



## **Excitation of Alfvén vortices in the ionosphere by the magnetospheric convection**

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Excitation of ULF waves is considered in Ionospheric Alfvén Resonator (IAR), taking into account an inhomogeneous profile of velocity of the magnetospheric convection. This profile is formed by interaction of the convective flow with the neutral atmosphere at heights 90 -150 km. ULF waves include oblique Alfvén waves, trapped in IAR, and drift ionospheric waves, which are in a resonance with each other. These waves together form strongly anisotropic closed current loops with the scale along the magnetic field  $I_z \gg I_\perp$  and can be considered as Alfvén vortices. The instability threshold and the growth rate are investigated as functions of different parameters (wave vector  $k_\perp$ ,  $\varphi = \pi(\mathbf{k}_\perp \cdot \mathbf{v})$ , ratio of Alfvén wave and Pedersen conductivities) in a model of ionosphere close to the real one. Some estimations are given in application to observed short-scale field-aligned currents in the auroral ionosphere.