Cdr Dan Straub, USN, will defend his dissertation in security studies, “Outsourcing Human Security: The Pros and Cons of Private Security Companies (PSCs) in Peacekeeping” in September. Straub’s research examines the role of the United Nations as an international organization that intervenes in state affairs with the proclaimed aim of ending “the scourge of war” and promoting world peace. The UN often uses peacekeeping to further this goal. Meanwhile, private security companies claim to offer flexible capability that can assist organizations and states toward improvements in human security. PSC services range from protecting diplomats to providing security for major corporations, NGOs, and the UN. They claim they can perform better, cheaper, and faster than states or organizations like the UN. For example, supporters of PSCs claim that they could have prevented atrocities in Rwanda, Srebrenica, and Congo. Opponents to their increased use cite cost, morality, legitimacy, loyalty, fraud, accountability, and political will. In an era where states often lack critical capabilities for protecting the peace or prevent-

...continued on page 3

Research Updates
FY13 Indirect Cost Rates: FY13 indirect rate structure is based on a fixed dollar amount per labor hour. Labor hours includes both NPS labor and contract labor. The dollar rate listed below will be added to each hour of labor executed on a sponsored activity.

- Research: $26.24
- Education: $27.02
- Professional Development: $16.02
- Other Sponsored Activity: $6.01


FY13 Proposal Budget templates are located at http://intranet.nps.edu/ResAdmin/FY13/prop_budg_page.html.

Proposal Routing Form: The new Proposal Routing Form (PRF) for research can be found at http://intranet.nps.edu/ResAdmin/templates/proposal_routing_form.pdf. The new PRF eliminates the need for a separate signature page. Data collected from the PRF will be utilized for the research portal under development.

Service/Recharge Centers: NPS will implement Service/Recharge Centers in FY13 as a means of directly recovering costs for services provided to sponsored projects. Service/Recharge Centers also keep indirect costs at a minimum as the costs of these services are not included in the indirect cost pool utilized to calculate indirect cost rates. Information on the two Service/Recharge Centers currently established can be found at http://intranet.nps.edu/ResAdmin/FY13/Recharge_Service_Consulting.pdf and http://intranet.nps.edu/ResAdmin/FY13/Recharge_Service_Grants.pdf.

The Brown Bag Seminar Calendar is being developed for FY13 and will be included in next month’s issue of Research News. Accountability modules which are required for all PIs/PDs will be available in mid-September.

Sponsored Programs Status, July 2012
Funds Available: $256.3M

By Type of Activity

- Research: $184.8M (72%)
- Service: $29.0M (11%)
- CRADA: $2.0M (1%)
- Education: $40.6M (16%)

By Sponsor

- Navy: $57.1M (22%)
- Joint: $4.6M (2%)
- NSF: $19.0M (7%)
- Other: $1.0M (<1%)
- Other-Fed: $11.9M (5%)
- Air Force: $52.1M (20%)
- Army: $9.9M (4%)
- CRADA: $1.8M (1%)
- DoD: $76.7M (30%)

By School

- GSBPP: $13.2M (5%)
- GSEAS: $67.4M (26%)
- SIGS: $39.0M (15%)
- GSOIS: $78.5M (31%)
- Academic Affairs: $5.4M (2%)
- Other: $52.8M (21%)
- Other-Fed: $22.3M (9%)

By Activity

- Research: $184.8M (72%)
- Service: $29.0M (11%)
- CRADA: $2.0M (1%)
- Education: $40.6M (16%)

...continued on page 3
SPONSORED PROGRAM STATISTICS

Graduate School of Engineering and Applied Sciences
Funds available to date: $67.4M

By Sponsor

Air Force $5.5M 8%
Army $1.3M 2%
CRADA $550K 1%
DoD $17.8M 26%
DHS $75K <1%
Joint $1.5M 2%

By Department

Space Systems $4.5M 7%
Physics $14.4M 22%
Oceanography $13.1M 19%
Meteorology $5.0M 7%

Projects funded in July
- Joint Threat Warning System Maritime Threat Signals Projection and Research, John McEachen, ECE (USSOCOM)
- Gene G. SIAM Summer School, Frank Giraldo, MA (NSF)
- Efficient Galerkin Methods for Global Nonhydrostatic Atmospheric Modeling, Frank Giraldo, MA (NSF)
- Constant Volume Combustion Technology Development, Chris Brrophy, MAE (AFRL)
- Energy Systems Technical Evaluation Program (ESTEP): Quickstarts, Anthony Gannon, MAE (ONR)
- Littoral Oceanography for Mine Warfare with Underwater Unmanned Vehicle, Peter Chu, OC (NAVCEANO)

Research and Education Institutes, Centers, and Other
Funds available to date: $52.8M

By Sponsor

CENCOOS: Integrating Marine Operations for Decision Makers and the General Public, Jeff Paduan, OC (NOAA)
Condensed Matter Nuclear Science, Phase IIC: Standard Heat Experiment Modeling, Mike Melich, SE (DTRA)
SEM-PD21 721-131 Cohort, Wally Owen, SE (Various)
MS Systems Engineering, Wally Owen, SE (Various)
Robust Guidance for Prompt Global Strike Missions, Mike Ross, SP (DARPA)
Automated Vision-Based System for Test Articles Characterization, Oleg Yakimenko, SE (Yuma Proving Ground)

By Department

NSF $5.7M 9%
NAVY $28.5M 42%

Projects funded in July
- UNPKO Pre-Deployment Application and Administrative Support Workshop, Alan Howard, USPTC (NETSAFA)
- Technical Support for a Collaborative Sensor Visualization Capability, Alan Jaeger, NISI (NAWC-Weapons Division)
- Combat Operator’s Loadout Decision Tool, CSAR and Personnel-Recovery Integration, Warren Yu, Cebrowski (FNMOC)
- CDO Log Analysis, Warren Yu, Cebrowski (FNMOC)
- ISR Lite for GIS Integration, Warren Yu, Cebrowski (FNMOC)
- GIS Efficiency Study, Warren Yu, Cebrowski (FNMOC)
- Computer Vision Algorithm Collection, Matthias Kolsch, MOVES (DARPA)
- IPARTS LOE Extension, Mike McCauley, MOVES (ONR)
- Back-to-Basics, Computer-Based Counter-Piracy Trainer, Perry McDowell, MOVES (SWOSCOLCOM)
- Autonomous Collaboration & Control (AUTOCC) Flight Test, Bob Bluth, CIRPAS (Northrop Grumman)
- Hat Trick UAV Flight Testing, Bob Bluth, CIRPAS (Northrop Grumman)

Please submit your faculty and research news (published articles, conference proceedings, conference presentations, books, honors received, accomplishments, milestones, etc.) to research@nps.edu.
PH.D, continued from page 1

ing war, PSCs may offer a temporary solution to fill these crucial gaps. What are the advantages and disadvantages to the use of PSCs for international peacekeeping, not just specific tasks, but in the conduct of peacekeeping with legitimacy, accountability, and impartiality, while protecting human security? Since ending the scourge of war is the most important goal of the UN, then human security must be the guiding principle upon which any structures of integration, communication, and interrelationships in peacekeeping are based. Using human security as the lens, this dissertation will focus on and evaluate the pros and cons of the use of PSCs in peacekeeping and present analysis that may be used by policy-makers in determining whether or not to consider PSCs for peacekeeping operations. CDR Straub’s advisor is Distin-

guished Professor Thomas Bruneau.

CDR Straub has been in the Navy twenty-nine years and served on four ships. After NPS, he will transfer to sea in the USS Ingraham (FFG-61) as executive officer under the XO/CO fleet-up program.

Graduate School of Operational and Information Sciences

Funds available to date: $78.5M

By Department

<table>
<thead>
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<th>By Sponsor</th>
<th>Defense Analysis $7.1M</th>
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<tr>
<td></td>
<td>Computer Science $11.6M</td>
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<td>Operations Research $10.9M</td>
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<td>Information Sciences $48.9M</td>
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Projects funded in July

- Navy Certifier Special Offering, Karen Burke, CS (NCTS Far East)
- Packet Carving and Visualization, Simson Garfinkel, CS (FBI)
- Cyber Analogies, John Arquilla, DA (US CYBERCOMMAND)
- Iran Futures Workshop, Glenn Robinson, DA (USCENTCOM SOCCENT/JS)
- R & D Support to IDC, Dan Boker, IS (ONI)
- Multi-Agency Collaboration Environment (MACE) Technical Director, Chris Gunderson, IS (DIA)
- Assessment of Technologies and Capabilities Affecting Maritime Security, John Osmundson, IS (National Maritime Intelligence Integration Office)
- Aerial Reconnaissance & Surveillance Optimization Model Development, Emily Craparo, OR (TRAC - MONTEREY)
- Work Patterns in Operational Environments: Preventing Stress-Related Injuries in US Navy, Nita Shattuck, OR (CNO)
- AAV Emergency Egress Study, Larry Shattuck, OR (USMC–Amphibious Vehicle Test Branch)

School of International Graduate Studies

Funds available to date: $39.0M

Project funded in July:

- CHDS-NPS Homeland Defense and Security Leadership Development (FCLP-1202), Ted Lewis (DHS)
- Scenario Planning, Lyman Miller (PACOM)

Graduate School of Business and Public Policy

Funds available to date: $13.2M

Projects funded in July:

- Civilian EMBA Program, Bill Hatch (Various)

By Sponsor

- DoD $14.4M 18%
- Joint $1.1M 1%
- Navy $9.2M 12%
- NSF $2.1M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%

By Sponsor

- DoD $17.8M 46%
- DHS $19.4M 50%
- Joint $5.8K 1%
- Navy $6.2K 1%
- Other $2K <1%
- Other-Fed $1.1M 3%
- Army $2.3M 17%
- Other $482K 4%
- Air Force $734K 6%
- Joint $332K 2%
- Navy $5.3M 40%

By Sponsor

- DoD $4.1M 31%
- Navy $5.3M 40%
- Joint $332K 2%
- Other $482K 4%
- Air Force $734K 6%
- Joint $5.8K 1%
- Navy $6.2K 1%
- Other $2K <1%
- Other-Fed $1.1M 3%
- Army $2.3M 17%
- Other $482K 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $14.4M 18%
- Joint $1.1M 1%
- Navy $9.2M 12%
- NSF $2.1M 3%
- Other $381K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
- Other-Fed $2.9M 4%
- Air Force $45.5M 58%
- Army $2.3M 3%
- Other $3.81K <1%
APPLIED MATHEMATICS


COMPUTER SCIENCE


CENTER FOR DECISION, RISK, CONTROLS AND SIGNALS INTELLIGENCE (DRCSI)
A manuscript by R. G. Rendon (GSBPP), T. V. Huynh (DRCSI) and J. S. Osmundson (SE and IS) entitled, “Contracting processes and structures for systems-of-systems acquisition,” has been accepted and appeared online in the *John Wiley Journal: System Engineering*. This research was supported by the Acquisition Research Program.

A manuscript by Nathan Moshman (MAE & SSAG), Garth Hobson (MAE) and S. S. Sritharan (DRCSI) entitled, “Optimal Control of Compressible Euler Equations in One Dimension,” has been accepted for publication in the *Journal of the American Institute for Aeronautics and Astronautics*.

S. S. Sritharan completed an intensely scheduled delegation to energize the Indian partnership. He gave twenty seven one-hour lectures in three cities (New Delhi, Coimbatore and Bangalore), Indian defense laboratories (DRDO), and in a number of prestigious Indian universities (Indian Institute of Science, Tata Institute, Indian Statistical Institute, Bharathiyar University, etc). The highlight of the presentation was the featured lecture in the defense science forum in New Delhi, organized by the DRDO headquarters, which was televised to all 55 DRDO laboratories across India. See images at http://drdo.gov.in/drdo/dsforum1/lecturesframe.htm.

S. S. Sritharan has been invited to serve on the Navy’s Counter Directed Energy Weapons (CDEW) integrated product team. Per direction from the Naval Directed Energy Steering Group (NDESG, composed of DUSN PPOI, DASN/RDT&E, chaired by CNR, and documented in the Navy’s upcoming *Vision and Strategy for Directed Energy Weapons* working-level integrated product teams (IPT) are forming to develop science, technology, and acquisition roadmaps for directed-energy weapons. This IPT will develop and present CDEW roadmaps to senior leadership. Included in the IPT are high- and low-power lasers, lethal or nonlethal, that may have other weapons-level effects (such as jamming or dazzling, leading to a mission abort.) The resulting roadmap will inform and coordinate various activities and leadership levels and enable common, understandable benchmarks for progress and the setting of program/technical objectives. IPT products will enable senior leadership, program offices, technical managers, and workers to set expectations and guide the Navy to increased comprehension of laser weapon-systems implications and measured expectations.

ELECTRICAL AND COMPUTER ENGINEERING

GRADUATE SCHOOL OF BUSINESS AND PUBLIC POLICY


METEOROLOGY


...continued on page 5
METEOLOGY/OCEANOGRAPHY STUDENTS PRESENT AT AMS CONFERENCE

METOC students LCDR Robin Cherrett, LCDR Heather Hornick, and LT Eric Daley (all USN) presented thesis work at the 18th Conference on Air–Sea Interaction and 20th Symposium on Boundary Layers and Turbulence, American Meteorological Society, 9-13 July, 2012, in Boston. Cherrett and Daley presented at a special session for a major international field project, Dynamics of Madden–Julian Oscillation (DYNAMO), in which NPS researchers headed by Professor Qing Wang (Meteorology) took the lead in measurements using the NOAA WP-3D research aircraft. Cherrett’s presentation was on upper-ocean characteristics observed in the tropical Indian Ocean. LT David P. Trampp, a March, 2012, NPS graduate was a coauthor. Daley spoke on the effects of a small island in modifying the marine environment. Hornick’s research is part of her doctoral work on physical processes in the lower atmosphere and upper ocean in the Gulf of Tehuantepec, using airborne measurements and the Navy’s coupled atmospheric and oceanic models. Hornick won second place in student papers for exceptional research and presentation. All three students worked under Professor Wang.

ENERGETIC MATERIALS AND EXPLOSIVES RESEARCH GROUP COMPLETES SUCCESSFUL TESTING

Under the direction of Research Professor Ron Brown, the physics department’s Energetic Materials and Explosives Research Group has completed explosive tests at the Iowa Army Ammunition Plant in Middletown, operated by American Ordnance. Demonstrations during the week of August 6th tested the applicability of an invented method for investigating optimal conditions for generating super-fast from shaped charges. This method, which can be adapted for warhead application, sustains detonation velocities and pressures at levels far greater than those that can be achieved by conventional initiation. A patent application has been filed for the initiation system and another is in preparation for the shaped charge.

Results were shown to match predictions completed by lieutenants Christopher Tilley and Andrew Gilchrist, USN, master’s students in the applied physics combat-systems curriculum. Both are scheduled to graduate in the FY13 winter quarter. Doctoral candidates CDR Jonathon VanSlyke, USN (physics) and Stan DeFisher (ARDEC) will continue theoretical and experimental research. The program is sponsored by ONR. Additional funding for student travel was provided by the NPS Undersea Warfare Chair.

FACULTY NEWS, continued from page 4


NATIONAL SECURITY AFFAIRS


...continued on page 6
COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA)
Title: Autonomous Capability for ScanEagle
Partner: Insitu, Inc.
PI: Doug Horner, Department of Mechanical and Aerospace Engineering
Summary: NPS and Insitu, Inc. are collaborating to develop an application programming interface (API) to allow convenient access to onboard sensor information and waypoints through the ScanEagle interface to extend the capabilities of the aircraft.

MEMORANDA OF AGREEMENT (MOAs)
Title: Project on Advanced Systems and Concepts for Countering WMD
Partner: Defense Threat Reduction Agency
PI: Anne Clunan, Department of National Security Affairs
Summary: This MOA formalizes a relationship and aligns collaboration with, and subject to the direction of, DTRA leadership. The research unit will be known as Project on Advanced Systems and Concepts for Countering WMD (PASCC) under NPS CCC.

Title: Memorandum of Agreement between Naval Postgraduate School and Naval Sea Systems Command Naval Undersea Warfare Center Division, Newport
Partner: Naval Sea Systems Command Naval Undersea Warfare Center Division, Newport
PI: Donald Brutzman, Undersea Warfare Academic Group
Summary: This MOA formalizes a relationship and aligns collaboration between NUWCDIVNPT and NPS and documents the objectives and responsibilities of the parties with regard to facilitating the sharing of resources, infrastructure, and expertise for the purpose of implementing an ultra-high-performance virtual studio (UHPVS) for distributed video and collaborative visualization.

TECHNICAL REPORTS PUBLISHED

<table>
<thead>
<tr>
<th>Report ID</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
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<tbody>
<tr>
<td>NPS-PH-12-001</td>
<td>Investigation of the Effect of Convergent Detonation on Metal Acceleration and Gurney</td>
<td>W. Ludwig</td>
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</table>

Technical reports may be obtained at http://www.nps.edu/Research/TechReports.html

FACULTY NEWS, continued from page 5


OCEANOGRAPHY

OPERATIONS RESEARCH


DTRA’s mission to counter the full spectrum of threat posed by weapons of mass destruction (WMD) through the establishment of a research unit to conduct innovative futures studies in close collaboration with, and subject to the direction of, DTRA leadership. The research unit will be known as Project on Advanced Systems and Concepts for Countering WMD (PASCC) under NPS CCC.

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PHYSICS


SYSTEMS ENGINEERING