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## The equatorial wind structure in Jupiter's stratosphere from direct wind and temperature measurements with ALMA and IRTF/TEXES

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The stratosphere of Jupiter is subject to an equatorial oscillation of its temperature structure with a quasi-period of 4 years (Orton et al. 1991, Leovy et al. 1991) which could result in a complex vertical and horizontal structure of prograde and retrograde jets. Yet, the stratospheric wind structure in Jupiter's equatorial zone has never been directly measured. It has only been inferred in the tropical region from the thermal wind balance using temperature measurements in the stratosphere and the cloud-top wind speeds as a boundary condition (Flasar et al. 2004). However, the temperatures are not well-constrained between the upper troposphere and the middle stratosphere from the observations.

In this paper, we obtain for the first time an auto-consistent determination of the tropical wind structure using wind and temperature measurements all performed in the stratosphere. The wind speeds have been measured by Cavalié et al. (submitted) at 1 mbar in the stratosphere of Jupiter in the equatorial and tropical zone in March 2017 with ALMA. The stratospheric thermal field was measured five days apart in the low-to-mid latitudes with the IRTF/TEXES instrument (Giles et al. 2020). For the wind derivation, we use the thermal wind equation (Pedlosky, 1979) and equatorial thermal wind equation (Marcus et al. 2019). We will present and discuss our results.

This paper is a follow-up to the EGU21-8726 paper.