Meteorologische Zeitschrift, Vol. **14**, No. 4, 591 (August 2005)

Pedlosky, J.: Waves in the Ocean and Atmosphere – Introduction to Wave Dynamics. – Springer-Verlag, Berlin, 2003. viii + 260 pp., 95 figures, H/B. EUR [D] 53.45, EUR [A] 54.95, SFr 88.50, ISBN 3-540-00340-1, www.springeronline.com

The eternal up and down of the ocean's surface constitutes an archetypal depiction of waves. Yet waves also abound within ocean and atmosphere alike. A large variety of wave motions is dealt with standard university courses for oceanographers and meteorologists, many of them linked with the names of prominent scientists from the past, as Kelvin-waves, Poincaré-waves, Rossby-waves.

The title of the latest book by the renowned geophysical fluid dynamicist Joseph PEDLOSKY indicates that the wave dynamics in both media, atmosphere and ocean, are introduced in a coherent fashion. All potential readers, who know the author's classical textbook of 1979 *Geophysical Fluid Dynamics*, are curious whether PEDLOSKY again succeeds to combine stringent mathematical deductions with sound pedagogical explanations in a compact, yet elegant writing style.

The book is divided into 21 sections called lectures of between 8 to 15 pages each, sometimes containing some sub-sections. Introduction is followed by *Kinematic generalization*, then comes *Equations of Motion – surface gravity waves*, next is *Fields of motion in gravity waves and energy*. Two lectures tackle *The initial value problem* and the *Discussion of initial value problem*. Sections 7–10 deal with *Internal gravity waves*, with *Internal waves, group velocity, reflection, with WKB theory for internal gravity waves*, and with *Vertical Propagation of waves: Steady flow and the radiation condition,* respectively. Lectures 11–16 treat topics of a larger scale nature, namely *Rotation and potential vorticity, Large-scale hydrostatic motions, Shallow water waves in a rotating fluid, Rossby waves, Rossby waves (cont'd) and quasi-geostrophy*, and *Energy* and *energy flux in Rossby waves*. The final five sections are entitled *Laplace tidal equations and the vertical structure equation, Equatorial beta-plane and equatorial waves, Stratified quasi-geostrophic motion and instability waves, Energy equation and necessary conditions for Instability, and Wave-mean flow interaction.* The book concludes with ten pages that contain twelve sets of problems, three pages of key references sorted by the lectures and an index of eight pages.

The denomination of the 21 chapters as lectures and their titles of variable length and content clearly show that the book originated in the classroom and stays close to it rather than becoming a monograph covering the subject in its entirity. It also becomes clear that the oceanographer's perspective outweighs that of the meteorologist.

A closer inspection of the lectures themselves reveals that PEDLOSKY closely combines numerous formulae with a few figures, either clear sketches to highlight properties of, say, planes waves in perspectives of differing dimensionality or the phase tilt of vertically propagating waves and, or on the other hand, quantitative figures for certain combinations of governing quantities, as e.g. normal modes for different frequencies. Formulae and figures are interleafed with concise, but highly descriptive portions of text.

The level of the textbook is demanding and a thorough understanding certainly requires from the advanced student reader a fair amount of energy and time. But also the experienced scientist will profit from the well balanced treatment of the topics listed above. PEDLOSKY's personal attitude becomes very clear from the last sentences of his preface: "The waves course has been fun to teach. The fascination of the material seems to naturally engage the curiosity of the students and it is to them, collectively, that this book is dedicated."

Students of the German speaking universities cannot but envy their anglosaxon fellow students for such an outstanding, but unassuming teacher as Joseph PEDLOSKY. As serious readers of his Waves they will in all likelihood profit a lot for their knowledge and their future career.

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0941-2948/2005/0062 $ 0.45

DOI: 10.1127/0941-2948/2005/0062