

CLEAR SKIES



June 2009
Volume 22, Issue 6

Champaign Urbana Astronomical Society, c/o Staerckel Planetarium, 2400 W Bradley Ave Champaign, IL 61821
Web site address E-mail for editor coffeelover2@comcast.net Phone number 217-621-7882

OFFICERS MESSAGE

By Bill Marble

As Dave says in his column, summer is here. So take a moment to read his column. This begins on page one, below. Dave also talks about the planets, and their orbits and especially Saturn. This article continues on page four.

Page two is our CUAS news. Be sure and read the latest about light pollution, and planetarium news and upcoming events. And of course the ever present mowing list for the summer at the observatory. And yes we do need to think seriously about some maintenance on the dome. **Also, it is my suggestion that we bite the bullet and buy a cover for the telescope. Let's quit talking about it and get it done.** There is an interesting article on astronomical instruments, which I plan on continuing on a monthly basis, at least for awhile. Also on page three, check out the NASA feature, it talks about new more efficient

LOOKING UP THIS MONTH

By Dave Leake

The summer solstice is here already! Isn't it amazing how the year goes by so fast anymore? The official solstice, when the Sun is farthest above the equator and directly above the Tropic of Cancer, is June 21 at 12:46am CDT. From here on out, the Sun will appear to be a bit lower in the sky at noon, though you won't notice too much yet. The name "solstice" means "standstill." Ancient sky watchers noticed that the altitude of the noon Sun in our sky doesn't change that much this time of year. And, of course, never look at the Sun, but you can measure the lengths of

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Bill Marble, Editor, Publisher	621-7882

solar panels for the new breed of satellites.

Page four is the treasures report. And on page five read some more about moon facts. This is also a continuing informational section. For now, and in the near future, there will be moon facts. So all you ever wanted to know about the moon and more.

Stay tuned.

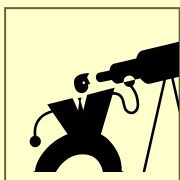
shadows!

Rhea, Tethys, and Enceladus. A beautiful Moon glides On to the planets . . . Saturn is still the only evening naked-eye planet, near the hind legs of Leo in the west-southwest. In mid-June, Saturn sets at roughly 1am and is the brightest object beneath the Big Dipper. The rings are inclined at a very small angle and may appear like a little white line on either side of the planet. It's a good chance to boost the magnification a little and see how many moons you can see. There's a chance you could see up to five, those being Titan, Dione, below Saturn

Please see *Looking up this month* on page 4

CUAS NEWS

By Dave Leake



International Year of Astronomy

We had a good crowd at Hessel Park for our last IYA park session, though it was quite a haul moving equipment to the center of the park. You'll note that we don't have any sessions around the summer solstice (June 21) since it gets dark so late. We'll begin sessions again in August. They are in the calendar in this issue plus online at the cuas.org web site.

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The Staerkel Planetarium will be working on the

OBSERVATORY NEWS

By David Leake

Small projects list for warmer weather we probably need to **scrape paint** again, both inside and outside. The inside looks pretty bad in the daylight! Thank goodness it's used in the dark! Also, new **tarp** for the 16-inch (no paper or plastic), cooling **fans** in the telescope, and a **vent** for the shed. If you're returning the 8-inch red Dobsonian telescopes to the dome, remember to try to store them horizontally to help protect the mirror coatings. We also need to strip the paint on the inside but, given the dust that would be created, it might be best to wait until the telescope is removed. Evidently no one showed up at our work day . . . do we schedule another one?

“World of Science” lecture series for the upcoming academic year. If there is a specific speaker or topic you'd like to hear (astronomy-related or not), let Dave Leake know at dleake@parkland.edu We like bringing in speakers the people want to hear!

Anyone interested in 40th anniversary **Apollo T-shirts**? <http://starport.jsc.nasa.gov/>

CUAS has been sent a new tool kit from the **Night Sky Network**, this one dealing with glass and mirrors. In fact, the kit includes what amounts to an optical bench! We'll have it out at the May meeting. It's a good way to show how telescopes work to the lay public.



A RECENT PHOTO OF THE CUAS OBSERVATORY.

The infamous “**mow list**” returns, but this time with a twist! A million CUAS “thank you” to new member Ray Cummings who lives near the dome AND owns a mowing service! Ray has mowed the lawn about 4-5 times at press time so we actually have not started the list below. However, as Ray’s paying customers start calling, we will resort to the list if and when we have to! If you want on the list or removed from the list, contact Dave Leake. Immediately after you mow the lot, contact the next person so they can plan to check the grass height. There is a mower and gas in the shed. Allow a couple of hours to complete the job.

- | | | |
|---------------------|---------------------|-----------------|
| 1) Mike Rosenberger | 5) Guy Hampel | 9) Dick Robrock |
| 2) Dave Leake | 6) Willard Brinegar | 10) John Stone |
| 3) Mark Prather | 7) Audrey Ishii | 11) Bill Marble |
| 4) Mike Lockwood | 8) Wayne James | |

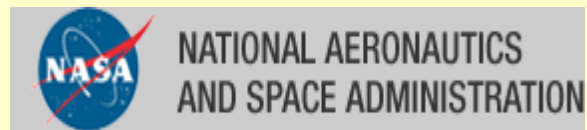
ASTRONOMY CLUB RESOURCES

By Bill Marble

SCORING MORE ENERGY FROM LESS SUNLIGHT.

Satellites require a lot of power and must be of the right size to do the job they were sent into space to do. So NASA has been working on a project to make solar panels smaller and more efficient. It seems that as the satellites roam around in space, they need power to keep them going and sending back information. The bigger satellites can use the really big panels and can therefore have enough power to last them for a long time. But as they get smaller, the requirements are the same, but big panels won’t work on small satellites, so NASA is working on making a smaller more efficient panel. Often less than 10 feet across, these small spacecraft have little room to spare for solar panels or batteries, yet must still somehow power their

NASA TV update . . . NASA TV is up and running! Thanks for the efforts of Chris Foster and Rich Thompson, the channel is now running on the Parkland College channel, PCTV. You can catch NASA programming daily from 7-9am, Monday through Friday from 3-5pm and Saturday and Sunday from 8-10pm.



onboard computers, scientific instruments, and navigation and communication systems.

Space Technology 5 was a mission that proved, among other technologies, new concepts of power generation and storage for spacecraft. “We tested high efficiency solar cells on ST-5 that produce almost 60 percent more power than typical solar cells. We also tested batteries that hold three times the energy of standard spacecraft batteries of the same size,” says Christopher Stevens, manager of NASA’s New Millennium Project. This program tests hi tech cutting edge space technologies. To read more about this go to NASA web site by clicking on the logo above.

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TREASURERS REPORT

By Willard Brinegr

on the 26th and 27th. The next planet to rise is Jupiter, but that doesn't happen until just after midnight. Look for Jupiter to brighten the east-southeast. A waning gibbous Moon glances by Jupiter on the 13th and 14th of the month. If you use a telescope to check out the Moons, keep your eye out for Neptune as the pair are only a half degree apart on June 1st.

Pre-dawn observers will be able to spy both Venus and Mars before sunrise. Check out the sky in the east roughly an hour before sunrise and you'll see Venus just two degrees to the lower right of Mars. Mars will be much fainter than Venus. And, to add to the fun, set the alarm early on the morning of June 19 to see a waning crescent Moon just above the pair. The Moon continues on to near the Pleiades star cluster on the 20th and then just to the left of Mercury on the 21st. The latter, though, is quite low as Mercury rises as the morning twilight begins – about 4:20am. Venus reaches its greatest separation from the Sun on the 6th, rising at about 3:30am.

A final note about Mars . . . you wouldn't think it could happen . . .but it has. Remember the old email that made the rounds about Mars appearing as large as a full Moon and being the closest it has been in so many thousand years? Well, the email is back! I've received it once already. So . . . NO, this is an internet hoax! It's not happening! Some things like this never die for some reason.

CUAS Treasurer's Report for May 2009
Willard Brinegar, Treasurer 2009

As of 5/31/09

Assets*

\$ 4205.11 checking account

\$ 4205.11 Total Assets

Income*

\$ 0.00 Total Income

Expense*

\$ 0.00

*Note: Magazine subscription funds are not reflected in Income and Expense since they are simply sent on to the respective publishers.

As of 5/31/09, all received subscription payments have been sent on, so they are not reflected in the Assets category either.

ASTRONOMICAL INSTRUMENTS

By Bill Marble
Excerpted from Tripod.com

Astronomical instruments can be divided into two major categories. The first category might include all of the instruments which are used in the actual process of observing celestial objects. Some of these, like the meridian transit, are designed for specific tasks such as the precise determination of an observer's position on the earth or a star's position in the sky; other observational instruments are principally collectors of the radiation emitted by stars, planets, nebulas, and galaxies. These latter, which are generally referred to as telescopes, enable objects invisible to the naked eye to be seen, photographed, or otherwise detected.

In the second category may be grouped the auxiliary instruments which are used to standardize, record, or analyze the data obtained by the observational equipment. Devices to provide an accurate standard of time, to determine the brightness of stars.

Early History

The origins of astronomical observations go back to remotest antiquity. The necessity of keeping track of time for agricultural and civil purposes must have led primitive man to a serious study of the daily rotation of the heavens, and to the motions of the sun and moon relative to the stars. Certainly by 2500 B.C., both the Babylonians and the Egyptians had developed calendars in which approximations to our present day, month, and year appeared as basic units. Besides crude water and sand clocks, the time of day was estimated by the direction and length of shadows cast by vertical objects such as buildings, pyramids, stone columns, or simply stakes driven into the ground. Calibration of the shadow lengths and directions inevitably followed, and the forerunner of the present-day sundial was born. The earliest known sundial or shadow-clock is Egyptian and dates back to approximately 1000 B.C.

STAY TUNED

PHASES OF THE MOON FOR JUNE AND JULY 2009

By Bill Marble

1 st quarter	June 4	July 28
Full	June 10	July 7
Last quarter	June 18	July 15
New	June 26	July 21



MOON FACTS

- The surface area of the moon is 14,658,000 square miles or 9.4 billion acres
- Only 59% of the moon's surface is visible from earth.
- The moon rotates at 10 miles per hour compared to the earth's rotation of 1000 miles per hour.



Depiction of an Armillary Sundial.

LOOKING AHEAD

By David Leake

OBSERVING IN THE PARKS, 2009

<u>Day</u>	<u>Date</u>	<u>Times*</u>	<u>Park</u>
Wed	Aug. 26	8:30-10:30	Anita Purves, U
Thu	Aug. 27	8:30-10:30	Lohmann, U
Tue	Sep. 22	8-10pm	Clark, C
Thu	Sep. 24	8-10pm	Garden Hills, C
Mon	Sep. 28	8-10pm	Centennial, C

* Daylight Savings Time

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INTERNATIONAL YEAR OF ASTRONOMY CHAMPAIGN COUNTY PARK OBSERVING SCHEDULE

Remember the dates for the **park tour!** We need your help! If everyone volunteers for two dates, then we can spread the work around. We had a good crowd at Hessel Park for our last IYA park session, though it was quite a haul moving equipment to the center of the park. You’ll note that we don’t have any sessions around the summer solstice (June 21) since it gets dark so late. We’ll begin sessions again in August. They are in the calendar in this issue plus online at the cuas.org web site.

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June 2	“400 Years of the Telescope”	7pm	WILL
Enjoy the encore performance of a PBS show produced for the International Year of Astronomy.			
June 11	CUAS Club Meeting	7-8:30pm	Staerkel Planetarium
Program to be announced, though we could get out our latest Night Sky Network tool kit on telescope operation if we want to.			
June 19	“Summer Prairie Skies” opens	7pm	Staerkel Planetarium
June 20	New Moon Observing	9-?pm	Observatory
June 27	CUAS Family Skywatch	9-11pm	Observatory
Our public open house for the month. Take I-57 to the south of Champaign to the Monticello Exit. Take the exit and then turn right (west) on the Monticello Road. Go 1.4 miles and then turn left on County Road 700E. The Observatory will be 0.8 miles south on this road, on your left. All viewing sessions are weather permitting.			
July 9	CUAS Club Meeting	7-8:30pm	Staerkel Planetarium
July 16	“Secrets of Suburban Skies” opens	11am	Staerkel
Planetarium	See the club news section for details.		
July 18	New Moon Observing	9-?	Observatory
July 25	CUAS Family Skywatch	9-11pm	Observatory
August 11-12	Perseid Meteor Shower		
August 13	CUAS Club Meeting	7-8:30pm	Staerkel Planetarium
August 15	Middle Fork Observing	8pm - ?	
Our dark sky night at the water fowl area, just north of the campground at the Middle Fork Forest Preserve, northeast of Rantoul. Weather permitting.			
August 22	New Moon Observing	8pm - ?	Observatory
August 26	IYA Observing	8:30-10:30pm	Nature Center
We’ll set-up outside of the Anita Purves Nature Center, weather permitting.			
August 27	IYA Observing	8:30-10:30pm	Lohman Park
We’ll set up in the Thomas Paine School Parking lot, weather permitting.			
August 29	CUAS Family Skywatch		Observatory

September 10 CUAS Club Meeting 7-8:30pm Staerkel Planetarium

We'll preview the new IYA show entitled "Two Small Pieces of Glass" with the club meeting to come after the show. The show opens to the public September 11 at

WILLIAM M. STAERKEL
PLANETARIUM has public shows on Friday

evenings in August. Call 217/351-2446 for

more September 18 "Fall Prairie Skies" opens 7pm Staerkel Planetarium.

<http://www.parkland.edu/coned/pla>

**CHECK OUT ALL CLUB EVENTS ON THE
CUAS HOME PAGE:**

<http://www.prairienet.org/cuas> or

<http://www.cuas.org>

"CLEAR SKIES" is published twelve times per year for its membership. [Circulation: 78] The Champaign-Urbana Astronomical Society is an affiliate group of the **Champaign Park District.**

<http://www.champaignparkdistrict.com>

MEMBERSHIP FORM

- Enroll me as a new member!
- Membership renewal [attach mailing label]
- Change of address only

Name _____
Address _____
Phone # _____
Email address: _____

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- Basic membership \$15
- Observatory key fee \$10
- Astronomy* magazine renewal* \$34
- Sky & Telescope* renewal* \$33
- Donation \$ _____
- Total Enclosed \$ _____

*enclose mailing label

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2400 West Bradley Avenue
Champaign, IL 61821



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Parkland College
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