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**Sensitivity of meteor infrasound to atmospheric uncertainties** CHRISTOPHE MILLET, CEA, DAM, DIF, F-91297 Arpajon, France, CHRISTOPHE HAYNES, LPTMC, Université Paris 6, 75252 Paris, France — In recent years, numerous bolide sources have been detected by the IMS infrasound arrays. Even though a variety of waveform data may be extracted from recorded signals, only a few parameters are used throughout meteor research, the most common being the arrival time of a signal. Other data forms include the amplitude and duration of the signal. As the shock wave depends on the properties of the medium in which it travels, a full analysis of the atmosphere for any event is required. In the present work, we model the propagation of a shock wave through a randomly layered atmosphere. In a deterministic or random environment, a generated meteoric shock wave propagates from a strong blast region out to the far-field acoustic limit. Inclusion of a random atmosphere will then affect all possible outcomes of the ray path. The resulting amplitude and period of any N-wave signal at ground level are obtained using both a ray tracing method and a theoretical approach based on Whitham's method. This method becomes particularly relevant when applied to the crater-forming meteorite fall near Carancas, Peru (2007); given that the specific trajectory of the meteor was unknown and that the maximum amplitude of the recorded signal were substantially affected by atmospheric conditions.

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