M67, the Little Beehive Cluster in the constellation Cancer, is high in the sky during March and April, and is about 2,700 light-years from Earth. It appears about the same size as the full Moon in the sky, but is much fainter. This is a wide-field image obtained on March 1, 2011 using a modified Canon T2i attached to an 8-cm refractor. One minute and 30 second exposure. Photo by Gary Kronk.

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River Bend Astronomy club serves astronomy enthusiasts of the American Bottom region, the Mississippi River bluffs and beyond, fostering observation, education, and a spirit of camaraderie.

Elected Officers
PRESIDENT          Jeff Menz
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Contacts
MAIL    River Bend Astronomy Club
        Jeff Menz
        13721 Kayser Road
        Highland, IL 62249-4619
WEB     www.riverbendastro.org
EMAIL   rbac@riverbendastro.org

River Bend Astronomy Club is a member of the Astronomical League, dedicated to fostering astronomical education, providing incentives for astronomical observation and research, and assisting communication among amateur astronomical societies.

www.astroleague.org

Monthly Meetings
Saturday, March 9, 2013 • 7:00 PM
Saturday, April 13, 2013 • 7:00 PM
Saturday, May 11, 2013 • 7:00 PM

For meeting locations, please see our calendar at
www.riverbendastro.org.

Looked Up Lately?
Join River Bend Astronomy Club

Want to learn more about astronomy? The members of River Bend Astronomy Club invite you to join. You won’t need expensive tools or special skills - just a passion for observing the natural world.

- Meetings offer learning, peeks through great telescopes, and fun under the stars.
- You will receive the club newsletter, Current Astronomy, packed with news and photos.
- Get connected with our member-only online discussion group.
- Borrow from the club’s multimedia library.
- Borrow from the club’s selection of solar telescopes.
- And that’s not all! Through club membership you also join the Astronomical League, with its special programs and colorful quarterly newsletter The Reflector to enrich your hobby.
- We meet monthly, observe regularly, email news and quips constantly, and generally have a good time. Won’t you join us?

Name________________________________________
Address______________________________________
City__________________State_______Zip__________
Phone________________________________________
Email address__________________________________
Where did you hear of our club?___________________
______________________________________________
How long have you been interested in astronomy?_____
Do you have optical equipment?___________________
Are you afraid of the dark? ___Yes   ___No (just kidding)
I am submitted my application for:
______Adult Membership(s)    ___Youth Membership(s)
$20/year each                 $15/year each
(18 yrs. and up)               (17 yrs. and under)
I enclose a check for $________________ made out to:
Mike Veith, Treasurer, RBAC
Signature__________________________
Date______________________________

Mail to: River Bend Astronomy Club
c/o Mike Veith, 1121 St. Louis St., Edwardsville, IL 62025.

Questions? Contact us by email at rbac@riverbendastro.org.
See Comet C/2011 L4 (PANSTARRS) in March
By Bill Breeden

Now is the time to look for comet C/2011 L4 (PANSTARRS). It is expected to be at its brightest between March 8 and March 12. Its closest approach to the Sun will be on Sunday, March 10, when it will be just 0.3AU (about 28 million miles) from the Sun.

Look for the comet just after sunset between March 8 and March 24. You will need a very flat and clear western horizon, and a darker location will help you see the comet.

The comet will be just 15 degrees from the Sun March 8-14, so you will need to look for it in twilight just after sunset. The ecliptic is tilted at a favorable steep angle this time of year, so the comet will stay above the horizon for over 30 minutes after sunset. This should make it easier to spot, but it will still be a challenge.

It is not known if the comet will display a long tail, a short tail, or any tail at all. It depends upon how much the comet reacts to the Sun’s radiation. It is expected to display a tail, but comets are known to be unpredictable at best!

The comet’s name, PANSTARRS, refers to the survey telescope in Haleakala, Hawaii that discovered the comet in June 2011. This is a 1.8-meter Ritchey-Chretien telescope that discovered the comet on four CCD images while the comet was at a faint magnitude 19.

The chart below (ephemeris) lists the comet’s position and magnitude from February 27 through March 24, 2013.

**EPHEMERIS FOR COMET C/2011 L4 (PANSTARRS)**

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Meet-A-Member:
Dan Brandon
By Dan Brandon

Hello my name is Dan Brandon. I have been a member of the River Bend Astronomy Club since July of 2012. I am 45 years old and repair office equipment for a living. I enjoy playing PC video games and I manage the 2 game servers and website for the clan/team I play for. I have two grown kids and was blessed with my first grandchild in September of 2012.

I have been interested in astronomy for many years but have only recently been able to resume exploring the wonders of the night sky. I have gained an interest in astrophotography so I am currently saving up for this expensive hobby. My current equipment consist of a 70mm Power Seeker from Celestron on an EQ-1 mount. I have added a clock drive to it and have also built my own remote control focusing drive (I have too much free time) an I have a Celestron Neximage 5 camera that I use for solar system imaging (see photos below). I am planning on buying an Orion Atlas 10 and I am hoping to have it by the end of the summer of 2013.

I have enjoyed the few outreaches that I have attended and look forward to attending more in the future. I look forward to sharing my knowledge and gaining new knowledge and insights into the world of astronomy. I look forward to meeting all the members of River Bend Astronomy Club.

Images by Dan Brandon.
Linking Earth-bound Martians
By Sarah Milkovich
Science Operations Systems Engineer

Every spacecraft requires engineers to build and operate, and scientists to determine what information the spacecraft will gather and to study the data once it is on the ground. Engineers and scientists are very different groups of people, with different priorities, and so they need someone who sits in-between them to help them work together successfully. That’s where I come in.

I am a scientist at the Jet Propulsion Laboratory who works embedded in the engineering teams for two different spacecraft, Mars Reconnaissance Orbiter and Mars Science Laboratory, which you may know better as the Curiosity rover. My science background lets me understand the concerns, priorities, and language of the science team, while my engineering experience lets me understand the limitations that our hardware and software place on the operations team.

For Curiosity, most of my work has involved making sure that the science team has the tools and the training to allow them to assemble a plan of the science activities for the rover to carry out each day. This responsibility included putting together the procedures that a science team member follows to get an activity into the plan. What are each of the steps involved? What exact information is provided to the engineering teams at what time, and in what format is that information? These were all questions that had to be considered, and the answers had to be fine-tuned as we went through our practice runs at rover operations (called Operational Readiness Tests) before Curiosity landed on Mars in August.

Using its robotic arm camera, Curiosity took a set of images that scientists stitched together to create this "self-portrait."

During the first 90 days of the mission, all of the science team moved to Pasadena and worked in the same building as the rover operations team. The scientists were able to debate face-to-face over what observations to take, work directly with the engineers that turned those decisions into commands for the rover, and to cheer as the data came down from Mars.

However, no matter how awesome it is to be telling a laser-shooting robot on the surface of Mars what to do, at some point you want to go home, see your family, and
sleep in your own bed. We needed to make sure that when our scientists returned home (all around the U.S., and also many countries including France, Spain, Canada, and Russia) that they were still able to do all the things that they had done here in Pasadena. How could scientists scattered across the world look over each other’s shoulders as they built a plan, and make suggestions and changes and quibble with each other’s decisions?

Ultimately we turned to a variety of web-based tools, including desktop sharing programs and teleconference lines to replicate individual meeting rooms, and a chat server to simulate being able to run around the floor to find someone who can answer your question. Getting our 400 scientists and 300 engineers switched over and comfortable with these tools was my job. It took a lot of troubleshooting and required patience, but the team has been operating under these new conditions since the start of November and it seems to be working well.

While my work on Curiosity is done and I’m moving on to another project, I’m pleased to know that my efforts will help the rover operations team do amazing things on the surface of Mars for years to come.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.
RBAC’s Monthly Observing Lists
These lists include brighter deep-sky objects that transit near 10:00 PM each month.

March Observing List
Prepared by Bill Breeden

### Double Stars (Astronomical League’s Double Star List)

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### Carbon Stars (Astronomical League’s Carbon Star List)

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### Royal Astronomical Society of Canada Objects

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April Observing List
Prepared by Bill Breeden

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______ 43. 54 Leonis SAO 81583 Const. LEO Type DS RA 10 55.6 Decl. +24° 45' Mag. 4.5 6.3
______ 44. N Hydrae SAO 179967 - Const. HYD Type DS RA 11 32.3 Decl. -29° 16' Mag. 5.8 5.9

Carbon Stars (Astronomical League’s Carbon Star List)
______ 51. U Hydrae SAO 156110 RA 10 37 33 Decl. -13 23 04 Mag. 4.5 – 6.2 Per. 450 Class C6.5 (N2)
______ 52. VY Ursae Majoris SAO 15274 RA 10 45 04 Decl. +67 24 40 Mag. 5.9 – 7.0 Per. Irr. Class C6 (N0)
______ 53. V Hydrae SAO 179278 RA 10 51 37 Decl. -21 15 00 Mag. 6.5 – 12.0 Per. 531 Class C6 – C7 (N6e)

Messier Objects
______ M65 NGC3623 Const. LEO Type GAL RA 11 18.9 Decl. +13 05 Mag. 9.3
______ M66 NGC3627 Const. LEO Type GAL RA 11 20.2 Decl. +12 59 Mag. 8.2
______ M95 NGC3351 Const. LEO Type GAL RA 10 44.0 Decl. +11 42 Mag. 10.4
______ M96 NGC3368 Const. LEO Type GAL RA 10 46.8 Decl. +11 49 Mag. 9.1
______ M97 NGC3587 Owl Nebula Const. UMA Type PN RA 11 14.8 Decl. +55 01 Mag. 9.9
______ M105 NGC3379 Const. LEO Type GAL RA 10 47.8 Decl. +12 35 Mag. 9.2
______ M108 NGC3556 Const. UMA Type GAL RA 11 15.5 Decl. +55 40 Mag. 10.7
______ M109 NGC3992 Const. UMA Type GAL RA 11 57.6 Decl. +53 23 Mag. 10.8

Caldwell Objects
______ C40 NGC3626 Const. LEO Type SG RA 11 20 06.00 Decl. +18 21 00.0 Mag. 10.9
______ C53 NGC3115 Spindle Galaxy Const. SEX Type EG RA 10 05 12.00 Decl. -07 43 00.0 Mag. 9.1
______ C59 NGC3242 Ghost of Jupiter Const. HYA Type PN RA 10 24 48.00 Decl. -18 38 00.0 Mag. 8.6
______ C74 NGC3132 Const. VEL Type PN RA 10 07 42.00 Decl. -40 26 00.0 Mag. 8.2
______ C79 NGC3201 Const. VEL Type GC RA 10 17 36.00 Decl. -46 25 00.0 Mag. 6.7
______ C91 NGC3532 Const. CAR Type OC RA 11 06 24.00 Decl. -58 40 00.0 Mag. 3
______ C92 NGC3372 Eta Carina Nebula Const. UMA Type PN RA 10 43 48.00 Decl. -59 52 00.0 Mag. 6.2
______ C97 NGC3766 Const. CEN Type OC RA 11 36 06.00 Decl. -61 37 00.0 Mag. 5.3
______ C100 IC2944 Lamda Centauri Cluster Const. CEN Type OC RA 11 36 36.00 Decl. -63 02 00.0 Mag. 4.5
______ C102 IC2602 Theta Carina Cluster Const. CAR Type OC RA 10 43 12.00 Decl. -64 24 00.0 Mag. 1.9
______ C119 NGC3195 Const. CHA Type PN RA 10 09 30.00 Decl. -80 52 00.0 Mag.

Royal Astronomical Society of Canada Objects
______ 41. NGC3079 Const. UMA Type G-Sb RA 10 02.2 Decl. +55 41 Mag. 10.6
______ 42. NGC3184 Const. UMA Type G-Sc RA 10 18.3 Decl. +41 25 Mag. 9.7
______ 43. NGC3877 Const. UMA Type G-Sb RA 11 46.1 Decl. +47 30 Mag. 10.9
______ 44. NGC3941 Const. UMA Type G-E3 RA 11 52.9 Decl. +36 59 Mag. 9.8
______ 45. NGC4026 Const. UMA Type G-S0 RA 11 59.4 Decl. +50 58 Mag. 10.7
______ 49. NGC3115 Const. SEX Type G-E6 RA 10 05.2 Decl. -07 43 Mag. 9.2
______ 50. NGC3242 Ghost of Jupiter Const. HYA Type PN RA 10 24.8 Decl. -18 38 Mag. 8.6
______ 52. NGC3344 Const. LMI Type G-Sc RA 10 43.5 Decl. +24 55 Mag. 9.9
______ 53. NGC3432 Const. LMI Type G-SBm RA 10 52.5 Decl. +36 37 Mag. 11.3
______ 55. NGC3384 Const. LEO Type G-E7 RA 10 48.3 Decl. +12 38 Mag. 9.9
______ 56. NGC3521 Const. LEO Type G-Sb RA 11 05.8 Decl. -00 02 Mag. 8.7
______ 57. NGC3607 Const. LEO Type G-E1 RA 11 16.9 Decl. +18 03 Mag. 10
______ 58. NGC3628 Const. LEO Type G-Sb RA 11 20.3 Decl. +13 36 Mag. 9.5