

A MODEL OF THREAT IDENTIFICATION IN INLAND TRAFFIC BASED ON 3D DYNAMIC DOMAIN

Summary

The article proposes a method of modelling three-dimensional space around a target in the form of a ship, which is necessary for keeping her safety while manoeuvring in restricted inland areas. Thanks to three-dimensional domain surrounding ship virtually safe shunter area will be appointed for inland shipping. Assures she the delivery in real time of indispensable information warning before different kind the threats in inland navigation, which will assure the protection for transported population and the goods. The work also presents methods permitting using the model of space so defined, called dynamic three- dimensional domain for estimating navigational risk in the area. The essence of methods suggested here is a systemic depiction of the vessel's operation in the aspect of estimating her safety while manoeuvring in restricted area. The article describes the concept of the vessel's 3D dynamic domain and presents methods of constructing it for inland vessels.

Original calculation models and algorithms, using the navigators' knowledge, permit the construction of the navigator's decision-support system, taking consideration of both navigational safety and the economic aspect of the transport task's realisation. The model presented will constitute a valuable decision-supporting tool and will provide all indispensable information for inland vessel traffic management. The conception dynamic domain 3D fulfils the informative needs of present of management the chain of deliveries, because the avoidance the every kind of threats makes possible as well as optimum use the possibility for elastic reacting in case any deviations from prime plan of voyage.

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