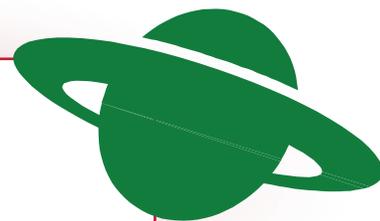


December 2006

The Voyager



East Valley Astronomy Club

Volume 20 Issue 12

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

December... the end of the year and the end of my being President of EVAC. Having served for two years, I'll now have to find new trouble to get into with all the spare time I'll have. Next year there will be a new face, Claude Haynes, standing up front at the meetings. It's a good feeling knowing things will be in good hands. We've now got a great place to meet, good relations with the Riparian and the town of Gil-

bert, and a nice observatory right next door. Things are now heading in a good direction.

I'd like to say that it's been a privilege being President and a growing experience for me personally. Thank you.

For our December meeting we will not be at the Library, but please join us at Tom and Jennifer Polakis' house for the Holiday Party.

Happy Holidays to you all.

Regards,
Steven Aggas



The Backyard Astronomer Lesser Known Winter Objects, Part One by Bill Dellinges

The stingy fall sky is giving way to the winter wonderland rising in the east. Chilly telescopes will be pulling in the usual Messier show pieces like M42, M35, etc. Let's take a look at six forlorn, obscure, or otherwise ignored objects. Transit times are shown for mid December.

NGC 752: (Andromeda) 01h 58m +37° 50' Transits 8:48pm. About 100 stars form this nice large (50'), though subdued open star cluster. Beta and Gamma Trianguli point north toward it. 8x50 binoculars will resolve the cluster but

because of its dimness, a little telescope aperture brings out its intrinsic beauty. My 11" SCT at 70x and field of 0.93° can barely get in all the stellar members. A brighter yellow star sits just off the center of this fine cluster. Note the wide double star 56 Andromedae (mag 5.7, 5.9, Sep 216") on the southwest fringe of the group. This is a very wide pair easily resolved in a finder. This multiple star is actually a quadruple. Can you spot the Aa 11th magnitude component 18.4" away from the A star at position

angle 79° and the Bb 9th magnitude member 204" away from the B star at position angle 258°? My 11" did at 70x. From this star, follow a chain of stars leading to what appears to be another smaller cluster to the west, these are only background stars.

Iota Cassiopeiae: (Alias Struve 262, ADS 1860, SAO 12298) 02h 29m +67° 24'. Transits 9:19pm. While I believe Beta Monocerotis to be the most beautiful triple star in the sky, Iota is surely next in line for

(Continued on page 2)

Inside this issue:

<i>SOHO and Ulysses</i>	3
<i>2006 Adopt-A-Highway</i>	4
<i>EVAC Christmas Party</i>	5
<i>Classified Ads</i>	6
<i>Meeting Site Maps</i>	7
<i>Calendar</i>	8
<i>Membership Application and Liability Waiver</i>	9
<i>NASA's Space Place</i>	11
<i>If It's Clear</i>	12
<i>Deep Sky Object of the Month</i>	14
<i>Christmas Party Map</i>	15

December Events:

- *Public Star Party in Gilbert - December 8*
- *Christmas Party at Case de Polakis - December 15*
- *Local Star Party at Boyce Thompson - December 16*
- *Deep Sky Star Party at Vekol Road - December 23*

The Backyard Astronomer

(Continued from page 1)

that title. It's more difficult to split than Beta because its B and C components are both closer and fainter to the primary star. AB Mag 4.6, 6.8, Sep 2.8". AC Mag 4.6, 9.0, Sep 7.3". You will need very steady air to split this tough nut. At 70x the 11" splits the AC pair. At 165x, B becomes evident. At 233x, I plainly see all three stars. The problem star is the B star, it's brighter than C but closer to A and difficult to isolate from A's glare.

Alpha Persei Association: 03h 24m +49° 52'. Transits 10:14pm. I suspect many gazers out there may not be aware that another Pleiades-like cluster lurks not far from that venerable showpiece. Follow the Seven Sisters north about 8° to the "foot" of Perseus (Zeta and Omicron Persei). Continue up along Perseus' leg to his brightest star, Alpha Persei (Mirfak or Algenib). Do you see a faint glow or haze below Mirfak? Also known as Melotte 20, this stunning splash of stars doesn't get the respect it deserves, probably because of the Pleiades close proximity. This is an open cluster of about 50 stars 570 light years away. It covers about 5° of sky so you'll need either a rich field telescope or binoculars. Because this object is so impressive, I recommend the latter – it deserves the maximum effect that only two eyed viewing can provide. My 8x50, 7° binoculars gave

a perfect view. Note most of the cluster's stars form a large "S".

Kembles Cascade:

(Camelopardalis) 04h 08' +62° 20'. Transits 10:58pm. An interesting asterism found in the huge void of this faint constellation. It is not easy to find. Here's a tip to find it: In nearby Perseus, a line drawn from Algol and Mirfak and continued northeastward about twice that distance will put you in the general area. This is a neat star chain of 7th to 9th magnitude stars in a gradually descending order of magnitude. The above RA and Dec are for the bonus open cluster found at the asterism's terminus. Superimposed on the cluster is a cute little double star, Struve 485 (mag 7.0, 7.0, Sep 18", PA 304°) which was resolved even in my 70mm Ranger refractor at 20x. The entire asterism will fit in my 10x70, 5° binocular field. To preview its location, see chart 18 in Uranometria Volume 1 or chart 1 in Sky Atlas 2000.

Omicron² Eridani (Keid): 04h 15m -7° 39'. Transits 11:05pm. Triple star also known as Struve 518, ADS 3093, and SAO 131063. This multiple star contains the easiest white dwarf to see; one reason being its close distance of 16 light years. AB mag 4.6, 9.5 Sep 83.4" PA 104° Spectral Type K1V WD (White Dwarf). BC Mag 9.5, 11.2 Sep 9.2" WD M4V. The 11" at

only 70x splits all three stars, though a slightly higher power will give a better view. This is an amazing triple. East of the primary star sits two tiny dots. The lower brighter one is the white dwarf; the dimmer upper one a red dwarf. The AB pair, about 400 AU's apart, orbit one another in about 8000 years. The orbital period of the BC white and red dwarfs, about 34 AU's apart, is 248 years.

The Hyades: (Taurus) 04h 27m +15° 50'. Transits 11:26pm. Yes, the face of the Bull is a deep sky object worthy of your attention. At 150 light years distance, it is the closest open star cluster to us after the Ursa Major group. The Hyades brightest star, Aldebaran, is not a member but a foreground star 68 lights away. Take advantage of its closeness to examine this imposing array of stars. You'll need wide field optical help, as this area extends 5 ½ degrees. This means BINOCULARS people! The 7° field of my 8x50's was perfect to encompass these cosmic diamonds. Check out the three sets of optical doubles just west of Aldebaran. They're unique in being spaced apart by almost exactly 120°.

So there you are folks. Get out your cocoa and electric socks. It's time to hit the winter skies. Next month, part 2 of Lesser Winter Objects.

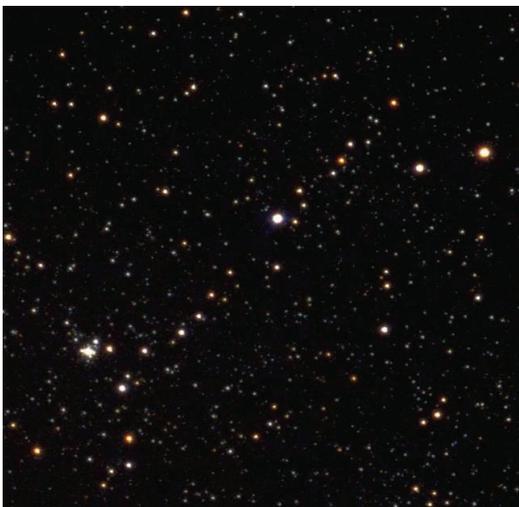


Photo of Kembles Cascade by Walter MacDonald



The Hyades open cluster as photographed by Till Credner with a 135 mm f/2.8 telephoto lens, exposed 30 min on Kodak Royal Gold 400 Select. This image was taken on January 25, 2000 from Lichtenhagen (Germany). Field of view is 14.7x10.0 deg.

SOHO & Ulysses: Mission Information and Update

by Laurice Dee, Ph.D.

Robotic Solar System Exploration: Some Imparting Thoughts

In the last few decades or so, technology has evolved so much that sending robotic explorers into space becomes a possibility. Since we are Earth-bound and depend on our planet's resources for physical sustenance, it is impossible for us to travel in space to learn more about the solar system than what we've already learned in school. These robotic explorers (spacecraft) bringing back information allows us to have a much better understanding of objects that exist in our solar system. Without these spacecraft, our understanding of "what is out there" would be limited to the knowledge that we have of the solar system through our binoculars and telescopes.

Because of the advances in spacecraft technology, there has been an increase in the number of spacecraft that go beyond the realm of Earth to explore our celestial neighborhood. The solar system objects that have already been explored are as follows: Sun, Mercury, Venus, Earth, Mars, the Asteroid Belt, Jupiter, Saturn, Uranus, and Neptune. Pluto, one of the furthestmost objects in our solar system, and the Kuiper Belt will be explored in the distinct future.

The progress in robotic exploration is not limited to our solar system. There have been some spacecraft that explore the universe, particularly those that act as "space telescopes" that would take in views of various objects from the universe while orbiting our planet. Example: Hubble Space Telescope.

For some of my future articles, I will focus on missions that study certain solar system objects and will list one or two mission(s) in each article. Details of some of the most significant

past missions will be shared in my future write-ups, as well. In this article, I will discuss the SOHO and Ulysses missions.

SOHO & Ulysses: Mission Information

Both SOHO (The Solar and Heliospheric Observatory) and Ulysses study the Sun. Even if both of these missions investigate our star, they observe the same object from different vantage points. The SOHO spacecraft faces the Sun while maintaining its location about a million miles from Earth. It orbits around the Lagrange 1 point where gravitational forces between the Sun and Earth are being held to a minimum. The spacecraft moves along with Earth in its orbit around the Sun. SOHO gets to study the Sun in almost all latitudes while the star rotates around its own axis.

Ulysses, on the other hand, studies the polar regions of the Sun. In order to do that, the spacecraft has to travel outside of the ecliptic plane, where the orbits of the planets in our solar system reside. Ulysses flies perpendicular to the ecliptic plane, traveling below the plane to fly over the south pole of the Sun and above the plane to fly over the Sun's north pole. The spacecraft would study below and above the south and north poles of the Sun, respectively, to take measurements of the Sun's polar characteristics.

SOHO was launched by an Atlas-Centaur rocket on 2 December 1995 and carries an array of 12 instruments that was developed by European and American scientists. These instruments have been quite useful in studying the Sun in its three major interior zones (core, radiative zone, and convection zone), as well as in its following parts: sunspot, photo-

sphere, chromosphere, corona, coronal hole, and prominence.

SOHO has made a number of interesting discoveries of the Sun over the years since its launch. The findings are as follows:

- The Sun has eruptions, hotter and cooler areas, and extending prominences.
- The level of solar activity increased significantly from 1997 to 1998 as the Sun approached its next solar maximum in late 2000.
- Sunspots, seen as darker spots on the Sun's surface, are cooler regions of plasma.
- The Sun's 11-year solar cycle is reflected by the number of sunspots (i.e., the more sunspots, the more active the Sun is).
- Solar eclipses allow SOHO to collect data on the Sun's corona while our Moon blocks out the Sun's light from Earth.
- A huge eruption on the Sun's surface is seen extending out more than 35 times the Earth's size.
- Magnetic loops and prominences are often seen projecting from the Sun.
- A large solar flare and coronal mass ejection shoot a billion tons of particles into space.
- Blasts of particles explode into space following coronal mass ejections (CMEs) from the Sun's surface.
- "Sun-grazing" comets get burned up by the Sun's heat as they move closer to our star.
- Because of SOHO's sophisticated instruments, scientists can now study the inside of the Sun.
- The Sun's magnetic field and re-

(Continued on page 13)

2006 Adopt-A-Highway Fall Session

Shortly past 7:00 on the morning of Saturday, November 4, a group of civic-minded club members met in the parking lot of the Village Inn in Apache Junction. Their mission? To support our biannual participation in the Adopt-A-Highway program. Though the group was smaller in number than in recent outings, we were a mighty trash-collecting machine.

After commuting to *our mile*, we split up, with one group taking on the eastbound median and the other working the westbound side.

By 11:30 we had collected what many inconsiderate motorists had decided they could do without, and placed the items in the unfortunately familiar bright blue bags.

After posing for the group photo - taken by aspiring photographer and incoming EVAC President Claude Haynes - we caravanned back to the



Village Inn for a club-sponsored breakfast or lunch, or brunch... and a whole lot of astronomy talk.

Unless everyone stops littering, we'll

look forward to seeing more of you out there next spring!

Mercury Transits the Sun - November 8

On November 8 the planet Mercury transited the face of the Sun. The entire event was visible from western North America. This was the second of such transits that will occur this century; the next one occurring in May, 2016.

Shortly after 11:00 a few volunteers started arriving to get set up in anticipation of first contact at 12:12.

All throughout the afternoon interested people stopped by to have a look at this phenomenon. Several lookers just happened to be at the park that day and didn't know such an event was underway. Needless to say, they left



Waiting for our audience

with a pleasant surprise.

A special club *thank you* to the solar volunteers: Brooks Scofield, Frank Pino, Chuck Shields, Dave Coshov, Don Wrigley, Bruce LaFrance, Bill Dellinges, Ron Jansen, Martin Thompson, Ken Tydeck, and one other attendee whose name didn't make it to

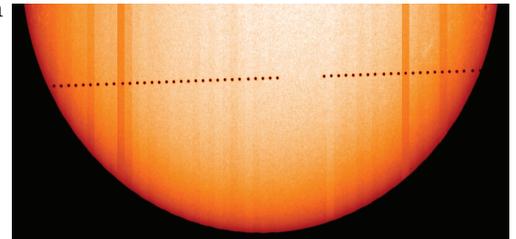
my notes... that's a dozen volunteers who were manning 16 telescopes!

The equipment present included three 8" Celestron SCTs, one 4.5" reflector, one 66mm refractor, three 70mm refractors, two 80mm refractors, one 85mm refractor, three Coronado PSTs (one with a dual stack



Transit viewing at GRCO

setup), one 16" SCT and a 60mm MaxScope. The white-light filters gave both white and orange views of the Sun, while the Ha-filtered scopes (5 of 'em) provided for some wonderful views between second and third contacts.



Mercury's path across the solar disk as seen from SOHO.

EVAC Christmas Party: December 15

After a one year hiatus, during which the club held its Christmas Party at the Southeast Regional Library, the annual soiree returns to a more festive residential setting. Let's face it, library and party are seldom used in the same sentence.

This year's party will be held at the home of Jennifer and Tom Polakis.

Address: 121 W. Alameda Drive in Tempe

Alameda is located midway between Broadway (to the north) and Southern (to the south), and is marked by a traffic light. The intersection of note, relative to locating this festive gathering, is Mill Avenue and Alameda Drive. Casa de Polakis is located west of this intersection, on the south side of the street. Please refer to the map on page 15 for navigational assistance.

Date: Friday, December 15 with festivities getting under way at 6:30 pm

Please bring along a side dish, finger food, dessert or favorite beverage to share!

Brief show-n-tell items are encouraged - a slide projector will be available.

There's also room for a few telescopes too!

Food, fun, door prizes!



Our Monthly Newsletter by Peter Argenziano

As I prepare for my third year as EVAC Newsletter Editor, I'd like to take this opportunity to thank you all for your support.

The new year will bring some changes to the club newsletter, most notably a new name. Beginning with the January 2007 issue, the EVAC newsletter will become The Observer. I will also implement a minor layout change.

Another change I'd like to see is for more of our members to author articles for publication. There are a few regular contributors, whose submissions are greatly appreciated, but I'm sure there are others who have at least one article in them!

To that end, here are a few guidelines to help with penning a newsletter article:

The preferred method of submission is a document attached to an email to the editor. You can use the word processor or text editor of your choice.

While there's no specific structure that is mandated, you should write in a style that's comfortable, be it formal or informal. You should proof-read the finished article for any er-

rors in punctuation, grammar or spelling before sending it to the editor. The editor can make corrections, but there's always a chance that your meaning may be changed when



someone else does the final editing. It always helps to write from an outline. This organizational methodology helps to keep you on topic and usually results in a readable article.

Articles should contain between 500 and 1,000 words, another tactic that makes for an enjoyable reading experience. A photograph or two (not too many) are usually nice, if they contribute to the content. Photos should be sent separately from the written document.

Naturally, all work must be original. The newsletter is no place for plagiarism. You must get permission to use any accompanying photograph you intend to use, and credit must be

given to its owner.

Now that we've covered the *how*, let's move on to the *what*.

Selecting an appropriate topic should be an easy process. Surely you'll be most effective if you are writing about something that you are interested in, though you don't necessarily have to be an expert on the subject.

Needless to say, your topic should be astronomical in nature, whether that be from a scientific perspective or some other element of the hobby of amateur astronomy. Got some theories on cosmology? Perhaps you'd like to review a new equatorial mount or eyepiece. Maybe you'd like to share your thoughts on a specific object you've observed, or on the art of observing itself. Have you recently attended a regional star party or visited a professional observatory? Were you a guest at an astro bed and breakfast? Got some ideas about activities the club should consider getting involved in? Chances are if you find something interesting, so will other members.

So go ahead... give it some thought. Then sit down at the keyboard. I'll be waiting for your new article.

Classified Advertisements

Tele Vue Panoramic Alt-Az Mount

Tele Vue Panoramic ash tripod mated with a Telepod head, including the optional Telepod handle.



The ash Panoramic tripod with the Telepod head sells new for \$605, and the handle adds another \$50. The previous owner had drilled a couple of holes in the Telepod head for an encoder project (the holes in no way affect operation), so I'll offer a serious discount to members.

The ash tripod and the Telepod head with handle, all for only \$250. But wait... there's more. I'll also include an Orion padded soft case to carry it all around in (a \$55 value). That represents about a 65% discount from new.

Peter Argenziano 480-633-7479
news@eastvalleyastronomy.org

Meade LX-200 Schmidt-Cassegrain Telescope

I am selling my 12" LX-200 GPS UHTC in order to fund another project. Everything is in perfect working order. I sent it to Meade for refurbishing in January 2006 and it has all new electronics and metal drive gears. For all practical purposes it's a new scope. Although it's heavy (75 lbs), the Get-a-Grip handles make it an easy lift for two people and a doable lift for one if you are in shape. Performs wonderfully as a visual instrument and it has worked magnificently with a F3.3 focal reducer and a StellaCam-II video camera.

See: <http://www.eastvalleyastronomy.org/class-ads.html>

Package includes:
12" LX200-GPS UHTC

All Original Equipment
(including Giant Field Tripod, Manual, 26mm eyepiece, original box, etc.)

Upgrades/Extras:
Mounting Plate (\$99)

Get-A-Grip handles (\$130)



Meade warranty including shipping until 12/29/2006 (\$299/year)
A new 12" LX200R is \$4,694, your price is \$3,000.

Marty Pieczonka 480-983-0915
martyp@sybase.com

PHOTON INSTRUMENT, LTD.

**SALES
REPAIR**



**SERVICE
RESTORATION**

**ASTRONOMICAL TELESCOPES
WARREN & JUDY KUTOK**

Owners

122 EAST MAIN STREET MESA, ARIZONA 85201
E-MAIL AT WEB SITE <http://www.photoninstrument.com>
480 835-1767
800 574-2589

www.eastvalleyastronomy.org/grco/obs.asp

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.

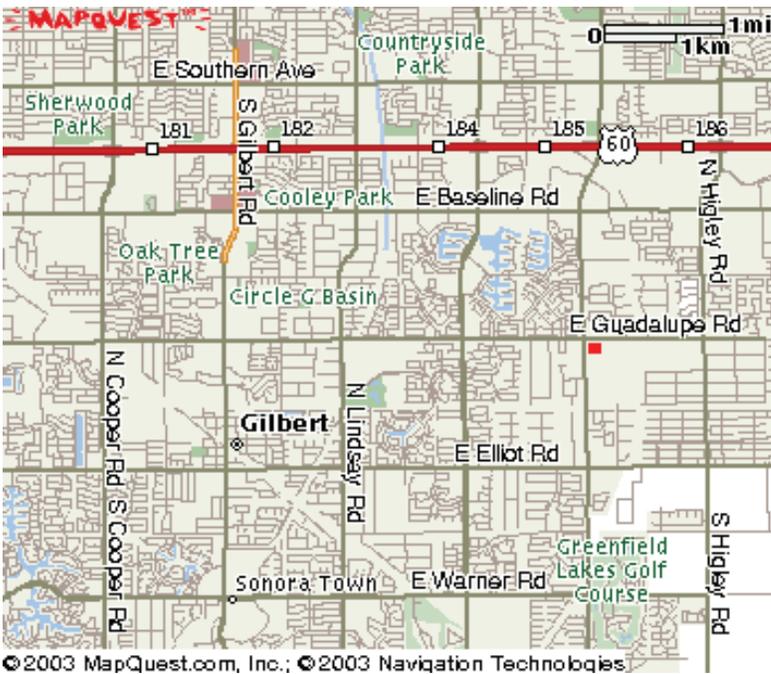
Ads should be emailed to: news@eastvalleyastronomy.org

*Support your
local
telescope
dealer!*



5201 N. Oracle Rd. Tucson, Az 85704 520-292-5010

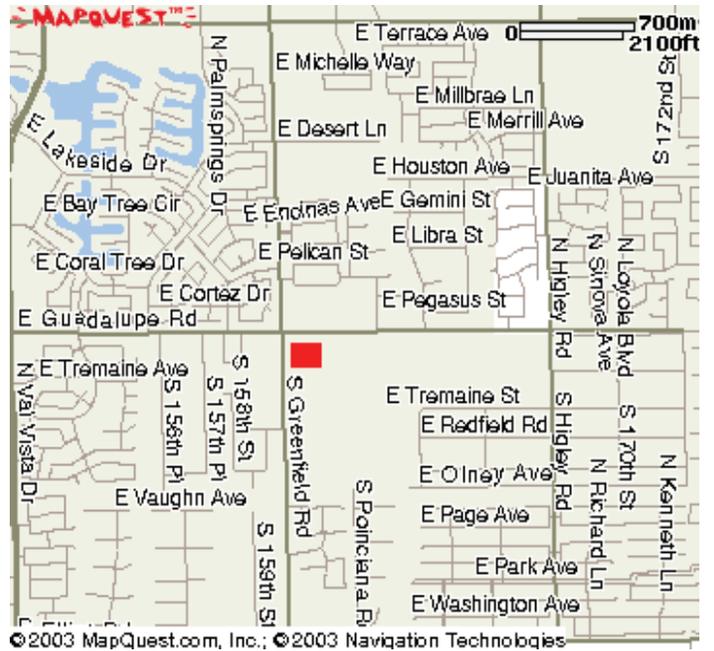
www.starizona.com



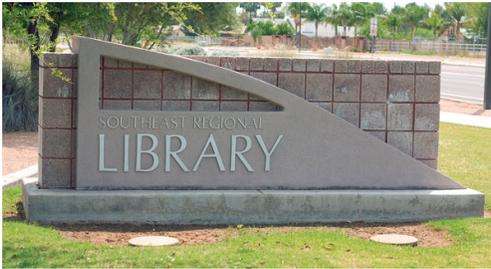
The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

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



Meeting Dates

December 15

Christmas Party

January 19

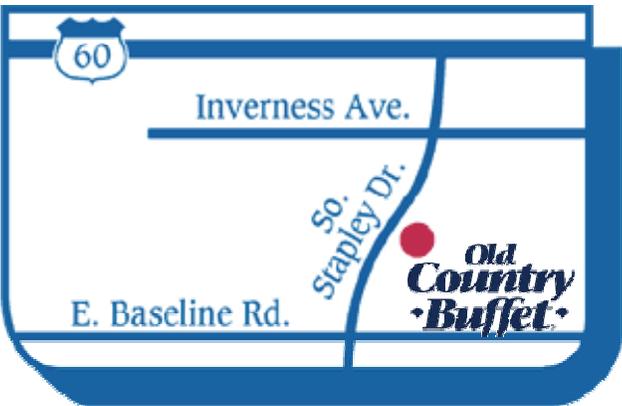
February 16

March 16

April 20

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



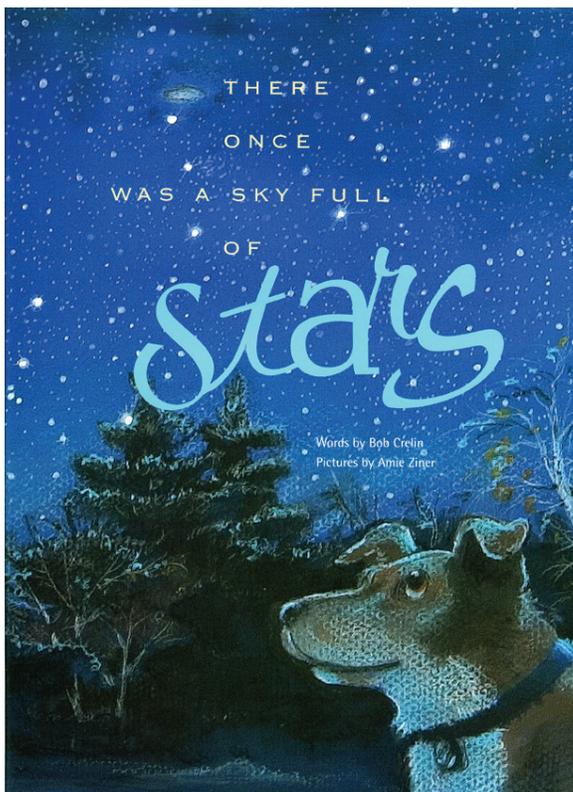
December 2006

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
31						

Schedule of Events

- *December 8 - Public Star Party at Riparian Preserve in Gilbert*
- *December 15 - Christmas Party at the home of Jennifer and Tom Polakis*
- *December 16 - Local Star Party at Boyce Thompson Arboretum State Park*
- *December 23 - Deep Sky Star Party at Vekol Road*

Dear Friends of Dark Skies,



As you may know, I've been very involved in dark sky efforts for the past twelve years. I've dedicated most of my efforts to dreaming up the best tools that help bring light pollution awareness/action into mainstream society.

Here's some news on one of those tools...

After selling out of a short paperback run, my children's book 'There Once Was a Sky Full of Stars' (Sky Pub.), has been re-introduced as a beautiful, large format hardcover. This book is the first, lyrical children's book that teaches kids about the stars AND fixing light pollution. The story's environmental message is simple, educational and unforgettable for young readers (listeners and parents, too!)

This hardcover release now has expanded distribution, which means that There Once Was a Sky Full of Stars is available to Barnes & Noble, Borders, and any other national book chain or local book store. However, because Sky is a smaller publisher, many stores have not heard of the book. This book can't deliver it's important message if it is sitting in boxes in a warehouse.

YOU CAN HELP GREATLY to get this book on the store shelves, into libraries, into schools, etc. Please encourage your club members, friends and family members to ask for it at your local book stores, libraries (the more places that stock it, the more LP awareness gets spread!) Consider it as a gift to children, nieces, nephews, grandchildren, great grandchildren, etc. for the holidays.

We might just change the world!

Sincerely,

Bob Crelin, author
bob@bobcrelin.com

<http://bobcrelin.com/author.html>

There Once Was a Sky Full of Stars

by **Bob Crelin**

Sky Publishing Corp.

ISBN# 1931559376

East Valley Astronomy Club -- 2007 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

Please sign name here



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

Martian Devils by Dr. Tony Phillips

Admit it. Whenever you see a new picture of Mars beamed back by Spirit or Opportunity, you scan the rocks to check for things peeking out of the shadows. A pair of quivering green antennas, perhaps, or a little furry creature crouched on five legs...? Looking for Martians is such a guilty pleasure.

Well, you can imagine the thrill in 2004 when scientists were checking some of those pictures and they *did* see something leap out. It skittered across the rocky floor of Gusev Crater and quickly disappeared. But it wasn't a Martian; Spirit had photographed a dust devil!

Dust devils are tornadoes of dust. On a planet like Mars which is literally covered with dust, and where it never rains, dust devils are an important form of weather. Some Martian dust devils grow almost as tall as Mt. Everest, and researchers suspect they're crackling with static electricity—a form of “Martian lightning.”

NASA is keen to learn more. How strong are the winds? Do dust devils carry a charge? When does “devil season” begin—and end? Astronauts are going to want to know the answers before they set foot on the red planet.

The problem is, these dusty twisters can be devilishly difficult to catch. Most images of Martian dust devils have been taken by accident, while the rovers were looking for other things. This catch-as-catch-can approach limits what researchers can learn.

No more! The two rovers have just gotten a boost of artificial intelli-

gence to help them recognize and photograph dust devils. It comes in the form of new software, uploaded in July and activated in September 2006.

“This software is based on techniques developed and tested as part of the NASA New Millennium Program’s Space Technology 6 project. Testing was done in Earth orbit onboard the EO-1 (Earth Observing-1) satellite,” says Steve Chien, supervisor of JPL’s Artificial Intelligence Group. Scientists using EO-1 data were especially interested in dynamic events such as volcanoes erupting or sea ice breaking apart. So Chien and colleagues programmed the satellite to notice change. It worked beautifully: “We measured a 100-fold increase in science results for transient events.”

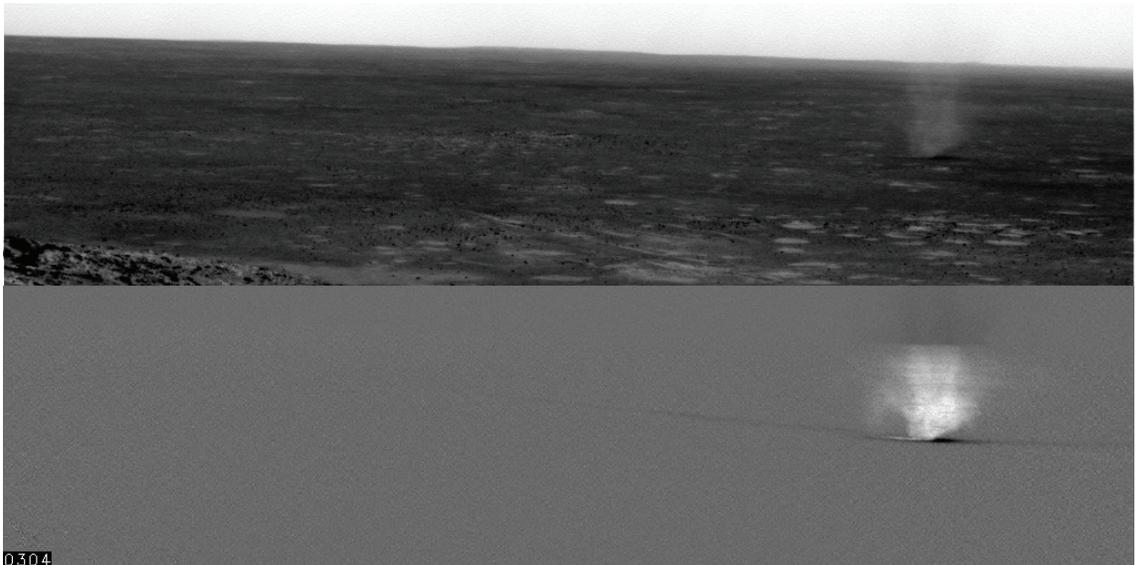
Now that the techniques have been tested in Earth orbit, they are ready to help Spirit and Opportunity catch

dust devils—or anything else that moves—on Mars.

“If we saw Martians, that would be great,” laughs Chien. Even scientists have their guilty pleasures.

Find out more about the Space Technology 6 “Autonomous Sciencecraft” technology experiment at nmp.nasa.gov/st6/TECHNOLOGY/sciencecraft_tech.html, and the use of the technology on the Mars Rovers at nmp.nasa.gov/TECHNOLOGY/infusion.html. Kids can visit spaceplace.nasa.gov/en/kids/nmp_action.shtml and do a New Millennium Program-like test at home to see if a familiar material would work well in space

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



The top half of this image is part of a series of images of a passing dust devil on Mars caught by Spirit. In the bottom half, the image has been filtered to remove everything that did not change from one image to the other. Notice the faint track left by the dust devil. Credit NASA/JPL/Mark T. Lemmon, Univ. of Arizona Lunar and Planetary Laboratory.

If it's Clear...

by *Fulton Wright, Jr.*
Prescott Astronomy Club

December 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.

On Sunday, December 3, from about 5:50 PM to 7:40 PM you might see the Moon occult some bright stars in the Pleiades. Because the Moon is almost full, this will not be easy. Use at least a medium telescope (6 inch) and high power. The stars will disappear just before the terminator reaches them because the thin, unlit limb of the Moon gets there first. Seeing the stars reappear later will be too tough.

On Monday, December 4, at 4:54 PM the full moon rises, so forget the faint fuzzies tonight. Sunset tonight is 5:19 PM.

On Tuesday, December 5, after about 9:00 PM, you can see the southeast (lower right) part of the Moon at its best. Libration tips that part toward us. It is also good the next night.

On Sunday, December 10, about 6:45 AM you might be able to see a tight grouping of planets. This will be hard to see, low in the dawn. With binoculars look 5 degrees above the southeast horizon for Jupiter (mag -1.7), Mercury (mag -.6, 1/4 degree above it), and Mars (mag 1.5, 1 degree to the right). Beta Scorpii (mag 2.6) is 1/4 degree above Mercury.

Wednesday, December 13, all night,

you can see the Geminid meteor shower. The sky is dark by 7:00 PM and the viewing improves as the radiant (near Castor and Pollux) rises higher during the night. About 2:00 AM the Moon comes up and spoils the fun. Dress warmly, face east, lie back and look up for slow, bright meteors.

On Monday, December 18, about 8:30 PM, you can see Algol at its minimum. This eclipsing binary variable star is usually at magnitude 2.1 (about the same as gamma Andromedae in the constellation next door, check it out the night before or after), but tonight it will be magnitude 3.4 (about the same as Rho Persius, 2 degrees south). It will be near minimum value for around an hour then slowly brighten.

On Tuesday, December 19, it is new moon so you can look for faint fuzzies all night.



● Full Moon on December 4 at 17:25

◐ Last Quarter Moon on December 12 at 07:32

○ New Moon on December 20 at 07:01

◑ First Quarter Moon on December 27 at 07:48

SOHO and Ulysses: Mission Information and Update

(Continued from page 3)

leases of plasma directly affect Earth and the rest of the solar system. Solar wind shapes the Earth's magnetosphere, and magnetic storms can disrupt communications and navigational equipment, damage satellites, and even cause blackouts.

Ulysses is the first spacecraft to explore interplanetary space at high solar latitudes. The spacecraft was launched on 6 October 1990 by the shuttle Discovery with two upper stages. To reach high solar latitudes, Ulysses was aimed close to Jupiter so that Jupiter's large gravitational field would accelerate Ulysses out of the ecliptic plane to high latitudes; no man made launch vehicle could by itself provide the needed velocity for Ulysses to achieve high latitudes. Encounter with Jupiter occurred on 8 February 1992, and since then Ulysses traveled to higher latitudes with maximum Southern latitude of 80.2 degrees being achieved on 13 September 1994. Ulysses traveled through high Northern latitudes during June through September of 1995. These high latitude observations were being obtained during the quiet (minimum) portion of the 11-year solar cycle. Since the spacecraft's

orbital period is six years, Ulysses had completed the next two passes (i.e., over the south and north poles, respectively), and the high latitude observations were obtained during the active (maximum) portion of the solar cycle.

During each pass, Ulysses studied the properties of the solar corona, the solar wind, the heliospheric magnetic field, solar energetic particles, galactic cosmic rays, solar radio bursts, and plasma waves. Other investigations included study of cosmic dust, gamma ray bursts, and studies of the Jovian magnetosphere obtained during the Jupiter flyby.

SOHO & Ulysses: Mission Update

On 25 June 1998, European and American space controllers lost contact with SOHO. Radio contact with the spacecraft dropped out suddenly while it was going through an alignment procedure that involved firing control jets (as part of routine maintenance operations). After the spacecraft went into Emergency Sun Reacquisition (ESR) mode, the teams sent a series of commands to SOHO (over the next few months) to try to recover the spacecraft. After a busy week of recommissioning activities of the various spacecraft subsystems and an orbit correction maneuver, SOHO

was finally brought back to normal mode on 25 September. Whew! Since then, SOHO, in its excellent health, has been operating normally and continues to collect data on our star on a daily basis.

As of this writing, Ulysses is on its way to the poles of the Sun. The spacecraft will initiate its south polar pass this month (17 November 2006) and will complete the pass on 3 April 2007. Ulysses will enter perihelion (i.e., closest to the Sun) on 18 August 2007 and then initiate its north polar pass on 30 November 2007. The spacecraft will complete the pass on 15 March 2008. Ulysses will perform similar studies of the Sun during the remaining few years of its maximum cycle. The spacecraft continues to be in excellent health.

The website addresses for SOHO and Ulysses are as follows:

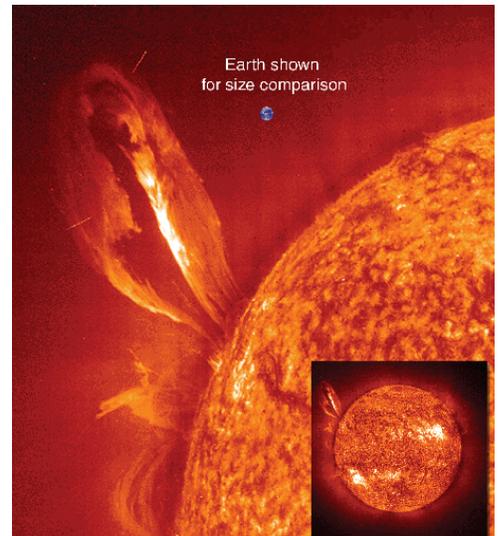
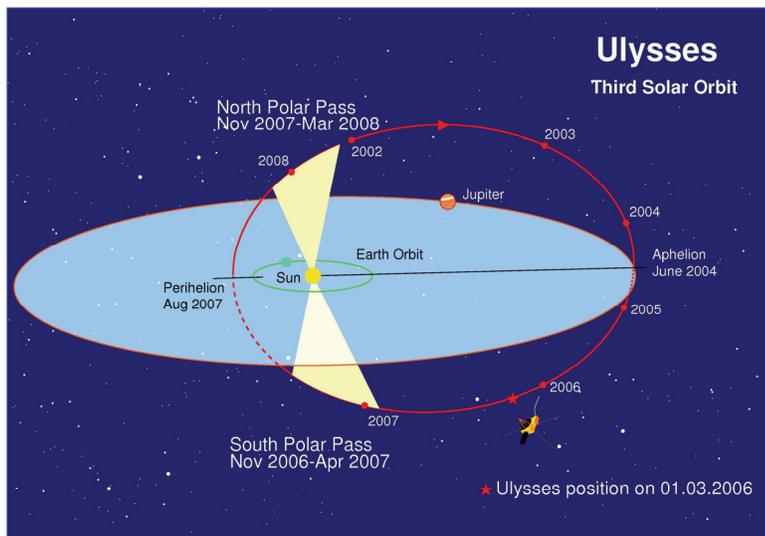
<http://sohowww.nascom.nasa.gov>

<http://ulysses.jpl.nasa.gov>

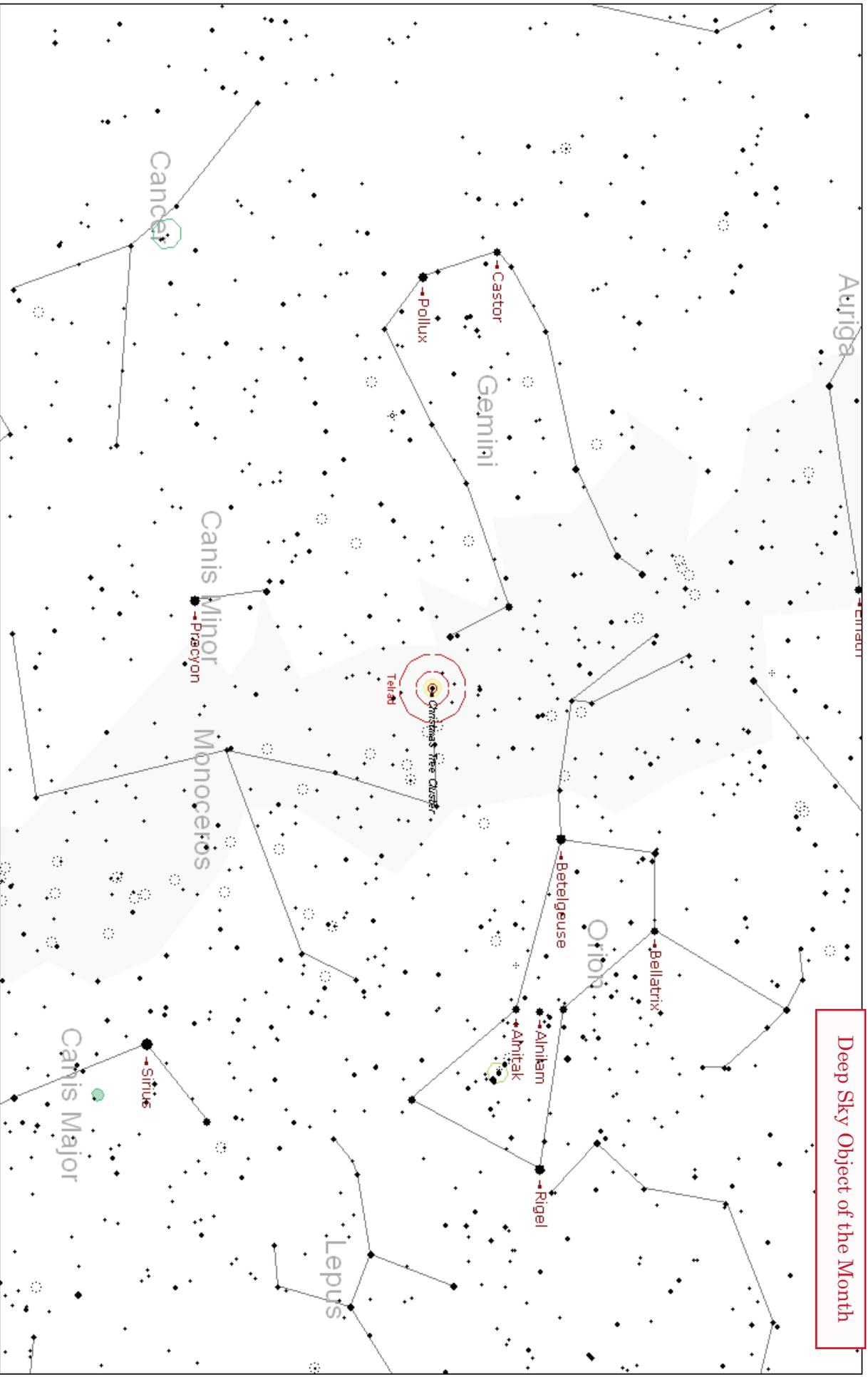
Laurice Dee, Ph.D.

JPL Solar System Ambassadors Program

If you have any questions and would like to comment, please do contact Dr. Dee at 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>.



Deep Sky Object of the Month

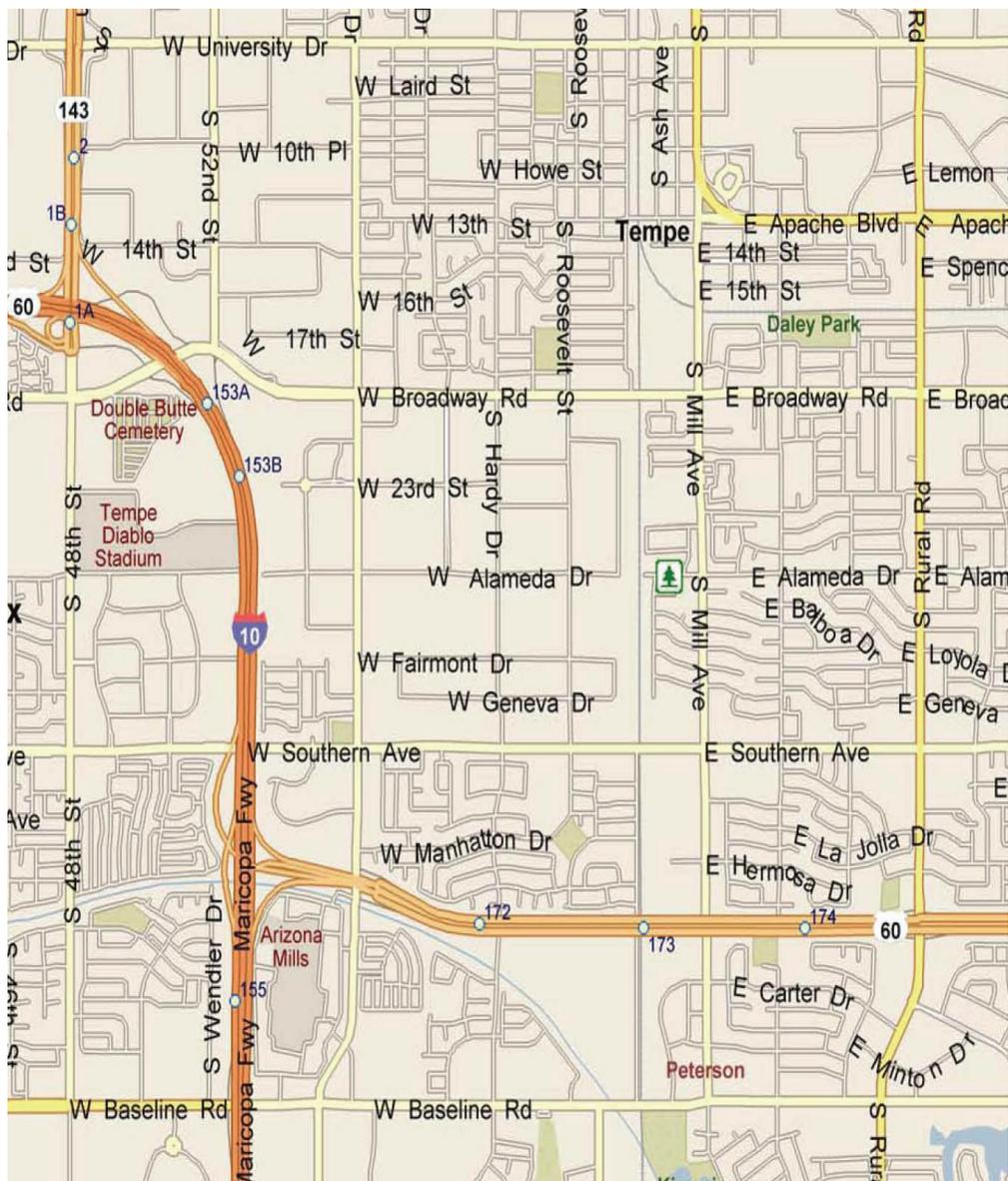


NGC 2264 (Christmas Tree Cluster) Open Cluster in Monoceros

Magnitude: 4.1 Size: 20.0' Number of Stars: 40

RA 06h 40m 59.0s Dec +09° 53' 42"

Chart created with Starry Night Pro software.



Casa de Polakis 121 W. Alameda Drive in Tempe

Coming in January... our guest speaker will be Dr. Ted Bowell, principal investigator of the Lowell Observatory Near-Earth-Object Search (LONEOS).

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.

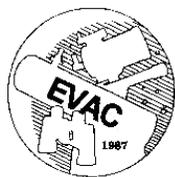
The Voyager is published monthly by the East Valley Astronomy Club and made available electronically (PDF) the first week of the month. Printed copies are available at the monthly meeting.

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!



East Valley Astronomy Club

PO Box 2202

Mesa, AZ 85214-2202

President: Steven Aggas

Vice President: Silvio Jaconelli

Secretary: Tom Polakis

Treasurer: Wayne Thomas

Event Coordinator: Randy Peterson

Property Directors: David Hatch

Newsletter Editor: Peter Argenziano

Webmaster: Marty Pieczonka

Board of Directors: John Holmquist, Martin Thompson, Claude Haynes & Howard Israel

