NORTH HOUSTON ASTRONOMY CLUB

March 2012
Volume XII No. 3

North Star Newsletter

NHAC General Meeting

February 24, 2012

Novice Program

"A Novice's Approach to Astrophotography"
by Allan Hall
6:30 - 7:15pm in the Cosmic Forum, upstairs in the CLA building

Main Presentation

Beginning at 7:30pm in the building CLA Teaching Theater, featuring:

- NHAC news and announcements
- "*What's Up Doc?*" by Aaron Clevenson

Featured Speaker

Tom Williams, PhD
HAS
"*The Early History of Amateur Astronomy in Houston*"

Inside This Issue

The Deadline for submissions for the April 2012 newsletter is March 15, 2012.

Thank You!

At our January meeting, Dr. C Renée James gave a wonderful and inspiring talk on the importance of scientific exploration, even when it may seem to have no immediately apparent utility. She supported this argument with numerous examples that demonstrated many current-day, widely used technologies that were more or less stumbled upon as a result of some previous, unrelated scientific exploration. It was fun and eye opening and her point was certainly well made. Thank you so much Dr. James!

News and Tidbits

Big Bend National Park Designated as International Dark Sky Park

6 February, 2012 – TUCSON, AZ The stars at night are big and bright in Texas' Big Bend National Park. The park was recently designated as an International Dark Sky Park, one of now just ten in the world. Big Bend National Park (BBNP) came in at the 'Gold Tier' level meaning that the skies above the park are free from all but the most minor impacts of light pollution.

Got a Favorite Piece of Equipment?

If you have a favorite piece of equipment, a novel way of solving a problem, or a shortcut for making observing easier, bring it to the monthly meeting for the **"Show-And-Tell"** segment. Each presentation should take about 3 - 5 minutes and all ideas are welcome. Please submit your idea to Program Committee Chair, at *program@astronomyclub.org* before the next meeting so that he can reserve a spot for your presentation.

Special Club Rate Magazine Subscriptions

Club rates for personal subscriptions to ASTRONOMY and SKY & TELESCOPE magazines save about 25% over the normal subscription costs. Each magazine has its own procedure to subscribe based upon initiating the order through the club treasurer.

For ASTRONOMY magazine, write your check to NHAC (or pay in cash) for $34 (or $60 for 2 years). The Treasurer then validates your membership by writing a club check for the same amount to the magazine and sending them your address. Renewals must also be processed through the club. Please save your renewal documents for this process.

For SKY & TELESCOPE, pay the club $33 (or $32.95 if by check). As above, we write a club check to validate your membership and start your subscription. SKY & TELESCOPE renewals are processed directly by the subscriber.

Be sure to include a clearly printed name and address sheet for any new subscriptions.

2012 NHAC Officers

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NHAC is a proud member of:

From the Treasurer

Don't forget to renew your membership!

Dues for regular members expired at the end of December. You may pay 2012 dues now. If you haven't renewed by the end of February, you will be dropped from the roster. Dues for 2012 remain the same, $25.00 for an Individual and $30.00 for a Family.

Student memberships are $5.00 and are valid for one year from the date joined.

If you have any questions about your current status, please see Mary Moore before or after any meeting or email her at Treasurer@astronomyclub.org.

The 2012 calendars are in and spectacular! They are $10.00 each and you can purchase them at any meeting!

Remember to check out the North Houston Astronomy Club Facebook and Twitter pages:

http://www.facebook.com/NorthHoustonAstronomyClub

http://www.twitter.com/NHAC_Info

The Many Moods of Titan

by Jia-Rui Cook and
Elizabeth Zubritsky

A set of recent papers, many of which draw on data from NASA's Cassini spacecraft, reveal new details in the emerging picture of how Saturn's moon Titan shifts with the seasons and even throughout the day. The papers, published in the journal Planetary and Space Science in a special issue titled "Titan through Time", show how this largest moon of Saturn is a cousin - though a very peculiar cousin - of Earth.

"As a whole, these papers give us some new pieces in the jigsaw puzzle that is Titan," said Conor Nixon, a Cassini team scientist at the NASA Goddard Space Flight Center, Greenbelt, Md., who co-edited the special issue with Ralph Lorenz, a Cassini team scientist based at the Johns Hopkins University Applied Physics Laboratory, Laurel, Md. "They show us in detail how Titan's atmosphere and surface behave like Earth's - with clouds, rainfall, river valleys and lakes. They show us that the seasons change, too, on Titan, although in unexpected ways."

A paper led by Stephane Le Mouelic, a Cassini team associate at the French National Center for Scientific Research (CNRS) at the University of Nantes, highlights the kind of seasonal changes that occur at Titan with a set of the best looks yet at the vast north polar cloud.

A newly published selection of images - made from data collected by Cassini's visual and infrared mapping spectrometer over five years - shows how the cloud thinned out and retreated as winter turned to spring in the northern hemisphere.

Cassini first detected the cloud, which scientists think is composed of ethane, shortly after its arrival in the Saturn system in 2004. The first really good opportunity for the spectrometer to observe the half-lit north pole occurred on December 2006. At that time, the cloud appeared to cover the north pole completely down to about 55 degrees north latitude. But in the 2009 images, the cloud cover had so many gaps it unveiled to Cassini's view the hydrocarbon sea known as Kraken Mare and surrounding lakes.

"Snapshot by snapshot, these images give Cassini scientists concrete evidence that Titan's atmosphere changes with the seasons," said Le Mouelic. "We can't wait to see more of the surface, in particular in the northern land of lakes and seas."

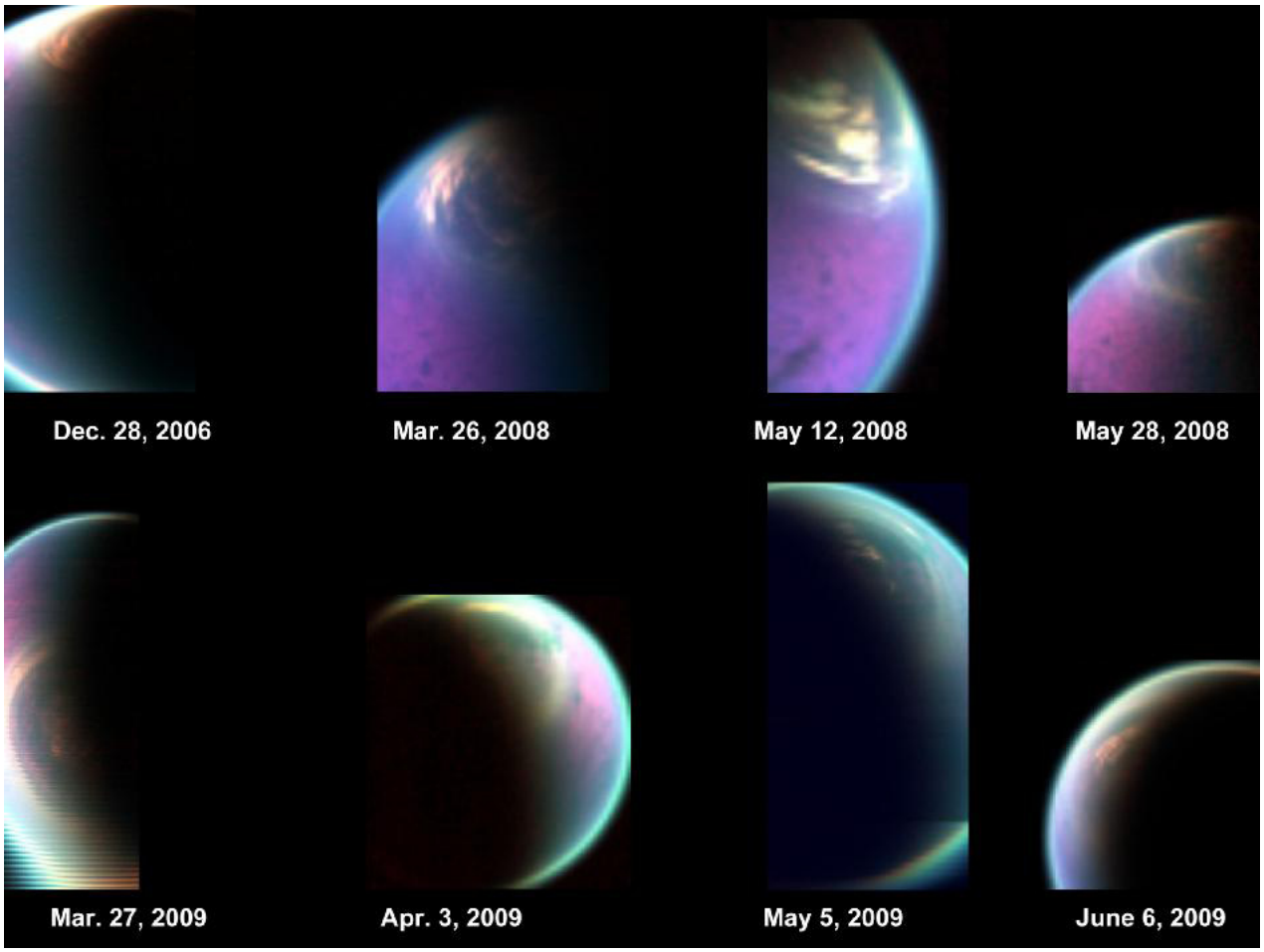
In data gathered by Cassini's composite infrared mapping spectrometer to analyze temperatures on Titan's surface, not only did scientists see seasonal change on Titan, but they also saw day-to-night surface temperature changes for the first time. The paper, led by Valeria Cottini, a Cassini associate based at Goddard, used data collected at a wavelength that penetrated through Titan's thick haze to see the moon's surface. Like Earth, the surface temperature of Titan, which is usually in the chilly mid-90 kelvins (around minus 288 degrees Fahrenheit), was significantly warmer in the late afternoon than around dawn.

"While the temperature difference - 1.5 kelvins - is smaller than what we're used to on Earth, the finding still shows that Titan's surface behaves in ways familiar to us earthlings," Cottini said. "We now see how the long Titan day (about 16 Earth days) reveals itself through the clouds."

A third paper by Dominic Fortes, an outside researcher based at University College London, England, addresses the long-standing mystery of the structure of Titan's interior and its relationship to the strikingly Earth-like range of geologic features seen on the surface. Fortes constructed an array of models of Titan's interior and compared these with newly acquired data from Cassini's radio science experiment.

The work shows the moon's interior is partly or possibly even fully differentiated. This means that the core is denser than outer parts of the moon, although less dense than expected. This may be because the core still contains a large amount of ice or because the rocks have reacted with water to form low-density minerals.

Earth and other terrestrial planets are fully differentiated and have a dense iron core. Fortes' model, however, rules out a metallic core inside Titan and agrees with Cassini magnetometer data that suggests a relatively cool and wet rocky interior. The new model also highlights the difficulty in explaining the presence of important gases in Titan's atmosphere, such as methane and argon-40, since they do not appear to be able to escape from the core.



This series of false-color images obtained by NASA's Cassini spacecraft shows the dissolving cloud cover over the north pole of Saturn's moon Titan. Image credit: NASA/JPL-Caltech/University of Arizona/CNRS/ LPGNantes

Observation Sites

O'Brien Observing Site

Have you been to O'Brien site yet? This is a great site that is available to NHAC members. It has open fields with a treed horizon in all directions at 5 degrees and is located in Montgomery, Texas (heading west on Highway 105).

If you would like to use this site in the future, please read the use policy on the NHAC web page (click on the "Star Party!" link from the Home page), and please follow this process:

- Tim and Wanda O'Brien and their family are our hosts. They are on Netslyder, the email list server.
- To request use of the site, send an email out on Netslyder to: *NHAC@mail.netslyder.net* (you must already be a member of the Netslyder mailing list)
- Requests must be made more than 24 hours in advance.
- Wanda or Tim will reply on Netslyder to let you know it is ok.
- Other members are welcome to also attend that night. Once approved, another request is not necessary at that point.
- The site is open to members and their guests (only when the member is present).

If you have any questions, please contact Mike Kramer or James Billings at *observation@astronomyclub.org*

Observation Sites

White Eagle Lodge (WEL)

The White Eagle Lodge is a private church retreat in Montgomery, TX. It has an open field with dark western and northern skies, although the east does suffer from light pollution. The north and east have good low horizons, while the west and southwest are somewhat obstructed by trees.

Other notes and and the procedure for reserving a night in addition to the regular monthly NHAC star parties may be found **here.**

The property owners (St. John's Retreat Center) request that all users sign a **Release of Liability Waiver.**

Additional information and Directions are available online at **www.astronomyclub.org**.

The Insperity Observatory at Humble ISD

The Insperity Observatory at Humble ISD, 2505 S. Houston Ave., Humble, TX 77396 281-641-STAR

2012 Public Nights at the Observatory*

March 2, 2012 @ 6:15 p.m.
April 6, 2012 @ 7:45 p.m.
May 4, 2012 @ 8:00 p.m.
June 1, 2012 @ 8:15 p.m.
July 6, 2012 @ 8:30 p.m.
August 3, 2012 @ 8:15 p.m.
September 7, 2012 @ 7:30 p.m.
October 5, 2012 @ 7:00 p.m.
November 2, 2012 @ 5:30 p.m.
December 7, 2012 @ 5:30 p.m.

**Dates and times are subject to change.*

Refreshment Committee Chairman Needed

Your hungry club members need YOU! Yes, YOU!!

Have you been thinking about getting more involved with the club, but weren't quite sure what to do? Well, this would be a great way to help out! We are looking for someone to be in charge of the meeting refreshments each month.

Your job would be to see that the refreshments are ordered, picked up and delivered to the meeting each month. They would need to be set up prior to the meeting and taken down after the meeting. You would also need to see that all of the necessary utensils were kept on hand.

As Chairman, you may choose to delegate this monthly, or handle it yourself with a few bodyguards. :)

Position: Availabile immediately

Salary: We will pay you on Tuesday for the hamburger today

Satisfaction: Priceless

Contact *board@astronomyclub.org*

We need YOU!!

About NHAC

The North Houston Astronomy Club (NHAC), was formed for educational and scientific purposes, for people of all races, creeds, ethnic backgrounds and sex, for the primary purpose of developing and implementing programs designed to increase the awareness and knowledge of astronomy, especially for those living near the north side of Houston Texas.

NHAC is a non-profit organization dedicated to providing the opportunity for all individuals to pursue the science of astronomy, by observing in a dark-sky site, learning the latest technology, and sharing their knowledge and experience. Thus, our "Observe-Learn-Share" motto.

North Houston Astronomy Club is Sponsored by:

Lone Star College Kingwood

Membership Benefits

- Loaner telescopes
- Borrow from the NHAC "Library"
- Observe from Dark Sky Observing Sites
- Learn from experienced amateur astronomers
- Share your knowledge at club hosted picnics and star parties
- Discount magazine subscriptions (contact our Treasurer)
- Includes membership in the Astronomical League
- The quarterly Astronomical League magazine "Reflector"
- Eligibility for NHAC Executive Board

www.astronomyclub.org
www.nhac.info

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