

ITUWRS
ONLINE2020

29TH WORLD RADIOCOMMUNICATION SEMINAR
30 November - 11 December 2020

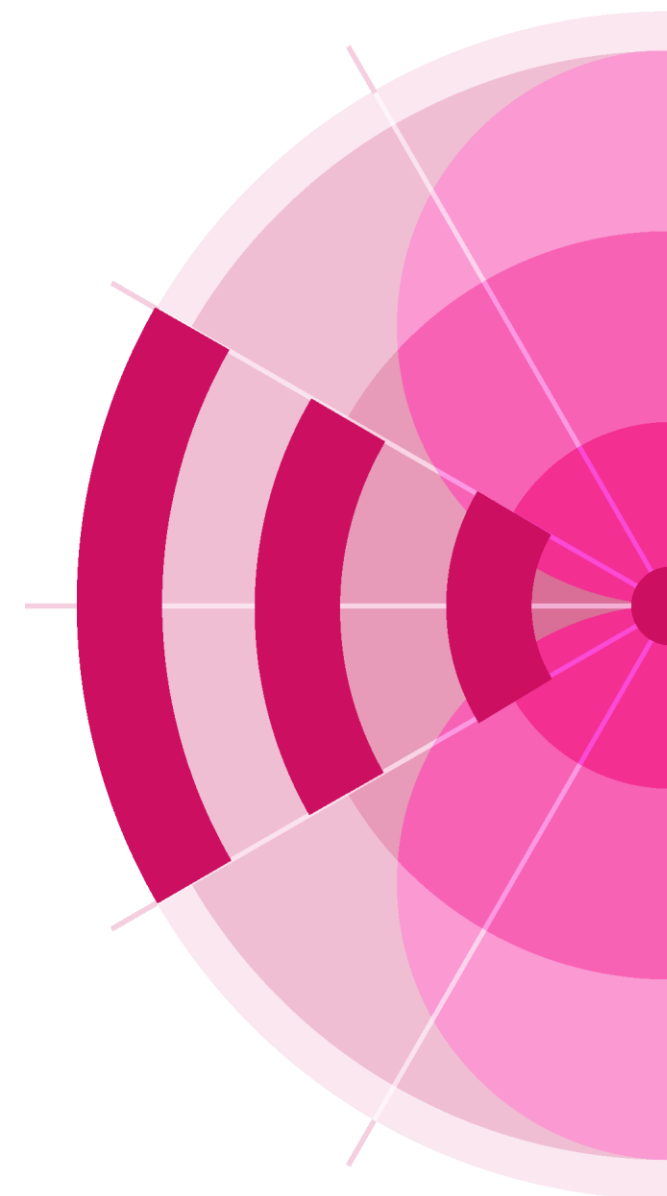
Salient issues in ITU-R Study Group 3 and its Working Parties

Carol Wilson

Chairman, ITU-R Study Group 3

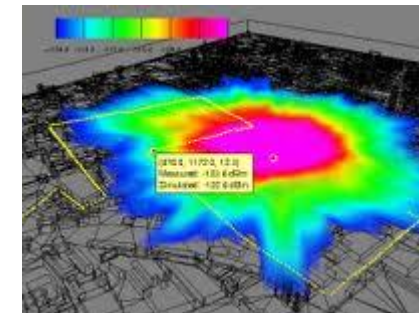
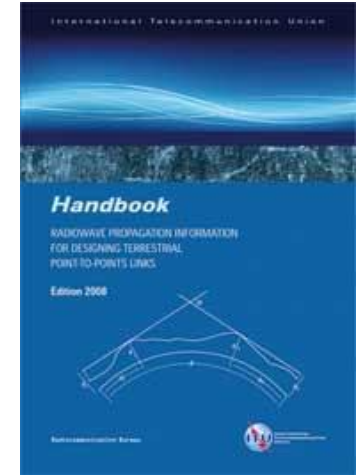
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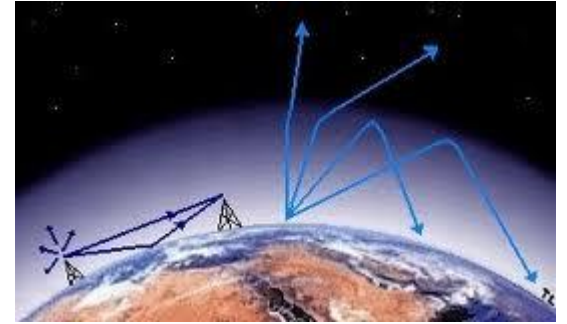
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Scope of work and structure

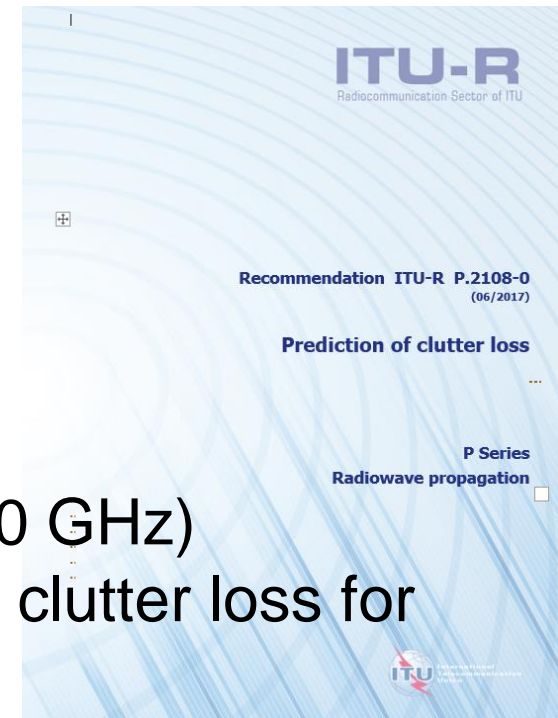
- Scope: “Propagation of radio waves in ionized and non-ionized media and the characteristics of radio noise, for the purpose of improving radiocommunication systems.” **All services, all frequencies, all geometries.**
- WP 3J – Fundamentals: radiometeorology, physics, statistics
- WP 3K – Point-to-area: propagation for mobile and broadcasting
- WP 3L – Ionospheric and radio noise
- WP 3M – Point-to-point, satellite and interference paths

Building entry loss (BEL)

- Rec. ITU-R P.2109 – Prediction of building entry loss (0.08-100 GHz)
- Rep. ITU-R P.2346 - Compilation of measurement data relating to building entry loss
- Relevant to all WRC-23 agenda items where one terminal is indoor and the other outdoor (e.g. WRC-23 AIs 1.1, 1.2, 1.4, 1.5, 1.18, 9.1 c and potentially more)
- Need to develop site-specific model, potentially other building types, and to consider in combination with clutter loss
- Intersessional work: [CG 3J-3K-3M-8](#) – Chairman: Richard RUDD (G)

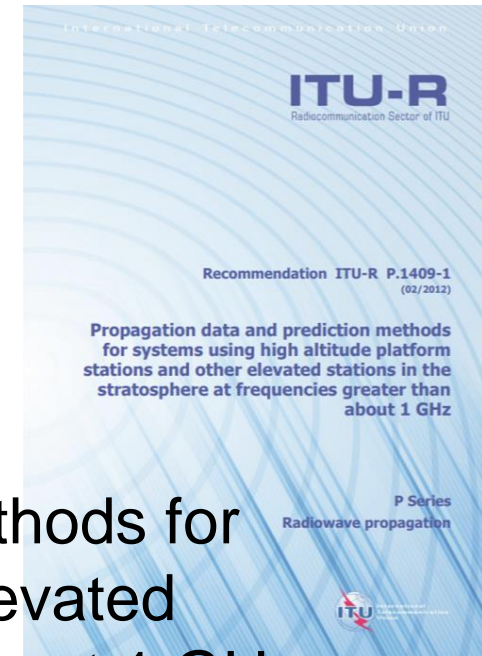
Clutter loss

- Rec. ITU-R P.2108 – Prediction of clutter loss (0.03-100 GHz)
- Rep. ITU-R P.2402 - method to predict the statistics of clutter loss for earth-space and aeronautical paths
- Relevant to all WRC-23 agenda items where one or both terminals are immersed in local clutter (e.g. WRC-23 AIs 1.1, 1.2, 1.4, 1.5, 1.18, 9.1 c and potentially more)
- Need to extend to other environments and to consider in combination with building entry loss
- Intersessional work: [CG 3K-3M-12](#) – Chairman: Clare ALLEN (G)



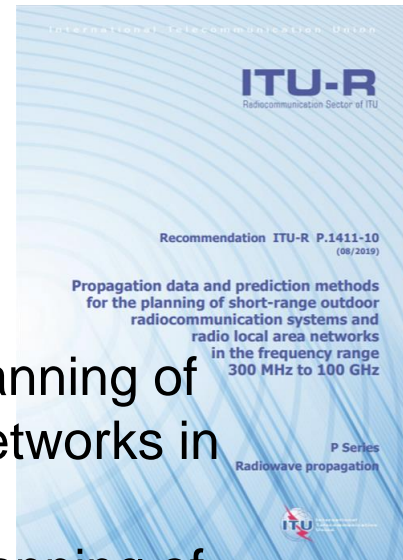
HAPS/HIBS activity

- Rec. ITU-R P.1409 – Propagation data and prediction methods for systems using high altitude platform stations and other elevated stations in the stratosphere at frequencies greater than about 1 GHz
- Relevant to WRC-23 agenda items where one terminal is HAPS/HIBS (e.g. WRC-23 AI 1.4)
- Intersessional work: [CG 3J-3K-3M-14](#) – Chairman: Hajime SUZUKI (AUS)



Extending the upper frequency limit for short-range prediction methods

- Rec. ITU-R P.1411 – Propagation data and prediction methods for the planning of short-range outdoor radiocommunication systems and radio local area networks in the frequency range 300 MHz to 100 GHz
- Rec. ITU-R P.1238 - Propagation data and prediction methods for the planning of indoor radiocommunication systems and radio local area networks in the frequency range 300 MHz to 450 GHz
- Rep. ITU-R P.2406 - Studies for short-path propagation data and models for terrestrial radiocommunication systems in the frequency range 6 GHz to 450 GHz – collation of measurement data
- Need to extend (and validate) prediction methods up to at least 450 MHz
- Relevant to WRC-23 agenda items for short-range systems and/or frequencies above ~6 GHz
- Intersessional work: [CG 3K-6](#) – Chairman: Juyul LEE (Republic of Korea)



Software, Data and Validation examples for ionospheric and tropospheric radio wave propagation and radio noise

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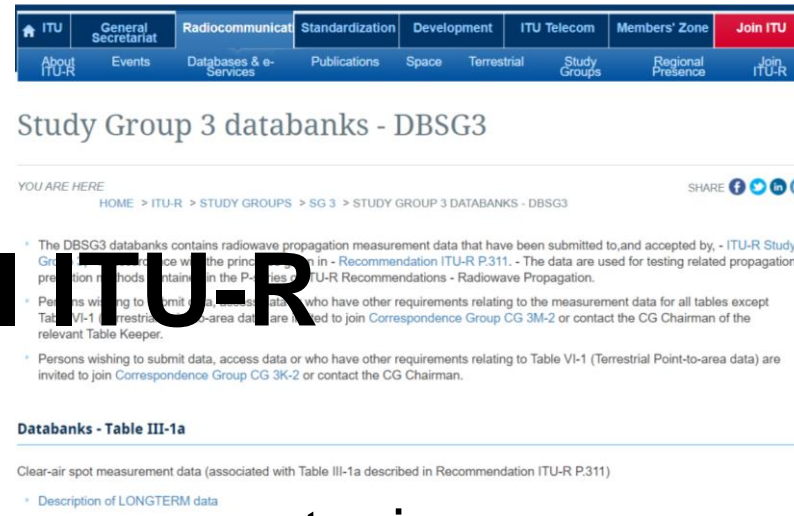
Status	Group	Rec.	Topic	Title	Vers.	Content	Type	Notes
Informative	ionospheric	P.684, P.368	LF-MF	Calculation of LF-MF field strength and noise with an example code	4		Software	
Informative	ionospheric	P.237	ITU-R	ITU-R ionospheric characteristics	2		Software	
Informative	ionospheric		HF	Databank D2 - HF field strength value measurements in the HF band	1		Data	
Informative	ionospheric	P.114	LF-MF	LF-MF software databank	1		Data	

Software, data and validation examples

- Validated software implementation of part or complete radio wave propagation prediction methods
- Numerical examples to validate own software implementations of P-series Recommendations
- Numerical data sets (maps, tables) supplemental to P-series Recommendations
- <https://www.itu.int/en/ITU-R/study-groups/rsg3/Pages/iono-tropospheric.aspx>
- Intersessional work: [CG 3M-4](#) – Chairman: Thomas PRECHTL (AUT)

Participation welcomed by all ITU-R members

- Measurement data particularly welcome to advance new topics as described above
- Modelling efforts needed to form useful prediction methods from measurements
- Feedback welcome on appropriateness of prediction methods or other areas needed.
- Please refer to SG 3 website for more details:
- <https://www.itu.int/en/ITU-R/study-groups/rsg3/Pages/dtbank-dbsg3.aspx>



Thank you!

Questions to brmail@itu.int or Carol.Wilson@csiro.au

