BAINES, P. G. *Topographic effects in stratified flows* (Cambridge University Press, 1995), xvi+ 482pp., 0 521 43501 3 (hardback), £50.

In the last two decades or so there has been a large amount of both theoretical and experimental research work done on flow over topography. The time is now ripe for a coherent organisation of this diverse body of research literature into a logical form so that workers in other areas can both obtain a ready summary of this work and can use the results and understanding that have been obtained for applications in areas such as meteorology and oceanography. To this end this book represents a remarkable synthesis of a large body of work into a very readable and understandable form with ample references to the original research papers. Indeed, the author is well placed to write such a book as he is a leading researcher in fluid flow over topography and has made major contributions to the area, especially through his experimental work. The book is easy to follow and I found that I learnt a lot by reading it, both in learning new material and by various ideas falling into place within a wider context.

The book is divided into three basic parts. The first, encompassing Chapters 1–4, gives a summary of the theory of both surface and internal waves in fluids and the surface waves generated by the flow of a homogeneous fluid over topography. This theory is then applied to stratified flow over two dimensional topography in Chapter 5 and three dimensional topography in Chapter 6. Applications of the results of Chapters 5 and 6 to the calculation of surface drag on the atmosphere in the context of numerical atmospheric circulation models are given in Chapter 7. The summary and explanation of the relevant parts of wave theory given in Chapters 1–4 are useful to non-specialist readers and even for specialists in the area they serve as a useful reminder and put the applications of the theory into context. While this summary is very well done, it does assume some prior exposure to fluid mechanics in general and basic wave theory in particular. It would not be suitable or easy to follow for a reader new to the area. The discussion of the surface waves produced by the flow of a homogeneous fluid over topography in the introductory sections helps the reader to understand the effects of topography on a stratified fluid since many of the features of the flows are similar.

The real meat of the book is in Chapters 5 and 6 where the effect of topography on stratified flow is discussed. The preceding four chapters serve as an excellent introduction to this material and enable it to be easily understood. The nice thing about these chapters is that the theoretical work is mixed with experimental results and observations of natural fluid flows. The satellite pictures are especially good in this regard and the author has presented a good selection to illustrate the theoretical results. In the preface the author stated that a lot of the experimental work presented in the book has not been published before and was done especially for the book. Having worked in the area from the theoretical end, I found the experimental data and pictures of flows to be very helpful in visualising the theory and also in seeing its limitations. There is a lot of material in these chapters and to fully appreciate it would require at least a second reading.

In summary, this is an excellent book and is well produced by Cambridge University Press. It would be a very useful addition to the library of anyone working in wave theory or interested in the effects of topography on a fluid in areas ranging from oceanography to climate modelling. It is to be hoped that workers in some of these areas will read this book, as they will find that many of the ideas and results could be usefully applied to their particular areas. However, as a caution, it is not an introductory book and is really aimed at researchers rather than as a textbook for some course on wave theory or the effects of topography on fluid flow.

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