

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



April 1991 — Issue #171

Grand Canyon Star Party

May 4th–12th

from Dean Ketelsen

Dean Ketelsen is the vice-president of the Tucson Amateur Astronomy Association (TAAA) and is currently organizing this week-long star party.

The park staff have been very supportive in helping organize this star party during their busy time of year. It is currently planned that we will set up in the Yavapai Museum parking lot—the same place as John Dobson and the San Francisco Sidewalk Astronomers 12 years ago. There are restrooms there, it is pretty much out of the way, and the park is willing to turn off lights. They are running notices in the park newsletter as well as in the Williams paper for the event, so turnout should be good. If you have a short topic you would like to volunteer to talk about for 15–20 minutes for this orientation, please let me know. It should be of a basic or easily understood nature, a slide projector and chalkboard should be available.

The dates picked are the 4th–12th of May, as to not conflict with the Texas Star Party and it's before the park gets totally packed and housing becomes difficult to arrange. There will be 2 dormitory rooms, for those of you who can't camp out but need to do things cheap, for \$10 per day for each dorm room. There is also given a group campsite at no charge that can put up to 50 people there. If you sleep in your vehicle or want to sleep next to your vehicle, I encourage you to get your own campsite, for which you will be charged the normal fee. There are of course the regular hotels and motels on the rim, but be advised that the cheap rooms run \$80 or more and you need to make reservations now if you are going.

Please contact me if you are going, or want further details. Also give me a call if you want to reserve one of the dorm rooms, or if you could be convinced to give a 15–20 orientation talk. If you call and I'm out, leave your name and number and I'll return your call.

Dean Ketelsen (602) 293-2855 — home
1122 E. Greenlee Pl. 621-8764 — day
Tucson, Az 85719

Comet Comments

by Don Machholz

Comet activity has been high lately, even Halley's Comet has participated by outbursting to magnitude 21, a jump of perhaps three magnitudes. Meanwhile, Comet 1991f is the 22nd comet find for Carolyn Shoemaker. She surpasses William Brooks and moves into second place (behind Pons who has 26) for the number of named comets. All of the Shoemaker finds, part of a program to find earth-crossing objects, were photographic and faint, most never reaching magnitude twelve.

Comet	Levy		(1990c)				
Date	RA-1950-Dec		RA-2000-Dec		Elong	Sky	Mag
03-30	08h23.0m	+05°40'	08h25.7m	+07°30'	117°	E	10.1
04-04	08h19.6m	+09°21'	08h22.3m	+09°11'	112°	E	10.3
04-09	08h17.2m	+10°48'	08h19.9m	+10°39'	106°	E	10.5
04-14	08h15.8m	+12°03'	08h18.5m	+11°54'	100°	E	10.7
04-19	08h15.1m	+13°07'	08h17.9m	+12°58'	95°	E	10.9
04-24	08h15.1m	+14°02'	08h17.9m	+13°53'	90°	E	11.1
04-29	08h15.7m	+14°50'	08h18.5m	+14°41'	85°	E	11.3
05-04	08h16.8m	+15°31'	08h19.6m	+15°21'	80°	E	11.5

Comet	Metcalf-Brewington		(1991a)				
Date	RA-1950-Dec		RA-2000-Dec		Elong	Sky	Mag
03-30	03h47.7m	+09°48'	03h50.4m	+09°58'	49°	E	9.9
04-04	04h00.9m	+10°31'	04h03.6m	+10°39'	48°	E	10.0
04-09	04h14.0m	+11°09'	04h16.7m	+11°17'	46°	E	10.1
04-14	04h26.9m	+11°44'	04h29.7m	+11°51'	45°	E	10.2
04-19	04h39.8m	+12°15'	04h42.6m	+12°21'	43°	E	10.3
04-24	04h52.5m	+12°43'	04h55.3m	+12°48'	42°	E	10.4
04-29	05h05.1m	+13°06'	05h07.9m	+13°10'	40°	E	10.5
05-04	05h17.5m	+13°26'	05h20.3m	+13°29'	38°	E	10.6

Comet Shoemaker-Levy (1991d): Discovered on Jan. 22 at magnitude 15, this comet will be closest the sun late this year at 2.2 AU when it might reach magnitude 12.

Periodic Comet Shoemaker-Levy (1991e): This was picked up on Feb. 7 at magnitude 16.5. A preliminary orbit suggests that it was closest the sun at 2.9 AU last month with an orbital period of 7.3 years.

Periodic Comet Shoemaker-Levy (1991f): This was found Feb. 9 at magnitude 17. It takes 6.8 years to orbit the sun, and was at perihelion last July at 2.0 AU.

Comet McNaught-Russell (1991g): This comet was found by Robert McNaught on a plate taken Feb. 12 by Kenneth Russell in Australia. This comet was closest the sun at a distant 4.8 AU last October and remains faint.

Periodic Comet Takamizawa (1991h): Jim Scotti recovered this comet from Kitt Peak on Feb. 17. A strange comet which was discovered in 1984 after an outburst, it will be closest the sun on Aug. 17 at 1.6 AU. If it acts normal it will brighten to perhaps magnitude 15, but another outburst would make it quite a bit brighter.

Periodic Comet Kowl (1991i): Jim Scotti recovered this faint comet from Kitt Peak on Feb. 21. It orbits the sun every 15 years and is a full year away from perihelion, which is 4.7 AU. It will remain near magnitude 18.

turn North onto 50th Ave. go up two streets to Saguaro Dr. and turn right. It is the third house on the south side of the street. The address is 4919 W. Saguaro Dr. Steve's phone number is 939-3787.

Directions to SAC Events

SAC General Meetings 7:30 PM at Grand Canyon University, Fleming Building, Room 103 — 1 mile west of Interstate 17 on Camelback Rd., north on 33rd Ave., second building on the right.

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.

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.

Bits and Pieces

1991 SAC Meetings	1991 SAC Star Parties
April 26	April 6
May 31	May 4
June 21	June 8
July 26	July 6
August 23	August 3
September 20	September 7
October 25	October 5
November 22	November 9
December 14 Party	December 28

On the Back-Burner

Part two of Chris Schur's "Skys shooting Comets: A Challenge for Astrophotographers" will appear next month rather than in this issue due to the lack of space. Or more closer to the truth, from the result of having too much available space. If you have something that might be even remotely of interest to other people in the club, please write it down and send it to newsletter editor. The newsletter editor would even consider an article about various merits of specific movements in an antirain dance.

Deep Sky Meeting

The Deep Sky meeting will take place on Thursday, May 2 at 7:30pm. The following objects in Leo are up for discussion: M 105 *et al*, NGC 3607 *et al*, NGC 2903, Abell 1367, and the double star γ .

Public Star Parties

There will be a public star party at Reach 11 on April 20th. Reach 11 is just north of Union Hills on Tatum Blvd. There will be a \$1.00 charge to the public. For those who are bringing telescopes, please try to arrive at least a half hour before sunset.

There will be another public star party in May at Thunderbird park.

Novice Group Meeting

The next Novice Group Meeting will be on Sunday, April 28 at 3:00. The meeting will be at Steve Coe's house and the subject will be: "Getting Started in Astrophotography." A.J. Crayon will speak about piggybacking a camera on your telescope, Pete Burggraaf will talk about using a tracking platform and Steve will provide some info on getting pictures of solar system objects. As always, there will be some time dedicated to a question and answer session. To get to Steve's home: from Peoria Ave.

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.

Telescope—10" newtonian on Lil' Big Foot mount. Piccadilly photographic setup, R.A. and DEC. drives. 3X barlow, 12mm, 20mm Ploßl eyepieces, and a few years of Astronomy magazine. No Reasonable Offer Refused. David Owings 772-9304.

Skys shooting Comets

A Challenge for Astrophotographers

By Chris Schur
Part 2

In my last article I wrote about why average comets pose difficult challenges to astrophotographers to get a really clear shot. Although they may be fairly bright, they move quickly against the background starfield. Therefore conventional tracking methods cannot be used efficiently. This article will be about another aspect of comet photography, pushing your scope to its limits to capture the less significant members of this group of objects as well as the brightest in their class.

Small and Faint Comets

Let's start with the most common types of comet, the small and faint ones (visual magnitude less than 9). These occur at a rate of up to a dozen or more per year and this more frequent appearance allows a good deal of practice for improving techniques and equipment. If you keep this in mind you'll be ready for the brighter and more detailed objects which occur much less frequently. Large apertures such as ten inches or more are essential along with long exposures and good guiding. But this is where we encounter the first dilemma of would be comet photographers, comets don't sit still during your exposure and short exposures such as five minutes or less will either not record them at all or very faintly. But the longer exposures, fifteen to thirty minutes that are required to show them well, also trail them on the film, thus blurring all the fine details. The small size of these objects also requires a fine grained but slower film, thus aggravating the problem all together.

The situation is not hopeless however, because once we know the comet's daily motion, and direction of its movement by simply plotting up its current position on a suitable atlas, we can easily compensate for its movement and hold it stationary on the film. This we covered in some detail in my previous article.

Assuming the comet is tracked properly, what can be expected on the film once a long exposure is printed up? Generally, a small round diffuse glow will be recorded, usually much brighter in the center and possibly a short fan-like extension of the tail. Don't expect the faint comets to always have a tail, most don't. Because of their low contrast and overall lack of color, color films have no advantage with these dim objects. Most photograph pure white, or at best with a slightly bluish cast.

Bright Comets

If you practice tracking and film processing you'll be ready when the really bright comets make their appearance. For some people, these are the reasons for living. And nothing can awaken public interest like a brilliant

comet. While a bright comet — about third or fourth magnitude can occur every year or two, a really brilliant comet, say second magnitude or brighter won't come by more often than a decade or two. Most of the bright and brilliant comets have tails ranging from two degrees in length on past twenty degrees or more. Some, such as Comet IRAS-Araki-Alcock had no tail at all!

The coma will vary in size too, anywhere from a quarter degree up to two degrees or more in diameter. It can be seen that a variety of focal lengths must be used. The prime focus of the telescope will reveal only the head and inner coma, but since the internal details of bright comets are greater, one should consider a wide range of exposures on color film to record the comets heart.

Look carefully at the color contrast in the coma. Several comets in recent years revealed on color emulsions a beautiful sky blue coma with the leading edge a saturated emerald green color. Really active comets will have an overall green or turquoise colored coma that of course would never have been noticed on black and white films.

The tails are usually long and bright enough to record superbly with short to medium telescopes, making them suitable for less skilled astrophotographers to achieve some really spectacular photographs. You will find however, that comet tails are really low surface brightness objects, and while color films will record some blue or yellow tints to the gas and dust tails on really brilliant comets, most tails will be recorded best in the higher contrast black and white.

One final point with bright comets is that with fast 50mm or 135mm lenses, we often can get the comet setting against a distant scene such as a mountain or distant trees. Exposures under five minutes guided on the stars will not significantly blur the foreground and such scenes always make the most inspiring astrophotos. Magazines are always on the look out for such shots, especially ones with recognizable picturesque foregrounds such as a palm tree or famous land form.

Films for Comets

Below is a listing of B&W as well as color films I have tried with good results. Your selection will be based on equipment and your specific needs.

- 1) The best color film I have tried so far is hypered Fuji Super HG 400 negative film. It has extremely fine grain, is fat, and a huge dynamic range for recording the large variations in brightness across the comets face. Its color response is remarkable; soft sky blues, emerald greens and straw colored yellows are recorded very well, with good color separation.
- 2) Unhypered Konika 1600 or 3200 are a second choice, but these faster films have much less color saturation and differentiation than the much higher resolution 400.
- 3) The best B&W film is hypered Kodak 2415, developed in D19. Its high contrast ($\gamma = 3.5-4$) brings out tail structures like no other film. The combination of this film with a red filter such as the Wratten #29 allows good penetration of twilight to pick out the maximum details

in the sungrazers. For small comets, it can't be beat. Its ultra fine grain and good speed make it a perfect match when used with a large newtonian and prime focus.