

II-4-31. Summary of Japanese Works*

Ichiro KONDO

Physical Institute, Nagoya University, Nagoya, Japan

Discussion

Biermann, L.: Are there any observations from space probes indicating a difference between magnetic storms with or without Type IV radio burst?

Kondō, I.: The observations with which I am familiar are only partially analyzed so far. For large events the correlation is good, but for smaller events near the earth there does not appear to be a high correlation.

Rose, D. C.: Experience in some Canadian stations suggests that the identity of Type IV or lack of Type IV radiation is not too certain. I am wondering therefore to what extent do you consider the classification reliable in regard to the occurrence of Type IV radiation.

Kondō: The determination of the type of the solar radio outburst is somewhat difficult problem. Dr. Hakura of Radio Wave Laboratory made an extensive work on this problem and showed that considering the dynamic spectrum as well as polarization of the radio outburst, type of the out burst can be easily determined. His results also have good correlation with P.C.A. events.

Sarabhai, V.: To what extent does Type IV burst data prevent false association with a solar flare?

Kondō: There are so many flares in solar maximum period, that sometimes it is very difficult to connect one solar flare to a magnetic storm. However, the flares followed by Type IV radio outbursts show very good association with geomagnetic storm as well as cosmic-ray storm.

Maybe only one third of the solar flares is followed by a Type IV radio outburst.

Lüst, R.: Are the calculations of the change of the cut-off energy by a ring current based on orbit calculation or by using just the magnetic moment of the ring current?

Kellogg, P.J.: They are Störmer type calculations of allowed and forbidden regions, using a ring current flowing on the surface of a sphere.

Winckler, J. R.: Does the analysis show that the cut-off rigidity returns to normal following the form of the surface field?

Kondō: At least in our analysis there is the indication that the change of the cut-off rigidity fairly well follow the change of the geomagnetic field intensity observed at the earth surface.

Kellogg: I would like to remark that the return to normal of the cosmic ray cut-off before the storm is over, is a high latitude phenomenon. The ring current theory predicts that the middle and low latitudes cut off change should last as long as the storm.

Kondō: Yes, I agree.

* This article is a summarizing talk of (II-4-5), (II-4-6), (II-4-7) and (II-4-8).