
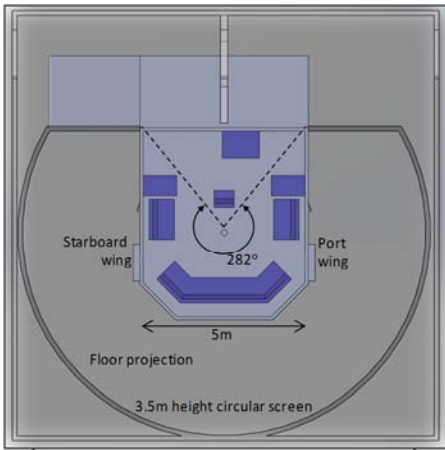
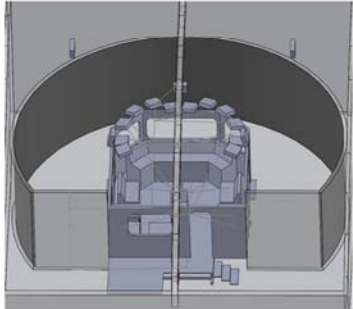


Name of organization Numerical Offshore Tank (TPN) – University of São Paulo		Year of information updating 2017
Year established 2009		Year of joining the ITTC 2017
Address Av. Prof. Mello Moraes, 2231 - Cidade Universitária São Paulo, SP, Brazil - CEP 05508-030		Status in the ITTC Member
Contact details (phone, fax, e-mail) +55 11 2648 6094 , eduat@usp.br		Website http://tpn.usp.br/simuladores/ http://tpn.usp.br/full-mission-projecao/ http://tpn.usp.br/full-mission-telas/
Type of facility Maneuvering Simulation Center	Year constructed/upgraded 2012 / 2016	
Name of facility TPN Maneuvering Simulation Center	Location (if different from the above address)	

Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top)
 Maneuvering Simulation Center (Full Mission Simulators and Part Taks Simutators) that is composed by:
 1 full-mission simulator with projection system
 1 full-mission simulator with screen visualization system
 3 part-task simulators

Drawings of facility and Detailed characteristics

**Full Mission Maneuvering Simulator 1
(Projection Visualization System)**

- 12m diameter screen, 30 projectors, 282° field of view, Floor Projection
- 10 panels for commands and instruments, 4 overhead screens
- Commands for rudder and fixed or controllable pitch propellers
- Commands for tunnel and azimuth thrusters
- DP System and AutoPilot
- GPS, Anemometer, rate of turn, compass, Doppler log, echo-sounder, Radar, ECDIS, Echo Souder, Speed Log (bottom and water related)
- Portable Pilot Unit (PPU)
- Rudder Repeater, Girocompass repeater, Binoculars
- RIPEAM interface
- Radio communication with other simulators
- Alarms and Anchor, Mooring lines and Tugboats control station
- Integrated with the others Maneuvering simulators (multiplayer)

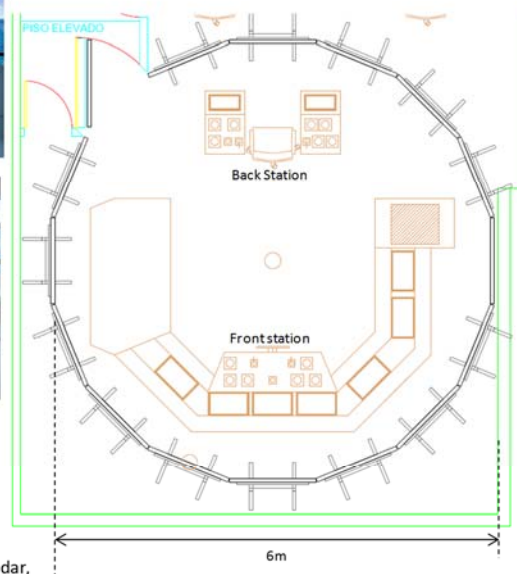
Full Mission Maneuvering Simulator 2 (Screen Visualization System)



Front Station



Back Station



- 35 visualization screens, 360° field of view
- 7 panels for commands and instruments, 3 overhead screens
- Commands for rudder and fixed or controllable pitch propellers
- Commands for tunnel and azimuth thrusters
- DP System and AutoPilot
- Stern bridge for PSV operation
- GPS, Anemometer, rate of turn, compass, Doppler log, echo-sounder, Radar, ECDIS, Echo Souder, Speed Log (bottom and water related)
- Portable Pilot Unit (PPU)
- Rudder Repeater, Girocompass repeater, Binoculars
- RIPEAM interface
- Radio communication with other simulators
- Alarms and Anchor, Mooring lines and Tugboats control station
- Integrated with the others Maneuvering simulators (multiplayer)

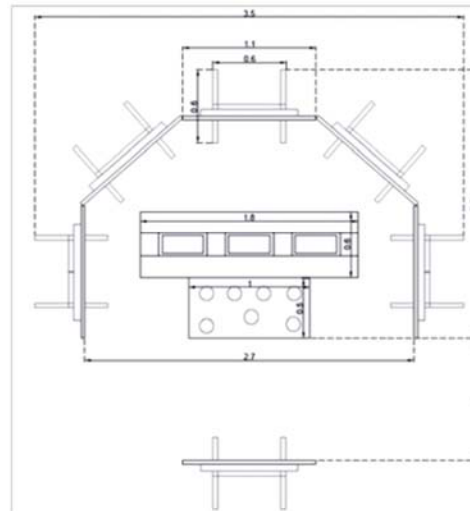
SMH-06 Simulator (2 units)



6 screens



9 screens



- 6 or 9 visualization screens
- 5 panels for commands and instruments
- Commands for rudder and fixed or controllable pitch propellers
- Commands for tunnel and azimuth thrusters
- DP System and AutoPilot
- Conning Display: GPS, Anemometer, rate of turn, compass, Doppler log
- Radar, ECDIS
- Radio communication with other simulators
- Alarms and Anchor control station, Mooring lines control station
- Tugboats control station
- Integrated with the SMH-Full and 4D Maneuvering simulators (multiplayer)

SMH-4D Simulator



- 1 large stereo visualization screen (6mx2m)
- Moving 6DOF platform for complete immersion
- 2 panels for commands and instruments
- Commands for rudder and fixed or controllable pitch propellers
- Commands for tunnel and azimuth thrusters
- Conning Display: GPS, Anemometer, rate of turn, compass, Doppler log
- Radar
- ECDIS
- Radio communication with other simulators
- Alarms and Anchor control station
- Mooring lines control station
- Tugboats control station
- Integrated with the 06 and 4D Maneuvering simulators (multiplayer)

Applications (Tests performed)

Real Time Simulations of more than 80 different operations executed in Brazilian Ports.

Published description (Publications on this facility)

Journals:

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- IANAGUI, A. S. S.; QUEIROZ FILHO, A. N. ; TANNURI, E. A.; Experimental Evaluation of Sliding Mode Cooperative-Controlled DP Vessels, In: 10th IFAC Conference on Control Applications in Marine Systems (IFAC-CAMS 2016), Trondheim, Norway, 2016.
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- IANAGUI, A. S. S., TANNURI, E.A.. Cooperative Sliding Mode Control Applied To A Fleet Of DP Vessels. In 10th Conference on Manoeuvring and Control of Marine Craft (IFAC-MCMC 2015), Copenhagen, Denmark, 2015.
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