to determine if it is realistic and commensurate with the project needs and time-frame. For the competition this includes: Do instructors and scientists demonstrate the ability to utilize their resources in a cost efficient manner?
- Is there a high ratio of operationally useful results versus proposed costs?
- Are proposed approaches cost effective in various budgetary scenarios?
- Are proposed Capacity Development solutions the most-cost effective method of improving the observational and dissemination capabilities of the country given the countries technological advancement level?

B. Review and Selection Process

An initial administrative review/screening is first conducted to determine compliance with requirements/completeness. Thereafter, these proposals will be evaluated and individually ranked in accordance with the assigned weights of the above-listed evaluation criteria by an independent peer review panel. At least three experts, who may be Federal or non-Federal, will be used in this process. Each expert will submit an individual merit review and there will be no consensus opinion. The merit reviewers' ratings are used to produce a rank order of the proposals. The Selecting Official selects a proposal after considering the peer reviews and selection factors listed below. In making the final selection, the Selecting Official will award in rank order unless the proposal is justified to be selected out of rank order based upon one or more of the selection factors. The Selecting Official makes the final award recommendation to the Grants Officer authorized to obligate funds.

C. Selection Factors

The merit review ratings shall provide a rank order to the Selecting Official for final funding recommendations. A program officer may first make recommendations to the Selecting Official applying the selection factors below. The Selecting Official shall award in the rank order unless the proposal is justified to be selected out of rank order based upon one or more of the following factors:

1. Availability of funding

2. Balance and distribution of funds:

a. By research area
b. By project type
c. By type of institutions
d. By type of partners
e. Geographically

3. Duplication of other projects funded or considered for funding by NOAA/federal agencies.

4. Program priorities and policy factors.

5. Applicant’s prior award performance.

6. Partnerships with/Participation of targeted groups.

7. Adequacy of information necessary for NOAA staff to make a National Environmental Policy Act (NEPA) determination and draft necessary documentation before recommendations for funding are made to the NOAA Grants Officer.

Awards may not necessarily be made to the highest scored proposals.

D. Anticipated Announcement and Award Dates

September 1, 2021, should be used as the proposed start date on proposals. The announcement of the award is expected around July 1, 2021.

VI. Award Administration Information

A. Award Notices

Applicants will receive notification from NWS that their application has either been recommended or not recommended for funding to the NOAA Grants Management Division after completion of the review process. Notice of recommendation for funding is not an authorization to initiate the project. Official notification of funding of the grant award, signed by a NOAA Grants Officer, is the authorization that allows the project to begin.

NOAA's Grants Management Division will normally make award offers approximately one month before the planned start date. This notification will be issued to the Authorizing Official of the project after approval and is the official document that authorizes the project to begin.

B. Administrative and National Policy Requirements

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

2. LIMITATION OF LIABILITY: Funding for programs listed in this notice is contingent upon the availability of Congressional appropriations. In no event will NOAA or the Department of Commerce be responsible for the application preparation costs. Publication of this notice does not oblige NOAA to award any specific project or to obligate any available funds. If one incurs any costs prior to receiving an award agreement signed by an authorized NOAA official, one would do so solely at one's own risk of these costs not being included under the award or of not receiving an award.

3. 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 NEPA, for each project which seeks NOAA funding. Detailed information on NEPA can be found at the following NOAA NEPA web site: http://www.nepa.noaa.gov, including our NOAA Administrative Order 216-6A for NEPA, https://www.noaa.gov/organization/administration/nao-216-6a, and the Council on Environmental Quality implementation regulations, https://ceq.doe.gov/laws-regulations/regulations.html.
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.

4. DATA SHARING PLAN:
a) Environmental data and information collected or created under NOAA grants or cooperative agreements must be made discoverable by and accessible to the general public, in a timely fashion (typically within two years), free of charge or at no more than the cost of reproduction, unless an exemption is granted by the NOAA Program. Data must be available in at least one machine-readable format, preferably a widely-used or open-standard format, and should also be accompanied by machine-readable documentation (metadata), preferably based on widely used or international standards.
b) Proposals submitted in response to this Announcement must include a Data Management Plan of up to two pages describing how these requirements will be satisfied. The contents of the Data Management Plan (or absence thereof), and past performance regarding such plans, will be considered as part of proposal review. A typical plan should include descriptions of the types of environmental data and information expected to be created during the course of the project; the tentative date by which data will be shared; the standards to be used for data/metadata format and content; methods for providing data access; approximate total volume of data to be collected; and prior experience in making such data accessible. The costs of data preparation, accessibility, or archiving may be included in the proposal budget unless otherwise stated in the Guidance. Accepted submission of data to the NOAA National Centers for Environmental Information (NCEI) is one way to satisfy data sharing requirements; however, NCEI is not obligated to accept all submissions and may charge a fee, particularly for large or unusual datasets.
c) 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.
d) Proposal submitters are hereby advised that the final pre-publication manuscripts of scholarly articles produced entirely or primarily with NOAA funding will be required to be submitted to NOAA Institutional Repository after acceptance, and no later than upon publication. Such manuscripts shall be made publicly available by NOAA one year after publication by the journal.

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

representations regarding federal felony and federal criminal tax convictions, unpaid federal tax assessments, and delinquent federal tax returns.

6. REVIEW OF RISK: After applications are recommended for funding by the Selecting Official, the Grants Management Division will perform administrative reviews, including an assessment of risk posed by the applicant under 2 C.F.R. 200.205. The reviews may include assessments of the financial stability of an applicant, 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. Upon review of these factors, if appropriate, special conditions that correspond to the degree of risk 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.

7. 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, 5 U.S.C 552, are found at 15 C.F.R. Notice of Federal Funding Page 15 of 17 Part 4, which sets forth rules for DOC to make requested materials, information, and records publicly available under FOIA. The contents of funded applications may be subject to requests for release under the FOIA. Based on the information provided by the applicant, the confidentiality of the content of funded applications will be maintained to the maximum extent permitted by law.

8. INDIRECT COST RATE: If indirect charges are included in the budget, the applicant must have an approved negotiated Indirect Cost Rate Agreement and must include it as a part of the application package. If an applicant has not previously established an indirect cost rate with a Federal agency they may choose to negotiate a rate with the Department of Commerce or use the de minimis indirect cost rate of 10% of 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 Officer, NOAA Grants Management Division. 1325 East West Highway, 9th Floor. Silver Spring, Maryland 20910. email: lamar.revis@noaa.gov

9. MINORITY SERVING INSTITUTIONS: The Department of Commerce/National Oceanic and Atmospheric Administration (DOC/NOAA) is strongly committed to increasing

the participation of Minority Serving Institutions (MSIs), i.e., Historically Black Colleges and Universities, Hispanic-serving institutions, Tribal colleges and universities, Alaskan Native and Native Hawaiian institutions, and institutions that work in underserved communities.

10. NOAA SEXUAL ASSAULT AND SEXUAL HARASSMENT PREVENTION AND RESPONSE POLICY: If NOAA-operated, leased, or owned facilities are involved in any awards funded under this announcement, such awards are subject to the NOAA Sexual Assault and Sexual Harassment Prevention and Response Policy Applicable to Financial Assistance Awards Involving NOAA-Operated Facilities (May 2018) found at: https://www.noaa.gov/organization/acquisition-grants/noaa-workplace-harassment-training-for-contractors-and-financial.

11. 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://www.osec.doc.gov/oam/grants_management/policy/.

12. DOC TERMS AND CONDITIONS: Successful applicants who accept a NOAA award under this solicitation will be bound by Department of Commerce Financial Assistance Standard Terms and Conditions. This document will be provided in the award package in NOAA's Grants Online System at https://grantsonline.rdc.noaa.gov/flows/home/Login/LoginController.jpf and at http://go.usa.gov/hKbj.

C. Reporting

Award recipients will be required to submit financial and performance (technical) reports. These reports are to be submitted electronically through the NOAA Grants Online system on a semi-annual basis. All financial reports are routed directly to the NOAA Grants Officer. Performance reports are routed to the NOAA Federal Program Officer.

The first technical progress report covering the first 9 months of a multi-year award is due 10 months after the start date of the award. Each subsequent technical progress report covering a period of 12 months is due 12 months after the previous report. The comprehensive final technical progress report is due 90 days after the expiration date of the award.

The Federal Funding Accountability and Transparency Act, 31 U.S.C. 6101 note, includes a requirement for awardees of applicable Federal grants to report information about first-tier

subawards and executive compensation under Federal assistance awards. All awardees of applicable grants and cooperative agreements are required to report to the Federal Sub-award Reporting System (FSRS) available at https://www.fsrs.gov/ on all sub-awards over $25,000. Refer to 2 CFR Parts 170.

VII. Agency Contacts

The point of contact is David Myrick, Deputy Chief Learning Officer, Office of the Chief Learning Officer, NOAA/NWS, 1325 East-West Highway, Room 14222; Silver Spring, Maryland 20910-3283, or by phone at 301-427-9455 or via email at david.myrick@noaa.gov.

VIII. Other Information

None.