

# COHERENT FLOW STRUCTURES IN GEOPHYSICAL FLOWS AT EARTH'S SURFACE

August 3-5, 2011

Simon Fraser University in Burnaby, British Columbia

## SCOPE AND PURPOSE

The interaction between flow structure, mobile sediment and surface morphology is of central importance in understanding the dynamics of the Earth's surface. Managing such flows is a key component of sustainable engineering design, construction and in the maintenance of ecological habitats. All geophysical flows, in environments ranging from deserts to rivers to the oceans, are structured across a wide range of spatio-temporal scales, from small-scale turbulent vortices generated at the bed and responsible for grain-motion, to large-scale circulation patterns that generate geomorphic features visible from space. Substantial advances have taken place in the last decade in theoretical and numerical modeling, laboratory experimentation and field instrumentation, which have greatly expanded our understanding of the dynamics of these flows across this wide range of scales.

This conference will bring together the research community who use numerical simulations, laboratory modeling and field observation to study coherent flow structures, their interaction with sediment, vegetation, and benthic communities, the manipulation of such flow structures for managing sedimentary environments, and the key role they play in Earth surface dynamics. We seek to draw contributions from researchers working on the links between flow structure and the larger scale morphodynamics of sedimentary features within different geomorphic environments, and from across the Earth, environmental and engineering sciences.

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## KEYNOTE SPEAKERS

- 1) Structure of Turbulent Boundary Layers, Ron Adrian, Arizona State University
- 2) The Universe of Coherent Turbulent Structures in Gravity Current Flows, Marcelo Garcia, University of Illinois
- 3) Coherent Flow Structures and Vegetation, Heidi Nepf, Massachusetts Institute of Technology
- 4) Interrelations Between Coherent Flow Structures, the Eddy Cascade, and Secondary Flows, Vladimir Nikora, University of Aberdeen
- 5) Modeling of Coherent Flow Structures in Aqueous Flows, Thorsten Stoesser, Georgia Institute of Technology
- 6) Coherent Flow Structures in Atmospheric Flows, Gabriel Katul, Duke University

## CONFERENCE PROGRAM

Tuesday August 2, 2011: Registration and Plenary Reception

Wednesday August 3, 2011: Oral and Poster Sessions

Thursday August 4, 2011: Oral and Poster Sessions

Friday August 5, 2011: Oral and Poster Sessions

Poster sessions will be featured prominently in the conference schedule and will include a number of large format LCD screens for displaying simulations, animations and video.

Concurrent oral sessions will not be held in order to promote interactions amongst participants.

## POST-CONFERENCE FIELD TRIP

Fluid Flow and Sedimentation in the Lower Fraser River (Saturday August 6, 2011).

Trip Leaders: Mike Church (UBC), Ray Kostaschuk (University of Guelph and SFU) and Jeremy Venditti (SFU).

## CALL FOR ABSTRACTS

We welcome contributions for oral presentation and poster sessions. Please indicate your preference (if any) upon submission.

Abstracts should be submitted to [CoherentFlowStructures@sfu.ca](mailto:CoherentFlowStructures@sfu.ca) using the template found at <http://www.sfu.ca/CoherentFlowStructures/CallForAbstracts.htm>

The deadline for abstract submission is February 15, 2011.



[CoherentFlowStructures@sfu.ca](mailto:CoherentFlowStructures@sfu.ca)  
[www.sfu.ca/CoherentFlowStructures](http://www.sfu.ca/CoherentFlowStructures)

The logo for Simon Fraser University (SFU), consisting of the letters 'SFU' in a large, white, sans-serif font on a black background.

## CONFERENCE REGISTRATION

Online conference registration will be available in March, 2011. We anticipate the registration costs to be ~\$500 with a discount rate of ~\$250 for graduate students. These costs include catered meals (breakfast, lunch and dinner) for all participants. All dietary needs can be accommodated.

Funds from sponsors will be used to lower the registration costs. If you would like to sponsor the conference, please contact the organizers at [CoherentFlowStructures@sfu.ca](mailto:CoherentFlowStructures@sfu.ca).

## ACCOMMODATIONS

Simon Fraser University sits atop Burnaby Mountain. Accommodations have been reserved in the SFU dormitories (which are unoccupied in summer) at a cost of \$37.50/night (single dormitory room) or \$45.00 per night (single room in a shared townhouse). Space has also been reserved at the Simon Hotel (Queen Suite \$90.00; Queen Sofa Suite \$109.00), which is on campus, and at the Executive Inn Coquitlam (<http://www.executivehotels.net/coquitlamhotel/> booking code: CFS-2) which is 7 km from campus, at the base of Burnaby Mountain. There are a host of other accommodations in Vancouver, Burnaby and Coquitlam that are easily accessible via the Skytrain rapid transit system.

## PLANNING TRAVEL TO SIMON FRASER UNIVERSITY

Burnaby is a neighboring suburb of Vancouver, British Columbia. The main campus of Simon Fraser University (SFU – Burnaby), where the conference will be held, is 16.5 km from downtown Vancouver. The Skytrain rapid transit system connects SFU to downtown Vancouver and the Vancouver International Airport (YVR).

The Greater Vancouver area can also be accessed from the following airports:

- 1) Seattle-Tacoma Airport (SEA) which is a 5 hour bus or train ride away in Washington State;
- 2) Bellingham International Airport (BLI) which is 80 km south of Vancouver in Washington State (this airport primarily services the Vancouver area);
- 3) Abbotsford International Airport (YXX) which is 50 km west of Vancouver in British Columbia, Canada.

Vancouver can also be accessed by car, bus, or train. See <http://wikitravel.org/en/Vancouver> for more information.

## PUBLICATION PLAN

Our publication plan for the conference is evolving, but we intend to produce a peer-reviewed, SCI-rated book, in the 'tradition' established by the conference on Coherent Flow Structures in Open Channel Flows held at Leeds University in 1995. The book will consist of select research papers based on conference presentations and contributions from keynote speakers.

Invitations to contribute to the book will be extended by the organizers following the abstract submission deadline. The paper submission deadline will be two months after the conference.

## ORGANIZING COMMITTEE

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