

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

Jan Kok, President
kok@ezlink.com 970 266 0318

Kimon Berlin, Vice President
kimon@deepskymarines.org 970 267 9908

Gerry Reynolds, Treasurer
gerryreynolds@earthlink.com 970 226 0705

David Chamness, Secretary and AL Correspondent
dec@ftc.agilent.com 970 482 1794

Tom Teters, Web Site Editor
tomt@jymis.com 970 482 5702

Dan Laszlo, Newsletter Editor
djlaszlo@aol.com 970 498 9226

Meetings first Thursday of each month

Next Meeting: July 11 7:30 PM
Optics for Professionals, and Arizona Observing,
by Thom Peck

Meeting directions

Discovery Center Science Museum
703 East Prospect Rd, Fort Collins
<http://www.dcsm.org/index.html>

In Fort Collins, from the intersection of College Ave and Prospect Rd, head East about 1/2 mile. See the Discovery Center sign to the South. Enter the West Wing at the NE corner. From I-25, take Exit 268, West to Lemay Ave, continue West 1/2 mile, see Discovery Center on the left.

NCAS Star Party Dates

July 5, 6, 12

You might find a few amateur astronomers on the plains on these nights. Cactus Flats site is on undeveloped parcel of prairie about 6 miles West of Briggsdale. Take Colo Hwy 14 East from I-25 (Exit 269). Go 19 miles East to Ault. Continue 18 miles East of Ault. At County Rd 65 (Milepost 170), turn North, go one mile. Site is through the wire gate on the right, no road, close gate and set up. Beware of the cactus. Our standard nights are the weekend of the New Moon, sometimes a weekend before and after. The site is now officially wheelchair accessible, but there are no facilities so bring essentials. Call **Tom Teters**, tomt@jymis.com, with questions about star party status or dates, 482-5702 or 482-0807.

July 13 NCAS Star Party, near Red Feather Lakes

Roger Appeldorn is hosting the club at his observatory west of Livermore. Please RSVP if you plan to come. Directions are attached. Roger is at 482-5184, rhappeldorn@prodigy.net

Longmont Astronomical Society 1st Quarter Moon Public Viewing Nights, Flanders Park

July 13, August 17, September 14, October 12, November 9, December 7

Other Events

Little Thompson Observatory Star Night, Berthoud
July closure for maintenance
<http://www.starkids.org>

Cheyenne Astronomical Society
July 19 9 PM
<http://users.sisna.com/mcurran>

Open House, Chamberlain Observatory, dusk to 10 PM
July 20 Aug 17 303 871 5172
<http://www.du.edu/~rstencel/Chamberlin/>

Longmont Astronomical Society
July 18
<http://laps.fsl.noaa.gov/cgi/las.cgi>

Rocky Mountain National Park Starwatching

Dates for Summer 2002 are July 19; August 2, 16 and 30.
Contact Dan Laszlo if you can volunteer, djlaszlo@aol.com, or 498-9226

Carter Lake Knolls Starparties

Dates for Summer 2002 are: July 26, Aug 16, Sept 13
Contact Tom Teters if you can volunteer, 482-5702
tomt@jymis.com

CAS Weekend Under the Stars, August 8-10, Foxpark WY

<http://users.sisna.com/mcurran/wuts.html>

June 6 Program

**The Aurora Borealis,
Mechanism and Predictions
By Brian Rachford, Ph.D.
Postdoctoral Fellow, University of Colorado**

Brian's interest in astronomy started in childhood, with backyard views of the Northern Lights. He chose astronomy as his career, and performed his doctoral work at the University of Wyoming. He enjoys watching and photographing the aurora, and started an alert service as a graduate student. The alerts are based on data from a variety of sources. There is scientific and commercial interest in geomagnetic storms because of the disruptions they can cause. Communications with satellites, and between land-based stations can suffer. Electrical surges in large electrical transmission grids can bring power failures. The most recent large blackout hit Quebec in 1989. Storms can adversely affect satellite environments. There is a small but measurable risk to orbiting astronauts, and even for aircraft passengers on polar routes. Conditions which favor geomagnetic storms will often cause the auroral oval to intensify and shift farther away from the geomagnetic poles. The goals of a forecast are to predict onset, duration, and intensity aurora visibility for a location. A geomagnetic storm begins with an active region on

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

the Sun. An energetic event is produced. There is ejection of gas from the Sun, and it carries a magnetic field. The mass takes from 1 to several days to reach the Earth. The material interacts with the Earth's magnetic field, deposits energy, and some of the energy excites molecules in the air about 100 km high and up. Release of the energy as visible light produces the aurora. Solar activity waxes and wanes with an 11 year cycle. A peak occurred from 1989-1991, and in 2000-2001. Solar activity can be observed in several phenomena. Sunspots can be viewed in white light. Solar flares show well in hydrogen-alpha wavelengths, less often in white light. Several spacecraft monitor the Sun in infrared, ultraviolet and X-rays, providing data to supplement ground-based telescopes. Solar flares show well in X-rays and far UV, less in hydrogen-alpha. They last a few minutes to a few hours. Conditions favorable for a flare also favor an aurora, but they are not directly linked. Filament eruptions are strings of matter in the solar atmosphere that lift off during an energetic event. These form a coronal mass ejection. CMEs are usually detected by the LASCO instrument on the SOHO spacecraft. Time-lapse images can be seen at: <http://lasco-www.nrl.navy.mil/>

Up to 10 billion tons of matter can be ejected. If material appears to expand symmetrically around the Sun, it is termed a full halo CME and is directly moving toward or away from the Earth. A partial halo CME is moving to one side, and has a smaller chance of interacting with the Earth. The CME imaged on July 14, 2000 was the Bastille Day event and caused a massive geomagnetic storm. Light takes about 8 minutes to reach Earth from the Sun. Relativistic particles ejected with the CME arrive about 2 minutes later. A typical CME expands to tens of times larger than Earth's diameter as it arrives. A CME from the far side of the Sun can be assessed by its appearance, and by seismic waves that propagate to the visible surface of the Sun. The velocity of a CME ranges from 200 to 2000 km/second. The solar wind moves 400 km/second., and a CME will tend to speed up or slow down to match the solar wind. Transit time can be estimated by dividing 150,000,000 km orbit radius by the speed. A high velocity CME may still be traveling at 1000 km/second when it strikes the Earth's magnetic field. The solar wind is monitored by the Active Composition Explorer. It transmits the magnetic field strength, particle speed and density continuously. A strong south magnetic field and high particle density favor aurora visibility. ACE typically gives 30 to 60 minutes warning. A sudden impulse, associated with an abrupt change in the horizontal component of the Earth's magnetic field, give our best chance for a vivid aurora. There is a magnetometer nearby at the USGS in Boulder. The K index is a measure of the total horizontal component of the magnetic field. A K at Boulder of 5 corresponds to 70 to 120 nanoTeslas change from normal. This is a minor storm. K= 6 occurs with 120-200 nT, a major storm. K=7 to 9 with over 200 nT deflection, a severe storm. Higher flow speed increases the intensity of the aurora. For Southern Wyoming, K=5 will usually give aurora activity up to 10 degrees above the N horizon. Northern Colorado needs K= upper 5s to low 6s. K=7 will give activity 30 to 60 degrees up. If K=9, activity can reach overhead. Reports may come from Florida and Texas, a rare event. There is a slight seasonal effect. From August 1998 to April 2002, there were K=5 events 158 times, 213 days. K=6

on 37 times, 55 days. K=7 on 12 times, 8 days. K= 8 on 3 times, 6 days. K=9 on 3 times, less than 1 day. Aurora photos show red and green from oxygen emissions, and blue or violet from nitrogen. A photograph with ISO 800 film, exposed at f/ 2.8 for 15 to 30 seconds will often show color well, even if direct observation did not reveal colors. Some observers describe sounds accompanying an aurora, but Brian has not experienced this and is skeptical. Direct sound transmission from an altitude of 100 to 150 km is unlikely, but an electroacoustic mechanism has been proposed: a simultaneously induced perception of sound accompanying a view of an aurora. Observers who desire predictions are advised to watch for CMEs detected by the LASCO instrument:

<http://lasco-www.nrl.navy.mil/cgi-bin/halocme-parse>

Brian estimates the arrival time of the CME based on its initial speed and the arrival time of similar events. A faster CME tends to trigger a more intense aurora. Events typically last 6 to 12 hours, with a 2 to 3 hour peak. Strength is hard to judge until it reaches ACE. Not all CMEs have the proper magnetic field. Some miss completely. We need more data to improve forecast reliability, which now hovers at about 50%. Once a CME hits ACE, the Costello model is used to predict K index. See: <http://sec.noaa.gov/rpc/Costello/index.html> The Chen model is used to predict the duration and likelihood of a major event.

<http://sec.noaa.gov/chen/cloud.cgi>

Several sources for predictions are on the Internet. Brian has a list at:

<http://casa.colorado.edu/~rachford/aurora/lavahome.html>

NCAS Business, June 6 2002

President Jan Kok called the meeting to order. He announced that Thom Peck will be visiting in July and would be happy to speak to the club about his experiences at the Optical Sciences facility at the University of Arizona. The club received an offer for liability insurance from the Astronomical League, a \$2 million policy for \$75 annually. He will investigate this further.

Kimon to Pawnee Saturday June 8

Hi all,

I finally had my first good night of observing after two months of photon starvation... I was first at the flats just at sunset, and was joined shortly by Nate P, Dave of FC, Max & Ray. Skies were mostly clear, with some haze to the west and diffuse smoke to the north. We had quite a bit of wind until 11pm, coming from the SE of all places! First time I had to shield the scope by putting the car to the south. The wind kept me from bagging my missing Herschel galaxies in Virgo, so I went for OCs and brighter GCs until it died down, before going after faint fuzzies. My Goto is finally up to snuff after lots of tinkering, so my count for the evening is 49. Woohoo! Notables for the night:

- the Beehive at dusk, tiny specks of light in a hazy blue frame
- NGC5907, a neat very thin edge-on in Draco. Max found it first, and I stumbled upon it an hour later (it was on my list, and I only made the connection after seeing it). We thought it had no dark lane, but the picture at:

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

<http://www.seds.org/messier/xtra/ngc/n5907.html>
does show a faint off-centered streak. This should be cool in a 30" at Foxpark (hint, hint ;)

- I think I saw an iridium flare to the east at 10:48, but heavens-above is broken right now and I can't confirm

- Ikeya-Zhang is still easily visible at ~7 mag, off in Serpens Caput

Bug annoyance was okay, since the wind flushed out most of them. I packed and left at 2, and had to share the ride with a dozen Millers -- but they're only a hassle when there's light around, otherwise they spend their time crawling on the windshield and windows. Kimon

From Nate Perkins:

Here are a few notes to add to Kimon's.

Location: Pawnee Grasslands

Equip: Intes MN61 (6" f/6 Mak-Newt), with UO Orthos 12.5, 9, 7, 6, 19mm Russell Konig and 40mm Omcon Erfle. TV Powermate 2.5x.

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As Kimon mentioned, he was the first to arrive right around sunset. Kimon had his C9.25, with a very neat SS2K setup on the mount. We were joined shortly by Dave ?, who brought a very nice Nexstar 11 GPS with him. Not long later, Max and Ray Moe arrived with Max's C8. The winds were *very* strong through the early part of the evening and made observations on Jupiter and Venus pretty much impossible. A few of us talked for a while, and then I set up a reclining camp chair behind the car and took a nice two hour nap until around 11pm. The transparency wasn't terrible, with limiting visual mag overhead somewhere around 5.5 to 6. The seeing was only fair early on (as judged by star test on Arcturus), but the seeing seemed to steadily improve as the night went on. I am less experienced than some, and so I'm still more or less haphazardly picking my way through an assortment of the bright Messier, Caldwell, etc. Here were some of the things looked at that evening:

M13: Outer regions well defined and pinpoint. Innermost core looks like a bluish haze, not fully resolved. Best views at 180x. Views at 250x are not significantly better resolved and are more dimmed out.

M3: Again, best at 180x. This globular is about 1/2 the size (or so) of M13, with a sparse resolved outer regions and a tight bright unresolved core. Pretty easy to find with an equatorial mount since it's about on the midpoint of dec between epsilon and rho Bootes.

M57: Bright bluish ring with lighter white-blue central region, views at both 180x and 250x are good. The faintest star I could readily see was the 13.1 mag star GSC-2642-0433 (by

comparison with the Sky&Tel article on this a couple of months ago).

Briefly scanned the rising regions of Sagittarius at around midnight or so with a 40mm Er (about a 2.8 degree FOV), and with a 19mm Konig (about 1.4 degree FOV). The Lagoon and Trifid nebulas and the Sagittarius star cloud were prominent, along with many other OCs and bright nebulas. I wanted to see this briefly since it was the first view of the season, but didn't spend too much time on it since it is still pretty low.

M11: This, along with M37, is a tie for my favorite open cluster. Like M37, this one has a bright central star and a large dusting of fine surrounding stars. With some imagination I can see the double "v" shape that supposedly lends the name "Wild Duck" for this cluster, but to me it looks a little more like an arrowhead.

M92: This is the other globular in Hercules. At the time I looked at it, the same inner core looked like a beautiful plasma glow.

At around 1:40am, all of the coyotes started howling back and forth to each other in the distance. :-)

M27: The best PN I know of. It's large and bright even from my in-town house, but it's gorgeous from Pawnee. The dumbbell shape was easily apparent in even the 40mm (22x), where it was very bright against a rich starfield. The best views were at 72x.

With direction from Kimon, who had recently looked at the tracking chart, we found what's left of Ikeya-Zhang over in Serpens Caput. Easily located at 22x, and viewed best at 72x. It still has a bright core surrounded by a fuzzy halo. Max thought the halo was asymmetric looking still, and he could be right although it wasn't obvious to my eye.

NGC6826: This is probably the only slightly challenging object I looked for that night. It's the Blinking planetary in Cygnus, and I was curious what the blinking illusion was all about. It took a bit to find it, but there is a wide double (theta Cyg) that can be used as a start to hop to a close double (16 Cyg), and it's not far past 16. This PN was very small, and started to show good views at 250x but the best views were at 321x. To me, the blink looked more like an alternation of the brightness in the central part of the PN, followed by diffusion of the brightness uniformly on the disk.

Finally, I got my first views this season of the double cluster and M31. Both of these were improved by the wide field of view of the little scope. The double cluster is a fine sight at either 22x or 47x in this nice at either of these mags, and at 22x both M32 and NGC205 are also visible in the same field.

I took off at about 3:30am. Max and his dad were still there, trying to catch Max's last couple of Herschels that I think were still low in Perseus.

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

Cheers all, Nate

Greetings, (from tom t)

GREAT reports this weekend. Well I took the economy trip to C.F. NORTH. Thursday night was average good clarity with clouds rolling by to the North. Temp. about 60 w/ a Zephyr until midnight. First sight was Jupiters' Ghost (10:10pm) it was 11* above the horizon, I was astonished I found it, but being north of the regular site the up-slope does a good job of blocking the Denver/Greeley light dome. It does increase the contrast in the SW quadrant. I was seeing satellites in my eyepieces all night long, at least 10 that night. One that REALLY caught my attention, as two crossed at 90* angle(10:15pm) to each other, for a minute I thought I was going to see a collision. A short swing east and I had PL N4361 Mag. 10 when 25* above horizon, in the 'middle' of Corvus, one of my new favorites. The Planetaries are quite challenging to me, if I swing the scope to fast or the scope isn't in good focus, I can run over the same area 4 or 5 times without realizing I have the object in the field of view, but these are becoming one of my favorite types to view. Next, just below I went to M68 G.C. in Hydra (10:25pm), M83 (10:36pm) a fuzzy little spiral gal. in Hydra on the Centaurus border 17*45' above the horizon. Then I found an object from the Little Observed Objects book and went to Abell 1656 in between Coma Berenices and Lacerta, found 12 of the 50 or so dim galaxies in a 2* square area, even had two galaxies in the same field about 10' apart. This would be a GREAT area for Gary's scope. Then on to some easy Messiers' M53 G.C. which has a dozen or so brighter stars scattered within it's matrix. M64 (11:30pm), I guessed a E3 galaxy with bar, the famous Black-Eye Gal. Then while viewing the Veil nebula at 12:02 I saw a W -->E quickly tumbling satellite just north of 52 Cygni, quite bright flashes!

By then it was fairly dark and I started some 50mm wide-field fotoing of the southern sky....Sagittarius/Milky Way- 20 mins, the Scorpio -11 mins. One of the things I really dislike about film fotoing...one has to wait for days, weeks until the roll is done and then developed. This is my second session on this roll and there will be at least one more before I get it developed. Arghhhh!! I ended my session by viewing The Blue Snowball, N7662 in Andromeda-a wonderful little obviously blue planetary. After that I was so tired I can't remember what I did, I do know I went to sleep. ha ha. I waited Friday on site until 11pm, but the wind was so bad it rattled my scope and even though the sky was clear and the stars were sharp by eye sight under power everything was quite mussy, so it was pack up and go home.

tomt

Carter Lake Knolls Star Party June 13

Greetings,

We had a good night Friday, no fire smoke, some clouds that cleared up, several times, and some nice views of Jupiter, Venus and a crescent Moon. About 12 folks from Ft. Collins,

Thorton, and Loveland showed up. The weather was perfect, nice & warm, little wind. Ikeya-Zhang is still visible (~8.5mag) in Serpens, but there is not much if any of the tail left.

While twilight darkened we looked at the common brighter objects, M4 in Scorpio, M13, RingNebula in Lyra, the Double-Double, the Leo Trio, Dumbbell nebula, M71 and even checked out Brouchi's Cluster-'The Hanger', the bright planetary in Corvus NGC 4361. After midnight I started some wide-field 35mm fotos, a couple of 20mins and a 10min before the clouds came in and from then on it was a matter of star-chasing. After chasing down M10, 12& 9, the 'night' ended at 4:19am with a beautiful -3.7 (~, I wish I could be that accurate) short north bound bolide out of Cygnus, which ended with a nice spectrum of colour.

Tomt

Gary G: Rocky Mtn Smoke Stare

I just got back from best two nights under the stars, Thursday and Friday; but late Saturday afternoon about 5pm, Jim Sapp noticed smoke from right over the ridge from our campground area. The winds were blowing hard all day and wind took a complete 90 degree reverse and was blowing fire in our direction. We watched as small twin engine plane would guide; Slurry bombers into right spot, even helicopters fought the fire which very quickly spread. It was maybe 4 miles away when we left ,road was closed so had to get out another road. We noticed fire crews in school buses arriving as we drove off. We all were saying how it was the driest we had ever seen this area.9 per cent of normal is the moisture they have had, even spring grass and field flowers were nowhere to be found, then add winds of up to 30 miles an hour. Great star party but fire and smoke was very scary, especially in the high winds, with one road out. This will be one star party to remember for sometime, never a dull moment, pictures will be in LAS newsletter, bye, gary g<

Jim S Quick Report: RMSS was a gas as usual. The transparency was excellent and temperatures very mild. Thursday night we had T-shirt weather until about 10:30 p.m. Friday night was a little cooler, but still no parka, and even had to take the jacket off for awhile to cool down before a chilly breeze came along about 12:30. The daytime was dominated by hot, dry wind and sun. Saturday night's star party was canceled due to a forest fire about 4 miles away and a very stiff hot wind. The evacuation suggestion was readily complied with by most if not all. I've never seen the place clear out so quickly! The area is ERILY dry. This is normally the greenest time of year up there, but there is NO green grass this year. NO flowers. NO rain this spring, obviously. The hummingbirds are HUNGRY! They were continually trying to eat the taillights of my truck. The whole area is a tinderbox and to see a nearby fire was not unexpected. I'm just glad it wasn't closer and that the wind kept it moving perpendicular to its direction from us. We got some great views (and pictures) of the slurry bombers doing their thing, and after sundown we could see the beautiful (in a sinister sort of way) orange glow of the illuminated smoke, sort of like a miniature sunrise. Flames could be occasionally seen bursting into the air above the hilltops about 2 miles away. Over the

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

course of two hours it had traversed about 20 degrees of azimuth. In that monster's path would be a bad place to be.

The point? PLEASE be careful in those hills this year! It is NOT a normal year for us, climatologically speaking. The CSAS did another great job in putting on a fun, informative, and relaxing star party again this year - the sixteenth, with many nice little touches for the attendees, like lapel pins and T-shirts WITH POCKETS!!! :) :)

Thanks guys and gals of CSAS. We all very much appreciate this valuable service you faithfully do for the local amateur astronomical community. Keep it up! :) Fun time! Okay, gotta go. Need sleep bad. Was NOT expecting to pack up and drive tonight. I'm sure there will be more reports to follow from folks in the morning. - Jim S.

Doug Walton at RMSS

Thursday and Friday nights at RMSS were, I thought, very good. Not excellent - the light domes from Denver and COSprgs were too big for that, and the seeing wasn't as good as it might be (although there were periods of very good seeing in the upper 30 degrees of the sky Friday night). On Friday night, I saw the best view of M51 through my 20" that I've had yet - clearly-defined spiral arms, and the bridge between the two galaxies was visible with direct vision. Saw M57's central star pretty easily at 500x. Veil and Crescent Nebulas (w/ OIII) were outstanding - endless detail in the Veil, bright swirls, etc. M17 was almost garish with the OIII. Saw the Pillars of Creation in M16 pretty well. I could easily follow the "shoreline" of the N.A. Nebula in Cyg. M8 and M20 looked like CCD images without the color. M104 was excellent and looked like the pics. At times, hi-mag views of M13 allowed us to look past the obvious bright stars littering the core and into the glowing clumpy background areas that can sometimes be resolved into star points under excellent seeing. A very clean split of Eps. Bootes at 135x. Too many other great sights to recall right now. I'm glad I decided to go Thur/Fri nights, what with the weather and the fire. But, I think that Fox Park is better. ;-) In retrospect, I wish I had gone there instead, although I wasn't disappointed with RMSS. I mean, I got to see Jim Sapp's snappy shade quarters! And, echoes of Gary's melodic night commentary are still wafting through my mind, even today. ;-) DougW

Dave Dunn to Foxpark

Fox Park, Wy. 6/6-6/8/02

Having missed out on the May Frolic this year due to weather Solarman and I headed up to Wyoming Thurs. afternoon. The predicted weather forecasts held as we arrived to a strong SW wind, temp living quarters were arranged as a wind block. In typical FP fashion by 10:00 pm the wind had calmed to a soft breeze and the clouds moved out leaving a sky that was turning black very quickly. Early evening treats included just about anything you pointed your scope at! We must have sounded like a couple of kids out for the first time with a new scope, I looked at 20 M's the first 1 1/2 hours. Objects like M51 take on a whole new appearance, detail that you "think" you see is now plainly obvious. The nebulosity of objects such as the North American and Veil nebulas was just awesome. I could not tell if we were

enjoying excellent transparency or if it was just a typical night up there. Steve noticed how good the seeing was also so he decided to try the central star in M57. At 580x it was visible 75% of the time, wanting to see just how low a power we could go in went a 9mm Nagler & a 2X barlow for 450x. Still there 50% of the time. Dropping down to 340X only revealed it in fleeting moments. Finally managed to bag PK 10+18.1, Minkowski's Butterfly (M 2-9) in Ophiucius. I've been chasing this PN the last few trips up to Fox Park. Interesting object that looks like an edge on Galaxy at first, higher powers reveal its true nature. By 3:30am the conditions went soft and shortly thereafter we covered up the scopes. Fridays focus was Solar observing with many nice details visible. Normally by noon the seeing degrades but we enjoyed great conditions all day. The night was setting up like Thurs. when the wind shifted to out of the north and heavy dark clouds blanketed the area. Around midnight it began to break up enough to uncover the equipment. The next few hours we played dodge'em with the clouds, I still managed to bag a few new objects previously unseen. Saturday again focused on Sol, one large prominence changed from looking like the Solar telescope at Kitt Peak on Thurs. to an elephant Fri. to a saber toothed tiger on Sat. A new prom. emerged on Sat. that has the look of a shrub sans leaves. Should make a nice photo with the eclipse Mon. evening. Early Sat. afternoon the sky turned a little hazy, around 7:00pm Steve noticed the scent of fire and the surrounding trees looked like there was fog bank moving in. Within an hour the sky filled with smoke, concerned as to the unknown proximity of the obvious fire we made the decision to bug out. Halfway between Woods Landing and Laramie the smoke was so heavy that Jelm Mountain was completely obscured. Still a great time at what has become my favorite dark sky site. Hope the folks down at RMSS fared better than we did weather wise. We thought we heard Gary a couple of times calling out the next object or how great the one he was looking at was! Already looking forward to next month! Till then, DD

Jim S Replies

Glad you guys had fun up there. We missed you and were wondering how conditions were for you. Our conditions were great Thursday and Friday nights too, and Saturday night was stacking up to be just the same. It's a shame the fire spooked us all away, but I was sure glad to witness the effectiveness of those slurry bombers. They hammered that thing quick! If they hadn't been there that one could have gotten big fast with the wind the way it was. Thursday night M101 was incredible in Gary's 30 - the spiral arms were knotted along their lengths with bright star clusters. It was one of those views where you lose track of time at the eyepiece and don't want to come down from the ladder, but more views awaited! :) One of the items in the RMSS packet was a four(?) page list of objects to hunt for the weekend. Friday night, while waiting for DARK dark, I did a little mini-marathon and nailed 34 of the little buggers by the end of A-twilight, but broke off to expose some film. (I had my Cass with the 3-inch finder so it was no problem to put crosshairs on each target. Even the dim little NGC globulars - can't do that with a Telrad! Refractors RULE!) One of the highlights of the (hot,

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

windy, sun-burning, but fun) ATM walkabout on Saturday afternoon was a 4.25" f/4 alt-az reflector made with LEGOS!!! :) It was GREAT! It had little rocket thrusters on the back and a little astronaut at the focuser end for a counterweight. The focuser was two little rubber Lego tractor wheels that held an eyepiece between them and you turned them both at the same time with your thumbs to focus. TOTAL legoexcept for the mirrors. Two-vane spider. REALLY creative! (The guy that made it is a Leggo collector so he had some neat parts to use too.) Another highlight was a big truss-tube Dob with a 21 inch mirror theowner ground by hand (whew!). No small task. There was also a bino-mount using AOL and Bill Gates CD's as bearings (can't think of a better use for them). :) One real let-down was the fact that there were only ten entries in the walkabout. Bummer. (Even though they had pre-printed twelve award certificates!). Shoot! That bummed me out. The biggest fun for me at these gatherings is to see all the creative and artistic things the ATMers do. It's a real drag that so few people are unwilling to make their own scopes. (But that's the difference between ATMers and astronomers - two different, but complimentary hobbies. I guess most people have more money than time these days and are satisfied with the commercial quality stuff... Oh well. I won't go there... Glad to hear you guys had fun! Sorry you got smoked out. A couple of us were tossing around the possibility of heading up to Foxpark to meet up with you after we left RMSS, but that was before we heard about the HUGE fire at Glenwood. Glad I opted to head home instead. See you on the next lunar go-round!

- Jim S.

Observing Notes from Leroy G

I observed several objects in Cassiopeia low to the northern horizon, but coming up with a workable triple alliteration for Cas is harder. ;-)

Last night, I got out to my close-in dark sky site, after removing the wedge from my 30 cm SCT. On the wedge, Big Blue can not reach below -45 Dec., and this was a horizon probing evening. I didn't want to be deprived of anything -- no matter how low. My daughter came with me, and when she felt the strength of the wind, she saw the wisdom of my asking her to leave her telescope home.

All Open Clusters except where noted ...

I started with upper eastern Cassiopeia for Trumpler 3 (aka Harvard 1). There is such diversity in the Harvard list, and H 1 is no different. A dozen or more fairly bright stars, and easily twice as many faint ones. It appeared faintly in the 80mm f/5 mega-finder at low power.

SE to Stock 23 (Pazmino's Cluster) in Cam, just on the border with Cas, this smaller cluster looks like a four-star diamond in the 80mm (12.5X). More stars appear in the 31mm at 98X.

Near M 103 is Trumpler 1, first detected as a faint smudge in the 80mm (12.5X), this OC is bright, small, and compact with a distinctive bar shape above two stars.

King 2 in Cas is unlabeled in Tirion, numerous stars in the 31mm about 10' across. Fewer than a half dozen stars are visible in the 80mm (12.5X).

Before leaving Cassiopeia, I had to have a look at the triple cluster (NGC 133, NGC 146, and King 14). K14 is not in Tirion, but during Herschel hopping last month, I noticed the "third" one, discovering later that this was a King cluster (so to speak).

Since Lucia was starting to fall asleep, I decided to wake her up with the summer Milky Way assortment of bright Nebulae: Lagoon, Trifid, Omega (Swan), and Eagle. Now content, she went off to sleep. On to Scorpius ...

NGC 6124, large in the 31mm, it actually looks like a cluster within a cluster with a very noticeable outer ring of stars of similar brightness. There are a dozen stars in the center, and a couple dozen more in the "ring". Visible in the 80mm as a large and faint, yet resolved, patch of stars nearing a degree across (12.5X).

NGC 6153, faint PN, large disk of semi-regular brightness, forms the base position of a flat diamond with a brighter eastern star. No sign of this PN in the 80mm at 12.5X, but NGC 6124 is still in the field of view.

NGC 6072, similar sized PN as NGC 6153, but fainter by perhaps a full magnitude.

NGC 6178, dipping low, a small knot of bright stars in 31mm with a faint group to SW in FOV (U2K shows this to be an asterism).

NGC 6231 and Harvard 12, I had recently observed these two in 10x50 binoculars from my light-polluted backyard. The NGC was nice in both the 31mm and the 80mm (12.5X). H 12 was best in the 80mm. NGC 6231 is bright and compact with a distinct 'Y' shape, while H 12 is N and a little E, and is large with nice bright stars with fainter as well. Sweet!

NGC 6227, near a bright star and H 12. Faint patch of perhaps a dozen stars, with the previous two clusters in the 80mm field.

NGC 6337, NGC 6318, and Harvard 14, all three fairly close in 31mm FOV by slewing back and forth, and N to S, H 14 is brighter than NGC 6318, but the latter is more concentrated. PN 6337 appears to be rather large and diffuse. Need to try filters.

Harvard 16 and Collinder 332, H 16 fills about a third of the field diameter, is moderately faint, but still apparent in the view. U2K shows Cr 332 to be just south, smaller, and appears to be brighter and sparse. H 16 is barely noticeable in 80mm (12.5X).

The Objective View July 2002

Newsletter of the Northern Colorado Astronomical Society

Trumpler 29 (Harvard 17), with a couple of bright (field?) stars, smaller and more compact than previous Harvards. Quite apparent in the 80mm (12.5X), and rather resolved in the 31mm.

M 7, NGC 6453, and Harvard 18 (Tr 30), another triple cluster, but NGC 6453 is a smallish GC on the NW edge of M 7, while H 18 is just past the SE edge of the Messier. H 18 is "kite" shaped, even with a noticeable "cross-bar", filling half the field's diameter in the 31mm, and 3/4ths vertically. Nice.

Since I spent time on M 7, I had to cap things off with M 6, the Butterfly. Appropriate since I had to evict two moths from my telescope case.

[references to Tirion are SA2K 1st ed.]

LeRoy Guatney
Aurora, Colorado
<http://home.earthlink.net/~ngc5139/SCI/astronomy.html>

Local Astronomy Internet Group

"Astro-Colorado is a Yahoo Group moderated by NCAS member Dave Larison. The site can be used for announcements, discussion of current observations, equipment questions, and file uploads. Anyone can view contents, but only members may post. See:

<http://groups.yahoo.com/group/astro-colo>

From Archer Sully: Sky Transparency and Seeing Forecast

I've altered the following link for Colorado.

http://cleardarksky.com/csk/prov/Colorado_clocks.shtml

Best Looks

Moon	by Saturn 7/8, by Mercury 7/9, by Venus 7/12&13
Venus	bright in W at dusk, by Regulus 7/9&10
Mercury	low in SW predawn, first half of month
Mars & Jupiter	low in W eves. Within a degree 7/2&3
Saturn	By Mercury 7/2 predawn By Crab Nebula 7/25 predawn
Uranus	in Capricornus predawn
Neptune	in Capricornus predawn

Sky Images Wanted for Online Magazine

The new www.coloradomagazineonline.com is interested in publishing amateur star pics in an ongoing column, "What's New In The Universe." Contact me if you are interested in submitting pics - with brief descriptive captions that describe the shot and telescopes used.

Mel Fenson, Editor tiger@indra.com

From: Dan Laszlo
2001 S Shields St Building H
Fort Collins CO 80526

TO: