

Tips for Photographing Moonrise or Moonset

Copyright Tom Field – May 2010 (Rev B) <http://www.photocentric.net/moonrise.htm>

SELECTING A FOREGROUND SUBJECT

- The moon all by itself doesn't make an interesting photograph (NASA photos excepted). Compose with a foreground subject so that the moon becomes a nice accent to the scene.
 - Ideally, select a foreground subject that lets you shoot from some distance away. Then you can include the rising (or setting) moon with the subject using higher magnification (longer telephoto) to make the moon appear larger and more dramatic.
 - The subject will stand out much better if artificially lit. Consider floodlit buildings and monuments.
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FINDING A LOCATION

- You could use a protractor and ruler to help find a location on the map, but a software application works much better. Google "Photographer's Ephemeris" and download the Windows application (free, but please donate) or the iPhone app (small fee). This amazing tool displays on a detailed map the complete sun and moon angles for any date and time, so you can readily determine where to be. The iPhone app lets you modify your plans in the field where there is cell service. Identify locations where you can frame the moon with your foreground scene.
 - Locations where you can move left or right are preferred. Knowing precisely where the rising moon will appear is quite difficult. When it appears, you may wish to suddenly relocate left or right to make a good composition. I have literally run to my final location once the rising moon appeared.
 - If you use a compass to position yourself, do not forget to correct for the difference between true north and magnetic north. This declination changes over time, so find it for your location on the web. In Washington, D.C., it is about -11° west, so due east (90°) will register a magnetic bearing of 101° . GPS electronic compasses may self-correct when calibrated.
 - In most places, the moon rises and sets at an angle, not straight up and down. It will appear to move left or right rather quickly. You will probably wish to relocate yourself left or right to compensate, and move to continue making good compositions.
 - With moonset, you can see the moon as it falls (at an angle) and position yourself for good shots as it approaches the horizon. For this reason, moonset can be easier to deal with than moonrise.
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TIMING MOONRISE and MOONSET

- Scenes with moonrise or moonset are best photographed near twilight – not full dark, but not daylight.
- Find the time and angle of moonrise (moonset) using astronomical tables or calculator (e.g., in GPS unit). But be aware that the moon may not be visible when near the horizon: up to 20 minutes, depending on atmospheric conditions.
- Find the times of sunset (or sunrise) and civil twilight. See if the moon will rise or set between these times. Usually the best day for moonrise is one day before full moon, and for moonset one day after full moon.
- Moonrise too early: the moon is faint or invisible when it rises, and then it's already up in the sky (away from your foreground subject) when twilight occurs.
- Moonrise too late: the sky is getting too dark by the time the moon appears. The scenic contrast is too great for the camera to capture: the moon and artificial lights are bright but the sky appears black to the camera.
- Moonrise timing just right: the moon appears during what I call "Photographic Twilight." This gives a pretty blue backdrop for the foreground subject and the moon, and there's still some light in the sky to illuminate your subject. The contrast of the scene is low and it's easy to get good exposures.
- Photographic Twilight lasts only a few minutes – longer in summer, which makes summer a better time.
- When the moon appears low on the horizon at twilight, it is tinted a lovely orange-red (just like sunrise). Higher in the sky, the moon will transition through yellow to silver.

WEATHER

- Clear skies are necessary in order to see the moon near the horizon. And clear skies give a nice blue at twilight – hazy skies can reflect city glow and turn the sky an ugly orange.
 - If there are some clouds near sunset, don't despair. Sometimes the sky will clear as twilight approaches.
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EQUIPMENT

- Lens: a medium telephoto zoom (70-200mm or similar) will suffice in most circumstances.
 - Longer telephoto enlarges the moon – more dramatic, but more difficult.
 - With the moon higher in the sky, or a large foreground subject, you'll need shorter telephoto.
 - As the focal length gets shorter, the moon appears smaller in the frame.
 - Tripod: you must use a sturdy tripod – light levels are low and exposure times will be about 1 second.
 - Cable release and/or self-timer (2-second, not 10-second): these tools keep your hands off the camera at exposure time, thus reducing movement which could smear the image.
 - Mirror Lock-up: if your camera has it, this is a good situation to use it.
 - Small flashlight: needed after the shoot to pack your gear and look around for anything that may have dropped. A headlamp frees up both hands. If you cannot operate your camera by feel, you may need a flashlight to find the controls. A dim light should work, and won't spoil your night vision.
 - Clothing: temperatures drop around sunset. Prepare and be comfortable waiting around for moonrise.
 - Insect Repellent: during summer months, biting insects are active at dusk. If using DEET-based repellents, bring wipes to clean your hands before handling equipment (DEET melts plastic).
 - Water if you'll be there a while, and plan ahead regarding Nature Calls.
 - Photo pack or bag: you may move frequently while shooting a moonrise or moonset. Leave your extra gear packed so your hands are free to manage the camera and tripod. Be careful not to lose things in the dark.
 - Lastly: be familiar with all of your equipment ahead of time. Moonrise and moonset happen very quickly – only a few minutes of good shooting. It's nearly dark. This is not the time to start learning new gear.
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CAMERA SETTINGS

- Exposure: manual exposure allows you to control both shutter time and aperture (see below). Meter and expose for the foreground subject (e.g., illuminated building). The rising (or setting) moon will be exposed properly as long as there is still enough twilight in the sky. Light conditions change fast at twilight. As the ambient light falls, you'll find the moon is too bright and your shoot is over. Pay attention to the "blinkies" which show the lunar disk starting to blow out the highlights. You can bracket exposures for later blending, but complete them very quickly so the moon hasn't moved much between frames.
- Remove lens filters and hoods unless you really need them for some reason.
- Shutter: generally keep shutter times in the range of one second. The moon typically moves through the sky by almost a full diameter every two minutes, so when shooting with long telephoto use shorter shutter times (increase ISO) to retain sharp detail in the fast-moving lunar surface. For normal and wide angle, exposures could be slower (say, 4 to 8 seconds), but longer exposures will smear the moon into an oblong instead of a circle.
- Aperture: With a distant foreground and distant moon, depth of field shouldn't be much of a problem. So if you have a good lens and distant foreground, open up! With a low-quality lens, wide-open optical performance is usually poor, so close the aperture a stop or two – not smaller than f/11. If the foreground is close, you may have to stop down more to get both subject and moon sharp, but watch those shutter speeds!
- Flash: turn it off. Unless the foreground is very close, a flash is ineffective. Mixing flash with twilight and moonrise is a fun challenge for advanced photographers.