2022-03-09 TSO WG Meeting notes

Date

09 Mar 2022

Attendees

- Sarah Kendrew
- Brian Brooks
- Diane Karakla
- Leonardo Ubeda
- Nestor Espinoza
- Loic Albert
- Everett Schlawin
- Tony Keyes

Apologies:

- Unknown User (aroy)

Meeting agenda:

1. News & Announcements.
2. TSO WG task updates.
3. TSO Commissioning change request discussion.
4. Closing remarks

Meeting slides

Meeting slides are on innerspace. Reach out to Nestor Espinoza to get them.

Discussion items

Time	Item	Who	Notes
5 mins	**1. News & announcements**	Everyone	▪ Nestor Espinoza reminds everyone that the ERS Transiting Exoplanet Data Challenge is happening from March 21 through 23. This could produce an inflow of Helpdesk questions — or at the very least guide us as to what the most common questions from the community are. He is attending the in-person event, will report on that. ▪ Nestor Espinoza also shares some recent papers on NIRSpec that might be of interest to this crowd: https://arxiv.org/abs/2202.03309 (by Stephan Birkmann et al.) and https://arxiv.org/abs/2203.04173.
25min	**2. TSO WG task updates**		

	Pre-amp reset correction	Nestor Espinoza Leonardo Ubeda Everett Schlawin	• Nestor Espinoza re-introduces the problem of pre-amp reset correction: some subarrays don't have reference pixels, so the reference pixel step does nothing — but still 1/f, odd-even effects and group-to-group pedestal changes might appear. Even for the ones that do have reference pixels, refpix correction does not remove these effects very well. • Members of the TSO WG have been developing algorithms to deal with this. Main idea is to mask main sources of illumination, and use background pixels to estimate these sources. Two algorithms to do this: ROEBA and LOOM. The latter takes the median of the odds and even pixels and substracts that from the data; then, substract the median on the fast-read direction pixels. LOOM does the same but via least-squares and fits for both effects automatically. ▪ Nestor Espinoza tried the algorithms on NIRISS simulated data. Both work great! Small offset seen in ROEBA algorithm, but was due to his implementation of ROEBA. ▪ Leonardo Ubeda sees same results on NIRSpec CV3 data. ▪ Everett Schlawin mentions that it would be good to have an algorithm that at least saves the background levels. Might be useful to track. Nestor Espinoza mentions that LOOM in principle could do this if the background is not constant — if there is a model for the background, the algorithm can scale that model and fit that scaling factor together with the odd/even and 1/f column-banding. ▪ Everett Schlawin also asks whether we would like to reach out back to the CalWebb WG right away, given we've tested the algorithms. Nestor Espinoza would like to try them with on-sky data first. Also, there is still a question about a good mask to leave only background and not outliers. Everett Schlawin has a script to mask that he will share on the next TSO WG.
	JDox	Sarah Kendrew	▪ Sarah Kendrew mentions she's still receiving input. Please do reach out to her! The JDocs WG wants the section published by the ERO release. They want all submitted by mid-May so there is time to have some back and borth for feedback with NASA. ▪ She mentions that a tentative internal deadline to close the topics on the JDox article might be mid-April. But she will define a definite deadline for that by the next TSO WG meeting. Overall, she believes it will be hard to prioritize JDox over actually commissioning work, so it might be that we only include the minimum ammount of information into JDox. This is also the case as most activities that can inform us about performance happen latter than this date. ▪ Diane Karakla comments that it's going to be hard to prioritize JDox work as well. It's definitely not the number 1 priority accross SIs. ▪ Nestor Espinoza suggests this is OK, but that we should define topics and constraints by mid-April, considering our efforts in other areas of the mission.
	1/f noise	Nestor Espinoza	▪ Nestor Espinoza still had not had time to work on this. However, he does mention he has a hunch that the "peak" in the PSD of subarray data might be residual odd/even effects. He asks around to the WG if anyone knows exactly what is the noise process producing odd-even, and if it would be possible that the simple "odd/even" we are doing might take most but not all the effects of this on the data. Some papers by B. Rauscher suggest it might be another 1/f component. No clear answer. Perhaps Michael Regan could know! ▪ Whatever the case, important to see if this is observed in other SIs. Everett Schlawin will get lab data on subarrays to check this.
	3. TSO Commissioning change request discussion		
		Nestor Espinoza	▪ This discussion can't be written here on Outerspace, but reach out to Nestor Espinoza if you want to know more about this.
2 mins	**4. Closing Remarks**	Nestor Espinoza	