

THE PROPAGATION AND DISSIPATIVE FILTERING OF GRAVITY WAVES FROM DEEP CONVECTION IN THE THERMOSPHERE AND F REGION AT EQUATORIAL LATITUDES

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In this talk, I will discuss the generation, propagation, and dissipation of gravity waves excited by deep convection at equatorial latitudes. I will show that because of dissipative filtering in the thermosphere, differing portions of the initial convective spectrum survive to differing altitudes in the thermosphere. I will also show that the background, neutral winds play a key role in establishing the direction of propagation of gravity waves in the thermosphere at the bottomside of the F layer. Using ray tracing and wave reconstruction methods, I will show the amplitudes and wave scales of the gravity waves near the bottomside of the F layer for a case study of a deep convective plume in Brazil. I will also show that large-scale, high-phase-speed secondary GWs are generated as a result of the dissipation of the smaller and intermediate-scale GWs at $\sim 140\text{-}220$ km.

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