



# Banff International Research Station

for Mathematical Innovation and Discovery

## Advanced Mathematical Methods to Study Atmospheric Dynamical Processes and Predictability

July 10-15, 2011

### MEALS

\*Breakfast (Buffet): 7:00–9:30 am, Sally Borden Building, Monday–Friday

\*Lunch (Buffet): 11:30 am–1:30 pm, Sally Borden Building, Monday–Friday

\*Dinner (Buffet): 5:30–7:30 pm, Sally Borden Building, Sunday–Thursday

Coffee Breaks: As per daily schedule, 2nd floor lounge, Corbett Hall

**\*Please remember to scan your meal card at the host/hostess station in the dining room for each meal.**

### MEETING ROOMS

All lectures will be held in Max Bell 159 (Max Bell Building accessible by walkway on 2nd floor of Corbett Hall). LCD projector, overhead projectors and blackboards are available for presentations. Note that the meeting space designated for BIRS is the lower level of Max Bell, Rooms 155–159. Please respect that all other space has been contracted to other Banff Centre guests, including any Food and Beverage in those areas.

### SCHEDULE

#### Sunday

**16:00** Check-in begins (Front Desk - Professional Development Centre - open 24 hours)

**17:30–19:30** Buffet Dinner, Sally Borden Building

#### Monday

**7:00–8:30** Breakfast

**8:30–8:45** Introduction and Welcome by BIRS Station Manager, Max Bell 159

**8:45–10:00** **Istvan Szunyogh:** *Introduction and Overview of the NWP Process*

**10:00–10:30** Coffee Break, 2nd floor lounge, Corbett Hall

**10:30–12:00** **John Methven:** *Introduction to the Governing Equations of the Atmosphere and Associated Wave Phenomena*

**12:00–13:00** Lunch

**13:00–14:00** Guided Tour of The Banff Centre; meet in the 2nd floor lounge, Corbett Hall

**14:00** Group Photo; meet on the front steps of Corbett Hall

**14:05–15:15** **Heini Wernli:** *Potential Vorticity (PV) and Related Diagnostics*

**15:15–15:30** Coffee Break, 2nd floor lounge, Corbett Hall

**15:30–17:00** **Peter Lynch:** *The Emergence of Numerical Weather Prediction: from Richardson to the ENIAC*

**17:30–19:30** Dinner

**17:30–19:30** Student Poster Session

## Tuesday

- 7:00–8:30 Breakfast  
8:30–10:00 **Dale Durran:** *Strength and Weaknesses of Common Numerical Methods for Simulating Atmospheric Flows*  
10:00–10:30 Coffee Break, 2nd floor lounge, Corbett Hall  
10:30–12:00 **Peter Lynch:** *Balance in the Atmosphere: Implications for NWP*  
12:00–13:30 Lunch  
13:30–15:00 **John Methven:** *Effects of Moisture and Other Constituents on Atmospheric Dynamics*  
15:00–15:30 Coffee Break, 2nd floor lounge, Corbett Hall  
15:30–17:00 **Edward Ott:** *Introduction to Chaotic Dynamics*  
17:30–19:30 Dinner

## Wednesday

- 7:00–8:30 Breakfast  
8:30–10:00 **Olivier Talagrand:** *Introduction to Data Assimilation*  
10:00–10:30 Coffee Break, 2nd floor lounge, Corbett Hall  
10:30–12:00 **Pierre Gauthier:** *4-Dimensional Variational Assimilation*  
12:00–19:30 Lunch  
Free Time to Explore Banff and the Surrounding  
Dinner  
19:30–21:00 **Craig Bishop:** *Uncertainty Quantification in Geophysical Systems*

## Thursday

- 7:00–8:30 Breakfast  
8:30–10:00 **Istvan Szunyogh:** *Ensemble-based Kalman Filters*  
10:00–10:30 Coffee Break, 2nd floor lounge, Corbett Hall  
10:30–12:00 **Olivier Talagrand:** *Verification of Probabilistic Forecasts*  
12:00–13:30 Lunch  
13:30–15:00 **Dale Durran:** *Mesoscale Predictability*  
15:00–15:30 Coffee Break, 2nd floor lounge, Corbett Hall  
15:30–17:00 **Craig Bishop:** *Predicting the Forecast Effect of Observations*  
17:30–19:30 Dinner

## Friday

- 7:00–8:30 Breakfast  
8:30–9:30 **Edward Ott:** *Using a Limited Area Model to Enhance Global Analyses*  
9:30–10:00 Break (No Coffee)  
10:00–11:00 **Peter Lynch:** *Laplace Transform Integration of the Shallow Water Equations*  
11:30–13:30 Lunch

Checkout by 12 noon.