

Joe Burdett - *ASTROPHOTOGRAPHY CHEAT SHEET.*

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Following his informative workshop photographing the Milky Way at Birling Gap, Joe Burdett has kindly provided the following instructions to remind attendees of what they learnt during the session.

CAMERA SETTINGS;

Aperture; set to Max (widest open). F/1.4 or /1.8 is best but anything down to around F/4.0 is suitable for milkyway.

ISO; start at ISO 1600. Depending on the max aperture of your lens and the low light capabilities of your camera this may be lowered reducing noise but for best results balance it with shutter speed. If your shutter speed can be shortened up your ISO, or if you can lengthen your shutter speed lower your ISO. (Consider anything in the range of 800-3200, maybe higher with Sony A7sii which is designed for low light).

Shutter Speed; consider the Rule of 500

Rule of 500. The rule of 500 is applied in order to stop your image containing light trails from Stars as they move across your frame.

Example 1; 24mm prime lens on a camera with a full frame sensor. (Canon 5dmkiv / NikonD800 / Sony A7Rii etc)

$500 \div 24 = 20.8$ therefore your shutter speed is 20 for optimum star sharpness.

Example 2; 12mm prime lens on a camera with a cropped sensor. (Nikon d7200 / Canon80d / Fujifilm X-T1 / Sony A6300

$500 \div (12 \times 1.5 (1.6 \text{ for Canon})) < \text{crop factor}$

$500 \div 18 (19.2 \text{ with Canon}) = 27.7 (26.0)$ therefore your shutter speed is 25 for optimum star sharpness.

Example 3; 16-55 zoom lens on a micro-four-thirds camera (Panasonic GH4 / Olympus Om1 etc) shot at wide focal length of 16mm)

$500 \div (16 \times 2) < \text{crop factor}$

$500 \div 32 = 15.63$ therefore your shutter speed is 15 for optimal star sharpness.

Other;

TURN LONG EXPOSURE NOISE REDUCTION OFF (LE NR)

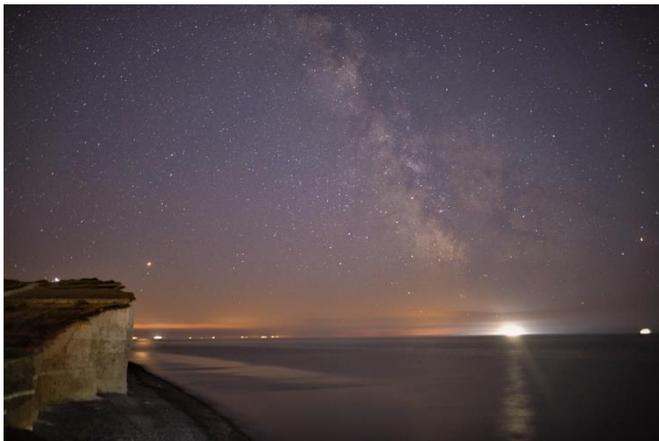
TURN IN CAMERA STABILATION (VIBRATION REDUCTION) OFF

Bring a sturdy tripod. In windy conditions consider weighing it down to reduce camera shake.

Focusing;

Set your camera and lens to manual focus. Using the live view mode zoom in to 100 percent pointing at a bright distant object (try a boat on the horizon ☺ if it is easier to see than a star) to fine tune your focus. Many modern cameras have a focus assist or focus peaking. These are great tools which I could demonstrate further if you have them or need further explanation.

TIME OF YEAR.



The milky way is visible in the UK year round depending on weather and clear skies. In order to photograph the Galactic core ; you have to get out with your camera between late March and late September.

You will also need to make sure you are in a dark sky location. There are several of which that are located around the U.K. Luckily for you Eastbourne is 5 minutes away from one of my favourites.

Moon Phase; The Moon is a massive source of light pollution in the night sky. For the best results photographing the milkyway, pick a night within 3 days before or after a new moon.

Helpful Websites;

Dark Sky Map <http://www.darkskydiscovery.org.uk/dark-sky-discovery-sites/map.html>

Moon Phase <https://www.timeanddate.com/moon/phases/> (also helpful for those of you who love golden hour, sunset or sunrise photography)

Helpful Applications (web or phone)

Location planning <https://app.photoephemeris.com/?ll=53.354729,-1.806073&dt=20180716154600%2B0100>

Photopills App (Google play or iStore)

Stellarium <http://stellarium.org/> (also available on Google play or iStore)

Additional/alternative information;

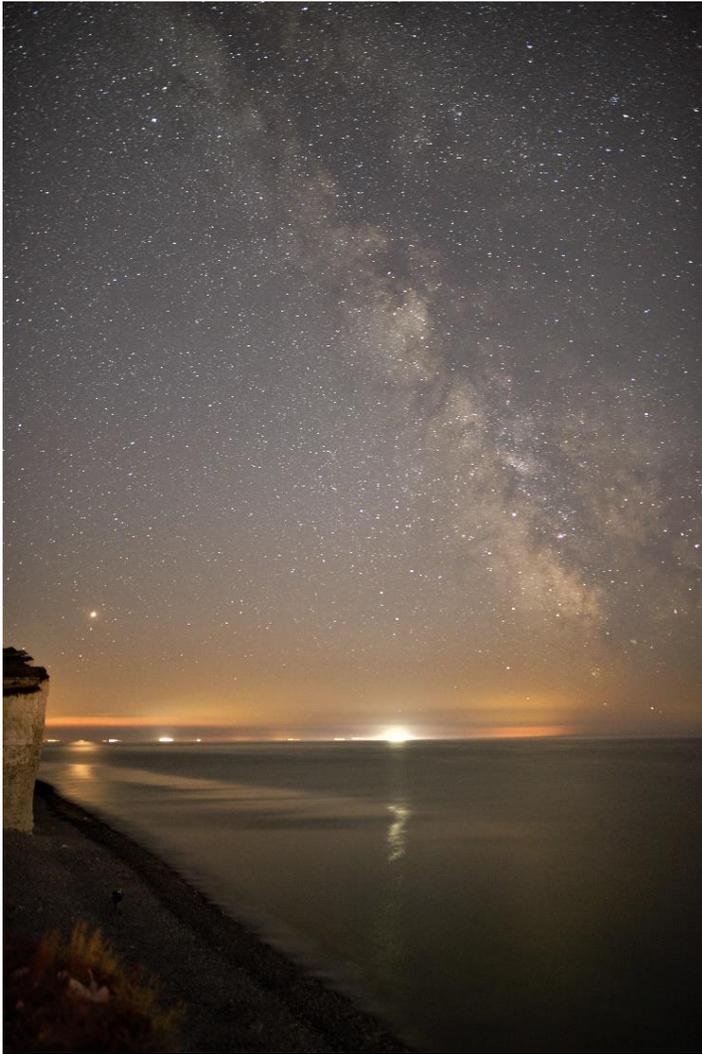
<https://www.lonelyspeck.com/>



NIKON D600 with Sigma 24mm f/1.4 lens.

Manual Mode, Manual Focus, 24mm focal length.

Aperture; f/1.4 Shutter Speed; 20seconds ISO; 1250



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Manual Mode, Manual Focus, 24mm focal length.

Aperture; f/1.4 Shutter Speed; 20seconds ISO; 1250

Shot in portrait orientation using an L bracket.

If any of you are interested I also intend on running a workshop for steel wool spinning and light painting at night. The picture below is an example of one I created once everyone had left on Saturday night down on the beach at Beachy Head.

