



# DSB Newsletter

May 2015



**Dr. Craig Fields, Chairman**

Dr. Eric Evans, Vice Chairman

Mr. David Jakubek, Executive Director

## *Chairman's Corner*

### Welcome to the Spring Board Meeting

Since our last meeting in December 2014, the Defense Science Board has ramped up to have twelve concurrent study activities covering a breadth of topics properly positioned to provide critically important advice to the Department of Defense and shape the Defense Innovation Initiative and other related activities. The current studies co-chairs are listed below:

- Energy Systems for Forward/Remote Operating Bases (General Paul Kern (USA Ret.) and Dr. Michael Anastasio)
- Defense Strategies for Advanced Ballistic and Cruise Missile Threats (Mr. Bob Stein & Mr. Jim Carlini)
- Strategic Options (Dr. Craig Fields and Dr. Eric Evans)
- Air Dominance (Dr. Mark Maybury & Dr. David Whalen)
- Cyber Deterrence (Mr. James Gosler & The Honorable James Miller)
- Cyber Defense (Mr. Robert Nesbit & Mr. Lou Von Thaeer)
- Next Generation Unmanned Undersea Systems (Dr. Ralph Semmel & Mr. James Shields)
- Cyber Supply Chain (The Honorable Page Hoepfer & Dr. John Manfredelli)
- Detering, Preventing and Responding to Threat or Use for Weapons of Mass Destruction (Dr. Miriam John & Dr. William Schneider)
- Summer Study 2015 on Autonomy (Dr. Ruth David & Dr. Paul Nielsen)
- Defense Strategies for Ensuring the Resilience of National Space Capabilities (Dr. Wanda Austin & VADM David Frost, USN Ret.)
- MILSATCOM and Tactical Networking (Dr. Vincent Chan & Mr. Alfred Grasso)

In addition to launching a number of Task Force study efforts between January and April, the Defense Science Board also returns to a more traditional Summer Study effort on the topic of Autonomy. The Summer Study depends upon the participation of the full Board membership along with 20 other Subject Matter Experts. The Summer Study will hold a two week offsite at a familiar location for members, the Beckman Center in Irvine CA from August 17-28, 2015.

As a result of the last quarterly and in response to a comment from Deputy Secretary Work, Dr. Mim John composed a report summarizing the long list of nuclear related Defense Science Board study efforts over the past decade. The six-page classified summary highlighting 23 study efforts was provided to the Deputy Secretary in March.

The Strategic Options Task Force members, along with co-chairs of related Defense Science Board Task Forces, conducted a red team review of the Department's Long Rang Research and Development Planning Program on May 1st.

The final reports for the Task Force on Countering Violent Extremism (chair: Mr. Michael Bayer) and The Task Force on Military Operations in a Complex Electromagnetic Environment (co-chairs: Mr. Bob Stein and Mr. Bill Delaney) have been distributed by our sponsor, USD(AT&L), to the Department for actions and responses.

One member, General Larry D. Welch, U.S. Air Force (Ret.), has left the Defense Science Board after 24 years of service.

*Dr. Craig Fields*



Defense Science Board  
The Pentagon OUSD(AT&L) Room  
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## Membership

The Board continues to actively solicit suggestions for highly qualified scientific and technical candidate members, with special emphasis on women and minority candidates. Prior Task Force participation offers an individual, OSD, and the Board an opportunity to determine a person's interest and suitability to Board activities and is a desirable prerequisite to membership on the Board.

## Task Force Status

- **Countering Violent Extremism** [chair: Mr. Michael Bayer] The task force shall conduct an independent assessment of the Department of Defense strategy to counter violent extremism outside of the United States in accordance with section 1239 of the National Defense Authorization Act for FY 2011 (H.R. 6523, 267-268). Sponsored by USD(AT&L). **Report published April 2015.**

- **2013 Summer Study on 21<sup>st</sup> Century Military Operations in a Complex Electromagnetic Environment** [Co-chairs: Mr. Bill Delaney and Mr. Bob Stein] The task force will conduct a study of current and emerging EW techniques and capabilities that may face U.S. forces over the next two decades. **Report published May 2015. Awaiting USD(AT&L) release.**

- **2014 Summer Study on Strategic Surprise** [Co-chairs: Mr. Vince Vitto and Dr. Dave Whelan] The study will consider what information about any potential adversary may not be sufficiently acted upon in the next decade that will lead to regrets in 2024, and in broad terms what those actions and hedges against changing priorities might be. **TOR signed April 2014. Results briefed to Department leadership August/September 2014. Report scheduled for publishing June 2015.**

- **Energy Systems for Forward/Remote Operating Bases** [Co-chairs: General Paul Kern, USA (retired) and Dr. Michael Anastasio] The study will assess different mechanisms to satisfy FOB energy requirements, including small modular nuclear reactors. **TOR signed February 2014. Study kickoff November 2014.**

- **Defense Strategies for Advanced Ballistic and Cruise Missile Threats** [Co-chairs: Mr. Bob Stein and Mr. Jim Carlini] The purpose of the study is to review current and future ballistic and cruise missile threats, assess the implications of those systems to the survivability of U.S. critical assets, review current U.S. responses to those threats and counter-measures that might nullify those responses, and investigate and prioritize a proposed short- and

long-term U.S. response. A key Task Force concern should be the cost-effectiveness of any proposed recommendations. **TOR signed May 2014. Study kickoff January 2015.**

- **Cyber Deterrence** [Co-chairs: Mr. James Gosler and The Honorable James Miller] The study will consider requirements for effective deterrence of cyber attack against the U.S. and its allies, and identify critical capabilities to support deterrence, war-fighting, and escalation control. **TOR signed October 2014. Study Kickoff February 2015.**

- **Air Dominance** [Co-chairs: Dr. Mark Maybury and Dr. David Whalen] This task force will consider the most effective science, technology, capability and systems for maintaining air dominance beyond the next decade. The Task Force should identify and recommend, in the context of projected threats, strategies to establish and maintain our freedom of action in the air in support of national objectives. **TOR signed October 2014. Study Kickoff February 2015.**

- **Next-Generation Unmanned Undersea Systems** [Co-chairs: Dr. Ralph Semmel & Mr. James Shields] The task force should explore roles and missions for candidate unmanned undersea systems with emphasis on leveraging the advantages in the undersea domain to disrupt adversary strategies both undersea and in other domains, focusing on technical capabilities and operational concepts that could result in low-cost, rapidly developed systems that enable cost-imposing strategies. **TOR signed October 2014. Study Kickoff February 2015.**

- **Cyber Defense** [Co-chairs: Mr. Robert Nesbit & Mr. Lou Von Thae] The purpose is to investigate methods to assess the level of cyber protection that currently exists and is planned within DoD networks, sensing, weapon and support systems. **TOR signed October 2014. Study Kickoff January 2015.**

- **Deterring, Preventing, and Responding to the Threat or Use of Weapons of Mass Destruction** [Co-chairs: Dr. Miriam John and Dr. William Schneider] The purpose of this study is to identify ways in which deterrence against WMD can evolve given a changing security environment, and should deterrence alone prove inadequate, then identify additional ways to prevent and respond.. **TOR signed November 2014. Study Kickoff March 2015.**

- **Cyber Supply Chain** [Co-chairs: The Honorable Page Hoepfer and Dr. John Manferdelli]

The purpose of this study is to review the DoD supply chain risk management activities, including case reviews of specific acquisition program application and the resulting outcomes. The task force will assess whether current practices are able to effectively mitigate malicious supply chain risk, and whether opportunities exist to modify or strengthen practices to increase the effectiveness of current practices. **TOR signed November 2014. Study Kickoff April 2015.**

- **2015 Summer Study on Autonomy** [Co-chairs: Dr. Ruth David and Dr. Paul Nielsen] The purpose of this study is to identify the science, engineering, and policy problems that must be solved to permit greater operational use of autonomy across all warfighting domains. The study will assess opportunities for DoD to enhance mission efficiency, shrink life-cycle costs, and reduce loss of life through the use of autonomy. **TOR signed November 2014. Study Kickoff February 2015.**

- **Defense Strategies for Ensuring the Resilience of National Space Capabilities** [Co-chairs: Dr. Wanda Austin, Ph.D., and VADM David Frost, USN Ret.] This study will identify and recommend strategies to enhance the net resilience of our national security space enterprise including those critical elements provided by our international partners and the commercial sector. **TOR signed December 2014. Study Kickoff April 2015.**

- **Military Satellite Communication and Tactical Networking** [Co-chairs: Dr. Vincent Chan & Mr. Alfred Grasso] The study will review the current US military satellite communication and tactical networking capabilities, identify shortfalls within existing and planned capability development, and then propose mid- and long-term system and technology improvements needed to allow effective complex operations against advanced threats. **TOR signed December 2014. Study Kickoff April 2015.**

## **Permanent Sub-Committees**

- **Nuclear Weapons Surety**
  - No recent activity.

## Updates from Other Boards



**Chairman – Dr. Werner Dahm**  
**Vice Chairman – Dr. Iain Boyd**  
**Military Director – Lt. General Ellen Pawlikowski, USAF**  
**Acting Executive Director – Col Edward Ryan, USAF**

SAB secretariat: 1-877-732-3109  
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This year's SAB is made up of 54 experts among the nation's top civilian scientists and engineers on matters of science and technology relating to the Air Force mission. The group was tasked by the Secretary of the Air Force and Chief of Staff of the Air Force to conduct studies on the cyber vulnerabilities of embedded systems in air and space systems; enhanced utility of unmanned air vehicles in contested and denied environments; and Utility of Quantum Systems for the Air Force.

FY15 Studies:

- Cyber Vulnerabilities of Embedded Systems on Air And Space Systems
- Enhanced Utility of Unmanned Air Vehicles In Contested and Denied Environments
- Utility of Quantum Systems for the Air Force

The studies will be completed by the end of June 2015 and then be briefed to the Secretary of the Air Force, Chief of Staff of the Air Force, and other Air Force senior leadership. The information and recommendations of the SAB will then be used to shape and guide Air Force policy.



## Army Science Board (ASB)

**Chairman – Mr. George Singley**  
**Vice Chairman – Dr. James Tegnolia**  
**Executive Secretary – LtCol Stephen Barker, USA**

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# NRAC

NAVAL RESEARCH ADVISORY COMMITTEE

**Chairman – Vacant**

**Vice Chairman – Vacant**

**Program Director – Mr. William H. Ellis, Jr**

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Email: [nrac\\_office@onr.navy.mil](mailto:nrac_office@onr.navy.mil)

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**STATUS:** Currently Awaiting Membership Approval

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**Chairman – Michael J. Bayer**

**Executive Director – Ms. Marcia Moore, Acting**  
**Deputy Director – Vacant**

Website: <http://dbb.defense.gov/>

Email: [osd.pentagon.odam.mbx.defense-business-board@mail.mil](mailto:osd.pentagon.odam.mbx.defense-business-board@mail.mil)

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2015 Reports: Optimizing DoD's Science and Technology Investments, Transforming DoD Core Business Processes for Revolutionary Change

## ***DSB Secretariat Staff***

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<b>Vacant</b> , Deputy for Operations/Army		
<b>Vacant</b> , Deputy for Operations/Navy		

## ***Upcoming DSB Meeting Dates***

<b>20-21 May 2015</b>	<b>Spring Board Meeting</b>
<b>4-5 November 2015</b>	<b>Fall Board Meeting</b>
<b>24-25 February 2016</b>	<b>Winter Board Meeting</b>
<b>18-19 May 2016</b>	<b>Spring Board Meeting</b>
<b>2-3 November 2016</b>	<b>Fall Board Meeting</b>
<b>15-16 February 2017</b>	<b>Winter Board Meeting</b>
<b>17-18 May 2017</b>	<b>Spring Board Meeting</b>
<b>1-2 November 2017</b>	<b>Fall Board Meeting</b>
<b>7-8 February 2018</b>	<b>Winter Board Meeting</b>
<b>16-17 May 2018</b>	<b>Spring Board Meeting</b>
<b>7-8 November 2018</b>	<b>Fall Board Meeting</b>

## ***Defense Science Board Members and Ex Officio***

### **CHAIRMAN**

Dr. Craig I. Fields, Private Consultant

### **MEMBERS**

Dr. Amy E. Alving, Private Consultant  
Dr. Michael R. Anastasio, Private Consultant  
Dr. Wanda M. Austin, Aerospace Corporation  
Hon. Michael J. Bayer, Dumbarton LLC  
Mr. Frank J. Cappuccio, Private Consultant  
Mr. James F. Carlini, Private Consultant  
Gen Michael P.C. Carns, USAF(Ret) Private Consultant  
Dr. Arup K. Chakraborty, MIT  
Hon. David S.C. Chu, Inst. for Defense Analyses  
Dr. Ruth David, Analytic Services, Inc  
Mr. Christopher W. Day, Private Consultant  
Mr. William P. Delaney, MIT Lincoln Laboratory  
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Dr. Miriam E. John, Private Consultant  
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Hon. Paul G. Kaminski, Technovation  
Dr. Ronald L. Kerber, Private Consultant  
GEN Paul J. Kern, USA (Ret.), Cohen Consulting Group  
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Gen Lester Lyles, USAF (Ret.), Private consultant  
Dr. John L. Manferdelli, Intel Corporation

### **VICE CHAIRMAN**

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Dr. Mark Maybury, MITRE  
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Hon. James N. Miller, Private Consultant  
Mr. Robert F. Nesbit, Private Consultant  
Maj Gen Paul D. Nielsen, PhD (USAF(Ret.)), Software Engineering Institute  
Mr. Michael D. Rich, RAND Corporation  
Hon. William Schneider Jr., International Planning Services Inc.  
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Mr. James D. Shields, Charles Stark Draper Laboratory  
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### **DEPARTING MEMBERS**

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**NON-VOTING MEMBERS**

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Vacant, Defense Business Board  
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Advisory Board  
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Vacant, Naval Research Advisory Committee  
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