



“Scientists Look at 2012”: Carrying on Margaret Mayall’s Legacy of Debunking Pseudoscience

Kristine Larsen
Physics and Earth Sciences Dept.
Central Connecticut State Univ.



“Scientists Look at Astrology”, *The Scientific Monthly*, March 1941, Bart Bok and Margaret Mayall

Announced formation of a committee for the investigation of astrology, with Bok as President and Mayall as secretary. This preliminary article debunked the basic tenets of astrology.



“What have scientists done to correct such misconceptions? Individuals have occasionally voiced a protest, but active concern in the spreading of astrology has generally been considered below the dignity of scientists.”



“Objections to Astrology: A Statement by
186 Leading Scientists”
The Humanist, Sept/Oct 1975

“We believe that the time has
come to challenge directly,
and forcefully, the pretentious
claims of astrological
charlatans.”

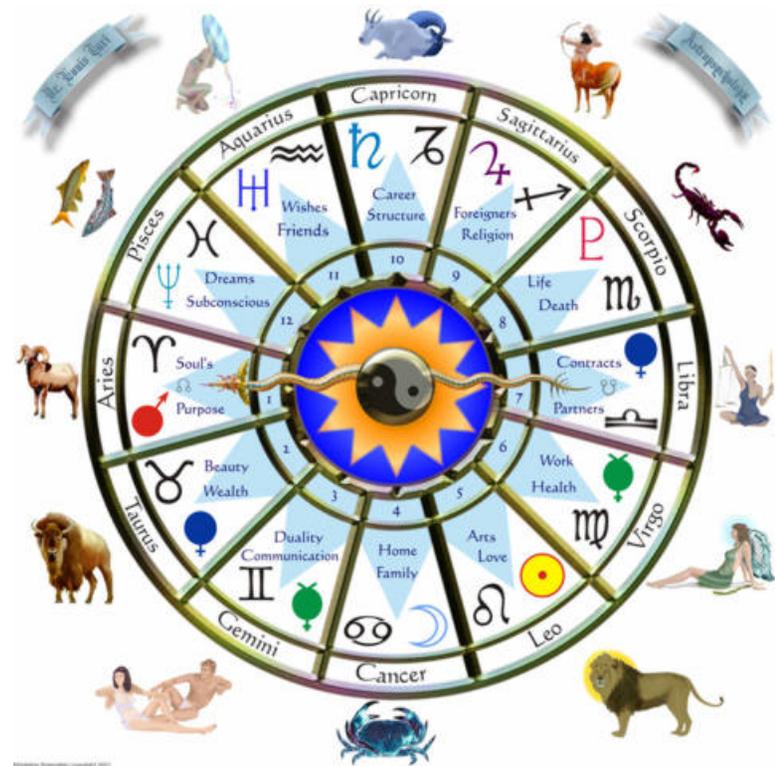
Signed by 18 Nobel Prize
Winners



The percentage of Americans who think astrology is “not at all scientific” has hovered between 56-66% between 1985-2006

Survey of CCSU college students in introductory astronomy courses in 2004 and 2005 found that in 1994, 20.6% of males and 50% of females admitted some belief in astrology. In 2005, these figures had risen to 34.4% and 54% respectively.

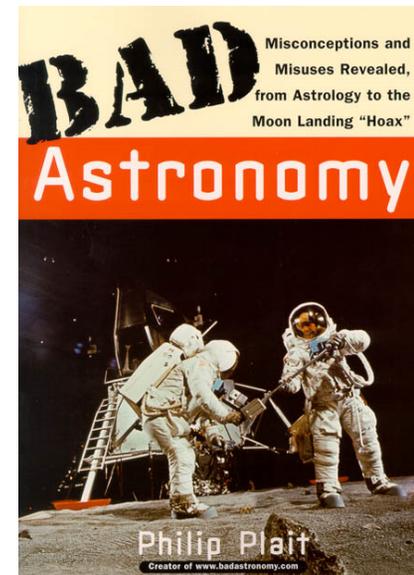
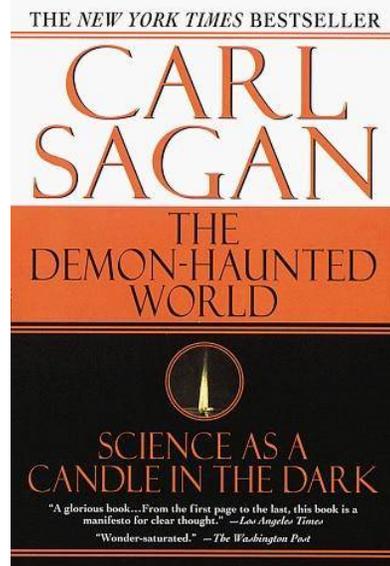
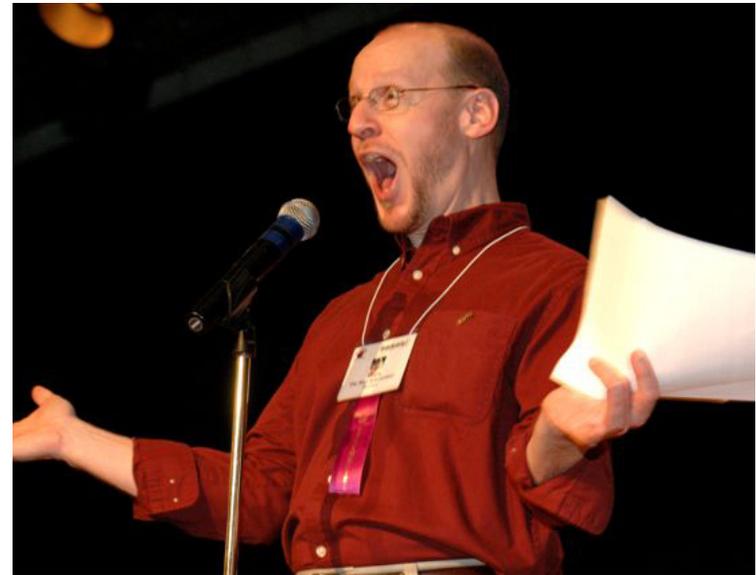
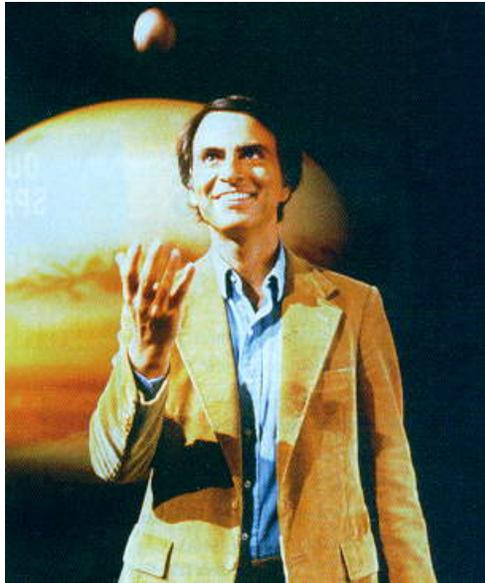
→ Clearly the battle has not been won

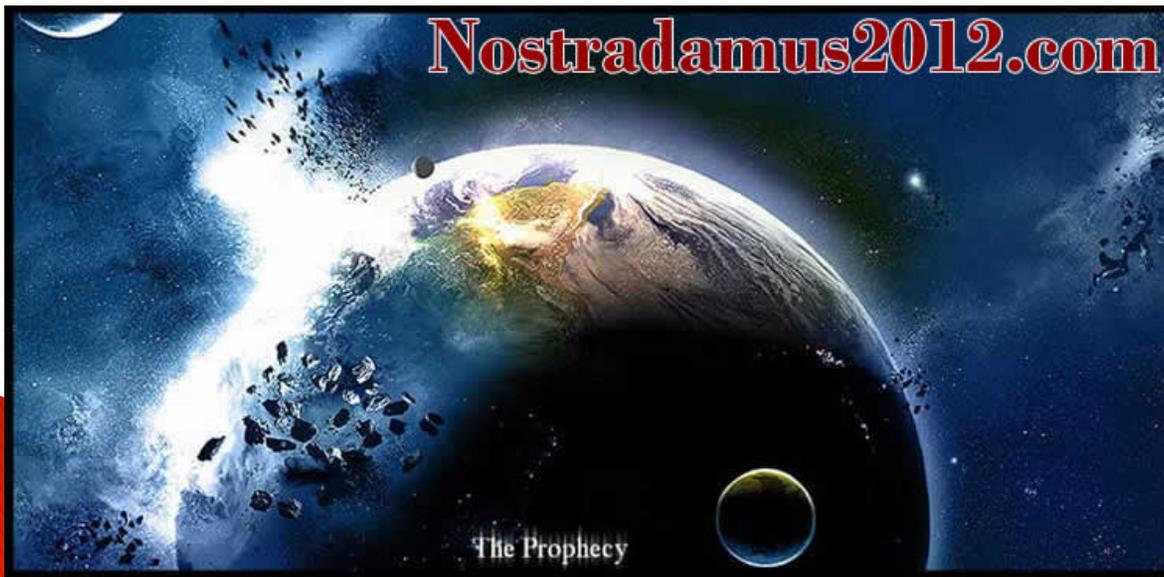
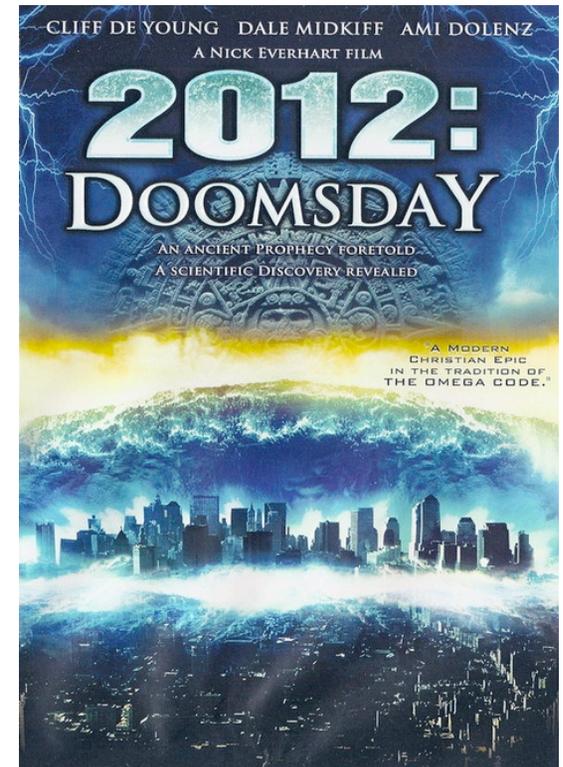
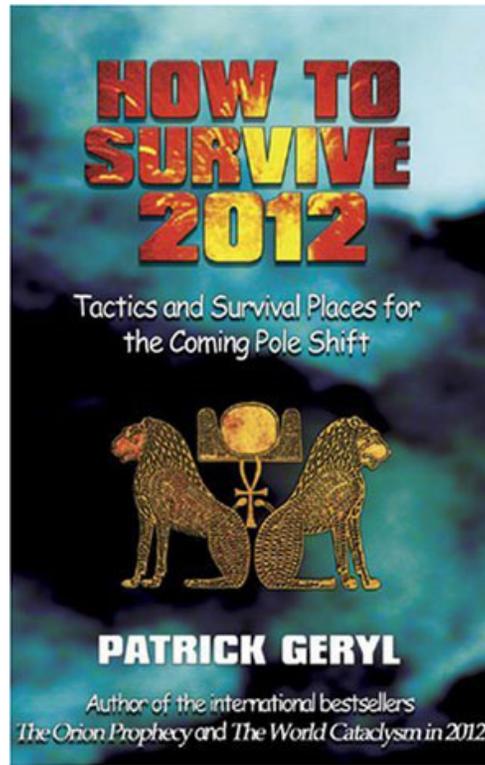
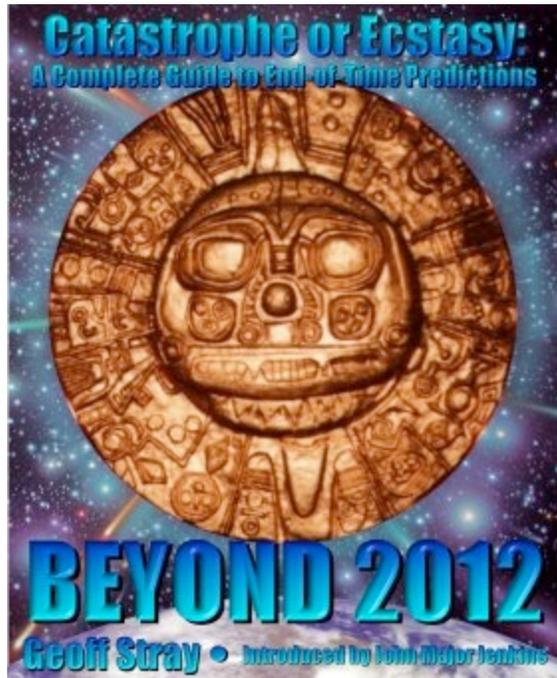


Why are we complacent?

40% of 1993 Stellafane Convention attendees and 34.5% of 1994 Riverside Telescope Makers Convention attendees surveyed were not concerned at all about astrology.







“I heard that over population is one of the main problems causing all of the ecological problems that the earth has. It seems that the Mayans and their prediction of the end of it all on December 21, 2012, may have had it correct, we have destroyed it so much that another ice age or whatever is about to happen”

“I also learned that the electromagnetic field has been shifting, which could soon result in a polar shift. Even though I didn't learn these things directly from the book, I know that it is related to what I was learning in the book....”



Dec. 21 (Or 22), 2012 = end of Baktun 13

Maya calendar is based on a number of cycles (most based on multiples of 20), one of the largest being the “Long year” or baktun, which lasts 144,000 days (~394 years). The calendar dates events relative to an ancient beginning date of August 11, 3114 BCE.

13.0.0.0 has been compared by Maya scholars to a car’s odometer turning over. Some Maya texts suggest something spiritual may happen (e.g. a god appears), but none state the world will end, and other texts refer to dates further on in the future (e.g. baktun 15).

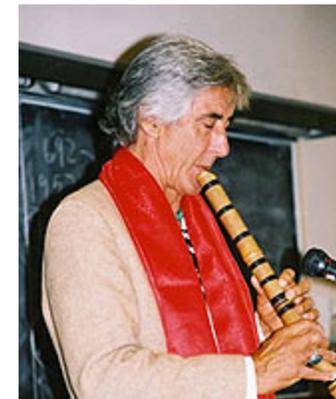


At last, the mystery of the Mayan calendar revealed.

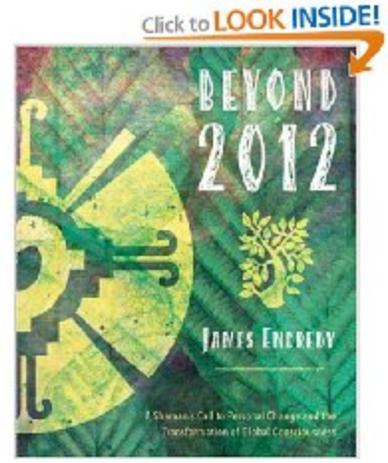
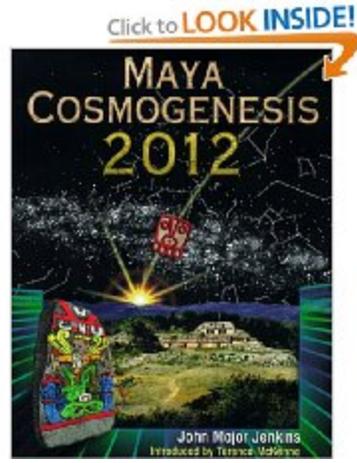
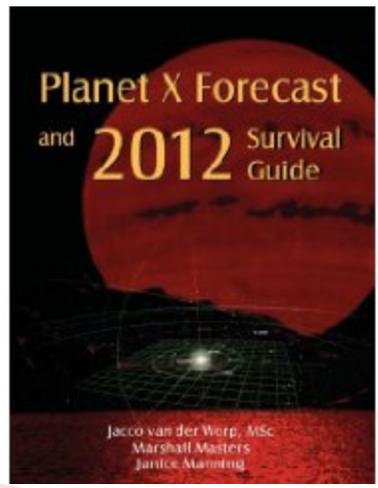
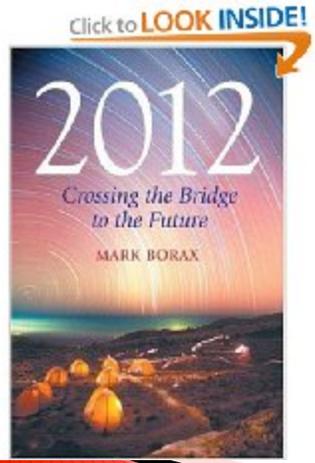
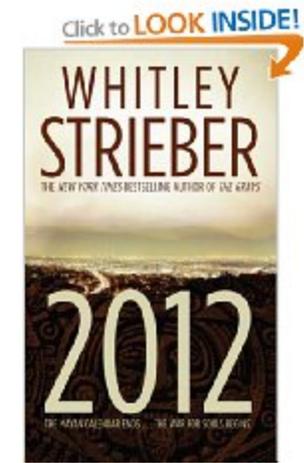
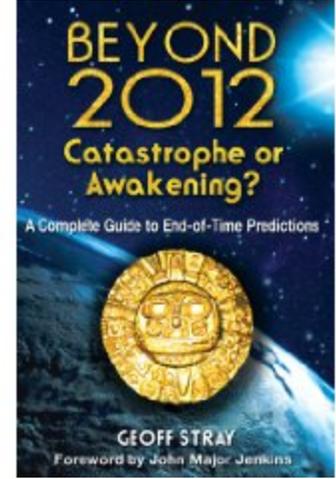
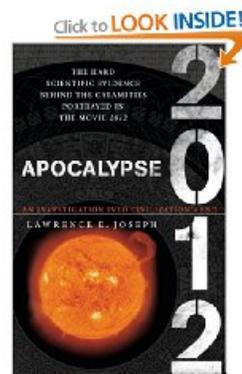
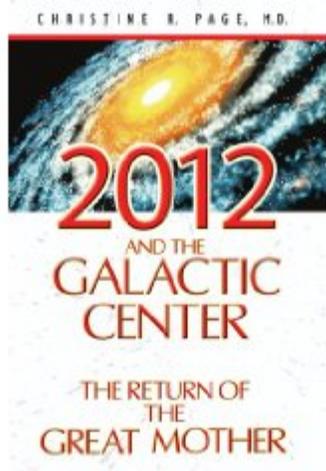
August 17, 2007 “Harmonic Convergence” of Jose Arguelles

Mayan civilization was a
“terrestrial project” organized
by aliens

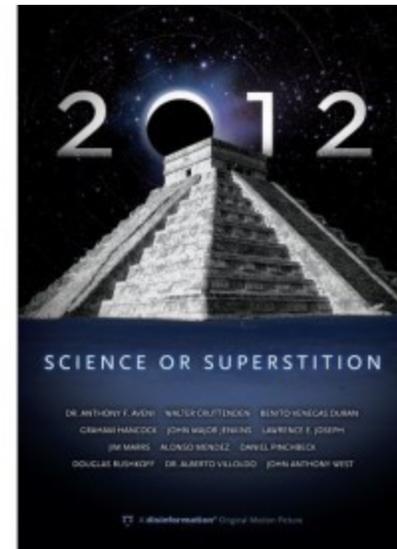
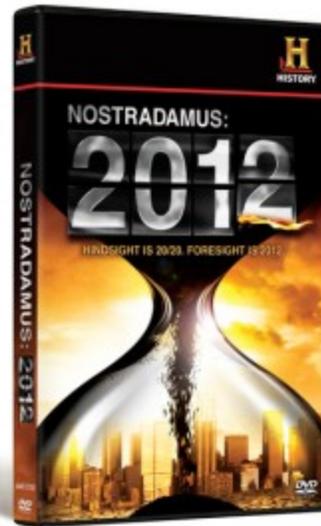
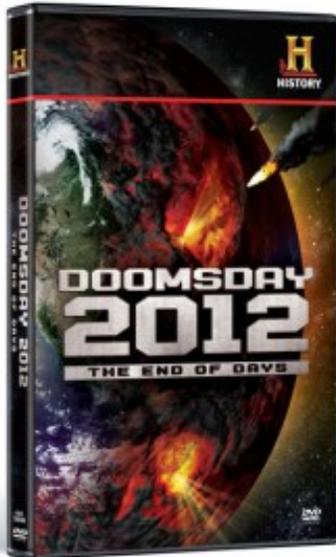
Among his telepathically
received prophecies was that
in 2012 “the wonder of Maya
would burst again, releasing
the mystery and showing the
way that marks return among
the patterns of the stars.”



As of June 2009 there were 175 books listed on Amazon.com

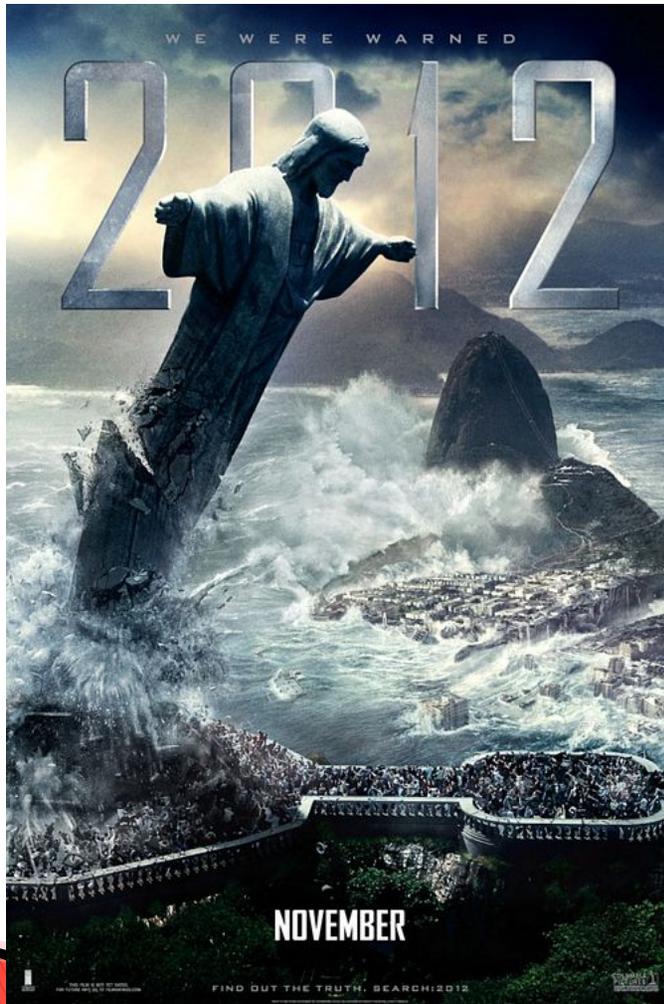


The History Channel: part of the problem



2012, dir. Roland Emmerich

(*Independence Day*, *The Day After Tomorrow*,
Godzilla: The Series)



Viral Marketing, including fake scientists and fake science!

The screenshot shows the homepage of the Institute for Human Continuity (IHC). The header includes navigation links: HOME, NEWS/PRESS, ABOUT THE IHC, INITIATIVES, LOTTERY, and CONTACT. The IHC logo is prominently displayed in the center, with the tagline "Institute for Human Continuity" below it. A banner at the top right states "Chances Secured as of 2/3/2009" and shows a lottery number "003973229". Below the banner, the main headline reads "The IHC: Ensuring the end is just the beginning." followed by a sub-headline: "For three decades the Institute for Human Continuity has brought together the world's foremost scientists, politicians and business leaders to ensure the survival of humankind beyond 2012." The main content area is divided into three columns. The first column is titled "Disaster Scenario Planet X" and features an image of Earth and a celestial body. The second column is titled "C.H.A. Initiative Video Update" and features an image of a man in a forest. The third column is titled "The IHC Lottery Open Registration" and features an image of a person standing on a rock by a lake. To the right of these columns is a "News Feed" section with three news items, each with a date, a headline, a star rating, and a "READ MORE" link. The bottom of the page shows a "PAGE 1 2 3" indicator.

Institute for Human Continuity

“Charlie Snow”, Internet blogger and radio host

Both websites propose there is “scientific evidence” that in 2012 the world will be destroyed by Planet X, crustal displacement, or solar activity (or some combination thereof).

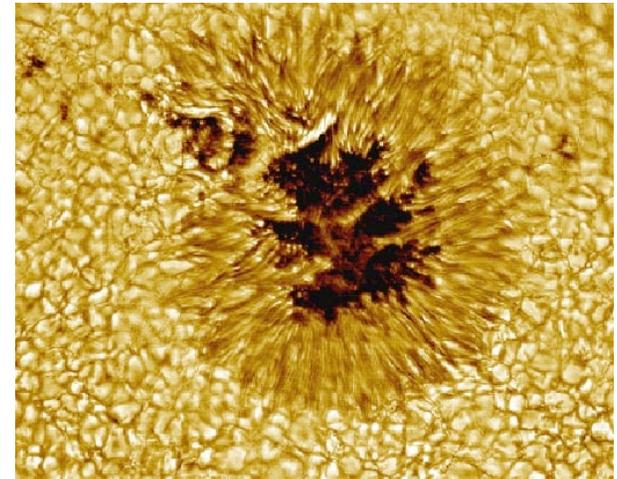


Mega Solar Flares

Patrick Geryl, *The Orion Prophecy, World Cataclysm in 2012, How to Survive 2012*, asserts that the ancient Maya not only knew about sunspots, but also monitored the sunspot cycle and predicted that 2012 will see the largest solar flares ever seen, which will cause “the reversal of the earth’s magnetic poles, hence a reversal of its very rotation.”

There is some evidence of sunspot observations by the Maya, but certainly not to this level of detail. In addition, the latest solar activity predictions (August 2009) suggest that the next solar maximum will be in March or April 2013 and will be lower than average.

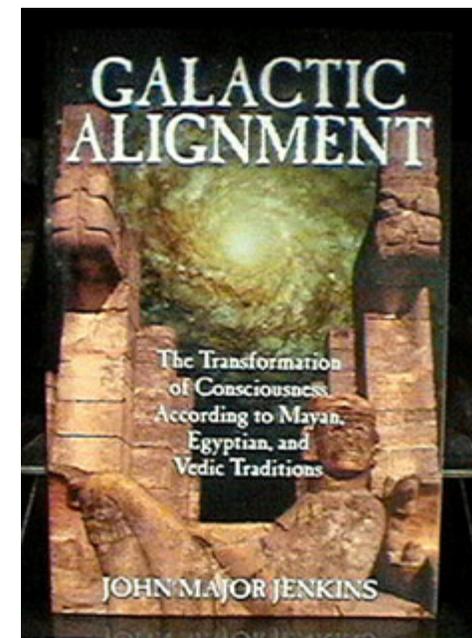
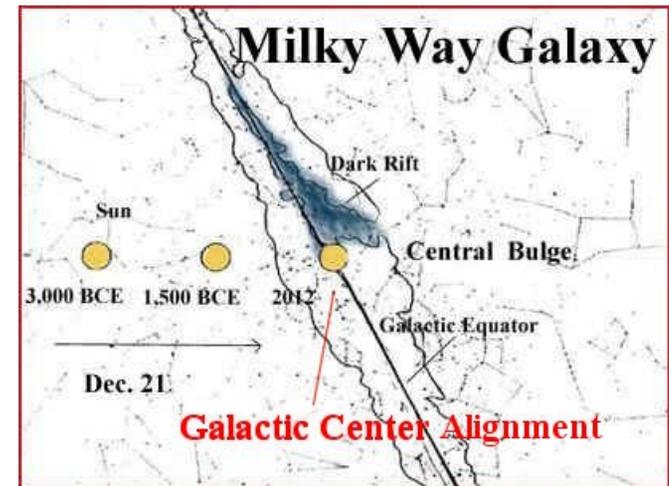
Also, no possible solar flare could cause the devastation claimed.



Alignment with the Galactic Center

1970s several New Age authors noted that due to the 26,000 year cycle of precession, the position of the sun at the winter solstice has not always been in Sagittarius (the location of the center of the galaxy). They claimed that an exact alignment would be very special to an ancient culture.

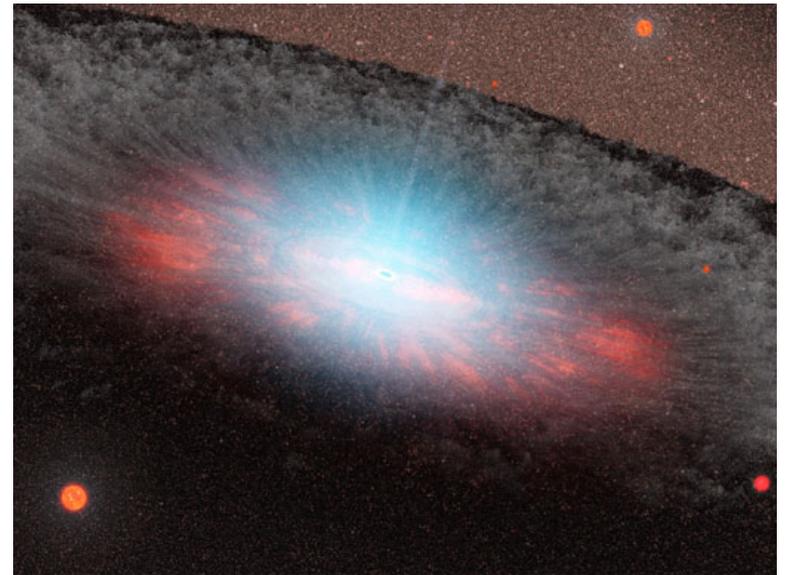
1990s self-described Maya expert John Major Jenkins claimed that the Maya not only knew about this, but that they arranged their entire calendar such that baktun 13 would end on the winter solstice which was perfectly aligned with the galactic center.



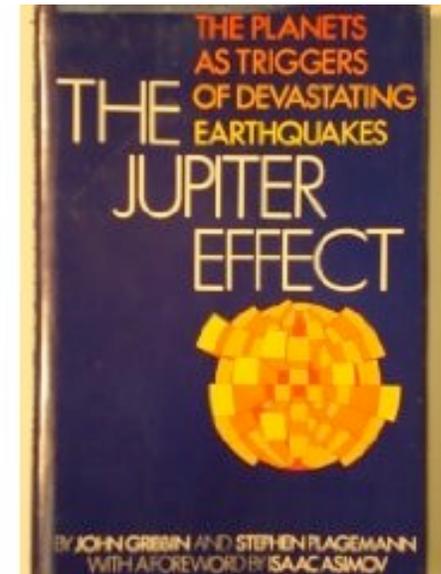
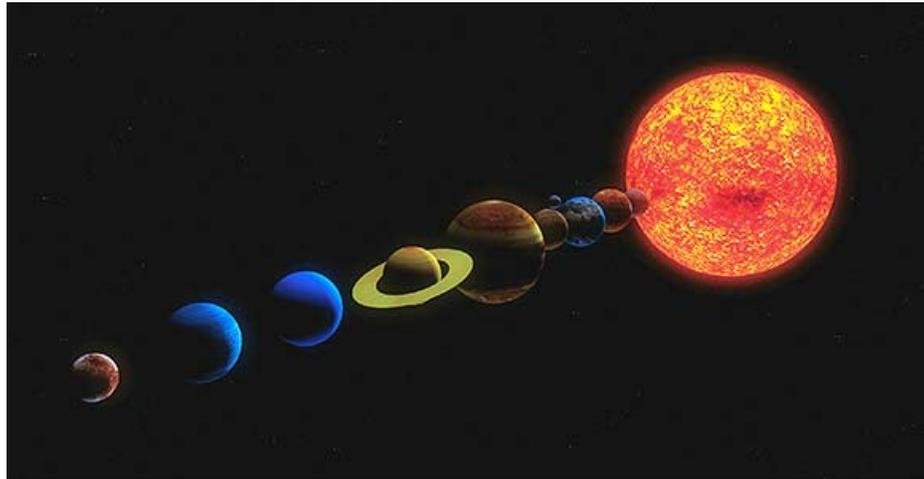
Lawrence Joseph, *Apocalypse 2012: A Scientific Investigation into Civilization's End*

“Whatever energy typically streams to the earth from the center of the Milky Way will indeed be disrupted on 12/21/12 at 11:11 PM, Universal time”

(other authors claim some strange radiation or force will be created rather than disrupted)

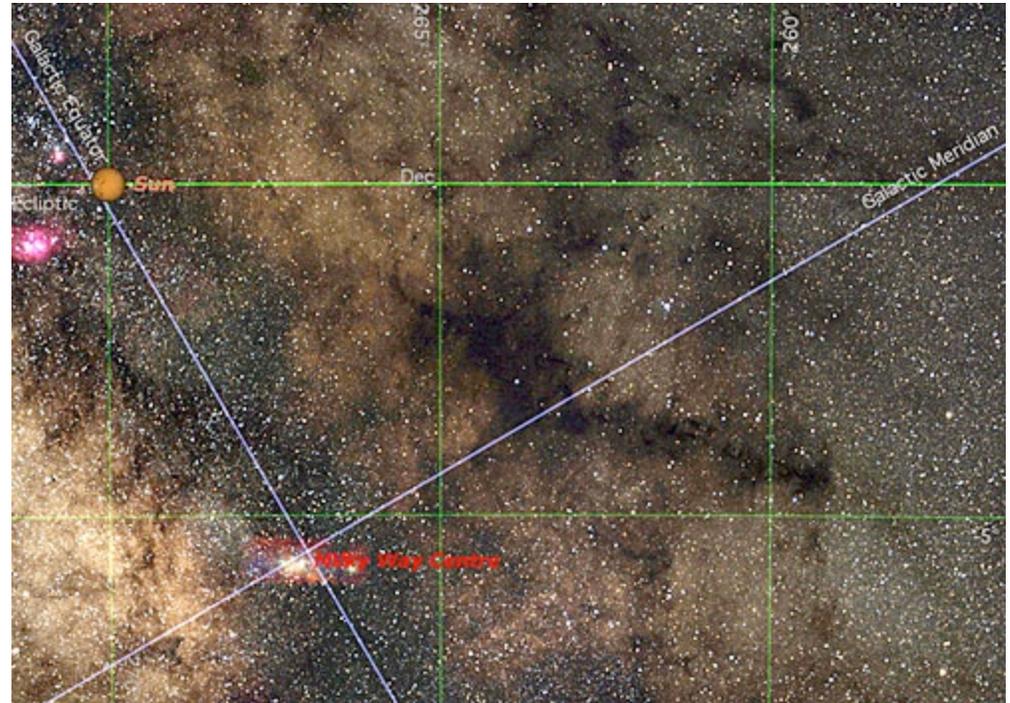


Déjà vu all over again?



A true alignment will not occur

- ▶ The galactic equator was somewhat arbitrarily determined.
- ▶ The ecliptic and the celestial equator do not intersect at the center of the MW. We are offset by 6 degrees.
- ▶ The year of closest approach was actually 1998!



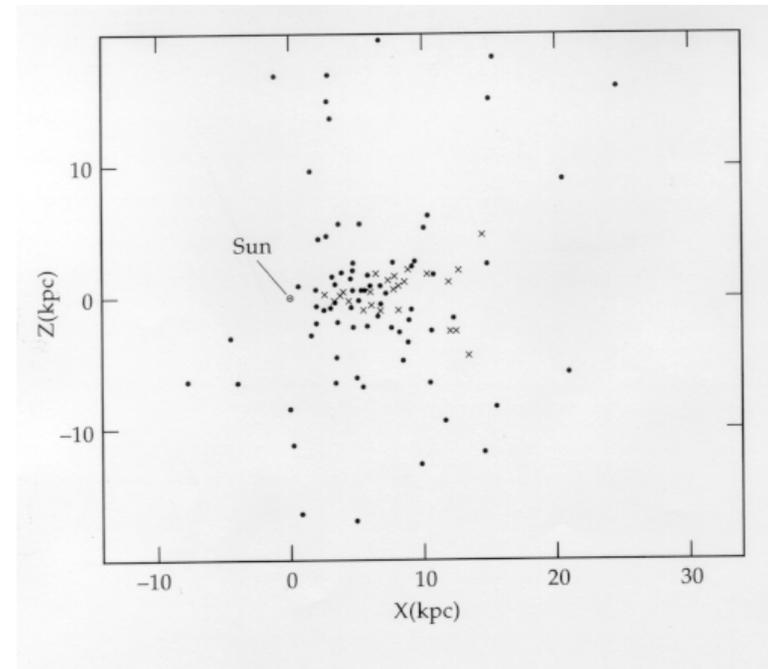
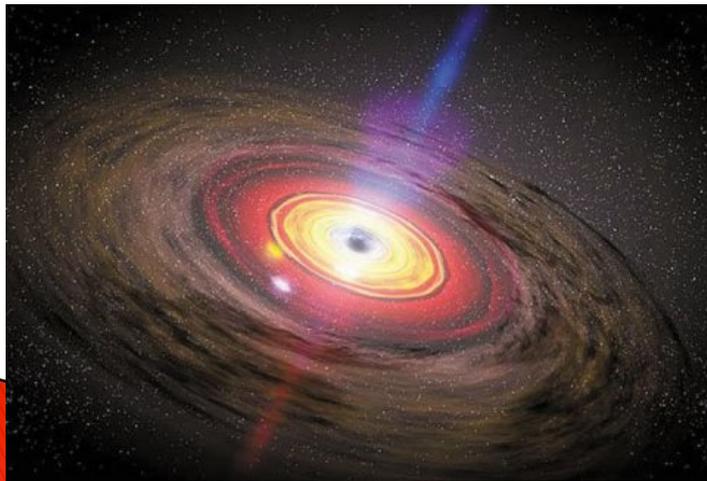
Geoff Gaherty, “*Starry Night* looks at doomsday”, *Starry Night Times*

Also, Maya scholars have determined that solstices were not that culturally important



The rough location of the center of the galaxy wasn't known until 1918, and the precise center in 1974

The possibility of a supermassive black hole at the center did not appear in the literature until the 1970s!



Nibiru/Planet X

1976 self-educated Sumerian “expert” Zecharia Sitchin claimed in *The Twelfth Planet* that only he could correctly interpret ancient Sumerian texts, and claimed that the Sumerians had knowledge of alien visits from a previously unknown planet he named Nibiru. The alien Anunnaki generically engineered the human race from lower primates in order to breed a race of slaves.

Nibiru is on an unstable, elliptical orbit, and will pass close to earth at some point in the near future, at which time the Anunnaki may decide to destroy the human race (as they had tried earlier at the time of Noah’s Flood)



- ▶ In the 1990s, psychic and alien channeler Nancy Lieder claimed that the Zeta Reticulans warned her of an approaching body called Planet X which would strike the earth and knock it over on its side. Comet Hale–Bopp was a diversion dreamed up by NASA to hide Planet X’s existence.
- ▶ Lieder was then warned by the Zeta Reticulans that Earth would be hit by Planet X in May 2000, and later May 2003.
- ▶ That date has strangely been changed to December 2012.

[not even worth commenting on]

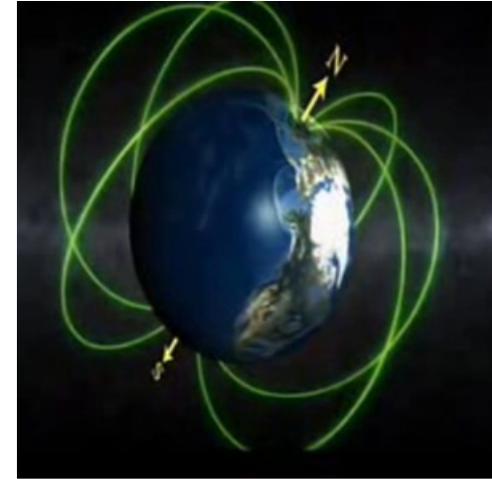


Magnetic Reversals

Due to the influence of solar flares/
galactic radiation/a close encounter with
Planet X, Earth's magnetic field will either
be destroyed or its polarity will reverse
suddenly, with catastrophic
consequences.

While it is true that Earth's magnetic field
does switch polarities, there is no sign
that such a switch is imminent, and
evidence suggests it takes ~1000 years
to occur.

There is also no evidence that it is
catastrophic.

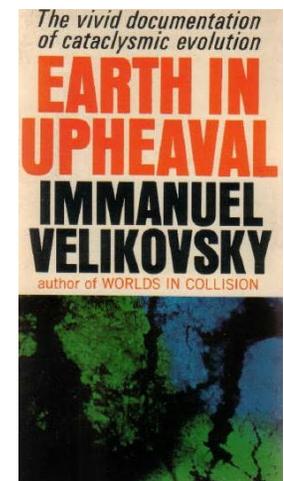
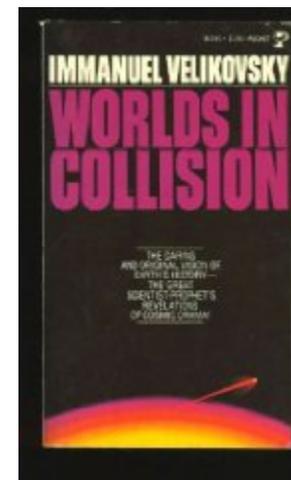


The Great Bait and Switch

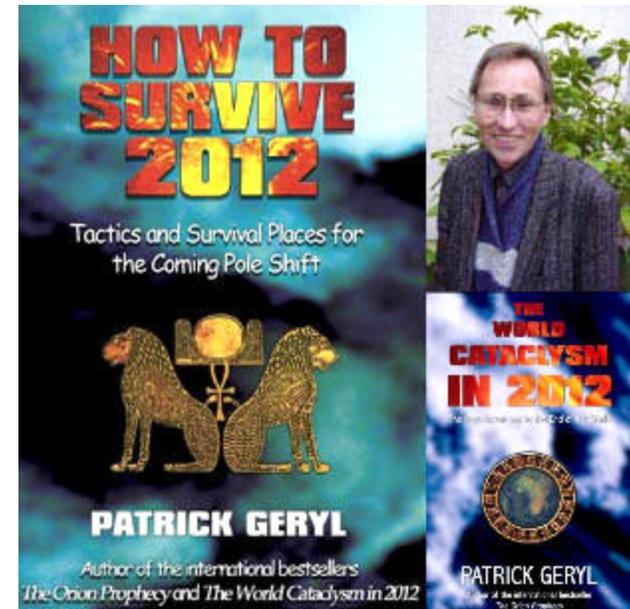
Many 2012 sources confuse magnetic reversals with true pole reversals (Earth changing its direction of rotation and/or flipping over).



If this sounds familiar, think Immanuel Velikovsky



“The Maya and Old Egyptian sciences were saturated with knowledge about polar reversals. Also, their whole religion was based on them.... In the year 2012 we will be confronted with the manifestation of their advanced scientific knowledge: within a couple of hours all our knowledge will be swept away and our world destroyed.” – Patrick Geryl, *How to Survive 2012*

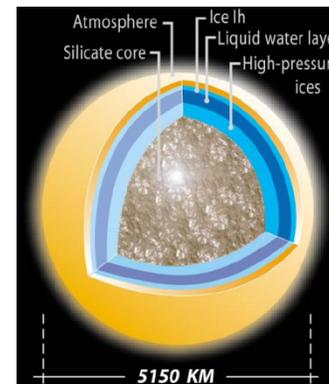
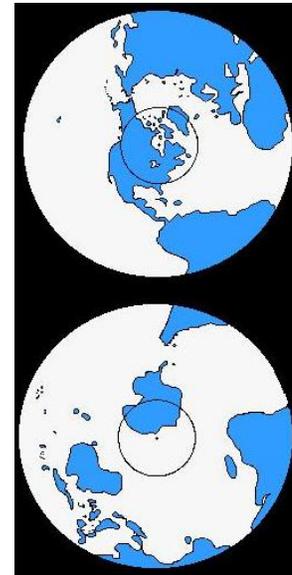


Charles Hapgood

Earth's Shifting Crust (1959)



Crustal displacement theory: The crust of the earth somehow slips completely over its inner regions and that is what flips. Therefore the North Pole remains where it is, but would afterwards be inhabited by penguins



Note: The “mechanically decoupled” crust and mantle of Titan doesn’t prove this can occur with the Earth!

Viral internet post: “7 reasons the world will end in 2012”

- 1) Mayan calendar
- 2) Sun Storms
- 3) The Atom Smasher [LHC]
- 4) The Bible says...
- 5) The Super Volcano [Yellowstone]
- 6) The Physicists [Berkeley scientists predict a catastrophe]
- 7) Slip-Slop-Slap-BANG! [magnetic field disappears in pole shift]





The wake-up call has been heard

Ed Krupp “The Great 2012 Scare” (*Sky and Telescope*)

AP Wire Service “2012 isn’t the end of the world, Mayans insist”

David Morrison “Doomsday 2012, the Planet Nibiru, and Cosmophobia” (*ASP Astronomy Beat*)

John Johnson, Jr. “Scientists try to calm ‘2012’ hysteria” (*LA Times*)

Ian O’Neill “2012: Planet X is not Nibiru” (*Universe Today Online*)

Geoff Gaherty “Starry Night looks at doomsday” (*Starry Night Times online*)

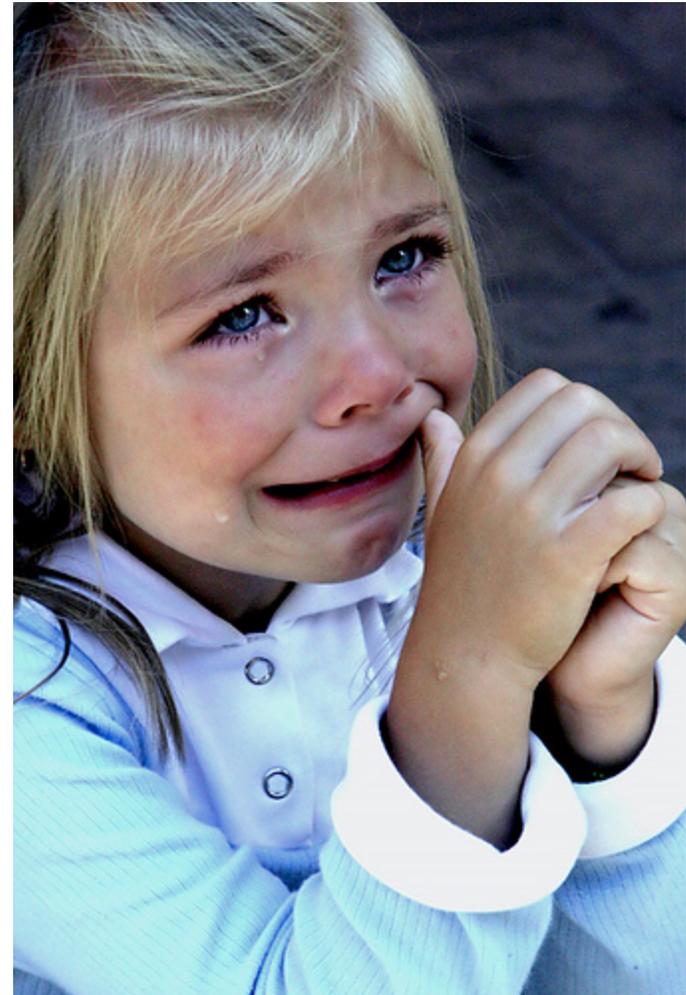


www.2012hoax.org

Are we overreacting?

Incidences of 2012-related anxiety and depression in children and teenagers are already being reported.

“How to talk to your children about 2012” – blog post on Examiner.com



NASA's "Ask an Astrobiologist" (David Morrison) has received ~ 1000 questions about 2012 and Planet X. Morrison recounts how "two teenagers said they didn't want to see the end of the world so they were thinking of ending their lives"

Cornell University's "Curious? Ask an Astronomer" (Ann Martin) is "getting emails from 4th graders who are saying they are too young to die."



September 2008

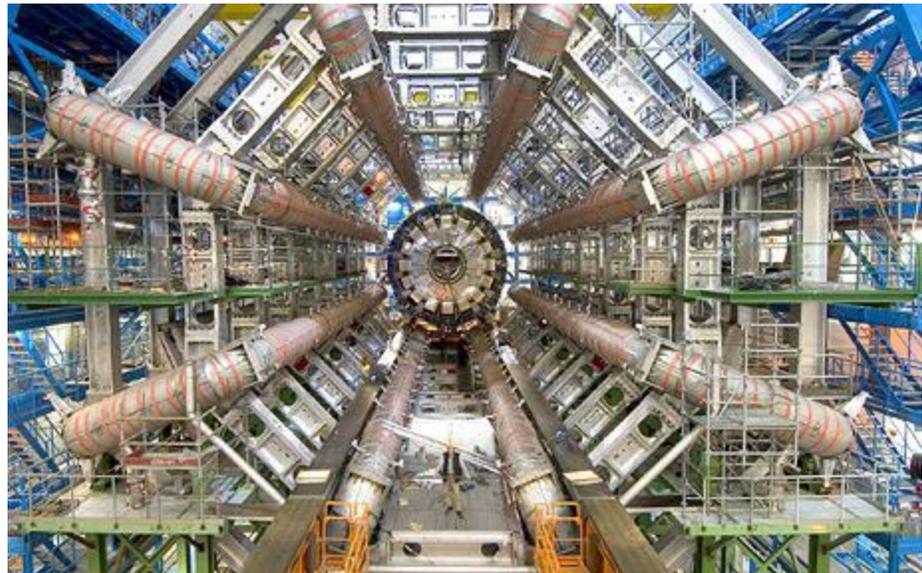
“A girl in India has committed suicide after watching TV reports that a physics experiment could bring about the end of the world, her family says.

Sixteen-year-old Chaya poisoned herself at her home in the central city of Indore, her father, Bihari Lal, said.

He said Chaya had been worried the "world would end" when the Large Hadron Collider (LHC) was switched on.

Some Indian channels held discussions about the European experiment featuring doomsday predictions.”

(BBC News)



“Terror occasioned by the near approach of Halley’s comet seized hold of a large part of the population of Chicago” – *The Times*, May 18, 1910

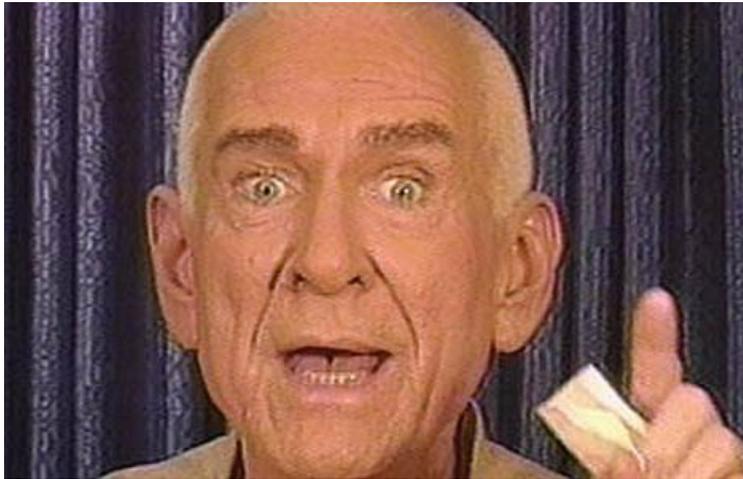
“I remember how they sold comet pills for when the earth passed through the comet’s tail and comet insurance, and men of the cloth telling their congregations to bring all their money and valuable and storing them in the church. Then taking all and leaving town; and the suicides.” – recollection by Joseph Martin of Columbiana, OH

“Fear of the comet is believed to have driven Mrs. Sophie House, 90 years old, insane. She committed suicide today by inhaling illuminating gas.”
-- *New York Times*, May 18, 1910

Prospector Paul Hammerton nailed himself to a wooden cross in the San Bernardino Mountains in order to sacrifice himself and save the world.



Comet Hale-Bopp (1997) [39 dead]

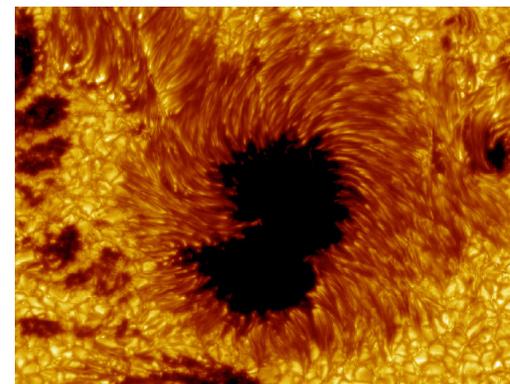


“I am deeply concerned that the promoters of this 2012 Doomsday ‘event’ might precipitate another such deadly massacre. On December 22, 2012, the world will still be here, as it has survived the 200 plus previous ‘doomsdays,’ but I fear that another Heaven’s Gate may have occurred.” – Geoff Gaherty, “*Starry Night looks at doomsday*”, *Starry Night Times*



David Morrison “Cosmophobia”: fear of the cosmos

“This cosmophobia could be one of the worst long-term consequences of the 2012 doomsday hoax – to make people fearful of astronomy and the universe.”



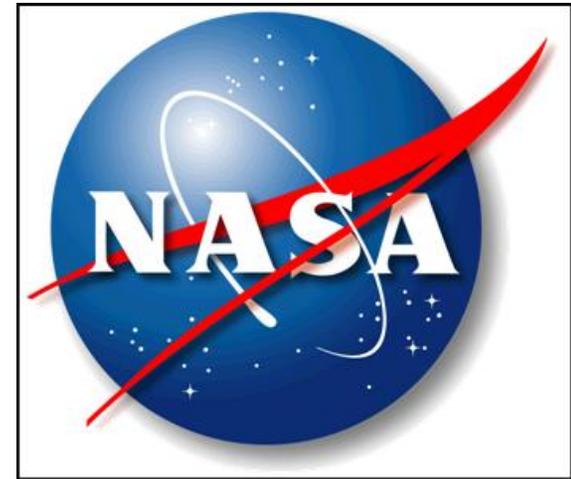
What individual astronomers can do

- ❑ Educate yourself about the 2012 phenomenon
- ❑ Answer questions from members of the public truthfully and completely
- ❑ Write articles about the 2012 phenomenon for your local newspaper, club newsletter, or give a public talk on the subject
- ❑ Continue to write and speak about the true wonders of astronomy (including sunspot observing and the importance of variable stars in mapping the galaxy), thereby diverting attention from the fear-mongering to where it is really deserved



Astronomical organizations also have a responsibility to combat the 2012 fever

- ▶ Post position statements on websites
- ▶ Encourage members to get involved
- ▶ Advertise lists of members who are available to talk to libraries etc.
- ▶ Publish articles in newsletters and other venues



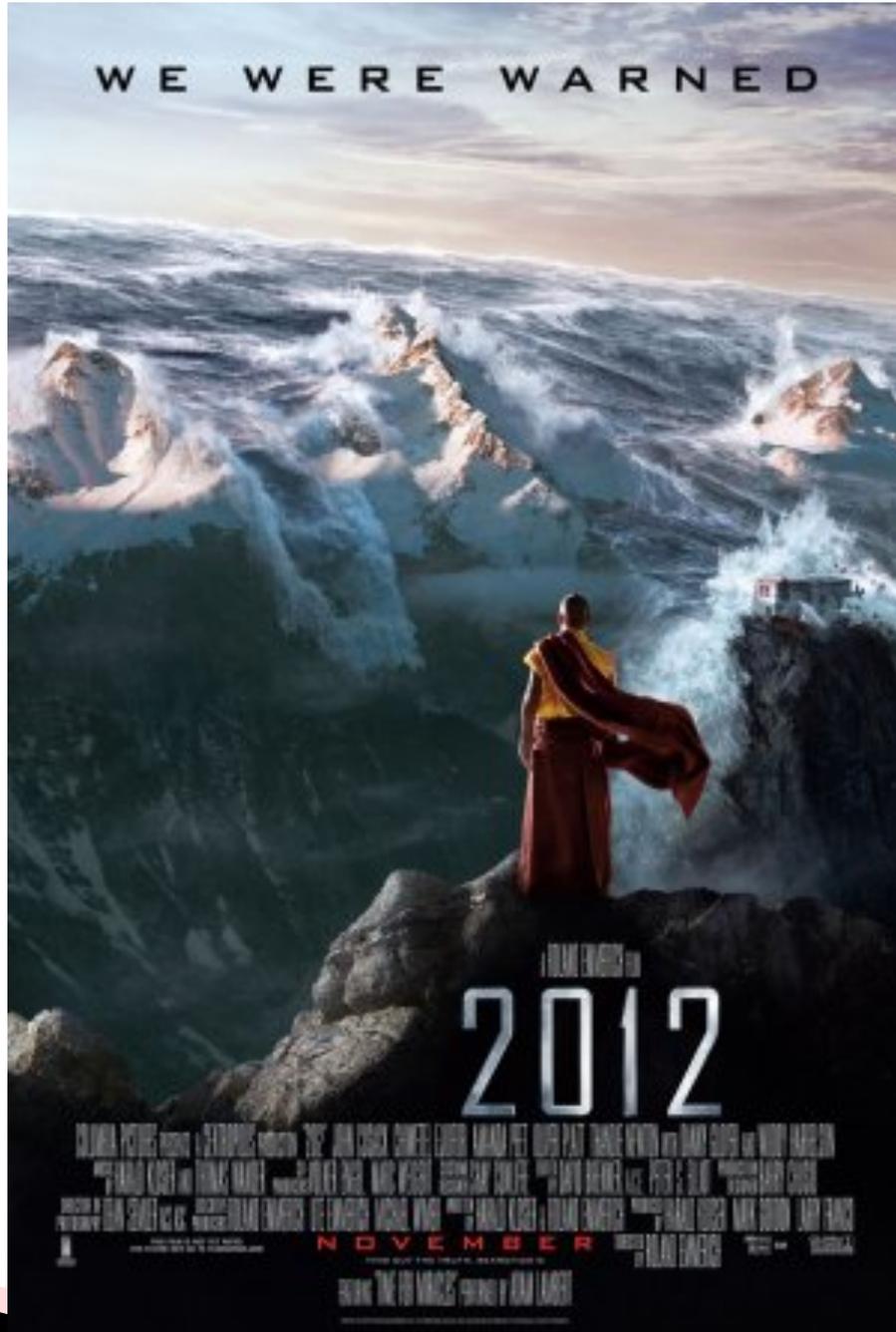
We are currently in a “perfect storm” of ignorance and hype surrounding 2012, and astronomy and astronomers are dead center

“[I]t can hardly be denied that it is one of the functions of scientists in a democracy to inform the public about the nature and background of a current fad, such as astrology, even though to do so may be unpleasant.”

– Bok and Mayall



WE WERE WARNED



A FILM BY JONAS MEJNARD
2012

COLUMBIA PICTURES PRESENTS A JONAS MEJNARD PRODUCTION "2012" JOHN CUSACK CHEWY CHASE EDUARDO GONZALEZ PATRICK DEMPSEY AND DAVID STRAITH WITH WOOD HARTSON
AND "FRANCO KESSE" AND "FRANK MANDER" STARRING JAVIER PÉREZ, MARK WISSEY, JESSICA STAN, DANIELA KAY, PETER S. BLAKE, AND GUYARD CHOU
WRITTEN BY JONAS MEJNARD AND JONAS MEJNARD DIRECTED BY JONAS MEJNARD
CASTING BY FRANK MANDER COSTUME DESIGNER DANIELA KAY HAIR AND MAKEUP BY FRANK MANDER PRODUCTION DESIGNER DANIELA KAY
EXECUTIVE PRODUCERS JONAS MEJNARD AND JONAS MEJNARD PRODUCED BY JONAS MEJNARD AND JONAS MEJNARD WRITTEN BY JONAS MEJNARD AND JONAS MEJNARD
DIRECTED BY JONAS MEJNARD
CASTING BY FRANK MANDER COSTUME DESIGNER DANIELA KAY HAIR AND MAKEUP BY FRANK MANDER PRODUCTION DESIGNER DANIELA KAY
EXECUTIVE PRODUCERS JONAS MEJNARD AND JONAS MEJNARD PRODUCED BY JONAS MEJNARD AND JONAS MEJNARD WRITTEN BY JONAS MEJNARD AND JONAS MEJNARD
DIRECTED BY JONAS MEJNARD

NOVEMBER

THEY SAW THE LIGHT. WE SAW IT FIRST.
THEY SAW THE LIGHT. WE SAW IT FIRST.

THEY SAW THE LIGHT. WE SAW IT FIRST.