Handbook of Space Astronomy and Astrophysics (3rd edition)

by Martin V. Zombeck

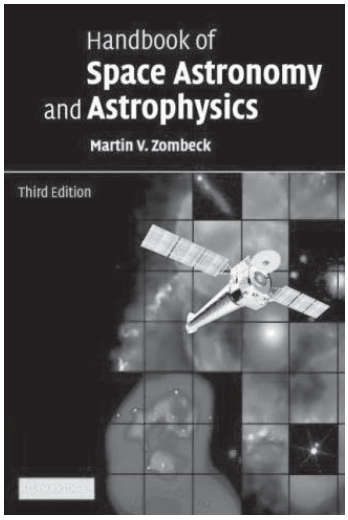
Cambridge University Press, 2007. ISBN 0-521-78242-2. Pp v + 767, £50.00 (hbk).

Zombeck's reference handbook is the most comprehensive compilation of facts and other information of use to students, researchers and professionals working in astronomy and the space sciences that can be found in a single volume. The first edition, which comprised 326 pages, appeared in 1982, followed in 1990 by a 448-page 2nd edition. This edition contains more than 767 pages and is proof positive of the remarkable growth in our understanding in this area of science during the last two decades or so.

The book is nicely presented, robustly bound and has pages that are similar in size to our own BAA *Handbook*. The topics covered are remarkably diverse, the book being divided into the following sections: 1. General data; 2. Astronomy and astrophysics; 3. Radio astronomy; 4. Infrared and submillimeter astronomy; 5. Ultraviolet astronomy; 6. X-ray astronomy; 7. Gamma-ray astronomy; 8. Cosmic rays; 9. Earth's atmosphere and environment; 10. Relativity and cosmology; 11. Atomic physics; 12. Electromagnetic radiation; 13. Plasma physics; 14. Experimental astronomy and astrophysics; 15. Astronautics; 16. Mathematics; 17. Probability and statistics; 18. Radiation safety; 19. Astronomical catalogs; 20. Computer science; 21. Glossary of abbreviations and symbols; Appendices; Index.

It comes as no surprise therefore that within its pages you will find some 247 tables, 309 line diagrams and 29 half-tone diagrams. Each chapter has a comprehensive contents list allowing readers to find topics easily. The appendices are largely extensions of 11 of the book's chapters containing much recent information. The author has also established a website (**www.astrohandbook.com/**) where importantly there are links to Web resources where you can find supplementary information, databases, and online advanced text books. A list of errata is also maintained on the website.

As to actual content, I would have been impressed if in the chapter dealing with the Solar System the author had brought this more up to date by dropping Pluto from the relevant planetary tables and adding a section describing the system of minor planets beyond Neptune: as it is the list of selected asteroids dates from 2000. There are a number of other areas where the facts and figures presented are too far out of date: these include the table of standard photometric systems (p.139) which dates from 1969 and omits Cousins-R and Cousins-I, and the table of typical CCD properties (p.505) which dates from 2000 and also has 'Thomson' and 'Loral' spelt incorrectly, to name but a few. Clearly the solution for the reader in these cases is to refer to the links via the book's website or further afield.



In my view, the book should have included a description of the orbital elements of natural Solar System bodies with appropriate definitions and diagrams, especially since it has the equivalent for Earth-orbiting satellites. On the plus side, the book contains a rich harvest of equations on a whole variety of subjects, the inclusion of which I particularly appreciated. Also, one nice touch is the incorporation of the occasional humorous quote and even a cartoon.

Overall this is an excellent book, one that for most astronomers, whether professional or amateur, should take pride of place on his or her bookshelf as a valuable reference for years to come.

Richard Miles

Dr Richard Miles has a background in physics and chemistry and is currently BAA President.