



Effect of wind-wave interaction on the generation and evolution of rogue waves

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In recent papers, the effect of wind on the dynamics and kinematics of rogue waves has been demonstrated (Giovanangeli et al, 2004, Touboul et al, 2006). Theoretical and numerical parts of the papers show that the wind induced current cannot explain the influence of the wind on the generation and the space-time evolution of two dimensional rogue waves. We report here on a series of experiments conducted in the Large Air-Sea Interaction Facility at IRPHE in order to describe the wind-wave interaction processes during the different stages of the evolution of focusing groups. A complete and a sophisticated experimental set-up has been used to determine the structure of the air flow and of the the air-water interface in absence and in presence of the focusing and defocusing group . Form drag and total drag have been estimated. Spectral and wavelet analysis have been used. The results show that the influence of wind on the rogue waves evolution is due to a strong enhancement of the wind wave coupling probably due an air-flow separation mechanism at the crest of the largest waves inside the group.