

Book reviews

Climatic Atlas of Australia (Reprint Edition April 1988) (Australian Government Publishing Service, Canberra, 1988) ISBN 0 644 06963 5. \$89.95.

As is made clear in its introduction, the *Climatic Atlas of Australia (CAA)* is seen as a stop-gap measure. Essentially, it is a reprint of a series of map sets published by the Bureau of Meteorology between 1974 and 1979. It is meant to satisfy demand for broadscale climate information until a new atlas, currently under preparation, is released. However, I am sure any such demand is presently being well satisfied by the recently published, and excellent, *Atlas of Australian Resources, Volume 4: Climate*.^{*} When compared to that atlas, the *CAA* is in most respects inferior, and is much over-priced. It is difficult to see why this reprint is needed.

The *CAA* consists of eight map sets: maximum and minimum temperature (8 maps), global radiation (5 maps), evaporation (13 maps), sunshine (5 maps), rainfall (4 maps), 9 am and 3 pm relative humidity (8 maps), 9 am and 3 pm cloud (8 maps), and 9 am and 3 pm wind roses (8 maps). In most cases separate maps are given for each of the months January, April, July and October; and in some cases an annual map is given as well. For evaporation there are maps for each calendar month, as well as an annual one. For rainfall, we are given annual maps of the 10, 50 and 90 percentiles and an additional map showing seasonal rainfall zones. Each set of maps is accompanied by a brief commentary and sometimes some tabulated data (total of four tables). The main changes from the 1974-1979 version of the atlas are the updating and expansion of the evaporation section and the binding of the map sets into one volume.

Each map covers a full page of the atlas (41 x 34 cm), allowing good presentation of background geographical information, and the

clear depiction of any intricate detail in the spatial variation of the element mapped. The mapping is done using isolines, but colour is also used to enhance the clarity of the maps. The atlas is spirally bound so that it opens flat on a desk facilitating access to the maps for technical applications. Indeed, the maps are without exception well presented.

Considerably more material could have been included, but if limited by the format used, and the number of maps presented, the selection made is not unreasonable. The main thing I would question is the coverage given to rainfall. For Australia this is arguably the most important meteorological variable, but the atlas does not provide seasonally stratified maps for this element (whereas it does for all the others).

The commentaries that accompany each map set give adequate details of the techniques used in collecting the data, possible biases, inaccuracies, etc. However they are not always clearly written. For example, I found it difficult to understand how the seasonal rainfall zone map was constructed without considerable re-reading of the relevant description. The commentaries also include a brief discussion of the main features of the accompanying maps. Some of those are quite good, others tend to be perfunctory and do little to enliven the reader's interest. One hopes for much improved commentary in the forthcoming new atlas.

There are some annoying features of the atlas which stem directly from it being a reprint of a series of map sets originally published individually. Neither pages nor individual maps are numbered so it is not possible to quickly locate a particular map by consulting the table of contents. The original commentaries (excluding evaporation) have not been updated in any way and hence fail to cite relevant references of recent date. (Although strangely, the temperature commentary, which we are told was published in 1974, cites 1977 references.) The commentary on the wind rose maps refers to 'Map Set 9: Atmospheric Pressure', and the relative humidity commentary refers to a map set on 'climatic discomfort'. If these map sets were

^{*} See review in *Australian Meteorological Magazine*, 34, 185-186.

ever made they are not included in this atlas. I can understand reprinting the maps as they were, but was the effort involved in editing the seven pages of text really prohibitive?

It is fair to compare the *CAA* with the *Atlas of Australian Resources, Volume 4: Climate (AAR)*, as these are the two climatic atlases presently available to choose between. I can think of few reasons to recommend the *CAA*. The *AAR* has more maps and tables covering a broader range of climatological variables, colour photographs and explanatory diagrams, a more extensive and stimulating text, and is only a sixth of the price! Indeed, I would consider recommending the *CAA* only to someone who particularly requires large scale maps, or is specially interested in detailed maps of global radiation, evaporation or cloudiness. And then they would have to consider whether it is worth spending \$90 on an atlas that will soon be superseded. They may be better advised to obtain updated numerical data directly from the Bureau of Meteorology.

Peter Whetton

Climatic Averages Australia (Australian Government Publishing Service, Canberra, 1988) 532 pp. ISBN 0 644 06943 0. \$74.95.

For anyone interested in climate, *Climatic Averages Australia* is an interesting volume simply to browse through. I enjoyed poring over the climatic tables it contains, noting, for example, that the old post office site in Wyndham, WA, was Australia's warmest station, and the only one to have a mean annual temperature that reached 30°C (annual mean maximum of 35.8°C and minimum of 24.2°C). At the other extreme, although stations high in the Snowy Mountains are coldest in winter, year-round Mt Wellington, Tasmania, is the coldest Australian station (annual mean maximum 7.3°C and minimum 1.1°C).

Climatic Averages Australia gives, in tabular form, up-to-date climate data for nearly 1000 stations throughout Australia, its off-

shore islands and Antarctic territories, and the Solomon Islands. A table is given for each station containing monthly and annual averages for each of: wet and dry-bulb temperature, dew-point and relative humidity at 9 am and 3 pm; maximum and minimum temperatures, and their 86 and 14 percentiles; mean and median rainfall, and the number of rain-days. In addition the number of years of record for most weather elements is given, along with station identification number, and latitude and longitude, elevation, and the year of commencement (and closure, where relevant) of the station. The tables are preceded by twelve pages of introductory text which is clear and informative. It covers matters such as the selection and organisation of data in the book, definitions of statistical terms, and factors influencing climate in the Australian region. At the end of the volume there is a detachable questionnaire asking readers about their opinions of *Climatic Averages Australia*.

The stations presented are limited to all available with at least five years of temperature data (most stations have 10-30 years of data). Rainfall averages are given for the stations selected, regardless of how many years of rainfall data are available (it is often eighty years or more, but can be as little as three years). I would have liked to have seen the range of years over which the data were collected given as well as the number of years, as this would have aided in the interpretation and comparison of the data in the tables. (As it is, we are not even given the last year or month of data used in making the tables.)

The tables for each State, and those for the off-shore islands and Antarctic stations, each form a separate section of the book. The tables are presented in station number order (which groups stations according to meteorological districts), but at the beginning of each section the names are listed alphabetically so that the number of a particular station, and hence its table, can be quickly found. At the end of each section there is map showing localities, topography and boundaries of meteorological districts. It conveniently folds out to allow it to be visible while the pages containing the relevant tables are used. These maps, which could have been an excellent feature, were disappointing. They cannot be relied upon as a guide to the location of stations with tabulated data. Although in general correspondence is good, there are towns given on the maps for which tabulated data

are not provided (generally in areas where stations are few in number), and conversely, tabulated data are given for places not shown on the maps (generally in areas where station density is high). I found it annoying to find no data for an interesting site I could see on the map, and similarly it irritated me to have to resort to using latitude and longitude, or another atlas, to locate a station for which data was provided. The first problem could have been overcome through using two sets of symbols on the map, and the second through including on each map one or two insets containing parts of the map on an expanded scale.

The tabulated information is accurate (I noticed only one typographical error) and is clearly presented, but is not without some annoying aspects. In some rainfall tables an asterisk is used (presumably meaning 'trace') but is left undefined. Some station names include undefined abbreviations (e.g. A*S, AMO, S.F.), whereas many other station names contain redundant information (e.g. 'Collie (Collie Post Office)', or even 'Goldsworthy (Goldsworthy)'). In some places the station name is followed by a cross-reference to another station number, but on each of these occasions I was unable to find a station with the number given anywhere in the book! On some occasions as many as five tables of data are given for different sites in one town, but, through maintaining station number order, the tables were scattered over a number of pages. Some effective cross-referencing would have helped here. Overall, one is given the impression that the tabulated data was typeset directly from Bureau of Meteorology computer files without any editorial intervention. (Lack of editorial care is not restricted to the tables. A publication date of April 1988 is prominently displayed on the front cover, but on the title page it is given as July 1988!)

The compilers of *Climatic Averages Australia* are clearly uncomfortable about the inclusion of the 9 am and 3 pm temperature

and humidity values. The introduction of Daylight Saving Time (DST) in the early 1970s has corrupted these averages, because during summer observations are now made at 9 am and 3 pm DST, effectively an hour earlier than they were before DST was introduced. Considerable space in the introduction is devoted to describing the problem, a detailed table is given showing the dates for each State when DST has applied, and in the questionnaire users are asked what other climate information they would like to have if, in a future edition, the 9 am and 3 pm data were omitted. The problem is not insignificant. By comparing nearby stations, one with data purely from before 1970 and one with data from after that time, summer 9 am temperatures appear to be around a degree lower in the DST period, and relative humidity values substantially increased. I would support dropping these fixed-time statistics from a subsequent edition and using the space for something else (perhaps extremes of temperature and rainfall, or some wind information). As an indication of humidity, a fixed-time dew-point reading could be retained, as dew-point is reasonably independent of the time of day.

Given the rather high price of this book (\$74.95), care and attention to detail in production is not of a standard one would expect. However, its failings are not major, and overall it is a well conceived, reasonably easy-to-use, climate reference. It is also attractively presented and well bound. As long as the price does not limit its distribution too much, it will prove to be a useful reference for meteorologists and specialists from other fields.

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