Regulus

Newsletter of the RASC Kingston Centre

Vol. 53 No. 1 January, 2026

In this issue:

Centre Events for November, 2025:

Jan 7: Zoom Social Meeting
Jan 14: Monthly meeting via **Zoom Only**
Jan 21: Zoom Social Meeting
Jan 28: Zoom Social Meeting

President’s Report

Malcolm Park

Greetings, and Happy New Year!

The year 2026 has some exciting events coming for amateur astronomers, offering planetary alignments, Moonless Perseids (at Starfest no-less!) and a continent-crossing solar eclipse.

The year begins with Jupiter at opposition on January 10, when the gas giant shines at its most brilliant, visible from sunset to sunrise.

My daughter called me the other evening to ask "Dad!" is Venus by the Moon tonight?" No I replied. It's "only" Jupiter. But it's THAT bright!

Rumour has it there's a "Planet Parade" in late February, where six planets align in a celestial queue across the evening sky.
Keep it in mind, Rick will tell us about it in his What's Up report.

This is followed in early March by a dramatic total lunar eclipse, painting the lunar surface in coppery-red hues for observers across the Americas and the Pacific.

The Perseid meteor shower peaks under a New Moon this year. Without lunar glare, stargazers can expect a pristine "Sparklies" show of up to 90 meteors per hour. It should be spectacular.

The crown jewel of the year, however, is the Total Solar Eclipse on August 12. This event marks the first time totality has touched mainland Europe in over a quarter-century, tracing a path through Greenland, Iceland, and Spain. Are you going?

Whether you are chasing the sun’s corona in the Mediterranean or tracking Jupiter’s moons from your backyard, 2026 will have many cosmic highlights.

Andromeda galaxy was captured in New Mexico.

It is a 50x600s stack with a Rokinon 135 and ASI2600MC pro and Optolong L-Ultimate HA/O3 dual band filter.

The Editor's Keyboard

Roger Hill

I must admit that I have been quite ill over the past couple of weeks. My family and I went to visit my brother, his wife, my niece and nephew and their children near Brantford the weekend before Christmas. The day after we returned, the Cardinal branch of the family was hit by the worst case of Flu we've ever had. Two weeks later, and we're still not over it. Our Christmas and New Years plans were cancelled, and we've barely left the house since. There have been a couple of clear nights during this time, but with temperatures below –20°C, and with the extreme lethargy I've been hit with, my observatory was not even visited. This is just a roundabout way of apologizing for the tardiness of this issue of Regulus.

At the Astrophotography 101 night in December, Rick Wagner talked about SIRIL, with Malcolm Park adding a few minutes about something called a Verametric Hyperlux Stretch. This seems to take a lot of the guess-work associated with producing the incredible images that Malcolm and others produce, and create a more cook-book approach to the process. There was a lot more, too, lie how to deal with off-axis aberrations and colour balancing.

I'm really looking forward to playing with old data this winter, as the weather recently does not seem conducive to capturing new stuff. I recently had my son create a fine-tuning system to focus a 300mm telephoto lens on my ZWO cooled colour camera. I had tried manually focusing before, but always seemed to get colour rings around some stars. I had found that the camera seems to be really sensitive when I used it with a small refractor, resulting in red and blue halos. I'm hoping that the telephoto lens will work a little better. Also, the lens is better suited to larger targets like the Rosette Nebula. The issue is the extended response of the camera as compared to a DSLR. I think I may have to get a newer ZWO Canon adapter that uses filter drawers so I can try one of the Optolong Enhanced filters.

One of the other things holding me up is that I removed my 6" RC from my side-by-side mount and put the 80mm refractor in it's place. This changed the balance completely, and one of the things that is a lot more difficult to do is to balance a set up like this. Adding to the difficulty is the temperature of the metal, and having to wear heavy gloves while doing it. I spent over an hour trying to get everything balanced the other day, hoping to have everything done in time for the evenings expected clear skies, but I failed. So my telescope is out of commission at the moment, but I understand that the temperatures are going above freezing later this week, so I'll wait until then.

I recently found a cookbook approach to the problem, which I've put on the next page. I'll let you know how it works out, if I ever get out from under the lethargy I've been dealing with.

Clear skies to you!

Roger Hill

Step 1.

- Place the counterweight shaft horizontal and roughly adjust the counterweights to balance your scopes.
- This balance is not critical at this stage so do not waste too much time getting it perfect.
- Tighten your R.A. axis clutch so it won't move.

Step 3.

- Point the scope(s) horizontally, and slide the scope(s) backwards and forwards until they balance (care - tighten the clutch before each adjustment).
- The centre of gravity is now aligned with the Dec. axis.
- The scope(s) will now be balanced at every point of rotation of the Dec. axis - try it give them a spin (cables allowing!)

Step 2. (only applies to side-by-side setups)

- With the mount in the same position, loosen the Dec. clutch and point the scopes vertically upwards.
- Adjust the side by side plate on the mount so that the two scopes balance each other.

Step 4.

- Slacken the RA clutch and adjust your counter weights to perfectly balance the scope(s).
- You have now moved the centre of gravity along the Dec. axis until in intersects with the R.A. axis - perfect balance.
- Try it, loosen the clutches and move the mount around, it should now balances in every orientation.

Friends with a Comet?
Can you be friends with a comet? Yes! Of course. I like to imagine that I can. Of the 241 comet friends I have observed since I first spotted Comet Ikeya-Seki in October of 1965, Comet 3I/ATLAS has got to be one of my favorites. More than a mere comet, it is a friend with a personality, a beating heart, and a soul.

Comet Atlas was the highlight of the wonderful observing session 25074AN2, held on the night of 18 November 2025. That session included a check on the brightness of my favorite variable star, TV Corvi, plus a morning check on the field of the soon -to-erupt recurring nova T Coronae Borealis. I wanted to see this particular comet badly, but I was uncertain if it would be bright enough, and condensed enough, to sight. I was wrong. On the previous night Tim Hunter took a beautiful picture of the comet, that appeared at about tenth magnitude. It sported a small tail, and a second antitail in the opposite direction. I set up Eureka, my 12-inch diameter reflector telescope, and I began searching for comets in the region where I thought this comet would be. I passed by an almost invisible fuzzy object that I assumed was probably NGC 4697, a spiral galaxy with a bar crossing it. It may be a twin of our own Milky Way galaxy. But because the galaxy was just rising in the southeast I could hardly notice it. I searched a few fields to the north and west.

Suddenly it was there. It was an obvious, approximately 9.5 magnitude bright spot. I did not make out either tail, but the coma was there. And the comet smiled at me.

Of all my friends, Comet Atlas is by far the oldest. Not only is it older than I, but it may also be almost as old as our galaxy itself. Its age has been estimated at between 7.6 and just over 13 billion years old; if it is anywhere near that old it is older than our solar system and possibly as old as the galaxy itself. (Our galaxy is probably about 13.6 billion years old.) This comet was a leftover part of the birth of a solar system far away, maybe as far as a system on the other side of our galaxy. Wandering through empty space for possibly all these billions of long years, this comet carries with it the wisdom of much of our galaxy.

What it could teach us! But actually, it can offer us nothing. It may carry wisdom, but cannot utter a word of it, has no understanding, no knowledge. My live human friends and my family, for the brevity of their lives, offer much more salient hints, humor, and understanding of our lives and existence.

As Comet Atlas surges away out of our system, in my imagination it will witness the political world in which humanity lives. Our different beliefs and customs, legal interpretations, even our religious faiths, will lie layered upon its icy surface. Perhaps some day it will encounter another world, with intelligent life, and in its mind's eye it would share what it has learned about us. But for a quarter of an hour on a mid-November morning, it was my friend.

There is an frivolous idea that the comet is not a comet but an alien spaceship. It is not but the idea is the subject of much humor these days. When I went inside and enjoyed a Star Trek Voyager episode before heading for bed at 0630 that morning, I imagined me and the comet trading jokes, not the crew of the spaceship but the comet itself. I have studied comets since I was a teenager, and I imagine that each of the comets I have seen has had a cometary personality of some sort. Comet Atlas and I are friends, talking with each other, joking around, and celebrating our mutual love of the infinite space of which we both are a part. This, whether it be a comet or a human being, is what defines friendship.

Target for Tonight: Susan Gagnon

Fornax or the Laboratory Furnace, depicted as a bunsen burner, is small and does not get too far above the southern horizon for us. There are few list items in this constellation but that does not mean there is nothing of interest. There are no targets for: Messier, ETU, Double Star or Finest NGC.

In the Levy list we have:

Object	Description	RA	Dec	Mag
NGC 1360 'Robin's egg nebula'	Planetary neb: contains an 8 th mag star.	3h 33m	-25°52'	9.6 (6.4x6.4 arc min, similar in size to M27 but considerably fainter)

NGC 1360 is located on the line between Dalim (Alpha Fornax) and Tau 6 Eridanus, 5°, 42' from Dalima.

NGC 1049 is situated on a line extended from Alpha For through Beta For at a distance of about 2 degrees, 42 minutes.

NGC 1049	Globular	2h 39m	-34°15'	12.9 (this is faint for a non stellar object but it is tiny in diameter so this may help) .

To complicate things further with NGC 1049, it is the brightest of 5 faint globular clusters, described by Burnham as sitting 'within a spherical swarm of exceedingly faint stars' and showing 'an open structure of low density'. The complete structure is the Fornax Dwarf Spheroidal and is classified as a dwarf elliptical. The old name is the Fornax System and on modern charts will probably be noted as Fornax Dwarf.

Another interesting bit in this constellation is the Fornax Galaxy Cluster, this being such a small constellation, nothing is far from anything else so this is a great time to check it out. Burnham: 'a compact group of 18 galaxies and a number of fainter ones'. Infact this cluster is thought to be the richest cluster after Virgo, within 100 million light years. A few members of this group stray across into Eridanus. The central galaxy of the cluster is NGC 1399 at RA 3h 38 m/Dec -35 27'. The brightest is NGC 1316 at mag 9.15, lies at RA3h 23m/Dec -37° 12'. Some of these objects, I hope, will inspire our astrophotographers.

The Sky This Month: Rick Wagner

Any night of the week offers up a broad range of viewing wonders. A Past President of the Kingston Centre, Rick Wagner keeps an eye on the sky each month, sharing some of the best viewing opportunities as well as timings to catch your favourite night sky target at its best.

Astronomy This Month – January 2026
01 Jan - (667) Denise (mag 15.6) occults J144135.51+024414.1 (mag 10.5) for everybody; 05:52EST

02 Jan – 40 Harmonia (mag 9.5) at opposition

03 Jan – Full Moon (05:03EST)
03 Jan – Earth at perihelion (147,099,894km, 12:16EST)
03 Jan – Quadrantid meteor shower peaks (17:00EST)
03 Jan – Jupiter, Full Moon, Castor and Pollux rise together in the NE during evening twilight

06 Jan – Venus in superior conjunction with Sun
06 Jan – (5304) Bazhenov (mag 16.5) occults TYC 1338-00545-1 (mag 10.3) for Sharbot Lake, Elgin, Athens; 22:07EST

09 Jan – Mars in conjunction with Sun

10 Jan – Jupiter at opposition
10 Jan – Last Quarter Moon

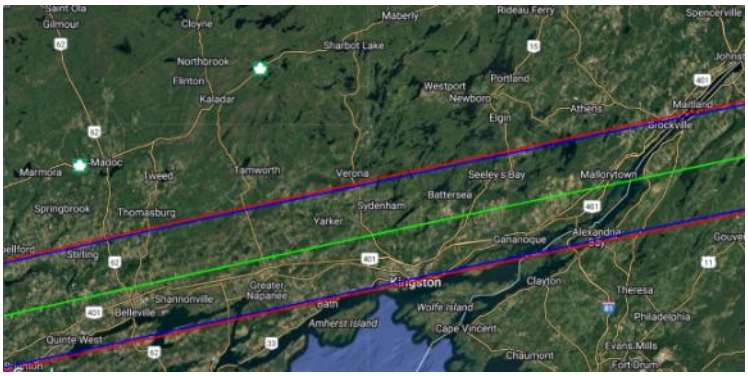
14 Jan – (4332) Milton (mag 16.5) occults UCAC4 431-020402 (mag11.0) for eastern Prince Edward County, 00:22EST

18 Jan – New Moon (14:52EST)

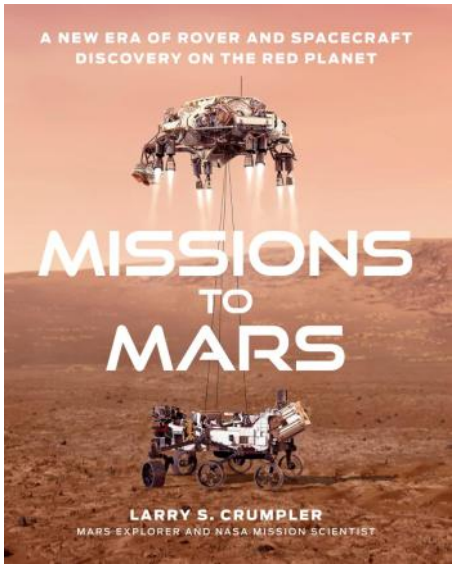
23 Jan – 44 Nysa (mag 8.8) at opposition

25 Jan – First Quarter Moon

27 Jan – (1969) Alain (mag 18.3) occults HIP8416 (mag 8.5) for Yarker, Sydenham, Kingston, Battersea;19:28EST



Stuff from Kevin



Book Review: Missions to Mars: A New Era of Rover and Spacecraft Discovery on the Red Planet

For anyone with any even remote interest in Mars, this was a wonderful update on, as the title says, Missions to Mars in the last couple of decades. The golden age of Martian Rovers as it were.

This is a heavy, 333 page hardcover, colour image filled, book from someone on the inside, a Principal Investigator or many instruments and on many rover teams. It did take many days of intermittent reading to get through, as from time to time one could only read about another interesting Martian rock to a limit.

The first section "Knowing the Unknown" covered the distant history of exploration.

The 2nd section "Roving a New World" covered from the 1990s and the first tentative steps with Martian rovers.

The 3rd section "Becoming Martians" covered the latest missions where humans for the first time slept, ate and worked on a different planetary time, aka a Martian "Sol".

The book leaves off with the rover Perseverance and its helicopter, and
possible future missions in the works.

A good Planetary read!

Publisher : Harper
Publication date : Nov. 9 2021
Language : English
Print length : 336 pages
ISBN-10 : 0063047365
ISBN-13 : 978-0063047365

Obituary

The London Centre of the RASC sent this along:

We are heartbroken to share the news that Mark Tovey, our 39th London Centre President, lost his battle with cancer on Tuesday 2026-01-06.

Mark was a multi-talented person who worked hard on a wide variety of projects and made many friends along the way. He did his undergrad at Western U and earned a PhD in Cognitive Science from the University of Ottawa in 2011.

He was History Curator at the Hume Cronyn Memorial Observatory, our local partners in astronomy outreach.

In 2023, Mark published "A Cosmic Treasury," a compilation of astronomy poems gathered by Beatrice W. Welling in 1944, to which Mark added appropriate selections of artwork from museums all over.

In 2025, London Centre nominated Mark for an Ontario Volunteer Service Award. Asteroid (178088) MarkTovey is named in his honour.

Winter is a good time to observe the night sky. We do get more hours of darkness than in the summer, the air is drier and generally quieter, more bright stars and there are no insects to annoy you. The downside is, it can be very cold and you need to dress appropriately and take breaks. Watch for frostbite. If it's too cold, don't go out!

This month 4 planets are visible for some of the night. Mercury will be low in the SW in the evening twilight, so it will set early. If you can use binoculars, try to decide what phase it is in. Venus will follow Mercury, a little higher in the sky and setting to the SSW a bit later. It also has phases and appears brighter to us as a crescent than when full. Mars is still between us and the Sun, so not visible this month. Jupiter will rise in the E during evening and set in the NW near dawn. If you are using binoculars you should be able to see the Galilean Moons. Watching them change positions from day to day can be interesting. A small telescope might even show the shadow of a Moon cross Jupiter. Saturn is high in the S at dusk so it will set around 10, in the W.

On the 1st, the Moon is at Perigee (closest to the Earth) and will be Full on the 3rd (Chief Moon) and Earth will be closest to the Sun (Perihelion). On the 3-4, the Quadrantid Meteor shower will be at its best. This is usually a strong shower and best in the early hours. Jan 6 has Regulus (brightest star in Leo) just S of the Moon. Venus will also be as far from the Sun as it gets. Jan 10 is Last Quarter Moon and Jupiter will be at Opposition. That means the Earth will be passing between Jupiter and the Sun. The week of Jan 11 has the bright red star, Arcturus, visible in the morning twilight. There are some other, fainter objects that may be visible with binoculars or a small telescope as the Moon will be less bright, such as M41, M42, M78, M79, M1, M34 and M76 on the 12th)

The Moon will be at apogee (furthest from us) on the 13th. On the 14th, Antares, another bright red star will be just above the Moon. New Moon is on the 18th with Mercury as far from the Sun as it gets on the 21st. Saturn (and Neptune) will be 4 degrees S of the Moon on the 23rd and M3 and M5 might be viewable. The 25th is First Quarter Moon and it will be at perigee on the 29th. Jupiter will be 4 degrees S of the Moon on the 31st.

Charles Messier 1730-1817) is best known for creating a list of objects that looked a bit like a comet but were not. People who found new comets were paid for this discovery so finding new ones was quite lucrative. Charles was observing in downtown Paris with a 100mm refracting telescope. So every clear night some comet hunting would take place but he, and a few friends and competitors kept finding objects that looked enough like a comet that time would be wasted discovering it was not. Messier made a list of these things that he could see from his location. Originally he had 45 objects. This list has now swelled to 110 objects. They consist of galaxies, planetary nebulae, other nebulae, globular clusters and open clusters.

These M objects are a good test for an avid observer. It is possible to view all 110 in one night — not easy, but possible. No one has managed it yet while in Canada. The RASC (Royal Astronomical Society of Canada) has a certificate for finding M objects. It can represent a lifetime of observing.

M1, the Crab Nebula in Taurus, is the remains of supernova. For this object, the supernova was observed on Earth in 1054.

M3 is a globular cluster in Canes Venatici. Observations have shown that globular clusters are only found near the centre of a galaxy. M34 is an Open Cluster in Perseus. The stars in that cluster were created from the same nebula. M41 is also an Open Cluster found in Canis Major. M42 (right) is the Orion Nebula, a Diffuse Nebula, an area of star birth, found in the sword of Orion. M76 is the Little Dumbbell Nebula (planetary nebula in Perseus). M78 is a diffuse nebula in Orion and M79 is a globular cluster in Lepus.

Remember to log what you observed.

Clear skies.

A New space observatory

Roger Hill

In January 2026, billionaire philanthropist and former Google CEO Eric Schmidt, alongside his wife Wendy, unveiled a groundbreaking private initiative to revolutionize space observation. The centerpiece of this project is Lazuli, a next-generation space telescope designed to serve as a modern successor to the aging Hubble Space Telescope.

The Vision: Faster, Cheaper, Private

Announced at the American Astronomical Society's winter meeting, the Schmidt Observatory System represents a historic shift in how large-scale astronomy is funded. While iconic observatories like Hubble and James Webb (JWST) were government-funded projects decades in the making, the Schmidts aim to bypass traditional bureaucratic timelines through private investment.

"We are going to build a philanthropic, three-meter, off-axis telescope... and we're going to do it in three years for a ridiculously low price," stated Pete Klupar, executive director of the Lazuli project.

Technical Powerhouse: How Lazuli Bests Hubble

Lazuli is not just a replacement; it is an upgrade. Key specifications include:

- A Larger Primary Mirror: Lazuli features a 3.1-meter-wide mirror, significantly larger than Hubble's 2.4-meter mirror. This allows it to capture roughly 70% more light.
- Advanced Instrumentation: The telescope will carry three primary instruments: a high-resolution wide-field camera, a light-splitting spectrograph, and a planet-finding coronagraph. The coronagraph is particularly vital, as it blocks out stellar glare to allow direct imaging of exoplanets.

Strategic Orbit:

Unlike Hubble, which orbits just 500 km above Earth, Lazuli will be placed in a lunar-resonant elliptical orbit (apogee of 275,000 km). This high altitude avoids interference from growing satellite constellations like Starlink and provides a more stable thermal environment.

Science for Everyone: The Open-Data Model

A core pillar of the Schmidt initiative is Open Science. In a departure from typical mission protocols, data from Lazuli will be made available to the global scientific community by default, with no "proprietary period" for selected researchers. Observation time will be awarded through merit-based competition open to scientists at any career level worldwide.

A Broad System of Discovery

Lazuli is the crown jewel of a four-part system that includes three innovative ground-based arrays:

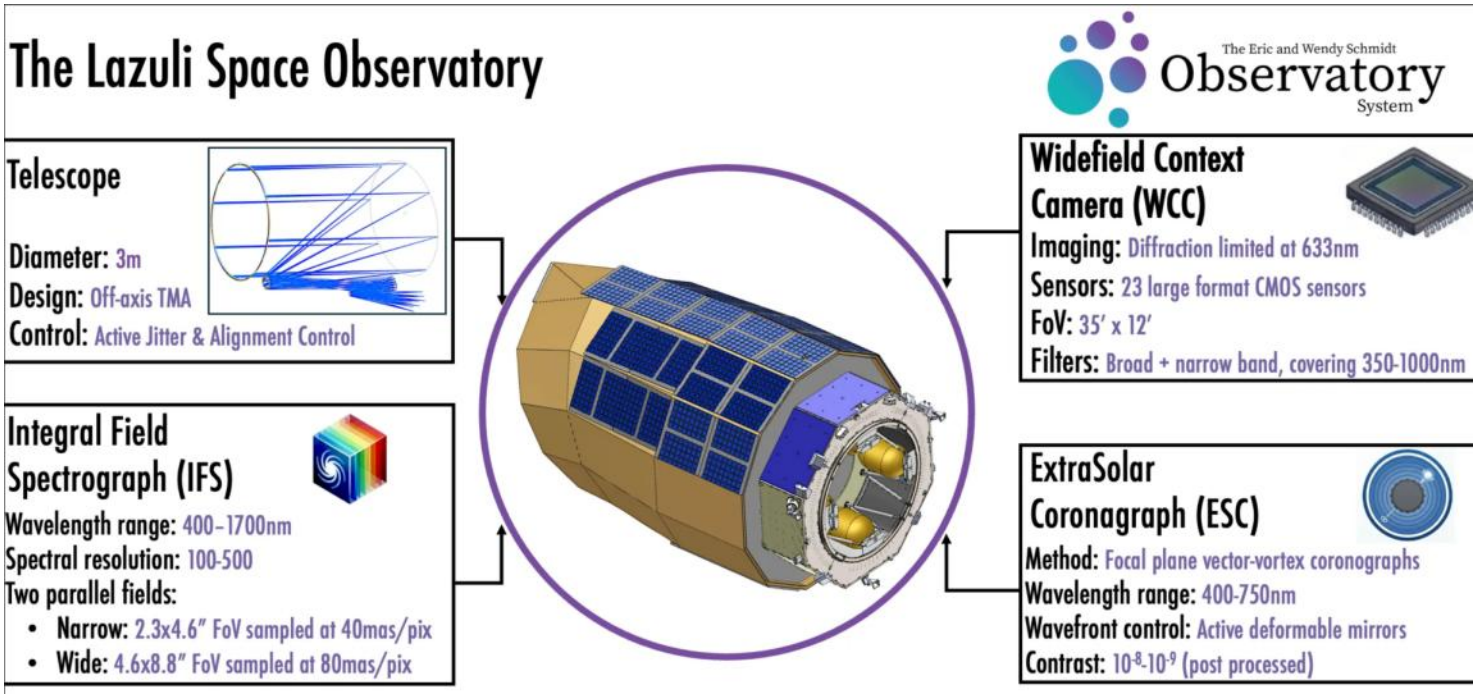
The Argus Array: 1,200 small telescopes in Texas designed to create "live movies" of the entire northern sky.

The Deep Synoptic Array (DSA): 1,600 radio dishes in Nevada capable of mapping over a billion radio sources.

LFAST: A scalable spectroscopic array in Arizona designed to detect biosignatures on other worlds.

Timeline and Launch

The project operates on an aggressive schedule, targeting a launch as early as late 2028. Planning schedules suggest the telescope will be delivered to Cape Canaveral for launch, likely utilizing Relativity Space's Terran R vehicle. By prioritizing rapid development and "calculated risks," the Schmidt Observatory System aims to ensure that humanity does not lose generations of data as older government telescopes reach the end of their lives.



About Us

The Royal Astronomical Society of Canada

The RASC is a national, non-profit, charitable organization devoted to the advancement of astronomy and related sciences. Founded in 1868, The Royal Astronomical Society of Canada is Canada's leading astronomy organization, bringing together over 5000 enthusiastic amateurs, educators, and professionals. In addition to many national services, our 30 Centres offer local programs across Canada.

The RASC Kingston Centre

We are Kingston's Astronomy Club, a local centre of The Royal Astronomical Society of Canada, that was founded on June 2nd, 1961. We hold monthly meetings, on the 2nd Wednesday of each month from September to December and March to June via zoom videoconferencing and in person, from 7:00-9:00pm Eastern Time. Meetings are held in January and February, but are available by Zoom only.

- We do public outreach programs in the form of helping the Cubs and Guides, teachers, Science Fairs and many public Education and Public Outreach events.
- We help our members with questions in astronomy and equipment use.
- We hold private observing sessions.
- We hold public sessions with Queen's University Observatory Open House, on the third Saturday of each month, at Ellis Hall, Queen's University. Details can be found at https://www.queensu.ca/observatory/
- We support the local Frontenac, Lennox & Addington County Science Fair (FLASF) with a prize in astronomy.
- We are happy to answer your questions on astronomy.

Board of Directors & Officers for 2025-2026

Directors:

Laurie Graham, Roger Hill, John Hurley, Kevin Kell, Bruce Murray, Malcolm Park, Elena Zanetti

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Social Convenor	Mike Hanes
Email Chat List Moderator	Kim Hay
Facebook Team	Kim Hay
Fall'N'Stars KC coordinator	TBD
Honourary President:	David H. Levy

The **Royal Astronomical Society of Canada Kingston Centre** was provincially incorporated as a Not-For-Profit Corporation in September 2005 and has been a registered Charity with the Canada Revenue Agency since September 2006. Our CRA Registration: 827905720RR0001

Benefits of Membership:

RASC benefits:

- Annual edition of the Observers Handbook
- Bi-monthly RASC Journal (digital)
- Monthly Bulletin of the RASC (digital)

Kingston Centre benefits:

- Monthly Centre Newsletter – Regulus
- Weekly social videoconference chat for members and invited guests.
- On the 2nd Wednesday evening of the month, there are meetings are open to the public: In-person in March to June and September to December at Queens, July and August outdoors at Lake Ontario Park; and two in January and February that are video-conference only.
- Equipment loan program

Front cover image

Comet Lemmon. Original image from Roger Hill, and then processed by Malcolm Park.