University of Southampton Hydroscience Tank

LS9

Location: University of Southampton, Boldrewood campus

Designation: Towing and Wave Tank

Owner(s):
University of Southampton, Faculty of Engineering and the Environment, Southampton SO17 1BJ

Performance:
Mach Number: n/a
Maximum Carriage Speed: ~10 to 12 m/s
Reynolds No: $10x10^6$/m (max)
Total Pressure: n/a
Dynamic Pressure: Up to 50 kN/m^2
Total Temperature: Ambient (~288k)
Turbulence intensity: n/k
Run Time: Varies with carriage speed
Typical Recharge Time: n/a.

Test Section Size: 140m long x 6m wide x 3.5m deep with 0.5m free board.

Operational Status: Under commissioning

Number and Type of Staff:
Scientific: 6-8
Technical Support: 1-2

Test support:
Workshop for towing tank model design, manufacture and modification capability.

Testing Capabilities:
Model Support: Variety of tow posts, either fixed pitch/heave/roll. Forced motions via HPMM or VPMM for surge,sway/yaw or heave/pitch . Multi component dynamometer frame as necessary for resistance/thrust, sideforce, vertical force and moments.
Data Acquisition: Experiment specific – multi-channel minimum 250Hz upto 250KHz for acoustic measurements. Synchronised force/moments with video motion capture/visualistaion. Also 9 degree-of-freedom IMU. Surface pressures., PIV/LDV.
Flow visualisation: Multi camera HD Video, surface die, tufts.
Field Measurement: PIV, LDV, Pitot-static travers

Specialist Rigs:

(i) Passive beach at end of tank with Active wave makers (6-10) across other end that can generate irregular sea states with max. amplitude of 0.5m for wide range of model scale wave frequencies.
(ii) Deployable side beach to damp waves rapidly between runs
(iii) Modular instrumentation stations and fixings to walls/floor of tank
(iv) Low speed manned and high speed unmanned carriage
(v) Mid length divider to provide two test spaces
(vi) Automated carriage and test process
(vii) Control room with multiple video feeds and live data streaming