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**THE MORRIS MUSEUM  
ASTRONOMICAL SOCIETY**

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

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Member of



## MESSAGE FROM THE PRESIDENT

*Ron Russo, President*

I am pleased to report that we had a very good Astronomy Day 2010. For all of our members that participated, thank you for your help in making it a success. This year we had two astronauts, Brian Duffy and Tim Terry attend. They conducted a presentation with some video's and props. After their talk, they conducted a question and answer session with the audience.

The club signed up two new members and we had several people that asked for help with their telescopes. Anthony Pisano and Joe Molnar were able to help them with their issues and conducted training with the scopes. The public that returned for the observing at night was pleased. The skies were not the best but were good enough to show Mars, the

moon, and the Orion Nebula, just to mention a few.

We are heading into the warmer seasons now and I hope our members will get to see more of the stars and planets. We will be conducting telescope training for those of our members that are unfamiliar with our equipment. The club has two scopes that members can be trained on. The first is our old C-8 and secondly is our Meade LX90 go-to scope. Any member wanting to use the scopes needs to be trained and qualified in their use. Please contact me ([ron@roned.com](mailto:ron@roned.com)) if you are interested in getting trained so we can set up a class.

I hope you all enjoy the warm weather and that we see you at our Thursday evening meetings and at Jenny Jump.

## CLUB MEETINGS

- April 8 - Laura Venner - "Why Pluto Was Demoted"
- April 19 - Outreach Observing
- May 13 - Joe Molnar - "Exploring the Solar System"
- June 10 - Pizza Party

Monthly Meetings are the second Thursday of each month at 7:30 p.m. During Jan., Feb., Jul., & Aug. check the web site for specific information.

## NASA Reveals First-ever Photo of Liquid on Another World

**N**ASA scientists revealed Friday a first-of-its-kind image from space showing reflecting sunlight from a lake on Saturn's largest moon, Titan. It's the first visual "smoking gun" evidence of liquid on the northern hemisphere of the moon, scientists said, and the first-ever photo from another world showing a "specular reflection" -- which is reflection of light from an extremely smooth surface and in this case, a liquid one.

"This is the first time outside Earth we've seen specular reflection from another liquid from another body," said Ralf Jaumann, a scientist analyzing data from the Cassini unmanned space probe.

Jaumann said he was surprised when he first saw the photos transmitting from Cassini, orbiting Saturn about a billion miles from Earth.

"It was great because if you look at photos of planets, you mostly see nothing is happening. But in two hours we saw a glint of light getting brighter."

Titan's similarities to Earth have attracted NASA's attention for decades. It's the only body besides our own in the solar system that is believed to have liquid on its surface. Like Earth, Titan has an atmosphere which is mostly nitrogen.

Experts believe the presence of liquid on a planet or moon improves the chances that some kind of life could develop there.

The photo comes from the spacecraft Cassini, which has been searching for this kind of reflection since it began circling Saturn in 2004.

Scientists with the University of Arizona were able to use previous data from Cassini to learn details about the reflection's location on Titan.

The glint appears to be coming from the southern edge of a lake called Kraken Mare -- a massive body of methane that covers about 150,000 square miles (400,000 square kilometers). That's larger than the Caspian Sea, which is the largest lake on Earth.

The hunt for the specular reflection took five years, NASA said, because the moon's northern half had been shrouded in winter darkness.

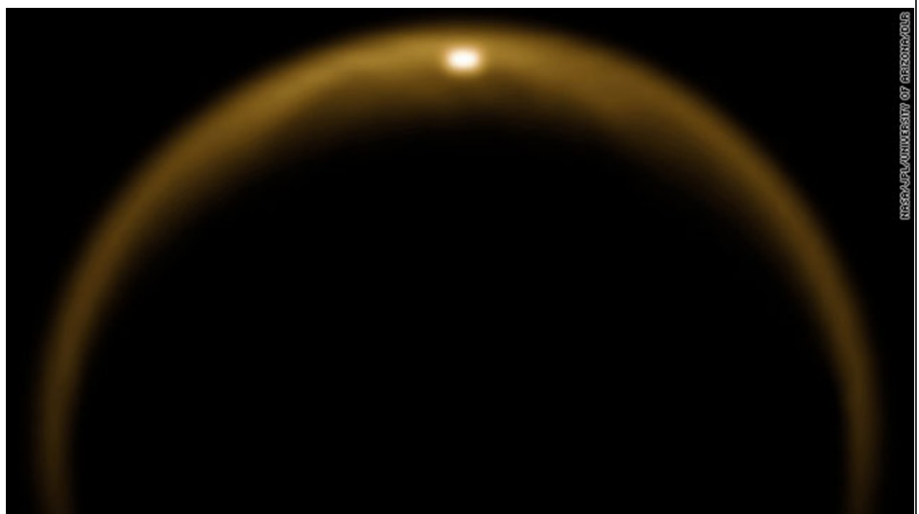
"Next, we want to find out more about Titan's liquid," said Jaumann. "Do we have some kind of weather there? Do we have changes with seasons? Does it rain? How does the liquid methane run across the surface?"

But Jaumann sounded a note of caution regarding the prospect of life in this case.

"The temperature on Titan's surface is something like minus-180 degrees Celsius," he said. "That means it's very cold. But you never know."

The project is based out of NASA's Jet Propulsion Laboratory in Pasadena, California.

This is not the first evidence of liquid on Titan. In 2008, project members used infrared technology to discover a large lake in the moon's southern hemisphere. But this recent discovery is a sure sign that liquid exists on the moon's northern half. That region is believed to include larger basins that could hold more liquid.



A photo from Cassini shows sunlight reflecting from a giant lake of methane on the northern half of Saturn's moon Titan.

## Space pictures taken from garden shed

**P**eter Shah, 38, cut a hole in the roof of his wooden shed and set up his modest eight-inch telescope inside. After months of patiently waiting for the right moment he emerged with a series of striking images of the Milky Way.

His photographs of a vivid variety of star clusters light years from Earth have been compared to the images taken from the £2.5 billion Hubble space telescope.

But it cost Mr Shah just £20,000 to equip his garden shed with a telescope linked to his home computer. He said: "Most men like to potter about in their garden shed – but mine is a bit more high tech than most.

"I have fitted it with a sliding roof so I can sit in comfort and look at the heavens. I have a very modest set up but it just goes to show that a window to the universe is there for all of us – even with the smallest budgets.



"I had to be patient and take the images over a period of several months because the skies in Britain are often clouded over and you need clear conditions."

Office worker Mr Shah, who lives in a hillside bungalow at Meifod, near Welshpool, Powys, has been an avid astronomer since his mother bought him a £5 telescope when he was seven.

The superb photos, each made up of about 30 frames, are being published in a new book entitled *Mirror Image*. Mr Shah's wife Lisa has supported him through his long nights of stargazing – supplying endless cups of coffee.

His images have been brought together for the first time in a book called *Mirror Image*. Images from the book and other photographs can be viewed at <http://www.astropix.co.uk>

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## Welcome to the Milky Way Transit Authority : Big Pic

**A**ssuming you had an interstellar spaceship, how would you navigate around the galaxy? For starters, you'd probably need a map. But there's billions of stars out there, how could you orientate a map to find the quickest route from Earth to the exoplanet called Gliese 777 b (in the constellation of Cygnus) for example?

You could just plot a route directly to your planned destination, but that would mean traversing the badlands between the Milky Way's spiral arms that contain few stars (and, presumably, few interstellar gas stations) than if you followed the curving arms.

In the style of London's famous Tube Map, Samuel Arbesman, research fellow at Harvard Medical School, has re-imagined the Milky Way, simplifying our cosmic home. Although the Milky Way Transit Authority (MWTA) was created for fun and pure curiosity, it does provide an accurate insight to the scale and locations of various nebulae, clusters and the solar system's location (Sol) in our galaxy.

The original London "Tube Map" was designed by Harry Beck in 1931 who realized that from the perspective of a traveler inside one of the underground carriages, the physical locations of train stations were irrelevant. This is when Beck designed the various colored lines of the London Underground in the form of a basic circuit board-like diagram. The simplicity of the design has led to its widespread use in cities around the world.

Now, the postdoctorate researcher from Harvard has applied Beck's thinking to something a little larger than a metropolitan railway.

"I had re-read Carl Sagan's novel about a year ago, and in the story he alludes to some sort of cosmic Grand Central Station," he told Discovery News. "That, coupled with my

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# Night Sky Network

Astronomy Clubs bringing the wonders of the universe to the public



## THE MOON

### APR. 2010



Last quarter 7  
 New moon 14  
 First quarter 21  
 Full moon 28

### MAY. 2010



Last quarter 7  
 New moon 14  
 First quarter 21  
 Full moon 28

### JUN. 2010



Last quarter 4  
 New moon 11  
 First quarter 18  
 Full moon 25

## LINKS

[www.badastronomy.com](http://www.badastronomy.com)

[www.heavens-above.com](http://www.heavens-above.com)

[www.nasa.gov/audience/forkids/kidsclub/flash/index.html](http://www.nasa.gov/audience/forkids/kidsclub/flash/index.html)

[www.space.com](http://www.space.com)

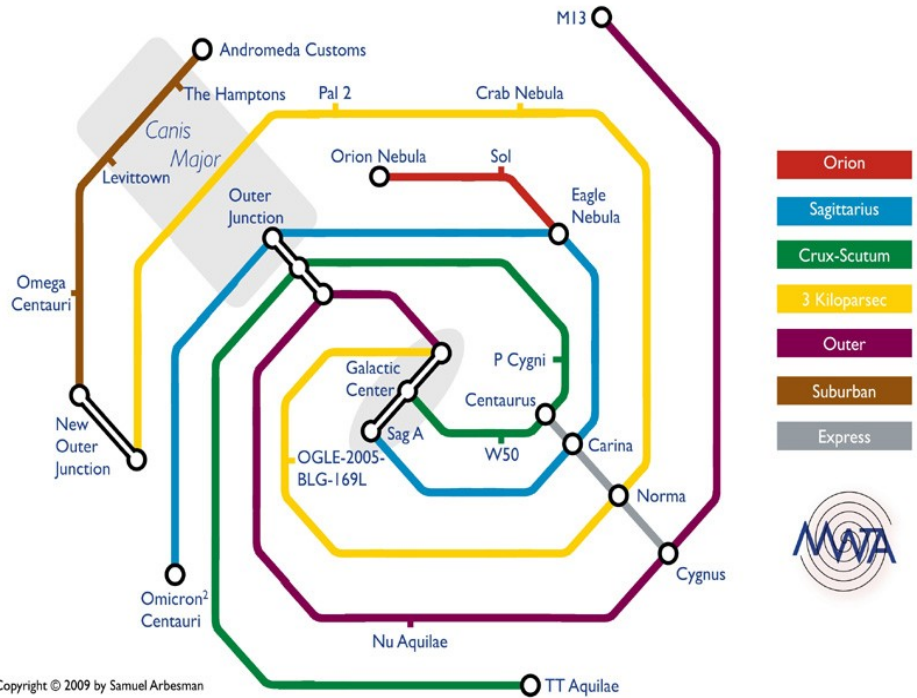
[www.astronomycafe.net](http://www.astronomycafe.net)

[www.amsky.com](http://www.amsky.com)

[www.skyandtelescope.com](http://www.skyandtelescope.com)

[www.scopereviews.com](http://www.scopereviews.com)

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## Milky Way Transit Authority

longtime interest in transit maps, got me thinking about how to understand the vastness of our own galaxy by using the concept of transit maps."

In this case, Grand Central Station can be found in the center of the Milky Way's transit system, consisting of three "stations" where four transit lines branch out. Each line represents one of the spiral arms of our galaxy. Each arm is composed of billions of stars that orbit the galactic core, so it's not a massive leap of the imagination to think that a sufficiently developed galactic civilization might travel along these densely populated spiral arms.

"Since transit maps are essentially beautiful abstractions for distilling a city down to a set of linkages and interconnections, perhaps a similar sort of thing could be done for the Milky Way," he added.

So, what about that trip to Cygnus? Be sure to purchase a Day Pass ticket, take the Orion (Red) Line to the Eagle Nebula, then jump on the Sagittarius (Blue) Line to Carina. Be warned, I hear the station at Carina is expecting some demolition work soon, so jump on the Express to Cygnus as fast as you can to avoid delay (and radiation poisoning).

