

A theoretical approach to estimate the annual lightning hazards on human beings

ABSTRACT

This study provides a detailed account of the stepwise development of an empirical equation to estimate the number of lightning casualties in a given region. The factors considered in the development of the formula are; lightning density, population density and urbanization of a given region. The unknown constants of the equation have been evaluated by applying state-wise lightning death records and information on lightning density distribution in USA. The death figure per year due to lightning calculated for Sri Lanka using the empirical equation developed is in good agreement with the same figure reported for the country by actual data collected. The paper also discusses the limitations of the empirical equations that have been developed to calculate lightning density once the isokeraunic level is provided as the input parameter.

Keyword: Lightning; Safety guidelines; Lightning fatalities; Ground flash density; Isokeraunic level