

## Second Global Workshop on Proximal Soil Sensing

### Welcome to Canada/Quebec/ Montreal/McGill

**Shiv O. Prasher**  
**James McGill Professor & Chair**

**Department of Bioresource Engineering**  
**McGill University**



## OUTLINE

### • Quick Facts

- Canada
- Quebec
- Montreal

### • McGill University

- Macdonald Campus
- Faculty of Agricultural and Environmental Sciences
- Department of Bioresource Engineering



## CANADA

### Quick Facts

**Capital: Ottawa**

**Official languages: English and French**

**Government: Federation, Parliamentary democracy**

**Area: Total 9,984,670 km<sup>2</sup> (2nd) 3,854,085 mi<sup>2</sup>**

**Water (%) 8.92 (891,163 km<sup>2</sup>/344,080 mi<sup>2</sup>)**

**Population: 2010 estimate 34,279,000 (36<sup>th</sup> in the world)**

**Currency: Canadian Dollar (\$) (CAD)**

## CANADA



Parliament Hill in Canada's capital, Ottawa



Map of Canadian provinces and territories



Horseshoe Falls in Niagara Falls, Ontario, is one of the world's most voluminous waterfalls



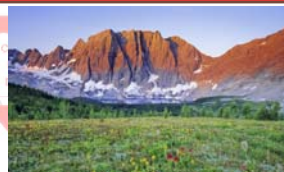
The Senate chamber within the Centre Block on Parliament Hill



## British Columbia, Canada



Vancouver, Canada downtown skyline



Kootenay National Park, British Columbia



River Columbia



Mount Sir Donald and Illecillewaet Glacier, Glacier National Park



## Alberta, Canada



Calgary skyline



Moraine Lake



Banff National Park Fairmont Chateau Lake Louise



Canola Field, Alberta



## Saskatchewan, Canada



Qu Appelle Valley, Saskatchewan, Canada



Saskatchewan Legislative Building, Regina



Great Sand Hills



Grain elevators and wheat train



## Manitoba, Canada



The Northern Lights Churchill, Manitoba



Winnipeg - Manitoba Legislature



Hudson Bay polar Bear, Churchill



Lake Manitoba



## Ontario, Canada



"Edge walk" Toronto CN Tower



Toronto, Canada downtown skyline



Niagara Fall at night



Parliament building, Parliament Hill, Ottawa



## New Brunswick, Canada



St. George, New Brunswick



Heartland Bridge



Saint John, New Brunswick street scape



Fundy National Park



## Nova Scotia, Canada



Historic Lunenburg Nova Scotia



Bluenose near Purdy's Warf, Halifax



Windmills and pastoral scenery toward the south end of Cape Breton



Cap Rouge Cape Breton Nova Scotia



## Prince Edward Island, Canada



Confederation Bridge, Prince Edward Island



The plane banks over the Northumberland Strait



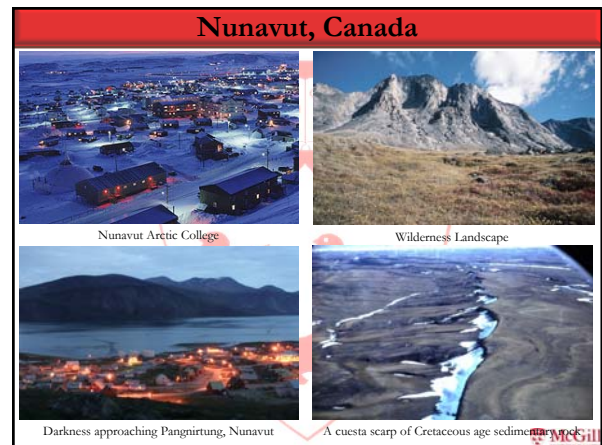
P.E.I. Charlottetown lighthouse



A Charlottetown street, P.E.I.









## MONTREAL



**Quick Facts**

Established: 1832

Area: City 365.13 km<sup>2</sup> (140.98 mi<sup>2</sup>)  
 Urban: 1,677 km<sup>2</sup> (647 mi<sup>2</sup>)  
 Metro: 4,259 km<sup>2</sup> (1,644 mi<sup>2</sup>)

Highest elevation: 233 m (764 ft)  
 Lowest elevation: 6 m (20 ft)

Population (2006) : City 1,620,693 (2nd)  
 Density: 4,439/km<sup>2</sup> (11,496/mi<sup>2</sup>)  
 Urban: 3,316,615 (2nd)  
 Metro: 3,635,571 (2nd)



## MONTREAL



- Montreal is the second-largest city in Canada and the largest city in the province of Quebec
- Montreal has the highest concentration of post-secondary students of all major cities in North America
- Montreal is referred to as "Canada's Cultural Capital"

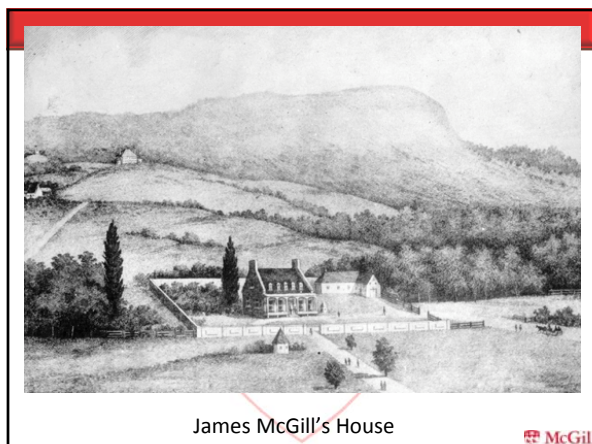


## McGill University

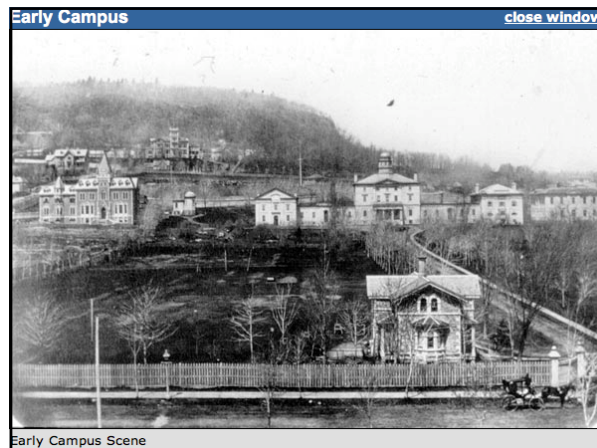


Ranking in Canada: #1

Global Ranking: 19<sup>th</sup> (2011)







## McGILL UNIVERSITY

- Founded in 1821
- Two campuses
- 11 faculties and 10 schools
- More than 300 programs of study
- Over 36,000 students from 160 countries
- The McGill Alumni Network is over 200,000 strong

## McGILL UNIVERSITY

- 19% international students
- 23% graduate students
- Highest % PhD students of any Canadian research university
- 180 countries where alumni live and work

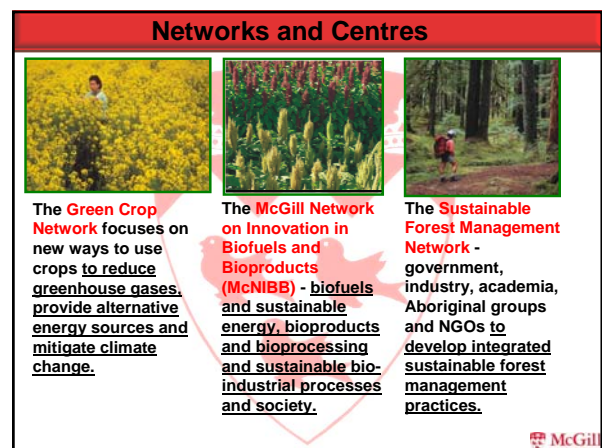
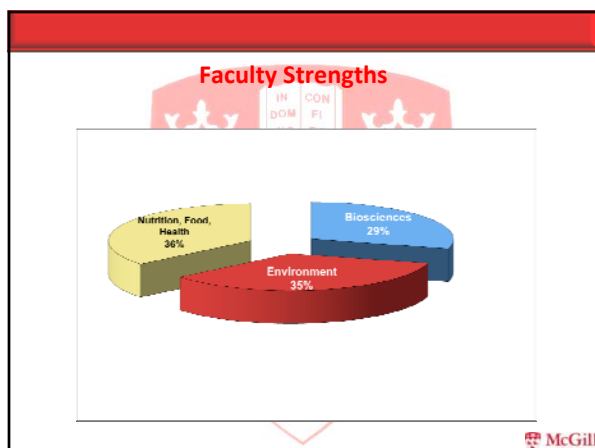
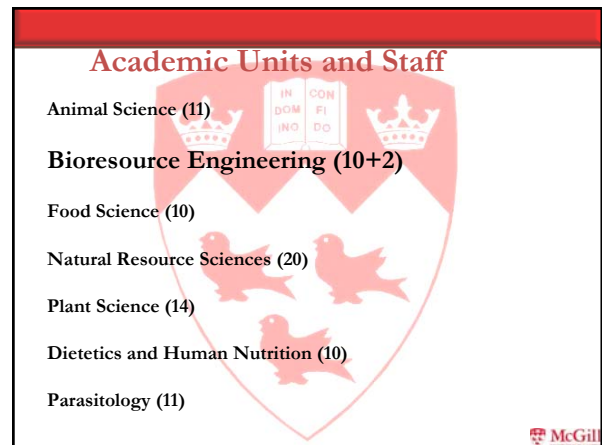
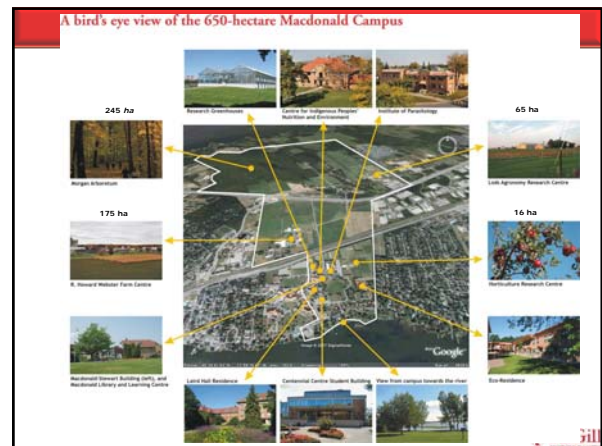
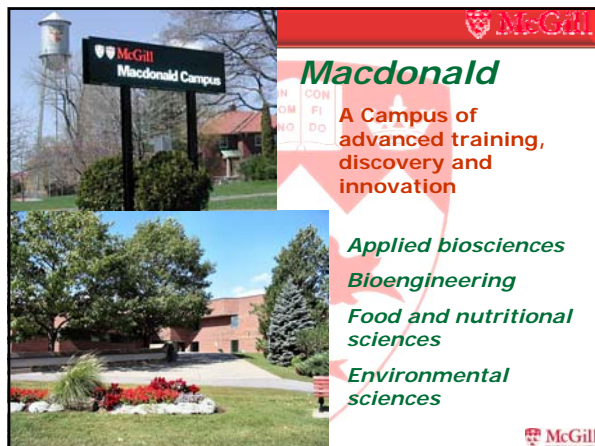
## McGILL RESIDENCES

- Residents are mostly for the first-year students
- McGill is able to house approximately 2,800 new first-year students

## McGILL STUDENT LIFE

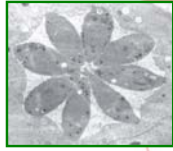
- Sports team, fitness/recreation classes, or elite varsity sports
- International Student Services
- Tutorial Service
- Health Services
- Dental Clinic
- Counselling Services
- The McGill Bookstore
- Daycare Centre
- Office for Students with Disabilities
- Ombudsperson
- Career Planning Service (CaPS)

## Macdonald Campus of McGill University





## Networks and Centres



The Centre for **Host-Parasite Interactions** - to form new research and training synergies in areas of importance for Quebec.



The **Brace Centre for Water Resources Management** conducts research, teaching and training on issues related to water resources.



The **United Nations Environment Program (UNEP) Collaborating Centre in Environmental Assessment** offers environmental assessment related teaching, training and research.



## Networks and Centres



The **Centre for Indigenous Peoples' Nutrition and Environment (CINE)** works with aboriginal communities to address concerns about the integrity of traditional food systems.



**Valacta**, the Quebec Dairy Production Centre of Expertise, stimulates the advancement of knowledge and its transfer to dairy producers.



## International Work Food Science & Engineering



## International Work Water Management



## McGill Institute of Food Security

**Birth** The Institute builds on the momentum of two highly successful McGill Conferences on Global Food Security

### Research Themes

- Plant and Animal Biotechnology
- Biofuels
- Water, land, climate
- Markets & Trade
- Nutrition
- Food Safety



## GRADUATE STUDIES @ MCGILL

### Bioresource Engineering

- Interdisciplinary program that integrates engineering, design and biological sciences
- Applies engineering principles to the enhancement and sustainability of the world's natural resources



## BIORESOURCE STAFF

**Shiv O. Prasher**

Chair and Professor in the Department of Bioresource Engineering



- Remote sensing applications in agriculture
- Best management practices for pollution control
- Remediation systems for contaminated sites
- Machine learning methods in agriculture, machine vision



## BIORESOURCE STAFF

**Chandra Madramootoo**

Dean and Professor in the Department of Bioresource Engineering



- Water resources management
- Irrigation, hydrology
- Soil and water conservation
- Water quality



## BIORESOURCE STAFF

**Suzelle Barrington**

Professor in the Department of Bioresource Engineering



- Agricultural structures
- Waste management
- Environment, odour management and control
- Bioremediation



## BIORESOURCE STAFF

**Edward McKyes**

Professor in the Department of Bioresource Engineering



- Soil mechanics
- Cultivation and tillage
- Machinery, structures
- Water resources
- Environment



## BIORESOURCE STAFF

**Vijaya Raghavan**

Professor in the Department of Bioresource Engineering



- Heat and mass transfer
- Hybrid drying methods for quality food
- Shelf life extension of fruits and vegetables
- Food processing
- Electrotechnology for biotech applications



## BIORESOURCE STAFF

**Viacheslav Adamchuk**

Associate Professor in the Department of Bioresource Engineering



- Precision agriculture
- Soil and crop sensing
- Spatial data management, including GIS
- Data acquisition systems





## BIORESOURCE STAFF

**Michael Ngadi**

Associate Professor in the Department of Bioresource Engineering



- Food and bioprocess engineering
- Heat and mass transfer
- Non-thermal processing of foods, microstructure, hyperspectral imaging
- Food quality and food safety



## BIORESOURCE STAFF

**Jan Adamowski**

Assistant Professor in the Department of Bioresource Engineering



- Director of the IWRM (Integrated Water Resources Management) program
- Agricultural/Urban Hydrology
- Water Resources Management



## BIORESOURCE STAFF

**Grant Clark**

Assistant Professor in the Department of Bioresource Engineering



- Ecological engineering
- Scientific computing
- Microbiological systems
- Agricultural systems and Complex adaptive systems



## BIORESOURCE STAFF

**Mark Lefsrud**

Assistant Professor in the Department of Bioresource Engineering



- Biofuels
- Biomass production
- Controlled environments
- Secondary compounds
- Proteomics



## BIORESOURCE STAFF

**Valerie Orsat**

Assistant Professor in the Department of Bioresource Engineering



- Impact of food processing on product quality and functionality
- Extraction methods and by-product recovery
- Engineered systems for functional ingredient production



## STUDIES @ MCGILL

### An international Learning Experience

- McGill is truly Canada's most international university, and certainly one of North America's
- The highest percentage of international students in Canada, numerous faculty members coming from across the world, and many dynamic international partnerships
- Approximately 20 per cent of our master's students, and 30 per cent of our doctoral students come from outside of Canada, hailing from over 150 countries
- International students are eligible to obtain a work permit for up to 3 years after graduation.

<http://www.mcgill.ca/gradapplicants/>



