

STARDUST

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Edmonton Centre



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Full Moon rising, Edmonton. Photo by Alister Ling.

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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 in any standard document format (MSOffice, OpenOffice, AbiWord, plain text). TimesNewRoman 10pt single-spaced is preferred. Don't bother with fancy formatting, odd spacing, strange fonts, etc.; it will only be discarded. Graphics (GIF or JPG please) may 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

MEETINGS 2009

	General	Council	Observers	NewMoon	FullMoon
Jun	8		1	22	7
Jul			6	21	7
Aug			5	20	5
Sep	14	28	2	18	4
Oct	19	26	5	18	4
Nov	9	23	2	16	2
Dec	14		7	16	2

MEETING LOCATIONS 2009

Regular General Meetings are at 7:30pm in Telus World of Science, 11211 – 142 St. *follow the signs, from the main entrance*

Council Meetings are at 7:15 pm in the ATA Building, 142 St & 111 Ave. *follow the signs, from the main entrance*

Observers Meetings: *location varies*

STAR PARTIES

ALBERTA STAR PARTY, September 19 – 20, 2009, Starland Recreation Area Camp Ground
<http://calgary.rasc.ca/asp2009.htm>

MT. KOBAY STAR PARTY – August 15-23rd, Mt. Kobay, near Osoyoos, B.C.
<http://www.mksp.ca/>

NORTHERN PRAIRIE STARFEST – September 15-20th, Black Nugget Lake, near Tofield
<http://www.edmontonrasc.com/nps.html>

SASKATCHEWAN SUMMER STAR PARTY and GENERAL ASSEMBLY – August 13-16th, Cypress Hills, Sask.
<http://homepage.usask.ca/~ges125/rasc/sssp2009.html>

STAR-B-Q – July 25-26th, Eccles Ranch, near Caroline, Alberta
<http://calgary.rasc.ca/starbq2009.htm>

Volunteers Needed for RASC Casino

On **August 3rd and 4th** the Edmonton Centre will be conducting its next casinos so that the fine work of the Centre members can continue. Therefore, volunteers are needed to step forward to help with the easy-to-learn jobs required by Alberta Gaming that allow charitable groups such as ours to provide services that eventually find their way to promoting astronomy to the general public.

Much of our regular annual budget is covered by Gaming funds as are all our expenditures for the fine observational equipment that we buy for our members and the general public. If you want this to continue, do sign up in the following ways:

1. Go to the Edmonton Centre website at <http://www.edmontonrasc.com/councilcontacts.html> and proceed to the Downloads section on the left side and then download the TWO required volunteer forms.

2. Then you can email me the completed forms at

fcloehde@telusplanet.net

or mail them to me at

**11107- 63 Street,
Edmonton, AB, T5W 4E3**

or hand them to me at the next regular meeting you attend.

3. I hope to have forms available at the meetings themselves.

Because the casino is held deep in the holiday period and well after our last scheduled meeting in June it is imperative that you act quickly on this issue and not hold off until later. Thank you for your help.

Franklin Loehde, Fundraising Chair

President's Report by Sherry Campbell

Well, the summer season is upon us with perpetual twilight in full swing now. I hope everyone had a chance to see all the faint fuzzies they were hoping to see before now. Even though the skies are not very dark, there are still many objects to see over the summer. The Moon will always be there, so now is a perfect time to see all the craters the Moon has to offer. Every night is a different view as the Moon goes through its phases. Double and variable stars are another good way to spend a few hours under the heavens and recharge the soul.

Summer also means the star party season is in full swing. Mark these dates on your calendar and come share our hobby with fellow astronomers. The star party dates this year are:

Star-B-Q – July 25-26th, Eccles Ranch, near Caroline, Alberta

Saskatchewan Summer Star Party and General Assembly – August 13-16th, Cypress Hills, Sask.

Mt. Kobau Star Party – August 15-23rd, Mt. Kobau, near Osoyoos, B.C.

Northern Prairie Starfest – September 15-20th, Black Nugget Lake, near Tofield

Alberta Star Party – September 19-20th, Starland Recreation Area, Alberta

The **Beaver Hills Dark Sky Preserve** will also be having

The Planets by Murray Paulson

June sees **Mercury** coming up to a Greatest Western elongation which will happen on June 13th. Mercury will shine at magnitude 0.6 and show an 8" 38% illuminated disk. As one of the quirks of Mercury's elliptical orbit, it will be the 18th when it will expand to a 50% illuminated disk. Dichotomy and greatest elongation vary quite widely for this busy planet. After the 18th, Mercury starts its fall back to sun. On July 13th Mercury will pass behind the sun in superior conjunction. Mercury will have a spectacular 27.4 degree evening elongation with the sun in August, and it sidles up with Saturn for a week of this passage around the 17th of the month. The two will be closer than 5 degrees from the 14th to the 20th. The Greatest eastern elongation is on August 24th.

2009 Jun 20 09:36p Venus and Mars 2.0° apart, Sep=+01°58'30", Alt=-23°, 33% Dark

2009 Aug 17 03:22p Moon and Venus 52' apart, Sep=+00°51'56", Alt=25°, 0% Dark

The beginning of June will see **Mars** lost in the perpetual morning twilight. It shines at magnitude 1.1 and will show you a 4.7" disk in the eyepiece. Mars lies in Aries and will slide across the sky over the summer till it lies in Taurus by the summer star parties. Now it is easily visible, and competes with Alderbaran for reddest star in the sky. It now shines at magnitude 1.0 and the disk has swollen to a whole 5.5". It is high in the sky, so you may see some details on it while you are there. If the seeing is great, just crank up the power, and it will reward you with a view of the polar cap and some of the major features. The moon passes 2.2 degrees above Mars on August 15th, but we only get to see it on the 16th at 1 am when it rises with the moon 4 degrees east of it.

the Party under the Stars on September 6th, at Elk Island Provincial Park. If you would like to volunteer your time at this event, please see Sherrilyn Jahrig.

Speaking of volunteering, our club will be working a **Casino** on August 3-4th. At the time of this writing, we have only 25 volunteers and we need double that to ensure all positions are covered. If you have never worked a Casino before, don't let that scare you. The positions are all very easy and it is a lot of fun. Please see Franklin Loehde to sign up for that event.

If you want to do some observing but don't have time to set up your own telescope, consider dropping by the Observatory some night. The crew will be there on clear nights and there is quite an array of telescopes to look through. The Club, using Casino funds, bought many of the scopes on the Deck and they are all available for your use. If you have an observing project you are working on and require a high-end telescope to complete your project, the telescopes may be booked for your exclusive use. There are also telescopes available for rent in the loaner scope program. See Yves Lamarre if you are interested in renting one of the telescopes for the summer.

Finally, summer is noctilucent cloud season if you can stay up that late. These are wispy clouds that form high in the atmosphere and have a bluish tinge to them. They are very distinctive and quite striking. Have a great summer observing and clear skies!

Venus has climbed up so high in the morning sky in a relatively short time since April 1st, and it has just past its Greatest Western Elongation on June 5th. I have seen these nice coincidences of Mercury and Venus arriving at a Greatest Elongation or superior conjunction at about the same time. It is kind of cool. It will make for a pleasant daytime chase to see if you can find both of them. Venus shines at magnitude -4.3 and will show a 24" half disk in the eyepiece. Over the summer, it will slowly start its return to the sun, moving down to an elongation of 32 degrees by the end of the summer. Venus will also shrink over this time, but will still pose a fat gibbous disk in the eyepiece for the diehard late nighters at the summer star parties.

Jupiter is starting its comeback, and now resides in eastern Capricorn. It rises at the convenient time of 1:30 am, so it is a morning object. It shines at magnitude -2.4 and in the eyepiece it will show you a 42.6" disk. Over the month of June, **Jupiter** and **Neptune** sit within a degree of each other. The month starts off with them 36' apart, they move out to 50' then by early July they are back to 35' again. Quite the dance. You can see the pair of them in a medium power eyepiece field. Early July sees Jupiter expand to 46.5" and it will shine at magnitude -2.7. Compare this to Neptune at magnitude 7.8 with its 2.3" disk! Jupiter comes to opposition on August 14th, just in time for the summer star parties. It will show a whopping 48.9" disk and it shines at

magnitude -2.8. It really will be the showpiece of the star parties!

Saturn is sinking fast into the summer twilight and toward the sun. At the beginning of June, Saturn shines at magnitude 0.9 and shows a 17.8" disk in the eyepiece. Over the month it will fade slightly to magnitude 1.0 and the disk will shrink to 16.9". Later in the summer remember the good conjunction with Mercury in August's evening skies from the 14th to the 20th! We also get a last series of Titan Transits in July. Please see table at end of article.

Uranus hides in the morning twilight just below the circlet of Pisces. It really won't be visible till August when it gets into the evening skies and the summer twilight abates. Uranus will be prominently set for the summer star parties. In August, Uranus rises at 10 pm and shines at magnitude 5.7. It will show a 3.7" blue green disk in the eyepiece. Once again, get a finder chart before the summer star parties to look for Uranus's brighter moons. Titania is as bright as Pluto (m 13.9) with Ariel at 14.3 and Umbriel at a challenging magnitude 15.0. Good luck!

June sees the dance between Neptune and Jupiter, but they are poorly placed for easy viewing, with the perpetual twilight and the early morning hours. Wait a month or so, and much changes. Neptune comes to opposition on August 17th, when it will shine at magnitude 7.8 and the disk will subtend 2.35". Tiny, but unmistakably green. Neptune's moon Triton is an easy target at magnitude 13.4, so do go for it at the star parties.

Pluto comes to opposition on June 22nd, around the time of the longest day, and the deepest twilight. No, it won't be on anyone's observing list till August when it will be "well" placed for observing. (ahem!) Pluto is situated 2 degrees NE of M23, not quite yet in the thick of the milky way. Take your finder charts to the star parties, and see if you can do the Pluto challenge. When Pluto was higher, it was reasonably easy in an 8" scope, but now with it in the bottom of the ecliptic, it is much more challenging. Till September skies, good luck, and good hunting.

date	Event	UT	MDT	
8-Jun	EcD	5:39	23:39	
8-Jun	EcR	11:31	5:31	
16-Jun	ShI	3:40	21:40	Jun 15
16-Jun	ShE	9:18	3:18	
24-Jun	EcD	4:50	22:50	Jun 23
24-Jun	EcR	10:53	4:53	
2-Jul	ShI	2:49	20:49	Jul 1
2-Jul	ShE	8:35	2:35	
10-Jul	EcD	4:03	22:03	Jul 9
10-Jul	EcR	10:13	4:13	
18-Jul	ShI	2:00	20:00	July 17 pm
18-Jul	ShE	7:50	1:50	
3-Aug	ShI	1:12	19:12	Aug 2
3-Aug	TrE	2:55	20:55	Aug 2
3-Aug	ShE	7:03	1:03	
10-Aug	OcD	23:36	17:36	
11-Aug	EcR	8:46	2:46	
18-Aug	TrI	22:07	16:07	
19-Aug	ShI	0:25	18:25	Aug 18
19-Aug	TrE	3:43	21:43	Aug 18
19-Aug	ShE	6:15	0:15	Aug 19

Book Review

Frontiers of X-Ray Astronomy, edited by A.C. Fabian, K.A. Pounds, and R.D. Blandford, Cambridge University Press, 2004.

Reviewed by Douglas P. Hube

A half century ago we had one window opened onto the Universe, optical astronomy, and the curtains were just starting to be pulled on a second window, radio astronomy. Many other windows have been opened since, and each has resulted in the discovery of new classes of objects, and increasingly energetic and exotic physical processes. The field of X-ray astronomy has been especially informative on matters pertaining to the late

stages of stellar evolution, surface activity on ordinary stars such as the Sun, the interactions between members of close binary systems, and energetic processes that occurred in the earliest stages of galaxy formation. These and other topics are reviewed in the fourteen chapters of *Frontiers of X-Ray Astronomy*. Each chapter is written by experts in that particular field.

While intended to serve as a "valuable reference for research

astronomers and graduate students”, portions of the book can be read profitably by the intelligent layperson. Most chapters begin with a one page, or so, qualitative introduction. Much of the terminology will be familiar to those who read the most advanced articles that appear in *Sky and Telescope* and *Astronomy* magazines.

Each chapter is independent of the others. Hence, if you have a special interest in stars you can selectively read the relevant chapters and skip the others. If your interest is in galaxies and clusters of galaxies, there are several chapters that will attract your attention. The first chapter, written by Ken Pounds, one of the recognized leaders in X-ray astronomy for several decades, presents a fine summary of the historical development of the field.

In keeping with its intended audience, each chapter ends

with a lengthy list of references to the research literature. Don't let that fact, nor the more advanced material, put you off. This is *not* written at the level of an *Astrophysical Journal* article and it is *not* a textbook. It is worth a look if you are curious about one of the most productive areas of current research in high energy astrophysics.

The book would have benefited from more careful editing. On page 21 there is an error of a factor of 10^3 . Given that M31 and M33 are members of the Local Group, they do not contribute to an understanding of the cosmic expansion as claimed on page 27. Although Einstein did use his General Theory of Relativity to solve the problem of Mercury's anomalous orbital behaviour, that anomaly is not what inspired him to develop the theory as claimed on page 67. Such errors are annoying but not fatal to a book that, overall, meets the goals of its editors and contributors.

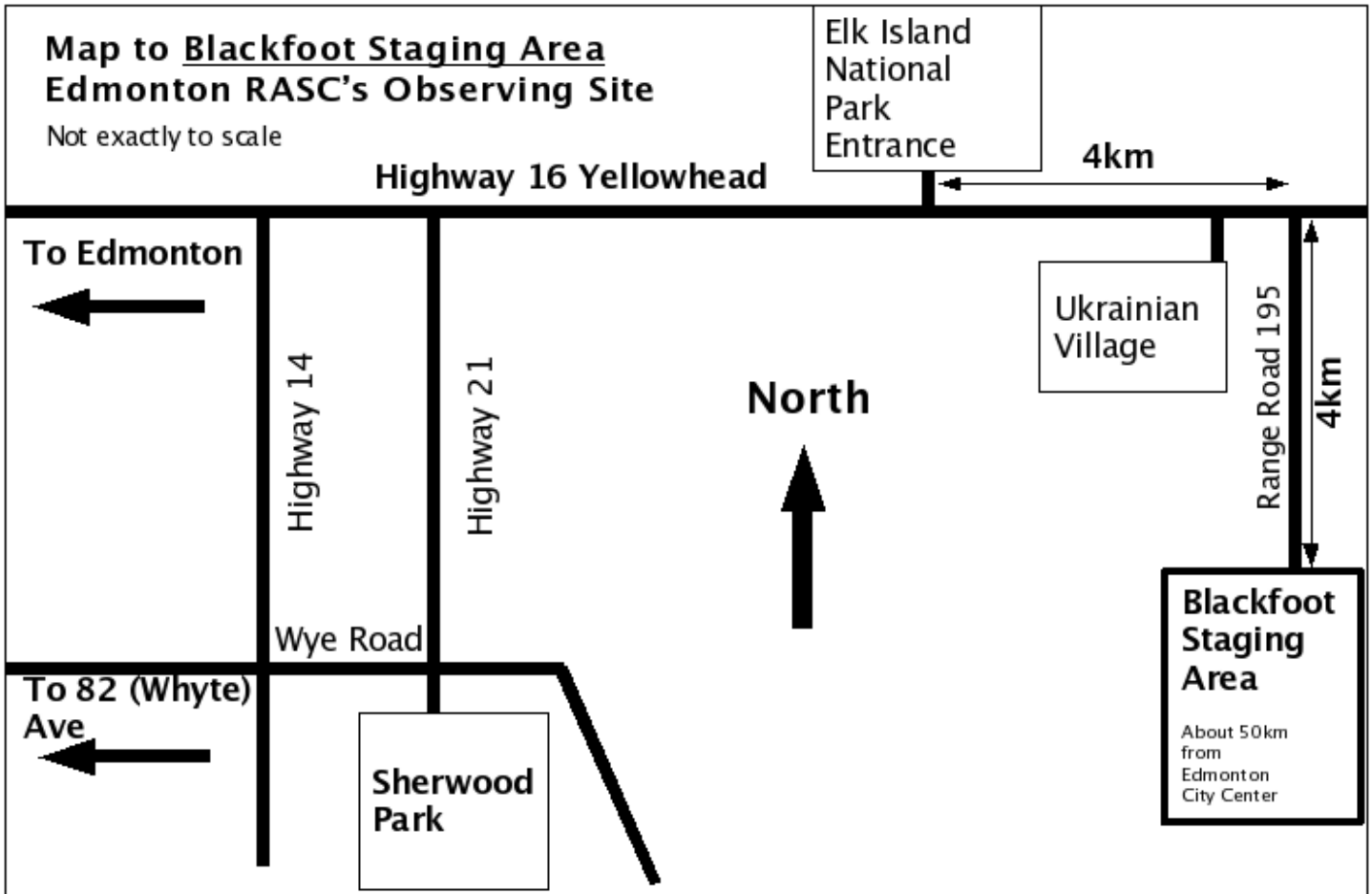
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