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Supporting Information for

Global climatology of low-level-jets: occurrence, characteristics, and meteorological drivers

E. W. Luiz[1]*, and S. Fiedler[1,2]

[1]Institute for Geophysics and Meteorology, University of Cologne, Cologne, Germany

[2]now: GEOMAR Helmholtz Centre for Ocean Research Kiel & Faculty for Mathematics and Natural Sciences, Christian-Albrechts-University Kiel, Germany

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Introduction

The manuscript presents a global climatology of low-level jets (LLJ) using the ERA5 reanalysis. The supporting information presents four Figures, which are not necessary for the complete comprehension of the manuscript, but are interesting for a deeper and more specific understanding of the LLJ characteristics.

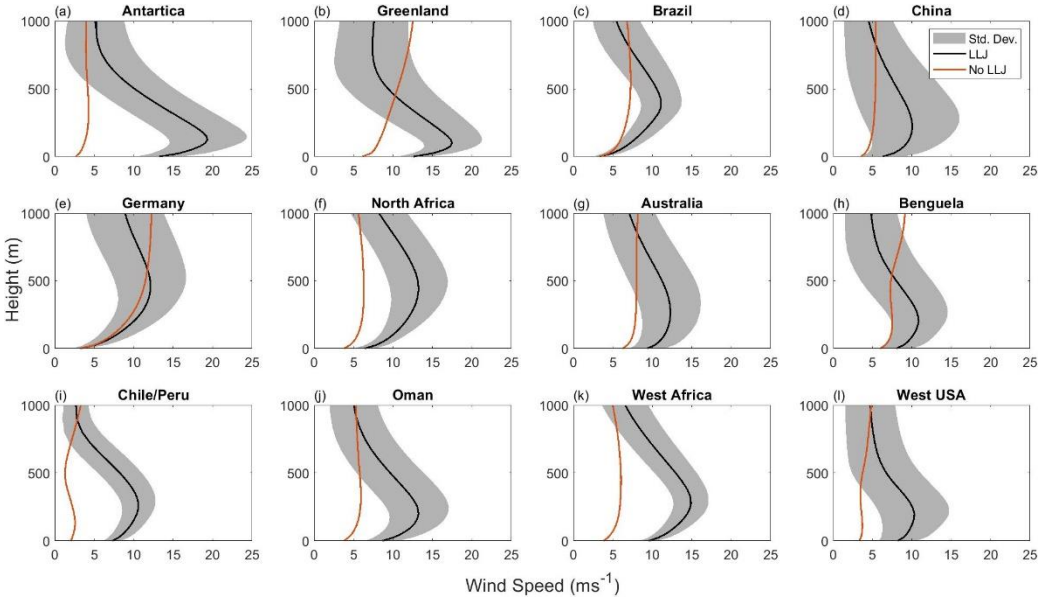

Figure S1. Examples of wind speed profiles for the 3 months with the highest LLJ frequency of occurrence in 2018. Shown are the averaged LLJ profiles (black) ± standard deviation (gray shading) and the mean profiles excluding LLJs (red). The results are based on ERA5 at the locations marked in Figure 1.

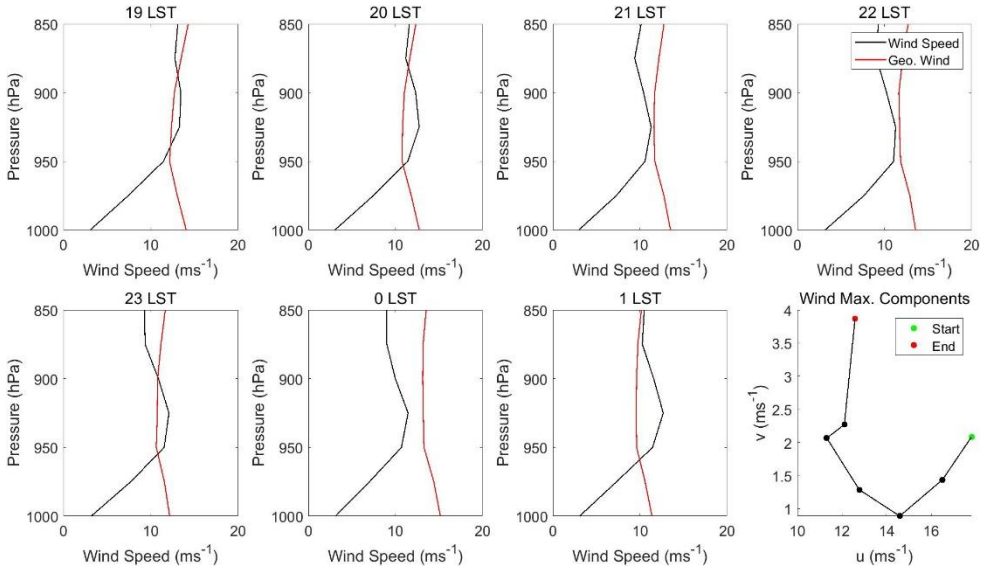

Figure S2. Case study representative of a NLLJ in Germany starting on 03 December 2018. Shown are the (black) the profiles of the wind speed and (red) the geostrophic wind speed to assess the occurrence of supergeostrophy. The hourly horizontal wind components in

zonal (u) and meridional direction (v) from 19 local time are shown in the last plot to assess the expected turning of the wind field.

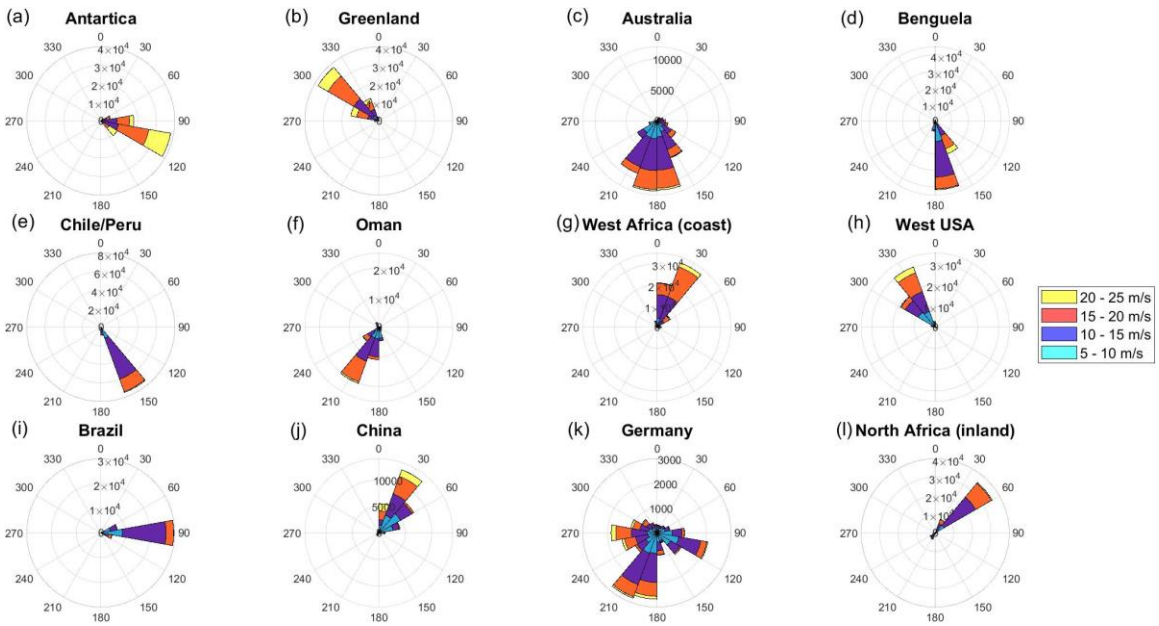

Figure S3. Wind roses for the LLJ cores at the selected locations. Shown are the total number of LLJs per wind direction with color-coded wind speeds. The results are based on ERA5 for 1992-2021 at the locations marked in Figure 1.

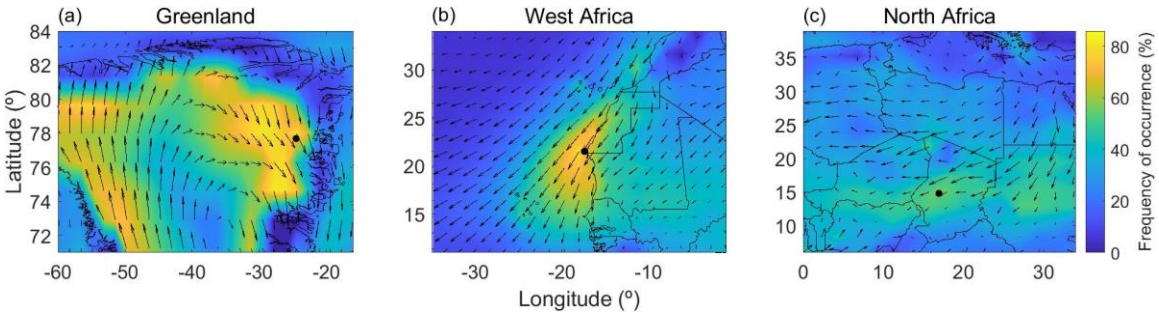

Figure S4. Zoom-in for spatial patterns of the frequency of occurrence along with the prevailing wind direction for one of each LLJ type assessed. Shown are the results for (a)

the PLLJ in Greenland, (b) the CLLJ in West Africa, and (c) the NLLJ in North Africa. The black dots mark the location for the composite analysis of the LLJ types.