

One Solar-Cycle Observations of Prominence Activities Using the Nobeyama Radioheliograph 1992–2004

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We newly developed a method of limb-event detection for the Nobeyama Radiograph, and show the results over one solar-cycle, 1992 July – 2004 December. We detected 785 prominence activities and 31 flares on the limb by this method. We investigated the relationship between the distributions of the prominence activities and the solar cycle. As a result, we found the following facts: 1) The variation in the number of prominence activities is similar to that of sunspots during one solar cycle. 2) There are differences between the peak times of prominence activities and sunspots. 3) The frequency distribution as a function of the magnitude of the prominence activities (the size of activated prominences) at each phase shows a power-law distribution. The power-law index of the distribution does not change, except around the solar minimum. 4) The number of prominence activities has a dependence on the latitude. On the other hand, the average magnitude is independent of the latitude. 5) During the rise phase of the solar cycle, the location of the high-latitude prominence activities migrates to the pole region. 6) After a solar polarity reversal, the location of the prominence activities in the northern hemisphere migrates to the equator. On the other hand, the prominence activities in the southern hemisphere occurred in the high-latitude region until the decay phase of Cycle 23.