THE WEATHER OBSERVER'S HANDBOOK

The Weather Observer's Handbook provides a comprehensive, practical, and independent guide to all aspects of making weather observations. Automatic weather stations today form the mainstay of both amateur and professional weather observing networks around the world, and yet – prior to this book – there existed no independent guide to their selection and use. Traditional and modern weather instruments are covered, including how best to choose and to site a weather station, how to get the best out of your equipment, how to store and analyze your records, and how to share your observations with other people and across the Internet. From amateur observers looking for help in choosing their first weather instruments on a tight budget to professional observers looking for a comprehensive and up-to-date guide covering World Meteorological Organization recommendations on observing methods and practices, all will welcome this handbook.

Stephen Burt has a professional background in physics, meteorology and climatology, information technology, and marketing. He is a Fellow of the UK's Royal Meteorological Society and is also a member of both the American Meteorological Society and the Irish Meteorological Society. He has run his own meteorological observatory for more than 40 years. After almost 10 years with the UK Met Office he took up a business career within the computer industry, successfully managing international marketing roles for several of the world's largest high-technology firms. During this time he was also elected to the UK's Chartered Institute of Marketing.

Stephen is a regular contributor to the Royal Meteorological Society's monthly magazine *Weather*, with more than 100 published papers or articles and several hundred published photographs to date. He is a recent member of the Royal Meteorological Society's Council governing body, Chairman of the Society's South-east Centre and a long-standing committee member of the Society's Special Interest Group on Weather Observing Systems. Stephen was awarded the Royal Meteorological Society's Gordon Manley Prize in 2006. He is also a Trustee of the Chilterns Observatory Trust and Chairman of the Climatological Observers Link. He lives in southern England with his wife and two daughters.

'This is a very impressive work! Stephen has done a great job of addressing many issues that I have personally wondered about. At last there is a comprehensive book on the tricky issue of accurately measuring the weather. This timely publication is a must for anyone in the market for a weather station, libraries, and weather observers of all stripes, both amateur and professional.'

– Christopher C. Burt (no relation to Stephen), Weather Historian, Wunderground, Inc., and author of *Extreme Weather: A Guide and Record Book*

'Sophisticated equipment for weather observing is now within reach of more people than ever. Yet a poorly sited station or a wrongly interpreted report can do more harm than good. With this marvelous book, Stephen Burt has given us a very practical and helpful guide to installing and using one's own reporting station, enhanced with perspective drawn from the centuries-long history of meteorological instrumentation. *The Weather Observer's Handbook* is an ideal companion to the practice of monitoring the atmosphere.'

– Robert Henson, author of *The Rough Guide to Weather* and *The Rough Guide to Climate Change*

'People have been making observations of the weather for thousands of years, and observations remain central to our capabilities to forecast the weather and predict the changing climate. But it's not just professional meteorologists who make weather observations; there are literally millions of amateur observers across the world making observations every minute of every day. In meteorology, as well as in other science disciplines, amateur observers (I include all non-professional meteorologists in this) have always played a crucial part in supporting well-established national observation programmes and in making a very valued contribution to our scientific understanding.

'We have many amateur members and schools in our Society and I'm often asked if I can recommend a good book to help them in their observing exploits. Well, now I can. This is the first comprehensive book of its type that I know of that offers a practical guide to anyone with an interest in making observations of the weather. It's not only an essential practical handbook, but it showcases the wide range of observations that can now be made with relative ease, and, importantly I think, it helps to enthuse others to follow their interest. If you have an interest in observing the weather, then this book is as essential as your observing equipment.'

– Paul Hardaker, Chief Executive of the Royal Meteorological Society

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For Helen

Mr Hook[e] produced a part of his new weather Clock which he had been preparing which was to keep an Account of all the Changes of weather which should happen, namely the Quarters and points in which the wind should blow. 2ly the strength of the Wind in that Quarter. 3ly The heat and cold of the Air. 4ly The Gravity and Levity of the Air. 5ly The Dryness and moisture of the Air. 6ly The Quantity of Rain that should fall. 7ly The Quantity of Snow or Hail that shall fall in the winter. 8ly The times of the shining of the Sun. This he was desired to proceed with all to finish he hoped to doe within a month or six weeks.

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Abbreviations, footnotes and references

Abbreviations are defined within the text when first used; they are listed below only if used more than once.
Footnotes (indicated by superscripted symbols[*†] and so on) are given at the foot of the page.
References and further reading are indicated within the text by bracketed numerals as [9]. They indicate sources of material or further reading for those who require more detail on the topic. References are numbered within each chapter and listed at the end of that chapter.

ASOS	Automated Surface Observing System
AWS	Automatic weather station
DWD	Deutsche Wetterdienst – the German state weather service
KNMI	Koninklijk Nederlands Meteorologisch Instituut – the Dutch state weather service
LAT	Local Apparent Time
MMTS	Maximum-Minimum Temperature System
MSL	Mean sea level
NOAA	National Oceanic and Atmospheric Administration
PC	Personal computer
PRT	Platinum resistance thermometer
RTD	Resistance Temperature Device
SRG	Standard Raingauge (US)
TBR	Tipping-bucket raingauge
USB	Universal Serial Bus (a communications port on computers)
USCRN	U.S. Climate Reference Network
USRCRN	U.S. Regional Climate Reference Network
USWB	United States Weather Bureau (now the National Weather Service)
WMO	World Meteorological Organization

Important note

Throughout this book, suggestions and recommendations are completely independent of manufacturer or supplier influence. No sponsorship or incentives were requested or offered by any of the companies whose products are referred to in this book. Although it is not possible to be fully conversant with every instrument or system described in this book, wherever possible usage details are from firsthand experience. System specifications and performances have been taken from published manufacturer literature or websites, except where specifically stated otherwise. Because product specifications change over time, it is suggested that potential purchasers always check manufacturer literature or websites for the latest information.

If you use this book to help choose an automatic weather station, or the components of one, please mention this to your reseller or dealer when you make your purchase.

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