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SPACE WEATHER
Current conditions

Solar wind
 speed: **458.4** km/sec
 density: **3.1** protons/cm³
[explanation](#) | [more data](#)
 Updated: Today at 0036 UT

X-ray Solar Flares
 6-hr max: **A0** 1810 UT Jun30
 24-hr: **A0** 1810 UT Jun30
[explanation](#) | [more data](#)
 Updated: Today at: 2355 UT

Daily Sun: 30 June 09

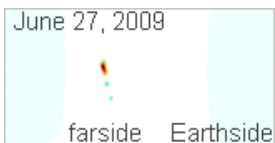


A new sunspot is forming in the circled region. Credit: SOHO/MDI

Sunspot number: 0
[What is the sunspot number?](#)
 Updated 28 Jun 2009

Spotless Days
 Current Stretch: 4 days
 2009 total: 138 days (77%)
 Since 2004: 649 days
 Typical Solar Min: 485 days
[explanation](#) | [more info](#)
 Updated 28 Jun 2009

Far side of the Sun:



This [holographic image](#) reveals a possible sunspot on the far side of the sun. Check back tomorrow for confirmation. Image credit: SOHO/MDI

Planetary K-index
 Now: **Kp= 1** quiet
 24-hr max: **Kp= 2** quiet
[explanation](#) | [more data](#)

 **What's up in Space**

July 1, 2009

AURORA ALERT: Did you sleep through the [Northern Lights](#)? Next time get a wake-up call: [Spaceweather PHONE](#).



NEW SUNSPOT: Observers are reporting a new sunspot forming near the sun's southeastern limb. It appears to be a member of Solar Cycle 24. **images:** [#1](#), [#2](#).

VOLCANIC SUNSETS: People across the USA (and now parts of Europe) are reporting unusual sunsets. When the sun goes down, delicate [ripples of white](#) appear over the western horizon. Then, as the twilight deepens, the sky turns a telltale shade of "volcanic lavender." Steven Hallgren photographed this example last night, June 29th, from of Coeur d'Alene, Idaho:



"With all the talk of volcanic sunsets, I had to take a look for myself," says Hallgren. "The purple was out in full force."

The source of the phenomenon is Russia's [Sarychev Peak volcano](#). It erupted on June 12th, hurling massive plumes of sulfur dioxide (SO₂) and other debris into the stratosphere. The white ripples that herald these sunsets are made of volcanic aerosols--a mixture of ash and sulfur compounds. Blue light scattered by fine volcanic aerosols combines with ordinary red sunset rays to produce the telltale lavender.

Earth-orbiting satellites are monitoring Sarychev's [sulfur dioxide plume](#) as it circumnavigates the globe at high latitudes, spreading the phenomenon from Russia to the USA to Europe and back again. All northern sky watchers should be alert for volcanic sunsets.

UPDATED: [2009 Sarychev Sunset Gallery](#)

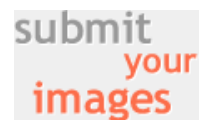
Cool links:

[archives](#)


July

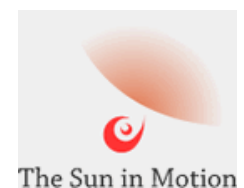
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2009



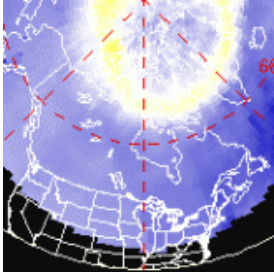
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[See also: [2008 Kasatochi Sunset Photo Gallery](#)]

Current Auroral Oval:

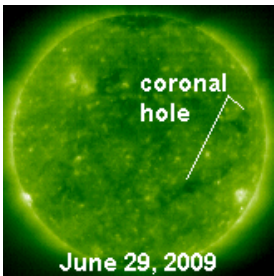


Switch to: [Europe](#), [USA](#), [New Zealand](#), [Antarctica](#)
 Credit: NOAA/POES

Interplanetary Mag. Field

B_{total} : 2.2 nT
 B_z : 1.2 nT south
[explanation](#) | [more data](#)
 Updated: Today at 0037 UT

Coronal Holes:



Earth is inside a solar wind stream flowing from the indicated coronal hole. Credit: SOHO Extreme UV Telescope

TAPETUM LUCIDUM: Robert Smith of Stoneville, North Carolina, went outside last night to look for volcanic sunset colors. "I fired my flash at the landscape," he says, "and there were two bright eyes staring back at me!" It was a fox:



"Just look at those reflections," he says.

The eyes of foxes reflect light using an organic mirror called the [tapetum lucidum](#). The tapetum is a layer of shiny tissue at the back of the retina. It increases the sensitivity of the eye. Photoreceptors get two chances to "see the light"--once on the way in and once again on the way back out. Creatures that hunt at night usually have a tapetum; creatures that sleep at night (e.g., humans) usually do not.

Astronomers really wish they had one! At least we can [see the fox](#).



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Updated at: 2009 Jun 30 2201 UTC

FLARE	0-24 hr	24-48 hr
CLASS M	01 %	01 %
CLASS X	01 %	01 %

Geomagnetic Storms:

Probabilities for significant disturbances in Earth's magnetic field are given for three activity levels: [active](#), [minor storm](#), [severe storm](#)

Updated at: 2009 Jun 30 2201 UTC

Mid-latitudes

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

[2009 Noctilucent Photo Gallery](#)
 [previous years: [2008](#), [2007](#), [2006](#), [2005](#), [2004](#), [2003](#)]

[Explore the Sunspot Cycle](#)

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 July 1, 2009 there were **1065** potentially hazardous asteroids.

June 2009 Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Mag.	Size
2009 KR21	June 1	0.7 LD	16	21 m
2009 KL8	June 1	5.1 LD	18	63 m
2003 QO104	June 9	36.8 LD	14	2.9 km
1994 CC	June 10	6.6 LD	13	1.2 km

	01 %	01 %
--	------	------

High latitudes

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

2009 MU	June 24	2.3 LD	17	54 m
2001 FE90	June 28	7.0 LD	13	435 m
2002 KL6	June 28	57.5 LD	16	1.4 km
2006 MV1	June 30	9.6 LD	23	20 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 Links**

[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 and Heliospheric Observatory](#)

Realtime and archival images of the Sun from SOHO.

[LINK](#) [STEREO](#)

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

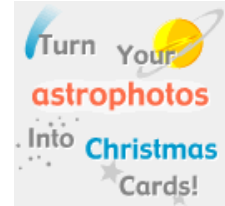
[LINK](#) [Daily Sunspot Summaries](#)

from the NOAA Space Environment Center

[LINK](#) [Current Solar Images](#)


from the National Solar Data Analysis Center

[LINK](#) [Science Central](#)



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