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RIVER FLOW 2014: A RETROSPECT

SEPTEMBER 2-5, 2014 LAUSANNE, SWITZERLAND

BY ANTON J. SCHLEISS, GIOVANNI DE CESARE, MÁRIO J. FRANCA, AND MICHAEL PFISTER

Held at École Polytechnique Fédérale de Lausanne (EPFL) and organized by the Laboratory of Hydraulic Constructions (LCH), the 7th International Conference on Fluvial Hydraulics (River Flow 2014) created an environment for reflection, discussion and exchange of knowledge regarding fluvial hydraulics and river morphology.

It was a sound opportunity to meet, to discuss and to learn about the interaction between water, sediments and structures in natural or built environments. A total of 466 participants attended the event, representing more than 40 countries. The largest delegations originated from Switzerland, Japan, Italy, France, the USA, Germany and Canada, each counting more than 20 persons. Some 64% of the participants were professionals and senior academics (full registration), and 36% were Master or PhD students (student registration). The rate of female participants was around 25%.

The event included, besides the traditional Master classes and the Conference on Fluvial Hydraulics, also Special Sessions on Reservoir Sedimentation and on Swiss Competences in River Engineering and Restoration. Despite the mechanisms of reservoir sedimentation being well known for a long time, sustainable and preventive measures are rarely taken into consideration in the design of new reservoirs. Research and development is still urgently needed to identify efficient mitigation measures adapted to the main sedimentation processes involved in reservoirs.

Each year the Commission for Flood Protection (KOHS) of the Swiss Association for Water Management (SWW) organizes a symposium on river engineering and restoration. Professionals, officers of public administrations and researchers exchange their experiences on

special topics and on-going projects. In 2014 this symposium was organized as a special session of River Flow 2014. Aside from the 110 Swiss participants, mainly practitioners, scientists and professionals from all over the world participating at River Flow 2014 were informed about the Swiss competences in river engineering and restoration.

Confirming the vitality of the fluvial hydraulics community, six master classes were held by 13 masters, enrolling 65 students from 15 countries. These were:

- Complex 3D flows, directed by André Roy, Koen Blanckaert and Thorsten Stoesser,
- Mechanics of sediment transport, directed by Francesco Ballio and Rui M. L. Ferreira,
- River morphology and morphodynamics, directed by Ana Maria Silva and Stuart Lane,
- River restoration – link between morphology and habitats, directed by Lukas Hunzinger and Silke Wieprecht,
- Turbulence and mixing processes, directed by Vladimir Nikora and Wim Uijttewaal, and
- Unsteady flows over fixed and mobile beds, directed by Mustafa Altinakar and Sandra Soares-Frazão.

Following the master classes, participants and organizers had the opportunity to continue their exchanges during a barbecue dinner on EPFL campus.

During the River Flow conference, four keynote lectures were held by experts with an outstanding international reputation, namely:

- River networks as ecological corridors, by Prof. Dr. Andrea Rinaldo.
- River turbulence: current state, challenges, and prospects, by Prof. Dr. Vladimir Nikora.
- Climate forcing of sediment flux in mountain river systems, by Prof. Dr. Stuart Lane, and
- A sediment journey through the Bermejo River of Argentina and Bolivia: from debris flows to meandering, ending in washload, by Prof. Dr. Marcelo H. García.

A technical tour to the ongoing river training and restoration works of the Upper Rhone River was organized with the Service des Routes et des Cours d'eau of the Canton of Wallis/Valais on Saturday after the conference, which was attended by 93 participants. This is the most important river engineering project in Switzerland, with a total investment of some 1.3 Billion Swiss Francs over the next 20 years. The participants had the opportunity to visit several on-going or recently finished river training and restoration works in the Upper Rhone valley, which is also a touristic destination. Within the technical tour was the visit to the Braided river Rhone stretch "Pfywald – Bois de Finges", which is the last fully natural stretch of the Rhone River.

Scientific contributions to the River Flow conference were numerous. The number of oral presentations was 324, divided into five parallel sessions with a large audience. Following the reception and evaluation of more than 650 abstracts, 410 papers were submitted and peer-



Prof. Dr. Andreas Dittrich giving his welcome address perfectly respecting the time frame



Swiss alphorn concert and flag throwing during opening ceremony



Impression of the welcome reception with the speech of Prof. Dr. Walter H. Graf (with red tie)

reviewed, of which 365 were finally accepted for publication. These papers were included in three books published by CRC Press, Leiden NL (Taylor & Francis Group). A DOI number was attributed to every individual paper, and the papers are online accessible in the database of the publisher. The three books are:

- Proceedings River Flow 2014 (7th International Conference on Fluvial Hydraulics). The book includes 316 peer-reviewed papers covering the three main conference themes (ISBN: 978-1-138-02674-2, DOI: 10.1201/b17133. Book of extended abstracts and USB key with full papers. 2546 pages. Editors: Anton J. Schleiss, Giovanni De Cesare, Mário J. Franca, and Michael Pfister).
- Reservoir sedimentation. The book includes 28 peer-reviewed invited or selected papers, which give an overview on the latest developments and research regarding reservoir sedimentation as well as case studies (ISBN: 978-1-138-02675-9, DOI: 10.1201/b17397. Proceedings of the Special Session on Reservoir Sedimentation of the 7th International Conference on Fluvial Hydraulics. 259 pages. Editors: Anton J. Schleiss, Giovanni De Cesare, Mário J. Franca, and Michael Pfister).
- Swiss competences in river engineering and restoration. The third book summarizes the KOHS Symposium. It includes 21 peer-reviewed invited or selected papers on the latest tendencies and key-projects in Switzerland (ISBN: 978-1-138-02676-6, DOI: 10.1201/b17134. Proceedings of the Special Session on Swiss competences in river engineering and restoration of the 7th International Conference on Fluvial Hydraulics. 201 pages. Editors: Anton J. Schleiss, Jürg Speerli, and Roger Pfammatter).

The valuable contributions of sponsors were crucial for the success of River Flow 2014, especially to keep the registration fees for students on a low level. HYDRO Exploitation, the



Anton J. Schleiss graduated in Civil Engineering from ETH Zurich, Switzerland, in 1978. After joining

the Laboratory of Hydraulic, Hydrology and Glaciology (VAW) as a research associate and senior assistant, he obtained a Doctorate of Technical Sciences in 1986. Thereafter, he worked for 11 years for Electrowatt Engineering in Zurich, focusing on the design of many hydropower projects around the world. Until 1996 he was Head of the Hydraulic Structures Section in the Hydropower Department. In 1997 he was appointed Full Professor and Director of the Laboratory of Hydraulic Constructions (LCH) in the Civil Engineering Department of EPFL. In 2012, he was elected Vice-President of ICOLD, and is Chair of the IAHR Europe Regional Division.



Giovanni De Cesare, PhD, is a Senior research associate and the vice-director of the Laboratory of Hydraulic Constructions (LCH) of EPFL. He is in charge

of the hydraulic laboratory. He has more than 20 years of experience in physical and numerical modelling in all domains of hydraulic structures and schemes. He is author of more than 100 scientific papers in peer-reviewed journals, publications and conference proceedings.

Swiss Federal Office for the Environment (FOEN), and BG Ingénieurs Conseils generously sponsored the conference. Institutional support, too, was vital for the success of the event, namely provided by IAHR, EPFL, the Swiss National Science Foundation (SNSF), the Swiss Association for Water Management (SWV), and the Hydrotechnical Society of France (SHF).



Mário J. Franca, co-opted member of the IAHR Fluvial Hydraulics Committee, graduated in Civil Engineering

from the Technical University of Lisbon in 1998, and completed his PhD in 2005 at the Laboratory of Environmental Hydraulics (EPFL). He joined the Laboratory of Hydraulic Constructions (EPFL) in 2012, where he pursues his research activity in Fluvial Hydraulics. He served in the private sector for the periods 1998-2002 and 2008-2010, and as Assistant Professor in the University of Coimbra (2007-2008) and in the New University of Lisbon (2010-2012).



Michael Pfister graduated in Civil Engineering from ETH Zurich, Switzerland, in 2002. He then joined the Laboratory of Hydraulics, Hydrology and

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The Local Organizing Committee thanks all the participants for the inspiring atmosphere; the masters, keynote lecturers and speakers for having shared their knowledge; the sponsors for the financial support; and the auxiliary staff for their motivated and efficient background work.



Concentrated atmosphere during a Master class



Pfywald area with Rhone River visited during the technical tour.