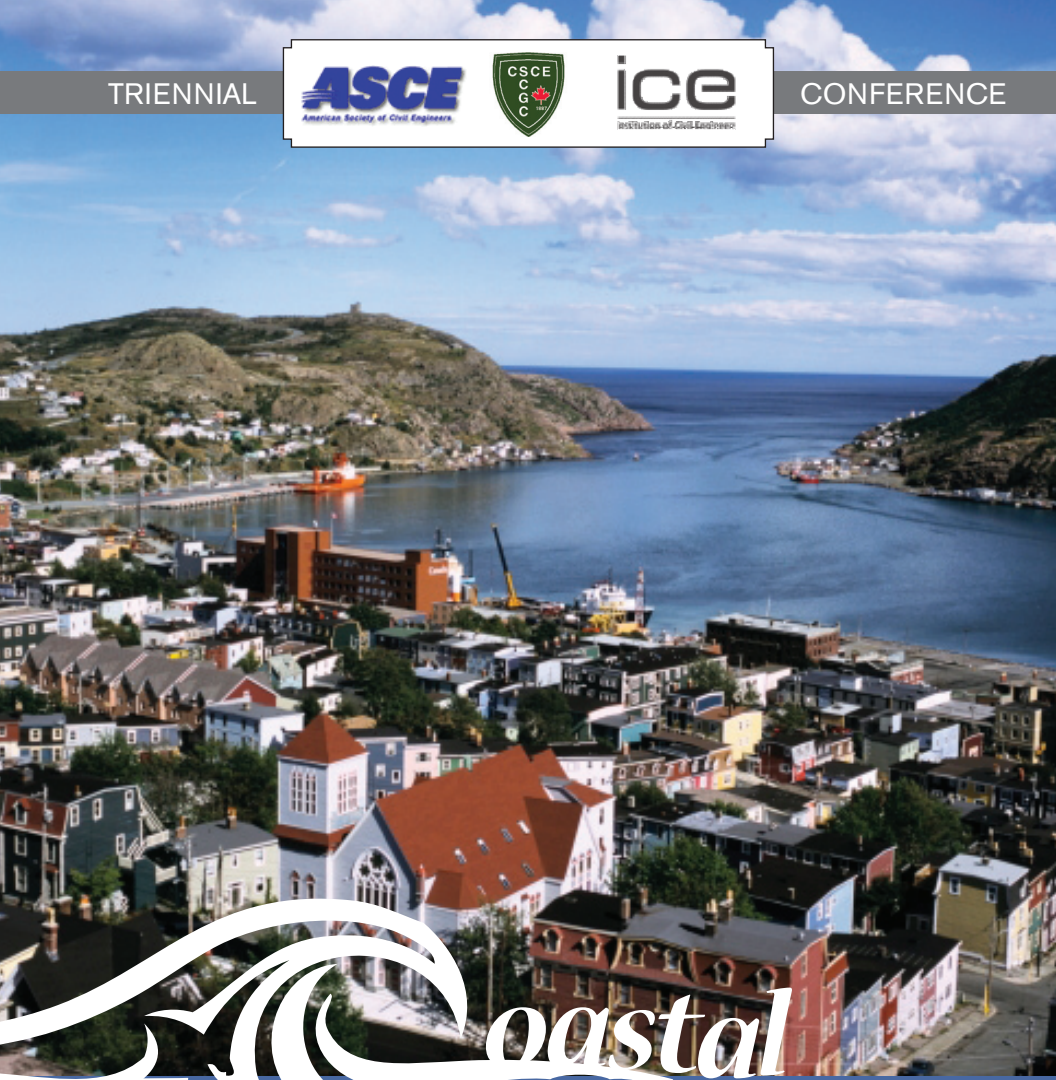
TRIENNIAL CONFERENCE



Coastal Engineering:

FUTURE CHALLENGES AND RISKS

Coasts are projected to be exposed to increasing risks, including coastal erosion…

1~2 June 2009

Canadian Society for Civil Engineering
Fairmont Newfoundland, St. John's, NL, Canada

www.csce.ca/2009/triennial

International scientific consensus agrees that increasing levels of man-made greenhouse gases are leading to global climate change. Possible consequences of climate change include rising temperatures, changing sea levels, and impacts on global weather. These changes could have serious impacts on the world's organisms and on the lives of millions of people, especially those living in areas vulnerable to extreme natural conditions such as flooding and drought.

Royal Society, London, UK

PRELIMINARY PROGRAM

About the Conference

Most countries of the world have coastal areas whose populations and economies are particularly vulnerable to increasing risks from climate change and sea level rise.

This triennial conference, part of a series dealing with global issues, focuses on the risks and challenges that coastal areas face or might face due to the impacts of climate change and other global or regional concerns.

An impressive cadre of invited speakers will share the latest knowledge and insights on what the future holds for coastal areas and discuss ways of adapting our practices so we can better strive towards sustainability.

… due to climate change and sea level rise … The most vulnerable industries,

Who should attend?

The conference will be of interest to all those who wish to have a positive influence on global coastal development. Company executives, senior engineers and project managers across all engineering disciplines will find this conference highly topical, as will young engineers with a keen interest in shaping future society.

The conference will provide an opportunity for engineering firms, consultants and contractors to network with all 3 levels of government, its advisors and those working with NGO's.

Rising populations and poorly planned development in coastal areas are increasing the vulnerability of people and property to storms, hurricanes, flooding, shore erosion, tornadoes, tsunamis, earthquakes and sea-level rise.

The 21st Century Final Report of the U.S. Commission on Ocean Policy

EXHIBITION AND SPONSORSHIP

Exhibition

The conference will be supported by a technical exhibition. This is an integral feature of the event and provides organizations with the ideal opportunity to showcase their skills and products to a focused international audience.

Sponsorship

A variety of sponsorship packages are available and the organizers will be pleased to discuss these options, or any other proposals with interested organizations.

Organizations interested in participating should contact Peter Casquinha, CSCE Executive Director at +1-514-933-2634 ext. 24 or at peter@csce.ca

settlements and societies are generally those in coastal and river flood plains,

MONDAY, JUNE 1, 2009

08:00 Registration Open

Session 1A

9:30 **Welcome from Conference Chair,**
Guy Gosselin, CSCE President, P.Eng., FCSCE, FEIC
Addresses: Jean Venables, President ICE, Wayne Klotz, President ASCE, Guy Gosselin, President CSCE

10:15 Opening Keynote Address: Dr. Yoshimi Goda, Professor Emeritus, Yokohama National University, Japan

11:30 Lunch

Session 1B

13:00 **Coastal Zone Management — Issues & Socio-Economic Impacts**
Coastal lands in all areas are having their "freeboard" reduced measurably as sea levels rise due to thermal expansion as average global temperatures increase.

The greatest socio-economic effect will be the humanitarian toll (loss of life and livelihood) in coastal communities where storm surges and intense rainfall effects will overwhelm constructed infrastructure and defences.

Topics to be addressed will include:

- Loss of life and spread of disease in extreme marine hazards event
- Loss/damage of infrastructure (ports, water, sewer, energy supply) in extreme marine hazards event
- Loss of income during extreme events and anticipated long term changes in coastal regions
- Population migration due to anticipated changes in coastal climate and resulting socio-economic impacts

Session Chair: Jean Venables, President ICE
Invited Speakers:
CSCE: Larry Hildebrand, Manager, Sustainable Communities & Ecosystems, Environment Canada
ICE: Prof. Edmund Penning-Rowsell, PhD, OBE, Middlesex University
ASCE: Prof. Gary S. Guzy, Georgetown Law & APX Insurance Inc.
Q & A

14:45 Coffee Break

Session 1C

15:15 Marine Hazards & their Impact on Coastal Structures

Tsunamis, cyclones and floods generate tremendous destructive forces and have the potential to greatly impact the coastal environment and the socio-economic activities of human communities in coastal regions.

Understanding these hazards, assessing their potential impacts and placing their effects in the context of long-term change represents a major undertaking by scientists, engineers, economists, sociologists, as well as governments throughout the world.

This session will focus on discussing the state-of-the-art in the forecasting, controlling and mitigating of natural hazards effects on coastal infrastructure.

Topics to be addressed will include:

- The impact of tsunamis on coastal infrastructure
- Coastal infrastructure response to hurricanes and storm surges
- Development of warning systems and hazard mitigation strategies for enhanced preparedness and rapid mitigation of major marine hazards

Session Chair: Wayne Klotz, President ASCE
Invited Speakers:
CSCE: Dr. Tad Murty, Adjunct Professor, Dept. of Civil Engineering, University of Ottawa
ICE: Terry Fuller, MICE, Jacobs Engineering Group Inc.
ASCE: Michael Orbach, PhD, Professor of Marine Affairs and Policy, Duke University Marine Lab
Q & A

19:30 Dinner & Social Activity for all Delegates

and those in areas prone to extreme weather events, especially where rapid

Session 2A

08:30 **Climate Change in Coastal Areas**

The assessment of the impact of climate change on coastal areas is a priority for marine and coastal scientists and engineers. Main factors associated with climate change refer to increased storm activity and elevated water levels associated with developing El Niño conditions or with the melting of the Arctic and Antarctic ice covers. Such phenomena have the potential to dramatically impact coast beaches, infrastructure and ecosystems all around the Planetary Ocean.

This session will focus on the possible scenarios and outcome of climate change on the coastal areas around world. Topics to be addressed will include:

- Changes in the intensity and frequency of major storms and hurricanes
- Changes in water quality of coastal areas resulting from potentially varying organic content and the volume of river discharge
- Sea-level rise and impacts in the form of coastline erosion and/or damage to existing structures and coastal communities
- Changes in the characteristics of ocean currents and ocean temperatures

Session Chair: Gordon Jin, P.Eng., FCSCE, President-elect CSCE
Invited Speakers:
CSCE: Prof. Norm Catto, Professor of Geography, Memorial University of Newfoundland
ICE: Prof. Robert Nicholls, BSc, PhD, School of Civil Engineering and the Environment and the Tyndall Centre for Climate Change Research, Univ. of Southampton
ASCE: Dr. Margaret Davidson, Director, NOAA Coastal Services Center
Q & A

10:15 Coffee Break

Session 2B

10:45 Marine Renewable Energy

There is worldwide interest in harvesting renewable energy from ocean waves and tidal currents in a sustainable and eco-friendly manner. Canada, the UK and USA are among the most active countries in this field.

Coastal engineers and scientists have a leading role to play in advancing this technology frontier. Topics to be addressed include:

- Wave Energy Technologies
- Tidal Kinetic Energy Technologies
- Resource Assessment and Modeling
- Environmental Monitoring and Impact Assessment
- Engineering Issues
- Special Projects
- International collaborations and standards

Session Chair: To be announced
Invited Speakers:
CSCE: Mélanie Nadeau, Manager, Ocean Energy, Natural Resources Canada
ICE: Peter Davies, OBE, Commissioner for Wales (SDC) and Vice Chair (Wales) UK Sustainable Development Commission
ASCE: Michael Murphy, Director of Renewable Technology, Devine Tarbell & Assc. (DTA), Portland, Maine
Q & A

12:30 Lunch and Historic Dedication — Bonavista Lighthouse

Session 2C

14:00 Sustainable Coastal Development

Developing solutions to coastal issues and risks on a global scale not only requires the collaborative efforts of various civil engineering and other disciplines but also an integrated approach across the full innovation spectrum including R&D, education, technology transfer, and updated codes, standards, and industry practices. It all starts with sound sustainable development principles. This closing session will discuss ways of improving the two-way transfer of new coastal development and protection knowledge across the innovation chain.

Session Chair: Guy Gosselin, P.Eng., FCSCE, FEIC, President CSCE
Closing Keynote Address: Dr. William Kamphuis, Professor Emeritus, Dept. of Civil Engineering, Queen's University, Ontario, Canada
Invited Speakers:
ICE: Prof. Paul Jowitt, PhD, FICE (Heriot-Watt University, Edinburgh)
ASCE: David Mongan, P.E., F.ASCE, ASCE President 2008
ICE: Prof. Roger Venables, FICE, Queen's University, Belfast, UK

16:00 Closing Remarks
Gordon Jin, P.Eng., FCSCE, President-elect CSCE

Registration Details

1–2 June 2009

Fairmont Newfoundland, St. John's, NL, Canada

Reservations: A limited amount of accommodation has been reserved at the Conference Hotel. Delegates wishing to take advantage of the special room rates should contact the hotel directly at: 1-800-441-1414

All enquiries should be addressed to
CSCE Triennial Conference
201 - 4920 de Maisonneuve Blvd. W.
Montreal, QC H3Z 1N1
Tel: 1-514-933-2634 Fax: 1-514-933-3504
Email: events@csce.ca

If you are attending the CSCE Annual Conference (May 27–30) immediately prior to this conference, please contact events@csce.ca to obtain a $125 discount on the Triennial Conference rate.

Please register on line at: www.csce.ca/2009/triennial
or print and return this form to CSCE Triennial Conference at the address or fax number indicated above.

Title (Mr/Dr/Ms): _____ Last Name: _____ First Name: _____
Organization: _____
Address: _____
Postal Code: _____ Country: _____
Tel: _____ Fax: _____
Email: _____

Companion Name: Last Name: _____ First Name: _____

FEE (please tick the appropriate box) Payable in Canadian dollars
BEFORE March 1st (Early-Bird)
☐ CSCE/ASCE/ICE member registration $525.00 + HST*
☐ Non member registration $650.00 + HST*
☐ Student $100 + HST* (does not include Social Evening Ticket)
☐ Additional Social Evening Ticket $100 + HST*

AFTER March 1st, 2009
☐ CSCE/ASCE/ICE member registration $675.00 + HST*
☐ Non member registration $800 + HST*
☐ Student $150 + HST*
☐ Additional Social Evening Ticket $125 + HST*

***HST (harmonized sales tax) is 13%**

Method of payment
☐ I enclose a cheque for _____ (made payable to CSCE)
☐ Please debit my ☐ MasterCard ☐ Visa

Card No: _____/_____/_____/_____ Card Expiry Date: ___/___

Cardholder Signature:_____