



FARPOINT OBSERVATORY

THE NEKAAL OBSERVER

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The official newsletter of Farpoint Observatory and the Northeast Kansas Amateur Astronomers' League

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Your articles and other contributions to this newsletter are welcome and encouraged. Please get them to the editor at least 6 days prior to the next scheduled meeting.

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FROM THE PREZ: By Graham Bell

It is no longer a secret that our NASA grant proposal was accepted, and they assure us that it will be funded, to the tune of slightly more than \$56,000. However, they ask that we not publicize this until they make the official announcement, which may come as late as April or May. We are proceeding with those telescope activities which don't require cash. See the board minutes for further information.

To prepare for the increased NEO work with the new (as yet unnamed) 27" telescope, I am preparing a course in *Asteroid Imaging and Astrometry*. I expect to be able to begin teaching this by about March 15th. Several people are already on board, and you can get in on it too. Let me know by March 10, and I'll prepare materials for you as well. Anyone taking the course must be willing to devote some time to the FAST NEO project.

I am considering sponsoring a contest. I have not discussed this with the board, so may have to fund it myself. I propose presenting an award to the best *Observer* article of the year, to be presented at the

December meeting. Should I proceed with this? If I do, be forewarned that Bill Leifer is leading the pack so far. See his article on page 4. Please note that this is not a technical article, but a personal experience one. All articles from club members (except mine) will be eligible for consideration.

Page 5 has a few notices which you should read. I hear that Janelle and Julee are planning to attend the Nebraska Star Party this year. That is an excellent gathering, and others should consider it as well.

Janelle is struggling with a grant proposal these days. NASA has a follow on grant program for those who receive research grants. This grant would be for education and outreach. Janelle, I am sure, will keep us informed as this comes together.

With the new telescope, expanded NEO search, Education and Outreach; this promises to be a busy year! Volunteers are desperately needed!

DUES ARE DUE :

NEKAAL is now on a January to January membership schedule. If you haven't paid your dues yet, your membership has expired. See page 7 for dues amounts.

Warning—. If dues are not paid by February 28, you will be dropped from the membership list.

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SKY HIGHLIGHTS FOR MARCH: by Janelle Burgardt

March 3	Jupiter at opposition. Mercury at superior conjunction. Mercury-Sun-Earth-Jupiter form a straight line in space.
March 6	Full Moon Know as the, Crow, Lenten, Sap or Worm Moon.
March 7	Saturn ends retrograde
March 13	Last quarter moon
March 20	Vernal equinox at 12:49 am CST (6:49 UT)
March 28	First quarter moon
March 29	Mercury and Venus at greatest eastern elongation
March 30	Mars and Venus

Planets, Planets and more Planets!

From east to west, Jupiter, Saturn, Mars and Venus are all visible in the night sky. From mid-March to early April, when Mercury makes its best appearance of the year, **all 5 naked-eye planets are visible at one time in the night sky!** This is the last time they'll all be together until the morning of December 2004-January 2005. After that, it won't happen again until 2016!

As an added bonus, Saturn's rings are tipped nearly at maximum, and for this month and next, Saturn casts its shadow on the rings.

FASTTRACKS: by Gary Hug——— *Near Earth Objects fall*

Now there's an attention grabbing headline. There are several possible explanations for this particular headline; (1)This fall we will begin a new era in NEO-Follow-up activity at Farpoint (2) There is (was by now) an asteroid about to hit the earth (3)Some Guys were dropping bowling balls out of airplanes again. Actually any of these three explanations could make this true (and the media completely missed an opportunity to capitalize an early set of observations that had a few astronomers chattering vigorously over the Minor Planet List Serve).

OK. Working in reverse order we have Near Earth Objects Fall when several Salt Lake amateur astronomers were hunting for meteorites around the Great Salt Lake and wondered if an object at high velocity would penetrate the surface of the dried salt lake bed. The thought was that if it didn't penetrate the surface meteorites may lay around the stagnate surface for centuries and one would greatly increase one's chance of finding a meteorite fragment by simply looking around the lake. In order to find out the pilot in the group rented an airplane, climbed to several thousand feet and shoved a bowling ball out the window. All this was done with safety in mind of course. They made sure the

area was devoid of humans. The end result was the bowling ball did NOT penetrate although it did shove a lot of earth around. The group wants to run another test at higher altitude for the next experiment. Looks like beach-combing the Great Salt Lake is on the rise.

What about the second explanation? "There is an asteroid about to hit the earth" - On a rather dull night on the Minor Planet List Serve an alarm was sounded when an object was introduced to the NEOCP Page (Near-earth Object Confirmation Page) maintained by the MPC (Minor Planet Center). That particular object was traveling quite fast - on the order of tens of arc seconds per minute according to the scant bit of observations available at time. More importantly the object was to pick up speed over the next 12 hours or so to make it as fast as 1,800 arc sec per minute or about the apparent width of the moon in one minute! For an object to be moving that fast meant the object was very close to earth. Some on the list were contemplating an eminent impact within a couple of days. However some new observations about two hours later tamed the predicted velocity back to a 'normal' NEO's and after a couple more of hours of intense delib-

eration on the web, the object was once again relegated to be just another rock not passing very close to the earth at all. The rise and fall of this object into and out of the 'scary' list happened so fast as to not even get a notice by the media... just as well.

So what's this about Farpoint doing NEO Follow-up? I thought we were already doing that. Well yes, but the amount of asteroid work done at Farpoint has slowed considerably and I have built Sandlot Observatory (in my backyard), and have been testing out its capabilities with my 12" LX-200 that was stationed exclusively at Farpoint for several years. Although early tests were disappointing, I later learned that you can't run 100 feet of parallel cable without increasing significantly the noise background. Once I switched to Ethernet cable everything worked well. I also sent the scope to Meade Instruments for its 50,000 light year checkup and re-conditioning. I'm guessing the skies here at Sandlot to be about 1/2 magnitude under what Farpoint's location can reach. After two hours of integration time I was able to detect an object from the NEOCP listed as being mag 22. My observations were accepted on the MPEC

(Continued on page 3)

(Continued from page 2)

(Minor Planet Electronic Circular) My listed magnitudes were 22.0 and 21.3. Not bad!

Farpoint will see new life in the form of another 12" LX-200 scope (Jerry Majers generously donated the use of the instrument for a couple of months - thanks Jerry) coupled with the club's

ST-7 CCD. The combination will provide hands-on training for those interested in learning how to perform astrometry and help the astronomical community produce precise orbits for objects hazardous to the earth.

We anticipate a much larger instrument will be available at Farpoint later this year and it will greatly boost our

ability to go after very faint objects where the follow-up is critically needed. The time to find out how you can be a part of it is now. Give Graham a call (256-6281) to see just how easy it is to help the earth by finding out when

—NEAR EARTH OBJECTS FALL —

DEEP SPACE NETWORK 2-FOR-1 SALE! by Patrick L. Barry

Call it a "buy one, get one free" sale for astronomers: Build a network of radio dishes for communicating with solar-system probes, get a world-class radio telescope with a resolution nearly as good as a telescope the size of Earth!

That's the incidental bonus that NASA's Deep Space Network (DSN) offers the astronomy community. Designed to maintain contact with distant spacecraft in spite of the Earth's rotation, the large, widely spaced dishes of the DSN are ideal for performing a form of radio astronomy called "very long baseline interferometry" (VLBI).

VLBI produces very high resolution images of the cosmos by combining the output from two or more telescopes. The result is like having a giant "virtual" telescope as large as the distance between the real dishes! Since bigger telescopes can produce higher resolution images than smaller ones, astronomers need to use dishes that are as far apart as possible.

That need dovetails nicely with the DSN's design. To maintain continuous contact with deep space missions, the DSN has tracking stations placed in California, Spain, and Australia. These



locations are roughly equally spaced around the Earth, each about 120 degrees of longitude from the others—that way at least one dish can always communicate with a probe regardless of Earth's rotation. That also means, though, that the straight-line distance between any two of the stations is roughly 85 percent of Earth's diameter—or about 6,700 miles. That's almost as far apart as land-based telescopes can be.

"We often collaborate with other VLBI groups around the world, combining our dishes with theirs to produce even better images," says Michael J. Klein, manager of the DSN Science Office at

NASA's Jet Propulsion Laboratory. "Since our 70-meter dish in Canberra, Australia, is the largest dish in the southern hemisphere, adding that dish in particular makes a huge difference in the quality of a VLBI observation."

Even though only about 1 percent of the DSN's schedule is typically spared from probe-tracking duty and scheduled for radio astronomy, it manages to make some important contributions to radio astronomy. For example, the DSN is currently helping image the expanding remnant of supernova 1987A, and Dr. Lincoln Greenhill of the Smithsonian Astrophysical Observatory is using the DSN dishes to explore

a new way to measure the distances and velocities of galaxies.

And all this comes as a "bonus" from the dishes of the DSN.

To introduce kids to multi-wavelength astronomy, NASA's website for kids, The Space Place, has just added the interactive demo, "Cosmic Colors," at spaceplace.nasa.gov/cosmic.

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

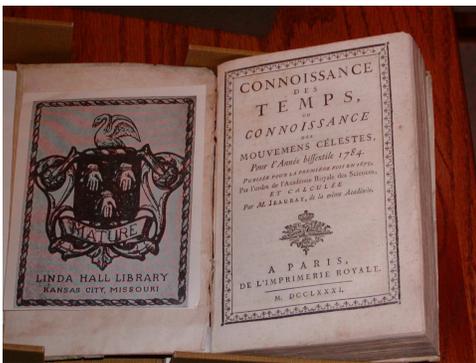
Bell, Books, and Candlepower by Bill Leifer

Every now and then, each of us is lucky to have one of those special days that enlightens, awes, and inspires. Even if it comes only once in a great while, it adds depth to the experience of living. It is like dragging yourself home after a long day of hassles and having your jaw drop at the sight of an impossible sunset. Suddenly, you feel a lot younger, and life all seems much more worthwhile. Last Saturday was one of those kinds of days for anyone with a sense of history and a love for peering into the night sky.

The Astronomical Society of Kansas City invited the illustrious comet hunter, David Levy, to be its speaker for the month and arranged a special showing, earlier in the afternoon, of rare books on astronomy belonging to the world famous science and technology library adjacent to UMKC, The Linda Hall Library. David Levy was also in attendance at that event. NEKAAL representatives included Graham Bell, Janelle Burgardt, Walt and Nancy Cole, and me.

Among the rare books were first printings of many of the most famous works in the history of science, and we were able to hold the books, turn and feel their pages, study the engravings and diagrams, smell the old leather and wood bindings, and even see some of the handwritten notes of other students who learned from those books (and no doubt complained about it), hundreds of years ago. Some of the books were printed not so long after the first presses produced the Guttenberg Bible. I never imagined that I would see and hold such books in my hands.

Among these was the oldest book in the



This book contains the first known list of Charles Messier's famous objects.

Linda Hall Library collection, over five hundred years old, Pliny's *Naturalis Historia*, published in Venice in 1472. Ptolemy's *Geographicae*, published in Strasbourg in 1525 was there to examine and handle. In it was a famous map of the known world showing the very non-proportionate coastal

features of the new world drawn only 33 years after the first voyage of Columbus. Among my favorites was a first printing of Messier's famous catalog of nebulae and other "fuzzy objects" painstakingly documented from his observatory in Paris listing the specifics of each object that amateur astronomers still use as the basis for an evening of observing. A copy of Johann Hevelius' "Selenographia" was amazing to see, with its highly detailed maps of the lunar surface having features so three-dimensional that I had to check to make sure I wasn't wearing those red and blue 3-D glasses. Galileo's "Dialogue Concerning The Two Chief World Systems" was also there, the book that got him in a heap o' trouble with the Pope or John Ashcroft, probably both. Works by Tycho Brahe and Johannes Kepler were there for holding, flipping the pages, and just soaking up the aura. One of Brahe's books, on the comet of 1572 and published in 1632, was of great interest to David Levy, who was interested in it for his current doctoral research. Want to pick up and hold Bayer's "Uranometria"? Not exactly a Danielle Steele paperback but interesting, nevertheless. David Levy was particularly impressed with Hevelius' "Cometographia (Gdansk, 1668)," which included drawings and engravings by the author in exquisite detail. To have seen and extrapolated details of the coma and tails of these comets and even imagined pockmarked surfaces of the cometary nuclei themselves using lenses more akin to pop bottles, staggers the imagination. The only possible explanation is that the atmosphere was a lot less polluted and the skies a lot darker in the seventeenth century. Still, I felt guilty having the benefit of a modern Meade LX-200 reflector considering what these hardy souls had to work with. Try to imagine what these characters could have done with an instrument like that!

After a foray to Fiorellas's Jack Stack Barbeque in the freight district for the best barbeque in this quadrant of the galaxy, we drove back to UMKC to hear David Levy speak. It wasn't what I expected. It was a very personal and emotional journey into the heart of a skinny kid with bad asthma who fell in love with the wonders of the universe while attending a camp in Vermont that his parents sent him to in the 1950's to get away from pollen...and whatever home situation was felt by his doctor to be causing his asthma. His presentation was full of music and poems, hundreds of references to his wife, Wendee, and the special and lucky life he has led. Of course he showed phenomenal images from his collection. To me the most incredible was the moment of totality of

a solar eclipse on the horizon in Antarctica. In the foreground was the suspended figure of a friend frozen in time in a frozen landscape. It is maybe the most amazing photograph I have ever seen, from an astronomical, artistic, and metaphysical standpoint. Of



Janelle Burgardt and Bill Leifer engrossed in some old books.

course there was plenty on the collision of Shoemaker-Levy with Jupiter. From the time he was about 12, he had a premonition that his life would reach its apogee in some fashion involving Jupiter.

Anyway, the entire day was amazing. I don't think my own fascination with the universe is ever likely to fade, though sometimes life's other exigencies seem to horn in on my attention quite a bit. But after last Saturday, it is like starting out all over again with a sense of pure child-like wonder. I



Hevelius' Cometographia (Gdansk, 1668)

can't wait to get out there and look at stuff. Members of NEKAAL who shared this great experience, Janelle, Graham, Walt and Nancy, will no doubt agree. We had a special day.

If you missed it, well...better luck next time.

ABBREVIATED FINANCIAL REPORT The Coles

Nekaal-Bank,Cash,CC Accounts Cash Accounts As of 12/31/03		NEKAAL Cash Flow Report Category Description		1/1/04 Through 1/31/04
<u>Acct</u>	<u>Balance</u>			
ASSETS		INFLOWS		
Cash and Bank Accounts		Contributions		15.00
Money Market	569.75	Dues 2004		365.00
Money Market 2-Telescope Fund	3,398.00	Interest Income		0.32
Nekaal-checking	1,589.36	TOTAL INFLOWS		380.32
		OUTFLOWS		
TOTAL Cash and Bank Accounts	5,557.11	FPO Utilities		42.09
		Repair & Maint		57.33
		Subscriptions:		
		Magazine Subs	32.95	
		Subs.payments recd	-32.95	
TOTAL ASSETS	5,557.11	TOTAL Subscriptions		0.00
LIABILITIES	0.00	Telephone-Telephone Expense		36.21
		TOTAL OUTFLOWS		135.63
OVERALL TOTAL	5,557.11	OVERALL TOTAL		244.69

FACILITIES REPORT by Bill Leifer

- Preventive maintenance and supplies were performed for January. No major problems to report. An additional 6V battery is needed for the lantern flashlight.
- The shear pin was replaced in the roof motor.
- The mailbox on Bodark road has been repaired by the construction company who damaged it. When construction is complete, the mailbox support, itself will be replaced or reinforced. Mail has been diverted back to the mailbox.
- The hinged enclosure to the roof motor has been adjusted back in place.
- New keys have been made for new board members.
- Spring maintenance projects will be scheduled including repair of front door molding, resetting of sunken support for the walkway, exterminator treatment, and landscaping around the excavation site on the East side.
- Russell Valentine and Graham Bell are working to restore internet connec-

Did you know?

... that Farpoint Observatory has voice mail? You can leave a message for observatory staff at this toll-free number. Messages are checked several times each week.

A message announces the date of the next Public Open House, and refers callers to our website for directions to the observatory. If an Open House has to be cancelled, a cancellation message is placed on the message *no later than one hour before*

the scheduled start time.

If you know someone who needs information, or has questions about Farpoint Observatory or astronomy, just make a call to Farpoint at **806-1177**.

Announcing the 11th Annual Nebraska Star Party July 18th – 23rd, 2004 Merritt Reservoir, 27 miles from Valentine Nebraska

Over the last ten years, NSP has established itself as one of the premier summer dark-skies star parties. In addition to excellent skies, Merritt Reservoir and the sur-

rounding area offers many daytime activities for the entire family.

One of the premier attractions of NSP is the fantastic view of the summer Milky Way. Though observers will obviously spend long nights at the eyepiece, expect to spend as much time just looking up in awe at the fantastic summer sky. The NSP Milky Way truly looks like an edge-on

spiral galaxy and the central bulge is clearly visible. Some observers have reported a limiting magnitude of 7.5 to 8 with the unaided eye!!

Registration is required. Contact Janelle Burgardt for further information, or check the website at www.NebraskaStarParty.org.

Club Observing...

When leaving for Farpoint for a club observing session, please post a message to NEKAAL_MEMBERS with the Subject "Heading to Farpoint". This will let the rest of us know who is on their way, and when. We want to be sure no one is stuck out there without access to the observatory, and that someone with a key is always available when members are observing. Feel free to bring non-members with you, maybe we can recruit them after they enjoy an evening at Farpoint!

ABBREVIATED BOARD MINUTES by Bill Leifer (compacted by Graham Bell)

Members present: Gary Hug, Rita Ryan, Graham Bell, Jerry Majers, Walter Cole, Bill Leifer, Janell Burgardt, David Costales. Members Absent: Julee Fisher, Dan Tibbetts.

The meeting was called to order by the President, Graham Bell, at 3:35 PM on February 15, 2004. The minutes were accepted.

FINANCIAL REPORT - Walter Cole:

An updated list of members who have paid their dues was provided. A list of those contributing goods or services in kind to NEKAAL in 2003 was also provided. The current financial statement was circulated. Walt Cole also provided information regarding the new exempt rule regarding customized computer software.

FPO Facilities Report – Bill Leifer:

Preventive maintenance and supplies were performed for January. There are no notable problems. The maintenance and repair projects needed for the return of warm weather are deferred for April. The sink Aerator was installed. Gary reported that the ice was melted away from the roof tracks and was no longer currently a problem for upcoming events. The construction company that damaged the mailbox has restored the box to working condition, and final repairs will be made after construction is completed. Mail is now re-directed back to the Observatory. New sets of keys have been made for the new Board Members.

Russ Valentine has been working diligently on the wireless Internet connection at the observatory, which will share the T-1 connection at MVHS. He is making excellent progress. NEKAAL appreciates the work. Valentine's Day takes on new meaning for NEKAAL.

OLD BUSINESS/PREVIOUS ASSIGNMENTS:

The old business not covered in items above includes:

The general membership Yahoo Group has been set up. There have been a few concerns expressed about SPAM, which are apparently unfounded. The pros and cons of posting The Observer on the Group rather than by direct e-mail were discussed again. Graham volunteered to separately e-mail the Observer to those who expressed a problem with accessing or using the Group. The board also decided that regular e-mail is better for general board communications than using the NKL_Board Yahoo Group for that

purpose.

2004 planning is again tabled due to the large agenda for this meeting.

Position Descriptions are incomplete.

Janelle has applied to The Night Sky Network. Janelle has appointed Graham to be the backup coordinator. Janelle reports problems obtaining Planespheres for the outreach activities, and will continue searching for a source for this item. Others agreed to look for this item, also.

Janelle has done a lot of work on the NEKAAL web site. A new page of Resources has been added with six topics, including Astro-images, Old Observer issues for download, FAQ section, Education, information on telescopes, and web resource links. The board and officers list has been updated along with the calendar and other items. Thanks to Janelle for all this work.

Bill has sent labels to Rita for the mailed Observers, and the labels generating file was sent to Graham, who will print labels prior to the meetings for Rita's use. The process for handling the printed Observers and distribution at general meetings in Bill's absence is working well.

Dan Tibbetts has not yet posted his astro resource files on the Yahoo membership group, so this item is still pending.

Bill has obtained pre-paid postcards and designed a welcome message to new members to substitute for membership cards that will no longer be produced. The board agreed to the language on the welcome message.

After further review, a decision was made to not participate in the Astro League insurance program.

Membership decisions regarding unpaid dues were made in preparation for printing and distribution of the Rosters on March 1 by Bill Leifer.

NEW BUSINESS

Open House

Due to the heavy snow, the next Open House is rescheduled for Feb. 27. Bill, Jerry, and David Costales volunteered to help at this event.

Linda Hall Library Presentation

There will be a private presentation of rare historical documents, including some of Galileo's original work at Linda Hall Library in Kansas City as well as a lecture by the famous Comet hunter, David Levy on Saturday, Feb. 21. The Kansas City astronomy club is sponsoring this, and we are invited.

NASA Grant and Scope Re-design:

The NASA Grant has been approved. There was extensive discussion and decision-making regarding many aspects of this momentous opportunity for NEKAAL. Some preliminary discussion was held at a special meeting called a week earlier and held at the Washburn University Student Union. Graham will be putting together a study course for FAST members Telescope redesign aspects were discussed and approved, including separate CCD and visual packs for the telescope so that it can also be easily used for public presentations. The scope construction plan was discussed and a timeline circulated. David Ryan will serve as our legal consultant on all aspects of the scope design project. Jerry Foote of Scopecraft will be contacted by Graham and informed of the design adjustments. A series of one-year secondary grants for education and public outreach (E/PO) were discussed at length. Janelle Burgardt, who will work with other board members as well as Mike Ford, will coordinate this. The board agreed that, despite the work required, our window of opportunity for the future of NEKAAL demands that we apply for these grants. Requirements of the E/PO grants and ideas for approaching this projects were discussed and accepted. There is a 60-day deadline for submission of the application after postmark date of the primary NASA grant, which leaves 45 days from the time of this meeting to submit the grant proposal. This places this secondary grant application project at the highest and urgent priority level. Janelle was elected to head a subcommittee to accomplish this task.

There being no further business, the meeting was adjourned at 5:40 PM.

Respectfully submitted:

Bill Leifer, Secretary
2/20/04

Editor's Note: This has been slightly edited for space. Complete minutes available in FILES section of members Yahoo Group.

Meeting Schedule

NEKAAL meets monthly on the fourth Thursday, January through October, at Washburn's Stoffer Hall. The meetings are at 7:30 pm.

Guests are always welcome to join us for the General Meetings and/or observing at Farpoint.

March General Meeting

Thursday, March 25, 2004, 7:30 pm
Stoffer Science Hall, Room 103

Graham Bell: Telescope Project

Whom do you contact:

<u>Meetings, Speakers:</u>	Graham Bell
<u>Farpoint Functions:</u>	Janelle Burgardt
<u>Farpoint Maintenance:</u>	Bill Leifer
<u>Special Presentations, Groups:</u>	Janelle Burgardt
<u>Dues, Donations, Merchandise:</u>	Walter Cole
<u>FAST:</u>	Gary Hug
<u>Web Content</u>	Janelle Burgardt
<u>Observer Articles</u>	Graham Bell
<u>Other Web Issues:</u>	Russell Valentine
<u>General Questions:</u>	Any board member

Graham Bell	256-6281	gebell@mindspring.com
Janelle Burgardt	266-5624	sky_liebe@yahoo.com
Walter Cole	266-4911	w.i.cole@worldnet.att.net
David Costales	256-2327	dcostales@bigfoot.com
Julee Fisher	234-2826	
Gary Hug	836-7828	frogstar@intergate.com
Bill Leifer	478-4249	williamleifer@usa.net
Jerry Majers	862-8869	jmajers@cox.net
David Ryan	272-0177	dlryan@cox.net
Dan Tibbets		Ddftp@aol.com
Russell Valentine	862-5046	russ@coldstonelabs.org

"The REAL MEETING" Gathering



Please join us for post-meeting eats at Perkins Restaurant, 1720 SW Wanamaker. Some members refer to this as "the real meeting" which follows our general meeting each month.

Open House Dates for 2004

February 13	7:30	July 23	9:30
March 12	7:30	August 20	9:00
April 30	9:00	September 18	8:30
May 28	9:00	October 23	8:00
June 25	9:30	November 20	7:30

Club Observing Dates for 2004

January 23-24	August 13-14
February 20-21	September 10-11
March 19-20	October 15-16
April 16-17	November 12-13
May 21-22	December 20-21
June 18-19	
July 16-17	

Farpoint Observatory

W. Long. 96°00'08.6" Elevation = 406 m
N. Lat. 38°53'24.9" = 1320 Ft.



The NEKAAL OBSERVER

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ADDRESS SERVICE REQUESTED