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A preliminary study on the attenuation of sound over the ground level

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Studying the attenuation of sound is important in several applications such as in studies of acoustic radiation from thunder and effects due to noise pollution. We have completed a preliminary study on the attenuation of sound at the ground level under atmospheric conditions by measuring sound pressure levels at certain distances from the sources of sound.
The contributions to total attenuation of sound from geometrical spreading, atmospheric absorption and "excess" attenuation (due to all other effects) are compared. It is concluded that attenuation is highest due to geometrical spreading. The "excess" attenuation is about one-half of the GS and the attenuation due to atmospheric absorption is about one hundreds of the total attenuation. The sound level produced from certain fire crackers is found to be about 120 dB even at a distance of 50m from the source.

Key words: Sound pressure level, Geometrical spreading, Atmospheric absorption, Excess attenuation

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