Thermal Solar Desalination: *Methods and Systems*
Vassilis Belessiotis
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Emmy Delyannis

This comprehensive book outlines the fundamental principles of how to obtain fresh water from seawater using solar thermal desalination technologies and applications

KEY FEATURES

- Includes detailed descriptions and design of all types of solar thermal desalination systems
- Lists a comprehensive record of seawater and fresh water thermophysical properties required in the design of desalination systems
- Contains equations to calculate and analyze the performance of the processes examined and assesses their practicality and application

DESCRIPTION

Thermal Solar Desalination: Methods and Systems presents numerous thermal seawater desalination technologies varying from the very simple, easy to construct and operate solar stills, to the more advance membrane and indirect distillation methods. All types of solar thermal desalination technologies are presented in detail to enable readers to comprehend the subject, from design details to enabling further research to be carried out in this area.

The various units used in desalination are outlined, along with diagrams of all detailed working principles of desalination methods and systems. The authors consider the economic aspects of these processes, demonstrating successful implementation of desalination units suitable for areas where supplies of fresh water in natural ways is limited or non-existent.

ABOUT THE AUTHORS

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RELATED TITLES

- Escobar and Schäfer, *Sustainable Water for the Future: Water Recycling Versus Desalination*, 2009, 9780444531155, 444pp., $205.00
- Kalogirou, *Solar Energy Engineering: Processes and Systems*, *2nd ed*, 2013, 9780123972705, 840pp., $120.00
- McEvoy, *Solar Cells: Materials, Manufacture and Operation, 2nd ed,* 2012, 9780123869647, 600p., $199.95

AUDIENCE
Energy engineers, renewable engineers, solar thermal energy industry professionals and researchers

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Dr Vassilis Belessiotis obtained his PhD from Aristotle University of Thessaloniki. He is the Research Director of the Solar and Other Energy Systems Laboratory of NCSR "DEMOKRITOS" (www.solar.demokritos.gr). His main research areas are renewable energy sources and energy conservation. His interests include the areas of thermal engineering, physical processes, and metrology of physical parameters with application to renewable energy and energy conservation systems as well as to the development of methods and simulation models and measurement procedures and characterization of energy (thermal) products. He was project coordinator in a large number of competitive research projects funded from external sources and his scientific work is published in five books, six original contributions in specialized international encyclopedias (*Encyclopedia of Life Support Systems* and *Encyclopedia of Energy*), and more than 250 papers are published in international journals, international and national conferences (with review), as well as many specialized studies. He has approximately 2000 citations on this work. For his scientific activity he has received five honorary awards. He is a permanent member of scientific organizations: ISES, EDS, IDA, ASHRAE, IHT, HellasLab (national member of EUROLAB).

Dr Soteris Kalogirou received his PhD from the University of Glamorgan, Wales. In June 2011 he received, from the same university, the title of D.Sc. He is Visiting Professor at Brunel University, UK, and Adjunct Professor at the Dublin Institute of Technology (DIT), Ireland. For more than 30 years, he has been actively involved in research in the area of solar energy and particularly in flat-plate and concentrating collectors, solar water heating, solar steam generating systems, desalination, and absorption cooling. Additionally, since 1995 he has been involved in pioneering research dealing with the use of artificial intelligence methods, like artificial neural networks, genetic algorithms, and fuzzy logic, for the modeling and performance prediction of energy and solar energy systems. He has 48 books and book contributions and published 306 papers; 140 in international scientific journals and 166 in refereed conference proceedings. Until now, he has received more than 7500 citations on this work. He is Editor-in-Chief of *Renewable Energy* and Deputy Editor-in-Chief of *Energy*, and Editorial Board Member of another 11 journals. He is the Editor of the book *Artificial Intelligence in Energy and Renewable Energy Systems*, published by Nova Science Inc., Co-Editor of the book *Soft Computing in Green and Renewable Energy*

Systems, published by Springer, and author of the book *Solar Energy Engineering: Processes and Systems*, published by Academic Press of Elsevier. He has been a member of World Renewable Energy Network (WREN), American Society of Heating Refrigeration and Air-conditioning Engineers (ASHRAE), Institute of Refrigeration (IoR), and International Solar Energy Society (ISES).

Dr Emmy Delyannis received her PhD from the Athens University of Technology (AUth) and carried out postgraduate studies at the University of Lawrence, Kansas, USA, and Karlsruhe, Germany. She was Assistant Professor of Chemical Engineering and Metallurgy at AUth, where she taught the subjects of heating and chemical technology. For about 20 years she was the General Secretary of the European Working Group on "Fresh Water from the Sea" and she organized six symposiums for the European Federation of Chemical Engineers. She was coordinator with Dr A. El-Nashar in the section on Desalination by Renewable Energy of *Encyclopedia of Live Support Systems* (EOLSS). She was an unpaid Research Associate of the Solar and Other Energy Systems Laboratory of NCSR "DEMOKRITOS". For her contributions in desalination she was honored with the Public Service Award of the Department of the Interior, USA, and with the Certificate of Merit of the International and Environmental Association, USA.