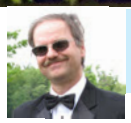
From The Editor

March is Messier Marathon Month. In past years, the Messier Marathon has been an important fundraiser for the club as outlined by Jim Wamsley in our January newsletter. It is also a lot of fun. You can find more information on the Messier Marathon and how to achieve this holy grail of Messier object observing in this issue of Event Horizon. Why not give this fun observing project a try and engage your coworkers, friends and family in helping to support our club's educational activities? You can find your sponsor sheet at the back of the newsletter.

Also this month, we have what I believe is a first for the Event Horizon. Mario Carr has crafted an astronomy crossword puzzle to keep us occupied on a cloudy night!

Ann Tekatch



From the Chair by Steve Germann

At last the cloudy nights of winter are behind us, and the soggy wet lawns of spring await us. It is that magic interval where the first clear skies of late winter have yielded blog entries and tentative trips to BCA for deep sky observing.

Before we know it, it will be time for our Brantford public night, where we will have a chance to set up scopes and entertain and educate the public at the Brantford Tourism Centre.

By all means bring your scope, and we will have a go at helping you set it up and use it. If it's cloudy, it won't be a total loss since John and Tim will be doing entertaining and informative talks in the auditorium there starting at about 7:15 PM.

This spring is also bringing an annual treasure.

The Bay Area Science and Engineering fair, this year at McMaster University, will feature loads of science projects. There's a HAA prize for the best astronomy or physics related project, and our

IN THIS ISSUE:

From the Chair (continued)

judges always have a good time reviewing the exhibits and discussing them with the students.

Saturday March 27th is when we will award the prize. We're not allowed to divulge the winner until then. (We don't even know it ourselves, as judging is on the 25th of March)

If you're up for some astronomy, consider firing off an email to 'keyholders@amateurastronomy.org' and see if you can rouse us from our winter slumber. Chances are you will be the one extra request that sets the process in motion.

I also can mention that we have finalized our speakers list for the spring. In April, Alan Friedman will come from Buffalo Amateur Astronomers, and trade with John Gauvreau who will be there. It won't be long before we have John back though, as he's doing "The Sky This Season Live at Binbrook" on Saturday Night, April 17th. The next month, Don Pullen will be addressing the club with a major talk on Space Science. June will feature Peter Brown, from Western University, to talk about Meteorites and the Southern Ontario Meteor Network.

In between, there will be plenty of chances to plan for star parties, and to hobnob with other members at BCA, the BCA Alternate site, and Cherry Springs State Park.

This Month's Masthead Photo- The Aurora Borealis (aka Northern Lights) taken by Bill & Ann Tekatch at Silent Lake Provincial Park near Bancroft in 1990. Exposure 30 secs, ISO1000, 16mm fisheye lens.

HAA in the News by Mario Carr

There was a photo of our chair, Steve Germann, on the front cover of the Burlington Post after the Burlington event in January.

An article about the club will also run in the Hamilton Mountain News on May 6.

We are currently in discussions with CHCH-TV for our club to appear on Morning Live before Astronomy Day in April. We are also in discussions with the Hamilton Mountain News and the Hamilton Naturalists Club to write monthly astronomy articles for their publications.

March 2010 Treasurer's Report by Don Pullen

(Unaudited)

Cash opening Balance (1 Feb 2010)	$ 3867.13
Expenses	$ 37.80
Revenue	$ 343.00
Closing Balance(28 Feb 2010)	$ 4172.33

Notes:

1. Major revenue sources included: Memberships ($105), Calendar Sales ($20), 50/50 ($38), Planetarium Tickets ($180)
2. Major expenses included: EH Printing ($37.80)

Mastering the Messier Marathon by Ann Tekatch

Successfully completing a Messier Marathon is on my astronomy "bucket list" and I've been doing a bit of research on how to achieve this "holy grail" of observing. I'd like to share what I've learned in the hopes of inspiring you to join me. (Or, because misery loves company!)

Late March/early April is the only time of the year in our area when all 110 Messier objects are potentially observable during a single night. The weather in southern Ontario rarely co-operates. Clouds, fog, hazy skies, light pollution, poor horizons and fatigue have been the main stumbling blocks preventing me from completing the Messier Marathon in the past.

Although you may have seen all of the Messier objects at one time or another and you can probably find many of them in your sleep by now, a Messier Marathon will test your observing skills and stamina. Some objects must be located and observed during evening and morning twilight when they are close to the horizon and subject to greater atmospheric extinction. Unfortunately, the very first object you need to find, M74, is also one of the dimmest M-objects. Though it isn't difficult to find when it is more favourably placed, higher in the sky. M74 is a small, spiral galaxy in Pisces. The next few objects are equally difficult in the twilight: M77 is another spiral galaxy. It is in nearby Cetus. The Andromeda galaxy and its companions shouldn't be too difficult, but M33 has a low surface brightness and may be a challenge to spot in the twilight.

Planning, practice and preparation are absolutely essential. During the night of your Messier Marathon, you need to observe the objects from west to east and south to north so they don't set before you can bag them. The Messier Marathon sponsor sheet at the back of this newsletter lists the objects in this order to assist you in planning. You also need to practice finding those difficult twilight objects so you are familiar with how to locate them. During a recent impromptu observing session at the alternate site on Tyneside Road, I practiced finding M74 with my 6" Dobsonian reflector. I located a nearby star (eta Piscium) and star hopped to where M74 is located. Using averted vision and various magnifications, I thought I was able to detect it. However, about an hour later I asked Jim Wamsley to swing his goto scope over to M74 and neither of us could see it at all. I will need to use a larger aperture scope and hunt for M74 as soon as I can see eta Piscium in the western sky.

It is important to prepare ahead for Marathon night. Your observing site needs to have clear horizons. A few years ago, I attempted the Messier Marathon from our backyard observatory but neighbouring buildings and trees prevented me from seeing some of the objects. The dreadful light pollution certainly didn't help either! It was great practice, though.

Make sure your telescope optics & eyepieces are clean. You'll need every iota of contrast you can squeeze out of your equipment. Don't forget the usual ancillary equipment: a comfortable observing chair, a table for your charts and notes, and a dim, red flashlight.

Very warm clothes, boots, hat and gloves will help you make it through the night. A flask of hot coffee and some donuts or cookies (Did I say that? I meant trail mix and granola bars, of course.) will keep your blood sugar and energy up.

Some observing purists insist that people with goto telescopes shouldn't be able to claim a successful Messier Marathon because they have relied on their telescope to find the Messier objects for them. I disagree. Whether or not you star hop to each object or allow your telescope's computer to goto each object, you still must be prepared and have the stamina to stay up all night. If you're lucky enough to get clear skies, find a good observing site and have the observing skills needed to see all 110 objects, I don't think it matters how you located the objects.

If your attempt at a marathon is less than successful, there is no shame in admitting it. Observe as many Messier objects as you can and log a personal best. There's always next year to stroke the Messier Marathon off your astronomy bucket list.

Mass of the Universe by Bill Tekatch

You are out under the clear night sky looking into space and a chill runs up your spine. No not because it is cold but because you just thought about how absolutely, unimaginably enormous the universe is. So how big is it? If the steady state theory was correct the universe may be infinite. Since there is evidence that the universe is finite, then it must have a finite mass.

Most astronomers, cosmologists, and physicists avoid putting a hard number on the mass of the universe and instead talk about things like mean density or scale factor. Some hardy souls have stuck their foot out and made an estimate. Here is a web page that neatly summarizes six results.

Mass of the Universe http://hypertextbook.com/facts/2006/KristineMcPherson.shtml

The results range from 3×10^{50} kg to 1.6×10^{60} kg if we don't include Albert Einstein's estimate of infinity. The methods of getting to the result are quite varied, which likely is why the results range over ten orders of magnitude.

Here are two more estimates. The first is based on the universe actually being a black hole. That being the case we can rearrange the Schwarzschild equation used to find the radius of a black hole which is $R_s = 2GM / c^2$. So mass of the universe $M_u = R_s c^2 / 2G$. We will use the distance to the edge of the visible universe as our estimate of the Schwarzschild radius R_s. Using the current estimate of the age of the universe of 13.75 billion years and converting to distance, we obtain $R_s = 1.3 \times 10^{26}$ m. Therefore the mass of our visible universe is 8.75×10^{52} kg.

The second method uses the physical constants c and G to calculate the power output of the universe $P_u = c^5 / G$. Then we use an estimate of mass per unit of power to arrive at M_u. The Sun will act as a far from accurate estimate of our "standard star." Currently the estimate for the content of the universe is 74% dark energy, 22% dark matter, 3.6% gas plus dust, and 0.4% stars. The mass of the universe $M_u = P_u (M_s/P_s)$ for mass in stars only is 1.87×10^{56} kg. For mass as stars, gas and dust, it is 10 times more at 1.87×10^{57} kg. For everything, it is 250 times more than just stars at 4.7×10^{58} kg. To put this rough estimate in perspective, our universe could be thought of as a large cube composed of Milky Way galaxies, one hundred thousand across on each side.

Now that we have calculated the mass of the universe, we can get an idea of the volume. Since the Schwarzschild radius is proportional to the mass, we can simply ratio the mass of the universe to our visible universe. Therefore the universe has a radius about half a million times bigger than our visible universe and the volume of the universe is 1.6×10^{17} times that of our visible universe.

So next time you are looking up at that clear night sky and a chill runs up your spine, you'll know it is because the universe is absolutely, unimaginably enormous.

February's General Meeting by Bob Christmas

I found it somewhat unfortunate that the February HAA monthly meeting was on the same night as the opening of the Vancouver 2010 Winter Olympic Games. However, this month's HAA Meeting at the Spectator Auditorium was well worth showing up for.

The meeting started at 7:30 pm EST sharp, with HAA chair Steve Germann giving the floor to the main guest speaker of the evening, RASC Mississauga Centre president, Randy Attwood, for his much-anticipated talk.

Randy talked about the Apollo 11 mission to the Moon.He started by briefly outlining the history behind the space program, and its goal of landing humans on the Moon, beginning with President Kennedy laying down the gauntlet in 1961, challenging America's space scientists and engineers to put a man on the Moon and return him safely to the Earth. He briefly outlined the Mercury and Gemini programs and how those missions prepared astronauts for the rigorous tasks and conditions they would face during a mission to the Moon. He talked about the early Apollo missions, from the tragic loss of three astronauts in Apollo 1, up to the "dress rehearsal" of Apollo 10.

Randy then alternated between play-by-play commentary and video showing the descent of the Apollo 11 Lunar Module "Eagle", with all of the audio of Buzz Aldrin's and Neil Armstrong's communications with Mike Collins in lunar orbit in the Command Module, and with the Johnson Space Center in Houston. The video showed the descent, from 50,000 feet to the intended landing spot near the edge of the Sea of Tranquility. During this journey, there were various occurrences that almost scuttled the descent, including a sequence of errors in the LEM's on-board computer. Ray Badgerow and myself couldn't help but joke of Windows Shutdown and "the Blue Screen of Death"! Also, Neil Armstrong remarked that a certain crater that was supposed to pass though his view out his LEM window was 3 seconds late, indicating their landing trajectory was longer than planned.

But after Neil took manual control, and after a low-fuel warning, the LEM touched down safely, with approximately 45 seconds of descent fuel to spare.

But wait! Neil and Buzz almost didn't come out. There was a build-up of pressure in one of the descent fuel tanks. Engineers in Houston were contemplating making the astronauts fire the ascent engine and leave the moon without ever setting foot on it! Fortunately, this pressure started decreasing, the astronauts got to step out, and everything else was for the history books.

Thanks go to Randy. This was a very interesting talk indeed. After Randy was finished, Steve had a few club announcements, then there was the meeting intermission. During the break, people had a look at the various charts and graphs that Mike Jefferson had on the tables at the back of the Spec auditorium detailing solar flares that HAA's LOFAR II Radio Antenna had detected over the last couple of months. Mike pointed out that activity on the Sun was definitely increasing.

After the break, the HAA's resident cartoonist and ticket drawer, Alexandra Tekatch, drew tickets for this month's door prizes.

The second speaker of the night was HAA's Observing Director, John Gauvreau, who gave his talk about the sky for the month of February 2010. He showed images taken by HAA astrophotographers of three deep-sky objects that are visible during February, an image of spiral galaxy NGC 2403 in Camelopardalis taken by yours truly (Bob Christmas), as well as Kerry-Ann Lecky-Hepburn's images of open cluster NGC 1502 (at the end of Kemble's Cascade, also in Camelopardalis) and nebula NGC 1788 in Orion. John mentioned various other night sky sights visible during the month of February, including one of his favourite asterisms, "the football", just below and to the right of Orion. He also pointed out that Mars was high in the sky, and Saturn was becoming visible in the evening sky on the eastern horizon.

After the meeting, about a dozen and a half of us met at Kelsey's on Main Street in Hamilton for eats, drinks, lively conversation, and watching the Olympic Opening Ceremonies. I was ruing about missing the opening ceremonies by coming to this meeting, but we still got to see the most important parts, watching Team Canada coming in, and the Olympic Flame being lit. See... it all worked out in the end!

Photos- February General Meeting by Don Pullen & Steve Germann

Left-a large turnout at our February meeting.

Right - our guest speaker, Randy Attwood .

Left- Mike Jefferson with his display of LOFAR charts.

Right- the apres meeting crowd at Kelsey's

Seeing In The Dark at the Astronomy Book Club by Mario Carr

Members who attended the inaugural meeting of the astronomy book club on Sat. Feb. 27 witnessed collisions of stellar proportions proving the laws of Newtonian mechanics.The objects they witnessed were the winning rocks thrown by the Canadian Curling team who won the gold medal at the 2010 Winter Olympics.

Club members Jim Wamsley, John Gauvreau, Ann Tekatch, Doug Black, Margaret Walton and yours truly, met at Jim's apartment building. They exclaimed repeatedly how much they enjoyed the book club meeting while watching Olympic curling history being made. We met at 7:30 pm and watched the Olympics for about an hour and a half.

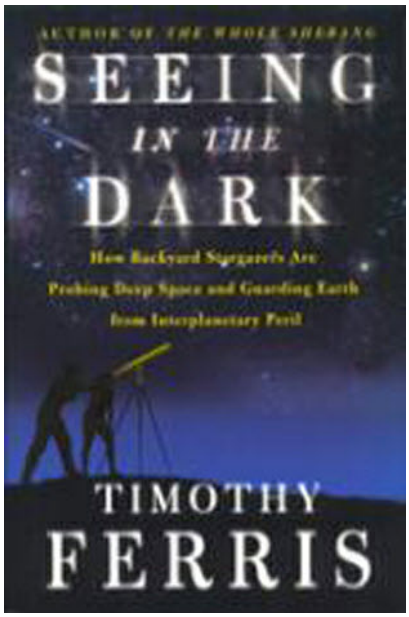
Afterwards, we jumped into discussing the first book to read at our next meeting scheduled for the evening of Wed. April 28. We decided on that evening because it is good for everyone. For the next meeting, we decided to read *Seeing in the Dark : How Backyard Stargazers Are Probing Deep Space and Guarding Earth from Interplanetary Peril* by Timothy Ferris. The book has extremely favorable reviews from the media and many members who have read it and is appropriate for an amateur astronomy group such as ours. I recently picked up a copy and it was hard to put down. It explains how amateur astronomers are linked globally by the Internet and are making discoveries worthy of professionals. As Ferris writes, "astronomy is accessible to all, and can inform one's existence with a sense of beauty, reason and awe as enriching as anything to be found in music, art or poetry."

After deciding on this book, we quickly fell into discussions about the movie Avatar. After all, this is the reason why we were there. We all agreed that the movie was incredible but had some holes that need to be probed. We looked at the life forms in the movie. Though the animation was incredible and realistic, all the life forms seemed familiar to us either living or in the past on land or in the sea. John posed the question if we are capable of envisioning any other type of life form. Is it beyond our comprehension?

We discussed the idea how scientists have come up with creatures based upon silicon or gas but they may not look as cool as those depicted in the movie. These life forms were probably chosen because of their mass market appeal since the movie has to make money and be sold to a broad market. We also discussed why everything on Pandora was bioluminescent and could this really happen. Bioluminescence on the earth, we decided, evolved in creatures that lived in environments that lack sunlight such as in the depths of the oceans. However, on a moon such as Pandora, which circles a giant planet, the nights should be bright. Bioluminescence would not have realistically been created through evolution since it wouldn't have been needed.

The multiple lively discussions on Avatar were extreme and interesting. There was an energy in the room. The kind you only feel with certain people. Unfortunately, I had to put the brakes on the discussion since it was getting late. We didn't finally leave Jim's place until 10:30 pm.

Though tired, I had an excellent time and I'm looking forward to the next meeting. I would like to thank our host Jim and everyone for attending and contributing to the discussions. If anyone would like to join us for our next meeting on April 28, please email me at mariocarr@cogeco.ca.



Seeing in the Dark : How Backyard Stargazers Are Probing Deep Space and Guarding Earth from Interplanetary Peril *by Timothy Ferris is the first book that the club will be reading and discussing at their next meeting on the evening of Wed. April 28.*

Astronomy Crossword Puzzle by Mario Carr

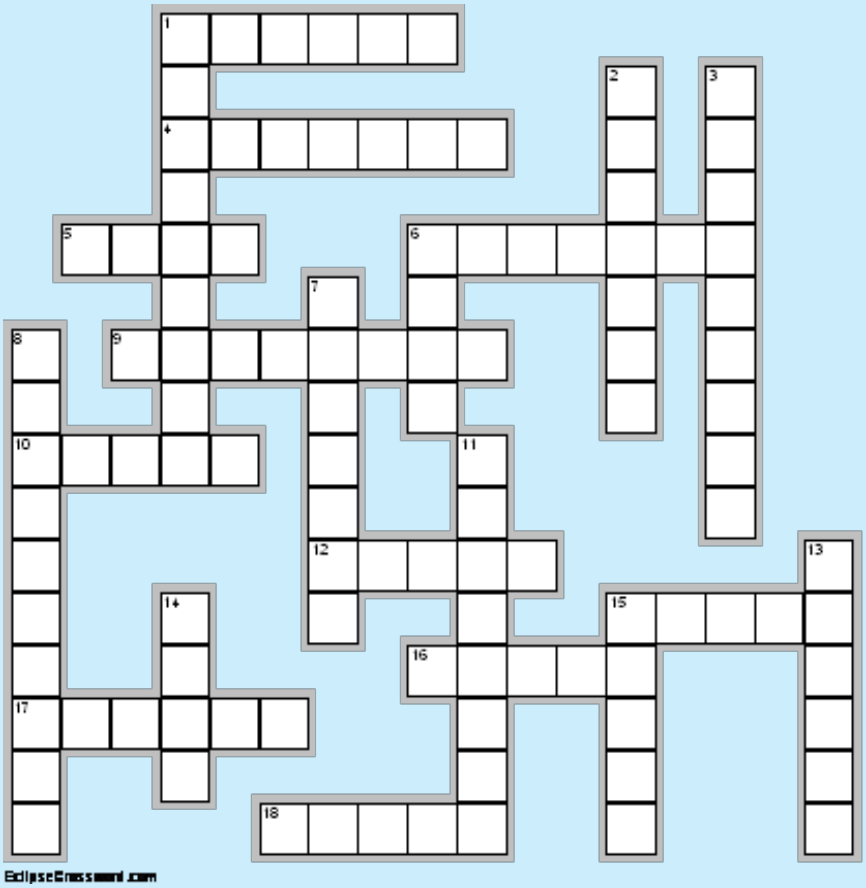
Across

1. God in reverse star
4. Closest orbit
5. No canals
6. Explores Saturn
9. A type of light
10. Saturn's Earth like moon
12. Winter star
15. Virgin
16. First manned spacecraft on the moon
17. This planet has the blues
18. SciFi writer

Down

1. Blowed up real good
2. Gas giant
3. Mars canyon – Valles
6. Nebula
7. Blue people live here
8. Tip of Orion
11. Seven sisters
13. Ringed planet
14. Mars volcano – Olympus
15. A planet for lovers from hell

Answers can be found on page 17.
(No peeking!) - Ed.



Dwarf Planet of the Month: Eris by Steve Germann

And all things Eridian. This month's dwarf planet is the mother of them all, 136199 Eris, named for the Roman God of discord and disagreement. That was no accident. With an orbital period of about 577 years, it dwarfs Pluto's 248 year orbit. That's not all about Pluto it dwarfs. In fact it has dwarfed Pluto's classification as a planet. Eris is the planet that started the kerfuffle that elevated Pluto and many others to the plane of 'qualified' planets.

The team of Mike Brown, Chad Trujillo, and David Rabinowitz, using a camera on the Mount Palomar telescope, were intent on discovering a planet in the Kuiper Belt larger than Pluto. The pored over many photos, for years, and let a computer eliminate slow moving objects from them to try to highlight objects likely to be Kuiper Belt objects.

It turns out they set the cut-off too high, and Eris was actually moving but slower than expected. That meant it was very far away.

When the team came across Sedna, moving slower than their cut-off value, they re-examined their photos to see if there might be other even slower moving (and therefore distant) planets in the data.

After hand analyzing their data previously rejected, they found Eris.

Sitting on their discovery while trying to compute a better orbit, they jumped to announce it when another Trans-Neptunian Object, (which they were tracking,) was announced by another group, so as to not lose their edge. Subsequent observations also turned up a moon around Eris.

It's a tribute to the asteroid surveillance program that so many minor planets have been found to date. While the team was looking, 86 thousand asteroids were discovered. (Not all by them, of course).

The real story here is how one scientific discovery caused data to be re-analyzed and further discoveries resulted from it.

The Discovery image for Eris is here:

http://en.wikipedia.org/wiki/File:Animation_showing_movement_of_2003_UB313-2-.gif

As you can see, there's a lot of noise in the background, but the images taken a few hours apart definitely show something 'out there'.

If it was moving faster, it might have been classified as a potential asteroid instead. Fortunately, databases of all known asteroids can be used to filter those out.

When an object is round, and distant from the sun, the amount of heat it radiates at far infra-red wavelengths depends only on its temperature and size. These figures can be used to determine the size of Eris with reasonable precision, considering it's only a few pixels in size in our best images.

The size was determined to be a touch larger than Pluto.

Fortunately, Eris also has a moon, Dysnomia, detected using newfangled adaptive optics with a laser-created guide star, which allowed the mass of the system to be determined, and that mass is about 27 percent more than Pluto.

It's magnitude 18.9, which is beyond the range of the GWS (except maybe if I took it to Chile) but it's an easy photographic target, currently it's in Cetus.

There was an interesting documentary recently about the problem of the planet definition, etc., and it's now on the web, here:

http://fora.tv/2009/02/04/Neil_deGrasse_Tyson_Pluto_Files

In the video we see the hand wringing when the problem of 'what is a planet?' came up. Since Pluto was discovered by an American, and was so dear to many schoolchildren (and me), there was the implicit assumption that it was 'safe' from reclassification, but apparently that assumption did not bear out.

Eris, at 14.6 billion km, is currently the most distant planet in the Solar System. It's also the most distant thing orbiting the Sun, of any kind which we are aware of.

Dwarf Planet of the Month: Eris (continued)

Here's a figure showing the 'home team' of dwarf planets with an unqualified bystander muscling in on the photo. (At the bottom edge)

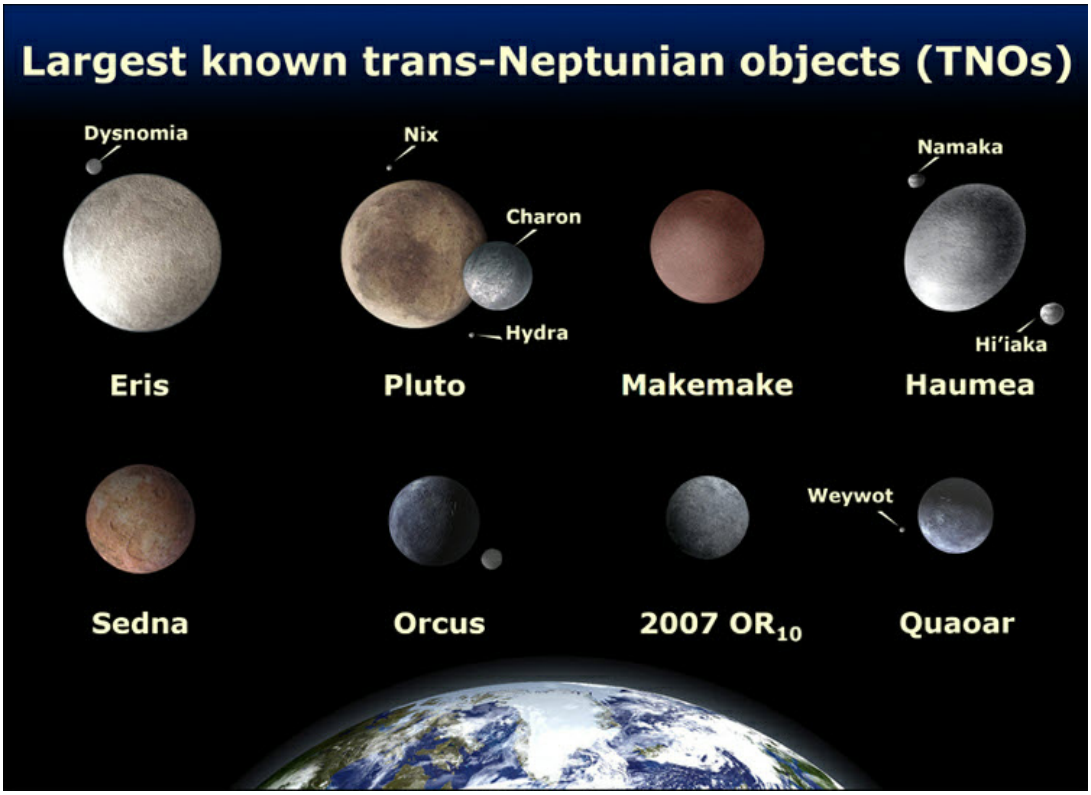


Photo from Wikimedia Commons (http://en.wikipedia.org/wiki/File:EightTNOs.png)

As usual for the outer Dwarf planets, Eris' discovery has stretched scientific theories about the outer planets. Specifically, Eris is more reflective than any large object in the solar system other than Enceladus, with an albedo of 86%. That implies that Eris' surface is being re-worked by some process, and also that it's always been far from the Sun. Otherwise the methane would have boiled off long ago. An alternative is that it has an internal source of methane.

So the theory is that when Eris ventures closer to the Sun, (its last perihelion was in 1698) its methane evaporates and re-coats the surface when it moves away again.

That way, radiation-induced molecular fragments, which would darken the surface, don't have a chance to accumulate like they do elsewhere.

A good write-up of the planet on Wikipedia is here, and contains extensive references:

http://en.wikipedia.org/wiki/Eris_%28dwarf_planet%29

Next month, we start with planets we can see. Vesta is in opposition and will be the subject of our attention in more ways than one.

Member of the Month: Kevin Salwach by Andrew Bruce

When tasked with choosing this month's member of the month, I initially thought that I would have a heck of a time trying to decide who would be an appropriate candidate, being that there are so many enthusiastic members who share a passion with astronomy. One individual, however, came to mind almost immediately. At 13 years of age, he is certainly one of our youngest members, but his love for astronomy equals that of some of our older and more experienced members. His detailed astronomy record keeping techniques have been featured by John Gauvreau, in the Sky This Month, and his enthusiasm has been noticed by members young and old. It is my pleasure to introduce to you Kevin Salwach.

I first noticed Kevin attending one of the HAA meetings with his father, Ed, and I thought to myself...."poor kid... got dragged along to one of our meetings by his dad.....bet you he's probably wishing he were back home playing X-Box". Little did I know that I had it completely backwards. It was Kevin who dragged his dad along with HIM! Last year, Kevin and his dad attended one of the HAA public nights at Bayfront Park, and enjoyed looking through the many scopes that were set up, and were invited by our membership director, Jim Wamsley to attend the next HAA meeting. Well he did, and has been hooked ever since.

Kevin's parents, Ed and Lolly, are thrilled about his continued interest in astronomy.... "I know he enjoys the meetings and is always pulling me outside to view the sky above. In the summer I would take him further north away from Hamilton around 11 pm to gaze at the stars. Although his younger sister doesn't have the same enthusiasm for the stars yet, she is learning from him and at 8 years old can show me where Orion's Belt is and what we call the" W " stars .We have brought his telescope to my parents place in Bolton and my family has enjoyed the experience of Kevin showing them stuff." (Lolly Salwach).

Kevin was born and raised in the Hamilton area, and currently attends Westview Elementary School, where he enjoys his favorite subjects; science (of course), math (not one of my favorites) and Phys-ed (that's everyone's favorite!). When he isn't gazing at the night sky, he can be found pitching fast balls on the diamond or smokin' slapshots past the goal tender on the ice. He is also a keen naturalist, birder and dabbles a little in photography as well (future astrophotographer perhaps?).

So how did he become interested in astronomy? According to his parents, he has always had an interest in science and the natural world. Although he is unsure of what he would like to do when he's older, he assured that it would be something in the scientific field. Kevin's parents started him off with some astronomy books and a cheap pair of binoculars, and he hasn't looked back since. Kevin has spent almost as much time in front of astronomy books as he has at the eyepiece of a scope. One of his favorite aspects of astronomy is one that all amateur astronomers share, in that there is always something new and interesting to learn or to look at.

Member of the Month (continued)

Kevin recently acquired a Celestron Nexstar 114GT Newtonian Reflector (a fine choice if you ask me), and can often be found observing with it North of Hamilton, away from the city lights. He has also made good use of a pair of Celestron Skymaster 12X60 binoculars which he also uses for birding and nature studies, and has variety of eyepieces and other telescope accessories.

When asked about his "Galileo Moment", Kevin reflected on the first time he looked through his Nexstar, gazing in awe at the rings of Saturn, and how the craters of the moon just seemed to be a stone's throw away. Recently, Kevin has made observations of the zodiacal light and has been baffled by mysterious orbiting objects for which no explanation could be deduced (a situation we've all found ourselves in at one time or another). Kevin is very excited about participating in the upcoming "Messier Marathon" and is anxious to put his new scope and record keeping abilities to good use.

As a member of the HAA council, I am absolutely ecstatic to see younger people taking an interest in the club, and I hope that this is a sign of things to come. Welcome to the club Kevin (and family of course), you're in for a lifetime of eye-opening, mind boggling, sleepless night experiences!

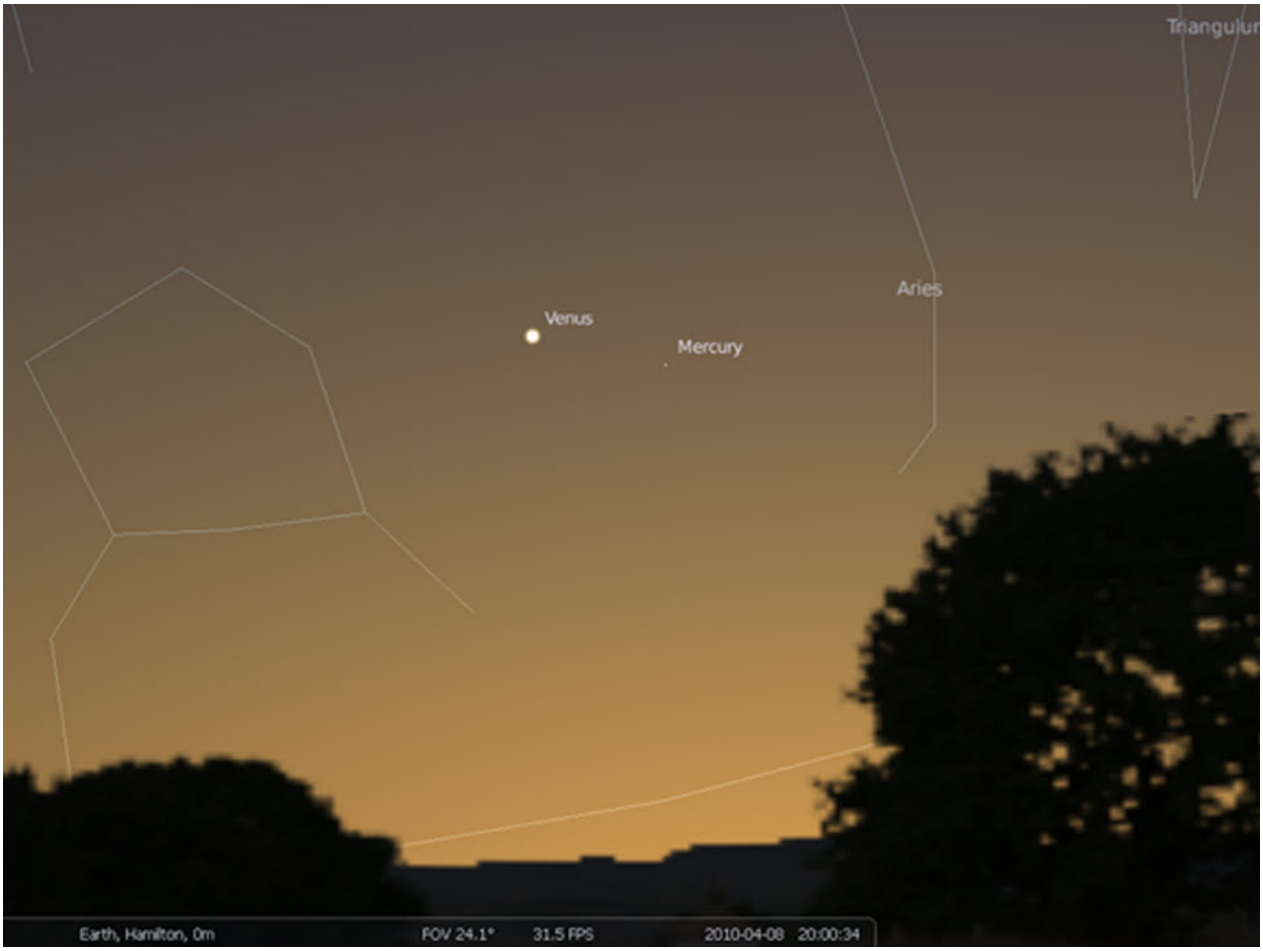
The Sky This Month March 2010 by John Gauvreau

Spring is here, and with it come the signs of the season; warmer weather, budding trees and the return of our avian friends. As observers of the sky, we also note the warmer nights, the vernal equinox, and the return of Daylight Savings Time. And of course, the brilliant winter constellations give way to our old friends Leo, Bootes and Virgo.

This weekend will seem to pass that much quicker as DST deprives us of an hour on the clock early Sunday morning. Only a day later is the new **Moon**, so enjoy as much of this dark weekend as you can. The following weekend sees the arrival of Spring, with the Vernal Equinox falling on Saturday March 20th. There will be a crescent moon that night and on Tuesday March 23rd it will reach first quarter. The next night it will be next to Mars and the night after that the moon will pass by M44 in Cancer. On the 28th the moon will pass by Saturn and the next night it will be full. The full moon rises at 6:40, a full half-hour after the sun sets.

The Sky This Month: March (continued)

Speaking of the setting sun, has anyone spotted **Venus** low in the west? I had a glimpse of it on the 5th of March, very low in the west. Look for Venus a hand's width below the crescent moon on the evening of the 17th. By the end of the month, it will be over 15 degrees above the horizon at sunset, and will have been joined by **Mercury**. The first week of April will see the two planets pass each other and provide a wonderful opportunity to see both inner planets at once.



Venus and Mercury shine through the glow of sunset during the first week of April (Stellarium)

Moving out through the solar system, we find **Mars** still high in the sky throughout the month. Sitting just next to the twin stars of Gemini, Pollux and Castor, it has faded over the past month but still shines as one of the beacons of the night. Its ruddy colour makes it stand out amongst the neighbouring stars.

Jupiter is lost behind the sun at the moment, and will reappear in the morning sky in April, but **Saturn** is at its best right now. It is at opposition on March 22, which means it is visible all night. This is the one object that never fails to amaze people when they get their first look through a telescope. My very first look through a scope was at a public event put on by a Toronto astronomy club when I was a young teenager. I can still remember looking through a 6" Newtonian reflector at Saturn, and I've been hooked ever since. You can do the same for someone else with a view of the ringed planet this month. More recently, I had a wonderful view though an old 4" refractor that showed the shadow of the very narrow rings across the surface,

lovely banding and four moons. How many moons can you see through your telescope?
For a fun but challenging observation, you might want to get up early on the morning of April 3rd, before the sun rises. The summer constellations will be up by then, with the summer triangle high in the south. Lower in the southeast will be the moon, slightly gibbous, and passing only half a degree from **Antares**, the brightest star of Scorpius. As the sky begins to lighten with the approaching dawn you will see the moon and Antares get closer and closer. A telescope will show some stars even in daylight and here is a great chance to test that. Keep an eye on the moon as daylight comes and even as the sun rises at 6am that day. Can you still see Antares just below the moon? Perhaps you can send in a report to share with the club of having seen a star in the daytime!

On our maps this month you will see the constellations of Cancer, Leo and Hydra. How well can you see M44, the Beehive cluster in Cancer, from your observing site? It's a fine test of the quality of your sky, appearing to the unaided eye much as many fainter deep sky objects look through a telescope. Faint and diffuse, it looks like a fuzzy cloud in the spring sky. The constellation of Cancer is itself so nondescript that many use the deep sky object M44 to help them find the constellation that houses it!

M44, the Beehive Cluster, one of spring's finest

For another challenging constellation, how about Sextans? Just below the sickle of Leo, this small and faint constellation is widely ignored, although as you can see from the chart, it does house a few galaxies. Trace out this more modern constellation and add one more of the 88 to your list of observed celestial sights.

As always, I welcome any observations, reports or photos that you would like to share with your fellow club members. Send emails to observing@amateurastronomy.org .

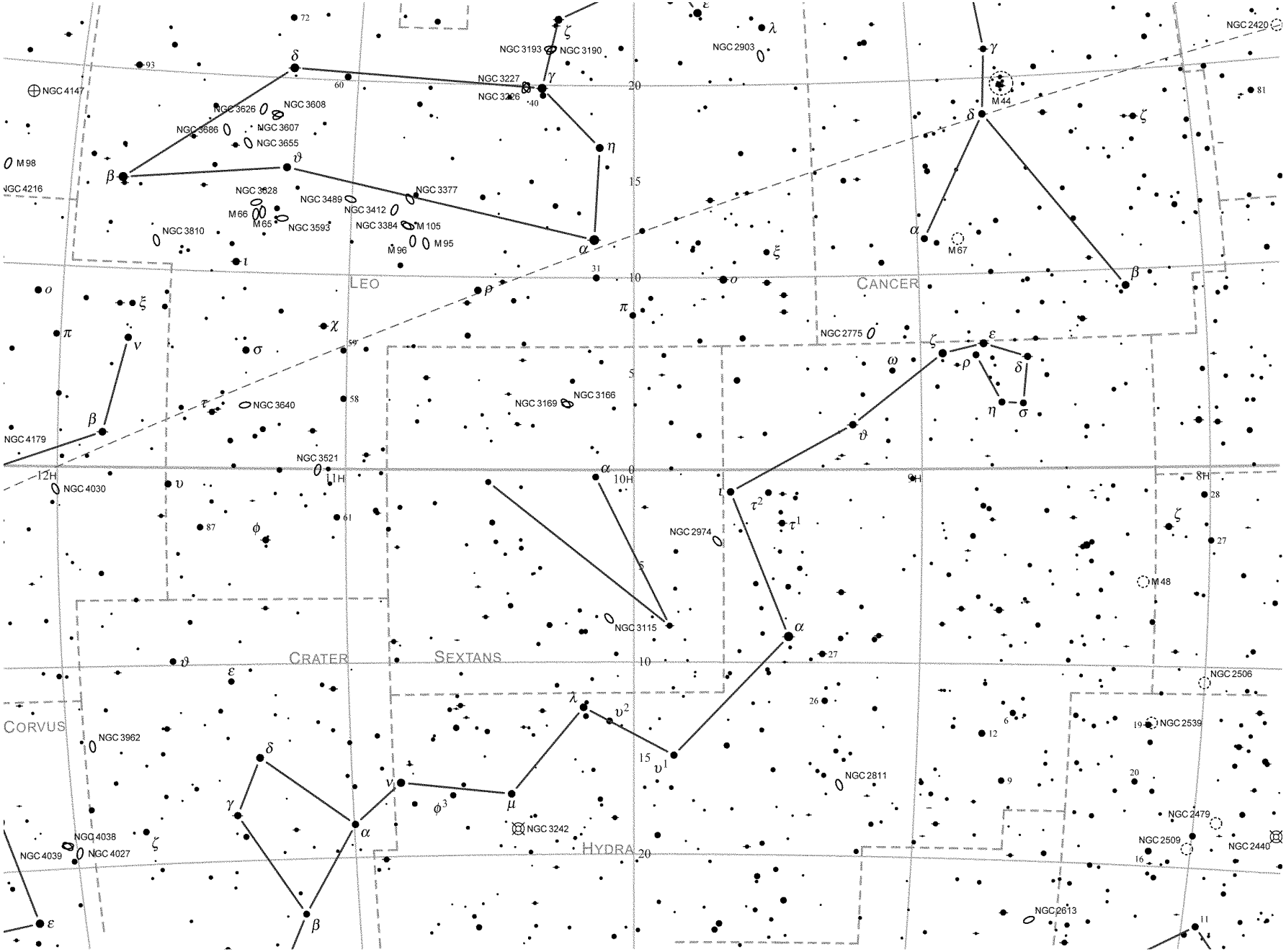


Chart 10: *RA* 8^h *to* 12^h, *Declination* $+20^o$ *to* -20^o

Mag-7 Star Atlas Project *(version 2.0)*

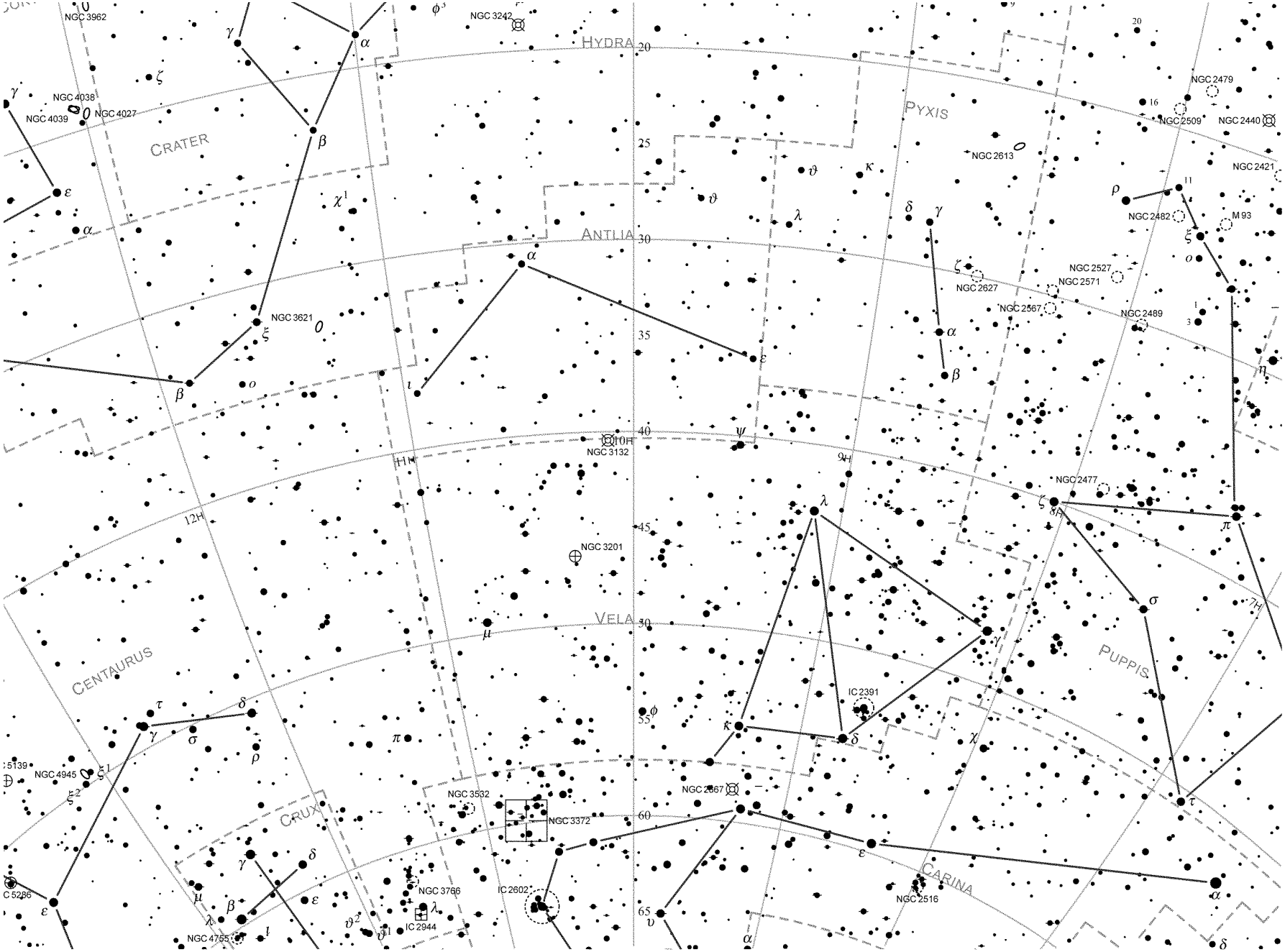
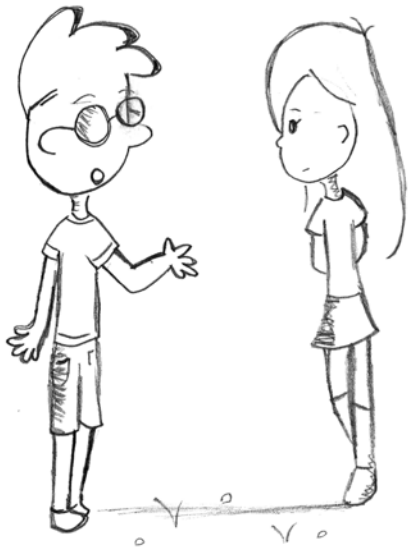


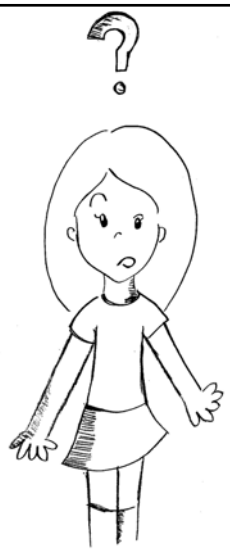
Chart 16: *RA* 8^h *to* 12^h, *Declination* -20^o *to* -65^o

Mag-7 Star Atlas Project *(version 2.0)*

Cartoon Corner by Alexandra Tekatch

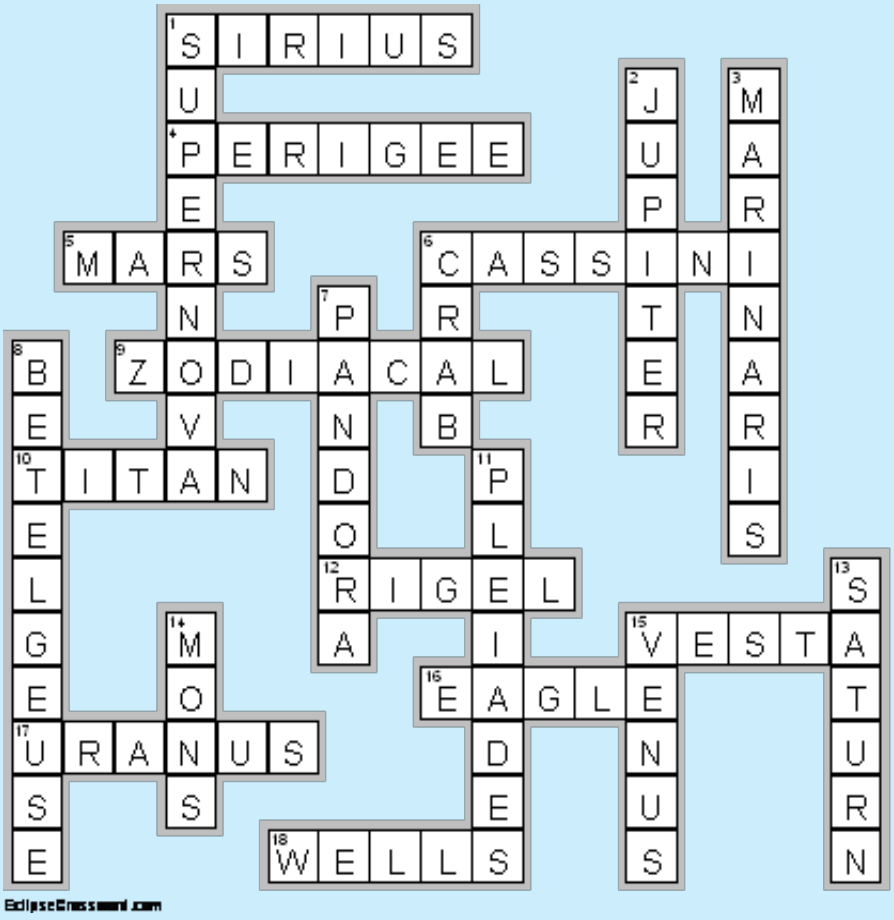


It's time to change to daylight savings. You're really supposed to set your clock ahead one hour but I set mine back 23 hours so I can get an extra day's sleep or an extra night of observing!



WHAT???

Astronomy Crossword Puzzle (page 8) - Answers:



UPCOMING EVENTS

March 20 - Brantford Public Star Party, see our website for details.
March 24-27 - Bay Area Science & Engineering Fair @ McMaster University (for schedule, see: http://hwhsef.mcmaster.ca/schedule)
March 27 - Cosmology Discussion Group, 7:30 pm. Topic: The Big Bang. Email John Gauvreau: observing@amateurastronomy.org for details and to reserve a spot.
April 9 - General Meeting at the Spectator Building, 7:30 p.m.
April 10 & 11 - For those who wish to study our favourite planet in greater detail: Brantford Gem & Mineral Show at the Paris Fairgrounds.For details, see: http://www.brantfordlapidarymineral.ca/show.html
April 17 - The Sky This Season Live at Binbrook Conservation Area & HAA Annual Messier Marathon fundraiser
April 24 - Astronomy Day at McQuesten Park (Upper Wentworth, just south of the Lincoln Alexander Parkway, Hamilton, ON). See our website for details.

2009-2010 Council

Chair	Steve Germann
Second Chair	Jackie Fulton
Treasurer	Don Pullen
Membership Director	Jim Wamsley
Observing Director	John Gauvreau
Event Horizon Editor	Ann Tekatch
Webmaster	Bob Christmas
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Secretary	Wayne Stansfield
Public Education	Mario Carr
Councillors at Large	Brenda Frederick Ray Badgerow Harvey Garden Andrew Bruce Darrell Maude Heather Neproszel Joe McArdle

Observing site for the HAA provided with the generous support of the
Binbrook Conservation Area
Come observing with the HAA and see what a great location this is for stargazing, a family day or an outdoor function.
Please consider purchasing a season's pass for $70 to help support the park.
http://www.npca.ca/conservation-areas/binbrook/
905-692-3228

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Public Events:
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Observing Inquiries:
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Newsletter:
editor@amateurastronomy.org

HAMILTON AMATEUR ASTRONOMERS

HAMILTON AMATEUR ASTRONOMERS

MESSIER MARATHON

The Messier Catalogue is a list of 110 deep sky objects (galaxies, nebulae, star clusters, etc.) that are visible in backyard telescopes. Each year, during early spring, it is possible for an observer to see all 110 objects in a single night. This is a challenge that few have mastered! The person you are sponsoring has accepted the challenge to find as many Messier objects as they can in a single night sometime in March or April. On the back of this sheet, they will record the objects they found, the date they attempted the marathon, and the equipment (telescope, binoculars, naked eye) they used.

The Hamilton Amateur Astronomers is a registered charitable organization. The money raised by this marathon will enable us to continue our work in public awareness and astronomy education. Donations of $10 and more will receive a tax receipt. Thanks for your support!

Name	Address	Phone	Pledge per Object	Flat Donation	Paid?

Cheques should be made payable to: **Hamilton Amateur Astronomers**
P.O. Box 65578, Dundas, ON L9H 6Y6

HAMILTON AMATEUR ASTRONOMERS' MESSIER MARATHON

Participant's Name:	Location of Marathon:
Date of Marathon:	Equipment Used:

MESSIER OBJECTS OBSERVED:

(Listed in order of appearance from west to east. Objects visible in binoculars are marked * and those visible to the naked eye are marked **.)
PLEASE RETURN COMPLETED FORMS/DONATIONS TO TREASURER.

Object	Seen?	Object	Seen?	Object	Seen?	Object	Seen?
M77		M95		M87		M62*	
M74		M96		M89		M6* Butterfly Cluster	
M33*		M105		M90		M7*	
M31**Andromeda Galaxy		M65		M88		M11* Wild Duck Clstr	
M32		M66		M91		M26	
M110		M81*		M58		M16* Eagle Neb	
M52*		M82*		M59		M17* Swan Neb	
M103*		M97 Owl Neb		M60		M18*	
M76 Little Dumbbell Neb		M108		M49*		M24*	
M34*		M109		M61		M25*	
M45** Pleiades		M40*		M104 Sombrero Glxy		M23*	
M79*		M106		M5*		M21	
M42** Orion Neb		M94*		M13** Hercules Clstr		M20 Trifid Neb	
M43		M63*		M92*		M8* Lagoon Neb	
M78*		M51Whirlpool Galaxy		M57 Ring Neb		M28*	
M1 Crab Neb		M101 Pinwheel Glxy		M56		M22*	
M35*		M102		M29*		M69	
M37*		M53*		M39*		M70	
M36*		M64*BlackEye Glxy		M27*Dumbbell Neb		M54	
M38*		M3*		M71		M55*	
M41*		M68		M107		M75	
M93*		M83*		M12*		M15*	
M47*		M98		M10*		M2*	
M46*		M99		M14*		M72	
M50*		M100		M9		M73	
M48*		M85		M4*		M30*	
M44* Beehive Cluster		M84		M80*		M67*	
M86		M19*				Event Horizon	