



Supplement of

Enhanced internal gravity wave activity and breaking over the northeastern Pacific–eastern Asian region

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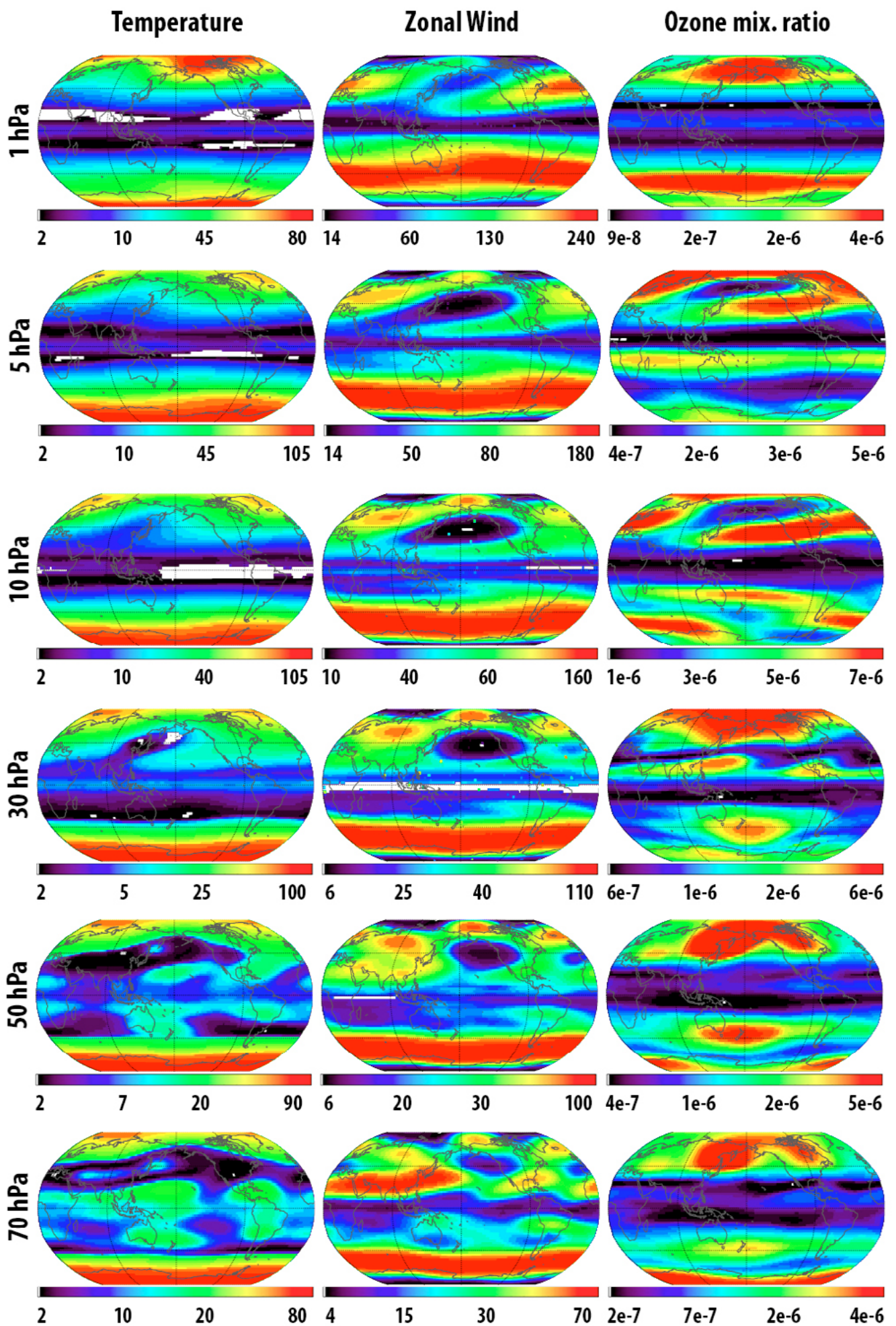


Fig. S1: Annual cycle amplitudes at various geopotential levels in the temperature, zonal winds and ozone mixing ratio series. The non-linear color-scale used represents square root of the wavelet power in K, m/s and mg/kg.

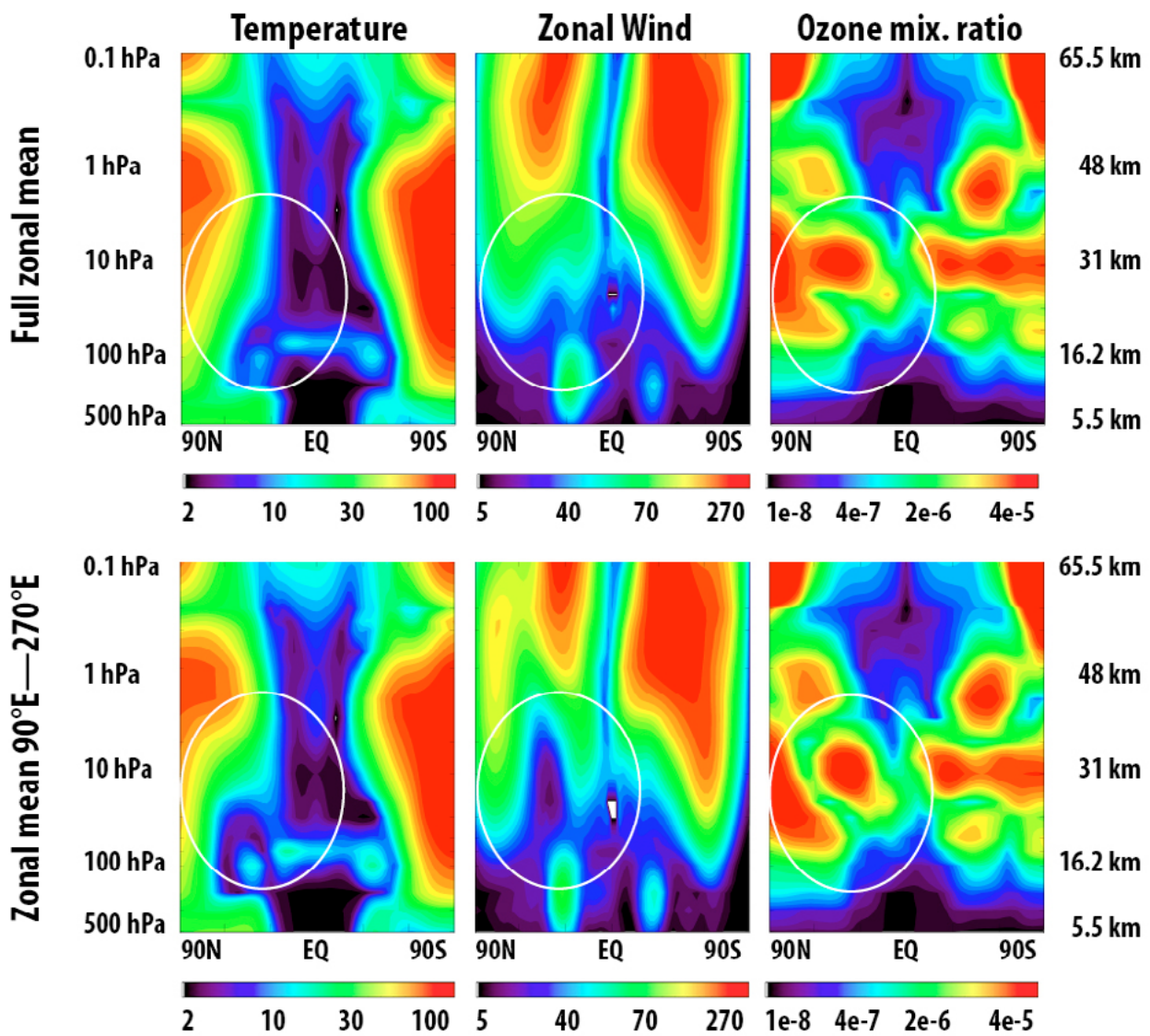


Fig. S2: Vertical profiles of the zonal means of the annual cycle amplitudes in the temperature, zonal winds and ozone mixing ratio series. The upper row shows the zonal means computed for all longitudes, the bottom row presents zonal means computed only for 90°E–270°E. The non-linear color-scale used represents square root of the wavelet power in K, m/s and mg/kg.

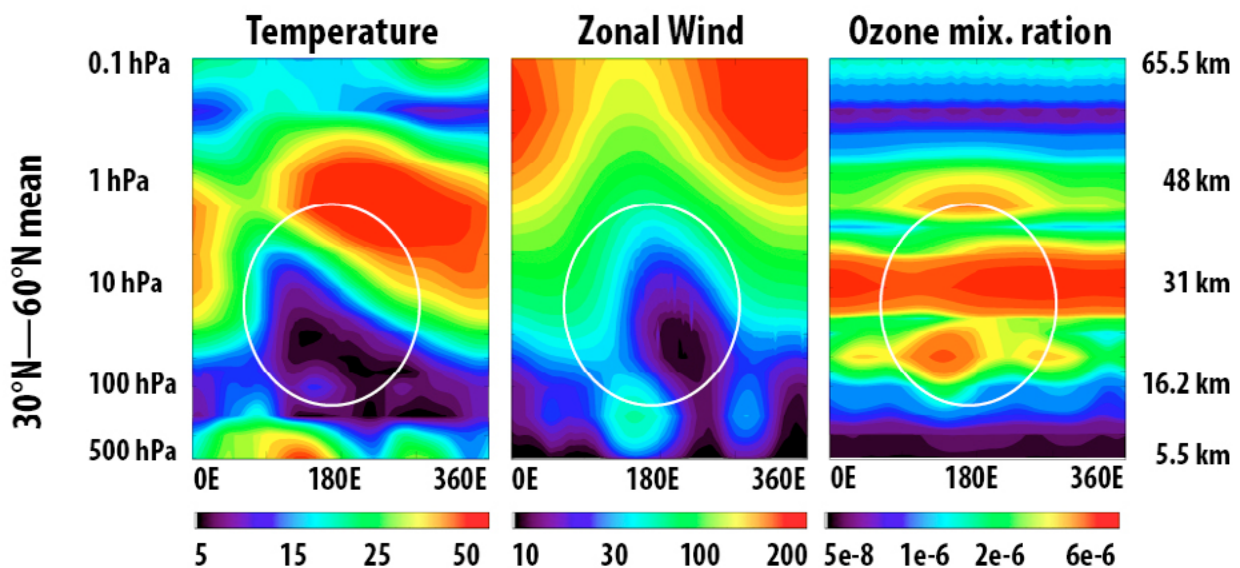


Fig. S3: Vertical profiles of the annual cycle amplitudes in the temperature, zonal winds and ozone mixing ratio series computed for the northern middle latitudes (30°N–60°N mean). The non-linear color-scale used represents square root of the wavelet power in K, m/s and mg/kg.

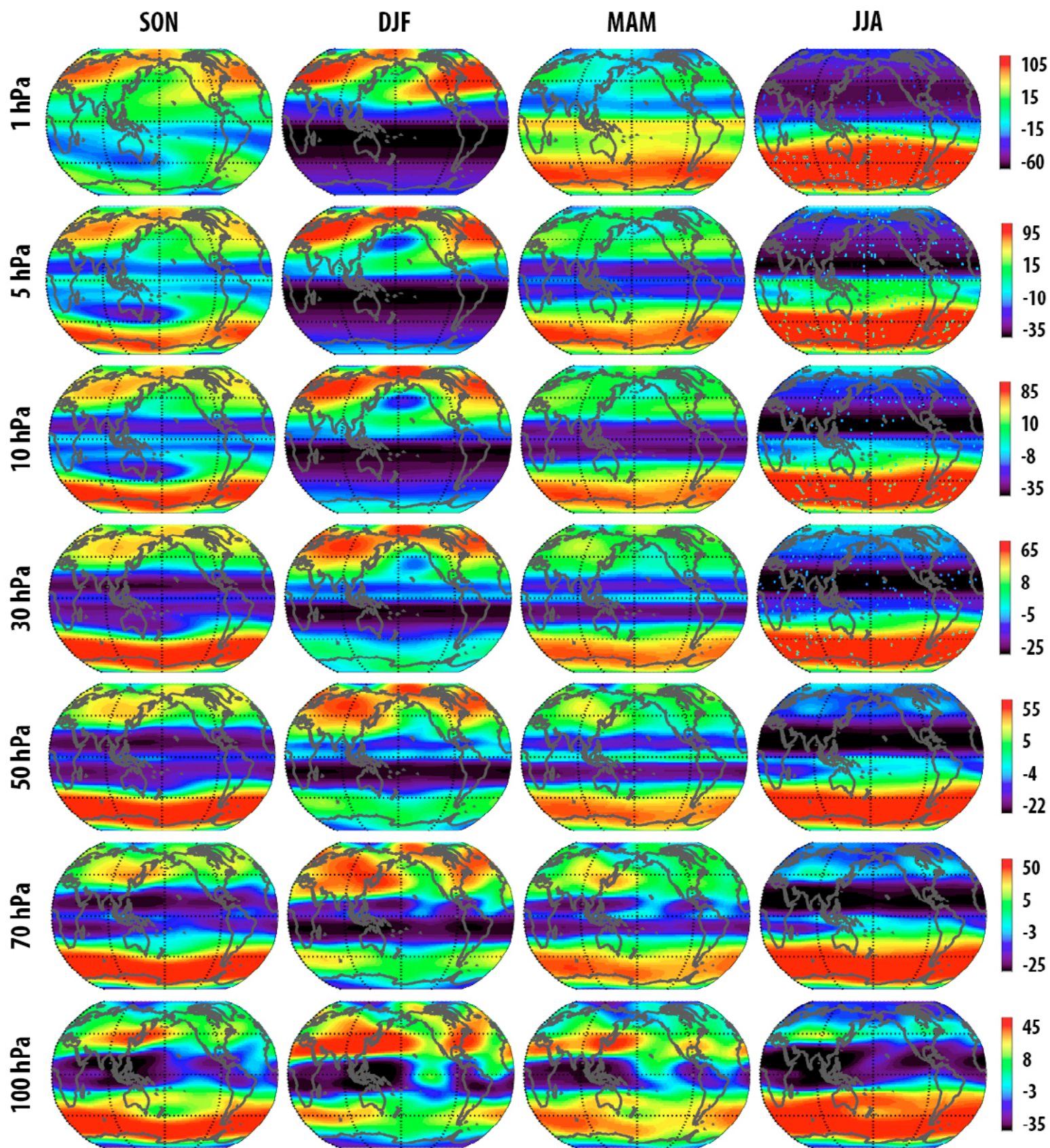


Fig. S4: Seasonal averages in zonal wind in m/s for 1979-2013 time period using MERRA series (non-linear color scale used).

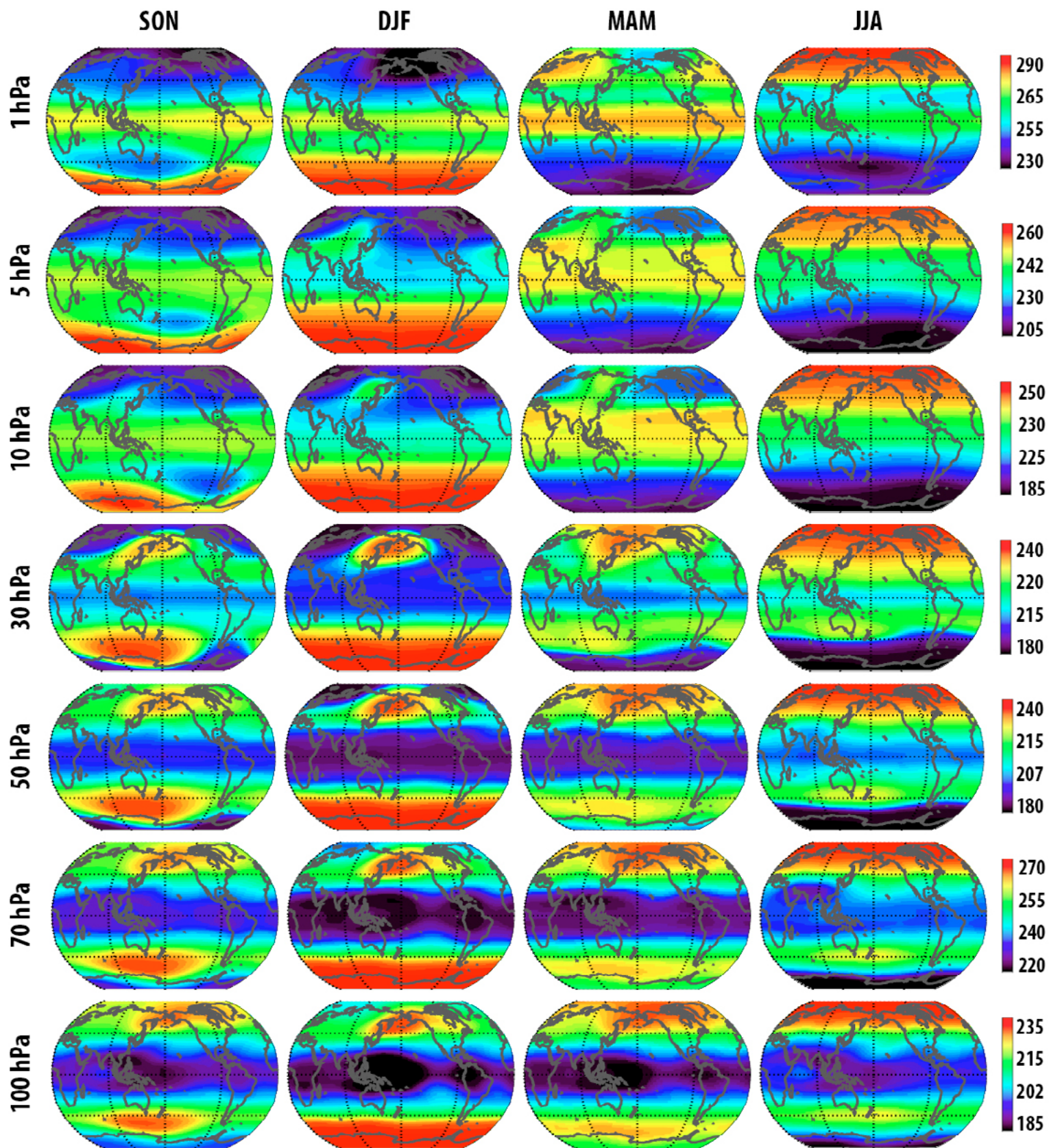


Fig. S5: Seasonal averages in temperature in K for 1979-2013 time period using MERRA series (non-linear color scale used).

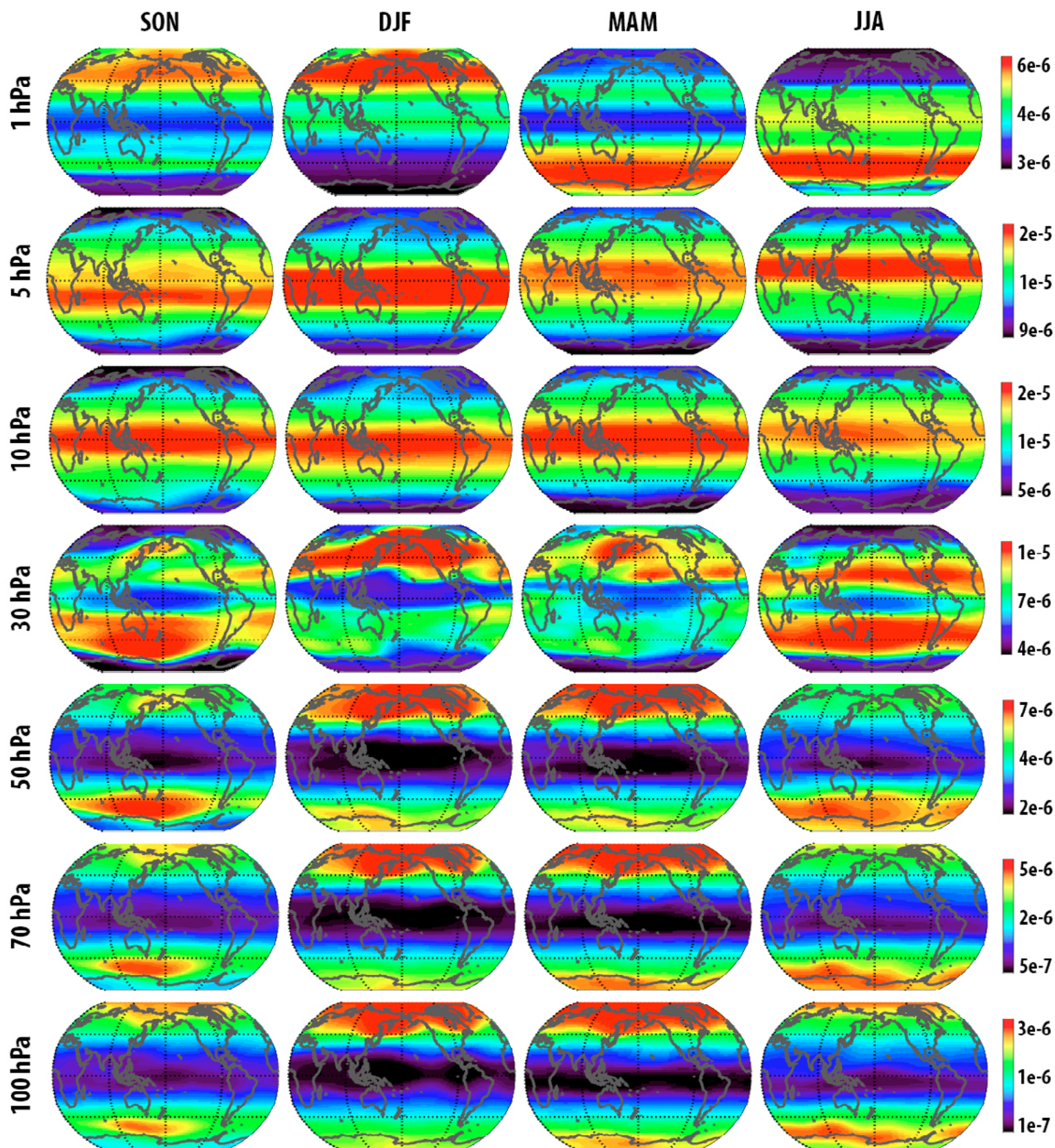


Fig. S6: Seasonal averages in ozone mixing ratio in mg/kg for 1979-2013 time period using MERRA series (non-linear color scale used).

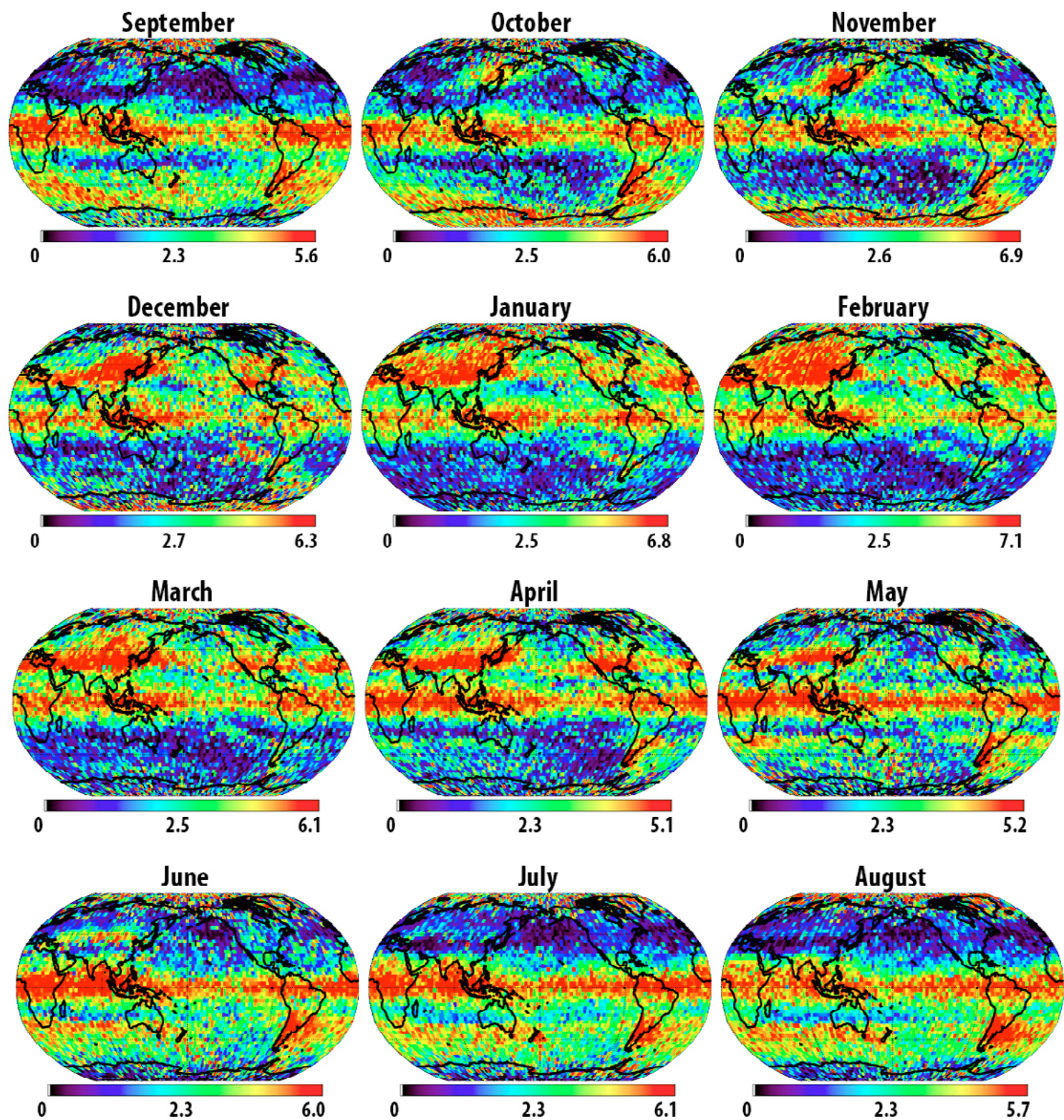


Fig. S7: Monthly means of the potential energy in J/kg averaged across the whole vertical profile for the studied time period 2007-2010 (non-linear color scale used).

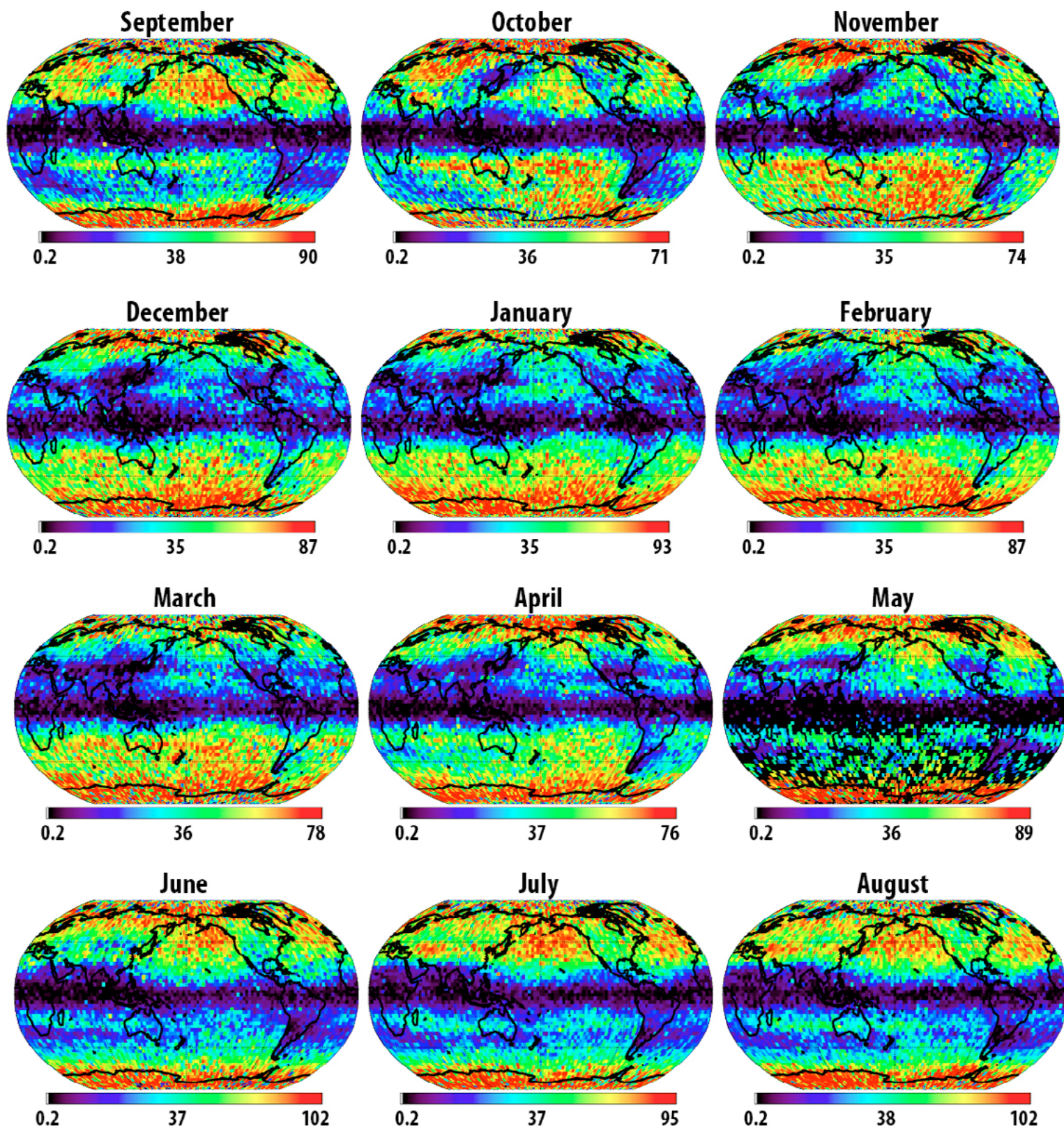


Fig. S8: Monthly means of the gradient Richardson number averaged across the whole vertical profile for the studied time period 2007-2010 (non-linear color scale used).

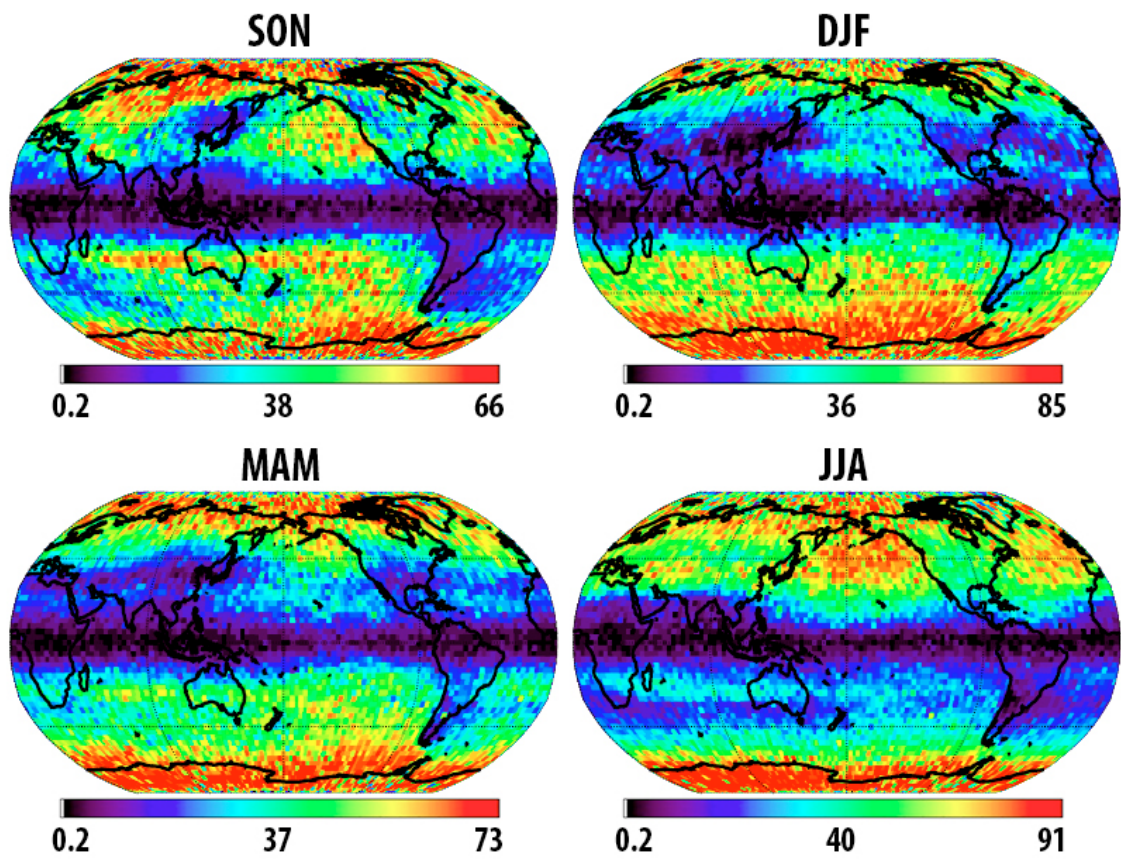


Fig. S9: Seasonal means of the gradient Richardson number averaged across the whole vertical profile for the studied time period 2007-2010 (non-linear color scale used).

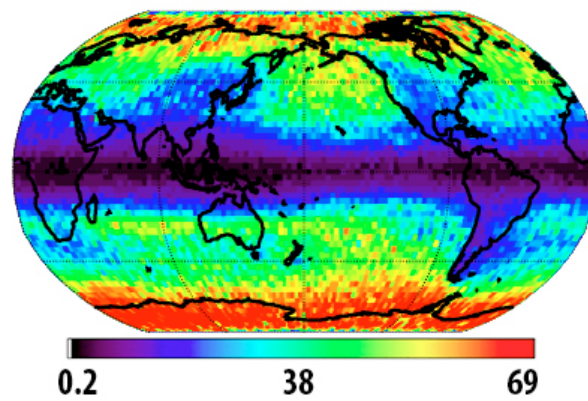


Fig. S10: Annual mean of the gradient Richardson number averaged across the whole vertical profile for the studied time period 2007-2010 (non-linear color scale used).

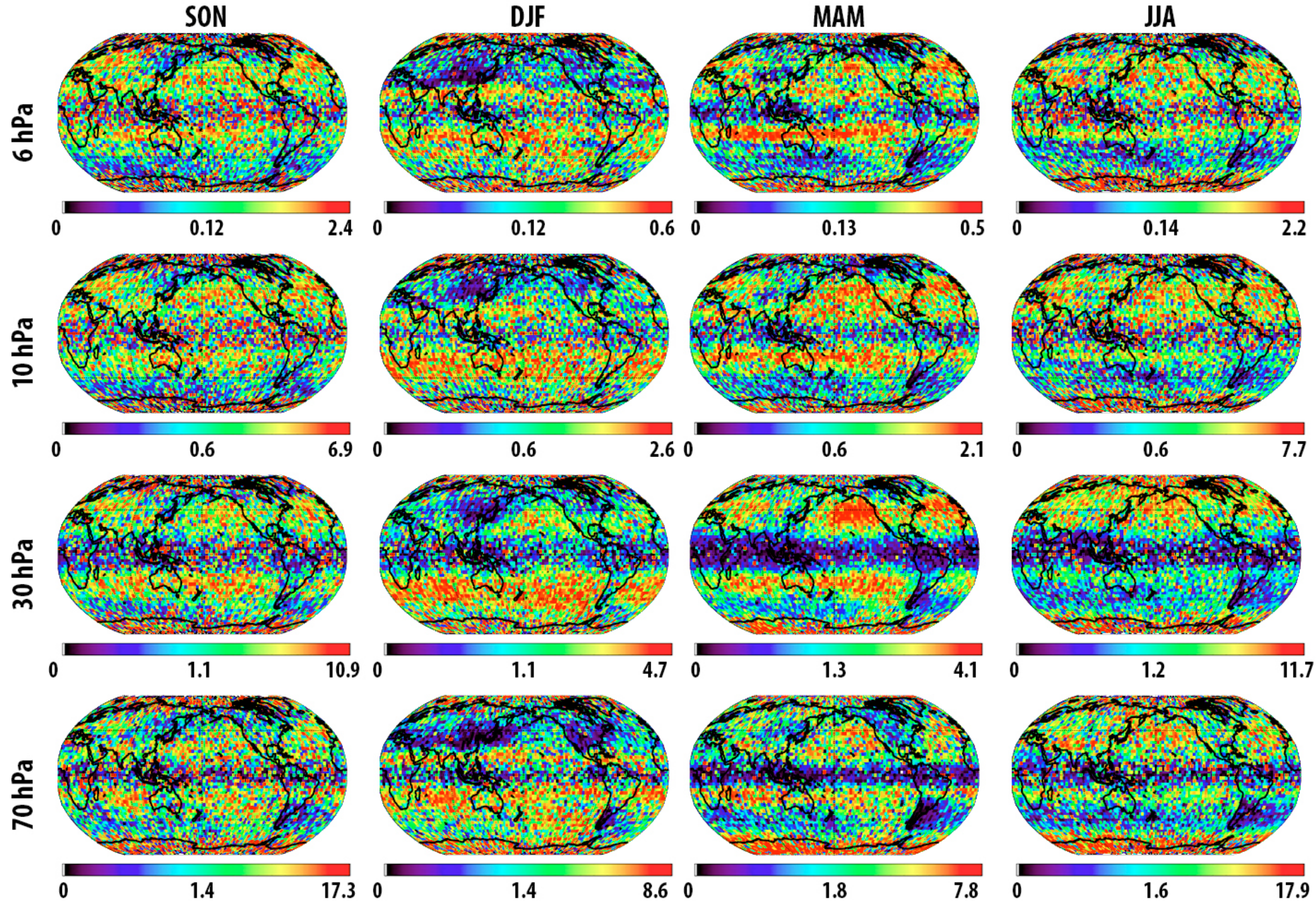


Fig. S11: Seasonal means of the gradient Richardson number at selected pressure levels for the studied time period 2007-2010 (non-linear color scale used).

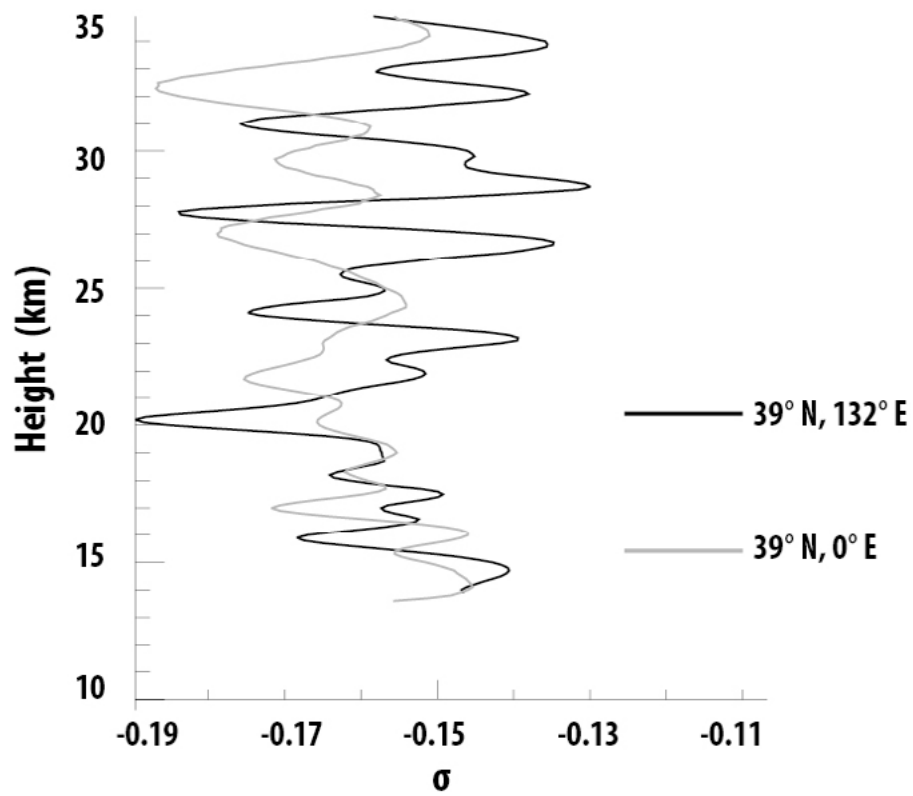


Fig. S12: Vertical profile of the sigma in s^{-2} for January 2008 in $39^\circ \text{ N}, 132^\circ \text{ E}$ (black line) and $39^\circ \text{ N}, 0^\circ \text{ E}$ (gray line)

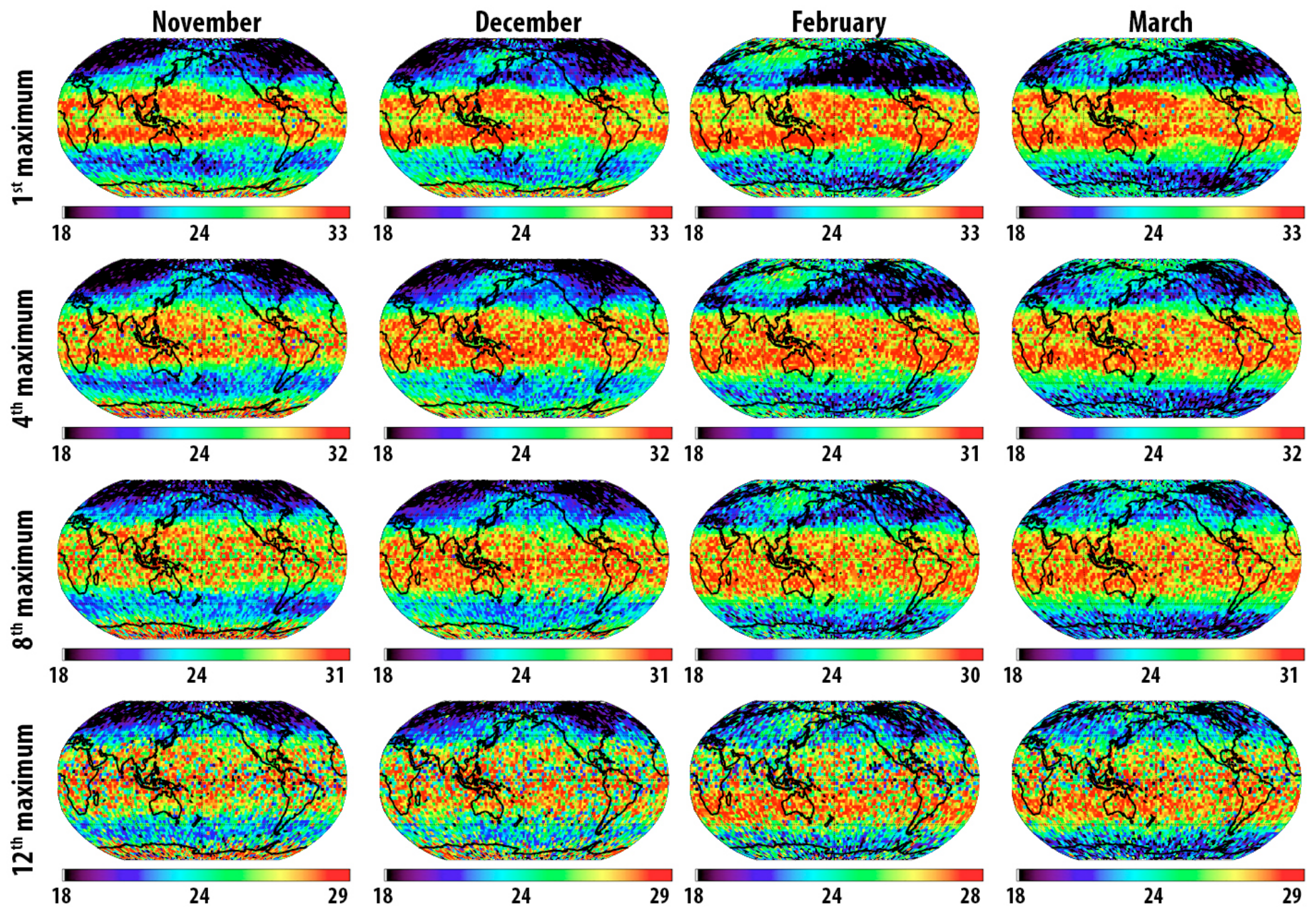


Fig. S13: Selected monthly means of altitudes in km of the primary and selected secondary (i.e., higher order) sigma squared maxima for the studied time period 2007-2010 (non-linear color scale used).

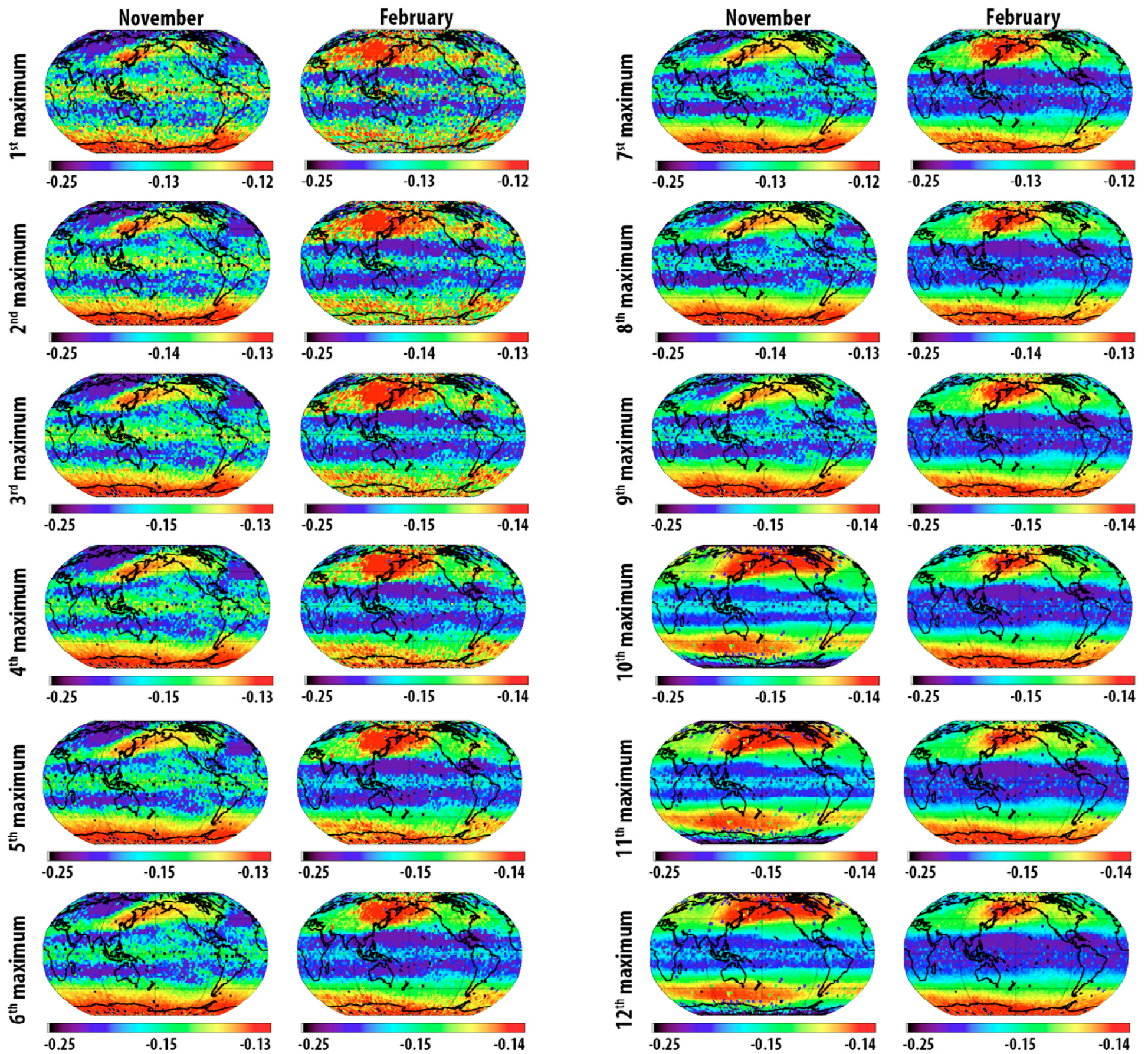


Fig. S14: Selected monthly means of primary and selected secondary (i.e., higher order) sigma squared maxima in s^{-2} for the studied time period 2007-2010 (non-linear color scale used).

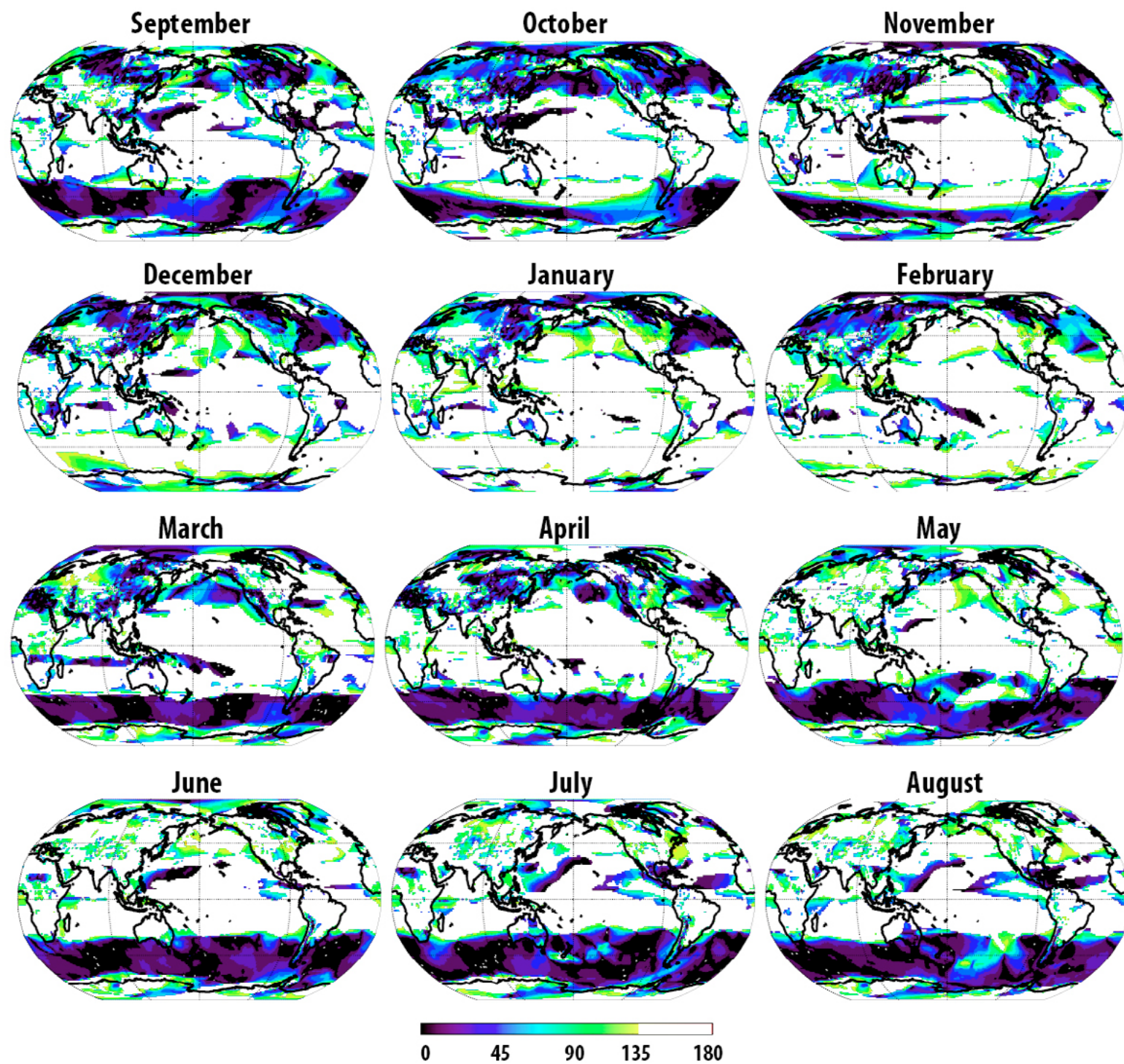


Fig. S15: Cumulative rotation of wind from 975 hPa to 10 hPa. Computed from JRA-55 for 2008.

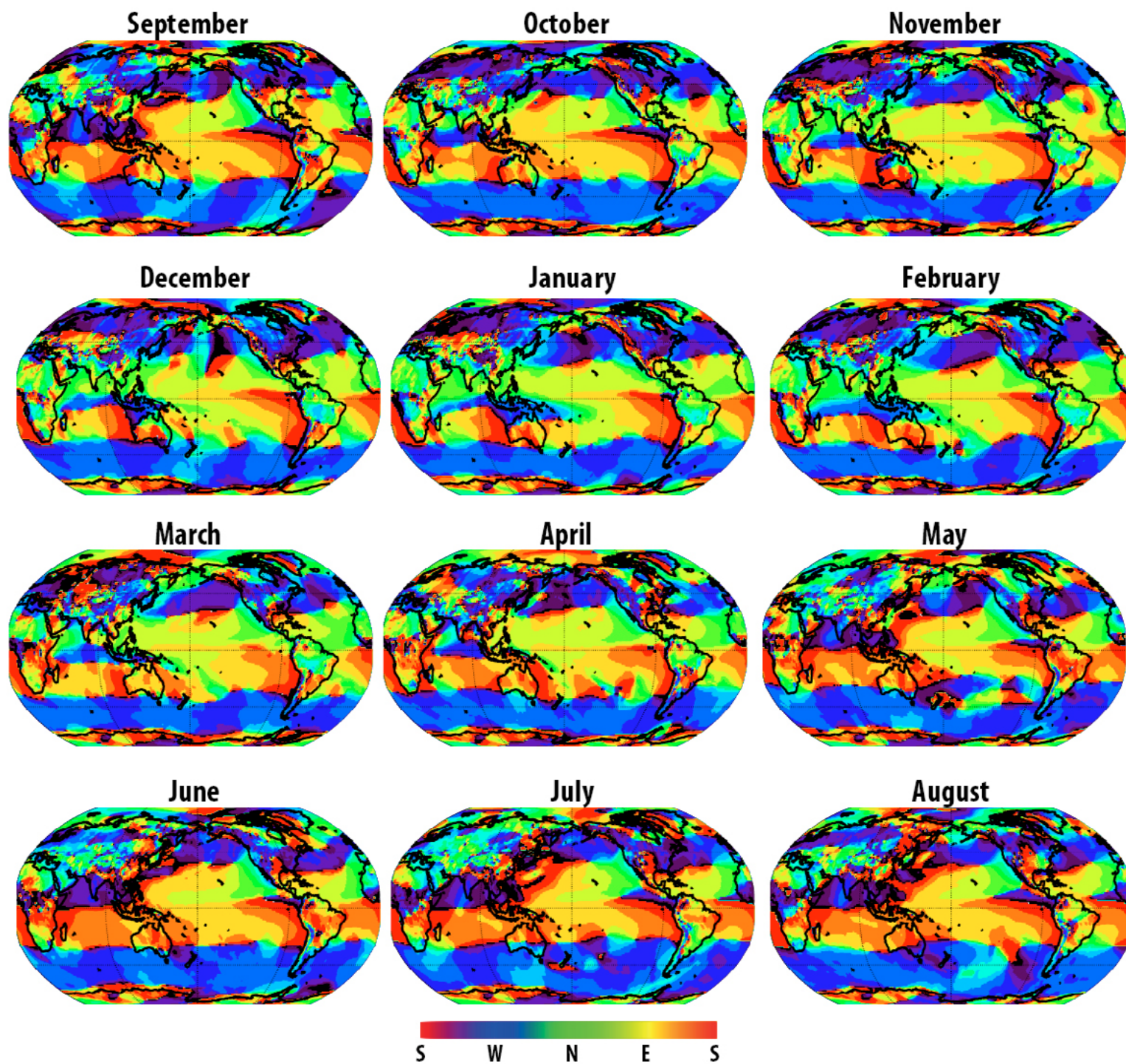


Fig. S16: Prevailing wind direction in the level of 975 hPa. Computed from JRA-55 for 2008.

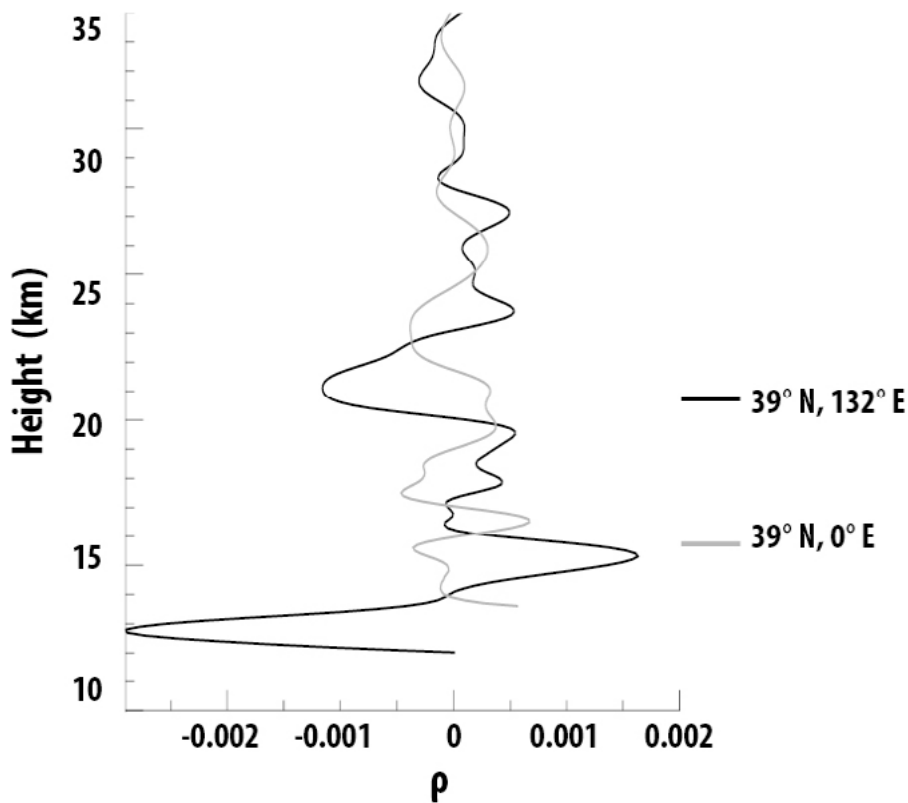


Fig. S17: Vertical profiles of the density perturbation for January 2008 in 39° N, 132° E (black line) and 39° N, 0° E (gray line)