

Meteoroids and Their Parent Bodies

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Meteoroids are a small rocky bodies traveling through interplanetary space. Meteors are phenomena caused by the interaction of meteoroids with the Earth's upper atmosphere. Most of meteors have been treated as cometary origin, while meteorites are usually thought to be associated with asteroids. Orbital and mineralogical links have already been noted that imply an asteroidal origin for most meteorites.

More than 200 potential meteor showers were observed, however, the sources of minor meteor showers are still unclear. Of particular interest is whether these weak showers originate from comets, dormant comets or asteroids. (1) Asteroidal meteor showers, such as Phaethon-Geminids and 2003 EH1-Quadrantids, and (2) Dormant/extinct cometary meteor showers, such as Aungrazers-Daytime Arietids, 3D/Biela-Andromedids, and 2003 WY25-Phoenicids are potential asteroidal meteor showers.

The first integrated asteroid detection project, the Panoramic Survey Telescope And Rapid Response System (Pan-STARRS), to repeatedly survey covering three quarters of the entire sky has just started to discover a very large number of new near-Earth objects. Meteor and meteorite associations must be identified by Pan-STARRS survey. Quantitative understanding of the connection between solar system small bodies and meteoroids will be presented.

References

- [1] Abe, S., Lect. Notes Phys. 758, 129-166 (2009).