

DSB Newsletter

May 2007

Dr. William Schneider, Jr., Chairman

Mr. Vince Vitto, Vice Chairman

Mr. Brian Hughes, Executive Director

Chairman's Corner

This year's summer study, *Challenges to Military Operations in Support of National Interests* is well underway and has recruited a distinguished and motivated membership. The 8 panels have plenty of work to do and are poised to arrive in Irvine ready to make the final push to a great product.

With the ever growing list of active studies we have underway we see the high demand and regard that the Department of Defense has for the products of the Defense Science Board. Only your continued support and contributions will maintain that high regard through the next 50 years.

Dr. William Schneider

DSB MEETING DATES FOR 2007 and 2008

- 6 - 16 August 2007 – Summer Study
- 24 - 25 October 2007 – Fall Quarterly
- 6 - 7 February 2008 – Winter Quarterly
- 21 - 22 May 2008 – Spring Quarterly
- 11 - 22 August 2008 – Summer Study
- 22 - 23 October 2008 – Fall Quarterly

DSB WEBSITE: www.acq.osd.mil/dsb

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

- **Red Lessons Learned** (Chair: Mr. Rich Haver) The Task Force will assess what information our adversaries learn from U.S. military engagements, and particularly, what might they have learned from OIF and OEF. The Task Force is to identify what channels adversaries learn of our capabilities, and if there is evidence an adversary is adjusting to U.S. capabilities. In addition to the operational phase, the Task Force is to assess the preparation and stabilization phase as well. Sponsored by: USD(AT&L), DDR&E. **The report is in draft.**
- **2005 Summer Study on Reducing Vulnerabilities to Weapons of Mass Destruction (WMD)** (Co-Chairs: Mr. Larry Lynn and Mr. Bob Nesbit). The Summer Study is to develop a national enterprise architecture to reduce the US vulnerability to WMD. The Summer Study assessed which WMD modalities are the US most vulnerable to, and the functional "requirements" of envisioned WMD defense capability Sponsored by: USD(AT&L), ATSD(NCB). **A classified report has been completed, an unclassified version is in security review.**
- **Improvised Explosive Devices** (Co-Chairs: The Task Force originated as a panel on the Force Protection Task Force before becoming a separate Task Force. This study is to explore methods and techniques to significantly reduce the effects of IEDs (i.e., injuries, casualties, hampered or disrupted operations) on U.S. and coalition forces in operations such as are currently being conducted in OIF. Sponsored by: USD(AT&L), DDR&E. **A classified report has been completed. An unclassified executive summary is in security review.**
- **VTOL/STOL** (co-chairs: ADM Don Pilling, USN (Ret) and Dr. Bill Howard). The task force is to assess what features and capabilities Vertical Take-Off and Landing (VTOL)/Short Take-Off and Landing (STOL) aircraft should have in order to support the nation's defense needs through at least the first half of the 21st century. Sponsored by: USD(AT&L). **The report is in security review.**
- **Software Assurance** (chair: Dr. Bob Lucky). The task force is to assess the risk the DoD runs as a result of foreign influence on its software and to suggest technology and other measures to mitigate that risk. Sponsored by: USD(AT&L), ASD(NII), STRATCOM. **The report is in peer review.**
- **2006 Summer Study on Information Management for Net-Centric Operations** (co-chairs: Mr. Vince Vitto, Dr. Ron Kerber). This summer study will assess the Department's strategy, scope and progress toward achieving a robust and adaptive Net-Centric DoD Enterprise Sponsored by: USD(AT&L), ASD(NII). **The final report has been released.**
- **Defense Industrial Structure for Transformation** (chair: Dr. Jacques Gansler) As the DoD transforms to meet the new challenges of today's national security environment, the DoD's industrial base will be impacted. This task force will determine the degree of change likely in the industrial base, what plans and policies the Department should develop in response to globalization and the impact of the possible reduction in competition among industrial base competitors. Sponsored by: USD(AT&L), DUSD(IP). **The task force is in progress.**
- **Defense Biometrics Program** (chair: Dr. Joe Markowitz) A task force requested by USD(P) and VCJCS to determine the role of biometrics within the DoD's mission space and to recommend which DoD organization is best suited to advocate and advance biometrics. It will also examine science and technology activities that promote biometric advancement and effective operational support to the warfighter. Sponsored by:

USD(AT&L), USD(P), VCJCS. **The final report has been released.**)

- **DoD Energy Strategy** (co-chairs: Dr. Jim Schlesinger and GEN Mike Carns (USAF, Ret.)) The task force will re-examine DoD's energy usage practices and will recommend technologies, strategies and policy to achieve an assured energy supply for a broad range of military functions while simultaneously improving energy reliability and security. Sponsored by: USD(AT&L), DDR&E. **The task force is in progress.**
- **Nuclear Deterrence Skills** (chair: ADM Henry Chiles (USN, Ret.)) This task force will assess all aspects of nuclear deterrence skills. The study will examine military, federal and contractor attrition at DoD and DoE in these critical skills, assess the progress DoE has made since the Chile Commission report and recommend methods and strategies to maintain a right-sized and experienced work force to ensure viability of the US nuclear deterrent through 2020. Sponsored by: USD(AT&L), ATSD(NCB). **This task force is in progress.**
- **Deployment of the National Guard and Reserves in the Global War on Terrorism** (co-chairs: ADM Don Pilling (USN, Ret.) and GEN Mike Williams (USMC, Ret.)) This task force will study the length and frequency of the deployment of the National Guard and Reserves in the GWOT. It will assess the consequences for force structure and mission capabilities over the course of the GWOT and identify the optimal length and frequency of deployments of National Guards/Reserves during the GWOT. Sponsored by: USD(AT&L), ASD(RA). **This task force is in progress.**
- **Nuclear Weapons Effects Enterprise** (co-chairs: Dr. Mim John and Dr. Joe Braddock) Joint DSB/TRAC task force to define a national enterprise for nuclear weapons effects modeling, simulation, test and evaluation capabilities. Need for an enterprise solution has become important in light of the possibility of key simulator facilities to close due to lack of paying users. The task force will assess current and planned capabilities and recommend an enterprise to support DoD/DoE requirements in the future. Sponsored by: USD(AT&L), ATSD(NCB). **This task force is in progress.**
- **Directed Energy Weapon Systems and Technology Application** (co-chairs GEN Larry Welch (USAF, Ret.) and Dr. Bob Hermann) This task force is looking into the advances in directed energy (DE) applications within DoD. It will identify duplicative efforts, assess DE operational concepts and limitations and recommend an optimal way forward for the DoD to maximize use of resources, capabilities and hardening capabilities. Sponsored by: USD(AT&L), DDR&E, SAF. **This task force is in progress.**
- **2007 Summer Study: Challenges to Military Operations in Support of National Interests** (co-chairs: Dr. Craig Fields and Mr. Rich Haver) The summer study will examine what a future peer challenger will look like and how will they challenge our military operations. It will also look into if we are evolving our capabilities to defeat a peer, near-peer or non-state actor. Sponsored by: USD(AT&L), USD(P). **The summer study is in progress.**
- **Time Critical Conventional Strike from Strategic Standoff** (Dr. Ronald Kerber and Mr. Bob Stein) The task force will examine a set of strategic conventional attack accomplishment routes as described in certain parameters of interest against cost, accuracy and time to respond. It will then make recommendations of development and acquisition strategies as constrained by cost, risk and operational flexibility. Sponsored by: USD(AT&L), USD(I), DDR&E, DUSD(A&T). **This task force is in progress.**
- **IED Phase II** (co-chairs: Dr. Eric Evans and LTG Paul Funk (USA, Ret.)) This follow-on task force to the first IED effort will develop strategic and operational plans and examine the goals, process and substance of those plans. It will also act as an independent sounding board to the JIEDDO by providing feedback at a quarterly interval. Sponsored by: USD(AT&L), JIEDDO. **This task force is in process.**
- **Integrating Sensor-Collected Intelligence** (co-chairs: Mr. John Stenbit and Mr. James Shields) The task force will determine what improvements are needed in tasking, collecting, processing, data storage and fusion, exploitation and the dissemination of information collected by ISR systems.

Sponsored by: USD(AT&L), USD(I), STRATCOM, Joint Staff (J8). **This task force is in progress.**

- **Developmental Test and Evaluation** (chair: Mr. Pete Adolph). The task force will examine the T&E organizational roles and responsibilities, policy and practices in oversight of acquisition programs. It will also recommend improvements in the T&E process to discover suitability problems earlier than they are currently. Sponsored by: USD(AT&L), DUSD(A&T), DOT&E. **This task force is in progress.**

Army Science Board (ASB)

The ASB website is located at :
<https://webportal.saalt.army.mil/main/asb.htm>.

Naval Research Advisory Committee (NRAC)

www.onr.navy.mil/nrac

The Naval Research Advisory Committee continues work through two study panels. These are:

- Biometrics – Panel is focusing on the tactical applications of biometrics technologies. Through the good offices of ONR’s London office, the study panel traveled to the U.K. April 9 to 13 to meet with British counterparts. Panel’s work will continue through the June Summer Study.
- Lightening the Load for the Individual Marine – Study panel has proceeded very rapidly since January start up. Video teleconferences with tactical marines have proven to be exceptionally useful. Panel’s work will continue through the June Summer Study.

Spring meeting was held at the Naval Surface Weapons Center, Panama City, Florida, from February 26 through March 2. The Panel examined ongoing applications of R&D to Navy and Marine Corps littoral combat concepts of operation.

Air Force Scientific Advisory Board (SAB)

The Air Force Scientific Advisory Board (SAB) is

actively engaged in a series of technical and technological studies to help further the nation’s technical dominance of air, space and cyberspace. From 9-12 April 2007, the SAB met at Lackland AFB for its annual Spring Board Meeting. The main purposes for this session included briefings and tours of the Air Intelligence Agency and the Joint Information Operations Warfare Command, as well as meetings relevant to the five ongoing SAB technical studies.

These studies, as directed by the SECAF and CSAF, include:

Implications of Cyber Warfare (Mr. Skip Saunders - Chair; Prof. Alex Levis - Vice Chair) -

Cyber operations can potentially disrupt, delay or deny the Air Force’s ability to accomplish its missions. This study group will perform a risk assessment of likely potential cyber warfare scenarios and determine its impacts to Air Force systems and operations. They will also define technology trends and propose a way ahead for S&T development that could reduce our potential vulnerabilities or mitigate the impact of cyber attack on our systems.

Operational Utility of Small Satellites (Dr. John Brock - Chair; Dr. Michael Yarymowych - Vice Chair) -

National security satellites today are large and heavy, take many years to develop and field operationally, and are very expensive. This study group will identify key capabilities of various satellite types required to support tactical and intelligence missions. They will identify technology gaps and assess technical difficulties modern small satellites may or may not have in satisfying combatant commanders’ needs. They will also develop different objective configurations of small satellites and constellations that could provide the key capabilities that have been identified, and match them to necessary launch capability and capacity. Finally, the study group will assess emerging technologies and architectures that can reduce size and weight, improve performance and define near-term, mid-term, long-term roadmaps.

Use and Sustainment of Composites in Aircraft (Prof. Roger Howe - Chair; Mr. Phil Soucy - Vice Chair) -

Composite materials have found increased use in the design and production of military and civilian aircraft over the past several decades. This study group will assess the state of knowledge on the aging of composite materials for military aircraft. The group will also build upon prior studies by

other organizations and compare and contrast aging issues in composites with sustainment models used for metals.

Thermal Management Technologies (Prof. Werner Dahm - Chair; Mr. Ed Glasgow - Vice Chair) -

Propulsion, power, sensor, and directed energy systems are the major sources of high thermal loads in Air Force vehicles. Heat loads in many vehicle and power systems have increased to the point where heat collection, transport, harvesting and rejection can dominate and/or severely limit system performance. This study group will provide an overview of the thermal management problem in Air Force systems. They will also assess the accomplishments and potential future benefits of programs relevant to improved thermal management in aerospace systems. Finally, the study group will assess potential technology solutions that could be used for improved thermal management in air and space propulsion, power, sensors, and directed energy systems.

Theater Ballistic Missile Threat Assessment (Dr. Doug Beason – Co-Chair; Mr. Tim Bonds – Co-Chair) -

The proliferation of Theater Ballistic Missiles (TBMs) is a growing threat to our fielded forces and coalition partners. This study group will identify current and projected capabilities in TBMs and assess their specific characteristics. They will also identify current and projected gaps in AF capabilities with respect to the detection, tracking, targeting and engaging of TBMs. Finally, the study group will recommend promising technology solutions to deal with the TBM threat, as well as battle damage assessment, that could be deployed in the near-, mid-, and far-term.

All study groups are on track to conclude at the SAB Summer Session at the Beckman Center at Irvine, CA, which will take place from 18-29 June 2007. At the conclusion of the Summer Session, on 28 and 29 June and beyond, each of the studies will be presented to Air Force senior leadership.

For more information on the SAB, please visit our web site at <https://www.sab.hq.af.mil>.

Defense Business Board (DBB)

The Defense Business Board (DBB) deliberated on two Task Groups' findings and recommendations during its April 26, 2007 quarterly meeting. The Task Group on *Supply Chain Management, A Review of Roles and Responsibilities* recommended that enterprise goals

be defined and communicated to drive enterprise alignment of the various initiatives in this arena; that authorities and responsibilities be clearly defined to eliminate duplication and improve hand-offs and efficiencies; and that responsibility and authority be allocated to set direction, design and oversee progress, and to make necessary decisions to carry out DoD's supply chain management strategy and to achieve enterprise goals.

The Task Group on *Executive Compensation Review* recommended a three-dimensional compensation framework for such a review that included: a top-down compensation review (clean slate), a bottom-up compensation review (pay parity), and an appointment requirements review. These reports will be available shortly on the DBB's web site at www.dod.mil/dbb

The DBB's 2007 meeting schedule is as follows: July 11th and October 17th.