Fiscal Year 2001 National Oceanographic Partnership Program BAA

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PART: U.S. Government Procurements

SUBPART: Services

CLASSCOD: A--Research and Development

OFFADD: Office of Naval Research, 800 North Quincy St., Arlington, VA 22217-5660

SUBJECT: A--National Oceanographic Partnership Program

SOL: 01-005

POC: Mr. Brian Glance ONR Code 252, (703) 696-2596

DESC:

On behalf of the National Oceanographic Partnership Program (NOPP) the Office of Naval Research (ONR) solicits proposals addressing a variety of Partnership Programs as outlined in Title II, subtitle E, of Public Law 104-201 of September, 1997, the National Oceanographic Partnership Program. Up to $20M (over 5 yrs) may be available for this announcement subject to appropriation and final approval by the National Ocean Research Leadership Council (NORLC). Proposals are due 1 May 2001. Team efforts among academia, industry, and government participants are required (at least 2 of 3). Cost sharing or proposals augmenting ongoing partnership efforts are very strongly encouraged.

Background: The Partnership Program has as its central focus an integrated and sustained ocean observation system which will be achieved by a federation of many elements that can support a wide range of users. We have termed this federation, "Ocean.US". The genesis for this initiative was the publication of the NOPP report "Toward a U.S. Plan for an Integrated, Sustained Ocean Observing System" in April 1999 and the subsequent report on management approaches for such a system. These reports are available at the NOPP website (NOPP.org). To begin this initiative, NOPP selected a few efforts in 1999 that enhanced modeling and data assimilation capabilities via hub-node' activities and by initiating the Array for Real-time Geostrophic Oceanography (ARGO) system development and deployment in a phased manner. In 2000, NOPP continued with other hub-node' elements and also began to support additional elements of the federation including a Virtual Ocean Data Hub' (VODHub) and related data access activities. We view the NOPP investments in five areas:

A) Operational/Routine Observations (including pilots, testbeds, etc.)

B) Research "Observatories" (long-term experiments and data series, etc.)

C) Observational Technique Development (sensors and platforms)

D) "Commons" for Ocean Information ("hubs" and "nodes", etc.)

E) Outreach/Education

and will seek proposals in these areas as described below. Not all NOPP solicitations will seek proposals in all areas (e.g. - we will not seek proposals this year in Topics B (Research Observatories) or E (Outreach/Education). These investment areas are more fully described at www.nopp.org where examples of ongoing NOPP efforts are also listed by these areas. The NOPP website will contain the most recent information.

Topic A. Operational/ Routine Observations.

This topic covers operational observation efforts including demonstrations and pilot projects that can lead to a new operational capability, if successful. In this solicitation we seek proposals for a pilot demonstration as described below. We anticipate a separate announcement of opportunity will be released shortly to further the development and deployment of the ARGO observational system.

Satellite-derived Ocean Surface Vector Wind and Sea Surface Topography Operational Demonstration. We have a maturing research capability to observe and utilize satellite-derived ocean surface vector winds and sea surface topography data in various algorithms and models. We would like to demonstrate potential benefits of a comparable capability within the operational community to improve existing products or to generate new products. NOPP therefore plans to support at least two "operational demonstration" projects. One or more projects will be funded in the area of ocean surface vector winds and one or more in the area of sea surface topography. These measurement capabilities are currently supported in a research mode by NASA , and many agencies support research utilizing this data. While some efforts have begun to explore new and improved operational products from this data, NOPP wishes to accelerate development and operational demonstration of data products and operational services using these data sources. Successful proposals will have meaningful participation and partnerships involving both research and operational entities. Each project must quantify the value added by satellite-derived ocean surface vector wind and/or sea surface topography data to the delivery of operational services in the U.S. Approximately $2.5M is available to support 2 to 4 projects in the range of $250K to $400K each per year for up to 3 years.

Topic B. Research "Observatories"

This includes partnership efforts to field ocean observational efforts such as long-term basic research experiments or data series that may evolve into operational elements of an Ocean.US federation. The challenge here is to propose efforts that embrace networking and broad accessibility to all derived data in real-time or near-real-time. No proposals are solicited at this time for this topic.

Topic C. Observational Technique Development Partnership efforts are sought here to develop and/or demonstrate new ocean observational capabilities to establish the means for continuous, high resolution measurements of oceanic processes. For

this solicitation the emphasis is on further technology developments for the family of ARGO floats and similar observational platforms.

Float Technology development. A pilot program for ARGO was awarded through in 1999 to prepare for implementing the U.S. contribution to the global-scale float deployments and the real-time data handling system. In August 2000, NOAA augmented deployment of U.S. ARGO floats by providing funds for an additional 132 floats for the U.S. contribution to the global array. NOPP intends to add floats later in FY2001 via a separate solicitation. NOPP wishes to continue the technical development of these floats to be used in future ARGO deployments so that continually improving scientific and operational data can be returned from the network. We anticipate that developments for this purpose can also be used in other autonomous devices and observing instruments. A challenge for these projects is to achieve the necessary goal of real-time data reporting and to link with the modeling community on the effect of these observing system(s) components or strategies on the research and operation model outputs. An additional challenge is linking the global array to a coastal observing system. Proposals are requested in the following areas:

- Development of a prototype ARGO float that contains a broader sensor suite (e.g. - optical, acoustic, biological and/or chemical sensors), is capable to 2000m depth but of programmable depth excursions, and possibly ice-hardened for deployment in high latitudes.
- Innovative concept development and tradeoff analyses for a robust, low cost communication system that can achieve real-time reporting or data relay from autonomous elements (e.g. floats) of the ocean observing system.
- Concept studies to explore specific implementation strategies of combined autonomous systems for linking the ARGO network to coastal and continental shelf observing system in the U.S. waters. Systems that utilize autonomous vehicles, gliders, floats, and real-time reporting networks are of interest. [There is also a NOPP SBIR topic open until 10 Jan 2001, see www.nopp.org for information].
- Observing system studies that examine optimizing strategies for profiling depth, reporting interval, parameter accuracy, float life, profile rate, and energy budgets are of interest. Proposers are encouraged to link these studies to those of the Global Ocean Data Assimilation Experiment (GODAE) and determine the impact of the tradeoffs on the data assimilation methods and resulting simulation quality that would emerge from global data assimilation products (both operational and research) (details on GODAE may be found at http://www.bom.gov.au/bmrc/mrlr/nrs/oopc/godae/homepage.html).

All participants selected under this topic are expected to establish strong collaborative interactions between the existing ARGO Consortium and NOPP modeling nodes as appropriate. It is envisioned that this research will contribute strongly to the development of an ocean observing system, both global and coastal, and to GODAE. To foster these collaborations, all investigators selected for awards may be expected to participate in periodic workshops. Approximately $1M is available to support 1 to 2 projects in the neighborhood of $100K per year for 2 years in each of the above areas.

Topic D. "Commons" for Ocean Information

This subject includes partnership efforts to develop or federate new online infrastructure (e.g. - numerical methods & models) for wide user access. This includes "hubs" and "nodes" offering various capabilities, holdings and community support. These will promote the development of community models and modeling capabilities, efficient and effective data assimilation and data management systems, improved access to a wider variety of data, and a basis for user-derived advances and products. The challenges for proposers in this topic are two-fold. First is to develop the partnerships and rationale for Ocean.US elements of wide community interest. Second is to develop concepts that maximize flexibility and utility of a hub-node federation for the future. Specific proposals sought with this solicitation are:

(D1) Implementation of several additional nodes' for data assimilation and modeling activities. Partnership efforts are sought to continue a community-wide effort of building a linked system of resources and collaborations for ocean modeling and data assimilation leading to new insights and synthesis of results with broad utility to the ocean community. The genesis for this initiative is a series of workshops in 1997 and 1998, which illuminated the need for an Ocean Research Synthesis and Modeling Program (ORSMP). Four initial nodes were discussed by Powell (1998). In no particular order, these are in the areas of: (1) the coastal ocean; (2) coupled physical-biological models, (3) marine biogeochemistry, and 4) ocean general circulation/climate. Specific examples within these general areas are also cited in the report. NOPP has begun to fund elements of this in 1999 and again in 2000, including several planning efforts (see www.nopp.org). A steering committee made up of representatives from these nodal activities and at large members of the ocean science community was formed in 1999 to advise the NOPP agencies on the form and requirements of the future Ocean Information Technology Infrastructure (OITI) needs. The OITI steering committee has been tasked to suggest the essential characteristics of the "hub" to support team activities and the broader ocean community over the next decade and provide recommendations on implementing it. High priority areas are in biogeochemical, ecosystem and integrative coastal or integrative global modeling. By integrative coastal or global modeling we mean integrated models that contain two or more of the following components: physical, biogeochemical, sediment and particle transport, and ecosystem components. Optional but desirable attributes include the following: data assimilation capability, connectivity to the virtual ocean data hub, and utilization of observing systems. All participants selected under this topic are expected to establish strong collaborative interactions between the existing teams and be willing to contribute to the concept development of a central "hub facility" capable of serving the teams and the broader ocean community. To foster these collaborations, all investigators selected for awards may be expected to participate in periodic workshops. Once selected, these teams will assist NOPP in establishing a virtual ocean model hub ("ModHub") element described below and to work with other "hubs" and "nodes" of the "commons". Under this topic, NOPP will consider proposals for implementation activities ("Phase B studies" from last year's solicitation). NOPP encourages development of partnerships with state and local government agencies, which may be able to ensure operational capability and support for approaches of wide community use. This topic calls for studies in the range of $500K to $1M per year each for 5 years with a possibility of renewal for another 5 years. NOPP expects to fund 2 to 4 proposals in this subtopic.

(D2) Planning of a Virtual Ocean Model Hub' ("ModHub") activity as a key element of Ocean.US to broaden and improve access to state-of-the-art ocean models, algorithms and relevant numerical techniques available from all open and credible sources. We envision this activity to be essentially an online catalog/directory/kiosk

with added value of benchmark results, a user helpdesk, user feedback and other features of importance. This "hub" will provide user access to the various "nodes" of the federation. The key to success of the "ModHub" will be the ability of a user to easily obtain source code for their use with a minimal documentation and with several test cases so the user can further develop the model/algorithm/code as needed. It is expected that the ModHub will provide modest user support online and that significant upgrades of the software by the users will become part of the growing catalog of holdings in the ModHub or the connected "nodes". It is envisioned that proposers to this element will:

- identify individuals/organizations that will take the lead to collect and maintain the catalog of community-based software;
- partner with local institutions (public and private) to improve the breadth of the holdings;
- enhance connections to existing national and international software holdings; and
- connect to the existing and future "nodes" of the federation.

The Proposers to this subtopic should assemble a team to spend a year to initially plan these activities in connection with other hub-node' activities, and then develop implementation methods to accommodate system-wide connections to other key system elements (i.e. other hubs'). We anticipate support of several planning efforts in this area up to $200K each per year for the first two years and expanding to $1-2M per year in the outyears as the various holdings and connections are defined and established. The outyear efforts should be proposed as an option so that a single "ModHub" can be selected from the planning efforts.

RENEWAL OF EXISTING NOPP PROJECTS

Currently funded 1998 NOPP partnership efforts can seek an additional funding for one year to "wrap-up" existing efforts and/or to begin transition to other efforts, where appropriate. Review of these efforts will follow the guidelines outlined below, with the additional criterion of accomplishments achieved to date. Proposals must clearly state on their cover sheet that this proposal is a Renewal. We would prefer that NOPP investigators funded in FY1998 give full consideration to a proposal that is congruent with the above topics and propose accordingly. Funding up to $150K per year will be available for 1 year for these purposes. This topic will remain open for one year but available funds for renewal proposals received after the proposal due date cannot be assured.

General Instructions and Information

Interested offerors are encouraged to submit a notice of intent to propose for the May due date by 1 April, 2001 to the address listed below. A short letter (2 pages or less) that gives the intended title with a description of the subject and a list of the potential partners (by name and affiliation) is sufficient. The purpose for this notice of intent is preparation of peer review activities; please provide data appropriate to determine subject matter experts without conflicts of interests. All proposals will be subject to peer review, which will include non-governmental reviewers. All reviewers will adhere to confidentiality and conflict of interest standards. E-mail or fax submissions will not be accepted. Twenty copies of the proposals are due not later than 4:00PM EST on Tuesday May 1, 2001 to

NOPP BAA/ONR 32
Room 407-8
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800 N. Quincy Street
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Proposals received at ONR after this date and time will not be considered unless it is a renewal of a 1998 NOPP effort. All proposals must indicate the BAA number above and which subtopic area is being addressed (e.g., Topic A, C, D or renewal) on the cover page. Separate proposals must be submitted for each topic or subtopic area. Adobe Acrobat PDF files of the proposals would be especially welcome, and should accompany the proposals on either a floppy diskette(s) or Iomega Zip disk. E-mail and facsimile materials are not acceptable. No request for proposal (RFP), solicitation, or other announcement of this opportunity will be made. Historically Black Colleges and Universities and Minority Institutions, as determined by the Secretary of Education to meet requirements of 34 CFR Section 608.2 and 10 U.S.C. Paragraph 2323(a)(1)(C), are particularly encouraged to participate.

Evaluations of the proposals will use the following selection criteria:

(1) relevance of the proposed research to Partnership objectives, including a) support of critical research objectives or operational goals such as data accessibility, education and communication, b) broad participation within the oceanographic community, c) partners with a long-term commitment to the proposed objectives, d) resources are shared among partners, and e) the degree of cost-sharing by partners with the requested Partnership funding,

(2) overall scientific and technical merits of the proposal,

(3) the offeror's capabilities, related experience, and facilities or unique combinations of these that are critical to the proposal objectives,

(4) the qualifications and experience of the proposed principal investigator and key personnel,

(5) degree of significant partnering among at least two of the following parties, academia, industry or government,

(6) socio-economic merits of the proposal,

(7) realism of proposed costs.

A synopsis of the NOPP review process can be found at www.nopp.org.

The final distribution of awards among topics will depend on quality of proposals, programmatic balance, NOPP priorities and availability of funds. Funding estimates for any ship-time must be specifically included in the proposal and the budget should clearly specify the size and type of vessels proposed for use. Ships of opportunity are encouraged. Proposers should include shiptime requests on either the former NSF Form 831 (Shiptime Request Form) or preferably the University-National

Oceanographic Laboratory System (UNOLS) on-line request form available at: http://www.gso.uri .edu/unols/ship/shiptime.html

For awards made as contracts, the socio-economic merits of each proposal will be evaluated based on the commitment to provide meaningful subcontracting opportunities for small business, small disadvantaged business, women-owned small business concerns, historically black colleges and universities, and minority institutions. The North American Industrial Classification Systems (NAICS) code is 54171 with the small business size standard of 500 employees. In addition, contract proposals that exceed $500,000 submitted by all but small businesses, must be accompanied by a Small, Disadvantaged and Women-Owned Small Business Subcontracting Plan in accordance with FAR 52.219-9.

Questions regarding contractual matters relating to this BAA should be directed to:

Office of Naval Research
Attention: Mr. Brian Glance (Code 252)
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(703) 696-2596

Technical questions may be submitted by E-mail to "NOPPBAA@ONR.NAVY.MIL" or by fax to "NOPP BAA" (703) 696-2007 if necessary.

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