

عنوان مقاله:

BERTH ALLOCATION IN CONTAINER PORTS: A PARTICLE SWARM OPTIMIZATION (PSO) BASED APPROACH

محل انتشار:

دهمین همایش بین المللی سواحل، بنادر و سازه های دریایی (سال: 1391)

تعداد صفحات اصل مقاله: 11

نویسندگان:

Mohammad Joharianzadeh - MS student of marine structures - School of Civil Engineering, University of Tehran

Abbas Babazadeh - Associate Professor - School of Civil Engineering, University of Tehran, Tehran

Ali Fakher - Associate Professor - School of Civil Engineering, University of Tehran, Tehran

خلاصه مقاله:

Management of container ports, with the aim of increasing the efficiency, is considered as a complex problem in coastal transportation engineering. In view of the steadily growing trend of the container ship sizes, more flexible berth allocation planning is mandatory, especially in busy hub ports where ships of various sizes are calling. The berth allocation problem (BAP) in container terminals is defined as berth allocating to the incoming ships so that the total elapsed time of the ships is minimized. The problem is formulated as a mixed integer programming model, assuming that the variables of berthing locations and start times of handling the ships are integers. The assumptions make the model difficult to solve on account of its combinatorial nature. Recently, a genetic algorithm (GA) metaheuristic has been devised for the problem and test on some test examples. In this paper, a more flexible version of the BAT's mathematical model is considered, in which the variables of berthing locations and start times are real numbers. The goal of this paper is applying the particle swarm optimization (PSO) metaheuristic to this model. An algorithm is implemented and tested by numerical examples, investigating the model's properties and evaluating the PSO against GA. The results showed that the solutions of the problem with real variables of berthing location and start time of ships are enough different from those of the problem with integers. Also, the PSO outperforms the GA in the sense of less computational times.

کلمات کلیدی:

Port management, Berth Allocation Problem, Container terminal, Particle Swarm Optimization

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/184374>

