2023-03-08 TSO WG Meeting notes - real

Date

08 Mar 2023

Attendees

- Sarah Kendrew
- Leonardo Ubeda
- Everett Schlawin
- Brian Brooks
- Nikolay Nikolov
- Unknown User (birkmann)
- Nestor Espinoza
- Knicole Colon
- Jeroen Bouwman

Meeting agenda:

1. News & Announcements (all).
2. TSO WG work updates:

   (a) TSO visits/schedule monitor (Nikolov)
   (b) Non-linearity as measured by TSOs (Espinoza)
   (c) 1/f noise work updates (Espinoza)
   (d) Zodiacal background measurements (all)
3. Roundtable check-in (all) – out of time!

Discussion items

Time	Item	Who	Notes
5 mins	**1. News & announcements**		- NE: STScI symposium, SOC going through final approvals so you should have the information to register in the next few days. Also have a workshop, org led by Nestor. First day will be on JWST data analysis for ECRs. Will be put into small groups - transiting, solar system, HCI - then work together on specific science cases. Got almost 60 applications for 20 spots (with full $ support). Nestor will likely be looking for extra support for this activity. - NE: appointed Exoplanet Mission Scientist in INS. Mostly same type of work for now, but in the longer term will take on some HST-related work as well. Role will oversee the entire process of exoplanet observations from submission to execution to science. - SK: finalizing reviews of interviews for the MIRI TSO technical staff hire.
	2. TSO work tasks updates		
	(a) TSO visit /schedule monitor (Nikolay Nikolov)	Nikolay Nikolov	developed code to run via cron job every 4 hours. pulls from the visit status page. new searching & organisation options. for programs that had failures, we can also see the repeats. Plan: put somewhere visible to everyone. right now using an internal server in NN's home directory. Improvement: work better for MIRI; for MIRI is harder to filter. also look at the APT files but that would be slower; right now already takes a while. Suggestions & feedback welcome! NE: can parse the PDF of the APT instead of the APT file itself? TSO setting is included in the Special Requirements box in the APT - would make it faster. this is how did the web scraper in the past. NN: ok can look into it NN contacted the web team to see if we can host this in a location on the webpages that is accessible to the institute (like JWQL, not open to the world). NE will talk to Mees who has done this for JWQL.
	(b) Non-linearity as measured by TSOs (Espinoza)	Nestor Espinoza	no updates so far - we have measurements from the NIR instruments, need to put this into report. (deadline is not until Sep)

	(c) 1/f noise update	Nestor Espinoza	reanalyzing all NIR data from commissioning. data looks great. will deliver on characterization + will work on best practices.
			part 2 - how to implement into the pipeline. two steps:
			1 pre-amp reset (every read has a jump on the pedestal) - for data without reference pixels, the data look v bad. need to get this implemented in the pipeline. working with L Ubeda on this part - testing using the pixels at the edges of the subarrays to correct the pre-amp reset. using different sizes of edge regions. Taking larger region decreases scatter on the time series; but have to trade off against contamination from the source spectrum.
			SB: this is not a TSO specific issue - also relevant for other observations.
			Need to work with the pipeline to get this included.
	(d) Zodiacal background measurements	all	plans for better zodiac calibration with TSO modes? - yes for NIRISS SOSS - NIRCam: considering putting in background measurements. but having seen data, makes sense to get background measurements for the brightest sources. WFSS mode will be gathering data on background in the course of regular observations anyway - NIRSpec: having a "calibration forum" tomorrow but not sure what the latest plans are. NIRSpec does take backgrounds "for free" with other types of observations. Doesn't map exactly to specific TSOs but still useful. - NE: seems worthwhile to measure the actual background for TSO use cases given high demand on these modes? - NE been considering even putting in a DDT for high demand targets such as Trappist-1 system. - MIRI: - will be routinely adding backgrounds after calibration - science observations will also have background subtraction NE: even if background is constant then can still introduce dilution as a function of wavelength that affects the transit spectrum. saw this for NIRISS SOSS. but background might also change during an observation. have we looked at that? SK looked at it for MIRI (not to huge depth) and did not see any clear temporal variations NN: also have to consider the quality of the background-only frame: if not high enough precision then we can end up injecting additional noise into the science data. would be constant but would introduce pixel-to-pixel variations. JB: even if we have a higher px-to-px response due to flat field errors, given the pointing stability, wouldn't affect us too much. but yes, need more dedicated investigation. NE: understanding shape of the background is very important as allows you to smooth it out. didn't need the strict per-pixel SNR, as the background is so smooth you can smooth it out. Could be 2-stage process together optimal subtraction.
2 mins	**4. Closing Remarks**	Sarah Kendrew	special visitor next week!