

Program for the 39th Annual Climate Diagnostics and Prediction Workshop

St. Louis, Missouri, October 20-23, 2014

Monday, October 20, 2014

07:00 – 09:00 Registration

08:00 – 08:20 **Welcoming Remarks**

08:20 – 09:00 **Keynote Speech**
Wayne Higgins, Climate Program Office

Session 1: 2014 Climate Overview Chair: Mike Halpert

09:00 – 09:20 *Overview of the evolution toward a possible El Nino during 2014*
Michelle L'Heureux CPC/NCEP and Anthony Barnston IRI

09:20 – 09:40 *Overview of the 2014 hurricane season*
Jae-Kyung Schemm and Gerry Bell, CPC/NCEP

09:40 – 10:00 *The global climate review for 2014*
Wassila Thiaw, CPC/NCEP

10:00 – 10:20 *Review of CPC operational outlooks and new activities at CPC over the past year*
Jon Gottschalck CPC/NCEP

10:20 – 10:40 Break

Session 2: Hydroclimate Monitoring, Prediction and Variability Chair: Tim Eichler

10:40 – 11:00 *Impacts of variability and projected change in midlatitude cyclone activity on the hydroclimate of the U.S. Midwest during summer*
Edmund K.M. Chang, Stony Brook University

11:00 – 11:20 *Regional changes in the interannual variability of U.S. warm season precipitation*
Scott Weaver, CPC/NCEP

11:20 – 11:40 *An initial systematic assessment of coupled land-atmosphere metrics in reanalysis*
Paul Dirmeyer, George Mason University

11:40 – 13:00 Lunch

- 13:00 – 13:20 *Mechanism behind the spring to summer drought memory and its impact on predictability of the summer drought over US Great Plains*
Rong Fu, Bing Pu, Nelun Fernando, University of Texas at Austin
- 13:20 – 13:40 *Analysis on dry and non-dry conditions in the U.S. Southern Great Plains in La Niña years*
Bing Pu, Rong Fu, Nelun Fernando, and Robert E. Dickinson,
University of Texas at Austin
- 13:40 – 14:00 *Using temporal changes in drought indices to provide early warning of drought development over subseasonal time scales*
Jason Otkin, University of Wisconsin-Madison
- 14:00 – 14:20 *A 35-year analysis of global daily precipitation for improved hydroclimate monitoring and modeling*
Pingping Xie, Hai-Tien Lee, Jesse Meng, Kingtse Mo, and Michael Ek,
CPC and EMC/NCEP
- 14: 20 – 14:40 Break
- Session 3: Climate Services and Applications Chair: Kingtse Mo**
- 14:40 – 15:00 *Towards a five-year prediction of climate*
Fiona Horsfall, Rachael Jonassen and Marina Timofeyeva,
NOAA Climate Services Division
- 15:00 – 15:20 *Goyder’s line - how “nature’s limit” in South Australia changes over time*
Carly Tozer, University of Newcastle, NSW, Australia
- 15:20 – 15:40 *Monitoring of potential freeze susceptibility for guidance to forecasters*
Michael S. Timlin, Midwestern Regional Climate Center
- 15:40 – 16:00 *Evaluation of an indicator for the early warning of flash drought over the south central US*
Nelun Fernando, Rong Fu and Bing Pu, University of Texas at Austin
- 16:00 – 16:20 *Assessing significance of global climate change in local climate time series,*
Marina Timofeyeva (CSD/NWS), Andrea Bair, Robert Livezey, Annette Hollingshead, Fiona Horsfall, Jenna Meyers
- 16:20 – 16:40 *An introduction of a scientific research program on Chinese drought,*
Yaohui Li, CMA, Lanzhou, China
- 18:00 – 19:30 **Ice Breaker**

Tuesday, October 21, 2014

07:00 – 09:00 Registration

Session 4: Extreme Events: Prediction, Attribution and Assessment

Chair: Wassila Thiaw

08:00 – 08:20 *What caused the North America climate anomalies in 2013/14 winter?*
Peitao Peng , Arun Kumar, Mingyue Chen and Bhaskar Jha, CPC/NCEP

08:20 – 08:40 *Northeast Colorado extreme 2013 rains interpreted in a climate change context*
Klaus Wolter, PSD/ESRL

08:40 – 09:00 *An anomalously cold 2013-14 North American winter: the role of the West Pacific/North Pacific Oscillation*
Stephen Baxter, CPC/NCEP

09:00 – 09:20 *The 2014 California Drought in an historical context*
Yixin Mao, Elizabeth A. Clark, Mu Xiao, Bart Nijssen and Dennis P. Lettenmaier, University of Washington

09:20 – 09:40 *The extreme winter of 2013-2014: Impacts on the Supolar North Atlantic Ocean*
Jeremy P. Grist, National Oceanography Centre, UK

09:40 – 10:00 *Western U.S. Extreme Precipitation Events and Their Relation to ENSO and PDO in CCSM4*
Michael J. DeFlorio, UC-San Diego, Scripps Institution of Oceanography

10:00 – 10:20 Break

Session 4: Extreme Events: Prediction, Attribution and Assessment - Continued

Chair: Scott Weaver

10:20 – 10:40 *Causes of extreme dry conditions over California during recent winters*
Hailan Wang and Siegfried Schubert, GSFC/NASA

10:40 – 11:00 *Fire and Ice - California drought and "polar vortex" in a changing climate*
S.-Y. Simon Wang, Lawrence Hipps, Robert R Gillies, and Jin-Ho Yoon
Utah State University

11:00 – 11:20 *Flash Drought over the United States*
Kingtse C. Mo, CPC/NCEP and Dennis P Lettenmaier, UCLA

11:20 – 11:40 *A synoptic analysis of the 1988 Midwestern Drought and 1993 Flood using CFS Reanalysis Data*
Timothy Eichler and Zaitao Pan, Saint Louis University

- 11:40 – 12:00 *Interpreting climate model projections of extreme weather events*
Steve Vavrus and Michael Notaro, University of Wisconsin
- 12:00 – 13:20 Lunch
- 13:20 – 13:40 *On the multi-scale variability of high-frequency surface air temperature: lessons from the intersection of statistical mechanics and climatology*
Nicholas Cavanaugh and Samuel S.P. Shen, Scripps Institution of Oceanography
- 13:40 – 14:00 *CPC's New Week-2 Probabilistic Hazards Forecast and Extremes Tool*
Melissa Ou, CPC/NCEP
- 14:00 – 14:20 *Assessment of the predictability of September sea ice concentration using sea ice thickness*
Thomas W. Collow, CPC/NCEP

Session 5: CTB and North American Multi Model Ensemble Chair: Jin Huang

- 14:20 – 14:40 *NCEP Climate Test Bed (CTB) Overview*
Jin Huang, CPC/NCEP
- 14:40 – 15:00 *The NCEP/GFDL/JPL/UW Clouds CPT: Goals and Results*
Christopher Bretherton, University of Washington
- 15:00 – 15:20 *CCSM4 vs. CCSM3 seasonal predictions in the context of NMME*
Ben Kirtman, University of Miami
- 15:20 – 15:40 Break
- 15:40 – 16:00 *Evaluation of the North American Multi-Model Ensemble System for monthly and seasonal prediction*
Qin Zhang, Huug van den Dool, Emily Becker, Jin Huang, Suru Saha, Malaquias Pena Mendez, and Peitao Peng, CPC/NCEP
- 16:00 – 16:20 *Probabilistic forecasting with NMME*
Emily Becker, CPC/NCEP
- 16:20 – 16:40 *Supporting the data flow of high resolution climate modeling*
Amy Langenhorst, GFDL/NOAA
- 16:40 – 17:00 *Automating the GFDL NMME contribution*
Seth Underwood, Engility GFDL/NOAA
- 17:00 – 18:20 Discussion on CTB transition plans (CTB PIs and collaborators, other participants are welcome)**
- 18:20 – 20:20 Poster session**

Wednesday October 22, 2014

07:00 – 09:00 Registration

Session 6: Subseasonal to Interannual Predictability - ENSO

Chair: Jae-Kyung Schemm

08:00 – 08:20 *Are some ENSO events more predictable than others? The impact of extratropical precursors on long-lead ENSO predictability*
Kathy Pegion, George Mason University

08:20 – 08:40 *Forced atmospheric circulations and their evolutions: 1979-2014*
Tao Zhang, Martin P. Hoerling, Judith Perlwitz, and Taiyi Xu, CIRES/Univ. of Colorado and PSD/ESRL

08:40 – 09:00 *Revisiting equatorial Pacific zonal wind stress anomalies and ENSO development*
A. M. Chiodi and D. E. Harrison, University of Washington

09:00 – 09:20 *Influence of ENSO SSTs on the spread of the probability density function for precipitation and surface temperature*
Mingyue Chen, CPC/NCEP

09:20 – 09:40 *Pacific zonal mode as a leading tropical Pacific decadal mode and its implication for the future ENSO change*
Soon-Il An and Jung Choi, Yonsei University

09:40 – 10:00 *Prediction skill of North Pacific variability in NCEP Climate Forecast System version 2: Impact of ENSO and beyond*
Zeng-Zhen Hu, A. Kumar, B. Huang, J. Zhu and Y. Guan, CPC/NCEP

10:00 – 10:20 Break

Session 7: Subseasonal to Interannual Predictability - Tropical Cyclone and MJO

Chair: Jon Gottschalck

10:20 – 10:40 *Progress with the FIM-iHYCOM-chem coupled model toward improved Prediction for week 3-4 and month 2-9 from NOAA*
Stan Benjamin ESRL

10:40 – 11:00 *CPC dynamic hurricane season prediction system upgrade with the NCEP CFSv2*
Jae-Kyung Schemm and Lindsey Long, CPC/NCEP

11:00 – 11:20 *Modulation of Atlantic basin cyclone activity by the Madden-Julian Oscillation from 1905-2011*
Philip Klotzbach, Colorado State University

11:20 – 11:40 *MJO and tropical cyclone prediction in a new version of GFDL coupled model*
Baoqiang Xiang, M. Zao, X. Jiang and S.-J. Lin, GFDL/NOAA

11:40 – 12:00 *Assessment of MJO teleconnection pattern in the boreal winter simulated by dynamic seasonal prediction systems*
Hyerim Kim, D. Kim, M. Lee, D. Won, and J. Park,
Ulsan National Institute of Science and Technology, Korea

12:00 – 13:20 Lunch

Session 8: Intraseasonal Predictability
Chair: Michelle L’Heureux

13:20 – 13:40 *Intra-seasonal mid- and high-latitude circulation fluctuations forced by and coherent with tropical heating: Predictability and prediction*
David M. Straus, Erik Swenson, and Cara-Lyn Lappen,
George Mason University, APEC Climate Center, and Texas A & M University

13:40 – 14:00 *A systematic relationship between convectively coupled equatorial wave activity and the performance of Madden-Julian Oscillation in climate model simulations*
Yanjuan Guo, Duane Waliser and Xianan Jiang, JPL/UCLA

14:00 – 14:20 *Predictability of eastern Pacific intraseasonal variability*
Neena J. Mani, JPL/UCLA

14:20 – 14:40 *Use of multi-model ensemble forecasts to assess the predictability of extremes in subseasonal forecasts*
Dan C. Collins, CPC/NCEP

14:40 – 15:00 *Week 3 and Week 4 forecasts: skill scores, alternatives and examples from recent harsh winter and mild summer*
Muthuvel Chelliah, CPC/NCEP

15:00 – 15:20 Break

Session 9: Monsoon Predictability
Chair: Muthu Chelliah

15:20 – 15:40 *Evaluating CFSv2 simulations for the phase-locked intraseasonal variation of the Asian summer monsoon*
Chul-Su Shin and Bohua Huang, COLA/George Mason University

15:40 – 16:00 *Impact of sea surface temperature on the prediction of boreal summer monsoon intraseasonal oscillation (MISO)*
Meng-Pai Hung, Wanqiu Wang and Arun Kumar, NCEP/CPC

- 16:00 – 16:20 *Simulations of the Asian monsoon using a regionally coupled global model*
Ravi P. Shukla and J. Kinter, COLA/George Mason University
- 16:20 – 16:40 *Wet and dry season precipitation over the Maritime Continent: Variations and prediction*
Song Yang, Sun Yat-Sen Univ.
- 16:40 – 17:00 *Stochastic forcing of north tropical Atlantic sea surface temperature by the North Atlantic Oscillation*
Cecile Penland and Leslie Hartten, PSD/ESRL
- 18:00 - 21:00 **Banquet****
Speaker: Chris Higgins, Meteorologist, FOX2 News St. Louis

Thursday October 23, 2014

Session 10: Developing Applications to Improve Climate Service

Chair: Scott Handel

08:30 – 08:50 *Improved land modeling for drought monitoring and seasonal hydrological prediction including groundwater*
Rongqian Yang, EMC/NCEP

08:50 – 09:10 *Multi-level vector auto-regressive model prediction of Northern summer low-frequency circulation*
Lei Wang, Mingfang Ting, Xiaojun Yuan
LDEO, Columbia University

09:10 – 09:30 *Estimating the chance of El Nino from subsurface temperature anomalies*
Michelle L'Heureux, CPC/NCEP

09:30 – 09:50 *A hybrid approach to improving the skills of seasonal climate outlook at the regional scale*
Shuyan Liu, University of Maryland

09:50 – 10:10 Break

Session 11: Developing Applications to Improve Climate Service - Continued

Chair: Mike Halpert

10:10 – 10:30 *Science planning perspective on improving regional climate prediction for services*, Jiayu Zhou NWS/OST

10:30 – 10:50 *On ameliorating the bias in the Intra-Americas Seas*
Vasu Misra, Florida State University

10:50 – 11:10 *Intraseasonal rainfall prediction for agricultural applications during growing Season*
Zaitao Pan, Saint Louis University

11:10 – 11:30 *A partial least squares regression approach for long-range intraseasonal and Seasonal forecasts*
Nathaniel C. Johnson, Scripps Institution of Oceanography

11:30 – 11:50 *A New Daily OLR Dataset for Identifying the MJO and Tropical Waves*
Carl Schreck, Hai-Tien Lee and Ken Knapp
CICS-NC, North Carolina State University

11:50 **Workshop Adjourn**