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AUTUMN AND WINTER ANOMALIES IN IONOSPHERIC ABSORPTION
AS MEASURED BY RIOMETERS

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Seasonal variations of ionospheric absorption have been studied using riometer (A2) measurements over a wide latitude range (Figure 1). In agreement with the results of earlier studies of A1 radiowave absorption, equinoctial maxima of approximately equal amplitude are observed in the auroral zone and near the equator. However, at intermediate latitudes riometer absorption maximizes during the fall season, whereas the A1 data show a semi-annual variation with maxima occurring in summer and winter (Figure 2). The autumn anomaly in riometer absorption is observed at much higher geographic latitude in the southern hemisphere, but at comparable geomagnetic latitudes in both hemispheres. The winter anomaly was seen only in absorption values calculated at constant solar zenith angle (Figure 3).

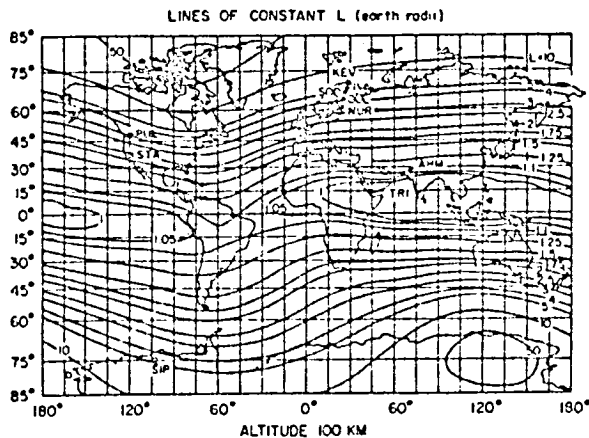


Figure 1. Location of the riometer stations.

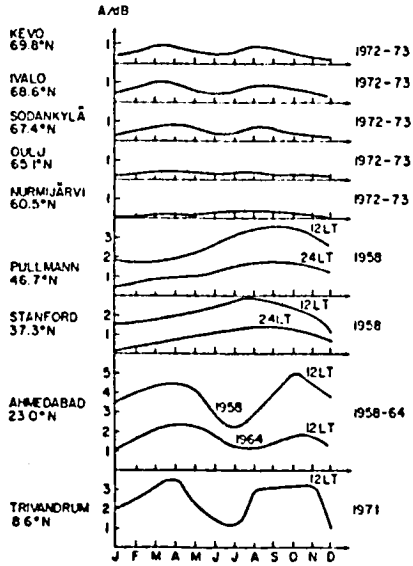


Figure 2. Variation of the total ionospheric absorption measured by riometers at different geographic latitudes in the Northern Hemisphere. For Finnish stations the monthly mean absorption values are used, for the other stations the monthly mean absorption values at 12 and 24 LT.

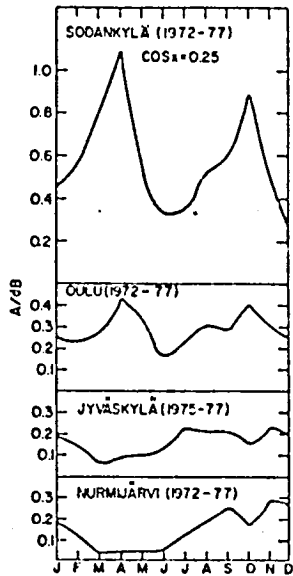


Figure 3. Seasonal variation of ionospheric absorption at constant solar zenith angle.