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NUMERICAL MODELLING OF WATER ENTRY FLOWS

ALESSANDRO IAFRATI*, DAVID LE TOUZÉ† AND THOMAS RUNG♦

*CNR-INSEAN (Marine Technology Research Institute)
Via di Vallerano, 139 – 00128 Rome, Italy
alessandro.iafrati@cnr.it, www.insean.cnr.it

†ECN (Ecole Centrale de Nantes)
44321, 1 Rue de la Noë, 44300 Nantes, France
david.letouze@ec-nantes.fr, lheea.ec-nantes.fr

♦TUHH (Hamburg University of Technology)
Am Schwarzenberg-Campus 4 – D-21073 Hamburg, Germany
thomas.rung@tu-hamburg.de, www.tuhh.de/fds

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ABSTRACT

The accurate and efficient prediction of the free surface flow generated during water entry/impact is of interest in many different fields. Of course it is important in the naval field for ship's slamming, sloshing and green-water loading but it is also very significant in ocean, offshore and coastal engineering for problems related to wave impact on structures. Albeit less frequent, the water entry phenomena play a relevant role in the aircraft/helicopter ditching (emergency landing on water).

This mini-symposium will be aimed at providing an update on the numerical tools commonly employed for the description of the free surface flow and pressure distributions generated during the water entry. The participation is open to the different computational approaches usually employed, each one being characterized by pros and cons.

The mini-symposium will include a set of papers presenting the results of the SARAH (*increased SAfety & Robust certification for ditching Aircrafts & Helicopters*) project, a European research project funded under the H2020 program (sarah-project.eu). The final aim of the project is to improve the safety of aircraft or helicopter ditching and to this purpose computational tools are developed in order to improve accuracy and/or efficiency. Different approaches will be explored, which are characterized by different levels of fidelity and required computational effort. Attention will be focused to check the capacity of the different approaches to capture the most significant physical phenomena (e.g. cavitation, ventilation) and their capabilities to deal with (or to account for) the structural deformations. Both pure vertical water entry and water entry with horizontal velocity will be considered.

The participation is not limited to the aircraft field. Experts in other fields working on the same topics will be invited to attend.