

# **Cyclone Workshop 2006**

**Sunday, October 22**

**Arrival, registration. Dinner.**

**Monday, October 23**

**8:30 – 8:45**

**Welcome and Logistics**

**8:45 – 10:00**

**Session I: Predictability I**

**Session Chair: Sharan Majumdar**

Assessing Predictability with a Local Ensemble Kalman Filter: Istvan Szunyogh

Consistent Global and Mesoscale Ensembles Using Ensemble Transformation: Craig H. Bishop, Justin McLay, Sue Chen, Teddy Holt, Carolyn Reynolds, Jason Nachamkin, James Doyle

Ensemble-Based Sensitivity Analysis for Observation Targeting and Thinning: Gregory J. Hakim, Ryan D. Torn

Structure, Growth Rates, and Tangent-Linear Accuracy of Adjoint Sensitivities with Respect to Horizontal Resolution: Brian B. Ancell, Clifford F. Mass

Discussion

**10:00 – 10:30**

**Break**

**10:30 – noon**

**Session I: Predictability continued**

**Session Chair: Istvan Szunyogh**

Spatial Growth of Perturbations in Turbulent Baroclinic Flows: Rahul Mahajan, Gregory Hakim

Spatial Scales and Predictability in a High-Resolution Quasi-geostrophic Model: Rebecca Morss, Chris Snyder, Richard Rotunno

Dynamics of Forecast Error in an NWP System: M. Didone, D. Luethi, H. C. Davies

Reanalysis Prior to the Radiosonde Era Using Only Surface Pressure Observations: Jeffrey Whitaker, Gilbert P. Compo, Prashant D. Sardeshmukh

Evaluating the Effectiveness of the ETKF Targeting Method for 3-5 Day Forecast: Kathryn Sellwood

Discussion

**12:00 – 1:30**            **Lunch**

**1:30 – 3:00**            **Session I: Predictability Continued**  
**Session Chair: Carolyn Reynolds**

The Impact of Unresolved Small-Scale Motions on Targeted Observations: Daniel Hodyss, Sharanya J. Majumdar

Predictability of Severe Weather at the Mesoscale: Fuqing Zhang

Numerical Forecast Skill over North America and Adjacent Waters: Lynn McMurdie, Garrett Wedam.

Predictability of Cool Season Extratropical Cyclones Within Operational Models: Brian A. Colle, Michael E. Charles

Diagnosis of the 9 February 2006 East Coast Forecast ‘Challenge’: Michael Morgan Damon Alexander, Nicholas Bassill

Discussion

**3:00 – 6:00**            **Recreation**

**6:00 – 7:30**            **Dinner**

**7:30 – 9:30**            **Session II: THORPEX and Societal Impacts**  
**Session Chair: Greg Hakim**

An Overview of the Key THORPEX Predictability and Dynamical Processes Issues: Istvan Szunyogh

An Overview of the THORPEX Pacific Asian Regional Campaign: David B. Parsons, Patrick A. Harr, Istvan Szunyogh, Tetsuo Nakazawa

US THORPEX: Science, Structure, and Activities: Jim Hansen, Lance Bosart

Accelerating Advances in Weather, Climate, and Earth-System Prediction in the 21st Century: M. A. Shapiro, B. J. Hoskins, G. Brasseur

Public Response to Hurricane Rita Forecasts Along the Texas Coast: A student research study linking classroom to reality: Rebecca Morss, Fuqing Zhang, Coauthors

**9:00 – 9:30**            **Discussion on the future of THORPEX**

## Tuesday, October 23, 2006

**8:30 – 10:15**            **Session III: Tropical Cyclone Predictability**  
**Session Chair: Rebecca Morss**

Assimilation of vortex position with an ensemble Kalman filter: Yongsheng Chen, Chris Snyder.

Issues in Ensemble-Based Adaptive Sampling for Tropical Cyclone Prediction: Sharanya J. Majumdar

Comparison and Interpretation of Tropical Cyclone Adaptive Observing Methods: C. Reynolds, M. Peng, S. Majumdar, S. Aberson, C. Bishop, R. Buizza

The Use of Ensemble Techniques for Tropical Cyclone Track Forecasting and for the Prediction of Tropical Cyclone Track forecast Error: James S. Goerss

Predictability of Near-Shore Tropical Cyclone Formation: Allison (2001) and “Alex” (2004): Jason Sippel, Fuqing Zhang

Predicting Tropical Cyclones Using the WRF Model: Nicholas Bassill

Discussion

**10:15 -- 10:45**            **Break**

**10:45 – 12:15**            **Session IV: Extratropical Transition and Predictability**  
**Session Chair: Craig Bishop**

Predictability Associated with the Downstream Impacts of the Extratropical Transition of Tropical Cyclones: Patrick A. Harr, Doris Anwender, Sarah Jones

The Sensitivity of Western Pacific Extratropical Transition Events to the Initial Conditions: Ryan D. Torn

Hurricanes Ivan, Jeanne, Karl (2004) and Mid-Latitude Trough Interactions: Melinda S. Peng, Ryan N. Maue, Carolyn A. Reynolds, Rolf H. Langland

Impacts of Recurving West Pacific Tropical Cyclones on Extratropical Predictability in the Northern Hemisphere: Heather M. Archambault, Lance F. Bosart, Daniel Keyser

The Extratropical Transition and Subsequent Reintensification of Supertyphoon Dale (1996): A Storm Noteworthy for its Impact on High Latitudes: Lance F. Bosart, Eric P. Kelsey

Recurving Eastern North Pacific Tropical Cyclones: Kristen L. Corbosiero, Michael Dickinson, Lance Bosart

**12:15 – 1:30                      Lunch**

**1:30 – 3:15                      Session IV continued  
Session Chair: Michael Morgan**

Synoptic-scale Sub-tropical Forcing of Extra-tropical Flow: Diagnostic Analyses and Model Simulations: T. Spengler, C. Schwierz, H. C. Davies

The Possible Seasonal Climate Impact from Anomalous Frequency of Recurving Tropical Cyclones: Robert Hart, Lance Bosart, Charles Hosler

### **Session V: Tropical Cyclones**

A Climatology of Tropical Transition: R. McTaggart-Cowan, L. F. Bosart, C. A. Davis

The Development of Upshear Convection during Tropical Transition in the Subtropical Atlantic: Andrew L. Hulme, Jonathan E. Martin

Images of Hurricane Katrina (2005) below the Cloud: Timothy J. Dunkerton

The Morphology of Eyewall Lighting Outbreaks in Two Category Five Hurricanes: Steven Businger, Kirt Squires

Discussion

**3:30 – 6 PM                      Recreation**

**6:00 – 7:30                      Dinner**

**7:30 – 8:30                      The Contributions of Professors Peter Hobbs**

**Comments by Cliff Mass, Lance Bosart, Dave Parsons,  
Jonathan Martin**

**Open Discussion**

**8:30-9:15                      Open Discussion of the Contribution of Professor Fred  
Sanders**

**Refreshments**

## Wednesday, October 25, 2006

**8:30 – 10:00**            **Session VI: Extratropical Cyclones**  
**Session Chair: Mark Stoelinga**

A Study of Coherent Tropopause Disturbances within the Northern Hemispheric Circumpolar Vortex: Joseph R. Kravitz, Daniel Keyser, Lance F. Bosart, Anantha Aiyyer

Analysis of the Potential Vorticity Budget of a Tropopause Polar Cyclone: Steven M. Cavallo, Gregory J. Hakim

Role of Upper Level PV Anomalies in Polar Low Development and Their Significance for Forecasting: Sarah F. Kew

A Multiscale Examination of a Mesoscale Cyclogenesis Event in a Polar Airstream: Thomas J. Galarneau, Jr., Daniel Keyser, Lance F. Bosart

The Influence of Shearwise Vertical Motions on the Development of an Intense Upper-Front Andrea Lopez-Lang, Jonathan E. Martin

Discussion

**10:00 – 10:30**            **Break**

**10:30 – 12:00**            **Session VI continued**  
**Session Chair: Brian Colle**

Diabatic Rossby Waves: Aspects of their Dynamics, Climatology and Predictability: Heini Wernli, Patricia Kenzelmann

Dynamics of the 24-25 February Cyclone: Rich Moore

Breaking Waves at the Tropopause: Climatological Analyses of the Orientation and Links to Inter Wave-guide wave Transfer: Olivia Martius, Cornelia Schwiertz and Huw C. Davies.

Synoptic-Scale and Mesoscale Aspects of Mountain Wave Predictability: James D. Doyle Clark Amerault, Carolyn A. Reynolds

Predictability of Downslope Windstorms: Alex Reinecke, Dale Durran

Discussion

**12:00 – 1:30**            **Lunch**

**1:30 – 3:15**            **Session VI continued**  
**Session Chair: Jon Martin**

A New Framework for Extratropical Windstorm Prediction: Tim Hewson, Helen Watkin

Windstorms of the Pacific Northwest. Bri Dotson and Cliff Mass

Hurricane Force Extratropical Cyclones as Detected by QuikSCAT: Joseph M. Sienkiewicz, Joan M. Von Ahn, Gregory M. McFadden

Analysis of Midlatitude Cyclones and Fronts Using ATOVS Soundings: Jack Dostalek

**Session VII: Fronts, Frontogenesis and Frontal Analysis**

The Relationship between Frontal Zones and Airstream Boundaries: Robert A. Cohen, David Schultz

A Study of the Effect of Horizontal Contrasts in Static Stability on Frontal Behavior: Mark T. Stoelinga

Discussion

**3:15 – 6:00**            **Recreation**

**6:00 – 7:30**            **Dinner**

**7:30 – 9:30 PM**        **Session VII continued**  
**Panel discussion, Dan Keyser, Chair**  
**Unanswered questions on Fronts, Frontogenesis and Frontal Analysis**

David Schultz : Cold Fronts: The Unknown Knowns

Mark Stoelinga: Lower – Tropospheric Frontal Structure above the Surface

Dave Novak and Brian Colle: Non – classical Frontal Evolution over the Eastern United States during 17 – 18 January 2006

Howie Bluestein: The Relationship between Surface Boundaries and Convective Initiation, or What's My Line?

Fred Carr: The Strength and Movement of an Intense Warm Front

Jon Martin: Synoptic Evolution of the Lower Stratospheric Portion of Upper – level Fronts.

## **Thursday, October 26, 2006**

**8:30 – 10:00**            **Session VIII: Precipitation and Convection**  
**Session Chair: Paul Roebber**

Unexpectedly Heavy Precipitation Due to Mesoscale Features Induced by a Landfalling Tropical Storm: Alan F. Srock, Lance F. Bosart, John Molinari

A Pacific Moisture Conveyor Belt and its Relation to Precipitation Forecasts in the Southwestern US: Peter Knippertz, Jonathan E. Martin

The Pineapple Express and its role in high-latitude extreme precipitation events: Alain Roberge, Eyad Atallah, and John Gyakum.

Rossby Wave Precursors and Predictability of Heavy Precipitation Events in the European Alps: Cornelia Schwierz, Olivia Martius, Huw C. Davies

The Role of Moist Processes in Band Formation and Evolution during the 25 December 2002 Northeast U.S. Banded Snowstorm: David R. Novak, Brian A. Colle

Discussion

**10:00 – 10:30**            **Break**

**10:30 – noon**            **Session VIII continued**  
**Session Chair: Steve Colucci**

The Effects of Evaporation and Sublimation on Mesoscale Structures in Extratropical Cyclones: A Case Study with the Local Model: Florian Weidle, Heini Wernli

The Prediction of Cold-Season Convective Precipitation Events within Extratropical Cyclones by Utilizing the Growth Rate Parameter: Christopher J. Melick  
Larry L. Smith, Brian P. Pettegrew Amy E. Becker, Patrick S. Market, Anthony R. Lupo

Cyclones at the Dryline-Front/Outflow Boundary Intersection in the Southern Plains:  
Howard B. Bluestein

Derecho Formation, Evolution and MCS Interactions during BAMEX: Nicholas D. Metz, Lance F. Bosart

A Reanalysis of the Relationship between the Synoptic Scale Cyclone and the Tri-State Tornado of 18 March 1925: Charles A. Doswell III, Robert A. Maddox, Charlie Crisp, Matthew S. Gilmore

Discussion

**12:00 – 1:30                      Lunch**

**1:30 – 3:00                      Session IX: Extratropical Cyclones revisited  
Session Chair: Conny Schwierz**

Roebber's Tail: A Tail: Paul J. Roebber

Stratospheric Influences on Sea-Level Cyclogenesis: Stephen J. Colucci

Low Frequency Variability of Extratropical Cyclone Activity: Mark R. Sinclair

Baroclinic Development within Longitudinally Varying Flows: David Schultz, Fuqing Zhang, Heini Wernli

Diagnosis: Keeping up with the Changing Meteorological Landscape: John W. Nielsen-Gammon

**Discussion**

**7:30 – 9:30 PM                      Panel Discussion, Informal session addressing the following issues:**

- 1) What skills should the 'modern' synoptician have? Are they any different than three decades ago?**
- 2) The Maproom – how do we communicate and interact about the weather in this impersonal/electronic world?**

Panel Includes: Lance Bosart, Michael Morgan, John Nielsen-Gammon, and Warren Blier. Moderated by Lynn McMurdie.