Swift Updates and Status
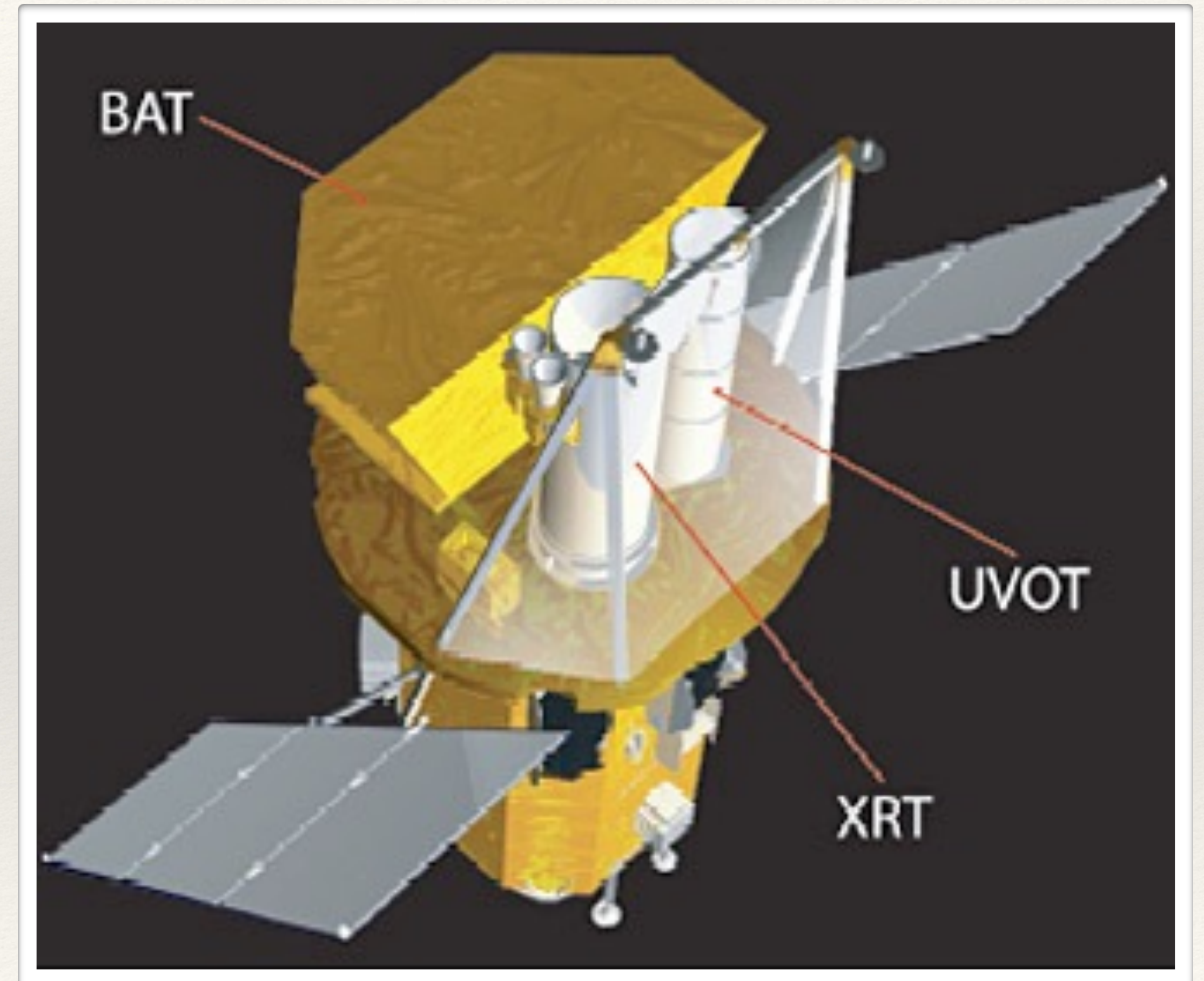
Brad Cenko
NASA/GSFC
20 August 2024

"The test of a first-rate intelligence is the ability to hold two opposing ideas in mind at the same time and still retain the ability to function."
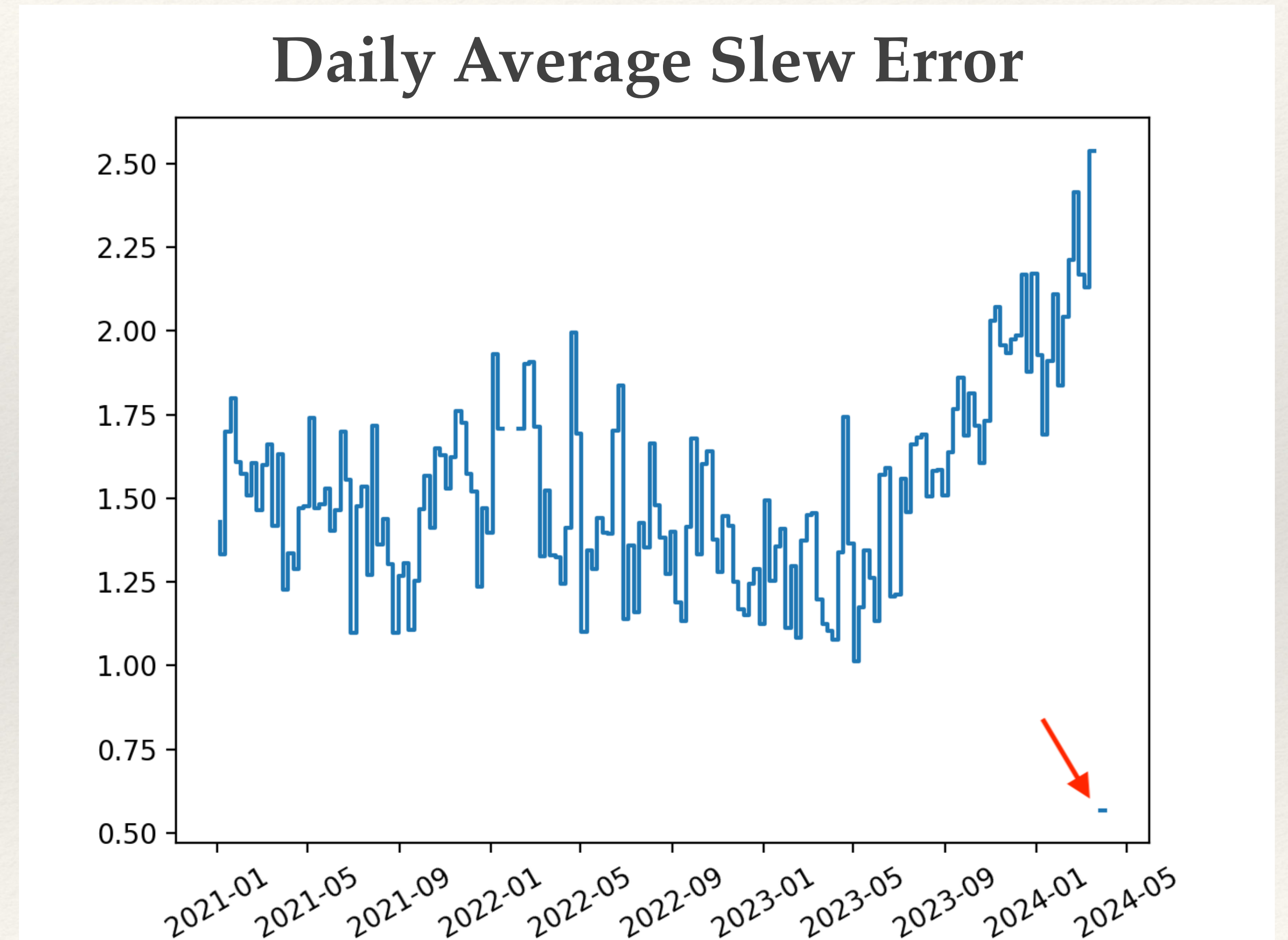
–F. Scott Fitzgerald

Neil Gehrels Swift Observatory (Swift)

- Burst Alert Telescope (BAT): 15-350 keV, 1.4 sr field-of-view, ~ 3' localization

- X-Ray Telescope (XRT): 0.2-10.0 keV, 24' x 24' field-of-view, 3" localization

- UV/Optical Telescopes (UVOT): 170-650 nm, 17' x 17' field-of-view, 0.5" localization

Gyroscope Anomaly - Resolved!

- *Swift* has 3 Two-Axis Rate Assemblies (TARAs, aka gyroscopes) on-board
  - Help provide attitude control (particularly during slews)
- TARA1 began degrading in ~ July 2023, and "failed" in March 2024
  - Unsuccessful slews (false BAT triggers)
  - Trailed UVOT images
- Two gyro operation required flight software patch
- Patch installation successful, returned to science observations ~ April 3
  - **Slew performance better than ever!**

Daily Average Slew Error

New Capabilities

❖ On-Demand storage and downlink of BAT event mode data (aka GUANO)

❖ Urgency "0" Target-of-Opportunity requests: autonomously uplinked to spacecraft, observations beginning within minutes of receipt

❖ Joint Guest Investigator Program with IXPE

❖ Python API for querying schedule, calculating visibility, submitting ToO requests, and processing XRT data (*swifttools*)

❖ Python API for BAT data analysis

❖ **Your input needed here!**

Questions?