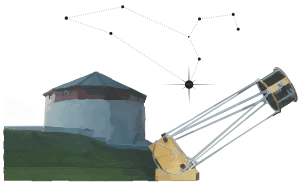
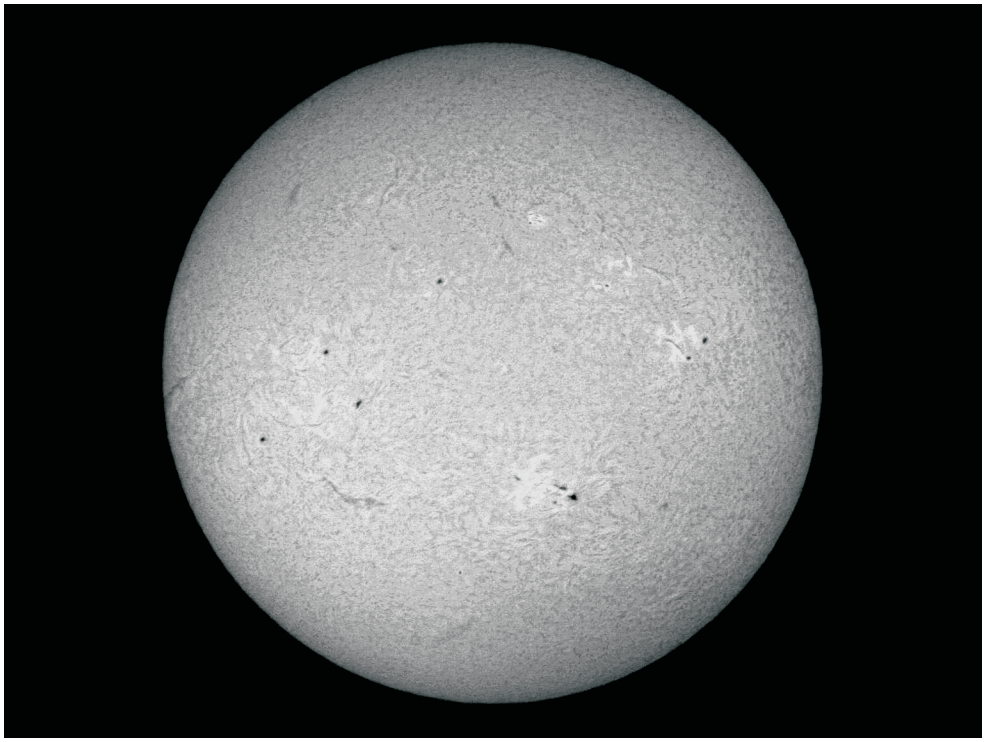
December 2011

Regulus

RASC Kingston Centre





Hank Bartlett took this detailed white-light image of the Sun on November 9 at 12:55 EST. He reports: *It was poor seeing today with a lot of hazy cloud in front of the sun. I purposely pushed the processing on this image to show that there is a lot going on, even if it is a lot of nothing consequential right now.*

Upcoming Meetings

Saturday, December 10, 2011

Regular Meeting 6:00 p.m.
Topic: Variable Stars
KAON 7:30 p.m.

Saturday, January 14, 2012

Regular Meeting 6:00 p.m.
KAON 7:30 p.m.

Meetings are held in Room 324 at Ellis Hall on University Avenue at Queen's University in Kingston, Ontario. Our meetings are co-sponsored by the Queen's Physics Department and are open to the public. **KAON** (Kingston Astronomy Outreach Network) sessions are held at Queen's Observatory on the 4th floor of Ellis Hall.

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Reports & Other Items

From Kingston Centre, the RASC, and Beyond...

Observer's Calendar / Handbook

2012 *Observer's Calendar* and Handbooks—a great Christmas gift! We ordered 30 copies of the 2012 calendar this year and as of November 25th we have 10 copies out on consignment (hopefully all sold!) and five more left in stock. These are a fund raiser for the Centre and we are selling them for $16 each or two for $30. The cover price is $17 plus tax.

We also picked up three 2012 *Observer's Handbooks* for sale for those who wish to have a second copy or to give them as gifts. These are $25 each.

All astronomers want for Christmas are clear skies, large apertures, and warm beverages.

New RASC Website

The RASC has a new website (see page 3). So far, over 160 members have logged into the site (which means they've figured out their account and password!) and the RASC Twitter account has grown from 234 to 279 followers in just the first four days after launch.

New Moon Christmas Weekend

Here's hoping clear skies are on everyone's list this year, as new moon falls on the 24th. If you have Friday off, you can get an early start in the wee hours with the Ursid meteor shower maximum and the greatest elongation of Mercury.

Deep Sky Gems Certificate

Now that **David Levy**'s DSG list has become a certificate program, the article on it in the just-released 2012 *Observer's Handbook* is out of date! You can download the four updated pages as a PDF file from this page: rasc.ca/handbook/supplements

David's intro ends with a heart-felt tribute to our very own (the late) **Leo Enright**, who originated this project. So it is that this certificate has a double Kingston connection, and your editor has high hopes that many KC members will complete this particular observing odyssey in the coming years.

continues on next page...

Mr. (Leon) Campbell walked into the office and sends his regards. He says we are still very much pleased to get those observations from Canadian variable star observers. The income has fallen off a lot lately and if it were not for the Canucks the universe might run down.

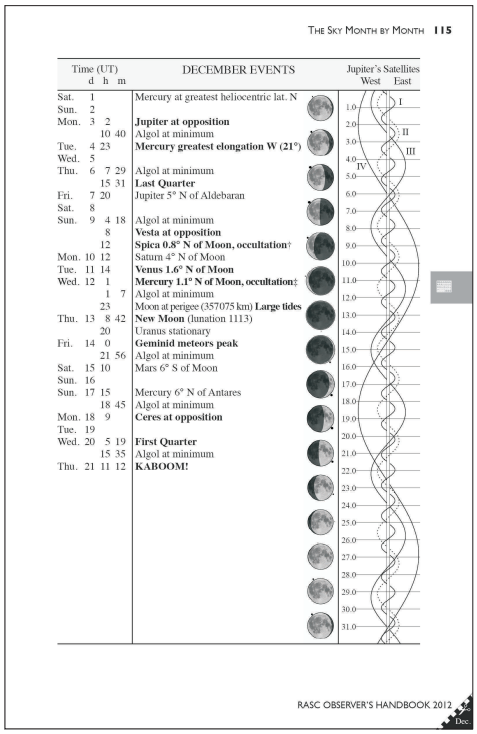
–Harlow Shapley to Helen Hogg,
1943 March 5.

...Reports & Other Items

...continued from front page

2012 Handbook Update #2

A major update to the December Events page of the 2012 *Observer's Handbook* has been made and is pictured at right. You might want to adjust your plans accordingly! ☺



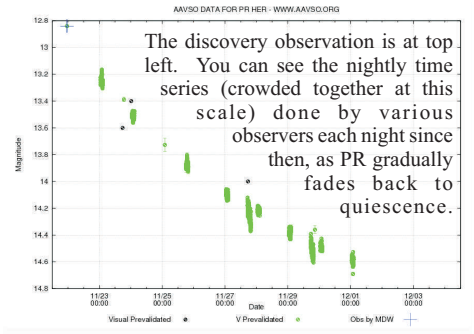
THE SKY MONTH BY MONTH 115

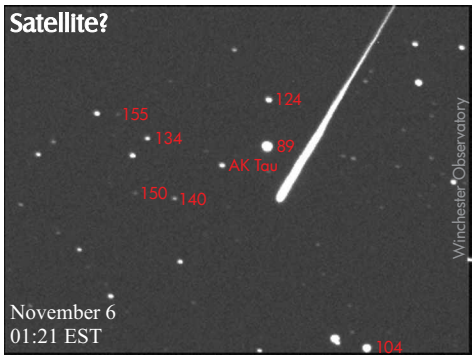
Time (UT) d	h	m	DECEMBER EVENTS
Sat. 1			Mercury at greatest heliocentric lat. N
Sun. 2			
Mon. 3	2		**Jupiter at opposition**
	10	40	Algol at minimum
Tue. 4	23		**Mercury greatest elongation W (21°)**
Wed. 5			
Thu. 6	7	29	Algol at minimum
	15	31	**Last Quarter**
Fri. 7	20		Jupiter 5° N of Aldebaran
Sat. 8			
Sun. 9	4	18	Algol at minimum
	8		**Vesta at opposition**
	12		**Spica 0.8° N of Moon, occultation†**
Mon. 10	12		Saturn 4° N of Moon
Tue. 11	14		**Venus 1.6° N of Moon**
Wed. 12	1		**Mercury 1.1° N of Moon, occultation‡**
	1	7	Algol at minimum
	23		Moon at perigee (357075 km) **Large tides**
Thu. 13	8	42	**New Moon** (lunation 1113)
	20		Uranus stationary
Fri. 14	0		**Geminid meteors peak**
	21	56	Algol at minimum
Sat. 15	10		Mars 6° S of Moon
Sun. 16			
Sun. 17	15		Mercury 6° N of Antares
	18	45	Algol at minimum
Mon. 18	9		**Ceres at opposition**
Tue. 19			
Wed. 20	5	19	**First Quarter**
	15	35	Algol at minimum
Thu. 21	11	12	**KABOOM!**

Jupiter's Satellites: West / East; I, II, III, IV

RASC OBSERVER'S HANDBOOK 2012

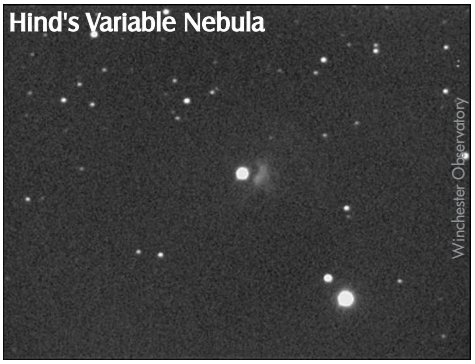
PR Herculis Superoutburst Fades





Wow, that seems too bright to be a satellite! At least it stayed clear of AK Tauri and the various comparison stars, so that the image was still usable for photometry. Exposure 2x30s, V filtered. Comp star mags are shown with decimal points omitted.

Hind's Variable Nebula



Also known as NGC 1555, it is associated with T Tauri (centre of frame), a very young star. As T varies in brightness, so does the nebula! Read more at aavso.org/vsots_ttau

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Regulus Needs You!

ITEMS OF INTEREST FROM MEMBERS—full articles, or even just a couple of paragraphs are always welcome. Items are gratefully accepted on each and every day of the year! Send items to:

walter2 (at)
starlightccd (dot) com

or:

Walter MacDonald
PO Box 142
Winchester ON K0C 2K0

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New RASC Website Launches

rasc.ca

Walter MacDonald

AFTER A YEAR AND A HALF OF WORK, the third iteration of the RASC website finally launched on Friday, November 18, 2011 at approximately 13:15 EDT.

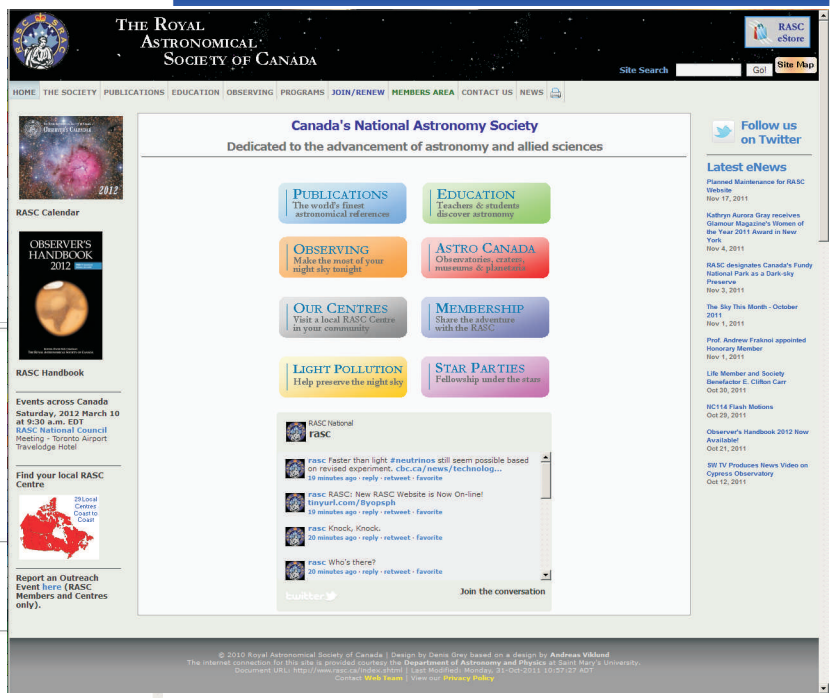
The new site runs on the open source content management system *Drupal 6*. Dynamic news and Twitter feeds were introduced just before the new site launched, but there is lots that is all-new:

- Each RASC member now has their own login/password and this works for all things RASC—no more multiple logins and passwords for different areas of the website.
- New webforms for improved interaction with national office.
- Display of how many users/guests are using the site.
- The lists of observing certificate recipients (over 300 now for the Messier list!) are filterable by year and/or centre.
- The list of asteroids with a Canadian connection is now sortable and searchable.
- The display of national archive materials is enhanced.
- Easier web page editing and creation mean the new website will be more up-to-date.
- Personal blog for each member. The most recent are listed on the front page and announced via Twitter (both automatically).
- Point-and-click e-mail list management for members: subscribe, unsubscribe, turn digest mode on or off. Finally this is all simple enough to do on a self-serve basis!
- The centre newsletter archive has 1,986 issues (and counting!). Filter by year and/or centre. ★

2011
3rd Website

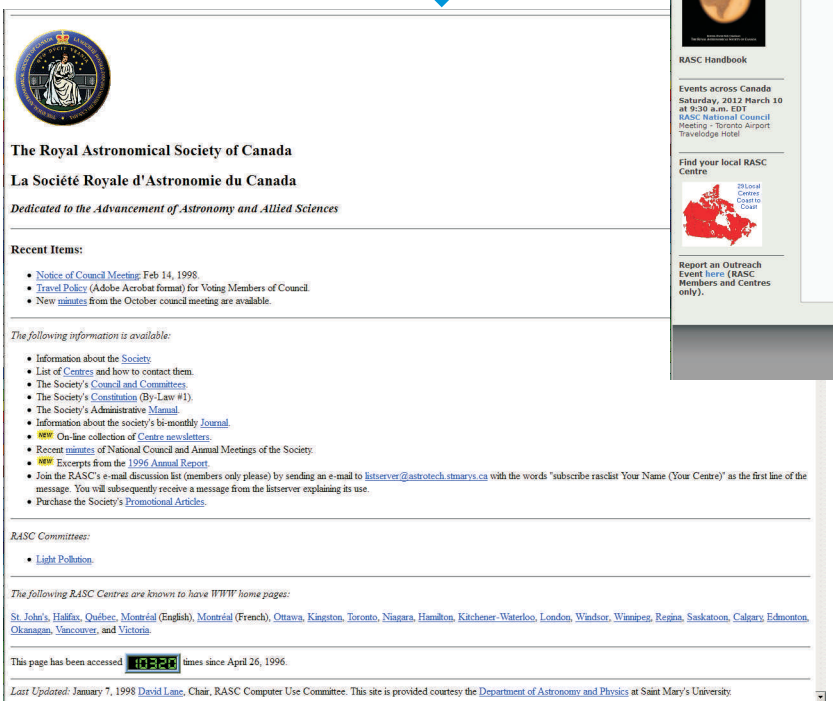
Though dated now, version 2 was much nicer looking, though somewhat harder to maintain with its back-end editing tools.

2000s
2nd Website



Were websites ever this primitive? Apparently so. How soon we forget! With ever-increasing computing power and bandwidth–and better software–surfing just gets better and better.

1990s
1st Website



Tweaking the Universe

Walter MacDonald

As great a place as this Universe is to live, it could still use some improvement. So let's discuss some tweaks that could be made to improve things and thereby make life that much sweeter. First, some disclaimers:

- We don't yet have the technology to make these things happen, but someday in the far future we could.
- When we start fixing things, there will be some inevitable trade-offs.
- This article is written from a Kingston-centric point of view.

Earth's Day and Year

The Earth rotates once every day and orbits the Sun once every year (by definition). That is all well and good, but when you look at things closely they are not as neat and tidy as this. For one thing, the length of the calendar year is not an integer (e.g. 365 days), and this makes our calendar system much more complicated than it should be.

So how do we fix this? As nice as it might be to have a 400-, 500-, or even a 1000-day year, that would involve significant changes either to the length of the day (Earth's rotation rate), or to the radius of the Earth's orbit (Kepler's Third Law). For climatic reasons I think we can agree that it would be better to avoid changing the Earth's orbit. That leaves us with the length of the day. What we "simply" need to do is to slow down the Earth's rotation so that the year changes from ~365.25 days to exactly 365 days. This will be the least disruptive scenario, resulting in a day that is only about a minute longer than the ones we now enjoy.

If we were willing to tolerate a somewhat larger change of day length (~20 minutes), we could arrange things for a 360-day year. Our calendar could then consist of all 30-day months and sidereal time would gain exactly 4 minutes per day. How neat and tidy! I think this is the way to go.

We will have to carefully manage the angular momentum of the Earth-Moon system as we make changes; that brings us to our next tweaks.

The Moon's Face & Eclipses

As it happens, the Moon is a big factor in the imperfections of our local conditions. The Moon has been given some credit with contributing to making conditions favourable to the development of life on Earth, but what has it done for us lately? In fact, it has been slowing down the Earth's rotation, making our days longer. Now that is good, until the day becomes long enough for a 365 (or 360) day year as discussed above. Once we've reached that point, however, we need to keep the Earth's rotation rate from changing further. The mind boggles at how we might achieve this, but it will be a magnificent technological achievement, I'm sure! (I think we can all agree that freezing the oceans solid to achieve this is not a desirable option.)

Another problem with the Moon is that it is tidally locked, so we see only one side of it. Yes, libration allows us to see an extra 10% or so, but how much better it would be to see all of it! Thus we need to make the Moon rotate faster so that terrestrial lunar observers will have more to observe. Again, angular momentum in the Earth-Moon system will have to be carefully managed somehow. Also, the RASC will have to revamp its Williamson Lunar Certificate program. (It is unclear which of these is the larger engineering challenge...)

Yet another problem with the Moon is that its orbit is inclined by about 5° to the ecliptic. What we need to do is reduce that inclination to zero. This will result in monthly solar and lunar eclipses and I think we can all agree that this would be an enormous improvement over our current situation. We will need to also manage the Moon's distance from Earth so that we can continue to enjoy total solar eclipses. There may be some rather heated debate over the need to continue to have annular eclipses, but that is left as a problem for the future.

A further slight improvement would be to reduce the albedo of the Moon so that it will not light up the sky as much when it is full, although this may conflict with the esthetics of the Moon, both in and out of eclipse. How would we trade off on this problem? Well, perhaps we will not worry about such a trifling tweak and simply leave the Moon as-is.

The Celestial Poles

We are lucky to live in an epoch when our North Celestial Pole is making a close pass (<1°) by Polaris (or vice-versa depending on your chosen frame of reference). This is very convenient for getting a quick and easy polar alignment. Southern hemisphere observers (for once!) are at a disadvantage here: the closest thing they have to a "pole star" is magnitude 5.4 sigma Octantis—which some frustrated polar aligners have been heard to declare is so hard to see that it must not exist!

Clearly some remedy is needed here, and one which will address both poles. Firstly, we need to change the tilt of the Earth's axis so that it points right at Polaris. The change in our skies would be only ¾°, so this is the least disruptive scenario. To solve the south pole star problem, we will have to move one of our galaxy's stars into that position—a rather more ambitious proposition; so southern hemisphere observers will have to wait a bit longer than those in the north for a solution to their polar woes.

There is a second approach to solving this problem: "simply" tilt the entire solar system. I think this is the way to go for climatic reasons, and also because it provides a solution to another problem we have, and which is our next item of discussion.

Hemispheric Inequality

Everyone knows that most of the "good stuff" is in the southern hemisphere. Think about it: the Magellanic Clouds, the heart of the Milky Way, Omega Centauri, 47 Tucanae, and so on. Sure we get a little taste when Sagittarius and Scorpius are scraping along our southern horizon, but that is just rubbing it in! If we tilt the entire solar system then we can bring some, or even all, of the wonders of the southern hemisphere home.

If we would like to go for the "full meal deal," we could tilt the solar system to give Kingston the same view of the sky as people at the Earth's equator get today—a full view of both hemispheres. This would allow us to see many more constellations than we do now, the heart of the Milky Way would pass much higher in the sky, etc. One trade-off is a poorer view of the polar regions of the sky, not to mention undermining our nicely positioned pole stars. Still, there is the two-star method of polar alignment...

What to do? Perhaps we could change the tilt of the solar system periodically, much as we change wallpaper on our computer desktops today. Why have the same sky year after year? This in itself is a bit of a trade-off—some people doubtless would not like to see the sky changing so much. There could also be effects on wildlife (navigation in birds, for example), though perhaps genetic engineering could overcome such problems. Other than that, we could get great views of every area of the sky (including the poles) for whatever period of time we cared to choose.

The Sun

The Sun presents even bigger problems for us to deal with, particularly as it ages and ultimately leaves the main sequence. Things are bound to get messy when it expands into a red giant, creates a planetary nebula, and finally becomes a white dwarf. Perhaps we will have to "swap in" another existing sun-like star, or even manufacture one from scratch. Just as these problems are bigger ones to deal with, so too will the engineering solutions be. Fortunately these problems are a little farther down the road time-wise and so we have more time to plan for them. After all, it would be a shame to get things nicely organized in our solar system backyard, only to have the Sun muck things up again! (*Although some may argue that it would be cool to observe from Earth inside a planetary nebula, I think this is the sort of thing that only appeals to people who like aurorae and bright skies and so we can dismiss it. Those people will simply have to go elsewhere in the galaxy to take in such a spectacle.*)

Our Galactic Neighbourhood

Another problem we have is that the solar system is in the plane of the galaxy. This means we cannot see all of our home galaxy, as well as the universe beyond it in that direction. By moving the solar system out of the plane of the galaxy, we could remove that blind spot. Of course, the trade-off is in a completely changed sky, and perhaps this is just too radical to consider. We might well be faced with a sky devoid of constellations! I think that this is best left as an opportunity for the (extra)galactic tourism industry.

The M31 Merger

All indications are that there is going to be a collision and eventual merger of the Milky Way and the Andromeda Galaxy. While this could upset our carefully arranged apple cart, it could also make for some spectacular views. Imagine how great M31 would be at a much smaller distance! Perhaps the ripping apart and merging of our galaxies would create spectacular stellar and nebular vistas! We need some more supercomputer simulation to make a determination on how to handle this one. Depending on what decision is made, it may be necessary to stop this merger from ever happening.

Our Open Universe

The biggest problem of all is the continuing expansion of space. This is carrying the galaxies farther apart and therefore degrading our deepest sky views. Although we can compensate for a time with increasing aperture, it would really be better to stop the expansion and hold things in a steady state. Perhaps Hoyle will win out after all! In any event, long-term there will be the problem of entropy to deal with, along with that of proton decay.

As you can see, there is lots to do. It's going to be a long haul, so let's get started! ★

The opinions expressed in this article are solely those of the author (and possibly the Q Continuum, although that is hard to know) and do not reflect those of the Kingston Centre or the RASC.

Listen; there's a hell of a good universe next door: let's go.
—E.E. Cummings

Observing Reports: November

Various Members

Wed/Thu, November 2/3

Kevin Kell: Wednesday, Nov 2nd saw us install a new dew shield for the LX200 which was made from camping foamy mattress and duct tape. That and a 12VDC 1A power supply to run the 12W heater wrapped around the corrector plate and we were able to image for about two hours. Of course it was warm enough that there probably wasn't any dew to speak of!

The air was turbulent and windy enough that we thought the too-large dew shield was acting as a sail and wobbling the scope around, so we took that off as we were imaging the moon. That did not help...the images were still showing a lot of distortion and "rolling" during the very short exposures.

Jupiter was the other target and we let that run for about an hour during *Survivor*. Too bad something is wrong with the LPI imaging software. After the first 50 or so images, it started saving the same image over and over, pretending it was new and live.

Fri/Sat, November 4/5

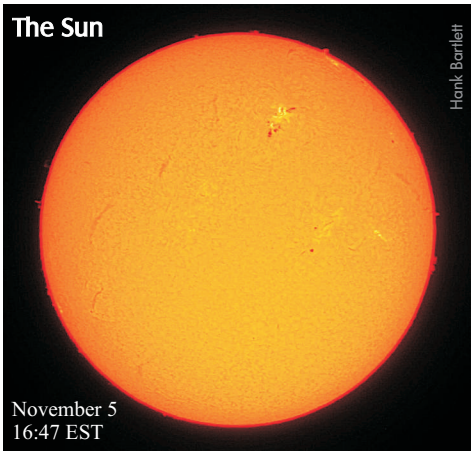
Hank Bartlett: Ok, I finally got my butt out and took a few images through the C80 with the DSLR. This one is taken at ISO100, ¼ sec.

This image was taken with a 4mm eyepiece in the adapter making 150x, hence the fuzziness. I should have bumped up the ISO for a shorter shutter speed. Next time.

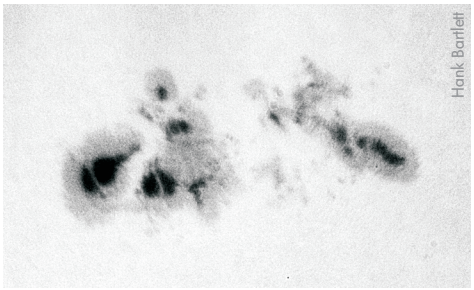
Saturday, November 5

Mark Coady *was also solar observing today*: I used my Stargazer Steve 4¼" planetary Dob, a Burgess Optics SWA (70°) 20mm eyepiece, and the Baader solar filter I picked up as a door prize at Fall'n' Stars. I think **Norm Wellbanks** is smiling seeing that it is being well used, as well as the 3-6mm Televue Nagler zoom eyepiece. With that eyepiece I could zoom right in on the monster sunspots.

Hank: I had a chance to do some white light solar through the C9.25 this afternoon. I took some images but the air was very turbulent. I just went out a few minutes ago with the SM60 and the air is calmer now. In H-alpha there is a lot more going on out there, I think the sun is cooking up some aurora weather.



Here is a DSLR (bad seeing) image of SS1339 at 15:20 this afternoon:



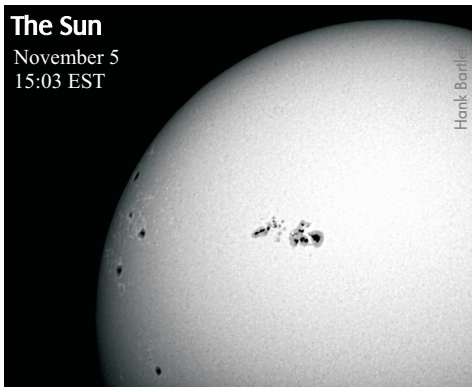
Sat/Sun, November 5/6

Kevin K: This image of Jupiter was taken using the Meade LPI software. Io is the moon closest and Europa the farthest. This finished at 21:24 EDT. Each exposure was about 0.044 sec

on the Meade LPI imager. The built-in integration in the imaging software itself makes it difficult to use another third-party image stacker, like DeepSky Stacker v3.3.2.

Sunday, November 6

Hank: I managed to get out today for some more solar, white light and H-alpha. The air was much quieter than yesterday. SS1339 is impressive in both observations but in different ways. If you have ever thought of going solar, this is the time to do it; I highly recommend Baader film for its high contrast and cheap price.



Tue/Wed, November 8/9

Depending on your location, clouds and/or moon precluded seeing this night's close approach of asteroid 2005 YU55.

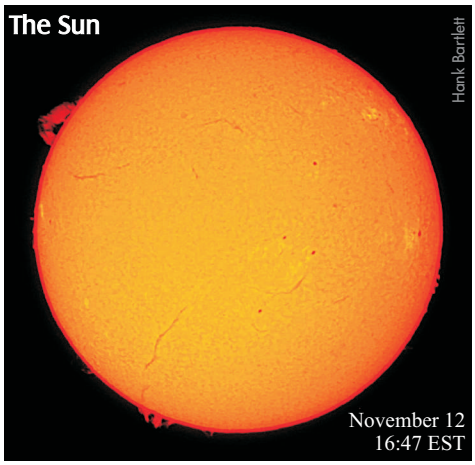
November 9: ***Hank*** *takes Sun image on the front cover of this issue.*

Thu/Fri, November 10/11

Rose-Marie Burke *captured the contrasting colours of Mars and Regulus*.

Saturday, November 12

Hank: It was a busy day and not always a clear one, however about 15:45 EST I was able to get out and do a little solar. Well, to my surprise that 700,000km filament was still holding; it may appear to have a break in it but that is just Hank's limited imaging.



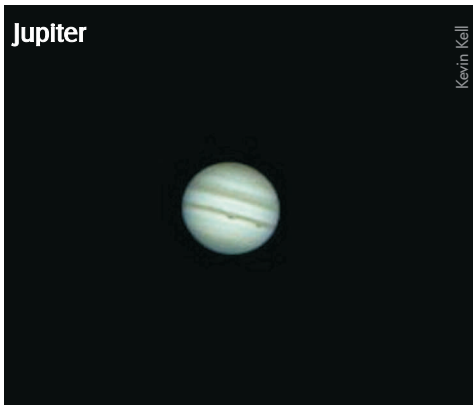
Tue/Wed, November 15/16

Rose-Marie: I was too tired to do any serious star gazing tonight, but noticed some fog with the moon rising, so grabbed the camera and got this shot of the moon, ground fog, and Orion.

Kevin K: I got out to do some imaging and took just under 1000 images of Jupiter—but it came at a cost. I opened up the LX-200 from its "domebox" and the corrector plate immediately fogged over (it was foggy on the drive home and 2C): get the heater going and the dew shield on, heater falls off; get the heater on, dew shield falls off; get the heater and the shield on; do a little dance! Get the telescope to do an alignment: it goes through the tilt-tip, north level then picks a star on its own slews the scope somewhere near Vega and says centre the brightest star—without naming it. Ok, sez Kevin, it must be Vega. Centre and tell it OK. It picks another star. Hmm...not so bright and still no name. Does it mean Mirphak in Pegasus or Capella in Auriga? Silly me picks Mirphak as it is closer. OK, the alignment is done!

GOTO Jupiter. Zzzzz. 15° off. Arrg! Go to Capella manually, tell it to sync, goto Jupiter manually, tell it to sync. Start exposing. Go inside and take a look remotely at the control computer. Hmmm...no image. No Jupiter. Silly telescope is not tracking correctly because the alignment is not correct.

Start the process all over with a manual two-star alignment. Start imaging again. Not that the corrector plate is still mostly fogged over but getting better. Take images over the course of a few hours from inside.



Go back outside. Jupiter has risen so high that I can't see the corrector plate anymore. So, all in all, another good learning experience.

The image below is a combined image produced by the Meade LPI software and consists of at least 100 0.044-second images.

Thu/Fri, November 17/18

Rose-Marie: Where's my sparklies?! I was just out for about 40 minutes with the tracker and camera, didn't see a single meteor. I had to bundle up—it's COLD out there—there's enough of a light breeze to make you feel the chill. Guess I'll have to wait until after midnight. The predictions were for "low to moderate" numbers, but come on...gimme a couple good ones.

Mark Kaye: You are learning the universal law of meteors. Never appear where a camera is pointed. Trust me, the moment you put away your camera and went back in, the sky where you pointed your camera was filled with meteors.

Hank: I just have to say it: last time there was a storm about 10 years ago we counted a peak of 68 Leonids per minute!

Walter: I just have to say it: the next storm is not due until 2033 or maybe even 2066!

Yes, the 2001 Leonids were a lifetime memory for sure. Perhaps in the future we'll be able to create custom meteor storms by dumping stuff into the atmosphere from space, as easily as we put on fireworks displays today.

Hank: We have been doing that for over 50 years now, we just need to send up some WALL-E type drones to direct the re-entry. Unless of course you live in the middle of the Pacific.

Kim: The sparklies were on the deck and ground with the moonlight bouncing off them. I got up around 4:15 a.m. and went out. There was some cloud coming and going; I was hoping to catch a few Leonids. Well, I saw one meteor—it might have been picked up on the all sky camera. It was a *sporadic*, coming from the opposite direction from Leo but long and slow. However the sky did clear, no wind, -5C. I tried to take some images but could not find the 15-sec exposure button, and my hands were getting cold.

Saturn and Spica are rising, about 10° off the E/SE horizon. Welcome back Saturn! Just lovely.

Kevin K: Surprisingly enough it was actually clear (and cold) out Thursday night. We started up an LX-200 imaging session around 18:30 (again with many difficulties in pointing) but after a third two-star alignment and manually slewing to Jupiter, tracking was very good for the next 3 hours.

After a few images, we tried the 2x barlow changing the focal ratio from f/10 to f/20, attempting to get a bigger image on the chip. It worked but we could not achieve as sharp a focus as without.

Kim caught one meteor this morning (not a Leonid) around 04:00 local and I caught a bright Leonid, maybe mag –1 or –2 last night while closing up around 21:30 local. It was a very low turnout for Leonid meteors. We'll review the all-sky camera images once they get processed in a little bit, but it is really designed for bright fireballs and does not pick up a lot of fainter meteors.

I still don't like the cold! It was much nicer being inside by the fire while exposing, but I am still looking for a better telescope control program. Right now the default is the Meade Autostar suite.

Rose-Marie: I feel like Charlie Brown waiting for that stupid pumpkin to rise outta the pumpkin patch: suckered again. I set the alarm for 1:00 a.m., and am SURE I checked the settings. I woke up at 2:30. Clouds, the whole sky, clouds. So...not trusting the clock I set the little kitchen alarm timer for an hour and went back to bed. Kerrie (my shepherd) immediately clambered upon me and hogged the lion's share of the bed, which would have been acceptable had she held still, but she was twitching and scratching until I finally sent her to the couch. Up again at around 4:00 a.m., sky was clear, so got bundled up and headed out with camera and tripod, went over to the field by the cemetery. At least the wind had died down. Set up the camera...and watched...and waited...took some pics...listened to the coyotes and the great horned owl and some critters that were rattling through the bushes nearby....Nada. Not a single meteor. Got a sore neck and foot, finally headed back to bed around 5:10 a.m.

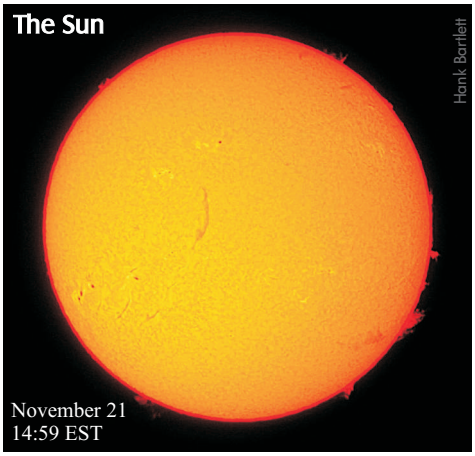
Mark, I know all about the universal law of meteors, I got that lesson the first time I pointed the camera at the night sky. In my case the fireball usually comes whizzing through when I'm changing batteries or lenses.

Next one up: Geminids, with a gibbous moon. Question is, will she be conned in yet again to stand out there in the cold, forlornly waiting and watching? Stay tuned for our next episode, airing next month.

In the meantime, here's a wide-angle shot of the western pre-dawn sky, taken with the barndoor tracker: ISO 400, f/4.0, 127 seconds, 10-20mm lens set at 10mm.

Mon/Tue, November 21/22

Hank: I had big hopes that the 700,000 km filament had stayed intact but it seems to have at least broken a little.



Mark K: Is the filament that you are talking about the structure in the middle left of the image near the centre of the disk? Is that a flare off of the Sun's surface that is more or less coming off the Sun in our general direction?

Hank: I meant to mention in the lower right. You are right but it is just a prominence at this point. All the filaments are prominences, face on. The one I talked about is actually fatter than most and the end of it still appears as that large fluffy prominence on the limb. This one sure thinned out in 24 hours and it is too bad, had it just collapsed it would have caused a large flare mostly likely leading to some good aurora.

Rose-Marie: That was my disappointment, that it didn't collapse and cause the hyder flare...Nice stars out tonight, I can

even see the Milky Way. Going to have to bundle up, there's already frost forming on the grass.

Rose-Marie: Well holy cow...I sure wish I'd heard of using the tungsten setting before! Out in the country it doesn't seem to matter, but this close to the city and the light pollution you can sure see the difference. I didn't do any adjustments to colour or exposure, just converted the RAWS to jpgs as-is; the only post processing was cropping the images to verticals for a side-by-side comparison. I had been frustrated by the reddish-brown colour in the shots I was taking here in Glenburnie, the tungsten setting puts the colour back to the blue side.

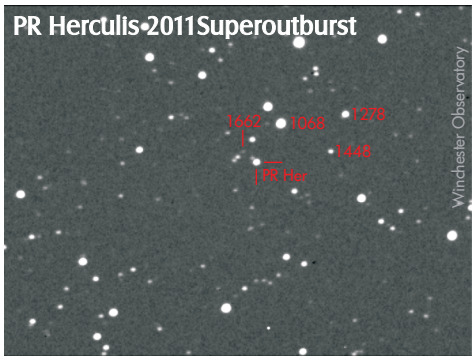
Also tonight, the telescope at Winchester Observatory caught PR Herculis in a very rare outburst:

Walter: Over lunch today [Nov 22] I decided to process the two nights of var star images I have and copy them to the laptop. I couldn't believe it when my quick look utility told me PR Her was 13th mag! It was only the second star in the run and I must have missed it during the interval I walked downstairs from the attic and finally started the Live Session page on my laptop to monitor the run. Darn it! Of course, it's so low in the west I couldn't have spent much time on it anyways, but it would have been good to alert observers further west to observe it.

My plan for the night had been to image Comet Garradd and then crank through the cataclysmic variables (CVs) in Lyra, Cygnus, etc. Since the scope was already pointing low in Hercules for the comet, I decided instead to start with V1008 Her and PR Her (two old CV favourites of mine). Thank goodness I did! I've been imaging PR Her for 8 years and it would have been so disappointing to miss this night of nights! It's almost as much fun as discovering a supernova!

I announced my finding in the AAVSO Chat Room at just past 14:00 (it was a late lunch!). Within a couple of hours the observation had been reported (mag 12.85V), the cvnet web page had been updated, Maciej Rezselski of Poland had confirmed the superoutburst, and the AAVSO-Net robotic telescope network had been scheduled to observe PR Her that evening. Very cool how fast things progress in cyberspace!

The classification of PR Her is not all that certain (this is not unusual). My chart lists the bottom end of the range for this star at mag 21. Usually I just image the field and note that the star is not visible—it is nice to actually see the star for a change! Obviously someone must have noted variability in it at some point, but nobody can seem to recall an outburst of this magnitude ever happening—some fainter ones (maybe 16 or 17th mag), but nothing like this. That means this is a superoutburst (and there will likely be superhumps) and an extremely rare occurrence. In that case it will likely last for days as it gradually fades away again. (One CV, HT Cam, has outbursts that only last one night—so that night better not be cloudy) So if we are lucky we may be able to figure out what kind of star this is—if enough people can get enough data. PR is low at dusk (44° when I imaged it) so the time series on it will not last long—the best case scenario (at our latitude) would be



Discovery image showing a few star magnitudes (decimal points omitted). Exposure was 2x30s, V filtered.

FROM JAPAN, **T. KATO** WROTE ON VSNET-ALERT: The quiescent magnitude is reported to be 21, and this object is most likely a WZ Sge-type dwarf nova (known maximum was 14.0p)...
The object has been monitored since 1994 (and sparsely since 1991), but there has been no definite outburst. Spogli *et al.* (2002) in IBVS 5240 reported Rc = 15.17(8) on 1995 June 30, but the ID might need to be confirmed. There were negative visual observations (fainter than 14.1) around this observation.

2¾ hours (at which point PR Her would be down to 20° altitude).

Incidentally, the most recent observation before mine was November 10th by [observer] PKV who recorded PR Her as fainter than 17.4V. It is just so hard to get nightly coverage on all the stars of interest! Maybe there are some more obs out there that haven't been reported yet. In the meantime, I anxiously await news of further European observations. Sometime tomorrow I should hear how AAVSONet made out. The only clear sky tonight seems to be in central and SW North America.

TUE/WED, NOVEMBER 22/23

Tom Krajci *of the AAVSO reported in realtime during his imaging run. At 8 p.m.:* Initial (uncalibrated) V images from Astrokolkhoz, southern New Mexico, using a C14 and 60-second exposures show PR Her to be

Meeting/KAON Report: November 12

Kevin Kell

OUR ATTEMPTS at doing a test broadcast with anymeeting.com failed, probably due to insufficient horsepower on the netbook and *@*&@#$ Windows, etc. wanting updates left, right, and centre!

Moving on, it was a small turnout. The AGM portion took about 30 minutes. The Agenda, Minutes, President's Report, Secretary's Report, Treasurer's Report, Auditor's Report were all accepted. Election-wise, no new nominations came up for Treasurer or President. **Kim Hay** stepped up to run as Vice President. I stood for treasurer again as **Susan** did for President. The slate was passed. Doug Angle agreed to be Auditor again for the year.

The annual meeting adjourned and we moved on to our guest speaker **Doug Angle**, who gave a great talk on his New Mexico Skies adventure.

After our Centre meeting adjourned, the next crowd came in for the KAON talk, presented by **James Silvester**, past Queen's Observatory Coordinator, on the topic "Photographing the Cosmos." His presentation will be available at queensobservatory.tumblr.com in the near future.

While he was speaking, we had another 60 people up on the observing deck with **John & Peggy Hurley**. After the talk, another 80+ came out of the talk (standing room only!) and onto the deck with **Doug Angle, Kim Hay, Brian Hunter** & myself. Targets were the just-past-full moon and Jupiter. There was enough haze and light from the moon to wash out most everything else. The four Galilean moons were out at the start but one (Io) slipped in front or behind Jupiter within 30 minutes of the start.

The Queen's Observatory scope is still out of commission but tours were held up in the dome nevertheless. There is no news on the repair progress.

A DIFFERENT ANGLE

Kevin's report as originally e-mailed contained an error in one of the sentences, which read: *Doug Auditor agreed to be Angle again for the year.* This did not escape the notice (and comment!) of some of our eagle-eyed members:

Hank: Is this a trick phrase to see who actually read this e-mail? Hmmm same angle as before.

Rose-Marie: I was wondering what kind of an audit we were Angling for.

[**Editor's note:** *You just never know when things like this are going to happen. I can remember back in the early 1980s at a Toronto Centre meeting where **Ian McGregor** was speaking and commented that the Perseids "sharp so peakly." The audience was amused!*]★

...Observing Reports: November

Various Members

approximately mag 13.2V. Time series will be continued until the star moves into trees...perhaps a bit over 60 minutes coverage.

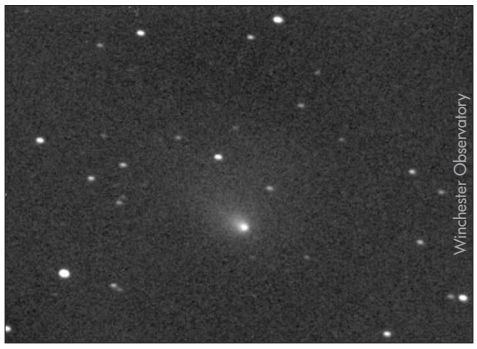
At 10 p.m. Tom reported that he managed almost 2 hours of coverage and was seeing 0.1-magnitude amplitude superhumps.

SAT/SUN, NOVEMBER 26/27

Kevin K: The skies cleared enough for a short time this evening to allow for some imaging...as least for a little, little while. Then they came back. So Kim was trying out some 15-second exposures on a tripod with the Canon Powershot A495 while I got a few sequences in with the Meade LPI. Otherwise, as others have noted, cloud, cloud, and more cloud. Maybe some rain too.

And that is how things were until the end of November...★

Comet C/2009 P1 (Garradd) was still putting on a respectable show at magnitude 7½ in southern Hercules. Exposure 14x30s, V filtered. November 21/22 @ 17:56 EDT.



Comet 78P/Gehrels, at magnitude 10½, was well-placed in our evening skies near the Circlet of Pisces. Exposure 19x30s, V filtered. November 21/22 @ 20:14 EDT.

Comet C/2010 G2 (Hill), at magnitude 11, was just 2° from iota Aurigae. Exposure 14x30s, V filtered. November 21/22 @ 00:20 EDT.

Comet magnitudes from BAA Comet Section