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Chemical evolution of hot-Jupiters at different orbital distances

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Abstract

Hot-Jupiters are the most frequently observed exoplanets, orbiting different spectral type stars at variable distances. Their chemical composition is currently being probed by primary and secondary eclipse observations, revealing the presence of the usual suspects (H_2O, CO, CH_4, etc) in abundances that vary among different planets, depending on their elemental abundance and the relative dominance of equilibrium (thermochemisty) or non-equilibrium (photochemisty, dynamics) processes. We discuss in this work the variation in the chemical composition of these atmospheres as the orbital distance is changed from very close to the parent star (0.1 A.U.) to larger distances, reaching to 1 A.U.