

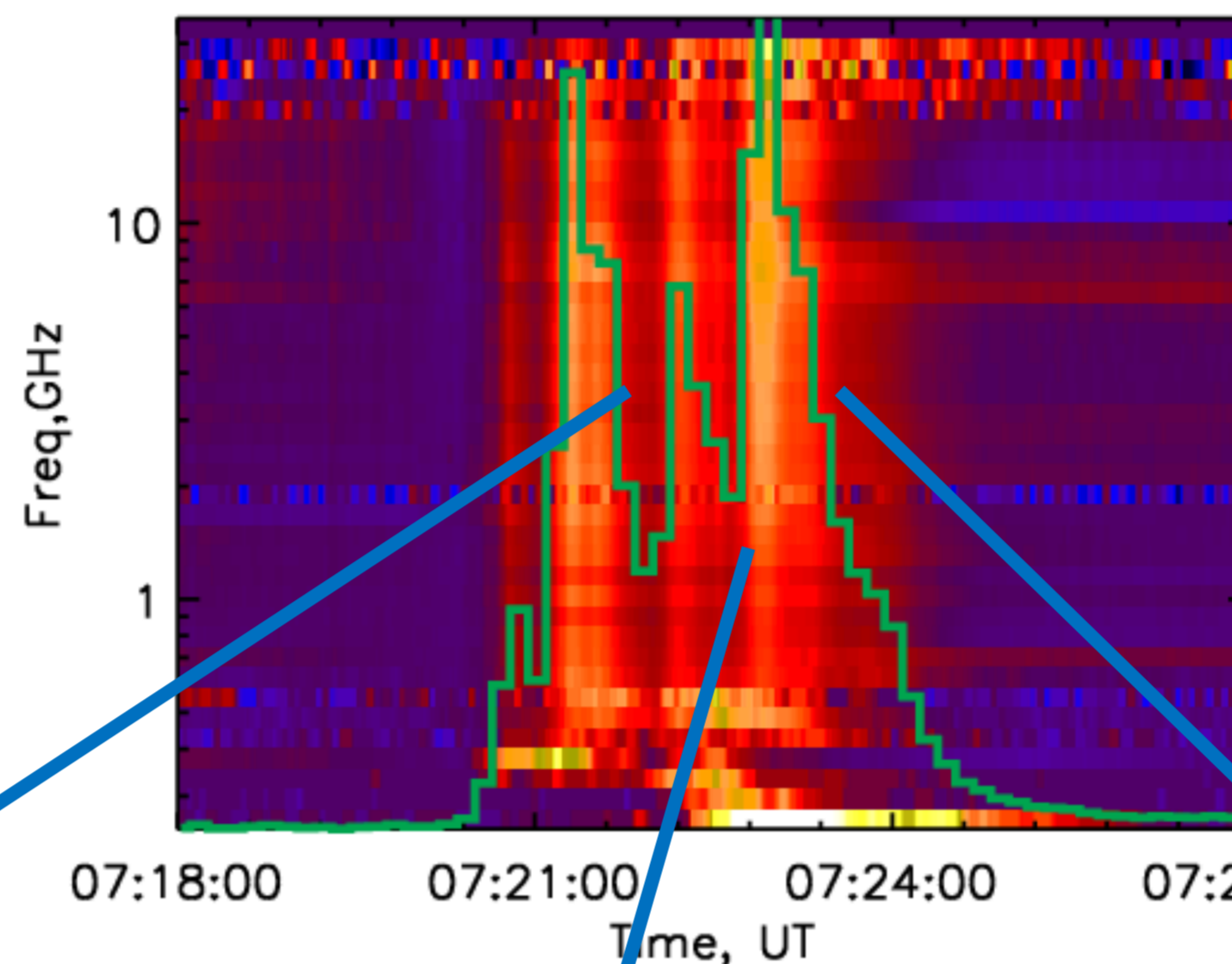
Evolution of an energy release during the partially occluded flare on 29th May 2020 according to microwave observations within 4-8 GHz

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We present the first results of the SOL2020-May-29T07:13 event study based on simultaneous observations within the 4-8 GHz range by the Siberian Radioheliograph 48 and the Badary Broadband Microwave Spectropolarimeter. The microwave (MW) time profiles of the flare demonstrated at least three quasi-periodic bursts. We obtained the spectra for the bursts and defined the position of the MW sources at different frequencies. Results of the preliminary analysis are summarized and discussed.

Data and instruments:

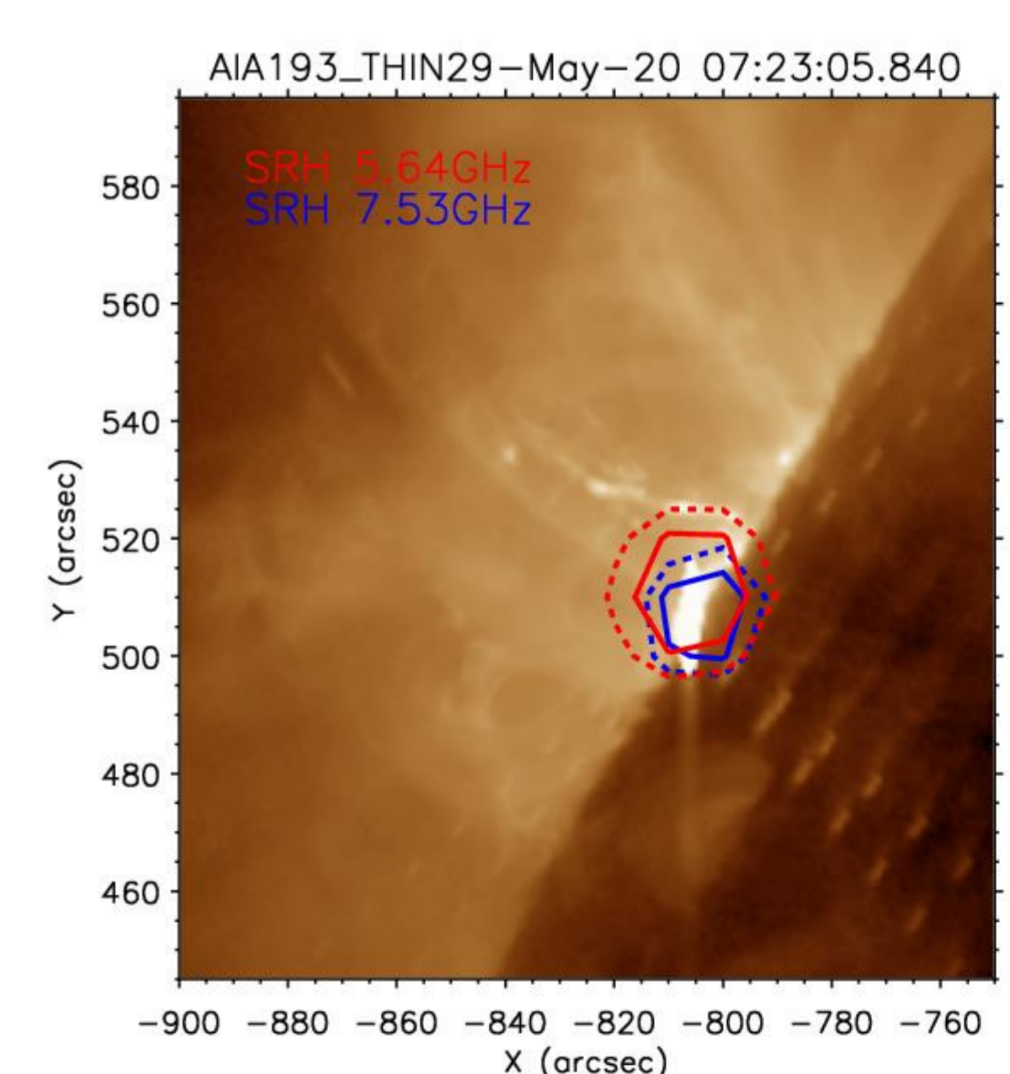
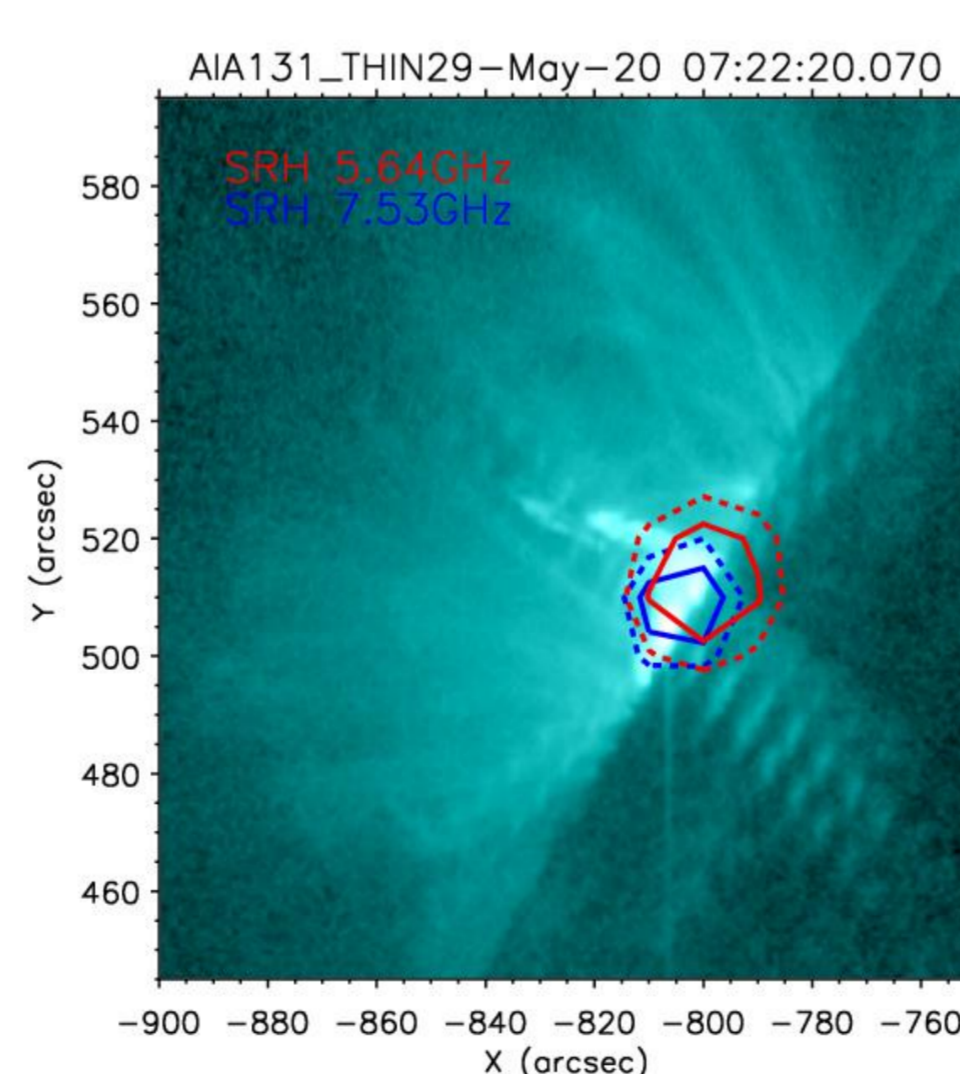
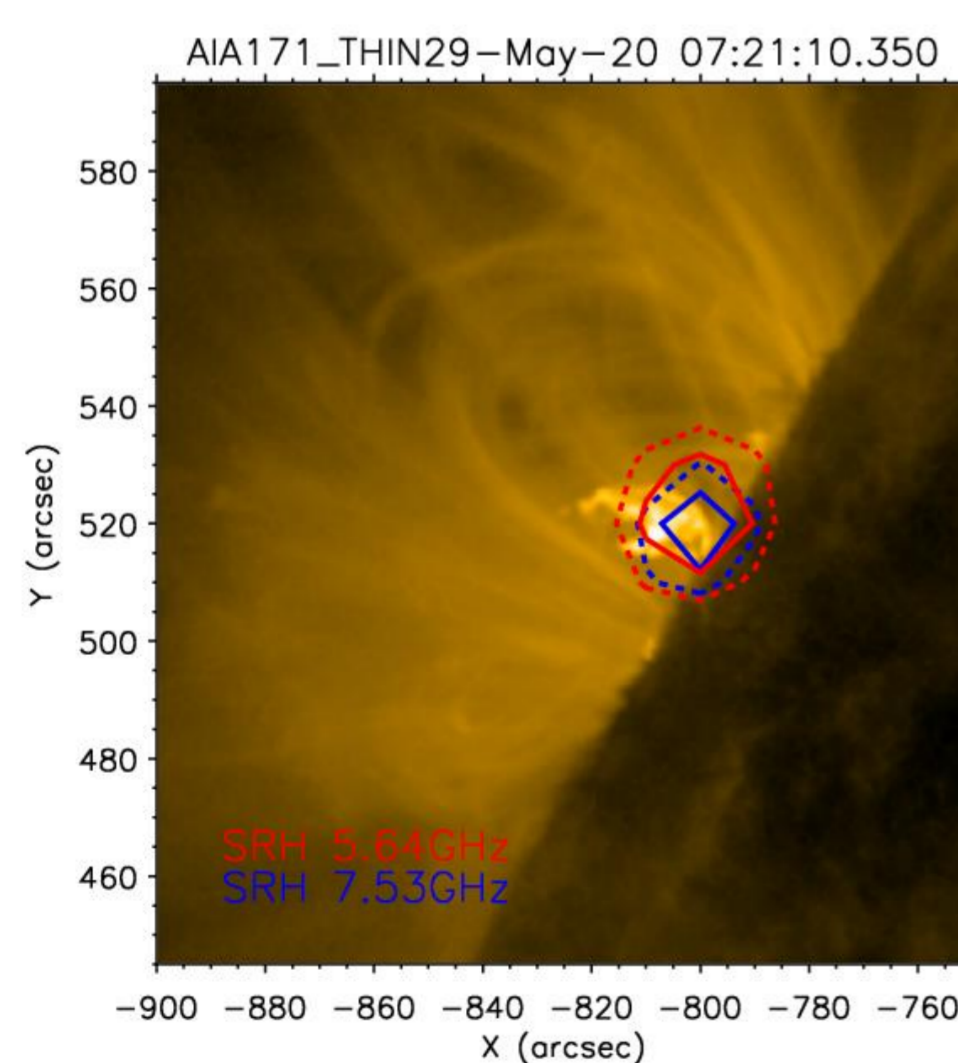
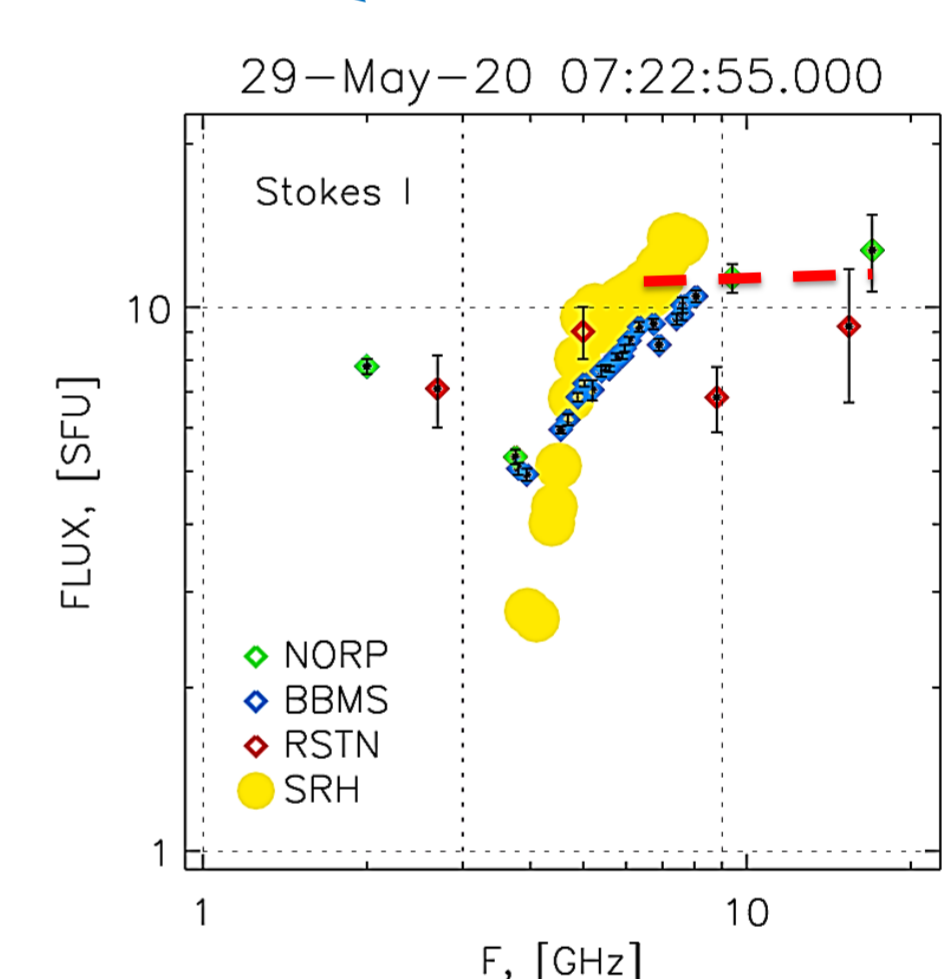
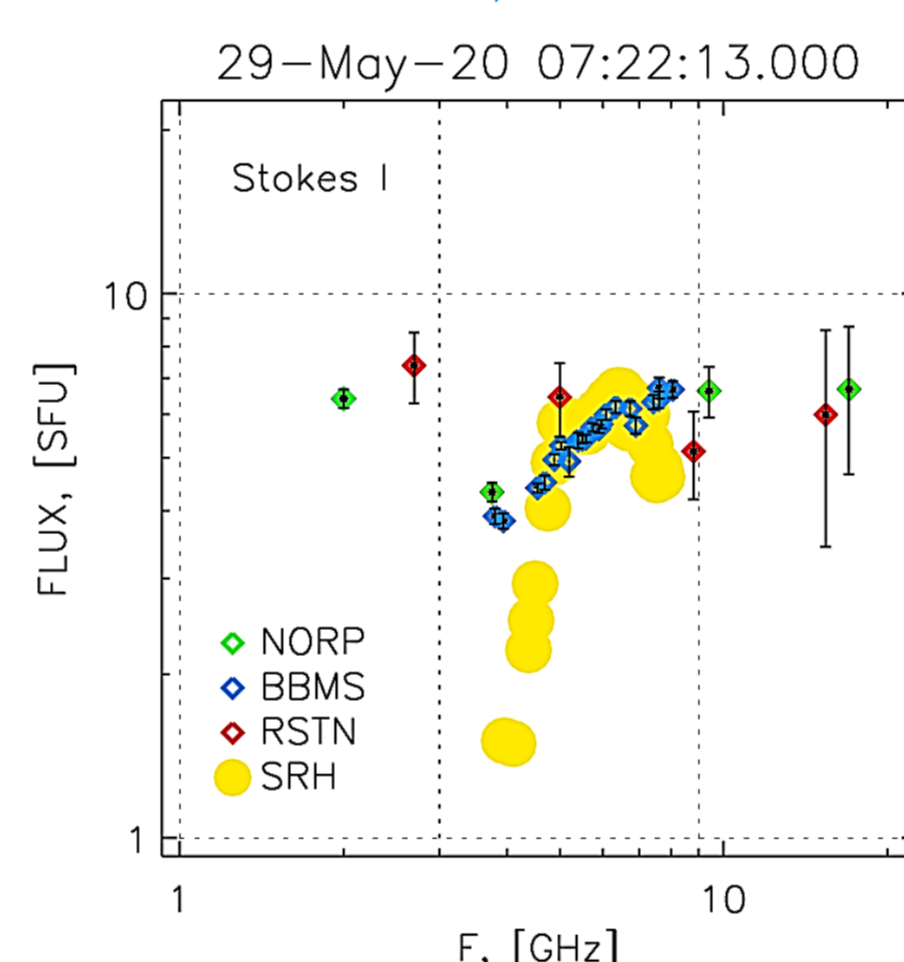
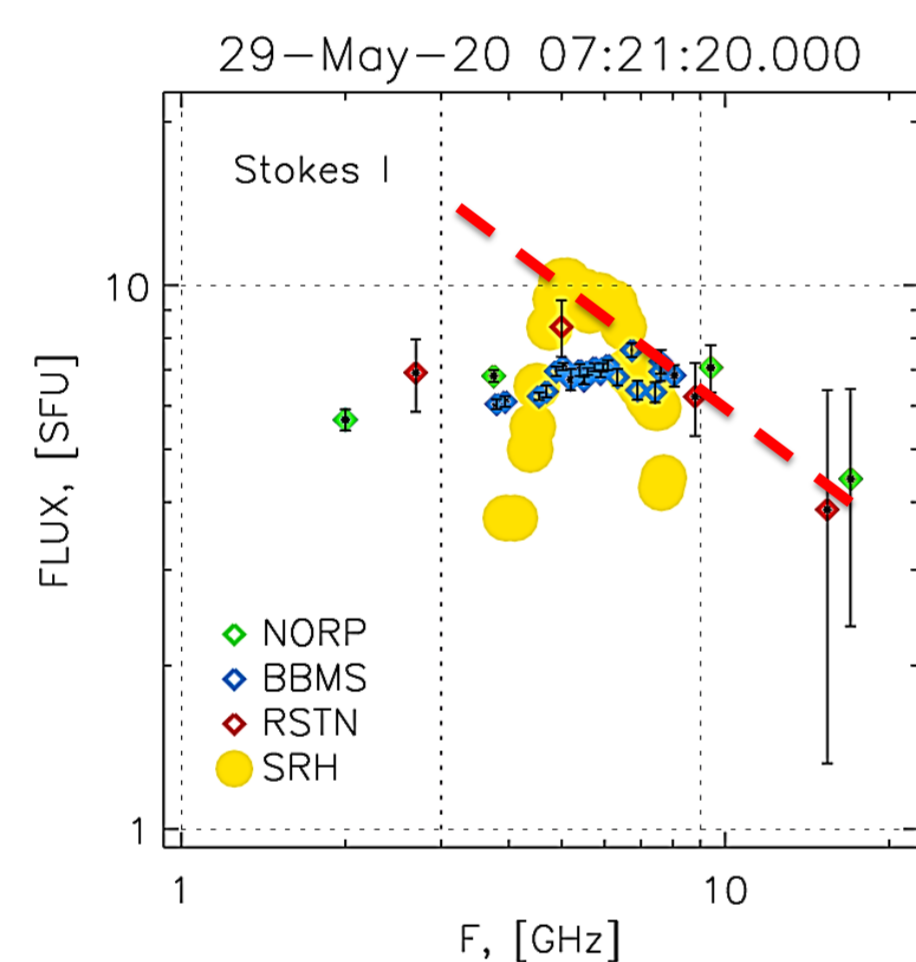
- Siberian Radioheliograph -48 (SRH-48, Lesovoi et al 2014)
- Badary Broadband Microwave Spectropolarimeter (BBMS, Zhdanov & Zandanov, 2015)
- Radio Solar Telescope Net (RSTN, Kennewell and Cornelius, 1983)
- Nobeyama Radiopolarimeters (NORP, Nakajima et al., 1985)



SOL2020-May-20T7:13:

- M1.1 GOES class
- N32E89
- Onset 7:13 UT
- Maximum 07:24 UT
- End 07:28 UT

The synthetic spectrum reconstructed from BBMS, RSTN and NORP data



Evolution of MW sources position during the flare. The sources are difference between the MW image during the burst and the moment of the quiet Sun (07:14:58-07:15:04 UT). The solid and dashed line contours are 95 % and 90% of MW source maximum, correspondingly. The red color – 5.54 GHz and the blue color is 7.53 GHz. One can see, that the MW source at 7.53 GHz moved within about 20-30 arc seconds (SHR beam at 8GHz was about 50 arcsec).

Summary: We revealed three bursts on the microwave time profile within the 4-8 GHz range.

- The spectrum of the first burst indicates the gyro synchrotron mechanism of non-thermal electrons.
- The spectrum of the third burst shows the form of thermal (free-free) emission.
- The position of the MW source at 7.53 GHz changed during the second burst for about 20-30 arc sec. This fact is in agreement with the appearance of new flare sources seen in EUV.
- The primary energy release most possibly temporarily and spatially coincided with the first burst, while the other burst of this quasi-periodic flare had the other location.