



CENTER FOR TECHNOLOGY AND NATIONAL SECURITY POLICY

The Changing Nature of Ballistic Missile Defense

JUNE 2-3, 2009
MARSHALL HALL RM. 155
FT. MCNAIR





The Changing Nature of Ballistic Missile Defense



A Forces Transformation and Resources Seminar
Marshall Hall, Room 155, Fort Lesley J. McNair, Washington, DC 20319
June 2nd & 3rd, 2009

Tuesday, June 2nd

0900-0915 Conference Mission Statement

Dr. Hans Binnendijk, Director, Center for Technology and National Security Policy, NDU

0915-1015 Towards a MAD-less World: The Offense/Defense Equation Revisited

Theme: Can the U.S. maintain deterrence with BMD systems and a low cap on offensive systems? How would shrinking nuclear stockpiles affect U.S. deterrence strategy? In a world of fewer nuclear missiles, would BMD systems act as a stabilizing or destabilizing influence? What policies could the DoD adopt which would mitigate any potentially negative effects?

Dr. R. Joseph DeSutter, Director, School for National Security Executive Education, NDU

Mr. Bruce W. MacDonald, Senior Director, Congressional Commission on the Strategic Posture of the United States, United States Institute of Peace

1015-1030 Break

1030-1145 Changing Nature of the Threats

Theme: To what degree should BMD be pegged to specific threats? How do these rank in the queue of probable dangers to U.S. security? What is the timeline for potential hazard, and how should BMD development be staggered for maximum cost-effectiveness? How can policy-makers calculate acceptable margins of error?

Dr. Robert P. Haffa, Jr., Director, Northrop Grumman Analysis Center

Mr. Steven Hildreth, Specialist in Missile Defense and Non-Proliferation, Congressional Research Service, Library of Congress

1145-1245 Lunch

1245-1330 Keynote Speaker: Strategic Assessment

Theme: Overview of the state of BMD development; time horizons, technical risks, and the role of BMD as a potential instrument of national power. What is the proper mix of systems? How will evolving capabilities affect the political landscape? How will it be affected by these considerations, domestically and internationally?

LTG Patrick O'Reilly, Director, Missile Defense Agency

- 1330-1430 Layered Defense: Boost Phase, Mid-Course, Terminal**
Theme: Participants will assess the maturity of each development path. What problems are associated with each kind of interception? What are the trade-offs for development capital? What consequences does each technology have for force structure? Are there assumptions about deploying these systems (domestically and internationally) which should be challenged?
Ambassador Henry F. Cooper, Former Director, Strategic Defense Initiative
Lieutenant General Trey Obering, Former Director, Missile Defense Agency
- 1430-1445 Break**
- 1445-1545 Lessons of BMD Testing and the Way Ahead**
Theme: Discussion of a comprehensive review of MDA testing and five year development plan.
Major General Chris T. Anzalone (USAF), Director of Test, Missile Defense Agency
- 1545- 1645 Testing Timelines and Cost Effectiveness**
Theme: Specific examination of the technical feasibility of separate systems, especially against probable defensive measures. Has testing been rigorous enough? Which system holds the greatest promise over the short, medium, and long-term? How should the DoD anticipate development and procurement cycles? What budgetary constraints will affect outcomes?
Dr. Richard L. Garwin, IBM Fellow Emeritus, IBM Research Division, Thomas J. Watson Research Center
The Honorable Philip E. Coyle, Senior Advisor, World Security Institute
- 1645-1700 Closing Remarks**
Dr. James M. Keagle, Director, Transforming National Security Seminar Series
Center for Technology and National Security Policy, NDU

- 0830-0845** **Welcome and Introductory Remarks**
Dr. James M. Keagle, Director, Transforming National Security Seminar Series Center for Technology and National Security Policy, NDU
- 0845-0930** **Enduring Issues of BMD Development**
Theme: The section examines the lessons of past BMD programs, identifying key themes and longstanding issues related to their development and potential deployment.
The Honorable Jacques S. Gansler, Professor and Roger C. Lipitz Chair, Center for Public Policy and Private Enterprise, School of Public Policy, University of Maryland
- 0930-0935** **Break**
- 0935-1100** **Defending the United States**
Theme: What is the current operational state of NMD? How do these systems fit in with the broader U.S. strategy of defending the homeland?
Dr. Robert M. Soofer, Strategic Forces Policy Advisor to Senators Kyl, Sessions, and Inhofe
Dr. Keith B. Payne, President, National Institute for Public Policy Head, Graduate Department of Defense and Strategic Studies, Missouri State University
Dr. Peter L. Hays, Associate Director, Eisenhower Center for Space and Defense Studies
Mr. Larry Burger, Director, Space and Missile Defense Future Warfare Center, US Army Space and Missile Defense Command/Armed Forces Strategic Command
- 1100-1115** **Break**
- 1115-1215** **Europe, 3rd Site Issues, and Iran**
Theme: Discussions will examine U.S. and European points of view. Can American BMD development be used to enhance other security arrangements? Are there specific U.S. actions that would serve to alleviate international concerns over the deployment of these systems? What special considerations should the U.S. weigh before seeking to improve its BMD air, sea, space, and land infrastructure?
Ms. Anita Friedt, Acting DAS for the Bureau of European and Eurasian Affairs
Mr. Jaroslav Kurfurst, Minister Counselor, Embassy of the Czech Republic
Ambassador Victoria Nuland, Former Permanent Representative to NATO, 2005-2008
- 1215-1315** **Lunch**
- 1315-1430** **Russia: Cooperation and Arms Control?**
Theme: How does the development of BMD affect ongoing relations with Russia and its neighbors? What is the likelihood Russia and the U.S. will agree on cooperative security arrangements, such as placing radar sites in Azerbaijan? How should these relations be viewed in the context of arms control negotiations? What role will Israel play with systems like the Arrow, Patriot, THAD, and SM-3?
Dr. Barry M. Blechman, Co-Founder, Henry L. Stimson Center
Mr. Vasily Boryak, Counsellor, Head of Political-Military Desk, Embassy of the Russian Federation
Mr. Baker Spring, F.M. Kirby Research Fellow, Heritage Foundation

1430-1445 **Break**

1445-1600 **BMD and the Asian Challenges**

Theme: This section will examine how BMD will influence the strategic balance throughout Asia. Is China's nuclear strategy likely to change as the U.S. deploys more of these systems? How will the DPRK alter its military and political posture? What role will Japan play over time?

Ms. Elaine Bunn, Distinguished Research Fellow, Director of Future Strategic Concepts Program, Institute for National Strategic Studies, NDU

Mr. Peter Huessy, President, GeoStrategic Analysis

Dr. David Wright, Senior Scientist, Union of Concerned Scientists

1600-1615 **Closing Remarks**

Dr. James M. Keagle, Director, Transforming National Security Seminar Series Center for Technology and National Security Policy, NDU



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Major General Chris Anzalone

Maj. Gen. Chris T. Anzalone is Director of Test, Missile Defense Agency, Huntsville, Ala. He is responsible for planning, programming, budgeting, managing and executing a comprehensive test, assessment and fielding program that characterizes the Ballistic Missile Defense capability and supports credible decisions with respect to the Ballistic Missile Defense System. General Anzalone received his commission through the ROTC program at Florida Technical University, Orlando. A distinguished graduate of undergraduate navigator training, he has served as an F-111F weapon systems officer as well as test and tactics development chief for the EF-111A tactical jamming system. His commands include a flying squadron, mission support group and an air base wing. He conducted joint war planning for contingency operations supporting the Global War on Terrorism while serving on the Joint Staff. The general was the joint planner for the Directorate for Operational Plans and Interoperability, Assistant Deputy Director of Political-Military Affairs for the Western Hemisphere, and the executive officer to the Director, Strategic Plans and Policy. The general has served as Vice Commander of the Air Armament Center and Warner Robins Air Logistics Center.

Dr. Hans Binnendijk

Hans Binnendijk is currently the Theodore Roosevelt Chair in National Security Policy and Founding Director of the Center for Technology and National Security Policy at the National Defense University. He previously served on the National Security Council as Special Assistant to the President and Senior Director for Defense Policy and Arms Control (1999-2001). From 1994 to 1999, Dr. Binnendijk was Director of the Institute for National Strategic Studies at the National Defense University. For the previous eleven years, he had served as the Principal Deputy Director and Acting Director of the State Department's Policy Planning Staff (1993-1994). He has also served as Deputy Staff Director and Legislative Director of the Senate Foreign Relations Committee (1980-1985). Dr. Binnendijk has received numerous awards for his government service, including two Distinguished Public Service Awards and a Superior Service Award. He is also an experienced academician. Dr. Binnendijk has served as Director of the Institute for the Study of Diplomacy at Georgetown University, where he was also the Marshall B. Coyne Research Professor at the Edmund A. Walsh School of Foreign Service (1991-1993). He was Deputy Director and Director of Studies at London's International Institute for Strategic Studies and Editor of *Survival* from 1988-1991. He is author or co-author of more than 100 articles, editorials and reports. His most recent book is *Seeing the Elephant: The U.S. Role in Global Security* (Potomac Books: 2006). Dr. Binnendijk is a 1968 graduate of the University of Pennsylvania. He received his M.A.L.D. and his Ph.D. in international relations from the Fletcher School of Law and Diplomacy, Tufts University.



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Dr. Barry Blechman

Barry M. Blechman has specialized in international security issues throughout his career, spanning more than 40 years in both the public and private sectors. His government service includes stints at the Department of Defense, the Office of Management and Budget, and the Department of State, where he served as assistant director of the US Arms Control and Disarmament Agency from 1977 to 1980. He founded DFI International Inc., a research and consulting firm, in 1984 and remained its CEO until retiring in 2007. He co-founded the Stimson Center in 1989 and served as its chairman until 2007, as well. Blechman received a BA From Queens College in 1963, an MA From New York University in 1964, and a PhD from Georgetown University in 1971. He has taught at several universities and published more than 100 books, articles, and reports.

Mr. Vasily Boryak

Mr. Vasily Boryak currently directs the Political-Military desk at the Russian Embassy in Washington, D.C. Prior to his current position, which began in 2008, Counsellor Boryak served for three years as the Head of the Strategic-Military Desk, Security and Disarmament Department, MFA, Moscow, and was the Russian Representative to JCIC (Commission under START). From 1999-2003, he worked as Counsellor, Political-military, Russian Embassy, Washington DC, for his first of two tours in the area. Mr. Boryak brought with him more than six years of political experience at the Political-military Desk, North America Department, MFA, Moscow.

Ms. M. Elaine Bunn

Elaine Bunn is a senior fellow at National Defense University's Institute for National Strategic Studies, where she is director of the Future Strategic Concepts Program. Before joining INSS in 2000, she was a senior executive in the Office of the Secretary of Defense, where she worked for twenty years in international security policy. She served as Principal Director, Nuclear Forces and Missile Defense Policy, from 1993-98. During that time, she was executive director of the 1994 Nuclear Posture Review. She was a visiting fellow at the RAND Corporation, 1998-2000; from February through June 2001, she co-chaired a panel for the Secretary of Defense, framing issues for the 2001 Nuclear Posture Review. A 1988 graduate of the National War College, she received an M.A. in International Security from Johns Hopkins School of Advanced International Studies and a B.A. from the University of Georgia, and was a Fulbright scholar at l'Université de Neuchâtel, Switzerland. Her publications include a number of articles and book chapters on strategic planning, nuclear policy, missile defense, preemption and deterrence.

Mr. Laurence Burger

Laurence (Larry) H. Burger, a member of the Senior Executive Service, is the Director of



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the U.S. Army Space and Missile Defense Command's (SMDC) Future Warfare Center. He outlines the general program policy to support the Future Warfare Center's primary roles in bringing space and missile defense capabilities and concepts to the warfighter through experimentation, requirements development, operational analyses, modeling and simulation, high performance computing, and systems engineering. Included in the Future Warfare Center are the Space and Missile Defense Battle Lab, the Directorate for Combat Development, and the Simulations and Analysis Directorate.

Ambassador Henry "Hank" Cooper

Henry F. Cooper, who holds BS and MS degrees from Clemson University and a PhD from New York University, taught Engineering Mechanics at Clemson and, during the next 20 years—at Bell Telephone Laboratories, the Air Force Weapons Laboratory and R&D Associates, became a nationally recognized expert on nuclear weapons effects, strategic systems survivability and vulnerability matters, and national security policy issues. He designed and/or provided technical direction for numerous underground nuclear tests and major programs to develop and apply both theoretical and experimental methods to simulate nuclear weapons effects. He has been a member or chair of numerous technical working groups and high level advisory boards—including the Defense Science Board, the Air Force Scientific Advisory Board, U.S. Strategic Command's Strategic Advisory Group, the Defense Nuclear Agency's Scientific Advisory Group on Effects, and a Congressional Commission to assess the U.S. government's organization and programs to combat the proliferation of weapons of mass destruction. Since 1979, he has been appointed by the President to serve in the Office of the Secretary of the Air Force with oversight responsibility for Air Force strategic and space systems; Assistant Director of the Arms Control and Disarmament Agency, backstopping all bilateral negotiations with the Soviet Union; Ambassador and Chief U.S. Negotiator at the Geneva Defense and Space Talks with the Soviet Union; and Director of the Strategic Defense Initiative (SDI). During a brief period in 1990, he returned to the private sector as a JAYCOR Senior Vice President, where he led a Presidentially mandated independent review of the SDI program and associated national and arms control policy. Since leaving SDI in 1993, he has been a private consultant, Chairman of the Boards of Applied Research Associates and High Frontier, Senior Associate of the National Institute for National Policy and Visiting Fellow at the Heritage Foundation.

The Honorable Philip Coyle

Philip Coyle is a Senior Advisor to the President of the World Security Institute, and to its Center for Defense Information, a Washington D.C.-based national security study center. He is a recognized expert on U.S. and worldwide military research, development and testing, on operational military matters, and on national security policy and defense



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spending. In 2005 and 2006, Philip Coyle served on the nine-member Defense Base Realignment and Closure Commission, appointed by President George W. Bush and nominated by House Democratic Leader, Nancy Pelosi. From 1994 to 2001, Mr. Coyle was Assistant Secretary of Defense and Director, Operational Test and Evaluation, in the Department of Defense, and is the longest serving Director in the 25 year history of the Office. In this capacity, he was the principal advisor to the Secretary of Defense on test and evaluation in the DoD.

Dr. R. DeSutter

National Defense University selected Joe DeSutter in July 2001 to direct its School for National Security Executive Education. He retired as a Colonel in the U.S. Air Force in 1994 after spending seven years in various national security policy-related positions in the White House. In the interim, he directed an international non-profit organization related to the Middle East and served as a self-employed consultant to the Defense Department on ballistic missile defense, the ABM Treaty, proliferation of weapons of mass destruction, U.S. space policy, and the evolution of U.S. national security policy since World War II. Dr. DeSutter was an Associate Professor at the U.S. Air Force Academy from 1977 to 1979, and Director of American Politics for the Academy's Department of Political Science from 1982 to 1985. He served as an advisor to the Air Force leadership on the Air Staff's Arms Control and International Negotiations Division until the end of 1986. He was assigned to the office of President Reagan's Science Advisor in 1986, where he became Executive Director of both the Office of Science and Technology Policy and the White House Science Council. When the Reagan Administration left office in 1989, he joined Vice President Quayle's national security staff, where he bore responsibility for a broad variety of regional and operational issues. Dr. DeSutter is a graduate of St. Louis University, with Masters Degrees from Texas Tech University and the University of Southern California, and a Ph.D. in International Relations from the latter. He has published articles on a variety of national security policy topics.

Anita Friedt

Anita E. Friedt is the Director of the Office of Policy and Regional Affairs of the Bureau of European and Eurasian Affairs at the Department of State. She is currently serving as Acting Deputy Assistant Secretary in the Bureau of European and Eurasian Affairs. Her office focuses on nonproliferation, arms control and security assistance issues for the countries of Europe and Eurasia. Anita has had enjoyed an almost 30-year career at the Department of State, during which she has focused on European foreign policy issues with an emphasis on the Soviet Union and Russia. She also worked as an analyst in the State Department's Bureau of Intelligence and Research, following Soviet/Russian and European issues, and served two tours at the U.S. Embassy in Moscow, from 1989-1992 and again



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from 1997-1999. Anita also serves as the co-chairman of the NATO Missile Defense Executive Working Group/Reinforced. She has a Masters degree from Georgetown University, and speaks German and Russian.

The Honorable Jacques Gansler

The Honorable Jacques S. Gansler is a Professor and holds the Roger C. Lipitz Chair in Public Policy and Private Enterprise in the School of Public Policy, and is the Director of both the Center for Public Policy and Private Enterprise and the Sloan Biotechnology Industry Center. Additionally, he is the Glenn L. Martin Institute Fellow of Engineering at the A. James Clarke School of Engineering, an Affiliate Faculty member at the Robert H. Smith School of Business and a Senior Fellow at the James MacGregor Burns Academy of Leadership (all at the University of Maryland). He also served as Interim Dean of the School of Public Policy from 2003 to 2004, and as the Vice President for Research for the University of Maryland from 2004-2006. He is a Member of the National Academy of Engineering and a Fellow of the National Academy of Public Administration. He currently is chairing three National Academy Committees (one on the “Small Business Innovation Research Program”; one on “Science and Security”; and one on “Special Forces”). Gansler recently served as the Chair of the Secretary of the Army’s “Commission on Contracting and Program Management for Army Expeditionary Forces.” He is also the National Academy of Engineering’s representative on the Academies’ Standing Committee on Science, Engineering and Public Policy; and he currently Chairs a Defense Science Board Task Force on the 21st Century Defense Industry. Previously, Dr. Gansler served as the Under Secretary of Defense for Acquisition, Technology and Logistics from November 1997 until January 2001. In this position, he was responsible for all matters relating to Department of Defense acquisition, research and development, logistics, acquisition reform, advanced technology, international programs, environmental security, nuclear, chemical, and biological programs, and the defense technology and industrial base. (He had an annual budget of over \$180 Billion, and a workforce of over 300,000.) Prior to this appointment, Dr. Gansler was Executive Vice President and Corporate Director for TASC, Incorporated, an applied information technology company, in Arlington, Virginia (from 1977 to 1997) during which time he played a major role in building the company from a small operation into a large, widely-recognized and greatly-respected corporation, serving both the government and the private sector. From 1972 to 1977, he served in the government as Deputy Assistant Secretary of Defense (Materiel Acquisition), responsible for all defense procurements and the defense industry; and as Assistant Director of Defense Research and Engineering (Electronics) responsible for all defense electronics Research and Development. His prior industrial experience included: Vice President (Business Development), I.T.T. (1970-1972); Program Management, Director of Advanced Programs, and Director of International Marketing, Singer Corporation (1962-1970); and Engineering



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Management, Raytheon Corporation (1956-1962). Dr. Gansler serves (and has served) on numerous Corporation Boards of Directors, and governmental special committees and advisory boards. He has been Vice Chairman, Defense Science Board and member for 10 years; Chairman, Board of Visitors, Defense Acquisition University; Director, Procurement Round Table; Chairman, Industry Advisory Board, University of Virginia, School of Engineering; Chairman, Board of Visitors, University of Maryland, School of Public Policy; member of the FAA Blue Ribbon Panel on Acquisition Reform; member of the Federal Emergency Management Agency (FEMA) Advisory Board (10 years); and senior consultant to the "Packard Commission" on Defense Acquisition Reform. Additionally, from 1984 to 1997, Dr. Gansler was a Visiting Scholar at the Kennedy School of Government, Harvard University where he was a frequent guest lecturer in Executive Management courses. He is the author of 3 books, a contributing author of 25 other books, author of over 100 papers, and a frequent speaker and Congressional witness. Dr. Gansler holds a BE in Electrical Engineering from Yale University, a MS in Electrical Engineering from Northeastern University, a MA in Political Economy from the New School for Social Research, and a Ph.D. in Economics from American University.

Dr. Richard Garwin

Richard L. Garwin is IBM Fellow Emeritus at the IBM Thomas J. Watson Research Center Yorktown Heights. His biography and many current and past papers, speeches and Congressional testimony are to be found via www.garwin.us. He has had long experience working with the US government on technology and policy of nuclear weapons, strategic offensive and defensive weapons, and space systems. He is a physicist and is a member of the National Academies of Sciences, and of Engineering. He has been awarded the National Medal of Science, the Enrico Fermi Award by the President and the Secretary of Energy, and the R.V. Jones Award for Scientific Intelligence. He was named by the National Reconnaissance Office one of the 10 Founders of National Reconnaissance.

Dr. Robert Haffa, Jr.

Dr. Haffa is the Director of the Northrop Grumman Analysis Center, having joined Northrop after retiring from the U.S. Air Force as a Colonel. His Air Force career included operational tours in the F-4 aircraft in Vietnam, the United Kingdom and Korea, two tours teaching political science at the U.S. Air Force Academy where ultimately he served as Professor and Acting Department Head, and a tour with the Air Staff in the Pentagon as Chief of the Long Range Planning Division and Director of the Operations Group supporting the Air Force Chief of Staff. Since joining Northrop Grumman, Dr. Haffa's work has included analyses of U.S. military strategy, force planning, programming, and wargaming for the business sectors of the company, as well as the development of corporate strategic planning scenarios. Dr. Haffa holds a B.S. in international affairs from the U.S. Air



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Force Academy, an M.A. in government from Georgetown University, and a Ph.D. in political science from the Massachusetts Institute of Technology. He is an adjunct professor in the Security Studies Program at the Johns Hopkins University.

Dr. Peter Hays

Peter L. Hays is a retired Air Force Lieutenant Colonel who has been analyzing national security space issues for more than 20 years and wrote a dissertation on the evolution of U.S. Military Space Doctrine during the Cold War. Since September 2004, he has served as a Senior Scientist with Science Applications International Corporation supporting the Policy and Strategy division of the National Security Space Office in the Pentagon, an Associate Director for the Eisenhower Center for Space and Defense Studies at the USAF Academy, and an Associate Visiting Professor with the Space Policy Institute at George Washington University. He has assisted in the development of products such as the Space Posture Review, 05 Quadrennial Defense Review, National Security Space Strategy, Space Situational Awareness Strategy and Roadmap, National Defense University Spacepower Theory Study, and National Military Strategy for Space. He holds a Ph.D. from the Fletcher School of Law and Diplomacy, an M.A. from the University of Southern California, and was a 1979 honor graduate of the USAF Academy. During his Air Force career he served internships at the White House Office of Science and Technology Policy and National Space Council and taught space policy courses at the USAF Academy, School of Advanced Airpower Studies, and National Defense University. He currently teaches the Space and National Security seminar at George Washington University. Major publications include: *Spacepower for a New Millennium* (McGraw-Hill, 2000), “Going Boldly—Where?” (*Aerospace Power Journal*, Spring 2001); and *United States Military Space* (Air University Press, 2002).

Mr. Steven Hildreth

Mr. Steven Hildreth has been Specialist in Missile Defense and Non-Proliferation at the Congressional Research Service (CRS) since 1985. Mr. Hildreth received his B.A. in International Relations and Political Science from Brigham Young University, M.A. in National Security Studies, Georgetown University and M.Sci. in National Security Strategy, The National War College. He has published several books on international security issues, including *Modern Weapons and Third World Powers* (with Dr. Rodney Jones). He has also published extensively on missile defense and other national security issues in a number of journals, as well as authored scores of reports to Congress. Mr. Hildreth has testified a number of times before the U.S. Congress, including Patriot performance in Desert Storm, missile proliferation, and more recently on technical challenges to ICBM development in developing countries. He headed his agency's support of the Joint Congressional Committee Investigating the Attacks of 9/11.



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Mr. Peter Huessy

Peter R. Huessy. Since 1981, Mr. Huessy has been President of GeoStrategic Analysis, a Maryland defense policy consulting company and since 1992 Senior Defense Consultant, NDU. He specializes in the following policy areas: strategic nuclear, missile defense, counter terrorism, space, energy, port/maritime and homeland security. He is also a featured writer for Family Security Matters, Frontiers of Freedom, Human Events and Washington Times. He regularly appears on Homeland Security radio hosted by Colonel Randy Larsen. He has also a consultant to the office of the Secretary of the USAF for the past 28 years. He has been a guest lecturer at the Joint Military Intelligence College and the US War College, as well as the Institute for World Politics and Johns Hopkins School of Advanced International Studies. He is a member of the Committee on the Present Danger and the Defense Secretary's Energy Task Force. He regularly speaks on nuclear terrorism issues.

Dr. James Keagle

Dr. James M. Keagle is the Director of the Transforming National Security seminar series at the Center for Technology and National Security Policy at the National Defense University. Prior to this position, Dr. Keagle was the National Defense University's Provost (effective 2004) and Vice President for Academic Affairs. Prior to these positions, he served as a professor of National Security Strategy at NDU. In that role Dr. Keagle worked as a research faculty member assisting with NDU's modeling and simulation and work with interagency education and training. Accepting an appointment to the U.S. Air Force Academy, he graduated second academically in his class in June 1974. Following graduation, he went to the University of Pittsburgh to complete his Master's of Arts degree in political science and earned a graduate certificate in Latin American studies. After a tour as a munitions maintenance officer, Dr. Keagle went on to become an assistant professor of political science at the U.S. Air Force Academy. In 1980, he went on to Princeton University where he completed both a Master's of Arts degree and Ph.D. in politics. He proudly notes his honorary Ph.D from the Military Technical Academy of Romania--the only United States citizen so honored. Following his extensive education, Dr. Keagle's next six tours were political-military assignment that included direct access and interaction with Cabinet-level government officials on national security related matters. These assignments included work for two Combatant Commanders as a senior strategist; for the Office of Secretary of Defense pertaining to Cuba; Deputy Director, Office of the Secretary of Defense Bosnian Task Force; and for the Deputy Under Secretary of the Air Force in International Affairs as Senior Strategist. Military medals include the Defense Superior Service Award, the Legion of Merit, and the Purple Heart. Since leaving military service, Dr. Keagle has held the position of adjunct professor at a number of institutions to include: Syracuse University, American University, Central Michigan University, Catholic University, University of Colorado, and Lake Superior State College. He also holds an honorary professorships with Transilvania



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University in Brasov, Romania, as well as the Mongolian Defense University--again, the only American so honored . Dr. Keagle and wife Kay are the proud parents of three children.

Mr. Jaroslav Kurfurst

Mr. Jaroslav Kurfurst joined the Ministry of Foreign Affairs of the Czech Republic in October 1997. After finishing Diplomatic Academy program, he was assigned to the Security Policy Department, NATO unit. Between August 1999 and September 2003, Mr. Kurfurst was posted to the Czech Embassy in Moscow, where he was responsible for the agenda of foreign and security policy of the Russian Federation. In November 2003 Mr. Kurfurst was appointed deputy Director of the Security Policy Department and since August 2004 Director of the Security Policy Department of the Ministry of Foreign Affairs of the Czech Republic. In July 2005 he assumed the current position of Deputy Chief of Mission of the Czech Embassy in Washington, DC. Mr. Kurfurst was born in Valašské Meziříčí in 1970. He finished his studies at University of Ostrava (geography) in 1993 and University of Eastern Bohemia (french language) in 1996. From 1993 to 1996 he worked as a teacher in grammarschool and in 1997 as an assistant at the University of Eastern Bohemia. He is fluent in English, French and Russian. Mr. Kurfurst and his wife Radka have two sons and live in Hradec Králové.

Mr. Bruce MacDonald

Mr. MacDonald is an independent contractor serving as Senior Director to the U.S. Strategic Posture Review Commission, a bipartisan body headed by former Defense Secretaries William Perry and James Schlesinger. He was project leader for the Council on Foreign Relations' study of China, Space Weapons, and U.S. Security, which the Council published in 2008. He was Assistant Director for National Security at the White House Office of Science and Technology Policy from 1995-1999 and previously was a professional staff member at the House Armed Services Committee, where he worked on Air Force acquisition, space, and missile defense issues, and earlier was senior national security adviser to Senator Dale Bumpers of Arkansas. He worked at the State Department in the Bureau of Politico-Military Affairs, where he served on and chaired the Interagency START Policy Working Group and served on the U.S. START delegation in Geneva. He started his career as a staff scientist at a consulting firm where he supported the OSD SALT Task Force and worked on advanced missile defense concepts. Mr. MacDonald graduated with honors in aerospace engineering from Princeton University and received two masters degrees from Princeton, one in aerospace engineering with a specialty in rocket propulsion, and the second in public and international affairs from the Woodrow Wilson School. Mr. MacDonald is a member of the Council on Foreign Relations and the American Institute of Aeronautics and Astronautics.



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Ambassador Victoria Nuland

Victoria Nuland was the 18th United States permanent representative to NATO from 2005 to 2008. She worked on the full range of transatlantic security issues, including operations in Afghanistan and Kosovo, NATO enlargement, cyber security, and missile defenses. In August, she will become senior faculty advisor at the National Defense University in Washington. A career foreign service officer, she was principal deputy national security advisor to Vice President Cheney and worked on the promotion of democracy and security in Iraq, Afghanistan, Ukraine, Lebanon, and the Middle East, among other issues. She has also served as deputy permanent representative to NATO in Brussels and as deputy director for former Soviet Union affairs at the Department of State.

Lieutenant General Trey Obering

Lt. Gen. (retired) Henry A. "Trey" Obering III served as Director of the Missile Defense Agency, Office of the Secretary of Defense, Washington, D.C., from July 2004 until his retirement on January 1, 2009. As Director, General Obering was the Program Manager for the Ballistic Missile Defense System and the Acquisition Executive for all ballistic missile defense programs within the Department of Defense. General Obering, a native of Birmingham, Ala., entered the Air Force in 1973 after graduating cum laude in aerospace engineering from the University of Notre Dame and its ROTC program. After receiving his pilot's wings in 1975, he flew operational assignments in the F-4E. After earning a master's degree in aeronautical engineering from Stanford University in 1980, he was assigned to the Space Shuttle program participating in 15 space shuttle launches as a NASA orbiter project engineer responsible for integrating firing room launch operations. Prior to his assignment at MDA, the general planned and programmed 68 joint, Air Force and international programs with a \$28 billion budget on the Air Staff. General Obering also is a distinguished graduate of the Squadron Officer School and Air Command and Staff College at Maxwell Air Force Base, and a distinguished graduate of the Industrial College of the Armed Forces at Fort McNair.

LTG Patrick O'Reilly

Lieutenant General Patrick J. O'Reilly is the Director for the Missile Defense Agency (MDA), Office of the Secretary of Defense, Pentagon, Washington, DC. In this capacity, he oversees MDA's worldwide mission to develop a capability to defend deployed forces, the United States, Allies, and friends against ballistic missile attacks. During his career, he served in both command and staff officer positions in a variety of operational units including the 1st Cavalry Division, the 3rd Support Command, Germany, and as an Assistant Professor of Physics at the United States Military Academy. As an Acquisition Officer, he served as Program Manager for Directed Energy Programs, PATRIOT PAC-3 Missile, Terminal High Altitude Area Defense (THAAD) Missile System, Ground-based



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Midcourse Defense (GMD) Program, and as the Army Program Executive Officer for Combat Support and Combat Service Support. Lieutenant General O'Reilly is a graduate of the U.S. Military Academy and has Masters Degrees in Physics, National Security and Strategic Studies, and Business. Lieutenant General O'Reilly is a graduate of the U.S. Army Command and Staff College, the U.S. Naval College of Command and Staff, and the U.S. Army War College.

Dr. Keith Payne

Keith Payne is President and co-founder of the National Institute for Public Policy, a nonprofit research center located in Fairfax, Virginia. At National Institute, he directs and participates in studies on U.S. strategic policy and force posture issues, arms control, BMD, and Russian foreign policy. Dr. Payne also is Head of the Graduate Department of Defense and Strategic Studies, Missouri State University (Washington Campus), and was awarded the Vicennial Medal for his years of teaching at Georgetown University. On leave from National Institute in 2002 and 2003, Dr. Payne served in the Department of Defense as the Deputy Assistant Secretary of Defense for Forces Policy. He received the Distinguished Public Service Medal from Secretary of Defense Rumsfeld, and the Forces Policy office Dr. Payne led received a Joint Meritorious Unit Award. In this position, Dr. Payne was the head of U.S. delegation in numerous allied consultations and in "Working Group Two" negotiations on BMD cooperation with the Russian Federation. Dr. Payne is the editor-in-chief of *Comparative Strategy: An International Journal*, Chairman of the Strategic Command's Senior Advisory Group Policy Panel, co-chair of the U.S. Nuclear Strategy Forum, and a member of the State Department's International Security Advisory Board. He has served as a participant or leader of numerous governmental and private studies, including White House studies of U.S.-Russian cooperation, Defense Department studies of missile defense, arms control, and proliferation, and as co-chairman of the Department of Defense's Deterrence Concepts Advisory Group. He also has served as a consultant to the White House Office of Science and Technology Policy, and the Arms Control and Disarmament Agency, and participated in the 1998 "Rumsfeld Study" of missile proliferation. Dr. Payne testifies frequently before Congressional Committees, and has lectured on defense and foreign policy issues at numerous colleges and universities in North America, Europe, and Asia. He is the author, co-author, or editor of over ninety published articles and sixteen books and monographs. His forthcoming book is entitled, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-First Century* (National Institute Press®, July 2008). Dr Payne's articles have appeared in major U.S., European and Japanese professional journals, including, *Foreign Affairs*, *Foreign Policy*, *Orbis*, *Europäische Sicherheit*, *Policy Review*, *Strategic Review*, *Washington Quarterly*, *Jane's Intelligence Review*, *Militare Spectator*, *Air University Review*, *Comparative Strategy*, *Air Force Magazine*, *Issues In Science and Technology*, *Military*



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Review, Parameters, Harper's, The Wall Street Journal, The Christian Science Monitor, and USA Today. Dr. Payne received an A.B. (honors) in political science from the University of California at Berkeley in 1976, studied in Heidelberg, Germany, and in 1981 received a Ph.D. (with distinction) in international relations from the University of Southern California.

Dr. Robert Soofer

Rob Soofer advises Republican Senators Kyl, Sessions, and Inhofe on strategic forces and arms control issues. He supports Senator Kyl in his role as Assistant Minority Leader and Senator Sessions as Ranking Member of the Strategic Forces Subcommittee of the Senate Armed Services Committee. From October 2004 to January 2009, Rob served as Professional Staff lead for the Subcommittee on Strategic Forces, with oversight responsibility for missile defense, strategic forces, military space programs, and U.S. Strategic Command. During the year prior to joining the committee, he was called to active duty as a Lieutenant Commander in the Naval Reserve and assigned to the newly created Terrorist Threat Integration Center (TTIC). Executive branch experience includes serving as Deputy Director in the Office of Missile Defense Policy (Office of the Under Secretary of Defense for Policy), Professor of National Security Policy at the National War College, and with the Strategic Defense Initiative Organization, now known as the Missile Defense Agency. Rob received his Doctorate in International Relations from the University of Southern California (1987) and is a graduate of the National War College (1994).

Mr. Baker Spring

Baker Spring is the F.M. Kirby Research Fellow in National Security Policy at The Heritage Foundation. Spring specializes in examining the threat of ballistic missiles from Third World countries and U.S. national security issues. In 2005, he developed "Nuclear Games," a table-top exercise to show diplomats from Australia, China, India, Japan, Russia and South Korea the realities in a world where many nations, including rogue states such as North Korea, have nuclear weapons. He served as a defense and foreign policy expert for Sens. Paula Hawkins (R-FL) and David Karnes (R-NE). He joined Heritage in 1989. A graduate of Washington and Lee University, Spring received his master's degree in national security studies from Georgetown University.

Dr. David Wright

David Wright is a senior scientist and co-director of the Global Security Program at the Union of Concerned Scientists (UCS). He is an established expert on the technical aspects of arms control, particularly those related to missile defense systems, missile proliferation, and space weapons. He has testified before Congress on arms-control issues and is a frequently quoted source in the New York Times and on NPR. Dr. Wright has worked for a number of years on projects to help train technical arms control experts in other countries,



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especially Russia and China. Prior to joining UCS in 1992, Dr. Wright was a senior research analyst with the Federation of American Scientists and served as an SSRC-MacArthur Fellow in the Center for Science and International Affairs at Harvard's Kennedy School of Government. He received his Ph.D. in physics from Cornell University and worked as a research physicist from 1983 to 1988. He is also currently a research affiliate in the Program on Science, Technology, and Society at MIT. Dr. Wright has authored numerous articles and reports on arms control and international security. He is a co-author of the UCS/MIT Countermeasures report and The Physics of Space Security. Since 1990 he has been a primary organizer of the International Summer Symposia on Science and World Affairs. These annual meetings help create an international community of scientists working on arms control and security issues. Dr. Wright was a co-recipient of the American Physical Society's 2001 Joseph A. Burton Forum Award for his arms control research and his work with international scientists.