



**FARPOINT OBSERVATORY**

# THE NEKAAL OBSERVER

January 2004 VOLUME 12, ISSUE 1

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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

As we start 2004 we have several challenges and a number of opportunities. (Isn't that how the first message of each new year is supposed to start)?

We are trying to improve the board's responsiveness to members. I'll attempt to publish a preliminary agenda well in advance of each board meeting, and encourage all members to provide input into the agenda. I also encourage all members to attend those meetings and provide your input.

We have set up a YAHOO group, NEKAAL\_MEMBERS, which will help us communicate with each other. Until we get the Web Site set up with issues of the *Observer*, I will be posting the PDF version to the files section of NEKAAL\_MEMBERS. Check out <http://groups.yahoo.com/> to see how to get to the files section. If you don't find NEKAAL\_MEMBERS in your Yahoo groups, contact Bill Leifer to get you set up.

I am attempting to get a great list of speakers lined up for this year. We will kick off with Jackie Beucher, of the Astro-

nomical Society of Kansas City, and Executive Secretary of the Astronomical League. She will be our February 26 featured speaker.

Bill Leifer is continuing in his role as Observatory Director. I expect that the improvements which he started last year will continue. We are all benefiting from his efforts.

Janelle Burgardt is again *Astronomy Program Director*. She has already set up the Club Observing and Open House schedules (see page 8), and will be working on other activities for the club and for outreach. Jan also serves as the AL coordinator, and is working with NASA on another new and exciting program for NEKAAL. See board minutes on page 3.

I am enthusiastic about 2004. It should be a good year for NEKAAL, but we must all work to make it good year. Support the Open houses, attend club observing sessions, and recruit some new members. Wouldn't it be nice if there were enough members so that dues alone could fully support Farpoint?

## 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.

**Special Option** — if you joined **After** July 1, 2003 you should receive a note from Bill Leifer about the 2004 dues.

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

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## SKY HIGHLIGHTS FOR FEBRUARY: by Janelle Burgardt

February 2	Neptune at conjunction
February 6	Full Moon February's full moon is called the Snow Moon or Hunger Moon
February 13	Last quarter moon
February 15	Neptune is 2 degrees north of Mercury
February 20	New Moon
February 22	Uranus reaches conjunction
February 28	First quarter moon

### Planets

**Mercury**—Low in the southeast before dawn early in the month, then lost in the sun's glare

**Venus**—Reaches -4.2 magnitude, visible in the western sky for 3.5 hours after sunset.

**Mars**— Fades to magnitude +1.1, in Aries

**Jupiter**—At magnitude -2.5 in Leo, rises around 8:30 on the 1<sup>st</sup>, to just shortly after sunset at the end of the month.

**Saturn**— Visible nearly all-night long, at magnitude 0.0, and with its rings tilted near maximum, a beautiful sight near the "feet" of Gemini.

**Uranus**— Lost in the sun's glare; at conjunction on February 22

**Neptune**— Lost in the sun's glare; at conjunction on February 2

**Pluto**— Still near the sun, but in the morning sky by the end of the month.

## AL00667— A CLOSE CALL?: by Graham Bell

One of the jokes among minor planet researchers relates to the type of NEO (near earth object) which concerns us. NEOs and other minor planets are detected by watching their movement across the background stars. The one to worry about is the one that doesn't move much, it just keeps getting brighter, indicating that it is moving directly toward us.

On January 13, just such an asteroid was reported to the Minor Planet Center. Discovered by LINEAR, the object seemed to have an orbit which would produce a collision with the earth within 2 or 3 days. Fortunately, the object was relatively small, about the size of a typical living room, and would cause only local damage. LINEAR submitted 4 observation measurements of AL00667 (their designation). A number of possible orbits could be computed from these 4 observations. The observations, typical of LINEAR's data, were spaced at 30 minute intervals, yielding an arc of only 1.5 hours.

Others found this object on the 14th, 16th and 18th, helping to refine the orbit. It was now obvious that AL00667 would

miss the earth. It didn't take an astrophysicist to figure this out, since the original orbit indicated that collision would occur on the 15th. It Didn't. While still classified as a potentially hazardous asteroid, we are safe for at least a few years.

What was the problem? The data from LINEAR were less than ideal. The arc was too short for accurate calculations, and there were many orbits which fit the data. It turns out that their first observation was off considerably, leading to incorrect orbit determinations. In fact, with the added data from the 16th and

18th, the MPC discarded LINEAR's first observation.

This little asteroid generated exactly 100 e-mails on the Minor Planet Mailing List, most from professional astronomers arguing among themselves about the Minor Planet Center's (and LINEAR's) policies and procedures.

Here was a case where the astronomers may have overreacted, but fortunately the press didn't get into the act this time.

A close call—**no**

A close approach—**yes.**

### THE OTHER COAST



## BOARD MEETING SUMMARY, JANUARY 11, 2004 : Bill Leifer (summarized by Graham Bell)

Present: Graham Bell, Jan Burgardt, David Costales, Walt Cole, Gary Hug, Bill Leifer, Jerry Majers, David Ryan, Dan Tibbetts, Russell Valentine

Absent: Julee Fisher

### 1. Treasurer's Report

Account balances presented. (see page 5)

### 2. FPO Director Report

Report on Mail Box and other repairs and maintenance (See Facility Report, page 6)

### 3. Old Business

Internet access —Graham hasn't made any progress lately. Russell has been recruited to assist with this activity.

Telescopes — Graham Bell and David Costales will move telescopes to Farpoint for Observing sessions.

Assignments — An assignment list is being created. It will be a default agenda item under Old Business for future meetings.

### 4. New Business

Member List on Web—Member lists will not be put on the neekal.org website to reduce spam. A list of board members, without additional information will be provided.

YAHOO Group Mail List — Bill will set up NEKAAL\_MEMBERS as a Yahoo Group. This will be used for general communication among members, and will be used for sharing of files among members. Until such time as *The Observer* is available on nekaal.org, the files section of NEKAAL\_MEMBERS will be used for *The Observer*.

Farpoint Keys — Keys are being made available to board members who do not have current keys (Ryan, Costales, Tibbetts).

Support at Observing Weekends — We need to be sure someone with a key is available on all club observing weekends. We will use NEKAAL\_MEMBERS to coordinate club observing sessions. Janelle will continue to coordinate Open House sessions. (See note on page 5, gb).

Distribution of *The Observer* — Graham will take care of printing, and will upload a PDF version to NEKAAL\_MEMBERS. Bill will provide mailing labels. Rita Ryan will distribute *The Observer* at meetings, and one of us will mail those not picked up at the meetings.

2004 Planning — Because of time constraints, this was tabled.

January Meeting Planning — Plans were completed for the January meeting.

Membership Roster — Bill will provide an updated membership roster on March 1. A notice on that roster will state that this is a private list not to be used for any non-NEKAAL purpose.

Position Descriptions — Board members are updating their position descriptions. Janelle is coordinating this effort.

NASA's Night Sky Network — Janelle will coordinate an effort to join this NASA sponsored outreach program.

Membership is limited, but is accepted Janelle will be the coordinator and will appoint a backup coordinator.

Dues — It was agreed that those who join NEKAAL after July 1 on any year will get their membership at half price the following year. Bill will notify those who qualify on 2004.

Membership Cards — It was agreed that since membership cards serve no practical use, they will be discontinued.

Astronomy League Insurance Plan — Apparently, the AL is offering some sort of liability insurance. Janelle will check into this, but the general feeling is that we will not find it practical.

Non-Payment of Dues — It was agree that members will be dropped if their dues are not paid by February 28.

## Important Tax Information

*If you have donated equipment or supplies to Farpoint, please be sure that Walter Cole has the details before February 1, 2004. He needs to know what you donated, and its fair market value. This is what you paid for it if new, or what a reasonable person would pay for it if used. Walter, in turn, will provide a statement back to you which you can use with your 2003 tax return.*

*And now would be a good time to donate cash for the 2004 year. Send any donation to NEEKAL, PO Box 951, Topeka, KS, 66601.*

## FLYING IN FORMATION : by Patrick L. Barry (NASA/JPL)

You can almost see the tabloid headlines now: "Mid-west farmer spies UFO squadron flying in formation!" "First signs of imminent alien invasion," the subtitle will read.

If only this fictional farmer had been keeping up with NASA's Space Place column, he would have known better. The string of white dots moving in formation across the pre-dawn sky were satellites, not alien spaceships.

Beginning next year, a series of challenging, high-precision launches will insert four satellites into orbits with just the right altitude, position, and orbital inclination to follow in lock-step behind NASA's Aqua satellite (launched in May 2002). Scientists have dubbed this squadron of satellites the "A-Train." Along with Aqua, the celestial parade will include Cloudsat, CALIPSO, PARASOL, and Aura.

In April 2004, NASA will launch CloudSat, an Earth-observing satellite with unique cloud-measurement abilities. These measurements will fill an important role in our understanding of global climate change, making long-

term climate change scenarios more accurate and dependable.

So why bother flying in formation? By passing over the same swath of land within seconds or minutes of each other, the satellites will give scientists snapshots of essentially the same scene using a total of 14 different measuring instruments. CloudSat alone carries only one: a millimeter-wavelength radar sounder.

This sounder—the first of its kind put into orbit—lets scientists see a vertical "slice" of the atmosphere that shows clouds, water, and ice between the ground and 30 km altitude, with a vertical resolution of 0.5 km. Even by itself, this instrument would provide an important and unique view of Earth's atmosphere, since the accurate portrayal of clouds is one of the glaring weaknesses with current simulations of climate change.

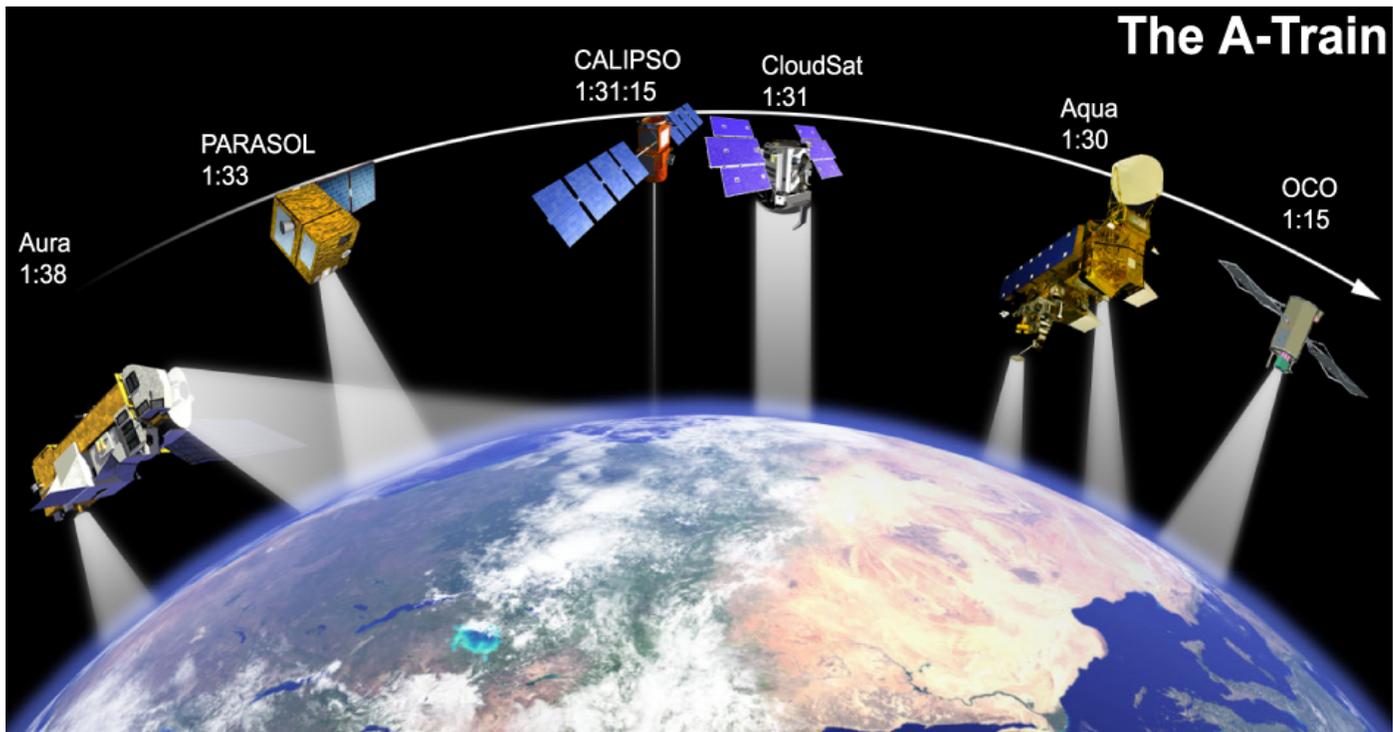
But this cloud data is even more valuable when combined with measurements from the other satellites in the A-Train—for example, air temperature, trace gases, and radiation into

and out of the atmosphere. Scientists can then see connections between, say, temperature and the resulting behavior of clouds. A better understanding of these connections is one of the most sought-after goals of climate research, because changes to global cloud cover would, in turn, have a feedback effect on global temperatures.

The real story of this satellite squadron may not make the tabloid headlines, but at least there's evidence that the imminent threat of climate change is real, which is a lot more than you can say for alien invaders!

Learn more about CloudSat and the A-Train at [cloudsat.atmos.colostate.edu](http://cloudsat.atmos.colostate.edu). Kids (and grownups) can do interactive cloud picture scrambles and learn "Cloudspeak" (the names of different kinds of clouds) at The Space Place, [spaceplace.nasa.gov/cloudsat\\_puz.htm](http://spaceplace.nasa.gov/cloudsat_puz.htm).

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



*CloudSat, to be launched in November 2004, will take its place as part of the "A-Train" of satellites flying in formation to take closely timed snapshots of essentially the same scene using a total of 14 different measuring instruments.*

## ABBREVIATED FINANCIAL REPORT

Nekaal-Bank,Cash,CC Accounts	
Cash Accounts	
As of 12/31/03	
<u>Acct</u>	<u>Balance</u>
<b>ASSETS</b>	
Cash and Bank Accounts	
Money Market	569.43
Money Market 2-Telescope Fund	3,398.00
Nekaal-checking	1,344.99
 TOTAL Cash and Bank Accounts	 5,312.42
<b>TOTAL ASSETS</b>	<b>5,312.42</b>
<b>LIABILITIES</b>	<b>0.00</b>
 <b>OVERALL TOTAL</b>	 <b>5,312.42</b>

NEKAAL Cash Flow Report		1/1/03 Through 10/12/03
<b>Category Description</b>		
<b>INFLOWS</b>		
Contributions		2,660.86
Contributions-in-kind		1,704.96
Dues 2003		790.00
Dues 2004		420.00
Interest Income		6.04
Net Sales:		157.48
<b>TOTAL INFLOWS</b>		<b>5,739.34</b>
<b>OUTFLOWS</b>		
Annual Report		40.00
Computer: Internet	120.00	
Computer Software	2,022.33	
Total Computer		2,142.33
Dues		125.50
FPO Utilities		444.25
Insurance on Bldg & Property		793.00
Maintenance Bldg. Construction		412.04
Newsletter Expenses		133.40
Postage		38.00
Repair & Maint		1115.47
Subscriptions:		
Magazine Subs	344.60	
Subs.payments recd	-344.60	
TOTAL Subscriptions		0.00
Telephone-Telephone Expense		427.78
<b>TOTAL OUTFLOWS</b>		<b>5,671.77</b>
<b>OVERALL TOTAL</b>		<b>67.57</b>

## Board and General Meetings, 2004

Remember that all members are invited to attend board meetings, or to ask the board to address issues for you. For all practical purposes, the board meetings constitute the business meetings of NEKAAL, and all of you have a right to participate. The schedule for 2004 meetings.

Month	Board	General	Month	Board	General
January	11	22	July	11	22
February	15	26	August	15	26
March	14	25	September	12	23
April	4	22	October	17	28
May	16	27	November	7	18
June	13	24	December	tba	tba

### 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!*

## FACILITIES REPORT by Bill Leifer

Preventive maintenance and supplies were performed for December. The wood molding at the front door is rotting due to carpenter ants and needs to be replaced. One of the supports to the wood walkway is sunken and needs to be raised. The area of digging on the East side needs to be tilled and re-sown with grass. Bill Leifer will get the exterminator to spray, and the repair projects will be organized as a weekend event when warm weather returns. The sink aerator has been purchased and will be installed.

The construction company at the site created the mailbox damage. They agreed to temporarily fix the mailbox, and then replace it when construction is over. Mail is temporarily being diverted to Bill Leifer's home. Bill Leifer agreed to end the transfer, with the temporary mailbox now fixed in place. It was decided that we would keep the FPO mailbox and not consider using MVHS as a mail drop due to accessibility issues. The post office box remains the preferred and busiest address for most club business.

## ASKC MEETINGS by Graham Bell

The Astronomical Society of Kansas City (ASKC), has two meetings coming up which should be of interest to members of NEKAAL. We have been invited to both.

On Saturday, January 24, at 7:00 pm Ken Crosswell is the featured speaker. He is the author of a number of as-

tronomy books, including *Magnificent Universe*, *Magnificent Mars*, *See the Stars: Your First Guide to the Night Sky*, and others. He will be autographing books. A bookstore will be present at the meeting selling his latest book *Magnificent Mars*.

David Levy, the noted comet finder,

lecturer and author will be featured at the February 21 meeting.

See <http://www.askconline.org/meetings.htm> for more information, including meeting locations, maps, and meeting times.

## SCIENTIFIC AMERICAN SPECIAL REPORT: by Graham Bell

The February 2004 issue of *Scientific American* is available on newsstands now (or will be shortly). This issue has a special report, *Four Keys to Cosmology* which should be of interest to many readers of *The Observer*. These articles contain no significant math, and are written for a general audience, at least an audience with an interest, as opposed to education, in science.

The four articles are:

### **The Cosmic Symphony**

This includes a discussion of the cosmic microwave background. Recent measurements have refined our knowledge significantly, and have revealed that the early universe actually vibrated, much like sounds from a tuning fork. It explores the methods to determine why the vibrations occurred, relationships between the visible horizon and the expansion of the universe. The information to be gleaned from the CMB can, in theory be used like the sounds of a violin. Those sounds let one discern the quality of the violin. Can the CMB let us discern the shape

of the early universe?

### **Reading the BluePrints of Creation**

"The latest maps of the cosmos have surveyed hundreds of thousands of galaxies, whose clustering has grown from primordial fluctuations."

Such is the introduction to this article, which explores galactic structures. The study of galactic structures provides information about the nature of dark matter, and allows us to test Einstein's cosmological principal. Projects such as the Sloan Digital Sky Survey allow us to relate the distribution of dark matter to that of ordinary matter.

### **From Slowdown to Speedup**

A few years ago when it was generally accepted that the universe was expanding, and that the rate of expansion was slowing. The question then was whether the rate was slowing enough to cause a flat or closed universe. The rate of expansion had to be slowing, because of the universal gravitational

attraction. Now we know better, the rate is increasing; something is pushing more powerfully than gravity is pulling. This article explores some of the results from research in the area, and discusses methods which will be used to further explain this dark energy of expansion.

### **Out of the Darkness**

The final article in the series explores some alternatives to the dark energy theory of cosmic acceleration. Perhaps gravity is leaking out of our world. From unseen dimensions to 'Branes' there are now a number of theories designed to explain this acceleration.

This collection of articles covers a number of current cosmological areas of research. The contents overlap, which helps tie them together. You won't be a cosmologist after reading these, but you will have a much clearer idea of current thinking on cosmology, and on the research directions of the next decade or so.



## 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 26, 2004, 7:30 pm  
Stoffer Science Hall, Room 103

**Jackie Boucher: Astronomical League**

## 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

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Dan Tibbets		Ddtfp@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

<b>February 13</b>	<b>7:30</b>	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

<b>January 23-24</b>	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	

*See Note on page 5*

## 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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