

Saguaro Astronomy Club

Metro Phoenix, Arizona

SACNEWS



July 1991 — Issue #174

Comet Comments

by Don Machholz

No new comets have been discovered or recovered recently, but a couple of returning periodic comets, both making their first predicted return, will become visible in late July.

Periodic Comet Hartley 2: Malcolm Hartley found this comet in March 1986 at seventeenth magnitude. At that time it was not well-placed. Now, six years later, we'll be able to see it in amateur-sized telescopes. It had not yet been recovered by early June, but it should be close to the positions indicated below at the suggested magnitudes. It will be closest to the sun on Sept. 17 at 0.95 AU. Over the next few months it should brighten to near ninth magnitude.

Periodic Comet Machholz: This small comet will be closest the sun at 0.13 AU on July 22. It then pops into the evening sky and quickly dims as it pulls away from the sun.

The comet's orbit is well determined; the comet has been observed in large instruments during the past two years. The uncertain element here is the magnitude, because the comet appeared to outburst at least once (and probably twice) in 1986. It also developed two tails and changed appearance hourly. Observers may want to monitor it for changes in both brightness and appearance.

Periodic	Comet		Hartley	2
Date	RA-1950-Dec	RA-2000-Dec	Elong	Sky Mag
07-13	00h49.1m +20°27'	00h51.8m +20°44'	90°	M 12.1
07-18	01h12.4m +22°25'	01h15.1m +23°08'	93°	M 11.8
07-23	01h38.1m +25°13'	01h40.9m +25°28'	87°	M 11.4
07-28	02h06.5m +27°23'	02h09.4m +27°37'	85°	M 11.1
08-02	02h37.5m +29°15'	02h40.5m +29°28'	83°	M 10.8
08-07	03h10.8m +30°41'	03h13.9m +30°53'	80°	M 10.5
08-12	03h45.7m +31°36'	03h48.4m +31°45'	77°	M 10.3

Periodic	Comet		Machholz
Date	RA-1950-Dec	RA-2000-Dec	Elong Sky Mag
07-28	09h20.4m +28°59'	09h23.3m +28°46'	16° E 6.2
08-02	10h26.6m +28°15'	10h29.4m +28°00'	26° E 8.5
08-07	11h26.4m +24°49'	11h29.0m +24°32'	34° E 9.9
08-12	12h17.4m +19°59'	12h19.9m +19°42'	42° E 11.0

Quick Calendar

Deep Sky Observing Session — July 6
At Dugas Road Site

Saguaro Astronomy Club meeting
New Date — Thursday, July 25

Bits and Pieces

Minutes of the May Meeting

President Paul Lind called the meeting to order at 7:30pm. First on the agenda was the meeting schedule. The June and July meetings will be held on the Thursdays, one day before the originally scheduled dates. Bob Dahl then gave the treasurer's report. The schedule for upcoming events was then discussed (see the attached calendar).

Pete Burggraff asked for volunteers to help with the Public Awareness sessions. Anyone interested should contact Pete. A.J. Crayon gave a quick update on the Deep Sky subgroup. The subgroup is sponsoring a star party at Dugas Rd. on July 6. Gene Lucas asked for any interested individuals in town for the July eclipse and who would like to take part in a public showing to contact him.

For the Show-N-Tell Tom Polakis showed slides from the Texas Star party. Rick Rotramel followed with a slide presentation on the Riverside Telescope Makers Conference.

After the break, the main speaker was Kurt Zebatel who was substituting for Professor Carleton Moore who was unable to attend. Kurt showed a movie on the Tunguska event in 1908 and followed it with a lively question and answer period. —*Phil Dahl, SAC Secretary*

Minutes of the June Meeting

President Paul Lind brought the meeting to order. The Deep Sky subgroup is sponsoring an observing session at the Dugas site on July 6th. A.J. Crayon then presented Rick Rotramel with an award for observing all of the Herschel 400 deep sky objects. George Delange gave

away a few copies on floppy of the third Reference Catalog of Bright Galaxies (RC3) courtesy of Harold Corwin.

For the Show-N-Tell part of the meeting, three club members showed slides: Steve Coe showed pictures taken with the tracking platform, Rick Rotramel showed some deep sky shots with Fuji 400, and Tom Polakis showed shots of the conjunction.

Dick Simmons then announced partial eclipse viewing at Scottsdale Community College beginning at 10 AM on July 11.

After the break four club members talked about the upcoming solar eclipse based upon their past experiences. Steve Coe described what an eclipse is, Gerry Ratley described what to look for, Jeff Charles talked about photographing it, and Paul Lind talked about his trip to Manitoba in 1979. —*Phil Dahl, SAC Secretary*

1991 SAC Meetings
July 25 Changed!
August 23
September 20
October 25
November 22
December 14 Party

1991 SAC Star Parties
August 3
September 7
October 5
November 9
December 28

Eclipse Viewing Planned

Dick Simmon of the East Valley Astronomy Club (EVAC) and Gene Lucas of SAC are organizing a public viewing session at Scottsdale Community College for the upcoming solar eclipse on Thursday, July 11. The sun will be partially eclipsed from approximately 10:30 AM to 1:00 PM. The maximum eclipse will occur at 11:41 in the Phoenix area. EVAC and SAC members interested in volunteering for the public observing session are asked to contact Simmon or Lucas for more details. Full information about the eclipse is being published in the latest issues of *Sky & Telescope* and *Astronomy* magazines.

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.

Skys shooting Comets

A Challenge for Astrophotographers

By Chris Schur

Part 4

This is the fourth and final part in the series on skys shooting comets. There are of course many more areas on this subject, including the mathematics of offset tracking, special darkroom methods, and special cameras for comet work. In this article however, I will discuss actual films and optics to choose from to obtain the best results. I must point out that these recommendations come from a variety of sources, including actual experiences of many of our club members. There may be some films in this article that might be difficult to get in your area. With time however, additional films will be tried and further recommendations will be made available.

Recommended Lens/Film Combinations for some Typical Case

Faint Comets. A typical case would be the famous Comet Encke. With an orbital period of 3.3 years, this one will back for skys shooters soon. Typically 9th magnitude and fainter, a 10" to 16" scope is recommended and a high resolution film such as 2414 or Fuji 400 is recommended.

Average Comets. An example is the infamous Comet Kohoutek, which has an orbital period of 75,000 years and will not be back in our lifetimes. Its was 6-8th magnitude and easily seen in binoculars. For this type of comet, use a 200-400mm telephoto lens with a $f/3.5$ to $f/6$ focal ratio. Also, a 6"-16" aperture will reveal fine details in the inner coma. I recommend 2415 film, T-Max 400 and Fuji 400.

Bright Comets. The well observed Comet Halley was in this class. Ranging in brightness from 3rd to 5th magnitude, a much wider range of films and lenses could be employed. Here, a lens from a lowly 50mm to a 400mm telephoto could be used to an advantage. I recommend focal ratios from $f/2.8$ to $f/6.3$. As with average brightness comets, a 6" to 16" aperture will reveal inner knots, rays and other near nuclear phenomenon. Films such as 2415, Fuji 400, T-Max 400 and the new Ektar 125 are best. Slide films such as Agfachrome 1000 and Fujichrome 400 have been proven in the field to be superior to all others. For Schmidt camera users, 2415 and hypered Ektar 25 are best.

Brilliant Comets. Comets West and Bennet will always be remembered as especially beautiful objects that could be seen in a dark sky without too much twilight interference. Brilliant comets are typically brighter than 2nd magnitude at their finest, and nearly any film or lens combination will work. Wide-angle 35mm to 200mm telephoto lenses will allow you to keep all or most of the tail in the picture even with a speed as slow as $f/6.3$. 4" to 16" prime focus shots will reveal a wealth of details not

seen in average comets. Even slow speeds such as $f/8$ will work fine here. Recommended films for best results are Fuji 400 with its low halation characteristics, Kodak 2415 for the furthest reaches of the tail, and Fujichrome 400 for the best overall shots. Schmidt cameras however reeking for this type of work. Ektar 25 and 2415 are the only choices.

Twilight comets. Comets Okazaki-Levy-Rudenko or Broresen-Metcalf come to mind here as recent examples. Buried in twilight, special methods were needed to extract them. Telephoto lenses from 135mm to 400mm are best, at $f/4$ to $f/11$. Kodak 2415 with a Wratten 29 filter will help here, also in the 4"–16" scopes stopped down to $f/6$ or $f/8$ to reduce twilight fog. Fuji 400 and 2415 proved to be best here.

Comets with Anti-Tails. The best example is Comet Arend-Roland in 1957. However a recent comet, Bradfield displayed a remarkably similar appendage. Short focal lengths such as 135–400mm telephotos are best, and a fast $f/2.8$ to $f/3.5$. The ONLY film used here which has sufficient contrast to record this very elusive phenomenon is Hypered Kodak 2415 and a 50cc Yellow filter. Schmidt cameras have again proven superiority in this field.

Split Tail Comets. As mentioned in a previous article, Comets Halley and West exhibited dual tail structure each with a different color indicating the composition. But there are many comets that reveal subtle colorations in the regions near the front and center of the coma. One film comes to mind as being the best for accurate color renditions and good color saturation. The film is Fuji SR400. Its newest replacement, Fuji SRV400 also works well for the yellows, blues and greens seen in our interplanetary wanderers. I have also had good success with the Fuji SR1600 and the Agfa 1000 slide film.

Conclusion

If You have a simple tracking mount and some assorted short focus lenses for your 35mm camera, you will be all set for the bright comets which can occur several times each decade. With the addition of moderate to long telephoto lenses, or a small Newtonian or Refractor, a whole new world of comets, perhaps 2–3 each year opens open to you. With a ten inch or larger aperture, dozens of objects per year are possible. Whether you choose to use fast film and short exposures at the expense of fine detail, or go for the high resolution tech pan (2415) and use offset tracking, skyshooting comets can be simple or as complex as you like. These celestial wanderers can be among the most beautiful objects in the sky if you own only a simple camera or an elaborate astrophotographic instrument. The challenges and rewards will be waiting for you.

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.

For Sale—Jaegers 4" $f/15$ refractor with German Equatorial mount and clock drive. Star diagonal 6mm eyepiece. Call Jeff Charles at 972-1878.

For Sale—13mm Nagler, 32mm Plössl, 7.4mm Plössl, and 20mm Erfle. Entire set \$220 OBO. Also Telrad finder \$30. Call Bernie Sanden at 438-8847.

The following items for sale are being handled by Jack Johnston at Mr. Telescope. He can be reached at 955-5521.

Telescope—Celestron Super C8 w/ Starbrite Coating, Tripod, Wedge, Visual Back, Star Diagonal, JMI Moto Focus, Counterweights, Celestron Rich Field Adapter, Spectrum Multi Coated 2X Barlow lens and the following eyepieces: Celestron Ortho 7mm, Spectrum Ortho 12.5mm & 18mm, Celestron Plössl 26mm, and Spectrum K 40mm. \$1295.

Telescope—Celestron C80 Refractor with Celestron German Equatorial Mount and Battery Powered Pulsed Motor Drive with Drive Corrector, Star Diagonal, extension tube for straight through viewing, K25mm and Ortho 6mm eyepieces. Also includes a Celestron Comet Catcher with mounting rings and Ortho 18mm eyepiece. \$795.

Guider—Versacorp Deluxe DiaGuider with adapter for Celestron SCTs. Multiple functions emulate a Star Diagonal, Off-Axis Guider and Manual Shutter. Includes T-thread Optidisc holder and 0.7x Telecompressor in Series 6 Optidisc cell. \$200.

Camera—Canonflex 35mm SLR camera with removable eye level prism finder, case, light meter, Canon 50mm $f/1.8$ lens, Canon 135mm $f/3.5$ lens, Canon 200mm $f/3.5$ lens, Canon Bellows R, Canon waist level finder with magnifier, close-up lens, cable release, yellow filter, T-adapter, misc. adapters. \$199.

Video—GBC Low Light TV camera with C-Mount, power supply, and control box. Purchased new in Oct 1990. Never used. \$325.

Lens—12mm $f/1.2$ C-mount Auto Iris lens. Works with GBC camera. Purchased new in Oct 1990. Never used. In original box. \$85.

Microscope—Kyowa Model KGS stereo microscope with 3x objective and 8x, 10x, 12x eyepieces pairs. Includes woodcase. \$225.

Microscope—Kyowa microscope with 4x, 8x, and 30x objectives and 15x eyepiece. \$50.