



Instability of internal gravity waves propagating at small but finite angles to the vertical

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A question is re-visited of the instability of internal gravity waves (IGWs) propagating at small angles to the vertical. The case of an IGW of finite amplitude propagating at a small but finite angle to the vertical is considered. This angle serves as a small parameter in the problem and the instability of such an IGW is investigated by using the Fourier method and the Sivashinsky integral relations. The undertaken analysis confirms the existence of short-wave instability for small IGW amplitudes and for an arbitrarily small value of their propagation angle to the vertical. For small viscosity and thermal conductivity of the air, the growth rate of the most unstable modes is proportional to the square of the amplitude of the IGW. The results obtained can be of interest in interpreting the results of observations confirming the existence of turbulence in the middle atmosphere.