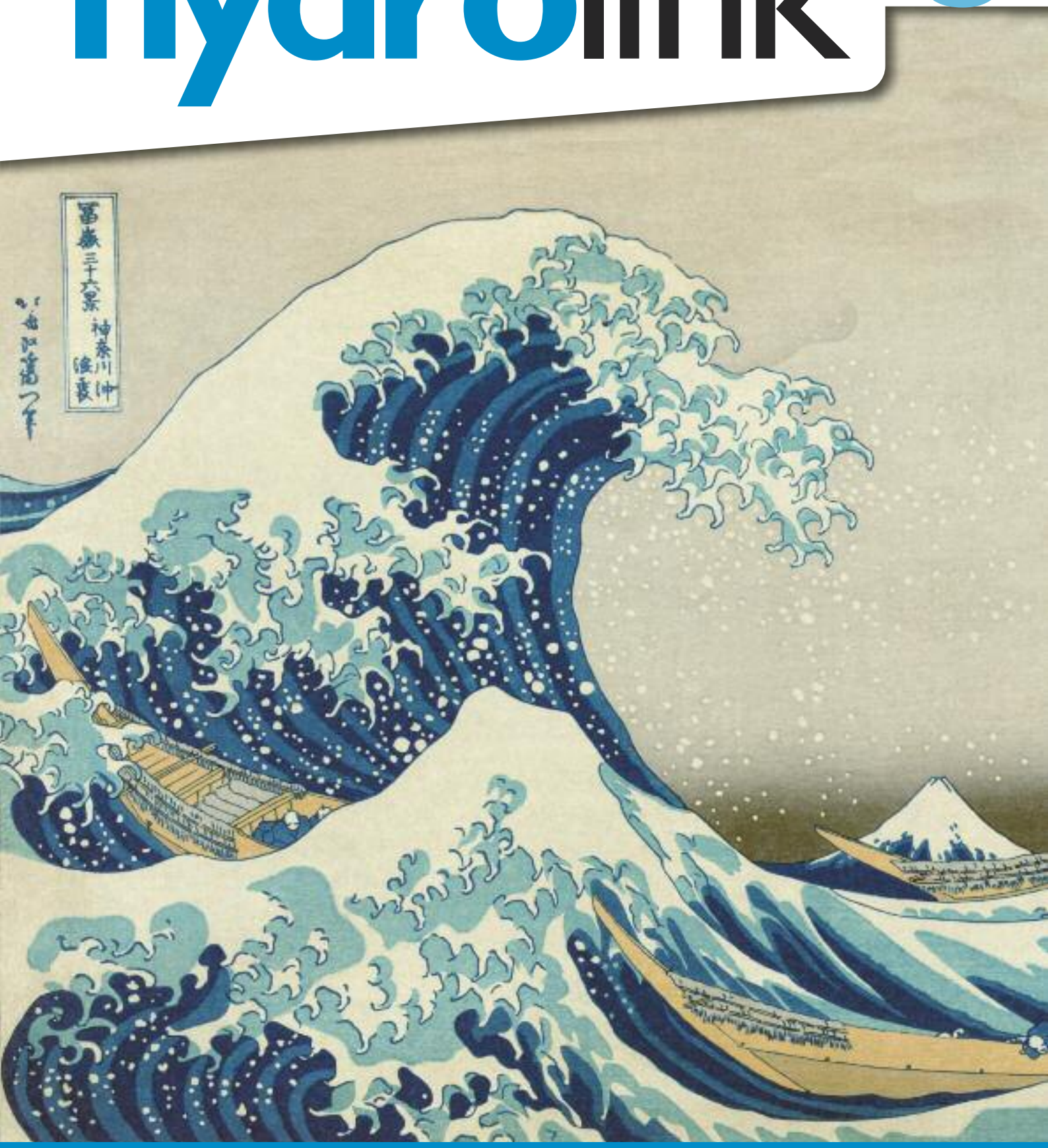
INTERNATIONAL ASSOCIATION FOR HYDRO-ENVIRONMENT ENGINEERING AND RESEARCH

hydrolink

number 3 2011



2011 Great East Japan Earthquake

See page 36

Istanbul's new Bosphorus canal

See page 40

IAHR AIRH

Supported by CEDEX

Editorial by **Michele Mossa**

Prof. Michele Mossa
Editor of Hydrolink
m.mossa@poliba.it

Could David overpower Goliath (again)?

In the previous editorial I highlighted that in recent months there have been many dramatic events which have had a serious impact on our world. One of these events has been the earthquake in Japan with the consequent tsunami which has been responsible for thousands of victims and destruction in the North of the country and enormous difficulties for the population as a whole. As our readers know, I would have been glad to publish a first article on this event in the previous issue of our magazine, but as you might imagine, the situation in Japan has been extremely difficult and our Japanese colleagues, who were contacted to write an article on this subject, understandably, asked me for more time, promising to give their personal opinion on many questions which we cannot afford to put off answering any longer.

I am happy to say that the promise has been kept and that this issue features an article by Prof. Hitoshi Tanaka of the Department of Civil Engineering (Tohoku University, Sendai, Japan) and chairman of IAHR-APD on the tsunami disaster induced by the 2011 East Japan earthquake. The highly interesting news included in this article are followed by an interview with Prof. Tanaka. In this interview, assuming that the history of Japanese natural and man-made tragedies can be considered as a tragedy for the world as a whole, I tried to make the reader reflect on the possibility that our community should carry out much more research into the development of new systems to help us to protect against earthquakes and, therefore, tsunamis and into the development of new systems for the production of alternative energy, such as wave, sea current or wind energy.

In particular, the fear of tsunamis in Japan and the Japanese cultural awareness of menacing tsunamis (but, as previously written, this applies to anywhere where activities are close to the sea) is reflected by Hokusai's well-known iconic woodblock print, which is the cover of this issue of Hydrolink. Copies of the print can be found at the Metropolitan Museum of Art in New York City, at the British Museum in London, and in Claude Monet's house in Giverny, France.

One of the questions that we might pose is how we could try to detect earthquakes and tsunamis rapidly by using warning systems. Studies on this topic have been carried around the world, such as that performed by an Italian research group from the University of Naples "Federico II", which is working on a so-called "Early Warning" system (EW system). The term "Early Warning" was first used during the Cold War years for the detection of nuclear warhead intercontinental missiles. It is important to underline that the methodologies of "early warning" are not systems to foresee earthquakes, since they raise the alarm when the earthquake has already begun. On the contrary, EW systems are based on their ability to reduce natural risks in real time, working mainly on the reduction of risk exposition. Therefore, for example, EW systems can interrupt dangerous activities a little earlier, generally some seconds earlier, than the destructive waves of earthquakes can arrive. Theoretically, these systems could have been used, for example, to shut down the nuclear plant before the arrival of a tsunami.

Japan is certainly the country which has invested most in these systems. It is also the only country with truly effective sensors scattered in territorial waters that can predict the likelihood of a tsunami in minutes, with tsunami evacuation routes posted up and down the coast. Nevertheless, recent events have highlighted that much more still remains to be done. Humanity has always tried to fight against catastrophic or negative natural events to defend itself and its survival. In this arduous fight we have had many successes, especially in recent decades, but we must also admit to many defeats. Some think that these defeats are the normal consequence of our natural inability to contrast all natural events, like the battle between David and Goliath. Personally, I believe that even if there may be a limit to the human capacity to oppose natural events, especially when these are catastrophic (hydraulically we might say events with a large return time), we must not give up fighting this arduous battle against natural calamities. In a way, this has been one of the motivations of our research efforts. After all, David overpowered Goliath once before… Why not again?

hydrolink

in this issue

Number 3 / 2011 (Supplement to JHR - Vol 49 - Number 3)

IAHR
International Association for Hydro-Environment Engineering and Research

IAHR Secretariat
Paseo Bajo Virgen del Puerto, 3
28005 Madrid SPAIN
Tel. : +34 91 335 79 08
Fax.: +34 91 335 79 35
www.iahr.org
iahr@iahr.org

Editor:
Michele Mossa,
Technical University of Bari, Italy
e-mail: m.mossa@poliba.it

Contact us:

Dr. Christopher George, Executive Director
tel.: +34 91 335 79 64
e-mail: christopher.george@iahr.org

Estibaliz Serrano
Publications Manager
IPD Programme Officer
tel.: +34 91 335 79 86
e-mail: publications@iahr.org

Beatriz Comesaña
Publications Assistant
Hydro-environment Division Programme Officer
tel.: +34 91 335 79 08
e-mail: office@iahr.org

Elsa Incio
Membership and subscriptions
Hydraulics Division Programme Officer
tel.: +34 91 335 79 19
e-mail: membership@iahr.org

Carmen Sanchez
Accounts
tel.: +34 91 335 79 48
e-mail: accounts@iahr.org

Cover picture:
Katsushika Hokusai - "Under the wave, off Kanagawa" - 1832

IAHR AIRH

Supported by
CEDEX

Tsunami Disaster induced by the

Fig.1 Tsunami-swept coastal area in Sendai Plain

The 2011 Great East Japan Earthquake of magnitude 9.0(Mw) triggered a massive tsunami on March 11th, 2011 that caused over 14,000 deaths with 13,000 people still missing as of April 21st, 2011, making it the deadliest tsunami in recorded history in Japan.

Written by:
Prof. Hitoshi Tanaka
Chairman, IAHR-APD
Department of Civil Engineering
Tohoku University, Sendai, Japan
tanaka@tsunami2.civil.tohoku.ac.jp

The earthquake was induced by a sea-bottom fault off Sanriku Coast about 500m length in the north-south direction and 200km width in the east-west direction. Severe damage has resulted especially along the Sanriku Coast, in Ishinomaki and Sendai Plains (Fig. 1 at the top). As the chairman of IAHR-APD and also as a resident in Sendai City, I herewith make a brief report on the tsunami disaster from a viewpoint of hydrodynamics and coastal sedimentation.

Tsunami height and inundated area

The tsunami height should be clearly defined whether it is measured around the shoreline or measured in the inundated area including maximum run-up height, which might be distinctly amplified in some areas by local geography. According to a report from the Japan Meteorological Agency (JMA), the maximum tsunami height around the Japanese shoreline recorded by their tide-measuring system was 9.3 m or more at Soma Port, while according to direct field observation around the measuring station, the maximum height attained was 11.8m at Ofunato Port.

In order to investigate this tsunami and related damages from engineering aspects, the Japan Society of Civil Engineers (JSCE) sent its members to the tsunami-affected area immediately after the occurrence. The distribution of tsunami run-up height has already been reported by the joint survey team of JSCE in Ref.1. According to their field observation, the maximum tsunami run-up height was 38.9m in Miyako Bay on Sanriku Coast as seen in Fig.2 (Ref.1), exceeding the past maximum record in the Japanese main island (Honshu) of 38.2m observed in Ryori Bay during the Miyagi Sanriku Tsunami in 1896. Because of the V-shaped bay geography in Sanriku Coast area, the tsunami waves were amplified, resulting in so high run-up height as compared with waves around the shoreline.

Inundated distance measured landward from the shoreline was not so large in Sanriku Coast area in general because of the steep land slope, whereas it reached around 5km in landward direction in Sendai Plain. Minoura et al. (Ref.2) found through sediment deposit analysis in Sendai Plain that there was another massive tsunami called “Jogan Tsunami” caused by a historical earthquake in 869. According to their numerical simulation based on a depth-averaged 2-D modeling, the inundation distance was 4km from the shoreline at that time. Thus it is inferred that the present earthquake resulted in an inundation distance almost similar to that due to the historical tsunami in 869, although there is a distinct difference between these two events in terms of wave height and duration.

Tsunami propagation into river

The 2010 Chile Earthquake, rating magnitude of 8.8(Mw), took place on February 27, 2010 and caused large tsunami waves. Around the coastal area in Tohoku District, the tsunami height was about 1m, and further propagated upstream along of numerous rivers in this district (Ref.3). Among them, along the Kitakami River located in Miyagi Prefecture, tsunami waves as high as 80cm propagated to 17.2km upstream, where an estuary barrage is located. The tsunami did not propagate further upstream of the barrage because of reflection from the structure without

2011 Great East Japan Earthquake

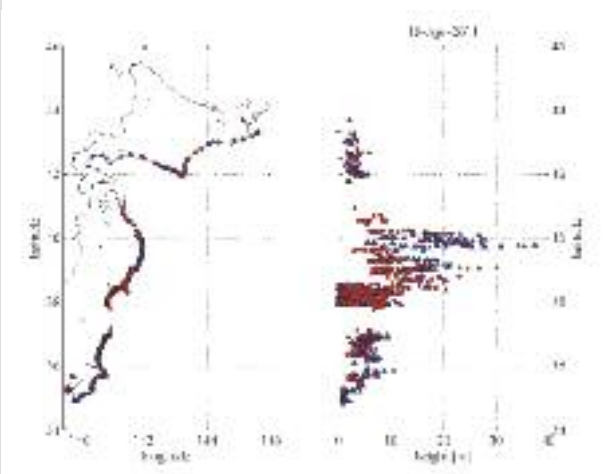


Fig.2 Tsunami run-up height along the coastal area facing the Pacific Ocean (Ref.1)

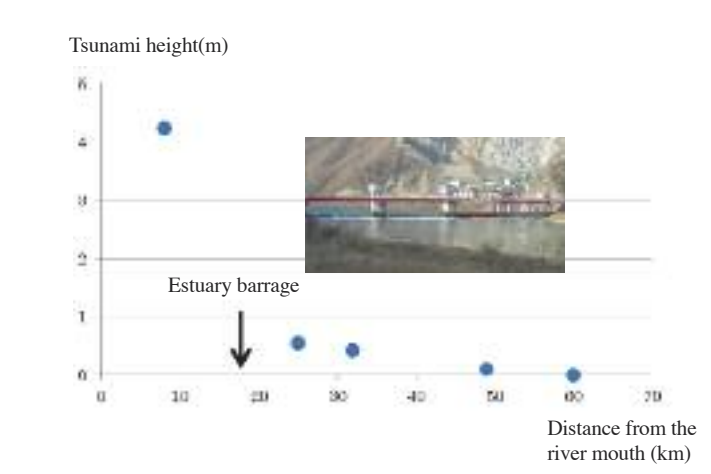


Fig.3 Tsunami propagation into the Kitakami River

overflow. On the contrary, the 2011 Great East Japan Tsunami overflowed the barrage to reach up to 50km upstream from the river mouth. Figure 3 shows the longitudinal distribution of the first tsunami wave height above still water elevation measured by the Ministry of Land, Infrastructure, Transport and Tourism, Japan. Such a long distance propagation of tsunami can be attributed to the very gentle bed slope of the Kitakami River, about 1/10,000.

Coastal and river mouth morphology changes on Sendai Coast

There are several lagoons on the Sendai Coast, indicating a predominant longshore sediment movement in one direction. Gamo Lagoon is one of these formed at the mouth of the Nanakita River due to dominating unidirectional longshore sediment transport from the right to the left in the figure in Fig.4(a). When the construction of the breakwater started at Sendai Port, the entrance of the Nanakita River had been fixed at the present location by the jetty on the left hand side of the mouth. The sediment intrusion into Gamo Lagoon by wave overwashing has a close relationship with the retreat of the coastline in the vicinity of the breakwater at Sendai Port (Ref.4).

Meanwhile Fig.4(b) denotes post-tsunami morphology around the lagoon. Due to tsunami overwashing, the sand spit has been severely eroded especially at the left end of the lagoon, which might be attributed to the distinct shoreline retreat there described above. The lagoon area, which had been popular among local citizens for plenty of migratory birds, has been severely damaged due to the devastating tsunami.

Fig. 4
Pre- and post-tsunami aerial photographs on Sendai Coast

(a)
Pre-tsunami aerial photograph
(March 6, 2011)

(b)
Post-tsunami photograph
(March 12, 2011)
(Ref.5)

Fig. 5 Broken pine tree trunks on Sendai Coast

As seen in Fig.4(a), the sandy coast on the right hand side of the river mouth is covered with pine tree forest 200m wide in the cross-shore direction. Although the forest has been severely broken due to tsunami waves as seen in Fig.5, it might have had a certain effect in reducing tsunami energy according to preliminary field observations. Further investigation is definitely required for evaluating the effectiveness of coastal vegetation for tsunami hazard mitigation.

References
1) The 2011 Tohoku Earthquake Tsunami Joint Survey Group: http://www.coastal.jp/ttjt/index.php
2) Minoura, K. et al.: The 869 Jogan tsunami deposit and recurrence interval of large-scale tsunami on the Pacific coast of northeast Japan, Journal of Natural Disaster, Vol.23, No.2, pp.83-88, 2001.
3) Tanaka, H. et al.: Field measurement and numerical studies on the tsunami propagation into upstream of rivers, Proc. 33rd IAHR Congress, 2011.(in press)
4) Tanaka, H. et al.: Sediment intrusion into Gamo Lagoon by wave overtopping, Proc. 28th ICCE, pp.823-835, 2002.
5) Geospatial Information Authority of Japan: http://saigai.gsi.go.jp/h23taiheiyo-ok/photo/photo_dj/index.html

10 QUESTIONS TO... Prof. Hitoshi Tanaka

Interviewed by Michele Mossa, Editor of Hydrolink and Chair of the IAHR Committee on Education and Professional Development (EPD).

1 The history of Japan is characterized by tragedies, both natural and man-made, such as the Great Kanto Earthquake in 1923 (a 7.9 magnitude quake that leveled much of Tokyo and killed more than 100,000 people), the firebombing of Tokyo in 1942-45, and the Kobe earthquake of 1995 (which killed about 6,000 people and caused more than $100 billion in damage). The Japanese people have always been able to start again. What is your opinion on the last tragedy? How has it been felt by the Japanese people?

As compared with the two earthquakes in Japan you listed, The 2011 Great East Japan Earthquake has much different aspects because of the massive damage induced by tsunami, not only the earthquake disaster. The massive damage due to this tsunami is widely distributed in the eastern part of Japan facing the Pacific Ocean, almost 500km long along the coast in the mainland of Japan. During the Kobe earthquake, for example, damage was limited in the Kobe area, while in other big cities such as Osaka, it was possible to provide support to afflicted people in Kobe City. The widely distributed tsunami disaster, combined with the nuclear issue in Fukushima, has caused difficulty in our recovery process. However, I am highly confident that we will make a complete recovery in the near future, as we have done in the past.

2 Japan is very well-organized for earthquakes. Do you think that all the alarm and emergency systems worked well during the recent Sendai earthquake and do you think that some things could have been better organized?

Instead of pointing out something better organized in connection with alarm and emergency system, I would like to introduce problems we encountered this time. Last year, there was another tsunami propagated form the opposite side of the Pacific Ocean in Chile. At that time, the tsunami height was not as high as the 2011 tsunami. Based on that experience last year, there were many people who believed that this year's tsunami one might be similar to the previous in 2010. In general, alarm and emergency systems sometimes turn out to be unsuccessful, especially in case of earthquake and tsunami because of difficulty in prediction. However, people should always respond to it in spite of repeated experiences of unsuccessful warnings in the past. Another important aspect is education for disaster prevention based on true science. Some people strongly believed that tsunamis always generate a strong initial run-down. Because they did not observe distinct run-down during the 2011 tsunami, they did not evacuate, and the sudden tsunami starting with a strong run-up caused severe damages, which clearly indicates the importance of education for disaster prevention.

3 What is your opinion on the present early warning systems for tsunamis? What can you tell us about the breakthrough on the latest developments in tsunamis and alarm systems?

It is easier in case of far-field tsunami of course, as was the case of the 2010 Chilean Earthquake Tsunami in Japan. One thing I wish to stress in connection with near-field tsunami is the effectiveness of GPS tsunami gauges. During the present tsunami, the Japan Meteorological Agency (JMA) updated their prediction of tsunami height twice based on GPS tsunami gauge deployed off Sanriku Coast. In Miyagi Prefecture, for example, they upgraded their prediction from 6m high tsunami to 10m high, whereas in Iwate and Fukushima Prefectures, from 3m to 6m. Furthermore, they finally upgraded up to 10m high the prediction in all three prefectures facing the Pacific Ocean. Enhancement of more widely and densely-distributed measuring system using GPS tsunami gauge will result in an increase of reliability of tsunami warnings.

4 Some researchers think that it should be possible to forecast earthquakes. Do you think that it is only a speculative conjecture or do you think that there could be some topics that deserve to be better studied and analyzed in order to reach this goal? And if so, do you think that a possible earthquake forecasting system could be really useful for safety, in terms of providing time to reach secure places?

I have a sceptical attitude toward this technology. However, "Earthquake Early Warning" by JMA based on P-wave detection before S-wave arrival will be useful and effective, although further improvement is required to increase its accuracy. During the afterquakes in 2011, there have been incorrect estimations of epicenter location from this JMA system due to frequent occurrence of aftershocks at too shorten interval.

5 The recent earthquake in Japan has also posed many questions concerning the security of nuclear power stations. What is the public consensus in Japan on nuclear power safety?

Currently more than 30% of electricity is provided by nuclear power generation in Japan. However, there is a strong opposition toward nuclear power generation because of the problems which in Fukushima Prefecture. Recently our prime minister strongly requested another electric

Prof. Tanaka is Professor of Hydraulic Engineering at Tohoku University, Sendai, Japan and was recently appointed Vice Dean for Education at the university. He is Chair of the Asia Pacific Division of IAHR. The University was badly damaged during the recent earthquake in Japan.

company to stop their nuclear power generation system located in the coastal area facing the Pacific Ocean, which could be hit by another big earthquake and tsunami in the near future, and subsequently the electric company accepted this request. About the half of Japanese people say it is a wise decision of the prime minister, and the rest believe it is an overreaction to the nuclear power disaster. In this way, nuclear power generation is still a very controversial issue in our country.

6 Should nuclear power still be considered as a viable source of energy or, since the risk is too great, should we extend research on alternative energy sources, such as in Europe, where there is strong public opinion against nuclear power?

Because of the big influence resulting from the emission of nuclear radiation in Fukushima, nuclear power is now a controversial issue as I mentioned above. It is definitely true that as compared with the past before this problem, the number of people against nuclear power is increasing. It is, of course, highly necessity to promote further development of new technology for renewable energy with higher efficiency, such as solar and geothermal power.

7 Is the Japanese civil engineering research community in favour of a greater emphasis on wave, tidal current or wind energy?

Natural energies such as wave, tidal current and wind energy are not so convenient in Japan, especially because of distinct seasonal and spatial change of energy extracted using these generation systems. These natural energies might be more suitable for smaller communities in which natural resources are located, instead from a nation-wide view point of energy demand. Since our country has limited amounts of natural resources such as gas and oil, further development of new technology to extract natural energies is required to stabilize energy supply and protect the environment.

8 The crisis at the Daiichi plant appears to have been partly a result of flooding which inundated the emergency power systems and made it impossible to pump water for cooling. Do you think the hydraulic engineering design of the plant was adequate? Are there ways in which our community could improve hydraulic analysis ?

For the supposed condition defined in terms of tsunami height (5.7m), the hydraulic engineering for the design condition was adequate, I think. However, the tsunami attack there attained as high as 14-15m. The problem is how to set condition for the highest possible tsunami that should be utilized for designing purposes. It is said that the present tsunami's return period is around one thousand years, for which we don't have sufficient information based on past events. That causes difficulty in how to set conditions in hydraulic structure design.

9 Do you think that civil engineers should use a more risk-based approach to designing hydraulic structures in the future especially in zones where extreme events such as tsunamis and earthquakes are prevalent?

It will be informative to introduce our action to set up two levels of tsunami for hydraulic structure designing. We are going to set up two design tsunami levels consists of Level 1 and Level 2. Level 1 has higher frequency of occurrence with lower wave height (once in several ten to one hundred years), which can be used for design of structures. Level 2 almost corresponds to the present 2011 tsunami in Sendai Area, and structural countermeasures are not sufficient against this level. We will employ not only structural measures, but also various disaster-preparedness measures, including building and publicizing locations of tsunami evacuation routes and also town development aiming at enhancing defense against massive tsunami. This set up of design tsunami criteria will accelerate a risk-based approach to designing hydraulic structures against tsunami.

10 Your university and department have been badly damaged by the earthquake, and you were only recently appointed as Vice Dean for Education. How long do you think it will take for the university to be able to resume undergraduate teaching, and research?

On behalf of faculty members, staffs and students in our university, I would like to express my appreciation to grateful offers of assistance for education as well as for research from both domestic and overseas universities and research institutes. Although our department building has been damaged, we already started April semester with one month delay using classrooms in the same or nearby campuses. Further affected faculty and staff members already move to new offices located in our university campus to start their activity. Fortunately, our department laboratory was not affected at all because it is now under reconstruction, and it will be completed in June this year. Thus our educational and research activities will be more accelerated after completion of our laboratory's rebuilding.

Istanbul's new Bospho 'to surpass Suez or Pa

The ferries, fishing boats and pleasure cruisers which crisscross the Bosphorus may one day have more room for manoeuvre on the watery highway that separates Europe and Asia.

Written by:
Sam Jones and agencies - guardian.co.uk

If Turkey's prime minister can get what he calls his "crazy and magnificent" plan to work, the gargantuan tankers that clog the strait will be diverted into a man-made waterway linking the Black Sea to the Sea of Marmara.

Recep Tayyip Erdogan's project, which he calls Canal Istanbul, is nothing if not ambitious: the channel will be around 50 km long, 25 metres deep and 150 metres wide. It would, he confidently predicted, be an unparalleled feat of engineering. "We are building the canal of the century, a project of such immense size that it can't be compared to the Panama or Suez canals," he said.

Although Erdogan, whose career began as mayor of Istanbul, his home city, has previously alluded to the "crazy project", the announcement only came as he campaigned for a general election on 12 June. Ten days ago, he announced a plan to split the city in two to help it cope with an ever-growing population expected to soon peak at 17 million.

The 19-mile-long Bosphorus strait that bisects Istanbul into a European and an Asiatic half is the sole shipping passage between the Black Sea and the Mediterranean. As a result, the waterway is heavily congested with tanker traffic to and from Bulgaria, Romania, Georgia, Ukraine and southern Russia, and has been the scene of many maritime accidents.

According to Erdogan, the ships carry a total 0f 139m tons of oil, 4m tons of liquefied petroleum gas and 3m tons of chemicals through the Bosphorus each year, thereby threatening the lives of nearly 2 million people who live and work on the banks of the waterway.

rus canal nama'

Istanbul is to build a canal for commercial shipping in order to cut traffic through the Bosphorus.

In 1994, the Bosphorus was closed for days when an oil tanker and a cargo ship collided, killing 29 sailors. In 1999, a Russian-built tanker split in two at the mouth of the strait, spilling 235,000 gallons of fuel and blackening miles of shoreline. Erdogan said that such calamities would be a thing of the past with the canal.

"Bosphorus traffic will be reduced to zero," he said. "Water sports will take place on the Bosphorus, transport within the city will be established, [and Istanbul] will return to its former days."

However, the leader of the ruling AK party was not forthcoming about the canal's precise location, other than that it would be cut through the peninsula on which Istanbul's European side stands in time for the centenary of the founding of the Turkish republic in 1923; nor did he comment on the cost. "Turkey more than deserves to enter 2023 with such a crazy and magnificent project," he told a cheering audience. "Istanbul will become a city with two seas passing through it."

Turkish prime minister, Recep Erdogan, trumpets 'crazy and magnificent plan' for channel to reduce traffic and oil spills

Erdogan said that it would take two years to do feasibility studies, and therefore the location had to be kept secret to avoid land speculation.

Town planners speculate that the canal will be built west of the town of Silivri in Turkey's Thrace region, since areas closer to Istanbul are heavily populated. The government has already announced a plan to build an airport near Silivri. Kadir Topbas, the mayor of Istanbul and a member of Erdogan's party, welcomed the project, saying the canal would eliminate the risk posed by heavy tanker traffic to Istanbul and the environment.

Others were more sceptical.

Kemal Kilicdaroglu, leader of the Republican People's party, Erdogan's main rival, was sceptical as to the prime minister's faith in the canal: "This country needs men who think and produce, but not crazy men. This project is not about people. It's about making AK party supporters rich."

The bold plan also received mixed reviews online, with posters on a Turkish newspaper website describing it variously as "a brilliant concept", "yet more expense and argument and traffic snarls", and an "election-time fantasy".

Antony Oliver, editor of New Civil Engineer magazine, said that while the channel would be "a major piece of civil engineering", it should be eminently achievable.

Guy Battle, an environmental engineer and lead partner within the sustainability services group at Deloitte, said the engineering work would be the easy bit: "If we can do a tunnel under the channel and build a new highway through 34km of the Alps, then cutting across that land patch isn't going to be a big task."

The big challenge, he said, would be ensuring that the canal had an impact that was more than purely economical. "The canal should be viewed not merely as a canal but as a piece of social infrastructure that brings net benefit to the country," he said. "Can it be carbon neutral? What innovations can be developed through its construction and operation?"

International symposium THE for sediment transport Chato

Picture: Uwe Küchler / Wikimedia Commons

The first edition of the international symposium on two-phase modelling for sediment transport (including gravel, sand, mud, etc.) in rivers, estuaries and coastal zones under the action of currents and/or waves was held at the EDF R&D site of Chatou (France) from 26th to 28th April 2011.

Written by:
Michel Benoit, Director of the Saint-Venant Laboratory for Hydraulics
michel.benoit@saint-venant-lab.fr

Dan Nguyen, Professor, Chairman of the Thesis'2011 Symposium
dan.nguyen@saint-venant-lab.fr

This symposium, entitled THESIS'2011 (for "Two-pHase modEling for Sediment dynamIcS") was more specifically focused on advanced methods in mathematical modelling and numerical simulation for interactions between fluid flows and sediments, with particular interest for two-phase approaches (liquid-solid). Indeed, the two-phase approach is still relatively little used in the field of environmental fluid mechanics. However it represents significant potentialities in situations and practical applications related to sediment dynamics, for example: erosion of riverbanks or coastlines, river geomorphology, dynamics of estuarine turbidity maximum, scour around bridge piers, dike breaches, dispersion of sediments due dredging operations in seawaters, etc.

THESIS'2011 was jointly organized by the Saint-Venant Laboratory for Hydraulics (Université Paris-Est ; joint research unit between EDF R&D, CETMEF and Ecole des Ponts ParisTech) and the "Société Hydrotechnique de France" (SHF) with the support of EDF R&D and IAHR.

For this first edition, the turnout was substantial (75 participants) and from all over the World (12 countries were represented including the United States of America, China, the United Kingdom, Italy, Switzerland, etc.). Moreover, the presence of well-known world-wide professors and researchers has resulted in scientific exchanges and debates of high quality. Plenary lectures were given by Professors James T. Jenkins (Cornell University, USA), Christophe Ancey (Ecole Polytechnique Federale de Lausanne, Switzerland), Olivier Simonin (Institute of Fluid Mechanics of Toulouse, France) and Paolo

SIS-2011 on two-phase modelling
u, France, April 26th-28th 2011

Blondeaux (University of Genoa, Italy).
The opening ceremony was an opportunity for welcoming Prof. P.L. Viollet, Chairman of the SHF Scientific Board, and Prof. J.P. Chabard, IAHR Vice President.

During the three-day symposium, about thirty scientific papers were presented and organized in four sessions:

A. Fundamentals (physical processes, mathematical formulations and parameterisations)
B. Two-phase flow modelling (numerical techniques, turbulence modelling)
C. Experimental techniques in laboratories and in the field
D. Environmental applications (sheet flow, highly concentrated flows ...).

The most innovative communications will be selected by the Scientific Committee of the symposium to be published in the international journal "Advances in Water Resources".

At the closing round-table, chaired by Professor Ping Dong (University of Dundee, UK), the challenges in two-phase modelling research were identified, shared and discussed with the assistance. Ideas for collaborative projects were also formulated.

Based on the success of this first edition, the next THESIS symposium will be held a priori in two years and again in Chatou, before migrating abroad for future editions: Tsinghua University in China has already formulated a proposal to host the third edition.

Internet links for additional information:

- **THESIS'2011 symposium: http://www.shf.asso.fr/110-1-les_manifestations-16.html**
- **Saint-Venant Laboratory for Hydraulics: http://www.saint-venant-lab.fr**
- **SHF : http://www.shf.asso.fr**
- **AIRH : http://www.iahr.net/**
- **Journal Advances in Water Resources: www.elsevier.com/locate/advwatres**

Prof. Piasecki moves from Drexel
Michael Piasecki has been appointed Associate professor at the Civil Engineering Department in the City College, New York

eWater CRC announces the appointment of Robert Carr as Manager International Business Development
eWater CRC has announced the appointment of Dr. Robert Carr as Manager, International Business Development.

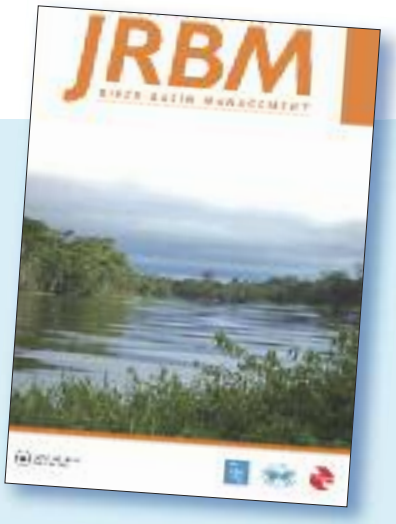
Carr was formerly President of the USA arm of DHI Water and Environment and director Australia, New Zealand and Canada.

Federico Estrada has been appointed Head of the CEH-CEDEX, Inland Water Research Centre of the Public Works Ministery, Spain.

What is an engineer?

"The ideal engineer is a composite ... He is not a scientist, he is not a mathematician, he is not a sociologist or a writer; but he may use the knowledge and techniques of any or all of these disciplines in solving engineering problems"

1st Best Paper Prize: International Journal of River Basin Management



IAHR and T&F have organized the JRBM Best Paper Award and in its first edition has recognized the paper titled "Chemical and biological monitoring in ephemeral and intermittent streams: a study of two transboundary Palestinian-Israeli watersheds co-authored" by Prof. Tal from the Jacob Blaustein Institutes for Desert Research. The article describes the joint monitoring and restoration of the Besor and Alexander streams undertaken by Israelis and Palestinians.
The award was formally presented to Prof. Habersack on behalf of Prof. Tal during the Opening Ceremony of the International Conference on the Status and Future of the World's Largest Rivers (Vienna, 11-14 April 2011) by Prof. N. Tamai.

Prof. Paul Bates, Chief Editor of JRBM and Director, Cabot Institute, University of Bristol, UK selected the paper because "... colleagues from Institutions on both sides of the Israeli-Palestinian divide came together in a spirit of co-operation to address a pressing regional environmental issue. More importantly perhaps for the wider field of river basin management, the paper demonstrates that high quality, rigorous science is essential in order to allow the adoption of evidence-based policy and decision-making." Prof. Alon Tal, corresponding author of the paper commented "This prize offers a wonderful sense of vindication - for the entire study team as well as hope that Palestinians and Israelis of good will, working together can produce meaningful research and common ground. If we cooperate, we can restore our shared streams and rivers."
Tal is an associate professor in the Swiss Associates Institute for Dryland Environmental Research. One of the foremost environmental activists in Israel, he is the founder of the Israel Union for Environmental Defense, a co-founder of the Arava Institute for Environmental Studies and the Green Movement, Israel's environmental political party of which he was recently elected co-chair.


Prof. Alon Tal

For free access to the article, visit http://www.informaworld.com/smpp/content~db=all~content=a923336143~frm=titlelink

A Sad Moment...

Prof. Harold J. Schoemaker, IAHR Honorary Member, has passed away
Prof. Schoemaker died in Delft on 15th May 2011. Prof. Schoemaker was Director of WL Delft Hydraulics (now Deltares) in 1960 until 1971. He was elected Secretary Treasurer of IAHR at the 8th Congress in Montreal in 1959 taking the place of Thijsse and occupied the post until 1979. To see the full obituary go to www.iahr.org under obituaries.

[SOUND PRINCIPLE NO. 53]

Believe in infinite possibility.

Collect flow data in areas previously thought immeasurable

Whether a shallow stream, an icy river, or the depths of the darkest blue ocean, SonTek/YSI's acoustic Doppler systems measure water flow in areas you might have thought were impossible:

- *Reversing flow*
- *Rapid and complex changes*
- *Tidal influence*
- *Under ice*

3-D velocity profiling, bathymetric measurement and discharge calculation as you transect a channel.

featuring **SmartPulseHD™**

Backed by a professional support staff with broad expertise in fluid dynamics, hydrology, oceanography and civil engineering, it's easy to see why we embody our motto – Sound Principles. Good Advice.

FREE Technical notes, web-based training and product information at www.sontek.com.
Questions? E-mail: inquiry@sontek.com or call +1.858.546.8327
See our systems in action! youtube.com/SonTekYSI

SonTek
YSI incorporated

Claudia Franch recently completed a EU Leonardo Programme Internship at IAHR Secretariat

Claudia Franch, master degree with masters in Publishing and Multimedia Communication has spent 6 months in Madrid working in the Secretariat assisting the IAHR Staff thanks to the support from the European Union Leonardo Programme.
She enjoyed her time in Madrid and was very useful for the Association. We would like to say thanks for her dedication to IAHR.

Her main task was to develop Social Networks to empower IAHR communication through Facebook, LinkedIn and Twitter. Regarding Facebook she brought the page and the group todate, looked at the insights, interacted with members, published multimedia objects like pictures and videos to stimulate the interest of members and asked members to publish their own projects' video or pictures.
As far as LinkedIn is concerned, she administrated the IAHR group. LinkedIn is the best way to communicate at a professional level since every user is identified by his professional profile rather than personal features. The aim is to use it to sponsor job offers and to discuss engineering research.
Social Networks such as Twitter have been used as an experiment to promote the IAHR 34th World Congress, furthermore a profile for the congress has been set to let people follow the event even if they won't be physically present.
Claudia has also supported the development of new IAHR Student Chapters: 4 Italy SC (that involves Universities of all Northern Italy) and IAHR Madrid SC and advised them how to setup a Wordpress site (iahrmadridsc.wordpress.com).

She also designed many advertisers and posters which have been published in Hydrolink and shown in Congresses.

eWater Source Catchments

Source Catchments is a water quality and quantity modelling framework that supports decision making and a whole-of-catchment approach.

Source Catchments makes it easy for catchment managers to simulate how climate and catchment variables (like rainfall, evaporation, land use, vegetation) affect runoff, sediment and contaminants. The software enables local knowledge, data and models to be combined with industry best practice to generate transparent scenarios and options.

Source Catchments helps answer critical natural resource management question such as the impact of bushfires, floods, droughts and construction on catchments, and the optimal location of on-ground work to maximise water quality. It can be used in catchments ranging from a few km^2 to over 100,000km^2.

eWater CRC

Visit our website to download a fully functional version of Source Catchments, with the first 12 month licence fee waived.

www.ewater.com.au

Download now!

Urban Developer

Next generation software for urban water management.

With eWater Urban Developer™ you can:

- comprehensively explore water sensitive urban design strategies for new or retrofit urban developments;
- represent all three urban water cycle service networks—potable, waste and stormwater;
- deal with probabilistic demands and end-use simulation;
- perform continuous simulation and simulation of multiple replicates at once;
- integrate systems at a range of scales;
- simulate individual end-uses at the household scale at sub-daily time steps, for multiple households;
- explore recycling and re-use loops; and
- have the capacity for upscaling and downscaling.

eWater Urban Developer™:

- is a conceptual and preliminary design tool that replaces current manual processes;
- informs policy decisions in increasingly complex situations;
- covers both greenfield and brownfield sites for: water supply, stormwater, wastewater and rainwater; and
- deals with changing climate and future demand.

eWater CRC

For more information visit our website www.ewater.com.au
or email **contact@ewater.com.au**

Download now!