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... with matter-light absorption and scattering by gases and particles, thin-  
... structure, microphysics, turbulence, chaotic motions, etc. It is therefore a subject  
... and geophysical fluid dynamics, atmospheric sciences, and  
... planetary scientists derive atmospheric properties from  
... and also perform atmospheric  
... obtained by probes and "landers" and from telescopes  
... Earth and in space. Therefore, a scientific expert in planetary atmospheres  
... well-defined scientific discipline. Most planetary scientists  
... from geophysical  
... followed by those coming from geophysical  
... and atmospheric disciplines. In fact, research on the subject is pub-  
... in a number of journals pertaining to all these areas. This book introduces  
... to students and researchers working in this broad area of field.

This book has been written mainly for undergraduate students in these areas. It  
... also be helpful for scientists specialized in a particular type of atmosphere but  
... unfamiliar with other types, and planetary scientists who are looking for an over-  
... view of the subject.

The subjects covered are treated in a comparative manner among the different  
... solar system bodies—what we call "comparative planetary." Comparative plan-  
... developed rapidly with the advent of the space exploration era, and made  
... possible when the first spacecraft visited Venus and Mars in the 1960s.  
... comparative vision of the physical and chemical processes that occur in plan-  
... atmosphere represents an important step in the knowledge of Earth's atmo-  
... sphere, since this is best understood in the broad context of planetary atmospheres.  
... The variety of properties and circumstances in planetary atmospheres is so large  
... that they are in fact natural laboratories where we can test the theories developed  
... to explain the mechanisms operating in the terrestrial atmosphere. In planets and  
... satellites with substantial atmospheres, we find large differences in size (a factor of  
... 82 between Jupiter and Pluto), gravitational force (a factor of 32 between the satellite  
... in the presence or not of a surface as a boundary condition (between terrestrial and  
... gaseous planets), in the existence or not of an internal energy source, in the strength  
... and importance of the annual insolation cycle (differences in the tilt of the rotation  
... axis, angle relative to the orbital plane, in chemical composition (between the heavy  
... atmospheres of Venus and the much lighter ones of giant planets), and in many other  
... properties that influence the state of atmospheres (planetary magnetic field, surface  
... nature, topography, etc.). The common property that is relevant in all cases is that

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