A multiple ship routing and speed optimization problem under time, cost and environmental objectives - DTU Orbit (25/01/2019)

The purpose of this paper is to investigate a multiple ship routing and speed optimization problem under time, cost and environmental objectives. A branch and price algorithm as well as a constraint programming model are developed that consider (a) fuel consumption as a function of payload, (b) fuel price as an explicit input, (c) freight rate as an input, and (d) in-transit cargo inventory costs. The alternative objective functions are minimum total trip duration, minimum total cost and minimum emissions. Computational experience with the algorithm is reported on a variety of scenarios.

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