Marc Rassel – November 7, 2025

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Photographing the Aurora: A Full-Day Workshop

From In-Field Capture to Final Timelapse

Get Started

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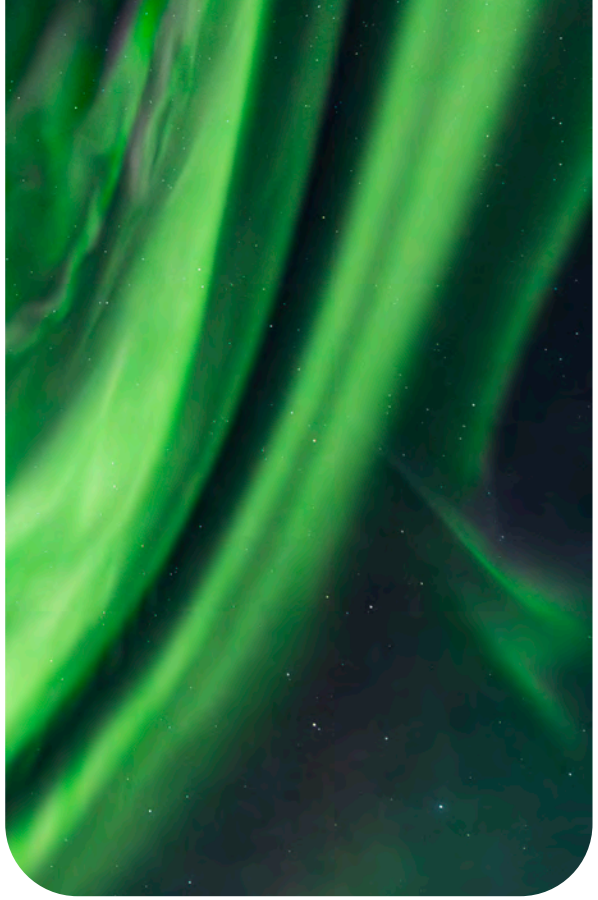
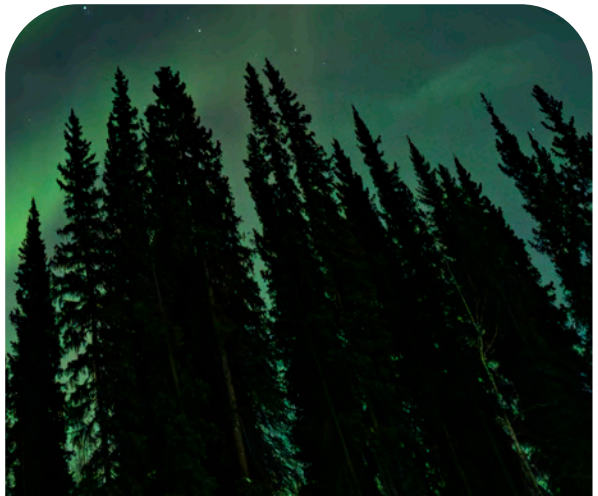
About Me

Welcome to Bootcamp 2025

I’m a photographer who focuses on the night sky and the wild landscapes that sit beneath it. Whether it’s an aurora storm over the Arctic, the Milky Way stretched across desert rock, a moonlit ridge line in the mountains, or the fleeting drama of a total solar eclipse, I’m drawn to moments where natural light and land meet in powerful, often unpredictable ways.

Let’s Go





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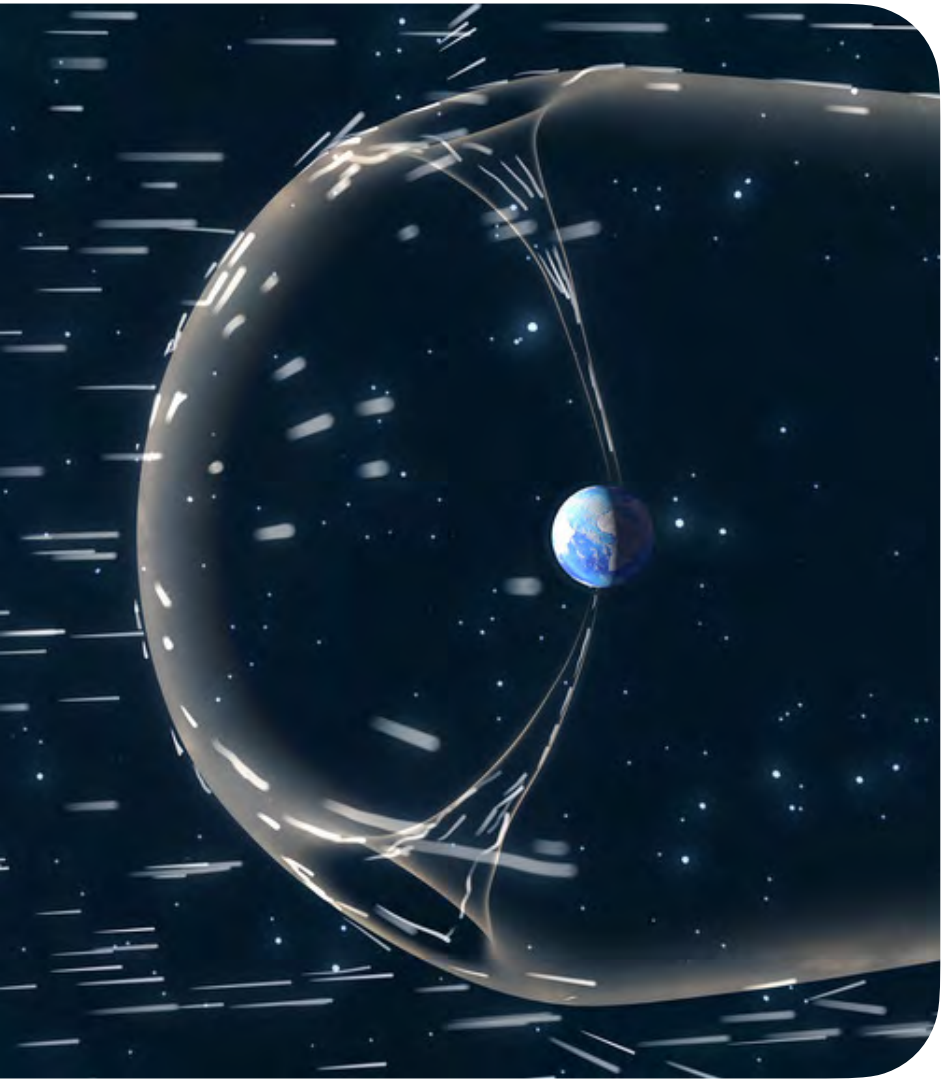
What we will cover

Our Goals for Today's Bootcamp

- To master a repeatable process for stunning aurora photos.
- Morning Session: Master In-Field Capture (The "Get It Right" Part).
- Afternoon Session: Master Post-Processing (The "Make It Beautiful" Part).

Next →



A Brief Science Primer

What is the Aurora?

Source: The Sun (Solar Wind / CMEs)

Interaction: Particles hit Earth's magnetosphere

The “Glow”: Solar particles exciting atoms in our atmosphere

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Why the Science Matters

Colors Tell a Story

- **Green (Most Common)**: Oxygen.
- **Red/Pink (Rarer)**: High-Altitude Oxygen.
- **Blue/Purple (Very Rare)**: Nitrogen (sign of a very strong storm).
- **Key Takeaway**: The speed (slow blobs vs. fast pillars) will dictate our camera settings.

What to Expect

A Bit of Housekeeping

Today's Agenda

- **Breaks**: 10:00 AM & 2:45 PM (or as needed).
- **Lunch**: 12:00 PM - 1:30 PM.
- **Restrooms**: Where are they located?
- **The #1 Rule: Ask questions!** This is a workshop, not a lecture.

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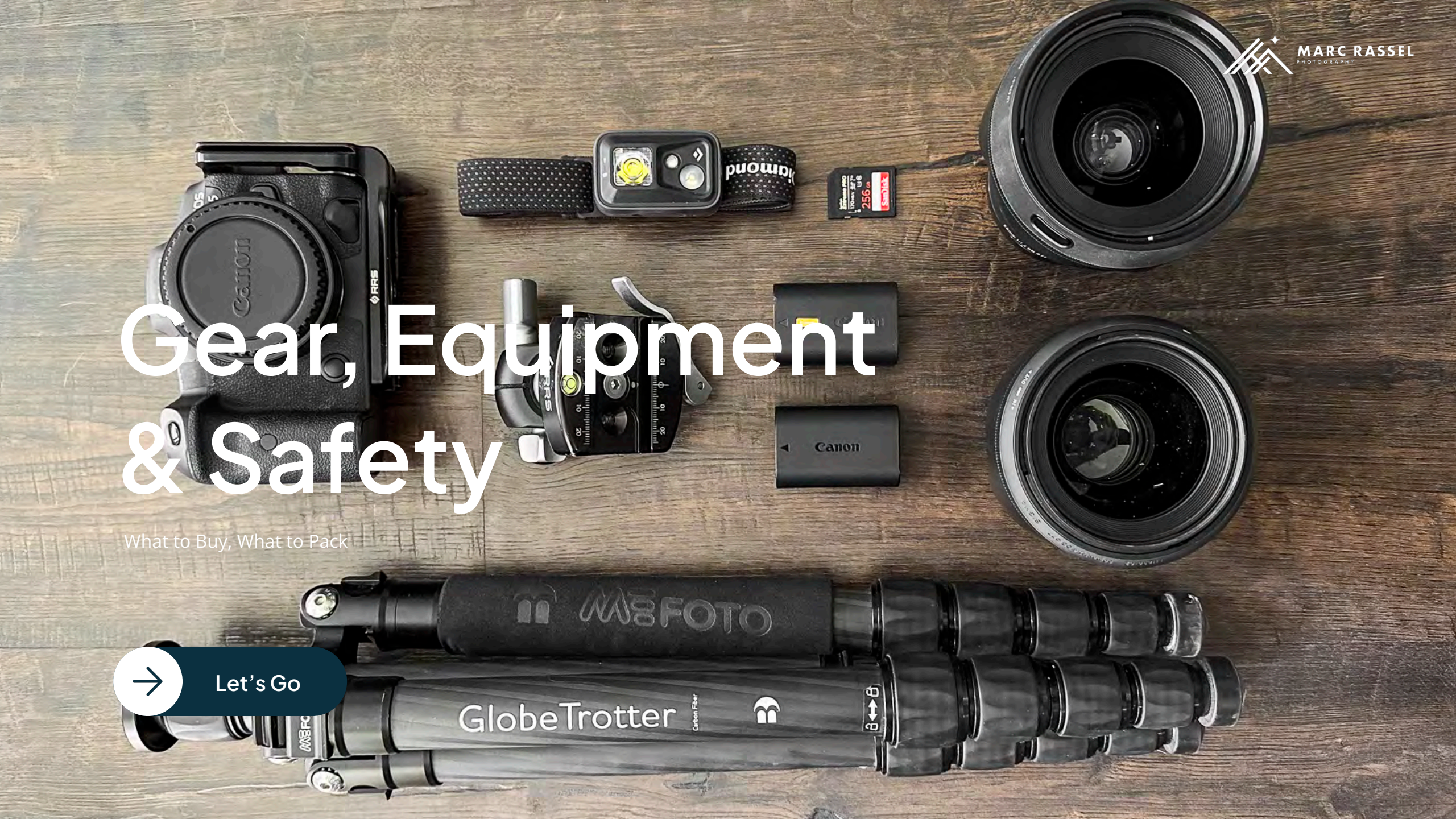
Gear, Equipment & Safety

What to Buy, What to Pack

Let's Go



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Field Safety

Your Best Photo Isn't Worth Frostbite

The Basic Rules

- **Dress in Layers**: Base (Merino/Synthetic), Mid (Fleece/Down), Shell (Windproof).
- **NO COTTON!** (It holds moisture and freezes).
- **Extremities**: Insulated boots, hand/toe warmers (put them with batteries!), hat, balaclava.

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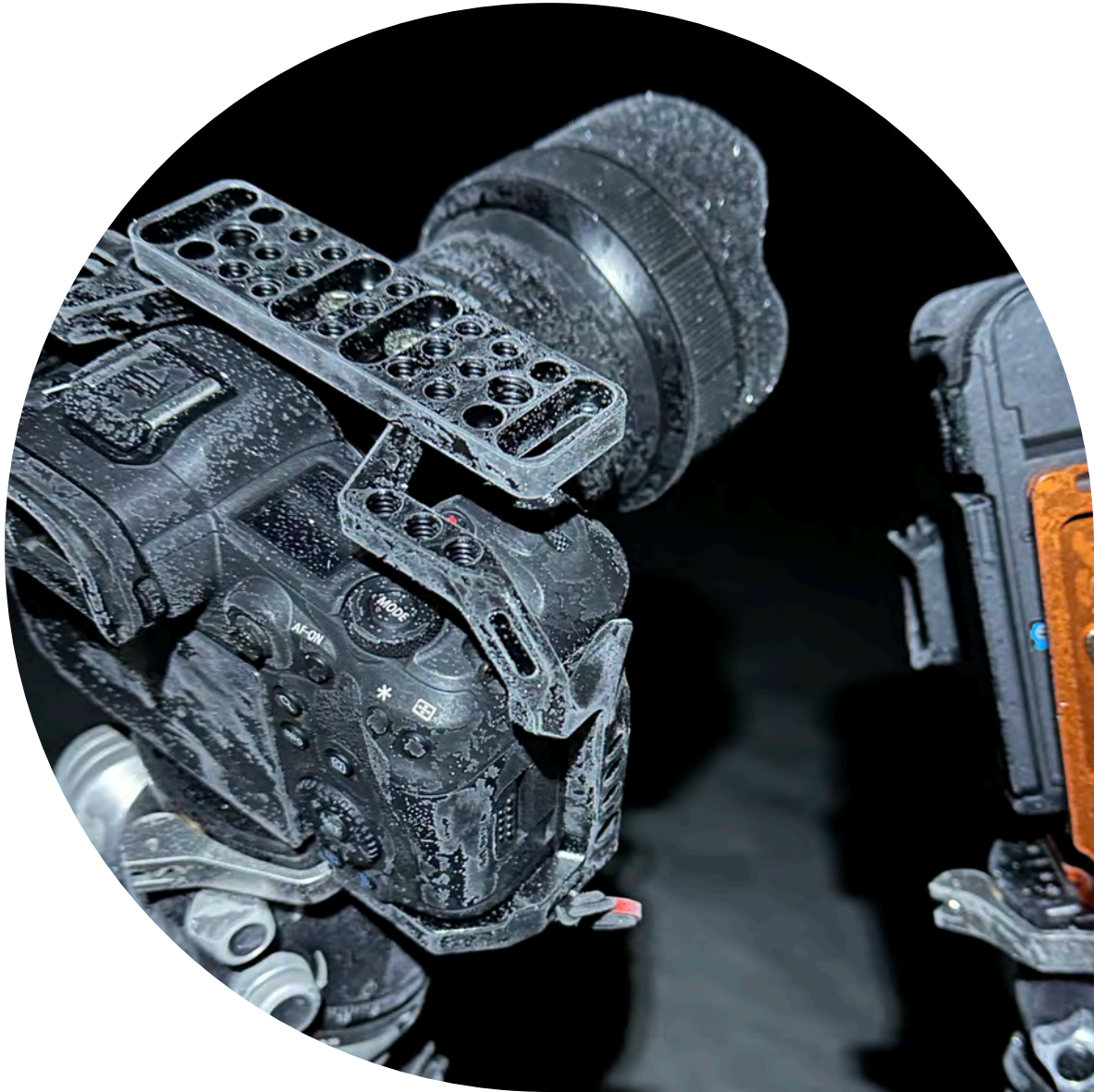


Field Safety

Your Most Important Gear

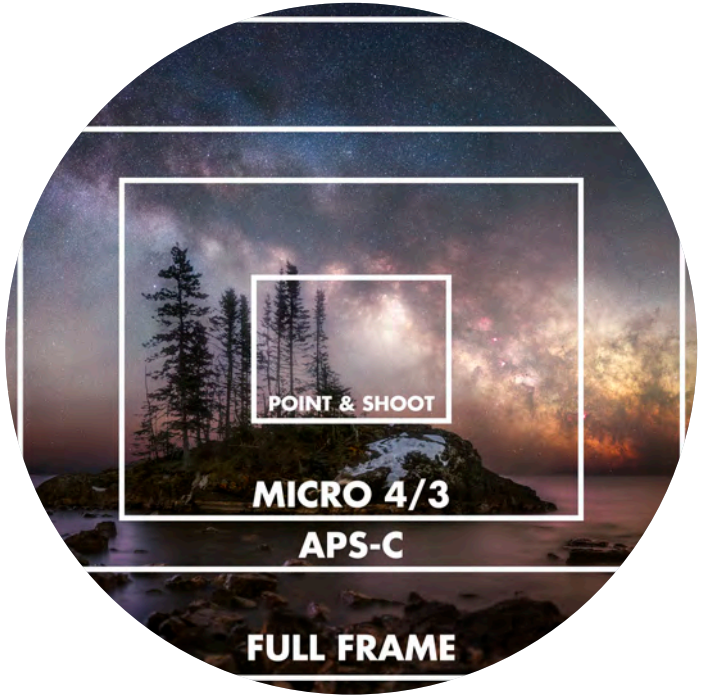
Essentials

- **Headlamp**: Must have a RED LIGHT mode.
- **Why Red Light?** It preserves your night vision (and everyone else's).
- **Situational Awareness**: Watch for wildlife, thin ice, and private property.

The Big Three

The Core Kit: 1. The Camera

- **Requirement**: Manual (M) Mode & RAW shooting.
- **Full-Frame**: Better in low light, less noise (but heavier, more expensive).
- **Crop-Sensor (APS-C)**: Perfectly capable! (Just need to manage noise).
- **Mirrorless vs. DSLR**: Mirrorless wins for night work (Live View EVF, Focus Peaking).



The Big Three

The Core Kit: 2. The Lens

The most critical piece

- **This is your "Light Bucket."** You want the biggest one possible.
- **Focal Length**: Go WIDE (14mm - 24mm) to capture the scale of the sky.
- **Aperture**: Go FAST (f/1.4, f/1.8, f/2.8).
- **A "fast" f-stop** (like f/1.8) lets in dramatically more light than f/4.

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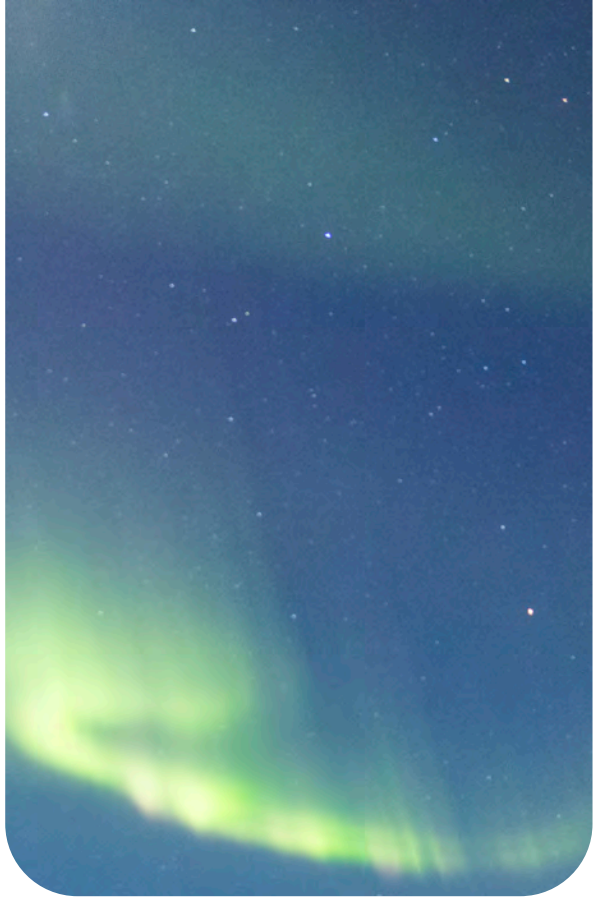
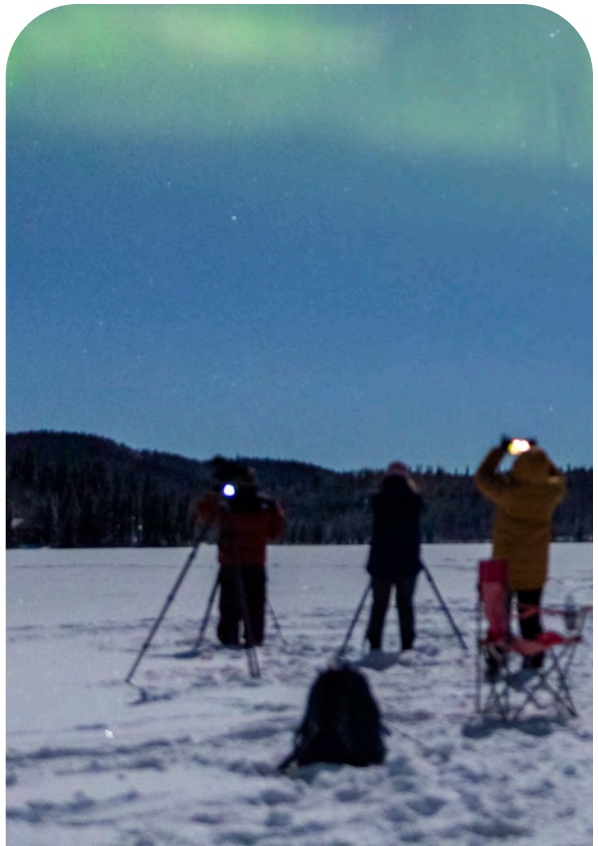
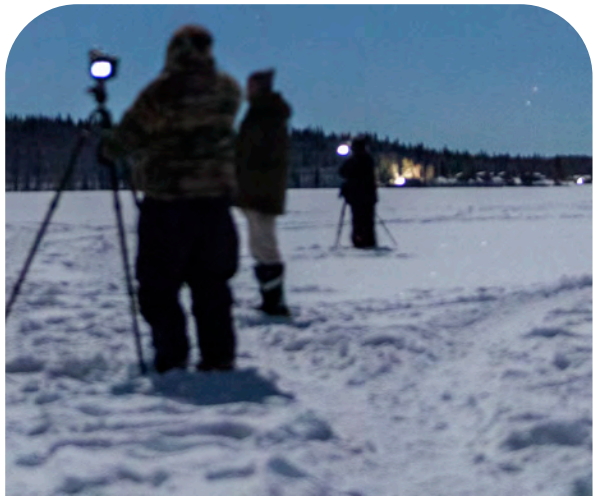
The Big Three

The Core Kit: 3. Tripod & Head

- **"Do not trust a $3000 camera to a $50 tripod."**
- **Tripod**: Sturdiness > Weight. (Carbon Fiber is best for cold/weight).
- **Head**: Ball-Head is fast and flexible. (Avoid clunky 3-way heads).
- **Pro-Tip**: An "L-Bracket" keeps your camera centered for vertical shots.







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Essential Accessories

The "Must-Haves"

- **Remote Shutter / Intervalometer**
  - **Why?** Pressing the shutter button will shake your camera and blur your shot.
  - Can be a wired remote, a wireless app, or built-in to your camera.
- **Extra Batteries** (ideally brand-name)
- **Headlamp** with red light options
- **Memory Cards**: High quality “pro” grade

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Non-Essential Accessories

The “Nice-to-Have” Gear

- **Lens Heater / Dew Strip**: Prevents frost/dew from forming on your lens.
- **Hand and Foot Warmers**: I’m certain I don’t need to explain this one…
- **Power Banks**

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Don’t Forget!

The “Don’t Make This Mistake” Gear

- **Filters: REMOVE THEM!**
  - **UV/Clear filters** cause "ghosting" (internal reflections) on bright stars/ aurora.
  - **NEVER use Polarizers** (CPL) or ND filters at night.
- **Electric** socks, gloves, vest, etc.

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Essential Gear

Example Kits

Budget

Crop-sensor body + Rokinon 14mm f/2.8 + Aluminum tripod

Intermediate

Full-frame (Sony a7iii) + 20mm f/1.8 + Carbon fiber tripod

Advanced

Low-light body (a7Siii/Z8) + 14mm f/1.8 + Lens Heater

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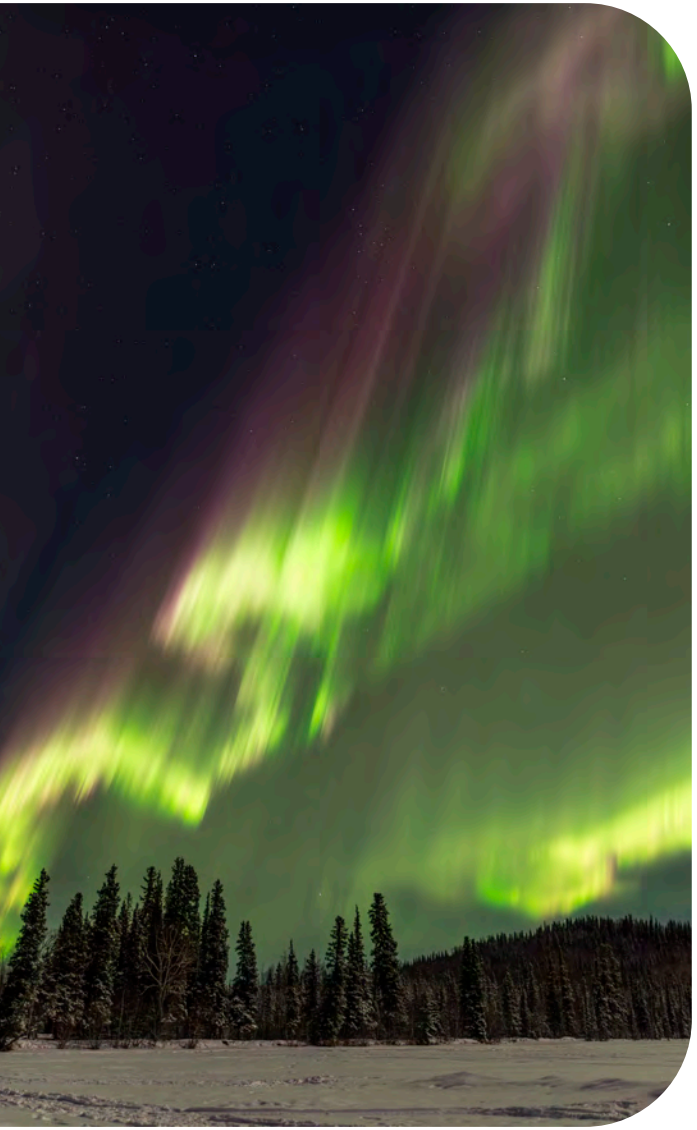

Night Shooting Etiquette

How to Not Ruin Everyone's Night

RED LIGHTS ONLY

(No, really. Only red.)

- **Dim** your camera's LCD screen.
- **Turn off** all camera "BEEP" sounds.
- **Don't "light paint"** or use flash if others are shooting.
- **Our Responsibility**: Leave No Trace.

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Leave No Trace

The “Leave No Trace” Seven Principles

The Basics

- Plan Ahead and Prepare
- Travel and Camp on Durable Surfaces
- Dispose of Waste Properly
- Leave What You Find
- Minimize Campfire Impacts
- Respect Wildlife
- Be Considerate of Other Visitors

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Setting Up for Success
The Pre-Flight Checklist
Let’s Go

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Pre-Flight Checklist

The "At Home" Checklist

The Basics

- Format memory card (after you download your files!)
- Charge ALL batteries and headlamps
- Gather all your essential gear (camera, lens, tripod)
- Lens clean (microfiber cloth)
- Red headlamp charged
- Cell phone charged

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Pre-Flight Checklist

The “In-Field” Checklist

Don’t Forget

- Set to Manual (M) Mode.
- Set to shoot RAW. (NOT JPEG).
- Turn OFF Long Exposure Noise Reduction (LENR).
    - Why? Doubles your wait time, creates gaps in a timelapse.
- Turn OFF Image Stabilization (IBIS/IS/VR).
    - Why? On a tripod, it "hunts" for motion and causes blur.
- Turn OFF High ISO Noise Reduction
- Set LCD brightness to Manual and turn it down.
- Make sure your lens is set to Manual Focus

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Focusing in the Dark

Nailing Focus: The MOST Important Step

Set your lens to Manual Focus (MF)

- Open your aperture to its widest setting (e.g., f/1.8).
- Find a bright star or very distant light near the center of the frame.
- Use Live View.
- Digitally Zoom In (5x, 10x) on the star.
- Slowly rock the focus ring with both hands until the star is a small, sharp pinprick.

Focusing in the Dark

Focussing: Pro Tips

The Real Pro-Tip: Check Your Focus Every 30 Minutes

- **Mirrorless Pro-Tip**: Use the EVF (electronic view finder) if external factors are distracting, such as cars, other lights, etc.
- **Advanced Pro-Tip**: Use a "Bahtinov Mask."
- **The "Taping Your Lens" Myth: Don't do it**. True infinity shifts with temperature.


STANDARD FOCUS


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STARRY FOCUS – LONG
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F2.0
-3..2..1..0..1..2..+3
ISO
3200

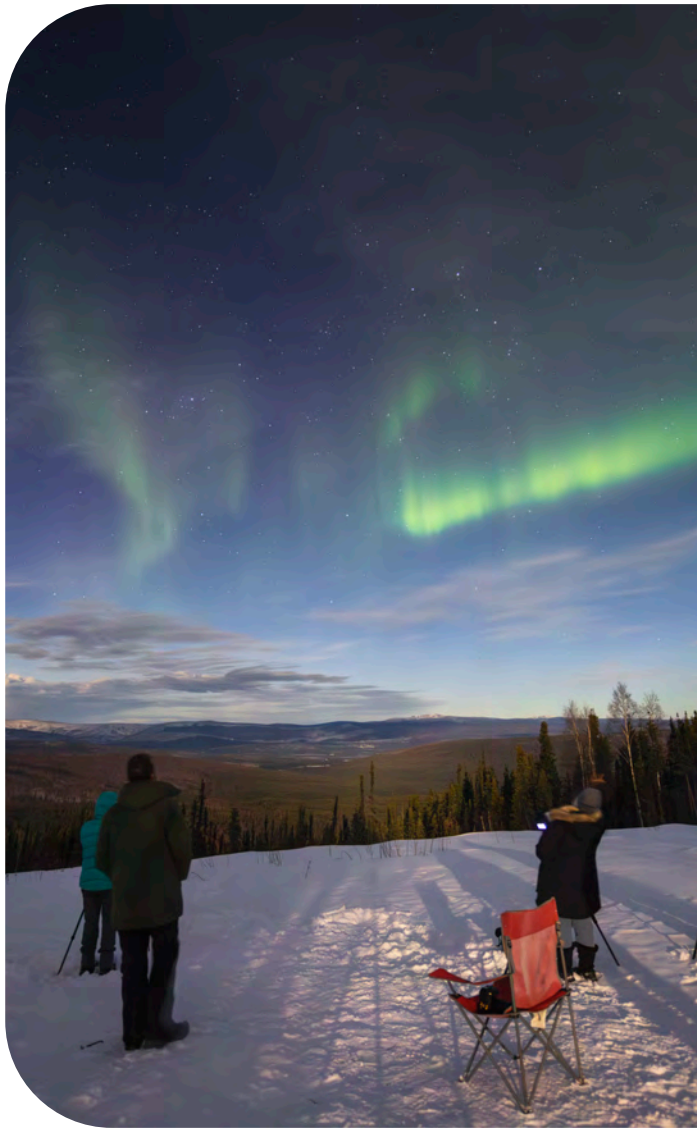

STARRY FOCUS – WIDE

Everyone, get your cameras out

Your Turn, Then Break Time

We will now do our "Pre-Flight Checklist" together

- **Your Mission (Find these 5):**
  - **Long Exposure Noise Reduction (LENR)** → Turn OFF.
  - **Image Stabilization (IS/IBIS/VR)** → Turn OFF.
  - **Image Quality** → Set to RAW.
  - **Shooting Mode** → Set to Manual (M).
  - **LCD Brightness** → Turn it DOWN.
- Ambassadors will be roaming to help.
- **Once you've got all five**, you're on break! See you at 10:15.



Coffee In → Coffee Out

See you at 10:15

Grab some coffee, grab a snack, and get ready for the fun parts.

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Night Settings

The Aurora Exposure Pyramid

The Secrets to Manual Shooting

Everything you need to know about choosing the correct settings in photography comes down to these basic principles of the Exposure Triangle.

Next →


ISO
100
200
400
800
1600
3200
6400
SHUTTER
1"
4"
8"
13"
20"
25"
30"
APERTURE
f/2.8
f/4.0
f/5.6
f/8.0
f/11
f/16
f/22

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Night Settings

The Goal vs. The "Enemy"

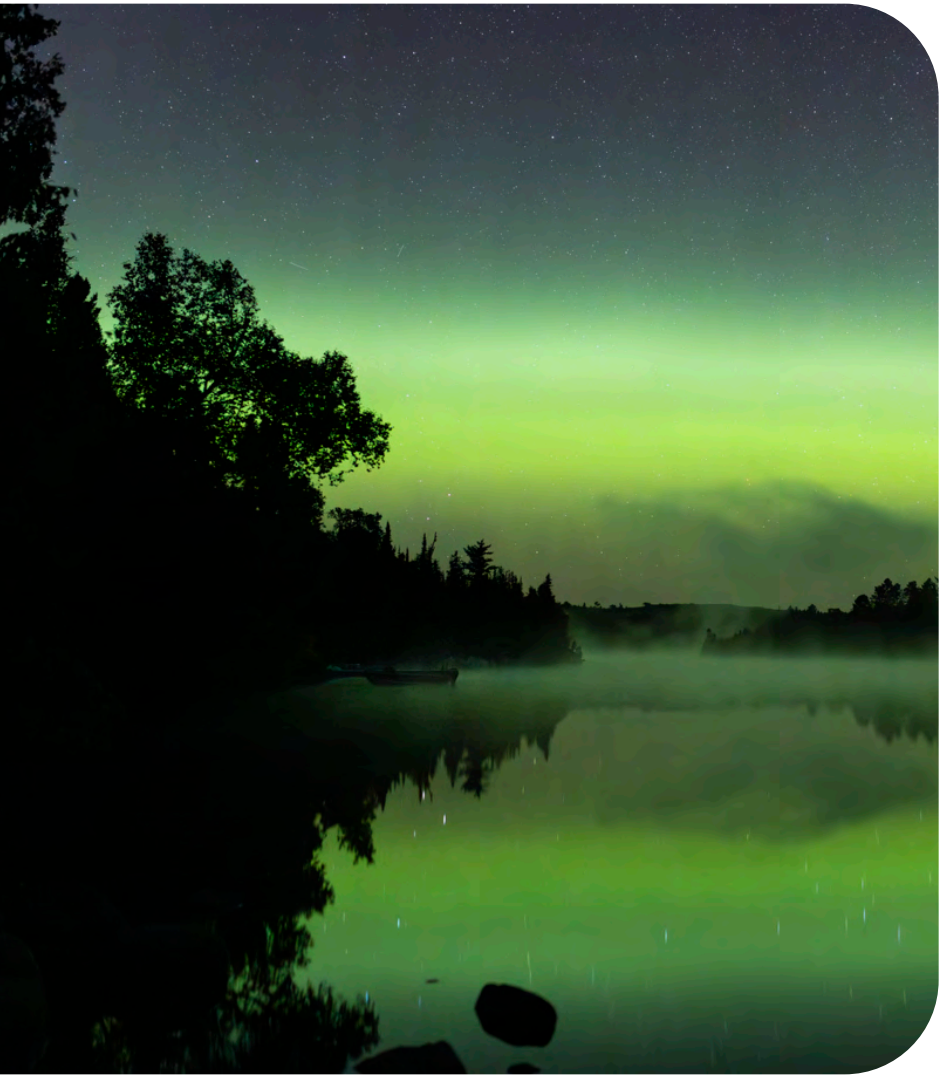
- **Our Goal**: Capture a sharp, bright, detailed photo.
- **The Enemy**:
  - Lack of Light (It's dark!)
  - Digital "Noise" (Grain)
  - Motion Blur (From subject or camera)
- **We control this with 3 settings**: Aperture, Shutter Speed, ISO.

The Exposure Pyramid

Aperture (The "Light Funnel")

Setting the Aperture

- **What it is**: The opening in your lens. (e.g., f/1.8, f/2.8, f/4.0).
- **Low Number (f/1.8)** = Wide open = More light!
- **Your Goal**: Set it to the lowest number your lens has (f/1.8, f/2.8) and leave it there.
- **This is Priority #1**. Set it and forget it.



The Exposure Pyramid

Shutter Speed (The "Time" Element)

Choosing the Right Shutter Speed

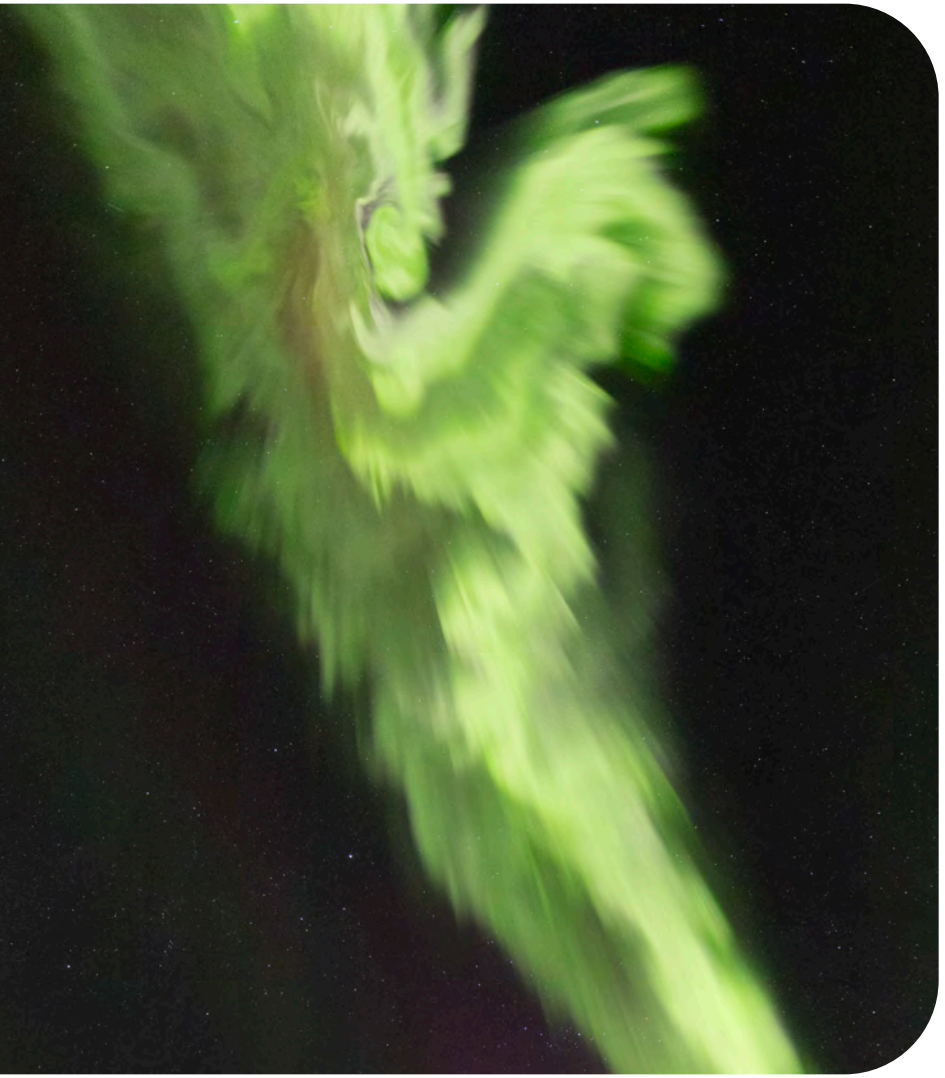
- **What it is**: How long the camera's sensor is exposed to light.
- **Longer time (15s)** = More light, but more motion blur.
- **Shorter time (3s)** = Less light, but freezes motion.
- **The "500 Rule" is outdated**. Star trails appear much faster on modern cameras.
- **A good starting point**: 15 seconds.

Shutter Speed vs. Aurora Motion

Shutter Speed is Your Creative Control

This is how you control the texture of the aurora

- **Scenario A: Slow, Faint Aurora**
  - Use a long shutter (15-25s).
  - This gathers more light and smooths the aurora into a soft, glassy ribbon.



Shutter Speed vs. Aurora Motion

Shutter Speed is Your Creative Control

This is how you control the texture of the aurora

- **Scenario B: Fast, Dancing Aurora**
  - Use a short shutter (2-8s).
  - This freezes the motion and captures the sharp, distinct "pillars" and “curtains.”

But wait… less time = less light. How do we fix this?

The Exposure Pyramid

ISO (The "Amplifier")

This is the answer. ISO amplifies the signal (the light)

- **Low ISO (100)** = Low amplification (needs lots of light).
- **High ISO (3200)** = High amplification (good for dark scenes).
- **The "Cost"**: High ISO = more digital "noise" (grain).
- **Don't be afraid of ISO!** Noise is better than a blurry or dark photo.
- **Use your HISTOGRAM**, *NOT* your LCD to judge brightness!

Cheat-Sheet

The Starting Recipe

Use this as a baseline

Mode: M, **Focus**: MF

Additional Settings: RAW, IS/LENR: OFF.

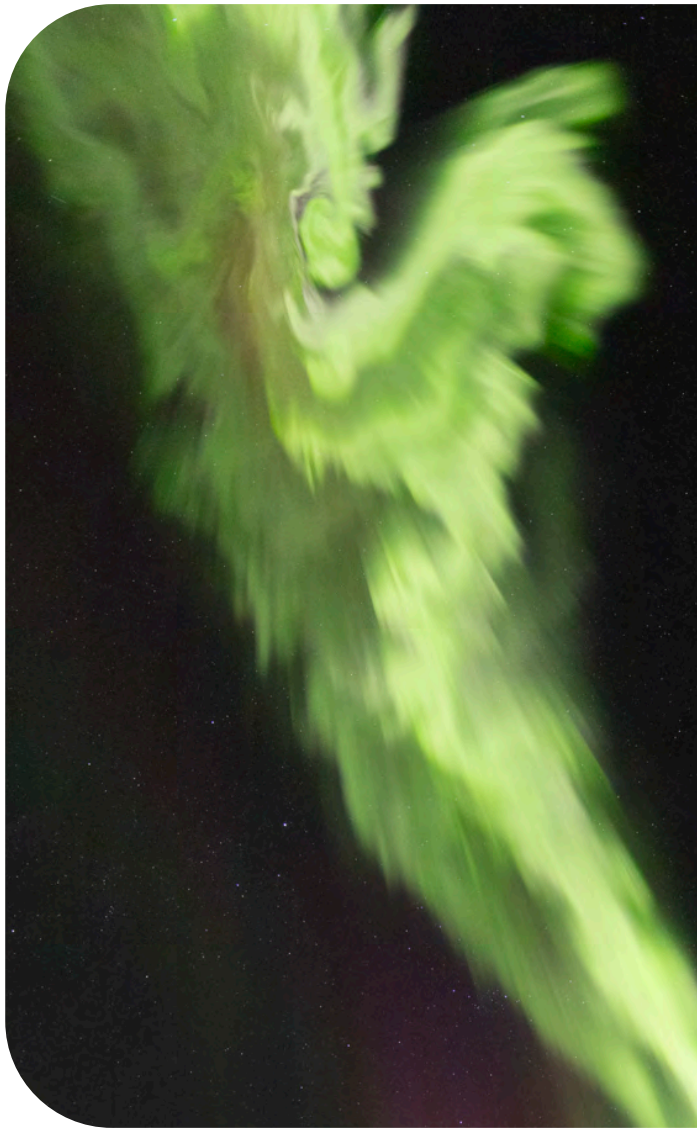
Focus perfectly on a star.

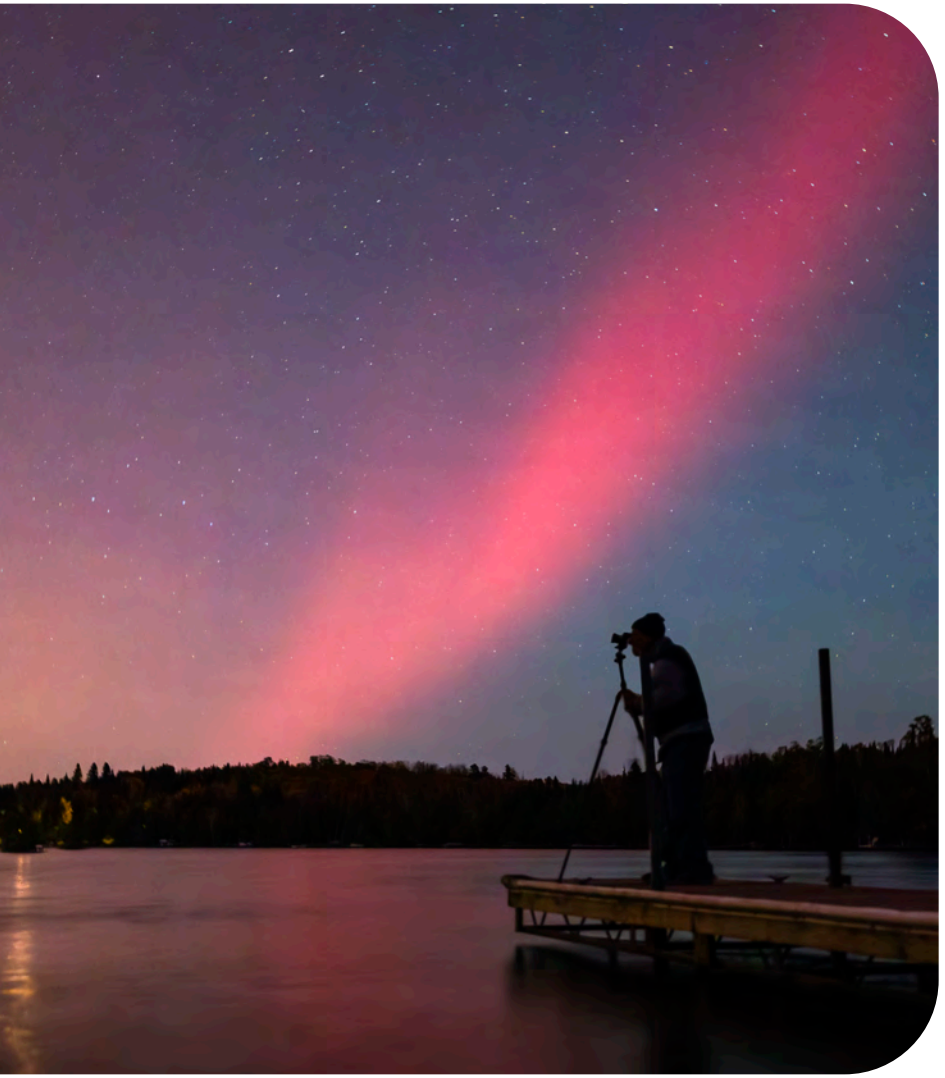
Aperture: f/1.8 (or widest).

Shutter Speed: 15 seconds.

ISO: 3200.

Take test shot. Review & Adjust.



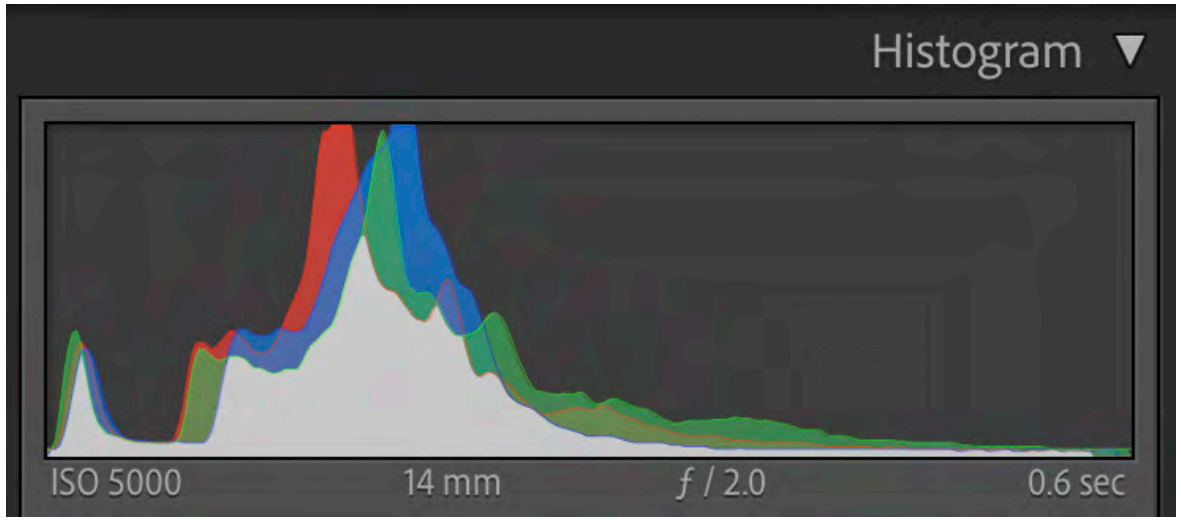


The Starting Recipe

Test Shot

Review & Adjust

- **Focus**: Zoom in. Is it still sharp?
- **Exposure**: Check histogram. Adjust ISO up/down.
- **Motion**: How's the aurora texture? Adjust Shutter (and compensate with ISO).

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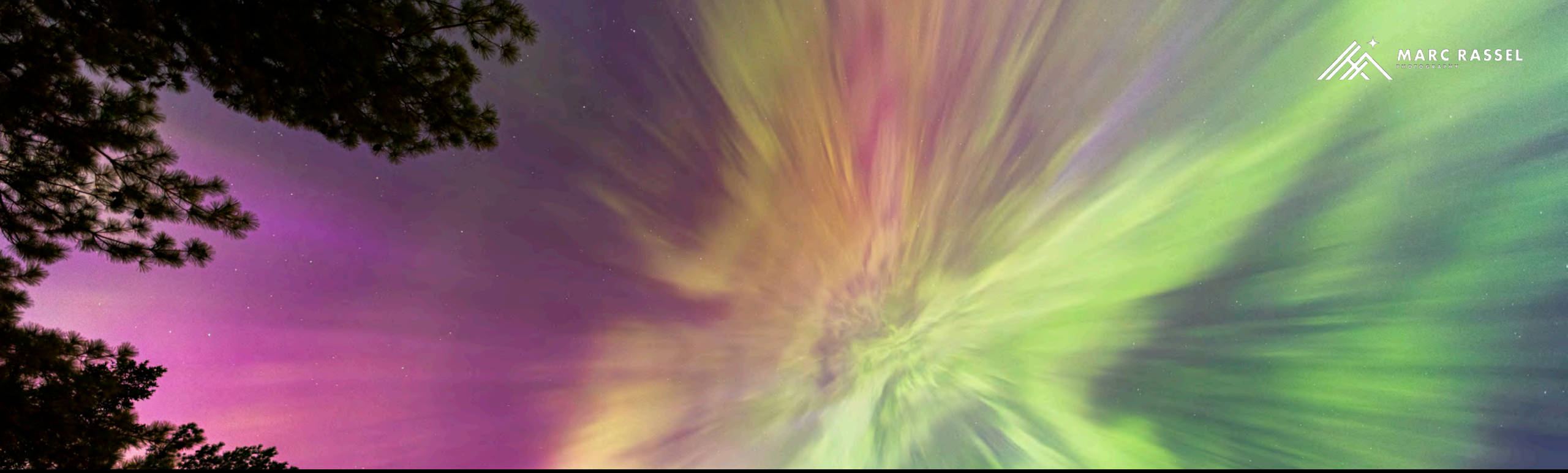
13"
20"
25"
30"
APERTURE
f/2.8
f/4.0
f/5.6
f/8.0
f/11
f/16
f/22

What's the Call?

Let's apply the pyramid to real-world scenarios

Let’s Play

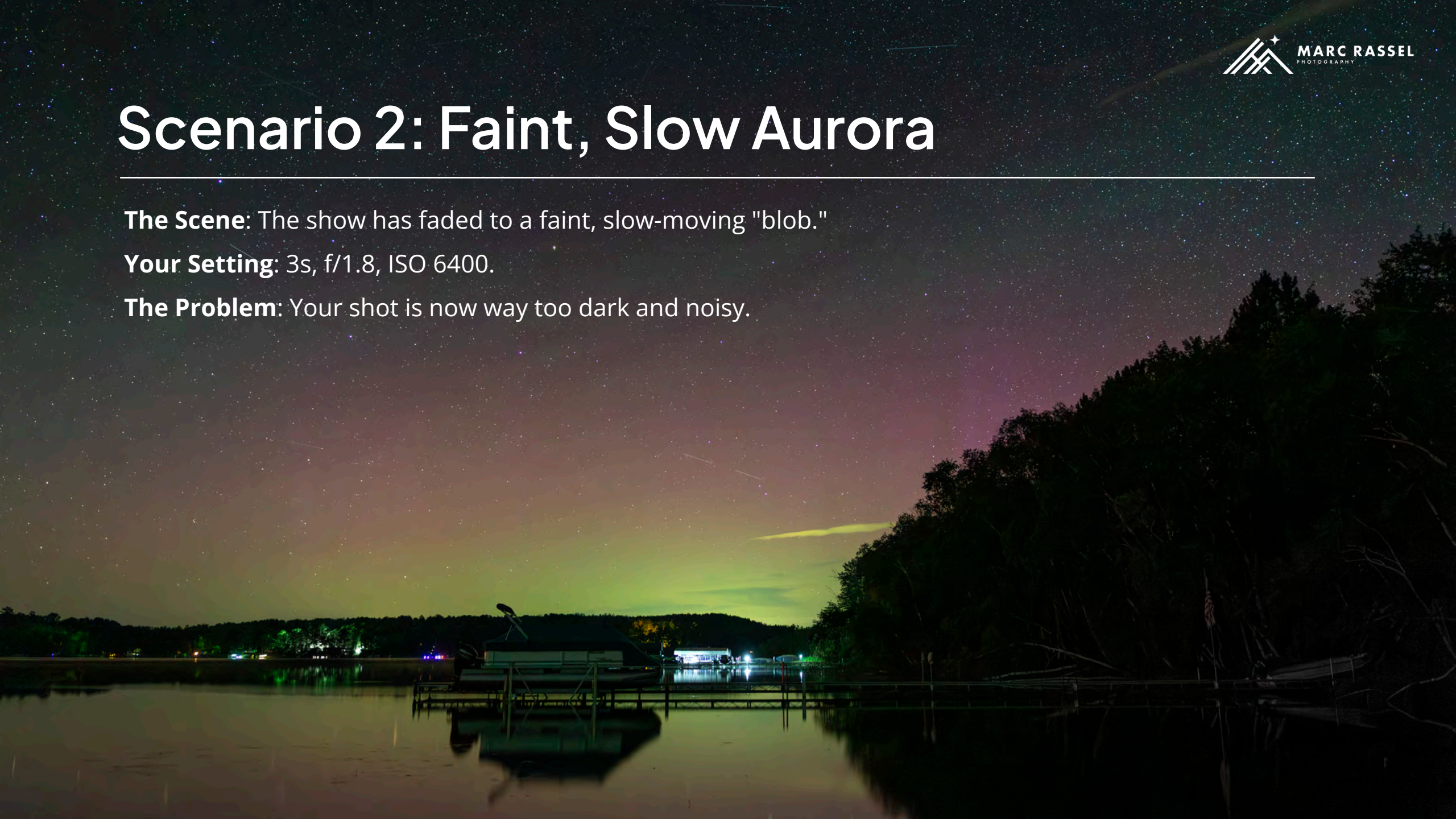


Scenario 1: Fast, Bright Aurora

The Scene: A massive, bright aurora just exploded. It's moving fast.

Your Setting: 15s, f/1.8, ISO 3200.

The Problem: Your 15s shot is a blurry, overexposed mess.



Scenario 2: Faint, Slow Aurora

The Scene: The show has faded to a faint, slow-moving "blob."

Your Setting: 3s, f/1.8, ISO 6400.

The Problem: Your shot is now way too dark and noisy.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Composition
It's Not Just a Sky Photo
Show Me

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Composition

Include a Strong Foreground

The #1 Rule: Find a Foreground that Adds Interest

- **A foreground gives context**, scale, and makes the photo yours.
- **Look for**: Mountains, trees, cabins, people, reflections.

Next →


CAMP
OFFICE
PAINTBALL
GUNS

Composition

Additional Tips on Composition

What Other Tricks Can I Use?

- **Rule of Thirds**: It still applies!
- **Reflections**: Look for water. It doubles the light!
- **Human Element**: A person (standing still!) adds scale and story.
- **Leading Lines**: Literal or implied lines can lead your eye in to the image.
- **Light Painting**: Subtly light your foreground IF ALLOWED.

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Timelapse
An Introduction to Capturing Motion
Let’s Go

Timelapse

What is a Timelapse?

- **A sequence of still photos** (RAWs) played back quickly.
- **240 Photos = 10-second video** (at 24 frames-per-second).
- This is **one of the best ways** to show the aurora's movement over time.
- **The Goal**: Capture 300+ *consistent* photos.

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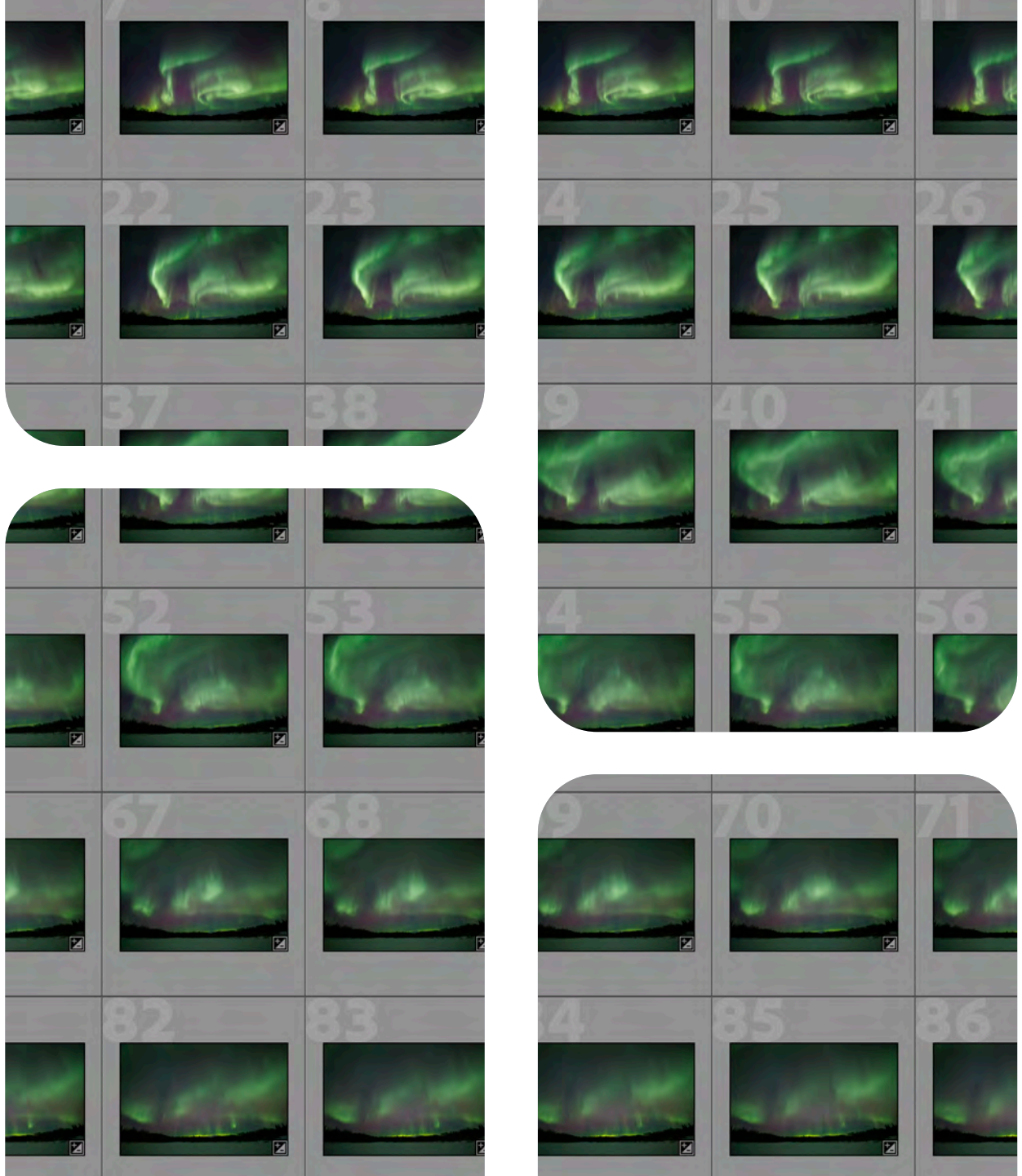

Timelapse

Consistency is King

- **Flicker is the #1 enemy**. It's caused by inconsistent settings.
- **Rule #1**: Use FULL Manual Mode. (Manual M, Manual Focus, Manual ISO).
- **Rule #2**: Set Manual White Balance.
    - If you use "Auto WB," the camera will change the color in every shot!
    - Set it to Kelvin (K) mode. Start at 4500K.

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Timelapse

The Intervalometer

Not necessary, but…it's necessary

- This is the tool that **takes photos automatically**.
- It might be built into your camera ("Interval Timer Shooting") or an external remote.
- **Key Setting**: The "Interval"
    - The interval is the time from the start of one shot to the start of the next.

Timelapse

How to Set Your Intervalometer

- **Rule**: Interval = Shutter Speed + Buffer
- **The "Buffer"** (2-5 seconds) gives your camera time to write the file.
- **Example**:
    - Shutter Speed: 10 seconds
    - Buffer: 2 seconds
    - Set Your Interval to: 12 seconds
- **How many shots?** (e.g., "Unlimited" or 300).
- **Nikon shooters beware** of 30s!

Lunch Time!

See you at 1:30

We'll dive deep in to editing this afternoon

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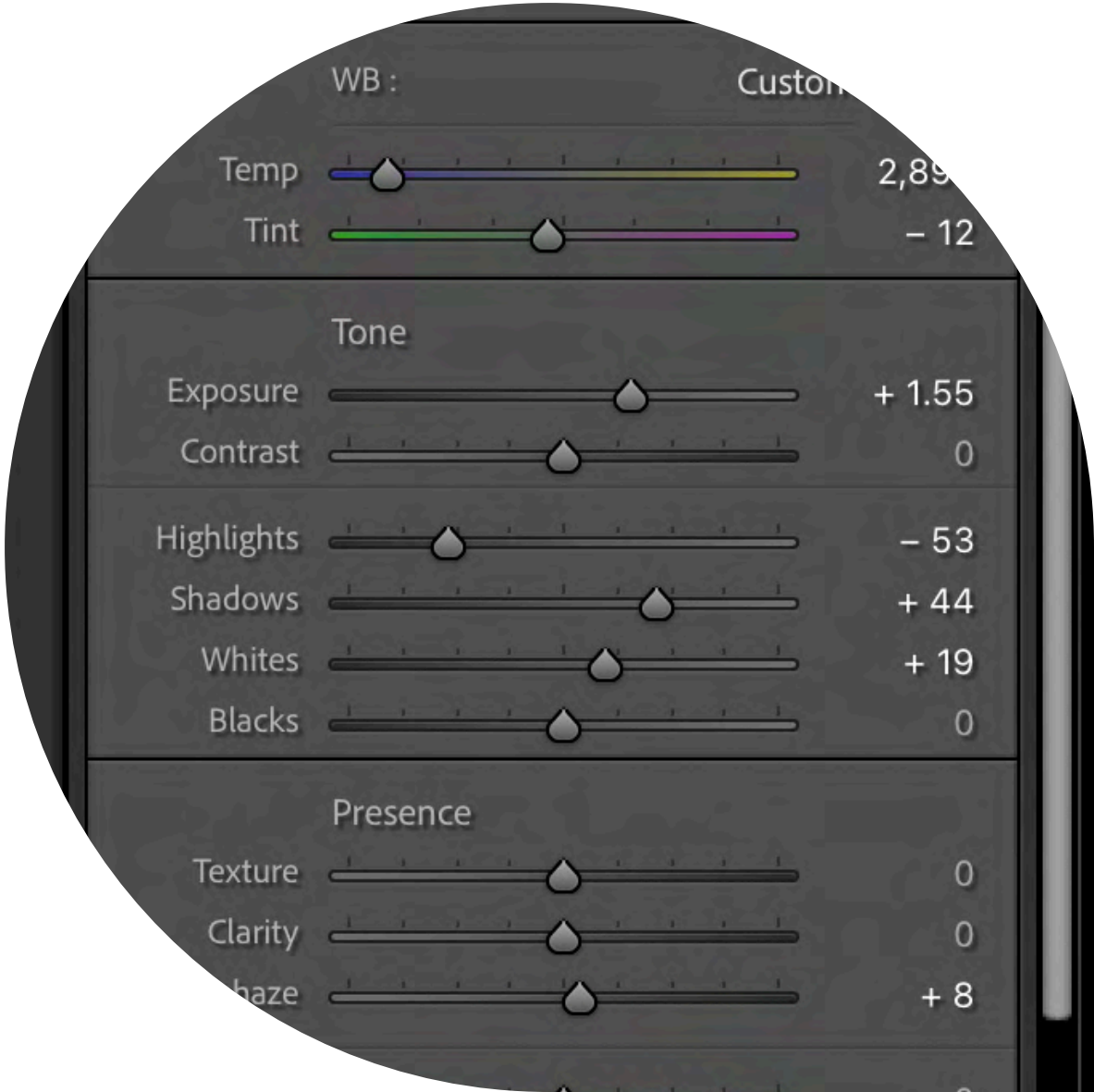
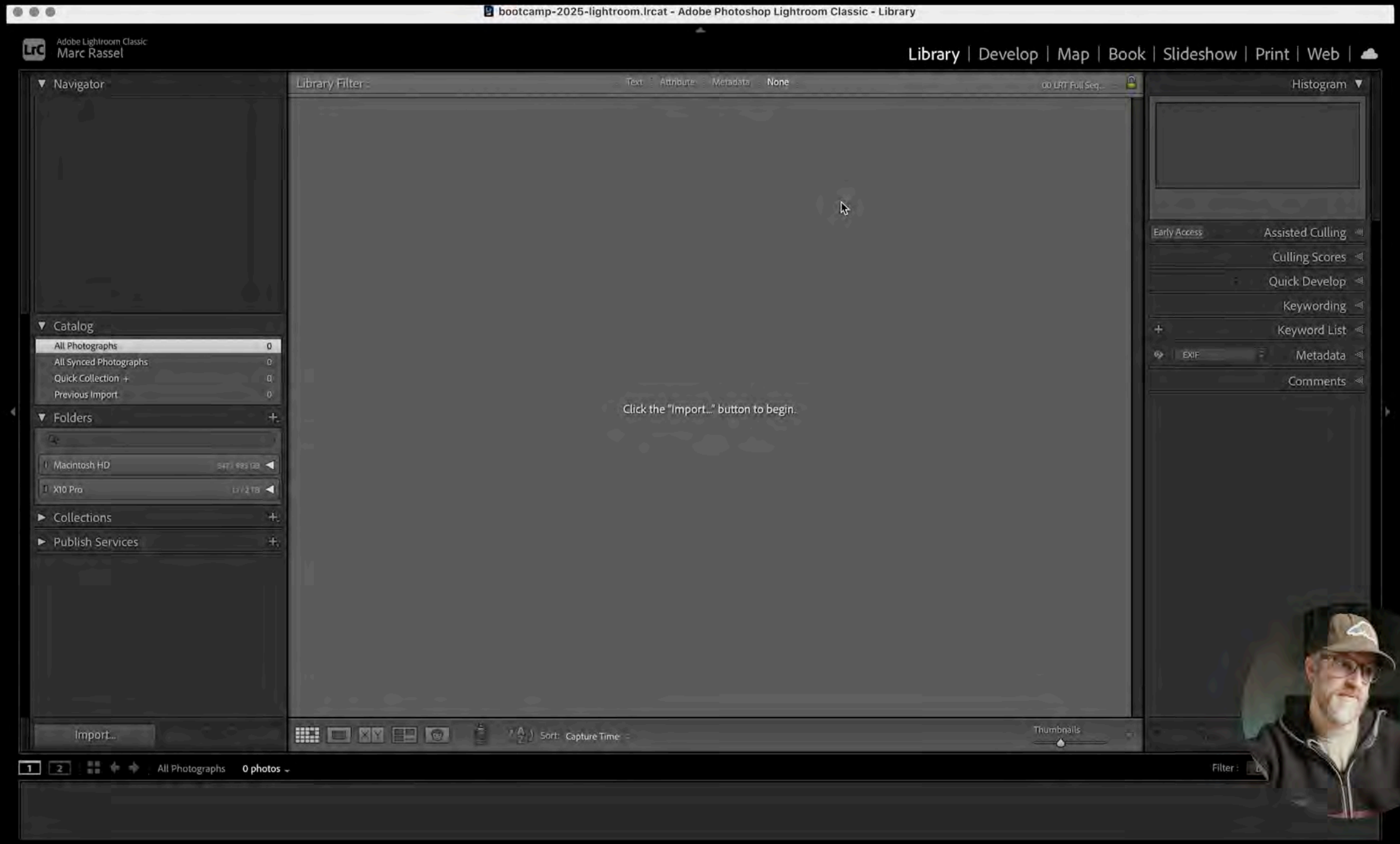
Post-Processing
Tell, Show, Do
Let’s Go

Post-Processing

90% of the work is in Lightroom Classic

- **The Goal**: To enhance what you saw, not create a fantasy.
    - *"We tell the truth through lies."*
- **LIVE DEMO**: *Editing Aurora_Sample_01.DNG*
- **Steps**:
    - Lens Corrections
    - Basic Panel (WB, Highlights/Shadows)
    - Presence (Dehaze) & Detail (Noise)
    - The ALT/OPT + Masking trick for sharpening.
    - Local Adjustments (Select Sky, Brush, Masks).

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Early Access
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X10 Pro
Collections
Publish Services
Click the "Import..." button to begin.
Import...
Sort: Capture Time
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All Photographs
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Filter :

Post-Processing

Your Turn! (Guided Practice)

Everyone open *Aurora_Sample_01.DNG*

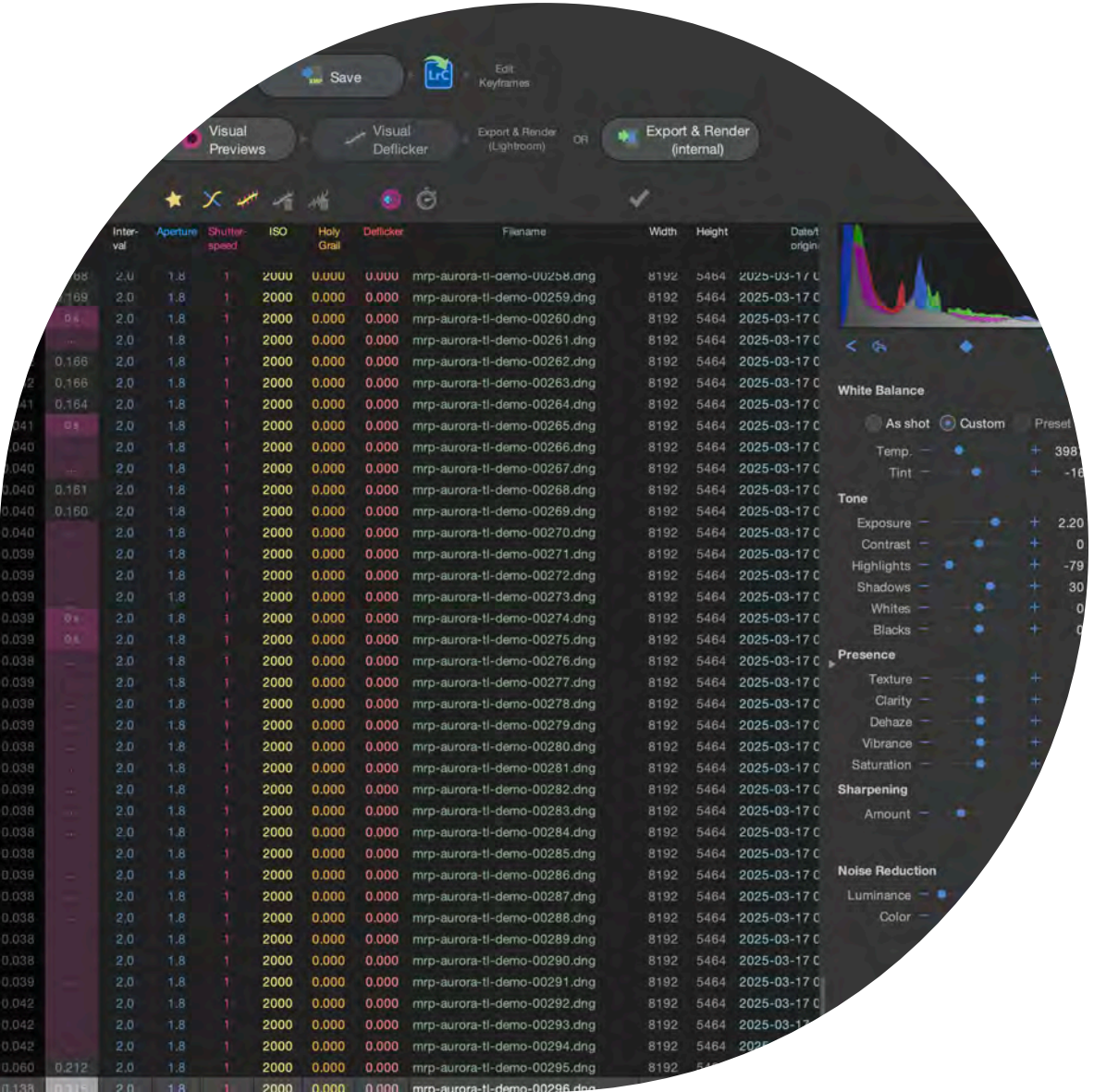
- **Your Mission (15 Mins)**: Make it beautiful!
- **Challenge**:
  - Use Dehaze gently.
  - Use the Alt/Opt + Masking slider for sharpening.
  - Use Select Sky to edit the sky and foreground separately.
  - Ambassadors and I will be roaming to help.

Timelapse Pre-Processing

The "Flicker" Problem

The Problem: Caused by tiny exposure / aperture / lighting changes.

- **The Solution**: LRTimelapse (LRT) + Lightroom (LR).
- **Core Concept**: "We don't edit all 500 photos. We edit 3-4 'Keyframes' and let the software build the transitions."
- **Workflow**: LRT ➔ LR ➔ LRT ➔ LRT / LR



Timelapse Pre-Processing

The LRT Workflow

LIVE DEMO with Timelapse_Sequence_Demo

- **In LRT**: Load sequence files
- **In LRT**: Mark keyframes based on preview / data → LR
- **In LR**: Edit keyframes (NO local edits)
- **In LR**: Metadata → Save Metadata to Files → LRT
- **In LRT**: Auto-Transition → STOP

LRTimelapse Pro 7.4.2 – Marc Rassel – Professional License

LRTimelapse Pro 7.4.2

Keyframes Wizard | Holy Grail Wizard... | Save | Edit Keyframes | Filter

Auto Transition | Visual Previews | Visual Deflicker | Export & Render (Lightroom) | OR | Export & Render (internal) | Reload

Preview Lum | Visual Lum | Inter-val | Aperture | Shutter-speed | ISO | Holy Grail | Deflicker | Filename | Width | Height | Date/tim original

/
- Users
  - _gsdata_
  - marcrassel
    - Applications
    - Applications (Parallels)
    - aurora-audit
    - aurora-infra
    - Creative Cloud Files marc@alignmultimedia.com CB8F422E6 1
    - Creative Cloud Files marcr@plumcompanies.com 0af24e438f55603a86575e23acb79
    - Creative Cloud Files marcr@plumcompanies.com 0d377719ae8dda217e2d1b9a441
    - Desktop
    - Documents
    - Downloads
    - Dropbox
    - Google Drive
    - iCloud Drive (Archive)
    - iCloud Drive (Archive) - 1
    - Library
    - Movies
    - Music
    - Pictures
    - Public

White Balance

As shot | Custom | Preset

Tone

Exposure	0.00
Contrast	0
Highlights	0
Shadows	0
Whites	0
Blacks	0

Presence

Texture	0
Clarity	0
Dehaze	0
Vibrance	0
Saturation	0

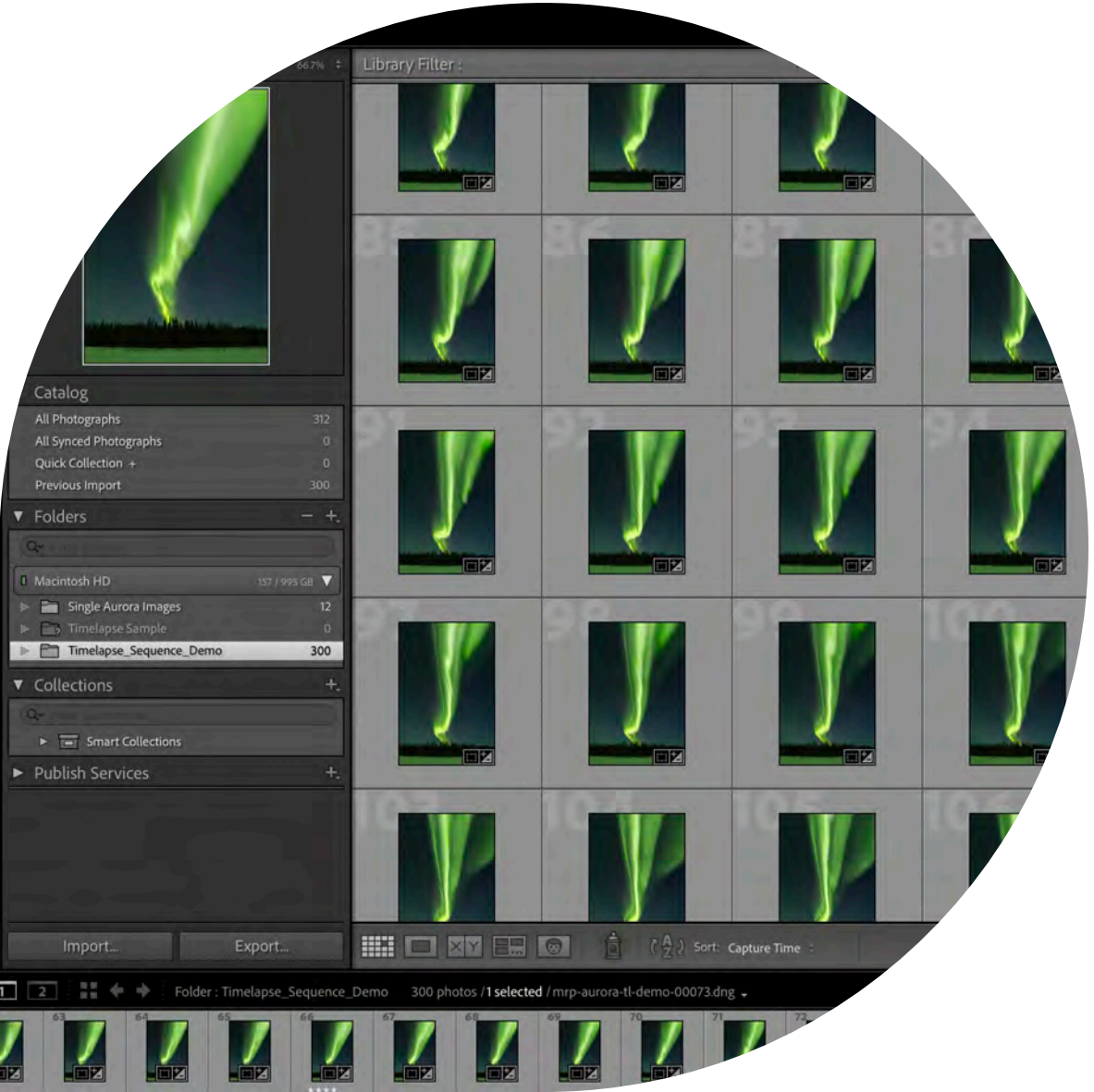
Sharpening

Amount

Noise Reducti

Luminance

Colc

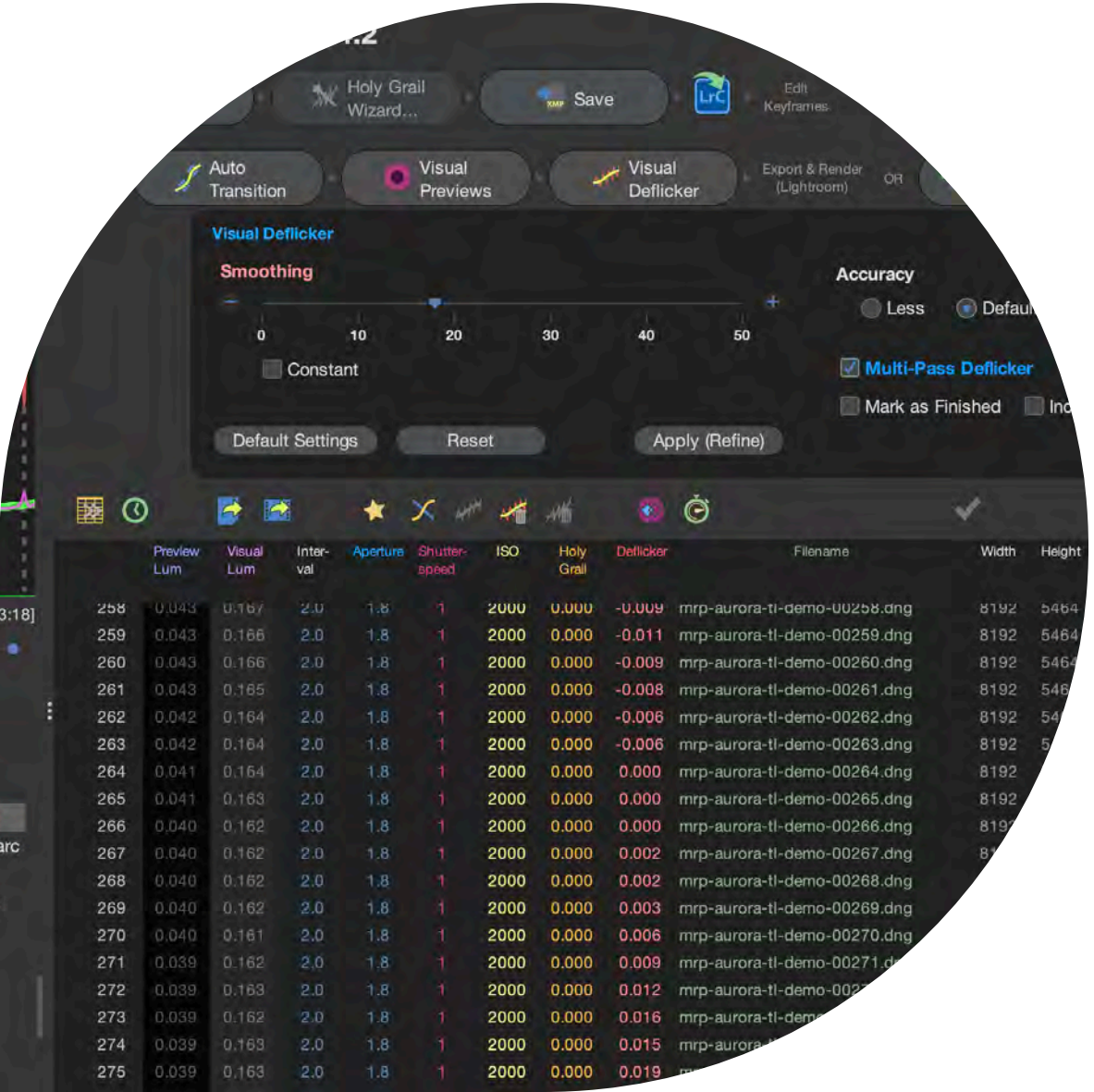


Timelapse Pre-Processing

Your Turn (Guided Practice)

Everyone navigate to the "Timelapse_Sequence_Demo" folder in LRTimelapse

- **Your Mission (15 Mins)**: Get your keyframes auto-transitioned.
- **Challenge**:
  - Set your keyframes and read them in Lightroom.
  - Edit only the keyframes.
  - Save Metadata
  - Go to LRT and run Auto-Transition.

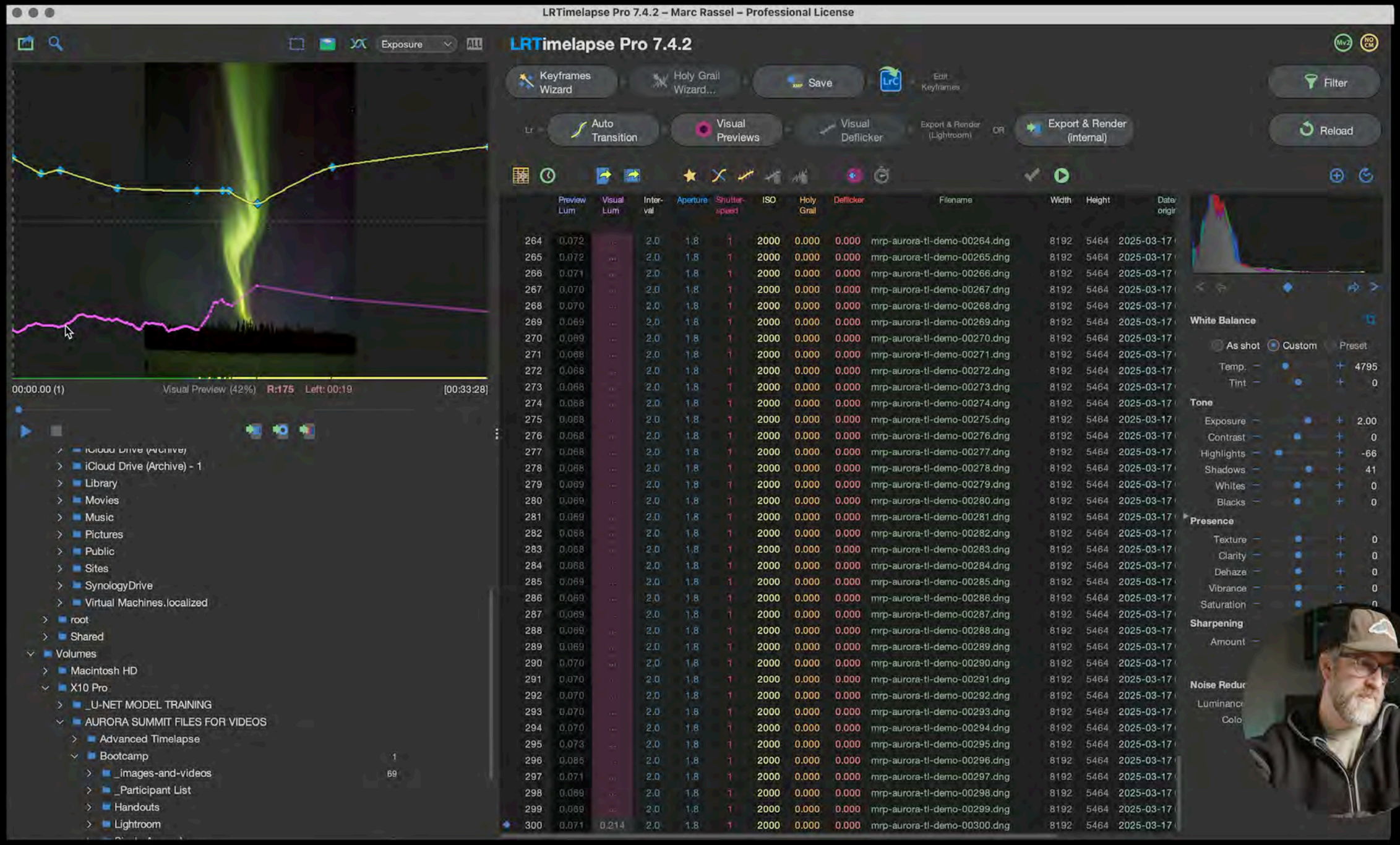


Timelapse Processing and Rendering

Deflicker & Render

LIVE DEMO in LRTimelapse

- **In LRT**: (...Auto-Transition) → Visual Previews → LR
- **In LR**: Metadata → Select All → Read Metadata
- **In LR**: Denoise → Select All → Sync ONLY Denoise
- **In LR (Pro)** or **LRT (Free)**: Render Video


LRTimelapse Pro 7.4.2 – Marc Rassel – Professional License
LRTimelapse Pro 7.4.2
Keyframes Wizard
Holy Grail Wizard...
Save
Edit Keyframes
Filter
Auto Transition
Visual Previews
Visual Deflicker
Export & Render (Lightroom)
OR
Export & Render (internal)
Reload
Exposure
00:00.00 (1)
Visual Preview (42%)
R:175
Left: 00:19
[00:33:28]
Preview Lum
Visual Lum
Inter-val
Aperture
Shutter-speed
ISO
Holy Grail
Deflicker
Filename
Width
Height
Date origin
264 0.072 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00264.dng 8192 5464 2025-03-17
265 0.072 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00265.dng 8192 5464 2025-03-17
266 0.071 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00266.dng 8192 5464 2025-03-17
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268 0.070 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00268.dng 8192 5464 2025-03-17
269 0.069 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00269.dng 8192 5464 2025-03-17
270 0.069 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00270.dng 8192 5464 2025-03-17
271 0.068 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00271.dng 8192 5464 2025-03-17
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279 0.069 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00279.dng 8192 5464 2025-03-17
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281 0.069 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00281.dng 8192 5464 2025-03-17
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292 0.070 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00292.dng 8192 5464 2025-03-17
293 0.070 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00293.dng 8192 5464 2025-03-17
294 0.070 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00294.dng 8192 5464 2025-03-17
295 0.073 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00295.dng 8192 5464 2025-03-17
296 0.086 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00296.dng 8192 5464 2025-03-17
297 0.071 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00297.dng 8192 5464 2025-03-17
298 0.069 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00298.dng 8192 5464 2025-03-17
299 0.069 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00299.dng 8192 5464 2025-03-17
300 0.071 0.214 2.0 1.8 1 2000 0.000 0.000 mrp-aurora-tl-demo-00300.dng 8192 5464 2025-03-17
White Balance
As shot
Custom
Preset
Temp. 4795
Tint 0
Tone
Exposure 2.00
Contrast 0
Highlights -66
Shadows 41
Whites 0
Blacks 0
Presence
Texture 0
Clarity 0
Dehaze 0
Vibrance 0
Saturation 0
Sharpening
Amount
Noise Reduc
Luminanc
Colo
iCloud Drive (Archive) - 1
Library
Movies
Music
Pictures
Public
Sites
SynologyDrive
Virtual Machines.localized
root
Shared
Volumes
Macintosh HD
X10 Pro
_U-NET MODEL TRAINING
AURORA SUMMIT FILES FOR VIDEOS
Advanced Timelapse
Bootcamp 1
_images-and-videos 69
_Participant List
Handouts
Lightroom

Timelapse Processing and Rendering

Your Turn (Render Your Video!)

Go back to your LRT sequence

- **Your Mission (20 Mins)**: Create your final video.
- **Challenge**:
  - Run Visual Deflicker.
  - Open the Render dialog.
  - Export your short 1080p, 24fps video.
- **This is the final "win!"** Hold up your hand when your video is done!

Timelapse Processing and Rendering

Other Rendering Options

Can't I just use…

- **Lightroom?**
  - **Con**: No direct functionality; requires export of sequence to stitch in video editor.
  - **Con**: Slideshow method requires “tricking” the software by condensing it to a specific timeframe.
- **Photoshop (Image Sequence)?**
  - **Con**: Steep learning curve with limited features. No "auto-transition" deflicker.
- **Conclusion**: LRTimelapse is the purpose-built tool.
- **Final Polish**: (Optional) Edit your final MP4 clip.

Camera Olympics

Everyone, get your cameras out!

Let’s Go

MARC RASSEL
PHOTOGRAPHY

Camera Olympics

Activity:
The "Camera Olympics"

It’s time to build that muscle memory under pressure!

- **The rules are simple**:
  - Follow my instructions
  - Be fast and accurate
  - There are no points or formal judging
  - I am the judge and jury (Don’t worry, nothing unfair can come of that…)

Let’s Play →

MARC RASSEL
PHOTOGRAPHY

Camera Olympics

Event 1:
Pitch Black Focus

"Everyone, mess up your focus ring. You have 60 seconds to use Live View, zoom in on the stars on the next screen, and get it perfectly sharp. Go!"

Let’s Play →

Camera Olympics

Event 2:
Sudden Burst Change

Reset to your 'Starting Recipe' (15s, f/2.8, 3200) and get ready for the aurora to change on the next slide.

Let’s Play →

Camera Olympics

Event 3: Timelapse Ready

You have 30 seconds to find your intervalometer and set it for a 4-second exposure with a 2-second buffer. What's the interval? Go!

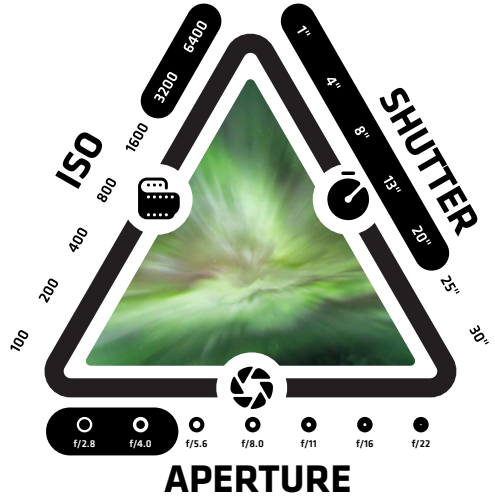
Let’s Play →

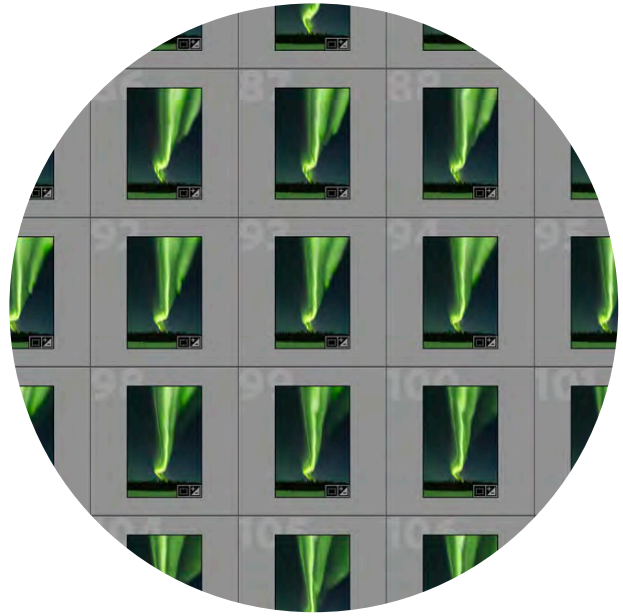
MARC RASSEL PHOTOGRAPHY

Wrapping Up

The "Big 3" Takeaways

- **Stability & Focus**: A sharp, stable shot is 90% of the battle.
- **The Pyramid**: Aperture widest, Shutter for motion, ISO for brightness.
- **Timelapse = Consistency**: Use Manual WB and LRTimelapse.





One Final Note

A shameless plug...

Aurora Notice · Live

By Marc Rassel Photography - Support the project

Globe | Windy | Cams

Auroral Oval & Globe

Live Space Weather

Kp Index: 1.0 Quiet · ↑ 20m

IMF Bz: -1.4 nT South · ↓ 20m

IMF Bt: 6.8 nT Moderate · ↓ 20m

Coupling (E_KL): 2.27 mV/m Moderate · ↑ 20m

SW Speed: 551 km/s Mod. high · ↑ 20m

SW Density: 1.9 p/cc Low · ↑ 20m

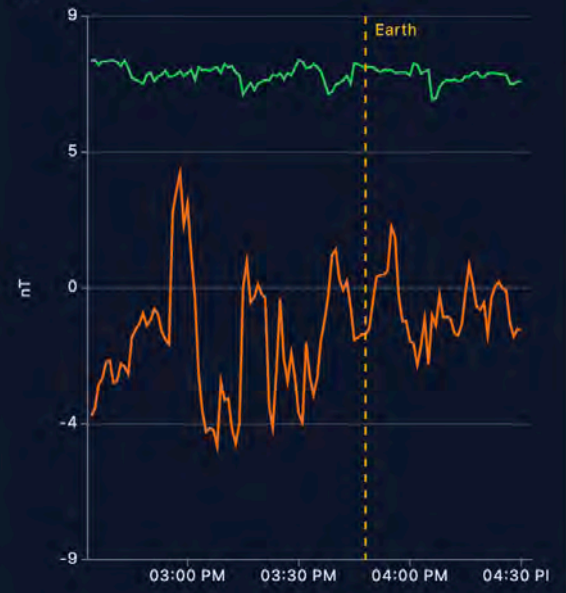
SW Travel Time: 45 min

Hemispheric Power: 39 GW Low · ↓ 10m

Bz Sustained South: 29 min Sustained · ↑ 10m

IMF Bt / Bz

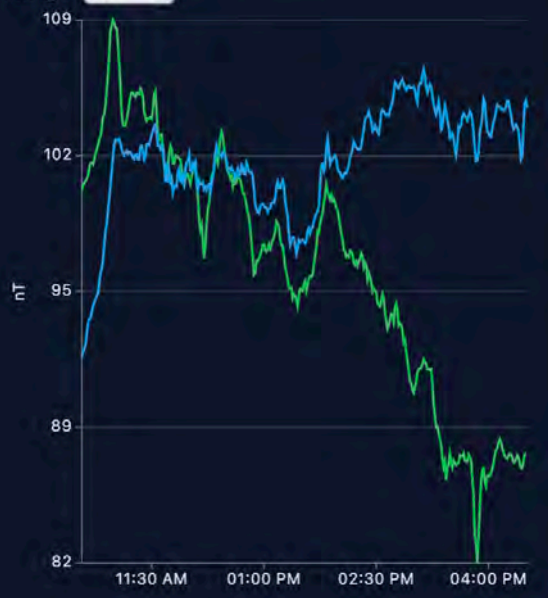
2h



Bt (green), Bz (orange)

GOES Magnetometer (Hp)

Range 6h



East (green), West (blue)

Substorm Probability

Summary (max across horizons) · No alert

Now: 58%

refresh in 44s

Try it Out

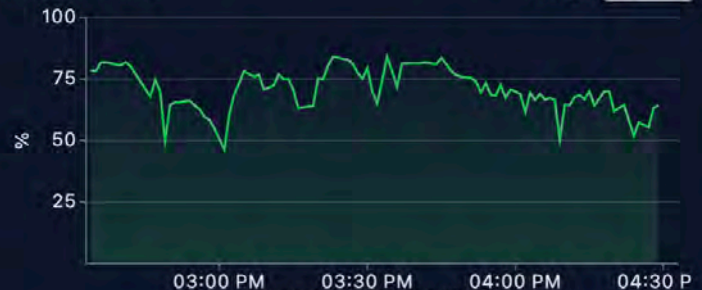
15 min: 58% · No alert

30 min: 64% · No alert

60 min: 58% · No alert

Rolling window

Range 2h

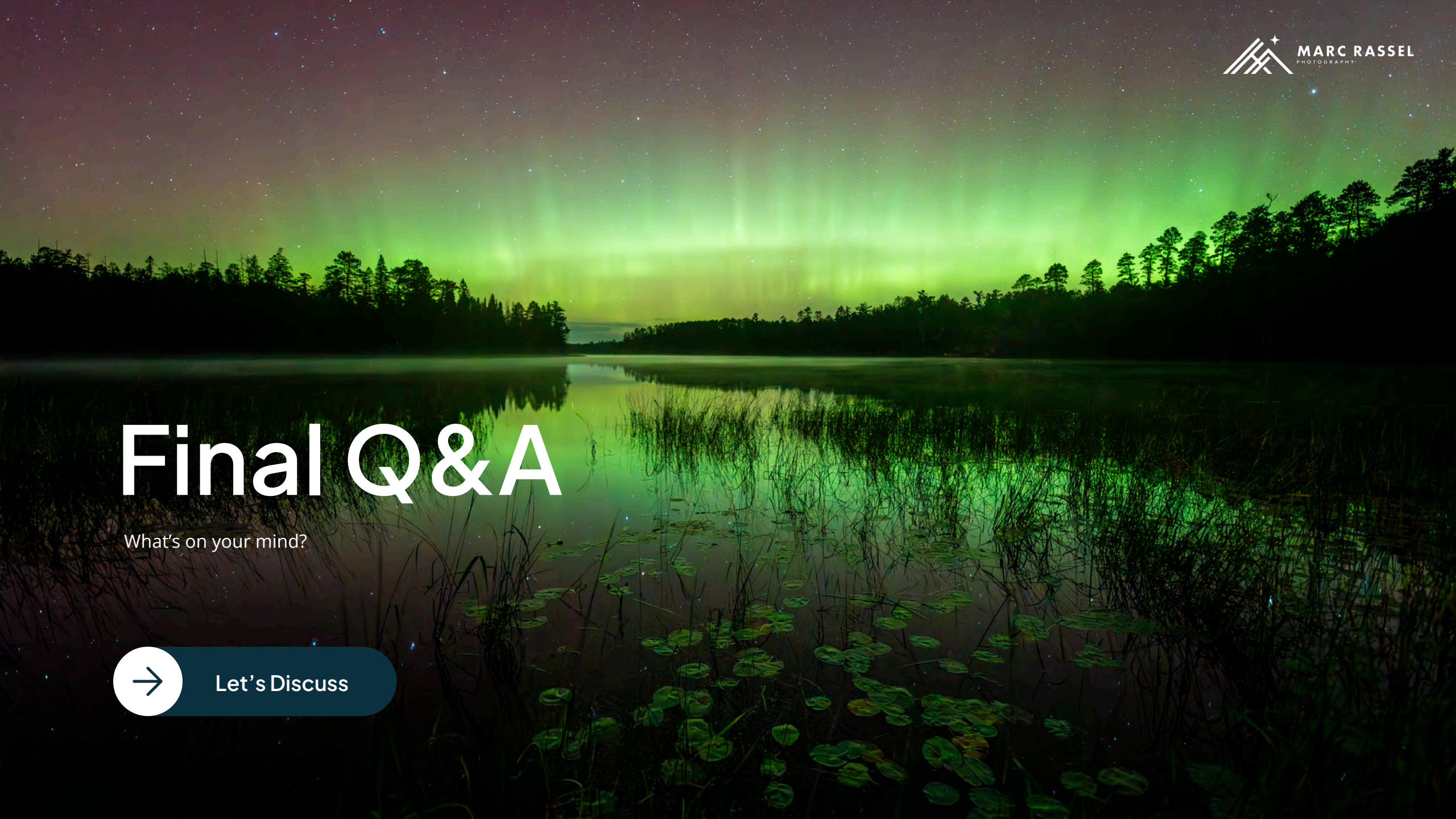


Solar Wind Speed

2h

Solar Wind Density

2h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Final Q&A
What's on your mind?
Let's Discuss

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Thank you!

(Next: Camera brand breakout groups)

Let's keep in touch

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Instagram: @marcrasselphoto

Facebook: @marcrasselphotography