

Lightning severity in Malaysia and some parameters of interest for engineering applications

ABSTRACT

To the electric utility engineer, the parameters of the flash that are of primary interest are the crest current for the first and subsequent strokes, the waveshape of these currents, correlation between the parameters, the number of strokes per flash and flash incidence rates where the ground flash density, denoted as flashes per square km-year and symbolized by Ng. The first three parameters, as we know them today, are to a very large extent based on the measurements of Berger. Berger's masts, 70 and 80 meters high, were mounted atop Mt. San Salvatore (Switzerland), which is 650 meters above Lake Lugano, where it can be readily noted that these 125 records represent one of the best and most extensive set of data available to the industry to date. This paper focuses on the lightning severity scenario in Malaysia, which could also be applicable to other tropic countries, and some of the useful parameters for lightning protection system design and forensic study. Some specific engineering applications have also been summarised, taking into account various lightning parameters, available from past and current measurements.

Keyword: Lightning; Lightning parameters; Ground flash density; Tropic countries; Lightning protection