

SPEAKERS

SEAN COLLIER | Sean.Collier@snwa.com

Sean is a hydrologist with the Southern Nevada Water Authority in Las Vegas Nevada. Sean has been with the Authority for 20 years where he works on projects to increase and extend southern Nevada’s supply of water from Colorado River system through land following programs, computer modeling, water right management and participation in cloud seeding programs. Sean represents the Southern Nevada Water Authority’s membership on the North American Weather Modification Council and is the current president of the Council.

Sean is originally from upstate NY where he graduated from State University of New York at Oneonta with a degree in Water Resources Management.

JEFFERY FRENCH | jfrench@uwyo.edu

Research specializes in atmospheric measurements, specifically clouds and precipitation, from instrumented Research Aircraft.

- Received PhD from Univ. of Wyoming in Atmospheric Science in 1998
- Worked 7 years (1999-2005) for NOAA making measurements of energy exchange between surface and lower atmosphere from Aircraft to study evolution of hurricanes
- At Univ. of Wyoming (first research scientist, more recently professor) for 17 years (since 2006); working with cloud and precipitation measurements with the Univ. of Wyoming King Air Research Aircraft.
- Recent projects have focused on mixed-phase clouds and included investigating (1) thunderstorms in the United Kingdom, (2) freezing precipitation in southeastern Canada, and (3) and cloud seeding in the intermountain west (SNOWIE).
- Currently is Professor in Atmospheric Science, Head of the Atmospheric Science Department, and Manager of University of Wyoming Airborne Research Facility.

SARAH TESSENDORF | saraht@ucar.edu

Dr. Sarah Tessendorf is a Project Scientist in the Research Applications Laboratory (RAL) of the National Center for Atmospheric Research (NCAR). She currently oversees numerous cloud

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microphysics research projects in RAL, including topics on improving model microphysics parameterizations and winter orographic cloud-seeding research.

She has published over 45 peer-reviewed journal articles and was a Principal Investigator leading the recent SNOWIE (Seeded and Natural Orographic Wintertime clouds: the Idaho Experiment) project. She also serves on the World Meteorological Organization Expert Team on Weather Modification.

Tessendorf received her B.S. degree in Meteorology/Climatology from the University of Nebraska-Lincoln, and her M.S. and Ph.D. in Atmospheric Science from Colorado State University.

BRUCE A. BOE | bboe@weathermodification.com

Vice President, Meteorology – Weather Modification International
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Education

1977- B.S. Earth Science/Meteorology. Montana State University, Bozeman.

1981- M.S., Atmospheric Science, University of Wyoming, Laramie.

Expertise and Relevant Experience

Bruce has worked with clouds, cloud physics, cloud seeding, nucleation measurement, and radar since 1974. He is presently engaged in the conduct and evaluation of cloud seeding to increase precipitation in Saudi Arabia, as well as winter programs in the States of Idaho, Wyoming, and Colorado, and California, and warm season programs in Alberta and Panama.

He has worked for the U.S. Bureau of Reclamation and the States of Montana and North Dakota. Since 2001 he has been employed by Weather Modification International, where he currently serves as the Vice President of Meteorology.

DEREK BLESTRUD | DBlestrud@idahopower.com

Derek Blestrud has been involved in weather modification since 2003 and is currently a Senior Atmospheric Scientist for the Idaho Power Company. His primary focus is on the research and operations of cloud seeding in southern Idaho. He was heavily involved in the success of the SNOWIE (Seeded and Natural Orographic Wintertime Clouds: the Idaho Experiment) research project. Derek has worked on cloud seeding projects in North Dakota, Wyoming, India, Alberta, and Idaho. He has served as President for the Weather Modification Association as well as the North American Weather Modification Council.

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PATRICK GOLDEN | pgolden@heritage-ec.com

Patrick Golden is the owner and principal biologist with Heritage Environmental Consultants. He provides environmental planning, permitting, and science services to industry and government clients. His focus is on front-end environmental services that support project planning and development by complying with the regulatory, environmental, legal, and political constraints that may affect proposed projects. Mr. Golden has a B.S. in Biology from the University of Colorado and specializes in aquatic and terrestrial ecology. Mr. Golden conducts biological and other environmental studies including wildlife and fisheries sampling, sediment and water sampling, and snow sampling. He has designed and implemented multiple aquatic and snow sampling studies for weather modification programs in the western United States and has completed environmental analyses and permitting for ground-based weather modification programs located on private, local, state, and federal lands, as well as aerial programs.

SHAUN PARKINSON | SParkinson@idahopower.com

Early in Shaun’s career as a hydrologic engineer at Idaho Power, he was tasked with assessing whether cloud seeding was a viable option to augment water supplies for hydropower generation. Shaun has been involved with cloud seeding for over 30 years and has managed an operational cloud seeding program for over 20 years. The first operational program was in the Payette basin. In 2017 the Payette basin was the watershed studied by SNOWIE (Seeded and Natural Orographic Wintertime Clouds: the Idaho Experiment).

FRANK MCDONOUGH | Frank.McDonough@dri.edu

Research Meteorologist; Director of the Cloud Seeding Program | Desert Research Institute, Reno Nevada

Professional

- Studying the meteorology of subfreezing clouds of North America for the past 25 years.
- Worked as a weather forecaster and on-board scientist on numerous research aircraft icing programs from the US and Canada to Norway and Sweden.
- Co-developed the NOAA-FAA Operational and Forecast Icing Products, which identify aircraft icing hazards and help pilots avoid them
- Have been conducting operational and research cloud seeding programs for the past 10 years.
- Director of the Nevada State Cloud Seeding Program.

Personal

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-I have spent most of the past 45 winters skiing and snowboarding in the backcountry of the Rocky Mountains and Sierra Nevada Mountains.

-Avalanche survivor.

RACHEL GRAY | RGray@sawpa.org

Rachel Gray is the Water Resources & Planning Manager at the Santa Ana Watershed Project Authority. She works on various projects such as the innovative Santa Ana River Watershed Weather Modification Pilot Program, Upper Santa Ana River PFAS Regional Analysis, and multiple multi-agency water quality task forces. As well as serving as an Administrator for the Lake Elsinore and San Jacinto Watershed Authority (LESJWA).

Rachel’s background specializes in local water resource management. With eleven years’ experience consulting as a Senior Staff Geologist for Geosyntec and an additional five years as a Water Resource Planning Manager for Eastern Municipal Water District, one of SAWPA’s member agencies.

Rachel has a Master of Science Degree in Environmental Engineering from the California State University of Fullerton and a bachelor’s degree in Geology from the university of Southern California.

KALA GOLDEN | kala.golden@idwr.idaho.gov

Kala Golden is a project manager with the Idaho Department of Water Resources (IDWR), and the Program Manager of the Idaho’s Cloud Seeding Program, under the Idaho Water Resource Board (IWRB). Kala’s background is in natural resource management and policy, and financial programs. Following undergraduate studies at Oregon State University, she spent her early career working in stream restoration and water project funding in Central Oregon, before relocating to Idaho in 2017. Kala has been with IDWR since 2018 and has supported the State in various capacities that include management of the State’s Water Project Loan Program, facilitation of state committees, and coordination of minimum stream flow rights across the State.

JAKE SERAGO | jserago@utah.gov

Jake is a water resources engineer with 10 years of professional experience in hydrologic and hydraulic analyses, dam breach analysis, hydraulic design and computer modeling. He is the manager of the Utah Cloud Seeding Program and enjoys spending time with his friends in weather modification.

ROY RASMUSSEN | rasmus@ucar.edu

Roy Rasmussen received a B.S. degree in Physics and Mathematics from Wheaton College, Illinois in 1978, and a Masters and PhD from the University of California, Los Angeles in Atmospheric

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Sciences in 1980 and 1982, respectively, specializing in cloud physics. After receiving his doctorate, he was an Advanced Study Program postdoctoral researcher at National Center for Atmospheric Research (NCAR). He is currently a Senior Scientist and director of the Hydrometeorology Applications Program at the Research Applications Laboratory at NCAR. He is an American Meteorological Society Fellow and has ten patents and over 100 peer reviewed journal papers.

MEL KUNKEL | MKunkel@idahopower.com

Mel Kunkel has been involved in weather forecasting for nearly 40 years and is currently a Senior Atmospheric Scientist for the Idaho Power Company working with cloud seeding for 12 seasons. He was heavily involved in the success of the SNOWIE (Seeded and Natural Orographic Wintertime Clouds: the Idaho Experiment) research project as part of the operations team.

FRANK GARIGLIO | FGariglio@idahopower.com

Frank Gariglio joined Idaho Power in 2015 as a Water Resources Engineer. He currently leads Idaho Power's Operations Hydrology group, which focuses on streamflow forecasting, reservoir operations, and management of Idaho Power's hydroelectric resources. Frank holds both bachelor's (from Colorado State University) and master's (from the University of Idaho) degrees in Civil Engineering and is a registered Professional Engineer in Idaho.

Frank enjoys rafting, hiking, camping, cross country skiing, and generally exploring Idaho's outdoors year-round with his wife and two kids.

DARIN LANGERUD | dlangerud@nd.gov

North Dakota Atmospheric Resource Board – a Division of the ND Department of Water Resources

Darin Langerud is a proud graduate of the University of North Dakota, class of 1991. Armed with his degree in Meteorological Studies, Darin embarked on a career in the field of weather modification science and operations, first as a radar meteorologist on programs in North Dakota, California and Istanbul, Turkey, then as the Chief Meteorologist for the North Dakota Atmospheric Resource Board. He was promoted to Director of the Board in 2000 and continues to serve in that position.

Darin is a Weather Modification Association Certified Manager (CM), a member of the ASCE Atmospheric Water Management Standards Committee and the American Meteorological Society

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and is North Dakota’s delegate on the North American Weather Modification Council. He’s also a part-time drummer in a rock and roll band.

DAVE “DK” KANZER | dkanzer@crwcd.org

As the Director of Science and Interstate Matters, Kanzer works to address the impacts posed by widespread warming, aridification and growth to the water quality and quantity of the Colorado River Basin, with a focus on western Colorado watersheds.

For almost 30 years at the Colorado River District, DK has focused on targeted implementation programs to address water supply and demand imbalances that have been exacerbated by growth and climate change, while endeavoring to reduce environmental impacts. As part of large-scale partnership efforts involving all seven Colorado River Basin states, Kanzer has been active in drought contingency planning efforts that involve coordinated reservoir operations, management of regional consumptive water uses and increasing water supplies via cloud seeding across the Upper Colorado River watershed.

Together, these efforts are designed to increase water supply security for more than 40 million people reliant on the Colorado River Basin, including all interests, stakeholders and beneficiaries across the agricultural, municipal, environmental, and recreational sectors.

Kanzer is a registered professional engineer in Colorado; he earned his Bachelors and Master’s Degrees in Geological Engineering from the Colorado School of Mines.

ANDREW RICKERT | andrew.rickert@state.co.us

Andrew earned his Bachelors Degree in English Literature and his Masters Degree in Public Administration with a concentration in Environmental Law. He has been the Program Manager for Colorado’s Weather Modification Program for over 6 years helping to permit 8 total programs across the State of Colorado.

MATTHEW SCRUDATO | mscruda@countyofsb.org

Since 2016, Matthew has worked as a Senior Hydrologist with the Santa Barbara County Water Agency located on the Central Coast of California. He focuses primarily on groundwater monitoring and policy issues to implement the Sustainable Groundwater Management Act (SGMA) regulations implemented by the State. In addition, he works with local agencies to maintain the cloud seeding program to enhance precipitation in the watersheds above our major reservoirs. Prior to his time at the Water Agency, Matthew worked in California for nearly 20 years holding various positions with the U.S. Geological Survey, primarily in surface and groundwater data and modeling.

Matthew is originally from Brooklyn, N.Y. where he graduated from the State of New York at Plattsburgh with a Bachelor’s Degree in Natural Resources/Water Resources Management. He also holds a Master’s Degree from CalPoly State University in Hydrology.

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