



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

The Grant: We have sent in the paperwork to facilitate drawing down grant funds. Our 1st check for \$1400 went out as a down payment on the f4.0 focal reducer. This came from our existing telescope fund. We hope to get Scope-Craft going within a couple of weeks.

Lindley Johnson, NASA's NEO Project Manager was in the area, and a few of us had dinner with him, then took him to Farpoint. Drs. Steve Shawl and Bruce Twarog from KU were there as well. Lindley Johnson went to KU and knew Dr. Shawl, so he was not completely surrounded by strangers. Mr. Johnson was in the area to give a commencement address to his niece's graduating class in Council Grove, his home before graduating from KU.

Press Release: A press release announcing the NASA grant went to local papers and TV stations. So far, only the Alma paper has pub-

lished it, but we expect it to be in the Eskridge paper. The Eskridge editor took photos at Farpoint.

A copy of the press release is on our NEKAAL web site. Take a look.

Comet 2001 Q4 (NEAT): I planned to write an article about this, comparing the members observations. However, I didn't get enough information from the members to have a full article. I viewed this comet on several occasions. I never did see it naked-eye, but my seeing is so bad now I couldn't see M-44 either. Several have reported naked-eye viewing. On the 23rd, I could just make out about 4 degrees of tail through heavy haze with 7 x 50 binoculars. The coma appears smaller than it did a week or so earlier. Get out and take a look at it.



Walter Cole, Bill Leifer, Lindley Johnson, Gary Hug, Graham Bell, Steve Shawl, Anthony Twarog, Bruce Twarog, Janelle Burgardt and Cindy Hug. Photo by Nancy Cole.

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SKY HIGHLIGHTS FOR JUNE: by *Janelle Burgardt - Astronomy Program Director*

Sky Highlights for June

June 4	Full Moon Known as the Honey, Rose or Strawberry Moon. Closest full moon of 2004.
June 8	Transit of Venus. Next transit of Venus will occur on June 3, 2012. Venus reappears in the morning sky around the 18 th .
June 9	Last quarter moon
June 11	Pluto at opposition in Serpens Cauda
June 17	New moon
June 18	Mercury at superior conjunction. Becomes visible after sunset at the end of the month.
June 20	Summer solstice at 7:57 p.m. CDT.
June 27	First quarter moon.

Comet NEAT

A naked-eye object last month, the comet should remain a naked-eye or binocular object throughout most of the month. Moving 1 degree each day, it will be 11 degrees to the lower left of Merak, the lower of the two pointer stars in the Big Dipper, on June 11

The monthly Sky Highlights are created from several sources, including Sky & Telescope, the Abrams Planetarium Sky Calendar, and whatever else looks interesting. It was originally requested by those who don't have access to the magazines and internet sources used by many. If there is any additional information that would be useful, just let me know. ~*Janelle*

FASTTRACKS: by *Gary Hug*

A very precise orbit is required for an asteroid to be numbered, so it takes quite a while before it is numbered. Farpoint's numbered asteroid count has recently been raised to 97. I will celebrate when FAST crosses the 100+ mark, but just a little and very briefly. I will celebrate because as an amateur group NEKAAL and FAST we will be or very close to being on the "most prolific observing sites" list.: <http://cfa-www.harvard.edu/iau/lists/MPDiscSites.html> There are of course a few amateur entries in this list but it's mostly made up of large survey groups (I believe LINEAR is still on top with discovery credit for almost 1/2 of all known asteroids.) It has been a demanding but enjoyable effort to hunt for new Main-belt asteroids. However it is time for a change.

Our recent proposal (FAST NEO Follow-up) to NASA was accepted. To that end FAST is changing. FAST will be producing almost exclusively follow-up data on the increasingly fainter but potentially hazardous NEO's. Our own main belt discoveries are being updated as a side benefit of the surveys extensive, regular, coverage of the entire night sky. Hunting for new discoveries now requires looking for very faint objects near opposition and even then very few will be unknown. While we are no longer actively engaged in Main Belt dis-

covery, there is still some chance of finding a new interesting object while doing NEO follow-up and until we are convinced of its Main Belt status follow-up on new discoveries will be included in our program.

I know a lot of you have concerns about this new program monopolizing all our resources at Farpoint Observatory. Our NEO follow-up is indeed intended to be a very robust program. The Acceptance of the NASA proposal carries with it a responsibility to work hard at NEO follow-up, but at the same time NASA is willing to invest \$56,000 in our facility to insure we have the capability. However, NASA also believes in public outreach so our goals nicely merge with theirs. We have designed the new scope with the capability to very quickly jump from visual use for public and NEKAAL members viewing to imaging NEO's. That process uses two equipment carriages. One will have a simple mechanical focuser and eyepiece for normal public viewing. The other carriage will be a bit more elaborate with the CCD and a thermal-compensated focuser. Both will have very exacting line-up pins in place to ensure repeatable camera orientation and on axis aligning. Having these carriages available allows a very quick change from an evening public viewing session to NEO work.

One impact of having a telescope the size of the 27" Tombaugh is a shortage of room in the main observatory. The telescope needs a lot of "elbow-room" to swing to different parts of the sky. We may be able to use a couple of smaller scope in the southwest and or southeast corner(s), but it will be cramped quarters.

There is hope though for another smaller version roll-off roof building on the grounds of Farpoint. As part of NASA's public outreach they have invited us to apply for another grant to assist our efforts at public outreach. We have applied, (largely thanks to Janelle's efforts), for this grant to help build the new facility as well as quite a bit of "on the road" equipment. If successful this will help alleviate Farpoint's predicted usage conflicts.

The Astronomical Society of Kansas City was the recipient of an earlier version of a NASA Neo-Follow-up grant in which they asked for rather expensive CCD camera, (they already had a .76 meter scope). Their output of NEO-follow-up data was no less than ASTOUNDING. I believe it was that phenomenal response which gave NASA confidence enough to support another amateur venture, even though we are in the same region and the cost of our proposal was significantly higher. We were

(Continued on page 3)

(Continued from page 2)

the only amateur group to be funded this time around. We are definitely going to be watched.

Performing NEO follow-up is as noble a service to humanity we as a club can contribute. It may well be someday that our observations combined with others will ensure the Earth has enough lead time to avert a global disaster. While this scene is

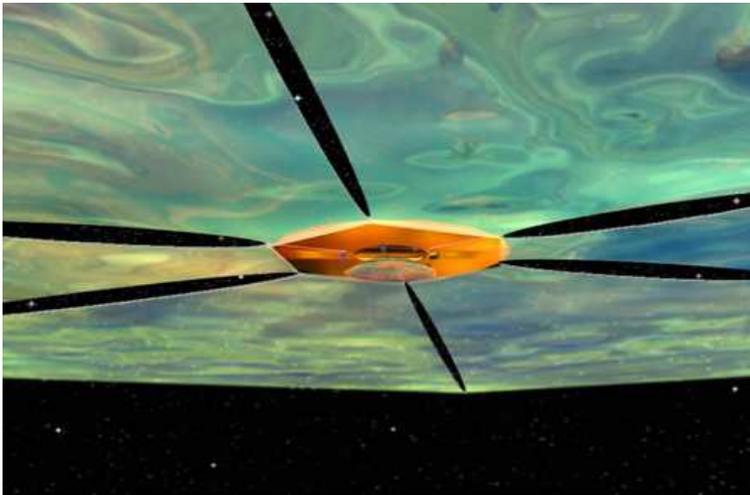
unlikely, the possibility does none-the-less exist. There just aren't that many people observing these points of light. NEKAAL and FAST have the opportunity for a real contribution in this very important effort.

Some of you have been around NEKAAL a while; you were here during the construction of Farpoint, during the uncertainty of funding, the long nights and week-ends working on construction. You helped

build a special facility in Farpoint. It is time to revitalize this structure; to breathe new life into the walls. Farpoint needs your investment of time again along side newer NEKAAL members to develop a reputation for Farpoint Observatory as a leading amateur contributor of NEO follow-up data you might just find this to be a very rewarding experience.

-GH

FAR-OUT IDEAS: by Patrick L. Barry



This is just one idea of how a solar sail could be used to power an interstellar probe. A solar sail is one possible type of new technology that NASA's New Millennium Program would test in space before it would be risked on a scientific mission.

Ever had a great idea for a new spacecraft propulsion system, or for a new kind of Mars rover? Have you ever wondered how such "dinner napkin sketches" evolve into real hardware flying real missions out in the cold blackness of space?

The road to reality for each idea is a unique story, but NASA has defined some common steps and stages that all fledgling space technologies must go through as they're nursed from infancy to ignition and liftoff.

Suppose, for example, that you've thought of a new way to shield astro-

nauts from harmful radiation during long space missions. In the first stage, you would simply "flesh out" the idea: Write it down, check the physics, and do some quick experiments to test your assumptions.

If the idea still looks good, the next step is to build a "proof of concept." This

is the "science fair project" stage, where you put together a nifty demonstration on a low budget-just to show that the idea can work.

For your radiation-shielding idea, for example, you might show how a Geiger counter inside a miniature mock-up doesn't start clicking when some radioactive cobalt-60 is held nearby. The shielding really works!

Once that hurdle is cleared, development shifts into a higher gear. In this stage, explains Dr. Christopher Stevens of JPL, the challenge isn't just making it work, but making it work in

space.

"Some conditions of space flight cannot be adequately simulated here on Earth," Stevens says. Cobalt-60 doesn't truly mimic the diverse mixture of radiation in space, for example, and the true microgravity of orbit is needed to test some technologies, such as the delicate unfolding of a vast, gossamer solar sail. Other technologies, such as artificial intelligence control systems, must be flight tested just because they're so radically new that mission commanders won't trust them based solely on lab tests.

Stevens is the manager of NASA's New Millennium Program (NMP), which does this sort of testing: Sending things to space and seeing if they work. In recent years the NMP has tested ion engines and autonomous navigation on the Deep Space 1 spacecraft, a new "hyperspectral" imager on the Earth Observing 1 satellite, and dozens of other "high risk" technologies.

Thanks to the NMP, lots of dinner napkin sketches have become real, and they're heading for space. You can learn more at the NMP website, nmp.nasa.gov/.

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

HERE ARE SOME PRICES FROM THE NEKAAL STORE:

S&T	\$32.95	
Astronomy hats	\$29.00	
Tshirts	\$8.00	marked down
Sweatshirt	\$8.00	marked down
	\$10.00	marked down

Name tags	free
Tote bags	\$8.00
Coffee Mugs	\$10.00

Please contact Walter or Nancy Cole to acquire any of these items.

FACILITIES REPORT—MAY 2004: by Bill Leifer

Supplies and Maintenance were performed for April.

Fix-it weekend was a great success. Items accomplished included:

- Replaced rotted front door molding
- Removed old FPO sign.
- Raised and reinforced the sunken walkway support
- Spray washed and water-sealed the walkway
- Repainted the sliding roof support posts.
- Caulk sealed the holes created in the antenna mast project
- Installed new dimmer switch for red lights in the telescope room
- The south excursion limit cutoff switch for the roof motor was adjusted
- Many new office supplies were donated by Jerry Majers, courtesy of Merck Pharmaceuticals
- Cleaned the floor in the computer

room and the telescope room
 New bee sting allergy kit donated by Jerry Majers, with epinephrine in the syringe good through mid 2005. The kit is in the supply cabinet in the bathroom, and instructions are in the box.

Thank you to Gary, Graham, Russ, Dan, Jim, and Jerry for the success of this project.

The grass that was sown by the Millers in the excavation area on the east side is growing well.

Newly identified or pending projects include:

- The new computers to be donated by the casinos have not yet materialized.
- The roof cable-tightening project is pending.
- The south handrail of the walkway

- needs reinforcing
- Door trim on the shed need to be primed and painted
- New shoe brush mat needed for the foyer inside the front door
- Vinyl floor protector mat needed in the computer room
- Protective posts need replacing around the equipment on the east side of the building
- Guidelines and checklist for key holders needs completion
- Wireless internet connection to MVHS T-1 line needs completion
- A new FPO sign is being designed and built, which will be more professional and will be placed on ground supports at the southwest corner of the property just inside the cable fence.

FINANCES: by Nancy and Walter Cole

Nekaal-Bank,Cash,CC Accounts **5/26/04**
 NEKAAL Cash Flow Report
 1/1/04 Through 5/25/04

Category

INFLOWS

- Contributions201.00
- Contributions-In Kind33.77
- Dues 2004690.00
- Int Inc-Interest Income1.29
- Net Sales.....-246.20

TOTAL INFLOWS 679.86

OUTFLOWS

- Computer:
- Internet access-dial up on line. 33.77
- TOTAL Computer 33.77
- Dues.....50.00
- Equip.—Tombaugh 1,400.00
- FPO Utilities258.47
- Repair & Maint57.33
- Subscriptions:
- Magazine Subs 98.85
- Subs.payments recd -98.85
- TOTAL Subscriptions 0.00
- Supplies84.20
- Telephone-Telephone Expense 145.00

TOTAL OUTFLOWS 2028.85

OVERALL TOTAL..... -1,348.99

Nekaal-Bank,Cash,CC Accounts **5/26/04**
 Cash Accounts
 As of 5/25/04
 Acct Balance

ASSETS

- Cash and Bank Accounts
- Money Market570.72
- Money Market 2-
- Telescope Fund2,898.00
- Nekaal-checking494.71

TOTAL Cash and Bank Accounts3,963.43

TOTAL ASSETS3,963.43

LIABILITIES0.00

OVERALL TOTAL3,963.43

Congratulations Kody

Kody Wilnauer just graduated from De Soto High school. That should provide him more opportunities to get to our meetings, but not Kody. Instead, he will be touring Europe this summer. Then off to KU for the fall.

NEKAAL BOARD MINUTES—MAY 16, 2004: by Bill Leifer

Editor's Note: These minutes are abbreviated. The complete minutes are available on the NEKAAL MEMBERS Yahoo Group files section. Places where the minutes are abbreviated are flagged **(abbr)**.

Members present: Gary Hug, Graham Bell, Bill Leifer, Janelle Burgardt, Dan Tibbetts, Julee Fisher, Russell Valentine. *Members Absent:* Jerry Majers, David Ryan, David Costales, and Walter Cole.

The meeting was called to order by the Chairman, Graham Bell, at 3:33 PM on May 16, 2004.

Previous Minutes - The minutes of the previous meeting were accepted.

FINANCIAL REPORT - Walter Cole:

Due to Walter Cole's absence, there was no financial report.

FPO Facilities Report - Bill Leifer:

Preventive maintenance and supplies were performed for April **(abbr)**.

OLD BUSINESS/PREVIOUS ASSIGNMENTS:

The replacement of the outdated bee sting allergy kit is complete.

Internet access options were discussed at length in the meeting and by email. It was decided to return to the original wireless plan using the previously determined antenna placement location. **(abbr)**.

Updating of position descriptions remains incomplete. We still need input from Jerry Majers on the VP position and Walt Cole on the Treasurer responsibilities. For general board responsibilities, Janelle Burgardt agreed to draft a description.

The Night Sky Network participation is active under the leadership of Janelle. Three events have been entered into the log already. The Cair Paravel group had an excellent experience. Janelle is working on a section of the web site devoted to NSN.

Janelle reported that the response time on the E/PO grant is 200 days.

The NASA paperwork was received. **(abbr)**. Gary made a motion to spend \$1400 right away out of our funds in order to begin work on the focal reducer. This was seconded and passed unanimously.

Bill presented his preliminary list of criteria for the Key holder checklist. Others added several other items during the meeting. It was also decided to post a laminated copy of the final checklist on the inside of the FPO door which will also serve as a reminder to those leaving of closing up

procedures. Bill will publish the final guidelines and produce the posted copy.

Graham provided an update on current FAST program training progress. **(abbr)**.

Scope design considerations were again discussed along with various incidentals. The possible need for rubber padding or other methods to protect equipment from damage in case of dropping was discussed.

The consortium idea is in the hands of Bruce Twarog at KU. Any progress on that awaits his efforts.

Janelle has sent in membership dues for IDA.

NEW BUSINESS

Paving Bodark Road:

The county will be paving Bodark Rd. 1300 ft. which will end approximately at the Cedar trees. It is important that paving ends before reaching the observatory, because the asphalt creates heat distortion.

Baseball field:

A baseball field is being planned for the Northwest corner of Bodark Rd. and Mission Valley Rd. next to the High School. After a brief period of absolute panic, it was learned that there would be no lights. Only day games are planned.

Proposed Changes to "The Observer":

After briefly considering the possibility of reducing the number of newsletters to bimonthly, it was decided to leave this a monthly newsletter, which sets NEKAAL apart from other astronomy groups. More articles are needed. It was proposed that we feature a biography of a member in each issue. Janelle nominated Bill for this job. This proposal will be considered further.

Website Calendar:

Do to anticipated increased scheduling conflicts from the FAST program and Education/Public Outreach activities, it was proposed that a general calendar showing all planned and added events in one place, namely the NEKAAL website, would help solve this dilemma. **(abbr)**.

There being no further business, the meeting was adjourned at 5:47 PM.

Respectfully submitted:

Bill Leifer, Secretary ,

May 23, 2004

This is just a reminder to let you know that our board meetings are open to all members. Please feel free to attend and participate in the discussions.

MAY'S LUNAR ECLIPSE: by Dr. Edwin Woerner

Helen and I looked at the moon from the balcony of our apartment in downtown Dubai, UAE, at about 10:30 p.m. on Tuesday, May 4. Ordinarily, with work the next morning, it would be bedtime, but on this night we noticed that the eastern half of the full moon showed a dusky shadowiness. The penumbral phase of a lunar eclipse had begun.

By 11 p.m. I had set up my equipment on the roof of our building. Jupiter appeared bright in the southwest. Arcturus and Spica formed a nearly equilateral triangle with the moon, Antares trailed behind, and Vega had popped up in the northeast.

There was already a dark umbral slice out of the extreme eastern limb. Using 10x50 binoculars I spotted third magnitude Alpha Librae about two moon diameters away. This star is a pretty binocular binary, and the primary would be occulted during the eclipse as seen from South Africa.

For this eclipse the moon would penetrate deeply into the Earth's shadow, and we would enjoy about 75 minutes of totality. Since nobody knew in advance how dark the moon would get or what color it would assume, I looked for clues in these early stages. The moon began to take on a pale orange color, reminding me of a new penny but without any trace of a polish.

Just before midnight the final lighted sliver vanished. The moon seemed darker than in other recent eclipses. At mid-eclipse I tried to estimate its brightness. The moon's color made it difficult to estimate accurately, but I thought it was just a bit brighter than Jupiter, which appeared about the same size in the sky when I removed my glasses. Jupiter is currently about magnitude -2.4 , which probably put the moon around magnitude -3 .

As the eclipse continued I hunted for some of my favorite seasonal objects. Many, like nearby M4, didn't amount to much from the large city, but my favorite binocular double, nu (v) Draconis, looked great.

Due to its deep penetration into the shadow, the moon was quite uniform in color, with only a slight brightening on the western edge, which moved south-

ward and then eastward as the event progressed.

Shortly after 1 a.m., as abruptly as it had started the total eclipse was over.

Currently I'm on a streak with total lunar eclipses. The next will be on the morning of October 28 – my third within one year (although it will be 12 complete lunations and according to the Moslem calendar they will not all be

within one year). In this next one the moon will set while totally eclipsed, which means that as I'm looking westward, Kansans should be looking eastward on the evening of October 27.



This picture, taken by Dr. Ed Woerner shows the fully eclipsed moon as it slips past Alpha Librae on May 4-5, from Dubai. Taken through Ed's video camera, this picture barely shows that Alpha Librae is double.

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.

June General Meeting

Thursday, April 22, 2004, 7:30 pm
Stoffer Science Hall, Room 103

Dr. Bruce Twarog: Probing the Universe with Gravitational Waves

Whom do you contact:

<u>Meetings, Speakers:</u>	Graham Bell
<u>Farpoint Functions, Scheduling:</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, Graham Bell
<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		Ddtfp@aol.com
Russell Valentine	862-5046	russ@coldstonelabs.org

**These numbers and email addresses are not to be shared with others.
They are to be used by members only!**

"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
March 26	7:30	September 18	8:30
April 30	9:00	October 23	8:00
May 28	9:00	November 20	7:30
June 25	9:30		

Club Observing Dates for 2004

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

Farpoint Observatory

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



The NEKAAL OBSERVER

NEKAAL

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ADDRESS SERVICE REQUESTED