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Optimal design of periodical ship route in a local area using continuous and discrete type models in cooperation

Katsuyuki Suzuki, Toshihiro Ariki and Youhei Sato

Summary: To optimize sea transportation system, two models are used in cooperation, namely continuous model and discrete model. Discrete model takes each container and each ship as discrete variables and simulates in time domain and can get accurate container flow in the specific transportation system, while continuous model takes container flow of each ship during 1 week as continuous variables and can get container flow more quickly. To improve the continuous model the detention cost and distribution cost are taken into account and it was shown that these 2 factors improve the accuracy. By GLS methods and continuous model, candidates of the optimal route are obtained, and by discrete simulation the optimal route is selected.

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