# STRATFORD ASTRONOMY GROUP

MARCH 4TH, 2025

# AGENDA

- Meet and Greet
- Club NEWS and Activities
- Club Q & A
- Equipment Lessons
- Software and Imaging Information
- Latest Astronomy NEWS
- What’s UP this Month
- Show and Tell
- Astronomy Lessons / Talks
- Cosmology Lessons
- Conclusion

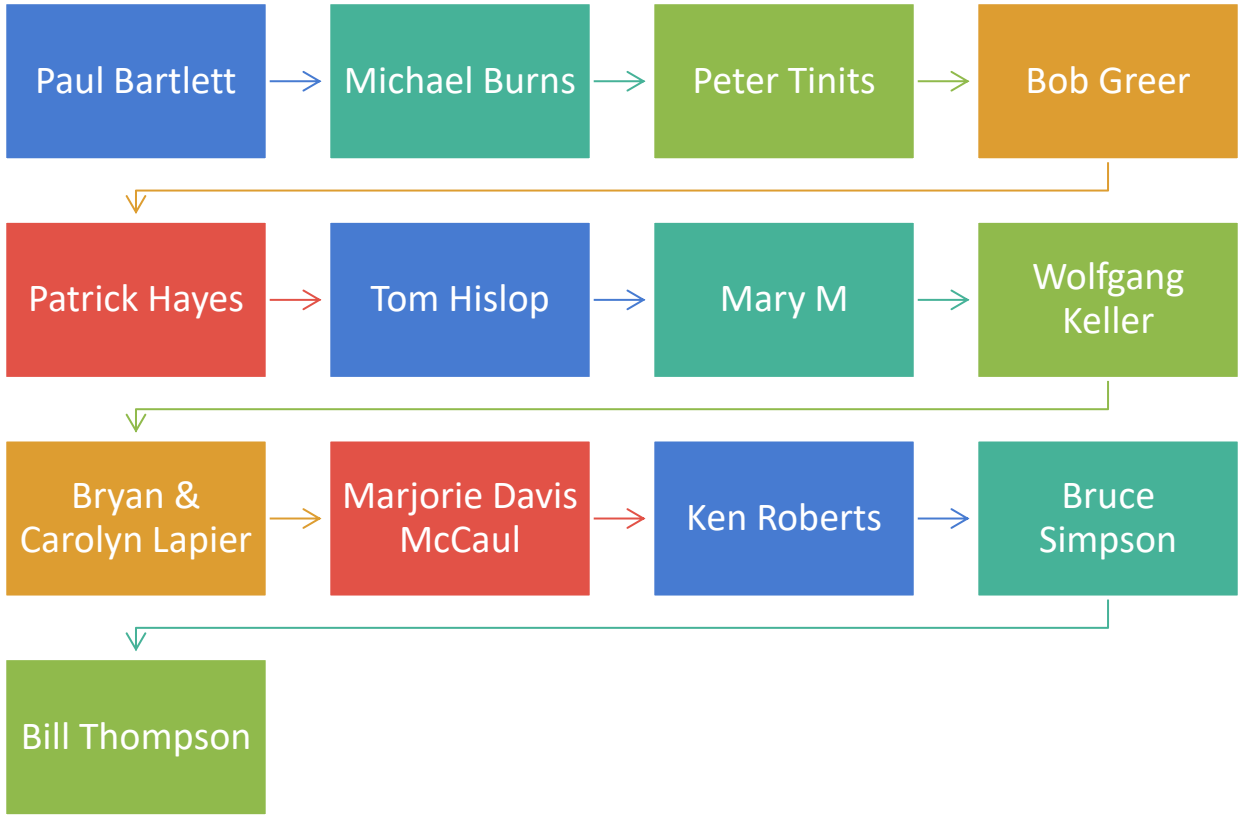
# MEET AND GREET

**Welcome**

New Visitors

**Regrets**

# LAST MEETING



# UPCOMING MEETINGS

## NEXT MEETING DATES

| Date | Room | Location |
|---|---|---|
| ~~Sept 17th, 2024~~ | ~~104~~ | ~~St. Michael's~~ |
| ~~Oct 1st, 2024~~ | ~~104~~ | ~~St. Michael's~~ |
| ~~Nov 5th, 2024~~ | ~~104~~ | ~~St. Michael's~~ |
| ~~Dec 3rd, 2024~~ | ~~104~~ | ~~St. Michael's~~ |
| ~~Jan 7th, 2025~~ | ~~104~~ | ~~St. Michael's~~ |
| ~~Feb 4th, 2025~~ | ~~104~~ | ~~St. Michael's~~ |
| ~~March 4th, 2025~~ | ~~104~~ | ~~St. Michael's~~ |
| April 1st, 2025 | 104 | St. Michael's |
| May 6th, 2025 | 104 | St. Michael's |
| June 3rd, 2025 | 104 | St. Michael's |

CLUB NEWS AND ACTIVITIES

## Group Funds

**Total = $1057.70**

- If you would like to contribute to the group, then please e-transfer Tim at:

**timannemariepauli@gmail.com**

or by cheques:

Tim Pauli

96 Front Street

Stratford, ON

N5A4H2

# CLUB NEWS AND ACTIVITIES

## EQUIPMENT:

New Equipment Donation: Tim

STRATFORD ASTRONOMY CLUB EQUIPMENT

CLUB EQUIPMENT LOCATION:

Paul Bartlett is now storing all the group's equipment. If you wish to borrow an item, then please contact him at:

1948paul.bartlett@gmail.com

519-274-2010

Activities: The museum has placed us between 7pm and 10pm on the 21st of March.

Paul Bartlett - I could give a brief talk on "What's Up". I had written an article about the constellation Leo a few years back for our newspaper and I could expand on that a bit.

Doug Fyfe - I can give one of my presentations. If someone else could present then he would let them.

Patrick Hayes "Star Evolution" presentation.

# CLUB NEWS AND ACTIVITIES

- New Web site: (https://stratfordastronomy.com/)
  Tim Pauli - Owner/Administrator
  Ken Roberts - technical contact
  Tom Kimber - Administrator/Editor
  Doug Fyfe - Administrator
  Michael Burns- Administrator
  Tom will build it on WordPress.

# CLUB Q & A

# WHAT'S UP

## STRATFORD ASTRONOMY GROUP

### WHAT'S UP FOR FEBRUARY


# HEY, THERE BE A MOON OVERHEAD

**MOON PHASES FOR THE MONTH OF MARCH**

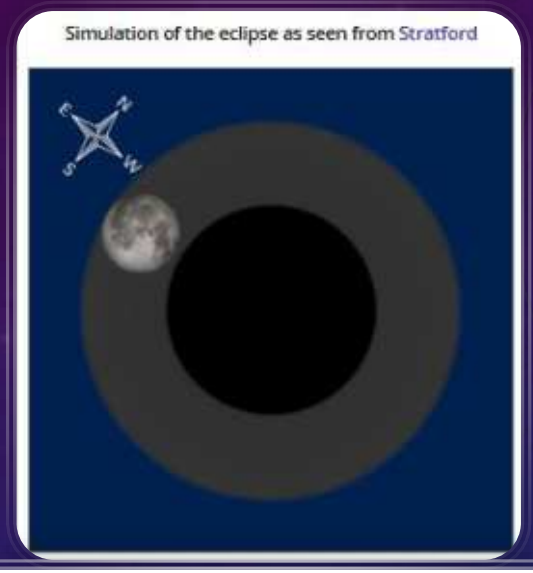
# « MARCH 2025 »

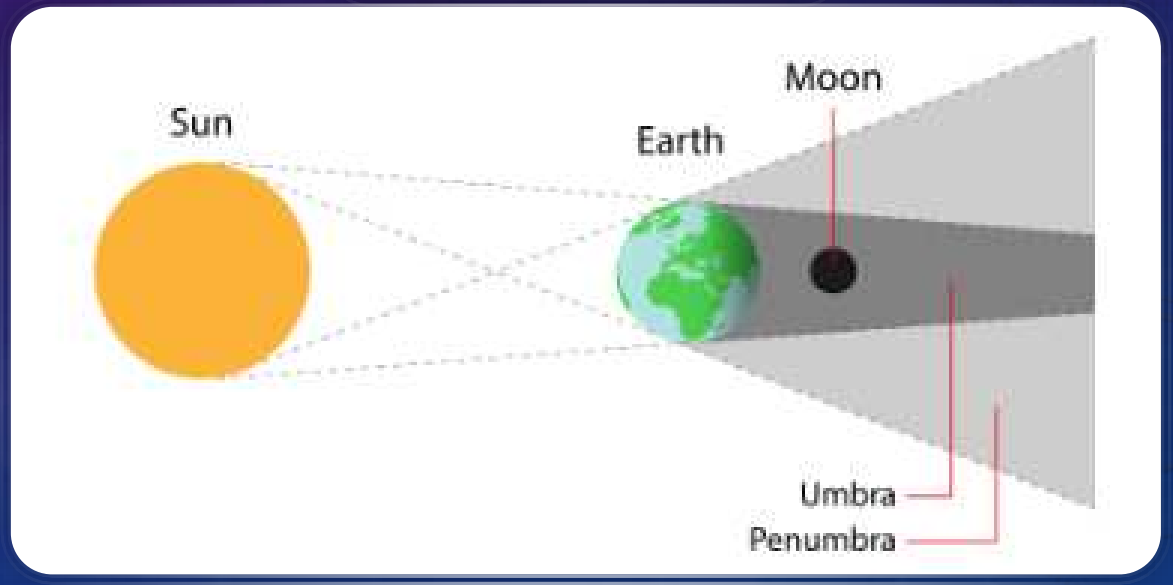
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | | | | 1<br>The Moon at perigee<br>Conjunction of the Moon and Venus |
| 2 | 3<br>Conjunction of Mercury and Neptune<br>The Theta Carinae cluster is well placed | 4<br>Mercury at perihelion | 5<br>Close approach of the Moon and M45 | 6<br>Close approach of the Moon and Jupiter<br>Conjunction of the Moon and Jupiter<br>Moon at First Quarter<br>Lunar occultation of Beta Tauri | 7<br>Mercury at dichotomy<br>Mercury at greatest elongation east | 8<br>Mercury at highest altitude in evening sky<br>The Wishing Well cluster is well placed<br>Conjunction of the Moon and Mars<br>Close approach of the Moon and Mars |
| 9<br>Conjunction of Venus and Mercury | 10 | 11 | 12<br>Saturn at solar conjunction<br>Asteroid 8 Flora at opposition | 13 | 14<br>Full Moon<br>Total lunar eclipse<br>γ-Normid meteor shower 2025 | 15 |
| 16<br>Lunar occultation of Spica | 17<br>The Moon at aphelion<br>The Moon at apogee | 18 | 19<br>Neptune at solar conjunction | 20<br>March equinox<br>Lunar occultation of Antares | 21 | 22<br>Moon at Last Quarter<br>Venus at inferior solar conjunction |
| 23<br>Saturn ring plane crossing | 24<br>Mercury at inferior solar conjunction | 25<br>Comet 21P/Giacobini-Zinner passes perihelion<br>1 Ceres at aphelion | 26<br>The Moon at perihelion | 27 | 28<br>Conjunction of the Moon and Saturn | 29<br>Partial solar eclipse<br>New Moon |
| 30<br>The Moon at perigee | 31<br>136472 Makemake at opposition | | | | | |

# TOTAL LUNAR ECLIPSE

## FRI, 14 MAR 2025 FROM 01:09 EDT (05:09 UTC) TO 04:47 EDT (08:47 UTC)

- The Moon will pass through the Earth's shadow between 01:09 and 04:47 EDT, creating a total lunar eclipse. The eclipse will be visible any location where the Moon is above the horizon at the time, including from the Americas, Antarctica, Alaska, north-eastern Russia and Africa.
- It will be visible from Stratford in the south-western sky. The Moon will lie 45° above the horizon at the midpoint of the eclipse.
- The total eclipse will last from 02:26 until 03:31. The Moon will be partially eclipsed between 01:10 and 04:48 (all times given in Stratford time).



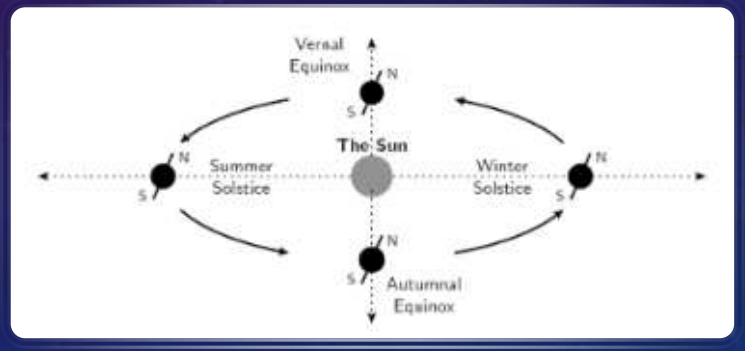
# MARCH EQUINOX

## THU, 20 MAR 2025 AT 05:01 EDT (09:01 UTC)

•The March equinox marks the first day of spring for anybody living in the northern hemisphere, and the first day of autumn for anybody living in the southern hemisphere.

•On the day of the equinox, everywhere on Earth has almost exactly 12 hours of day and night, as the Sun's annual journey through the constellations of the zodiac carries it across the celestial equator. The word equinox is derived from the Latin words aequus (equal) and nox (night)

•Wherever you live on Earth, on the day of the equinox the Sun will rise from the point on the horizon which lies due east, and sets beneath the point which lies due west.




•Equinox geometry

•Equinoxes occur because the axis of the Earth's spin – its polar axis – is tilted at an angle of 23.5° to the plane of its orbit around the Sun.

•The direction of the Earth's spin axis remains fixed in space as it circles around the Sun, while the Earth's sight line to the Sun moves through the constellations of the zodiac. As a result, sometimes the Earth's north pole is tilted towards the Sun (in June), and sometimes it is tilted away from it (in December). This gives rise to the Earth's seasons:

•The right ascension of the Sun

•At the March equinox, the Sun has a right ascension of almost exactly zero.

•This is because the zero point of right ascension is defined by the position of the centre of the Sun at the moment of the equinox.

# Saturn ring plane crossing

## SUN, 23 MAR 2025 AT 12:04 EDT (16:04 UTC)

Saturn's rings will appear edge-on as viewed from the Earth.

The position of Saturn at the moment the Earth passes through its ring plane will be:



THE SKY ON 23 MARCH 2025

| | |
|---|---|
| Sunrise | 07:19 |
| Sunset | 19:39 |
| Twilight ends | 21:16 |
| Twilight begins | 05:42 |

Waning Crescent
32%
23 days old

**Planets**

| | Rise | Culm. | Set |
|---|---|---|---|
| Mercury | 07:08 | 13:31 | 19:53 |
| Venus | 06:36 | 13:11 | 19:47 |
| Moon | 04:23 | 08:25 | 12:31 |
| Mars | 13:01 | 20:48 | 04:35 |
| Jupiter | 10:35 | 18:09 | 01:44 |
| Saturn | 07:09 | 12:55 | 18:41 |

All times shown in EDT.

# LATEST ASTRONOMY NEWS

## FEBRUARY

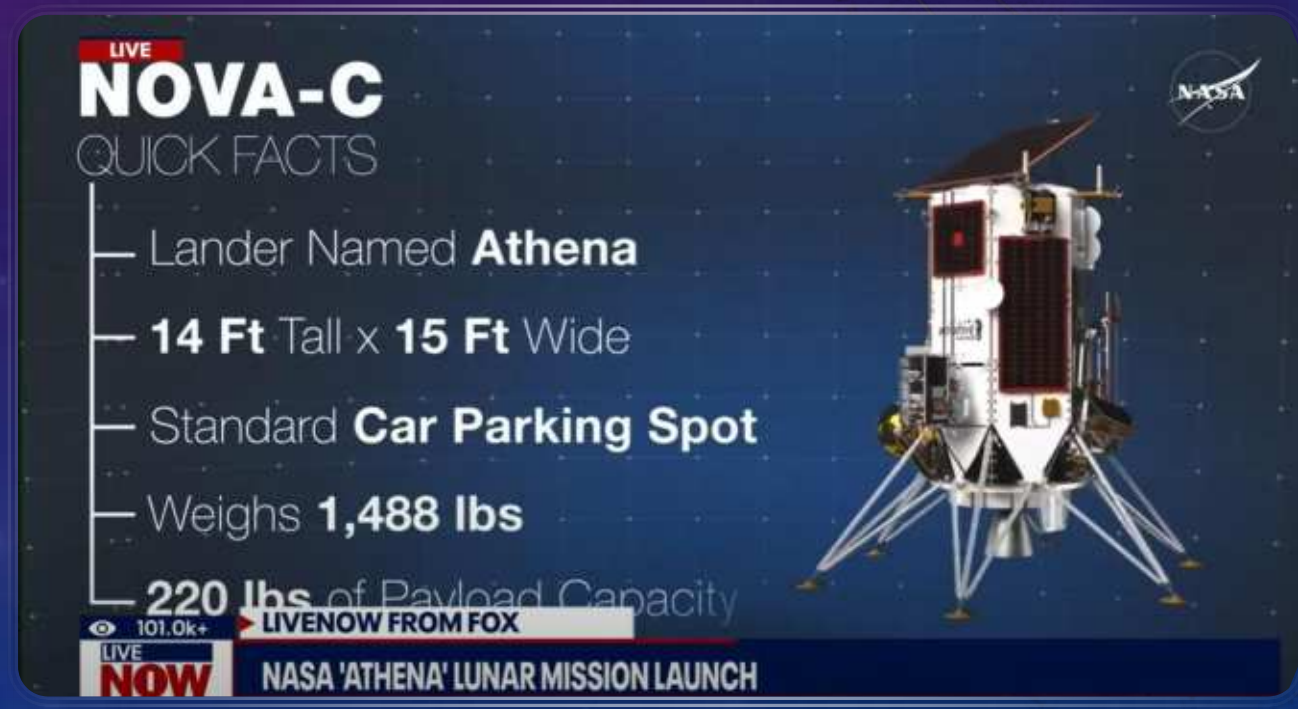
# ATHENA LAUNCHES TOWARDS THE MOON - FEB 26TH

•February 26, 2025 — The first company to soft land a spacecraft on the moon is now on its way to doing it again — and even more.

Intuitive Machines' second Nova-C lander has set course for the lunar south pole, having left Earth on Wednesday (Feb. 26). Riding atop a SpaceX Falcon 9 rocket from Pad 39A at NASA's Kennedy Space Center in Florida, the robotic probe lifted off at 7:16 p.m. EST (0016 GMT on Feb. 27) on a trailblazing mission to test new ways to explore, communicate and conduct science on the moon.

"[With] our 10-day surface mission ... we believe we are setting the stage for future Artemis missions," said Trent Martin, senior vice president for space systems at Intuitive Machines, during a press conference held four hours before the launch.

For the first two a half minutes of flight, the IM-2 mission powered by a first stage booster that previously supported eight other launches, including Crew-8, Polaris Dawn and SpaceX's 31st resupply mission to the International Space Station.



# BLUE GHOST LANDS ON

# PUT ON YOUR HARD HATS (CANCEL THAT) – THE ASTEROID IS COMING FEB 24

The probability that the asteroid, called 2024 YR4, may impact Earth on 22 December 2032 is currently estimated to be 0.004%.

Shortly after its discovery, automated asteroid warning systems determined that the object had a very small chance of potentially impacting Earth on 22 December 2032. 2024 YR4 is estimated to be between 40 m and 100 m wide. An asteroid this size impacts Earth on average every few thousand years and could cause severe damage to a local region.

As a result, the object rose to the top of ESA's asteroid risk list. Since early January, astronomers have been carrying out priority follow-up observations using telescopes around the world and using the new data to improve our understanding of the asteroid's size and trajectory. SMPAG, chaired by ESA, is responsible for facilitating the international exchange of information, developing opportunities for collaborative research and missions, and conducting near-Earth object threat mitigation planning activities related to asteroid 2024 YR4.
The Group will convene at its existing planned meeting in Vienna next week to determine its next steps. If the asteroid's impact probability remains above the 1% threshold when next observed in 2028, SMPAG will provide recommendations to the UN and may begin to evaluate the different options for a spacecraft-based response to the potential hazard.

# LATEST WEBB/HUBBLE IMAGES

# SHOW AND TELL

# COSMOLOGY TALK