

# **Wave – mean-flow interaction in stratosphere and lower mesosphere**

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Cross sections of Eliassen-Palm flux for a period 1994-2006 were obtained using data of Met Office Stratospheric Assimilated Data (0-63 km). Upward flow of wave energy in troposphere at the mid latitudes is distinct in all month-averaged sections. In stratosphere wave energy has a tendency to extend to equator reaching its maximum in mid latitudes of the upper stratosphere in winter. In winter periods wave motions make a stronger mean flow in high latitudes, though they tend to weaken mean flow in low latitudes.

It was discovered that in stratosphere wave disturbance has three-cell structure with a maxima of positive values of divergence at heights 50-55 km and about 40 km and about 30 km in latitudes 55-70 N. The upper maximum has the greatest intensity. This height structure is formed by the first three zonal harmonics and the most contribution does a harmonic with a wave number  $n = 1$ . The fourth harmonic is represented by a single area of positive values of divergence in the upper stratosphere. The fourth harmonic has 10 times less intensity than the first harmonic. The contribution of the remaining harmonics ( $n > 4$ ) in total wave energy of mean flow in stratosphere is less than 5%.