



**STScI** | SPACE TELESCOPE  
SCIENCE INSTITUTE

EXPANDING THE FRONTIERS OF SPACE ASTRONOMY

# TIKE: Doing TESS Science in the Cloud

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# Presentation Topics

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## TESS Topics

I. What is TIKE?

II. Why should I use it?



# What is TIKE?

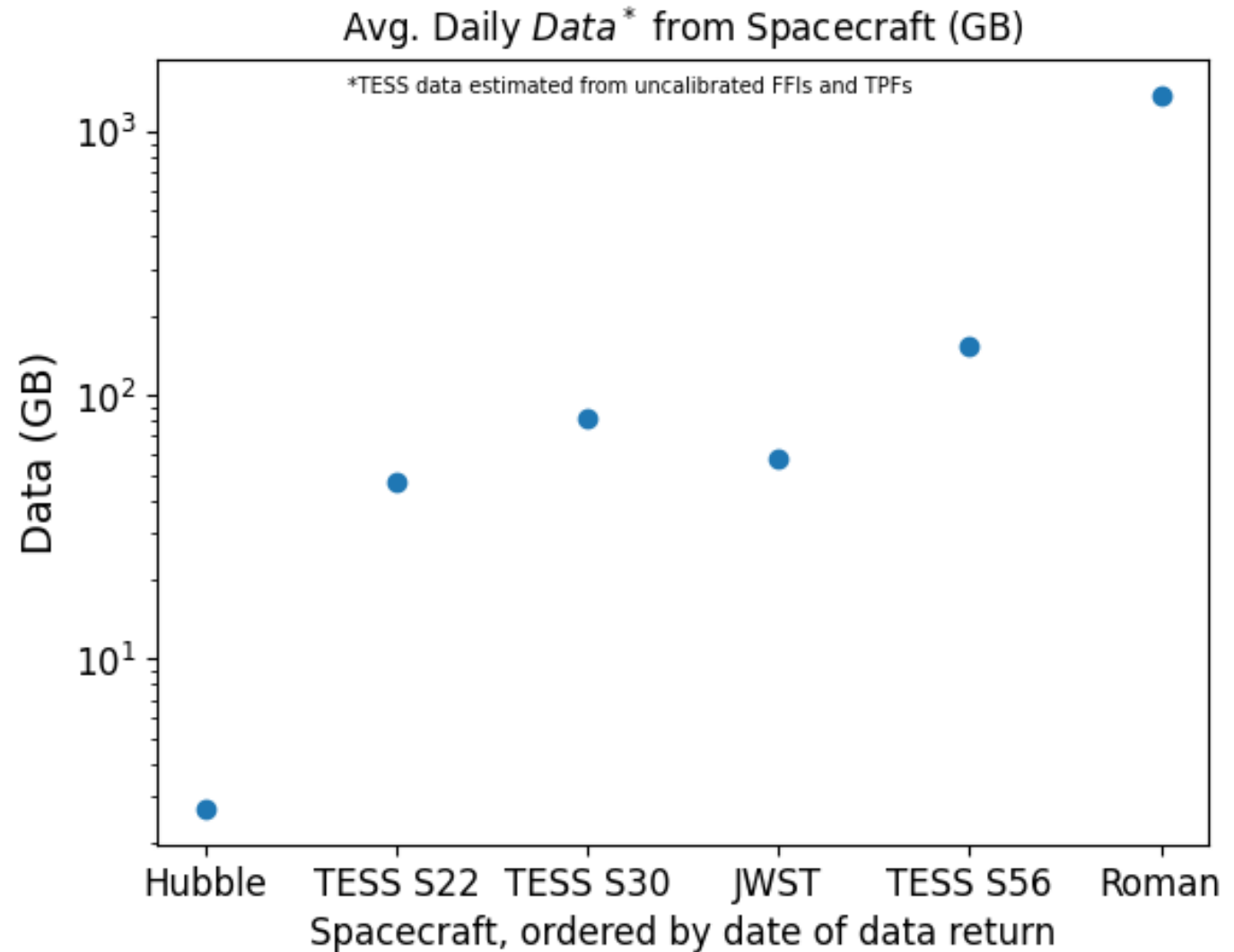
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## Why is TIKE?

- Data from multiple missions are reaching the point of being "non-distributable"
- Problem made worse upon decompression: TESS Sector 56 produced 6.7TB (!) of calibrated FFIs.
- Still waiting on my ISP to upgrade me to 1Tbps...

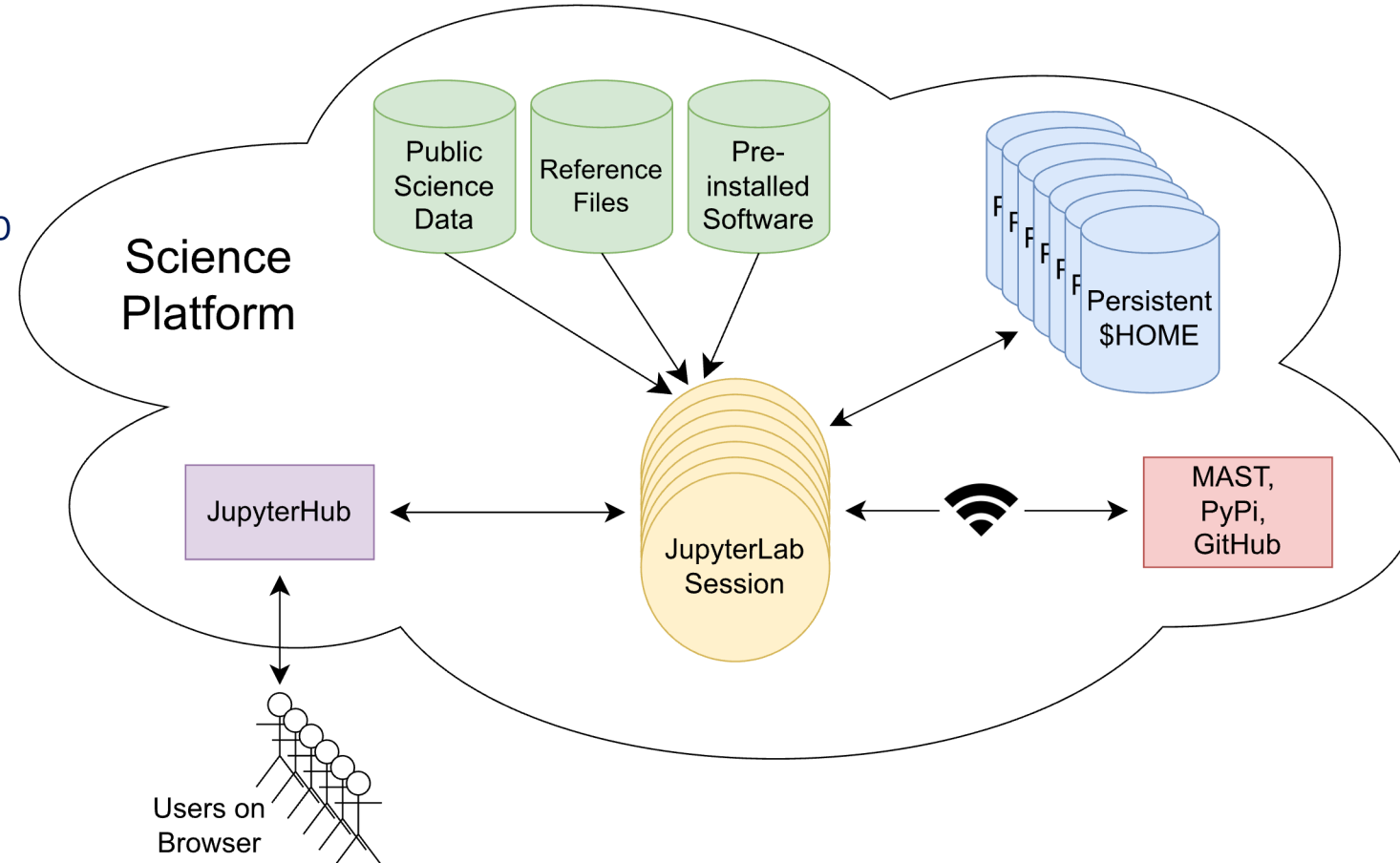




## Solution: TIKE

### TIKE: The Timeseries Integrated Knowledge Engine

- Cloud-compute JupyterHub environments run on Amazon Web Services
- Direct access to public data in the MAST S3 bucket
- Optimized for working with TESS and Kepler/K2 data
- Relevant software pre-installed





# Why should I use TIKE?

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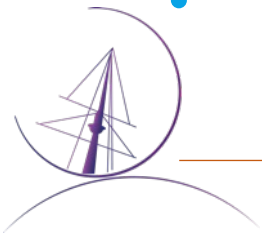




# Features

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- Advantages
  - Primary advantage: speed. Read data from the public bucket at 10Gbps
  - Processing Power: Comparable to the average modern laptop
  - Price: Free!
- Limitations to be aware of:
  - Requires a MyST account
  - Maximum storage: 25GB
  - Data is saved on Amazon. We (STScI) only perform backups every two weeks.



[timeseries.science.stsci.edu](https://timeseries.science.stsci.edu)

# Notebook Demo

Method	Time to Run (s)	Time per Cutout (s)
Local Machine, TESSCut	40	3.1
TIKE, TESSCut	40	3.1
TIKE, Cutout Cubes	< 20	< 1.5
TIKE, Multiprocessing & Cubes	< 7	< 0.5