International Telecommunication Union

ITU-R

Radiocommunication Sector of ITU

Recommendation ITU-R P.839-4

(09/2013)

Rain height model for prediction methods

P Series

Radiowave propagation

Foreword

The role of the Radiocommunication Sector is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including satellite services, and carry out studies without limit of frequency range on the basis of which Recommendations are adopted.

The regulatory and policy functions of the Radiocommunication Sector are performed by World and Regional Radiocommunication Conferences and Radiocommunication Assemblies supported by Study Groups.

Policy on Intellectual Property Right (IPR)

ITU-R policy on IPR is described in the Common Patent Policy for ITU-T/ITU-R/ISO/IEC referenced in Annex 1 of Resolution ITU-R 1. Forms to be used for the submission of patent statements and licensing declarations by patent holders are available from http://www.itu.int/ITU-R/go/patents/en where the Guidelines for Implementation of the Common Patent Policy for ITU-T/ITU-R/ISO/IEC and the ITU-R patent information database can also be found.

Series of ITU-R Recommendations

(Also available online at http://www.itu.int/publ/R-REC/en)

Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M	Mobile, radiodetermination, amateur and related satellite services
P	**Radiowave propagation**
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing and coordination between fixed-satellite and fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Note: *This ITU-R Recommendation was approved in English under the procedure detailed in Resolution ITU-R 1.*

Electronic Publication
Geneva, 2013

RECOMMENDATION ITU-R P.839-4

Rain height model for prediction methods

(Question ITU-R 201/3)

(1992-1997-1999-2001-2013)

Scope

This Recommendation provides a method to predict the rain height for propagation prediction.

The ITU Radiocommunication Assembly,

considering

that information is required regarding the rain height during periods of precipitation,

recommends

1 that for areas of the world where no specific information is available, the mean annual 0° C isotherm height above mean sea level, h_0, is an integral part of this Recommendation and is available in the form of a digital map provided in the file R-REC-P.839-4-201309-I!!ZIP-E.zip;

2 that the mean annual rain height above mean sea level, h_R, may be obtained from the 0° C isotherm as:

$$h_R = h_0 + 0.36 \text{ km}$$

The data is provided from 0° to 360° in longitude and from +90° to –90° in latitude. For a location different from the gridpoints, the mean annual 0° C isotherm height above mean sea level at the desired location can be derived by performing a bilinear interpolation on the values at the four closest gridpoints.