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# A REVIEW OF GRAVITY WAVES IN MESOSPHERIC REGION

**Vivekanand Yadav[1] , R.S.Yadav[2]**

*[1,2]Department of Electronics and Communication Engineering*

*J K Institute for Applied Physics and Technology*

*University of Allahabad, Allahabad – 211002 (India)*

## ABSTRACT

*In this paper role of gravity waves, wave packets and relation between observed periods and unobserved wave numbers have been studied. The effect of gravity wave breaking on eddy diffusion has been discussed. Parameterization of turbulence and stress as well as identify the magnitude of known mechanism of generating gravity waves are attempted to study.*

***Keywords**: Wave Packet, Group Velocity, Flow Acceleration,, Eddy Diffusivity, Wave Number.*

## I. INTRODUCTION

The gravity waves play a major role in mesospheric dynamics. Many Researchers (Balgiano, Consensus et.al) are review that the wind irregularities were due to turbulence [1,3]. The irregularities were due to internal gravity waves argued by Hines [13, 25]. The most perfunctory review of the parameterization will be given including a description of some improvement found in Holton and of some recent thoughts on turbulence due to sub-breaking waves [19-20]. In this paper role of gravity waves, wave packets and relation between observed periods and unobserved wave numbers are studied. The horizontal as well as vertical propagation of gravity wave packet in order to develop some intuition about the origin of Mesospheric gravity waves are also considered [4-8].

## II. PARAMETERIZATION OF TURBULENCE AND STRESS

Lindzen introduced the simplest model capable of describing the effect of breaking gravity waves [9-12, 19]. He considered zonally travelling gravity waves which were standing waves in the meridional direction, i.e., waves in the following form

$$e^{ik(x-ct)-\delta x^2}[\mathrm{Cos}(ly+\varphi)+\mathrm{Sin}(ly+\varphi)]\ ,0\leq\delta\leq 1 \qquad (1)$$

Where

x = eastward distance

y = northward distance

t = time

k = eastward wavenumber

c = eastward phase speed

l= northward wavenumber