



# SACNEWS

Volume 29 Issue 1

January 2005

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## A Year of Sky Events 2005

By Joe Orman

Mark your calendar for these interesting alignments, conjunctions, occultations, eclipses & meteor showers in the year 2005. Times are calculated for Phoenix, Arizona; other locations may differ. Most will be easy to see with the unaided eye, some very challenging -- take a look!

- ★ January 1 (morning): Mercury 1 degree above Venus, low in SE before sunrise. Mars and star Antares to upper right.
- ★ January 4 (morning): Star Spica 2 degrees to lower right of thick crescent moon, Jupiter 8 degrees to upper right, high in S before sunrise.
- ★ January 7 (morning) Crescent moon, Mars and star Antares form triangle within 5 degrees, in SE before sunrise. Venus and Mercury to lower left.
- ★ January 7-8 (night): Comet C/2004 Q2 (Machholz) 2 degrees west of the Pleiades star cluster.
- ★ January 8 (morning): Mercury 1 degree to upper right of Venus, crescent moon 8 degrees to right, low in SE before sunrise.
- ★ January 12-13 (mornings): Mercury 1/3 degrees to right of Venus, very low in SE before sunrise.
- ★ February 15-16 (night): Star cluster Pleiades 1 degree to right of first-quarter moon, set in WNW about 1:30 a.m.
- ★ March 2-3 (night): Last-quarter Moon occults star Antares (moonrise 1:19 a.m. MST, disappears behind bright side

1:25 a.m., reappears from dark side 2:22 a.m.), low in SE.

- ★ March 11 (evening): Mercury 5 degrees to lower right of crescent moon, low in W after sunset.
- ★ March 20: Spring equinox (5:33 a.m. MST). Sunrise straight east (6:32 a.m., azimuth 89.5 degrees), sunset straight west (6:40 p.m., azimuth 270.8 degrees). Always use proper eye protection when viewing the sun.
- ★ March 25 (morning): Full moon sets straight west at sunrise (moon 1 degree up straight west at 6:16 a.m. MST, sunrise 6:25 a.m.).
- ★ March 31 (morning): Star Antares 3 degrees to left of gibbous moon, in S before sunrise (occultation for Japan and Hawaii).
- ★ April 8 (afternoon): Very slight partial solar eclipse, high in SW. Mere sliver of SE edge of sun will be covered. Starts 2:31 p.m. MST, greatest 3:04 p.m., ends 3:37 p.m. (annular/total in Southern Hemisphere). Always use proper eye protection when viewing the sun.
- ★ April 11 (evening): Star cluster Pleiades 1 degree to lower right of crescent moon, in W after sunset.
- ★ May 2 (morning): Mars 5 degrees to upper left of thick crescent moon, in SE before sunrise.
- ★ May 23-24 (night): Full moon occults star Antares in S.

(Continued on page 3)



## Antennas, Designed by Darwin

by Patrick L. Barry

Who in their right mind would design this bizarre-looking antenna? Actually, nobody did. It *evolved*.

Taking a cue from nature, NASA engineers used a kind of "artificial evolution" to find this design. The result may look odd, but it works very well.

"The evolutionary process improves the design of antennas, just as evolution in nature leads to fitter plants and animals," says Jason Lohn, leader of the Evolvable Systems Group at NASA's Ames Research Center.

The improvement comes from Darwin's idea of natural selection: only the fittest members of a generation survive to produce offspring. Over many generations, traits that hinder survival are weeded out, while beneficial traits become more common. "In the end," he says, "you have the design equivalent of a shark, honed over countless generations to be well adapted to its environment and tasks."

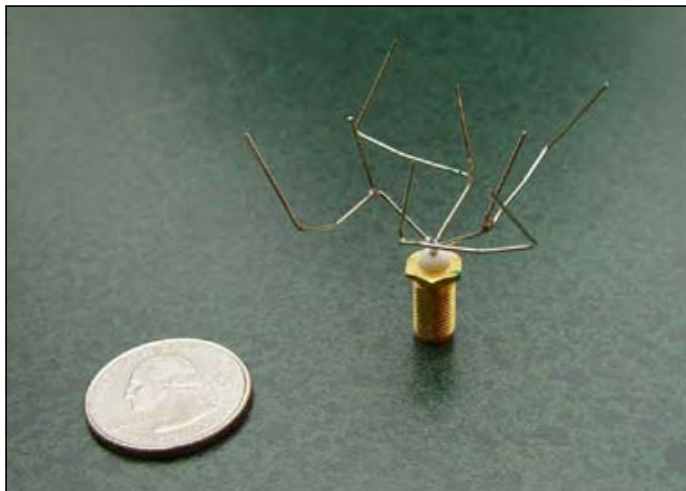
Evolutionary computation, as it's called, applies this principle to hardware design. It's particularly useful for tackling problems that are difficult to solve by hand--like the design of new antennas.

Designing a new antenna for NASA's Space Technology 5 (ST-5) mission was the challenge facing Lohn's group. ST-5 will explore how TV-sized "nano-satellites" can perform the tasks of much larger, conventional satellites at a cheaper cost. Antennas on these satellites must be smaller than usual, yet capable of doing everything that a bigger antenna can do.

The evolution of this bizarre-looking antenna happened

inside a computer. Many random designs were tested in a computer simulation. The computer judged their performance against certain goals for the design: efficiency, a narrow or wide broadcast angle, frequency range, and so on.

As in nature, only the best performers were kept, and these served as parents of a new generation. To make the new generation, the traits of the best designs were randomly mixed by the computer to produce fresh, new designs—just as a father and mother's genes are mixed to make unique children. This new generation was again tested in the computer simulation, and the best designs became the parents of yet another generation.



This process was repeated thousands, millions of times, until it settled onto an optimal, shark-like design that wouldn't improve any

further. With today's fast computers, millions of generations can be simulated in only a day or so.

The result: an excellent antenna with an odd shape no human would, or could, design.

For more about artificial evolution, see [ic.arc.nasa.gov/story.php?sid=86&sec](http://ic.arc.nasa.gov/story.php?sid=86&sec). For more about Space Technology 5, see [nmp.nasa.gov/st5](http://nmp.nasa.gov/st5). For an animation that helps explain to kids how ST5's antenna sends pictures through space, go to : [spaceplace.nasa.gov/en/kids/st5xband/st5xband.shtml](http://spaceplace.nasa.gov/en/kids/st5xband/st5xband.shtml).

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

*(Continued from page 1)*

- Disappears 12:07 a.m. MST, reappears 1:25 a.m.
- ★ May 31 (morning): Mars 1 degree above thick crescent moon, rising in E about 1:30 a.m. and in SE before sunrise.
  - ★ June 9 (evening): Saturn 5 degrees to lower left of crescent moon, in W after sunset. Stars Castor and Pollux straight in line to right, Venus to lower right.
  - ★ June 15-16 (night): Jupiter 2 degrees to upper left of gibbous moon, high in S after sunset. Set in W about 1:00 a.m. with Jupiter 1 degree to upper right of moon.
  - ★ June 25 (evening): Saturn 1 1/2 degrees to lower left of Venus, Mercury 1/2 degree to lower right of Venus, low in W after sunset. Stars Castor and Pollux straight in line to right.
  - ★ June 27 (evening): Mercury just 9 arc-minutes (!) to left of Venus, very low in WNW after sunset.
  - ★ July 2 (morning): Star cluster Pleiades 5 degrees to lower left of crescent moon, in E before sunrise.
  - ★ July 8 (evening): Mercury 2 degrees to lower left of Venus, crescent Moon 3 degrees above, low in W after sunset.
  - ★ July 17 (evening): Gibbous moon occults star Antares, in S after sunset. Disappears behind dark edge 8:32 p.m. MST, reappears from bright edge 9:13 p.m.
  - ★ July 22 (evening): Star Regulus 1 degree to lower left of Venus, low in W after sunset.
  - ★ August 7 (evening): Venus 1 degree to left of crescent Moon, low in W after sunset.
  - ★ August 9 (evening): Jupiter 3 degrees to upper left of crescent moon, in W after sunset. Venus to lower right, star Spica to upper left.
  - ★ August 11 - 12 (night): Perseids meteor shower. First-quarter moon setting about 11 p.m. will not interfere. Shower radiates from constellation Perseus, which rises in NE about 10 p.m. Best time to look between midnight and morning twilight. Typical rate 50 to 100 meteors per hour. Night of August 12 - 13 good too.
  - ★ August 25-26 (night): Star cluster Pleiades 1 degree to left of last-quarter moon, rise in ENE about 11:00 p.m. 2 degrees apart near zenith at dawn on August 26.
  - ★ September 1 (evening): Jupiter 1 1/2 degrees to the upper right of Venus, low in W after sunset. Star Spica 5 degrees to left.
  - ★ September 2 (morning): Mercury 3 degrees to right of crescent moon, very low in E before sunrise.
  - ★ September 6 (evening): Jupiter, Venus, star Spica and crescent moon tight grouping within 5 degrees, low in W after sunset.
  - ★ September 21 (evening): Mars 5 degrees to lower right of gibbous moon, rising in SE about 9 p.m.
  - ★ September 22: Fall equinox (3:23 p.m. MST). Sunrise straight east (6:16 a.m., azimuth 89.2 degrees), sunset straight west (6:25 p.m., azimuth 270.5 degrees). Always use proper eye protection when viewing the sun.
  - ★ October 6 (evening): Venus 3 degrees above crescent Moon, low in SW after sunset.
  - ★ October 16 (evening): Star Antares 1 1/2 degrees to lower left of Venus, low in SW after sunset.
  - ★ October 17 (morning): Very slight partial lunar eclipse, in W before sunrise. Moon enters umbra 4:32 a.m. MST, middle of eclipse 5:00 a.m. (only 6% of the moon's diameter in umbra), leaves umbra 5:26 a.m.
  - ★ October 18-19 (night): Mars 5 degrees directly below full moon as they rise in ENE about 7:00 p.m., close all night.
  - ★ October 29-30 (night): Mars closest to earth and biggest diameter (20.2 arc-seconds). Close to opposition, up all night.
  - ★ November 3 (evening): Mercury 2 degrees to upper right of very thin crescent Moon, very low in SW after sunset. Venus to upper left.
  - ★ November 6 (evening): Venus 4 degrees to right of crescent Moon, in SW after sunset.
  - ★ November 14 (evening): Mars 2 degrees straight below full moon, low in E after sunset.
  - ★ December 4 (evening): Venus 5 degrees to right of crescent Moon, in SW after sunset.
  - ★ December 11-12 (night): Mars 1 1/2 degrees to lower left of gibbous moon, high in E after sunset. Pass within 1 degree of each other later at night, set in W about 4:00 a.m. with Mars 3 degrees directly below moon.
  - ★ December 25 (morning): Star Spica very close to thick crescent moon, high in S before sunrise. Only 3 arc-minutes (!) from edge of moon at dawn (occultation for central and eastern North America).

# Last Call For Observations—Orion

By A.J. Crayon

I believe we all know the constellation Orion represents The Great Hunter, but what is the prey? Lepus the hare and Taurus the bull. Did you also know he is also followed by his two faithful companions, Canis Minor and Canis Major!

Not many observations were submitted for this month. The major problem here is January is early for Orion. Not sure what I was thinking when this selection was made but I'm stuck with it, so we are making due with what we have. This will also be a problem with Canis Major next month, but not as bad. By the time we get to the March constellation, Gemini and the All Arizona Messier Marathon, the selection should be better placed for timelier observing.

## NGC1662

**8" f6, Newtonian, 38X**; Charlie Whiting: Visible in 9x50 finder scope as a tiny and tight grouping of a few stars. At **38X** in the 8" telescope, it became a collection of 17 stars. The cluster is hardly distinguishable as a cluster because it lies in a very rich field of stars. 12 of the stars form a capital "A". Going to **120X** only a few more very dim stars appear as part of the "A" formation. No signs of clouds of unresolved stars.

## M42

The Great Orion Nebula, what more can be said? The Great Nebula is visible to the naked eye from moderately light and air polluted residential areas of Phoenix, Arizona; or any other city in planet earth. Structure is visible in 10 X 80 binoculars and 8 X 50 finder as a faint haze spreading out from the Trapezium. No words can do it justice. Only repeated observations over a long period of time can begin to reach that state.

T. W. Webb and others don't understand how Galileo, who paid great attention to Orion, strangely missed this object. I don't either.

**8" f6, Newtonian, 38X**; Charlie Whiting: using the O-III filter, it almost stretches from edge to edge of the 32mm eyepiece. The eyepiece FOV is about 80', so this is one big object, more than 2 full moon widths. It is overall fan shaped. But it resembles a stingray to me. With the O-III filter, some of the stars are subdued. But a couple of them shine through with a blood red color. These appear in a position just right to make them look like weird eyes above an open mouth, where the nebula seems thickest. There is also a fairly thick arm that shoots off to the south. Without the O-III filter the nebula looks a little smaller but the shape stays the same. Now there are a bunch of stars seen involved. The four

trapezium stars stand out brightly. Bumping up to **133X** a fifth trapezium star shows.

**8" f6, Newtonian, 135X**; AJ Crayon: first saw fifth star of the Trapezium in 1981. In the past, at low powers where the entire nebula is visible, the general outline has been described as looking like a bat or an eye, take your pick or name your own.

**14.5" f5.2, Dobsonian, 140X**; AJ Crayon: this is visible from my backyard through aurora Phoenicia. When viewed through the telescope in the aurora Phoenicia environs only the brightest area around the Trapezium is visible.

## NGC1999

Star-forming Region: NGC 1999 is a very bright example of a reflection nebula, an emission nebula, and a dark nebula all rolled into one object. Technically speaking, NGC 1999 is considered to be the core of a nearby low-mass star-forming region known as L1641 (catalogued as a dark molecular cloud which covers most of Orion below his sword). The core of the bright nebula itself is the peculiar V380 Orionis, a 10.3 magnitude variable star having emission-line features in its spectrum. A dark dusty "globule" can easily be seen obscuring the nebula's western edge. Furthermore, HH1 and HH2, the brightest members of a bizarre class of objects known as Herbig-Haro Objects, can be faintly seen as a pair of nebulous features just southward of NGC 1999. The newly forming star located in the darkness between these two objects is said to be enveloped by a shroud of dust obscuring the event by more than 50 magnitudes!

**8" f6, Newtonian, 100X**; AJ Crayon: 10'x5' in position angle southeast no magnitude estimate, responds well to UHC, at least twice as big! Surrounded by 5 stars to west and north about 12m. Without the UHC it looks like nice triple star with other involved stars to the southwest. The Orion Nebula is at the extreme north edge.

**14.5-inch f5.2 at 220X**; AJ Crayon: you really need a good night to see this. It is pretty small and round with dark nebulosity to the west side. There is a bright 10th mag star, V380 Orionis about centered. The UHC increases contrast and makes it a little larger but no dark middle was seen. Two of the brightest Herbig-Haro objects are close by and are also on my list to attempt to detect. But the night of this observation was not the night!

**16" f4.4 Newtonian**, Rick Rotramel: DN - pS, fB, Round, a bright object located in the middle, a dark lane on the west side.

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### NGC2169

This entry is an open cluster with a peculiar arrangement of its stars.

**8" f4.5 Newtonian, 45X**; Rick Rotramel: OC - L, B, several chains, in rich field of the Milky Way.

**8" f6, Newtonian, 38X**; Charlie Whiting: visible in the 9x50 finder scope as a possible double star. At **38X** in the 8" telescope, it is a very small OC. It has 4 fairly prominent stars forming an irregular polygon, and 4 more not-so-prominent stars. There are a couple of double stars in the cluster. At **120X** there are about 14 stars resolved. They seem to be surrounded by a cloud. It could be nebulosity or unresolved stars. I don't think that it was nebulosity because I tried filters and none showed. Tried the 2X Barlow, but it was inconclusive, too, because no more stars were resolved.

**8" f6, Newtonian, 100X**; AJ Crayon: a neat star cluster reminding one the number "37" and is 10', 5 stars 8m, 10 stars 9 to 11m. An old favorite called the "37" or "sigma ( $\sigma$ ) 7" cluster for its shape. The double star S848, located on the northern part of the "3" is involved.

**14.5" f5.2, Dobsonian, 140X**; AJ Crayon: when viewed from my backyard this is still my favorite "37" open cluster includes nine stars for the "3" and seven stars for the "7".

### NGC2174

The idea for this entry came from the SAC database and, unbeknownst to me at that time, turns out to be a somewhat complex, if not confusing, region. Here's the story as best as I can put it together. In addition to NGC2174 being a bright nebula, this area, of less than one degree, includes the cluster plus nebulosity NGC2175, the open cluster NGC2175S, finally there's IC2159. NGC2175S isn't south of NGC2175; it is about 20' east of its namesake NGC2175. It has also been named NGC2175.1

Coordinates from SIMBAD have NGC2175S to the northeast. For NGC2174 and NGC2175 the coordinates are pretty much the same. IC2159 is positioned to the southeast of the entire complex.

According to the more current NGC/IC Project, NGC2175 is the large emission nebula and NGC2174 and IC2159 are knots involved in the larger nebulosity. The star cluster, NGC2175S, has inherited the NGC number, as there is no mention of it in discovery notes.

While the foregoing may be confusing, keep in mind the NGC/IC Project mission is to find and fix these kinds of conflicts. They started several years ago and are not yet finished. So we should be accepting their decisions.

Although NGC2174 was actually listed in the call for observations, I've included both observations submitted. I was not aware of the preceding discussion at the time my observation was made. I suspect Charlie wasn't either.

**8" f6, Newtonian**; Charlie Whiting: By the time I started looking for 2174 at Sentinel, I got "dewed out". So, I thought I'd try for it from home. M42 can be seen easily, so maybe I can nab 2174. Wrong! This nebula was almost impossible to detect. I tried Broadband, Narrowband and O-III filters with various eyepieces. The only combination that yielded a result was the 32mm eyepiece with the O-III filter. A splash of gray nebulosity was barely detected. It was shaped like a slice of pie. It seemed to emanate from the bright star in the middle of the 2175 cluster. It radiated to the south and southwest for a distance of about 20'. It was very, very faint.

**14.5-inch f5.2 at 60X**; AJ Crayon: The nebulosity, of which we are interested, is 30', diffuse, shaped like an isosceles triangle and has 3 dark lanes. There are 22 stars scattered about and an 8 star grouping in a 5' area from mag 10... elongated in an easterly position. The UHC increases contrast considerably, but the O III increases the contrast much more to the point where there are several dark lanes dividing the nebulosity. There is a dark bay shaped almost like a V on the west side point east to an 8m star in the middle.

### Rho ( $\rho$ ) Orionis

**8" f6, Newtonian, 80X**; AJ Crayon: orange and blue; no position angle or separation estimated.

**8" f6, Newtonian, 120X**; Charlie Whiting: primary is a pale yellow and very bright. Since it is not naked eye from my Glendale backyard, it is dimmer than 3.5m. It is probably 4.0 - 4.5m. The secondary is much dimmer, probably 3 magnitudes dimmer than the primary. The secondary appears blue-white and its separation is very close. The combination of closeness and magnitude spread is the reason that I had to go all the way from **38X** to **120X** in order to confirm its duplicity. It was suspected at **67X** and **96X**. At **192X** I estimate the PA at 80-degrees and the separation to be less than 10".

**10" f5.8 Newtonian, 210X**; Rick Rotramel: Dbl. Star - I saw the close 7" dbl. As Yellow and Blue. Pretty!

### Call for Observations

For February we are going to take a tour of Canis Major. While most of us are aware it has many open clusters and nebula, not all of us realize it does have a very nice selection of galaxies, which are included in our list. First will be **NGC2207** and **IC2163**, a pair of interacting galaxies with magnitudes of 10.8 and 13.4 respectively.

(Continued on page 9)

## Contributing to SACnews

### Articles

Articles for SACnews should be submitted either in ASCII Text format (\*.txt) or Microsoft Word (\*.doc) formats. If you sent it in Word, please help me with the formatting. Use full justification and 12 point type, I use Swis 721 BT font, if you have it available, use it. It will save me time in changing it later. Try to keep article to about two pages, including table's, photos or diagrams. Please spell-check your documents. Although I'll run spell check sometimes a typo will get through.

### Tables and Ephemeris'

If you have a table of astronomical information, such as ephemeris, please try to arrange it in Microsoft Excel. If the table is part of an article you should be able to embed the excel file into word. If you do not have access to excel, any spreadsheet program would do, or you could use the table function in Word. As a last resort, try to type the table as clearly as possible with enough space between entries that my scanner will recognize it as a table. I'll scan the information and convert it. Include information where the table is to be placed in the article if it is not obvious. Keep in mind this can take me some time to do and may delay publication. If your information is time sensitive, try to give me as much lead-time as possible.

### Photographs

Keep in mind the limitations on what I can do with pictures. Astrophoto's will probably not print well unless they are of the moon. For best

results, pictures should have good contrast and a moderately light background. I can work with most picture and graphic file formats, but prefer JPEG, particularly if you're sending me the picture via e-mail. I can scan prints, but once again give me plenty of lead time and include a SASE for return of the original, or contact me to find out what meeting or star party we'll both be at so I can return the original.

### Deadlines & Contact Info

I try to have the newsletter ready for posting to the web by the beginning of the month. Given that, I need to have material to me the week before. Since AJ has to sort through the contributions to his column and then send the finished product to me, Observations for Last Call should be sent to A.J. the 2 weeks prior to the end of the month. Submissions after this date may not make it into that particular issue. Keep in mind that currently, the newsletter is 12 pages. Of this 7 pages are reserved for regular features. I will do my best to get your submissions published as soon as practical, but space constraints may delay publication. If you have any questions regarding suitability and format of something you'd like to submit, contact me at the following numbers and address:

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A table of deadlines for submissions can be found on page 8.

# February 2005

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					

## Schedule of Events for January & February 2005

Jan. 25th	ATM & Astro-imaging Sub group Meeting at Thad's Shop. See Page 10 for directions
Jan. 28th	SAC General Meeting at Grand Canyon University at 1930. Speaker Ted Dunham From Lowell Observatory: Topic: Progress on the Discovery Telescope & the SOPHIA Project
Jan. 29th	Novice Group Session at Flat Iron. Plan on arriving about 1/2 before Sunset (1800)
Feb. 2nd	Moon at last quarter at 0727 mst.
Feb. 5th	SAC Star Party at Flat Iron, Sunset 1807, Ast. Twilight Ends 1931, Moonrise 0549
Feb. 8th	Moon is new at 2228 mst
Feb. 16th	Moon at First Quarter at 0016 mst.
Feb. 22nd	ATM & Astro-imaging Sub group Meeting at Thad's Shop. See Page 10 for directions
Feb. 24th	Moon is Full at 0454 mst
Feb. 25th	SAC General meeting at Grand Canyon University at 1930; Speaker: Chris Watson is tentative Topic TBA ( I know Jenn'll come through)

## Future Planning

March 12-13	2005 All Arizona Messier Marathon at Farnsworth Ranch in Arizona City. For Details goto: <a href="http://www.saguaroastro.org/content/messier.htm">http://www.saguaroastro.org/content/messier.htm</a>
April 16th	Thunderbird Public Star party at Thunderbird Park in Glendale Got page xx for more details
May 4-8th	2005 Desert Sunset Star party at Caballo Loco RV Ranch southwest of Tucson. Goto: <a href="http://www.chartmarker.com/sunset.htm">http://www.chartmarker.com/sunset.htm</a> for more details.
Jun 4-11th	Grand Canyon Star Party. Go to: <a href="http://www.tucsonastronomy.org/gcsp.html">http://www.tucsonastronomy.org/gcsp.html</a> for more information

## Deadlines for SACnews Article Submissions

As States in the article on page 6, IF you have an item you'd like to see published in SACnews, Here is a listing of deadlines for this years issues. Please submit contributions for Last Call For Observations directly to AJ.

Issue	SACnews	Last Call	Issue	SACnews	Last Call
March	February 25, 2005	February 18, 2005	August	July 22, 2005	July 15, 2005
April	March 25, 2005	March 18, 2005	September	August 26, 2005	August 19, 2005
May	April 22, 2005	April 15, 2005	October	September 23, 2005	September 16, 2005
June	May 27, 2005	May 20, 2005	November	October 22, 2005	October 15, 2005
July	June 24, 2005	June 17, 2005	December	November 25, 2005	November 18, 2005

## SUCH-A-DEAL

### For Sale

SkyQuest XT8 Dobsonian, 8" 1200mm f/5.9 with two Sirius Plossl eyepieces 25mm and 10mm, with padded scope case. \$300.00 Call Damion at (602) 240-5421 Damion Pauksta: 4750 N. Central Ave. Apt. 9-H Phoenix Az. 85012

### Astronerds



Comic provided free of charge by [www.astronerds.com](http://www.astronerds.com)

*(Continued from page 5)*

**NGC2217** is a barred spiral with a very faint ring. **NGC2325** is another fairly bright galaxy. **NGC2354** is a pretty rich galactic star cluster. About one degree northeast you will find our next object, another cluster, **NGC2362**, which includes **tau** ( $\tau$  **Canis Majoris**, which is also a nice double; please include your description of this double in your observation. This brings us to **NGC2359**, a bright nebula that seems to respond well to **UHC filters**. While in the area check the galactic cluster **NGC2374**. Try it if you have one and let us know your results. **Beware**; this emission nebula is not very bright. **NGC2367** is another interesting galactic star cluster. No I didn't forget M41. I have passed it up in order for us to realize there are also many nice galaxies in this constellation.

While there are many nebulae in Canis Major, there are no planetary nebulae with an NGC designation; at least not according to the SAC database.

The following objects in Gemini will be for the March column. Starting at the feet, find the open cluster check out **NGC2129**, then hop about 1° to the northeast and find the open cluster **IC2157**, for an IC cluster it shouldn't be difficult to find. Next let your scope drift to **NGC2158**, almost 0.5° to the east. Finally, in the same 1° field is **M35** (I just couldn't resist)! Note the difference amongst these four clusters in size, richness and beauty. Next is **NGC2266**, a nicely compressed open cluster about 2° north of 3<sup>rd</sup> magnitude Mebsuta. Instead of a double star I'm adding something that might be a challenge – **NGC2371/2372**. There seems to have been some confusion with this object in the past but it is now clear these two are a double lobed planetary nebula. Do you see both of them? Last on the list is **NGC2392** and is also known as the Eskimo Nebula. Try as much power as the night permits to see as much detail as possible, don't forget your filters and also report color seen. Don't let prior reports taint your results.

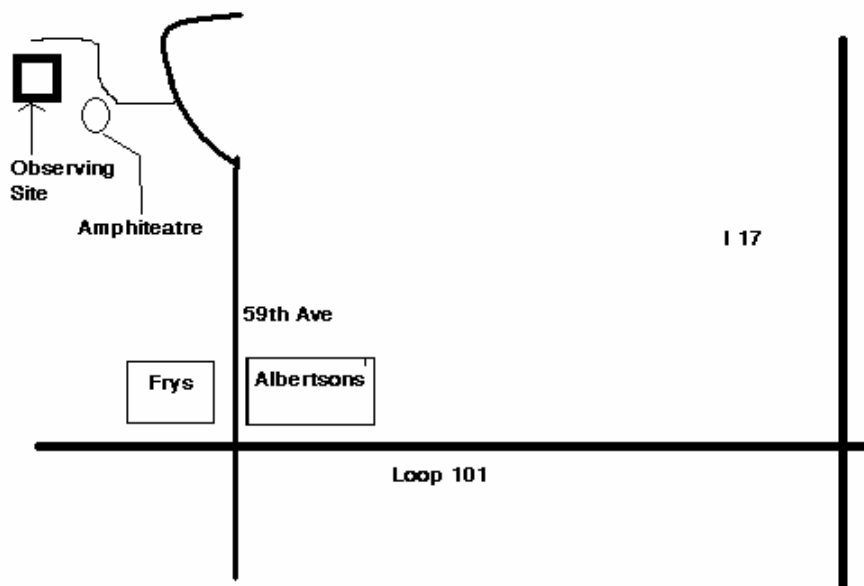
## Thunderbird Public Star at Party Park

This year we will hold our annual Spring Public Star Party at Thunderbird Park on April 16th.

This is traditionally our best attended public event and we'll need as many folks to bring their scope out to show off Saturn & Jupiter,

the Moon and any other astro-goodies you can find. Directions & Map Below.

Sponsored by Glendale Parks and Recreation.  
Jack Jones  
Public Events



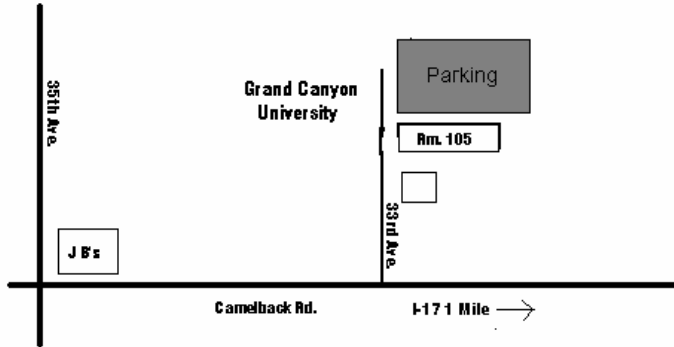
### Directions to Thunderbird Park

Take the Loop 101 to 59th Ave. Turn North onto 59th Ave. (toward the Albertson's & Fry's Supermarkets) go about 1 1/2 miles on 59th Ave. until the road starts to climb the hill. The entrance to the park is on the left, 4/10 of a mile past the light at Deer Valley Rd. Go to the right of the amphitheater and follow the signs to the sight. Rangers will be there to guide you if you get misplaced (easy to do if you've never been there)

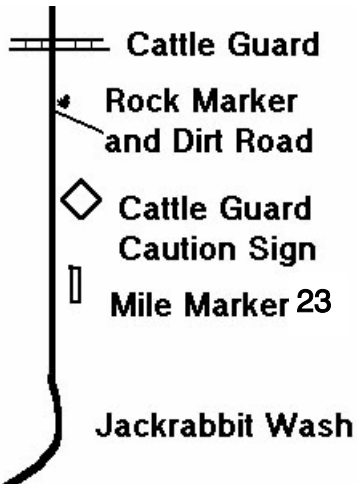
# SAC Meeting and Observing Sites

## General Meetings

7:30 p.m. at Grand Canyon University, Fleming Building, Room 105: 1 mile west of I-17 on Camelback Rd., North on 33rd Ave., Second building on the right.



## Flatiron Star Parties

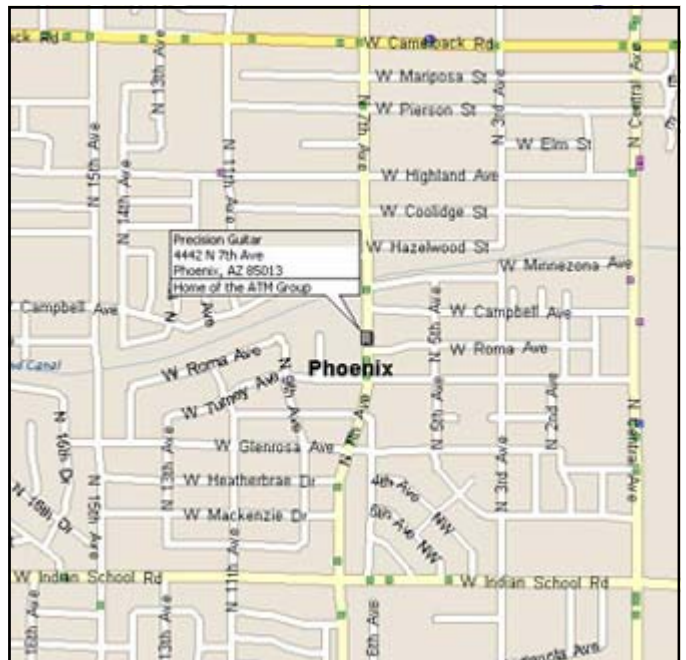


Head west on I-10 to the 339th Ave exit (exit 103). Turn North (right) and go two miles to Indian School Rd. Turn West (left) on Indian School and go 2 miles to 355th Ave. Turn North (right). This will turn into Wickenburg Rd. Follow this road for about 12 miles. Just after mile marker 23 you will go through Jackrabbit wash and pass a cattle guard sign. There is a dirt road just after the sign, marked by white painted rocks. Turn on to this road and follow it about .9 miles. Just after you pass through a wash, you'll see the field on your left. If you hit the cattle guard, or the dirt road your on is next to a fence, you've missed the correct road. Go back and look for the white rocks. (see detail map above).

## ATM & Astro-Imaging Subgroup Meetings

The ATM (Amateur Telescope Making) and Astro-Imaging sub groups meet at Thad's Shop, Precision Guitar, on the Tuesday before the General meetings. The address is: 4442 N. 7th Ave, Phoenix. To get there:

Precision Guitar, is located at 4442 N. 7th Ave, suite # 6. Specifically, this is the SOUTHWEST corner of the STOPLIGHTED intersection at 7th Ave and Campbell. (Campbell is 1/2 mile SOUTH of Camelback, and 1/2 mile NORTH of Indian School) The suite on the end sports a large "Allied Cabinet Refinishing" sign on the front of the facade. We are further in (west) at suite 6. Please see <http://www.precisionguitar.net/ShopSatPhotoA.jpg> for a bird's eye view map.....



## SAC Membership Services

**Membership**– Memberships are for the calendar year and are pro-rated for new members as follows: Jan– Mar: 100%; Apr– Jun: 75%; Jul-Sep: 50%; Oct-Dec; 25%.

- \$28.00 Individual Membership
- \$42.00 Family Membership
- \$14.00 Newsletter Membership
- \$ 7.50 Nametag for members  
(will be mailed to address below)

### Magazine Subscription Services

The following magazines are available at a discount to club members. Check the magazines you wish to subscribe to or renew, and pay the club treasurer. Please allow 3-4 months for the order to be processed.

- Sky & Telescope \$33.00/yr
- Astronomy \$29.00/yr

Please Print

**Make Check Payable to : SAC**

**Name:** \_\_\_\_\_

**Bring completed form to a meeting or mail it with your remittance to:**

**Address:** \_\_\_\_\_

**SAC Treasurer  
c/o Al Stiewing  
16210 Desert Holly Dr  
Sun City, AZ 85351**

**City:** \_\_\_\_\_ **St:** \_\_\_\_\_ **Zip:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

Check here if this is an update of information already on file.

**E-Mail:** \_\_\_\_\_

### SAC on the Internet

**SAC has several E-mail mailing lists. To subscribe, send an email to the email address and put **Subscribe** in the subject box.**

**SAC-Announce@freelists.org:** SAC-Announce is a mailing list for just club announcements, Typically 3-5 messages per month.

**SAC-Forum@freelists.org:** SAC-Forum is a general discussion mailing list. Topics should be related to Astronomy or SAC

**SAC-Board@freelists.org:** SAC-Board is a mailing list for discussions of club business. If you'd like to see how the club is run (or not run), or have a question about the club, this is the list to read. Typically month to month matters are discussed.

**AZ-Observing@freelists.org:** AZ-Observing while not a Sac list , is well attended by SAC members. This is the list to with observing places around Arizona. Find out where people are going and what they saw.

### Printed Newsletter

Sac can save a lot of money if you download the PDF version of the newsletter. PDF files are readable by both PC's and Macs. When the newsletter is published, a message will be sent to the address indicated above with the URL of the newsletter. Check the box below if you don't have access to the internet or if your prefer a printed copy.

**Please send me a hard Copy of the newsletter**

# SAGUARO ASTRONOMY CLUB

January 2005

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Glendale, AZ 85308-9117

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*Videmus Stellae*



## SAC Schedule of Events 2005

### SAC Meetings

Jan 28th, 2005	Jul 22nd, 2005
Feb 25th, 2005	Aug 19th, 2005
Mar 25th, 2005	Sep 16th, 2005
Apr 22nd, 2005	Oct 14th, 2005
May 20th, 2005	Nov 18th, 2005
Jun 17th, 2005	Dec 16th, 2005

### ATM & Astro-Imaging Group Meetings

Jan 25th, 2005	Jul 19th, 2005
Feb 22nd, 2005	Aug 16th, 2005
Mar 22nd, 2005	Sep 13th, 2005
Apr 19th, 2005	Oct 11th, 2005
May 17th, 2005	Nov 15th, 2005
Jun 14th, 2005	Dec 13th, 2005

### SAC Star Parties

Date	Sunset	Astronomical Twilight Ends	Moonrise	Site
Jan 8th, 2005	1740	1908	0706	F
Feb 5th, 2005	1807	1931	0549	F
Mar 5th, 2005	1831	1954	0434	F
Apr 2nd, 2005	1853	2018	0319	F
May 28th, 2005	1918	2053	0532	C
Jun 25th, 2005	1945	2131	2313	C
Jul 30th, 2005	1932	2108	0126	C
Aug 27th, 2005	1901	2029	0009	C
Sep 24th, 2005	1822	1946	2253	C
Oct 29th, 2005	1742	1946	0428	F
Nov 26th, 2005	1724	1851	0312	F

F= Flat Iron; C= Cherry Road