# OPTICAL AND MICROWAVE OBSERVATIONS OF LIMB FLARES IN THE HALE REGION 17644 ON 10 MAY 1981

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EXTENDED ABSTRACT. The active region Hale 17644 produced many big flares as it moved across the disk from 10. do 25 May, but in this region there is few observationa of limb flare on 10 May.

This active region was observed photographically from 09:07 UT to 14:30 UT on the solar limb by the 15 cm aperture Wroclaw University coronograph with a broadband H-alpha filter.

The same region was observed simultaneously by the microwave telescope MET in Nancy (Mercier, 1985).

The onset of the first flare was not observed because we have began our observations at 09:07 UT. The first observation of the active region shows a bright, large limb flare in the region from NOI-E to NIO-E and small surges at NI2-E and NI6-E. At the same time was observed a small loop situated nearly to the flare and in region NI2-E to N46-E we have seen a quiescent prominence (see Fig. 1).

A weak microwave emission was observed above the limb in the region of the flare but there were not microwave emission in the north part of active region.

On the flare topp about 11:50 UT a system of loops was formed. At 12:12 UT main part of loop matter was ejected into the corona. This material was observed between 12:22 UT and 12:34 UT as a slow spray. The average expansion velocity was 141 km/sec.

Nearly at the same time started a big coronal mass ejection (SME). An interplanetary shock associated with these events was reported by sheeley (1985).

A eruption of loops, spray and CME was initiated by a new limb flare in the region NO8-E. This flare was observed in H-alpha line at 12:29 UT but radio and X-ray observations indicated, that the flare onset was about 12:10 UT.

The flare initiated the development of the big loop tunnel and generated a MHD-wave, which after reaching about 13:15 UT the quiescent prominence cau-

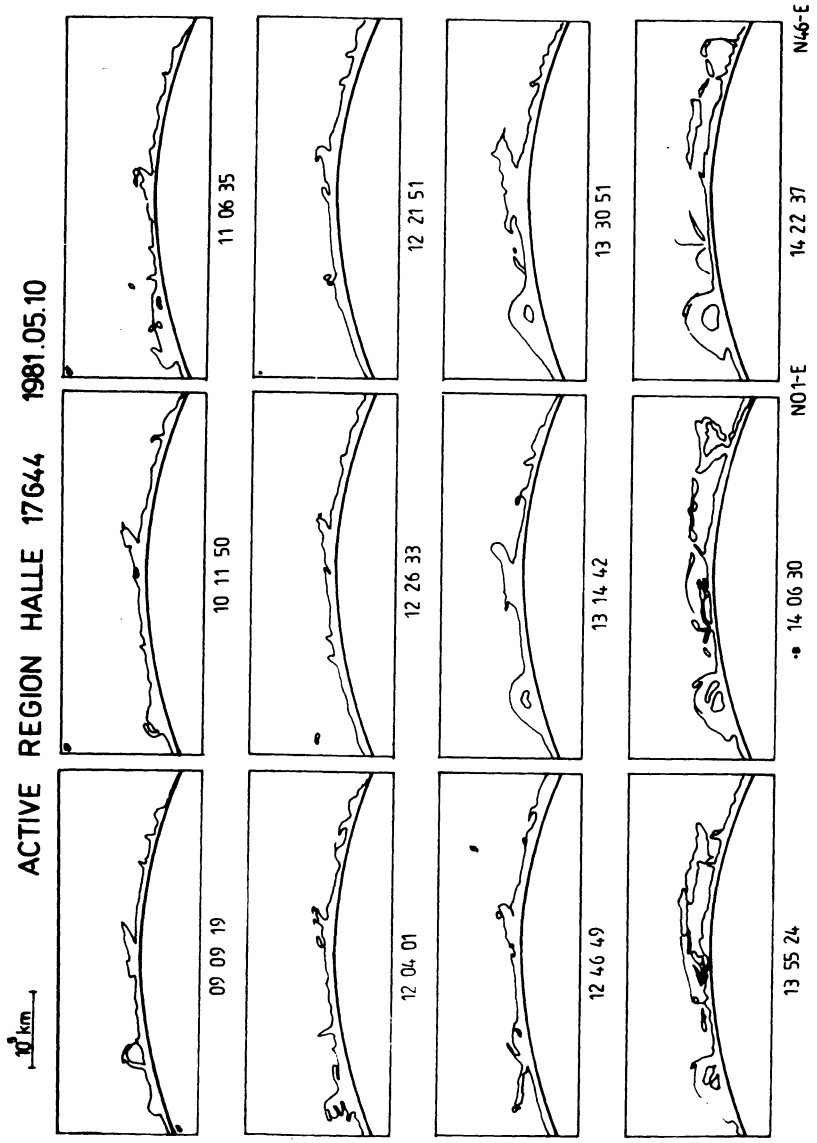


Fig. 1: Schematic draw of the H-alpha emission on the limb in the active region Hale 17644 from 09:09 UT to 14:23 UT.

sed the blowing out the prominence material. Probably the same wave caused also a radio burst in the corona. The average propagation velocity of this wave was 60-80 km/sec.

About 14:00 UT we observed a activated prominence and a large system of loops situated in a limb region from N03-E to N13-E. At this time MET recorded a very strong microwave emission above the limb in region from S03-E to N19-E.

Between 12:55 UT and 14:10 UT a type IV radio burst was observed and at 12:10 UT started a noise storm with many type III radio burst. However, there was no type II radio burst.

This paper will be publicated in more detailed form probably in Solar Physics.

REFERENCES

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Sheeley, N.R., Howard, R.A., Koomen, M.J., Michels, D.J.: 1985, J. Geophys. Res. 90/A1, 163.