Geophysical Research Abstracts
Vol. 20, EGU2018-5219-1, 2018
EGU General Assembly 2018

3D Numerical simulation of floating bodies in breaking waves

Philippe Fraunie (1), Frédéric Golay (2), Thomas Altazin (1,2)

(1) CNRS-Universite de Toulon - MIO, Mediterranean Institute of Oceanography, La Garde Cedex, France (philippe.fraunie@univ-tln.fr), (2) Institut de Mathématiques Université de Toulon

Computations of a free floating body in a wave field are performed using a two phase flow solver of compressible Euler equation with variable density.
The 3D explicit numerical method takes advantage of parallel computing and adaptive mesh refinement in the vicinity of the air/sea and fluid/structure interfaces according to a mathematical entropy criterion with a locally variable time step. A penalisation method is developped for fluid-structure interaction.

The chosen physical approximations and numerical procedures are discussed regarding the challenging 3D problem of breaking waves on floating structures and fiths order Stokes wave field.

Acknowledgements : This research was supported by the CHEF program of Region PACA,