

# 7th Annual Northwest Climate Conference



**November 14–16, 2016**

*Skamania Lodge  
Skamania, WA*

The annual NW Climate Conference is the region's premier opportunity for a cross-disciplinary exchange of knowledge and ideas relating to climate impacts and adaptation. The conference brings together researchers, resource managers and policy makers from academia, public agencies, sovereign tribal nations, non-governmental organizations, and the private sector, to share the latest climate science, challenges to infrastructure, industry, environment and communities, and adaptive solutions.

**Oregon State**  
UNIVERSITY

# Keynote Speakers



*Jeremy Jones*  
Protect our Winters

**Jeremy Jones** is the founder and CEO of Protect Our Winters, a passionate crew of diehards, professional athletes and industry brands mobilizing the outdoor sports community to lead the charge towards positive climate action. Jones has been a professional snowboarder for over 18 years and is widely regarded as one of the best big mountain snowboarders in the world. In 2013, Jeremy was nominated by National Geographic as an “Adventurer of The Year” and a “Champion of Change” by President Obama for his work fighting climate change.



*Micah Ragland*  
US EPA

**Micah Ragland** serves as EPA’s Associate Administrator for Public Engagement and Environmental Education, where he manages our constituency outreach programs and external affairs initiatives. Before joining the EPA, Ragland worked as the Deputy Director of Congressional and Intergovernmental Relations of the U.S. Department of Housing and Urban Development’s Hurricane Sandy Federal Rebuilding Task Force. Previously, Ragland served as President Barack Obama’s Northeast Political Director. Ragland received his bachelor’s degree from Morehouse College and his law degree from North Carolina Central University.



*David Titley*  
Center for Solutions to Weather and Climate Risk

**David Titley** is a Professor of Practice in Meteorology at the Pennsylvania State University and the founding director of Penn State’s Center for Solutions to Weather and Climate Risk. He served as a naval officer for 32 years and rose to the rank of rear admiral. Dr. Titley’s career included duties as commander of the Naval Meteorology and Oceanography Command; oceanographer and navigator of the Navy; and deputy assistant chief of naval operations for information dominance. Dr. Titley is a fellow of the American Meteorological Society and was awarded an honorary doctorate from the University of Alaska, Fairbanks.

# Schedule Summary

## Monday, November 14, 2016

7:00p.-8:30p. Public Keynote

## Tuesday, November 15, 2016

7:00-8:00 Continental  
Breakfast

8:00-8:30 Welcome

8:30-9:40 Plenary:  
Conversations about  
our climate challenges

9:40-10:10 BREAK

11:15-11:30 Plenary: Tools Café  
mini-pitches

11:30-12:40 Lunch (provided)

12:45-2:15 Concurrent sessions

Climate 1

Planning

Tribes

2:15-2:40 BREAK

2:45-4:15 Concurrent Sessions

Hydrology 1

Collaboration and  
Co-Production

Special Session

4:20-5:20 Plenary Session

5:20-5:35 Plenary Session: 4th  
US National Climate  
Assessment

5:35-7:30 Posters and Tools Café

## Wednesday November 16, 2016

7:00-8:00 Continental Breakfast

8:00-8:05 Welcome

8:05-8:55 Conference Keynote

9:00-10:30 Concurrent sessions

Climate 2

Human Dimensions

Forests and Land Use

10:30-10:55 BREAK

11:00-12:30 Concurrent Sessions

Hydrology 2

Terrestrial Ecosystems

Special Session

12:30-1:40 LUNCH (provided)

1:45-3:15 Concurrent Sessions

Agriculture

Coasts and waterways

Special Session

3:15-3:30 BREAK

3:30-4:30 Closing Plenary

4:30-4:45 Wrap-up, plans for  
Washington 2017

4:45-6:30 Post-conference  
networking reception

# Schedule Details

## November 14, 2016

7:00p.-8:30p. Public Keynote

*Jeremy Jones (Protect our Winters) and  
Micah Ragland (US EPA)*

## November 15, 2016

7:00-8:00 Continental Breakfast (provided)

8:00-8:30 Welcome

*Kathie Dello and Anne Nolin*  
Oregon State University (2016 co- chairs)

8:30-9:40 Plenary: Conversations about our  
climate challenges

*Moderated by Matt Zaffino*  
*Chief Meteorologist*  
KGW News Portland

*Charlie Luce*  
US Forest Service

*Crystal Raymond*  
Seattle City Light

*Justin Wettstein*  
Oregon State University

*Sarah Myhre*  
University of Washington

9:40-10:10 BREAK

10:15–11:15 **Plenary: Beyond Paris**

*Ron Mitchell*

Professor, University of Oregon

*Angus Duncan*

Chair, Oregon Global Warming Commission

*Bill Drumheller*

Washington Department of Ecology

11:15–11:30 **Plenary: Tools Café  
mini-pitches**

11:30–12:40 **Lunch (provided)**

**Special Session**

*Adaptation Speed Dating*

*Meade Krosby*

UW Climate Impacts Group

12:45–2:15 **Concurrent sessions**

**Climate 1**

*Sihan Li*

*Projected changes of extreme precipitation into  
mid-21st century across the Northwest*  
Oregon State University

*Paul Loikith*

*Characterizing Large-Scale Meteorological  
Patterns and Associated  
Temperature and Precipitation Extremes  
over the PNW*  
Portland State University

*Naomi Goldenson*

*Characterizing regional climate model uncertainty*  
University of Washington

## Planning

### **Raquel Lorente-Plazas**

*Large-Scale Climate Influences on Local Extreme Precipitation*  
University of Washington

### **Meredith Jagger**

*Using Hazard Vulnerability Assessments to Inform Planning and Foster Climate Resilience in a Public Health Context*  
Oregon Health Authority

### **Marnie Boardman**

*Using the Ten Essential Services of Public Health Framework to Enhance Climate Adaptation Planning*  
Washington Department of Health

### **Crystal Raymond**

*From Planning to Implementation: Mainstreaming Climate Change Preparation at Seattle City Light*  
Seattle City Light

### **Beth Gibbons**

*Adaptation in practice: Puget Sound and Eugene*  
American Society of Adaptation Professionals

## Tribes

### **Arwen Bird**

*Tribal Climate Camp*  
NW Climate Science Center & Staff from Warm Springs Tribe

### **Verner Wilson**

*Regional Impacts and Potential Strategies to Address Climate Change in Bristol Bay, Alaska.*  
Bristol Bay Native Association

### **Scott Hauser**

*From Sagebrush to Salmon – A Collaborative Climate Vulnerability Assessment for the Upper Snake River Tribes*  
Upper Snake River Tribes

**Ron Figlar-Barnes**

*Skokomish Climate Change 2050*  
Skokomish Tribe

2:15–2:40 BREAK (provided)

2:45–4:15 Concurrent Sessions

Hydrology 1

**Oriana Chegwidzen**

*Hydrologic projections of climate change for the Columbia River Basin through the end of the 21st century*  
University of Washington

**Chas Jones**

*Using hydrologic landscape classification to assess streamflow vulnerability to changes in climate*  
US EPA

**Lumas Helaire**

*Modeling flood risk in the Portland, OR Metro Area due to sea-level rise and increased discharge*  
Portland State University

**David Judi**

*Integrated Modeling Approach for the Development of Climate- Informed, Actionable Information*  
Pacific Northwest National Laboratory

## Collaboration and Co-Production

### **Trevor Murdock**

*An engineer, a climate scientist, and an adaptation expert walk into a coffee shop...*  
Pacific Climate Impacts Consortiu

### **Kathie Dello**

*An approach to developing drought triggers in the PNW using lessons learned from CO*  
Oregon Climate Change Research Institute

### **Janan Evans-Wilent**

*Co-producing Climate Change Adaptation Plans in the Pacific Northwest: Exploring Alternative Coastal Futures with Local Decision-Makers*  
Oregon State University

### **Kavita Heyn**

*Planning for uncertainty in Portland's drinking water system*  
Portland Water Bureau

## Special Session

*Developing a Comprehensive Strategy for Sea Level Rise: Local and State Government Perspectives*

### **Moderated by Lara Whitely Binder**

University of Washington

### **Andy Haub**

City of Olympia

### **Bobbak Talebi**

Washington Department of Ecology

### **Jessica Engel**

King County Department of Natural Resources and Parks



**4:20–5:20 Plenary Session*****Josh Halofsky****Western Washington forests: An examination of the past, present and (possible) future*

Washington State Department of Natural Resources

***Andrew Shirk****Population viability and climate change: case studies from the Pacific Northwest*

University of Washington

***Jason Kreidler****Changes to watershed vulnerability under future climates, fire regimes, and population pressures*

Western Geographic Science Center, USGS

**5:20–5:35 Plenary Session: 4th US National Climate Assessment*****David Reidmiller***

US Global Change Research Program

## 5:35–7:30 Posters and Tools Café

### Tools Café

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**Katherine Hegewisch**      **University of Idaho**  
*NW Climate Toolbox*

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**Julie Vano**      **National Center for Atmospheric Research**  
*New tools and datasets to support climate risk planning in the Northwest*

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**Erich Seamon**      **University of Idaho**  
*Data mining to identify areas of water scarcity in the Pacific Northwest*

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**Melissa Rosa**      **NOAA Digital Coast**  
*NOAA Digital Coast*

### Posters

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**1. William Templeton**      **Portland State University**  
*Changing tides and storm surge: implications for nuisance flooding in the Pacific Northwest*

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**2. Josh Foster**      **American Society of Adaptation Professionals**  
*The American Society of Adaptation Professionals (ASAP): An Emerging Community of Practice for Northwest Climate Partnerships*

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**3. Brooke Saari**      **Washington State University**  
*AgClimate.net – A New Model for Climate Change Extension*

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**4. Rick Steed**      **University of Washington**  
*Creating an Ensemble of Regional Climate Models*

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**5. Alexis Cooley**      **Portland State University**  
*Observing Change to Precipitation Intensity from Different Temporal Scales in Portland, Oregon*

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**6. Laurie Houston**      **Oregon State University**  
*What Does Climate Change Mean for Specialty Fruit Crops in the Northwest?*

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**7. Claire L Phillips**      **USDA-ARS**  
*Assessment of soil water conservation with biochar in Oregon cropping systems*

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**8. Stephen Machado**      **Oregon State University**  
*Biochar Effects on Wheat and Pea Productivity Persist*

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**9. Tina Karimi**      **Washington State University**  
*Projected regional shifts in Pacific North West dryland agriculture in response to climate change considering low and high atmospheric CO<sub>2</sub> concentration*

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10. **Katherine Hegewisch**      **University of Idaho**  
*The 'Integrated Scenarios of the Future Northwest Environment' Project Website*
- 
11. **Michael Murphy**      **NOAA, National Weather Service, Pendleton OR**  
*Was 2015 the New Climatic Normal? Will the Pacific Northwest See Conditions Like Those Experienced in 2015 Become More Prevalent in the Future?*
- 
12. **Andrew Chiodi**      **UW JISAO/NOAA PMEL**  
*Wintertime El Nino and La Nina weather associations of the Northwest reexamined from an outgoing-longwave-radiation event perspective.*
- 
13. **Philip Mote**      **Oregon Climate Change Research Institute, OSU**  
*Northwest Climate Science Center: Six-year retrospective*
- 
14. **Jeremy Giovando**      **U.S. Army Corps of Engineers**  
*Water Supply forecasts in a changing climate*
- 
15. **Keyvan Malek**      **Washington State University**  
*What are the agricultural productivity and downstream water availability consequences of different deficit irrigation scenarios over the Yakima River Basin?*
- 
16. **Michael Shumlich**      **The Pacific Climate Impacts Consortium**  
*Approaches to communicating climate science that work for users*
- 
17. **Jill Hardiman**      **US Geological Survey, Western Fisheries Research Center**  
*Columbia Basin Partner Forum: Information Sharing, Collaboration, and Discussion on How to Address Landscape-Scale Stressors within the Columbia River Basin*
- 
18. **Ryan J. Niemeyer**      **University of Washington**  
*Indicators of Climate Change in Idaho*
- 
19. **Michael Chang**      **Makah Tribe**  
*Climate Adaptation for the Makah Tribe*
- 
20. **Brittni Brown**      **University of Idaho**  
*Consecutive Years of Drought and High Temperatures Responsible for Extensive Blue Oak Dieback*
- 
21. **Trina Bayard**      **Audubon Washington**  
*A collaborative, community-based initiative towards a climate resilient sagebrush steppe*
- 
22. **Janet Prevey**      **US Forest Service Pacific Northwest Research Station**  
*How do trees know when to flower?*
- 
23. **Andrea M. Allan**      **Oregon State University**  
*Simulated Future Climate and Vegetation Changes for Washington State Wildlife Areas*

- 
24. John Campbell                      Oregon State University  
*Potential influence of wildfire in modulating climate-induced forest redistribution in a central Rocky Mountain landscape*
- 
25. Linnia Hawkins                      Oregon Climate Change Research Institute  
*Variability, covariability, and change in climate controls on forest carbon uptake in western North America*
- 
26. Crystal Kolden                      University of Idaho  
*Spatial and temporal patterns of unburned areas within fire perimeters in the northwestern United States from 1984 to 2014*
- 
27. Austin Phillips                      University of Washington  
*How Will Transient Dynamics Affect Species During Climate Change?*
- 
28. Jen Syrowitz                      Audubon Washington  
*Audubon in Action: Mitigating the Effects of Climate Change on Birds and People*
- 
29. Emily York                      Oregon Health Authority  
*Oregon's new Climate and Health Resilience Plan: An All-Hazards, Strengths-Based Approach*
- 
30. Jackson Voelkel                      Portland State University  
*Assessing Techniques for High Resolution Descriptions of Urban Heat Islands*
- 
31. Towsif Bhuiyan                      Washington State University  
*THE Spokane Valley-Rathdrum Prairie Groundwater Flow Model, A Tool To Update The Head and Boundary Flow Package*
- 
32. Eric A. Sproles                      Oregon State University  
*Future Snow? A Spatial-Probabilistic Assessment of the Extraordinarily Low Snowpacks of 2014 and 2015 in the Oregon Cascades*
- 
33. John Phillips                      Pacific Northwest Clean Water Association  
*The PNCWA Climate Change Position Paper*
- 
34. Ryan Crumley                      Oregon State University  
*High Resolution Modeling of Historic Glacier and Snowmelt Contributions to Freshwater Runoff into Glacier Bay, Alaska*
- 
35. Guillaume Mauger                      Climate Impacts Group, University of Washington  
*Changing Streamflow in the Chehalis River Basin: Working to Support Flood Management*
- 
36. Stacy Schumacher                      CTUIR  
*Disseminating climate information to a Tribal community*



## November 16, 2016

7:00–8:00 Continental Breakfast

8:00–8:05 Welcome

8:05–8:55 Conference Keynote

*David Titley*

*Center for Solutions to Weather and Climate Risk*

9:00–10:30 Concurrent sessions

Climate 2

*Cliff Mass*

*Regional Climate Modeling Consortium  
University of Washington*

*Eric Salathé*

*Microclimates and Climate Feedbacks  
University of Washington*

*Faron Anslow*

*Developing and Delivering PRISM Uncertainty  
Estimates for BC  
Pacific Climate Impacts Consortiu*

*Nick Bond*

*On the occasional rains east of the Cascade crest  
during summer  
Office of the Washington State Climatologist*

Human Dimensions

*Sarah Myhre*

*Academic boundary partnerships in a future of  
abrupt climate warming  
University of Washington*

*Sierra Dymond-Smith*

*Perceived Risk of Climate Change in the  
Pacific Northwest; a Geographic Look at Public  
Perceptions  
University of Idaho*

**Lara Whitely Binder**

*The potential for climate change-driven migration to the Northwest: What we've learned and what's next*

UW Climate Impacts Group

**Clark F. Seavert**

*Making Climate Projections Useful for Growers*  
Oregon State University

**Forests and Land Use****Benjamin Sleeter**

*The importance of land use data in modeling changes in carbon storage and flux in the Pacific Northwest*

US Geological Survey

**Constance Harrington**

*Can Douglas-fir shift its timing of spring growth initiation to track climate change?*

PNW Research Station

**John Abatzoglou**

*How much has human-caused climate change influenced wildfire extent across northwestern US forests?*

University of Idaho

**Matthew Sloggy**

*Modeling the Adaptation of the Forest Sector to Climate Change: A Coupled Approach*

Oregon State University

**10:30-10:55 BREAK**

## 11:00–12:30 Concurrent Sessions

### Hydrology 2

**Gordon Grant**

*No snow no flow?: New insights from a year without snow in the Cascade Mountains of Oregon*  
US Forest Service

**David Rupp**

*New Metrics for Characterizing Snow in a Warming World*  
Oregon State University

**Susan Dickerson-Lange**

*A Framework for Predicting Forest Effects on Mountain Snow Storage in a Warming Climate*  
Natural Systems Design

**Charlie Luce**

*Climate Sensitivity of Western U.S. Snowpacks from Empirical Analysis of Western U.S. SNOTEL Data*  
US Forest Service

### Terrestrial Ecosystems

**Se-Yeun Lee**

*Projecting Climate Change Impacts on Wetlands in the Columbia Plateau*  
University of Washington

**Trina Bayard**

*Safeguarding birds of Washington in a changing climate*  
Audobon Washington

**Karl Dickman**

*Taking the Next Step: Translating Downscaled Climate Change Projections into Useful Information for Watershed Management*  
ICF

**Michael Case**

*A novel approach of using mechanistically-informed projections to model bird range and density*  
University of Washington



## Special Session

*The Regional Climate Enterprise - where do we go from here?*

**Moderated by: Guillaume Mauger**

UW Climate Impacts Group

and

**Kathie Dello**

Oregon Climate Change Research Institute

12:30-1:40 LUNCH (provided)

## Special Session

*Statistics in Practice for Analysis of Climate Impacts, Adaptations, and Mitigations*

**Moderated by Robert Brigantic**

Pacific North West National Laboratory

**David Rupp**

*Quantifying, and separating the sources of, uncertainty in climate and hydrological projections.*

Oregon State University

**Lisa Bramer**

*Statistical Models for Predicting Electric Grid Stress Events and Evaluating Future Risk*

Pacific North West National Laboratory

**Yonas K. Demissie**

*1) Multivariate regional frequency analysis on droughts and 2) Uncertainty and propagation in integrated earth system models*

WSU Tri-Cities

**Guillaume Mauger**

*Improved climate monitoring: Maximizing the bang for your buck*

University of Washington

**1:45–3:15 Concurrent Sessions****Agriculture****Lauren Parker**

*Estimating the climatological niche for perennial fruit and nut crops under climate change*  
University of Idaho

**Gabrielle Roesch-McNally**

*Wheat producers' perceptions of climate change, risk perceptions, and adaptive and mitigative strategies*  
NW Climate Hub

**Isabel Guerrero**

*Prioritizing conservation efforts under a changing climate*  
Oregon State University

**Brooke Saari**

*Agriculture in a Changing Climate: Priorities and Next Steps for the Pacific Northwest*  
Washington State University

**Coasts and waterways****Stefan Talke**

*Changing water level and water temperature on the lower Columbia River, 1853-present*  
Portland State University

**Oliver Grah**

*Climate Change Adaptation: Moving From Plans to Action on the Nooksack River, WA*  
Nooksack Indian Tribe

**Tina Whitman**

*Engaging local communities in sea level rise adaptation*  
Friends of the San Juans

**Laura Brophy**

*Conserving tidal wetlands for the future: Mapping and prioritizing landward migration zones for Oregon's tidal wetlands*  
Institute for Applied Ecology

## Special Session

*Climate change research and policy/planning/  
management applications in the Skagit  
River basin*

**Moderated by Alan Hamlet**  
Skagit Climate Science Consortium

3:15–3:30 BREAK (provided)

3:30–4:30 Closing Plenary

**Anne Nolin**

*Willamette Water 2100: Water Scarcity Amidst  
Abundance*

Oregon State University

**Kathleen Moore**

*Adaption trade-offs: Mitigating climate change at  
multiple use reservoirs in the Pacific Northwest*

Oregon State University

**Philip Mote**

*The Future of Climate Research*

Oregon Climate Change Research Institute

4:30–4:45 Wrap-up,  
Plans for Washington 2017

4:45–6:30 Post-conference networking  
reception Light snacks and cash bar

# Thanks to our sponsors



United States Department of Agriculture  
Northwest Climate Hub



College of Earth, Ocean,  
and Atmospheric Sciences  
104 CEOAS Admin Bldg  
Corvallis, OR 97331  
541-737-3504  
ceas.oregonstate.edu