

Research for the Structures of Meteor Showers' Activity from Multi-Frequency Radio Observation

Kayo Miyao[1]; Kouji Ohnishi[2]; Hiroshi Ogawa[3]; Kimio Maegawa[4]; Noriyuki Yaguchi[5]

[1] Geophysics, Tohoku Univ.; [2] Nagano Nat. College of Technology; [3] Natural Science,First,Tsukuba Univ; [4] EI, Fukui-NCT; [5] AMRO

Radio Meteor Observation is, just as its name, a way of meteor observation using radio waves. The characteristics of the observable meteors are according as those of the using radio waves. Since high frequency radio waves have high energy, we can detect only meteors with somewhat higher energy. In other words, we should use lower frequency radio waves when we have to observe darker smaller meteors with lower energy.

A decade ago meteor observers did FRO, that is FM Radio Observation using FM broadcasting radio waves, and now many people are carrying on HRO, Ham-band Radio Observation using Ham radio waves. Most of observers doing HRO use 53.75MHz radio waves now, and some use 28MHz, 144MHz, and other frequency radio waves such as FM broadcasting radio waves. Although there are observers using these other frequencies, their observed data are not exploited enough; it is mainly because different frequency radio waves detect completely different numbers of meteors so that it becomes difficult to compare these other frequencies data with many 53.75MHz data.

We decided to grasp the difference of activity between meteors with different energy, that is, about a certain meteor shower, meteors with different mass, by using these data with different frequencies. The methods of consideration are mainly; a) to compare the real numbers of meteors in each unit time between the different frequencies, and b) to observe the change of High/Low ratio such as [the meteor numbers of 144MHz]/[that of 28MHz] in each unit time. By the first method we can see the difference of the ways of time changing between mass or magnitude ranges of the observable meteors with a certain frequency, and the second method shows us whether brighter meteors accounted much or not.

The observed date and place show the position of the earth and the observed characteristics of meteors show the characteristics of meteoroids which were just at the position at the time; it will be able to know the past activity of the mother comet by observations of a certain meteor shower.