

Stockton Camera Club

The Shutter Tripper

January 2019

December Digital Images of the Month



Rusty Gear and Flowers

Class A Image of the Month - Sheldon McCormick

Dahlia #3

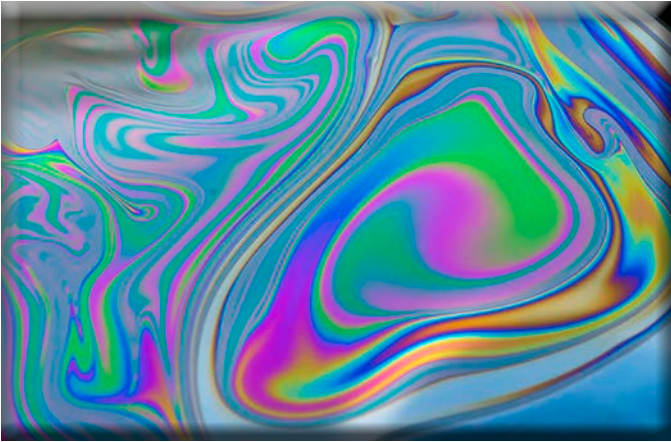
Class AA Image of the Month - Em McLaren



Lovers in Paris

Class AAA Image of the Month - Sharon McLemore

December Print Images of the Month



Soap Bubble #100

Class A Print of the Month - Wayne Carlson



Heart of The Marigold

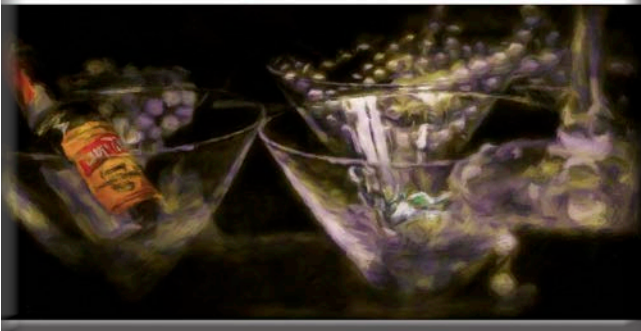
Class AA Print of the Month - Elizabeth Parrish



Swans at Turner Cut

Class AAA Print of the Month - Trey Steinhart

October 10's of the Month



Before and After Martini
Christine Blue



Wild Surf
Dean Taylor



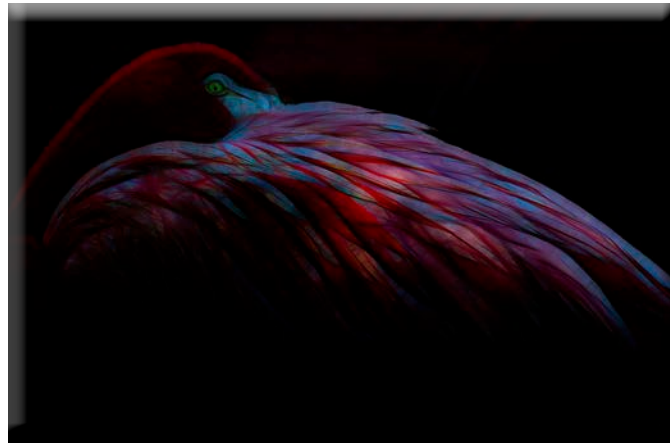
Yuba Splash
Trey Steinhart



Before and After
Heide Stover



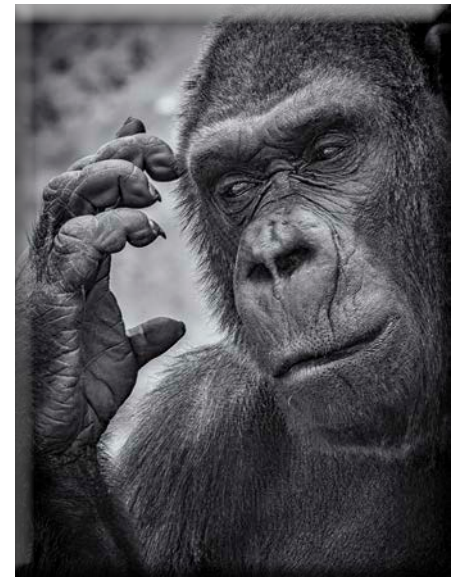
**Before and
After
Joanne Sogsti**



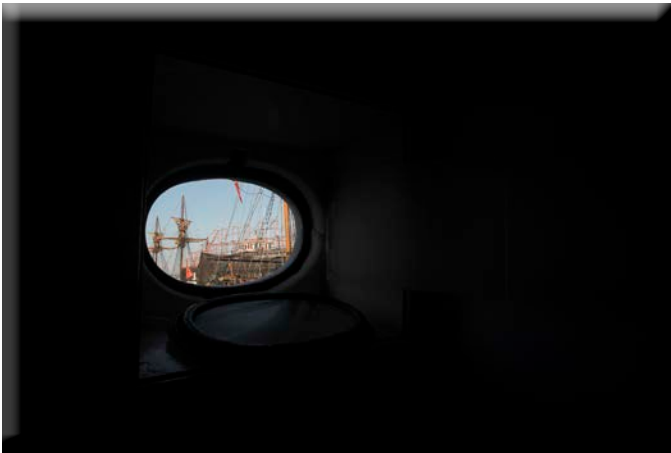
**Flamingo Blues
Christine Blue**



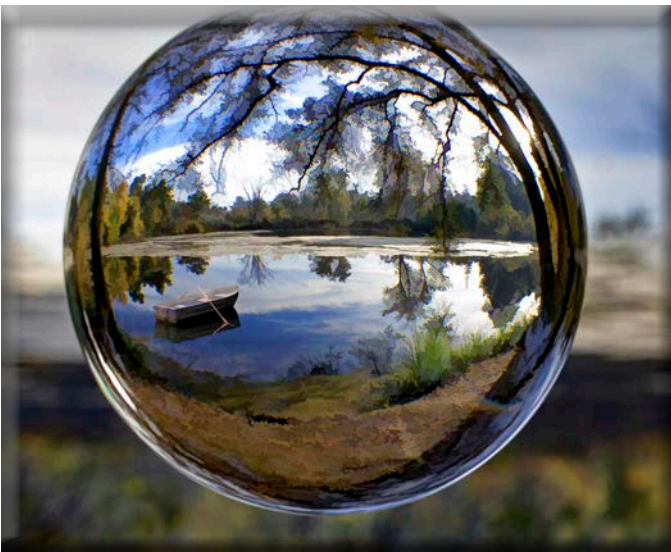
**Aspen in the Evergreens
Heide Stover**



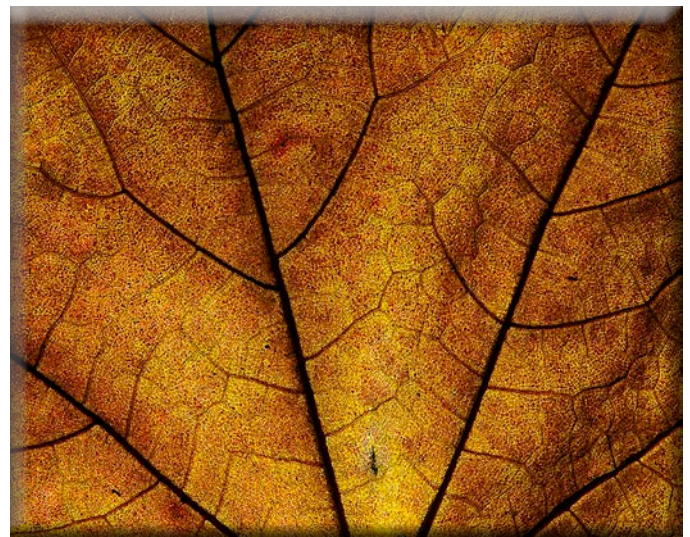
**The Thinker
Dean Taylor**



Before and After
Dean Taylor



**View of the Mokelumne
Through a Crystall Ball**
Joanne Sogsti



The Road to Fall
Wayne Carlson



Drying Mud - Johnson Wash
Dean Taylor



View Through a Fallen Leaf
Joanne Sogsti



Cinque Terra, Italy
Sharon McLemore

December Meeting Notes

Heide opened the meeting. Randall Schantin a new guest was introduced. Heide talked about our club doing very well at the year-end awards at SJVCCC. We were 2nd highest in awards and points for the year over all the other clubs. (See Heide for the list of winners) but congratulations to Heide, Sharon, Dean, Doug and Wayne who all won!

1. Sadly our member Paul Chapman died about 2 weeks ago. The club sent its condolences to his family. His memorial will be held at the Harvest Bible Church. The address is 1088 Hwy. 99 in Stockton. It will be held on Dec. 22 at 11 AM. Please RSVP with Katie Chapman and to get further directions to the church. Her # is 209-390-5539. Paul will be greatly missed!

2. This year's banquet will be held at Wayne Carlson's house in Stockton. The cost is \$20 per person. It will be on the 3rd Thursday of January (January 17). Heide will send out the time and address after you RSVP her and send in the money. Heide's e-mail is: h1stover@aol.com.

3. Doug said the geese are in large numbers now at the San Joaquin Wildlife Refuge by Vernalis. He said if you are interested, please contact him as he will only be able to bring a limited number of people with him. Will meet at the Viewing Platform on Beckwith road on January 3rd at 7 AM. We will carpool into an area not open to the public. Please contact him for further information at: doug_flyfisher@yahoo.com

4. The club voted and approved the new board members for 2019. They are:

Heide Stover – President
Dean Taylor – Program Chairperson,
Wayne Carlson – Competition Chairperson
Em McLaren – Secretary
Sharon McLemore – Treasurer,
Trey Steinhart – Print Competition,
Doug Ridgway – Shutter Tripper,
Janelle DeRuosi – Webmaster,
Mac (Sheldon) McCormick – Refreshments
Chris DeRoos – Hospitality Person

5. Sharon talked about the Annual Camera Club Awards and the winners will be announced at the Banquet in January. She reminded people that 6 entries can be made in Digital: 2 in Black & White, 2 in Open and 2 in Special Subject. 4 entries can be made in Prints: 2 in open and 2 in Black and White. Please contact her for more information at: sfmsap@aol.com

6. Heide is recently recovering from knee surgery and the club wishes her a speedy recovery.

Dean introduced this month's judge, Tom Frazier. He is from the Merced Camera Club and a member of SJVCCC. He is a long-time photographer and has judged many shows including the past Delicato Shows.

Winners of this months PRINT COMPETITION:

CLASS A "Soap Bubble #100" by Wayne Carlson
CLASS AA "Heart of The Marigold" by Elizabeth Parrish
CLASS AAA "Swans at Turner Cut" by Trey Steinhart

Winners of this months DIGITAL COMPETITION:

CLASS A "Rusty Gear and Flowers" by Sheldon McCormick
CLASS AA "Dahlia #3" by Em McLaren
CLASS AAA "Lovers in Paris" by Sharon McLemore

Please let me know if there are any corrections or additions to the notes. The Special Subject for February is GUILTY PLEASURES.

Have a good holiday and Happy New Year! em

SCC Officers 2017

President

Heide Stover

Email: h1stover@aol.com

Vice President Programs

Dean Taylor - 986-9848

Email: ditaylor49@aol.com

Vice President Competition

Wayne Carlson - 912-8442

Email: photowlcrec@gmail.com

Secretary

Em McLaren - 823-7287

Email: emmclaren@comcast.net

Treasurer

Sharon McLemore - 401-0192

Email: sfmsap@aol.com

Committee Chairs

Hospitality Chairperson

Chris DeRoos - 915-3208

Email: deroos420@att.net

Print Competition Chairperson

Trey Steinhart - 471-8438

Email: Steinhart4@sbcglobal.net

Refreshments Chairperson

Sheldon McCormick 931-0461

Email: smccormick11@hotmail.com

Shutter Tripper/Educational

Doug Ridgway - 617-7050

Email: doug_flyfisher@yahoo.com

Web Master

Janelle DeRuosi - 838-1881

Email: jderuosiphotography@gmail.com

President's Message

January 2019

By Heide Stover

I am so sorry that I couldn't stick around for the entire meeting. I would have enjoyed seeing the images and prints and hearing Tom's comments. I did enjoy seeing everyone though and am so pleased that our new members Chris and Brenda just jumped right in to be a strong part of our club. Thank you to Chris for being willing to step up as our hospitality chair and thank you to his wife Brenda for being willing to be his back up! Great way to start a membership! It is active members like this that help to keep the club going!

I am excited about Doug's planned trip on January 3rd and plan on going. I hope others will be able to go as well. I can fit a few people in my car so am willing to take some members with me. Thanks, Doug, for doing such a good job at getting fun things going for us.

The crane sunset was also a great trip.

Roxane and Wayne have stepped up to handle the banquet and I am looking forward to that.

Stan is looking strong again and it is wonderful to see him back at the meetings.

Looks like a great start to our upcoming year! I am looking forward to it!

A Big Thank You to Our Sponsors!



182 West Adams Street

(On the Miracle Mile Across From The Valley Brew)

Stockton, CA 95204-5338

Phone: 209-464-2299/Fax: 209-464-9229

Phone: 209-464-2299/Fax: 209-464-9229

www.ulmerphoto.com

Email: Ulmerphoto@aol.com

2019 Competition Policy

A. GENERAL RULES

1. Only paid-up members may enter club competition.
2. Regular print and digital image competition period: Once each month except January. A competition year is February through December. Current regular meetings are February, March, May, July, September, October and December. The number of meetings may change from time to time at the discretion of the Board of Directors and approval of the general membership as facilities permit. The Annual Awards Dinner will be held in January.
3. A total of four (4) images (all prints, all digital or a combination of both) may be entered each competition month. A total of three (3) images may be entered in the Open Division and a total of one (1) in the Special Subject Division. The number of entries may change from time to time at the discretion of the Board of Directors and the approval of the general membership.
4. Each image will be scored from 6 to 10 points. All prints or digital images receiving 9 or 10 points will be classed as an honor image. The title of each print or digital image entered will be read before being evaluated. The name of the maker will be read for 9-point honor winners. Maker's names will be announced for the 10 point images after the Print & Digital Image-of-the-Month winners are chosen.
5. A print or digital image that does not receive an honor score, may be re-entered one more time in the same division.
6. A print or digital image may be entered in all divisions for which it qualifies; i.e., an honor image in Open may also be entered in the Special Subject Division at another competition. A print or digital image that receives an honor score may not be re-entered in the same division.
7. Any print or digital image that appears to be ineligible for competition or not qualified for a specific division could expect to be challenged. The Competition Vice-President shall decide whether or not the image is acceptable.
8. The exhibitor must have exposed each negative, slide or digital image entered. All images submitted for judging must be the work of the photographer/maker including the taking of the images and any digital enhancements and/or manipulation of the image. This does not apply to the processing of film or printing by a commercial processor.
9. The same image should not be entered both as a print and a projected digital image in the same competition.
10. In the event of absence or barring unforeseen circumstances, a member may submit make-up prints or digital images for one competition night per competition year; and whenever possible must submit all make-up prints or digital images at the meeting immediately following the month a member failed or was unable to submit the prints or digital images. Make-ups in the Special Subject Division must be the same subject as the month missed. Also, in case of absence a member may assign the responsibility of submitting his or her prints and/or digital images for competition to another member.
11. A club member who serves as judge cannot enter his or her own prints or digital images in the same competition. The judge's make-up prints or digital images can then be entered in another competition during that competition year. This is in addition to the once-a-year make-up provision already

allowed.

12. Prints or digital images may be projected/viewed briefly before the judging of each division if the judge indicates he/she would like a preview.

B. PRINT ENTRY RULES

1. Each print entered must have a completed label attached to the back of the print including; name of maker, title, date entered and Division (Open or Special Subject). The writing or printing on the form must be legible. Labels must be attached on the back of the print in the upper left-hand corner for correct viewing of the print.
2. All prints must be matted or mounted with a total size (including mat board) of no larger than 18" X 24" and no smaller than 8" X 10". Exception: One side of a Panorama Print may be no larger than 36". Prints that are smaller than 5" X 7" will not be accepted. The maker's name must not appear on the viewing surface of the image. Framed prints shall not be entered.
3. Prints accompanied by entry forms should be submitted no later than 15 minutes prior to the start of the regular monthly meeting.
4. Prints receiving a score of 10 points, in each class, will be regrouped and judged for selection for the Print-of-the-Month honors. Print-of-the-Month honors will be given in Class A, AA & AAA.

C. DIGITAL IMAGE ENTRY RULES

1. Digital images must be submitted in a format and by the deadline specified by the Competition Vice-President. Digital images may be submitted by email, mailed (CD) or delivered (CD) to the Competition Vice-President. Definition of Digital Image: An image taken with a digital camera, a negative, slide or print scanned into the computer and processed digitally.
2. Images must be in a format compatible with the projector. The key thing to keep in mind when formatting photos for submission is that the projector we use in the competition has a (maximum) resolution of 1400 x 1050 pixels. This means that any photo that exceeds this size in either dimension, could end-up being cropped by the projector. In other words: the image width cannot be more than 1400 pixels and the image height cannot be more than 1050 pixels. If your image is horizontal, only change the width to 1400, if your image is vertical, only change the height to 1050. Do not change both. Down-sizing the image from the "native" resolution coming out of your camera also significantly reduces the file size. This helps when emailing the files and takes-up less space on our hard-drives.
3. The maker's name, title of image, date entered and division (Open or Special Subject) must be included as the title of the image. When you have finished re-sizing your image save your image with a new title. For example do a Save as: Smith Sunrise Splendor 05-15 O.jpeg. (O-Open or SS-Special Subject). Specify whether you're Beginner, Advanced or Very Advanced.
4. Digital Images receiving a score of 10 points, in each class, will be regrouped and judged for selection for the Digital Image-of-the-Month honors. Digital Image-of-the-Month honors will be given in Class A, AA & AAA.

Stockton Camera Club

December 2018 Image of the Month Winners

Congratulations to all the winners!!!

Tom Frasier, a member of the Merced Camera Club, viewed 48 images for a average score of 9.31.

Print of the Month Class A – Soap Bubble #100 by Wayne Carlson

Print of the Month Class AA – Heart of the Magnolia by Elizabeth Parrish

Print of the Month Class AAA – Swans at Turner Cut by Trey Steinhart

Digital Image of the Month Class A – Rusty Gear and Flowers by Sheldon McCormick

Digital Image of the Month Class AA – Dahlia #3 by Em McLaren

Digital Image of the Month Class AAA – Love in Paris by Sharon McLemore

Please check out the website, <http://www.stockton-cameraclub.com/home.html>

Class A Standings	TOTAL	OPEN	SS	FEB	MAR	MAY	JUN	JULY	SEPT	OCT	NOV	DEC
Wayne Carlson	302	253	49	37	39	39	35	39	38	37	38	0
Sheldon McCormick	289	234	55	36	35	38	38	37	34	35	36	0
Jim Cahill	90	80	10	25	0	38	27	0	0	0	0	0
Ron Wetherell	75	75	0	27	0	19	0	29	0	0	0	0
Lanny Brown	56	36	20	0	10	18	18	10	0	0	0	0
Brenda DeRoos	32	23	9	0	0	0	0	0	0	32	0	0
Monica Hoeft	26	26	0	26	0	0	0	0	0	0	0	0
Class AA Standing	TOTAL	OPEN	SS	FEB	MAR	MAY	JUN	JULY	SEPT	OCT	NOV	DEC
Em McLaren	305	247	58	39	38	38	38	39	38	38	37	0
Heide Stover	302	247	55	39	39	37	37	37	37	37	39	0
Christine Blue	268	211	57	37	39	38	0	39	37	39	39	0
Elizabeth Parrish	252	199	53	36	34	38	37	38	35	34	0	0
Paul Chapman	214	167	47	34	37	36	34	38	35	0	0	0
Richard Bullard	111	93	18	0	37	36	38	0	0	0	0	0
Stan Sogsti	37	28	9	37	0	0	0	0	0	0	0	0
Ed Richter	0	0	0	0	0	0	0	0	0	0	0	0
Class AAA Standing	TOTAL	OPEN	SS	FEB	MAR	MAY	JUN	JULY	SEPT	OCT	Nov	DEC
Dean Taylor	307	250	57	39	39	39	39	38	38	36	39	0
Joanne Sogsti	307	249	58	39	37	39	39	40	37	37	39	0
Sharon McLemore	301	243	58	38	39	39	37	38	37	36	37	0
Doug Ridgway	193	163	30	39	39	0	0	39	39	0	37	0
Trey Steinhart	151	115	36	37	37	37	0	40	0	0	0	0
Susanne Nichols	60	30	30	0	20	20	0	0	20	0	0	0

2019 Calendar of Events

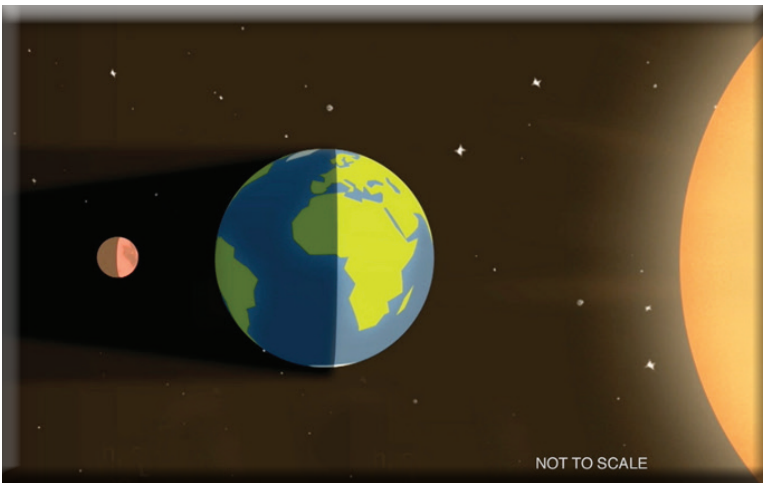
Every 3rd Thursday (Except April, June & Aug) 6:30 PM	West Lane Bowling Alley Stockton	Membership Meeting Contact Heide Stover h1stover@aol.com
Thursday - Friday January 3 - 4	San Joaquin River NWR Vernalis, CA	Photo Opportunity Meet at 7:00 at the Viewing Platform
Thursday January 17	Wayne Carlson's Home	Annual Banquet
Sunday January 20	Photo Opportunity 2019 Supermoon/Lunar Eclipse	Partial eclipse begins: 7:34 p.m. Total lunar eclipse begins: 8:41 p.m. Greatest eclipse: 9:12 p.m. Total lunar eclipse ends: 9:43 p.m. Partial eclipse ends: 10:51 p.m.
Thursday February 21	West Lane Bowling Alley Stockton	February General Meeting Special Subject - Guilty Pleasure
Thursday March 21	West Lane Bowling Alley Stockton	March General Meeting Special Subject - Focus On One Color
April	TBA	April Workshop/Photo Opportunity
Thursday May 16	West Lane Bowling Alley Stockton	May General Meeting Special Subject - Backlit
Thursday June 20	West Lane Bowling Alley Stockton	June General Meeting Prints only with no special subject
Thursday July 18	West Lane Bowling Alley Stockton	July General Meeting Special Subject - Gates/Fences

Supermoon Blood Moon Lunar Eclipse of 2019: Complete Guide

By [Doris Elin Salazar, Space.com Contributor](#)



Skywatcher Keith Burns took this montage of images, which shows the Dec. 20, 2010, total lunar eclipse. The montage won a NASA contest to become an official NASA/JPL wallpaper for the public.
Credit: Keith Burns/NASA/JPL



During a lunar eclipse, Earth blocks most of the sunlight that normally reaches the moon. This NASA illustration is not to scale.
Credit: NASA

Overnight from Sunday, Jan. 20, 2019, into Monday, Jan. 21, millions of people in North and South America will have a prime view of a total lunar eclipse. During a special nocturnal hour, the full moon will become fully tinted with the red-orange color of sunset.

The Jan. 21 total lunar eclipse will be the last one until May 2021; the most recent total lunar eclipse previous to this one appeared in July 2018.

Here, learn more about what makes [lunar eclipses](#) so special. [[Rare Super Blue Blood Moon Eclipse Thrills Millions Around the World](#)]

Editor's note: If you capture an amazing photo or video of the Jan. 21 total lunar eclipse and would like to share it with Space.com for a story or gallery, send images and comments to: spacephotos@space.com.

Total Lunar Eclipse

During a lunar eclipse, a full moon's bright facade will change. As the moon enters Earth's shadow, all of the moon (or a section of it in the case of a partial eclipse) will turn a rusty color. Sunlight scatters to produce the red colors of sunset and sunrise when it enters Earth's atmosphere at a particular angle.

What a lunar eclipse displays is the color of all of Earth's sunrises and sunsets reaching the moon, NASA scientist Noah Petro told Space.com. If someone stood on the moon during a total lunar eclipse, Earth would appear to have a reddish ring all around it, as the person would gaze at the 360-degree sunrise and sunset they'd perceive at that particular intersection of Earth and lunar orbits.

When the lunar eclipse begins, the bright moon dims as it enters the outer part of Earth's shadow, called the penumbra. The deep tint of a full lunar eclipse is visible once the moon enters the deepest part of Earth's shadow, or umbra. The bright-red color appears once the moon is fully engulfed in the shadows, and it's the reason "blood" moon is a popular moniker for lunar eclipses.

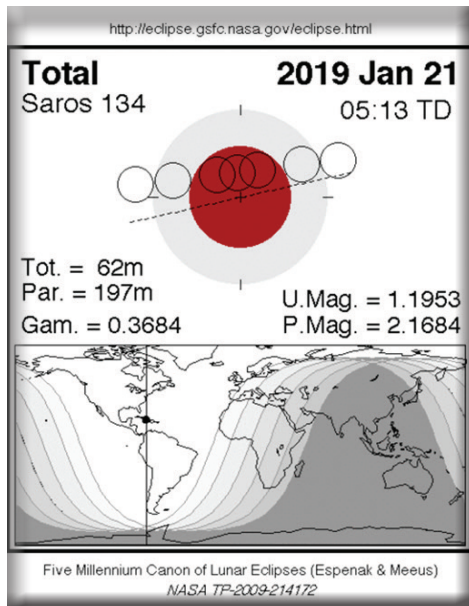
To a certain extent, lunar eclipses reveal something about Earth, too. "Lunar eclipses ... reflect our world," astronomer and podcaster Pamela Gay told Space.com in an email. "A blood colored moon is created [by] ash from

fires and volcanoes, ... dust storms and pollution all filtering sunlight as it scatters around our world. A grey eclipse is clear skies. "Our world can change the appearance of another world, and during an eclipse, the universe lets us see this color play," she said. The Jan. 20-21, 2019 total lunar eclipse will last 1 hour and 2 minutes, according to NASA's Goddard Space Flight Center [lunar eclipse projections](#).

The full experience, from the start of the partial eclipse to the end, will last 3 hours and 17 minutes.

The peak of the total lunar eclipse will happen shortly after day's end on Sunday, Jan. 20, on the U.S. east coast, at 12:16 a.m. EST (0516 GMT) on Monday, Jan. 21. This peak is also known as the "greatest eclipse" and is defined as the moment when the moon comes closest to the axis of Earth's shadow.

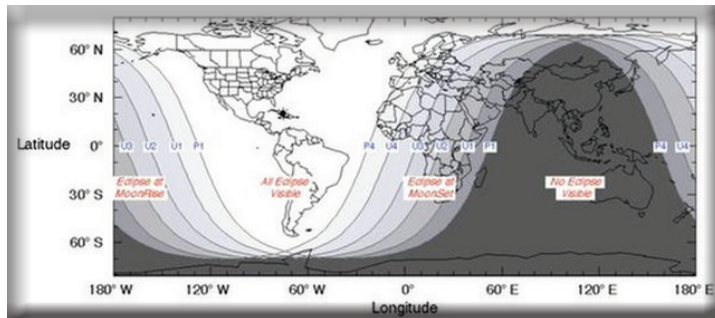
Below is a lunar eclipse timetable for several locations from which the celestial event is visible, based on information from timeanddate.com.



This NASA graphic offers basic details about the Jan. 21, 2019, total lunar eclipse. The red circle is Earth's darkest shadow, the umbra. The thick grey ring around it represents the outer portion of Earth's shadow, the penumbra. The thin black rings indicate the position of the moon as it moves through Earth's shadow.

Credit: Espenak/Meeus/NASA/GSFC

always the same face, because the moon is tidally locked with Earth. So, when the moon is between the sun and Earth, a viewer doesn't see the near side; it cannot be seen in the sky. New moons are the phases that produce the other major celestial-shadow event: [solar eclipses](#).



A map showing the regions that can view the Jan. 21, 2019, total lunar eclipse.

Credit: Espenak/Meeus/NASA/GSFC

People in Hawaii and eastern Africa will catch the dramatic lunar eclipse as the moon rises and sets over the horizon, respectively. Those viewers will see a total eclipse, but not all of the partial eclipse that leads up to and ends the celestial event. All of North and South America, including the Caribbean nations, will see the entire event. People in countries in Europe such as Iceland, Ireland and Portugal will also get to view all of the eclipse. And although people in the Ukraine and Turkey won't catch the whole eclipse, they'll still wake up to an impressive lunar sight. [\[Total Lunar Eclipse Gets a Cloudy Halo in Cool Time-Lapse Video\]](#)

Location	Eclipse Begins	Totality Begins	Totality Ends	Eclipse Ends
Anchorage, AK	6:33 p.m. AKST	7:41 p.m. AST	8:43 p.m. AST	9:50 p.m. AST
Los Angeles, CA	7:33 p.m. PST	8:41 p.m. PST	9:43 p.m. PST	10:50 p.m. PST
Mexico City, Mexico	9:33 p.m. CST	10:41 p.m. CST	11:43 p.m. CST	12:50 a.m. CST
Miami, FL	10:33 p.m. EST	11:41 p.m. EST	12:43 p.m. EST	1:50 a.m. EST
Santo Domingo, DR	11:33 p.m. AST	12:41 a.m. AST	1:43 p.m. AST	2:50 p.m. AST
Nuuk, Greenland	12:33 a.m. WGT	1:41 a.m. WGT	2:43 a.m. WGT	3:50 a.m. WGT
Rio de Janeiro, Brazil	1:33 a.m. BRST	2:41 a.m. BRST	3:43 a.m. BRST	4:50 a.m. BRST
Reykjavik, Iceland	3:33 a.m. GMT	4:41 a.m. GMT	5:43 a.m. GMT	6:50 p.m. GMT
Lagos, Nigeria	4:33 a.m. WAT	5:41 a.m. WAT	6:43 a.m. WAT	Moon is below horizon

Lunar Phases and Eclipses

A new moon occurs roughly every month, when the moon's far side is facing the sun and the moon's near side is in darkness. Every time a viewer sees the moon, it's always the same face, because the moon is tidally locked with Earth. So, when the moon is between the sun and Earth, a viewer doesn't see the near side; it cannot be seen in the sky. New moons are the phases that produce the other major celestial-shadow event: [solar eclipses](#).

A lunar eclipse occurs during the full-moon phase, the opposite phase to new moon. During lunar eclipses Earth sits in the middle, between the sun and the moon. That's how the moon is able to pass through the planet's shadow.

Recent and Upcoming Total Lunar Eclipses

The last total lunar eclipse occurred on [July 27, 2018](#), and was visible over Africa and countries in Central Asia such as India. Several months prior, on [Jan. 31](#), another total lunar eclipse could be seen from Central Asia, the Pacific region and Alaska. The first total lunar eclipse to follow Jan. 21's event will occur on May 26, 2021, and will be visible over the Pacific Ocean, with viewing possibilities in North America, South America and east Asia.

Follow Doris Elin Salazar on Twitter [@salazar_elin](#). Follow us [@Spacedotcom](#), [Facebook](#) and [Google+](#). Original article on [Space.com](#).

22 Tips for Photographing a Lunar Eclipse

By [Todd Vorenkamp](#)

Before you venture out to photograph your first lunar eclipse, you should get some practice taking photos of the moon. If lunar photography is varsity-level stuff, lunar eclipse photography is all-pro. There are some unique challenges to the art, and great ways to get creative results, but the basics of lunar photography apply. Unlike [solar eclipse photography](#), you do not need gear to protect your cameras, lenses, or eyes. However, like solar eclipse photography, having the right accessories may help you get the best images.

If you are new to lunar photography and you missed the link above, or did not get the hint, pause here and head to this link with some tips for [photographing the moon](#).

It should be known that you can take a "casual" and successful photo of a lunar eclipse with just about any



camera, including your smartphone. But, if you want the know-how to grab a truly epic keeper, keep reading.

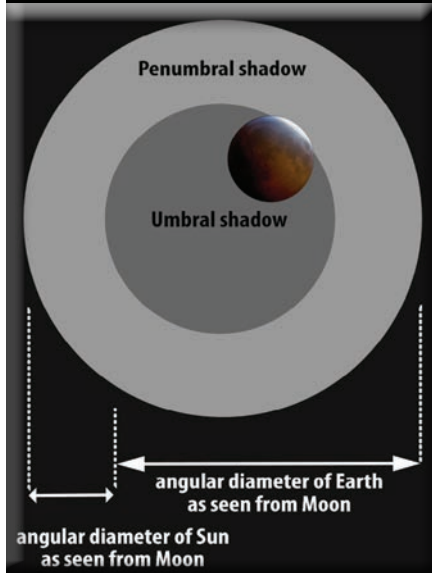
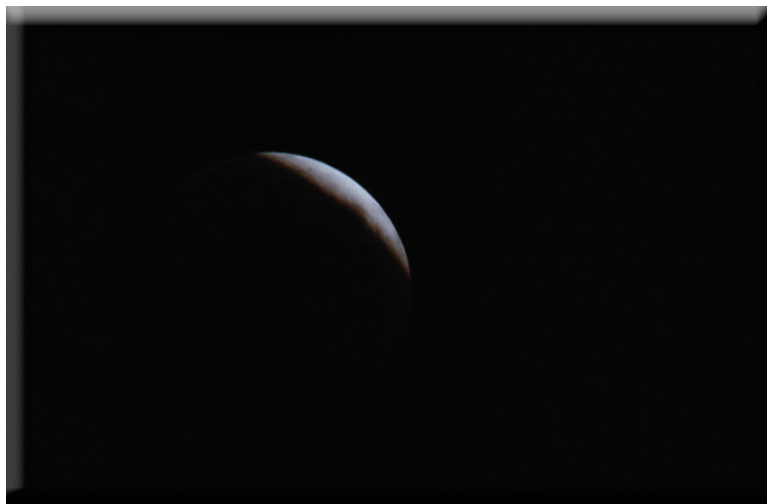
One personal note before we dive in: I have photographed several lunar eclipses and, as you will see in the illustrations (read the captions) for this article, I have not always gotten the best results. Honestly, I learn more about how to do it better every time, and I am going to pass those lessons on to you here. And, if you keep reading I will tell you why, the next time I am lucky enough to see a lunar eclipse, I am going to nail it!

Photographs © Todd Vorenkamp

The October 27, 2004, lunar eclipse, photographed with a Nikon D1x and a Nikon Reflex-NIKKOR 500mm f/8 N lens and Nikon TC-201 teleconverter. Image softness courtesy of the lens, teleconverter, and 1/20-second slow shutter speed. With a tracking mount and better optics, this photo would be much sharper. Go Red Sox!

3 Varieties of Lunar Eclipse

The Earth orbits the sun, and the moon orbits the Earth every 27.32 Earth days (the phase cycle is 29.53 Earth days). A solar eclipse occurs when our moon passes directly between the Earth and the sun in its orbit. A lunar eclipse is the opposite; the moon passes through the Earth's shadow as it orbits the planet on the opposite side of the sun. Because the moon's orbit is offset from Earth (5°), we do not get a lunar eclipse during every full moon. It is this same tilted orbit that keeps solar eclipses rare, as well.



Depending on what portion of the Earth's shadow the moon passes through determines the type of lunar eclipse we experience. If the moon passes through the penumbral (partial) region of the shadow, we get a penumbral lunar eclipse. Sometimes, the effects of the darkening of the full moon during a penumbral eclipse are so slight that you might not notice the eclipse. If part of the moon, but not all, passes through the umbral (inner) shadow, you get a partial lunar eclipse. And, finally, when the entire moon passes into the umbral shadow, we witness a total lunar eclipse.

And, opposite from the solar eclipse that happens only during the new moon phase, the lunar eclipse only happens on full moon nights.

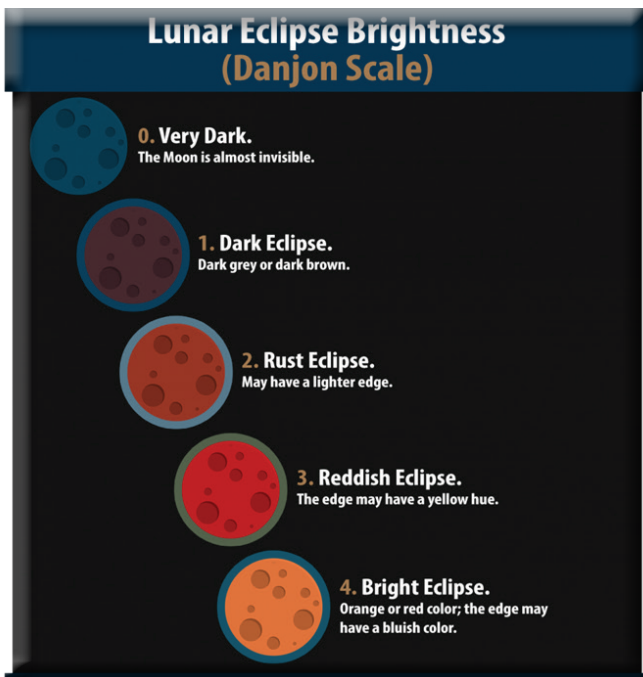


The winter solstice of December 21, 2010, lunar eclipse, photographed with a Nikon D300 and a Leica APO-Televiid 77 spotting scope (1500mm, 35mm equivalent); f/13; 1-second; ISO 800. Here you can see the sunlight is still striking a sliver of the moon's surface.

Why is the total lunar eclipse moon a red moon?

During totality, the monochromatic moon will appear red because our own atmosphere acts like a colored photographic filter by bending red sunlight into the Earth's shadow and filtering out blue light. This is called Rayleigh scattering and is the same phenomenon that causes the deep red sunrises and sunsets that get all the Instagram likes. Also—fun fact—the next time a young someone asks you, "Why is the sky blue?" you can answer: Rayleigh scattering.

The February 20, 2008, lunar eclipse. The moon is about to slip fully into the Earth's umbral shadow here, but the surface shows a bit of Earthshine-like illumination. This image was taken with a Nikon D200 and a Nikon Reflex-NIKKOR 500mm f/8 N lens and Nikon TC-201 teleconverter. With the fixed f/8 aperture, I was still able to get a respectable 0.5-second shutter speed at ISO 200, but, as you can see, a faster shutter speed (or a tracking mount) is needed to avoid motion blur.



LUNAR ECLIPSE EXPOSURE SETTING GUIDELINES (Extrapolated from Mr. Fred Espenak's Lunar Eclipse Exposure Guide)					
ISO200					
	Aperture (f/stop)				
	f/2.8	f/4	f/5.6	f/8	f/11
Shutter Speed					
Full Moon	1/8000	1/4000	1/2000	1/1000	1/500
Penumbral Lunar Eclipse		1/2000	1/1000	1/500	1/250
Partial Eclipse					
Magnitude 0.00	1/4000	1/2000	1/1000	1/500	1/250
Magnitude 0.30	1/2000	1/1000	1/500	1/250	1/125
Magnitude 0.60	1/1000	1/500	1/250	1/125	1/60
Magnitude 0.80	1/500	1/250	1/125	1/60	1/30
Magnitude 0.90	1/250	1/125	1/60	1/30	1/15
Magnitude 0.95	1/125	1/60	1/30	1/15	1/8
Total Lunar Eclipse (Danjon Scale Value)					
L=4	¼ sec	½ sec	1 sec	2 sec	4 sec
L=3	1 sec	2 sec	4 sec	8 sec	15 sec
L=2	4 sec	8 sec	15 sec	30 sec	1 min
L=1	15 sec	30 sec	1 min	2 min	4 min
L=0	1 min	2 min	4 min	8 min	15 min

How bright is a lunar eclipse?

Not all lunar eclipses are created equal. Due to atmospheric (humidity, clouds, dust, volcanic ash, pollution, etc.) and the moon's relative size and position within the Earth's shadow during the eclipse, you can get an eclipse that varies in its red hue and you can also witness blue banding at the edge of the eclipse. French astronomer André-Louis Danjon created the Danjon Scale, with five values total lunar eclipse of brightness:

- L=0 — Darkest. Moon nearly invisible.
- L=1 — Dark red/brown eclipse. Lunar details are difficult to make out.
- L=2 — Orange/brown color with darker center. Possible bluish color at shadow's edge.
- L=3 — Bright red/orange moon. Darker center and very bright border.
- L=4 — Brightest. A very bright orange eclipse.

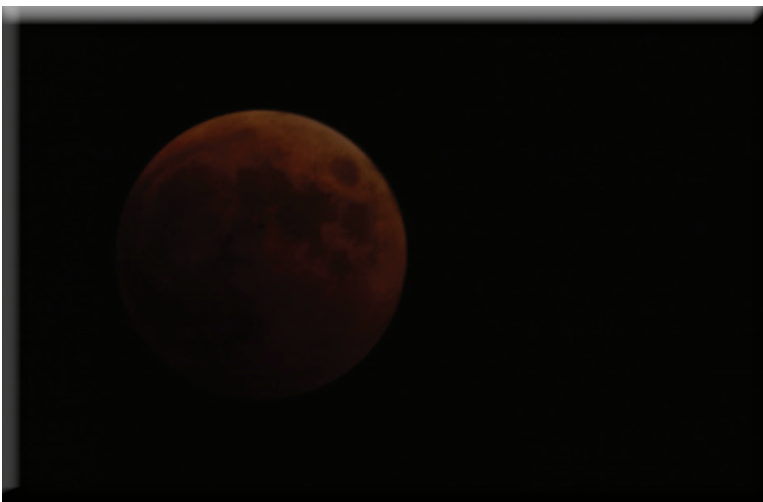


The winter solstice of December 21, 2010, lunar eclipse photographed with a Nikon D300 and a Leica APO-Televid 77 spotting scope (1500mm, 35mm equivalent); f/13; 1/180 second; ISO 200. At first glance, it looks like a quarter moon but, upon closer inspection, the terminator is not as drastic as the "normal" waning or waxing moon features. Yep, this is a lunar eclipse.

Why is lunar eclipse photography more difficult than "standard" lunar photography?

In the first paragraph above, I mentioned that photographing the moon is beyond varsity-level stuff when compared to the exercise of lunar eclipse photography. Why is this the case? Simply, it is the lack of light. Look toward the bottom of the exposure chart above. During a dark total eclipse, your shutter speed for an image might be a minute or more—a recipe for a blurry disaster of a darkened moon.

Once the moon starts to enter the Earth's shadow, it reflects less sunlight to the point where, to get a decent exposure, you must open your aperture all the way, cranking up your ISO, and slowing your shutter speeds. The open aperture leads to a lack of sharpness, the high ISO gives you digital noise, and the slower shutter speeds, with the Earth spinning below and the moon moving at approximately 2,290 miles per hour in the sky above, creates motion blur in your image.



A red moon. The October 27, 2004, lunar eclipse, photographed with a Nikon D1x and a Nikon Reflex-NIKKOR 500mm f/8 N lens and Nikon TC-201 teleconverter. Image softness courtesy of the lens, teleconverter, and very slow 2-second shutter speed because the moon is now completely eclipsed. With a tracking mount and better optics, this photo would be much sharper. I could have also used a higher ISO but, hey, this was the Nikon D1x and high-ISO shooting wasn't really the specialty of any camera of that era.

So, how do we combat these enemies of good lunar photography?

A lens is rarely sharpest at its widest aperture, so, when the light goes dim, it will be helpful if you are starting with wide-aperture glass. A lens with a maximum aperture of f/2.8 will usually be sharper at f/4 or f/5.6 than a lens that

has a maximum aperture of f/4 or f/5.6. Starting with big glass can help maintain sharpness when it gets not-so-bright.

With high-ISO digital noise, technology is the best way to battle this. Newer cameras have much better high-ISO noise performance than older digital cameras. Know your camera's tolerable high-ISO limits and try not to go past those settings. Also, temperature matters. The warmer the ambient temperature, the more digital noise can build up. Winter lunar eclipses will be better than summer ones when it comes to digital noise—but maybe not the comfort of the spectators!

Although the distance is great, so is the relative speed of the moon. I have found that 1/125 of a second is the floor when taking telephoto lunar shots. Anything longer, and you run the risk of getting (sometimes subtle) motion blur. Once you hit this limit, you can open your aperture to allow more light in, or dial up your ISO to increase the sensor gain. Sometimes neither of



these two options is desirable, so your next best option is to be photographing the event from a tracking rig that automatically pans at the same speed as the moon. I recommend trackers like the [iOptron SkyGuider Pro EQ](#), [iOptron SkyTracker Pro](#), [Vixen Optics Polaris Star Tracker](#), or the [Sky-Watcher Star Adventurer Mini EQ](#) camera tracking mount head.

The October 27, 2004, lunar eclipse, photographed with a Nikon D1x and a Nikon Reflex-NIKKOR 500mm f/8 N lens and Nikon TC-201 teleconverter. Image softness courtesy of the lens, teleconverter. The 1/100 shutter speed is in the ballpark of what is needed for a sharp lunar photograph at that focal length, but the mirror lens, teleconverter, and maybe my focus kept the image from being super sharp.

4 Basic Varieties of Lunar Eclipse Photography and Tips

There are four basic types of lunar photography:

1. **Telephoto**—A close-up view of the lunar eclipse where the eclipsed moon dominates the frame.
2. **Wide-Angle**—A wide view of the night sky that may or may not include terrestrial scenery in the frame.
3. **Star Trail**—A wide view of the night sky with a long exposure that allows the stars to trail in the frame.
4. **Multiple Exposures**—Capturing different phases of the eclipse to later combine into a single image.



Moon bow! The lunar eclipse gets a rainbow halo during the winter solstice, December 21, 2010, lunar eclipse. Photographed with a Nikon D300 and a forgotten manual focus NIKKOR AIS lens. 20 seconds; ISO 200. One big difference between the solar and lunar eclipse is the duration of the entire event and totality. The much slower lunar eclipse gives you a lot of time to change lenses, focal lengths, and exposures, as well as the opportunity to be a bit more creative with your images. A "regular" full moon would be likely too bright to show nearby stars during a 2-minute exposure, but the Earth's shadow dims the lunar surface enough to get some starscape action. See the constellation of Orion in the bottom right corner.



General Tips

1. **Tripods** are required. A good tripod is mandatory.
2. Use mirror lockup on an SLR.
3. Use a wired or wireless [cable release](#), [threaded release](#), or trigger the shutter with your smart device.
4. Bring fully charged batteries. A lunar eclipse takes hours to progress and the cold(er) temps of the nighttime air drain batteries fast. Bring extra batteries and keep them warm.
5. If you are going to be shooting a lot (not required for an eclipse), make sure you have enough memory cards. Lunar eclipses always happen at night, when B&H Photo is closed.
6. Most autofocus systems will have no issues locking onto the full moon. However, once that moon goes dark, the focus might lose its lock. Before that happens, switch over to manual focus and don't touch that focus ring!
7. Be patient. Unlike the relatively short-derationed solar eclipse that creates a frantic minute or two of photographic craziness, the lunar eclipse is a much slower event, giving the photographer time to experiment with settings to get the best result.
8. Bracket your exposures. If you're shooting digitally, each photo is free. Bracket, bracket, and bracket some more. Try different apertures, ISO settings, and shutter speeds to maximize your results. Later, take notes on what works best for you so you won't need to do as much experimenting the next time.

The winter solstice, December 21, 2010, lunar eclipse, photographed with a Nikon D300 and a Leica APO-Televid 77 spotting scope (1500mm, 35mm equivalent); f/13; 1/250 second; ISO 200. Again, at first glance, it looks like a waning or waxing moon, but, with closer inspection, the terminator is not as drastic as the one we see on a non-eclipsed moon.

Tips for Telephoto or Telescopes

1. Choose your focal length. It goes without saying, but the longer the focal length, the larger the moon will be in the frame. And, the longer the focal length, the more you need to be concerned with camera shake. Prevent this with a sturdy tripod and remote release.



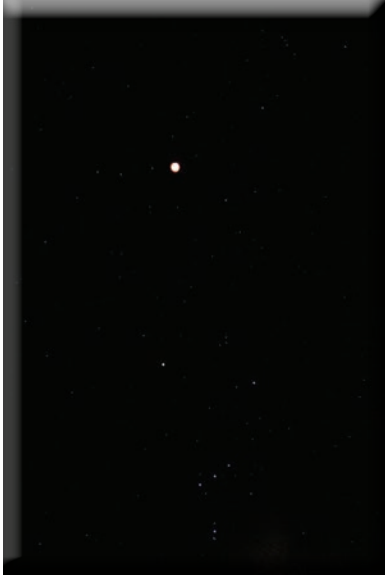
135mm

300mm

750mm

1500mm

2. As you can see from the exposure chart above, on the darkest eclipses, the shutter speeds drop to very long exposures and the moon is going to start getting motion blur. This is where a tracking mount like I mentioned above might make all the difference.
3. Speaking of exposures, use your camera's spot meter and place it on the lunar surface. There is no need to make the camera try to balance an exposure between the black of space and the "relatively" bright moon.
4. Bracketing is most critical here, especially during the partial phases of the eclipse. The start of the lunar eclipse resembles a waning or waxing moon, but once the shadow starts to close over the entire moon, you are left with a very (relatively) bright sunlit section of the moon and what looks almost like "Earthshine" over the rest of the moon. So, be ready to adjust exposure and metering to get the results you seek.



The winter solstice, December 21, 2010, lunar eclipse, photographed with a Nikon D300 and another long-forgotten Nikon AIS manual focus lens. 4.8 seconds; ISO 1600. That is one dimly lit moon floating among the stars above. Betelgeuse is the large red star at the bottom third of the frame—the top of the constellation Orion.

Tips for Wide-Angle Shooting

1. Planning required. Unlike just pointing a telephoto lens at the moon, if you want to shoot a wide-angle photo of the lunar eclipse with an interesting foreground, you will need to do some pre-planning to ensure the eclipsed moon is in the frame when you want to capture the image.
2. Each day/night, the moon is about 50 minutes late to the position it was near the previous night, so, if the eclipse starts on Saturday at 0000 hrs, check the sky at 2310 hrs the night before to see about where it will be in the sky.
3. If it is cloudy the night (or nights) before, use a celestial observing app or a photo planning app to do your armchair calculations.
4. When choosing a foreground, make sure it adds something to the image as far as aesthetics and/or by serving to provide location context.

The winter solstice, December 21, 2010, lunar eclipse, photographed with a Nikon D300 and another forgotten Nikon AIS manual focus lens. 8-minute exposure at ISO 200. For the next lunar eclipse I photograph, I am going to bring two bodies and two tripods. One camera will do the long-exposure work, and the other will do the telephoto. Here we see 8-minute star trails and a nice reddish moon streaking through the frame over Orion. The breaks in the star trails are from clouds, and the lens flare at the bottom right is from rain drops.

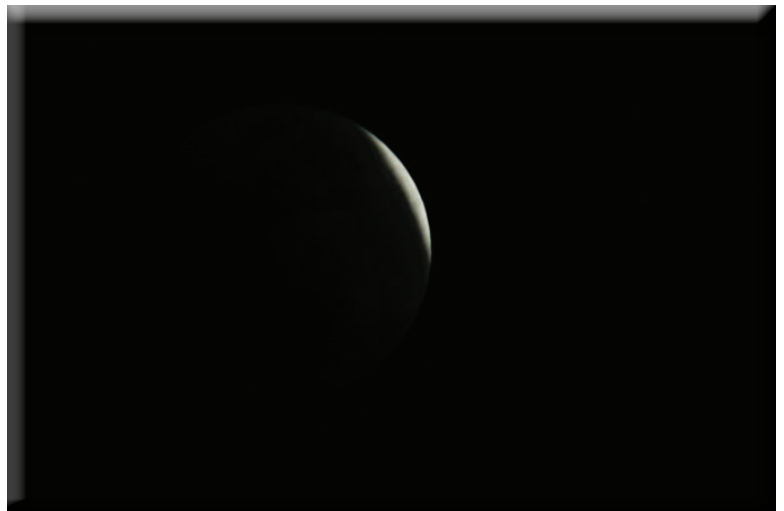


Tips for Lunar Eclipse Star Trails

1. Planning is required here as well—more than the wide-angle planning. Why? Because you are going to have both the stars and the moon moving through the frame. You wouldn't want the Earth to spin the moon off the edge of your image, so do some planning to ensure this will not happen by giving the moon room inside the frame.
2. Plan the start and end points of your exposure to capture the period of the eclipse that you wish to get on the single frame. Also, consider the length of star trails you want to see. Generally, shorter trails aren't as cool as longer ones!

The February 20, 2008 lunar eclipse. The moon is about to slip fully into the Earth's umbral shadow here, but, unlike the image earlier in the article, I metered to show only the brighter part of

the moon, sacrificing the Earthshine-like illumination of the part of the moon in the darker shadow. This image was taken with a Nikon D200 and a Nikon Reflex-NIKKOR 500mm f/8 N lens and Nikon TC-201 teleconverter. With the fixed f/8 aperture, I was still able to get a respectable 0.5-second shutter speed at ISO 200, but, as you can see, a faster shutter speed (or a tracking mount) is needed to avoid motion blur.



Tips for Multiple Exposures/Composite Images

1. Decide if your image is going to contain a foreground or just be a sequence of moon photos. If you have a foreground planned, refer to the tips for the Wide-Angle and Star Trail images. If you are just stitching together shots of the moon, use the telephoto tips.
2. Use the total duration of the lunar eclipse to figure out the interval of your images or shoot at a set interval (1, 2, 6, etc. minutes between shots) and then choose the number of moons and interval after the event. The latter option is your best for partly cloudy skies that may block the eclipse at the exact moment of one of your pre-planned interval shots.
3. If you do shoot at a relatively short interval, you will have the option of creating a time-lapse sequence after the show.
4. Be ready to adjust exposure throughout the event. For consistency, you may want to let the darker moon get darker in the frame so that your mosaic of moons shows a visually accurate portrayal of the event.



The winter solstice, December 21, 2010, lunar eclipse, photographed with a Nikon D300 and a Leica APO-Televid 77 spotting scope (1500mm, 35mm equivalent); f/13; 1 second; ISO 1600. A bit noisy and soft. A tracking mount and lower ISO would have solved that issue. There is always next time!

What questions or tips do you have for lunar eclipse photography? Let us know in the Comments section, below.

Thanks for reading and, thanks in advance for not being overly critical of my lunar eclipse photos.

Here is my \$0.02 on sharpness of solar, astronomical, and lunar images: The sun is a mean distance of approximately 93 million miles away and the moon is a mean distance of 238,855 miles away. Neither the moon's cratered surface nor the sun's explosive surface make them perfectly smooth spheres.

When I pixel-split my solar images, be it the ones captured with a sharp Nikon 300mm f/4, a sharp Leica APO-Televid 77 spotting scope, or any other optic, regardless of whether I am using a glass or metal-type solar filter, the sun is only, at its best, "kind of" sharp.

The same applies to images of the moon. I get sharp images, but never as sharp as I really, really want to get.

This got me thinking.

When you photograph something outside of our atmosphere, there is a fair amount of air between you and the subject. The thickness of Earth's atmosphere is approximately 300 miles, with most of the dense air in the lower altitudes (obviously). Light is transmitted from the sun (or stars) or reflected from the moon (and planets) and it travels through the vacuum of space until it reaches earth. Once it arrives in the atmosphere, all your sharpness bets are off.

If you took a photo of a building, mountain, or person miles and miles away, especially on a hazy day, you probably wouldn't really expect a super-sharp image, right? Now, think about an image of something captured on the far side of dozens of miles of air. Sharp? Probably not.

So, if you are wondering what lens or filter is the sharpest to photograph distant things, or if you are wondering why your lunar craters or sunspots are not tack-sharp, even though you spent a ton of money on a super-sharp lens, just be grateful that earth has a protective shield around it that gives us air to breath and protects us from the harshness of outer space. And, also remember that there is a reason they try to put telescopes in dry places at high altitudes—or in orbit above the atmosphere!



The October 27, 2004 lunar eclipse, photographed with a Nikon D1x and a Nikon Reflex-NIKKOR 500mm f/8 N lens and Nikon TC-201 teleconverter. Image softness courtesy of the lens, teleconverter. The 1/205 shutter speed is plenty fast for what is needed for a sharp lunar photograph at that focal length, but the mirror lens, teleconverter, and maybe my focus kept the image from being super sharp.



[iOptron SkyGuider Pro EQ](#)



[iOptron SkyTracker Pro](#)



[Vixen Optics Polaris Star Tracker](#)



[Sky-Watcher Star Adventurer Mini EQ](#)



[Shutter Release](#)



[Threaded Cable Release](#)