spaceweather.com
News and information about the Sun-Earth environment

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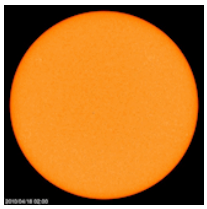
SPACE WEATHER
Current conditions

Solar wind
speed: **373.0** km/sec
density: **0.0** protons/cm^3
explanation | more data
Updated: Today at 1546 UT

X-ray Solar Flares
6-hr max: **A5** 0945 UT Apr18
24-hr: **B1** 0205 UT Apr18
explanation | more data
Updated: Today at: 1540 UT

Daily Sun: 18 Apr. 10



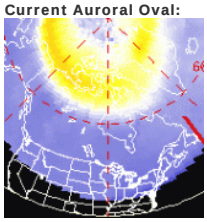
The Earth-facing side of the sun is blank--no sunspots. Credit: SOHO/MDI

Sunspot number: 0
What is the sunspot number?
Updated 17 Apr 2010

Spotless Days
Current Stretch: 3 days
2010 total: 10 days (9%)
2009 total: 260 days (71%)
Since 2004: 780 days
Typical Solar Min: 485 days
explanation | more info
Updated 17 Apr 2010

The Radio Sun
10.7 cm flux: **74** sfu
explanation | more data
Updated 17 Apr 2010

Current Auroral Oval:



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}: **4.7** nT
B_z: **2.0** nT **north**
explanation | more data
Updated: Today at 1546 UT

Coronal Holes:

What's up in Space

April 18, 2010

NEW AND IMPROVED: Turn your iPhone or iPod Touch into a field-tested *global* satellite tracker. The Satellite Flybys app now works in all countries.

DOUBLE FLYBYS: Space shuttle Discovery has undocked from the International Space Station in advance of a Monday morning landing at the Kennedy Space Center. Sky watchers should be alert for double flybys as the two spaceships circle Earth together. Check the Simple Satellite Tracker for viewing opportunities or, if you have an iPhone, download the app.

double flyby images: from Robert Hoetink of Enschede, The Netherlands; from Sietse Dijkstra of Lattrop, The Netherlands.

RARE SHUTTLE RE-ENTRY: On Monday morning, April 19th, space shuttle Discovery will make a rare "descending node" overflight of the continental United States en route to landing in Florida. Many towns and cities in the country's heartland are near the ground track:

NASA has not released exact flyby times for individual cities, but you can figure out when to look, approximately, using the following information: Landing is scheduled for 8:48 am EDT, and it takes the shuttle about 35 minutes to traverse the path shown above.

Observers in the northwestern USA will see the shuttle around 5:13 am PDT blazing like a meteoritic fireball through the dawn sky. As Discovery makes its way east, it will enter daylight and fade into the bright blue background. If you can't see the shuttle, however, you might be able to hear it. The shuttle produces a sonic double-boom that reaches the ground about a minute and a half after passing overhead.

Still not sure when to look? If you're near the ground track, just go outside a half hour before landing. Be alert for sights and sounds until you're sure the shuttle has passed. Check nasa.gov for more maps and details.

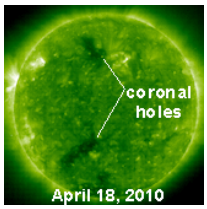
VOLCANIC LIGHTNING: It is well known that volcanic eruptions produce strong lightning. Less well known is *why*? Ordinary lightning in thunderstorms is not fully understood; volcanic lightning is even more of a mystery.

To investigate, a team of researchers from New Mexico Tech has traveled to Iceland to monitor the Eyjafjallajokull volcano--and they have found it crackling with electricity:

Cool links:

archives

April
18
2010
view



A solar wind stream flowing from the indicated coronal hole(s) could reach Earth on or about April 22nd. Credit: SOHO Extreme UV Telescope

SPACE WEATHER
NOAA Forecasts

Updated at: 2010 Apr 17 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: 2010 Apr 17 2201 UTC

Mid-latitudes

	0-24 hr	24-48 hr
ACTIVE	25 %	05 %
MINOR	05 %	01 %
SEVERE	01 %	01 %

High latitudes

	0-24 hr	24-48 hr
ACTIVE	30 %	10 %
MINOR	10 %	01 %
SEVERE	01 %	01 %

"On the evening of April 16th, there were some small eruptions producing ash clouds up to about 6-7 km, with lightning," says photographer Harald Edens. "The sky was nice and clear, so I was able to photograph the bolts from the town of Hvolsvollur using my Nikon D700 and a 80-200/2.8 lens."

Photography is one way to monitor volcanic lightning, but the technique has limits: Ash clouds are able to hide the flashes; lightning is not always visible in daylight; glowing lava competes for attention; and so on. Radio receivers can do a better job. Lightning emits impulsive radio bursts which can be measured and counted, day or night, even through clouds of ash. "We are deploying a six-station lightning mapping array around the Eyjafjallajokull volcano," says Edens. Their analysis of the radio "crackles" could reveal much about the inner workings of volcanic lightning.

April Northern Lights Gallery

[**previous Aprils:** 2009, 2008, 2007, 2006, 2005, 2004, 2003, 2002]

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 April 18, 2010 there were **1116** potentially hazardous asteroids.

April 2010 Earth-asteroid encounters:

Asteroid	Date(UT)	Miss Distance	Mag.	Size
2010 GV23	April 5	2.1 LD	19	12 m
2010 GF7	April 8	2.8 LD	18	30 m
2010 GA6	April 9	1.1 LD	16	27 m
2010 GM23	April 13	3.4 LD	17	47 m
2005 YU55	April 19	5.9 LD	15	185 m
2009 UY19	April 23	8.8 LD	18	87 m
2002 JR100	April 29	8.0 LD	19	65 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

more links...