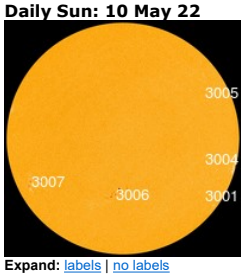
Current Conditions

Solar wind
speed: **273.6** km/sec
density: **10.53** protons/cm^3
more data: ACE, DSCOVR
Updated: Today at 0225 UT

X-ray Solar Flares
6-hr max: **C2 2207 UT May10**
24-hr: **X1 1355 UT May10**
explanation | more data
Updated: Today at: 0230 UT

Daily Sun: 10 May 22



Expand: labels | no labels
Sunspot AR3006 has a mixed-up delta-class magnetic field that harbors energy for X-class solar flares. Credit: SDO/HMI

Sunspot number: 71
What is the sunspot number?
Updated 10 May 2022

Spotless Days
Current Stretch: 0 days
2022 total: 0 days (0%)
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 10 May 2022

Thermosphere Climate Index
today: 14.47x10^{10} W Neutral
Max: 49.4x10^{10} W Hot (10/1957)
Min: 2.05x10^{10} W Cold (02/2009)
explanation | **more data:** gfx, txt
Updated 10 May 2022

The Radio Sun
10.7 cm flux: **117** sfu
explanation | more data
Updated 10 May 2022

Cosmic Rays Solar Cycle 25 is beginning, and this is reflected in the number of cosmic rays entering Earth's atmosphere. Neutron counts from the University of Oulu's Sodankyla Geophysical Observatory show that cosmic rays reaching Earth are slowly declining--a result of the yin-yang relationship between the solar cycle and cosmic rays.

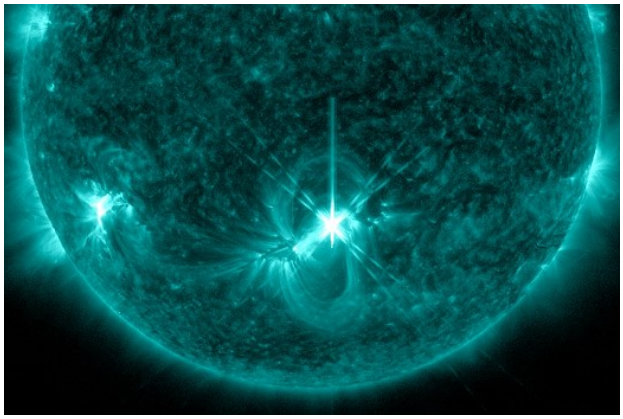
Oulu Neutron Counts
Percentages of the Space Age average:
today: +5.6% High
48-hr change: -0.9%
Max: +11.7% Very High (12/2009)
Min: -32.1% Very Low (06/1991)
explanation | more data
Updated 10 May 2022 @ 1700 UT

What's up in space

Wednesday, May. 11, 2022

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

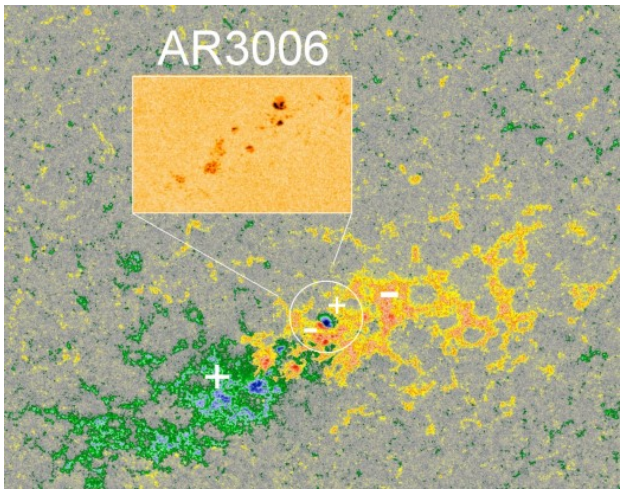
X-CLASS SOLAR FLARE: "Mixed-up" sunspot AR3006 (described below) exploded on May 10th (1355 UT), producing an intense X1.5-class solar flare. NASA's Solar Dynamics Observatory recorded the extreme ultraviolet flash:



Radiation from the flare ionized the top of Earth's atmosphere, causing a shortwave radio blackout around the Atlantic Ocean: blackout map. Radio transmissions at frequencies below ~30 MHz were attenuated for more than an hour after the flare.

Since the flare occurred, a mish-mash of CMEs has billowed away from the sun's southern hemisphere. It is unclear if these CMEs are related to the X-flare or instead some other, lesser explosions that happened at almost the same time. There was a filament eruption to the right of the X-flare, and a C4-class solar flare in a different sunspot to the left. NOAA analysts are busy unraveling these events using computer models to determine if one of the CMEs might hit Earth. Stay tuned. **Solar flare alerts:** SMS Text

A MIXED-UP SUNSPOT: Sunspot AR3006 is having an identity crisis. It is supposed to have a +/- magnetic field. Mostly it does. But deep inside the sunspot's primary core, the polarity is opposite: -/+. Note the circled region in this magnetic map of the sunspot from NASA's Solar Dynamics Observatory:



The mixture of magnetic polarities makes this sunspot interesting and dangerous. When opposite polarities bump together, it can light the fuse of magnetic reconnection--the explosive power source of solar flares. If AR3006 flares today, it will be geoeffective. The sunspot is directly facing Earth.

Update: The sunspot *did* flare today. An X1.5 class explosion on May 10th (1355 UT) caused a radio backout over the Atlantic Ocean and may have hurled a complicated CME toward Earth. **Solar flare alerts:** SMS Text

Realtime Space Weather Photo Gallery

Free: Spaceweather.com Newsletter

'NOCTILUCENT CLOUDS' OVER FLORIDA: Only a few years ago, the best place on Earth to see noctilucent clouds (NLCs) was near the Arctic Circle. Now it's Florida. Michael Holland Sr. photographed this one on May 6th from

archives
May
11
2022
view