



INSIDE THIS ISSUE:

President's Message	1
Club Meetings	1
Photos	2
Starry Night	3
Moon	4
Night Sky Network	4

**THE MORRIS MUSEUM
ASTRONOMICAL SOCIETY**

President - Ron Russo
 Vice-President - Bill Eberly
 Secretary - Mike Sargent
 Treasurer - John Malley
 HH Editor - Leslie Coale
 Web Master & Newsletter Editor
 Anthony Pisano

The *Heavenly Herald* is produced quarterly for the membership of the Morris Museum Astronomical

CONTACT INFORMATION

Address:
 6 Normandy Hts. Rd.
 Morristown, NJ. 07960
 973 386-1848
 Email:
ajpisano@optonline.net
 Web Address:
mmastrosociety.tripod.com

Member of



PRESIDENT'S MESSAGE

Ron Russo, President

Members of the MMAS are saying goodbye to the snowy cold weather and hello to the rainy warm weather. Many of us like to use our telescopes when it is not too cold outside, so we have a lot to look forward to this spring.

We will be having the dedication of the Ted Barker Solar Observatory on **5/30/09 at 3:00 pm**. The Solar observatory will have an 8 inch go to telescope with a mylar filter, 1000 Oaks filter & H Alpha filter. The UACNJ is dedicating the observatory to its past President Ted Barker. Ted was president in 2004 & 2005 and Vice President in 2002 & 2003. Ted was also chairman of many of the other UACNJ committees. As many of you know, Ted was a driving force at the MMAS and we would like to show our appreciation to him by having a grand turn out to the dedication. Please mark your calendars.

The end of March will also bring our an-

nual Astronomy Day at the Morris Museum. We are planning to having multiple speakers and different exhibits. I hope you as members can make some time and come out and support our efforts with the museum staff. This is always a highlight of our year.

I have spoken to Sheep Hill Astronomical Society and they have invited all our members to see their observatory on Friday, April 17th & again on May 15th. The observatory will open at 8:00 pm. They have a 16 inch telescope that they will be happy to show us. I remember the first time I looked through their old telescope in 1975 or 1976. I saw Saturn, it was beautiful. Back then there was not as much light pollution.

The MMAS is planning to do some solar observing for the public at the Morris County Library on a Saturday or Sunday in March. If you are interested in solar observing please call me at my office for details 973-386-1848.

CLUB MEETINGS

- March 12 - Don Sigalewitch - Why we are alone?
- March ?? - Solar observing - Morris County Library
- March 20 - Observing at Sheep Hill Observatory in Boonton
- March 28 - Astronomy Day at the Museum**
- March 31 - Observe ring at Chatham HS 8:00pm (rain date Apr. 29)
- April 9 - Al Witzgal - Apollo 13: The Real Story
- April 17 - Observing at Sheep Hill Observatory in Boonton
- May 14 - Jim Delillo - Remote Astrophotography and family stargazing night at the museum
- May 30 - Ted Barker Solar Observatory dedication at UACNJ**

**Monthly Meetings are the second Thursday of each month at 7:30 p.m.
 During July & August check the web site for specific information.**

Holiday Party 2008



Preserving the Starry Night in the Glare of Light Pollution

AP - DEATH VALLEY NATIONAL PARK, Calif.

High atop Dante's View, overlooking sheets of salt flats and ribbons of sand dunes, Dan Duriscoe shined a laser beam at the North Star and steadied his digital camera at the starry heavens. Click. The sky looks dark. Mr. Duriscoe panned the camera toward the light factory of Las Vegas, 85 miles away. Click. The sky is on fire.

"You can see the Luxor vertical beam," said Mr. Duriscoe, pointing to a shot on his camera-connected laptop showing the searchlight of the Luxor, the pyramid-shaped hotel on the Vegas Strip. "That's the brightest thing out there."

Acclaimed for its ink-black skies, Death Valley, the hottest place in North America, ranks among the nation's unspoiled star-gazing spots. But the vista has grown blurry.

The neon glow from Las Vegas and its fast-growing bedroom communities is stealing stars from the park's eastern fringe. New research reveals that light pollution from Las Vegas increased 61 percent from 2001 to 2007, making it appear brighter than the planet Venus on clear nights as seen from Dante's View.

Mr. Duriscoe, a scientist with the National Park Service, is part of a team of night owls whose job is to gaze at the sky and monitor light pollution in parks. "What is alarming to me is, what's going to happen three or four generations from now if this growth of outdoor lights continues?" he asked.

Amid such concerns, Death Valley, the largest national park in the Lower 48, has set out to be the first official dark-sky national park. Studies have shown exposure to artificial lights can interrupt animals' biological clocks and disrupt ecosystems. Migratory birds have been known to be confused by blinding lights on skyscrapers and fly into them. Last year, the cancer arm of the World Health Organization listed the graveyard shift, where workers toil under artificial lights, as a probable carcinogen.

The International Dark-Sky Association, an Arizona-based nonprofit whose slogan is "Carpe Noctem," has noticed an increased awareness of light pollution, but acknowledged limits.

"I don't think you can get Paris to turn off the Eiffel Tower or persuade Times Square to turn off all of its lights," said Pete Strasser, the group's managing director.

The same could probably be said for Las Vegas. "It's the selling point of Las Vegas," said Barbara Ginoulas, director of comprehensive planning for Clark County, Nev., which includes Las Vegas. Still, she added, "We're certainly cognizant of light pollution, and we try to address it in the best way."

Ms. Ginoulas's department oversees parts of Clark County, which are required to shield outdoor lights or cast the light downward. Next month, the County Commission will consider an ordinance to set standards on digital billboards on Interstate 15, along the Strip. On the city's main drag, Las Vegas Boulevard, Ms. Ginoulas said, signs are reviewed case by case.

With no control over Las Vegas, Death Valley rangers are looking to fix the problem at home as they aim to be a dark-sky national park. To achieve that, the park must shield or change two-thirds of its outdoor fixtures. Death Valley has about 700 lights in its 3.3 million acres.

So far, Gold Tier Natural Bridges National Monument in Utah and Cherry Springs State Park in Pennsylvania are the only two parks certified by the International Dark-Sky Association as dark-sky enclaves. This fall, the group gave tentative approval to the Geauga Park District's Observatory Park east of Cleveland.

Article submissions for
future issues.
Please send to Anthony at
ajpisano@optonline.net

Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public



THE MOON

Mar. 2009



First quarter 3
Full moon 11
Last quarter 19
New moon 26

Apr. 2009



First quarter 2
Full moon 10
Last quarter 17
New moon 24

May. 2009



First quarter 1
Full moon 9
Last quarter 17
New Moon 25

LINKS

www.badastronomy.com

www.heavens-above.com

www.nasa.gov/audience/forkids/kidsclub/flash/index.html

www.space.com

www.astronomycafe.net

www.amsky.com

www.skyandtelescope.com

www.scopereviews.com

Pope praises Galileo's astronomy

Pope Benedict XVI has paid tribute to 17th-Century astronomer Galileo Galilei, whose scientific theories once drew the wrath of the Catholic Church. The Pope was speaking at events marking the 400th anniversary of Galileo's earliest observations with a telescope. He said an understanding of the laws of nature could stimulate appreciation of God's work. In 1992, Pope John Paul said the church's denunciation of Galileo's work had been a tragic error. Galileo used his scientific methods to demonstrate that the Earth revolved around the Sun and not the other way around. His view directly challenged the church's view at the time - that the Earth was static and at the centre of the universe. Galileo was accused of heresy in 1633 and forced to publically recant his theories. He lived the rest of his life under house arrest at his villa in the hills outside Florence. Pope Benedict had been criticised in the past for appearing to condone the heresy verdict against Galileo.

Red (Planet) Alert: Massive Subsurface Glaciers Discovered on Mars

The more we learn about Mars, it seems, the icier the Red Planet appears to be. The recently departed Phoenix lander dug up water ice and even spotted falling snow from its position in the northern polar plains. And now data from the Mars Reconnaissance Orbiter point to vast glaciers buried beneath thin layers of crustal debris, much closer to the equator.

The findings, published today in *Science*, come from the spacecraft's shallow radar, or SHARAD, which is able to penetrate the surface and examine what lies beneath. In this case, SHARAD indicated that two long-visible mid-latitude features, one of which is roughly three times the size of Los Angeles, are almost completely composed of water ice. (The suspect glaciers are covered by debris that obscures them but also insulates the ice from sublimating into water vapor, much as street grit forms an opaque, protective blanket over roadside snowbanks.)

Some researchers had believed the features, which are plentiful at Martian mid-latitudes, were primarily rock, lubricated by a relatively small amount of ice, says study co-author Roger Phillips, a planetary scientist at the Southwest Research Institute in Boulder, Colo. But the SHARAD results suggest a generally homogeneous glacier largely lacking in internal rock fragments. "I was surprised that the ice appears so clean in the radar data and that the surface layer is so thin," says lead author Jack Holt, a geophysicist at the University of Texas at Austin. Victor Baker, a planetary scientist at the University of Arizona in Tucson who did not contribute to the study, says the evidence for water ice glaciers is compelling. "It's still an indirect measurement, but I'm totally convinced that it's ice," he says. "It's a physical measurement that you can't really interpret in any way other than the presence of ice."

Baker says that studies of Mars's surface indicate a history of glacial features in the planet's distant past. "Now what's a little bit surprising in some ways," he adds, "is that the ice is still there." Indeed, Mars's climate is not hospitable to ice formation so close to the planet's equator. (The researchers focused on the latitude band stretching from 30 to 60 degrees south latitude—on Earth, Porto Alegre, Brazil, is roughly 30 degrees south of the equator.)

"Ice should not accumulate, nor can it exist, at [the] surface at these latitudes under the current climate of Mars," Holt says. "So in addition to a protective layer, it requires regional glaciations in the past." Without a sizable moon to stabilize it, the authors point out, Mars's axial tilt is much less stable than that of Earth, causing fluctuations in its climate over time.

It's unclear how much ice is in these formations, but one of the features surveyed appears to be roughly a half mile (0.8 kilometer) thick. Phillips notes that SHARAD is not finished peering into glaciers. "We haven't surveyed the entire mid-latitudes region yet," he says. (The current study focuses on the southern hemisphere alone but notes that similar features exist north of the equator, as well.)

With more time and more sweeps of the Mars Reconnaissance Orbiter subsurface radar, the researchers say, they will be able to better estimate the ice's volume. But taken together, the glaciers could constitute the largest stores of water on Mars outside its polar regions.

Those stores, Baker says, would be key to potential human exploration of Mars. "Ice is the critical resource," he says, noting that solar energy—which is more abundant at lower latitudes—can be harnessed to yield hydrogen and oxygen. "Mars doesn't have much free oxygen, and people need that to breathe. And hydrogen is a great fuel for getting back from Mars."

For more
information,
please call
973.971.3720

MORRIS MUSEUM ASTRONOMICAL SOCIETY

<http://mmastrosociety.tripod.com>

ASTRONOMY DAY 2009

Saturday, March 28
10 a.m. - 4 p.m., 7 - 9 p.m.

Join the Morris Museum Astronomical Society for a day that will be out of this world! Tour the exhibition, *The Space Spot* and take part in lectures, planetarium shows, a children's art workshop, telescope training and night sky ob-



Lectures:

Life in the Universe
Karl Hricko
12:45 p.m.

**Remote Astrophotography from
the Ground Up**
Jim DeLillo
2:45 p.m.

Star Parties
Ronald Schmahl
3:45 p.m.



Presentations:

How Telescopes Work
Joe Molnar
10:45 a.m.



Star Stories
John Scale
11:45 a.m.



Exploring the Universe
Joe Molnar
1:45 p.m.

Planetarium Shows (\$2.00 per person)

10:30 a.m., 11:15 a.m., 12:30 p.m., 1:15 p.m., 2:15 p.m., and 3 p.m.

Children's Art Workshop: Mini Rockets
Noon - 2 p.m.



Additional Activities Include:

Telescope training and telescope display
solar & night sky observing (weather permitting)

FREE with museum admission.



6 Normandy Heights Rd.
Morristown, NJ 07960
www.morrismuseum.org



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