

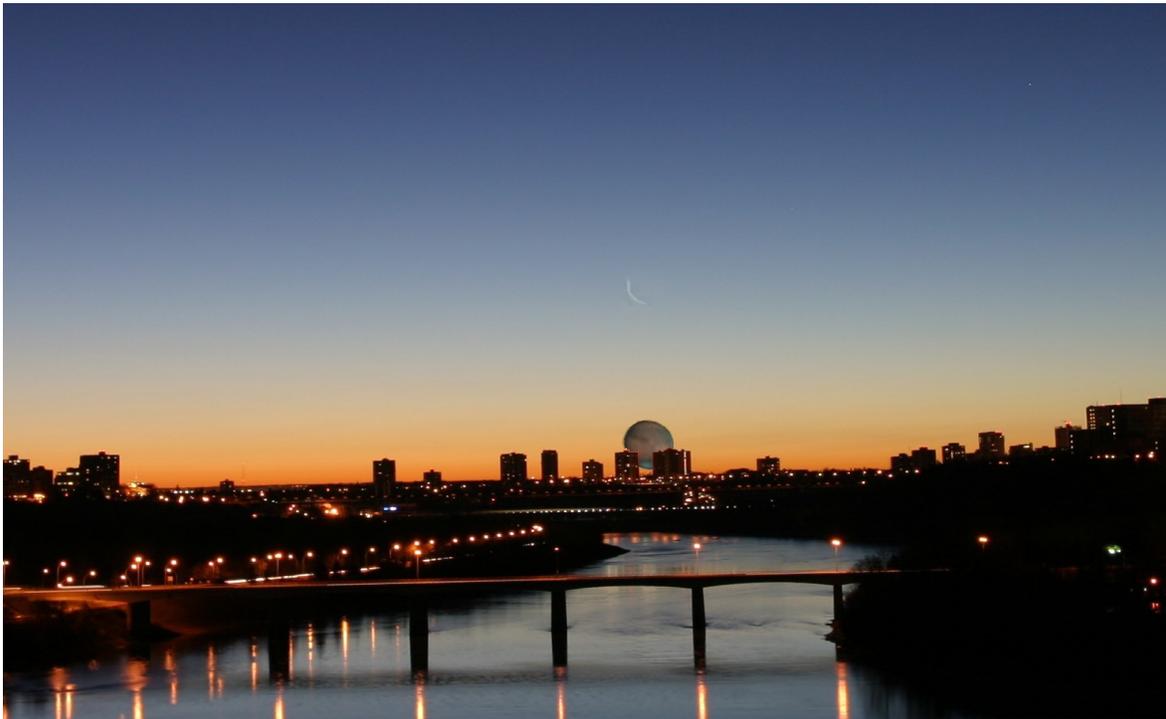
STARBUST

Newsletter of the Royal Astronomical Society of Canada
Edmonton Centre



April 2008

Volume 53 Issue 8



*Mars, on its recent near-collision with Earth, makes a pretty picture with the crescent Moon.
Photo by Chuck Berry.*

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RASC Edmonton Centre Contact Information

Council Positions			
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Past-president	Orla Aaquist		
Vice-president	Sherry Campbell		
General Secretary	Luca Vanzella		
Treasurer	Mark MacDonald		
Co-National Council Rep	Alister Ling		
Co-National Council Rep	Patrick Earl		
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Councillor	Richard Vanderberg		
Councillor	Sheldon Helbert		
Councillor	Harris Christian		
Councillor	Ross Sinclair		
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Observers' Group Director	Paul Campbell		
Membership Secretary	Massimo Torri		
New Member Advisor	Murray Paulson		
Dark Sky Preserve Coordinator	Sherrilyn Jahrig		
Light Pollution Chair	Bruce McCurdy		
Appointed Officers			
Editor	Michael Ward		
Web Site Coordinator	Howard Gibbins		
Library Coordinator	Roxy Garstad		
Equipment Coordinator	Dwight Hanson		

Mailing address RASC Edmonton Centre
c/o Telus World of Science
11212 – 142 St
Edmonton, AB, Canada, T5M 4A1

Centre Website <http://www.edmontonrasc.com>

Observing Deck 452-9100 ext 2249

Stardust Articles for Stardust may be submitted by email to mward@interbaun.com. Submission deadline is the last day of the previous month (e.g. for the May issue submit by 30 Apr). Submit as **MSoOffice 2003 or earlier** (NOT MS xml/docx please) or **OpenOffice OR AbiWord OR plain text**. Please avoid use of fancy formatting, odd spacing, and strange fonts. Graphics (photographs, illustrations) should be submitted as separate files, and clearly identified.

Edmonton Area Astronomy Discussions: astro@mailman.srv.ualberta.ca
To subscribe send a blank email to: astro-request@mailman.srv.ualberta.ca
with the subject line: subscribe

The above mailing list is completely independent and is not associated with RASC Edmonton Centre in any way.

Upcoming Events, Meetings, Deadlines, Announcements

Regular Meetings 2008

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

Apr 14	Sep 8
May 12	Oct 20
Jun 9	Nov 10
	Dec 8

Council Meetings 2008

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

Apr 28	Sep 22
May 26	Oct 27
	Nov 24

IN MEMORIAM

It is with great sadness that we announce the passing of Randy Pakan. He succumbed to a short illness and passed away on Sunday morning March 30th. He was 55 years old and had planned to retire from his post at the University of Alberta this spring. He was working on a book of photography that he had hoped to publish in his retirement years.

Randy was a prominent member of our club in the early to mid 1990s, and had a great intensity about him. He took on many projects and excelled at them; Telescope making: awarded the Angus Smith Award for Excellence in Telescope Making and Design for his 16" Dob in 1992; Observing: he was an excellent observer; He discovered an asterism above Orion's eastern shoulder that has been dubbed Pakan's 3. (http://www.ssoastro.org/star_18.htm). He also held the post of *Stardust* editor for a number of years in the early 1990s.

In the late 90s, arthritis crippled Randy's hands and made astronomy difficult, and he faded from the hobby. He got back into his earlier love - photography - and was very active in it.

Randy is survived by his wife Vera, his 2 children, and Vera's 4 children.

No Joke: Money Motions from the 31 March 2008 Council Meeting

1. Ross Sinclair moved and Sherry Campbell seconded that \$500 from the Casino Account, or if not approved by the Gaming Commission then from the General Account, be used to provide sponsorship of Clear Sky Charts in Alberta to promote the Edmonton Centre and its activities, subject to Gaming Commission approval, subject to available funds. CARRIED.
2. Dave Robinson moved and Mark MacDonald seconded that \$15,000 from the Casino Account be used to establish a feasibility and execution fund for a dark skies and light pollution exhibit, subject to finding suitable partners, subject to Gaming Commission approval, subject to available funds. CARRIED.
3. Sherry Campbell moved and Richard Vanderberg seconded that up to \$26,135+GST (\$27,442) from the Casino Account be used to purchase Fujinon six inch binoculars, subject to Gaming Commission approval, subject to available funds. CARRIED.
4. Mark MacDonald moved and Ross Sinclair seconded that up to \$1,500 from the Casino Account, or if not approved by the Gaming Commission then from the General Account, be used to purchase educational supplies and books for Riverdale School in support of their sky science education, subject to Gaming Commission approval, subject to available funds. CARRIED.
5. Franklin Loehde moved and Alister Ling seconded that up to \$16,530 from the Casino Account be used to supply the book *Skyways: Astronomy Handbook for Teachers* (published by RASC) to 1000 Alberta schools that have grade 6 science, subject to Gaming Commission approval, subject to available funds. CARRIED.
6. Sherry Campbell moved and Richard Vanderberg seconded that up to \$5,000 from the Casino Account be used to provide funding for the 2009 George Moore's Astronomy Workshop (to offset the cost of holding the workshop), subject to Gaming Commission approval, subject to available funds. CARRIED.
7. Luca Vanzella moved and Sheldon Helbert seconded that the Edmonton Centre transfer \$1,000 from the Casino Account to the General Account, for the donation made from the General Account in support of the Observatory Park Project of the RASC Toronto Centre to assist with the funding of a Concept Plan and Business Case for the future use of the David Dunlap Observatory, subject to Gaming Commission approval, subject to available funds. CARRIED.

This is also serious: Volunteers Needed

A Message from the Public Education Director, **Orla Aaquist**

Our Centre is in desperate need to recruit more volunteers for the many activities in which we are involved. Among these activities are:

- Operating the observing deck at the Telus World of Science.
- Judging at the Edmonton Regional Science Fair.
- Bringing astronomy to the public at various venues such as Astronomy Day, Relay for Life, Sunday in the City, Canada Day activities, Earth Day, Dark Sky Preserve annual anniversary, mall exhibits, and school and speciality group visits.
- Northern Prairie Starfest.
- Expansion of the Black Nugget Lake Observatory site.
- International Year of Astronomy, 2009, activities

For these and other activities, we need various levels of assistance. Often we need someone with a telescope and astronomy background who can interact with the public, but we also need volunteers who can help set up and tend our display boards, design new displays and provide ideas for outreach, pick up newsletters from the printers and bring them to meetings, buy and deliver snacks for other volunteers at particular event, help tend a telescope at public events and keep other volunteers company, put up posters, provide advice to council on technical matters such as setting up a database or web design, helping to arrange activities and interacting with the host of that activity, and so forth.

If you think you might be able to spare some time, please contact me at 486-8661 or send an email to aaquisto@macewan.ca. We can chat about the amount of time you can contribute, as well as the activities with which you might want to become involved, and I'll record your name and contact information for future reference.

Below is some detailed information regarding our need for volunteers at the observing deck. If you have been thinking of helping out with this activity, please read on.

At the moment, our greatest need for volunteers is for our public observing program at the Telus World of Science Observing Deck, which has been a key focus of astronomical

activities in the city since it first opened in 1984. Since 1991 the Edmonton Centre of RASC has hosted almost all public observing sessions during the school year, five (scheduled) per weekend, month in, month out. The RASC membership and/or TWoSE volunteers have shown outstanding commitment to this endeavour throughout the subsequent decade and a half, in which time hundreds of thousands of people have observed free of charge through the telescopes, many of which are on "permanent loan" from the club. This program is pivotal to the Centre's public outreach in astronomy.

If you can spare 3 hours from time to time, and if you want to consider helping the Centre by volunteering at the Deck, we would like to hear from you. While we particularly welcome "regulars", if you feel you can't commit to a session per week, schedules can be flexible to adjust to the volunteer's availability. If you are unsure you have the necessary skills, knowledge, and mind-set, please drop by the Deck when we are open and talk to our existing volunteers; they can give you a good overview of the requirements. Before you drop in, give the Observing Deck a call at 452-9100 (extension 2249) during scheduled hours to make sure we are open.

For more information contact **Cornelia Blunck** at cblunck@telus.net or call **Orla Aaquist** at 486-8661.

ALBERTA STAR PARTY

September 25-28, 2008

Starland Recreation Area Campground

Contact: David Brown (403)-246 4498

ASP2008@shaw.ca

www.calgary.rasc.ca/asp2008.htm

Observers Report by Paul Campbell

It was a dark and stormy night, perfect for observing. Many people showed up. One of the first to arrive was Frankly Loaded. He showed up with three generators, a satellite truck, 16-multi-megawatt light sources (taped red of course). All so he could power up his Mac computer. He needed this because he drove out to the dark site so that he could connect with the SLOW robotic telescope in the Canary Islands. After spending close to 8 hours setting up, Frankly had succeeded in getting the Slow Telescope to go round and round in slow lazy circles.

Meanwhile Larry Knothole, who despises computer technology, decided to observe with much simpler equipment. When I talked to him, he was trying to count the moons of Saturn using nothing but a stick. As of last count Larry was up to 37 moons definitely seen with his home made f/6 stick.

Bruce McWordy also made one of his rare appearances at Blackfoot. Having observed all of the existing meteor showers, he

was determined to observe all of the non-existent ones as well. He set up his reclining lawn chair and his sleeping bag and was soon fast asleep. His 542-page dissertation on the beauty of non-existent objects and considerations of the number 42 should appear on the Astro list server very soon.

Just about that time 7 trucks rolled into the dark site. The astrophotography group had arrived. Mass Torrent, Wayne Milkcan and Patrick (the duke of Earl) were here to take advantage of the dark skies. Soon, thousands of pounds of telescope, cameras and computer equipment were set up on the west side of Blackfoot. While all the computers were covered in rubylith, there were so many computers that the trees on the west side took on that familiar forest fire look. The whole group was headed by Dave Robbers who was deep into his \$30,000 study on ways to starhop to Saturn.

After a while Larry Knothole had had enough and walked

over to the astrophotography group and started lecturing on the virtues of the simplicity of a stick. Of course this was not well received by the astrophotography group as they pointed out that a stick just did not have the large amount of terabytes required to capture the third moon of an unknown planet in NGC 4565. While this object has never been discovered, it does seem that it may be present if you use just the right amount of image processing after taking a 4 hour exposure of Larry's stick.

After a while an argument broke out. While I'm not an expert in this sort of thing, I would say that Larry won the argument by

the simple virtue that a stick makes a better weapon than a terabyte ever will. That remains to be seen though as it is up to the courts to decide.

Bruce continued his somnambulistic observations so look for an 847-page dissertation on why the colour purple is not the same as black, how this does nothing to prove or disprove the existence of astrology and why 37 ants in an ant colony is better than 36. To appear on the Astro list sever when he wakes up.

All in all, a great night.

The Planets by Murray Paulson

The month of April starts off with the "big thaw". The ice, snow and the dark of the night are all swept up in this spring thaw. The dark of the night is not gone yet! Mercury will be soon in the arms of the sun, coming to conjunction on April 16th. It passes behind the sun and 23 minutes of arc directly below at 2:24 am on that morning. From this date onward it moves into the evening sky, culminating at greatest eastern elongation on May 13th. It may be placed well enough for International Astronomy days. Let's hope! On the 13th of May, **Mercury** will shine at magnitude 0.4, and subtend 8". It is at dichotomy on May 9th with a 7.4" half disk and shines at magnitude 0.1. This will be a good time to hunt for Mercury in the daytime. It will sit 21 degrees away from the sun.

Venus sits 16 degrees from the sun at the beginning of the month in the morning sky and shines at magnitude -3.8. The ecliptic sets things up so that Venus rises only 13 minutes prior to the sun, so you may be able to find it in the twilight glare just prior to sunrise, but it may be easier to find it in the daytime with coordinates or a computer! As the month progresses, Venus falls slowly toward the sun. By the first week of May, it will sit only 8.8 degrees from the sun. In the eyepiece, it will show you a 9.8" very gibbous disk and it shines at magnitude -3.8. This will be another good daytime object for International Astronomy days, but watch that the scope cannot be bumped to the sun!

I have looked at **Mars** recently, and even though it has just a 6.7" gibbous disk, when the seeing is good, you can see the polar cap and some dark markings. But the seeing must be very good! I

got a few nights at the end of March that were very good indeed. Mars starts out the month in the midst of Gemini shining at magnitude 0.9. It moves into Cancer in early May and now has dimmed to magnitude 1.2 and shows a 5.6" disk.

Jupiter sits in eastern Sagittarius and shines brightly in the morning sky to the south. At the beginning of the month, Jupiter shows a magnitude -2.1, 38" disk in the eyepiece. It rises 3 hours before the sun, and sits only 11 degrees above the horizon in the hour before sunrise. By early May, the twilight problem has chased Jupiter up the ecliptic. Jupiter rises 2:00 am, but still only 3.5 hours before the sun. Jupiter will show you a 43" disk and shines at magnitude -2.4 at this time. The early hour plus the closeness to the horizon will make it a hard choice to observe.

Saturn is the darling of the evening, showing it's splendid rings and a lovely array of moons. I keep hunting for Enceladus and Mimas when we have favorable elongations. The rest of the moons are easy! (except Hyperion) Mimas has eluded me in my 10" Cassegrain, but Enceladus has shown up as an almost imperceptible speck of light just off the ring tip. I have found that I need my 15 or 24 Panoptic to see it. [200 X, 125X] Much higher power and the moon just does not appear. In early April, Saturn shines at magnitude 0.4 and will show you a 19.4" disk in the eyepiece. Over the month, we move away from Saturn, and it will shrink slightly in size, and by the first week of next month, Saturn will show you an 18.5" disk in the eyepiece and will shine at magnitude 0.5. Saturn will be well positioned on Astronomy days.

Beating the Seeing – Part 7 by Massimo Torri

Introduction

This is the seventh article of a series devoted to Lunar and Planetary astrophotography using Lucky Imaging. For previous articles see <http://www.edmontonrasc.com/stardustbackissues.html>. In this article we will address *Image Acquisition*.

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

Acquiring Images

Finally we got to the point where the camera software displays a nicely focused live view of the target (Moon or planet or Sun, if your telescope is equipped with an appropriate filter) on the computer screen. We are ready to record a video of what it is shown. To that end we have to locate the button on the camera software application that allows recording. Shape, colour and position of this button is specific to the particular camera software, but the label associated with it usually reads *Record Video*, or

Capture Video or something similar so it is obvious which one it is. If you are using *K3CCDTools*, then the button to start recording is shown in **Fig.1**.

When the video capture button is clicked, the software application that interfaces the camera driver (*K3CCDTools* in the case of Fig.1 or the camera software in general) signals the camera firmware to start acquiring images. Individual frames captured by the camera are then transferred to the computer via USB or Firewire connection, depending on the type of camera used, and stored on a drive (typically a hard drive internal to the computer).

Clicking on a button is certainly a simple operation, but, as usual, the devil is in the details. As already mentioned in the 5th article of this series[1], noise is minimized by setting the number of frames per second (fps) to the lowest value allowed by the camera software (your camera software should have a slider or a set of buttons that controls the number of frames per second). If you are using *K3CCDTools*, three buttons are provided (**Fig.2**).

The higher the fps setting, the more compression is used by the camera firmware to stream single frames to the computer which results in poorer quality images. My advice is not to use more than 15 fps with webcams (K3CCDTools does not even allow you to go above 15 fps, but generic camera software might). When seeing is best, I image at 10fps. In general, I almost always

image at 5fps. Firewire cameras with their low noise sensor allow for acceptable images at much higher fps settings, like 30 or even 60. The advantage of using high fps values is the ability of the camera to freeze the seeing better, but the side effect is higher noise.

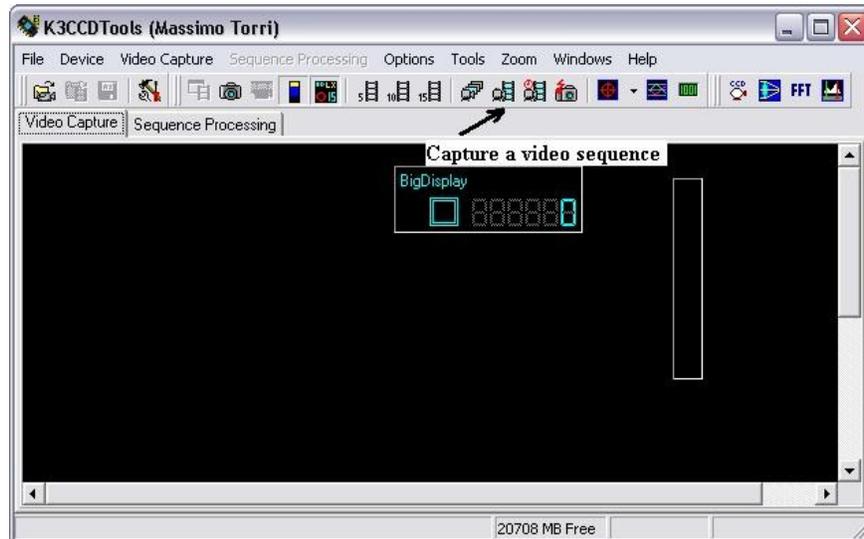


Fig. 1 Button to capture a video in K3CCDTools

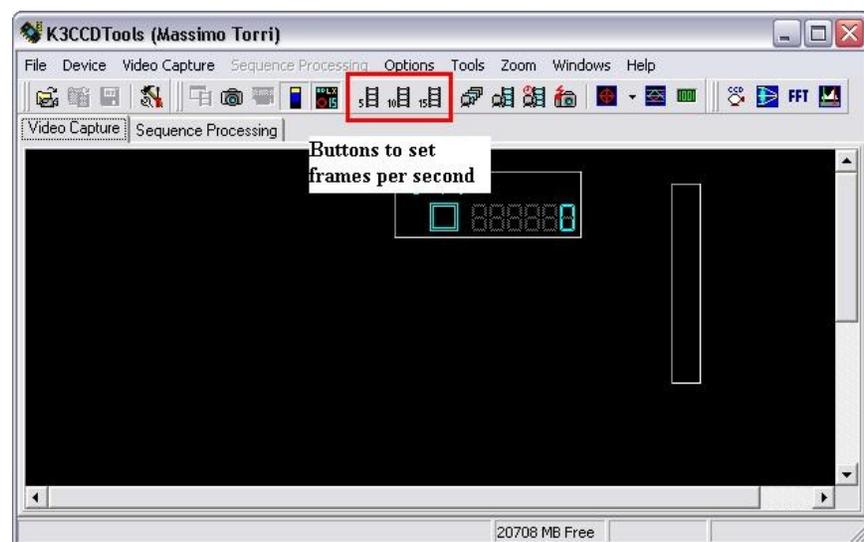


Fig. 2 Frame per Second buttons in K3CCDTools

Excessive gain also lowers image quality. In the context of this article, gain is a measure of the ability of the camera circuitry to amplify the signal generated by the light impinging on to the sensor. High gain is required to allow the camera sensor to detect faint objects or features. The temptation to boost gain is strong when imaging a planet or the Moon along the terminator, since a stronger signal allows to see more. Unfortunately high gain boosts not only the signal, but also the noise. Image acquisition is a compromise between signal and noise: it is the ratio between these two quantities (*Signal-to-Noise ratio*, or *S/N*) that determines the quality of an image. Ideally we would like to collect images with high S/N (high signal and low noise). To keep individual frames as “clean” as possible, it is advisable to keep gain as low as

possible so that the images displayed on the computer screen are slightly underexposed. Underexposure is corrected during the post-processing phase by stacking few hundreds of the best frames collected during image acquisition (more on that in the next issues of *Stardust*). That said, it is important to make sure that images are not too underexposed or the signal collected by the camera sensor will be too low. Post-processing yields very poor results when that happens: the final images will look too grainy, the colours will be very hard to balance and so on. If the camera software provides a *brightness level meter* like K3CCDTools, ideally we want to make sure that the meter indicates brightness values between 100 and 200 (0 means completely dark; 255 means pure white) while we adjust the gain (see Fig.3: maximum brightness is 168,

minimum brightness is 40). That will ensure that the video recorded won't be too noisy or too underexposed (Fig. 3).

By saying that a brightness level of 255 is pure white, I am making the assumption that the camera used is an 8-bit camera ($255 = 2^8 - 1$), which is the case for commercial webcams or

firewire cameras like the DMK21AF sold by The Imaging Source[2] which will be available to all Edmonton RASC members very shortly thanks to the Casino funds allocated for its purchase.

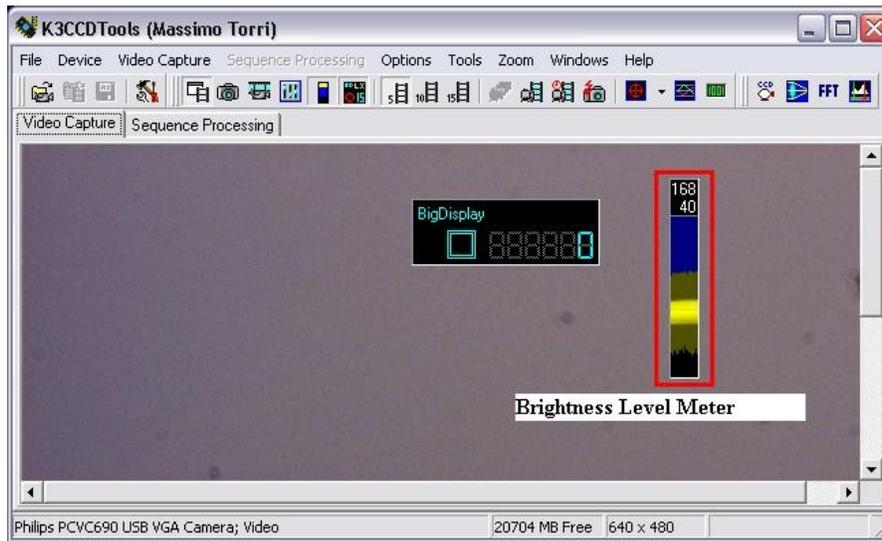


Fig. 3 Brightness Level Meter in K3CCDTools

A crude analogy that might be useful to understand brightness levels and how they relate to the way a camera sensor converts brightness into a digital signal is the following: imagine a row of 256 buckets numbered from 0 to 255. Imagine rain drops pouring on the buckets. There is a catch: a rain drop doesn't end up in the bucket that is placed right on its trajectory. Instead, thanks to some magic trick we know, we are able to assess the weight of each rain drop on the fly and divert its trajectory so that it ends up in a specific bucket. So, for example, all drops weighing between 1.0×10^{-7} and 1.1×10^{-7} grams end up in the 200th bucket. All drops between 1.1×10^{-7} and 1.2×10^{-7} grams end up in the 201st bucket and so on. Now let's say that all drops weighing above 5.0×10^{-7} grams end up in the 255th bucket. There is no way of differentiating individual drops as they fall into a specific bucket. In other words, all drops contained in any of the 256 buckets are considered identical, including the 255th. However, the difference in weight between drops belonging to different buckets is detectable. Replace rain drops with photons, weight with brightness and the row of buckets with the electronic circuitry of the camera and the analogy is complete. Although the analogy just described can be simple to understand, we have to be careful when we talk about "the brightness of a single photon". The reason is that in Physics brightness (as synonym for *luminance*) is a statistical property of light and as such requires *many* photons in order to be measured. In the context of this article we are not referring to the textbook definition of brightness, but rather to the arithmetic mean of the R, G and B colour coordinates[3]. A single photon, suggested by Einstein in 1905, does have a specific wavelength associated, so in principle it is possible to assign a specific colour (wavelength) to a single photon. The photon's colour maps to specific values for Red, Green and Blue in the RGB system and by taking the arithmetic mean of the R, G and B value we can obtain the photon's brightness (in the sense of the RGB system).

Gain considerations aside, there is another good reason why it is not advisable to have regions in the recording video with a

brightness level close to the maximum possible which would lead to overexposure: any details embedded in regions that turn out pure white are irretrievably lost, meaning that no matter how much processing we do it will be impossible to bring out any detail that might be present in a pure white region. To understand why, we need to define what a *detail* is. In the context of this discussion, a detail is a region of an image characterized by a level of brightness that is different by the level(s) of brightness of neighbouring regions within the same image. A good example of a detail could be a small crater in a lunar image. The crater typically turns out quite dark and it is visible because its brightness level is lower than the brightness of the surrounding mare, for example. In a pure white region, any portion of that region has the same brightness (the maximum allowed), therefore no detail is detectable. Going back to the analogy used before, photons coming from the crater will end up in a bucket different from the photons coming from the surrounding mare. Now let's suppose that we increase the gain to its maximum and that the entire image becomes badly overexposed. In this case it might happen that both the mare and the small crater turn pure white. To use our analogy once again, photons impinging on to the sensor are so bright that they all end up in the 255th bucket. Since by definition we cannot distinguish the brightness levels of photons ending up in the same bucket, there is no way we can discern any detail in the recorded image. In other words: yes, there is a nice little crater on the Moon, but we can't see it in our image because all details are lost. Lowering the gain will reduce the overall brightness of the image and now photons will start filling other buckets, meaning that our image will start showing some details.

To summarize: to ensure good quality frames when recording live images using a webcam or firewire camera keep the number of frame per seconds as low as possible and keep the gain low enough to display a slightly underexposed image on the computer screen.

Next month we'll complete the discussion about image acquisition.

[1] <http://www.edmontonrasc.com/download/stardust200802.pdf>

[2] http://www.theimagingsource.com/en/products/cameras/firewire_mono/dmk21af04/overview/

[3] <http://en.wikipedia.org/wiki/Brightness>

Murphy is my best friend by Al Sterling

If it wasn't for bad luck, I'd have no luck at all - Eric Clapton

Murphy was not asleep at the switch on Monday night, March 17-18. Chances were pretty good for a small Edmonton team to refine the size and shape of asteroid 389 Industria. But it was not to be.

When you scan the Yahoo asteroid occultation digests, there are near-daily postings of positive observations. These glowing reports highlight the triumph of modern prediction techniques and whizzy recording equipment that convert millisecond timings of shadow passage into the shape of a remote asteroid that even the eagle-eyed Hubble Space Telescope (and Larry) can not resolve. Outnumbering the positive events however are the legion of misses and the stories behind them. Add another to the pile:

The predicted path error for 389 Industria was less than half its diameter. Clear Sky Chart and satellite imagery were predicting patchy cloudiness. With the event just after midnight and the path grazing Edmonton this classified as "if you don't take the shot, you'll never score" to paraphrase Wayne Gretzky, an individual who never met Murphy.

Massimo Torri had planned to try from his back yard, but encountered one of Murphy's partners: Lady Somnabula. "No occultation for me tonight! I just came home from work and I am too tired and it is too late to setup. Darn!"

Murphy can be so good, he doesn't lift a finger, letting the unsuspecting observer do themselves in: Mike Hoskinson noted "I gave it a try but screwed up my setup. I spent too much time trying to align the video finder with the main optics. Shoulda known better than to use unfamiliar techniques when I'm tired. I actually got to the target field, but somehow lost focus with the Mallincam and

could not get it back in time. The annoying thing is that I have made all these mistakes before. You'd think a guy would learn, but oh no! To add insult to injury, that trouble-prone Sphinx mount declined to decline. It makes noise, it moves in RA, but no more dec. Sigh."

Mike Noble went close to the center line, then came back west to avoid the cloud: "Since Alister was somewhere near Lamont, I got back to Hwy 16 and headed west towards

Edmonton. The cloud bank to the north remained where it was for the next 90 minutes so my decision to go south was a good one.

The problem now was a time crunch. I had less than 55 minutes to setup and get recording. I needed everything to go smoothly and it did. 18 minutes before the event I zoomed over to a 6th or 7th magnitude star in Leo and substituted the eyepiece with the CCD and completed connecting everything together. I rechecked the field stars and everything was still good. I started recording at 12:39:12

(3 minutes to spare) but the Watec camera was still showing Previous Times OK. I hit the reset button a second time and after a minute or so, the GPS finally resets and I record positional information and the clock starts recording at 12:41:17. I can finally breathe, it's less than 1 minute before the occultation. But where are the stars on my recording?! I finally look back up and Nooooo...grrrr, that small patch of cloud off to the West when I started my setup had arrived. My guess is I was probably 200 meters too far south and I had passed up a perfectly good spot about 1km farther north. I wanted to increase my offset distance from Alister's assumed position."

As for Alister: "I got out to my spot with 90 minutes to spare - goin' to be easy! But I went too far north, missing my planned turnoff, too close to Mike's chord, so I got back into position. Pity about Mike picking that spot under those clouds over there... looks like I'm fine. Half an hour later uh oh, a full deck of cloud to the northwest horizon, argh! Looks clear over Edmonton but with others trying from there, I may as well stay and hope for the break. And look at that, a clearing edge arrives on the northwest horizon.... c'mon baby, c'mon.

Oh, it's goin' to be close. There's my star again, but the field is a little strange, so re-star hop to be sure. Pull out the eyepiece and the scope tilts up! 5 minutes to go but there's still time, but there's now a blob of cloud jutting out. It clears 1 minute after event time. Arrrrrrgh! If I had not returned to my assigned spot, I would have had it!"

Murphy may be relentless, but we know he can be beaten, and beat him we will, at least until the next Starbust issue!

President's Report by President Brube

Since the last meeting we've already had two of this spring's outreach events Earth Hour instigated by Brube the Dark Sky Preserve Coordinator with help and support from our Light Pollution Abatement Chair Mibhael Baldwin and Astronomy Day Part I which Brube the Public Education Coordinator organized for early April so that there was still some darkness early enough in the evening to make it worthwhile to set up telescopes at the various sites in and around the city and there are still more events coming up including Astronomy Day Part II and Earth Day and more regular volunteers would still be appreciated at the Observatory for those have the urge to share their love of the night sky with as many people as possible especially as a run up to the International Year of Astronomy next year in 2009

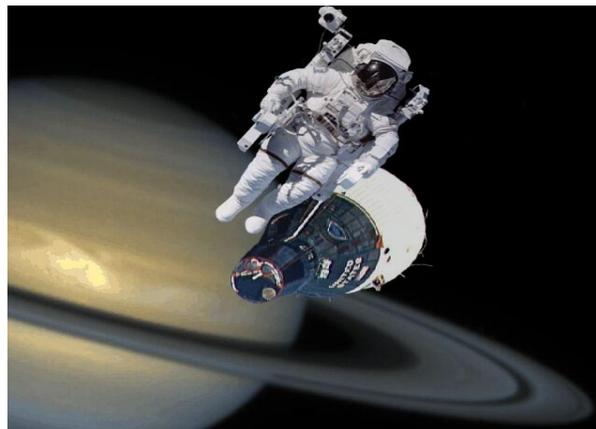
Also coming up very soon is the RASB Edmonton Centre banquet being held at the Faculty Club at the University of Alberta on Saturday April 19th with the very special guest speaker from the Department of Physics at the University of Alberta providing a talk on "The NASA THEMIS Mission Space Weather Aurora and things that go bump in the night..." which should be quite interesting so if you would like to go you should contact Brube the Web Site Coordinator to arrange to purchase advance tickets for this event

At their last meeting Bounbil considered another round of expenditure proposals and those that passed Bounbil will be brought before

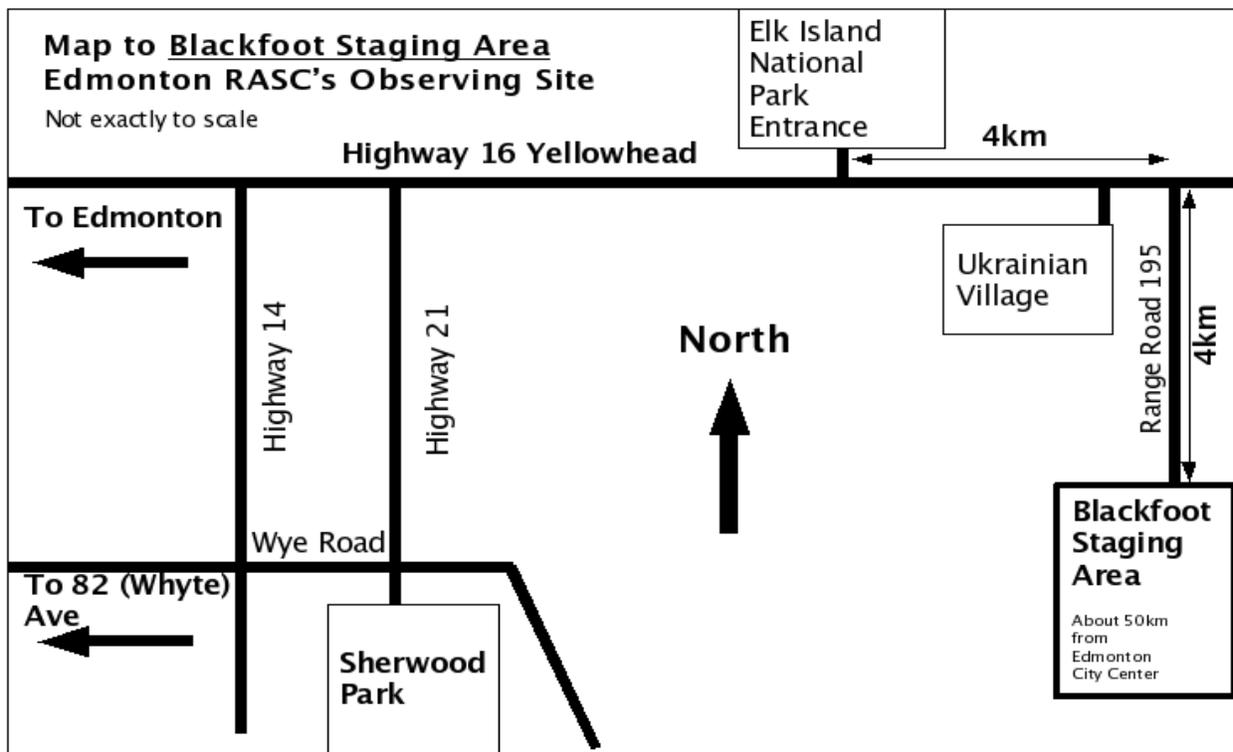
the general membership at the May meeting the list of these quite varied proposals appears elsewhere in this newsletter for you to review before the proposals are presented and voted on at the next meeting if you have any questions regarding any of the expenditure proposals you are welcome to contact me and I will try to pass on whatever information I can find

One final thing for those who were wondering, while on my recent vacation my keyboard was damaged so I cannot type the letter b it prints as a 6 instead this happened as I was typing some e-mails when I spilled my pineapple juice after being startled by a bat not a bat but a bat which made it difficult for me to contact the tour operators electronically so I had to call them in person and they just go on and on and on about what a wonderful place it is and how their tours are the best and how you get pork and pineapple and poi while whale watching from the lava flow of the active volcano with a side trip for snorkeling but be sure you don't touch the coral as one touch will kill every fish in the sea and a sunset cruise to learn hula dancing is also nice but very popular so it's best to book early say six months ahead in order to get a spot and there's a special deal on parasailing and surfing lessons for those with handicapped permits and for children under two but you still get all the poi you can eat and free bandages but the antiseptic lotion costs extra and you can take a helicopter to the farmer's market for fresh sugarcane and then they try to sell a package deal if you return next year to

--- DUE TO LACK OF SPACE, POINTLESS RAMBLING CUT OFF BY EDITOR ---



Congrats to NASA on the first manned mission to Saturn!
Using forty-year-old technology made things doubly difficult, senior administrators are said to have complained.



The Royal Astronomical Society of Canada
Presents

Astronomy Day

May 10, 2008

RASC Edmonton Centre, in conjunction with the Telus World of Science - Edmonton, will be hosting Astronomy Day in Coronation Park located at 11211-142 Street NW. Activities include astronomy speakers, workshops, children's activity table, and possibly public viewing sessions and a model rocket launch (weather permitting).

Presentations and activities include:

Observing Deck open from 1:00 PM to 11:00 PM

Solar viewing in the afternoon

Crescent Moon, Saturn and Mars in the evening

RASC Information Booth – Lobby from 1:00 PM – 8:00 PM

Including information on light pollution, beginner observing, and telescopes

RASC Children's Activities Table — Lobby from 1 to 5 PM

Colour a planet and build a planisphere or a star clock

Edmonton Rocketry Club Information Booth – Lobby from 1 to 5 PM

Model Rocket Launches (weather permitting) – in front of the Telus World of Science at 2:00 PM

Talks – Syncrude Science Stage

1:00 PM – Music of the Spheres

3:00 PM – Astrophotography – Edmonton's Beautiful Night Sky

5:00 PM – 50 Years of the Space Age



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* Ask for details. Discount not applicable on some items.

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