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 Bompard (CNR)
Pierre-Marie Bechon, Elodie Du feu, Joël Hoffman and Yoan Longefay (France’s national hydrological service)

PARTNERS AND SPONSORS
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 Hydroetric 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