

Storm-Procedure Port of Antwerp-Bruges

1. Introduction

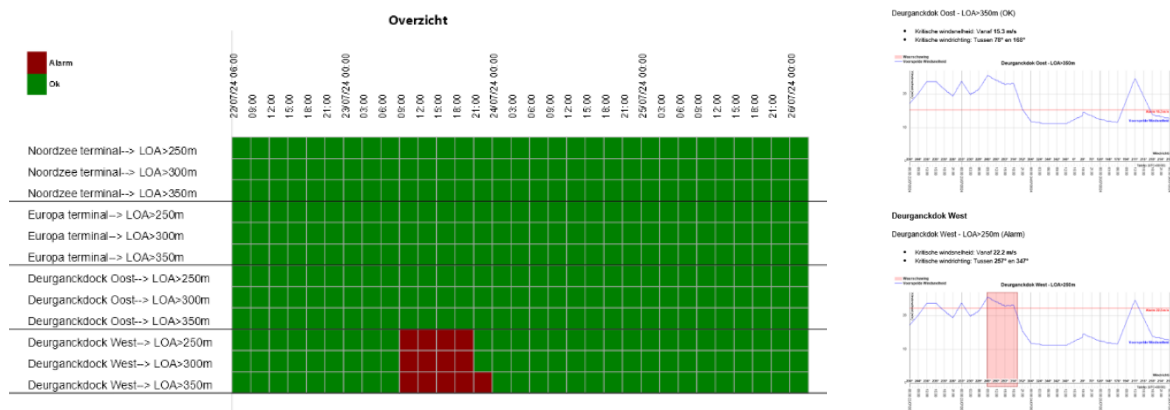
Climate change brings a prognosis of more frequent and heavier storms, which are usually accompanied by high winds. This in combination with larger ship sizes and a tidal difference of 6m, the Port of Antwerp-Bruges felt the necessity to be prepared by introducing a bi-lateral '**Storm-Procedure**' for its most critical berthing locations and terminals, mostly associated by container- or RoRo vessels.

This procedure should ensure all relevant parties in the logistic-nautical-chain are alarmed and incentivized in taking all necessary measures to keep the vessels safely moored at its location.

The procedure is also incorporated in the Port's Police Regulations to give it a juridical backbone.

2. Forecast and Warning

The starting point is an automated storm warning issued by a cooperation between the *Royal Meteorological Institute of Belgium* and *Maritime and Coastal Services*. The official, governmental character of this forecast and its organization is important as it will be the official weather report for many other parties along the nautical chain, like pilots, all looking at the same weather information.



The automated storm warnings will generate when forecasted wind conditions exceed predefined thresholds, with warnings issued up to 48 hours in advance.

The predefined thresholds are based on a few parameters to define which berthing location will experience a harmful impact and which vessel sizes are expected to take appropriate measures. This depends on the forecasted wind direction and a calculated forecasted wind speed that combines the predicted wind gusts (40%) as well as the mean windspeed in m/s (60%).

These warnings are sent to the Port Authority and the Coordination Center.

A human assessment is made whether to take the decision to activate the Storm Procedure or not, remaining in continuous consultation with nautical-chain partners and maintaining the most comprehensive operational overview and needs.

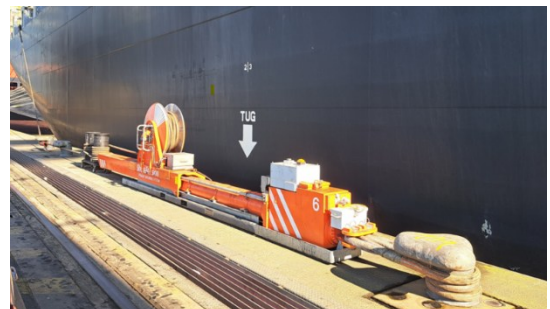
3. Measures

Upon initiation, an activation-message is distributed from the Port Information System to the shipping agencies. As per defined in the Port Police Regulations, the shipping agencies should consolidate the Master who are required to take the appropriate actions to keep the vessel safely moored alongside. Recommendations will be made such as arranging Shore Tension, based on the predicted windspeed, -gusts, -direction and size of the vessel.



Measures could include:

- Extra mooring lines
- Adjustment of mooring configuration with crossing lines to give a more breast-line focused configuration
- Stand-by tugboat if availability allows
- ShoreTension® on the breast lines (most preferred for larger vessels):
ShoreTension® is a revolutionary sustainable dynamic mooring system that can be flexibly deployed in any port or terminal where vessels of any type and class are handled. It reduces vessel movements caused by swell, strong wind, current or passing vessels by up to 90%.



All these measures are in combination with extra vigilance and stand-by on the right VHF-channel in order to call for swift assistance if necessary.

Subsequently, relevant terminals will be notified by email and will be requested to adjust its mooring planning to the best of its ability in the context of ShoreTension® on the breast lines.

Where such adjustments are not feasible, the terminal shall indicate this, after which the associated risks will be jointly assessed and adjusted measures proposed.

Once a certain wind speed threshold is exceeded, a general bunker stop will also apply throughout the entire port area. This measure will also be communicated via prepared communication templates and channels. Notwithstanding these measures, the responsibility remains with the vessel's master to ensure that the ship is properly moored at all times, and where Shore Tension is not available, appropriate alternative measures must be taken.