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Sponsored Research Annual Reports

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2018

**Research & Sponsored Programs Naval  
Postgraduate School | FY2018.1 | Annual  
Report & Fact Book**

Monterey, California: Naval Postgraduate School.

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# RESEARCH & SPONSORED PROGRAMS



NAVAL POSTGRADUATE SCHOOL | FY2018.1 | ANNUAL REPORT & FACT BOOK

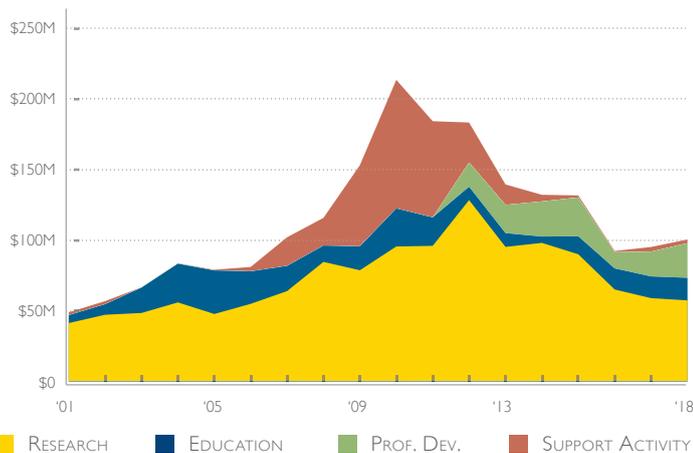
## PROGRAM OVERVIEW

The Naval Postgraduate School (NPS) has robust sponsored research and education programs that work to provide the faculty, staff, and equipment needed for a strong, viable graduate school. Sponsored programs (research, education, and professional development) are integral to the Naval Postgraduate School mission. The research programs support graduate education by providing militarily relevant thesis topics that address issues from the current needs of the Fleet and Joint Forces to the science and technology required to sustain long-term superiority of the Navy/DoD. Research varies from the fundamental to the applied and covers all levels of classification. Sponsored research includes:

- Basic and Applied Research
- Individual and Interdisciplinary Group Projects
- Fleet Support
- Cooperative Research and Development Agreements

Sponsored education programs include integrated graduate education and research in space systems, total-ship systems engineering, combat systems, systems engineering and homeland security and defense, supplemented by off-campus graduate and certificate programs. Professional development programs utilize NPS faculty expertise and student experience to support various communities within the Navy and DoD through short courses and web-based services.

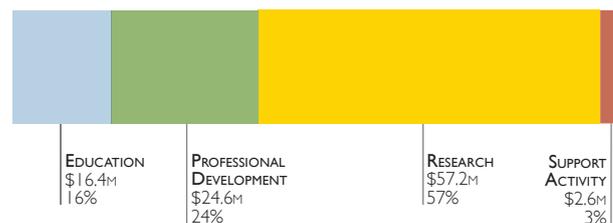
### SPONSORED PROGRAM PROFILE FY 2001-2018 (FUNDS EXPENDED)



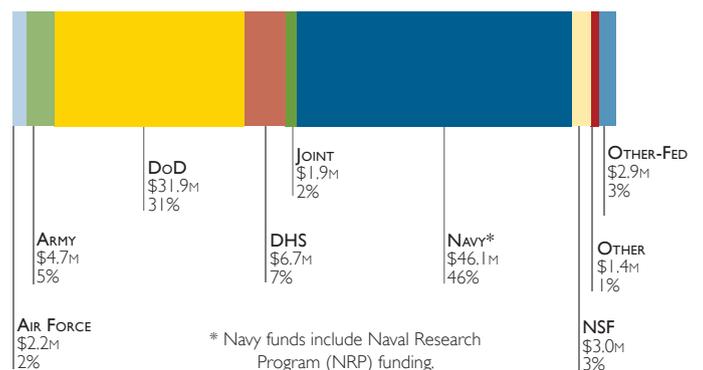
In FY18, NPS had available over \$105.3M (not including carryover funds from prior years) in sponsored program funding. Total expenditures in FY18 exceeded \$100.8M.

### SPONSORED PROGRAM EXPENDITURES 1 October 2017–30 September 2018

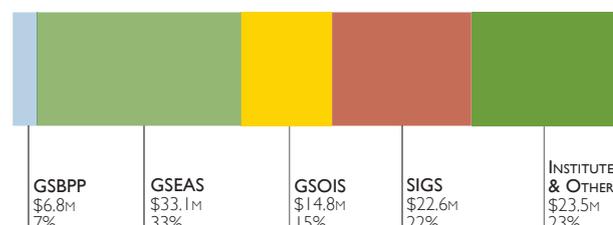
#### BY TYPE OF ACTIVITY



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 Dr. Steven Lerman *Provost*  
 Dr. Jeffrey Paduan *Dean of Research*  
 Deborah Buettner *Director, Research and Sponsored Programs Office*

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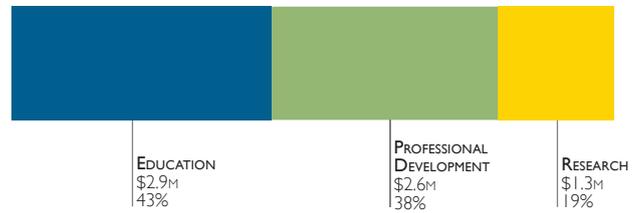
# GRADUATE SCHOOL OF BUSINESS AND PUBLIC POLICY

The Graduate School of Business and Public Policy (GSBPP) offers unique residential defense-focused MBA and Master of Science in Management programs, plus master's degrees in four other DoD-relevant areas. Faculty research is an important component of the school and strives to support military and public policy decision making, problem solving, and policy setting; improve operational and administrative processes, and organizational effectiveness; contribute knowledge to academic disciplines; and advance the mission of graduate education. Faculty research results have been featured in general media, used in Congressional testimony and incorporated in public policy issues.

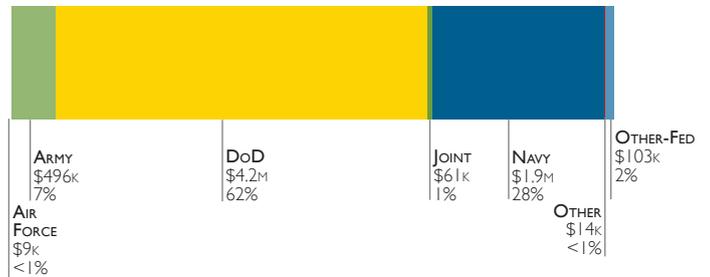
The research program is fully integrated into the educational process. Curriculum sponsors and other DoD organizations fund faculty research; students participate in these faculty projects and undertake research of their own in their capstone MBA projects, and faculty research results are incorporated into classroom instruction. Topics and issues can be grouped into five broad functional areas: acquisition and contracting management; budgeting and financial management; operations and logistics management; economics and manpower-systems analysis ; and policy formulation, analysis, and management.

**TOTAL EXPENDITURES: \$6.8m**

## BY TYPE OF ACTIVITY



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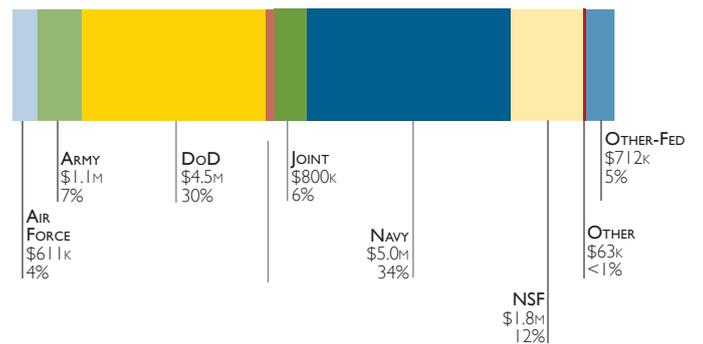


# GRADUATE SCHOOL OF OPERATIONAL AND INFORMATION SCIENCES

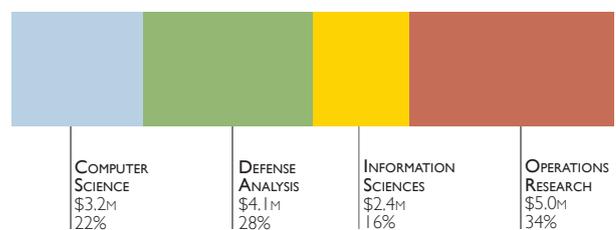
GSOIS resident programs consist of 21 technical curricula and award master of science and Ph.D. degrees across five academic departments. Responding to the needs of naval and military customers, graduate education and research are focused in six military important domains: information science and technology; computer science; operations analysis and operational logistics; human-systems integration; and special operations and related defense analyses. The emphasis of sponsored research and studies activities is on the development, integration, and application of mathematical, scientific, and technical skills that contribute to advances and improvement in military systems and operations, and related areas of national defense and security.

**TOTAL EXPENDITURES: \$14.8m**

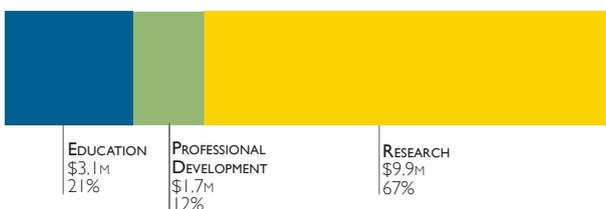
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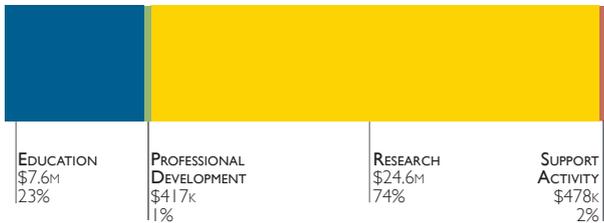


# GRADUATE SCHOOL OF ENGINEERING AND APPLIED SCIENCES

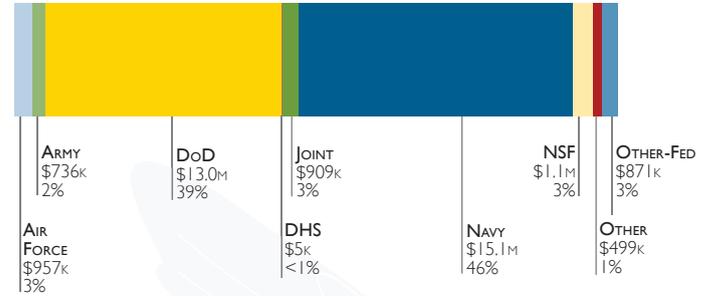
GSEAS education leads to the master of science, engineer, and doctor of philosophy degrees awarded by seven technical academic departments (applied math, electrical and computer engineering, mechanical and aerospace engineering, meteorology, physics, oceanography, systems engineering) and three interdisciplinary academic groups (space systems, undersea warfare, and energy). These offer degree programs tailored to the Navy and defense community, while providing technical foundations for student theses interdisciplinary faculty and student research projects. Research centers and unique laboratory facilities (e.g., autonomous vehicle research, spacecraft research and design, remote sensing, rocket propulsion and combustion, electronic warfare & signal processing, ocean acoustics, atmospheric modelling & forecasting, multi-intelligence studies & data science, space-systems research, computer & communication networks, materials research, cyber warfare & cryptanalysis, undersea warfare, advanced sensors, and weapon effects & analysis) add rigor to the resident academic and sponsored programs.

**TOTAL EXPENDITURES: \$33.1m**

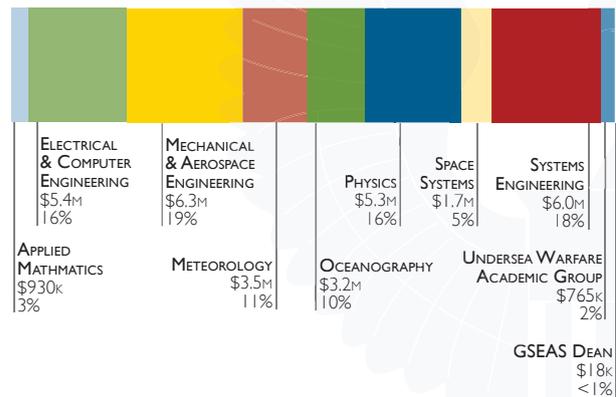
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# SCHOOL OF INTERNATIONAL GRADUATE STUDIES

The School of International Graduate Studies (SIGS) specializes in research and graduate education focused on security studies, international relations, regional security and area studies, international political economy, and U.S. security policy. Programs identify and address security challenges, develop civilian and military interagency alliances, and strengthen multilateral and bilateral defense cooperation between the U.S. and other nations.

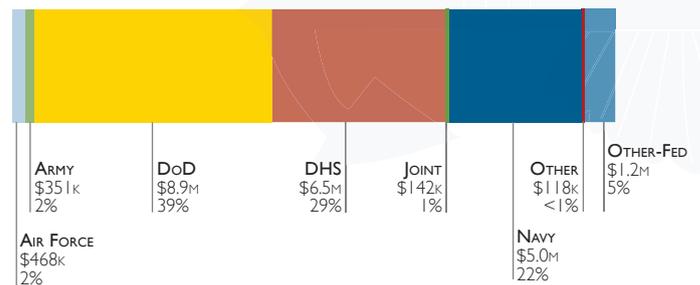
SIGS components include the department of National Security Affairs, Center for Civil-Military Relations, Center for Homeland Defense and Security, and the International Graduate Programs Office.

**TOTAL EXPENDITURES: \$22.6m**

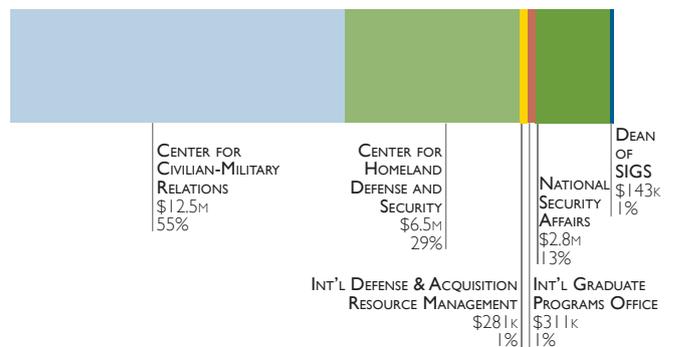
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# RESEARCH AND EDUCATION INSTITUTES AND CENTERS

NPS's research and education institutes and centers apply interdisciplinary research to military challenges, they facilitate degree programs, and they deliver executive and continuing education. Research centers, in particular, emphasize practical application of their results.

The Cebrowski Institute is a hub of innovation for the information revolution in military and security affairs for the Navy, DoD and nation. The CI helps generate ideas for information strategy and tactics and supports the information entrepreneurs who champion these ideas, promoting them in the Navy and DOD and working with leaders and networks to bring them into practice.

The MOVES Institute investigates modeling, virtual environments (VE), and simulation, with projects in 3D visual simulation, networked VE, computer-generated autonomy, computational cognition, human-performance engineering, immersive technologies, game-based simulation, combat modeling and analysis, and medical modeling and simulation.

The Center for Interdisciplinary Remotely Piloted Aircraft Studies (CIRPAS) provides manned aircraft, remotely piloted aircraft and ground based radars for scientific research, especially that based on atmospheric and oceanographic observations, payload integration, CONOPS development, flight-safety reviews, logistics, and flight support.

Consortium for Robotics and Unmanned Systems Education and Research (CRUSER) provides a collaborative environment for the advancement of educational and research endeavors across the Navy and Marine Corps around the subject of unmanned systems. The Consortium seeks to capitalize efforts, both internal and external to NPS, by facilitating active means of collaboration, providing a portal for information exchange among researchers and educators with collaborative interests, fostering innovation through directed programs of operational experimentation, and supporting the development of an array of educational ventures. The program fosters innovation through directed programs of field experimentation to assess, develop, counter, and exploit emerging capabilities, and by supporting an array of educational ventures.

The Energy Academic Group (EAG) works to develop and maintain NPS as a Navy Center of Excellence for Energy Graduate Education and Research. The Group supports this goal through interdisciplinary education and research programs and through concerted outreach around energy security and innovation topics.

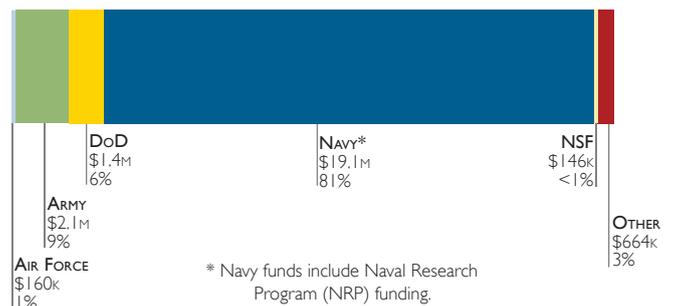
The Naval Research Program (NRP) is a research award to NPS from the Operational Navy (OPNAV) for faculty and student studies. Each year, topic areas are submitted by the various OPNAV codes and faculty propose against those topics. For more information, see: <http://www.nps.edu/web/naval-research-program/>

**TOTAL EXPENDITURES: \$23.5m**

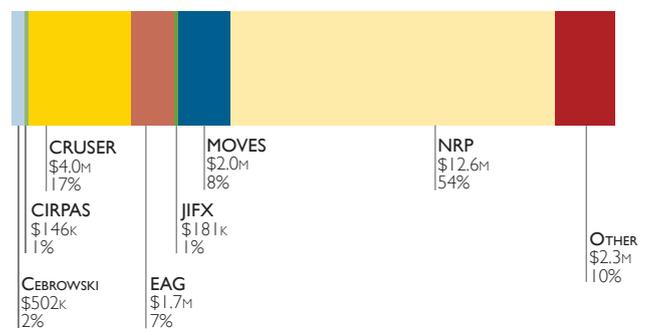
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# ADDITIONAL RESEARCH FACTS FOR FY18

- 3 new Cooperative Research and Development Agreements (CRADAs) or Limited-Purpose CRADAs were executed. Partners were: Big Solar Limited, University of Colorado Boulder and Northwest UAV.
- Space and Naval Warfare Systems Center awarded 11 fellowships to NPS students.
- 30 students participated in Student Intern Partnerships with the following companies and government agencies: AFWERX, Amazon, Boeing, Creare, Collins Aerospace, Cubic Corp., DIU/Rogue Squadron, Elbit Corp., Lockheed Martin, NASA Armstrong Flight Research Center, Raytheon Corp., and Schweitzer Engineering Labs.
- 14 National Research Council Research Associates were on tenure at NPS.
- NPS hosted 11 visiting faculty members from the Engineer and Scientist Exchange Program.
- NPS Researchers filed 14 non-provisional patent applications, 13 provisional patent applications, and 14 new inventions disclosures, and were awarded 20 patents.