also become a "space science," since sounding rockets and satellites make *in situ* measurements of the ionosphere possible. In addition, a new and powerful ground-based technique, the incoherent backscatter radar, has extended the capability for observing the characteristics of the ionosphere. These new methods have greatly increased the number of observables of the ionosphere, which were previously restricted to the charged-particle density distribution. Furthermore, the relationship between ionosphere and magnetosphere and the role which the neutral atmosphere dynamics plays in affecting the ionosphere have recently been elaborated.

The present book gives an excellent introduction into these aspects of ionospheric physics. It reviews the properties of the neutral atmosphere whose ionization by various sources of radiation leads to formation of the ionosphere, as well as chemical and transport processes. The book also covers in a concise way the morphology of the ionosphere, a subject which has usually been treated in great detail in previous books, special effects, such as eclipses and solar flares, and the role of geomagnetic disturbances in the ionosphere. The authors have discussed adequately the experimental techniques and have provided a good description of the physical processes and their relation to the observations, giving a broad view of the present understanding of ionospheric physics.

Unfortunately, the book contains some misleading nomenclature. One of the upper regions of the ionosphere where helium ions are thought to be important is called "heliosphere." This term, however, is now reserved for the sphere of influence of the solar wind. There is also some inconsistency regarding the upper boundary of the ionosphere, which is sometimes identified with the "magnetopause" and sometimes with the "plasmapause."

This book is the first comprehensive treatment of the ionosphere since the IGY and provides an excellent and up-to-date survey of ionospheric physics. It can be highly recommended as an introduction for graduate students and nonspecialists, but it will also be a worthwhile addition to the libraries of all researchers in this field.

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