MILLISECOND SOLAR RADIO SPIKES OBSERVED AT 1420 MHz

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Instrument and Observations

(i) 15-m Radio Telescope

(ii) Radio spectrograph

Frequency resolution: 3 MHz
(46 channels, 1352–1490 MHz band)
Time resolution: 80 microseconds

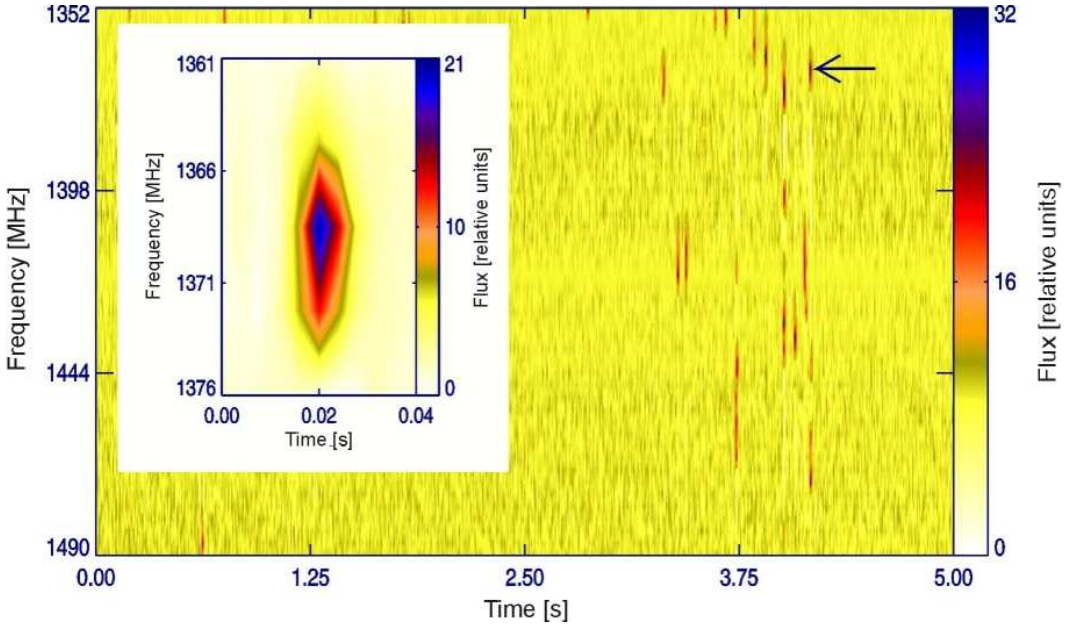
In the period from February 2000 to December 2001 (during nearly 2000 hours of observations) we have observed 13 events with radio spikes.

We have evaluated parameters of 5199 individual radio spikes.

The mean duration time of spikes is 36 ms.

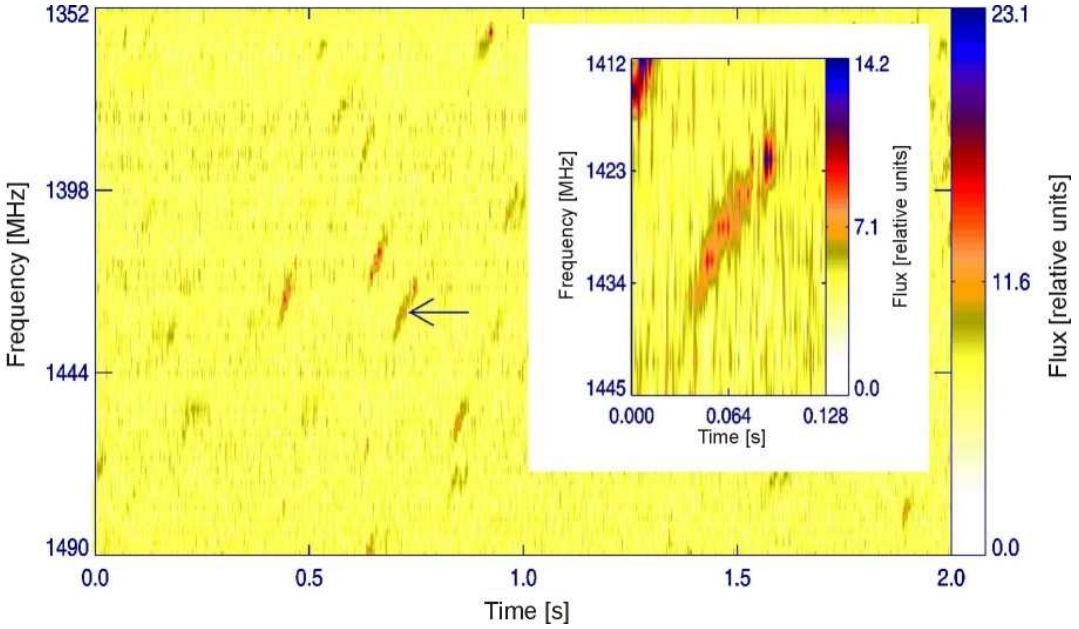
The mean value of bandwidth of spikes is 9.96 MHz.

Solar spikes



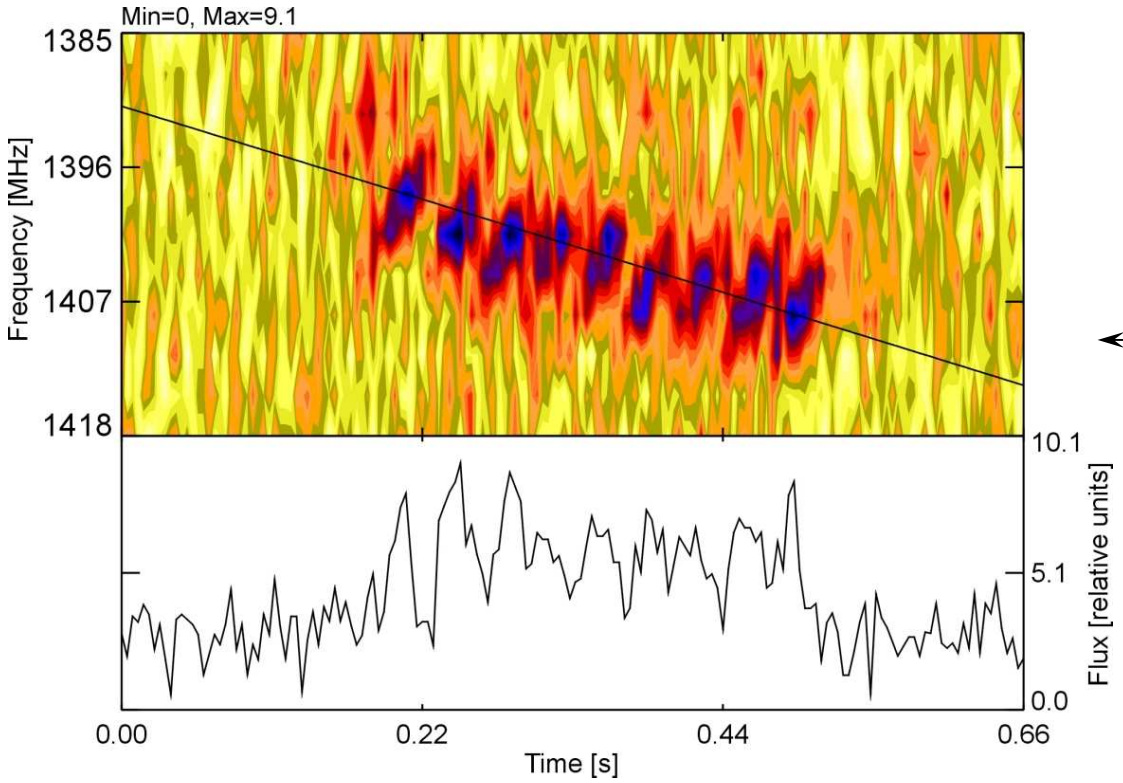
Spikes without internal structure

Spikes showing a simple form of a single increase of radio flux, limited in time and frequency.



Spikes with internal structure

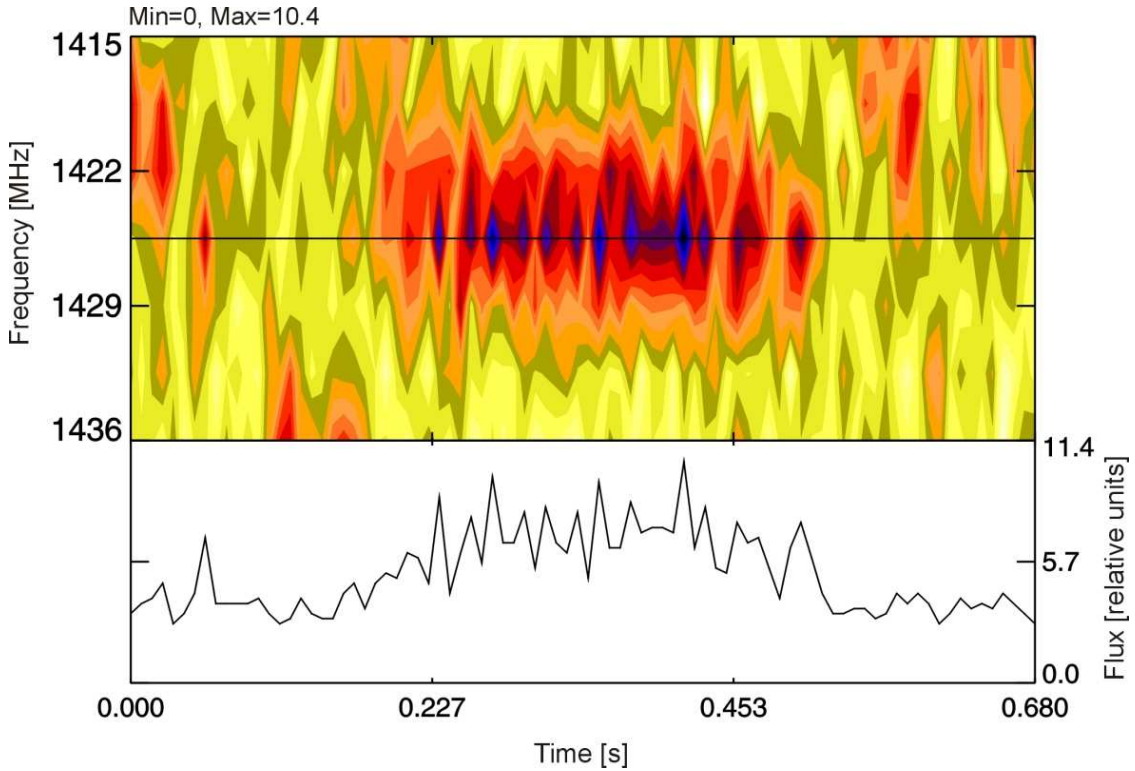
Spikes showing a well outlined subtle internal structure, consisting of a few local, internal maxima.



Chains with drift

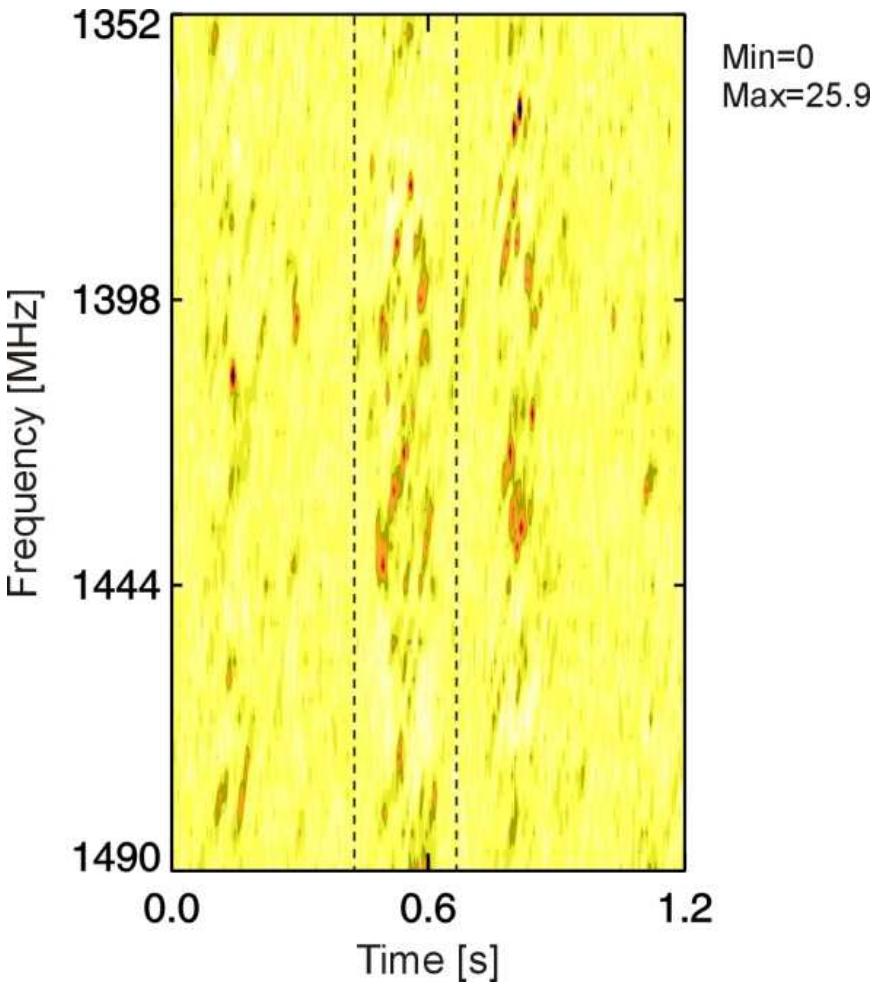
Chains of spikes

They are formed by tight groups of spikes with their emission band drifting in frequency (i.e. chains with drift) or emitted in a constant band (chains without drift).

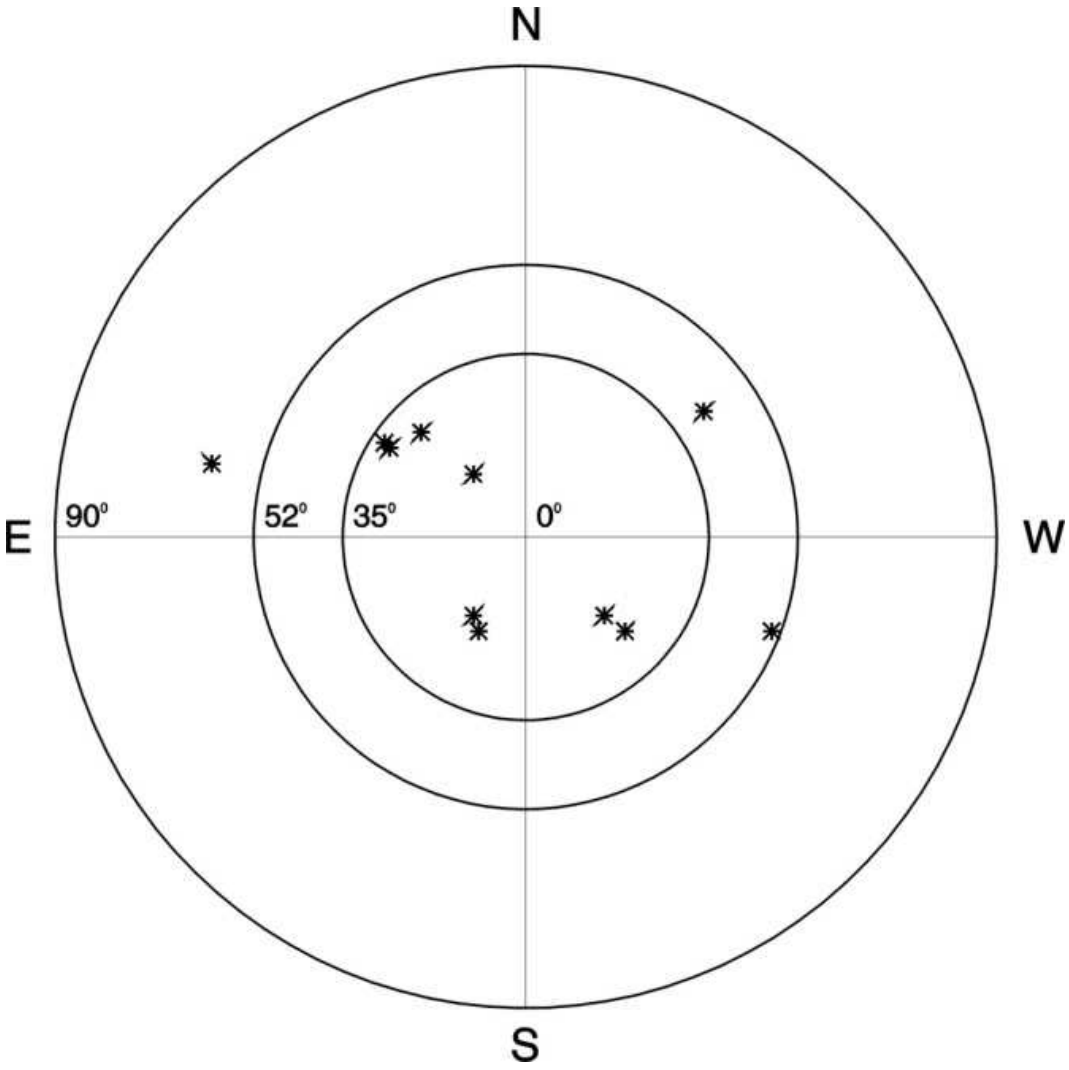


Chains without drift

The columns of the spikes



Distribution of the active areas



Distribution of the active areas connected with radio spikes emission on the Solar disk.