

Regulus

Newsletter of the RASC Kingston Centre

Vol. 50, No. 3

March 2023



Comet C/2022 E3 (ZTF)

On the Horizon

Centre Meetings
Queen's University Ellis
Hall Room 226

8 March 2023 - hybrid
12 April 2023 - hybrid

Centre meetings occur on
the second Wednesday of
every month at 7pm EST.
More details on p.5.

If attending in person
please wear your mask!

Queen's Observatory
Open House - Ellis Hall

18 March 2023
15 April 2023

For more information visit us online
<https://kingston.rasc.ca>

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Well, depending on what little creature you believe, its either six more weeks of winter or six more weeks to Spring. I am sure that Spring will arrive in its Mother Nature fashion, and we will enjoy the warmer weather.

Though this February has shown some very nice days, and clearish nights, we haven't had great weather lately. Yet despite these challenges, some of our members were still out observing and taking images of the C/2022 E3 ZTF and some galaxies in the Virgo Cluster. The comet has been visible with binoculars, and even better with a telescope, but some images

just using a DSLR camera has been quite rewarding as well. Just this past week it zipped by Mars and Aldebaran in the constellation Taurus.

If you still wish to see Comet 'Zwicky', here is the map of its path for February-March 2023 (thank you Cathy H. for the link): https://www.cometchasing.skyhound.com/comets/2022_E3.pdf

The spring season also means its Messier time , and once again offers the challenge of who can see and record all 110 objects from dusk to sunrise (Messier challenge anyone?).

Our nights are getting shorter as spring approaches, so some dark skies are still required to achieve this feat. I cannot emphasize enough how rewarding observing the Messier objects are - to see all the faint fuzzies and open clusters. Of course, the best ones that everyone enjoys observing are the M42 the Orion Nebula, and M51 the Whirlpool galaxy.

Beyond the advocacy of observing challenges, our club continues to actively promote outreach. This can be done in a variety of ways. Even one small gesture can inspire anyone to develop a lifelong passion for the stars. Just this past week, we sent out a package to a youngster who loves astronomy, but is a bit under the weather - we are hoping to brighten his day.

Additionally, we will be participating in the Frontenac, Lennox & Addington Science Fair again this year on March 30-31st at the Queen's University Faculty of Education (see pp.8-11). Our Coordinator, Bruce Elliot, is looking for some help in judging the Astronomy submissions. If you are interested in helping out, please send us a note soonest to kingston@rasc.ca

Remember that the clocks move ahead an hour on March 12th, ushering in Eastern Daylight Time (EDT), the dreaded time change by astronomers!

So, get on outside in the darkness while we can, and keep looking up! You never know what you might see.

Editor's Eyepiece

Andrew B. Godefroy



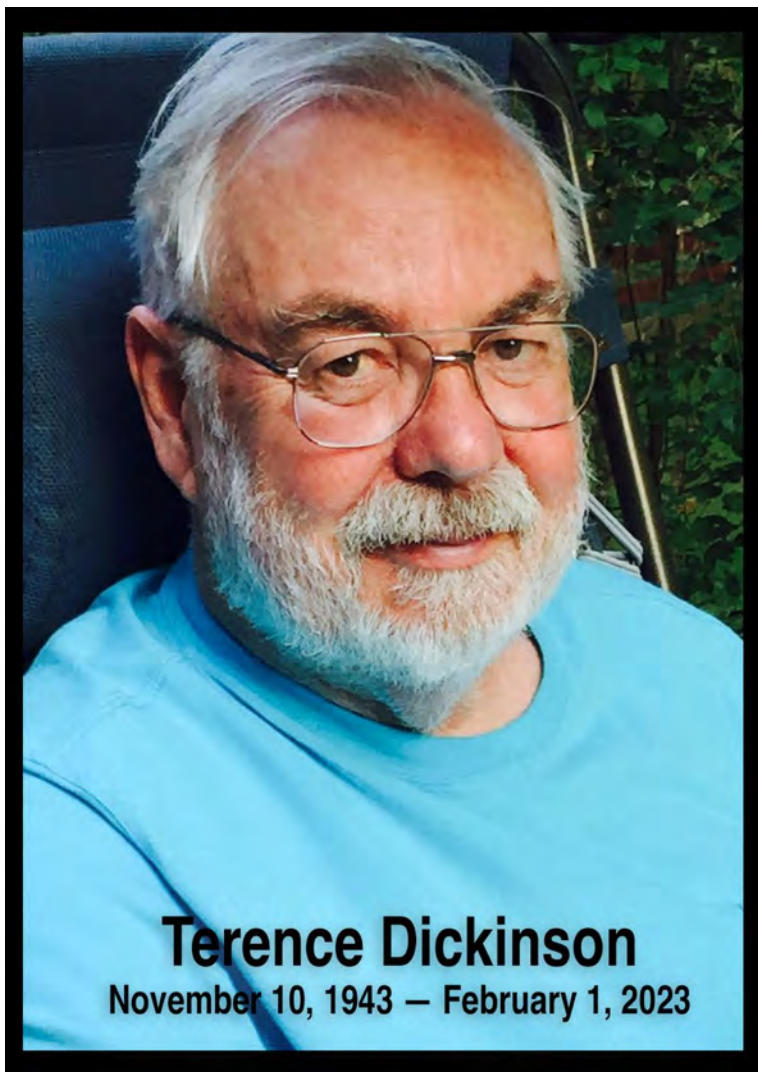
Having recently completed the RASC Explore the Moon (EtM) Observing Program, this spring I am going to challenge myself further by working my way through its more demanding (and rewarding) companion, the Isabel Williamson Lunar Observing Program (IWLOP) (<https://rasc.ca/certificate-programs>). Tackling either of these projects offers amateur astronomers a rich experience for those with an interest in our

closest neighbour, and can even offer a kind distraction to others on those nights when the Moon's brightness blocks some deep sky viewing targets. Whether your interest is in observing, photography, or even sketching, the Moon can

serve up some excellent views in the eyepiece that continue to fascinate even the most veteran observers among us. And for those who are new to the hobby, very simply, it's a fantastic place to start your journey into the night sky. Those who plan to pursue the IWLOP are recommended to secure a copy of Antonín Růkl's richly illustrated *Atlas of the Moon* to aid their observing. Though copies of the revised edition (2007) are proving hard to find, the previous edition (1990) does appear for sale online more frequently, and can usually be purchased for a reasonable sum.

On the Cover: Despite the seemingly endless cloudy nights this winter, RASC Kingston Centre Vice President Malcolm Park caught a clear moment on 25 January 2023 at approx. 01:00 EST and captured this amazing image of Comet C/2022 E3 (ZTF). Tech specs: Imaged with an Astrotech 12" ritchey chretien telescope and mounted Nikon D810a DLSR. Exposure time approx. 10m.

In Memorium - Terence Dickinson



Courtesy Alan Dyer

It is with great personal sadness that I learned today of the passing of my dear friend and astronomy partner in many projects, Terence Dickinson. Terry battled Parkinson's for the last few years. Terry was Canada's best known author, broadcaster and popularizer of the science and the hobby of astronomy.

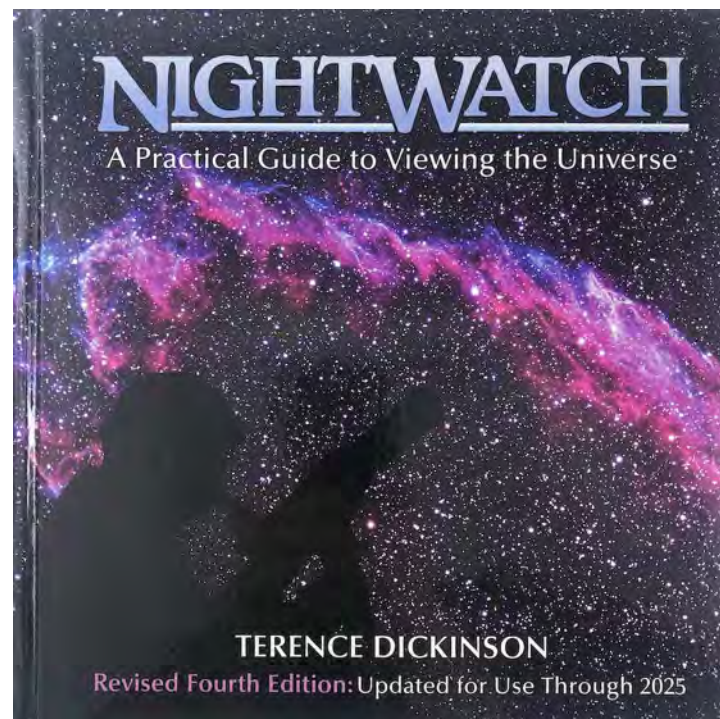
As his wife and long-time business partner in publication projects, Susan Dickinson, has written: "Although he was physically tethered to this planet, his mind soared among the stars, and the time he spent gazing skyward from a dark country site brought him peace and serenity. Now he's at one with the universe that enchanted him for a lifetime."

There will be no memorial service. His ashes will be scattered under a dark country sky. Here is a more formal short biography:

TERENCE DICKINSON became fascinated with astronomy at age 5, when he saw a brilliant meteor from the sidewalk in front of his home in Toronto. This early interest soon became the defining characteristic of Dickinson's life and eventually led him to a career as an astronomy writer and editor, renowned for unraveling and explaining the mysteries of the cosmos. His down-to-earth style made him a best-selling author of 14 astronomy books and hundreds of articles on the subject.

In 1994, he cofounded SkyNews, Canada's national astronomy magazine, and was the editor for two decades. That same year, the International Astronomical Union named asteroid 5272 Dickinson in his honor.

He received several national and international awards, among them the Royal Canadian Institute's Sandford Fleming Medal for outstanding contributions to science communication, the New York Academy of Sciences Book of the Year Award and the Astronomical Society of the Pacific's Klumpke-Roberts Award. A recipient of the Order of Canada, the nation's highest civilian honor, he also received honorary doctorates from Queen's University in Kingston, Ontario, and Trent University in Peterborough, Ontario.



First published in 1983, Terence Dickinson's timeless introductory reference 'Nightwatch' may be found on the bookshelf of nearly every amateur and professional astronomer in the country.



Of comets, more comets, and Fritz Zwicky

Since October 1965, when I spotted my first comet, Comet Ikeya-Seki, I have seen 227 different comets. Near the dawn of my passion for the night sky, watching that mighty comet rise, apparently

right out the St. Lawrence River, was a sight I shall never forget. The two most recent comets I have seen share the same name; they are both called Comet ZTF for Zwicky Transit Facility. This project uses a new camera that offers a very wide field of view. The camera is attached to the large 48-inch Oschin Schmidt camera at Palomar.

This project has a rich history. It is loosely named for astronomer Fritz Zwicky, one of the founding astronomers at Palomar and one of the foremost scientists of the last century. He developed not the big Schmidt but the original smaller 18-inch Schmidt camera, the very first telescope atop that mountain. Since this project is named after Zwicky, why are its comets called "ZTF" instead of just Zwicky? It is because the comets are named for the project, not the man.

The historical Zwicky actually had little interest in comets. His career leaned towards the big questions of cosmology, the study of the large-scale issues of the Universe. But he was the first regular user of Palomar's 18-inch Schmidt camera, the telescope Gene and Carolyn Shoemaker and I used to discover our comets, including the one that collided with Jupiter in 1994. That in itself was a tribute to Zwicky, for it offered insights into how comet impacts contributed to the origin of life on different worlds. Zwicky was not into comets, but he was deeply concerned with the distant explosions of massive stars that he and colleague Walter Baade called supernovae. When he began using the 18-inch there were 12 known supernovae. He discovered 121 supernovae with the 18-inch, 120 by himself and one with Paul Wild.

Even though I never met Zwicky, I can share three aspects of him, not including the most famous one in which he called anyone he did not like a "spherical bastard." The expression was intended to mean that no matter from which angle you look, that person is (or was) a bastard. One story I heard from

Walter Hass, founder of the Association of Lunar and Planetary Observers, who said that when Zwicky was having a quiet chat in a corridor at Caltech with another astronomer, one could hear him two blocks away. The other involved Zwicky's observing coat, which he left in a closet at the 18-inch observatory building. One night as I was about to observe alone there, as Gene Shoemaker left the building he said "If you get too cold, you can wear Zwicky's coat! The thought of that coat haunted me all night. Third, my friend David Rossetter named his large 25-inch diameter reflector Fritz, after Zwicky's first name. It is a wonderful telescope named for a brilliant man.

In January, the ion or gas tail of Comet ZTF showed a sort of disconnection in which the part of the tail closest to the comet was a thin line which suddenly broadened to a larger fan further out. This "disconnection event" was closely tied to a sudden increase in sunspot activity. This ZTF comet teaches us how comets interact with the solar wind.

As this article goes to press, there is not one ZTF comet, but two. David Rossetter and I saw the other one at our club's dark observing site. The second one is much fainter, visible as an amorphous smudge of small slowly moving haze. As I looked at this second comet, I tried to understand and appreciate the seminal role that Zwicky played in his time. And in our time, that role has expanded to explore in still greater detail the night sky that he loved.



The photo shows the 200-inch dome at Palomar at sunset, taken from the opened dome of the 18-inch, from where Zwicky (and later the Shoemakers and I) observed. Photo credit: David H. Levy.

Centre News and Updates



Stop the press! Got news to share? Send your centre news, updates, pics, sketches, notes, comments, ideas, and links to the Regulus editor at andrew.godefroy@mac.com. We look forward to hearing from you!

Thank you from the Kingston Centre!

By Susan Gagnon, Treasurer

Each year donations to the Centre make it possible to carry out our modest plans for the club members and outreach to the general public. Some have donated money, some gifts in kind. I am happy to list the names of the donors for 2022:

Anonymous
Hank Bartlett
Robert Crombie
Mark Deslauriers
Anita Smith Down
Andrew B. Godefroy
Laurie Graham
Cathy Hall
Kim Hay
Stephen Hays
Brian Hunter
John and Peggy Hurley
Judith Irwin
Doug Johnstone
Kevin Kell
Sandy MacHattie
Ahmad Mumin
John Rossiter
Elena Zanetti and Michael Steeves
Rick Wagner
Daniel Wolf
Charles Woodford

Once again, thank you all!

Upcoming Speakers

March 8, 2023 - Laura Fissel "Scope on a Rope: Astronomy from the Stratosphere".

April 12, 2023 - Dr. Kristine Larson AAVSO "Women in Astronomy: Past, Present, and Future".



Top: Slowly but surely. In 2023 the RASC - KC returned to hybrid/ in person meetings for the first time since COVID-19 struck. **Middle and Bottom:** Club members share their personal copies of Terence Dickinson's books in remembrance of the great Canadian amateur astronomer (see obituary p.3)

RASC Memberships

A reminder that if your membership is coming due or has already expired, please renew it at the earliest opportunity at <https://secure.rasc.ca>

Meeting Minutes - February 8, 2023

Hybrid Meeting delivered in person at Queen's University, Ellis Hall 226, and via Zoom and Youtube online.

Starting at 7:03 p.m., Kim Hay, President, welcomed all guests and members to our hybrid Kingston Centre regular monthly meeting with 11 present at Ellis Hall and 226 online Zoom guests. Beginning with our land acknowledgment, Kim noted that Queen's University is situated on the traditional territory of the Haudenosaunee and Anishinaabek, and we respect that land we meet on.

General announcements were next. First, the club welcomed new Centre members, Shelley and Stefan Jackson, and Tanya Davis. Next, a reminder that every other Wednesday of the month Members host a Social Zoom Time - to join let us know at kingston@rasc.ca Also a reminder that the next Queen's Observatory Open House is Feb 18th, 7 p.m. and we are looking for volunteers to help with observing on the deck, weather dependent.

David Levy read from The Rime of the Ancient Mariner by Samuel Taylor Coleridge. Leslie Peltier rewrote the last two lines with an eclipse reference.

Science Rendezvous is scheduled for May 13th at the Leon Centre, 1500 people attended last year, and we are looking for volunteers to assist with the club's activities at this event.

February's Guest speakers were Tim Trentadue and Joe Gilker, who presented on "DSVA & Astrophotography". Both are astrophotographers and night sky tour guides at the Lennox & Addington Dark Sky Viewing Area (DVSA) during the summer months. The images they shared and their journey in astrophotography may be seen on our YouTube Channel, RASC Kingston Centre, 2023Feb08 Meeting beginning at 10:45.

Photo Moment: Meeting participants were invited to take part in a group photo to honour the late Terrance Dickinson (10 Nov 1943 – 1 Feb 2023) by holding up one or more of Terry's books they own.

Bruce Elliott provided an update on the Science Fair. Judging, in person, taking place on March 30th from 6-9 pm. Three weeks before, the project summaries will be posted for pre-screening. We must have at least 2 judges, so please contact Bruce to volunteer.

Next, Rick Wagner presented What's Up in the Sky for February and March.

Sky This Month February 2023

09 Feb – Dark Matter Theory (STI501, Zoom)

13 Feb – Illuminating the Dark Universe with Radio Observations (STI501)

18 Feb – Queen's Observatory Open House

28 Feb – Interacting Galaxies in the IllustrisTNG Cosmological Simulations (ST1501)

02 Mar – Talk on Particle Astrophysics (ST1501, Zoom)

06 Mar – Unlocking strong gravitational lensing science with machine learning (ST1501)

BAA Events

18 Feb – Solar Section Mtg

01 Mar – Multispectral imaging of Jupiter's Atmosphere

AAVSO Webinars

4 Mar – How-to webinar: How to Automate Your Rig: A panel discussion

Sky Events – February

10 Feb – zodiacal light next ~ 10 days

13 Feb – Last Quarter Moon

14 Feb – gegenschein

20 Feb – New Moon 02:06EST

21 Feb – Jupiter, Venus, Moon standing after sunset

22 Feb – Jupiter 1.5 degrees right of crescent Moon, Venus below

24 Feb – JD rolls over from 2459999 to 2460000 (0700EST)

27 Feb – First Quarter Moon

28 Feb – Rupes Recta – the Straight Wall – is visible near the lunar terminator

Sky Events – March

01 Mar – Venus 0.5 degrees right of Jupiter after sunset

07 Mar – Full Moon 07:40EST ... *Continued on p.7...*



Any night of the week can offer up a broad range of viewing wonders. RASC KC Past President Rick Wagner keeps an eye on the sky, sharing some of the best views each month.

March 01 - conjunction Venus 0.5 deg above right of Jupiter in the evening.

March 03 - Algol at minimum 08:44 EST, Moon at apogee.

March 06 - Algol at minimum 05:33 EST.

March 07 - Full Moon.

March 09 - Algol at minimum 02:22 EST.

March 12 - Dreaded DST begins 02:00 EDT

March 14 - Zodiacal light readily visible from a dark site in the West in the evening twilight for next 2 weeks; gegenshein visible from very dark site highest in south at midnight.

March 20 - spring equinox 16:24 EDT.

March 21 - Ceres at opposition $M=6.9$.

March 25 - Uranus 1.5 degree below left of Moon in the evening.

March 27 - conjunction Mercury 1.3 degrees northwest of Jupiter in evening.

March 30 - lunar straight wall this evening.

March 31 - Uranus 1.3 degrees above left of Venus this evening.



Continued from p.6...

27 Feb – minor planet 40 Harmonia at opposition (mag 9.9)

Comet C/2022 E3 (ZTF) continuing south, by end of Feb near Eridanus

04 Feb – 530 Turandot occultation. 12.5 mag. Asteroid is 15 mag with drop of 2.5 mag for 10 sec, high in SW, 11 pm.

Member's Observing Reports: Susan & Elena – did see comet with binoculars, Eric – testing a new CCD camera and focal reducer on his C11, first time imaging since Comet NEOWISE with current setup, Peggy – out on clear nights looking for comet, Graeme – imaging with new telescope, the DWARF II Smart Telescope, comet and new moon, John H – solar observing in white light, Keith – Solar observing when weather cooperates, binocular comet, and tried with camera but technical difficulties!, Ken – comet with 300mm zoom lens imaged, Kevin W. – binocular view of comet and other objects, Mike H. – comet almost every night down in Tucson and their dark sky site, Rosemarie – imaging sun dogs and crepuscular rays, Kevin K. – goal for 2023 is 50 imaging sessions, 2 so far!, Kim – solar and

comet, Roger - Kicking of Science Week with a lecture at a school in March, Mark K – imaging comet in SharpCap, a work in progress, Brian – imaged comet with 200mm and 500 mm lens, Brian – observing comet with telescope but neighbour's lights are challenging, Rick – photometry and imaging comet with scope and using binoculars saw comet tail, Tim – imaging comet with a new Sigma 20mm lens 1.4 on a Sony a7R II, Kim – solar and comet observing, Brian – shared images of a pair of 3D printing projects, a Flat Frame holder and a Stevenson Screen, using a Creality Ender-3 Pro printer. Ellumiglow.com

A last reminder again that to join our Wednesday Members Social Zoom Time, let us know at kingston@rasc.ca. Our next hybrid meeting is scheduled for Wednesday, Mar 8th, 2023, live at Queen's U. Ellis Hall in Room 226 and on Zoom. Our guest speaker will be Laura Fissel, presenting "Scope on a Rope: Astronomy from the Stratosphere".

Meeting ended at 8:57 p.m. with Kim thanking all.

Meeting Minutes captured by Elena Zanetti



Attention Young Astronomers!



Are you thinking of entering the

FLASF 2023 Science Fair?

(March 30th-31st, 2023)

The Kingston Astronomy Club is offering the

Leo Enright Award

for the best project in

Astronomy and related sciences

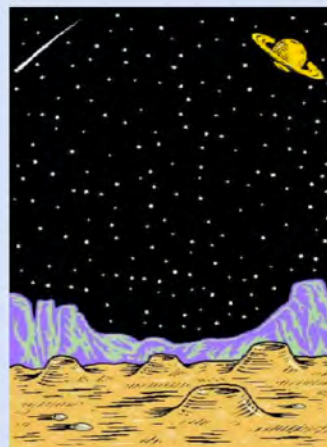
The awardee will receive **\$100**

and an *Explore the Universe Guide*

For starter ideas

please check out the next pages!

**Kingston's Astronomy Club
The Royal Astronomical Society
of Canada – Kingston Centre**



Email: kingston@rasc.ca

Web: kingston.rasc.ca

f @rasckington

You Tube

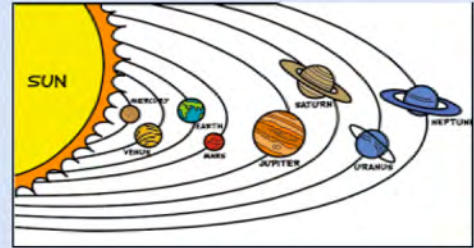
youtube.com/@rasckington9756

SOME SUGGESTIONS TO GET YOU STARTED!

1) Try observing by naked eye at night:

The Solar system:

- Check out the sun, moon and planets rising and setting times in your area. Saturn, Jupiter, Mars, Venus and Mercury will be visible by naked eye.



<https://www.timeanddate.com/astronomy/night/canada/kingston>

- Note that some of the planets appear to come very closely together - called a **conjunction**. For example: the Moon, Jupiter and Venus will be close in very the western sky after sunset (Feb. 22); Mars and the Moon at dawn in late February; Jupiter and Venus again at dusk in late March. Check out the Internet to see what's happening each night:

<https://earthsky.org/tonight>

2) What are your favourite constellations?

- Learn to use a sky chart to help you look for constellations. Here is a link to a chart wheel that you can print, cut out, and glue onto thin cardboard:

<https://www.uaf.edu/museum/education/educators/heliophysics-aurora-outre/activities/pdfs/Create-A-Star-Wheel-Activity.pdf>



Winter Southern sky at dusk in January-February 2023 (Stellarium projection)

- Well-known examples in the Southern sky are Orion, Canis Major, Taurus (Bull's horns), Pegasus and Aquarius.



Winter Northern Sky at dusk January-February 2023

Well known examples in the northern sky are: Cassiopeia, Ursa Minor, Ursa Major, Draco, Auriga and Leo.

2) Explore the moons of Jupiter with a small telescope:

There are four moons visible by around Jupiter using a small telescope: Callisto, Europa, Io, and Ganymede. Each day they change their position and sometimes go behind or in front of the planet. Try observing each night over several days/weeks and record their movement. Check the internet to confirm what you see:

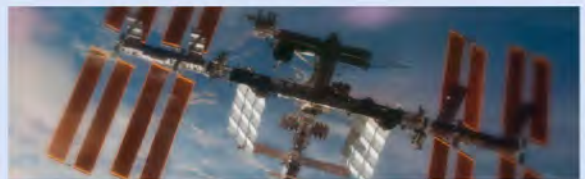
https://skyandtelescope.org/wp-content/plugins/observing-tools/jupiter_moons/jupiter.html



3) Track the International Space Station (ISS)!

Here is a link how to find when and from where the ISS can be seen:

<https://spotthestation.nasa.gov/sightings/index.cfm>



Can you name any Canadian astronauts who have served on the ISS? What are some of the experiments that have been done and what have they discovered? How many times does the ISS orbit the earth per day, and how high is it? Draw a star map of where you saw it and what planets or constellations it passed.

5) Additional Resources:

- **Observer's Work sheets:** https://www.rasc.ca/sites/default/files/LogBookPageRight_3.pdf
- **Explore the Universe program:**
<https://rasc.ca/sites/default/files/ExploreTheUniverse6a.pdf>
- **Stellarium:** A software planetarium that generates an interactive display of the night sky – any day of any year!:
<https://stellarium-web.org/>

Wishing you Clear Skies and Have Fun!!!



GA 2023

Last year we reached out, this year we

C O N N E C T

The Royal Astronomical Society of Canada's General Assembly is just around the corner! Stay tuned for more information on the three-day event.

MAY 5-7, 2023

#RASC2023GA
rascga2023.ca

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Lennox & Addington County
**DARK SKY
VIEWING AREA**

**LASER-GUIDED
stargazing
TOUR**

naturally 
UNBOBBLED MOMENTS

<https://naturallyla.ca/explore/dark-sky-viewing-area-lennox-addington/>

We've had a few people ask about the tech setup behind a RASC-KC hybrid meeting, as well as other Centres. We recently spent an hour with RASC Toronto sharing notes with their meeting tech guy. One thing that we noted we should all do is to document what we have and how we use it. You may find this useful if you are ever called upon to set this up for other organization meetings that you may be involved in as well.

Hardware: 12 year old Windows laptop, Logitech C270 webcam with mic, a 5m USB active repeater extension cable, Lavaleer wireless mics, wireless mouse, USB hub.

Other requirements: Internet (wired or wifi), Zoom app installed, access to Zoom account.

Process:

- 1) plug in the USB hub, wireless mouse, USB 5m extension, wireless mic usb receiver, room video projector (DisplayPort with sound);
 - 2) start up the laptop (on AC adapter power), login, connect to network, login to Zoom, start the Zoom meeting;
 - 3) bring up the room projectors, test the wireless mics, give one to MC/President, one to meeting tech person (also to pass around during inperson audience Q&A, presentations, etc). Preload/copy all inperson presentations onto the laptop. Set zoom audio input to use the wireless mics and not the laptop mic or the webcam mic;
 - 4) run the wired USB camera out to the nearest table to have a FOV on the MC/Pres/Guest Speaker;
 - 5) Have an offsite member connected to Zoom on a good network, do the meeting recording (whoever does this needs maybe an hour to download and save the recording). When the MC/President is ready, disable the waiting room, let everyone in, start the recording;
- Note: We would also like to livestream to Youtube, but that feature is under development (it has better reach, more interaction but potential old laptop crash and burn);
- 6) During the meeting we tend to use some of the Zoom features, like "spotlighting" the MC and any guest who is speaking. The same when the inperson audience is reporting observations or questions. All presentations should already be preloaded onto the laptop desktop for inperson presentations. We have MS Office2013 and Libreoffice on the current laptop as well as Irfanview for images; and,

7) after the meeting is over, the recording downloaded, some minor video editing is done and the file is uploaded to our youtube channel (account login info is required). And we are done!

Technical stuff: video and audio come out of the laptop (DisplayPort) to the room projectors and room speakers. Video and audio also go out to Zoom.

Incoming audio from zoom goes to the room speakers, shared incoming presentations are on the room projectors.

Incoming audio from the room: both wireless mics can be used at the same time without issue, feedback or otherwise.

The usb webcam should be pointed at the MC/president/guest speaker when they are talking, or the inperson audience when they are interacting.

At the moment, the laptop, webcam, usb hub, wireless mouse and 5m usb extension cable are all personal items loaned to the RASCCKC. There have been recent donations of the USB hub and 5m USB extension cable to the Centre.

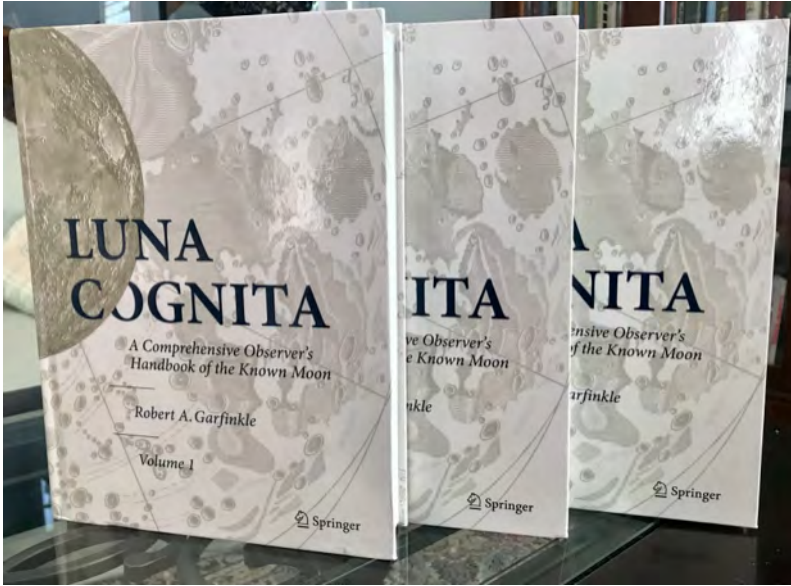
The Centre itself is considering purchasing at least the webcam and wireless mouse in the near future.

How we could do it better? Have a second computer in the room zoomed into the meeting to monitor chat.

That's about it for us. Other Centres are using audio mixing boards (we asked why?), other software such as OBS with zoom or VDO Ninja, and edit on the fly to livestream YouTube.



The Astronomer's Bookshelf



Robert A. Garfinkle. *Luna Cognita: A Comprehensive Observer's Handbook of the Known Moon*. 3 Vols. New York: Springer Books, 2020. Illus. maps. 1785pp. ISBN 978-1-4939-1663-4.

NASA's latest plans to revive its human exploration of the moon via the new and comprehensive Artemis Program (<https://www.nasa.gov/specials/artemis/>) has likewise sparked considerable renewed interest in lunar references

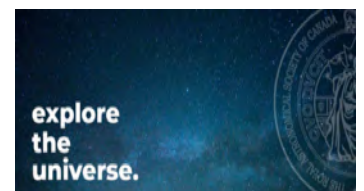
and resources. For those who want it all and then some, amateur astronomer and author Robert A. Garfinkle has delivered the seemingly perfect companion. His recently published three volume *Luna Cognita: A Comprehensive Observer's Handbook of the Known Moon*, offers readers nearly 1800 pages of lunar history, evolution, culture, poetry, geology, art, sketches, illustration, maps, and references designed to satisfy even the most demanding enthusiast or selenologist. Volumes 1 and 2 of this series consist of 32 chapters, of which the first six focus on general topics such as the Moon's history, selenographic information, and best practices for observing and recording data. In each of the chapters 7 to 21 that follow, the author covers a day in the waxing and waning of the moon in tremendous detail, offering a wealth of information on all visible major and minor lunar features. From craters to basins, rilles to plateaus, *Luna Cognita* addresses all aspects of lunar geography and geology from pole to pole.

Still, amateur astronomers who already own other well known and reliable lunar atlases, such as those authored by Antonín Růkl (*Atlas of the Moon*) or Charles A. Wood and Maurice J.S. Collins (*21st Century Atlas of the Moon*), could easily get by without adding this set to their bookshelf. While accessible and jammed with treasures, *Luna Cognita* is most geared towards those with a deep and lasting interest in the topic. Definitely recommended for cloudy nights!

Member's Photos



This photo by Malcolm Park was taken at a now defunct restaurant in Belleville in 2018. L-R: Rick Stankiewicz, Peterborough; Lynn Hilborn, Grafton; Terence Dickinson, Yarker; Malcolm Park, (then) Bloomfield PEC; amateur astronomers, all of us. "We used to meet for lunch monthly or semi monthly over the years in Belleville as it was somewhat central to each of our locations."



About Us

The Royal Astronomical Society of Canada

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 Royal Astronomical Society of Canada Kingston Centre (aka Kingston's Astronomy Club)

We are Kingston's Astronomy Club, a local centre of The Royal Astronomical Society of Canada, founded on June 2nd, 1961. We hold monthly meetings, on the 2nd Wednesday of each month (September-June), via zoom videoconferencing and in person, from 7:00-9:00pm Eastern Time.

* 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 out our members with questions in astronomy and equipment use, and hold private observing sessions, and also with Queen's University Observatory Open House, on the second or third Saturday of each month, at Ellis Hall, Queen's University.

* We support the local Frontenac, Lennox & Addington County Science Fair (FLASF) with a prize in astronomy.

* We are here to answer your questions on astronomy.

JOIN US!

<https://kingston.rasc.ca/join>

Board of Directors & Officers 2022-2023

Honourary President: David H. Levy
Past President: Rick Wagner

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The Royal Astronomical Society of Canada Kingston Centre 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.

CRA Registration #827905720RR0001

Benefits of Membership to the RASC Kingston Centre

RASC Central based benefits:

- * Annual edition of the Observers Handbook
- * Bi-monthly RASC Journal (digital)
- * Monthly Bulletin of the RASC (digital)
- * 6 issues of Skynews Magazine

Centre provided benefits:

- * Monthly Centre Newsletter – Regulus
- * Weekly social videoconference chat (members and guests only)
- * Monthly videoconference meetings (open to the public)
- * Equipment loan program