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Truncated Power Law Embedded in Mass Distribution of Geminids Using Gaussian Statistic

This study uses the Gaussian distribution function model to find the mass index of the meteor. We use the observations and the meteor melting formula to calculate the meteor mass m, and then analyze the correlation between m and the number of meteors to find the mass index of the meteor shower of the Geminids.
In the past, the mass index was obtained through repeated calculations. Our research has found that when the cumulative number of meteors is plotted against the logarithm of the meteor mass, it will be similar to the error function graph of the Gaussian distribution. Therefore, we want to use the function model of the Gaussian distribution to try to simulate the mass distribution of the meteors. We use the chi-square test and the Kolmogorov test to test whether the function model of the Gaussian distribution is suitable for the meteor mass, and then use this function model to find the mass index of the meteor.
Finally, we will use this model to determine the mass index of the meteor and using this model to analyze meteor mass for others constellation in the future.

Section

Solar System/Exoplanets

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