

Aurora!

Andy Carter NCC

The Extreme Solar Storm 10th May 2024

Predicting, Photographing, Processing, Printing

Predicting

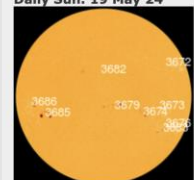
- Once you see an alert you are probably too late or in the wrong place
- Keep tabs on Spaceweather.com
 - Sunspots, CMEs (Coronal Mass Ejections), Solar Wind, 2-3 day projections
- Short term - UK based <https://aurorawatch.lancs.ac.uk>
 - 3 alert levels, magnetometer readings, 60 min updates
- Alerts are often optimistic
 - Particularly in the papers, BBC etc
 - Kp5 (severe) level likely you need to be North England/ Scotland.
 - 10th May event was Kp9 (Extreme!) and was very, very rare.

Current Conditions

Solar wind speed: **376.1** km/sec
density: **2.95** protons/cm³
more data: [ACE](#), [DSCOVR](#)
Updated: Today at 0817 UT

X-ray Solar Flares
6-hr max: **C2** 0749 UT May18
24-hr: **C4** 1938 UT May18
[explanation](#) | [more data](#)
Updated: Today at: 0820 UT

Daily Sun: **19 May 24**



Expand: [labels](#) | [no labels](#) | [Carrington](#)
Sunspot AR3685 poses a continued threat for strong Earth-directed solar flares. Since May 15th it has emitted an X3 flare and an M7 flare. Credit: SDO/HMI

Sunspot number: **166**
[What is the sunspot number?](#)
Updated 19 May 2024

Spotless Days
Current Stretch: 0 days
2024 total: 0 days (0%)
2023 total: 0 days (0%)
2022 total: 1 day (<1%)
2021 total: 64 days (18%)
2020 total: 208 days (57%)
2019 total: 281 days (77%)
2018 total: 221 days (61%)
2017 total: 104 days (28%)
2016 total: 32 days (9%)
2015 total: 0 days (0%)
2014 total: 1 day (<1%)
2013 total: 0 days (0%)
2012 total: 0 days (0%)
2011 total: 2 days (<1%)
2010 total: 51 days (14%)
2009 total: 260 days (71%)
2008 total: 268 days (73%)
2007 total: 152 days (42%)
2006 total: 70 days (19%)
Updated 19 May 2024

Thermosphere Climate Index
today: 27.35x10¹⁰ W **Hot**

What's up in space

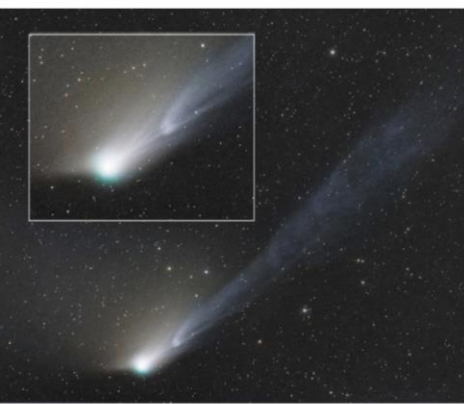
Sunday, May. 19, 2024

This is an AI Free Zone! Text created by Large Language Models is spreading rapidly across the Internet. It's well-written, artificial, frequently inaccurate. If you find a mistake on Spaceweather.com, rest assured it was made by a real human being.



GEOMAGNETIC STORM WATCH (G1): NOAA forecasters say that minor **G1**-class geomagnetic storms are possible on May 19th and/or 20th in response to a pair of glancing-blow CMEs. The more potent CME will be the second, propelled by a **powerful M7-class flare** on May 17th; this means **May 20th** has the best chance for a storm. **CME impact alerts:** [SMS Text](#)

THE SUN JUST RIPPED OFF A COMET'S TAIL: Earth isn't the only celestial body experiencing extreme space weather. Comet 12P/Pons-Brooks just got hit, too. The effects of a CME strike are shown in this May 15th photo taken by Ujvárosi Beáta using a remote-controlled telescope in Hakos, Namibia:



Note the structure near the comet's nucleus (inset). This is called a **"disconnection event."** It's caused by a CME (or fast solar wind stream) hitting the comet. One of the earliest recorded examples of this phenomenon occurred in April 2007 when NASA's STEREO-A spacecraft watched a CME strike Comet Encke and rip its tail completely off: [movie](#).

*Current images of Comet 12P clearly show the effects of stormy space weather conditions with its tail "ripped off" by solar wind," says Beáta.

[Realtime Space Weather Photo Gallery](#)
Free: [Spaceweather.com Newsletter](#)

18K GOLD TOTAL ECLIPSE PENDANT: [This pendant](#) has touched the shadow of the Moon. On April 8, 2024, during a total eclipse of the sun in Texas, the students of Earth to Sky Calculus launched it to the stratosphere onboard a cosmic ray research balloon. Floating more than 118,110 feet high,

archives

May

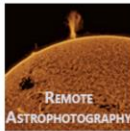
19

2024

view



AURORA CHASING
EVERY NIGHT OF YOUR
TRIP IN NORWAY



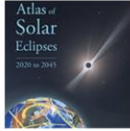
REMOTE
ASTROPHOTOGRAPHY



YOUNG'S
PHOTO GALLERIES

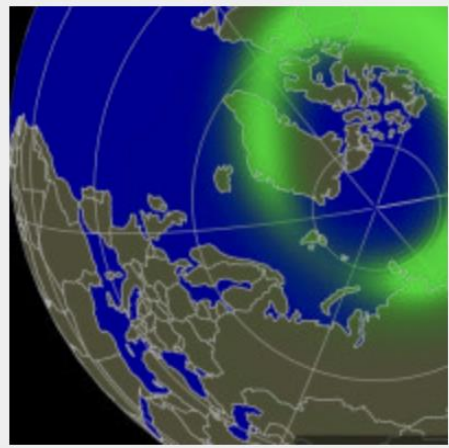


AvertedImagination



Atlas of
Solar
Eclipses
2020 to 2045

Current Auroral Oval:



Switch to: [Europe](#), [USA](#), [New Zealand](#), [Antarctica](#)
Credit: NOAA/Ovation

Planetary K-index

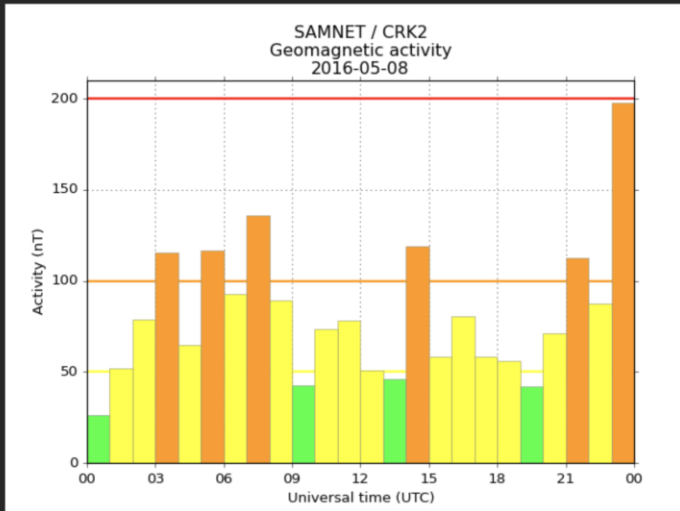
Now: **Kp= 2.67** quiet

24-hr max: **Kp= 3.33** quiet

[explanation](#) | [more data](#)

AuroraWatch UK geomagnetic activity index

AuroraWatch UK produces an hourly activity index to measure “geomagnetic activity” which we use to estimate the likelihood that aurora can be seen from the UK. The value for the current hour is updated every 3 minutes based on the available data. For this reason the value is often low in the first few minutes of the hour and will increase later-on. An example plot showing geomagnetic activity computed from our [Crocktree](#) magnetometer is shown below.



The bars indicate the maximum level reached in each hour. They are coloured based on our [alert levels](#). The latest data (normally relating to the current hour) is always shown in the right-hand side of the chart. Activity is recorded in [nanotesla](#) (nT) - a unit of measurement for magnetic field strength.

In addition to the activity bars the plot shows coloured horizontal lines which also correspond to the [alert levels](#). The y axis scaling is adjusted to indicate the next highest alert level (yellow if all bars are green, amber if one or more yellow bars are present, or red if one of more amber bars are present).

The time is always shown in [Coordinated Universal Time](#) (UTC), which is the same as Greenwich Mean Time (GMT) or 1 hour behind British Summer Time (BST), and the date is in given in the format yyyy-mm-dd. Both the time and date formats are standard in scientific and computer-related fields.

Earth's magnetic field intensity is roughly between **25,000 - 65,000 nT** (. 25 - . 65 gauss). Magnetic declination is the angle between magnetic north and true north.



National Centers for Environmental Information (.gov)
<https://www.ncei.noaa.gov> › products › geomagnetism-fr...

Geomagnetism Frequently Asked Questions



The sunspot group
that gave all the fun

500mm lens and all
the ND filters I had
plus a polarizer (about
2 stops) and a bit of
haze... Hand held,
1/8000 sec

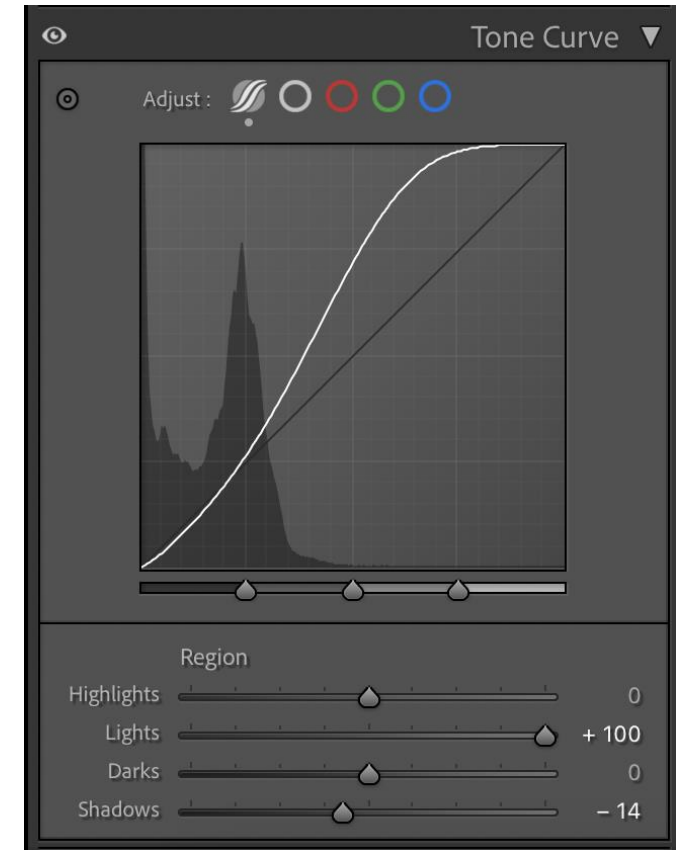
Taken 9 am on the 9th
(38 hrs before the
peak) and posted on
our NCC FB page

You were warned!

- Luck is needed! I've failed many times, particularly in the lakes
 - Best Auroras near the Equinoxes
 - Phase of the Moon! May 10th was perfect
 - Weather
 - Summer is generally poor, due to short, light nights
 - The sun has an 11 year activity cycle – we are approaching the peak and it is much stronger than expected 'Solar Max'
 - The sun rotates every 27 days near its equator... so the very active sunspot will be back in a week or so. Spaceweather will be tracking it; it may have dissipated... I'll be looking and will post an image if interesting. The 'Carrington Event' sunspot was active second time around
-
- The storm on May 10th was a once in a 50 - 500 year event, so don't expect too much
 - If you must be an Aurora chaser, Northern Alaska is the place to be!

Equipment and comments

- TRIPOD ESSENTIAL! Typical exposures 3 secs, f/4, ISO 2000, shutter delay (2s), Long exposure noise reduction. Everything manual.
- Don't expose for the aurora, keep the foreground and any buildings well exposed
- The aurora don't have strong colour by eye – our eyes don't see colour well in dim light, but the camera does. For a phone use night mode.
- A torch for foreground illumination is a useful option
- I use the tone curves adjuster, either globally or locally to bring up the colour detail. When does it stop looking realistic? Can you over do it?
- Noise reduction in LR very effective
- Focus is difficult. Infinity focus is *beyond* infinity. Keen Astro photographers use lenses with focus lock if they can (I can't)
- I obtained my best shots with a circular fisheye lens as the Aurora were horizon to horizon. Otherwise wide angle (as wide as you have)
- I kept local, to appeal to locals. The web was inundated with fantastic auroral vistas – mine were unique - the only good ones of Blisworth!





9.39pm
In the garden

Processed and as shot





As shot, RAW

22.30, the heavens opened!

Processed





10.29pm

Blisworth Waterfront and Spice Mill

My Iconic shot for the September Art Show!!

You can see the Plough and the Pole Star, 2 O'clock



Triptych images look good with the fisheye and can include some shots that don't link to location; assembled in PS



Another Triptych



Blisworth High Street with
Aurora and Light Trails!

Apologies to those who missed it!