



Contribution ID: 39

Type: **extended abstract + paper**

On the Effect of Uncertainties on Onboard Progressive Flooding Simulation

Nowadays, the quasi-static techniques devoted to progressive flooding simulation are present in the literature. Most of them can be applied onboard to support crew decisions after a flooding casualty. However, in real scenarios, the input parameters, adopted to carry out time domain simulations, are often not accurately assessed or even unknown. The aim of this paper is to study the effect of these uncertainties affecting the damage geometry, the ship geometry and the loading condition at damage occurrence. A sensitivity study on the relevant input parameters has been carried out on a box-shape barge, showing that most of them have a strong influence on progressive flooding simulation. Regarding damage geometry which is directly connected to damage detection algorithms, the internal subdivision geometry has a stronger impact compared with damage location and area. Further study is required, especially when internal spaces are connected by small openings. Nevertheless, the paper highlights the importance of an accurate preparation of ship model and assessment of loading condition, providing some insights on these problems.

Primary authors: Prof. MARINÒ, Alberto (University of Trieste); Mr BRAIDOTTI, Luca (University of Trieste, University of Rijeka); Prof. BUCCI, Vittorio (University of Trieste)

Presenter: Mr BRAIDOTTI, Luca (University of Trieste, University of Rijeka)

Track Classification: Naval architecture and marine engineering evolution