



Exoplanets: Finding, exploring, and understanding alien worlds

by Chris Kitchin

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Pp xvi + 281, £26.99 (pbk).

The study of exoplanets is a fast-evolving branch of astronomy which has spawned a number of new books during the past few years: this from Chris Kitchin, writer and Emeritus Professor of Astronomy at the University of Hertfordshire, being one of the very latest. Its target audience is any well-read person with a general interest in the sciences and some prior knowledge of astronomy.

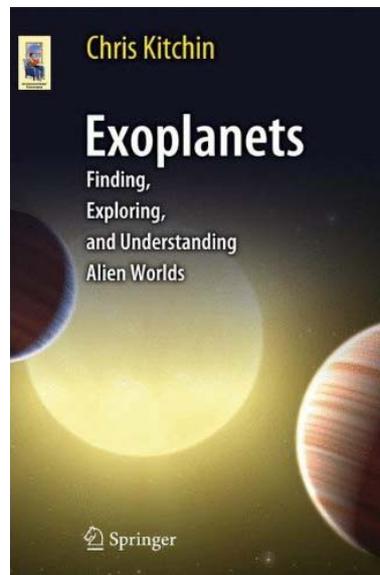
The stated objectives of the book are to explore this new area of science, including the dramatic discoveries of new planets, to seek out how and why those discoveries have been made possible, to highlight where amateur astronomers can contribute to the research, to probe what we know about exoplanets, and to investigate whether we might ever travel to and colonise an exoplanet. These objectives are largely accomplished in the course of its 14 chapters and 5 appendices including 77 illustrations (32 in colour), all of which contain a wealth of up-to-date and largely relevant information.

The first couple of chapters are a quick overview and I liked Chapter 3's extensive compilation of chronological events relating to exoplanets, which begins in pre-history, traces the various developments year on year through to the present, and then looks ahead for the next couple of centuries; most of the future predictions naturally being rather speculative. Chapter 4 comprises an account of the earliest successful discoveries, followed by Chapters 5–10 dealing with the observational techniques involved: radial velocity measurement, transit phenomena, direct imaging, gravitational microlensing and precise timing methods to identify planetary companions. Free floating planets are also discussed as are observing methods yet to make their first discovery, such as astrometry and polarimetry.

The book has been written at a time which may prove to be something of a watershed in the search for Earth-like planets. Spaceborne instruments such as CoRoT and most notably *Kepler* are starting to find very interesting objects and planetary systems out there. Chapter 11 anticipates advanced future space missions and new ground-based telescopes along with their prospects for finding 'Earth's twin'. Chapter 12 describes the various classes of exoplanet so far identified as well as postulating even more exotic 'ocean' planets and 'iron' planets. The last two chapters are increasingly speculative in that they consider the evolution of planetary systems and trespass somewhat into the realm of science fiction by assessing whether such systems could provide future homes for mankind. The latter aspect comprises largely fanciful speculation as to what might or might not be

possible, most of which could rather mislead readers unless taken with a pinch of salt.

I would have liked to have seen more about how amateurs can contribute to the study of exoplanets, along with a few examples of their observations and achievements to date. The tables would have benefited from having titles, and a fair number of typographical errors remain, however the content is broadly accurate. The appendices provide further background on a variety of topics together with a useful listing of websites, periodicals, and books including 19 further titles on the subject of exoplanets and alien life, all published within the last 8 years!



Clearly we are witnessing an explosion of interest in this exciting field with many new developments likely just around the corner. Chris Kitchin's latest book should provide the reader with a thorough grounding in this rapidly expanding subject and a foundation to better understand and appreciate any future discoveries.

Richard Miles

Dr Richard Miles is a past-President of the Association and is Director of its Asteroids and Remote Planets Section.

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