The Mason-Dixon Astronomer

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President's Message for September

by Jim Reynolds

In This Issue:

Greetings all!

I must apologize from my missing article from last month's MDA.

August was a great month for public outreach as well as the Westminster Astronomical Society. We had a strong presence at the Carroll County FFA/4H Fair. Bob Clark was the Champion of the Week, being present each and every day of the far. Thanks Bob! You really went above and beyond the "call of duty" for everyone. We also had two planetarium shows, one public, one private, as well as the annual summer WASI picnic. Curt was the on-site chief for burgers and hot dogs, while Brian Eney impressed everyone with his world famous grilled pizza. We brought deviled eggs, Eric Hirtle brought his renowned tuna casserole, and we had some amazing desserts courtesy of Mrs. Baugher (not to mention some really tasty homemade brownies). A good time was had by all who attended the picnic. We're already looking forward to next year's picnic.

It's late summer and if you're willing to stay up or get up at a late (or early depending on your perspective) time, you will see some of our autumn and winter celestial friends returning. A lot of folks will say that they find the winter constellations more interesting, but I love 'em all. One of my all-time favorite summer evening activities is to sit in my front yard (facing south) and watching Scorpius and Sagittarius. By the way, did anyone see the night sky on Thursday evening (08/25)? Just about perfect conditions! We saw a very nice pass of the ISS, followed by a beautiful Iridium flare just after 21:00 (09:00pm).

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September Meeting: Wednesday, September 14, 2011, 7:30 p.m., Bear Branch Nature Center

Speakers: Tom Renn and Curt Roelle will discuss "Sky High Kile Knob" in West Virginia. They will show slides, many of them in 3D, from Tom's new astronomy getaway at an elevation of 4450 feet in West Virginia.

Next WASI Observing Weekend: Friday and Saturday, September 16 and 17

President's Message *continued*

Our meeting in August brought Dr. Jenifer Scott from Towson University. She discussed quasars and associated phenomena. Everyone seemed to really enjoy her presentation; I know I did!

A quick reminder for everyone doing public service: Please don't forget to log your volunteer hours into the our Night Sky Network log. This keeps track of the number of hours of public outreach our club performs.

I'm looking forward to our September monthly meeting (09/14/2011) as well as our public and member's only observing at BBNC and Soldier's Delight.

Clear Skies everyone!

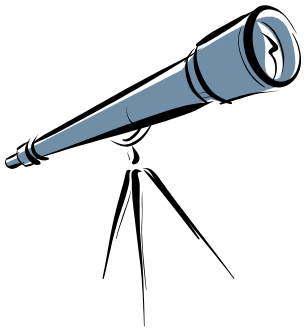
Regards,
Jim Reynolds

Welcome, New WASI Member!

WASI extends a warm welcome to the following new member.

Douglas Howard of Finksburg, Maryland

Upcoming Events



Monthly WASI Meeting September 14, 7:30 p.m., at Bear Branch Nature Center (BBNC)

WASI Member Observing Weekend September 16 & 17 at BBNC

South Jersey Fall Star Party September 22 – 25, at Belleplain State Forest in Woodbine, New Jersey; for more info visit http://www.sjac.us/starparty.html

Mason-Dixon Fall Star Party September 30 – October 2, at the Footlight Ranch in Wellsville, Pennsylvania; for more info visit http://www.masondixonstarparty.org

Planetarium Show October 1, 7:30 p.m., at BBNC

Astronomy Day (autumn) October 1; for more info, visit http://www.astroleague.org/AstronomyDay/AstronomyDay-2011-10.html

Soldiers Delight Public Stargazing October 8, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills

International Observe the Moon Night October 8; for more info, visit http://observethemoonnight.org/

Minutes of Meeting on August 10, 2011

Meeting called to order at 7:42 PM by Jim Reynolds, President.

Jim provided a review of the club's presentations at the C. C. 4H – FFA fair.

Jim reported on the planetarium show activities.

Skip showed material from his sponsored meeting.

The annual picnic was discussed including the idea of a spreadsheet indicating who intends to bring what.

There was a discussion of improvements, re-do, etc. of the current forum. Several individuals indicated dissatisfaction. Several members indicated that they would investigate alternatives.

Steve presented a short movie of an occultation.

Our main speaker was Dr. Jennifer Scott whose presentation was mainly a review of previous and current research projects dealing with the interactions between quasars and galaxies. What follows is a list of a few points:

There is considerable interest in the nature of the intergalactic medium. That is the thinly but unevenly distributed material between galaxies. It is composed, mainly, of hydrogen.

A quasar can be described as an "Active Galactic Nucleus." It is powered by accretion onto a supermassive black hole. Quasars are radio sources.

The velocity V (of retreat) of an object relates to its distance d (expanding universe expands more as we look farther out)

$V = HO \times d$

HO is the Hubble constant currently taken as 71 km/sec/MPS.

Her research involves looking at quasar light passing through (close to) a galaxy to see what gets absorbed by the intergalactic medium.

Prior to adjourning, Jim encouraged members to take part in Project Astro linking astronomers with K – 12 teachers.

Meeting adjourned at 8:50 PM.

Respectfully submitted,

Robert L. Clark

Solar System Size Surprise

by Dr. Tony Phillips

News flash: You may be closer to interstellar space than you previously thought.

A team of researchers led by Tom Krimigis of the Johns Hopkins University Applied Physics Laboratory announced the finding in the June 2011 issue of *Nature*. The complicated title of their article, "Zero outward flow velocity for plasma in a heliosheath transition layer," belies a simple conclusion: The solar system appears to be a billion or more kilometers smaller than earlier estimates.

The recalculation is prompted by data from NASA's Voyager 1 probe, now 18 billion kilometers from Earth. Voyagers 1 and 2 were designed and built and are managed by NASA's Jet Propulsion Laboratory. Aging but active, the spacecraft have been traveling toward the stars since 1977 on a heroic mission to leave the solar system and find out what lies beyond.

To accomplish their task, the Voyagers must penetrate the outer walls of the heliosphere, a great bubble of plasma and magnetism blown in space by the solar wind. The heliosphere is so big, it contains all the planets, comets, and asteroids that orbit the Sun. Indeed many astronomers hold that the heliosphere defines the boundaries of the solar system. Inside it is "home." Outside lies the Milky Way. For 30+ years, the spacecraft have been hurtling toward the transition zone. Voyager 1 is closing in.

Much of Voyager 1's long journey has been uneventful. Last year, however, things began to change. In June 2010, Voyager 1 beamed back a startling number: zero. That's the outward velocity of the solar wind where the probe is now.

"This is the first sign that the frontier is upon us," says Krimigis.

Previously, researchers thought the crossing was still years and billions of kilometers away, but a new analysis gave them second thoughts. Krimigis and colleagues combined Voyager data with previously unpublished measurements from the Cassini spacecraft. Cassini, on a mission to study Saturn, is nowhere near the edge of the solar system, but one of its instruments can detect atoms streaming into our solar system from the outside. Comparing data from the two locations, the team concluded that the edge of the heliosphere lies somewhere between16 to 23 billion kilometers from the Sun, with a best estimate of approximately 18 billion kilometers.

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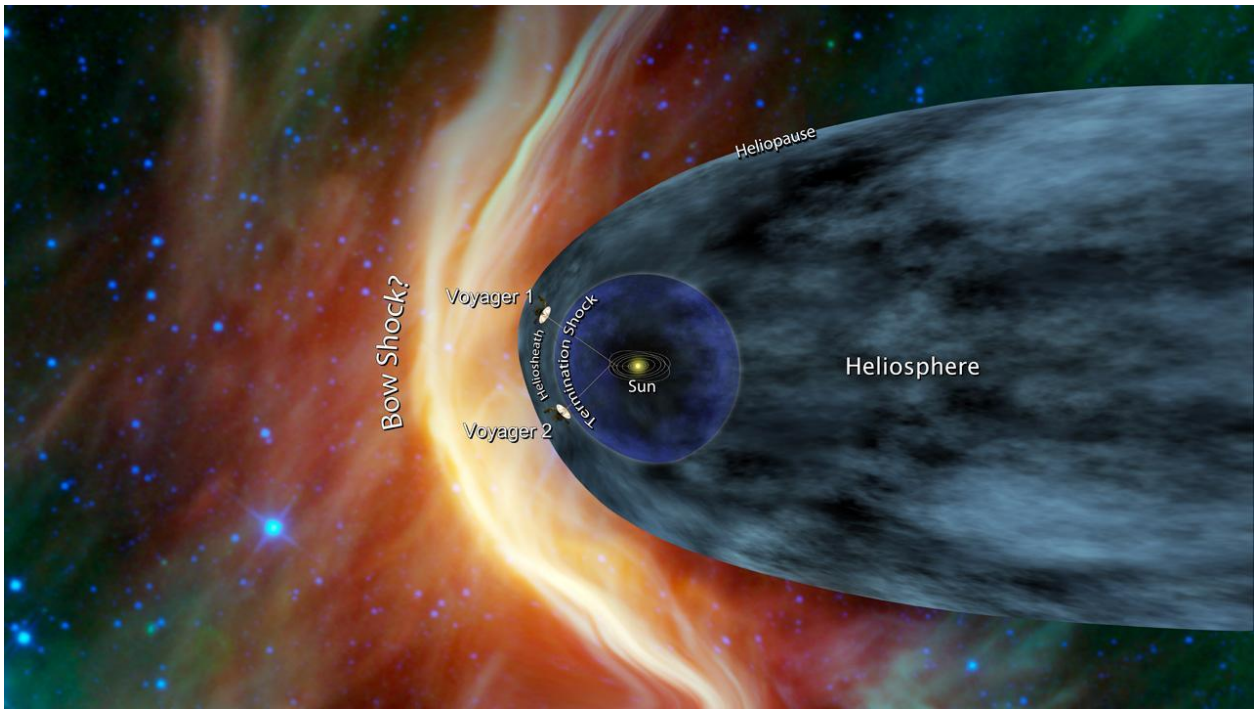
Because Voyager 1 is already nearly 18 billion kilometers out, it could cross into interstellar space at any time — maybe even as you are reading this article.

"How close are we?" wonders Ed Stone, Caltech professor and principal investigator of the Voyager project since the beginning. "We don't know, but Voyager 1 speeds outward a billion miles every three years, so we may not have long to wait."

Stay tuned for the crossing.

For more about the missions of Voyager 1 and 2, see http://voyager.jpl.nasa.gov/. Another Voyager project scientist, Merav Opher, is the guest on the newest Space Place Live cartoon interview show for kids at http://spaceplace.nasa.gov/space-place-live.

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



This artist's concept shows NASA's two Voyager spacecraft exploring a turbulent region of space known as the heliosheath, the outer shell of the bubble of charged particles around our Sun. (Image credit: NASA/JPL-Caltech)