

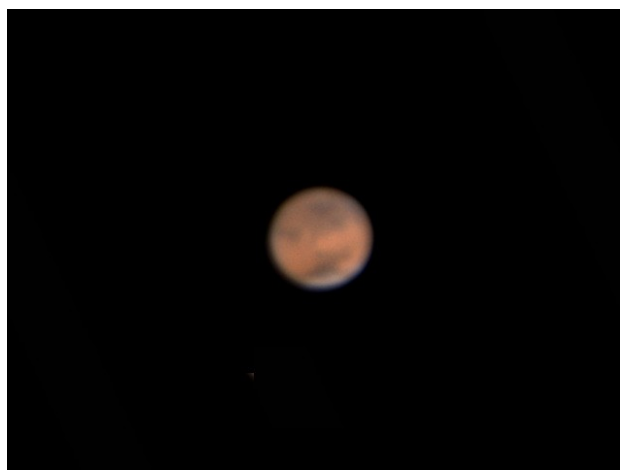
# STARDUST

Newsletter of the Royal Astronomical Society of Canada  
Edmonton Centre



January 2008

Volume 53 Issue 5



*Mars, 18 December 2007. Photo by Murray Paulson.*

## *Inside this Issue*

Contact Information.....	page 2
Upcoming Events, Meetings, Deadlines, Announcements.....	page 2
President's Report.....	page 3
Observers Report.....	page 4
The Planets.....	page 5
Beating the Seeing Part IV.....	page 5
Blotting Out Starlight.....	page 7
Crescents and Full Moon Photo Ops.....	page 8
One Starry Night in Beaumont.....	page 9

## RASC Edmonton Centre Contact Information

Council Positions			
<b>President</b>	<b>Krista Stefan</b>		
<b>Past-president</b>	<b>Orla Aaquist</b>		
<b>Vice-president</b>	<b>Sherry Campbell</b>		
<b>General Secretary</b>	<b>Luca Vanzella</b>		
<b>Treasurer</b>	<b>Mark MacDonald</b>		
Co-National Council Rep	Roy Ramdeen		
Co-National Council Rep	Patrick Earl		
Public Education Director (PED)	Orla Aaquist		
Fund Raising Coordinator	Franklin Loehde		
Councillor	Bruce McCurdy		
Councillor	Andrew Soon		
Councillor	Sheldon Helbert		
Councillor	Harris Christian		
Councillor	Ross Sinclair		
Internal Communications Officer	Michael Ward		
Observers' Group Director	Paul Campbell		
Membership Secretary	Massimo Torri		
New Member Advisor	Pat Abbott		
<b>Appointed Officers</b>			
Editor	Michael Ward		
Web Site Coordinator	Howard Gibbins		
Library Coordinator	Roxy Welter		
Equipment Coordinator	Bob Jahrig		

<b>Mailing address</b>	RASC Edmonton Centre c/o Telus World of Science 11212 – 142 St Edmonton, AB, Canada, T5M 4A1
<b>Centre Website</b>	<a href="http://www.edmontonrasc.com">http://www.edmontonrasc.com</a>
<b>Observing Deck</b>	452-9100 ext 2249
<b>Stardust</b>	Articles for Stardust may be submitted by email to <b>mward@interbaun.com</b> . Submission deadline is the last day of the previous month (e.g. for the May issue submit by 30 Apr). Submit as <b>MSOffice 2003 or earlier</b> (NOT MS xml/docx please) or <b>OpenOffice OR AbiWord OR plain text</b> . Please avoid use of fancy formatting, odd spacing, and strange fonts. Graphics (photographs, illustrations) should be submitted as separate files, and clearly identified.

## Upcoming Events, Meetings, Deadlines, Announcements

### Regular Meetings 2008

*Telus World of Science, 11211 - 142 St, 7:30pm*

Jan 14	Sep 8
Feb 11	Oct 20
Mar 10	Nov 10
Apr 14	Dec 8
May 12	
Jun 9	

### Council Meetings

*ATA Building, 142 St & 111 Ave, 7:15pm*

Jan 21	Sep 22
Feb 25	Oct 27
Mar 24	Nov 24
Apr 28	
May 26	

The R.A.S.C. Edmonton Centre would like to extend condolences to Cheryl Walker and Owen Salava on the loss of their infant son  
Gabriel Anton Salava

---

---

**Casino 2008 - Another Successful Fund-Raiser**

---

During the days and nights of January 3rd and 4<sup>th</sup>, many of our RASC members, staff of the Telus World of Science Edmonton, its volunteers, a member of the University of Alberta Physics Department, and friends of the undersigned, turned out to help raise funds to promote astronomy across Alberta and indeed, even Canada.

Many of the great astronomical ideas and projects that have come from Centre members have seen them fulfilled because of these hard-working (not really that hard) volunteers and we should thank them all. A reminder to those who submit their ideas that the following people have helped to make it happen. Special thanks to those who took double shifts or took time off work. The Centre

really should take off its hat to them.

Orla Aaquist, Guy Almberg, Nels Andersen, Wally Anhorn, Gerry Belanger, Cornelia Blunck, Don Brown, Paul Campbell, Sherry Campbell, Katherine Captain, Robert Casgrain, Earl Clement, James Cote, Frank Florian, Robert Garipey, Howard Gibbons, Peter Hall, Searle Hartman, Sheldon Helbert, Harold Jacobsen, Gordon Knight, Yves Lamarre, Alister Ling, Franklin Loehde, Mark MacDonald, Bruce McCurdy, Howard Pateman, Arnold Rivera, Geoff Robertson, Robert Rolf, Rose Rosenberger, Ron Salyzyn, Terrance Samuel, John Savard, Rosalyn Schilberg, Alan Sunley, Richard Vanderberg, Luca Vanzella, Christine Westy Whyte, Larry Wood

**Thank you all - Franklin Loehde, Fund Raising Coordinator**

**RASC Edmonton Centre's  
Annual Banquet 2008**

For Members and their Guests

**April 19, 2008**

**Faculty Club, University of Alberta**

Guest speaker:

**Dr. Ian Mann**

Department of Physics, University of Alberta  
topic:

"The NASA THEMIS Mission: Space Weather,  
Aurora, and things that go bump in the night..."

Tickets: \$30.00

Advance tickets will be on sale at the meetings between January and April  
or call Howard at 469-9765.

More information available on the Edmonton Centre Website

**<http://www.edmontonrasc.com>**

---

**President's Report** by *Krista Stefan*

---

Happy New Year! I hope everyone had an enjoyable holiday period (aside from being clouded out for the occultation of Mars, of course).

As is my usual habit, I start writing each new President's Report by editing the previous one. I was dismayed to notice that in this column in the December 2007 issue I stated that the date for the AGM was January 7, 2008. This was an error on my part, and I apologize for any confusion this may have caused. The date for the 2008 AGM coincides with the January regular meeting date of January 14, 2008. Again, my sincere apologies for this error.

Now to let my face fade from bright red to winter pale and to

remove the foot from my mouth.

Looking forward to the 2008 meetings, there are a few great guests in the works starting with the Alberta Parks interactive theatre presentation in February. The April meeting should have some of the usual silliness. (For those who would also like a more serious talk in April, the guest speaker at the banquet should be very interesting.) And of course several member's nights to showcase our "home-grown" knowledge, skills, and talents. I also hope to keep a good mix of content for both the beginners as well as the more experienced members. And I am looking forward to gearing up to the International Year of Astronomy in 2009.

Now if the weather gods smile on our observers, it will be a terrific year.

So, here's to wishing you all the best in 2008!

## Observers Report by Paul Campbell

I hope everyone has had a great time over the holidays this year, I know I did but, I must admit that I have not kept up with one of my duties and that is to post the nights of the observing weekends. I have not considered this very important as most astronomers do know when new moon is and a lot of us have

computer programs that tell us this information. However for those without computers or are members of the public and want to come out and look through some large scopes the observing weekends are as follows:

### Moon rise and set times on observing dates

Month/Day	Sets	Rise	Sets	Rise
	Friday	Saturday	Saturday	Sunday
January 4,5	12:54	7:12	13:27	8:12
February 8,9	19:53	8:52	21:18	9:02
March 7,8	18:54	7:10	20:22	7:21
April 4,5	17:50	5:27	19:21	5:40
May 2,3	16:44	3:43	18:17	3:58
September 26,27	17:21	4:31	17:31	5:51
Oct 31, Nov 1	17:43	12:10	18:30	12:55
November 28,29	16:25	10:52	17:21	11:28
December 26,27	15:14	9:03	16:17	9:59

I have taken this time to post the times that the Moon rises and sets starting on the Friday (set time) to the Sunday (rise time). I hope you find this information useful. If you are a member of the public coming out to look through some large telescopes please remember to turn off your car lights or cover them up as you come into the observing area. White light destroys dark-adapted eyes and can take up to 20 minutes to fully recover. That's why most observers use dim red flashlights when working at night.

We still need volunteers at the observatory. I had hoped some of you would have come out to see the Mars Occultation of December 23<sup>rd</sup>, 2007 but we were clouded out. That would have been ideal to show everyone what the Mallincam camera could have done and how we intend to display events such as this to the public. It was my hope that some of you would have been so interested that you would have wanted to become volunteers at the observatory. Don't get me wrong, we still need you but I will have to wait for another interesting event in the future to really twist your arms.

Congratulations must go to Donna-Lee May for getting all of her Messier objects (See Larry's report). I remember helping her out to find M57 when she was just starting out. It's great to see that she has managed to observe them all.

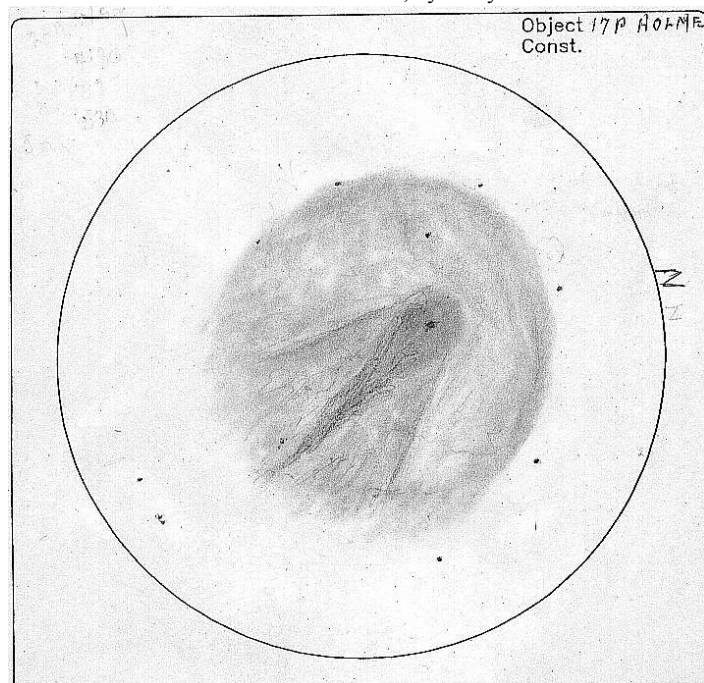
Observing for me had been another bust this month due to work and Christmas constraints. Yet the ever-active Larry Wood managed to get in some observing and send in this report. Thank you Larry. Remember that this report is for the observers in this club so if you have something you would like to include in the observers report, please do not hesitate to contact me as I am always looking for new material. Anyway, here is Larry's report:

*On the evening of December 7/8 several die-hard observers braved the -26° temperatures to get in some prime observing time out at Blackfoot. In attendance were Jnani Cevvel, Sharon Tansy, Donna-Lee May, Warren Finlay, Dave Boyle, Dwight Hansen, myself, and two other new people -- sorry, forgot your names*

*Comet 17/P Holmes was the prime target of the night – larger and brighter than the naked eye views of either M31 or the Double Cluster. It was an outstanding view in the 80mm finder, and almost filled the 80 arc-minute FOV as seen in my 12.5" F/6 scope with Jnani's 31mm Nagler. Comet 8/P Tuttle was also located in Cepheus as a 4' round diffuse cloud with a little brighter pseudo-nucleus. In the same FOV as this comet was a very faint (mag 14.8), small (15"), Planetary Nebula IC 1454 – easy to locate with a pair of mag 7 stars pointing the way.*

*Mars at 15" in size was the next target, and at 250x was showing a bit of detail in the Solis Lacus region. The North*

*Below: Comet 17P/Holmes, by Larry Wood.*



*Polar Cap is quite difficult to distinguish from a white polar cloud obscuring the area, but a nice view despite the less than great seeing.*

*Sharon was hunting for the Proto-Planetary Nebula J-900, and as I hadn't looked at it for many years I got in on the hunt. Yes, I remembered it was not an easy star hop with dozens of 8-9 mag stars pointing the way. I finally sorted it out – still remembering (slightly) the look of the final FOV. Sharon had a bit more difficulty but identified the correct FOV, then she increased the magnification to over 200x to separate the non-stellar mag 12.5 PN from the mag12.5 star – at <10" separation. They were not obvious as the PN appears quite a bit fainter than the star.*

*Donna-Lee located M79 in Lepus (down in the trees) thus completing her Messier list. Jnani located two or three Herschel's – NGC 720 was one of them.*

*A lack of wind allowed the body to stay quite comfortable but it was a bit cold on the hands when changing EPs or filters. I was surprised at the number of people out, almost as many as on a warm October evening.*

*Then one week later on Dec 14 I again went out to Blackfoot, and before long Mike Noble, Ross Sinclair, Dave*

*Boyle, Jnani Cevval, Alister Ling, and Bruce McCurdy, had also arrived and were dealing with the calm -18 degree weather. But it's a dry cold!*

*The Winter Hexagon slowly rose to dominate the sky to the south with Mars and the huge Comet Holmes high overhead. Jnani was chasing some Herschel's while some of the objects I viewed were comet Holmes and Tuttle; NGCs 891, 40, 1999, 1875??; M81, 82; and Mars at 250x. Comet Holmes was 1.3° wide and 1.4° long with the teardrop shaped inner coma about 8' x 35' in size. The comet actually looked better in my 80mm finder (the comet filled fully 1/3 of the 4° FOV. Mike took some images of the comet while he and Ross were watching for the bright Geminids. Alister was doing some variables as well as trying to catch some Geminid with his camera. Bruce was in his sleeping bag doing a meteor count.*

*Some of us stayed out until 2:00 viewing the glorious winter sky and plenty of bright Geminids. I saw 4 or 5 brighter than 0 mag, and 2 that were ~ -4. The last -4 was seen as I was pulling out of the parking lot on my way home. It terminated in a bright exploding fireball low in the north. Bruce missed it as he had his eyes averted from my car lights. A wonderful evening.*

---

### **The Planets by Murray Paulson**

---

New Year's resolution #1, get out and put the eye to the telescope more often! Too many New Year's resolutions are things that you would like to do to better yourself. Rid yourself of bad habits, weight, or some other negative thing in your life, but I would just like to spend more quality time with my dear old friends, the planets...

Our New year starts off with a situation very similar to the 2001 January apparition of **Mercury**. Over the course of the month, Mercury rises on a very favourable ecliptic in the evening sky. We will see the greatest eastern elongation on the evening of January 21st when Mercury sets an hour and 46 minutes after the sun (6:48 pm local time). It is 18.6 degrees from the sun and shines at magnitude -0.5. In the eyepiece you will see its 56% illuminated 7" disk, and if you check nearby, you might glimpse the planet **Neptune** as well. On the evening of January 22nd, Mercury passes only 16 arc minutes away from Neptune. Mercury will pass north of it, and Neptune shines at magnitude 7.8. In the eyepiece you may see its 2.4" disk depending on the sky conditions. There is an interesting resonance for me, because in 2001, I had noticed that Mercury and **Uranus** were to pass 22 minutes of arc apart on this exact same day in January. A few days later a very new moon sat close to Mercury, but we do not share that luck this year. Mercury is fairly bright in the week before the elongation, magnitude -0.8, but fades rapidly in the week afterwards to magnitude +0.7 one week later. By February 6th, Mercury is in inferior conjunction with the sun.

**Venus** is now sinking down around the bottom of the ecliptic, and is well south in the morning sky. Catch it early enough and you can contrast Venus's brilliant white magnitude -4.0 to the red giant Antares at magnitude +1.0. Look for Antares 7 degrees below and to the west of Venus. In the eyepiece Venus presents a

13.8" gibbous disk at the beginning of January, and shrinks slightly to 12.1" by the beginning of next month.

The night sky is dominated by **Mars's** brilliant red presence. Every night I look up to it in the twins, I am amazed at how high it rides into the night sky. Unfortunately the December skies weren't all that kind, only giving me a few good nights for shooting Mars. The subtle continental features and clouds were rewarding on the occasion of good seeing. January starts off with Mars shining at magnitude -1.2 and it shows a 14.6" disk in the eyepiece. We have passed opposition, and Mars shrinks much more rapidly on the way out than it did on the way to opposition. By Early February, Mars will have shrunk to 11.1" and it will shine at magnitude -0.3. Despite this Mars will still dominate the night sky and provide many an opportunity to study the features on the disk. In mid month, the Tharsis and Solis Lacus regions will face us in the late evening. By month's end Sinus Meridiani will be prominent on the disk and in the first week of February Syrtus Major will again be well placed on the disk.

**Jupiter** is making a return to the morning sky. The one significant event is that on February 1st, Jupiter and Venus are in a close conjunction in the early morning sky. At 7 am local time, the two are only 35 arc minutes apart. It will be quite a spectacular conjunction, and worth starting the day with.

**Saturn** shines at Magnitude +0.5 and sits below the belly of Leo over the month. It rises just before 9 pm, but isn't well placed until the very late evening hours. By month's end it will brighten up to magnitude +0.3, and in the eyepiece will show a 19.9" disk. It now rises just after 7 pm, and is well placed for observing later in the evening. Quite a treat for the eye! The rings are quite shallow now, and the moons do not pass so high above the planet.

---

### **Beating the Seeing – Part 4 by Massimo Torri**

---

#### **Introduction**

This is the fourth article of a series devoted to Lunar and Planetary astrophotography using Lucky Imaging. The previous articles were published in the October, November and December

2007 issues (see <http://edmontonrasc.com/stardustbackissues.html>).

An imaging session using Lucky Imaging consists of several

steps:

1. Planning
2. Setting up telescope, computer and camera
3. Focusing
4. Acquiring images
5. Processing

In this article we are going to talk about setting up telescope, computer and camera and get the target of your imaging session centered in the field of view of the camera sensor.

### Setting Up

By now you should have a plan in place for your next imaging session. You have determined the best date and time for imaging your target of choice and today is the day. The sky is clear and seeing is supposed to be good. Your optics are properly collimated and have been outside for a couple of hours cooling down. All batteries are properly charged. Your mount is polar aligned (if you own an equatorial mount) and powered up. Your optics are firmly attached to your mount (I stress the word firmly, something that should not be taken for granted when you setup at a dark location as I had the opportunity to find out on a couple of occasions...) and you did not forget all the necessary counterweights and eyepieces (again, I am speaking from experience...). You are finally ready to point at your target of choice and start shooting. Well, not quite. There are still a couple of steps to overcome before you will be able to collect images.

The first problem to solve is to centre the target in the field of view of the camera sensor. The approach is very different if the target is the Moon or a planet. Getting a piece of the Moon (bright and big!) in the field of view of the camera is easy. A slightly more difficult task is getting the right piece of the Moon in the field of view, if you are after a specific lunar feature. In this case a good lunar atlas [1] is required to hop from crater to crater until the target shows up in the camera. Once you are on target, you may need to boost the magnification by inserting a Barlow lens or a PowerMate depending on the size of the target and the level of detail you are interested in. If you are after a planet, keep in mind that planets are quite small. For example, Jupiter is about 50" at its best and Mars is never more than about 26". In the case of planetary imaging you definitely need long focal lengths, at least 5000mm. Depending on the intrinsic focal length of your system, planetary imaging requires Barlows and/or PowerMates.

Webcams and most firewire cameras have pretty small sensors and a small sensor means a very narrow field of view [2]. For example, my Philips Vesta has a 2.82mm × 3.87mm sensor which amounts to only 1.9' × 2.6' in my 8in Newtonian at f/25 (5000mm focal length, minimum required for planetary imaging). That's roughly equivalent to the field of view of a 3.5mm Plossl eyepiece combined with a 5x PowerMate on my telescope. That's why centering targets on the camera sensor (especially planets) is not an easy task. Even a good GoTo system will have hard time placing the target within such a narrow field of view. The Moon, being so big, is in a different league.

Regardless of whether you own a GoTo system or not, the solution to this problem is to start with a low power eyepiece. If you own a GoTo system, insert the eyepiece in the eyepiece holder, enter the name of the target in the hand controller and press the appropriate button. If the GoTo is properly calibrated, the target will appear in the field of view of the (low power) eyepiece. If you don't own a GoTo, first make sure that the optical axes of your finder scope and your telescope are perfectly aligned

otherwise you will run the risk of finding yourself spending several precious minutes trying to figure out why you can't see even a bright object like Mars or Venus in the eyepiece. Use a bright target like the Moon itself (if visible) or a terrestrial target to check your finder alignment. Once that's done, centre the target in the finder scope. If the finder scope is properly aligned, the target should be visible in the eyepiece as well. At that point (this holds true for both GoTo and non-GoTo systems), centre the target the best you can in the eyepiece and then replace the eyepiece with a higher power one. Re-centre the target. Repeat the operation until the target is centered at about 300x÷500x (that might require a combination of a short focal length eyepiece and a Barlow lens or PowerMate). If you have a motorized mount check that tracking is good and that the target does not drift off too quickly or you'll have a very hard time during your imaging session later on.

Now it is time to turn on the computer and the camera. The computer is required to operate the software that controls the camera. As far as the camera software is concerned, you can either use directly what the manufacturer provides (check the installation CD) or more sophisticated software applications that interface your camera drivers, such as *K3CCDTools* (either alone or in combination with *WcCtrl*). The second solution provides more flexibility and greater control of the camera functions, but for the first few times I would just use whatever software the camera manufacturer provides. So go ahead, plug in the camera and start the camera software (webcams are powered by the computer through a USB connection, whereas firewire cameras typically require their own power supply), which will display what the camera sees at that point in time. Since your camera does not have a lens (you remembered to replace your webcam lens with a Mogg adapter, didn't you? [3]) the camera software will display a blurred, featureless image. To make sure that the camera is working properly, aim it at the computer screen. The image generated by the camera on the computer screen should brighten up significantly. If it does not, check that the camera is properly plugged in.

You are now ready to replace the eyepiece with the camera. Carefully remove the eyepiece (if you trying to image a planet you should leave Barlows/PowerMates in the eyepiece holders). Then insert the camera. It is very important to be extra careful while placing the camera in the eyepiece holder. Remember that you are working at high power and even a minimal lateral displacement will move the target off the camera field of view...if that happens you will have to remove the camera (and Barlow/PowerMate), reinsert a low power eyepiece and redo the operation described before until the target is centered again. It is entirely possible that even if the target is still perfectly centered you won't see anything on the computer screen after the camera is in place. There are two good reasons for that. First, your camera's shutter speed may be way too high. That's not very likely with the Moon, but entirely possible with planets. Your camera software should have a slider to control the exposure duration. Make sure it is set to the longest possible value (1/25<sup>th</sup> s in the case of my Philips Vesta). Since you are at it, locate the slider that controls the gain and crank it up to 100%. That will make your camera as sensitive as possible to incoming light. The second reason is that the focal plane of your camera is very different from the focal plane of your eyepiece/Barlow lens combination you used to center the target. In other words, what looked perfectly in focus using an eyepiece will turn out to be completely out of focus for your camera. Try to rack the focuser very carefully in one direction until you'll see a faint blob appearing on the computer screen (that's when a 100% gain

will help). If that does not happen, reverse the direction. When you see a faint large blob appearing, keep racking in the same direction and you'll see the blob (shaped like a donut if you are using a Newtonian or a catadioptric telescope) becoming smaller and brighter. Again, be extra careful in trying to bring the target in focus. I find that (perhaps not first quality...) rack-and-pinion focusers are prone to backlash and lateral displacements. I replaced my rack-and-pinion with a Crayford focuser from Orion and I am much happier. Backlash and lateral displacements are essentially gone. Ideally, you want to have a motorized focuser to eliminate any vibrations induced by touching the focuser knob (I don't have one).

Now you should see the target on the computer screen. It won't be perfectly centered in the camera field of view. Using your hand controller, switch to slow motion and carefully tap few times one of the buttons that control the movement of the telescope. Again: you don't want to lose the target or you will

have to start from scratch, so don't fret! Once you have identified which buttons move the target in which direction, try to keep that in mind: that piece of information will turn out to be handy while you are recording images from the camera. Another useful tip is to remove as much backlash as possible from the R.A and declination motors before attempting any imaging. Having a more responsive system simplifies your life especially since you are working at high magnifications. All had controllers should have a backlash removal function.

At this point the target should be nicely centered in the camera field of view, but you still have the gain at 100% so your target will appear badly overexposed. It's time to bring the gain down and address the second obstacle that still prevents us from taking great images: focusing. Focus on a lunar or planetary target is very challenging and requires an article of its own. Next month we'll talk about how to get perfect focus.

## References

For a high-resolution, colour version of this article, see: <http://edmontonrasc.com/download/stardust200712.pdf>

[1] Virtual Moon Atlas ([http://www.astrosurf.com/avl/UK\\_download.html](http://www.astrosurf.com/avl/UK_download.html)), Lunarcal (<http://www3.telus.net/public/aling/lunarcal/lunarcal.htm>)

[2] M. Torri, "Imaging Double and Multiple Stars – Part I", *Stardust*, June 2007 (<http://edmontonrasc.com/download/stardust200706.pdf>)

[3] M. Torri, "Beating the Seeing – Part II", *Stardust*, November 2007 (<http://edmontonrasc.com/download/stardust200711.pdf>)

## Blotting Out Starlight - Upcoming Edmonton Occultations: Prime Events by Alister Ling

There are a total of 26 "potentially reasonable" asteroid events this year (within 100 km of Edmonton) with only one event in the April-June window! Rest assured that when there is a decent event crossing our backyards, we'll send out reminders on the astro list. Remember that because orbits get updated, events formerly too far can get shifted over us with only a couple weeks notice.

The best asteroid occultation event for January, is early Friday evening 18-19 at 17:53:25 MST. It is 35 deg altitude to the east. Asteroid 351 Yrsa is 40km diameter and will be occulting an 11.9 mag star for a maximum of 7.1 seconds and a drop of 1.2 magnitudes, so this should be straightforward in an 8-inch scope from the backyard. The star is at RA 05h08m00.17 Dec +21 22' 01" and you can download a series of pre-made finder charts from

unaided eye down to a 30 arcminute field at: [http://www.asteroidoccultation.com/2008\\_01/0119\\_351\\_12400.htm](http://www.asteroidoccultation.com/2008_01/0119_351_12400.htm)

There are other asteroid occultations but these are either low probability, or you'll have to travel 50km to attempt it. Please contact myself, Paul Campbell, or Mike Hoskinson if you're interested in any asteroid event!

Closer to home, you stare through the eyepiece and watch the Moon slowly approach a star. In the blink of an eye the diamond chip disappears with a surprising suddenness: you've just witnessed a lunar occultation. Here are the best events this month. Multiple stars are the most interesting because you should see step-wise events.

The northern edge of the Pleiades gets targeted Thursday night Jan 17-18 after 11:30pm (times are MST). CA or cusp angle, tells you how much of an angle relative to the cusp the event will take place. A cusp angle of 90 degrees is smack in the middle of the dark limb. D Disappearance (easy) ; R Reappearance (easy) .

	day	Time	P	Star	Sp	Mag	Mag		%	Elon	Moon	CA	
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Az
08	Jan	17	23	34	58	D		538cB8	5.7	5.7	76+ 122	46 249	60N 538 = 18 Tauri
								538 is double:	6.4	6.4	0.050" 350.0		
08	Jan	18	23	38	44	D		539SB6	4.3	4.4	76+ 122	45 249	34S 539 = Taygeta
								539 is quadruple:	348.0	:	4.6 6.1 0.012" 350.0	: 4.3	8.1 72" 328.8
08	Jan	18	23	51	47	D		542 B8	5.8	5.8	76+ 122	43 252	52S 542 = Asterope
08	Jan	18	23	58	32	D		543cA0	6.4	6.4	76+ 122	42 254	43S 543 = 22 Tauri
								543 is double:	7.3	7.3	0.10" 350.0		

136 Tauri:

day	Time	P	Star	Sp	Mag	Mag		%Elon	Moon	CA	Time is MST		
y	m	d	h	m	s	No	D	v	r	V	ill	Alt	Alt
08	Jan	19	22	23	34	D		890cA0	4.6	4.6s	93+	148	64 176 57N 890 = 136 Tauri
								890 is double:	4.8	6.3	0.050"	270.0	

136 Tauri is special because Bruce McCurdy saw a step-wise occultation some 17 years ago, meaning it is a double star. We would like

to confirm this because there was only one other suspicion of it being a double in 1934! This is the last chance for another 16 years or so!

day	Time	P	Star	Sp	Mag	Mag	%	Elon	Moon	CA Time is MST		
y	m	d	h	m	s	No D	v	r	V	ill	Alt	Az
08	Jan	20	22	23	33	D	1061SF8	6.2	5.9s	98+	162	60 147
1061 is triple: 6.1 0.50" 158.0 : 6.1 12.1 32" 67.2												
08	Jan	20	22	46	4	D	1062cB8	6.4	6.5	98+	162	61 157
1062 is double: 6.4 0.10" 106.4												

The brightest graze of the year is magnitude 5.5 and we'll have to drive a handful of km for that. Fainter grazes do happen – if you're interested, look here: <http://www3.telus.net/public/aling/grazes/edmontongrazes.html>

The brightest occultation of the year is mag 3.0, a reappearance on a dark limb on Dec 23<sup>rd</sup>! This leaves the Pleiad events listed above (and again in upcoming months) as the best of the year. In any month, there are several dozen occultations, and a handful are of interest if you are at the deck. An abridged list (bright and easy and before 1:00 am) for events through March can be found at: [http://www3.telus.net/public/aling/total\\_occultations/Edmonton%20Total%20Occultations.html](http://www3.telus.net/public/aling/total_occultations/Edmonton%20Total%20Occultations.html)

Good observing!

## Crescents and Full Moon Photo-Ops by Alister Ling

I hope everyone had restful holidays – pity about the cloud for the occultation of Mars. Looking positively to the future, we are returning to the season where the evening ecliptic stands tall above the southeastern horizon. This means that we're entering a good period for crescent Moons full of earthshine, or very young/old crescents, and in a couple more months, alignments of the setting or rising Moon adorned by the reflection of sunlight off

of buildings.

The January evening moonrise will be best seen from Valleyview Drive on the 21<sup>st</sup>. Moonrise itself is 60 minutes before sunset, at 15:41 with an azimuth of 46°. That's 10 degrees to the left of where it will be at sunset, above the CN tower, which places the core of Edmonton's downtown just to the right.

yyyy/mm/dd/hh:mm:s	Sol Az	Alt	Lunar Az	Alt	Illum %	Elong
2008 01 21 16 48 24	235.2°	0.0°	58.6°	6.5°	100+	172.8°

The best morning event is the 23<sup>rd</sup>, from the bench on Cloverdale Hill road, where the Moon sets through the edge of the Scotia Bank building and into the base of the Telus Tower:

yyyy/mm/dd/hh:mm:s	Sol Az	Alt	Lunar Az	Alt	Illum %	Elong
2008 01 23 08 41 22	124.4°	0.2°	291.4°	4.3°	99-	166.3°

The morning before, 22<sup>nd</sup> the Moon is only 1.2 degrees up at sunrise – while this may sound pretty good, it will probably be lost in the buildings just as the Sun clears the horizon. It will be good for the eye before that, but the dynamic range will be too great for the camera without resorting to multiple exposures and Photoshop.

### Personal record for young crescent?

If you've never seen a Moon younger than 24 hours, now is your chance. On the evening of February 7<sup>th</sup>, 6:12pm, the crescent

Moon is 21h28m old. Here are a few pointers: give yourself some time, start looking with binoculars after 6pm, when the Moon is 3.1 degrees above the horizon, about half a binocular field. Make sure you have a good southeastern horizon! Don't look for earthshine, it doesn't get prominent until after about 30 hours age. It's really not as tough as you might think – you're looking for a sliver of yellow against a curtain of pale orange. Oh, one more thing, you will only see about 140 degrees of arc, not a semi-circle.

yyyy/mm/dd/hh:mm:s	Sol Az	Alt	Lunar Az	Alt	Age	Elong	Illum %
2008 02 07 18 12 15	253.8°	-7.0°	247.5°	1.5°	21h28m	10.3°	1+



*A simulated view of the nearly full Moon setting at sunrise at 08:41, 23 January 2008, from the bench overlooking Cloverdale Hill.*



The following article is reproduced here courtesy of the Beaumont News, where it originally appeared. The mysterious "Skygazer" was none other than our own Harris Christian - Editor

# On one starry night in Beaumont

Dear Editor:

It was the night before Halloween and I was taking my three-year-old daughter for an after-dinner walk to look at some Halloween decorations and have a preliminary chat about what to expect for the 'big night.' As we walked and chatted we came upon what looked to be an astronomical observatory set up on a front lawn, complete with a Skygazer peering through a lens into a perfectly clear and star-filled sky.

Ok, maybe "came upon" isn't exactly how it went, as while my daughter and I were walking I noticed an enormous telescope set up on the other side of the street. A few houses later I casually led her across the street and back so we could "pretend" to come upon this scene. I'm not very good at simply making a bee-line for somebody and asking them what they're up to, although it is more direct, I'm afraid the first thing out of my

mouth on impulse might have been something really lame like, "Hey! Is that a telescope?" Instead, with a few extra minutes to carefully compose myself and come up with something more intelligent, I ask, "Hey! Is that a telescope?" And, yes, it was a telescope. A huge one.

We were then invited, after lingering expectantly, to come and take a look, whereupon this very obliging man pointed to a triangle of stars fairly low on the horizon to the north, then told us that the point of the triangle to the lower left was not actually a star but Comet Holmes that showed up in the constellation Perseus on Oct. 24 and brightened by about a million times in only a day, suddenly making it visible to the naked eye. After he (I never did get his name) checked the lens I was invited to climb the ladder...yes, you need a ladder to look through this telescope...and take a look at

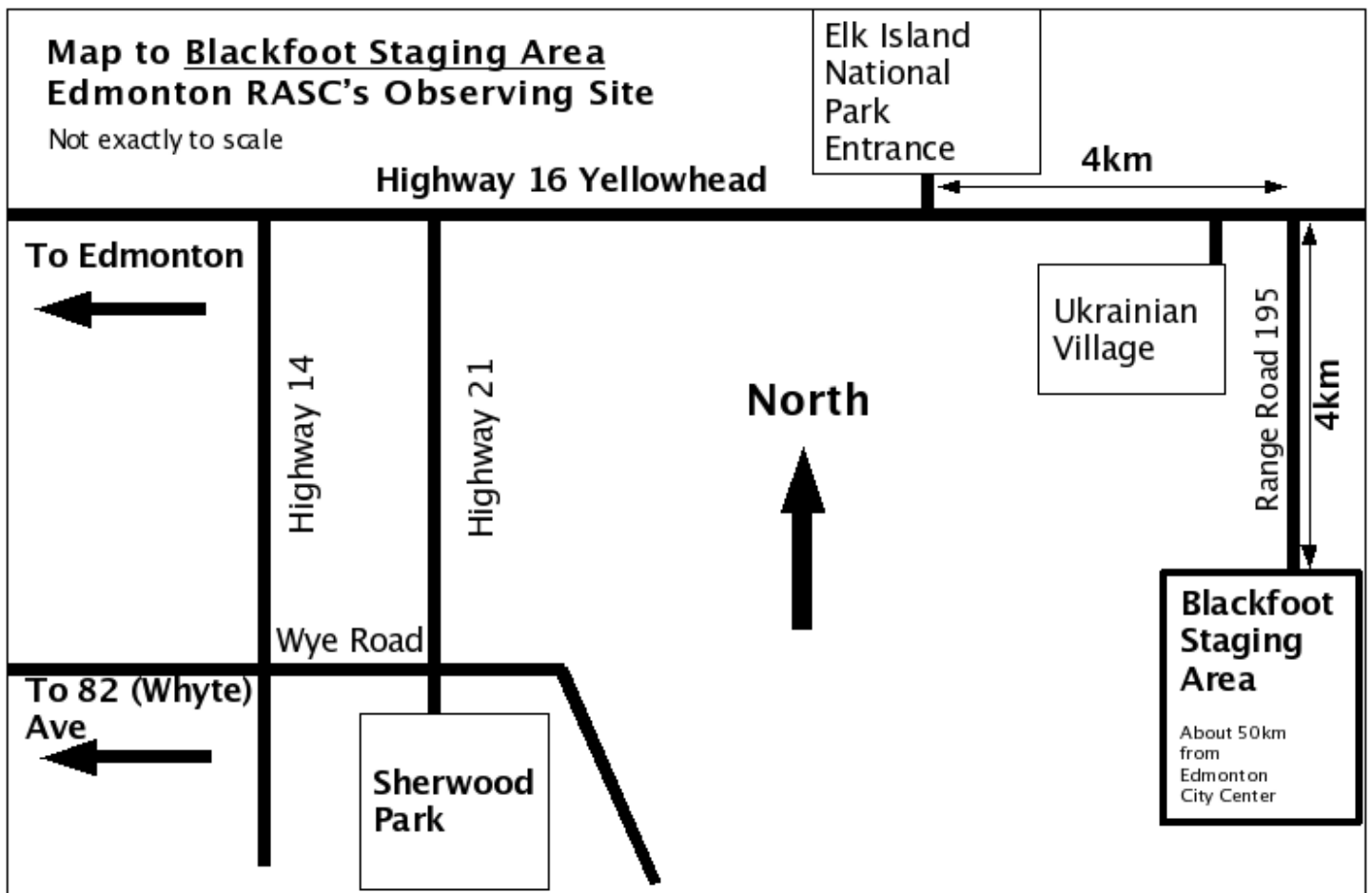
Comet Holmes. There it was, a bright, fuzzy, bubble-like disc, absolutely, weirdly beautiful. And, a comet. What amazingly lucky timing.

Who could have imagined, as we set out for our walk, that on a starry night in Beaumont we would encounter a spectacle as rare as a comet?

We said our goodbyes, continued our walk home, a little slower this time, both of us with our faces turned up to the night sky, chatting about stars and comets and making an occasional wish, just because. We were offered a gift that night; for her, something new to wonder at and, for myself, a reminder to take the time to wonder more.



Harris Christian and his monster scope.



**Visit our Gift Shop for all your Stargazing Needs!**

**TELUS WORLD of SCIENCE**  
edmonton

Featuring Celestron products , binoculars and telescope accessories.  
Plus, you'll find everything from astronomy books and stargazing aids to general science merchandise.

TELUS World of Science Members receive 20% off \*.  
\* Ask for details. Discount not applicable on some items.

11211 - 142 Street Edmonton, AB T5M 4A1 • (780) 451-3344 (press 5) • [www.telusworldofscience.com/edmonton](http://www.telusworldofscience.com/edmonton)