Draft Agenda 3/15/24

91st Annual Western Snow Conference
April 22 - 25, 2024

“Watersheds to Estuaries”
Oregon State University, Corvallis, Oregon

http://westernsnowconference.org
westernsnowconference@gmail.com

Monday, April 22

9:00 – 1:00 Short Course: (includes lunch) – Burt Hall Room 193
“Rivers Running: Dam Removal Methods, Developments, and Results in the Pacific Northwest.”

2:00 – 5:00 WSC Executive Committee Meeting – Strand Hall Room 340

5:30 – 7:00 Registration and Hospitality

Tuesday, April 23

7:30 – 8:30 Author’s Breakfast – Memorial Union Ballroom

7:30 – 9:00 Conference Registration, Vendor Setup, Poster Setup
Memorial Union Ballroom

CONFERENCE OPENING SESSION – Memorial Union Ballroom

9:00 – 9:15 Opening Remarks: Teri Smyly, WSC General Chair & Daniel Fisher, Conference Chair

9:15 – 9:30 Welcome: Tuba Ozkan-Haller, Dean of the OSU College of Earth, Ocean, and Atmospheric Sciences
9:30 – 10:00  Keynote: Phil Mote, Vice Provost and Dean of the OSU Graduate School, “Should I Teach my Grandkids to Ski? An Examination of Climate Change and Snow in the Western US.”

10:00 - 10:30  Vendor Introductions

Alpine Hydromet:  Matt Heggli
Campbell Scientific:  Tyler Laudenklos
ETI Instrument Sensors:  Andrew Ehlers
Geonor :  Jim Brylawski
Kisters, North America:  Elizabeth McGoldrick
Mountain Hydrology:  Eli Boardman

ORAL SESSION I -  Snow Properties - Lab to Field

10:30 - 10:45  A Laboratory-based Field Spectrometer Inter-comparison for the Measurement of Snow Spectra - Ben Roberts-Pierel

10:45 - 11:00  Comparing Snow Albedo Measurements to Models in Complex Terrain When Upwelling Shortwave Fluxes Exceeds Downwelling Shortwave Fluxes - Daniel Feldman

11:00 - 11:15  Aspect Controls on Snow Properties Through Time in a Subalpine Forest Using GPR - Kori Mooney

11:15 - 11:30  The Future of Hoar-frost: Observations from the SAIL Field Campaign - William Rudisill

11:30 -11:45  How Strong is Snow? Snowpack Micromechanics across Grand Mesa, Colorado using NASA SnowEx SnowMicroPen Data Molly Tedesche

11:45 – 1:15  Lunch (on your own)

ORAL SESSION II -  Snow Properties - Field to Space

1:15 - 1:30  Retrieval of Snow Surface Properties from Optical Satellite Data by Snow Surface Spectrum Radiative Transfer Modeling - Rune Solberg
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>1:30 - 1:45</td>
<td>NASA SnowEx Snow Albedo Field Campaign 2023: A Collaborative Effort to Improve Observations of Snow Albedo in the Boreal Forest Over Scales of Space and Time - Anton Surunis</td>
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<td>1:45 - 2:00</td>
<td>Enhancing Snow Albedo Process in Noah-MP Land Surface Model - Cenlin He</td>
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<td>2:00 - 2:15</td>
<td>Enhancing Noah-MP LSM Snow Cover Fraction with a Scale-Aware Parameterization - Ronnie Abolafia-Rosenzweig</td>
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<td>2:15 - 2:30</td>
<td>NASA WWAO Refining SWE Measurement - Mark Davidson</td>
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<td>2:30 - 2:45</td>
<td>Addressing the Largest Source of Uncertainty in Snow Modeling - Micah Sandusky</td>
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<td>2:45 – 3:30</td>
<td><strong>Break - Vendor Exhibits and Poster Sessions</strong></td>
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**Poster Presentations**

Pramod Adhikari “Elevation Dependence of Precipitation and Snowpack in Dynamically Downscaled GCM Projections Across the Western United States”


Jesse Attias “Determinants of a Headwater Catchment’s Declining Multidecadal Rainfall-Runoff Ratio”

Anton Avchyan “Multi-Scale Assessment of Remotely Sensed Reflectance and Snow Albedo in Heterogeneous Terrain”

Kyla Bazlen: “Evaluating the Relationship Between Snowpack and Streamflow Standard Deviation of Timing”

Joseph Becker “Exploring the Effects of Liquid Water Content on Snow Albedo Through Field Measurements in Southeastern Minnesota”

Keegan Bellamy “Spatial and Temporal Variability of Temperate Snowpack Properties in Southeast Alaska and Northern Maine, USA”

Curtis Beutler “Forest Structure Controls on Canopy Snow Interception: Insights on Forest-Snow Interactions in a Colorado Watershed”

Clay Brandow “Reflections on a Study for a Failed Ski Area Proposal”

Elizabeth Burakowski “The Northeast Snow Survey Feasibility Study”
Christina Chow  “Modeling of Snowpack in The Northeast Using iSnobal”

Ava Cooper  “Identifying and Addressing Gaps in Monitoring Networks in California”

Ally Fitts  “Analyzing Variation of Post-Fire Snow Albedo Across Spatial Scales of Observation”

Anne Heggli  “Developing a Cooperative Snow Temperature Survey”

Daniel Hogan  “The Perfect Year for Sublimation: Assessing the Impact of High Wind Events on Seasonal Sublimation in the East River Basin, CO”

Kajsa Holland-Goon  “Evaluating Snow Depth Measurement Accuracy in the Boreal Forest: Comparing Ground-Penetrating Radar, Probes, and Trench Data”

Janet Intrieri  “Profiles of Observed Snow Temperature and Derived Snow Density from a Thermistor String in the 2022-2023 Colorado Snowpack”

Kevin Jo  “A Drone-Based LiDAR Assessment of Snowpack Variations at Hogg Pass, Oregon”

Micah Johnson  “Estimating Vertically Resolved Density Profiles with the Lyte Probe”

Erica Kim  “Is the Changing Climate Impacting Winter at Ski Resorts in the Pacific Northwest?”

Marianna Marquardt  “Simulating the Effect of Liquid Water Content on Spectral Albedo through a Photon Tracking Snowpack Model”

Dan McEvoy  “Spring Heat Waves Drive Record Western United States Snow Melt in 2021”

Bareera Mirza  “Evaluating 1km Sentinel-1 Snow Depth in a Cloud-based Modeling- Data Assimilation System Over the East River Basin, Colorado”

Ross Mower  “A Physically-Based Approach to Assess Snow Heterogeneity and Its Influence on Streamflow Efficiency in the Upper Colorado River Basin”

Patrick Naple  “Fusing MODDERS and OLI-DRFS to Improve Terrain Scale Estimates of Snow Radiative Forcing”

Anna Pfohl  “What Resolution Snow Model is Needed for Accurate Streamflow Timing and Volume Simulation?”

Baird Quinn  “Development and Evaluation of High-Resolution Snow Depth Estimates using Physiography, Machine Learning, and Airborne LiDAR Data”

Mark Raleigh  “Assessing the Value of Long-term Spatially Distributed Snowpack Datasets Across the Western U.S. for Operational Water Supply Forecasts”

Wyatt Reis  “Classifying Contiguous United States Rain-on-Snow Flood Hazard”
Erich Schreier  “Assessing the Accuracy and Scalability of Using Lake Water Pressure to Estimate Snow Water Equivalent”


Lucy Waghorn  “Meltwater storage in a high accumulation, modest melt climate: A comparison of SNOWPACK and observations on Mount Waddington, British Columbia”

Reggie Walters  “Leveraging Over a Decade of Airborne Snow Water Equivalent Retrievals to Improve Operational Runoff Forecasts at Hetch Hetchy Reservoir”

Emma Watts  “Quantifying the Impact of Rain-on-Snow Induced Flooding in the Western United States”

Ian Whidden  “Forest Canopy Effects on Snow Depth and Density of Seasonal and Transient Mountain Snowpack in a Maritime Snow Climate”

Brent Wilder  “Mapping Grain Size from Helicopter-borne Lidar Reflectance”
Kevin Jo  “A Drone-Based LiDAR Assessment of Snowpack Variations at Hogg Pass, Oregon”

**ORAL SESSION II (Continued)**


3:45 - 4:00  Improved Snow Distribution Estimates Using a Rapid-Response LiDAR and Photogrammetry System - Naheem Adebisi

4:00 - 4:15  Machine Learning Shows Promise in Estimating Snow Water Equivalent in Sierra Nevada - Engela Sthapit

4:15 - 4:30  Future of Landsat’s Optical Snow Observations is Bright - Christopher Crawford

4:30 – 5:30  **Vendor Exhibits and Poster Sessions**

**Wednesday, April 24**

8:00 - 8:15  Announcements
ORAL SESSION III - Snow Environments and Climate

8:15 - 8:30 California’s 2023 Snow Deluge: Contextualizing an Extreme Snow Year Against Future Climate Change - Adrienne Marshall

8:30 - 8:45 Determining Where Annual SWE Anomalies are Correlated in the Western United States - Hannah Besso

8:45 - 9:00 An Evaluation of Simulated Historical and Future Snowpack Distributions for the Gallatin River Watershed, Montana and Wyoming - Aaron Heldmyer

9:00 - 9:15 A Decade of Global Snowmelt Runoff Onset from Sentinel-1 SAR - Eric Gagliano


9:30 - 9:45 When it Rains on Snow it Pours, But Why? - John Selker

9:45 - 10:30 Break - Vendor Exhibits and Poster Sessions

10:00 - 3:00 Guest Tour (for guests of conference attendees)

ORAL SESSION IV - Snow Ablation, Runoff, and Forecasting

10:30 - 10:45 Measuring Sublimation of Snow on the Valley Floor of a Colorado River Headwater Basin, Winter 2022-23 - Eli Schwat

10:45 - 11:00 A Two-Decade Record of Dust and Snow in the Great Salt Lake Basin - Otto Lang

11:00 - 11:15 Snowpack Losses Amplify the Riverine Component of Estuarine Flood Severity under Climate Warming - Matt Cooper

11:15 - 11:30 Weather and Snow Forecasting with OpenSnow - Implications for Snow Science - Zach Butler

11:30 - 11:45 Process-Based Assimilation of Remotely Sensed Snow Data into a Distributed Physical Hydrology Model - Eli Boardman

11:45 - 12:00 A Novel Approach to Improving Operational Flood Forecasting Across the Sierra Nevada - Gabe Lewis
12:00 – 1:30  Lunch (on your own)

**ORAL SESSION V - *Snow, Forests, and Wildfire***

1:30 - 1:45  Subarctic Shifts: Snow-Soil-Vegetation Interactions in Denali National Park - Johanne Albrigtsen

1:45 - 2:00  How Three-Dimensional Forest Structure Regulates the Amount and Timing of Snowmelt Across a Climatic Gradient of Snow Stability - Ravindra Dwivedi

2:00 - 2:15  The Impact of Forest Thinning on Snowpack at a Site with Multiple Thinning Strategies - Patrick Broxton

2:15 - 2:30  Natural Wildfire Creates Microclimates That Enhance Snowpack - Gabrielle Boisrame

2:30 - 2:45  Post-fire Snow Accumulation and Melt Patterns in the Caldor Fire - Marianne Cowherd

2:45 - 3:30  **Break - Vendor Exhibits and Poster Sessions**

**ORAL SESSION V (Continued)**

3:30 - 3:45  Snow Depth Distribution Mapping in a Post-fire Landscape from UAS LiDAR - Devlin Rutherford

3:45 - 4:00  Forest Fires and Mid-Winter Snowmelt in the Oregon Cascades - Sage Ebel

4:00 - 4:15  Post-fire Hydrologic Responses in the Pacific Northwest: Monitoring, Model Development, and Training the Future Workforce - Kelly Gleason

4:15 - 4:30  Impacts of Wildfires on Snow Disappearance Date Across the Western United States - Arielle Koshkin

4:30 – 5:00  **Western Snow Conference Annual Business Meeting**
(All Attendees)
CONFERENCE BANQUET & AWARDS

6:00 – 7:00  Hospitality – Memorial Union Ballroom

7:00 – 9:00  Banquet and Awards  Banquet Speaker – Dr. Gordon Grant, Research Hydrologist, USFS Pacific Northwest Research Station

Thursday, April 25

9:00 – 5:00  Technical Tour - Hatfield Marine Science Center and Oregon Coast Aquarium, Newport, Oregon. Lunch at Rogue Ales and Spirits Brewery.

Join us in April, 2025 for the 92nd Annual Western Snow Conference in Bozeman, Montana!