

Propagation characteristics and source locations of X-mode and O-mode AKR waves

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Power flux and propagation direction of Auroral Kilometric Radiation (AKR) have been determined for both X-mode and O-mode waves by applying the wave distribution function method to the data analysis of Poynting Flux measurement (PY mode) data obtained by the PWS system onboard the Akebono (EXOS-D) satellite.

The results were summarized as follows; X-mode AKR waves fills inside the radiation cone angle. Comparison with auroral image showed that source locations of X-mode AKR waves coincide with auroral field line.

On the other hand, O-mode AKR waves have two directions of propagation; almost 90 degree and the vicinity of 40 degree with respect to the magnetic field. The power flux of O-mode waves was about 10 percent of X-mode in a strong AKR data.