

## Dr. Marius Paulescu

### Papers, talks and books

(last update May 2021)

### Articles in peer-reviewed journals

1. A one-parameter family of clear-sky solar irradiance models adapted for different aerosol types  
Robert B, Calinoiu D, Paulescu M  
*Journal of Renewable and Sustainable Energy* 13(2), Article Number: 023701
2. Verification of deterministic solar forecasts  
Yang DZ, Alessandrini S, Antonanzas J, Antonanzas-Torres F, Badescu V, Beyer HG, Blaga R, Boland J, Bright JM, Coimbra CFM, David M, Frimane A, Gueymard C, Hong T, Kay MJ, Killinger S, Kleissl J, Lauret P, Lorenz E, van der Meer D, Paulescu M et al.  
*Solar Energy* 210, 20-37 (2020)
3. A new parameterization of the effective cloud fields  
Paulescu M, Sabadus A, Dumitrescu A, Badescu V  
*Theoretical and Applied Climatology*, 142(1-2), 769-779 (2020)
4. A new perspective on the sunshine duration variability  
Brabec M, Dumitrescu A, Paulescu M, Badescu V  
*Theoretical and Applied Climatology* 139, 1219-1230 (2020)
5. Short-term forecasting of solar irradiance.  
Paulescu E, Paulescu M  
*Renewable Energy* 143, 985-994 (2019)
6. A current perspective on the accuracy of incoming solar energy forecasting  
Blaga R, Sabadus A, Stefu N, Dughir C, Paulescu M, Badescu V  
*Progress in Energy and Combustion Science* 70, 119-144 (2019)
7. Quantifiers for the solar irradiance variability: A new perspective  
Blaga R, Paulescu M  
*Solar Energy* 174, 606-616 (2018)
8. Parametric modeling: A simple and versatile route to solar irradiance  
Calinoiu D, Stefu N, Boata R, Blaga R, Pop N, Paulescu E, Sabadus A, Paulescu M  
*Energy Conversion and Management* 164, 175-187 (2018)
9. Retrieval of effective cloud field parameters from radiometric data  
Paulescu M, Badescu V, Brabec M.  
*Theoretical and Applied Climatology* 133, 437-446 (2018)

10. Statistical properties of clear and dark duration lengths  
Brabec M, Paulescu M, Badescu V  
*Solar Energy* 153, 508–518 (2017)
11. Structured, physically inspired (gray box) models versus black box modeling for forecasting the output power of photovoltaic  
Paulescu M, Brabec M, Boata R, Badescu V  
*Energy* 121, 792-802 (2017)
12. Seasonal Modeling of Hourly Solar Irradiation Series  
Paulescu M, Pop N, Stefu N, Paulescu E, Boata R, Calinoiu D  
*Romanian Journal of Physics* 62(7-8), Article no. 813 (2017)
13. Model for the UV biologically effective dose and application under future climate conditions  
Stefu N, Paulescu M, Gravila P, Paulescu E, Pop N, Boata R  
*Environmental Engineering and Management Journal* 16. 225-234 (2017)
14. Quantification of the solar radiative regime variability based on the clearness index  
Lucaciu S, Blaga R, Stefu N, Paulescu M  
*Annals of the West University of Timisoara - Physics* 59(1), 13-17 (2017).  
doi: <https://doi.org/10.1515/awutp-2016-0003>
15. Ångström–Prescott equation: Physical basis, empirical models and sensitivity analysis  
Paulescu M, Stefu N, Calinoiu D, Paulescu E, Pop N, Boata R, Mares O  
*Renewable and Sustainable Energy Reviews* 62, 495-506 (2016)
16. Reconstruction of effective cloud field geometry from series of sunshine number  
Badescu V, Paulescu M, Brabec M  
*Atmospheric Research* 176, 254-266 (2016)
17. A theoretical framework for Ångström equation. Its virtues and liabilities in solar energy estimation  
N. Stefu, M. Paulescu, R. Blaga, D. Calinoiu, N. Pop, R. Boata, E. Paulescu  
*Energy Conversion and Management* 112, 236-245 (2016).
18. A new perspective on the relationship between cloud shade and point cloudiness  
M. Brabec, V. Badescu, M. Paulescu, A. Dumitrescu  
*Atmospheric Research* 172-173, 136-146 (2016)
19. A new point of view on the relationship between global solar irradiation and sunshine quantifiers  
M. Brabec, V. Badescu, A. Dumitrescu, M. Paulescu  
*Solar Energy* 126, 252-263 (2016)

20. Empirical versus Optimal Control of Flow in Solar Domestic Hot Water Systems  
V. Badescu, S. Budea, M. Paulescu  
*Journal of Energy Engineering* 142(3) 04015038 (2016)  
[http://dx.doi.org/10.1061/\(ASCE\)EY.1943-7897.0000307](http://dx.doi.org/10.1061/(ASCE)EY.1943-7897.0000307)
  
21. A simple but accurate procedure for solving the five-parameter model  
O. Mares, M. Paulescu, V. Badescu  
*Energy Conversion and Management* 105: 139 – 148 (2015).
  
22. Tailored vs black-box models for forecasting hourly average solar irradiance  
Brabec M, Paulescu M, Badescu V  
*Solar Energy* 111: 320 – 331 (2015)
  
23. Evaluation of errors made in solar irradiance estimation due to averaging the  
Angstrom turbidity coefficient  
D. Calinoiu, N. Stefu, M. Paulescu, G. Trif-Tordai, O. Mares, E. Paulescu, R. Boata, N.  
Pop, A. Pacurar  
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24. New procedure and field-tests to assess photovoltaic module performance  
M. Paulescu, V. Badescu, C. Dughir  
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25. Nowcasting solar irradiance using the sunshine number  
M. Paulescu, O. Mares, E. Paulescu, N. Stefu, A. Pacurar, D. Calinoiu, P. Gravila, N.  
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*Energy Conversion and Management* 79: 690-697 (2014).
  
26. Generalized additive models for nowcasting cloud shading  
M. Brabec, M. Paulescu, V. Badescu  
*Solar Energy* 101: 272-282 (2014).
  
27. Cloude shade by dynamic logistic modeling  
M. Brabec, V. Badescu, M. Paulescu  
*Journal of Applied Statistics* 41(6): 1174-1188 (2014).
  
28. Assessment of beam solar irradiance using parametric modeling  
N. Pop, A. Pacurar, R. Boata, P. Gravila, M. Paulescu  
*International Journal of Green Energy* 11(8): 876-885 (2014).
  
29. Takagi-Sugeno algorithm for global solar irradiation using air temperature data  
R. St. Boata, M. Paulescu  
*Environmental Engineering and Management Journal* 13(12): 3045-3051 (2014).
  
30. Assessment the accuracy of nowcasting sunshine number

- O. Mares, N. Pop, M. Paulescu  
*Scientific Bulletin of the "POLITEHNICA" University of Timisoara*, 59(2) 56-63 (2014)
31. Tools for PV (photovoltaic) plant operators: Nowcasting of passing clouds.  
M. Paulescu, V. Badescu, M. Brabec  
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  32. Nowcasting sunshine number using logistic modeling.  
M. Brabec, V. Badescu, M. Paulescu  
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  33. Pacurar A, Stefu N, Mares O, Paulescu E, Calinoiu D, Pop N, Boata R, Gravila P,  
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Forecasting hourly global solar irradiation using simple non-seasonal models *Journal of Renewable and Sustainable Energy* 5 (2013) Article Number: 063140.
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  35. Macro-engineering Australia's Lake Eyre with imported seawater  
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  36. Forecasting models applied to hourly solar irradiation time series  
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  37. Procedure of embedding biological action functions into the atmospheric transmittance  
E. Paulescu, N. Stefu, P. Gravila, R. St. Boata, N. Pop, M. Paulescu  
*Theoretical and Applied Climatology*, 109: 323-332 (2012).
  38. PGO models in the envelope function and effective mass approximations  
M. Paulescu, E. Tulcan-Paulescu P. Gravila  
*European Physicsl Journal B.* 80: 115-120 (2011).
  39. Statistical properties of the sunshine number illustrated with measurements from Timisoara (Romania)  
V. Badescu, M. Paulescu  
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  40. Autocorrelation properties of the sunshine number and sunshine stability number  
V. Badescu, M. Paulescu

- Meteorology and Atmospheric Physics* 112(3-4): 139-154 (2011).
41. New approach to measure the stability of the solar radiative regime  
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  42. A temperature-based model for global solar irradiance and its application to estimate daily irradiation values  
M. Paulescu, E. Tulcan-Paulescu, N. Stefu  
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E. Tulcan-Paulescu, D. Comanescu, M. Paulescu  
*Modern Physics Letters B*. 24(4-5): 401- 409 (2010).
  47. UV solar irradiance from broadband radiation and other meteorological data  
M. Paulescu, N. Stefu, E. Tulcan-Paulescu, D. Calinoiu, A. Neculae, P. Gravila  
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  49. On the energy production of a stand-alone PV system related to the cloud cover variability  
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*Scientific Bulletin of the "POLITEHNICA" University of Timisoara*, 55(1): 78 – 85 (2010).
  50. Fuzzy algorithm for forecasting of daily global solar radiation

- Remus Stefan Boata, M. Paulescu  
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51. Three-Dimensional Isotropic Pseudo-Gaussian Oscillators  
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*Journal of Optoelectronics and Advances Materials* 10(9): 2441 – 2444 (2008).
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A. Neculae, M. Paulescu  
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M. Paulescu, P. Gravila, E. Tulcan-Paulescu  
*Energy Conversion and Management* 49: 3691-3697 (2008).
56. Fuzzy modeling of solar irradiation using air temperature data;  
E. Tulcan-Paulescu, M. Paulescu  
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57. Applying the Dirac equation to derive the transfer matrix for piecewise constant potentials  
Ion I Cotaescu, P Gravila, M Paulescu  
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58. Nanoscale transport description via QHD simulation  
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59. Ballistic diode simulation via QHD model  
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63. Models for obtaining daily global solar irradiation from air temperature data  
M. Paulescu, L. Fara, E. Tulcan – Paulescu  
*Atmospheric Research* 79: 227 - 240 (2006).
64. Solar cell based on CuInS<sub>2</sub> and TiO<sub>2</sub> nano-crystals;  
T. Nyari, SZ Papp, L Korosi, R. Banica, M. Paulescu, I Hrianca, I Dekany  
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71. A mathematical model for total solar irradiation on tilted surfaces  
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72. 43. On the optimization of solar irradiation models  
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### **Conferences and workshops**

73. Simple vs complex models for solar cells  
Sabadus A, Paulescu M  
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75. Parameters Extraction of The One-Diode Solar Cell Model: Performance Assessment of Different Numerical Procedures  
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76. Nowcasting the output power of PV systems.  
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Short-Term Solar Irradiance Forecasting Based on Sunshine Number



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M. Paulescu, D. Vizman, M. Lasca, R. Negriila, and M. Stef  
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C. I. Balaj, T.E. Man, M. Paulescu

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Perspective pentru prognoza puterii furnizate de centralele fotovoltaice  
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  86. Role of the sunshine number and clearness index in forecasting solar radiation  
M. Paulescu, V. Badescu, M. Brabec  
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  87. Statistical modeling of solar radiation  
M. Brabec, M. Paulescu  
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  88. Variabilitatea radiatiei solare la nivelul solului. Masuratori, prognoza si incertitudini  
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R. Boata, M. Paulescu  
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  91. Overview about solar cells degradation in space  
Marius Paulescu, Radu Andrei Negrila, Daniel Vizman  
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  92. Performance assessment of ten clear sky solar irradiance models in Timisoara  
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  93. Recent advances in solar radiation forecasting at the West University of Timisoara  
A. Pacurar, O. Mares, R. Boata, D. Calinoiu, N. Stefu, N. Pop, P. Gravila, E. Paulescu, M. Bunoiu, D. Vizman, M. Paulescu  
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94. Comparison between numerical and experimental results in the case of a special type of electromagnetical stirring for conducting melts.  
R Andrei Negrița, A. Popescu, M. Paulescu, D. Vizman, B. Barvinschi  
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E. Tulcan-Paulescu, P. Gravila, M. Paulescu

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S. Fara, D. Finta, M. Iancu, L. Fara, D. Comaneci, Ana-Maria Dabija, Eugenia Tulcan-Paulescu, Paulescu M, T. Jurca  
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105. Modeling and numerical simulation of the transport processes inside DSSC using a monodomain approach  
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P. Gravila, E. Tulcan-Paulescu, D. Vangheli, M. Paulescu  
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