

ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

- **Federal Agency Name:** National Weather Service (NWS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce
- **Funding Opportunity Title:** Collaborative Science, Technology, and Applied Research (CSTAR) Program
- **Announcement Type:** Initial Announcement
- **Catalog of Federal Domestic Assistance(CFDA) Number:** 11.468, Applied Meteorological Research
- **Dates:** Proposals must be received by the NWS no later than 5 p.m., EDT, October 20, 2006.
- **Application Submission:** Applications shall be submitted through the Grants.gov APPLY link; a date/time receipt indication is included and will be the basis of determining the timeliness of the application. If applicants do not have Internet access, the application can be mailed to: NOAA/NWS Office of Science and Technology, Attn: Sam Contorno, 1325 East-West Highway, Room 15330, Silver Spring, Maryland 20910. It is anticipated that review of proposals will be completed by December 15, 2006, and the anticipated start date of awards is May 1, 2007. May 1, 2007, is to be used as the proposed start date on proposals unless otherwise directed by the Technical Point of Contact. All proposals must be submitted in accordance with the guidelines that follow. Failure to heed these guidelines may result in proposals being rejected without review.
- **Funding Opportunity Description:** The CSTAR Program represents an NOAA/NWS effort to create a cost-effective transition from basic and applied research to operations and services through collaborative research between operational forecasters and academic institutions which have expertise in the environmental sciences. These activities will engage researchers and students in applied research of interest to the operational meteorological community and will improve the accuracy of forecasts and warnings of environmental hazards by applying scientific knowledge and information to operational products and services. The NOAA CSTAR Program is a contributing element of the U.S. Weather Research Program. NOAA's program is designed to complement other agency contributions to that national effort.

FULL ANNOUNCEMENT

I. Funding Opportunity Description

A. Program Objective

The long term objective of the CSTAR Program is to improve the overall forecast and warning capabilities of the operational hydrometeorological community by addressing the following national science priorities through collaborative efforts between the NWS and academic institutions:

- Quantitative precipitation estimation (QPE) and forecasting (QPF), including precipitation type and probabilistic QPF
- Flash flood and probabilistic river prediction
- Prediction of seasonal-to-interannual and decadal climate variability, and the impacts of these variabilities on extreme weather events
- Prediction of tropical cyclones near landfall, including track, intensity, and associated precipitation, and hazardous weather
- Prediction of marine conditions, including fog, winds, coastal ocean, and open-ocean waves
- The effect of topography and other surface forcing on local weather regimes
- Locally hazardous weather, especially severe convection, winter weather, and phenomena that affect aviation
- Conditions conducive for the rapid development of wildfires and the dispersion of smoke and other air-quality hazards.
- Application of sound science and innovative techniques toward optimizing the utilization of interactive forecast preparation systems and gridded databases.

Individual NWS Regions and National Centers for Environmental Prediction (NCEP) service centers have a subset of these national science priorities due to differences in factors such as topography, weather regimes, and mission.

B. Program Priorities

NOAA will give sole attention to individual proposals addressing the identified science priorities from NWS Regions and NCEP service centers as listed below or which directly address or incorporate solutions to science issues related to interactive forecast preparation systems and gridded data bases. Proposals must clearly specify which primary science priorities are being addressed.

A proposal must contain at least two distinct subtasks addressing one or more of the science priorities listed. Principal investigators (PIs) must clearly address the science and technology transfer process contained within the proposal. This includes their interactions with operational NWS units, including weather offices, River Forecast Centers, NCEP service centers, and regional offices, with the specific goal of improving operational services.

The names, affiliations, and phone numbers of relevant NWS regional/NCEP focal points are provided. Prospective applicants should communicate with these focal points for further information on priorities within regional science priorities. Focal points cannot assist in the conceptual design and specific elements to be included in a proposal. Applicants should submit completed proposals to the NOAA/NWS through the grants.gov portal rather than to individual focal points.

1. Scientific Issues Related to the Preparation of NWS Digital Forecast Products

- Development of a national real-time, gridded verification system of surface-based parameters to track the accuracy of both the numerical model guidance and the official, forecaster-edited grids.
- Research, development, and implementation of statistical methods to objectively produce bias-corrected model grids (e.g. from grids, not just points) for operation forecast office use.
- Research, development, and implementation methods to objectively downscale forecast and ensemble grids to the resolution necessary (2-5 km) to improve Interactive Forecast Preparation System (IFPS) forecasts and forecast methodology.
- Development and implementation of climatology grids for use in graphical forecast editing applications.
- Development of short- and long-range ensemble mean, spread and ensemble-derived data in gridded form.

FOR FURTHER INFORMATION CONTACT: Andy Edman, NOAA/NWS/Western Region Scientific Services Division, 801-524-5131, or by email at andy.edman@noaa.gov.

2. NWS Eastern Region Science Priorities

- Development of techniques to incorporate the effects of the region's unique geomorphic features such as the Appalachian Mountains, Atlantic Seaboard, and the Great Lakes into operational forecast and warning services. This includes the impacts of these features on the type, amount, and intensity of precipitation, and the interaction of these terrain features with large scale weather systems such as winter storms, hurricanes, and closed lows.
- Development of improved, region-specific conceptual models for tornado, hail, high wind (both convective and synoptic), flash flood, and localized heavy snow events. Such development should include detailed investigation of the roles of mesoscale phenomenon such as gravity waves, thermal and moisture boundaries, and localized instabilities during these events.
- Development of improved detection and warning techniques for low-topped severe convection and associated tornado development, and pulse convection events.
- Improved understanding of cloud physics and associated microphysical processes associated with determining precipitation type, snowfall efficiency, and extreme rainfall rates and the development of associated advanced techniques for forecasting these phenomena.

- Improved understanding and modeling of snow melt and river ice formation and break-up processes.
- Improved forecasts and warnings of severe weather and heavy precipitation during tropical cyclone events.
- Improved storm surge forecasts and coastal flood warnings during tropical cyclone and extratropical storm events.
- Improved wind and wave forecasts for the Atlantic coastal zone (within 60 nm including the various bays and sounds along the Atlantic seaboard), and the Great Lakes.
- Development of improved techniques to forecast aviation weather hazards including convective initiation, fog, low ceilings, and low level wind shear.
- Development of new techniques to utilize lightning information in the forecast and warning process.
- Development of innovative approaches to formulate, produce, display, and deliver high resolution digital forecasts and products for the heavily populated eastern United States.
- Development of new techniques to utilize high resolution surface analysis grids to verify and evaluate digital forecasts.
- Development of new techniques to more effectively and efficiently utilize information from ensemble prediction systems in the forecast process.
- Development of innovative methodologies to communicate forecast uncertainties to a wide variety of users.

FOR FURTHER INFORMATION CONTACT: Kenneth Johnson, NOAA/NWS/Eastern Region Scientific Services Division, 631-244-0136, or by email at Kenneth.Johnson@noaa.gov.

3. NWS Southern Region Science Priorities

- Development of improved techniques for the prediction of freezing and frozen precipitation events in the NWS Southern Region, including timing, areal extent, intensity and amount.
- Development of diurnal lightning and cloud climatologies stratified by weather regime to better predict the onset, spatial coverage, and duration of precipitation, especially under weak synoptic forcing
- Development of improved techniques for the prediction of moisture return and the onset of precipitation in return flow regimes from the Gulf of Mexico.
- Development of improved techniques to forecast and monitor heavy-rain events.
- Development of relationships between land falling tropical cyclones and associated severe weather, including heavy precipitation, flooding and flash flooding, throughout the southern United States.
- Development of improved techniques to observe and forecast winds and waves in the coastal environment.
- Improved understanding of the influences of the complex terrain of the southern Appalachians, the Texas Hill Country, the Mexican Plateau, the Gulf Coast and the

mountains of Puerto Rico on weather problems such as type, amount, duration and intensity of precipitation and resultant flash flooding.

- Development of optimal strategies for using mesoscale models to accurately predict the effects of topography and other surface forcing on local weather.
- Improved methodologies to better predict the development and duration of stratus, fog and other conditions which result in instrument flight rule (IFR) flying conditions in the NWS Southern Region.
- Development of methodologies for use of Doppler weather radar (WSR-88D) and multi-sensor technology to detect/identify storm features leading to, and/or associated with, the development of weak (F0 and F1) tornadoes and waterspouts which are characteristic of tropical and semi-tropical environments.
- Development of methodologies for the use of Doppler weather radar and other multi-sensor technology to detect precursor conditions and enhance forecast capabilities for improved warnings associated with microburst producing thunderstorms.
- Development of optimal WSR-88D scan strategies and adaptable parameter settings for accurately estimating heavy precipitation amounts.
- Development of techniques to improve hydrologic modeling and prediction for Southern U.S. rivers and streams, including calibration of models, improved distributive modeling techniques, and improved soil moisture accounting.
- Development of methodologies to better predict the type, duration, and severity of arctic outbreaks that result in damaging freezes affecting the NWS Southern Region.
- Development of improved methods for utilizing data analysis, manipulation and communication technology (Internet, Web sites, Geographic Information Systems, etc.) for preparing and disseminating high resolution hydrological and meteorological forecasts and products which best serve the changing needs of varied users.

FOR FURTHER INFORMATION CONTACT: David “Rusty” Billingsley,
NOAA/NWS/Southern Region Scientific Services Division, 817-978-1300, or by email at david.billingsley@noaa.gov.

4. NWS Central Region Science Priorities

- Improved understanding and development of conceptual models for tornado-genesis, hail-size, high wind, precipitation intensity and elevated nocturnal convection events.
- Improved understanding and development of methodologies for increasing warning accuracy and lead times for low-topped severe convection and associated tornado development.
- Improved understanding and development of methodologies for increasing warning accuracy and lead times for non-supercell tornadoes.
- Research and development of methodologies for the use of dual-polarimetric Doppler weather radar and other multi-sensor technology to detect precursor conditions and enhance forecast capabilities for improved warnings.

- Development of more accurate diagnostic methodologies to interrogate remotely sensed data (radar, satellite, etc.) and numerical weather guidance with a focus on severe thunderstorm and tornado environments.
- Develop a climatology of winter precipitation events including, but not limited to, heavy snow, sleet, freezing rain and water equivalent of snowfall.
- Link cloud physics and associated micro-physical processes, precipitation efficiency, water vapor distribution, and transport of winter stratiform and/or convective clouds to improved methodologies for estimating or forecasting winter precipitation amounts.
- Improve the accuracy (probability of detection) and lead time for high impact weather events by better understanding the predictability of these events by numerical models and the application of model ensemble techniques in the forecast process.
- Research and Development of methodologies for reliably forecasting cloud-to-ground lightning.
- Developing a climatology of ceiling, visibility, thunderstorms and low-level wind shear for aviation terminals and terminal radar approach control areas.
- Development of methodologies to forecast the onset and dissipation of fog and low ceilings.
- Improve the utilization of numerical guidance in the forecast process by developing more efficient and effective methodologies to display, review, and interrogate numerical model output in an operational environment.
- Improve the quality of weather services to the public through the development of new and innovative forecast methodologies and products, including innovative methodologies to communicate forecast uncertainties to a wide variety of users.
- Improve probabilistic river forecasts through the use of climate data, climate model forecasts and meteorological forecasts (wind, dewpoint).

FOR FURTHER INFORMATION CONTACT: Peter Browning, NOAA/NWS/Central Region Scientific Services Division, 816-891-7734 ext. 300, or by email at Peter.Browning@noaa.gov.

5. NWS Western Region Science Priorities

- Priorities stated in section related to the preparation of NWS digital forecast products above, with a focus on complex mountainous terrain and coastal environment.
- Improve acquisition and use of non-NWS observational networks, such as mesonets.
- Improve analysis through better assimilation systems that produce more realistic analysis in complex terrain and coastal areas.
- Identify and help improve the relationship of public safety and economic impacts due to significant meteorological and hydrological events in the mountainous western U.S.
- In the West, water is a critical and closely managed resource. Improve operational precipitation (snow/rain as it varies with elevation) and hydrological forecasts in complex terrain across a wide range of western U.S. meteorological regimes.
- Improve hydrological modeling, through use of emerging techniques, such as distributed

hydrologic modeling, of rain/snow melt processes in complex terrain.

- Improve fire-weather forecasts and smoke dispersion in the western United States.

FOR FURTHER INFORMATION CONTACT: Andy Edman, NOAA/NWS/Western Region Scientific Services Division, 801-524-5131, or by email at andy.edman@noaa.gov.

6. NWS Alaska Region Science Priorities

- Improve the accuracy (probability of detection) and lead time for high impact weather events by better understanding the predictability of these events by numerical models and the application of model ensemble techniques in the forecast process.
- Developing a climatology of sea ice, ocean waves, air and water temperature, wind speed and direction, and permafrost to aid in forecasting impacts of storms on coastal erosion in Alaska.
- Improve the utilization of numerical guidance in the forecast process by developing more efficient and effective methodologies to display, review, and interrogate numerical model output in an operational environment.
- Improve the quality of weather services to the public through the development of new and innovative forecast methodologies and products, including innovative methodologies to communicate forecast uncertainties to a wide variety of users.
- Improve the quality of numerical model analyses and forecasts in the North Pacific and over Alaska, including improved data assimilation techniques, characterization of the arctic and marine boundary layers, and processes related to the ocean-atmosphere-cryosphere interfaces.

FOR FURTHER INFORMATION CONTACT: James Partain, NOAA/NWS/Alaska Region Environmental and Scientific Services Division, 907-271-5131/907-271-3886, or by email at james.partain@noaa.gov.

7. NWS Pacific Region Science Priorities

- Use Geographic Information Systems technology to display, analyze, and process hydrometeorological forecast and observational data.
- Develop techniques to assess and improve forecasts of tropical cyclone intensity in the Pacific.
- Optimize the utility of new and existing observing systems, with emphasis on satellites and their use in providing precipitation estimations.
- Develop, optimize, and utilize local high resolution modeling capabilities aimed at providing operational real time guidance as well as a tool for locally conducted research.
- Conduct Pacific Basin synoptic climatological studies, with emphasis on flash-flood and high wind events.

FOR FURTHER INFORMATION CONTACT: Ken Waters, NOAA/NWS/Pacific Region

Regional Scientist, 808-532-6413, or by email at Ken.Waters@noaa.gov.

8. NWS National Centers for Environmental Prediction Science Priorities

Hydrometeorological Prediction Center

- Develop new model verification techniques to enhance current methods of objectively assessing which models will perform best (6h - 7day lead times).
- Develop techniques to modify gridded numerical guidance to produce gridded forecast products, which are made horizontally, vertically, and temporally consistent using sound meteorological theory.
- Find better ways to manipulate model guidance to produce gridded sensible weather forecasts that can be efficiently and effectively ingested by IFPS for use at WFOs and RFCs.
- Develop better techniques to incorporate uncertainty derived from short and medium range ensembles forecasts into the forecast process and convey this uncertainty to users of HPC products.
- Develop improved techniques to forecast extreme rainfall events.
- Develop improved techniques for the prediction of freezing and frozen precipitation events (timing, areal extent, intensity, and amount).

Ocean Prediction Center

- Improve use of all sources of surface marine observations in data assimilation for numerical weather prediction.
- Improve numerical weather prediction of marine boundary layer.
- Improve numerical weather prediction of explosive extratropical cyclogenesis.
- Improve numerical weather prediction of hazardous mesoscale marine conditions in the vicinity of the Gulf Stream.

Storm Prediction Center

- Develop mesoscale or storm scale numerical prediction models, ensemble approaches, and verification techniques to improve forecasts of the location, timing, intensity, and mode of deep moist convection and its associated hazards.
- Develop three dimensional mesoscale analysis techniques, observing systems, expert systems or statistical guidance, robust conceptual models, and scientific understanding to improve forecasts of the location, timing, intensity, and mode of deep moist convection and its associated hazards.
- Develop operational techniques to synthesize, view, and analyze total lightning, determine its association to convective weather types, and develop total lightning forecast techniques and products.
- Develop techniques to observe and integrate in real-time the detailed 4-dimensional evolution of atmospheric water vapor, blending multi-sensor data from satellite, radar, aircraft, and other remote sensing sources (e.g., GPS, WSR-88D refractivity, TAMDAR, WVSS, and RASS), and develop new operational display and analysis tools to accurately depict the distribution of water vapor for use in convective forecasting.

Aviation Weather Center

- Evaluation and analysis of verification techniques to understand which parameters are most useful and usable to AIRMET and SIGMET verification.
- Development and implementation of tools for the conversion of cloud height observations and forecasts from height above ground to height above sea level for the diagnosis and forecast of mountain obscuration.
- Triggers to the production of moderate or greater turbulence outside regions under convective SIGMETs, rather arbitrarily divided into three height-based regimes:
 - Boundary layer (turbulence impacts surface to ~ 2 kft above the top of the boundary layer)
 - Mid level (turbulence impacts from top of boundary layer to FL180)
 - High level (turbulence impacts above FL180)
- Evaluation and analysis of global convection detection and monitoring techniques with time scales of one hour or less.
- Evaluation and analysis of model and ensemble diagnostic fields specific to enroute aviation forecasts (e.g., Ellrod index, TKE, CIP, FIP, GTG, RAP ICE, etc.)

Climate Prediction Center

- Develop physically based techniques to improve the prediction skill of weekly (e.g., 6-10 Day, Week 2, Week 3, Week 4), monthly, and seasonal precipitation and temperature, including regional climate prediction systems. Methods may include improving dynamic and coupled models and model ensembles, as well as combining output from multiple models and super-ensembles.
- Develop improved national and global forecasts of seasonal climate variability through better understanding of the couple atmosphere/ocean system and the effects of climate variations on that coupling and on ensemble systems.
- Improve the ability of climate models to capture the statistics of weather, and the linkage between climate variability and weather extremes.
- Improve objectivity and verification techniques for U. S. and international Threats Assessments which cover time scales from several days to multiple seasons. Threats include all extreme weather and climate phenomena such as droughts, floods, storms, hurricanes, cold, heat.
- Develop comprehensive modeling of land surface hydrology to the benefit of physical understanding, and improved hydrological forecasts in all seasons and improved seasonal temperature and precipitation forecasts in the warm half year.
- Develop improved methods for predicting and using, short and long time scale variability in seasonal climate forecasting, e.g., the Arctic Oscillation and the Madden Julian Oscillation. This may also include investigation of possible interaction between troposphere and stratosphere and the long-term aspects of ozone change and climate trends/change in general.
- Develop improved and collaborative methods for diagnosing, evaluating and comparing climate model output.

- Develop improved drought monitoring and seasonal drought outlook techniques.
- Improve seasonal hurricane outlooks through improved understanding of the impacts of intraseasonal and decadal scale variability on tropical storm activity.

Tropical Prediction Center

- Improve understanding and guidance on tropical cyclone intensity change, with highest priority on the onset, duration and magnitude of rapid intensification events for tropical cyclones.
- Identify, understand, and then reduce guidance and official track forecast error of outlier storms, focusing on both large speed errors (e.g., accelerating "recurvers" and stalling storms) and large direction errors (e.g., loops and tropical cyclones like Mitch (1998) and Keith (2000)).
- Develop statistically based real time "guidance on guidance" for track, including multi model consensus approaches, "super ensembling", etc. Provide guidance to forecasters in probabilistic and other formats.

(Note: In all instances, projects are encouraged which not only address the priorities of individual NCEP service centers but also address aspects of the NCEP/Environmental Modeling Center's goals for improving data assimilation and numerical modeling of the atmosphere, oceans, and Earth's surface.)

FOR FURTHER INFORMATION CONTACT: Dennis Staley, NOAA/NWS/National Centers for Environmental Prediction, 301-763-8000 ext. 7007, or by email at Dennis.Staley@noaa.gov.

C. Program Authority

Authority for the CSTAR program is provided by the following: 15 U.S.C. 313; 49 U.S.C. 44720 (b); 33 U.S.C. 883d; 15 U.S.C. 2904; 15 U.S.C. 2934.

II. Award Information

A. Funding Availability for FY 2007

The total funding amount available for proposals is anticipated to be approximately \$500,000 per year. However, there is no appropriation of funds at this time and no guarantee that there will be. Individual annual awards in the form of cooperative agreements are limited to a maximum of \$125,000 per year for no more than three years. We anticipate making 4 awards.

B. Project/Award Period

This program announcement is for projects to be conducted by university investigators for a 1-year, 2-year, or 3-year period, with an anticipated start date of May 1, 2007 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 initial funding, the NWS 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 the NWS. It will be contingent upon satisfactory progress in relation to the stated goals of the proposal to address specific science needs and priorities of the NWS and the availability of funds. 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/NWS components--forecast offices, NCEP service centers, or regional headquarters--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 a recipient scientist and/or contemplation by NOAA of detailing Federal personnel to work on proposed projects. NOAA/NWS believes its warning and forecast mission will benefit significantly from a strong partnership with outside investigators. 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 are institutions of higher education and federally funded educational institutions such as the Naval Postgraduate School. This restriction is needed because the results of the collaboration are to be incorporated in academic processes which ensure academic multidisciplinary peer review as well as Federal review of scientific validity for use in operations.

B. Cost Sharing or Matching Requirement

No cost sharing is required under this program.

C. Other

Since a goal of this announcement is to foster long-term collaborative interactions between a university and NWS operational offices/NCEP service centers, a proposal must be submitted by at least two principal investigators (PIs) from the same college or university. In addition, collaboration with PIs at different universities is allowed, but there must be a single application from a lead university (with two principal investigators from that university) with subawards to participants from other institutions. Other arrangements will not be considered. At least two of the PIs within this program must be full, assistant, or associate college or university professors with substantial documented involvement in the proposal. Proposals should clearly

state the role of each PI in the project.

Except for researchers who are associate, assistant, or full professors at the Naval Postgraduate School or other federally funded educational institutions, federal government employees are not allowed to be listed as PIs, although collaboration between the academic community and NOAA within the project is strongly encouraged.

IV. Application and Submission Information

The standard application package is available at <http://www.grants.gov>. For applicants without internet access, an application package may be received by contacting Sam Contorno, NOAA/NWS, 1325 East-West Highway, Room 15330, Silver Spring, Maryland 20910, Phone: 301-713-3557, ext. 150, email: Samuel.Contorno@noaa.gov.

A. Full Proposal Application

The proposals must include the required elements identified below and total no more than 30 pages in length. Federally mandated forms are not included within the page count, but all other information is. Multi-year proposals up to a maximum of three years will be considered; however, funding beyond the first year will be dependent upon satisfactory performance and the availability of funds. May 1, 2007, is to be used as the proposed start date on proposals unless otherwise directed by the NOAA Program Officer. All proposals must include the following elements:

1. **Title Page.** The title page should be signed by the PIs and the institutional representative and should clearly indicate which project area is being addressed. The PIs and institutional representative should be identified by full name, title, organization, telephone number, and address. The total amount of Federal funds being requested should be listed for each budget period.
2. **Abstract Page.** An abstract must 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 Research.** The results of related projects supported by NOAA and other agencies should be described, including their relation to the currently proposed work. Reference to each prior research 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 two pages total.
4. **Project description.** The proposed project must be completely described, including identification of the problem; scientific objectives; proposed methodology; relevance to the priorities of the NWS Region or NCEP service center; operational applicability; scientific

merit; proposed technology transfer; past collaborations with operational hydrometeorologists; cost effectiveness of research; and the program priorities listed above. Benefits of the proposed project to the general public and the scientific community should 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 424 "Application for Federal Assistance," including a detailed budget using the Standard Form 424A, "Budget Information--Non-Construction Programs." The form is available on grants.gov. The proposal must include total and annual budgets (for multi-year applications) corresponding with the descriptions provided in 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 three 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.

C. Submission Dates and Times

The deadline for receipt of proposals at the NOAA/NWS office is 5 p.m., EDT, October 20, 2006. For proposals submitted through grants.gov, a date and time receipt indication is included and will be the basis of determining timeliness. Hard copy proposals will be date and time stamped when they are received in the program office. Proposals received after the deadline will be rejected/returned to the sender without further consideration.

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

Proposals should be submitted through www.grants.gov. For those organizations without internet access, proposals may be sent to Sam Contorno, CSTAR Program Manager, NOAA/NWS, 1325 East-West Highway, Room 15330, Silver Spring, Maryland 20910.

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 (35 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 the CSTAR competition this includes:
 - a. What is the likelihood of the proposed science activities to improve operational hydrometeorological services?
 - b. Are proposed research activities transferrable to forecast operations in a reasonable time frame?
 - c. What is the degree of collaboration with multiple operational units throughout the project?
 - d. What is the level of planning by researchers to integrate results into operations successfully and efficiently?
2. **Technical/Scientific Merit (30 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 CSTAR competition this includes:
 - a. What is the intrinsic scientific value and maturity of the subject and the study proposed as they relate to the specific science priorities?
 - b. Were focused scientific objectives and strategies, including data management considerations, project milestones, and timeliness, used?
3. **Overall Qualification of Applicants (20 percent)**: This criterion ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. For the CSTAR competition this includes:
 - a. Do PIs clearly document past scientific collaborations with operational meteorologists?
 - b. Have past interactions been successful?

- c. Are researchers likely to maintain effective and consistent interactions with operational forecasts throughout the course of the proposed research program?
 - d. Have researchers demonstrated the ability to conduct successful research?
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 CSTAR competition this includes:
- a. Do researchers demonstrate the ability to leverage other resources?
 - b. Is there a high ratio of operationally useful results versus proposed costs?
5. **Outreach and Education (0 percent):** This criterion assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. The CSTAR competition does not use this criterion.

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. Three to seven NWS experts representing NWS Regions and Centers 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/distribution of funds.
 - a. Geographically
 - b. By type of institutions
 - c. By type of partners
 - d. By research areas
 - e. By project types

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 NEPA determination and draft necessary documentation before recommendations for funding are made to the Grants Officer.

Regarding Selection Factor 2b, while a university may submit more than one application, the selecting official may limit the awards to only one per university.

D. Anticipated Announcement and Award Dates

Subject to the availability of funds, review of proposals will occur during November and December 2006, and funding should begin during May of 2007 for most approved projects. May 1, 2007, 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, signed by the NOAA grants Officer, is the authorizing document 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. Unsuccessful applications will be kept on file in the program Office for a period of 12 months, then destroyed.

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 December 30,

2004 (69 FR 78389). 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 cancelled 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.

C. Reporting

Award recipients will be required to submit financial and performance (technical) reports. These reports are to be submitted electronically 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 shall be submitted directly to the NOAA Grants Officer. Performance reports should be submitted to the NOAA Program Officer (Sam Contorno).

VII. Agency Contact

Contact Sam Contorno, NOAA/NWS; 1325 East-West Highway, Room 15330; Silver Spring, Maryland 20910-3283, or by phone at 301-713-3557 ext. 150, by fax to 301-713-1253, or via email at samuel.contorno@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.