ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

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

Funding Opportunity Title: A Cooperative Agreement for Education and Training for Climate, Water, and Weather (ET-CWW)

Announcement Type: Initial

Funding Opportunity Number: NOAA-NWS-NWSPO-2011-2002929

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

Dates: The deadline for receipt of proposals at the NOAA Grants Office is 5:00 p.m., EDT, April 22, 2011. For proposals submitted through grants.gov, a date and time receipt indication is included and will be the basis of determining timeliness.

Please note: Validation or rejection of your application by Grants.gov may take up to 2 business days after submission. Please consider this process in developing your submission timeline.

Hard copy proposals will be date and time stamped when they are received in the program office.

Applications received after the deadline will be rejected/returned to the sender without further consideration. Use of U.S. mail or another delivery service must be documented with a receipt. No facsimile or electronic mail applications will be accepted.

Funding Opportunity Description: The primary goal of ET-CWW is to enhance the performance of operational hydrometeorologists in the public and private sectors. Improving human performance for enhanced decision support services is done through collaborative training and education. ET-CWW is accomplished by involving operational hydrometeorologists, scientists and academic staff with expertise across a wide range of environmental, educational and social sciences. These activities engage operational hydrometeorologists, researchers, instructors and students in applied training and simulation exercises that are pivotal to the operational climate, water and weather community. By meeting the goal of ET-CWW, forecasts and warnings of environmental hazards will be improved.

This ET-CWW program is designed to complement other contributions to these worldwide education and international training efforts. ET-CWW addresses NOAA's long-term goal for a "Weather Ready Nation", as stated in NOAA's Next Generation Strategic Plan (http://www.ppi.noaa.gov/ngsp.html) in which society is prepared for and responds to weather-related events. A weather-ready nation is a society that is able to prepare for and respond to

environmental events that affect safety, health, the environment, economy, and homeland security. NOAA's capacity to provide relevant information can help create a society that is more adaptive to its environment; experiences fewer disruptions, dislocations, and injuries; and that operates a more efficient economy. These training and education support services are critical to environmental forecast and warning operations.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

The objective of the nation's Education and Training Program for Climate, Water and Weather (ET-CWW) 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, other agencies, the university and the weather communities. The primary goal of ET-CWW is to enhance the performance of its workforce, partners and users. ET-CWW addresses NOAA's Visions, as stated in NOAA's Next Generation Strategic Plan (http://www.ppi.noaa.gov/ngsp.html) for 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 impacts of climate change.

ET-CWW benefits many of the key goals of the NWS as stated in the Draft NWS Strategic Plan (http://www.weather.gov/com/stratplan/). Specifically, ET-CWW supports the goals of improved weather decision services 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. ET-CWW 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 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, and the Climate, Water, and Weather (CWW) community. The CWW community supports the Nation's need for job creation, economic growth, sustainable development, and improved living standards for all Americans. ET-CWW is accomplished by involving operational hydrometeorologists, scientists and academic staff with expertise across a wide range of environmental, educational and social sciences. These activities engage operational hydrometeorologists, researchers, instructors and students in applied training and simulation activities that are pivotal to the operational climate, water and weather communities. ET-CWW focuses on improving the accuracy, timeliness and utility of forecasts and warnings of environmental hazards by enhancing human performance.

The goals are to maintain an efficient and effective workforce and facilitate the transfer of scientific developments into operations in the CWW community, NOAA, and other agencies. The vision for the program is to develop and deliver effective training in response to workforce needs and human performance improvement goals. The following goals specify

how this mission is realized:

GOAL 1: Establish a logical, flexible, and responsive training infrastructure to quickly translate training and education requirements, learning objectives and performance needs into easily accessible, usable, and effective training on a yearly basis.

GOAL 2: Implement an efficient, open, and consistent process for defining and establishing priorities for training and education requirements.

GOAL 3: Establish an easy to use, easy to find resource to clearly specify and monitor training and professional development activities available to operational hydrometeorologists.

GOAL 4: Develop an annual plan for training and support to ensure responsiveness to training requirements.

GOAL 5: 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 or additions to training priorities.

GOAL 6: Establish an effective, continuous evaluation process to ensure the intended benefits of training are accomplished.

Several programs are underway to prepare for the shift from producing hydrometeorological products to assisting users and partners in their decision support process. As a result, the demand for training in science and technology to support decision support services is increasing. Without such training, maintaining a highly trained, professional workforce that performs at the required levels to protect life and property will be compromised. Vital training needs are constantly being identified.

The need for an expanded training and education performance improvement program is critical for the following key program areas:

Warn on Forecast for High Impact Events: Decision support services will be enhanced by developing the capability to issue short-fused warnings/alerts before the phenomena actually occur. This concept, called "Warn on Forecast," advances the idea of warnings/alerts issued with greater lead times, allowing decision makers the opportunity to make better, more informed choices across the spectrum of high impact events. Warn on Forecast requires improved data assimilation and numerical models that capture the convective scale to provide improved "initiation of convection" forecasts.

Next Generation 4-D Forecast System: Decision support services will be enhanced by developing a next generation forecast system that will provide an increasing number of environmental and uncertainty fields in a high spatial and temporal resolution four-

dimensional gridded database. The forecast database will serve as the single authoritative source, support core operational services, and be used as input to external user decision support systems. The forecast database would represent the best, quality-controlled state of current and forecast environmental conditions.

Integrated Observing and Analysis System: Decision support services will be enhanced by developing a robust next generation "Integrated Observing and Analysis System" to produce the best "state of the environment" and serve as the basis for future forecast systems such as "Warn on Forecast" and the "Next Generation 4-D Forecast System." These systems and services would be available to all users but will focus on the transportation industry (aviation, ground and marine) as they are developed over the next five years.

Decision Support Information Systems: Operational weather and water services will evolve from a role of disseminating data and products to one of interactive sharing of weather and climate environmental information for the primary goal of providing decision support to decision makers, community leaders, partners and the public.

Integrated Water Services: Integrated Water Services will fill several critical service gaps encountered by hydrologists and water resource managers. These water services include high-resolution forecasts aiding decision makers, extending point forecasting to create inundation maps, integration of information for easier one-stop sources for emergency managers and other users, and establishing a proving ground to turn research into operational procedures. The Community Hydrologic Prediction System (CHPS) is a customized software structure that runs any number of hydrologic models in universities and government agencies that are compatible with the widely available Flood Early Warning System. This system gives the capability to provide numerous and expandable hydrologic services and products.

Integrating Social Science into Weather and Water Research and Operations: Operational decision support services will be enhanced by improving the ability to assess, understand, and meet customer needs and determine the value those services provide through the integration of social science in research and operational programs.

Integrated Climate Services: NOAA's Strategic Plan has established "Climate Adaptation and Mitigation" in which an informed society anticipates and responds to climate and its impacts as a top priority. To achieve this goal, extensive education and training is needed and requires Distance Learning Education in the areas of Climate, Climate Models, Climate Services, Climate Variability, Climate Change, and Communicating Climate Change. Another critical training area is the assessment of the state of the climate using Global Earth Observing (GEO) systems.

B. Program Priorities

B1. Priority Topics for Education and Training

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

" Development of improved, region-specific conceptual models for tornado, hail, high wind (both convective and synoptic), flash flood, and localized heavy snow events is required. Include roles of mesoscale phenomenon such as waves, thermal and moisture boundaries, and localized instabilities during these events.

" 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 cyclone events.

" Development of forecast techniques to improve forecasting of high resolution aviation fields such as ceiling, visibility, and winds, IFR flying conditions and low level wind shear.

" Improved understanding and modeling of snow melt and river ice formation and break-up processes.

" Improved forecasts and warnings of storm surge and flooding during tropical cyclone and extratropical storm events, including geospatial depictions of inundation.

" Development of techniques to improve hydrologic modeling and prediction for rivers and streams, including calibration of models, improved distributive modeling techniques, and improved soil moisture accounting.

" Development of improved methods for forecasting high impact weather events through the use and development of numerical models, and the application of model ensemble techniques in the forecast process

" Development of improved methods for communicating weather and water information to the public and decision makers which incorporates forecast uncertainty.

" 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/snow melt processes in complex terrain.

" Analysis and use of satellite channels and derived products to characterize the atmosphere.

" Improved methods of communicating water, weather and climate information to public and decision makers, particularly for high impact events.

" Application of social science knowledge to improve communication of uncertainty and risk associated with hazardous mesoscale weather, both with partners and decision makers.

" Improved high-latitude arctic forecasts and sea ice forecasting.

" Improved 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 wave onset, height, timing, and impacts.

" Improved analyses, warnings and forecasts for space weather.

B2. Specific High-Priority Education and Training Required

The demand for training in science and technology and to improve decision support services is increasing. Without such training, maintaining a highly trained, professional workforce that performs at the required levels to protect life and property will be compromised. Vital training needs are constantly being identified and updated. Rapidly evolving technologies, such as Dual-Polarization (Dual-Pol) radar, the Automated Surface Observing System (ASOS), Advanced Hydrologic Prediction System (AHPS), Geostationary Operational Environmental Satellite-R Series (GOES-R), Joint Polar Satellite System (JPSS), and Radiosonde Replacement System (RRS) are utilized by operational hydrometeorologists and by the environmental user community.

Examples of high-priority ET-CWW activities follow:

" Aviation: Develop a Volcanic Ash Training Impacts to Aviation Course.

" Climate: Provide enhanced Sea Grant Climate Extension Capabilities through training and increased interaction with scientists. The needs include an online training course on coastal climate change with a focus on helping scientists work effectively with their customers on potential climate change adaptations.

" Dispersion (Hazardous Materials in Atmosphere and Water: Develop modules on Dispersion Models Applications for Emergency Decision Support to train operational hydrometeorologists on computing airborne dispersion of hazardous materials.

" Fire Weather: Develop Fire Weather training curriculum and training materials for fire weather forecasters, fire weather focal points and Incident Meteorologists.

" Hydrology: Training on Short- and Long-Term Ensembles and Quantitative Precipitation Forecasting is needed. Training on enhanced water services must address high-resolution forecasts aiding decision makers, extending point forecasting to create inundation maps, integration of information for easier one-stop sources for emergency managers and other users.

" Integrated Sensor Training (Satellites): Development of satellite training for Environmental Satellites. Satellite training needs to provide access to a wide range of training resources about Low Earth Orbiting (LEO) and Geostationary Earth Orbiting (GEO) satellites, for use by federal agencies, universities, and international organizations (WMO and EUMETSAT). The Polar Satellites and GOES-R training materials and information pieces serve a valuable function by preparing the nation and the world for a new era of geostationary and polar orbiting satellites. Current and future users, such as emergency managers, coastal managers, private sector, state and local land managers, and transportation industry, will benefit when these new satellites are launched. Environmental Satellite training needs to focus on the integration of GOES and POES data into operational applications by including examples and training in relevant learning resources. Environmental Satellite training needs to provide updates and revisions to previously released materials when new satellite products and capabilities become available.

" International Activities: Provide support for ET-CWW by working with the World Meteorological Organization (WMO). Work with WMO as instructors in WMO Regional Train-the-Trainer workshops, and at GEOSS in the America Symposia. Work with international partners in environmental satellites (EUMETSAT, Japan, Canada Met Service, Chinese Met Service, etc.) to provide a broad range of training in support of existing and new GEO and LEO platforms.

" Marine: Need to develop modules on the following topics: Wave Life Cycle I and II, Winds in the Marine Boundary layer, Wave Types and Characteristics, Shallow Water Waves, Rip Currents - Near Shore Fundamentals, Rip Currents - Forecasting, and Rip Currents.

" Meteorology: Develop enhanced efforts to support the rapid expansion of simulation based distance training. Simulation based training is vital to provide enhanced human performance for Warn on Forecast for High Impact Events, Next Generation 4-D Forecast System, and other high-priority programs.

" Numerical Weather Prediction (NWP): Provides active Weather Research and Forecasting (WRF) Environmental Modeling Systems (EMS) development, training and support (both domestic and international). Expand NWP activities to include new high resolution models, different uses of NWP in the forecast process, hands-on training through simulation cases, and a website with an operational model training matrix.

" Oceanography: This is a growing topic area with a current focus on features and applications of ocean models. Training in the following topics is being considered: Introduction to Hydrography, Introduction to Ocean Acoustics, Ensemble Forecasting of Winds and Seas (Initiated), Sea Ice and more Oceanography.

" Seasonal Readiness Assessment: Development of seasonal readiness training assessment, which operational hydrometeorologists can take prior to each season to pinpoint individual training needs, is needed.

" Social Science: Work closely with social science experts and the operational forecast community to develop learning objectives for integrating social science concepts into operations. Develop societal impacts training for operational forecasters and their partners. Explore the use of online collaborative and community-building tools to support learners. This may include collaborative content development, as well as sharing of resources among weather and social science communities.

" Severe Weather Spotter Training: Need to offer modules for storm spotters on the convective basics training modules, which provide an overview of the spotter program. Modules use multimedia to help teach the visual skills required of a spotter and to help model the expected roles of spotters.

" Translations: Support for active translation efforts of many training materials, with translation of materials into Spanish and French.

" Tropical Meteorology: Develop an online textbook, Introduction to Tropical Meteorology. Chapters of the textbook are to be used widely by students and for professional development by university instructors and operational hydrometeorologists.

" Tsunamis: Saving lives in tsunami events requires a complex system of trained professionals, observational networks, and data processing and communication systems. Training materials must be developed that communicate and demonstrate appropriate outreach and warning procedures for Emergency Managers, teach the basics of tsunami science, develop awareness of the tsunami warning system, teach school aged children about the science and safety, and help all involved in tsunami warning system to become better consumers and communicators of tsunami warning information. The following module topics need to be developed: Tsunami Science, Tsunami Warning System, Tsunami Strike! and Community Tsunami Preparedness.

" Winter Weather: Publish modules that describe the basic approach to recognizing, in advance, conditions conducive to unstable snowpack conditions, and snowpack assessment: environment, evolutions, and measurement. Prepare and conduct winter weather training in support of seasonal readiness using simulations and online materials.

B3. Distribution and User Access of Education and Training Materials

Several critical functions are needed for the ET-CWW infrastructure to provide the necessary services. One of the primary requirements is for a robust, user friendly and continuously updated ET-CWW Website. The Website and underlying infrastructure must support the following:

" Increasing capacity to support over one million registered users

" 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 95% uptime. Data storage and data access for case studies and simulations

" NOAAPort Real-Time data feed, storage and distribution

" American Meteorology Society (AMS) data stream for high school teachers

B4. 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. 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 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 such as Facebook, RSS, Portable Pod devices, SmartPhones, and others with 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, virtual classes, simulations and teletraining.

" Manage an extensive library of training materials organized into cohesive courses with evaluations and assessments and the ability to provide customized courses 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.

" Develop new training materials using multiple formats to exploit new technology while using cost effective approaches. Include descriptions for the use of high quality animations, digital video/audio, 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 4-levels of evaluation capability and a reporting system to provide metrics.

" Provide for seamless exchange of information with Commerce Learning Center (CLC) Learning Management System that supports over 40,000 users.

" Develop and maintain a registration/tracking system that is robust, reliable, and verifiable and that can expand to include a growing worldwide community of users (estimated growth to over 1 million users within five years)

B5. Outreach Sub-Awards

The Outreach Program's goal is to improve local forecast and warning services by providing financial support for applied mesoscale and synoptic-scale research. Need to create 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. Activities are done using a competitive request for proposal process that includes some limited NOAA participation in the review.

B6. ET-CWW Advisory Panel

" The successful applicant must assemble an Advisory Panel (AP) that serves as the principal advisory body regarding recommendations, critical reviews, and future requirement estimates concerning training operations, research, development, and technology application programs.

" AP consists of eight to ten members from the academic, research and operational hydrometeorological and climate communities with a Chairperson appointed on an annual

basis. The AP will meet and make recommendations to the Principal Investigator (PI) on a yearly basis to improve processes and output of the ET-CWW program.

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

The total NOAA funding amount available for ET-CWW is anticipated to be approximately $3,000,000 to $6,000,000 per year or a total of $15,000,000 to $30,000,000 for the five-year period. There will be appropriation of some funds at the start of the award. NOAA anticipates providing funds each year of the multi-year award for five years. NOAA has no obligation to provide additional funding in connection with that award in subsequent years. Funding for each subsequent year of a multi-year proposal is at the discretion of NOAA and is subject to the availability of funds.

B. Project/Award Period

This program announcement is for projects to be conducted by collaborative program of investigators for a five-year period, with an anticipated start date of September 1, 2011 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. If an application is selected for funding, NOAA has no obligation to provide additional funding in connection with that award in subsequent years. Funding for each subsequent year of a multi-year proposal is at the discretion of NOAA and is subject to the availability of funds. It 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, proposals for collaboration between NOAA scientists and the recipient and assistance with reviews of outreach proposals. 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.

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

Since a goal of this announcement is to foster long-term collaborative interactions between a university consortia and operational hydrometeorological offices and service centers, a proposal must be submitted by one PI from the university or university consortia. 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. For applicants without internet access, an application package may be requested by contacting Kirsten Gurka, NOAA/NWS, 1325 East-West Highway, Room 14200, Silver Spring, Maryland 20910, Phone: 301-713-1706, ext. 120, email: Kirsten.Gurka@noaa.gov .

B. Content and Form of Application

Proposals should total no more than 50 pages in length, single spaced. 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, 2011 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.

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: The Office of Oceanic and Atmospheric Research has determined that applicants do not need to provide answers to the NEPA Questionnaire at this time.

C. Submission Dates and Times

The deadline for receipt of proposals is 5:00 p.m., EDT, April 22, 2011. For proposals submitted through grants.gov, a date and time receipt indication is included and will be the basis of determining timeliness. Grants.gov requires applicants to register with the system prior to submitting an application. This registration process can take several weeks and involves multiple steps. In order to allow sufficient time for this process, you should register as soon as you decide you intend to apply, even if you are not yet ready to submit your application.

Please note: Validation or rejection of your application by Grants.gov may take up to 2

business days after submission. Please consider this process in developing your submission timeline.

Hard copy proposals will be date and time stamped when they are received in the program office.

Applications received after the deadline will be rejected/returned to the sender without further consideration. Use of U.S. mail or another delivery service must be documented with a receipt. No facsimile or electronic mail applications will be accepted.

D. Intergovernmental Review

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

E. Funding Restrictions

Funding beyond the first year will be dependent upon satisfactory performance and the continued availability of funds.

F. Other Submission Requirements

Applications are to be submitted to Grants.gov. For those organizations without internet access, hard copy applications may be sent to: LeRoy Spayd, Chief, Training Division, SSMC2, Room 14222, 1315 East-West Highway, Silver Spring, MD 20910-3283.

Applications are to be submitted to Grants.gov. For those organizations without internet access, hard copy applications may be sent to: LeRoy Spayd, NOAA/NWS; 1325 East-West Highway, Room 14222; Silver Spring, Maryland 20910-3283.

V. Application Review Information

A. Evaluation Criteria

The evaluation criteria and weighting of the criteria are as follows:

1. Importance/Relevance and Applicability of Proposal (25 percent): This criterion ascertains whether there is intrinsic value in the proposed work and/or relevance to federal, regional, state, or local activities. For ET-CWW competition this includes:

" What is the likelihood of the proposed science training and education activities to improve performance in support of operational hydrometeorological services?

" Are proposed training activities and materials easily understood and comprehended by operational hydrometeorologists in a reasonable time frame?

" 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 ET-CWW competition this includes:

" What is the intrinsic scientific value and maturity of the training subject matter as they relate to the specific training and performance priorities?

" Were focused human performance improvement objectives and strategies, including instructional design, needs assessment, and formulative evaluations used?

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 ET-CWW competition this includes:

" Do PIs clearly document past scientific and instructional collaborations with operational hydrometeorologists 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 ET-CWW program?

" Have instructors and scientists demonstrated the ability to conduct successful training and education of large numbers of students synchronously, and asynchronously, through virtual, simulation and residence approaches?

4. Project Costs (15 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 leverage other resources?

" Is there a high ratio of operationally useful results versus proposed costs?

" Are proposed approaches cost effective in various budgetary scenarios?

5. Outreach and Education (10 percent): This criterion assesses whether the project provides a focused and effective education and outreach plan to help protect the Nation's natural resources, to enhance the performance of its workforce, and for climate adaptation and mitigation.

" Does proposal outline how a competitive Outreach Program to address how local and regional environmental issues would be administered?

" Does proposal address education efforts to other communities such as K-12 educators, emergency management officials, public safety officials, Storm Spotters, etc.?

B. Review and Selection Process

An initial administrative review/screening is conducted to determine compliance with requirements/completeness. All proposals will be evaluated and individually ranked in accordance with the assigned weights of the above evaluation criteria by an independent peer panel review. Five to ten NOAA experts may be used in this process. The merit reviewers' ratings are used to produce a rank order of the proposals. The Selection Official selects proposals after considering the peer panel reviews and selection factors listed below. In making the final selections, 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.

C. Selection Factors

The Merit review ratings shall provide a rank order to the Selecting Official for final funding recommendations. 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.

D. Anticipated Announcement and Award Dates

Subject to the availability of funds, review of proposals will occur during April and May 2011, and funding should begin during September of 2011. September 1, 2011, should be used as the proposed start date on proposals, unless otherwise directed by the Program Officer.

VI. Award Administration Information

A. Award Notices

Successful applicants will receive notification that the application has been recommended for funding to the NOAA Grants Management Division. This notification is not an authorization to begin performance of the project. Official notification of funding from the NOAA grants Officer is the authorization that allows the project to begin. Notification will be issued to the Authorizing Official and the PI of the project either electronically or in hard copy. Unsuccessful applicants will be notified that their proposals were not selected for recommendation.

To enable the use of a universal identifier and to enhance the quality of information available to the public as required by the Federal Funding Accountability and Transparency Act of 2006, to the extent applicable, any proposal awarded in response to this announcement will be required to use the Central Contractor Registration and Dun and Bradstreet Universal Numbering System and be subject to reporting requirements, as identified in OMB guidance published at 2 CFR Parts 25, 170 (2010), http://ecfr.gpoaccess.gov/cgi/t/text/textidxc=ecfr&tpl=/ecfrbrowse/Title02/2cfr25_main_02.tpl , http://ecfr.gpoaccess.gov/cgi/t/text/textidxc=ecfr&tpl=/ecfrbrowse/Title02/2cfr170_main_02.tpl .

B. Administrative and National Policy Requirements

1. The Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements: Administrative and national policy requirements for all Department of Commerce awards are contained in the Department of Commerce Pre-Award Notification Requirements for Grants and Cooperative Agreements contained in the Federal Register notice of February 11, 2008 (73 FR 7696). A copy of the notice may be obtained at http://www.gpoaccess.gov/fr/search.html .

2. Limitation of Liability: In no event will NOAA or the Department of Commerce be responsible for application preparation costs if these programs fail to receive funding or are canceled because of other agency priorities. Publication of this announcement does not oblige NOAA to award any specific project or to obligate any available funds.

3. National Environmental Policy Act (NEPA): NOAA must analyze the potential environmental impacts, as required by the National Environmental Policy Act (NEPA), for applicant projects or proposals which are seeking NOAA federal funding opportunities. Detailed information on NOAA compliance with NEPA can be found at the following NOAA NEPA website: http://www.nepa.noaa.gov/, including our NOAA Administrative Order 216-6 for NEPA, http://www.osec.doc.gov/bmi/daos/216-6.htm, and the Council on Environmental Quality implementation regulations, http://ceq.eh.doe.gov/nepa/regs/ceq/toc_ceq.htm . Consequently, as part of an applicant's package, and under their description of their program activities, applicants are required 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 of 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. Executive Order 12906: The recipients must comply with Executive Order 12906 regarding any and all geospatial data collected or produced under grants or cooperative agreements. This includes documenting all geospatial data in accordance with the Federal Geographic Data Committee Content Standard for digital geospatial data. The Program uses

only the existing NOAA Federal financial assistance awards package requirements per 15 CFR parts 14 and 24.

5. Data, Databases, and Software: The rights to any work produced or purchased under a DOC Federal financial assistance award are determined by 15 CFR § 24.34 and 15 CFR § 14.36. Such works may include data, databases or software. The recipient owns any work produced or purchased under a DOC Federal financial assistance award subject to DOC's right to obtain, reproduce, publish or otherwise use the work or authorize others to receive, reproduce, publish or otherwise use the data for Government purposes.

6. Copyright: The recipient may copyright any work produced under a DOC Federal financial assistance award subject to DOC's royalty-free nonexclusive and irrevocable right to reproduce, publish or otherwise use the work or authorize others to do so for Government purposes. Works jointly authored by DOC and recipient employees may be copyrighted but only the part authored by the recipient is protected because, under 17 U.S.C. § 105, works produced by Government employees are not copyrightable in the United States. On occasion, DOC may ask the recipient to transfer to DOC its copyright in a particular work when DOC is undertaking the primary dissemination of the work. Ownership of copyright by the Government through assignment is permitted by 17 U.S.C. § 105.

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 unless the recipient does not have internet access, in which case hard copy submissions will be accepted. 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 of 2006 includes a requirement for awardees of applicable Federal grants to report information about first-tier subawards and executive compensation under Federal assistance awards issued in FY 2011 or later. All awardees of applicable grants and cooperative agreements are required to report to the Federal Subaward Reporting System (FSRS) available at www.FSRS.gov on all subawards over $25,000.

VII. Agency Contacts

The point of contact is LeRoy Spayd, NOAA/NWS; 1325 East-West Highway, Room 14222; Silver Spring, Maryland 20910-3283, or by phone at 301-713-1970 ext. 138 by fax to 301-713-1598, or via email at Leroy.Spayd@noaa.gov .

VIII. Other Information

To use grants.gov, applicants must have a Dun and Bradstreet Data Universal Numbering System (DUNS) number and be registered in the Central Contractor Registry (CCR). Allow a minimum of five days to complete the CCR registration. [Note: Your organization's Employer Identification Number (EIN) will be needed on the application form.] Applicants are strongly encouraged not to wait until the application deadline date to begin the application process through grants.gov.