Tips for Photographing Moonrise or Moonset

By Tom Field – June 2006 (Rev A)
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.

FINDING A LOCATION

- Using the angle (azimuth) of moonrise (moonset) found earlier, plot the direction of moonrise on a map of your location. A school protractor and ruler will suffice for estimating moonrise angles on the map. 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, don't forget to correct for the difference between true north and magnetic north. In Washington DC, the declination is about -10° (10 degrees west of north), so due east (90°) will register a magnetic bearing of 100°. GPS-calibrated compasses may not need correction.
- 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 to continue to make 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.

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).
- 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.

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 Repellant: during summer months, biting insects are active at dusk. If using DEET-based repellants, 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.

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 good twilight in the sky. Light conditions change fast at twilight. Pay attention to the meter and change exposure often if needed.
- Remove lens filters and hoods unless you really need them for some reason.
- Shutter: keep shutter times in the range of one second. For long telephoto, shoot faster to keep sharp detail in the fast-moving moon (increase ISO if necessary). For short telephoto, exposures can be slower (say, 4 to 8 seconds). Longer exposures 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.
- Double exposure: with film, you can expose once for the foreground scene, then shoot the moon to place it artificially into the scene. You can read elsewhere about this technique if interested.
