Proceedings of the Institution of Civil Engineers
Maritime Engineering 159
June 2006 Issue MA2
Page 85

Paper 2500274

ice

Book review

WIND OVER WAVES II: FORECASTING AND FUNDAMENTALS OF APPLICATIONS
S. G. Sajjadi and J. C. R. Hunt. Horwood Publishing Limited, Chichester, UK, 2003, ISBN 1 898563 81 0, £50, 250 pp.

This book consists of a group of papers that were gathered together from a series of lectures and seminars that were followed by a conference, held at the Isaac Newton Institute, Cambridge in 2001. Primarily, the papers cover a range of topics relating to the coupling of surface waves and ocean winds using both experimental and theoretical approaches. This is a complex area of research that has a wide range of applications from coastal and offshore engineering to climate change.

The book comprises 17 papers. The first of these is a paper by Craik who presents an interesting historical review of the early studies in Britain on basic linear and non-linear wave theory and in particular the pioneering work of Stokes, placing it into the wider historical context. About half of the following papers relate to the primary focus of the book on how waves are generated by wind, and the remaining papers cover a broader range of topics. This is one of the failings of the book, as apart from the preface, which attempts to place all of the papers into a coherent group, the volume lacks any real cohesion between the papers as a whole.

There is a group of interesting papers that relate the coupling of waves to wind and the dependence of sea surface drag on wave characteristics. The first of these papers, by Smedman, Larsen and Högström, poses the question 'Is the logarithmic wind law valid over the sea?'. The basis of this question is the observed departure of the wind speed profile from the assumed logarithmic profile in the turbulent boundary layer. There follows on from this paper a group of papers that discuss this relationship in more detail and it is clear that there is not always a consensus between the various authors on the key elements. This represents the current state of knowledge and highlights the fact that what 'on the surface' would appear to be a relatively simple concept of wind on water is in fact an extremely difficult problem.

There are other interesting papers including an excellent overview of Langmuir circulations by Phillips, an interesting analysis of vorticity dynamics below surface water waves and a paper on standing waves by Longuet-Higgins that explains the generation of 'elastic waves' (microseismics and microbaroms).

Generally, the theoretical papers require a reasonably high level of mathematical ability to gain maximum benefit from the more complex concepts being postulated. The book claims to be relevant to a wide audience, from engineers to fishing personnel and Arctic and Antarctic explorers, and does contain several interesting and challenging papers. However, this reviewer feels that it is wishful thinking to believe that the book is quite so accessible and that the appeal of the book will be limited to specialists, with only a few of the papers being suitable for a wider readership.

John M. Harris