

2001-2004 Leonids flux by radio observation using a beam antenna

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Results of 2001 to 2004 Leonids meteor stream by Ham-band Radio Observation (HRO) using a beam antenna are presented. The Leonids in 2001 was attracted because of the predication of its meteor storm (Mc Naught and Asher 1999). To measure the mass index and the flux during the meteor storm, we made the beam antenna (7-element loop antenna), which beam-width is 20-30 degree

toward the zenith. Using this system, we get the detail activity profile during the 2001 Leonids meteor storm over Japan.

In the next year, we made new beam antenna (2-stacked 5element Yagi antenna), which beam-width is 20 degree toward the zenith. Using this new system, we get the detail activity profile during the 2002-2004 Leonids meteor stream over Japan.

In the 2001 Leonids,

the main peak of storm was observed at 18h20m-30m UT on November 18, and some sub peaks were observed at 19h00m-10m UT, 21h20m-30m UT and 23h30m-30m UT on November 18. The long-duration echoes (fireball) activity was almost constant during the storm. The duration of storm is more than 8 hours (from 16h UT to 24h UT). This activity was dominated by the long-duration echoes resulting in a low mass distribution index; $s \sim 1.7$. The peak flux is more than $1 \times 10^{-5} \text{ km}^{-2} \text{ s}^{-1}$, which value is consistent with the video observation with a limiting magnitude of $+3$.

In the 2002-2004 Leonids,

We observed the detail flux of Leonids using new beam antenna.

In this paper, we show the advantage for using the beam antenna to measure the flux of Leonids, and show the successive activity variation of Leonids.