

Supplement to: resolving the conundrum of the mid-winter suppression in the North Pacific

Clemens Spensberger^{1*}, Kristine F. Haualand² and
Thomas Spengler¹

^{1*}Geophysical Institute, University of Bergen, and Bjerknes Centre for
Climate Research, Bergen, Norway.

²Western Norway University of Applied Sciences, Sogndal, Norway.

*Corresponding author(s). E-mail(s): clemens.spensberger@uib.no;
Contributing authors: kristine.flacke.haualand@hvl.no;
thomas.spengler@uib.no;

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growth rates

This supplement contains Figures analagous to Figures 1-4 in the main manuscript,
but for the Western Pacific box defined by Nakamura [1].

References

- [1] Nakamura, H.: Midwinter suppression of baroclinic wave activity in the Pacific.
Journal of the Atmospheric Sciences **49**(17), 1629–1642 (1992) [https://doi.org/10.1175/1520-0469\(1992\)049<1629:MSOBWA>2.0.CO;2](https://doi.org/10.1175/1520-0469(1992)049<1629:MSOBWA>2.0.CO;2)

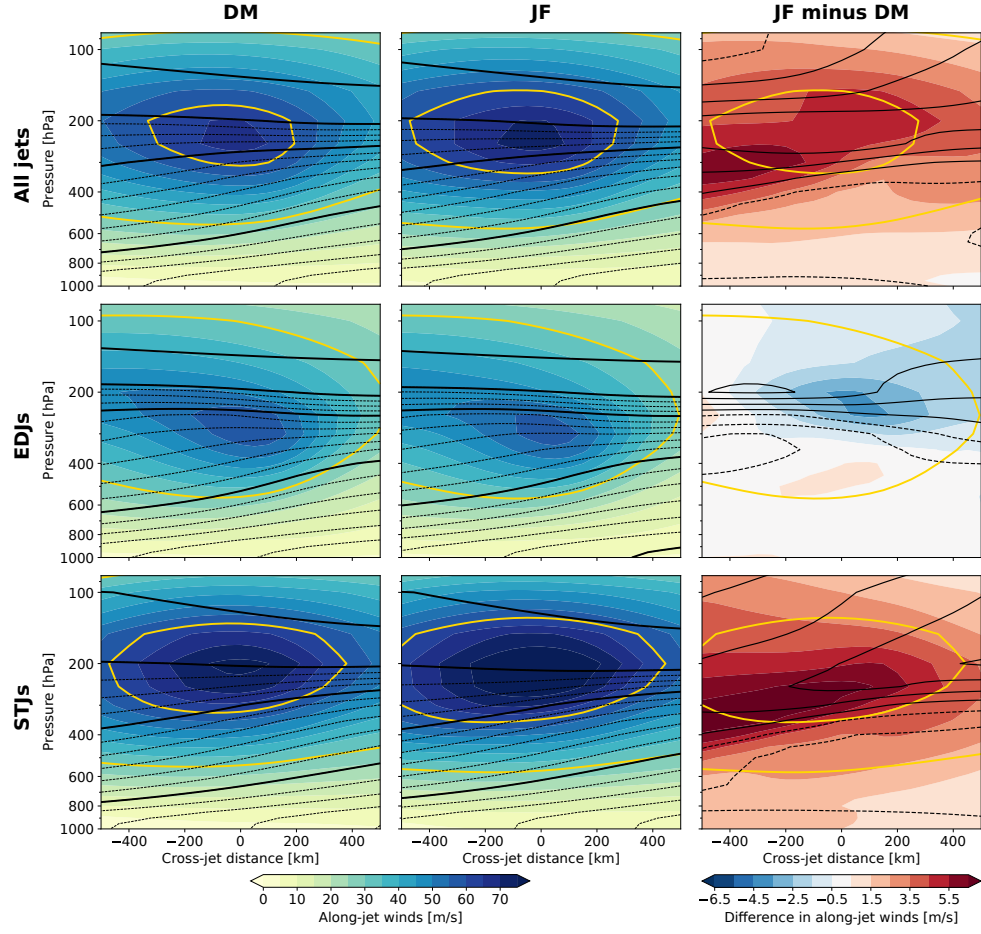


Fig. S1 Average jet cross sections of the along-jet winds $\bar{u}$ during (a,d,g) December & March (DM), (b,e,h) January & February (JF), and (c,f,i) JF minus DM. Black dashed contours in leftmost two columns show potential temperature in steps of 5 K up to 350 K, the thicker solid contours potential temperature at 270, 300, 330, 350 and 385 K. In panels (c,f,i), black contours show potential temperature differences with an interval of 1 K and negative contours dashed. Yellow contours in all panels highlight the 30 and 60 m/s isotachs, with the JF-isotachs repeated in (c,f,i). The top row shows all jets, the middle row eddy-driven jets, and the bottom row subtropical jets.

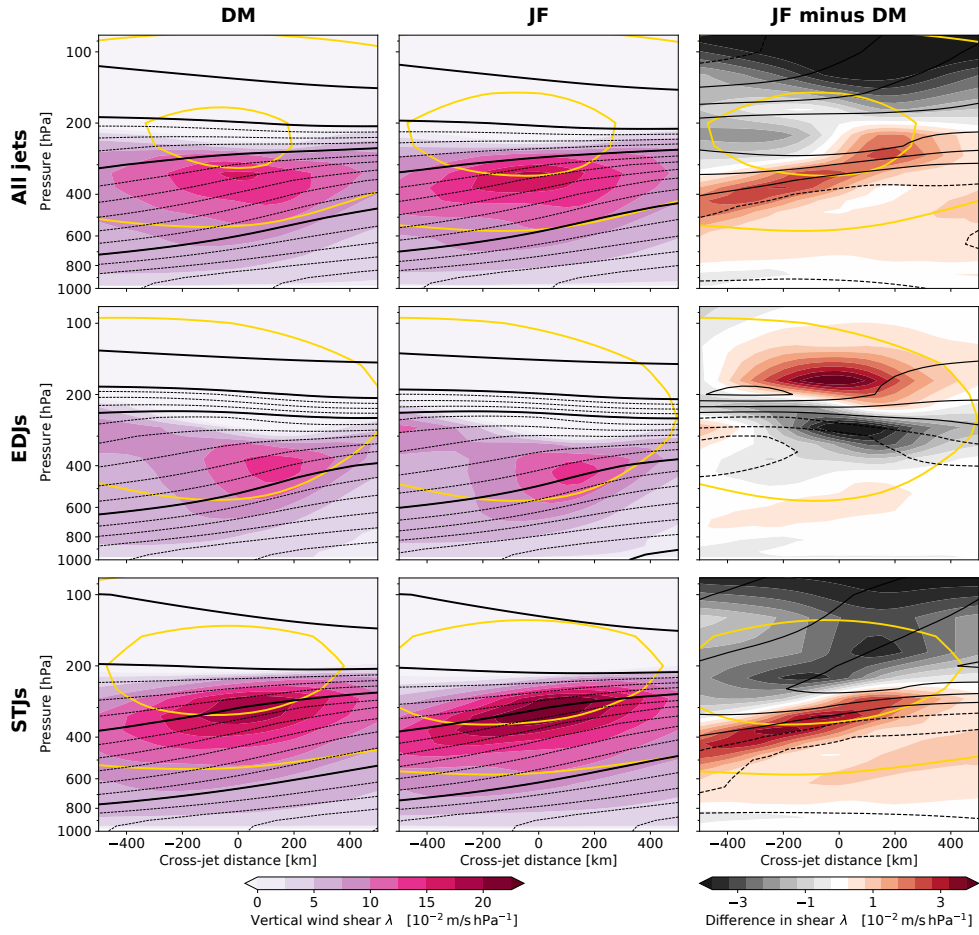


Fig. S2 As Fig. S1, but showing vertical wind shear $\lambda = -\frac{\partial \bar{u}}{\partial p}$ in shading. Negative values of the vertical wind shear on the stratospheric side of the jet are clipped for visual clarity.

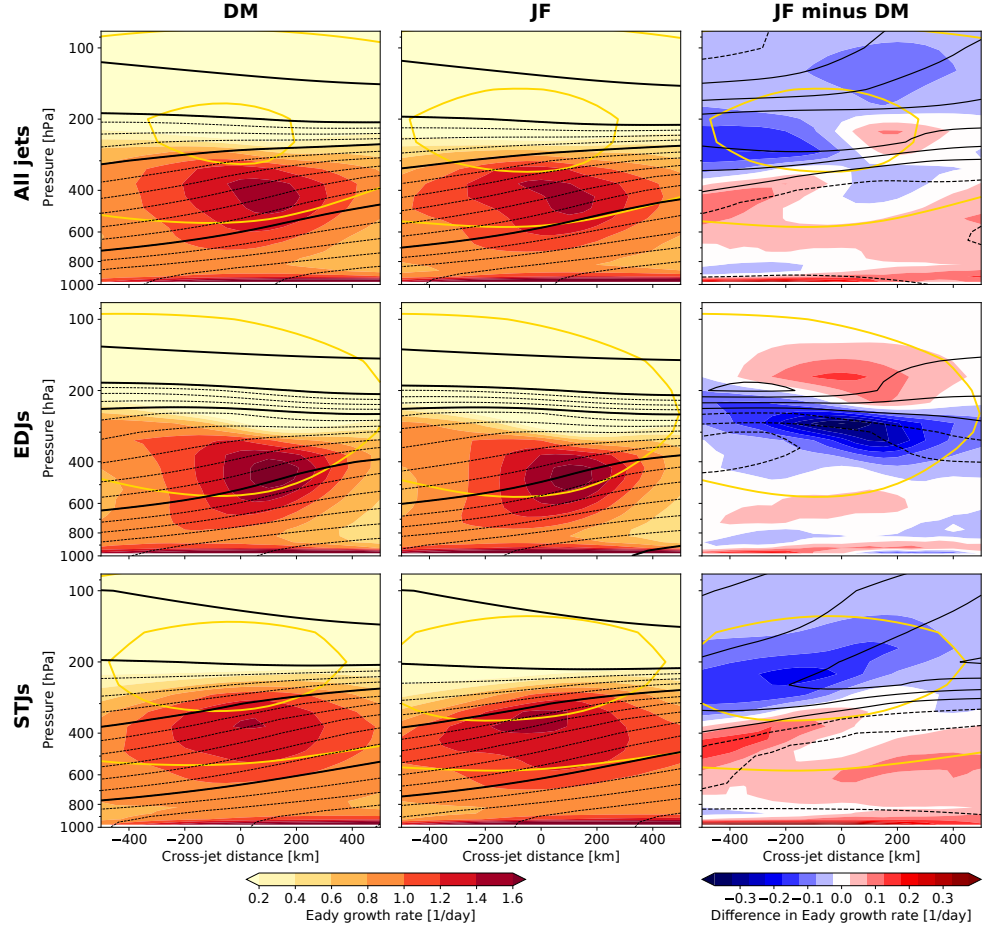


Fig. S3 As Fig. S1, but showing Eady growth rate $\sigma_E = 0.31 f \frac{\lambda}{\sqrt{S}}$ in shading.

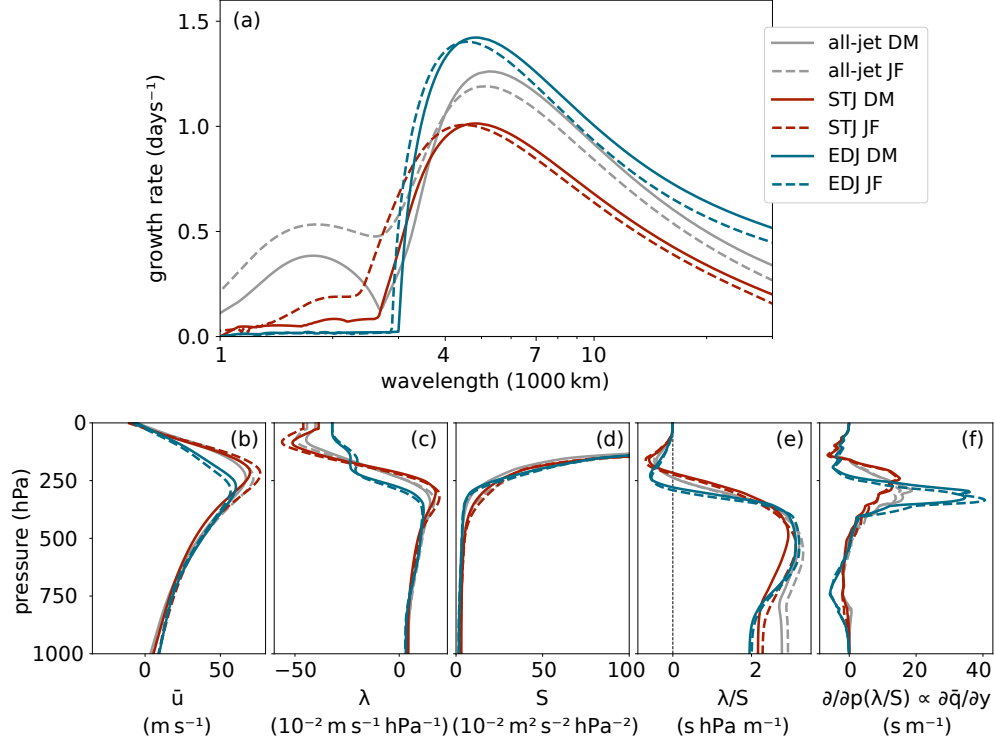


Fig. S4 (a) Eady-growth rate for eddy-driven, subtropical and all jets during December & March (DM) versus January & February (JF). (b-f) Mean profiles of (b) along-jet wind, (c) vertical wind shear, (d) the static stability parameter S , (e) the baroclinicity parameter λ/S , and (f) the vertical change in baroclinicity, which is proportional to the meridional potential vorticity gradient. The wind and stability profiles in (b) and (d) are taken from ERA5, the remaining profiles are derived from these.