PREFACE

The 4th International Conference on Estuaries & Coasts (ICEC2012) will be held in Hanoi Vietnam, co-organised by Water Resources University (WRU), Vietnam and the International Research and Training Center on Erosion and Sedimentation (IRTCES). This conference was successfully organized in 2003 (Hangshou, China), in 2006 (Guangzhou, China), in 2009 (Sendai, Japan).

Action is now required for the development of new technologies to protect and develop estuarine and coastal zones and to solve hydrodynamic and environmental problems currently faced in these regions. The objective of ICEC2012 is therefore to bring together researchers and engineers working in estuaries & coast regions, from a broad range of disciplines, in order to present their research results, exchange information, facilitate networking, and to promote and advance technologies related to estuarine and coastal development.

For the ICEC2012, the following specific themes are selected as the platform topics:

- Climate Change
- Water Resources and Hydrology
- Environmental and Ecological Hydraulics
- Coastal and Estuarine Hydrodynamics
- Estuarine and Coastal Management
- Maintenance and Management of Waterways in Estuaries and Harbors
- Research Technologies for Estuarine Engineering
- Coastal Hazards

It is our great pleasure to organise this conference with the keynote lectures and heartfull contribution from participants and with very nice colaboration from Water Resources University, Vietnam. We do hope that this conference will bring a good appotunity for researcher/practitioners to well-mutual understanding in the field of estuarine and coastal issues.

On behalf of the Local Organizing Committee (LOC), sincere appreciation is expressed to all authors contributing to our conference. Special thanks are also due to all keynote speakers and chairpersons for the efforts in preparing the manuscripts and managing the sessions, respectively.

Prof. Dr. Nguyen Quang KIM

Chairman of the LOC of ICEC2012

President of Water Resources University, Hanoi, Vietnam

Program for 4th International Conference on Estuaries and Coasts (ICEC2012)

CONFERENCE THEME

VISION AND IMAGINATION – WATER IN AN ERA OF CHANGE

SUB THEMES:

- Climate Change
- Water Resources and Hydrology
- Environmental and Ecological Hydraulics
- Coastal and Estuarine Hydrodynamics
- Estuarine and Coastal Management
- Coastal Structures
- Maintenance and Management of Waterways in Estuaries and Harbors
- Research Technologies for Estuarine Engineering
- Coastal Hazards

ORGANIZATION

EXECUTIVE COMMITTEE MEMBERS OF ICEC2012

N. Tamai, Japan	N.Q. Kim, Vietnam
M. Larson, Sweden	C.H. Hu, China
N.K. Dan, France	H. Tanaka, Japan
B.H. Choi, Korea	C. Chen, USA
J.H. Lee, Hongkong	V.T. Ca, Vietnam
S. Kazama, Japan	S.K. Tan, Singapore
M.J.F Stive, the Netherlands	D.V. Uu, Vietnam
N.V.T. Van, Canada	S. Sana, Oman
H. Chanson, Australia	P.Rigo, Belgium
P.H.Burgi, USA	D.M. Tom, Belgium
J.A Roelvink, the Netherlands	S. Ouillon, France
T.M. Thu, Vietnam	G. Parker, US

LOCAL ORGANIZING COMMITTEE (LOC) OF ICEC2012

Chairman

Nguyen Quang Kim — President of Water Resources University

Vice chairman

Trinh Minh Thu	Water Resources University
Le Dinh Thanh	Water Resources University

Secretariat

Nguyen Trung Viet	Water Resources University
Mai Van Cong	Water Resources University
Nguyen Cao Don	Water Resources University
Pham Hong Nga	Water Resources University

REGISTRATION

The registration desk is located on the 2F lobby of K1 dormitory of WRU. Participants can pick up the conference kit after registration.

The conference kit includes a delegate's bag covering name tag, program book, proceedings, USB with proceedings and tickets for the conference events which have been registered for and other relevant information.

REGISTRATION FEES

Regular Participants: 400 USD/person

Student Participants: 300 USD/person

Program at a glance

October 8th 2012	
14:00 - 17:30	***Registration*** *(Conference Hall T45)*
17:30 - 19:00	***Welcome drinks*** *(Conference Hall T45)*

Day 1 (October 9th 2012)				
8:00 - 8:30	**Registration**			
8:30 - 9:30	**Opening ceremony**			
9:30 - 9:45	***Coffee Break***			
9:45 - 11:45	**Plenary Session 1 (Conference Hall T45)** **Chairman: Joseph Hun-wei Lee & Nguyen Quang Kim** *Hitoshi Tanaka* *Dao Xuan Hoc* *Joseph Hun-wei Lee* *Roberto Ranzi*			
12:10 - 13:30	**Lunch**			
13:30-15:30	**Parallel session 1**			
	Room1: ***Coastal and Estuaries Hydrodynamics 1***	Room 2: ***Environmental and Ecological Hydraulics 1***	Room3: ***Coastal structures 1***	Room 4: ***Estuaries and Coastal Management 1***
15:30 - 15:45	**Coffee Break**			
13:45-18:05	**Parallel session 2**			
	Room 1: ***Coastal and Estuaries Hydrodynamics 2***	Room 2: ***Environmental and Ecological Hydraulics 2***	Room 3: ***Coastal structures 2***	Room 4: ***Estuaries and Coastal Management 2***

<table>
<tr><th colspan="5">Day 2 (October 10th 2012)</th></tr>
<tr><td>8:00 - 8:30</td><td colspan="4">Registration</td></tr>
<tr><td>8:30 - 9:30</td><td colspan="4">Plenary Session 2 (Conference Hall T45)
Chairman: Liu Cheng & Trinh Minh Thu
Nobuyuki Tamai
Jiaquan Deng</td></tr>
<tr><td>9:30 - 9:45</td><td colspan="4">Coffee Break</td></tr>
<tr><td rowspan="2">9:45-12:05</td><td colspan="4">Parallel session 3</td></tr>
<tr><td>Room 1:
Coastal and Estuaries Hydrodynamics 3</td><td>Room 2:
Water resources and Hydrology 1</td><td>Room 3:
Coastal Hazards</td><td>Room 4:
Estuaries and Coastal Management 3</td></tr>
<tr><td>12:10 - 13:30</td><td colspan="4">Lunch</td></tr>
<tr><td rowspan="2">13:30-15:30</td><td colspan="4">Parallel session 4</td></tr>
<tr><td>Room 1:
Coastal and Estuaries Hydrodynamics 4</td><td>Room 2:
Water resources and Hydrology 2</td><td>Room 3:
Research Technologies for Estuaries Engineering</td><td>Room 4:
Climate changes</td></tr>
<tr><td>16:00 - 17:30</td><td colspan="4">Plenary Session 2 (Conference Hall T45)
Chairman: Jiaquan Deng & Le Dinh Thanh
Dano Roelvink
Magnus Larson
Marcel Stive</td></tr>
<tr><td>17:30 - 18:00</td><td colspan="4">Closing ceremony</td></tr>
<tr><td>19:00</td><td colspan="4">Gala dinner (pick up buses will departure at 18:15 at WRU main's entrance)</td></tr>
</table>

Day 3 (October 11th 2012) - Technical tour in Hai Phong Province	
8:30	Departure from WRU's main entrance (sharp) Lunch boxes provided prior to departure (Nam Trieu estuary + Sea Dike nr. 1 & nr. 2-Do Son)
15:30	Departure from Hai Phong
18:30	Arrival at WRU

Keynote Speaker

Keynote Speaker I — October 9th 2012 (TUE) 9:45-10:15 Conference Hall (T45)

Chairmen: Joseph Hun-wei Lee &Nguyen Quang Kim

Prof. Hitoshi Tanaka

Title of the Speech

Tsunami disasters in coastal and estuarine environments due to the 2011 Great East Japan Earthquake

Personal Profile

Prof. Tanaka finished his PhD study at Tohoku University, Japan in 1984. After job experience in other universities such as Utsunomiya University (Japan) and Asian Institute of Technology (Bangkok), he was promoted to a full-professor of Tohoku University. His main research interest lies in fluid mechanics such as turbulent wave boundary layers, related sediment movement and also resulting morpho-dynamics in costal and estuarine environment. His study sites are not confined in Japan, but covering various countries such as Vietnam, Thailand, Oman, Bolivia etc. Since 2011, he serves as a chairman of Asian and Pacific Division (APD) of IAHR.

Keynote Speaker

Keynote Speaker II — October 9th 2012 (TUE) 10:15-10:45 Conference Hall(T45)

Chairmen: Joseph Hun-wei Lee &Nguyen Quang Kim

Prof. Dao Xuan Hoc

Title of the Speech

Mekong river delta of Vietnam, challenges and solutions in the context of climate change and sea level rise.

Personal Profile

Prof. Dao Xuan Hoc
Vice Minister
Specialized Vice Chairman
National Committee for Climate Change

Keynote Speaker

Keynote Speaker III — October 9th 2012 (TUE) 10:45-11:15 Conference Hall(T45)

Chairmen: Joseph Hun-wei Lee &Nguyen Quang Kim

Prof. JosephHun-wei Lee

Title of the Speech

Real-time Beach Water Quality Forecast for Hong Kong

Personal Profile

Prof Lee grew up in Hong Kong and obtained his BSc, MSc and PhD degrees all from the Massachusetts Institute of Technology (1969-1977). He joined the University of Hong Kong in 1980, where he was Dean of Engineering from 2000 to 2003, and Pro-Vice-Chancellor and Vice-President from 2004-2010. He is currently the Vice-President (Research and Graduate Studies) of the Hong Kong University of Science and Technology.

Professor Lee's research revolves around the use of hydraulics to solve environmental problems, in particular the prediction and control of water quality. He is Editor of the Journal of Hydro-environment Research and past Vice-President of the International Association for Hydro-environment Engineering and Research – IAHR (2007-2011), and has served as expert consultant on numerous hydro-environmental projects. He serves on the Advisory Council on the Environment and the Construction Industry Council of the Hong Kong Government, as well as advisory bodies in Scotland, Germany and Singapore.

Professor Lee is a Fellow of the Royal Academy of Engineering (UK) and the Hong Kong Academy of Engineering Sciences.

Keynote Speaker

Keynote Speaker IV — October 9th 2012 (TUE) 11:15-11:45 Conference Hall(T45)

Chairmen: Joseph Hun-wei Lee &Nguyen Quang Kim

Prof.RobertoRanzi

Title of the Speech

Climate Change impact on the hydrological cycle, water management and engineering

Personal Profile

Roberto Ranzi graduated cum laude in Civil and Environmental Engineering in 1990 at the Polytechnic of Milan, where he also obtained a PhD in Hydraulic Engineering in 1994.

During his Master and Doctorate he studied at the Institute of Hydrology (Wallingford, UK) and at the University of Washington (Seattle, USA). He is Professor of Hydraulic Structures and Hydrology at the University of Brescia, Italy, since 2005..He is author of about 90 publications (19 on ISI journals) and co-editor of the book "Climate and Hydrology of Mountain Areas", edited by J.Wiley. Research areas: mountain hydrology, snow- and ice-melt runoff, hydrometeorological flood forecasting, climate and hydrology.

Keynote Speaker

Keynote Speaker V — October 10th 2012 (WED) 8:30-9:00Conference Hall(T45)

Chairmen: Liu Cheng & Trinh Minh Thu

Prof.Nobuyuki Tamai

Title of the Speech

Historical Review of River Basin Management in Modern Japan

Personal Profile

1964 B.S. in Civil Engineering, University of Tokyo
1972 Dr. Eng., University of Tokyo
1983-2002 Professor, University of Tokyo
2002-2007 Professor, Kanazawa University
2007-present Professor, Kanazawa Gakuin University
2007-2011 President of IAHR
He has experience as a visiting professor or scholar at Federal Technical University of Switzerland at Lausanne, University of Stuttgart, University of Karlsruhe and University of Western Australia

Keynote Speaker

Keynote Speaker VI — October 10th 2012 (WED) 9:00-9:30 Conference Hall(T45)

Chairmen: Liu Cheng & Trinh Minh Thu

Prof.Jiaquan DENG

Title of the Speech

An analysis on the movement of the tide, sediment and salinity at the Pearl River Estuary by RS technique

Personal Profile

Prof. Deng obtained PhD degree at Hong Kong University of Science & Technology. He has been engaged in the estuary hydrodynamics research work for about thirty years. Now he is the deputy director of the Pearl River Hydraulic Research Institute and the Professor of the South China University of Technology (part-time).

Keynote Speaker

Keynote Speaker VII October 10th 2012 (WED) 16:00-16:30 Conference Hall(T45)

Chairmen: Jiaquan Deng & Le Dinh

Prof.DanoRoelvink

Title of the Speech

New developments in modelling of coastal hydrodynamics and morphology

Personal Profile

Prof. Dano (J.A.) Roelvink has over 25 years of experience in modelling coastal hydrodynamics and morphodynamics and has had a major role in developing systems such as Delft3D and XBeach. He has investigated, with the help of many students and colleagues, a wide range of morphological systems, from beaches to port extensions, estuaries to coral reef systems, both in research projects and in consultancy, often in collaboration with international institutes. He is currently professor of Coastal Engineering and Port Development at UNESCO-IHE, holds a part-time appointment at Deltares and holds a professorship at Delft University of Technology.

Keynote Speaker

Keynote Speaker VIII October 10th 2012 (WED) 16:30-17:00 Conference Hall(T45)

Chairmen: Jiaquan Deng & Le Dinh

Prof.Magnus Larson

Title of the Speech

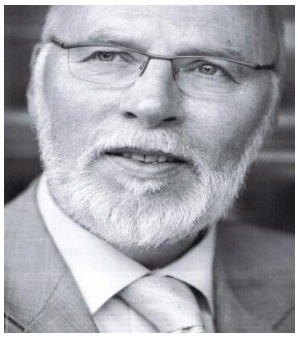
Coastal inlets: Physical processes and their mathematical modeling

Personal Profile

Magnus Larson earned his M.Sc. and Ph.D. from Lund University in Sweden and was promoted to full professor at the same university in 2000. His background is fluid mechanics, although his main research focus during the last 25 years has been coastal processes and their mathematical modeling. During his Ph.D. studies he was working at the U.S. Army Engineer Waterways Experiment Station in Vicksburg, USA. He has been a frequent guest researcher at the University of Tokyo, Japan, during the last 20 years. Several of his research projects are carried out abroad, including in countries such as Vietnam, Sri Lanka, and China.

Keynote Speaker

Keynote Speaker IX October 10th 2012 (WED) 16:30-17:00 Conference Hall(T45)



Chairmen: Jiaquan Deng & Le Dinh

Prof.Marcel Stive

Title of the Speech

Stable and unstable coastal inlet cross-sectional behaviour

Personal Profile

Marcel J.F. Stive is heading the Department of Hydraulic Engineering of the Faculty of Civil Engineering and Geosciences of Delft University of Technology, The Netherlands. He is proud to have been guiding the trajectories of several Vietnamese PhD's that have realised very impressive results. He has a long history in supporting Vietnamese education and currently in supporting innovative solutions to relieve the flooding problems around Ho Chi Minh City and the Mekong Delta.

October 8th 2012	
14:00 - 17:30	***Registration***
17:30 - 19:00	***Welcome drinks***

Day 1 (October 9th 2012)		
8:00 - 8:30	**Registration & culture show**	
8:30 - 9:30	**Opening ceremony**	
9:30 - 9:45	***Coffee Break***	
9:45 - 11:45	**Plenary Session 1 (Conference Hall T45)** Chairmen: ***Joseph Hun-wei Lee &Nguyen Quang Kim***	
9:45 - 10:15	**Hitoshi Tanaka**	Tsunami disasters in coastal and estuarine environments due to the 2011 Great East Japan Earthquake
10:15 - 10:45	**Dao Xuan Hoc**	Mekong river delta: challenges and solutions in terms of climate change and sea level rise
10:45 - 11:15	**Joseph Hun-wei Lee**	Real-time Beach Water Quality Forecast for Hong Kong
11:15 - 11:45	**Roberto Ranzi**	Climate Change impact on the hydrological cycle, water management and engineering
12:10 - 13:30	**Lunch**	

Parallel session 1
Oct. 9 (Tue), 13:30-15:30

Date/Time		Room1: **Coastal and Estuaries Hydrodynamics 1**			
Oct. 9 (Tue) 13:30-15:30		Code	Chairman: ***Marcel Stive***		
13:30	13:50	D02	Modelling of tide-wave-surge induced sediment transport at Wentuozi region in Liaodong Bay, China	*Chen Jianguo, Wang Chonghao and Wang Yuhai*	China
13:50	14:10	D03	A method to determine the cross-shore varying roller slope in the surf zone	*Chi Zhang, Jinhai Zheng and Titi Sui*	China
14:10	14:30	D04	Cross-waves in a channel with trapezoidal depth	*Gang Wang, Jinhai Zheng and Tianwen Wang*	China
14:30	14:50	D07	A circulation model considering water exchange through rock-filled sea dyke	*Jung, T.S.*	Korea
14:50	15:10	D08	Numerical study of inlet evolution: a casestudy at the Thuan An inlet, Thua Thien Hue, Vietnam	*Tran Thanh Tung and Nguyen Thi Thom*	Vietnam
15:10	15:30	D09	Interplay of steady and tidal currents in flushing of water out of Hakodate Bay: a Lagrangian experiment	*Luu Quang Hung, Tran Van Cuc, Satoshi Nakada, Yoichi Ishikawa and Toshiyuki Awaji*	Vietnam

Date/Time		Room 2: **Environmental and Ecological Hydraulics 1**			
Oct. 9 (Tue) 13:30-15:30		Code	Chairman: ***Hitoshi Tanaka***		
13:30	13:50	C02	Modelling organic matter removal in horizontal subsurface flow constructed wetlands	*Longhua Gao and Long Xie*	China
13:50	14:10	C03	Investigation of streamflow fluctuations by fluvial acoustic tomography	*Kiyosi Kawanisi, Kazuhiko Ishikawa , Mahdi Razaz and Jyunki Yano*	Japan
14:10	14:30	C04	Measuring streamflow and salinity in a tidal estuary with saltwater intrusions	*Junki Yano, Kiyosi Kawanisi, Mahdi Razaza, and Mohammad Soltaniasl*	Japan
14:30	14:50	C05	Effect of waves on oxygen transfer	*Nguyen Manh Tuan and Tan Soon Keat*	Singapore
14:50	15:10	C07	Impact of high turbidity on the hydrodynamic and biogeochemical functioning of tropical reservoirs: the case study of Cointzio, Mexico	*Doan Thuy Kim Phuong, Valentin Wendling, Marie - Paule Bonnet, Julien Nemery and Nicolas Gratiot*	France
15:10	15:30	C11	Environmental factors affecting on juvenille population of corbicula japonica in lake Jusan	*Umeda M, Pracoyo P, Tanaka H and Sasaki M*	Japan

Date/Time		Room3: **Coastal structures 1**			
Oct. 9 (Tue) 13:30-15:30		Code	Chairman: ***Gerrit J. Schiereck***		
13:30	13:50	H02	Detached breakwaters' stability against solitary tsunami wave	*Minoru Hanzawa, Akira Matsumoto and Hitoshi Tanaka*	Japan
13:50	14:10	H03	Effects of water depth on stability of armor block for composite breakwaters	*Akira Matsumoto, Minoru Hanzawa and Akira Mano*	Japan
14:10	14:30	H04	Bamboo breakwaters as site-specific erosion protection and adaptation to climate change in Soc Trang province, Viet nam	*Klaus Schmitt, Thorsten Albers and Arndt Von Lieberman*	Vietnam
14:30	14:50	H06	Investigation of overtopping flows over protective asphaltic embankments	*Farhad Yazdandoost*	Iran
14:50	15:10	H07	Simulation of solitary wave run up on a sloping beach using SCM method	*Mohammad Bagus Adityawan and Hitoshi Tanaka*	Japan
15:10	15:30	H09	Stability of newly-improved wave dissipating blocks for rubble mound breakwaters	*Thieu Quang Tuan, Hiroshi Matsushita, Yasuomi Taki and Nguyen Quang Luong*	Vietnam

Date/Time		Room 4: **Estuaries and Coastal Management 1**			
Oct. 9 (Tue) 13:30-15:30		Code	Chairman: ***Jiaquan Deng***		
13:30	13:50	E03	Equilibrium beach profile with respect to the gravity term effects, a case study for Chabahar Bay	*Mehdi Shafieefar and Mehdi Adjami*	Iran
13:50	14:10	E09	The reasons for sedimentation, erosion and shifting channels in lap and loc an estuaries (Ba Ria – Vung Tau province) on actual data and numerical models	*Truong Van Bon, Vu Van Ngoc, Nguyen Van Giap and Nguyen Thanh Trang*	Vietnam
14:10	14:30	E10	Behaviors of nourished coarse-material in different wave conditions	*Tran Huu Nghi ;shinji Sato and Asano Taishi*	Japan
14:30	14:50	E11	The relationship between ground surface warming and land-use change in Kanto plain, Japan	*Gunawardhana L. and Kazama*	Japan
14:50	15:10	E17	Potential for conservation of the coral and sea grass ecosystems near Ly Son islands and rehabilitation measures	*Vu Thanh Ca, Pham Van Hieu and Dam Duc Tien*	Vietnam
15:10	15:30	E18	Economically-optimal dyke crest level in the estuary of Tra Khuc and Ve rivers, Central of Vietnam	*Nguyen Mai Dang*	Vietnam
15:30 - 15:45		***Coffee Break***			

Parallel session 2
Oct. 9 (Tue), 13:45-18:05

Date/Time		Room 1: ***Coastal and Estuaries Hydrodynamics 2***			
Oct. 9 (Tue) 15:45 - 18:05		Code	Chairman: ***Dano Roelvink***		
15:45	16:05	D10	Using flushing rate to investigate the spatial variation of tide-driven and density-driven exchanges in the Red River estuary	*Duc Hoang Nguyen, Motohiko Umeyama and Tetsuya Shintani*	Vietnam
16:05	16:25	D11	Characteristics of internal waves propagating over a gentle slope in a two-layer density-stratified fluid	*Kim Cuong Nguyen, Motohiko Umeyama and Tetsuya Shintani*	Japan
16:25	16:45	D12	Inferring inlet morphodynamics and hydraulic parameters from tidal records of Avoca Lake, NSW, Australia	*Thuy T. T. Vu, Peter Nielsen, David P. Callaghan and Lam T. Nghiem*	Australia
16:45	17:05	D13	Employing a high-order scheme for solving the sediment volume conservation equation	*Pham Thanh Nam, Hocine Oumeraci, Magnus Larson and Hans Hanson*	Vietnam
17:05	17:25	D17	The transport pattern of the fine sand in the macrotidal coast	*Xiujuan Liu*	China
17:25	17:45	D21	Application MIKE 21 FM model to study the effect of wave and current to mophollogy change of Da Rang river mouth	*Pham Thu Huong, Nguyen Ba Quy, Le Dinh Thanh and Ngo Le Long*	Vietnam
17:45	18:05	D22	Validation of near shore wave modeling for Cua Hoi estuary	*Nghiem Tien Lam and Vu Thi Thu Thuy*	Vietnam

Date/Time		Room 2: ***Environmental and Ecological Hydraulics 2***			
Oct. 9 (Tue) 15:45 - 18:05		Code	Chairman: ***Vu Thanh Ca***		
15:45	16:05	C12	Numerical simulation of sediment release by a two-phase model	*F. Lévy, D.h. Nguyen, D. Pham Van Bang, K.d. Nguyen, S. Guillou and J. Chauchat*	France
16:05	16:25	C16	Impact of estuarine development on an endangered freshwater fish larvae	*Kazuaki Ohtsuki and Yukihiro Shimatani*	Japan
16:25	16:45	C17	Effect of open gap in coastal forest on tsunami runup- investigation by experimental and numerical simulation	*Nguyen Ba Thuy and Nguyen Quoc Trinh*	Vietnam
16:45	17:05	C20	Optimal configuration of nori aquafarming grounds in the ariake sea using a two-dimensional convective-dispersion model and an index of nitrogen assimilation rates	*Toshinori Tabata, Kazuaki Hiramatsu and Masayoshi Harada*	Japan
17:05	17:25	C21	Comparative study on two nesting techniques of overlap and sponge-layer in two-dimensional numerical calculations of tidal currents in coastal waters	*Yuri Honda, Kazuaki Hiramatsu and Masayoshi Harada*	Japan
17:25	17:45	C23	Toward a new paradigm of ecosystem fisheries management for taka bonerate marine protected area, in Sulawesi - Indonesia	*Agus Hartoko, I.kumalasari, Sutrisno Anggoro and Indah Susilowati*	Japan
17:45	18:05	C24	A Gpu-Cuda implementation of a two-phase model for sediment transport	*Kim Dan Nguyen , Quoc Lan Phan, Thanh Tam Nguyen and Chi Dung Vo*	Vietnam

Date/Time		Room 3: ***Coastal structures 2***			
Oct. 9 (Tue) 15:45 - 18:05		Code	Chairman: ***Nguyen Dang Hung***		
15:45	16:05	H14	Vung Tau – Go Cong dam: mathematical modelling: one size fits all	*Gerrit Jan Schiereck, Marcel Stive and Han Vrijling*	Netherlands
16:05	16:25	H11	On the use of wave dissipating blocks in breakwaters and coastal protection works in Vietnam	*Le Thi Huong Giang , Thieu Quang Tuan and Ho Si Minh*	Vietnam
16:25	16:45	H12	H12: 3D sediment physical model test study on breakwater emergency repairing work for S2P CFPP project, Cilacap, Indonesia	*Feng Gao, Hanbao Chen and Yufen Cao*	China
16:45	17:05	H13	Analysis of inter-locking blocks structure for coastal protection using ABAQUS software	*Phan Tan Huy, Nguyen Dang Hung, Nguyen Van Hieu, Phan Duc Tac and Nguyen Van Mao*	Vietnam
17:05	17:25	F07	Predicting the effects of boat generated waves within sheltered waterways	*Gregor Macfarlane, Neil Bose and Jonathan Duffy*	Australia
17:25	17:45	F08	Simplified assessment of ship impact on navigation lock gates	*Loïc Buldgen, Philippe Rigo and Hervé Le Sourne*	Belgium
17:45	18:05	H10	Updates of design guidelines and safety standards of sea dikes in Vietnam	*Mai Van Cong & Tran Quang Hoai*	Vietnam

Date/Time		Room 4: ***Estuaries and Coastal Management 2***			
Oct. 9 (Tue) 15:45 - 18:05		Code	Chairman: ***David Hill***		
15:45	16:05	E24	Impacts of the groin in the South of Thuan An inlet on the adjacent shoreline	*Nguyen Manh Hung, Nguyen Thi Viet Lien and Duong Cong Dien*	Vietnam
16:05	16:25	E26	Simulation of hydrodynamic regimes and solutions for increasing water level and reducing saline water intrusion in dry season at downstream of Ma river system	*Vu Minh Anh and Vu Quynh Chi*	Vietnam
16:25	16:45	E34	Importance of stratification on salt transport in a northern Gulf of Mexico estuary	*Kyeong Park*	US
16:45	17:05	E28	Simulation of hydrodynamic parameters and sediment transport when construction of jetty at Lach Huyen seaport	*Vu Minh Cat & Vu Minh Anh*	Vietnam
17:05	17:25	E29	Introduction of erosion control measures at Ninh Co river mouth	*Nguyen Viet Tien*	Vietnam
17:25	17:45	E31	High-estuary as a boundary for coastal zone management: an application in Itajaí River, sc, Brazil	*Loitzenbauer E, Mendes Cab and Collischonn W*	Brazil
17:45	18:05	E27	Simulation of hydrodynamic regimes and propose solutions to ensure water demand for socio-ecomnomic activities and mitigate saline water intrusion in dry season at Red River plain	*Nguyen Thi Phuong Thao & Vu Minh Cat*	Vietnam

Day 2 (October 10th 2012)		
8:00 - 8:30	**Registration**	
8:30 - 9:30	**Plenary Session 2 (Conference Hall T45)** Chairmen: ***Liu Cheng & Trinh Minh Thu***	
8:30 - 9:00	**Nobuyuki Tamai**	Historical Review of River Basin Management in Modern Japan
9:00 - 9:30	**Jiaquan Deng**	An analysis on the movement of the tide, sediment and salinity at the Pearl River Estuary by RS technique
9:30 - 9:45	**Coffee Break**	

Parallel session 3
Oct. 10 (Wed), 9:45-12:05

Date/Time		Room 1: ***Coastal and Estuaries Hydrodynamics 3***			
Oct. 10 (Wed) 9:45 - 12:05		Code	Chairman: ***Magnus Larson***		
9:45	10:05	D25	Variation of scour and silting of the sand bar in Modaomen estuary of Pearl river delta in China	*Zhang Yanjing, Li Dashan and Wang Guobing*	China
10:05	10:25	D26	Numerical modeling of tides in the Western Atlantic during the Holocene - regional and local results	*D.F. Hill, G. Hall, S.D. Griffiths, B.P. Horton and W.r. Peltier*	US
10:25	10:45	D27	Modelling of salinity distribution and water age in the Mahakam Delta, Indonesia	*Pham Van Chien, Benjamin De Brye, Sandra Soares-Frazao, Eric Deleersnijder and Ton Hoitink*	Belgium
10:45	11:05	D29	On the hindered settling of silt-water mixtures	*S. Te Slaa, D.S. Van Maren and J.c. Winterwerp*	Netherlands
11:05	11:25	D30	An wind-induced wave submodel coupled to EFDC	*Paul M. Craig and Dang Huu Chung*	Vietnam
11:25	11:45	D32	A numerical study on tsunami induced sediment transport in vicinity of a submarine canyon off southeast coast of India	*Jaya Kumar Seelam*	Vietnam
11:45	12:05	D33	Study on siltation in laolonggou mouth bar channel in Caofeidian sea area of Bohai bay, China	*Zuo Liqin, Lu Yongjun and Ji Rongyao*	China

Date/Time		Room 2: ***Water resources and Hydrology 1***			
Oct. 10 (Wed) 9:45 - 12:05		Code	Chairman: ***Roberto Ranzi***		
9:45	10:05	B02	Investigation of the volatility in stream flow time series with nonlinear variance models: case study of Köprüçay River	*Hakan Tongal and Veysel Güldal*	Turkey
10:05	10:25	B03	Statistical properties of partial duration series: a comparative analysis of PDS/GPA with fixed number of peaks case study: Auckland region, New Zealand	*Xuan Hoa Pham, Asaad Y. Shamseldin and Bruce Melville*	New Zealand
10:25	10:45	B04	Remote sensing analysis of water pollution and urban expansion in Shenzhen Bay	*Ding Xiaoying, Deng Jiaquan and Yu Shunchao*	China
10:45	11:05	B05	Effect of the trend of runoff and sediment fluxes on the Yellow River Delta	*Shi Hongling and Tian Qingqi*	China
11:05	11:25	B07	Changes in flow and water levels of Red River in dry season	*Le Van Hung and Pham Tat Thang*	Vietnam
11:25	11:45	B08	Ensemble regional climate projections over Vietnam – model intercomparison study	*Minh Tue Vu, Srivatsan V Raghavan, Shie-yui Liong and Thi Huong Lan Pham*	Singapore
11:45	12:05	B13	Assessing the performance of drainage design storms through continuous simulation: a case study in the Northern delta, Vietnam	*Nguyen Tuan Anh*	Vietnam

Date/Time		Room 3: ***Coastal Hazards***			
Oct. 10 (Wed) 9:45 - 12:05		Code	Chairman: ***Vu Minh Cat***		
9:45	10:05	K01	Example and characteristic of disaster at coast with wave dissipating structures induced by Tohoku earthquake tsunami in March, 2011	*Hiroshi Matsushita, Yasuomi Taki, and Pham Thanh Hai*	Japan
10:05	10:25	K03	A numerical study of wave run-up over a bank	*Dang Minh Hai and Masatoshi Yuhi*	Japan
10:25	10:45	K04	Sensitivity of dune erosion prediction during extreme conditions	*C. (kees) Den Heijer*	Netherlands
10:45	11:05	K06	Vulnerability of coastal areas in Southern Vietnam against tropical cyclones and storm surges	*Hiroshi Takagi, Nguyen Danh Thao, Miguel Esteban, Tran Thu Tam, Hanne Louise Knaepen5 and Takahito Mikami*	Japan
11:05	11:25	K16	Sea dike system in the central coast, Vietnam: need a systematic approach	*Pham Ngoc Quy, Tran Thanh Tung and Do Tat Tuc*	Vietnam
11:25	11:45	K12	Application of reliability theory and risk analysis to assess safety of reservoir headwork system in Vietnam	*Nguyen Lan Huong, Nguyen Van Mao and Mai Van Cong*	Vietnam
11:45	12:05	K14	Estimating main storm parameters using an extended empirical track model in Vietnam	*B. M. Nguyen and P. H. A. J. M. Van Gelder*	Vietnam

Date/Time		Room 4: ***Estuaries and Coastal Management 3***			
Oct. 10 (Wed) 9:45 - 12:05		Code	Chairman: ***Nguyen Tat Dac***		
9:45	10:05	K15	Observation of a flood event with X-band radar	*Takewaka S.*	Japan
10:05	10:25	D31 (J11)	Prediction of salt water movement in Iwaki river mouth	*Mikio Sasaki, Hitoshi Tanaka and Makoto Umeda*	Japan
10:25	10:45	C25	Study on trends of nutrient concentration in Ha Long Bay, Vietnam	*N.T.T. Nguyen, N.T.P.Thao and T. N. Khoi*	Vietnam
10:45	11:05	C22	Contamination of polychlorinated biphenyls (pcbs) in sediment from Caubay River, Vietnam	*Vu Duc Toan and Nguyen Phuong Quy*	Vietnam
11:05	11:25	HQ03	*OPERATION OF WEIRS IN THE NAKDONG RIVER DURING THE FLOOD PERIOD*	*Min Ji Kim & Kyung Soo Jun*	Korea
11:25	11:45	E20	The application of a tandem dike system in Vietnam	*Mai Cao Tri, Mai Van Cong, Henk Jan Verhagen and Nguyen Khac Nghia*	Vietnam
11:45	12:05		rev1		

12:10 - 13:30	**Lunch**

Parallel session 4
Oct. 10 (Wed), 13:30-15:30

Date/Time		Room 1: ***Coastal and Estuaries Hydrodynamics 4***			
Oct. 10 (Wed) 13:30-15:50		Code	Chairman: ***Paul M. Craig***		
13:30	13:50	D34	3D sediment transport modeling for the Sacramento-San Joaquin Delta	*Paul M. Craig, Nghiem Tien Lam, Tran Kim Chau and Nguyen Xuan Tinh*	Vietnam
13:50	14:10	F05	Wave and tidal modelling East Sea of Vietnam	*Le Tuan Hai and Le Xuan Roanh*	Vietnam
14:10	14:30	C27	Flow and sediment transport in a semi-close bay	*Nguyen Cao Don and Nguyen Thi Minh Hang*	Vietnam
14:30	14:50	HQ02	INTERNAL GENERATION OF WAVES IN SHALLOW WATER EQUATIONS WITH DAMPING USING DIRAC DELTA AND GAUSSIAN SOURCE FUNCTIONS	*Vu Van Nghi & Lee Changhoon*	Korea
14:50	15:10	PH01	PH01: Field and satellite studies to assess dynamics of suspended particulate matter in Vietnamese estuaries and coastal waters	*Sylvain Uoilon et al.*	Vietnam
15:10	15:30	HQ01	ESTIMATING SYNTHETIC UNIT HYDROGRAPH USING NASH MODEL WITH GEOSPATIALLY DRIVEN PARAMETERS	*Boosik KANG, Jin-Gyeom KIM, Jong-Min KIM & Byungman YOON*	Korea
15:30	15:50	D19	STUDY ON WAVE DISSIPATION SOLUTION OF BREAKWATER FOR HARBOURS IN ISLAND AREAS OF VIETNAM	*Nguyen Trung Anh, Nguyen Trong Tu*	Vietnam

Date/Time		Room 2: ***Water resources and Hydrology 2***			
Oct. 10 (Wed) 13:30-15:50		Code	Chairman : ***Kang Boosik***		
13:30	13:50	B15	Assessing water discharge in Be river basin, Vietnam using SWAT model	*Nguyen Duy Liem and Nguyen Kim Loi*	Vietnam
13:50	14:10	B16	Changes in sediment load of the Lancang-Mekong river and its response to the hydro-power development	*Cheng Liu, Yun He and Jianjun Wang*	China
14:10	14:30	B17	Development of automatic control and measurement system for physical model studying mechanism of river pattern transformation	*Wang Dang-wei, Ji Zu-wen, Dong Zhan-di and Hu Hai-hua*	China
14:30	14:50	B18	Water resources in the Day rive basin (Vietnam) under impact of climate changes	*Le Van Chin*	Vietnam
14:50	15:10	F11	The influence of Yangtze river tongling river comprehensive regulation project to flood control, navigation and fish resource	*Yuan Feng, Xiaoyong Liao, Beilin Fan and Huichang Jiang*	China
15:10	15:30	C26	Numerical simulation of groundwater flow and transport in coastal islands	*Nguyen Cao Don*	Vietnam
15:30	15:50	VN01	THE APPLICATION OF HYDRAULIC AUTOMATIC GATE IN CAISSON SLUICE TO PREVENT SALT INTRUSION AT MEKONG DELTA VIETNAM	*Truong Dinh Du et al.*	Vietnam

Date/Time		Room 3: ***Research Technologies for Estuaries Engineering***			
Oct. 10 (Wed) 13:30-15:50		Code	Chairman : ***Liu Cheng***		
13:30	13:50	G01	Continuous measurement of flushing discharge from a reservoir	*Kazuhiko Ishikawa, Kiyosi Kawanisi and Mahdi Razaza*	Japan
13:50	14:10	G05	Effects of wave and current on near-bottom turbulence and acoustic backscatter intensity measured by an ADCP and ADV	*Ruo-shan Tseng*	Taiwan
14:10	14:30	G06	Two phase flow modeling on jet erosion test	*Pham Van Bang Damien, Nguyen Kim Dan and Chevalier Christophe*	France
14:30	14:50	G08	A numerical model on lagrangian particle tracking coupled to EFDC	*Dang Huu Chung and Paul M. Craig*	Vietnam
14:50	15:10	G10	Observational study of morphodynamics of sandy beaches in Qishui bay, northeastern Hainan island	*Ji Xiaomei and Zhang Yongzhan*	China
15:10	15:30	G11	Synthetic analysis the evolution of the Da Rang estuary based on systematic approach	*Le Dinh Thanh and Ngo Le Long*	Vietnam
15:30	15:50		rev		

Date/Time		Room 4: ***Climate changes***			
Oct. 10 (Wed) 13:30-15:50		Code	Chairman: ***Le Huu Ti***		
13:30	13:50	A05	Assessment of climate change impacts on water resources and uses in lower Mekong basin - A case study at Upper Srepok catchment	*Do Hoai Nam, Keikoudo and Akiramano*	Japan
13:50	14:10	A06	Preliminary analysis of climate change in East River Basin	*Deng Jiaquan and Deng Hui*	China
14:10	14:30	A07	Potential impacts of climate change and sea level rise to livelihoods of coastal residents of Go Cong Dong, Tien Giang, Vietnam and adaptation measures	*Vu Thanh Ca, Vu Thi Thuy, Vu Thi Hien, Nguyen Thuy Hang, Vu Thanh Chon, Dong-hwa Kim, Jun-kun Park, Suk-hui Lee and Young-ju Lee*	Vietnam
14:30	14:50	A08	Impact of climate and land-use changes on streamflow and sediment load in the Be River catchment, Vietnam	*Dao Nguyen Khoi and Tadashi Suetsugi*	Japan
14:50	15:10	A09	The use of 1-2D coupling computer model in computation of mean sea level rise impact due to climate change at the river mouths of the Mekong Delta	*Nguyen Tat Dac and Luong Quang Xo*	Vietnam
15:10	15:30	K05	Assessment of vulnerability of coastal areas in Vietnam and proposals against future threats	*Miguel Esteban, Hiroshi Takagi, Nguyen Danh Thao, Tran Thu Tam, Le Van Cong, Takahito Mikami and Hanne Louise Knaepen*	Japan
15:30	15:50	VN3	Structural alternatives to prevent salinity, keeping freshwater and creation of water resource supply for coastal area of 5 districts of Thanh Hoa province	*Nguyen Ngoc Lam & Nguyen Viet Hung*	Vietnam

16:00 - 17:30	**Plenary Session 2 (Conference Hall T45)** Chairman**:** ***Jiaquan Deng & Le Dinh Thanh***	
16:00 - 16:30	**Dano Roelvink**	New developments in modelling of coastal hydrodynamics and morphology
16:30 - 17:00	**Magnus Larson**	Physical processes and their mathematical modeling
17:00 - 17:30	**Marcel Stive**	Stable and unstable coastal inlet cross-sectional behavior

17:30 - 18:00	**Closing ceremony**

19:00	**Gala dinner (pick up buses will departure at 18:15 at WRU main's entrance)**

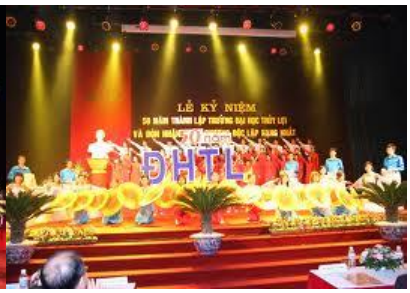
Day 3 (October 11th 2012) - Technical tour (Hai Phong)	
8:30	Departure from WRU's main entrance (sharp)
	Lunch boxes provided prior to departure
	(Dinh Vu reclaimation project + Nam Trieu estuary + Dike nr. 1 -Do Son)
15:30	Departure from Hai Phong
18:30	Arrival at WRU

NECESSARY INFORMATION FOR ICEC2012

1. Meeting Venue:

Water Resources University

The conference will be held at Water Resources University (WRU), Vietnam using primarily the facilities at the university.



Address: Water Resources University,
175 Tay Son Street, Dong Da District, Hanoi, Vietnam

2. Accommodation:

These below hotels are recommended for all participants:

a. Ha Noi Horison Hotel 5*

Hanoi Horison Hotel is located in the center of Hanoi city, close to almost major Hanoi tourist attractions such as the Temple of Literature (Van Mieu), Ho Chi Minh mausoleum, One Pillar pagoda. Hanoi Horison Hotel located at Cat Linh street assuring easy access to embassies and government offices.

With professional service staff, an impressive array of facilities in each room is available so that you're refreshed, relaxed and entertained. All 250 rooms and suites of Horison Hotel have been superbly designed to ensure you enjoy a comfortable stay in Hanoi.

b. Fortuna Ha Noi Hotel 4*

Conveniently located in strategic business and financial centre of Hanoi, whether it's for business or pleasure, you are assured of a uniquely Fortuna experience. Like no other, Fortuna offers consistent commitment of Asian hospitality amid a modern Western setting that reflects the culture and tradition of subtleness, delicate service and attention to details.

Exceeding the expectation of today's business or leisure with its full complement of amenities and five-star standard services, it is the pleasure and comfort of 350 well-furnished rooms, 2 multi-functional Ballrooms and 6 meeting rooms all equipped with the latest technological facilities and in particular, the extra touch of the newly executive capital floors - comfortable lounge, dedicated staff and personalized services.

c. Army Hotel 3*

The centrally located three-star **Army Hotel** seems too tranquil to be in the heart of the city. Providing a wide range of rooms, it is a great place for families and businessmen alike.

The large swimming pool and trees that surround it are a couple of features that make the lodge one of the prettiest in Hanoi.

3. Though not usually listed among the premier places to stay, this hidden treat boasts the facilities and ambience to rival some of its five-star counterparts.

4. **Transportation**

    a. **Transfer from hotels to conference venue:**

    b. The ICEC 2012 organizer will arrange FREE transfer between the above hotels and conference venues (Water resources University) for all participants who make the room booking at recommended hotels only. For those who make their own reservation at other not mentioned above hotels, must take their own transportation.

    c. **Airport transfer:**

The total distance from Noi Bai Airport to the city centre is $45km which will take roughly 40 minutes one way. Sometimes it takes longer than that due to the traffic jam at rush hours. Please plan more time for departure from Hanoi if you have flight during rush hours (morning: 7h00 – 8h30; afternoon: 17h00 – 19h30)

1. These below taxi companies are recommended for all participantsAirport taxi (tel: 04-38866666): The price is around from 330.000VND to 400.000VND for one way from Noibai airport to Hanoi centre and from 230.000VND to 300.000VND for one way from Hanoi to Noibai airport

2. Noi Bai Taxi (Tel: 04-38868888): The price is the same as Airport taxi

3. Mai Linh Airport Taxi (04-38222666): The price is for one way from Noibai Airport to Hanoi centre 330.000VND and for one way from Hanoi to Noibai Airport 250.000VND.

5. **Payment:**

Payment of Conference fee, accommodation, visa… can be booked and paid online through the webpage which is specifically designed for ICEC2012: http://www.bookandpay.vn/events/4th-international-conference-on-estuaries-and-coasts-icec2012/.
Payment for service booking can be either completed by cash or credit card but there is a 3% surcharge for paying by credit card according to banking regulation and rate policy.

6. **Climate in Hanoi**

October is the Autumn time in Hanoi and the weather is pretty cool with temperature ranging from 22 to 28 degree Celsius with some possible sudden rains . You are suggested to bring umbrella, warm clothes with sandals. Camera is necessary for you to save the memory about Ha Noi.

7. **Visa obtain procedure (upon arrival)**

If you obtain visa upon arrival, you should have a visa approval letter from a travel agent in Vietnam by making an online booking for visa on arrival at: http://www.bookandpay.vn/visa/

Within 4 – 5 days it will send you the visa approval letter. You just need to print out the letter and bring to immigration department at the airport with two photos to ask for a visa sticker and stamp. The fee for this is $25USD.

8. Vietnam Currency

The official Vietnam Currency is Vietnam Dong (VND). In 2011-12, the approximate exchange rate of Vietnam Dong to US Dollars is about VND20,900 to US$1. Thanks to its low value compared to other major currency, travelling to Vietnam is kept at a very affordable rate. It might take some time to orient yourself around the number of 0s that you might never have seen before.

Credit cards and debit cards are not yet popular in Vietnam and do not expect those cards to be accepted in grocery stores and pharmacies. That leaves cash as the main exchange medium on a daily basis. There is no coin in operation nor any vending machines operated with coins. Vietnam Dong bank note has seen much change since its first appearance in 1945. The latest version of Vietnam Dong varies in both colours and the denominations. The larger notes are made of polymer material and the smaller ones are from cotton

THE FACTS ABOUT VIETNAM

CAPITAL	Hanoi
AREA	329,566sq km
POPULATION	87.62 million
LANGUAGE	Vietnamese, English, French
CURRENCY	Dong ~ 20.900VND/USD
TIME	GMT +7
TELEPHONE CODES	00 84
ELECTRICITY	220V

Good buys: The specialities to pick up here are embroideries, threadwork, silk, sandalwood and stone carvings.

Local dishes: The staple of Vietnamese meals is rice, with noodles a popular alternative at breakfast or as a snack. Typically rice will be accompanied by a fish or meat dish, a vegetable dish or soup, followed by a green tea digestive. Seafood and fish are favoured throughout the country, either fresh or dried. The most commonly used flavourings are shallots, coriander and lemon grass, though ginger, saffron, mint, anise and a basil-type herb also feature strongly, and coconut milk gives some southern dishes a distinctive richness. The most famous Vietnamese dish has to be spring rolls, variously known as cha gio, cha nem, nem ran or just plain nem. Another dish you'll find throughout Vietnam is pho, a noodle soup eaten at any time of day but primarily at breakfast.

Good reading: Vietnam: A History by Stanley Kurnow is a readable account of Vietnam's history. Dispatches by Michael Herr takes a look at the Vietnam War through the eyes of an American correspondent. Vietnamerica by Thomas Bass brings the Vietnam War home to America in a more poignant and personal form, following the fortunes of the children fathered by American soldiers in Vietnam. The Quiet America by Graham Greene is set during the last days of French rule and is probably the most famous Western work of fiction on Vietnam. The Lover by Marguerite Duras provides a French perspective on colonial life in Vietnam.

DISCOVER HANOI'S DIFFERENT AREAS

AROUND HO CHI MINH'S MAUSOLEUM

Most of Hanoi's cultural and historical monuments are found in the district immediately west of the Old Quarter, where the Ly Kings established their Imperial City in the eleventh century. The venerable Temple of Literature - Hanoi's most revered temple complex - and the picturesque One Pillar Pagoda, which is often used as a symbol of Hanoi, are all that remains of The Ly dynasty kings' palaces of the 11th-century.

CITY CENTRE

Hanoi city centre is a compact area bordered by the Red River in the east and by the rail line to the north and west. Its present-day central hub and most obvious point of reference is Hoan Kiem Lake, which lies between the cramped yet attractive Old Quarter in the north and the tree-lined boulevards of the French Quarter, arranged in a rough grid system, to the south. West of this central district are some of Hanoi's most impressive monuments which occupy the open spaces of the former Imperial City, grouped around Ho Chi Minh's Mausoleum on Ba Dinh Square and extending south to the ancient walled gardens of the Temple of Literature.

HOAN KIEM LAKE

A good way to get bearings in Hanoi is to make a quick circuit of Hoan Kiem Lake, a pleasant 30-minute walk, which is stunning in June and July when the flame trees flower.

THE FRENCH QUARTER

After the hectic streets of the Old Quarter (see below), the grand boulevards and wide pavements of Hanoi's French Quarter to the south and east of Hoan Kiem Lake are a welcome diversion. It is the architecture here that is the highlight. In the process of building their capital, the French destroyed many of the ancient Vietnamese monuments and replaced them with elegant, Parisian-style buildings such as the stately Opera House, complete with grey-slate tiles imported from France. It was regarded as the jewel in the crown of French Hanoi until 1945 when the Viet Minh proclaimed the August Revolution from its balcony. Trang Tien, the main artery of the French Quarter, is still a busy shopping street where you'll find bookshops and art galleries as well as cafés and hotels.

THE OLD QUARTER

Hanoi is the only city in Vietnam to retain its ancient merchants' quarter, a congested square kilometer which was closed behind massive ramparts and heavy wooden gates until well into the 19th century. There are few individual sights in the area; the best approach is to explore the back lanes, taking in the colourful stalls and street vendors

THE OPERA HOUSE

1 Trang Tien Street, Hanoi (00 84 4 9330 113; www.cinet.gov.vn). Built by the French in 1901-1911, the Hanoi Opera House is a beautiful architectural monument, inspired by Palais Garnier - the less famous of Paris' opera houses.

THE PRESIDENTIAL PALACE

Hung Vuong Street and Hoang Van Thu Street, Hanoi. The Presidential Palace was built in 1901 as the humble abode of the Governor-General of Indochina, all sweeping stairways, louvred shutters and ornate wrought-iron gates of the belle époque and these days is used to receive visiting heads of state.

THE TEMPLE OF LITERATURE

Dong Da District, Hanoi. Founded in 1070 as a Confucian temple, the Temple of Literature soon became the country's first university, too. Set a day off to discover its extraordinary beauty and many courtyards.

MUSEUMS

HO CHI MINH MUSUEM

7 Le Loi, Hanoi. Ho Chi Minh's museum was built with Soviet aid and inaugurated on 19 May 1990, the hundredth anniversary of Ho's birth. The Museum celebrates his life and the central role he played in the nation's history. Open Tue-Sun, 1.30pm-4pm.

NATIONAL MUSEUM OF VIETNAMESE HISTORY

1 Trang Tien Street, Hanoi (00 84 4 825 3518). Located in a former French consulate, the National Museum of Vietnamese History has a good collection of historical artefacts, as well as explanations of the often violent Vietnamese history. Ask your hotel concierge to recommend a good English-speaking guide to take you through.

MARKETS

The most famous market in Hanoi is Dong Xuan historical market where you can find thousand of things. The things here are cheap if you are good at bargaining and keep smiling with sellers.

One of Hanoi's most unusual markets is the flower market, though you will have to get up at dawn to catch it. It is held beside Nghi Tam Avenue, at its most northerly junction with Yen Phu. It is primarily a wholesale market catering to the city's army of flower-sellers, so prices are generally low.

TOURIST ATTRACTIONS

HANOI

The capital of Hanoi has been the historical and political centre of Vietnam for 1000 years, and is imbued with a sense of history. Anyone wishing to understand and explore the origins of Vietnam culture will revel in a holiday in Hanoi, where traditional attractions still amaze and astound.

Hanoi's bustling Old Quarter has been a cauldron of commerce for 800 years and it's still the best place to check the pulse of this resurgent city. The Red river delta surrounds Hanoi with many small ancient handicraft villages, which are the reflection of the once-prosperous wet rice civilization.

HALONG BAY

With thousands of pillars of limestone rising from the emerald waters of the Gulf of Tonkin as the masterpiece sculptures made by the hand of nature, Halong Bay is probably the world's most dramatic seascape and, undoubtedly, is the natural wonder of Vietnam. Staying at least one night in your comfort cabin on a traditional style junk; relaxing on the sundeck while the junk cruising its way around the peaceful Bay; exploring the fishing villages or hideaway caves on kayak; swimming and watching the sunset at one of many small tranquil beaches… are some of the activities to appreciate the bests that Halong Bay has to offer.

PU LUONG

The PuLuong limestone landscape, stretching from Mai Chau in the North West to Cuc Phuong National Park in the South East, is an area of outstanding beauty, cultural interest and high biodiversity value. It is blessed with rich forest, limestone panoramas, magnificent rice terraces and breathtaking scenery. Together with PuLuong Nature Reserve, Topas Travel has some different trekking and mountain biking tours, which are well designed so that you can experience the every day life and culture of Thai and Muong minorities and enjoy your stay in the scenic villages' traditional local house.

NINHBINH

NinhBinh is blessed with an abundance of natural landscapes, which are largely thank to its dramatically different terrains ranging from coastal plains, wet land to hill country and lush rainforests. Located 90 km south of Hanoi, it is certainly possible to visit NinhBinh within one day, where you can take a rowing boat into the tranquil Trang An or Tam Coc, known as ”Halong Bay on the rice paddies”; trek in the dense rainforest of Cuc Phuong National Park; ride a bike on hidden roads through limestone mountains, or experience the ancient capital of Vietnam 1000 years ago... One night either in Cuc Phuong National Park or at the beautiful Tam Coc wharf will not only an oppoturnity to explore more of NinhBinh at a more leisurely pace, but also a good connection to Halong Bay for your onward travel

.

SAPA

Sapa, also known as “Tonkinese Alps”, once was the French Hill Station for its amazing scenery and special climate. Nowadays, Sapa is a major tourist destination of North Vietnam, not only for its location as a natural starting point for exploring into the mountainous areas and Hoang Lien mountain range, but also for its own stunning landscapes.

To be favored by generous nature, Sapa has almost every attraction that the mountainous destination would have. From Sapa town, which is 1,600 m asl, one will have a bird eye over the North Vietnam’s deepest and longest MuongHoa valley set by the towering peaks, including Fansipan, of Hoang Lien Range. There the villages, surrounded by forests and waterfalls, are scattered around and spread to heaven’s rim. The mountain, carved to be rice terraced for producing rice and maize, has been the back ground for the enormous painting of the amazing landscape. For decades, the valley has been home for 5 different hill-tribes (Hmong, Red Dao, Tay, Giay and Xa Pho), each one is colorful, distinct, and with its own language and cultural values. Some of the villages, especially the more remote ones, are still largely untouched by modern ways of life.