



★ STAR STUFF ★

The Newsletter of the Ford Amateur Astronomy Club

August 2003
Volume 12 Number 8



Editor: Jim Frisbie

A MESSAGE FROM THE PRESIDENT

What do you see when you look up at the evening sky? Whenever I make my way outside for an evening under the stars I always wonder as to what I am looking at. In my younger days I viewed the sky with amazement and hip pocket full of questions. Where do stars come from? What holds them up? What keeps them shining bright? As time passed many of my childhood questions were slowly getting answered. I learned about our Sun, super novas, galaxies, and planets within our solar system. Later in life I learned about a star's complex molecular furnace and how it generates nuclear energy to keep them alive. I learned about gravity and how it draws objects of differing size together, like Newton's apple and Earth. Despite all this knowledge, I still wonder as to what I see when I look up.

As I put my thoughts together on this question, I wondered what others see when they look up? If I were to ask Claudius Ptolemy, he would probably give me a long philosophical discussion of how our sky is a complex arrangement of spheres that embodies our Sun, Moon, and planets that rotate about us. Ptolemy would continue on to describe the stars as nothing more than remnants of a primordial fire.

Nicolas Copernicus, when asked the same question, would offer up a slightly different view. In secret, he would tell me that Earth is not a static heavenly body but a dynamic one. He would then walk me over to a chalkboard and begin to draw concentric circles with the Sun at the center and Earth on the third concentric circle. With this arrangement, he simplified Ptolemy's complex model and provided an elegant solution to explain such phenomenon as retrograde motion and phases of Venus.

After talking with Copernicus, I would then ask Galileo Galilei. Galilei would take a different approach to answering the question. Instead of describing perfect celestial orbs in the heavens he would describe a universe with imperfections and oddities. He would pull out an optical tube and show me that the Moon's landscape is rough and mountainous and that Jupiter has bands of color and moons orbiting it.

Albert Einstein, when asked about his views, would use the vocabulary of calculus and quantum physics to express his thoughts. He would describe our night sky as a stew of electrons and protons that have been brewing for eons. Einstein would also go on to say that the universe is like a piece of fabric that can be distorted by massive bodies such as galaxies. Using equations, he would prove to me that light from a star travels at a constant speed and could be bent when traveling near massive bodies.

For me, I look at the night sky I see life in the making. Everything that is anything is out there at varying levels of development. For example, when we peer into the cones of a nebula cloud we see the birth of new stars. As we look to our Sun we see an example of a heavenly body that has grown into a healthy adult. And finally when we look at super nova remnant such as the Ring Nebula we see death. The universe is very dynamic and full of life, always changing and always growing. We are a part of that life cycle with a special gift to witness a portion of it in the making.

What do you see when you look up into the evening sky?

Don Nakic

STAR STUFF is a monthly publication of the Ford Amateur Astronomy Club, an affiliate club of the Ford Employee Recreation Association.

**Ford Amateur Astronomy Club
P.O. Box 7527
Dearborn MI 48121-7527**

<http://www.boonhill.net/faac>

Submissions to STAR STUFF are welcome Please write to the address above or contact the editor:

Jim Frisbie
via tele #: 734-453-1422
or email: w8tu@peoplepc.com

Dead line is the 15th of each month of publication.

Officers:

President	Don Nakic
Vice President	Dale Ochalek
Secretary	Don Klaser
Treasurer	Gordon Hansen

General Meetings:

The Ford Amateur Astronomy Club holds regular general meeting on the fourth Thursday of each month (except the combined November/December meeting held the first Thursday of December) at 5:00 PM at the Ford Motor Credit Building off Mercury Drive near Michigan Ave. in Dearborn.

Observing:

The Ford Amateur Astronomy Club observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains a permit for after-hours access. Weather permitting, the club observes on Friday nights, Saturday nights, and nights before holidays.

Club Information:

Observing schedules and additional Club information is available by calling the Observing Hotline at: (313) 390-5456 or via the Ford Intranet: www.be.ford.com/astro/faac.html or the public Internet: www.boonhill.net/faac.

Club Membership:

Membership in the Ford Amateur Astronomy Club is open to Ford employees and non-employees. Write or call for an application.
Annual - New Member: \$25; Renewal: \$ 20 (before Jan 31 of each year)
Lifetime - \$ 150

Membership includes:

A subscription to the STAR STUFF newsletter and the quarterly newsletter the REFLECTOR published by the Astronomical League.
Discounts on ASTRONOMY and SKY & TELESCOPE magazines, after-hours access to the observing site and discounts at selected area equipment retailers.

Magazine Discounts:

August 2003

STAR STUFF

Do not send money to FAAC for SKY & TELESCOPE or ASTRONOMY magazine subscriptions. We have a form that you send in with your subscription directly to the publisher to receive a \$10 discount. Pick up a form at the next meeting, or contact a club officer.

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**MINUTES OF THE JULY 24, 2003
FAAC GENERAL MEMBERSHIP MEETING
By Don Klaser**

32 members were in attendance went President Don called the meeting to order at 5:00 p.m. Pizza and pop were enjoyed as everyone introduced themselves and several members talked about their observing experiences during the past month.

Gordon Hansen gave the Treasurer's report. The minutes from the last meeting were accepted. The next meeting of the Astro-Imaging SIG will be held on Thursday, August 7, from 5:00 - 7:00 p.m., at the Ford Family Learning Center on Rotunda Dr. The program will be on guiding.

John Kirchhoff gave a report on the status of the club T-



shirt re-design. The committee came up with 3 recommendations: 1.) Sell the T-shirts with dates for \$ 5.00 each. 34 pcs. are in stock and will be left at Rider's for John to sell. 2.) 46 pcs. of undated shirts to be sold at regular price; Gordon is in charge of this inventory. 3.) That we buy an additional 54 undated T-shirts so we have 100 pcs. to sell at our next star party. The new shirts may have a new sponsor listed in place of The Discovery Store (no longer a sponsor). Gordon will check into the cost of the additional shirts.

Jim Frisbie & Clay Kessler talked about the Dark Sky Preserve plaque. A motion was made by Jim Frisbie to donate \$ 100.00 of club money to go towards financing the manufacture & installation of the plaque; seconded by John Kirchhoff. Discussion followed and the motion was passed unanimously. The names of the financial contributors will be listed on the plaque.

The idea of holding a swap meet to raise funds for the club was discussed. Jim Frisbie, John Schroer & John Kirchhoff will be on the committee to decide on a form and venue.

A motion was made by Bob MacFarland requesting a club donation of \$ 200.00 to help defray the cost of bringing in the main speaker for the GLAAC event at Kensington Metro Park on September 5 & 6. Seconded by Clay Kessler; motion passed.

Upcoming events were discussed.

The technical discussion was given by Gary Strumolo on making renderings of Jupiter. The main program on CCD image processing was presented by Jeff Thrush.

TREASURER'S REPORT – 7/24/2003

By Gordon Hansen

Bank Accounts

Checking	\$	352.33
Savings	\$	1,201.96

TOTAL Bank Accounts	\$	1,554.29

Cash Accounts

Cash Account	\$	150.79

TOTAL Cash Accounts	\$	150.79

Asset Accounts

Books	\$	-
GLAAC	\$	319.00
Projector	\$	203.70
Scholarship	\$	160.13

TOTAL Asset Accounts	\$	682.83

OVERALL TOTAL	\$	2,387.91

CAREFUL PLANNING AND QUICK IMPROVISATION SUCCEED IN SPACE BIZ

By Tony Phillips

On December 18, 2001, ground controllers at JPL commanded NASA's Deep Space 1 (DS1) spacecraft to go to sleep. "It was a bittersweet moment," recalls Marc Rayman, the DS1 project manager. Everyone was exhausted, including Deep Space 1, which for three years had taken Rayman and his team on the ride of their lives.

DS1 blasted off atop a Delta rocket in 1998. Most spacecraft are built from tried-and-true technology-otherwise mission controllers won't let them off the ground. But Deep Space 1 was different. Its mission was to test 12 advanced technologies. Among them: an experimental ion engine, a solar array that focused sunlight for extra power, and an autopilot with artificial intelligence. "There was a good chance DS1 wouldn't work at all; there were so many untried systems," recalls Rayman.

Nevertheless, all 12 technologies worked; the mission was a big success.

Indeed, DS1 worked so well that in 1999 NASA approved an extended mission, which Rayman and colleagues had dreamed up long before DS1 left Earth-a visit to a comet. "We were thrilled," says Rayman.

And that's when disaster struck. DS1's orientation system failed. The spacecraft couldn't navigate!

What do you do when a spacecraft breaks and it is 200 million miles away? "Improvise," says Rayman.

Ironically, the device that broke, the 'Star Tracker,' was old technology. The DS1 team decided to use one of the 12 experimental devices-a miniature camera called MICAS-as a substitute. With Comet Borrelly receding fast, they reprogrammed the spacecraft and taught it to use MICAS for navigation, finishing barely in time to catch the comet. "It was a very close shave."

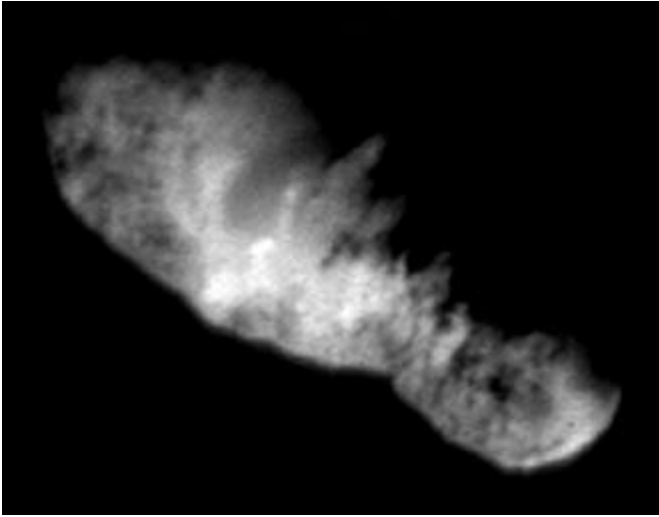
In September 2001, DS1 swooped past the furiously evaporating nucleus of Comet Borrelly. "We thought the spacecraft might be pulverized," Rayman recalls, but once again DS1 defied the odds. It captured the best-ever view of a comet's heart and emerged intact.

By that time, DS1 had been operating three times longer than planned, and it had nearly exhausted its supply of thruster-gas used to keep solar arrays pointed toward the Sun. Controllers had no choice but to deactivate the spacecraft, which remains in orbit between Earth and Mars.

Rayman has moved on to a new project-Dawn, an ion-propelled spacecraft that will visit two enormous asteroids, Ceres and Vesta, in 2010 and 2014. "Dawn is based on technologies that DS1 pioneered," he says.

Even asleep, DS1 continues to amaze.

Find out more about DS1 at <http://nmp.jpl.nasa.gov/ds1> . For kids, go to <http://spaceplace.nasa.gov/ds1dots.htm> to do an interactive dot-to-dot drawing of Deep Space 1.



This was the final image of the nucleus of comet Borrelly, taken just 160 seconds before Deep Space 1's closest approach to it. This image shows the 8-km (5-mile) long nucleus from about 3417 kilometers (over 2,000 miles) away.

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

AS CLOCK TICKS FOR HUBBLE, SOME PLEAD FOR A REPRIEVE

**From the New York Times, by Dennis Overbye
Submitted by Greg Burnett**

One astronomer compared it to the fate of the faithful dog in the movie "Old Yeller." On Thursday, astronomers will crowd into a hotel ballroom in Washington to discuss when and how NASA should put down one of its and astronomy's most spectacular successes, the Hubble Space Telescope.

Since it was launched in 1990 with a flawed mirror and then repaired by spacewalking astronauts, the Hubble, floating above the murky atmosphere, has been a matchless time machine, providing astronomers with views of unprecedented clarity deep into space and time. "The Hubble is the single most important instrument ever made in astronomy," said Dr. Sandra Faber, an astronomer at the University of California at Santa Cruz.

But its days (and nights) have always been numbered. NASA has long planned to end Hubble's spectacular run and bring it down in 2010 to make way in the budget for the James Webb Space Telescope, scheduled to be launched in 2011.

Still, some astronomers are urging that Hubble's life be extended. They argue that the telescope has grown even more productive in its years in orbit, thanks to periodic service calls by astronauts.

These astronomers say that killing Hubble in its prime makes little sense, either scientifically or from the standpoint of public

relations. "Hubble is by far the best news NASA has now," a senior astronomer said.

An extension of Hubble's life, they say, will ensure that there is no gap in coverage before the Webb telescope goes into operation, but it would require an extra shuttle visit to Hubble late in the decade. That would cost at least \$600 million, said Dr. Anne L. Kinney, director of astronomy and physics in NASA's Office of Space Science, and the money would have to come at the expense of the Webb telescope or some other project.

As a result, whatever NASA does is bound to make someone unhappy. "It's terribly important," Dr. Kinney said. "There is a lot of anxiety in the astronomical community about it. You have to listen to them."

Dr. Kinney has appointed a panel of scientists led by Dr. John Bahcall, an astrophysicist at the Institute of Advanced Study in Princeton, N.J., to evaluate NASA's plans for Hubble and to see if there is justification for a change. "Our charge is to advise about how to maximize the science. We are going to focus on just that task," Dr. Bahcall said.

He called the topic of Hubble's demise "a hot potato," adding, "But someone has to do it."

The other members of the panel are Dr. Barry Barish of the California Institute of Technology; Dr. Jacqueline Hewitt of the Massachusetts Institute of Technology; Dr. Christopher McKee and Dr. Charles Townes, both of the University of California at Berkeley; and Dr. Martin Rees of Cambridge University in England.

"They are my dream team," Dr. Bahcall said. "We may catch hell for what we do, but we will learn a lot while we do it."

The group has set up a Web site (hst-jwst-transition.hq.nasa.gov/hst-jwst/home.cfm) on which astronomers can post their opinions and read a growing assortment of policy and fact sheets. It is holding a public meeting at the Loew's L'Enfant Plaza Hotel in Washington on Thursday.

"It's going to be high opera," Dr. Kinney said. In an interview, Dr. Edward J. Weiler, NASA's associate administrator in charge of the Office of Space Science, pointed out that the Hubble's mission had been extended once. The telescope was originally designed to last 15 years and come down in 2005.

The next and final astronaut visit to the telescope is scheduled for next year, but might not happen until 2005 or even 2006, depending on when the shuttles start flying again in the wake of the loss of the Columbia in February. On that occasion the telescope will be fitted with two new instruments, and astronomers say it should work well until the end of the decade.

The decision about what happens then has been complicated by the breakup of the Columbia. The telescope is too big to leave to fall out of orbit and crash uncontrollably to Earth on its own. NASA had originally planned to fetch it with the space shuttle and put it in the Smithsonian's Air and Space Museum, but that now seems "exceedingly unlikely," in Dr. Kinney's words.

Such a mission would take the shuttle into an orbit in which it could not rendezvous with the space station if anything went

wrong.

Instead NASA is studying the possibility that a robotic rocket could be sent to attach itself to the telescope and ease it out of orbit safely into the ocean. That would require developing new technology. If it seems feasible, Dr. Kinney explained, astronauts could add attachments for the rocket to hook onto during the upcoming service mission.

The telescope is in no imminent danger even if the next service mission is put off indefinitely. It is now in an orbit about 350 miles high. How long it could stay there depends on sunspot activity, which bloats the atmosphere, causing drag on the telescope. Even under the worst circumstances, Hubble would not fall until 2013, according to a NASA study. But with a series of small altitude boosts supplied by the shuttle in 2005 and 2009, it could stay up until 2020 or beyond.

Leading the charge for another extension are the astronomers of the Space Telescope Science Institute on the Johns Hopkins campus in Baltimore.

In a policy statement full of statistics testifying to Hubble's dominance of contemporary astronomy, Dr. Steven V. W. Beckwith, the director of the institute, argued that as a result of the astronauts' service calls, Hubble had essentially been reborn every few years, allowing it to stay on top of its game.

"A servicing mission to Hubble is comparable in science value to the launch of a new satellite and should be judged as such," Dr. Beckwith wrote.

As a result, the number of scientific papers based on Hubble observations still grows every year.

Dr. Beckwith argued that sending astronauts to fit the telescope with a propulsion module would be less risky than trying to develop a robot. If such a trip was necessary, he said, the marginal cost of fixing it up for a few more years of science would be a bargain.

Dr. Kinney of NASA said the agency was merely following the wishes of the astronomical community, as expressed in a recent report prepared under the auspices of the National Academy of Sciences. That report listed what would become the Webb telescope, designed to probe early cosmic history when galaxies and stars were first forming, as the highest priority.

"We have to ask, what is the best research for the taxpayer's dollar?" she said.

Dr. Robert Kirshner of the Harvard-Smithsonian Center for Astrophysics said in an e-mail message that he thought Hubble was working better than it ever had, "so the equation has changed." He said it would not be easy to decide how best to serve science.

Dr. Wendy Freedman, director of the Carnegie Observatories in Pasadena, Calif., said NASA was asking the right questions with the Bahcall committee. "At some point, it makes sense to go on and do new things — the risks, budget and promise of greater potential make this easy to determine," she said. "The question is, is H.S.T. at this point? Or not?"

Dr. Faber of the University of California said she thought there was a lot of support to keep Hubble going.

"Hubble is unique. Nothing else can do what it can do," she said. "Once it's gone, we're going to be paralyzed. We've gotten hooked. We're addicted."

FAMILY OUTING WITH MARS

By Don Nakic

To commemorate Mars opposition, FAAC will be holding a picnic/observing night at Island Lake Park Saturday, August 30th. The picnic will start at 6:00pm followed by an opportunity to witness a once in lifetime view of Mars at peak opposition (okay, it's a few days beyond peak but who is counting). The picnic is open ended, so if you want to bring some extra food and games to share with others it would be greatly appreciated. So, bring your family, your friends, and your optical aid to share in this great experience. I look forward to seeing you there!

NEW MEMBER WELCOME !

FAAC Welcomes the following 2003 new members:

Jeevak	Badve	John	Morley
Jim	Berish	Bob	Polmanter
Bill	Binkelman	Raymond	Rauen, Jr.
David	Brown	Jim	Redmer
Alvin	Buch	Donald	Sommers
Jason	Burt	Greg	Stempfle
Rajneesh	Chaganla	Gary S.	Strumolo
Jeff	Delanoy	Joe	Vargas
Donald	Demam	James	Wright
Charles	Jones	Stanley	Zarosly Jr.
Bob	Marable		

BEGINNERS NIGHT RECAP – AUGUST 9th

By John Kirchhoff

The last Beginner's Night at Island Lake for 2003 was held Saturday August 9th at Spring Mill Pond. The iffy weather and two day less than full moon did little to dampen the enthusiasm of everyone present and the lure of Mars gave us the biggest turnout of the season. We counted over 50 cars present in the parking lot as dusk settled in on the park around 9pm.

Our club members brought a great selection of equipment out to the field, too bad time did not permit looking at it all! The most unique piece of hardware was Chuck's Meade LX200 12" travel observatory, complete with dome, kitchen, bed and truck. That's one way to beat the Michigan nebula, drive to Arizona! Tony had his Celestron 11GPS and was working on his auto guider setup. Clay and Jan Kessler brought a couple of scopes and Clay gave me some good advice on astrophotography. Mike Russo had his home-made Cassegrain working well and Joe Vargas was down at the end

of the parking lot with his 10" Orion dob. There was another 10" dob as well with digital setting circles... nice set up! Ray Rauen had a Celestron 11GPS with LOTS of custom features... Ray is a new member and sells lots of neat why didn't I think of that accessories for Celestron scopes. George Korody and Bob Fitzgerald teamed up the tandem reflector and binoculars to show off the sights. Dan Wellbaum was imaging with his SAC 7 camera and Rich Ernst had some absolutely stunning images of Mars on the monitor with his new Meade LX200 GPS and video setup. Dr. Joel Leib was also imaging with his LX90 and Nikon CoolPix. Yours truly made the rounds tweaking a few scopes and tempting a couple of members with some NICE TeleVue eyepieces!

I would just like to thank everyone in the club for talking up our Beginner's Nights. I had a lot of fun seeing everyone and look forward to participating again next year. We had a number of new recruits at this one (any new memberships Gordon?) and I can't help but be encouraged by all of the new faces! Now if I can just remember everyone's name....

ASTRONOMICAL IMAGING S.I.G.

By George Korody

The meeting date for the next Astronomical Imaging S.I.G. is not yet available from the Ford Family Service and Learning Center. The date will be around the middle of September. S.I.G. members will be advised via E-mail when the date becomes available. The main topic at this meeting will be Planetary Imaging Techniques, with imaging of Mars being emphasized. Jim Frisbie will lead the presentation and discussion, which will include CCD digital, video, and film imaging. Directions to the meeting place can be found at <http://www.boonhill.net/faac/newlocationmap.htm>. All FAAC Members are welcome.

July 24, 2003

General Membership Meeting

5:00 pm to 6:45 pm

Agenda

- Introductions	Don Nakic	25 min
- Reports: Treasurer's Secretary's	Gordon Hansen Don Klaser	10 min
- Old/New Business	Don Nakic	10 min
- Upcoming Events	Don Nakic	15 min
- Technical Discussion	Gary Strumolo	15 min
- Telescope Pointing	George Korody	30 min

ASTRONOMICAL CALENDAR

August 2003

All times are Eastern Standard Time or Eastern Daylight Saving Time, whichever applies.

Aug 27	New Moon 1:26 pm
Aug 27	Mars at Closest approach to Earth
Aug 28	Mars at opposition – up all night -
Aug 30	Mars at Perihelion – closest to sun

September 2003

Sept 3	First Quarter Moon 8:34 am
Sept 9	Moon near Mars - evening
Sept 10	Full Moon 12:36pm (Harvest Moon)
Sept 18	Last Quarter Moon 3:03am
Sept 19	Mercury stationary
Sept 20	Moon near Saturn - morning
Sept 23	Equinox 6:47am
Sept 24	Mercury near Moon – morning
Sept 24	Thin crescent Moon near Jupiter – dawn
Sept 25	New Moon 11:09pm
Sept 29	Mars stationary

This information was obtained from the Henry J. Buhl, Jr. Planetarium in Pittsburg, PA.

FAAC CALENDAR

Activity	Date	Time
- General Meeting	Aug 28	5 pm
- Mars Family Outing	Aug 30	6 pm
- GLACC	Sept 5,6	
- FAAC Board Mtg	Sep 11	5 pm
- General Meeting	Sep 25	5 pm
- GLSG	Sep 26	5:30 pm
- Island Lake Star Party	Oct 4	6 pm
- FAAC Board Mtg	Oct 9	5 pm
- General Meeting	Oct 23	5 pm
- FAAC Board Mtg	Nov 13	5 pm
- General Meeting	Dec 4	5 pm



The Ford Amateur Astronomy Club
Presents:

THE 11TH ANNUAL



Saturday, October 4th, 2003
6 PM – ??

This event will be held rain or shine – cloudy or clear!!



RIDER'S
HOBBY SHOPS
THE BETTER HOBBY PEOPLE!



Event Listing:

- ◆ **Telescopes of all kinds** – Available to look at and look through . Have questions? Just ask!
- ◆ **Observing Tour for Children** – Kids who register will be given an observing list. Marked telescopes will be on the field for the challenge. A certificate of achievement, and a gift from the Ford Amateur Astronomy Club, will be awarded to all who complete the observing list!
- ◆ **Astronomical Equipment**, educational material, books and star charts will be on display and made available by our sponsors.
- ◆ **PRIZES!!!** - There will be door prize drawings for telescopes and other items (10PM).
- ◆ **Presentations and Demonstrations by local Technical Experts.** These are designed to answer your questions about equipment and observing techniques and help you to get the most from your telescope, which will include: **Comet Making 6PM; How Cold is Space? (Liquid Nitrogen) 6:30PM; Beginner Telescope Equipment & Facts 7PM; Astronomy 101 7:30PM; Clay Kessler's Astronomy Photos 8:15PM; Autumn Sky 9PM; and Pointing Out Constellations on the Beach 9:30PM.**

Your Telescope is Welcome!!



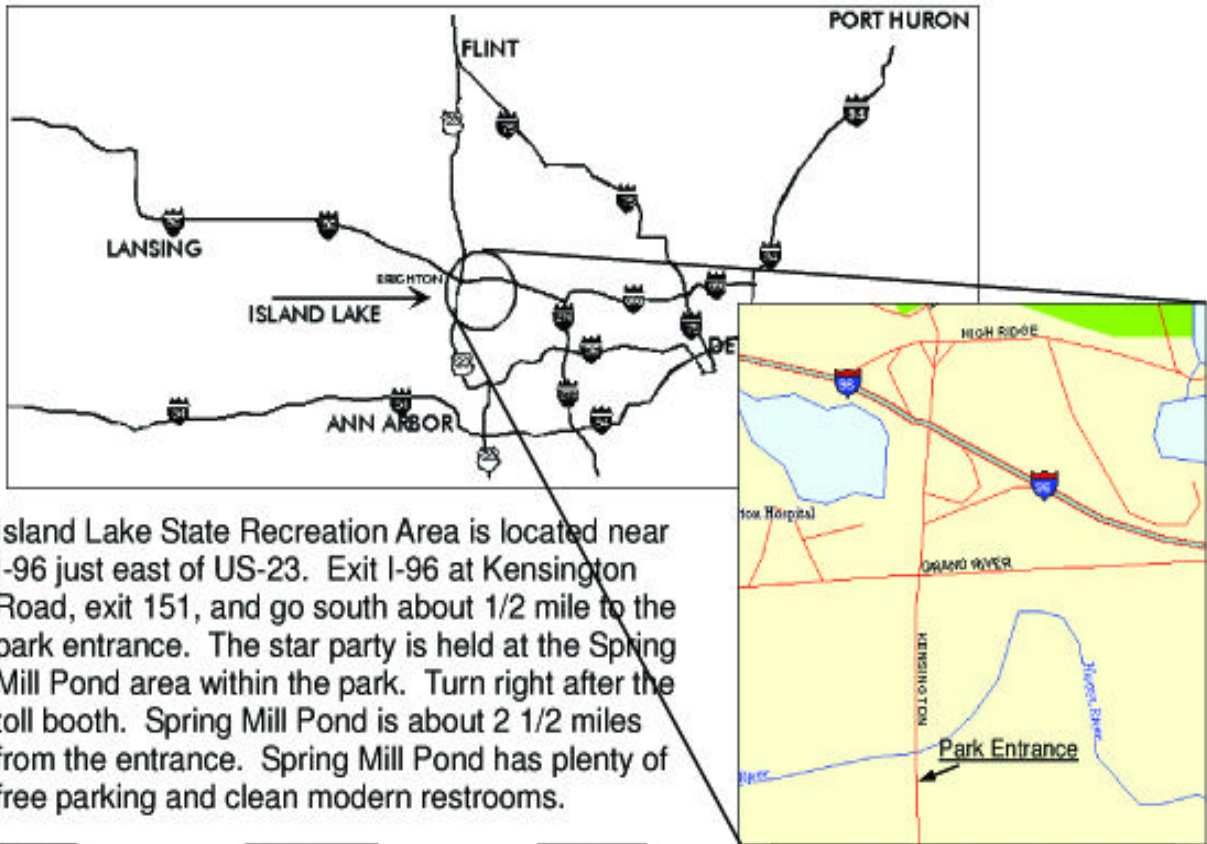
If you have questions about your equipment this is the perfect opportunity to get the helpful advice you need. Limited AC power and plenty of space is available. Please arrive before dark to allow for set-up time.

No telescope? No Problem! There will be lots to look through – just bring your curiosity!

Admission is Free* and Children are Welcome! Please dress warmly. All events are outdoors.

* You need a State Park Vehicle Permit if you don't have one – a daily permit is \$4.00





Island Lake State Recreation Area is located near I-96 just east of US-23. Exit I-96 at Kensington Road, exit 151, and go south about 1/2 mile to the park entrance. The star party is held at the Spring Mill Pond area within the park. Turn right after the toll booth. Spring Mill Pond is about 2 1/2 miles from the entrance. Spring Mill Pond has plenty of free parking and clean modern restrooms.



Please Remember – Clear Autumn nights can get very cool. Bring warm clothes. And don't forget the State "Bird" - bring mosquito repellent.

It is polite to cover your flashlight with a red filter so as to avoid spoiling anyone's night vision.



Comet Ikeya-Zhang - By Clayton Kessler



**Ford Employees
Recreation Association**



The Island Lake Star Party is an ideal outing for Scout Troops and Class Trips. We strive to provide an atmosphere where presentations are educational and FUN. Don't forget – Spring Mill Pond is our regular observing site. Members are there most clear Friday and Saturday evenings. Call our Observing Hotline at (313) 390-5456 to confirm an observing weekend and join us! Check out our Web site at <http://www.boonhill.net/faac/>. E-mail faac1992@hotmail.com

CCD Image of Saturn by George Korody, CCD Image of Jupiter by Doug Bock, Northern Cross Observatory

GENERAL INFORMATION

Location and dark sky are the main attractions of this star party. Gladwin's central location provides excellent observing without traveling hours into Northern Michigan. Limiting magnitudes are estimated to be around 6.5 at zenith with some minor light domes from the cities of Mt. Pleasant and Midland, some 30 miles away. This is a star party for the amateur astronomer who loves to observe and mingle with other amateurs. Some practical and interesting talks are scheduled to enhance your weekend experience.

STAR PARTY HIGHLIGHTS

Friday, September 26th:

5:30 – 6:30

- Registration begins

6:30 – 7:30

- Star Party Kickoff...
- Opening Comments

7:30 – 8:30

Astronomy Talk

- "Observing Challenge" - *Tom Trusock*
- "Astrophotography" - *Clayton Kessler*

8:30 – ???

Observing on the hill

- *Welcome tent open all night*
Free hot chocolate/ coffee
Pop and popcorn available
- Bring your scopes!

Saturday, September 27th:

11:00 – 1:00

- Swap meet on the hill
- Bring your old equipment

1:00 – 2:00

- Lunch on your own

2:00 – 3:00

- Solar Observing Presentation by *T.B.A.*

3:00 – 4:30

- "Build a Dob in an Hour"
Kevin Dehne & Kristen Rill

4:30 – 6:00

- Dinner on your own

6:00 – 8:00

Astronomy Talks

- "Equipment Talk" - *Jason Blaschka*
- "Lunar Observations" - *Dick VanEffen*
- "Double Stars" - *Dale Penkala*

8:00 – 8:30

- Door Prize Drawing


8:30 - ???

- Observing on the hill
- *Welcome tent open all night*
Free hot chocolate/ coffee
Pop and popcorn available
- Bring your scopes!

Sunday, September 28th:

Departure by 12:00


The First Annual
Great Lakes Star Gaze
"A star party with dark skies!"



September 26-28, 2003

Held under the dark skies of
**River Valley RV Park,
Gladwin, MI**

Sponsored by the
Sunset Astronomical Society



REGISTRATION FORM: Complete, detach and mail this registration form along with a check or money order.

Name: _____ Phone: _____ e-mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Check appropriate box below and make check out to the "Sunset Astronomical Society".
Mail to: **Joseph Bruessow 2200 Nine Mile Rd. Kawkwawin, MI 48631**

One Night Tent - \$10.00 individual (Friday, September 26th or Saturday, September 27th) \$17.00 per family
 Two Nights Tent - \$15.00 individual (Friday, September 26th and Saturday, September 27th) \$28.00 per family
 One Night (travel trailer) - \$5.00 + campground fees in RV park. (See other page)
 Two Nights (travel trailer) - \$10.00 + campground fees RV Park. (See other page)

Registration must be post-marked no later than August 31, 2003. Late registration (after 8/31/03) and "at the gate" is limited to space available and will cost an additional \$5.00 per night.

Great Lakes Star Gaze GETTING TO RIVER VALLEY RV PARK

From US-10
Travel 12 Mi. N. from Loomis Exit.

From US-27
Travel 6-1/2 Mi. E. from Lake George Exit.
From M-61 travel 2-1/2 Mi. S. on Bailey Lake Ave. (midway between Gladwin and Harrison).

WHAT IS INCLUDED WITH YOUR REGISTRATION:

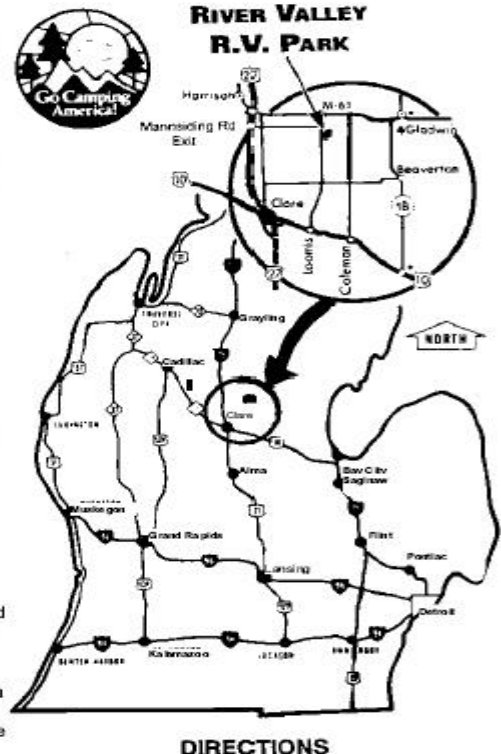
- Registration of your family
- Tent camping on the observing hill for you and your family.
- Hot coffee/ chocolate in welcome tent
- 1 ticket for door prize raffle
- Hot shower/ clean restroom facilities

WHAT IS NOT INCLUDED WITH YOUR REGISTRATION:

- Travel trailer site
- Full hook-up sites are available by contacting **River Valley RV Park at (989) 386-7844**; their website is <http://www.rivervalleyrv.com>
- Cost of full hook-up sites is an additional \$25-27 per night above and beyond the star party registration fees.

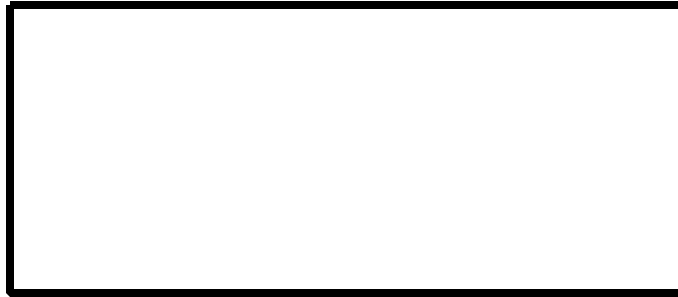
LATE REGISTRATION:

Registrations after 8/31/03 should include a \$5.00 late fee and are limited to available space. This includes registration at the gate.



DIRECTIONS

Ford Amateur Astronomy Club
Star Stuff Newsletter
P.O. Box 7527
Dearborn, MI 48121-7527



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Store Hours: M-F 10am-9pm SAT 10am- 6pm SUN Noon-5pm	Gen. Manager: John Kirchhoff Website: http://www.riders.com Email: riderslivonia@aol.com	30991 Five Mile Rd. Livonia, MI 48154 Tele: 734.425.9720 Fax: 734.425.2029
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"THE LEGEND CONTINUES" ...

- Rider's Hobby Livonia is now an authorized dealer for Lumicon International. Save 10% on your prepaid order for filters, film and accessories.
- New! Celestron Baader Contrast-Booster Filter \$49.99
Club Member price \$39.99 with this ad!
- Celestron Observer's Kit (includes case, eyepieces and filters) with purchase of Celestron telescope \$99.99 (over \$300 retail value)