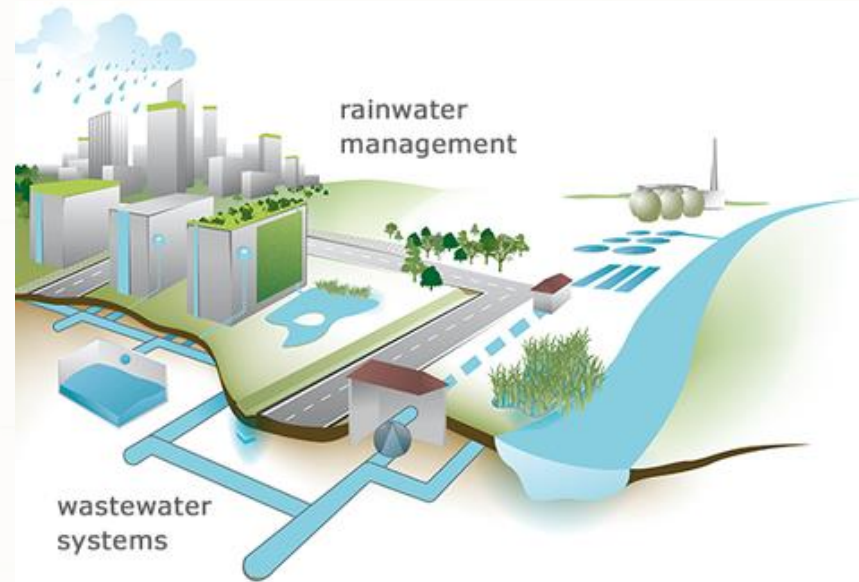


Co-UDlabs ON-LINE WORKSHOP – MORNINGS 3RD / 4TH NOV

Joint Research Activity 1 (JRA1)

Smart Sensing and Monitoring in Urban Drainage

Jean-Luc BERTRAND-KRAJEWSKI
INSA Lyon, France



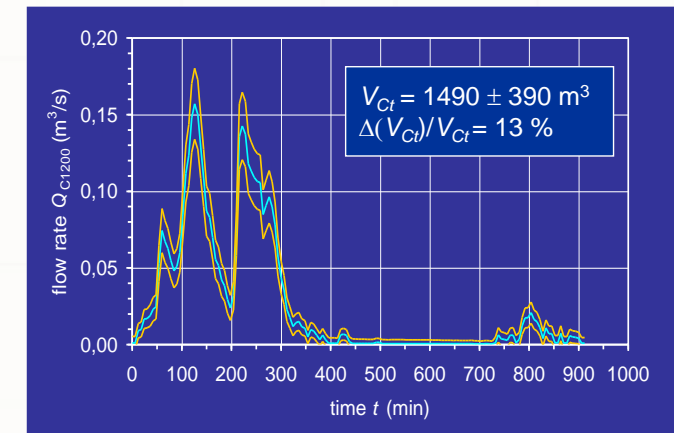
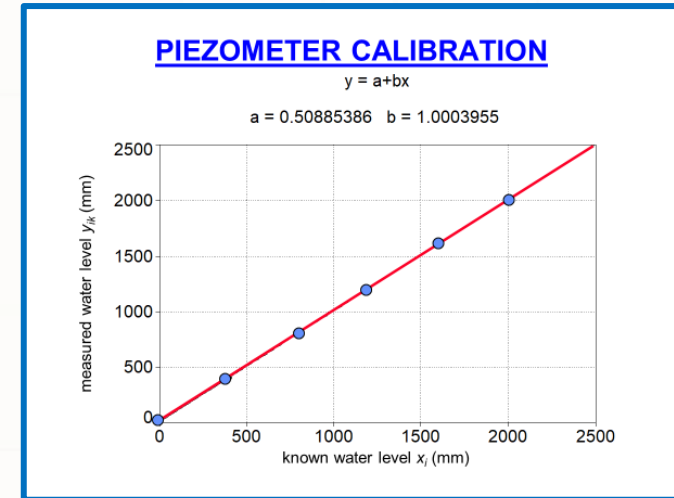
CONTEXT 1/2

- ◆ Design and operation of Urban Drainage systems require knowledge, data and information
- ◆ Numerous data are obtained from sensors
 - ◆ Raingauges
 - ◆ Flowmeters (water level, flow velocity)
 - ◆ Water quality sensors (turbidity, pH, cond., spectrophotometers)...



CONTEXT 2/2

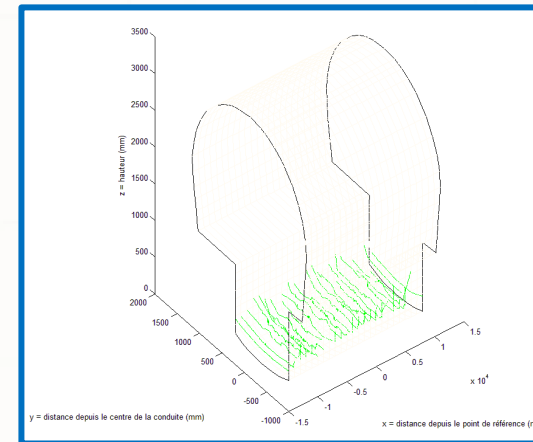
- ◆ Need for better monitoring and metrology practices in Urban Drainage
 - ◆ Periodic sensor calibration
 - ◆ Routine uncertainty assessment
 - ◆ Reliable and traceable data validation
 - ◆ Evolution in monitoring and metrology
 - ◆ New sensors and data transfer technologies
 - ◆ Increased in time and space density



JRA1 TASK 6.1

EVALUATION OF SENSOR AND NEW DATA SOURCES FOR HYDRAULICS, POLLUTANT LOAD MONITORING, AND ASSET INSPECTION

- ◆ Partners: **EAWAG**, UDC, UoS, DEL, INSA
- ◆ **Review** of innovative and emerging sensors and data sources
- ◆ Testing sensors and data sources



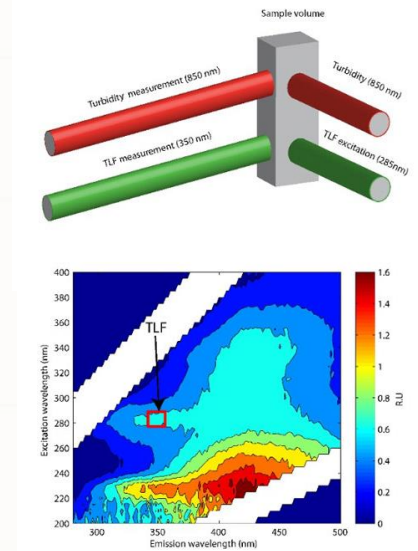
DATE 11/2021

JRA1 TASK 6.1

EVALUATION OF SENSOR AND NEW DATA SOURCES FOR HYDRAULICS, POLLUTANT LOAD MONITORING, AND ASSET INSPECTION



Parameter	Sensor
Coliforms (faecal, E. coli, total)	Proteus
Conductivity	LoRaWan Conductivity
Discharge	Camera Flow Meter
PAH	PAH probe
Multi	Submersible spectro
Multi	Non-contact quality sensor: multispectral camera
Pipe mapping	FSB
Sediment	3d mapping of sediment with lidar



JRA1 TASK 6.2

SMART METHODS AND TOOLS TO IMPROVE THE EVIDENCE BASE FOR RELIABLE AND VALIDATED MONITORING DATA

- ◆ Partners: **INSA**, UDC, UoS, EAWAG
- ◆ [Defining standard methods and protocols](#), and associated open source codes
- ◆ Internal and external application and testing of methods and protocols
- ◆ Final product:
[Free access website](#) with online tools for selected methods and protocols

JRA1 TASK 6.2

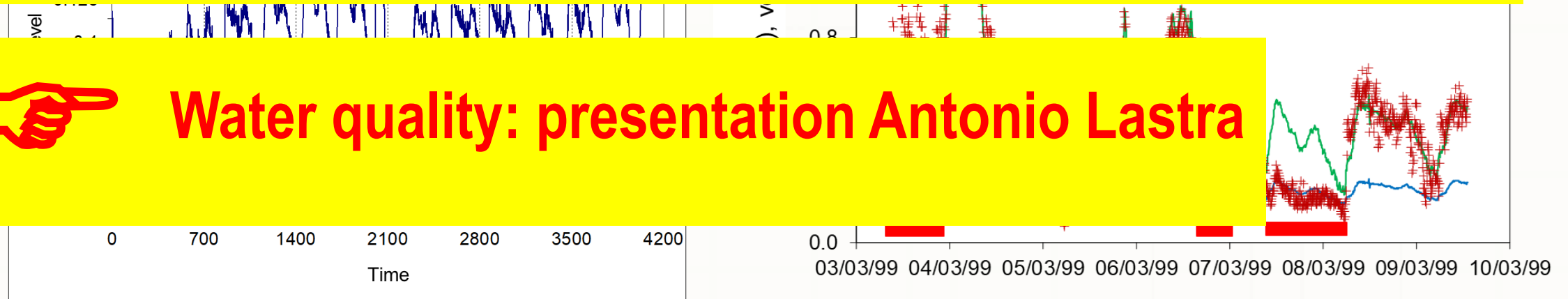
SMART METHODS AND TOOLS TO IMPROVE THE EVIDENCE BASE FOR RELIABLE AND VALIDATED MONITORING DATA



Water quantity : presentation Franz Tscheikner-Gratl



Water quality: presentation Antonio Lastra



DATE 11/2021

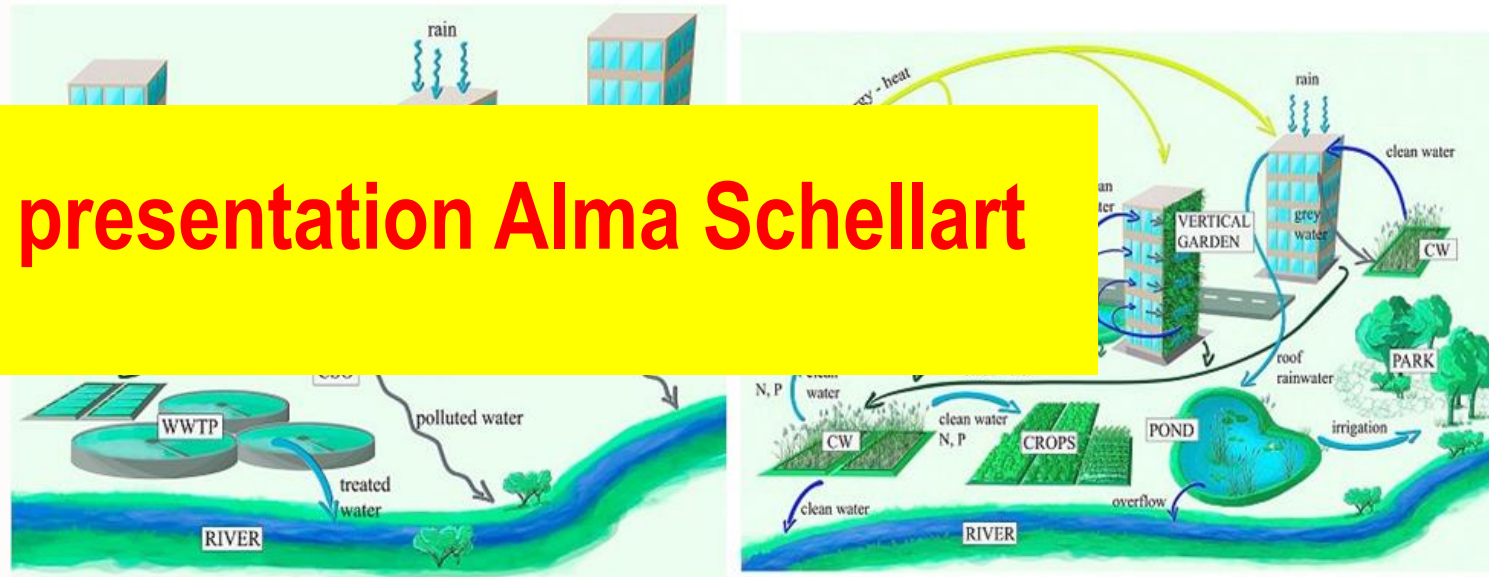
JRA1 TASK 6.3 (will start in June 2022)

SPACE DISTRIBUTED MONITORING AND DATA INTERPRETATION

- ◆ Partners: **UoS**, UDC, EAWAG, INSA
- ◆ Meshing inter-connected sensors, in both collection systems and decentralized SUDS
- ◆ Centralized data analysis and interpretation from decentralized monitoring sites



presentation Alma Schellart



DATE 11/2021

THANK YOU FOR YOUR ATTENTION

Joint Research Activity 1 (JRA1)

Smart Sensing and Monitoring in Urban Drainage

Contact: jean-luc.bertrand-krajewski@insa-lyon.fr

