STRATFORD ASTRONOMY GROUP

APRIL 1ST, 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

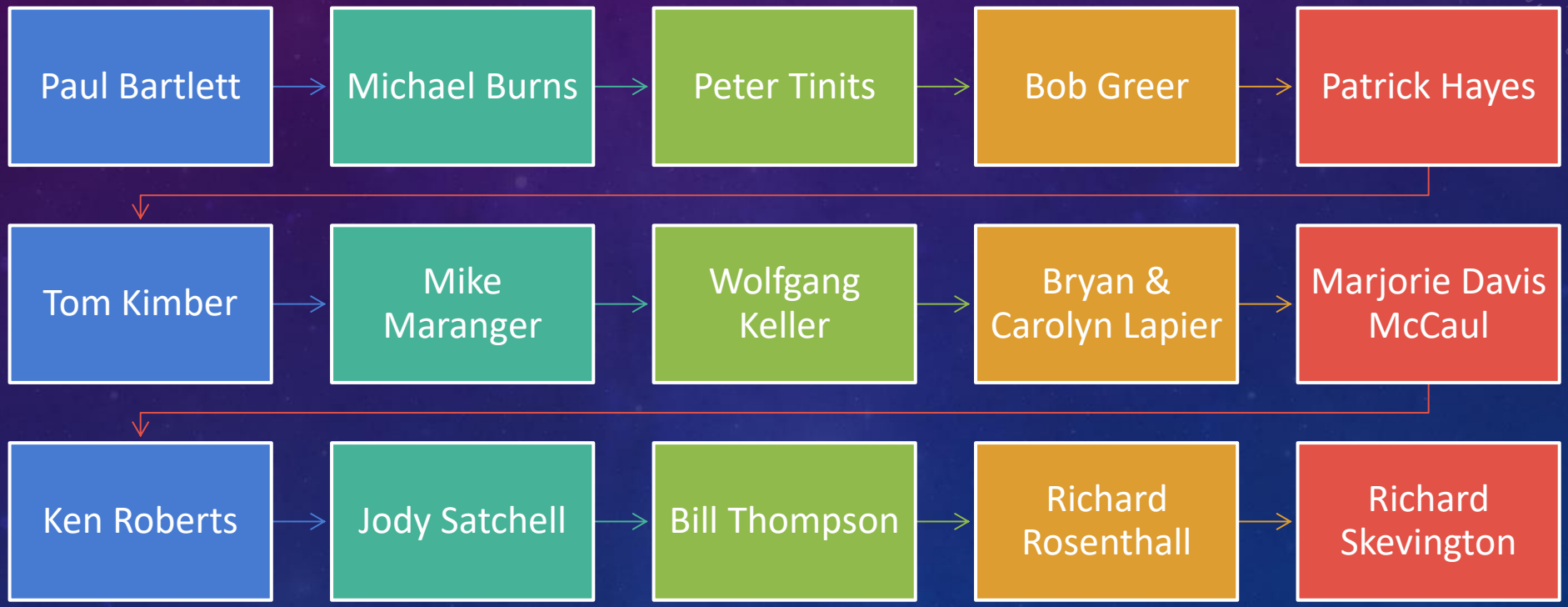
MEET AND GREET

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 was a success on the 21st of March.

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 APRIL

<< March | April 2025 | May >>

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	1	2	3	4	5
		Waxing crescent Visible: 14% ↑ Age: 3.52 days	Waxing crescent Visible: 23% ↑ Age: 4.64 days	Waxing crescent Visible: 33% ↑ Age: 5.72 days	First quarter Visible: 44% ↑ Age: 6.77 days	**First quarter** **Visible: 55% ↑** **Age: 7.78 days**
6	7	8	9	10	11	12
First quarter Visible: 65% ↑ Age: 8.77 days	Waxing gibbous Visible: 74% ↑ Age: 9.73 days	Waxing gibbous Visible: 83% ↑ Age: 10.67 days	Waxing gibbous Visible: 90% ↑ Age: 11.60 days	Waxing gibbous Visible: 95% ↑ Age: 12.51 days	Full moon Visible: 98% ↑ Age: 13.41 days	Full moon Visible: 100% Age: 14.31 days
13	14	15	16	17	18	19
Full moon **Visible: 100%** **Age: 15.21 days**	Full moon Visible: 99% ↓ Age: 16.10 days	Waning gibbous Visible: 95% ↓ Age: 16.99 days	Waning gibbous Visible: 90% ↓ Age: 17.89 days	Waning gibbous Visible: 83% ↓ Age: 18.79 days	Waning gibbous Visible: 75% ↓ Age: 19.71 days	Waning gibbous Visible: 66% ↓ Age: 20.64 days
20	21	22	23	24	25	26
Last quarter Visible: 56% ↓ Age: 21.59 days	**Last quarter** **Visible: 46% ↓** **Age: 22.57 days**	Last quarter Visible: 35% ↓ Age: 23.58 days	Waning crescent Visible: 25% ↓ Age: 24.63 days	Waning crescent Visible: 16% ↓ Age: 25.72 days	Waning crescent Visible: 8% ↓ Age: 26.85 days	Waning crescent Visible: 3% ↓ Age: 28.00 days
27	28	29	30	1	2	3
New **Visible: 1% ↓** **Age: 29.17 days**	New Visible: 1% ↑ Age: 0.82 days	Waxing crescent Visible: 5% ↑ Age: 1.98 days	Waxing crescent Visible: 11% ↑ Age: 3.12 days			

HEY, THERE BE A MOON OVERHEAD

MOON PHASES FOR THE MONTH OF APRIL

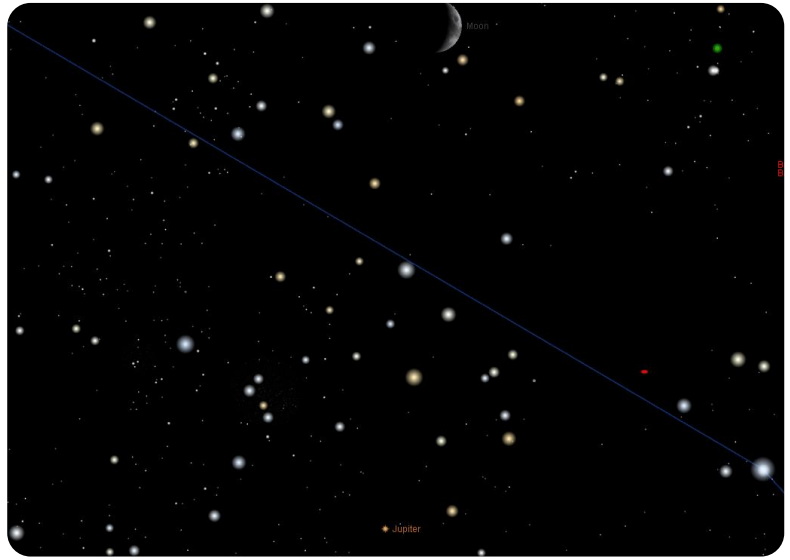
« April 2025 »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Close approach of the Moon and M45 The Sombrero Galaxy is well placed	2 Close approach of the Moon and Jupiter Conjunction of the Moon and Jupiter	3 Lunar occultation of Beta Tauri	4 Messier 94 is well placed Moon at First Quarter	5 Conjunction of the Moon and Mars Close approach of the Moon and Mars The Jewel Box cluster is well placed
6	7	8	9	10	11	12 Full Moon Lunar occultation of Spica
13 The Moon at apogee Centaurus A is well placed Omega Centauri is well placed	14 136199 Eris at solar conjunction The Whirlpool Galaxy is well placed	15 The Moon at aphelion	16 Mercury at highest altitude in morning sky Conjunction of Mercury and Neptune Mars at aphelion Lunar occultation of Antares Messier 83 is well placed	17 Mercury at aphelion Messier 3 is well placed	18	19
20 Moon at Last Quarter	21 Mercury at greatest elongation west 136108 Haumea at opposition	22 Lyrid meteor shower 2025 Messier 101 is well placed	23 π-Puppid meteor shower 2025	24 Venus at greatest brightness Mercury at dichotomy Conjunction of the Moon and Venus Close approach of the Moon and Saturn Close approach of the Moon and Venus	25 Conjunction of the Moon and Saturn The Moon at perihelion Conjunction of the Moon and Mercury	26
27 The Moon at perigee New Moon	28 Close approach of Venus, Saturn and Neptune Conjunction of Venus and Saturn	29 Close approach of the Moon and M45	30 Close approach of the Moon and Jupiter Conjunction of the Moon and Jupiter Lunar occultation of Beta Tauri			

MOON JUPITER CONJUNCTION

WED, 02 APR 2025 AT 20:24 EDT (00:24 UTC)

- The Moon and Jupiter will share the same right ascension, with the Moon passing 5°30' to the north of Jupiter. The Moon will be 5 days old.
- At around the same time, the two objects will also make a close approach, technically called an appulse.
- From Stratford , the pair will become visible at around 20:08 (EDT), 52° above your western horizon, as dusk fades to darkness. They will then sink towards the horizon, setting at 01:12.
- The Moon will be at mag -11.3, and Jupiter at mag -2.1, both in the constellation Taurus.
- The pair will be too widely separated to fit within the field of view of a telescope or pair of binoculars, but will be visible to the naked eye.



THE SKY ON 2 APRIL 2025

Sunrise 07:01

Sunset 19:51

Twilight ends 21:30

Twilight begins 05:22

Waxing Crescent

32%

4 days old

Planets

	Rise	Culm.	Set
Mercury	06:24	12:27	18:31
Venus	05:52	12:14	18:36
Moon	09:20	17:28	01:44
Mars	12:39	20:22	04:04
Jupiter	10:01	17:36	01:11
Saturn	06:33	12:21	18:08

All times shown in EDT.

THE WHIRLPOOL GALAXY IS WELL PLACED (FOR A SEESTAR CHALLENGE)

MON, 14 APR 2025

- The Whirlpool Galaxy M51 (NGC 5194; mag 8.4) in Canes Venatici will be well placed in the evening sky in coming weeks. On 14 April it will reach its highest point in the sky at around midnight local time, and on subsequent evenings it will culminate four minutes earlier each day.
- From Stratford , it is visible all night. It will become visible at around 21:17 (EDT), 48° above your north-eastern horizon, as dusk fades to darkness. It will be lost to dawn twilight at around 05:29, 47° above your north-western horizon.
- At a declination of 47°11'N, it is easiest to see from the northern hemisphere but cannot be seen from latitudes much south of 22°S.
- At magnitude 8.4, M51 is quite faint, and certainly not visible to the naked eye, but can be viewed through a pair of binoculars or small telescope

THE SKY ON 14 APRIL 2025

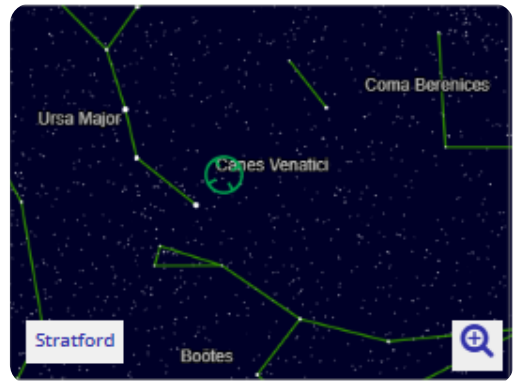
Sunrise 06:40
Sunset 20:05
Twilight ends 21:49
Twilight begins 04:57

Waning Gibbous
93%
16 days old

Planets

	Rise	Culm.	Set
Mercury	05:53	11:49	17:44
Venus	05:14	11:23	17:33
Moon	21:10	02:09	07:00
Mars	12:16	19:53	03:30
Jupiter	09:21	16:58	00:34
Saturn	05:49	11:39	17:28

All times shown in EDT.



Lyrid meteor shower 2025

TUE, 22 APR 2025

The Lyrid meteor shower will be active from 16 April to 25 April, producing its peak rate of meteors around 22 April.

Over this period, there will be a chance of seeing Lyrid meteors whenever the shower's radiant point – in the constellation Hercules – is above the horizon.

From Stratford , the radiant point is above the horizon all night, which means that the shower will be active throughout the hours of darkness.

The radiant point culminates (is highest in the sky) after dawn – at around 05:00 EDT – and so the shower is likely produce its best displays shortly before dawn, when its radiant point is highest.

THE SKY ON 22 APRIL 2025

Sunrise	06:27
Sunset	20:14
Twilight ends	22:02
Twilight begins	04:40

Waning Crescent

27%

24 days old

Planets

	Rise	Culm.	Set
Mercury	05:41	11:42	17:44
Venus	04:55	11:01	17:07
Moon	04:05	08:55	13:54
Mars	12:02	19:35	03:08
Jupiter	08:56	16:33	00:10
Saturn	05:19	11:10	17:02

All times shown in EDT.

VENUS AT GREATEST BRIGHTNESS
THU, 24 APR 2025 AT 02:02 EDT (06:02 UTC)

- Venus will reach its greatest brightness in its 2025 morning apparition. It will be shining brightly at mag -4.5.
- From Stratford , this apparition will not be one of the most prominent but prominent, reaching a peak altitude of 30° above the horizon at sunrise on 7 Aug 2025.
- Venus's orbit lies closer to the Sun than the Earth's, meaning that it always appears close to the Sun and is lost in the Sun's glare much of the time.
- It is observable for a few months each time it reaches greatest separation from the Sun – moments referred to as *greatest elongation*. These apparitions repeat roughly once every 1.6 years.
- On these occasions, Venus is so bright and conspicuous that it becomes the third brightest object in the sky after the Sun and Moon. It is often called the morning star or the evening star.

THE SKY ON 24 APRIL 2025

Sunrise	06:24
Sunset	20:17
Twilight ends	22:05
Twilight begins	04:36

Waning Crescent

13%

26 days old

Planets

	Rise	Culm.	Set
Mercury	05:38	11:43	17:47
Venus	04:50	10:56	17:02
Moon	04:52	10:33	16:28
Mars	11:59	19:31	03:03
Jupiter	08:49	16:26	00:04
Saturn	05:12	11:03	16:55

All times shown in EDT.

LATEST ASTRONOMY NEWS

MARCH

OOPS, WE TIPPED IT AGAIN: MISSION OVER FOR SIDEWAYS US LANDER - MARCH 8TH

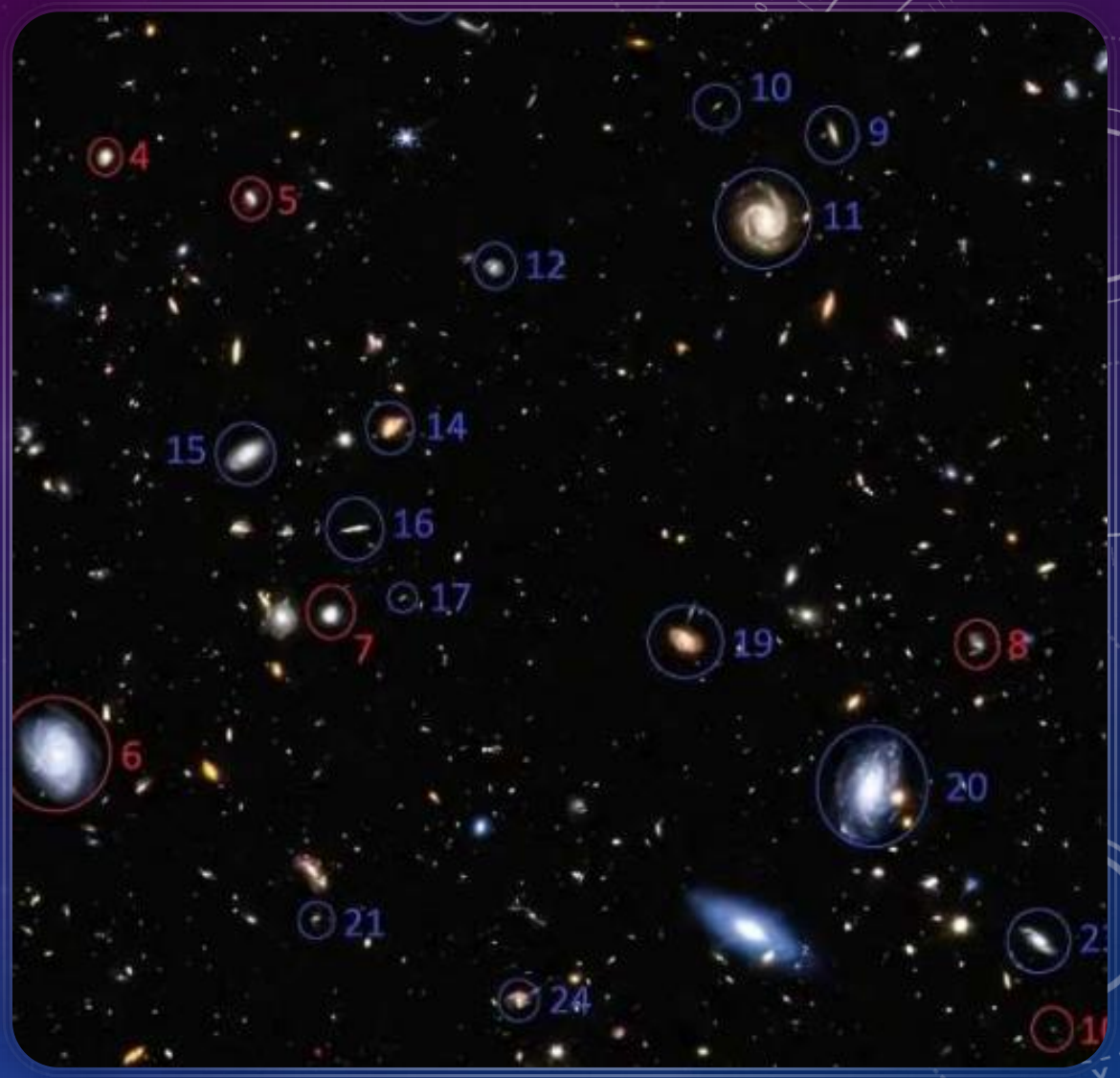
- Intuitive Machines' second moon mission ended in disappointment on Friday after the US company confirmed that its spacecraft had tipped over and was unable to recharge its solar-powered batteries—mirroring its first attempt last year.
- It marked a premature conclusion to a mission that had sparked excitement in the space community, thanks to its cutting-edge payloads, including a futuristic hopping drone, multiple rovers, an ice drill, and a 4G network test.
- Houston-based Intuitive Machines (IM) had hoped to make history with Athena, a hexagonal lander roughly the height of a giraffe, designed to touch down on a spot called the Mons Mouton plateau, closer to the lunar south pole than any mission before.
- But after blasting off last week aboard a SpaceX Falcon 9 rocket and traveling more than a million kilometers through space, the spacecraft stumbled at the final hurdle on Thursday, coming down at an awkward angle.
- IM confirmed Friday that it had fallen face-first into a crater, at least 250 meters (820 feet) from its intended landing site.

PUZZLING OBSERVATION BY JWST: GALAXIES IN THE DEEP UNIVERSE ROTATE IN THE SAME DIRECTION – MARCH 12TH

•In just over three years since its launch, NASA's James Webb Space Telescope (JWST) has generated significant and unprecedented insights into the far reaches of space, and a new study by a Kansas State University researcher provides one of the simplest and most puzzling observations of the deep universe yet.

•In images of the deep universe taken by the James Webb Space Telescope Advanced Deep Extragalactic Survey, the vast majority of the galaxies rotate in the same direction, according to research by Lior Shamir, associate professor of computer science at the Carl R. Ice College of Engineering. About two thirds of the galaxies rotate clockwise, while just about a third of the galaxies rotate counterclockwise.

•The study—published in *Monthly Notices of the Royal Astronomical Society*—was done with 263 galaxies in the JADES field that were clear enough to identify their direction of rotation.



Spiral galaxies imaged by JWST that rotate in the same direction relative to the Milky Way (red) and in the opposite direction relative to the Milky Way (blue). The number of galaxies rotating in the opposite direction relative to the Milky Way as observed from Earth is far higher.

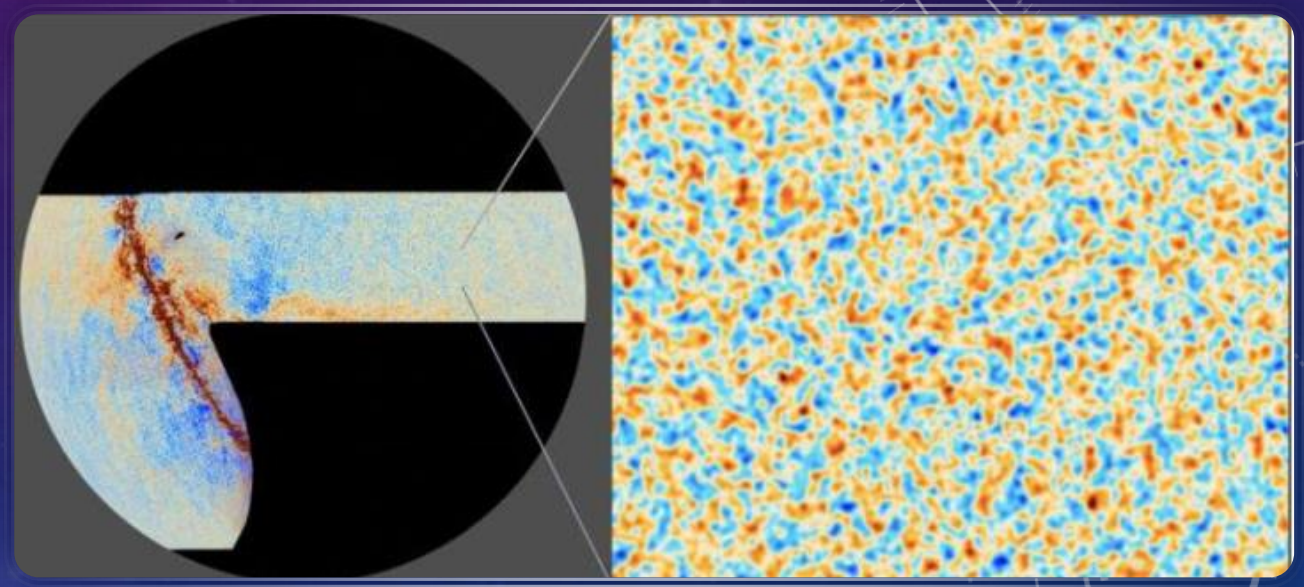
CLEAREST IMAGES YET OF 380,000-YEAR-OLD UNIVERSE REVEAL COSMIC INFANCY MARCH 18TH

•New research by the Atacama Cosmology Telescope (ACT) collaboration has produced the clearest images yet of the universe's infancy—the earliest cosmic time yet accessible to humans. Measuring light that traveled for more than 13 billion years to reach a telescope high in the Chilean Andes, the new images reveal the universe when it was about 380,000 years old—the equivalent of hours-old baby pictures of a now middle-aged cosmos.

•"We are seeing the first steps towards making the earliest stars and galaxies," says Suzanne Staggs, director of ACT and Henry deWolf Smyth Professor of Physics at Princeton University. "And we're not just seeing light and dark, we're seeing the polarization of light in high resolution. That is a defining factor distinguishing ACT from Planck and other, earlier telescopes."

•The new pictures of this background radiation, known as the cosmic microwave background (CMB), add higher definition to those observed more than a decade ago by the Planck space-based telescope. "ACT has five times the resolution of Planck, and greater sensitivity," says Sigurd Naess, a researcher at the University of Oslo and a lead author of one of several papers related to the project. "This means the faint polarization signal is now directly visible."

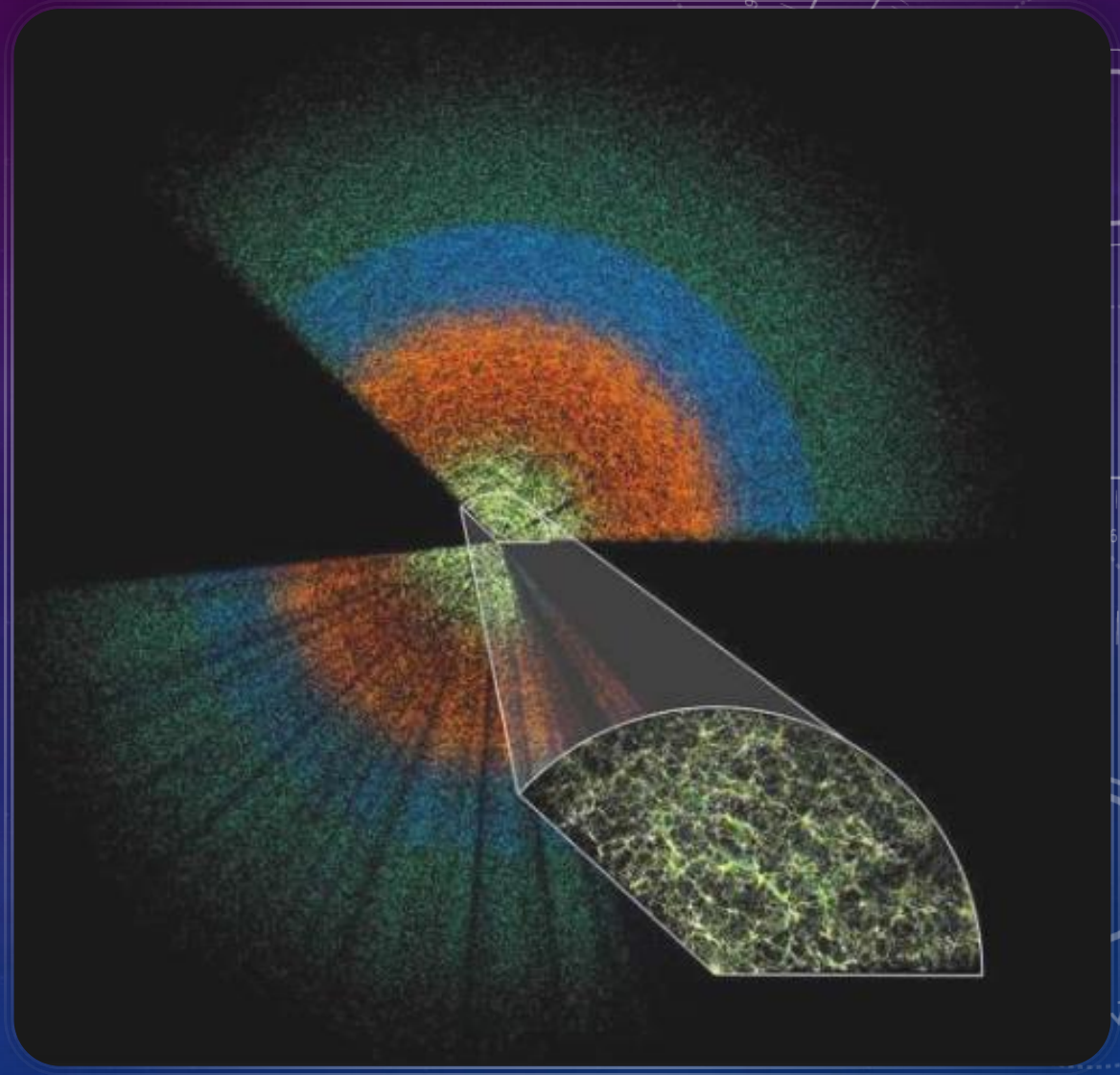
•The polarization image reveals the detailed movement of the hydrogen and helium gas in the cosmic infancy. "Before, we got to see where things were, and now we also see how they're moving," says Staggs. "Like using tides to infer the presence of the moon, the movement tracked by the light's polarization tells us how strong the pull of gravity was in different parts of space."



DESI RELEASES LARGEST 3D MAP OF THE UNIVERSE TO DATE

MARCH 20TH

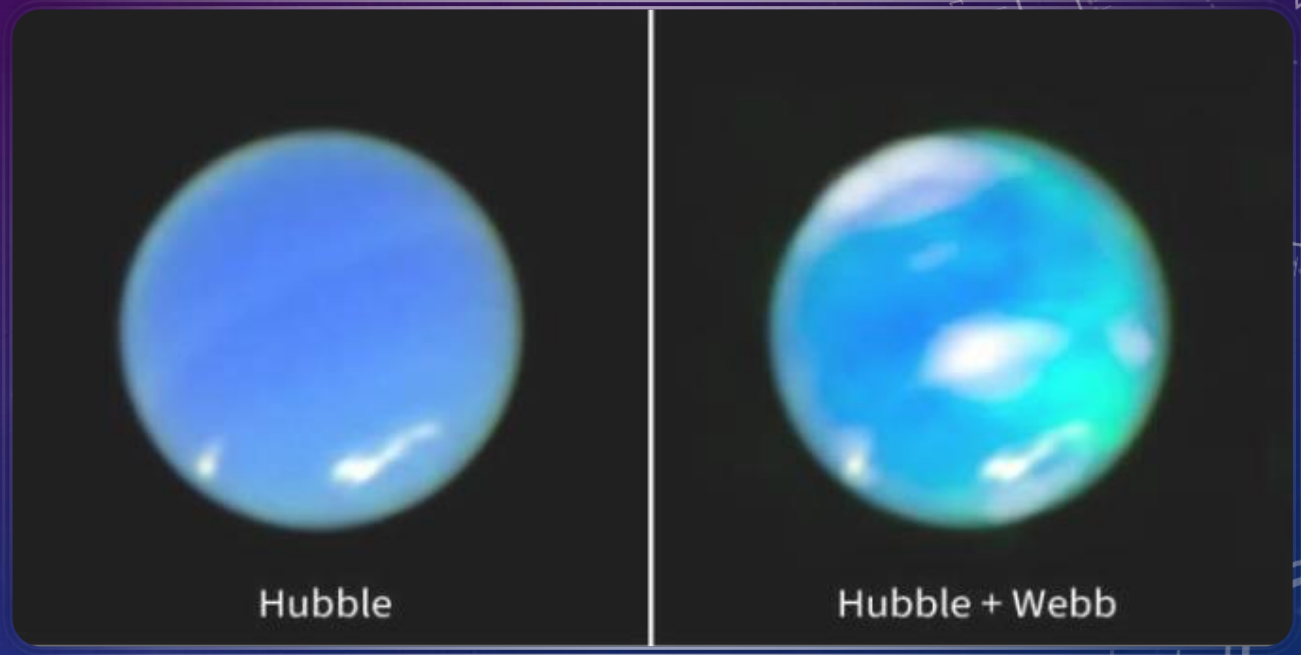
- The Dark Energy Spectroscopic Instrument (DESI) is mapping millions of celestial objects to better understand dark energy—the mysterious driver of our universe's accelerating expansion. Today, the DESI collaboration released a new collection of data for anyone in the world to investigate.
- The dataset is the largest of its kind, with information on 18.7 million objects: roughly 4 million stars, 13.1 million galaxies, and 1.6 million quasars (extremely bright but distant objects powered by supermassive black holes at their cores).
- While the experiment's main mission is illuminating dark energy, DESI's Data Release 1 (DR1) could yield discoveries in other areas of astrophysics, such as the evolution of galaxies and black holes, the nature of dark matter, and the structure of the Milky Way.



WEBB CAPTURES NEPTUNE'S AURORAS FOR FIRST TIME

MARCH 25

- Neptune lies in the frigid, dark, vast frontier of the outer edges of our solar system, about 3 billion miles away from the sun.
- For the first time, NASA's James Webb Space Telescope has captured bright auroral activity on Neptune. Auroras occur when energetic particles, often originating from the sun, become trapped in a planet's magnetic field and eventually strike the upper atmosphere. The energy released during these collisions creates the signature glow.



LATEST WEBB/HUBBLE IMAGES

Ken Roberts capture the Lunar Eclipse

Hubble captures new view of the Veil Nebula – March 3rd

WEBB WOWS WITH INCREDIBLE DETAIL IN ACTIVELY FORMING STAR SYSTEM

MARCH 7TH

•High-resolution near-infrared light captured by the NASA/ESA/CSA James Webb Space Telescope shows extraordinary new detail and structure in Lynds 483 (L483). Two actively forming stars are responsible for the shimmering ejections of gas and dust that gleam in orange, blue, and purple in this representative color image.

SHOW AND TELL

COSMOLOGY TALK