
Combining space- and ground-based data to optimise exoplanet atmospheric characterisation

Résumé

Two years on from its launch, JWST has established itself as a ground-breaking tool in exoplanet atmospheric characterisation, showing the great benefits of having a new and improved space-based instrument for such studies. It also creates excitement as to what ARIEL could do for the field, being a mission dedicated to studying exoplanet atmospheres. Furthermore, the results obtained from analysing its data will be improved by combining ARIEL data with the wealth of information acquired by ground-based instruments. Indeed, the low-resolution data of the former and high-resolution data of the latter are complementary, and their combination improves the precision of estimations of atmospheric properties and lifts some of the degeneracies inherent to low/high resolution alone. And while only a handful of studies have at present performed such combinations, the interest in performing such studies seems to be increasing. Within the ATMOSPHERIX consortium, we are currently working on extending the use of our publicly available data analysis pipeline to be able to combine low- and high-resolution data. It has so far successfully found the same results as those previously published obtained by combining SPIRou data with data from HST and Spitzer (Boucher et al. 2023). In my talk, I will present the procedure followed to perform the combination, followed by results I obtained by combining SPIRou and HST data of WASP-76b.

Mots-Clés: Exoplanet atmospheres, Data analysis