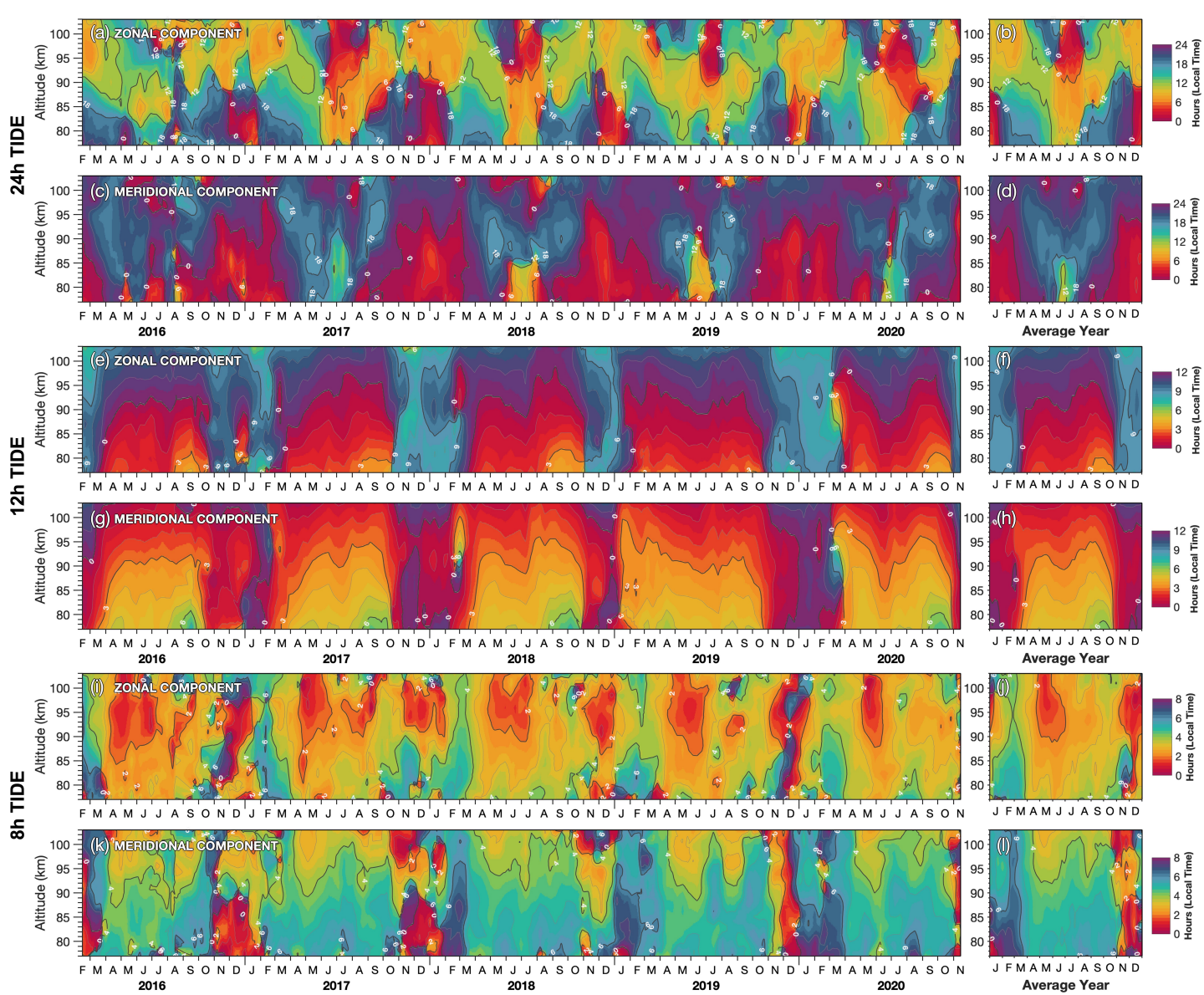
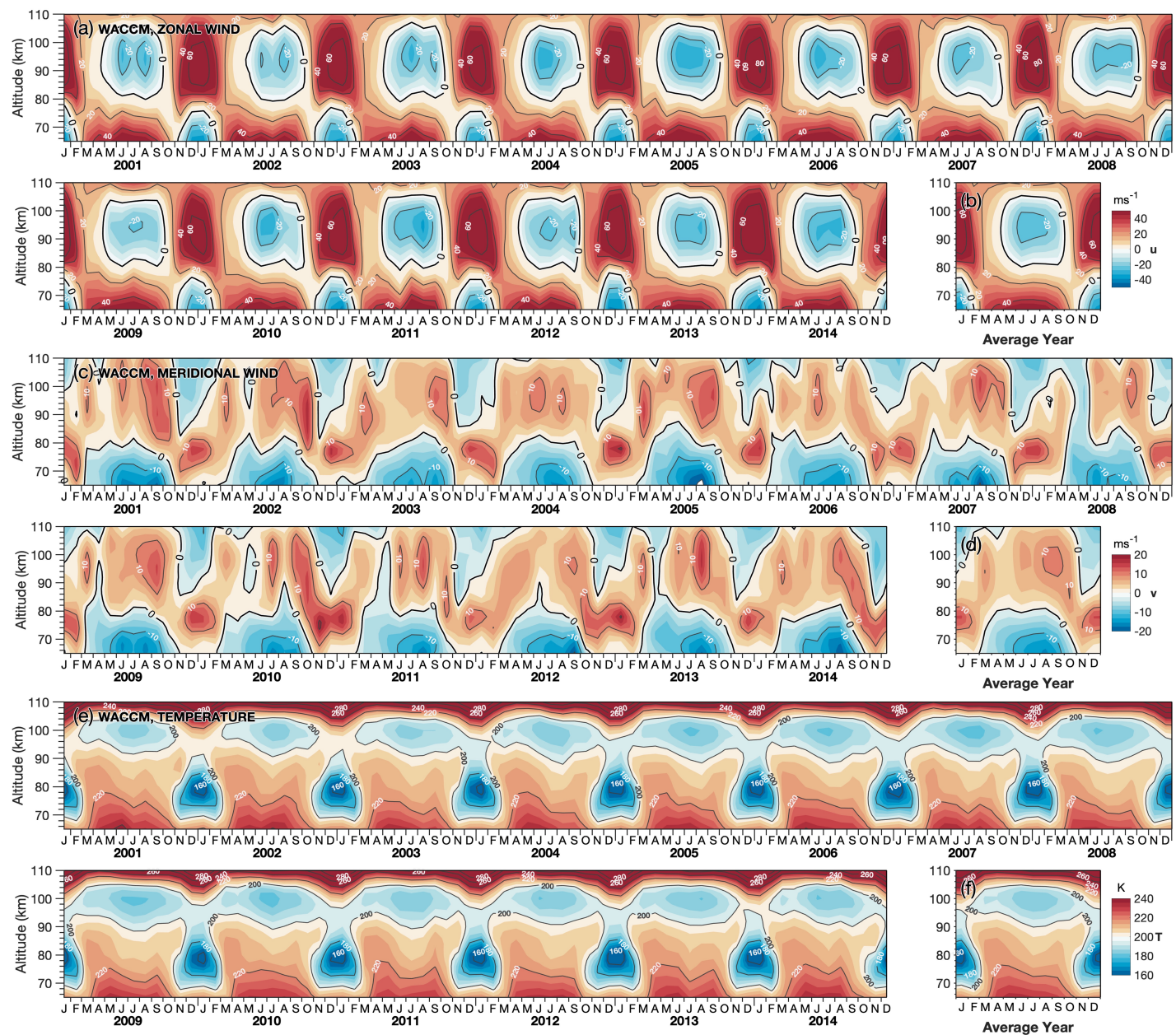


**Figure S1.** Monthly zonal and meridional amplitudes of the diurnal (24h), semidiurnal (12h) and terdiurnal (8h) solar tides against height derived from radar measurements over South Georgia during 2016 to 2020. Rightmost panels show the monthly tidal amplitudes derived from an average (composite) year using all meteor detections during each month for the period 2016 to 2020.



**Figure S2.** As Fig. S1, but for monthly zonal and meridional local time (UTC-2) phases of the diurnal, semidiurnal and terdiurnal tides over South Georgia.





**Figure S3.** Monthly mean zonal wind (top), meridional wind (middle) and temperature (bottom) in the mesosphere and lower thermosphere over South Georgia island from a climatological WACCM simulation for the period 2001 to 2014. Bottom-right panels for each variable show an average year for this time period.