

HYDRALAB IV, More than Water

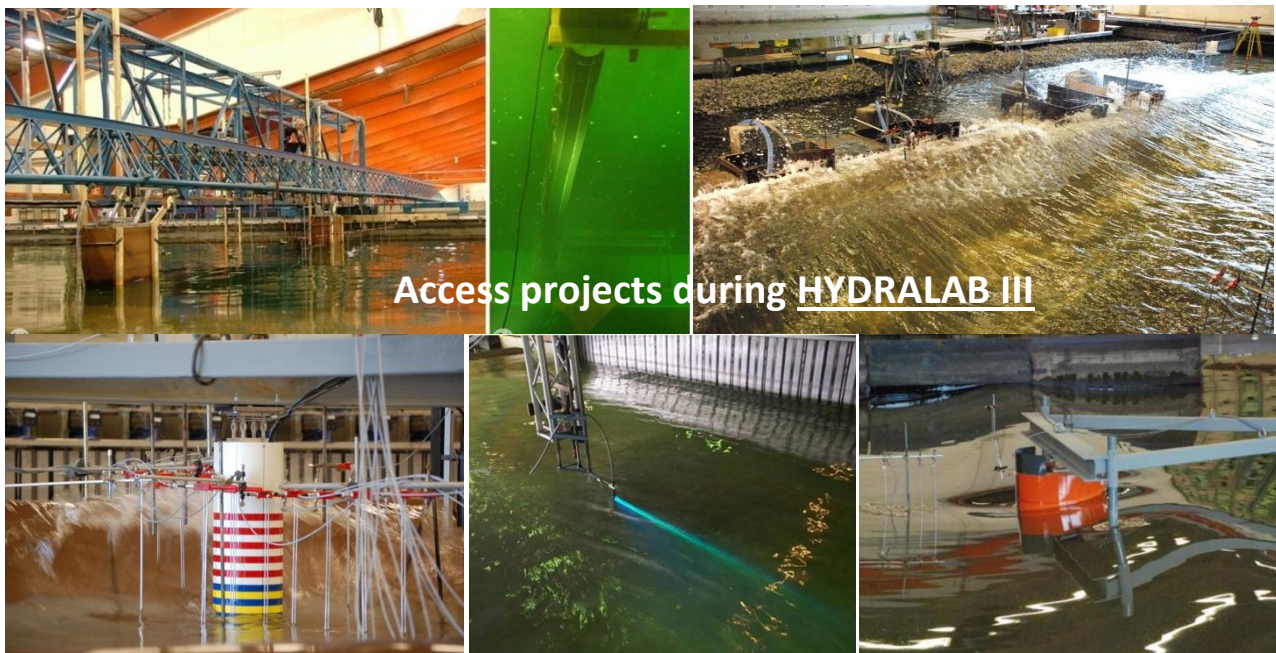
Free access to major experimental facilities

HYDRALAB IV is an Integrating Activity funded through the seventh framework program of the European Commission as part of the scheme Collaborative Projects and Coordination and Support Actions. The activity is continuation of HYDRALAB funded during earlier EC framework programs.

European scientists are invited to submit a proposal for free transnational access to any one of the 17 major and unique experimental hydraulic facilities and ship hydrodynamics and ice engineering facilities of top institutes in Europe. The European Commission finances access for researchers from the EU and Associated States (EU States, Bulgaria, Iceland, Israel, Liechtenstein, Norway, Romania, Switzerland and Turkey).

DHI is one of 10 hydraulic institutions providing access to major experimental hydraulic facilities through the HYDRALAB IV. European scientists are [invited to submit a proposal](#) to apply for free access to the facilities. DHI provides access to its two multidirectional wave basins, the shallow water facility and the offshore (deepwater) basin. A brief description of these facilities is given below.

For details on the free access to major experimental facilities and the call for proposals, see <http://www.hydralab.eu/> or contact Jens Kirkegaard at jkj@dhigroup.com.



Shallow Water Basin

DHI's Shallow Water Basin for combined waves and current is 35m long and 25m wide with an overall depth of 0.8m. The basin is ideal for model testing when the effects of combined waves and current are of major importance, for instance scour around structures, and loads on fixed or floating coastal and offshore structures.



Figure 1: Testing of floating systems in DHI's Shallow Water Basin

Waves

3D wave generation with a new multi-directional segmented wavemaker. With a paddle height of 1.20m, the wavemaker is designed to operate at water depths between 0.2m and 0.8m. The wavemaker is equipped with **DHI AWACS** Active Wave Absorption Control System which is a means of avoiding spurious reflection from a wavemaker. The technique allows for full control over the incident waves, even when testing highly reflective structures in a basin. Furthermore, DHI's Shallow Water Basin provides the option of secondary uni-directional wave generation by movable piston type wavemakers.

Current

Current is generated by external recirculation of water. The additional moveable wavemakers provide the option of collinear wave-current generation by having the water injected underneath the wavemakers.

Wind

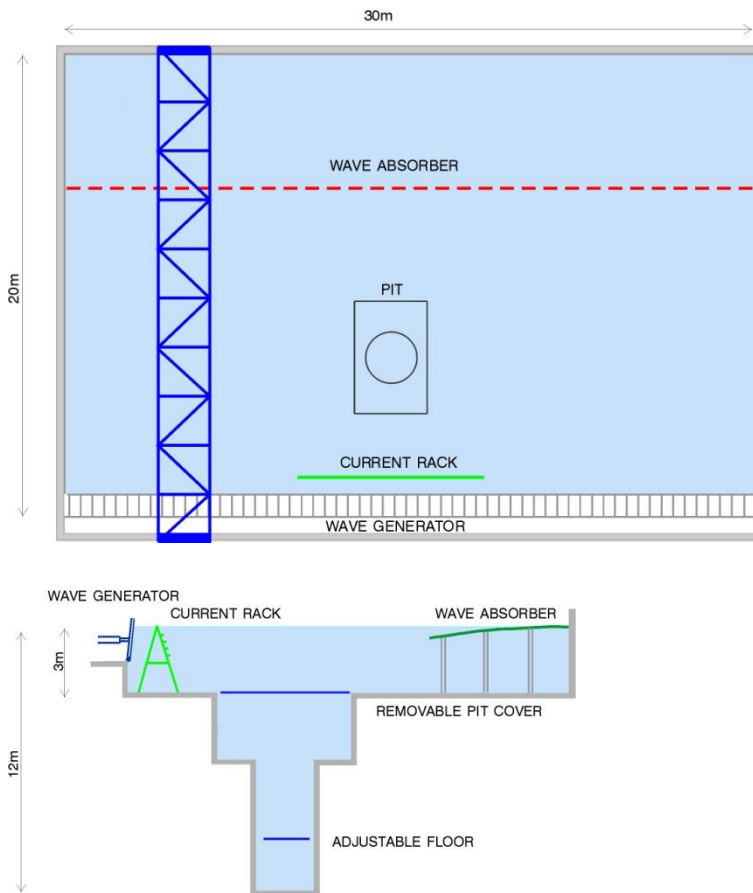
Wind loading on vessels or structures can be simulated by computer-controlled wind fans.



Figure 2: 3D wavemaker equipped with DHI AWACS Active Wave Absorption Control System.

For further information, contact Jesper Fuchs at juf@dhigroup.com

Offshore Wave Basin



DHI's Offshore Wave Basin is 20m long and 30m wide with an overall depth of 3m and a 12m pit.

Figure 1:
Layout of DHI's Offshore Wave Basin

Waves

Short-crested (3D) waves and swell are generated by 60 individually controlled flaps. A parabolic wave absorber located opposite the wavemakers minimizes reflections. Practically any wave spectrum and combination of wave spectra may be generated.

Current

Current is generated in the basin using a technique of entrainment. Water is pumped through high-pressure nozzles, located in a rack in front of the wave generators.

Wind

Wind load on vessels or structures can be simulated by computer-controlled wind fans.



Figure 2: Testing an FPSO in DHI's Offshore Wave Basin

For further information, contact Jesper Fuchs at juf@dhigroup.com