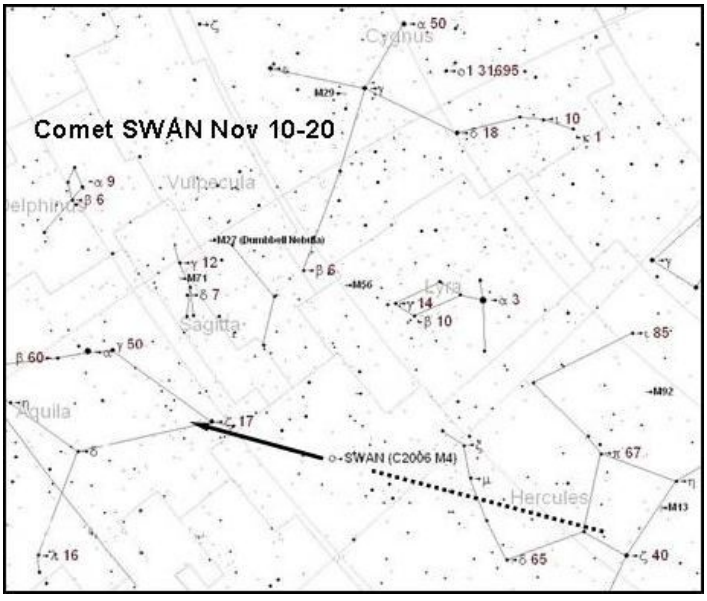
Event Horizon

November 2006 *Glenn Muller 50th souvenir edition* **Volume 13 Issue 12**

COMET SWAN AS IT APPROACHES ALTAIR IN NOVEMBER:

by Mike Spicer

The comet was magnitude 4 a week ago and may brighten further (you never know with comets) although it is moving away from the sun now, low in the West in the evening as it appears to approach the bright star Altair. The pronounced green colour of the comet is noticeable even in small telescopes.



22d 17h 28m moon

by Hal Mueller

This is my first blog, so shoot me if it's not readable. Woke up at 5:00 am to image my favourite observing target.. Took my refractor and 40 mm eyepieces (Scopetronix Maxview and Maxview II) outside to cool down. Assembled tripod and carefully levelled it, then mounted my Sphinx GoTo. The Sporadic clearing in cloud cover was encouraging. No Polaris, so I input the time using my cell phone's clock, set Sphinx to go to Moon. Positioned it then clicked "Align" and let the mount track it. Unbelievably it did. Attached the Maxview II to my newly acquired Sony DSC-H5 and took five images in all only two of which were worth saving.

22d 17h 28m moon imaged at 6:14 am EDT Oct 15, 2006 using a Vixen ED130SS, Sphinx GoTo mount and Maxview II 40mm eyepiece attached to Sony DSC-H5 set at ISO 200 F3.5 1/3 sec.

... cont'd on page 3

Index

Email Reminder notice

We send email reminders before each meeting which describes the location, time and topic of the general meeting.
If you're not on the list, make sure that you receive your reminder by sending a note to:
publicity@amateurastronomy.org

An Offer

Thinking of buying your first telescope but wondering what kind to get? Before you buy, consider this offer from Mike Spicer: a "loaner" 5 inch telescope with electronic alt-az controls. The scopes are lightweight, easy to set up and very easy to use. Mike is offering newer members of our club one of these telescopes to try out for a month or so. Interested? You can reach Mike by email at deBeneEsse2001@AOL.com or by phone at (905) 388-0602.

Articles submissions

The HAA welcomes your astronomy related writings for the Event Horizon newsletter. Please send your articles, big or small, to:
editor@amateurastronomy.org
The submission deadline is two days before each general meeting.

HAMILTON AMATEUR ASTRONOMERS

Event Horizon is a publication of the Hamilton Amateur Astronomers (HAA).
The HAA is an amateur astronomy club dedicated to the promotion and enjoyment of astronomy for people of all ages and experience levels.
The cost of the subscription is included in the $25 individual or $30 family membership fee for the year. Event Horizon is published a minimum of 10 times a year.

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Submissions to the web site or newsletter are welcome, and may be edited for size & content.

Chair's Report *by Glenn Muller*

If you didn't make the last meeting, then you won't know that Margaret Walton is ready to place our order for RASC 2007 wall calendars. By buying in quantity we can take advantage of the volume discount but we need your order by Nov. 15^{th}. In fact, it would be good if payment could accompany your request ($14 each – see Marg for details).

While I'm hitting you up for money, please remember that dues are now due and you will find a membership form, with the rates, in this issue of the EH. And, if you like financial stuff, you'll also find the treasurer's report outlining our past fiscal year. Thank you Cindy Bingham for keeping track of all that.

Something else we discussed last month was the possibility of a new facility for hosting our meetings. All I can tell you, at the moment, is that negotiations are continuing and I hope to give you definite news, one way or the other, by December.

Another ongoing activity is the HAA scope contest. With the entry deadline now passed, it is up to the judges to pick a winner from the half-dozen quality entries we received. Not an easy task but the new owner of the 70mm refractor with the electronic mount will be announced sometime this month.

The best telescope news I've heard lately, though, has to be NASA's announcement that a mission to repair and upgrade the Hubble Space Telescope will happen in 2008. Those of us who attended Starfest (another meeting you don't want to miss) got the advance word from astronaut Story Musgrave, but it was nice to see an official confirmation. Hopefully, the "new scope curse" doesn't apply to orbiting platforms or we'll likely have cloudy nights for at least a year!

Finally, I would be remiss in my duties if I didn't officially thank the outgoing HAA council, on behalf of the membership, for a job well done! I'm also looking forward to working with the new slate of councilors (most of the same faces) in the coming year. Every one is worth their weight in high quality lenses and precision ground mirrors, and I can tell you, right now, it's going to be another good year.

Clear skies!

Glenn invites your comments on these topics or any aspect of the club. He can be reached via:

`chair@amateurastronomy.org`

... cont'd from page 1 [Hal's Moon]

Set camera to M for manual. Focusing is much easier when you have a 3" LCD viewer. I set self-timer for 10 seconds so that the camera would settle down after I pressed the shutter button - two seconds is not enough. Because of the cloud cover, I had to anticipate the approach of a clearing (well not exactly, more of a thinning) and didn't expect much when I had to set the exposure to 1/3 sec. From previous images, the ISO is higher than 200 resulting in "noise" and loss of "colour". OK I'll let you decide if it's any good.

Proposed 2007 HAA Council Slate

Honorary Chair: ..... Jim Winger
Chair: ..... Glenn Muller
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Councilor At Large: ..... Cathy Tekatch

Invitation to Present

Members are invited to give a short presentation at the monthly meetings. We are interested in learning about your observing equipment, your interests and if you have a favourite observing location, share that with us at a meeting! Remember when Glenn Muller described his Binocular observing using a mirror? The building of his Dobservatory? Remember when Clyde Miller described his cute short-tube refractor? Or when Ann Tekatch talked about her Sky Shed? If you would like to "Show 'n Tell" for a few minutes at a meeting, let me know so I can schedule you in!

See you at our next meeting or contact me at: `hneproszel@aol.com`

Initial Impressions of the new SkyWatcher Pro 180mm Maksutov

by Don Pullen

Like several others, I've been eagerly anticipating the arrival of the new SkyWatcher 180mm Maksutov OTA since I first saw their ad in SkyNews nearly a year ago. When KW Telescope recently started to receive them, I quickly went down and picked one up several weeks ago. I wanted to be the first kid on the block with one of these babies. As often happens when you buy a new scope, I was cursed with bad viewing conditions until recently. So this week was the first opportunity to try it out. These are my first impressions from someone who still considers himself to be fairly new to the hobby. I've owned a few scopes: a 90mm Mak, a couple of 60mm achromatic refractors, and a 150mm Newtonian but some of these would be considered poorer quality instruments and I've done limited viewing through perhaps a dozen other scopes of various calibre. The 180mm Mak is my first serious scope.

It comes with the standard SkyWatcher Pro paint scheme - gold and white. The 9x50 finder is very bright and had a good focus range with a dovetail mount. It also comes with a pretty good diagonal, and reasonably decent quality 20mm and 9mm eyepieces. These appear to be 5 or 6 element EP's and they have a cup which screws up or down for comfort level. I found they also help to act as a bit of a dewshield when fully extended.

The OTA itself comes with a standard SCT focuser so it does exhibit some mirror shift and backlash, but it doesn't appear to be any worse than other quality SCT's. I might try to get a microfocuser in the future to help reduce the effects of this. The optics were very clean and appears to be well collimated as received. Two drawbacks of this scope is that it has a 1.25" visual back and an f/15 focal ratio which will limit your field of view a little. But these are minor. And of course, it does take a while for this tube to cool down - upwards of an hour.

It's a hefty scope, weighing in over 7kgs (about 16 pounds) for just the OTA, but it's not a problem for a mount like an HEQ5 or an EQ6 like I have.

First light: when I finally got out to Binbrook, the seeing conditions were quite poor - lots of haze, some high level clouds and a lot of moisture. So my viewing was quite limited. The second night was slightly better initially but eventually it also clouded over after a couple of hours. But for the few objects I observed, I found that the brightness and contrast was exceptional in comparison to any other scope I've owned and many of those that I've viewed through.

In the 20mm, the Trapezium was easily resolved and I could faintly make out some colours in the nebula. M44 was too large to fit into the FOV but the starfield was much richer than I could have ever resolved in my other scopes. I estimate that even with the poor conditions, I was able to easily make out 11th magnitude stars and at times more. The waxing gibbous moon was also too large to observe in its entirety, but the terminator revealed huge numbers of mountains, small craters and fine details in the surface - you almost felt you could reach out and touch them. And M57 was very clear including the central star. With the conditions, judging colour aberration would be difficult to properly assess, but I could not make out any - objects appeared to be sharp and clear. A Mak is supposed to be essentialy free of colour aberration without the apochromatic price tag which is one of things that attracted me to this scope.

In my humble opinion, this is a very good scope and I expect that it will be my main scope for many years to come. As I spend more time with this new scope, I'm sure I'll have more to report in the future. I'm certainly anticipating many more new discoveries in the sky.

REPORTS

Compiled by Jackie Fulton

2006-10-31 : FIRST LIGHT (SORT OF)

by Don Pullen

The clear skies prediction for tonight let us down somewhat. At Binbrook, Mike Spicer and Tim Harpur had been imaging earlier. Tim H. felt it was getting too hazy to bother setting up. I had high hopes for this evening since it was going to represent first light for my new SkyWatcher Pro 180mm Maksutov. I was determined to break the new scope curse.

After doing a rough polar alignment, I decided to make M31 my first target. With the clouds, it was hard to locate Andromeda, but peeking between them, there it was, high overhead. Despite the conditions, I could make out a fair amount of the "fuzz" around it. Since M44 was fairly bright easy target, I decided to give it a try. With the 20mm EP and the narrow field of view with the f/15 Mak, I could only centre a few of the main stars, but many smaller stars came into view amazingly clear. Lyra was still reasonably high so I swung around and quickly found M57. I was surprised how easily it stood out considering the difficulties I had in previous scopes. I added a narrow band filter and the contrast improved, but conditions were still not good enough to make out colours.

It was after 11 and we were starting to suffer dew problems, so we packed up. It wasn't what I hoped for in the way of a viewing night but it did allow the new scope to see first light. I was very satisfied with the results. It's given me high expectations for the future.

2006-10-29 : Observer Notebook, Sunday 29 Oct 2006 : COMET CLARITY

by Mark Gemmell

I took the effort to get my 8" f/6 reflecting telescope and 15x70 Celestron Skymasters out in my yard about 7 pm for viewing comet Swan. I made an Observing Report on a piece of paper fully stretching my instrument to all available powers to scrutinize this stellar opportunity. At first the view was a stunning easy target. I found it very bright in my binoculars and couldn't wait to get my telescope trained on it. I went out and looked through my 30mm Celestron Ultima at 40x and the view got better. I then tried my 13mm Baader Hyperion at around 77x and still better. Then in went the 7mm Pentax XW for a view at 160x and the comet swelled in apparent size. It looked very much like a globular cluster with a tight, stellar core. I'd say it looked a bit bigger than M-13 in size. I couldn't see a tail directly; perhaps a faint one with averted vision. I then took up the power to 440x to see if I could detect ANY hood structures but none were detectable. I then looked at M-13 again and compared the size and brightness to the comet. I would have to say that Comet Swan was a couple of magnitudes brighter and a bit larger (Ed: M13 is magnitude 5 and about 20' in diameter). I swung the telescope over to M-76 in Perseus for a test of my newly acquired Orion Ultrablock filter. The planetary nebula was quite evident in my 13mm Baader Hyperion at 77x with the filter attached, but without, it was dim and just detectable.

I had a great night looking through my telescope and catching a glimpse of the Comet Swan. I LOVE to check comets out and see what they have to offer.

2006-10-13 : THE DIGITAL CAMERA CURVE

by Mike Spicer

I bought a Digital Rebel recently. It's not as sensitive as a CCD camera but has a giant chip - it captures extremely wide field images and you can see them right away. Taking long exposures through a telescope, any little error can ruin the image. If you Image through an Apo you get stars without purple fringes. Good polar alignment is not good enough - you either guide manually like Tim Harpur has been doing, or use an autoguider.

This morning, while it snowed in Fort Erie, it was very clear over Hamilton. I took some long exposure images with the RebelXT through an ED80 despite the freezing temperatures and a last quarter Moon in Gemini. The STV auto guider worked perfectly on my Advanced Series GEM mount. I think some of the images turned out very well. Here's a 5-minute exposure of M42 reduced to small size and low quality JPG format:

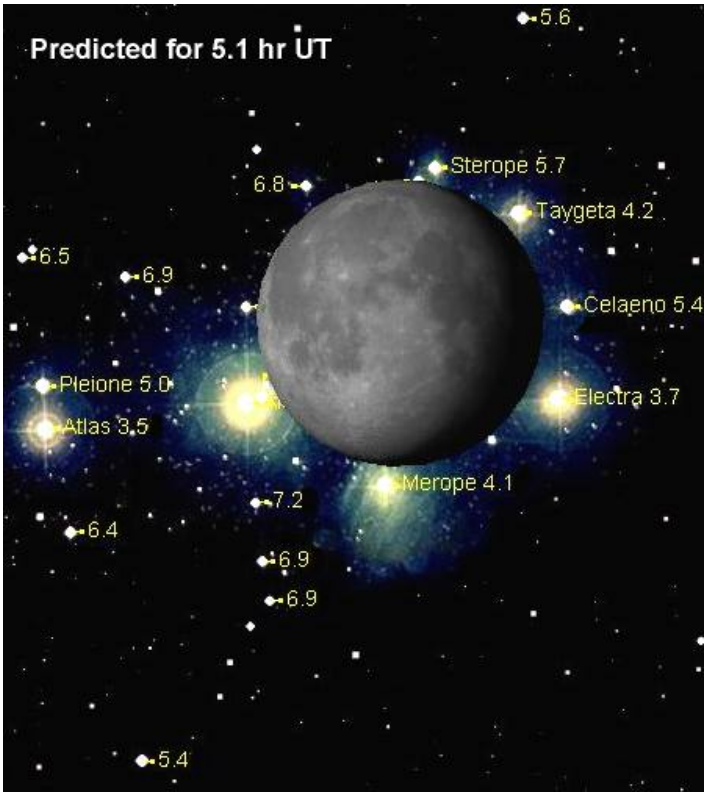
2006-10-06 PLEIADES OCCULTATION 9-10 OCTOBER

by Mike Spicer

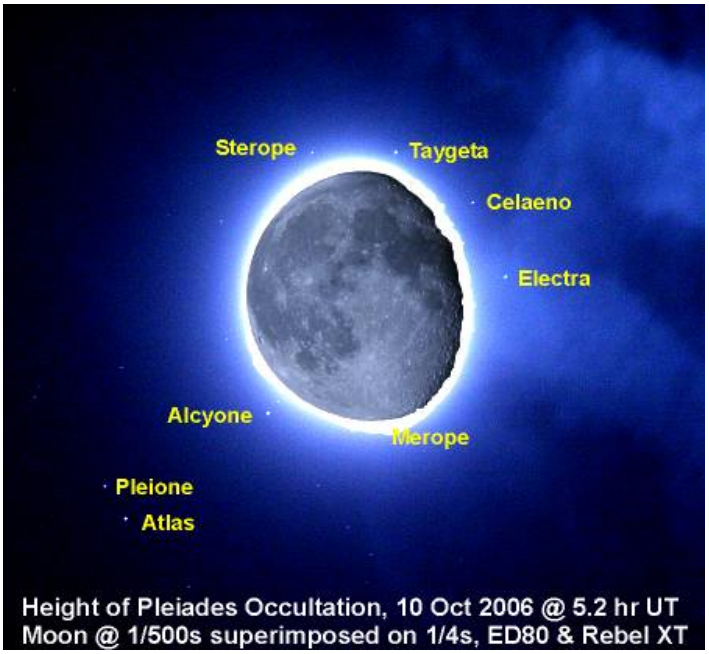
11:20 pm on the 9th: The sky, overcast all evening, has opened up except for some haze...the lunar occultation of the Pleiades is just about to start:

The bright Moon approaches from the W (right).

We knew in advance that (a) the weather was not going to co-operate and (b) even if it did, the Moon would be so full as to obliterate any actual occultation timing.



I decided to aim for an image at 1:12 a.m., shooting through haze and the occasional cloud just minutes before the sky became overcast, I took a 1/4 second shot of the event and then a second shot 1/500 sec of the Moon to superimpose on the "burned out" part of the first image. This is what it looks like with the two images combined:



2006-10-09
What to dew on a Sunday nigh *by Tim Harpur*

The observing session started with a very promising sign. I had never set up at my brothers and guessed roughly where Polaris would be - when night came I discovered that Polaris was already in the main scope's FOV at 63x power and only required minor fine adjustments. The dew set in within a half hour - even with the dew shield. Since I had access to 120v power I decided to fight back at the dew with the help of an occasional blast from a hair dryer - and managed to get about 3 hours of observing and imaging in. I used my broadband pollution filter for the first time doing imaging and took a number of 30sec, 2min, 4min, and 6min exposures of the Veil Nebula through my guide scope while guiding through my main scope. It gives nice wide field images. I turned my attention to the full moon taking images through my guide scope and my main scope.

Anybody knows where to buy a 12v travel hair dryer?

Thanks For a Clear Night Long Weekend!
by Heather Neproszel

If you are a lunar observer the Thanksgiving long weekend had to be one of your best observing opportunities ever! The Moon was full, at perigee, at the highest point on the ecliptic, in nearly perfectly clear

skies. After two days of trying to ignore the Moon, or using filters to work around it, I surrendered to the overwhelming brightness of it all. I set up my 8" SCT for lunar bino viewing from 11pm. 20mm wide field eyepieces gave a very crisp 3D view. Binos gave me the feeling I was orbiting the Moon at perhaps 2,000 miles. The gibbous Moon was so bright I needed an ND9 filter for comfortable viewing. Using Westfall's ATLAS OF THE LUNAR TERMINATOR, Mike and I were able to identify lunar craters, rilles, valleys and mountains. Mt. Pico was not as bright as on Friday night. At low power I got a lovely view of Mare Crisium three quarters lit with Dorsa Harker and Dorsa Tetyaev, volcanic ridges, quite prominent in the slanted sunlight. The sun caught the tops of crater walls and mountains that were lost in the darkness beyond the terminator. I was pleasantly surprised that the Moon can be so interesting to watch. The craters Furnerius, Petavius (with its 5 central peaks and a prominent radial rille), Vendelinus and Langranus are the largest and most noticeable group along the terminator tonight. The photo Mike and I took tonight looks exactly like the one on page 170 of Westfall:

2006-10-08 : First Light!

By Tim Philp

Today was first light on my new telescope. I was in Toronto with Mike Spicer when I saw a Coronado PST. It was the best price that I had seen, so I bought it.

My first experience was less than 'stellar'. I had difficulty getting proper focus. The image was pretty bland. It is amazing what you can learn when you actually take the time to read the instructions. While I had used this kind of telescope before, someone else had always set it up. There are two controls on this scope, one to focus and the other to detune the H-alpha filter. Once you focus, you may need to adjust the filter to get fine detail on the surface of the sun. This is especially true if you are looking at features that are moving toward or away from you. The Doppler effect can change the frequency of the H-alpha light enough to make some details completely invisible!

Once I got the hang of it, I managed to get some spectacular images of the sun. There were at least 4 flares that I could see as well as the faculae on the surface. There are areas of instability on the surface, but no sunspots! These areas are completely invisible with just a white light broadband filter.

I need a better tripod (Mike?) but I plan to find a way to mount it to an equatorial mount so I can track the sun and take pictures. Solar observing does not have the same cache as nighttime observing, however, it is a damn sight warmer!

2006-10-07 : CLEAR SKY, FRESH BREEZE, LUMINOUS MOON 6 OCTOBER

by Mike Spicer

A Full Moon was promised and delivered Friday night in the cold, clear air on 6 October. After so many days and weeks of cloud and rain, a half-dozen HAA members could not resist the opportunity to gather at Binbrook to observe.

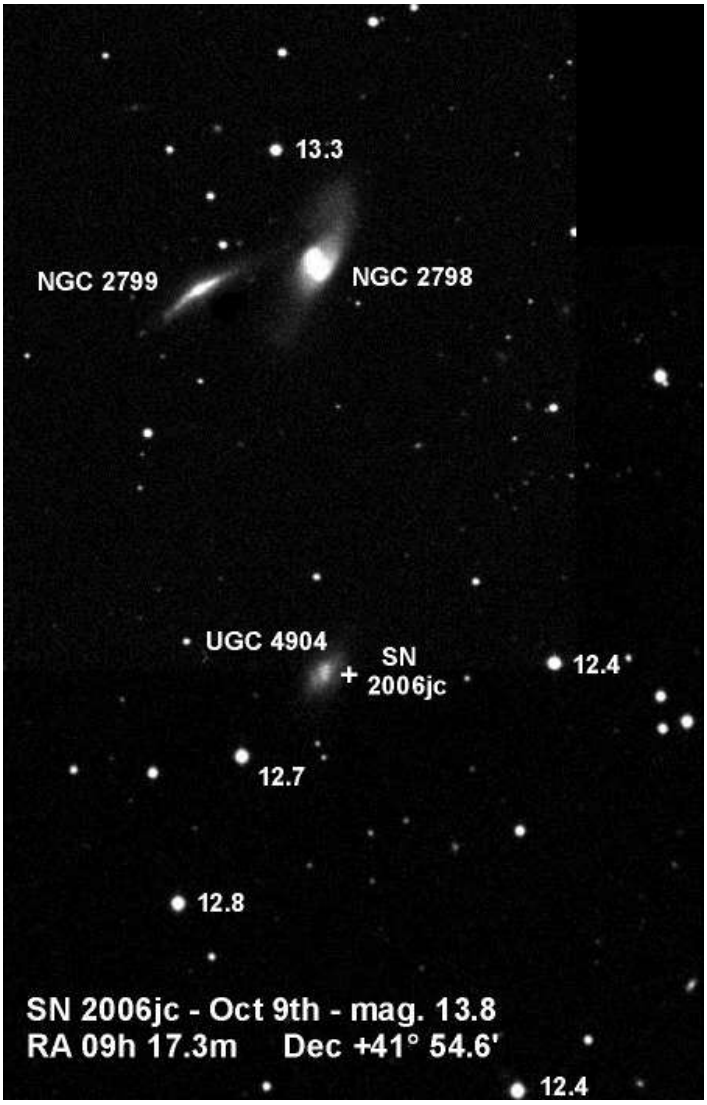
Don Pullen had his 6" reflector on a new and beefy EQ6; Heather Neproszel and Tim Harpur each used their fab 8" SCTs, Jackie Fulton was touring the sky with her Nexstar and Mike Spicer set up a 4" Apo refractor. Some looked westward, admiring the objects in the Summer Triangle, now descending out of sight. Some looked eastward, beholding the 4 stars of the Trapesium and teasing detail out of M42 with a variety of expensive filters. All eschewed the Moon... save Mike, who had two ND9 filters stacked on his 2" diagonal and gave views of Mount Pico like few had seen it before.

We stood in lengthy wet grass fighting the rising dew and fog with heaters and l-o-o-o-ng dew shields, as we picked gems out of the sky and shared the views in each other's telescopes.

SKYWATCH *Compiled by Jackie Fulton*

2006-10-16 : A SUPERNOVA VISIBLE IN A 6" SCOPE *by Mike Spicer*

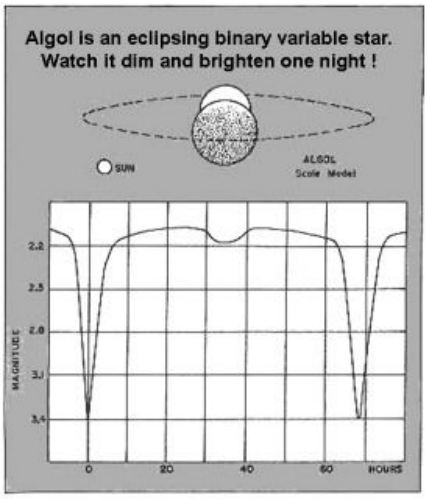
At the border of Ursa Major and the little constellarion Lynx are several remote galaxies, the brightest of which is NGC 2798. Just south of it is the 14th magnitude galaxy UGC 4904 with its 13th magnitude supernova SN2006jc located at 19h 17.3m, +42 degrees. Here is a POSS photo of the area with the location of the SN marked "+":



NGC 2799 looks like a Cylon fighter - maybe they're real after all.

ALGOL in the October Sky *by Mike Spicer*

How about looking at Algol this month? It's a very bright variable star in Perseus, high in the East before midnight.



Algol will be at Minimum:

October 2006:

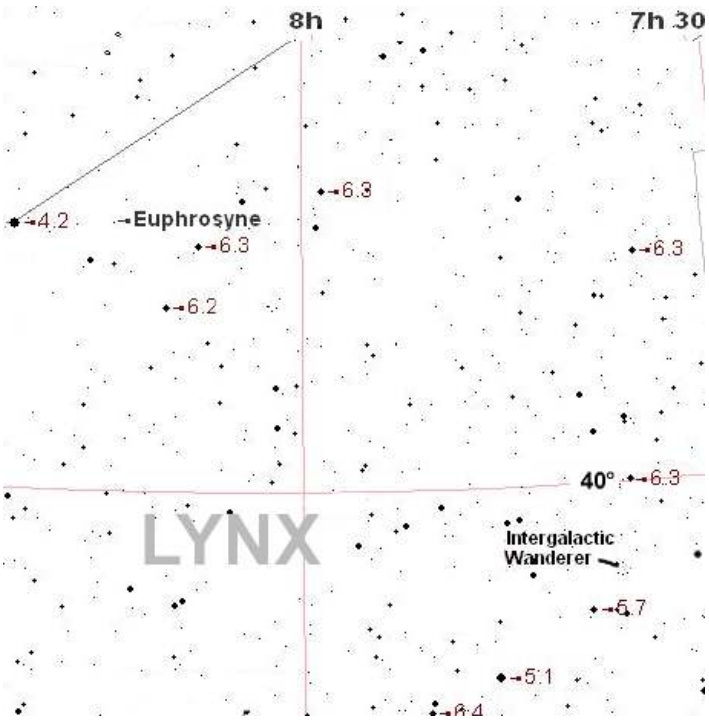
Tue	17th	01h 36 UT
Thur	19th	22h 24 UT
Sat	28th	12h 51 UT
Tue	31st	09h 40 UT

November 2006:

Fri	03rd	06h 29 UT
Mon	06th	03h 18 UT
Thu	09th	00h 07 UT
Sat	11th	20h 56 UT
Tue	14th	17h 45 UT
Fri	17th	14h 34 UT
Mon	20th	11h 23 UT
Thu	23rd	08h 12 UT
Sun	26th	05h 01 UT
Wed	29th	01h 50 UT

Asteroid Event 7 October : 10th MAG STAR TO BE OCCULTED BY ASTEROID 7 OCTOBER *by Mike Spicer*

Asteroid Euphrosyne, over 250 km in diameter, will occult a 10th magnitude star in the constellation Lynx on 7 October at 05h 27m UT. It's not far from 10th mag globular cluster NGC 2419 known as the Intergalactic Wanderer because it is a whopping 300,000 light years away. Here's a finderchart:

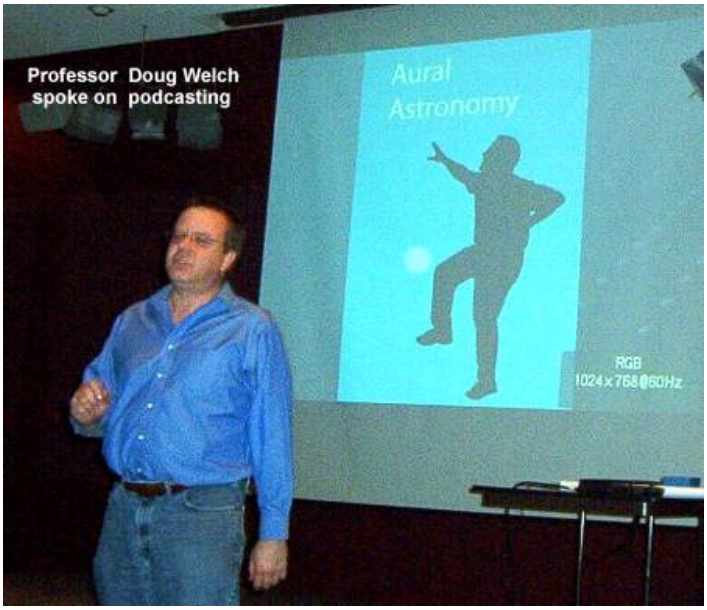


IN FROM THE COLD AT THE OCTOBER H.A.A. MEETING

by Mike Spicer

Forty club members and a dozen guests filled the Spectator auditorium Friday evening for the October meeting of the Hamilton Amateur Astronomers. Treasurer Cindy and Membership Director Stewart having absconded to China, our Welcome Desk was manned by Gail Muller and Jackie Fulton. Yes, Oct and Nov are "pay your dues" months. With 24 inches of snow in Buffalo and the Peace Bridge closed, Bob Christmas detoured to cross the US border at Detroit, narrowly missing the meeting.

Chair and MC Glenn Muller opened at 7:30 pm with a number of announcements: next month's election for 2007 Council, so "get yer nomination in to be added" to the slate of proposed Council members. Glenn hinted at negotiations for a new monthly meeting place in Hamilton. He called for entries in the annual telescope contest, cut off date: Halloween.



Professor Doug Welch of McMaster University lent lux, laughter and learning to astronomy-presentations-on-the-web (a recent electronic form of radio astronomy using no radiation or radio). Doug generously provided CD-R sets to members who have not yet got the hang of podcast downloading.

Door Prize draws for colourful full-sized posters from Sky & Telescope were very exciting (I can't believe that Heather won something). Hal Mueller followed, generously giving away several gifts bingo-style, to celebrate his birthday (have a happy one, Hal!).

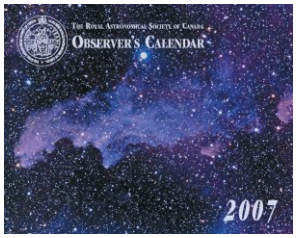
The Sky this Month produced some chuckles. Working outward from the Great Square of Pegasus we found double and variable stars, clusters, nebulae, faint planets both giant and dwarf-sized, a comet, a supernova, asteroids, a few shots at the IAU, even some meteor shower meteorology. Oct-Nov promises to be a busy observing month, headlining the Transit of Mercury November 8th. We may have new digs to observe from, right on the waterfront. In case you blinked during Mike's presentation and missed a chart, Anthony has posted the slides on our web site (the TOOLS button).

The height of the evening for me, was the "Cassini Mission", a Power Point presentation by Tim Philp through the marvel of pre-recorded audio. The audience was delighted with his information and the spectacular pictures, both real and

imagined-by-NASA-artists. The applause was almost loud enough for Tim to hear in Montreal.

A lot of $20 bills were exchanged as items were bought /sold / traded among members. The new Pocket Sky Atlas was very popular. Tim Harpur's astro-photographs are breathtaking and make fine Christmas gifts. The auditorium lights went dim at 10 pm. About 20 members relocated to East Side Mario's, where we inspected astro-items, dined, drank and discussed events... BECAUSE THE H.A.A.IS AN ACTIVE, FRIENDLY CLUB!

2007 RASC calendars



Order your 2007 RASC Calendars for $14 each. E-Mail Margaret Walton <mwalton@cogeco.ca> to place your advance order. We will take orders at the November meeting.

Council meetings

All club members are welcome to attend the council meetings. Contact info@amateurastronomy.org for details.

Upcoming Events

Next meeting

The next HAA meeting is Dec 8, 2006 at the Hamilton Spectator Building which is located at 44 Frid St, near the junction of Highway 403 and Main St West in Hamilton. Admission is free. Everyone is welcome! If it is clear, there will be observing in the parking lot after the meeting.

Please check our website www.amateurastronomy.org for more up-to-date event listings.

Also, check our "Observing" link at www.amateurastronomy.org for dates and times that club members will be going observing with their telescopes.

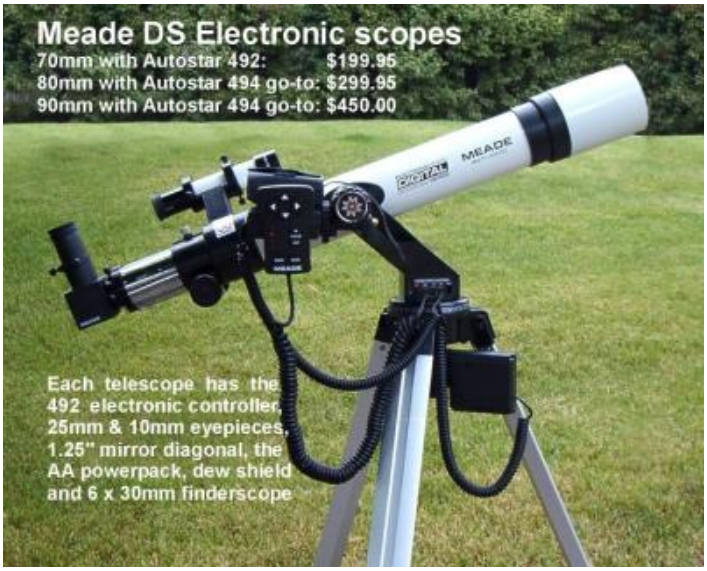
Origins Public Lecture - 3D Film Nights - "OUR SUN: WHAT A STAR"

November 16, 17, 23, and 24, 2006
To Reserve Tickets -go to the Origins website - origins.mcmaster.ca
(Click on Public Lecture Series - follow instructions)

The Origins Institute is proud to present a 3D movie entitled "Our Sun: What a Star" at a series of showings at the McMaster 3D theatre (in MDCL 1110). The program will begin with a short film featuring Allison Sekular, Department of Psychology, and Ken Sills, Department of Physics and Astronomy, which describes how a 3D theatre works and how we "see" in 3D (about 16 min). The 3D movie made by Swinburne Centre for Astrophysics and Supercomputing will follow (about 20 min.). A question and answer period will follow. This project was supported financially by the Department of Physics and Astronomy and the Research and High-Performance Computing Support Department, with technical support by the Learning Technologies Resource Centre, RHPCS, and Classroom Audio Visual Services.

For Sale

Mike Spicer DeBeneEsse2001@aol.com



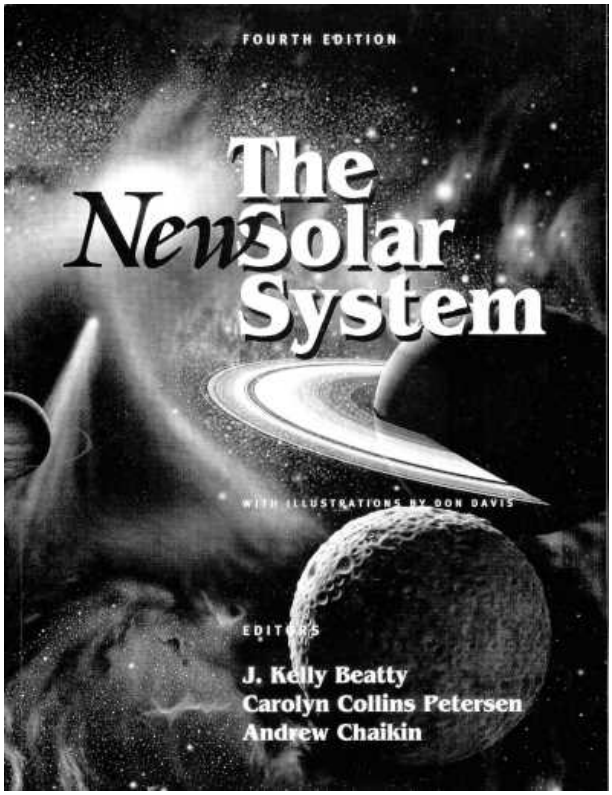
Peter McHugh pmchugh1@quickclic.net

Meade LXD 6" Newtonian, 765 mm., w/26 mm plossl and homemade Hartman mask for focus. Skywatcher German Equatorial w/motor drive and polar alignment scope. Asking $400.

The *New* Solar System (4th Ed.)

a book review ***by Mike Spicer***

With the explosion of information about the solar system and the recent intervention by the IAU revising the definition of "planet", it isn't surprising that a book on the solar system should be revised every few years. No doubt a 5th edition of this book will appear shortly, now that Pluto has to be deleted from the official list of planets.



This is a remarkable book, well worth buying. Each of its 28 chapters is written by a professional with expertise in that area of knowledge. Sky Publishing expanded the size of the book to 8.5 x 11" and over 400 pages in length, on magazine paper with hundreds of excellent colour photographs and insightfully detailed drawings by Don Davis. The editors include Andrew Chaikin so it's not surprising that the writing is clear and interesting.

I think the chapter titles tell you a lot about the book's coverage:

1. Exploring the Solar System
2. Origin of the Solar System
3. The Sun
4. Planetary Magnetospheres
5. Cometary Reservoirs
6. The Role of Collisions
7. Mercury
8. Venus
9. Planet Earth
10. The Moon
11. Mars
12. Terrestrial Planets – Surface, Interior
13. Atmospheres of the Terrestrial Planets
14. Interiors of the Giant Planets
15. Atmospheres of the Giant Planets
16. Planetary Rings
17. Io
18. Europa
19. Ganymede & Callisto
20. Titan
21. Triton, Pluto & Charon
22. Midsize Icy Satellites
23. Small Worlds
24. Comets
25. Asteroids
26. Meteorites
27. Life in the Solar System
28. Other Planetary Systems

Tables
Glossary
Authors, Other sources

I like to keep up with all the new planetary information, but I found this book contained data that I had not seen elsewhere. It's a treasure trove well worth having, and an excellent holiday or birthday gift. At the moment it is a bargain, available from Sky Publishing for just one dollar, plus shipping and handling (about $15 due to its weight). I will bring a copy to the November and December monthly meetings so you can have a look if interested.

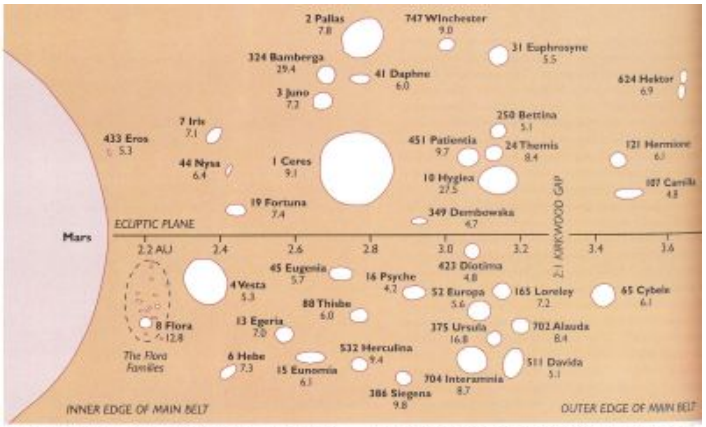


Figure 7. This representation of the physical properties of interesting asteroids includes most of the asteroids larger than about 200 km in diameter. They are portrayed with their rotation periods, in hours. Asteroids located near the top or bottom of the diagram occupy relatively eccentric or inclined orbits (or both) while those shown near the ecliptic plane move in relatively circular, non-inclined orbits. Among the special smaller asteroids indicated are members of the Flora families larger than 15 km in diameter: an estimated 1,350 asteroids in the main belt alone have diameters larger than 30 km, yet only five Flora family asteroids attain that size.

Note the Trojan asteroid 624 Hektor at upper right.

NASA's Space Place

The Planet in the Machine

By Diane K. Fisher and Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The "butterfly effect" is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real "butterfly effect" is driven by, for example, global winds and ocean currents, polar ice (melting *and* freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

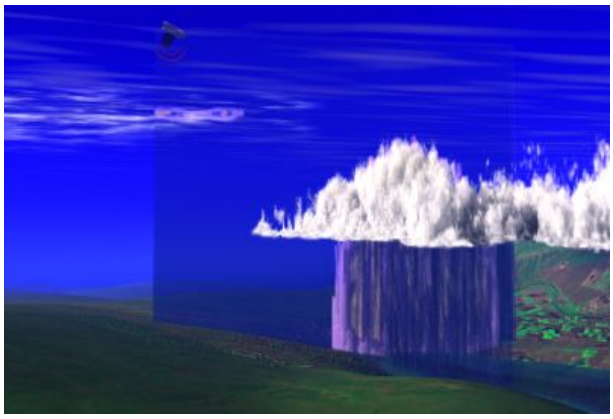
And then there's the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth's carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA's Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth's land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.

For a listing and more information on each of NASA's (and their partners') Earth data-gathering missions, visit `science.hq.nasa.gov/missions/earth.html`. Kids can get an easy introduction to Earth system science and play Earthy word games at `spaceplace.nasa.gov/en/kids/earth/wordfind`.



CloudSat is one of the Earth observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat's unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun's energy in the atmosphere. See animation of this data simulation at `www.nasa.gov/mission\_pages/calipso/multimedia/cloud\_calip\_mm.html`.

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

Summary of Astronomical Events in the Coming Month

Moon: Nov 12: Last Quarter
Nov 17: Moon S of Spica
Nov 22: New Moon
Nov 28: First Quarter, Moon S of Uranus
Dec 5th: Full Moon
Watch for imagers at Binbrook while the Moon is absent

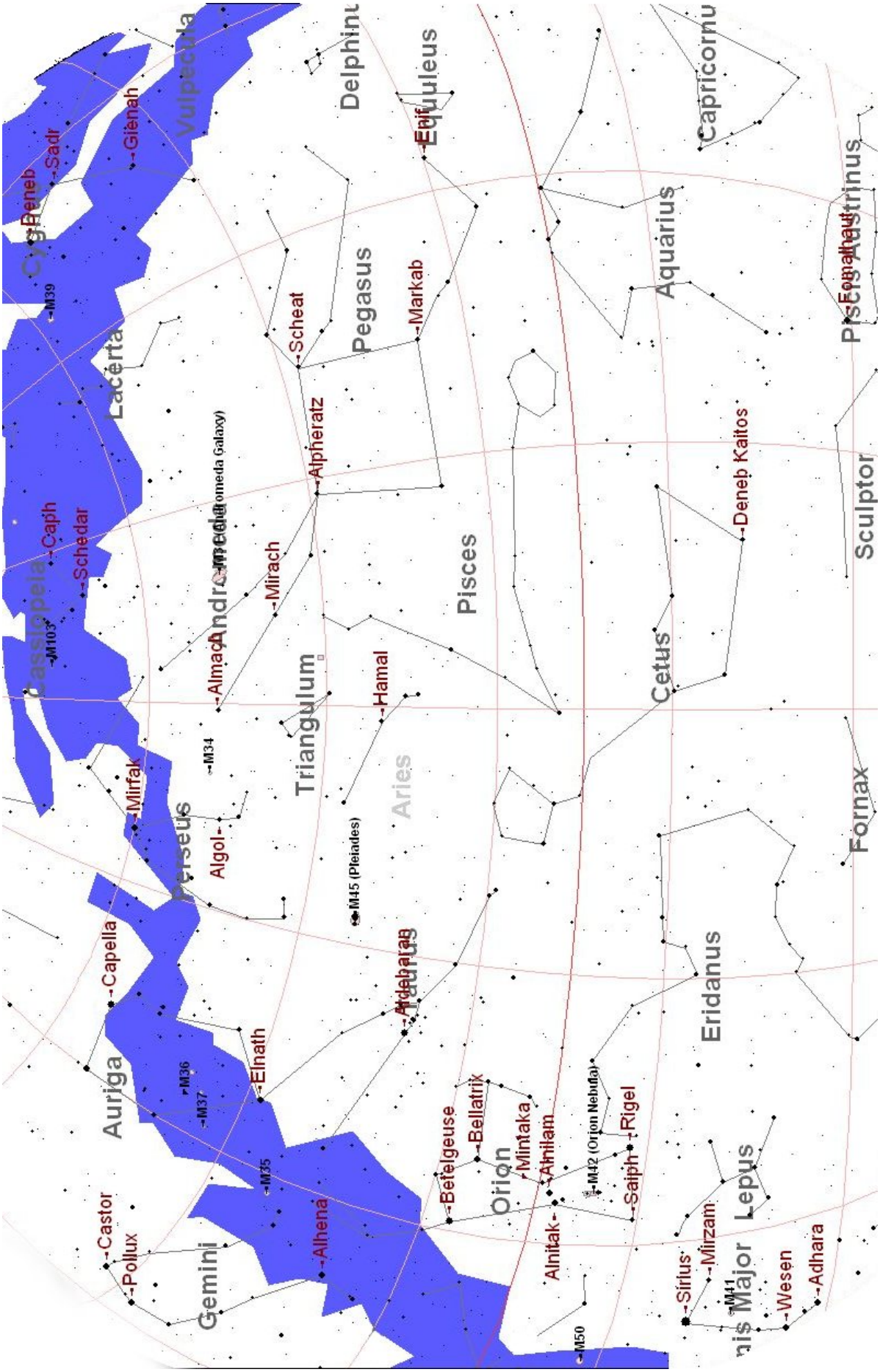
Meteors: Nov 17-18: Leonid meteors peak – no Moon
Make plans to join us at Binbrook Friday and Saturday night!

Comets: 2006-M4 SWAN is well placed in the W after sunset (see *EH* map)

Planets: the evening, Uranus and Neptune are high in the SW
In the early morning, a spectacular Saturn rises in the E
Mercury is well placed in the morning sky near the end of Nov
Minor planet Ceres (mag 9) is close to M30 at November's end
Asteroid Iris (mag 6.8) is 6 degrees W of the Pleiades on 10 Nov

Algol: Minima posted in *Event Horizon* and in our web Observing pages

Supernovae: see postings of new discoveries on our web site.


Vulpecula
Delphinu
Equuleus
Capricornu
Cygnus
Deneb
Sadr
Gienah
M39
Lacerta
Scheat
Pegasus
Markab
Aquarius
Piscis Austrinus
Fomalhaut
Cassiopeia
Caph
Schedar
M103
Andromeda
Mirach
Alpheratz
Pisces
Deneb Kaitos
Sculptor
Almach
M34
Triangulum
Hamal
Aries
Cetus
Mirfak
Perseus
Algol
M45 (Pleiades)
Fornax
Capella
Auriga
Elnath
M36
M37
Aldebaran
Taurus
Eridanus
M35
Bellatrix
Betelgeuse
Orion
Mintaka
Alnilam
M42 (Orion Nebula)
Rigel
Saiph
Alnitak
Castor
Pollux
Alhena
Gemini
Sirius
Mirzam
M41
Lepus
Wesen
Adhara
M50
Canis Major

HAMILTON AMATEUR ASTRONOMERS
BALANCE SHEET
AS AT OCTOBER 31, 2006
(Unaudited)

	Oct 31 2006	Oct 31 2005
ASSETS		
Bank	447	212
Cash	606	744
Inventory	0	0
Prepaid P.O. Box Rental	117	111
Prepaid Liability Insurance	0	1080
Total Current Assets	1170	2147
Fixed Assets - Equipment	3059	3059
Total Fixed Assets	3059	3059
TOTAL ASSETS	***4229***	***5207***
LIABILITIES		
Deferred Membership Revenue	876	974
TOTAL LIABILITIES	**876**	**974**
EQUITY		
Opening Balance	5518	5518
Retained Earnings	-1285	-1015
Current Year (Surplus/Deficit)	-880	-270
EQUITY CLOSING BALANCE	**3353**	**4233**
TOTAL LIABILITIES AND EQUITY	***4229***	***5207***

Prepared by Cindy Bingham, Treasurer

HAMILTON AMATEUR ASTRONOMERS
INCOME STATEMENT
AS AT OCTOBER 31, 2006
(Unaudited)

	Oct 31 2006	Oct 31 2005
INCOME		
Membership Fees	2184	2155
Observers Handbook/Calendar Sales	132	188
INCOME	**2316**	**2343**
EXPENSES		
Bank Service Charge	1	0
Donation Expense	94	150
Handbooks/Calendar Cost of Sale:	112	179
Insurance- Liability	1080	1080
Mailing Expenses	182	414
Meeting/Observing Expense	339	81
Office Supplies	66	13
Post Office Box Rental	111	105
Printing Expense	1101	591
Promotion	109	0
TOTAL EXPENSES	**3195**	**2613**
SURPLUS/DEFICIT *(Income Minus Expenses)*	***-880***	***-270***

Hamilton Amateur Astronomers Membership Renewal November 1, 2006 - October 31, 2007

Name:	
Address:	
City:	
Postal Code:	
Phone:	
E-mail:	
Do you want the newsletter emailed?:	

Type of Membership:

Individual ($25 Cdn/year)	
Family ($30 Cdn/year)	
Royal ($50 Cdn/year)*	
Friend ($100 Cdn/year)*	
Patron ($250 Cdn/year)*	
Voluntary Donation $	

* These levels of membership confer the same rights and privileges as a Family membership. We greatly appreciate the additional financial support our members provide by signing up as a Royal, Friend or Patron.

All membership dues are eligible for tax receipts.

Total:	$

Please make cheque payable to:

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Hamilton Amateur Astronomers
P.O. Box 65578
Dundas, Ontario
L9H 6Y6
CANADA
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Membership renewals are due November 1.