

Special Notice 12-SN-0010
Special Program Announcement for 2012 Office of Naval Research
Basic Research Challenge (BRC):
“Couplings – Ocean to Space or Ionospheric Drivers from Below”

I. INTRODUCTION:

This announcement describes a research thrust, entitled “Couplings – Ocean to Space or Ionospheric Drivers from Below,” to be launched under the ONRBAA12-001, Long Range Broad Agency Announcement for Navy and Marine Corps Science and Technology which can be found at <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>. The research opportunity described in this announcement specifically falls under numbered paragraph 2 of the “Ocean Battlespace Sensing (Code 32)” sub-section and numbered paragraph 1 of the “Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (Code 31)” sub-section. The submission of proposals, their evaluation and the placement of research grants will be carried out as described in that Broad Agency Announcement.

The purpose of this announcement is to focus attention of the scientific community on (1) the area to be studied, and (2) the planned timetable for the submission of white papers and proposals.

II. TOPIC DESCRIPTION:

The proposed topic will explore and exploit the physical coupling between the ionosphere and the earth, ocean, and atmosphere below. The program will pursue multidisciplinary approaches for improved physical understanding of ionospheric drivers from below and advanced modeling and parameterization techniques to characterize the coupled system and phenomena.

Background:

Coupling between the ionosphere and the lower atmosphere has long been recognized, and research in this area has been active in recent years. The ionospheric perturbations attributed to the Tohoku tsunami in March 2011 showed in dramatic fashion that the Earth’s ionosphere is coupled to the lower atmosphere and even to the ocean surface. Advancements in mathematical modeling techniques and computational capability have opened new opportunities for exploiting large, heterogeneous, and high-dimension datasets. Observing systems and networks deployed on the ground and in space provide both higher volume and better fidelity of ionospheric and atmospheric measurements.

Objective:

The objective of this Basic Research Challenge is to develop a new multidisciplinary approach to understand and model the upward wave couplings and energy propagation from the earth, ocean, and

lower atmosphere which contribute to ionosphere variability. This investigation encompasses topics including, but not limited to: gravity and acoustic wave triggers of irregularities and ionospheric disturbances; the effects of upward propagating energy upon the chemistry and dynamics of the upper atmosphere and ionosphere; and new parameterizations or models of upward energy propagation and coupling.

The approach should couple observational data (either extant datasets or a targeted observational campaign) with advanced analytical techniques and physical models. Multidisciplinary teams are encouraged. Application of powerful multiscale/multiphysics mathematical modeling techniques and other advanced analysis methods to interpret ionospheric images and datasets is invited. The results of this program should lead to a proper accounting of upwelling wave energy and how that energy couples through the various atmospheric regions.

III. WHITE PAPER SUBMISSION

White papers should not exceed 4 single-sided pages, exclusive of cover page and resume of principal investigator, and should be in 12-point Times New Roman font with margins not less than one inch. The cover page should be labeled “White Paper for ONR 2012 Basic Research Challenge: Couplings—Ocean to Space or Ionospheric Drivers from Below” and include the following information: title of the proposed effort, technical point of contact, telephone number, fax numbers, and e-mail address. The 4-page body of the white paper should include the following information: (1) Principal Investigator; (2) Relevance of the proposed effort to the research areas described in Section II; (3) Technical objective of the proposed effort; (4) Technical approach that will be pursued to meet the objective; (5) A summary of recent relevant technical breakthroughs; and (6) A funding plan showing requested funding per fiscal year. A resume of the principal investigator, not to exceed 1 page, should also be included after the 4-page body of the white paper.

Although not required, white papers are strongly encouraged for all offerors seeking funding. Each white paper will be evaluated by the Government to determine whether the technology advancement proposed appears to be of particular value to the Department of the Navy. Initial Government evaluations and feedback will be issued via e-mail notification from the Technical Point of Contact. The initial white paper appraisal is intended to give entities a sense of whether their concepts are likely to be funded.

Detailed Full Proposal (Technical and Cost volumes) will be subsequently encouraged from those Offerors whose proposed technologies have been identified through the above referenced e-mail as being of “particular value” to the Government. However, any such encouragement does not assure a subsequent award. Full Proposals may also be submitted by any offeror whose white paper was not identified as being of particular value to the Government or any offeror who did not submit a white paper.

For white papers that propose efforts that are considered of particular value to the Navy but either exceed available budgets or contain certain tasks or applications that are not desired by the Navy, ONR may suggest a full proposal with reduced effort to fit within expected available

budgets or an effort that refocuses the tasks or application of the technology to maximize the benefit to the Navy.

White papers should be submitted electronically to the program technical points of contact, Dr. Scott Budzien, scott.budzien@navy.mil, and Dr. Reza Malek-Madani, reza.malekmadani@navy.mil . These white papers shall be in Microsoft Word or Adobe PDF format.

To ensure full, timely consideration for funding, white papers should be submitted **no later than Friday, 4 May 2012**. White papers received after that date will be considered as time and availability of funding permit.

The planned date for completing the review of white papers is **18 May 2012**.

V. FULL PROPOSAL SUBMISSION AND AWARD INFORMATION

Full proposals (including one technical volume and one cost volume) should be submitted under **ONRBAA12-001** by **15 June 2012**. Full Proposals received after that date will be considered as time and availability of funding permit.

ONR anticipates only **grants** will be issued for this effort. All full proposals must be submitted through www.grants.gov. The following information must be completed as follows in the SF 424 to ensure that the application is directed to the correct individual for review: Block 4a, Federal Identifier: Enter N00014; Block 4b, Agency Routing Number, Enter the three (3) digit Program Office Code (322) and the Program Officer's name, last name first, in brackets ([Budzien, Scott]). All attachments to the application should also include this identifier to ensure the proposal and its attachments are received by the appropriate Program Office.

ONR plans to fund five to eight individual awards with a value of \$100,000 to \$150,000 per year, using Research funds. However, lower and higher cost proposals will be considered. The period of performance for projects may be from one to four years.

Although ONR expects the above described program plan to be executed, ONR reserve the right to make changes.

Funding decisions should be made by **29 June 2012**. Selected projects will have an estimated award date of **10 August 2012**

VI. SIGNIFICANT DATES

Event	Date
Recommended White Paper Submission Date	04 May 2012
Notification of White Paper Evaluation*	18 May 2012
Recommended Full Proposal Submission	15 June 2012
Notification of Selection: Full Proposals *	29 June 2012
Awards *	10 August 2012

Note: * These are approximate dates.

VII. POINTS OF CONTACT

In addition to the points of contact listed in ONRBAA12-001, the specific points of contact for this announcement are listed below:

Technical Points of Contact:

Dr. Scott Budzien, Code 322, Program Officer, scott.budzien@navy.mil

Dr. Reza Malek-Madani, Code 311, Program Officer, reza.malekmandani@navy.mil

Business Point of Contact:

Chris Williamson, Senior Contracting Officer, chris.r.williamson@navy.mil

VIII. Submission of Questions

Any questions regarding this announcement must be provided to the Code 322 Program Officer Dr. Scott Budzien, scott.budzien@navy.mil . All questions shall be submitted in writing by electronic mail.

Answers to questions submitted in response to this Special Notice will be addressed in the form of an Amendment and will be posted to the following web pages:

- Federal Business Opportunities (FEDBIZOPPS) Webpage – <https://www.fbo.gov/>
- Grants.gov Webpage – <http://www.grants.gov/>
- ONR Special Notice Webpage - <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Special-Notices.aspx>

Questions regarding **White Papers or Full Proposals** should be submitted NLT two weeks before the dates recommended for receipt of White Papers and/or Full Proposals. Questions after this date may not be answered.