

TRAVELING AND FORCED WAVES FROM MRO MCS. D. Banfield¹, A. Kleinbohl², J. T. Schofield², D. M. Kass², D. J. McCleese², and the MCS Team,¹ Cornell Astronomy, ² JPL.

Abstract: We are characterizing the seasonal behavior of the forced and traveling waves in the Martian atmosphere as seen from MRO MCS. This work is very complementary to previous work with MGS TES nadir temperature retrievals [1][2], especially in terms of diurnal coverage. However, it differs in the much greater vertical resolution afforded by MCS, and the much greater vertical range covered by MCS retrievals. Unlike MGS TES atmospheric temperature retrievals, with vertical resolution between 10-20km, MCS has a vertical resolution of order 5km throughout its pressure range of sensitivity. This range of sensitivity is also significantly greater than the 5-40km that MGS TES nadir spectra was able to sense, reaching from the surface to about 80km. Unfortunately, at the present time, the seasonal and interannual coverage afforded by MCS cannot match that provided by the long record from MGS TES. Nevertheless, valuable comparisons can be made,

and the greater coverage and resolution available from MCS are interesting.

Our preliminary analysis shows that the MGS TES retrieved forced and traveling waves are quite similar to those found in the MCS data set. As analysis is currently under way, more complete results will be presented at the meeting. We will present meridional cross sections of wave amplitude and phase as a function of season, not only for the forced waves of the gravest zonal wave modes, but also the dominant traveling waves from zonal wave modes 1-4. We will also attempt to compute EP flux divergences from the waves, as well as search for further evidence of storm tracks in the data set.

References:

- [1] Banfield, D., et al. (2003) *Icarus*, 161, 319-345.
- [2] Banfield, D. et al. (2004) *Icarus*, 170, 365-403.