9th Conference on Computational Methods in Marine Engineering (Marine 2021)
2-4 June 2021, Edinburgh, Scotland, UK

NUMERICAL ANALYSIS AND EXPERIMENTATION IN SHIP ICE NAVIGATION

JOSÉ E. GUTIÉRREZ-ROMERO*, JERÓNIMO A. ESTEVE-PÉREZ†

*Naval Technology Area
Applied Physics and Naval Technology Department
Universidad Politécnica de Cartagena
Paseo Alfonso XIII, 52 30202
Jose.gutierrez@upct.es, www.upct.es

† Naval Technology Area
Applied Physics and Naval Technology Department
Universidad Politécnica de Cartagena
Paseo Alfonso XIII, 52 30202
Jeronimo.esteve@upct.es, www.upct.es

Key words: Ship Ice Navigation, Experimentation, CFD, Numerical analysis

ABSTRACT

The Artic region is taking up more and more room within the international agenda. The main reason is the vast reservoirs of oil, gas, minerals, fresh water, fishing resources… In parallel, the increase of the average temperature in artic regions is boosting the ice setback, which allows keeping the artic navigation routes open for longer periods, open new ones, and expand the commercial fishing. Shipping lines are more and more enthusiastic about the potential that these new routes offer, given the save of time and energy cost that might offer compared to longer traditional routes. This growing interest has made that a number of projects to design a new generation of large merchant vessels capable of breaking ice and open their way through it, as well as offshore platforms for oil and gas extraction [1,2]. Based on several studies [2] the present fleet of ships suitable to navigate in artic areas is old and insufficient. Then the future growth of the Artic traffic will stimulate undoubtedly the demand of icebreakers and ships reinforced for ice navigation and in the long run will create a scenario of big opportunities for the European ship building industry. In this regard, the Invited Session pretends to be a showcase of those investigations in numerical methods and experimentation regarding ship ice navigation, and to help into developing numerical methods and tools that will provide to engineers the capability to analyse ice navigation conditions, and to provide an efficient respond to the needs of the new ice class vessels.

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