

# The Mason-Dixon Astronomer



## December Meeting:

- Wed., December 9<sup>th</sup> – 7:00 pm  
Bear Branch Nature Center
- **Annual Holiday Pot-Luck Dinner**  
"Members, Family, and Friends Gathering"

## Bring a Dish To Share!

- Drinks, utensils, plates and napkins will be provided.
- Bring a dish to share and your holiday cheer!

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## President's Message

December 2015 – Tony Falletta

December Greetings My Fellow Astronomers!

December is upon us and soon the snowflakes will be flying. As we close the WASI 2015 year, we can look back proudly on this year with our new observatory up and operational! 2015 has seen the culmination of the many countless hours our membership has spent planning, fundraising, and coordinating together to enable the Blaine F. Roelke Memorial Observatory.

Of special note I would like to thank Frank Roelke for his tireless and selfless efforts to keep the ball rolling in making his father's observatory a reality for us and Carroll County. I also need to thank member Steve Conard whose efforts during the construction phase and the ongoing training process has made it possible for all of us to have a beautiful C-14 telescope at our disposal. As the colder temps become the norm for the next few months keep in mind that a nice comfortably enclosed observatory awaits you. It's truly a marked difference when can you astronomy inside a dome versus out in the open air!



For our December meeting, we will be having our annual holiday pot-luck dinner. There is no formal speaker. I invite all WASI members and their families and friends to come and enjoy a pleasant evening of comradeship with good food and conversation. Much of the year when we have a formal speaker, we don't have the opportunity to talk and exchange ideas (I blame those darn cloudy nights on our meeting nights!). Our yearly dinner gives all of us a chance just sit, eat, talk and laugh a little so come on out

I want to mention that in this season of giving, you can find some really cool stuff at WASI's online CafePress store. There are items like hats, shirts, sweatshirts, mugs and other things all with our Wasi logo on them. A portion of the sales proceeds go to the club which helps a lot. The link is

[http://www.cafepress.com/wasi\\_store](http://www.cafepress.com/wasi_store)

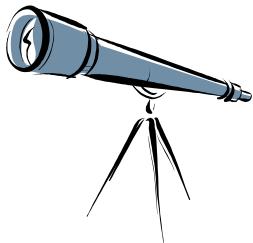


## December Meeting – Pot-Luck Dinner

Open to club members, family, and friends

We will start our meeting a little early (7pm) this month as WASI hosts its annual Pot-Luck Holiday Dinner. The club will provide drinks, ice, plates, cups, and utensils. Please bring a main dish, side dish, or dessert to share. There are a limited number of outlets available if you need to plug in a crock-pot or warmer. Please label all your items (including serving utensils) with your name so we can make sure they make their way home if forgotten.

We hope everyone can join us for this yearly event. It is always nice spending time with club members, family, and friends in a casual environment.



## Upcoming Events From Our Calendars

- ❖ **Monthly Meeting** December 9<sup>th</sup>, 7:00 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Soldiers Delight Public Stargazing** December 12<sup>th</sup>, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills
- ❖ **Planetarium Show** December 19<sup>th</sup>, 7:30 p.m., at Bear Branch Nature Center (BBNC)

## Join The Westminster Astronomical Society...

Joining WASI gives you a great opportunity to meet fellow astronomers and provides group memberships to the [Astronomical League](#) and the [International Dark-Sky Association](#). Additionally, benefits include access to our [Library](#) (over 500 astronomy-related books), the ability to borrow [club scopes](#), a subscription to the Astronomical League's *Reflector*, access to members-only observing sessions and sites, and club discounts on astronomical magazine subscriptions.

**Adult Membership is still only \$25 per year.**

**Junior Membership (under 18) is just \$5 per year**

<http://www.westminsterastro.org>

## President's Message

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In January, we will be having our annual election of officers. As this is my second year as your president, term limits preclude me from continuing in this position. Please consider stepping up to be an officer for 2016. I've had a lot of fun in the various officer positions I've held over the years. When I first decided to be an officer, my intentions were to help make WASI the kind of club that each and every one of us could enjoy. I have found being an officer a very rewarding experience and I'm sure you would too. Keep in mind as you ponder the idea of holding an officer position that in the big picture of our club, we are just a bunch of diverse people who happen to share a passion for astronomy.

As 2015 draws to a close, I want wish everyone a safe and happy holiday season, I also would like to thank you all for being a part of WASI. It's been both an honor and a privilege to be your president the past 2 years and I hope 2016 can find us all enjoying a beautiful observatory under a beautiful night sky filled with the planets, the moon, and a blanket of stars.

Clear Skies,  
Tony Falletta

## December Public Outreach ...

Robert Clark



### December 6<sup>th</sup>, 12pm – 4pm – Soldiers Delight Environmental Area:

From the Friends of Soldiers Delight website:

*Come see us this Sunday, December 6, as we throw our doors wide open for our annual Holiday Open House at Soldiers Delight NEA.*

*From noon to 4:00 p.m., you can purchase tasty treats at our bake sale, make a variety of holiday-themed crafts in our auditorium (\$5 entry fee for the crafts room), gaze at the sun through a solar telescope in our parking lot and learn about the Choate chromium mine from our resident mining historian.*

*Take a tour of the private aviary where rehabilitated raptors and other wild creatures are housed. Bring your camera for your own personal close-up! Sponsor one of our animals if you like! A sponsorship certificate makes a wonderful holiday gift.*

*Take a brisk hike on one of our scenic trails (the weather is going to be perfect!) and then warm yourself with spiced cider or hot chocolate in our exhibit hall (for a donation) while you peruse a collection of nature books at our book sale.*

*There is so much to see and do. Come see for yourself!*

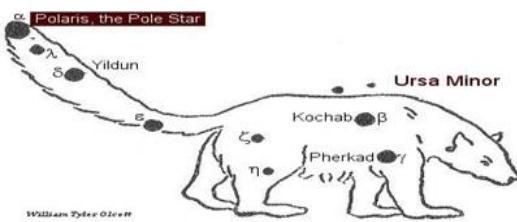
### Holiday Season Star Party - Come and visit our little bear

Saturday, December 12, 2015

Soldiers Delight Natural Environment Area - 5100 Deer Park Road, Owings Mills, MD

Telescopes and star guides (Members of the Westminster Astronomical Society) supplied.

Star parties begin at 8:00



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## December Public Outreach ...

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### **Geminid Meteor Shower Party, Charlotte's Quest (Pine) Observatory**

#### **December 13-14<sup>th</sup>**

This event was originally planned for students at Manchester Valley High School intending to attend a meteor shower observing session on the occasion of the Geminid meteor shower on 13-14 December, 2015, at Charlotte's Quest Nature Center (Pine Observatory) in Manchester Maryland. With the encouragement of the students we have decided to extend the invitation to the general public.

This event is intended to provide an opportunity for the students and others to earn up to three hours toward the required six hours for the Meteor Certificate from the Astronomical League. The remaining three hours can be accomplished later. (There are several showers early in 2016.)

#### **Rules**

No alcohol or drugs (this includes smoking).

In general behave in a courteous and considerate manner. Children are welcome but remember, for an astronomical observing event, this is an adult event. Participate in an adult manner.

#### **Preparation:**

Dress warmly in recognition of the fact that you are going to spend some serious hours outdoors in the middle of December. Warm clothes plus a blanket and/or sleeping bag are appropriate. Gloves are nice!

A chair capable of encouraging you to look up will be very useful. Charlottes Quest may be able to supply a few.

A thermos of coffee is likely a good idea. A watch that you can see in the dark is appropriate. Dark adaption of your eyes is very important. It takes about 20 minutes after exposure to white light to be able to see meteors well. Any form of flashlight must be well filtered in red. Hopefully red filter material and appropriate rubber bands will be available on site.

#### **Individuals intending to submit their observations to the Astronomical League should:**

Make sure that they are members of the League. Membership in the Westminster Astronomical Society includes League membership. That is the easiest way to join as a new member.

Bring a clipboard with paper, pencil, and extra pencil as a spare. You will feel pretty foolish if you are crawling around in the cold wet grass looking for your pencil when the best meteor comes and goes.

The various reporting forms are included in this booklet. Keep good notes, then complete your forms under better conditions.

#### **The Plan:**

In the event of rain, snow or serious alien attack that seems to be more than occasional the event will be cancelled. Solid, heavy overcast will cancel the event but "partly cloudy" will not.

The first couple of hours can be devoted to general observation using the 15 inch reflector at the Charlottes Quest – Pine Observatory and any other telescopes available and needed.

When the meteor shower gets underway the telescopes will be put away and their housing locked. We will move down the hill to the area of the pavilion and nature center building. The building will be available as a warming station.

Sanitary facilities are located near the building.



## Our Solar System Is *Almost* Normal, But Not Quite

By Ethan Siegel

It was just over 20 years ago that the very first exoplanet was found and confirmed to be orbiting a star not so different from our own sun. Fast forward to the present day, and the stellar wobble method, wherein the gravitational tug of a planet perturbs a star's motion, has been surpassed in success by the transit method, wherein a planet transits across the disk of its parent star, blocking a portion of its light in a periodic fashion. Thanks to these methods and NASA's Kepler spacecraft, we've identified many thousands of candidate planets, with nearly 2,000 of them having been confirmed, and their masses and densities measured.

The gas giants found in our solar system actually turn out to be remarkably typical: Jupiter-mass planets are very common, with less-massive and more-massive giants both extremely common. Saturn—the least dense world in our solar system—is actually of a fairly typical density for a gas giant world. It turns out that there are many planets out there with Saturn's density or less. The rocky worlds are a little harder to quantify, because our methods and missions are much better at finding higher-mass planets than low-mass ones. Nevertheless, the lowest mass planets found are comparable to Earth and Venus, and range from just as dense to slightly less dense. We also find that we fall right into the middle of the "bell curve" for how old planetary systems are: we're definitely typical in that regard.

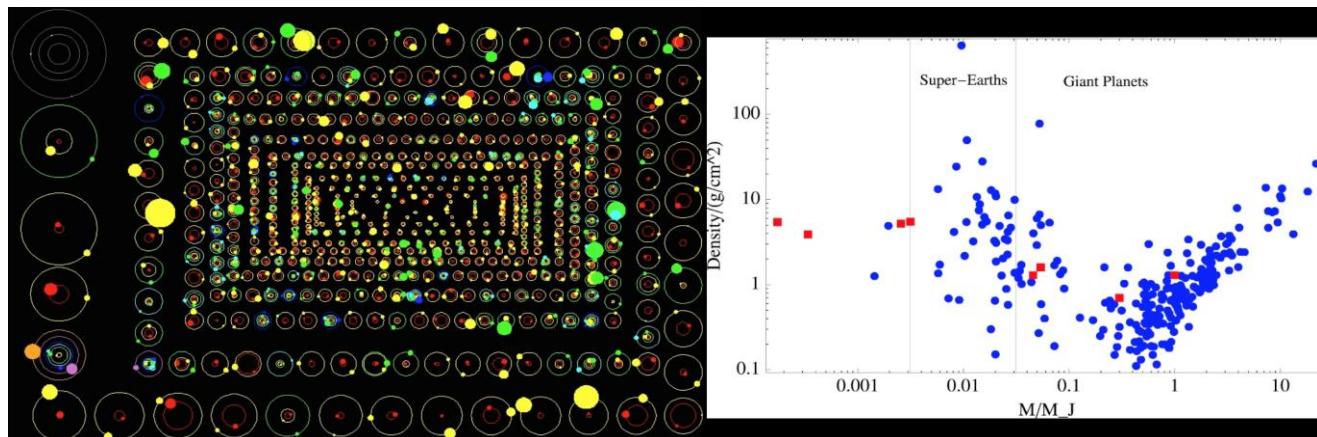
But there are a few big surprises, which is to say there are three major ways our solar system is an outlier among the planets we've observed:

- All our solar system's planets are significantly farther out than the average distance for exoplanets around their stars. More than half of the planets we've discovered are closer to their star than Mercury is to ours, which might be a selection effect (closer planets are easier to find), but it might indicate a way our star is unusual: being devoid of very close-in planets.

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- All eight of our solar system's planets' orbits are highly circular, with even the eccentric Mars and Mercury only having a few percent deviation from a perfect circle. But most exoplanets have significant eccentricities, which could indicate something unusual about us.
- And finally, one of the most common classes of exoplanet—a super-Earth or mini-Neptune, with 1.5-to-10 times the mass of Earth—is completely missing from our solar system.

Until we develop the technology to probe for lower-mass planets at even greater distances around other star systems, we won't truly know for certain how unusual we really are!



*Images credit: NASA / Kepler Dan Fabrycky (L), of a selection of the known Kepler exoplanets; Rebecca G. Martin and Mario Livio (2015) ApJ 810, 105 (R), of 287 confirmed exoplanets relative to our eight solar system planets.*