

THE STAR DIAGONAL

THE JOURNAL OF THE OGDEN ASTRONOMICAL SOCIETY



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Meeting Announcement

The Annual meeting of the Ogden Astronomical Society will be held on September 10th at 7:30 in the Ott Planetarium at Weber State University. Elections will be held along with club business. Dues for the coming year will be collected.

President's Message

I hope everyone has had a great summer so far, we still have a few activities planned before the cold weather set in. Our July and August Monte Cristo star party and campouts were mostly successful. We had good weather for the Perseid Meteor shower with about 30 meteors per hour near the peak. Several were very bright with long green streaks that lasted several seconds. We had clouds off and on throughout the weekend but we were able to have a few hours of good viewing each night.

The Great Basin Astronomy Festival is next week, September 10th through the 13. We have one

person that was talking about going; if anyone else is planning to go let me know and I will give you contact information so you can let them know you are coming.

We will begin club meetings again this month on Thursday September 10th at 7:30 in the Ott Planetarium at Weber State University. The meeting agenda will be Elections of new officers and a discussion of next year's activities.

We will be accepting nominations for all of the club offices until just before the elections at the meeting. Anyone being nominated must accept the nomination before the election begins. Other items to talk about are the Lunar Eclipse Monday September 28th and the Solar Eclipse August 21st 2017.

We still have two more Antelope Island star party's this year, Saturday September 19th we will start solar viewing by 6:00 and October 17th will start at 5:30.

I hope you will be able to make it to these activities.

Thanks,

Lee Priest

Candidates for OAS Executive Committee

President – Lee Priest
VP – Ron Vanderhule
Secretary – David Dunn
Treasurer – Doug Say

As you can see, we only have one person running for each office. These are the same people that have been serving for multiple terms. Please consider serving in the committee, it doesn't take a lot of time and it is fun to contribute to the success of the society.



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.

Star Parties

Public

- 9/12 – North Fork Star Party
- 9/10–9/13 – Great Basin Astronomy Festival
- 9/19 – Antelope Island
- 10/17 – Antelope Island

Requested

- 10/2 – Kaysville Primary
- 10/9 – Snowbasin

Private

- 10/9-10/11 – Messier Marathon (Curlew)

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>

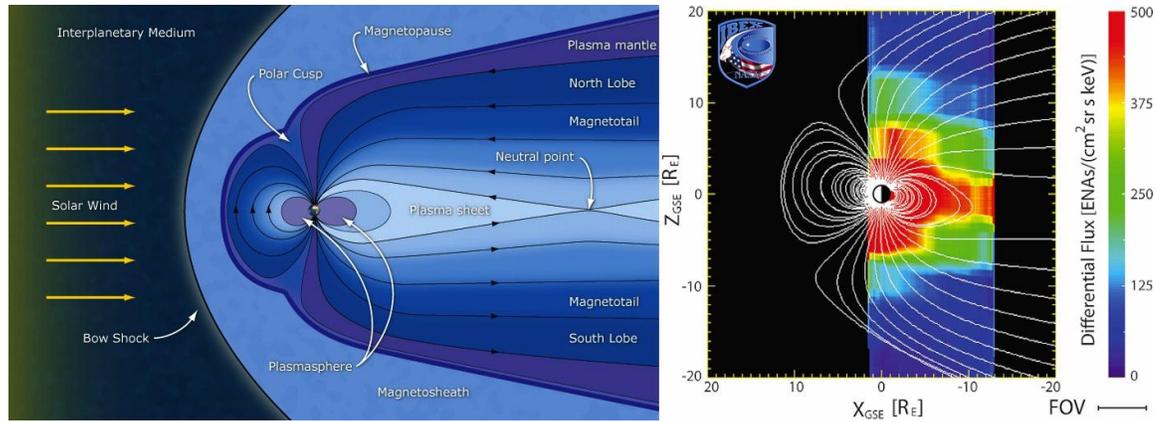


Image credit: ESA / C. T. Russell (L), of Earth's magnetic tail and its cause: the solar wind; Southwest Research Institute / IBEX Science Team (R), of the first image of the plasma sheet and plasmasphere created around Earth by the solar wind.