

2024-03-20 TSO CT Meeting notes

Date

20 Mar 2024

Attendees

- [Brian Brooks](#)
- [Everett Schlawin](#)
- [Leonardo Ubeda](#)
- [Nestor Espinoza](#)
- [Nikolay Nikolov](#)
- [Sarah Kendrew](#)
- [Aarynn Carter](#)
- [Elena Manjavacas](#)


Meeting agenda:

- News & Announcements (all).
- Past and future TSO observations (Nikolov).
- SOSS substripe calculations (Espinoza, Nikolov).
- Outlier detections (Kendrew).
- Closing remarks.

Slides:

Discussion items

Time	Item	Who	Notes
10min	News & Announcements	All	<ul style="list-style-type: none">• Nikolay Nikolov noticed that there is a discussion ongoing on Strategic DRF projects at STScI. Some of them concern TSOs (some including TRexoliSTs!), so keep an eye out for those.
10min	Past and future TSO observations	Nikolay Nikolov	<ul style="list-style-type: none">• Nestor Espinoza notes that it might be good to add information in JDOx about pre-empting possible diluting companions, possible imaging with other instruments, and its importance on, e.g., relative flux measurements (transmission/emission spectra). This might be second nature to some, but PI's for JWST include a lot of new people that might not be as aware as other folks in the community.
10min	SOSS Substripe Calculations	Nestor Espinoza Nikolay Nikolov All	<p>Nestor Espinoza presented some calculations on bright limits/efficiencies for what would superstripes/substripe look like if implemented on NIRISS/SOSS (along with code on how those calculations were made). If you want slides, let him know:</p> <ul style="list-style-type: none">▪ Michael Regan : efficiency seems large. Nestor Espinoza comments that the efficiency he plotted was the total efficiency on reading the entire subarray size. True that this is not the efficiency per stripe/wavelength region.▪ Elena Manjavacas : To make a strong science case, would be good to include how many more planets would such a change allow to observe on different modes. This would also make the case for pushing for extra calibrations. Do we know which ones this would imply? Michael Regan notes certainly darks, biases; unclear (unlikely?) if flats.▪ Everett Schlawin : also mentions on the efficiency question. Intuitively, after each stripe one needs to reset all the detector, so that on its own is a lot of time. Nestor Espinoza mentions that this is indeed accounted in the calculation (via fast reset reads). Michael Regan notes you don't do this per pixel, but per row.▪ Loic Albert : notes that there are really two efficiencies — one full read efficiency (the one shown), and the other one that actually defines the SNR as a function of magnitude because "throwing away" photons. There might be a sweetspot somewhere across those "efficiencies".▪ Michael Regan : might be good to think about doing different setups for different people: bright star folks might be happy with small stripes SNR-wise, but faint object folks would probably not.▪ Aarynn Carter : are we fixed on a given set of parameters per instrument? Nestor Espinoza mentions this came up on a fortuitous conversation with Nikolay Nikolov and Mario Gennaro on the halls. No, there could be M-G-K-focused parameters, for instance. Michael Regan notes that each of them would be like a new subarray. Nestor Espinoza notes that, e.g., in APT, one could think this appears as "SSStripe M" or "SSStripe G" and then one would select the one that makes more sense to a given spectral type, say. Michael Regan notes it would be wise to ask for what you want (e.g., this) on the first try.▪ Nikolay Nikolov will check if the orientations are correct for NIRSpec/PRISM "flatten the curve" idea. We want pixels to start being read on the red/faint end for this to work.

25min	Outlier detection	Sarah Kendrew	<ul style="list-style-type: none">▪ TSO3 MIRI white light curve showing strange features with what's expected from the L2b spectra.▪ Outlier detection algorithm uses a median over all integrations to find outliers. Perhaps use a moving median in TSO3?▪ Nestor Espinoza thinks a moving median would be great, but also dangerous; very dependant on the science case. For transits easy to pick a window for the moving median (~a fraction of the transit duration) but for general science cases, not as easy to pick (e.g., you might remove signal you want, frequencies that are interesting for science, etc.).▪ Michael Regan intrigued why the algorithm flagging integrations at the beginning. Sarah Kendrew notes this is where most systematics happen at the beginning, but there is not a lot of that in the actual observations. <div> JP-3578 - Jira project doesn't exist or you don't have permission to view it.</div> <ul style="list-style-type: none">▪ Discussion following up here:
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Action items

