Westminster Astronomical Society Inc, of Maryland

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The Mason-Dixon Astronomer

The Blaine F. Roelke Memorial Observatory Is Now Open!

On Saturday, August 22nd, Frank Roelke cut the ribbon and officially opened the Blaine F. Roelke Memorial Observatory at Bear Branch Nature Center. With Frank's vision and dedication, the resources of the Parks and Recreation Department of Carroll County, and WASI's assistance, there is finally a public observatory on the grounds of the Bear Branch Nature Center. The dedication and ribbon cutting drew well over 100 people from around the state. All those in attendance enjoyed the dedication speeches and got a firsthand look at the new facility.

Before the ceremony many were treated to good food (and a beautiful cake) at WASI's annual summer picnic. After the dedication, WASI also hosted four (yes four) sold-out planetarium shows in the newly renovated planetarium. Lines were long to get a look at the new facilities, but everyone was in good spirits and everything ran very smoothly.

WASI is proud to be part of this special project. Blaine Roelke was a treasured member of our organization and we are humbled by the dedication and commitment his family has shown to Carroll County and to continuing his legacy of promoting astronomy to the public.

More details about the ceremony can be found in the Presidents Message on page 4

Frank makes it official!!!

All Photos Courtesy of Club Member – Slava Murygin. http://slavaastro.blogspot.com/

September Meeting – Topic

Photo from Linked-In Profile

Mars One – Human Settlement on Mars

From the Mars One website – www.mars-one.com

"Mars One is a not for profit foundation with the goal of establishing a permanent human settlement on Mars. To prepare for this settlement the first unmanned mission is scheduled to depart in 2020. Crews will depart for their one-way journey to Mars starting in 2026; subsequent crews will depart every 26 months after the initial crew has left for Mars."

Speaker – Laura Smith-Velazquez

Laura Smith-Velazquez is one of 50 women selected to be an astronaut for a proposed human colony located on Mars. Mars One, a nonprofit organization based in the Netherlands, has proposed to land the first humans on Mars and establish the colony as a permanent human presence there by 2027. When the call went out seeking astronaut volunteers for the one-way mission, 202,586 applications were received from around the world. After three rounds, the number was reduced to 100 — 50 men and 50 women were selected. Ms. Smith-Velazquez will discuss the proposed mission at the September regular WASI meeting. Her husband **Matthew** was also an applicant but not one of the 100 semifinalists. Both Laura and Matthew will be present at the meeting.

INSIDE THIS ISSUE:

Upcoming Events From Our Calendars

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

St*r Points

Marylander Determined to Be Among First Humans to Colonize Mars

September 2015 – Curt Roelle

The development of modern rocketry for space exploration in the 20th century opened the door to contemplating destinations for mankind beyond the home planet. More than fifty years ago humans reached earth orbit followed only a few years later by manned lunar missions including six landings of humans on the moon. Farther and obvious human destinations such as Mars have been unattainable so far, except in science fiction. But one private organization expects to change that in the coming years and plans to land a human colony to Mars as early as 2027.

The non-profit Dutch organization Mars One is behind the effort. The processing of selecting astronauts for the one-way expedition is well under way. When applications were first accepted 202,586 persons worldwide applied for the opportunity to spend the rest of their lives living on Mars. Two rounds of the selection process have been completed resulting in 100 semifinalists – 50 men and 50 women.

One of the semifinalists is Michigan-born Marylander Laura Smith-Velazquez. A long time space enthusiast, Smith-Velazquez's day job is systems engineer for a government defense contractor. Her long-time interest in astronomy and space motivated her to sign up. Both she and husband Matthew applied for the coveted slots knowing that the odds of both of them being selected from the thousands of candidates was slim.

Of the two of them, Laura made it as a semifinalist. A new application opportunity is coming in which previous applicants can reapply for positions to replace astronaut candidates who may leave the program and to serve as staff aboard future settlement missions. According to Aviation Week's Aerospace Daily, the third round will "*use team challenge, isolation and rigorous interview strategies to cull its current international roster of 50 men and 50 women down to 24 prospective colonists*." The finalists will be paid and begin undergoing 10 years of training.

Laura's already preparing for this phase. The final round will involve isolation testing and so she has approached her employer to discuss a leave of absence. Uncertain as to whether the Mars One salary will be sufficient to pay the bills, Laura evaluates the situation and manages risk like an engineer. "*Even though I want to go to mars, logistically you still have to make ends meet here and balance the risk of the program not succeeding*," Laura emailed recently.

For now, the married couple must consider what choices will be made in determining their future. If the mission takes place as currently planned, they could spend the remainder of their lives living on two separate worlds. The hundred semifinalists will enter the third round of the selection process next year.

Two major obstacles are funding and technology. The web site Space.com recently reported that the Mars One organization estimates the total cost for preparation and launching of the first four-person crew to Mars starting in 2026 would be about $6 billion. The project is being privately funded and the funding effort is ongoing.

The technology required for transporting the colony and making it self-sufficient on Mars' arid surface will require many new innovations that must be worked out and tested before launch. The timeline published by Mars One includes the following objectives:

- 2016 – Begin full-time crew training
- 2020 – Launch Mars-bound demo mission and deploy a communications satellite in Mars orbit
- 2022 – Launch intelligent Mars rover and a 2nd communications satellite into solar orbit
- 2024 – Launch six cargo missions to pre-position supplies at site selected for the first colony
- 2025 – Rovers set up colony in anticipation of human occupation
- 2026-2027 – First four human colonists launched to and land on Mars
- 2028-2029 Second 4-person crew travels to Mars

Laura Smith-Velazquez is coming to Westminster to discuss the Mars One program and her participation as an astronaut semifinalist at the next regular meeting of the Westminster Astronomical Society on Wednesday, September 9 starting at 7:30 p.m. The meeting location is the auditorium of Westminster's Bear Branch Nature Center. Matthew will also be attending the meeting.

President's Message

September 2015 – Tony Falletta

Observatory Greetings my Fellow Astronomers!

This month's presidents' message is one of the happiest I've written to date. On Saturday, August 22nd, a day marked by clear skies and very comfortable temperatures, WASI witnessed one of its most historical days. We had our official dedication and ribbon cutting of the Blaine F. Roelke Memorial Observatory. The day began at 5pm when we had our annual picnic. This year, with the observatory ceremony upon us, we opted to dine on barbeque brisket, pulled pork, some delicious sides, to be capped off by tasty desserts, including a sheet cake with a picture of the observatory on it. We were honored with Nancy Roelke cutting the first slice!

At 6:30, we gathered at the observatory, we were joined by about 100 other people who came to celebrate Carroll County's newest asset. To start off, I had the honor of introducing Jeff Degitz, Director of the Parks and Recreation Department of the County. Jeff had worked hard to get us a practical and amiable agreement for the observatory at BBNC. He had many kind words about WASI BBNC and his Parks Department staff regarding the overall observatory project. Next, I spoke next on behalf of WASI. I talked to the audience about our wonderfully symbiotic relationship with BBNC and our path into the future. Finally, Frank Roelke spoke to the audience about his father, Blaine and the history of the observatory. He took a few moments to thank all the people who helped make it happen. He concluded his speech with cutting the ribbon and officially opening the observatory. The audience then got a first look through the telescope. Observing Director Steve Conard had the 1st quarter moon in the eyepiece to the delight of the visitors both young and old alike. It wasn't long before it Saturn came into view with the darkening skies. The planetarium was also open for our visitors to see. Planetarium Director Jim Reynolds gave a series of short shows so to accommodate all those that wanted to see the show. Our members there had their telescopes out as well for the star party. There was about a dozen scopes set up all around the observatory. Curt Roelle had his PST set up for some good solar viewing while the sun was still up. As our visitors departed during the evening, many came up to me thanked me for a fun event. All in all it was a memorable day for WASI. I want to thank all of you who were able to come out, enjoy the BBQ, and help make the day a big success.

As we head into fall, we start noticing the climate begin to change. As the Bermuda high pressure system begins to subside and the cooler, dryer Canadian air mass becomes the dominant feature, it becomes obvious that fall is in the air. I actually really enjoy fall stargazing. The drop in humidity makes for a much more enjoyable session. Now that we have a very nice observatory at our disposal, I urge you to take advantage of using this beautiful C14 telescope.

As we start off in our clubs newest chapter, I want to once again give my thanks and gratitude to all my fellow WASI members both present and past who worked to get us where we are today. Now, I would like to continue our efforts in making WASI a club to be proud of. I envision the next challenge being our website. As I look at other clubs pages, it is evident to me that it's clearly time for an update. If you have any thoughts on this, please plan to express your ideas at the next meeting. It will be on my agenda of items to discuss.

Thanks for reading and see you at the next meeting.

Clear Skies,

Tony Falletta

NASA's Space Place

Solar Wind Creates—and Whips—a Magnetic Tail Around Earth

By Ethan Siegel

As Earth spins on its axis, our planet's interior spins as well. Deep inside our world, Earth's metal-rich core produces a magnetic field that spans the entire globe, with the magnetic poles offset only slightly from our rotational axis. If you fly up to great distances, well above Earth's surface, you'll find that this magnetic web, called the magnetosphere, is no longer spherical. It not only bends away from the direction of the sun at high altitudes, but it exhibits some very strange features, all thanks to the effects of our parent star.

The sun isn't just the primary source of light and heat for our world; it also emits an intense stream of charged particles, the solar wind, and has its own intense magnetic field that extends much farther into space than our own planet's does. The solar wind travels fast, making the 150 million km (93 million mile) journey to our world in around three days, and is greatly affected by Earth. Under normal circumstances, our world's magnetic field acts like a shield for these particles, bending them out of the way of our planet and protecting plant and animal life from this harmful radiation.

But for every action, there's an equal and opposite reaction: as our magnetosphere bends the solar wind's ions, these particles also distort our magnetosphere, creating a long magnetotail that not only flattens and narrows, but whips back-and-forth in the onrushing solar wind. The particles are so diffuse that collisions between them practically never occur, but the electromagnetic interactions create waves in Earth's magnetosphere, which grow in magnitude and then transfer energy to other particles. The charged particles travel within the magnetic field toward both poles, and when they hit the ionosphere region of Earth’s upper atmosphere, they collide with ions of oxygen and nitrogen causing aurora. Missions such as the European Space Agency and NASA Cluster mission have just led to the first accurate model and understanding of equatorial magnetosonic waves, one such example of the interactions that cause Earth's magnetotail to whip around in the wind like so.

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The shape of Earth's magnetic field not only affects aurorae, but can also impact satellite electronics. Understanding its shape and how the magnetosphere interacts with the solar wind can also lead to more accurate predictions of energetic electrons in near-Earth space that can disrupt our technological infrastructure. As our knowledge increases, we may someday be able to reach one of the holy grails of connecting heliophysics to Earth: forecasting and accurately predicting space weather and its effects. Thanks to the Cluster Inner Magnetosphere Campaign, Van Allen Probes, Mars Odyssey Thermal Emission Imaging System, Magnetospheric Multiscale, and Heliophysics System Observatory missions, we're closer to this than ever before.

Kids can learn about how solar wind defines the edges of our solar system at NASA Space Place. http://spaceplace.nasa.gov/interstellar

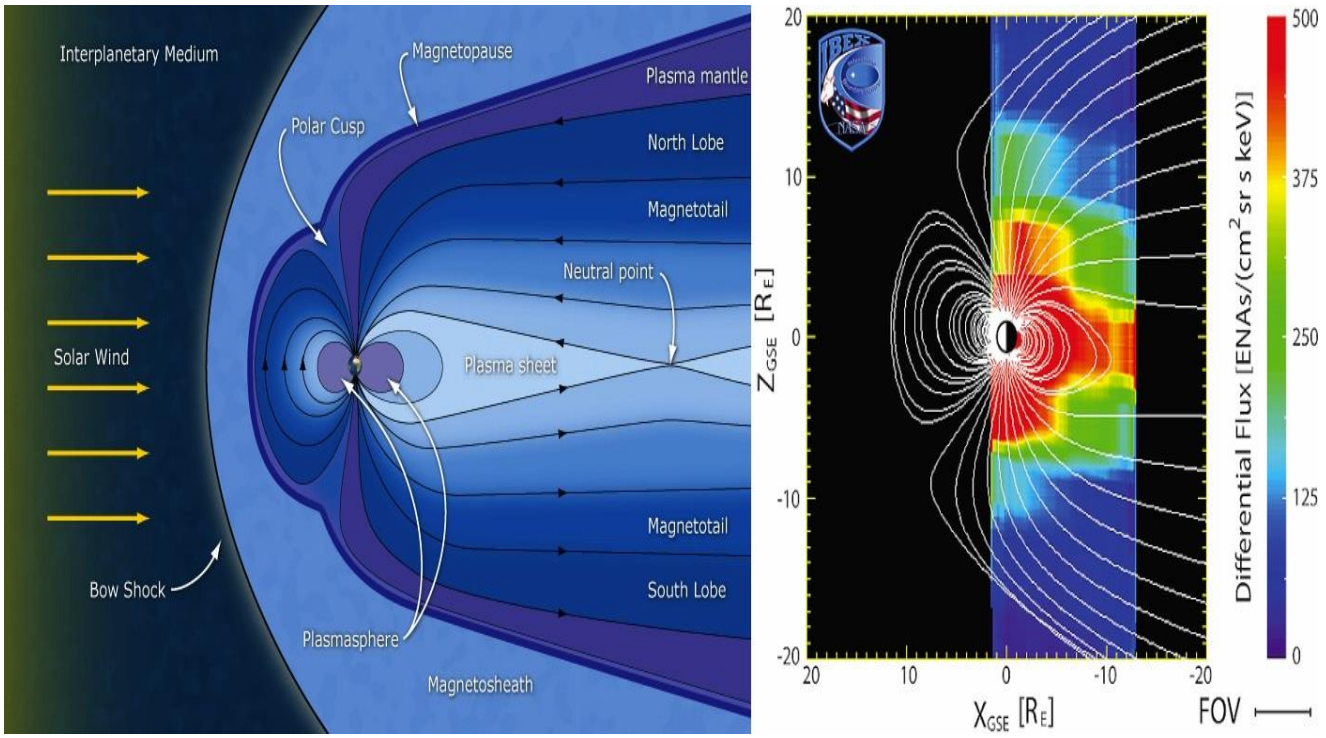

Image credit: ESA / C. T. Russell (L), of Earth's magnetic tail and its cause: the solar wind; Southwest Research Institute / IBEX Science Team (R), of the first image of the plasma sheet and plasmasphere created around Earth by the solar wind.