In the last decades, the subject of deterministic chaos has become a solid part of physics and mathematics curricula in many places. One of its most beautiful aspects is that relatively simple mathematical tools help to discover order behind apparent randomness and unpredictability. There is no wonder that the related methods have attracted such wide interest among researchers working on complex temporal or spatial processes. I take the risk to state that probably no other physical concept has attained comparable popularity in such distant disciplines as physiology, ecology, economics, or sociology. However, I dare say also that no other physical concept has suffered from such deep misunderstandings and widespread misuses in the same field. The first strong point of the present book is the intention of the authors to be as clear as day: they decided to compile a “travel guide” around nonlinear methods which is comprehensible for non-experts too, which gives the necessary explanations without submerging in mathematical details, which offers exercises and suggests further readings, and most importantly, which warns of every possible blunder in the methodology and interpretation. I think that the dissemination of the proper way of seeing chaos in real world phenomena has been excellently served by this book and the appended free software library called TISEAN (http://www.mpipks-dresden.mpg.de/~tisean/).

The laudation pertains especially to the first part, “Basic Topics,” consisting of eight chapters and providing an almost complete material for a one-semester introductory course. To avoid excessive particularizing (the full table of contents and Chapter 1 can be downloaded from the publisher’s web server), let me highlight some ingenious details that appealed to me. In general, the worked examples are presented directly after the discussion of a given procedure starting from Chapter 1 (“Why Nonlinear Methods?”) till the very end (Chapter 15: “Chaos Control”), giving an immediate motivation for the reader to start playing with own data. Chapter 6, mostly on the correlation dimension, is absolutely the best concise summary on the concept I have ever read. Mathematical details and further practical considerations are given in Chapter 9, which opens the second part of the book, “Advanced Topics.” In this part, essentially all the basic concepts and methods return for a more profound discussion, topping with comprehensive analyses of nonlinear noise.
reduction (Chapter 10), entropies (Section 11.4), modeling and forecasting (Chapter 12), and non-stationarity (Chapter 13).

Since the first edition in 1997, this book has been reviewed several times (amazon.com, UK Nonlinear News, SIAM Review, etc.), and it has always received the best mark. Therefore it has been an effort to avoid reiterated extolment, and above all, to find at least one imperfection. As for the latter, I slightly miss a longer discussion (and examples) on transient chaos, because its detection and analysis might be a challenge, however most likely this subject never fills a separate monograph.

In summary, I can recommend without doubt this outstanding book to any reader interested in the subject. In addition, if I could do it, I would obligate to carefully study this work anyone, whoever is just working on four-dimensional effective dynamics of human brain, on the Lyapunov spectrum of El-Nino oscillations, or even on deterministic chaos in a time series of daily alcohol consumption of alcoholics (all examples taken from recent publications).