

# Diverse Stratosphere Circulation in tidally locked Exo-Earths

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## Abstract

Stratosphere circulation is important to interpret abundances of e.g. photo-chemically produced compounds like ozone that we aim to observe to assess habitability of exoplanets. We thus investigate a tidally locked ExoEarth scenario for a hypothetical TRAPPIST-1b-like planet around an even cooler host star [1], TRAPPIST-1d [1], Proxima Centauri b [2] and GJ 667 C f [3] with a simplified 3D atmosphere model.

We show that the circulation in a transient stratosphere on these planets can be very diverse for these planets, ranging from a scenario with efficient equator-to-polewards circulation to the exact opposite, 'Anti-Brewer-Dobson'-circulation that confines air masses to the stratospheric equatorial region [4].

## References

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