A REVIEW OF SPATIAL AND SEASONAL CHANGES IN CONDENSATION CLOUDS OBSERVED DURING AEROBRAKING BY MGS TES. J.C. Pearl, Goddard Space Flight Center, Greenbelt, MD 20771, john.pearl@gsfc.nasa.gov; M.D. Smith, the Catholic University of America; B.J. Conrath, Cornell University; J.L. Bandfield, Arizona State University; and P.R. Christensen, Arizona State University.

Introduction: Successful operation of the Mars Global Surveyor spacecraft, beginning in September 1997, has permitted extensive infrared observations of condensation clouds during the martian southern summer and fall seasons ($184^o<L_s<28^o$). Initially, thin (normal optical depth<0.06 at 825 cm^{-1}) ice clouds and hazes were widespread, showing a latitudinal gradient. With the onset of a regional dust storm at $L_s = 224^o$, ice clouds essentially vanished in the southern hemisphere, to reappear gradually after the decay of the storm. The thickest clouds (optical depth~0.6) were associated with major volcanic features. At $L_s = 318^o$, the cloud at Ascraeus Mons was observed to disappear between 21:30 and 09:30, consistent with historically recorded diurnal behavior for clouds of this type. Limb observations showed extended optically thin (depth<0.04) stratiform clouds at altitudes up to 55 km. A water ice haze was present in the north polar night at altitudes up to 40 km; this probably provided heterogeneous nucleation sites for the formation of CO_2 clouds at altitudes below the 1 mbar pressure level, where atmospheric temperatures dropped to the condensation point of CO_2.