NSERC CREATE Training Program in Arctic Atmospheric Science

Second Annual Summer School in Arctic Atmospheric Science

Welcoming Remarks

Nottawasaga Inn
Alliston, Ontario
23-27 July 2012
Session Outline

Kimberly Strong
• Overview of our CREATE Training Program
• A Short Introduction to CANDAC and PEARL
• Summer School Logistics

Emily McCullough
• Overview of the CREATE Trainees Advisory Committee (TAC)

Dan Weaver
• Overview of the Career Panel

Ashley Kilgour
• Introduction to education and outreach demonstrations
NSERC’s **Collaborative Research and Training Experience (CREATE)** Program supports the training of teams of highly qualified students and postdoctoral fellows from Canada and abroad through the development of innovative training programs.


Our CREATE Training Program began in April 2010 and will run for six years, to March 2016.
Our CREATE Program

• Our CREATE Training Program aims to provide training in **Arctic atmospheric science**, including the use of state-of-the-art instrumentation and analysis of large data sets.

• Takes advantage of the unique capabilities of the Polar Environment Atmospheric Research Laboratory (PEARL) located at Eureka, Nunavut in the High Arctic.

  ➢ CREATE trainees have access to a world-class facility, unique data sets, and a large team of researchers with a breadth of expertise.

• Goal is to enhance the educational opportunities in polar, atmospheric, and climate sciences, enabling trainees to build collaborations and networks, and to develop scientific, technical, communications, and organizational skills relevant to future employment.
Our PEARL Near the Pole

• PEARL began operations in 2005, run by the Canadian Network for Detection of Atmospheric Change (CANDAC)
  ➢ Funded by many agencies: AIF/NSRIT, ARIF, CFCAS, CFI, CSA, EC, GOC-IPY, NSERC, NSTP, OIT, ORF, INAC, PCSP

• Formerly Environment Canada’s Arctic Stratospheric Ozone Observatory (established 1992, mothballed 2002)

• Objective is to measure the atmosphere in the range 0-100 km as comprehensively as possible
  ➢ Air quality, stratospheric ozone, climate change
Located at Eureka on Ellesmere Island in Nunavut
- 1100 km from the North Pole
- 15 km from Environment Canada’s Eureka Weather Station
The PEARL Site

- The PEARL facility is home to about 25 instruments
- Three laboratories:
  - PEARL lab – at 610 m
  - ØPAL lab – Zero Altitude PEARL Auxiliary Laboratory, at sea level
  - SAFIRE lab – Surface and Atmospheric Flux, Irradiance, Radiation Extension Site, at sea level
- Affiliated with many international networks
  - International Arctic Systems for Observing the Atmosphere (IASOA), NDACC, NDMC, TCCON, BSRN, AERONET, MUSICA
PEARL Research Themes

• PEARL research is divided into four themes
   Arctic Troposphere Transport and Air Quality
   The Arctic Radiative Environment: Impacts of Clouds, Aerosols and Diamond Dust
   Middle Atmospheric Chemistry in the Arctic
   Waves and Coupling Processes

• Other significant research activities
   Satellite Validation
   Sudden Events

• CANDAC also has an active Outreach Program

Our CREATE scientific objectives are closely linked to these themes.
CREATE Science Team

11 Co-I’s from 8 Canadian universities:
• Kim Strong (U Toronto)
• Jim Drummond (Dalhousie; CANDAC/PEARL PI)
• Tom Duck (Dalhousie)
• Alan Manson (U Sask)
• Norm O’Neill (U Sherbrooke)
• Marianna Shepherd (York U)
• Bob Sica (UWO)
• Jim Sloan (U Waterloo)
• Kaley Walker (U Toronto)
• Jim Whiteway (York U)
• William Ward (UNB)

10 Collaborators:
• Stephen Argall (Fanshawe College)
• Doug Degenstein (U Sask)
• Pierre Fogal (EC)
• David Hudak (EC)
• Tom McElroy (EC)
• Gordon Shepherd (York U)
• Kevin Strawbridge (EC)
• Taneil Uttal (NOAA/SEARCH)
• Ed Eloranta (U Wisconsin)
• Von Walden (U Idaho)
Organizational chart for the CREATE Training Program in Arctic Atmospheric Science (purple solid lines) and CANDAC (blue dashed lines).
Training Program Committee

• **Dr. Catharine Banic**, Executive Director, Air Quality Research Division, Atmospheric Science & Technology Directorate, Science & Technology Branch, Environment Canada Representative

• **Dr. Jacques Giroux**, Business Development Manager, Remote Sensing, ABB Bomem, Industrial Representative

• **Professor David Hik**, University of Alberta, President of the International Arctic Science Committee (IASC), Academic Representative

• **Ms Emily McCullough**, PhD Student, University of Western Ontario, Trainees' Representative

• **Professor Kimberly Strong**, Training Program Director, University of Toronto, Non-voting Member

• **Professor Michael Luke**, Chair, Department of Physics, University of Toronto, Administration Representative and Training Program Committee Chair
1. Graduate student stipends and supervision
   - Nominally one student with each Co-Investigator (~12 total)
2. Undergraduate Summer Internship Program
   - Nominally one intern with each Co-Investigator (~11 total)
3. [Annual] Research Symposia
   - All recipients of CREATE support are expected to give talks
4. Exchange Program
   - Collaborative visits to other team members and institutions
   - Attendance at conferences to give presentations
5. Industrial Partnership Program
   - Visits to companies providing instrumentation for PEARL
6. Annual Summer School

Regardless of the source of their stipend funding, all students and post-doctoral fellows who are supervised by CREATE Investigators and working in Arctic atmospheric science are considered to be CREATE trainees and are eligible to participate in the opportunities offered by the Program.
After the Summer School, we will be posting the program, lecture slides, posters, and photos on the website.
Summer School Logistics

**Daily**
- 7-9 AM  Buffet breakfast in the Riverview Dining Room
- 9 AM  Lectures start promptly in room 10
- 12:30-1:30 Buffet lunch
- 7 PM  Table service supper

**Special Events**
- 8:30 PM, Mon, Tues, Thurs  Evening recreational events
- 11-12:30, Tuesday  Poster session (room 10A)
- 5-6:30 PM, Wednesday  Modelling tutorial (room 10)
- 8:30-9:30 PM, Wednesday  Outreach workshop (room 10)
- 5-6:30 PM, Thursday  Career panel (room 10)
- 11-12, Friday  TAC presentation and survey

**Departure**
- 11 AM, Friday  Check-out time
- 1:30 PM, Friday  Bus leaves for Toronto
Poster Session

• Posters will be displayed in Room 10A from Monday through Friday (coffee breaks will also be held in this room)

• Poster boards should be set up now - please mount your poster today and take it down on Friday morning

• The formal poster session is at 11:00-12:30, Tuesday

• Please stay near your poster for your assigned session, as judges will be visiting during this time:
  - Session A → 11:00-11:45
  - Session B → 11:45-12:30

• Awards will be given to the best posters! (at 6:30 Thursday)

• Judges for MSc, PhD and PDF posters:
  - Jean-Pierre Blanchet, Tim Canty, Lynn Harvey, Chris McLinden

• Judges for undergraduate posters:
  - Session A: Zen Mariani and Patrick Sheese
  - Session B: Nicole Schaffer and Shouming Zhou

See page 21 of your program book for your session and location
Recreational Activities

- **8:30 PM, Monday**
  - Welcoming “Icebreaker” sponsored by ABB Inc.
  - Begins at 8:30 PM at field 10 (see page 19 for map) and continues at ~9:30 PM at the lower patio (see page 20 for map)

- **8:30 PM, Tuesday**
  - Outdoor sports (soccer, volleyball, ultimate frisbee) at field 10

- **8:30 PM, Thursday**
  - Indoor mini-putt (shotgun start begins at 8:30) followed by billiards, ping-pong, and arcade games in the Sports and Leisure Dome

- **1:30-3:00 PM and after 9:30 PM**
  - Weds. evening are free time

- See pages 18-20 of your program book for a full list of on-site facilities and maps
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker/Organizer</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 – 11:30</td>
<td>Chartered bus departs Holiday Inn (280 Bloor Street West, Toronto, ON) for the Nottawasaga Inn. Please be there and ready to leave promptly at 10:00 AM.</td>
<td></td>
</tr>
<tr>
<td>11:30 – 12:00</td>
<td>Arrival and check-in at Nottawasaga Inn (6015 Highway 89, Alliston, ON)</td>
<td></td>
</tr>
<tr>
<td>12:00 – 1:30</td>
<td>Lunch (Riverview Dining Room)</td>
<td></td>
</tr>
<tr>
<td>1:30 – 2:15</td>
<td>Welcoming remarks</td>
<td>Kim Strong: Introduction to the CREATE Training Program in Arctic Atmospheric Science and CANDAC/PEARL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emily McCullough: Overview of the CREATE Trainees Advisory Committee (TAC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dan Weaver: Overview of the Career Panel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ashley Kilgour: Introduction to education and outreach demonstrations</td>
</tr>
<tr>
<td>2:15 – 3:45</td>
<td>Jamboree</td>
<td>All attendees: Student and speaker research jamboree (two minutes and one slide per attendee)</td>
</tr>
<tr>
<td>3:45 – 4:15</td>
<td>Coffee break (room 10A)</td>
<td></td>
</tr>
<tr>
<td>4:15 – 5:00</td>
<td>Lecture A</td>
<td>Brian Manning: Nunavut: Tracks in the snow - an overview of the cultural dynamic, history, and institutions of Nunavut</td>
</tr>
<tr>
<td>5:00 – 5:45</td>
<td>Lecture B</td>
<td>Martin Sharp: Ice-climate interactions</td>
</tr>
<tr>
<td>5:45 – 6:30</td>
<td>Lecture C</td>
<td>Jean-Pierre Blanchet: Aerosol and greenhouse gas forcing on the Arctic climate</td>
</tr>
<tr>
<td>6:30 – 7:00</td>
<td>Free time</td>
<td>except for poster judges – they will meet at 6:30 in room 10 for a short discussion</td>
</tr>
<tr>
<td>7:00</td>
<td>Dinner (Riverview Dining Room)</td>
<td></td>
</tr>
<tr>
<td>8:30</td>
<td>Welcoming Icebreaker</td>
<td>All attendees: Field 10 at 8:30 and lower patio at ~9:30 sponsored by ABB Inc.</td>
</tr>
</tbody>
</table>
Trainees' Advisory Committee for the CREATE program in Arctic Atmospheric Science

- Represents the interests of students, both undergraduate and graduate, and post-doctoral fellows. Advises the Training Program Committee on trainee affairs from the trainees' perspective.

- Promotes interactions between the young researchers & CANDAC
  - Social and research events
  - Networking Opportunities
    - mailing list, social networking, etc
  - All trainees can contribute their thoughts and ideas
Trainees' Advisory Committee

We hope for about 3 new committee members to start in July 2012. We have phone meetings every 2 months. Talk to one of us for more info!

Current Members
- Emily McCullough, Chair (PhD, University of Western Ontario)
- Felicia Kolonjari (PhD, University of Toronto)
- Dan Weaver, Social Media Coordinator (MSc, University of Western Ontario)
- David Daou (PhD, Université de Sherbrooke)
- Zen Mariani, Secretary (PhD, University of Toronto)
- Robin Wing (MSc, Dalhousie University)
- Jonathan Franklin (PhD, Dalhousie University)
- Chris Perro (MSc, Dalhousie University)

Past Members
- Cristen Adams, Secretary (PhD, University of Toronto)
- Richard Domoah (PDF, University of Waterloo)
- Xiaoyong Xu (PDF, University of Saskatchewan)
Career Panel
Thursday, July 26, 5:00 – 6:30 PM

- An opportunity for you to gain insight into career paths!
- Think about your professional goals and anticipated career paths, and what questions you might ask the Career Panel to help inform or inspire your future job seeking efforts.
- The Trainee’s Advisory Committee will provide a question-submission box (in room 10A) to enable you to anonymously submit your questions in writing.

Florent Bouguin
(Industry)
ABB group

Brian Manning
(Education)
Nunavut Arctic College

Stella Melo
(Government)
Canadian Space Agency

Margaret Munro
(Media)
Senior writer, Postmedia News

Martin Sharp
(Academia)
University of Alberta

Paul Sullivan
(Science Support)
Project Support Manager, Amundsen Scott South Pole Station, Antarctica
Science outreach aims to promote public awareness (and understanding) of science and makes informal contributions to science education.

Various outreach activities and demonstrations will be on display in room 10A each day from 9 AM–7 PM.

We encourage you to try them out and use them as a starting point for discussions about other outreach ideas and initiatives related to your own research.

An education and outreach workshop will take place on Wednesday from 8:30–9:30 PM in room 10A.