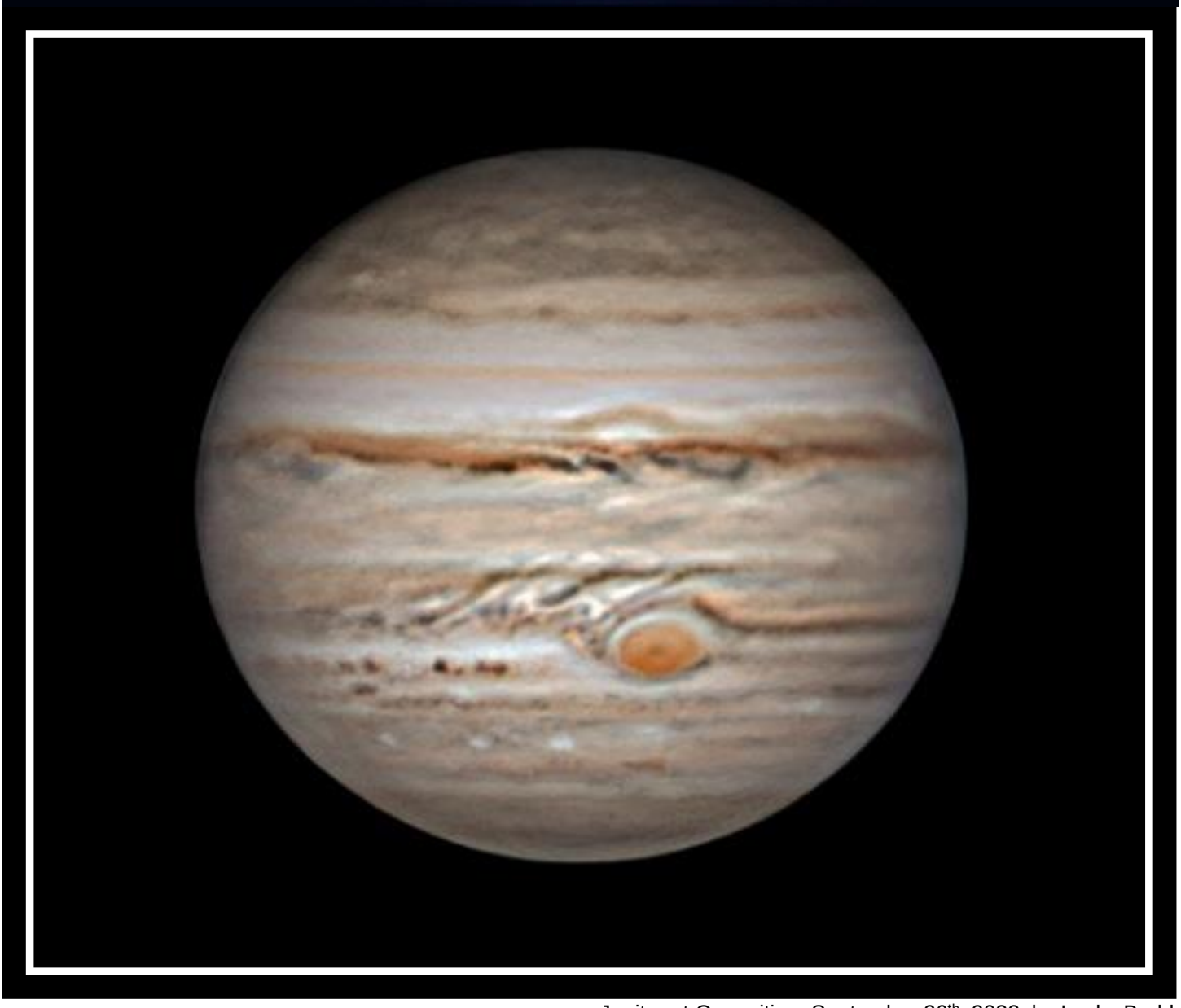
SKYNEWS



Jupiter at Opposition, September 26th, 2022, by Lucky Budd

That's No Moon!

Jupiter was shining bright in the night sky this summer, as it moved into opposition with Earth, the closest the two planets get in their respective orbits. This opposition was even nearer than most of us have ever seen in our time as amateur astronomers. September 26th marked the closest Jupiter has been to Earth for nearly fifty-nine years and the next time the two planets will be this close is 2129, so you might be in for a bit a wait to witness it again.

Numerous RASCals did go outside in the unseasonably warm weather to view the largest planet in our solar system, either observing with their optics or imaging it. Despite the massive gravitational force of Jupiter, you'll be straining your eyes for quite some time on the shoreline without seeing any sign of the Jovian Tide.

According to the *Grand Tack Hypothesis* used to explain the cosmology of our solar system, Jupiter initially formed at 3.5 AU from the star in our solar system. Jupiter then moved inwards, along with the gases from the early solar system to 1.5 AU, before being caught up with the gravity of Saturn and moving out to its current position at 5.2 AU (An *astronomical unit* is an agreed upon average distance between the Earth and the Sun, equalling 149.6 million kilometers). This would mean that Jupiter crossed the Asteroid Belt twice, making quite a mess of the rocky region of space on both occasions, as well as dislodging a large mass of debris in both directions. Of course, hypothesizing about the movement of planets, closer and further away from the Sun, during a time of chaos during the early development of our solar system, is certainly much more fun when it's not currently happening around you.

While Jupiter's dusty rings aren't reflective or chunky enough to be seen by the telescopes of amateur astronomers the way Saturn's rings are, it has its own striking features. The four Galilean moons, named after the famous pioneer astronomer who first recorded viewing them through a telescope, can be easily seen through any pair of binoculars. The bands (dark stripes) and belts (light stripes) that run parallel to Jupiter's equator are an amazing sight through a small telescope. *Seeing* conditions, how stable the atmospheric conditions are on a given night, will to a large extent determine how sharp views of the planets and the Moon will be.

With a bit more magnification, by either using a more powerful eyepiece or a Barlow, you can clearly see the Great Red Spot of Jupiter through your telescope. Here on the West Coast, you're often hitting the limits of magnification imposed by the atmosphere long before you reach the useful magnification limits of all but the smallest aperture telescopes. To see features like the Great Red Spot though, you'll want to push hard on the magnification of small and medium sized telescopes just to see it. The views at higher magnification might be a bit softer and less sharp, but you'll at least know what you're looking at. At lower magnifications, you can sometimes find yourself straining at the eyepiece for a moment to figure out if you're looking at the red spot or an eclipse by one of the Galilean moons. The red spot on the surface of Jupiter isn't even always red, as it shifts in colour over time from dull orange to a deep red. There is also a series of huge storms that appear as white dots visible on the southern hemisphere of Jupiter, sometimes referred to as the *string of pearls*. The number of white spots vary in number between six and nine.

Despite the Great Red Spot often being available to view, Jupiter rotates on its axis and along with it the giant storm that is the Great Red Spot. The rate of rotation for a planet so massive is hard to comprehend for earthlings. Unlike our slowpoke home planet, Jupiter's days are just shy of ten hours long for a planet with twice the mass of all the other planets in our solar system combined. Given that the Great Red Spot is going to be visible to observers for at least half that time, someone could be excused for expecting it to always be there. There are online tools to help you plan your outings, with regards to observing the Great Red Spot, including a calculator on the *Sky & Telescope* magazine website. For a planetary feature we attribute a certain amount of permanence to, existing prior to the living memory of everyone alive today, we're not completely sure of how old it is or how long it will last. Scientists have observed the storm shrinking over the years and some have even suggested that it could vanish in a few decades. The Great Red Spot was first observed in 1831 by Samuel Schwabe or was it observed much earlier? There are similar observations of a red spot on Jupiter that coincided with the early use of the telescope for astronomy in 1665 right up until 1713. Was it the same gigantic storm or a different one? If it's the same storm, why is there a gap in the observing record of 118 years for the Great Red Spot? Could we really not come up with a better name than the *Great Red Spot*?

You certainly don't have to wait for opposition events to observe Jupiter with a telescope and it's a regular favourite sight for amateur astronomers. Observers using telescopes will be able to enhance planetary details with different coloured filters that screw into the back of 1.25" and 2" barrelled eyepieces. The #80A blue filter is probably the one most used, as it gives better contrast for observing both the bands and the Great Red Spot. The #82A light blue filter is more useful in areas with more subtle contrast. The #21 orange filter can help you increase contrast, while the #29 dark red filter is useful for spotting eclipses of the Galilean moons. The #56 light green filter is suitable for observing the belts and is even

used for observing Jupiter's atmosphere. If you have access to colour filters you should always be making use of them for planetary observing, although you should note that different filters are useful for different features on different planets. As for the opposition event itself, it's a regular part of the cycle of planetary orbits. The opposition with Jupiter happens around every thirteen months or so and one you'll be able to see it again on November 2nd, 2023. It just won't be quite so close.

Bruce Lane

Editorial Remarks

You certainly can't blame the weather in September for you not getting outside and spending time underneath the night sky with your telescope. This time it's on you. It's been a long time when we've had a stretch of clear skies like this on the West Coast over the last few months. Other than the weekend when the Island Star Party was held in Cowichan, there hasn't been a lot of cloudy nights. Some smoke briefly drifted in, but otherwise it's been a great time to own a telescope and have the spare time to get outside and use it. Of course, there have been some impediments standing in our way. For those who like to experience astronomy as a group activity, we're still in the middle of a global pandemic, no matter how many people pretend that that isn't the case. It's affected our access to the Victoria Centre Observatory and for many of us our willingness to attend events with large groups of fellow *respirating* humans. Even if that wasn't the case, some of us have just gotten out of the habit of doing so, perhaps because we've become more of a couch potato than we used to be. Some people have gotten around that by connecting their telescope to a computer, so they can operate it remotely from the comforts of their living room. It can be easy to get out of the habit of doing things, like setting up your telescope, and sometimes harder to get back into a good habit. We are shaped by time and experiences, with the last few years being unique in the living memory of almost everyone on the planet in that regard.

With the Fall Fairfield at the end of September being RASC Victoria's last regularly scheduled public outreach event of the year, activity traditionally shifts towards an emphasis on meetings during the autumn. The weather isn't supposed to be as good as it's been and the chill in the air has many of us looking to spend more time inside our homes. The temporary absence over summer of both weekly and monthly meetings ends in September, with RASCals returning from whatever a *summer break* is anymore. While we haven't yet resumed our monthly meetings at the University of Victoria, we have resumed our weekly Astro Café gatherings.

RASC Victoria Council meetings have also resumed. Emerging from the public outreach season of summer, the focus is on continuing work on existing projects (like the Sky Brightness Survey) and planning for the future. In particular, autumn has been a time to start to look forward to the next annual general meeting for our RASC centre, where we choose our next council. The changing of our administrative year end, from the end of September to the end of December, both synchs up our year end with that of RASC National and gives us a bit more breathing space to find candidates to fill soon to be vacant spots on council.

Randy Enkin, our current centre president, will be completing his two year term at the next AGM, which will probably held sometime in February. Deborah Crawford will be stepping down after completing four years as treasurer, preceded by two years as second vice president, and two years before that as secretary. Both vice presidents, David Payne and Gary Sedun, are also leaving Council. Our public outreach coordinator, Malcolm Scrimger, is stepping down. Due to the impact of the Pandemic, the reduced number of public outreach events makes this an ideal time to get your feet wet if you want to be on council and think you might be interested in this role. It's also the end of my second, two year term as the editor of *Victoria SkyNews* and before that six years as treasurer. Come November, I'll have spent ten years on council. It's a

rewarding experience and a great way to see how this non-profit scientific society works from a nuts and bolts perspective. I would encourage those who haven't yet been on council to give it a try and for those who have been long absent to consider coming back. In this issue of *SkyNews*, we'll have more recaps from our Centre's activities, as well as all the astrophotography and articles you've come to expect from the *Victoria Centre SkyNews*.

Bruce Lane: SkyNews Editor

President's Message for October

It has been five years since the astronomy bug caught me big. After the August 21, 2017 solar eclipse, I started looking for a telescope to replace my old Tasco refractor. I was close to buying a used C8 Schmidt Cassegrain, but couldn't figure out how I could fit it in my house (or life). My first "*new*" telescope was an adequate little Newtonian, and since then I have acquired many telescopes, mounts, and accessories; never spending more than $150 at a time, to make a *Frankenscope* that works for me.

During that exciting autumn of 2017, I met Lauri Roche at a science outreach event and she invited me to give a talk at the RASC Victoria Centre Astro Cafe about a "*gizmo*" I developed for my telescope. Soon after, I joined the Society and made friends with many of you at Astro Cafe. With the Pandemic, our online events became important social activities for me. We've been doing outreach and in-reach events together. We have been a wonderful supportive community, which I now treasure.

In the autumn of 2020, our then president, Reg Dunkley, sent out a desperate plea for new council members, and in particular somebody who would step up to be our next president. I felt I was still a newbie, but the community was important to me and I did step up. I've been having a wonderful time working with this group, and I'm looking forward to many more roles I can take to keep our programs going and growing. But I am approaching the end of my second year as president and according to our bylaws, we need a new person to put their name forward as president. We have several other Council positions to fill as well.

So here is my plea - my desperate plea: please volunteer for our council! The roles are not onerous and we have a strong volunteer base to get things done. The past executives are all very helpful and supportive, so no one needs to feel they are all alone. But our society cannot function without people in the key positions and I know there are several of you reading this not thinking that you could be one of them. You can.

You should directly contact Reg, who as Past-President (*pastpres@victoria.rasc.ca*) is in charge of council nominations. But we know that few people ever volunteer on their own initiative. Please don't be surprised or unhappy if you get a call from one of us. We need you. We appreciate you. We'll have fun with you!

Look Up,

Randy Enkin, President@Victoria.RASC.ca

Astro Café: Hybrid Meetings

The weekly social gathering of amateur astronomers on Monday nights, known as Astro Café, was reduced to being an online gathering via Zoom for the beginning of the Pandemic. As with many groups, we were trying to find ways to still function as an astronomical society, without being able to meet in person. While the Pandemic hasn't gone anywhere, RASC Victoria has shifted from Astro Café being online only, to being a hybrid event. It's still accessible online, but you can also attend live at the Fairfield & Gonzales Community Association centre. Of course this dual format means double the hosting requirements, so RASC Victoria will need more of a volunteer commitment, for hosting duties, both online and onsite. You can access updates about Astro Café at the *Virtual Astro Café* at: *https://www.victoria.rasc.ca/astronomy-cafe/*

The first Astro Café back from the summer break was hosted by Chris Purse, who gave a tour of the facility and our centre's new equipment that makes the virtual part of the meeting possible. Laurie Roche gave an update on public outreach events at the Centre of the Universe, a review of the Saanich Fair, and discussed a green laser course being offered by RASC National. David Lee talked about the Beginners Special Interest Group gatherings at Cattle Point and the Sky Brightness Survey; Malhar Kendurkar dropped in virtually from the Plaskett Telescope to talk about the RASC Board; Clayton gave a presentation about the astronomy program at Victoria High School; while David Payne gave a review of the Island Star Party and gave a reminder about the upcoming RASC Victoria Centre Council meeting.

The next Astro Café of September was a brief affair, conflicting with the impromptu holiday for the Queen's passing. Jim Hesser gave a reminder about a Victoria Symphony astronomy related event, while David Lee and Laurie Roche gave a presentation on the Sky Brightness Survey.

The last Astro Café of the month was hosted by Jim Cliffe and for those onsite included the long awaited return of *Viva Puffs*. David Lee thanked volunteers for collecting data for the Sky Brightness Survey; Brock Johnson shared some of his recent astrophotography; and David Payne gave a brief update about the Astrophotography SIG. Bill Weir discussed observing Jupiter during opposition, NASA's DART impactor mission, and a recent telescope donation. Samantha Jewett, RASC National Education and Outreach Coordinator, dropped by in person as the first stop in her cross Canada tour of RASC Centres, giving a presentation on the RASC National observatory and the Society's various programs. Reg Dunkley gave a review of the Fall Fairfield event; Laurie discussed the young astronomy clubs based out of schools in the Greater Victoria Area; and Janeane wrapped things up talking about the Nanaimo Astronomy Society participating in the Nanaimo's Day of Reconciliation.

Bruce Lane

Special Interest Groups

Getting Started in Astronomy

The Beginners Group has some new members so we will continue cycling through our seasonal constellations. Early in October, we reviewed the constellation of Pegasus and the surrounding areas. For new astronomers, some recommendations were made for star atlases and planetarium programs. It was noted the new RASC 2023 Night Sky Almanac is now available. For more information on this group, please contact David Lee at *david@victoria.rasc.ca*

Astrophotography

Summer imaging conditions seem to have continued even into early October. Many of the group's members continue to produce some amazing imagery. Of note, Dan Posey has been working on datasets captured from the Plaskett; David Payne has a series of wide-field objects which he captured, while his main mount was in maintenance; and Brock has been chasing both Jupiter and Saturn with videos and stills. Reg Dunkley and David Lee have also been experimenting with user supplied equipment at the VCO as we approach re-opening the facility. A recent transit of Jupiter's moon Io was captured through the VCO's Takahashi refractor. For more information about this group, please contact David Payne at *vp@victoria.rasc.ca*.

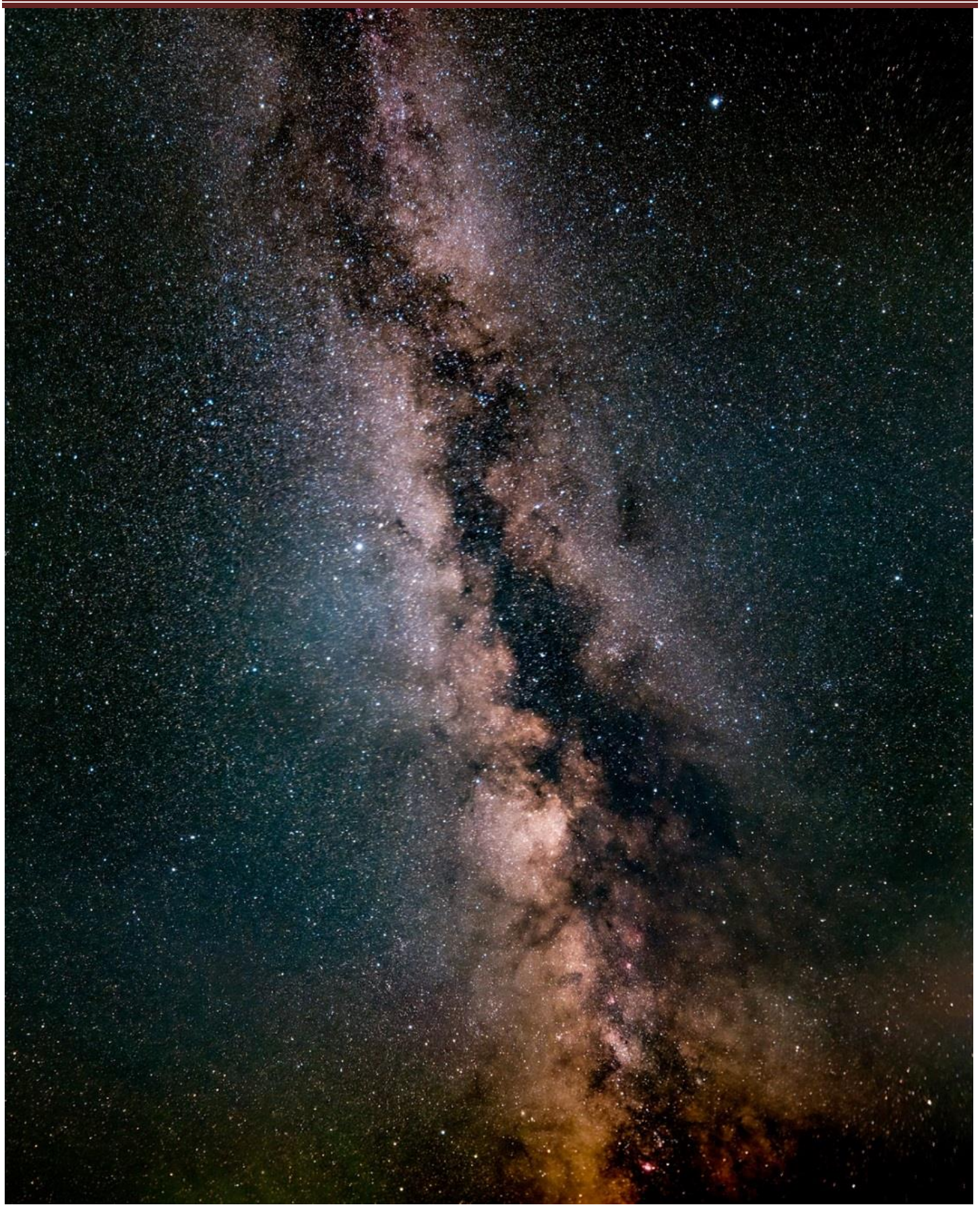
Electronically Assisted Astronomy

The EAA SIG continues to hold meeting about equipment and software related to the topic. For more information on this group, please contact David Lee at *david@victoria.rasc.ca*

Makers

The Makers SIG is open for business: to discuss member projects, as well as to answer questions associated with repair and development of astronomical equipment. For more information about this group, please contact Jim Cliffe at *jim@victora.rasc.ca*.

David Lee

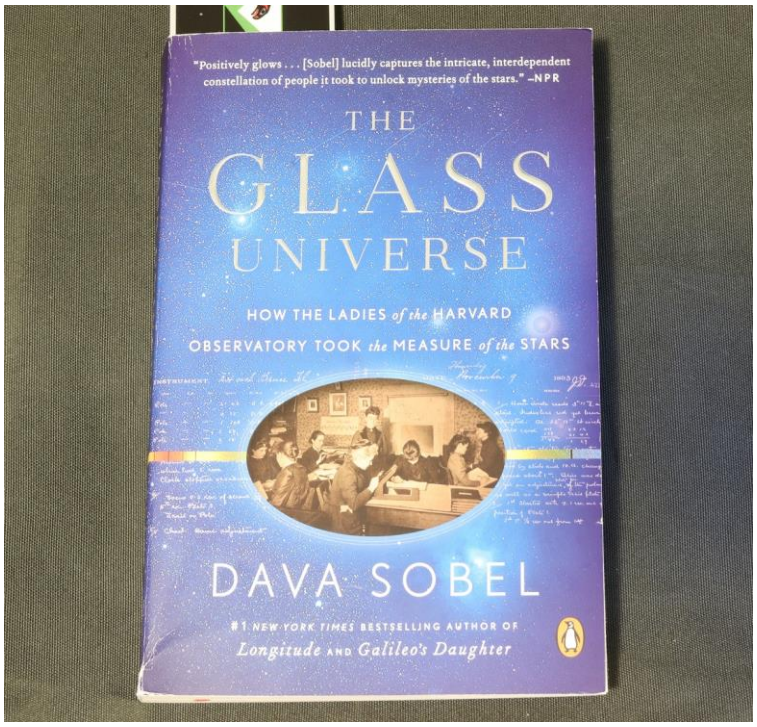


Milky Way from Gonzales beach, September 19th, 2022, by Lucky Budd

From the Library

The RASC Victoria Centre Library is housed in the Astronomy Department's faculty lounge, located on the 4th floor of the Elliott Building, at the University of Victoria. It contains over 500 titles, curated by Alex Schmid, our RASC Victoria Centre Librarian. Alex is currently running our library in the same way the Greater Victoria Public Library runs its shut-in branch, driving around to do deliveries and pickups for our membership to provide access to books from the collection. For more information and to make a book delivery request, please contact Alex Schmidt at: *librarian@victoria.rasc.ca*

Our library covers many aspects of astronomy: observing, astrophotography, telescope construction, space exploration, astrophysics, and much more. Normally, the library is opened up during the social gatherings in the faculty lounge, after our monthly meetings, with coffee, juice, and cookies provided by our Centre. In the past I've been doing book reviews of the contents of our Centre's library, but until the resumption of our monthly meetings at the University of Victoria, I'll mostly be doing reviews of the astronomy books from my personal library, ones that can be purchased online or better yet at your local bookstore.



This month we're taking a closer look at *the Glass Universe*, by Dava Sobel. Sobel is a prolific and award winning writer, with many of her books already featured in this column, owing to my enjoyment of her works. As well as writing about the prominent personalities in the history of astronomy and navigation: *Galileo's Daughter, A More Perfect Heaven, the Planets, and Longitude*, she also co-wrote six other books. Dava Sobel's work on *Longitude* earned her one of her more unusual honours: the Harrison Medal, from the Worshipful Company of Clockmakers. Asteroid 30935 Davasobel was named in appreciation of her work as a science communicator.

Similar to the way *the Muleskinner and the Stars* brought us a new awareness about the life of a telescope operator, *the Glass Universe* opens the door to the lives of the computers: the women who worked behind the scenes with the glass plates produced by the telescope operators. For the women, who supported astronomy operations based out of Harvard, it meant not only identifying stars but improving the way stars were categorized and making their own discoveries along the way. *The Glass Universe* is another well written book by Dava Sobel and it's available by order from your local bookstore.

Bruce Lane

Hill and Dale (Observing on the Island)

September's skies were much better than we are used to experiencing this time of year. It really makes you wish you could bank a few for another time. There were some clear nights around the new moon, then a bit of clouds, but on the whole favourable weather for observers and astrophotographers alike.

Dan Posey stepped up as telescope operator to run another imaging session for RASC Victoria up at the Plaskett Telescope. Bill Weir spent some time observing from the end of his driveway, as well as hosting a session up at the Pearson College Observatory. There were also numerous RASCals out observing and imaging Jupiter at opposition, including Lucky Budd's image on page one.

The current restrictions up on Observatory Hill, with four observers allowed at the VCO and another two set up at the Plaskett Telescope parking lot, are the norm for the foreseeable future. Pandemic health restrictions are subject to change though, so if you're on the VCO observer's email list, watch for continuing updates.

A reminder that although the VCO belongs to and is for the use of the members of the RASC Victoria Centre. In the *Before Times*, MiCs (Members in Charge) ran both weekly scheduled and unscheduled sessions to take advantage of the weather, but for the foreseeable future observing sessions will be a lot less scheduled and less frequent. The VCO is located on National Research Council property. This means that all visitors to our observatory must be on our observer list and registered with the NRC. To get on the list, just contact Chris Purse (Membership Coordinator) at *membership@rasc.victoria.ca* and we'll see you up there on the Hill one of these nights.

Bruce Lane

In Closing

This hasn't been your typical October weather. For most of the month the only way you can tell that it's not summer anymore are the shorter days and cooler evenings. You can usually have rain for half the month, but we're currently just ending an extended drought. The low levels of our creeks and rivers have impacted salmon runs. It's not uncommon for summer to have a bit of follow through into September, but this is something else. We've broken temperature records in British Columbia almost every day up until the middle of the month. A few scheduled storms have failed to materialize, both in terms of heavy rain and strong winds. When we finally do have our first storm of the season, if we don't get some substantial rain beforehand, we'll see a lot of trees falling down due to their shrunken root systems.

Unfortunately, the Pandemic doesn't seem to be ending anytime soon. We have a lot of different ways to contain and prevent outbreaks, but they have been unevenly implemented and had their effectiveness eroded by governments buckling under financial and political pressure. In many countries, including our own provincial health authority, they aren't doing a very good job at tracing, tracking, or looking for new variants. Re-infected subjects aren't being included in the BC government's statistics for some reason. Even with so few positively tested individuals actually being officially counted as having covid-19, British Columbia has been using a shifting data set that allows them to vastly underreport weekly cases, making up the difference in later versions of the report. The same business lobby that was pushing to ease government interventions to save lives is now conflicted between being elated at the lack of mandates and being alarmed at the impact that it's having on their workforce. The constant chatter about staffing shortages, medical facility closures, disruptions to the global supply chain, and cancelled and delayed commercial flights or ferry sailings are just another indirect way of saying that the Pandemic is still having a profound effect on our society without stating it clearly.

Many countries still aren't managing to get a lot of their population vaccinated and in more affluent nations we're not bothering to keep up with the most recent booster shots, even as new variants keep seeking us out. The latest estimate is that only 14% of Canadians are currently fully vaccinated. It's still not the best time to be a carefree world traveler when so many of the people traveling aren't getting vaccinated or wearing masks, and the people in *exotic* locales can't get vaccinated. A lot of the vaccine doses that are being donated to less affluent countries are arriving too close to the date of expiration to be used and pandemic apathy at home has resulted in over six hundred and fifty thousand doses thrown out in BC alone as of April of this year. While we're not quite at the point where the next Minister of Health will be a *sketchy* channel on *YouTube*, things are definitely trending in the wrong direction. Personal responsibility during a public health crisis becomes even more important when the government decides to let nature run its course. As a science based non-profit society that should go double for us.

RASC Victoria has resumed weekly Astro Café meetings and across Vancouver Island, astronomy clubs are back from summer breaks or transitioning into the lower activity of autumn. The Centre of the Universe and Plaskett Telescope on Observatory Hill is continuing to host monthly events, with the next evening scheduled for November 16th. These public outreach events on Observatory Hill are hosted by the National Research Council and Friends of the Dominion

Astrophysical Telescope, with volunteers from the RASC Victoria Centre also taking part. The University of Victoria is hosting weekly Wednesday open house events at the Bob Wright Centre Observatory, from 8-10pm. The Nanaimo Astronomy Society have resumed their monthly meetings, with the next one scheduled for October 27th. These events by the Nanaimo group are hybrid events, with both in person and online attendance via ZOOM. The Comox Valley Astronomy Club's next monthly meeting is at Courtney Public Library on November 7th.

Bruce Lane: SkyNews Editor

Photography Credits

Cover: Jupiter at Opposition, Sep 26, 2022, by Lucky Budd. Cropped.

Page 3: Crop of Bruce Lane (SkyNews Editor) at 2013 RASCal Star Party in Metchosin, by Chris Gainor

Page 4: Randy Enkin (RASC Victoria President) with Sextant, Feb 20, 2021, by Eva Bild.

Page 5: Photograph and Design of Astro Cafe Mug, by Joe Carr

Page 5: Apollo 17 Training, *Ron Evans (centre) reviews a lunar mapping chart with CapCom Bob Overmyer (left) and geologist Farouk El Baz (right).* Photo filed Oct 16, 1972. Scan by Ed Hengeveld. Courtesy of NASA.

Page 6: Apollo 17 Training, *Gene Cernan drapes the cords for the LM cabin utility lights on the handle of the rendezvous hatch. The two utility lights are just to the right of Jack Schmitt's right hand and are attached to the Alignment Optical Telescope (AOT) guard with clamps. These clamps will be put to use in attaching a replacement Rover fender at the start of EVA-2. The overhead dump valve is just to the right and aft of the hatch handle.* Oct 27, 1972. Research by J.L. Pickering. Courtesy of NASA.

Page 7: Milky Way from Gonzales beach, Sep 19, 2022, by Lucky Budd.

Page 8: Posed Book, "The Glass Universe", taken in Editor's home on Oct 26, 2022, by Bruce Lane

Page 9: Apollo 17 Training, *Ron Evans practices retrieving a film canister during water EVA exercises at Building 5*. Photo filed Oct 3, 1972. Scan by Ed Hengeveld. Courtesy of NASA.

Page 10: "Knee-Buff" the Buff Orpington chicken, Aug 28, 2022, by Bruce Lane

Page 12: Apollo 17 Training, *Gene Cernan prepares for a checkout flight in the Lunar Landing Training Vehicle at Ellington AF Base.* Photo filed Oct 16, 1972. Scan by Ed Hengeveld. Courtesy of NASA.

Call for Article and Photo Submissions for the November Issue

SkyNews is looking for submissions of astronomy photos and articles for the November issue of our Victoria Centre's magazine. Send your submissions to editor@victoria.rasc.ca

RASC Victoria Centre Council 2022

Director Positions	Name	Email
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1st Vice President	David Payne	vp@victoria.rasc.ca
2nd Vice President	Garry Sedun	vp2@victoria.rasc.ca
Treasurer	Deborah Crawford	treasurer@victoria.rasc.ca
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Schools Program/FDAO Liaison	Laurie Roche	schools@victoria.rasc.ca
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	Chris Gainor Dan Posey	Marjie Welchframe