

Measuring Fluxes of the Most Active Meteor Showers with an All Sky Video Camera Network

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We present an algorithm to convert the activity rates of meteoroids observed in an All-Sky video camera network into physically calibrated fluxes, albeit limited to the nights with greater than 30 shower meteors. This large sample is necessary to determine the limiting magnitude and sky detector area of the camera network empirically. With these two calculations determined directly from the observations, we can calculate the flux for meteors detected in an arbitrary combination of cameras within the network. We present flux measurements for five meteor showers as observed in the NASA All-Sky Fireball Network, and combine these fluxes with contemporaneous measurements at lower limiting masses to determine new mass indices for these showers. Equivalent Zenithal Hourly Rates for all five showers, extrapolated over three orders of magnitude in meteor luminosity, are in excellent agreement with visual observations. The limiting mass of the NASA All-Sky Fireball Network corresponds to the most massive meteoroids considered to pose a significant risk to spacecraft, which affords the opportunity to perform more accurate forecasts of meteor shower activity in future years.