

Meteor observation with radio interferometer

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The angle of arrival of the radio waves, which could not be obtained in conventional HRO meteor observation, can be measured using radio interferometer technique developed as VLA or VLBI in astronomy. Therefore, it is important to develop a useful interferometer system for amateur observers, although the interferometers are usually a complicated system.

In this study, we have developed a total radio interferometer system including both the receiver hardware and the observation software, consisting of antennas located on an equilateral triangle, receivers with a common local oscillator, A/D converters, and a software determining the angle of arrival of the radio waves every second from the phase differences of the channels. Simultaneous video and interferometer observation indicated a good agreement of the azimuth and zenith angles of aircrafts observed by the both methods, suggesting the performance of the interferometer. Observations were carried out for the Geminids in December 2004, using both the video and interferometer techniques.

Methods for phase calibrations and improvement of the observation precision will be discussed.