

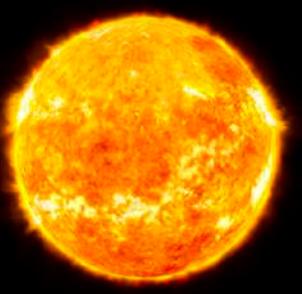
Introducción a la Astrofísica 2022

Clases 2 y 3

Sebastián Pérez
Departamento de Física USACH

La pregunta sobre por qué el cielo nocturno es oscuro se traduce en
¿Por qué es oscuro el espacio?





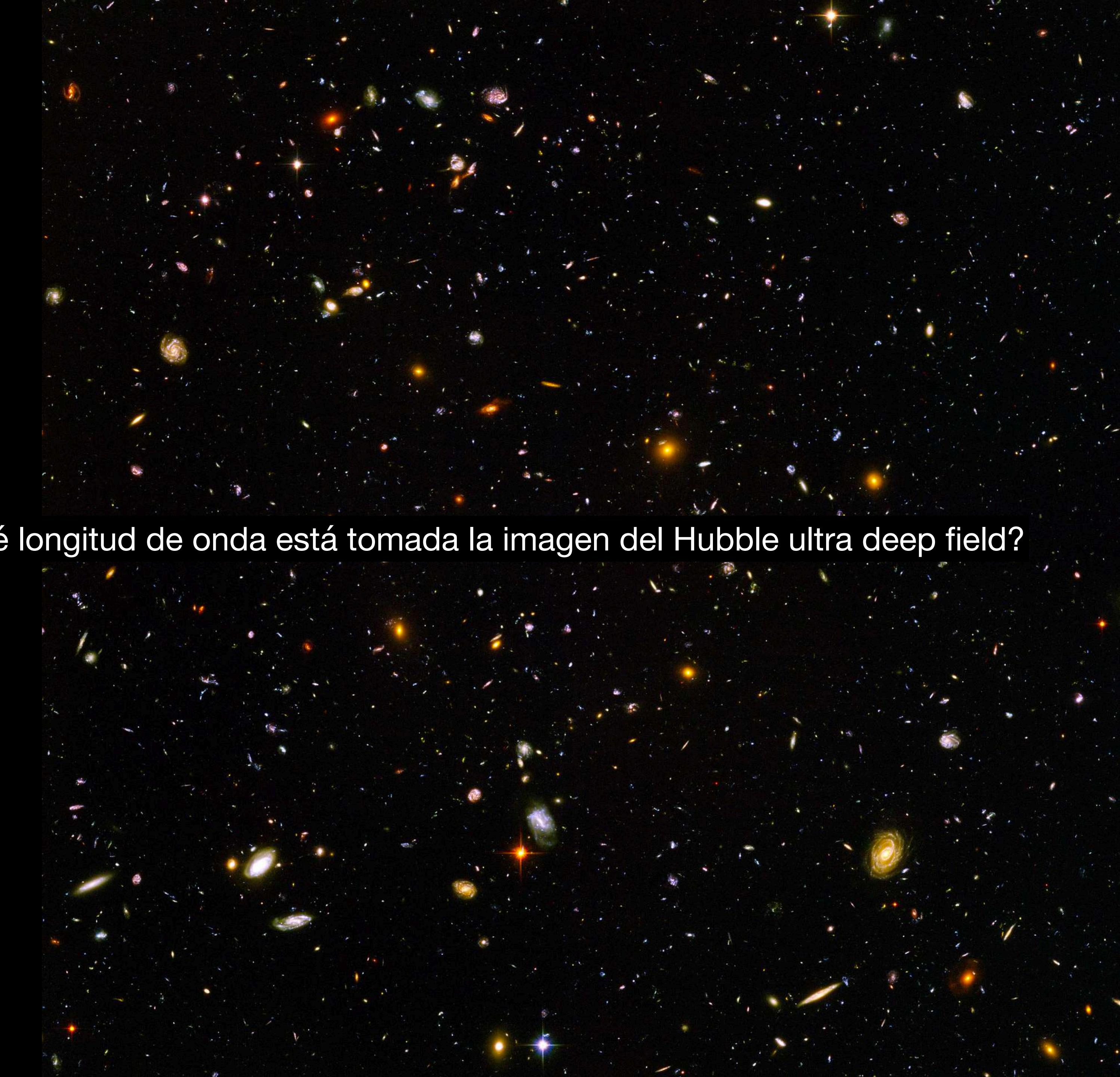
(el día y la noche tienen más que ver con nuestra atmósfera)

La pregunta sobre por qué el cielo nocturno es oscuro se traduce en
¿Por qué es oscuro el espacio?





Pista: ¿en qué longitud de onda está tomada la imagen del Hubble ultra deep field?



Qué es la **astrofísica**?
astronomía?
ciencia?

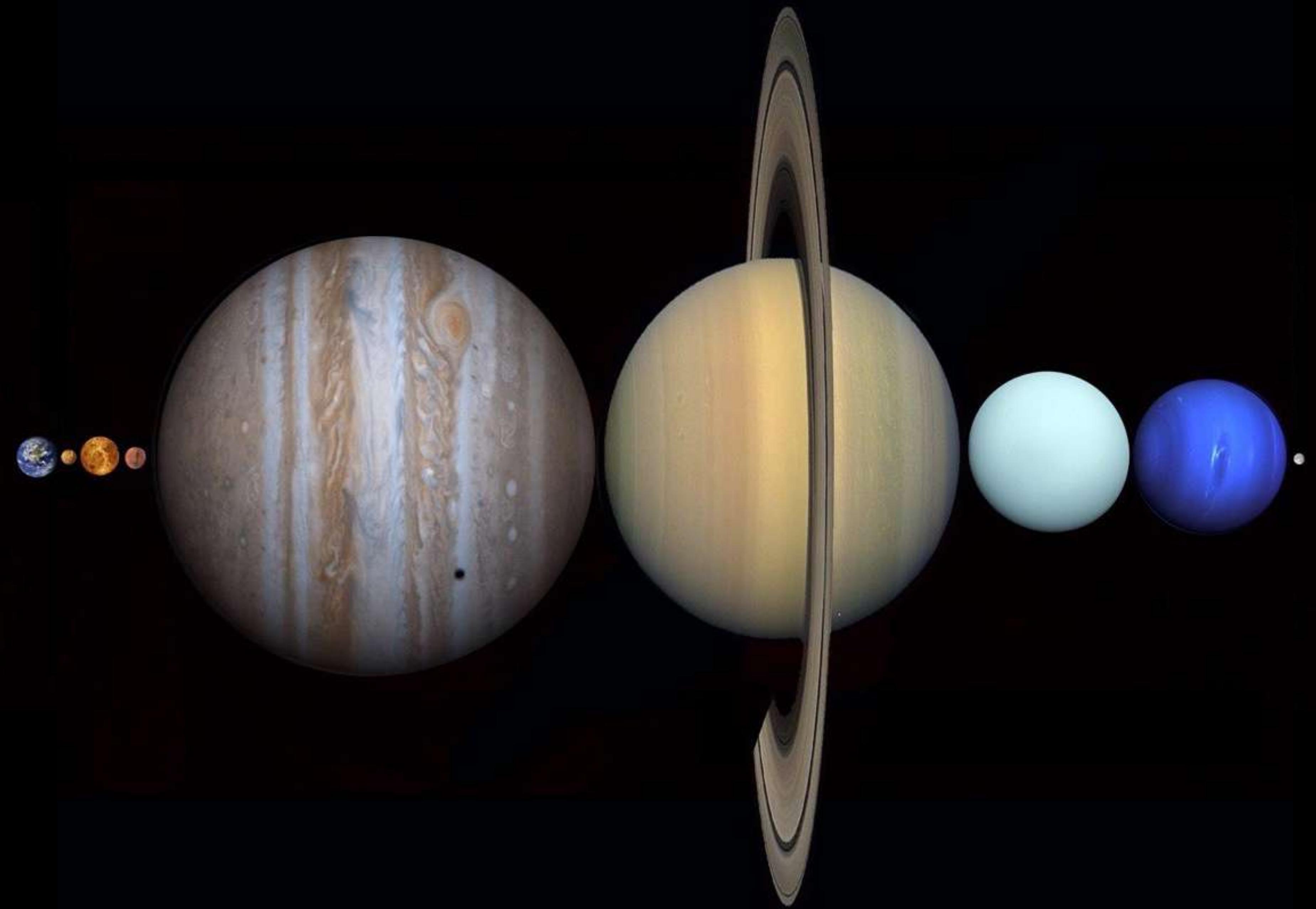


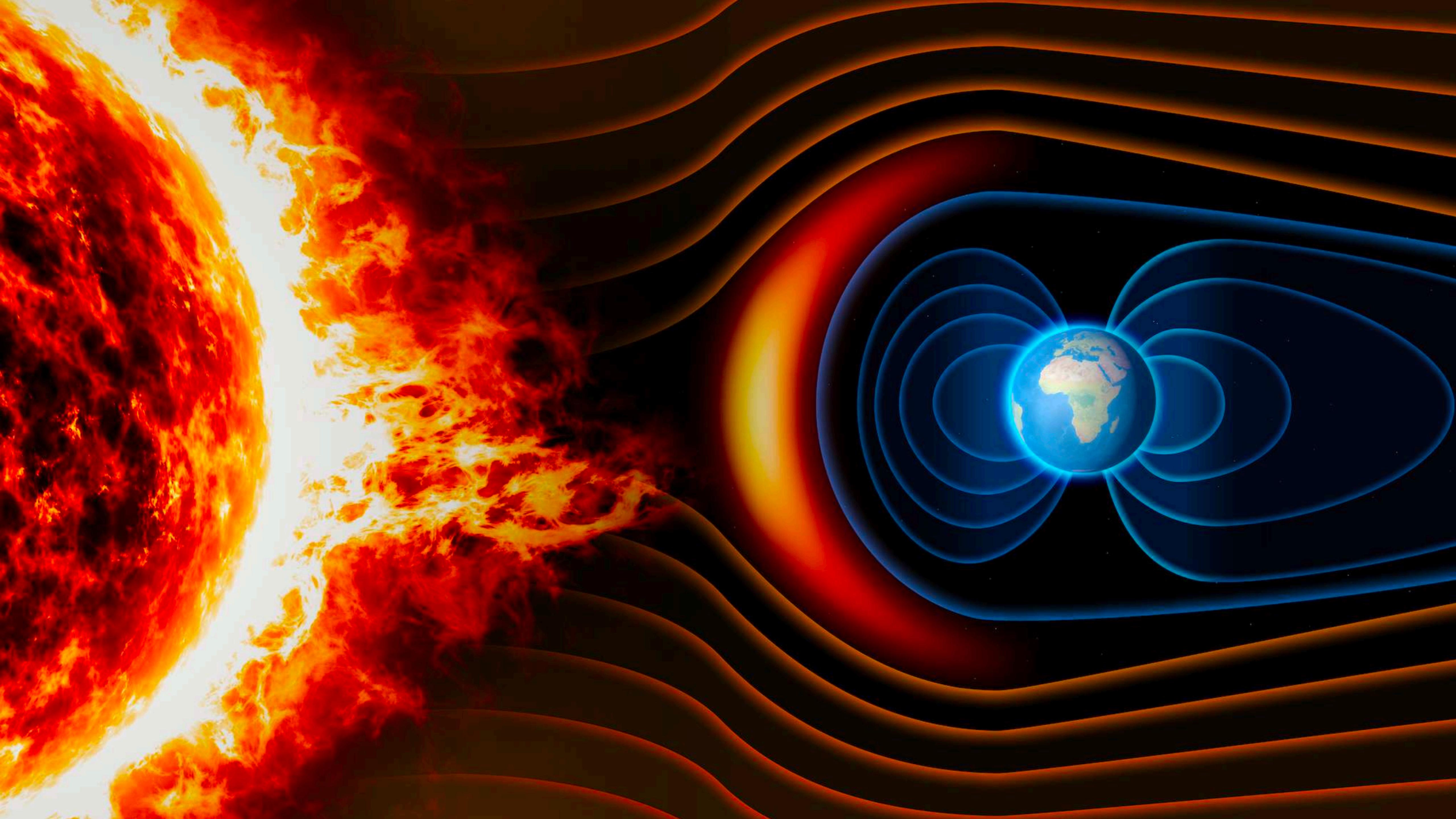
Sistema de conocimiento, y un método de cómo aprender ese conocimiento.
Pero, qué escapa a esta definición?

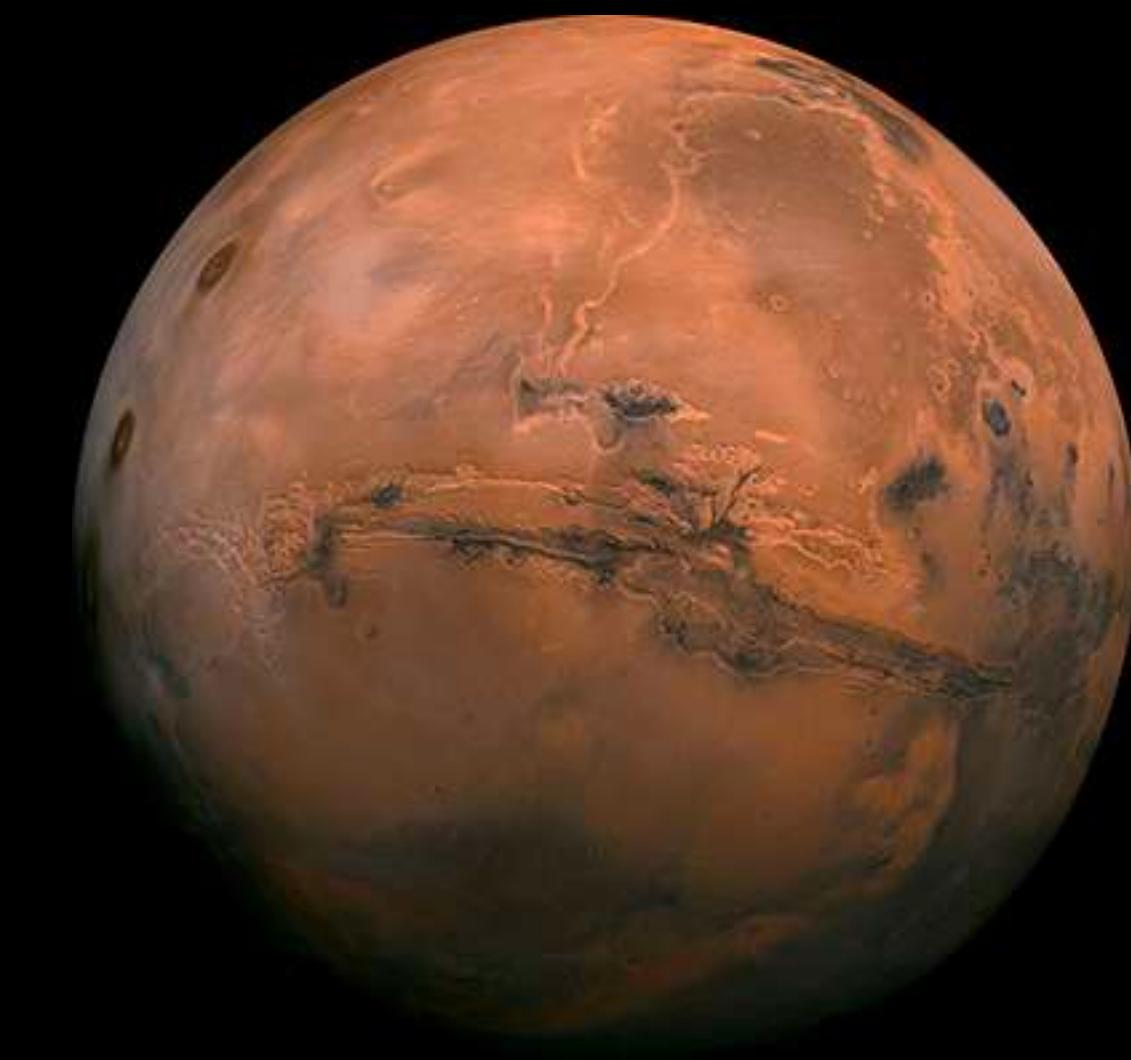
La astronomía nos posiciona



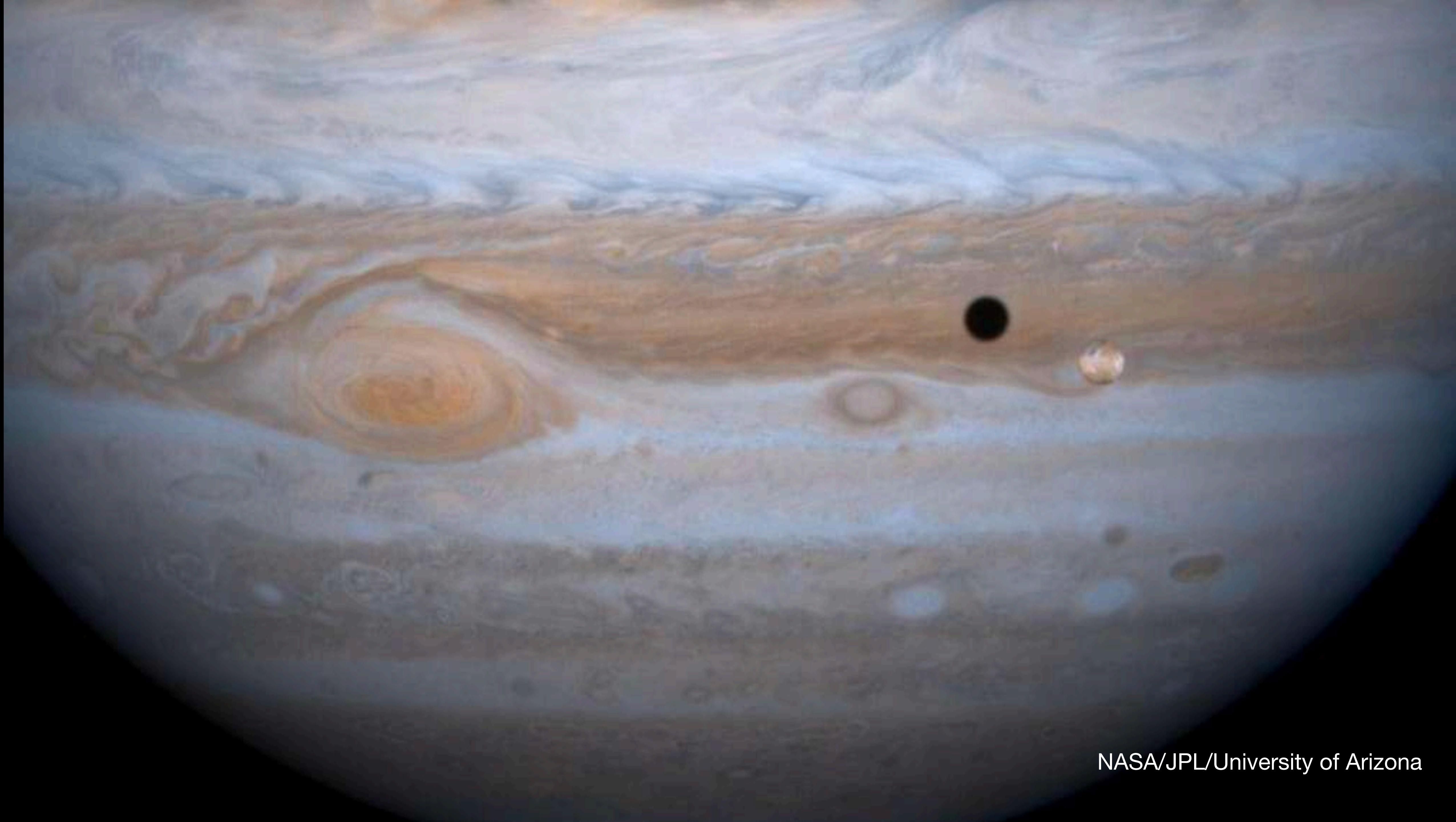








NASA/JPL



NASA/JPL/University of Arizona

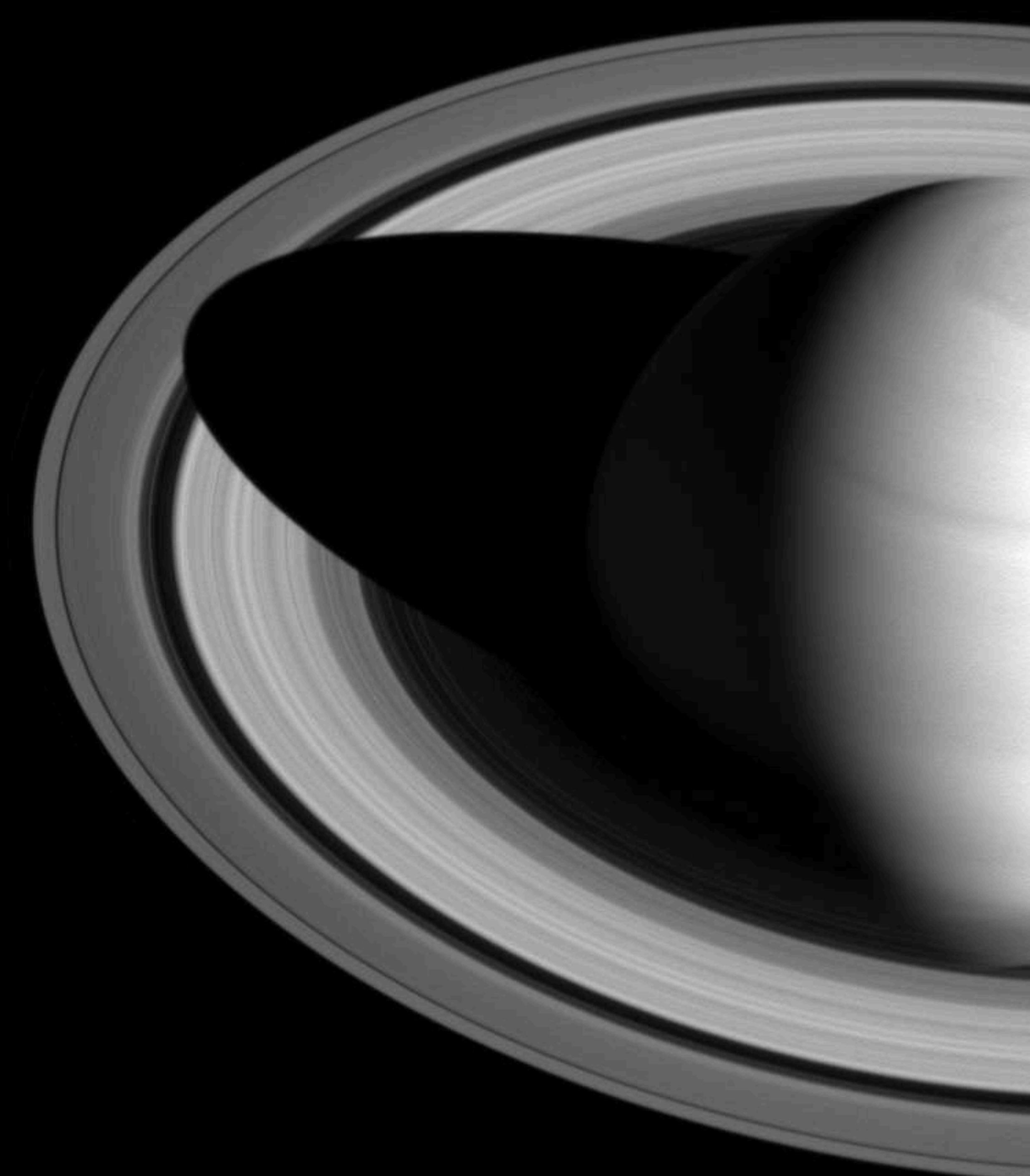
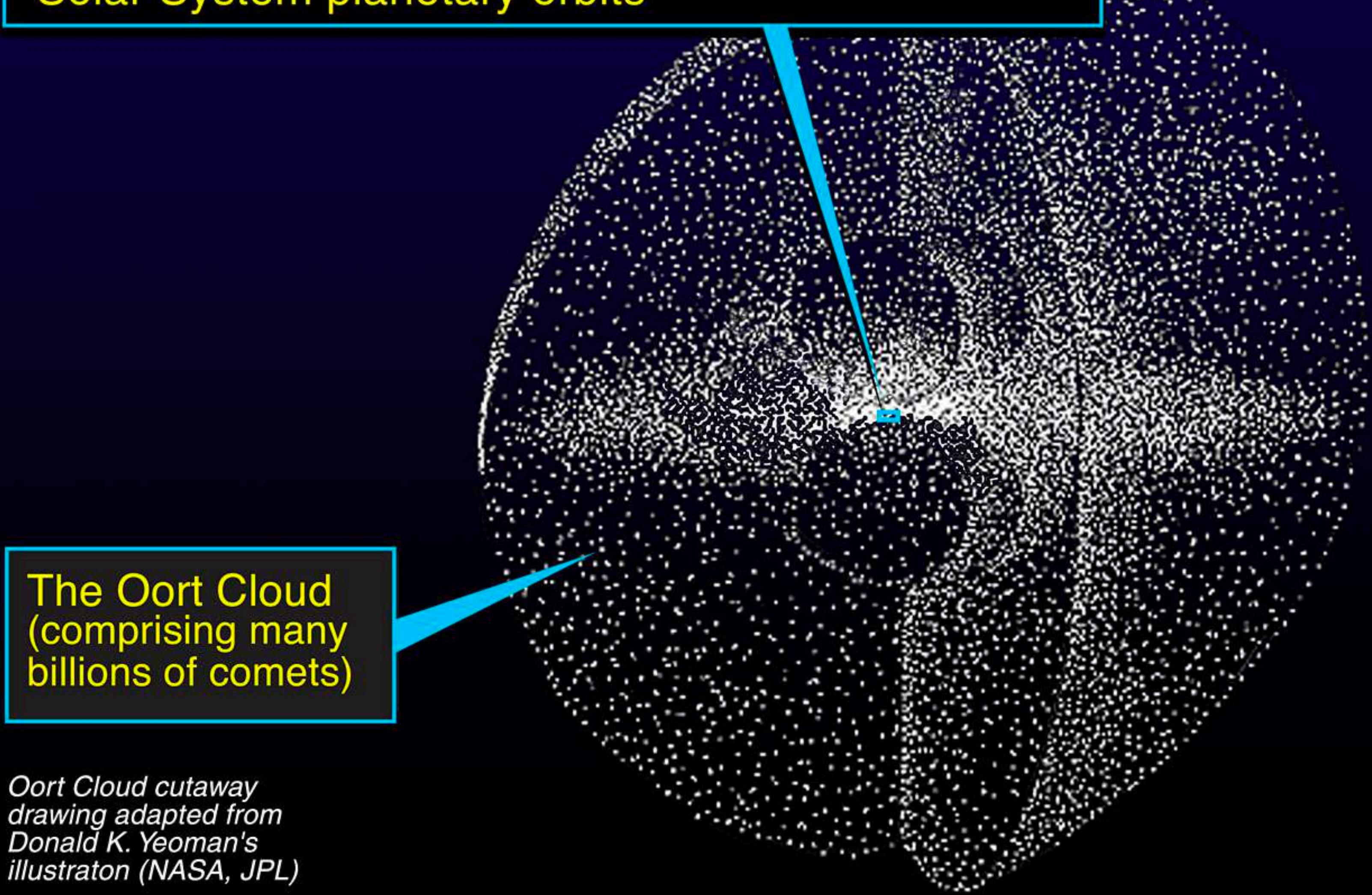
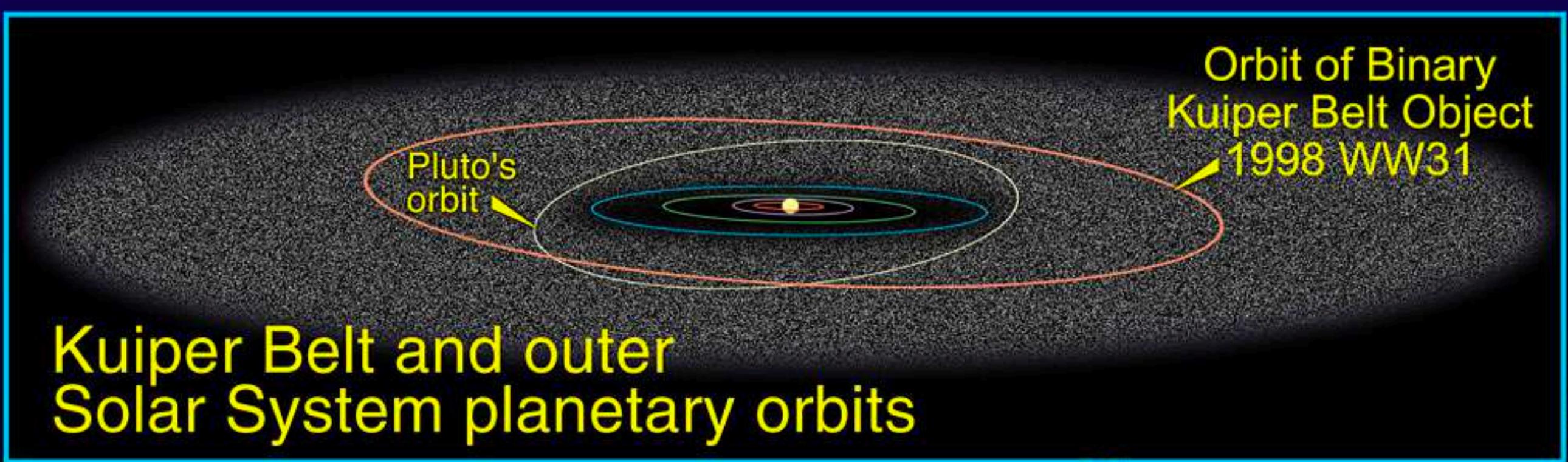


Imagen: Cassini Imaging Team, SSI, JPL, ESA, NASA



New Horizons / NASA JPL



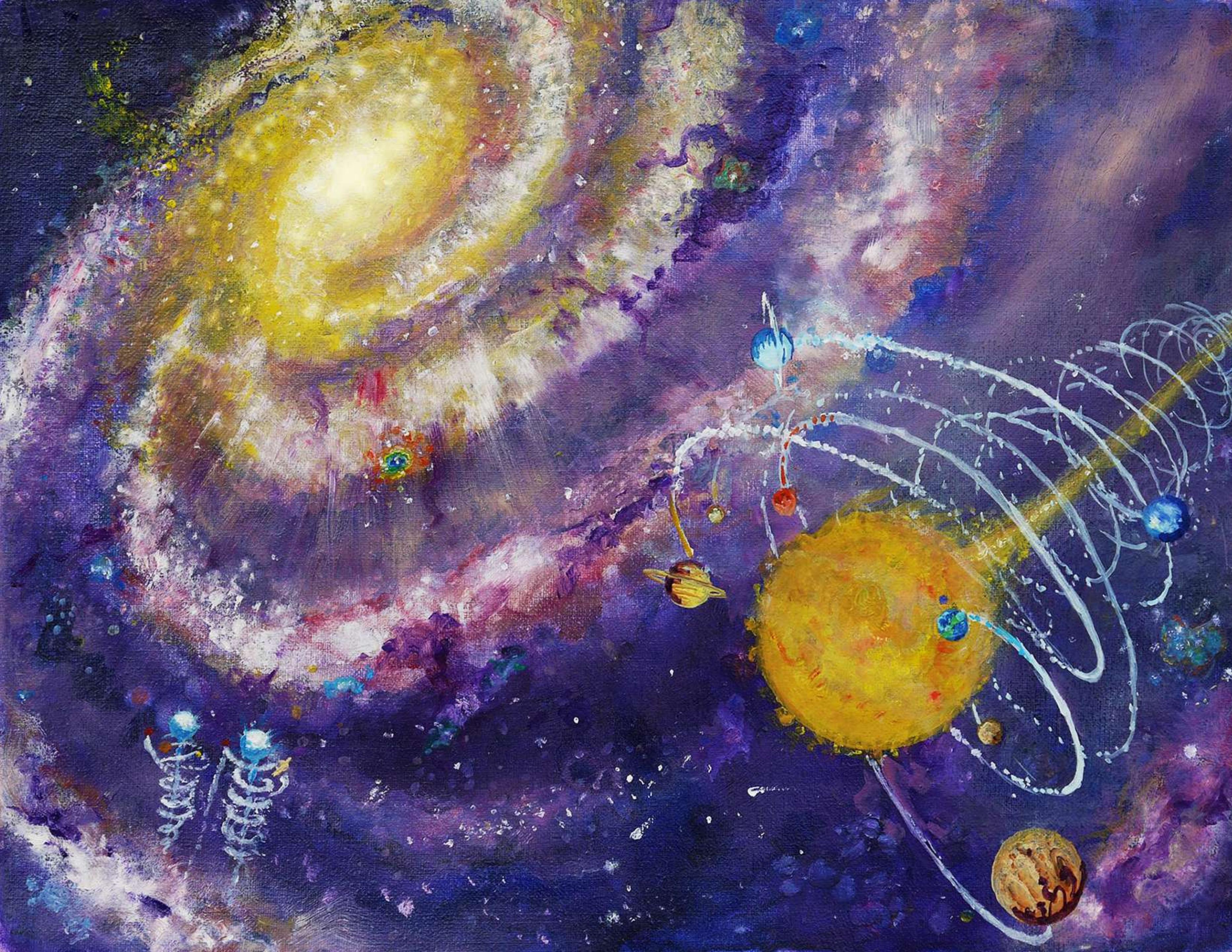
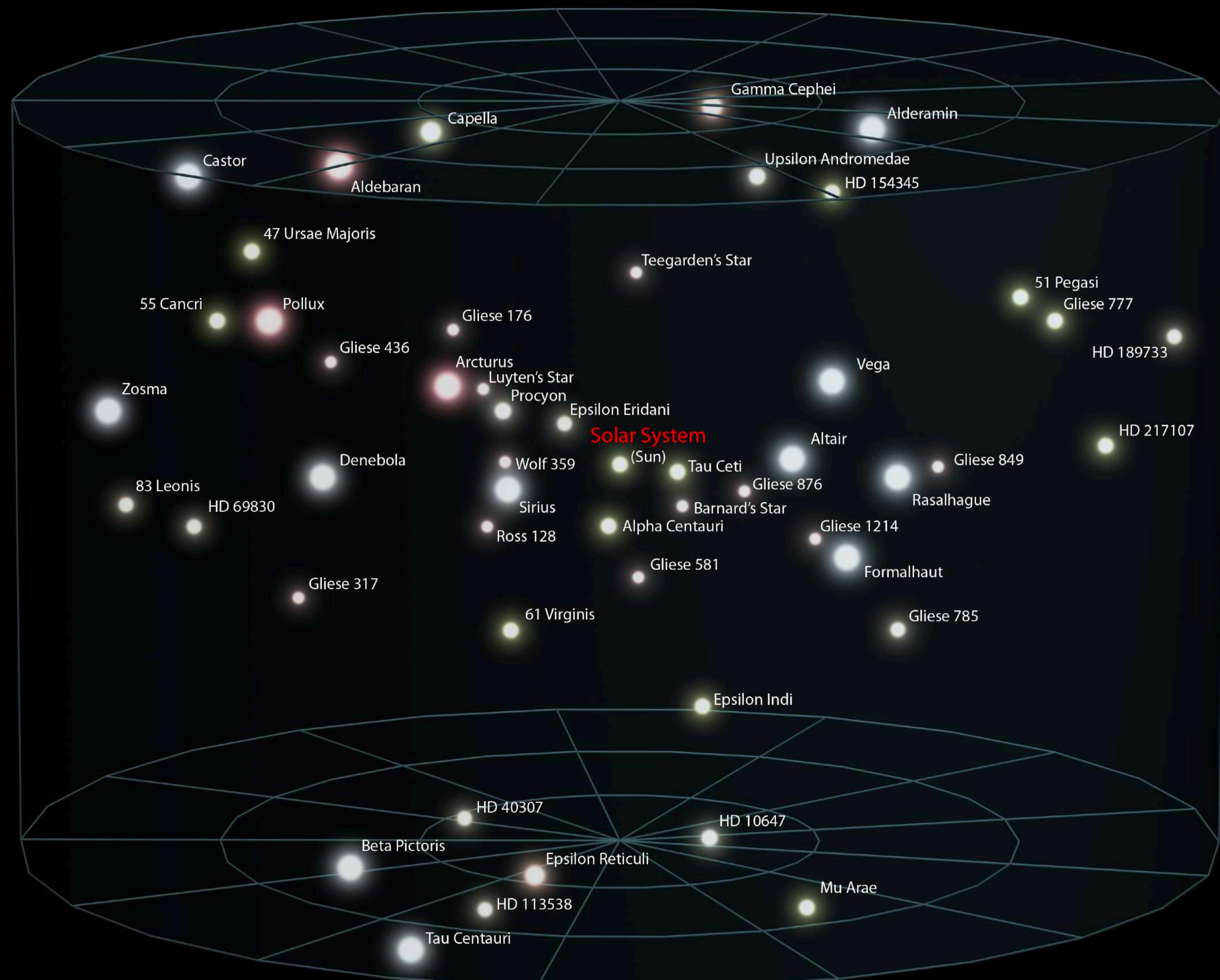


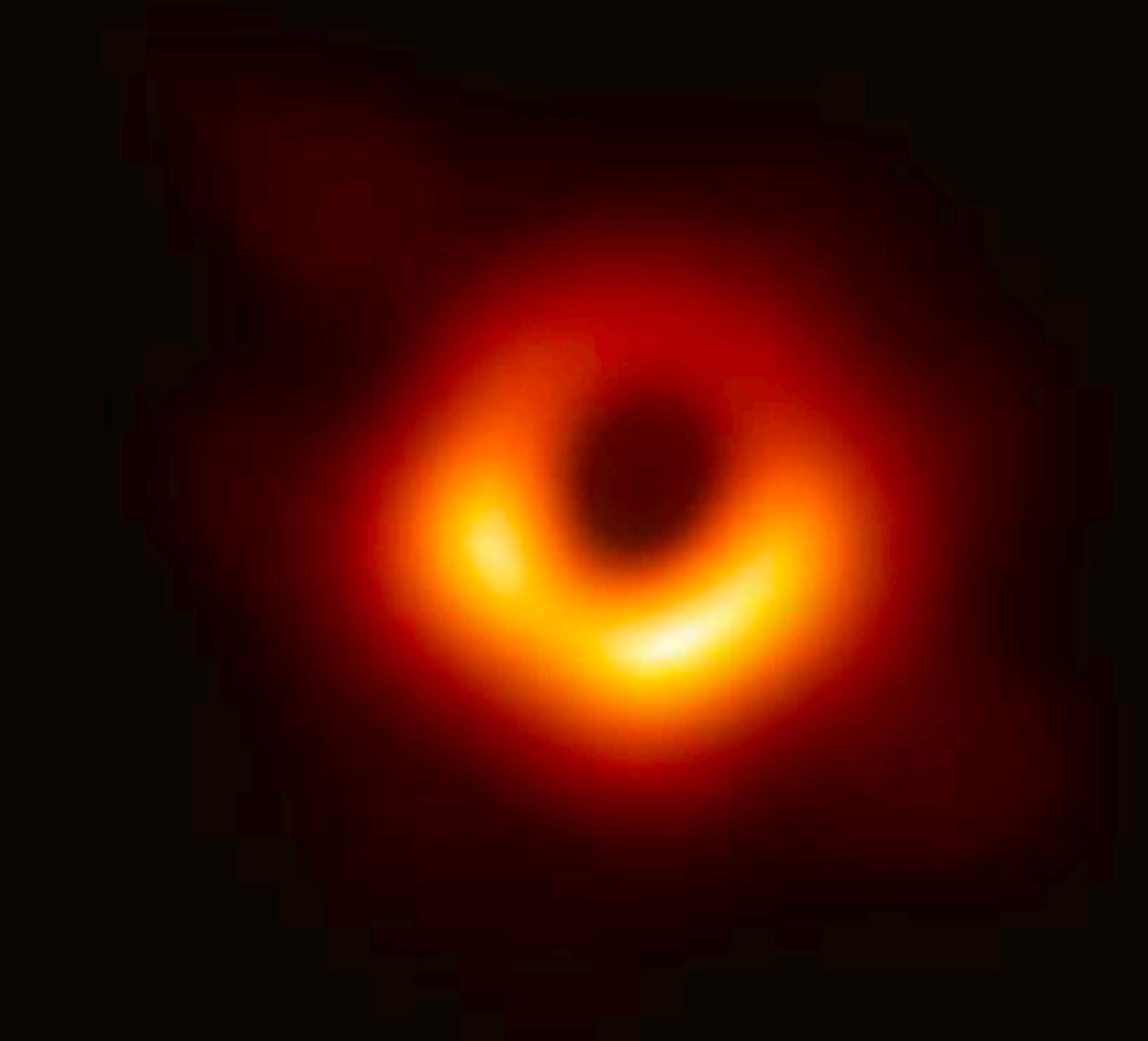
Ilustración Valentina Pérez
Cazadores de Eclipses

INTERSTELLAR NEIGHBORHOOD





Una galaxia espiral, muy como debe verse la Vía Láctea

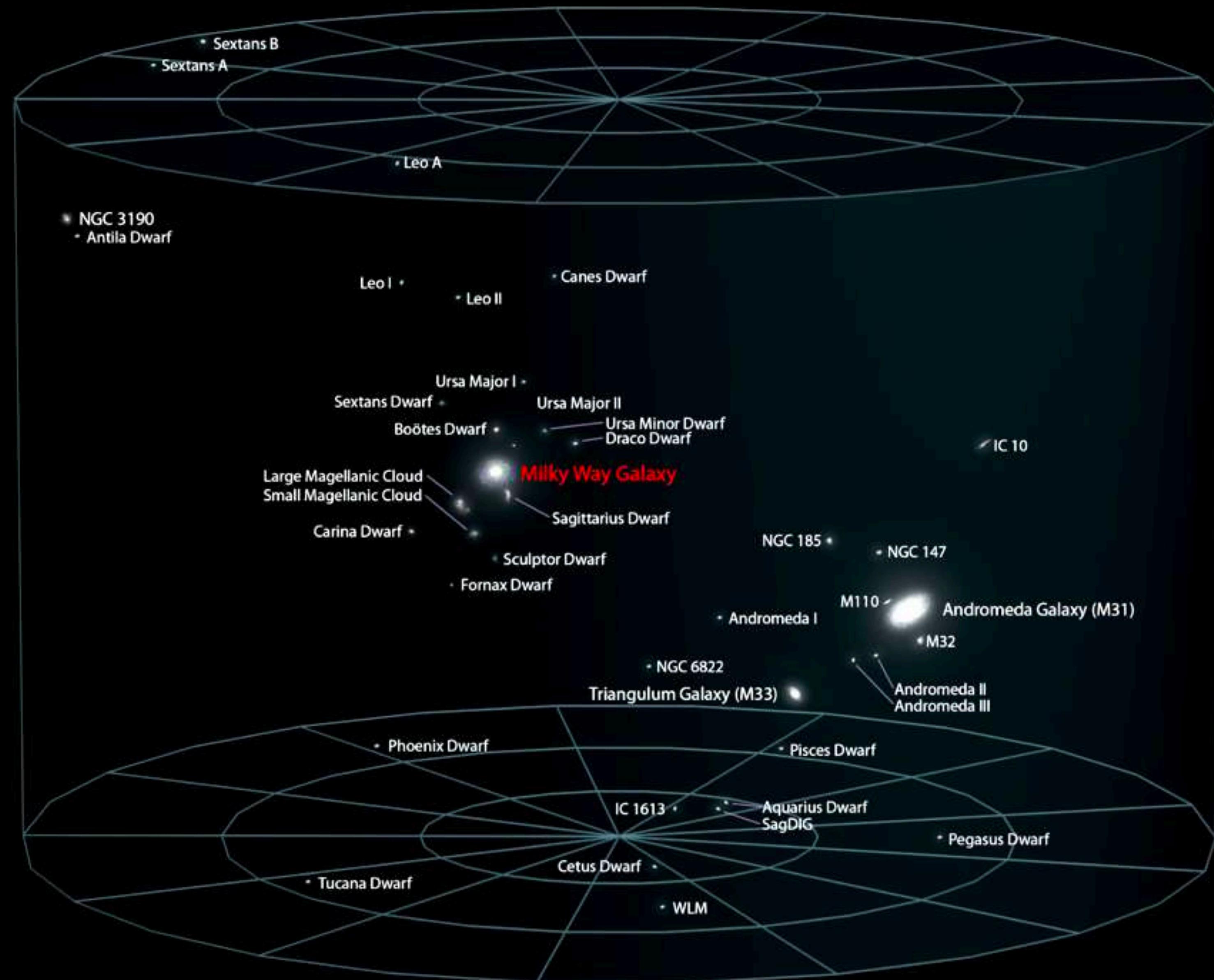


Agujero negro en el centro de M87, EHT



Halo de materia oscura, ESO/L. Calçada

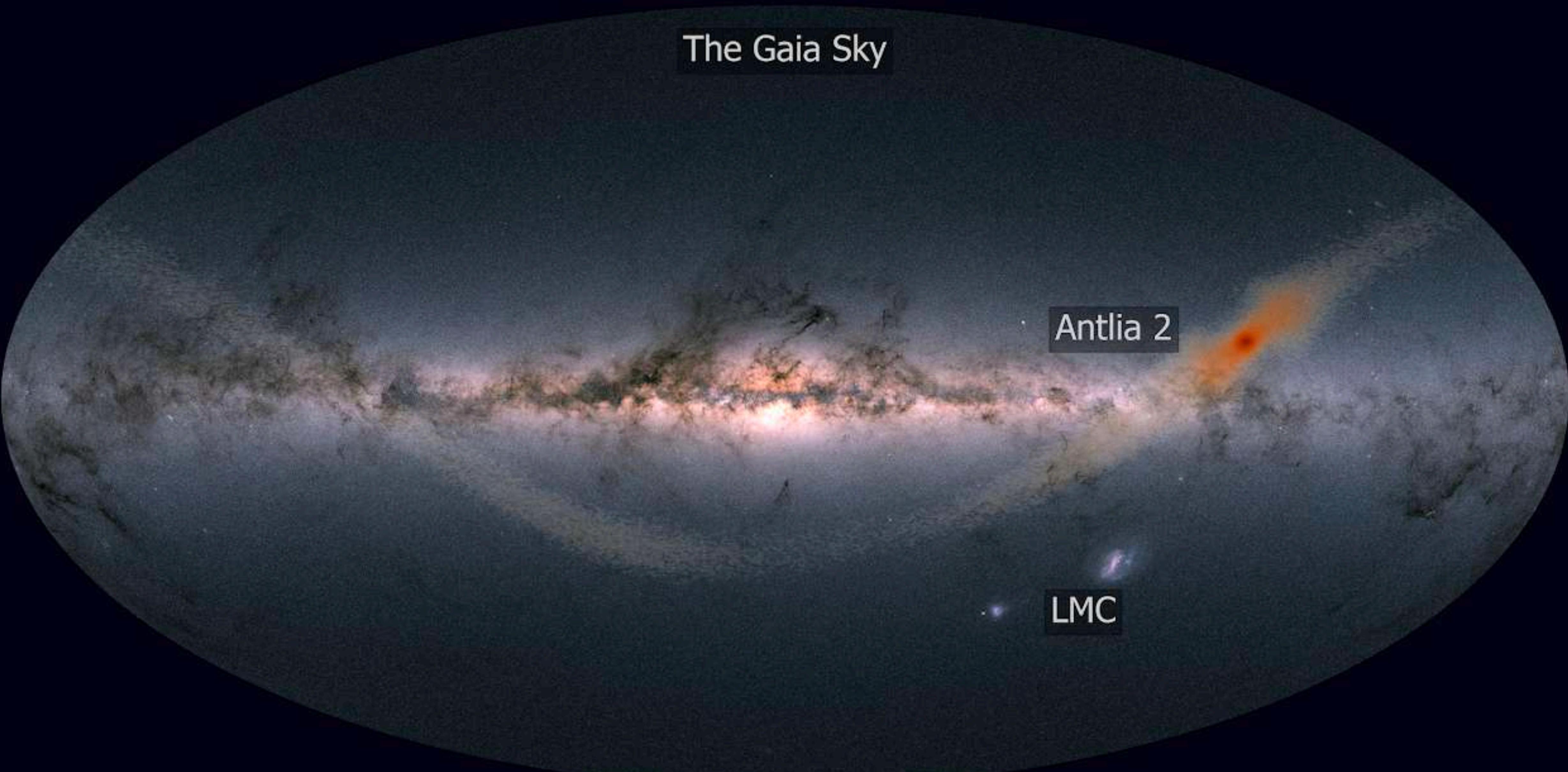
Local Galactic Group





Galaxias satélite, Torrealba et al. 2019

The Gaia Sky

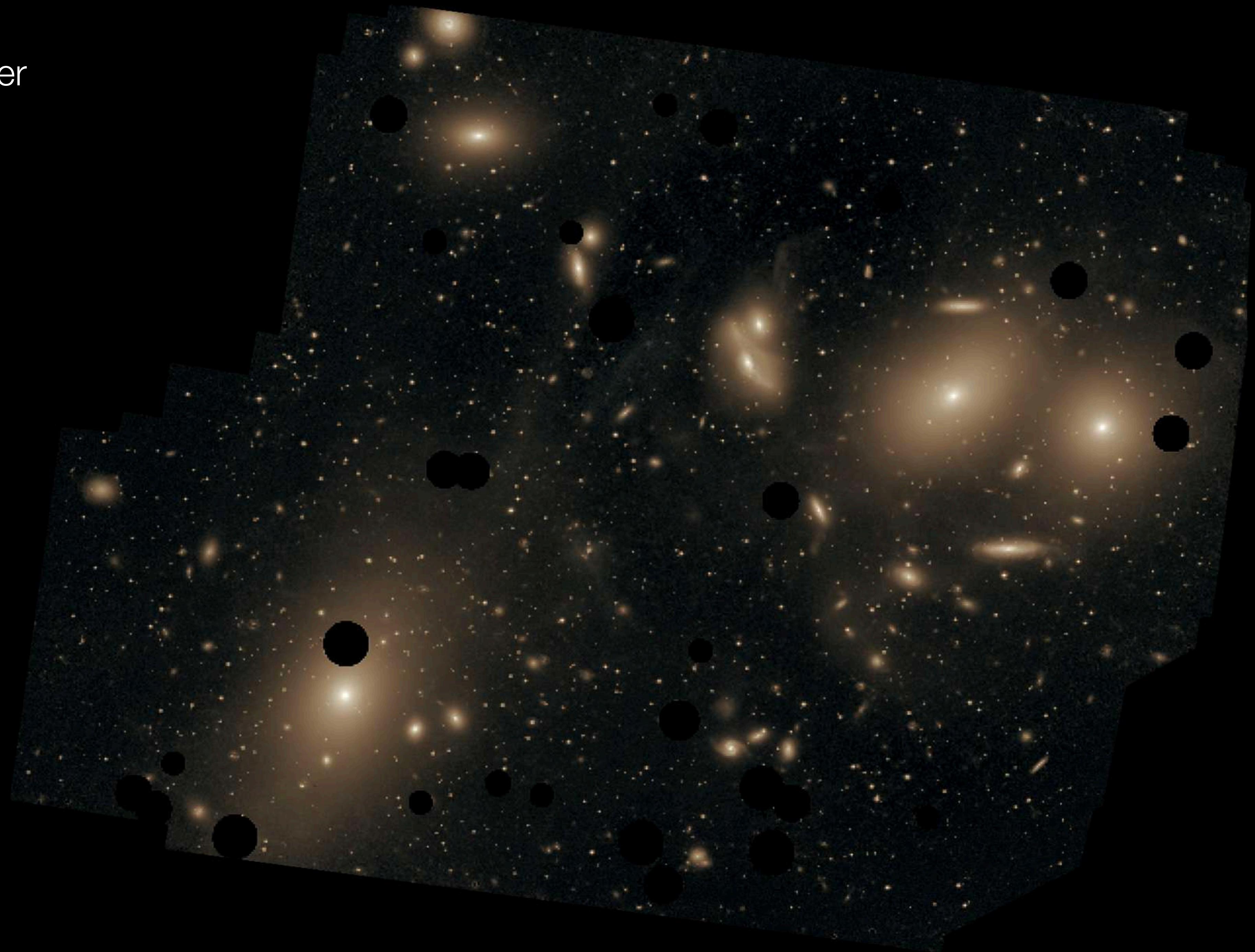


Antlia 2

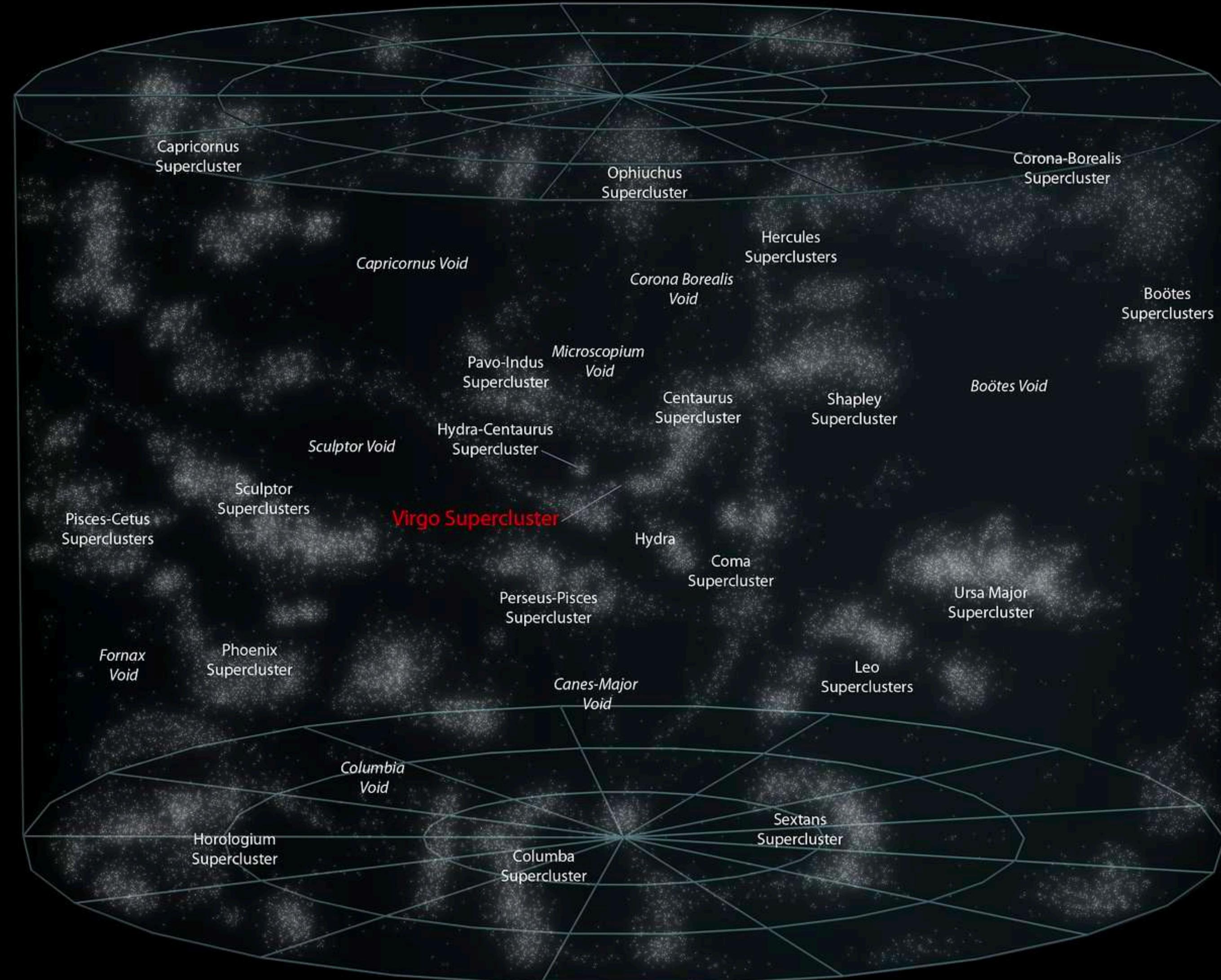
LMC

Visualización de J. Sanders (Cambridge, UK) based on Gaia data

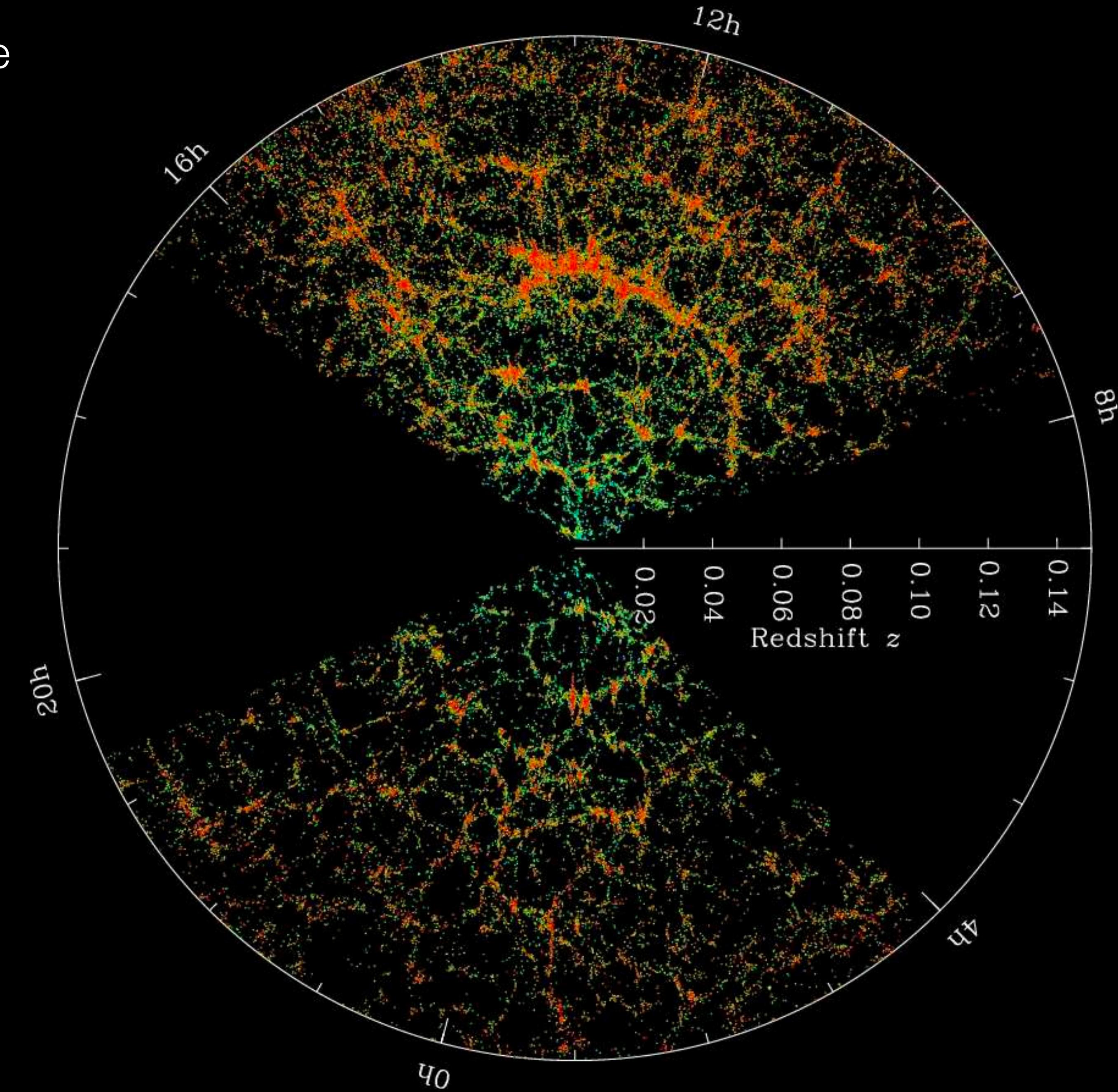
Virgo Cluster

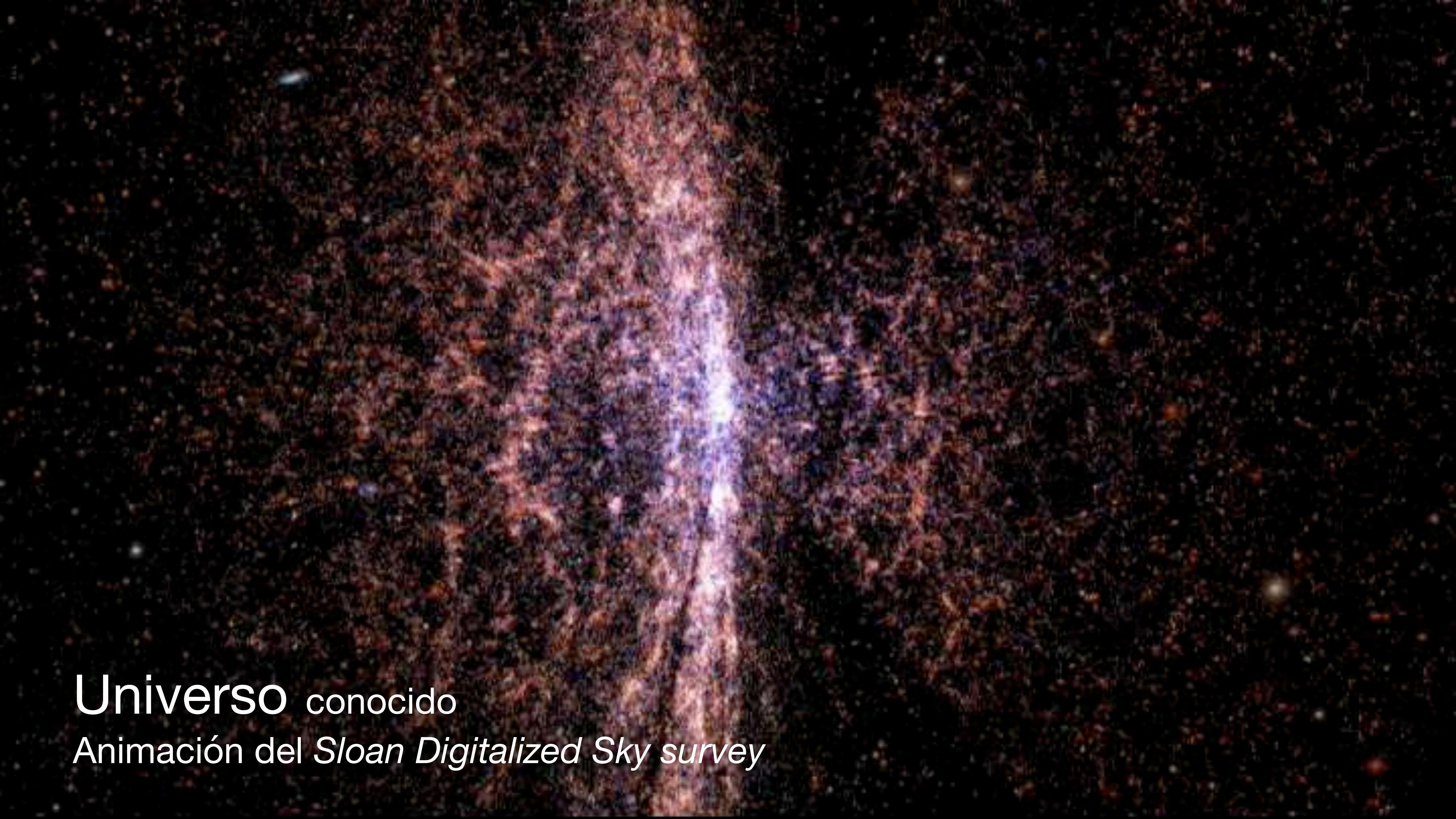


Virgo Super Cluster



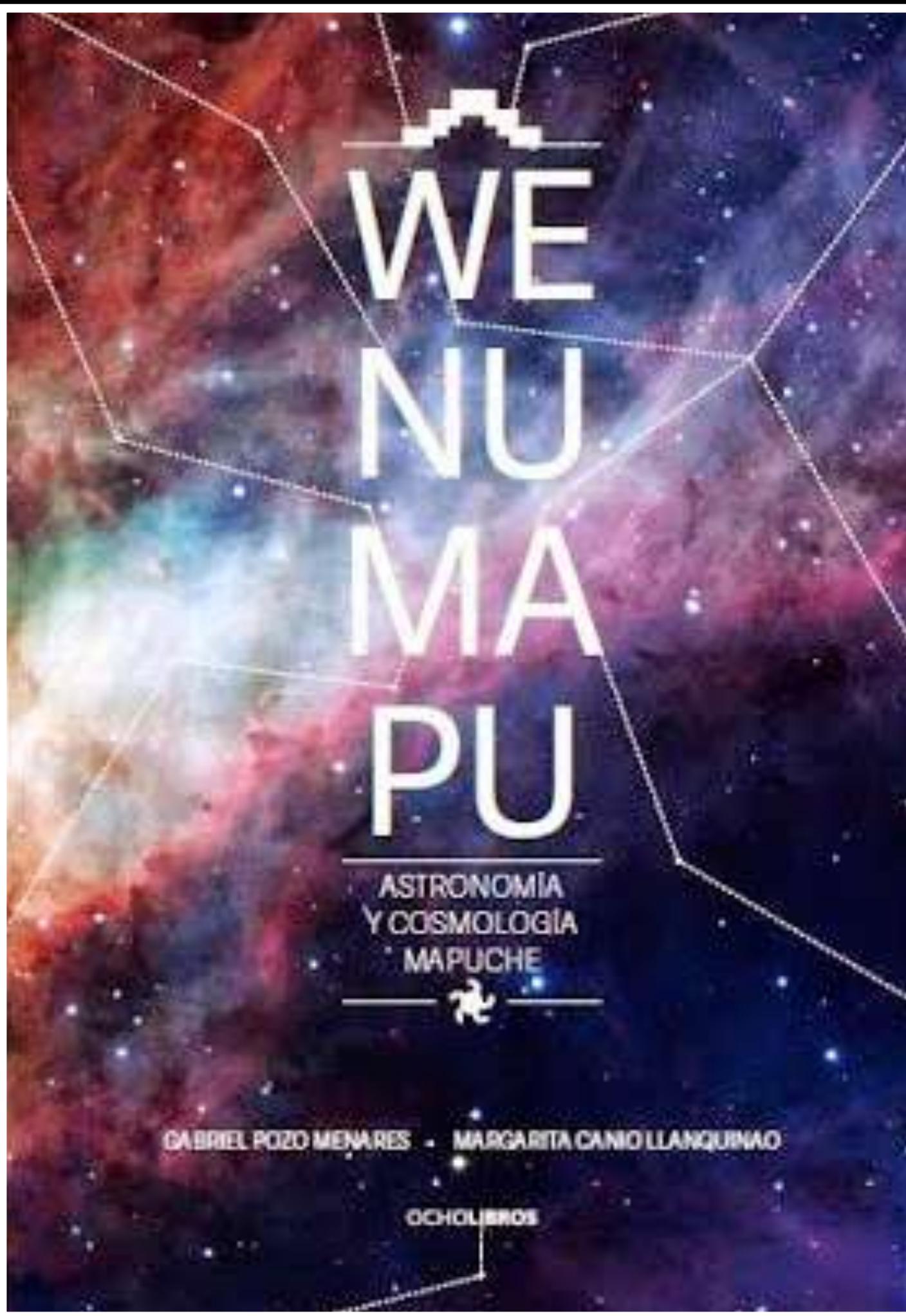
Large Scale Structure





Universo conocido
Animación del *Sloan Digitalized Sky survey*

Hoy estamos haciendo astrofísica desde
un territorio con tradición en
observación astronómica.



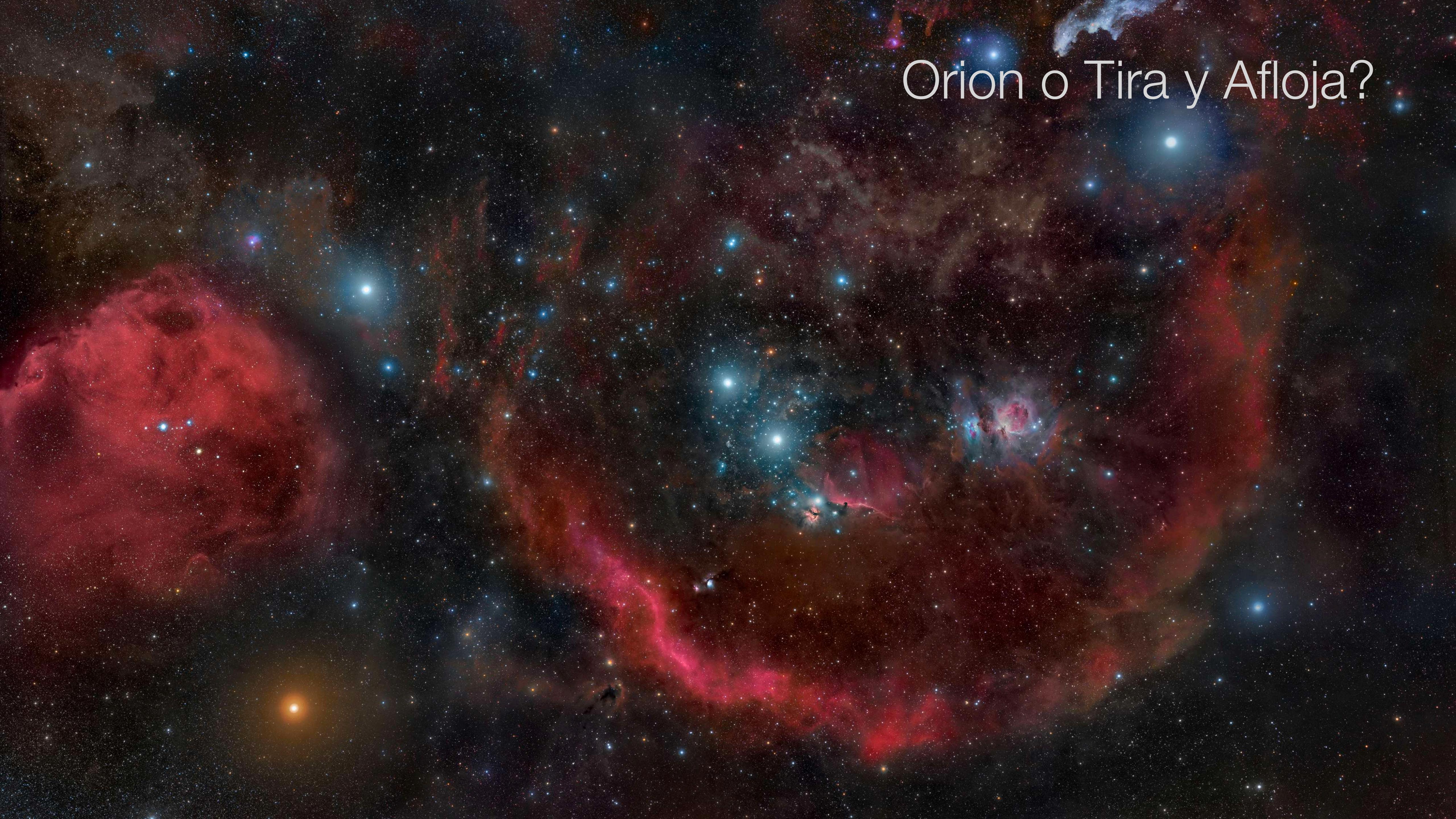
WENUMAPU

Gabriel Pozo Menares
Margarita Canio Llanquinao

- 1) Elementos visibles del cielo
- 2) Tradición Oral:
 - A. NUTRAM
 - B. PIYAM
 - C. PEWMA

Chawareche
Combarbalá





Orion o Tira y Afloja?

Vía Láctea
La Senda del Choike



Caza del Choike



Caza del Choike



Fuentes de agua



Galaxias satélite, Torrealba et al. 2019

We Tripantu.
(también ejemplo de asimilación/validación colonialista)



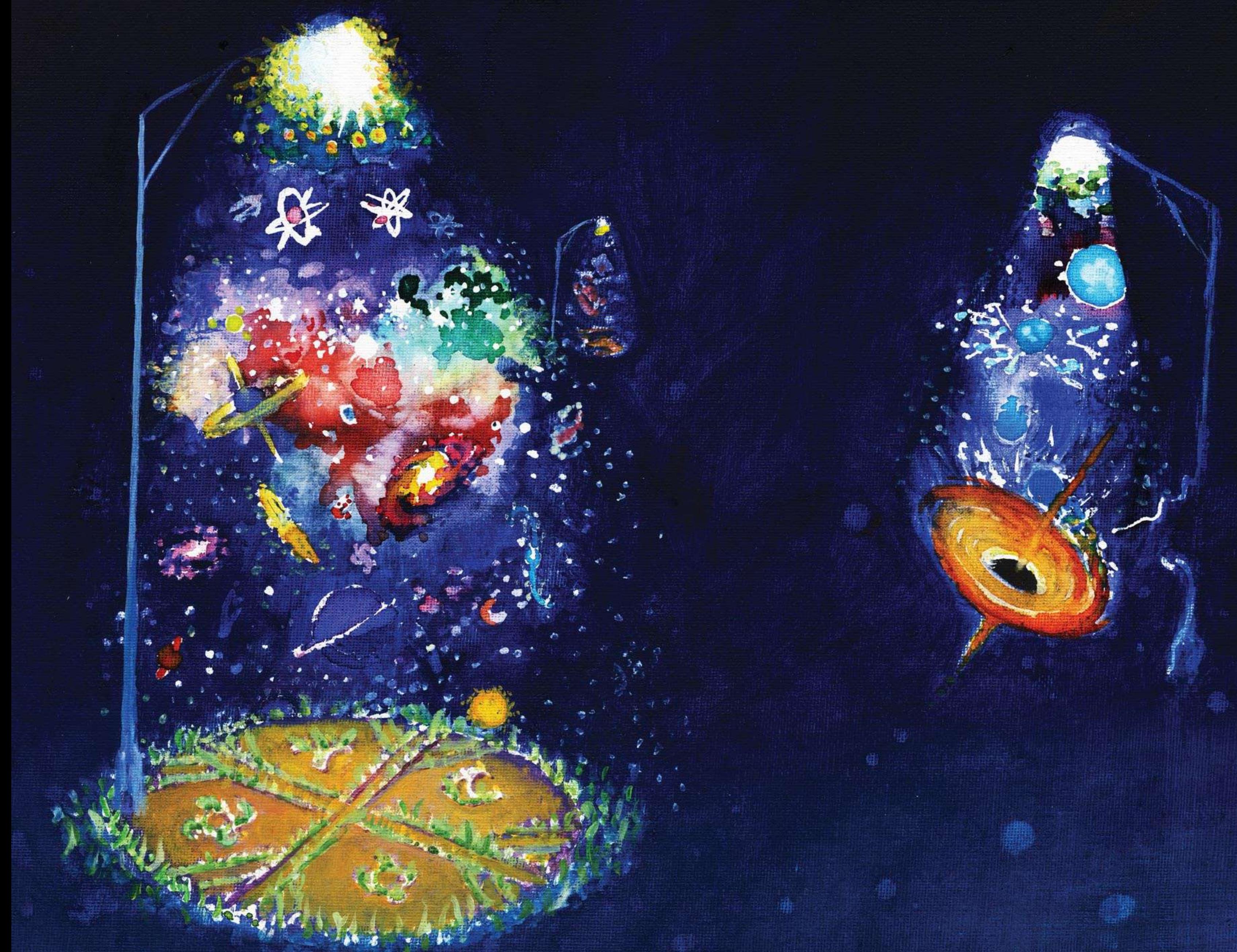


Ilustración Valentina Pérez
Cazadores de Eclipses

CONVERSATORIO ASTRODIÁLOGOS

¿Cómo divulgar astronomía respetando los conocimientos ancestrales?

Participa a través del canal
Astrofísica CIRAS

 youtube.com/astrofisicaCIRAS

24 Marzo 2022
17:00 horas

Más información en
www.ciras.cl

  @astrodialogos

Colaboran:

día  de la
astronomía

CIRAS







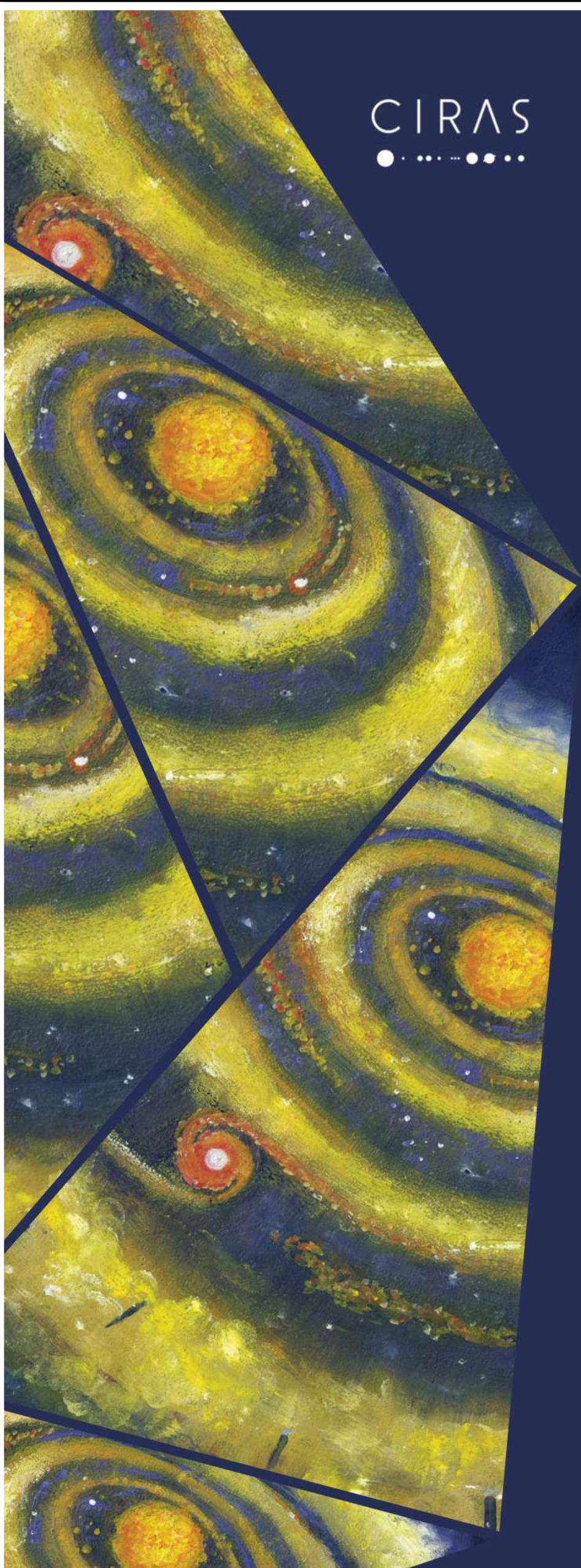



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LLAMADO PARA EXPLORAR EL ARTE Y LA ASTRONOMÍA

CREA TU ARTE INSPIRADO EN EXOPLANETAS

LANZAMIENTO POR YOUTUBE LIVE

17 hrs  **25 MARZO 2022**
YOUTUBE.COM/ASTROFISICACIRAS

BASES E INFORMACIÓN:
 CIRAS.CL

#ArteAstronomia2022

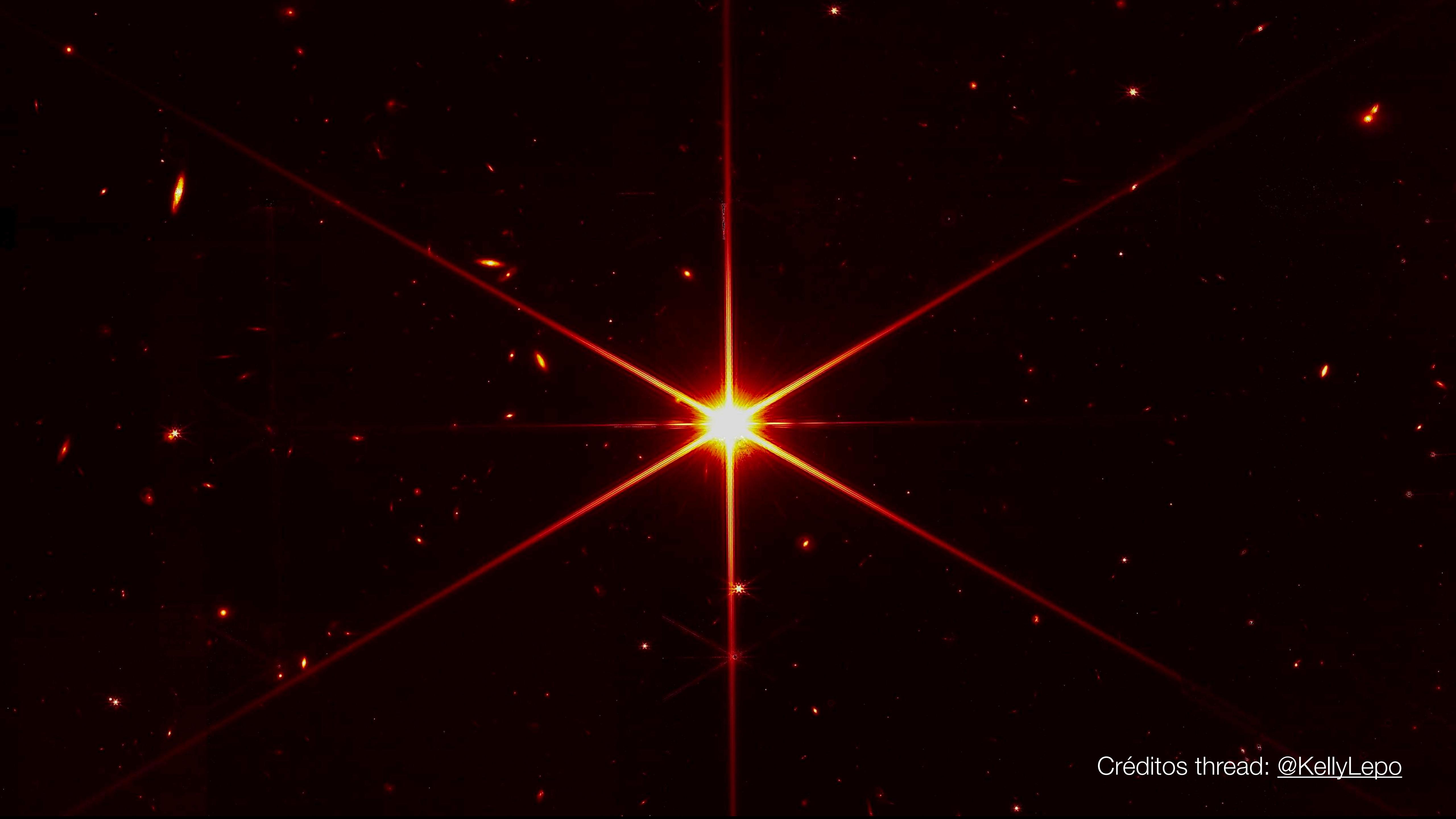
día  de la
astronomía

Pregunta para la próxima clase:

¿Puede la Tierra ser plana?

(conversar sobre argumentos a favor y en contra, y sobre el cuidado que hay que tener en este tipo de debates)

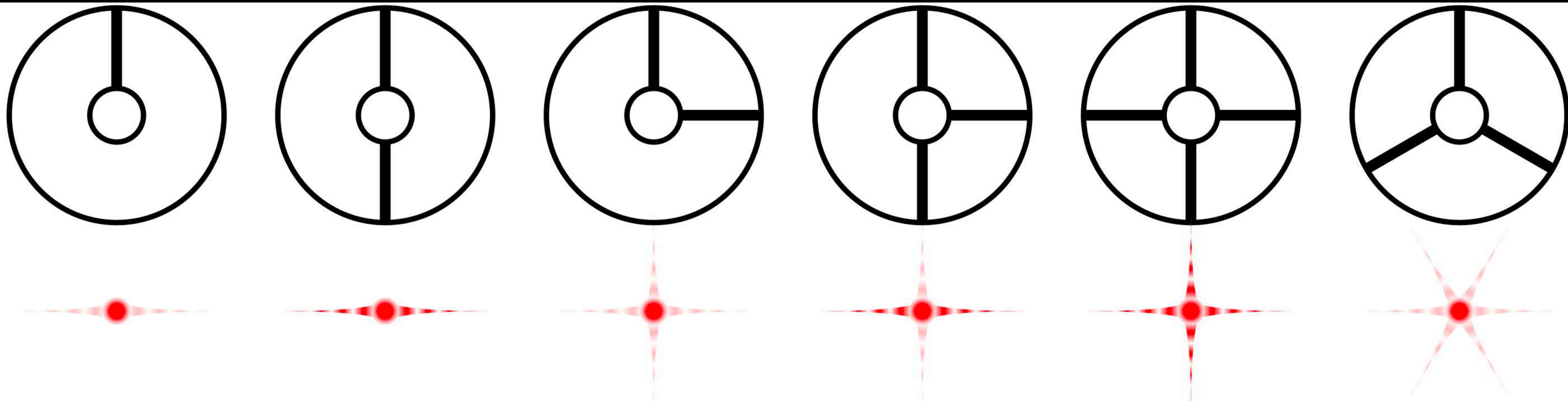
Bonus: primera imagen de calibración del *JWST*



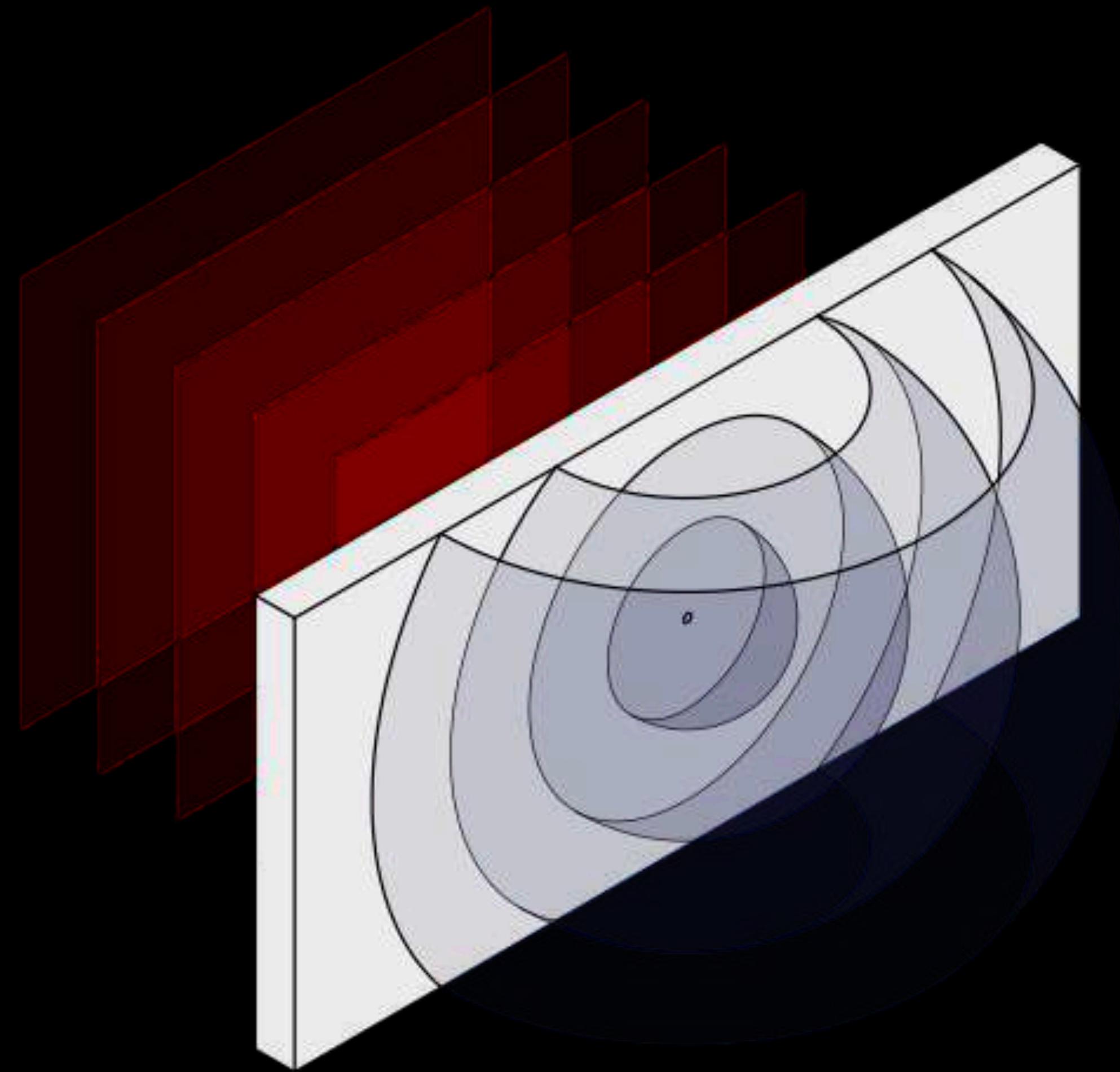
Créditos thread: [@KellyLepo](#)

Usually stars in astronomical photographs have points, because light interacts with the support beams for the secondary mirror. These are called "diffraction spikes".

Here are diffraction spikes for various strut arrangements of a reflecting telescope.

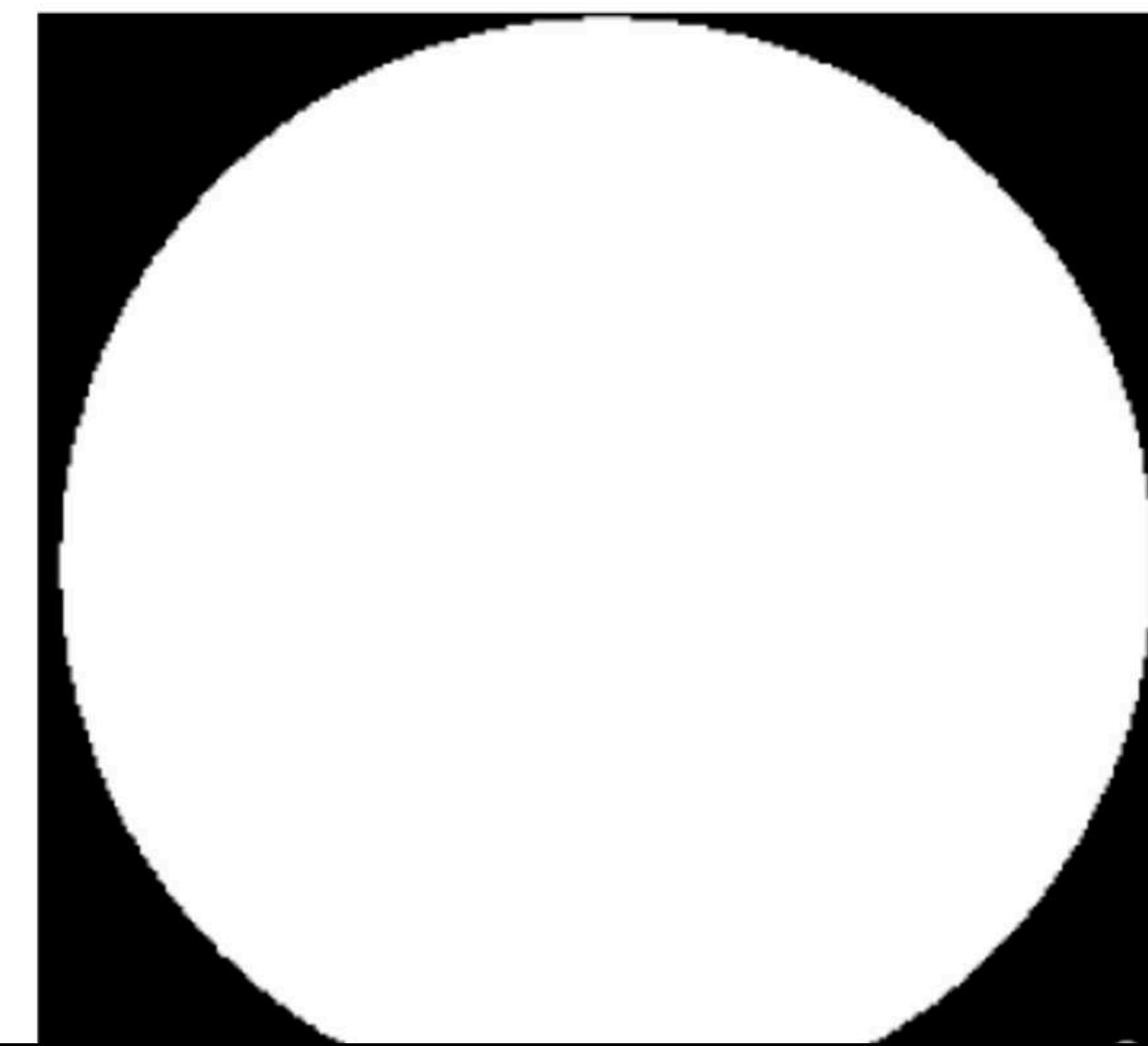


Whenever waves encounter an opening (an aperture), they will constructively and destructively interfere with one another, in a process called diffraction. We can model this for different types of apertures.

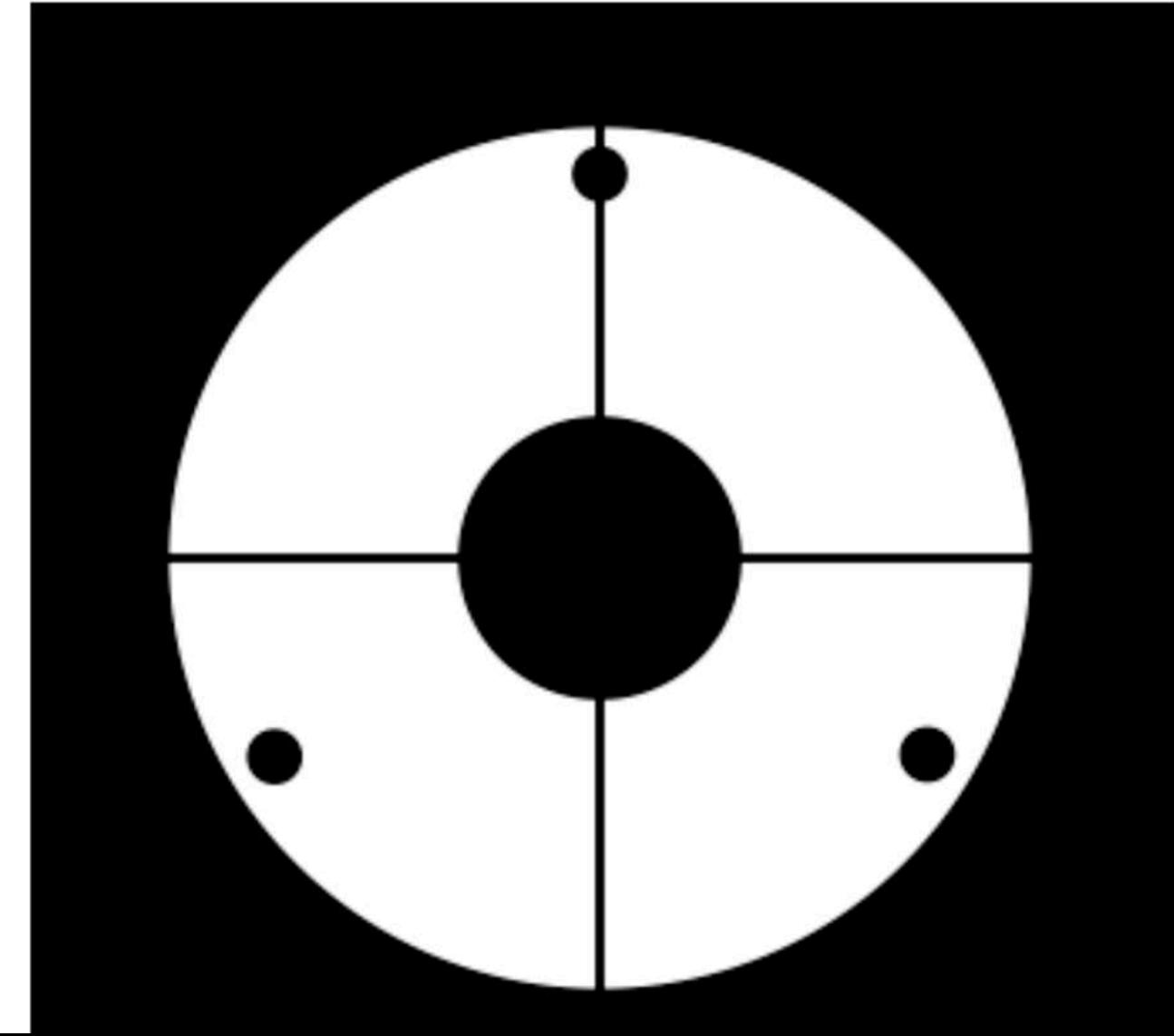


Aperture

Circle

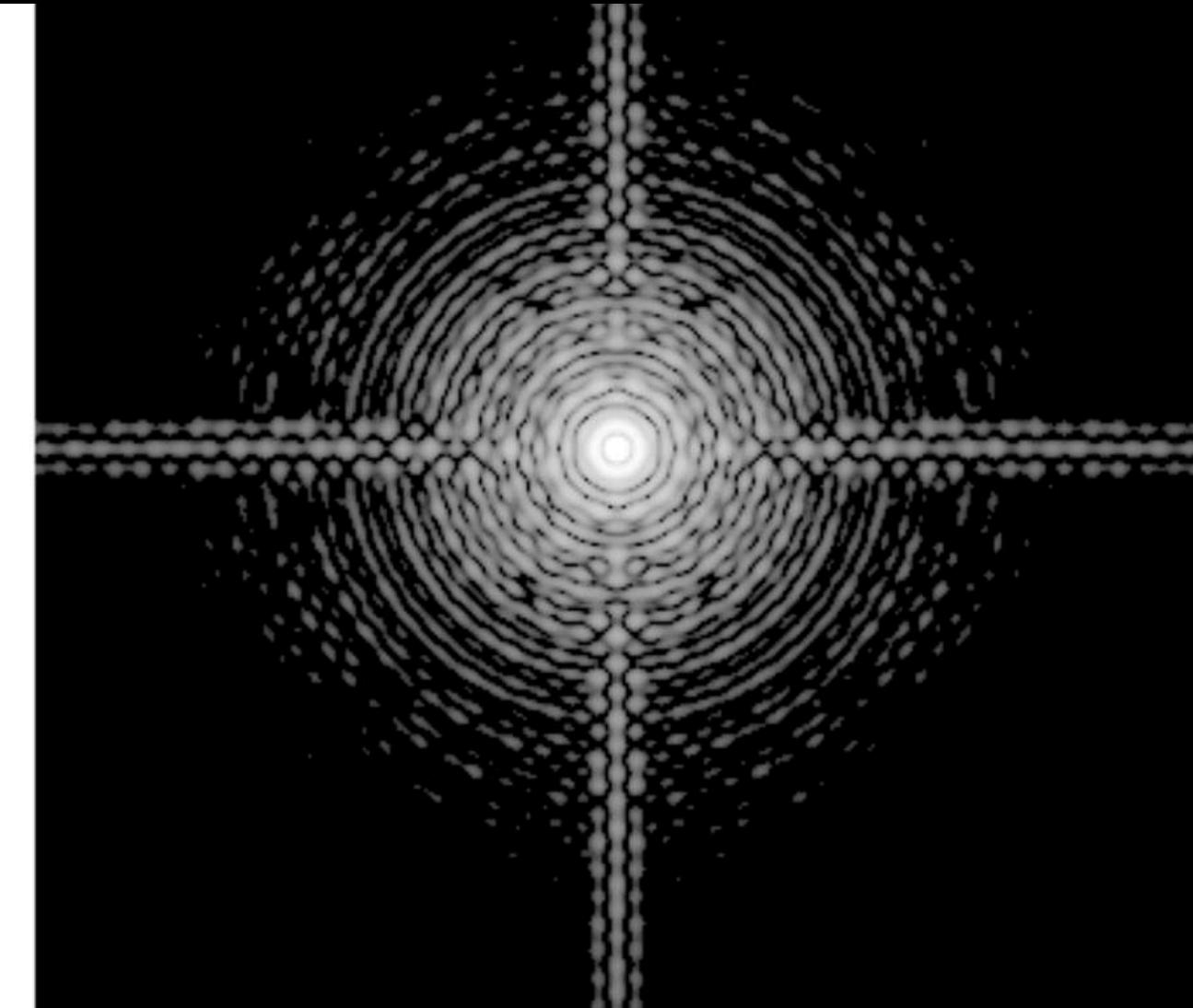
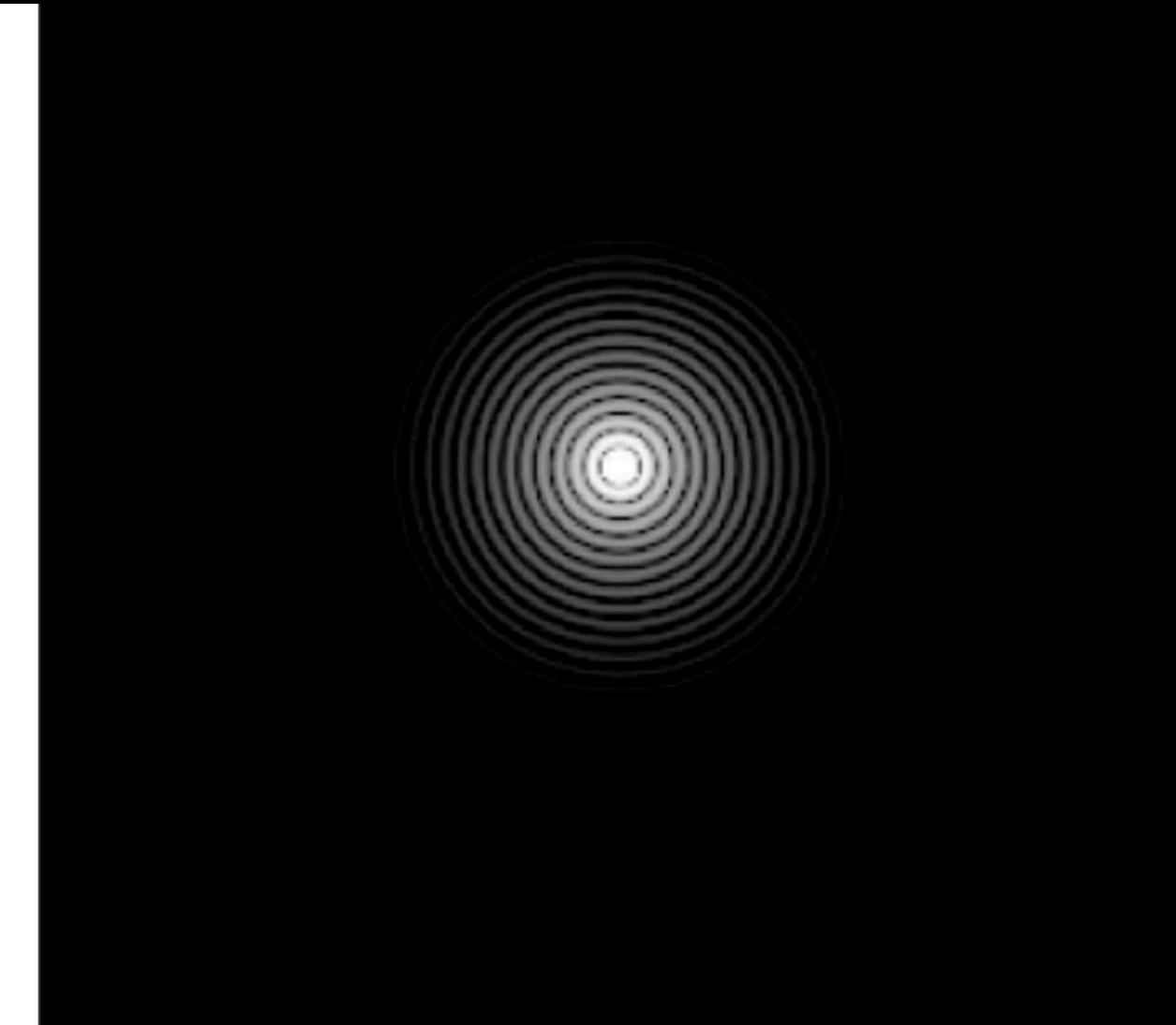


Hubble

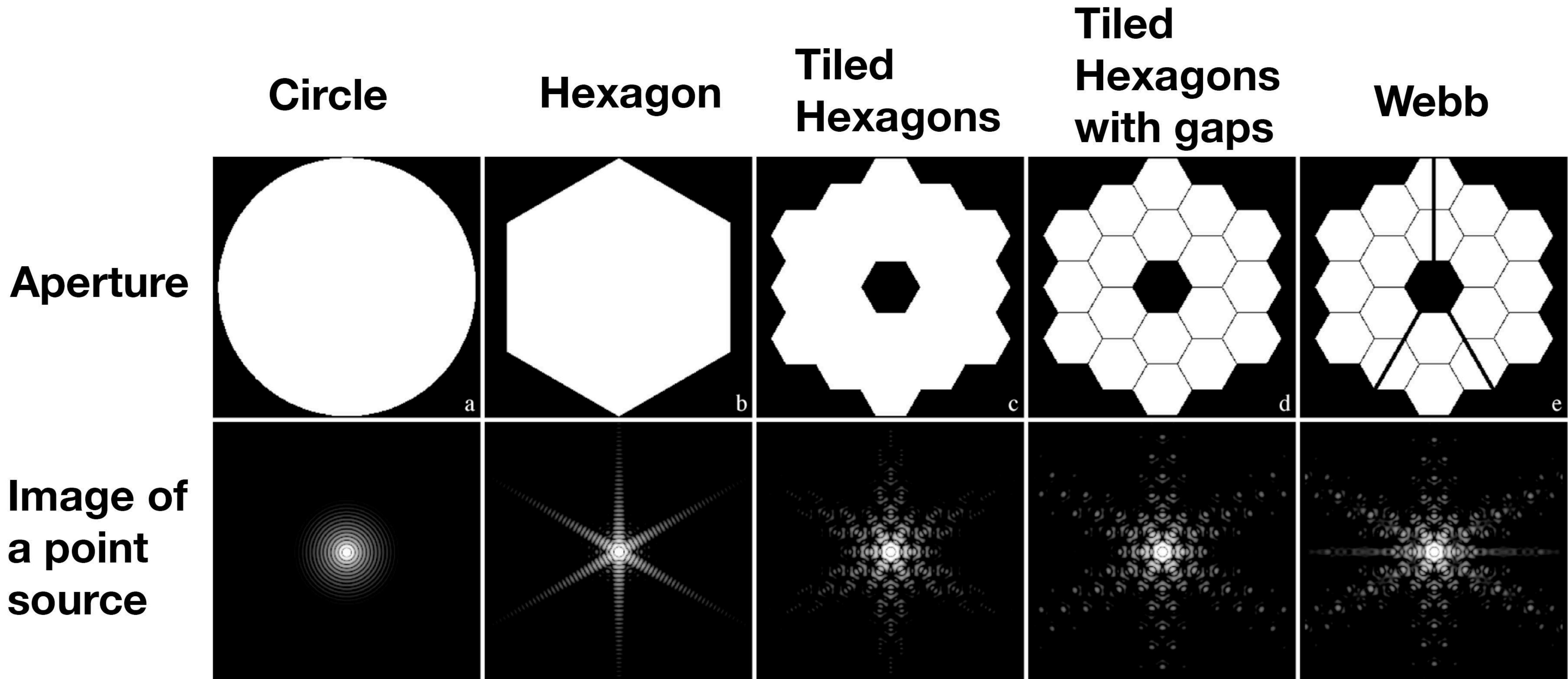


The diffraction spikes we see in Hubble images are mostly caused by the struts holding up the secondary mirror. Here we see a model of the Hubble telescope aperture, and the resulting diffraction pattern of light seen in point sources (like stars)

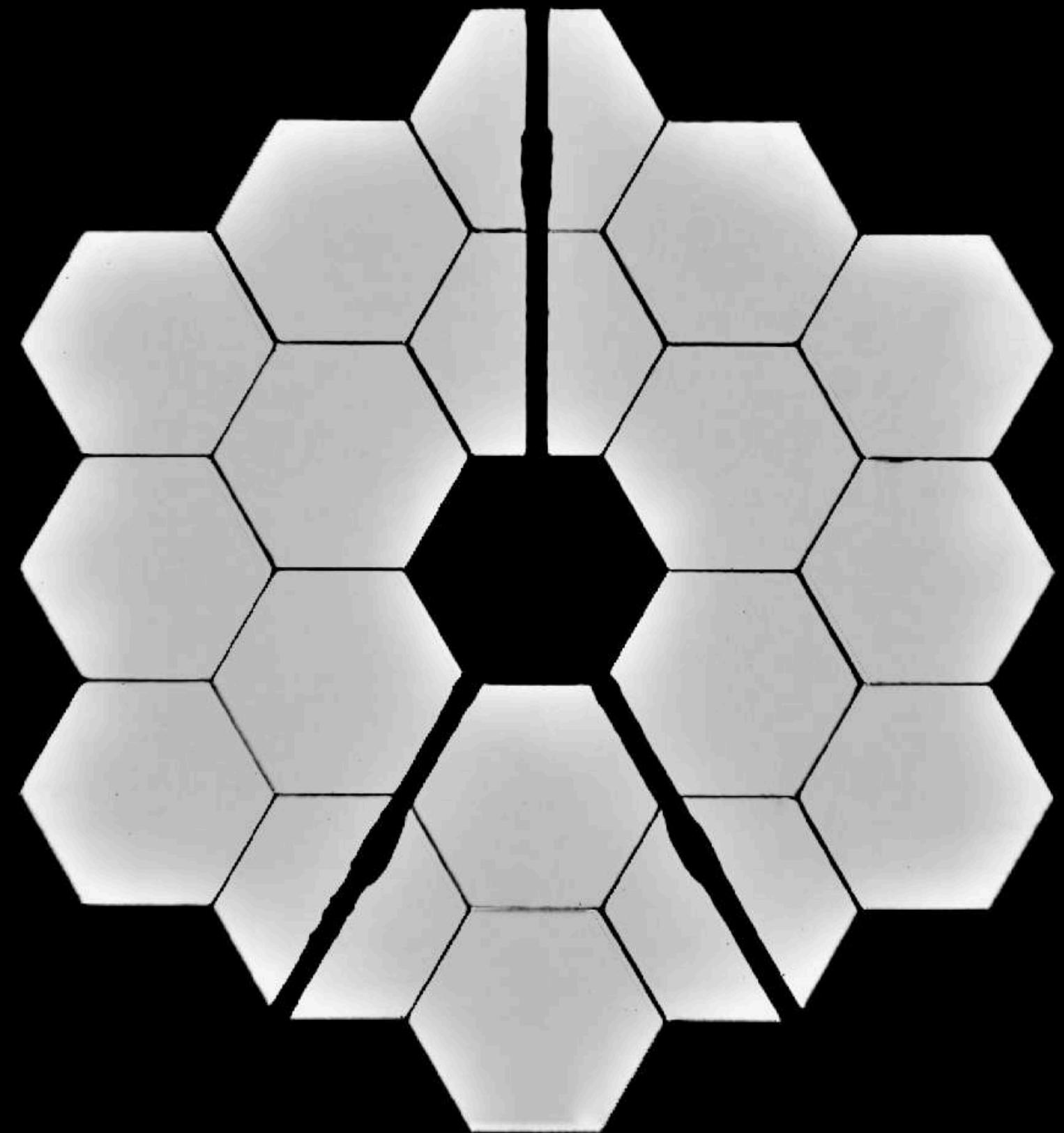
Image of a point source



However this is not the case for Webb! The snowflake pattern you see in the Webb image comes mostly from its hexagonal shape (with a smaller contribution from the secondary mirror support)



NIRCAM ALIGNMENT SELFIE



TELESCOPE ALIGNMENT EVALUATION IMAGE

