



ASTRAL PROJECTIONS

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Upcoming Events

Annual Fall Star Watch on Saturday, September 6th

Join us as we set up our telescopes and observe the universe from 7pm to 11pm at the [Robert J. Novins Planetarium](#) located on the Ocean County College campus (Bldg. 17 next to parking lot 2)

Monthly Meeting on Friday, September 12th

The next meeting will be held at the [Robert J. Novins Planetarium](#) located on the Ocean County College campus (Bldg. 17 next to parking lot 2) from 7pm to 11pm.

Matthew McCue will give a presentation about the Chemistry of the Universe.

Star Party on Saturday, September 20th

Join us as we set up our telescopes and observe the universe from 8pm to 10pm at [Jakes Branch County Park, 1054 Sunset Road, Beachwood NJ](#)

A.S.T.R.A.
Robert J. Novins Planetarium
Ocean County College
P.O. Box 2001
Toms River NJ 08754-2001

Recap

July:

Meeting: Sam Micovic continued his talks about our solar system.

We had a successful star party at the Bradley Beach Library. There were close to 100 guests attending.

August:

There was no monthly meeting scheduled & the Star Party on August 2nd was cancelled due to inclement weather.

ASTRA members gathered at the home of Marge & Rich Brady for the annual Perseid picnic.



CLUB TELESCOPES:

A.S.T.R.A. owns seven small telescopes

- 6-inch Dobsonian (needs repairs)
- 8-inch Dobsonian
- 80mm Celestron Refractor
- 120mm EQ AstroView Refractor.
- Lunt 35mm H-Alpha solar scope
- 8-inch Celestron NexStar 8i SE
- 60mm Meade EQ refractor

These telescopes are available for club members to borrow and use for a month or two at a time. Contact John Endreson at Telescope_Loan@astra-nj.org to borrow a telescope

CELESTIAL EVENTS FOR SEPTEMBER

All month: Mercury at best in evening sky for 2014.

2 September 2014: 9 pm AEST First Quarter Moon

9 September 2014: Midday Full Moon

16 September 2014: Midday Last Quarter Moon

22 September 2014: 8 am Mercury at greatest elongation East (26.4 degrees)

24 September 2014: 4 pm AEST New Moon

26 September 2014: The star Spica, Mercury and the slim crescent Moon form a temporary triangle low above the Western horizon as evening twilight ends.

29 September 2014: The star Antares, Mars, Saturn and the slim crescent Moon are visible above the Western horizon as evening twilight ends.

Source: <http://nightskyonline.info/>

ASTRA LIBRARY OF BOOKS AND DVDS:

Many books and DVDs are available for loan from the ASTRA Library for a one month period. A list of these items is available on the ASTRA website. Request for these items must be made prior to our regular meeting and returned by the following meeting. Please e-mail your request for these items to our Librarian Barbara Novick at Library_Loan@astra-nj.org or call her at 732-840-3111.

ASTRONOMICAL LEAGUE MEMBER SOCIETY

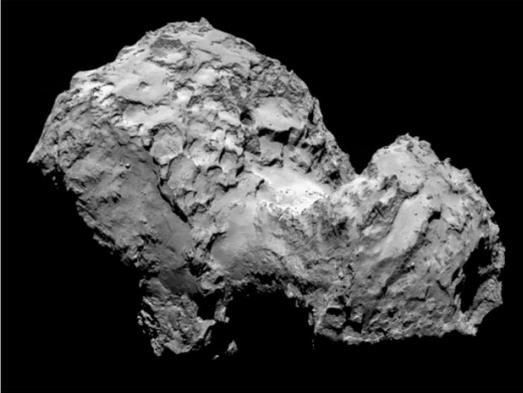
Astronomical League National Headquarters, 9201 Ward Parkway; Suite 100, Kansas City, MO 64114

1-816-333-7759 or www.astroleague.org

The REFLECTOR is published in March, June, September and December. If you do not receive your copy of the REFLECTOR magazine, contact Astronomical League Coordinator (Alcor) Ro Spedaliere (Treasurer@astra-nj.org)

NASA Highlights

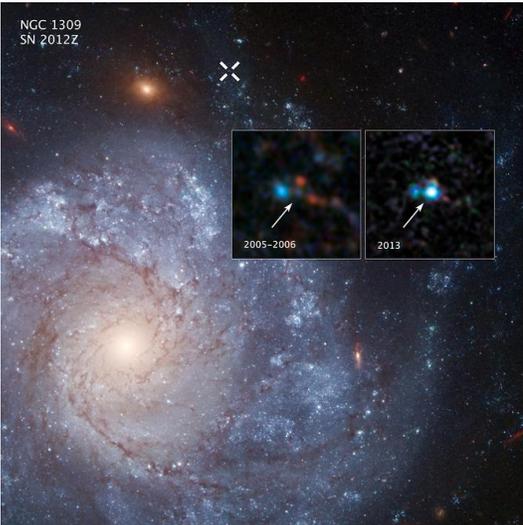
Information from www.nasa.gov/



Rosetta Arrives at Target Comet

After a decade-long journey chasing its target, the European Space Agency's Rosetta, carrying three NASA instruments, became the first spacecraft to rendezvous with a comet.

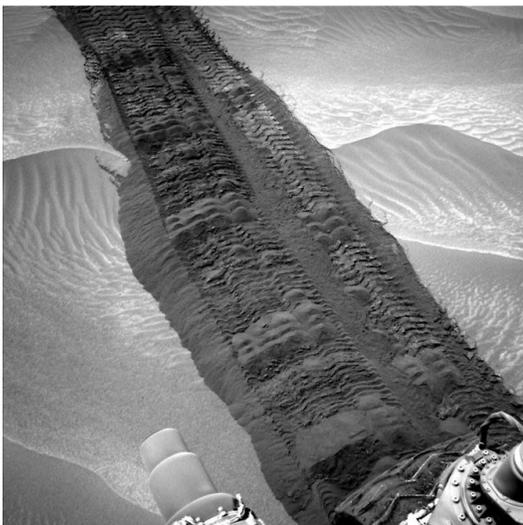
The latest images of the comet taken by Rosetta are available at: <http://www.nasa.gov/rosetta>



NASA's Hubble Finds Supernova Star System Linked to Potential "Zombie Star"

Using NASA's Hubble Space Telescope, a team of astronomers has spotted a star system that could have left behind a "zombie star" after an unusually weak supernova explosion in the host galaxy NGC 1309.

A supernova typically obliterates the exploding white dwarf, or dying star. On this occasion, scientists believe this faint supernova may have left behind a surviving portion of the dwarf star -- a sort of zombie star.



NASA Mars Curiosity Rover

NASA's most advanced roving laboratory on Mars celebrates its second anniversary since landing inside the Red Planet's Gale Crater on Aug. 5, 2012

This image from the Navigation Camera on NASA's Curiosity Mars rover shows wheel tracks printed by the rover as it drove on the sandy floor of a lowland called "Hidden Valley" on the route toward Mount Sharp. The image was taken on Aug. 4, 2014

The Invisible Shield of our Sun

By Dr. Ethan Siegel

Whether you look at the planets within our solar system, the stars within our galaxy or the galaxies spread throughout the universe, it's striking how empty outer space truly is. Even though the largest concentrations of mass are separated by huge distances, interstellar space isn't empty: it's filled with dilute amounts of gas, dust, radiation and ionized plasma. Although we've long been able to detect these components remotely, it's only since 2012 that a manmade spacecraft -- Voyager 1 -- successfully entered and gave our first direct measurements of the interstellar medium (ISM).

What we found was an amazing confirmation of the idea that our Sun creates a humongous "shield" around our solar system, the heliosphere, where the outward flux of the solar wind crashes against the ISM. Over 100 AU in radius, the heliosphere prevents the ionized plasma from the ISM from nearing the planets, asteroids and Kuiper belt objects contained within it. How? In addition to various wavelengths of light, the Sun is also a tremendous source of fast-moving, charged particles (mostly protons) that move between 300 and 800 km/s, or nearly 0.3% the speed of light. To achieve these speeds, these particles originate from the Sun's superheated corona, with temperatures in excess of 1,000,000 Kelvin!

When Voyager 1 finally left the heliosphere, it found a 40-fold increase in the density of ionized plasma particles. In addition, traveling beyond the heliopause showed a tremendous rise in the flux of intermediate-to-high energy cosmic ray protons, proving that our Sun shields our solar system quite effectively. Finally, it showed that the outer edges of the heliosheath consist of two zones, where the solar wind slows and then stagnates, and disappears altogether when you pass beyond the heliopause.

Unprotected passage through interstellar space would be life-threatening, as young stars, nebulae, and other intense energy sources pass perilously close to our solar system on ten-to-hundred-million-year timescales. Yet those objects pose no major danger to terrestrial life, as our Sun's invisible shield protects us from all but the rarer, highest energy cosmic particles. Even if we pass through a region like the Orion Nebula, our heliosphere keeps the vast majority of those dangerous ionized particles from impacting us, shielding even the solar system's outer worlds quite effectively. NASA spacecraft like the Voyagers, IBEX and SOHO continue to teach us more about our great cosmic shield and the ISM's irregularities. We're not helpless as we hurtle through it; the heliosphere gives us all the protection we need!

Want to learn more about Voyager 1's trip into interstellar space? Check this out:

<http://www.jpl.nasa.gov/news/news.php?release=2013-278>.

Kids can test their knowledge about the Sun at NASA's Space place: <http://spaceplace.nasa.gov/solar-tricktionary/>.

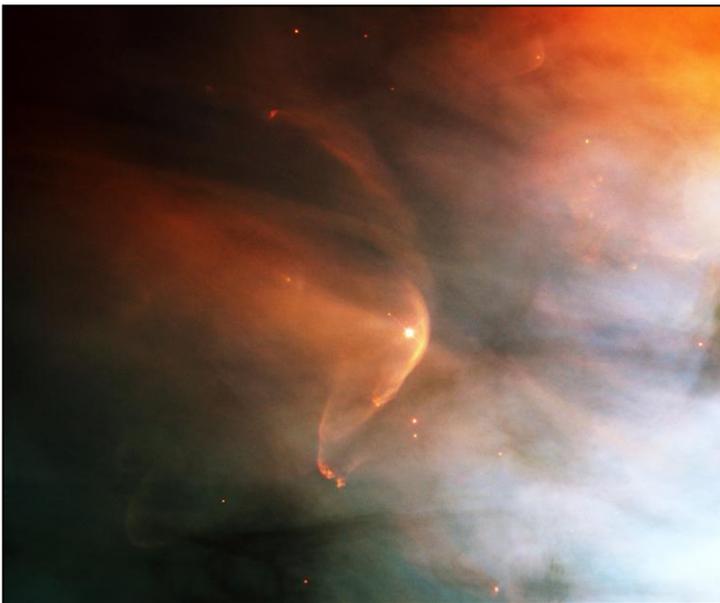


Image credit: Hubble Heritage Team (AURA / STScI), C. R. O'Dell (Vanderbilt), and NASA, of the star LL Orionis and its heliosphere interacting with interstellar gas and plasma near the edge of the Orion Nebula (M42). Unlike our star, LL Orionis displays a bow shock, something our Sun will regain when the ISM next collides with us at a sufficiently large relative velocity.



ASTRA-WEAR – Embroidered and/or Printed items with the ASTRA Logo

You can see some samples at ASTRA meetings. To order by mail: Shelter Cove Embroidery Co. 1333 Bay Ave Toms River, NJ 08753 call 732-506-7700 or E-mail astra-wear@estitches.com. Order form is on the ASTRA website.

ASTRONOMICAL ITEMS FOR SALE

If you have an astronomical item to sell, or need help with an astronomical problem (a question, or telescope setup) contact the President President@astra-nj.org to announce it at a meeting.

To advertise in the our monthly newsletter please send all information to Newsletter@astra-nj.org

2014 Calendar

- Sep 6 Fall Star Watch (7pm – 11pm)
Public star party at OCC
(Moon 4 days after 1st Qtr)
- Sep 12 ASTRA Meeting (7pm -11pm)
“Chemistry in the Universe” by Matthew McCue
- Sep 20 Star Party (8pm – 10pm)
Public star party at Jakes Branch
- Oct 10 ASTRA Meeting (7pm – 10pm)
Planetarium Show
- Nov 14 ASTRA Meeting (7pm – 10pm)
“Solar Update” by Bill Edelen
- Nov 29 Winter Star Watch (7pm -11pm)
Public star party at OCC
(Moon 1st Qtr)
- Dec 12 ASTRA Meeting (7pm – 10pm)
Awards, Open Meeting, Elections

**OCTOBER NEWSLETTER DEADLINE:
SEPTEMBER 19, 2014**

Did you know?

The International Space Station's length and width is about the size of a football field. Credit: NASA

