In support of observational programs at Davis Station, Antarctica vertical coupling is investigated in the atmospheric column above Davis using MERRA and NCEP assimilated meteorological data. Long-term observations of temperature in the mesopause region (~87km) are derived from ground-based measurements of hydroxyl airglow. These measurements show strong planetary wave variations of up to 40 K with periods of 10-60 days, and at certain times are coupled with the lower atmosphere. Fourier decomposition of planetary wave components, the strength of the polar vortex and the Antarctic Annular Oscillation are derived from NCEP data up to 10 hPa (~35 km), and in MERRA data up to 80 km. These parameters are used to explore the vertical propagation of planetary waves and their modulation by the background wind field to define conditions for which propagation to the mesopause region can occur.