

Physical Oceanography

Developments Since 1950

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Edited by

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Truth is a pathless land

Krishnamurti

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Foreword

Over the last five decades Physical Oceanography developed explosively from a state with only a few observations and theories to a mature science with global field programs, massive computer power, and a complex theoretical framework. The scientists who led this development are already or will soon be retired. This collection of essays documents some of the breakthroughs and also tries to capture the spirit of exploration and excitement that accompanied these developments.

The original motivation for the present book came from our desire to understand the current social and scientific framework in which we work as physical oceanographers. Brief reflection makes it obvious that this framework *must* have historical roots. However, discussions about these roots with senior scientists only made the picture more complex and confusing. We came to the conclusion that there is no simple story that explains the current state of affairs. The natural solution was to let senior scientists tell how they perceived the developments in the field, each from their own unique point of view. Thus, by surrendering editorial objectivity we arrived at a broader, more objective view. The approach is comparable to data acquisition: it is known that there are no perfect observations, so one makes many.

The goal then is to reduce biases by sampling as often as possible. However, to keep the book at a manageable size and still give the individual authors space enough to cover several decades, we were limited to 10 to 20 authors whose contributions should not exceed 20 pages. Thus, the book is by no means a complete history of physical oceanography; many important scientists and subdisciplines of the field are not accounted for. Still, we tried to provide a coherent yet varied author base that is geographically diverse and evenly distributed among the following (rather artificial) categories: modelling, observations and theory. We did not solicit contributions from close colleagues. Twenty senior scientists were asked to contribute, 13 did; 5 declined because they did not have sufficient time and 2 did not think the project to be a good idea in the first place. Unfortunately, there is a geographical bias in the latter two groups, rendering the authorship biased towards the United States.

From the beginning of the project every author knew the complete list of authors. The authors were encouraged to write personal views of the history of physical oceanography, the exception being Bruce Warren to whom we are indebted for the historical introduction. In line with the idea of abandoning objectivity, there was no formal review process. This makes the success of this book rely on the moral integrity of the authors, and we believe that each author made an effort to be subjective yet fair. The function of the editors was largely restricted to asking for clarifications in the submitted manuscripts.

Editing this book and the related discussions with many scientists proved exciting and illuminating. It illustrated that science is a social enterprise shaped by a community of individuals and the occasional element of chance. It made clear to us that progress relies on communication across the boundaries of disciplines and is made over decades, not months. Based on the following chapters it appears to us that two things stand out in the history of physical oceanography: large programs, which seem to have the power to create a community out of individuals, and the person of Henry Stommel, who provided inspiration to many.

Markus Jochum
Raghu Murtugudde
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