

## **THE ROLE OF SITE SELECTION ON LOCALISING GROUND FLASHES IN AN AUTOMATED LIGHTNING DETECTION NETWORK**

**D.U.J. SONNADARA<sup>1</sup>, I.M.K. FERNANDO<sup>1</sup>, S. NAMASIVAYAM<sup>2</sup>, T.R.  
ARIYARATNE<sup>1</sup>, K.P.S.C. JAYARATNE<sup>1</sup> AND K.R.A. BANDARA<sup>3</sup>**

*<sup>1</sup>Department of Physics, University of Colombo, <sup>2</sup>Electro-Technology Unit, ITI,*

*<sup>3</sup>Department of Meteorology*

A Monte-Carlo simulation was used to optimise the accuracy of strike location of ground flashes depending on the selection of placement of the direction finding base-stations. A computer program was developed to reconstruct the location of the point of strike covering an area of 280×504 km<sup>2</sup> by utilising the angular information of simulated lightning flashes. The sensing angles were allowed to vary within the specified angular accuracy ( $\pm 0.5$  degrees) of each station. The results indicate that a formula, based on an average that is weighted according to the error in two station measurements, could be used successfully to re-construct the location of ground flashes assuming vertical lightning over a flat terrain and land of uniform conductivity. The reconstructed position error distribution contours indicate that the levels of accuracy of the strike position vary depending on the number, angle and distance between stations. It is shown that location of sites play a vital role in obtaining optimum results in a lightning detection network.