

# The Skyscraper

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The monthly publication of



Amateur Astronomical Society  
of Rhode Island

47 Peepthead Road  
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# The Skyscraper

June 2006

## June Meeting with Dr. Miguel Morales

FRIDAY, JUNE 2ND AT SEAGRAVE OBSERVATORY

Seeing the First Galaxies; radio observations of the early universe,  
peering through the primeval fog with radio light.

Dr. Miguel Morales is currently a postdoctoral fellow at the Harvard-Smithsonian Institute for Theory and Computation. His research interests fall into three related areas: observational cosmology, the transient universe, and the development of the advanced hardware and software needed for emerging astrophysics observations.

His primary research involves the Epoch of Reionization (EOR) as an emerging area of observational cosmology that focuses on the universe as the first luminous objects appear. The cosmic microwave background (CMB) shows us that the early universe was very, very smooth, while today matter is clumped into galaxies and clusters separated by enormous voids. Dr. Miguel Morales is also a member of the VLA Epoch Reionization Observation team.



Jupiter & Saturn, 797 & 762 stacked images, Meade 8" LX200 f/6.3, Phillips ToUcam 840K Pro II webcam. Photos by Tracey Haley.

## JUNE 2006

2

FRIDAY

7:30PM **June Meeting**  
Seagrave Observatory

3

SATURDAY

8:00PM **Public Observing Night**  
Seagrave Observatory,  
weather permitting

10

SATURDAY

8:00PM **Public Observing Night**  
Seagrave Observatory,  
weather permitting

17

SATURDAY

8:00PM **Public Observing Night**  
Seagrave Observatory,  
weather permitting

24

SATURDAY

8:00PM **Public Observing Night**  
Seagrave Observatory,  
weather permitting

## IN THIS ISSUE

PRESIDENT'S MESSAGE & ANNOUNCEMENTS Dave Huestis	2
WHITIN OBSERVATORY STAR PARTY	2
ASTRONOMICAL POTPOURRI IN JUNE Dave Huestis	3
PHOTOS FROM NEW MEXICO Tom Barbish, Dan Lorraine	4
NOT A MOMENT WASTED Dr. Tony Phillips	5

# President's Message

*Dave Huestis, President*

It's only been less than three weeks since our last monthly meeting, so I'll keep my comments short.

Thanks to Dan Lorraine for his beautiful powerpoint presentation on last months' Skyscraper trip to New Mexico. The images were outstanding, and the music was so well chosen to set the mood. I wish I could have gone on that trip. And thanks to Jack for his report of an alien encounter.

I'm still looking for a few volunteers to pen a contribution for the "How I Became an Amateur Astronomer" series. These stories have been very well received by the membership. Do you have a good story to tell? Please consider making a contribution for the July newsletter or beyond.

A don't forget that dues were payable in April. Please fill out the renewal form in its entirety so we can insure our records are complete. You may pay your dues at any meeting or you can send it to our mailing address. Continue your support of Skyscrapers as we approach the 75th anniversary (May 5, 2007) of our founding (May 5, 1932). Make checks payable to Skyscrapers, Inc.

We are pleased to have as our guest speaker, Dr. Miguel Morales from the Harvard-Smithsonian Center for Astrophysics. His presentation, "Seeing the First Galaxies", will focus on radio observations of the early universe.

Following the talk we will break for refreshments and then hold our business meeting.

See you at our June monthly meeting.

# Whitin Observatory Star Party

*Saturday, June 24*



By now you've probably heard about the wonderful observing night a group of Skyscraper members experienced during our visit to Van Vleck Observatory on April 15. The views of Saturn and his magnificent ring system were outstanding through their Clark refractor. Some of us even saw the spoke-like features in the ring plane at an unheard of magnification of just over 700X! The absolutely steadiest seeing I have ever seen provided incredible views that we will always remember. Even our hosts, members of the Astronomical Society of Greater Hartford, remarked that they had never seen such wonderful views.

Can such a night ever be repeated in such short order? Well, I'm ready to give it a try at our next star party scheduled at the historic Whitin Observatory on the Wellesley College campus in Massachusetts on Saturday, June 24. Skyscrapers will be granted exclusive access to the 12" Fitz/Clark refractor constructed in 1852 by Henry Fitz and then completely refigured in 1867 by the Alvan Clark Company, as well as the 6" Clark refractor manufactured by George Clark in 1890.

Visit their website at <http://www.wellesley.edu/Astronomy/>. There will be a modest fee of about \$3 or \$4 per person to pay the graduate student for operating the telescopes.

We will meet at Seagrave Observatory and car pool the 1 1/4 hours to Wellesley. Departure time will be 7:15 pm sharp. If it is more convenient for you to meet us there, by all means please do so. You may get directions from the above mentioned home page.

If you plan on going, please provide me your name, email address, phone number and number of people attending. On the day of the trip, please check the Skyscraper web site for any weather cancellation notice. I will also send out an email should we have to cancel. If you do not have email I will call you, so don't forget to include your phone number.





# Astronomical Potpourri in June

Dave Huestis

A little bit of astronomical variety for everyone! That's what we stargazers need right now. The weather has been so cloudy and rainy (writing this column on May 15) that I'd just be happy to see a glimpse of the Sun or Moon. We can only hope that once this deluge ends, clear skies will prevail for us to appreciate the night sky once again.

Many of us have been waiting for Jupiter to clear the tree-tops of our favorite observatories. We've observed Saturn all winter and early spring, and now we're ready to turn our gaze toward the largest planet in our solar system. I will pen a more detailed column about Jupiter next month, but for now I simply want to entice you to visit Seagrave Observatory any clear Saturday night, or Ladd Observatory any clear Tuesday night, for a great view of this dynamic world.

We hope to see a fairly new feature in Jupiter's cloud tops. It's called "Red Jr." This new spot formed from the merging of three spots in recent years. However, more recently it has turned red, much like its bigger brother, the Great Red Spot.

The Full Moon of June occurs on the 11th at 2:03 pm. While Full Moons' carry a wide variety of names, many of the more familiar ones come down to us from Native American culture. June's Full Moon is no exception, for it is called the Strawberry Moon. See accompanying artwork from Ruth Flanigan, wife of my best friend and kindred spirit Bill Guca. He's a proud member of the Mohegan tribe.

About 40 minutes after sunset you can spot a cluster of stars 20 degrees or so above the western horizon (an adult fist held at arm's length measures 10 degrees of sky, so two fists will get you in the

general area). This cluster is called the Beehive. At the beginning of the month you can spot Saturn just below this sprinkling of stars. Continue to watch as the month progresses, for reddish Mars, closer to the horizon at the beginning of the month, will begin to slide eastward towards the Beehive and Saturn.

On the 15th Mars is right in the middle of the cluster, and two nights later on the 17th he will pass within just over a Full Moon diameter of Saturn, which by then will have also moved further eastward relative to the cluster.

If you have access to a computer planetarium program you can speed up time and watch Mars and Saturn behave as bees as they buzz the Beehive cluster and each other. A thin crescent Moon slides by Mars on the 28th, making for a beautiful twilight spectacle.

Mercury is often a difficult planet for us Earth-bound amateur astronomers to observe because it never strays very far from the Sun's glare in our sky. Only when Mercury appears east or west of the Sun, as viewed from the Earth, do we have an opportunity to view this world.

During these favorable elongations, as they are called, Mercury can be seen in the western sky after sunset, or in the eastern sky before sunrise. Despite its elusiveness, Mercury's upcoming elongation in the western sky after sunset will provide us an acceptable view. On June 20, within a half hour after sunset, you should see Mercury with your naked-eye about 15 degrees above the sunset point.

Should you have a telescope you can train on Mercury you will notice that the planet is 39% illuminated, like a waxing crescent Moon just before First Quarter. If you begin observing Mercury earlier in the month you can watch him quickly go through



Artwork by Ruth Flanigan



phases like our Moon. For instance, on June 6, though Mercury will be much lower in the sky, the planet will be 66% illuminated. On the 14th it will be 50% lit.

After reaching its highest point in the sky on the 20th, Mercury will begin to slide back towards the horizon and the Sun. As it does so the percentage of illumination will decrease and the image size will become larger as it swings a little closer to the Earth. By July 1st Mercury will be a large thin crescent 20% lit and low in the western sky during twilight.

Be careful at all times when you search for

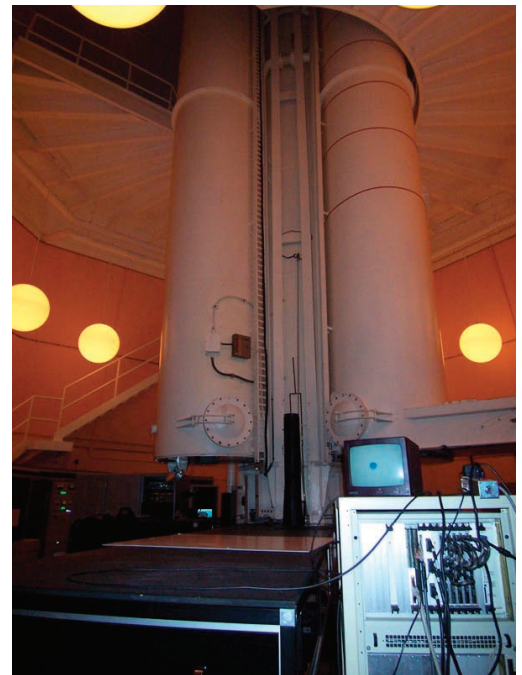
Mercury. Don't begin searching until after the Sun sets. You couldn't pick it out in the bright sky anyway, so don't be tempted to point your telescope or binoculars anywhere near the Sun.

And finally, the Summer Solstice occurs on June 21st at 8:26 am. Note how far north along your horizon the Sun rises and sets. Also note how high the Sun is in the sky at local noon time. That's the time when the Sun crosses your longitude and is due south of your location on the Earth's surface.

Keep your eyes to the skies.

## Photos from New Mexico

*April 22-29, 2006*



Left: Bruce Gillespe gives Skyscrapers members of personal tour of Apache Point Observatory. Photo by Dan Lorraine. Right: The National Solar Observatory: inside The Vacuum Tower (Dunn Solar Telescope). Photo by Tom Barbish.



Left: Inside the "Big Room" at Carlsbad Caverns. Photo by Tom Barbish. Right: Three Rivers Petroglyph site. Photo by Dan Lorraine. Below: Acoma Pueblo. Photo by Dan Lorraine.



# Not a Moment Wasted

By Dr. Tony Phillips

The Ring Nebula. Check. M13. Check. Next up: The Whirlpool galaxy.

You punch in the coordinates and your telescope takes off, slewing across the sky. You tap your feet and stare at the stars. These Messier marathons would go much faster if the telescope didn't take so long to slew. What a waste of time!

Don't tell that to the x-ray astronomers.

"We're putting our slew time to good use," explains Norbert Schartel, project scientist for the European Space Agency's XMM-Newton x-ray telescope. The telescope, named for Sir Isaac Newton, was launched into Earth orbit in 1999. It's now midway through an 11-year mission to study black holes, neutron stars, active galaxies and other violent denizens of the Universe that show up particularly well at x-ray wavelengths.

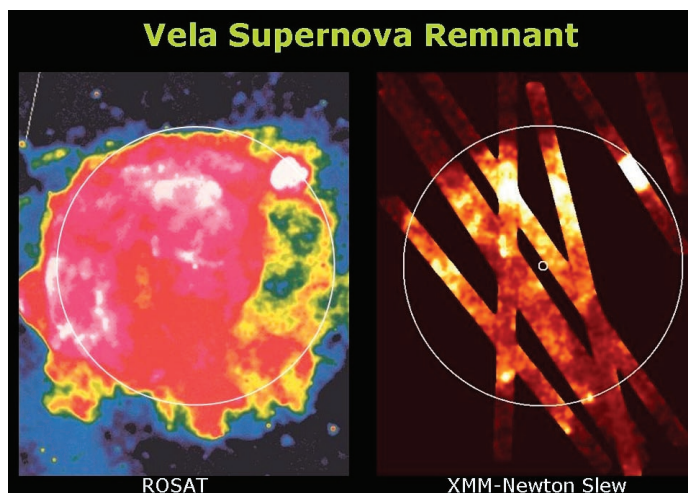
For the past four years, whenever XMM-Newton slewed from one object to another, astronomers kept the telescope's cameras running, recording whatever might drift through the field of view. The result is a stunning survey of the heavens covering 15% of the entire sky.

Sifting through the data, ESA astronomers have found entire clusters of galaxies unknown before anyone started paying attention to "slew time." Some already-known galaxies have been caught in the act of flaring—a sign, researchers believe, of a central black hole gobbling matter from nearby stars and interstellar clouds. Here in our own galaxy, the 20,000 year old Vela supernova remnant has been expanding. XMM-Newton has slewed across it many times, tracing its changing contours in exquisite detail.

The slew technique works because of XMM-Newton's great sensitivity. It has more collecting area than any other x-ray telescope in the history of astronomy. Sources flit through the field of view in only 10 seconds, but that's plenty of time in most cases to gather valuable data.

The work is just beginning. Astronomers plan to continue the slew survey, eventually mapping as much as 80% of the entire sky. No one knows how many new clusters will be found or how many black holes might be caught gobbling their neighbors. One thing's for sure: "There will be new discoveries," says Schartel.

Tap, tap, tap. The next time you're in the backyard



The image on the left is the Vela Supernova Remnant as imaged in X-rays by ROSAT. On the right are some of the slew images obtained by XMM-Newton in its "slew" time.

with your telescope, and it takes off for the Whirlpool galaxy, don't just stand there. Try to keep up with the moving eyepiece. Look, you never know what might drift by.

See some of the other XMM-Newton images at <http://sci.esa.int>. For more about XMM-Newton's Education and Public Outreach program, including downloadable classroom materials, go to <http://xmm.sonoma.edu>. Kids can learn about black holes and play "Black Hole Rescue" at The Space Place, <http://spaceplace.nasa.gov/>, under "Games."



# Directions to Seagrave Memorial Observatory

## **From the Providence area:**

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

## **From Coventry/West Warwick area:**

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

## **From Southern Rhode Island:**

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

## **From Northern Rhode Island:**

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

## **From Connecticut:**

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

## **From Massachusetts:**

Take Interstate 295 South (off Interstate 95 in Attleboro.) Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 PEEPTOAD ROAD  
NORTH SCITUATE, RI 02857