

# Howard Astronomical League

July 21, 2022



# Astro Humor

I can't find  
any milk for  
my coffee.

In space no  
one can, here  
use cream.

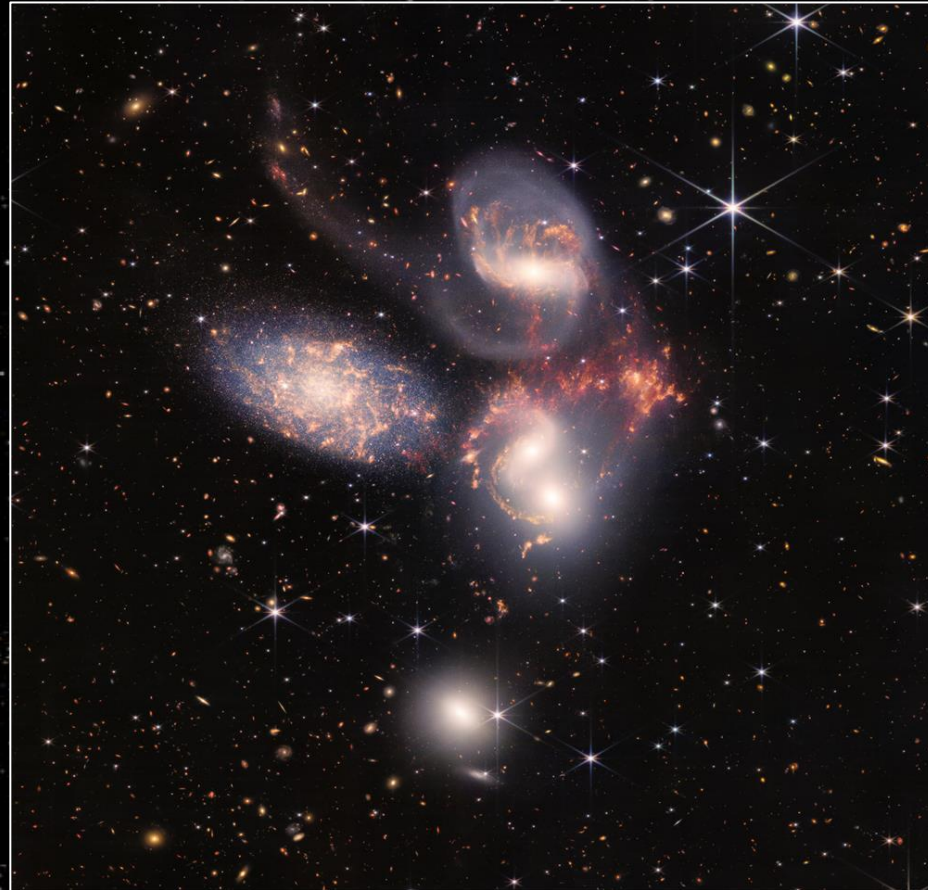


Receiving the first image  
from the James Webb telescope:

REMOVE BEFORE FLIGHT

Mark Artuso  
Star Trek Memes

# Welcome New Members and Guests



Welcoming new Stars\* to HAL

\* And Galaxies

# HAL Public and Members Only Star Parties



## 2022

July	23	Members
August	6	Public
August	27	Members
September	3	Public
September	24	Members
October	1	Public
October	22	Members
November	5	Public
November	19	Members

## HAL Officers/Positions 2022

<b>President</b>	Phil Whitebloom	president@howardastro.org
<b>1st Vice President</b>	Victor Sanchez	1stvp@howardastro.org
<b>2nd Vice President</b>	Jim Tomney	2ndvp@howardastro.org
<b>Treasurer</b>	Joel Goodman	hal_treasurer@howardastro.org
<b>Secretary</b>	Yvonne Chiarelli	secretary@howardastro.org
<b>Event Coordinator</b>	Richard Ren	events@howardastro.org
<b>Publicity Chair +</b>	TBD	publicity@howardastro.org
<b>Social Media +</b>	Hannah Broder	socialmedia@howardastro.org
<b>Observatory Director *</b>	Victor Sanchez	observatory@howardastro.org
<b>Librarian +</b>	Bob Dutilly	librarian@howardastro.org
<b>ALCor +</b>	Steve Jaworiwsky	halcor@howardastro.org
<b>Webmaster *</b>	Ken Sall	Use "Contact Us" Page

\* Appointed as voting officers of the board of directors by President with board approval

+ Appointed non-voting member of the board except when position filled by an elected officer

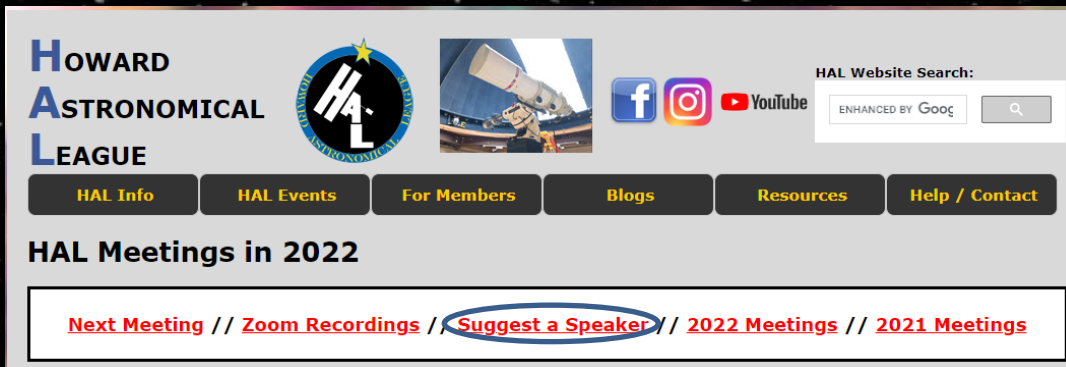
# Tonight's Agenda

- ***Jared Case***: Discord Update (including “Object of the Month”)
- ***Wayne Baggett***: JWST Revealed
- ***Jim Johnson***: The Great North American Solar Eclipse of 2024: Part 2, HAL Lessons from the Great American Solar Eclipse of 2017
- Members' Astrophotos
- Wrap up, Discussion, Questions...






# Do you know a future HAL Presenter?

Let us know:  
<https://bit.ly/HALSpeaker>

You can also find the link on  
the HAL website under HAL Events  
In the Our Meetings section



HOWARD  
ASTRONOMICAL  
LEAGUE



HAL Website Search:  
ENHANCED BY Google

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HAL Meetings in 2022

[Next Meeting](#) // [Zoom Recordings](#) // [Suggest a Speaker](#) // [2022 Meetings](#) // [2021 Meetings](#)

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## HAL Speaker Suggestion Form

For HAL members or public to recommend an astronomy-related speaker for a future General Meeting (third Thursday every month).

NOTE: Only a few fields below are required, as denoted by a red asterisk.

[Sign in to Google](#) to save your progress. [Learn more](#)

\* Required

Your Name \*

Your answer

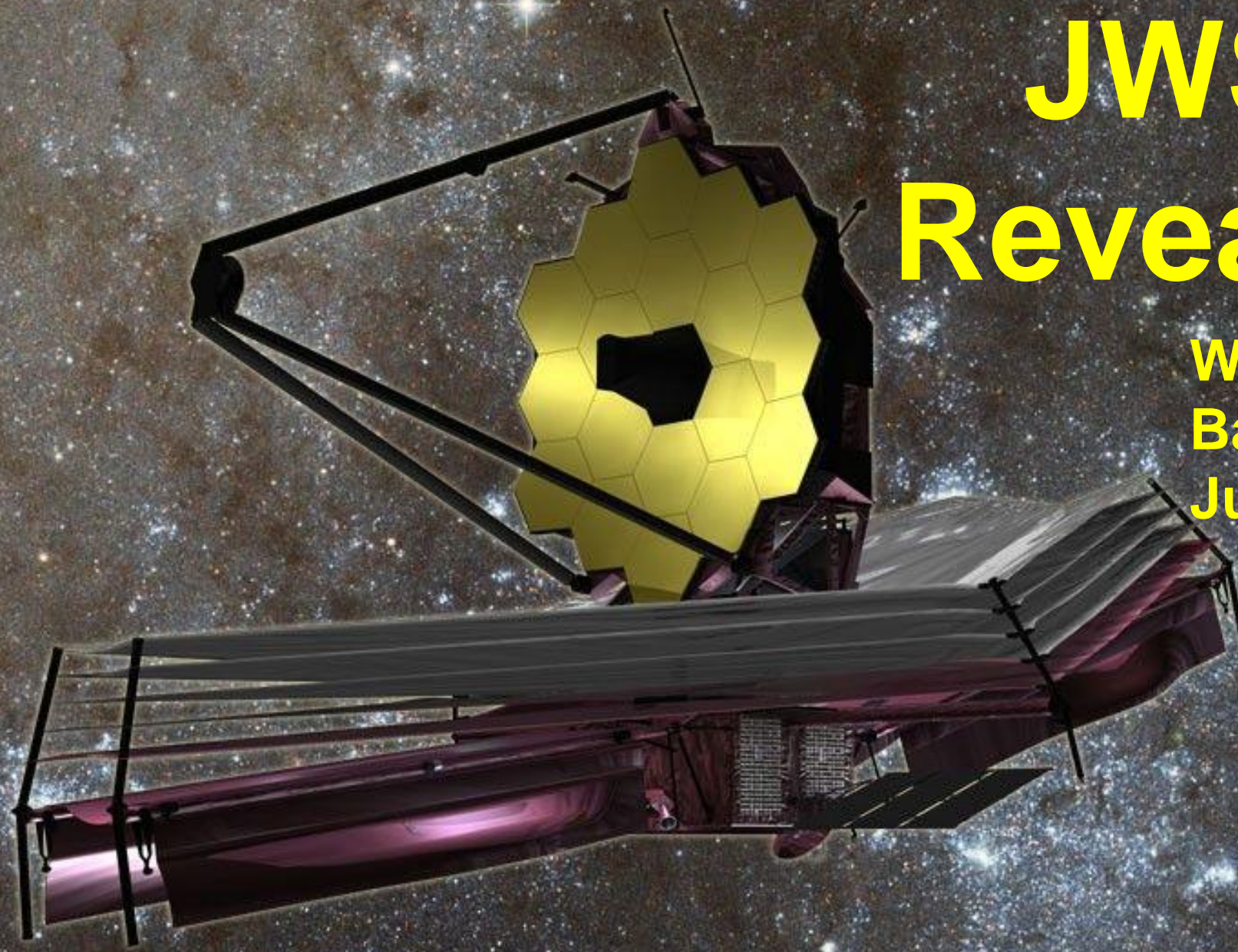
Your Email \*

Your answer

Suggested Speaker's Name \*

Your answer

Jared...



# **JWST Revealed!**

**Wayne  
Baggett  
July 21, 2022**

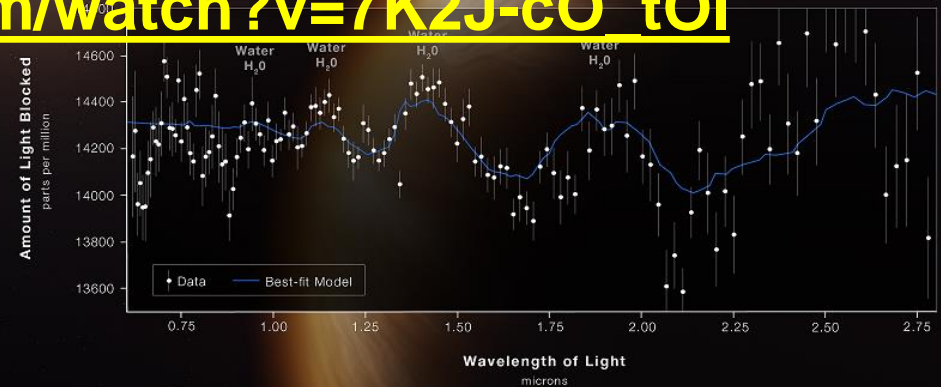


**NASA YouTube Video:**

**<https://www.youtube.com/watch?v=nmMRMIE3MGw>**

**Dr. Rebecca Smethurst's ("Dr. Becky") YouTube Video:**

**[https://www.youtube.com/watch?v=7K2J-cO\\_tOI](https://www.youtube.com/watch?v=7K2J-cO_tOI)**



# JWST Performance

“All the tools are working, better than we hoped and promised.”

(Dr. John Mather, JWST Senior Project Scientist, <https://blogs.nasa.gov/webb/>)

“... almost across the board, the science performance of JWST is better than expected.”

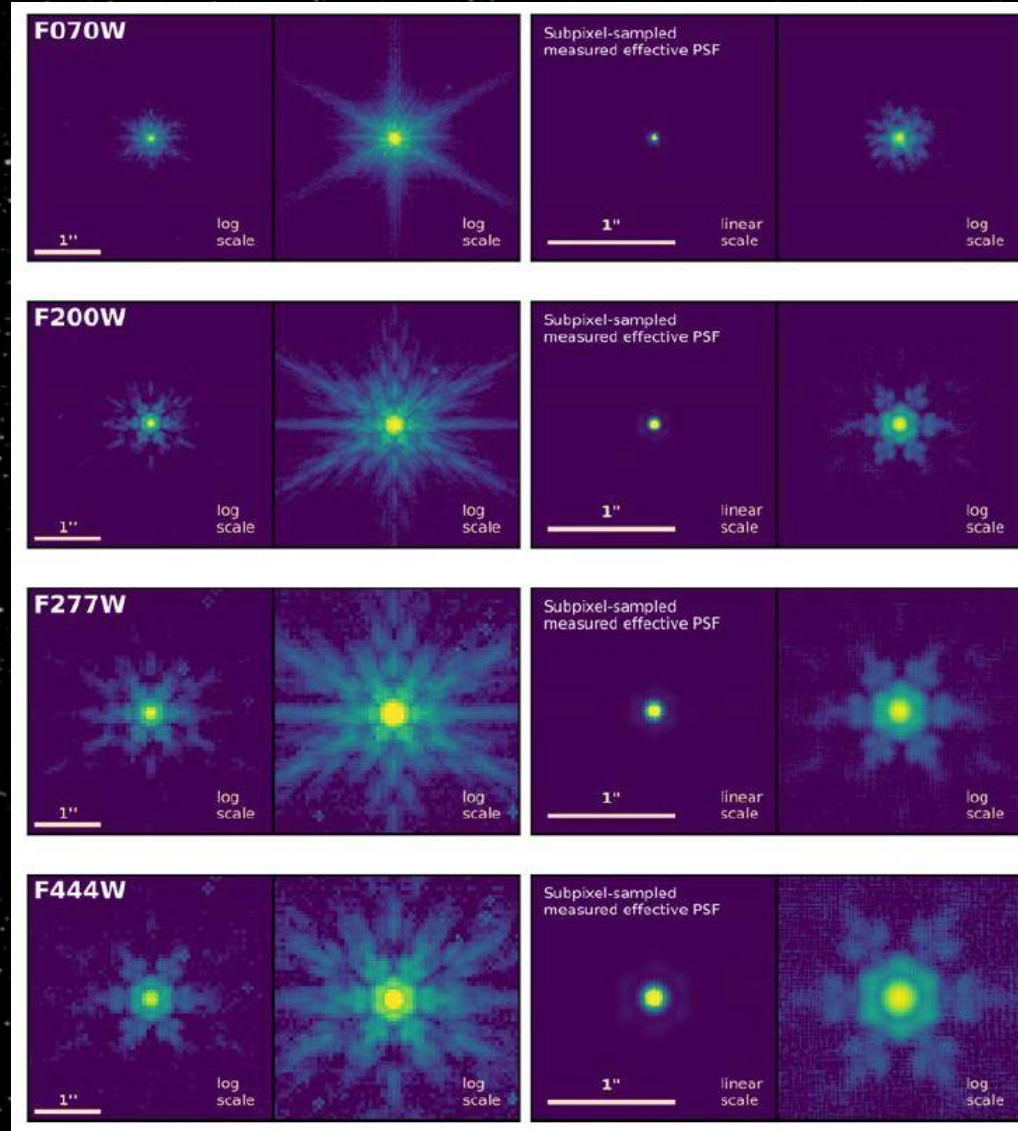
(Characterization of JWST science performance from commissioning, Rigby, et al.,  
12 July 2022)

# Telescope Performance

PSFs at  $0.7\mu\text{m}$ ,  $2.0\mu\text{m}$ ,  $2.77\mu\text{m}$ , and  $4.44\mu\text{m}$

Single Star PSFs

Left: Sharp core  
Right: Extended wings



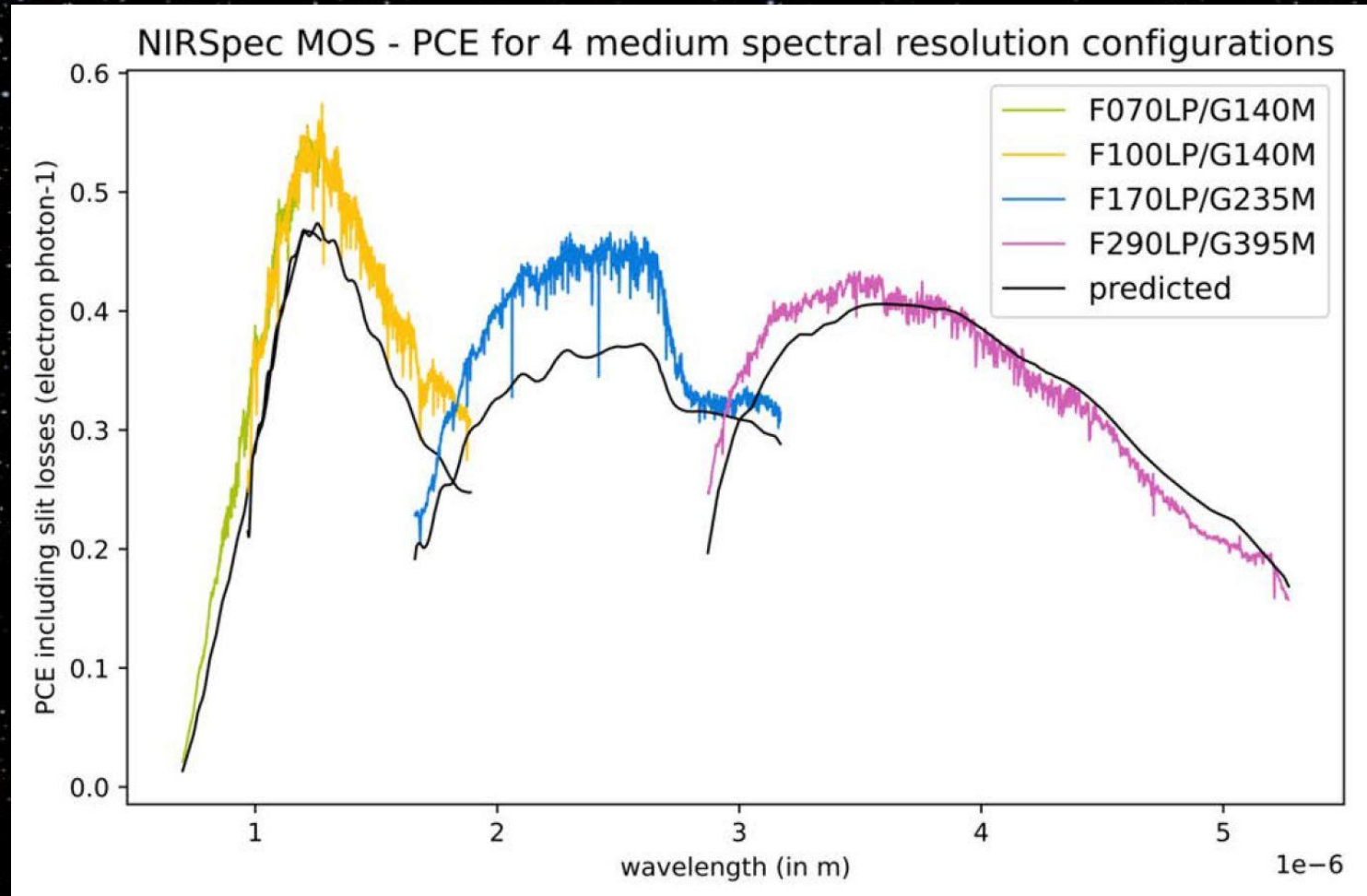
Effective PSFs (dithered measurements of many stars)

Zoomed 2x compared to the single star PSFs

Left: Sharp core  
Right: Extended wings



# NIRSpec Photon Conversion Efficiency

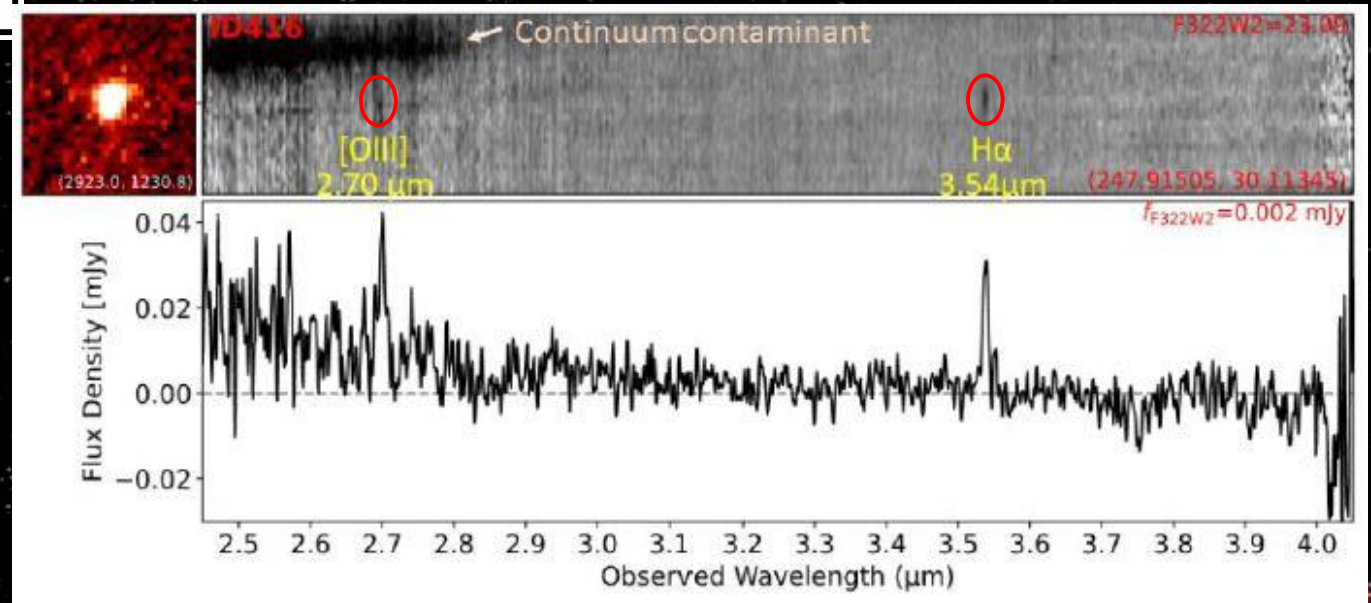


# NIRCam Sensitivity

Wavelength ( $\mu\text{m}$ )	2	3.5
Requirement (nJy)	11.4	13.8
ETC prediction (nJy)	10	14.1
Actual (nJy)	7.3	8.8

← Faintest flux reached in 10,000 sec exposure and SNR = 10 at two wavelengths. Smaller numbers mean better sensitivity.

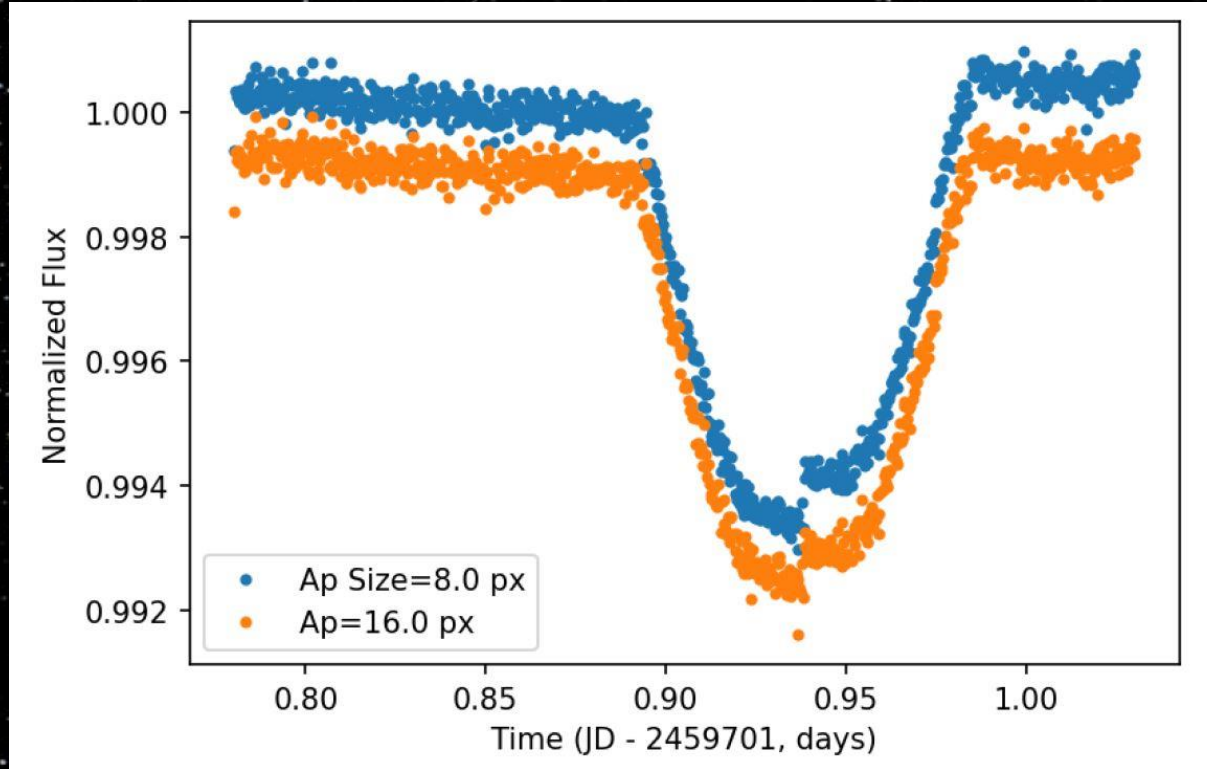
→ Serendipitous spectrum of a Seyfert Galaxy located at  $z=4.39$ . This is a 386 sec exposure with a NIRCam grism.



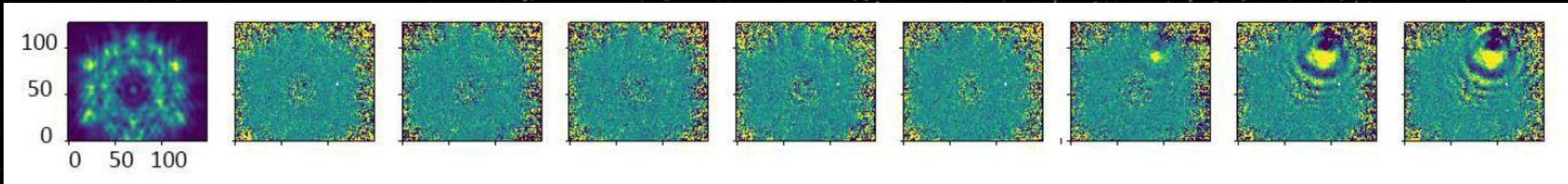
# Segment Tilt Events

NIRCam Grism  
time-series  
observations of  
HAT-P-14b

NIRCam SW  
weak-lens  
during  
observations

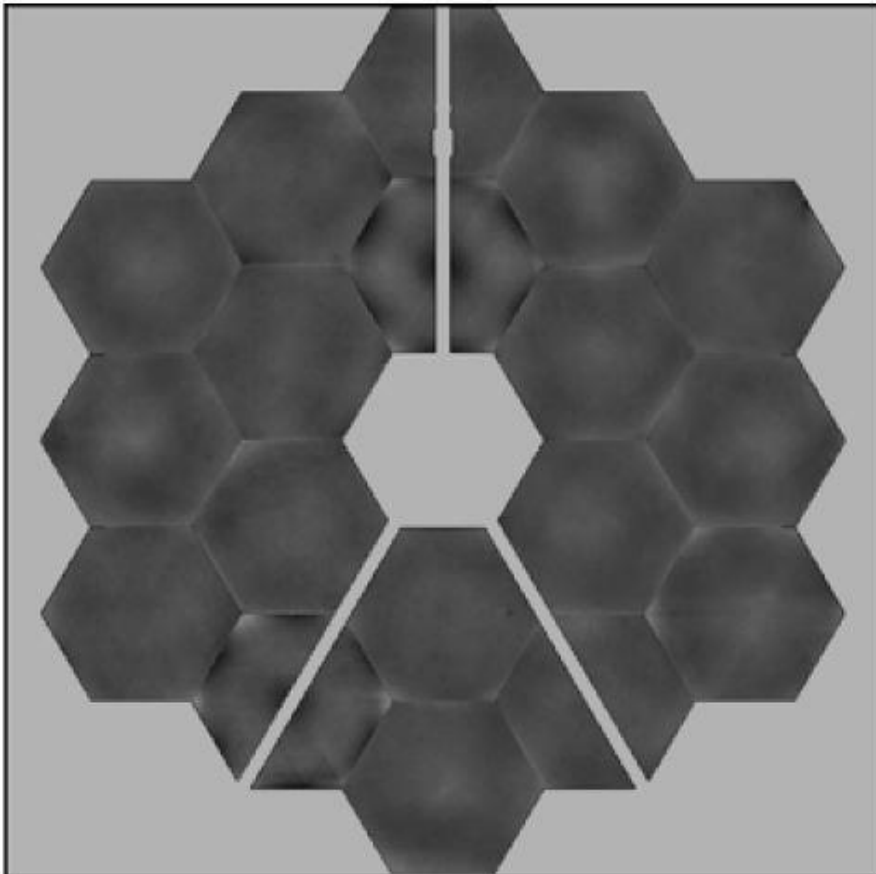


The blue data  
show a jump of  
less than  
0.001 mag



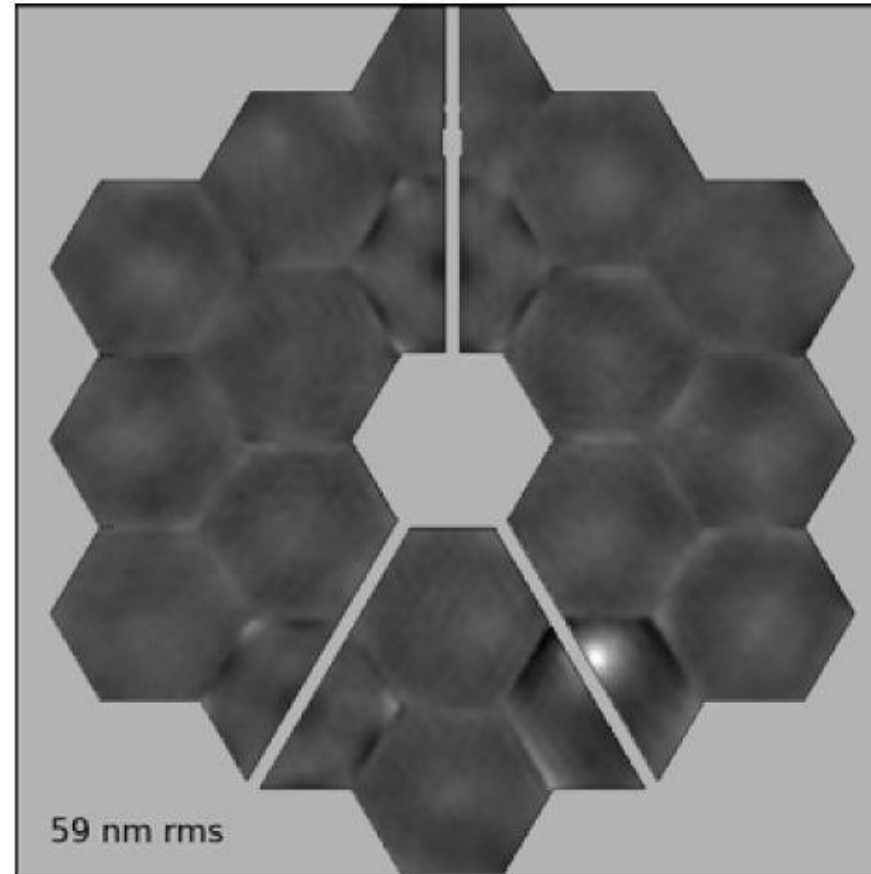
# Micrometeoroid Impacts

**Ground Measurements for Individual segments**



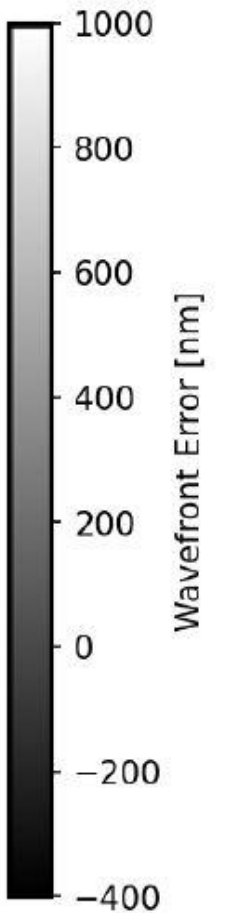
**Interferometry measurements from NASA XRCF**

**Recent Best Mirror Alignment**



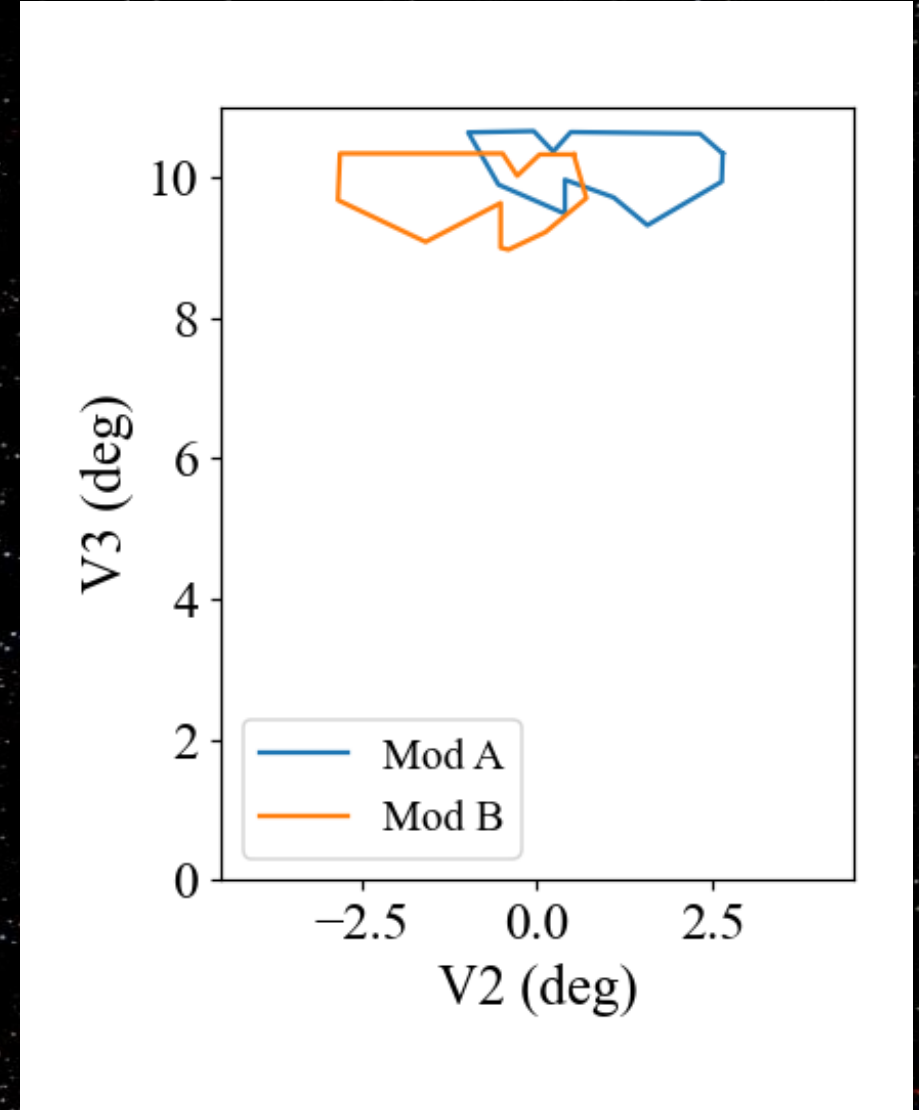
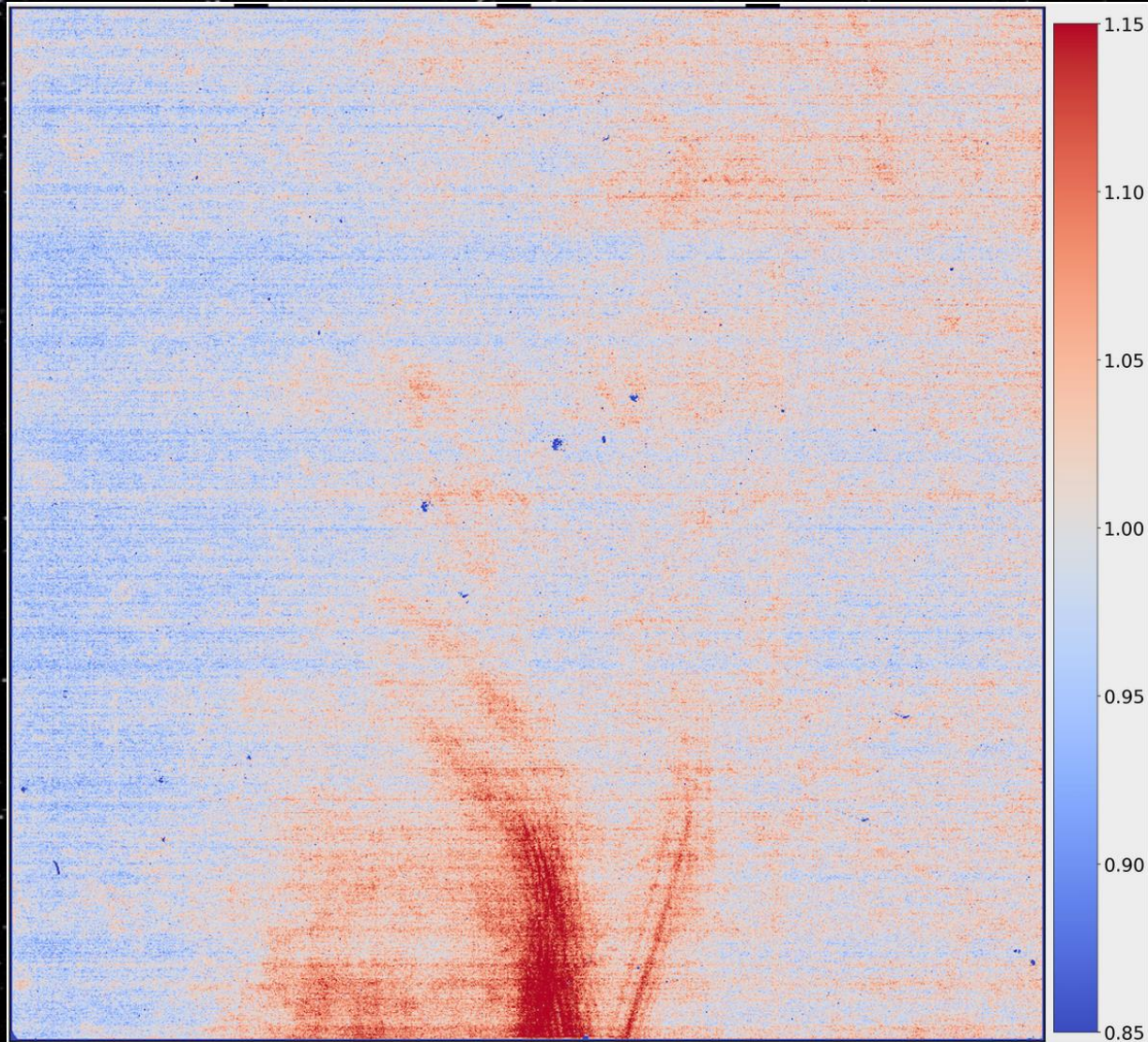
59 nm rms

**NIRCam wavefront sensing on 2022-06-21**



Wavefront Error [nm]

# NIRCam “Claws”

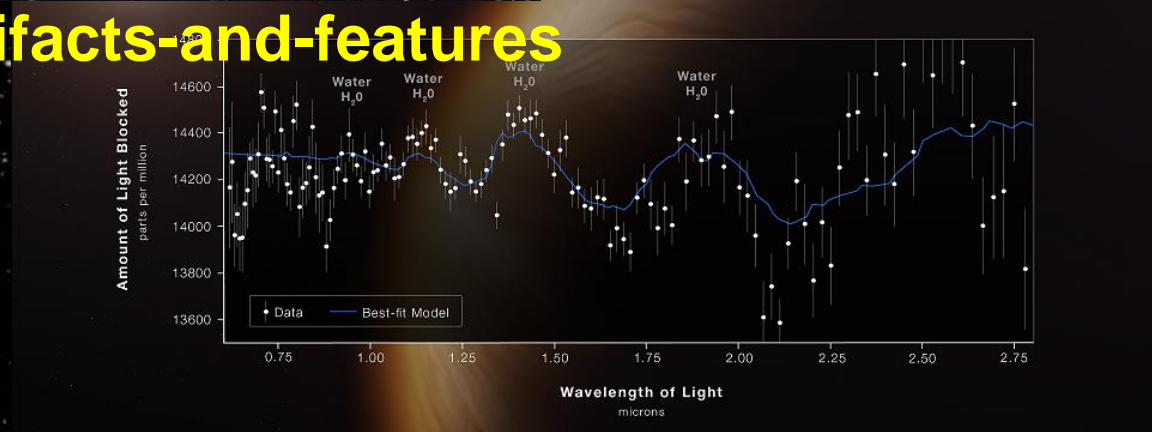


**Commissioning performance report:**

[https://www.stsci.edu/files/live/sites/www/files/home/jwst/documentation/\\_documents/jwst-science-performance-report.pdf](https://www.stsci.edu/files/live/sites/www/files/home/jwst/documentation/_documents/jwst-science-performance-report.pdf)

**Online documentation of the data artifacts:**

<https://jwst-docs.stsci.edu/data-artifacts-and-features>



Jim...

# HAL Astro-Images, Sketches, and More







**NGC 6503**  
**June 5,25, 2022**  
**Alpha Ridge Park**

**8-inch F/8 RC**  
**LRGB (48,18,18,18) x 4min**  
**6h48m Total Exp Time**

**ZWO ASI1600MM-C**  
**Gain 0 (5e/ADU)**  
**Wayne Baggett**

M16, Eagle Nebula  
July 3, 2022  
Alpha Ridge Park

8-inch F/8 RC  
HOO (25,29) x 4min  
3h36m Total Exp Time

ZWO ASI1600MM-C  
Gain 139 (1e/ADU)  
Wayne Baggett





Arjun Sundar

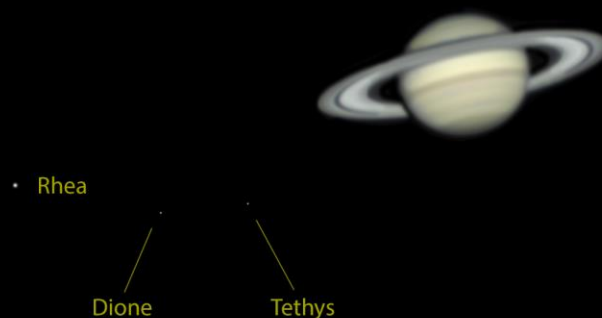
# Saturn & Moons

Distance: 83,660,200 miles

Magnitude: 0.50

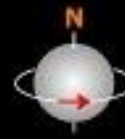
Size: 42 x 16 arcseconds

• Titan

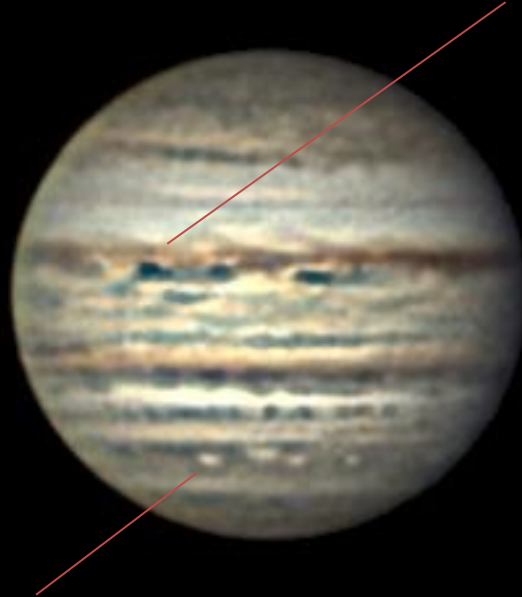


Telescope: 155mm refractor  
Eyepieces: 12mm Delos/1.7x barlow (155x)  
8mm Delos/1.7x barlow (232x)  
6mm Delos/1.7x barlow (309x)  
Filters: Blue #80A and Green #58  
Orientation: South Up  
Date: 11-July-2022  
Time: 01:45 to 03:30 EDT  
Location: Deck of House  
Drawing by: Richard Orr

Jupiter 2022-07-16 09:19.6 UT  
CMI=350° CMII=157° CMIII=69°  
Seeing: 8/10 Trans: 4/10



Chaotic North Equatorial Belt, including  
some slate-colored zones



Anti-cyclone storms in the South-South  
Temperate Belt (Visible here are "A5", "A4", and  
"A3")

Jupiter early morning of July 16. One minute  
video taken at 100 fps and processed using  
PIPP, AutoStakkert, RegiStax6, and  
Photoshop

25cm Newtonian f16,  
2.5x TV Barlow & ADC  
ASI178MC at 100 fps

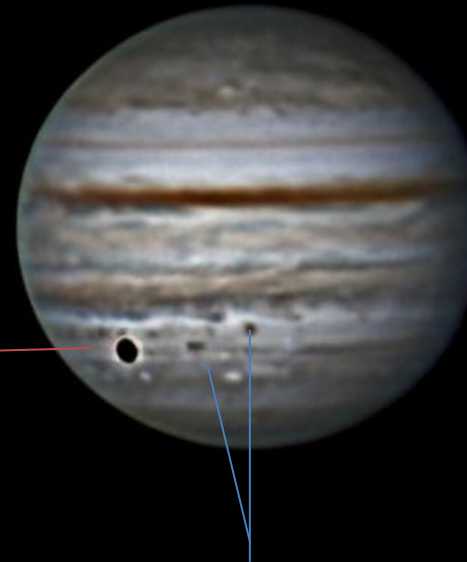
*Jim Fournier*  
*Fournier, J.F.*  
*2022*

July 4, 2022



July 11, 2022

Ganymede's  
Shadow



Two images of Jupiter taken a week apart. On the 4<sup>th</sup> we see two dark condensations at close to same longitude. A week later the lower (more southern) one has significantly moved left, perhaps caught in one of the planet's jet streams.



### Messier 104, "The Sombrero Galaxy"

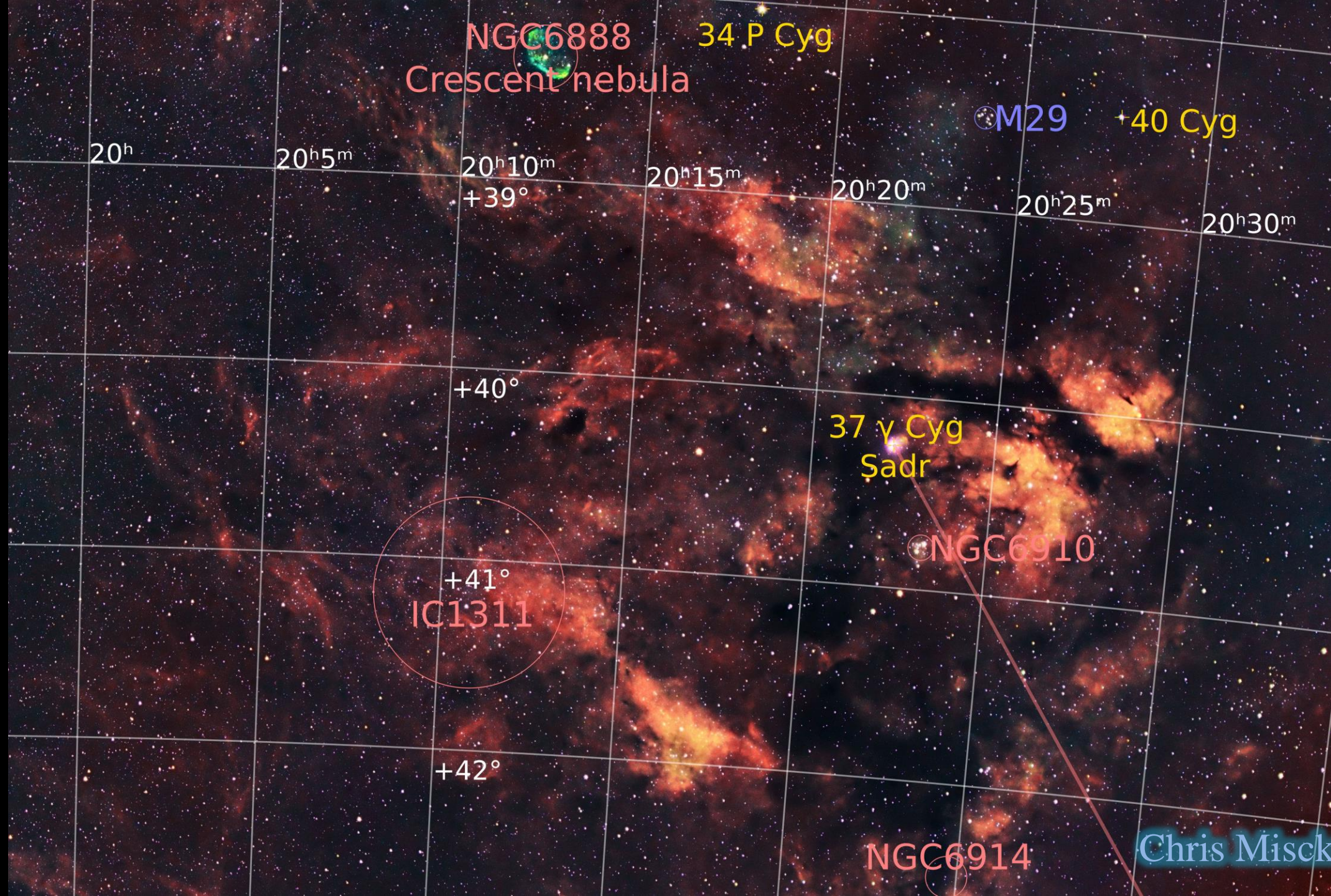
By: Ken Everhart	Telescope: Meade LX850 - 14"	Lum: 10 X 120 Secs.
27 April 2022 (UTC)	Camera: Zwo ASI2600MM	Red: 10 X 120 Secs.
Kissimmee Prarie State Park,	Processing: Pixinsight	Green: 10 X 120 Secs.
Florida,	Photoshop Elements	Blue: 10 X 120 Secs.



Chris Miskiewicz



Chris Miskiewicz



NGC 6888  
Crescent nebula

34 P Cyg

M29

+40 Cyg

20<sup>h</sup>

20<sup>h</sup>5<sup>m</sup>

20<sup>h</sup>10<sup>m</sup>

20<sup>h</sup>15<sup>m</sup>

20<sup>h</sup>20<sup>m</sup>

20<sup>h</sup>25<sup>m</sup>

20<sup>h</sup>30<sup>m</sup>

+39°

+40°

37 γ Cyg  
Sadr

NGC 6910

+41°  
IC 1311

+42°

NGC 6914

Chris Miskiewicz



Victor Sanchez

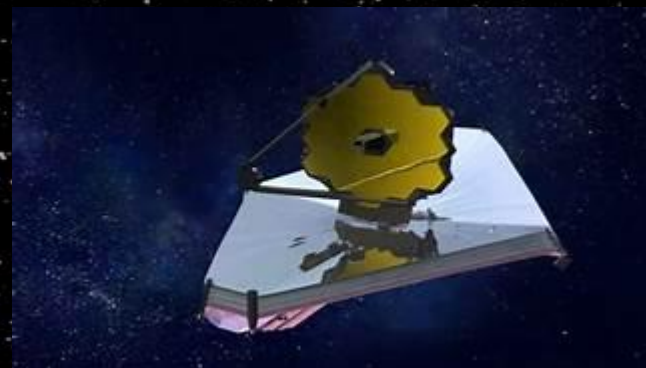


Cheryl Kerr



Cheryl Kerr

# Thank You



# CLEAR SKIES!