



High-Frequency Planetary Waves in the Polar Middle Atmosphere as Seen in a Data Assimilation System

By L Coy

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.This study examines the winter southern hemisphere vortex of 1998 using four times daily output from a data assimilation system to focus on the polar 2-day, wave number 2 component of the 4-day wave. The data assimilation system products are from a test version of the finite volume data assimilation system (fvDAS) being developed at Goddard Space Flight Center (GSFC) and include an ozone assimilation system. Results show that the polar 2-day wave dominates during July 1998 at 70 degrees. The period of the quasi 2-day wave is somewhat shorter than 2 days (about 1.7 days) during July 1998 with an average perturbation temperature amplitude for the month of over 2.5 K. The 2-day wave propagates more slowly than the zonal mean zonal wind, consistent with Rossby wave theory, and has EP flux divergence regions associated with regions of negative horizontal potential vorticity gradients, as expected from linear instability theory. Results for the assimilation-produced ozone mixing ratio show that the 2-day wave represents a major source of ozone variation in this region. The ozone wave in the assimilation...



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