

MINDELO CRUISE TERMINAL

WAVE PENETRATION AND DESIGN WAVE CONDITIONS

Mindelo is located at the Porto Grande Bay on the north coast of the island Saõ Vicente, Cape Verde. To improve the facilities for visiting cruise ships at Porto Grande a dedicated cruise ship pier is being developed. Svašek Hydraulics has established the extreme wave conditions at the cruise ship pier and the daily wave conditions at several locations in Porto Grande Bay.

First an offshore wave climate is established, using three hourly hindcast data of the NOAA (National Oceanic and Atmospheric Administration) WaveWatch III model.

Subsequently this offshore wave climate is transformed (with a diffraction analysis) to a local wave climate near the entrance of Porto Grande Bay. The result is a three hourly time series of wave height, wave period and wave direction.

The wave propagation of this local wave climate into Porto Grande Bay is modelled with the numerical wave model HARES.

For the historic situation (2004), the existing situation (2014) and the cruise port development some representative (more or less daily)

wave conditions are modelled with HARES to assess the impact of these situations on the wave conditions at the Mindelo Marina and other locations in Porto Grande Bay.

For the cruise port development numerous HARES simulations are carried out to set up a 3D matrix for combinations of wave directions, wave periods and wave heights (for various output locations). With these 3D-matrices the wave time series at the entrance of the Bay is translated by interpolation to the output locations in Porto Grande Bay. The resulting statistics are used to determine yearly and extreme conditions at various locations along the pier.

CLIENT

LievensCSO, on behalf of on behalf of Finance for Cruise Destinations B.V.

LOCATION

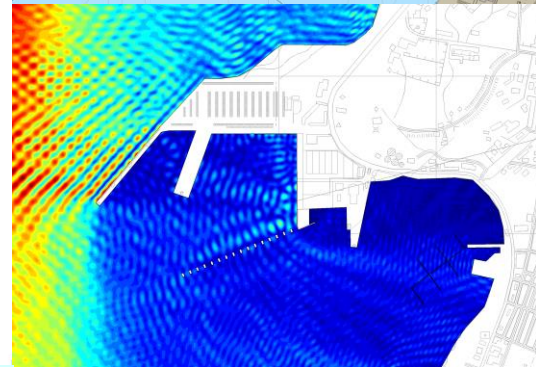
Mindelo, São Vicente, Cape Verde

DATE

2014 – 2015

SERVICES

Establishing offshore and near shore wind and wave climate, HARES wave penetration modelling.



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