Available online at www.sciencedirect.com
ScienceDirect
European Journal of Mechanics B/Fluids 25 (2006) 535

Preface

Freak, rogue, or giant waves correspond to large-amplitude waves surprisingly appearing on the sea surface ("wave from nowhere", "walls of water", "holes in the sea", "three sisters"), which can produce serious damage to off-shore industry and shipping. Rogue waves have been part of the marine folklore for centuries, but since the seventies of the last century, oceanographers have started to take them more seriously. Observations gathered by the oil and shipping industries suggest there really is something like a true monster of the deep that devours ships and sailors without mercy or warning. During the last thirty years, several physical models of the rogue wave phenomenon have been intensively developed and many laboratory experiments have been conducted. The main goal of these investigations is to understand the physics of the huge wave appearance and its relation to environmental conditions, and to provide the "design" of freak waves for engineering purposes. A great progress has been achieved in the understanding of the physical mechanisms of the rogue wave phenomenon during the last five years and a review of physics and modelling of freak waves was published in 2003 [C. Kharif, E. Pelinovsky, Physical mechanisms of the rogue wave phenomenon, European J. Mechanics B/Fluids 22 (2003) 603–634]. The present issue is aimed at showing the progress that was made in the field of rogue waves for the last three years. Experimental, numerical and theoretical investigations have been developed to better understand the physics of these huge water waves. The new aspects here are: the use of fully nonlinear hydrodynamic numerical models, the consideration of wind flow above water waves, detailed analysis of real freak wave events, and so on. Most of the papers have been selected on the basis of presentations given during the rogue wave session of the European Geosciences Union Assembly in Vienna, Austria in 2005.

Guest Editors

Efim Pelinovsky
Institute of Applied Physics
Nizhny Novgorod, Russia

Christian Kharif
Institut de Recherche sur les Phenomenes Hors Equilibre
Marseille, France

Available online 11 May 2006

0997-7546/$ – see front matter
doi:10.1016/j.euromechflu.2006.04.002