

Extra-terrestrial meteors: A review

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Abstract

We review the history, status and future prospects of meteor astronomy on planets other than the Earth. Recent high-profile events - impact flashes on Jupiter, the Siding Spring encounter with Mars - brought this branch of meteoroid studies into the limelight. We discuss the value of non-Earth observations: discovering new streams, comparative studies of ablation physics, sporadic activity and multi-planet streams. Next, we summarise the expected characteristics of meteors relevant to observations on and off the Earth, considering both the optical phenomenon of the meteor itself as well as the after-effects of meteor activity in general (ie ionised metallic layers in the upper atmosphere). Next, we point out serendipitous detections of either confirmed or putative meteors, followed by recent detections of the Siding Spring shower at Mars and of fireballs at Jupiter. Finally, we discuss future prospects: expected near-term observations as well as missions & instruments planned or in the conceptual stage.

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