

Dave Sonntag, Lt Col, USAF (Ret)

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Education

- PhD. **Environmental Health (Toxicology)**, University of Cincinnati, 2004.
Thesis title, “Iron as a co-factor in chromium mutagenesis and carcinogenesis.”
- M.S. **Public Health (Industrial Hygiene)**, University of Utah, 1989.
Thesis title, “Computerized Neurobehavioral Assessment of Mosquito Abatement Workers Exposed to Organophosphate Pesticides.”
- B.S. **Cellular and Molecular Biology**, University of Utah, 1986.

Professional Positions

All positions full-time, unless otherwise indicated

- **Visiting Scholar**, Terahertz Sensors Lab, Physics Department, Wright State University, Dayton, OH 7/2014 to present
- **Chief, Technical Operations Division**. Department of Occupational & Environmental Health, USAF School of Aerospace Medicine, 711th Human Performance Wing, Wright Patterson AFB, OH (Lt Col/GS-14) 6/2013 to 7/2014
- **Chief, Risk Analysis Division**. Department of Occupational & Environmental Health, USAF School of Aerospace Medicine, 711th Human Performance Wing, Wright Patterson AFB, OH (Lt Col/GS-14) 6/2011 to 6/2013
- **Deputy Director**. Asian Office of Aerospace R&D, Air Force Office of Scientific Research, Tokyo, Japan (Lt Col, 40+ hours/week) 8/2006 to 6/2011
- **Chief, Foreign Biotechnology Analysis**. Armed Forces Medical Intelligence Center, Defense Intelligence Agency, Fort Detrick, MD (Lt Col/GS-14) 4/2002 to 8/2006
- **Director of Research Operations**. Operational Toxicology Branch, Air Force Research Laboratory, Wright Patterson AFB, Dayton, OH (Major) 12/1999 to 4/2002
- **Fellow, Air Force Institute of Technology**. Non-Resident Institutions, University of Cincinnati (Competitive PhD award, (Captain) 9/1995 to 12/1999
- **Bioenvironmental Engineer**. Ogden Air Logistics Center, 75th Medical Group/Environmental Management Directorate, Hill AFB, UT (1st Lieutenant) 6/1991 to 9/1995
- **Graduate Research Assistant**. NIOSH ERC, University of Utah, Department of Medical Informatics 9/1990 to 6/1991

- **Industrial Hygiene Intern.** NIOSH ERC, University of Utah/Unisys Corp./Industrial Health Inc./EnviroSearch Inc. 9/1988 to 6/1989
- **Operating Room Technician.** University of Utah Medical Center, other hospitals throughout New Mexico and Colorado. (30 hrs/wk) 3/1983 to 9/1988
- **Volunteer.** Non-Governmental Organizations in Peru and the Dominican Republic. (30 hrs/wk) 9/1979 to 3/1983 (Intermittent, 24 months)

Science & Technology Management Experience

- Helmed department-wide information systems consolidation efforts. Led Air Force Support Office for \$149M/yr Defense Occupational & Environmental Health Registry system. (GS 13/14 Equivalent Level)
- Managed division of 72 Industrial Hygiene, Risk Analysis and Radiation Safety subject-matter experts, providing reachback capability to a 1200-person aeromedical career field, at 250 global locations. (GS 13/14 Equivalent Level)
- Managed program direction and funding levels for new research initiatives in Australasia for the Air Force Office of Scientific Research Basic R&D portfolio (\$400M/yr). Targeted new strategic starts to capitalize on regional strengths in complex-adaptive systems, quantum biology, magnetobiology, nanotoxicology, and advanced sensory systems. Sponsored and organized multiple international conferences and exploratory workshops, including recruitment of keynote speakers, and making own presentations. (GS 13/14 Equivalent Level)
- Coordinated a multi-center international study on culture and cognition, with over 1500 human-subjects. (GS 13/14 Equivalent Level)
- Provided daily biomedical intelligence support to senior Pentagon and White House officials. Analyzed, reported on foreign biotechnology trends. Identified gaps in existing biomedical and scientific knowledge, provided recommendations for research investment in \$50B/yr military medical R&D enterprise. (GS 13/14 Equivalent Level)
- Managed \$8M/yr investment in acquisition R&D for biomedical research, including internal and extramural projects in jet-fuel toxicology, with emphasis on transitions from basic to applied research. Coordinated a multi-agency \$8M jet fuel toxicity and human biomarker study with PI's from EPA, NIOSH and the Air Force. (GS 12 Equivalent Level)
- Managed Industrial Hygiene and environmental health risks for 25K employee workforce, including depot-level maintenance of C-130, F-16, F-4, and F/A-18 aircraft.

- Managed health risk assessment of \$5M/yr Industrial Restoration Program hazardous waste sites. Developed environmental health outreach webpage for offbase community, circa 1993! This was documented as one of the very earliest Air Force web servers.
- Managed occupational exposure records used as part of NIH-funded University of Cincinnati study on reproductive health and exposure to industrial solvents.

Research Experience

- Managed \$53M basic R&D portfolio in Math, Information and Life Sciences, Air Force Office of Scientific Research, Tokyo, Japan. 2006-2011
Multiple grant and conference reports available upon request. Topics covered cognitive, human factors, sociocultural modeling, data-mining, nanomaterials, advanced sensor technologies, and complex-adaptive systems. Included one international, 7-center human subjects protocol with over 1500 subjects.
- Industrial Hygiene Assessment and Biomarkers of exposure to JP-8. A 7-center human study, with over 700 subjects, total budget of \$9M, collaborative effort between USAF, EPA and NIOSH. 1999-2000
- University of Cincinnati dissertation elucidated hexavalent chromium-mediated mechanisms of DNA damage (Extensive bioinformatics characterization of transgenic mice and human cancer databases) 1995-1999
- University of Utah MS Thesis, Computerized Neurobehavioral Assessment of Utah Mosquito Abatement Workers Exposed to Organophosphate Pesticides (Human Study, over 700 subjects) 1989-1990

Teaching Experience

- Managed Readiness Skills Verification (RSV) and Proficiency Analytic Testing (PAT) program for 1200-person Bioenvironmental Engineering career field. Reviewed and approved online educational and testing materials for conducting Industrial Hygiene, Radiation and Environmental Surveillance in deployed locations. USAF School of Aerospace Medicine, Dept of Occupational and Environmental Health. June 2013-Present
- Computer Applications for Occupational and Environmental Health Professionals. NIOSH Educational Resource Center, University of Utah, MSPH program. 1990-1991
- General and Organic Chemistry Review, Prep Course for Medical College Application Test, Minority Health Sciences Program, University of Utah. 1989-1990

- Developed and taught monthly in-service medical readiness/industrial hygiene classes, Bioenvironmental Engr. Flight of 50, servicing an industrial maintenance depot with civilian population of 25,000. 1991-1994

Publications/Presentations

URL's available upon request for all publications, except for multiple classified CBRN Medical Defense assessments, Armed Forces Medical Intelligence Center, Defense Intelligence Agency (2002-2006). AFOSR research reports were for grants that I prospected, had externally reviewed, and executed.

- Acoustical Evaluation of Engine Test Cell Facility at the 35th Maintenance Squadron (MXS/MXMPT), Misawa AB, Japan. Consultative Letter, USAF School of Aerospace Medicine. Mar-2013
- Stored Radioactive Material Landfill Site no. 7 (LF-7), Massachusetts Military Reservation, Cape Cod, MA. Consultative Letter, USAF School of Aerospace Medicine. Mar-2013
- Base-Level Guide for Electromagnetic Frequency Radiation. Base-Level Guide, USAF School of Aerospace Medicine. Dec-2012
- Radon Assessment of Occupational Facilities, Grissom ARB, IN. Consultative Letter, USAF School of Aerospace Medicine. Nov-2012
- Attitudinal Modeling of Affect, Behavior and Cognition: Semantic Mining of Disaster Text Corpus, Air Force Office of Scientific Research Grant Report. Nov-2012
- Acoustical Assessment of Firing Range, RAF Feltwell, UK. Consultative Letter, USAF School of Aerospace Medicine. Oct-2012
- Radon Sampling, Building 54, Nellis AFB, NV. Consultative Letter, USAF School of Aerospace Medicine. Jul-2012
- Inter-instrument Variability and Validation Study for the XMX/2L-MIL Biological Air Sampler. Technical Report, USAF School of Aerospace Medicine. Jul-2012
- Bioenvironmental Engineering, Laboratory Sampling Guide. USAF School of Aerospace Medicine. May-2012
- Interim Base-Level Guide for Exposure to Jet Fuel and Additives. Technical Report, USAF School of Aerospace Medicine. May-2012
- Biological Information Processing in Single Microtubules, Air Force Office of Scientific Research, Grant Report. Feb-2012
- Rebuilding institutional legitimacy in post-conflict societies: An Asia-Pacific Case Study, Interphase 1-2, Air Force Office of Scientific Research, Grant Report. Aug-2011

- Nanoscale Monitoring and Modulation of Auditory Systems, Air Force Office of Scientific Research, Grant Report. Aug-2011
- Culture, and Rapid Formation of Trust, Air Force Office of Scientific Research, Grant Report. Jan-2011
- Magnitude and Time Course of Sleep Inertia, Air Force Office of Scientific Research Grant Report. Oct-2010
- Data-Mining Disaster Risk Attitudes, Air Force Office of Scientific Research, Grant Report. Oct-2010
- Egeson's (George's) transtridecadal weather cycling and sunspots. *Hist Geo Space Sci.* 2010 Sep 1;1(2):49-61. Sept-2010
- Target Tracking And Interception by Aggressive Honeybees, Air Force Office of Scientific Research, Grant Report. Aug-2010
- Smart-phone Based Biosensors for Organophosphates, Air Force Office of Scientific Research, Grant Report. Apr-2010
- Transformational Impact of "Digital Natives" on Cultures, Commerce and Societies, Air Force Office of Scientific Research Grant Report. Apr-2010
- Visual Information Processing in Mantis Shrimp, Air Force Office of Scientific Research, Grant Report. Nov-2009
- Indo-US Workshop on Nanotechnology, Air Force Office of Scientific Research, Grant Report. Nov-2009
- Biological Sensors Using DNA Functionalized Multi-Wall Carbon Nanotubes, Air Force Office of Scientific Research, Grant Report. Oct-2009
- Biosurveillance for Q-Fever, Air Force Office of Scientific Research, Grant Report. Jun-2009
- Measuring and Interpreting Cultural Differences in Cognition, Air Force Office of Scientific Research, Grant Report. Jul-2008
- Fractal Image Filters For Specialized Image Recognition Tasks, Air Force Office of Scientific Research, Grant Report. Jul-2008
- Data Crystallization-Discovering Unobservable Events, Air Force Office of Scientific Research, Grant Report. Nov-2007
- Microbial Fuel Cells with High Power and High Energy Density, Air Force Office of Scientific Research Grant Report. Apr-2007
- Information Fusion for Hypothesis Generation, Air Force Office of Scientific Research, Grant Report. Jul-2006
- Singapore: Rapid Avian Influenza Diagnostic, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Oct-2005

- Italy 2006 Olympics: Chemical, Biological, Radiological, and Nuclear (CBRN) Medical Defense, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Oct-2005
- France: Dual-Chamber Nerve Agent Antidote Autoinjector, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Sept-2005
- Japan and Italy: Genetic Tools for Developing New Drugs from Soil Bacteria, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Aug-2004
- Mutational biases associated with potential iron-binding DNA motifs in rodent lacI and human p53 mutational databases. *Mutat Res.* 2004 Jun 4;550(1-2):73-88 June-2004
- Botulinum Neurotoxin (BoNT) Medical Countermeasures, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Apr-2004
- Worldwide: Update on Severe Acute Respiratory Syndrome (SARS) Treatment, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Dec-2003
- United Kingdom/New Zealand: Antisense Gel Enhances Wound Healing, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Oct-2003
- Canada: Saskatchewan Recalls Blood Because of West Nile Virus, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Oct-2003
- Bangladesh: Indian Vaccines Probed in Infant Deaths, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Sept-2003
- Hong Kong: Circulating DNA May Predict Lung Failure In SARS, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Jun-2003
- Worldwide: Severe Acute Respiratory Syndrome (SARS) Treatment, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. May-2003
- Worldwide: Possible Genetic Susceptibility to Severe Acute Respiratory Syndrome - Coronavirus (SARS-CoV), Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. May-2003
- Hong Kong Rejects German SARS Diagnostic Test, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. May-2003
- Japan: Human Skin Proteins From Transgenic Silkworms, Peer-Reviewed Medical Intelligence Assessment, Defense Intelligence Agency. Dec-2002
- Chromium(VI)-induced mutagenesis in the lungs of big blue transgenic mice. *J Environ Pathol Toxicol Oncol.* 2000;19(3):239-49. Sept-2000

- Dioxin causes a sustained oxidative stress response in the mouse. *Biochem Biophys Res Commun.* 1999;253(1):44-8. Dec-1998
- “Military Personnel,” Book Chapter. *Occupational, Industrial and Environmental Toxicology*, pp. 232-243. Mosby Press, 1997, ISBN-0-323-01340-6. Dec-1997

Professional Development

- NFPA Hazardous Materials Operations Core with PPE 2012
- NFPA Hazardous Materials Awareness Certificate 2011
- Air War College, elective in Information Operations; 2006
- Defense Intelligence Analysis College. Multiple Senior Intelligence Analyst Courses, including Geospatial Analysis, military-political affairs, technical writing and editing. 2002-2006
- Air Command and Staff College 2003
- Chemistry for Hazardous Materials Emergency Response, National Fire Academy Course R0233 1994

Affiliations/Memberships

- Institute of Electrical and Electronics Engineers (IEEE), Dayton Section, Recipient 2014 Fritz J. Russ Bio-engineering Award
- American Conference of Governmental Industrial Hygienists
- Founding Member, Tokyo Hackerspace
- Dayton Amateur Radio Association

Interests

- General Amateur Radio License, KD8TEK
- Play violin, accordion, piano, organ, multiple Andean folk instruments. Member of NIH Philharmonic Orchestra 2005-2006.
- Near native fluency in Spanish, functional fluency in Japanese. Some Mandarin Chinese.