## Mysteries of Ancient Architecture Why the Past May Be Our Future



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Which country has the most pyramids in the world?
A. China
B. United States of America
C. Egypt
D. Belize

Which country has the most pyramids?
A. China 90
B. United States of America
2,000*
C. Egypt
118
D. Belize
20,000
*Prior to 1800



Where is this pyramid located?


Where is this pyramid located?


Chichen Itza, Mexico


Where is this pyramid located?


Where is this pyramid located?


Candi Sukuh , Solo , Java


Where is this pyramid located?


Where is this pyramid located?


Teotihuacan, Mexico


Where is this pyramid located?


Where is this pyramid located?
Xian, China


Where is this pyramid located?


Where is this pyramid located?



Where is this pyramid located?


Where is this pyramid located?


Belleville, Illinois


Locations of mounds in the United States circa 1000 AD


Where is this pyramid located?


Where is this pyramid located?


Saqqarah, Egypt


Where is this pyramid located?


Where is this pyramid located?


Tikal, Guatemala






## Third Pyramid

## 4739-4751 BC (Manetho)

"Nitokris, the bravest and most beautiful of her time, blonde in complexion, who built the Third Pyramid. She ruled 12 years." - Manetho circa 260 BC (indirect quote from other historians who still had access to his writings now lost.)

## Great Pyramid

## 5352 -5386 BC (Manetho)

"Souphis ruled 63 years. He built the Great Pyramid...He was arrogant toward the gods. He wrote the Sacred Book, highly regarded by the Egyptians." - Manetho circa 260 BC (indirect quote from other historians who still had access to his writings now lost.)


All three pyramids supposedly built between 2575 -2467 BC (Herodotus) Herodotus visited Egypt 2000 years after these pyramids were built according to his timeline. First came Cheops, then Chephren, then Mycerinus. If true, why does the Sphinx sit in front of the second most important pyramid? Why does the second most important pyramid sit on the highest ground?

Built by Mycerinus (Herodotus)
Built by Chephren, brother of Cheops (Herodotus)




Boyertown Area Junior High S

Most of your school woutd fit under the Khafre Pyramid.
The time it takes you to walk around your school is about how long it takes to walk around the Khafre.



Comparison of Gizeh Plateau to Coventry Mall

## Assuming of course that there are only three pyramids at Gizeh....

The pyramids of Giza Egypt seem to align with the stars of Orion's Belt


The great library of Alexandria existed here. It was destroyed by Julius Caesar in 47 BC.


The pyramids of Xian China seem to align with the stars of Orion's Belt


A great library existed here. It was burned to the ground by $\mathrm{Ch}^{\prime}$ in Shih Huang-ti in 247 BC. Some writings dated back beyond 4,000 BC.


Sun Pyramid of Teotihuacan northwest of Mexico City, Mexico


View from Moon Pyramid Plaza was a reflecting pool.


## View from Moon Pyramid



The pyramids and main temple of Teotihuacán seem to align with the stars of Orion's Belt

Pyramid of the Sun

Temple of Quetzalcoatl

A great library existed here. The contents
 were burned by the Spanish in the $16^{\text {th }}$ century. Over four million documents destroyed.

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The three great libraries were located in the vicinity of three greatest pyramid groupings; Xian, Teotihuacán, and Giza. All three pyramid groupings bear a resemblance to the positioning of the Orion's Belt. Three stars in the constellation of Orion that were very important to many ancient cultures.
 haven't seen any"estriores avit's age, ", (1t) the Veil Nebula in Cygnus is estimatecd, by so nol edoo years old. The remnant in Vella may be asmuch as veld yeakis old, so your time frame is not unreasonable.

How could three different ancient cultures on three different continents build exactly the same monument and keep a massive library beside it?

## Did ancient cultures know how to cross the ocean?

Did they possess maps of the entire world?


To the left is the 1754 Buache map of Antarctica showing the continent to be free of ice. It is believed that Bauche copied a more ancient map to create his. It shows an inland sea between the two islands that are devoid of ice. It also shows rivers flowing to the coast. The map on the right shows how it looks today. The entire area is covered with ice. In addition to the 15,000 feet of ice above sea level, there is nearly a mile of ice beneath the ocean filling the inland sea. The last time this continent was ice free is estimated to have been about seven thousand years ago.

Even more amazing about the accuracy of this and other ancient maps of this region is that Antarctica wasn't discovereduntil November $18^{\text {th }}, 1820$ by U.S. Navy Capt Nathaniel B. Palmer. Not only are the maps accurate, they were drawn using spherical trigonometry, a science barely understoodby $18^{\text {th }}$ century cartographers. The accuracy of the coastlines was confirmedrecently by satellite study. Scientists have found frozen remains oflarge trees, dinosaurs, etc. and have speculated that Antarctica experienced a sudden and catastrophic climate change from semi tropical to frigid wasteland.


Piri Re'is Map of 1513 copied from older map now lost.

## So what happened to all that knowledge?

How many Egyptian pyramids contained mummies?


## None!


"...where are the mummies that were supposedly buried in these pyramids? According to one Egyptologist, there are not any! In 1975...U.S. Egyptologist Dr. Mark Lehner told William Fix that no original burial has ever been found in any pyramid in Egypt." Dunn

## Wait a minute,

## Wasn't King Tut buried inside the Great Pyramid?



## ERRRRRR wrong.



Model of underground network of tombs in Valley of the Kings


New excavation of tomb

King Tut is buried 300 miles away in the Valley of the Kings. The same distance from Philadelphia to Boston. This is where all the great Pharaohs have been found. Form follows function. If you want to keep your stuff with you in the after life, why put it in a giant structure and tell everybody where it is stashed?

To my knowledge not a single pyramid anywhere in the world was originally designed to act as a tomb.

Some pyramids have been found to contain bodies but the bodies were placed inside the structures long after they had been originally built


Kind of like putting Lincoln's body in the Parthenon and a thousand years later archeologists finding his body and pronouncing the Parthenon his tomb.

## If it is true that pyramids were not built to be tombs, Why were they built?

## Architects design according to the rule that

 Form follows function.Vast majority of pyramids around the world are raised platforms with sloped sides.


None built this way


Over 60,000 on every continent except Antarctica


Architecturally the trapezoid is the best shape to resist lateral forces


Like Tidal Waves


## JF Althouse <br> Pyramids Off the Coast of Africa

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I learned about another pyramid cluster. This time off the coast of Africa.

It adds to why I think pyramids were built.

http://www.gigalresearch.com/uk/pyramides-maurice.php

Why would so many people build the same structure all over the world? Why are they always on flat plains? Why are they near shorelines?


Typical Mauritius Pyramid is less than 12 meters high or $39^{\prime}-41 / 2^{\prime \prime}$


Coincidently perfect tidal wave proof height


## Urban

## Tsunami Shelter

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Single and Double Story Homes 300 People

Five Story Apartment Blocks 1200 People

Park with Fresh Water and Timber Elevated to Wave Amplitude using Rubble from previous Disaster

Summit Plateau $=67,000$ SF Sufficient to Shelter 3000 People @ 20 SF per Person

Single and Double Story Homes 300 People

Five Story Apartment Blocks 1200 People

Park with Fresh Water and Timber Elevated to Wave Amplitude using Rubble from previous Disaster

Summit Plateau $=67,000$ SF Sufficient to Shelter 3000 People @ 20 SF per Person

Pedestrian Bridge

The Pyramid is a perfect shape to resist lateral forces. With large enough mass, they are also capable of resisting earthquake forces.


The Japan Tsunami waves were roughly 30 to 40 feet high, depending on landfall topography. How many people could have survived if pyramid shaped mounds had been built in their towns with wide steps for quick climbing?
http://www.youtube.com/watch?v=rzqMIjEPdd8


I sent this concept to an architecture firm in Sendai, Japan following the disaster. I have since learned the city planners are thinking along similar lines.

Did large disasters disrupt or destroy past civilizations?
"...after the usual interval, the stream from heaven, like a pestilence, comes pouring down, and leaves only those of you who are destitute of letters and education; and so you have to begin all over again like children, and know nothing of what happened in ancient times..."


Timaeus<br>By Plato<br>Written 360 B.C.E<br>Translated by Benjamin Jowett

## BEROSSOS

Nesk Moyan Coleridar Bovitu
Next Moxan Folmondor rikn


## Introduced and Translated

Native Traditions in Ancient Mesopotamia and Esypt

Gerald P. Verbruishe \& John M. Wickersham

Hfaky

## and <br> MANETHO

Gerald P. Verbrught \& John M. Wickersham


Mayan Calendar has had a rough life.

Started out as a 260 day calendar.

Year changed length thanks to Feathered Serpent striking the Earth and causing massive flood.

Adjusted the calendar to 360 days.
Feathered Serpent struck Earth causing massive shaking of the Earth.

Adjusted the calendar to 365 day vague year.



## Palenque Mexico



Palenque Mexico


## Palenque Mexico

The Mayan King Pacal lived in Palenque. This was a highly esteemed city of Astronomy to the Mayans. They like many called Earth the "seventh planet". They counted from the outside of the solar system inward. How did they know about Pluto , Neptune and Uranus?


600 AD Palenque abandoned
1567 Spanish discover the ruins
1608 Dutch eyeglass maker, Hans Lippershey invents early telescope. For some reason a lot of other Europeans were working on the same concept. It is not clear exactly which
Palenque Mexico European actually invented the telescope.


Sternenfels Step Pyramid

## Some have strange carvings on them



Magician's Pyramid, Uxmal, Mexico Meaning "Built Three times."

Mayan Elephant Trunk Carving
Elephants went extinct in America around 11,000 BC

## A lot of animals died in North and South America around 13,000 BC; including many species of elephant

Artodus-giant short-faced bears<br>Bootherium-extinct bovid<br>Boreostracon-glyptodon<br>Bos-yak<br>Brachyostracon-glyptodon<br>Camelops-extinct camels<br>Castorides-giant beaver<br>Cervalces-extinct moose<br>Chlamytherium-giant armadillos<br>Cuvieronius-extinct mastodons<br>Dinobastis-saber-toothed cat<br>Equus-horses<br>Eremotherium-giant ground sloth<br>Euceratherium-shrub oxen<br>Glyptodon-an armadillolike creature<br>Glyptotherium-glyptodons<br>Hayoceros-extinct pronghorn<br>Hydrocherus-capybaras sloths<br>Mammut-American mastodons<br>Mammuthus-mammoths<br>Megalonyx-ground sloths<br>Mylohyus-woodland peccaries<br>Neochoerus-extinct capybara<br>Nothrotherium-small ground sloths<br>Paramylodon-ground sloths<br>Platyerabos extinct bovid<br>Platygonus-extinct peccary

## Many pyramids and temples are more precise than modern structures

Rock Samples from W.M. Flinders Petrie 's 1880-1882 Expedition to Gizeh, Egypt.

Commentary on methods of cutting and drilling from Christopher Dunn, The Giza Power Plant- Technologies of Ancient Egypt
"On the N. end [of the coffer] is a place...where The saw runs too deep Into the granite, and was Backed out again by the Masons; but a fresh start they made was still too Deep, and two inches lower they backed out a Second time, having cut out more than .10 inch Deeper than they intended." Petrie 1883


Wire cut double wheel saw marks in granite.

Diamond drills 900 revolutions per minute.

This was drilled at a rate 500 times faster. Eric Leither TruStone Corp. Dunn 1998
"For those who may still believe in the 'official' chronology of the historical development of metals, identifying copper as the metal the ancient Egyptians used for cutting granite is like saying that aluminum could be cut using a chisel fashioned out of butter." Dunn 1998

Some have masonry joints that are half the thickness of a credit card, less than 1/16" (I checked with my Mac Card)


Modern masonry joints Are typically $1 / 4$ "

Heb Sed Court, Saqquara

## The Joints are Filled with Mortar using an unknown formula.



Portland Cement was "invented" In 1824 by Joseph Aspdin. It lasts about fifty years. Their mortar lasts thousands of years.


Temple of Hatshepsut

This unknown mortar formula was used on both sides of the Atlantic in many ancient cultures.


These stones were recently exposed and had not yet eroded to weather.
The mortared joints are rock hard and practically invisible.

I don't think it is a coincidence that so many ancient mounds exist all over the world. It took a lot of effort to build these structures. In my opinion, a survival imperative could have motivated ancient people to build them.


Human made mounds constructed on flat plains with wide steps for fast movement of many people to the summit.

A world wide practice of a permanent priest cast paid to stand watch on the summit to warn of comets.

World wide ancient fear of comets and a racial memory of massive flood and earth tilt.

Altun Ha, Belize JFAlthouse

Step platform pyramids even exist in Giza east of an ancient ocean that dried up thousands of years ago. We call that ancient sea bed the Sahara Desert.




While I was working on the final battle scenes for Second Birth, I researched the old shore lines for the massive sea that used to be in the Sahara.

The light blue hatch areas are approximate sizes. Note I also show the locations of the possible original four small seas that existed in the Mediterranean Valley before it was flooded in 11,000 BC



## Petrified underwater <br> plants buried 90 feet under the Sahara desert



What if this ancient sea was tossed eastward during the end of the Second Age, an event remembered in myth as the "tilting of the millpost" or tilting of the earth?

Such an event could explain the limestone formations protruding into the Nile Valley.

 was covered by the tidal wave debris of the Sahara Sea?

Why I think there was a massive tilting of the earth around 13,000 BC

they held political and religious control over a population of about 10,000 people over a 60 mile stretch up and down the Black Warrior River Valley from Tuscaloosa to
Demopolis. We invite you to explore the wonder and mystery of this vanished civilization



## Central Mound

Moundville Alabama

## Palenque, Mexico




Balanku, Mexico
18 degrees east of magnetic north


## Stonehenge



Wells , England



Uncooperative Cathedral of Wells


Town of Wells

Wells , England


Bath, England

Bath , England


## Roman Brickwork



Older Celtic Stonework

Roman City built over Prehistoric Settlement


Older Celtic Stonework Interlocking and able to resist Seismic forces


Parallel to Mag North
North facing Cathedral of Bath, England

West of North Facing Roman Bath and the entire ancient Roman town beneath Bath, England







Tilting the Earth back to it's original position would cause the Constellations of the Zodiac to align with the Equator.


Astronomy.com Forums - Automated Email show details 12/29/10 (13 days ago)
to me
RE:Author finishing novel wants to move the north pole and can't figure out where to put it.
By zachsdad in Astronomy in the classroom
Orion would become a constellation of the zodiac if the Earth's axial tilt shifted more toward zero as compared to our orbital plane around the Sun. I'm not sure how much of a change it would take to bring The Big 'O' into the ecliptic.

Changing the location of the pole is more problematic. That would entail actually changing the Earth's rotational axis (Picture a quarterback throwing a nice tight spiral, which is then tipped by a defensive lineman). A sufficiently energetic impact, or series of impacts, could alter the axis -Uranus axis of rotation is tipped almost 90 degrees to the plane of its orbit (it appears to 'roll' around the Sun). Such an event would probably change the axial tilt also (it would be a chaotic event), so, concievably when the spin re-stabilizes it could end up with a tilt which would be 12 to 18 degrees instead of 23. That would probablyput Orion in the zodiac.

I hope this helps.









This is a sign from eighteenth-century chemistry for sulphuric acid. It is composed by joining the most common sign for sulphur, $\uparrow$, and the prefix $\leftarrow$ for acid.







Theorized Location of Oros Buried Pyramid 31,600 BC

Theorized Location of Manetho's Library دفن غرفة المكتبة

Theorized Location of Blocked Access to Manetho's Ramp and Tunnel System
همكنة للوصول إلى الطريق المنحر والأنفاق



The structure is made of tightly fitted, massive granite stones cut with machine precision and at multiple angles, typical of cyclopean earthquake resistant masonry. It is very similar to Inca and Pre Mayan architecture, including razor thin joints cemented with a "butter coat" of rock hard mortar. The floor is made of alabaster. Note the older walls in the circled area. This appears to be a very ancient structure that was expertly renovated at least once a long time ago.

$2012$

On 1994 July 16-22, over twenty fragments of comet Shoemaker-Levy 9 collided with the planet Jupiter.

Scientists called this event : "A once in a lifetime experience."
On July 21, 2009 Jupiter was hit by a second comet.
Scientists have been silent about this second impact.

It takes 12 years for Jupiter to orbit the Sun. It was 15 years between impacts. Jupiter was on the same side of the sun for both hits.

The stars "wobble" during a 24,000 year cycle. The planets and the entire solar system do not. The outer edge of the Solar Systems Ort cloud is egg shaped, Suggesting there is a gravitational force outside and nearby.

NASA announced the existence of an unknown gravitational force near the edge of our solar system.

WISE was launched to map the sky using infrared technology to detect Brown Dwarf stars near our solar system. Wise went operational at the beginning of 2010. It will complete its mapping and analysis in 2013.

## May 1.41949

Comet 147P/Kushida-Muramatsu
Captured by Jupiter

Note: Jupiter is the only planet shown in correct location


Note: Jupiter is the only planet shown in correct location


## Huge springtime storms hit the planet Uranus

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sciencenasa.gov
Space Science News home

## Huge storms hit the planet Uranus

## Infrared images from the Hubble Space Telescope reveal dramatic STORM CLOUDS MOVING IN EXCESS OF $\mathbf{5 0 0} \mathbf{~ K M / H R}$

FROM A NASA HQ/STSCI PRESS RELEASE
Mar. 29, 1999: If springtime on Earth were anything like it will be on Uranus, we would be experiencing waves of massive storms, each one covering the country from Kansas to New York, with temperatures of 300 degrees below zero.

A dramatic new time-lapse movie $\rightarrow$ by NASA's Hubble Space Telescope shows for the first time seasonal changes on the planet Once considered one of the blander-looking planets, Uranus is now revealed as a dynamic world with the brightest clouds in the outer Solar System and a fragile ring system that wobbles like an unbalanced wagon wheel. The clouds are probably made of crystals of methane, which condense as warm bubbles of gas well up from deep in the atmosphere of Uranus.

Right: Last august the Hubble Space Telescope captured this near infrared image of Uranus. Recent analysis indicates that clouds seen here in orange appear to circle Uranus at speeds in excess of 500 kilometers per hour. Comparisons to earlier photographs show a slight precession shift in the brightest of Uranus' rings.

The movie $\rightarrow$, created by Hubble researcher Erich Karkoschka of the University of Arizona, clearly shows for the first time the wobble in the ring system, which is made of billions of tiny pebbles. This wobble may be caused by Uranus'


Recent Headlines

## December 3: Mars

 Polar Lander nears touchdown December 2: What

Uranus's position March 29th, 1999 fully developed storms.




## May 2010

Jupiter loses ring



Uranus's position October 28, 2011 new storm begins.

Cassini, the famed Saturn spacecraft that's been orbiting our ringed neighbor for nearly a decade, first spotted this storm in the earliest stages of its infancy, all the way back in early December, 2010. I've highlighted it, below, visible right at Saturn's terminator.


Saturn's position December $1^{\text {st }}, 2010$ when the storm was detected.

Storm or Comet Impact?

Cometary nuclei contain the least modified material from the formative epoch of our planetary system, and their compositions reflect a range of processes experienced by material prior to its incorporation in the cometary nucleus. Dynamical models suggest that icy bodies in the main cometary reservoirs (Kuiper Belt, Oort Cloud) formed in a range of environments in the protoplanetary disk, and (for the Oort Cloud) even in disks surrounding neighboring stars of the Sun's birth cluster. Photometric and spectroscopic surveys of more than 100 comets have enabled taxonomic groupings based on free radical species and on crystallinity of rocky grains. Since 1985, new surveys have provided emerging taxonomies based on the abundance ratios of primary volatiles. More than 20 primary chemical species are now detected in bright comets. Measurements of nuclear spin ratios (in water, ammonia, and methane) and of isotopic ratios ( $\mathrm{D} / \mathrm{H}$ in water and $\left.\mathrm{HCN} ;{ }^{14} \mathrm{~N}\right)^{15} \mathrm{~N}$ in CN and HCN ) have provided critical insights on factors affecting formation of the primary species. The identification of an abundant product species (HNC) has provided clear evidence of chemical production in the inner coma. Parallel advances have occurred in astrochemistry of hot corinos, circumstellar disks, and dense cloud cores. In this review, we address the current state of cometary taxonomy and compare it with current astrochemical insights.


Quite to the contrary, this is a virtually planet-wide storm plume, whose core is a 3,000 -file-wide thunderstorm, kicking up beacons of warm air and leaving behind ammonia ice rystals, which we can tell from Cassini's observations in the infrared.


$$
R=4.08 \mu \mathrm{~m} \quad G=0.90 \mu \mathrm{~m} \quad B=2.73 \mu \mathrm{~m}
$$

mage credit: NASA / JPL / Univ. of Arizona.)

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## The Perfect Dust Storm Strikes Mars

The Perfect Dust Storm Strikes Mars

THREE MONTHS AFTER IT BEGAN, AN AWESOME GLOBAL DUST STORM ON MARS IS WANING. TWO NASA SPACECRAFT HAVE CAPTURED DAZZLING IMAGES OF THE PLANETARY TEMPEST.


October 11, 2001: A pair of NASA spacecraft, the Mars Global Surveyor (MGS) and Hubble Space Telescope, is giving scientists a ringside seat for the biggest global dust storm seen on Mars in several decades. The extraordinary storm, which first enveloped the Red Planet three months ago, is finally subsiding -- but researchers say it could flare up again at any time.



Mars's position July 11, 2001 when massive dust storm began.


Mars's position July 11, 2001 when massive dust storm began to subside.

## Space and astronomy news

## Mars Dust Storms

by JERRY COFFEY on JUNE 6,2008


"Scientists are still trying to determine why the storms become so large and last so long."
"The chance for storms is increased when there are great temperature variations..."

Mars dust storms are much different than the dust devils that many people have seen in images sent back from the planet. On Mars a dust storm can develop in a matter of hours and envelope the entire planet within a few days. After developing, it can take weeks for a dust storm on Mars to completely expend itself. Scientists are still trying to determine why the storms become so large and last so long.

All Mars dust storms are powered by sunshine. Solar heating warms the Martian atmosphere and causes the air to move, lifting dust off the ground. The chance for storms is increased when there are great temperature variations like those seen at the equator during the Martian summer. Because the planet's
www.itt-tech.edu > Click here to request a Free ITT Tech brochure
${ }^{6}$ When I started working with computers, I found that the more I fearned the more I wanted to know. ${ }^{\text {\% }}$

Could this storm have been triggered and sustained by a steady stream of comet fragments seeding the atmosphere?

Sticking my neck out and predicting: Massive dust storm on Mars starting almost immediately. Saturn impacted by comet or asteroid.


Found this after I presented to Christopher Dock Mennonite High School on April 25 ${ }^{\text {th }}$, 2012.

This was posted March 19th, 2012
http://www.informantnews.com/modules.php?name=News\&file=article\&sid=345

It appears that numerous imagers captured the features I discovered yesterday and brought to the attention of the amateur community. It's good to know that l'm not just seeing things!

Here are a few more images to help ponder the question of whether it's a high-altitude water-ice cloud of some sort or perhaps a dust plume. I think it looks like a mushroom cloud from an impact, but that's just what l'm seeing. We'll learn more as those with more experience with Martian clouds chime-in

Here is one of the best green-light images of the feature. I a have a lot of data to sort through and will update
http://exosky.net/exosky/?m=201203\&paged=2
36. Wayne J. says:

March 30, 2012 at 2:42 pm

Hi Michael,

NASA, like all scientific research bodies, adheres to the belief that the researcher that made the observation be the one that announces the finding. As applied to amateurs, what this really means is that since the observation wasn't made by NASA, they are unlikely to comment publicly on it until something is publiched on it That caid it's a little premature for any professional researcher to make any public comments as we simply don't know what it is yet - and NASAJJPL are about the last people in the world to say "hey look.. it's cool but we have no ciue what it is!

That doesn't mean that there aren't researchers from all over the place looking at this and conjecturing what it is. Also, NASAJJPL typical manage programs and spacecraft. The research is done by people at various institute. In this case, I have been contacted by researchers from at least 5 different organizations and am trying my best to provide them all with factual data from the observation for their analysis. Being scientists, though, they're not going to say too much until they have fully studies the new data against old data and can back-up their conclusions against peer review.

I wouldn't expect to see anything published on this from a professional research organization for at least a few months.

## Wayne

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xenophilius.wordpress.com/2012/04/27/huge-snowballs-seen-piercing-saturns-outer-ring/

\section*{Huge "Snowballs" Seen Piercing Saturn's Outer Ring}
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Posted by Xeno on April 27, 2012

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Giant "snowballs" have been discovered plunging through Saturn's outermost ring, creating glittering trails of ice dubbed mini-jets, researchers have announced.

The jets were uncovered in new images from NASA's Cassini orbiter, which has been touring the Saturnian system for the past seven years

The colliding snowballs are formed as material in Saturn's F ring coalesces due to the gravitational pull of the nearby moon Prometheus. Scientists estimate that the icy bodies, including the one seen above, are each about 0.62 mile (a kilometer) wide.

Sometimes a snowball sails back through the Fring at a gentle clip of roughly 4 miles ( 6.4 kilometers) an hour, dragging along icy particles.

The resulting jets "are about 10 kilometers [ 6.2 miles] wide and extend out from the rings anywhere from 40 to 180 kilometers [ 25 to 112 miles], depending on their age, with their lengths increasing dramatically over just a few hours," said Carl Murray, a Cassini imaging team member based at Queen Mary University in London, England.



Jet Propulsion Laboratory
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Image details
1D\#:
PIA15501
Date added:
2012-04-23
Mission:
Cassini-Huygens
Spacecraft:
Cassini Orbiter
Instruments:
Imaging Science Subsystem - Narrow Angle
Size:
491 x 400 pixels (width x height)
Rating:
*****
Views:
6 7
Full-Res TIFF:
PIA15501.tif (0.2 MB)
Full-Res JPG
PIA15501.jpg (0.01 MB)
Image credit:
NASA/JPL-Caltech/SSI/QMUL

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\section*{F Ring Patterns}


Click on the image for the video
In this movie from NASA's Cassini spacecraft, the gravitational pull of Saturn's moon Prometheus creates patterns in Saturn's F ring. This movie also happens to show a small trail of icy ring particles dragged out when a tiny object punches through the ring. That trail appears at the top right about 12 seconds into the movie and moves along the length of the \(F\) ring to the left.

This movie covers 11 hours and 5 minutes on Jan. 30, 2009. The images were re-projected so that the frame is centered on the moon Prometheus, highlighting the interaction between the F ring and Prometheus.

Prometheus, which averages 53 miles or 86 kilometers across, is the bright body moving up and down in the frame. The delicate strands of the F ring run across the top of the frame. The trail, made of icy particles dragged out of Saturn's F ring, varies from about 47 miles ( 75 kilometers) long to 155 miles ( 250 kilometers) long over the course of the movie.

Scientists think the trails, also called "mini-jets" by Cassini scientists, are created when small objects about half a mile (1 kilometer) in diameter punch through the F ring and drag icy ring particles behind them. The objects creating the trails were likely originally formed by the pull of the moon Prometheus on tiny F ring particles.

A half mile diameter object impacting the earth could trigger a 250,000 kiloton explosion, decimating as much as a third of the planet.

\section*{Study supports theory of extraterrestrial impact}

Researchers have conclusively identified a family of nanodiamonds, including the impact form of nanodiamonds called lonsdaleite, which is unique to cosmic impact. By University of California, Santa Barbara — Published: March 6, 2012


Images of single and twinned nanodiamonds show the atomic lattice framework of the nanodiamonds. Each dot represents a single atom. Credit: University of California, Santa Barbara
A 16-member international team of researchers that includes James Kennett from the University of California, Santa Barbara, has identified a nearly 13,000-year-old layer of thin, dark sediment buried in the floor of Lake Cuitzeo in central Mexico. The sediment layer contains an exotic assemblage of materials, including nanodiamonds, impact spherules, and more, which, according to the researchers, are the result of a cosmic body impacting Earth.

These new data are the latest to strongly support a controversial hypothesis proposing that a major cosmic impact with Earth occurred 12,900 years ago at the onset of an unusual cold climatic period called the Younger Dryas.

Conducting a wide range of exhaustive tests, the researchers conclusively identified a family of nanodiamonds, including the impact form of nanodiamonds called lonsdaleite, which is unique to cosmic impact. The researchers also found spherules that had collided at high velocities with other spherules during the chaos of impact. Such features, Kennett noted, could not have formed through anthropogenic, volcanic, or other natural terrestrial processes. "These materials form only through cosmic impact," he said.

The data suggest that a comet or asteroid - likely a large, previously fragmented body greater than several hundred meters in diameter - entered the atmosphere at a relatively shallow angle. The heat at impact burned biomass, melted surface rocks, and caused major environmental disruption. "These results are consistent with earlier reported discoveries throughout North America of abrupt ecosystem change, megafaunal extinction, and human cultural change and population reduction," Kennett said.

The sediment layer identified by the researchers is of the same age as that previously reported at numerous locations throughout North America, Greenland, and Western Europe. The current discovery extends the known range of the nanodiamond-rich layer into Mexico and the tropics. In addition, it is the first reported for true lake deposits.

In the entire geologic record, there are only two known continent-wide layers with abundance peaks in nanodiamonds, impact spherules, and aciniform soot. These are in the 65 -million-year-old Cretaceous-Paleogene boundary layer that coincided with major extinctions, including the dinosaurs and ammonites; and the Younger Dryas boundary event at 12,900 years ago, closely associated with the extinctions of many large North American animals, including mammoths, mastodons, saber-tooth cats, and dire wolves.
"The timing of the impact event coincided with the most extraordinary biotic and environmental changes over Mexico and Central America during the last approximately 20,000 years, as recorded by others in several regional lake deposits," said Kennett. "These changes were large, abrupt, and unprecedented, and had been recorded and identified by earlier investigators as a 'time of crisis.'"
(O) Asteroid predicted to make nea


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Discovery News > Space News > No Joke: April Fools' Asteroid Was a Near Miss

\section*{NO JOKE: APRIL FOOLS' \\ ASTEROID WAS A NEAR MISS}

On Sunday (April 1), a space rock the size of a passenger jet zipped between the Earth and moon.
Mon Apr 2, 2012 11:35 AM ET
Content provided by Tariq Malik, SPACE.com
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Although asteroid 2012 EG5 posed no threat to Earth, the near-miss highlights the threat of near-Earth asteroids. Click to enlarge this image
ESA - P. Carril

\section*{THE GIST}
- In the early hours of April Fools' Day a 150 -feet wide asteroid flew past the Earth, beneath the orbit of the moon.
- Asteroid 2012 EG5 posed no threat to Earth and even if it did hit Earth, it would have likely burned up in the atmosphere.
- Another asteroid, 2012 FA57, is expected to fly past the Earth-moon system on April 4.

An asteroid the size of a passenger jet zoomed near the Earth Sunday (April 1), just in time for April Fools' Day, but the space rock flyby posed no threat of hitting our planet, NASA officials said.

The asteroid 2012 EG5 was closer than the moon when it flew by Earth at 5:32 a.m. EDT (0932 GMT). The space rock is about 150 feet wide ( 46 meters), according to a NASA records. Scientists with the space agency announced the April Fools' asteroid flyby on Friday, March 30 .
"Asteroid 2012 EG5 will safely pass Earth on April 1," scientists with NASA's Asteroid Watch program at the


\section*{2012 DA 14}

\section*{(0) Most Visited (3) Getting Started}


\section*{Science News}
from universities, jourmals, and other research organizations

\section*{Near-Miss Asteroid Will Return Next Year, Even Closer}

ScienceDaily (Mar. 15, 2012) - When it whizzes past Earth in 2013, a newly discovered asteroid is going to miss our planet -- but not by much. The 50 -meter space rock is expected to come closer than many satellites, highlighting the growing need to keep watch on hazards from above

\section*{See Also:}

Space \& Time
- Asteroids, Comets and Meteors
- ESA
- Satellites
- Space Telescopes
- Space Station
- Space Exploration

Reference
- Geosynchronous orbit
- Near-Earth object
- Near-Earth asteroid
- Space observatory

Astronomers in Spain spot 'slippery target'
The asteroid was discovered by the La Sagra Sky Survey observatory, in the southeast of Spain, near Granada, at an altitude of 1700 m , one of the darkest, least light-polluted locations on the European mainland
"Considering its path in the morning sky, its rather fast angular motion, the quite faint and fading brightness and its orbit high above the plane of Earth's orbit, it was a slippery target - and easily could have escaped undetected during this Earth visit," says Jaime Nomen, one of the discoverers.
The team use several automated telescopes to scan the sky, unusual asteroid, dubbed 2012 DA14, on 22 February. Its small size and orbit meant that it was spotted only after it had flown past Earth at about seven times the distance of the Moon.

However, current predictions indicate that on its next flyby, due on 15 February 2013, it will pass Earth at just \(24,000 \mathrm{~km}\)-- closer than many commercial satellites.
"This is a safe distance, but it is still close enough to make the asteroid visible in normal binoculars," says Detlef Koschny, responsible for near-earth objects in ESA's Space near-earth objects in ESA's Space


In this plot, the asteroid is the yellow dot, and Earth is green; the two orbits intersect twice per year. A preliminary orbit calculation shows that 2012 DA14 has a very Earth-like orbit with a period of 366.24 days, just one more day than our terrestrial year and it 'jumps'inside and outside of the path of Earth two times per year. While an impact with Earth has been ruled out on the asteroid's next visit, astronomers will use that close approach for more studies and calculate the Earth and Moon's gravitational effects on it. (Credit: Deimos-Space)

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\section*{The Telegraph}
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|}
\hline UK World & Politics & Obituaries & Education & Earth & Science & Defence & Health News & Royal Family & Celebrities & W \\
\hline Science New & Space & \multicolumn{3}{|l|}{Roger Highfield Dinosaurs} & Evolution & \multicolumn{3}{|l|}{Steve Jones | Science Picture Galleries} & & \\
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Asteroid's near-miss with Earth
(1) Follow us on...

An asteroid will today make one of the closest cosmic near-misses with Earth ever recorded.

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By Murray Wardrop
12:18PM GMT 27 Jan 2012
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\section*{NASA Releases Stunning Video of Near-Miss Asteroid}
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A massive asteroid paid Earth a very close visit Tuesday and astronomers were able to capture stunning imagery of the near-miss rock, including a mini-movie put together by NASA (below).

Asteroid 2005 YU55 zoomed by the planet inside the Moon's orbit and reached its closest proximity at \(6: 28\) p.m. ET when it came within 201,700 miles of Earth. It's the largest object on record to pass this close to us with our foreknowledge. And just like that, 2005 YU55 was zooming off into deep space once again at approximately 29,000 miles per hour.
"By animating a sequence of radar images, we can see more surface detail than is visible otherwise," Lance Benner, a radar astronomer at NASA's Jet Propulsion Laboratory said in a statement upon the release of the space agency's imaging sequence. "The animation reveals a number of puzzling structures on the surface that we don't yet understand. To


There are no large coronal holes on the Earthside of the sun. Credit SDO/AIA.

SIERRA FIREBALL DECODED: On Sunday morning, April 22nd, just as the Lyrid meteor shower was dying down, a spectacular fireball exploded over California's Sierra Nevada mountain range. The loud explosion rattled homes from central California to Reno, Nevada, and beyond. According to Bill Cooke, head of NASA's Meteoroid Envronment Office, the source of the blast was a meteoroid about the size of a minivan.
"Elizabeth Silber at Western University has searched for infrasound signals from the explosion," says Cooke. "Infrasound is very low frequency sound which can travel great distances. There were strong signals at 2 stations, enabling a triangulation of the energy source at \(37.6 \mathrm{~N}, 120.5 \mathrm{~W}\). This is marked by a yellow flag in the map below."

"The energy is estimated at a whopping 3.8 kilotons of TNT, so this was a big event," he continues. "I am not saying there was a 3.8 kiloton explosion on the ground in California. I am saying that the meteor possessed this amount of energy before it broke apart in the atmosphere. [The map] shows the location of the atmospheric breakup, not impact with the ground."
"The fact that sonic booms were heard indicates that this meteor penetrated very low in atmosphere. which implies a speed less than \(15 \mathrm{~km} / \mathrm{s}(33.500 \mathrm{mph})\).

> " ...It (Hiroshima) created a blast equivalent to about 13 kilotons of TNT ..."
> http://en.wikipedia.org/wiki/Atomic_bombings_of_Hiroshima_and_N agasaki\#The_bombing

\section*{Hear Earth Asteroids}

Potentially Hazardous Asteroids (PHAs) are space rocks larger than approximately 100 m 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 24, 2012 there were 1287 potentially hazardous asteroids.
Recent \& Upcoming Earth-asteroid encounters:
\begin{tabular}{|c|c|c|c|c|}
\hline Asteroid & Date(UT) & Miss Distance & Mag. & Size \\
\hline 2012 GP1 & Apr 21 & 9 LD & -- & 26 m \\
\hline 2012 HN1 & Apr 21 & 5.2 LD & -- & 18 m \\
\hline 2012 HE & Apr 22 & 6.9 LD & -- & 31 m \\
\hline 2012 HE2 & Apr 24 & 8.9 LD & -- & 28 m \\
\hline 2012 HQ & Apr 24 & 9.8 LD & -- & 42 m \\
\hline 2012 HP13 & Apr 27 & 2 LD & -- & 64 m \\
\hline 2012 HM & Apr 28 & 1.4 LD & -- & 67 m \\
\hline 2011 WV134 & Apr 28 & 38.6 LD & -- & 1.6 km \\
\hline 1992 JD & May 2 & 9.5 LD & -- & 43 m \\
\hline 2010 KK37 & May 19 & 2.3 LD & -- & 31 m \\
\hline 4183 Cuno & May 20 & 47.4 LD & -- & 5.7 km \\
\hline 2002 VX94 & May 26 & 72.8 LD & -- & 1.1 km \\
\hline 2002 AC & Jun 16 & 62.2 LD & -- & 1.2 km \\
\hline 1999 BJ8 & Jun 16 & 68.8 LD & -- & 1.1 km \\
\hline 2005 GO21 & Jun 21 & 17.1 LD & -- & 2.2 km \\
\hline
\end{tabular}

Notes: LD means "Lunar Distance." 1 LD \(=384,401 \mathrm{~km}\), 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.

\section*{Sandra Noble, executive director of the Mesoamerican research organization Foundation for the Advancement of}

Mesoamerican Studies, Inc.(FAMSI), notes that "for the ancient Maya, it was a huge celebration to make it to the end of a whole cycle". She considers the portrayal of December 2012 as a doomsday or cosmic-shift event to be "a complete fabrication and a chance for a lot of people to cash in. \({ }^{[23]}\)

\section*{Main article: Mesoamerican Long Count calendar}

Since Calendar Round dates repeat every 18,980 days, approximately 52 solar years, the cycle repeats roughly once each lifetime, so a more refined method of dating was needed if history was to be recorded accurately. To specify dates over periods longer than 52 years, Mesoamericans used the Long Count calendar.
The Maya name for a day was kin. Twenty of these kins are known as a winal or uinal. Eighteen winals make one tun. Twenty tuns are known as a k'atun. Twenty k'atuns make a b'ak'tun.

The Long Count calendar identifies a date by counting the number of days from the Mayan creation date 4 Ahaw, 8 Kumk'u (August 11, 3114 BC in the proleptic Gregorian calendar or September 6 in the Julian calendar). But instead of using a base-10 (decimal) scheme like Western numbering, the Long Count days were tallied in a modified base-20 scheme. Thus 0.0 .0 .1 .5 is equal to 25 , and 0.0 .0 .2 .0 is equal to 40 . As the Uinal unit resets after only counting to 18 , the Long Count consistently uses base-20 only if the tun is considered the primary unit of measurement, not the kin; with the kin and Uinal units being the number of days in the tun. The Long Count 0.0 .1 .0 .0 represents 360 days, rather than the 400 in a purely base-20 (vigesimal) count.

There are also four rarely used higher-order cycles: piktun, kalabtun, kinchiltun, and alautun.
Since the Long Count dates are unambiguous, the Long Count was particularly well suited to use on monuments. The monumental inscriptions would not only include the 5 digits of the Long Count, but would also include the two tzolkin characters followed by the two haab' characters.
Misinterpretation of the Mesoamerican Long Count calendar is the basis for a popular belief that a cataclysm will take place on December 21, 2012. December 21, 2012 is simply the day that the calendar will go to the next b'ak'tun, at Long Count 13.0 .0 .0 .0 . The date on which the calendar will go to the next piktun (a complete series of 20 b'ak'tuns), at Long Count 1.0.0.0.0.0, will be on October \(13,4772\).

Sandra Noble, executive director of the Mesoamerican research organization Foundation for the Advancement of Mesoamerican Studies, Inc.(FAMSI), notes that "for the ancient Maya, it was a huge celebration to make it to the end of a whole cycle". She considers the portrayal of December 2012 as a doomsday or cosmic-shift event to be "a complete fabrication and a chance for a lot of people to cash in. "[23]

\section*{Table of Long Count units}
\begin{tabular}{|l|l|l|l|}
\hline \multicolumn{2}{|c|}{ Days } & Long Count period & Long Count unit \\
\hline 1 & & 1 Kin & \\
\hline 20 & 20 Kin & 1 Uinal & \\
\hline 360 & 18 Uinal & 1 Tun & \(\sim 1\) \\
\hline 7,200 & 20 Tun & 1 Ka'tun & 19.7 \\
\hline 144,000 & 20 Ka'tun & 1 Bak'tun & 394.3 \\
\hline \(2,880,000\) & 20 Bak'tun & 1 Pictun & 7,885 \\
\hline \(57,600,000\) & 20 Pictun & 1 Kalabtun & 157,808 \\
\hline \(1,152,000,000\) & 20 Kalabtun & 1 Kinchiltun & \(3,156,164\) \\
\hline \(23,040,000,000\) & 20 Kinchiltun & 1 Alautun & \(63,123,288\) \\
\hline
\end{tabular}

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www.space.com/14782-asteroid-threat-earth-impact-2011ag5.html
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## Big Asteroid's Chances of Hitting Earth in 2040 Overblown, NASA Says

SPACE.com Staff
Date: 05 March 2012 Time: 10:57 AM ET



The orbit of asteroid 2011 AG5 carries it beyond the orbit of Mars and as close to the sun as halfway between Earth and Venus.
CREDT: NASA/JPL/Callech/NEOPO
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An asteroid discovered last year has been gaining notoriety because of a chance that it could hit Earth in 28 years, but NASA scientists say the odds are extremely remote that it will pose any danger to us.

The huge space rock, called asteroid 2011 AG5, is about 460 feet ( 140 meters) wide and circles the sun on a path between the orbits of Mars and Venus. Astronomers spotted it on Jan. 8, 2011 using the 60 -inch Cassegrain reflector telescope on Mount Lemmon north of Tucson, Ariz, with some projections suggesting the odds of an Earth impact are 1 in 625.

Yet currently, the asteroid is rated a 1 on the 1-10 Torino Impact Hazard Scale that denotes potentially dangerous asteroids ( 1 is the least hazardous rating), NASA scientists say. So while there is a slight chance that asteroid 2011 AG5 could impact our planet in 2040, astronomers still need much better observations to define its orbit.

## 2012 DA 14 was discovered in late February 2012.

