Hubble and James Webb Space Telescopes

The Latest Spectacular Images from the Cosmos

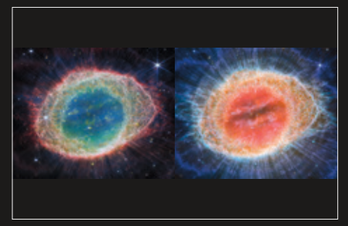
2024

Cover
Stars Forming in Rho Ophiuchi

The subject of the first anniversary image from the NASA/ESA/CSA James Webb Space Telescope is the Rho Ophiuchi cloud complex, the closest star-forming region to Earth. Jets bursting from young stars crisscross the image, impacting the surrounding interstellar gas and lighting up molecular hydrogen.

Credit: NASA, ESA, CSA, STScI, K. Pontoppidan (STScI), A. Pagan (STScI)

January
The Ring Nebula's Beauty



Formed by a star throwing off its outer layers as it runs out of fuel, the Ring Nebula is an archetypal planetary nebula. The near-infrared image (left) makes the ring's intricate detail visible, while the mid-infrared image (right) reveals concentric features in the outer regions of the nebula's ring.

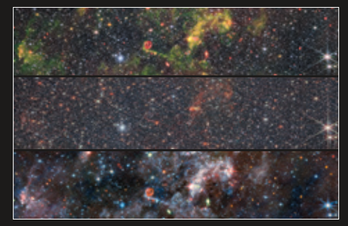
Credit: NASA, ESA, CSA, M. Barlow, N. Cox, R. Wesson

February
Jellyfish Galaxies

In 2023 several images from Hubble of 'jellyfish' galaxies, named for their beautiful trailing tentacles, were released. These jellyfish are all travelling through galaxy clusters, ploughing through the diffuse gas that pervades such clusters. The resulting 'ram pressure' strips gas from the galaxies and creates these trailing streamers, where new stars form.

Credit: NASA, ESA, M. Gullieuszik and the GASP team

March
Dust-Filled Galaxy NGC 6822



These three images give radically different views of the galaxy NGC 6822. At the bottom, in Webb's mid-infrared image, the emission of light by galactic dust is prominent, obscuring the galaxy's stars. In the middle, the near-infrared image shows the galaxy's countless stars in incredible detail. The two views are combined in the top image.

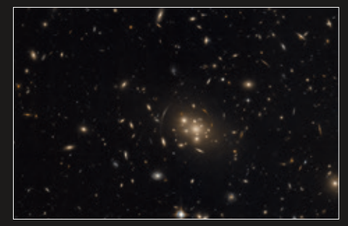
Credit: NASA, ESA, CSA, M. Meixner

April
Stars Forming in NGC 1333

This image, released to celebrate Hubble's 33rd anniversary in April 2023, features the star-forming nebula NGC 1333 in the Perseus molecular cloud. Hubble's colourful view, showcasing its unique ability to obtain images in light from ultraviolet to near-infrared, unveils an effervescent cauldron of gases and dust stirred up by newly forming stars within the dark cloud.

Credit: NASA, ESA, STScI

May
A Gargantuan Gravitational Lens



A massive galaxy cluster, SPT-CL J0019-2026, dominates the centre of this image from Hubble. The view is populated with a serene collection of elliptical and spiral galaxies, but galaxies surrounding the central cluster appear stretched into bright arcs, an amazing example of gravitational lensing.

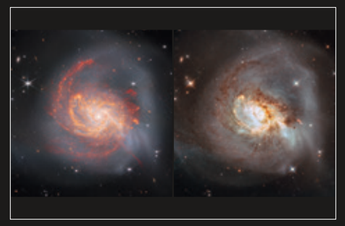
Credit: NASA, ESA, H. Ebeling

June
Gas and Light Collide

This is Webb's view of the Orion Bar region, a part of the Orion Nebula that hosts intense star formation activity and active astrochemistry. Harsh ultraviolet light from the stars of the Trapezium Cluster carves out a rich tapestry of cavities and filaments.

Credit: NASA, ESA, CSA, M. Zamani (ESA/Webb), the PDRs4All ERS Team

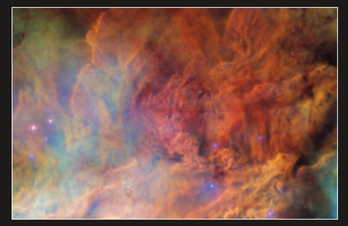
July
Clash of the Titans



This distorted galaxy, NGC 3256, is the result of an ancient clash between two galaxies. The left image, from Webb (in 2023), captures infrared light from dust grains, irradiated by young stars that were formed from the collision. The right image from Hubble (in 2018) highlights hot, massive stars in the two galactic cores, shrouded by dark dust that blocks visible light.

Credit (left): NASA, ESA, CSA, L. Armus, A. Evans
Credit (right): NASA, ESA

August
Cosmic Smokescreen



A portion of the open cluster NGC 6530 appears as a roiling wall of smoke studded with stars in this image from Hubble. The cluster is set within the larger Lagoon Nebula, a gigantic interstellar cloud of gas and dust; it is the nebula that gives this image its distinctly smokey appearance.

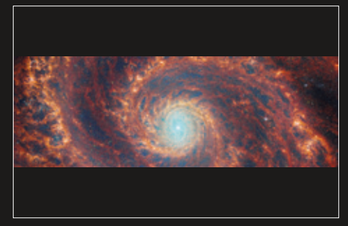
Credit: NASA, ESA, CSA, ESO, O. De Marco

September
Outer Planets and Moons

In its first year the James Webb Space Telescope has returned stunning infrared images of the Solar System's outer planets and some of their moons. Featured here are Jupiter (top left), Saturn (bottom left), Uranus (top right) and Neptune (bottom right).

Credit (top left): NASA, ESA, Jupiter ERS Team, J. Schmidt
Credit (bottom left): NASA, ESA, CSA, STScI, M. Tiscareno, M. Showalter, M. Hedman, M. El Moutamid, L. Fletcher, H. Hammel, J. DePasquale (STScI)
Credit (top right): NASA, ESA, CSA, STScI, J. DePasquale (STScI)
Credit (bottom right): NASA, ESA, CSA, STScI

October
A Spiral of Gas and Dust



The graceful winding arms of the grand-design spiral galaxy M51 stretch across this Webb image. This galactic portrait is a composite image that integrates both near-infrared and mid-infrared data. Red colours trace out dust grains, while orange and yellow reveal regions of gas ionised by recently formed star clusters.

Credit: NASA, ESA, CSA, A. Adamo and the FEAST JWST team

November
A Glittering Globular Cluster

This star-filled view from the Hubble Space Telescope is of Terzan 12, a globular cluster embedded in our Milky Way galaxy. Creeping tendrils of galactic gas and dust blanket large portions of Terzan 12, giving some stars a sinister red hue. Relatively unobscured stars shine brightly in white and blue.

Credit: NASA, ESA, R. Cohen

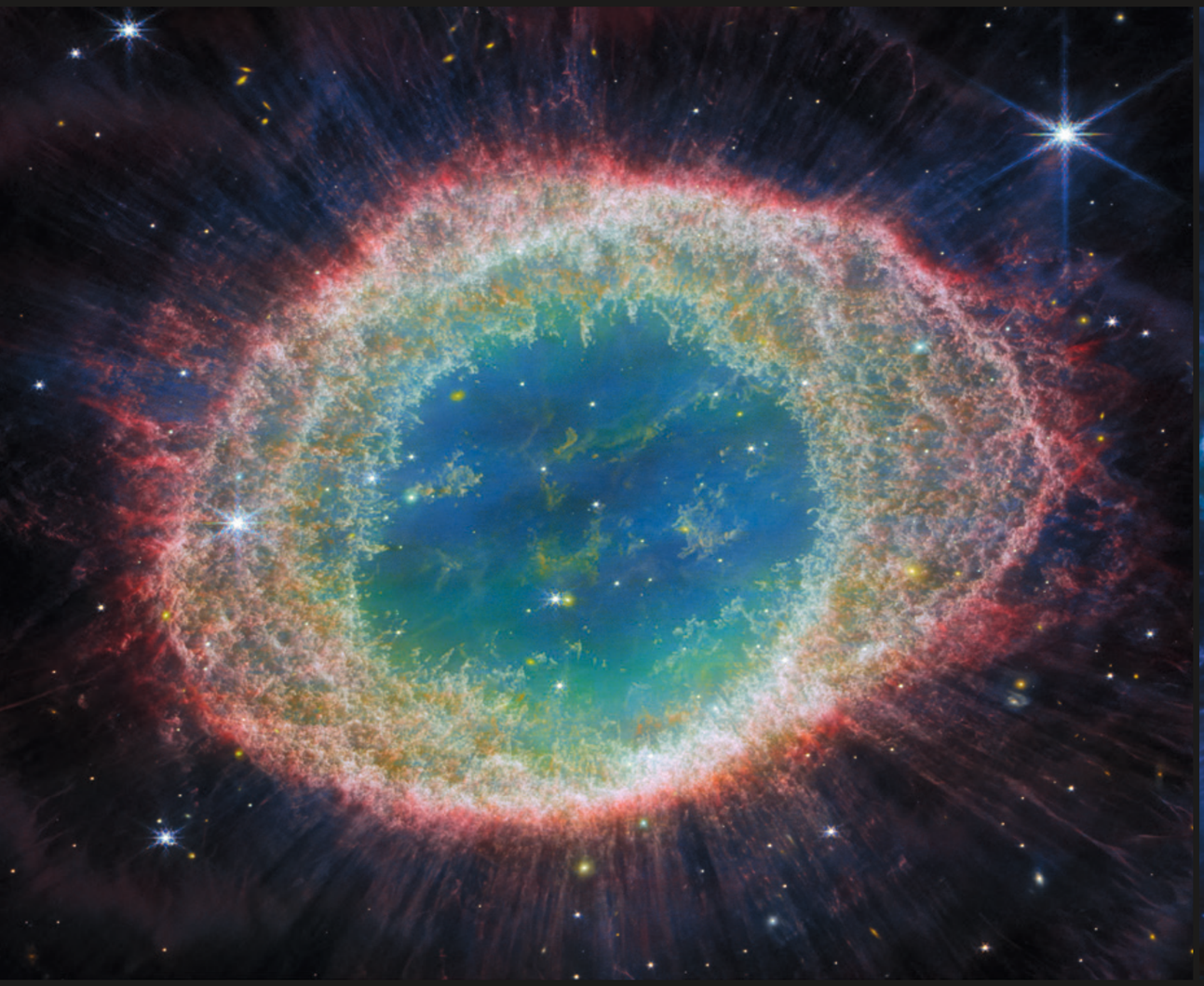
December
Ices in a Dark Molecular Cloud

This image from Webb features the central region of the Chameleon I dark cloud. Cold, wispy cloud material is illuminated in the infrared by the glow of a young, shrouded protostar. Its study points at icy molecules forming in clouds of gas and dust that will one day form stars and planets.

Credit: NASA, ESA, CSA, M. Zamani (ESA/Webb), F. Sun, Z. Smith, and the Ice Age ERS Team

2024

Moon phases are indicated in Universal Time.



The Ring Nebula's Beauty
(Webb)

January 2024

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1							2							3							4							5		

Jellyfish Galaxies
(Hubble)

February 2024

Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	1	2
				6							7							8							9						

Dust-Filled Galaxy NGC 6822
(Webb)

March 2024

Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		10							11							12							13								

Stars Forming in NGC 1333
(Hubble)

April 2024

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1
14							15							16							17							18			

A Gargantuan Gravitational Lens
(Hubble)

May 2024

Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
					19							20							21							22					

Gas and Light Collide
(Webb)

June 2024

Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1
		23							24							25							26								

Clash of the Titans
(Left: Webb; Right: Hubble)

July 2024

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
27							28							29							30							31			

Cosmic Smokescreen
(Hubble)

August 2024

Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
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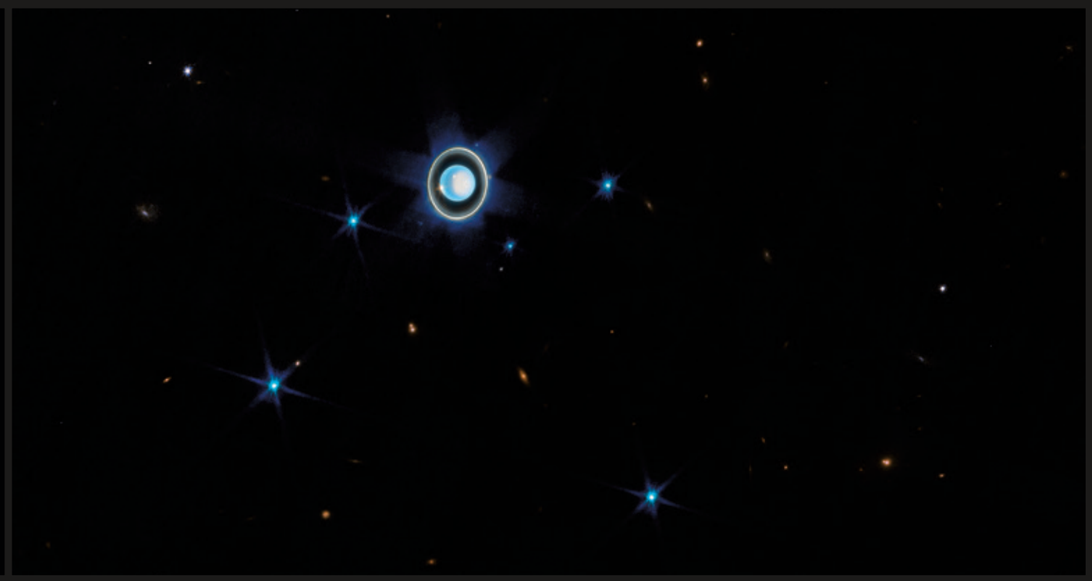

Outer Planets and Moons
(Webb)

September 2024

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	36					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8	9	10	11	12	13	14
	37					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
15	16	17	18	19	20	21
	38					

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
22	23	24	25	26	27	28
	39					

Sunday	Monday	Tuesday
29	30	1
	40	

A Spiral of Gas and Dust
(Webb)

October 2024

Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
						41							42							43							44				

A Glittering Globular Cluster
(Hubble)

November 2024

Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1
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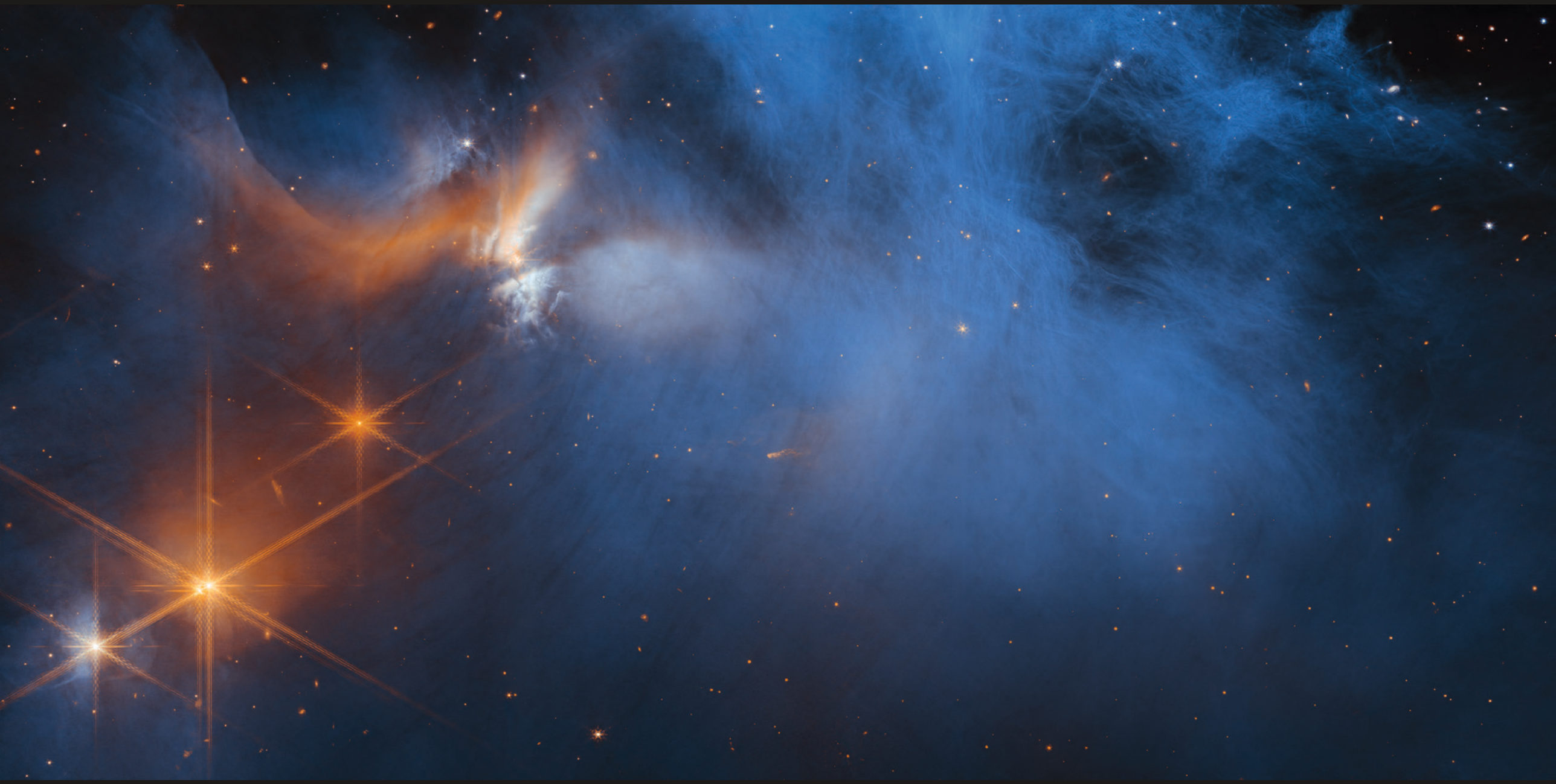

Ices in a Dark Molecular Cloud (Webb)

December 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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	49					
8	9	10	11	12	13	14
	50					
15	16	17	18	19	20	21
	51					
22	23	24	25	26	27	28
	52					
29	30	31				
	1					

The GOODS-South field (Webb image)
Credit: NASA, ESA, CSA, B. Robertson, B. Johnson, S. Tacchella, M. Rieke, D. Eisenstein, A. Pagan (STScI)

The images featured in this calendar were taken by
the NASA/ESA Hubble Space Telescope and the
NASA/ESA/CSA James Webb Space Telescope
and were publicly released throughout 2023.