

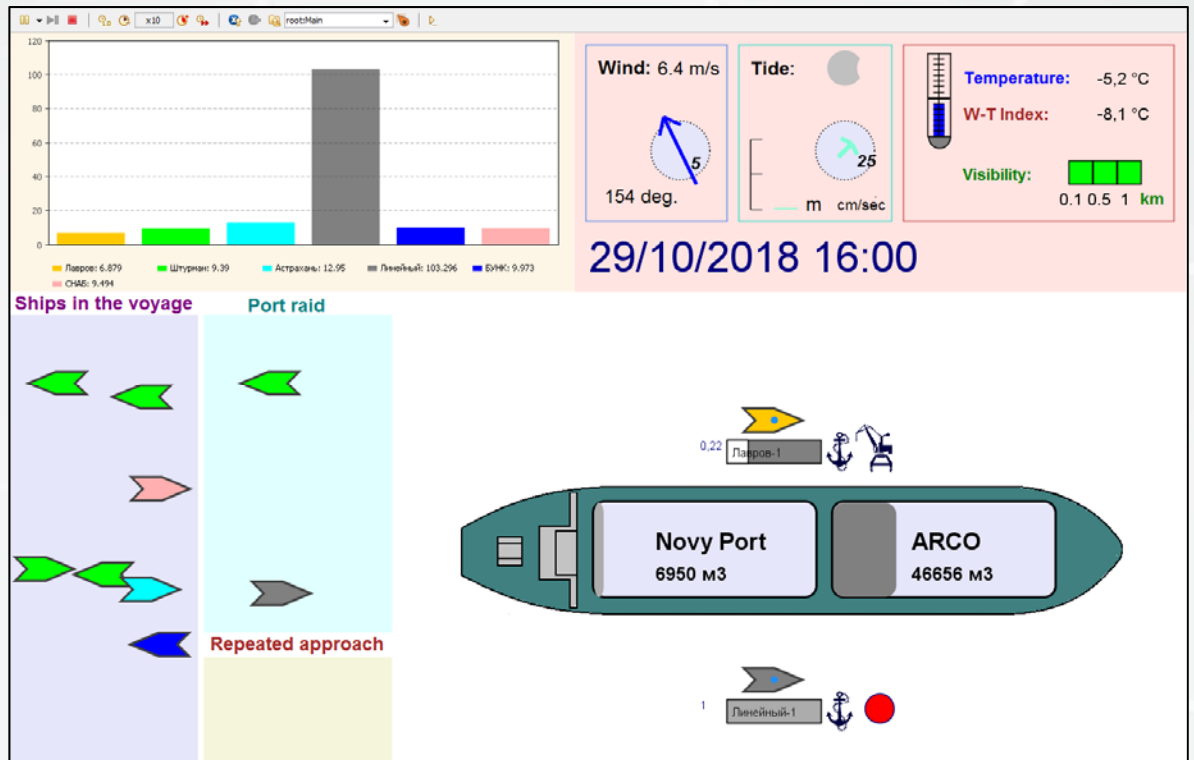
Bureau Hyperborea

Applied R&D project «Umba»

Purpose: Simulation of the floating oil transshipment terminal to estimate its maximum capacity taking into account a set of technological, environmental and organizational limitations

Customer: JSC "Morstroytechnology", 2017, www.morproekt.ru

Product Format: Simulation model. Java application under AnyLogic Framework



Principal features:

- Modeling of the weather dynamics (wind, tide, air temperature, visibility) by means of stochastic generator that support auto- and cross-correlation of the modeled weather parameters
- Various restrictions on weather parameters for each berth of the terminal and for each type of ship
- Detailed model of ships operations (mooring, hose connection, documents processing etc.) that supports the multiple approaches of ship to the terminal due to the weather change
- Operation of several types of oil tankers (2 types of shuttle tankers and linear tanker) and supply vessels (provision supply and bunker) near the terminal.
- Operation planning of ship operation based on the predefined rules that define the priority of types of ships in various situations.
- Modeling of random events that affect the system efficiency (restrictions on civil shipping in the Kola Gulf, etc)
- Logging and analysis of the simulation results

Results:

The criterion for determining the maximum capacity of the transshipment terminal was proposed and justified in the study. Approximately 30 various fleet configurations were studied based on "what if" principle. This allowed determining the target value of the capacity. The recommendations on technical and organizational measures to increase the volumes of annual oil transshipment were formulated

