

ANNOUNCEMENT OF FEDERAL FUNDING OPPORTUNITY

EXECUTIVE SUMMARY

- **Federal Agency Name(s):** Office of Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.
- **Funding Opportunity Title:** Joint Hurricane Testbed (JHT) Opportunities for Transfer of Research and Technology Into Tropical Cyclone Analysis and Forecast Operations
- **Announcement Type:** Initial Announcement
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** 11.431--Climate and Atmospheric Research
- **Dates:** Preapplications submitted by Principal Investigators (PIs) must be received at the Tropical Prediction Center/National Hurricane Center (TPC/NHC) in Miami, Florida (addresses provided below) no later than 5:00 p.m. Eastern Daylight Time (EDT) on July 30, 2004. Response letters will be sent from NOAA no later than September 24, 2004. Full proposals and all additionally required forms must be received at TPC/NHC in Miami, Florida (address provided below) no later than 5:00 p.m. Eastern Daylight Time (EDT) on October 29, 2004.
- **Application Submission:** In accordance with the requirements described in Section IV of this notice, all electronic submissions must be sent via e-mail to Jiann-Gwo.Jiing@noaa.gov, and all hard copy submissions must be submitted to: Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, Tropical Prediction Center, 11691 SW 17th Street, Miami, FL 33165, phone (305) 229-4443.

Preapplications may be sent as printed hard copies to the above address, or, preferably, they may be submitted electronically via the above e-mail address in portable document format (PDF). Full proposals and all additionally required forms must be submitted as printed hard copies (one signed original and two additional copies of each) to the above address. Electronic submission via the above e-mail address of only the proposal document (without the required forms), in PDF format, is strongly encouraged to facilitate the review process. The standard NOAA Grants and Cooperative Agreement Application Package, which contains required forms to be submitted by non-Federal applicants with a full proposal (but not with a preapplication) can be obtained on line via <http://www.ofa.noaa.gov/%7Egrants/appkit.html> or by contacting Karen King, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315

East-West Highway, Room 11216, Silver Spring, MD 20910, phone (301) 713-0460 ext. 202, e-mail Karen.King@noaa.gov. Federal applicants do not need to request this package and are not required to complete the forms it contains. Any technical questions about this JHT funding opportunity should be directed to Dr. Jiann-Gwo Jiing, JHT Director (contact information provided above). Any such technical questions and their answers will be posted, as soon as possible after they are answered, on the JHT website: <http://www.aoml.noaa.gov/hrd/Landsea/jht/index.html>

- **Funding Opportunity Description:** The Office of Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), is soliciting preapplications (Letters of Intent) under the United States Weather Research Program (USWRP), as administered by the USWRP Joint Hurricane Testbed (JHT). This notice also provides guidelines for the submission of full proposals. This notice describes opportunities and application procedures for the transfer of relevant research and technology advances into tropical cyclone analysis and forecast operations. Eligible applicants include those affiliated with institutions of higher education, other non-profit and commercial organizations, state, local and Indian tribal governments and Federal agencies. This notice calls for researchers to submit proposals to test and evaluate, and modify if necessary, in a quasi-operational environment, their own scientific and technological research applications. Projects satisfying metrics for success and operational constraints may be selected for operational implementation by the operational center(s) after the completion of the JHT-funded work. The period of the award is from one to two years.

FULL ANNOUNCEMENT TEXT

I. Funding Opportunity Description

A. Program Objective

The United States Weather Research Program (USWRP), via the USWRP Joint Hurricane Testbed (JHT), seeks to accelerate the rate at which promising and relevant research and technology benefit operational tropical cyclone analysis and forecasting. The goal of this notice is to identify such research and technology, and to support the testing and evaluation, and modification if necessary, in a quasi-operational environment, techniques, applications and systems developed and provided by Principal Investigators (PIs) responding to this notice. Federal assistance is provided to PIs to allow them to tailor their techniques for the operational environment. Depending upon the nature of the proposed research and technology, PIs may need to provide documentation and instructions to facilitate the testing and evaluation of their techniques by operational center staff. Projects satisfying metrics for success and operational constraints may be selected for operational implementation by the operational center(s) after the completion of the JHT-funded work.

JHT Projects: Whereas the operational forecast center where JHT projects will be tested and evaluated could be the NOAA Tropical Prediction Center/National Hurricane Center (TPC/NHC), the Joint Typhoon Warning Center (JTWC) operated by the United States Navy and

Air Force, or the NOAA Central Pacific Hurricane Center (CPHC), TPC/NHC will be specified in this document, both for brevity and to acknowledge the current focus of the JHT on that operational center. Use of other facilities is possible depending on requirements, workload, and opportunity.

The JHT mission is to facilitate the rapid and smooth transfer of new technology, research results, and observational advances of the USWRP, its sponsoring agencies, the academic community, and other groups into improved tropical cyclone analysis and prediction at operational centers. This mission will be accomplished by funded PIs and their support staffs, in collaboration with operational center forecasters and other staff, and facilitated by JHT staff, via the following activities (as relevant to each project):

- (1) Utilizing a quasi-operational environment to facilitate the testing and evaluation by operational center forecasters and support staff of research products and techniques provided by the PIs, subject to metrics that mandate good scientific performance while meeting forecaster ease-of-use needs and time constraints;
- (2) Funded researchers preparing scientific and technical documentation that is sufficient to facilitate the testing and evaluation of the new product or technique;
- (3) Utilizing advanced statistical and numerical model output and stimulating model improvement in tropical cyclone analysis and forecast applications;
- (4) Completing tests of codes provided by the PIs that preferably follow established and

open programming standards for ease of portability; and
(5) Facilitating the transfer of tested and evaluated forecast guidance products, research codes, and observations into the computing, communication, and display systems of the operational forecast center, while incorporating adjustments necessary to generate forecast guidance products that are forecaster-friendly and time-efficient.

Upon acceptance of a proposal, JHT staff will provide project administration and facilitation. The JHT Director will coordinate with each project PI, as soon as possible after acceptance, a time line and well-defined operational metric(s) for success in terms of scientific performance, ease of use, and time constraints. Note that meeting the metric(s) for success does not, after the project is concluded, ensure acceptance for operational implementation, which is at the sole discretion of the operational center(s). The time line and progress toward success will be monitored and updated during the project. Additionally, the TPC/NHC Director will designate for each project the forecaster and/or technical point(s) of contact from the TPC/NHC staff.

The JHT will provide to the funded projects access to the JHT IT infrastructure (computer hardware, software, and data) to facilitate the testing and evaluation in an environment that closely matches that of the operational center. An overview of the JHT and TPC/NHC

operational IT environments can be found on the JHT website at:

<http://www.aoml.noaa.gov/hrd/Landsea/jht/index.html>. Copies of operational codes may be made available to prospective applicants as needed, but without guaranteed support.

The PI and his/her research staff, working with JHT personnel, will modify (if necessary) their proposed system so that it may be run during the hurricane season, utilized by the operational center forecasters, and tested and evaluated quantitatively and qualitatively in a quasi-operational environment. In preparation for testing and evaluation, if necessary, the funded researcher must provide documentation and instructions to the JHT staff and TPC/NHC forecasters and technical point(s) of contact that are sufficient to enable them to conduct the tests and evaluations. Following any necessary modifications to make the researcher's proposed system functional in the JHT environment, the proposed system is to be configured for quasi-operational, real-time testing and evaluation during hurricane season in the JHT environment. Researchers should anticipate that their funded work period will include their involvement during quasi-operational testing where tuning and adjustment may be required. Experience gained from current and previous JHT projects indicates that the process of testing and evaluation often uncovers opportunities to make modest improvements to a project during its lifetime, and a project advances most rapidly when researchers, the JHT staff, and TPC/NHC forecasters and technical points of contact remain flexible and collaborate closely.

A successful JHT project will result in one or more of the following: (1) A guidance product or technique leading to improved tropical cyclone analyses and/or forecasts; and/or (2) operational availability of data from a new observational system that has provided documented evidence of positive diagnostic or forecast impact. Final testing, validation, and decision on acceptance for operational implementation of the new product will be the responsibility of, and at the sole discretion of, the operational forecast center(s); see section II. B. of this notice for the criteria used by the TPC/NHC Director in making operational implementation decisions. If the

project is accepted for operational implementation by an operational center, the JHT staff will then provide materials for the operational center to develop its own documentation and training for the new technique or product. Long-term maintenance and support of the new technique or product will then become the responsibility of the operational forecast center.

More information regarding the Joint Hurricane Testbed, including details on past and current projects, can be found at: <http://www.aoml.noaa.gov/hrd/Landsea/jht/index.html>.

B. Program Priorities

The USWRP has established the following goals for its Hurricane Landfall program:

- A. Reduce landfall track and intensity errors by 20 percent.
- B. Extend track forecasts to 120 hours with an average error less than 250 nautical miles.
- C. Increase warning lead time to 24 hours and beyond with 95% confidence.
- D. Make skillful forecasts (compared to persistence) of gale- and hurricane-force wind radii out to 48 hours with 95% confidence.
- E. Extend quantitative precipitation forecasts to three days and improve skill of day-three forecasts to improve inland flooding forecasts.

The TPC/NHC of the National Centers for Environmental Prediction (NCEP) has identified its operational forecast improvement needs, which are closely related to the USWRP goals. The TPC/NHC hurricane forecaster priorities involve the following 14 areas of need (listed in order of priority from highest to lowest):

- (TPC-1) Guidance for tropical cyclone intensity change, with highest priority on the onset, duration, and magnitude of rapid intensification events
- (TPC-2) Improved observational systems in the storm and its environment that provide data for forecaster analysis and model initialization
- (TPC-3) Statistically-based real-time "guidance on guidance" for track, intensity and precipitation (e.g., multi-model consensus approaches), provided to forecasters in probabilistic and other formats
- (TPC-4) Enhancements to the operational environment to increase forecaster efficiency, by expediting analysis, forecast, coordination, and/or communication activities
- (TPC-5) Improved storm surge guidance models, including guidance on breaking waves and featuring high resolution input and output (including probabilistic formats)
- (TPC-6) Operational analysis of the surface wind field (including maximum sustained winds) in tropical cyclones
- (TPC-7) Guidance for changes in tropical cyclone size/wind structure and related parameters, including combined sea heights
- (TPC-8) Guidance for tropical cyclone precipitation amount and distribution
- (TPC-9) Improved utility of microwave satellite and radar data in tropical cyclone analysis
- (TPC-10) Probabilistic forecast guidance for tropical cyclone surface wind speed
- (TPC-11) Guidance for tropical cyclone genesis that exhibits a high probability of

- detection and a low false alarm rate, and/or provides probability of genesis
- (TPC-12) Identification and then reduction of the occurrence of guidance and official track outliers, focusing on both large speed errors (e.g., accelerating “recurvers” and stalling storms) and large direction errors (e.g., loops), and on specific forecast problems, including interactions between upper-level troughs and tropical cyclones, track forecasts near mountainous areas, and extratropical transition
- (TPC-13) Improved techniques for estimating the intensity of tropical cyclones passing over and north of sea-surface temperature gradients (e.g., in the eastern North Pacific Ocean and the Atlantic Gulf Stream)
- (TPC-14) Quantitative guidance tools for seasonal tropical cyclone forecasts for the Atlantic and North Pacific basins, using statistical and/or dynamical methodologies

Much of the improvement in tropical cyclone forecasting is attributed to advances in numerical weather prediction (NWP). These advances are mainly the result of improvements in observations, data assimilation techniques, and improved model physics in global forecast systems and high resolution regional models, in addition to the development of ensemble-based model guidance. Individual proposals directed toward the NWP issues will be expected to be closely coordinated with the Environmental Modeling Center (EMC) of NCEP. For NCEP/EMC's hurricane modeling activities go to NCEP/EMC's home page: <http://wwwt.emc.ncep.noaa.gov> and click on NCEP 2003 Model Review. Work should be concluded within a two year period. High priority areas of work associated with NWP advancements for tropical cyclone forecasting are the following:

- (EMC 1) General model improvements to advance track and intensity forecasts
- (EMC 2) Improved boundary layer representation for coupled air/sea/land models by, for example, exploiting results from field projects such as C-BLAST (for improved parameterization of surface fluxes in high wind regimes, and effects of sea spray on transfer coefficients)
- (EMC 3) Model validation techniques suitable for three dimensional high resolution verification for all phases of the tropical cyclone life cycle
- (EMC 4) Diagnostic techniques to further increase the utility of global models (e.g., NCEP, UKMO, NOGAPS) in forecasting tropical cyclone genesis

C. Program Authority

Authority: 49 U.S.C. 44720(b), 33 U.S.C. 883d.

II. Award Information

A. Funding Availability

The estimate for total JHT funding that will be available in FY 2005 is \$1,500,000, which will likely be used to fund 10-15 new projects. Award amounts for previous JHT grants have been mostly between \$50,000 and \$200,000 per year. A similar range is expected for this announcement. Funding of any JHT proposals is contingent upon availability of these funds. NOAA anticipates making awards under this program provided that funding for the USWRP is continued. Issuance of follow-on year awards, however, is subject to the future availability of funds. In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs.

B. Project/Award Period

The period of awards is from one to two years. All funded PIs are required to submit written semiannual reports during the project to describe the progress made toward the goals and deliverables established in the original proposal and agreed-upon time line. A final report must also be submitted at the conclusion of the project. The due dates for these reports will be coordinated with the JHT Director upon project initiation. Two-year projects will be reviewed by the JHT Steering Committee, and/or other designated reviewers, and the JHT and TPC/NHC Directors near the end of the first year for suitability for continuation into the second year. PIs are required to submit a renewal proposal along with the second semiannual report for this review. The renewal proposal must provide updates to the project work plan, deliverables, time line, IT requirements, budget, documentation and training plans, etc. This review is also based upon the semiannual reports and upon feedback received from the TPC/NHC point(s) of contact. The criteria upon which the renewal review are based are the following: (1) The progress toward milestones in the original time line, (2) the potential for completing the testing and evaluation process and providing the stated deliverables by the end of the second year, and (3) appropriateness and reasonableness of the budget with respect to available JHT funds. Given a favorable review, each project may be funded for a second year.

A JHT project reaches its completion in one of two ways. A two-year project may end after approximately one year, if the TPC/NHC and JHT Directors and the JHT Steering Committee (and/or other designated reviewers) decide, as described above, that insufficient progress has been made to justify continuation of the project into year two. A JHT project ends more conventionally with the submission by the principal investigator(s) of a final report at the conclusion of the original agreed-upon project duration. Based upon this report, and reports from the JHT staff and from project points of contact at the operational center, the TPC/NHC Director will subsequently make a decision on whether or not operational implementation of the project deliverables will occur. Decisions on operational implementation are at the sole discretion of the operational center Director. Operational implementation may or may not occur, irrespective of whether metrics for success defined during the JHT-funded project period have been met. The TPC/NHC Director's decision to implement the new science or technology at the end of the operational demonstration period is based on a cost-benefit analysis that includes consideration of the following four criteria:

1. Forecast or analysis benefit: expected improvement in operational forecast and/or

- analysis accuracy
 - 2. Efficiency: adherence to forecaster time constraints and ease of use needs
 - 3. Compatibility: IT compatibility with operational hardware, software, data, communications, etc.
 - 4. Sustainability: availability of resources to operate, upgrade, and/or provide support
- These criteria are not used in the evaluation of the proposals.

C. Type of funding instrument

The funding instrument for non-Federal applicants will be a Cooperative Agreement based on the envisioned substantial involvement of NOAA scientists in projects funded by this notice. NOAA collaborates on cooperative research activities and provides financial support to enhance the public benefits to be derived from these research activities. NOAA envisions that JHT project testing and evaluation will involve close collaboration, facilitated by the JHT staff, between JHT-funded researchers and operational center forecasters and point(s) of contact. For example, operational forecasters may actually run or utilize output from the experimental technique during their operational shifts, and they may then provide direct feedback to the researchers for possible modifications.

III. Eligibility Information

A. Eligible Applicants

Eligible applicants are institutions of higher education; other nonprofits; commercial organizations; foreign governments; organizations under the jurisdiction of foreign governments; international organizations and state, local and Indian tribal governments; and Federal agencies.

Applications from non-Federal and Federal applicants will be competed against each other. Proposals selected for funding from non-Federal applicants will be funded through a project grant or cooperative agreement as described above in section II. C. of this notice. Proposals selected for funding from NOAA scientists shall be effected by an intra-agency fund transfer. Proposals selected for funding from a non-NOAA Federal agency will be funded through an inter-agency transfer. PLEASE NOTE: Before non-NOAA Federal applicants may be funded, they must demonstrate that they have legal authority to receive funds from another Federal agency in excess of their appropriation. The only exception to this is governmental research facilities for awards issued under the authority of 49 USC 44720(b). Because this announcement is not proposing to procure goods or services from applicants, the Economy Act (31 USC 1535) is not an appropriate legal basis.

B. Cost Sharing or Matching Requirement

No cost sharing is required under this program.

IV. Application and Submission Information

A. Address to Request Application Package

The standard NOAA Grants and Cooperative Agreement Application Package, which contains required forms to be submitted by non-Federal applicants with a full proposal (but not with a preapplication) can be obtained on line via: <http://www.ofa.noaa.gov/%7Egrants/appkit.html>

or by contacting Karen King, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 11216, Silver Spring, MD 20910, phone (301) 713-0460 ext. 202, e-mail Karen.King@noaa.gov. Federal applicants do not need to request this package and are not required to complete the forms it contains.

B. Content and Form of Application Submission

The guidelines for preparation of preapplications and full proposals provided below are mandatory (except where otherwise noted). Failure to adhere to these guidelines will result in preapplications and/or full proposals being returned without review. See the “Dates” and “Application Submission” in the “ Executive Summary” of this notice for submission deadlines and addresses.

1. Preapplications (PA)

- (a) Prior to submitting a full proposal, PIs are strongly encouraged to submit a PA for each planned proposal. However, PIs who do not submit a PA will not be precluded from submitting a full proposal.
- (b) The PA must be no more than two pages in length, using a 12-point font and one inch margins, and it must include the name(s) of the PI(s) and their home institution(s).
- (c) The PA must contain a brief description of the intended project.
- (d) The PA must include a brief budget which summarizes how resources will be allocated [e.g., salaries, computing and communications, equipment (provide justification), indirect charges, and travel]. Note that funding for secretarial support and IT improvements at the PI's home institution is not generally available.
- (e) Each PA will be reviewed, following the criteria specified below in Section V.A. of this notice, by members of the JHT Steering Committee, and/or other designated reviewers, who will make their recommendations to the JHT Director and TPC/NHC Director.
- (f) All PIs will be notified whether a full proposal is encouraged or discouraged based on the review of their PA. Even though a full proposal may be discouraged, a PI will not be precluded from submitting a full proposal. All PIs will receive a short synthesis of the factors that led to the recommendation regarding their own reviewed PA(s).

2. Full Proposals

- (a) The proposal must include a title page signed by the PI(s) and the appropriate representatives(s) of their home institution(s). Each PI and institutional representative

should be identified by full name, title, organization, telephone number, mailing address, and e-mail address.

(b) A one-page abstract must be included and must contain a brief summary of the proposed work to be completed. The abstract must appear on a separate page, headed with the proposal title and the name(s) of the PI(s) and their home institution(s).

(c) All proposals must provide a Statement of Work that includes:

(1) The proposed duration of the project, from one to two years;

(2) A brief description of the project, with prior research results (including references) to demonstrate sufficient maturity and potential for a successful transition to operations at TPC/NHC and other operational forecast centers (e.g., CPHC, JTWC) and/or, if applicable, at a numerical weather prediction center;

(3) A proposed work plan for the project, including hardware and software needs, the testing and evaluation approach, metric(s) for success, project deliverables, a time line with key milestones, real-time operational data needed as input, and a plan to port necessary codes to the operational environment of TPC/NHC and/or NCEP Central Operations (NCO). An overview of the JHT and TPC/NHC operational IT environments can be obtained from the JHT website:

<http://www.aoml.noaa.gov/hrd/Landsea/jht/index.html>. Final work plans for approved projects will be reached by agreement between the PI and the JHT Director.;

(4) A time line for delivering scientific and technical documentation and training materials over the course of the project that are sufficient to enable testing and evaluation of the proposed techniques. If the proposal is funded, researchers are expected to coordinate with the JHT Director to formalize this time line;

(5) Schedule and needs for expected travel. PIs are strongly encouraged to plan and budget during each year of the project to describe their work at the annual Interdepartmental Hurricane Conference (IHC), sponsored by the Office of the Federal Coordinator for Meteorological Services and Supporting Research. Additionally, visits by PIs and/or their support staff to the TPC/NHC, and any other operational center(s) as necessary, may be beneficial for training JHT staff and the forecaster and technical point(s) of contact in preparation for project testing and evaluation; and

(6) Estimates of JHT staff requirements in terms of on-site (or off- site) JHT facilitator efforts, and estimated computational, communication, and/or display requirements at the researcher's home institution and/or at JHT via remote access and data transfer.

(d) All applicants must submit a budget that includes PI and scientific and technical support staff salaries, JHT facility requirements, computing and communications funding, equipment funding (provide justification), indirect charges, and travel. Note that funding for secretarial support and IT improvements at the PI's home institution is not generally available. Non-federal applicants must use Standard Form 424A (7-97), Budget Information--Non-Construction Programs. This form is included in the standard NOAA Grants and Cooperative Agreement Application Package (see Section IV.A above).

- (e) Non-federal applicants must submit additional forms included in the standard NOAA Grants and Cooperative Agreement Application Package (see section IV.A above).
- (f) An abbreviated Curriculum Vita for the PI must be included. Reference lists should be limited to all publications in the last three years with up to five other relevant papers.
- (g) Current and pending Federal support: Each investigator must submit a list that includes project title; supporting agency with grant number, investigator months, dollar value and duration. Requested amounts should be listed for pending Federal support.
- (h) Additional proposal requirements include:
 - (1) One signed original and two additional hard copies of the complete proposal must be submitted. Submission of an electronic copy in PDF format of the proposal document (abstract, Statement of Work, and budget) is strongly encouraged to facilitate the review process.
 - (2) Each proposal must be dated and contain page numbers;
 - (3) Items 2a, 2b, 2c, 2f and 2g above must be contained within no more than ten pages, using a 12-point font and one-inch margins.

3. Electronic and Hard Copy Submissions

All electronic submissions must be sent via e-mail to Jiann-Gwo.Jiing@noaa.gov, and all hard copy submissions must be submitted to: Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, Tropical Prediction Center, 11691 SW 17th Street, Miami, FL 33165, phone (305) 229-4443. Preapplications may be sent as printed hard copies to the above address, or, preferably, they may be submitted electronically via the above e-mail address in portable document format (PDF). Full proposals and all additionally required forms must be submitted as printed hard copies (one signed original and two additional copies of each) to the above address. Electronic submission via the above e-mail address of only the proposal document (without the required forms), in PDF format, is strongly encouraged to facilitate the review process.

4. Submission Dates and Times

Preapplications submitted by PIs must be received at TPC/NHC in Miami, Florida (addresses provided above) no later than 5:00 p.m. Eastern Daylight Time (EDT) on July 30, 2004. TPC/NHC determines whether a preapplication has been submitted before the deadline by date and time stamping the applications as they are physically received in the TPC/NHC office. Preapplications received after the deadline will not be reviewed, but in such cases PIs are still permitted to submit a full proposal. Letters will be sent from NOAA, in response to each preapplication reviewed, no later than September 24, 2004.

One signed original and two additional hard copies of both the full proposal and all additionally required forms must be received at TPC/NHC in Miami, Florida (address provided above) no later than 5:00 p.m. Eastern Daylight Time (EDT) on October 29, 2004. TPC/NHC determines whether a complete application package has been submitted before the deadline by date and time stamping the packages as they are physically received in the TPC/NHC office. Complete proposal application packages received after the deadline will not be considered for funding.

V. Application Review Information

A. Criteria

The JHT Steering Committee, and/or other designated reviewers, will base their recommendations regarding each preapplication and each full proposal upon the extent to which the following criteria (listed with assigned weights) are satisfied:

1. Importance/relevance and applicability of proposal to the program goals (40 points)
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 JHT, this includes the following questions:

Research maturity (10 points) - If the proposed transition is for a new analysis or forecast tool at TPC/NHC, is the research/science at a sufficiently mature level that implementation and testing can occur during the proposed timetable? If the proposed transition is for an extension of existing analysis or forecast tool at TPC/NHC, or for continued improvement of an EMC modeling system, is the scientific basis for the proposed extension sufficiently established that a successful implementation and testing can occur during the proposed timetable?

Priority-to-payoff factors (25 points) - Is the proposal directed toward a TPC or EMC priority item listed in section I.B and is there potential for improving operational tropical cyclone analysis and forecast accuracy?

Other agency use (5 points) - Is the technique likely to be used at operational forecast centers other than TPC/NHC?

2. Technical merit (40 points)

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 Joint Hurricane Testbed, this includes the following questions:

Risk-to-payoff factors (10 points) - If the proposed transition is relatively straightforward technically, is the likely impact on operations sufficiently high to merit support? If the proposed transition has unresolved technical issues, is the likely payoff so high as to justify the risk?

Testing (10 points) - Has the technical merit of the research been established by testing with appropriate prototype (including operational) data sets?

Operational usage (10 points) - Will this transition lead to an analysis or forecast tool that is practical or beneficial for the operational forecast environment in

terms of timeliness and forecaster-friendliness?

Technical compatibility (10 points) - Is the project compatible with the communications, computing, data, and display environments of TPC/NHC and/or NCEP Central Operations (NCO)? (Note that in cases where the technological advances of the project require cutting-edge hardware or software not yet in place at the JHT and at TPC/NHC and/or NCO, support for such enhancement from the USWRP may be considered.)

3. Overall qualifications of applicants (10 points)

This ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. For the Joint Hurricane Testbed, this includes the following questions: Has the PI and his/her team accomplished similar transition projects successfully in the past? Has the PI demonstrated research excellence in the peer-reviewed journals on topics closely related to the transition project being proposed?

4. Project costs (10 points)

The project's budget is evaluated to determine if it is realistic and commensurate with the project needs and time-frame. For the Joint Hurricane Testbed, this includes the following questions: What is the appropriateness and reasonableness of the budget with respect to the proposed transition tasks and the benefit to be gained? Would investment in this project require an inappropriate fraction of the available JHT funds?

5. Outreach and education (0 points)

This assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. For the Joint Hurricane Testbed, this criterion does not apply for the technical transition projects considered here.

B. Review and Selection Process

All full proposals will receive an independent, objective review in accordance with the criteria specified above in Section V.A. of this notice. Such review will be conducted by the JHT Steering Committee, and/or other designated reviewers, consisting of at least three experts (which can be federal and/or non-federal). Each member of the independent review panel will individually evaluate and score the proposals. The Steering Committee members' scores will be used to produce a rank ordering of the projects by overall mean total scores, after normalizing by individual reviewer's mean total scores. The reviewers will provide their scores and any comments to the JHT Director and TPC/NHC Director.

C. Selection Factors

Merit review ratings shall be provided in rank order based on normalized scoring to the TPC/NHC Director for final funding recommendations. The JHT Director may first make

recommendations to the TPC/NHC Director applying the selection factors below. The TPC/NHC Director shall recommend awards in the rank order unless the proposals are justified to be selected out of rank order based upon one or more of the following factors:

1. Availability of funding (for the Joint Hurricane Testbed this includes TPC resources).
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. Whether this project duplicates other projects funded or considered for funding by NOAA or other federal agencies.
4. Program priorities and policy factors (see section I. B.).
5. Applicant's prior award performance.
6. Partnerships and/or Participation of targeted groups.

Successful applicants are then notified. Funded projects become a JHT activity with a duration of one to two years. Note that two-year proposals are initially funded for one year, with funding for a second year contingent upon a favorable review near the end of the first year and upon available NOAA funds. Unsuccessful applicants will be notified of the final selection upon completion of the review and selection process. All applicants will receive their normalized average scores and rankings (by criteria and total) regarding their application. Copies of all submitted preapplications and proposals will be retained by the JHT staff and will become the property of the U.S. Government.

D. Anticipated Announcement and Award Dates

Funding is anticipated to begin during winter or early spring 2005 for most approved projects. Projects should not be expected to begin prior to February 1, 2005, unless otherwise directed by the JHT Director.

VI. Award Administration Information

A. Award Notices

Although 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 a NOAA Grants Officer, is the authorizing document that allows the project to begin. Notifications will be issued to the TPC/NHC Director and the Principal Investigator of the project. Unsuccessful applicants will be notified that their proposal was not selected for recommendation. Unsuccessful applications will be kept on file by the JHT Director for a period of 12 months, then destroyed.

B. Administrative and National Policy Requirements

Department of Commerce Requirements. 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 published in the Federal Register on October 1, 2001 (66 FR 49917), as amended by the Federal Register notice published on October 30, 2002 (67 FR 66109). You may obtain a copy of these by notices by contacting the agency contact(s) under Section VII, or by going to the website at: www.access.gpo.gov/su_docs/aces140.html. Applicants whose proposed projects may have an environmental impact should furnish sufficient information to assist proposal reviewers in assessing the potential environmental consequences of supporting the project.

Limitation of Liability. In no event will NOAA or the Department of Commerce be responsible for proposal preparation costs if these programs are cancelled because of other agency priorities. Publication of this announcement does not oblige NOAA to award any specific project.

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 assistance opportunities including special fishing privileges. 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.nepa.noaa.gov/NAO216_6_TOC.pdf 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 and implementing feasible measures to reduce or avoid any identified adverse environmental impacts of their proposal. The failure to do so shall be grounds for the denial of an application.

C. Reporting

Award recipients will be required to submit performance (technical) reports. Performance reports should be submitted to the JHT Director. Electronic submission of performance reports is preferred. All reports will be submitted on a semi-annual schedule and

must be submitted no later than 30 days following the end of each 6-month period from the start date of the award. The comprehensive final report is due 90 days after the award expiration.

VII. Agency Contact(s)

A. The Joint Hurricane Testbed

Please visit the Joint Hurricane Testbed website for further information at: <http://www.aoml.noaa.gov/hrd/Landsea/jht/index.html> or contact Dr. Jiann-Gwo Jiing, Director, Joint Hurricane Testbed, Tropical Prediction Center, 11691 SW. 17th Street, Miami, FL 33165, phone (305) 229-4443, or via e-mail at Jiann-Gwo.Jiing@noaa.gov. Any technical questions addressed by Dr. Jiing (or his authorized representative) about this JHT funding opportunity and the answers will be posted on the JHT website.