There are quite some textbooks in agricultural meteorology and they are most often very suitable for self study and for teachers/lecturers to take note of basic principles and applications. For our own basic courses we very often need to use many textbooks to get what is most suitable for our specific conditions.

In developing countries we have to do with very special conditions, particularly due to (i) the fact that most textbooks in agrometeorology were written for temperate areas and (ii) the condition that almost all students have deficient pre-education, and even more so in basic sciences and knowledge of outdoor conditions. When I taught agricultural meteorology to physics students in Tanzania in the seventies and the eighties, I needed to give three basic courses, one in simple atmospheric physics, including the boundary layer of crops, one in instrumentation and one in agricultural physics for the applications.

Dr. V.R.K. Murthy has now tried to do the same in one basic book for undergraduate agronomy students and students in environmental sciences in developing countries at agricultural universities with such deficient education before they enter University.

In my present teaching in Asia and Africa I observe again that particularly any mathematics frightens undergraduate students. However, only few of them will go on to scientific work where thorough mathematics is indispensable. Many need understanding of their environment to share this with people with much less education. In such cases basic mathematics has only the task to increase that understanding, but nothing more. If I assess the clear choice in this book to do without mathematics, I observe that a little bit more of it, just for the enlightenment, would have served basic understanding, also for those who have to work later on with people that do not understand any mathematics. Particularly where gradients and transport
phenomena are dealt with this would have prevented also the few errors in definitions/explanations.

This critical note does, however, not diminish my admiration for the book for the above mentioned purposes. With its eleven major chapters, from 1. Atmosphere and Agricultural Meteorology, 2. Solar radiation, 3. Temperature, 4. Pressure, 5. Wind, 6. Humidity, 7. Evaporation and Transpiration, 8. Rainfall, 9. Weather Disaster Management/Synoptic Reports/Weather Forecasting/Remote Sensing, 10. Crop Growth Modelling/Climate Change/Climate Classification till 11. Micrometeorology & Weather Modification, the book covers a wide range of essential basic agrometeorology. In each chapter not only basic concepts are covered, but where applicable also simple instrumentation - that of basic meteorological observatories - to quantify the parameters concerned. Moreover the role of that parameter in agricultural production is exemplified in all chapters as well. That is what makes it such a suitable book for basic undergraduate teaching.

A special feature of the book are its about 20 exceptional diagrams of basic (agro)meteorological instrumentation that have been designed with so much detail that the instrument can be very well understood from these designs. When the students then are able to see it once, they will immediately recognize and understand these details.

Because I also saw a preprint of an earlier version of all chapters, I can witness that the book was well proof read and many initial mistakes were almost all redressed, with few exceptions. Of course many examples are from India or the tropics but can easily be replaced or completed by local ones from one’s own environment. This does not only apply to agricultural examples but also to the establishment of a standard meteorological observatory, description of cards in the Campbell Stokes, the use of the sunken screened evaporation pan, the daily cycle of soil temperature and mechanisms of rain formation (although this is made good in the story of cloud seeding), while mechanical damage by wind is here and there (but certainly not everywhere) forgotten because in India the protection is most often needed from warm or cold air. These are all easily amended, by replacements or additional examples, as are some other limitations/errors in definitions such as of the factors determining the solar constant, of evaporimeters, lysimeters, anemographs, and of what some radiation
instruments measure, or in names such as “pilot” tube, potometer, Wein’s law.

The book is not always consistent in units when seen from an ISU standpoint. Although good conversion Tables close the book, it is not logical to give in the bulk of the text Planck’s constant using erg s\(^{-1}\) instead of Js and also Stefan Boltzman’s constant in such related internationally outdated units. In some but not all places still degree Kelvin is used instead of just K. Wind speeds along the wet bulb of the Assmann psychrometer should not be given in feet per second. Another bad habit are too precise “constants”: “the diameter of the earth is 12,756 km”, “albedo values of cropped fields as 12 – 13%”, “constants in the Angstrom formula (which anyway mathematically is in error) as 0.23 and 0.48”, “100.000 litres of rain contain 4,339 grams of oxygen at 20 °C”, where more approximate (ranges of) values should have been given.

The book is sometimes too optimistic for tropical farming conditions, for example in discussing cloud seeding, Decision Support Systems for Agro-Technology Transfer (DSSAT), the role of remote sensing and of crop modelling, but it has this in common with other publications that do not sufficiently distinguish intentional/potential and actual application domains.

These are minor didactical wrongs in a book full of good explanations for beginners (as the author states, also particular those who had basic studies in their local languages) and for teachers to beginners in agrometeorology in the developing world. I especially liked for such a book, in addition to the already mentioned abundant instrumental parts which are very good and very well illustrated:

- the tables on differences (weather and climate; meteorology and climatology; cyclones and anticyclones; trade winds and antitrade winds; mountain and valley winds; land and sea breezes; class A pan and sunken screen evaporimeter; evaporation and transpiration);

- the pages on the establishment of a standard meteorological observatory in India;

- results of research on effect of solar radiation on important crops;
- idem for (soil) temperature;
- the wind chapter as a whole, including results of research on effect of wind on important crops;
- basic evaporation terminology (although there is a lapse in the definition of reference evapotranspiration, which has an unlimited supply of water);
- the rainfall chapter as a whole, of which the cloud photographs were already taken up on the INSAM web site (www.agrometeorology.org);
- the parts on weather disaster management;
- the story on weather forecasting;
- the pages on microclimate modification.

This illustrates again the wide coverage of this nice introductory book on basic principles of agricultural meteorology, that should find its way to many libraries and individuals for teaching in developing countries.

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