



*Supplement of*

## **On the mechanisms that control the rainy season transition periods in the equatorial Congo Basin**

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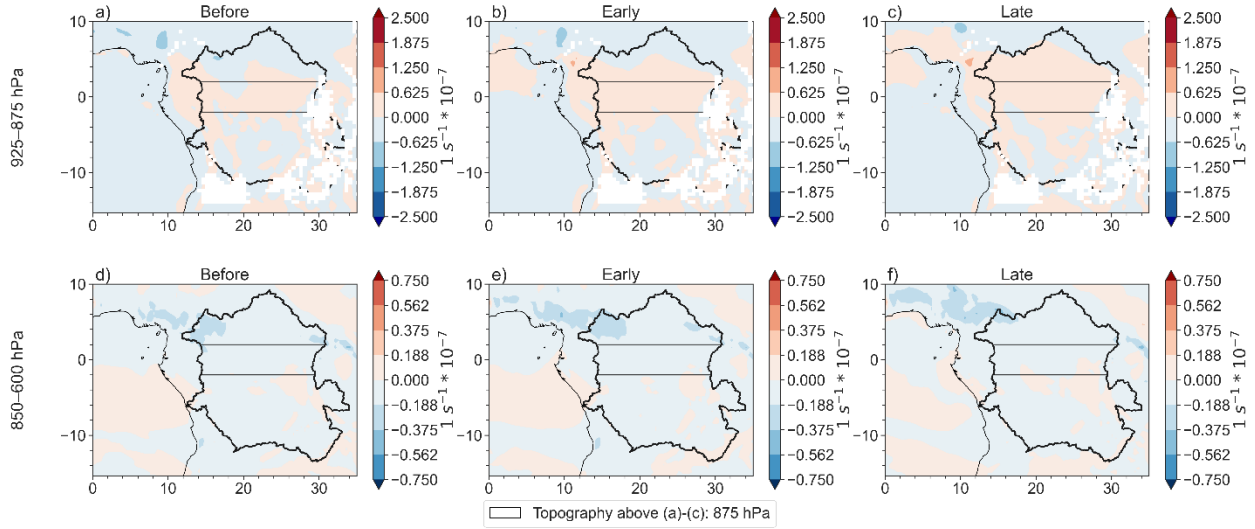
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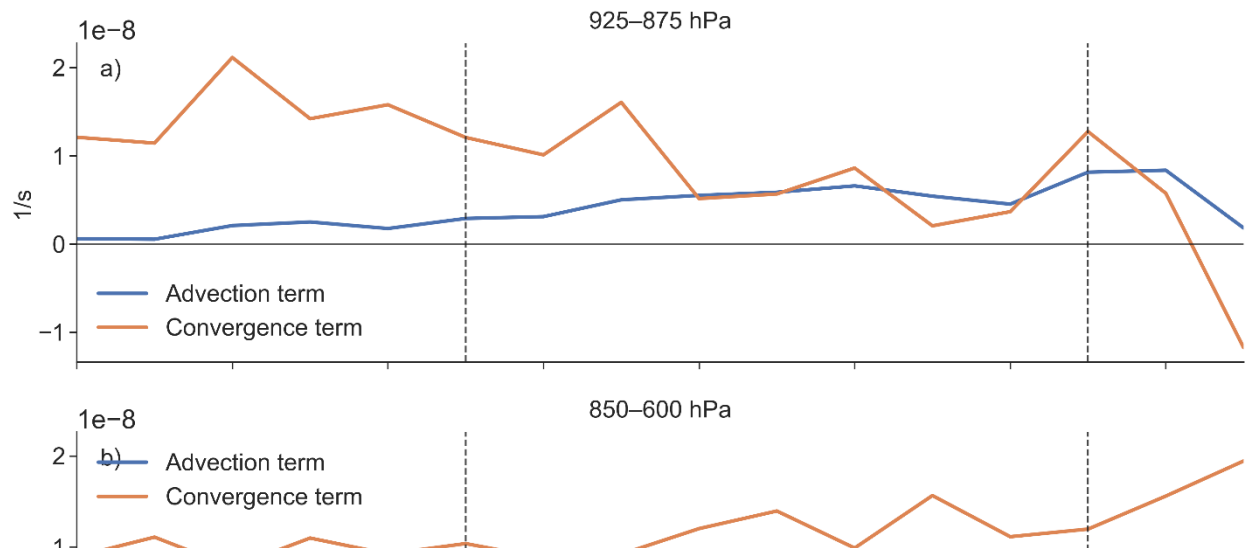
## Supplementary Figures

Figure S1



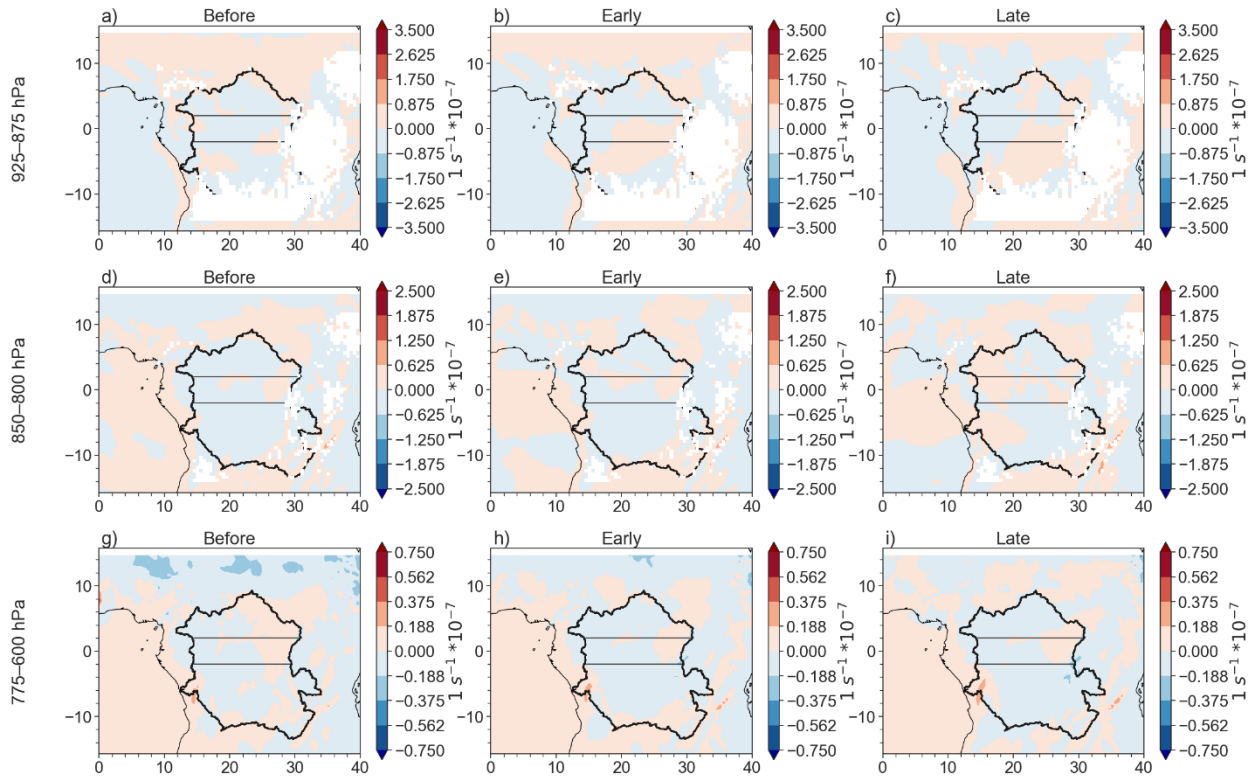
**Figure S1:** Moisture advection term ( $v \times \nabla q$ ; blue) for (a)-(c) average of 925-875 hPa; (d-f) average of 850-600 hPa.

Figure S2



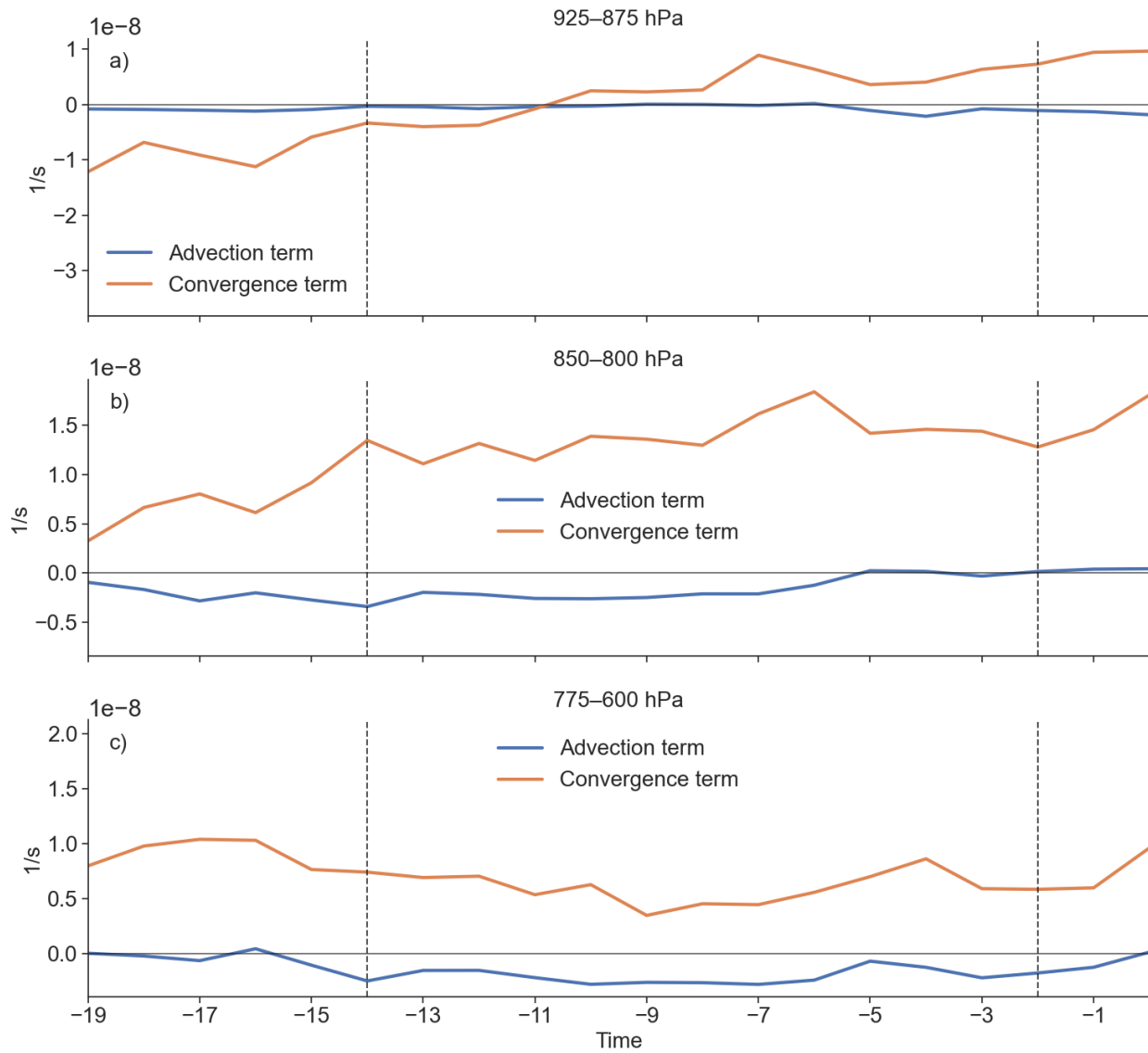


**Figure S3**



**Figure S3:** Moisture advection term ( $v \times \nabla q$ ; blue) for (a)-(c) average of 925-875 hPa; (d-f) average of 850-800 hPa; and (g-i) average of 775-600 hPa.

**Figure S4**



**Figure S4:** Moisture advection term ( $v \times \nabla q$ ; blue) and moisture convergence term ( $q \times \nabla v$ ; orange) for a) average of 925-875 hPa; and b) average of 850-800 hPa; and c) average of 775-600 hPa over the equatorial Congo.

Figure S5

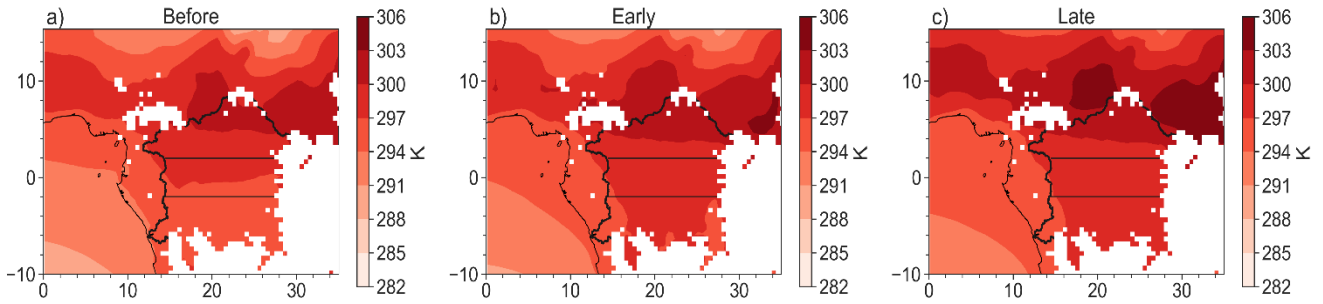


Figure S5: For the transition to the spring RSO: Near surface (925 hPa) temperature for the a) “before” period; b) early transition; and c) late transition. White shades mask out topography above 925 hPa.

Figure S6

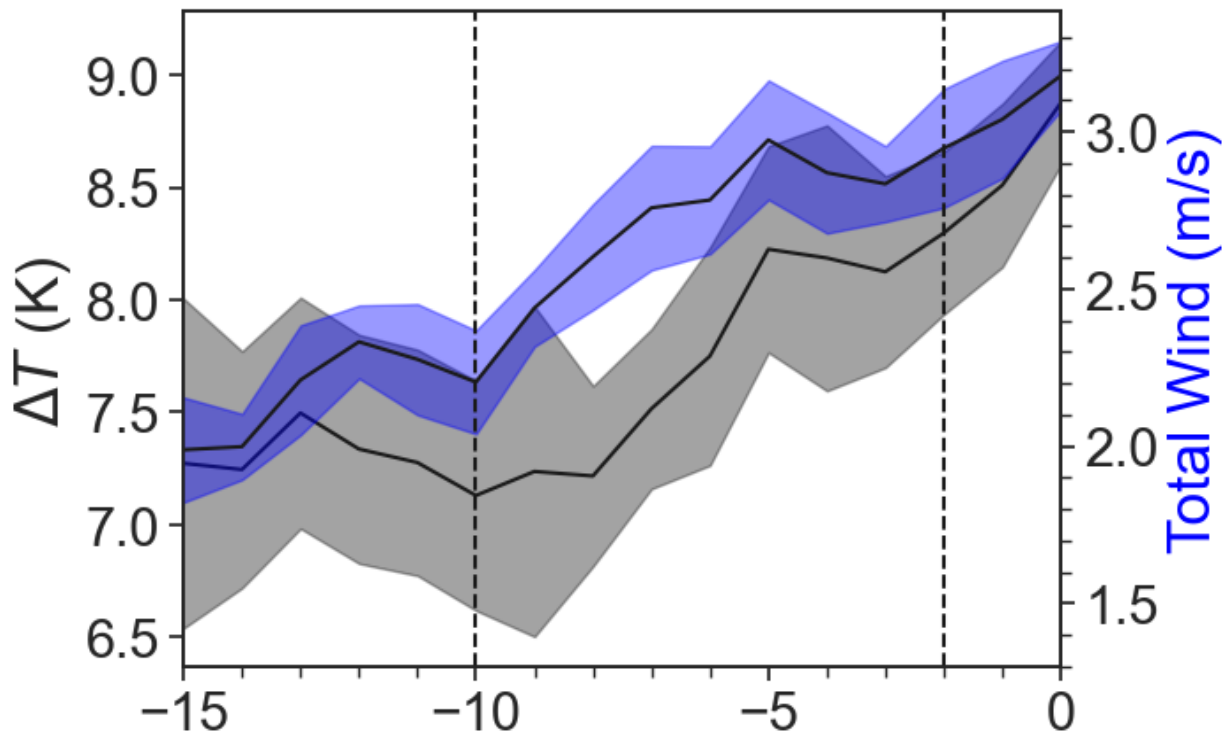


Figure S6: Black line: 925 hPa temperature gradient between the Atlantic Ocean ( $5^{\circ}\text{S} - 2^{\circ}\text{N}, 5^{\circ}\text{W} - 8^{\circ}\text{E}$ ) and northern Congo ( $5^{\circ}\text{N} - 12^{\circ}\text{N}, 15^{\circ}\text{E} - 35^{\circ}\text{E}$ ). Blue line: 925 hPa wind magnitude ( $\sqrt{u^2 + v^2}$ ) in the equatorial and northern Congo coastlines ( $2^{\circ}\text{S} - 6^{\circ}\text{N}, 5^{\circ}\text{E} - 15^{\circ}\text{E}$ ). Prior to the spring RSO.

**Figure S7**

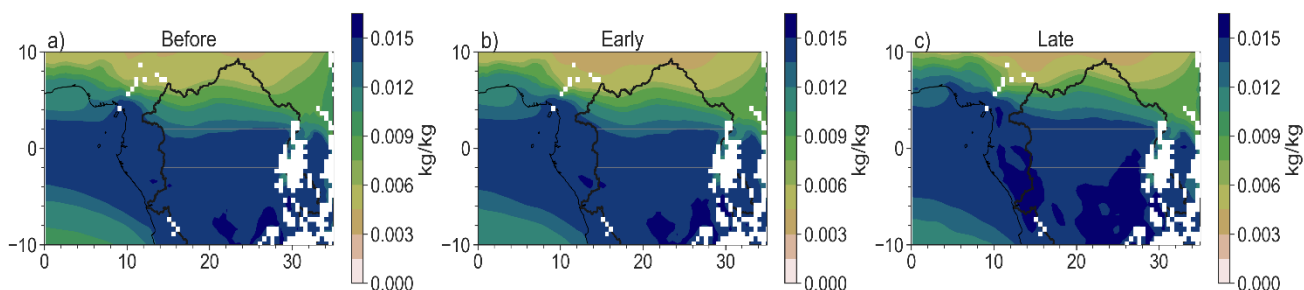


Figure S7: Specific humidity ( $q$ ) averaged between 925-875 hPa for a) the “before” period; b) the early transition period; and c) the late transition period. Prior to the spring RSO. White shades mask out topography greater than 875 hPa.

**Figure S8**

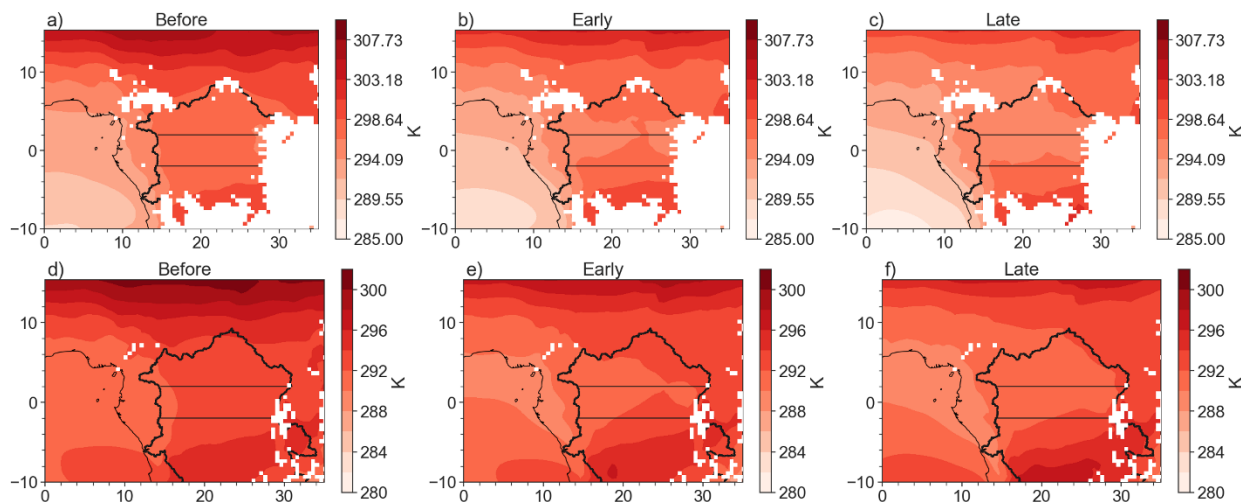


Figure S8: Surface temperatures (white areas mask regions with surface elevation greater than 925 hPa) at 925 hPa for a) the “before” period; b) The early transition period; and c) the late transition period; and at 850 hPa (white areas mask regions with surface elevation greater than 850 hPa for d) The “before” period; e) the early transition period; and f) the late transition period. Prior to the fall RSO. 850 hPa is representative of near-surface temperatures in the southern Congo (below  $2^{\circ}S$ ).

Figure S9

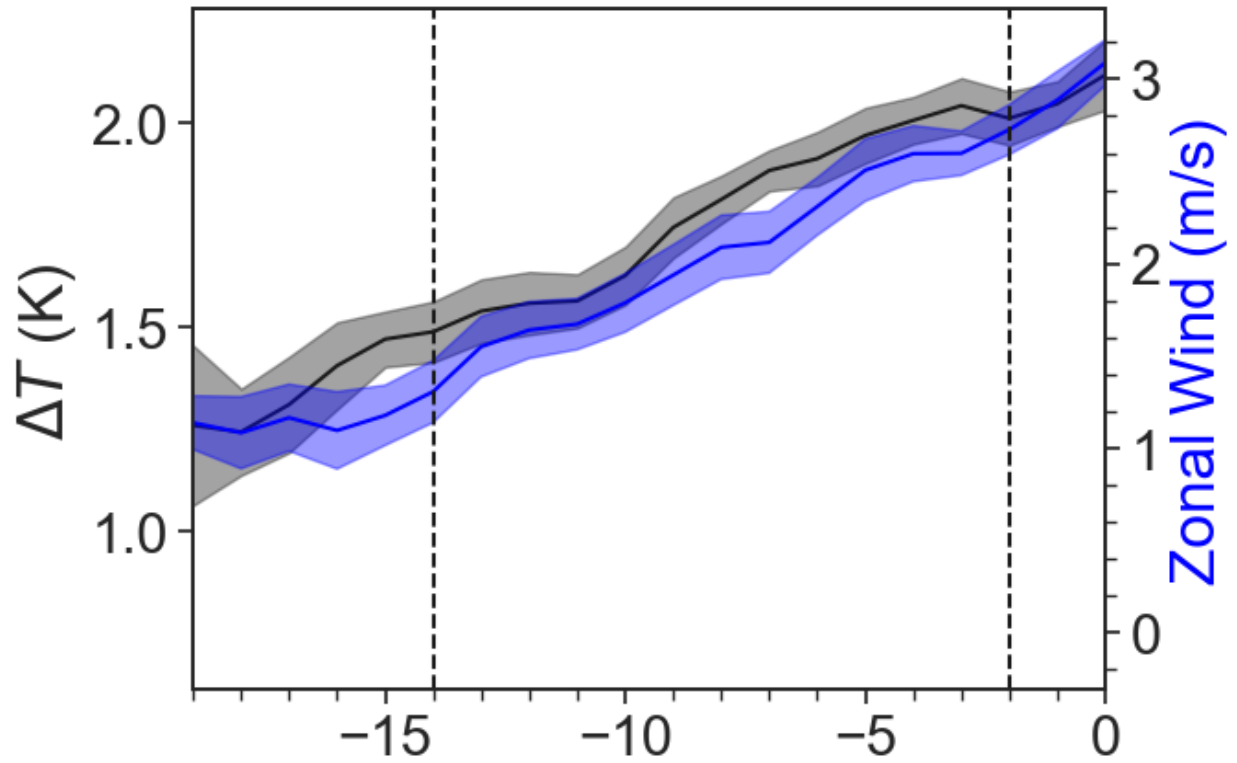


Figure S9: Black line: 925 hPa temperature gradient between the Atlantic Ocean ( $5^{\circ}S - 5^{\circ}N, 5^{\circ}W - 5^{\circ}E$ ). Blue line: Zonal 925 hPa wind component between  $5^{\circ}S - 5^{\circ}N$  and  $5^{\circ}E - 15^{\circ}E$ . Prior to the fall RSO.