

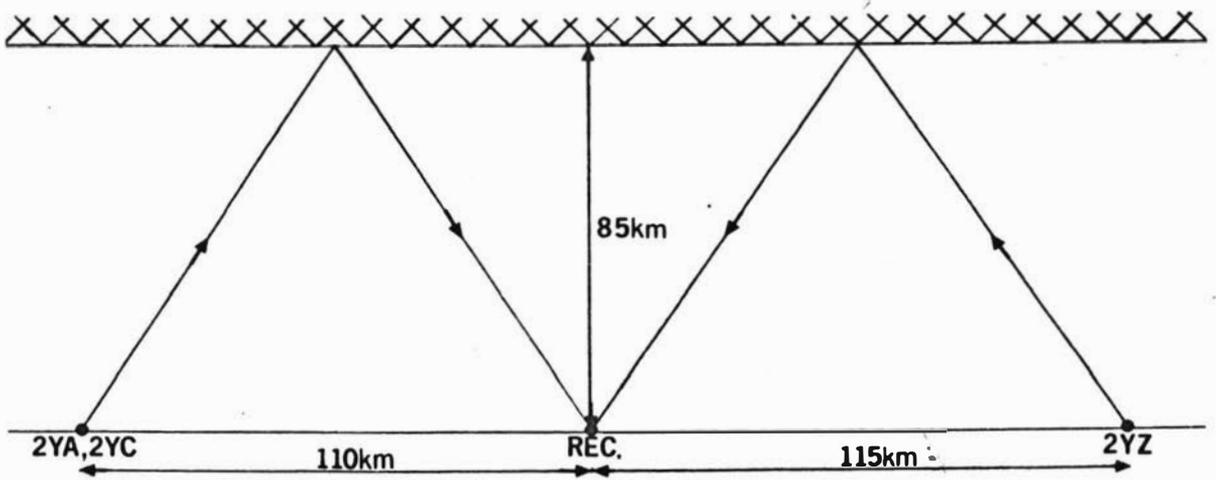
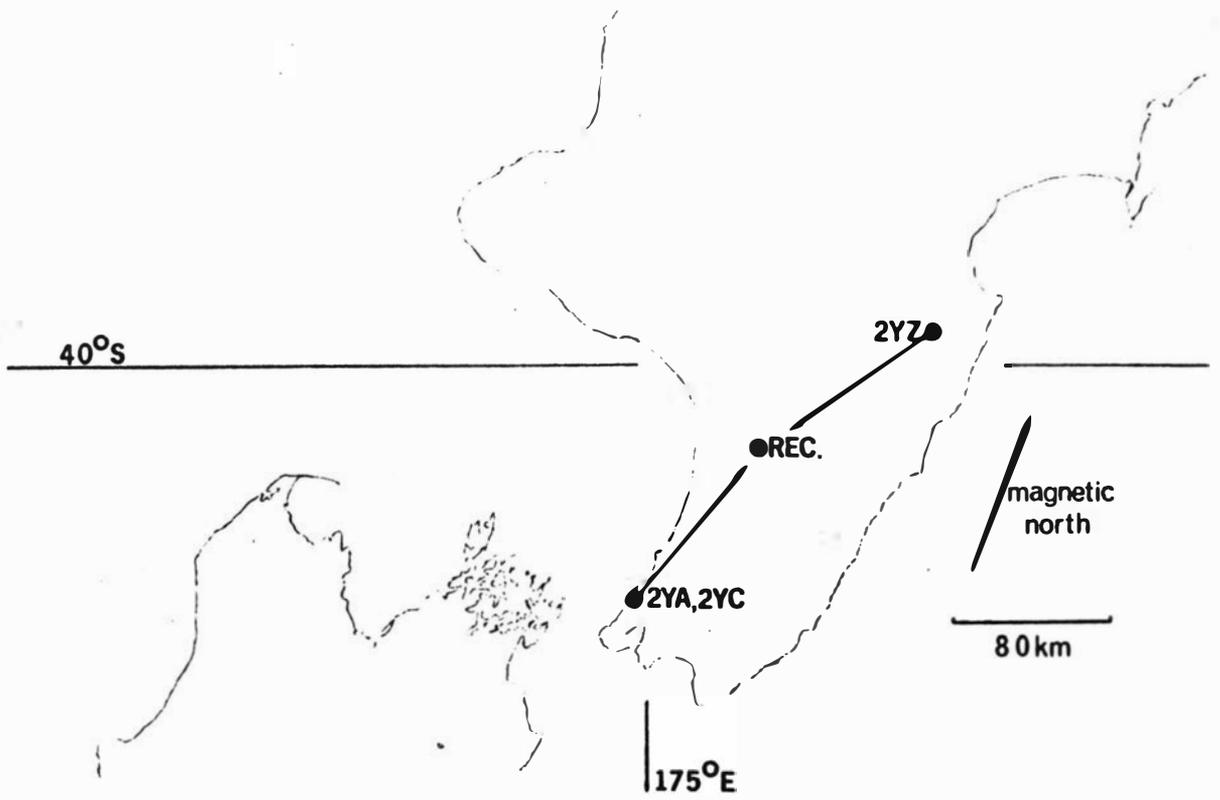
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IONOSPHERIC REFLECTIONS AT MEDIUM FREQUENCIES

A thesis presented in partial fulfilment  
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1973



frontispiece

## Abstract

This thesis examines a possible explanation for some of the time variations of the night-time sky wave at distances between 80 and 160 km from low-medium-frequency transmitters. In the postulated model this variation is explained in terms of interference between the signals travelling along many paths from the transmitter to the receiver via a lower ionosphere disturbed by the passage of a ducted acoustic wave. A rigorous solution to this model is not possible, but by using reasonable approximations a solution is obtained which is suitable for analysing experimental records of sky wave variations. These experimental records were obtained by using an interferometer technique to separate the sky wave from the ground wave. Some extremely good agreement was found between theory and experiment showing that this could be a useful technique for studying ducted acoustic waves. Certainly some, at least, of the variations commonly observed in the night-time sky wave signal are caused in this way.

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