35. *On the Propagation of the Ionosphere Disturbances.*

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Using the h'-f curves of the ionospheric observations which were made every half hour or more frequently with the equipments of manual type at Fukaura ($40^{\circ}36.6'N$ $139^{\circ}54.1'E$), Shibata ($37^{\circ}57.0'N$ $139^{\circ}15.8'E$), Kokubunji ($35^{\circ}42.4'N$ $139^{\circ}29.3'E$) and Yamakawa ($31^{\circ}12.5'N$ $130^{\circ}37.7'E$) from May 2nd through 15th in the co-operative observation period for the solar eclipse on May 9th 1948, phase relations of time of variations of fEs (penetrating frequency of sporadic E) were investigated between each station:

Then the peaks of fEs which may be a kind of clear marks of the ionosphere at the height of about 100 km, occur regularly from north to south at night, for example as shown by the peaks of fEs whose correspondence of each station may be given by the annexed numbers in Figs. 1, 2 and 3. There should be some discussions for fEs at day time. Because fEs at day time depends not only on the state of the sporadic E layer but theoretically on the absorption of the ionosphere below the sporadic E layer which may be shown roughly by the value of fmin (minimum frequency in h'-f curve)⁽¹⁾, it is remarkable that fEs of all stations at day time can be compared only on the day when the diurnal variations of fmin are so calm that the unequal influence of absorption for fEs at all stations cannot be noticed, while it is known that the absorption at night can be neglected always. The peaks of fEs at day time which could be compared only on May 2nd, 4th, 7th and 11th during this period, show the propagation from south to north as in Fig. 2, although this result at day time is so few to be quite trust worthy.

Thus the time interval of all the striking peaks between each station during this period can be shown on Fig. 4. This result at night indicates the great possibility of the southward propagation of the ionosphere at the height of about 100 km with the velocity of about 250 km per hour, *i. e.* about 70 m per second, considering the relative place of each station shown on Fig. 5.

(1) Y. Aono : Report of Physical Institute for Radio Waves, Vol. 4, June 1948.

Fig. 1.

Fig. 2.

Fig. 3.