Current Astronomy

MARCH
2005

RIVER BEND ASTRONOMY CLUB NEWSLETTER

The appearance of the Triangulum Galaxy, Messier 33, a few million years ago when this light began a blazing journey toward Earth. The dimmest object most people can see with unaided eyes, this galaxy yields its secrets through a telescope. PHOTO BY MARK BROWN

RIVER BEND ASTRONOMY CLUB

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.*

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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.
nightsky.jpl.nasa.gov

Current Astronomy CLUB NEWSLETTER

EDITOR	Eric Young younger@wustl.edu

Monthly Meeting

Saturday, March 12th, 2005 • 7:00 p.m.

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 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 web site and discussion group.

• Borrow from the club's multimedia library.

• And that's not all! Through club membership you also join the Astronomical League, with its special programs and a colorful quarterly newsletter to enrich your hobby.

We meet monthly, observe regularly, e-mail news and quips constantly, and generally have a good time. Won't you join us?

Name(s) _____

Address _____

City _____ State _____ Zip _____

Phone (Day)_____ (Evening)_____

Email address (to receive club news and information):

_____

Where did you hear of our club?

_____

How long have you been interested in astronomy? _____

Do you have optical equipment? ___ Telescope ___ Binoculars

Are you afraid of the dark? ___ Yes ___ No (just kidding)

I am submitting my application for:

_____ Adult membership(s) @ $20.00/year (18 years or older)

_____ Youth membership(s) @ $15.00/year (under 18)

I enclose a check for a total of $_____
made out to "Mike Veith, Treasurer, RBAC."

Signature _____

Date _____

River Bend Astronomy Club
c/o Gary Kronk, 132 Jessica Drive, St. Jacob, IL 62281
web: riverbendastro.org e-mail: riverbendastro@att.net

SEPTEMBER 04

Ringed wonder

Saturn offers remarkable views from near and far

BY MARK BROWN

Saturn is the sixth planet from the Sun and the second-largest planet in our solar system. It has beautiful rings that are made mostly of ice and ice-coated chunks of rock ranging in size from a few millimeters to the size of a car.

Saturn is visible without using a telescope, but a small aperture telescope is needed to see its rings. Galileo first observed the rings in 1610 but his telescope was not powerful enough to unambiguously resolve the ring system. Although he saw the rings first, Galileo did not know what they were. They appeared to him as 'ears' or lobes on either side of the planet. It was Christian Huygens who, around 1655, recognized that Saturn was surrounded by a thin, flat ring, nowhere touching it. Observations by Jean-Domenique Cassini, in 1675 discovered what is known today as the 'Cassini Division', the narrow gap separating Saturn's rings into two major parts. This narrow gap is about 2,170 miles wide.

Saturn's atmosphere is almost entirely hydrogen and helium gas with small amounts of methane and ammonia ice crystals. Saturn's hazy yellow hue is marked by broad atmospheric banding, but because of Saturn's cooler temperatures the horizontal bands, are more subdued than those seen on Jupiter.

Saturn imaged with the Philips ToUcam Pro through an 8-inch SCT and 2x Barlow on February 3, 2005. Using Registax software Mark Brown aligned and stacked 357 images from a 2-minute AVI and then did minor color processing with Photoshop.

Background: Mimas drifts along in its orbit against the azure backdrop of Saturn's northern latitudes in this true color view. The image was obtained using the Cassini spacecraft narrow angle camera on January 18, 2005, at a distance of approximately 1.4 million kilometers (870,000 miles) from Saturn.

NASA/JPL/SPACE SCIENCE INSTITUTE.

A winter star-hop

Enjoyable observing under less-than-ideal conditions

BY "BACKYARD" BILL BREEDEN

Friday night, February 4, 2005, offered clear skies for the first time in (it felt like) weeks. Sunset was 5:30 p.m., and I began observing at 8:00 p.m. from my light-polluted backyard. It was fairly mild outside for February, so it was time to do some observing.

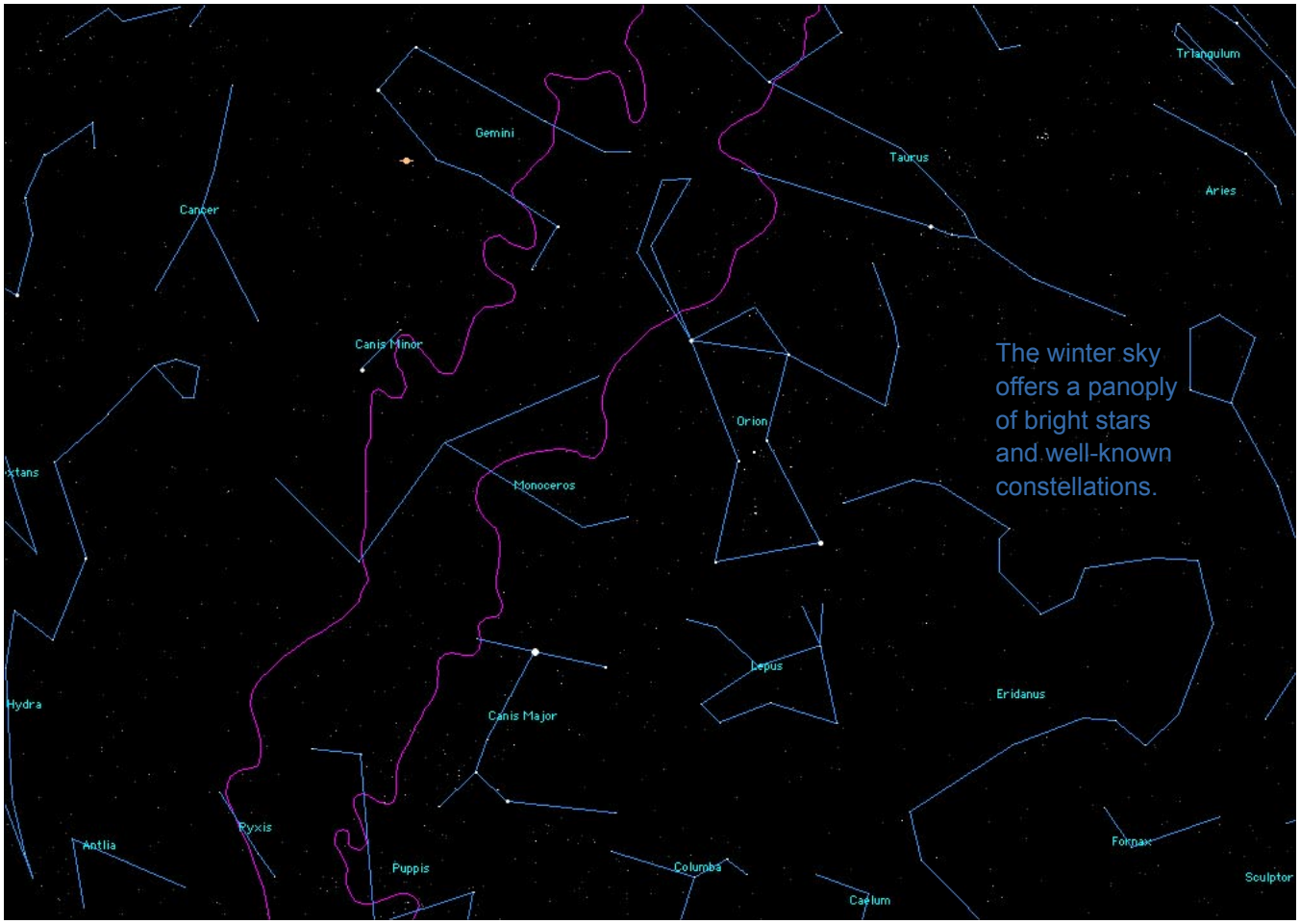
First I set up my 8" Meade LX90 Schmidt-Cassegrain telescope (SCT) and aligned it on Sirius. I didn't even bother with a second alignment star, as I wanted to start observing.

I took the time to observe Sirius in Canis Major as long as I was using it for alignment. This star is obviously very bright, and it's bluish color was apparent in the 26mm eyepiece.

Next I made the small leap from Sirius to M41, an open cluster. I switched to an Orion 32mm eyepiece (which I got for Christmas — *Yes!*), and studied M41 closely for a while. The *Cambridge Star Atlas* shows this cluster at magnitude 4.5, and it was very bright even from the city.

I then observed open clusters M46 and M47 in Puppis. I didn't exactly star-hop there...I used the LX90's RA and Dec display to slew there, the same way one would use digital setting circles. M47 is quite a bit brighter than M46, but both were quite pretty in the 32mm eyepiece.

Next, I observed Saturn, currently near Castor



The winter sky offers a panoply of bright stars and well-known constellations.

I wondered: How many other people in the city tonight even know this awesome thing is out here? I felt like I had M45 all to myself, like it was my little secret.

and Pollux in Gemini. In the 32mm eyepiece, Saturn appears small but very bright and clear. I added an Orion 2x Barlow (also a Christmas gift) to give some magnification. At 100x, Saturn looked remarkable, and Titan was apparent at about 4 ring-diameters from Saturn. I switched to a 26mm with the 2x Barlow, giving about 150x. Atmospheric disturbances marred the image at this magnification, but I could just make out the dark line of the Cassini Division.

Since I only aligned on one star (Sirius), I tried using the telescope's Goto feature to point to M42 in Orion, and to my surprise, the telescope slewed right to it, and centered in perfectly in the eyepiece, even though I still had the 26mm with 2x Barlow attached. Whoa — *a near perfect alignment*. Let's see what else is out tonight!

I requested that the Goto point to M45 (The Pleiades) in Taurus, even though I could find it myself. The scope pointed right to it, so I switched to low power and studied the Seven Sisters. From light-polluted city skies, this open cluster appears absolutely breathtaking. I wondered: How many other people in the city tonight even know this awesome thing is out here? I felt like I had M45 all to myself, like it was my little secret. I could even see a little nebulosity!

You must understand something — I have possibly the absolute worst conditions imaginable for backyard astronomy in the St. Louis area. I live right next door to a gas station, complete with six gas pumps (fumes) and 14 bright lights. This does not include the 10 dusk-to-dawn lights near our house. Add to that the car headlights beaming through our backyard fence, and the world's brightest mercury lamp that goes on and off to blind me regularly. Our house and two trees block the north, northeast, east, and southeast skies below about 40 degrees in altitude. The 14 lights of the gas station fog my western sky. Let's not even talk about the truck lights. That I can even see Sirius is a miracle. However, when I look up, I can still see second magnitude stars with the unaided eye. The 8" SCT has brought 8th magnitude objects within my reach, even in this light-polluted environment. Under dark skies, this scope (supposedly) can reach magnitude 13.

I encourage anyone interested in astronomy to go outside and observe, even if conditions are far from ideal. I'm doing it, even though it seems unbelievable sometimes!

I next slewed the 8" SCT to Castor in Gemini. Castor is a tight double star, so I set out to split it. In the 26mm EP, I could see Castor and another dimmer star just beside it. I thought this may be Castor's companion, but it was not. I switched to a 12mm eyepiece with 2x Barlow (330x) and behold! Castor appeared as a very, very tight double. The *Cambridge Star Atlas* indicates Castor's separation as four arcseconds.

I ended my observing session with 64 and 65 Gem, two very close stars near Pollux.

Clear Skies to Everyone!
Bill Breeden

THE SIMPLE LIFE

Observing report from Ed Cunnius in Maryland

"I went out on February 12th with only the 10x50 binoculars and a lawn chair for equipment. Sometimes it's good to leave all the elaborate gear behind and just enjoy the stars. Got a good look at the comet (Machholz C/2004 Q2), then hit most of the old winter favorites. Nothing lets you roam and remember, as well as explore and discover, like the wide field of binoculars. It was a beautiful, still night after a day of wind and patchy clouds. Temps were just above freezing, which is balmy for February. Had a blast."

BY PATRICK L. BARRY

A different angle on climate change

Look toward the horizon in almost any major city, and you'll clearly see the gray-brown layer of smog and air pollution. Yet when you look straight up, the sky can appear perfectly blue; you might think there's no smog at all!

The smog is overhead as well, but it's much harder to see. Why is there such a difference?

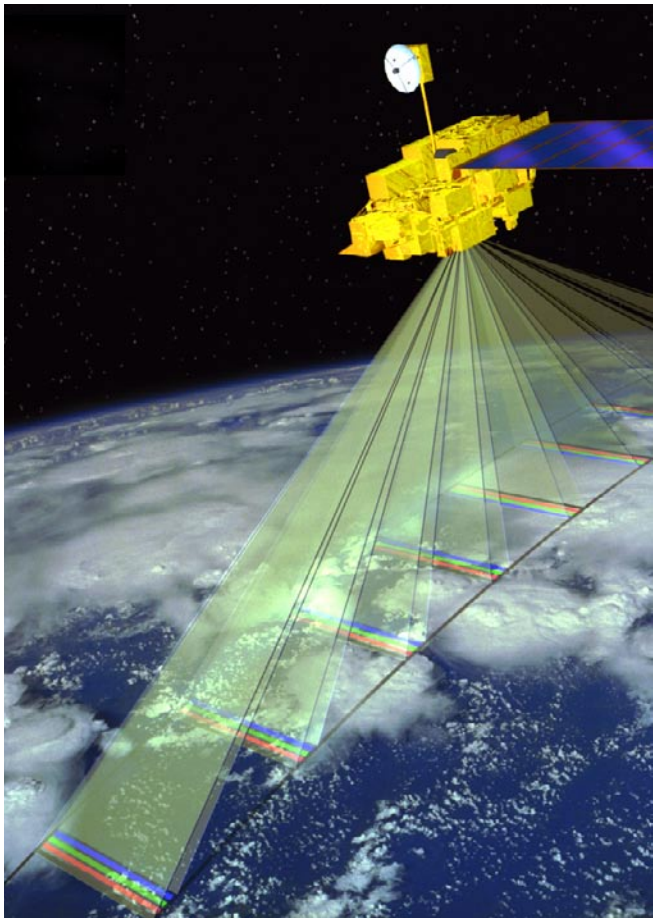
It comes down to viewing angles: A vertical line straight up through the atmosphere crosses much less air than a line angled toward the horizon. Less air means less smog, so the sky overhead looks blue. On the other hand, when you look toward the horizon, you're looking through a lot more air. The smog is easier to see.

A one-of-a-kind sensor aboard NASA's Terra satellite capitalizes on this angle effect to get a better view of how clouds and air pollutants scatter and absorb sunlight. By doing so, this sensor — called the Multi-angle Imaging SpectroRadiometer (MISR for short) — is helping scientists fill in a major piece of the climate change puzzle.

Most satellite instruments look only straight down at the Earth. Layers of airborne particles (called aerosols) and smog are harder to see with this vertical view, and clouds often appear only as two-dimensional sheets of white. Clouds and aerosols both can reflect incoming sunlight back out to space, thus cooling the planet. But they can also absorb sunlight and trap heat rising from below, thus helping warm the planet.

What is the net effect? MISR helps scientists figure this out by looking at the atmosphere at several angles — nine to be exact. Its nine cameras fan out across a range of angles from steeply looking forward (70.5 degrees from vertical), to straight down, to the same steep angle backwards. As the Terra satellite passes over a region, the cameras successively view the region at nine different angles.

From these data, scientists can construct a three-dimensional picture of the cloud cover, revealing much more about cloud dynamics than a flat image alone.



The MISR instrument on the Terra satellite views the atmosphere and Earth's surface from nine different angles.

They can also see light bouncing off aerosol pollution from nine different directions, thus getting a fuller picture of how aerosols scatter sunlight. And they can even spot thin layers of heat-trapping air pollutants that might go unnoticed by other satellites.

All this information comes just from looking at the atmosphere from a different angle.

For more information, see http://www-misr.jpl.nasa.gov. Kids can learn about MISR, see MISR images, and do an online MISR crossword at http://spaceplace.nasa.gov/en/kids/misr_xword/misr_xword2.shtml

The River's Edge

BY ERIC YOUNG

Even groundhogs get the blues

FEBRUARY 12, 2005 These days, deep-sky observing means you have a quarter-mile of visibility on the ground. Other than that it's thick, gray clouds overhead. After all, Punxsatawny Phil predicted six more weeks of winter... Club president Gary Kronk is redecorating his house and had no furniture in his living room so we carried in kitchen chairs or sat on the floor. It was cozy and informal — what else would you expect from RBAC?

ACCORDING TO HOYLE-TON A gang from Hoyleton, Illinois — which is somewhere between St. Jacob and New York — came to visit. A group there is really getting into our favorite subject and they've purchased telescopes and a StarLab planetarium. We discussed collaboration; they invited us to come see their dark skies sometime...

SPAM The club has a new e-mail address: riverbendastro@charter.net. Mark Brown will monitor this account; he takes over from the old account manager, Ed Cunnius. In assuming this reponsibility Mark hopes that more spam messages for male performance-enhancers and masculinity-boosters will come his way — this following the revelation in last month's newsletter that Mark is a Barry Manilow fan. Mark was really hoping I wouldn't bring that up again. Fat chance.

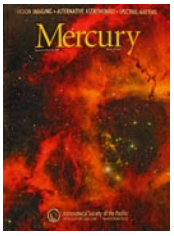
SCROOGE MCVEITH He's already got one hand on your wallet. New treasurer Mike Veith has set up an RBAC account at a secret Edwardsville bank. Gary Kronk and Jamie Goggin's names will be on the account in case Mike's ever hit by a bus on his way to deposit our millions. Mike proposes a fee schedule whereby if you join in the first quarter you pay full price, second quarter fifteen bucks, third quarter ten bucks, and fourth quarter we pay you, or something like that.

SHIRT SALES T-shirt sales rang up $50 last year. Now it's in our treasury (a.k.a. Mike's pocket.)

ASTRO DAY Some 40 requests for donations have gone out to vendors. Mark Brown is looking for special themes to explore on Astronomy Day, April 12th. He needs volunteers with time and telescopes. E-mail him at loneastronomer@charter.net.

IDLY MARCHING ON On March 12th we'll have Mercury at its greatest elongation, the Galilean moons neatly arranged, and a gaggle of Messier objects overhead. As we were reminded during a Night Sky Network presentation (see photo, below), all the stars visible in our sky are part of the Milky Way galaxy. Seems like a pretty nice neighborhood. Join us in St. Jacob and get to know your neighbors!

NASA Night Sky Network updates: *On February 4 the Menz family presented* Planet Quest *to the Highland Elementary School 3rd grade class. During our February meeting, Mark Brown (pictured in photo, right) introduced the latest kit,* Our Place in Our Galaxy. *The kit is available to all RBAC members for use in educational programs. A quote from Mark about the Network was featured in* Mercury *magazine's Sept.–Oct. 2004 issue. Remember, Mark will attend a JPL event this spring as a prize for our participation in the Network.*



March 2005

February 2005

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	1	2	3	4	5

April 2005

S	M	T	W	T	F	S
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Holidays · Moon Phases · RBAC · Space Mission · Observing · Trivia

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	1	2	3 Last quarter 11:36 a.m. Moon occults Antares	4	5
6	7	8 28th day Mike Veith rethinks becoming treasurer	9 Cassini Enceladus & Tethys flyby	10 New Moon 3:10 a.m.	11	12 RBAC meeting 7 p.m.
13 Percival Lowell b. 1855	14 Giovanni Schiaparelli b. 1835	15	16 Caroline Herschel b. 1750	17 St. Patrick's Day First quarter 1:19 p.m.	18	19
20 Vernal Equinox Sun-Earth Day	21	22	23	24	25 Good Friday Full Moon 2:58 p.m.	26
27 Easter	28	29	30 Mercury close to Venus	31 Jovian moons cluster @ 9:30 p.m.	1	2

CALENDAR BY ED CUNNIUS