

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



January 1998 — Issue #252

v12.29

President's Column

by Paul Dickson

It's been 51 issues of SACNEWS since the last time a *President's Column* was published. In that time some things have changed, in other cases they have remained the same. Astronomically, we have had Comet Shoemaker-Levy 9 hit Jupiter (1994), Comet Hale-Bopp was discovered from our backyard (1995), Comet Hyakutake's passage (1996), and Comet Hale-Bopp's passage (last year). I guess we could use a breather from the spectacular comets this year.

Star Parties

This year should be as active as the last couple with regard to star parties. There will be the Messier Marathon on March 28, the Sentinel Star Gaze in April, the Grand Canyon Star Party, and the All-Arizona Star Party. The Prescott Astronomy Club is even now setting up a Star Party event for September that will include speakers. Of course these star parties don't even include our monthly star parties out at Buckeye Hills.

Public Events

For the past four years, Rich Walker has been coordinating SAC public star parties. We can look forward to them again this year at Reach 11 in north Phoenix and Thunderbird Park in north Glendale. Rich also sets up the star parties at local schools and clubs. With these star parties, Rich usually contacts a number of club members to set up their telescopes. If you wish to help with these star parties, please contact Rich directly either at a club meeting or by phone.

Deep-Sky Group

A.J. Crayon has been doing a great job with the club's Deep-Sky group. Every other month some SAC members get together to discuss their observations of deep-sky objects. This is a great place to learn how to take observing notes and to learn how to view the sky. The Deep-Sky meeting happens to fall this month on January 15th (the Thursday after the club meeting.)

A special note of thanks should be given to the McGraths. The Deep-Sky meetings have been held at their home for more than 10 years.

Quick Calendar

SAC Meeting

7:30 PM, Friday, January 9

SAC Deep-Sky Meeting

7:30 PM, Thursday, January 15

SAC Board Meeting

Ken Reeves' Home

Friday, January 16

SAC Star Party

Buckeye Hills Recreation Area

Saturday, January 17

SACNEWS

Since the Last *President's Column*, four other SAC presidents have held the office. During this time I have been editor of SACNEWS. In fact, I have been editor of SACNEWS for more than 8 years. I'll most likely remain editor of SACNEWS even after I'm no longer president. Why? It's an interesting position. With this position I can use my creativity, but only on rare occasions strain it. Which brings to mind:

I NEED MORE NEWSLETTER ARTICLES.

This is a club newsletter. Club members get first pri-

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DIM MOMENTS
IN
**AMATEUR
ASTRONOMY**
by Paul Dickson

IS THAT
MARS
ON THE
HORIZON?

NO, I BELIEVE
THAT'S A
STREET LIGHT

ority for having articles inserted in the newsletter. I will still use articles I find on the Internet (after asking permission). If you see something that might be of interest, point me to it and I'll see what I can do.

I should note my regular contributors to SACNEWS: Steve Coe, Don Machholz, Wil Milan, and Ken Reeves. Without them, some issues could have been empty.

Where is SAC Going?

There are several issues that have been on going over the past several years. One of the hottest have been light-encroachment at Buckeye Hills. As Phoenix grows, the lights move further out into the desert. Looking north and down from Buckeye Hills, the number of individual lights have been slowly increasing. There are also plans in the works for a new state prison a couple of miles directly south of the site. Although the prison shouldn't be

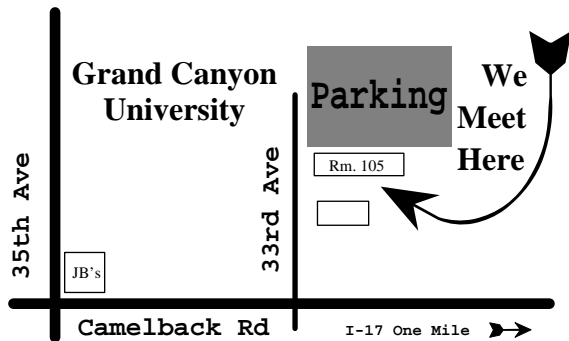
directly visible, the risk of light splash against the mountains directly to the west and southwest should be a very real concern. SAC's current plans are to continue using Buckeye Hills until we are force to relocate our observing site. Until that happens, SAC members are asked to keep their eyes open for other sites that are darker and relatively close to Phoenix. Buckeye Hills is now about 50 miles away. Finding anything closer is considered unrealistic.

If any members want to look into the planning of that prison, please feel free to do so. Providing our input into the design of the lighting could result in our extended use of Buckeye Hills. Unfortunately, I have not heard of any club members who have free time to do this. If you want to try this let me know. There are resources we can give you that can help.

Another issue has been how to help novice members

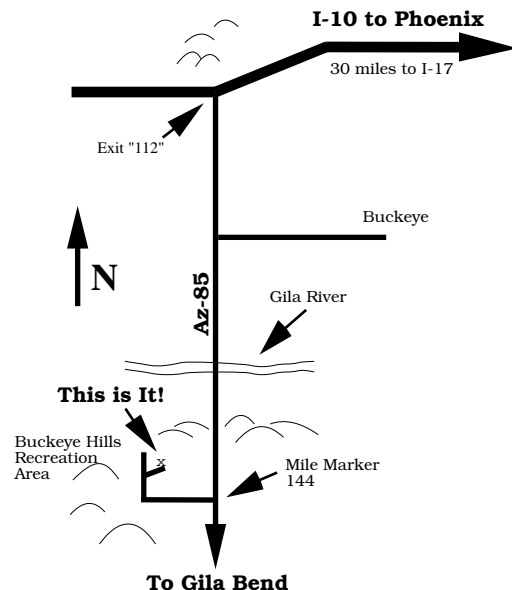
**Directions to
SAC Events**

SAC General Meetings 7:30 PM at Grand Canyon University, Fleming Building, Room 105 — 1 mile west of Interstate 17 on Camelback Rd., north on 33rd Ave., second building on the right.



SAC Deep Sky Subgroup Meeting at John & Tom McGrath's, 11239 N. 75th St., Scottsdale, 998-4661 — Scottsdale Rd. north, Cholla St. east to 75th St., southeast corner.

SAC Star Parties at Buckeye Hills Recreation Area Interstate 10 west to Exit 112 (30 miles west of Interstate 17), then south for 10.5 miles, right at entrance to recreation area, one-half mile, on the right. No water and only pit toilets. Please arrive before sunset; allow one hour from central Phoenix.



of our club. As each of us learn more about amateur astronomy and astronomy itself, it is easy to forget where we started. Last year, thanks to Steve Coe, SAC had two activities for novice members. Both sessions were considered great successes, and Steve is considering more for

this year. If you are relatively new to amateur astronomy and have questions about your equipment or observing in general, feel free to ask any club member or forward the questions to Steve for a future novice session. For the record: CCD Astrophotography is not considered good

Comet Comments

by Don Machholz

(916) 346-8963 CC233.TXT December 7, 1997
<http://members.aol.com/cometcom/index.html>
 DonM353259@aol.com

Two new comets have been discovered recently by the SOHO satellite: both were Sungrazers, both were magnitude five, and both vanished behind the sun. Meanwhile, several long-lasting comets appear in our skies.

1995 O1 (Hale-Bopp)					
Date	RA-2000-Dec	Elong	Sky	Mag	
01-02	06h12.3m	-64°26'	92°	E	7.8
01-07	06h00.1m	-64°23'	92°	E	7.9
01-12	05h48.6m	-64°09'	92°	E	8.0
01-17	05h38.1m	-63°47'	91°	E	8.1
01-22	05h28.7m	-63°18'	91°	E	8.2
01-27	05h20.6m	-62°43'	90°	E	8.3
02-01	05h13.7m	-62°03'	89°	E	8.4
02-06	05h07.9m	-61°19'	89°	E	8.5
02-11	05h03.3m	-60°33'	88°	E	8.5

C/1997 J2 (Meunier-Dupouy)					
Date	RA-2000-Dec	Elong	Sky	Mag	
01-02	19h24.4m	+40°42'	64°	E	11.6
01-07	19h35.6m	+39°45'	62°	E	11.6
01-12	19h46.4m	+38°51'	61°	E	11.6
01-17	19h56.9m	+38°00'	59°	E	11.6
01-22	20h06.9m	+37°12'	57°	M	11.6
01-27	20h16.7m	+36°29'	55°	M	11.6
02-01	20h26.1m	+35°49'	54°	M	11.6
02-06	20h35.1m	+35°12'	52°	M	11.6
02-11	20h43.9m	+34°38'	50°	M	11.6

Comet Hale-Bopp begins to move northward again; this is due to our motion around the sun. **Comet Meunier-Dupouy** moves out of the north polar region. **Periodic Comet Hartley 2** is high in the evening sky. **Comet Utsunomiya** passes north of the sun, entering the morning sky. The fast-moving **Periodic Comet Temple-Tuttle** passes over the north polar region and into the evening sky.

Comet Hunting Notes: Of the last 100 visual comet discoveries, 28 were made by amateurs using binoculars. The smallest pair of binoculars used was 7x35's by William Bradfield in 1980 to find a magnitude-six comet. Three were the 80mm size while six finds were made using binoculars with objectives of 110-120 mm. Four finds were made with my homemade binoculars (130mm). And half (14) of all binocular comet discoveries were made with 150mm (6-inch) binoculars.

C/1997 T1 (Utsunomiya)					
Date	RA-2000-Dec	Elong	Sky	Mag	
01-02	18h48.5m	+03°58'	27°	M	11.0
01-07	18h49.0m	+02°52'	26°	M	11.1
01-12	18h49.4m	+01°52'	26°	M	11.2
01-17	18h49.7m	+00°56'	27°	M	11.3
01-22	18h49.9m	+00°03'	29°	M	11.4
01-27	18h49.9m	-00°47'	32°	M	11.4
02-01	18h49.7m	-01°35'	35°	M	11.5
02-06	18h49.1m	-02°21'	39°	M	11.6
02-11	18h48.2m	-03°06'	43°	M	11.7

103P/Hartley 2					
Date	RA-2000-Dec	Elong	Sky	Mag	
01-02	23h34.5m	-07°17'	70°	E	7.9
01-07	00h00.2m	-06°29'	71°	E	7.9
01-12	00h26.2m	-05°33'	72°	E	8.0
01-17	00h52.4m	-04°31'	74°	E	8.2
01-22	01h18.4m	-03°23'	75°	E	8.4
01-27	01h44.0m	-02°13'	77°	E	8.6
02-01	02h09.0m	-01°01'	78°	E	8.8
02-06	02h33.3m	+00°11'	79°	E	9.1
02-11	02h56.7m	+01°21'	80°	E	9.3

55P/Tempel-Tuttle					
Date	RA-2000-Dec	Elong	Sky	Mag	
01-02	12h35.9m	+33°30'	105°	M	12.3
01-07	12h29.5m	+43°59'	113°	M	11.4
01-12	12h06.3m	+61°34'	119°	M	10.4
01-17	07h05.5m	+82°59'	118°	E	9.7
01-22	01h53.2m	+60°49'	106°	E	9.5
01-27	01h28.9m	+41°41'	90°	E	9.6
02-01	01h21.4m	+30°10'	79°	E	9.8
02-06	01h18.1m	+23°00'	70°	E	10.0
02-11	01h16.3m	+18°13'	63°	E	10.1

Orbital Elements

Object:	Hale-Bopp	Meunier-Dupouy	Hartley 2	Utsunomiya	Tempel-Tuttle
Peri Date:	1997 04 01.1370	1998 03 10.4365	1997 12 22.0242	1997 12 10.0570	1998 02 28.1034
Peri Dist:	0.914008 AU	3.051015 AU	1.03172 AU	1.359850 AU	0.976639
Arg/Peri (2000)	130.5787°	122.6755°	180.7240°	095.8952°	172.4930
Asc Node (2000)	282.4653°	148.8429°	219.9547°	053.7059°	235.2568
Incl (2000):	089.4268°	091.2731°	013.6191°	127.9898°	162.4861
Eccentricity:	0.995085	1.000760	0.700391	1.0	0.905507
Orbital Period:	~2500 years	Long Period	6.39 years	Long Period(?)	33.23 years
Reference:	MPC 30738	MPC 30738	MPC 29880	MPC 30738	MPC 30244
Epoch:	1997 12 18	1998 03 08	1997 12 18	1997 10 10	1997 12 18
Absol Mag/"n":	-1.0/4.0	4.0/4.0	8.0/6.0	7.8/4.0	10.0/10.0

Fuzzy Spot

by Ken Reeves

Orion

January 1998

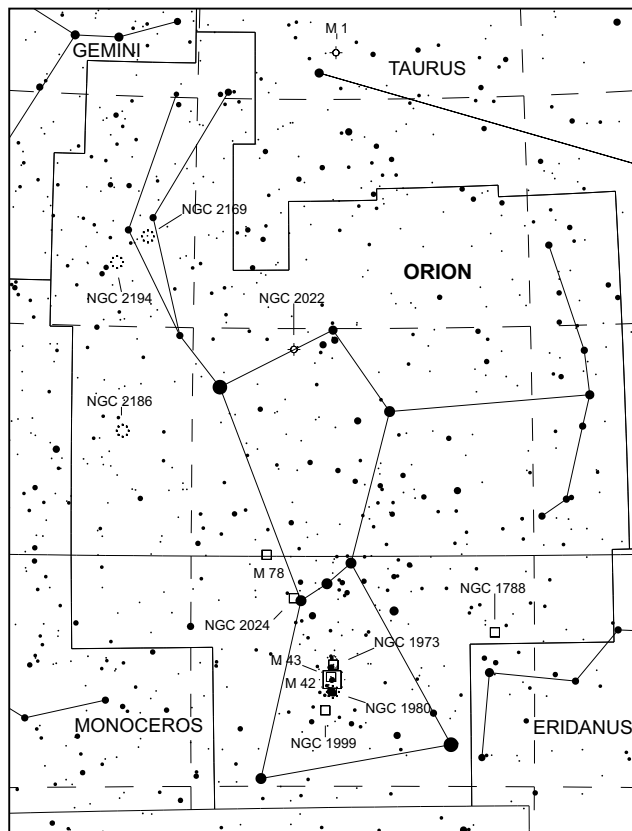
Orion is probably one of the best known constellations in the sky. Most everyone knows the three stars that form the belt, there is even some speculation that the three great pyramids of Egypt represent the stars in the belt of Orion. Rigel and Betelgeuse rank up with the brightest stars in the sky and even though they are on opposite sides of the constellation, the color difference is obvious. M42, the Great Orion Nebula, is undoubtedly the most observed deep sky object, and a description of that object could easily fill an article this size, if not the entire newsletter!

However, if one gets away from these 'star' objects of Orion, there are many not quite so obvious objects that have their own charm. Looking only at the Orion Nebula and skipping over all the other objects is like going to Yellowstone and just looking at Old Faithful. So this month, let's look at some of the less known objects, the Little Whirligig and Plume Geysers if you will.

NGC 1788 (05h06.9 -03°20) This nebula has a neighboring bright star more or less to west and either a star or a much brighter spot in the middle. Use averted vision to make it grow. The description the I took was not very detailed, but from what I remember, it did not respond to the UHC filter, so I assume it is a reflection nebula.

NGC 1973 (05h35.4 -04°48) This area of nebulosity is confusing as far as the NGC designations go, so I lumped it all into one. It includes **1973**, **1975**, and **1977**. I noted 6 stars involved in very bright nebulosity on the south end of complex. The nebulosity follows an arc of 4 stars and extends quite a ways east. It darkens quickly to the south. To the north is a grouping of 7 stars, the brightest star having quite a bit of nebulosity surrounding it. On the far north end is a double star with some nebulosity between the 2 main sections, it darkens up somewhat. I notices a blue/green glow

to the nebulosity, but didn't notice much improvement with the UHC filter. Pay close attention to the brightest nebulosity, some mottling and details may be seen. If the Orion Nebula wasn't right next door, this would be a major show piece.



NGC 1980 (05h35.2 -05°55) This nebula is at the south end of the Orion Nebula. The main part surrounds Iota Orion, but I find this part somewhat drowned out by the star. The UHC filter helps bring out the glow slightly. Go to the south of Iota to find a double star with some better defined nebulosity.

NGC 1999 (05h36.5 -06°43) Another nebula, this time even further south of the Orion Nebula. This one contains a very bright central star with a faint glow around it. Perhaps there is a little mottling in the nebulosity, but it mostly looks like a fuzzy star.

Continued on next page...

topic for novice members. If it was covered, there would be a lot of advanced amateurs who would feel left out.

SAC E-mail Lists

SAC has two E-mail mailing lists: sac-mls@psiaz.com and sac-board@psiaz.com. The first list is for SAC announcements and astronomical events, while the second mailing list is for discussions of SAC business, typically amongst the board members. To subscribe (or unsubscribe) send E-mail to sac-mls-request@psiaz.com or sac-board-request@psiaz.com with the subject line set to: **subscribe** (or **unsubscribe**).

If you have a new E-mail address and would like it to

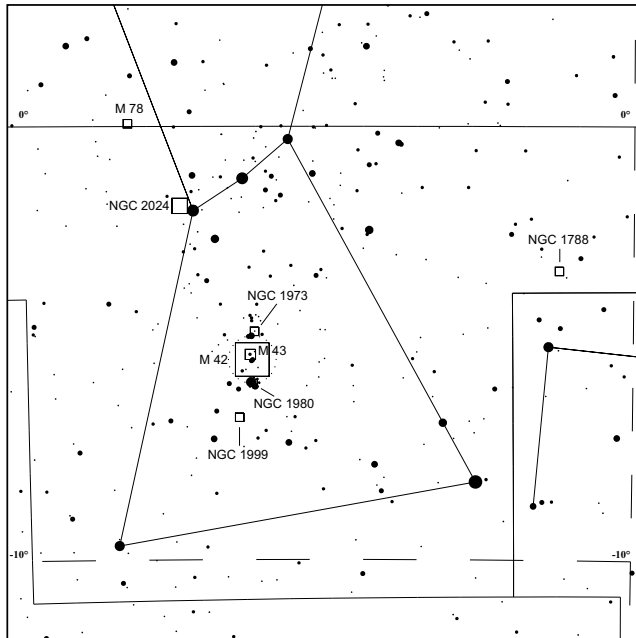
appear in the club's roster, please send a message to me at: dickson@primenet.com.

SAC's 110 Best of the NGC

Sales from this book go to the club's treasury. To date, nearly 300 copies of the book have been sold. There are still 100 copies printed, remain to be sold. I don't have records (the treasurer does), but I believe we are again at the break-even point. So sales of future copies now help out the treasury. I look forward to a more specific accounting of how the club has done. As of last Thanksgiving, I've started submitting advertisements to the AstroMart mailing list. So far I've sold 12 copies of the book in five

Continued from previous page...

NGC 2022 (05h42.1 +09°05) Here we move north near the head of Orion to find a planetary nebula. It is small, reasonably bright, and possibly annular. It did respond to the filter somewhat, but averted vision didn't make much difference and, surprisingly, neither did high magnification. Without the filter, I did notice a somewhat blue/green hue.



NGC 2024 (05h42.0 -01°50) I consider this nebula the best in Orion (next to the main nebula), and have heard it referred to as the “Tank Tracks,” but I

prefer the name of the “Flame Nebula.” The main trick here is to keep Zeta out of the field. There are several dark lanes and branching of the nebula. Spend some time looking at this one. I definitely considered this as the “WOW” of the evening.

NGC 2169 (06h08.4 +13°57) This is a very interesting open cluster. Although it is fairly small, it is very bright. Normally clusters this poor (I counted only 18 stars in 2 or 3 levels) aren't noteworthy. However this cluster is not situated on a rich background, and has a unique shape. I see it as a “37.” I considered it as a nice bright cluster that can rival many of the Messier clusters. Also, this is a good cluster to look at from a light polluted site.

NGC 2186 (06h12.2 +05°27) This open cluster is located about half-way between Betelgeuse and the Rosette Nebula. I saw it as pretty small, somewhat bright, fairly poor, a little condensed, and having a bright central star dominating it. I counted about 27 stars in the 10" scope with a nice string of about 5 stars in the middle. This is a charming cluster with a nice personality.

NGC 2194 (06h13.8 +12°48) Another open cluster, which is near the “37” cluster, this one is very rich, not real bright with 10-15 stars over some haze. East is two other groupings of stars that looks like clusters. Very nice tight clusters.

Herschel 400 Objects

1788, 1980, 1999, 2022, 2024, 2169, 2186, 2194

SAC's 110 Best of the NGC Objects

1788, 1973, 2022, 2024, 2194

weeks. Eventually, we will get rid of the copies we have.

The book still sells for \$5 at club meetings and \$9 with shipping and handling. Although this book isn't for a novice, after you've seen most of Messier's objects, you are ready for the objects in this observing logbook.

What can I do for SAC

No club works in a vacuum. Let the club officers know what we are doing right. And if we are doing something wrong, please let us know how we can improve things. This is your club, so we need your input.

Deep-Sky Group Meeting

The Deep-Sky Group is a Special Interest Group made up of people who like to discuss observing and observing techniques. They particularly like to observe objects out past the Orri Cloud that's why they're called the Deep-Sky Group. The type of objects include stars, nebulae, and galaxies.

If you are interested in sharing your observations, or are interested in observing techniques, then by all means

come join in. The meetings are held at John McGrath's house every other month on the Thursday after the SAC meeting; directions are found on page 2 of this newsletter.

Consider this to be an invitation to this meeting. This meeting is OPEN to all SAC members. All you have to bring is an interest in what objects look like when view through a telescope.

For the January Deep-Sky Meeting we will discuss the objects in Ken Reeves' November and December *Fuzzy Spot* columns (Cetus, Eridanus and Fornax), which total 16 objects.

If you have new or old observations, bring them along. Even if you have no observations, come anyway. This is a good way to improve your observing skills.

Newsletter Deadline

Mail items for Such-a-Deal at least two weeks before the end of the month. Articles that need to be published in a timely fashion must be submitted or the newsletter editor notified of the article at least 6 weeks before month they are published. Items arriving too late for an issue will be included in the next newsletter.

Such-A-Deal

SUCH-A-DEAL is a place to advertise equipment, supplies, and services related to amateur astronomy. This is a free service for SAC members and friends. SAC is not responsible for the quality of advertised items or services. All insertions must be submitted in writing.

Steve Reed had about \$4000+ of equipment to sell. Unfortunately there hasn't been room in SACNEWS for his large list of items. He has \$1250 of photographic equipment, and telescope for \$1700, and a large number of eyepieces for \$1600. Contact Steve Reed, 613-4950, or E-mail: sunny@goodnet.com.

Universal Time and Date of Total Lunar Occultations for Phoenix (+33.5° Lat., 112.0°W Long.)

Date	Time ¹	Time ²	Mag	Star Information	PH	PA ¹	PA ²	PS	Elong	MAL	MAZ	SAL	SAZ
01/15	07:33:02	07:31:44	5.0	ZC1442 (R Leo)	RD	264	260	82	213	54	120	-78	356
02/03	05:23:32	05:24:05	4.5	ZC0327 (ξ1 Cet)	DD	025	026	45	082	23	266	-55	290
02/16		14:04:05	4.8	ZC1941	RD		333	70	234	34	233	-2	104
03/04	23:16:14	23:14:24	1.1	ZC0692 (α Tau)	DD	037	021	48	087	59	116	24	243
03/05	00:20:47	00:21:43	1.1	ZC0692 (α Tau)	RB	293	306	48	087	69	142	13	254
03/11	08:18:17	08:18:25	4.6	ZC1486 (31 Leo)	DD	104	117	90	162	55	236	-59	20
03/18	11:30:42	11:30:29	4.0	ZC2223	RD	280	270	68	237	42	183	-26	73
04/01	02:14:00		3.9	ZC0635 (γ Tau)	DD	148		31	056	46	258	-6	280
04/01		05:58:52	4.0	ZC0669 (θ1 Tau)	DD		107	33	059	2	289	-46	326
04/07	02:39:00		5.0	ZC1442 (R Leo)	DD	144		73	131	60	130	-10	285
04/10		12:23:13	4.0	ZC1772	DD		130	93	167	3	268	-9	74
04/28	16:20:18	16:19:19	1.1	ZC0692 (α Tau)	DD	033	020	18	033	19	82	44	104
04/28	17:02:29	17:03:02	1.1	ZC0692 (α Tau)	RB	296	311	18	033	27	87	53	113
05/09	08:29:12	08:21:42	4.8	ZC1941	DD	050	065	88	159	37	230	-37	19
06/08	04:48:39	04:47:27	4.0	ZC2223	DD	086	099	90	162	40	158	-22	321
06/19		12:01:16	4.7	ZC0249 (μ Psc)	RD		248	34	298	37	110	-4	59
06/22	12:05:29	12:04:31	1.1	ZC0692 (α Tau)	DB	035	023	12	338	11	77	-3	59
06/22	12:46:09	12:45:58	1.1	ZC0692 (α Tau)	RD	295	308	12	338	19	82	5	65
07/19	21:58:05	21:58:44	1.1	ZC0692 (α Tau)	DB	068	076	27	311	13	282	55	258
07/19		22:51:47	1.1	ZC0692 (α Tau)	RD		278	27	312	3	289	44	267
07/29	04:22:48	04:09:24	2.9	ZC1821 (γ Vir)	DD	033	045	37	066	18	256	-20	310
07/29	04:37:12	04:36:29	2.9	ZC1821 (γ Vir)	RB	008	000	37	066	14	259	-23	314
09/09	06:27:36		4.7	ZC0249 (μ Psc)	RD	318		79	218	35	108	-49	338
09/10	09:56:00	09:56:10	4.4	ZC0405 (μ Cet)	RD	216	230	71	233	63	146	-37	51
10/09	08:54:53	08:55:15	3.9	ZC0635 (γ Tau)	RD	200	217	71	231	62	121	-54	46
10/09	16:44:50	16:44:47	1.1	ZC0692 (α Tau)	DB	079	087	69	236	11	283	37	131
11/03	03:09:44	03:08:27	4.8	ZC0249 (μ Psc)	DD	029	016	93	168	38	112	-33	273
11/13	10:00:02	09:59:40	4.1	ZC1644 (σ Leo)	RD	319	321	32	303	12	91	-49	78
11/13	18:33:42	18:34:11	1.5	Mars	DB	078	091	30	307	39	246	38	169
11/13	19:40:56	19:41:31	1.5	Mars	RD	332	323	29	307	26	258	38	190
11/27	02:11:15	02:08:54	4.9	ZC3307 (σ Aqr)	DD	024	003	53	096	45	192	-23	259
12/10	08:51:56	08:51:15	4.7	ZC1609 (χ Leo)	RD	252	252	50	271	24	97	-67	68
12/22	00:50:20		5.0	ZC2987 (ρ Cap)	DD	041		21	038	24	226	-6	246
12/29	00:39:08		4.4	ZC0405 (μ Cet)	DD	063		71	127	43	108	-3	244

NOTES:

- A = Southern Limit Graze just South of Phoenix Area.
- B = Northern Limit Graze in Central Arizona.
- C = Northern limit Graze just North of Phoenix Area.

Subtract 7 hours for correct Mountain Standard Time and Day.

Time¹ = Hrs:Min:Sec (Std Sta NM)

Time² = Hrs:Min:Sec (Std Sta LA)

PH = Phenomenon, i.e. RD = (R)eappearance on (D)ark Limb

PA¹ = Position Angle of star from north point of moon (90=East) (NM Std Sta)

PA² = Position Angle of star from north point of moon (90=East) (LA Std Sta)

PS = Percent Sunlit

Elong = Elongation of moon from sun (180 = full; 270 = 3rd Qtr)

MAL = Moon Altitude in degrees (90 = directly overhead)

MAZ = Moon Azimuth (90 = East)

SAL; SAZ = Sun Altitude; Azimuth

Blanks = Not Listed at Standard Station

Compiled by Brian K. Vorndam, for more info call him at (520) 726-3151.

January 1998

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> All Times are Mountain Standard Time </div>					TAAA Meeting (Tucson)	Quadrantid Meteors Peak: 10 A.M. Z.H.R.: 120
4	First Quarter Moon 7:20 A.M.	Mercury at greatest elongation 23° (morning)	7	PAS Meeting Brophy Prep. Physics Lab	SAC Meeting Grand Canyon University, Fleming Rm. 105	10
11	Full Moon 10:25 A.M.	Friday: Venus at inferior conjunction (moves into evening sky)	EVAC Meeting (SCC: Rm. PS172)	SAC Deep-Sky Meeting 7:30 P.M.	SAC Board Meeting 7:30 P.M.	SAC Star Party Buckeye Hills (members&guests)
18	Sun enters Capricornus 10 A.M.	Last Quarter Moon 12:42 P.M.	21	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Friday–Saturday, January 16th Two Asteroid Occultations! 9:06 PM: 2421 Nininger 1:54 AM: 176 Iduna </div>		24
25	26	New Moon 9:26 P.M.	Uranus at conjunction with Sun	29	30	31

Magazines & Discounts

Club members may subscribe to astronomical magazines at reduced rates through the club Treasurer. See the Member Services Form on the back page of this newsletter. Furthermore, club members are encouraged to align their subscriptions with the Jan.–Dec. calendar year. This eases the burden both on the Treasurer and the Publisher by permitting a single Group Renewal to be placed in the autumn for the upcoming calendar year.

Those members who experience problems with their subscriptions to *Astronomy* magazine may call Kalmbach Publishing Customer Service at (800) 446-5489.

Those members who experience problems with their subscriptions to *Sky & Telescope* magazine may call Sky

Publishing at (800) 253-0245.

Besides the club discount on *Sky & Telescope* magazine, Sky Publishing offers club members a 10% discount on all other Sky publications. This means books, star atlases, observing aids, Spotlight prints, videos, globes, computer software, and more.

Club members who subscribe to *Sky & Telescope* through the Club Discount Plan may order Sky publications directly, at the above toll-free number, without going through the club Treasurer. Simply mention the Club Discount Plan and give the Saguaro Astronomy Club name to receive the discount. Sky Publishing will check their records to verify that you are eligible to receive the discount.

Saguaro Astronomy Club Member Services Form

Membership

Memberships are for the calendar year and are prorated as follows: Jan - Mar 100%, Apr - Jun 75%, Jul - Sep 50%, Oct - Dec 25%.

- \$28.....Individual Membership
- \$42.....Family Membership (one newsletter)
- \$100.....Business Membership (includes advertising)
- \$4.....Nametag for members
- \$14.....Newsletter Only

Subscriptions

The following magazines are available to members. Subscribe or renew by paying the club treasurer. You will receive the discounted club rate only by allowing the club treasurer to renew your subscription.

- Sky & Telescope.....\$27.00 for one year
- Astronomy.....\$20.00 for one year

Write your name, address, phone number, and E-mail address in the space below.

Make checks payable to SAC.
Mail the completed form to:

Jack Jones
SAC Treasurer
2313 W Sierra
Phoenix AZ 85029

SAC and SAC Meetings

Saguaro Astronomy Club (SAC) was formed in 1977 to promote fellowship and the exchange of scientific information among its members — amateur astronomers. SAC meets monthly for both general meetings and star parties, and regularly conducts and supports public programs on astronomy.

SAC meetings are usually held on the Friday nearest the full moon. This means that over the course of the year, meetings are not held on the same week of the month. The same is true of the club's star parties. Star parties at Buckeye Hills Recreation Area are mostly held on the Saturday of the third quarter moon.

SAC General Meetings: 7:30 PM at Grand Canyon University, Fleming Building, room 105 — one mile west of Interstate 17 on Camelback Rd, north on 33rd Ave., second building on the right. See inside for a map to the meeting location.

1998 SAC Meetings

Jan. 9
Feb. 13
Mar. 13
Apr. 10
May 8
Jun. 12
Jul. 10
Aug. 7
Sep. 11
Oct. 2
Nov. 6
Dec. 5 Party

1998 SAC Star Parties

Date	Sunset	Moonrise
Jan. 17	5:46PM	10:41PM
Feb. 21	6:18PM	3:40AM
Mar. 21	6:39PM	2:23AM
Apr. 18	6:59PM	1:08AM
May 16	7:19PM	11:54AM
Jun. 20	7:37PM	3:27AM
Jul. 16	7:34PM	2:10AM
Aug. 15	7:12PM	12:57AM
Sep. 12	6:37PM	11:45PM
Oct. 10	6:00PM	10:32AM
Nov. 14	5:27PM	3:48AM

SACNEWS

c/o Paul Dickson
7714 N 36th Avenue
Phoenix AZ 85051

Stamp

First Class Mail

Inside:

- President's Column by Paul Dickson
- Dim Moments by Paul Dickson
- Comet Comments by Don Machholz
- Fuzzy Spot by Ken Reeves
- Lunar Occultation for Phoenix
by Brian Vorndam

SAC Meeting — January 9

Deep-Sky Meeting — January 15

SAC Board Meeting — January 16

SAC Star Party — January 17