



National Aeronautics and Space
Administration
Jet Propulsion Laboratory
California Institute of Technology

Atmospheric Infrared Sounder (AIRS)

AIRS Operations Overview

April 27, 2018

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with inputs from Bill Guit

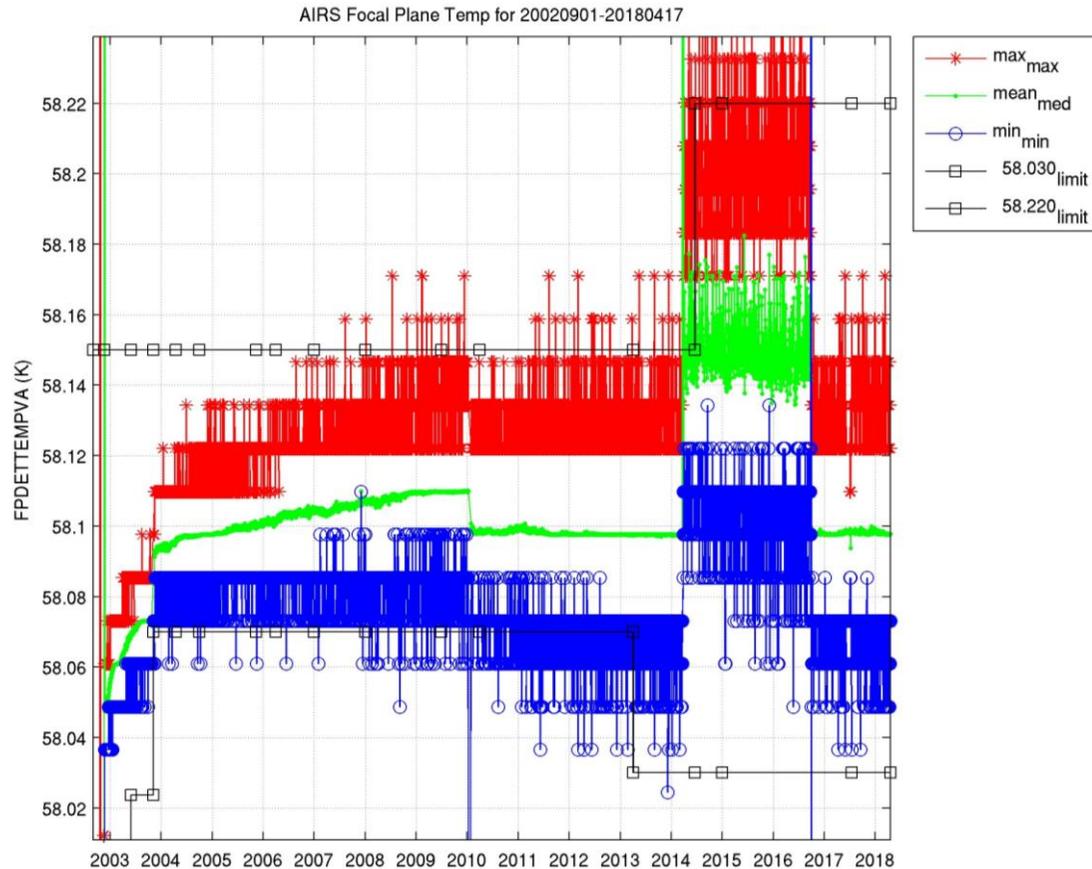
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AIRS Operations Overview
AIRS Science Team Meeting
April 25-27 2018 Pasadena CA

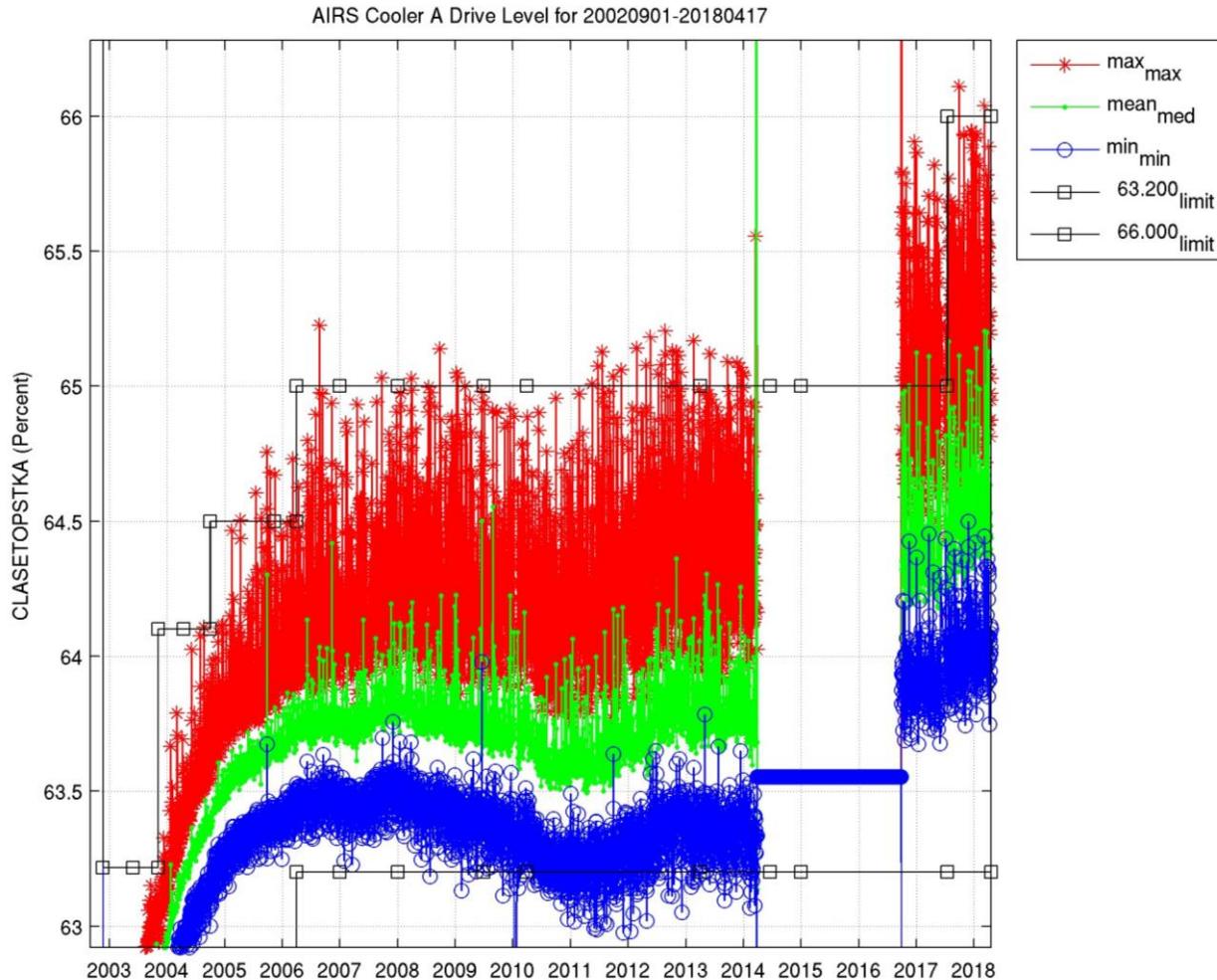
Summary

- **Current AIRS Health:** After 16 years in orbit, AIRS continues in routine operations with nearly full functionality.
- **Redundant Systems:** AIRS remains on primary processor and power. Redundancy has been exercised only in cooling (both coolers are active) and IR detectors (by design)
- **AMSU-A:** AMSU-A2 non-operational since power loss Sep 24, 2016. Data processing products use AIRS-only retrievals. AMSU-A1 continues to operate with 3 bad channels out of 13.
- **Anomalies:** No significant anomalies since Sep 2016
 - Loss of AMSU-A2
 - Cooler A shutdown & successful recovery
- **Health of IR Detectors:** Number of good channels remains high (~95%) due to redundant detectors, gain table updates
- **Remaining Lifetime:** Aqua expected to exit A-Train constellation in March 2022. Science operations expected to continue beyond that date although MLT will drift

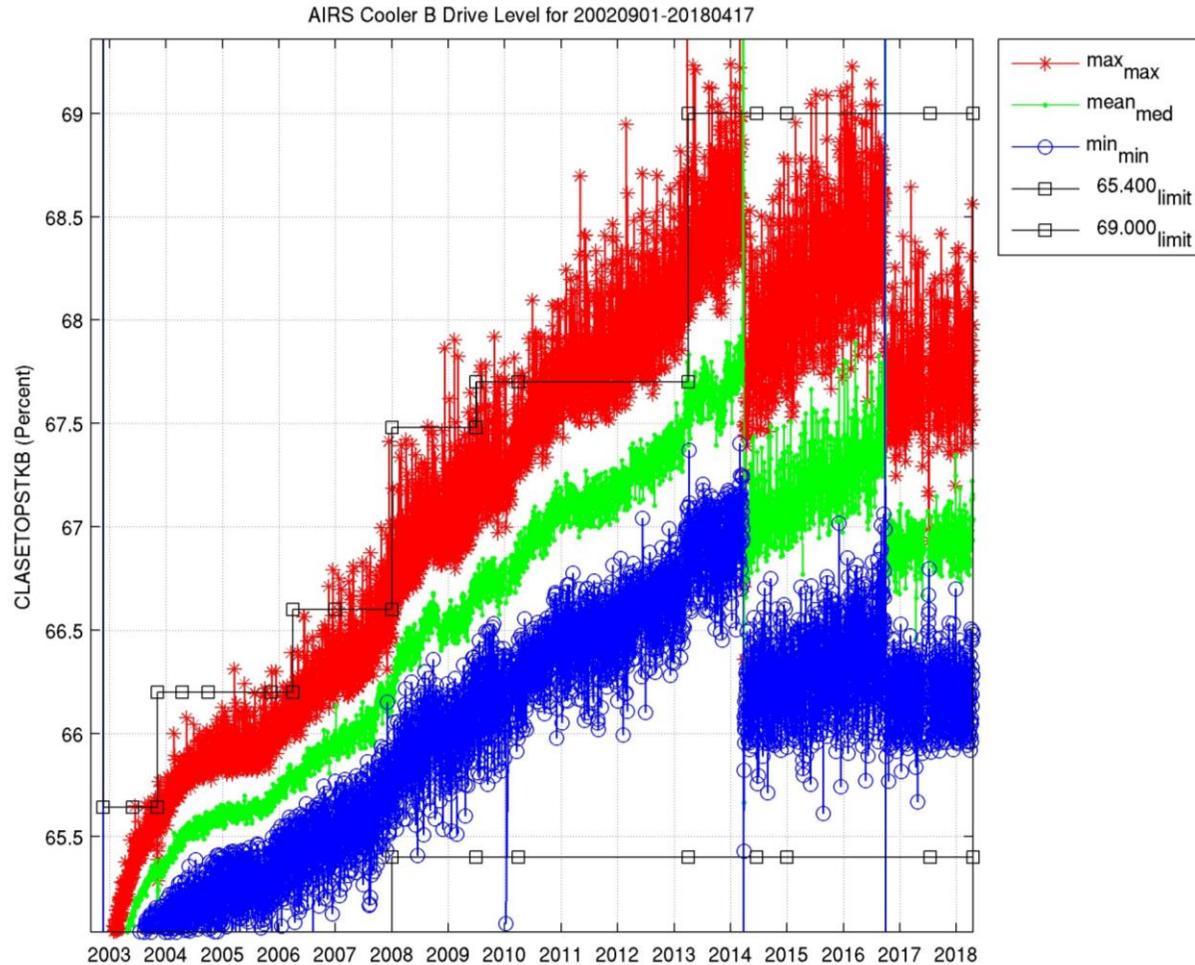
AIRS Health: Focal Plane Temperature



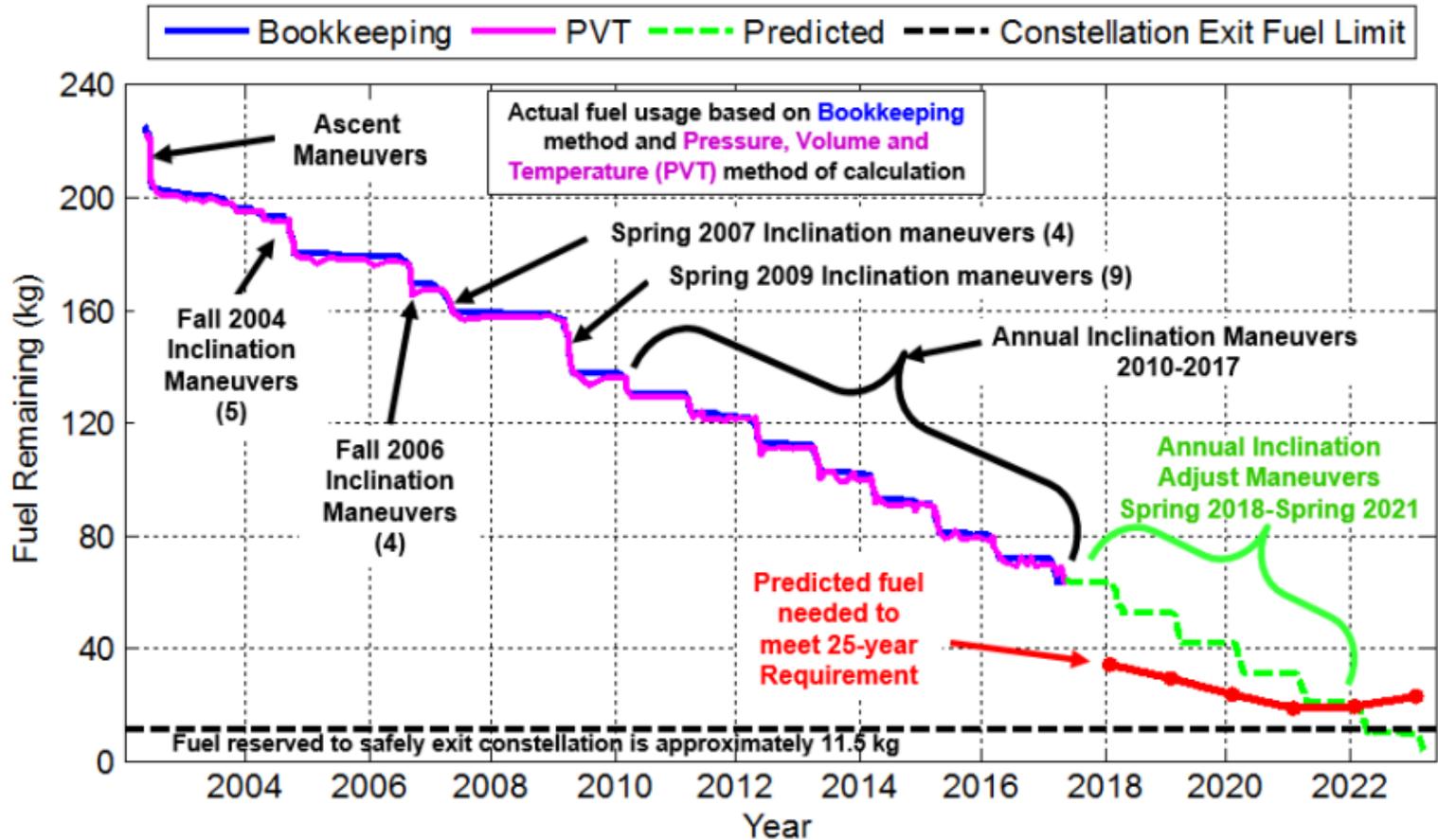
AIRS Health: Cooler A Drive Level



AIRS Health: Cooler B Drive Level

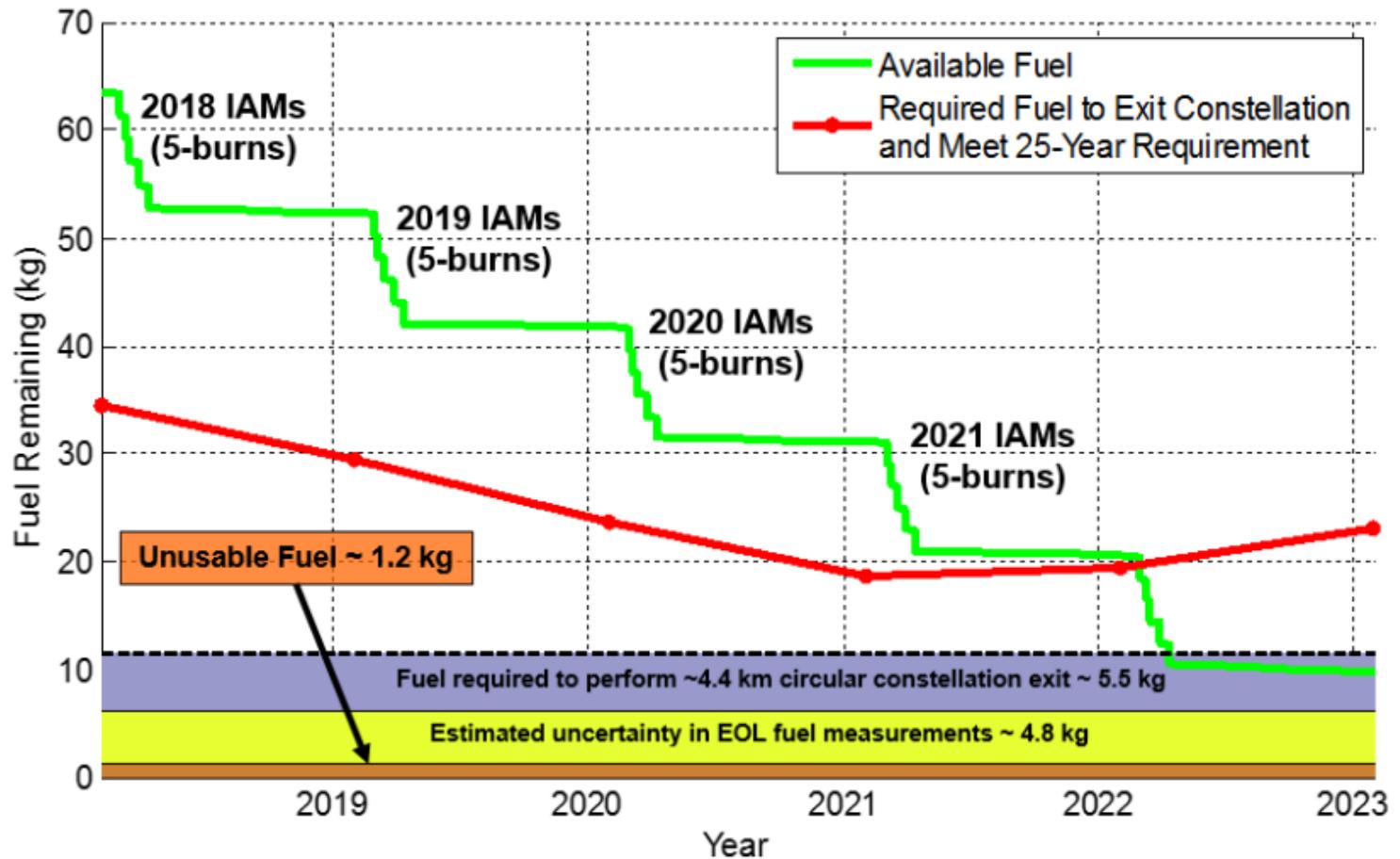


Aqua Fuel Usage 2002-2022



Credit: Bill Guit, Aqua Mission Director

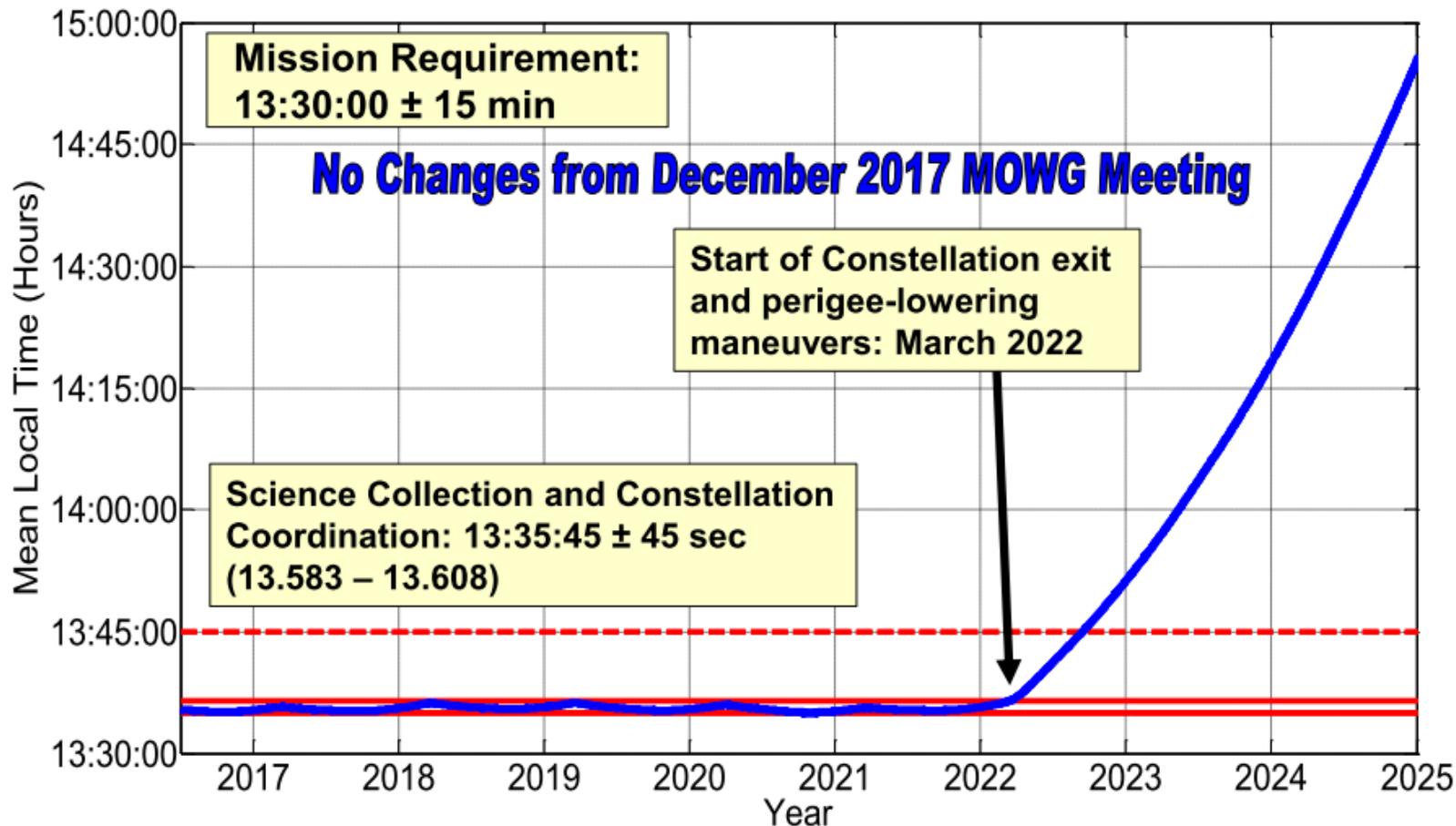
Aqua Fuel Usage 2018-2022



Credit: Bill Guit, Aqua Mission Director



Aqua Predicted MLT



Credit: Bill Guit, Aqua Mission Director

- **Issues related to Constellation Exit**

- Maneuver(s) required to lower orbit may subject AIRS instrument to solar radiation. This will need to be modeled for thermal impact
- Preliminary version of maneuver has been modeled and found safe for AIRS by cryo/thermal team led by Jose Rodriguez
- Aqua has not finalized details of orbit-lowering maneuver(s)
- Post-2022 orbit will also have thermal impact – specifically, 2nd stage heater will need to draw more power