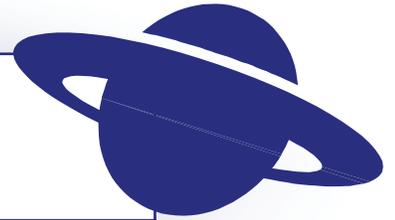


April 2006

The Voyager



East Valley Astronomy Club

Volume 20 Issue 4

From the Desk of the President by Steven Aggas, 2006 EVAC President

Twice a year members of EVAC gather together to go on a treasure hunt along US 60. Along the way we collect everything except the kitchen sink (believe it or not there is a list of specifics not to collect!). You too could come away with the most prized find. Once I found a basketball in excellent condition, and a bicycle, although I had to give up the bike to the cross-country traveler who was sleeping in the ditch. The club doesn't plant the field like most treasure-hunts, we leave that up to every

other driver in the state. If you haven't guessed it by now, I'm talking about the semi-annual trash pickup along our mile stretch of US 60. Join us on April 8th, a Saturday, at 8am for what's sure to be a good time. We meet at the Amber Alert sign that spans the highway, on the south side of the east-bound lane. Also, after the event will be a club-sponsored brunch at the Village Inn in Apache Junction. Join us for a good time and food!

As our speaker for the April General Assembly

meeting we will have Mr. Rogier Windhorst talking about the 'James Webb Space Telescope'. This should be a very interesting meeting as the JWT is expected to replace the Hubble Space Telescope even though it does not have a similar wavelength range. Join us at the Southeast Regional Library (Gilbert Public Library) on Friday, March 17th at 7:30PM. The GPL is located at the Southeast corner of Greenfield and Guadalupe Roads.

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The Backyard Astronomer Disasters in the Night by Bill Dellenges

When you mix expensive equipment with darkness and fatigue, things can go terribly wrong. Since these three factors basically define stargazing, it's no wonder most stargazers can recall nights in which they wished they'd just stayed home.

In the field:

I was the last one to leave a star party at Florence Junction. I turn the key. Click-click. Nothing. Dead battery. An overnight

camper whose bonfire we had cursed all night gives



me a jump. But the battery is apparently beyond help and dies as I reach the dirt road about a half mile short of Highway 60. My cell phone doesn't work from here. A passing car stops to inquire if I'm in trouble. Their cell phone does work, so I call my wife to explain the situation and ask her to ring AAA. An hour goes by. I think I better walk to the highway so he can see me. Just as I

(Continued on page 2)

April Events:

- *Boyce Thompson Starnight - April 1*
- *Moon, Stars & Even Mars at Desert Botanical Garden - April 4*
- *Desert Shadows Science Fair - April 10*
- *Public Star Party at Riparian - April 14*
- *April General Meeting - April 21*
- *Local Star Party at Boyce Thompson - April 22*
- *Deep Sky Star Party at Vekol Road - April 29*

The Backyard Astronomer

(Continued from page 1)

arrive with my flashlight on, a tow truck zooms by, then slows and turns around. Had he not seen the flashlight beam he would have kept going. He drives me and my car back to my home about 3 a.m. Never be the last guy to leave a star party.

Once, at Picketpost Mountain, I set up on an ant colony. I moved to another location after discovering my mistake.

Leaving in a hurry from a Riparian star party, I pulled too hard on my pickup's tailgate handle. The plastic handle shattered. I had to stick all my scope parts through the shell window as the gate would not drop down. Ka-ching, \$100 to fix.

Eyepieces (ep): Though I generally keep my ep's in an accessory case with their dust caps on, one night I tried putting one back without the caps on resulting in a nice large clear fingerprint on the eye lens.

Like missing socks in the dryer, where the heck do those dust caps go? I always seem to be missing one.

I wish I had a dollar for every time I forgot to remove a moon filter from an ep and wondered why other objects seemed so dim in the telescope.

I have found that an orange filter will make M27 (the Dumbbell Nebula) completely disappear. After using the filter on Saturn (and forgetting to remove it), I tried to sweep up M27. No luck. I could see it in the finder but couldn't for the life of me find it in the scope. I told a friend I refused to give up until I found it. I worked on it for 30 minutes. Frustrated, and having thrown my back out, I finally gave up. My back hurt for two weeks.

Tired and goofy, I once tried to slip an ep into what I thought was a Barlow lens. It was another eyepiece! (Remember, it's dark! And I'm goofy). I lucked out – no damage was done.

Unloading the car after a star party, I notice there is a Radian ep missing from my ep case. Gulp. Oh god, did I leave it lying in the grass or something?! Hmmm, don't panic, maybe it's around here somewhere. Where do I find it? It's sticking in an ep hole in the C-8 tripod spreader shelf which is lying in the back of my pickup on its side. It somehow stayed put even after I had picked up the tripod earlier in the evening, held it parallel to the ground and slid into the car.

Telescope: Forgetting a part. I once drove to Lake Havasu City to show relatives a few things through my 5" refractor. The mount is a GM-11. I forgot to pack the "semi-pier", the part that goes between the equatorial head and tripod legs. No star party that night.

At Picketpost, with the same equipment, I realized I had forgotten to bring the tube rings. My equipment that night would be 8x50 binoculars.

How about an unbalanced scope? Pretty scary to have one take off on you.

You carefully find your object in the finder. Hmmm, not in the ep. What's the problem? Oh yeah, forgot to take the lens cap off the front of the telescope (Has anyone not done that?).

Many a time I have wondered why my GM-11 mount wasn't tracking properly. Close inspection revealed the right ascension cord plugged into the declination motor and the declination cord plugged into the right

ascension motor! I'm surprised the mount didn't explode.

Polar Alignment: A number of times now, in an attempt to polar align perhaps a little too early, I've aligned on a star other than Polaris. I'm here to tell you this can result in poor tracking.

Recently I thought I did a nice job roughly polar aligning but was mystified as to why the tracking was way off. Turns out the polar axis was pointing 180 degrees away from Polaris. I had aligned it on Polaris, but backwards.

Eclipse: The ultimate horror - no film in the camera. I almost suffered this ignominy at the 1991 Baja eclipse. The day before, I suspected that the roll in the camera might not have enough exposures left to take the number of pictures of the eclipse I required. I had been shooting up a storm that day taking many shots of noted astronomers on the tour. That night I opened the camera to put a fresh roll in for the next day's eclipse to discover there was no film in the camera! Had I not decided to change rolls that night, I'd be shooting the eclipse with an empty camera.

Also on that day, Dick Nelson, former owner of the Optical Craftsmen telescope company, and I decided to see if our camera lenses were interchangeable. I put his lens in my camera and it got stuck. What a dumb thing to do a day before the eclipse of the century. Using small screw drivers, it took me an hour to get that darn lens off my camera.

So there you are, a few of my blunders in the night. At least nothing too disastrous or costly has happened to me. And most important, no one knew about them except me... until now.



Saturday Night with Saturn

by Laurice Dee, Ph.D.

Saturn in the Night Sky

I arrived at the Wind Cave trailhead after completing my hike on Saturday evening, 28 January 2006. I decided to hang around, so that I could enjoy the evening twilight. Saturn, reaching opposition (opposite the Sun in our sky) the evening before, rose from the east not too long after the Sun set. While the ringed planet hung right above the Usery Pass mountain (the location of the Wind Cave trail), it was becoming a little more visible as the evening sky got a little darker. Gazing at Saturn, my mind went back to

the summer of 1997 when my interest in robotic solar system became quite profound. Shortly after I started following the Galileo mission (to Jupiter), I learned that there was a new mission to Saturn and that the spacecraft was being prepared for the 6 October 1997 launch to the sixth planet in our solar system. After reading information about Cassini, I became so excited and decided to follow the

progress of the mission, even before the spacecraft was transported to the launch pad at Cape Canaveral Air Station in Florida after a series of functional tests at Kennedy Space Center. (Since the Galileo spacecraft was close to completing its primary mission in December 1997, I did not get the chance to follow its progress from the very beginning.) I thought that the exploration of Saturn, its majestic rings, multiple moons, and

huge magnetosphere would be quite neat.

The Beginning of the Cassini Mission

The launch preparations for Cassini did not really go very smoothly. First, there were protests on the launch pad because Cassini was carrying 72 pounds of nuclear fuel, which could be a threat to the environment, as well as to the safety of people, in case of launch disaster. Talks were given to convince the public on the low probability of nuclear fuel causing harm to Earth and the

been in Florida at that time, I'd participate in the event in a heartbeat, since I am a lap swimmer and have been for so many years!

Second, there was a malfunction in the air cooling system for the Huygens probe (which was attached to the Cassini mothership) which ruined its insulation. Both Cassini and Huygens had to be taken down from the rocket, so that the insulation could be repaired, causing one-week delay to the launch.

The launch was delayed again for two days when one of the ground

tracking stations was not up and running. However, everything started to come together for the mission with the uneventful launch on the 15th of October. The Titan IV carrying Cassini and Huygens lifted off spectacularly, lighting up the whole town shortly before daybreak. I watched it on TV when the launch was shown live via CNN, and I could not have been more elated!

Cassini's Journey to the Saturnian System

Instead of traveling directly from Earth to Saturn, Cassini received gravitational boost from Venus, Earth, and Jupiter

enroute to Saturn. This was accomplished by a flyby of each of the above planets. If Cassini were to fly toward Saturn after the launch, the spacecraft would have to carry a great deal of fuel which was not too practical in terms of design and cost. Cassini being given the "slingshot" by the planets allowed for greater velocity which enabled the spacecraft to get to Saturn without having to lug so much fuel in space.

(Continued on page 4)



The Cassini spacecraft and Huygens probe begin their seven-year journey to the ringed planet. The successful launch of Cassini aboard a Titan IVB/Centaur occurred at 4:43 a.m. EDT, October 15, 1997. This picture of the Cassini launch was taken by Ken Sturgill of Marion, Virginia, using a 30 second, f 1.8, exposure on 400 speed film. Photo courtesy of NASA/JPL.

necessity of use of plutonium pallets as a power source to keep electricity running on Cassini's instruments and subsystems while in space. In spite of the protests, there were so many that were in favor of the Cassini mission. In fact, a group of physically fit individuals held an event called "Swim for Cassini", and these exercise-conscious people swam across the Banana River (just west of Cape Canaveral Air Station) to show their loyalty for the mission. If I had

Saturday Night with Saturn

(Continued from page 3)

The spacecraft flew past Venus the following April after the launch and again in June 1999. Cassini had its closest approach with Earth about two months later before heading for the outer solar system to rendezvous with Jupiter in December 2000.

During the spacecraft's encounter with the Jovian system, Cassini performed concurrent studies of Jupiter and its Galilean satellites with Galileo. (Galileo was in its extended mission at that time.) While Cassini was traveling outside of Jupiter's magnetosphere, it studied the interaction between the solar wind and the magnetosphere. While Galileo was flying inside the magnetosphere, it gathered information on how the interaction affected the highly-charged particles that were floating inside the magnetosphere. Both spacecraft taking measurements simultaneously aided in the understanding of the changes that took place inside, as well as outside, of the magnetosphere in response to the solar wind emitted from our star, the Sun.

Besides taking measurements of Jupiter's magnetic field, as well as the magnetosphere, Cassini took images of Jupiter and its Galilean satellites which turned out extremely well during the calibration of the remote sensing instruments. The concurrent studies took place from October 2000 to March 2001 while Cassini was millions of miles from the Jovian system. Cassini's closest approach with Jupiter occurred on 30 December 2000.

After leaving Jupiter, Cassini went into "hibernation", since it had a long way to go before arriving at Saturn. The mission team at JPL communicated with the spacecraft on a weekly basis via the Deep Space Network to monitor the health of its instruments and subsystems. Engineering-related housekeeping was also performed on Cassini routinely.

Cassini started taking images of Saturn when the ringed planet became

visible during the second half of 2003. As the spacecraft was getting closer to Saturn, the planet grew larger in Cassini's "eyes". The excitement was building up for the mission team, as well as for the space community, in anticipation of Cassini's arrival on 30 June 2004.

Cassini had its first encounter with Phoebe, the outermost moon of Saturn, on 11 June, approximately three weeks before arriving at Saturn. Phoebe has a retrograde orbit and is about a million miles away from Saturn. During the once-in-a-lifetime rendezvous with Phoebe, Cassini took images of the icy body and took measurements of its physical and chemical characteristics. The images revealed cliffs, depressions, mesas, and craters on Phoebe's surface. According to the scientists, Phoebe was thought to be an icy rock, possibly from the Kuiper Belt, that was captured into the solar system by Saturn's powerful gravity.

The day finally came for Cassini to perform the Saturn Orbit Insertion (SOI) burn by firing its main engine so that it could slow down and allow Saturn's gravity to "capture" it into orbit around the planet. The maneuver was done successfully, and Cassini was finally at Saturn after more than 6 years since leaving Earth!

Cassini's Current Grand Tour

What can I say about Cassini's "experience" being in the Saturnian system? The best I can say is that it has been incredible since the spacecraft arrived at Saturn almost two years ago. Hey, where has the time gone?! It only seems like yesterday I was watching the launch and enjoyed following Cassini while it traveled approximately 3 billion miles to the Saturnian system! I was even at JPL to take part in the "celebration" of Cassini's second Venus flyby, as well as its Earth flyby, back in 1999. Both events were quite memorable, indeed!

Cassini has taken many, many raw images of Saturn, its magnificent rings, and its multiple moons during

the last 21 months. Plenty of measurements have been taken of Saturn's huge magnetosphere, as well as its magnetic and gravitational fields. The images definitely speak for themselves. The Saturnian system could not have been more beautiful! I will let all of you browse through the following websites: <http://saturn.jpl.nasa.gov/> and http://www.nasa.gov/mission_pages/cassini/ to enjoy the images, as well as mission-related news.

Cassini achieved one of its milestones since arrival at Saturn by releasing the Huygens probe on Christmas Eve 2004. The probe then plunged into Titan, Saturn's largest moon, on 15 January 2005 to study its thick atmosphere while parachuting slowly to the surface for detailed analysis of the surface, as well as Titan's entire environment. Cassini was on hand to receive data transmitted by Huygens during its 3-hour mission and then transmitted them to Earth. The findings were quite awesome, particularly the images of Titan's varied surface.

During Cassini's flyby of Titan on 18 March 2006, the spacecraft transmitted radio waves to Earth by passing them through Titan's atmosphere while flying from behind. This latest flyby was one of the numerous flybys of Titan performed by Cassini since it arrived at Saturn. The spacecraft will continue to have its encounters with this enigmatic moon of Saturn's. The information brought back from past Titan flybys is quite out of the world!

Cassini, of course, has had its close encounters with some of other Saturn's moons and will continue to do so throughout the rest of the primary mission. Speaking of Saturn's multiple moons, the latest news is this: Cassini may have found evidence of liquid water reservoirs that erupt in Yellowstone-like geysers on Enceladus, one of the moons that lies within Saturn's ring system. Cassini will continue to perform further studies

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April Guest Speaker: Dr. Rogier Windhorst

Professor Windhorst received his Ph.D in Astronomy in 1984 from the University of Leiden in the Netherlands. He did post-doctoral research as a Carnegie Fellow at Mt. Wilson and Las Campanas Observatories, and then worked as a Project Scientist at the California Institute of Technology. He joined the faculty in the Department of Physics and Astronomy at Arizona State University in 1987, and now serves as Associate Chair.

Dr. Windhorst holds a deep commitment to the astronomical community in which he works. He is the author of more than 100 published scientific papers, has given over 125 colloquia or seminars, and attended 60 international symposia in more than 10 different countries. Since 1989, he has brought in over 35 federal grants from NASA and the NSF (totaling over \$1.4 million) for different research projects.

Since 1990, he has been involved in 30 different projects with the HST, which have used the WF/PC, WFPC2, FOC, FOS, GHRS, NICMOS, and STIS instruments. He is currently the Principal Investigator of the HST mid-UV bright galaxy survey.

Dr. Windhorst's presentation is entitled: The James Webb Space Telescope: How Will it Explore the Epochs of First Light, Reionization, and Galaxy Assembly?



The 2006 Messier Marathon - From a Different Point of View

The Messier Marathon is that annual springtime event that brings together many amateur astronomers with a single purpose: to race against the Sun to observe all objects in the Messier catalog. This year could be special, as all 110 would be possible. Sure, twilight would make a few quite challenging, namely M74, M77 and M30.

I've been told that the All-Arizona Messier Marathon, hosted by Saguaro Astronomy Club, is the largest such event. On hand to witness this phenomenon was none other than Don Machholz, recognized by many as the Marathon's biggest promoter.

As Marathon weekend drew near, the weather forecasts looked promising. The much needed rains had come and gone, with no rain in the forecasts.

I loaded my truck on Friday morning and headed out to Farnsworth Ranch. It was already quite warm with spotty high clouds. As I exited I-10 at Sunland Gin Road and proceeded to drive through Arizona City, I was hopeful that this year I could better last year's mark of 109. But, I reconciled myself to the fact that it would be two nights of observing

with some wonderful people regardless of how the following night's Marathon played out.



The dirt road portion of the drive was pleasantly smooth, as the road had been recently graded. Dusty, yes... but smooth.

I arrived at the site mid-afternoon and discovered that I was the fourth vehicle. There are usually a dozen or so people who arrive on Friday to get an extra, pre-Marathon, night of observing. By dusk the field held 25 vehicles.

Upon selecting an appropriate site near the middle of the field, I began unloading the truck. I set up my tent and shade canopy followed by my 18"

Obsession and 80mm refractor. Now the wait for darkness...

While most of the sky was clear, a bank of clouds hovered on the western horizon. This could make the 'early objects' more challenging than usual if the weather pattern was repeated the following day.

While some attendees planned to practice for the Marathon, I decided to forego the Messier catalog and work on a couple of EVAC observing lists that were nearly complete: Galaxies and Edge-On Galaxies.

Random cloudiness persisted throughout the evening, but generally cleared after midnight. The last hour or so of the night was spent observing Jupiter, both in my 18 and in Matt Luttinen's excellent 12½" reflector (with Zambuto optics). The detail observed was quite memorable: within the Great Pale Spot and the four following nodules. Also noted was a prominent festoon extending from the North Equatorial Belt into the North Tropical Zone. As I crawled into my tent at 04:30 and listened to Rachmaninoff's Second Piano Concerto on my iPod I felt the contentment a long night of observ-

(Continued on page 13)

Classified Advertisements

Thousand Oaks Solar Filter



Thousand Oaks white-light solar filter is a 2+ and is nearly new. It comes with a foam-fitted cigar box case. This filter fits the 4.5" newt to the right. Price \$50. If you are interested, please contact Steven Aggas.

Contact info: president@eastvalleyastronomy.org

16" f4.5 Meade Starfinder Eq. Mount

Optics remounted into a new tube, built by Pierre Schwarr with a JMI focuser. Includes 7, 12.5, 17, 20, and 32mm eyepieces plus 2.8 Klee Barlow, laser collimator and an Olympus OM1 camera.

Many extras! I have \$5200 invested in this telescope package, but will sell for \$2000

Dave Rainey 602-980-0582
drainey7@cox.net

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6" f4 Dob



This 6" f4 Dob has a plasticast mirror and a 2" focuser. It could use a new coating, but still works great. The 31 Nagler in the photo is not included, cinder blocks are optional. Price \$200. If interested, please contact Steven Aggas.

Contact info: president@eastvalleyastronomy.org

4.5" f9 Newtonian Reflector

The 4.5" f9 telescope has a glass mirror and a 1.25" focuser. The tube has some dents as it was used as a guidescope on my 20" for imaging. The equatorial mount (no motors) has new oak legs. Price \$150.

If you're interested, please contact Steven Aggas.



www.RotaryObs.org

Advertisements for astronomical equipment or services will be accepted from current EVAC members only. Ads will be published as space permits and may be edited. Ads should consist of a brief text description and must include a current member name and phone number. You may include your email address if you wish. Ads will be published until canceled (as space allows), so please inform the editor when your item has sold.

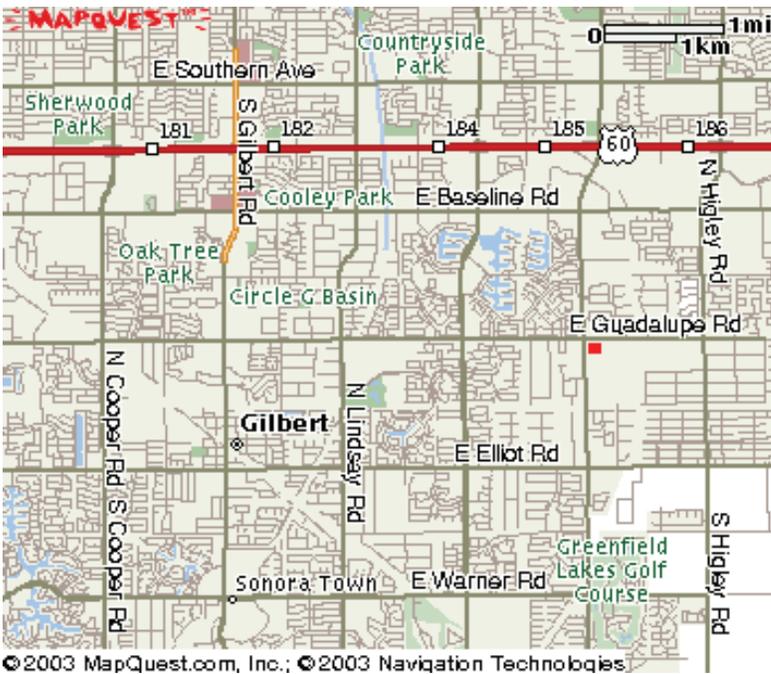
Ads should be emailed to: news@eastvalleyastronomy.org

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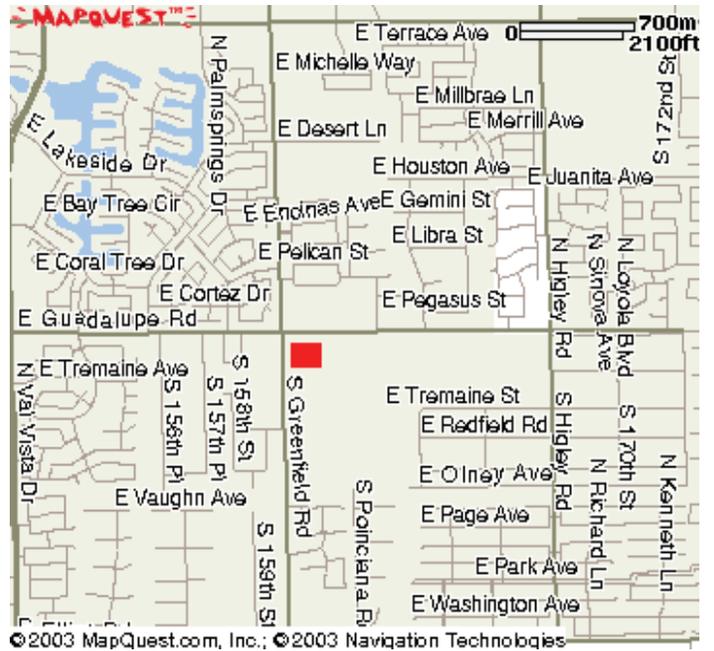
www.starizona.com



The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our meetings are held on the third Friday of each month, at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Rd., on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30pm.

Visitors are always welcome!



Southeast Regional Library
775 N. Greenfield Road
Gilbert, AZ 85234



2006 Meeting Dates

April 21

May 19

June 16

July 21

August 18

September 15

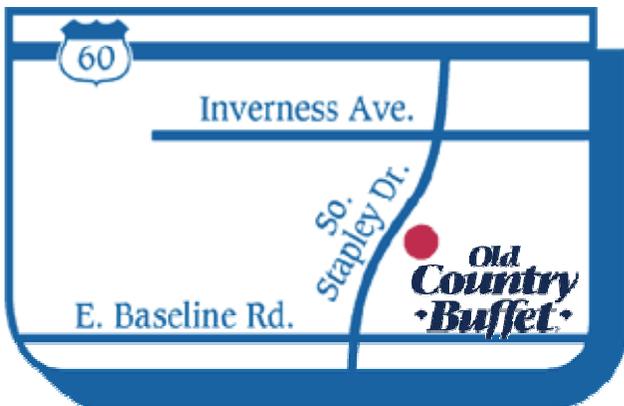
October 14 *Special Date*

November 17

December 15

All are welcome to attend the pre-meeting dinner at 5:30 PM. We meet at **Old Country Buffet**, located at 1855 S. Stapley Drive in Mesa. The restaurant is in the plaza on the northeast corner of Stapley and Baseline Roads, (near the Walmart Supercenter) just south of US 60.

Old Country Buffet 1855 S. Stapley Drive in Mesa



April 2006

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Schedule of Events	
◇	April 1 - Boyce Thompson Starnight
◇	April 4 - Moon, Stars & Even Mars at Desert Botanical Garden
◇	April 10 - Desert Shadows Science Fair
◇	April 14 - Public Star Party at Riparian Preserve in Gilbert
◇	April 21 - General Meeting at Southeast Regional Library in Gilbert
◇	April 22 - Local Star Party at Boyce Thompson
◇	April 29 - Deep Sky Star Party at Vekol Road

Minutes of March General Meeting

Meeting date: Friday, March 17, 2006

Meeting location: Southeast Regional Library in Gilbert.

The meeting was opened at 7:30 PM by President Steven Aggas.

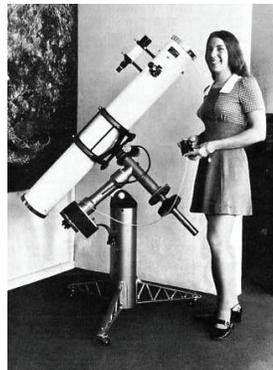
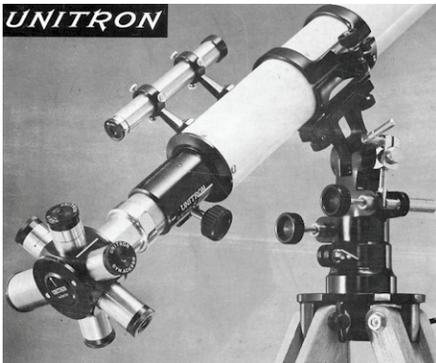
The March meeting was attended by 70 people. A representative from the Dorrance Planetarium at Arizona Science Center announced that volunteers are needed for International Astronomy Day, on Saturday, May 6. Randy Peterson followed with a schedule of events, including the Boyce Thompson Starnight on April 1 and EVAC's Adopt-a-Highway cleanup on April 8.

AJ Crayon gave final details for the All-Arizona Messier Marathon, which is scheduled for March 25-26. Tom Polakis represented SAC member Jack Jones in soliciting T-shirt orders for the marathon.

Win Pendleton gave a progress report on the Riparian-Rotary Observatory, which is being constructed a couple hundred yards from EVAC's meeting place. He requested that help will be needed in constructing the dome. Quite a bit of the foundation and pier work is completed. At this time, the instrument will be a 16" Meade R-C on a Paramount.

After Wayne Thomas' Treasurer's report came member presentations. Chris Schur was absent, but his Astronomy Picture of the Day of Comet Pojmanski was shown. Steven Aggas gave an account of his snowy ascent to his cabin in Overgaard, which culminated in a mile and a half hike in snowshoes.

Bill Dellenges was the main speaker. With 50 years of amateur astronomy experience, Bill took us on a tour of the evolution of commercial equipment from 1950 through 1970. This included the emergence of such companies as Cave, Unitron, Questar, and Celestron. Bill's tasteful use of Elvis Presley and Paul McCartney wigs to better define the epochs of scope-making was appreciated.



East Valley Astronomy Club -- 2006 Membership Form

Please complete this form and return it to the club Treasurer at the next meeting or mail it to EVAC, PO Box 2202, Mesa, Az, 85214-2202. Please include a check or money order made payable to EVAC for the appropriate amount.

IMPORTANT: All memberships expire on December 31 of each year.

Select one of the following:

- New Member
 Renewal
 Change of Address

New Member Dues (dues are prorated, select according to the month you are joining the club):

- | | |
|---|---|
| <input type="checkbox"/> \$30.00 Individual January through March | <input type="checkbox"/> \$22.50 Individual April through June |
| <input type="checkbox"/> \$35.00 Family January through March | <input type="checkbox"/> \$26.25 Family April through June |
| <input type="checkbox"/> \$15.00 Individual July through September | <input type="checkbox"/> \$37.50 Individual October through December |
| <input type="checkbox"/> \$17.50 Family July through September | <input type="checkbox"/> \$43.75 Family October through December |
- Includes dues for the following year*

Renewal (current members only):

- \$30.00 Individual**
 \$35.00 Family

Magazine Subscriptions (include renewal notices):

- \$34.00** Astronomy
 \$33.00 Sky & Telescope

Name Badges:

- \$10.00** Each (including postage) Quantity: _____

Name to imprint: _____

Total amount enclosed:

Please make check or money order payable to EVAC

- Payment was remitted separately using PayPal
 Payment was remitted separately using my financial institution's online bill payment feature

Name:

Phone:

Address:

Email:

City, State, Zip:

- Publish email address on website

URL:

How would you like to receive your monthly newsletter? (choose one option):

- Electronic delivery (PDF) *Included with membership*
 US Mail **Please add \$10 to the total payment**

Areas of Interest (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> General Observing | <input type="checkbox"/> Cosmology |
| <input type="checkbox"/> Lunar Observing | <input type="checkbox"/> Telescope Making |
| <input type="checkbox"/> Planetary Observing | <input type="checkbox"/> Astrophotography |
| <input type="checkbox"/> Deep Sky Observing | <input type="checkbox"/> Other |

Please describe your astronomy equipment:

Would you be interested in attending a beginner's workshop? Yes No

How did you discover East Valley Astronomy Club?

PO Box 2202
Mesa, AZ 85214-2202
www.eastvalleyastronomy.org

All members are required to have a liability release form (waiver) on file. Please complete one and forward to the Treasurer with your membership application or renewal.

Liability Release Form

In consideration of attending any publicized Star Party hosted by the East Valley Astronomy Club (hereinafter referred to as "EVAC") I hereby affirm that my family and I agree to hold EVAC harmless from any claims, liabilities, losses, demands, causes of action, suits and expenses (including attorney fees), which may directly or indirectly be connected to EVAC and/or my presence on the premises of any EVAC Star Party and related areas.

I further agree to indemnify any party indicated above should such party suffer any claims, liabilities, losses, demands, causes of action, suits and expenses (including attorney fees), caused directly or indirectly by my negligent or intentional acts, or failure to act, or if such acts or failures to act are directly or indirectly caused by any person in my family or associates while participating in an EVAC Star Party.

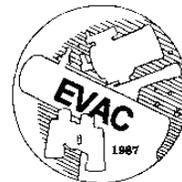
My signature upon this form also indicates agreement and acceptance on behalf of all minor children (under 18 years of age) under my care in attendance.

EVAC only recognizes those who are members or invitees and who also have a signed Liability Release Form on file as participants at an EVAC Star Party.

Please print name here

Date

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Planets in Strange Places

by Trudy E. Bell

Red star, blue star, big star, small star—planets may form around virtually any type or size of star throughout the universe, not just around mid-sized middle-aged yellow stars like the Sun. That's the surprising implication of two recent discoveries from the 0.85-meter-diameter Spitzer Space Telescope, which is exploring the universe from orbit at infrared (heat) wavelengths blocked by the Earth's atmosphere.

At one extreme are two blazing, blue "hypergiant" stars 180,000 light-years away in the Large Magellanic Cloud, one of the two companion galaxies to our Milky Way. The stars, called R 66 and R 126, are respectively 30 and 70 times the mass of the Sun, "about as massive as stars can get," said Joel Kastner, professor of imaging science at the Rochester Institute of Technology in New York. R 126 is so luminous that if it were placed 10 parsecs (32.6 light-years) away—a distance at which the Sun would be one of the dimmest stars visible in the sky—the hypergiant would be as bright as the full moon, "definitely a daytime object," Kastner remarked.

Such hot stars have fierce solar winds, so Kastner and his team are mystified why any dust in the neighborhood hasn't long since been blown away. But there it is: an unmistakable spectral signature that both hypergiants are surrounded by mammoth disks of what might be planet-forming dust and even sand.

At the other extreme is a tiny brown dwarf star called Cha 110913-773444, relatively nearby (500 light-years) in the Milky Way. One of the smallest brown dwarfs known, it has less than 1 percent the mass of the Sun. It's not even massive enough to kindle thermonuclear reactions for fusing hydrogen into helium. Yet this

miniature "failed star," as brown dwarfs are often called, is also surrounded by a flat disk of dust that may eventually clump into planets. (Note: This brown dwarf discovery was made by a group led by Kevin Luhman of Pennsylvania State University.)

Although actual planets have not been detected (in part because of the stars' great distances), the spectra of the hypergiants show that their dust is composed of forsterite, olivine, aromatic hydrocarbons, and other geological substances found on Earth.

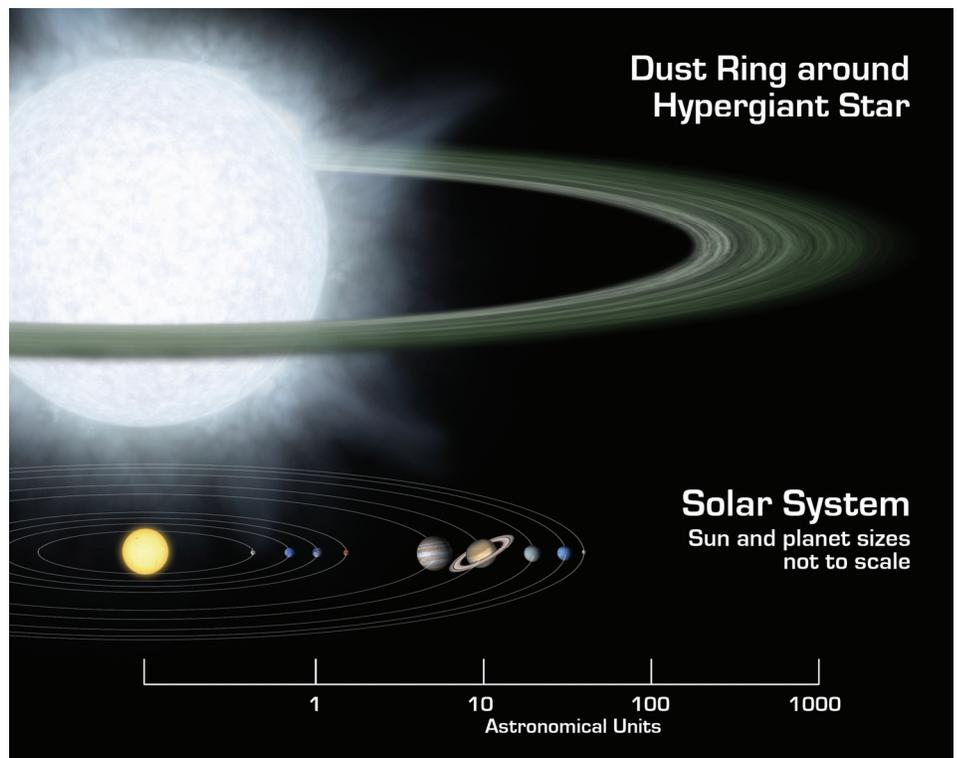
These newfound disks represent "extremes of the environments in which planets might form," Kastner said. "Not what you'd expect if you

think our solar system is the rule."

Hypergiants and dwarfs? The Milky Way could be crowded with worlds circling every kind of star imaginable—very strange, indeed.

Keep up with the latest findings from the Spitzer at www.spitzer.caltech.edu/. For kids, the Infrared Photo Album at The Space Place (spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml) introduces the electromagnetic spectrum and compares the appearance of common scenes in visible versus infrared light.

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



Artist's rendering compares size of a hypothetical hypergiant star and its surrounding dusty disk to that of our solar system.

If it's Clear...

by *Fulton Wright, Jr.*
Prescott Astronomy Club

April 2006

Shamelessly stolen information from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find info. When gauging distances, remember that the Moon is 1/2 a degree or 30 arc minutes in diameter. All times are Mountain Standard Time unless otherwise noted.

Check out Saturn this month. The rings are tilted as open as they will be for the next 7 years, the shadow of the planet on the rings is at a maximum for the year, and the planet gets lower in the sky each month. In the early evening, with your highest resolution telescope, look 70 degrees above the southwest horizon. The seeing is often the steadiest when you first find the planet in the fading twilight.

On Saturday, April 1, about 7:15 PM, you can see the Moon playing an April fools joke on us in Arizona. Over in the west, as it gets dark, you will see that the Moon is just finished passing in front of the Pleiades, occulting stars right and left. If we lived on the east coast, we would have

had quite a show.

On Wednesday, April 5, after about 7:30 PM, you can see the Moon near Castor and Pollux. Look nearly overhead for the 1st quarter Moon. The next night it is near Saturn. Two nights after that, it is near Regulus.

On Thursday, April 13, at 7:22 PM the full Moon rises, spoiling the whole night for observing faint fuzzies.

On Sunday, April 16, after about 8:30 PM, you can see Mars less than one degree from M35. With a small (3 inch) telescope look 45 degrees above the west horizon for the red planet and the big star cluster. Then, shortly after 10:30 that night you can see the gibbous Moon rise near Antaries.

On Tuesday, April 18, in the early morning, there is a planetary observing challenge. Venus (mag -4) and Uranus (mag 6), 10 magnitudes (!) different in brightness, low in the morning twilight, will be 1/3 of a degree apart. Venus will be easy to see. You might want a small (3 inch) telescope to catch Uranus. As time

progresses the planets get higher (good) and the sky gets lighter (bad). Here are some times to help you plan your observing:

4:00 AM the planets rise
4:25 AM astronomical twilight starts (first light in the east)
4:57 AM nautical twilight starts (dim stars at the zenith disappear)
5:28 AM civil twilight starts (bright stars at the zenith disappear)
Good luck.

On Monday, April 24, from 4:00 to 5:30 AM, you can see the crescent Moon near Venus low in the east.

On Thursday, April 27, the new Moon hides near the sun so you have all night to look for faint fuzzies.

On Saturday, April 29, about 9:30 PM, you can see an event with one of Jupiter's moons. With a medium (6 inch) telescope look 20 degrees above the southeast horizon for the planet. Io's shadow will be leaving the planet and a few minutes later Io itself will move from in front of Jupiter.

 **First Quarter Moon on April 5 at 05:01**

 **Full Moon on April 13 at 09:41**

 **Last Quarter Moon on April 20 at 20:28**

 **New Moon on April 27 at 12:46**

The 2006 Messier Marathon - From a Different Point of View

(Continued from page 5)

ing brings.

Much of Saturday was spent in conversations that moved from one shady spot to the next. As the temperatures climbed, so did the number of vehicles on the field. By mid-afternoon the thermometer reached 88° and the vehicle count 75. In addition to some high cloudiness, breeziness prevailed. One particularly strong breeze snatched the Scopocoat from my dob and also launched my Panoramic mount into the side of my truck, leaving some nice scratches.

By the time the pre-Marathon pep talk began (18:30) there were 110 vehicles on the field. Another half dozen arrived during the talk. This year's talk was given by SAC President Rick Tejera and event coordinator Jack Jones. A work conflict had kept AJ Crayon from his usual role. I would be remiss if I didn't extend a sincere *Thank You* to AJ and Jack for all of their hard work. Once again, great job guys!

As everyone scurried back to their telescopes, it was evident that cloudiness to the west would make for a challenging beginning to the event. It was at this time that I made my decision: I would run the Marathon only if I could get M74 and M77. If not, I would move on to other observing targets. I managed to get M77, but M74 eluded me due to the clouds. I bagged M33 amidst the obstructions, but M31, M32 and M110 were obscured by clouds. I considered using the GoTo capabilities of my telescope, knowing that this would allow for a higher probability of success with the cloudiness, but decided to forego the Marathon for this year. It was a decision I would not regret.

Normally, when participating in a Marathon, I am occupied with the task at hand and rarely get to socialize. Sure, there is the break around midnight, but this year there would

be much more interaction with the 160 or so people gathered beneath the stars (and clouds).

While at my telescope, my evening consisted of observing the clear parts of the sky. I simply took advantage of whatever area looked the best, and worked my way through some observing lists. I had several visitors and took requests on observational targets. Saturn looked especially nice. I tracked down comet 73P Schwassmann-Wachmann 3 (currently in Bootes, near Arcturus). It is expected to brighten from its current 10.2 to around 3.5 over the next several weeks.

Randy Peterson stopped by to see if we could observe a supernova in M100. Using only an APOD photo from March 7 as a guide, we were unsure if the object we saw was the supernova or just a field star. I did manage to observe this type Ia supernova (SN 2006X) later in the evening, courtesy of Sam Rua's 25" Obsession.

As I walked around the field, I came upon both old friends and new. We shared good conversation and good views through the telescope (and some good cookies - thanks Julie). I was mindful not to interrupt those who were Marathonizing.

Throughout the night I paid more than one visit to Sam and his 25". What a wonderful instrument - and what glorious views it offers. The detail observed in M51 was breathtaking... almost photographic! Not only in the spiral arms but also the bridge connecting NGC 5195. The view of NGC 4565 extended beyond the field stop of the eyepiece, replete with glorious dark dust lanes. But the best view offered up wasn't necessarily anything special visually. In fact, if you didn't know what you were looking at, it would be unimpressive. A quasar appears stellar through the eyepiece. It is only after you realize that the photons reaching your eye have been traveling for nearly 12 bil-

lion years that the significance sets in. If that isn't awe-inspiring, I don't know what is.

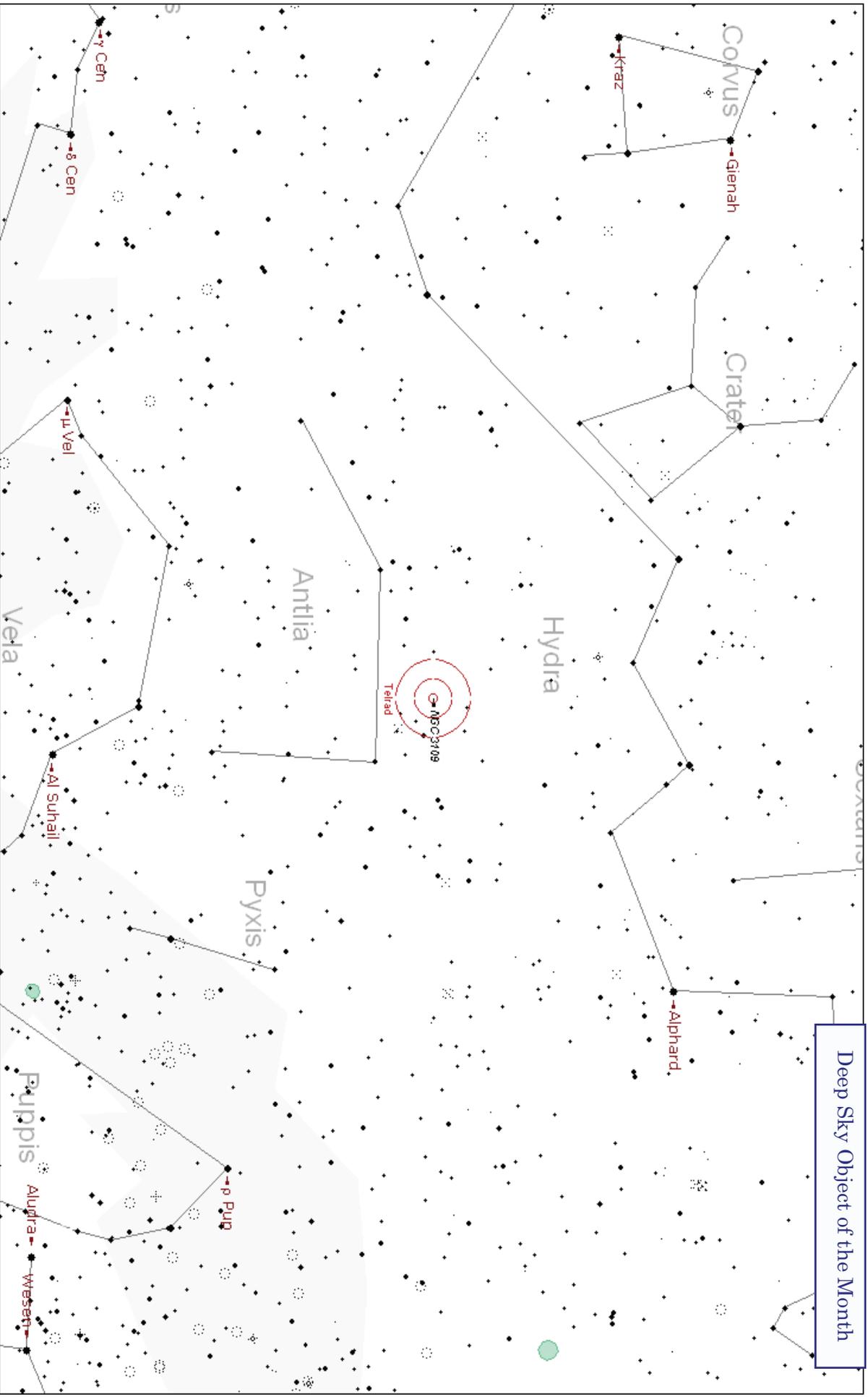
As I walked the field, I discovered that many were employing the strategy of slightly deviating from the usual observing order, based on what wasn't behind a cloud. It would seem that Go-To technology provided an advantage in this area.

Two EVAC members placed in the top three: Randy Peterson and Chuck Shields each garnered third place with a tally of 106. Randy's son Russell also got 106. Honorable Mention also goes out to:

Tom Polakis 105
Bob Christ 105
John Holmquist 102
Butch Miller 101
David Trogan 88
Melvin Harrison 84
Randall Stark 74
Brian Davis 63
Anne Marie Cooper 60
David Hardinger 59
Wayne Thomas 53
Kyle Sikes 29
Congratulations to all!

A quick analysis of the data reveals that all 24 people who logged 100 or more objects missed M110. All but one person scoring 100 or better missed M74. Nineteen of these 24 missed M32, 18 missed M33, and 14 missed M31. M30 eluded 7 people. M73 escaped the view of 6. Somewhat surprisingly, M77 was only missed by two.

The general consensus amongst attendees was that it was a very nice event in spite of the weather. Thanks again to AJ and Jack... hope to see you all again next spring!



Deep Sky Object of the Month

NGC 3109 Edge-On Galaxy in Hydra

Magnitude: 10.3 Size: 19'.0 x 3'.5

RA 10h 03m 6.7s Dec -26° 09' 32" Mean Surface Brightness: 23.5 Mag/Arc-Sec²

Chart created with Starry Night Pro software.

Saturday Night with Saturn

(Continued from page 4)

on this tiny moon. Stay tuned for the big water news from Enceladus!

All of Saturn's moons are so different from each other in terms of physical and chemical features. Some are heavily cratered, and others undergo extensive geological changes. Some are light in color, others completely dark. The size, as well as the shape, of each and every one of the moons is so dissimilar. Some lie within the rings while others orbit outside of the ring system.

I would say that the entire Saturnian system is extremely varied. Cassini definitely has its hands full during the tour of Saturn with its beautiful storms, ring system, multiple moons, and huge magnetosphere, so to speak!

The wealth of information from Cassini is, indeed, quite mind-boggling. If you can break away from your busy schedule for just a little while, looking through the images, as well as catching up with the latest news, is definitely worth it. I do my best to keep up with what's been happening with Cassini, in spite of my hectic schedule. I find this to be extremely rewarding. By the way, I do subscribe to the "Cassini Spacecraft Updates" and receive weekly e-mail from JPL that includes all the news about the mission. It is always so gratifying to follow Cassini's progress at Saturn and know that the space-

craft continues to be in excellent health.

Back to that Saturday Night with Saturn

Standing next to the Wind Cave trailhead, I gazed at the honey-colored Saturn as it inched upward in the evening sky. I must have lingered long enough to see Saturn become so bright as the sky got much darker. After I left Usery Regional Park (the location of Usery Pass mountain and the Wind Cave trail) and had my late dinner at home, I went back outside to enjoy the beauty of Saturn which was quite high in the night sky. That Saturday night with Saturn could not have been more rewarding for me!

My mind is always filled with Cassini memories whenever I look up at Saturn, which has been appearing in the evening sky since last fall. Since its opposition this past January, Saturn has gotten higher in the sky and shines brightly after sunset. I always take joy in gazing at Saturn while enjoying reminiscing the great times that I had while participating in the celebration of Cassini's milestones. I always experience heartfelt emotions whenever I get to see Saturn at night!

Saturn will continue to "star" in the night sky until June and will appear in the morn-

ing sky shortly after. I'd say this to all of you: Enjoy Saturn with its splendid rings and multiple moons while using your binoculars and 'scopes!

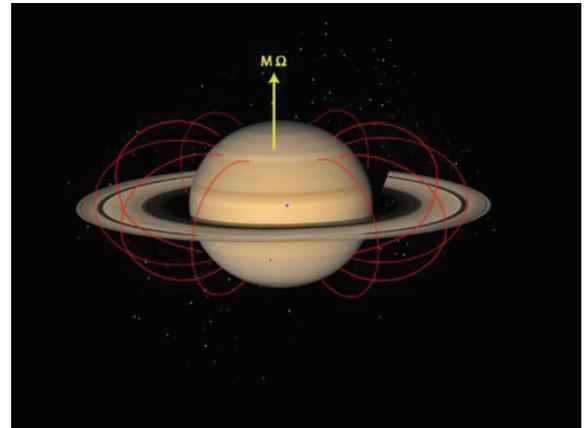
If you have any questions or would like to comment, please do contact Dr. Dee at jplssambassador@wyndtell.com or launchspace@msn.com or send her a fax at 480.890.7878. The website for the JPL Solar System Ambassadors Program is <http://www.jpl.nasa.gov/ambassador>.

Laurice Dee, Ph.D.

JPL Solar System Ambassador (Arizona Representative)

*JPL Solar System Ambassadors Program
Jet Propulsion Laboratory (JPL) - Pasadena, CA*

March 2006



The graphic of Saturn depicts the actual magnetic field lines of the planetary magnetic field created deep within Saturn's core. It also depicts the exact alignment of the dipole axis and the rotation axis. The M is the magnetic dipole axis and the Omega is Saturn's rotation axis.

Coming in May... our guest speaker will be Dr. Ted Dunham of the Lowell Observatory in Flagstaff. Dr. Dunham will give a presentation on SOFIA (Stratospheric Observatory for Infrared Astronomy) and HIPO (High-speed Imaging Photometer for Occultations).

Star Party Disclaimer

The East Valley Astronomy Club (EVAC) is not responsible for the property or liability of any star party participant, nor will the club be held liable for their actions or possessions. EVAC is not responsible for any vehicular damage, theft, or mechanical difficulties that may occur while attending a star party. EVAC strongly recommends adherence to the doctrine of 'safety in numbers' when it comes to remote observing sites. In the interest of safety it is recommended that you don't go to remote sites alone and that someone knows where you have gone each time you go out observing.

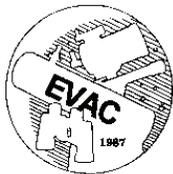
The Voyager is published monthly by the East Valley Astronomy Club and made available electronically (PDF) the first week of the month. Printed copies are available at the monthly meeting.

Please send your contributions, tips, suggestions and comments to the Editor (Peter Argenziano) at: news@eastvalleyastronomy.org

Contributions may be edited.

www.eastvalleyastronomy.org

Keep Looking Up!



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