



MODELLING |

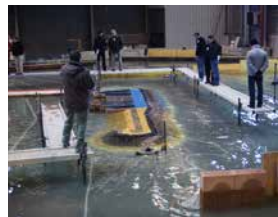
MARITIME PORT STRUCTURES COASTAL AND ESTUARY DEVELOPMENT

Artelia operates a world-renowned laboratory for testing hydraulic and hydrosedimentary physical scale models.



OUR ASSIGNMENTS

- Checking and optimisation of the hydraulic design of structures
- Measurements of forces on fixed structures - Stability of port structures under wave action
- Behaviour of moored floating structures
- Hydrosedimentary studies: definition of coastal and estuary development works
- Scouring studies at the toe of structures



LABORATORY

MODELLING | MARITIME PORT STRUCTURES COASTAL AND ESTUARY DEVELOPMENT



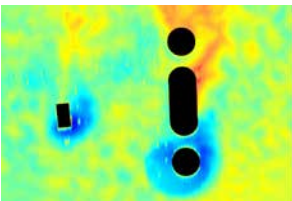
FRANCE | Saint-Barthélemy
Wave stability study using a 2D physical scale model



AUSTRALIA | Measurement of hydrodynamic forces on a loading platform



ITALY | Measurement of hydrodynamic forces on a crest wall



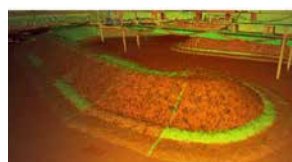
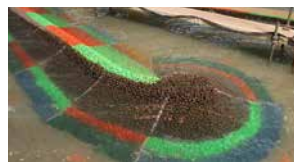
FRANCE | Study of scouring around bridge piers

OUR SKILLS

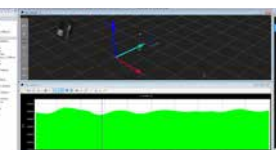
- Physical modelling of wave stability studies for port structures:
 - . wave flumes (2D)
 - . uni- and multi-directional wave tanks (3D)
- Hydrosedimentary modelling using movable-bed scale models
- Measurements of the movements of moored floating structures
- Measurements of forces and pressures applied to fixed structures (high acquisition frequency > 1000Hz)
- Studies of scouring at the toe of maritime structures and analyses of seabed changes

STATE-OF-THE-ART RESOURCES

- Robotised total station - Model construction and quality control
- Infrared stereoscopic cameras - Motion capture
- 3D scanner - Measurement of topographical and morphological changes
- Integrated wave generation and data acquisition/processing system
- LabVIEW (NI) - Development of customised data acquisition/processing systems
- 3-component / 6-component strain gauge balances - Force measurements
- Wide range of pressure sensors
- Ultrasonic probes
- Photogrammetric system - Scour analyses
- Acoustic doppler system - Velocimetry profiling



Study of morphological changes in breakwaters using 3D laser scanning



Analysis of wave-induced movements on moored ships

ISO 9001
OHSAS 18001
certification


ARTELIA

www.arteliagroup.com