

The Latest & Greatest in Northern Lights Chasing

Get details about some of the greatest tools & new events!



3:30am
YELLOWKNIFE, CA
Photo by Cristiano Saturno

Overview of Tonight's Topics

- New tools to add to your collection
- Stats, indicators & stars to follow
- Beat FOMO: Four Ways to Get Alerted Awake
- New Opportunities in Astrotourism
- Travel Recommendations & Upcoming Events

Tools for Aurora Chasers Everywhere

Presenting ARC! A Never-Before-Seen Free Aurora Alerts Platform

Glendale App (Channel)

- We recommend the Glendale App!
- Download the free Telegram App
- Subscribe to
@GlendaleApp (Aurora Alerts-UK)
- Download the full app:
<https://aurora-alerts.uk/>



Michigan Aurora Alerts

- Download the free Telegram App
- Subscribe to @MichiganAuroraAlerts
- Let us know if you live in Michigan and would like to be a Spotter!



NEW! Presenting the Aurora Relay Channel (ARC)

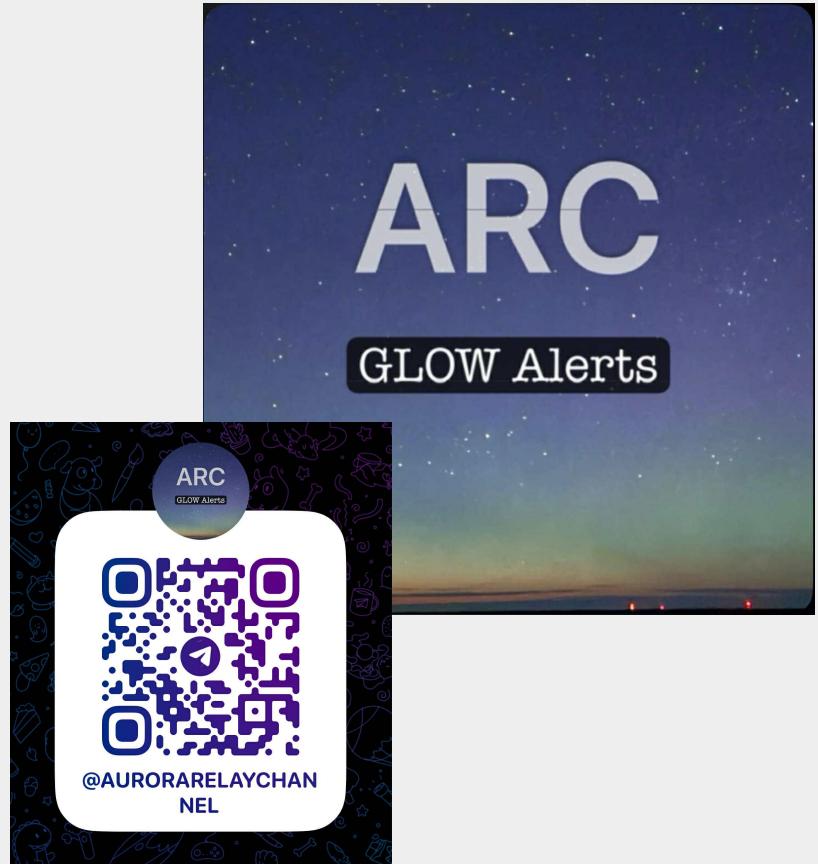
- Get free GLOW Alerts!
- Download the free Telegram App
- Subscribe to @AuroraRelayChannel
- We welcome new Spotters!

ARC: Great Lakes Official Webalerts

Get Aurora alerts across this U.S.A. region from the Great Lakes Official Webalerts (GLOW) with Aurora Relay Channel, provided by the Michigan Aurora Chasers!

Become a Spotter:

MichiganAuroraChasers.com/alerts



Interested in Being a Spotter?

Let me know if you see an area you would like to get involved in!

Camera Note Card



MichiganAuroraChasers.com/camera

MI Aurora Resources

- Recommended Apps
- Live Aurora Webcams
- General Resources Used Everywhere
- Resources Developed by the Group & the Founder
- Fun Stuff

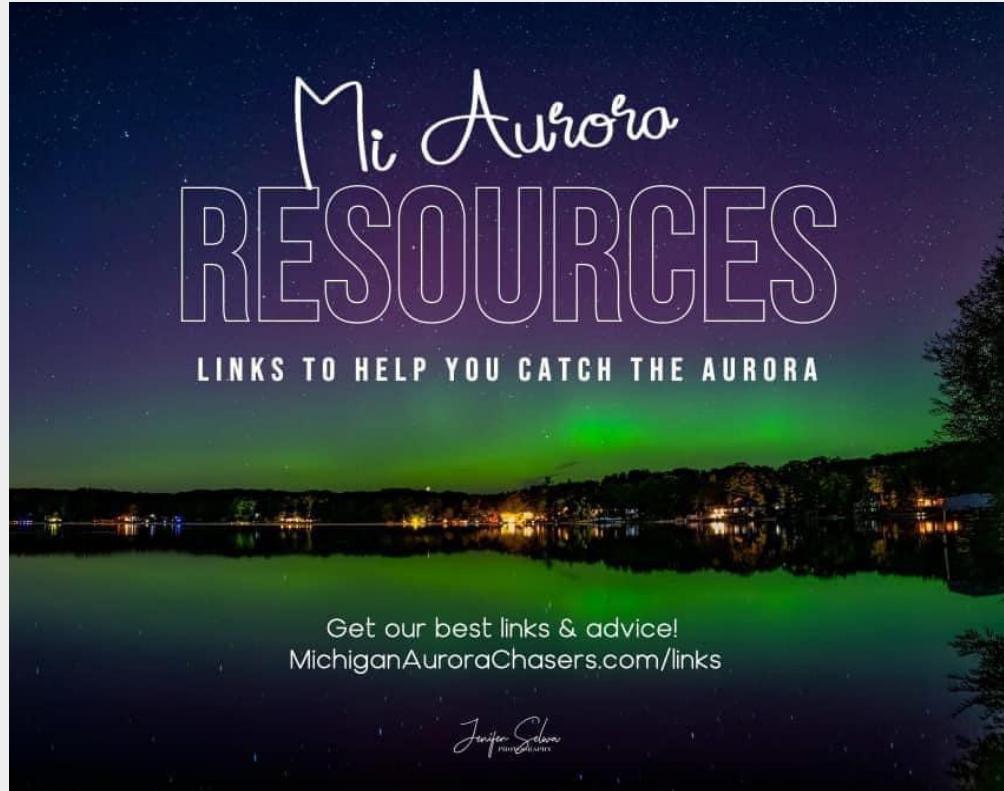


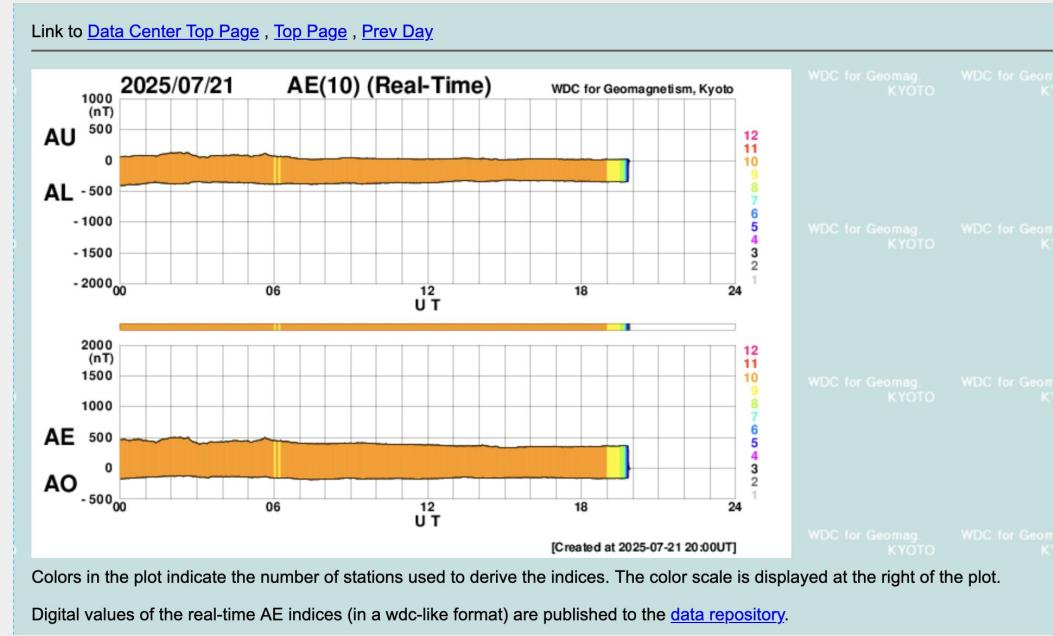
Photo by Jen Selwa

The Greatest Stats, Indicators & Stars

Turn to the Resources Used by Seasoned Aurora Chasers

Real-Time Bursts of Activity: Auroral Electrojets (AE)

- Auroral Electrojets — The AE index is designed to provide a global, quantitative measure of magnetic activity in the auroral zone
- Real-time AE from Kyoto
- Colors indicate the number of stations used
- Not useful in long-term forecasting



Favorite Aurora Chasing Hacks:
KaelinArt.com/Aurora

Tracking Substorms: GOES Magnetometer

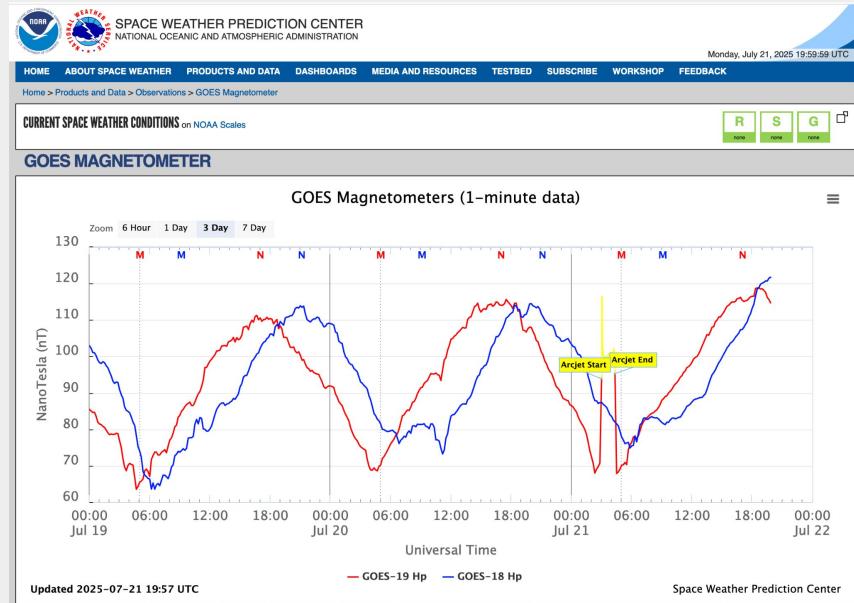
- Useful for detecting moderate and powerful substorms
- Watch for the snap!
- Beware the pseudo-breakup!
- Best resource for tracking Substorms in real time

NOAA's Geostationary Operational Environmental Satellites (GOES) monitor the geomagnetic field and its variations.

We can use GOES East and GOES West, though at times, data are available from more than the two prime operational satellites.

Link:

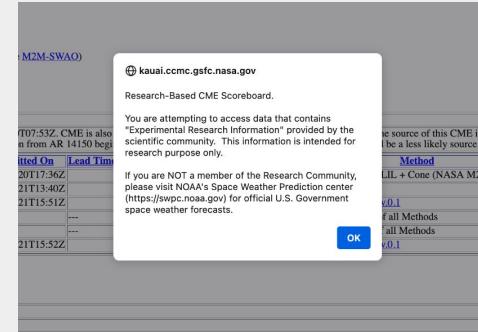
<https://www.swpc.noaa.gov/products/goes-magnetometer>



CME Scoreboard from the Community Modeling Center

- Forecasts from PROFESSIONAL scientists
- Predict next CME arrival at Earth & impacts
- Machine learning models, too

Link: <https://kauai.ccmc.gsfc.nasa.gov/CMEscoreboard/>



 **Community Coordinated Modeling Center** **CCMC CME Scoreboard**

[Login](#)

CCMC CME Scoreboard

The CME Scoreboard is part of the the [CME Arrival Time and Impact Working Team](#) within the COSPAR [International Space Weather Action Teams \(ISWAT\)](#).

Developed by the [Community Coordinated Modeling Center \(CCMC\)](#), the CME Scoreboard serves as a **research-based pre-event forecasting validation platform**.

- [About CME Scoreboard](#)
- [See Latest News](#)
- [Accessing/Using the system](#)
- [Concerning the determination of CME arrival time](#) (primarily provided by the [M2M-SWAO](#))
- [Join the mailing list](#)

Active CMEs:

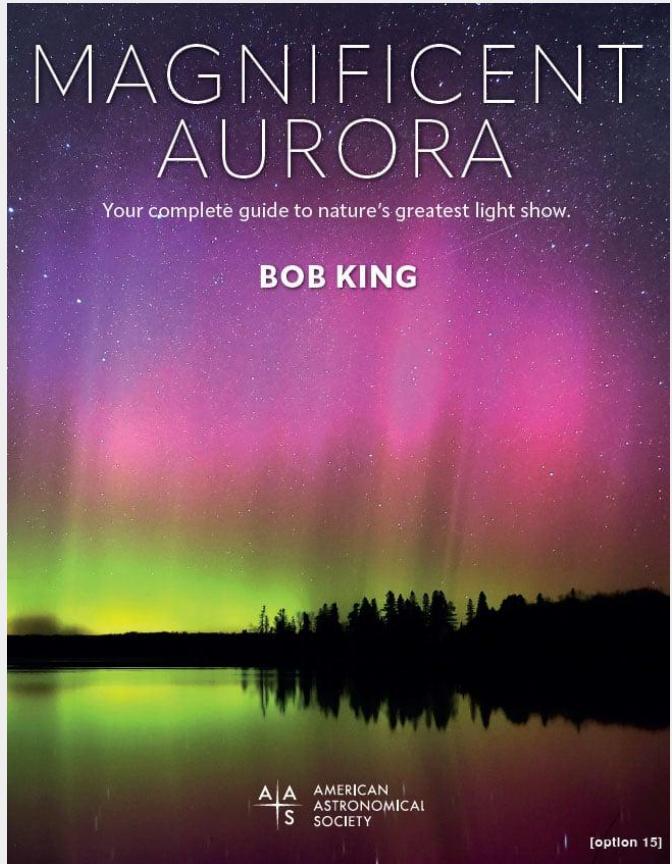
CME: 2025-07-20T07:53:00-CME-001

CME Note: CME first seen to the ESE in STEREO A COR2 starting at 2025-07-20T07:53Z. CME is also seen to the SE in SOHO LASCO C2/C3 and GOES CCOR-1. The source of this CME is likely a small filament eruption centered around S25E17 best seen in GOES SUVI 304 beginning around 2025-07-20T07:00Z. It is also worth noting an eruption from AR 14150 beginning around 2025-07-20T05:00Z in GOES SUVI 304 that could be a less likely source candidate. Measurement of this CME indicates some eastern deflection.

Predicted Shock Arrival Time	Difference (hrs)	Confidence (%)	Submitted On	Lead Time (hrs)	Predicted Geomagnetic Storm Parameter(s)	Method	Submitted By
2025-07-23T02:00Z (-7.0h, +7.0h)	----	----	2025-07-20T17:36Z	56.40	Max Kp Range: 4.0 - 6.0	WSA-ENLIL + Cone (NASA M2M)	Elizabeth Juelfs (LASSOS)
2025-07-23T00:01Z	----	----	2025-07-21T13:40Z	34.35	Max Kp Range: 3.0 - 5.0	SARM	Marlon Nunez (UMA)
2025-07-23T00:53Z (-4.22h, +5.89h)	----	66.0	2025-07-21T15:51Z	33.03	----	CMEFM v.0.1	Garrett Imhoff (Other)
2025-07-23T07:22Z	----	49.5	----	---	Max Kp Range: 3.5 - 5.5	Average of all Methods	Auto Generated (CCMC)
2025-07-23T01:26Z	----	49.5	----	---	Max Kp Range: 3.5 - 5.5	Median of all Methods	Auto Generated (CCMC)
2025-07-24T02:35Z (-4.79h, +6.4h)	----	33.0	2025-07-21T15:52Z	58.72	----	CMEFM v.0.1	Garrett Imhoff (Other)

Authors & Aurora Chasing Stars

- **Hendrik Anne Zwart**, “Aurora: How to Prepare, Predict, Photograph,” Your Step by Step Guide
<https://www.auroraphotographystatus.com>
- **Vincent Ledvina**, Blog; Visit “eBooks”
<https://theauroraguy.com/>
- **Bob King**, “Magnificent Aurora: Your complete guide to nature’s greatest light show”
<https://shopatsky.com/products/magnificent-aurora>
- **Adrien Mauduit, Night Lights Films**,
Instagram.com/nightlightsfilms
- **Space Weather Unplugged**, by UMAC Admins
<https://www.youtube.com/@Shelbydiamondstar>
- **Yours truly, Melissa F. Kaelin**, “Beyond the 45th Parallel”
for beginners [TinyURL.com/AuroraAuthor](https://tinyurl.com/AuroraAuthor)



Substorm Alerts!!

Via Glendale App (Aurora Alerts - UK)

Beat FOMO: Four Ways to Get Alerted Awake

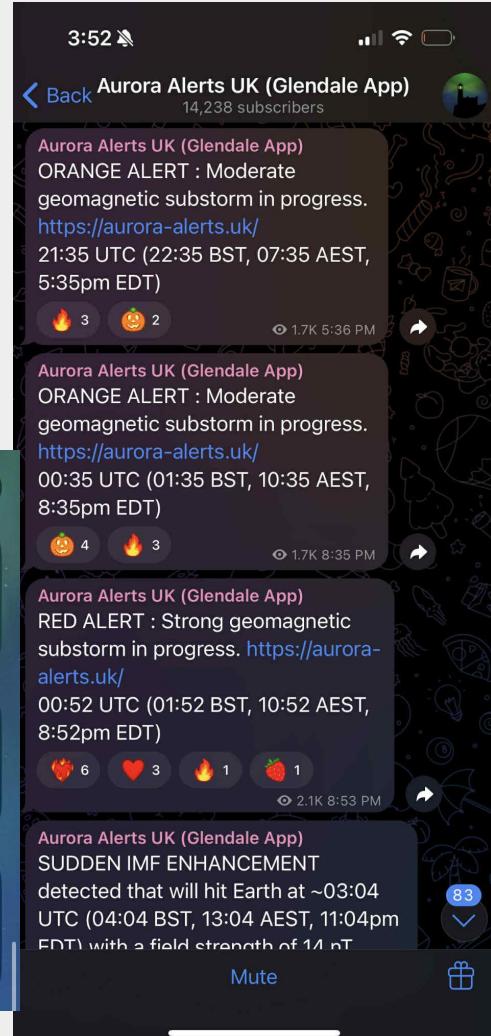
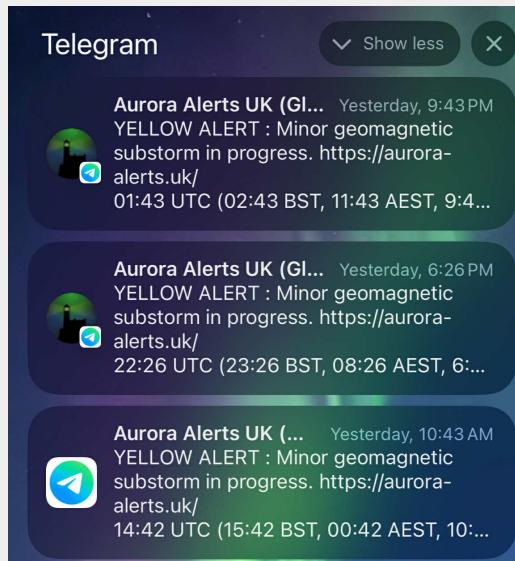
*Let your phone or device do the work & alert you to wake up!
(Telegram substorms, SWL app, SWPC emails, ARC)*

1. Get Substorm Alerts: Glendale on Telegram

- Beware the Psuedo-breakup!
- Understanding the color code and when it reaches your latitude
- Substorms tell you to go outside now
 - Don't delay
- Substorms —

Learn the Trending Set of Alerts:

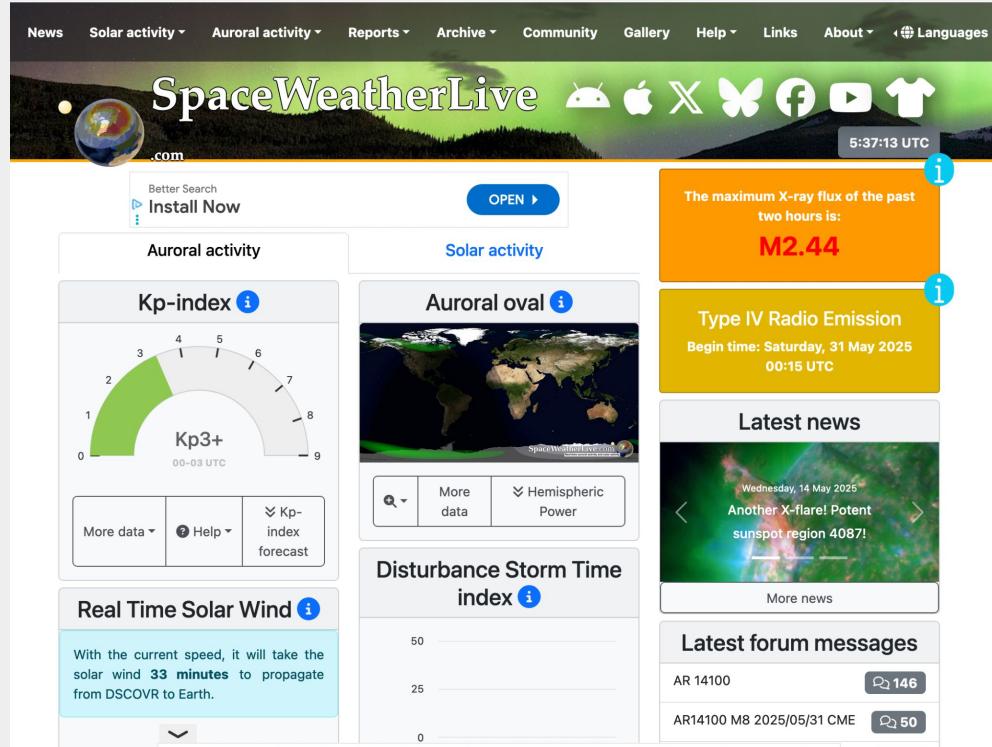
KaelinArt.com/aurora-blog



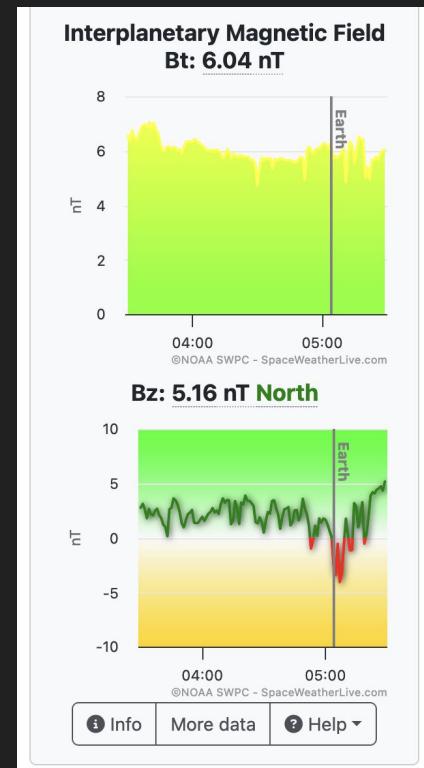
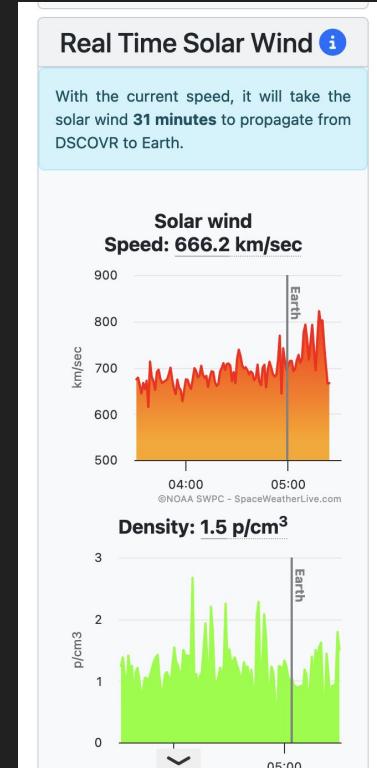
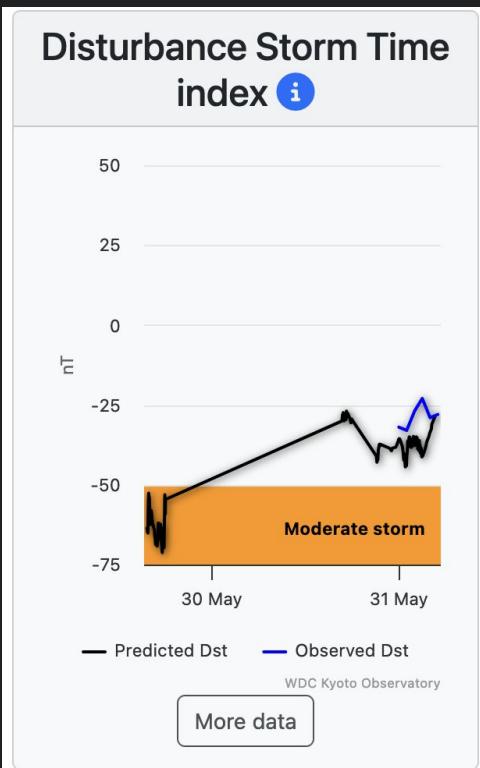
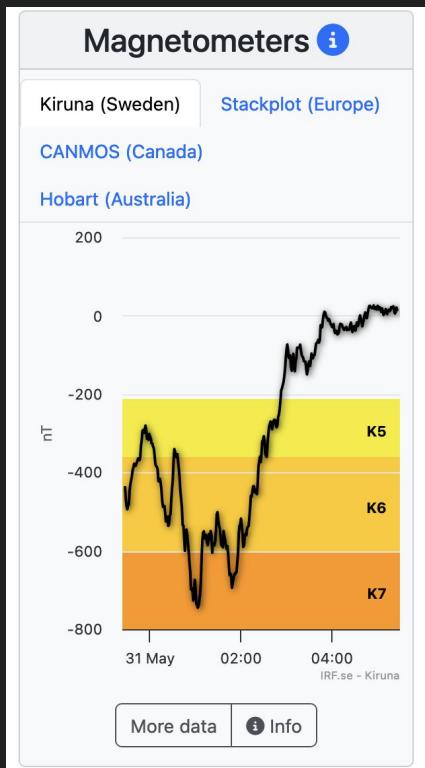
2. Space Weather Live App: Push Notifications

- Radio Blackout alerts
- Geomagnetic Storm alerts (G Storms)
- Sudden Geomagnetic Impulse alert — Often indicates a CME Arrival
- Ovation Model notifications

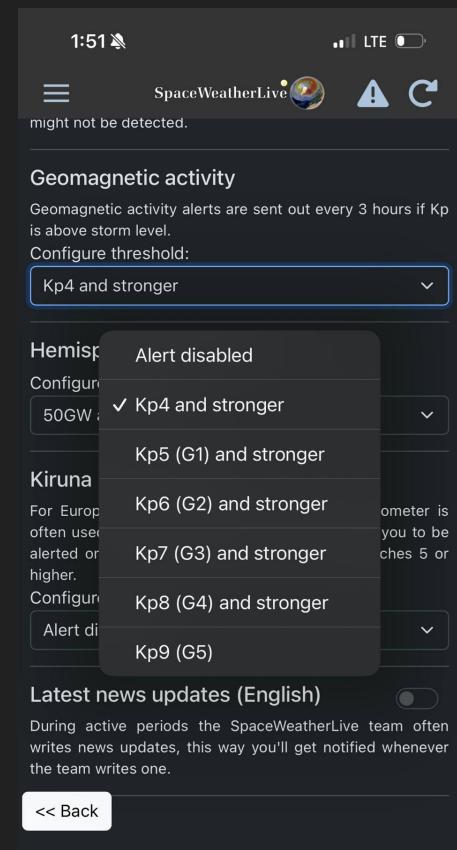
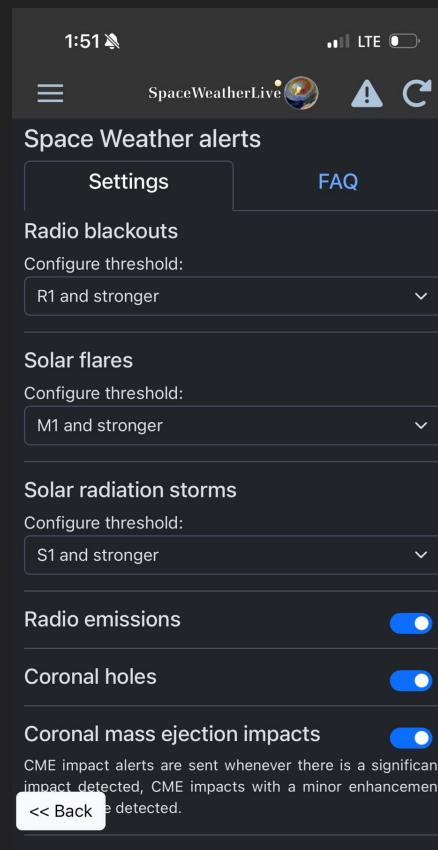
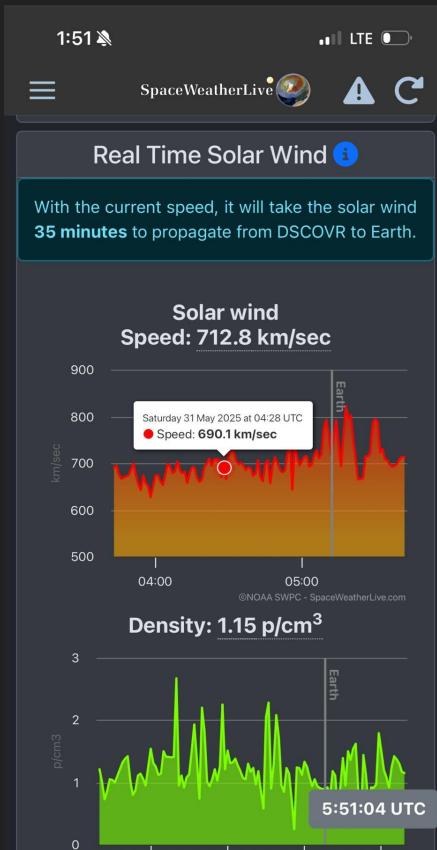
Easy Ways to Track a Solar Flare:
KaelinArt.com/aurora-blog



Using Space Weather Live: Website and App



Using Space Weather Live: Manage Push Alerts



3. NOAA Space Weather Prediction Center: Email Service

- Subscribe for free email notifications
- Choose from 3-day forecasts, outlooks, “Forecast Discussion,” etc
- Sign up for Watches & Alerts — K-index & G-Storm thresholds
- Paid Texting Service...



Watch a Video Tutorial on How to Sign Up:

[YouTube.com/@MelissaTheAuroraChaser](https://www.youtube.com/@MelissaTheAuroraChaser)

How to Subscribe to SWPC Alerts



PRODUCT SUBSCRIPTION SERVICE SPACE WEATHER PREDICTION CENTER

SWPC Main Menu FAQ Help Logout

Subscriptions: 19 Notifications: on

Forecasts and Summaries

Description

Gealert

A coded message containing a summary of solar-geophysical activity and selected indices for the previous day. It is a consensus of the advice received from as many as eleven Regional Warning Centers (RWCs) of the International Space Environment Service (ISES).

Solar & Geophysical Activity Summary (SGAS)

A daily brief list of solar and geophysical events for the previous UTC day.

Solar Region Summary (SRS)

A daily report compiled by SWPC about the active solar regions observed during the preceding day. It contains a detailed description of the active regions currently visible on the solar disk.

Forecast Discussion

A free form, technical forecast discussion that details observed data, analysis, and forecast rationale. Issued every 12 hours.

NOAA 3-Day Forecast

Plain language 3-day forecast product.

NOAA Geomagnetic Forecast

Provides NOAA estimated Ap index for the previous UT day, NOAA forecast Ap for the current day and next 3 days. Also includes the planetary geomagnetic activity probabilities for the next 3 days and the NOAA Kp forecast for the next 3 days.

Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)

Space data



Search mail

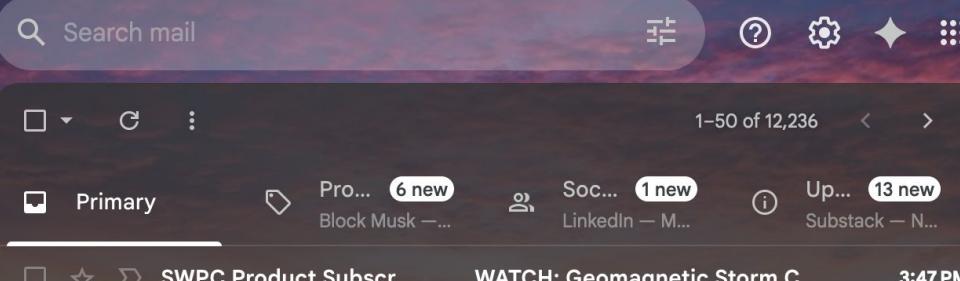
Report of Solar Geophysical Activity (RSGA)

The during

Geophysical Alert Message (WWW)

Issu

Submit Clear Cancel





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SWPC Main Menu FAQ Help Logout

Subscriptions: 19 Notifications: on

Geomagnetic Storm Products	Description
<input type="checkbox"/> ALERT: Geomagnetic K-index of 4	Minor system effects.
<input checked="" type="checkbox"/> WARNING: Geomagnetic K-index of 4 expected	Minor system effects expected.
<input checked="" type="checkbox"/> ALERT: Geomagnetic K-index of 5 (G1)	Weak power grid fluctuations, minor satellite operations impact.
<input checked="" type="checkbox"/> WARNING: Geomagnetic K-index of 5 (G1)	Weak power grid fluctuations, minor satellite operations impact.
<input checked="" type="checkbox"/> ALERT: Geomagnetic K-index of 6 (G2)	High latitude power systems affected, satellite drag effect, high-latitude HF radio, high-latitude aurora.
<input checked="" type="checkbox"/> WARNING: Geomagnetic K-index of 6 (G2)	High latitude power systems affected, satellite drag effect, high-latitude HF radio, high-latitude aurora.
<input checked="" type="checkbox"/> ALERT: Geomagnetic K-index of 7 (G3)	Power system voltage effects, satellite surface charging, HF radio, mid-latitude aurora.
<input checked="" type="checkbox"/> WARNING: Geomagnetic K-index of 7 or greater (G3 or Greater)	Power system voltage effects, satellite surface charging, HF radio, mid-latitude aurora.
<input checked="" type="checkbox"/> ALERT: Geomagnetic K-index of 8 (G4)	Voltage problems, satellite surface charging, HF and low-frequency communication degraded, possible aurora near tropics.
<input checked="" type="checkbox"/> ALERT: Geomagnetic K-index of 9 (G5)	Grid System can collapse, extensive satellite surface charging, extended degraded. HF communication and low-frequency navigation.
<input checked="" type="checkbox"/> SUMMARY: Geomagnetic Sudden Impulse	Marks the possible beginning of a geomagnetic storm.
<input checked="" type="checkbox"/> WARNING: Geomagnetic Sudden Impulse expected	Marks the possible beginning of an expected geomagnetic storm.
<input checked="" type="checkbox"/> WATCH: Geomagnetic Storm Category G1 Predicted	Minor system effects.
<input checked="" type="checkbox"/> WATCH: Geomagnetic Storm Category G2 Predicted	Weak power grid fluctuations, minor satellite operation impact. Possible high-latitude power systems affected, satellite drag effect, high-latitude HF radio, high-latitude aurora.
<input checked="" type="checkbox"/> WATCH: Geomagnetic Storm Category G3 Predicted	High-latitude power systems affected, satellite drag effect, high-latitude HF radio, high-latitude aurora. Possible voltage problems, satellite surface charging, HF and low-frequency communication degraded, possible aurora near tropics.
<input checked="" type="checkbox"/> WATCH: Geomagnetic Storm Category G4 or Greater Predicted	Grid system can collapse, extensive satellite surface charging, extended degraded. HF communication and low-frequency navigation.

Submit Clear Cancel

Watches, Warnings & Alerts Using NOAA Scales

Subscribe for free:

swpc.noaa.gov

> Subscribe

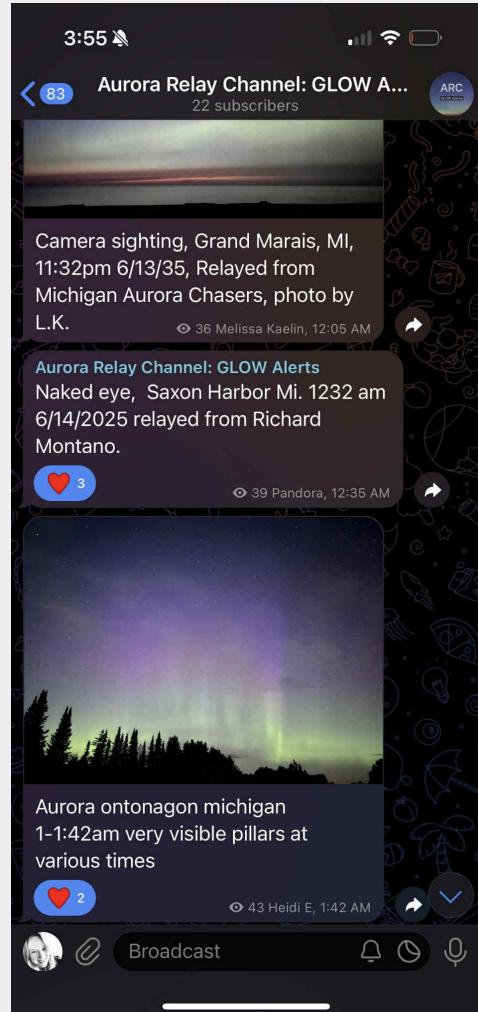
4. Aurora Relay Channel: GLOW Alerts

- Push Notifications in Real-Time
- These alerts will ping your phone
- Participants in Minnesota, Wisconsin, Michigan
- Thank you to our Spotters!!!

ARC: Great Lakes Official Webalerts

Get Aurora alerts across this U.S.A. region from the Great Lakes Official Webalerts (GLOW) with Aurora Relay Channel, provided by the Michigan Aurora Chasers!

Details: MichiganAuroraChasers.com/alerts



Know a New Tool? Let us know!

Feel free to drop some knowledge or a link in the comments!

If you're a member of the Michigan Aurora Chasers, our group has also challenged subject matter experts to write four tutorials to win free gear, up to a \$50 value!

New Opportunities in Astrotourism

Get in on these new opportunities to learn the game & celebrate the night sky!

With Michigan Aurora Chasers

We lead an engaged and active community!

- MI Aurora Experience
- Annual Michigan Workshop
- MI Aurora Socials
- Live Chase
- Night Sky Festivals

MichiganAuroraChasers.com/events
#MIAuroraChasers



NEW! Inaugural Great Lakes Aurora & Dark-sky Jamboree

Attend the GLAD Jam!!!

- Speakers
- Observatory Tours
- Night Sky Chases
- Family friendly
- Potential Lake Cruise!
- \$100 for the weekend, includes Saturday lunch

September 12-14, 2025
Houghton, Michigan

Register: KaelinArt.com



Featuring Keynote Speaker Melissa F. Kaelin

Interested in Speaking at an Event?

*Let's connect if you have an interest in presenting on astro topics!
These may range from astronomy and Aurora Chasing, to dark sky
preservation and light painting — and beyond!*

New! Stargazers' Campout

- Stargazing Talk
- Aurora Mythology
- Telescopes & Aurora Chasing
- Family friendly
- Dinner, Campfires
- Lodging included

September 20-21, 2025
Ocqueoc Outdoor Center
Millersburg, Michigan

Register: KaelinArt.com

STARGAZERS, CAMP EVENT

Historic Ocqueoc Outdoor Center
Saturday, September 20, 2025

One night only...a dark sky event!

Presentations from Michigan Aurora Chasers and
the Headlands Dark Sky Park

Includes dinner, campfire, tent site or bunkhouse,
presentations, guided night viewing,
and Sunday morning breakfast

\$25/person or
\$75/family

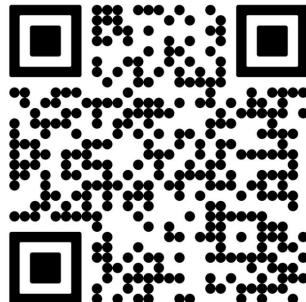
Fundraiser for
the Ocqueoc
Outdoor Center

Link to the QR code for more information
and to reserve your space



Aurora Summit

- Camera Clinics
- Breakout Sessions
- Panel Discussions
- Diverse Speakers
- Trivia & Prizes

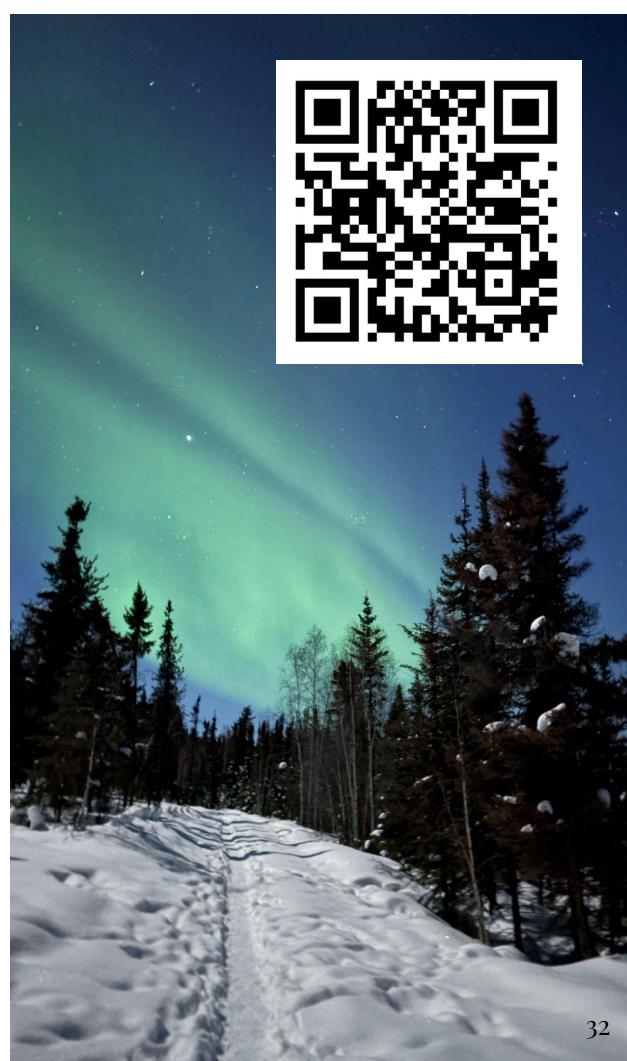


Featuring Keynote Speaker Dan Zafra



Optional Add-on: AS25 Photography Bootcamp

More Events



#WorkshopWednesdays

Our community in Michigan Aurora Chasers always encourages experienced photographers, astronomers and Aurora Chasers to post about workshops open to the public on Wednesdays!

Be Featured in an Exhibit!

Submit your photo of Aurora in Michigan to be featured.
TWO OPPORTUNITIES!

Browse our Exhibits:



Offering Tours?

Drop a link in the comments! If I know you and I can vouch for your tours and your Aurora savvy, I will promote any tours of yours I'm aware of. New blog coming soon, hopefully!

Connect

Follow @mfkaelin
FB.com/KaelinArt



Photo by Cristiano Saturno

Thank you!

⇒ coff.ee/mfkaelin

Buy Me A Coffee

My forecasts, alerts,
tutorials are free!

Show your support
with this digital tip jar!



Photo by "Live Chase Nate" Stovall

Beyond the 45th Parallel: Aurora Chaser & Author

- Aurora Advice Blog
- Events & Guides
- 45th Parallel Series

KaelinArt.com

