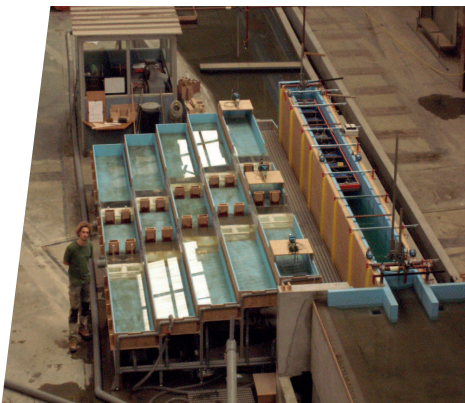


MODELLING |

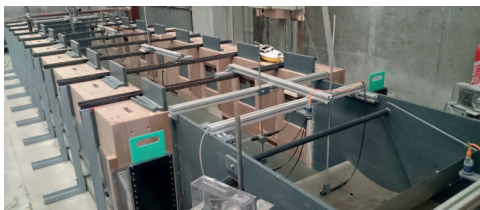
RIVER HYDRAULICS AND SEDIMENT TRANSPORT

From flood plains to scouring at the toe of bridge piers, the different hydraulic and hydrosedimentary phenomena occurring in rivers are often complex. Physical scale models offer the most efficient, most reliable means of faithfully reproducing these phenomena, thus guaranteeing optimised sizing of structures and minimising construction costs.



OUR ASSIGNMENTS

- Checking and optimisation of hydraulic sizing
- Study of the behaviour of floating debris approaching structures
- Study of changes in sediment beds close to hydraulic structures or in dam reservoirs (risks of scouring, sedimentation, etc.)
- Structural and/or operating recommendations





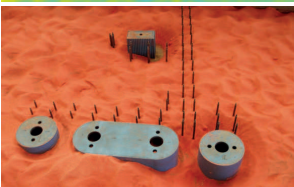
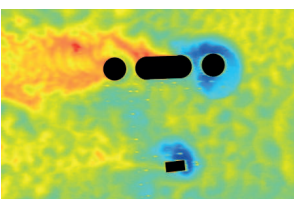
BRAZIL | Jirau
Horizontal scale: 1:1000 - vertical scale: 1:100
Sedimentary and hydraulic impact of construction of the hydroelectric dam



FRANCE | Coursan - Scale: 1:40
Model of the river Aude



FRANCE | Vars - Scale: 1:50
Chagnon sediment deposition area



FRANCE | Bordeaux - Bacalan bridge
Scale: 1:55
Scouring risks
Scouring protection system



CONGO | Inga 1 & 2
Horizontal scale: 1:100 - vertical scale: 1:140
Sediment removal from the existing structure's head race

**Laboratory holding
ISO 9001
OHSAS 18001
certification**

LABORATORY

MODELLING |

RIVER HYDRAULICS AND SEDIMENT TRANSPORTATION

OUR SKILLS

- Ultra precise, three-dimensional physical scale modelling of:
 - . river and torrent flows
 - . permanent and transient phenomena (floods)
 - . sediment transport (bed or suspended material load)
- Types of configuration studied:
 - . Sediment build-up in dam reservoirs - movable-bed models
 - . Scouring at the toe of bridge piers - scourable-bed models
 - . Structures and large transport infrastructure in flood-prone areas
 - . Torrents and sediment deposition areas
 - . Locks and engineering structures in rivers

SOPHISTICATED FACILITIES

- Robotic station - model construction and quality control
- 3D scanner - Measurement of topographical and morphological changes
- LabVIEW (NI) - Creation of customised systems for acquiring and processing data
- Balances for 3- or 6-component force measurements
- Wide range of pressure sensors
- Ultrasonic level sensors
- Ultrasonic probes
- Photogrammetric scour analyser
- Gates with PID regulators
- Doppler velocimeter - Pitot tube - Pigmy current meter
- Large scale particle image velocimetry (LSPIV)
- Sediment analysis and qualification laboratory: fall velocity, grain size distribution, density



FRANCE | Lyon - Scale: 1:80
Railway bypass round the Lyon urban area

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