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Abstract

As seaborne trade has greatly increased in recent years, it becomes more difficult to secure crew of ships. Therefore, it is an important issue how to realize unmanned robot ships which can automatically navigate without collisions even in congested waters. Although Rolls-Royce is planning to build a remotely controlled ship in 2020, standard control technology for unmanned ships has not been developed yet. Therefore an automatic collision avoidance system is discussed by carrying out not only computer simulations but also model experiments prior to the tests using actual vessels. For this purpose, the authors built an experimental system for the validation of automatic collision avoidance algorithm. In this paper, model experiments using multiple ships conducted at Marine Dynamics Basin at National Research Institute of Fisheries Engineering are introduced. Through comparisons with numerical simulations which the same algorithm for collision avoidance is implemented, it is found that there is a discrepancy in occurrence of collision in extremely congested situation.