



# Banff International Research Station

for Mathematical Innovation and Discovery

## The role of oceans in climate uncertainty

October 6–October 11, 2013

### 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, in the foyer of the TransCanada Pipeline Pavilion (TCPL)

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

### MEETING STRUCTURE

Mornings: two lectures of 50 min each with 30 minutes discussion, coffee break between the two.

Lunch (1-1.5 hrs)

Afternoons: Break up in discussion groups (the participants will decide on topics)

Dinner (2 hrs)

Evening: Poster sessions (Monday and Tuesday, other days if needed)

Goal: Put together a research strategy to quantify the contribution of oceans to climate variability and uncertainty

### MEETING ROOMS

All lectures will be held in the lecture theater in the TransCanada Pipelines Pavilion (TCPL). An LCD projector, a laptop, a document camera, and blackboards are available for presentations. Group discussions will also generally be held in TCPL.

### SCHEDULE

#### Sunday October 6

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

17:30-19:30 Buffet Dinner

20:00 Informal gathering in 2nd floor lounge, Corbett Hall

Beverages and small assortment of snacks are available on a cash honor system.

## **Monday October 7**

### ***What is the problem?***

- 7:00-8:45 Breakfast
- 8:45-9:00 Introduction and Welcome by BIRS Station Manager, TCPL
- 9:00 *Types of Uncertainty, Kinds of Probability, and (Re)Designing Climate Simulation from Scratch.* Lenny Smith, Oxford University
- 10:20 Coffee Break
- 10:40 *Identification and removal of structural biases in climate models, a statistical approach to tuning.* Danny Williamson, Exeter University
- 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 in foyer of TCPL (photograph will be taken outdoors so a jacket might be required).
- 14:05 Group discussions, topics to be decided
- 15:10-15:30 Coffee Break
- 16:30 Group sharing
- 17:30-19:30 Dinner
- 20:00-22:00 Posters

## **Tuesday October 8**

### ***What are the data***

- 7:00-9:00 Breakfast
- 9:00 *Cooking the GOOS: Our Increasingly Sophisticated Network of Ocean Surface Measurements and its Use in the Detection of Climate Change.* Fred Bingham, University of North Carolina at Wilmington
- 10:20 Coffee Break
- 10:40 *Measurements in the ocean interior.* Peter Challenor, Exeter University
- 12:00-13:30 Lunch
- 13:30 Group discussions, topics to be decided
- 15:00-15:30 Coffee Break
- 16:30 Group sharing
- 17:30-19:30 Dinner
- 20:00-22:00 Posters

## **Wednesday October 9**

### ***What are the models***

- 7:00-9:00 Breakfast
- 9:00 *Ocean Climate Modeling.* Matthew Hecht, Los Alamos National Laboratory
- 10:20 Coffee break

- 10:40      *Using emulators with ocean models to understand model uncertainty.* Robin Tokmakian, Naval Postgraduate School
- 12:00-13:30 Lunch  
Free Afternoon (hiking highly recommended)
- 17:30-19:30 Dinner

**Thursday October 10**      ***Data assimilation and uncertainty quantification***

- 7:00-9:00    Breakfast
- 9:00        *Uncertainty in ocean ensemble data assimilation.* Doug Nychka, National Center for Atmospheric Research
- 10:20        Coffee Break
- 10:40        *Uncertainty quantification.* Dave Higdon, Los Alamos National Laboratory
- 11:30-13:30 Lunch
- 13:30        Group discussions, topics to be decided
- 15:00-15:30 Coffee Break
- 16:30        Group sharing
- 17:30-19:30 Dinner

**Friday October 11**

- 7:00-9:00    Breakfast
- 9:00        Group discussions, and outline of summary statement/White Paper
- 10:20-10:40 Coffee Break
- 11:30-13:30 Lunch

**Checkout by 12 noon.**

\*\* 5-day workshop participants are welcome to use BIRS facilities (BIRS Coffee Lounge, TCPL and Reading Room) until 3 pm on Friday, although participants are still required to checkout of the guest rooms by 12 noon. \*\*