

**RADIAL STRUCTURE OF MAGNETOSPHERIC ALFVEN WAVES
AND PHASE DIFFERENCE BETWEEN TRANSVERSE
MAGNETIC COMPONENTS: TWO CASE STUDIES**

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The study of the transverse structure of Alfvén waves observed by Van Allen Probes satellites using the method of “phase portraits” (construction of the phase difference between the magnetic field components) was carried out. The first event was observed by the RBSP-A satellite on 23 October 2012 at 22.00–22.30 UT. It is shown that the observed oscillations can be explained as resonant poloidal Alfvén waves generated on two resonant surfaces located on both sides of the local maximum in radial distribution of the Alfvén velocity. Polarization of the waves between these resonant surfaces changes from poloidal to toroidal. The second event was detected by the RBSP-A satellite on the same day at 19.12–20.24 UT. This event can be interpreted as a transverse Alfvénic resonator. Comparison between the theoretical and satellite transverse components of the magnetic field and their “phase portraits” shows good agreement.

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