(1) Name: **Ioan NISTOR**

(2) Title: **Associate Professor**

(3) Affiliation: **Department of Civil Engineering at the University of Ottawa, Canada**

(4) Short Biography:

Dr. Ioan NISTOR is an Associate Professor of Hydraulic and Coastal Engineering in the Department of Civil Engineering of the University of Ottawa, Canada, and Vice-Dean Graduate Studies of Faculty of Engineering. Dr. Nistor is a coastal and hydraulic engineer researching hazards associated with extreme hydrodynamic loading on infrastructure (tsunami impact on infrastructure, extreme wave and flood forces on structures, dam failure phenomena, etc.) and he is currently the Vice-Chair of the Maritime and Coastal Division of International Association for Hydro-Environment Engineering and Research (IAHR) and a member of the Board of Directors of the Canadian Coastal Science and Engineering Association. He is also a voting member of the new ASCE7 Subcommittee for the elaboration of New Design Guidelines for Tsunami-Resistant Buildings. Dr. Nistor is also an Associate Editor of the Coastal Engineering Journal (JSCE – Japan), of the Canadian Journal of Civil Engineering (CSCE), and of the Maritime Engineering Journal (ICE – UK). He is the winner of several research and teaching awards: 2010 Award of the Tsunami International Society, 2010 Excellence in Education Award of the University of Ottawa, 2009 John V. Marsh Teaching Award of the Faculty of Engineering, 2005 Ontario Ministry for Infrastructure Renewal.

(5) Subject and Schedule of the Lectures:

The following lectures were offered as a part of the course ``**Coastal and Estuarine Processes – Advanced Environmental Coastal Engineering**'' offered in the Department of Civil and Environmental Engineering of Hiroshima University.

June 12, 2013, 10:30-12:00 **Introduction / Coastal Modeling**
June 12, 2013, 12:50-14:20 **Coastal Disasters – Tsunami Research at University of Ottawa**

Part1: Engineering Lessons from Reconnaissance Tsunami Field Investigations from the 2011 Japan Tohoku Tsunami
Part 2: Experimental and Analytical and Numerical Modeling of Extreme Hydrodynamic Forces on Infrastructure

June 13, 2013, 12:50-14:20 **Wind Wave Generation**
June 13, 2013, 14:35-16:05 **Wave Theory: Linear, Stokes and Cnoidal Waves**

June 14, 2013, 12:50-14:20 **Surfzone Hydrodynamics - Wave transformation and breaking**
June 14, 2013, 14:35-16:05 **Sediment Transport Mechanisms / Coastal Morphodynamics**

The first lecture contains an introduction on coastal modeling and samples of physical modeling work currently conducted by my research group in cooperation with the Canadian Hydraulic Centre of the National Research Council, Ottawa, Canada.

The second lecture has two parts: the first one deals with an exhaustive presentation of the engineering lessons drawn from a post-tsunami forensic investigation of the impact of the 2011 Tohoku Tsunami on the built infrastructure along the Sanriku coastline in Japan. The second part presented a state-of-the-art research in experimental, analytical and numerical modeling of tsunami impact on structures. The lecture presented the results of experimental work developed jointly by a group of coastal and structural engineers who are involved in the elaboration of a new ASCE7 Standard for

Tsunami Loading on Structures. The numerical part included the presentation of a numerical model based on the Smooth Particle Hydrodynamics (SPH) method which is used to estimate the extreme hydrodynamic loading on structures.

Lecture three and four are dealing with the generation and propagation of wind waves. The students are introduced to various basic wave theories. The lectures are specially designed for coastal engineers, but any civil engineer with a good background in mathematics, fluid mechanics and hydraulics can follow the lectures.

Lecture five deals with the nearshore wave transformation (diffraction, refraction, shoaling, etc) and wave breaking in the surfzone.

Lecture six deals with sediment transport mechanisms (cross-shore and long-shore) under the action of wave and currents.

Lecture 7 is a supplementary reading lecture dealing with the morphodynamic processes that lead to changes in the long-shore and cross-shore beach profile evolution.

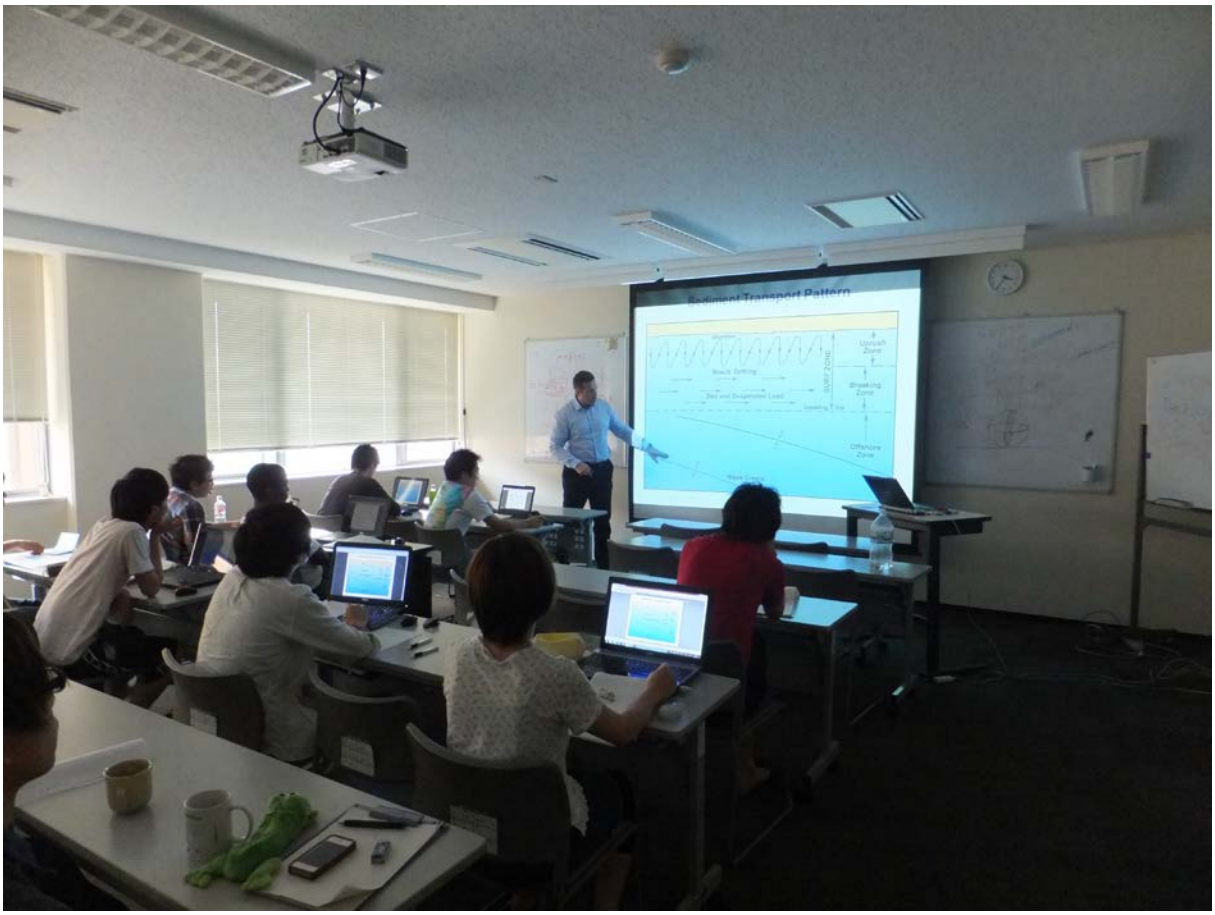
(6) Comments:

The course was a very interesting opportunity to expose students from different specializations to basic concepts of Coastal Engineering. Some observations:

a. The graduate students must try to be a bit more outspoken and attempt to ask questions and discuss the content of the course with the professor. I have often tried to invite questions but they seem shy to do so.
b. Certain students seem to be exhausted: I think that they must be also guided in learning work/life balance since this is important for their capacity of learning and advancing their knowledge.
c. The students were easy to work with, very polite and courteous and seemed interested in the course.
d. I was able to present also some engineering/research applications of the course concepts and students seemed very receptive to this approach.


WIND WAVES
Waves under the influence of winds in a generating area
SWELL
Waves moved away from the generating area and no longer influenced by winds


The Big Bang


Sediment Transport Pattern
Uprush Zone
Breaking Zone
Offshore Zone