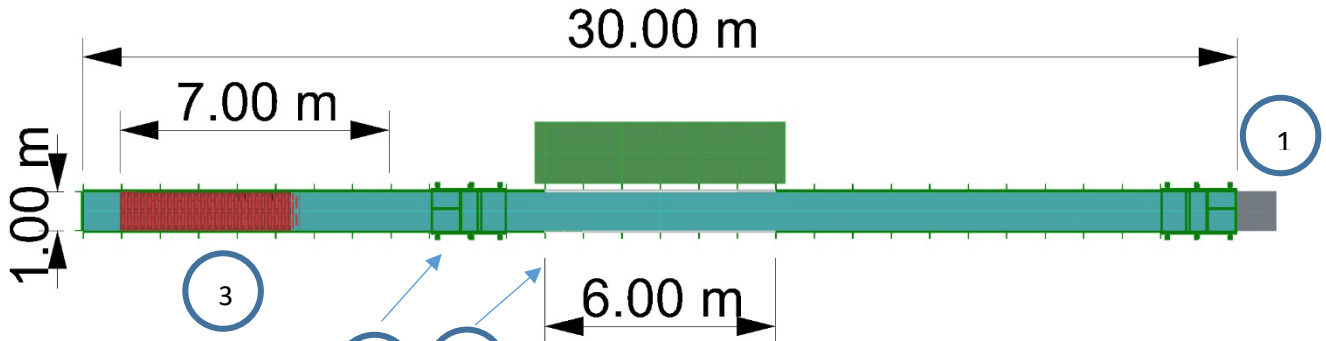
Name of organization Laboratório de Ondas e Correntes (Laboratory of Waves and Currents) - Federal University of Rio de Janeiro (LOC/COPPE – UFRJ)	**Year of information updating** 2020
Year established 1999	**Year of joining the ITTC** 2021
Address Av. Athos da Silveira Ramos, Block I, Room 104, University City, RJ - Brazil.	**Status in the ITTC** Member
Contact details Laboratory Coordinator: Antonio Carlos Fernandes acfernandes@oceanica.ufrj.br +55 21 3938 - 8736 Laboratory Manager: Joel Sena Sales Junior joel@oceanica.ufrj.br +55 21 3938 - 7750	**Website** www.loc.ufrj.br

Type of facility Wave channel	**Year constructed/upgraded** Construction: 1973 / Upgrade: 1999
Name of facility Laboratório de Ondas e Correntes (LOC/COPPE – UFRJ)	**Location** (if different from the above address)

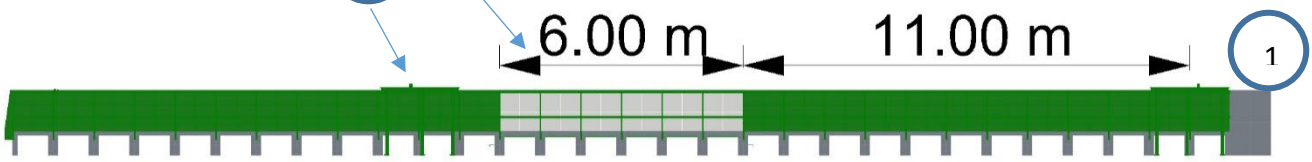
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top)
L x B x D = 30 x 1.0 x 1.0 m

Drawings of facility

Top-view plan



Side-view plan



1	Wavemaker paddle
2	Test section
3	Passive beach
4	Active beach

Detailed characteristics (carriages, wave/current/wind generators, instrumentations, etc.)

Features installed at circulating current channel:

- Current velocity between 0.05 – 0.5 m/s (at 0.50 m of water depth)
- Test section: 10 m long
- Vertical oscillator
- Flap wavemaker (hydraulic system)
  - Regular wave generation
    - Period range: 0.5 s $\leq T \leq$ 30 s
    - Wave height range: $H \leq 20\ cm$
  - Irregular wave generation (Bretschneider, Pierson-Moskowitz, JONSWAP, etc)
- Wave absorption
  - Passive beach
  - Active beach (flap wavemaker with electric drive)

Instrumentation:

- Load cells
  - In-house built ring-type (for measuring tension in mooring lines)
  - Commercial 1D compression loadcells
  - In-house built 3D loadcell (drag, lift, moment measurements)
- Optical tracking systems
  - Commercial: Qualysis®
  - In-house device
- Particle Image Velocimeter (PIV)
- Capacitive wave gauges
- Pressure sensors

Applications (Tests performed)

- Seakeeping experiment
  - Regular waves
  - Irregular waves
  - 2D or 3D
- Efficiency of Wave Energy Converter (WEC) devices
- Evaluation of hydrodynamic coefficients (added mass and potential damping)
- Rare occurrence seakeeping experiment
  - Run-up
  - Green water
  - Slamming/wave on-deck
  - Water entry

Published description (Publications on this facility)

Recent scientific publications:

- ASGARI, PEYMAN ; FERNANDES, Antonio Carlos ; LOW, YING MIN . Most often instantaneous rotation center (MOIRC) for roll damping assessment in the free decay test of a FPSO. APPLIED OCEAN RESEARCH, v. 95, p. 102014, 2020.
- DE OLIVEIRA COSTA, DANIEL ; FERNANDES, Antonio Carlos ; SALES JUNIOR, JOEL SENA . Further study on the Instantaneous Rotation Center in Pitch and its distribution in space for a moored vessel submitted to head regular waves. OCEAN ENGINEERING, v. 218, p. 108161, 2020.
- FERNANDES, Antonio Carlos; ASGARI, PEYMAN ; SOARES, ANDERSON R.W. . Asymmetric roll center of symmetric body in beam waves. Ocean Engineering, v. 112, p. 66-75, 2016.
- OLIVEIRA, A. C. ; Fernandes, Antonio C. . THE NON-LINEAR ROLL DAMPING OF A FPSO HULL. Journal of Offshore Mechanics and Arctic Engineering, v. Vol. 1, p. 011106-1-10, 2014
- AVALOS, G. O. G. ; WANDERLEY, JUAN B.V. ; FERNANDES, A. C. ; OLIVEIRA, ALLAN C. . Roll damping decay of a FPSO with bilge keel. Ocean Engineering, v. 87, p. 111-120, 2014.
- FERNANDES, A. C.; OLIVEIRA, A. C. . The roll damping assessment via decay model testing (new ideas about an old subject). Journal of Marine Science and Application, v. 8, p. 144-150, 2009.

Recent congress publications:

- COSTA, D. O. ; FERNANDES, A.C. ; SALES JUNIOR, JOEL SENA . Oscillating Water Column Motion inside Circular Cylindrical Structure. In: XXXVII International Conference on Ocean, Offshore and Arctic Engineering, 2019, Glasgow. Journal of Offshore Mechanics and Arctic Engineering, 2019.
- COSTA, D. O. ; FERNANDES, A.C. ; J.S.Sales ; ASGARI, P. . Instantaneous Center of Rotation in Pitch Response of a FPSO Submitted to Head Waves. In: 37th International Conference on Ocean, Offshore and Arctic Engineering OMAE2018, 2018, Madrid. Procedings of 37th International Conference on Ocean, Offshore and Arctic Engineering OMAE2018, 2018. v. 1. p. 1.