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SPACE WEATHER
Current conditions

Solar wind
 speed: **280.0** km/sec
 density: **0.6** protons/cm³
[explanation](#) | [more data](#)
 Updated: Today at 2206 UT

X-ray Solar Flares
 6-hr max: **A0** 2350 UT Nov30
 24-hr: **A0** 0125 UT Nov30
[explanation](#) | [more data](#)
 Updated: Today at: 2350 UT

Daily Sun: 09 Dec. 09

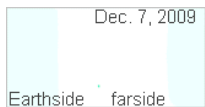


The sun is blank--no sunspots.
Credit: SOHO/MDI

Sunspot number: 0
[What is the sunspot number?](#)
 Updated 08 Dec 2009

Spotless Days
 Current Stretch: 16 days
 2009 total: 259 days (76%)
 Since 2004: 770 days
 Typical Solar Min: 485 days
[explanation](#) | [more info](#)
 Updated 08 Dec 2009

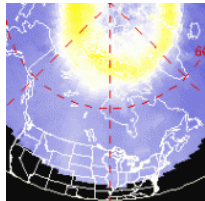
Far side of the Sun:



This [holographic image](#) reveals no sunspots on the far side of the sun.
Image credit: SOHO/MDI

Planetary K-index
 Now: **Kp= 0** quiet
 24-hr max: **Kp= 0** quiet
[explanation](#) | [more data](#)

Current Auroral Oval:



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

Interplanetary Mag. Field
 B_{total}: **1.3** nT
 B_z: **0.1** nT south
[explanation](#) | [more data](#)
 Updated: Today at 2206 UT

Coronal Holes:

 **What's up in Space**

December 9, 2009

SPACESHIP SIGHTINGS: Would you like a call when the space station is about to fly over your backyard? Sign up for [Spaceweather PHONE](#).



METEOR RADAR: The US Air Force Space Surveillance Radar is scanning the skies above Texas. When a satellite or meteoroid passes overhead--ping!--there is an echo. Activity is picking up this week as Earth enters a stream of debris from extinct comet 3200 Phaethon, source of the annual Geminid meteor shower. Tune into [Spaceweather Radio](#) for live audio.

STRANGE LIGHTS OVER NORWAY: This morning in arctic Norway, onlookers were stunned when a gigantic luminous spiral formed in the northern sky. "We are used to seeing lots of auroras here in Norway, but this was different," says Nick Banbury of Harstad who witnessed the phenomenon on his way to work "between 7:50 and 8:00 a.m. local time." Onlooker Jan Petter Jorgensen took this photo:



The first reaction of many readers when they see this picture is *Photoshop!* Surely this must be a fake. But no, many independent observers witnessed and photographed the apparition. It is real.

Banbury continues: "It consisted initially of a green beam of light similar in color to the aurora with a mysterious rotating spiral at one end. This spiral then got bigger and bigger until it turned into a huge halo in the sky with the green beam extending down to Earth. According to press reports, this could be seen all over northern Norway and must therefore have been very high up in the atmosphere to be seen hundreds of km apart."

UPDATE: Circumstantial evidence is mounting that the phenomenon was caused by a malfunctioning rocket, possibly an ICBM launched from a Russian submarine. A Navtek [no-fly alert](#) was issued for the White Sea on Dec. 9th, and photographers appear to have recorded the initial boost phase of a launch below the spiral ([see inset](#)). A rocket motor [spinning](#) out of control could indeed explain the spiral pattern, so this explanation seems plausible, although it has not yet been confirmed.

More reports and videos: [#1](#), [#2](#), [#3](#), [#4](#), [#5](#).

HOW STRONG WILL THE GEMINIDS BECOME? Long ago, on a cold December night in the 19th century, the first Geminid meteors appeared. In those days, the display was so weak (a dozen or so meteors per hour) that only the most alert observers could say they had seen a Geminid. How times have changed. According to data compiled by Bill Cooke of NASA's Meteoroid Environment Office, the Geminid meteor shower has intensified almost five-fold to become one of the best showers of the year:

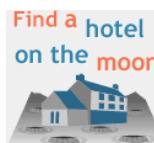
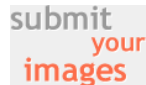
Cool links:

[archives](#)

December

9

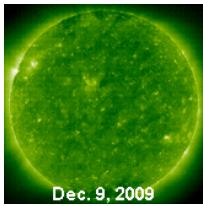
2009



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There are no coronal holes on the Earth-facing side of the sun. Credit: SOHO Extreme UV Telescope

**SPACE WEATHER
NOAA
Forecasts**

Updated at: 2009 Dec 09 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](#)

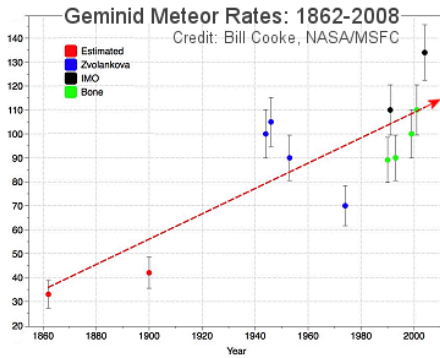
Updated at: 2009 Dec 09 2201 UTC

Mid-latitudes

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

High latitudes

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



What's driving the surge? The source of the Geminids is extinct comet 3200 Phaethon. A stream of debris from the comet has been sweeping across Earth's orbit for more than a century, and we are plunging deeper into the stream with each December crossing. Computer models suggest that the Geminids will continue to intensify with meteor rates jumping another 20% to 50% in the decades ahead.

Researchers will be watching the 2009 Geminids to see if the trend does indeed continue. Rates could exceed 140 meteors per hour when the shower peaks on Dec. 13th and 14th. Get the [full story and observing tips](#) from Science@NASA.

December Northern Lights Gallery

[previous Decembers: [2008](#), [2007](#), [2006](#), [2005](#), [2001](#), [2000](#)]

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 December 9, 2009 there were **1085** potentially hazardous asteroids.

Dec. 2009 Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Mag.	Size
2009 WV25	Dec. 1	2.9 LD	16	65 m
2009 WA52	Dec. 5	8.2 LD	20	23 m
2002 WP	Dec. 6	71.2 LD	16	950 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

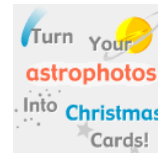
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