

3. The healthy river

| Theme | Subtheme | Session |
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| 3. The healthy river | 3.1 Monitoring in eco-hydraulic research: new developments in facing the challenges of scales (Special Session) | 3.1.1 Monitoring in eco-hydraulic research: new developments in facing the challenges of scales (Special Session) - Monitoring in eco-hydraulic research: new developments in facing the challenges of scales (3.1) |
| | 3.2 Vegetated flows | 3.2.1 Vegetated flows - Hydrodynamics (3.2) 3.2.2 Vegetated flows - Surface and bed (3.3) 3.2.3 Vegetated flows - Interaction with sediment (3.4) |
| | 3.3 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) | 3.3.1 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) - Flume experiments (3.5) 3.3.2 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) - Numerical modelling (3.6) 3.3.3 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) - Applications (3.7) |
| | 3.4 Basin scale sediment fluxes observations (Special Session) | 3.4.1 Basin scale sediment fluxes observations (Special Session) - Basin scale sediment fluxes observations (3.8) |
| | 3.5 Solutions for impacted environments | 3.5.1 Solutions for impacted environments - Building with nature (3.9) 3.5.2 Solutions for impacted environments - Fish passage (3.10) |

3.1 3.1.1 Monitoring in eco-hydraulic research: new developments in facing the challenges of scales (Special Session) - Monitoring in eco-hydraulic research: new developments in facing the challenges of scales

1. Experimental study on dissolved oxygen transfer into a local embayment connected to an open-channel flow, *Michio Sanjou, Takaaki Okamoto, Yuji Sugihara.*
2. How to address colmation best? - Field and laboratory investigations at different scales, *Markus Noack, Lydia Seitz, Stefan Haun, Assem Mayar, Silke Wieprecht.*
3. An estimation of the sand suspension in alpine rivers during a dam flushing event, *Benoît Camenen, Fabien Thollet, Robin de Angelis, Alexis Buffet.*
4. Investigation of fine structures in stage-discharge relations based on high-frequency streamflow time series in a gravel-bed river, *Kiyosi Kawanisi, Mohamad Basel Al Sawaf.*
5. Bedload transport measurement in a Japanese gravel river using synchronized hydrodynamic and hydroacoustic pressure sensing, *Ryota Tsubaki, Juan Francisco Fuentes-Perez, Satomi Kawamura, Jeffrey A. Tuhtan, Keizo Sumitomo.*
6. Multiscale Change Detection in a Supraglacial Stream Using Surface Drifters, *Jeffrey Tuhtan, Andreas Alexander, Maarja Kruusmaa, Juan Francisco Fuentes-Perez.*

3.2 3.2.1 Vegetated flows - Hydrodynamics

1. Floodplain flow resistance in case of a sparse mixture of plants at low relative submergences, *Kaisa Vastila, Juha Järvelä, Walter Box.*
2. Experimental investigations with foliated flexible plants at different levels of submergence, *Stephan Niewerth, Jochen Aberle.*
3. On the effects of vegetated bars on river hydrodynamics, *Giada Artini, Luca Solari, Simona Francalanci, Giulio Calvani.*
4. Hydrodynamics of heterogeneous vegetation patches, *Vinay Chembolu, Subashisa Dutta.*
5. Unsteady open-channel flows over rough bed with and without emergent rigid vegetation: A laboratory experiment, *Jnana Ranjan KHUNTIA, Sébastien PROUST, Kishanjit Kumar KHATUA.*
6. Estimating time-varying stage-discharge relations in rivers with aquatic vegetation, *Emeline Perret, Jérôme Le Coz, Benjamin Renard.*

3.3 3.2.2 Vegetated flows - Surface and bed

1. From substrate to surface: the effect of vegetation-generated turbulence on surficial gas transfer, *Rafael Tinoco, Chien-Yung Tseng, Andres Prada.*
2. The expansion of riparian vegetation due to the change of precipitation pattern, *Won Kim, Sinae Kim.*
3. Flow structure and mean residence time in floodplain river landscapes, *Teresa Serra, Jordi Colomer, Marianna Soler, Estel Font.*
4. Experimental results and modelling of pressure loss generated by flexible structures placed in a turbulent flow, *Thomas LARRIEU, Gérard PINEAU, Laurent DAVID, Damien CALLUAUD.*
5. Wind effect on surface exchange flows in lake-wetland interfaces, *Ana Margarida Ricardo, Joana Pereira, Nelson Abrantes, R.M.L. Ferreira, Fernando Gonçalves, Moisés Brito.*
6. Sinuous rivers in peat, *Xingyan Guo, Gary Parker, Gaku Tanaka, D. Chen, Zhi Li, Marcelo H. Garcia.*

3.4 3.2.3 Vegetated flows - Interaction with sediment

1. Sediment transport through submerged vegetation, *José Antonio Bonilla Porras, Aronne Armanini, Alessandra Crosato.*
2. The impact of vegetation on sedimentation on alluvial bars along the Carampangue River, Chile, *José Aliaga, Oscar Link, Fabian Hellwig, Anita Laborde, Felipe Jeldres, Esteban Flores.*
3. Investigation of Hydrodynamics and Sediment Transport within Emergent Vegetation Canopy, *Pallav Ranjan, Jorge San Juan, Paul Fischer, Rafael Tinoco.*
4. Influence of vegetation roots on fluvial geomorphology in the riparian zone with low stream power, *Jin-Fu Li, Su-Chin Chen.*

3.5 3.3.1 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) - Flume experiments

1. Flume experiments on the geomorphic effects of large wood in gravel-bed rivers, *Heide Friedrich, Diego Ravazzolo, Gabriel Spreitzer, Jon Tunnicliffe.*
2. Experimental parameter study of local morphological changes due to large wood, *Katinka Koll, Manuela König.*
3. Effect of wood accumulation on sediment continuity at permeable sediment traps, *Isabella Schalko, Virginia Ruiz-Villanueva, Volker Weitbrecht.*
4. Flume experiments on wood transport in river bends, *Lorenzo Innocenti, Luca Solari, Enio Paris, Jochen Aberle.*
5. Flume study on driftwood jam and flood damage to house around a bridge, *Takaaki Okamoto, Michio Sanjou, Tomohiro Someya.*
6. Testing the efficiency of a woody debris retention structure for medium or small-sized rivers, *Diego Panici, Prakash Kripakaran.*
7. Scour profiles downstream of wood structures in vegetated channels, *Stefano Pagliara, Michele Palermo, Deep Roy.*

3.6 3.3.2 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) - Numerical modelling

1. Computations on driftwood jamming around obstacles with a 3D-3D model, *Ichiro Kimura.*
2. A numerical method for simulating 3-D accumulation of woody debris at bridge piers, *Kengo Osada, Yoshihiko Shimizu, Robert Ettema, Enkhzaya Enkhtur.*
3. A numerical study of retention facilities for accumulating woody debris in rivers, *Yoshihiko Shimizu, Kengo Osada, Shuji Iwami, Robert Ettema.*
4. Congestion patterns of driftwood by a wood supply interval and a collision on sand bars, *Taeun Kang, Ichiro Kimura, Shinichiro Onda.*
5. Large wood and the concept of ecosystem services, *Zuzana Poledniková, Tomáš Galia.*
6. Did you catch my drift? - Calculating the effect of instream wood buildup on bridge backwater, scour, and hydrodynamic loads, *David Froehlich, Robert Elliot.*

3.7 3.3.3 Instream wood: restoration opportunities, flood-related hazards and management practices (Special Session) - Applications

1. An extraordinary event changed the (morphological) appearance of a famous Alpine stream, *Riccardo Rainato, Lorenzo Picco, Giacomo Pellegrini, Lorenzo Martini, Luca Mao, Mario Lenzi*.
2. How to deal with large wood recruitment after wildfires? Analysis, aspects and considerations for improving post-fire management, *Lorenzo Picco, Cordelia Scalari, Lorenzo Martini, Giacomo Pellegrini, Daniel Sanhueza, Bruno Mazzorana, Andrés Iroumé, Lorenzo Faes*.
3. Retention and mobility of large wood in a Central European meandering river, *Tomáš Galia, Václav Škarpich, Radek Tichavský*.
4. Fish habitat restoration using large wood: linking stream geomorphic change and fish response, *Catalina Segura, Christopher Lorion, Amelia Yeager*.

3.8 3.4.1 Basin scale sediment fluxes observations (Special Session) - Basin scale sediment fluxes observations

1. Long-term modeling of soil loss and fluvial transport processes in a mountainous semi-arid basin, southern Spain, *Juan Francisco Leiva, Agustín Millares, Javier Herrero, María Bermúdez, Marina Cantalejo*.
2. Contribution on understanding sediment alteration in an Alpine catchment; lithology matters!, *Alessandro Cattapan, Paolo Paron, Michael McClain, Hervé Piégay, Mario Franca*.
3. Four Years of Bedload Transport Measurements in the Swiss Mountain River Albula, *Dieter Rickenmann, Tobias Nicollier, Stefan Boss, Alexandre Badoux*.
4. Sediment supplies in Walloon waterways: basin-scale monitoring and fluxes analysis, *Catherine Swartenbroekx, Gil Zorzan, François-Xavier Salembier, Didier Bousmar*.
5. The sediment challenge of Swiss river corridors interrupted by man-made reservoirs, *Pedro Manso, Christian Moertl, Giovanni de Cesare*.
6. Investigating the geomorphic change in the Rio Cordon basin (Italy) after Vaia Storm, *Lorenzo Martini, Lorenzo Picco, Riccardo Rainato, Giacomo Pellegrini, Marco Cavalli, Mario Lenzi*.

3.9 3.5.1 Solutions for impacted environments - Building with nature

1. How to design wood accumulation patches to increase flow variability and deposition - a flume study, *Isabella Schalko, Heidi Nepf*.
2. Segmentation of topographic change by geomorphic units to assess physical habitat transitions in a restored river, *Georgios Maniatis, Richard Williams, Trevor Hoey*.
3. A way forward for Building with Nature in river areas, *Maria Barciela-Rial, Frank Den Heijer, Eldert Besseling, Jeroen Rijke*.
4. A geomorphic approach to evaluate river recovery potential for regulated river basin, *Chandan Pradhan, Suresh Modalavalasa, Subashisa Dutta, Rishikesh Bharti*.
5. River widening to mitigate river training induced bed erosion: a 1D model approach, *Ralph M.J. Schielen, Hermjan Barneveld, Michiel Van den Bergh, Aukje Spruyt*.
6. The Effect of Sediment Reduction into Wetland by Channel Re-meandering Work on Kushiro Wetland Restoration Project, *Taro Yamamoto, Norio Ishida, Syunsuke Yonesaka, Masashi Kanaya*.

3.10 3.5.2 Solutions for impacted environments - Fish passage

1. RiverFlow2D with UAV to improve ecological corridor of wild creek in Taiwan- The case study in Geng-fang Nanshih Creek, *Chin-Hsiang Tu, Hung-Pin Huang, CHING-YA LI.*
2. Remediation design to improve culvert passage for small-bodied fish, *Heide Friedrich, Morten Knapp, Cindy Baker, John Montgomery, Paul Franklin.*
3. Characterizing low velocity zones around a spoiler baffle for improving fish passage performance, *Dipendra Magaju, Paul Franklin, Cindy Baker, John Montgomery, Heide Friedrich.*
4. Effects of macro bed roughness elements in a fish pass: scale model investigation, *Didier Bousmar, Antoine Bodarwe, Thibaut Cabo, Xavier Rollin.*