

Excessive 21st century North Pacific solar absorption attributed to poleward storm track shift, sea surface warming, and aerosol decreases

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Supplementary Material

Comparison and Combination of MODIS and VIIRS products in M1.75 Region

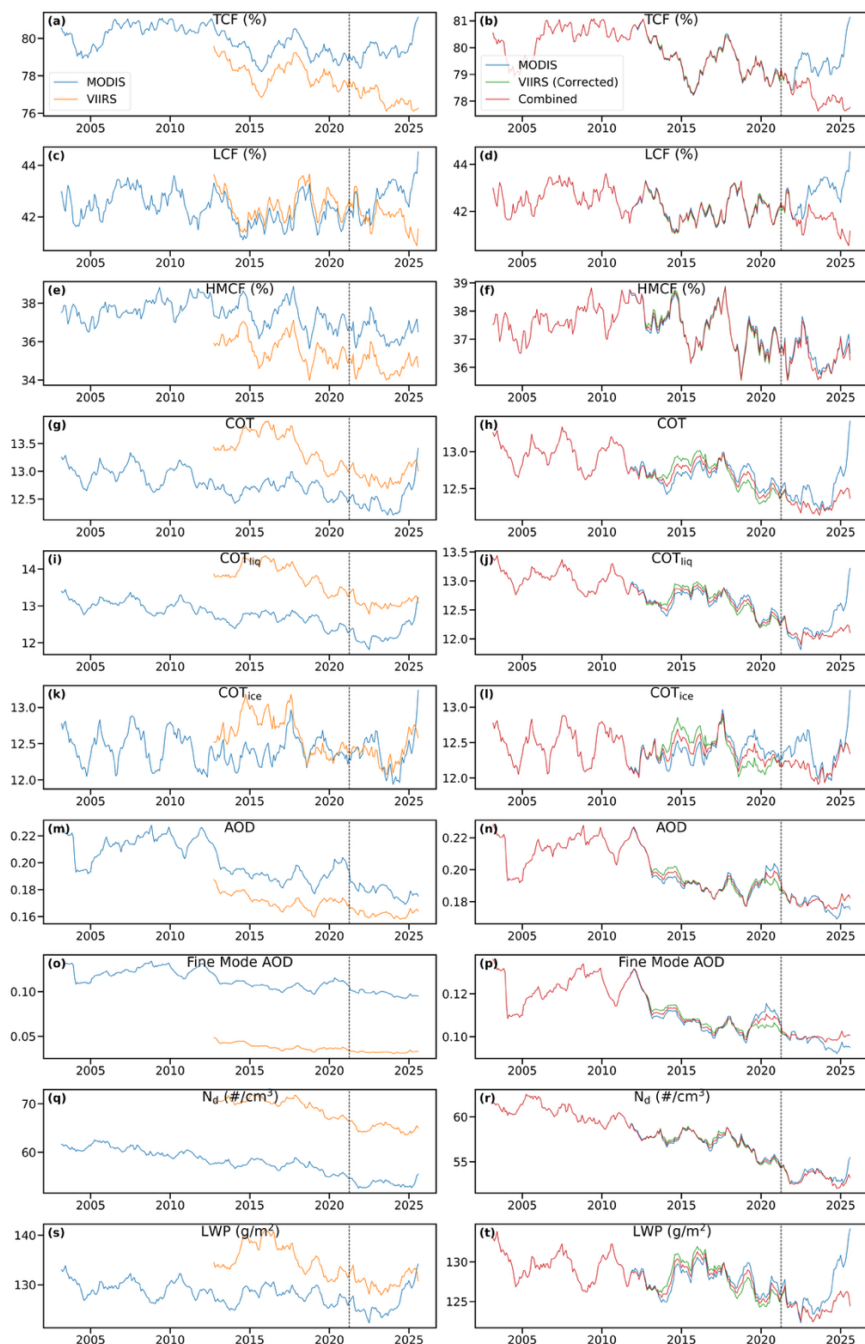


Figure S1. Monthly mean time series from MODIS and VIIRS (left panels) and MODIS, VIIRS, and the combined product (right panels) for TCF (a, b), LCF (c, d), HMCf (e, f), COT (g, h), COT_{liq} (i, j), COT_{ice} (k, l), AOD (m, n), Fine Mode AOD (o, p), N_d (q, r), and LWP (s, t).

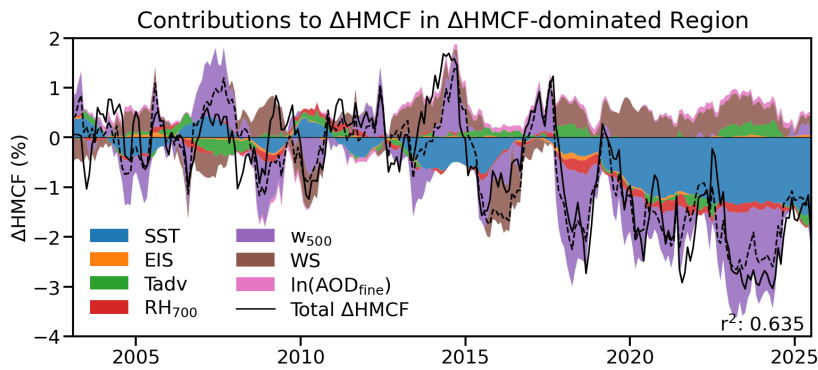


Figure S2. Contribution to the ΔHMcF trend from SST (blue), EIS (orange), Tadv (green), RH₇₀₀ (red), w₅₀₀ (purple), WS (brown), and ln(AOD_{fine}) for the ΔHMcF -dominated regime. The black line shows the ΔHMcF trend and the dotted line the sum of the contribution of the seven factors.

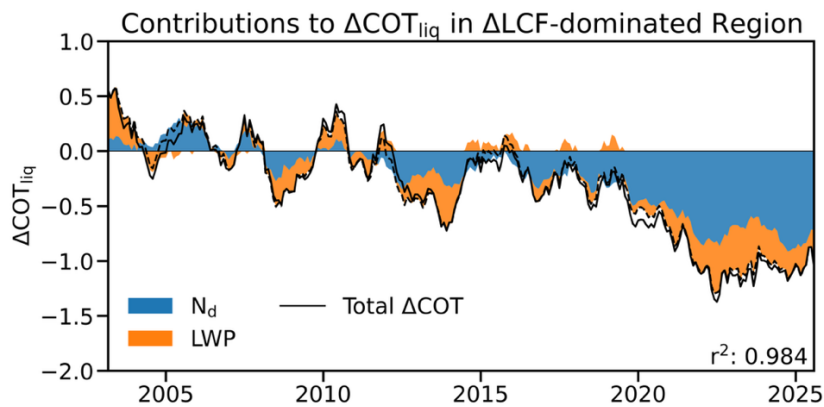
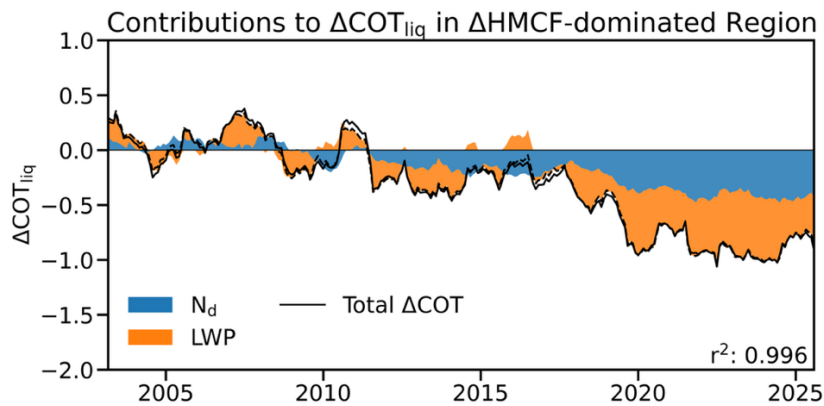
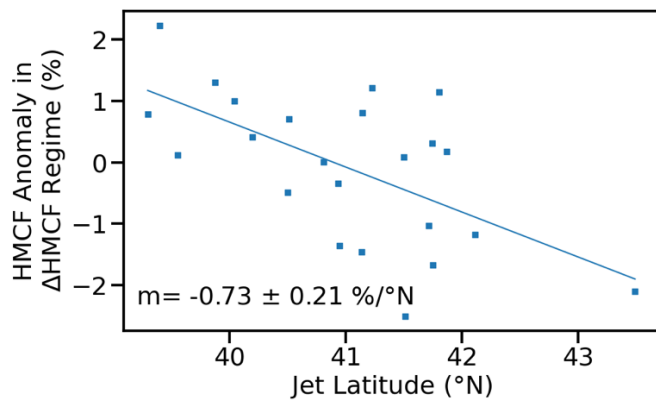


Figure S3. Contribution to the $\Delta\text{COT}_{\text{liq}}$ trend from Nd (blue), and LWP (orange), for a) the ΔHMcF -dominated regime, and b) the ΔLCF -dominated regime. The black line shows the $\Delta\text{COT}_{\text{liq}}$ trend and the dotted line the sum of the contribution of the two factors.



25 **Figure S4. Scatter plot of annual HMCf anomalies versus the central latitude of the midlatitude jet, for the Δ HMCf region.**

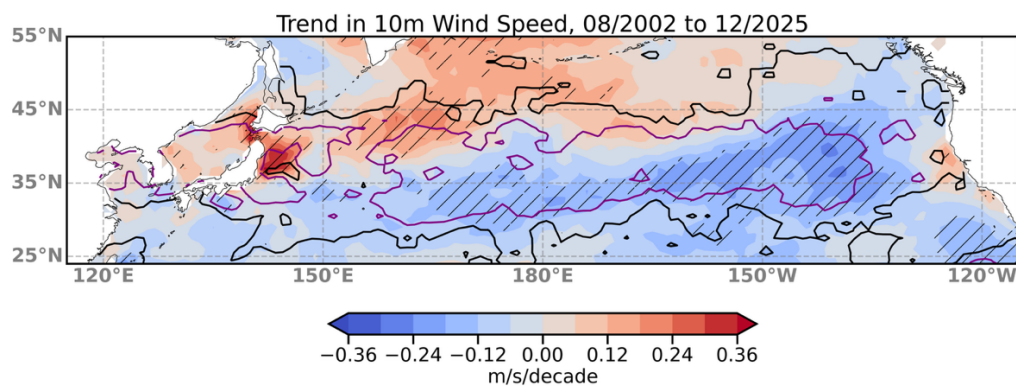


Figure S5. Trend in 10m Wind Speed superimposed on the 1.75 W/m²/dec ASR isoline, for the N. Pacific region.