

Observation of Atmospheric Gravity Waves from Space

D.L. Wu and J W Waters (Both at: M/S 183-70, Jet Propulsion Lab., California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91 109; 818-393-1954; e-mail: [dwu@camel.jpl.nasa.gov](mailto:dwu@camel.jpl.nasa.gov))

Abstract:

Global variance maps of small-scale (90-km) gravity wave are obtained for the first time using saturated radiances from the Upper Atmosphere Research Satellite (UARS) Microwave Limb Sounder (MLS). MLS antenna patterns and sampling schemes match the scales of internal gravity waves, and therefore give the instrument the sensitivity to temperature fluctuations due to gravity waves. Measurements from different spectral channels provide a broad altitude coverage from 30 to 80km which is difficult for many ground-based techniques to observe. Since the actual radiance variance can be calculated directly from the measurements and is mainly contributed by atmospheric fluctuations and instrument noise, we may extract the atmospheric contribution from the other two. The MLS variance observations reveal many interesting gravity wave characteristics in the middle atmosphere, and are particularly important in understanding atmospheric circulation patterns and dynamic forcing budgets. One of striking results is that the variances at altitudes of 30-60km are strongly correlated with topography and jet winds, likely due to tropospheric convection, mountain waves, and selective filtering effects by the mean winds. We will present monthly-averaged variance maps for January and July periods and discuss possible sources for causing these variances.

1.1995 Fall Meeting

2.13041504

3.(a) **D L Wu**  
M/S 183-701  
JPL/Caltech  
4800 Oak Grove Dr.  
Pasadena, CA 91109

(b) Tel: 818-393-1954

(C) FAX: 818-393-5065

4. A

5. (a) A03

(b) 3334,3384

6.

7. 0%

8. Include \$50 check

9. c