Name of organization UCL	**Year of information updating** 2016
Year established 1826	**Year of joining the ITTC** 2016
Address Naval Architecture & Marine Engineering (NAME) Office Department of Mechanical Engineering Roberts Building, Torrington Place, London WC1E 7JE	**Status in the ITTC** Member
Contact details (phone, fax, e-mail) Phone: +44 20 7679 0363 e-mail: giles.thomas@ucl.ac.uk	**Website** http://www.ucl.ac.uk/mecheng/research/marine

Type of facility Circulating water flume	**Year constructed/upgraded** 2005
Name of facility Re-circulating Coastal Flume Tank UCL Fluids Research Laboratory	**Location** (if different from the above address) Lower Basement

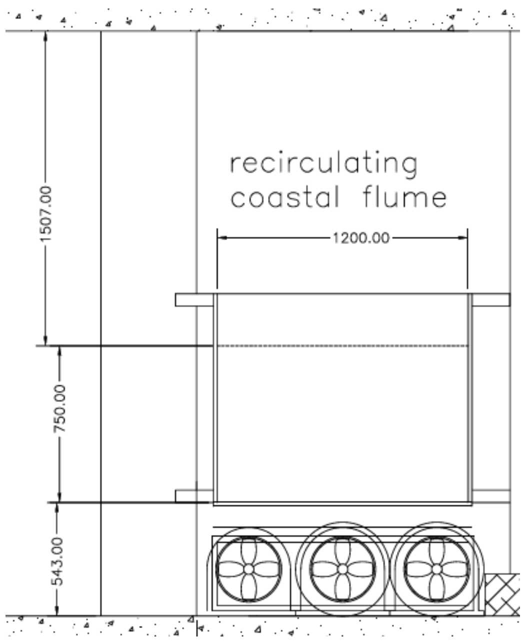
Main characteristics (dimensions of tank/basin/test section; for simulators: full mission, part task or desk top)

Length	20.0m
Width	1.2m
Water Depth	0.3m - 0.7m*

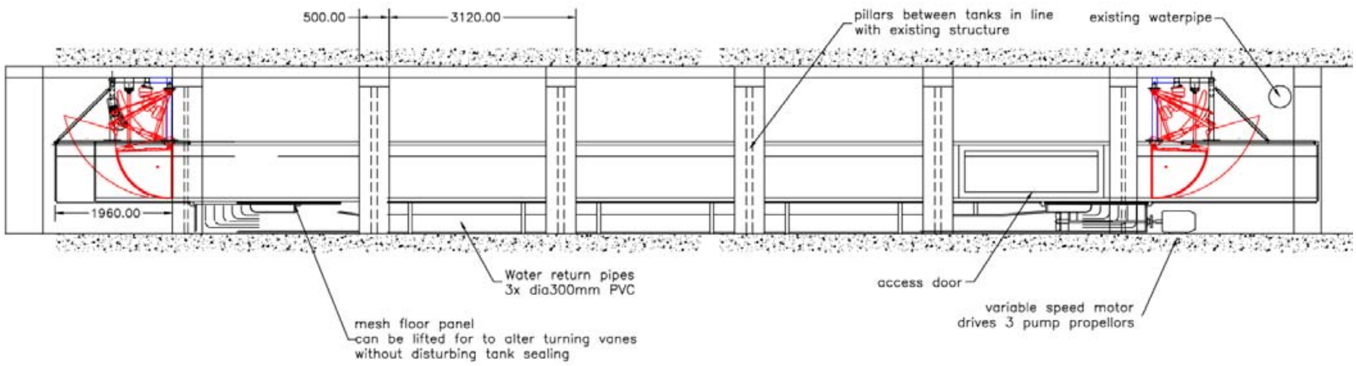
*Depth can vary indiscriminately within this range for recirculating only tests. For wave tests the depth must be 0.3m, 0.5m or 0.7m.

Tank has a glass base raised 500mm above the concrete floor. Water is re-circulated underneath the tank through three pipes. Flow enters and exits the flume through stainless steel chambers at each end containing turning vanes to redirect and smooth the flow. A removable mesh plate covers the chamber to allow access for adjustment of flow straighteners.

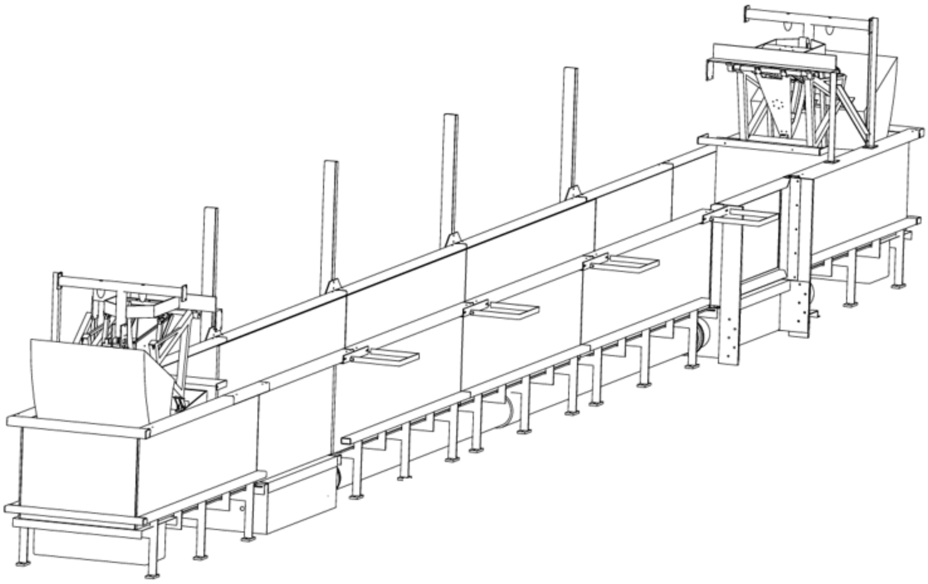
Drawings of facility



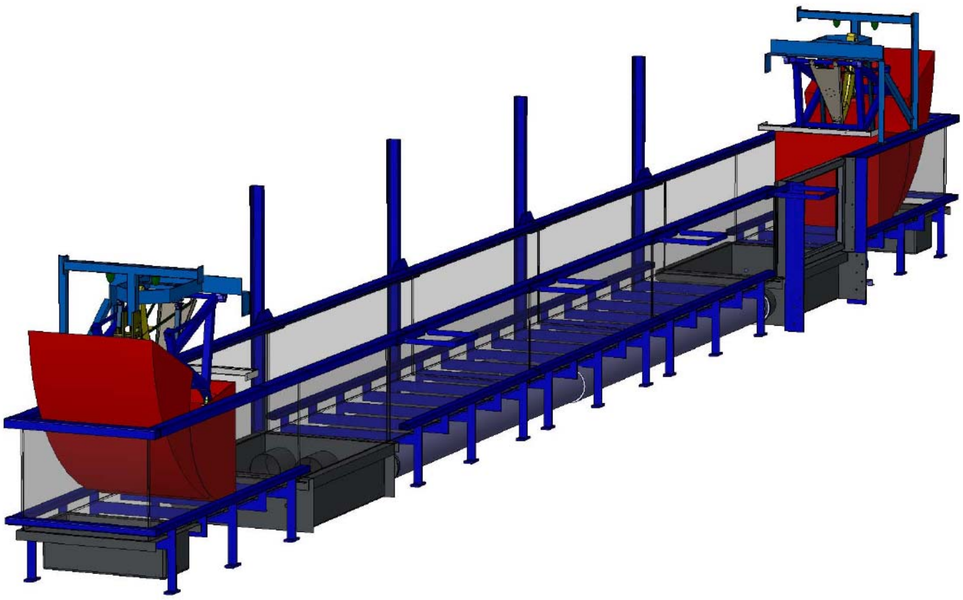
End Section of Coastal Flume



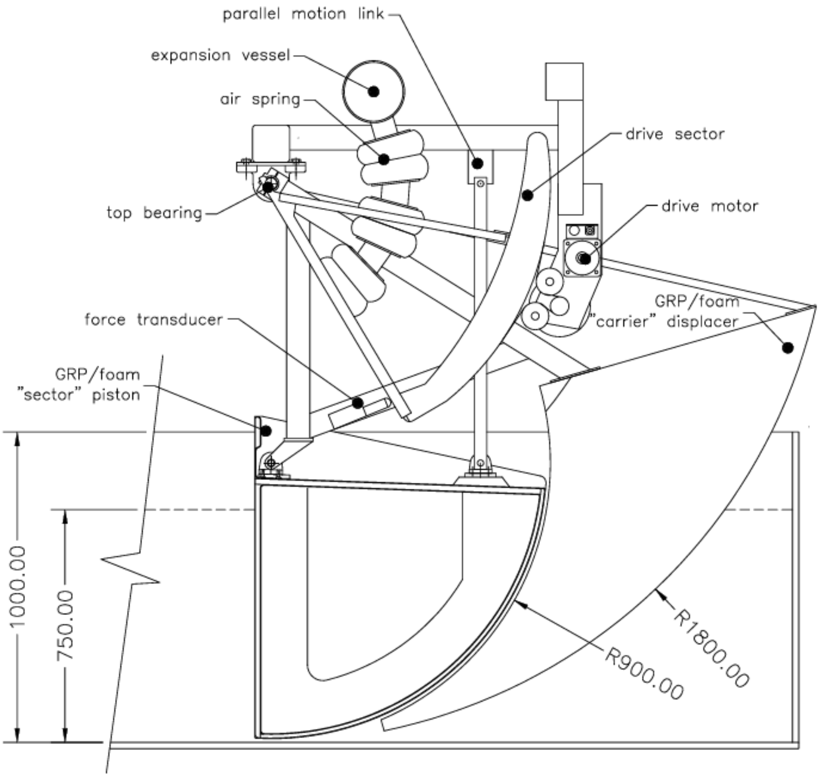
Profile View of Coastal Flume Tank



General Isometric View of Coastal Flume



General Isometric View 2 of Coastal Flume



Profile Section of Wave Generation Flap Paddle

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

Instrumentation:

- Resistive Wave Probes
- Velocity flow meter using Doppler (Vectrino)
- OBUG Type SGA-A Load Cells, Calibrated to 0.001V
- VN-100 Rugged Inertial Measurement Unit and Attitude Heading Reference System (3-axis accelerometer with gyros, magnetic sensor and barometric pressure sensor)

Recirculation (current generator):

Flow	< 6m/s at 0.7m
Flow Straightener	Stainless guide vanes and mesh plates
Pump	500lt/s (Axial Flow)
Drive	Programmable Variable Speed

Return flow runs through three 300mm diameter PVC pipes. Each pipe has an axial propeller thruster pump with the speed controlled by an electronic variable speed drive. All three are driven by a single 37kW type 650 electronic variable speed drive. There are five full width turning vanes fitted across the full width of the discharge chambers with a single stainless steel perforated plate fitted on the floor of the tank. All can be removed, moved and adjusted.

Wave Maker (double-ended):

Frequency Range	0.2-2.0Hz
Wave Height	0.45m at 0.55Hz
Water Depth	0.3 - 0.7m
Control	Programmable digital position and absorption
Wave Angle	< 90^0 at 1.2Hz
Drive	Brushless Servo
Type	Flap (Single Piston)

Software and control (waves):

Built in spectra	Pierson Moskovitch, ISSC, Scott Breitschneider, Neumann, Gaussian Mitsuyasu and JONSWAP
Spreading	Cos^n, Cos^{2n}, phase focusing
Absorption	Programmable
Special Effects	Focusing

Tank: The sides and base of the tank are made from toughened 15mm glass.

Beach: Removable beach with varying slope

Applications (Tests performed)

Tsunami generation
Investigation of scour in sediment
Generation of energy from a current turbine
Investigation of breaking waves
Visual Observation of underwater effects (using glass sides)

Published description (Publications on this facility)

Stagonas, D; Warbrick, D; Muller, G and Magagna, D (2011). Surface tension effects on energy dissipation by small scale, experimental breaking waves. Coastal Engineering , 58 (9) pp. 826-836. (2011)

Eames, I., Jonsson C., and Johnson, P.B. The growth of a cylinder wake in turbulent flow. *Journal of Turbulence*, 12:N39, 2011a

Eames, I., Johnson, P.B., Roig, V., and Risso, F. Effect of turbulence on the downstream velocity deficit of a rigid sphere. *Physics of fluids*, 23(9), 2011b.

Johnson, P.B; Wojcik, A; Drake, KR and Eames, I (2013). Impulsively started actuator surfaces in high-Reynolds-number steady flow. *JOURNAL OF FLUID MECHANICS, 733 302-324 (2013).*