

Astrophotography On The Go Using Short Exposures With Light Mounts

From planetary movements and the exploration of our solar system to black holes and dark matter, this comprehensive reference simplifies all aspects of astronomy with an approachable question-and-answer format. With chapters broken into various astronomical studies—including the universe, galaxies, planets, and space exploration—this fully updated resource is an ideal companion for students, teachers, and amateur astronomers, answering more than 1,00 questions, such as Is the universe infinite? What would happen to you if you fell onto a black hole? What are the basic concepts of Einstein's special theory of relativity? and Who was the first person in space?

Author Joseph Ashley explains video astronomy's many benefits in this comprehensive reference guide for amateurs. Video astronomy offers a wonderful way to see objects in far greater detail than is possible through an eyepiece, and the ability to use the modern, entry-level video camera to image deep space objects is a wonderful development for urban astronomers in particular, as it helps sidestep the issue of light pollution. The author addresses both the positive attributes of these cameras for deep space imaging as well as the limitations, such as amp glow. The equipment needed for imaging as well how it is configured is identified with hook-up diagrams and photographs. Imaging techniques are discussed together with image processing (stacking and image enhancement). Video astronomy has evolved to offer great results and great ease of use, and both novices and more experienced amateurs can use this book to find the set-up that works best for them. Flexible and portable, they open up a whole new way of seeing space.

Like everyone else, most amateur astronomers live busy lives. After a long day or work or looking after young children, the last thing you want as an observer is to have to lug out a large telescope and spend an hour getting it ready before it can be used. Maybe you are going on vacation somewhere in the countryside where there are sure to be dark skies, but you don't necessarily want astronomy to dominate the trip. Or suppose you are not quite committed to owning a large telescope, but curious enough to see what a smaller, portable setup can accomplish. There are times you grab a "grab 'n' go" telescope, or even a pair of binoculars, is the ideal instrument. And this book can guide you in choosing and best utilizing that equipment. What makes a telescope fall into the "grab 'n' go" category? That's easy – speed of setting up, ease of use, and above all portability. In Part I of this book, we survey the various types of equipment, including accessories and mounts, that are available, and what it is best for what kind of viewing. Part II is about using your grab 'n' go telescope to visit a wealth and wide variety of objects. There are chapters on solar, lunar and planetary observing, as well as descriptions of many deep sky objects, including double and variable stars, planetary, emission and reflection nebulae, open and globular clusters and distant galaxies. This ambitious text is dedicated to those who love to or – because of their limited time – must observe the sky at a moment's notice, whether from the comfort of a backyard or while on business or vacation far from home. Everything you need to know is here. So get started!

The Astrophotography Manual, Second Edition is for photographers ready to move beyond standard SLR cameras and editing software to create beautiful images of nebulas, galaxies, clusters, and the stars. Beginning with a brief astronomy primer, this book takes readers through the full astrophotography process, from choosing and using equipment to image capture, calibration, and processing. This combination of technical background and hands-on approach brings the science down to earth, with practical methods to ensure success. This second edition now includes: Over 170 pages of new content within 22 new chapters, with 600 full-color illustrations. Covers a wide range of hardware, including mobile devices, remote control and new technologies. Further insights into leading software, including automation, Sequence Generator Pro and PixInsight Ground-breaking practical chapters on hardware and software as well as alternative astrophotography pursuits Making Beautiful Deep-Sky Images A Guide for Amateur Astronomers

Digital SLR Astrophotography
Philip's Astrophotography With Mark Thompson
Astrophotography

The Art of Astrophotography
This new book is for amateur astronomers with a firm grounding in the basics and successful use of digital astrophotography. Provides examples of the best images, and gives readers hints and tips about how to get the best out of this extraordinary technology. Experts in CCD astronomy from North America and Europe have contributed to this book, illustrating their help and advice with many beautiful colour images – the book is in full color throughout. Techniques range from using simple webcams to highly technical aspects such as supernovae patrolling. Computer processing, stacking and image-enhancement are detailed, along with many hints and tips from the experts. Enrich your next sea vacation with this fun how-to guide to observing and doing astrophotography on water. Collecting together the author's five decades of astrophotography and teaching experience, this book shares all the practical information you will need to start on your own astronomy adventure. Part I is full of practical advice on what to pack, the best ways to enjoy the night sky from your cruise ship observatory, specific astronomical objects and events to look out for, and myriad other useful tips. Part II gives you a crash course on astrophotography at sea, teaching you the nitty-gritty details of taking pictures of the night sky. Proof that it can be done is provided by the many amazing color astrophotographs taken by the author while following the steps laid out in this book.

For all but the simplest star-trail pictures, photographing the night sky involves machinery to track the stars, and the task becomes even more complicated when photographing very small or very faint objects that require high magnification or very long exposure times. Astrophotography for Amateurs presents equipment and techniques, features practical hints and tips from the experts, including coverage of traditional "wet" photography, CCD imaging, and computerized image enhancement. There are sections on photographing different classes of astronomical object from the moon to faint nebulae, as well as a detailed look at the equipment needed.

A definitive handbook to photographing the night sky using DSLR cameras, including projects for both beginners and more advanced enthusiasts.

Astrophotography on the Go
Using Photographs
Astronomy with Schmidt-Type Telescopes
An Introduction to Practical Observing

The Complete Guide to Landscape Astrophotography

Amateur Astrophotography Tells the Story of the Stars

The first handbook that describes how to start observing the sky with a computerized telescope.

In the last few years, digital SLR cameras have taken the astrophotography world by storm. It is now easier to photograph the stars than ever before! They are compact and portable, flexible to adapt with different lenses and for telescope use, and above all DSLR cameras are easy and enjoyable to use. In this concise guide, experienced astrophotography expert Michael Covington outlines the simple, enduring basics that will enable you to get started, and help you get the most from your equipment. He covers a wide selection of equipment, simple and advanced projects, technical considerations and image processing techniques. Unlike other astrophotography books, this one focuses specifically on DSLR cameras, not astronomical CCDs, non-DSLR digital cameras, or film. This guide is ideal for astrophotographers who wish to develop their skills using DSLR cameras and as a friendly introduction to amateur astronomers or photographers curious about photographing the night sky.

No longer are heavy, sturdy, expensive mounts and tripods required to photograph deep space. With today's advances in technology, all that is required is an entry-DSLR and an entry level GoTo telescope. Here is all of the information needed to start photographing the night sky without buying expensive tracking mounts. By using multiple short exposures and combining them with mostly 'freeware' computer programs, the effect of image rotation can be minimized to a point where it is undetectable in normal astrophotography, even for a deep-sky object such as a galaxy or nebula. All the processes, techniques, and equipment needed to use inexpensive, lightweight altazimuth and equatorial mounts and very short exposures photography to image deep space objects are explained, step-by-step, in full detail, supported by clear, easy to understand graphics and photographs. Currently available lightweight mounts and tripods are identified and examined from an economic versus capability perspective to help users determine what camera, telescope, and mount is the best fit for them. A similar analysis is presented for entry-level telescopes and mounts sold as bundled packages by the telescope manufacturers. This book lifts the veil of mystery from the creation of deep space photographs and makes astrophotography affordable and accessible to most amateur astronomers.

Today's photographic equipment allows amateurs to take pictures of the stars that far surpasses images taken just a few decades ago by even the largest observatories-and this book will teach you how. Author and world-renowned astrophotographer Thierry Legault teaches the art and techniques of astrophotography! From simple camera-on-tripod night-scene imaging of constellations, star trails, eclipses, artificial satellites, and polar auroras to more intricate work using specialized equipment for lunar, planetary, solar, and deep-sky imaging, Legault and his associates guide you through techniques to capture and process your images to achieve spectacular results. Astrophotography provides the most thorough treatment of the topic available. This large-format, richly illustrated book is intended for all sky enthusiasts- newcomers and veterans alike. Learn how to! Select the most useful equipment: cameras, adapters, filters, focal reducers/extenders, field correctors, and guide telescopes Set up your camera (digital, video, or CCD) and your lens or telescope for optimal results Plan your observing sessions Mount the camera on your telescope and focus it for razor-sharp images Polar-align your equatorial mount and improve tracking for pin-point star images Make celestial time-lapse videos Calculate the shooting parameters: focal length and ratio, field of view, exposure time, etc. Combine multiples exposures to reveal faint galaxies, nebulae details, elusive planetary structures, and tiny lunar craters Adjust contrast, brightness, light curves, and colors Postprocess your images to fix defects such as vignetting, dust shadows, hot pixels, uneven background, and noise Identify problems with your images and improve your results

Step-by-Step Activities for Discovery
Real Astronomy with Small Telescopes
A User's Guide
Introduction to Webcam Astrophotography
Video Astronomy on the Go
The 100 Best Astrophotography Targets

Although astronomical CCD cameras can be very costly, digital cameras - the kind you use on holiday - on the other hand, are relatively inexpensive. Moreover, their technology - especially thermal noise, sensitivity (ISO number) and resolution - has progressed to a point where such cameras are more than capable of photographing the brighter astronomical objects. Now Tony Buick has teamed up with fellow author and astro imager Phil Pugh, to produce a completely revised, updated, and extended second edition to How to Photograph the Moon and Planets with your Digital Camera, first published in 2006. The revisions take into account changing (and improving) camera technology, and some items which are now available commercially but which previously had to be home-made. The section of solar observing has been expanded to include observing by H-alpha light, and among the many additional sections are photographing the constellations, aurorae, and basic post-imaging processing.

In The Art of Astrophotography, astronomer and Popular Astronomy columnist Jan Morrison provides the essential foundations of how to produce beautiful astronomical images. Every type of astromaging is covered, from images of the Moon and planets, to the constellations, star clusters and nebulae within our Milky Way Galaxy and the faint light of distant galaxies. He achieves this through a series of worked examples and short project walk-throughs, detailing the equipment needed - starting with just a DSLR (digital single lens reflex) camera and a pair of binoculars, and moving on to more advanced equipment as the book progresses - followed by the way to best capture the images and then how, step by step, these may be processed and enhanced to provide results that can rival those seen in astronomical magazines and books. Whether you are just getting into astrophotography or are already deeply involved, Morrison's advice will help you capture and create enticing astronomical images.

Unlike in the past, many of today's inexpensive mail-order catalog telescopes provide excellent value and are proving to be useful instruments. Astronomy with a Mail-Order Telescope provides useful information on some of the available models, along with detailed and essential hints and tips about what to look for when buying. The second part of the book describes how best to use the telescope, which celestial objects to observe (with full-page star charts to help find them), what you can expect to see, and how to take (and even computer enhance) astronomical photographs.

Here is a one-volume guide to just about everything computer-related for amateur astronomers! Today's amateur astronomy is inextricably linked to personal computers. Computer-controlled "go-to" telescopes are inexpensive. CCD and webcam imaging make intensive use of the technology for capturing and processing images. Planetarium software provides information and an easy interface for telescopes. The Internet offers links to other astronomers, information, and software. The list goes on and on. Find out here how to choose the best planetarium program; are commercial versions really better than freeware? Learn how to optimise a go-to telescope, or connect it to a lap-top. Discover how to choose the best webcam and use it with your telescope. Create a mosaic of the Moon, or high-resolution images of the planets. Astronomy with a Home Computer is designed for every amateur astronomer who owns a home computer, whether it is running Microsoft Windows, Mac OS/ or Linux. It doesn't matter what kind of telescope you own either - a small refractor is just as useful as a big "go-to" SCT for most of the projects in this book.

Astrophotography with Affordable Equipment and Software

Exercises in Practical Astronomy

Using Video Cameras With Small Telescopes

Scientific Astrophotography

The Backyard Astronomer's Guide

The Astrophotography Manual

In the last few years webcams astrophotography has exploded onto the astronomy scene. It has rapidly evolved from sript expsire sov=bot bacl-wjote o, ageru amtp long exposure full-color 16-bit per channel magery of such quality that it rivals "conventional" means of astrophotography. Indeed, webcams have become the mehtod of choice for planetary imaging. The message of this book is that you too can participate in this revolution without spending very much money. You do not need to invest \$10,000 in a CCD camera, telescope and software. A basic webcam costs about the same as 'iso-so' eyepiece. Software to control the camera and process the images that will get you going is free. If you have the telescope (practically any telescope that will track) and a computer you are ready. Since you see your results instantly the learning curve is much shorter. Regardless of how you apply a webcam to astrophotography, you will derive a number of benefits. Working with them has been accurately described as interesting, challenging, and fulfilling. Webcams are capable of producing beautiful astrophotos that create a lasting record of your astronomical experience. The book will guide you into this fascinating topic and allow you to become a participant in this latest wave of astrophotography progress.

This book serves as a comprehensive guide for using a Nexstar Evolution mount with WiFi SkyPortal control, walking the reader through the process for aligning and operating the system from a tablet or smartphone. The next generation GoTo mount from Celestron, this is compatible not only with the Nexstar Evolution but also with older mounts. It is the ideal resource for anyone who owns, or is thinking of owning, a Nexstar Evolution telescope, or adapting their existing Celestron mount. Pros and cons of the system are thoroughly covered with a critical depth that addresses any possible question by users. Beginning with a brief history of Go-To telescopes and the genesis of this still new technology, the author covers every aspect of the newly expanding capability in observing. This includes the associated Sky Portal smartphone and tablet application, the transition from the original Nexstar GoTo system to the new SkyPortal system, the use of the Sky Portal application with its Sky Safari 4 basic software and Celestron WiFi adaptations, and discussions on the use of SkyPortal application using the Celestron adapter on older Celestron mounts. Comments and recommendations for equipment enable the reader to successfully use and appreciate the new WiFi capability without becoming overwhelmed. Extensively illustrated using actual screenshots from the program interface, this is the only guide to the Nexstar SkyPortal an observer will need.

There are different facets of astrophotography, but few of them contain all the necessary steps for beginners in one accessible place. Astrophotography is Easy! fills that void, serving as a guide to anybody interested in the subject but starting totally from scratch. Assuming no prior experience, the author runs through the basics for how to take astrophotos using just a camera—including cell phones and tablets—as well as a telescope and more sophisticated equipment. The book includes proven techniques, checklists, safety guidelines, troubleshooting tips, and more. Each chapter builds upon the last, allowing readers to master basic techniques before moving on to more challenging material. Also included is a comprehensive list of additional books and resources on a variety of topics so readers can continue expanding their skills. Astrophotography Is Easy! doesn't simply teach you the basic skills for becoming an astrophotographer: it provides you with the foundations you will need for a lifelong pursuit.

The idea of holding a colloquium on Schmidt telescopes (techniques and science) originated from the observation that, in the last ten years and in spite of the remarkable developments and achievements in this field of astronomical research, there had been no specific opportunity for the experts to meet together, make the point on the state of the art, discuss and coordinate future plans. Therefore, Prof. L. Rosino, one of the pioneers in the use of wide-field telescopes, driven also by the wish of honouring the over four decades of activity of the Asiago Observatory, proposed to the Executive Committee of the International Astronomical Union to sponsor a colloquium on 'Astronomy with Schmidt type telescopes I to be held at Asiago at the end of the summer of 1983. Details about the composition of the Scientific Organizing Committee and the sponsoring organizations are given in Prof. Rosino's 'Welcome to the Participants' • The granting of this proposal was the beginning of a ' number of headaches for the members of the Local Organizing Committee. R.

Barbon, F. Ciatti, P. Rafanelli and myself. If, organizationwise, the colloquium was successful, this is truly due to the generous efforts of my colleagues of the SOC and to the efficient organization of the Linta Park, the hotel hosting the meeting.

A Practical and Scientific Approach to Deep Sky Imaging

Proceedings of the 78th Colloquium of the International Astronomical Union, Asiago, Italy, August 30-September 2, 1983

Astronomy with a Home Computer

Using Short Exposures with Light Mounts

How Amateurs Can Generate and Use Phases Imaging Data

Digital Astrophotography: The State of the Art

Scientific Astrophotography is intended for those amateur astronomers who are looking for new challenges, once they have mastered visual observing and the basic imaging of various astronomical objects. It will also be a useful reference for scientifically inclined observers who want to learn the fundamentals of astrophotography with a firm emphasis on the discipline of scientific imaging. This books is not about making beautiful images; it is about recording astronomical images that are scientifically rigorous and from which accurate data can be extracted. This book is unique in that it gives readers the skills necessary for obtaining excellent images for scientific purposes in a concise and procedurally oriented manner. This not only gets the reader used to a disciplined approach to imaging to maximize quality, but also to maximize the success (and minimize the frustration!) inherent in the pursuit of astrophotography. The knowledge and skills imparted to the reader of this handbook also provide an excellent basis for "beautiful picture" astrophotography! There is a wealth of information in this book - a distillation of ideas and data presented by a diverse set of sources and based on the most recent techniques, equipment, and data available to the amateur astronomer. There are also numerous practical exercises. Scientific Astrophotography is perfect for any amateur astronomer who wants to go beyond just astrophotography and actually contribute to the science of astronomy.

Astrophotography on the GoUsing Short Exposures with Light MountsSpringer
Philip's Astrophotography With Mark Thompson is an essential guide for anyone wishing to photograph or image the stars and planets, written by TV's favourite astronomer. For many people, looking at the sky is not enough and they would love to try and capture what they can see. Until a few years ago, capturing astronomical images was fraught with many challenges, but with the development of digital cameras replacing film, things have become much easier and great astronomical images are now within the reach of even the most novice stargazer. Mark Thompson has spent many years capturing the beauty of the night sky, first with film and now with the digital camera, and has discovered and overcome many of the pitfalls. This book takes the reader on a journey through the world of capturing astronomical images from using the humble mobile phone to specialist cameras, brought to life with Mark's personal experiences and many of his own astronomical images.

Welcome to the first comprehensive guide to one of the world's most popular telescopes: the ShortTube 80 refractor. With its ultra-portability, versatility, and relatively low cost, this telescope continues to delight generations of stargazers. Starting in the field under a dark sky, the author walks the reader through a typical evening of stargazing, where the ShortTube 80 brings many astronomical treasures into focus. From there, he provides an in-depth account of the optical properties of the ShortTube 80 refractor and the accessories and mounting arrangements that maximize its potential both as a spotting 'scope by day and an astronomical 'scope by night. The main text discusses how the versatile ShortTube 80 can be used to study deep sky objects, the Sun, the Moon, bright planets and even high-resolution projects, where the instrument's features can be optimized for the observation of tight double and multiple stars. It explores how the ShortTube 80 can image targets using camera phones, DSLRs and dedicated astronomical CCD imagers. Packed with practical advice gained from years of firsthand stargazing experience, this book demonstrates exactly why ShortTube 80 has remained a firm favorite among amateur astronomers for over three decades, and why it is likely to remain popular for many years to come.

Basics for Beginners

The Stellar Lifecycle

Practical Amateur Astronomy Volume 1

The essential guide to photographing the night sky by TV's favourite astronomer

The Handy Astronomy Answer Book

Understanding, Planning, Creating, and Processing Night-sky Images

Here are clear explanations of how to make superb astronomical deep-sky images using only a DSLR or webcam and an astronomical telescope – no expensive dedicated CCD cameras needed! The book is written for amateur astronomers interested in budget astrophotography – the deep sky, not just the Moon and planets – and for those who want to improve their imaging skills using DSLR and webcams. It is even possible to use existing (non-specialist astronomical equipment) applications such as high resolution planetary and lunar photography, astrometry, photometry, and spectroscopy. The availability of this technology has allowed advanced amateur astronomy techniques to become available to almost anyone willing to take the time to learn a few, simple things. Specialized cooled-chip CCD imagers are capable of superb results in the right hands – but they are all very expensive. If budget is important, the reader is advised on using a standard camera instead. Janson provides techniques useful in acquiring beautiful high-quality images and high level scientific data in one accessible and easy-to-read book. It introduces techniques that will allow the reader to use more economical DSLR cameras – that are of course also used for day-to-day photography – to produce images and data of high quality, without a large cash investment.

This astronomy travel guide examines the many wonderful opportunities for experiencing the observing hobby. Amateur astronomy is often consigned to observing from home or from a local park, yet it can be much more. Tim Treadwell explores all the possibilities of astronomical and space-related activities that are available on day trips and longer vacations. These activities range from observatory visits and other simple ways to build an astronomy event into a holiday, to fully blown specialized astronomy travel. Many trips give the opportunity to visit some of the world's famous attractions. On most vacations it can be a matter of just taking a day (or night) out of your schedule to fit in an astronomy event, but larger, dedicated pilgrimages are also possible. How to make the most of astronomy potential on a holiday, whether observing on the beach in Hawaii with the Telescope Guy or visiting Star City in Russia, is covered in detail. Go to a star party, explore the national parks or see the northern lights! There are a wide variety of activities for all budgets described in this book.

For any amateur interested in astrophotography, particularly if just getting started, it is necessary to know what objects are best for imaging in each month of the year. These are not necessarily the same objects that are the most spectacular or intriguing visually. The camera reveals different things and has different requirements. What objects in the sky tonight are large enough, bright enough, and high enough to be photographed? This book details, for each month of the year, the choicest celestial treasures within the reach of a commercial CCD camera. Helpful hints and advice on framing, exposures, and filters are included. Each deep sky object is explained in beautiful detail, so that observers will gain a richer understanding of these astronomical objects. This is not a book that dwells on the technology of CCD, Webcam, wet, or other types of astrophotography. Neither is it a book about in-depth computer processing of the images (although this topic is included). Detailed discussions of these topics can be found in other publications. This book focuses on what northern latitude objects to image at any given time of the year to get the most spectacular results.

Offering a series of well-defined problems supplemented by solutions, Exercises in Practical Astronomy: Using Photographs presents meaningful practical work in elementary astronomy and astrophysics. The book provides authentic astronomical photographs of very high quality on which different types of objects can be studied with equipment as simple as rulers and protractors. In addition to photographs and a set of exercises that cover 12 topics, the coverage includes ample hints and worked solutions that are designed to enable students to work independently. SI units are used for physical data and in conversions of astronomical quantities. This book is one of the few to use real rather than idealized or simplified data in the problems.

A Monthly Guide for CCD Imaging with Amateur Telescopes

Budget Astrophotography

A Practical and Scientific Approach to Deep Space Imaging

Imaging the Universe with the Amazing Affordable Webcam

Astrophotography is Easy!

The touchstone for contemporary stargazers. This classic, groundbreaking guide has been the go-to field guide for both beginning and experienced amateur astronomers for nearly 30 years. The fourth edition brings Terence Dickinson and Alan Dyer's invaluable manual completely up-to-date. Setting a new standard for astronomy guides, it will serve as the touchstone for the next generation of stargazers as well as longtime devotees. Technology and astronomical understanding are evolving at a breathtaking clip, and to reflect the latest information about observing techniques and equipment, this massively revised and expanded edition has been completely rebuilt (an additional 48 pages brings the page count to 416). Illustrated throughout with all-new photographs and star charts, this edition boasts a refreshed design and features five brand-new chapters, including three essential essays on binocular, telescope and Moon tours by renowned astronomy writer Ken Hewitt-White. Updated chapters on binoculars, night sights, LED lighting technology, WiFi-enabled telescopes and the latest advances in binoculars, telescopes and other astronomical gear, the fourth edition of The Backyard Astronomer's Guide is sure to become an indispensable reference for all levels of stargazers. New techniques for observing the Sun, the Moon and solar and lunar eclipses are an especially timely addition, given the upcoming solar eclipses in 2023 and 2024. Rounding out these impressive offerings are new sections on dark sky reserves, astro-tourism, modern astrophotography and cellphone astrophotography, making this book an enduring must-have guide for anyone looking to improve his or her astronomical viewing experience. The Backyard Astronomer's Guide also features a foreword by Dr. Sara Seager, a Canadian-American astrophysicist and planetary scientist at the Massachusetts Institute of Technology and an internationally recognized expert in the search for exoplanets.

The Astrophotography Manual is for those photographers who aspire to move beyond using standard SLR cameras and editing software, and who are ready to create beautiful images of nebulas, galaxies, clusters, and the solar system. Beginning with a brief astronomy primer, this book takes readers through the full astrophotography process, from choosing and using equipment through image capture, calibration, and processing. This combination of technical background information and the hands-on approach brings the science down to earth with a practical method to plan success. Features include: Over 400 images, graphs, and tables to illustrate these concepts A wide range of hardware to be used, including smartphones, tablets, and the latest mount technologies How to utilize a variety of leading software such as Maxim DL, Nebulosity, Sequence Generator Pro, Photoshp, and PixInsight Case studies showing how and when to use certain tools and overcoming technical challenges How sensor performance and light pollution relate to image quality and exposure planning This book demonstrates the use of an 80mm refractor and shows how it can be used as a real scientific instrument. The author is an experienced small telescope user and an astronomy educator, and he provides step-by-step instructions for numerous scientific activities. Users will find many activities and projects suitable for an 80mm refractor or 90mm reflector or Maksutov that have not been published elsewhere. Emphasis is on measurement and discovery activities rather than on casual observing. This book will provide amateur observers with the knowledge and skill that will help them make genuine contributions to the field of astronomy.

The Complete Guide to Landscape Astrophotography is the ultimate manual for anyone looking to create spectacular landscape astrophotography images. By explaining the science of landscape astrophotography in clear and straightforward language, it provides insights into phenomena such as the appearance or absence of the Milky Way, the moon, and constellations. This unique approach, which combines the underlying scientific principles of astronomy with those of photography, will help deepen your understanding and give you the tools you need to fulfill your artistic vision. Key features include: • Distinguished Guest Gallery of images from renowned nightscape photographers such as Babak Tafreshi, Bryan Peterson, Alan Dyer, Brenda Tharp, Royce Bar, Wally Paschotka, and David Kingham • The twenty-five best landscape astrophotography subjects and how to photograph them • Astronomy 101 - build your knowledge of night sky objects and their motion: the Milky Way, Moon, Aurora Borealis/Aurora, constellations, meteors and comets • Information on state-of-the-art planning software and apps designed to enable you to capture and enhance your landscape astrophotography • Field guide for creating a detailed plan for your night shoot • Description of the best moon phases for specific types of nightscape images, and the best months and times of night to see the Milky Way • How-to guide for creating stunning time-lapse videos of the night sky, including

Viewing and Imaging the Solar System

How to Use the Star Book TEN and the Original Star Book

The Vixen Star Book User Guide

Practical Astrophotography

Cruise Ship Astronomy and Astrophotography

How to Get the Most Out of Astronomy in Your Leisure Time

Astronomy with a Budget Telescope, 2nd Edition is a complete introduction to buying and using a low-cost amateur astronomical telescope. It provides essential hints and tips about what to look for when buying on a budget - the best are now excellent value, but they all lack an astronomer's advice about setting them up and using them. Astronomy with a Budget Telescope was first published in 2003, since then technology has moved on substantially. The main factors are first the availability of fairly inexpensive computer-controlled "go-to" telescopes which after setting up can automatically locate any celestial objects with reasonable accuracy. Second, digital cameras have now almost completely displaced "wet" film cameras, and some of them are particularly well-suited to astronomical use. Third, prices are down and quality is up! This new edition is revised and extended to include using a low-cost "go-to" telescope - there are various pitfalls to be avoided - and how this class of instrument can make amateur astronomy more accessible to those with limited time at their disposal. It also discusses the new breed of mid-range digital cameras that include powerful on-board processing and image enhancement software that need to be available only on advanced astronomical CCD cameras. Finally, there are detailed reviews and test reports on some of the budget telescopes that are available on Main Street and by mail order.

Astronomy Hacks begins the space exploration by getting you set up with the right equipment for observing and admiring the stars in an urban setting. Along for the trip are first rate tips for making most of observations. The hacks show you how to: Dark-Adapt Your Notebook Computer. Choose the Best Binocular. Clean Your Eyepieces and Lenses Safely. Upgrade Your Optical Finder. Photograph the Stars with Basic Equipment. Viewing and Imaging the Solar System. A Guide for Amateur Astronomers is for those who want to develop their ability to observe and image Solar System objects, including the planets and moons, the Sun, and comets and asteroids. They might be beginners, or they may have already owned and used an astronomical telescope for a year or more. Newcomers are almost always wowed by sights such as the rings of Saturn and the moons of Jupiter, but have little idea how to find these objects for themselves (with the obvious exceptions of the Sun and Moon). They also need guidance about what equipment, besides a telescope, they will need. This book is written by an expert on the Solar System, who has had a lot of experience with outreach programs, which teach others how to make the most of relatively simple and low-cost equipment. That does not mean that this book is not for serious amateurs. On the contrary, it is designed to show amateur astronomers, in a relatively light-hearted—and math-free way—how to become serious.

This book is for anyone who owns, or is thinking of owning, a Vixen Star Book Ten telescope mount or its predecessor. A revolution in amateur astronomy has occurred in the past decade with the wide availability of high tech, computer-driven, Go-To telescopes. Vixen Optics is leading the way by offering the Star Book Ten system, with its unique star map graphics software. The Star Book Ten is the latest version of computer telescope control using star map graphics as a user interface, first introduced in the original Star Book first offered in 2003. The increasingly complicated nature of this software means that learning to optimize this program is not a trivial task, and yet the resulting views when all features are correctly deployed can be phenomenal. After a short history of computerized Go-To telescopes for the consumer amateur astronomer market, Chen offers a treasury of technical information. His advice, tips, and solutions aid the user in getting the most out of the Star Book Ten system in observing sessions.

Astronomy with a Budget Telescope

Astronomy Hacks

Grab 'n' Go Astronomy

The NexStar Evolution and SkyPortal User's Guide

How to Use a Computerized Telescope

Astronomy Adventures and Vacations

This book is a practical guide to imaging and understanding the life-cycle of stars. As a keen amateur astronomer, with over 30 years experience imaging the night sky, Jeremy uses the story of stellar evolution as an effective platform to illustrate how amateur photographers can capture beautiful images of the night sky including glowing gases, dark dust, amazing multiple star systems, clusters of stars, stunning galaxies, ageing super-massive stars and the spectacular death of a star as a supernova. It tells the story of star birth, growth, ageing and death, giving a simple explanation of the complex physics of nuclear fusion that ultimately leads to the development of the elements required for life. Whilst not professing to be an academic textbook, the book is likely to appeal to those with a general interest in astronomy looking to grasp the basic concepts of stellar physics. There are over 70 full-colour images presented by the author, with details of equipment used, exposure details and an explanation of how the image was processed. In addition being an introduction to the technical aspects of astrophysics, it works as a coffee-table presentation of the wonders of the universe. The aim of the book is to encourage beginners to have a go at astrophotography, starting with basic photographic equipment and progressing through to more advanced and complex imaging techniques. Before introducing the story of the stars, the book explains why astrophotography can be a challenging but rewarding hobby, with a clear discussion of the methods used to overcome these inherent difficulties. Appendix I is a heartfelt description of how the author progressed from being a young teenager with no experience, through to an accomplished astrophotographer producing stunning images. Detailed tutorials are provided in Appendices II & III for the novice and for those looking to progress to more advanced imaging, with step by step instructions of how to use freely available imaging software and tips on how to use commercially available packages like Photoshop and PixInsight. The author's main intent, to enthuse budding astrophotographers and help them along in their own journey, is clear in the presentation style and content. With a wide range of hints and tips and a great collection of showcase images, this book will appeal to a broad cross section of readers.

This book is based around the author 's beautiful and sometimes awe-inspiring color images and mosaics of deep-sky objects. The book describes how similar "Hubble class" images can be created by amateur astronomers in their back garden using commercially available telescopes and CCD cameras. Subsequent processing and image enhancement in the "electronic darkroom" is covered in detail as well. A range of telescopes and equipment is considered, from the author 's 11-inch with Hyperstar camera, down to more affordable instruments. Appendices provide links to free software – not available from a single source – and are themselves an invaluable resource.

How to Photograph the Moon and Planets with Your Digital Camera

The ShortTube 80 Telescope

Imaging with Your DSLR or Webcam