

**ABSTRACT ONLY****THE INFLUENCE OF STELLAR ACTIVITY ON  
THE ATMOSPHERIC PROPERTIES OF HOT  
JUPITERS**M. Navia<sup>1</sup>, L. Ghezzi<sup>1</sup> and P. Cruz<sup>2</sup>

Hot Jupiters are extremely irradiated gaseous exoplanets with orbital periods less than 10 days. Since they are exoplanets so close to their stars, it is reasonable to assume that there is a stellar influence on the atmosphere of these objects. It was previously shown in the literature that strong magnetic fields and high energy particles from the stellar chromosphere can affect hot Jupiters’ atmospheres by causing mass losses and subsequently orbital decay. We analyze the hypothesis that hot Jupiters without thermal inversion orbit active stars, while hot Jupiters with inversion orbit inactive stars. We use a larger sample and updated data to reproduce two approaches from previous works that try to classify hot Jupiters according to their brightness temperatures in five infrared bands: 3.6  $\mu\text{m}$ , 4.5  $\mu\text{m}$ , 5.8  $\mu\text{m}$ , 8.0  $\mu\text{m}$  (Spitzer), J, H and Ks (2MASS). We also investigated the relationship between the incident radiation and the presence or absence of thermal inversions. We found a good correlation (Pearson  $r$  coefficient  $\geq 0.6$ ) between 5.8  $\mu\text{m}$  and H brightness temperatures and the chromospheric activity index  $\log R'_{\text{HK}}$ . However, we did not find a clear separation between exoplanets with and without thermal inversion as a function of stellar activity. We also found that the most irradiated exoplanets have thermal inversion, while the least irradiated ones do not.

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