

THE RELATIONSHIP BETWEEN ATMOSPHERIC DEPOSITION OF SULPHUR AND INTENSITY OF RAINFALL

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The amount of sulphur brought down by rain over a period of one year at ten locations in Sri Lanka varied from 4.9 to 23.9 kg S/ha. In general locations with higher rainfall had higher sulphur deposition. The quantity of sulphur (S) brought down in kg/ha was related to the annual rainfall in mm (RF) by the equation:

$$S = 1.0625 + 0.0072RF$$

with a r^2 value of 0.79.

Other conditions being same, rain falling in one hour may wash down less S than rain of the same magnitude falling over a ten hour period in the form of a light drizzle. Further, a rainfall of a certain intensity falling after a long drought period can be expected to have more S in it than a similar rain falling the next day. These considerations point out the limitations of making judgements on atmospheric S content by studying a particular rainfall. On the other hand, when the following model,

$$\sum_{i=1}^j S / \sum_{i=1}^n S = f \left[\sum_{i=1}^j RF / \sum_{i=1}^n RF \right]$$

where $j = j^{\text{th}}$ observation and $n =$ number of observations, was fitted, the r^2 value increased to 0.93. Regression coefficients were found to be significantly different from zero, indicating that cumulative sulphur is proportional to cumulative rainfall and that there might be a continuous flow of sulphur to the atmosphere.