



# The Mason-Dixon Astronomer

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## Star Points for December 2012

“Happy Mayan New Year”

by Curtis Roelle

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Ready or not, here it comes. The day Hollywood and the prognosticators of doom have warned about over the last few years is almost here. A current cycle on the Mayan calendar ends on December 21 and, as some believe, so will the world.

It's not the first time one cataclysmic end or the other has been predicted. It seems like only yesterday that the 1980s “Jupiter Effect” anticipated, incorrectly, a straight-line lineup of planets and predicted, just as incorrectly, the world being torn apart by massive earthquakes.

Fast forward to the year 2000 and the Y2K scare, which threatened to bring on the end of a quaint, pre-911 world as we knew it then. Worldwide computer glitches were expected by some to bring anarchy as collapsing banks would no longer be capable of managing our accounts or making change, and blackouts would cause our food to spoil, starving us. Either that or the world would face mass extinction as nuclear stockpiles spontaneously launched due to confused computer networks. Either way it was going to be every doomsday prepper for themselves, and folks were being encouraged to hoard everything from water to gold bricks.

In between those events, as well as before and since, it's been one nightmare scenario prediction after another. However, in each and every case the Sun rose the next day. That's good, but will the Sun rise on December 22?

Disclaimers first. I am not a Mayan archeologist. My knowledge of Mayan hieroglyphics is limited to those printed on a T-shirt from a previous Mexican total solar eclipse. I do not have a full understanding of whatever rationale lies behind the various denominations of Mayan calendar doomsday prophecy. Finally, what little I do know of the issue was gleaned via sources concerned with the science of the issue.

*(continued on page 2)*

**WASI Holiday Dinner**  
*For WASI members and their families*

December 12, 2012, 6:30 p.m.

Bear Branch Nature Center

[\(more information on page 3\)](#)

## Star Points, *cont.*

So, what is the big deal about December 21? It just so happens that the Mayan calendar is apparently coming to an end and that the Mayans also expect the world to end with it. I said “apparently” because there is significant disagreement between interpretations of what they wrote. The Mayan calendar turns out to be cyclical like our own calendar. Instead of weeks, months, years, and the 400-year Gregorian cycle, the Mayan calendar has its own cycles, one of which is the baktun, a period consisting of 20 kaktuns, or a little over 394 years.

Our current baktun 13 is coming to an end. Is that significant as some are making it out to be? After all, it takes 20 baktuns to complete a pictun. Either way, the end of a baktun is similar to a rare millennial rollover in our own calendar.

Instead of fearfully cowering, the Mayans, if they were here today, would likely be celebrating. The Florida Museum of Natural History’s Susan Milbrath said, “For the ancient Maya, it was a huge celebration to make it to the end of a whole cycle.”

In fact, there are celebrations taking place. Norwegian Cruise Lines is offering its “Not the End of the World” cruise to Mexico. One of the local breweries is having an “End of the World Party” in Baltimore on December 21.

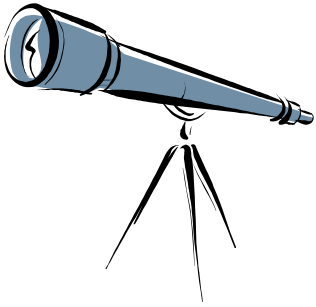
If the world does end, you’ll have a front row seat under the stars at Bear Branch Nature Center on Friday, December 21. The evening begins with a one-hour planetarium program at 7:30 p.m. followed by a public star party featuring telescopes furnished by the Westminster Astronomical Society. The planetarium program will focus on the skies of Christmastime, and the possible scientific explanations for the Christmas star. The star party is free, and the planetarium is \$5 per person. If you plan to attend the planetarium program, please pre-register by calling county parks at 410-386-2103.

Aside from the end of the world, the other astronomical highlight this month is the annual Geminid meteor shower. The best time to look will be on Friday, December 13, starting early in the evening. Other good times might be late in the evening on Thursday, December 12, from midnight to dawn, and possibly even Saturday evening as well. It’s a great year because there will be no interference from moonlight.

It’s best if you observe away from bright lights or city sky glow, snug in a sleeping bag on a reclining lawn chair. In cold weather I usually toss a hot water bottle or two into the bottom of the bag to warm the feet. If you’re observing with a group, arrange your chairs like the spokes of a wheel, with your heads near the center, in order to provide coverage for the entire sky.

*“Star Points” by Curtis Roelle appears in the Carroll County Times on the first Sunday of each month. Visit the website at <http://www.starpoints.org> or send email to [StarPoints@gmail.com](mailto:StarPoints@gmail.com).*

## Upcoming Events



**WASI Holiday Dinner** December 12, 6:30 p.m., at Bear Branch Nature Center; see a description below

**Planetarium Show** December 21, 7:30 p.m., at Bear Branch Nature Center

### WASI HOLIDAY DINNER

At 6:30 p.m. on Wednesday, December 12, we will have our annual holiday dinner at Bear Branch Nature Center. As usual, it will be a potluck-style affair held in the auditorium. The dinner is for the exclusive enjoyment of WASI members, who are welcome to bring their families or a guest.

The club will provide plates, cups, utensils, napkins, and soft drinks. All you need to bring is your appetite and, if you can, a dish to share (along with a spoon, fork, or other serving instrument). The dish can be a main dish, salad, side dish, or dessert. Please bring enough to serve 8 to 10 people.

If you plan to attend, please visit <http://www.perfectpotluck.com/meals.php?t=CGYV0298> and enter your name and what dish you expect to bring.

We hope to see you there!

### Want to join the Westminster Astronomical Society?

Sign up online at [www.westminsterastro.org/members](http://www.westminsterastro.org/members)  
or bring a check for \$25 made out to WASI  
to our next meeting at Bear Branch Nature Center.

## Minutes of Meeting on November 16, 2012

Called to order at 7:20 by Skip Bird, Treasurer

We were not able to use our regular room due to occupation by the Bee Keepers Association. We made an attempt to use the planetarium but it was, obviously too small. We moved to the north room, which sufficed.

Reports were called for:

Observatory Report:

Curt reported that various contracts with the county need to be reviewed. He is attempting to arrange an observatory committee meeting this or next week.

Outreach Report:

Skip presented lots of giveaway stuff and our schedule of outreach events as published by the Night Sky Network.

8 December Soldiers Delight

21 December Planetarium Show and Star Party

Our next meeting is our annual pot-luck dinner on December 12.

Bob Clark made a short presentation regarding the Air and Scare presentation at the Smithsonian Air & Space Museum's Udvar-Hazy Center near Dulles airport. There were about 6,000 visitors who stopped by the exhibits.

Featured Speaker:

Gary Hand, Owner of Hands On Optics in Damascus Maryland, passed around a 2.2-pound meteorite for examination. He then did an extensive presentation of criteria to use in buying a telescope. Among the important points was the advice to buy the telescope that you will use. He also provided an introduction to the use of a telescope for astronomical photography.

A photo and short discussion of the new Science & Space Center in Fredrick, Maryland, was presented (7-meter dome).

A telescope from Hands On Optics was presented, by Skip, as a door prize. (Game contest winner got it.)

At 9:02 the meeting adjourned to the parking lot for observation.

Respectively submitted,  
Robert L. Clark, Secretary



## **It Takes More Than Warm Porridge to Make a Goldilocks Zone**

by Diane K. Fisher

The “Goldilocks Zone” describes the region of a solar system that is just the right distance from the star to make a cozy, comfy home for a life-supporting planet. It is a region that keeps the planet warm enough to have a liquid ocean, but not so warm that the ocean boils off into space. Obviously, Earth orbits the Sun in our solar system’s “Goldilocks Zone.”

But there are other conditions besides temperature that make our part of the solar system comfortable for life. Using infrared data from the Spitzer Space Telescope, along with theoretical models and archival observations, Rebecca Martin, a NASA Sagan Fellow from the University of Colorado in Boulder, and astronomer Mario Livio of the Space Telescope Science Institute in Baltimore, Maryland, have published a new study suggesting that our solar system and our place in it is special in at least one other way.

This fortunate “just right” condition involves Jupiter and its effect on the asteroid belt.

Many other solar systems discovered in the past decade have giant gas planets in very tight orbits around their stars. Only 19 out of 520 solar systems studied have Jupiter-like planets in orbits beyond what is known as the “snow line” — the distance from the star at which it is cool enough for water (and ammonia and methane) to condense into ice. Scientists believe our Jupiter formed a bit farther away from the Sun than it is now. Although the giant planet has moved a little closer to the Sun, it is still beyond the snow line.

So why do we care where Jupiter hangs out? Well, the gravity of Jupiter, with its mass of 318 Earths, has a profound effect on everything in its region, including the asteroid belt. The asteroid belt is a region between Mars and Jupiter where millions of mostly rocky objects (some water-bearing) orbit. They range in size from dwarf planet Ceres, at more than 600 miles in diameter, to grains of dust. In the early solar system, asteroids (along with comets) could have been partly responsible for delivering water to fill the ocean of a young Earth. They could have also brought organic molecules to Earth, from which life eventually evolved.

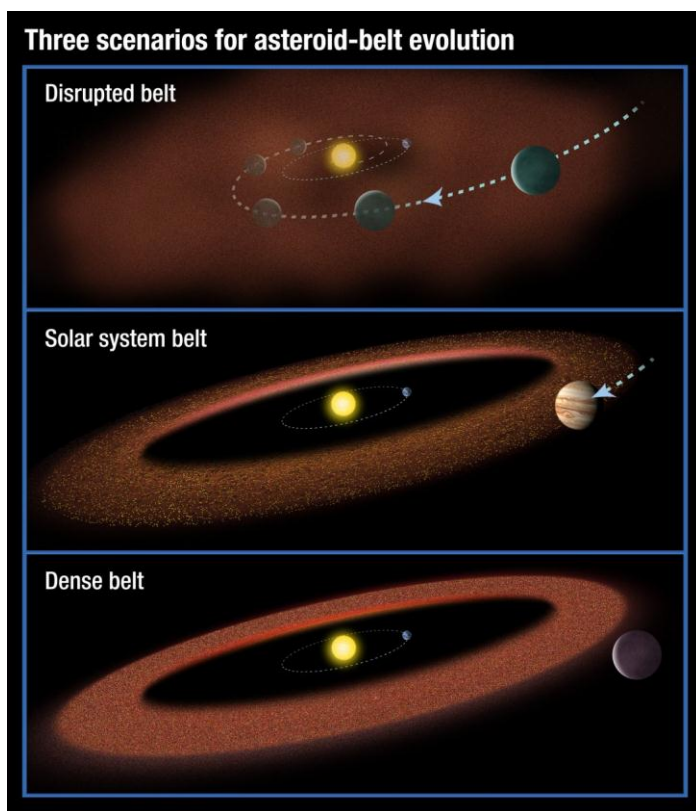
Jupiter’s gravity keeps the asteroids pretty much in their place in the asteroid belt, and doesn’t let them accrete to form another planet. If Jupiter had moved inward through the asteroid belt toward the Sun, it would have scattered the asteroids in all directions before Earth had time to form. And no asteroid belt means no impacts on Earth, no water delivery, and maybe no life-starting molecules either. Asteroids may have also delivered such useful metals as gold, platinum, and iron to Earth’s crust.

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But, if Jupiter had not migrated inward at all since it formed farther away from the Sun, the asteroid belt would be totally undisturbed and would be a lot more dense with asteroids than it is now. In that case, Earth would have been blasted with a lot more asteroid impacts, and life may have never had a chance to take root.

The infrared data from the Spitzer Space Telescope contributes in unexpected ways in revealing and supporting new ideas and theories about our universe. Read more about this study and other Spitzer contributions at <http://spitzer.caltech.edu>. Kids can learn about infrared light and enjoy solving Spitzer image puzzles at <http://spaceplace.nasa.gov/spitzer-slyder>.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*



*Our solar system is represented by the middle scenario, where the gas giant planet has migrated inward, but still remains beyond the asteroid belt.*

*Credit: NASA, ESA, and A. Feild (STScI)*