

Preface

Star Clusters contain some of the oldest and youngest stars in our Galaxy. They represent the beginning, the present and the future of the Universe. From the tiniest, sparse open clusters with only a dozen stars, to the giant globular clusters replete with a million stars, observationally, clusters are the most appealing deep sky objects. Through suitable equipment you can witness brilliant blue star forming regions, or densely packed spherical swarms within star clusters, that actually look like the images in those glossy “coffee table” astronomy books. The observer’s expectations are therefore matched with the objects appearance in amateur scopes.

Aimed specifically at observational amateur astronomers, this book will provide a comprehensive volume of data, techniques and visual descriptions, with information for all readers regardless of optics used or the individual’s experience. In Part I the science of star clusters is uncovered, opening with a general overview of stars, and our galaxy, to set the scene. Star cluster types are then discussed individually, enabling the reader to fully understand each type of object, which adds interest to observing sessions and allows the reader to cross reference this information when tracking down objects in the observing lists. I also hope this text provides some fascinating, and thought provoking reading for the armchair astronomers amongst you, or for those all too often cloudy nights.

Part II describes suitable equipment and accessories for observing clusters, advice and techniques for getting the best out of your kit, and information on planning an observing session. Also included is a comprehensive list of target observations, suitable for all sizes of telescope, and binoculars, to get you started. Sections on recording and imaging clusters, together with catalogues of data, and other resources for planning and research are also included.

This book, like the rest in the series, concentrates solely on the science and observation of star clusters, so you will not find any mythology, history of observing, or space missions within the text. This allows us to get straight into the latest theory on star clusters, which provides the basis for observing these objects later on. It is not a reference book or catalogue, instead it forms a practical observing guide with plenty of specific data to make the observing sessions more meaningful and rewarding.

Even in urban and suburban locations, with light pollution, and dubious weather, many star clusters are much easier to observe and image, than other deep sky objects such as galaxies and nebula, due to their stellar, non-nebulous nature. Previously, as a “general” deep sky observer, I soon realised that I had much more success locating and observing star clusters than any other objects, and my observing sessions quickly turned from frustration into fun. These often neglected objects can be realistically observed and studied, and deserve to be part of any deep sky enthusiasts program. This book will celebrate these attributes, and become your personal guide to the wonders of star clusters.

Amateur astronomers are a noble breed of individuals, who brave the dark and cold nights to embrace the star studded sky, often with the fascination and awe many of us lose in adulthood, but there is a plethora of excellent star clusters “out there” to make it worth your while! Some people may think we amateur astronomers are insane, standing in our backyards in the middle of the night peering at the sky above, so why do we reach for the stars? I believe that in the “faster, better, cheaper” society we live in today, to go out and observe is not only relaxing, but extremely rewarding and awe inspiring. Even the armchair astronomer who does not actually observe can be fully immersed in the amazing world of star clusters, enhancing their knowledge and understanding of the Universe around us, yet he is no less an amateur astronomer.

Did you know that the word “amateur” actually originates from a Latin French phrase, and literally translated means “to love” – what better reason do you need?

Mark Allison

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One of the biggest challenges I faced whilst writing this book was collecting and obtaining authorisation to use material from many sources. I hope I have included everyone that helped me in this quest, and apologise if I have inadvertently left anyone unmentioned. Any errors or omissions are unforgivable, but could perhaps be addressed in a future or revised edition.

As a “mere” observer of these fascinating star clusters, I would like to give full credit to the many professional and amateur astronomers who perform real science, actually make discoveries and work relentlessly to publish and share

their catalogues and data. The study of astronomy benefits immensely from this kind of input at all levels, and without it, a book such as this simply could not be produced.

Image Credits

Tony O'Sullivan, deep sky enthusiast and avid CCD imager supplied most of the superb amateur CCD images in this book. They were imaged using a variety of telescopes from a 135mm telescopic lens, to a 4" f5 refractor, and a 10-inch SCT. These images represent what is realistically achievable from a suburban environment using typical amateur equipment and short exposures between 30 seconds and a few minutes, and have not been subjected to any serious image manipulation.

Cliff Meredith also produced various high quality cluster images for inclusion, using an 8" SCT telescope and several mono CCD devices.

The professional images are taken from the Digitised Sky Survey (DSS); an all sky digital programme carried out in both hemispheres.

Southern Hemisphere – The use of these images is courtesy of the UK Schmidt telescope, the Particle Physics and Astronomy Research Council of the UK and the Anglo Australian Telescope Board. The Digitised Sky Survey was created by the Space Telescope Science Institute, operated by AURA Inc, for NASA, and is reproduced here with permission from the Royal Observatory, Edinburgh.

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