Broad Agency Announcement (BAA) Call N0001426SBC04 for Office of Naval Research (ONR) Global Opportunity GlobalX Challenge 26.2: Naval Southern Hemisphere Space Weather and Plasmas (NSHSWP)

This BAA Call describes new funding to be awarded under authority of N0001425SB001, Long Range Broad Agency Announcement (BAA) for Navy and Marine Corps Science and Technology. This BAA may be found at the following link: https://www.onr.navy.mil/work-with-us/funding-opportunities/fy25-long-range-broad-agency-announcement-baa-navy-and-marine.

The Assistance Listing Number for this announcement is 12.300.

I. SIGNIFICANT DATES AND TIMES

Event	Date (GMT)	Time (GMT)
BAA Call Release Date	9 June 2026	09:30 am
Kick-off Webinar	18 June 2026	02:00 pm
White Paper Submission Date	10 July 2026	05:00 pm
Notification of White Paper Valuation*	20 July 2026	05:00 pm
Proposal Pitch Day*	7 Aug 2026	09:30 am
Notification of Selection*	10 Aug 2026	05:00 pm
Full Proposal Submission Date*	31 Aug 2026	05:00 pm
Grant Award*	30 Sep 2026	05:00 pm

Note: * represents an approximate date.

II. INTRODUCTION

The submission of white papers, proposals, their evaluation and the placement of research grants will be carried out as described in this BAA Call and the Long-Range BAA. ONR Global expects to issue only research grants from this BAA Call.

ONR Global may award one grant or multiple grants addressing the challenge problem statement described below. The number of grants and amounts of funding for each grant will depend on proposals submitted. The grants, which include a twelve-month base period of performance at a value up to $250,000, and an optional twelve-month period of performance at a value up to $250,000, will not exceed $500,000 total. Accomplishment of established success metrics may attract interest from other U.S. federal organizations for potential follow-on applied research efforts under a separate acquisition mechanism.

The purpose of this announcement is to focus the attention of the international scientific community on (1) the challenge areas of interest; and (2) the schedule of key events and deadlines, including the Challenge Kick-off Webinar, and the submission of white papers and full proposals.

Recordings of the Kick-off Webinar, supplementary information such as Challenge Guidelines, templates, and Frequently Asked Questions (FAQs) will be available on https://www.nre.navy.mil/organization/onr-global.

III. CHALLENGE DESCRIPTIONS

Background:

This purpose of the GlobalX Challenge is to accelerate the traditional knowledge generation cycle, proving or disproving an applied research theory on an advanced timeline, leading to the discovery of revolutionary dual-use capability for the benefit of the U.S. Navy and Marine Corps, the commercial marketplace, and the public. The expected outcomes of this Challenge are promising, potentially game-changing, applied concepts whose maturity may be accelerated under separate follow-on technology development efforts.

Objective:

ONR Global is interested in promising applied concepts to realize revolutionary capability advancements with dual-use military and commercial value related to the multidisciplinary problem statement described below. Specifically excluded from consideration are concepts that overlap with existing science and technology programs, provide evolutionary enhancements to existing technologies, or modernize current commercial systems or products.

ONR Global recognizes that international scientists and engineers conduct innovative and novel research. This Challenge provides an opportunity for these international performers to collaborate, generate revolutionary ideas, and show success metrics showing that these ideas will succeed. ONR Global invites outstanding international performers to form multi-national, multidisciplinary teams to address these listed capability challenges.

Non-federal entities from academia and industry may participate. ONR Global requires that the proposing team be led by an eligible non-U.S.-based research entity, whether from academia, industry and/or the broader scientific community. U.S.-based non-federal entities may also participate as part of a multi-national team but are not required. Eligibility requirements are detailed in the BAA, specifically under Section C (Eligibility Information) on page 5 and Section D (Program Description/Objective), the ONR Global overview on pages 8-9. As stated above, this Challenge is an opportunity specifically directed toward international performers; therefore, ONR Global expects the majority of team members will be entities outside of the U.S. Each team shall designate a lead Principal Investigator (PI) whose organization outside of the U.S. will submit the white paper or proposal and be responsible for distributing funding to co-PIs and other sub-recipients. For a given project team, one award is made to the PI's institution. Only the PI's institution will be the prime awardee, and that institution is responsible for all

aspects of the grant, including strict adherence to the terms and conditions of the grant and applicable statutes, regulations, and policies regarding the use of grant funds.

Revolutionary technology development typically results from multidisciplinary teams working in an environment that fosters and leverages serendipitous discovery. ONR Global acknowledges that performers may already have colleagues with whom they wish to collaborate. Nevertheless, ONR Global encourages performers to participate in multi-disciplinary teams to consider a wide range of approaches to address the Challenge Problem Statement. Organizations and individuals that are not subject to U.S. sanctions or are not otherwise excluded from doing business with the U.S. Government, may participate. Please note the grant applicant is responsible for complying with any applicable sanctions, export controls, and similar limitations.

Challenge Problem Statement:

We are seeking proposals offering ground-breaking methods of improving the analysis and forecasts of the bottomside ionospheric (D, E, F layer) electron density both temporally and spatially with emphasis on Southern Latitudes including the dip in the magnetic equator near the Cordillera of the Andes. Successful proposals will be novel approaches to 1) develop a new model to solve a realistic problem with relevance to the below scenarios or 2) explore a unique sensor modality or detection scheme that contributes to calibrating or validating an existing model relevant to the below scenarios. Proposals should include work culminating at TRL-3 (Technology Readiness Level-3), with a proof-of-concept that is feasible for testing in established numerical models or calibrating against existing or future measurements.

Ionospheric space weather monitoring is a topic of great interest to the U.S. Navy and to the space industry with assets in low earth orbit, due to the complexities of communications, navigation, and deployment of space vehicles. These considerations are important on the surface of the Earth as well, for over-the-horizon communications and navigation. For example, the U.S. Navy uses a physics-based forecasting model, called NIMO, to produce analysis states and forecasts with daily updates. We seek proposals that point towards solutions for future improvements in forecasting with special applicability to the Southern Hemisphere.

Example Space S&T Scenarios

<u>Data-driven models of the ionosphere in high-latitude maritime regions</u>

The global and regional ionosphere is limited in observational data, especially in the Southern Hemisphere from Pacific to Atlantic maritime areas. The U.S. Navy must be ready to operate in these areas, maintaining space situational awareness including ionospheric conditions that affect communications. We seek novel models and approaches to collecting and aggregating data across large regions including both sides of the Andean ridge. Also desirable are novel observational techniques measuring the ionosphere/Thermosphere/Mesosphere (both remote sensing and in-situ).

<u>Predictive localization of sporadic perturbations</u>

Equatorial spread F results from the occurrence of Rayleigh-Taylor instabilities in the

nighttime low-latitude ionosphere that can grow into large-scale depletions of ionospheric density (plasma bubbles) that can affect HF propagation. Sporadic E, on the other hand, refers to a thin layer of metal ions (produced by meteors) that form in the E-region ionosphere and can be dense enough to reflect HF. Research questions may also consider including ionospheric perturbations due to atmospheric gravity waves that can result in traveling ionospheric disturbances (TIDs). In addition to improvements to physics-based mechanistic models of these phenomena, we seek novel techniques to probabilistically characterize ionospheric event likelihood and intensity.

Selected proposals will describe novel approaches to leveraging available data and new modeling tools for better forecasts of space weather in the Southern latitudes. These proof-of-concept proposals should be generalized to expand local observations to couple spatiotemporally to larger scales. Models should take into account the consequences of scale for limited observations that can be expanded to larger regions.

IV. KICK-OFF WEBINAR

ONR Global will hold a Challenge Kick-off Webinar in accordance with the date listed in Section I above. This webinar is open to any interested performers and may be viewed by navigating to the weblink provided. There is no fee for participating in the webinar. Subsequent to the live webinar broadcast, a recording of the webinar will be available for viewing on https://www.nre.navy.mil/organization/onr-global, as well as on grants.gov. Participation in the webinar is not required to submit a white paper or proposal. A link to the Webinar can be found here. The meeting ID is 993 103 743 812 and the passcode is TZ2k2Xs6. Alternatively, you can call into the meeting by dialing +1 858-980-0000 with conference ID: 879 097 379#.

V. WHITE PAPER SUBMISSION

White papers are highly encouraged for all applicants seeking funding from this GlobalX Challenge. The Challenge evaluation panel will assess how well each white paper submitted achieves the revolutionary capability described in the Challenge Problem Statement above. ONR Global will invite those teams submitting white papers with the most promising concepts to submit a full proposal or to participate in a Proposal Pitch Day (see Section VI below). All notifications and feedback will be issued via e-mail notification to the team PI from the Technical Point(s) of Contact or their designee(s). However, such invitation does not guarantee a subsequent award. Full proposals may be submitted by any applicant in response to this BAA Call, regardless of whether a white paper was submitted or evaluated by ONR Global.

White papers shall follow the format provided in this BAA Call (see BAA Call attachments 1-2); this format will meet mandatory ONRG Cover Page requirements. White papers shall be in 12-point Times New Roman font and shall not exceed five single-sided pages. Figures, charts, and tables may use a smaller font size if the texts are legible. White papers must include an additional one- page quad chart and a spreadsheet, which are not part of the white paper page limitation. The five-page white paper should be submitted in Adobe PDF format (preferred) or in Microsoft Word. The quad chart may be submitted in Adobe PDF (preferred) or in Microsoft PowerPoint format. The spreadsheet should be submitted in Microsoft Excel (or compatible) format and should indicate the particular Challenge Problem Statement that the white paper

addresses. The format of the spreadsheet should remain unchanged; please do not alter the order or add additional columns.

The PI for each team shall be the primary point of contact throughout the application process; the PI is responsible for submitting white papers describing their proposed concept and approach to usn.ncr.onrghq.list.grantsproposals@us.navy.mil by the submission deadline listed in Section I above. White papers received after the deadline may not be considered. The subject line of the email shall read: "*N0001426SBC04 GlobalX Challenge 26.2 White Paper Submission*". Do not send ZIP files or provide links to "Dropbox" type applications as they will not be reviewed. Password protected files are discouraged.

The GlobalX Challenge evaluation panel will review submitted white papers and will invite teams with the most promising and revolutionary concepts, on or before the date listed in Section I above to participate in the Proposal Pitch Day or to submit a grant proposal. All teams submitting a full proposal must follow steps listed in Section VII below.

VI. PROPOSAL PITCH DAY

As described above in Section V, ONR Global may invite those teams submitting white papers with the most promising concepts to participate in a Proposal Pitch Day that will be held in accordance with the date listed in Section I above. The intent of the Proposal Pitch Day is to give performers the opportunity to present their ideas to a team of technical experts and to interactively answer any questions that may arise. Details of the event will be provided to those who are invited to participate. ONR Global reiterates that full proposals may be submitted by any applicant in response to this BAA Call, whether or not individuals participate in the Proposal Pitch Day or submit a white paper for evaluation by ONR Global.

VII. FULL PROPOSAL SUBMISSION AND AWARD INFORMATION

Full grant proposals must be submitted to the Department of the Navy at www.grants.gov under BAA number N0001425SB001, Call N0001426SBC04 in accordance with the submission deadline listed in Section I above. ONR Global is not obligated to consider full proposals received after this date. See Appendix 1 of BAA N0001425SB001 for instructions on submitting grant proposals via grants.gov. Please note SAM (System for Award Management) registration (including Financial Assistance Reps and Certs) is required to submit proposals on grants.gov and may require significant time to complete for new SAM registrants.

ONR Global will notify teams selected for award and intends to award grants in accordance with the dates listed in Section I above. Regular performance reporting and a final research progress report are required in accordance with the terms and conditions of the grant. Financial and patent reports will also be required.

Although ONR Global expects the above plan to be implemented, ONR Global reserves the exclusive right to make changes or cancel this GlobalX Challenge, as necessary. This Notice does NOT imply any promise of award.

VIII. POINTS OF CONTACT

The specific points of contact for this announcement are listed below:

Technical Points of Contact:

- Primary:
  - Dr. Kyle Gustafson, ONR Global Science Director, kyle.b.gustafson.civ@us.navy.mil
- Supplemental:
  - CDR Kyle Franklin, ONR Global Science Director

Business Point of Contact:

- ONR Global Procurement Team, usn.ncr.onrghq.list.grantsproposals@us.navy.mil

IX. SUBMISSION OF QUESTIONS

Any questions regarding this announcement must be provided to the Business Point of Contact listed above. Please submit all questions in writing by electronic mail.

Answers to questions submitted in response to this Notice will be addressed in a Frequently Asked Questions (FAQ) document posted on https://www.nre.navy.mil/organization/onr-global and grants.gov.

Questions regarding **White Papers or Full Proposals** should be submitted no later than five working days before the dates recommended for receipt of White Papers and/or Full Proposals. Questions received after this date may not be answered.