Characterization of Temperate exoplanet atmospheres

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As the observing capabilities of modern space telescopes, like ESA's Ariel, are progressively increasing, the characterization of temperate ($300K<T_{eq}<500K$), or even cooler, exoplanets becomes possible and provides an important link between conditions found in the planets of the solar system and those in hot-Jupiter or hot-Neptune atmospheres. We explore here the processes defining the properties of temperate atmospheres with the help of self-consistent 1D forwards models that evaluate the energy balance, disequilibrium chemistry and microphysics processes. We specifically focus on the role of hazes and clouds, and the implications of disequilibrium processes instigated by photoelectrons. Results from characteristic cases will be discussed.