

SOME TIPS FOR PHOTOGRAPHING THE MILKY WAY

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TIMING

You need to choose dates around the new moon. The stars are only visible on a moonless part of the night.

To see the galactic centre, the time of year has to be one of the months from March to October. In March the galactic centre is best seen in the morning, 3 hours before dawn. In April, it appears earlier and is visible after about 10:30. In the winter months the galactic centre will pass overhead.

The arc of the milky way will be seen differently at different times of the year. In March and April, it rises from the horizon. In other months, the arc may be parallel to the horizon.

Use Photo Pills to previsualise the direction and position at any particular time.

LOCATION

Light pollution is a major problem within 50 km of any habitation, although some may help light the horizon. Forget trying to see the milky way in or near a major city. Wilderness is best. Try to include some foreground object that can become a silhouette. Water can reflect the starlight nicely, and will be smoothed out by the long exposure times.

Know your location by visiting it in daylight and deciding the best position to shoot your night images. Stumbling around an unfamiliar location in total darkness is frustrating and likely is dangerous. Try to pick something in the foreground to silhouette against the sky.

EQUIPMENT

An SLR or EVIL (mirrorless) camera mounted on a tripod, with a wide-angle lens (24 mm full frame) is necessary. Ultra-wide angle (16mm) or fish eye lenses can get some great images. The lens should have a large aperture – f/4 will work, but f/2.8 or larger is better.

Know how to find the most important controls of your camera in the dark.

You also need warm clothing, and a torch. A headlamp with a red light is best. White light destroys night vision.

PREPARATION

Pre-set your camera and lenses before you leave home.

Charge your battery and a spare.

Set the mode to manual, aperture to maximum, shutter time to 20 seconds and ISO to 6400. White balance can be pre-set to daylight. Shoot RAW images. Exposure metering won't work. Judge each image as you shoot it. Set the shutter with a 2 second delay – I find fitting the shutter remote switch in the dark a challenge.

Don't use the camera's noise reduction function. This takes up a lot of battery and time.

Focusing in near darkness manually can be difficult and autofocus won't work. Switch the lenses to manual before you leave home. A prime lens can be focused on infinity in good light and the focus ring taped, so you don't disturb it. You could zoom out and focus a zoom in this way and lock both zoom and the focus rings.

SHOOTING AT THE LOCATION

Be safe driving to the location at night time. If it is remote, there is likely to be wildlife on the road. Avoid killing it, or damaging your vehicle.

Set up your gear and shoot.

Focusing on stars using Live View is possible with good cameras, but not every camera has a good enough screen to see the stars. A touch screen really helps, rather than trying to find buttons and dials.

If your shutter mysteriously won't fire, check you have the focus set to manual. Autofocusing won't work in pitch darkness, and the shutter refuses to open as the lens hunts around trying to find something to focus on.

Check your image to see if it is sharp, and includes the foreground interest you want.

Vary the shutter time or ISO to change the exposure. Keep aperture at its maximum size.

A long shutter time will result in the stars showing as streaks instead of points, because the Earth rotates surprisingly quickly. To avoid this the shutter time should be less than 500 divided by the focal length of your lens in seconds. Astronomers use a rotating mechanism to overcome his effect.

IMAGE DEVELOPMENT

Image processing is as for normal images, except that noise reduction is necessary. It depends on your camera's sensor how effectively this is done. A modern high end full frame camera (eg Canon EOS 5D Mk VI) has a sensor that shows little noise at ISO 6400, and Lightroom can easily handle it. Older or less expensive cameras may suffer significant noise. Photoshop plug-ins such as Nik Define 2 may well do a better job than Lightroom or Photoshop.

Noise is from two different sources. The high ISO setting is one, but there is additional noise because of the long shutter time. The sensor heats up during this time.

Try using Lightroom's Dehaze filter to remove haze.