spaceweather.com

News and information about the Sun-Earth environment

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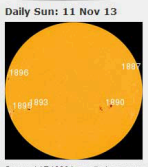
Current Conditions

Solar wind
speed: **495.7** km/sec
density: **6.2** protons/cm^3
explanation | more data
Updated: Today at 0827 UT

X-ray Solar Flares
6-hr max: **C1** 0718 UT Nov11
24-hr: **C7** 0048 UT Nov11
explanation | more data
Updated: Today at: 0800 UT

Daily Sun: 11 Nov 13



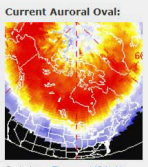
Sunspot AR1890 has a 'beta-gamma-delta' magnetic field that harbors energy for X-class solar flares. Emerging sunspot AR1895 appears to be a big one and could also pose a threat for strong flares. Credit: SDO/HMI

Sunspot number: 90
What is the sunspot number?
Updated 11 Nov 2013

Spotless Days
Current Stretch: 0 days
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%)
Since 2004: 821 days
Typical Solar Min: 486 days
Update 11 Nov 2013

The Radio Sun
10.7 cm flux: **154** sfu
explanation | more data
Updated 11 Nov 2013

Current Auroral Oval:

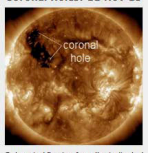


Switch to: Europe, USA, New Zealand, Antarctica
Credit: NOAA/POES

Planetary K-index
Now: **Kp= 4** unsettled
24-hr max: **Kp= 4** unsettled
explanation | more data

Interplanetary Mag. Field
B_{total}: **6.9** nT
B_z: **6.8** nT **south**
explanation | more data
Updated: Today at 0826 UT

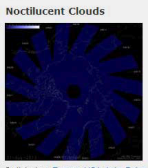
Coronal Holes: 11 Nov 13



Solar wind flowing from the indicated coronal hole could reach Earth on Nov. 16th. Credit: SDO/AIA.

Spaceweather.com is now posting daily satellite images of noctilucent clouds (NLCs), which hover over Earth's poles at the edge of space. The data come from NASA's AIM spacecraft. The north polar "daisy" pictured below is a composite of near-realtime images from AIM assembled by researchers at the University of Colorado's Laboratory for Atmospheric and Space Physics (LASP).

Noctilucent Clouds



Switch view: Europe, USA, Asia, Polar
Updated at: 09-02-2013 11:55:02

SPACE WEATHER
NOAA Forecasts

Updated at: 2013 Nov 10 2200 UTC

FLARE	0-24 hr	24-48 hr
CLASS M	60 %	60 %
CLASS X	30 %	30 %

Geomagnetic Storms:
Probabilities for significant disturbances in Earth's magnetic field are given for three activity levels:
active, minor storm, severe storm
Updated at: 2013 Nov 10 2200 UTC

Mid-latitudes

	0-24 hr	24-48 hr
ACTIVE	15 %	10 %
MINOR	05 %	01 %
SEVERE	01 %	01 %

High latitudes

	0-24 hr	24-48 hr
ACTIVE	15 %	15 %
MINOR	25 %	20 %
SEVERE	25 %	10 %

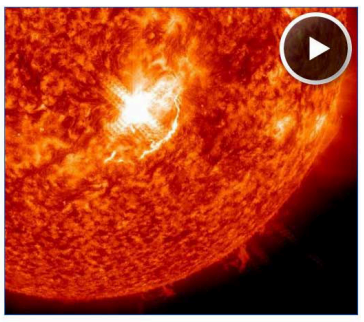
What's up in space

Monday, Nov. 11, 2013

When is the best time to see auroras? Where is the best place to go? And how do you photograph them? These questions and more are answered in a new book, Northern Lights - a Guide, by Pal Brekke & Fredrik Broms.

CHANCE OF FLARES: NOAA forecasters estimate a 60% chance of M-class flares and a 30% chance of X-flares on Nov. 11th. The most likely source is active sunspot AR1890, which has already produced three X-flares since Nov. 5th. In addition, a new flare threat is emerging over the sun's SE limb: Sunspot group AR1895 appears to be big and potent enough to produce some explosions of its own during the next 25 hours. **Solar flare alerts:** text, voice.

YET ANOTHER X-FLARE: Solar activity is high as sunspot AR1890 continues to produce X-class solar flares. The latest, which registered X1 on the Richter Scale of Flares, occured on Nov. 10th at 05:15 UT. NASA's Solar Dynamics Observatory recorded a bright flash of extreme ultraviolet radiation from the blast site:

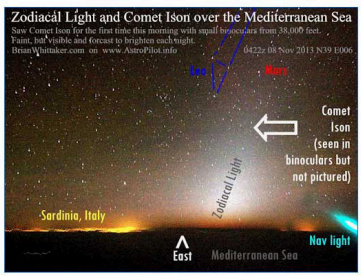


The flare also produced a strong burst of ~300 MHz radio waves, recorded at the Mauritius Radio Telescope on the island of Mauritius in the Indian Ocean: data.

This is the third X-flare from AR1890 since Nov. 5th, and all three have something in common: brevity. AR1890 tends to produce impulsive flares, peaking sharply in a matter of minutes or less. Brief flares usually do not produce coronal mass ejections (CMEs), but this one was an exception. A movie of the flare shows a plume of material lifting off the sun shortly after the UV flash. **Update:** A faint CME associated with that plume will probably sail south of our planet without hitting on Nov. 12th or 13th. **Solar flare alerts:** text, voice.

Realtime Space Weather Photo Gallery

COMET ISON NOW A BINOCULAR OBJECT: Comet ISON is brightening as it approaches the sun. Multiple observers now report that it is a binocular object. "I finally saw Comet ISON for the first time using small binoculars!" says pilot Brian Whittaker. He was flying 38,000 feet over the Mediterranean Sea on Nov. 8th when he took this picture showing where to look:



"It was faint, but is predicted to brighten and move each day," he adds. "Exciting! "

"I have made my first confirmed binocular sighting of C/2012 S1 ISON as well," reports Pete Lawrence of Selsey UK on Nov. 9th. "ISON's head appears small and stellar through a pair of 15x70s optics."

Comet ISON is currently moving through the constellation Virgo low in the eastern sky before dawn. Shining like an 8th magnitude star, it is still too dim for naked eye viewing, but an increasingly easy target for backyard optics. Amateur astronomers, if you have a GOTO telescope, enter these coordinates. Special dates of interest are Nov. 17th and 18th when the comet will pass the bright star Spica. **Sky maps:** Nov. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.

Don't delay, because Comet ISON is plunging toward the sun for a perilous encounter on Nov. 28th. At closest approach, the comet will be deep inside the sun's corona and little more than a million kilometers from the fiery stellar surface. If ISON survives--a big IF--it could emerge from solar fire as a naked-eye comet for northern-hemisphere observers in December. Monitoring is encouraged!

Realtime Comet Photo Gallery

BRIGHTER THAN ISON: Comet ISON is getting all the press, but it's not even the brightest comet in its own patch of sky. That would be Comet Lovejoy (C/2013 R1), one of four comets now rising in the east before dawn:

Image credits: Sormano Astronomical Observatory (Nov. 7, 2013)

Pictured from left to right are exploding Comet LINEAR X1, sungrazing Comet ISON, short-period Comet Encke, and the brightest of them all, Comet Lovejoy. All four are visible in binoculars or backyard telescopes, and Comet Lovejoy (mag. +6.0) is visible to the naked eye from dark-sky sites. Comet ISON is actually one of the faintest of the group; only expanding Comet LINEAR X1 (mag. +8) is more difficult to see.

An apparition of so many comets at once is a rare thing, and amateur astronomers are encouraged to wake up early for a tour of the pre-dawn sky. Dates of special interest include Nov. 15-18 when Comet LINEAR X1 passes by the bright star Arcturus, Nov 17-18 when Comet ISON has a close encounter with Spica, and Nov. 18-20 when Comet Encke buzzes Mercury. These stars and planets make excellent naked-eye guideposts for finding the comets. Meanwhile, bright Comet Lovejoy is approaching the Big Dipper; if you can't see it with your unaided eye, a quick scan with binoculars will reveal it. **Sky maps:** Nov. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.

Comet ephemerides: Comet ISON, Comet Lovejoy, Comet Encke, Comet LINEAR X1

Realtime Comet Photo Gallery

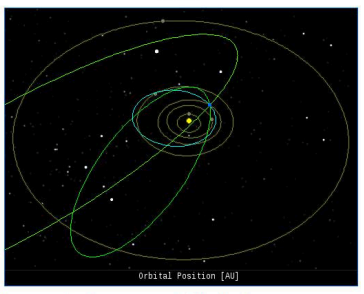
Realtime Aurora Photo Gallery

Realtime Comet ISON Photo Gallery

All Sky Fireball Network

Every night, a network of NASA all-sky cameras scans the skies above the United States for meteoritic fireballs. Automated software maintained by NASA's Meteoroid Environment Office calculates their orbits, velocity, penetration depth in Earth's atmosphere and many other characteristics. Daily results are presented here on Spaceweather.com.

On Nov. 10, 2013, the network reported **3** fireballs.
(3 sporadics)



In this diagram of the inner solar system, all of the fireball orbits intersect at a single point--Earth. The orbits are color-coded by velocity, from slow (red) to fast (blue). [Larger image] [movies]

Near Earth Asteroids

Potentially Hazardous Asteroids (PHAs) are space rocks larger than approximately 100m that can come closer to Earth than 0.05 AU. None of the known PHAs is on a collision course with our planet, although astronomers are finding new ones all the time.

On November 11, 2013 there were **1438** potentially hazardous asteroids.

Recent & Upcoming Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Size
2013 VQ11	Nov 7	1.8 LD	10 m
2013 UE1	Nov 7	7.4 LD	57 m
2013 VJ11	Nov 8	0.9 LD	12 m
2013 VK11	Nov 9	5.1 LD	19 m
2000 DK79	Nov 10	49 LD	3.0 km
2011 JY1	Nov 14	6.7 LD	54 m
2001 AV43	Nov 18	3 LD	52 m
2010 CL19	Nov 25	37.6 LD	1.3 km
2013 NJ	Nov 26	2.5 LD	190 m
2011 YD29	Dec 28	6.1 LD	24 m
2007 SJ	Jan 21	18.9 LD	1.9 km
2012 BX34	Jan 28	9.6 LD	13 m

Notes: LD means "Lunar Distance." 1 LD = 384,401 km, the distance between Earth and the Moon. 1 LD also equals 0.00256 AU. MAG is the visual magnitude of the asteroid on the date of closest approach.

Essential web links

- **NOAA Space Weather Prediction Center** — The official U.S. government space weather bureau
- **Atmospheric Optics** — The first place to look for information about sundogs, pillars, rainbows and related phenomena.
- **Solar Dynamics Observatory** — Researchers call it a "Hubble for the sun." SDO is the most advanced solar observatory ever.
- **STEREO** — 3D views of the sun from NASA's Solar and Terrestrial Relations Observatory
- **Solar and Heliospheric Observatory** — Realtime and archival images of the Sun from SOHO.
- **Daily Sunspot Summaries** — from the NOAA Space Environment Center
- **Heliophysics** — the underlying science of space weather
- **Space Weather Alerts**

more links...

archives: November | 11 | 2013 | view

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