Effects of Stratospheric Variability on El Niño Teleconnections: Supplementary Figures

J H Richter[†], C Deser[†], L Sun[‡]

 † Climate and Global Dynamics Laboratory, National Center for Atmospheric

Research, P.O. Box 3000, Boulder, CO 80307, USA.

[‡] Cooperative Institute for Research in Environmental Sciences, University of Colorado at Boulder and NOAA Earth System Research Laboratory, Boulder, CO, USA.

E-mail: jrichter@ucar.edu



Figure S1: Approximate vertical grid spacing in the default 30L CAM5 (asterisks), and in the 46L version used in this study (diamonds).



Figure S2: Distributions of SSW frequencies (event per year) by month in 46LCAM5 (boxes) and NCEP-NCAR reanalysis (red circles). Box plots show mean values (solid horizontal line), plus and minus one standard deviation (box outline), minimum and maximum values (whiskers) in the 10 ensemble simulations



Figure S3: Tropical (2°S to 2°N) zonally averaged winds between 1979 and 1998 for a) ERA-Interim, and b) One ensemble member of 46LCAM5. Contours are plotted in intervals of 5 m s⁻¹.



Figure S4: October-April monthly El Niño U60N anomalies for ERA40 (first column) and 46LCAM5 simulations (remaining columns). Top panels show composites of winters with SSWs whereas the bottom panels show winters without SSWs. The first two columns show an average over all QBO phases, whereas column 3 shows El Niño QBOE winters, and fourth column shows El Niño QBOW winters.



Figure S5: Difference between QBOW and QBOE El Niño composites of zonal mean temperature anomalies at 80°N from October through April for 46LCAM5 simulations. Top panels show composites of winters with SSWs whereas the bottom panels show winters without SSWs. Statistical significance of the signal based on the student t-test at the 85 and 95% levels are depicted by the white and red lines respectively.

a) 46LCAM5 QBOW - QBOE



Figure S6: Difference between QBOW and QBOE El Niño composites of sea level pressure anomalies for January-March based on 46LCAM5. Top panels show composites of winters with SSWs whereas the bottom panels show winters without SSWs. Contour interval is 1.5 hPa. Statistical significance of the signal based on the student t-test at the 85 and 95% levels are depicted by the white and red lines respectively.