2021-06-30 TSO WG Meeting notes

Date

30 Jun 2021

Attendees

- Sarah Kendrew
- Leonardo Ubeda
- Brian Brooks
- Diane Karakla
- Unknown User (aroy)
- Everett Schlawin
- Michael Regan
- Nikolay Nikolov
- Tony Keyes
- Knicole Colon
- Nestor Espinoza

Apologies:

- Unknown User (birkmann)

Meeting agenda:

1. News & Announcements
2. Updates on NIRSpec pipeline validation (Ubeda).
3. 1/f noise analysis updates (all)
4. High-efficiency modes update (Espinoza).
5. TSO Documentation (Kendrew)

Meeting slides

No slides today

Discussion items

Time	Item	Who	Notes
5 mins	**1. News & announcements**	Everyone	1. Sarah KendrewRelease of APT 2021.2, which contains the change from FAST to FASTR1 for MIRI. This places an extra reset between integrations, i.e. impacting all multi-integration observations, which is all TSOs. This will require communication with the PIs of all MIRI TSOs, to help them understand the impact and changes that are needed in the program. It also represents a loss of observational efficiency for MIRI.The change does however give the MIRI detectors a bit of extra dynamic range. The extra reset makes zero-point is more stable, and Mike Ressler (MIRI detector lead at JPL) was able to tune the bias voltages to give an extra 4000-5000 DN in dynamic range. 2. Some feedback from the ERS hackathon. Everett Schlawin reports that one of the first things people did was to roll back the photometric calibration, returning the data to DNs. Not DN/s but DN, by scaling to the integration length. This led to a length discussion with Michael Regan that for JWST we cannot recover the DN in this way, as the pipeline does not capture the effective time/number of groups used for the slope fitting - corrected for any cosmic ray hits. So the commanded integration length is not accurate. For HST this number is returned, so the calculation can be made accurately. The total number of DN can be recovered, kind of, by using the Poisson noise component, which contains information on the total collecting time, and the gain. But the gain is not absolutely known either, so this is also an approximate method. This warrants further discussion and we may need to open a ticket for the pipeline to return this value.
	2. NIRSpec pipeline validation		

		Leonardo Ubeda	Shows notebook that looks at CV3 data and tests the non-linearity correction for NIRSpec. Over the full subarray (512 x 32), the non-linearity correction improves the non-linearity from ~3% to ~1%. This is good, but should be better. Suggestion for the data analysis is to calculate this number only on the pixels that receive flux from the spectrum - right now this number is likely biased by the background pixels that do not receive photons and show only noise. The NIRSpec non-linearity correction method was derived in the Goddard detector lab, prior to delivery to ESA. We do not currently have uncertainties on the correction coefficients. We should really be able to achieve a better NL correction than 1%. Leonardo Ubedawill update the calculation according to the suggestions, and open a JIRA ticket to improve the NL correction. Michael Reganhas compared the NL correction for different instruments and found the NIRSpec method to be best of the 3. MIRI is better than the NIR, MR and Jane Morrison have worked on this extensively - but still room for improvement.
5min	**3. 1/f noise analysis**		
		Nestor Espinoza	The PSD's seen for the NIR instruments are seen to be different. NIRISS in particular has some extra wiggles in the PSD. Unknown User (aroy) did the analysis on OTIS and CV3 darks, checking also the reference pixel correction step - which gave the same results. These wiggles seem to be real and not an analysis artefact. Diane has been working on trying to simulate subarray darks for small subarrays based on full arrays darks. Tried this for subarray for which data is available, so the simulation can be compared against real data, and this turned out to be successful. She has also applied this to NIRISS, and finds the same profile as Arpita - this is very preliminary but promising. NIRSpec has subarrays that are too small to have enough non-signal pixels to perform the col-by-col subtraction, so this method of creating simulated subarray darks is really promising.
5 mins	**4.HIgh-efficiency modes**	Nestor Espinoza	Has been in touch with Natasha Batalha re. impact study for the high-efficiency modes. Nestor developed a web scraping tool that extracts all target and exposure info from the JWST webpages, and this will be used as input data for the study. Natasha will get back to us about her study by early Aug. We do need some info on the technical parameters from Mike Regan, who will work on this together with Eddie.
5 mins	**5. JDox**		
		Sarah Kendrew	Tickets have been filed for the new content (⚠ JDOXCM-301 - Jira project doesn't exist or you don't have permission to view it. ⚠ JDOXCM-302 - Jira project doesn't exist or you don't have permission to view it.), . SK will talk to Alaina to determine the workflow and SK will contact other team members to get started on this effort. NN would like to know how the time allocation was calculated for this effort and NE will send more details about that.