Current Astronomy

RIVER BEND ASTRONOMY CLUB NEWSLETTER

MARCH/APRIL 2012

The Beehive, open cluster M44, puts on quite a display during March and April.
Photo by Gary Kronk.

INSIDE THIS ISSUE

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

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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

Check out our **online calendar** on 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.

Monthly Meetings

Saturday, March 24, 2012 • 7:00 PM
Saturday, April 21, 2012 • 7:00 PM
Saturday, May 19, 2012 • 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.

Messier *Half* Marathon, Anyone?

By Bill Breeden

If you're like me, you have always wanted to try observing all 109 Messier objects during a "Messier Marathon." For those new to amateur astronomy, a Messier Marathon is typically an event held by astronomy clubs in which members attempt to find and observe the entire Messier catalog (109 objects) in a single night. Some try it without the advantage of using a goto system or setting circles, to add to the challenge.

Near the spring equinox each year, it is possible to observe the entire Messier list in one night. This is because the Sun's position at this time of year is far enough away from all the objects to allow for their observation. This is an amazing coincidence – the Sun is near right ascension 0 hours and declination 0 degrees near the Spring equinox, and Charles Messier certainly did not intentionally neglect this part of the sky.

I have never completed a Messier Marathon. I guess I just have to admit that I do not have the stamina to stay out all night and observe the entire Messier catalog. Also, I am not sure that my telescope battery would go all night, and I am sure that dew (or frost) would cover my telescope.

But what about a *half* Marathon? Runners do it all the time. Why not astronomers? I think I could make it to midnight or 1:00AM. I've done that before at dark-site star parties. If we did a half Messier Marathon, we could do the other half in September, when the Sun is at the 12 hour line of right ascension. What a cool idea! Why didn't we think of this before?

Of course, if you want to go for the whole Marathon, more power to you. This issue of *Current Astronomy* includes the entire Messier catalog in Marathon-observing sequence, with breaks in the list for the two half-marathons.

The Messier Marathon (or half-Marathon if you prefer) will be held on Saturday, March 24 at Menz Observatory, weather permitting. There is no cloud-out date planned.

18th-century comet hunter, Charles Messier.

Directions to Menz Observatory:

Menz Observatory is located at 13721 Kayser Road, Highland, IL 62249-4619.

GPS users: Latitude/Longitude: 38.729927 / -89.628041.

From St. Jacob, continue EAST on Rt. 40. About 2.6 miles past St. Jacob, cross the railroad tracks at Highland Road and proceed into Highland. Continue on Highland Road, which turns into Broadway in town. Continue traveling EAST on Broadway. You will pass the town square on your left. From the intersection at Broadway and Poplar, continue traveling EAST on Broadway (which becomes St. Rose Rd. at Iberg Rd.). Kayser Rd. is 2.4 miles from the Broadway/Poplar intersection, just past Sugar Creek and our lovely new bridge. The road sign is on the right, turn LEFT onto Kayser Rd. Our house is the second one on the left on the hill, grey with burgundy shutters.

You may park in the grass on the uphill (east) side of the driveway or on the road. Please leave the driveway open for early departures.

Sunset is at 7:16pm on Saturday, March 24, and there will be a 2-day old crescent Moon setting in the west. We can meet and setup between 6:00 and 6:30 or so. Keep an eye on the forecast!

Two Half Messier Marathons

If you decide to do a half-Marathon, we can do the other half during our September observing session, currently scheduled for Saturday, September 15, 2012, also at Tamalco boat ramp. Due to the Sun's position, a full Messier marathon is not possible in September, but the second half-Marathon is do-able.

The list of Messier objects, on pages 5 through 8, is presented in Marathon observing sequence. I have divided the list into two half-Marathons, one for March and the other for September. The March half includes 57 Messier objects with right ascensions between 4 hours and 15 hours. The September half includes the remaining 53 objects, with right ascensions between 16 hours and 3 hours. For both half-Marathons, these objects will be observable between sunset and 1AM, and they will be well above the horizon. This way, you won't need to chase down objects just after the sun sets (or just before the sun rises), as you would with the full Marathon.

You can always do a mini-Messier Marathon each month by observing all the Messier objects listed in each issue of this newsletter. Our monthly column, *RBAC's Monthly Observing Lists,* makes it easy. After a year, you will have observed the entire Messier catalog! Some observers will undoubtedly probably prefer this method, as you have more time to study and enjoy each object.

Happy observing!
RBAC

No.	M#	NGC#	Con	Type	RA	Dec	Mag.	Distance (kly)
September Half-Marathon objects, part 1.								
1.	M77	1068	Cet	5	02 40.1	-00 14	8.9	30000
2.	M74	628	Psc	5	01 24.0	+15 32	10.2	20000
3.	M33	598	Tri	5	01 31.1	+30 24	6.7	2300
4.	M31	224	And	5	00 40.0	+41 00	4.8	2200
5.	M32	221	And	6	00 40.0	+40 36	8.7	2200
6.	M110	205	And	6	00 37.6	+41 25	9.4	2200
7.	M52	7654	Cas	1	23 22.0	+61 20	7.3	7
8.	M103	581	Cas	1	01 29.9	+60 27	7.4	8
9.	M76	650	Per	3	01 38.8	+51 19	10.2	3.4
10.	M34	1039	Per	1	02 38.8	+42 34	5.5	1.4
11.	M45	-	Tau	1	03 43.9	+23 58	1.6	0.4
March Half-Marathon objects.								
12.	M79	1904	Lep	2	05 22.2	-24 34	8.4	54
13.	M42	1976	ori	4	05 32.9	-05 25	4.0	1.6
14.	M43	1982	Ori	4	05 33.1	-05 18	9.1	1.6
15.	M78	2068	Ori	4	05 44.2	+00 02	10.3	1.6
16.	M1	1952	Tau	9	05 31.5	+21 59	8.2	6
17.	M35	2168	Gem	1	06 05.7	+24 20	5.3	2.8
18.	M37	2099	Aur	1	05 49.0	+32 33	6.2	4.6
19.	M36	1960	Aur	1	05 32.0	+34 07	6.3	4.1
20.	M38	1922	Aur	1	05 25.3	+35 48	7.4	4.2
21.	M41	2287	CMa	1	06 44.9	-20 42	4.6	2.4
22.	M93	2447	Pup	1	07 42.4	-23 45	6.0	4.5
23.	M47	2422	Pup	1	07 34.3	-14 22	4.5	1.6
24.	M46	2437	Pup	1	07 39.6	-14 42	6.0	5.4
25.	M50	2323	Mon	1	07 00.5	-08 16	6.3	3
26.	M48	2548	Hya	1	08 11.2	-05 38	5.3	1.5
27.	M44	2632	Cnc	1	08 37.5	+19 52	3.7	0.5
28.	M67	2628	Cnc	1	08 48.3	+12 00	6.1	2.25
29.	M95	3351	Leo	5	10 41.3	+11 58	10.4	25000
30.	M96	3368	Leo	5	10 44.2	+12 05	9.1	25000
31.	M105	3379	Leo	6	10 45.2	+12 51	9.2	25000
32.	M65	3623	Leo	5	11 16.3	+13 23	9.3	35000

No.	M#	NGC#	Con	Type	RA	Dec	Mag.	Distance (kly)
33.	M66	3627	Leo	5	11 17.6	+13 17	8.2	35000
34.	M81	3031	UMa	5	09 51.5	+69 18	7.9	7000
35.	M82	3034	UMa	7	09 51.9	+69 56	8.8	7000
36.	M97	3587	UMa	3	11 2.0	+55 18	12.0	2.6
37.	M108	3556	UMa	5	11 08.7	+55 57	10.7	25000
38.	M109	3992	UMa	5	11 55.0	+53 39	10.8	25000
39.	M40	-	UMa	8	12 20.0	+58 22	9.1	?
40.	M106	4258	CVn	5	12 16.5	+47 35	8.6	25000
41.	M94	4736	CVn	5	12 48.6	+41 23	7.9	14500
42.	M63	5055	CVn	5	13 13.5	+42 17	9.5	14500
43.	M51	5194	CVn	5	13 27.8	+47 27	8.1	15000
44.	M101	5457	UMa	5	14 01.4	+54 35	9.6	15000
45.	M102?	5866	Dra	5	15 06.5	+55 45	10.0	40000
46.	M53	5024	Com	2	13 10.5	+18 26	7.6	60
47.	M64	4826	Com	5	12 54.3	+21 57	8.8	12000
48.	M3	5272	CVn	2	13 39.9	+28 38	6.3	30
49.	M98	4192	Com	5	12 11.3	+15 11	11.7	70000
50.	M99	4254	Com	5	12 16.3	+14 42	10.1	70000
51.	M100	4321	Com	5	12 20.4	+16 06	10.6	70000
52.	M85	4382	Com	6	12 22.8	+18 28	9.3	70000
53.	M84	4374	Vir	6	12 22.6	+13 10	9.3	70000
54.	M86	4406	Vir	6	12 23.7	+13 13	9.7	70000
55.	M87	4486	Vir	6	12 28.3	+12 40	9.2	70000
56.	M89	4552	Vir	6	12 33.1	+12 50	9.5	70000
57.	M90	4569	Vir	5	12 34.3	+13 26	10.0	70000
58.	M88	4501	Com	5	12 29.5	+14 42	10.2	70000
59.	M91	4548	Com	5	12 32.9	+14 46	9.5	70000
60.	M58	4579	Vir	5	12 35.1	+12 05	9.2	70000
61.	M59	4621	Vir	6	12 39.5	+11 55	9.6	70000
62.	M60	4649	Vir	6	12 41.1	+11 49	8.9	70000
63.	M49	4472	Vir	6	12 27.3	+08 16	8.5	70000
64.	M61	4303	Vir	5	12 19.4	+04 45	10.1	70000
65.	M104	4594	Vir	5	12 37.3	-11 21	8.7	50000
66.	M68	4590	Hya	2	12 36.8	-26 29	8.0	40
67.	M83	5236	Hya	5	13 34.3	-29 37	10.1	8000
68.	M5	5904	Ser	2	15 16.0	+02 16	6.2	30

No.	M#	NGC#	Con	Type	RA	Dec	Mag.	Distance (kly)

September Half-Marathon objects, part 2.

No.	M#	NGC#	Con	Type	RA	Dec	Mag.	Distance (kly)
69.	M13	6205	Her	2	16 39.9	+36 33	5.7	25
70.	M92	6341	Her	2	17 17.1	+43 08	6.5	36
71.	M57	6720	Lyr	3	18 51.7	+32 58	9.3	4.1
72.	M56	6779	Lyr	2	19 14.6	+30 05	8.2	40
73.	M29	6913	Cyg	1	20 22.2	+38 21	7.1	7.2
74.	M39	7092	Cyg	1	21 30.4	+48 13	5.2	0.825
75.	M27	6853	Vul	3	19 57.4	+22 35	7.6	1.25
76.	M71	6838	Sge	2	19 51.4	+18 39	9.0	8.5
77.	M107	6171	Oph	2	16 29.7	-12 57	9.2	10
78.	M12	6218	Oph	2	16 44.6	-01 52	6.6	16
79.	M10	6254	Oph	2	16 54.5	-04 02	6.7	16
80.	M14	6402	Oph	2	17 35.0	-03 13	7.7	23
81.	M9	6333	Oph	2	17 16.2	-18 28	7.3	25
82.	M4	6121	Sco	2	16 20.6	-26 24	6.4	10
83.	M80	6093	Sco	2	16 14.1	-22 52	7.7	36
84.	M19	6273	Oph	2	16 59.5	-26 11	6.6	20
85.	M62	6266	Oph	2	16 58.1	-30 03	6.6	26
86.	M6	6405	Sco	1	17 36.8	-32 11	5.3	2
87.	M7	6475	Sco	1	17 50.7	-34 48	4.1	1
88.	M11	6705	Sct	1	18 48.4	-06 20	6.3	6
89.	M26	6694	Sct	1	18 42.5	-09 27	9.3	5
90.	M16	6611	Ser	1	18 16.0	-13 48	6.4	7
91.	M17	6618	Sgr	4	18 18.0	-16 12	7.5	5
92.	M18	6613	Sgr	1	18 17.0	-17 09	7.5	6
93.	M24	>6603	Sgr	1	18 15.5	-18 27	4.6	10
94.	M25	I4725	Sgr	1	18 28.8	-19 17	6.5	2
95.	M23	6494	Sgr	1	17 54.0	-19 01	6.9	4.5
96.	M21	6531	Sgr	1	18 01.8	-22 30	6.5	3
97.	M20	6514	Sgr	4	17 58.9	-23 02	9.0	2.2
98.	M8	6523	Sgr	4	18 01.6	-24 20	6.0	6.5
99.	M28	6626	Sgr	2	18 21.5	-24 54	7.3	15
100.	M22	6656	Sgr	2	18 33.3	-23 58	5.9	10
101.	M69	6637	Sgr	2	18 28.1	-32 23	8.9	25

No.	M#	NGC#	Con	Type	RA	Dec	Mag.	Distance (kly)
102.	M70	6681	Sgr	2	18 40.0	-32 21	9.6	65
103.	M54	6715	Sgr	2	18 52.0	-30 32	8.0	50
104.	M55	6809	Sgr	2	19 36.9	-31 03	5.0	20
105.	M75	6864	Sgr	2	20 03.2	-22 04	8.0	100
106.	M15	7078	Peg	2	21 27.6	+11 57	6.0	40
107.	M2	7089	Aqr	2	21 30.9	-01 03	6.3	50
108.	M72	6981	Aqr	2	20 50.7	-12 44	9.8	60
109.	M73	6994	Aqr	8	20 56.7	-12 50	9.0	?
110.	M30	7099	Cap	2	21 37.5	-23 25	8.4	40

Key:

Type:
1=Open Cluster, 2=Globular Cluster, 3=Planetary Nebula, 4=Diffuse Nebula,
5=Spiral Galaxy, 6=Elliptical Galaxy, 7=Irrgeular Galaxy,
8=Multiple Star System, 9=SNR

ra = right ascension in hours minutes.decimal seconds
dec = declination in degrees minutes
Mag. = apparent visual magnitude
Distance = distance in kilo-light-years (thousands of light-years)

RBAC

The Pleiades
(Second of a Series)

By Gary Kronk

Observing in Ancient Times

Besides the fanciful stories of the Pleiades discussed in the previous story, people around the world were observing the star cluster. Many cultures found that the Pleiades played an important calendrical role, sometimes referring to agriculture and sometimes helping with sailing. They began drawing pictures of the Pleiades on rocks and they were aligning temples toward the point on the horizon where they Pleiades rose.

Simulated eyepiece view of the Pleiades (M45). Photo by Gary Kronk.

What may be the earliest log of an observation of the Pleiades exists in the Lascaux cave in France. During September 1940 four teenagers chased their dog into a hole in the ground near Lascaux. They brought shovels to open it up and found a cave. Upon entering they noted that their lamps barely pierced the darkness until they came upon a narrowing of the passage. It was then that they noted paintings on the walls. Studies of the caves began immediately.

Although the paintings themselves cannot be dated, charred wood was found buried in the dirt floor of the Lascaux caves. W. F. Libby, the father of the radiocarbon dating technique, was the co-author of a paper published in 1951 which dated a number of archaeological sites, including Lascaux. The conclusion was that the charred wood was 15516±900 years old.[1]

Among the most intriguing paintings in Lascaux are those in the "Salle des Taureaux" or the "Hall of Bulls." H. Eelsalu (1985) commented that the Aurochs speckled with dots in the cave might be depicting stars.[2] This concept was further examined during the 1990s, when several researchers suggested Auroch #18 could represent the constellation Taurus, complete with the Pleiades and Hyades star clusters. The reason is because the bull painting has a V-shaped set of dots on its face, while another set of dots is located above the shoulder. There is another set of four dots to the left of the bull.

In her doctoral thesis "Arte y astronomia: evolucion de los dibujos de las constelaciones" (1992), the Spanish researcher Luz Antequera Congregado agreed with Eelsalu that the dots on the face represented the Hyades, while the dots located above the shoulder were the Pleiades. She also suggested the dots to the left represented the belt of Orion, even though there were four dots instead of three.

Michael A. Rappenglück, a German scholar at the University of Munich, also believes the dots above the bull represent the Pleiades. He first suggested this at an astronomy conference in 1996 and published his arguments in a 1997 essay "The Pleiades in the "Salle des Taureaux" Grotte des Lascaux." Rappenglück also believes the art at Lascaux is a complete depiction of zodiacal constellations, with a bull representing each constellation.

A few millennia later, ancient architects designed buildings which were oriented in some fashion with the Pleiades in mind. Charles Piazzi Smyth wrote Our Inheritance in the Great Pyramid in 1877. He said the Great Pyramid in Egypt was built at the time when the "equinoctial point was still in Taurus [near] where the Pleiades stars appear." During the last 135 years, other writers have suggested that the seven chambers of this pyramid represented the seven stars of the Pleiades, while a tunnel directed toward the south indicated the beginning of a new year whenever the meridian of the Pleiades crossed the opening at midnight. Francis C. Penrose wrote in an 1893 issue of the Proceedings of the Royal Society of London, "On the Acropolis of Athens there are two temples, both dedicated to Minerva, lying within a few yards of one another, both apparently oriented to the [rising of the] Pleiades, the older temple to an earlier position of the star group, and the other to a later one."

Notes:
[1] J. R. Arnold and W. F. Libby, “Radiocarbon Dates,” *Science*, **113** (1951 Feb. 2), p. 112.
[2] Heino Eelsalo, *Ajastult ajastule*. Tallinn: Valgus (1985), p. ??.
RBAC

Election Time!

By Bill Breeden

Nominations have started arriving, so if you would like to nominate a member for a leadership role, let us know! Or, if you would like to take on a leadership role, nominate yourself! The River Bend Astronomy Club has been around for more than 10 years, and turnover in leadership will mean fresh ideas and new adventures. Don’t be shy!

Our club has four elected officer positions, for which voting is required. The other four administrative positions are available for the asking simply by volunteering your services. See page 2 for the list of leadership positions.

To vote, login to the RBAC Yahoo Group at www.yahoo.com/groups. Use your Yahoo email address as your login and enter your password. Post a message stating your nomination(s), or what you would like to do for the club. Or, simply let us know at our next meeting.

New horizons await us! RBAC

The Hidden Power of Sea Salt, Revealed

By Dauna Coulter

Last year, when NASA launched the Aquarius/SAC-D satellite carrying the first sensor for measuring sea salt from space, scientists expected the measurements to have unparalleled sensitivity. Yet the fine details it's revealing about ocean saltiness are surprising even the Aquarius team.

"We have just four months of data, but we're already seeing very rich detail in surface salinity patterns," says principal investigator Gary Lagerloef of Earth & Space Research in Seattle. "We're finding that Aquarius can monitor even small scale changes such as specific river outflow and its influence on the ocean."

Using one of the most sensitive microwave radiometers ever built, Aquarius can sense as little as 0.2 parts salt to 1,000 parts water. That's about like a dash of salt in a gallon jug of water.

"You wouldn't even taste it," says Lagerloef. "Yet Aquarius can detect that amount from 408 miles above the Earth. And it's working even better than expected."

Salinity is critical because it changes the density of surface seawater, and density controls the ocean currents that move heat around our planet. A good example is the Gulf Stream, which carries heat to higher latitudes and moderates the climate.

"When variations in density divert ocean currents, weather patterns like temperature and rainfall are affected. In turn, precipitation and evaporation, and fresh water from river outflow and melt ice determine salinity. It's an intricately connected cycle."

The atmosphere is the ocean's partner. The freshwater exchange between the atmosphere and the ocean dominates the global water cycle. Seventy-eight percent of global rainfall occurs over the ocean, and 85 percent of global evaporation is from the ocean. An accurate picture of the ocean's salinity will help scientists better understand the profound ocean/atmosphere coupling that determines climate variability.

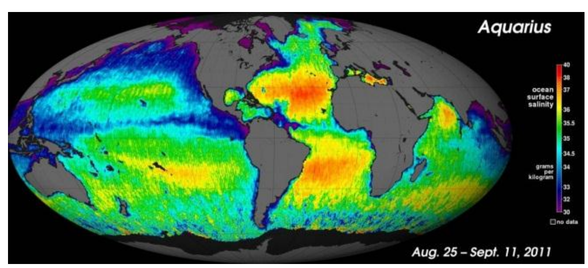
"Ocean salinity has been changing," says Lagerloef.

"Decades of data from ships and buoys tell us so. Some ocean regions are seeing an increase in salinity, which means more fresh water is being lost through evaporation. Other areas are getting more rainfall and therefore lower salinity. We don't know why. We just know something fundamental is going on in the water cycle."

With Aquarius's comprehensive look at global salinity, scientists will have more clues to put it all together. Aquarius has collected as many sea surface salinity measurements in the first few months as the entire 125-year historical record from ships and buoys.

"By this time next year, we'll have met two of our goals: a new global map of annual average salinity and a better understanding of the seasonal cycles that determine climate."

Stay tuned for the salty results. Read more about the Aquarius mission at aquarius.nasa.gov.
Other NASA oceanography missions are Jason-1 (studying ocean surface topography), Jason-2 (follow-on to Jason-1), Jason-3 (follow-on to Jason-2, planned for launch in 2014), and Seawinds on the QuikSCAT satellite (measures wind speeds over the entire ocean). The GRACE mission (Gravity Recovery and Climate Experiment), among its other gravitational field studies, monitors fresh water supplies underground. All these missions, including Aquarius, are sponsors of a fun and educational ocean game for kids called "Go with the Flow" at spaceplace.nasa.gov/ocean-currents.



Aquarius produced this map of global ocean salinity. It is a composite of the first two and a half weeks of data. Yellow and red represent areas of higher salinity, with blues and purples indicating areas of lower salinity.

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
________ 38 Lyncis SAO 61391 Const. LYN Type DS RA 09 18.8 Decl. +36° 48' Mag. 3.9 6.6
________ Iota Cancri SAO 80415 Const. CNC Type DS RA 08 46.7 Decl. +28° 46' Mag. 4.2 6.6
________ Zeta Cancri SAO 97645 Const. CAN Type DS RA 08 12.2 Decl. +17° 39' Mag. 5.6 6.0
Messier Objects
________ M44 NGC2632 Preseape or Beehive Cluster Const. CNC Type OC RA 08 40.1 Decl. +19 59 Mag. 3.7
________ M48 NGC2548 Const. HYA Type OC RA 08 13.8 Decl. -05 48 Mag. 5.3
________ M67 NGC2682 Little Beehive Cluster Const. CNC Type OC RA 08 50.4 Decl. +11 49 Mag. 6.1
________ M81 NGC3031 Ursa Major Galaxies Const. UMA Type GAL RA 09 55.6 Decl. +69 04 Mag. 7.9
________ M82 NGC3034 Ursa Major Galaxies Const. UMA Type GAL RA 09.55.8 Decl. +69 41 Mag. 8.8
Caldwell Objects
________ C048 NGC2775 Const. CNC Type SG RA 09 10 18.00 Decl. +07 02 00.0 Mag. 10.3
________ C054 NGC2506 Const. MON Type OC RA 08 00 12.00 Decl. -10 47 00.0 Mag. 7.6
________ C085 IC2391 Omicron Vela Cluster Const. VEL Type OC RA 08 40 12.00 Decl. -53 04 00.0 Mag. 2.5
________ C090 NGC2867 Const. CAR Type PN RA 09 21 24.00 Decl. -58 19 00.0 Mag. 9.7
Royal Astronomical Society of Canada Objects
________ RASC36 NGC2539 Const. PUP Type OC RA 08 10.7 Decl. -12 50 Mag. 6.5
________ RASC38 NGC2655 Const. CAM Type G-Sa RA 08 55.6 Decl. +78 13 Mag. 10.1
________ RASC39 NGC2683 Const. LYN Type G-Sb RA 08 52.7 Decl. +33 25 Mag. 9.7
________ RASC40 NGC2841 Const. UMA Type G-Sb RA 09 22.0 Decl. +50 58 Mag. 9.3
________ RASC51 NGC3003 Const. LMI Type G-Sc RA 09 48.6 Decl. +33 25 Mag. 11.7
________ RASC54 NGC2903 Const. LEO Type G-Sb RA 09 32.2 Decl. +21 30 Mag. 8.9
Carbon Stars (Astronomical League)
________ALCS47 RU Puppis SAO 175215 RA 08 07 29 Decl. -22 54 45 Mag. 8.1 – 11.1 Per. 425 Class C5 (N3)
________ALCS48 X Cancri SAO 98230 RA 08 55 22 Decl. +17 13 52 Mag. 5.6 – 7.5 Per. 195 Class C5 (N3)
________ALCS49 T Cancri SAO 80524 RA 08 56 40 Decl. +19 50 56 Mag. 7.6 – 10.5 Per. 482 Class C3 – C5 (R6 – N6)
________ALCS50 Y Hydrae SAO 178088 RA 09 51 03 Decl. -23 01 02 Mag. 6.5 – 9.0 Per. 303 Class C5 (N3)

April Observing List

Prepared by Bill Breeden

Double Stars

_________ 54 Leonis SAO 81583 Const. LEO Type DS RA 10 55.6 Decl. +24° 45' Mag. 4.5 6.3
_________ Alpha Leonis SAO 98967 Regulus Const. LEO Type DS RA 10 08.4 Decl. +11° 58' Mag. 1.4 7.7
_________ Gamma Leonis SAO 81298 Algieba Const. LEO Type DS RA 10 20.0 Decl. +19° 51' Mag. 2.2 3.5
_________ N Hydrae SAO 179967 - Const. HYD Type DS RA 11 32.3 Decl. -29° 16' Mag. 5.8. 5.9

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 11.5 Decl. +55 40 Mag. 10.7
_________ M109 NGC3992 Const. UMA Type GAL RA 11 57.6 Decl. +53 23 Mag. 10.8

Caldwell Objects

_________ C040 NGC3626 Const. LEO Type SG RA 11 20 06.00 Decl. +18 21 00.0 Mag. 10.9
_________ C053 NGC3115 Spindle Galaxy Const. SEX Type EG RA 10 05 12.00 Decl. -07 43 00.0 Mag. 9.1
_________ C059 NGC3242 Ghost of Jupiter Const. HYA Type PN RA 10 24 48.00 Decl. -18 38 00.0 Mag. 8.6
_________ C074 NGC3132 Const. VEL Type PN RA 10 07 42.00 Decl. -40 26 00.0 Mag. 8.2
_________ C079 NGC3201 Const. VEL Type GC RA 10 17 36.00 Decl. -46 25 00.0 Mag. 6.7
_________ C091 NGC3532 Const. CAR Type OC RA 11 06 24.00 Decl. -58 40 00.0 Mag. 3
_________ C092 NGC3372 Eta Carina Nebula Const. CAR Type BN RA 10 43 48.00 Decl. -59 52 00.0 Mag. 6.2
_________ C097 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
_________ C109 NGC3195 Const. CHA Type PN RA 10 09 30.00 Decl. -80 52 00.0 Mag.

Royal Astronomical Society of Canada Objects

_________ RASC41 NGC3079 Const. UMA Type G-Sb RA 10 02.2 Decl. +55 41 Mag. 10.6
_________ RASC42 NGC3184 Const. UMA Type G-Sc RA 10 18.3 Decl. +41 25 Mag. 9.7
_________ RASC43 NGC3877 Const. UMA Type G-Sb RA 11 46.1 Decl. +47 30 Mag. 10.9
_________ RASC44 NGC3941 Const. UMA Type G-E3 RA 11 52.9 Decl. +36 59 Mag. 9.8
_________ RASC45 NGC4026 Const. UMA Type G-S0 RA 11 59.4 Decl. +50 58 Mag. 10.7
_________ RASC49 NGC3115 Const. SEX Type G-E6 RA 10 05.2 Decl. -07 43 Mag. 9.2
_________ RASC50 NGC3242 Ghost of Jupiter Const. HYA Type PN RA 10 24.8 Decl. -18 38 Mag. 8.6
_________ RASC52 NGC3344 Const. LMI Type G-Sc RA 10 43.5 Decl. +24 55 Mag. 9.9
_________ RASC53 NGC3432 Const. LMI Type G-SBm RA 10 52.5 Decl. +36 37 Mag. 11.3
_________ RASC55 NGC3384 Const. LEO Type G-E7 RA 10 48.3 Decl. +12 38 Mag. 9.9
_________ RASC56 NGC3521 Const. LEO Type G-Sb RA 11 05.8 Decl. -00 02 Mag. 8.7
_________ RASC57 NGC3607 Const. LEO Type G-E1 RA 11 16.9 Decl. +18 03 Mag. 10

_________ RASC58 NGC3628 Const. LEO Type G-Sb RA 11 20.3 Decl. +13 36 Mag. 9.5

Carbon Stars (Astronomical League)

_________ALCS51 U Hydrae SAO 156110 RA 10 37 33 Decl. -13 23 04 Mag. 4.5 – 6.2 Per. 450 Class C6.5 (N2)

_________ALCS52 VY Ursae Majoris SAO 15274 RA 10 45 04 Decl. +67 24 40 Mag. 5.9 – 7.0 Per. Irr. Class C6 (N0)

_________ALCS53 V Hydrae SAO 179278 RA 10 51 37 Decl. -21 15 00 Mag. 6.5 – 12.0 Per. 531 Class C6 – C7 (N6e)

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