



Current Astronomy

RIVER BEND ASTRONOMY CLUB NEWSLETTER

MAY/JUNE
2009



Members of the River Bend Astronomy Club at the 2009 Messier Marathon at Greenville College. Photo by Mike Veith.

See article beginning on page 3.



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.

Officers and administrators

PRESIDENT	Gary Kronk
VICE-PRESIDENT	Jamie Goggin
TREASURER	Mike Veith
LEAGUE CORRESPONDENT	Bill Breeden
SECRETARY	Bill Breeden
OUTREACH COORDINATORS	Jeff & Terry Menz
LIBRARIAN	Kathy Kronk
FOUNDING MEMBERS	Ed Cunnius Kurt Sleeter

Contacts

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Affiliated with 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



Affiliated with the NASA Night Sky Network, a nationwide coalition of amateur astronomy clubs bringing the science, technology and inspiration of NASA's missions to the general public.

Current Astronomy

EDITOR	Bill Breeden
EDITOR EMERITUS & GRAPHIC DESIGN	Eric Young

Monthly Meetings

Saturday, May 16, 2009 * 7:00 PM
 Saturday, June 20, 2009 * 7:00 PM
 Saturday, July 18, 2009 * 7:00 PM
 Kronk Observatory
 132 Jessica Drive, St. Jacob, IL 62281

Looked Up Lately?

Join River Bend Astronomy Club

Want to learn more about astronomy? The members of RiverBend 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 Gary Kronk, 132 Jessica Drive, St. Jacob, IL 62281.
 Email: rbac@riverbendaastro.org

The River's Edge

Mary Hebert Completes Her Messier Certificate

By Bill Breeden

Mary has been working on her Messier observations for nearly two years, and it has all paid off! She handed me (a copy of!) her Messier observing logs, containing a total of 74 Messier objects. She has painstakingly found each one by star hopping, and thoroughly documented her observations.

She has been working toward her Messier Club Certificate, one of the many observing clubs offered by the Astronomical League. The certificate is awarded to observers who log 70 or more Messier objects. Well done, Mary!



Mary Hebert prepares for a night of finding Messier objects at the Messier Marathon. Photo by Bill Breeden.



Mary Hebert and her Celestron refractor. Photo by Bill Breeden.

River Bend Messier Marathon 2009

By Bill Breeden

Could we have had more fun? I don't think so... Our 2009 Messier Marathon was held at Greenville Observatory on April 25, 2009, and a great time was had by all who attended. Despite predictions for 50% cloud cover, the skies stayed generally clear during the evening and temperatures were in the 70s. Who could ask for anything more?

About 10 telescopes and their owners attended the Marathon, and many folks logged more time at the eyepiece than in recent memory. The galaxies of Virgo and Coma Berenices beckoned, and we answered the call. Jamie Goggin, armed with his big 12 inch Dobsonian, offered up spectacular views of M81 and M82, galaxies in Ursa Major, in one field of view. Breathtaking!



River Bend Astronomy Club members setting up for a night of stargazing at the 2009 Messier Marathon. Photo by Bill Breeden.



Members get a surprise visitor at the 2009 Messier Marathon. Canis Minor, perhaps?



Jeff Menz and his 10" Meade LX-5 Schmidt-Cassegrain telescope. Perhaps more important is his TeleVue Ethos 13mm eyepiece, also shown. Photo by Bill Breeden.



Mike Veith and his Meade ETX125 Maksutov-Cassegrain telescope. Photo by Bill Breeden.



Bruce Kryfka and his 11" Celestron Schmidt-Cassegrain telescope. He was very happy to have it back from Dr. Sherrod, in tip-top shape. Photo by Bill Breeden.



Lee Paul and his refractor, complete with an 11mm TeleVue Nagler eyepiece. Photo by Bill Breeden.



Bill Breeden and his 8" Meade LX90 Schmidt-Cassegrain telescope. Oh look, another TeleVue Nagler eyepiece! This one is the 13mm. Photo by Mike Veith.



Jamie Goggin and his 12" Discovery Dobsonian reflector telescope. Wow - the views we had in this light bucket were incredible! The illusive M101 was even visible! Photo by Bill Breeden.



Donnie Reagan and his 8" Orion Intelliscope. This telescope has an object locator with a database of thousands of deep-sky objects.
Photo by Bill Breeden.



River Bend Astronomy Club members looking at their observing lists at the 2009 Messier Marathon.
Photo by Bill Breeden.



The official mascots of the 2009 Messier Marathon.
The true story of these doggies - no one knew who they belonged to! They just showed up at the marathon and kept us all company throughout the whole event. Popular opinion was that they are country dogs and the owner didn't know how much fun they were having.
Photo by Bill Breeden.

The NASA Space Place

Scoring More Energy from Less Sunlight

For spacecraft, power is everything. Without electrical power, satellites and robotic probes might as well be chunks of cold rock tumbling through space. Hundreds to millions of miles from the nearest power outlet, these spacecraft must somehow eke enough power from ambient sunlight to stay alive.

That's no problem for large satellites that can carry immense solar panels and heavy batteries. But in recent years, NASA has been developing technologies for much smaller microsattellites, which are lighter and far less expensive to launch. Often less than 10 feet across, these small spacecraft have little room to spare for solar panels or batteries, yet must still somehow power their onboard computers, scientific instruments, and navigation and communication systems.

Space Technology 5 was a mission that proved, among other technologies, new concepts of power generation and storage for spacecraft.

“We tested high efficiency solar cells on ST-5 that produce almost 60 percent more power than typical solar cells. We also tested batteries that hold three times the energy of standard spacecraft batteries of the same size,” says Christopher Stevens, manager of NASA’s New Millennium Program. This program flight tests cutting-edge spacecraft technologies so that they can be used safely on mission-critical satellites and probes. “This more efficient power supply allows you to build a science-grade spacecraft on a miniature scale,” Stevens says. “Solar cells typically used on satellites can convert only about 18 percent of the available energy in sunlight into electrical current. ST-5 tested experimental cells that capture up to 29 percent of this solar energy. These new solar cells, developed in collaboration with the Air Force Research Laboratory in Ohio, performed flawlessly on ST-5, and they’ve already been swooped up and used on NASA’s svelte MESSENGER probe, which will make a flyby of Mercury later this year. □

Like modern laptop batteries, the high-capacity batteries on ST-5 use lithium-ion technology. As a string of exploding laptop batteries in recent years shows, fire safety can be an issue with this battery type.

“The challenge was to take these batteries and put in a power management circuit that protects against internal overcharge,” Stevens explains. So NASA contracted with ABSL Power Solutions to develop spacecraft batteries with design control circuits to prevent power spikes that can lead to fires. “It worked like a charm.”

Now that ST-5 has demonstrated the safety of this battery design, it is flying on NASA’s THEMIS mission (for Time History of Events and Macroscale Interactions during Substorms) and is slated to fly aboard the Lunar Reconnaissance Orbiter and the Solar Dynamics Observatory, both of which are scheduled to launch later this year.

Thanks to ST-5, a little sunlight can go a really long way.

Find out about other advanced technologies validated in space and now being used on new missions of exploration at nmp.nasa.gov/TECHNOLOGY/scorecard. Kids can calculate out how old they would be before having to replace lithium-ion batteries in a handheld game at spaceplace.nasa.gov/en/kids/st5_bats.shtml.

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



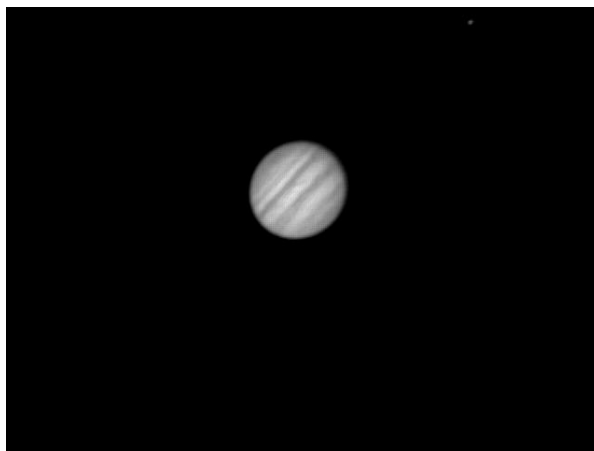
River Johnson, a spacecraft technician at NASA's Goddard Space Flight Center, works on one of the three tiny Space Technology 5 spacecraft in preparation for its technology validation mission.

Member Bruce Kryfka Gives Astrophotography a Go

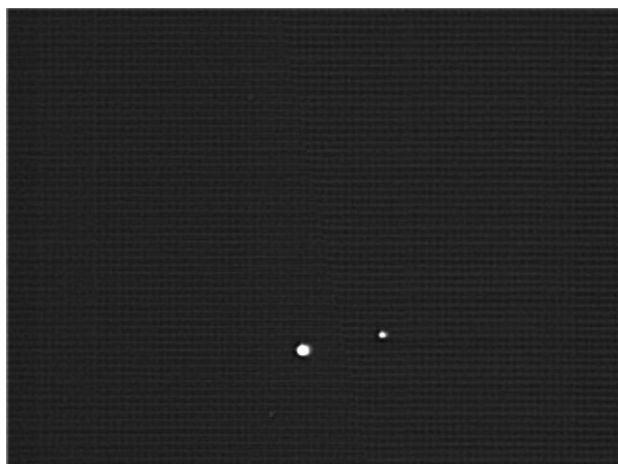
By Bill Breeden

Bruce Kryfka, longtime member of River Bend Astronomy Club, sent in three astrophotos for us to enjoy. He writes, "Here are 3 photos that I have. The Albireo photo would look a lot better in color but I lack that capability right now. The others would also look better in color but I think they look good in B&W."

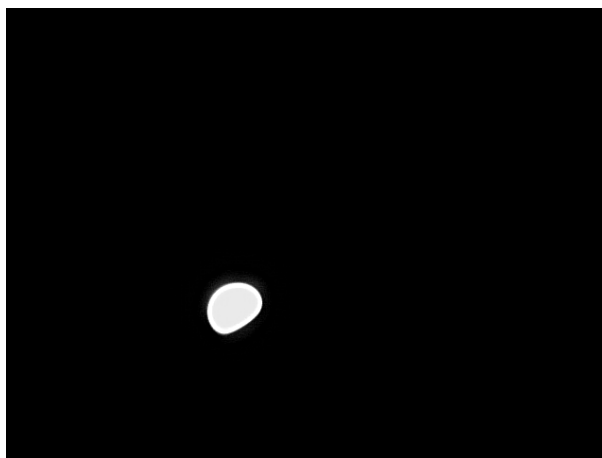
Well, Bruce, I think all 3 photos are excellent, and they certainly give us a good idea of what you actually saw through the telescope.



Jupiter. Photo by Bruce Kryfka.



Albireo. Photo by Bruce Kryfka.



Venus. Photo by Bruce Kryfka.

Edwardsville Children's Museum Needs YOU On October 24!

By Bill Breeden

2009 is the International Year of Astronomy, so I sent an email to the Edwardsville Children's Museum in May (late, I know!) asking if they would like members of River Bend Astronomy Club to come out and host an event for them this year. Karla Danford, Director of Exhibits and Events at the museum, has responded with an enthusiastic YES! She would like RBAC to host an observing and presentation event on Saturday, October 24, 2009, from 6:30 to 8:30 pm. Mark your calendar, and if you can help, please plan on arriving at 5:30 for set up.



Current Astronomy is Back!

RBAC Newsletter to be Published 6 Times a Year Website Gets Some Updates

By Bill Breeden

When I volunteered to write up articles for the RBAC web site 2 years ago, I didn't know what I was getting into. Sure, I had written articles for this newsletter before, but Eric Young put the newsletter together, every month. That's a lot of work, and I knew I didn't have the skills to do that. Nevertheless, I did volunteer to update the web site regularly, with the small, insignificant little detail that I did not know one line of HTML code. Oops!

Oh well, after 2 years, I have mastered enough HTML knowledge to be dangerous, so I have "fixed" the website back to its original glory, and managed to update it as well. But what about this newsletter?

Members of River Bend discussed it at the May 2009 meeting, and we decided to publish news stories - about our club activities - on a regular basis. The best way to do that is, (Eric knew this all along) is to publish a newsletter. Now I am not so ambitious as to try this every month, but I *am* going to try to get to it every two months.

So, starting with this issue, *Current Astronomy* will be published 6 times a year: January, March, May, July, September, and November. Each issue will carry a two-month label (such as "May/June" for this issue). Wish me luck on this task!

I receive regular articles from NASA for *The Space Place* column, but I am going to need members to send me articles and photos if we are going to keep the newsletter interesting and informative. Besides, you may get tired of my writing after a while!

Sincerely,
Bill Breeden
Editor

By Bill Breeden

In Spring of 2009, I signed up for an HTML class so that I could learn the basics of web design. Little did I know how fun this class would be! Within 2 months, I was writing HTML code and feeling like I actually understood most of it!

Anyway, in my haste to update the RBAC website 2 years ago, I had made a few updates using MS Word. Not a good idea, but it was better than nothing. Unfortunately, Word leaves a lot of clutter behind in the code, making future updates difficult. One of my goals after my class was to go in and restore the RBAC site to its original state, then go in and update it the right way.

Result: The RBAC website (www.riverbendastro.org) has been updated, and all the links are working now. If you haven't looked at our site for a while, give it a look.

Back issues of *Current Astronomy* are available on our web site in the NEWS section. I will also be archiving this newsletter there, along with forthcoming issues. This will serve as a sort of "history" of what our club has been doing.

If you have any comments or suggestions about this newsletter or the website, please email me at williambreeden@sbcglobal.net.

My sincere "Thanks!" goes out to Eric Young for all his years of service to RBAC as secretary and editor.

And remember to send me those articles and photos!

Sincerely,
Bill Breeden
Editor

Looked Up Lately?

Observing is what we are about, so here are deep-sky observing lists for May and June.

May Observing List

Prepared by Bill Breeden

Double Stars

- _____ 24 Comae Berenices SAO 100160 Const. COM Type DS RA 12 35.1 Decl. +18° 23' Mag. 5.2 6.7
- _____ 32 Camelo- pardalis SAO 2101 Const. CAM Type DS RA 12 49.2 Decl. +83° 25' Mag. 5.3 5.8
- _____ Alpha Canum Venaticorum SAO 63256 Cor Caroli Const. CVN Type DS RA 12 56.0 Decl. +38° 19' Mag. 2.9 5.5
- _____ Delta Corvi SAO 157323 Algorah Const. CRB Type DS RA 12 29.9 Decl. -16° 31' Mag. 3.0 9.2
- _____ Gamma Virginis SAO 138917 Porrima Const. VIR Type DS RA 12 41.7 Decl. -01° 27' Mag. 3.5 3.5
- _____ Zeta Ursae Majoris SAO 28737 Mizar Const. UMA Type DS RA 13 23.9 Decl. +54° 56' Mag. 2.3 4.0 4.0

Messier Objects

- _____ M3 NGC5272 Const. CVN Type GC RA 13 42.2 Decl. +28 23 Mag. 6.3
- _____ M40 WIC4 Const. UMA Type DS RA 12 22.4 Decl. +58 05 Mag. 9.1
- _____ M49 NGC4472 Const. VIR Type GAL RA 12 29.8 Decl. +08 00 Mag. 8.5
- _____ M51 NGC5194 Whirlpool Galaxy Const. CVN Type GAL RA 13 29.9 Decl. +47 12 Mag. 8.1
- _____ M53 NGC5024 Const. COM Type GC RA 13 12.9 Decl. +18 10 Mag. 7.6
- _____ M58 NGC4579 Const. VIR Type GAL RA 12 37.7 Decl. +11 49 Mag. 9.2
- _____ M59 NGC4621 Const. VIR Type GAL RA 12 42.0 Decl. +11 39 Mag. 9.6
- _____ M60 NGC4649 Const. VIR Type GAL RA 12 43.7 Decl. +11 33 Mag. 8.9
- _____ M61 NGC4303 Const. VIR Type GAL RA 12 21.9 Decl. +04 28 Mag. 10.1
- _____ M63 NGC5055 Const. CVN Type GAL RA 13 15.8 Decl. +42 02 Mag. 9.5
- _____ M64 NGC4826 Black Eye Galaxy Const. COM Type GAL RA 12 56.7 Decl. +21 41 Mag. 8.8
- _____ M68 NGC4590 Const. HYA Type GC RA 12 39.5 Decl. -26 45 Mag. 8
- _____ M83 NGC5236 Const. HYA Type GAL RA 13 37.0 Decl. -29 52 Mag. 7.6
- _____ M84 NGC4374 Const. VIR Type GAL RA 12 25.1 Decl. +12 53 Mag. 9.3
- _____ M85 NGC4382 Const. COM Type GAL RA 12 25.4 Decl. +18 11 Mag. 9.3
- _____ M86 NGC4406 Const. VIR Type GAL RA 12 26.2 Decl. +12 57 Mag. 9.7
- _____ M87 NGC4486 Const. VIR Type GAL RA 12 30.8 Decl. +12 24 Mag. 9.2
- _____ M88 NGC4501 Const. COM Type GAL RA 12 32.0 Decl. +14 25 Mag. 10.2
- _____ M89 NGC4552 Const. VIR Type GAL RA 12 35.7 Decl. +12 33 Mag. 9.5
- _____ M90 NGC4569 Const. VIR Type GAL RA 12 36.8 Decl. +13 10 Mag. 10
- _____ M91 NGC4548 Const. COM Type GAL RA 12 35.4 Decl. +14 30 Mag. 9.5
- _____ M94 NGC4736 Const. CVN Type GAL RA 12 50.9 Decl. +41 07 Mag. 7.9
- _____ M98 NGC4192 Const. COM Type GAL RA 12 13.8 Decl. +14 54 Mag. 11.7
- _____ M99 NGC4254 Const. COM Type GAL RA 12 18.8 Decl. +14 25 Mag. 10.1
- _____ M100 NGC4321 Const. COM Type GAL RA 12 22.9 Decl. +15 49 Mag. 10.6
- _____ M104 NGC4594 Sombrero Galaxy Const. VIR Type GAL RA 12 40.0 Decl. -11 37 Mag. 8.7
- _____ M106 NGC4258 Const. CVN Type GAL RA 12 19.0 Decl. +47 18 Mag. 8.6

Caldwell Objects

- _____ C003 NGC4236 Const. DRA Type SG RA 12 16 42.00 Decl. +69 28 00.0 Mag. 9.7
- _____ C021 NGC4449 Const. CVN Type IG RA 12 28 12.00 Decl. +44 06 00.0 Mag. 9.4
- _____ C026 NGC4244 Const. CVN Type SG RA 12 17 30.00 Decl. +37 49 00.0 Mag. 10.6
- _____ C029 NGC5005 Const. CVN Type SG RA 13 10 54.00 Decl. +37 03 00.0 Mag. 9.8
- _____ C032 NGC4631 Const. CVN Type SG RA 12 42 06.00 Decl. +32 32 00.0 Mag. 9.3
- _____ C035 NGC4889 Const. COM Type EG RA 13 00 06.00 Decl. +27 59 00.0 Mag. 11.4
- _____ C036 NGC4559 Const. COM Type SG RA 12 36 00.00 Decl. +27 58 00.0 Mag. 9.8
- _____ C038 NGC4565 Const. COM Type SG RA 12 36 18.00 Decl. +25 59 00.0 Mag. 9.6
- _____ C045 NGC5248 Const. BOO Type SG RA 13 37 30.00 Decl. +08 53 00.0 Mag. 10.2
- _____ C052 NGC4697 Const. VIR Type EG RA 12 48 36.00 Decl. -05 48 00.0 Mag. 9.3
- _____ C060 NGC4038 The Antennae Const. CRV Type SG RA 12 01 54.00 Decl. -18 52 00.0 Mag. 11.3
- _____ C061 NGC4039 The Antennae Const. CRV Type SG RA 12 01 54.00 Decl. -18 53 00.0 Mag. 13

_____ C077 NGC5128 Cen A Radio Source Const. CEN Type EG RA 13 25 30.00 Decl. -43 01 00.0 Mag. 7
 _____ C080 NGC5139 Omega Centauri Const. CEN Type GC RA 13 26 48.00 Decl. -47 29 00.0 Mag. 3.6
 Royal Astronomical Society of Canada Objects
 _____ RASC46 NGC4088 Const. UMA Type G-Sc RA 12 05.6 Decl. +50 33 Mag. 10.5
 _____ RASC47 NGC4157 Const. UMA Type G-Sb RA 12 11.1 Decl. +50 29 Mag. 11.9
 _____ RASC48 NGC4605 Const. UMA Type G-SBcp RA 12 40.0 Decl. +61 37 Mag. 9.6
 _____ RASC59 NGC4111 Const. CVN Type G-S0 RA 12 07.1 Decl. +43 04 Mag. 10.8
 _____ RASC60 NGC4214 Const. CVN Type G-Irr RA 12 15.6 Decl. +36 20 Mag. 9.7
 _____ RASC61 NGC4244 Const. CVN Type G-S RA 12 17.5 Decl. +37 49 Mag. 10.2
 _____ RASC62 NGC4449 Const. CVN Type G-Irr RA 12 28.2 Decl. +44 06 Mag. 9.4
 _____ RASC63 NGC4490 Const. CVN Type G-Sc RA 12 30.6 Decl. +41 38 Mag. 9.8
 _____ RASC64 NGC4631 Const. CVN Type G-Sc RA 12 42.1 Decl. +32 32 Mag. 9.3
 _____ RASC65 NGC4656/7 Const. CVN Type G-Sc RA 12 44.0 Decl. +32 10 Mag. 10.4
 _____ RASC66 NGC5005 Const. CVN Type G-Sb RA 13 10.9 Decl. +37 03 Mag. 9.8
 _____ RASC67 NGC5033 Const. CVN Type G-Sb RA 13 13.4 Decl. +36 36 Mag. 10.1
 _____ RASC68 NGC4274 Const. COM Type G-Sb RA 12 19.8 Decl. +29 37 Mag. 10.4
 _____ RASC69 NGC4414 Const. COM Type G-Sc RA 12 26.4 Decl. +31 13 Mag. 10.2
 _____ RASC70 NGC4494 Const. COM Type G-E1 RA 12 31.4 Decl. +25 47 Mag. 9.8
 _____ RASC71 NGC4559 Const. COM Type G-Sc RA 12 36.0 Decl. +27 58 Mag. 9.8
 _____ RASC72 NGC4565 Const. COM Type G-Sb RA 12 36.3 Decl. +25 59 Mag. 9.6
 _____ RASC73 NGC4725 Const. COM Type G-Sb RA 12 50.4 Decl. +25 30 Mag. 9.2
 _____ RASC74 NGC4038/9 Antennae Galaxies Const. CRV Type G-Sc RA 12 01.9 Decl. -18 52 Mag. 10.7
 _____ RASC75 NGC4361 Const. CRV Type PN RA 12 24.5 Decl. -18 48 Mag. 10.3
 _____ RASC76 NGC4216 Const. VIR Type G-Sb RA 12 15.9 Decl. +13 09 Mag. 9.9
 _____ RASC77 NGC4388 Const. VIR Type G-Sb RA 12 25.8 Decl. +12 40 Mag. 11
 _____ RASC78 NGC4438 Const. VIR Type G-Sap RA 12 27.8 Decl. +13 01 Mag. 10.1
 _____ RASC79 NGC4517 Const. VIR Type G-Sc RA 12 32.8 Decl. +00 07 Mag. 10.5
 _____ RASC80 NGC4526 Const. VIR Type G-E7 RA 12 34.0 Decl. +07 42 Mag. 9.6
 _____ RASC81 NGC4535 Const. VIR Type G-Sc RA 12 34.3 Decl. +08 12 Mag. 9.8
 _____ RASC82 NGC4567/8 Const. VIR Type G-Sc RA 12 36.5 Decl. +11 15 Mag. ~11
 _____ RASC83 NGC4699 Const. VIR Type G-Sa RA 12 49.0 Decl. -08 40 Mag. 9.6
 _____ RASC84 NGC4762 Const. VIR Type G-SB0 RA 12 52.9 Decl. +11 14 Mag. 10.2

June Observing List

Prepared by Bill Breeden

Double Stars

_____ Alpha Librae SAO 158836 Zuben El Genubi Const. LIB Type DS RA 14 50.9 Decl. -16° 02' Mag. 2.8 5.2
 _____ Delta Bootis SAO 64589 Alrakis Const. BOO Type DS RA 15 15.5 Decl. +33° 19' Mag. 3.5 8.7
 _____ Delta Serpentis SAO 101623 Const. SER Type DS RA 15 34.5 Decl. +10° 32' Mag. 4.2 5.2
 _____ Epsilon Bootis SAO 83500 Izar Const. BOO Type DS RA 14 45.0 Decl. +27° 04' Mag. 2.5 4.9
 _____ Iota Bootis SAO 29071 Const. BOO Type DS RA 14 16.2 Decl. +51° 22' Mag. 4.9 7.5
 _____ Kappa Bootis SAO 29045 Const. BOO Type DS RA 14 13.5 Decl. +51° 47' Mag. 4.6 6.6
 _____ Mu Bootis SAO 64686 Const. BOO Type DS RA 15 24.5 Decl. +37° 23' Mag. 4.3 7.0
 _____ Pi Bootis SAO 101138 Const. BOO Type DS RA 14 40.7 Decl. +16° 25' Mag. 4.9 5.8
 _____ Xi Bootis SAO 101250 Const. BOO Type DS RA 14 51.4 Decl. +19° 06' Mag. 4.7 7.0
 _____ Zeta Coronae Borealis SAO 64833 Const. CRB Type DS RA 15 39.4 Decl. +36° 38' Mag. 5.1 6.0

Messier Objects

_____ M5 NGC5904 Const. SER Type GC RA 15 18.6 Decl. +02 05 Mag. 6.2
 _____ M101 NGC5457 Pinwheel Galaxy Const. UMA Type GAL RA 14 03.2 Decl. +54 21 Mag. 9.6
 _____ M102 NGC? 5866 Const. DRA Type GAL RA 15 06.5 Decl. +55 46 Mag. 10

Caldwell Objects

_____ C066 NGC5694 Const. HYA Type GC RA 14 39 36.00 Decl. -26 32 00.0 Mag. 10.2

Royal Astronomical Society of Canada Objects

_____ RASC85 NGC5746 Const. VIR Type G-Sb RA 14 44.9 Decl. +01 57 Mag. 10.6
 _____ RASC86 NGC5466 Const. BOO Type GC RA 14 05.5 Decl. +28 32 Mag. 9.1
 _____ RASC87 NGC5907 Const. DRA Type G-Sb RA 15 15.9 Decl. +56 19 Mag. 10.4