

Night Photography April 2023

Kirk

Milky Way

Astrophotography

Kirk Clark

Kirkclarkimagery.com

Instagram: [Kirk.Clark.Imagery](https://www.instagram.com/Kirk.Clark.Imagery)

Facebook: [Kirk Clark Imagery](https://www.facebook.com/KirkClarkImagery)

What is Astrophotography

Use of photography in photographing celestial objects and phenomena.

Examples Include:

Star Trails

Milky Way

Aurora Borealis

This evening we'll 'focus' on photographing the Milky Way



Kirk Clark

Equipment

If possible full frame DSLR/Mirrorless

A camera with good ISO sensitivity

Sturdy Tripod

In camera timer or a remote timer

Lens with F2.8 or larger aperture

Between 16mm – 32mm lens

Spare Batteries

Warm clothing

Settings

Aperture: F2.8 or larger

Shutter speed: 15 seconds (no tails on stars)

ISO: 3200 or 3600

Focus set to Infinity (NOT really but close)

Timing

Must balance photoing with moon phase and cloud cover (weather)

Moon light diminishes Milky Way

Clouds hide Milky Way

Smoke/Sediment hides or diminishes Milky Way



Kate Clark

Timing Con't

The Milky Way travels throughout the year

Where it is located in March will not be its location in July vs.
September

The Milky Way has a southerly traversing arc AND as the year progresses the Milky Way arch (the actual band of stars) moves to where it is high overhead (this makes for vertical shots of the Galactic Core)



Location

I try to avoid ambient light

Light can contaminate the photo

THERE ARE EXCEPTIONS WHERE AMBIENT LIGHT CAN ADD TO
A PHOTO



Foreground in a Night Photo

Foreground – Location – Timing can all go hand-in-hand

Adds Interest

Can use light painting

May want to do a composite (combining two photos)



Kirk Clark
IMAGERY

Resources

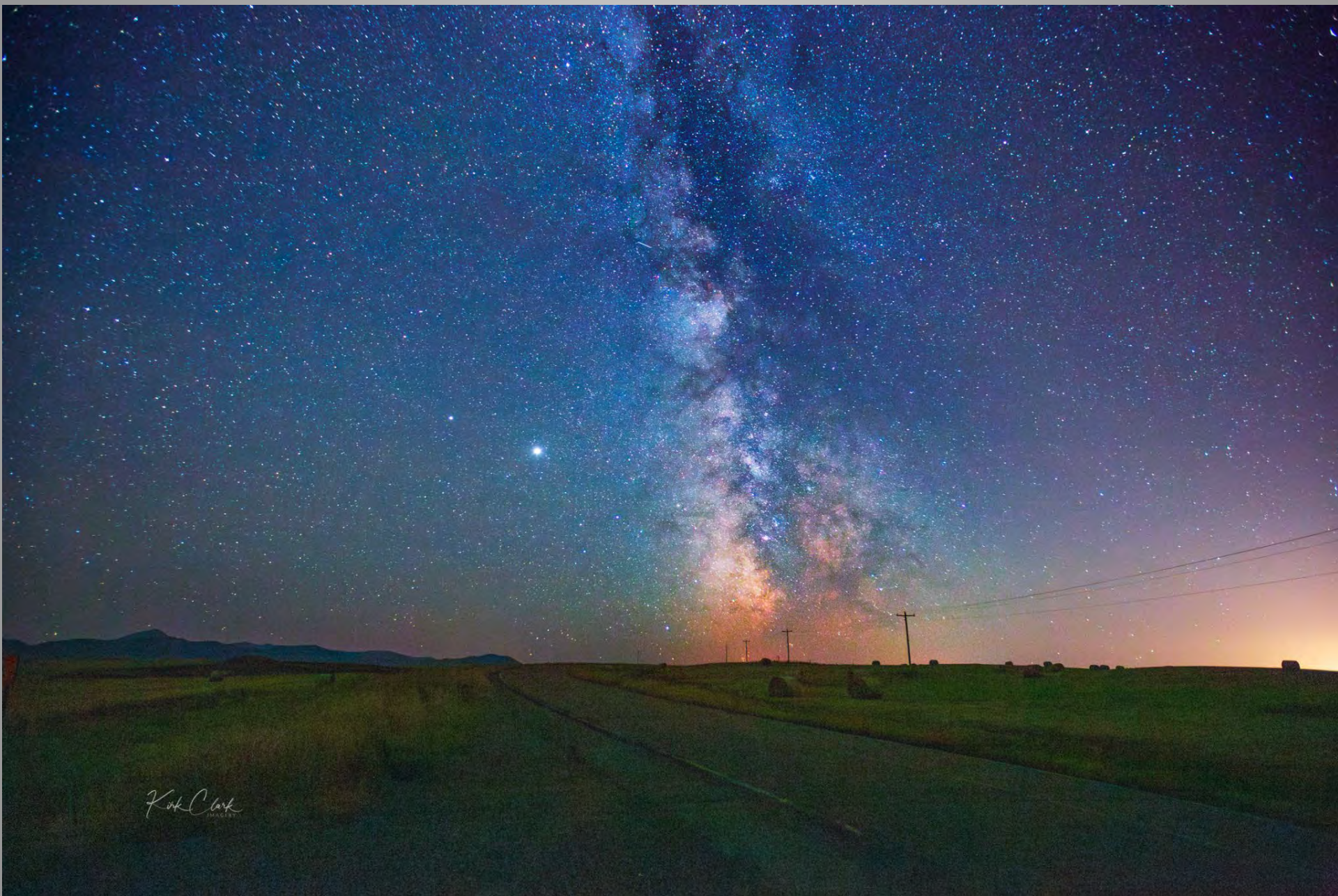
<https://www.timeanddate.com/moon/phases/> (what time the moon rises and sets)

https://www.youtube.com/watch?v=FOAmP7A_x6c (how to edit Milky Way Shots)

<https://www.weather.gov/tfx/> (cloud cover and weather conditions)

<https://www.lonelyspeck.com/> (great Astro-photography resource)

<https://www.photopills.com/> (planning app for sunrise/set, Astro and more)



Kate Clark
IMAGERY



Kirk Clark



Kate Clark

Rick Apps and Aurora Borealis



spaceweather.com

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Current Conditions

Solar Wind
Speed: 477.8 km/sec
Density: 8.44 particles/cm³
Number: 15.0 x 10¹⁸/m³

5 Day Solar Flare
4.0 max: 0.1 (17.1) M
7.0 max: 0.1 (17.1) M
10.0 max: 0.1 (17.1) M

5 Day Solar Storm
4.0 max: 0.1 (17.1) M
7.0 max: 0.1 (17.1) M
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Forecast

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Alerts

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Tools

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News

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RSS Feeds

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Never miss another geomagnetic storm. Sign up for SpaceWeather Alerts and you'll receive a text message when magnetic storms erupt. Aurora tour guides and professional astronomers use this service. You can too!

THE CME HAS ARRIVED; SEVERE STORM IN PROGRESS: Arriving earlier than expected, a CME hit Earth's magnetic field today, April 23rd (1737 UT). The impact has sparked a severe G4-class geomagnetic storm, underway now. During such storms in the past, auroras have been sighted in the USA as far south as Texas and California. This could happen again "if" the storm lasts long enough for night to fall over the Americas. Stay tuned. **Aurora alerts; SMS Text.**

A BURST OF STATIC FROM THE SUN: The explosion that hurled a CME toward Earth on April 21st also illuminated our planet with an intense burst of shortwave radio static. Amateur astronomer Thomas Ashcraft of New Mexico recorded the outburst:

"Few solar radio bursts show as hot purple on my spectrograph, but this one 'rang the bell,'" he says. "Here is an audio recording in stereo with 22 MHz in one channel and 19 MHz in the other."

The static in Ashcraft's recording, which washes over the listener like a slow ocean wave, is naturally produced. Astronomers classify it as a **Type V solar radio burst** caused by energetic beams of electrons ray-gunning through the sun's atmosphere. The electrons were accelerated by the same underlying explosion that hurled a CME toward Earth.

Solar radio bursts are an underappreciated form of space weather. We often talk about radio blackouts, which happen when solar flares ionize the top of Earth's atmosphere. A radio blackout suppresses the normal propagation of terrestrial radio signals. Solar radio bursts are different: they produce a radio dropout. Intense static from the sun overwhelms normal transmissions, drowning out the voices radio operators are trying to hear.

Solar radio bursts will happen more and more often as Solar Cycle 25 intensifies. You can hear them yourself using a **Radio Jove radio telescope kit** from NASA.

Realtime Space Weather Photo Gallery
Free: Spaceweather.com/Newsletter

SILVER SNOOPY SPACE PENDANT: Snoopy has touched space. This sterling silver pendant flew to the stratosphere on April 15, 2023, floating on a cosmic ray balloon 117,400 feet above the Sierra Nevada mountains of central California:

ADVERTISING

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EARTH TO SKY

Sunday, April 23, 2023

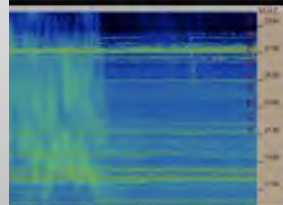
Sign up for
text
aurora tour
this service.



RE STORM IN

As expected, a CME hit
April 23rd (1737 UT). The
4-class geomagnetic
such storms in the past,
the USA as far south as
and happen again *if* the
might to fall over the
Alerts: [SMS Text](#).

RE SUN: The explosion
on April 21st also
intense burst of
our astronomer Thomas
led the outburst:



REMOTE

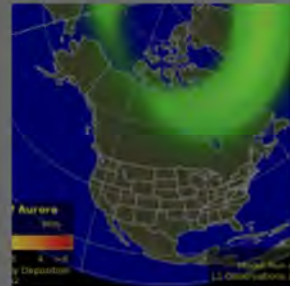
April
23
2023
view



HUMANITY'S
HOPE FOR A
BETTER
FUTURE AT A
NEW STAR
A unique blend of
science fiction and



Current Auroral Oval:



Switch to: [Europe](#), [USA](#), [New Zealand](#), [Antarctica](#)

Credit: NOAA/Ovation

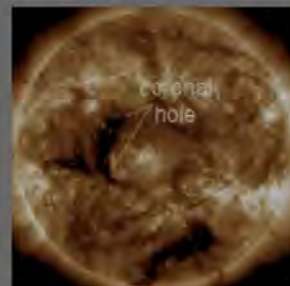
Planetary K-index

Now: Kp= 8.00 severe
24-hr max: Kp= 8.00 severe
[explanation](#) | [more data](#)

Interplanetary Mag. Field

B_{total}: 22.99 nT
B_z: 19.97 nT north
more data: [ACE](#), [DSCOVR](#)
Updated: Today at 0927 UT

Coronal Holes: 23 Apr 23



Solar wind flowing from this equatorial coronal hole should reach Earth on April 27-28. .Credit: SDO/AIA

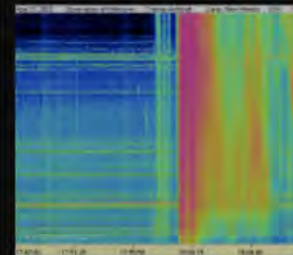
[You can have it for \\$1](#)
great birthday, annive
students of Earth to S
[pendants](#) to support t
program. Each one co
showing the pendant
its journey to the str

Far Out Gift

All sales support

A BURST OF STATIC

that hurled [a CME](#) to
illuminated our planet
shortwave radio stati
Ashcraft of New Mex



"Few solar radio bursts
spectrograph, but this
"[Here is an audio recd](#)
one channel and 19 M

The static in Ashcraft
the listener like a slow





Aurora Alerts

Short forecast



AURORA FORECAST for Great Falls, United States

0 %

overhead

1 %

horizon

SOLAR WIND DATA FROM DSCOVR



KP INDEX

Kp 5

now

Kp 8

in 1 hour

WEATHER AND MOON



n/a

n/a
now

n/a

n/a
in 1 hour06:25
20:24

16 %

08:12
00:01

Short

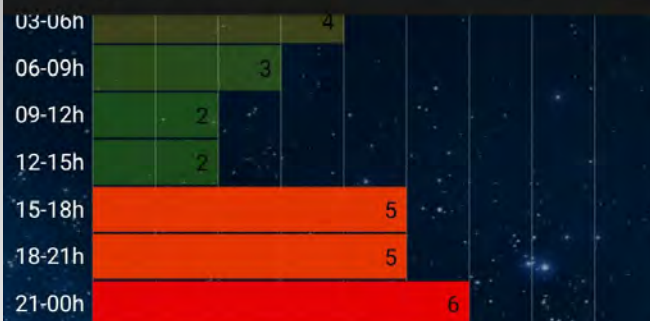
Long fctst

Graph

Alerts

Settings

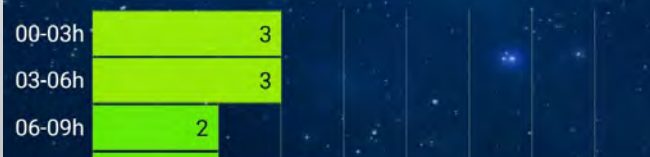
Long forecast



TOMORROW



AFTER TOMORROW



Graphs



OVAL



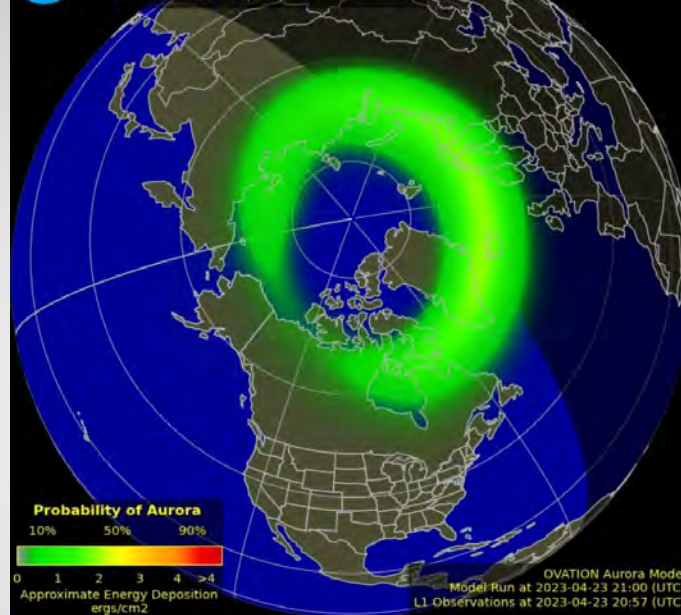
NOAA Space Weather Prediction Center

Aurora Forecast

For 2023-04-23 21:53 (UTC)

Forecast Lead Time: 53 minutes

HPI: 51.3 GW (Range 5 to 200)



ACE PARAMS



Short fcst Long fcst **Graph** Alerts Settings

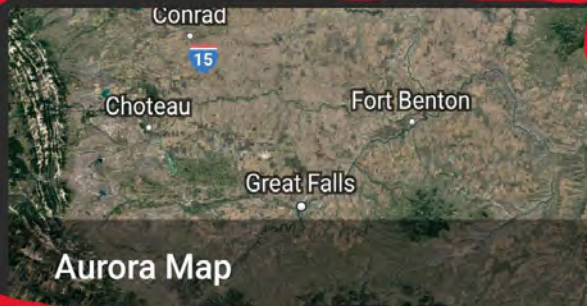


Aurora

Aurora

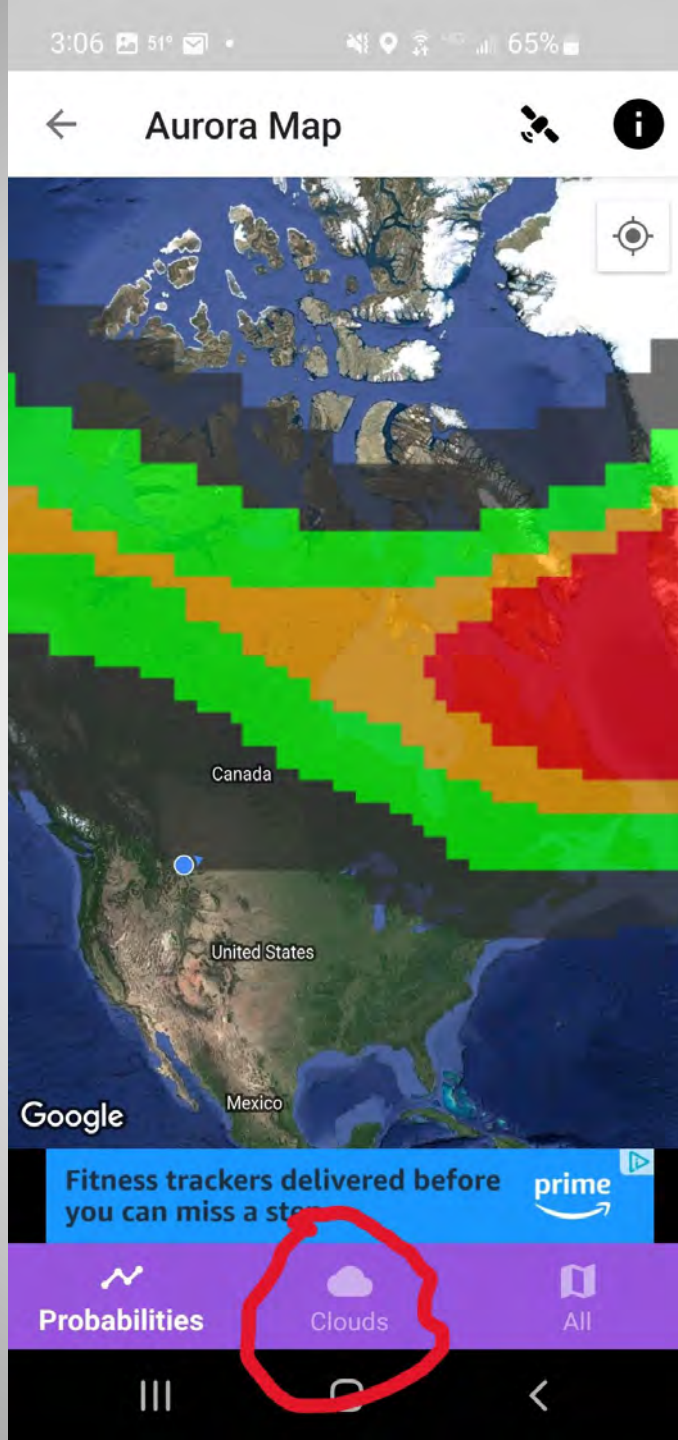
**KP Index 8.00**

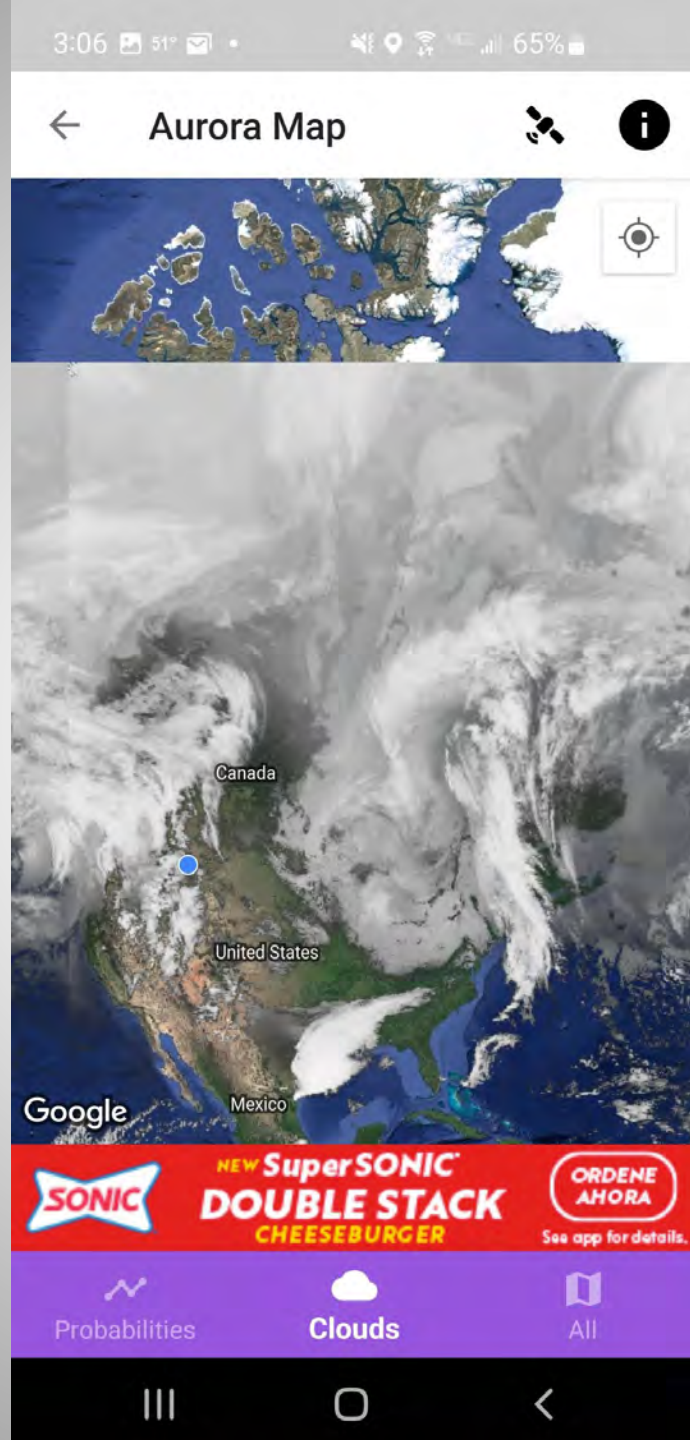
1% chance of seeing the Northern Lights in your current location now.
Tap to change location.

**Aurora Map****Best Locations Now****FISKER**
OCEAN

All-Electric SUV



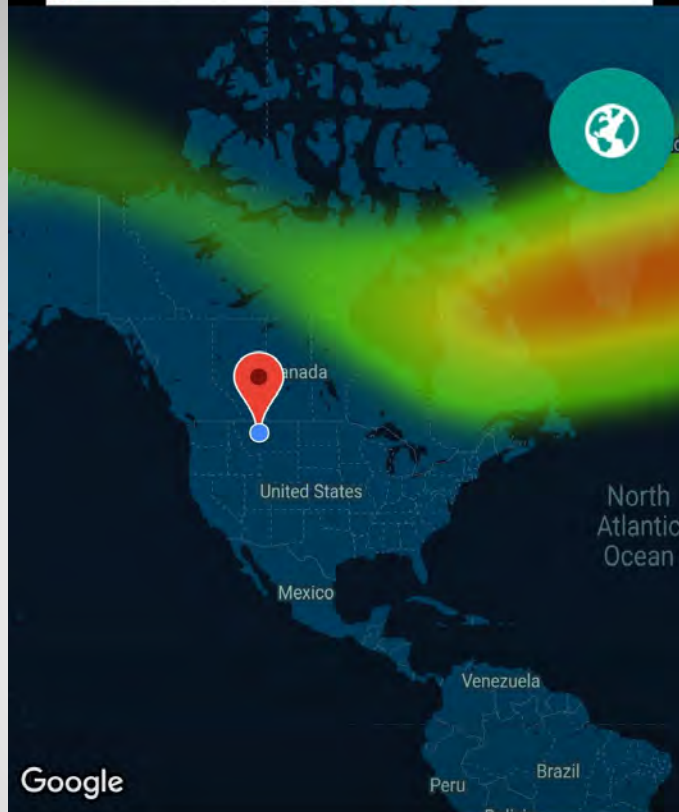






Northern Eye Aurora Fore...

  In-store shopping
 In-store pickup  Delivery 



In GREAT FALLS the viewing probability is

0%



↑ SEE MORE ↑



Clear Outside A

HOME

CURRENT

LOCATIONS

FLO

Forecast for Great Falls, Cascade, United States of America (47.51,-111.30)

Est. Sky Quality: 19.34 Magnitude Class 6 Bortle

Sun
23

Solar

rise 06:20 set 20:26
dark 22:27 - 04:19

Lunar

15%
rise 08:04 set n/a

Time 00 01 02 03 04 05 06 07 08 09 10

Sunlight

Moon

Total Cloud 56 64 78 100 100 100 100 100 96 100 100 100

Low Cloud 21 11 19 13 1 0 25 30 13 10 26

Med. Cloud 31 32 26 81 66 90 95 93 95 96 100 100

High Cloud 12 36 44 100 100 100 100 100 59 100 98

I.S.S

Visibility 9 9 9 9 9 9 9 9 9 9 9

Fog 0 0 0 0 0 0 0 0 0 0 0

Rain

Chance 1 2 0 0 3 3 3 3 0 3 5

Amount 0 0 0 0 0 0 0 0 0 0 0

Wind ↑ ↑ ↑ ↗ ↗ ↗ ↗ ↗ ↗ ↑ ↑

4 4 4 4 4 4 5 4 4 4 5

Frost

Temp. °C 6 5 5 5 4 4 4 4 5 8 10

Feels Like 5 4 3 2 1 1 1 1 3 5 7

Dew Point 1 1 0 0 0 0 0 0 1 3 4



















Walter

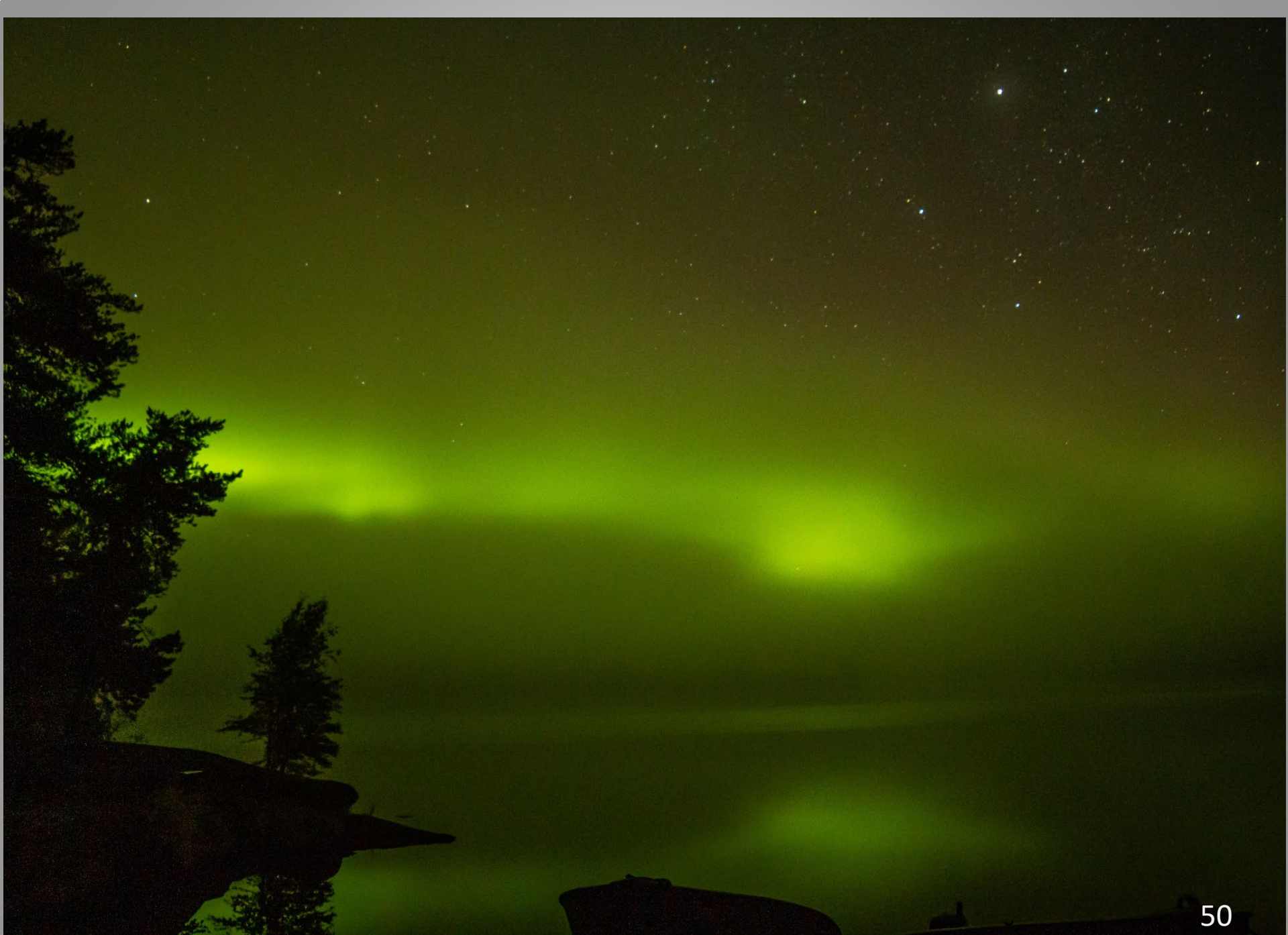
Aurora Borealis















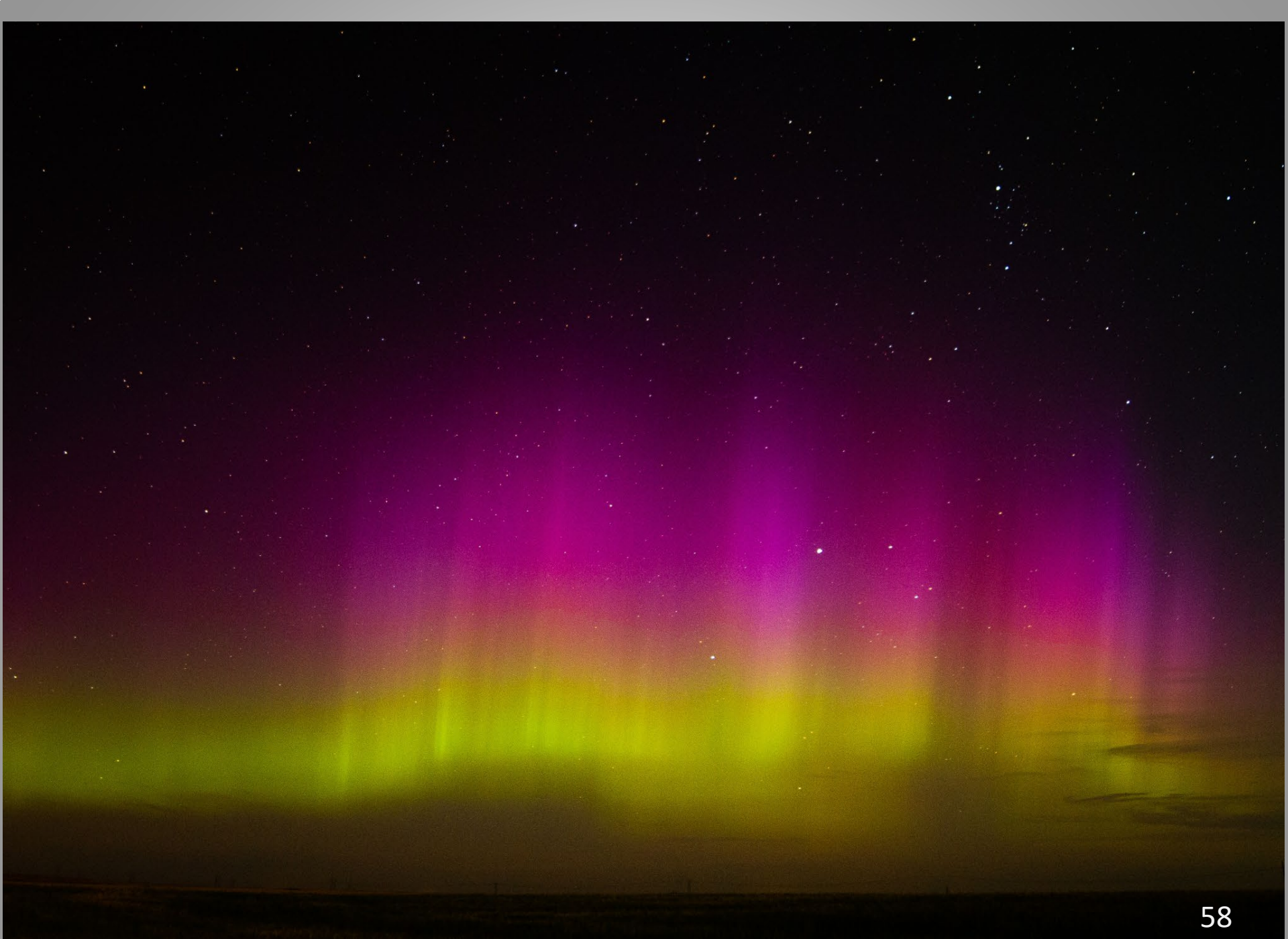
















Doug Star Trails



3200 ISO
15 second Exposure
24-70 mm 2.8f
Light painted a little
Edited in LR
Stacked in PS

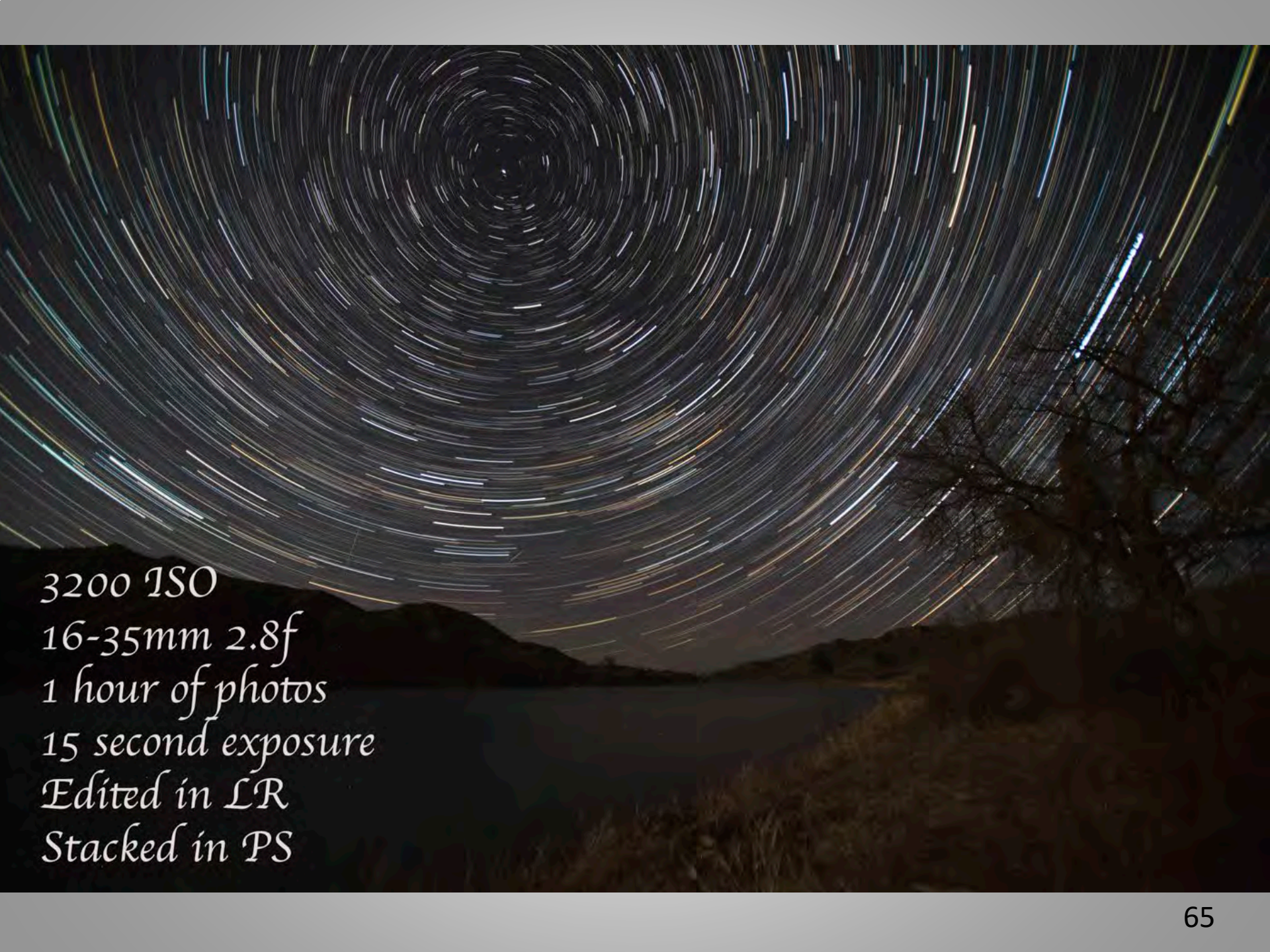
Zander Art
Gallery



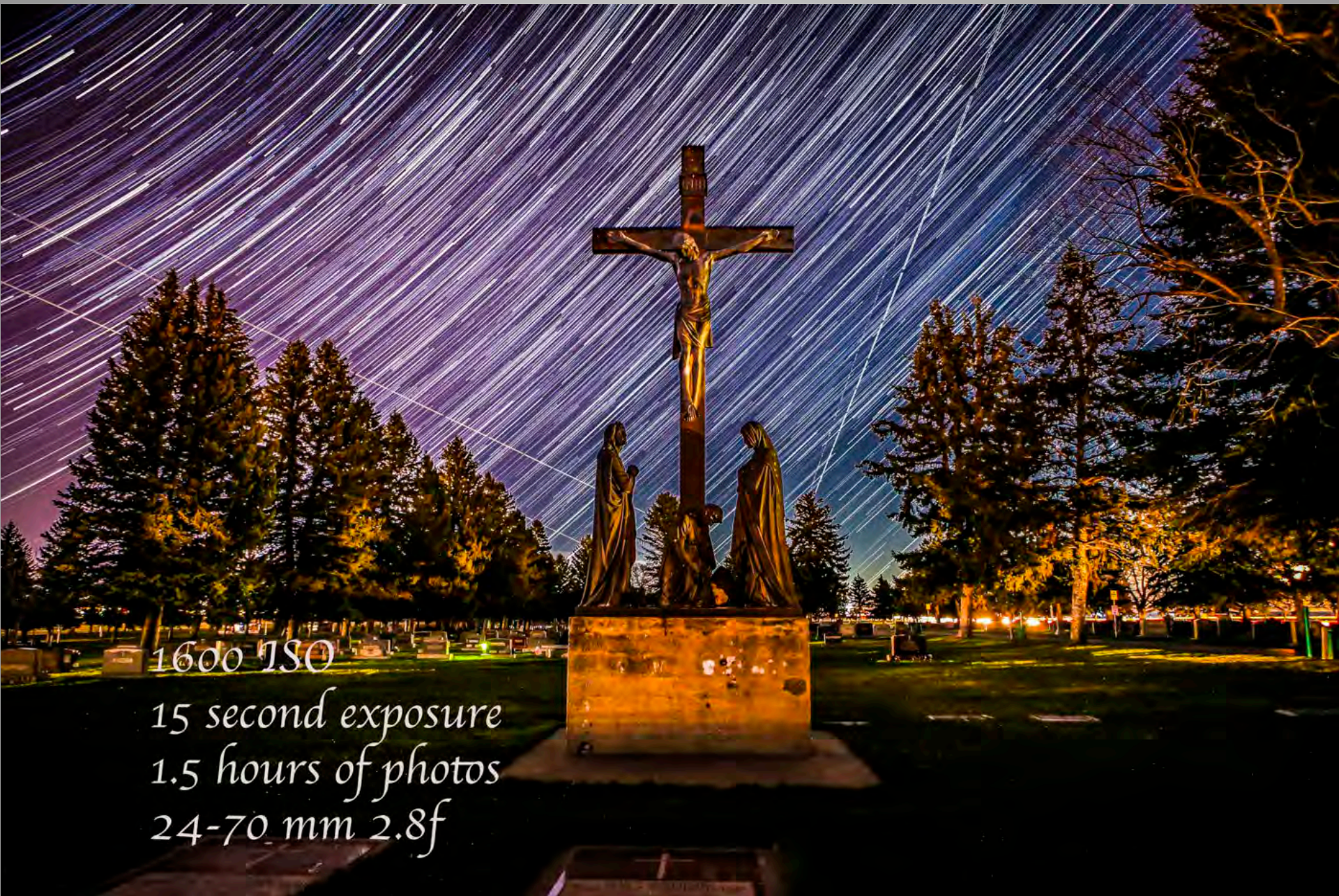
1600 ISO
1 hour photos
15 sec exposure
24-70mm 2.8f

A long-exposure photograph of a starry night sky. The stars have formed into numerous concentric circular trails, indicating the Earth's rotation. Below the sky, a large steel truss bridge spans across the frame. The bridge is illuminated with warm, yellowish lights, and its structure is clearly visible against the dark sky. The foreground shows some rocky terrain and a body of water.

1600 ISO
45 min @ 30 sec
16-35mm 2.8f
LR & PS edited



3200 ISO
16-35mm 2.8f
1 hour of photos
15 second exposure
Edited in LR
Stacked in PS



1600 ISO

15 second exposure

1.5 hours of photos

24-70 mm 2.8f



1600 ISO
30 Seconds
45 minutes
16-35mm 2.8f



Zander Art Gallery

1600 ISO
204 photo's
16-35mm 2.8f
30 second exposures

**Thanks to Kirk, Rick,
Walter and Doug for
the Wonderful
Presentations.**