ASTROPHOTGRAPHY RESOURCE GUIDE

Prepared for the Creative Camera Club

ABSTRACT

An easy to use guide to astrophotography compiled in list form. Embedded hyperlinks will allow you to jump directly to referenced information.

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Getting Started

A good place to start is at the beginning. These links will help you get started with astrophotography.

Astrophotography Tips & Techniques

To put it simply, astrophotography is the art of shooting astronomical or celestial objects. Subjects range from merely using the night sky to make landscape pictures pop to taking super sharp and close up images of distant galaxies.

Beginner Astrophotography Tips: How to Get Started

If you're interested in capturing photos of the night sky, these beginner astrophotography tips will guide you on your way. I'll explain how to take your very first photo of the stars, the Milky Way, and even deep-sky galaxies, nebulae, and star clusters. There are many different types of astrophotography, from wide-angle Milky Way photography to deep-sky photography through an astronomical telescope

Easy Astrophotography Tips for Beginners – PhotographyTalk

If you're like a lot of other photographers, when the light grows dim, you pack up your gear and head inside. It's a natural reaction - after all, it's hard enough to take a great photo during the day and trying to get quality nighttime shots is even more difficult. Or so it would seem...

A Beginner's Guide to DLR Astrophotography

Learn how to use your DSLR for astrophotography! This is the first course in our series that will cover the basics: What you need, how to shoot, why editing matters and more. Two very important aspects of your camera you should know before starting are f/stops and shutter speeds.

Photographing the Night Sky - Shooting the Milky Way

Before the shoot, you'll want to find out where the moon and Milky Way will be in the sky. Apps like Star Walk and Heavens Above, the website www.astronomy.org, and Stellarium, a free desktop planetarium, will show you where in the sky you can see the Milky Way or the moon. See the Resources section at the end of the book for more good sources of information.

YouTube Channels/Tutorials

It's the easiest way to learn these days! YouTube has a wealth of free and paid astrophotography training available on a variety of topics.

Peter Zelinka

My goal is to help the average person learn more about astrophotography, without having to invest thousands of dollars in new equipment

Astro Backyard (Trevor Jones)

This channel is all about astrophotography. I'll take you with me as I shoot nebulae, galaxies and star clusters with my camera and telescope in the backyard.

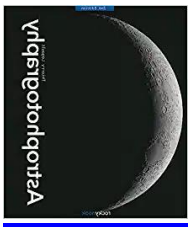
Star Stuff (Dylan O'Donnell)

In this, my first and only YouTube channel, you will find a mix of astronomy and science resource videos, original and cover music, photography and videography and general kinetic creativity!

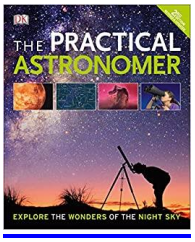
Astrophotography Books

Astrophotography is a broad topic so we have provided a variety of books to meet your needs.

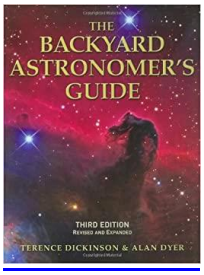
Digital SLR Astrophotography Second Edition by Michael A Covington



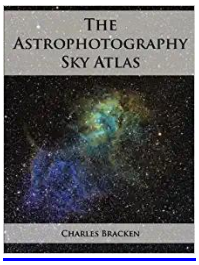
Astrophotography Second Edition, by Thierry Legault



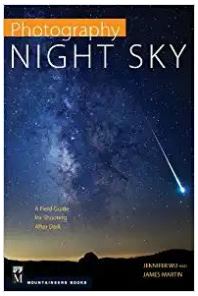
The Practical Astronomer Second Edition, by Anton Vamplew



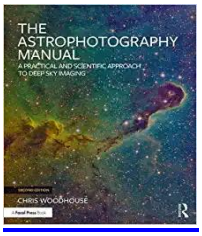
The Backyard Astronomers Guide, by Terrance Dickinson and Alan Dyer



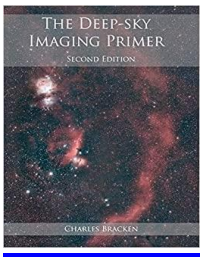
The Astrophotography Sky Atlas, by Charles Bracken



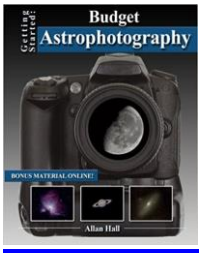
[Photography: Night Sky. A Field Guide for Shooting After Dark, by Jennifer Wu & James Martin]



[The Astrophotography Manual, by Chris Woodhouse]

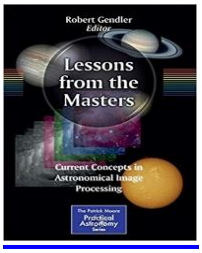


[The Deep-Sky Imaging Primer (Second Edition), by Charles Bracken]

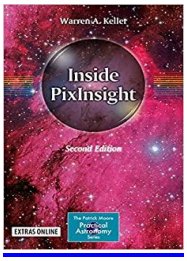


[Getting Started: Budget Astrophotography, by Allan Hall]

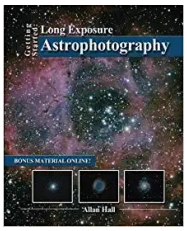
[1,001 Celestial Wonders to See Before You Die by Michael E. Bakich]



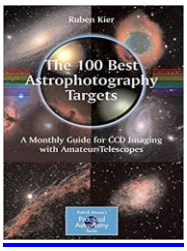
[Lessons from the Masters: Current Concepts in Astronomical Image Processing]



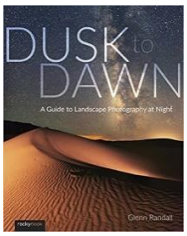
[Inside PixInsight (Second Edition) by Warren A. Keller]



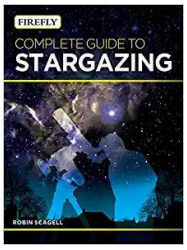
[Getting Started: Long Exposure Astrophotography by, Allan Hall]



[The 100 Best Astrophotography Targets by Ruben Kier]



[Dusk to Dawn A guide to Landscape Photography at Night by Glenn Randall]



[Complete Guide to Stargazing by Robin Scagell]

Essential Astronomy Apps

Your phone is much more than a flashlight when you're shooting at night. From checking the weather to finding your shooting target and aligning a star tracker, there are plenty of apps ready to help.

Stellarium (IOS/Android, Free)

Stellarium Mobile is a planetarium app that shows exactly what you see when you look up at the stars. Identify stars, constellations, planets, comets, satellites (such as the ISS), and other deep sky objects in real-time in the sky above you in just a few seconds, just by pointing the phone at the sky.

Polar Scope Align Pro (IOS, Free)

Polar Scope Align will calculate the position of Polaris or σ Octantis in your Polar Scope reticle for your location (using your phone's GPS or entering a location), allowing a quick and accurate polar alignment.

SkySafari 6 Pro (IOS, Android, Free)

SkySafari 6 Pro will revolutionize your astronomical viewing experience. It has the largest database of any astronomy app, includes every solar system object ever discovered, offers unparalleled accuracy, and Augmented Reality (AR) mode, and provides the very best experience under the stars when you depend on it.

PhotoPills (IOS/Android, $10)

Unlock your creative potential! Discover how to easily turn any Sun, Moon and Milky Way scene you imagine into a real picture and start shooting truly legendary photos every time you pick up the camera.

Clear Outside (IOS/Android, Free)

Reliable weather forecasts for astronomers with an emphasis on cloud cover. Updated hourly. Frequent hourly updates are important because often the clear spell between showers provides excellent seeing and 30-minutes under a clear sky with a grab-&-go telescope is pure gold!

ISS Detector (IOS/Android, Free/$3)

ISS Detector will tell you when and where to look for the ISS. You get an alarm a few minutes before a pass. You will never miss it. ISS Detector will also check if the weather conditions are right. A clear sky is perfect for spotting.

The Moon (IOS, Free)

Moon Phases Calendar - universal lunar calendar for any Locations from 0001 to 2100 years. Lunar calendar is one of the oldest calendars in modern society. A lunar month can only be 29 or 30 days long. This is different than a solar based calendar, where the length is arbitrarily fixed.

Star Tracker Lite (IOS/Android, Free)

Let Star Tracker Lite guide you to explore the universe. Just hold up and point the device to the sky and have fun! You can see any stars, constellations and deep sky objects you are watching in reality.

Image Processing Software

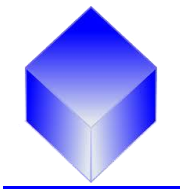
There are many programs available to process the images that you take. The choice often depends on what you are shooting (deep sky, planetary, star trails, and landscapes).

DeepSkyStacker (Windows/Mac, Freeware)

DeepSkyStacker is an amazing free program designed for astrophotography. It simplifies the pre-processing steps required to create an astro-photo by automatically registering and stacking your images into one hi-resolution file.

Adobe Photoshop 2020 (Windows/Mac, Commercial)

When it comes to astrophotography, Photoshop allows you to do basic pre-processing, such as (manual) stacking, histogram stretching, noise reduction, sharpening, and the usual tweaks to the final image.



PixInsight (Windows/Mac/Linux, Commercial)

PixInsight is the ultimate software for planetary and deep-sky astrophotography, featuring a complete environment to pre-process and post-process astronomic images. While it has excellent performances, it is rather time-consuming, with a steep learning curve, and it is also quite expensive. But if you are serious about astrophotography, it is highly recommended.

StarStax (Windows & Mac, Freeware)

StarStax is a neat little software to stack images to create star trails. Simple to use, it comes with some interesting features such as a filling gap mode, to create continuous trails, and video for the stacking process.

Sequator (Windows, Freeware)

Sequator is another free and easy to use image stacker. While it is not as powerful as Deep Sky Stacker, it gives good results on deep-sky astrophotography, and it can be used to stack starry landscapes too, where the foreground is visible.

Planetary Imaging PreProcessor (Windows, Freeware)

This is a must-have software to prepare your lunar and planetary images and video for stacking. Among the many functions, it has a planetary detection and can center the target on the frames, crop, and resize the frame and score them based on their quality.

Autostakkert! (Windows, Freeware)

Free image stacker for lunar and planetary work. Fast, easy to use, and reliable is best used in combination with Planetary Imaging PreProcessor. It is not really suitable for deep sky astrophotography nor for starry landscapes.

Starry Sky Stacker (Mac OS/X, Commercial)

Starry Sky Stacker is dedicated to deep-sky astrophotography. From the same author of Starry Landscape Stacker, it shares with it the same easy to use experience and quality results, even if not as sophisticated as Deep Sky Stacker, Astro Pixel Processor or PixInsight.

Starry Landscape Stacker (Mac OS/X, Commercial

If you are a starry landscape photographer and a Mac user, this little software is a must-have. Extremely simple to use, it allows us to properly stack the sky and the foreground independently to create a compelling starry landscape.

Astro Web Sites

You will find inspiration and some creative ideas at some of these web sites!

APOD

Astronomy Picture of the Day. Discover the cosmos! Each day a different image or photograph of our fascinating universe is featured, along with a brief explanation written by a professional astronomer.

Transit-finder.com

This website helps plan observations of the International SpaceStation transit events in front of the Moon and Sun.

Clear Dark Sky

Based on a numerical weather model, Clear Sky Charts are perhaps the most accurate and the most usable forecasters of astronomical observing conditions for over 5300 observatories and observing sites in North America.

Hubble

Embark on a journey of discovery with the Hubble Space Telescope. On April 24, 1990, the space shuttle Discovery lifted off from Earth with its precious cargo, the Hubble Space Telescope. The next day, astronauts released the telescope into space to begin its journey of discovery. No one could have predicted what wonders Hubble would see in the 30 years that followed. From our own cosmic backyard to the far reaches of the universe, Hubble showed us properties of space and time that for most of human history could only be imagined.

AstroBin

AstroBin is an image hosting platform and social network for astrophotographers. Join our World Wide community of over 50,000 members!

Lonely Speck

Hello and welcome to Lonely Speck! We are Ian Norman and Diana Southern, a couple with a passion for photography and travel. Lonely Speck is the home of our night photography and astrophotography adventures.

Slooh.com

Do you wonder what is out there? Join a community of fellow Earthlings looking through powerful telescopes into outer space. Access and control our powerful telescopes from observatories all over the world

Dark Site Finder

If you have never seen a clear, starry sky from a place devoid of light pollution then you don't know what you're missing. With the naked eye alone from a dark site you'll see thousands of stars, meteors, the zodiacal light, airglow, satellites, the Milky Way, nebulas, and occasionally auroras and comets.

Manufacturers

These industry leaders supply equipment to both the beginning astrophotographer and the serious amateur.

ZWO

Our main profile is the design and manufacturing of high speed astronomy cameras, mirrors, telescopes and other accessories for astronomy imaging and observing. We are serving astronomers in the field with our quality products all around the world

Celestron

Celestron has been an optics industry leader for decades, ever since Tom Johnson unveiled the game-changing C8. We strive to continue his legacy by continually developing exciting products with revolutionary technologies.

QHYCCD

QHYCCD designs and manufactures high-performance scientific grade CMOS and CCD cameras. The QHY line of products include thermoelectrically cooled cameras, high- resolution scientific grade cameras, astronomical imaging cameras, digital X-ray machine DR cameras, and solar, industrial and laboratory cameras.

Sky-Watcher

At Sky-Watcher USA we're bringing a whole new experience to owning a telescope. If you're ready for the quality products and attentive service you've been waiting for, then you're ready for Sky-Watcher.

William Optics

William Optics manufactures Refractor telescopes, binoculars, digital camera adapter lenses for telescopes, eyepieces, diagonals and other accessories.

Vixen

The company, Vixen Co., Ltd., is named after the reindeer, the messenger of happiness. Vixen was founded in 1949 as the integrated manufacturer of optical devices like astronomical telescopes, binoculars, and microscopes.

Meade Instruments

Meade Instruments has built its reputation and its products through ground-breaking, industry-leading innovation and precision optics, the hallmark of Meade superiority. You'll find that on every product we make. Meade Instruments is adding technology to all of our products to make them easier and more fun to use. At Meade, we believe in providing a remarkable experience, using technology to make astronomy accessible and enjoyable to everyone, regardless of your experience level.

General Astro Vendors

These online retail suppliers provide a wide range of equipment and devices from several different manufacturers and generally provide end-user support as well.

Agena AstroProducts

Since its founding, Agena has grown at quite a clip - we started off with six products and now offer more than 2,500 unique products from the world's leading astronomy brands! We are pleased to have been given the opportunity to serve thousands of our fellow amateur astronomers in this short time.

Opt Telescopes

OPT carries top-quality telescopes, astronomy cameras, mounts, & astrophotography accessories online. We carry all equipment from any brand you're looking for to understand and engage with the universe in a tangible way.

Orion Telescopes & Binoculars

As an employee-owned company, we pride ourselves on an unswerving commitment to best quality products, value and unmatched customer care. We've been selling direct since 1975 through our colorful mail-order catalog and, since 1997, via our full online catalog. Unlike web-only storefronts, or department stores that sell optics only seasonally, we're specialists in telescopes and binoculars, it's what we do year-round.

High Point Scientific

From the beginning our team knew that the technological portion of our business was going to change rapidly, but our original service-based principals have not. Holding true to that core, today we are making it more convenient than ever for our customers to receive expert product advice, purchase products, return products and sell used equipment.

Astronomy Clubs in Kentucky

Blue Grass Amateur Astronomy Club - Lexington, Kentucky

The Bluegrass Amateur Astronomy Club meets monthly from March to November for an informative program and stargazing at Raven Run Nature Sanctuary in Lexington. We encourage all those in the Bluegrass region who are interested in amateur astronomy to join us; children are welcome.

Louisville Astronomical Society - Louisville, Kentucky

The purpose of the LAS shall be to develop and promote an interest in astronomy among the people of the greater Louisville area. We look forward to meeting you and sharing your interest in the night sky. Members get email reminders of upcoming events! Join us for some Astro fun.

West Kentucky Amateur Astronomers - Dawson Springs, Kentucky

Whether you are a total beginner or advanced amateur, we welcome you to join us at the West Kentucky Amateur Astronomy gatherings. We are a club bound by the love of the night sky. There is no instrument to small nor scope to large for us to enjoy. If you don't have a scope, bring a pair of binoculars and we'll show you how to find things in the night sky you probably didn't know were there. We will also let you look through the club instruments or other scopes on the observing field. If you have a telescope, bring it along if you like. You can set it up, and we'll help you learn to use it if you don't know how. We don't want anyone intimidated by the fear of knowing too little. Astronomy is a lifelong learning adventure and we would love to assist you in learning more about the hobby we all enjoy.