



## **Horizontal wind velocity direction, value and lower thermosphere structural factors in formation of multilayered sporadic E under an influence of AGWs**

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The influence of atmospheric gravity waves (AGWs), horizontal wind velocity direction and values on formation multilayered sporadic E in the mid-latitude lower thermosphere is shown. The AGWs with vertical wavelength about 40 km and smaller, can cause formation of multilayered sporadic E in the lower thermosphere regions of heights 95-140 km. In this case the presence of background horizontal wind of neutral particles influences on AGWs propagation and ion/electron vertical motion as well. The northward and westward horizontal wind (considering north hemisphere) influences on downward motion of the long-lived heavy metallic ions and provide convenient condition for their convergence into thin layer below heights of about 120 km under an influence of AGWs. The eastward component of the horizontal wind causes ions upward motion and is important for their convergence into thin layer for comparatively upper height of the lower thermosphere. The direction and value of horizontal wind also influence on AGWs period and consequently on characteristic time of sporadic E formation.

The results of 2D numerical simulations describing formation of multilayered sporadic E in the lower thermosphere under an influence of AGWs with vertical wavelengths 10-40km in the cases of various direction horizontal wind are demonstrated.

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