National Oceanographic Partnership Program

Yesterday and Today

NOPP

National
Oceanographic
Partnership
Program

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NOPP Background

- Established in 1997 within Department of Defense reauthorization Public Law 104- 201
    - Office of Naval Research line item
- Established:
    - National Ocean Research Leadership Council (now working through National Ocean Council)
    - Ocean Research Advisory Panel (ORAP)
    - Partnership Program Office (NOPPO)
- IWG-OP not part of Law

NOPP Yesterday and Today

- 207+ Projects Since 1997:

- http://www.nopp.org/projects/nopp-project-table/

- IOOS, ARGO, CoML

- Ocean Education

- HYCOM / GODAE / CODAE

- Enhance Technology Development

- Marine Mammals……and many more

Organizational Changes

- IWG-OP (Interagency Working Group – Ocean Partnerships) is no longer a chartered working group under SOST organization

- NOPP partnership activity continues under "NOPP" group led by ONR (main funder) and interested agencies

- NOPP still guided by PL 104-201

- Focus is on S&T projects:
  - Evaluating proposals from FY19 BAA now (up to $25M total)
  - Beginning planning on FY20 BAA

- Desire is to get to regular annual BAA

National Oceanographic Partnership Program

- Promote the nation's ocean science and technology research priorities by catalyzing multi-sector partnerships

- Facilitate partnerships between federal agencies, academia, and industry with the goals of improving our nation's national security, economic developments, quality of life, and/or science outreach and education

- Leverage federal agencies' resources to invest in priorities that fall between agency missions or ones that are too large for any single agency to support

- Award annual funding of multi-year projects, requiring multi-sector collaborations

NOPP Projects & Partners

- NOPP projects require a combination of at least two of the following partner entities: Academia; Industry (including non-profits); and Government (including federal, state, and/or tribal)

- Since 1998, NOPP has supported:
  - 207 projects
  - 569 partners
    - 146 government partners
    - 207 industry partners
    - 216 academic partners

- Projects have spanned a broad range of issues in the fields of oceanographic research and exploration, environmental monitoring, data sampling technologies, and coastal and marine resource management

Table 1. Twenty-five active NOPP Projects (through FY17)

	Project Title	Principal Investigator	Agency
1	Deepwater Atlantic Habitats II: Continued Atlantic Research and Exploration in Deepwater Ecosystems with Focus on Coral, Canyon, and Seep Communities	Erik Cordes, Temple University	BOEM
2	Gulf of Mexico Marine Assessment Program for Protected Species	Rebecca Green, BOEM	BOEM
3	Atlantic Deepwater Ecosystem Observatory Network - An Integrated System	Jennifer Miksis-Olds, University of New Hampshire	BOEM
4	Towards the Development of a Coupled COAMPS-ROMS Ensemble Kalman Filter and Adjoint with a Focus on the Indian Ocean and the Intraseasonal Oscillation	Andrew Moore, University of California, Santa Cruz	ONR
5	An Integrated Hydrological Modeling System for High-Resolution Coastal Applications	Sue Chen, Naval Research Laboratory Monterey	ONR
6	Improving Global Surface and Internal Tides through Two-Way Coupling with High Resolution Coastal Models	Maarten Buijsman, University of Southern Mississippi	ONR
7	Arctic Shelf and Large Rivers: Seamless Nesting in Global HYCOM	Eric Chassignet, Florida State University	ONR
8	Oceanic Energy Cascade from Global to Regional Predictive Models	Bruce Cornuelle, University of California, San Diego	ONR
9	Linking Surf Zone to the Inner-Shelf: Parameterizing Breaking-Wave Eddy Forcing and Effects of Transient Rip Currents	Falk Feddersen, University of California, San Diego	ONR
10	A Multiscale Nested Modeling Framework to Simulate the Interaction of Surface Gravity Waves with Nonlinear Internal Gravity Waves	Oliver Fringer, Stanford University	ONR
11	Seamless Multiscale Forecasting: Hybridizable Unstructured-mesh Modeling and Conservative Two-way Nesting	Pierre Lermusiaux, Massachusetts Institute of Technology	ONR
12	Modeling Intrinsic Variability and Connectivity in Shelf and Littoral Circulation	James McWilliams, University of California, Los Angelos	ONR
13	Russian Dolls: Nesting a Turbulent Large Eddy Simulation within a Nonhydrostatic Adaptive Grid Model within a 1/25 HYCOM Model	Alberto Scotti, University of North Carolina at Chapel Hill	ONR

Table 1 (cont.). Twenty-five active NOPP Projects (through FY17)

	Project Title	Principal Investigator	Agency
14	RRTMGP: A High-Performance Broadband Radiation Code for the Next Decade	Eli Mlawer, Atmospheric and Environmental Research, Inc.	ONR
15	NPS-NRL-Rice-UIUC Collaboration on Navy Atmosphere-Ocean Coupled Models on Many-Core Computer Architectures	Lucas Wilcox, Naval Postgraduate School	ONR
16	Accelerated Prediction of the Polar Ice and Global Ocean	Eric Chassignet, Florida State University	ONR
17	An Integration and Evaluation Framework for ESPC Coupled Models	Ben Kirtman, University of Miami	ONR
18	Initiating an Arctic Marine Biodiversity Observing Network	Katrin Iken, University of Alaska Fairbanks	NOAA
19	National Marine Sanctuaries as Sentinel Sites for a Demonstration Marine Biodiversity Observation Network	Frank Muller-Karger, University of South Florida	NASA
20	Marine Arctic Ecosystem Study – Ecosystem Dynamics and Monitoring of the Beaufort Sea: An Integrated Science Approach	Francis Wiese, Stantec Consulting Services, Inc.	BOEM
21	Demonstrating an Effective Marine Biodiversity Observation Network in the Santa Barbara Channel	Robert Miller, University of California, Santa Barbara	NASA
22	Gulf of Mexico Shipwreck Corrosion, Hydrocarbon Exposure, Microbiology, and Archaeology Project	Leila Hamdan, University of Southern Mississippi	BOEM
23	Measuring changes in ambient noise levels from the installation and operation of a wave energy converter in the coastal ocean	Sarah Henkel, Oregon State University	DOE
24	Marine Mammal Behavioral Response to Tidal Turbine Sound	Brian Polagye, University of Washington	DOE
25	Multi-sensor Improved Sea-Surface Temperature	Chelle Gentemann, Remote Sensing Systems	ONR

Table 2. Annual funding amounts by federal partners in support of active NOPP projects from FY14 – FY17

NOPP Partner Agency	FY17 ($USD)	FY16 ($USD)	FY15 ($USD)	FY14 ($USD)
Office of Naval Research (ONR)	$8,278,806.00	$7,441,000.00	$8,094,000.00	$3,750,000.00
Bureau of Ocean Energy Management (BOEM)	$4,694,001.57	$5,968,527.66	$3,100,025.14	$1,052,620.29
National Aeronautics and Space Administration (NASA)	$1,411,618.00	$1,978,308.00	$2,044,965.00	$1,881,041.00
National Oceanographic and Atmospheric Administration (NOAA)	$2,754,600.00	$409,000.00	$438,321.00	$550,000.00
National Science Foundation (NSF)	-	-	$149,416.00	-
United States Coast Guard (USCG)	$586,250.00	-	-	-
Total	$17,725,275.57	$15,796,835.66	$13,826,727.14	$7,233,661.29

Table 3. Twenty-one newly awarded NOPP Projects in FY18 in response to NOPP's FY18 Broad Agency Announcement (#N00014-17-S-B016)

Topic	#	Project Title	Principal Investigator	Agency
Topic 1: CubeSat Sensors for Investigating Littoral Ocean & Atmospheric Dynamics	1	HABsat-2 – Multi-resolution, Radiation Resistant, VNIR Hyperspectral Imaging 6U CubeSat Constellation for Littoral Ocean, Great Lakes and Tributary Inland Water Studies	Richard Beck, University of Cincinnati	ONR
	2	Small-Sat Lidar Sea Surface Vector Winds and Height Measurements System	Ozdal Boyraz, University of California, Irvine	ONR
	3	CubeSat Fully-Polarimetric Imaging Radiometer	Gregg Freebury, Tendegg, LLC.	ONR
	4	Rainbow: a multistatic space lidar constellation (Rainbow)	Damien Josset, U.S. Naval Research Laboratory	ONR
	5	FLOCS, a Folded-Optic CubeSat Sensor for Littoral Observations	David Landis, The Charles Stark Draper Laboratory, Inc.	ONR
	6	Long Wave Infrared Instrument for Sea Surface Temperature Measurement by CubeSats	Phil Putman, Sierra Lobo, Inc.	ONR
	7	Developing a Compact 670-GHz Polarimetric Radiometer for CubeSat Cloud Ice Observations	Paul Racette, NASA Goddard Space Flight Center	ONR
	8	High Quality Littoral Ocean and Aerosol Characterization from a CubeSat with Novel Spatial Light Modulator Imaging System	Michael Twardowski, Florida Atlantic University	ONR
	9	Cellular Ocean Altimetry/Scatterometry Technology (COAST)	Thomas Yunck, GeoOptics, Inc.	ONR
Topic 2: Improved & Routine Production, Stewardship and Application for GHRSST Data	1	Multi-sensor Improved Sea Surface Temperature: Continuing the GHRSST Partnership and Arctic Data	Chelle Gentemann, Earth and Space Research	NASA

Table 3 (cont.). Twenty-one newly awarded NOPP Projects in FY18 in response to NOPP's FY18 Broad Agency Announcement (#N00014-17-S-B016)

Topic	#	Project Title	Principal Investigator	Agency
Topic 3: *In-situ* Ocean Sensor Research & Technology Development	1	Air-Sea CO2 and Dissolved Inorganic Carbon System for Autonomous Moored and Surface Vehicle Applications	Adrienne Sutton, NOAA Pacific Marine Environmental Laboratory	NOAA
	2	Membrane-free In-situ Underwater Gas Analyzer Using Laser Spectroscopy in a Compact Hollow Fiber Cell	Jason Kriesel, Opto-Knowledge Systems, Inc.	NOAA
	3	Improving the Technology Readiness Level of the 6000-m capable Conductivity Temperature Depth Sensor Mounted on Deep Argo Floats	Nathalie Zilberman, University of California, San Diego	NOAA
	4	Multi-Modal Oceanographic Sensing with Hybrid Soft Electronic Skin	Carmel Majidi, Carnegie Mellon University	ONR
	5	Laboratory and Field Evaluation of a New Conductivity-Temperature-Depth Sensor for Use on Unmanned Underwater Vehicles and Platforms	John Toole, Woods Hole Oceanographic Institution	ONR
	6	Minions: A Low-Cost Float for Distributed, Lagrangian Observations of the Biological Carbon Pump	Melissa Omand, University of Rhode Island	NSF
	7	Development of a Carbon Seaglider for Ocean Acidification Monitoring and Inorganic Carbon Process Studies	Claudine Hauri, University of Alaska Fairbanks	NSF
	8	Dissolved Methane Sensor	Anna Michel, Woods Hole Oceanographic Institution	NSF
	9	SCUID: A Carbon Nanotube Based Sensors for Measurements of Dissolved Gases in Water	Anuscheh Nawaz, University of Washington	NSF
	10	Development of Drifting Buoys to Measure Dynamic Ocean Topography and Precipitable Water Vapor	James Morison, University of Washington	NSF
	11	Spray 2.0: Development and Technology Transition of a Next-Generation Underwater Glider	Daniel Rudnick, University of California, San Diego	NSF