





Titanes Caracol

<https://titanes.noticias.caracol.tv.com/nominado/javier-enciso>

Desarrollo y Operación de sitios web para observatorios astronómicos de talla mundial

Javier Enciso
Enciso Systems
Villavicencio, 2022-10-19



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Agenda

1. Webb en pocas palabras
2. Misión
3. Telescopio
4. Calibración
5. Divulgación
6. Primeras Imágenes
7. Conclusiones

Webb en pocas palabras

WEBB IN A NUTSHELL

Overview of Webb and ESA's contributions to the mission.

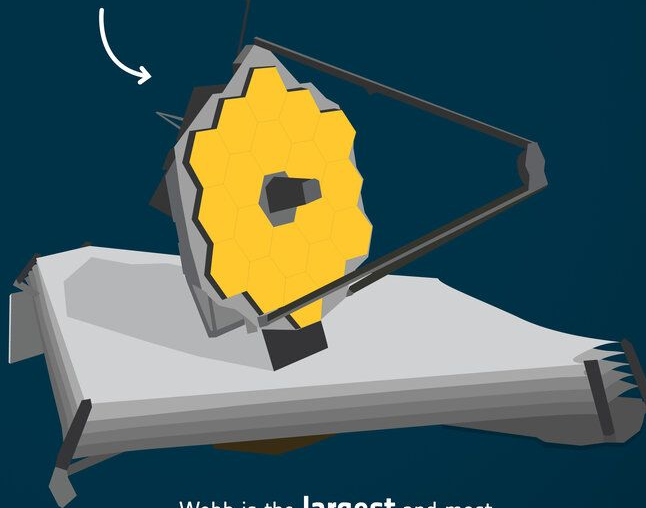


ESA provides a team of **astronomers** and **engineers** to support **science operations**

ESA contributed **two** of Webb's four **science instruments**: **NIRSpec** and 50% of **MIRI**



Webb's partners

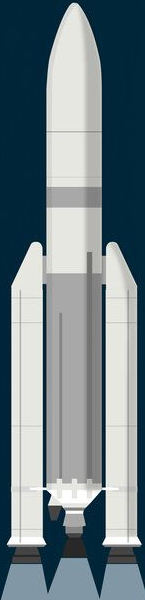


Webb is the **largest** and most **powerful** space telescope ever launched

Webb observes **near-infrared** to **mid-infrared** light

Webb studies our own **Solar System** and **exoplanets** around other stars

Webb studies the birth of the **first stars** and **galaxies**



Webb will reach space on an **Ariane 5** from **Europe's Spaceport** in French Guiana, a launch contributed by ESA

Misión



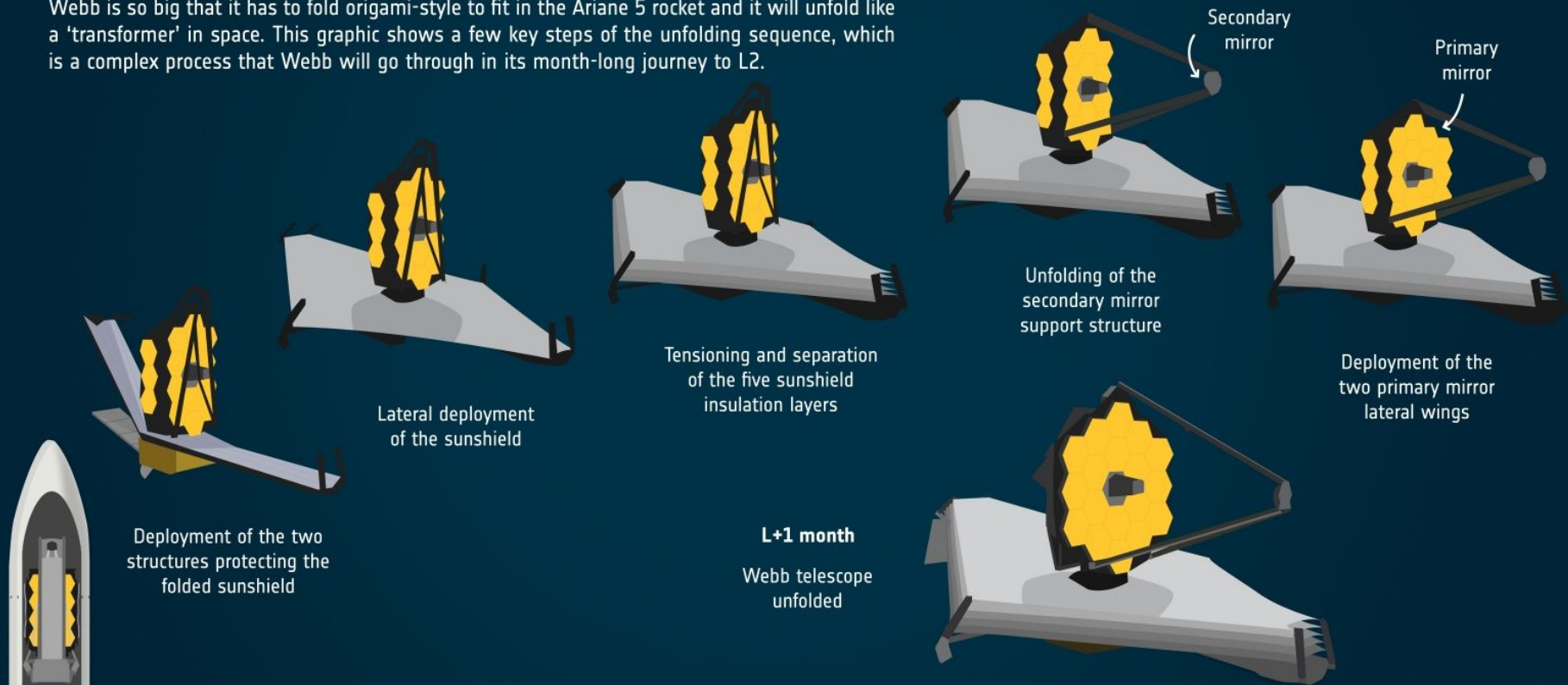
James Webb Telescope's path to deep space goes through Panama Canal
Fuente: <https://www.freightwaves.com/news/james-webb-telescopes-path-to-deep-space-goes-through-panama-canal>

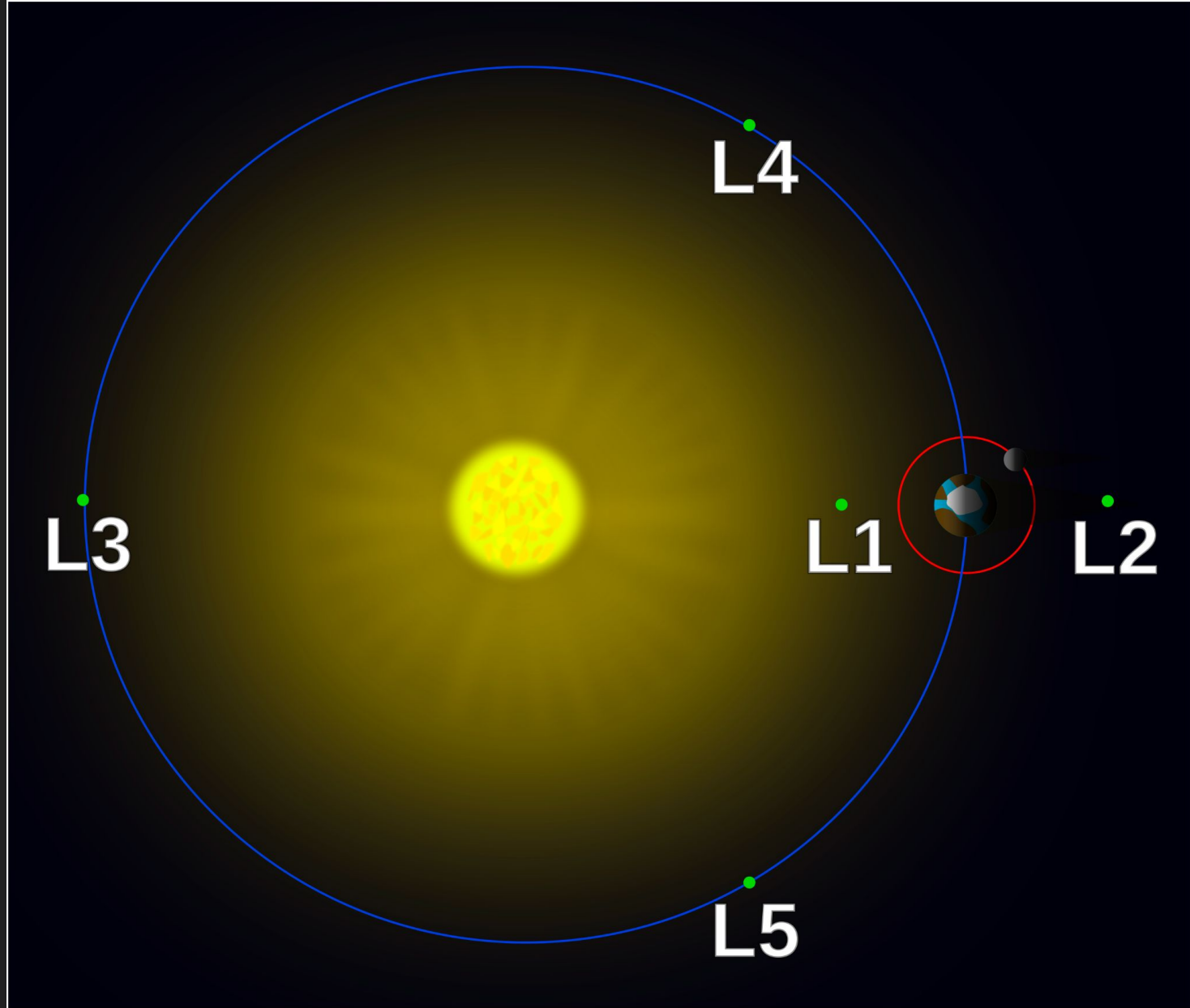


LIVE

WEBB UNFOLDING SEQUENCE

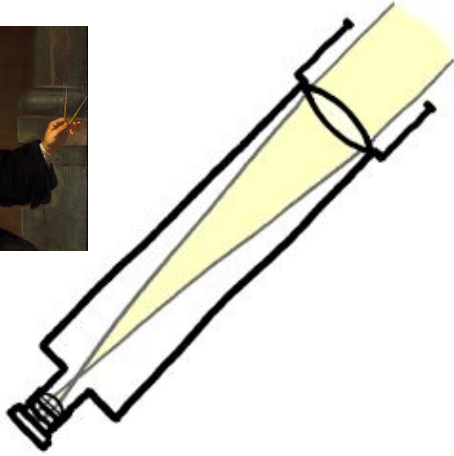
Webb is so big that it has to fold origami-style to fit in the Ariane 5 rocket and it will unfold like a 'transformer' in space. This graphic shows a few key steps of the unfolding sequence, which is a complex process that Webb will go through in its month-long journey to L2.



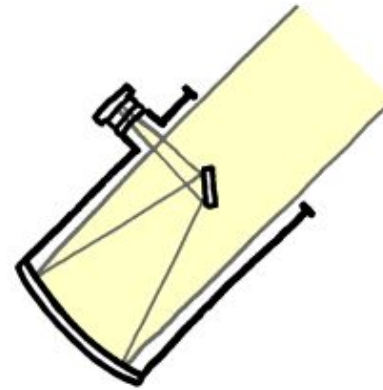


Telescopio

REFRACTOR

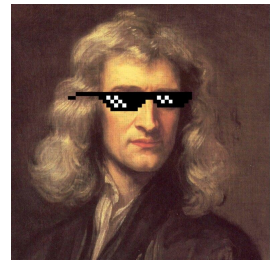


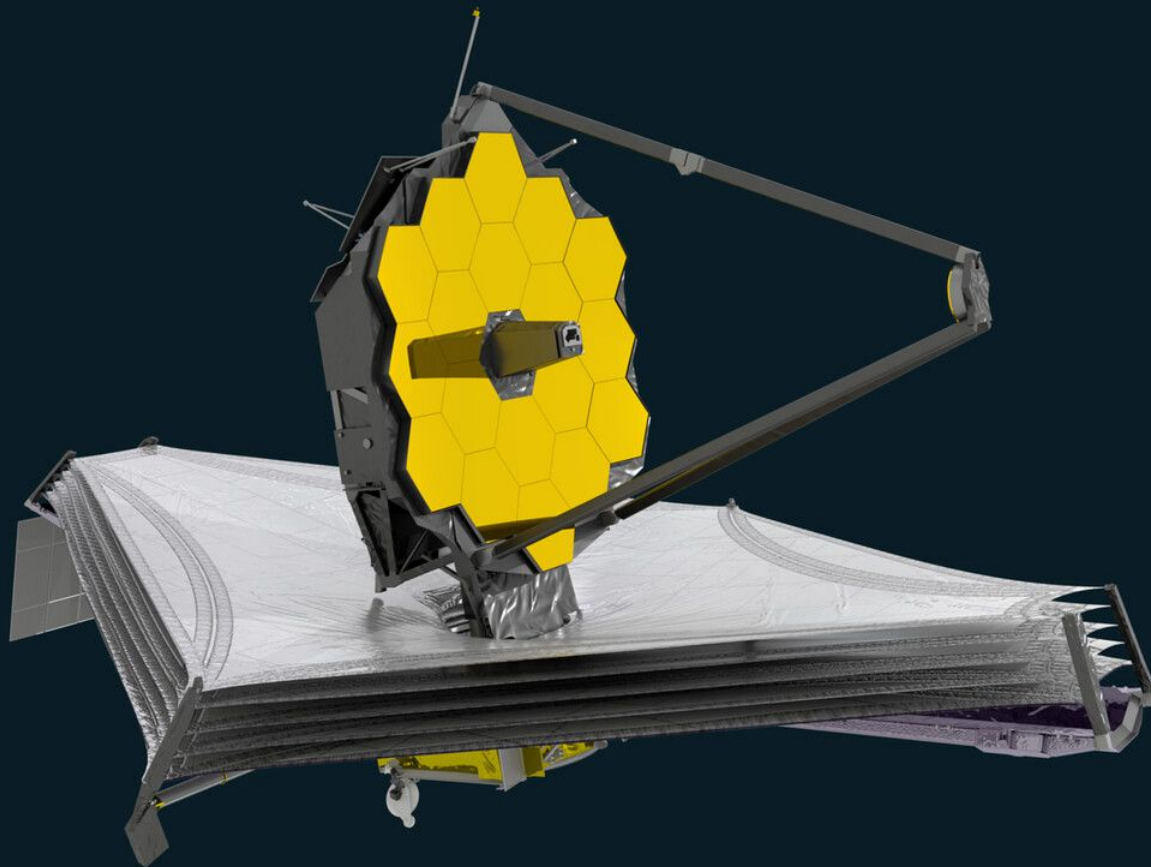
REFLECTOR



- MORE EXPENSIVE
- LESS COMPACT
- CHROMATIC ABERRATION
- REDUCED LIGHT-GATHERING

- CAN'T SEE SPACE VAMPIRES





Webb spacecraft artist's impression
Fuente: <https://esawebb.org/images/weic2204a/>

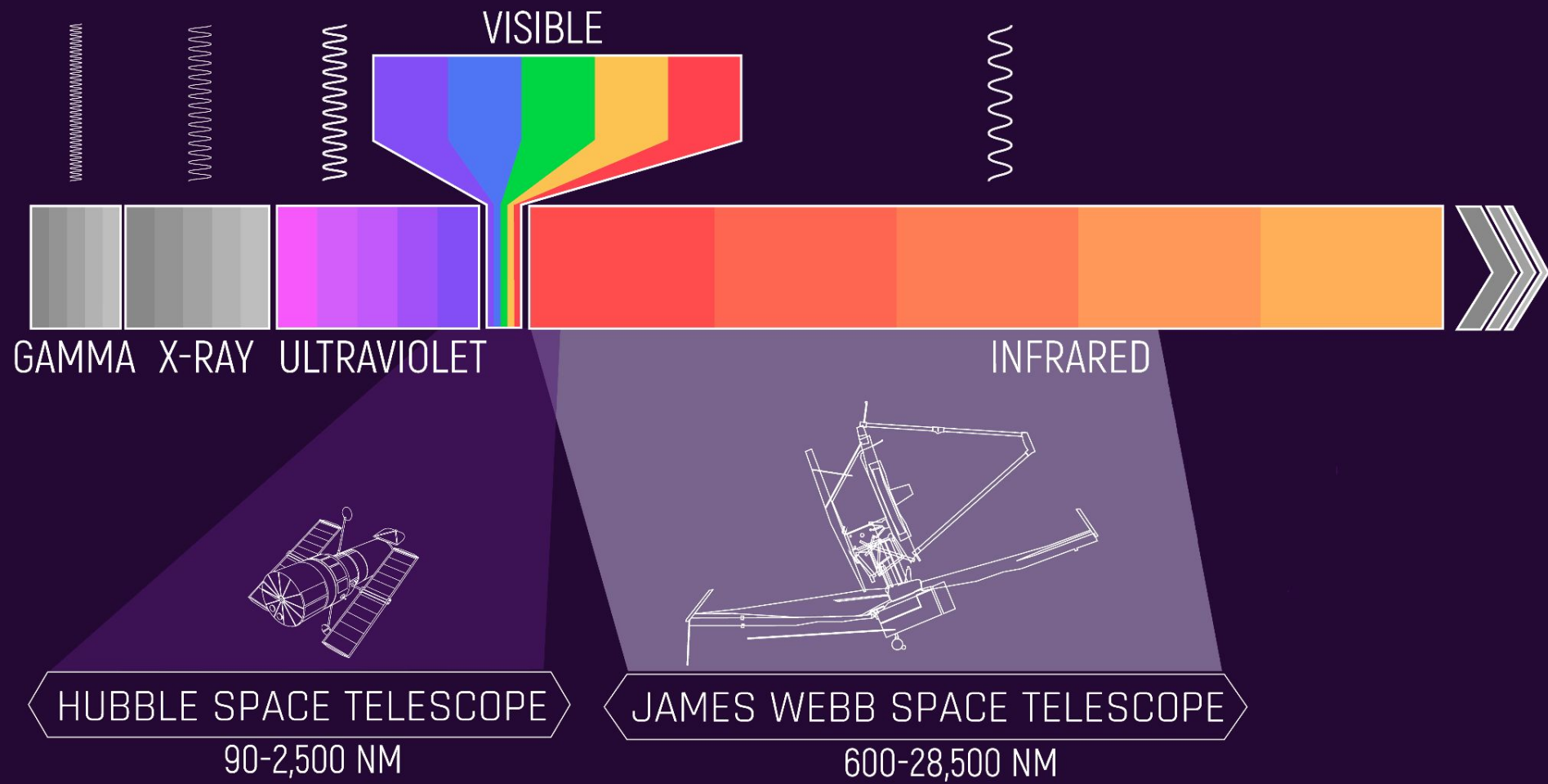
FLIR

71.7



20.5

02:37



Observatory - Hubble vs. Webb

Fuente: <https://www.nasa.gov/content/goddard/hubble-vs-webb-on-the-shoulders-of-a-giant>

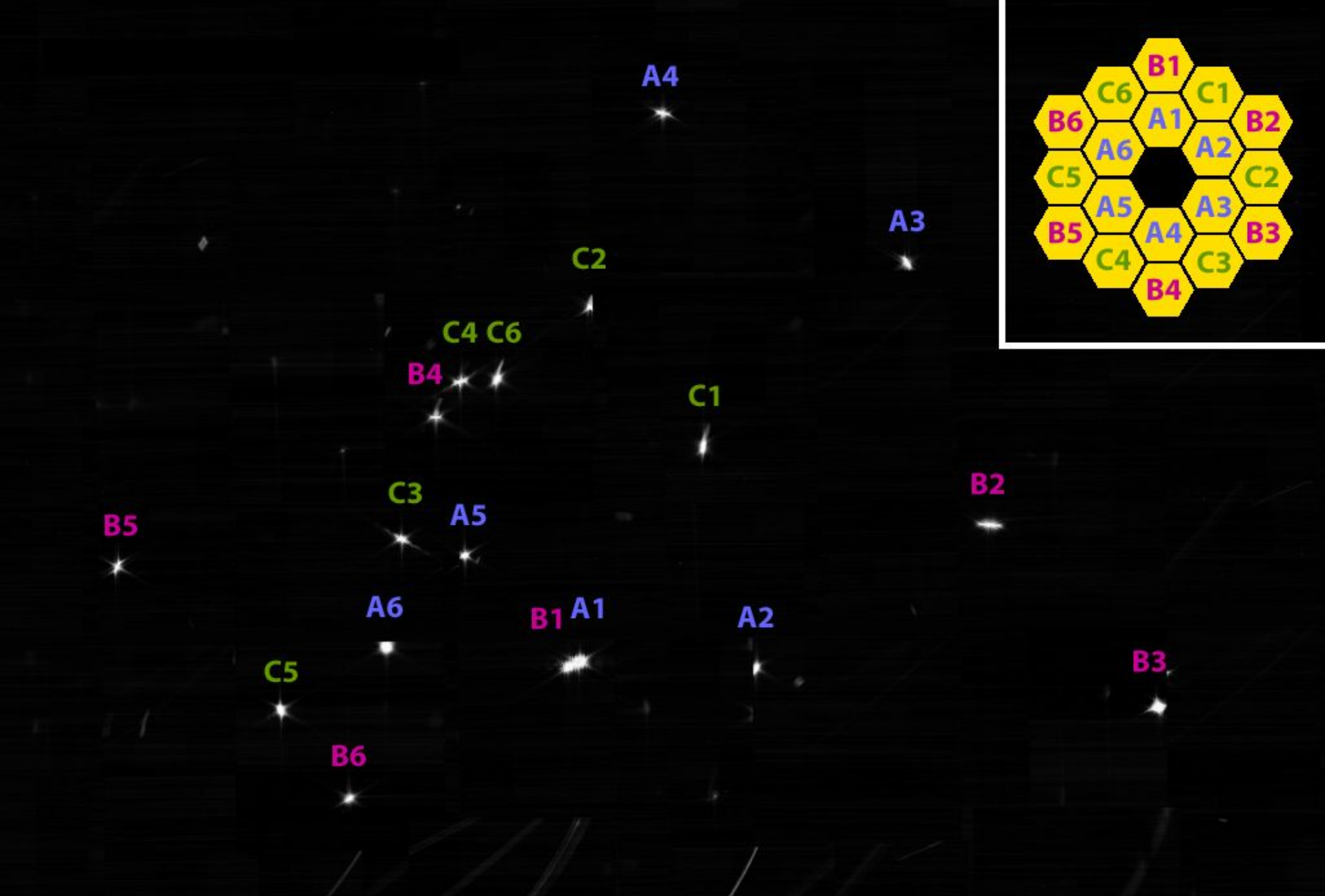


Orion Molecular Cloud in visible light (for comparison)
Fuente: <https://www.eso.org/public/images/eso1701-compb/>



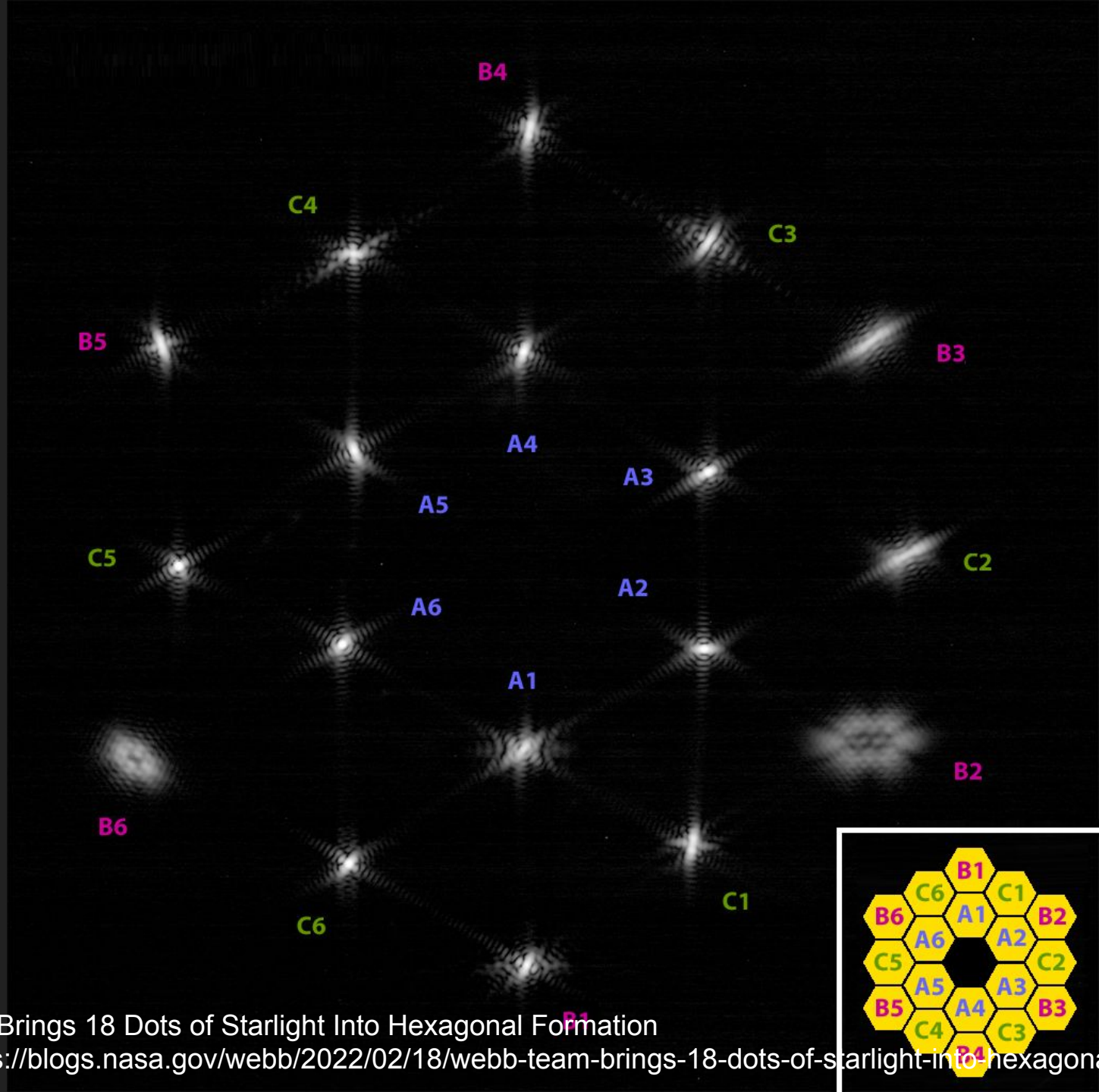
Orion Molecular Cloud in infrared light (for comparison)
Fuente: <https://www.eso.org/public/images/eso1701-compa/>

Calibración



Photons Received: Webb Sees Its First Star – 18 Times

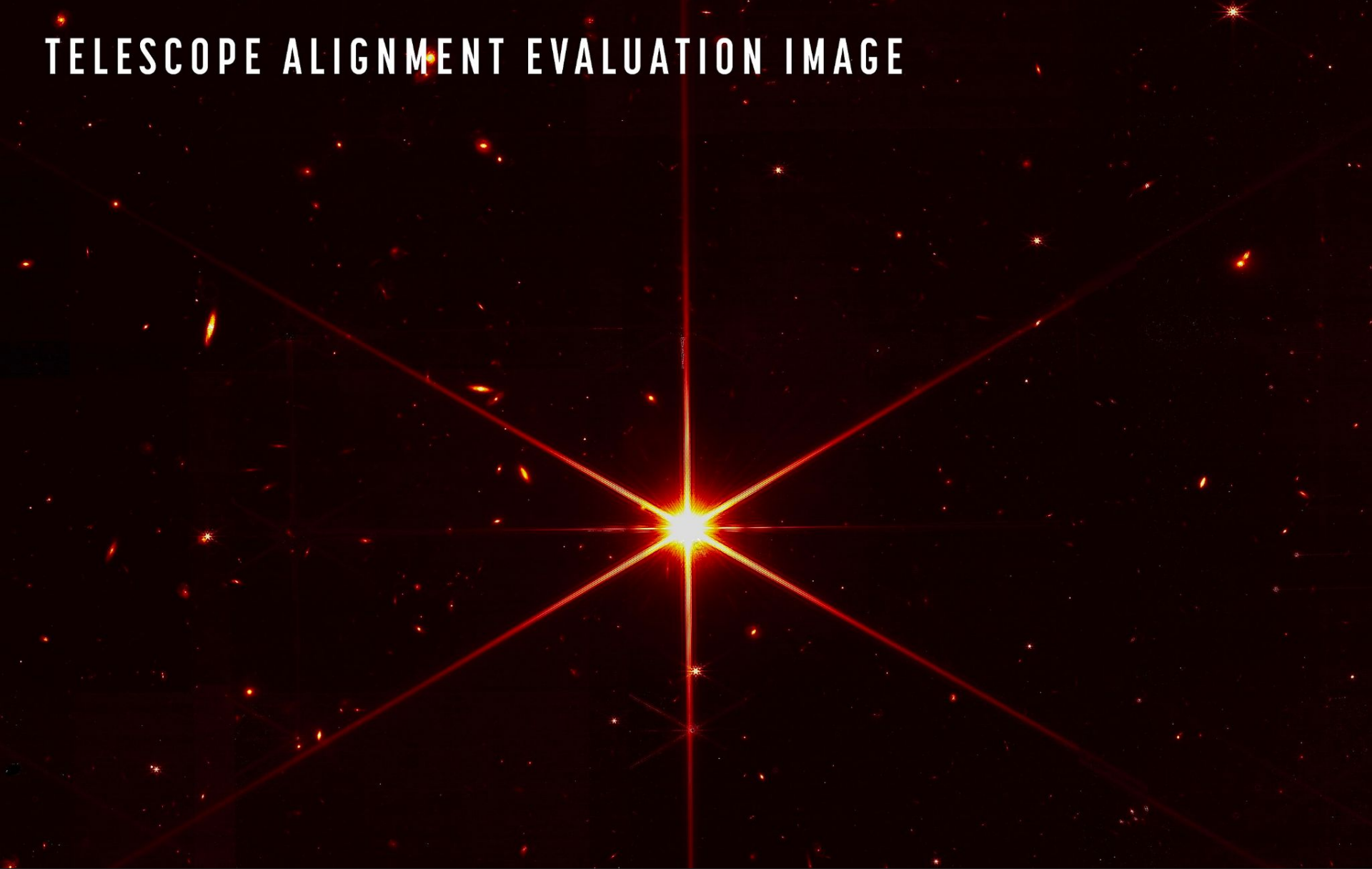
Fuente: <https://blogs.nasa.gov/webb/2022/02/11/photons-received-webb-sees-its-first-star-18-times>



Webb Team Brings 18 Dots of Starlight Into Hexagonal Formation

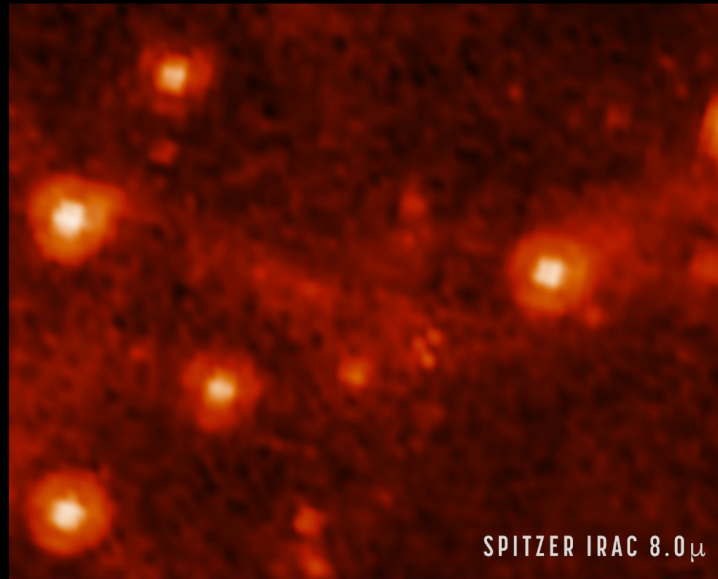
Fuente: <https://blogs.nasa.gov/webb/2022/02/18/webb-team-brings-18-dots-of-starlight-into-hexagonal-formation/>

TELESCOPE ALIGNMENT EVALUATION IMAGE



NASA's Webb Reaches Alignment Milestone, Optics Working Successfully

Fuente: <https://www.nasa.gov/press-release/nasa-s-webb-reaches-alignment-milestone-optics-working-successfully>



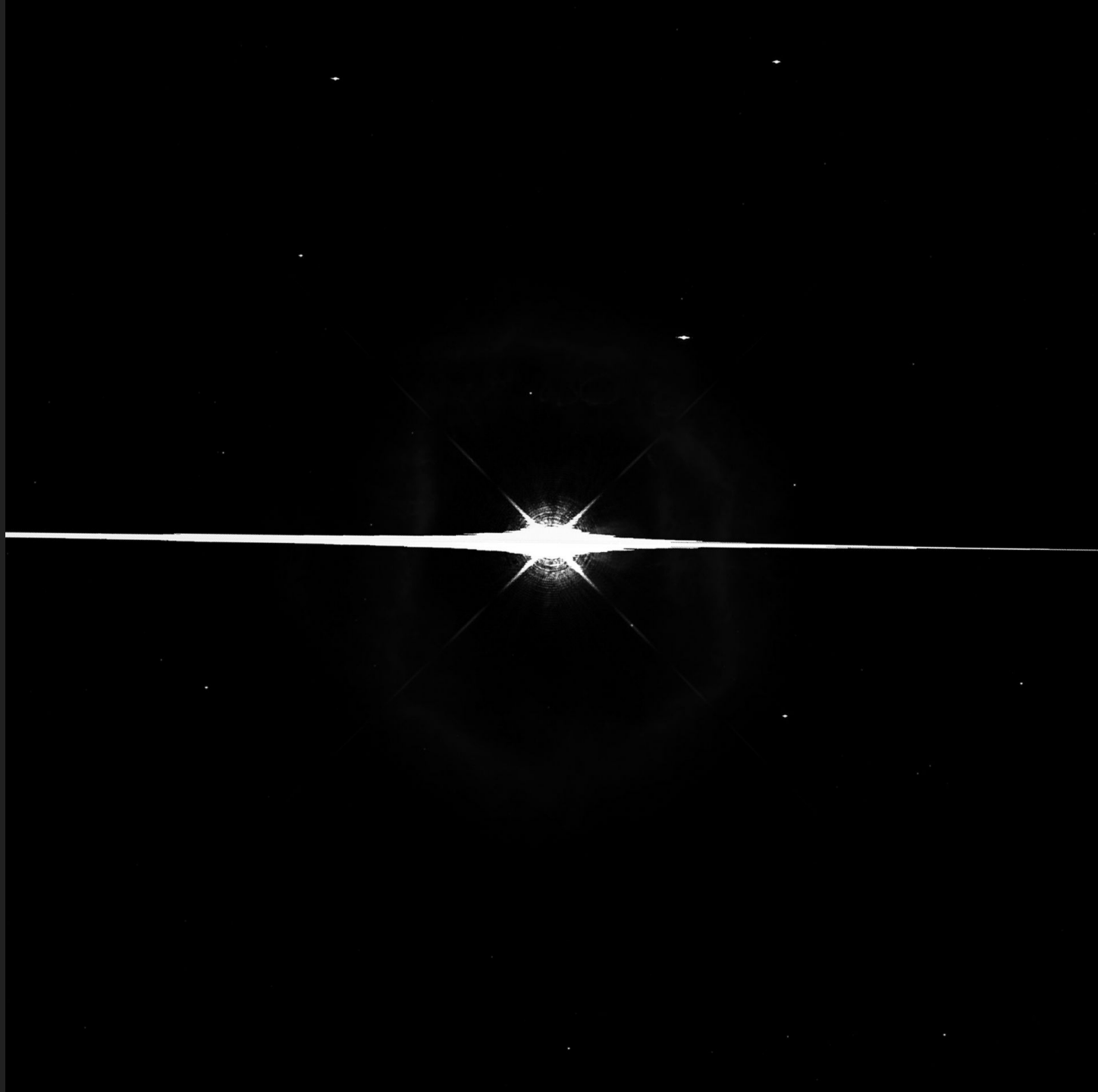
MIRI's Sharper View Hints at New Possibilities for Science
Fuente: <https://blogs.nasa.gov/webb/2022/05/09/miris-sharper-view-hints-at-new-possibilities-for-science/>

Divulgación

AG Carinae es una
estrella variable en la
constelación austral de
Carina.

Cruda 1/5

Crédito: M. Zamani



AG Carinae es una
estrella variable en la
constelación austral de
Carina.

Rango dinámico 2/5

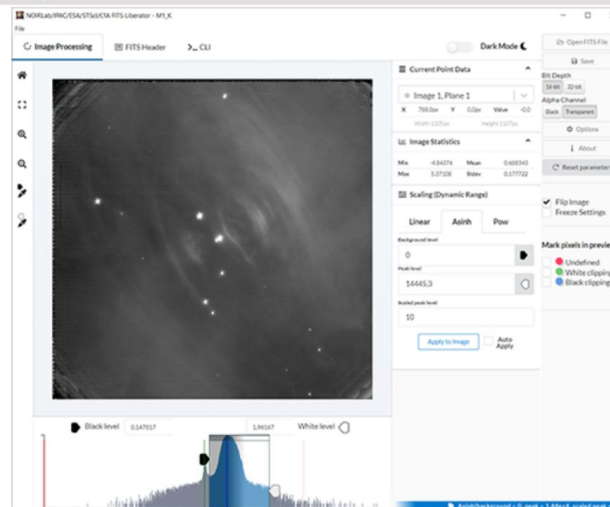
Crédito: M. Zamani





Upgrading Our Views of the Universe

Submitted by chandra on Thu, 2021-03-18 14:44

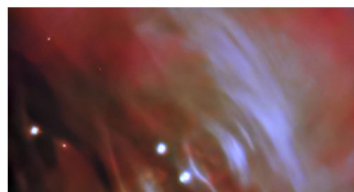


NOIRLab/IPAC/ESA/STScI/CfA FITS Liberator, Version 4
Credit: NOIRLab/IPAC/ESA/STScI/CfA

How do we image our Universe? There are many different ways of translating information from the cosmos. But in working with scientific data and image processing software, you can create your own astronomy images from FITS files. "FITS," which stands for Flexible Image Transport System, is a digital file format used mainly by astronomers to work with data of cosmic objects. Today, we are happy to help announce an update to the open source FITS Liberator software that can be used to process your own astronomical data. —Kimberly Kowal Arcand (CfA)

Astronomy is predominantly a visual science. However, an important tool is needed to produce breathtaking color images from the observations made with telescopes such as the NASA/ESA Hubble Space Telescope, NASA's Chandra X-ray Observatory, or the telescopes of NSF's NOIRLab at the international Gemini Observatory, Kitt Peak National Observatory, and Cerro Tololo Inter-American Observatory. The key to unlocking those magnificent vistas is specialized image-processing software.

Since its first release in 2004, FITS Liberator has been a popular image-processing tool to help astronomers — and the public — produce beautiful images from observations recorded in the Flexible Image Transport System (FITS) file format commonly used in astronomy. Among image-processing experts this process is known as 'liberation'; the data are converted to an image format that can be edited in standard graphics software. In the process, users have access to powerful tools to manage the high dynamic range intrinsic to astronomical data, to create a final product that captures the full detail — and beauty — of the source material.



An international team [1] recently worked with computer scientists from Enciso Systems to redesign the FITS Liberator image-processing software using modern technologies, such as the support of 64-bit operating systems and modern libraries for fast processing. The new version, NOIRLab/IPAC/ESA/STScI/CfA FITS Liberator 4, is now being released for MacOS, Windows, and, for the first time, Linux.

NAVIGATION

- The Big Chandra Picture
- Career Development
- Recent content

RECENT BLOG POSTS

- Planetary Nebula: Misnamed But Not Misunderstood
chandra
- Roasted and Shredded by a Stellar Sidekick
chandra
- From High School to a High-Energy Discovery
chandra
- Behind the Story of the First Extragalactic Exoplanet Candidate
chandra
- When a Stable Star Explodes
chandra
- Harvey's Voyage
chandra

SYNDICATE



CHANDRA BLOG BY CATEGORY

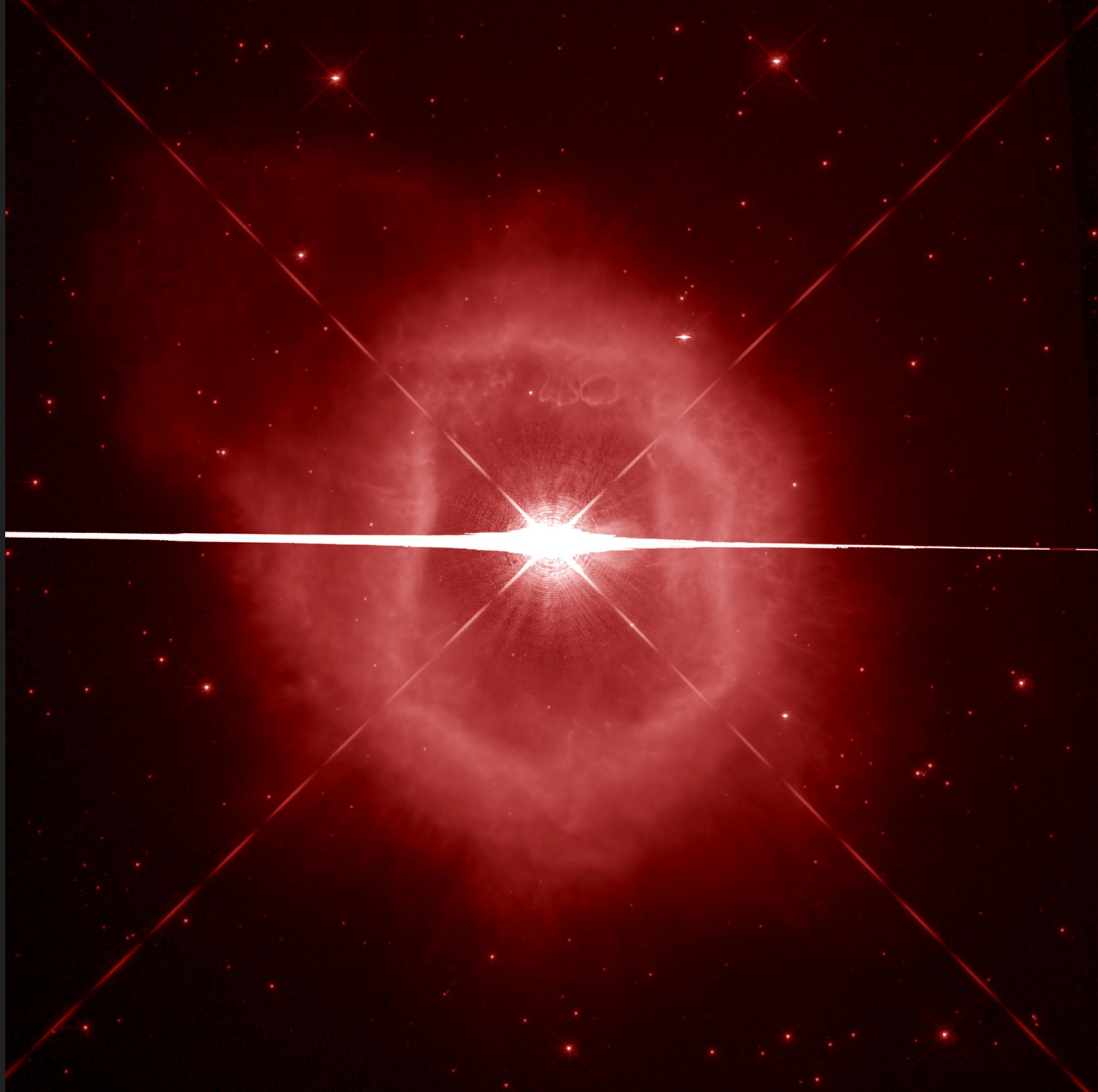
- Solar System
- Normal Stars
- White Dwarfs
- Supernovas
- Black Holes
- Milky Way
- Normal Galaxies
- Groups of Galaxies
- Quasars
- Neutron Stars
- Meet an Astronomer
- Solar Blog
- Women in the High Energy Universe
- Cosmology/Deep Field
- Events
- Chandra Data: Behind the Scenes
- Light
- General
- Q&A of the Day
- Unexpected
- Formal Education
- Poetry

Fuente: <https://chandra.harvard.edu/blog/node/784>

AG Carinae es una
estrella variable en la
constelación austral de
Carina.

Filtro 3/5

Crédito: M. Zamani



AG Carinae es una
estrella variable en la
constelación austral de
Carina.

RGB 4/5

Crédito: M. Zamani



AG Carinae es una
estrella variable en la
constelación austral de
Carina.

Final 5/5

Crédito: M. Zamani



heic2105 — Photo Release

Hubble Celebrates 31st Birthday with Giant Star on the Edge of Destruction

23 April 2021



In celebration of the 31st anniversary of the launching of the NASA/ESA Hubble Space Telescope, astronomers aimed the celebrated observatory at one of the brightest stars seen in our galaxy to capture its beauty.

The giant star featured in this latest Hubble Space Telescope anniversary image is waging a tug-of-war between gravity and radiation to avoid self-destruction. The star, called AG Carinae, is surrounded by an expanding shell of gas and dust — a nebula — that is shaped by the powerful winds of the star. The nebula is about five light-years wide, which equals the distance from here to our nearest star, Alpha Centauri.

The huge structure was created from one or more giant eruptions several thousand years ago. The star's outer layers were blown into space, the expelled material amounting to roughly 10 times the mass of our Sun. These outbursts are typical in the life of a rare breed of star called a Luminous Blue Variable (LBV), a brief unstable phase in the short life of an ultra-bright, glamorous star that lives fast and dies young. These stars are among the most massive and brightest stars known. They live for only a few million years, compared to the roughly 10-billion-year lifetime of our own Sun. AG Carinae is a few million years old and resides 20 000 light-years away inside our Milky Way galaxy. The star's expected lifetime is between 5 million and 6 million years.

LBVs have a dual personality. They appear to spend years in semi-quiescent bliss and then they erupt in a petulant outburst, during which their luminosity increases — sometimes by several orders of magnitude. These behemoths are stars in the extreme, far different from normal stars like our Sun. In fact AG Carinae is estimated to be up to 70 times more massive than our Sun and shines with the blinding brilliance of 1 million suns.

Major outbursts such as the one that produced the nebula featured in this image occur a few times during a LBV's lifetime. A LBV star only casts off material when it is in danger of self-destruction. Because of their massive forms and super-hot temperatures, luminous blue variable stars like AG Carinae are in a constant battle to maintain stability. It's an arm-wrestling contest between radiation pressure from within the star pushing outward and gravity pressing inward. This arm-wrestling match results in the star's expanding and contracting. The outward pressure occasionally wins the battle, and the star expands to such an immense size that it blows off its outer layers, like a volcano erupting. But this outburst only happens when the star is on the verge of coming apart. After the star ejects the material, it contracts to its normal (large) size, settles back down, and becomes stable again.

LBV stars are rare: fewer than 50 are known among the galaxies in our local group of neighbouring galaxies. These stars spend tens of thousands of years in this phase, a blink of an eye in cosmic time. Some are expected to

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About the Release

Release No.: heic2105

Images



[PR Image heic2105a](#)

Hubble Celebrates its 31st anniversary with a magnificent view of AG Carinae



[PR Image heic2105b](#)

Wide-Field View of AG Carinae

Videos



[PR Video heic2105a](#)

Space Sparks Episode 3



[PR Video heic2105b](#)

Animation of AG Carinae





ESA/Webb Outreach Team

Our team is made up of experts in various fields, including science, engineering, and communication. We are dedicated to promoting the mission of the European Space Agency and the James Webb Space Telescope.

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Bethany is a Communications Officer at ESA, responsible for the development and implementation of the agency's communication strategy. She has a background in journalism and has worked for several years in the public relations sector.

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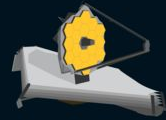
Paula is a Communications Officer at ESA, responsible for the development and implementation of the agency's communication strategy. She has a background in science and has worked for several years in the public relations sector.

Lars Lindberg Christensen
Communications Officer

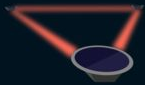
Lars is a Communications Officer at ESA, responsible for the development and implementation of the agency's communication strategy. He has a background in engineering and has worked for several years in the public relations sector.

Primeras Imágenes

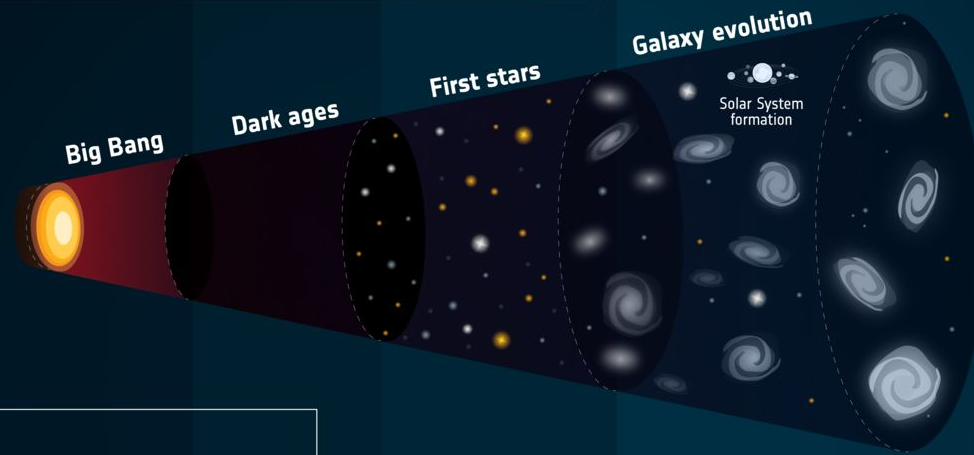
DID BLACK HOLES FORM IMMEDIATELY AFTER THE BIG BANG?



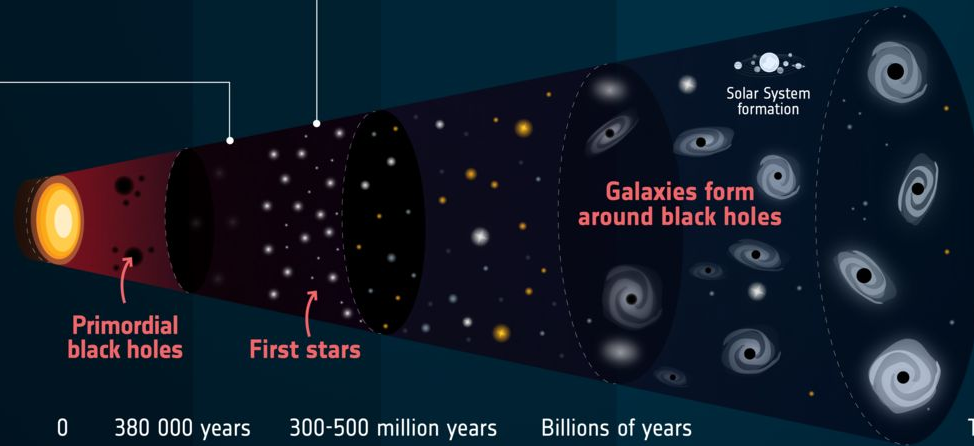
Webb might observe stars that were formed during the dark ages near **primordial black holes**



LISA might pick up gravitational waves from **merging black holes** in the early Universe



Standard history of the Universe



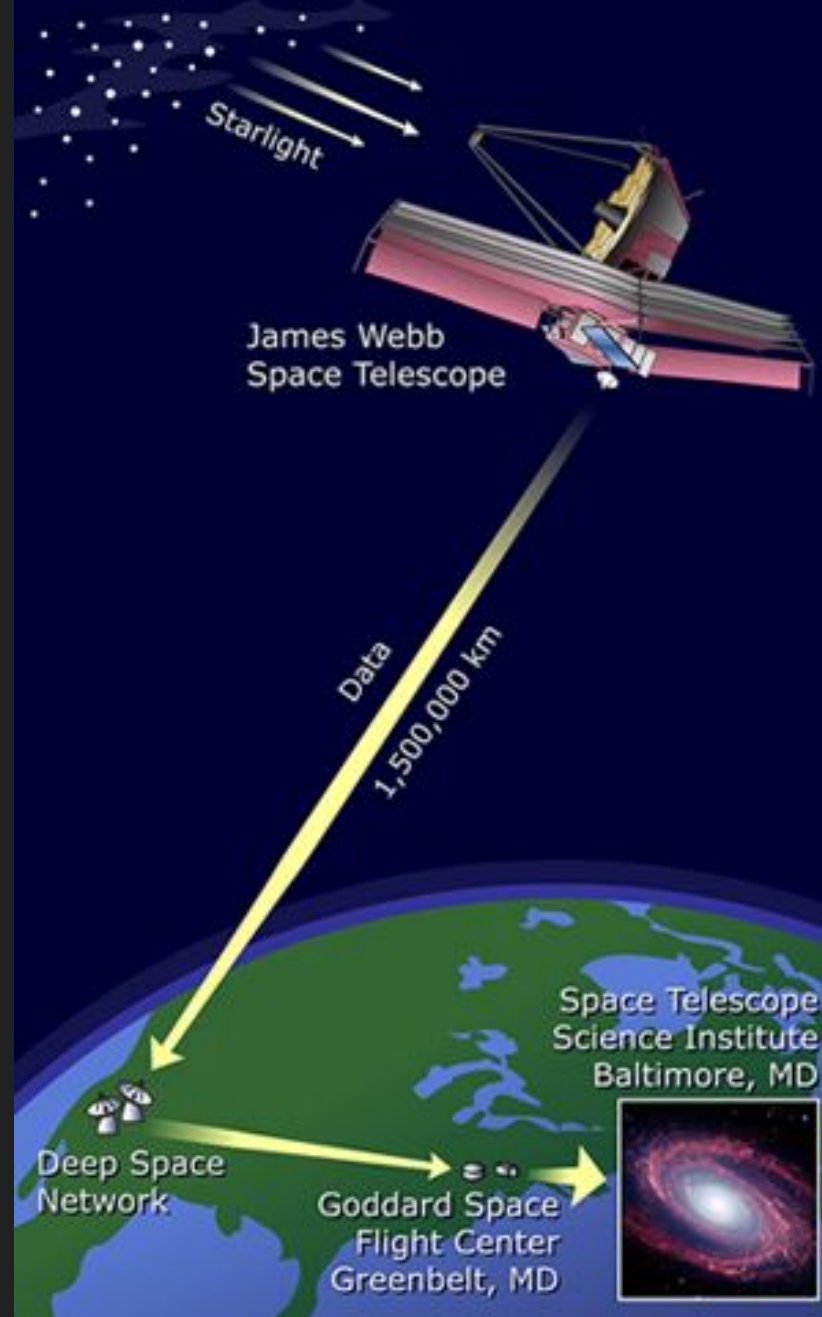
History of the Universe with primordial black holes

#ExploreFarther

0 380 000 years 300-500 million years Billions of years Today

Did black holes form immediately after the Big Bang?

Fuente: https://www.esa.int/ESA_Multimedia/Images/2021/12/Did_black_holes_form_immediately_after_the_Big_Bang



James Webb Space Telescope to Earth: It Can Now Connect!

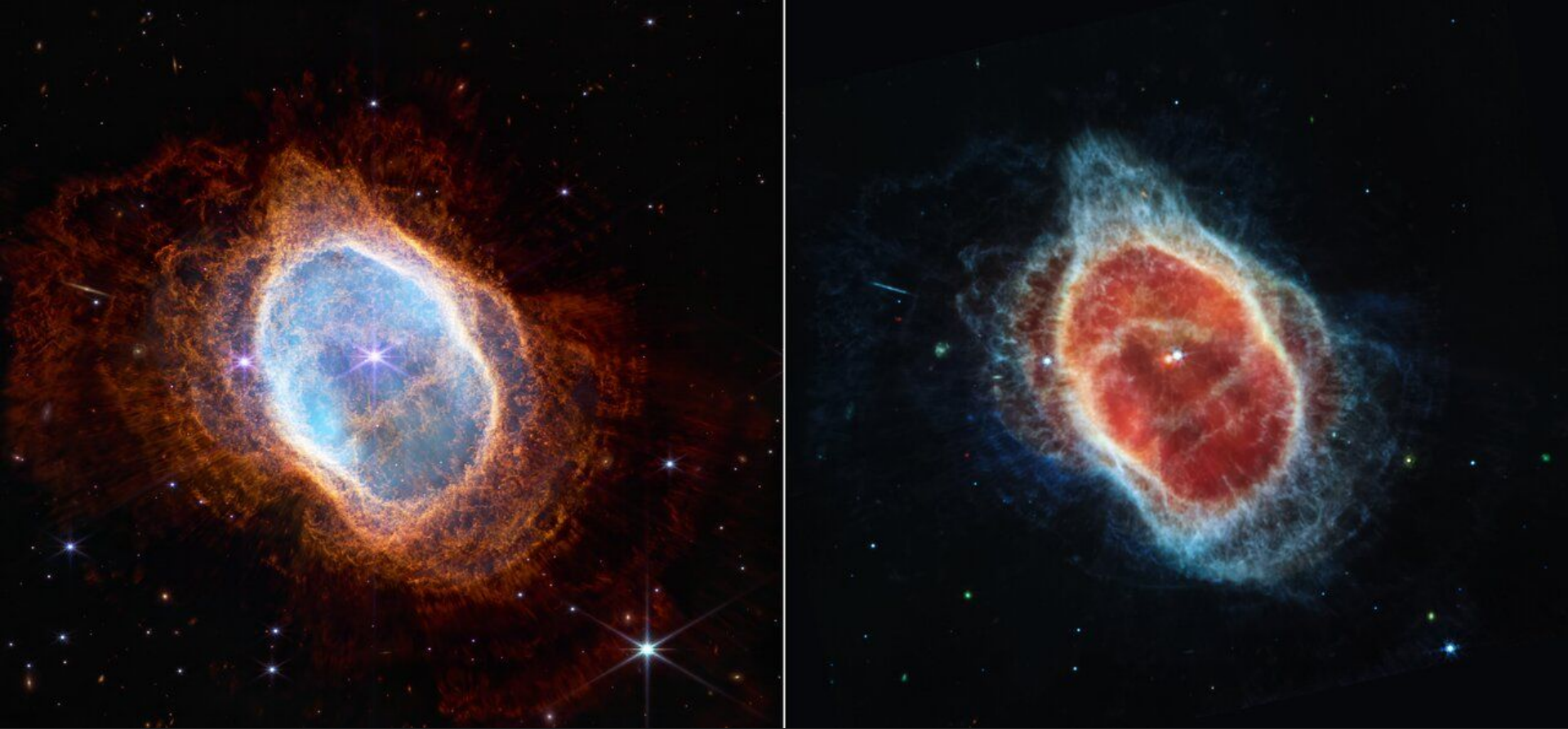
Fuente: https://www.nasa.gov/vision/universe/roboticexplorers/jwst_telemetry.html



Webb's First Deep Field (NIRCam Image)
Fuente: <https://esawebb.org/images/weic2209a/>



Biden and NASA Share First Webb Space Telescope Image
Fuente: <https://www.nytimes.com/2022/07/11/science/nasa-webb-telescope-images-livestream.html>



Southern Ring Nebula (NIRC and MIRI Images Side by Side)
Fuente: <https://esawebb.org/images/weic2207a/>



Stephan's Quintet (NIRCam + MIRI Imaging)
Fuente: <https://esawebb.org/images/weic2208a/>



NIRCam Image of the “Cosmic Cliffs” in Carina
Fuente: <https://esawebb.org/images/weic2205a/>

Conclusiones

Conclusiones

- El telescopio espacial James Webb es un proyecto único que está transformando nuestra visión del universo
- La divulgación científica es parte fundamental en el diseño de toda misión espacial
- La producción de imágenes/videos/comunicados de prensa requiere de la colaboración de equipos especializados interdisciplinarios

¡Muchas gracias!

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The image features a landscape with a sunset or sunrise over a field. The sky is filled with clouds, and the sun is low on the horizon, creating a warm, golden glow. The foreground is a dark, textured field. Overlaid on this scene is the text "A NUESTRO ALLANO" in large, white, bold, sans-serif capital letters. The text is arranged in two lines: "A NUESTRO" on the top line and "ALLANO" on the bottom line. The letters are slightly shadowed, giving them a three-dimensional appearance as if they are floating above the landscape.

A NUESTRO
ALLANO