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Introduction to statistical time series, by Wayne A. Fuller, Wiley, New York, London, Sydney, Toronto, 1976, ix + 470 pp., $24.95.

Time series analysis is a part of statistics, i.e. the study of the reduction of data. It has individual features that separate it from the central part of statistics, on which it has had relatively little influence. The subject has some attractions for it is mathematically elaborate yet realistic. The complexity of the subject, together with its strong contacts with other parts of science, which make it appear a "foreign land" to a student with a purely mathematical background and too mathematically difficult for a student not mathematically able, also make coherent presentations especially important and there have been many books published on the subject in the last ten years. (I can count ten, leaving aside books emphasising applications in special parts of science or dealing with the underlying probability theory.) In its modern form time series analysis dates from the early fifties, and the advent of high speed computing, and the first reasonably connected account in this sense is probably [**1**], which is still worth studying. One is led to ask what such a treatise, written today, *might* reasonably contain. (What any particular work *will* contain must depend also on the audience to whom it is addressed.) In the first place there will have to be an account of the underlying probability theory which emphasises the theory of stationary processes with finite mean square and thus emphasises the place of Fourier methods in the theory. Of course some account might be given of spatial processes that are homogeneous (i.e. have their probability structure invariant under a group which acts in the space). However it is doubtful how much generality is valuable here for the range of cases of importance is limited and, moreover, from a statistical point of view the process has to be sampled and for most spatial phenomena the sampling is so irregular (e.g. the location of weather stations) that symmetry present in the underlying process is lost. Nevertheless an account sufficient for an understanding of concepts such as wave number spectrum, dispersion, isotropy etc. could be aimed at together with *some* indication of the unifying mathematical ideas (relating to the representation theory of the group). In addition to such a treatment for processes whose state varies continuously, there might also be some account of the theory of point processes. Two other parts of mathematics relate to the statistics. The first of these is ergodic theory. The importance of this can be perceived from the last chapter of [2], for example. The second is (linear) prediction theory. The classical part of this theory is the linear prediction theory for stationary Gaussian processes and though of no real importance in any generality, from the point of view of actually doing prediction, nevertheless it is intimately related to delicate aspects of the structure of stationary Gaussian processes and also to ergodic theory for example (see [**2**]). Apart from this classical part (which emphasises Fourier methods, H_p spaces etc.) there is a somewhat mathematically simpler part that commences from the model of a vector, Gaussian, Markov process (but not necessarily stationary) observed subject to (Gaussian white noise) error. The, so-called, Kalman filter which