Supporting Information

Quasi-Biennial Oscillation Modulation of Global Monsoon Systems and Regional Teleconnections

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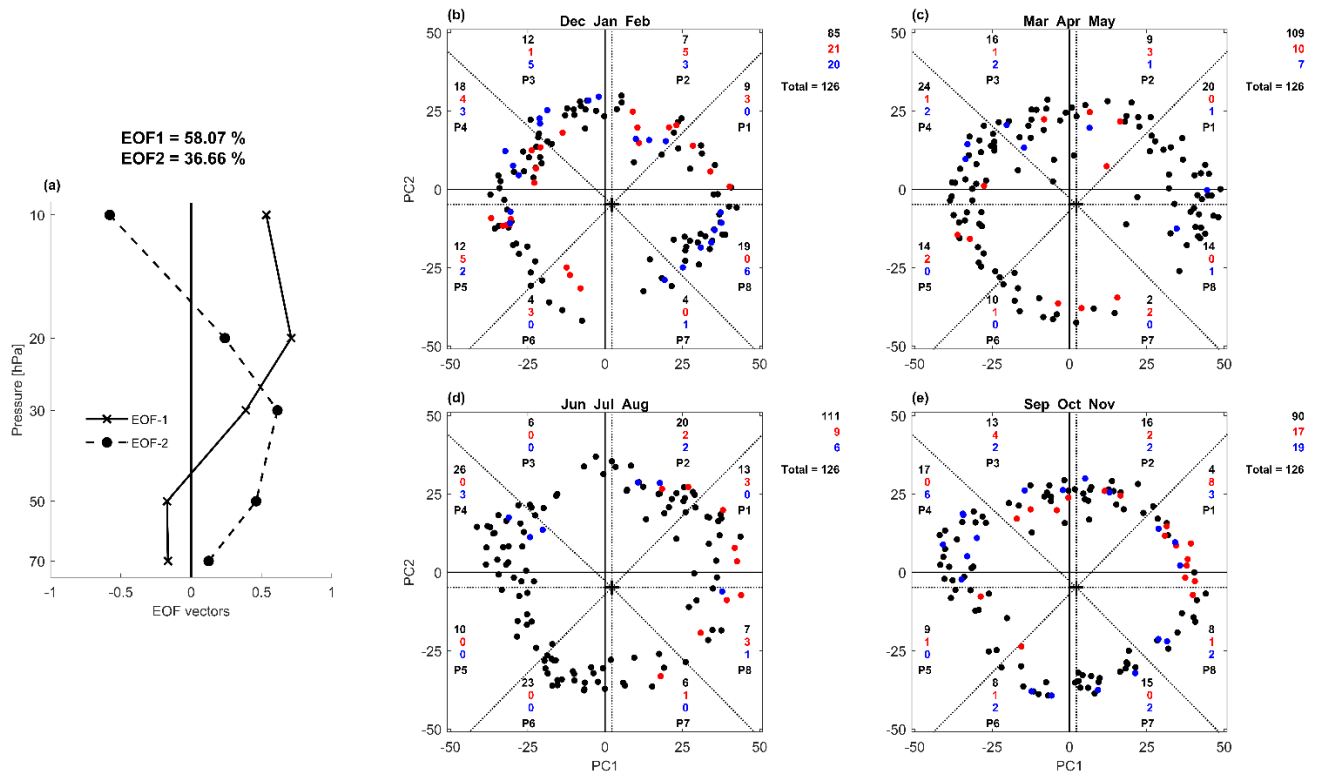
Figure S1. EOF analysis of the zonal mean zonal wind de-seasonalized anomalies [U''] in the equatorial lower stratosphere between 70 hPa to 10 hPa for 42 years (1979 – 2020). a) Vertical profiles of first two leading of EOFs (EOF1 and EOF2), which explain 94.8% total variance, with 58.1% and 36.7%, respectively. Scatter plots on *PC1* and *PC2* phase space divided the into eight QBO phases with 45° angular bins (P1 to P8) for each season; b) December, January, and February (DJF), c) March, April, and May (MAM), d) June, July, and August (JJA), and e) September, October, and November (SON). Total numbers of months for neutral ENSO (black), El Niño (red), and La Niña (blue) periods are mentioned with each season, and also with QBO phases, P1 to P8.
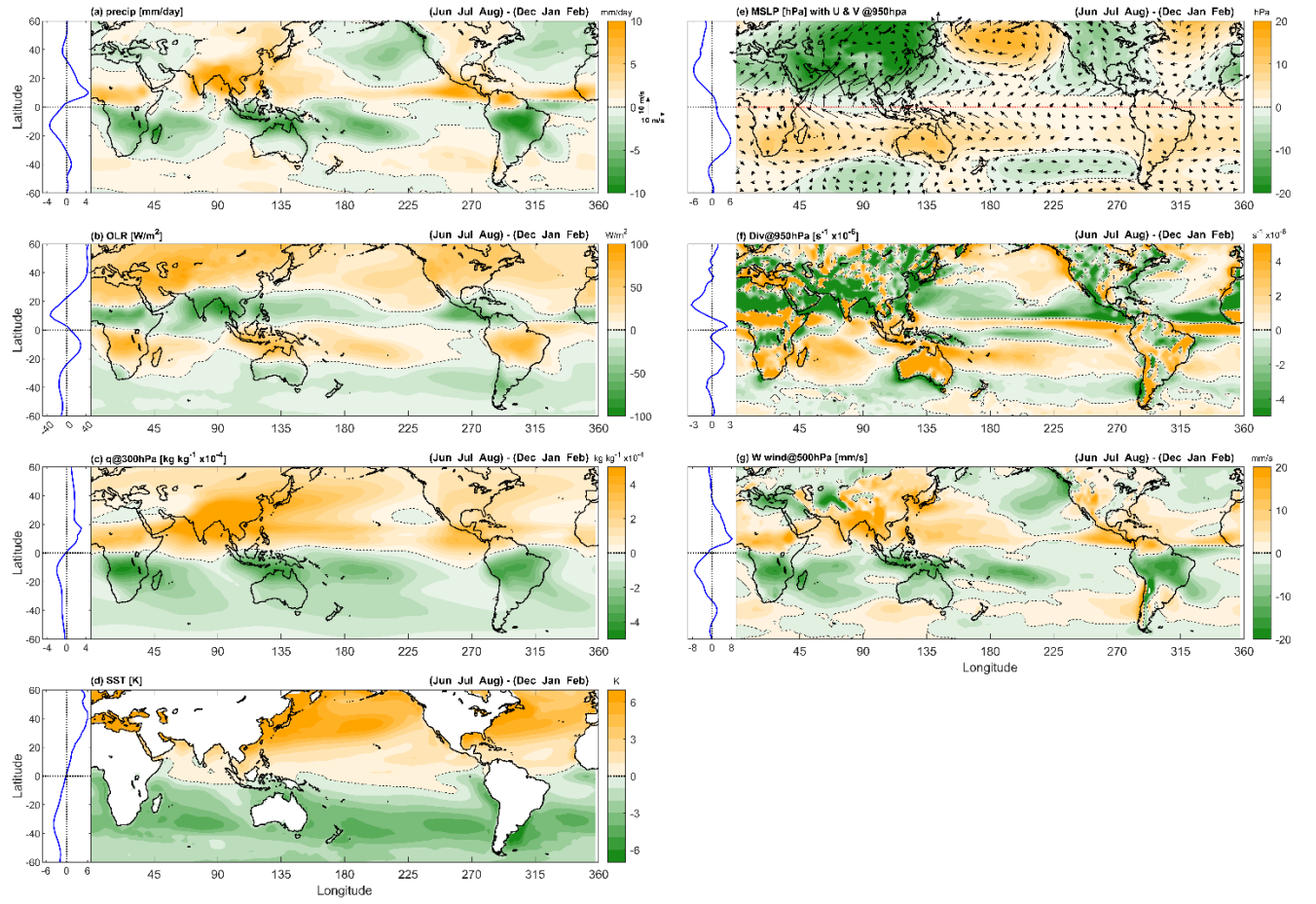
Figure S2. Climatological (1979 -2020) seasonal mean difference JJA – DJF of various meteorological quantities only for neutral ENSO periods for a) precipitation, b) OLR, (c) upper tropospheric specific humidity, q, at 300 hPa, d) SST, e) MSLP with (U, V) at 950hPa, f) horizontal wind divergence at 950 hPa, and g) mid-tropospheric vertical velocity wind at 500 hPa.
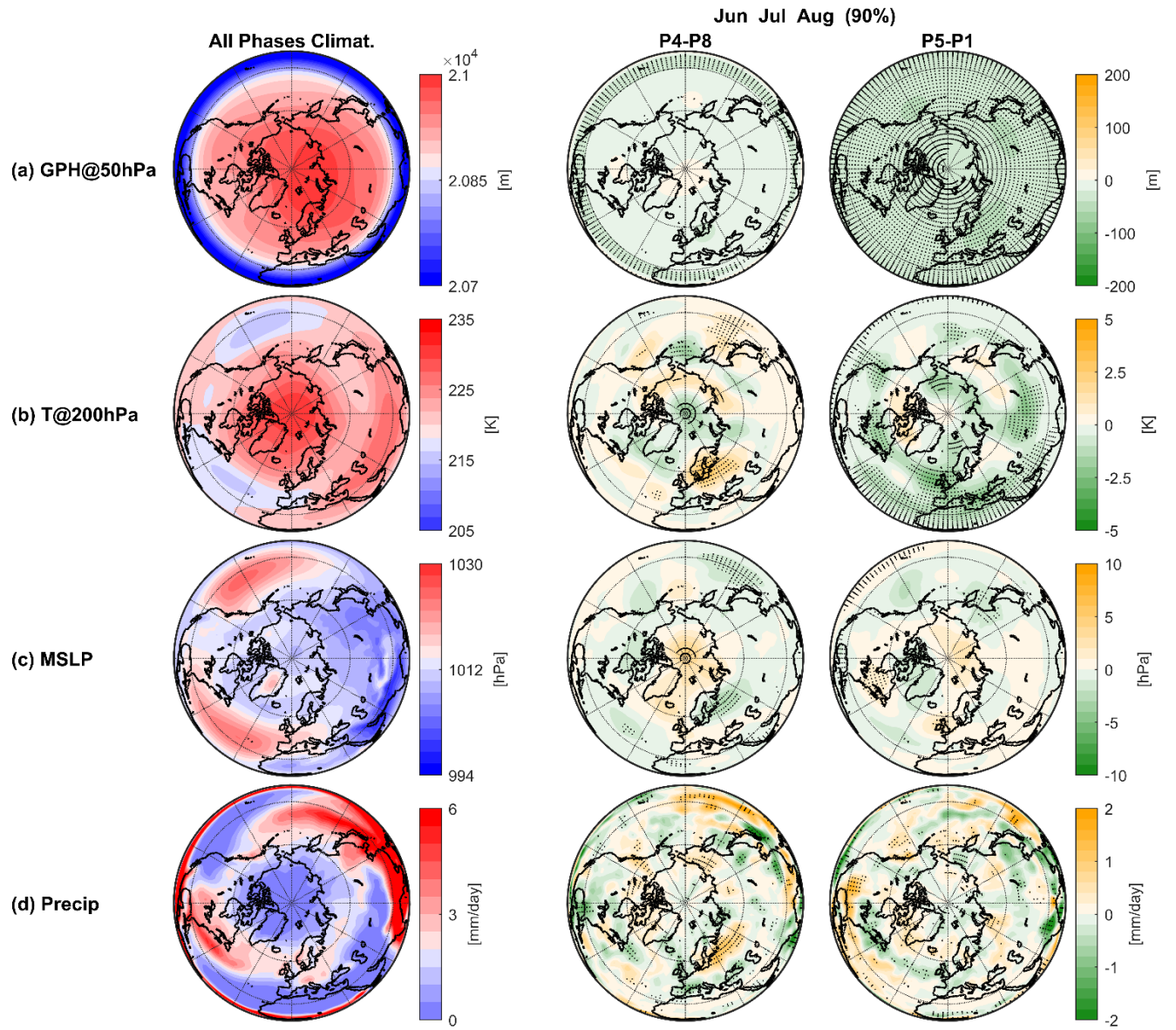
Figure S3. Same as in Fig. 11 but for boreal summer monsoon JJA.