RECOMMENDATION ITU-R P.839-1

RAIN HEIGHT MODEL FOR PREDICTION METHODS

(Question ITU-R 201/3)

(1992-1997)

The ITU Radiocommunication Assembly,

considering

a)   that knowledge of the height of the 0° C isotherm during rainy conditions is required in several prediction models used in the design of space telecommunication systems,

recommends

1   that the following model be used for the global estimation of h_0 (mean 0° C isotherm height):

$$h_0 = \begin{cases} 5 - 0.075\,(\varphi - 23) & \text{for} & \varphi > 23 & \text{Northern Hemisphere} \\ 5 & \text{for} & 0 \le \varphi \le 23 & \text{Northern Hemisphere} \\ 5 & \text{for} & 0 \ge \varphi \ge -21 & \text{Southern Hemisphere} \\ 5 + 0.1\,(\varphi + 21) & \text{for} & -71 \le \varphi < -21 & \text{Southern Hemisphere} \\ 0 & \text{for} & \varphi < -71 & \text{Southern Hemisphere} \end{cases}$$

where h_0 is in km above mean sea level and φ is the latitude in degrees;

2   that for North America and Europe west of 60° E longitude the following model be used for the estimation of h_{FR} (mean 0° C isotherm height during rainy conditions):

$$h_{FR} = 3.2 - 0.075\,(\varphi - 35) \qquad \text{for} \qquad 35 \le \varphi \le 70$$

where h_{FR} is in km above ground;

3   that for other areas in the world, where no further information is available, h_{FR} be equated to h_0.

NOTE 1 – h_{FR}, in general, is different from h_0. The sign and magnitude of the difference is dependent on climatic conditions.