STARDUST

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Edmonton Centre

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M57 by Franklin Loehde, using the Celestron 14 atop Tenerife on the Canary Islands, 4 min 30 sec exposure. RASC members can access this scope and others remotely.

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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
May	11	25	4	24	9
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*

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

The Planets *by Murray Paulson*

The end of April saw a fine evening apparition of **Mercury**, and over the following three weeks it will make a dash back to the sun for superior conjunction. On May 18th Mercury will pass 40 arc minutes below the sun. It then departs to the morning sky where it will be very difficult to observe, even at its greatest western elongation in the second week of June. This is an apparition best viewed in a daytime scope.

Venus starts off the month residing in Pisces in the morning sky. If you are an early riser, you may see it shining at magnitude -4.5 in the south east. It will lie close to the horizon just before sunrise which is at 5:45 am. In the eyepiece it presents a 37" crescent. The crescent will fatten up over the month and by June 6th, Venus will come to dichotomy, a 50% illuminated disk. It will shine at magnitude -4.3 at the time and spans 23.6". At this time of year the ecliptic is so tipped back toward the horizon that it is easier to set up a scope with computer of setting circles to find the planets in the daytime. The seeing is much better higher up and you don't have to get up so early in the day!

The beginning of May, **Mars** shines at magnitude 1.1 and shows a tiny 4.5" disk in the eyepiece. It doesn't get much better as we turn into June when Mars still shines at magnitude 1.1 and subtends a 4.7" gibbous disk which won't show much detail in the eyepiece. The god of war spends the month in Pisces. During the month, Mars follows 6 degrees behind Venus as it heads away from the sun.

Jupiter starts off May shining at magnitude -2.2, and sits in the eastern Capricorn. In the eyepiece it has expanded to a 38.1" disk but lies low in the South East in the morning sky. The rising twilight will make for a narrow window to spot it. Use binoculars in the south east before sunrise. On May 28th, Jupiter passes 23' below magnitude 7.8 **Neptune**. It will be cool to see these two gas giants in the same high power eyepiece field. Jupiter will subtend 41.3" at the time and resides at 4.78 A.U. compared to Neptune out at 29.8 A.U. At this point Jupiter shines at magnitude -2.4. Summer twilight will make this a bit difficult to observe, but it is certainly worth a try.

Saturn has been quite a spectacle this year with the rings near edge on. This month they are noticeably much wider than the first times I saw it this season. This month the rings are tilted up at 4.1 degrees, and Saturn shines at magnitude 0.7 In the eyepiece the planet subtends 18.8". By the end of the month, Saturn will have faded slightly to magnitude 0.9, and the disk will have shrunk imperceptibly to 18.0". Have you gotten any of the Titan events? I have been skunked so far. The events are synchronized to the Wee morning hours, and through some trick of the elements, I have been clouded out for all of them. Update: I finally got the April 29th one, and it was easily visible in a 5" scope. You needed high power to see it. I was using 165 and 275 power. The view at 275 power was better. Very cool to see a dramatic shadow on the otherwise low contrast disk. There are a few shadow transits left, so give the next two a shot. The good thing is they happen at a much better time of night. Good luck and Clear Skies.

Date	Event	UT	Local time	Local Date
7-May	EcD	7:23	1:23	7-May
7-May	EcR	12:40	6:40	7-May
15-May	ShI	5:26	23:26	May 14
15-May	ShE	10:39	4:39	May 15
23-May	EcD	6:30	0:30	Night of 22-May
23-May	EcR	12:06	6:06	23-May
31-May	ShI	4:32	22:32	May 30
31-May	ShE	10:00	4:00	May 31

President's Report *by Krista Stefan*

The warmer temperatures have arrived. Unfortunately, so has perpetual twilight. I hope you were able to get out and observe some deep sky objects this spring. If you were unable to do so, travelling down south is now the answer or wait until fall for those of us that can't afford to go anywhere. Perpetual twilight is when the Sun no longer dips 18 degrees below the horizon, thus creating that glow to the north that moves across the sky all night long.

For those left behind, there is still much that can be seen over the summer. The Moon is always around and the lunar features changes with every night. Stars can still punch through the perpetual twilight, so have a look at some of the open clusters out there or maybe try some double stars. There are plenty of lists out there so you do not have to compile your own. Just type in double star lists in your Internet search engine and try finding some tonight. The summer is a good time to start a variable star program. Check out AAVSO's website for details on how to do this. Of course, there are the planets. Watching the movement of the moons can be very fascinating. The Observatory will be open all summer long, weather permitting, so even if you do not have a scope, come on down and the volunteers there will be happy to show you what's up that night.

Speaking of volunteering, many IYA events have already taken place with more to come. I would like to thank everyone who has helped out so far. It is your volunteer spirit that makes our club shine, but we still need your help! The Observatory is always looking for volunteers. Even if you can only donate a couple of hours a month it is still appreciated. Contact Cornelia Blunck (cgblunck@telus.net) if you would like to volunteer. Check out our website at www.edmontonrasc.com for the events coming up this summer.

On August 3-4, 2009 we will be having a Casino and we desperately need your help there. If you would like to have a day off work (who wouldn't?), enjoy some good food, some excellent company and see plenty of money in small bills, then you want to work a Casino! The positions we need filled are very easy to do, and it is always a great time. The money we raise from the Casino helps out our Club in every way, from buying astronomical gear for BNLO and the Observatory, to guest speakers, to Stardust and Workshops, to name a few. If this sounds like something you would like to experience, please see Franklin Loehde for a volunteer form.

Don't forget the summer star parties are coming up. This year the General Assembly of the RASC will be held in conjunction with the Saskatchewan Summer Star Party between August 13-16th. The Alberta Star Party and the Northern Prairie Starfest will be held the same weekend this year, on September 19-20th. Unfortunately, you will have to choose which one you will attend this year. I hope to see you under the stars!

A Coulée, Some Meteorites, But No Buzzards *by Dale Nosko*

Unless you were under a rock, or given the temperatures in November, a down comforter, you no doubt heard about or were lucky enough to witness the spectacular bolide that lit up the dinner-time sky and fired the imaginations of tens of thousands of people across three western provinces. I was not fortunate enough to actually see it first-hand; the first time I was able to see what had actually happened is from the now-famous "dashboard cam" video of an officer in Devon who happened to be driving in the right direction and had inadvertently recorded the entire spectacular event. This of course was much to the delight of scientists across the country, as it would most definitely give them a leg up on where to start the search for any fragments that may have reached the ground. Jason Roberts from Capital FM, who happened to be on the air at the time, called me up for an interview to get my take on this series of events. It seems I've gained somewhat of a reputation at our three stations as being somewhat of a geek, a title I'm quick to qualify with a "yeah, and darn proud of it too". The next day, scores of colleagues at work regaled me with their individual tales of awe and fascination. I was actually pretty impressed with most people's initial take on the whole event. Most had it pegged correctly as a large meteor, (remember, it wasn't known if it had actually made it to the Earth's surface), as opposed to a UFO (sigh), a plane crash, or space junk re-entering the atmosphere.

I've been interested in meteorites for a number of years, gathering steam about 10 years ago when my good friend Lyle Aumuller, who shares my interest in all things cosmological, and I dug up some information about the now famous fall of 1960 near Bruderheim, Alberta. We had both recently purchased a pair of White's metal detectors in hopes of some day going out to a known strewn field to find what others had left behind. As Robert Haag, the famous "Meteorite Man" once said, "the best place to find meteorites is where they've been found before!" In an attempt to improve our chances for finding an illusive piece of the fall, Lyle and I set out for the University of Alberta Earth Sciences Department to speak to the man who had led the original search in 1960 for possible fragments, the late Dr. Robert Follinsbee. Even at that time, Dr. Folinsbee, well into his 80s, spoke of the event with a passion as if it had just happened yesterday. We quickly explained our reason for the visit. We wondered if they would allow us to scan an actual piece of Bruderheim and see what kind of reading the detectors would give us. Without any hesitation, Dr. Folinsbee graciously produced a beautiful large intact piece still wrapped in it's protective bag, and led us out to an adjacent courtyard where our detectors would be free of any foreign metal objects. Carefully laying the specimen on the grass, he then motioned us to make a few test passes over the space rock. Satisfied we could pick up a similar signal once in the field, we said our thank you and goodbye, confident in the knowledge that if any pieces of Bruderheim still existed we could bag 'em...right.

Our first stop was the Bruderheim town office where we were given more details of the fall, then headed out to the first landowner on our list. This particular individual's story was very interesting, not only because it was the first eye-witness account we were ever privileged to hear, but again after all these years he spoke with such passion that the event had obviously made a great impression on himself and his family at the time.

The whole thing started in the early hours of March 4th, 1960. He was somewhat rudely rousted from his bed after being woken by a brilliant flash and hearing what he thought was his hot water tank exploding! Upon realizing his home was in no danger, he rushed outside quickly enough to hear the staccato "pop pop pop" of what we now know to be fragments racing through the lower atmosphere. He actually described it as "machine gun fire". Now completely convinced we were in the

right place (although nearly 40 years too late) we headed out to an adjacent property where we thought the hunting might be better. Being somewhat naive and attempting to initially search fields that had been ploughed and re-ploughed over the course of 40 some odd years, we decided to try in some pasture that was still in the strewn field and restrict our search to dense brush that other than numerous seasons of falling leaves and dead fall would not potentially discourage the large coil on the detectors from peering through all of that. One small thing we forgot to get though: permission from that particular landowner, who upon spying us with these odd 4' long metal rods was sure we were up to no good! Once we apologized profusely for our ignorance and realizing we posed no threat, he let his guard down enough to at least hear why we there in the first place. If I remember correctly, he himself was personally too young to have witnessed the event first-hand, but he had heard numerous stories from those who had been fortunate enough to actually see it. Feeling somewhat embarrassed at this faux pas, we half-heartedly continued searching with the gentleman's approval until it became late. Up until this past weekend, that was my one and only "serious" attempt at finding a space rock. Life had intervened.

Fast forward to April 17, 2009. Now *somewhat* less naive and better prepared than back at Bruderheim, Lyle and I this time set off for the village of Lone Rock, Saskatchewan, the apparent resting place of what would hopefully prove to be, in my opinion at least, a large cache of some of the oldest (other than my mother-in-law that is) and most fascinating evidence of a non-static Universe that any mortal man could ever hope to hold in his hand!

We had met the previous Wednesday evening with Mark Zalcik, Bruce McCurdy, Larry Wood, Mike Noble, Doug Hube, Donna Lee-May and a few others that (I apologize for not knowing their names) at the Boston Pizza that has been the venue for many an observers meeting. The plan was to discuss meeting with the researchers from the University of Calgary, namely Dr. Alan Hildebrand and PhD candidate Ellen Milley (who graced the cover of the February issue of the Journal of the RASC) in the hopes of lending a hand at recovering specimens of the fall for scientific research and heck, being in the record (or recording log) books as participating in the recovery of what has become one of the most famous bolides in recent memory! Mark had a list of what (not) to do as well as a rudimentary map of the Buzzard coulée area where Ellen had made the initial discovery in late November 2008. Armed with a meteorite testing device provided by the U of C fashioned from a simple stick with a magnet glued on one end (I actually made my own before leaving from a section of metal curtain rod I'm sure my wife will never miss, coupled with a rare Earth magnet secured on one end), Mark's map and a full tank of gas, well Lyle's anyway, we started out for Saskatchewan in the hopes of scouting out the area ahead of time and to find the pre-determined meeting place set up by the research team so we wouldn't be late the next morning.

As fate would have it, just as we thought we were in the wrong place, a vehicle sped up towards us as we were pulled over to once again check the map. Naturally I thought this was one of the panicked landowners in the area wondering just who the heck we were. It seems that a few morons had already set a bad precedent just days after the fall by ignoring those pesky "No Trespassing" signs on various properties in the area. The driver actually turned out to be Dr. Hildebrand with Doug Hube by his side. Confident our luck was well on it's way to seeing us through this weekend as successful meteorite hunters, Lyle, his daughter Kimberly (who had come along for the ride and was graciously putting us up for a couple of nights at her home in Kitscoty) and I headed back to rest up and prepare for the days ahead.

We arrived just after 8 the next morning and upon pulling into the base camp at the top of a hill overlooking the coulée we were greeted by Tony, a fellow volunteer who was waiting as we were for the principle members of the research team to arrive. After a few moments of idle chat, Tony led us up another hill overlooking the camp to what he thought was a meteorite lying on the short grass at the top of the hill which he had deftly marked with a pair of discarded beer bottles. Now I knew we were in Saskatchewan. Sure enough, after Dr. Hildebrand et al arrived a few moments later, it was confirmed to be a really nice 100g specimen. Congratulations were offered all around to the lucky discoverer, the hand-held GPS was laid in close proximity to the meteorite, it's picture taken, and the discoverer's name duly noted in the log book. After that promising start it was off to the field du jour to begin the day's work. After a short drive up and around some suspect roads in the coulée, we arrived at the plateau of a rather large hill in order to confirm that nothing was left behind when it was searched last fall prior to the oncoming snow. Needless to say, pickins' was mighty slim Tex, they had done their job admirably with only one fragment being found by one of our team members, and about four from the other team led by Ellen Milly. After a quick lunch break it was off to a nearby stubble field to do it all over again. This time my team was completely skunked.

On a side note, I was quickly becoming known, to myself at least, as the king of "meteorwrongs"!

During our first attempt on the pasture that morning, I thought, as did other members of my team, that a suspicious black rock that had literally leapt from the ground to my waiting rare earth magnet was the first catch of the day. It was photographed, logged and bagged. Feeling rather proud of myself, we continued the search, *then the stupid rain started*. Nothing like dodging wet and slippery cow manure in the hopes of finding a rock from space. Undaunted we carried on, but by the time things began to slow down, one of the more experienced team members finally had a chance to look more closely at my find. "Uh, sorry, I really doubt this is a meteorite". Sure enough, we turned it over and it had what looked like a fusion crust on one side, but a very un-meteor-like white coating on the opposite side, yet it was highly magnetic! My fears were confirmed when once back at base camp, Dr. Hildebrand with loop in hand gave me the bad news. Very much an Earth rock with an abundance of quartzite. Oh well, at least it sticks to my fridge.

Lyle and I had only intended on spending one full day with the research team, hoping to devote our Sunday to finding rocks we could take back with us. As some of you may know, and rightfully so, the U of C has control over the area to maintain the scientific integrity of the search, with the exception of a few cranky landowners who would allow access only to family and friends. This I find extraordinarily unfortunate, and pig-headed. This ultimately means that large portions of the strewn field are going to be (and have been) pillaged by rock hounds and the meteorites' initial landing point on this planet will not only be lost forever, but the eventual map of the strewn field will have holes in it big enough to drive an asteroid through! I guess not everyone has a desire to advance this worthwhile and fascinating

branch of science.

Bright and early Sunday morning we once again drove up to the base camp to say goodbye and to see if Dr. Hildebrand could furnish us with any leads where crown land could potentially lead to some finds. Armed with that information, we set off to start the hunt. Slightly disheartened at the realization that being restricted to adjacent roadways and ditches rather than vast expanses of pasture and stubble fields was probably going to affect our chances at being successful, I came to the realization that perhaps a phone call was in order to one Mr. Charles Lamb, the aforementioned landowner who refused access to the U of C but was seemingly allowing people to search his fields. Those people turned out to be ONLY family and close friends, we weren't invited to the party.

Now a little more than discouraged, I was close to packing my kit and heading home. Lyle however, stuck to his firm belief that these fragments were potentially everywhere within the ellipse, and that the ditches and roadways adjacent to these properties could very well yield some meteorites. Grumbling under my breath that I was more likely to sprout wings than find anything in what I considered pathetic hunting territory, I grabbed my metal detector (because the meteorites would be on the ground and certainly not buried under the soil, but obscured by tall grass and other annoying vegetation nonetheless) and began sweeping the roadside and accompanying ditch. "Freakin' yippee" I'm thinking, this is the epitome of searching for the needle in the haystack. No more than 10 minutes passes before I get a tell-tale "beep" from the detector. I didn't even have time to think, "great, a fine piece of Saskatchewan barbed wire for my "meteorwrong" collection I started yesterday", before I looked down at this beautiful 11g rock with an obvious fusion crust. I gently poked it with my rare earth magnet and "clink", up it shot to meet the end of the stick. After closer examination I see it is most definitely a "meteor-right" this time! My reputation for cleaning Saskatchewan out of its seemingly endless supply of magnetic Earth rocks had come to an end! Well, this changed my attitude completely. Another few minutes goes by, "beep", another tell-tale signal from the detector. Sure as heck, this time a beautiful 25g example that had split apart in flight to reveal its internal structure complete with really nice examples of chondrules and even some rust from being exposed to the snow and water that ultimately covered it these past 5 months! Not soon after, Lyle found a pebble-sized example on the other side of the road. Spurred on, we continued to search other roadsides and ditches but alas, no luck.

Finding two meteorites was definitely the most exciting and rewarding part of this adventure, but what made this experience infinitely more enjoyable were the locals. To a man (and woman), everyone with the exception of one car the whole day stopped by to chat, give us a detailed description of their personal experience with the bolide, and wish us good hunting. Nothing like a rare cosmic event to reaffirm that there are most definitely good and kind people out there.

Treasures in hand, we headed back to Edmonton, just in time to make plans to return once again to take up the search.

These are not Dale Nosko's, they are Murray Paulson's.

Above left: What is Ross Sinclair doing on the roof?

Above: Bob Casgrain startests the telescope the kids were making.

Left: Dan Kulak shows off his first ever telescope and something a lttle newer.

Greek Mythology: A Tale of Two Bears - Part 2 *by Michael Ward*

Clearing up a few odds and ends.

Last month I told what was, apparently, the most popular version of the story of the two constellations Ursa Major and Ursa Minor, noting a few small variations. Hyginus [1] and others record a great many variations: who turned Callisto and Arcas into bears, at what point, under what circumstances, and other details. At least one author asserts that Ursa Major was not Callisto, but one Megisto; another says Ursa Minor was not Arcas, but Cynosura, one of the nursemaids who looked after the infant Zeus (Jupiter).

Like us, the ancient Greeks had more than one name for some constellations. Hyginus relates a somewhat confusing account concerning why Ursa Minor was also called *Phoenice* (Φοινίκη): allegedly because the namer, Thales of Miletus, was originally Phoenician. The Phoenicians are supposed to have been superior sailors because they navigated by Phoenice (Ursa Minor = Polaris?), rather than the other bear, like the Greeks did.

The Greeks also called Ursa Major *the wain*, or wagon, imagining two stars as a pair of oxen (which two is not clear), and the rest a wagon, involving a total of 25 stars. *Which* 25 stars, again, is not clear. Another explanation states that because it never sets, it was said to "wheel around" the sky like a wagon, guided by the neighbouring Boötes. In this scenario, Boötes fits well, since *boôtes* (βοώτης) means *ploughman*. Hence Boötes was also known as *Arctophylax*, or *bear guard*, a word very similar in meaning to Arcturus[2], the brightest star in Boötes.

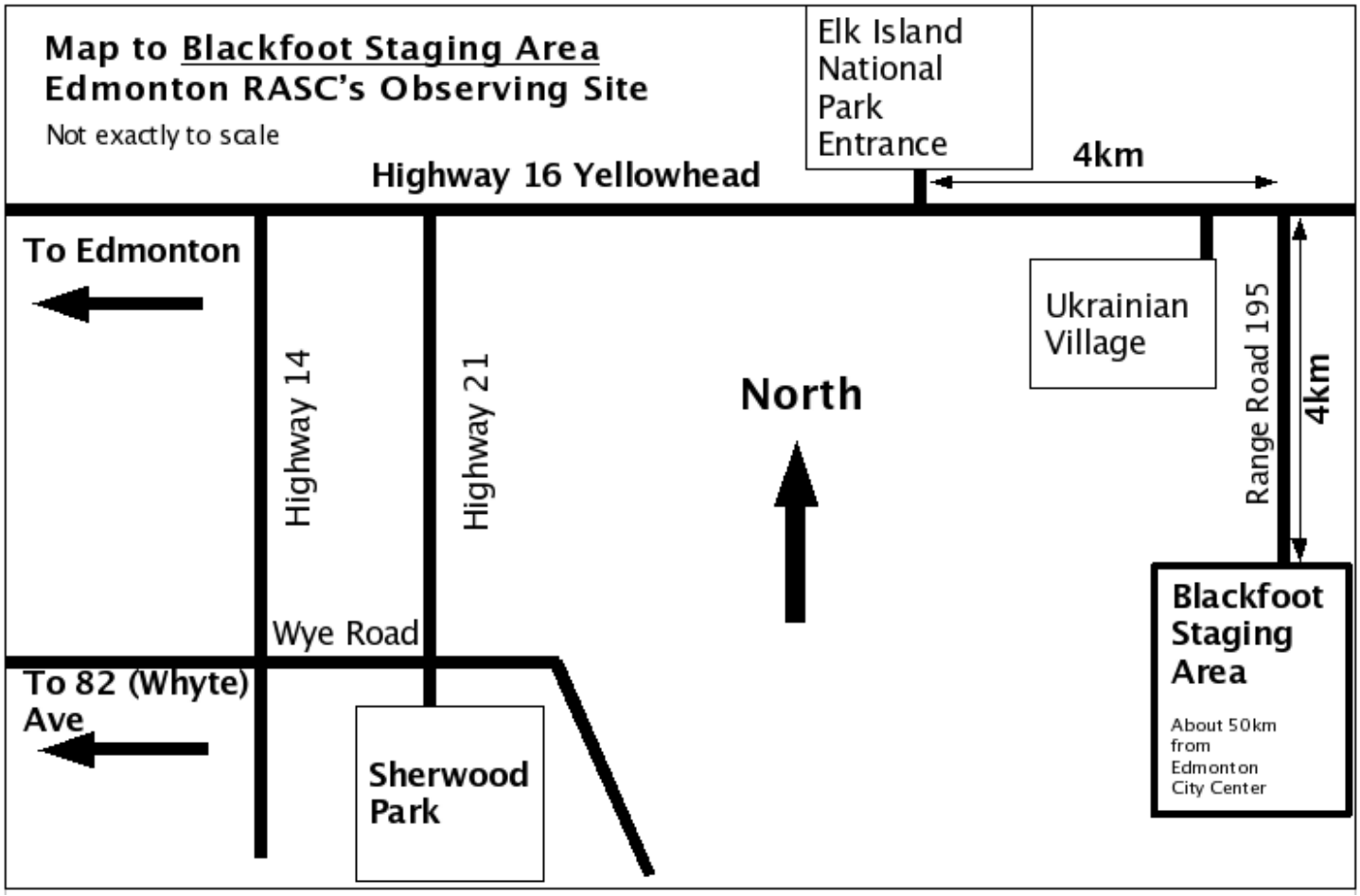
Notes

[1] Curious readers may consult Hyginus and others; the texts of many ancient authors are readily available at several web sites. See *Sources*, below.

[2] Arcturus is from arctos+oupos (ἄρκτος+οὖρος), meaning *bear guard* or *bear watcher*; Arctophylax is from arctos+phylax (ἄρκτος+φύλαξ), which means much the same thing. The second element, *phylax*, is also seen in words like *prophylactic* (fore-guard) and *anaphylaxis; ana* means numerous things, but can convey the idea of *thoroughly*, as here. It also means *up*, as in *anode,* from ana+odos (ανα+ὁδός) up+road, a road up. And now you are wondering what *cathode* means, aren't you? It's from kata+odos. Kata (κατα) means *down* in this context. It means a great many other things too, and is found in numerous English words derived from Greek: catalepsy (a taking down), catatonic (a stretching down), catastrophe (a down turning), et al.

Sources: Apollodorus, 3.8.2; Hyginus, *Astronomica*; Ovid, *Metamorphoses* 2.496-507; Pausanias, 8.3.5-8.4.1

Nothing to do with bears, this is comet 17P/Holmes, taken in November 2007 by Massimo Torri.


Map to Blackfoot Staging Area
Edmonton RASC's Observing Site
Not exactly to scale
Elk Island National Park Entrance
4km
Highway 16 Yellowhead
To Edmonton
Highway 14
Highway 21
North
Ukrainian Village
Range Road 195
4km
Wye Road
To 82 (Whyte) Ave
Sherwood Park
Blackfoot Staging Area
About 50km from Edmonton City Center