spaceweather.com

News and information about the Sun-Earth environment

Subscribe to SpaceweatherNews

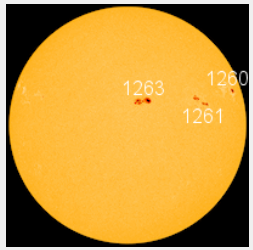
go!

Current Conditions

Solar wind
speed: **360.5** km/sec
density: **1.1** protons/cm^3
explanation | more data
Updated: Today at 1225 UT

X-ray Solar Flares
6-hr max: **C3** **0802 UT Aug04**
24-hr: **M9** **0357 UT Aug04**
explanation | more data
Updated: Today at: 1200 UT

Daily Sun: 04 Aug 11



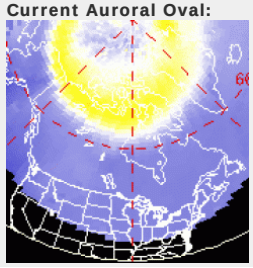
Sunspots 1261 and 1263 pose a continued threat for X-class solar flares.
Credit: SDO/HMI

Sunspot number: 66
What is the sunspot number?
Updated 03 Aug 2011

Spotless Days
Current Stretch: 0 days
2011 total: 1 day (<1%)
2010 total: 51 days (14%)
2009 total: 260 days (71%)
Since 2004: 820 days
Typical Solar Min: 486 days
Updated 03 Aug 2011

The Radio Sun
10.7 cm flux: **120** sfu
explanation | more data
Updated 03 Aug 2011

Current Auroral Oval:



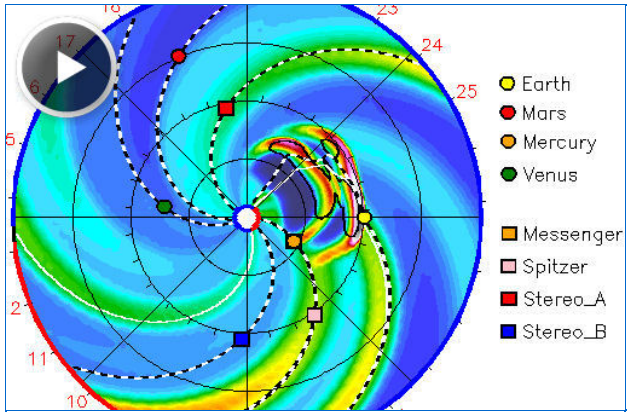
What's up in space

Thursday, Aug. 4, 2011

Metallic photos of the sun by renowned photographer Greg Piepol bring together the best of art and science. Buy one or a whole set. They make a stellar gift.

STRONG SOLAR ACTIVITY: For the third day in a row, active sunspot 1261 has unleashed a strong M-class solar flare. The latest blast at 0357 UT on August 4th registered M9.3 on the Richter Scale of Flares, almost crossing the threshold into X-territory (X-flares are the most powerful kind). The number of energetic protons around Earth has jumped nearly 100-fold as a result of this event. Stay tuned for updates.

INCOMING CLOUDS: At least two coronal mass ejections (CMEs) are now en route to Earth, propelled toward us by eruptions in the magnetic canopy of sunspot 1261 on August 2nd and 3rd. Analysts at the GSFC Space Weather Lab have just produced a new 3-D model of the advancing CMEs. Click on the image to set the clouds in motion:



According to the model, Earth's magnetic field will receive a double-strike from the clouds on August 4th at 22:39 UT plus minus 7 hours. Mild to moderate geomagnetic storms are possible when the CMEs arrive. **Aurora alerts:** text, voice.

July 2011 Aurora Gallery

[**previous Julys:** 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003]

SPOTTED SUNSETS: During the recent years of deep solar minimum, observers of the sunset grew accustomed to a blank solar disk. News flash: The sunspots are back. "The sunset conditions of August 2nd were just right to show the massive sunspots AR1260, AR1261 and AR1263 to the casual observer who happened to glance at the sun for a brief few moments," reports Stephen W. Ramsden of Atlanta, Georgia. "You could even see the penumbra with the naked eye!" He had a camera handy and snapped this picture:

archives

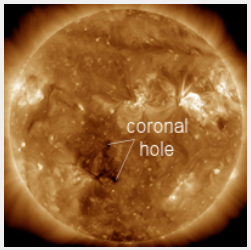
August | 4 | 2011 | view

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

Planetary K-index
Now: **Kp= 0** quiet
24-hr max: **Kp= 1** quiet
explanation | more data

Interplanetary Mag. Field
B_{total}: **4.1** nT
B_z: **0.3** nT **north**
explanation | more data
Updated: Today at 1226 UT

Coronal Holes: 04 Aug 11



A solar wind stream flowing from the indicated coronal hole should reach Earth on Aug. 7th or 8th. Credit: SDO/AIA.

SPACE WEATHER
NOAA Forecasts

Updated at: 2011 Aug 03 2200 UTC

FLARE	0-24 hr	24-48 hr
CLASS M	65 %	65 %
CLASS X	10 %	10 %

Geomagnetic Storms:
Probabilities for significant disturbances in Earth's magnetic field are given for three activity levels: active, minor storm, severe storm

Updated at: 2011 Aug 03 2200 UTC

Mid-latitudes

	0-24 hr	24-48 hr
ACTIVE	05 %	40 %
MINOR	01 %	10 %
SEVERE	01 %	05 %

High latitudes

	0-24 hr	24-48 hr
ACTIVE	05 %	40 %
MINOR	01 %	15 %

"The size and broiling movement of these sunspots just boggles the mind," he says. "You could fit every planet in the solar system with all of the known asteroids neatly inside the largest group...wow!"

Caution: Even when the sun is dimmed by low-hanging clouds or haze, focused sunlight can still damage your eyes. Do not look at the sun through unfiltered optics of any kind. A safely-filtered White Light Solar Observing System is the best way to monitor these great sunspots.

2011 Noctilucent Cloud Gallery

[**previous years:** 2003, 2004, 2005, 2006, 2007, 2008, 2009]

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 August 4, 2011 there were **1241** potentially hazardous asteroids.

Recent & Upcoming Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Mag.	Size
2007 DD	Jul 23	9.3 LD	--	31 m
2003 BK47	Jul 26	77.6 LD	--	1.1 km
2011 OD18	Jul 28	0.4 LD	--	22 m
2009 AV	Aug 22	49.7 LD	--	1.1 km
2003 QC10	Sep 18	50 LD	--	1.2 km
2004 SV55	Sep 19	67.5 LD	--	1.2 km
2007 TD	Sep 23	3.8 LD	--	58 m
2002 AG29	Oct 9	77.1 LD	--	1.0 km
2000 OJ8	Oct 13	49.8 LD	--	2.5 km
2009 TM8	Oct 17	1.1 LD	--	8 m
2011 FZ2	Nov 7	75.9 LD	--	1.6 km
2005 YU55	Nov 8	0.8 LD	--	175 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

SEVERE	01 %	05 %

LINK **NOAA Space Weather Prediction Center**

The official U.S. government space weather bureau

LINK **Atmospheric Optics**

The first place to look for information about sundogs, pillars, rainbows and related phenomena.

LINK **Solar Dynamics Observatory**

Researchers call it a "Hubble for the sun." SDO is the most advanced solar observatory ever.

LINK **STEREO**

3D views of the sun from NASA's Solar and Terrestrial Relations Observatory

LINK **Solar and Heliospheric Observatory**

Realtime and archival images of the Sun from SOHO.

LINK **Daily Sunspot Summaries**

from the NOAA Space Environment Center

LINK **Heliophysics**

the underlying science of space weather

LINK **Science Central**

LINK **Conquest Graphics**

for out-of-this-world printing and graphics

LINK **Trade Show Displays**

more links...