

February 2007

Inside this Issue

2

Meeting Notes

3

A Great Big Wreck

4

Science Corner
Moon Phases

5

Celestial Events
Are you a STAR member?

6

In the Eyepiece

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February's Meeting

The next S*T*A*R club meeting will be 8 PM Thursday Feb 1, 2007 at King of Kings Lutheran Church, 250 Harmony Rd. in Middletown.

Our program will be "Collimating Your Telescope" by Gavin Warnes. Bring telescopes and collimation devices.

Editor's Notes

Please send in more articles! Randy, Steve F., Doug and I can't keep writing this by ourselves!

In other news, I'm trying to organize a very small star party (i.e. two or three telescope pointed at the Moon and bright targets for an hour) for a special middle school program called STARS, with about 12 students. Our target date is February 22 at Monmouth University. We only need a few people, but if you can help it would greatly appreciated. For more information, contact me.

March Issue

The deadline for the next edition of the Spectrogram is Wednesday, February 28th. Please email any contributions to Daniel_handlin@hths.mcvsd.org. As always, any and all contributions are welcome!



Magellan Venus spacecraft
Image Courtesy NASA

Calendar

Sep 7, 2006 - - Clif Ascraft -
"Restoring the Tuthill
Telescope"

5 Oct, 2006 - Dr. Kenneth
Kremer - "Exploring Mars and
the Search for Life"

2 Nov, 2006 - Dr. Sebestien
Lepine - "The Search for
Nearby Stars"

7 Dec, 2006 - Kevin Kilkenny -
"New Horizons' Journey to
Pluto"

4 Jan, 2007 - Daniel Kirby -
"Pirates of the Solar System
Caribbean"

1 Feb, 2007 - Gavin Warnes -
"Collimating your Telescope"

1 Mar, 2007 - David Britz -
"Motions of the Earth and
Moon"

5 Apr, 2007 - Dr. Eric Lerner-
"The Big Bang Never
Happened"

3 May, 2007 - TBD

7 Jun, 2007 - AGM Business
Meeting

Image Courtesy NASA

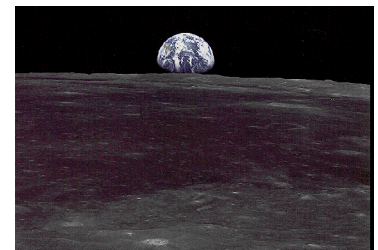




Image of Discovery from ISS on STS-116
Image courtesy NASA



Close-up of Discovery flight deck from ISS on STS-116
Image courtesy NASA

January & December Meeting Notes

(Editor's Note: December meeting notes were not included in last month's issue due to scheduling issues, so they are included here.)

By Steve Fedor and Doug

January

The president of the club, Steve Walters, began the meeting shortly after 8 PM. He stated that observing after the meeting appeared to be possible. He then welcomed all newcomers and requested that each of them introduce themselves. Steve then provided a look ahead at the upcoming meetings, which includes our own Gavin Warnes on "Collimating Your Telescope" in February, another member, Dave Britz, presenting a talk on "Motions of the Earth and Moon" in March, Dr. Eric Lerner and his topic, "The Big Bang Never Happened" in April, to be determined for May, and the Annual Meeting and Elections in June.

Our guest speaker, Daniel Kirby, was then introduced for his talk, "Pirates of the Solar System Caribbean". Daniel took the audience on a journey into space, discussing various considerations that would have to be addressed if a pirate ship were to "do its looting" in space during a time where interplanetary (and inter-solar system?) travel existed. Such considerations include various types of orbits that a cargo ship could take and what a pirate ship's trajectory would need to be to overtake such a ship. Weapon technologies were also discussed, as were spaceship detection and cloaking methods. Finally, how a pirate ship would procure cargo once the ship was captured was also posed. Space suit needs with respect to maneuverability, and pressure issues were also mentioned.

After Daniel's talk, Doug Berger provided the monthly Darkness Intervals chart for January. Nancy McGuire then provided the objects of the month, starting with The Eskimo planetary nebula in Gemini, and then the challenge objects, galaxies NGC 1531 and 1532 in Eridanus. Events was discussed next, with Larry Campbell mentioning the Village School's (Holmdel) annual telescope night scheduled for February 20 and asking for volunteers to bring their scopes for the roughly 500 children and their families that are expected to attend.

For the Observing Group report, Doug provided the initial plans for the club's 2007 Messier Marathon, which will take place on or around March 17 at the usual site, Coyle Field, weather permitting. Along with the club meetings leading up to the marathon, the club's discussion board will be used to communicate updates to the plan, especially as the time approaches and weather forecasts become critical. Gordon Waite provided an update for the ATM group, discussing the work on a 6" mirror mini-restoration. For the Beginner's Group report, Nancy discussed a possible late January beginner's observing session. At this time, Steve also mentioned a possible group observing weekend in April at his Pocono lair, referred to as the Pocono Palace. For the Outreach Group report, Larry mentioned leaving our flyer at a few libraries and possibly being able to gain access to a tri-folding machine to help with folding the flyers.

Other miscellaneous topics included Dave mentioning that Orion has an inexpensive pair of binoviewers on the market, Kevin Gallagher mentioning the trials and tribulations of using his Orion laser collimator, which was apparently itself out of collimation, and Steve discussed his trials and tribulations using his new adaptive optics gear on his imaging system and the software incompatibility that resulted.

The meeting ended with the 50/50 draw. Unfortunately, the weather turned sour, preventing any post-meeting observing.

December

The December 2006 meeting of S*T*A*R Astronomy began at 8:07 pm on 12/7/2006. The meeting was attended by approximately 33 members and non-members. President Steve Walters chaired the meeting and began by greeting members and non-members as well as discussing club events.

At 8:25 the evening's lecture "In Search of nearby Stars" was presented by Dr. Sebastian LePine who is a research fellow in the Astrophysics Department at the American Museum of Natural History, where he has been working since April 2000. His goal is to obtain a most complete and accurate map of the stars located within 100 parsecs (300 light-years) of the Sun. His most notable effort is the SUPERBLINK survey, an all-sky survey of stars with large proper motions. The lecture concluded at 9:44pm.

A 15 minute break was provided.

Doug Berger provided the December Darkness Intervals slide.

Doug Berger presented the Objects of the Month, which included the Christmas Tree Cluster in Monocero.

Events and Announcements:

Randy Walton - Geminids meteor shower 12/14
- ASTRA holding a telescope workshop on Jan 12. Need volunteers to assist.

Larry Campbell – Star Party at the Holmdel Middle School on 2/20. Need volunteers.

Ken Legal – Star Party at Eisenhower School in Sayreville on 5/18/07. This is an all night campout. Needs volunteers. There was a discussion as to whether to bring the club's 25 inch Obsession. Due to the age of the students it was decided not to bring the club scope.

Steve Walters – Discussed his attendance at the Advanced Imaging Conference in California where he met legendary astro-photographer Donald Malin. Steve also discussed new imaging software he is developing

SIG Reports

ATM Committee report - In Gordon Waite's absence, Steve Walters mentioned that Mitchell had completed a 1/11th wave mirror.

Observing Committee report – Nothing new to report by Doug Berger.

Light Pollution Committee report – No report

Outreach Committee report - Dennis O'Leary reported that he has club flyers available for distribution to libraries. He also reminded everyone to mention S*T*A*R at the public star parties. He also noted Daniel Handlin had promoted S*T*A*R at one of his astronomy events.

Beginner's Committee report – Steve Walters stated that Gavin Warnes will soon attempt to arrange an informal observing night locally.

The meeting concluded with the 50-50 drawing.

Clouds prevented any observing after the meeting.

A Great Big Wreck

By Dr. Tony Phillips

People worry about asteroids. Being hit by a space rock can really ruin your day. But that's nothing. How would you like to be hit by a whole galaxy?

It could happen. Astronomers have long known that the Andromeda Galaxy is on a collision course with the Milky Way. In about 3 billion years, the two great star systems will crash together. Earth will be in the middle of the biggest wreck in our part of the Universe.

Astronomer John Hibbard isn't worried. "Galaxy collisions aren't so bad," he says. A typical spiral galaxy contains a hundred billion stars, yet when two such behemoths run into each other "very few stars collide. The stars are like pinpricks with lots of space between them. The chance of a direct hit, star vs. star, is very low."

Hibbard knows because he studies colliding galaxies, particularly a nearby pair called the Antennae. "The two galaxies of the Antennae system are about the same size and type as Andromeda and the Milky Way." He believes that the Antennae are giving us a preview of what's going to happen to our own galaxy.

The Antennae get their name from two vast streamers of stars that resemble the feelers on top of an insect's head. These streamers, called "tidal tails," are created by gravitational forces—one galaxy pulling stars from the other. The tails appear to be scenes of incredible violence.

But looks can be deceiving: "Actually, the tails are quiet places," says Hibbard. "They're the peaceful suburbs of the Antennae." He came to this conclusion using data from GALEX, an ultraviolet space telescope launched by NASA in 2003.

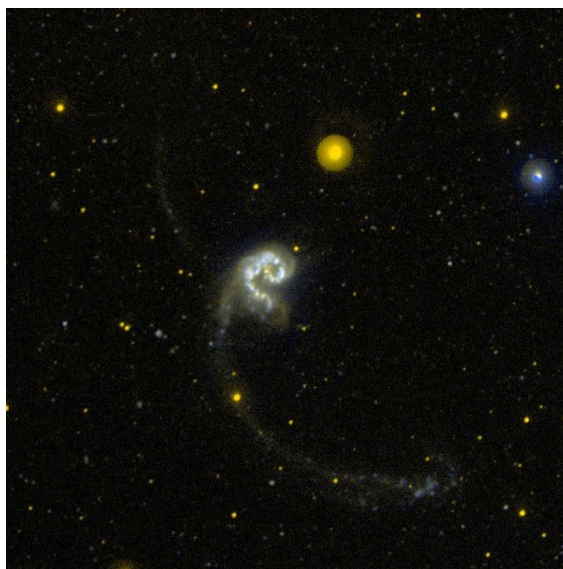
The true violence of colliding galaxies is star formation. While individual stars rarely collide, vast interstellar clouds of gas *do* smash together. These clouds collapse. Gravity

pulls the infalling gas into denser knots until, finally, new stars are born. Young stars are difficult to be around. They emit intensely unpleasant radiation and tend to “go supernova.”

GALEX can pinpoint hot young stars by the UV radiation they emit and, in combination with other data, measure the rate of star birth. “Surprisingly,” Hibbard says, “star formation rates are low in the tidal tails, several times lower than what we experience here in the Milky Way.” The merging cores of the Antennae, on the other hand, are sizzling with new stars, ready to explode.

So what should you do when *your* galaxy collides? A tip from GALEX: head for the tails. To see more GALEX images, visit www.galex.caltech.edu. Kids can read about galaxies and how a telescope can be a time machine at spaceplace.nasa.gov/en/educators/galex_puzzles.pdf.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Caption:

This GALEX UV image of the colliding Antennae Galaxies shows areas of active star formation, which is not in the tidal tails as one might expect.

Science Corner: Lolling Among Lots of Lakes

By Daniel Handlin

Cassini has *finally* found evidence of lakes on Titan. Since the HST and other telescopes have been getting their first

blurry images of the surface in the 1990s, scientists have suspected that Titan had lakes or oceans.

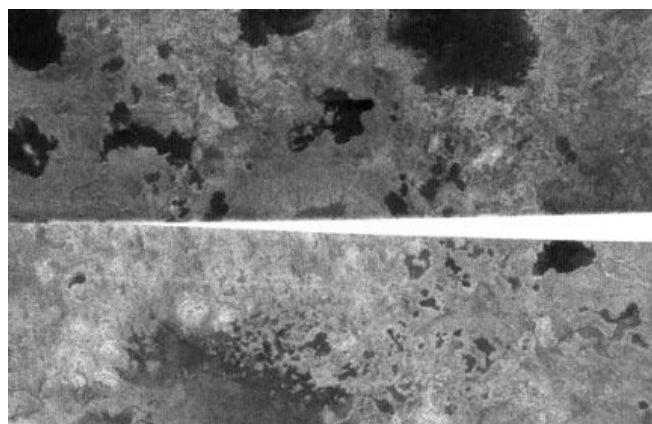
Radar observations and Cassini’s first observations of Titan ruled out oceans, and in fact Titan seemed to be surprisingly dry. This was puzzling because photochemical models suggest that methane and ethane should rain out onto the surface in liquid form. The Huygens probe imaged some dry channels, but did not find any certain liquid bodies on the surface. Similarly, Cassini found one very small lake about a year and a half ago, but it was not the liquid reservoir scientists were expecting. Where are the bodies of liquid that theory suggest should exist?

Well, Cassini has finally found them. During its July 2006 flyby of Titan, Cassini’s radar mapping finally found definitive evidence of methane lakes on Titan.

There are a number of lines of evidence that these dark patches are indeed lakes, other than that they look like lakes. First, they are very radar-dark, which would be expected of smooth, liquid lakes. Additionally, their morphology is that of lakes, with channels and curved edges.

There are also a number of dry lakebeds with well-defined shores but radar brightness that is similar to the surrounding land. This suggests an active hydrological cycle.

The hundreds of lakes Cassini found are near Titan’s north pole, which is just coming out of a polar winter.



Lakes on Titan imaged by Cassini’s RADAR instrument
(Image from JPL/NASA)

Moon Phases



February Celestial Events

By J. Randolph Walton (Randy)

D ay	D a t e	Time (LMT)	Event
Fr i	2	00:45	Full Moon
		17:53	Moon Rise
		18:00	Moon 0.8 Deg. E of Saturn
Sa t	3	03:15	Jupiter Rises
		05:25	Mars Rises
		07:07	Sunrise
		17:21	Sunset
		17:50	Saturn Rises
		18:50	Mercury Sets
		18:57	Moon Rise
		19:17	Venus Sets
		18:55	Zodiacal Light in W after evening twilight for two weeks
Sa t	1 0	01:02	Moon Rise
		02:55	Jupiter Rises
		04:51	Last Quarter Moon
		05:20	Mars Rises
		06:59	Sunrise
		10:34	Moon Set
		17:20	Saturn Rises
		17:30	Sunset
		19:00	Mercury Sets
		19:35	Venus Sets
		Sa t	1 7
05:10	Mars Rises		
06:51	Sunrise		
11:14	New Moon		
17:38	Sunset		
17:49	Moon Set		
18:35	Mercury Sets		
19:50	Venus Sets		
Fr i	2 3	09:48	Moon Rise
		19:00	Moon 0.6 Deg. of the Pleiades
Sa t	2 4	01:27	Moon Set
		02:10	Jupiter Rises
		02:56	First Quarter Moon
		05:01	Mars Rises
		06:14	Saturn Sets

		06:41	Sunrise
		10:31	Moon Rise
		17:46	Sunset
		19:50	Venus Sets
Sa t	M a r 3	17:44	Total lunar eclipse begins
		17:48	Moon Rise
		18:57	Total lunar eclipse ends

Are you a S*T*A*R Member?

S*T*A*R is the proud owner of a **monstrous 25" Dobsonian Obsession reflector** – which YOU can gain access to as a S*T*A*R member! Meetings are the first Thursday of each month, except July and August, at 8:00 PM at the King of Kings Lutheran Church, 250 Harmony Rd. in Middletown. Meeting generally consist of lectures and discussion by members or guest speakers on a variety of interesting astronomical topics. S*T*A*R is a member of United Astronomy Clubs of New Jersey (UACNJ), the Astronomical League (AL), and the International Dark Sky Association (IDA).

Memberships: () Individual....\$25

() Family...\$35

Name _____

Address _____

City _____ State ____ Zip _____

Phone _____

Email _____

Make checks payable to: STAR
Astronomy Society, Inc. and mail to P.O.
Box 863, Red Bank, NJ 07701

In the Eyepiece

Here is a list of objects for this month. This is reproduced from www.skyhound.com with the kind permission of its creator and author of SkyTools Greg Crinklaw.

Object(s)	Class	Con	RA	Dec	Mag
M 48	Open Cluster	Hydra	08h13m46.1s	-05°47'08"	5.5
Castor	Multiple Star	Gemini	07h34m35.9s	+31°53'18"	1.6
Struve 1127	Multiple Star	Camelopardus	07h47m00.4s	+64°03'07"	6.8
M 47	Open Cluster	Puppis	07h36m36.0s	-14°28'45"	4.3
M 67	Open Cluster	Cancer	08h51m26.1s	+11°48'43"	7.4
M 46 and NGC 2438	Open Cluster + Planetary Nebula	Puppis	07h41m47.8s	-14°48'06"	6.6
Eskimo/Clown Face	Planetary Nebula	Gemini	07h29m10.8s	+20°54'42"	9.9
NGC 2477	Open Cluster	Puppis	07h52m16.8s	-38°31'48"	5.7
NGC 2440	Planetary Nebula	Puppis	07h41m55.4s	-18°12'31"	10.8
Focus On Thor's Helmet	Diffuse Nebula	Canis Major	07h18m36.0s	-13°12'00"	10?
Gemini Nebula	Planetary Nebula	Gemini	07h25m34.7s	+29°29'26"	13.0
Hourglass	Planetary Nebula	Monoceros	07h09m22.5s	-00°48'24"	11.8
NGC 2419	Globular Cluster	Lynx	07h38m11.0s	+38°53'11"	11.0
The Integral Sign Galaxy	Galaxy	Camelopardus	07h11m22.6s	+71°50'10"	13.1
Abell 31	Planetary Nebula	Cancer	08h54m11.4s	+08°54'30"	12.2
The Medusa	Planetary Nebula	Gemini	07h28m59.2s	+13°15'16"	11.3
M 1-18	Planetary Nebula	Puppis	07h42m04.2s	-14°21'20"	14.0