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Analysis of synthetic storm technique based on ku-band satellite beacon measurements in malaysia (Conference Paper)

Lwas, A.K.^a, Rafiqul, I.M.^a, Habaebi, M.H.^a, Ismail, A.F.^a, Sing, M.^b, Chebil, J.^c, Zyoud, A.-H.^a, Dao, H.^a^a Kulliyah of Engineering, International Islamic University Malaysia, Jalan Gombak Kuala Lumpur, Malaysia^b University Kebangsaan, Bangi, Malaysia^c Higher Institute of Transport and Logistics, University of Sousse, Sousse, Tunisia

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Abstract

Most of the existing rain attenuation prediction models were proposed based on measurements taken in temperate climates. These models are found not accurate in tropical regions and were thus modified in order for such models to be applied in tropical regions. **Synthetic Storm Technique** (SST) is one of the most reliable methods to estimate rain attenuation time series in Europe. However, due to the lack of measured data in the tropical regions of the world, the abovementioned method is yet to be validated for those regions. This paper aims to investigate SST validity in **Malaysia** by focusing on both rain events and the overall statistical behavior. Its performance is assessed based on concurrent measurement of **Ku-band satellite beacon** and rain rate over University of Science **Malaysia** (USM) campus at Tronoh. Preliminary analysis shows that SST is capable of providing details of time-series of many rain events to reflect the dynamics of rain fade. However, it is unable to predict the entire range of rain intensity. © Springer International Publishing Switzerland 2015.

Indexed keywords

Engineering controlled terms: Climate models; Electromagnetic wave attenuation; Rain; **Satellite** communication systems; **Storms**; Time series; Tropical engineering; Tropics

Ku-band satellite; Preliminary analysis; Rain attenuation predictions; Rain attenuation time series; Reliable methods; Statistical behavior; **Synthetic storm technique**; Temperate climate

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