CARE Rescif
Trung tâm châu Á nghiên cứu về nước
Centre Asiatique de Recherche sur l' Eau

Seminar February 2017 in CARE Lab - BKU

Timeline	Speaker	Subject
9.00 □ 9.30	TRAN Hai Yen, Ph.D student, LEGI Lab, Grenoble-INP	Long-term shoreline evolution modeling
9.35 □ 10.05	DAVID Frank, Ph.D. student, Museum National d□Histoire Naturelle, France	Impact of human activities on trophic relationships in the Can Gio: tracing using molecular tools and consequences on carbon fluxes
10.10 □ 10.40	DUONG Hai Thuan, Ph.D student, LEGOS Lab, Toulouse University	Coastal video monitoring: moving from land-based to drone plateforms

Venue: Room Lab 2, CARE Lab

HCMUT, Bldg B7, 268 Lý Thường Kiệt, Q. 10, Ho Chi Minh City

Time: **9h00 AM, Feb. 16th 2017**

Registration: Please before Feb. 15th 2017 for organization (due to limited space. The seminar is for free and lunchs after seminar are also offered. English, French and Vietnamese can be used for exchanges)

Contact: Dr. Tran Ngoc Tien Dung (3 866 1257; tntdung@hcmut.edu.vn)

Abstract "Long-term shoreline evolution modeling"

Coasts are vulnerable to erosion and sandy beaches more than others. Long-term prediction of shoreline evolution thus remains an important problem for coastal engineering. The quality of the long-term shoreline evolution model is presently limited. Most of the models are developed from cross-shore model that the beach relaxes towards an equlibrium state under current wave forcing conditions as well as previous ones. Based on the above theory, the equilibrium shoreline models have been used to simulate the shoreline variation over a short timescale (individual storms) as well as a long timescale (seasonal to interannual) for many different sandy beaches (Davidson et al. (2010), Yates et al. (2011), Castelle et al. (2014), Splinter et al. (2014)). These cross-shore models performed quite well through good predictive skills. However, the shoreline variation by longshore transport is not accounted in detail while sandy beach erosion at inter-annual scales is mainly driven by sediment longshore fluxes. In order to improve a prediction of long-term shoreline changes, the longshore shoreline predictor needs to be attached special importance to.

Our study aims at combining models of shoreline variation by cross-shore transport and by longshore transport to find a better parameterization to improve prediction of long-term

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shoreline changes. Based on the equilibrium shoreline model of Splinter et al. (2014), we rebuilt the cross-shore model and calibrated with data of Truc Vert beach, France and Narrabeen beach, Australia, then we verify the results with Splinter et al. (2014). Next, we proposed the longshore model. Finally, we combined both cross-shore and longshore models to have a general shoreline evolution model which is expected to provide a good shoreline prediction in the long term.

Abstract "Impact of human activities on trophic relationships in the Can Gio: tracing using molecular tools and consequences on carbon fluxes"

Mangroves are highly valuable ecosystems providing coastal protection, locally available food, filtration of organic and mineral compounds and carbon storage, among other ecosystem services. The Can Gio mangrove has been completely destructed during Vietnam War (1955-1975) and further massively replanted with the species Rhizophora apiculata. It extends over an area of 70 000 ha, of which 30 000 ha are covered with forests (20% of the total area of mangroves in Vietnam), 20 000 ha are constituted by the waterways and 14 000 ha are dedicated to socio-economic development, mostly shrimp farming. The core zone, representing 5 000 ha, has been classified as a biosphere reserve by the UNESCO in 2000. However, the mangrove is fuelled by the Saigon-DongNai River estuary, which is draining the biggest city of the country, Ho Chi Minh City (8 million inhabitants), and receiving effluents from the intense shrimp farming activity.
The objective of my PhD is to understand the origin and fate of organic matter in trophic webs of the Can Gio mangrove. Two sampling campaigns were performed, one in January-February 2015 and the other in September-October 2015. Four sites were monitored during 24 h periods to obtain series of data along a continuous salinity gradient. In addition to classical physico-chemical parameters, such as pH, salinity, etc., infra-red gas analysers were employed to measure CO2, and water was sampled and filtered every two hours. These samples were employed to quantify all forms of carbon in the estuary along with C & N isotopic ratios and fatty acid composition of particulate organic matter. Moreover, organisms were picked along the banks to evaluate trophic transfers within the food web.

Abstract "Coastal video monitoring: moving from land-based to drone plateforms"

Two close-range camera systems for nearshore monitoring will be presented: land-based nearshore camera system for observing short-, medium- and long-term coastal hydro-morphodynamics and a camera system mounted on drones for monitoring short-term events. Specifically, we will describe a camera system installed in Nha Trang beach, Viet Nam, from 05/2013 to 08/2016. Some results on short-term shoreline changes and long-term shoreline evolution will be analyzed. Techniques and results on inversion of nearshore wave characteristics such as wave period, wave celerity and nearshore bathymetry will also be presented. Finally, this study presents an application of a camera system mounted on a Quadro Helicopter Drone and first results on topographical survey and nearshore bathymetry inversion.