

BOOK REVIEW

M. Rahman: The hydrodynamics of Waves and Tides, with Applications
Computational Mechanics Publications,
Southampton UK and Boston USA

The book is the vol. 4. of Topics in engineering edited by C. A. Brebbia and J. J. Common. The main goal of the editorial board of this book was to supply students, scientists and engineers who are interested in the field of surface waves and tidal waves.

This intention of the author was really succeed.

The book has 322 pages with figures and complete mathematical programs. It consists of seven chapters which can be grouped into three different parts. In the first chapter the readers will find the general development of the governing equation for surface and tidal waves. The next four (2, 3, 4 and 5) chapter's are devoted to the study of surface waves and the last (6 and 7) two chapters are mainly concerned with the study of tidal waves.

It is not unusual that in the last years were always increasing the number of those books which are dealing with the methods of computation of those type of flow which are time variable, otherwise, which are unsteady.

The significance of this tendency is very important, because in the nature all types of flows are unsteady, which can be calculated — in most cases — just by computer. It is very pleasing, that the author not only knows this idea, but successfully followed this way.

In Chapter 1, those basic differential equations are outlined, which are describing the physical law of the phenomena in three dimensional form. These equations are complete. In Chapter 2, the linear diffraction theory, the numerical solution techniques, boundary element and finite element methods are described. In Chapter 3 the problem of harbour resonance is discussed. In Chapter 4 and 5 the non linear diffraction theory of finite amplitude waves is discussed. In Chapter 6 the mathematical description of tides estuaries, and the solution techniques of explicit and implicit finite difference schemes are illustrated. Here the reader will find some important practical application examples for tides in the Bay of Fundy, Bristol

Channel and the Thames estuary. In Chapter 7 the author gave a complete program for the propagation of a tidal in a rectangular basin.

Personally, I found just one point, what I could not explain to myself by no means: why did not the author work up more French, German, Dutch and Damisch literatures?

Against of this, the book is very valuable and it well units with to the famous publications of Computational Mechanics series.

The reader will observe that this book is a welcome addition to the library of any hydraulic engineer who are interested in computational hydraulics concerning waves and tides.

M. KOZÁK