



Localization of AKR source using observation from two satellites

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Location of stable AKR sources (sources with lifetime more than 30 minutes) is studied by means of two methods. One of them is based on comparative analysis of AKR spectra, observed onboard Interball-2 and Polar spacecrafts. It has been detected that low frequency cutoffs of the AKR spectra measured by Interball-2/Polrad and Polar/PWI are different. Using the values of the AKR low frequency cutoff and mutual position of the spacecrafts the location of the AKR sources and opening angle of radiation pattern have been determined. Another method, applied only for Interball-2/Polrad data, is based on determination of the Pointing vector from wave characteristics of the received radiation measured simultaneously in three orthogonal antenna planes and assumption that the AKR is circularly polarized. Both methods give us the very similar results. Stable AKR source is localized on magnetic field line, conjugated with visible aurora and its position is shifted towards the polar edge of the arc. The longitudinal dimension of stable source is significant larger than latitudinal: the order of hundreds and tens of kilometers, respectively. The opening angle of emission pattern at the frequency 260 kHz is about ± 25 degrees relative to the local magnetic field in the source.