WARNING WILL ROBINSON: ALIENS APPROACHING

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SCIENCE ON TAP

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LOST IN SPACE

In the 1960s, B-9 General Utility Non-Theorizing Environmental Control Robot (or B9 G.U.N.T.E.R.) would warn the crew of the Jupiter-2 of approaching danger.

But, Dr. Smith would still find a way …

WHY ARE WE TALKING ABOUT ALIENS?

We are in a golden age of observational astronomy. New tools are becoming available for us to use and we are finding things we haven't seen before. Some of these objects lead to speculation of aliens … because why not?

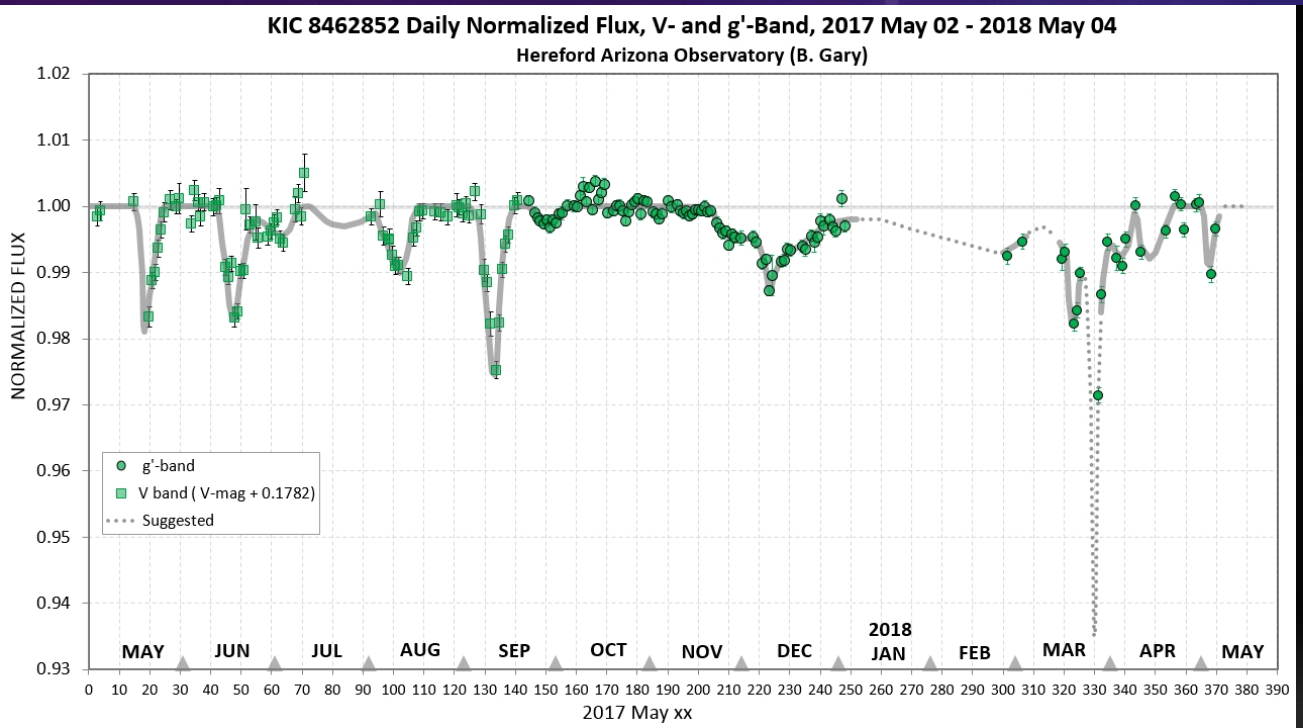
We are going to look at a few of the unexpected visitors to our area in the Galaxy and then some early results from one of the new survey telescopes.

TABITHA'S STAR

Uncovered in the Citizen Science Project "Planet Hunters" in 2017, KIC 8462852 in Cygnus, was acting weird. Obviously aliens were building a Dyson sphere, because finding plausible explanations would take too much time.

McKie, Robin (27 April 2024). "'Is it aliens?': how a mysterious star could help the search for extraterrestrial life". The Observer.

http://www.brucegary.net/ts6/18.05.04.19%20KIC846%20d8504%20NFL%20May-May.jpg, CC0, https://commons.wikimedia.org/w/index.php?curid=68816303



C/1995 O1

Hale Bopp was dubbed the “great comet of 1997.” It reached naked eye visibility and was IMHO spectacular. It is a long period comet (approx. 2300-2500 year orbital period). Though this is a “typical” comet we would not expect any surprises from it.

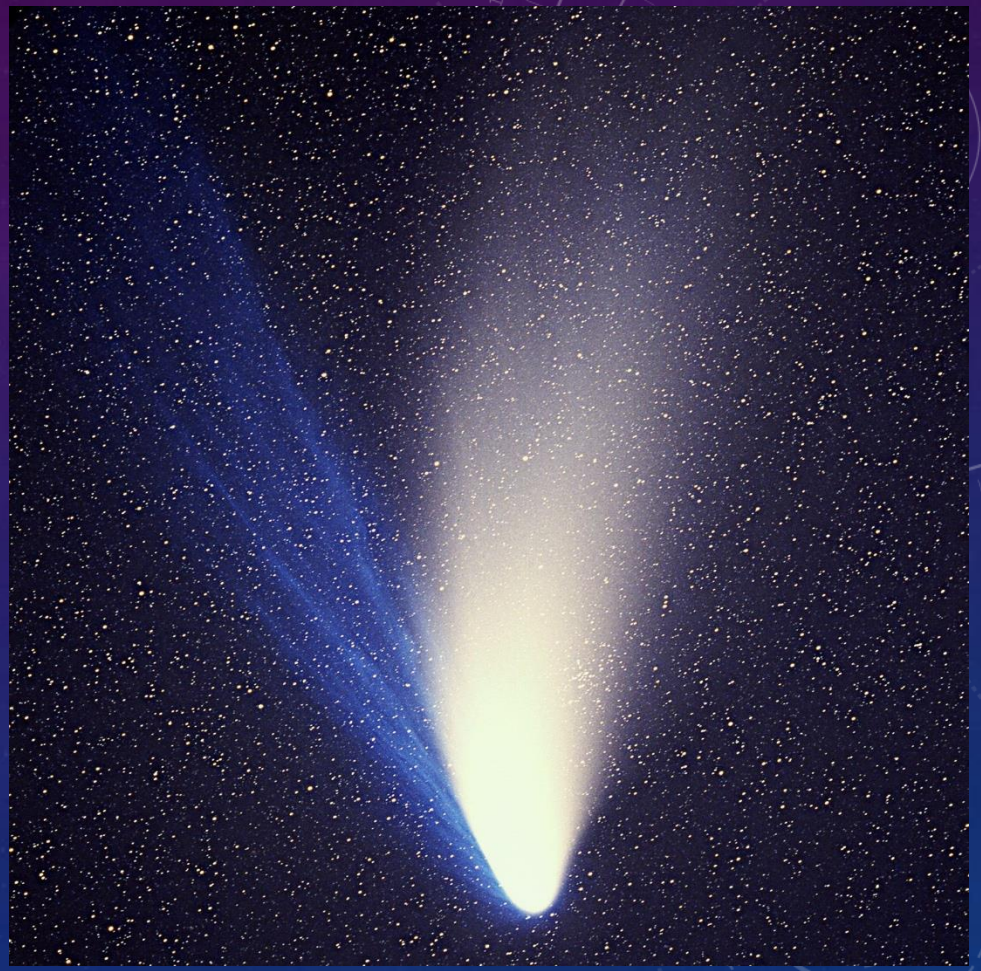
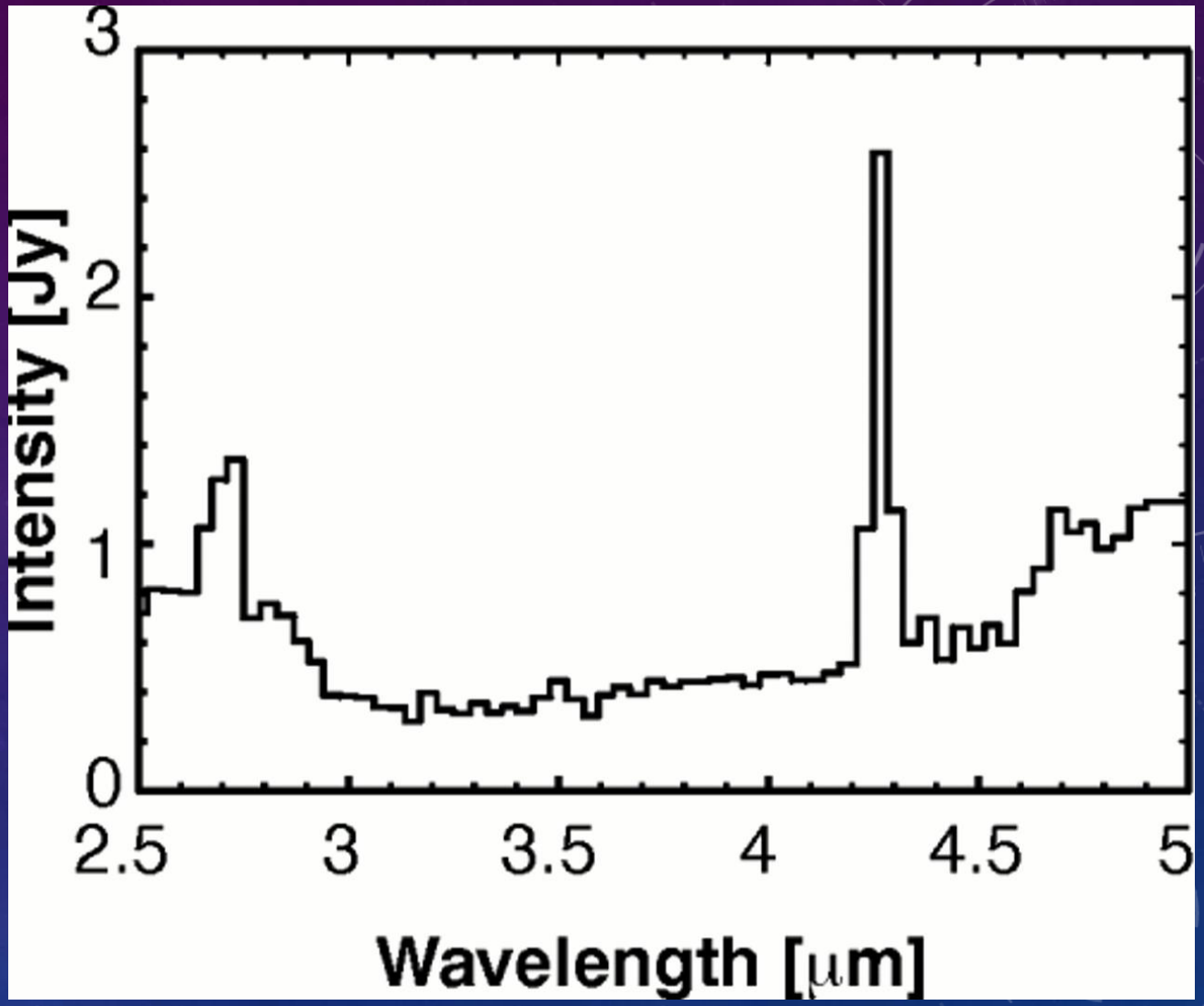


Fig. 1. The 2.5- to 5-μm spectrum of Hale-Bopp observed with PHT-S on 27 September 1996. The aperture is 24 arc sec × 24 arc sec and the spectral resolution is $\lambda/\delta\lambda \sim 90$. Conspicuous are the bands of H_2O at 2.7 μm, CO_2 at 4.25 μm, and CO at 4.65 μm.

C/1995 O1

Hale Bopp has made a few perihelion passes, though it is not “depleted.” In other words there are plenty of volatiles remaining.

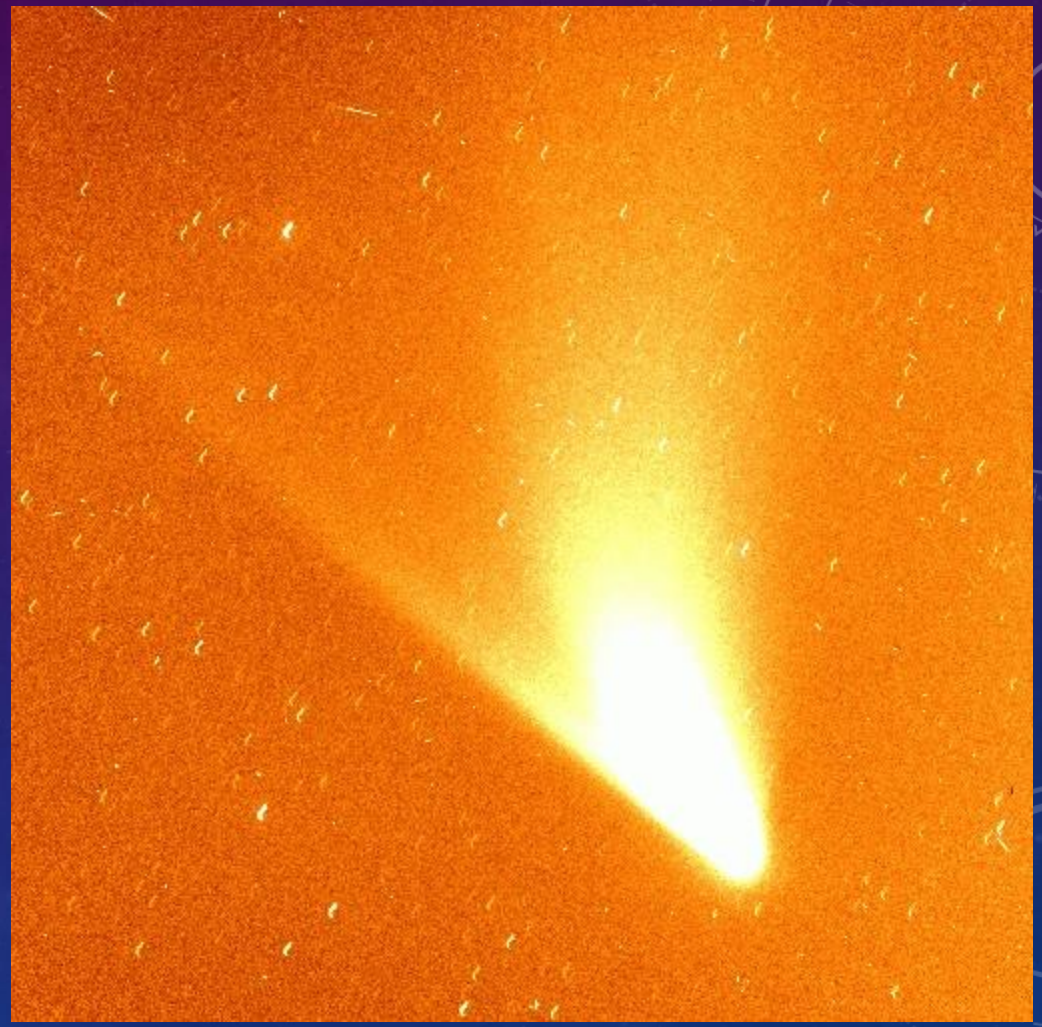
It shows a fairly “normal” spectrum with water and carbon dioxide.



The 2.5- to 5-μm spectrum of Hale-Bopp observed with PHT-S on 27 September 1996. The aperture is 24 arc sec × 24 arc sec and the spectral resolution is $\lambda/\delta\lambda \sim 90$. Conspicuous are the bands of H_2O at 2.7 μm, CO_2 at 4.25 μm, and CO at 4.65 μm.

C/1995 O1

But, Hale Bopp had a third tail – sodium. This is the first time a sodium tail had been seen in a comet though sodium had been detected in the spectra of previous comets.



Sodium tail from Hale Bopp, extending up to the left from the nucleus. Transferred from en.wikipedia to Commons by Mstislavl., Attribution, https://commons.wikimedia.org/w/index.php?curid=5539396

1I/ ‘OUMUAMUA

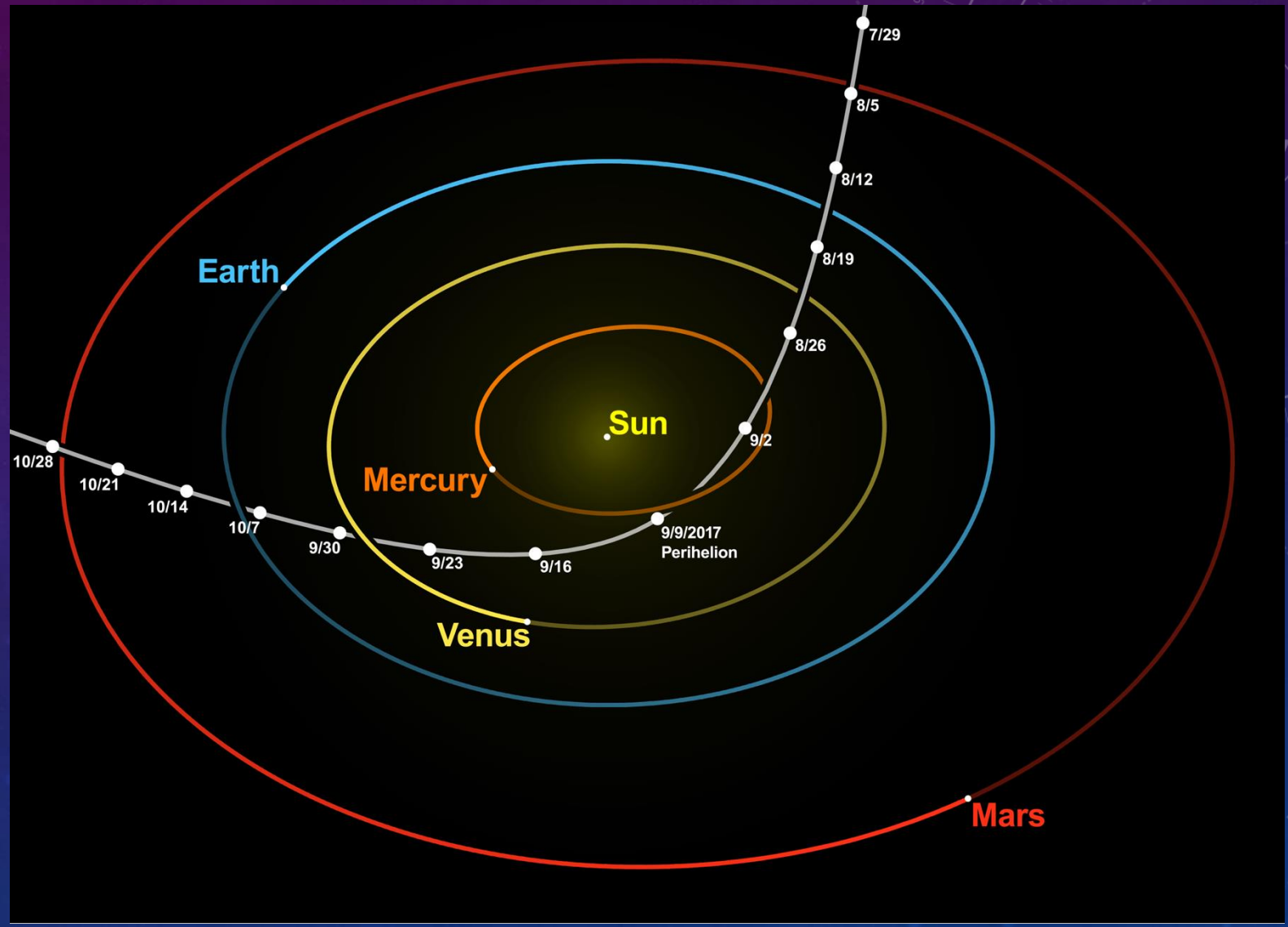
Found in 2017 C/2017 U1 was later determined to be an interstellar comet, the first we could positively identify as such. Most of the speculation in the astronomy circles oscillated between comet (ice) or asteroid (rock). A prominent researcher declared “alien scout ship” due to it’s speed and cigar shape. Martian Wolf has a YouTube about it. … back to asteroid currently.

1I/ ‘OUMUAMUA

In the Hawaiian language, ‘Oumuamua means "a messenger from afar arriving first" or "scout". This is in accord with a new IAU policy to use cultural names.

1I/`OUMUAMUA

The trajectory through the inner solar system.



2I/ BORISOV

Not to be outdone, C/2019 Q4 surprised everyone by turning out to be another interstellar visitor. This time, an actual comet … without the fanfare.

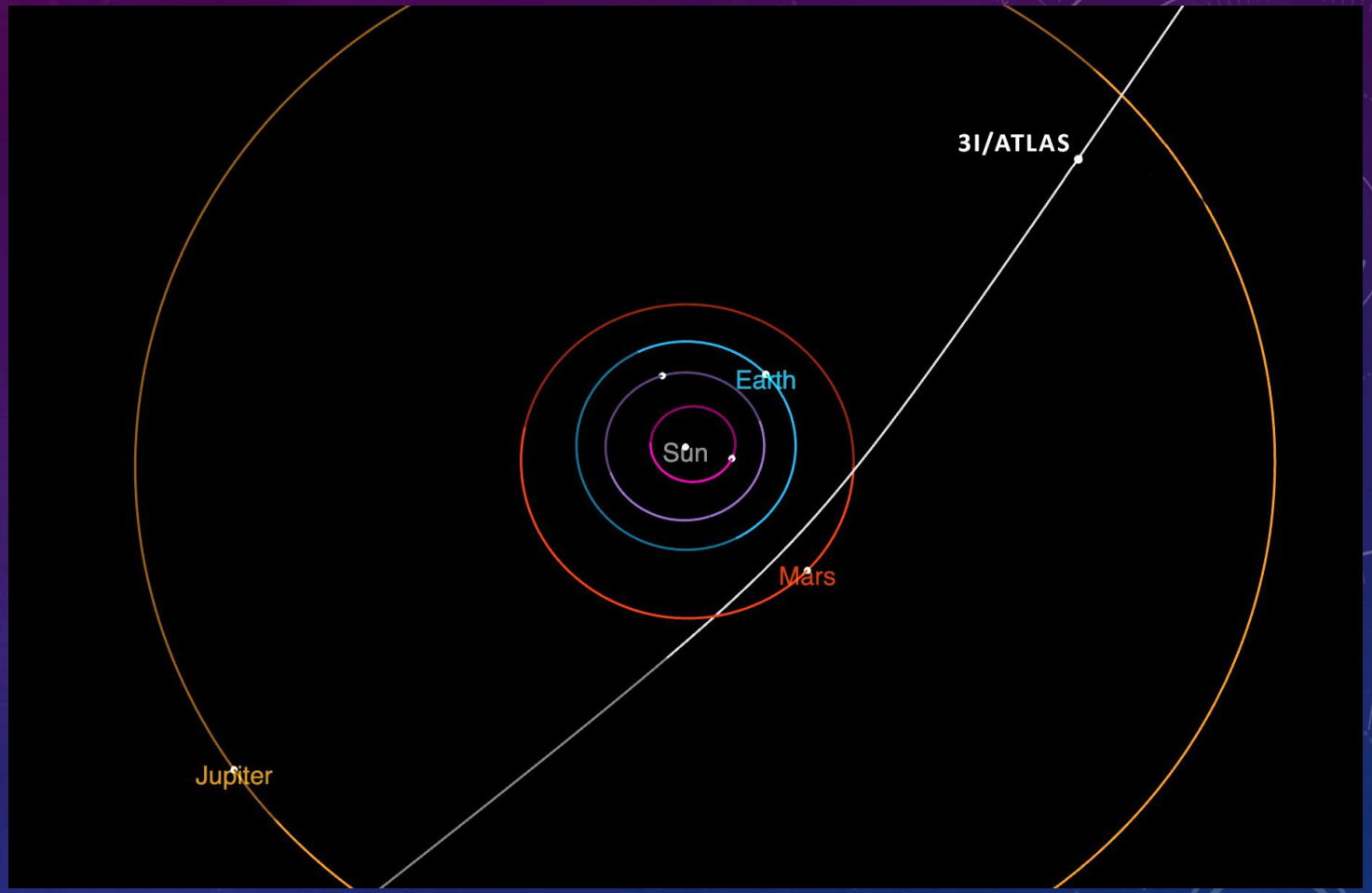
3I/ ATLAS

C/2025 N1, discovered by the Asteroid Terrestrial-impact Last Alert System station at Río Hurtado, Chile (7/1/2025) is now cruising through the solar system… or is it an alien invasion ship?

More importantly, why “so many” interstellar objects in the past few years? Are we being noticed?

3I/ATLAS

This one is moving FAST. When discovered, 61km/s and speeding up as it approaches the Sun.



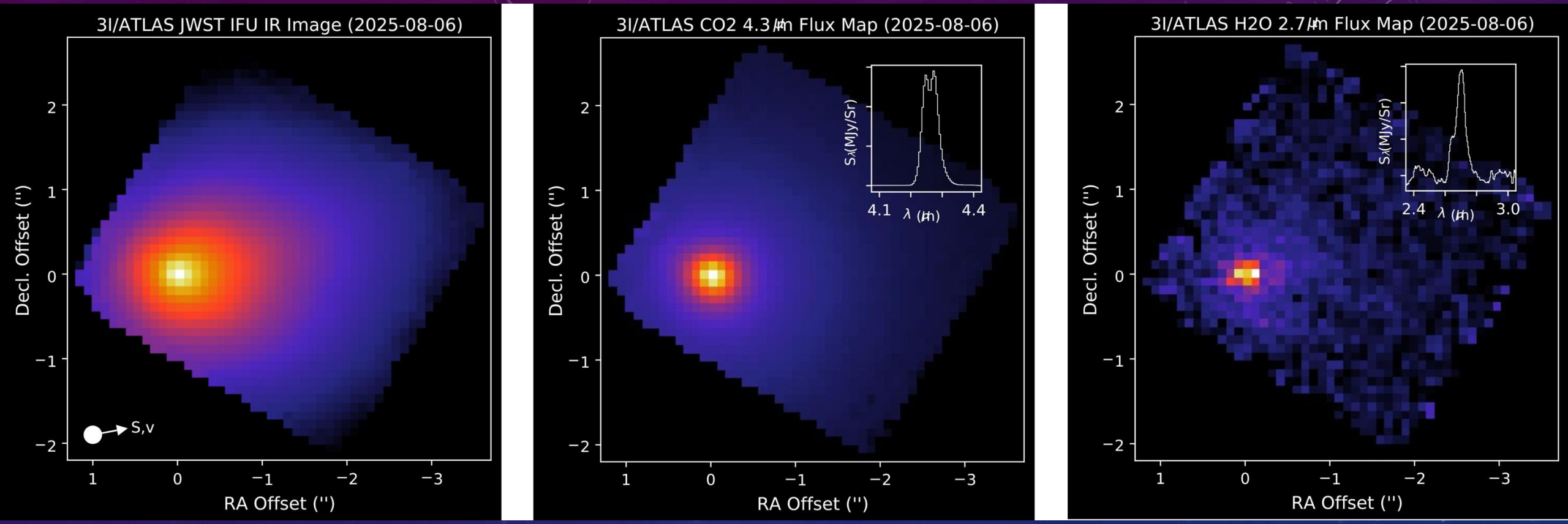
The speed of the comet suggests that it has been moving for billions of years. "No one knows where the comet came from," David Jewitt, an astronomer at the University of California, Los Angeles (UCLA) and science team leader for the Hubble observations, shared. "It's like glimpsing a rifle bullet for a thousandth of a second. You can't project that back with any accuracy to figure out where it started on its path."

WHAT DO WE LEARN? WILL WE FIND MORE?

Interstellar objects (comets or asteroids) let us glimpse the formation composition of other stars. Are they similar to the Sun or significantly different?

And

Yes, we will find more. Dr. Jewitt (NPR interview) says we're just now find these things because of technology advances, but he would not be surprised if there are not hundreds to thousands per year passing by/through the Solar System.



NASA, ESA, CSA, M. Cordiner (NASA-GSFC)

Three-panel infrared image of comet 3I/ATLAS taken by JWST on August 6, 2025. The left panel shows the overall IR image with a bright white core fading to red, orange, and blue. The center and right panels show flux maps highlighting CO_2 at 4.3µm and H_2O at 2.7µm, respectively, with insets showing spectral line profiles confirming molecular signatures.

THE RUBIN-LSST USING THE SIMONYI TELESCOPE BACKGROUND AND INFORMATION

- First Images: https://www.youtube.com/watch?v=XsSkmOSC_oU (Chris Pattison) 4:50 mark
- Kirsten Banks: https://www.youtube.com/watch?v=7KskskdLfFo&t=192s
- A look inside Rubin: https://www.youtube.com/watch?v=MF36BYv1jSU (5:39)
- NdGT with Zeljko: https://www.youtube.com/watch?v=wpAsT30LIjw

THE RUBIN-LSST USING THE SIMONYI TELESCOPE

- First Images Gallery: https://rubinobservatory.org/gallery/collections/first-look-gallery
- Rubin treasure chest: https://www.youtube.com/watch?v=Gitit3LwQ20
- Variables: https://www.youtube.com/watch?v=eS6FXc350Bs&list=RDeS6FXc350Bs&start_radio=1
- Asteroid swarm: https://www.youtube.com/watch?v=DTuq-vBsDJE just when you thought it was safe to go outside again

LOST IN SPACE?

Maybe Roby will be able to guide us through the coming swarm?