# Supplementary material : How do clouds and turbulence shape the northeasterly low-level jet of a summertime Arctic cyclone during its cold core transition ?

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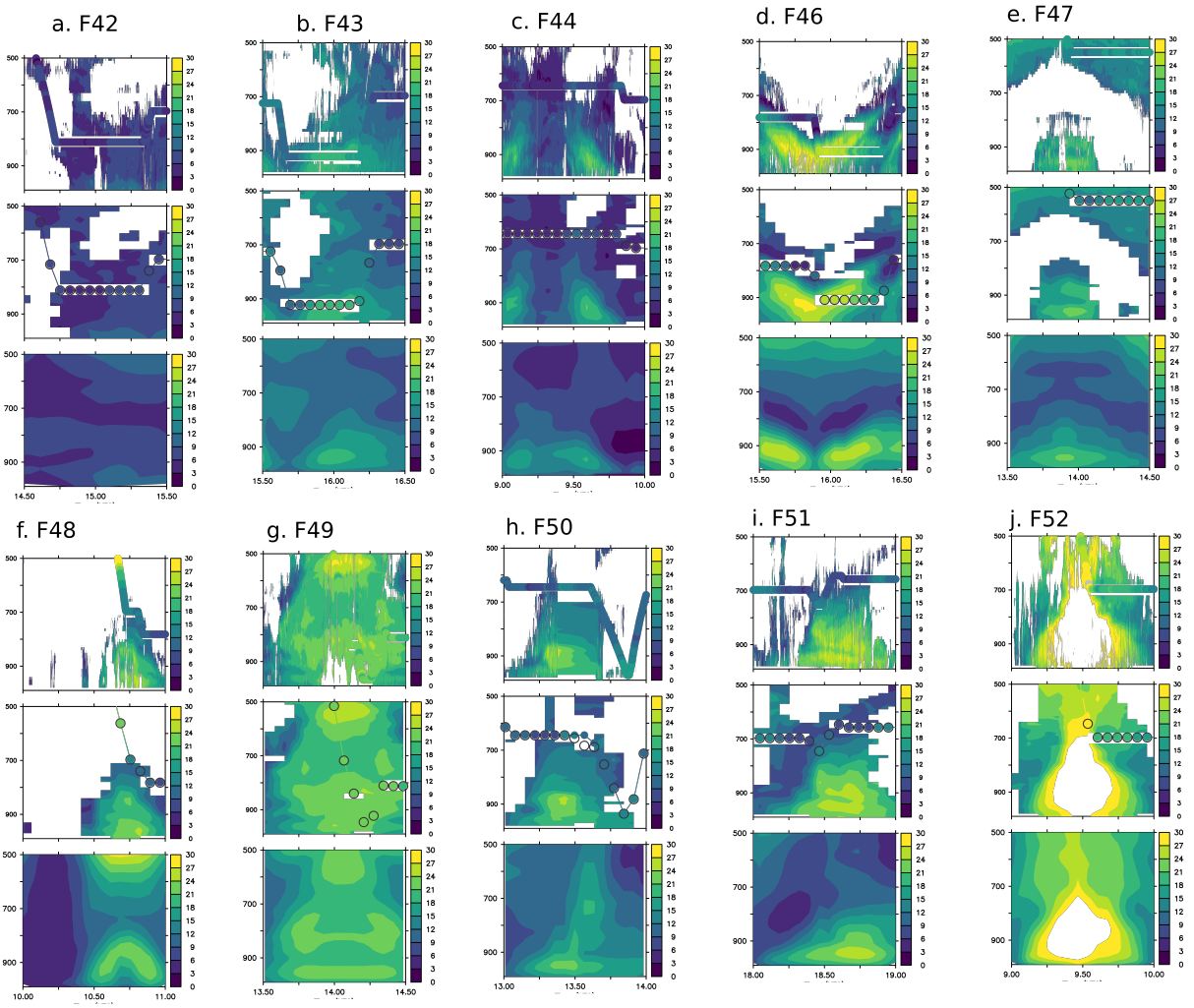


**Figure S1.** Comparison of different LLJs sampled during the Rali-Thinice campaign. Upper panels: observed horizontal wind speed by the RASTA radar. Middle panels: interpolated on the ERA5 short-term forecasts grid. Lower panels: horizontal wind speed along flights by ERA5 short-term forecast. ERA5 short-term forecasts are selected so that their initialisation is the closest to the flight time, i.e. between 1h and 12h before the flight. The trajectories for each flight are shown in Rivière et al. (2024).

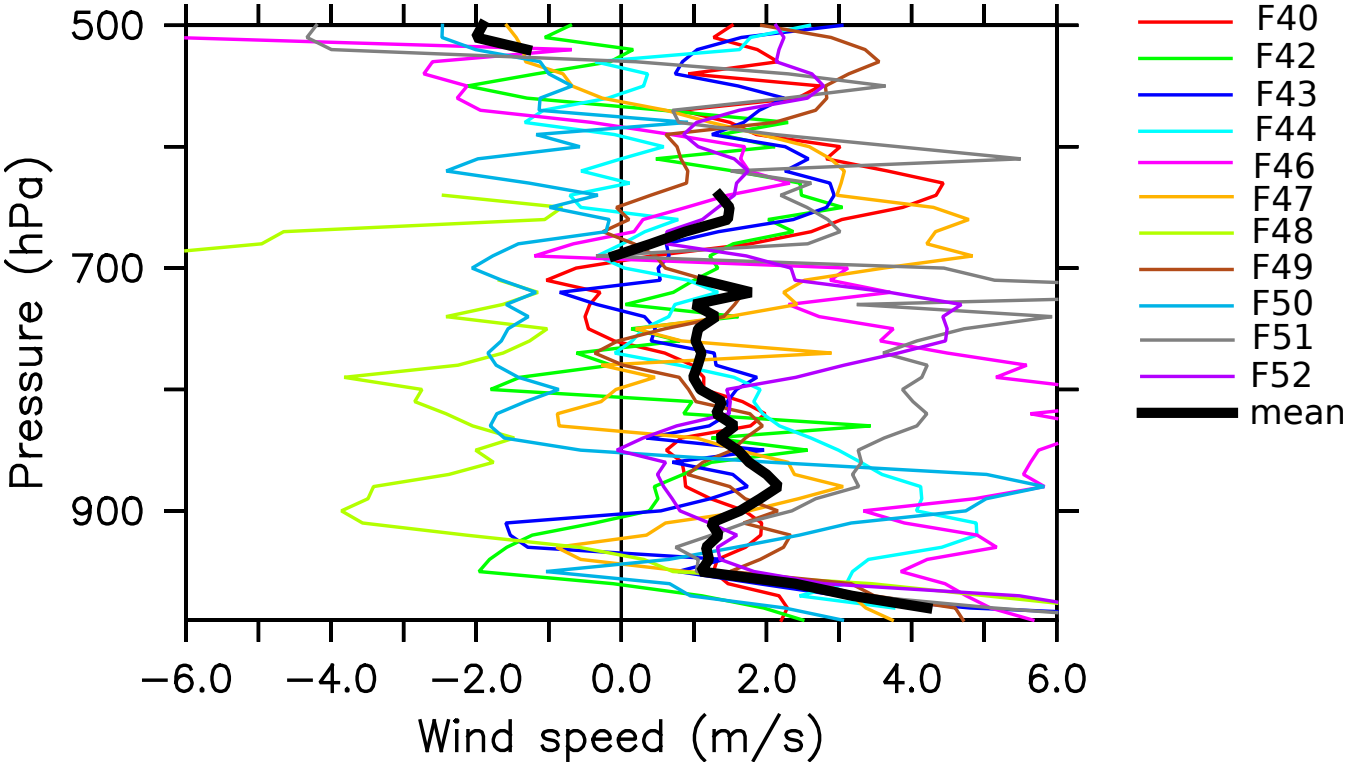


**Figure S2.** Same as figure 4 in the main manuscript but for ERA5 analyses.

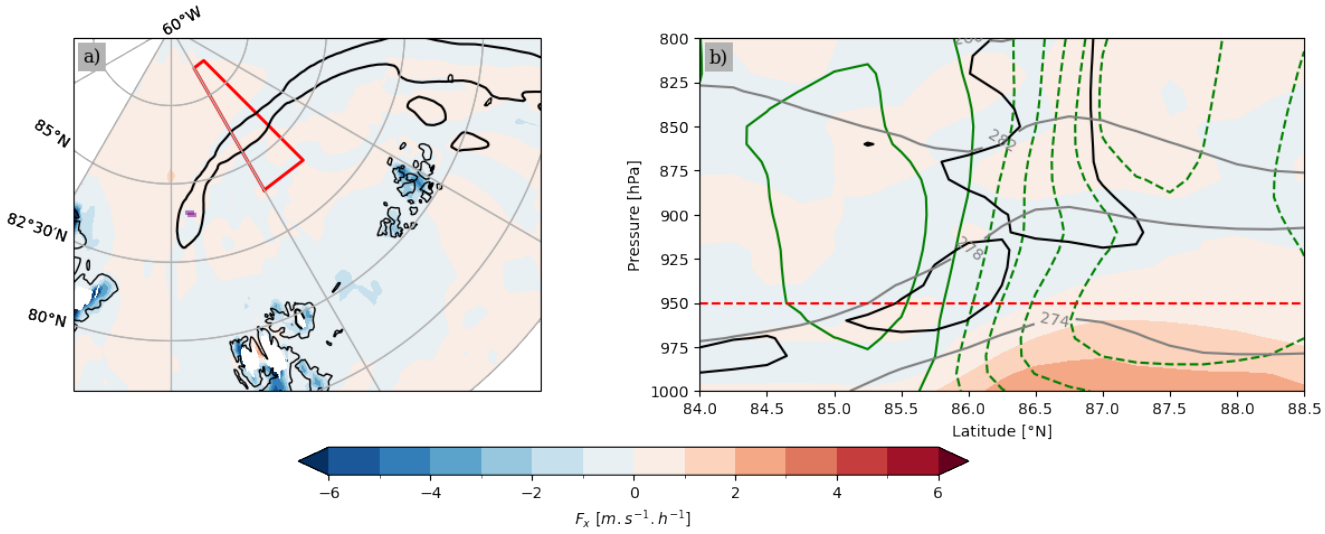


**Figure S3.** Wind tendencies due to parameterisations and locations of trajectories that generate or destroy PV through friction processes (more or less than $\pm 0.01 \mathrm{pvu.h}^{-1}$). Similar to Fig. 9 in the main manuscript but for the cold-core phase, at 12:00 UTC on 19 August 2022. The grey contours are isolines of potential temperature and the green contours represent the zonal wind. We can see that at this moment, there was almost no effect of friction on PV.

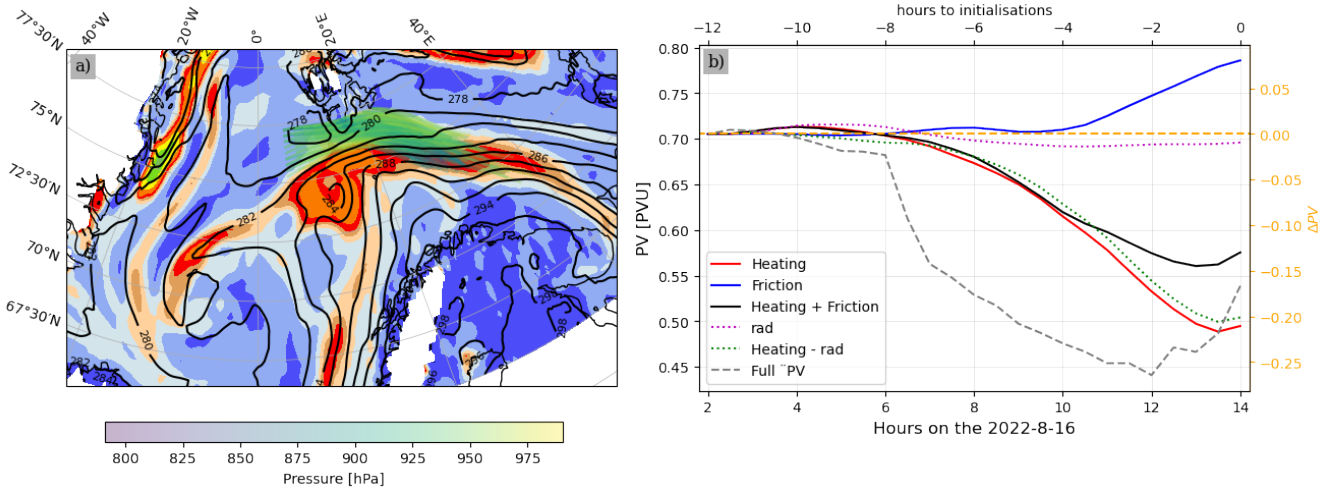


**Figure S4.** Same as Fig. 6 in the main manuscript but for trajectories initialised at the North of the warm front in AC3A where the PV is bellow 1 pvu, every 0.25° between 75° N and 77.5° N, every 2° between 5° E and 25° E and every 20 hPa between 850 and 950 hPa.