

**Program for the 29th Annual Climate Diagnostics & Prediction
Workshop**

**Monona Terrace Convention Center
Madison, Wisconsin**

Monday, October 18, 2004

7:30 – 8:15 Registration and Poster Set-up

8:15 – 8:45 Welcome & Opening Remarks

Climate Prediction Center (CPC)/National Centers for Environmental Prediction/NWS

James D. Laver, *Director, CPC*

University of Wisconsin

John A. Young, *Professor, Atmospheric & Oceanic Sciences, U. Wisconsin*

National Centers for Environmental Prediction/NWS

Louis Uccellini, *Director, NCEP*

SESSION 1: Recent Climate Anomalies & MJO

Chair: Vern Kousky (5 min. topic introduction)

8:45- 9:15 An overview of recent Climate anomalies

Gerry Bell

**9:15-10:30 POSTER SESSION 1: RECENT CLIMATE ANOMALIES, CLIMATE
FORECAST SYSTEM & PREDICTIBILITY**

SESSION 2: PREDICTABILITY

Chair: J. Young (5 min. topic introduction)

10:35-11:05 Potential Predictability of Drought and Pluvial Conditions Over the Central United States on Interannual to Decadal Time Scales

Siegfried Schubert, M. Suarez, P. Pegion, R. Koster and J. Bacmeister

11:05-11:35 Practical prediction skill and theoretical predictability in the Coupled Forecast System

Huug van den Dool and S. Saha

11:35-12:05 Storm track predictability on seasonal to decadal scales

Gilbert Compo and P. Sardeshmukh

12:05-1:30 LUNCH (on own)

SESSION 2: PREDICTABILITY (continued)

Chair: John Young

1:35-2:05 Atmospheric response to the changes of ocean circulation

Lixin Wu and Z. Liu

2:05-2:35 Global occurrences of extreme precipitation and MJO: Observations and predictability

Charles Jones, D. Waliser, W. Stern

2:35-3:05 BREAK

SESSION 3: THE NEW NCEP CLIMATE FORECAST SYSTEM (CFS)

Chair: Hua-Lu Pan (5 min. topic introduction)

3:05-3:35 Validation of the NCEP global coupled ocean-atmosphere model (CFS)

Suranjana Saha

3:35-4:05 The forecast skill and predictability of DJF seasonal climate as seen from the NCEP CFS 24-year hindcasts

Peitao Peng, Q. Zhang, A. Kumar, H. van den Dool, W. Wang and S. Saha

4:05-4:35 Dynamical forecasts of atmospheric conditions associated with North Atlantic hurricane activity by the Coupled Forecast System at NCEP

Muthuvel Chelliah and S. Saha

4:35-5:05 An analysis of ocean retrospective forecasts from the new NCEP Global Forecast System

Sudhir Nadiga, J. Wang and D. Behringer

5:05-5:35 The NCEP operational Climate Forecast System: configuration, product, and plan for the future

Hua-Lu Pan

5:35-7:30 ICE BREAKER RECEPTION & CASH BAR – Refreshments Hosted by the University of Wisconsin Dept. of Atmospheric and Oceanic Sciences

Tuesday, October 19, 2004

7:15-8:00 POSTER SET-UP

SESSION 4: CLIMATE APPLICATIONS OF SATELLITE INFORMATION

Chair: Phil Arkin (5 min. topic introduction)

8:05-8:35 Using 22 years of HIRS observations to infer global cloud cover

Paul Menzel, D. Wylie, D. Jackson and J. Bates

8:35-9:05 Operational climate monitoring from space: the Satellite Application Facility on Climate Monitoring (CM-SAF)

Jörg Schulz and the CM-SAF partners

9:05-10:30 POSTER SESSION 2: SATELLITE, REGIONAL & LONG-TERM CLIMATE STUDIES

10:30-11:00 The diurnal cycle of precipitation over the Americas based on CMORPH

Vern Kousky, J. Janowiak and R. Joyce

11:00-11:30 Satellite thermal emission spectra can provide a key record for monitoring and diagnosing climate

Henry Revercomb, J. Anderson, J. Rice, D. Tobin, R. Knuteson and F. Best

11:30-1:00 Luncheon on Grand Terrace. Hosted by the University of Wisconsin Dept. of Atmospheric and Oceanic Sciences

SESSION 5: VARIABILITY IN THE CENTRAL UNITED STATES

Chair: Dan Vimont (5 min. topic introduction)

1:05-1:35 Impact of precipitation observations on regional climate simulations

Anna Nunes, J. Roads, M. Kanamitsu and P. Arkin

1:35-2:05 Warm season rainfall variability over the U.S. Great Plains in observations, NCEP and ERA-40 reanalyses and NCAR and NASA AMIP simulations: intercomparisons for NAME

Ruiz-Barradas and S. Nigam

2:05-2:35 Diagnosing the effect of ENSO and PDO teleconnections on North America summer climate with the Regional Atmospheric Modeling System (RAMS)

Christopher Castro and R. Pielke

2:35-3:05 Regional climate simulations of summer precipitation over the U.S. and Mexico
Kingtse Mo, J. Schemm, Y. Song and W. Higgins

3:05-3:30 **BREAK**

SESSION 6: LONG-TERM VARIATIONS

Chair: Cecile Penland (5 min. topic introduction)

3:35-4:05 Simulated and observed pre-industrial to modern vegetation and climate changes
M. Notaro, Z. Liu, R. Gallimore, S. Vavrus and J. Kutzbach

4:05-4:35 Long-term trend of global land precipitation: uncertainties in gauge-based analyses
Mingyue Chen, P. Xie, J. Janowiak and P. Arkin

4:35-5:05 Variability and forcing of anomalous Western Hemisphere warm pools
David Enfield, S. Lee and C. Wang

5:05-5:35 Precipitation extremes during 1895-2003 in the continental United States
Ken Kunkel

Wednesday, October 20, 2004

7:15-8:00 POSTER SET-UP

SESSION 7: RESULTS FROM NAME 04 (North American Monsoon Experiment)

Chair: Kingtse Mo (5 min. topic introduction)

8:05-8:35 An Update on the North American Monsoon Experiment (NAME)

Wayne Higgins, Marco Carrera, Tim Eichler and the NAME SWG

8:35-9:05 Preliminary results of the NCAR ISS deployment in NAME

Richard Johnson and P. Ciesielski

9:05-10:30 POSTER SESSION 3: NAME, SOIL MOISTURE & REGIONAL

10:30-11:00 Topographic dependency of rainfall characteristics from the Sierra Madre Occidental in Northwest Mexico

Dave Gochis, A. Jimenez, C. Watts, J. Garatuza-Payan and J. Shuttleworth

11:00-11:30 Evaluating sources of monsoon surface moisture in southeast Arizona

Art Douglas and N. Novella

11:30-1:00 LUNCH (on own)

SPECIAL SESSION: CPC's First 25 Years

Chair: Jim Laver (5 minute introduction)

1:10-1:30 Events leading to formation of a "Diagnostics Climate Center"

Bob Reeves

1:30-1:50 The first few matters of the Climate Analysis Center (CAC)

Jay Winston, 1st CAC Director

1:50-2:10 Early Monitoring and diagnostics at the CAC

Gene Rasmusson, 1st Diagnostics Branch chief

2:10-2:30 Early challenges at the CAC

Jim Rasmussen, 2nd CAC Director

2:30-3:00 BREAK

3:00-3:20 Climate predictions and their integration into CAC

Don Gilman, 1st Prediction Branch chief

3:20-3:40 Expansion of the CAC Role

Dave Rodenhuis, 3rd CAC Director

3:40-4:00 Challenges and the future of CPC

Jim Laver, 5th (and current) Director of CPC

4:00-4:20 The development of the new NOAA Climate Program

Ken Mooney, OGP

6:00-9:00 WORKSHOP BANQUET on Grand Terrace

Banquet speaker: Stan Changnon

Thursday, October 21, 2004

7:15-8:00 POSTER SET-UP

SESSION 8: FORECAST METHODS AND ASSESSMENTS

Chair: Bob Livezey (5 min. topic introduction)

8:05-8:35 Downscaling week-two ensembles using forecast analogs
Jeff Whitaker and T. Hamill

8:35-9:05 Exploring the subseasonal weather-climate connection
Klaus Weickmann and E. Berry

9:05-9:35 New NWS Western Region local climate products
Marina Timofeyeva, A. Bair and D. Unger

9:35-11:00 POSTER SESSION 4: ENSO, TELECONNECTIONS & FORECASTS

11:00-11:30 Subseasonal Predictability of the Coupled Tropical Indo-Pacific
Matthew Newman, Prashant D. Sardeshmukh, and Cecile Penland

11:30-12:00 Diagnosis of skill variability as a basis for discriminating use of CPC long-lead seasonal forecasts
Bob Livezey and M. Timofeyeva

12:00-12:30 Regional verification of CPC's seasonal forecasts
Mike Halpert and K. Pelman

12:30-2:00 LUNCH (on own)

SESSION 9: ENSO & TELECONNECTIONS

Chair: Chet Ropelewski (5 min. topic introduction)

2:05-2:35 Pacific v.s. Indian Ocean warming: how does it matter for global and regional climate change?
Joseph Barsugli, S. Shin and P. Sardeshmukh

2:35-3:05 Significant Change of Extratropical Natural Variability Associated with Tropical ENSO Anomaly
Wilbur Chen

3:05-3:35 Time-frequency variations of the U. S. Great Plains precipitation and its relationship with tropical central-eastern Pacific SST

Song Yang, X. Ding and D. Zheng

3:35-4:00 **BREAK**

4:00-4:30 The Pacific meridional mode: diagnostics and impacts

Dan Vimont and J. Chiang

4:30-5:00 Cluster analysis of tropical cyclone tracks and ENSO

Suzana Camargo, A. Robertson, S. Gaffney and P. Smyth

6:00-8:00 Applied Research Center (ARC) Council Meeting (Snacks provided)

Friday, October 22, 2004

SESSION 9: ENSO & TELECONNECTIONS (cont'd)

Chair: Chet Ropelewski

8:00-8:30 The strength of El Nino and the spatial extent of tropical drought – a remarkably robust relationship

Brad Lyon

8:30-9:00 An analysis of variability in atmospheric response to SSTs in an atmospheric general circulation model

Arun Kumar, Q. Zhang, P. Peng and B. Jha

9:00-9:30 Sensitivity of U. S. precipitation and temperature to tropical Indian, Pacific and Atlantic ocean SST anomalies throughout the year

Prashant Sardeshmukh, J. Barsugli and S. Shin

9:30-10:00 Understanding the sensitivity of North American Drought in the present and past climate to the tropical Pacific SSTs

Sang-IK Shin, R. Webb, P. Sardeshmukh, R. Oglesby and J. Barsugli

10:00-10:30 BREAK

SESSION 9: ENSO & TELECONNECTIONS (cont'd)

Chair: Chet Ropelewski

10:30-11:00 Challenges in prediction of summer monsoon rainfall: inadequacy of the tier-2 strategy

Bin Wang, X. Fu, Q. Ding, I. Kang, K. Jin, J. Shukla and F. Doblus-Reyes

11:00-11:30 Spring onset in the Northern Hemisphere: a role for the stratosphere?

Rob Black, B. McDaniel and W. Robinson

11:30-12:00 Simulations of extreme cold-air outbreaks

Steve Vavrus, J. Walsh, D. Portis and W. Chapman

----- **END OF WORKSHOP** -----

POSTER PRESENTATIONS

Monday October 18, 2004

9:15-10:30 POSTER SESSION 1: RECENT CLIMATE ANOMALIES, CLIMATE FORECAST SYSTEM & PREDICTABILITY

P1.1 Cool summer over Japan in 2003 -- from the viewpoint of summer following the 2002/03 El-Nino event

Hirokazu Endo

P1.2 Recent West African hydrologic anomalies in the NCEP CFS

Wassila M. Thiaw and Kingtse C. Mo

P1.3 NCEP CFS retrospective forecast data: description and availability in the NCEP climate server

Catherine Thiaw

P1.4 The European heatwave of 2003: a modeling study using the NSIPP-1 AGCM.

P. Pegion, S. Schubert, R. Koster, M.Suarez, R. Reichle and P. Liu

P1.5 The SST bias in the tropical Pacific in NCEP coupled forecast system model (CFS03)

Wanqiu Wang

P1.6 Evaluation of the downstream weather impacts associated with atmospheric blocking over the Northeast Pacific in the CFS and AMIP model simulations

Marco L. Carrera, Natalie Gaggini, and R. Wayne Higgins

P1.7 The best analyzed air-sea fluxes for seasonal forecasting

Glenn White, Wan-Qui Wang, Suranjana Saha, Sudhir Nadiga and Hua-Lu Pan

P1.8 Simulation of the tropical air-sea coupled systems in the new NCEP coupled forecast system

Jiande Wang, Sudhir Nadiga and David Behringer

P1.9 The historic Colorado front range snowstorm of March 17-19, 2003

Klaus Wolter, Thomas Schlatter and Nolan Doesken

P1.10 Evaluation of ENSO prediction and its impact on US surface climate using NCEP/CFS retrospective seasonal forecasts

Augustin Vintzileos and Jae-Kyung E. Schemm

P1.11 Application of the University of Wisconsin Nonhydrostatic Modeling System (UWNMS) to large scale interaction between Northern and Southern hemispheres

Marek Rogal, Matthew H. Hitchman, Marcus L. Buker, and J. Gregory

P1.12 Attempts in reducing velocity errors in the Global Ocean Data Assimilation System at NCEP

Yan Xue and David Behringer

P1.13 Predictability of three dynamical components of tropical SSTs

Cecile Penland and Ludmila Matrosova

P1.14 Assessing seasonal ocean-atmosphere interaction in the midlatitude North Pacific

Dong Eun Lee and Zhengyu Liu

P1.15 Recent Evolution of the ENSO cycle

Vern Kousky

P1.16 Improvements of the Geostationary Operational Environmental Satellites (GOES)R series for climate applications

Timothy J. Schmit, W. P. Menzel, James J. Gurka, Elaine M. Prins, Mathew M. Gunshor, Jun Li

P1.17 Breeding and SLAF ensemble schemes for the NCEP-CFS03 coupled ocean-atmosphere model

Malaquías Peña and Zoltan Toth

P1.18 Northern Hemispheric storm tracks in the NOAA/NCEP GFS and CFS Models: climatology, interannual variability, and extreme events

Timothy Eichler and Wayne Higgins

P1.19 The recent "recovery" of the rains in the West African Sahel.

Sharon Nicholson

P1.20 Analysis of subseasonal to decadal variability in a coupled general circulation model

S. Miller, R. Nieto-Ferriera, M. Rienecker, S. Schubert, M. Suarez, P. Pegion

P1.21 An update on the North American Monsoon Experiment (NAME)

Wayne Higgins, Marco Carrera, Tim Eichler and the NAME SWG

P1.22 The 2003/04 Stratospheric Warming Event: Its Evolution and Impact upon the Troposphere

Craig Long, M. Gelman, S. Zhou, A. J. Miller, W. Higgins, H.K. Kim

P1.23 Review of the 2003 Antarctic Ozone Hole and an up-to-date look at the 2004 Ozone Hole

Craig Long, S. Zhou, R. Nagatani, A. J. Miller

P1.24 The 2004 North Atlantic and East Pacific Hurricane Season: Summary and NOAA Outlooks

Muthuvel Chelliah, Gerry Bell and Kingtse Mo

P1.25 Activity of the Madden-Julian oscillation and other coherent tropical modes during 2003-04

Klaus Weickmann and Edward Berry

P1.26 The Asian-Australian Monsoon in 2003-04

Song Yang and Soo-Hyun Yoo

P1.27 The NOAA Climate Testbed

Wayne Higgins and Hua-Lu Pan

P1.28 Assessment of the 2003-04 African rainfall.

Wasilla Thiaw

Tuesday October 19, 2004

9:05-10:30 POSTER SESSION 2: SATELLITE REGIONAL & LONG-TERM CLIMATE STUDIES

P2.1 About changes of cloudiness vertical macrostructure before, during and after falling precipitation.

Irina Chernykh and Oleg Alduchov

P2.2 An analysis of the National Climatic Data Center thirty-year temperature normals

Larry Brown

P2.3 Spread of boundary conditions on regional seasonal forecast

Hann-Ming Henry Juang and Jun Wang

P2.4 Variations of climate parameters in the middle atmosphere from HALOE

Ellis Remsberg

P2.5 Towards an optimal merging of satellite data sets

Jörg Schulz and Ralf Lindau

P2.6 Preliminary results from the new AVHRR Pathfinder Atmospheres Extended (PATMOS-x)

Andrew Heidinger and, Michael Pavolonis

P2.7 Regional climate modeling - big brother experiment

Deborah Herceg, Adam Sobel, Liqiang Sun and Steve Zebiak

P2.8 GOES/POES satellite intercalibration: essential for climate studies.

Mathew M. Gunshor, Timothy J. Schmit, W. P. Menzel and David Tobin

P2.9 Rainfall variability in the tropical Atlantic region

Guojun Gu, Robert F. Adler and Andrew J. Negri

P2.10 Global climate response induced by aerosol radiative forcing

M. K Kim, K. M. Lau, K. M. Kim, Y. C. Sud, G. K. Walker, and M. Chin

P2.11 Cloud-aerosol interaction over Southeast Asia and its impact on the onset of the east Asian summer monsoon

Kyu-Myong Kim, William K.-M. Lau, N. Christina Hsu, Si-Chee Tsay

P2.12 The variations of upper-air temperature in the last decade of the 20th century – beginning of 21st century.

Alexander Sterin

P2.13 Validation of daily satellite precipitation estimates over the U. S

John Janowiak, Pingping Xie, Robert Joyce, Mingyue Chen, Yelena Yarosh

P2.14 Changing Arctic climate and cloud feedback effect

Xuanji Wang and Jeffrey R. Key

P2.15 GOES cloud products and cloud studies

Anthony J. Schreiner, Timothy J. Schmit, W. Paul Menzel, Jun Li, James A. Jung, Steven A. Ackerman, Wayne F. Feltz and Robert M. Aune

P2.16 Preliminary trends in cloudiness from the new AVHRR pathfinder atmospheres extended (PATMOS-x) data set

Michael J. Pavolonis and Andrew K. Heidinger

P2.17 Correlations between monthly mean values of cloudiness vertical macrostructure parameters and precipitation amount

Oleg A. Alduchov and Irina V. Chernykh

P2.18 Global warming experiments for IPCC AR4 by MRI-CGCM2.3

Takao Uchiyama

P2.19 New climate divisions for monitoring and predicting climate in the U.S. - A progress report

Klaus Wolter and Russell Bigley

P2.20 Sea-to-air CO₂ flux from 1948 to 2003 - a model study

Wetzel, P., Winguth, A., and Maier-Remer, E.

P2.21 Is global warming injecting randomness into the climate system?

A. A. Tsonis

P2.22 Observed trends in South American precipitation

Brant Liebmann, Carolina S. Vera, Leila M.V. Carvalho, Ines A. Camilloni, Martin P. Hoerling, Dave Allured and Vicente R. Barros

P2.23 An analysis of weighting schemes using climate indices for seasonal volume forecasts produced from the ensemble streamflow prediction system of the National Weather Service

Kevin Werner, David Brandon, Martyn Clark and Subhrendu Gangopadhyay

P2.24 Prediction of summertime temperatures over the western United States

Eric Alfaro, Alexander Gershunov and Dan Cayan

P2.25 An analysis of snow simulations in a regional climate model with an advanced snow scheme

Jiming Jin and Norman L. Miller

P2.26 Diurnal cycle of California climate from regional downscaling

Hideki Kanamaru and Masao Kanamitsu

P2.27 Potential Roles of Hyperspectral IR Sensors for Climate Change Detection

Hsiao-hua Burke and Bill Snow

P2.28 Great Lakes Ice Season: A Brief Climatological Overview

Will Kubina and Raymond Assel

P2.29 Interannual Variability of Surface Longwave Radiation over the African Continent as Derived from AVHRR.

Kristopher Karneckas

Wednesday October 20, 2004

9:05-10:30 POSTER SESSION 3: NAME 04, SOIL MOISTURE & REGIONAL

P3.1 Climatology and variability of the North American monsoon system in NCEP GFS GCM simulations

Jae-Kyung Schemm, Kyong-Hwan Seo, Hyun-Kyung Kim and Kingtse Mo

P3.2 NAMAP: An assessment of regional and global model simulations of the North American monsoon

Hyun-kyung Kim, David Gutzler, and Wayne Higgins

P3.3 AGCM simulations of warm season diurnal cycle over the continental United States and northern Mexico

M.-I. Lee, S. Schubert, M. Suarez, J. Bacmeister, P. Pegion, I. Held, J. Ploshay, N.-C. Lau, B. Tian, A. Kumar, H.-K. Kim, J. Schemm, K. Mo and W. Higgins

P3.4 Hydroclimatology of the North American monsoon region in northwest Mexico

David Gochis and L. Brito Castillo

P3.5 Evaluating the performance of satellite rainfall estimates using data from NAME program

Ismail Yucel, Robert J. Kuligowski and David J. Gochis

P3.6 Diurnal cycle of cloud and precipitation associated with the North American Monsoon System: A case study for 2003

Pingping Xie, Yelena Yarosh, Mingyue Chen, Robert J. Joyce, John E. Janowiak, and Phillip A. Arkin

P3.7 Impact of Tropical Easterly Waves on the North American Monsoon

Jennifer L. Adams and David J. Stensrud

P3.8 Atmospheric moisture transport as evaluated in the CDAS 2, GDAS, operational EDAS, regional reanalysis during NAME 04

Kingtse C. Mo, Marco Carrera and R. Wayne Higgins

P3.9 Comparing changes in upper atmospheric wind flow to the decrease in wintertime precipitation in the northern rockies since 1977

Gene Petrescu

P3.10 Large-scale aspects of the hydrological cycle as seen from the NCEP Regional Reanalysis and Forecast Products

Marco L. Carrera, Kingtse C. Mo, Muthuvel Chelliah, R. Wayne Higgins, and Wesely Ebisuzaki

P3.11 The relative impact of initial land states on warm season precipitation simulation over North America with Eta regional climate model

Rongqian Yang and Kenneth Mitchell

P3.12 Land memory study using CPC's new global soil moisture dataset from 1948 - Present

Yun Fan, Huug M. van den Dool and Peitao Peng

P3.13 Impact of initial soil wetness on seasonal climate prediction

Liqiang Sun

P3.14 Soil moisture impacts on seasonal forecast predictability

Laurel DeHaan, Masao Kanamitsu, Sarah Lu, John Roads,

P3.15 Severity-area-duration analysis of 20th century drought in the conterminous U. S.
Elizabeth A. Clark, Konstantinos M. Andreadis, Andrew W. Wood, and Dennis P. Lettenmaier

P3.16 Impact of land initialization on coupled seasonal forecasts during Summer 2004

N. Kurkowski, R. Reichle, S. Miller, J. Gottschalck, R. Koster, P. Liu, J. Meng, P. Pegion, M. Rodell, S. Schubert, M. Suarez

P3.17 A comparison of the soil moisture from the North American regional reanalysis and the NCEP/DOE reanalyses

Wesley Ebisuzaki, Cheng-Hsuan Lu

P3.18 Seasonal and interannual variations of precipitation over Atlantic Ocean and its adjacent land areas

Pingping Xie, Mingyue Chen, Evgeney Yarosh, John Janowiak, and Phillip A. Arkin

P3.19 Gravity satellite data and calculated soil moisture: A mutual validation

Huug van den Dool, Yun Fan, John Wahr and Sean Swenson

P3.20 Intraseasonal rainfall variability within the North American monsoon

AV Douglas and PJ Englehart

P3.21 Relationships between GOC moisture surges and tropical cyclones in the eastern Pacific and Atlantic basins

Wayne Higgins and Wei Shi

P3.22 Potential predictability of U.S. summer climate with "perfect" soil moisture

Fanglin Yang, Arun Kumar and K. -M. Lau

P3.23 Seasonal climate prediction for the UK health sector

Glenn McGregor

P3.24 Have variations in convection and circulation in the tropics played a role in the variability of the Antarctic Ozone?

Leila M. Vespoli de Carvalho and Charles Jones

P3.25 A PCA Analysis of the Behavior and Evolution of Gulf Surge's at Yuma, AZ based on a 50-year Record of Increased Temporal Resolution.

Nicolas Novella

Thursday October 21, 2004

9:35-11:00 POSTER SESSION 4: ENSO, TELECONNECTIONS, FORECASTS

P4.1 The onset and period of the Madden-Julian Oscillation and alternating tendency in its intensity

Kyong-Hwan Seo and Jae-Kyung E. Schemm

P4.2 Stratosphere-troposphere exchange and the QBO

Amihan Huesmann and Matthew Hitchman

P4.3 The Atlantic basin hurricane database re-analysis for the decades of the 1910s, 1920s and 1930s

Christopher W. Landsea, J. Berkeley, W. Bredemeyer, R. Ellis, S. Feuer, D. Glenn, J. Sims, D. Thomas and L. Woolcock

P4.4 Predictability studies of the intraseasonal oscillation in the ECHAM GCM

Stefan Liess and Duane E. Waliser

P4.5 An experimental national long-range hydrologic prediction system (NLHPS)

John Schaaake, Pedro Restrepo and Shuzheng Cong

P4.6 Validation of the ECPC coupled model

Elena Yulaeva, Masao Kanamitsu, and John Roads

P4.7 Seasonal forecast skill comparison of cluster mean, ensemble mean and EOF mode patterns

Tosiyuki Nakaegawa and Masao Kanamitsu

P4.8 The effects of el nino/ southern oscillation on Utah's climate

Brian McInerney

P4.9 Withdrawn

P4.10 The variability of Indian Ocean SST and its climate impacts

Soo-Hyun Yoo, Song Yang, and Chang-Hoi Ho

P4.11 A Markov model approach to incorporate influences of the Madden-Julian Oscillation on ENSO: Part 1. predicting intraseasonal variability

Yan Xue and Kyong-Hwan Seo

P4.12 OGCM study of the interannual variability of Western Hemisphere warm pool

S.-K. Lee, D. B. Enfield and C. Wang

P4.13 Boreal summertime teleconnection linking interannual climate variations over North America and Asia

Hailan Wang and William K.-M. Lau

P4.14 Seasonal surface air temperature and precipitation in the FSU climate model coupled to the CLM2

D. W. Shin, S. Cocke, T. E. LaRow, and James J. O'Brien

P4.15 A tool for improving natural resource management under climate uncertainty: customized forecast evaluations using the internet

Holly C. Hartmann, Bisher Imam, Ellen Lay, David Lamb, and Soroosh Sorooshian

P4.16 Verification of CPC's 2004 heat index forecasts

Kenneth Pelman

P4.17 Extended-range analog ensemble forecasts

Ed O'Lenic and Scott Handel

P4.18 Directional transition mechanism of the Rossby wave propagation

Sung-Dae Kang, Su-Hee Park, Won-Tae Kwon

P4.19 Global Teleconnection: A New Framework for Climate Prediction

Julian X.L. Wang

P4.20 Circumglobal teleconnection in the Northern Hemisphere summer

Qinghua Ding and Bin Wang

P4.21 On the sources of water vapor over the Indian subcontinent

Man-Li C. Wu, S. D. Schubert, S. M. J. Suarez, M. Bosilovich, J. D. Chern and D. E. Waliser

P4.22 The statistics of weather in climate based on observations and models

C F. Ropelewski and M. A. Bell

P4.23 United States landfalling hurricane probability webpage

Philip J. Klotzbach and William M. Gray

P4.24 Interannual and interdecadal rainfall variations in the Hawaiian Islands

Pao-Shin Chu and Wendy Chen

P4.25 Forecast skill and economic value of APCN multi-model ensemble prediction: where does the skill of multi-model ensemble prediction come from?

June-Yi Lee and William K.-M. Lau

P4.26 Boundary and initial flow induced variability over Pacific-North America in CCC-AGCM simulations

Amir Shabbar and Kaz Higuchi

P4.27 Maintenance of Arctic and sub-Arctic atmospheric circulation observations and CCSM3 simulations

Eric DeWeaver

P4.28 Atmospheric response to North Pacific SST: the role of ocean-atmosphere coupling
Zhengyu Liu and Lixin Wu