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Supplement of

Detection and global climatology of two types of spatio-temporal clustering of extratropical cyclones

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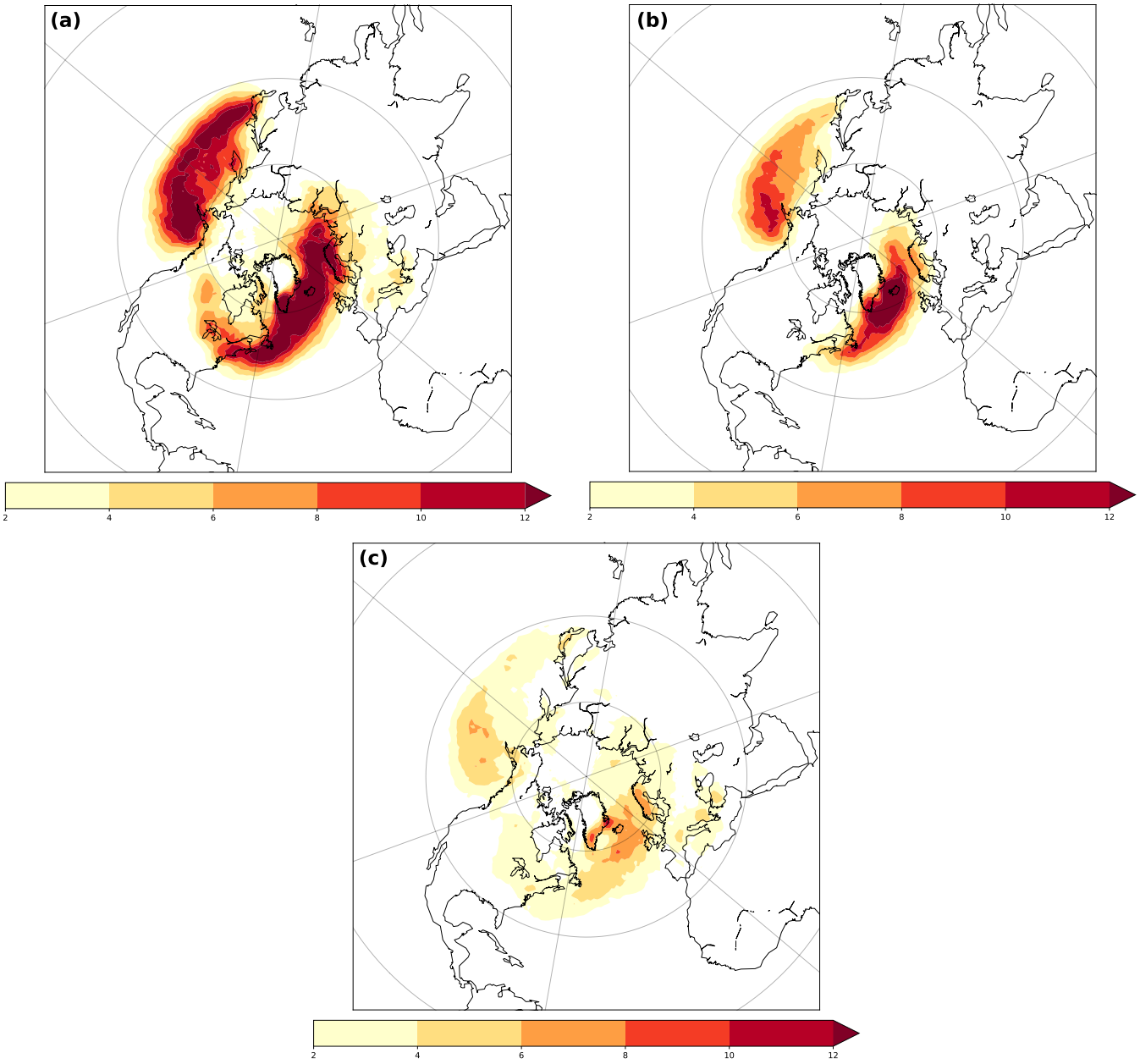

Figure S1. Cyclone clustering climatology for DJF in the Northern Hemisphere using a threshold of (upper left) at least 4 cyclones in a 7-day running mean in a local 700 km radius. Plotted in shading is the percentage of the time steps that this condition is satisfied. (upper right) The same as upper left, but only using intense cyclones (above a Laplacian of 2.0). (lower panel) The same as upper left, but for 3 cyclones in a 7-day running mean and only using the cyclones with an intensity above the local 5.0% pressure DJF quantile.

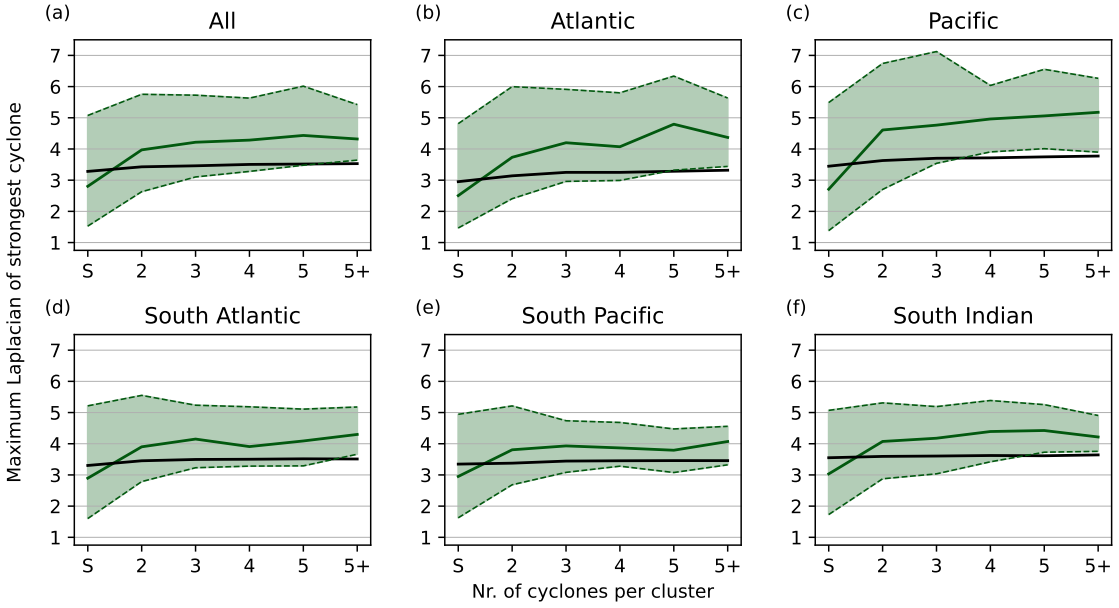

Figure S2. As Figure 7 in the main manuscript, but using the mean intensity of all cyclones in a cluster. Cyclone intensity as function of cluster length, i.e. the number of storms in a cluster. The bin denoted with "S" indicates the strength of solo (non-clustered) cyclones. Green solid line indicates median values and variability between the 10 and 90 % quantiles is indicated by shading. The black line indicates expected value from randomly chosen clusters.

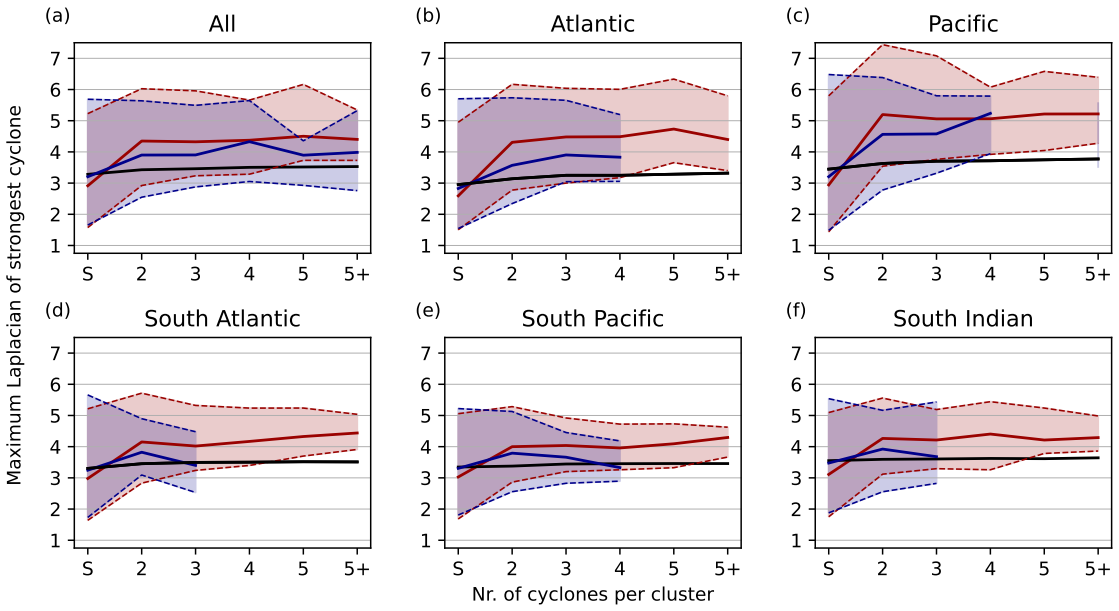

Figure S3. As Figure 8 in the main manuscript, but for sequential type (red solid line and shading, for mean and 10 to 90 % quantiles) and stagnant type (blue shading). Black line indicates expected value from randomly chosen clusters.

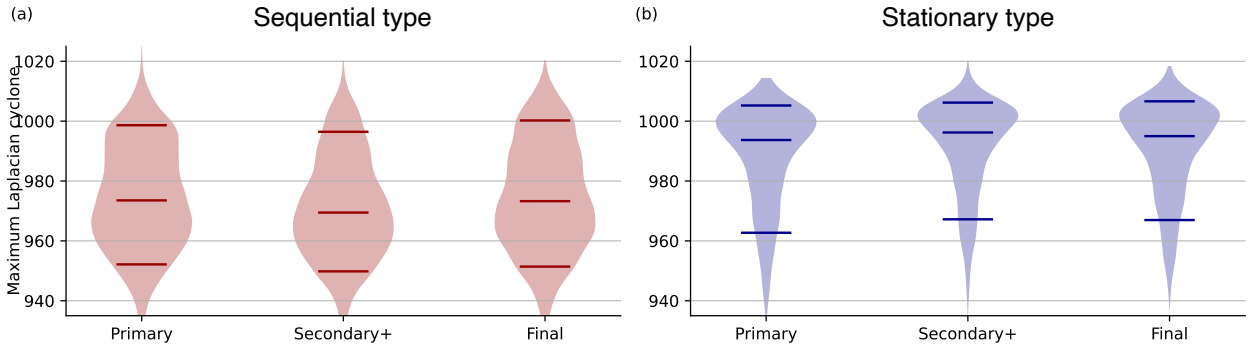

Figure S4. As Figure 11 in the main manuscript, but using surface pressure instead of the (normalised) Laplacian as an intensity measure. Violin plots for the minimum pressure of cyclones for all clusters (left), sequential type (middle), and stagnant type (right) for the first (Primary), all secondary, and final cyclones in each cluster. Medians and 10% and 90% quantiles are indicated by horizontal lines.