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NUMERICAL SIMULATIONS OF AIRPLANE AND HELICOPTER DITCHING APPLIED TO THE DESIGN OF EXPERIMENTS

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Airplanes and helicopters often travel above open waters and thus have to prove a safe water landing under emergency conditions. The European H2020 project SARAH (Increased Safety and robust certification for ditching of aircrafts and helicopters) aims to improve the safety during ditching and to increase the understanding of the physics and the influence of environment. In this project, an ambitious experimental campaign is planned with the objective to assess the loads on parts of the fuselage or Emergency Floatation Systems in the case of helicopters. The use of numerical simulation is of great help for a better design of sensors and other measurements. The use of Smoothed Particle Hydrodynamics to compute highly energetic flows with fragmentation of the free surface has a long history [3] and is nowadays a well validated method. It has been used successfully [2] on the SMAES project [1], from which SARAH is a follow-up. In the present work, the software SPH-Flow is used in a battery of cases and allows for identifying the most critical ditching conditions.

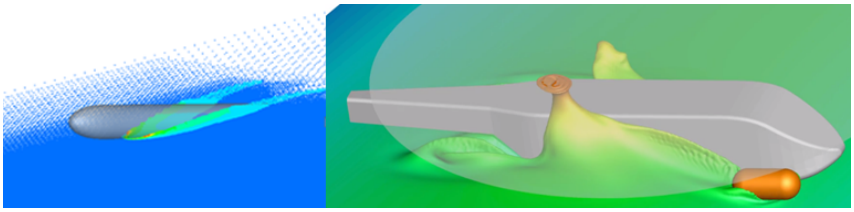

Figure 1: SPH simulation of airplane and helicopter ditching

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