

# Biblical Astronomy

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## NEW MOON REPORT

Nehemia Gordon from Jerusalem, Israel compiled the following New Moon Report for the month of August 2011 and the beginning of the Fifth Month on the Biblical Calendar.

“On Monday August 1, 2011 the new moon was sighted from Israel. The moon was first sighted from Jerusalem by Yoel Halevi at 7:38 pm and shortly thereafter by Nehemia Gordon and Devorah Gordon; from elsewhere in Jerusalem by David Cachicas, Gabriel Cachicas, and Daniela Cachicas at 7:40 pm; from Ariel by Frank Mecklenburg and Charlotte Mecklenburg at 7:42 pm; from Haifa by Aaron Amihud at 8:06 pm.

It was impossible to sight the new moon from Israel on the previous evening, July 31, 2011.”

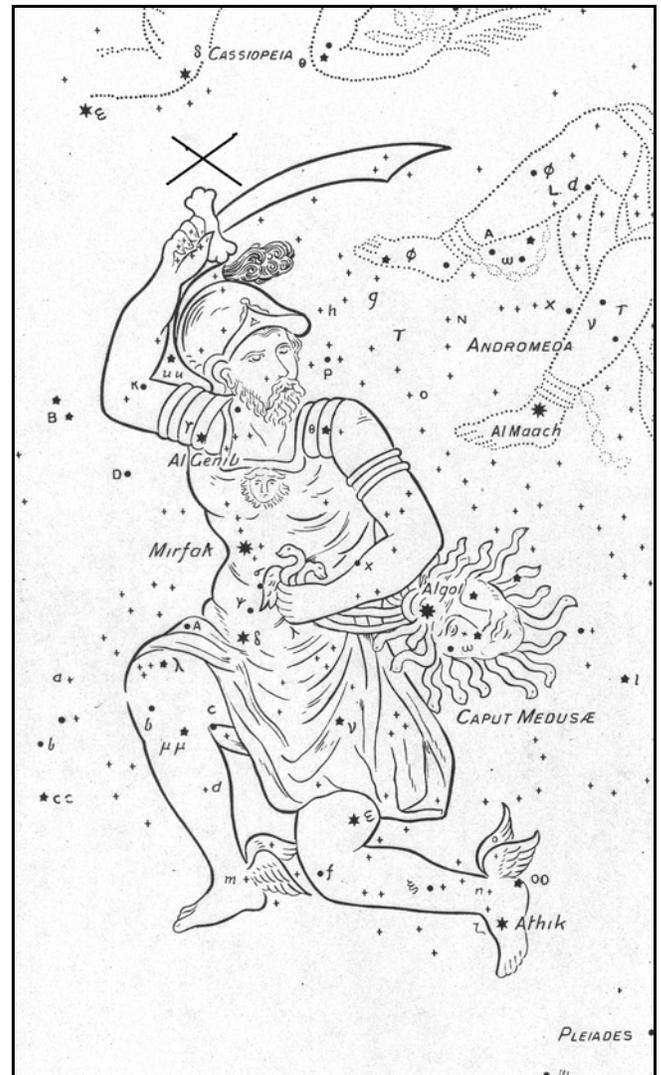
The next new moon is expected to be visible from Jerusalem, Israel near sunset on August 30, 2011 when the moon will be 3.6% illuminated and 5.98° above the horizon at five minutes past sunset. This is somewhat of a borderline situation. The moon will be well illuminated but close to the horizon where there is much light from the sun still present. There is a slight possibility that the moon will not be seen until the following evening. It depends on how hot it is. The hotter it is, the greater the transpiration rate and the more particulates there are in the air. With the moon that close to the horizon, it may prove very difficult to spot it. We will see at the end of this month.

## SPARKS FLY FROM SWORD OF PERSEUS

It is that time of the year again for the Perseids Meteor Shower. The Perseids Meteor Shower is the most popular meteor shower for the general populous since it occurs in the warm month of August and usually puts on a good show. The shower generally starts around August 6 and runs

through about August 18. The peak of the shower occurs most of the time on August 12, but this year its peak occurs on August 13. The light of the full moon will block out most of the meteors this year. Instead of seeing a typical 100 meteors per hour this year, you will be fortunate to see 20 per hour.

Meteor showers are named from the constellation where their radiant lies. The radiant of this particular meteor shower, which is marked by an X in the diagram below, is between the sword of Perseus and the constellation Cassiopeia.



The constellation *Perseus* or *Peretz* (*the breaker*) in Hebrew, represents Messiah coming to deliver the captive bride (*Andromeda*). This meteor shower puts to mind sparks flying from Messiah's sword as He does battle with the beast and his armies. In the picture shown for the constellation *Peretz*, *the Breaker* is holding in his left hand *Rosh Satan*, the *head of Satan* after defeating him, just as David held the head of Goliath after defeating that beast that came up against Israel.

**Chart 566** also shows the radiant of the Perseid Meteor Shower but it's a bit different than the picture on the previous page. The chart shows the radiant just above the elbow of *Perseus*. The picture from the astronomy program the chart comes from is a bit off. The picture on the previous page is more accurate. But the chart shows more of the constellations surrounding it. *Perseus*, (*the Breaker*) is shown delivering *Andromeda*, the captive bride, who later becomes *Casseopeia*, the bride making herself ready. This gives the complete picture of the portrayal.

There are not any other notable celestial events occurring this August, and the meteor shower was a bit wimpy this year. For the most part, September is also pretty dead, except for the one sign on the evening of September 29 (Yom Teruah – The Day of Trumpets). At least I will have something of interest to write about in the September/October newsletter. That sign includes Comet Elenin, which will most likely not be visible to the unaided eye.

I would normally not write on comets that are not seen with the unaided (there are many that pass by each year), since that is not the way the signs were seen from antiquity. The magi of old would not consider something they could not see as a sign. To say that something is a sign that you can only see through a telescope (a recent invention) can only come from speculation and not comparing it to evidence of the way signs were seen from the creation of Adam until 400 years ago. But since this comet has drawn much interest, I will cover it.

The crescent light of the moon is a sign that begins each Biblical month. It is sighted through the unaided eye just as it was sighted thousands of years ago. Binoculars and Telescopes are used, but only to locate it at times. But if the crescent cannot be seen with the unaided eye, it is not considered a new moon or a sign of the new moon, neither by the Jews or the Arabs who also look for the first crescent light of the moon each month.

## COMET ELENIN UPDATE

**Chart 567** shows the path of Comet Elenin from August 1, 2011 to October 18, 2011. Each red dot on the chart equals one day. As the comet gets closer to the earth it appears to cover more distance each day. The comet started near the lion's tail on August 1 and then proceeded to *Virgo*. It will then turn and head back for *Leo* (*the Lion*) and then on to *Cancer* where it will be in mid October.

There will be more charts as well as an article on any possible Biblical significance or portrayal on Elenin in the September/October 2011 issue of Biblical Astronomy. However, it will not be earth shattering.

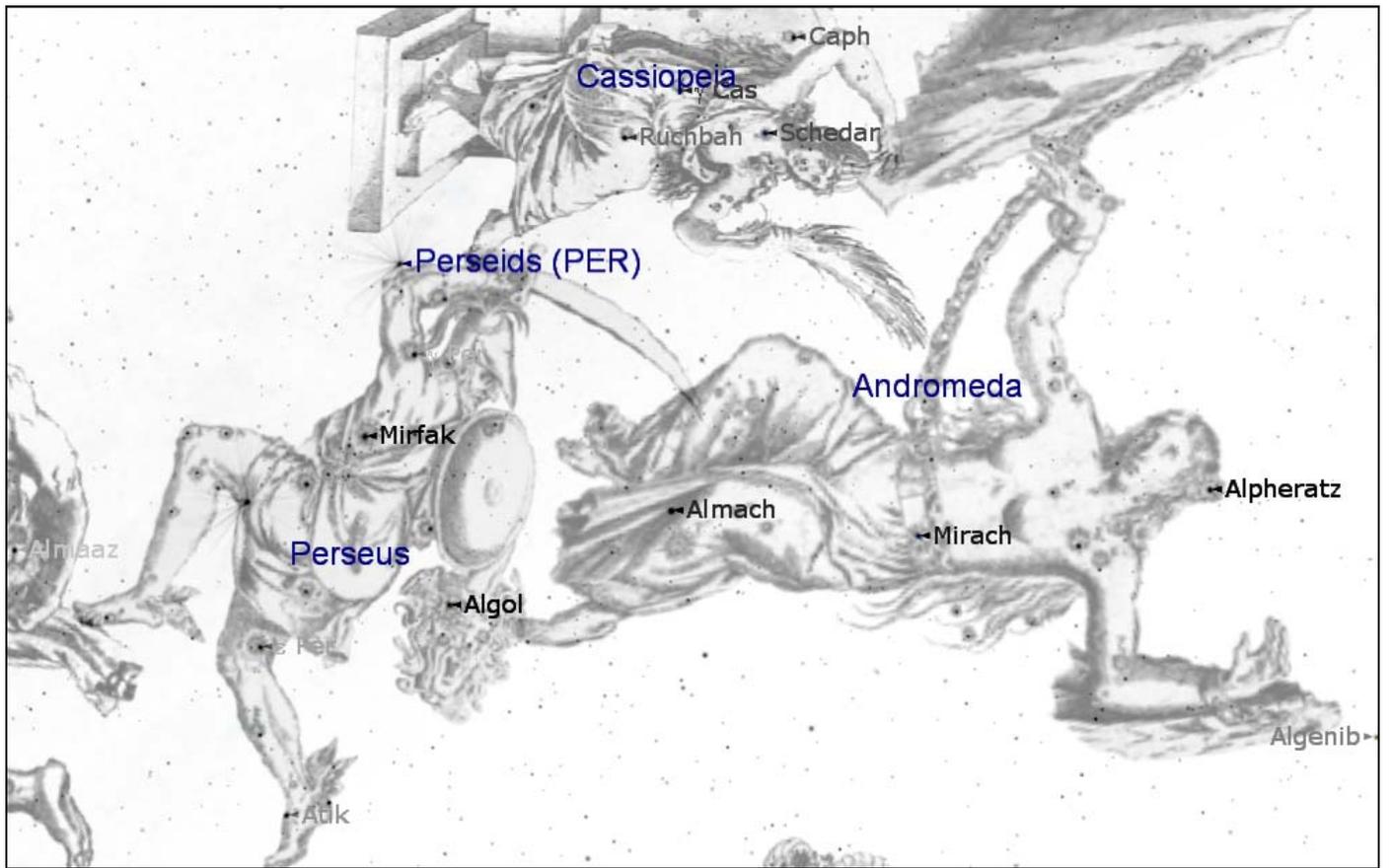
The rumors and false info on the comet continue to flow. NASA recently put out an answer sheet to many of the questions about the comet. Below is their answer. I believe this sums up everything except for those who continue to believe that NASA is hiding info on the comet or that they are conspiring to deceive. This is what happened back in 1997 when there was that Comet Hale-Bopp companion story going around. There was no companion but those who put the false info out were saying that NASA was lying. It had a lot of popularity on the Art Bell Show. Many people believed in that lie that the companion existed and that it was Jesus coming to gather His saints. Many people committed suicide (most in the "Heaven's Gate cult) over the false hype. As it is written, "My people are destroyed for lack of knowledge" (Hosea 4:6).

I do not believe that NASA is lying here. I also did my own study (and also going by common sense on many of the questions) and I find there answers sound. I am including the article here instead of a link because many subscribers do not have Internet access.

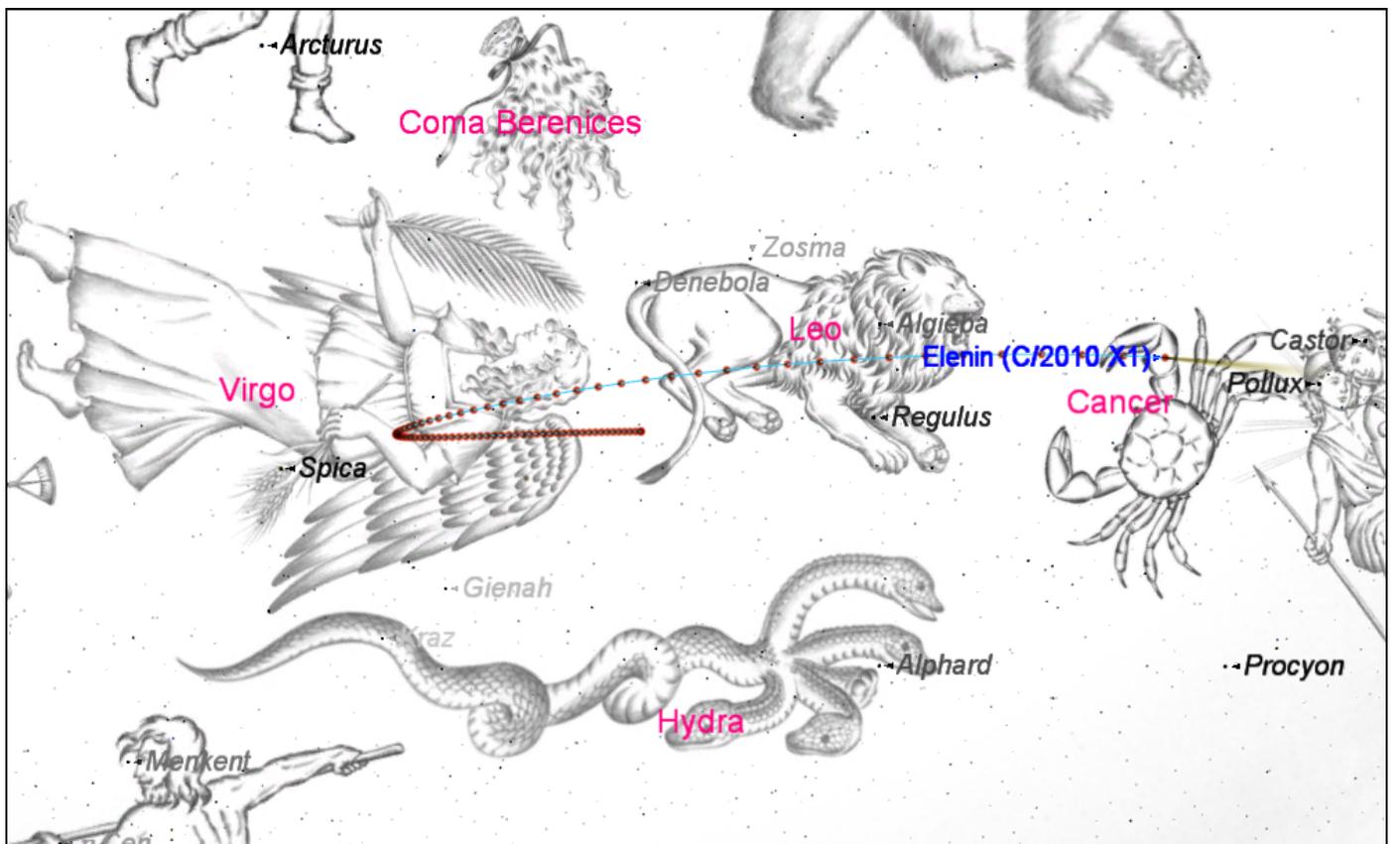
### NASA Answers Your Questions About Comet Elenin

Often, comets are portrayed as harbingers of gloom and doom in movies and on television, but most pose no threat to Earth. Comet Elenin, the latest comet to visit our inner solar system, is no exception. Elenin will pass about 22 million miles (35 million kilometers) from Earth during its closest approach on Oct. 16, 2011.

Also known by its astronomical name C/2010 X1, the comet was first detected on Dec. 10,



**Chart 566** – The radiant of the Perseids Meteor Shower on August 13, 2011 shown near the elbow of Perseus.



**Chart 567** – The path of Comet Elenin from August 1, 2011 to October 18, 2011.

2010 by Leonid Elenin, an observer in Lyubertsy, Russia, who made the discovery "remotely" using an observatory in New Mexico. At that time, Elenin was about 401 million miles (647 million kilometers) from Earth. Since its discovery, Comet Elenin has – as all comets do – closed the distance to Earth's vicinity as it makes its way closer to perihelion, its closest point to the sun.

NASA scientists have taken time over the last several months to answer your questions. Compiled below are some of the most popular questions with answers from Don Yeomans of NASA's Near-Earth Object Program Office at NASA's Jet Propulsion Laboratory in Pasadena, Calif., and David Morrison of the NASA Astrobiology Institute at the NASA Ames Research Center in Moffett Field, Calif.

### **Most Popular Questions About Comet Elenin**

#### **When will Comet Elenin come closest to the Earth and appear the brightest?**

Comet Elenin should be at its brightest shortly before the time of its closest approach to Earth on Oct. 16, 2011. At its closest point, it will be 22 million miles (35 million kilometers) from us.

#### **Will Comet Elenin come close to the Earth or between the Earth and the moon?**

Comet Elenin will not come closer to Earth than 22 million miles (35 million kilometers). That's more than 90 times the distance to the moon.

#### **Can this comet influence us from where it is, or where it will be in the future? Can this celestial object cause shifting of the tides or even tectonic plates here on Earth?**

There have been incorrect speculations on the Internet that alignments of comet Elenin with other celestial bodies could cause consequences for Earth and external forces could cause comet Elenin to come closer. "Any approximate alignments of comet Elenin with other celestial bodies are meaningless, and the comet will not encounter any dark bodies that could perturb its orbit, nor will it influence us in any way here on Earth," said Don Yeomans, a scientist at NASA JPL.

"Comet Elenin will not only be far away, it is also on the small side for comets," said Yeomans. "And comets are not the most densely-packed objects out there. They usually have the density of something akin to loosely packed icy dirt.

"So you've got a modest-sized icy dirtball that is getting no closer than 35 million kilometers (about 22 million miles)" said Yeomans. "It will have an immeasurably minuscule influence on our planet. By comparison, my subcompact automobile exerts a greater influence on the ocean's tides than comet Elenin ever will."

#### **I've heard about three days of darkness because of Comet Elenin. Will Elenin block out the sun for three days?**

"As seen from the Earth, comet Elenin will not cross the sun's face," says Yeomans.

But even if it could cross the sun, which it can't, astrobiologist David Morrison notes that comet Elenin is about 2-3 miles (3-5 km) wide, while the sun is roughly 865,000 miles (1,392,082 km) across.

#### **How could such a small object block the sun which is such a large object?**

Let's think about an eclipse of the sun, which happens when the moon appears between the Earth and the sun. The moon is about 2,500 miles (4,000 km) in diameter, and has the same apparent size as the sun when it is about 250,000 miles (400,000 km) away -- roughly 100 times its own diameter. For a comet with a diameter of about 2-3 miles (3-5 km) to cover the sun it would have to be within 250 miles (400 km), roughly the orbital altitude of the International Space Station. However, as stated above, this comet will come no closer to Earth than 22 million miles.

#### **I've heard there is a "brown dwarf" theory about Comet Elenin. Would its mass be enough to pull Comet Honda's trajectory a significant amount? Could this be used to determine the mass of Elenin?**

Morrison says that there is no 'brown dwarf theory' of this comet. "A comet is nothing like a brown dwarf. You are correct that the way astronomers measure the mass of one object is by its gravitational effect on another, but comets are far too small to have a measurable influence on anything."

#### **If we had a black or brown dwarf in our outer solar system, I guess no one could see it, right?**

"No, that's not correct," says Morrison. "If we had a brown dwarf star in the outer solar system, we could see it, detect its infrared energy and

measure its perturbing effect on other objects. There is no brown dwarf in the solar system, otherwise we would have detected it. And there is no such thing as a black dwarf."

**Will Comet Elenin be visible to the naked eye when it's closer to us? I missed Hale-Bopp's passing, so I want to know if we'll actually be able to see something in the sky when Elenin passes.**

We don't know yet if Comet Elenin will be visible to the naked eye. Morrison says, "At the rate it is going, seeing the comet at its best in early October will require binoculars and a very dark sky. Unfortunately, Elenin is no substitute for seeing comet Hale-Bopp, which was the brightest comet of the past several decades."

"This comet may not put on a great show. Just as certainly, it will not cause any disruptions here on Earth. But, there is a cause to marvel," said Yeomans. "This intrepid little traveler will offer astronomers a chance to study a relatively young comet that came here from well beyond our solar system's planetary region. After a short while, it will be headed back out again, and we will not see or hear from Elenin for thousands of years. That's pretty cool."

**This comet has been called 'wimpy' by NASA scientists. Why?**

"We're talking about how a comet looks as it safely flies past us," said Yeomans of NASA's Near-Earth Object Program Office. "Some cometary visitors arriving from beyond the planetary region – like Hale-Bopp in 1997 -- have really lit up the night sky where you can see them easily with the naked eye as they safely transit the inner-solar system. But Elenin is trending toward the other end of the spectrum. You'll probably need a good pair of binoculars, clear skies and a dark, secluded location to see it even on its brightest night."

**Why aren't you talking more about Comet Elenin? If these things are small and nothing to worry about, why has there been no public info on Comet Elenin?**

Comet Elenin hasn't received much press precisely because it is small and faint. Several new comets are discovered each year, and you don't normally hear about them either. The truth is that Elenin has received much more attention than it

deserves due to a variety of Internet postings that are untrue. The information NASA has on Elenin is readily available on the Internet. (See <http://www.nasa.gov/topics/solarsystem/features/comet20110504.html>) If this comet were any danger to anyone, you would certainly know about it. For more information, visit NASA's AsteroidWatch site at <http://www.jpl.nasa.gov/asteroidwatch/>.

**I've heard NASA has observed Elenin many times more than other comets. Is this true, and is NASA playing this comet down?**

NASA regularly detects, tracks and characterizes asteroids and comets passing relatively close to Earth using both ground- and space-based telescopes. The Near-Earth Object Observations Program, commonly called "Spaceguard," discovers these objects, characterizes a subset of them and predicts their paths to determine if any could be potentially hazardous to our planet. For more information, visit the NASA-JPL Near Earth Objects site at

<http://www.jpl.nasa.gov/asteroidwatch/> and the Near Earth Objects site at <http://neo.jpl.nasa.gov/>.

However, neither NASA nor JPL is in the business of actively observing Elenin or any other comet. Most of the posted observations are made by amateur astronomers around the world. Since Elenin has had so much publicity, it naturally has attracted more observers.

**I was looking at the orbital diagram of Comet Elenin on the JPL website, and I was wondering why the orbit shows some angles when zooming? If you pick any other comet, you can see that there are no angles or bends.**

Many people are trying to plot the orbit of the comet with the routine on the JPL website, without realizing that this is just a simple visualization tool. While the tool has been recently improved to show smoother trajectories near the sun, it is not a scientific program to generate an accurate orbit. Yeomans explains that the orbit plotter on the Near-Earth Object website is not meant to accurately depict the true motion of objects over long time intervals, nor is it accurate during close planetary encounters. For more accurate long-term plotting, Yeomans suggests using the JPL Horizons system instead:

[http://ssd.jpl.nasa.gov/horizons.cgi?find\\_body=1&body\\_group=sb&sstr=C/2010%20X1](http://ssd.jpl.nasa.gov/horizons.cgi?find_body=1&body_group=sb&sstr=C/2010%20X1).

As I said previously, I have been doing my own research on the tall tales about Elenin. Some are saying that it is causing and will cause earthquakes on Earth. Though tidal forces at times can cause earthquakes under certain conditions, the amount of gravitational pull that Comet Elenin exerts on Earth is way too miniscule to have any effect.

I did an article in the June 1997 issue of *Biblical Astronomy* about a certain planetary alignment that was expected by some would cause great earthquakes and the earth getting knocked off of its axis. The basic math for gravitational force works as well for Comet Elenin. Part of what is written below is from that article. You can find that issue in the Newsletters section on the Biblical Astronomy Website.

I did the calculations to provide scientific proof using Newton's law of gravitation. The equation is:  $F=G(M_1M_2/r^2)$ . F is the gravitational force in Newtons (1 newton is equal to the force needed to accelerate 1 kilogram by 1 meter per second); G is the gravitational constant which equals  $6.672 \times 10^{-11}M^3/Kg.sec^2$  (cubic meters divided by kilograms per second),  $M_1$  is the mass (in kilograms) of first object (ex. Earth),  $M_2$  is the mass of the second object (ex. Moon), and r is the distance (in meters) between the two objects ( $r^2$  being the square of the distance: if the distance between the two objects is 10 meters, then you would divide the multiple factor of the two masses by 100). I did all of the calculations for the sun, moon, and all of the planets under consideration for this particular day and time. The gravitational force that the sun will exert on Earth on May 4/5, 2000 will be approximately  $3.48 \times 10^{22}$  Newtons. The gravitational force that the moon will exert on Earth will be approximately  $2.13 \times 10^{20}$  Newtons.

The total gravitational force that all of the five planets (Jupiter, Saturn, Mars, Venus, and Mercury) combined will exert on Earth will be  $1.06 \times 10^{18}$  Newtons. The  $\times 10^x$  are powers of ten (ex.  $1.2 \times 10^6 = 1.2$  million,  $1.2 \times 10^9 = 1.2$  billion,  $1.2 \times 10^{12} = 1.2$  trillion). The total gravitational force of the sun and moon on Earth at this particular time is over 33,000 times greater than the combined force of all five planets. The earth is constantly subject to forces of this magnitude. There is far from enough excessive gravitational force to send the earth toppling on its axis, even if the planets were in direct alignment. To say that this minuscule

difference in gravitational force would topple the earth is analogous to saying that a small fly striking the helmet of Bruce Smith of the Buffalo Bills as he is rushing in for a tackle would knock him on his butt. HIGHLY unlikely.

Though this particular alignment will most likely not topple the earth (physically), it is a rare and interesting alignment nonetheless. There was an alignment of this nature around the time of the birth of Abraham in the constellation Aquarius (see "A Voice Crying in the Heavens" Pg. 38 and Charts 11-14). The planets, sun, and moon were in close alignment in early February, 1953 B.C. The charts in the book do not show this. Another such alignment (excluding Saturn) occurred around the time of the birth of Jesus Christ on August 28/29, 2 B.C., in the constellation Leo. At this time, Venus was between the earth and the sun at a distance of 26.8 million miles from the earth versus 157.5 million miles, which is the distance that Venus will be from the earth on May 4/5, 2000. The gravitational force of Venus alone on the earth in the August, 2 B.C. alignment was approximately  $1.03 \times 10^{18}$  Newtons, which is very close to the combined gravitational force for all of the planets on May 4/5, 2000, which will be approximately  $1.06 \times 10^{18}$  Newtons. The total gravitational force exerted on the earth was greater in the 2 B.C. alignment than will be in the May, 2000 alignment. The earth did not topple at that time, nor are there any written records of massive, high magnitude, earthquakes occurring at that time. However, a very important event took place less than a year before the 2 B.C. alignment - the birth of the Messiah.

At any rate, the same formula works for the comet. The moon is at least a billion times more massive than the comet. So on the mass alone in the formula, the comet is 1/1 billionth the mass of the moon. The distance is the key factor since the inverse square law comes into play. We can call the distance from the moon to the earth one lunar unit. The closest distance of the comet to the earth will be about 90 lunar units. The distance is squared in the equation.  $90 \times 90$  equals 8,100. So the mass of the comet is 1/1,000,000,000<sup>th</sup> that of the moon, and the distance gives it another factor of 1/8100<sup>th</sup> that of the moon. When you combine these factors you can see how miniscule the gravitational force of the comet on the earth is. It is similar to comparing your mass with a grain of salt or a piece of dandruff. It would have no effect on you as you go about.