

1. Record Nr.	UNINA9910457307503321
Autore	Muneer T (Tariq)
Titolo	Solar radiation and daylight models [[electronic resource] /] / T. Muneer ; with a chapter on solar spectral radiation by C. Gueymard and H. Kambezidis
Pubbl/distr/stampa	Amsterdam ; ; London, : Elsevier Butterworth Heinemann, 2004
ISBN	1-136-36595-8 1-281-00323-9 9786611003234 0-08-047441-1
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (380 p.)
Altri autori (Persone)	GueymardC KambezidisH MuneerT (Tariq)
Disciplina	720.472
Soggetti	Architecture and solar radiation Daylighting Solar radiation Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Rev. ed. of: Solar radiation & daylight models for energy efficient design of buildings. 1st ed. 1997.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Solar Radiation and Daylight Models; Copyright Page; Contents; Foreword: Professor Peter Tregenza, University of Sheffield; Preface to the first edition; Preface to the second edition; Acknowledgements; Electronic files available from this book's web site; List of files available from this book's web site; List of figures; List of tables; Introduction; 1. Fundamentals; Introduction; 1.1 Solar day; 1.2 Equation of time; 1.3 Apparent solar time; 1.4 Solar declination; 1.5 Solar geometry, SOLALT and SOLAZM; 1.6 Astronomical sunrise and sunset; 1.7 Actual sunrise and sunset 1.8 Twilight 1.9 Distance between two locations; 1.10 Solar radiation and daylight measurement; 1.11 Statistical evaluation of models; 1.12 Exercises; References; 2. Daily Irradiation; Introduction; 2.1 Monthly-averaged daily horizontal global irradiation; 2.2 Monthly-averaged daily

horizontal diffuse irradiation; 2.3 Annual-averaged diffuse irradiation; 2.4 Daily horizontal global irradiation; 2.5 Daily horizontal diffuse irradiation; 2.6 The inequality of the daily and monthly-averaged regressions; 2.7 Daily slope irradiation; 2.8 Exercises; References

3. Hourly Horizontal Irradiation and Illuminance Introduction; 3.1 Monthly-averaged hourly horizontal global irradiation; 3.2 Monthly-averaged hourly horizontal diffuse irradiation; 3.3 Hourly horizontal global irradiation; 3.4 Hourly horizontal diffuse irradiation; 3.5 Hourly horizontal illuminance; 3.6 Daylight factor; 3.7 Solar climate characterisation; 3.8 Frequency distribution of illuminance; 3.9 Exercises; References; 4. Hourly Slope Irradiation and Illuminance; Introduction; 4.1 Slope beam irradiance and illuminance; 4.2 Sky clarity indices; 4.3 Sky-diffuse irradiance models

4.4 Slope illuminance models 4.5 Radiance and luminance distributions; 4.6 Luminance transmission through glazing; 4.7 Quality control of cloud cover, sunshine, solar radiation and daylight data; 4.8 Shadow band (shade ring) diffuse irradiance correction factor; 4.9 Exercises; References; 5. Solar Spectral Radiation: C. Gueymard and H. Kambezidis; 5.1 Instruments and measurements; 5.2 The earth's atmosphere; 5.3 Extraterrestrial spectrum; 5.4 Spectral modelling; 5.5 Validation; 5.6 Applications; References; 6. Ground Albedo; Introduction; 6.1 Estimation of ground-reflected radiation

6.2 Models for ground-reflected radiation 6.3 Albedo atlas for the UK; 6.4 Estimation of monthly-averaged albedo; References; 7. Psychrometrics; Introduction; 7.1 Psychrometric properties; 7.2 Hourly temperature model; References; 8. Solar Radiation and Daylight Data; 8.1 International daylight measurement programme; 8.2 IDMP recorded horizontal and slope data for solar radiation and daylight measurements; 8.3 Sky scan data; 8.4 Web-based sources for accessing solar radiation and weather data; 8.5 Satellite based and other sources for accessing solar radiation and weather data; References

Projects

Sommario/riassunto

The cost of operating a building far exceeds the cost of constructing it, and yet until recently little attention was paid to the impact of solar radiation on the costs of heating, cooling and ventilation. And now that there has been a surge in interest in energy efficiency and solar design, architects and designers need a practical guide to the modelling and application of solar energy data. There are many different models and techniques available for calculating the distribution of solar radiation on and in buildings, and these algorithms vary considerably in s
