



Horizontal refraction of gravity waves: An idealised ray tracing study using assimilated stratospheric data

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Current orographic gravity wave parametrisations ignore horizontal refraction of gravity waves. In this talk, we discuss whether or not this is a good approximation. In an idealised study we use the GROGRAT ray-tracer to propagate orographic gravity wave rays through the UK Met Office assimilated stratosphere. Waves are launched with a comprehensive set of wavelengths, on a hemispheric grid of latitude and longitude points. We compare pseudo-momentum fluxes with and without horizontal refraction. In particular, we consider the effect of horizontal refraction on inter-annual variability of pseudo-momentum flux over a ten year period. We also consider seasonal variability for selected years. As well as highlighting the effect of horizontal refraction, we present evidence that pseudo-momentum flux estimates are strongly resolution dependent.