

Book review

The Atmosphere by Keith Foley – a wall chart (140 x 85 cm) (Mirage Publishing, The Netherlands, 1987) ISBN 90 72167 01 5. \$US14.50, Dfl. 35.

Whoever or wherever we are, the weather affects us all and instils in many of us an inherent interest in its vagaries. The science of meteorology is challenging and complex, and it is not an easy undertaking to reduce these complexities to a level which is readily comprehensible to someone outside the field. Keith Foley has made an admirable attempt to achieve this in the wall chart *The Atmosphere*. The overall visual effect of the chart is excellent. Colour has been used to advantage, the ratio of photographs and diagrams to text is high and the printing quality is superb. Atmospheric processes and phenomena have been grouped into logically chosen sections which have been colour-coded for ease of reference. In addition, each phenomenon has been categorised with regard to scale: microscale, mesoscale or synoptic scale. A brief description or explanation accompanies most of the photographs or diagrams. I only noticed two examples of northern hemispheric bias (without qualification): most of the chart has global appeal.

The section which heads the chart is entitled 'Global atmospheric influences'. The primary circulation patterns, profile of the atmosphere, solar radiation budget, hydrologic cycle and the forces which produce atmospheric motion are amongst the topics included. 'Clouds and precipitation', which dominates the left side of the chart, depicts photographic examples of the ten basic cloud types as well as a description of the different types of precipitation elements and the mechanisms by which they are produced. The basic symbols used in chart analysis appear under the heading 'Weather presentation', along with a coloured, global, satellite photograph from METEOSAT. To the right of this, 'Meteorological motion' includes photographs and schematic diagrams of fronts, fog, orographic effects and sea and land breezes. The more spectacular and violent atmospheric phenomena such as hurricanes, tornadoes, thunderstorms and microbursts are grouped together under the heading 'Severe weather'. Three additional sections of interest have been included in the lower portion of the chart. 'Meteorological optics' illustrates the formation mechanisms of rainbows, haloes and mirages; acid rain, smog and a list of adverse effects of meteorological elements on biological life and weather comprise a section entitled 'Pollution meteorology'; whilst 'Aviation meteorology' highlights phenomena of particular concern to the aviation industry, e.g. wind shear, ice accretion, gust fronts and squall lines.

In the words of the author: 'This chart is designed to convey, in both an attractive and logical manner, an overview of the major elements which make up a study of what happens in our atmosphere'. This aim has basically been satisfied; however, there are a number of shortcomings. Whilst it is not specifically stated for whom the chart is intended, I have assumed, from the content and its general presentation, that little or no pre-existing meteorological knowledge should be required. I would expect schools and other educational institutions to be important target areas for promotion of the product. This necessitates the material being presented in a simple, yet comprehensive and correct fashion. In general, this has been achieved; however, there are several instances when it has not.

A disturbingly large number of the explanations given are inadequate, confusing or even erroneous. One example which is particularly confusing occurs in the section entitled 'Forces for the production of motion'. Apart from the fact that there are three references to pressure gradient which should include the word 'force', the text and diagram subheaded 'Forces created by temperature' do little to explain what these forces are, or how the accompanying stability diagram should be interpreted. In fact, to be consistent with the general presentation of this section, the description of the dry adiabatic lapse rate and saturated adiabatic lapse rate should be read as a definition of temperature which in turn should be interpreted as a 'force created by temperature'. Confusing?! I also wonder how many people would, without further explanation, be able to adequately comprehend the diagrams of the primary circulation patterns, the pressure curve in the profile of the atmosphere, the cross-section of a thunderstorm (actually not really a cross-section at all, but a three-dimensional schematic diagram), 'coloured' hail, or the mirage diagrams (given the text provided, most people would be unable to appreciate the differences between the three cases of superior mirage presented). A number of the explanations/descriptions have been poorly expressed and, in some cases, contain misleading or inaccurate statements. I detected several spelling errors, not all of which are typographical (e.g. sporns, criterium, draught and draft, sulphur and sulfur) and a misprint occurs in the temperature range given for icing encounters. The Landsat photograph of a front followed by cumulus cloud appears to have been printed either back to front or upside down. It is also a pity that the microburst photograph has lost the detail required to clearly illustrate what it is: without the knowledge of what to look for, I doubt that it could be identified.

Whilst some of the shortcomings are minor (and could have been removed by tighter editing), others are not. I consider this chart to have excellent potential for promoting a better appreciation of what is involved in the

study of our atmosphere, and as an attractive and useful summary of meteorological processes for students. Unfortunately, however, I feel that unless it is revised

with the objective of eliminating all errors and inadequate or confusing statements/diagrams, it cannot successfully satisfy what I have assumed to be its aim.

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Award of the 1987 Priestley Medal

The Committee of the Australian Branch of the Royal Meteorological Society has awarded the 1987 Priestley Medal to Dr Neville Nicholls of the Bureau of Meteorology Research Centre.

The medal was named in recognition of the contribution of Professor C. H. B. Priestley to the science of meteorology. It is awarded every two years for the best paper published in the *Australian Meteorological Magazine* during the past biennium. Papers are judged by the awards sub-committee on criteria of originality, substance, significance, skill, and style.

If there are no papers of sufficient standard, no award is made.

Under the chairmanship of the convenor, Dr Tom Beer, the awards sub-committee voted the best paper to be:

'Towards the prediction of major Australian drought' by N. Nicholls, published in the *Australian Meteorological Magazine* (Volume 33, pages 161-166).

The sub-committee noted the substantial number of high quality contributions in the *Australian Meteorological Magazine* over the past two years, and found the choice of a best paper to be a difficult one. Nicholls' paper was awarded the medal because of its examination of a problem of particular concern to

Australia, and its analysis relating rainfall, crop yields and drought to the Southern Oscillation. The paper builds on previous research to provide a basis for predicting the onset and magnitude of widespread drought in Australia using Southern Oscillation indices.

Neville Nicholls has a B.Sc. from Monash University (1970), a Ph.D. from Melbourne University (1983) and an M.B.A. from the Royal Melbourne Institute of Technology (1985). He joined the Bureau of Meteorology in 1970 and has worked in the Bureau's Synoptic Research Section, the Australian Numerical Meteorology Research Centre and the Bureau of Meteorology Research Centre. His research interests have focussed on the causes and impacts of the El Nino – Southern Oscillation and its use in seasonal prediction. Dr Nicholls was a member of the World Meteorological Organization Working Group on Long-range Weather Forecasting Research from 1982 to 1985 and is currently a member of the American Meteorological Society's Committee on the Meteorology and Oceanography of the Southern Hemisphere, of the United Nations Environment Programme Working Group on the Societal Impacts of El Nino Events and of the Editorial Board of the *Journal of Climatology*.

