THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## WILLIAM ACEVEDO

In recognition of his outstanding leadership and scientific contributions to the U.S. Geological Survey (USGS).

As one of the earliest Landsat innovators, Mr. William Acevedo has contributed his significant knowledge to investigating methods of improving mapping using Landsat multispectral imagery. He worked on the first-ever high-resolution, national, seamless digital elevation data mosaic and hydrologic derivatives, which would become the National Elevation Dataset, the premier elevation dataset for the Nation. Mr. Acevedo developed innovative ways to visualize land-use change for the Global Change Research Program by developing time-series displays of urban change in the San Francisco Bay Area, the Baltimore-Washington region, and six other large U.S. metropolitan areas. He demonstrated outstanding leadership as project manager of the recently completed Land Cover Trends research project that produced an unprecedented scientific assessment of national and regional U.S. land cover and land-use change. He led a USGS team through a nearly decade-long investigation that included analyzing Landsat images to produce detailed land-change rates for 1972-2000. Through his leadership, the team published over 60 scientific articles including a multi-volume USGS professional paper highlighting the findings of the Land Cover Trends project. This document is the most regionally detailed report of contemporary U.S. land change ever completed by a Federal agency. Completion of the USGS Land Cover Trends project is due in large part to Mr. Acevedo's balanced leadership. His impressive personal integrity and unselfish collaborative work ethic are reflected in his exceptional leadership and commitment to the USGS mission. For his outstanding contributions to the USGS, Mr. William Acevedo is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

Sally Jewell
Secretary of the Interior

JAN 17 2017

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## RAYMOND A. BYRNES

For his outstanding contributions to the Landsat program of the U.S. Geological Survey (USGS).

In 1993, the Landsat program teetered on the brink of collapse–Landsat 6, the first commercial spacecraft in the series of Earth observation missions, suffered a launch failure. Today, the Landsat program is alive and thriving, amidst a renaissance in Earth observation applications, and Mr. Raymond A. Byrnes has been instrumental in making that happen. He has been the primary, driving force behind the Landsat program throughout the past 23 years, establishing, nurturing and effectively wielding Bureau, Department, and interagency relationships to sustain and build the program. His long list of accomplishments include: influential briefings across the Government and around the world, technical contract evaluations, interagency working groups and agreements, international and commercial data partnerships, and domestic data and space policy decisions. Mr. Brynes worked closely with the National Aeronautic Space Administration to build a strong interagency partnership that enabled the highly successful Landsat 7 and 8 missions. He pushed hard within the Bureau for adoption of the 2008 USGS Free Data Policy, enabling Landsat scene distribution to climb from thousands per year in 1993 to millions per year today. That free distribution enables tens of thousands of users across the Nation to devote more of their resources to their research and operations, and triggered an explosion of new applications. His leadership of the Future of Land Imaging Interagency Working Group helped secure Landsat 8 and eventually led to the Administration's commitment to a two-decade Sustainable Land Imaging Program, ensuring Landsat will continue providing the rich dataset needed to better understand the changing Earth. For his outstanding contributions to the USGS, Mr. Raymond A. Byrnes is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

MAY 17 2016

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## DONALD R. CAHOON

In recognition of his outstanding contributions to the U.S. Geological Survey (USGS) in the field of coastal wetland ecology and management.

Dr. Donald R. Cahoon is recognized throughout the coastal wetland ecology community for his research on wetland elevation dynamics, wetland loss, and restoration. His development of the Surface Elevation Table-Marker Horizon (SET-MH) method has become the standard for collecting accurate and reproducible data for evaluating the dynamics of surface and subsurface elevation of coastal wetlands. The SET-MH method represents a major advance in our ability to evaluate wetland elevation dynamics in response to natural and man-made disturbances and the vulnerability of wetlands to sea-level rise. Dr. Cahoon has shared his methods and approaches throughout scientific communities in such a way that the SET-MH method has been adopted nationally as a standard technique for wetland elevation monitoring at National Science Foundation-funded research sites, National Oceanic and Atmospheric Administration National Estuarine Research Reserves, the Louisiana Coastwide Reference Monitoring System program, and National Inventory and Monitoring Programs of USGS and the National Park Service. As a result of the tireless efforts of Dr. Cahoon, SET-MH sites are providing comparable data on coastal wetland dynamics in every coastal State in the United States except Hawaii, on all continents except Antarctica, with a network of over 150 research scientists across 31 countries. Significant implications of the data show the ability to quantify how well coastal wetlands keep pace with sea-level rise, and also help us understand the relative contribution of surface and subsurface processes to elevation change and vertical development. This information is crucial for both management of natural habitats and for planning of adaptations by affected human communities. For his outstanding contributions both nationally and internationally, Dr. Donald R. Cahoon is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

Sally Jewell
Secretary of the Interior

JAN 17 2017

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## JAMES E. CLOERN

In recognition of his outstanding leadership and scientific contributions to the U.S. Geological Survey (USGS) in advancing the understanding of water quality issues in coastal and estuarine ecosystems.

Dr. James E. Cloern has shaped our understanding of estuarine-coastal ecosystems through his outstanding scientific research, insight, and leadership. His nationally and internationally recognized research program has shaped contemporary paradigms, defining how estuarine-coastal ecosystems change in response to human disturbances, and how we might mitigate or minimize those disturbances as the climate system evolves. His 40-year study of the San Francisco Bay (Bay) and global comparative analyses of coastal ecosystems have provided the fundamental principles that have shaped regional, national, and international policies. His work on the spread of invasive clams in the upper Bay, helped to motivate policymakers to develop and enact California's Marine Invasive Species Act, which required ocean-going vessels to discharge ballast waters before entering the Bay. His research on coastal eutrophication led the U.S Environmental Protection Agency to develop unique nutrient standards and adaptive strategies to address ecosystem health for different ecosystems. His unparalleled research and monitoring project in Bay is the longest continuous program of observation in any bay or estuary in the Nation. His team makes 45,000 water-quality measurements annually, resulting in 500,000 views from users in 76 countries. Dr. Cloern has briefed Congress regarding the value of science in support of large ecosystem restoration, highlighting long-term environmental data documenting the benefits of the Clean Water Act and showing that dead zones in the Bay vanished after its implementation. He assisted in developing a congressional report on harmful algal blooms and has served on editorial boards for professional journals. He has been a science advisor for or co-led the Delta Science Program; the Public Policy Institute of California; the Bay Area Ecosystems Climate Change Consortium; the Bay Nutrient Strategy Team; a Marine Excellence Research Program in France (LabexMER); and an Intergovernmental Oceanic Commission of the United Nations Educational, Scientific, and Cultural Organization. For his exceptional contributions to the USGS and the Nation, Dr. James E. Cloern is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

JAN 17 2017

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## DANIEL L. EDELSTEIN

In recognition of his outstanding scientific contributions in the field of minerals information for the U.S. Geological Survey (USGS).

Mr. Daniel L. Edelstein has achieved national and international acclaim for his outstanding research that vastly improved our knowledge of copper and other metal resources. Early in his career, while working for the U.S. Bureau of Mines, he extensively studied the process of sulfide mineral froth flotation. Mr. Edelstein's analyses led to significant new understanding of collector surface interfaces that enabled industry to more efficiently extract metals from ore. His work in process evaluation helped to refine research methods and identify high-cost components in metallurgical processes. In 1995, Mr. Edelstein joined the U. S. Geological Survey (USGS) as a commodity specialist for copper, selenium, tellurium, and arsenic. His research revealed much variability and inconsistency in commodity data, which subsequently led him to develop methods to ensure the accuracy, reliability, and integrity of USGS data collections. Mr. Edelstein has authored more than 300 mineral commodity reports providing invaluable information to public- and private-sector decisionmakers. This work is vital to assure a dependable supply of mineral materials to meet the defense and economic needs of the Nation. Mr. Edelstein's reputation and the integrity of his work have led numerous U.S. Government agencies to seek his assistance. These include the U.S. Department of Commerce, for an issue on export controls; the U.S. Department of the Treasury, in a survey of the metal markets and risk implications; and the U.S. Mint, when revamping its procurement practice for copper. Recognized internationally, Mr. Edelstein was asked by the United Nations (U.N.) to negotiate the unifying of three U.N.-chartered metal study groups, and he was chosen as the U.S. Government delegate to the International Copper Study Group. Mr. Edelstein has also provided invaluable service through his work as USGS Assistant Section Chief of the Base, Light, and Precious Metals Group, giving expert guidance and direction to staff. For his exceptional contributions to the USGS, Mr. Daniel L. Edelstein is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

Sally Jewell
Secretary of the Interior

JAN 04 2017

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## EUGENE A. FOSNIGHT

In recognition of his outstanding leadership of the satellite remote sensing missions operated by the U.S. Geological Survey (USGS).

Dr. Eugene A. Fosnight has a keen understanding of the land remote sensing data that is needed to support environmental management and policymaking decisions. As the Data Acquisition Manager for the USGS satellite remote sensing missions, he led the effort to optimize observatory and ground network resources that resulted in doubling the daily data acquisition rate by the Landsat 7 and 8 missions. Using detailed modeling of geographic dynamics of cloud climatology and vegetation phenology, he was able to more precisely target and schedule image acquisitions. This resulted in substantial increases in the quantity and quality of data being acquired over Earth's landmasses and added to the Landsat archive. Dr. Fosnight facilitated special data acquisition requests to support a wide range of activities such as wildfire and volcano monitoring and research into glacier and ice stream dynamics in Antarctica. His expertise has benefited the international community through his participation in the Committee on Earth Observing Satellites Ad-hoc Space Data Coordination Group, which seeks to expand Earth observations in order to support decisionmaking in our increasingly complex and environmentally stressed world. Dr. Fosnight's participation in the Global Data Flow Study for the Global Forest Observation Initiative has strengthened the role of the USGS as a premier provider of satellite observation data. For his outstanding contributions to the USGS, Dr. Eugene A. Fosnight is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

JAN 17 2017

Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## EARL A. GREENE

In recognition of his outstanding contributions to furthering academic water research at the U.S. Geological Survey (USGS).

Mr. Earl A. Greene is the Chief of External Research and leads the Water Resources Research Act (WRRA) Program where he oversees research conducted at 54 Water Resources Research Institutes nationwide. Mr. Greene has fostered increased levels of cooperation between the Institutes and the USGS. He formed a national committee to identify opportunities to increase communication between the Institutes and the USGS. His efforts have led to joint meetings, the publication of several white papers, and improved local relationships between USGS Water Science Centers and the Institutes. Mr. Greene has played a significant role in the increase of students participating in the WRRA Internship Program, which allows the USGS to hire students directly through the Institutes. This has facilitated student employment in the USGS workforce and led to more training of students in water resources. Grants through the WRRA have increased to an all-time high under Mr. Greene's management. Through the WRRA competitive grants program, he has developed procedures that ensure USGS scientists are included on grant proposals which further increase the alignment between Institute research and USGS priorities. As a consequence of Mr. Green's revitalization of the WRRA Program, the last two budgets submitted to Congress have requested full funding for the progam. For his outstanding contributions to the USGS, Earl A. Greene is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

JAN 17 2017

Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## LUCILE M. JONES

For her outstanding contributions to the U.S. Geological Survey in improving the Nation's preparedness for natural disasters.

Dr. Lucile M. Jones' career has been dedicated to advancing the Nation's preparedness for earthquakes and other natural hazards. Dr. Jones rose rapidly through the scientific ranks of the U.S. Geological Survey (USGS) as a result of her path-breaking research on earthquake occurrence probability. All earthquake advisories issued by the State of California are based on her work. She expanded her research to explore and improve the application of USGS science towards improving knowledge transfer across multiple natural hazards into the realm of risk and vulnerability studies. Over the last 10 years, Dr. Jones has led the development of scenarios that have made catastrophic hazards real to the people of California and, in doing so, sparked a science-based approach to earthquake preparedness that involves millions of people worldwide through the annual ShakeOut campaign. In her role as the Natural Hazards Mission Area's Science Advisor for Risk Reduction, Dr. Jones leads the Science Application for Risk Reduction project, plays a vital role in implementing the Natural Hazards science strategy, the development of which she led, and broadly represents the USGS on matters of disaster risk reduction. In 2014, she directed a cooperative project with the City of Los Angeles as the Science Advisor for Seismic Safety to Mayor Eric Garcetti. The results of this work include improvements to building safety and strengthened water and communications infrastructure. Dr. Jones is a recognized authority on natural hazards and disaster risk reduction both nationally and globally. When earthquakes strike, the media turns to her for answers. Her skill in communicating with reporters and connecting with the public has made her one of the most recognizable employees of the USGS. Her handbook for the public written after the 1994 Northridge earthquake, *Putting Down Roots in Earthquake Country*, has been adapted for other seismically active regions of the Nation and translated into multiple languages. For her outstanding efforts and dedication to the USGS, Dr. Lucile Jones is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

SEP 04 2015

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## STEVEN T. KNICK

In recognition of his exceptional scientific contributions and leadership to the Department of the Interior and the U.S. Geological Survey in the fields of Wildlife Conservation Biology and Landscape Ecology.

Throughout his career, Dr. Steven T. Knick has made outstanding contributions to landscape ecology and wildlife conservation. As a leader in the study of sagebrush ecosystems and wildlife conservation, Dr. Knick's science has profoundly influenced public policy and rangeland management. He was the first to document the extent of major threats to sagebrush ecosystems and bird communities across western North America. As the Nation's premier greater sage-grouse expert, his work was essential to three listing decisions of this iconic western bird. He co-authored the 2004 "Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats," the first comprehensive resource for landscape management focused on sage-grouse and sagebrush. He was lead editor and primary author of the 2011 monograph, "Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats." This work was recognized by courts and the U.S. Fish and Wildlife Service as the primary source of scientific information for a 2010 status review and listing determination of greater sage-grouse. His science on the ecological requirements of sage-grouse underpins the selection of Conservation Areas throughout the West, and is foundational to concepts that now guide the Department's resistance and resilience-based approach to managing sagebrush ecosystems. Dr. Knick's landscape science elevated considerations of wildlife and disturbance ecology across large spatial and temporal scales so effectively that landscape approaches now are incorporated in western policy and management decisions. He pioneered the application of ecological concepts to geospatial technology, creating the first website presenting spatial and biological information for a major ecosystem. He designed and led the first ecoregional assessment of Wyoming, which became the model for the Bureau of Land Management's Rapid Ecoregional Assessment program. Dr. Knick's forward-thinking research laid the foundation for science-based decisionmaking that is now commonplace today. For his long-standing excellence and service, Dr. Steven T. Knick is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

SEP 0 2 2016

Sally Jewell

Secretary of the Interior

# United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

## CITATION

## FOR DISTINGUISHED SERVICE

## JAMES J. LIENKAEMPER

In recognition of his insightful, comprehensive, and influential studies of fault deformation and earthquake recurrence in the U.S. Geological Survey (USGS) Earthquake Science Center.

Mr. James J. Lienkaemper is highly regarded throughout the scientific community for his accomplishments toward better understanding of earthquake hazards in the greater San Francisco Bay Area. He has employed paleoseismic methods to understand earthquake recurrence, and has developed fundamental understanding of the importance of how fault slip in the absence of significant earthquakes, known as creep, affects seismic hazard. His work on the earthquake history of the Hayward Fault stands as one of the most complete and important studies of earthquake geology. This work demonstrated that earthquakes occur regularly on the Hayward Fault and that the most recent earthquake occurred longer ago than the mean recurrence interval. This has raised public awareness of earthquake hazards and has been a significant factor in decisions for preparing Bay Area infrastructure to be more earthquake-resilient. Mr. Lienkaemper provided leadership in the establishment of a regional network of fault creep monitoring sites which have served to refine seismic hazard analysis across the Bay Area. This work has led to international recognition and technical training for scientists from beyond the United States. He has evaluated and refined tools that predict the ongoing surface deformation that occurs in the hours, days, weeks, and months following damaging earthquakes – these will be invaluable in future earthquake response. His work is characterized by outstanding scientific insight, exacting attention to detail, integration of multiple methods, and collaboration with a wide range of scientists. Mr. Lienkaemper's work has increased public awareness of earthquake hazards by providing knowledge and expertise with a wide range of entities that maintain critical lifelines in and out of the Bay Area. His cutting-edge research and effective outreach to the public and decision-makers have resulted in more informed, prepared, and resilient communities living within the Bay Area region. For his outstanding scientific contributions both nationally and internationally, Mr. James J. Lienkaemper is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

Sally Jewell

Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGISHED SERVICE

## MICHAEL P. MCDERMOTT

In recognition of his outstanding vision for the comprehensive delivery of science information and services at the U.S. Geological Survey (USGS).

Throughout his career, Mr. Michael P. McDermott has demonstrated exemplary leadership and dedication to the efficient and effective delivery of USGS science information and services. He was instrumental in developing the USGS Natural Science Network, which looked beyond the consolidation of the USGS Earth Science Information Centers and Libraries to a more comprehensive view for the delivery of all USGS data and information. Under his leadership, these functions were transformed to provide a unified approach to information delivery that better served scientists and the Nation. Mr. McDermott continued optimizing USGS science information delivery by establishing the foundational investment in ScienceBase, a tool for science project data sharing and collaboration. His influence led to the early success of this science data discovery and accessibility tool by providing worldwide access to USGS scientific data. Today, this tool represents a key component of the USGS Open Access policy. Mr. McDermott also worked to ensure the USGS Library (Library) continues to maintain its status as the world's most comprehensive Earth-science library, while also shifting the paradigm to a digital library focus. His vision is leading the Library to expand and improve online access for researchers, while reducing the Library's physical footprint. Despite the numerous challenges associated with a project of this magnitude, Mr. McDermott's management skills are successfully and seamlessly guiding the Library toward realizing its digital library goal. It is through Mr. McDermott's foresight and commitment that USGS science information is now more discoverable and accessible than ever. For his outstanding contributions to USGS, Mr. Michael P. McDermott is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

Sally Jewell
Secretary of the Interior

JAN 04 2017

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## DIANE E. MOORE

In recognition of her outstanding scientific research on seismically active fault zones for the U.S. Geological Survey (USGS).

Dr. Diane E. Moore is recognized for her innovative and comprehensive measurements of mechanical, hydrological, and chemical properties of fault zone materials and their relationship to earthquake production. She has made fundamental observations of fluid-rock interactions that result in fault healing, strength recovery, and permeability reduction under conditions where damaging earthquakes occur. Her studies of the San Andreas and other active faults have led to major advances in understanding why some fault segments produce earthquakes and others deform by stable creep. Dr. Moore's groundbreaking work relating clay-frictional strength to chemical bond energy has provided a framework for understanding rock friction on an atomic scale. She has also made important observations. She is internationally recognized as an authority on of the unique role that serpentinites play in the mineralogical evolution and mechanical properties of large plate-bounding fault systems as well as the role of mineral reactions in reducing fault strength. Dr. Moore has an international reputation for excellence in high-pressure rock mechanics and for her innovative experimental studies of the physics and chemistry of active faults. She has made major contributions to the measurement and interpretation of fault zone properties during the San Andreas Fault Observatory at Depth drilling project and other international deep drilling projects. In recognition of this work, she was selected as a lecturer for the 2016-2017 National Science Foundation EarthScope Distinguished Lecture Series. She also received the 2016 Association for Women Geoscientists Professional Excellence Award. Dr. Moore is a prolific author of numerous high-impact journal articles that have significantly influenced the direction of research in the study of active faults. For her many contributions to our understanding of fault properties that affect earthquake occurrence, Dr. Diane E. Moore is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

JAN 17 2017

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## DAVID S. MUELLER

For his outstanding leadership and scientific contributions to the U.S. Geological Survey (USGS) in the field of hydroacoustic technology.

In the late 1980's, Mr. David S. Mueller recognized that the Acoustic Doppler Current Profiler (ADCP), then an expensive, limited capability, ocean science tool, requiring multi-person teams to deploy, could be adapted and improved to further his research in hydraulics and sediment transport. He began to experiment with the instrument and made many improvements, including the means for its deployment. Due to his success, expertise, leadership, and the demonstrated potential of the ADCP, Mr. Mueller was charged with helping develop a national USGS HydroAcoustics program to facilitate its widespread use in the USGS streamgage network.
Mr. Mueller systematically formulated the necessary concepts of operation, and developed the software, training courses, manuals, and policy documents. He also authored and co-wrote more than 28 major papers on hydroacoustics and its applications, including USGS Techniques and Methods Reports. To expand and promote the technology, he taught scores of USGS HydroAcoustics training classes and chaired scientific and engineering conferences throughout the United States and abroad. He has mentored numerous aspiring hydrologists and hydrographers. Mr. Mueller's efforts have made hydroacoustic instruments the workhorses of the USGS streamgage network. The impacts are vast and quantifiable, with nearly 50,000 USGS flow measurements made each year across the country and thousands more made worldwide by hydrography agencies using the techniques pioneered by Mr. Mueller. He has contributed greatly to the creation of a new core competency in hydrology and to the expanded application of a powerful tool once used solely in the ocean sciences. Use of the instruments has resulted in improved streamflow records and their derivative application has improved the ability of forecasters to save lives by warning of floods and droughts. In addition, water authorities around the world are better able to manage vital water resources, supply safe drinking water, and protect water dependent ecosystems by using the instruments. For his exceptional contributions to the USGS, Mr. David S. Mueller is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

MAY 17 2016

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## DAVID R. NICHOLS

In recognition of his outstanding contributions to the U.S. Geological Survey (USGS) in the Large Vessel Safety program.

Mr. David R. Nichols is recognized for his leadership and support in the development and implementation of a USGS Safety Management System including a benchmark USGS/Department of the Interior (DOI) Medical Clearance Program for the multi-million dollar fleet of USGS large research vessels. In 2005, Mr. Nichols worked closely with USGS leadership to secure support for a large vessel safety working group. He skillfully picked a team of experts to develop safety policy, which led to the approval of a new USGS Safety Manual Chapter establishing a comprehensive vessel safety program for maintenance, operations, and emergency preparedness. Mr. Nichols' interpersonal skills, expertise from decades of work on research vessels, and true passion for safety were vital to this accomplishment. He was designated a Large Vessel Safety Manager, carrying out the complex duties of vessel inspector essential to the successful roll out of the new safety program. Shortly after national implementation of the new safety program, Mr. Nichols recognized the need to improve personnel performance standards addressing more than one hundred USGS employees working the arduous and hazardous duties aboard large vessels. He masterfully leveraged top subject matter experts from DOI, the Office of Personnel Management (OPM), and the Department of Occupational Health to form a Medical Standards Evaluation Team to develop a new OPM-approved medical examination form accepted into the DOI Medical Program. Mr. Nichols tirelessly kept this critical safety initiative moving forward by preparing briefings to top levels management at USGS, DOI, OPM, Human Resources, and the DOI Office of the Solicitor to secure the required USGS/OPM approval. As the designated Bureau Large Vessel Medical Clearance Program Manager, Mr. Nichols successfully implemented all elements of the new medical clearance program including medical examinations, drug and alcohol testing, medical records retention, and a formal Medical Review Board. For his outstanding contributions to the USGS, Mr. David R. Nichols is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

JAN 17 2017

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## KEVIN A. OBERG

For his outstanding leadership and scientific contributions to the U.S. Geological Survey (USGS) in the field of hydroacoustic technology.

In the late 1980's, the Acoustic Doppler Current Profiler (ADCP) was an expensive, limited capability, ocean science tool requiring large boats and multi person teams to deploy. However, in recognition of Mr. Kevin A. Oberg's technical expertise, leadership skills, and the potential of the ADCP, he was charged with developing a national USGS HydroAcoustics program. He experimented with the ADCP and other hydroacoustic equipment and techniques, improved their use, and recruited a worldwide network of USGS scientists and hydrographers to test and build on his work. Mr. Oberg's efforts included development of projects with USGS collaborators; partnerships with other Federal, state, local agencies, and international hydrological organizations in nine different countries; and cooperative research agreements with vendors of hydroacoustic equipment. He authored and co-wrote more than 20 major papers on this technology and its applications including USGS Techniques and Methods Reports and a chapter in the draft reference book titled Handbook of Hydrology. To expand and promote the technology, he taught classes and chaired scientific and engineering conferences in the United States and abroad. Mr. Oberg has contributed greatly to the creation of a new core competency in hydrology and to the expanded application of a powerful tool once used solely in the ocean sciences. Due in large part to his efforts, hydroacoustic instruments are now the workhorses of the USGS streamgage network. Their applicability is vast, with nearly 50,000 USGS flow measurements made each year across the country and thousands more made by hydrological organizations around the world. Use of the instruments has resulted in improved streamflow records and their derivative application has improved the ability of forecasters to save lives by warning of floods and droughts. In addition, water authorities around the world are better able to manage vital water resources, supply safe drinking water, and protect water dependent ecosystems by using these instruments. For his exceptional contributions to the USGS, Mr. Kevin A. Oberg is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

MAY 17 2016

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGISHED SERVICE

## J. ANDREW ROYLE

In recognition of his foremost contributions to the U.S. Geological Survey (USGS) in the field of quantitative ecological theory, which have significantly advanced the management and stewardship of the Nation's wildlife resources.

Throughout his career, Dr. J. Andrew Royle has demonstrated profound scientific insight and technical wisdom in the development and advancement of applied ecological modeling. Over the past decade, Dr. Royle has single-handedly advanced the field of spatial capture-recapture, creating several spatially-explicit approaches for estimating animal population size and density, and unraveling a variety of complex ecological relationships between animals and their environments. He is responsible, in collaboration with his colleagues, for the development of occupancy estimation methods that revolutionized how scientists sample and assess the status of animal populations and ecological communities. He has significantly influenced the use and application of hierarchical models in the field of ecology and wildlife management. He has coauthored numerous publications and published four books on quantitative ecology, which have influenced the management of Federal trust wildlife resources. Dr. Royle has simultaneously developed and taught formal workshops on hierarchical modeling, occupancy estimation, and spatial capture recapture that have now reached thousands of students, scientists, and academicians around the world. His work has benefitted some of the world's most endangered species including polar bears, jaguars, orangutans, California scrub jays, tigers, the Florida panther, and grizzly bears. Dr. Royle's reputation has attracted dozens of graduate students and post-doctoral research fellows to USGS, many of whom are now at the world's most prestigious academic institutions and Federal research centers. His name and use of the techniques he developed are commonplace at national and international meetings and conferences, and he is a leading force in applied ecology. His expertise is routinely sought out by scientists and resource managers the world over who apply robust statistical methods to improve our understanding of population ecology. For his exceptional contributions to the USGS, Dr. J. Andrew Royle is granted the highest honor of the Department of Interior, the Distinguished Service Award.

JAN 17 2017

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## SUSAN RUSSELL-ROBINSON

In recognition of her exceptional contributions to the U.S. Geological Survey (USGS) and the Department of the Interior (DOI) through her extensive program leadership.

In her USGS career of more than 40 years, Ms. Susan Russell-Robinson has served with great effectiveness as a research scientist, program staff scientist, and manager. Her research expertise and knowledge of science has been fundamental to the development of her comprehension of scientific program management. As the Associate Program Coordinator for Coastal and Marine Geology, Ms. Russell-Robinson oversees budget planning and execution to advance Department and Bureau priorities while ensuring fiscal accountability. In recent years, her leadership was essential to successful completion of field surveys to establish the limits of the U.S. Extended Continental Shelf, a multi-agency effort to define U.S. sovereignty over marine resources. Meeting this national priority required major redirection of program resources and complex procurements of research vessels. Ms. Russell-Robinson developed a successful strategy to coordinate the work of procurement and legal staffs from the USGS, DOI, National Science Foundation, and universities to ensure timely completion of required program elements. Her scientific knowledge, financial acumen, and interpersonal skills were crucial to the success of this ambitious program. Ms. Russell-Robinson also has been a singular, driving force in the creation of effective partnerships to advance U.S. National Ocean Policy and is a persistent advocate for DOI ocean leadership. As chair of the New England Federal Partners (NEFP), she has expanded membership from 5 Federal agencies to 14. Her efforts have promoted Federal, state, and international participation resulting in effective regional coordination spanning natural resource, human health, housing, and food security objectives. Her leadership of NEFP and other regional councils serves as a model for ensuring effective leveraging of interests and resources for the National Ocean Policy. Her ability to facilitate open dialogue on critical issues among disparate partners has been essential to building successful relationships and for significant committee accomplishments. For her profound dedication and outstanding contributions, Ms. Susan Russell-Robinson is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

MAY 17 2016

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION
# FOR DISTINGUISHED SERVICE
# JOHN F. SLACK

In recognition of his outstanding contributions to the U. S. Geological Survey (USGS) in the field of mineral resource science.

Dr. John F. Slack is an internationally acclaimed expert on the genesis of metallic ore deposits and is particularly well respected for his research on massive sulfide deposits. These deposits are important sources of zinc, lead, copper, and gold, all of which are crucial elements that support our modern industrial society. Dr. Slack has significantly advanced our understanding of ore forming processes including metal transport, deposition, and concentration. Early in his career, Dr. Slack recognized the key role that the mineral tourmaline plays in recording the hydrothermal conditions on the seafloor during deposition of sulfide minerals. Tourmaline is now used as an indicator mineral by industry as they explore for undiscovered sulfide deposits. In addition, his research serves as the foundation for studies worldwide of tourmaline-rich rocks related to sediment- and volcanic-hosted massive sulfide deposits. Dr. Slack's mineralogical and geochemical studies of sulfide deposits, including the world-class Red Dog deposit in Alaska and iron oxide-copper-gold-rare earth element deposits in Idaho and Missouri, have resulted in new deposit models. These conceptual models now are used by the minerals industry worldwide to explore for sulfide deposits in geologic environments previously not considered for such exploration. Dr. Slack also has made major scientific contributions by examining ancient examples of iron formation, black shales, and related rocks that accumulated in deep oceans. He has developed innovative models of the change in ocean chemistry through time, with implications for the change in oxygen saturation in seawater and its impact on the rise of multi-cellular life forms. Dr. Slack has made fundamental contributions to the disciplines of economic geology, geochemistry, and biological evolution through his career-long focus on massive sulfide deposits, iron formations, black shales, and his innovative models for their development. For his exceptional contributions to the mission of the USGS and the international science community, Dr. John F. Slack is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

MAY 17 2016

Sally Jewell
Secretary of the Interior

# United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

## CITATION

## FOR DISTINGUISHED SERVICE

## PAUL A. SPUDICH

For his outstanding leadership and scientific contributions to the U.S. Geological Survey (USGS) in the fields of earthquake sources and hazard mitigation in seismology.

Dr. Paul A. Spudich is a world leader in understanding the physics of earthquake sources and resolving earthquake rupture processes from waveform modeling. Early in his career he analyzed a seismic array in California's Imperial Valley to show that the direction and speed of earthquake rupture propagation (directivity) impacted levels of strong ground motion. From this effort grew a major initiative to record repeating magnitude 6 earthquakes at Parkfield, California, where he detected northward propagation of the 2004 earthquake. Dr. Spudich also developed an advanced theoretical technique called the isochrone theory for synthesizing high-frequency ground motions, which has become the most widely used formulation for forecasting high-frequency ground motions from nearby earthquakes. His recent work on source modeling, performed with colleagues from the Insituto Nazionale di Geofisica e Vulcanolgia, is remarkable. Rather than determining a single finite-fault model for an earthquake by fitting a set of waveforms, they determined a population of acceptable models. This approach obtains the most salient characteristics of the rupture process and demonstrates the limits of the data and the source inversion process. For more than 35 years, Dr. Spudich has advanced understanding of the physics of earthquake sources through both theory and observation. He has made estimates of earthquake hazards more accurate and through these improvements influenced important advances in structural engineering. He was elected an American Geophysical Fellow in 2000, received a Meritorious Service Award in 2011, and has served on the Board and many subcommittees of the Seismological Society of America. Dr. Spudich has provided pivotal guidance to the Nuclear Regulatory Commission to advance the safety of the Nation's nuclear reactors. Throughout his career, he has brought an extremely high technical standard to his work and inspired the same in others. For his exceptional contributions to the USGS, Dr. Paul A. Spudich is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

Sally Jewell
Secretary of the Interior

THE SECRETARY OF THE INTERIOR
WASHINGTON

# CITATION

## FOR DISTINGUISHED SERVICE

## DON A. VROBLESKY

For his outstanding leadership and scientific contributions to the U.S. Geological Survey (USGS) in the field of groundwater contaminant hydrology.

For more than 35 years, Dr. Don Vroblesky has been in the forefront of developing innovative methods for assessing and remediating groundwater systems that have been contaminated by human activities. The contaminants that his work has addressed include toxic heavy metals, petroleum hydrocarbons, and volatile organic compounds (VOCs). His interest in these problems began in the early 1980s when he was assessing VOC-contaminated groundwater at the Aberdeen Proving Grounds in Maryland. While paddling a canoe in a creek that was receiving VOC-contaminated groundwater, he noticed methane gas bubbling up from the creek sediments. Knowing that VOCs preferentially partitioned into gasses, he reasoned that he could map the areal extent of contamination by collecting and analyzing the methane bubbles. This proved true, and it led to his designing and patenting gas samplers that mimic the action of the methane bubbles. During his career, he has received patents for 3 devices (the passive diffusion bag sampler, the pore-water sampler, and the in-well baffle) that, according to the U.S. Patent office, are some of the most successful USGS patents. These devices are much less expensive to deploy than monitoring wells, and their use has saved the U.S. Department of Defense an estimated 50 million dollars over the last 30 years. In addition, Dr. Vroblesky has unpatented inventions which include passive vapor diffusion samplers for mapping VOC-contaminated groundwater discharge zones beneath streams and lakes, a method to recover subsurface microbes from fractured-rock aquifers using downhole mesocosms, and many more all of which are used internationally. These patented and unpatented inventions have resulted in estimated savings of hundreds of millions of dollars to the U.S. Government alone. In addition to his research, patents, and numerous publications and journal articles, Dr. Vroblesky has mentored several junior scientists during his career. For his exceptional contributions to the USGS, Dr. Don A. Vroblesky is granted the highest honor of the Department of the Interior, the Distinguished Service Award.

JAN 17 2017

Sally Jewell
Secretary of the Interior