

IAHR/WMO/IAHS INTERNATIONAL STREAMGAUGING COURSE

Lyon-Villeurbanne, France

2-4 September 2018



The 4th IAHR-WMO-IAHS Training Course on Stream gauging is held as part of the RiverFlow 2018 conference, with separate registration. Three days are dedicated to Hydrometry basics, Field Exercises and Recent advances (technology and uncertainty analysis), by internationally recognized lecturers. The audience is students and professional field hydrologists. The first three courses were held in Brescia (Italy, 2011), Andong (Korea, 2013) and Hanoi (Vietnam, 2014). The one-day seminar was held in Queenstown (New Zealand) in 2016.

Course venue: 5, rue de la Doua 69100 Villeurbanne, France (Irstea building, 1st floor, room Rhône)

International committee and lecturers

Boosik Kang (Chair), Dankook University, Korea
Jérôme Le Coz (Vice-Chair), Irstea, Lyon, France
Tommaso Abrate, WMO, Geneva, Switzerland
Prof. Ichiro Fujita, Kobe University, Japan
Alexandre Hauet, EDF, Grenoble, France
Ton Hoitink, Wageningen University, The Netherlands
Dongsu Kim, Dankook University, Korea
Marian Muste, University of Iowa, USA
Prof. Roberto Ranzi, University of Brescia, Italy

Local organising committee

Jérôme Le Coz, Alexis Buffet, Frédéric Lacroix and Vanessa Aburegaiba (Irstea)
Alexandre Hauet and Arnaud Belleville (EDF)
Gilles Pierrefeu and Pierre Bompert (CNR)
Pierre-Marie Bechon, Elodie Dufeu, Joël Hoffman and Yoan Longefay (France's national hydrological service)

PARTNERS AND SPONSORS



IAHR/WMO/IAHS INTERNATIONAL STREAMGAUGING COURSE

Lyon-Villeurbanne, France

2-4 September 2018

PROGRAMME

DAY 1 – HYDROMETRY BASICS

SUNDAY, SEPTEMBER 2, 2018 08:30 – 17:30

08:30 [Registration](#)

09:00 **Jérôme LE COZ** Welcome addresses from the Local Organising Committee

09:15 **Tommaso ABRATE** Welcome addresses from WMO and introduction to 2nd edition of the WMO manual on stream gauging (2010)

09:30 **Jérôme LE COZ** Introduction to the course and overview of hydrometry

10:00 [Coffee break](#)

10:30 **Alexandre HAUET** Stream gauging techniques: velocity-area, ADCP, dilution, volumetric...

11:30 **FUJITA Ichiro** Principles of surface velocity gaugings (floats, video, radar)

12:00 **Jérôme LE COZ** Indirect determination of peak discharge (slope-area and image processing)

12:30 [Lunch](#)

14:00 **Tommaso ABRATE** Selection of gauging station sites

14:30 **Alex HAUET** EDF hydro-monitoring network

15:00 **Jérôme LE COZ** Discharge rating using the index velocity method

15:30 [Coffee break](#)

16:00 **Roberto RANZI** Stage-discharge rating curves: I. Methods

16:30 **Marian MUSTE** Stage-discharge rating curves: II. Issues (hysteresis, Variable slope, Rating shifts)

17:00 **Roberto RANZI** Measurement of discharge by precalibrated measuring structure and miscellaneous methods

17:30 [End](#)

DAY 2 – HYDROMETRY PRACTICES (FIELD EXERCISES)

MONDAY, SEPTEMBER 3, 2018 08:00 – 18:00

08:00 [Bus departure from course venue](#)

Field exercises and visit of a hydrometric station (Azergues River at Lozanne, 792 km²)

Participants will be split in break-out groups (parallel sessions).

1. Wading gaugings (different types of mechanical/acoustic current-meters)
2. ADCPs
3. Image velocimetry (LSPIV)
4. Tracer dilution

13:00 [Lunch on site](#)

Bus transfer back to course venue

Classroom exercises

- Discharge computation exercises
- Stage-discharge rating curve computation exercises

17:30 [End](#)



DAY 3 – RECENT ADVANCES IN TECHNOLOGY AND UNCERTAINTY ANALYSIS

TUESDAY, SEPTEMBER 4, 2018 09:00 – 17:15

09:00 **Joël HOFFMAN** Presentation of the French national hydrometry network

09:20 **Tommaso ABRATE** Innovation for Hydrometry, presentation of the HydroHub

09:40 **Alexandre HAUET** Assessment of the performance of flow measurement instruments: verification, calibration, comparison

10:00 **Ton HOITINK** Hydroacoustic instruments: capabilities and limitations, visualisation

10:30 [Coffee break](#)

11:00 **FUJITA Ichiro** Non-intrusive velocimetry techniques using image processing

11:30 **SPONSORS** Technological advances in private sectors (short messages)

12:30 [Lunch](#)

14:00 **Roberto RANZI** Uncertainty of discharge measurement: The Hydrometric Uncertainty Guidance (HUG) and uncertainty of discharge measurement by conventional current meter methods

14:30 **Marian MUSTE** Uncertainty analysis of ADCP gaugings: computations (GUM)

15:00 **Jérôme LE COZ** Uncertainty analysis of ADCP gaugings: empirical assessment (interlaboratory experiments)

15:30 [Coffee break](#)

16:00 **Ton HOITINK** Methods for data processing and uncertainty analysis of H-ADCPs

16:30 **Jérôme LE COZ** Uncertainty analysis of rating curves, streamflow records and hydrological indicators

17:00 **Jérôme LE COZ** Closing comments and feedback on the course

17:15 [End](#)

