



National Aeronautics and  
Space Administration

# NASA's Transform to Open Science (TOPS)

A future where new scientific discoveries  
and solutions are enabled by inclusive  
open science collaborations.

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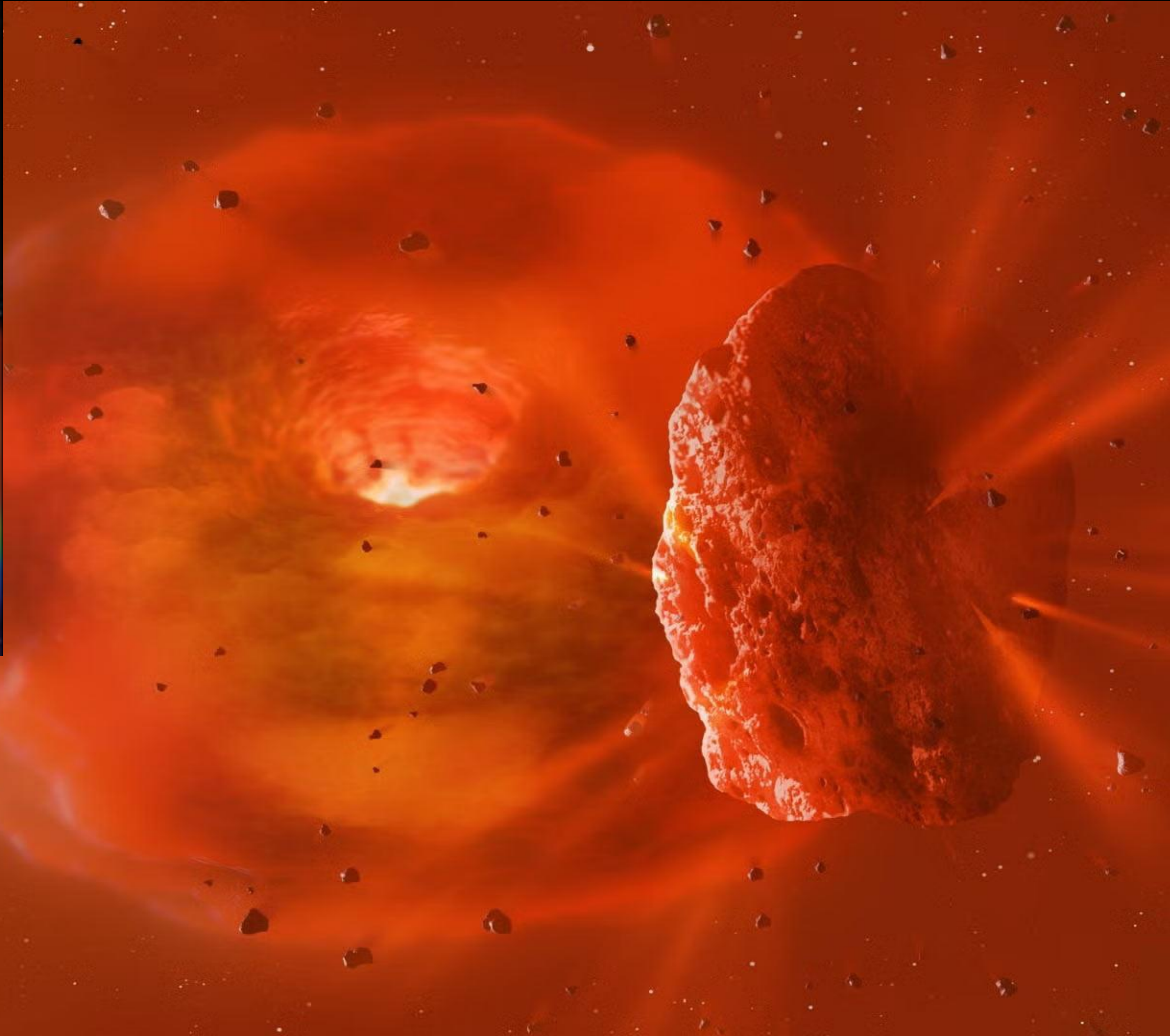
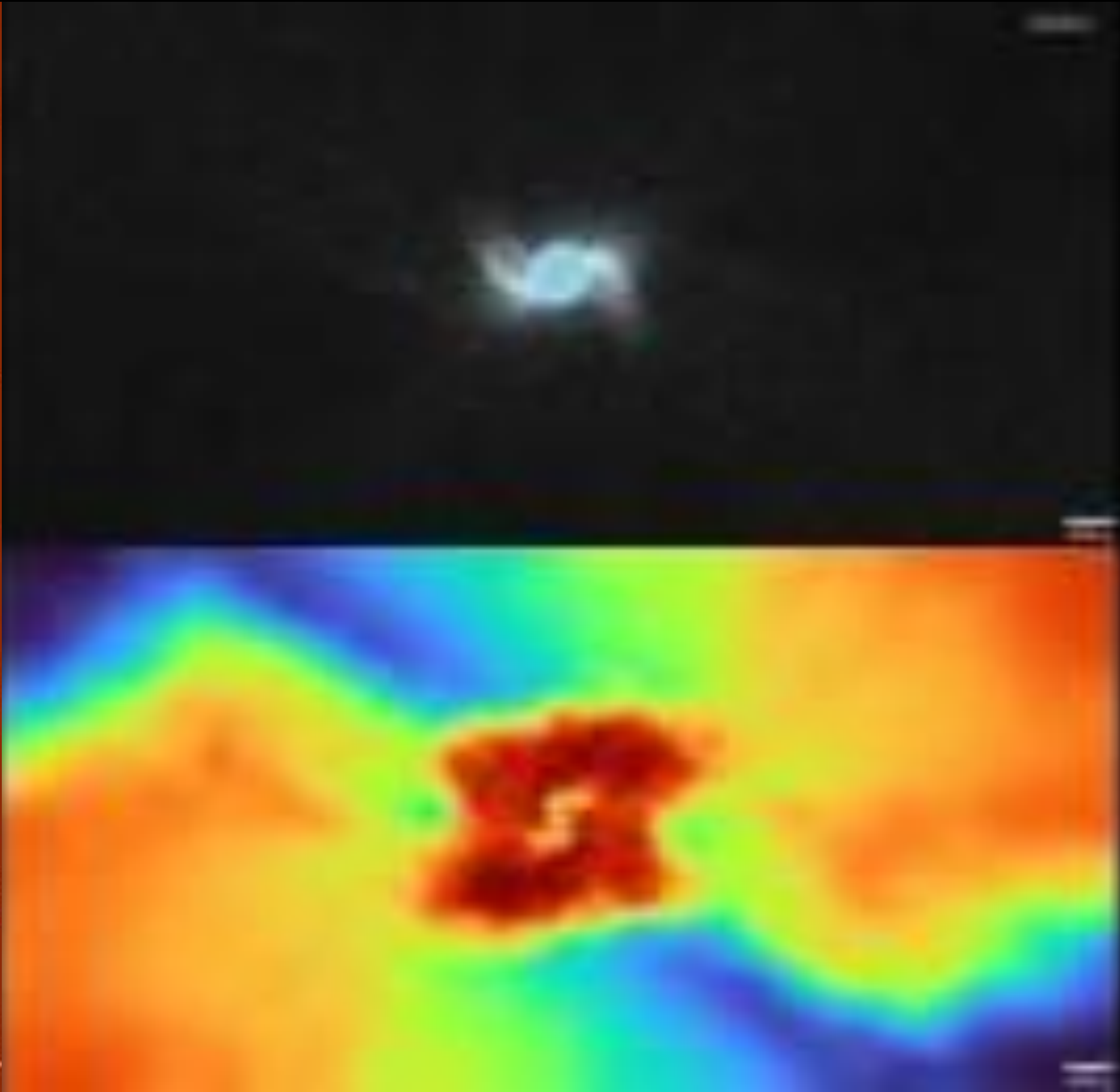


# NASA is looking ahead at really big challenges



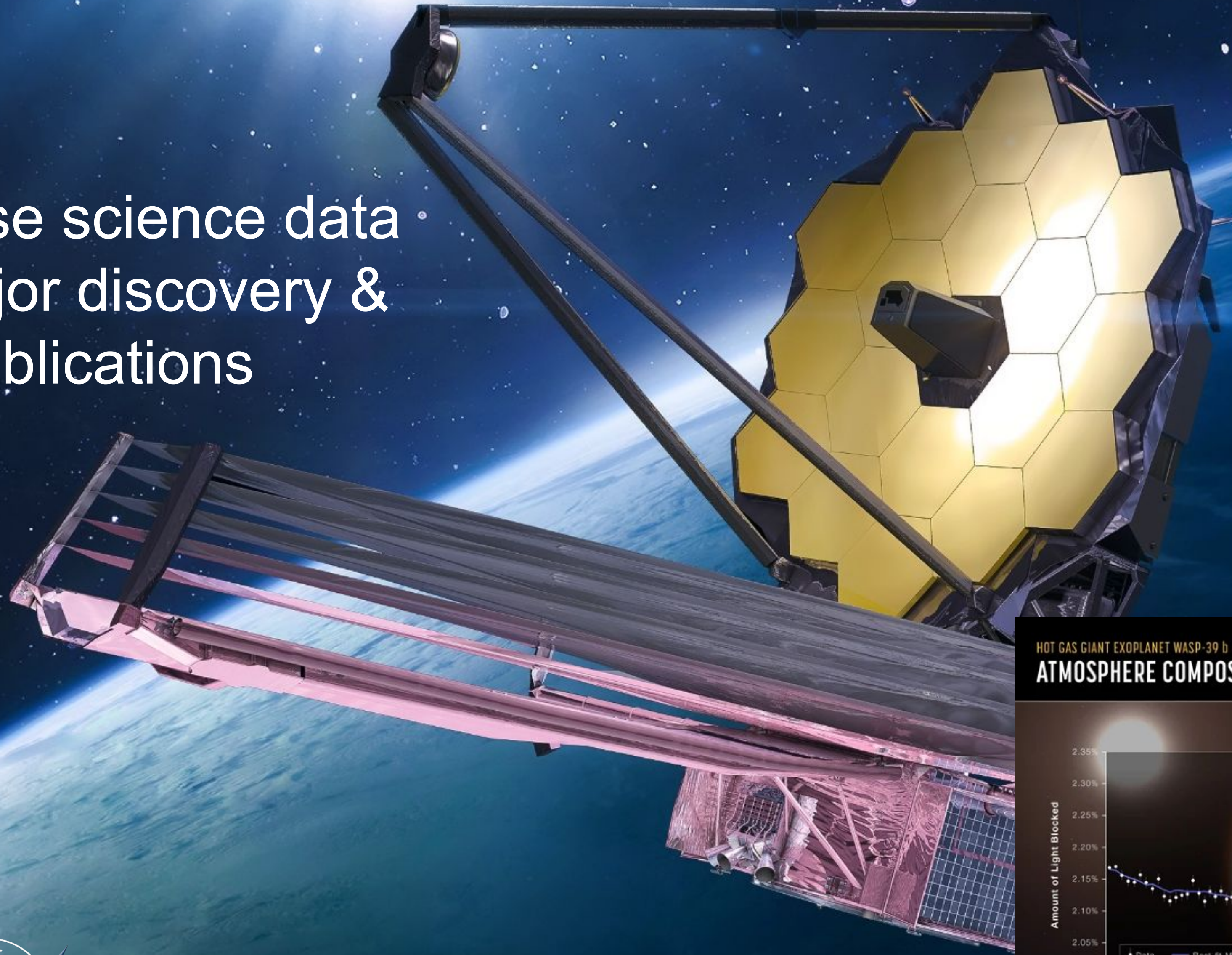
We need *more* WE science rather than ME science<sup>1</sup>— openly sharing data, software, & results.

1: quote from Harlan Krumholz, Yale School of Medicine at 2022 CZI meeting



# First step towards discovering life on another planet

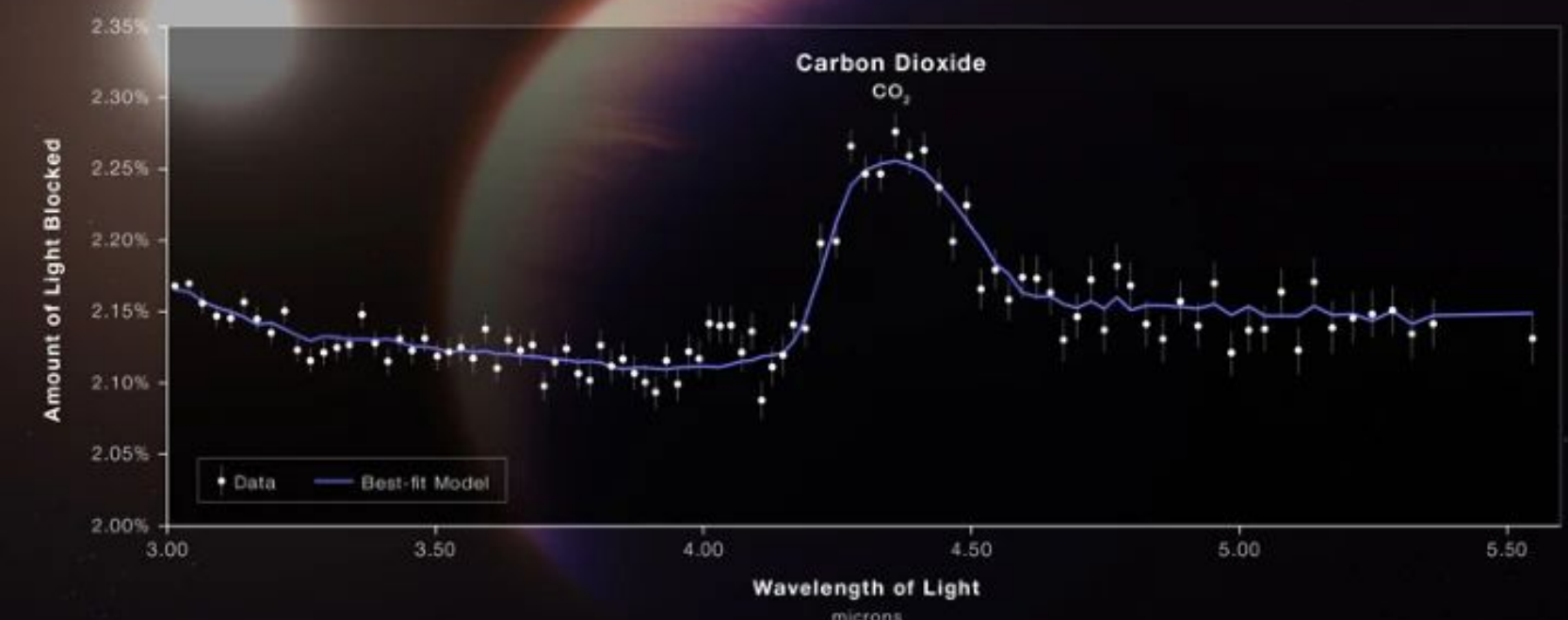
Early Release science data leads to major discovery & 40+ publications



<https://www.nature.com/articles/d41586-022-02350-2>

## HOT GAS GIANT EXOPLANET WASP-39 b ATMOSPHERE COMPOSITION

NIRSpec | Bright Object Time-Series Spectroscopy



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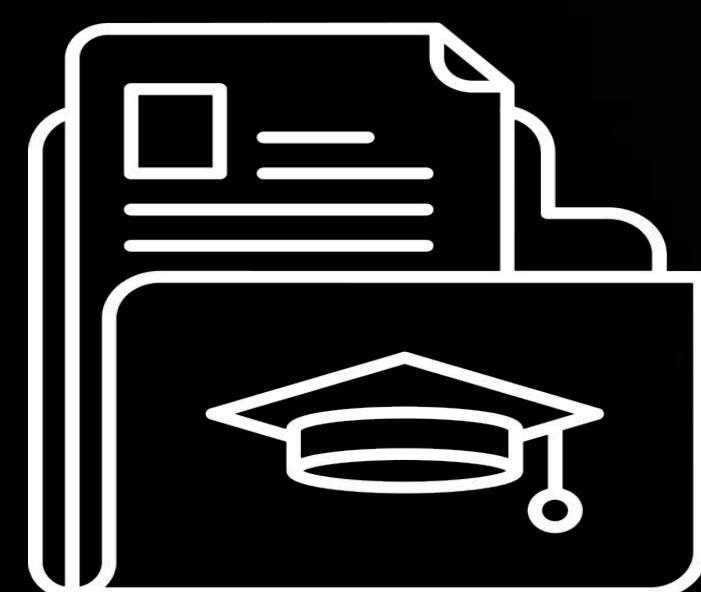
a 5-year initiative to accelerate adoption of open science

## Goals:

- Increase understanding and adoption of open science principles and techniques
- Broaden participation by historically excluded communities
- Accelerate major scientific discoveries



Engagement



Capacity Sharing



Incentives



Coordination

# Open Science

is the principle and practice of making research products and processes available to all, while respecting diverse cultures, maintaining security and privacy, and fostering collaborations, reproducibility and equity.



# The United States White House announces **2023: A Year of Open Science**

A multi-agency initiative across the US Federal Government to spark change and inspire open science engagement through events and activities that will advance adoption of open science.

- ◆ **Centers for Disease Control and Prevention**
- ◆ **Department of Commerce**
- ◆ **Department of Energy**
- ◆ **Department of State**
- ◆ **Department of Transportation**
- ◆ **Environmental Protection Agency**
- ◆ **General Services Administration**
- ◆ **NASA**
- ◆ **National Endowment for the Humanities**
- ◆ **National Institutes of Health**
- ◆ **National Institute of Standards and Technology**
- ◆ **National Oceanic and Atmospheric Administration**
- ◆ **National Science Foundation**
- ◆ **Smithsonian Institute**
- ◆ **US Department of Agriculture**
- ◆ **US Geological Survey**
- & other organizations, including  
**HELIOS**

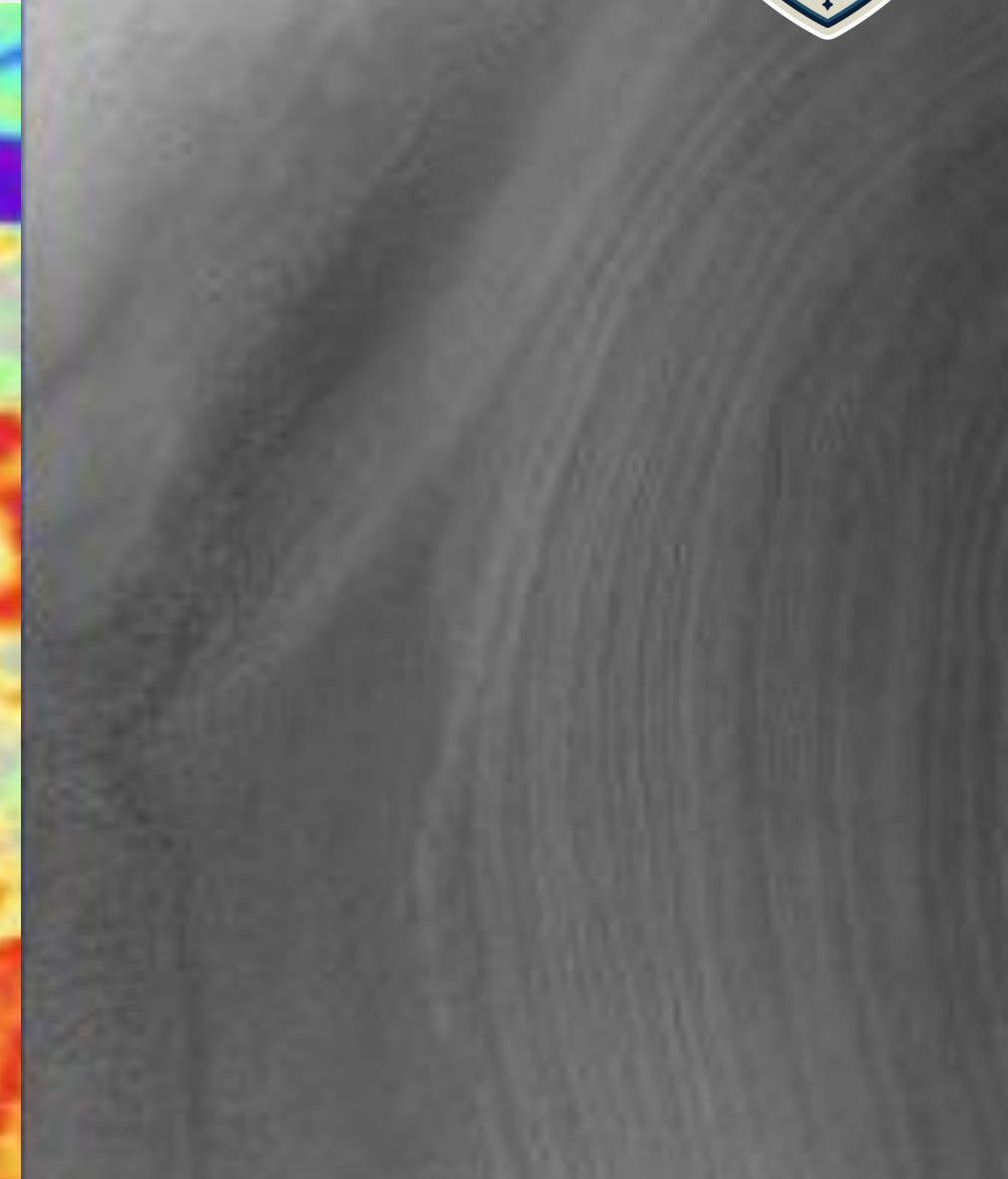
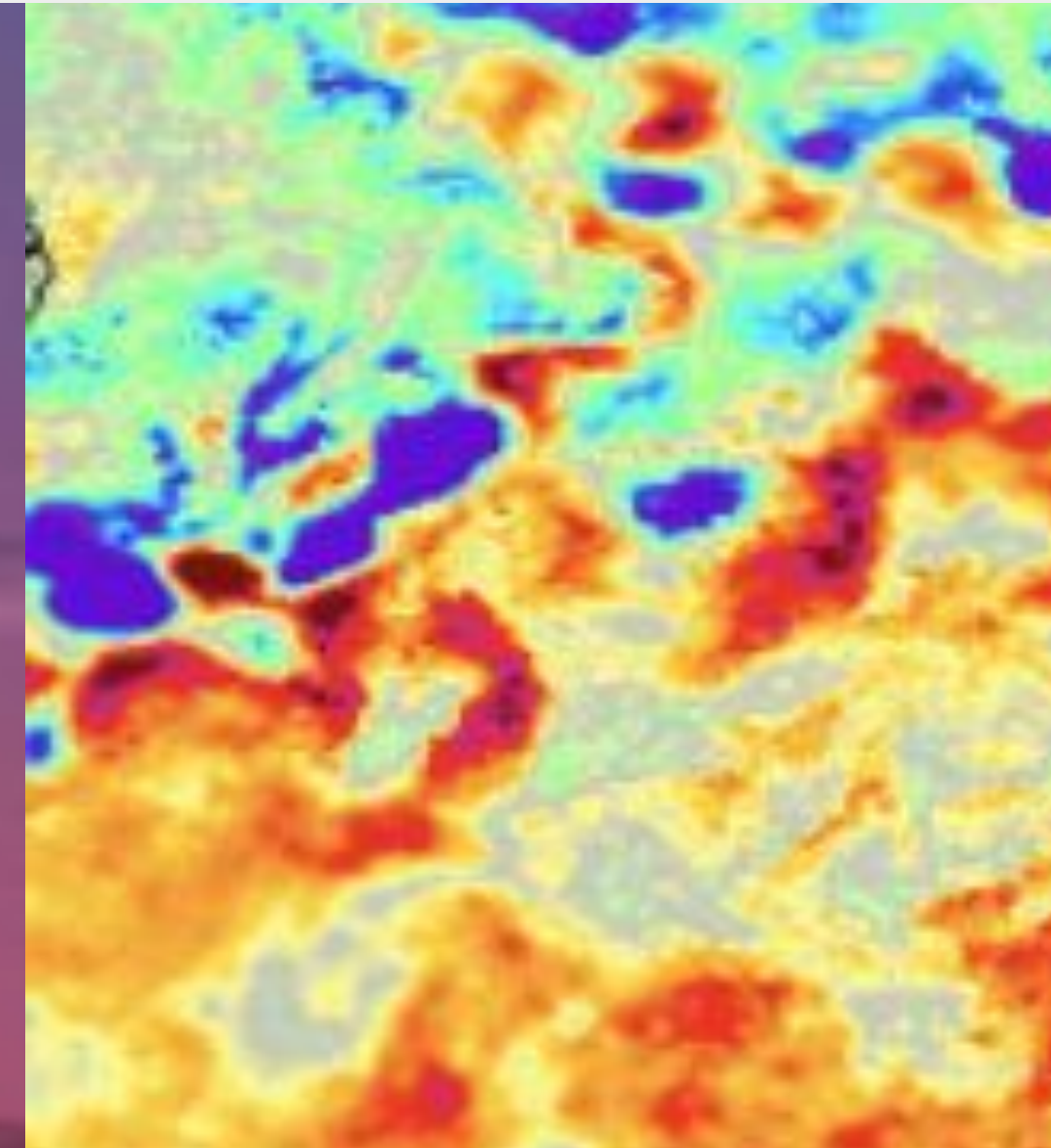
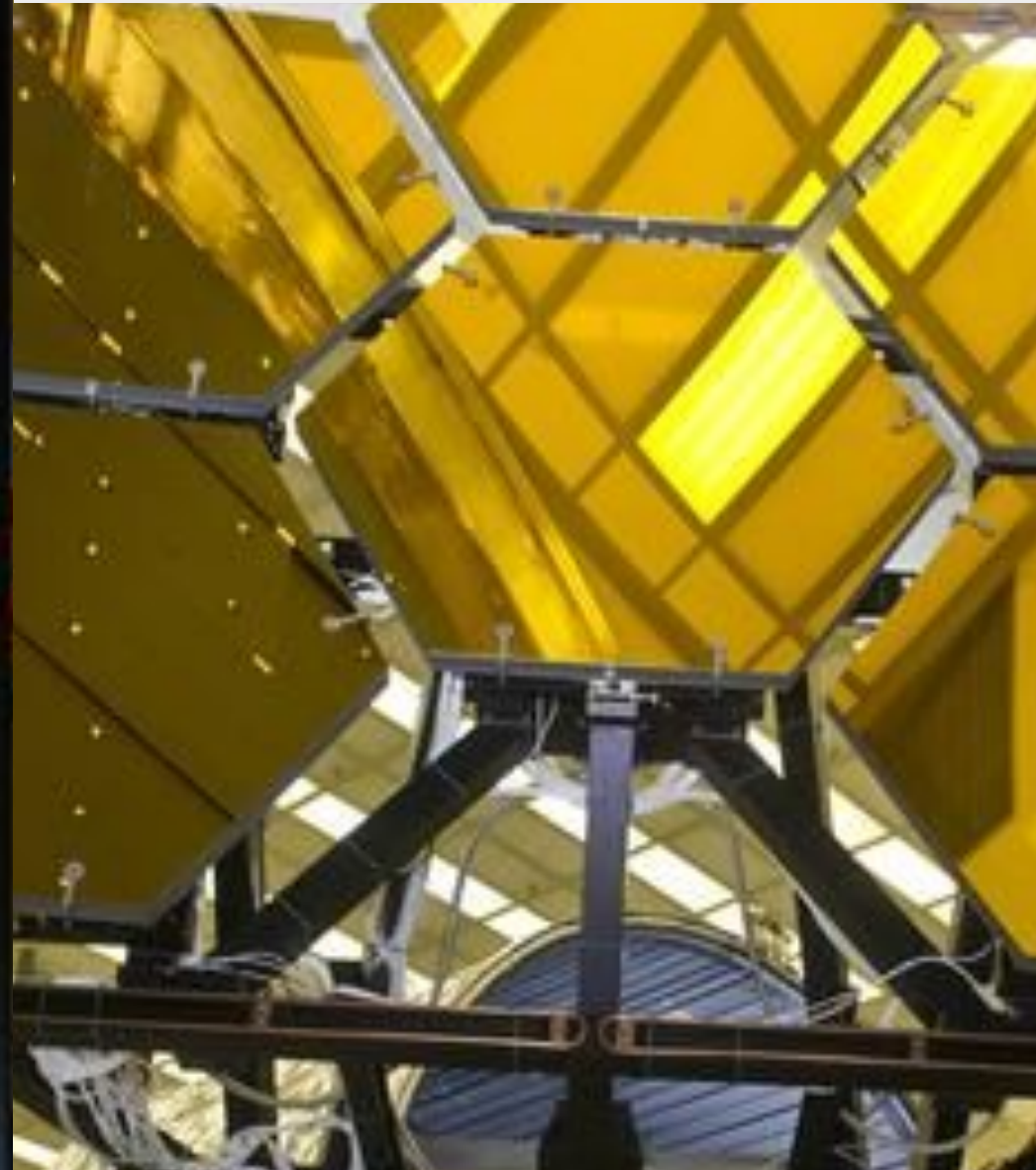


[2023: Year of Open Science | NASA TOPS](#)





# Open Science 101



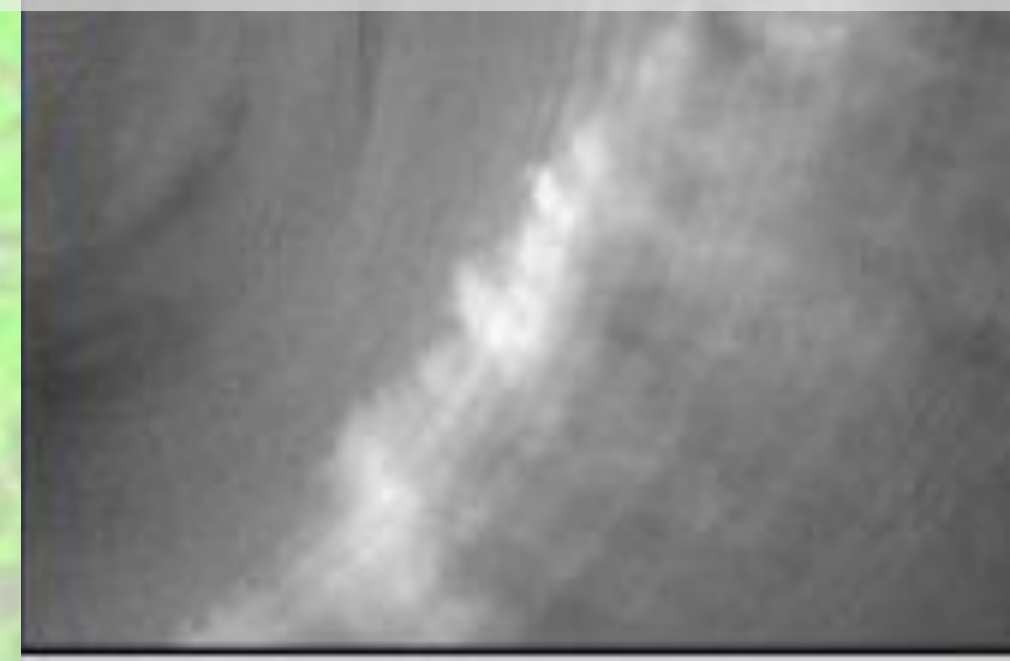
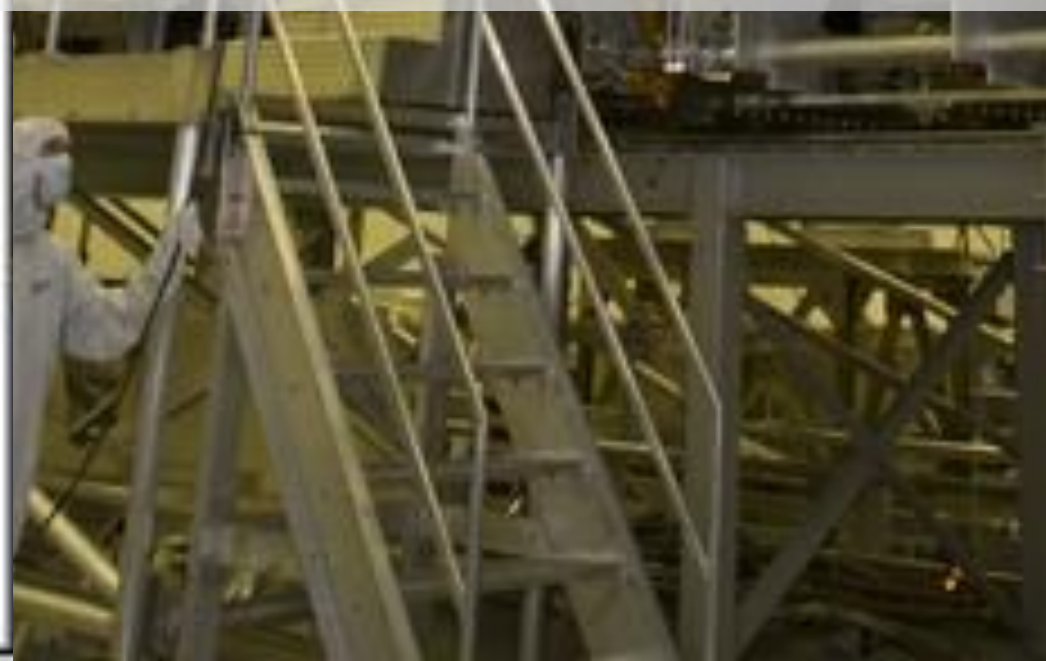
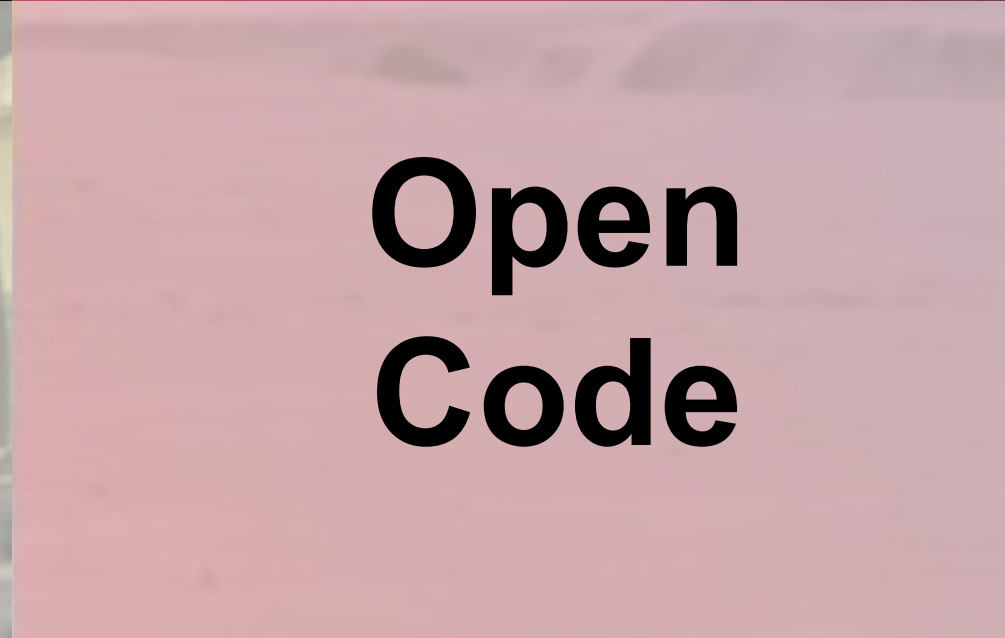
**Ethos  
of Open  
Science**

**Open  
Tools**

**Open  
Code**

**Open  
Data**

**Open  
Results**



Images: JSC, JPL, & MSFC





# Complete NASA's Open Science 101!

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Better science  
Faster science  
Bigger science

Self-Paced  
Online Course



Online & In-person  
Workshops



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