

FOUR CORNERS SNOW AND AVALANCHE WORKSHOP

SATURDAY, OCTOBER 26TH • SILVERTON, COLORADO



TIME	SPEAKER	TOPIC
7:30	Registration Opens	Please arrive before 8:30 if you have not pre-registered.
8:30	Doors Open	Refreshments Available
9:00	SAS Staff	Opening Remarks
9:10	Betsy Armstrong & Richard Armstrong	A History of the San Juan Avalanche Project in the San Juan Mountains, Southwestern Colorado, USA
9:50	Chris Wilbur	Avalanches of March 2019: An Engineers Perspective
10:20	Morning Break	
10:35	Sallie Barney & School Students	Silverton School 2nd and 3rd Grade 2019 Snow Project
10:55	Starr Jamison	Continuing our Adventures and Careers with a Healthy Mind: Support for Grief, Trauma and Stress Injuries
11:25	David Lovejoy	Avalanches in Arizona
11:55	Lunch	
1:00	Journey Lines	Ski Film: The Brotherhood Escort with Josh, Ricke, and Isaiah
1:30	Ryan Howe	The Fine Art of Explosive Testing and Mechanical Compaction in Ski Area Operations
1:50	Kris Sanders	Weather in the Four Corners Region & The Upcoming Winter Outlook
2:20	Jeff Deems	Laser Mapping of Mountain Snowpacks: New Tools for Snow Hydrology and Avalanche Science
2:50	Andy Bond	From the Ground Up: The Genesis for the Taos Avalanche Center
3:20	Afternoon Break	
3:35	Jeff Davis	Jumping into the Deep End: A Recap of the 2019 Winter Season on the Million Dollar Highway
4:05	Jake Hutchinson	Left of Whoomph: How the US Marine Corps Combat Hunter Program Can Help us Use Heuristics to our Advantage in the Mountain Environment
4:40	Panel	Questions and Answers Session
5:00	Michael Ackerman	Closing Remarks
5:05	Reception	Join us at the Wyman Hotel: 1371 Greene Street
6:30	That's All Folks	Thanks for Coming!

TIMES, SPEAKERS, AND TOPICS ARE SUBJECT TO CHANGE

OUR SPEAKERS

BETSY ARMSTRONG & RICHARD ARMSTRONG - THE INSTITUTE OF ARCTIC AND ALPINE RESEARCH

Betsy Armstrong and Richard Armstrong have been involved in ice, snow and avalanche research since the 1970s. Since the San Juan Avalanche project their careers have taken them to frozen places across the world. We are happy to have them back in Silverton for 4SAW!

BETSY R. ARMSTRONG

President, Armstrong Associates, a communications and consulting group specializing in the cryosphere and book publishing. Communications specialist for the USAID-funded CHARIS project (Contribution to High Asian Runoff from Ice and Snow), scientific editor for numerous organizations, associate head of Colorado Avalanche Information Center, researcher for University of Colorado INSTAAR San Juan Avalanche Project, Blue Glacier Mass Balance Project, Mount Olympus University of Washington. Publishing director for numerous organizations, including Denver Museum of Nature & Science and others. Education: MA, Geography, University of Colorado, Boulder.

RICHARD L. ARMSTRONG

Senior Research Scientist, University of Colorado, National Snow and Ice Data Center (NSIDC); Associate Director, Cryospheric and Polar Processes Division, Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado; Council of Fellows, CIRES; Associate Professor, Adjunct, Department of Geography, University of Colorado, Boulder; Principal Investigator for the USAID-funded CHARIS project (Contribution to High Asian Runoff from Ice and Snow) 2013-2019 <http://nsidc.org/charis>) Career research has covered a variety of relevant topics which include: evaluation of fluctuations of glaciers and seasonal snow cover as indicators of climate change, assessments of the individual contribution of melting seasonal snow and glacier ice to the water resources of high mountain basins, passive microwave satellite remote sensing of snow, ice and frozen ground, validation and cross-calibration of satellite sensor data to assure quality time series data in support of accurate climate change detection, and former director of various relevant field projects including Blue Glacier Mass Balance Project, Mount Olympus, University of Washington and San Juan Avalanche Project, San Juan Mountains, University of Colorado. Education University of Colorado, Boulder: 1985 Ph.D. (snow physics) Geography; 1976 M.A. Geography (glacier mass balance)

CHRIS WILBUR - ARTHUR I. MEARS, P.E., INC. & WILBUR ENGINEERING, INC.

Chris Wilbur is an Avalanche Defense Engineer based in Durango. He is 30+ years into an engineering career that started with geotechnical engineering, moved to the geologic hazards of rockfall and debris flows and is now focused on snow avalanche mapping, risk assessments and structural defenses. He has partnered with Art Mears on over 50 projects including mitigation programs for DOTs, mining projects, electric transmission lines, pipelines, ski resorts and residential developments. He is a licensed engineer in eight western states, and winter response team leader for La Plata County Search & Rescue.

SALLIE BARNEY - SILVERTON SCHOOL

Sallie Barney has been a teacher at the Silverton Elementary School for 15 years. Her class of second and third graders studied weather, snow and avalanches for the spring 2019 semester last school year. As was the tradition set by classes before them, they culminated their learning with an overnight stay at the St. Paul Lodge where they conducted an experiment to calculate how much water was in the snow. Upon their return to the classroom, they applied that information to figure out how much snow it would take to grow an orange or take a shower and represented that amount of snow by building representative structures. A panel of snow and water experts reviewed their work as a part of annual student portfolio presentations. Their presentation for this workshop reflects the work and understanding they developed over the semester as well as the cumulative learning from other classes' work.

STARR JAMISON - SURVIVORS OF OUTDOOR ADVENTURE AND RECOVERY

Starr's father would tell you she chose Western State College in Gunnison Colorado not for academics but it's proximity to a ski area. After graduation she started exploring Gunnison County's backcountry because of the deep-rooted skiing culture, wealth of knowledge and beautiful mountains surrounding her. Also, realizing the snow is significantly better if you head West of Town. She then pursued a PhD in ski bumming: freshman and sophomore year in Crested Butte and junior year in Utah. Like most folks who want to spend every day in the backcountry and a desire to learn, she signed up for an Avi 1, then Avi 2, a Ski Mountaineering course then days leading to years in the backcountry. Exploring new mountains and snowpack not only in the backyard but also Alaska, Europe and Canada. With seven years of backcountry skiing under her belt, Starr lost 3 friends to avalanches and was hit by a car while bike touring; in a 12-month time span. These incidences attempted to dismantle her passion, mental and physical ability to do what she loved. Instead, she created Survivors of Outdoor Adventures and Recovery: launching a website SOAR4life.org and multiple Social Media sites with information and resources for those involved in adventure accidents. She recently shared her experiences on the American Alpine Club's podcast "The Sharp End- The Aftermath Ep. 35 ". Now Starr is partnering with The Responder Alliance as an Ambassador to teach organizations and volunteers about Stress Injury formation and Psychological First Aid tools available to those who deal with exposure and trauma.

DAVID LOVEJOY - KACHINA PEAKS AVALANCHE CENTER

David Lovejoy has been involved in avalanche education and backcountry ski guide training for 40 years as a faculty member in Prescott College's Adventure Education Department, where he is now Emeritus Faculty. He is a founding member of Kachina Peaks Avalanche Center Inc. and currently in the roles of board member, avalanche instructor, forecaster and advisory editor. Over the years David has studied the snowpack on San Francisco Peaks and elsewhere around the world. Since 2004 he has served as a snow safety consultant on the Arizona Snowbowl Ski Patrol.

SKI FILM: THE BROTHERHOOD ESCORT - JOURNEY LINES

We have all had friends who were taken too soon and we all want a way to honor them. After their time as Navy SEALs, Josh Jespersen and Ricke Schuler have longed for a way to connect with their fallen friends. They found a subtle feeling of connection in the mountains and have spent years chasing that emotion. In a final effort to fully understand that feeling, Josh and Ricke disappeared into the Sangre de Cristo Range for 13 days. After 106 miles above 11,000 feet in an incessant blizzard, they completed the first ever ski/splitboard traverse of the entire Sangre de Cristo Range. Filmmaker Isaiah Branch-Boyle joined them on the traverse to document what they found along the way. "The Brotherhood Escort" follows Josh and Ricke's journey through grief, longing, starvation, and struggle, as they attempt to define a feeling of connection in the alpine to the friends they lost in war.

JOSH JESPERSEN

Joining the military after a troubled youth, he found direction and purpose in war. After separating from the service, his longing to remember his friends who didn't make it back forced him to push further into the mountains.

RICKE SCHULER

The son of a career forest ranger, Ricke grew up in southwest Wyoming. He found a brotherhood in the military, only to have it taken away from him. He now seeks their connection in the mountains while pushing his limits.

ISAIAH BRANCH BOYLE

A film director from the southwest. He has worked with National Geographic, Patagonia, The North Face, and Google. Isaiah grew up in Colorado and continues to tell stories about people's relationship to the land in the Four Corners.

RYAN HOWE - TELLURIDE MOUNTAIN GUIDES

Ryan Howe has worked as an avalanche professional, operations manager, guide, patroller and educator over the last two decades. Through failure, success, and the patience of mentors he has built a solid foundation of experience and has a desire to give back to the trade.

KRIS SANDERS - NATIONAL WEATHER SERVICE FORECAST OFFICE GRAND JUNCTION

Kris is a Forecaster at the National Weather Service (NWS) Forecast Office in Grand Junction, CO. Prior to being a Forecaster in Grand Junction, CO, he went to Saint Louis University for both his undergraduate and masters degrees. He was a student volunteer at the NWS Forecast Office in St. Louis, MO, and during his last year of graduate school went through the Student Career Experience Program. After graduation he became an Intern at the NWS Forecast Office in Topeka, KS and eventually a Forecaster. While in Topeka he taught an Operational Forecasting course to undergraduates at the University of Kansas. He enjoys all aspects of weather and has been heavily involved in research that focuses on freezing rain and hail. He helped develop the Freezing Rain Accumulation Model, which is used to forecast ice accumulation across the NWS. He participated in the HailSTONE research field project, which was a grassroots effort to study hail sizes and fall characteristics within thunderstorms. Outside of work he enjoys hiking, fishing, camping, snowboarding, floating, and photography.

JEFF DEEMS - CENTER FOR SNOW AND AVALANCHE STUDIES

Emerging from the legendary ski town of San Diego, Jeff's skiing habit was solidified as a student at CU Boulder and through time in Colorado mountain towns. Degrees from Montana State and Colorado State added some small measure of legitimacy to that pursuit. As a researcher at the National Snow and Ice Data Center at CU Boulder, and a co-founder of the Airborne Snow Observatory, Jeff studies spatial variability in snow properties with field measurements, models, and remote sensing.

ANDY BOND - TAOS AVALANCHE CENTER

Andy grew up in Massachusetts before heading west to attend college. His passion for skiing and climbing kept him here, and in 2008 he started guiding with RMI Expeditions. Andy has guided on Mt. Rainier, Denali, and in Antarctica. He has worked in ski patrolling and developing a GIS application for avalanche mapping. This led him to found the Taos Avalanche Center, where he is executive director and forecaster.

JEFF DAVIS - COLORADO AVALANCHE INFORMATION CENTER

Jeff grew up in Ohio and started skiing on the snow-covered landfills of Southern Michigan. Following a ski trip to Colorado, he was hooked on the Rocky Mountains and hung a map of the state above his bed. Jeff started his career in the ski industry after graduation from Ohio Wesleyan University. He patrolled in Southern Vermont for two seasons. He moved to Colorado and worked at Copper Mountain where his passion for snow, backcountry skiing, and avalanche mitigation took off. At Copper, he was a Terrain Management Foreman within the snow safety program. To broaden his knowledge of snow, Jeff spent three summers in the Southern Hemisphere patrolling and working with the snow safety team at Mount Hutt in New Zealand. Jeff has worked as a CAIC backcountry forecaster and now works as highway forecaster in the North San Juan Zone. He is excited to share his passion for safety with the avalanche community. When not in the snow, Jeff enjoys riding his bike, playing hockey, working on his house in Sawpit, and spending time with family on Lake Michigan.

JAKE HUTCHINSON - AMERICAN AVALANCHE INSTITUTE

Jake has more than 25 years of professional and personal experience skiing and climbing in avalanche terrain. His diverse background includes 25+ years ski patrolling and avalanche forecasting in the Wasatch at The Canyons and Alta, operational forecasting for the Going-to-the-Sun Road in Glacier National Park and extensive work with WBR, CRAD and other US avalanche SAR organizations. He is an A3 Certified Instructor and served as the A3 Certified Instructor Rep for almost a decade. He is currently the Membership Trustee on the A3 Governing Board. He has been teaching avalanche courses for AAI (American Avalanche Institute) for 20 years. He is the General Manager for Gym Jones in Salt Lake City and runs the Mountain Mobility Group specializing in training Tier 1 military assets in environmental stress inoculation and survival. Between time in the mountains you will find him exploring remote deserts and mountains on one of his motorcycles, head buried in the welding shop or off training his SAR dog-in-training Colt.

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