

Saguaro Astronomy Club



SACnews

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SAC 2009 Budget Estimate

By Charlie Whiting

Income:	
Membership Dues	\$2,300.00
Other Income	\$ 300.00
Total Income	\$2,600.00

Expenses:	
IDA Dues	\$ 100.00
Awards	\$ 400.00
Charitable Donations	\$ 200.00
Hosted Events	\$ 500.00
Insurance	\$ 500.00
Meeting Expense	\$1,600.00
Other Expense	\$ 200.00
Total Expenses	\$3,500.00

Expected Loss from operations
(\$ 900.00)

Membership dues expected for about 80 members. Other income is contributions, sales of stuff, etc.. IDA is International Dark-Sky Association. Awards is for observing program awards. Although we authorized a charitable contribution in 2008, it remains to be seen if we do it in 2009. Hosted events expense is for port-a-potties, GCSP pizza and supplies provided for the holiday meeting. Insurance is the club's liability policy expense. It may be more for 2009 than 2008. Meeting expense is for the GCU room rent, speaker honorariums and miscellaneous related to the club business meetings. Other expense is supplies, postage, etc..

As you can see, we expect to have more expenses than income. There is enough money on hand to sustain the operations for 2009. The shortfall in 2008 was \$631. We ended 2008 with a bank balance of \$4,272 and \$53 of petty cash. But, \$1,078 of this

was 2009 dues. And there was a payment of \$37 in January, 2009 for a 2008 expense. So, really, there was \$3,210 surplus available for 2009 operations. If the shortfall in 2009 is \$900, then for 2010 the available surplus will be only \$2,310. It is the Treasurer's opinion that this is too low.

Jack Jones has volunteered himself and Chris Hanrahan to form a sub-committee to put together suggestions to present to the board. We would welcome any other volunteers. Some suggestions were touched very lightly at the January meeting were:

1. Sale of T-shirts.
2. Sale of products through the club. The club would get a % if the purchaser mentioned the club.
3. 50/50 raffles. At break in the meetings, tickets would be sold for \$1. Then a single ticket would be picked. The winner would get 50% of the ticket sales. The club would get the other 50%.
4. Sell food (hot dogs or whatever) at the biggest star parties. The club buys the food and supplies. Volunteers prepare it. It sells at a profit.
5. Raise the dues, now or for 2010.
6. Sell a little bit of space in the newsletter to an advertiser.
7. Let a business sponsor an event, making a contribution that the business writes off as advertising.
8. Pursue becoming a non-profit organization so that contributors can take a tax deduction.
9. Assess a porta-potty fee for star parties.
10. Find a meeting room for free.

Even if you don't want to volunteer your time, you are still welcome to make suggestions or comments. Please let us know what you think.

NASA Space Place

Where did all these gadgets come from?!

Ion propulsion. Artificial intelligence. Hyper-spectral imagers. It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was

the only practical way," says Stevens.

In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions.



Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1.

And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye.

Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud!

The results of all NMP's technology validations are online and the list is impressive: nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm. For kids, the rhyming storybook, "Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way" at spaceplace.nasa.gov/en/kids/nmp/starr gives a scientist's perspective on the technology that makes possible the Dawn mission.

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

Bits & Pisces, Minutes of January 6th, 2009 General Meeting by AJ Crayon, Secretary



The meeting was called to order by the new president, Dick Harshaw. A call for visitors and new members netted one new member. During this time a head count was taken and netted 41 people.

Upcoming events that, probably, haven't taken place as of this writing include; Feb 6th, SAC General Meeting, Feb 14th, Star Party at Saddle Mt and Feb 21st, Star Party at Antennas. More in advance is the Grand Canyon Star Party North Rim from June 13th through the 20th. If you want to attend GCSPNR the begin your planning now for reservations.

Peter Argenziano had 2009 RAS handbooks for sale at the great price of \$20.00 and many took advantage of the offer.

Chris Hanrahan announced the Desert Foothills Astronomy Club's speaker for their January 26th meeting is Father George Coin from the Vatican Observatory.

Charlie Whiting gave the final treasurers report for 2008. He estimated we will have a short fall of about \$700.00. Several proposals were discussed to increase our revenue and will be reviewed.

For Show-n-Tell Dick Harshaw showed a view titled *Orion's Wonder* and compared it with the Tarantula Nebula.

After the break, Vice-President Chris Hanrahan introduced our speaker for the evening, Ted Dunham, from Lowell Observatory. His topic Stratospheric Observatory for Infrared Astronomy, better known as SOFIA. The telescope is mounted in a Boeing 747SP and is undergoing testing. Closed door testing was completed last year. Open door testing is expected to last about 2 years. He is also co-investigator on the Kepler mission, a NASA Discovery class mission designed to detect extrasolar terrestrial planets using transit photometry and is part of SOFIA. For more information see the web site at <http://www.sofia.usra.edu/> Ted has spoke at several SAC meetings in the past.

Bits & Pisces, Minutes of January 6th, 2009 Board Meeting By AJ Crayon, Secretary



In attendance were Jack Jones, Rick Tejera, Chris Hanrahan, Steve Dodder, Dick Harshaw, Peter Argenziano, AJ Crayon and Charlie Whiting.

There was some discussion about International Year of Astronomy 2009 (IYA2009) and included star parties at Thunderbird Park and Arizona Science Center. The topic was passed to the Outreach and Plans committee for more study.

AJ Crayon read the minutes of the last board meeting.

There was some discussion about the upcoming Messier Marathon. Jack Jones indicated he would order the port-a-jons. Waivers and check lists are needed and Peter Argenziano indicated he would have them printed. Instead of having T-shirts available at meetings and the event, they can be ordered on-line.

Charlie Whiting discussed our financial status because we aren't taking in enough funds to cover expenses and was looking for ways to increase revenue instead of raising dues. Some discussion of making SAC a non-

profit organization ensued. A temporary committee will be formed to address possible ways to resolve the dilemma. Also, because of the dwindling amount of our account the bank may begin applying their service charge.

Peter Argenziano will take over web site control from Steve Coe. He will use Dream Weaver for redesigning the site, which is currently a work in progress. He also requested an upgrade of our Go Daddy plan for more space at cost of \$1.80 per month – voted on and passed. Work will also proceed on an interactive calendar. Our domain registration is good until 2014, although it currently expires in 2010.

Steve Dodder and Chris Hanrahan will work together on the Outreach Committee and will include the Grand Canyon Star Party in their planning and discussion.

It was announced the constitution has an inconsistency when it comes to signing legal documents. In one place President and Treasurer and stated and another President and Secretary are stated. This needs to be resolved, one way or another.

Call For Observations—Cassiopeia

By A.J. Crayon

It just seems there is more and more left to do in Cassiopeia, so let's not delay any more. While there are a few galaxies we will steer clear of them, at least until the spring. For this pass we will do, mostly, open clusters and, oh, don't forget to review the Trumpler Class for each.

The first is **NGC7788**, containing about 20 stars from 10th mag. Trumpler Class: I 2 p.

8" f/6, Newtonian, 60X; Rick Tejera: Seen as a small triangular cluster with bright stars at each apex. Several stars several magnitudes dimmer within the triangle superimposed upon a mottled background.

8" f6, Newtonian, 120X, urban site; Charlie Whiting: In a 20' diameter circle I counted 22 very scattered stars, ranging in magnitude from 9th to 12th. My rating: III 2 P.

8" SCT, 104X; Dick Harshaw: Small, rich and dense; it looks nebulous at low powers. A 9 mag star dominates the center.

10" SCT, 125X; Joe Goss: Fairly small, fairly bright, very loose, 10 stars resolved, not well defined.

NGC 136. Herschel 400, Trumpler Class: II 2 p.

8" f6, Newtonian, 60X, urban site; Charlie Whiting: I detected this cluster as a tiny patch of gray light northeast of the 8.5 mag double star, HDS 67. The cluster was very faint and required averted vision to see it. At **120X** a sprinkling of 13th mag stars became resolved, again, with averted vision. I tried several combinations of eyepieces and Barlow lens to view at increased power, hoping to detect additional stars. No cigar! This is a very small and very faint cluster. I resolved about 5 or 6 stars with averted vision to 14th mag. But I could tell from a brightening of background "underneath" the resolved stars there must be some very dim stars less than 14th mag. Seen

with averted vision as sparse grouping of three stars with a mottled background. Not much else seen. Noted star HDS 67 nearby. King 15 noted with averted vision near the edge of the field. My Trumpler rating II1p, Trumpler rating II2p.

8" f/6, Newtonian, 71X; Rick Tejera: Very small faint Cluster, hard to discern from background star field. Few stars surrounded by what could best be described as a ring of very faint stars. Some possible glow from unresolved stars with averted vision.

8" SCT, 104X, urban site; Dick Harshaw: Dense and semi-resolved. It is faint and indistinct against the field. Just to the W lies a nice double. Faint, rich field.

10" SCT, 125X; Joe Goss: Small, very faint haze, no stars resolved, poor excuse for a cluster.

16" f4.4 Newtonian, Rick Rotramel: OC - S, F, round, ~10 faint stars.

King 16 may be a little harder to detect than the previous cluster. Trumpler Class: II 2 m.

8" f/6, Newtonian, 71X; Rick Tejera: Seen with averted vision as a slight unresolved glow near Berkley 4. Possibly resolved with averted vision several stars near the center. Difficult to hold. My Trumpler rating IV2p, Trumpler rating: II3p

8" f6, Newtonian, 150X, urban site; Charlie Whiting: SAC data indicates this OC consists of 35 stars in a 3' diameter circle; and that the brightest star is 12.6 mag. I did not expect to see much and I wasn't wrong. With the FOV centered on the coordinates for this cluster, and looking at the central 5', I saw only four stars. They range from mag 10 1/2 to 12 1/2. They form the figure of the letter, "Y". My rating: I 2 P.

8" SCT, 280X, urban site; Dick Harshaw: A nebulous mini-Sagitta, its stars are fainter than 14th mag. Use high power. This group may

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be an asterism. The brightest star is 12.5 mag. It is 8.7 light years in diameter.

10" SCT, 125X; Joe Goss: Open Cluster- Very small, very faint, very loose, 8 stars resolved, not well defined.

NGC 637 another Herschel 400 entry. It is also pretty small but should stand out from the Milky Way background. Trumpler Class: I 2 m.

8" f6, Newtonian, 60X; Charlie Whiting: this tiny (3.5') open cluster is easily detectable as a tight group of 4 bright stars, 10th and 11th mag. At **120X** three additional dimmer stars of 12th mag become resolved. At **240X** the total number of stars is 15. At **360X** only a couple more stars are added to the view. Total star count is 17 stars, 10th to 14th mag.

8" f/6, Newtonian, 71X; Rick Tejera: Small cluster. Noted as T shaped with the stem pointing North and the crossbar on the south side. The stem consisted of about 5 bright stars and the cross bar about 5 also, although in a shorter line. Some faint stars noted just under the crossbar. Seen as a triangular shaped cluster well detached from the star field. The western edge of the cluster is formed by a line of about 6 stars. Several stars noted to the east of this line. My Trumpler rating I2p, Trumpler rating 13p.

8" SCT, 83X, urban site; Dick Harshaw: Loose and sparse. There are 8 bright stars, many fainter ones. Note the small triangle of stars near the center.

10" SCT, 125X; Joe Goss: Small, fairly bright, sparse, bright stars shaped like letter "Y".

16" f4.4 Newtonian, Rick Rotramel: OC - fL, pB, Rich, ~45 bright & dim stars.

Farther east is **NGC1027**, last of the Herschel 400 entries for this month. Trumpler Class: II 3 m n.

8" f/6, Newtonian, 71X; Rick Tejera: Large diffuse cluster, Made up of a large chain of 5 bright stars arcing around the NE edge of the

cluster. About 15-20 fainter stars below (SW of) the arc. Some mottling noted with the arc of bright stars. A very small circlet of faint star lies just to the east of the cluster. Noted as a bright central area of densely pack stars over a mottled background. There are two chains of stars on either side of the main grouping of the cluster. My Trumpler rating: III3m, Trumpler Rating: III2p.

8" f6, Newtonian, 60X; Charlie Whiting: this open cluster was seen as very large, 20'. Very bright. There is a 7th mag star right in the center of the cluster. There are 40 to 50 stars gathered within a large square outline. At **120X** more than 50 stars are seen in 3 brightness levels. The cluster is very uncondensed. There are large black voids between strings of stars.

8" SCT, 65X, urban site; Dick Harshaw: Large and sparse. One star is prominent (about 9.3 mag).

10" SCT, 45X; Joe Goss: fairly large, bright, very loose, one bright star, not well defined.

16" f4.4 Newtonian, Rick Rotramel: OC - L, B, vRich, has a bright star in the middle, with mixture of bright & dim stars.

The last is an asterism titled **Kemble's Kite**, is located at R.A. 03 28.0 Dec +72 00, is about 6th mag and 90'X30', includes red M2 star – what color do you see. Can you see its 6th mag naked eye? What about using binoculars to locate then try naked eye. Yes it does look like a kite, don't you think so?

14X70 binoculars; Dick Harshaw: Moderately bright asterism just off Gamma Cam consisting of 10 stars in the binoculars. The top star of the kite is actually a wide and uneven double star (hard to estimate the distance since the binoculars have a large FOV). The right corner is a very dim star, making the kite almost look like a non-kite at times! The left corner is ruddy in color and a dim star lies between it and the top star. The bottom star has four similar stars trailing off to form the "tail". Compared to Kemble's Cascade

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President's Corner

By Dick Harshaw



How did you get started in our hobby of astronomy?

I don't recall exactly how old I was when the space bug bit, but I was in mid-grade school-- perhaps 3rd or 4th grade. I can remember when the Soviet Union launched Sputnik and the buzz that created! (It was feared they would soon have the ability to launch a nuclear bomb with a missile, a fact that became reality just a few years later.) I don't recall being able to actually see Sputnik whiz by overhead (it was only the size of a basketball and would have shone at about magnitude 7-- maybe visible from Arizona, but not from murky Missouri!).

To this day the flight of John Glenn got me out of having to memorize the Gettysburg Address since our local newspaper asked me (as a 5th grader) to write an article on it, which the teacher graciously figured was more important than memorizing "Four score and seven years ago.."

I was very lucky to have a dad who encouraged me in my pursuits, getting me books on the space program and the sky and giving me a pair of binoculars when I was in 6th grade (maybe 8 x 50???).

But the bug bit hard when I was in 7th grade. That year, a guy two years ahead of me in school had a 60mm alt-az refractor he wanted to sell me, so I bought the scope, rickety wooden tripod, two Kellner eyepieces, and a solar projection screen for \$15 and began learning the sky.

Boy, was that hard! I had no local club to help me learn the hobby. I was on my own. It was difficult to star hop when the handy stepping stars were barely visible due to the schmuck in our midwestern skies. And when I finally did find something that was in my sky guide, it

looked nothing like the Lick or Palomar pictures in the book!

But I stayed with it, and got pretty good with the little scope, then upgraded to a 4.5" Newt from Tasco. (Yes, cuss if you want.) It had SETTING CIRCLES, and that created a whole new growth curve that was painful. But I learned how to use the scope and more than doubled the size of my observable universe.

In college, I sold the Tasco and went without a scope for a decade, then bought another 60mm refractor from Sears (big mistake). I sold it a year later and then decided I'd wait until I could afford a really good scope.

That wait took another decade. I got a used Celestron C-8 (old orange tube baby) from a guy 40 miles away and began my SERIOUS career as an amateur. At this time, I developed a system of observing the sky that was efficient due to the tremendous menu of objects within reach of a C-8. I also started keeping my log on Works, a pre-Excel spreadsheet. These observations would go on to become the backbone of my book, *The Complete CD Atlas of the Universe* (Springer-Verlag's title idea, not mine).

The C-8 served me well from 1987 to early 2002, when I upgraded to a C-11. (In 2001, aperture fever bit at the Texas Star Party. I got to use the 36-inch Cassegrain one night...) In the summer of '02 I built an observatory to house the C-11 and enjoyed 4 years of awesome observing, logging over 5,000 observations. Then I moved to Arizona. The old observatory had to come down (it was hindering the sale of our house, those dumb Missouri rubes). But in November, I built a new observatory, Brilliant Sky Observatory (named for the street where I live) and will be writing about that adventure in a future Newsletter.

So, how did YOU get started in this hobby? Let me know!

From the Editor

OK, folks, this month's President's column gave me an idea for a new series of articles for the NL. The true beauty of this idea is I won't have to do the writing. :) (Well at least not after the first one). Ignore Dick's lat sentence, Don't let Dick know, Let me know and I'll publish it in a new series called "Beginnings".

Submissions should be one to two pages and if you have any pictures of yourself with that first telescope send 'em along as well.

I look forward to hearing about how you got started. Thanks for the Idea, Dick.

March 2009

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3 ATM Meeting 1930, Paul Lind's House	4 ☽	5	6 SAC Meeting, GCU 1930	7
8	9	10 ○	11	12	13	14
15	16	17	18 ☾	19	20 Vernal Equinox	21 SAC Star Party at Saddle Moun- tain
22	23	24	25	26 ●	27	28 All Arizona Messier Mara- thon-AZ City
29	30	31				

Schedule of Events for March 2008

Mar. 3rd	ATM Sub group meeting at Paul Lind's house
Mar. 4th	Moon at First Quarter at 0045mst.
Mar. 6th	SAC Meeting at Grand Canyon University at 1930, Speaker TBA
Mar. 10th	Moon is full at 1937mst.
Mar. 18th	Moon at Last Quarter at 1046mst.
Mar. 20th	Vernal Equinox at 0443mst
Mar. 21st	SAC Star Party at Saddle Mountain Sunset 18:45, Ast. Twilight 2008, Moon rise 0418, 8Hrs, 10 min of Dark time
Mar. 26th	Moon is new at 0905mst
Mar. 28th	All Arizona Messier Marathon At the Farnsworth Ranch, Arizona City: Sun- set 1849, Astronomical Twilight 2013, Moonset 2125, Astronomical Twilight Begins 0458. Sunrise 0622

Future Planning

May 2nd	Thunderbird Star Watch, Thunderbird Park, Glendale
June 13th-20th	Grand Canyon Star Parties, South & North Rims, For the South rim go to: http://www.tucsonastronomy.org/gcsp.html , For the North Rim, go to: http://www.saguaroastro.org/content/2009GrandCanyonStarPartyNorthRim.htm

Monthly Trivia Question

What dubious unofficial record was set by the crew of Apollo 13?

Last Month's Answer: Which piece of Apollo hardware made a reappearance in Sept. 2002?

On Sept 3rd, 2002, amateur astronomer Bill Yeung discovered a supposed asteroid, which was given the designation J002E3. It was soon discovered that the object was in a highly elliptical orbit of the earth. Astronomers at The University of Arizona took the objects Spectrum and found that it was consistent with Titanium Dioxide. Titanium Dioxide is the main component in the white paint that was used on the Apollo spacecraft. It has been surmised that



The S-IVB 3rd stage being lowered to the S-II 2nd Stage. The conical adapter would separate with the S-II. The big silver lump on the side at the top of the adaptor is one of the ullage Motors

that object was the S-IVB third stage from the Apollo 12 mission.

The S-IVB was originally intended to be sent into Solar orbit, but due to an extra long ullage motor (ullage motors are small rockets designed to settle the propellants prior to main engine ignition) burn left insufficient residual propellant to achieve this. The Spent stage settled into a semi stable orbit around the Earth moon system and was eventually lost from tracking stations, presumably to solar orbit.

It is believed that the spent stage left earth orbit in June 2003 and that it may return in 2032.

Training for The "Other March Madness"

By Rick Tejera

Mention March Madness to most people and they think of basketball, me, I think of the Messier Marathon. I last ran this article back in April 2000 and given the amount of new blood in the club and that fact that this years event has a good possibility to get all 110 objects, I think it's time for a rerun. I've spoken to a few people who have yet to try a Messier Marathon and this is directed at them and anyone else who thinks they don't know enough about the hobby to participate.

First, let me say, if you don't participate because you don't think you'll do well, let me remind you, you won't get better without practice. Second, running a marathon is easier than you think, trust me, I was pleasantly surprised. The hard part is the preparation. Here are some things I learned the hard way over the years. Hopefully all you first-timers can benefit from my experience.

- ★ Make sure you are well rested before the marathon, fatigue will be your worst enemy, not lack of knowledge.
- ★ Dress warm and in layers. It'll get pretty cold

over the course of the night. Have enough layers to add as the temperature drops to stay comfortable.

- ★ Eat well before leaving and have some kind of snack or food to munch on during the course of the night. Nothing can kill motivation like hunger.
- ★ Have a water bottle to stay hydrated and some hot beverage, like coffee or tea, to fight the chill.
- ★ Have some kind of comfortable refuge to grab a nap. Contrary to what most people think, there are a few spots where you can grab some shut-eye. Don't forget an alarm to remind you to get back at it!
- ★ Have a plan of attack. Study your charts and references well beforehand. I use Harvard Pennington's "Year Round Messier Marathon" and Mallas and Kremier's "Messier Album". They helped tremendously in identifying the targets.
- ★ Keep a positive attitude and remember you're out there to have some fun. You'll be surprised at how many you'll get and how much more of the sky you'll learn. I know I was.

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1 and 2, this one is disappointing.

8" f6, Newtonian, 38X, urban site; Charlie Whiting: This asterism is a short star hop from 4.6m gamma Cam. My eyepiece FOV is 80'. The kite and tail could not be seen in its entirety without moving the scope a little. Seven stars form the kite, ranging from 6 1/2 m to 8 1/2 m. Three stars form the tail, ranging from 7 1/2 m to 8 1/2 m. The kite is "flying" in the "wind" towards the NE. The brightest star appeared. After looking through the telescope, I checked the finder. I could see 7 of the 10 stars.

8" f/6, Newtonian, 60X; Rick Tejera: Tried to see this in the 8" but the FOV is too small to get the entire area of the asterism. Tried to follow the brighter stars to see if I could make a Kite shape to no avail. This object should show better in the ETX, which unfortunately I didn't bring this night.

Call for Observations

Time for another visit to Orion as there's lots to choose from. This month's selection will include multiple objects in the same field of view, which is something with which I have organization troubles. Yet the following should give us some fun time observing. Start in the northern reaches of Orion with **Cr 65**, a large, sparse open cluster with a wide magnitude range and includes several stars in Taurus. Just to the south are some dark nebulae, three to be exact. The first **B 30**, is about one degree; second **B 31** extends about 0.5° to the northeast and is the darker part of the triad; finally **B 225** is the south end of an extension running south from B 30. With their irregular shape you should have fun unraveling this set. Continuing with multiple

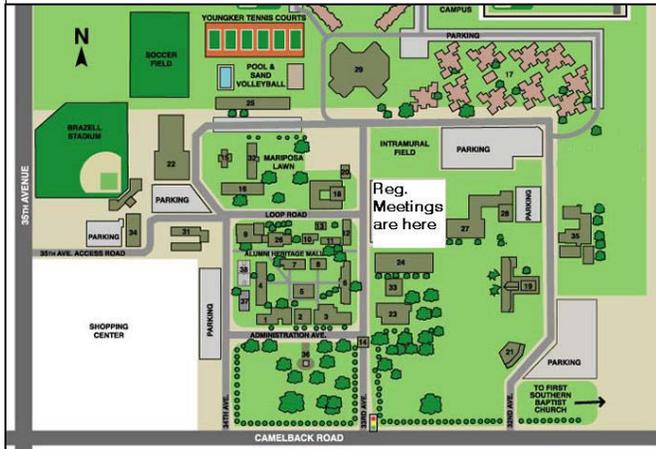
objects in the same field of view are **NGC1973**, **NGC1975** and **NGC1977** and have the moniker *Running Man Nebula*. Keep in mind NGC1973 and NGC1975 are north of the elongated NGC1977 and NGC1973 is west of NGC1975. Keep in mind there are quite a number of stars involved in these nebulae. Moving to a more southerly place is **NGC2022**, a planetary nebula. Although it is small and faint, can you detect any annular form? Finally there's **NGC2024** also called *Tank Track Nebula* or *Flame Nebula*. It is bright but the glow of its source stars, zeta Orionis, needs to be masked to see the delicate detail. These last two entries are on both the SAC 110 Best NGC and 400 Herschel observing lists.

Let's take a second trip to the Twins, Gemini, for April. We will have a nice variety of deep sky types for our viewing pleasure. The first is **IC 444**, a bright nebula with a mag 9.5 star involved. Next is the cluster **NGC2304**, which is pretty large. How many stars do you see and what Trumpler classification would you give? This is followed up with **NGC2355**, another cluster, which is about twice as large as the prior cluster. How do these two compare? Continuing with the open cluster theme is **NGC2395** and is even larger and brighter than the prior two. Do you agree? Next is the planetary nebula **PK 205+14.1** also known as Abell 21 or the Medusa Nebula. It is large and has a low surface brightness. Try using a UHC. Finally is the open cluster **NGC2420** that is pretty rich, meaning how many stars do you see? Note all of the open clusters are entries on the Herschel 400 list. Yes, some of these selections will be a challenge and will be worth the effort. Enjoy your observations.

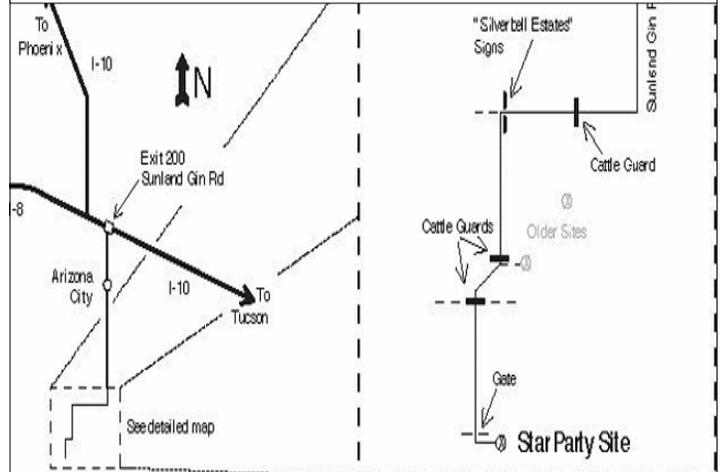
SAC Member Services

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.



All Arizona Messier Marathon



Take I-10 to exit 200 (Sunland Gin Road). From here it is about 29 miles to the site. Turn right (south) after exiting the freeway. After about 15 miles, the pavement ends and about one mile further, the road turns sharply to the west. After another four miles, the main road will turn south just after the "Silverbell Estates" signs. Three miles past the signs, the road will veer off to the west, and five miles further, the road will pass through a gate. Turn left immediately after the gate and continue for another 2/3 of a mile, driving over a fence. The site is to the right.

GPS Coordinates: N32 27.600, W 111 43.800, Elev 1801'

Dark of the Moon Star Parties-2009

Date	Sunset	Moonset	Twilight	Location
January 24th	1758	-	1925	Antennas
February 21st	1825	-	1948	Antennas
March 28th (Messier Marathon)	1835	2001	1957	Antennas
April 25th	1913	2022	2043	Antennas
May 23rd	1930	-	2111	Cherry II
August 22nd	1907	2020	2037	Cherry II
September 19th	1829	-	1953	Cherry II
October 17th	1758	-	1921	Antennas
November 11th	1758	-	1858	Antennas
December 19th	1730	2034	1859	Antennas

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 Only
- \$10.50 Nametag for members,
Pinned Clasp
- \$12.50 Nametag for members,
Magnetic Clasp
(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 \$34.00/yr
- Astronomy \$60.00 for 2 Years

Please Print

Make Check Payable to : SAC

Name: _____

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

Address: _____

City: _____ St: _____ Zip: _____

**SAC Treasurer
c/o Charlie Whiting
4526 W Purdue Ave
Glendale, AZ 85302**

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 you prefer a printed copy.

- Please send me a hard Copy of the newsletter

SAGUARO ASTRONOMY CLUB

February 2009

5643 W. Pontiac Dr
Glendale, AZ 85308-9117

Phone: 623-572-0713

Email: newsletter@saguaroastr.org



Videmus Stellae



SAC Schedule of Events 2009

SAC Meetings

January 9th, 2009	July 10th, 2009
February 6th, 2009	August 7th, 2009
March 6th, 2009	September 4th, 2009
April 10th, 2009	October 2nd, 2009
May 8th, 2009	October 30th, 2009
June 5th, 2009	Holiday Party, TBA

Future Planning

March 28th, 2009	All Arizona Messier Marathon
May 2nd, 2009	Thunderbird Starwatch
June 13th-20th, 2009	Grand Canyon Star Party
June 19th-20th, 2009	5 Mile Meadow Star Party

SAC Star Parties

Date	Sunset	Astronomical Twilight Ends	Moonrise	Site
Jan 17th, 2009	1748	1915	0114	S
Feb 14th, 2009	1815	1939	0002	S
Mar 21st, 2009	1844	1939	0417	S
Apr 18th, 2009	1905	2033	0246	S
May 16th, 2009	1925	2104	0111	C
Jun 13th, 2009	1942	2128	2339	C
Jul 18th, 2009	1940	2121	0229	C
Aug 15th, 2009	1916	2047	0117	C
Sep 12th, 2009	1839	2004	0012	C
Oct 10th, 2009	1800	1923	2313	S
Nov 7th, 2009	1729	1855	2216	S
Dec 12th, 2009	1719	1849	0455	S

S= Saddle Mountain; C= Cherry Road; A=Antennas