



Wave penetration study Port of Constantza, Romania

Royal Haskoning requested Svašek Hydraulics to conduct a wave penetration wave study to determine the wave conditions at a container berthing pier in the port of Constantza. Constantza is located at the Black Sea in Romania.

Client
Royal Haskoning

The wave energy from outside the port is transferred to the container pier using the mathematical model HARES. This model includes all relevant wave processes that occur in harbour areas, like refraction, diffraction and reflection of waves at slopes and quays. HARES can also include the effects of directional spreading of wave energy.

Location
Port of Constantza, Romania

Date
2005

The left figure shows a satellite image of the port of Constantza. The right figure shows the result of the wave height ratio's for eastern wave directions in the relevant port basins. In this example the main wave direction is 90 degrees, which is combined with the wave directions of 85 and 95 degrees to account for directional spreading. The most eastern breakwater has at the south-east end an underwater dam of approximately 500 metres.

Services
Wave penetration study (HARES)

The right figure shows the wave height multiplication factor K on a scale from 0 to 2. This factor is the ratio between the wave height in the model area (H) and the wave height at the boundary of the model area (H_0), so $K = H/H_0$.

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