

Program for the 40th Annual Climate Diagnostics and Prediction Workshop

Denver, Colorado, October 26-29, 2015

Monday, October 26, 2015

07:00 – 09:00 Registration – Magnolia Ballroom

08:00 – 08:20 **Welcoming Remarks – DeWitt and Webb**

08:20 - 08:40 [Charting a path forward at NOAA's Climate Prediction Center](#)
David DeWitt, Climate Prediction Center

Session 1: 2015 Climate Overview
Chair: Robert Webb

08:40- 09:00 *El Nino was late to the party but it's now here: An overview of ENSO since late 2014*
Michelle L'Heureux, CPC/NCEP and Anthony Barnston IRI

09:00– 9:20 [Overview of the 2015 hurricane season](#)
Jae-Kyung Schemm and Gerry Bell, CPC/NCEP

9:20- 9:40 [The Faucet: Informal Attribution of the May 2015 Record-Setting Texas Rains](#)
John W. Nielsen-Gammon, Texas A&M University

9:40 – 10:10 Break

Session 2: Drought/Pluvial
Chair: Andy Hoell

10:10 – 10:30 *The May 2015 Texas floods and role of strengthened El Niño teleconnection*
S.Y. Simon Wang, W.-R. Huang, H.H. Hsu, and R.R. Gillies, Utah State University & Academia Sinica

10:30 – 10:50 [Diagnosing Possible Anthropogenic Contributions to Heavy Colorado Rainfall in September 2013](#)
Pardeep Pall, Lawrence Berkeley National Laboratory

10:50 – 11:10 [Climatology of Extreme Daily Precipitation in Colorado and Its Diverse Spatial and Seasonal Variability](#)
Kelly Mahoney, CIRES/NOAA ESRL PSD

11:10 – 11:30 [Lessons learned from seven years of Water Year outlooks in California](#)
Klaus Wolter, University of Colorado, Boulder & NOAA-ESRL-PSD

- 11:30 – 11:50 [*The California Drought as seen through the eyes of EDDI \(the Evaporative Demand Drought Index\)*](#)
Michael Hobbins, CIRES / NOAA; Daniel McEnvoy and Justin Huntington, Desert Research Institute, Reno, NV.
- 11:50 – 12:10 *California: Indications for continued groundwater depletion after drought and causes of drought variety*
S.Y. Simon Wang, Yen-Heng Lin, R.R. Gillies, and L.Hipps, Department of Plants, Soils and Climate, Utah State University
- 12:10 – 13:20 Lunch (all lunches are on your own)
- Session 3: Drought/Pluvial (continued)**
Chair: Kingtse Mo
- 13:20 – 13:40 [*The Physics of Great Plains Drought, Its Predictability, and Its Changed Risk in a Warming World*](#)
Ben Livneh and Martin Hoerling, NOAA Earth System Research Laboratory
- 13:40 – 14:00 [*Precipitation Extremes in the U.S.: Trends and Causes*](#)
Kenneth Kunkel, North Carolina State University and NOAA NCEI
- 14:00 – 14:20 [*Understanding the role of land-atmosphere interaction in the NCEP coupled forecast system \(CFS\) on drought forecast skill for the 2011 and 2012 US droughts*](#)
Rongqian Yang and Michael Ek, EMC/NCEP
- 14:20 – 14:40 [*The Role of Stationary Rossby Waves in the Subseasonal Development of Drought over North America*](#)
Hailan Wang, Siegfried Schubert and Randal Koster, NASA Global Modeling and Assimilation Office
- 14: 40 – 15:00 *Implications of North Atlantic Sea Surface Salinity for Summer Precipitation over the US Midwest: Mechanisms and Predictive Value*
Laifang Li, Raymond W. Schmitt, Caroline C. Ummenhofer, Kristopher B. Karnauskas, Woods Hole Oceanographic Institution
- 15:00 – 15:30 Break
- Session 4: Drought/Pluvial (continued)**
Chair: Andrea Ray
- 15:30 – 15:50 [*Unraveling East Africa's Climate Paradox*](#)
Bradfield Lyon, IRI, Columbia University
- 15:50 – 16:10 [*Simulated U.S. Drought Response to Interannual and Decadal Pacific SST Variability*](#)
Robert Burgman, Florida International University

- 16:10 – 16:30 [*Reconciling seasonal droughts and landfalling tropical cyclones in the southeastern US*](#)
Vasu Misra, Florida State University
- 16:30 – 16:50 [*Flash droughts over the United States*](#)
Kingtse C. Mo and Dennis P Lettenmaier, Climate Prediction Center and UCLA
- 18:00 – 19:30 **Ice Breaker, Magnolia Lounge**

Tuesday, October 27, 2015

07:00 - 09:00 Registration – Magnolia Ballroom

Session 5: Diagnostics and prediction of high impact extreme climate events
Chair: Jae-Kyung Schemm

08:00 – 08:20 [Seasonal Predictability of Severe Thunderstorms Based on ENSO: Methodology and Evaluation of the 2015 Forecast](#)

John T. Allen, International Research Institute for Climate and Society

08:20 - 08:40 [New Measure of Forecast Uncertainty for the North American Multi-Model Ensemble](#)
Qin Zhang, CPC/NCEP/NWS/NOAA

08:40- 09:00 *Space-time variability of summer hydroclimatology and extremes in the Southwest U.S.*
Srijita Jana, Balaji Rajagopalan, Yochanan Kushnir, Andrea J. Ray, CIRES, University of Colorado at Boulder

09:00–09:20 [Forecasting temperature extremes with the NMME](#)
Emily Becker, Climate Prediction Center

09:20- 09:40 [Detection and attribution of extreme temperature and drought using an analogue-based dynamical adjustment technique](#)
Flavio Lehner, National Center of Atmospheric Research

Session 6: Diagnostics and prediction of high impact extreme climate events (cont.)
Chair: Mike Alexander

9:40 – 10:10 Break

10:10 – 10:30 [What drove the Tropical and North Pacific and North America Climate Anomalies in 2014/15 Winter?](#)

Peitao Peng and Arun Kumar, Climate Prediction Center

10:30 – 10:50 [Effects of the teleconnection patterns on summer consecutive extreme rainfall over Central-Eastern China](#)

Junmei Lyu, Chinese Academy of Meteorological Sciences

10:50 – 11:10 [Statistical-Dynamical Seasonal Forecast of the Western North Pacific and East Asia Landfalling Tropical Cyclones using the High-Resolution GFDL FLOR Coupled Model](#)

Wei Zhang, NOAA/GFDL

11:10 – 11:30 [The Impact of the MJO on Atlantic tropical cyclone activity in NOAA's CFS model](#)

Anthony G. Barnston, International Research Institute for Climate and Society

11:30 – 11:50 [Investigating the Influence of Anthropogenic Forcing and Natural Variability on the 2014 Hawaiian Hurricane Season](#)

Hiroyuki Murakami, Gabriel A. Vecchi, Tom L. Delworth, Karren Paffendorf, Rich Gudgel, Liwei Jia, and Fanrong Zeng, NOAA/GFDL

11:50 – 13:00 Lunch

Session 7: Diagnostics and prediction of high impact extreme climate events (cont.)
Chair: Matt Newman

13:00 – 13:20 [*Predictability of the 2012 US Drought in a Different Representation of Atmospheric Processes*](#)
Debasish PaiMazumder & James Done, Regional Climate Section, National Center for Atmospheric Research, Boulder, CO

13:20 – 13:40 [*A Revised Real-Time Multivariate MJO Index*](#)
Ping Liu, Qin Zhang, Chidong Zhang, Yuejian Zhu, Marat Khairoutdinov, Hye-Mi Kim, Courtney Schumacher, Minghua Zhang, Stony Brook University

13:40 – 14:00 [*Leading Tropical multidecadal mode \(TMM\) and tropical interannual modes \(ENSO\) revisited 1951-2015. Major changes in recent decades?*](#)
Muthuvel Chelliah, Climate Prediction Center

14:00 – 14:20 [*Using the Bering Sea and Typhoon Rules to Generate Long-Range forecasts II: Predictability of Extreme Weather*](#)
Joseph S. Renken, KOPN-FM

14:20 – 14:40 [*The 2014 Primera drought over Central America*](#)
Miliaritiana Robjhon, Climate Prediction Center

14:40 – 15:10 Break

Session 8: Prediction of ENSO and Its Remote Impacts
Chair: Michelle L'Heureux

15:10 – 15:30 [*ENSO Forecasts in the North American Multi-Model Ensemble: Composite Analysis and Verification*](#)
Li-Chuan Chen, Huug van den Dool, Emily Becker, Qin Zhang, and Jin Huang, Climate Prediction Center

15:30 – 15:50 [*Spatial distribution and the interdecadal change of leading modes of heat budget of the mixed-layer in the tropical Pacific and the association with ENSO*](#)
Zeng-Zhen Hu, Climate Prediction Center

15:50 – 16:10 [*Linking Extreme Weather Events and Extreme ENSO States*](#)
Judith Perlwitz, NOAA/ESRL PSD and CIRES/University of Colorado

16:10 – 16:30 [*The Subseasonal Effect of Strong El Niño Events on North American Climate*](#)
Andrew Hoell, NOAA ESRL PSD

16:30 – 16:50 [*Distinctions in the boreal winter teleconnection patterns between convective and non-convective eastern Pacific El Niño episodes*](#)
Nat Johnson, Cooperative Institute for Climate Science, Princeton University

18:00 – 19:30

Poster Session, Magnolia Ballroom

Wednesday October 28, 2015

07:00 – 09:00 Registration – Magnolia Ballroom

Session 9: The evolution of climate diagnostics and prediction over the last 40 years.

Chair: Mike Halpert

08:00 – 08:30 [*Advances in Climate Analysis and Monitoring as Reflected in \(and inspired by\) the CD&P Workshops*](#)

Chet Ropelewski and Phil Arkin, Retired, NWS (CAC/CPC)

08:30 – 09:00 [*A 35-Year Perspective on Monthly and Seasonal Climate Prediction: Where we were, are, and should be going*](#)

Robert E Livezey, Retired, NWS (CAC/CPC,CSD)

09:00 – 09:20 [*The evolution of ENSO prediction from the 1970s to today*](#)

Anthony G. Barnston, International Research Institute for Climate and Society (IRI)

09:20 – 09:40 [*Climate Extremes Past and Present: A 40-Year Perspective*](#)

Henry F Diaz, NOAA/CIRES

09:40 – 10:00 [*The Climate Prediction Center's international outreach: From the African Desk to the International Desks, twenty years of developing the capacity of meteorological services*](#)

Wassila Thiaw, Climate Prediction Center/NCEP/NWS

10:00 – 10:20 Break

Session 10: The evolution of climate diagnostics and prediction over the last 40 years (con't)

Chair: Jon Gottschalck

10:20 – 10:40 [*Reflection and Re-Visitation on Prospects for Seasonal Climate Prediction*](#)

Martin Hoerling and Arun Kumar, ESRL/NOAA and CPC/NOAA

10:40 – 11:00 [*Approaches for estimating seasonal predictability: Where are we with current estimates?*](#)

Arun Kumar and Martin Hoerling, CPC/NOAA and ESRL/NOAA

11:00 – 11:20 [*The Pacific Decadal Oscillation Revisited*](#)

Michael Alexander, NOAA/Earth System Research Laboratory

11:40 – 12:00 [*A Real-time Multiple Ocean Reanalyses Intercomparison Project for Quantifying the Impacts of Tropical Pacific Observing Systems on Constraining Ocean Reanalyses and Enhancing our Capability in Monitoring and Predicting ENSO*](#)

Yan Xue¹, C. Wen¹, A. Kumar¹, M. Balmaseda², Y. Fujii³, G. Vecchi⁴, G. Vernieres⁵, O. Alves⁶, M. Martin⁹, F. Hernandez¹⁰, T. Lee⁷, D. Legler⁸, D. DeWitt¹, ¹ NCEP/NOAA, USA, ² ECMWF, ³ JMA, Japan, ⁴ GFDL/NOAA, USA, ⁵ GSFC/NASA, USA, ⁶ BOM, Australia, ⁷ JPL/NASA, USA, ⁸ CPO/NOAA, USA, ⁹ UK Met Office, ¹⁰ MERCATOR

11:40 – 12:00 [*Changes in Southeast Asian Climate: Response to and Feedback onto Global Climate Change*](#)
Song Yang, Sun Yat-sen University, China

12:00 – 13:20 Lunch

Session 11: Diagnostics and Prediction of Trends and Decadal Variability
Chair: Arun Kumar

13:20 – 13:40 [*Factors Contributing to Regional and Seasonal Trends in Temperature Extremes*](#)
Randall Dole, NOAA/ESRL PSD

13:40 – 14:00 *What is the long-term trend in California temperature?*
Kimberly J. Wang, University of California, Los Angeles

14:00 – 14:20 [*Evaluation of CMIP5 decadal experiments in prediction of Pacific SST modes of variability*](#)
Daniel Barandiaran and Simon Wang, Utah State University

14:20 – 14:40 [*Evaluation of the 20th century Temperature Trends and Persistence in CMIP3, CMIP5 and Large Ensemble climate simulations and its relevance for regional climate predictability*](#)
Sanjiv Kumar, NOAA/ESRL

14:40 – 15:00 Break

Session 12: Climate Services
Chair: Andrea Ray

15:00 – 15:20 [*NWS Climate Services Program: Linking Climate and Weather for Improved Decision Support Services*](#)
Fiona Horsfall, Marina Timofeyeva, Michelle Hawkins, Jim Zdrojewski, David DeWitt, NOAA/NWS

15:20 – 16:40 **Panel Discussion: Users of Climate Information**

[*Bruce Rittenhouse, BLM Colorado*](#)
[*Bob Peters, Denver Water*](#)
Jeff Lukas, Western Water Assessment RISA
[*James Partain, NOAA/NCEI Regional Climate Services Director, Alaska Region*](#)
[*Rick Thoman, Climate Science and Services Manager, NWS Alaska Region*](#)

18:30 – 21:30 **Banquet, Magnolia Ballroom**

Thursday October 29, 2015

07:00 – 09:00 Registration – Magnolia Ballroom

Session 13: Prediction / attribution of Arctic climate variability and linkages to lower latitudes
Chair: Judith Perlwitz

08:30 – 08:50 [*Can we produce realistic seasonal forecasts in the new Arctic paradigm?*](#)
Julienne C Stroeve, Mark C Serreze, Andrew Slater, and Florence Fetterer, National Snow and Ice Data Center, University of Colorado

08:50 – 09:10 [*Requirements for an improved seasonal sea ice prediction in the NCEP Climate Forecast System*](#)
Wanqiu Wang, Xingren Wu, Thomas Collow, and Arun Kumar, NOAA/NWS/NCEP/CPC

09:10 – 09:30 [*Prediction of Arctic sea ice melt date as an alternative parameter for local sea ice forecasting*](#)
Thomas Collow, Wanqiu Wang, and Arun Kumar, INNOVIM, LLC and NOAA CPC

09:30 – 09:50 [*The impact of Arctic warming on the midlatitude jet stream: Can it? Has it? Will it?*](#)
Elizabeth Barnes, Colorado State University

09:50 – 10:10 [*Will Arctic changes lead to mid-latitude weather extremes in the coming decades?*](#)
James Overland, NOAA/PMEL

10:10 – 10:30 Break

Session 14: Prediction / attribution of Arctic climate variability and linkages to lower latitudes
Chair: Randy Dole

10:30 – 10:50 [*Tropical forcing of the recent rapid Arctic warming in northeastern Canada and Greenland*](#)
Ding, Q.-H., J. M. Wallace, D. S. Battisti, E. J. Steig, A. J. E. Gallant, H. J. Kim, and L. Geng, University of Washington

10:50 – 11:10 [*Do stratosphere-resolving models make better seasonal climate predictions in boreal winter?*](#)
Amy H. Butler, CIRES/NOAA/ESRL

11:10 – 11:30 [*Is a Warm Arctic, Cold Continent a Fingerprint Pattern of Climate Change?*](#)
Lantao Sun, CIRES, University of Colorado at Boulder and NOAA/ESRL

11:30 – 11:50 [*Short-term sea ice forecasts with the RASM-ESRL coupled model: A testbed for improving simulations of ocean-ice-atmosphere interactions in the marginal ice zone*](#)
Amy Solomon, NOAA/ESRL/PSD and University of Colorado

11:50 – 13:10 Lunch

Session 15: Topics related to predictability and strategies for prediction

Chair: Stephen Baxter

13:10 – 13:30 [*NMME Plans for Sub-seasonal Forecasts*](#)
Jin Huang, Climate Test Bed; Kathy Pegion, George Mason University; Ben Kirtman, University of Miami

13:30 – 13:50 [*Evaluation of a NMME-based Hybrid Prediction System for Atlantic Hurricane Season Activity*](#)
Daniel Harnos, Jae-Kyung Schemm, Hui Wang, Climate Prediction Center

13:50 – 14:10 [*Potential predictability of snow in the Canadian Seasonal to Interannual Prediction System*](#)
Reinel Sospedra-Alfonso and William J. Merryfield, Environment Canada

14:10 – 14:30 [*Potential Week-2 Skill Improvement for Multi-Model Ensemble Application*](#)
Yuejian Zhu, Hong Guan, and Bo Cui, NOAA/NWS/NCEP/EMC

14:30 – 14:50 [*Does recent variation in Tropical Pacific seasonal forecast skill represent base state-related change in ENSO predictability, or just dumb luck?*](#)
Matt Newman, University of Colorado/CIRES and NOAA/ESRL/PSD

14:50 – 15:10 Break

Session 16: Climate Services and Decision Support Tools

Chair: Robert Livezey

15:10 – 15:30 [*Impact Based Climate Metrics and the new GPRA*](#)
Doug Young, Fiona Horsfall, Mike Halpert, NOAA/NWS

15:30 – 15:50 [*Climate Information Needs for Hazard Mitigation*](#)
Nancy Selover, Hana Putnam, Nalini Chhetri, Kenneth Galluppi, Arizona State University

15:50 – 16:10 [*The Importance of Climate Scale Forecasts in Alaska*](#)
Richard L. Thoman, Jr., NOAA/NWS

16:10 – 16:30 [*Evaluating weather and climate impacts on global crop production*](#)
Thomas Walsh, Thomson Reuters

16:30 – 16:50 [*Challenges of providing accurate crop yield outlooks under extreme weather: lessons from Canada*](#)
Aston Chipanshi, Yinsuo Zhang and Nathaniel Newlands, Science and Technology Branch, Agriculture Canada

16:50 – 17:10 [*A web-based tool to examine probability distributions of weather and climate data*](#)
Catherine A. Smith, Gilbert P. Compo, and Prashant D. Sardeshmukh, NOAA/ESRL PSD

17:10 **Workshop Adjourn**