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REVIEW

Eddies in Marine Science. Edited by A. R. ROBINSON. Springer-Verlag, 1983. 609 pp. DM120.

The hardcover scientific literature is increasingly dominated by multi-author books. We have volumes of review articles, volumes containing the papers given at major conferences, *Festschriften* in honour of birthdays and retirements of distinguished scientists. Now we have a volume in honour of an experiment! The experiment was POLYMODE, which evolved from an attempt to blend the follow-up work from the mainly US and UK Mid Ocean Dynamics Experiment with the Soviet POLYGON experiment, both conducted in the early 70s.

POLYMODE was run in the period 1975–1980. It was probably the most elaborate and complex co-operative international venture that oceanography has yet seen.

The intent was to study, both descriptively and dynamically, the highly energetic motion on the scale of a few hundred kilometres (variously called synoptic-scale eddies because they are dynamically similar to synoptic-scale motions in the atmosphere, and mesoscale eddies because their scale is intermediate between that of the ocean gyres and the microscale motions associated with internal waves and turbulence). ICSU's Scientific Committee on Oceanic Research (SCOR) set up its Working Group 34 on the Internal Dynamics of the Sea, with Professor Robinson as Chairman, to identify the critical scientific problems of the internal dynamics of the ocean and to suggest the most appropriate ways to study them; and to advise on the design of mid-ocean dynamics experiments'.

WG34 was asked by SCOR to produce a final report in book form. However, the cooperation between Soviet and western workers, never easy during the period in which the experiment was conducted, failed altogether when it came to producing a report. Thus, the present volume is entirely a 'western' one. A companion volume, edited by Professor A. S. Monin, will provide a Soviet view.

While POLYMODE provided the impetus which led to the book, it is not about POLYMODE. It is about eddies. There are a few articles with emphasis on POLYMODE. However, it was evidently somewhat early for those participating in POLYMODE to provide definitive results and what they have given is somewhat sketchy and descriptive.

One of the problems with multi-authored books is that the authors sometimes tread on each other's toes. In this one, for example, we find that figure 10 of chapter 4 is identical with figure 1 of chapter 5, as is much of the interpretive material surrounding these diagrams. However, with this exception, the editor has succeeded in keeping the topics well separated, either by geography or by subject matter. The latter is fairly comprehensive, including articles on eddies and biological processes, eddies and acoustics, and instruments and methods, as well as a good deal on numerical modelling.

I cannot attempt to summarize this book in the length of a review which would be acceptable to JFM. Just to list the table of contents of its 600 pages requires 8+ pages. There are 46 authors, so even listing them would be out of the question. Suffice it to say that 34 of the authors give US addresses, 6 British and 4 Canadian. The great majority are working scientists in mid-career, describing work with which they themselves have been intimately concerned. This gives the different chapters a rather

pleasant sense of involvement, without the cool distance which usually characterizes review articles.

The volume is likely to have more than usual durability compared with most of the scientific literature. The late 1970s marked a culmination of about three decades of a great concentration on process studies by physical oceanographers. Now the attention of many has turned to applying the information gained from these studies to the large scale and to climate studies. While there will be further interpretation of process-study data, the intensity of effort in this area is likely to be much lower for some years to come, so I do not anticipate a comparable hardback collection on eddies for some time.

Physically, the book is very utilitarian so I don't expect to see it on coffee tables. However, it should be in all the scientific libraries and in the personal collections of those working in large-scale oceanography. It would be useful also if meteorologists would read it. It would give them a better sense of the similarities and differences between meteorology and oceanography, and the difficulty that oceanographers have in generating comprehensive models of ocean circulation.

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