Evolutionary features of the preflare stage of active regions in the 22-nd cycle of solar activity

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A study is made of the spatio-temporal evolutionary features of the preflare stage of active regions, based on all-weather monitoring data in the intensity and polarization channels obtained at the Siberian solar radio telescope (5.7 GHz) during the 22-nd cycle of solar activity. To determine the location and characteristics of sunspot groups, observational data from the ISTP Sayan Mountain observatory, as well as from the "Solnechnye dannye" and "Solar-Geophysical Data" Bulletins, and data from the GOES-7 and GOES-8 satellites were used. This paper examines 73 active regions which produced 144 X-ray flares of importance $\geq$X with the mean area of 437.7 Hemi. Time profiles of radio bursts are relatively complicated. The duration of the events ranges from 7 min to 7.5 hours, with the mean duration of 1.5 hour. About 36% of the events have the polarization inversion in the time profile.

An analysis of observational results suggests the following features of the preflare process on some occasions:

- a sudden reversal of polarization in the region of flare occurence;
- an increase in amplitude by more than a factor of two during the first several minutes; and
- the appearance of new regions (magnetic fluxes) in the immediate vicinity of pre-existing structures in the active region.

A N–S assymetry of the location of large X-ray flares was observed.

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