

Sunday, 29 September 2019

Dinner (6:30–8:00 PM)

Monday, 30 September 2019

Breakfast (7:00–8:00 AM)

Session 1: Extratropical Cyclone Structure and Dynamics: Part I (8:00–10:00 AM)

Chair: Michael Riemer

Time	Author(s)	Title
8:00–8:40	Spengler	100 th Anniversary of the Bergen School of Meteorology Paper
8:40–9:00	Raveh-Rubin and Catto	Climatology and Dynamics of the Link Between Dry Intrusions and Cold Fronts
9:00–9:20	Tochimoto and Niino	Structures of Extratropical Cyclones Developing in Pacific Storm Track
9:20–9:40	Sinclair and Dacre	Poleward Moisture Transport by Extratropical Cyclones in the Southern Hemisphere
9:40–10:00		<i>Discussion</i>

Break (10:00–10:30 AM)

Session 2: Jet Dynamics and Diagnostics (10:30 AM–12:10 PM)

Chair: Victoria Sinclair

Time	Author(s)	Title
10:30–10:50	Breeden and Martin	Evidence for Nonlinear Processes in Fostering a North Pacific Jet Retraction
10:50–11:10	Finocchio and Doyle	How the Jet Stream Controls the Downstream Response to Recurving Tropical Cyclones: Insights from Idealized Simulations
11:10–11:30	Madsen and Martin	Exploring Characteristic Intraseasonal Transitions of the Wintertime Pacific Jet Stream
11:30–11:50	Winters et al.	The Role of Subsidence during the Development of North American Polar/Subtropical Jet Superpositions
11:50–12:10		<i>Discussion</i>

Lunch (12:10–1:10 PM)

Session 3: Rossby Waves (1:10–3:10 PM)

Chair: Annika Oertel

Time	Author(s)	Title
1:10–1:30	Röthlisberger et al.	Recurrent Synoptic-Scale Rossby Wave Patterns and Their Effect on the Persistence of Cold and Hot Spells
1:30–1:50	Ali et al.	A Climatology of Recurrent Rossby Wave Packets and Links to Persistent Extreme Weather in the Southern Hemisphere
1:50–2:10	Riboldi et al.	A Wavenumber/Phase Speed Decomposition of the Midlatitude Flow to Investigate Variability and Changes of Rossby Wave Activity
2:10–2:30	Sussman et al.	Trends in Northern Midlatitude Atmospheric Wave Power from 1950–2099
2:30–2:50	Bowley and Gervais	Rossby Wave Breaking Through the 21 st Century in a Global Climate Model
2:50–3:10		<i>Discussion</i>

Break (3:10–3:30 PM)

Session 4: Tropical–Extratropical Interactions (3:30 PM–5:30 PM)

Chair: Ajay Raghavendra

Time	Author(s)	Title
3:30–3:50	Mitchell and Bosart	The Relationship between Autumn Cold Surge Activity and Tropical Cyclones in the Eastern North Pacific
3:50–4:10	Rantanen et al.	The Extratropical Transition of Hurricane Ophelia (2017) as Diagnosed with a Generalized Omega Equation and Vorticity Equation

4:10–4:30	Tripoli	Environmental Impacts of Tropical Cyclone Mass Outflow
4:30–4:50	Prince and Evans	A Climatological Analysis of Indirect Tropical Cyclone Interactions in the North Atlantic and Northwest Pacific Basins
4:50–5:10		<i>Discussion</i>

Ice Breaker (5:10–6:30 PM)
With remembrances of Fuqing Zhang

Dinner (6:30–8:00 PM)

Poster Session 1 (8:00–10:00 PM)

Presenter(s)	Title
Michael Bell	High-Order Azimuthal Wavenumber Asymmetries in Rapidly Intensifying Hurricane Michael
Lance Bosart	The Cumulative Impact of Recurving and Transitioning North Pacific Tropical Cyclones on the Downstream Large-Scale Circulation and the Eventual Termination of “Endless Summer” over Central and Eastern North America in October 2018
Maxi Böttcher	The Role of Diabatic Processes for Breakup of the PV Streamer and the Formation of the NAWDEX-Cyclone 'Sanchez'
Helen Dacre	Identifying an Extratropical Cyclone Cold Wake
Meredith Fish	Assessing the Connection between Atmospheric River Events and Exploring Their Relation to Extratropical and Tropical Large-Scale Drivers
John Gyakum	Thermodynamic Influences on Explosive Cyclogenesis
Kristine Flacké Haualand	How Do Latent Cooling and Surface Heat Fluxes Influence Baroclinic Development in an Idealised Framework?
Karimar Ledesma-Maldonado	Adjoint-Derived Forecast Sensitivity Analysis Toward Characterizing the Dynamical Response as Tropical Cyclones Evolve
Hilke Lentink	The Effects of Orography on the Extratropical Transition of Tropical Cyclones: A Case Study of Typhoon Sinlaku (2008)
Natália Machado Crespo	Climatological Aspects of Cyclogenesis Dynamics over South America and the South Atlantic Ocean
Stav Nahum	The Dynamical Environment of Dry Intrusion Initiation
Stav Nahum & Vered Silverman	Can We Predict Dry Intrusion Initiations and Understand Their Dynamical Environment Using an Artificial Neural Network?
Kelly Nunez Ocasio	The Role of Mesoscale Convective Systems in African Easterly Wave Tropical Cyclogenesis
Stephan Pfahl	The Sensitivity of Atmospheric Blocking to Changes in Upstream Latent Heating
Moritz Pickl	Sensitivity of the Representation of Diabatic Outflow in Numerical Models: A Case Study
Ajay Raghavendra	The Mischievous MJO and Precipitation over the Congo Rainforest
Matthias Schindler	The Impact of Dropsonde and Extra Radiosonde Observations during NAWDEX and SHOUT in Autumn 2016
Brian Tang	Tropical Cyclone Interactions with Troughs of Different Widths
Franziska Teubler	Predictability and Dynamics of Rossby Wave Packets

Tuesday, 1 October 2019

Breakfast (7:00–8:00 AM)

Session 5: Tropical Cyclone Genesis, Structure, and Intensity Change (8:00–10:00 AM)
Chair: Kristen Corbosiero

Time	Author(s)	Title
8:00–8:20	Kilroy et al	Tropical Cyclogenesis at and near the Equator
8:20–8:40	Alland et al.	Synergistic Effects of Midlevel Dry Air and Vertical Wind Shear on Tropical Cyclone Development
8:40–9:00	Mazza and Chen	Kinematic and Thermodynamic Structure of Tropical Storm Cindy (2017): Results from the CPEX Field Campaign

9:00–9:20	Fischer et al.	The Rapid Intensification and Eyewall Replacement Cycles of Hurricane Irma (2017)
9:20–9:40	Rivoire	What is Cooling the Tropopause above Tropical Cyclones?
9:40–10:00	<i>Discussion</i>	

Break (10:00–10:30 AM)

Session 6: Stratospheric Dynamics (10:30 AM–12:10 PM)

Chair: Andrea Lang

Time	Author(s)	Title
10:30–10:50	Panhans and Lang	Climatology of Cold Air Outbreaks over the United States in the Aftermath of a Sudden Stratospheric Warming Events (1979–2018)
10:50–11:10	Colucci et al.	Understanding the Relationship between Stratospheric Polar Vortex Disturbances and Lower Tropospheric Cold-Air Outbreaks
11:10–11:30	Main and Lang	Examining Tropospheric Precursors to the 22 February 2008 Sudden Stratospheric Warming Event from an Ensemble Forecast Perspective
11:30–11:50	Paquette and Lang	Examining the Relationship Between Tropopause Polar Vortices and the Stratospheric Polar Vortex
11:50–12:10	<i>Discussion</i>	

Lunch (12:10–1:10 PM)

Session 7: Extratropical Cyclone Hazards: Winds (1:10–3:10 PM)

Chair: Andrew Winters

Time	Author(s)	Title
1:10–1:30	Angus and Leckebusch	Covariance of Windstorm Hazards in the Atlantic Basin
1:30–1:50	Pantillon et al.	Anatomy of a Cyclonic Windstorm in the Light of Doppler Lidar Observations and Large-Eddy Simulations
1:50–2:10	Spensberger and Schemm	The Poisonous Tail of the New Year's Day Storm 1992: How Orography Shaped the Fronts during Landfall
2:10–2:30	Eisentein et al.	The Impact of Topography on the Dynamics of Sting-Jet Storm "Egon" over Continental Europe
2:30–2:50	Gray et al.	Sting Jet Enhancement through Mesoscale Instability Release in Case Study and Idealised Simulations
2:50–3:10	<i>Discussion</i>	

Break (3:10–3:30 PM)

Session 8: Tropical Cyclone Size and Winds (3:30–5:10 PM)

Chair: Dan Stern

Time	Author(s)	Title
3:30–3:50	Chavas and Reed	What Sets the Dynamical Dependence of Tropical Cyclone Genesis and Size on latitude? Dynamical Experiments in a World Where Cyclones Reach the Poles
3:50–4:10	Chen and Chavas	Understanding the Inland Evolution of Tropical Cyclone Wind Field Through Idealized Numerical Simulations
4:10–4:30	Cione et al.	Using Observations from Buoys and Drones to Explore the Near-Surface Boundary Layer Environment of Tropical Cyclones
4:30–4:50	Bryan et al.	A Mechanism for Extraordinary Wind Gusts in Tropical Cyclones
4:50–5:10	<i>Discussion</i>	

Recreation (5:10–6:30 PM)

Dinner (6:30–8:00 PM)

Evening Session (8:00–10:00 PM)

Education in Atmospheric Science: How to Train a Scientist We All Want to Work with

Panelists: Dan Chavas, Suzanne Gray, Kelly Lombardo, Jon Martin

Wednesday, 2 October 2019

Breakfast (7:00–8:00 AM)

Session 9: Extratropical Predictability: Part I (8:00–10:00 AM)

Chair: Maxi Böttcher

Time	Author(s)	Title
8:00–8:20	Hoover et al.	Sensitivity Diagnosis of the Development of a November 2018 East Coast Cyclone Event
8:20–8:40	Demirdjian et al.	A Case Study of the Physical Processes Associated with the Atmospheric River Initial Condition Sensitivity from an Adjoint Model
8:40–9:00	Doyle et al.	Waveguide Seeds, Sensitivity, and Predictability during NAWDEX
9:00–9:20	Berman and Torn	Quantifying the Impact of Warm Conveyor Belt Forecast Uncertainty on Variability in the Downstream Waveguide
9:20–9:40	Riemer et al.	Mechanistic Understanding of the Amplification of Forecast Errors and Forecast Uncertainty in a Quantitative Potential-Vorticity Framework
9:40–10:00		<i>Discussion</i>

Break (10:00–10:30 AM)

Session 10: Extratropical Predictability: Part II (10:30 AM–12:10 PM)

Chair: Gwendal Rivière

Time	Author(s)	Title
10:30–10:50	Keil et al.	Sources of Predictability for Deep Convection
10:50–11:10	Hewson et al.	New and Improved Rainfall Forecasts from ECMWF
11:10–11:30	Mathias et al.	Synoptic-Scale Conditions and Convection-Permitting Hindcast Experiments of a Cold-Season Derecho on 3 January 2014 in Western Europe
11:10–11:30	Anderson-Frey and Gallo	EnSOMble Forecasting: Leveraging Self-Organizing Maps for Tornado Threat Modeling
11:50–12:10		<i>Discussion</i>

Lunch (12:10–1:10 PM)

Session 11: Extratropical Cyclone Hazards: Precipitation and Convection (1:10–3:10 PM)

Chair: Stephan Pfahl

Time	Author(s)	Title
1:10–1:30	McCray et al.	Synoptic–Dynamic Modulations of Freezing Rain Event Duration
1:30–1:50	Melamed-Turkish	A Precipitation Climatology Based on the Quasigeostrophic Omega Equation
1:50–2:10	Moore et al.	Dynamics and Predictability of Extreme Precipitation Events along the U.S. West Coast
2:10–2:30	Lombardo and Wu	Dynamics of Mesoscale Convective Systems over Varying Surface Topography
2:30–2:50	Halbert and Orf	Turbulent Generation of Horizontal Streamwise Vorticity in a Simulated Supercell Thunderstorm During the Tornado Maintenance Phase
2:50–3:10		<i>Discussion</i>

Break (3:10–3:30 PM)

Session 12: TPVs and Polar Meteorology (3:30–5:10 PM)

Chair: Christian Grams

Time	Author(s)	Title
3:30–3:50	Riedel and Cavallo	Sensitivity of Forecasts to Special Observations in a TPV during the 2016 NAWDEX Field Campaign using the MPAS-DART Ensemble Data Assimilation System
3:50–4:10	Biernat et al.	A Comparison of Arctic Cyclones between Periods of Low and High Forecast Skill of the Synoptic-Scale Flow over the Arctic
4:10–4:30	Capute and Torn	A Comparison of the Predictability of Arctic and Atlantic Basin Cyclones

4:30–4:50	Stern et al.	Investigating the Impact of Cyclones on Short-Term Sea Ice Loss using a Fully-Coupled Atmosphere–Ocean–Ice Model
4:50–5:10	<i>Discussion</i>	

Recreation (5:10–6:30 PM)

Dinner (6:30–8:00 PM)

Poster Session 2 (8:00–10:00 PM)

Presenter(s)	Title
Hanin Binder	Dynamics of Forecast Error Growth along Cutoff “Sanchez” and its Consequence for the Prediction of a High-Impact Weather Event over Southern France
Hai Bui	Influences of Surface Moisture Sources on Extratropical Cyclones in an Idealized Framework
Kristen Corbosiero	Investigating the Diurnal Cycle of Lightning in Tropical Cyclones
Edgar Dolores-Tesillos	A Composite Perspective on Precipitation and Intensity Changes of Extratropical Cyclones in a Warming Climate
David Flack	Representation of Two Deep Extra-Tropical Cyclones in Climate Models during the NAWDEX Field Campaign
Emmanouil Flaounas	A Process-Based Anatomy of the Dynamical Structure of Mediterranean Cyclones
Peter Knippertz	Cyclonic Vortices in the African Tropics
Andrea Lang	The Impact of Tropospheric and Stratospheric Tropical Variability on the Location, Frequency, and Duration of Cool-Season Extratropical Weather Systems
Ron McTaggart-Cowan	Reducing TC False Alarms in Canadian NWP
Mario Marcello Miglietta	Development Mechanism of Tropical-Like Cyclones in the Mediterranean Sea
Roman Pohorsky	The Climatological Impact of Recurring North Atlantic Tropical Cyclones on Downstream Extreme Precipitation Events
Julian Quinting	Development of a Logistic Model to Study Warm Conveyor Belts on Subseasonal Timescales
Gwendal Rivière	The Downward Transport of Momentum to the Surface in Idealized Sting-Jet Cyclones
Andreas Schäfler	Observation of Jet Stream Winds during NAWDEX and Systematic Meteorological Analysis Errors
Vered Silverman	The Life Cycle of Cyclones, Dry Intrusions, Cold Fronts and their Modulation by the Stratosphere
Roger Smith	On the Dynamics of Spin Up in Emanuel’s 2012 Tropical Cyclone Model
Thomas Spengler	Self-Maintenance of Baroclinicity by Extratropical Cyclones
Gaurav Tiwari	Sensitivity of Background Error Modeling Methods in the WRF-Var Data Assimilation Approach for Indian Ocean Tropical Cyclone Prediction
Wataru Yanase	Parameter Sweep Experiments on a Spectrum of Cyclones with Diabatic and Baroclinic Processes

Thursday, 3 October 2019

Breakfast (7:00–8:00 AM)

Session 13: Tropical Cyclone Predictability: Part I (8:00–10:00 AM)

Chair: Ron McTaggart-Cowan

Time	Author(s)	Title
8:00–8:20	Camargo et al.	How Strong is the Relationship between the Large-Scale Environment and Tropical Cyclone Climatology in Climate Models?

8:20–8:40	Rios-Berrios	Subseasonal Variability of Tropical Cyclones Deduced from Storm-Resolving Aquaplanet Simulations
8:40–9:00	Zhang et al.	Sensitivity of Atlantic Tropical Cyclone Activity to Weather Perturbations at the Tropical–Extratropical Interface
9:00–9:20	Papin et al.	Linkages between PV Streamer Activity and Tropical Cyclone Predictability on Subseasonal Timescales
9:20–9:40	Maier-Gerber et al.	Statistical-Dynamical Forecasting of North Atlantic TC Activity on the Subseasonal Time Scales
9:40–10:00		<i>Discussion</i>

Break (10:00–10:30 AM)

Session 14: Extratropical Cyclone Structure and Dynamics: Part II (10:30 AM–12:10 PM)

Chair: Julian Quinting

Time	Author(s)	Title
10:30–10:50	Li et al.	Diagnosis and Numerical Modeling of an Explosive Cyclone over the Changbai Mountain in North of Korean Peninsula
10:50–11:10	Fu et al.	Potential Vorticity Associated with Explosive Cyclones
11:10–11:30	Portman et al.	Upper-Level Potential Vorticity Cutoffs and Surface Cyclones: A Climatological Study using a Lagrangian Tracking Method
11:30–11:50	Schielicke et al.	Vortex Identification in Datasets with Different Resolutions using the Example of a Derecho Embedded in Winter Storm Kyrill
11:50–12:10		<i>Discussion</i>

Lunch (12:10–1:10 PM)

Session 15: Diabatic and Microphysical Processes in Extratropical Cyclones: Part I (1:10–3:10 PM)

Chair: Hanin Binder

Time	Author(s)	Title
1:10–1:30	Spreitzer et al.	Modification of the Near-Tropopause PV Structure by Diabatic Processes
1:30–1:50	Büeler and Pfahl	Potential Vorticity Diagnostics to Quantify the Role of Latent Heating for Extratropical Cyclone Dynamics in a Warmer Climate
1:50–2:10	Crespo et al.	CYGNSS Observations and Analysis of Surface Heat Fluxes in Low-Latitude Extratropical Cyclones
2:10–2:30	Dafis et al.	Deep Moist Convection in Tropical-Like Mediterranean Cyclones and Evaluation of Numerical Guidance
2:30–2:50	Michaelis et al.	Role of Latent Heating in AR Dynamics: Comparison of Two Events from February 2019
2:50–3:10		<i>Discussion</i>

Break (3:10–3:30 PM)

Session 16: Tropical Cyclone Predictability: Part II (3:30–5:10 PM)

Chair: Rosimar Rios-Berrios

Time	Author(s)	Title
3:30–3:50	Leonardo and Colle	Physical Processes Associated with Large Cross-Track Errors in North Atlantic TCs
3:50–4:10	Di Muzio et al.	Predictability of Medicanes in the ECMWF ensemble forecast system
4:10–4:30	Judt	Cyclone Prediction Across Scales with Global Storm Resolving Models
4:30–4:50	Zibton and Morgan	Evaluation of Adjoint Response Functions for Tropical Cyclone Intensity
4:50–5:10		<i>Discussion</i>

Recreation (5:10–6:30 PM)

Dinner (6:30–8:00 PM)

Evening Session (8:00–10:00 PM)

Time for Interactivity: Analysis of NWP data in 5D

Andrea Lang, Tim Hewson, Marc Rautenhaus

Friday, 4 October 2019

Breakfast (7:00–8:00 AM)

Session 17: Diabatic and Microphysical Processes in Extratropical Cyclones: Part II (8:00–10:00 AM)

Chair: Jeremy Berman

Time	Author(s)	Title
8:00–8:20	Harvey and Methven	Negative PV in Warm Conveyor Belt Airstreams: Observations, Theory, and Models
8:20–8:40	Grams	The Role of Cloud Diabatic Processes in the Life Cycle of Atlantic–European Weather Regimes
8:40–9:00	Mazoyer et al.	Impact of Different Microphysics on the Warm Conveyor Belt of a Deep Extratropical Cyclone Observed during the NAWDEX Campaign and its Associated Ridge Building
9:00–9:20	Blanchard et al.	Impact of Diabatic Processes on the Mesoscale Dynamics of an Observed North Atlantic Extratropical Cyclone
9:20–9:40	Oertel et al.	Embedded Convection in the Warm Conveyor Belt of a North Atlantic Cyclone and its Relevance for Large-Scale Dynamics
9:40–10:00		<i>Discussion</i>

Break (10:00–10:30 AM)

Session 18: Extratropical Cyclone Structure and Dynamics: Part III (10:30 AM–12:10 PM)

Chair: Melissa Breen

Time	Author(s)	Title
10:30–10:50	Abbott and Martin	A Diagnostic Scheme for Separating Curvature and Along-Flow Speed Change Contributions to Midlatitude, Synoptic-Scale Vertical Motions
10:50–11:10	Leicht and Bosart	Understanding the Dynamical and Thermodynamical Processes that Govern the Structure and Evolution of Persistent West Coast Cool Season Ridge Regimes
11:10–11:30	Priestly et al.	The Role of Secondary Cyclones and Cyclone Families for the North Atlantic Storm Track
11:30–11:50	Weijenborg and Spengler	Can Extratropical Cyclones Increase Baroclinicity? A Pathway to Cyclone Clustering
11:50–12:10		<i>Discussion</i>

Lunch (12:10–1:10 PM)

End of Workshop