Milky Way Photography

Camera Settings

To photograph low light subjects such as the Milky Way, as much light as possible is needed on the camera sensor to illuminate the stars.

A wide aperture of f2.8 - f4.0 is required

High ISO, ISO 1600 - 6400, depends on how clear the sky is from light pollution (ie town lights etc). Stars will have more colour the higher the ISO, but will also have more noise.

Long shutter speed which depends on sensor size and lens size. Too long a shutter speed gives star trailing. For example, a 14mm lens on a full frame sensor camera can have a shutter speed of 35.7 secs before star trailing occurs, a 24mm lens is 20.8 secs, a 50mm lens is 10 secs.
A 2/3 size sensor with a 14mm lens is 23.8 secs.
This calculation can be done using the 500 rule, 500 divided by lens size and divided by sensor size.

Focus is usually set around the start of infinity in manual focus mode. A torch on an object in the distance can be used to pre-focus and then put into manual focus.

White balance can be auto, but if you want to play around 3500K - 5000K.

Lighting the foreground

There are a number of methods to light the foreground and care must be taken to not overexpose the foreground due to the long exposure time.

Using a torch to paint in the foreground can produce a great effect, but it is hard to get an even light spread over all the foreground.

A fixed light gives an even light over the foreground but is hard to set up to get the right amount of light.

Using the moon (up to 20% moon) can give a good effect but stars will be less bright and sky will be bluer.

Using a foreground shot at dusk with low ISO and using photoshop to merge

night and dusk shots.

Finding a good spot to capture the Milky Way

Use a program such as Stellarium to predict where the Milky Way will be when you intend to photograph it. Depending on where it will be you can then work out the foreground to suit with the Milky Way's position. A phone App such as Sky Map can be used at the spot to determine exactly how the Milky Way and foreground will be positioned.

Light pollution has a detrimental effect on Milky Way photos, so choose a spot where townships, street lights, car lights will have minimal effect.

Star Trailing

Star trailing can be done by either an extremely long exposure, but has the problem of overexposure, or by taking multiple shots and stacking in Photoshop or a dedicated program such as StarStaX.

What you will need

Camera and wide angle lens,
Tripod,
Intervalometer or remote shutter (to prevent vibration),
Lens heater (optional but handy to prevent lens misting),
Torch,
Head lamp,
Fold-up chair,
Warm clothes,
Food and drink,
Phone,
Insect repellant.