

Sunspotters Is the Sun about to Flip?

A. First - Asteroids Redux



In the last posting, I reviewed Mother Sol's unruly children ... asteroids, comets and meteorites ... and the uncertainty of when they will hit. Almost on cue, on December 11, we had an unexpected close encounter with "2012 XE54" at 139,000 miles, well within the orbit of the moon. It was observed only **two days** before its closest approach.

It's in a short orbit around earth and then back into the Asteroid Belt between Mars and Jupiter.
<http://www.space.com/18850-near-miss-asteroid-flies-closer-than-moon-video.html>

At 120 feet wide, it would cause destruction approaching the Tunguska 1908 event. The asteroid will return in 2.72 years and hopefully will not be too perturbed from its orbit and narrow the gap. But that's just a gnat compared to our recent visitor - **Apophis**.

Apophis Asteroid



This is a Big One

<http://neo.jpl.nasa.gov/apophis/>

Apophis is appropriately named after an Egyptian snake God of destruction.



“Alone among all these near-Earth asteroids that have passed our way in recent years, Apophis has generated the most concern worldwide.” Patrick Paolucci

It is 1,066 feet wide and NASA original estimates of the impact energy would be equivalent to 510 - 880 megatons. Recent observations have increased its mass by 75 percent.

On Wednesday 1/9/13, it passed at 9.3 million miles from Earth. When it returns in 2029 it will pass at **18,300 miles** ... beneath the geosynchronous satellites. A whisker thin astronomical miss.

And the following pass in 2036?

“It was found that small uncertainties in the masses and positions of the planets and Sun can cause up to 23 Earth radii of prediction error for Apophis by 2036.” NASA (I hope they run the “near miss” data in 2029 through the computers again.)

Is there is any question that a World priority must be given to detecting, planning, developing and building systems that are “On the Ready Line” to deflect asteroids?

Space Quiz

OK ... now you are prepped; take the Space.com Asteroid Quiz of 10 Questions.

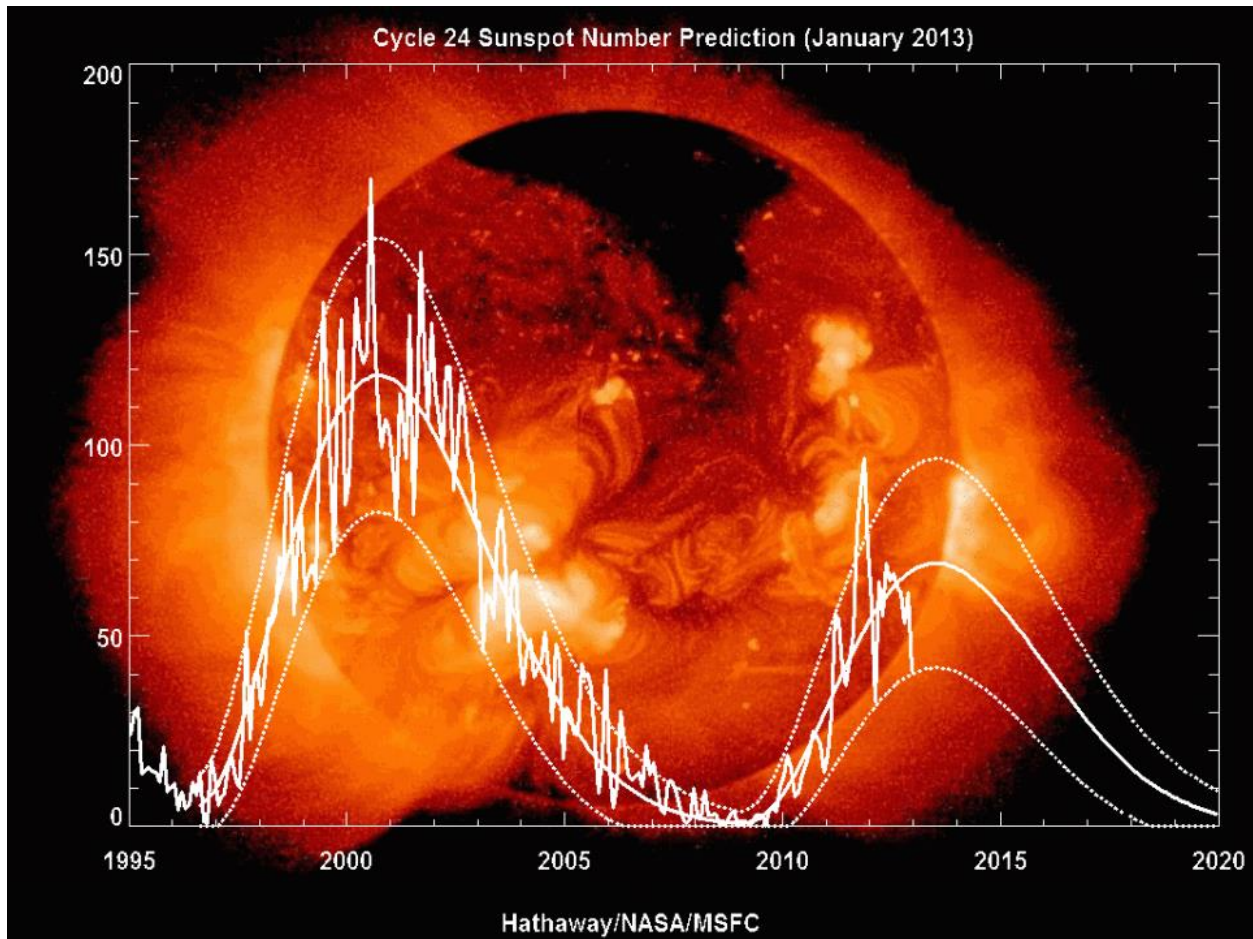
<http://www.space.com/15372-asteroid-quiz-space-rock-basics.html>

B. When will the Sun Flip?

<http://wattsupwiththat.com/2013/01/09/december-solar-activity-in-a-big-slump/>

Cycle 24 has lowest level of activity in over a hundred years.

The current predicted and observed size makes this the smallest sunspot cycle since Cycle 14 which had a maximum of 64.2 in February of 1906. (Hathaway - NASA’s Solar Cycle Guru)



*"This always happens around the time of solar maximum," says David Hathaway, a solar physicist at the Marshall Space Flight Center. **"The magnetic poles exchange places at the peak of the sunspot cycle.** In fact, it's a good indication that Solar Max is really here."*

We are "close" to a Max as indicated by a

- a. peak in sunspots
- b. dropping magnetic field strength
- c. peaking solar activity as measured by 10.7 cm radio flux.

Cycle 24 is a "weak" Cycle and future Cycles are projected to be even weaker. This will have an impact on Earth's atmosphere, biosphere and magnetic field.

Recall

Lower solar activity = Less solar energy reaching earth = Cooler earth

Less Solar Activity = Weaker Solar Magnetic field =

More cosmic rays = more cloud formation and cooling

When will the month of pole reversal be announced?

Some months after it happens.

Mother Sol is very, very uncooperative ... especially to Solar Scientists.

The magnetic pole reversal takes months and there is the chance of its slowing and partial reversal.

The Fat Lady has to stop singing, leave the building and get a night's sleep before it's over.

Excellent 3 minute NASA video explaining the solar cycle and polar reversal

<https://www.youtube.com/watch?v=DagxSbFcUHY>

C. What are these blue things around Earth and what are they doing in a movie logo?



For twenty-seven years, until 1990, every Universal movie opened with this. **What is it?**

>

>

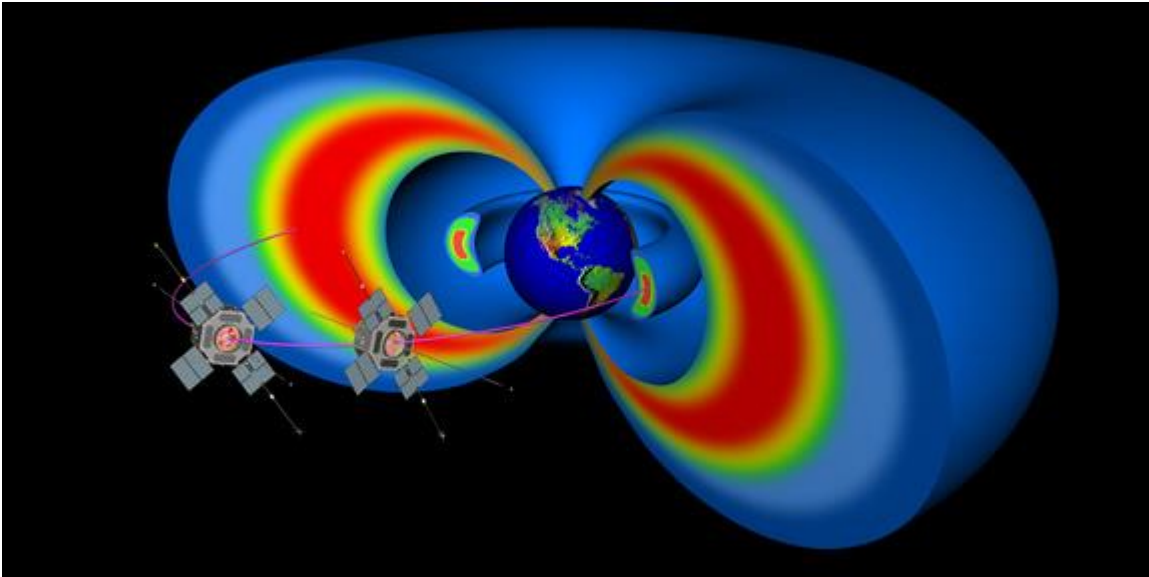
If you get it, you get a free membership to Sunspotters postings!

>

>

Van Allen Belts!

<http://www.space.com/17030-radiation-belt-storm-probes-van-allen-belts.html>



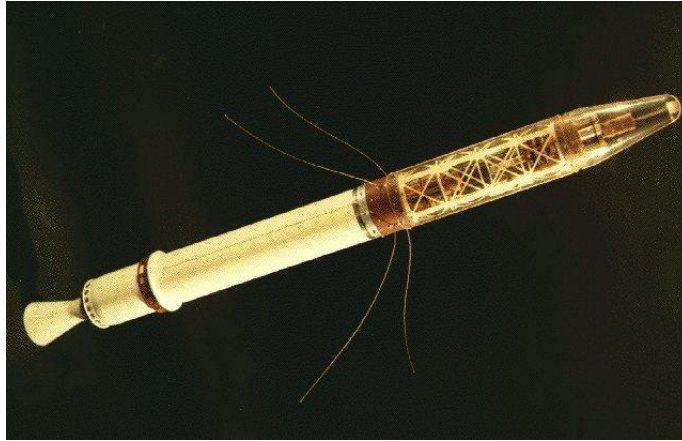
Two Radiation Belt Storm Probes that will study the sun and its effects on Earth.

Bonus question: Who discovered the Van Allen Belt? (at end)

Bonus question 2 How many Operating Satellites are in orbit? (at end)

This unexpected discovery was made in 1958 by the very first US satellite - **Explorer 1**.

The Geiger Counters on board this small 30 lbs. satellite were there to detect Cosmic Rays.



Explorer 1 Launch Vehicle

This was a **Big** Scientific Discovery since we were clueless that they existed.

The Inner and Outer Belts are formed from cosmic rays and solar particles trapped in earth's magnetic field.

They have elevated levels of radiation and are a critical factor in the orbital placement of satellites or astronauts. The belts are moderately dangerous for human beings, can damage satellite equipment and are difficult and expensive to shield against. All manned orbital flights and many satellites are placed in orbits beneath the Inner Belt. That belt can be driven down to low altitudes of 200 kilometers due to solar storms and a weakness in the Earth's magnetic field called the South Atlantic Anomaly.

New findings about Van Allen Belts

"Two new NASA probes launched in August 2012 have found that these regions change more rapidly than previously thought."

"To withstand the radiation, the spacecraft will "go there in a suit of armor" made of aluminum shielding a third of an inch thick (8.5 mm), said Rick Fitzgerald, RBSP project manager, also at APL. "That makes us one of the toughest missions."

Alien Bird signals from the Belt

"The spacecraft have also measured choruses of sound, in the form of radio waves, coming from Earth's magnetosphere — a noise the scientists have likened to the sounds of "alien birds." (Space.com)

Click on link below and then the second picture down on site for an excellent video explaining the Belt and listen to its strange music. My trained ears are picking up an actual message.

Gort! Klaatu barada nikto!

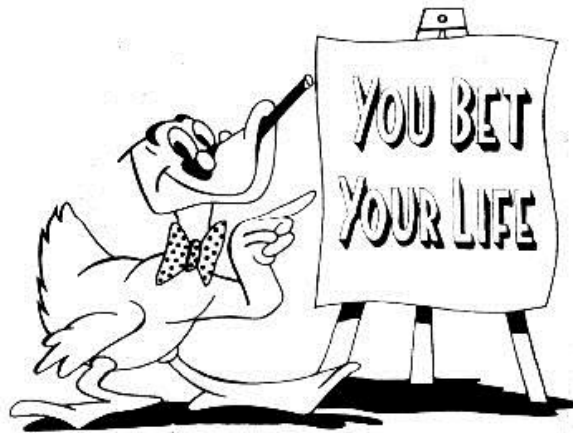
<http://www.space.com/17737-space-sounds-alien-birds-earth-magnetosphere.html>

Hmmm ... Is there a new potential computer game here?

“Attack on the Van Allen Belt”? “Attack by the Van Allen Belt?”



D. Space Quiz



Bonus question: Who discovered the Van Allen Belt?

Answer - Steve Allen and Woody Allen, sons of Fred van Allen

Bonus question 2 How many **Operating** Satellites are in orbit?

Answer - As of 8/1/12* ... **1,012** with the US having **443** of the total

*Reference: <http://tinyurl.com/4cuwte>

Three things cannot be long hidden: the sun, the moon, and the truth.

Buddha