

INTERNATIONAL SEDIMENT INITIATIVE

NEWSLETTER

Reporting ISI news to you quarterly

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NEWS

ISI teleconference is convened to discuss the ISI activities

On September 23, 2015, an ISI teleconference was convened to discuss ISI activities. Prof. Manfred Spreafico (ISI Chair), Prof. Des. Walling, Prof. Cheng Liu and Dr. Anil Mishra (UNESCO-IHP) of the ISI Advisory Group participated and discussed the following issues during the teleconference . .

- ISI's involvement in the 13th International Symposium on River Sedimentation (ISRS 2016) to be held in Stuttgart, Germany, on September 19-22, 2016.;
- Follow up of the ISI 'Programme Planning Workshop' held in Beijing in May of 2015.
- Discussion on other related issues such as newsletters, website, and collaboration with other international organizations.

ISRS 2016: 3 Keynote Speakers announced



The 13th International Symposium on River Sedimentation (ISRS 2016) will be held from September 19 to 22, 2016 in Stuttgart, Germany. Held triennially since 1980 under the auspices of the International Research and Training Center on Erosion and Sedimentation (IRTCES), the symposium series provides an important forum for scientists, engineers and policy-makers to share information, exchange ideas and collaborate in the field of erosion and sedimentation processes. The ISRS has served as the official symposium of WASER since the Association was founded in 2004,

To date, 300 abstracts have been received by the LOC Team of the ISRS 2016, and 3 keynote Speakers have confirmed their participation:

Prof. Bruce W. Melville, The University of Auckland (New Zealand)

Prof. David M. Paterson, University of St Andrews (UK): In his keynote address "Form, Function and Physics" he will assess the state of knowledge regarding how organisms and flow interact, discussing the ecological and evolutionary concepts of niche construction, and classical and cooperative ecosystem engineering against a background of the recent research on physical and biological coupling in aquatic ecosystems.

Dr. Weiming Wu, Clarkson University, Potsdam, N.Y. (USA): In his keynote "Advances and Challenges in Mixed Cohesive/Noncohesive Sediment Transport Research", Dr. Wu will present a state-of-the-art review of recent advances in laboratory experiments, field measurements and computational modelling of mixed cohesive/noncohesive sediment transport.

ISRS 2016 website: <http://www.isrs2016.de>

E-Mail: isrs2016@iws.uni-stuttgart.de

Exhibition «Mountains: early warning systems for climate change», UNESCO Fences, Paris France (1-30 November), Cité Universitaire, Paris (1-30 December)



South Cascade © NSIDC

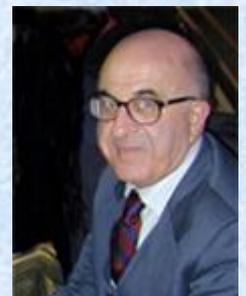
The Exhibition "Climate change and mountains", has been developed by the UNESCO International Hydrological Programme (IHP) and the Man and Biosphere Programme (MAB) with the support of the Government of Flanders. It features satellite images of different mountain regions worldwide, many of which are UNESCO Biosphere Reserves and World Heritage sites.

The exhibition highlights the critical functions of mountains and the implications of climate change for mountain ecosystems, water resources and livelihoods. Furthermore, the focus will lie on the role of mountains as early warning systems for climate change.

Sixteen panels of 2,40m x 1,20m featuring satellite images across a time span will show the impacts of climate change on mountains and specifically on glacier melting. This will be complemented with on the ground photography and texts in English and French explaining the effects of climate change in mountain regions.

ISI, WASER and IRTCES: an auspicious cooperation

Sediments are involved in many branches of science and technology, ranging, respectively, from Earth Sciences and Biology to Engineering, Forestry and Agriculture. Even larger is the range of the specific disciplines belonging to these various academic and professional fields in which sediments play an important role. Earth Sciences embraces, for example, geography, hydrology,



geomorphology, etc., while Engineering includes hydraulics, structures, energy, environment etc. In the field of Forestry and Agriculture, soil and therefore sediments represents an essential component in most of their applications.

It is only natural that each discipline or group of disciplines has proceeded to create their own networks, involving, for example, journals and magazines reporting recent findings in their respective fields, as well as national, regional and international associations and societies, whose members work together in pursuit of a common aim or purpose. In some cases, such bodies will publish their own journals and almost all convene periodic conferences and meetings. The resulting networks may reflect a clear disciplinary focus or a more multidisciplinary integrating character. However, as with any living organism, all networks tend to preserve their cultural identity and specificity in terms of methodologies, perspectives and points of view. Over the course of time, such networks are established, develop and may eventually terminate, or they or they may modify totally or partially their focus and adapt themselves to the prevailing cultural, economic and political climate. The consistency, life span and membership numbers of an organization are clear signs of its vitality and that of the discipline(s) that it represents.

With reference to the international organizations that deal with sediments and are linked to Earth Science (among the Natural Sciences) and to Engineering (among the Applied Sciences), I would like to mention the following prestigious scientific and/or professional associations, which are almost a century old.

- The International Association of Hydrological Sciences (IAHS), founded in 1922.
- The International Commission on Large Dams (ICOLD), founded in 1928.
- The International Association for Hydro-Environmental Engineering and Research (IAHR), founded in 1935.

As indicated by their names, these three associations focus on distinct areas. IAHS basically deals with the hydrological cycle (i.e. the various phases of the surface and subsurface circulation of fresh water on the earth), especially from the scientific point of view, as well as with the assessment of water resources. ICOLD is the world's leading professional organization devoted to the construction and operation of dams and to the utilization of impounded water; its focus is primarily technological and it functions through national commissions. IAHR, on the other hand, covers different aspects of water engineering, with reference to civil, industrial and environmental applications and with due attention to the respective scientific aspects.

Since sediments frequently interact with water during their mobilisation, transport and deposition, they are inevitably relevant to all the organizations mentioned above. In each organization, however, sediments are primarily covered by one of their subdivisions. In ICOLD, for example, the fundamental issue of the loss of reservoir storage capacity due to sedimentation and related problems are addressed by the "Technical Committee on Sedimentation". Similarly, the well-known "International Commission on Continental Erosion" of IAHS has traditionally dealt with research on erosion and sedimentation and since the 1970s has published several pioneering "red books" dealing with erosion and sediment yields in different regions of the world and with advances

in several different topics related to erosion and sedimentation, including sediment measurement. Finally, the Committees on "Fluvial Hydraulics" and "Coastal Maritime Hydraulics" are the subdivisions of IAHR where, more than in others, the dynamics of sediments under the action of currents and waves are theoretically and experimentally studied.

Although IAHS, ICOLD and IAHR are actively dealing with sediments, the scope of these three organizations is much wider. In contrast, this is not the case with the following smaller and younger bodies exclusively devoted to sediments as clearly indicated by their name.

- The International Symposium on River Sedimentation (ISRS), initiated in 1980.
- The International Sediment Initiative (ISI), launched by UNESCO in 2002.
- The World Association for Sedimentation and Erosion Research (WASER), founded in 2004.

The ISRS is a triennial symposium, initially organized in Beijing by the Chinese Hydraulic Engineering Society (CHES) under the auspices of UNESCO, with the purpose of analysing river behaviour not so much from the hydrological and hydraulic point of view (as in many other previous technical meetings) but rather in terms of erosion/sedimentation processes. The large projects planned or under construction on the major Chinese rivers, e.g. Xiaolangdi on the Yellow River or the Three Gorges Dam on the Yangtze River, demanded specific and thorough analysis of those aspects which was facilitated by an event like ISRS, to be periodically replicated with the participation of international experts in different parts of the world. The first ISRS held in Beijing in 1980 has been followed by eleven other symposia in the series held in various continents, with IRTCES acting as the permanent Secretariat of the symposium series. The 13th Symposium will be held in Stuttgart (Germany) in September 2016.

The International Sediment Initiative (ISI) was launched in 2002, within the framework of UNESCO's International Hydrological Programme (IHP), to focus attention on the negative global effects of erosion and sedimentation, through a series of focussed activities, which include 'international cooperation and information exchange'. After its launch, ISI has supported the International Symposia on River Sedimentation and has been instrumental in obtaining UNESCO sponsorship for the symposia. The ISRS has also provided a venue for the regular meetings of the ISI Advisory and Expert Groups.

Just two years after the creation of ISI, the World Association for Erosion and Sedimentation Research (WASER) was officially inaugurated in 2004 during the 9th ISRS held at the Three Gorges Dam site in China. The statutory objectives of WASER are to:

- 1) Promote the study and development of the science of erosion and sedimentation, interpreted in its widest sense; and
- 2) Foster the application and dissemination of knowledge and technology in the field of erosion and sedimentation. The ISRS was also adopted as the official symposium of the Association and this has been explicitly incorporated into its statutes. In this way, the ISRS is organically linked to WASER and is a key element of the scope and objectives of the Association.

This brief historical survey indicates that the two new organizations, ISI and WASER, are structured to focus

exclusively on sediments and sediment-related problems and therefore differ from existing more complex and broad-based organisations such as IAHS, ICOLD or IAHR. These prestigious larger associations clearly possess extensive and valuable experience related to sediments, but this experience is closely bound to the specific disciplinary identity of each association. In contrast, the supra-disciplinary character of ISI and WASER makes it easier for them to foster, possibly in co-operation, interaction among the other organizations. A concrete example of inter-organizational interaction is the "Workshop on International Sediment Advances"(WISA), jointly promoted by WASER and ISI at the Kyoto ISRS in 2013 and Stuttgart in 2016, with the purpose of informing the Symposium participants of the most recent findings and activities of each association and, above all, to compare their respective discipline-oriented viewpoints on a specific issues related to sediments.

Co-operation between ISI and WASER is facilitated by the fact that the Secretariats of both organizations are based at the International Research and Training Center on Erosion and Sedimentation (IRTCES) in Beijing. Moreover, the two organizations have diverse but complementary features. WASER, through its relatively large membership of sediment specialists, can provide worldwide expertise on sediment research as well as the venue of the triennial ISRS. UNESCO's ISI provides direct contact with the activities of the International Hydrological Programme (FRIEND, HELP, etc.), with other United Nations agencies (WMO, FAO, World Bank, etc.) and with the sediment-related international associations (including the already mentioned IAHS, ICOLD, IAHR, and many others). If we consider the contribution of IRTCES to the two Secretariats and its capability in terms of research, training and management, we may conclude that ISI, WASER and IRTCES potentially constitute a very effective cooperative tool for contributing to knowledge, research and practice relating to sediments, over and above and to complete what is already provided by the traditional disciplinary organizations. (by Prof. Giampaolo Di Silvio, WASER President)

Government to train farmers to check soil erosion (India)

The Government is taking several steps, including training of farmers, to check erosion of soil affecting swathes of arable land across the country. According to a report tabled in the Parliament in this Monsoon session, the government told a house panel on agriculture that soil erosion was a serious matter and the steps are being taken by the government to contain the menace on 92.39 million hectares of cultivable area in the country. The government also informed that it is conducting regular training courses on these aspects to educate farmers, state functionaries and Kisan Vikas Kendras(KVKs) in the areas of soil degradation, soil water conservation and watershed management. "The ICAR- National Bureau of Soil Survey & Land Use Planning, Nagpur in collaboration with ICAR- Indian Institute of Soil & Water Conservation, Dehradun (IISWC) and ICAR- Central Arid Zone Research Institute, Jodhpur has developed soil erosion map of the entire country at 1:250,000 scale," it said in its reply to the panel. According to the government's submission, as per the latest estimates based on harmonised database, the cultivable area affected by soil erosion is 92.39 million hectares, excluding the area eroded under open forest.

The ICAR and IISWC also conduct regular training courses on these aspects to educate farmers, state

functionaries and KVKs in the areas of soil degradation, soil water conservation and watershed management, it said. "The KVKs are providing the available expertise and technical backup to the programmes on soil erosion and soil degradation taken up by State Government agencies, besides taking up need-based technical interventions under their mandated activities.

Moreover, as suggested by the Committee, all the KVKs have been advised to spread the information about good farming practices in the country, in order to educate farmers on soil erosion and soil degradation," it added. The panel noted that soil erosion due to natural reasons, urbanisation and industrialisation directly affects the crops as the fertile upper layer of the soil is eroded.

"Degradation of soil, especially soil erosion, is a major challenge being faced by the farmers and planners in the country. A large part of Punjab is affected by the problem of soil erosion and the Government of Punjab is addressing the problem of erosion in the state through integrated watershed management programmes," the panel said. The government also informed the Committee that the State Government and the Department of Land Resources, Government of India is implementing 6 IWMP projects for 17 micro watershed projects in affected areas. The panel was of the view that there is need to spread vital information relating to good agricultural practices and involvement of farmers in order to reclaim the degraded land.

It said there is an urgent need for preparation of soil erosion map at larger scale covering the entire country in order to assess the magnitude of the problem and devise suitable action plan in the affected areas. (Source: <http://news.webindia123.com/>)

Effective watershed management increases Mangla Dam life by another 100 years (Pakistan)

LAHORE: As a result of effective implementation of the Mangla Watershed Management Programme (MWMP) during the last 55 years, the life of Mangla reservoir has increased from 110 years to 212 years.

This was disclosed in a meeting chaired by WAPDA Chairman Zafar Mahmood at the WAPDA House on Wednesday.

It was briefed that the consultants for Mangla Dam in their design of the project way back in late 1950s, had predicted the life of the Mangla reservoir to be from 100 to 110 years with an estimated sediment load of 42,000 acre feet per annum.

However, the meeting was told that due to effective measures taken under MWMP, the sediment load has reduced to 2,774 acre feet annually, adding more than a hundred years to the life span of Mangla reservoir.

The volume of benefits resulting from the Mangla Dam's increased life, could be better assessed by the fact that benefits equivalent to billion of rupees are accrued every year from the Mangla Dam, it was added.

The meeting was told that MWMP has been continuously implemented since 1960 in the reservoir's catchment area, covering 5,710 square miles in Azad Jammu and Kashmir (AJK) and Pakistan to control soil erosion and reduce the sediment yield. "Some of the measures taken under the project from 1960 to 2015 include the planting of about 133 million trees,

construction of dry stone and earthen structures measuring 122 million cubic feet in the form of check dams and retaining walls, construction of 4,000 engineering structures of stone masonry dams and drop spillways, improving 8,400 acres of cultivated land and imparting training to the farmers," it was briefed.

It is noted that the Mangla Dam was constructed in 1967, while its Raising Project was completed in 2011. Subsequent to its completion, the raised Mangla Dam is now the largest reservoir in the country with a storage capacity of 7.48 million-acre feet (MAF), surpassing Tarbela Dam that can store 6.4 MAF.

During the briefing, the WAPDA chairman expressed satisfaction over the reduced sediment loads flowing into the Mangla reservoir.

The Authority also decided to acknowledge the services of all those who had contributed over the last 55 years towards managing the sediment. They would be honoured in the golden jubilee celebrations of the Mangla Dam, planned for 2017.

A letter would also be written to the consultants, who supervised construction of the Mangla Dam in the late 1950s and 1960s, regarding the successful implementation of MWMP and enhancement of the reservoir's life by another 100 years.

The authority has set the target for 2015-16 of planting 1.325 million saplings spread over an area of 1960 acres. It was also decided that third-party-evaluation-mechanism would be adopted by involving local non-governmental organisations (NGOs) for the purpose.

In addition to the planting of trees, soil conservation structures equivalent to 3.774 million cubic feet and 183 engineering structures would also be constructed during the current financial year under this programme.

The Warsak Dam constructed across the River Kabul in 1960, was completely silted-up in just six years. One of the contributing factors to rapid silting was that it did not have any watershed management programme. (Source: <http://www.dailytimes.com.pk/>)

Benefits of strip-till vs. no-till surface: Study

How does style of tilling make a difference in crop success? The blades on tilling equipment don't simply chop up soil and move it around. They blend dead plant material left from harvest into the soil. They also expose wetter soil to the air and loosen it.

For some soils this may be useful, but for others not so much. Not tilling can help prevent soil erosion and keep in moisture, while tilling the soil can cause erosion and moisture loss. If a soil tends to be too cool and wet, tilling may be a good option. The opposite may be true for a soil that is warmer and drier.

"Strip-till is in between the two systems where you combine the benefits of each," Fabián Fernández of the University of Minnesota said in a news release.

"You have some of the soil conservation benefits derived from leftover plant tissue on the soil surface and undisturbed soil structure in the in-between row positions where you don't till. And then you have the benefits of a better seedbed from tilling the crop rows where you're going to plant."

He added that for typical Midwest springs, tilled crop rows would be warmer and a bit dryer earlier so farmers

can get in and plant. The farmers also won't need special equipment to deal with the leftover plant residue in the crops rows like they do when they plant in no-till.

The long-term effects of these different methods can have impacts on soil properties, nutrient and water uptake, yield and ultimately farmers' profit — but research on them is lacking. Fernández, who is from the Department of Soil, Water, and Climate at the University of Minnesota, along with other researchers, compared soil properties after five years of no-till and strip-till to try to fill these research gaps. Their findings were recently published in *Agronomy Journal*.

"We saw a consistent benefit of strip-till over no-till for these soils we were working with," he said. "In a previous study we measured a lot of crop parameters that indicated that strip-till allowed the plant to be more efficient in taking up nutrients and water and increasing yield. So then we decided to look at the soil physical properties that may be changing in response to these tillage methods to see if we can explain why we're seeing these benefits in the crops."

The researchers looked at five specific soil properties: soil organic matter, penetration resistance, bulk density, water aggregate stability, and infiltration rate. The goal was to find out why strip-till was better at creating a beneficial environment for that crop to grow, Fernández said.

A major result was that after just five years, soil organic matter content was 8.6 percent greater in the strip-till plots when compared to the no-till plots. Furthermore, bulk density was reduced by 4 percent and penetration resistance, the force a root must exert to move in the soil, decreased by 18 percent.

"We know that soil organic matter is extremely important for a lot of properties in the soil, and we saw one of those benefits in terms of reduction in the bulk density of the soil," he explained. "The soils were less dense and because of the reduction in density, we also observed less penetration resistance."

However, there was no significant change in the water aggregate stability. This tests how stable the soil is against water erosion. The infiltration rate, which is how fast the water moves through the soil, was also unchanged. Fernández thinks these properties may develop over time. (Source: <http://www.iowafarmertoday.com/>)

More News on ISI Website

- A new industry in Ohio aims to repurpose river sediment (USA)
- Scientists see a future of El Niño-fueled coastal erosion
- Fund aims to protect urban watersheds (China)
- 8th International Conference on Scour and Erosion: Keynote speakers announced
- How Engineers Plan to Reshape the Mississippi River Delta
- 13th International Symposium on River Sedimentation: Abstract submission deadline extended to September 15, 2015
- USACE commanding general visits IWHR
- Minister Chen Lei met Commanding General of the U.S. Army Corps of Engineers

➤ More

[\(http://www.irtces.org/isi/\)](http://www.irtces.org/isi/)

PUBLICATIONS



Papers Published in International Journal of Sediment Research, Volume 30, No. 3, 2015,

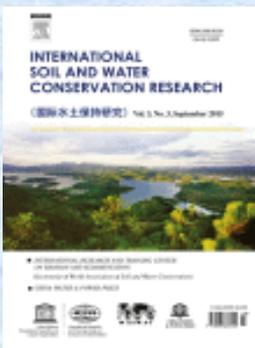
Volume 30, Number 3

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Contents will be shown in the ISI and ScienceDirect websites soon.

Full papers are available at ScienceDirect:

<http://www.sciencedirect.com/science/journal/10016279>,
with free access to the paper abstracts.



Contents of ISWCR (Vol. 3, No.3, 2015)

Post-adoption behaviour of farmers towards soil and water conservation technologies of watershed management in India

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Gopal Lal Bagdi, Prasanta Kumar Mishra, Ravi Sankar Kurothe, Swarn Lata Arya, Shekhargouda Lingangouda Patil, Ashok Kumar Singh, Bankey Bihari, Om Prakash, Ashok Kumar, Palanisamy Sundarambal

Effects of rye grass coverage on soil loss from loess slopes

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Acid leaching of heavy metals from contaminated soil collected from Jeddah, Saudi Arabia: kinetic and thermodynamics studies

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Transport of solutes under transient flow conditions – A case study – Yamuna river sub basin (Kosi Kalan to Agra)

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Arun Kumar, Ajay Kumar Sharma, Ashu Rani

Identification of waterbody status in Indonesia by using predictive index assessment tool

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Robby Yussac Tallar, Jian-Ping Suen

Assessment of the irrigation feasibility of low-cost filtered municipal wastewater for red amaranth (*Amaranthus tricolor* L cv. Surma)

Pages 239-252

Gokul Chandra Biswas, Animesh Sarkar, Md H. Rashid, Monirul Hassan Shohan, Mirajul Islam, Qingyue Wang

Free full papers and open access are available at ScienceDirect :

<http://www.sciencedirect.com/science/journal/20956339>

Publications in ISI Information System

- Philosophy of Rivers (Keynote presentation by Prof. Z.Y. Wang at the 36th IAHR Congress)
- Compilation, quality control, analysis, and summary of discrete suspended-sediment and ancillary data in the United States, 1901-2010 (USGS)
- Sediment Transport and Capacity Change in Three Reservoirs, Lower Susquehanna River Basin, Pennsylvania and Maryland, 1900–2012 (USGS)
- Quantifying human impacts on rates of erosion and sediment transport at a landscape scale
- River Dynamics and Integrated River Management (Wang, Lee and Melching, 2015)
- Sustainable sediment management in reservoirs and regulated rivers: Experiences from five continents (Kondolf et al., 2014)
- Towards Practical Guidance for Sustainable Sediment Management using the Sava River Basin as a Showcase

More

<http://www.irtces.org/isi/info.asp>)

COMING EVENTS

13th International Symposium on River Sedimentation (Stuttgart, Germany, Sep. 19-22, 2016)

Date: September 19 – 22, 2016

Venue: Stuttgart, Germany

Invitation: On behalf of the entire Local Organizing Committee, I take great pleasure in inviting you to the 13th International Symposium on River Sedimentation (ISRS2016), which will be held from September 19th to 22nd 2016 in Stuttgart, Germany. Held triennially since 1980 under the auspices of the International Research & Training Center on Erosion and Sedimentation (IRTCES), the symposium series provides an important forum for scientists, engineers and policy-makers to share information, exchange ideas and collaborate in the field of erosion and sedimentation processes. Sediment dynamics in fluvial systems is of high ecological, economic and human-health-related significance worldwide. Appropriate management strategies are needed to limit maintenance costs as well as minimize potential hazards to the aquatic and adjacent environments. Human interventions, from nutrient / pollutant release to physical modifications by river regulation, have a large impact on sediment quantity and quality and thus on river morphology as well as ecological functioning. Truly understanding sediment dynamics requires multidisciplinary approaches. But how do we transfer new insights on complex interactions in fine sediments into sustainable management strategies? Can we win new partners by integrating biota? Can we do more with less? We hope to provide a stimulating symposium event with interesting talks and tours. (Silke Wieprecht, Chairperson of the Local Organizing Committee)

Organizer: University of Stuttgart

Sponsors: World Association for Sedimentation and Erosion Research (WASER), International Research and Training Center on Erosion and Sedimentation (IRTCES)

Co-Sponsors: United Nations Educational, Scientific and Cultural Organization (UNESCO), International Sediment Initiative (ISI), International Association for Hydro-Environment Engineering and Research (IAHR).....

Secretariat: Institute for Modelling Hydraulic and Environmental Systems, University of Stuttgart

Permanent Secretariat: IRTCES

Theme and Topics: The theme of the symposium is Sediment on the Move - Innovative Management Strategies in Riverine Systems: from old problems to new solutions. The symposium topics include:

- Sediment Sources: Aspects of land erosion and sediment input, management strategies influencing sediment yield
- Sediment Transport in Rivers and Lakes: Transport processes, fundamental considerations, aspects of hydraulic and sediment transport, morphological processes
- Geomorphology Meets Ecology: Interaction between biota and sediments, from macro- to microscale to impact stability, erosion, transport, deposition and consolidation
- Sedimentation Processes: Reservoir and lake sedimentation, impacts on hydraulic structures (intakes, bridges, weirs, dams, etc.)
- Erosion Processes: Impacts on hydraulic structures (foundations), effects on groundwater, special effects (sorting, armoring, etc.)

- Morphology and Water Quality: Sediments as a source of contaminants, ecotoxicological and environmental aspects, mitigation measures, morphology and floodplains
- How to Address Sediment Dynamics Better: Data collection, measurement techniques, and requirements for models
- Innovative Management Strategies: Can we do more with less? Sediment removal, sediment trapping, hydraulic and ecological constructions
- Social, Economic and Political Aspects of Sediment Management

Key Dates:

- Abstract submission: September 1st, 2015
- Abstract notification: November 1st, 2015
- Paper submission: February 1st, 2016
- Paper notification: April 1st, 2016
- Early bird registration: May 31st, 2016
- Conference: Sept. 19th to 22nd, 2016

URL: <http://www.isrs2016.de/>

Symposium Secretariat:

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5th International Conference on Estuaries and Coasts (Oman, Nov. 2-4, 2015)

Date: November 2–4, 2015

Venue: Muscat, Sultanate of Oman

Summary: The Middle East region is going through an era of rapid coastal development which may be attributed to the strategic location of this region. Usually such developments bring economic growth and pose environmental concerns at the same time. This region has a diversity of sea grass beds, coral reefs, mangroves and salt marshes. Therefore, it is important to involve engineers and environmental professionals in the decision making process related to coastal and marine construction in order to minimize damage to the important ecosystems. ICEC 2015 will serve as a venue for engineers, researchers and administrators from industry, academia and public agencies to discuss and exchange information on issues important to sustainable coastal development.

Organizer: Sultan Qaboos University

Sponsors: International Research and Training Center on Erosion and Sedimentation (IRTCES)
Sultan Qaboos University
The Research Council, Oman
Potential Sponsors from Public and Private Sectors in the Sultanate of Oman

Co-Sponsors: UNESCO, IAHR, IAHS, WASER, and other institutes and organizations to be invited

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- * Coastal erosion: measurements, modeling, management
- * Seawater quality: coastal and offshore pollution, measurements, modeling, solutions
- * Tsunami: field observations, numerical modeling, mitigation
- * Estuaries: water quality observations, modeling and effect on marine resources, mangrove rehabilitation
- * Integrated Coastal Zone Management: approaches, measures
- * Seawater intrusion: measurement, modeling, management
- * Social, economical and political problems involving coasts and estuaries

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International Conference on African Large River Basins Hydrology (Tunisia, Oct., 26-30th, 2015)

Date: 2015-10-26 to 2015-10-30

Venue: Hammamet, Tunisia

Summary: INCREASING POPULATION, increasing water demand, both in quantity and quality, increasing world average temperature, and other climate changes, modify the rainfall-runoff relationships from local to continental scales, and modify the water availability and potability. ALL HUMAN ACTIVITIES have an important impact on runoff-rainfall processes and runoff regimes: agriculture activities, either pluvial or irrigated, dams and other hydraulic constructions, roads and urbanization, forest management, but also water and soil conservation practices, ecosystem protection, for instance.

FLOW REGULATION throughout the year helps mitigating the floods' impacts, deserving people with freshwater, agriculture, irrigation and leisure with regulated fluxes of water, maintaining ecosystems, producing energy.

DUE TO THEIR SIZE and their central role in countries' resources and activities, large river basins are key socio-economic objects.

BUT IN AFRICA, most of them are only poorly monitored and managed. Their water resources have been exploited since long, with poor interest on the sustainability of the water resource and water quality in the ecosystems, and most of all, their management does not take sufficiently into account the preservation of the natural equilibrium along the river stream, from the sources to the coastal areas.

THE REGULATION OF WATER, transferring water from one basin to another, storing sediments into dams, using surface water for irrigation purposes or for locally increase the groundwater level, all these activities have a major impact on downstream hydrology, down to the coast. The dramatic reduction of sediment fluxes to the sea have a direct impact on coastal instability and regression of the shore line, but also changes the equilibriums of coastal ecosystems.

Regulating flows reduces the wet areas and associated ecosystems. Increasing urban areas increases the risk of

local flash floods, insufficiently drained by under-dimensioned infrastructures.

IN MANY COUNTRIES the hydrological networks do not record data since decades, while in many other the number of permanent gauging stations is critically low and do not cover the whole country. Rainfall and other climatological data are often difficult to access, preventing researchers from working with accurate data, even in their own countries. Some of the needed data can be fortunately replaced by international data bases, but most of them are most often constituted with only a small part of the existing measured data, and few recent data.

SEDIMENT FLUXES AND WATER QUALITY, eventually, are quite never monitored, except for a very few number of stations, part of international observatories.

IN THIS CONTEXT, it is urgent to re-develop large basins hydrology and observatories, to monitor their activity and better model how the changes of their hydrology have affected the environment, with final impacts on societies and socio-economic activities, and this conference is also a good opportunity to advertise the good experiences already working in Africa, like in several international river basin authorities.

THIS INTERNATIONAL CONFERENCE is placed under the labels of several international programs and institutions, which aim at a better knowledge and data sharing, the increase of the number of permanent observatories for large rivers basins, more international cooperation, specially within shared river basins, and improved cooperation between development agencies, national and international operators, and the research sector.

Topics: TOPICS OF THE CONFERENCE are issued from both FRIEND and IAHS main research themes:

- 1 – Global change, climatology and hydrological regimes (Mohamed Meddi-Algeria)
- 2 – Erosion, sediment transport and water quality (Gaston Lienou-Cameroon)
- 3 – Coastal eco-hydrology and Integrated land-sea management (Maria Snoussi-Morocco)
- 4 – Low flows and groundwater/surface water relationships, karstic hydrogeology (Bamory Kamagate-Côte d'Ivoire)
- 5 – Extreme events (Ennio Ferrari-Italy)
- 6 – Databases and observatories (Jean François Boyer-France)
- 7 – Hydrological modeling and water resources scenarios (Denis Hughes-South Africa)
- 8 – Relationships between man and the environment and impact on water resources and socio-economic activities (Raphael Tshimanga-RDCongo)

Languages: français and English

Key Dates:

- March 31, 2015: Dead line for the reception of abstracts
- May 15, 2015: Notification to authors for oral or poster communications
- May 15, 2015: End of discount registration period
- July, 2015: Third call, provisional program
- July, 2015: Notification to granted authors
- September, 2015: Consolidated program
- October, 2015: Reception of full size papers

Contacts:

Send abstracts to: hammamet_lrb_2015@yahoo.fr

More Coming Events in ISI Website

- 2ND SFFWS - SINO-FRENCH FORUM FOR WATER SCIENCE (France, Nov. 2-4, 2015)
- 9th International SedNet Conference (Poland, 23-26 September 2015)

More

(<http://www.irtces.org/isi/>)



INTERNATIONAL SEDIMENT INITIATIVE (ISI)
International Hydrological Programme (IHP)
UNESCO

ORGANISATION: UNESCO

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