

Document details

[Back to results](#) | 1 of 1

[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More...](#)

[Full Text](#) [View at Publisher](#)

Proceedings of the 2018 7th International Conference on Computer and Communication

Engineering, ICCCE 2018

16 November 2018, Article number 8539311, Pages 412-415

7th International Conference on Computer and Communication Engineering, ICCCE 2018;

Kuala Lumpur; Malaysia; 19 September 2018 through 20 September 2018; Category

number CFP1839D-USB; Code 142740

Air Born Dust Particles Effects on Microwave Propagation in Arid-Area (Conference Paper)

Elsheikh, E.A.A.^a✉, Suliman, F.M.^a, Rafiqul, I.M.^b, Habaebi, M.H.^b, Ismail, A.F.^b, Elshaikh, Z.E.O.^c, Chebil, J.^d✉

^aDept. of Electrical Engineering, King Khalid University (KKU), Abha, Saudi Arabia

^bDept of Electrical and Computer Engineering, IIUM, Kuala Lumpur, Malaysia

^cDept. of Spectrum Management Management Regulation Authority (CRA), Doha, Qatar

[View additional affiliations](#) ▾

Abstract

View references (20)

Dust storms can degrade visibility and increase atmospheric attenuation. Therefore, microwave (MW) propagation is severely affected by dust storms in many parts of the world. Air - born dust particles may affect electromagnetic waves during a dust storm. In this paper airborn dust particles effects are studied based on measured visibility. Recent analytical and numerical models results are compared to the measured at 14 GHz. Consequently, measured attenuation is significantly greater than the predicted using recent analytical and numerical models. © 2018 IEEE.

SciVal Topic Prominence ⓘ

Topic: Dust | Storms | dust storms

Prominence percentile: 58.698

ⓘ

Author keywords

[Attenuation](#) [Dust storms](#) [Microwave](#)

Indexed keywords

Engineering controlled terms:

[Dust](#) [Electromagnetic waves](#) [Microwaves](#) [Numerical models](#) [Visibility](#)

Engineering uncontrolled terms

[Analytical and numerical models](#) [Arid area](#) [Atmospheric attenuation](#) [Attenuation](#)
[Dust particle](#) [Dust storm](#) [Microwave propagation](#)

Engineering main heading:

[Storms](#)

Metrics ⓘ

0 Citations in Scopus

0 Field-Weighted Citation Impact



PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)

[Set citation feed >](#)

Related documents

Dust Storm Attenuation Modeling Based on Measurements in Sudan

Elsheikh, E.A.A. , Islam, M.R. , Habaebi, M.H. (2017) IEEE Transactions on Antennas and Propagation

Development of an empirical dust storm attenuation prediction model for microwave links in arid area - A proposed framework

Islam, M.R. , Elsheikh, E.A.A. , Ismail, A.F. (2015) Proceedings - 5th International Conference on Computer and Communication Engineering: Emerging Technologies via Communication Convergence, ICCCE 2014

Preliminary analysis of dust effects on microwave propagation measured in Sudan

References (20)

All Export Print E-mail Save to PDF Create bibliography

[View in search results format >](#)

- 1 Islam, M.R., Elsheikh, E.A.A., Alam, A.Z., Khalifa, O.O.

Proposing a horizontal path adjustment factor for microwave link's attenuation prediction based on the analysis of dust storm behavior

(2011) 2011 IEEE 10th Malaysia International Conference on Communications, MICC 2011, art. no. 6150297, pp. 44-48. Cited 6 times.
ISBN: 978-145770976-0
doi: 10.1109/MICC.2011.6150297

[View at Publisher](#)

[View all related documents based on references](#)

[Find more related documents in Scopus based on:](#)

[Authors >](#) [Keywords >](#)

- 2 Elsheikh, E.A.A., Islam, M.R., Al-Khateeb, K., Alam, A.Z., Elshaikh, Z.O.

A proposed vertical path adjustment factor for dust storm attenuation prediction

(2011) 2011 4th International Conference on Mechatronics: Integrated Engineering for Industrial and Societal Development, ICOM'11 - Conference Proceedings, art. no. 5937141. Cited 9 times.
doi: 10.1109/ICOM.2011.5937141

[View at Publisher](#)

- 3 Chiou, M.-M., Kiang, J.-F.

Attenuation of Millimeter-Wave in a Sand and Dust Storm

(2016) IEEE Geoscience and Remote Sensing Letters, 13 (8), art. no. 7480958, pp. 1094-1098. Cited 7 times.
<http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=8859>
doi: 10.1109/LGRS.2016.2566799

[View at Publisher](#)

- 4 Sharif, S.M.

Attenuation properties of dusty media using mie scattering solution [\(Open Access\)](#)

(2015) Progress In Electromagnetics Research M, 43, pp. 9-18. Cited 3 times.
<http://www.jpier.org/PIERM/pierm43/02.15022403.pdf>
doi: 10.2528/PIERM15022403

[View at Publisher](#)

- 5 Elsheikh, E.A.A., Rafiqul, I.M., Habaebi, M.H., Ismail, A.F., Chebil, J.

Preliminary analysis of dust storm effects on microwave links measured in Khartoum

(2015) 2015 IEEE 12th Malaysia International Conference on Communications, MICC 2015, art. no. 7725430, pp. 181-185.
ISBN: 978-150900019-7
doi: 10.1109/MICC.2015.7725430

[View at Publisher](#)

- 6 Islam, M.R., Elsheikh, E.A.A., Ismail, A.F., Bashir, S.O., Chebil, J.

Development of an empirical dust storm attenuation prediction model for microwave links in arid area - A proposed framework

(2015) Proceedings - 5th International Conference on Computer and Communication Engineering: Emerging Technologies via Comp-Unication Convergence, ICCCE 2014, art. no. 7031642, pp. 224-227. Cited 6 times.
ISBN: 978-147997635-5
doi: 10.1109/ICCCE.2014.71

-
- 7 Elsheikh, E.A.A., Rafiqul, I.M., Ismail, A.F., Habaebi, M.H., Chebil, J.
Dust storms attenuation measurements at 14GHz and 21 GHz in Sudan
(2015) Proceedings - 2015 International Conference on Computing, Control, Networking, Electronics and Embedded Systems Engineering, ICCNEEE 2015, art. no. 7381366, pp. 11-16. Cited 3 times.
ISBN: 978-146737869-7
doi: 10.1109/ICCNEEE.2015.7381366
[View at Publisher](#)
-
- 8 Elsheikh, E.A.A., Islam, M.R., Habaebi, M.H., Ismail, A.F., Zyoud, A.
Dust Storm Attenuation Modeling Based on Measurements in Sudan
(2017) IEEE Transactions on Antennas and Propagation, 65 (8), art. no. 7948717, pp. 4200-4208. Cited 2 times.
doi: 10.1109/TAP.2017.2715369
[View at Publisher](#)
-
- 9 Musa, A., Bashir, S.O., Abdalla, A.H.
Review and assessment of electromagnetic wave propagation in sand and dust storms at microwave and millimeter wave bands - part ii ([Open Access](#))
(2014) Progress In Electromagnetics Research M, 40, pp. 101-110. Cited 6 times.
<http://www.jpier.org/PIERM/pierm40/11.14102903.pdf>
doi: 10.2528/PIERM14102903
[View at Publisher](#)
-
- 10 Chen, H.-Y., Ku, C.-C.
Calculation of Wave attenuation in sand and dust storms by the FDTD and turning bands methods at 10-100 GHz
(2012) IEEE Transactions on Antennas and Propagation, 60 (6), art. no. 6183464, pp. 2951-2960. Cited 16 times.
doi: 10.1109/TAP.2012.2194657
[View at Publisher](#)
-
- 11 Xiao-Ying, D., Chen, H.-Y., Guo, D.-H.
Microwave and millimeter-wave attenuation in sand and dust storms
(2011) IEEE Antennas and Wireless Propagation Letters, 10, pp. 469-471. Cited 27 times.
-
- 12 Ghobrial, S.I., Sharief, S.M.
Microwave Attenuation and Cross Polarization in Dust Storms
(1987) IEEE Transactions on Antennas and Propagation, 35 (4), pp. 418-425. Cited 61 times.
doi: 10.1109/TAP.1987.1144120
[View at Publisher](#)
-
- 13 Elsheikh, E.A.A., Islam, M.R., Zahirul Alam, A.H.M., Ismail, A.F., Khalid, A.-K., Elabdin, Z.
The effect of particle size distributions on dust storm attenuation prediction for microwave propagation
(2010) International Conference on Computer and Communication Engineering, ICCCE'10, art. no. 5556831. Cited 15 times.
ISBN: 978-142446234-6
doi: 10.1109/ICCCE.2010.5556831

-
- 14 Ansari, A.J., Evans, B.G.
Microwave propagation in sand and dust storms
(1982) IEE Proceedings F: Communications Radar and Signal Processing, 129 (5), pp. 315-322. Cited 57 times.
doi: 10.1049/ip-f-1.1982.0047
[View at Publisher](#)
-
- 15 Vishvakarma, B.R., Rai, C.S.
Limitations of Rayleigh scattering in the prediction of millimeter wave attenuation in sand and dust storms
(1993) International Geoscience and Remote Sensing Symposium (IGARSS), 1, pp. 267-269. Cited 14 times.
ISBN: 0780312406
[View at Publisher](#)
-
- 16 Ahmed, A.S., Ali, A.A., Alhaider, M.A.
Airborne Dust Size Analysis for Tropospheric Propagation of Millimetric Waves into Dust Storms
(1987) IEEE Transactions on Geoscience and Remote Sensing, GE-25 (5), pp. 593-599. Cited 30 times.
doi: 10.1109/TGRS.1987.289838
[View at Publisher](#)
-
- 17 Goldhirsh, J.
Attenuation and backscatter from a derived two-dimensional duststorm model
(2001) IEEE Transactions on Antennas and Propagation, 49 (12), pp. 1703-1711. Cited 55 times.
doi: 10.1109/8.982449
[View at Publisher](#)
-
- 18 Elabdin, Z., Islam, M.R., Khalifa, O.O., Raouf, H.E.A.
Mathematical model for the prediction of microwave signal attenuation due to duststorm [\(Open Access\)](#)
(2009) Progress In Electromagnetics Research M, 6, pp. 139-153. Cited 34 times.
<http://ceta.mit.edu/PIERM/pierm06/11.09021906.pdf>
doi: 10.2528/PIERM09021906
[View at Publisher](#)
-
- 19 Vaisala Transmissometer LT31 RVR with New Eyes
Vaisala Vaisala., Helsinki, FINLAND, Tech. Rep. Ref. B210416en-C
-
- 20 Islam, M.R., Elshaikh, Z.E.O., Khalifa, O.O., Alam, A.H.M.Z., Khan, S., Naji, A.W.
Prediction of signal attenuation due to duststorms using mie scattering
(2010) IIUM Engineering Journal (ISSN: 1511-788X), 11 (1), pp. 71-87. Cited 14 times.

About Scopus

- [What is Scopus](#)
- [Content coverage](#)
- [Scopus blog](#)
- [Scopus API](#)
- [Privacy matters](#)

Language

- [日本語に切り替える](#)
- [切换到简体中文](#)
- [切換到繁體中文](#)
- [Русский язык](#)

Customer Service

- [Help](#)
- [Contact us](#)

ELSEVIER

[Terms and conditions ↗](#) [Privacy policy ↗](#)

Copyright © 2019 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies.

 RELX Group™