How to estimate the affect of an intense meteor

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In the present age, the potential threat to space projects coming from some intense meteor storms has been noticed. Meteoroids have not the big size and great mass of the man-made space debris, but they have high velocities up to 11-72 $km\ s^{-1}$ and energies. In addition, a tremendous number of meteoroids might be encountered in a short time. Moreover, the destroy of the meteoroids is extensive. In an impact, the shock waves can be generated and propagate along colliding bodies, compressing and heating both the target and meteoroid-self. A plasma cloud may enclose the target and expands into the surrounding vacuum, emitting electromagnetic radiation in a wide spectral range. Especially, the increasing activity of mankind in space for scientific, commercial, and military purposes, has lead to an increase in safety-related problems about the satellites, space stations and astronauts. The actual destroy has been recorded many times, making the data being lost, or solar panels being severely damaged, even the satellite lost its control and culminated in an early end of the mission. Up to date, several new techniques for observing meteors and meteor showers have been developed. However, the initial definition about a meteor storm based on visual observations with a Zenithal Hourly Rate of above one thousand seems insufficient, since it only means a storm or burst of meteors in numbers, means an eyewitness could have a chance to see a spectacular meteor show. How to define the intense activity of a meteor storm, how to estimate and predict the affect of an intense meteor shower, how to reduce the underlying damage as possible, dissectional and groping work is still needed. Ma et al. (2005) suggested a special ZHR^*, which denotes a number flux, being defined as the number of meteoroids passing 1,000 km^2 zenith area per hour and each meteoroid should form a crater no less than 1 cm in diameter on an aluminum surface. According to their calculations, they thought that 1998 Giacobonids has ZHR^* as high as 8429 and might be the greatest burst among the 10 active meteor showers since 1990s. In this paper, through the author's calculations and careful analysis, the important factors affecting the spaceflight security appeared evidently. The result is that the most dangerous meteor streams are still Perseids and Leonids.