

Unmanned Aircraft Systems Program Office Science Review 2017 Reviewer Bios

Review Panel Chair

Linnea Avallone, Ph.D.



Title: Program Director
Lower Atmosphere Observing Facilities
Section for National Center for Atmospheric Research (NCAR) and Facilities
Division for Atmospheric and Geospace Sciences
Directorate for Geosciences
National Science Foundation
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Research Areas: As Chair, Dr. Avallone will coordinate with reviewers in each research area

Direct Funding Connections: None

Research Collaborations: The NOAA UAS Program and the NSF Section for NCAR and Facilities jointly funded the initial development of the Airborne Vertical Atmospheric Profiling System by NCAR for NOAA to use on the NASA Global Hawk

Linnea Avallone is an atmospheric chemist specializing in the design, development and deployment of instrumentation for measuring atmospheric trace gases, especially from airborne platforms, including aircraft and balloons. Dr. Avallone is currently program manager of the National Science Foundation's Lower Atmosphere Observing Facilities, which include three research aircraft, fixed and mobile radars, and a variety of other instrumentation. In this role, she oversees the support for and deployment of the observing resources, long-range strategic planning for the facility suite and the process by which the

research community requests use of the facilities. In addition, she is executive secretary to the National Science Board's Committee on Programs and Plans and serves as the NSF representative to the government-wide Interagency Committee on Aviation Policy and the US Group on Earth Observations, and as the chair of the Interagency Coordinating Committee on Airborne Geoscience Research and Applications.

During her 25-year research career, Dr. Avallone and her research group made measurements in more than 20 field campaigns that investigated stratospheric and upper tropospheric chemistry, boundary layer ozone chemistry, the impact of rocket emissions on the atmosphere and cirrus cloud formation. In support of this research, Dr. Avallone developed new instrumentation for measuring ozone, long-lived trace gases, and condensed water content. She is an author on more than 60 peer-reviewed publications and has been recognized for her contributions as a Fellow of the American Meteorological Society.

Dr. Avallone received an S.B. in Life Sciences from MIT, and M.A. and Ph.D. degrees in Chemistry from Harvard University under the direction of Prof. James Anderson. She did postdoctoral work in chemical transport modeling with Prof. Michael Prather at the University of California at Irvine. Dr. Avallone spent the majority of her academic career at the University of Colorado Boulder (UCB) in the Department of Atmospheric and Oceanic Sciences and the Laboratory for Atmospheric and Space Physics (LASP), where she achieved the rank of Full Professor.

Education:

Massachusetts Institute of Technology (S.B., Life Sciences), 1988

Harvard University (M.A., Chemistry), 1990; (Ph.D., Chemistry), 1993

Gary Jedlovec, Ph.D.



Title: Director
Earth Science Office,
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Research Areas: High impact weather monitoring

Direct Funding Connections: None

Research Collaborations: The NOAA UAS Program has funded NOAA Hurricane Research Division analysis of Hurricane Imaging Radiometer (HIRAD) data as part of an evaluation of high altitude UAS observing payloads. HIRAD is an aircraft passive microwave radiometer developed by the Earth Science Office of the NASA Marshall Space Flight Center to observe hurricane ocean surface wind speeds and precipitation.

Gary Jedlovec received his B.S. and M.S. degrees in meteorology in 1979 and 1981 from Saint Louis University, Saint Louis, MO. He was awarded the Ph.D. in meteorology with a minor in remote sensing from the University of Wisconsin - Madison in 1987. Dr. Jedlovec joined NASA's Marshall Space Flight Center (MSFC) in Huntsville, Alabama in 1985 where he is still employed as an atmospheric scientist. Dr. Jedlovec also holds an adjunct professor position with the University of Alabama in Huntsville, where he teaches and mentors graduate students in atmospheric sciences.

Dr. Jedlovec has spent most of the last 25 years developing and evaluating algorithms to retrieve geophysical parameters from remotely sensed aircraft and satellite measurements for regional climate studies, weather forecasting, and disaster applications. His early work as part of the NASA/NOAA VAS Demonstration program emphasized the importance of the new water vapor channels on the GOES geostationary satellites and their application to atmospheric research. For his dissertation, Dr. Jedlovec developed two unique methods for the retrieval of bulk water vapor estimates that are applicable to both aircraft and satellite observations. One method, the Physical Split Window technique, has proven to be a simple, highly accurate method of retrieving integrated water content and land surface (and sea surface) temperature with just two channels of information. This technique has been applied to the GOES Imager and Sounder data, and MODIS and VIIRS imagery in an operational environment at NASA's Marshall Space Flight Center. He has also contributed to the development of automated feature tracking and cloud detection techniques applied to NOAA operational and NASA research data. Dr. Jedlovec pioneered an effort to transition the use of unique NASA EOS satellite data into selected NWS Forecast Offices around the country as part of the Short-term Prediction Research and Transition (SPoRT) project to demonstrate the utility of these data to improve short term weather forecasts. This project serves as a risk reduction activity for NOAA by demonstrating the enhanced observational capabilities of future NOAA operational satellite through the use of their research counterparts. Over the last few years, this project has focused on using NASA satellite data to detect and monitor natural disasters, providing valuable information to the USGS, FEMA, and other disaster response agencies. Recently, Dr. Jedlovec assumed the role as the Manager of the Earth Science Office at MSFC, drawing on a broad range of technical and management skills developed over the last 30 years to lead a large team of scientists in pursuing NASA's mission. Dr. Jedlovec is a member of the AMS, AGU, and IEEE and has published numerous papers on the above topics.

Education:

University of Wisconsin-Madison, Doctor of Philosophy (Ph.D.), Atmospheric Sciences and Meteorology, Graduate School (1987).

Saint Louis University, Master of Science (MS), Meteorology, Graduate School (1981).

Saint Louis University, Bachelor of Science (BS), Meteorology (1979).

Daniel Eleuterio, Ph.D.

Title: Program Manager
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Research Areas: High impact weather monitoring

Direct Funding Connections: None

Research Collaborations: The NOAA UAS Program, ONR, and the Bureau of Ocean Energy Management jointly supported a NOAA National Marine and Fisheries Service UAS demonstration in the Arctic during 2015

Daniel Eleuterio is currently a Program Manager in Ocean, Atmosphere, and Space Operational Environments for U.S. Navy Research, Development, Test & Evaluation. He holds a Ph.D. in Meteorology from the Naval Postgraduate School and a M.A. in National Security and Strategic Studies from the Naval War College, a M.S. in Physical Oceanography, and a M.A.T. and B.A. from Boston University. Commander (ret.) Eleuterio has previously served as Division Director for Ocean Battlespace Sensing and Systems Applications at the Office of Naval Research, Deputy to the Associate Director of Research for Ocean, Atmospheric, and Space S&T at the U.S. Naval Research Laboratory, as Staff Weather Officer

at U.S. Special Operations Command, South, and as Staff Oceanographer and Battle Watch Captain for Commander, Carrier Strike Group Eleven, embarked on USS Nimitz (CVN-68). He is a member of the Department of the Navy Space Experiments Review Board, the Inter-agency Working Group for a National Earth System Prediction Capability as well as several other boards, panels, and professional societies. He is a certified Level III SPRDE S&T Manager and Level II Program Manager.

Education:

Boston University, B.A. Marine Biology (1989)
Boston University, M.A. Science Education (Grades 9-12) (1990)
Naval War College, B.A. National Security and Strategic Studies (2004)
Naval Postgraduate School, B.S. Meteorology and Physical Oceanography (1996)
Naval Postgraduate School, Ph.D. Meteorology (2004)

Robert S. Winokur



Title: Senior advisor, Michigan Tech University for ocean and remote sensing programs for the Michigan Tech Research Institute and Great Lakes Research Center, and special advisor satellite programs, NOAA National Environmental Satellite and Data and Information Services (NESDIS)

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Research Areas: Marine and polar monitoring

Direct Funding Connections: None

Research Collaborations: None

Senior Executive Service: Entered the Senior Executive Service in April 1980 and had over 47 years of federal service, along with almost 5 years in the private sector. Served in a variety of executive positions in the government and private sector. Directed programs

with an annual budget of over \$700 million, formulated major environmental and weather satellite programs, directed the nation's weather service, and formulated a major oceanographic ship construction program to recapitalize the Navy's oceanographic fleet.

- April 2011-May 2013, Deputy and Technical Director for Oceanography, Space and Maritime Domain Awareness, Office of the Chief of Naval Operations; Dec 2003-May 2013, Deputy Oceanographer of the Navy and Aug 1985-Oct 1993, Deputy Oceanographer of the Navy
- Twice served as acting Oceanographer of the Navy, most recently for seven months during 2012
- Oct 2000-Nov 2003, President and Chief Operating Officer of the Earth Satellite Corporation
- May 1999-Oct 2000, Vice President of the Consortium for Oceanographic Research and Education
- Nov 1993-Apr 1999, Assistant Administrator for Satellite and Information Services at the National Oceanic and Atmospheric Administration (NOAA)
- June 1997-Feb 1998, Interim Assistant Administrator for Weather Services (Director, National Weather Service)
- March 1989 and January 1991, Deputy Director, Anti-submarine Warfare Development, Office of the Assistant Secretary of the Navy
- April 1980-July 1985, Assistant Technical Director for Ocean Science and International Programs, Office of Naval Research
- 1978 - 1980, Special assistant for acoustic programs to the Director, Undersea Surveillance and Anti-Submarine Warfare, Office of the Chief of Naval Operations.

Education:

B.S., Rensselaer Polytechnic Institute, Geology, 1961

M.S. American University, Technology of Management in Marine Affairs, 1979

Mark L. Bathrick



Title: Director, Office of Aviation Services (OAS)

Department of Interior

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Research Areas: Marine monitoring

Direct Funding Connections: None

Research Collaborations: None

Mark L. Bathrick was appointed to the Senior Executive Service and became Director of the Office of Aviation Services (OAS) in the Department of the Interior (DOI) on November, 1, 2005. Prior to joining DOI, Mr. Bathrick completed a distinguished career with the United States Navy, retiring as a Captain. A decorated Naval Aviator and Test Pilot, Mr. Bathrick logged over 3,700 flight hours and more than 800 arrested landings aboard ten different aircraft carriers during numerous overseas deployments. A graduate of the prestigious Navy Fighter Weapons School (TOPGUN) and the British Empire Test Pilots' School (ETPS), he has flown over 40 different types of military and civilian fixed wing, rotary wing, and lighter-than-air aircraft, having qualified as pilot-in-command in 12 different models. Mr. Bathrick is a member of the Society of Experimental Test Pilots (SETP) and holds an FAA commercial instrument, multi-engine pilot rating. Since joining the Department of the Interior, Mr. Bathrick has led OAS to numerous national level and industry recognitions including: Federal Aviation Program Gold Standard certification (2007-2016), 2008 Federal Aviation Program of the Year (Small Category), and ISO 9001-2008 quality certification (2008-2016). In January, 2010, Mr. Bathrick was personally recognized with a Department of the Interior Honor Award for Meritorious Service for his development of innovative aviation policy solutions to critical bureau missions.

Education:

United States Naval Academy, B.S. Aerospace Engineering (1980)

Boise State University, Master of Business Administration (2014)

Bruce K. Quirk, Ph.D.



Title: Unmanned Aircraft Systems (UAS) Liaison
Land Remote Sensing Program
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Research Areas: Marine and polar monitoring

Direct Funding Connections: None

Research Collaborations: None

Dr. Quirk is currently the Unmanned Aircraft Systems (UAS) Liaison for the U.S. Geological Survey's Land Remote Sensing (LRS) Program. The LRS Program provides and encourages the use of historical, current, and future remotely sensed data and derived scientific information to U.S. government agencies and the public. After receiving his Ph.D. from the University of Wisconsin in 1981, Dr. Quirk worked at the EROS Data Center in a number of science and operational positions before moving to the U.S. Geological Survey Headquarters in 2007 and a position in the LRS Program. Dr. Quirk has over thirty years of experience applying satellite and aerial remote sensing and GIS technology to the monitoring of natural resources in the United States and around the world. He has numerous publications and has received awards from the U.S. Geological Survey and the National Aeronautics and Space Administration for his contributions in the field of remote sensing.

Education:

University of Wisconsin-Madison, (Ph.D.) 1981

Peter Milne, Ph.D.



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Ocean and Atmospheric Sciences
Section of Antarctic Sciences
Division of Polar Programs
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Research Areas: Polar monitoring

Direct Funding Connections: None

Research Collaborations: The NSF Polar Programs approved air space access for a joint NASA and US Coast Guard UAS demonstration in Antarctica in 2015

Peter is currently a Program Director in the US Antarctic Program, at NSF. During the time he has been at NSF, he has also been a Program Director in the Division of Ocean Sciences (Chemical Oceanography) and in the Division of Atmospheric and Geospace Sciences. Prior to coming to NSF he was research faculty at University of Miami (Rosentiel School of Marine and Atmospheric Sciences and University of Miami School of Medicine (Ophthalmology). His interests in UAS and RPA reflect the advantages these platforms have for distant and remote sampling of the atmosphere.

Education:

- 1989 Ph.D. University of Miami, Coral Gables, Fl (Marine & Atmospheric Chemistry)
- 1979 M.Sc. University of Melbourne, Melbourne., Australia. (Chemistry)
- 1976 B.Sc. (Hons.) University of Melbourne, Melbourne, Australia. (Organic Chemistry)

Scott L. Harper, Ph.D.



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Research Areas: Polar monitoring
Direct Funding Connections: None
Research Collaborations: None

Dr. Scott Harper is a Program Officer for the Office of Naval Research. He is the team lead for the Arctic and Global Prediction program as well as a team member on the Physical Oceanography program. Dr. Harper joined ONR as a program officer in April 2003, coming from NOAA/NCEP's Environmental Modeling Center where he worked on coupled environmental models to improve weather and climate predictions. His scientific background includes working with global ocean models on high-performance computing systems, atmosphere-ocean coupling, data assimilation techniques, Lagrangian data analysis, and predictability studies of non-linear dynamical systems. He received his Ph.D. in Atmospheric and Oceanic Sciences from Princeton University in June 2001, and BS and MS degrees in Aerospace Engineering from the University of Colorado in 1992 and 1994.

In addition to regular program duties, Dr. Harper also currently manages several special research initiatives involving the turbulence and circulation of the upper ocean, modeling of ocean variability at multiple scales, extended-range prediction, the changing dynamics of the Arctic environment, and the development of autonomous Arctic observing platforms and systems. He is the DoD Principal to the US Global Change Research Program and the Navy S&T liaison to the DoD High Performance Computing Modernization Program.

Education:

University of Colorado (BS 1992, MS 1994)
Princeton University (PhD 2001)

Sally McFarlane, Ph.D.



Title: Program Manager
Atmospheric Radiation Measurement Climate Research Facility
Climate and Environmental Sciences Division
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Research Areas: Polar and high impact weather monitoring
Direct Funding Connections: None
Research Collaborations: None

Dr. Sally A. McFarlane joined the Office of Biological and Environmental Research in the Department of Energy (DOE) Office of Science in December, 2012. Dr. McFarlane is currently the Program Manager for the Atmospheric Radiation Measurement (ARM) Climate Research Facility. ARM is a DOE scientific user facility which provides the climate research facility with remote sensing and in situ observations designed to improve the understanding of clouds and aerosols and their impacts on the Earth's radiative energy budget. ARM operates three fixed measurement sites, three mobile facilities that are deployed around the world for field campaigns, and an aerial facility that includes manned and unmanned aircraft capabilities. Dr. McFarlane is currently the chair of the US Global Change and Research Program (USGCRP) Interagency Working Group on Integrated Observations, a member of the US Group on Earth Observations (USGEO) Assessment Working Group, and is the Secretary of the Atmospheric and Hydrospheric Sciences Section of the American Association for the Advancement of Science (AAAS). Prior to joining DOE, Dr. McFarlane was a research scientist at Pacific Northwest National Laboratory (PNNL), where her research focused on the use of remote sensing measurements and radiative transfer models to improve understanding of the radiative effect of clouds and aerosol on the Earth's atmosphere. Dr. McFarlane received her B.A. in Physics and Mathematics from Mount Holyoke College in 1997 and her Ph.D. in Astrophysical, Planetary, and Atmospheric Sciences from the University of Colorado in 2002. She is an author on over 50 peer-

reviewed scientific publications. Dr. McFarlane's honors include a National Science Foundation (NSF) Graduate Research Fellowship, a NASA New Investigator Project award, the Mary Lyon Award young alumna award from Mount Holyoke College, and the Ronald L. Brodzinski Award for Early Career Exceptional Achievement from PNNL.

Education:

Mount Holyoke College, 1997

University of Colorado at Boulder, 2002