



Radiative transfer modeling of the atmospheres of Jupiter and Saturn using reflected sunlight

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The sunlight reflected by the atmospheres of the giant planets provides a valuable tool for understanding their vertical cloud structure and particle distribution at stratospheric and tropospheric levels. Taking advantage of methane absorption bands of various strengths makes possible to determine the vertical location of hazes and upper clouds. On the other hand, the characterization of the particle absorption, specially at ultraviolet and blue wavelengths, is crucial for the determination of the nature of the cromophore species, which is still one of the major unknowns for these planets. In this work, we will discuss some hot topics of the atmospheric dynamics of Jupiter and Saturn which require radiative transfer modeling of the atmosphere, including: (1) Vertical extension of the zonal wind system and its three dimensional structure; (2) Contribution of the external and internal energy sources to the general dynamics; (3) Color changes and nature of the cromophore species; (4) Vortices, storms and other local phenomena.