



# THE NEKAAL OBSERVER

February 2005 VOLUME 13, ISSUE 2

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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

**Tombaugh Project:** Dedication now scheduled for April 2.

**2005 Activities:** We have a number of things happening in 2005. In March we implement the Tombaugh Telescope. The FAST team will gear up in the early part of 2005. In April we have the Tombaugh dedication ceremony. Also during the spring, we will build the Kessler Observatory, followed by another dedication ceremony.

Throughout the year there will be E/PO presentations, public open houses and of course a lot of viewing opportunities for members.

**Astronomy Day:** At the last board meeting we discussed having some Astronomy Day activities. It looks like we have a full plate this spring without Astronomy Day, so we have decided to do nothing special for it this year.

## FASTTRACKS: By Gary Hug

By the time this article is available, we will be less than two months away from the arrival of the new Tombaugh reflector. A 0.7 meter reflector is just about perfect for our observing environment and at f/4 and the STL1001e CCD we will have a 1.95 arc-seconds per pixel ratio. Lately there has been talk that most observers would be better off with a slightly lower arc-second per pixel figure, even down to as low as 1 arc-second per pixel. Elk Creek in Holton has their new 20" Ritchey Chrétien and it is set at .81 arc-second per pixel. In the past prior to the STL1001e CCD camera (which is on its way as I write this to Santa Barbara, California for some small repairs) we used a CCD telescope combination providing 2.35 arc-second per pixel which was admittedly a bit on the low resolution side. The new 1.95 arc-second per pixel is still regarded by most as a good trade-off between resolution and light-grasp.

I plan to venture to Utah near the 1st week of March for a shake-down of the new tele-

scope. I will take one of the computers at Farpoint (which will be used to both control the telescope and acquire images) with me to install the driver card and software for the drive system.

For now I'll bring the ST9e CCD Camera to Farpoint for use on the 16". We also have the ST7 for the 14" which has a new f6.3 focal reducer, providing an 88" focal length, anti-dew heat-strap and rs232 telescope control interface. Thanks to Janelle for getting those accessories ordered.

Most of you received e-mails from me through our NEKAAL-Members or NEKAAL-FAST Yahoo accounts concerning the asteroid 2004 MN4. This rock caused quite a stir in the NEO community, (although surprisingly not so much in the more general public media). To recount, the 400 meter asteroid, 2004 MN4, was found by amateur Roy Tucker last May but it quickly became un-observable due to its orbital motion. It was picked up

*(Continued on page 2)*

## In this issue...

From the Prez: .....	1	From the NEKAAL Store .....	3
FASTTracks .....	1	Stardust Up Close .....	4
Sky Highlights for February.....	2	Facility Report.....	5
Black Hole Test Site.....	2	Board Minutes .....	5
Important Reminders.....	2	February 2005 Calendar.....	7
E/PO Update .....	3	Meeting and Observing Schedules .....	8
Financial Reports .....	3	Who to contact.....	8

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

February 2	Jupiter begins retrograde
February 3	Last quarter moon
	Neptune at conjunction
February 8	New Moon
February 14	Mercury at superior conjunction
February 15	First quarter moon
February 23	Full Moon February's full moon is called the Snow Moon or Hunger Moon
February 25	Uranus at conjunction

### Planets

**Mercury**—Visible for only 30 minutes after sunset at the end of the month

**Venus**—Visible just before sunrise at the beginning of the month, then disappears in the sun's glare

**Mars**— Rises at 4:30 a.m. , magnitude +1.3 in Sagittarius

**Jupiter**—Rising around 11 pm at the beginning of the month, the planet rises earlier each night until it rises around 9 pm by the 28<sup>th</sup>. At magnitude -2.2, Jupiter is well-placed for viewing throughout the month.

**Saturn**— Just past opposition, Saturn shines at magnitude =0.2 in Gemini throughout the night.

**Uranus, Neptune, Pluto**—invisible throughout the month.

## NEKAAL—A TEST SITE FOR BLACK HOLES: *by Jan Burgardt - Astronomy Program Director*

No, it's not what you're thinking. And no, it isn't *that*, either. The Night Sky Network (NSN) has asked NEKAAL to be a beta (test) site for an upcoming Outreach Toolkit about black holes. (This isn't offered to just anybody; we should be proud!) As anyone who's been to a star party knows, black holes are a fascinating subject to many members of the general public, but they aren't all that easy to explain in much detail. NSN has taken on the challenge of explaining these objects to the general public in an interesting and informative way, and has asked us to help test out their ideas.

## FASTTRACKS: (continued)

*(Continued from page 1)*

again in December of 2004 and was immediately placed on the Torino Scale ([http://neo.jpl.nasa.gov/images/torino\\_scale.jpg](http://neo.jpl.nasa.gov/images/torino_scale.jpg)). Once there it climbed in from 1 chance in a 10,000 to an incredible **1 chance in 37**. Imagine one chance in 37 of a whole country being obliterated or tsunami that would dwarf the recent Indian Ocean wave. This was the possibility until a few more previous observations were located adding greatly to our knowledge of 2004 MN4 's

orbital geometry. With this new data the precision of the objects orbit had increased to the point of eliminating any chance of an earth impact on Friday the 13th of April 2029. There are also other dates with some collision possibility during the next century, but for all the risk is quite minimal now. 2004 MN4 is still going to come very close to the earth; possibly as close as 4 earth diameters. This will be a 'naked-eye' asteroid at that time. So in 2029 we have a chance to watch this object cross the sky at

a rate of nearly that of a earth orbiting satellite. It is important to understand Astronomers were not 'wrong' about the chances of 2004 MN4 colliding with the earth; they just didn't have data to make an accurate enough prediction until the past observations were discovered which narrowed the possible path and left earth outside the possibility of a hit. That 1 chance in 37 was very real for the data available at the time.

### Important Reminders:

1. Time to pay dues. See page 8 for annual fees.
2. If you made any contributions of supplies, equipment, etc. to NEKAAL in 2004, you can get a tax break. Send a list of your contributions with estimated values to Walter Cole, and he will provide a letter which you can use to substantiate the contributions to the IRS.

**EDUCATION/PUBLIC OUTREACH UPDATE:** by *Janelle Burgardt - Astronomy Program Director*

*We Won Something*

Our Public Outreach has yielded an unexpected benefit for NEKAAL. The Night Sky Network holds a quarterly drawing based on events held during that quarter. For the fourth quarter of 2004, one of NEKAAL's events was a winner! From the announcement:

*"We will soon be sending your club the Lunar Outreach Package, a combination of books, maps and a useful globe to help you explain lunar phenomena and features. The package combines materials donated by Sky Publishing Company and the Astronomical Society of the Pacific".*

Although we won't know for sure until we get the goodies, it appears that most, if not all, of the materials will be appropriate for checkout from the library at Farpoint. The contents of the package will be reviewed in a future issue of *The Observer*. ~~~Janelle Burgardt

<b>Nekaal-Bank, Cash, CC Accounts</b> 1/19/05		<b>Net Sales:</b>	
Cash Accounts As of 12/31/04		Cost of Mdse	-392.66
Acct	Balance	Sale of Mdse	214.00
<b>ASSETS</b>		<b>TOTAL Net Sales</b>	<b>-178.66</b>
<b>Cash and Bank Accounts</b>		<b>TOTAL INFLOWS</b>	<b>2,709.17</b>
Money Market	822.12	<b>OUTFLOWS</b>	
Money Market 2-Telescope Fund	698.00	Annual Report	40.00
Nekaal-checking	1,632.99	Computer:	
<b>TOTAL Cash and Bank Accounts</b>	<b>3,153.11</b>	Computer Equip	837.60
<b>TOTAL ASSETS</b>	<b>3,153.11</b>	Internet access-dial up on lin	438.27
<b>LIABILITIES</b>	0.00	Software	65.95
<b>OVERALL TOTAL</b>	<b>3,153.11</b>	<b>TOTAL Computer</b>	<b>1,341.82</b>
Nekaal-Bank,Cash,CC Accounts 1/19/05		Dues	250.00
<b>NEKAAL Cash Flow Report</b> 1/1/04 Through 12/31/04		Astronomy Equipment- Telescope	666.65
<b>INFLOWS</b>		FPO Utilities	559.73
Contributions	2,696.00	Insurance-Ins on bldg and prop.	838.00
Contributions-In Kind	844.14	Newsletter expense	69.77
Dues 2004	845.00	Office-Office Expenses	42.15
Dues 2005	425.00	Postage	38.00
Int Inc-Interest Income	2.69	Repair & Maint	57.33
Memorial-M Kessler-contributions	575.00	Subscriptions:	
NASA Grant-Telescope Grant activity:		Magazine Subs	350.60
NASA Grant Monies Received	29,898.00	Subs.payments recd	-350.60
NASA - CCD Camera	-8,040.00	<b>TOTAL Subscriptions</b>	<b>0.00</b>
NASA - Focal Reducer	-2,840.00	Supplies-Supplies	467.15
NASA - Telescope-	-21,518.00	Supplies, bus.-Supplies	57.87
<b>TOTAL NASA Telescope Grant activity</b>	<b>-2,500.00</b>	Telephone-Telephone Expense	440.01
NASA Grant -Education:		<b>TOTAL OUTFLOWS</b>	<b>4,868.48</b>
Ed Grant Monies Recd	10,668.74	<b>OVERALL TOTAL</b>	<b>-2,159.31</b>
Ed-Computer	-1,435.74		
Ed-Multimedia Projector	-863.10		
Ed-Telescopes	-8,369.90		
<b>TOTAL NASA Grant -Education</b>	<b>0.00</b>		

**HERE ARE SOME PRICES FROM THE NEKAAL STORE:**

<u>Periodicals</u>		<u>Merchandise</u>		Tote bags	\$8.00
S&T	\$32.95	hats	\$8.00	Coffee Mugs	\$10.00
Astronomy	\$29.00	Tshirts	\$8.00	<b>Please contact Walter or Nancy Cole to acquire any of these items.</b>	
		Sweatshirt	\$10.00		
		Name tags	free		

## STARDUST UP CLOSE : by Patrick L. Barry and Dr. Tony Phillips



Like discarded lumber and broken bricks around a construction site, comets scattered at the edge of our solar system are left-over bits from the "construction" of our solar system.

Studying comets, then, can help scientists understand how our solar system formed, and how it gave rise to a life-bearing planet like Earth.

But comets have long been frustratingly out of reach -- until recently. In January 2004 NASA's Stardust probe made a fly-by of the comet Wild 2 (pronounced "vilt"). This fly-by captured some of the best images and data on comets yet ... and the most surprising.

Scientists had thought that comets were basically "rubble piles" of ice and dust -- leftover "construction materials" held together by the comet's feeble gravity. But that's not what Stardust found. Photos of Wild 2 reveal a bizarre landscape of odd-shaped craters, tall cliffs, and overhangs. The comet looks like an alien world in miniature, not construction debris. To support these shapes against the pull of gravity, the comet must have a different consistency than scientists thought:

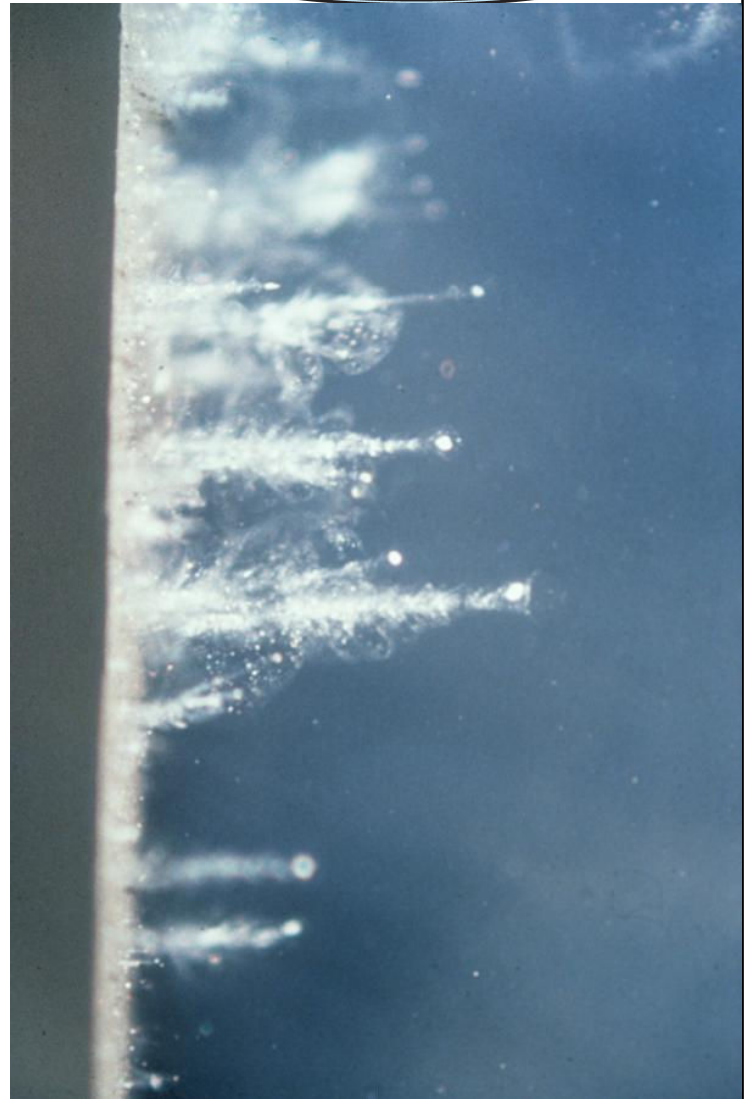
"Now we think the comet's surface might have a texture like freeze-dried ice cream, so-called 'astronaut ice cream': It's solid and can assume odd, gravity-defying shapes, but it's basically soft and crumbles easily," says Donald Brownlee of the University of Washington, principal investigator for Stardust.

Scientists are currently assembling a 3-D computer model of this surface from the photos that Stardust took. Those photos show the sunlit side of the comet from many angles, so its 3-dimensional shape can be inferred by analyzing the images. The result will be a "virtual comet" that scientists can examine from any angle. They can even perform a virtual fly-by. Using this 3-D model to study the comet's shape in detail, the scientists will learn a lot about the material from which the comet is made: how strong or dense or brittle it is, for example.

Soon, the Stardust team will get their hands on some of that material. In January 2006, a capsule from Stardust will parachute down to Earth carrying samples of comet dust captured during the flyby. Once scientists get these tiny grains under their microscopes, they'll get their first glimpse at the primordial makings of the solar system.

It's heading our way: ancient, hard-won, possibly surprising and definitely precious dust from the construction zone.

Find out more about the Stardust mission at [stardust.jpl.nasa.gov](http://stardust.jpl.nasa.gov). Kids can read about comets, play the "Tails of Wonder" game about comets, and hear a rhyming story about aerogel at <http://spaceplace.nasa.gov/en/kids/stardust/>.



*The Stardust spacecraft used a grid holding aerogel to capture dust particles from comet Wild 2. In this test, high velocity dust particles are stopped unharmed at the end of cone shaped tracks in a sample of aerogel*

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

### AFFILIATED ORGANIZATIONS:



International Dark-Sky Association  
IDA  
<http://www.darksky.org>



Astronomical League  
<http://www.astroleague.org>



**Night Sky Network**  
"Astronomy clubs bringing the wonders of the universe to the public"

NASA's Night Sky Network.  
<http://nightsky.jpl.nasa.gov/>

15 Events Logged

## **FACILITY REPORT—JANUARY 2005:** by Bill Leifer

- ✘ December supplies and preventive maintenance were performed.
- ✘ There were problems with the toilet, discovered to be an electrical problem with the cord to the pump grinder. This was resolved, though it was a draining experience, and we are now flush with success. This gives whole new meaning to the term "Facility Report."
- ✘ The roof was frozen closed by the ice storm. A lot of chipping away of ice by Gary Hug helped, but the return of warm weather helped the most.
- ✘ Ice also froze the locks on the front door, but Dan Tibbetts was able to jimmy the locks using techniques he learned in reform school.
- ✘ Patsy Rush and Kevin Dobbs survived a disorienting orientation, passed the checklist, and became FPO key-holders. So, there will now be two more people who can be blamed for problems that are discovered.
- ✘ Russ Valentine put in a lot of time to resolve the internet difficulties. Though internet service is restored, it is not optimum, and the source of the problem remains obscure.
- ✘ The telescope room will be cleared out completely on "clear out" day, March 5<sup>th</sup>, to make way for the Tom-baugh Telescope and dedication on April 2. Everyone with equipment in the telescope area must remove it on or before that date.
- ✘ Plans are being drawn up for the construction of the new Kessler Building, which will house member's scopes and equipment and which will house the club's new 14" scope on a permanent pier. The building will be the site of education and public outreach presentations. The more we can save by providing our own labor, the bigger we can make the building with available funds. All those wishing to help in construction in the spring, please call or email Jerry Majers.

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## **NEKAAL Board Minutes January 16, 2005** by Bill Leifer

Members present: Patsy Rush, Kevin Dobbs, Walt Cole, Bill Leifer, Janelle Burgardt, Gary Hug, Graham Bell, Dan Tibbetts, Debbie Roberts. Members Absent: Russ Valentine, Jerry Majers.

The meeting was called to order by the Acting Chairman, Graham Bell, at 3:33PM on January 16, 2005.

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

### **STANDARD REPORTS**

#### FINANCIAL REPORT – Walter Cole:

Walt distributed the financial statement. The ending cash balance is \$3333.11. The statement showed year-end comparisons with prior year as well as contributions. Walt solicited any remaining in-kind contributions. The statement was accepted and will be posted to the Members Yahoo Group.

#### FPO Facilities Report – Bill Leifer:

December preventive maintenance was performed. Recent problems included inadequate toilet flushing. This was found to be the result of the extension cord to the pump grinder becoming defective. The pump was plugged into the socket directly, and normal function was restored.

The recent ice storm froze up the roof, and this resulted in a broken shear pin, which was replaced. Gary chipped away the ice partially, and function is mostly restored. Warming will melt the remaining ice.

The 6 V main lantern flashlight needs a new bulb. All replacement bulbs have been used, not detected during supply inventory. Bill will obtain new bulbs.

The front door was frozen shut in the ice storm, and Dan jimmied the locks open.

Kevin Dobbs and Patsy Rush went through the keyholder checklist and were issued keys.

#### IDA Report – Janelle Burgardt:

Nothing to report.

#### Night Sky Network and E/PO Report - Janelle Burgardt:

NEKAAL has been offered test site status for a new kit that is being evaluated. Janelle will make a presentation on this at the January General Meeting. The new kit dealing with the moon will include some materials that will be added to the FPO library. Janelle will be looking for a group to participate in the evaluation.

*(Continued on page 6)*

*(Continued from page 5)*

Stout Elementary School asked for a parking lot demonstration in March.

New equipment has been obtained for NEKAAL's new 14" LX200 scope.

Kevin Dobbs will be doing a presentation on Mars 3-D imagery at the February General Meeting.

Janelle reported that Larry Cooper is the official E/PO contact. There are problems with forms and willingness of participants to fill out evaluation forms. Janelle will seek some guidance or input regarding this problem.

#### FAST/NEO Report - Gary Hug:

Gary reports over 1700 new NEO observations total and more than 700 since September, alone.

The 16" scope developed a frozen Dec motor. Gary found that the gear had fallen off, and he repaired this.

Gary expressed concern regarding training. There has been a drop off in participation and training, and long periods between sessions are a major problem, since this type of activity requires frequent reinforcement. A special training weekend is coming January 21 and 22. If the weather is cloudy, the January 21 session will be cancelled, but the following night, Saturday the 22<sup>nd</sup>, there will be a session regardless of weather, since it deals with aspects other than obtaining images. Gary will put an announcement on the NEKAAL and FAST Yahoo Groups.

Gary reported that software needs include ACP2 and MaximDL. This package will cost approximately 800 dollars.

All accessories for the 14" scope have now been purchased, including the 15 Amp power supply, which will run the scope and all accessories, the 25-foot long RS 232 cable, the Rich Field adapter, and the heat strap.

Gary mentioned that we would eventually need color filters for the filter wheel that came with the new camera. These are expensive.

## **OTHER OLD BUSINESS/PREVIOUS ASSIGNMENTS**

#### Internet – Russ Valentine:

Russ was not here to discuss. The need for a general online calendar was discussed. Janelle has spoken with Russ, who indicated that this would likely not be a problem. A calendar is needed to post, edit, and inquire by all members regarding events and sessions. The Yahoo Group calendars are of some help but do not meet general needs and are divided among the separate Yahoo Groups.

#### Tombaugh Telescope – Graham Bell and Gary Hug:

The telescope arrives in Mid-March. The Dedication is scheduled for April 2. There was considerable discussion regarding preparations. It was suggested that a subcommittee be formed. Components for preparations must include 1) Cleanout of the observatory, including all telescopes and possibly the workbench. It was decided to have a cleanout day on March 5<sup>th</sup>. 2) Public Relations and Media coverage. Several possibilities were discussed. 3) Contingency for rain. It was decided to try to arrange use of Mission Valley High School. Debbie will look into this. Graham will coordinate the subcommittee.

#### Campus Extension – Janelle Burgardt:

Janelle reported that Jerry Majers has not yet called a meeting to coordinate. Sky Shed plans have been turned over to Mark Borton. Better plans are needed for the roof. Also, an upgrade in size will be needed to accommodate movement of people during presentations and for storage of members' scopes and equipment. Revision of the Kessler Building up to 16'X22' was discussed. This would double the square feet and price. Funding options and possible contributions of funds from outside NEKAAL were discussed. Jerry will be calling a meeting soon. This construction will need to be put on a fast track beginning in March. Bill reported that Mark Borton had indicated that a 25 dollar per square foot cost was in the ballpark, especially if NEKAAL members provide the bulk of the labor. The larger building might require grading of the ground or sunken area closer to the main building.

## **NEW BUSINESS**

#### Astronomy Day:

There was some discussion regarding NEKAAL activities for Astronomy Day. It was decided that the dedication ceremony for the new telescope was sufficient for this purpose.

There being no further business, the meeting was adjourned at 5:13 PM.

**Respectfully submitted:**

**Bill Leifer, Secretary/20/05**



## 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.**

### February General Meeting

Thursday, February 24, 2005

**Jan Burgardt— Black Holes (see page 2)**

**March ...Kevin Dobbs — 3-D Imaging**

## Who to 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
Kevin Dobbs		
Patsy Rush		
Debbie Roberts		
Gary Hug	836-7828	frogstar@intergate.com
Bill Leifer	478-4249	williamleifer@usa.net
Jerry Majers	862-8869	jmajers@cox.net
Dan Tibbets		Ddftp@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 Wana-maker. Some members refer to this as "the real meeting" which follows our general meeting each month.

## Open House Dates for 2005

<b>February 11</b>	<b>7:30</b>	July 15	9:30
March 18	7:30	August 12	9:00
April 15	8:30	September 10	8:30
May 13	9:00	October 8	8:00
June 10	9:30	November 5	7:30

## Club Observing Dates for 2005

January 7-8	July 8-9
<b>February 4-5</b>	August 5-6
March 11-12	September 2-3
April 8-9	Sept 30– Oct 1
May 6-7	October 28-29
June 3-4	December 2-3

## 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