Supporting Information for "A rotation procedure to improve seasonally varying Empirical Orthogonal Function bases for MJO indices"

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Introduction

Figures S1, S2, and S3 are alternative versions of Figures 1, 3, and 5 of the main text, respectively, using slightly different parameters. Movie S1 more clearly visualizes the variations of the EOFs in time, a small portion of which are shown in the stills in Figures 3 and S2.

Movie S1.

Projections of EOF1 onto a latitude by longitude map, as in Figure 2, for each day of the year (including leap days). Original (left) EOFs are calculated using the method in K14. Rotated (right) EOFs are rotated by Equation 6. Gray contours are every 0.03 W m^{-2}. Movie file name is ms01.gif

0094-8276/22/$5.00

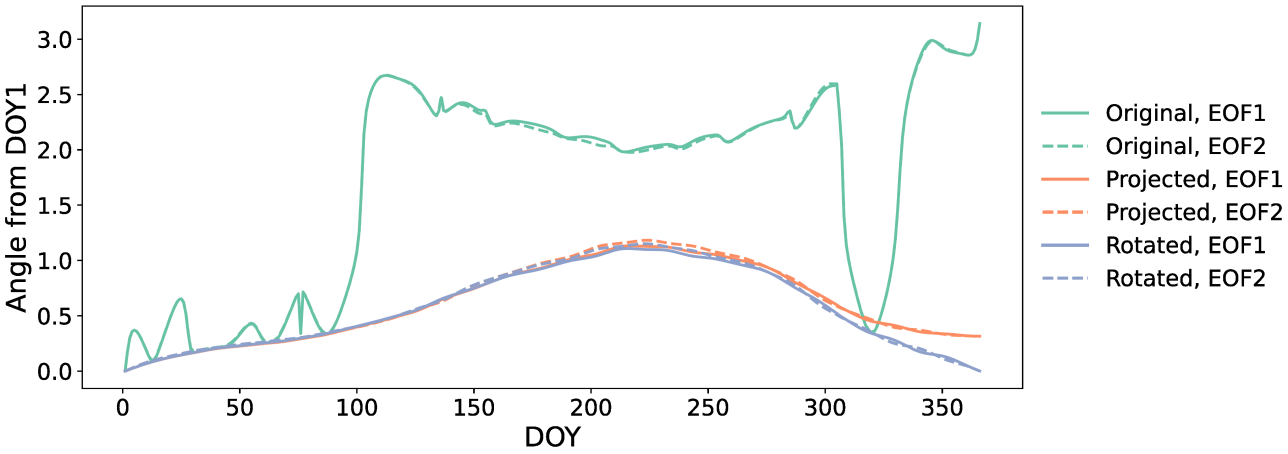

Figure S1. As in Figure 1, but for a 20-year subset of OLR data. Daily OLR restricted to 1979-1998, and otherwise calculated in the same way as in the main text. Angle between the EOF vector at DOY1 (January 1) and each day of year. Solid lines are the angles for EOF1 and dashed lines are angles for EOF2. Original (teal) EOFs are the same as calculated in K14, without the interpolation in November. Projected (orange) EOFs are rotated by Equation 4. Rotated (purple) EOFs are rotated by Equation 6 to ensure continuity across December to January.

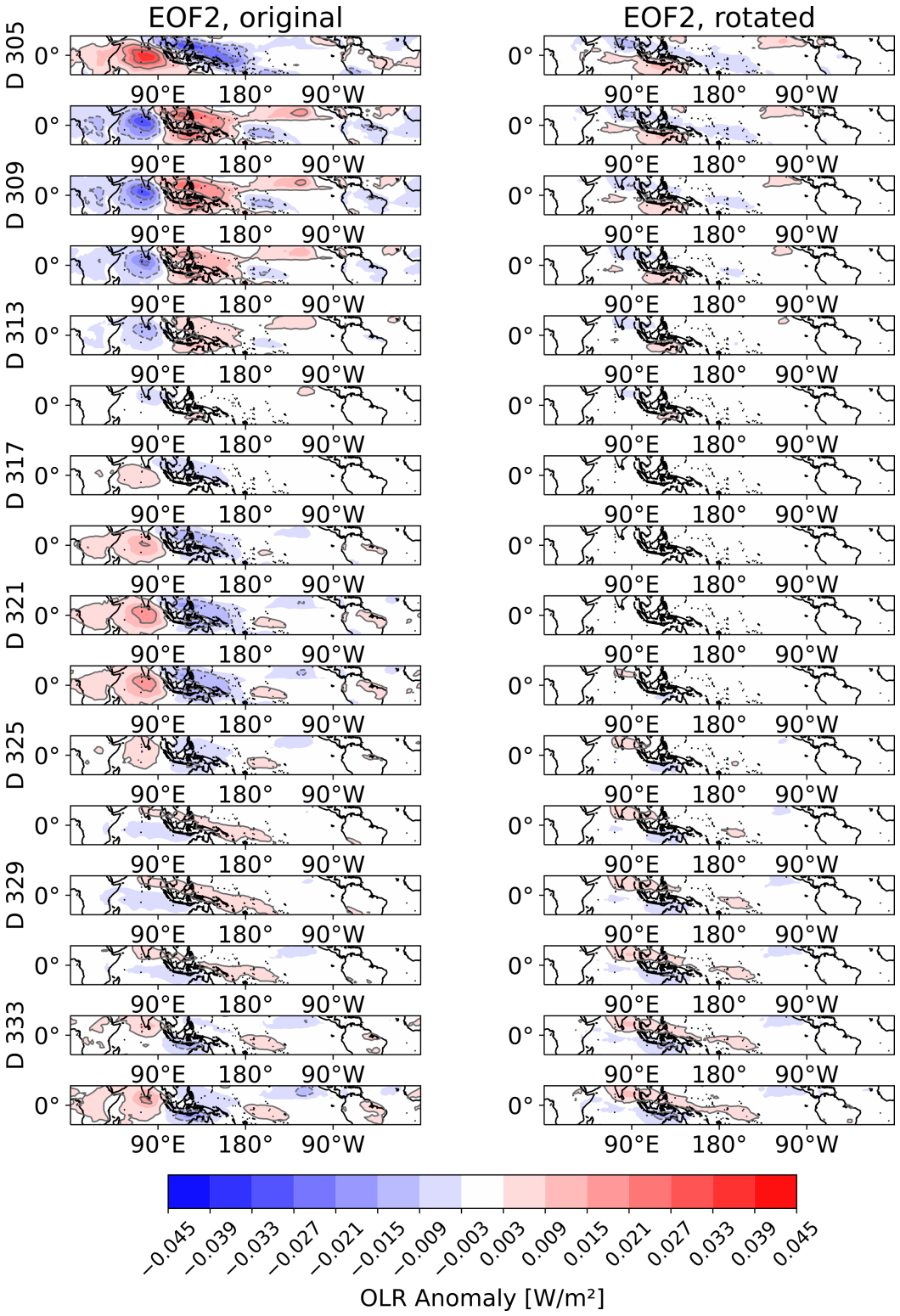

Figure S2. As in Figure 3, but for projections of EOF2 with the November mean removed for every other day in November. Original (left) EOFs are calculated using the method in K14, except without the interpolation step. Rotated (right) EOFs are rotated by Equation 6. Gray contours are every 0.012 W m^{-2}.

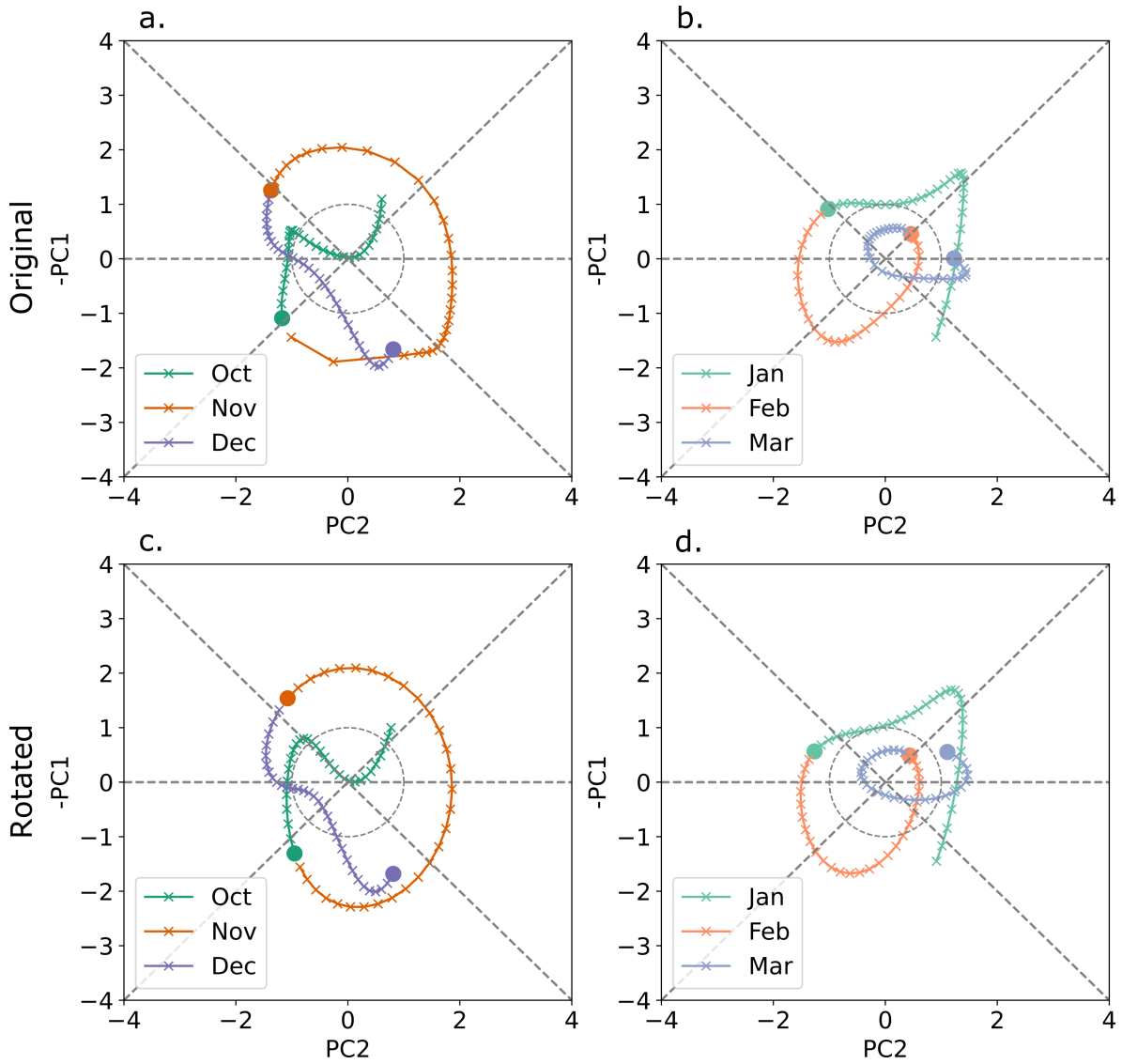

Figure S3. As in Figure 5, 3-month phase diagrams of the PCs for the 2009-2010 winter season, with October-December in the left panels and January-March in the right panels. Months are separated by color, with solid dots signifying the end of the month. a.) and b.) are calculated using the procedure in K14. c.) and d.) are calculated using EOFs that were rotated by Equation 6. The dashed gray circle has a radius of 1 to delineate "strong" MJO events.