The Astronomical Society of the Toms River Area
www.astra-nj.org

# ASTRAL PROJECTIONS

Volume 21 Issue 10 **October 2010**

****** PLEASE NOTE ******

Due to the renovation of the planetarium, meetings are in the Solar Lounge beginning at 7:00 PM. The Solar Lounge is located in the Ocean County College Center building #15 across from the Planetarium.

## Meeting Schedule

**October 8th Meeting "Presentation on Lunar Eclispses" + Public Star Party**

A presentation and discussion on Lunar Eclispes will be given by Richard Mack. Also a reminder for the upcoming ASTRA ELECTIONS. Nominations for all offices shall be accepted by the October Meeting. Members can self-nominate or nominate someone that has agreed to serve if elected. Nominations and acceptance can be done at the regular meeting or in writing. The written self-nomination or acceptance must reach the club Officers by the October meeting. The Newsletter Editor shall mail ballots by the November meeting, at the direction of the Vice President-Secretary.

Observing outside the Solar Lounge "weather permitting"

## Comets

by Richard Mack.

I began the September 10th presentation by taking a model of a comet nucleus to where most comets begin, the Kuiper Belt or Ort Cloud .I told the audience that some type of force made the nucleus leave that region of space and send it towards our sun. A comet nucleus is nothing less than a dirty snowball that remains in a frozen state until it reaches the orbit of Jupiter, where enough energy from the sun begins to thaw the nucleus so it forms a coma and a tail. The closer to the sun that the comet gets the larger the coma and tail get and the velocity of the entire comet increases due to the suns gravity. As the comet goes around the sun, the tail always points away from the sun due to the pressure of the sunlight and the solar wind. Receding the comet begins to lose velocity as it goes back to the deep freeze tail first. I then did a slide show of various comets through the years and a good time was had by all. I would like to thank my assistant Erin for doing a super job in her role as the SUN!

## ASTRA Hotline

If you do not have online access to our website or message boards, you can call the ASTRA Hotline 609-971-8493 for the latest information on star parties and other observing plans. If you have a question about the club or astronomy in general, leave a message and we'll get back to you.

**ASTRA Library of Books & DVD's**

The following books and DVD's are available to borrow for one month at a time. Request for these items must be made prior to our regular meeting and returned the following meeting. Please e-mail your request for these items to John Endreson **webmaster@astra-nj.org** or call the ASTRA Hotline 609-971-8493

**BOOKS**

**1) The National Air and Space Museum** Second Edition by C.D.B. Bryan

**2) Milestones of Aviation** Smithsonian Institution National Air and Space Museum

**3) New Atlas of the Moon** by Serge Brunier (Author), Thierry Legault (Photographer).

**4) Encyclopedia of space** by National Geographic

**5) The Real Mars** by Michael Hanion

**DVD's**

**1) Parts 1&2 Understanding the Universe What's New in Astronomy 2003** Taught by: Professor Alex Filippenko. Each pert has 8 lectures, 45 minutes per lecture.

**2) Parts 1 to 5 Understanding the Universe An Introduction to Astronomy** Taught by: Professor Alex Filippenko each pert has 8 lectures, 45 minutes per lecture.

**3) COSMOS**
In his "ship of the imagination," Carl Sagan guides us to the farthest reaches of space and takes us back into the history of scientific inquiry in the course of 13 fascinating hours.

For a complete list of books and DVD's, visit our website or Call the ASTRA Hotline at 609-971-8493.

Reach for the Stars!
Ocean County College
ROBERT J. NOVINS
PLANETARIUM

## Re-Opening to the Public - October 16, 2010

The new planetarium theater features the latest projection technology to bring you the universe in innovative and exciting new ways. The planetarium dome is a virtual 3-D video space, allowing us to take you on a journey from the smallest size scales to the edge of the universe, and a new fiber-optic star projector will provide a beautiful, crisp view of the night sky. Public shows begin October 16th. Check back often for the latest information, special events, and how you can become a part of our universe.

For more information:
Recorded information: 732.255.0342
Planetarium Office: 732.255.0343
Planetarium Director: 732.255.0400 ext 2111
Email: planetarium@ocean.edu

## Wanted!

No longer used telescopes, parts, and accessories.
Call the ASTRA Hotline at 609-971-8493
We will come and pick-up your used equipment.

## ASTRA-WEAR: For 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

**October 2010 Celestial Events**

**3rd Evening:** The eclipsing binary star Algol is at its minimum brightness, magnitude 3.4 instead of its usual 2.2 for a couple of hours centered at 10:28 pm EDT.

**4th Predawn:** The star Regulus is about 6 deg. lower left of the waning crescent Moon.

**6th Dawn:** Mercury is visible just 8 deg. above the Eastern horizon left of the thin crescent Moon.

**7th New Moon: 2:24 pm EDT.**

**9th Evening twilight:** Shortly after sunset look for Venus, the waxing crescent Moon, and Mars just above the southwestern horizon.

**10,11th Dusk:** The Moon is lower right of Antares on the 10th and upper left of Antares on the 11th.

**14th First-Quarter Moon:** 5:27 pm EDT.

**19th Evening:** Jupiter is about 6 deg. below the Moon.

**22nd Full Moon:** 9:37 pm EDT

**23rd Evening and Night:** The shadows of both Europa and Ganymede fall on Jupiter from 9:40 to 11:04 pm EDT.

**25th Early Dawn:** The Pleiades are 2 deg. upper right of the Moon.

**30th Last-Quarter Moon:** 8:46 am EDT.

**31st Night:** The shadows of both Europa and Ganymede fall on Jupiter from 12:16 to 2:59 EDT.


## ASTRA Public Outreach & Star Parties Schedule for October

**Fall Star Watch - Fall Astronomy Day**
Fall Star Watch - Fall Astronomy Day Planetarium staff and members of the Astronomical Society of the Toms River Area (ASTRA) will setup their telescopes on campus to share views of the planets and stars. The Moon and Jupiter will be out, along with the constellations and celestial objects of the Fall season.
Date: Saturday, 10/16/2010
Time: 7:30 PM - 10:30 PM
Location: College Center Solar Lounge, Ocean County College, use parking lot # 2 on College Dr., Toms River, NJ 08754

**Jakes Branch Camp Out**
Date: Saturday, 10/16/2010
Time: 6:00 PM - 11:00 PM
Location: Jakes Branch County Park, Double Trouble Rd, Beachwood, NJ 08722

**Call the ASTRA Hotline 609-971-8493 or check the online message board on the date of the star party for up to date information on these events.**

## ASTRA Club Telescopes

*A.S.T.R.A.* owns two Dobsonian type telescopes of 6 inches and 8 inches in aperture and two refractors one 80mm Celestron w/Altaz mount and one 120mm Orion AstroView w/equatorial mount. After suitable training, club members may borrow these telescopes for a month at a time. Contact John Endreson at: Webmaster@astra-nj.org or call the ASTRA Hotline 609-971-8493 if you are interested is using one of our scopes.

**Astronomical Items for Sale, or Help Wanted Advertisements:**

If you have an item to Sell, or need help with an astronomical problem (a question, or Telescope setup) contact the President President@astra-nj.org or the ASTRA Hotline 609-971-8493 to announce it at a meeting and send the advertisement to the newsletter (See Newsletter below).

**Newsletter:** E-mail material (Meeting reports, Observing reports) to Newsletter@astra-nj.org

**EXECUTIVE BOARD**

**President –** Bob Salvatore, President@astra-nj.org;

**Vice President-Secretary** – John Endreson, VP@astra-nj.org;

**Treasurer** - Ro Spedaliere, Treasurer@astra-nj.org;

**Newsletter Editor –** John Endreson, Newsletter@astra-nj.org;

**Webmaster** - John Endreson, Webmaster@astra-nj.org.

Check us out on Facebook, search groups for ( ASTRA Astronomy ) and look for our logo.

# Encounters with Comet Hartley 2

An icy visitor is positioning itself for easier viewing in the coming weeks. Periodic Comet 103P/Hartley 2 won't have the pizzazz of Comet Hale-Bopp or the unexpected spectacle of Comet Holmes. But it will be high in the evening sky when at its best, glowing at perhaps 5th magnitude. It should be dimly visible to the unaided eye from very dark locations, and visible in binoculars and telescopes from almost anywhere in the Northern Hemisphere.

Hartley 2's brightness, and its unusually fast slide across the constellations, both result from how closely it will approach Earth: by just 0.12 astronomical unit (11 million miles; 18 million km) on October 20th. This will be its closest approach since its 1986 discovery and one of the closest approaches of any comet in the last few centuries.

On October 20th the fuzzy visitor passes just south of brilliant Capella. By the end of October the comet should still be around 5th magnitude — but now in Gemini. So it doesn't gain a high altitude until later in the night. Perihelion, 1.06 a.u. from the Sun, comes on the 28th — but that morning the nearly last-quarter Moon is just a few degrees away.


ASTRA is recognized as having one of the best public outreach programs in the country as recognized by Astronomy magazines “Out of this World” public outreach program. For more information go to http://nightsky.jpl.nasa.gov or contact Ro Spedaliere (Treasurer@astra-nj.org) or the ASTRA Hotline 609-971-8493

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) or the ASTRA Hotline 609-971-8493 and leave a message.

# The Hunt is On!

The world of astronomy was given new direction on August 13, 2010, with the publication of the Astro2010 Decadal Survey. Astro2010 is the latest in a series of surveys produced every 10 years by the National Research Council (NRC) of the National Academy of Sciences. This council is a team of senior astronomers who recommend priorities for the most important topics and missions for the next decade.

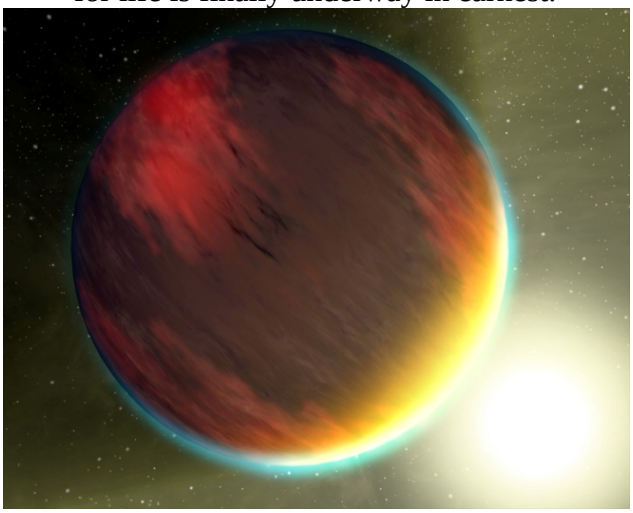
Up near the top of their list this decade is the search for Earth-like planets around other stars—called "extrasolar planets" or "exoplanets" —which has become one of the hottest topics in astronomy.

The first planet to be found orbiting a star like our Sun was discovered in 1995. The planet, called "51 Peg b," is a "Hot Jupiter." It is about 160 times the mass of Earth and orbits so close to its parent star that its gaseous "surface" is seared by its blazing sun. With no solid surface, and temperatures of about 1000 degrees Celsius (1700 Fahrenheit), there was no chance of finding life on this distant world. Since that discovery, astronomers have been on the hunt for smaller and more Earth-like planets, and today we know of around 470 extrasolar planets, ranging from about 4 times to 8000 times the mass of Earth.

This explosion in extrasolar planet discoveries is only set to get bigger, with a NASA mission called Kepler that was launched last year. After staring at a single small patch of sky for 43 days, Kepler has detected the definite signatures of seven new exoplanets, plus 706 "planetary candidates" that are unconfirmed and in need of further investigation. Kepler is likely to revolutionize our understanding of Earth's place in the Universe.

We don't yet have the technology to search for life on exoplanets. However, the infrared Spitzer Space Telescope has detected molecules that are the basic building blocks of life in two exoplanet atmospheres. Most extrasolar planets appear unsuitable for supporting life, but at least two lie within the "habitable zone" of their stars, where conditions are theoretically right for life to gain a foothold.

We are still a long way from detecting life on other worlds, but in the last 20 years, the number of known planets in our Universe has gone from the 8 in our own Solar System to almost 500. It's clear to everyone, including the Astro2010 decadal survey team, that the hunt for exoplanets is only just beginning, and the search for life is finally underway in earnest.



Caption: *Artist's rendering of hot gas planet HD209458b. Both the Hubble and Spitzer Space Telescopes have detected carbon dioxide, methane, and water vapor—in other words, the basic chemistry for life—in the atmosphere of this planet, although since it is a hot ball of gas, it would be unlikely to harbor life.*


# Group Purchase of Royal Astronomical Society Items

The ASTRA astronomy club is taking orders to try to make a bulk purchase of the Royal Astronomical Society of Canada (RASC) Observer's Handbook and Calendar for the coming year at a discount. The RASC has just set the prices. We will collect the discount price, which includes shipping and handling to ASTRA. If we do not meet the minimum order for discount, the money collected will be refunded.

The ***Observer's Handbook*** is a 320+ page guide published annually. The sections in the ***Observer's Handbook*** are of two kinds: **Sections dealing with astronomical events** that occur during the year, e.g. times of sunrise, sunset, moonrise, moonset, eclipses, meteor showers, star occultations by the Moon and by asteroids and a section called "The Sky Month By Month"; and **Sections dealing with astronomical data** and information that does not change from year to year

The ***Observer's Calendar*** has an astronomical photo for each month, times of sunrise, sunset, moonrise, moonset, phases of the moon, and the most important astronomical events that occur during the year.

| Item | Reg. Price & Shipping | Expected Disc. Price & Shipping |
|---|---|---|
| Observer's Handbook | $33.95 | $22.50 |
| Observer's Calendar | $23.95 | $16.00 |

| |
|---|
| Name: |
| Phone: (  ) |
| Member of which astronomy club: |

| Qty. | Item | Price each | Total |
|---|---|---|---|
| | | $ | $ |
| | | $ | $ |
| | | **Total** | **$** |

Please use this form to list what you want, make a check out to ASTRA, and give it to Randy Walton at an astronomy club meeting, or mail it to ASTRA c/o Robert J. Novins Planetarium, Ocean County College, P.O. Box 2001, Toms River NJ 08754-2001 by Oct. 8. Items will need to be picked up from Randy Walton at a club meeting, hopefully in November.