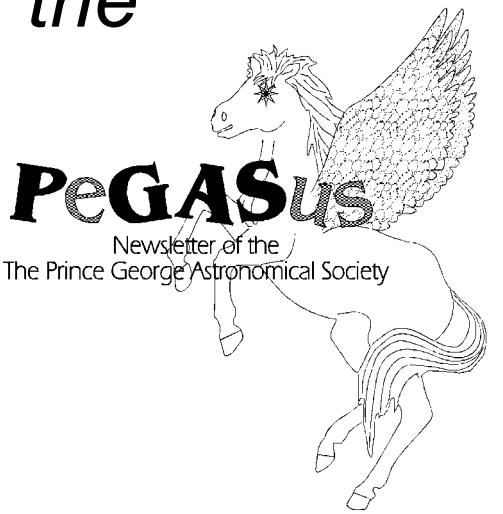
PeGASus
Newsletter of the
Royal Astronomical Society of Canada
Prince George Centre

The RASC-PG meets next at 7:30 pm Wednesday March 26th at The Observatory

Map on Page 2

March 2003

the



In Issue # 127

Also This Month;

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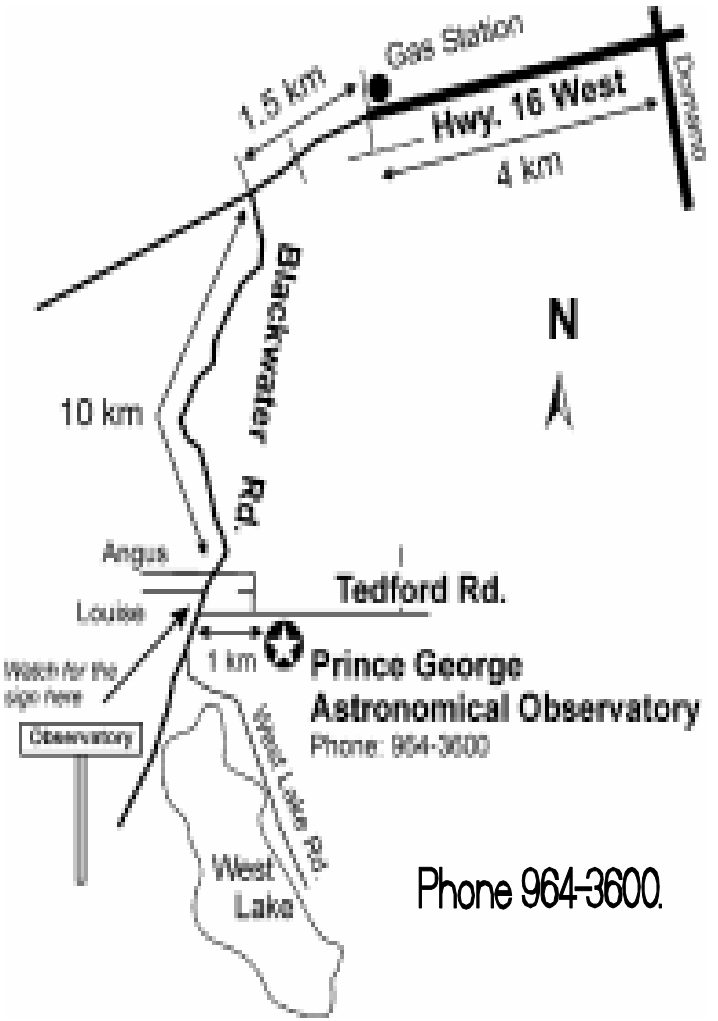
the PeGASus
is published monthly by the
Royal Astronomical Society Canada
Prince George Centre

Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.



Contributions to the newsletter are welcome.

Deadline for the next issue is

April 18

PeGASus Editor
Gil Self

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www.rasc.ca/princegeorge

Editorial

By Gil Self

Do you realize that there are just two more newsletters to go this season, so it's too late for that three part article you were going to write, perhaps you can squeeze it into two parts.

Seriously though, I really am not getting articles from as many people as I would like. I *generally* try and include items you can only find here. This is a great forum to try out your ideas, to exercise your writing skills or just to share ideas. You are writing for your friends. If you are reading this on-line, or are capable of doing so, you have all the tools you need to produce and submit an article

The executive is currently working on another gaming proposal. (I remember the days when we used to go and empty ashtrays at the Casino , somewhat unpleasant, but certainly a lot simpler that today's process). Glen produced a spreadsheet showing the volunteer hours donated by club members this last year. Without peaking at the tally sheet printed below- take a guess. I bet you are guessing a magnitude low! And this doesn't include the many hours spent preparing presentations.

Thank you, everyone!

That's why we are successful, lots of good people giving time to something that matters to them.

Gil

		Tours	Lectures	Open house	promos	Work bees	Totals	Members Night	Personal observing	Meeting	Totals
January	Visitors	32					32				5
	Man hour total	9.75				9	18.75		24.25	5 40	64.25
February	Visitors	1					1	2	5	7	14
	Man hour total	4				20.35	24.35	52.75	19.1	33	104.85
March	Visitors			23		1	24	4	1		5
	Man hour total			95		3	98	174	17.75	25.3	217.05
April	Visitors	60		115	115	1	291	5	11	1	17
	Man hour total	36		13.75	39	3.25	92	13.75	34.75	42	90.05
May	Visitors	27		28			55	7			7
	Man hour total	6		66.5			72.5	63.5	16.5	42.5	122.5
June	Visitors	157					157		28		28
	Man hour total	45				1.5	46.5	17.25	20.75		38
July	Visitors			5	80		85				0
	Man hour total			2.5	13	26.75	42.25		6.5		6.5
August	Visitors					1	182	20	1		21
	Man hour total					10.5	155.5	54.5	12		66.5
September	Visitors		11	131	50		147				
	Man hour total		3.5	133	12	3	97.25	35	14		49
October	Visitors	37		45	105		82	2	1		3
	Man hour total	12		39	48	.75	51.75	16	23.25	22	61.25
November	Visitors			97			97	6			6
	Man hour total			105			105.5	33.75	16	66	115.75
December	Visitors										
	Man hour total							60	4.75		64.75
MH subtotal		112.75	3.5	498	112	78.1	804.35	520.5	209.6	270.8	1000.9
Visitor subtotal		314	11	475	350	3	1153	46	47	13	106

Coming Events

March 26	General Meeting	7:30 pm	Observatory
March 29	**2nd Annual Messier Marathon**	**5:30 pm**	**Observatory**

Last year the Messier Marathon was a great success. We all brought some dishes and had a quick pot-luck beforehand to keep us going through the long cold, hours. We will do the same thing this year, bing some food to share and plan to be there by 5:30 pm. We will have a bite to eat, and then on to observing!

RASC GENERAL ASSEMBLY:

The 2003 General Assembly will be held in Vancouver on June 27 - 30, 2003 at the UBC campus.
Early registration, prior to May 15 - $110 after May 15 - $125.
Spousal/Companion attending events other than meals, prior to May 15 - $55 after May 15 - $60.
Spousal/Companion not attending Events other than Ruth Northcott Lecture (meals and rooms extra) - FREE
Check 2003 GA website at:
http://ap.stmarys.ca:8080/rasc/index.jsp

The Night Sky for April 2002

by Bob Nelson, PhD

Hi Folks,

As I write this, spring is definitely in the air! It's a warm and sunny Sunday – enough to make everyone feel good all over. (It snowed heavily last week; that may well be winter's last gasp.) We look forward to an active spring observing season. Hopefully, the telescope drive will be upgraded, we will have our new grant from the BC Gaming Branch, and will be more active out at the observatory. (I am vehemently not superstitious, so I can say these things with impunity!)

Anyway, here is what is happening in the sky next month:

PLANET ROUNDUP

MERCURY, ah elusive Mercury, is at last visible this month. At midmonth, it sets some 2 hours after the Sun (a little bit north of due west) and, owing to the inclination of the ecliptic, is a favourable apparition for us northern observers. It will be a 7.6" disk of magnitude 0.1. Have a go at finding it! Binoculars should be best, at sites with a good western horizon (get up out of the 'bowl').

VENUS passes from Aquarius to Pisces on the 17th and to Cetus on the 27th. At mid-month, it rises only an hour or so before the Sun and is a difficult object for northern observers this month.

MARS, passes from Sagittarius into Capricornus on April 21 is an early morning object this month. At mid-month, it rises at about 3:40 AM and is a 8.4" disk of magnitude 0.26.

JUPITER, in Cancer until June, sets at about 4 AM (PDT), about 2 hours before sunrise. At sunset, it is some 54 degrees on the meridian at sunset; it is therefore well placed for observations. In addition, it is stationary on the 4th . There is a

double satellite transit on the 10th, at 5:43 PM (PDT), so you need to find the planet before sunset to see the event.

SATURN, in Taurus until May, is an evening object this month. At sunset, it is about 46 degrees above the western horizon; it sets at about 1:40 PDT. (The Observer's Handbook appears to be wrong here – it says "before midnight". The Sky and Guide 7 say 1:38 and 1:40 PM, respectively.). It's a 17" disk of mag 0.1. As usual, several (2-6 or more) moons should be visible, depending on your telescope and viewing conditions.

URANUS, in Aquarius until 2009, is an early morning object this month, rising as it does at about 4:45 AM (PDT), an hour before sunrise. As usual, it's a 3.6" disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010, is an early morning object, rising as it does at mid-month at 4 AM (PDT), some two hours before the Sun. As usual, it's a 2.3" disk at about magnitude 8.0.

PLUTO, in Serpens until May, rises at mid-month at midnight (PDT). The best time to look for it therefore would be later in the year. As usual, it's a 0.1" disk at magnitude 13.8.

Daylight savings time returns on the night of March 31 / April 1. (Blaaaaat!!)

CONSTELLATIONS to look for in April (at 10 PM, PDT) are Central Hydra, Crater (Crt), Sextans, Leo and Leo Minor.

Central Hydra (The Sea Serpent¿, not to be confused with Hydrus, ¡The Water Snake) is out of the Milky Way and contains two galaxies: NGC 3585 and 3621. The former is a 5.6' ellipse of magnitude 10.8; the latter, a 12' ellipse of magnitude 10.0. It's easy pickings for our 24" telescope.

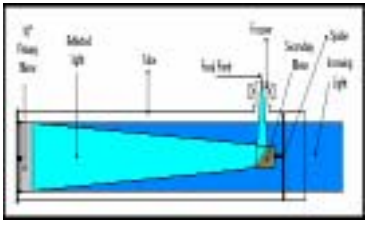
Crater (The Cup) contains no star clusters or nebulae. (My cup is empty. Ha, ha!). Seriously, though, it does contain (according to Burnham) 11 variable stars, 14 NGC galaxies and one other galaxy. It's the constellation immediately to the south of familiar Leo.

Sextans (The Sextant) - but shaped like a scalene triangle - contains numerous galaxies, but only the following are brighter than magnitude 11: NGC 2974, 3115, 3166, and 3169. The brightest is NGC 3115, which is a very bright galaxy (total magnitude 8.9) located some 20 degrees almost due south of Regulus and just south of the scalene triangle. Burnham's tells me that it is likely not a member of the great Virgo cluster of galaxies and is somewhat closer at around 25 million light years. The diameter is around 22,000 light years and its mass is some 24 billion solar masses. No supernovae have yet been observed in this galaxy.

Leo (The Lion) is familiar to most of us. It's a constellation that actually resembles what it's supposed to be. The head of the beast, otherwise known as "The Sickle" contains at its base the first magnitude star Regulus (spectral type B8, main sequence). It also contains numerous galaxies (almost too many to mention) M65, 66, 95, 96, 105, plus NGC 3628, 3384, 2903.

Leo Minor (The Little Lion) contains galaxies NGC 2859, 3245, 3344, and 3486. The brightest is NGC 3344 at magnitude 9.9. Burnham's has no other information, except that it is a fine face-on spiral.

Clear skies,
-Bob



Enlightened by the Darkness

By Diane K. Fisher

On the clearest of nights, I may see a dozen stars from my suburban backyard near Los Angeles. Unfortunately, my studies of space and astronomy have been confined to books and the pictures taken by others. Seldom have I experienced for myself a truly dark, clear, moonless sky.

One of those rare times was a summer camping trip in Bryce Canyon, Utah. I lay on my sleeping bag in an open area away from trees. I saw millions of stars (so it seemed) and the cloud of the Milky Way streaking across the sky. Nothing of planet Earth was in my view. It was then I glimpsed my true situation in the universe, a speck of dust clinging to a tiny stone hurtling through the darkness of a cold, infinite universe. I was awestruck by the beauty of the stars and the darkness-and terrified!

In the light of day and a more "down-to-Earth" state of mind, I wondered: With around 100 billion galaxies out there, why is it still so dark out there?

Until the 20th century, astronomers thought the universe was infinite. They were perplexed though, because in an infinite universe, no matter where you look in the night sky, you should see a star. Stars should overlap each other and the sky should be blazing with light and hot as the sun. This problem became known as "Olber's Paradox."

Astronomers now realize that the universe is not infinite. A finite universe-that is, a universe of limited size-even one with trillions of stars, just wouldn't have enough stars to light up all of space.

Although a finite universe is enough to explain the darkness, the expansion of the universe also contributes. As light travels from a distant galaxy to us, the space through which the light is traveling is expanding. Therefore, the amount of energy reaching us dwindles all the time, thus causing the color of the radiation to be "redshifted." (The wavelength is stretched out due to cosmic expansion.) The more distant the galaxy, the more redshifted the light. The largest redshift astronomers have measured comes from radiation that was emitted when the Universe was only 300,000 years old. This radiation has taken over 12 billion years to reach us and although it began as infrared radiation, it is now seen as the microwave background radiation.

GALEX (Galaxy Evolution Explorer) is a NASA space telescope that will survey the universe, including galaxies with redshifts that indicate their light has been traveling for up to 10 billion years (or 80% of the history of the universe). Read about GALEX at www.galex.caltech.edu/ . For budding astronomers, print out The Space Place New Millennium Program calendar at spaceplace.nasa.gov/calendar.htm to identify great sky watching opportunities.

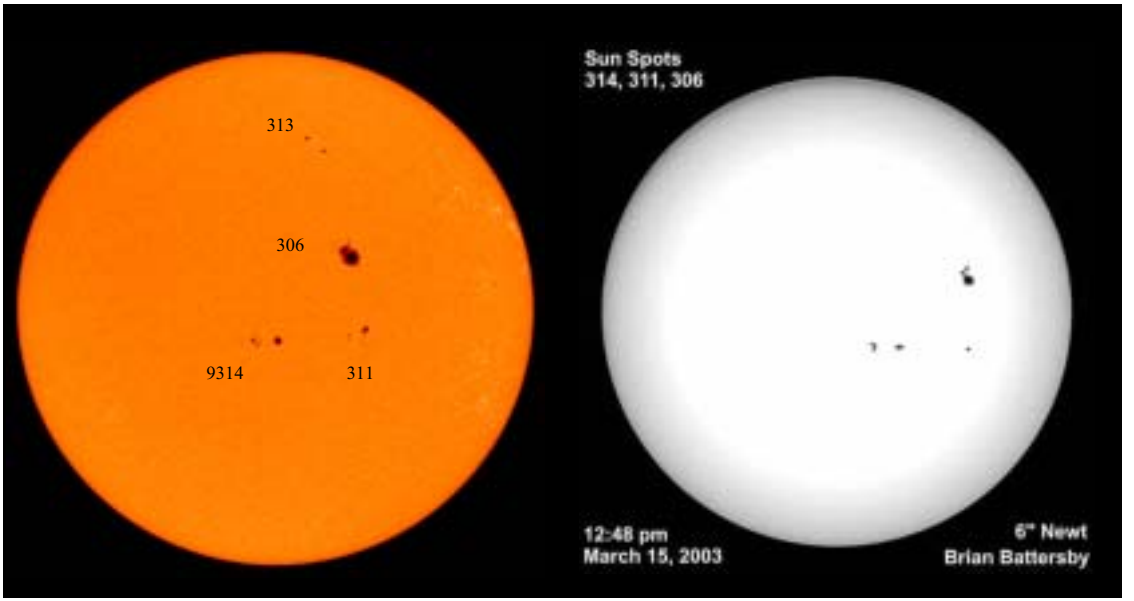
Diane K. Fisher is the developer and writer for The Space Place web site.

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

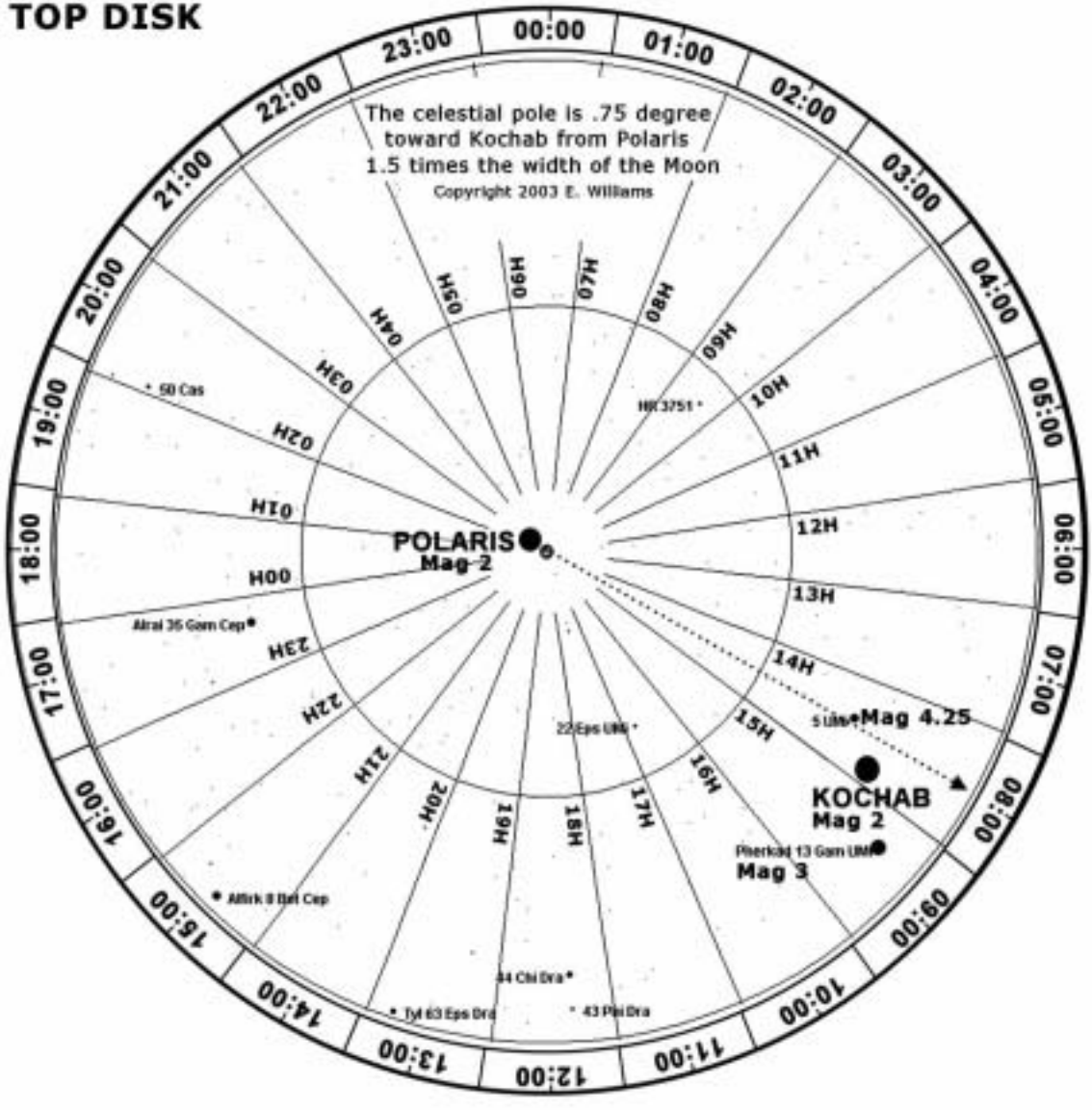
Observing the Sun

It looked nice and sunny out early this afternoon so I finally made myself take some time and try my hand at drawing sun spots. It seemed like an easy thing to do, set up the scope, roughly polar align, attach the sun projection screen and trace the spots. As most things go it sounded way easier than it turned out to be. I soon discovered that setting the scope up on the deck, while nice and dry, was not the best idea as every time my little guy (Lucas) moved so did the Sun. Eventually, after a half dozen attempts or so, I gave up trying to "draw" the spots and simply tried to quickly mark the paper with the locations. Then I took the paper off the projection screen and drew in the approximate size and density based on the image on the screen. Afterwards I scanned the image in and redrew it in Adobe Photoshop, tracing over my initial sketch. I was pleasantly surprised when I downloaded the latest sun spot image from Spaceweather.com and my image actually resembled it.

Brian Battersby



TOP DISK


The celestial pole is .75 degree
toward Kochab from Polaris
1.5 times the width of the Moon
Copyright 2003 E. Williams
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Courtesy Evan Williams, also available on PGRASC FTP site , please call Brian to get details on accessing site.

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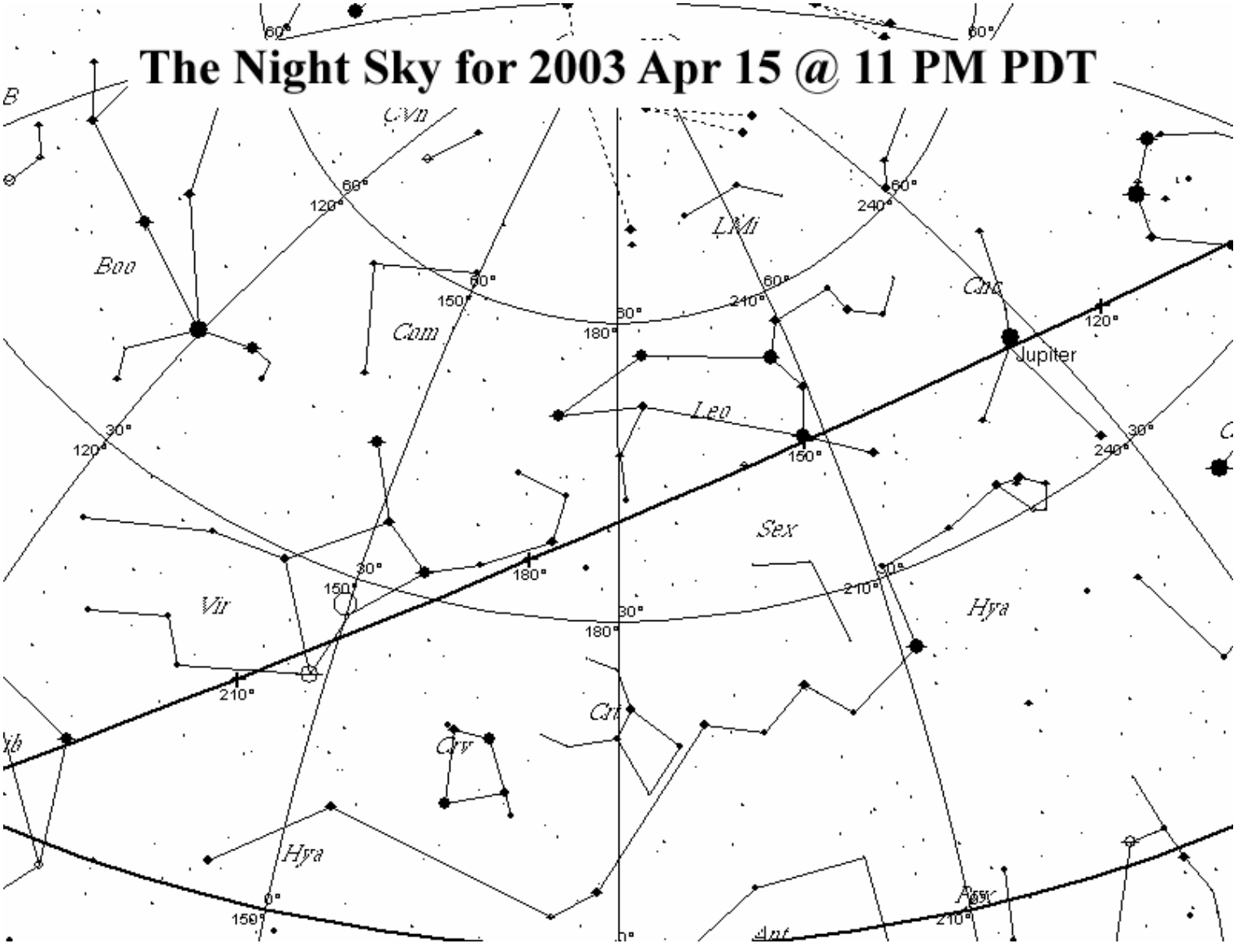
Last night I took this 70 minute picture of M51: 10 min clear, 10 min R, 20 min V (green), and 30 min B. After suitable processing (removing excess background, clearing away cosmic ray traces, registering and summing each colour, rotating and registering the 4 colours), I combined the 4 images to produce this colour image. It's not the greatest image of this galaxy, but one that I am happy with since it represents my best to date.

BTW, almost all frames were 2 minutes unguided. Seeing was fair to good at 2.6" and the atmosphere very clear (for these parts).

Cheers,
Bob

The Night Sky for 2003 Apr 15 @ 11 PM PDT

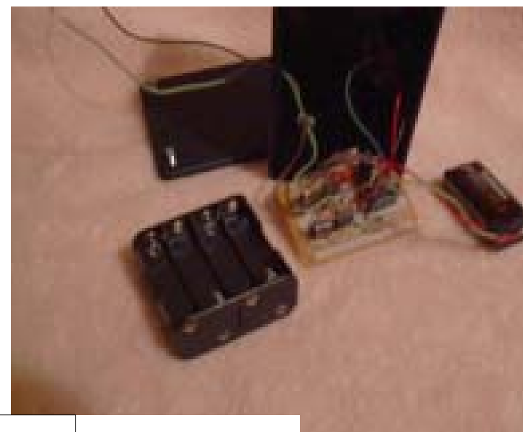


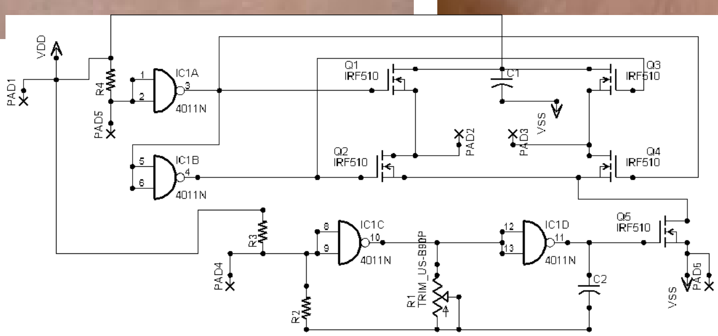
March 15 2001

At the Show at the mall our leader “Brian” talked up a remote focus device. Well putting it bluntly he more or less challenged me to come up with a circuit and unit that would allow hands off focusing. So necessary for astro photos.

Well I told him that a fellow at work was looking at the problem for me. But was not getting any where with it.

With both of us looking at the large problem it fastly became a small one and I have a circuit and a unit working on the bench.





What I think is very attractive about the project is its cost and versatility. Cost with all new parts likely under 50.00. Components can be adjusted to suit the motor size etc.
I have also did up a printed circuit board lay out that can be made up at home. Any DC motor can be used, even ones from old portable tape recorders and the like. There is direction control, speed of movement and movement. The pictures show a tooth drive belt but a rubber wheel on the focus knob would likely work.
Sorry to forget the crossword puzzle. But think clear skies for all.
Wayne

Recreation Market

I had the pleasure earlier this month of running another booth for the RASC: Prince George Centre at the Recreation Market put on by the City of Prince George. I believe this is the fourth time we have had a booth at this event. I always find it fun to talk to the different people that stop by.

Our booth is one of the most visited ones in the market. The only one with more people standing around it is usually the Jack Russell Terrier booth, but only so long as they have their dogs out. One of the organizers observed that there is nothing better than dogs and expensive toys to get people to stop and take a look. Next year we should have Doug set up his scope and tie his Jack Russell to it, then we would have everyone stopping!

One of the funniest people that stopped by didn't even want our booth. Picture this: we have our booth with three scopes, a couple pairs of binoculars and a bunch of pictures of astronomical objects on display. This lady comes rushing up and says "I want to register – right now!" so of course I say "hot dang – great!" and start rooting for a pen. Then she says "I want to make sure I get coach so and so." I'm thinking "What!?" so I ask her "What group do you want to register with?" she says "Well isn't this the PG Baseball booth?" I just about roared with laughter she had to dodge all these scopes and stuff and she thinks she is at a baseball booth. I managed to keep my composure and tell her where the booth she was looking for was located. It was hysterical.

If you are wondering if we get enough exposure from this for the cost of the booth, the answer is, YES. We gave out over 250 brochures and membership applications, booked and completed one tour so far and had about 24 visitors to the observatory say they heard about us at the Rec. Market. So far that has translated into about $60 in donations directly related to holding this event and it only cost us $65 to get a booth. I expect to get at least one new membership out of it as well. If we do get one new member we make another $20 right there.

Thanks to Doug Wayland, Rod Herd, Wayne Sanders, John Ascah, Maurice Sluka, Charles Smith, Jim Van Doren, Gerhard Bierman, Glen Harris and anyone else that I have inadvertently forgot to include in this list for helping me pull off another successful event. We couldn't do it without the volunteers. I hope to see you all at the mall again next fall.

Brian Battersby

April Star Hop in Ursa Major

Ursa Major is placed in about its best position for viewing from the observatory at this time of year as it is high in the sky and just out of the glow of Prince George making it easier to spot some of the fainter objects.

Ursa Major is the constellation that holds the famous Big Dipper asterism. It contains seven Messier objects. I don't have room to talk about them all here so I encourage you to go to your eyepiece and see what they look like on your own.

The Big Dipper is identified as many objects in different cultures such as a wagon, a cart and a plow. In some Native American legends the bowl of the dipper is a bear being hunted by 3 hunters, represented by the stars in the handle.

Hop #1: M40 – Double Star

M 40 or Winnecke 4 was found by Messier when he was searching the area for a faint nebula reported by Johanne Hevelius. It turned out that Hevelius was wrong, but Messier noted this pair of stars in his catalog anyway.

To locate the pair start at the naked eye Delta UMa, it forms the part where the dipper handle meets the bowl, then move to the north east about one degree to the 5.5 mag star 70 UMa. Once at 70 UMa you need only look another 18 arc minutes or so to the north east to see the pair of stars glowing dimly at around magnitude 10.

Hop #2: M81 (Bode's Galaxy) & M82 (The Cigar Galaxy)

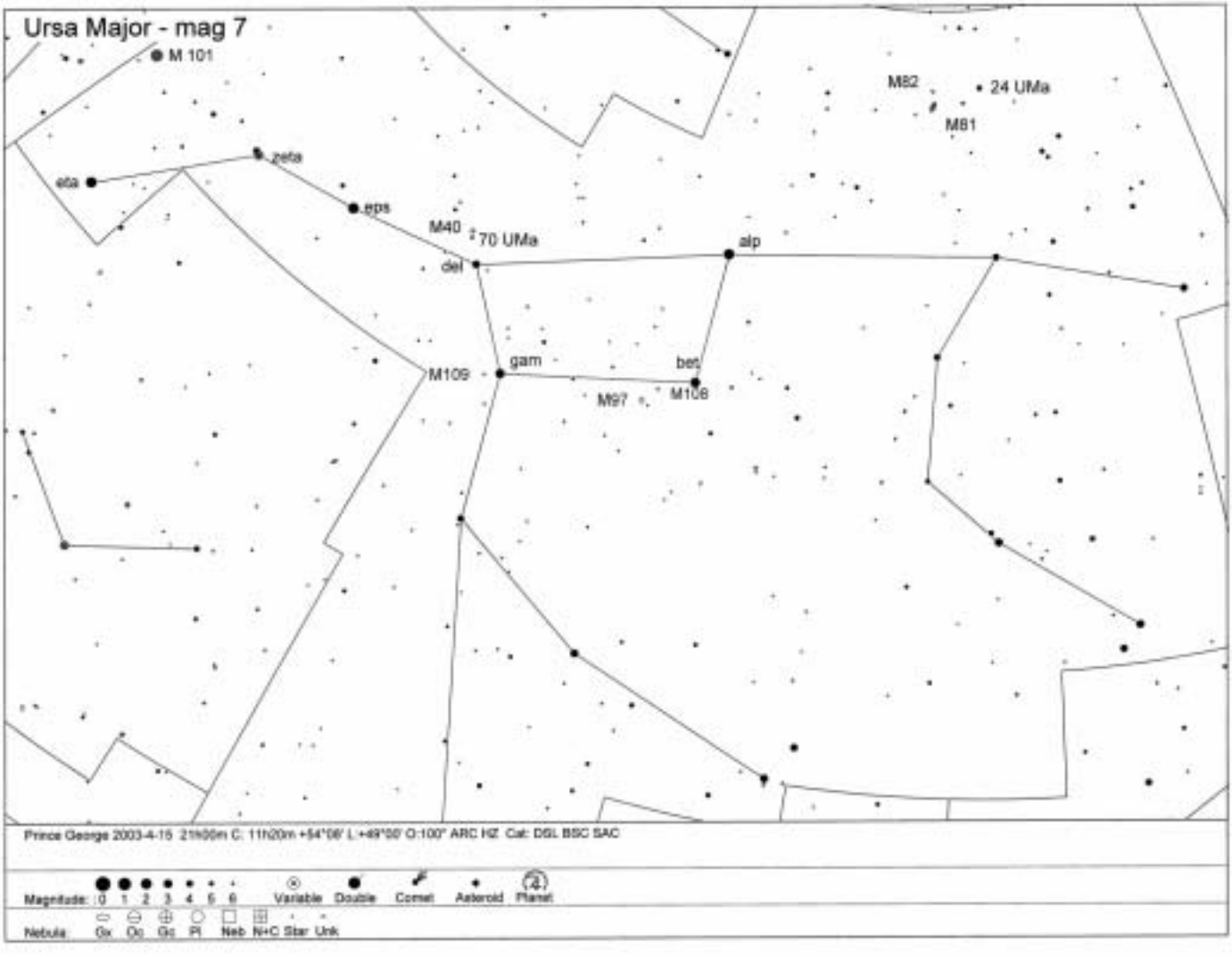
This is perhaps one of the neatest pairs of galaxies that I have seen. They can both be viewed in 7x50 binoculars from the observatory. I know because I have done so. It does require a steady hand, I laid on my back on the picnic table, and clear skies, but they can be seen, however dimly.
The larger of the two M81 is magnitude 6.9 and has been reported to be a naked eye object under exceptional skies. M82 lies nearby M81 both in the sky and physically. Their centres lie only about 150,000 light years apart. In fact they had a bit of a collision a few tens of millions of years ago. M82 is magnitude 8.4.

To locate them draw an imaginary line from Gam UMa to Alp UMa and then continue this line about the same distance again past the end of the bowl of the dipper. This distance is about 10 degrees or the width of your closed fist at arms length. The brightest close by star, mag 4.5 - 24 UMa, lies about a degree and a half past the pairing along the same imaginary line.

Hop #3: M97 – Planetary Nebula (The Owl Nebula) & M108 – Galaxy

This makes for an interesting pairing in my wide field telescope as both objects fit comfortably into my low power field of view. At mag 11 M97 is one of the faintest Messier objects. In my six inch scope at the observatory I couldn't make out the eyes very well but I suspect that a dark site would fix that problem. M108 shines at mag 10 but for some reason is easier to see than you might think given its magnitude. As they are close by and it is easier to see M108 it makes sense to find M97 by first finding M108. It is easily found by starting at Bet UMa and moving 1.3 degrees south east. In my scope this is exactly one low power eyepiece FOV. Use the imaginary line between Bet UMa and Gam UMa as a guide as M108 lies just below it. Once M108 is found M97 should be in the FOV of a low power eyepiece at little further south east of M108. They are only about a half degree apart.

Good viewing and good luck!,
Brian Battersby


Ursa Major - mag 7
M 101
M82
24 UMa
M81
zeta
eta
eps
M40
70 UMa
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gam
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M109
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Prince George 2003-4-15 21h00m C: 11h20m +54°08' L:+49°00' O:100° ARC HZ Cat: DSL BSC SAC
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Variable
Double
Comet
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N+C
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