



ASTRAL PROJECTIONS

May 2012
Volume 23 Issue 5

Meeting Schedule

May 11th Meeting: Presentation "General Astronomy Talk"

by Sarah, Bill, and Erin

Date: Friday, 5-11-2012

Time: 7:00 PM - 10:00 PM

Location: Robert J. Novins
Planetarium, College Drive,
Ocean County College, Toms
River, NJ 08754

June ASTRA Meeting "TBA"

No Presentation is scheduled
for this meeting.

If you're interested in giving a
presentation please contact
ASTRA President John
Endreson at President@astranj.org

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Observing Saturn in May 2012

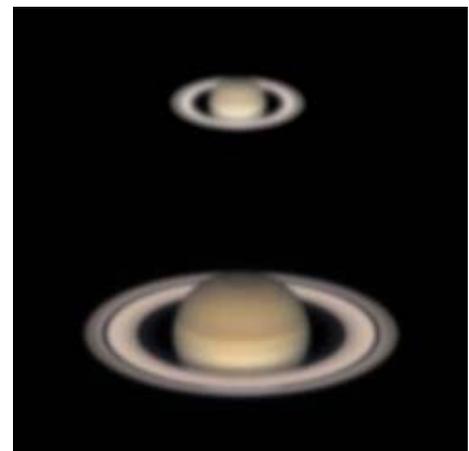


Ask amateur telescope users what's the most beautiful thing in the sky, and lots of them will say Saturn. In fact many say their first sight of it was what turned them on to astronomy. A view of Saturn in a good telescope often draws gasps from visitors, who after a lifetime of seeing cartoon ringed planets are awed by viewing the original.

But you can never see Saturn as well as you want! The planet is tiny as telescopic targets go; it's barely 21 arcseconds in diameter at its most favorable oppositions. Saturn's ring system is 2.25 times as wide as the ball — but that's still smaller than the width of Jupiter near opposition. And the disk itself shows only about 1/6 the area of Jupiter. Try to magnify it too much and it defies you by turning into a blurry mess. Saturn is indeed a jewel, exquisite but tiny.

These images suggest how the ringed planet Saturn might well look when seen through a telescope with an aperture 4 inches (100 mm) in diameter (*top*) and through a larger instrument with an 8-inch aperture (*bottom*).

However, with time, patience, and a top-quality 4-inch or larger telescope, you can tease out more of the planet's secrets than many observers suspect. But don't expect Hubble-like performance from your backyard telescope. The image pair on the right suggest how the ringed planet might look through a small telescope on a mediocre night (*top*) and through a larger, better telescope on a night when the air is especially still (*bottom*).



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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 609-971-3331 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

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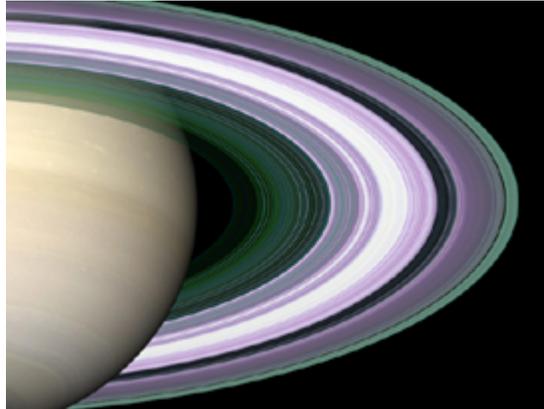
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Check us out on Facebook, search groups for (ASTRA Astronomy) and look for our logo.



What to Look for



NASA's Cassini spacecraft has found a whole new type of ring in Saturn's menagerie: the lumpy, incomplete ring arc.

The rings of Saturn should be visible in even the smallest telescope at

25x. A good 3-inch scope at 50x can show them as a separate structure detached on all sides from the ball of the planet.

Saturn has a more three-dimensional appearance than any other object in the sky — at least that's how it looks to me with a 6-inch scope on a night of fine seeing. The edges of the planet are limb-darkened, making Saturn look like a yellow-brown marble rather than just a disk, while the rings encircling it show no such effect and look as flat as a paper cutout. The planet's shadow on the rings adds to the 3-D appearance once you recognize the direction the sunlight is coming from and how the shadow is being cast.

The rings' thin shadow on the planet is subtler and visible only some of the time. It shifts from the inside edge to the outside edge of the ring system about every six months from our Earthly viewpoint. Saturn is prettier when the shadow is on the outside edge; a black line then divides the rings from the ball, improving the 3-D effect.

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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 609-971-3331

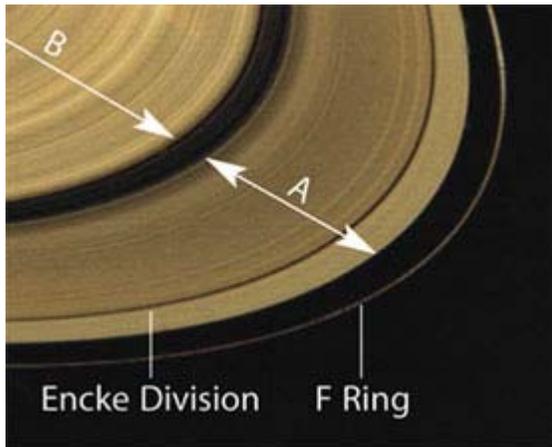
Details in the rings can be viewed with a small scope during spells of good seeing. The plainest is the black Cassini Division between the A and B rings. Its clarity is an excellent test of atmospheric steadiness and the telescope's optical quality. Shadings within the rings are even easier to discern. The outer A ring is plainly dimmer than the broader B ring inside it. To me, both the A and B rings seem to brighten smoothly to a maximum at the edges of the Cassini Division.

Dark belts and bright zones can often be made out on the ball of the planet. They're much vaguer than the similar belts and zones of Jupiter, but it's rare when my 6-inch reflector shows Saturn completely blank.

And, of course, there are Saturn's many moons. A 2-inch scope will show Titan. A half dozen are sometimes within reach of a 10-inch. You can use our [Saturn's satellites predictor](#) to create a map of all of Saturn's moons that are visible in amateur telescopes at any date and time.

That's about all Saturn displays to most observers. But there's more.

Looking Deeper



This enhanced-color image of Saturn's rings was taken in 1981 by the Voyager 1 spacecraft, which was then 1.6 million kilometers from the planet. All the labeled portions of the ring system, except ring F, are visible from Earth. Controversy surrounds the possibility that Earthbound observers may have seen ring F on several occasions in the 20th century. Click on the image for the complete photo.

In a high-quality planetary telescope of at least 6- or 8-inch aperture on a night of excellent seeing, the rings become more interesting. Near the outer edge of the A ring is the extremely thin **Encke Division**, an extreme test for any telescope. On a night when the seeing was so steady I could use 450x on my 12.5-inch reflector, I detected the Encke Division for the first time — a

complex blur of threadlike details during moments when the air was perfectly steady.

The rings also contain thin, grayish minima in brightness. Julius Benton, the Saturn section coordinator for the [Association of Lunar and Planetary Observers](#) (ALPO), claims that as many as 12 are detectable with large telescopes, "of which only about four show any real recurrent visibility from observing night to observing night." Interestingly, Benton claims these brightness minima are known to vary somewhat in both prominence and location.

Ring C, the crepe ring or dusky ring, can be either difficult or easy to make out. Many have seen it without knowing it. Evidence of the C ring is easy to spot when the rings' shadow on the ball appears on their outside. At such times the duskiest you see against the planet just *inside* the B ring is the semitransparent C.



Changes in the belts and zones become apparent, even obvious, to regular Saturn-watchers — one of the benefits of long-term study. The larger and better your scope the more likely you are to see enough detail to note changes in it.

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Whats up this month?

ASTRA Public Outreach & Star Parties Schedule for May 2012

46th annual Middle Atlantic Planetarium Society 2012 conference

Gloria Villalobos and the folks of the newly renovated Novins Planetarium Sky Theater at Ocean County College will host for the 46th annual Middle Atlantic Planetarium Society (MAPS) conference.

ASTRA members along with planetarium staff will host a star party at sunset (weather permitting) in front of the planetarium for conference attendees.

Date: Thursday, 5/17/2012

Time: 8:00 PM - 10:00 PM

Location: Robert J. Novins Planetarium, College Drive, Ocean County College, Toms River, NJ 08754

Spring Astronomy Day at Jakes Branch

This year's Spring Astronomy Day event is being held on Saturday May 19th at Jakes branch County Park in Beachwood from 1:00pm to 5:00pm for daytime presentations/displays and then 7:30pm to 11:00pm for nighttime observing.

Date: Saturday, 5/19/2012

Time: 1:00 PM - 5:00 PM then 7:30pm to 11:00pm for nighttime observing.

Location: Jakes Branch County Park, Double Trouble Rd, Beachwood, NJ 08722

Call the ASTRA Hotline 609-971-3331 or check the online message board on the date of the star party for up to date information on these events.



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 would like to join the AL, contact Astronomical League Coordinator (Alcor) Ro Spedaliere (Treasurer@astra-nj.org) or the ASTRA Hotline 609-971-3331 and leave a message.

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 609-971-3331

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 part 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 part 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 609-971-3331.

Club Telescopes



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

6-inch Dobsonian

8-inch Dobsonian

80mm Celestron Refractor

120mm EQ AstroView Refractor.

These telescopes are available for club members to borrow and use for a month or two at a time.

Wanted!

No longer used telescopes, Telescope parts, and accessories.

Call the ASTRA Hotline at 609-971-3331
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

Spots and other markings occasionally appear amid the belts and zones. Major white eruptions happen about every 30 years (once per Saturnian year). Lesser bright and dark spots appear more commonly. To predict when a spot will be back at the same location, remember that Saturn's equatorial parts rotate once in about 10 hours 14 minutes. Higher latitudes rotate more slowly, in about 10 hours 38 minutes.

Colors change on Saturn too, but only subtly. The best way to pin them down is to note the relative brightnesses of different areas as seen through red, green, and blue filters. Oddly, the two ends (*ansae*) of the ring system sometimes appear to differ slightly in color. Using red and blue filters, see if one end looks brighter than the other in either color of light.



Acquired in November 2000 by the [Hubble Space Telescope](#), this image shows Saturn with its rings open to almost their greatest extent. Most of the features visible here can be detected in large amateur telescopes — though not nearly as plainly and sharply as seen here. South is up.

Overall, I find that a yellow filter sharpens up the whole planet a trace, probably by suppressing the differences in atmospheric turbulence at the far ends of the spectrum. (Red and blue images quiver and shimmer out of phase with the yellow near the middle of the spectrum. This is the same effect that causes the bright winter star Sirius to twinkle in vivid colors.) A light green filter may slightly improve contrast in the planet's belts and zones.

