8[41-04, 41A30, 42A38, 65D99, 68U10]—*Adapted wavelet analysis from theory to software*, by Mladen Victor Wickerhauser, A K Peters, Wellesley, MA, 1994, xii + 486 pp., $23\frac{1}{2}$ cm, $59.95

Wavelet analysis is one of the richest subject areas in recent years to be included in the field of computational mathematics. Although there are already several popular monographs in the literature devoted to this subject, the book under review is the first one that goes beyond the mathematical treatment to aid those who write computer programs to analyze real data. It addresses the important properties of the wavelet transform so as to establish the criteria by which the proper analysis tool may be chosen, and it then details the software implementations for computational need. On the other hand, this book is rather self-contained, including even the necessary preliminary materials, such as mathematical analysis in Chapter 1, programming techniques in Chapter 2, and the discrete Fourier transform in Chapter 3. Chapters 4–10 are devoted to the algorithmic approach of wavelet analysis, and the final chapter includes applications to image compression, speech signal segmentation and scrambling, and signal denoising. In addition, an extensive appendix, giving solutions of selected problems in Chapters 2 and 4-9 as well as several tables of filter coefficients, is included.

The presentation of wavelet analysis in Chapters 4-10 is different from those in the existing wavelet books. Since the discrete Fourier transform has already been reviewed in Chapter 3, the subject of localized trigonometric series (or local trigonometric transform) presented in Chapter 4 provides a continuous flow of ideas from global to local analyses. Also, since the main concern of this book is computer implementation, a thorough discussion of quadrature mirror filters in subband coding theory in Chapter 5 is probably the most natural approach for introducing the so-called discrete wavelet transform, DWT (or wavelet series), in Chapter 6. Beyond DWT, but still within the realm of discrete computational analysis, are wavelet packets, their corresponding best-basis algorithm, and multidimensional library trees, discussed in Chapters 7, 8, and 9, respectively. Of course, a chapter on time-frequency analysis must be included in any book on wavelet applications, and this is done in Chapter 10.

Each chapter discusses the technicalities of implementation, giving examples in pseudocode, which is backed up with machine-readable Standard C source code available on a diskette that can be purchased separately. This book, beautifully written by a master of the subject, should be a valuable addition to the personal collections of those who are interested in the subject of wavelet analysis and its applications to data analysis.

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9[42-06, 42C10, 86-06, 86-08]—*Wavelets in geophysics*, Efi Foufoula-Georgiou and Praveen Kumar (Editors), Wavelet Analysis and Its Applications, Vol. 4, Academic Press, San Diego, CA, 1994, xiv + 372 pp., $23\frac{1}{2}$ cm, $59.95

Seismic signals are dispersive, owing to attenuation and dispersion, and therefore, traditional methods that assume stationarity of data are not always useful in