March 2010

Volume 24 Issue 3

The Observer

East Valley Astronomy Club

Inside this Issue:

From the Desk of the President
by David Douglass

How quickly time is flying by. Here we are in March, 2010. Our pre-meeting training classes are going well, thanks to a very well received four session lecture series by Howard Israel. We have the makings of the next four or five months of material to work with. Now if the weather would improve, we might all get out more, and put into practice what we are learning.

Many of us have enjoyed the recent images of Mars, and other planetary images taken by Tom Polakis. By popular request, he has agreed to present the March training session on the subject of Imaging Planets And Other Solar System Objects. The equipment and techniques used for this category of imaging are very different from deep space objects, and Tom definitely has a handle on this. I personally look forward to learning from his presentation. This class will be for all members with an interest in imaging.

Martin Thompson will be presenting a two-part certification, and re-certification for current GRCO operators, and those with an interest in becoming GRCO operators. That will be in April and May. Everything about the observatory will be covered, including the equipment, and the software necessary to run the equipment. Even if you are not interested in becoming a GRCO operator, these sessions will give excellent insight into the operation of fixed location observing from an observatory.

We are looking at session(s) covering deep space imaging. Bob Birket (also known to many of you as Skyimager) has produced many excellent quality deep space images. He has an web site located at: http://skyimager.webs.com/thelatestimages.htm which is well worth visiting.

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The Backyard Astronomer
Exploring Monoceros (part two) *by Bill Dellinges*

Last month we explored the rich northern regions of Monoceros. Interestingly, those wonders were primarily concentrated in a very small area comprising the beast's head. Monoceros' objects of interest in its southern area are more spread out. Let's take a look at five working north to south.

NGC 2301: This is an unusual open cluster in that it isn't the common circular shaped cluster one might expect. Rather, two opposed strings of stars greet the observer. In the 11" SCT at 90x and a 0.9 degree field, the longer brighter group of 8th magnitude stars run diagonally across the field, northeast to southwest. Just to the east of this string is an arrowhead shaped wedge of slightly dimmer stars. This is a dainty, but striking cluster. Look for it five degrees west-northwest of Delta Monocerotis.

NGC 2232: Just two degrees north of Beta Monocerotis lies a very sparse group of 15 stars dominated by 10 Monocerotis. OK, it won't win any gold metals for beauty but it's worth a look and easy to find. I noted some subtle nebulosity around 10 Monocerotis. This star is also a double star, B pm (S.W.Burnham's 1913 proper motion catalog) but nothing terribly exciting with magnitude 5.1 and 9.3 stars separated by 77.2" arc seconds.

Beta Monocerotis: (SAO 133316) Now we come to my favorite triple star. This jewel is beautiful and challenging. The AB pair is comprised of magnitude 4.6 and 5.0 white stars with a separation of 7.2". There is also a white magnitude 5.3, C component 9.9" from A. The problem is

Continued on page 2

Upcoming Events:

Local Star Party – March 6

Public Star Party – March 12

Deep Sky Star Party – March 13

All-Az Messier Marathon – March 13

Monthly General Meeting – March 19

Check out all of the upcoming club events in the Calendars on page 8

The Backyard Astronomer

Continued from page 1

that B and C have nearly the same position angle resulting in their being only 2.8" from one another – this is the aforementioned challenge. On a night of fair seeing, 90x, split the AB pair. At 127x, BC took on a figure eight appearance. The 11" required 165x to cleanly split all three stars. Since Monoceros has no stars brighter than about 4th magnitude, locating Beta can be tricky. Fortunately, Orion's Belt can help you find it, for the Belt points almost directly at Beta. From the eastern most Belt star, go about 10 degrees southeast (one fist length) into what appears to be nothingness. Staring at this void for a few moments, the eye begins to see two very faint stars about 4 degrees apart. They're almost horizontal. Beta, the slightly brighter one, is on the left. Gamma is to its right. It's both a challenge to find Beta (you can use the practice - no offense) and split it (test your telescopes optics).

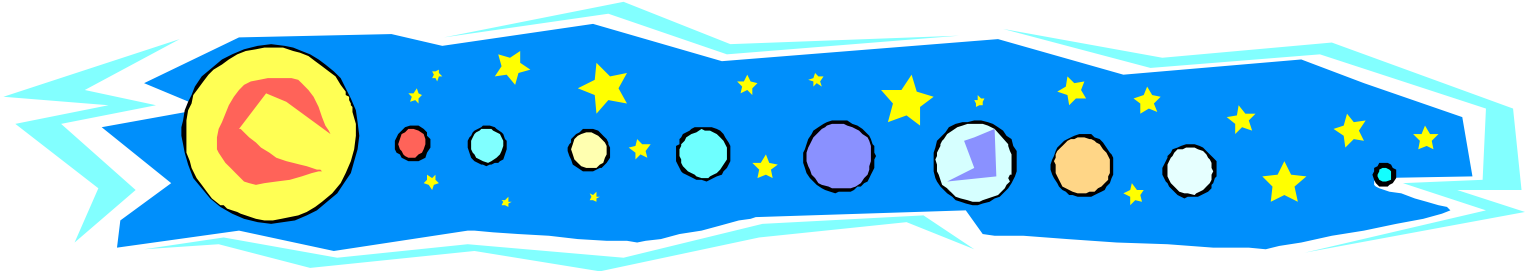
M50: The only Messier object in Monoceros is M50. This is a respectable cluster – for Monoceros. Recall how Orion's Belt led us to Beta Monocerotis? Let's do a similar navigational trick by using Beta and Gamma Monocerotis. A line through both these stars extended southeast about twice their distance brings you to M50. The cluster was well contained in the 0.9 degree field of the 11" at 90x. Its roughly 40 stars were relatively faint but there were some brighter stars here and there within the cluster and surrounding it. It was difficult to determine where some of the cluster stars ended and background Milky Way stars began.

Struve 1112: (SAO 134806) Two degrees northwest of Alpha Monocerotis is a fine double star. Struve 1112 is comprised of a yellow magnitude 6.1 primary and white 8.8 secondary with a separation of 23.4". The 11" at 90x easily split this duet. This ends our exploration of the unicorn. But wait! Though not technically in Monoceros, there are three tantalizing Messier objects nearby just over the border which I would be remiss in not mentioning. Before putting your lens cap on, don't forget to take a quick look at M48 below Zeta, and M46 and M47 below Alpha Monocerotis. You won't be sorry.

M50 Photo courtesy of Ole Nielsen

M46 Photo courtesy of Ole Nielsen

M47 Photo courtesy of Ole Nielsen



SDO Destroys a Sundog

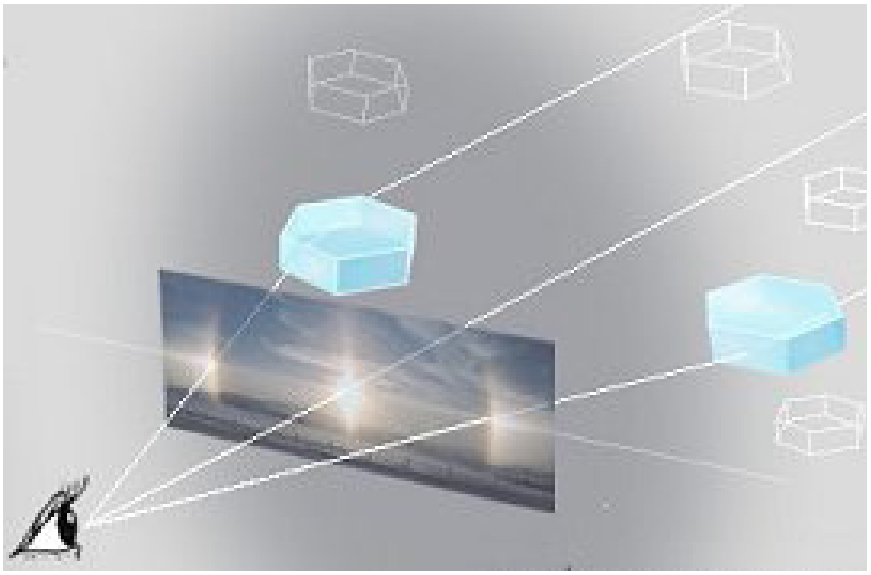
by Dr. Tony Phillips

On February 11th, the Solar Dynamics Observatory (SDO) lifted off from Cape Canaveral on a five-year mission to study the sun. Researchers have called the advanced spacecraft the "crown jewel" of NASA's heliophysics fleet. SDO will beam back IMAX-quality images of solar explosions and peer beneath the stellar surface to see the sun's magnetic dynamo in action.

SDO is designed to amaze - and it got off to a good start.

"The observatory did something amazing before it even left the atmosphere," says SDO project scientist Dean Pesnell of the Goddard Space Flight Center.

Moments after launch, SDO's Atlas V rocket flew past a sundog hanging suspended in the blue Florida sky and, with a rippling flurry of shock waves, destroyed it. Click on the hyperlink below (or cut and paste it into your web browser) to launch a video recorded by 13-year-old Anna Herbst at NASA's Banana River viewing site - and don't forget to turn up the volume to hear the reaction of the crowd.



Sundogs are formed by the refracting action of plate-shaped ice crystals. Image credit: Les Cowley/ Atmospheric Optics

"I couldn't believe my eyes," says Anna. "The shock waves were so cool." Anna traveled with classmate Amelia Phillips three thousand miles from Bishop, California, to witness the launch. "I'm so glad we came," says Amelia. "I've never seen anything like it!"

Sundogs are formed by plate-shaped ice crystals in high, cold cirrus clouds. As the crystals drift down from the sky like leaves fluttering from trees, aerodynamic forces tend to align their broad faces parallel to the ground. When sunlight hits a patch of well-aligned crystals at just the right distance from the sun, voila!--a sundog.

"When the Atlas V rocket penetrated the cirrus, shock waves rippled through the cloud and destroyed the alignment of the crystals," explains atmospheric optics expert Les Cowley. "This extinguished the sundog."

In the past, says Cowley, there have been anecdotal reports of atmospheric disturbances destroying sundogs - for instance, "gunfire and meteor shock waves have been invoked to explain their disruption. But this is the first video I know of that shows the effect in action."

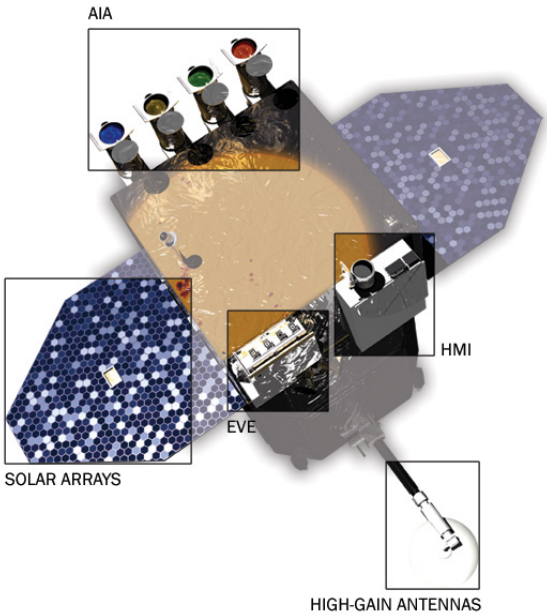
The effect on the crowd was electric.

"When the sundog disappeared, we started screaming and jumping up and down," says Pesnell. "SDO hit a home run: Perfect launch, rippling waves, and a disappearing sundog. You couldn't ask for a better start for a mission."

SDO is now in orbit. "The observatory is doing great as the post-launch checkout continues," he reports. "We'll spend much of the first month moving into our final orbit and then we'll turn on the instruments. The first jaw-dropping images should be available sometime in April."

Believe it or not, Pesnell says, the best is yet to come.

Article courtesy of Sience@NASA



SDO Spacecraft

The total mass of the spacecraft at launch is 3200 kg (payload 270 kg; fuel 1400 kg).

Its overall length along the sun-pointing axis is 4.5 m, and each side is 2.22 m.

The span of the extended solar panels is 6.25 m.

Total available power is 1540 W from 6.5 m2 of solar arrays (efficiency of 16%).

The high-gain antennas rotate once each orbit to follow the Earth.

Anna Herbst's video:
http://science.nasa.gov/headlines/y2010/images/coolmovie/anna-herbst1.mov

Are TGFs Hazardous to Air Travelers?

by Dana Coulter

Instruments scanning outer space for cataclysmic explosions called gamma-ray bursts are detecting intense flashes of gamma-ray energy right here in the friendly skies of Earth. These terrestrial gamma-ray flashes, or TGFs, blast through thunderstorms close to the altitude where commercial airliners fly. In fact, they could be too close for comfort.

In a recent study, scientists estimated that airline passengers could be exposed to 400 chest X-rays worth of radiation by being near the origin of a single millisecond blast. Joe Dwyer of the Florida Institute of Technology took part in that research, which used observations from NASA's Reuven Ramaty High Energy Solar Spectroscopic Imager, or RHESSI, to estimate the danger TGFs pose.

Lightning might not be the only reason to avoid thunderstorms. TGFs sometimes come blasting out of these clouds, too. Image credit: NOAA

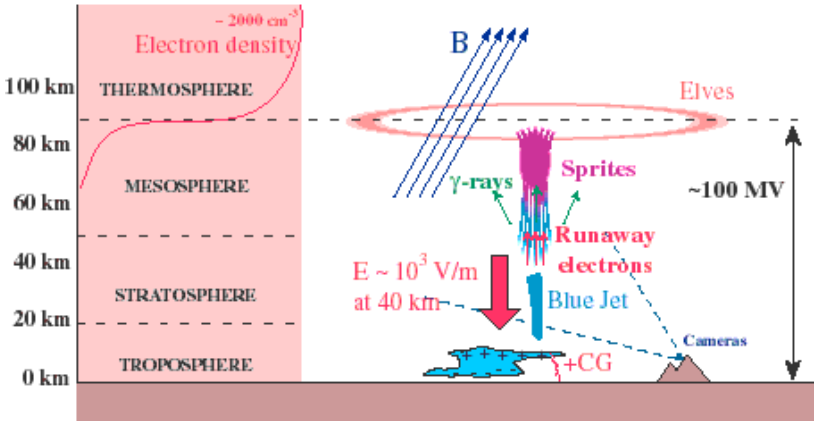
"We believe the risk of encountering a TGF in an airplane is very small," says Dwyer. "I wouldn't hesitate to take a flight. Pilots already avoid thunderstorms because of turbulence, hail, and lightning, and we may just have to add TGFs to the list of reasons to steer clear of those storms." But, he stresses, "it's worth looking into."

NASA's Gamma-ray Burst Monitor (GBM) on the Fermi Gamma-ray Telescope will help evaluate the hazards.

"GBM provides the best TGF data we have so far," says Dwyer. "It gets better measurements of their spectra than any previous instrument, giving us a more accurate idea of just how energetic they are."

Although TGFs are quite brief (1-2 milliseconds), they appear to be the most energetic events on Earth. They belch destructive gamma-rays packing over ten million times the energy of visible light photons – enough punch to penetrate several inches of lead.

"It's amazing," says Jerry Fishman, a co-investigator for the Gamma-ray Burst Monitor. "They come blasting right through the whole Fermi spacecraft and light up all of our detectors. Very few cosmic gamma-ray bursts manage to do this!"



A cartoon sketch of electric and magnetic fields in a thunderstorm and some of the phenomena they produce. TGFs may be just one aspect of thunderstorm activity in addition to elves, sprites, blue jets and ordinary lightning. Credit: Stanford University.

The origin of TGFs is still a mystery, but researchers know this much: TGFs are associated with thunderstorms and lightning. "We think the electric field in a thunderstorm may get so strong that the storm itself turns into a gamma-ray factory," says Dwyer. "But we don't know exactly how or why or where inside the storm this happens." So no one yet knows how often, if ever, planes end up in the wrong place at the wrong time.

It's possible that lightning bolts trigger TGFs. Or maybe TGFs trigger lightning bolts. Researchers aren't sure which comes first. GBM's excellent timing accuracy – to within 2 microseconds – will help solve this riddle.

"For some of the TGFs, we've pinpointed the associated lightning," says Dwyer. "This information along with the spectrum should help us figure out how deep in the atmosphere a TGF source is and how many gamma-rays it's emitting. Then we can determine the altitude and location they're coming from in the thunderstorm."

Fishman offers some good news: "If TGFs originate near the tops of thunderstorms and propagate upward from there, airline passengers would be safe."

By looking closely at a TGF's life cycle, that is, how quickly it turns on and off, GBM may also help researchers calculate how large and concentrated the gamma-ray source is. If the gamma-rays are emitted over a large region, the radiation dose would be diluted and much less harmful.

"But if the source is compact and the gamma-rays originate close to an aircraft, then that could be a problem," says Fishman.

"Of course the smaller the source the lower the odds of a plane ending up close to it," adds Dwyer.

GBM wasn't designed to look for TGFs, but GBM co-investigator Michael Briggs has greatly enhanced its sensitivity to them by writing new software.

"TGFs have really been an afterthought for missions so far," says Dwyer. RHESSI, for example, points at the sun, but the RHESSI team figured out a way to measure TGFs by detecting gamma-rays coming in through the satellite's backside. "All these instruments have been pointing across the universe, while right over our heads these monsters are going off!"

"Now the whole field of TGFs is on fire," says Fishman. "People are jumping on the bandwagon to try to figure them out."

March Guest Speaker: Per Aannestad

Dr. Per Aannestad, Professor Emeritus in the Physics - Astronomy department at Arizona State University, earned his Ph.D. from University of California - Berkeley in 1971.

Dr. Aannestad's research involves computer modeling of processes involving gas and dust in the interstellar medium. Currently he is working on modeling the observed infrared emission from several ionized regions of star formation. The data have been obtained by the European Space Agency's Infrared Space Observatory (ISO). This emission is due to dust grains absorbing the ultraviolet and visible radiation from the newly formed stars, and re-emitting the energy at infrared wavelengths. Of particular interest is the spatial distrubution of the dust and the dust composition and size distribution.

He is also working on the infrared fine structure line emission due to ions and neutrals, both in the ionized region surrounding the hot stars and in the molecular region away from the stars. The photodissociation region that separates the atomic and the molecular region is of special interest, and detailed modeling of the formation and destruction of molecular hydrogen is included in this work. Since molecular hydrogen forms on the surfaces of the dust grains, the properties of the molecular region are intimately linked to the infrared emission of the dust grains.

By combining data from the ultraviolet to the radio regime, and modeling the detailed physical properties of gas and dust, he hopes to better understand the conditions of star formation and the nature and evolution of the interstellar matter out of which new stars form.

TALK TITLE: "The Infrared Universe"

◑ Last Quarter Moon on March 7 at 08:43

○ New Moon on March 15 at 14:02

◐ First Quarter Moon on March 23 at 04:01

● Full Moon on March 29 at 19:27

The University of Texas McDonald Observatory cordially invites you to explore

Black Hole Encyclopedia

http://blackholes.stardate.org/

The Black Hole Encyclopedia has been compiled by StarDate in partnership with The University of Texas' Karl Gebhardt, one of the leading black hole researchers in the world. Our Black Hole Encyclopedia is a unique website that offers all of the latest news on black holes, as well as radio programs, feature articles, student activities and FAQ's. The glossary of terms and additional book and website suggestions can also serve as helpful tools for anyone looking for more information on black holes or just astronomy lovers in general.

Classified Ads

ASUS Eee PC 1000HA 10" Netbook

This little netbook is at home under the stars, at home or on the road. Included is a Windows system restore disc, AC adapter and neoprene case. I'll also include Sky Tools 2 observation planning, charting and logging software with the real-time option ($100 value). Note that netbooks don't have a disc drive - you'll need an external one, or load software from USB drives. Paid $400 with memory upgrade at Fry's last May. Will sell it for $250.

Peter Argenziano news@evaconline.org

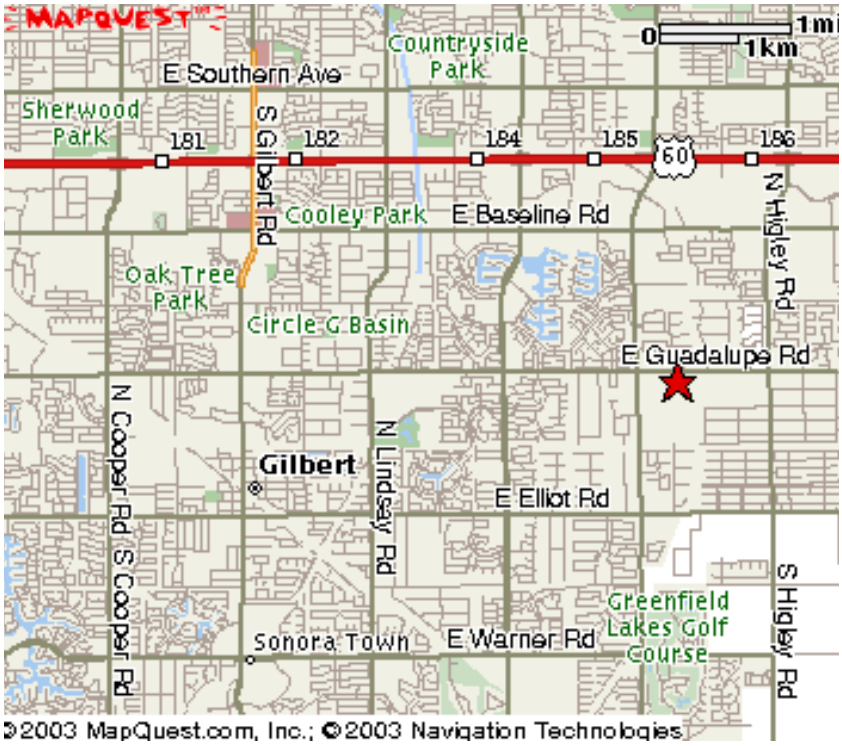
- Intel Atom N270 CPU (1.6 GHz)
- Intel GMA 950 Chipset
- 2 GB DDR2 PC6400 RAM
- 160 GB Hard Drive
- 10" 1024x600 WSVGA LED backlit LCD display
- Integrated WiFi (802.11 b/g)
- 3 USB ports, VGA, audio, mic, SD card reader, 10/100 Ethernet
- Integrated 1.3 MP webcam
- 7.4v, 6600 mAh, 6-cell battery
- Windows XP Home operating system
- Size: 10½" x 7½" x 1½", weighs just over 3 pounds

Celestron Ultima 8

Celestron 8" SCT. Heavy Duty photographer's scope with Periodic Error Correction that computer duplicates the first two minutes of hand guiding. Includes Sky Wizard computerized setting circles, tripod with bag, foam lined scope and accessories case, Celestron Ultima series eyepieces, in 4mm, 5mm, 7.5mm, 10mm, 18 mm, and 30 mm, motorized RA, Dec and Focus, manuals, star maps, books, planisphere.

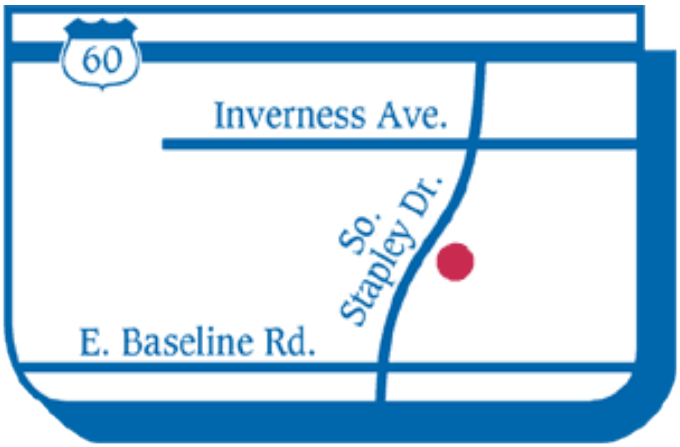
$1300.

Mike Sargeant 480-839-3209



Upcoming Meetings

March 19
April 16
May 21
June 18
July 16
August 20

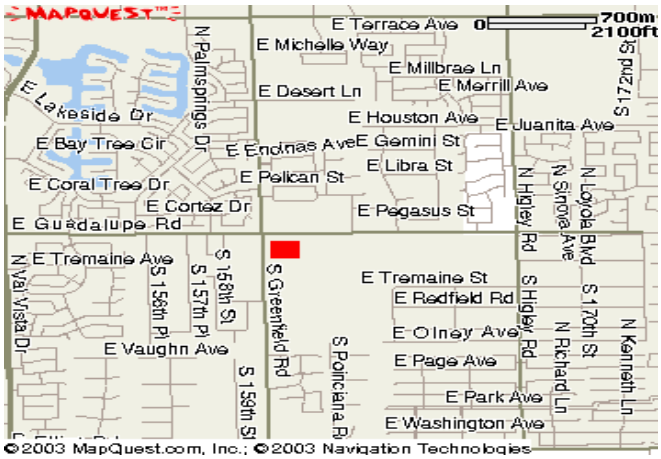


The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

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 Road; on the southeast corner of Greenfield and Guadalupe Roads.

Meetings begin at 7:30 pm.

Visitors are always welcome!



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

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, just south of US60.

Old Country Buffet
1855 S. Stapley Drive
Mesa, Az. 85204

Likewise, all are invited to meet for coffee and more astro talk after the meeting at Denny's on Cooper (Stapley), between Baseline and Guadalupe Roads.

Denny's
1368 N. Cooper
Gilbert, Az. 85233

March 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	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	31			

March 3 - Osborn Middle School Star Party

March 4 - Sousa Elementary Star Party

March 5 - MCC Planetarium Open House

March 6 - Local Star Party at Boyce Thompson

March 10 - Robson Elementary Star Party

March 11 - Brinton Elementary Star Party

March 12 - Public Star Party & SkyWatch at Riparian Preserve

March 13 - All-Arizona Messier Marathon

March 13 - Deep Sky Star Party at Vekol

March 19 - General Meeting at SE Library

March 23 - Las Sendas Elementary Star Party

March 24 - Pueblo Middle School Star Party

March 26 - Mountainside Middle School Star Party

March 27 - GRCO Feathered Friends Festival at observatory

April 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				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	

April 3 - Local Star Party at Boyce Thompson Arboretum

April 6 - GRCO Day school field trip

April 9 - Public Star Party & SkyWatch at Riparian Preserve

April 10 - Deep Sky Star Party at Vekol

April 16 - General Meeting at Southeast Regional Library

April 23 - San Tan Elementary Star Party

East Valley Astronomy Club -- 2010 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):

☐ **$30.00 Individual** January through March

☐ **$35.00 Family** January through March

☐ **$15.00 Individual** July through September

☐ **$17.50 Family** July through September

☐ **$22.50 Individual** April through June

☐ **$26.25 Family** April through June

☐ **$37.50 Individual** October through December

☐ **$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: _____

☐ Publish email address on website

City, State, Zip: _____ 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):

☐ General Observing ☐ Cosmology

☐ Lunar Observing ☐ Telescope Making

☐ Planetary Observing ☐ Astrophotography

☐ Deep Sky Observing ☐ 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 I and my family 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***

Please sign name here

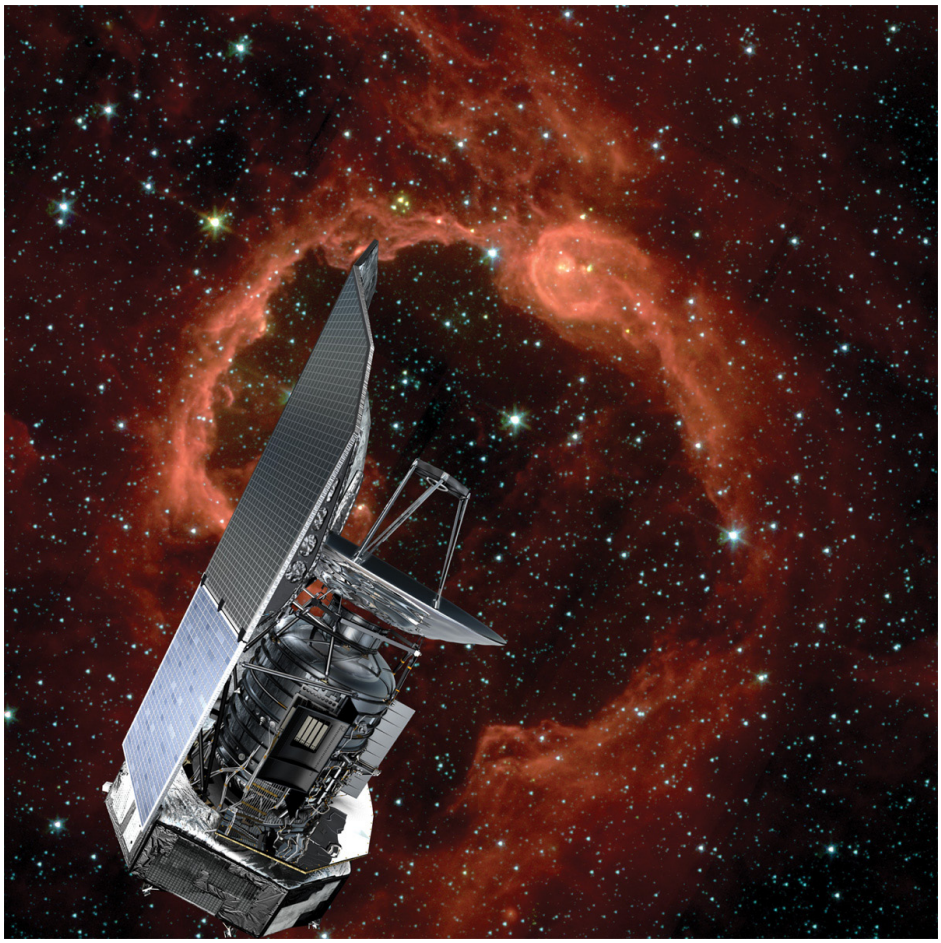
PO Box 2202
Mesa, AZ 85214-2202
www.eastvalleyastronomy.org

NASA's Space Place

Flipping the Lights on Cosmic Darkness

Exploring the universe is a bit like groping around a dark room. Aside from the occasional pinprick of starlight, most objects lurk in pitch darkness. But with the recent launch of the largest-ever infrared space telescope, it's like someone walked into the room and flipped on the lights.

Suddenly, those dark spaces between stars don't appear quite so empty. Reflected in the Herschel Space Observatory's 3.5-meter primary mirror, astronomers can now see colder, darker celestial objects than ever before—from the faint outer arms of distant galaxies to the stealthy "dark asteroids" of our own solar system.



The Herschel Space Observatory has 3.5-meter primary mirror, allowing astronomers to see colder, darker celestial objects than ever before.

Many celestial objects are too cold to emit visible light, but they do shine at much longer infrared wavelengths. And Herschel can observe much longer infrared wavelengths than any space telescope before (up to 672 microns). Herschel also has 16 times the collecting area, and hence 16 times better resolution, than previous infrared space telescopes. That lets it resolve details with unprecedented clarity. Together, these abilities open a new window onto the universe.

"The sky looks much more crowded when you look in infrared wavelengths," says George Helou, director of the NASA Herschel Science Center at Caltech. "We can't observe the infrared universe from the ground because our atmosphere blocks infrared light, and emits infrared itself. Once you get above the atmosphere, all of this goes away and suddenly you can look without obstruction."

Herschel launched in May from the Guiana Space Centre in French Guiana aboard a European Space Agency Ariane 5 rocket. Since then, it has expanded the number of distant galaxies observed at far infrared wavelengths from a few hundred to more than 28,000. And with the instrument testing and system checkout phases finally completed, the discoveries are only now beginning.

Beyond simply imaging these dark objects, Herschel can identify the presence of chemicals such as carbon monoxide and water based on their spectral fingerprints. "We will be able to decipher the chemistry of what's going on during the beginnings of star formation, in the discs of dust and gas that form planets, and in the lingering aftermath of stellar explosions," Helou says.

And those are just the expected things. Who knows what unexpected discoveries may come from "flipping on the lights?" Helou says "we can't wait to find out."

Herschel is a European Space Agency mission, with science instruments provided by a consortium of European-led institutes and with important participation by NASA. See the ESA Herschel site at sci.esa.int/science-e/www/area/index.cfm?fareaid=16. Also, see the NASA sites at herschel.jpl.nasa.gov, www.herschel.caltech.edu, and www.nasa.gov/mission_pages/herschel. Kids can learn about infrared light by browsing through the Infrared Photo Album at The Space Place, spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml.

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

If It's Clear...

by Fulton Wright, Jr.
Prescott Astronomy Club

March 2010

Celestial events customized (from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find information) for Prescott, Arizona. All times are Mountain Standard Time.

On Thursday, March 4, after about 9:00 PM, you might see Saturn near a galaxy. NGC 4179 (magnitude 11) is about 4 arcminutes to the south of the planet (magnitude 1). This will be a difficult observation. The glare from Saturn will be high and the surface brightness of NGC 4179 will be low.

On Saturday, March 6, it is last quarter moon. It rises at 1:33 AM (March 7).

On Tuesday, March 9, between about 9:00 PM and midnight, Saturn's Moons are well placed for observation. The close ones have moved away from Saturn's glare, and the far one are nearby. See Astronomy Magazine, March 2010, p. 42, for a diagram.

On Sunday, March 14, at 2:00 AM, the other 49 states go on daylight savings time (spring forward) and have to wait an hour longer to start observing. Arizona thumbs its nose at the rest of the world and stays on standard time.

On Monday, March 15, it is new moon so you have all night to look for faint fuzzies.

On Saturday, March 20, Spring begins, with the days becoming longer than the nights (warmer, but less observing time).

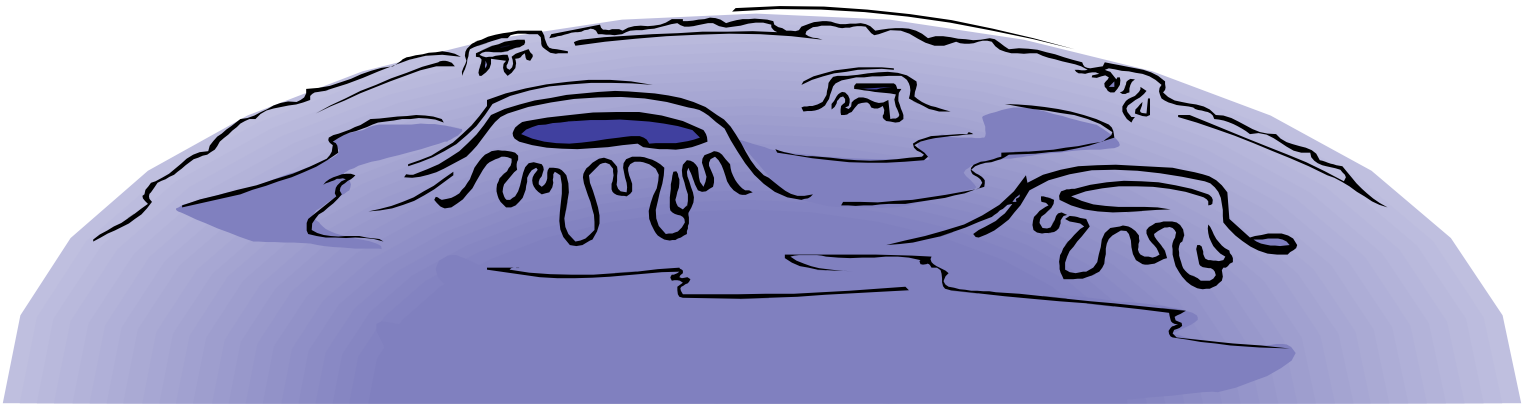
On Saturday, March 20, about 7:30 PM, you can see the Moon near the Pleiades, high in the west.

On Sunday, March 21, Saturn is at opposition, rising around sunset, and visible all night. For the next few months it will be conveniently placed for observation.

On Monday, March 22, it is first quarter moon. You will have to wait till 1:47 AM (March 23) for the Moon to set if you are going to hunt for faint fuzzies.

On Monday, March 29, at 6:48 PM, (right at sunset) the full moon rises, spoiling any deep sky observing for the whole night.

On Wednesday, March 31, about 7:30 PM, you can see Venus and Mercury near each other. With binoculars, look low in the west for the pair. Venus (magnitude -4) will be easy to see. Mercury (magnitude -1), to the lower right, will be harder. They will be near each other for the next couple of weeks.



From the Desk of the President

Continued from page 1

Bob indicates that he has experience teaching others about his techniques, and has agreed to make a presentation or two on this subject. There are many variables, and I will be helping him query the membership about the areas they would like covered.

We are still trying to collect 2010 dues from the membership. I am pleased to report that we now have 136 paid and life members for 2010. Unfortunately, there are still 69 members whose dues expired on Dec 31st. If you are in this category, we would certainly appreciate you bringing your 2010 payment to the March meeting, or perhaps using the PayPal option of the website. You could also simply mail in your check to the PO Box.

The deep sky star party for March coincides with the Messier Marathon which will be on Friday and Saturday, March 12th and 13th at Farnsworth Ranch. Hopefully, the weather will cooperate this year. We will publish more information on this event in the coming days, and I hope to see many of our members there. Until then, Keep Looking Up !!

Close Encounter with Mars

by Dr. Tony Phillips

It rises in the east at sunset, pumpkin-orange and brighter than a first magnitude star. You stare at it, unblinking. Unblinking, it stares right back. It is Mars.

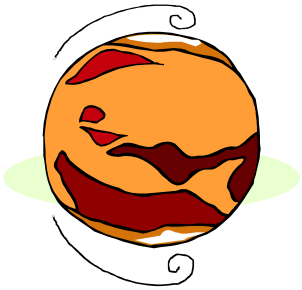
And because summer is coming to the Martian north, the bright polar cap and its icy-blue clouds are shifting, sublimating and changing every night. It's a lively show for anyone with a mid-sized telescope and a digital camera. But a telescope is not required to enjoy the show. Mars is a pleasing sight even to the unaided eye. With a visual magnitude of -1.3, it is almost as bright as Sirius (magnitude -1.44), the brightest star in the sky.

Compare the two - Sirius vs. Mars. While Sirius is as blue as the tip of an acetylene torch, Mars looks more like the ruddy head of a lit match. The contrast is beautiful.

Another fun comparison: Sirius twinkles but Mars does not. Distant, pinprick stars are more disturbed in their appearance by tiny irregularities in Earth's atmosphere than nearby, disk-shaped planets. Compared to the dancing light of a star, Mars has a smooth, unblinking glow.

Earth and Mars have close encounters approximately every 26 months. Some are closer than others, however. In 2003, the Earth-Mars distance was only 56 million kilometers, a sixty-thousand year minimum. The whole world stopped to watch as news reports trumpeted the event. This year's gulf is almost twice as wide, and professional astronomers do not consider it a particularly remarkable encounter.

Don't let that stop you. Mars is near. Take a look!



New EVAC Members in February

Barb Hicks - Kalispell, MT

Aaron & Carole Bade - Northville, SD

The Deep Sky Object of the Month

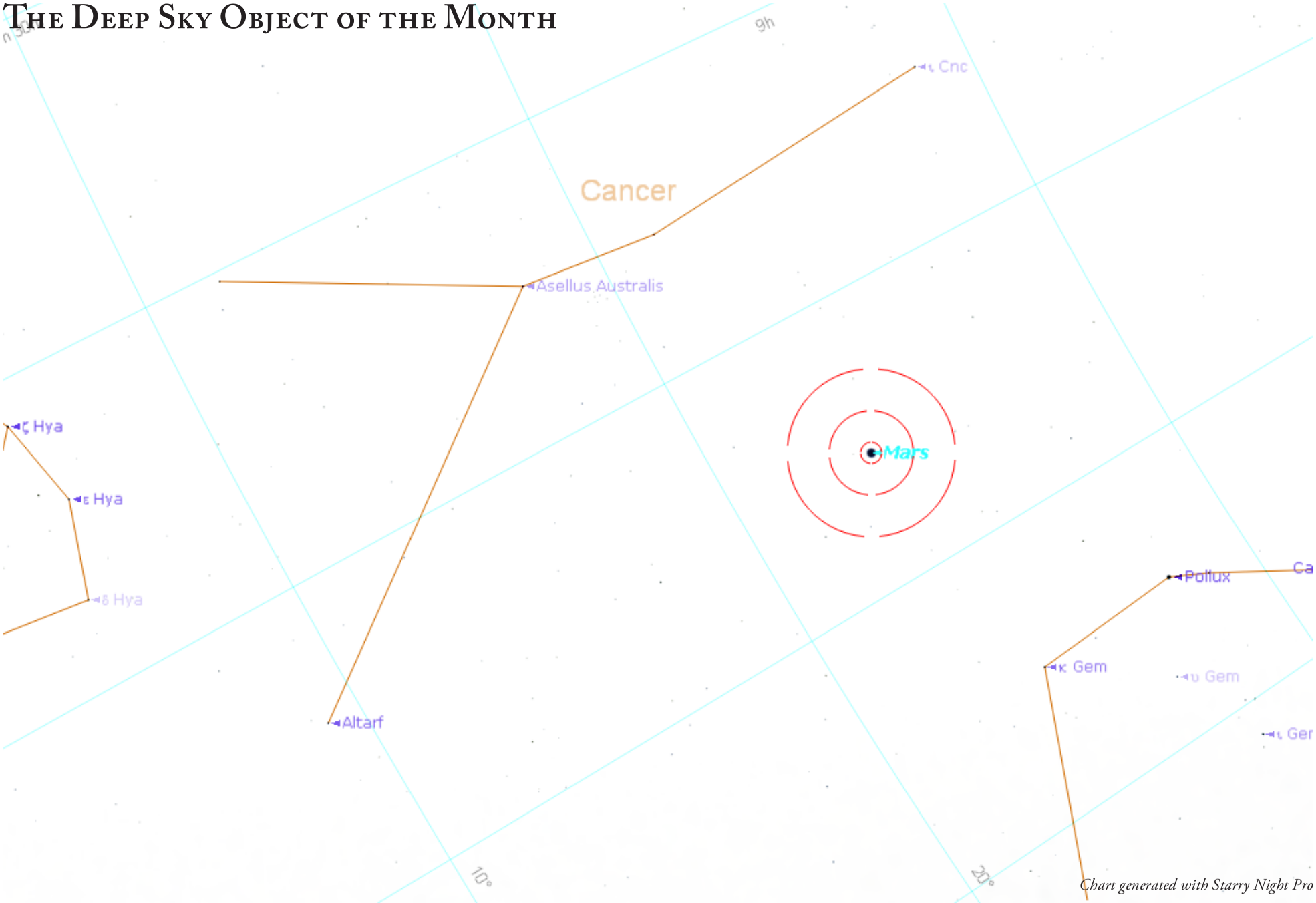


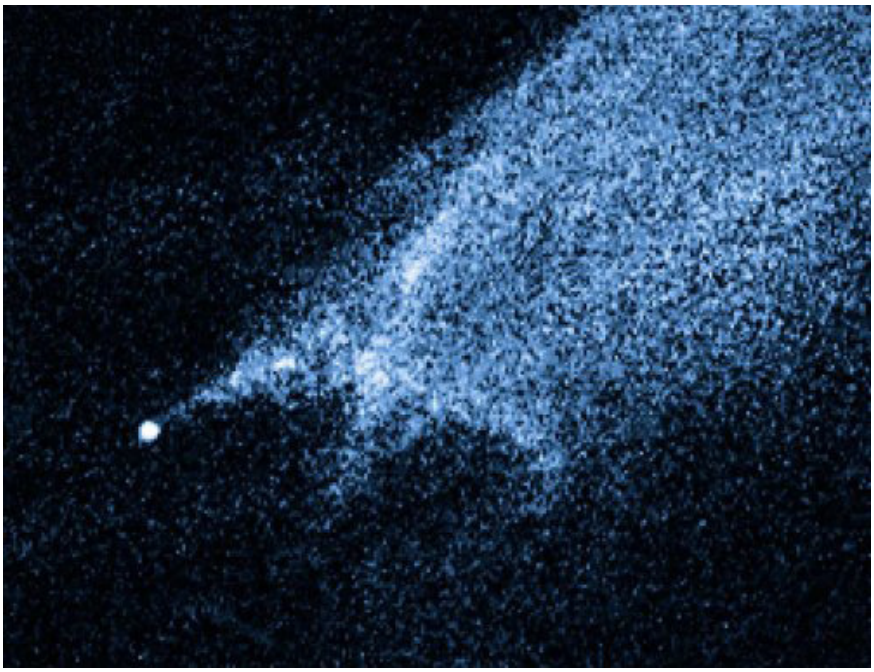
Chart generated with Starry Night Pro

Mars (the Red Planet) 4th Rock from the Sun

RA: 08h 12m 53.3s Dec: +23° 31' 46" Magnitude: -0.27 Size: 11.0"

Hubble Sees Suspected Asteroid Collision

NASA's Hubble Space Telescope has observed a mysterious X-shaped debris pattern and trailing streamers of dust that suggest a head-on collision between two asteroids. Astronomers have long thought that the asteroid belt is being ground down through collisions, but such a smashup has never been seen before.



The object, called P/2010 A2, was discovered by the Lincoln Near-Earth Asteroid Research (LINEAR) sky survey on Jan. 6. At first, astronomers thought it might be a so-called "main belt comet"--a rare case of a comet orbiting in the asteroid belt. Follow-up images taken by Hubble on Jan. 25 and 29, however, revealed a complex X-pattern of filamentary structures near the nucleus.

"This is quite different from the smooth dust envelopes of normal comets," says principal investigator David Jewitt of the University of California at Los Angeles. "The filaments are made of dust and gravel, presumably recently thrown out of the nucleus. Some are swept back by radiation pressure from sunlight to create straight dust streaks. Embedded in the filaments are co-moving blobs of dust that likely originated from tiny unseen parent bodies."

Hubble shows the main nucleus of P/2010 A2 lies outside its own halo of dust. This has never been seen before in a comet-like object. The nucleus is estimated to be 460 feet in diameter.

Normal comets fall into the inner regions of the solar system from icy reservoirs in the distant Kuiper belt and Oort cloud. As comets approach the sun and warm up, ice near the surface vaporizes and ejects material from the solid comet nucleus via jets. But P/2010 A2 may have a different origin. It orbits in the warm, inner regions of the asteroid belt where its nearest neighbors are dry rocky bodies lacking volatile materials.

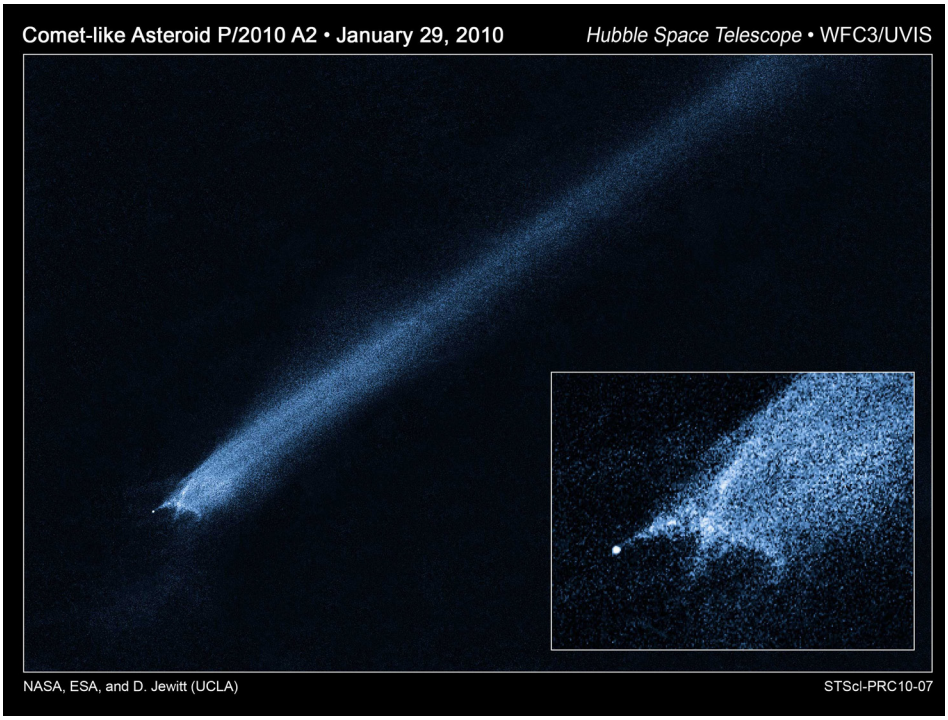
This leaves open the possibility that the complex debris tail is the result of an impact between two bodies, rather than ice simply melting from a parent body.

"If this interpretation is correct, two small and previously unknown asteroids recently collided, creating a shower of debris that is being swept back into a tail from the collision site by the pressure of sunlight," Jewitt says.

Asteroid collisions are energetic, with an average impact speed of more than 11,000 miles per hour--five times faster than a rifle bullet. The main nucleus of P/2010 A2 would be the surviving remnant of this so-called hypervelocity collision.

"The filamentary appearance of P/2010 A2 is different from anything seen in Hubble images of normal comets, consistent with the action of a different process," Jewitt says. An impact origin also would be consistent with the absence of gas in spectra recorded using ground-based telescopes.

The asteroid belt contains abundant evidence of ancient collisions that have shattered precursor bodies into fragments. The orbit of P/2010 A2 is consistent with membership in the Flora asteroid family, produced by collisional shattering more than 100 million years ago. One fragment of that ancient smashup may have struck Earth 65 million years ago, triggering a mass extinction that wiped out the dinosaurs. But no such asteroid-asteroid collision has been caught "in the act"--until now.



A full-context view of P/2010 A2. Credit: NASA, ESA, and D. Jewitt (University of California, Los Angeles). Photo No. STScI-2010-07

At the time of the Hubble observations, the object was approximately 180 million miles from the sun and 90 million miles from Earth. The Hubble images were recorded with the new Wide Field Camera 3 (WFC3).

Edited by Dr. Tony Phillips, courtesy of Science@NASA

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Keep Looking Up!

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