2020-07-29 TSO WG Meeting notes

Date

29 Jul 2020

Attendees

- Nestor Espinoza
- Sarah Kendrew
- Brian Brooks
- Nikolay Nikolov
- Unknown User (birkmann)
- Tony Keyes

Meeting agenda:

1. News & announcements.
2. Updates on TSO WG pipeline testing.
3. TSO activities on each instrument branch.
4. Closing remarks.

Discussion items

Time	Item	Who	Notes
	1. News & announcements	Everyone	- Nikolay Nikolov mentions that at 4 PM there is going to be a discussion on the TSO NIRCam challenge. Will be dedicated on MIRAGE simulations — Brian Hilbert will be leading the discussion on that side as a MIRAGE expert. - He also mentions that last week some of us (Kendrew, Espinoza, Nikolov) met with Jeff Valenti to discuss Nikolov's idea of dispersing the NIRCam grim spectra in the column orientation (GRISM C), i.e. in a direction perpendicular to the current GRISM R (row) orientation. The GRISM C orientation is currently under consideration as a more optimal mode that would enable more efficient mitigation of 1/f noise patterns going along the detector rows (fast read out). - Brian Brooks also updates on the ETC updates. This is actually on track with all the synphot changes made (which, as per our previous meeting notes, produces no big changes to exoplanet results); there's a webpage actually set up to access Pandeia updates now that you can ask Klaus, Brian Brooks or Nestor Espinoza to share with you. - Nestor Espinoza shared the creation of SAG 21, which people from the TSO WG (and beyond!) might be interested to join. It's particularly relevant to TSO products (i.e., wavelength-dependant transit depths that might be produced not only by exoplanets, but also by the stars themselves).
15min	**2. Updates on TSO WG pipeline testing**		

		Everyone	- Sarah Kendrew and Nestor Espinoza have been running a 2-week sprint which ends this week on pipeline testing, on which Nikolay Nikolov and Misty Cracraft have been joining as well. As discussed on the TSO Pipeline testing tracking sheet, great progress has been happening here. Currently, NIRISS and MIRI jumping into Spec2 testing (with Detector 1 testing mostly done). Sarah Kendrew has a notebook on which she's writing down the tests for MIRI/LRS, same for Nestor Espinoza on NIRISS/SOSS. - Nestor Espinoza shares a problem he has been having on the ramp fitting step. He is working with a 3 groups per integration case in which some groups are flagged by the jump step. When the flagged pixels are in the borders (i.e., first or last group) all is OK, the algorithm uses the Ordinary Least Squares (OLS) solution for estimating slopes with the reminder groups — however, when the middle pixel is flagged, the pipeline gives back weird results. He's currently checking this out. - Nikolay Nikolov mentions also some issues with the ramp fitting step. It seems the algorithm is using by an optimal weighting scheme, and with his simulations he does not see the algorithms strictly uses OLS by default. When he does not do optimal weighting, this is the case. - Tony Keyes reports on what Maria Peña-Guerrero and James Muzerolle have been doing in terms of pipeline testing. All details are in the TSO Pipeline testing tracking sheet. He discusses there are still some issues to be defined for the extract1d steps, in relation to the rectification of the data that James was suggesting for the pipeline. Nestor Espinoza chimes in on the discussion they had on this (see ⚠ JP-1488 - Jira project doesn't exist or you don't have permission to view it.), on which they concluded that rectification was not the optimal strategy for TSOs — a proper extract1d algorithm needs to be implemented that adds the flux on equi-wavelength strips, but there was no mention on the priority of this within the NIRSpec team. Tony Keyes will ask the NIRSpec team what the priority of this is, and report back to the TSO WG in order to see how that will move forward. Unknown User (birkmann) agrees with the fact that rectification of the data is sub-optimal as well.
25min	**3. TSO activities on each instrument branch**		
7min	NIRISS activities/updates	Nestor Espinoza	Main effort has been on pipeline testing and pull-requests/issues on the NIRISS/SOSS simulator (awesimsoss). However, also spent time on checking new targets for the TSO commissioning activity, as now WASP-18 is not observable with the new launch date. There was a discussion on whether NIRISS should be putting an exoplanet target or an eclipsing binary (EB) as NIRCam is planning to do. Nikolay Nikolov argued that an exoplanet target might lead to a scientific result that might put pressure in the community; Nestor Espinoza mentions, however, that they are being very careful in selecting targets with very small scale-heights, and that exoplanet-like analyses of EBs might turn to be more difficult/complex to analyze/commission than exoplanet datasets. Nikolay agrees but, points out they would investigate spectroscopic light curve residuals as this is the goal of the NIRCam TSO stability verification. Also points out that nature might surprise us with unexpected results for exoplanet data. In that case the commissioning data could produce results with scientific value.
7min	NIRCam activities/updates	Brian Brooks Nikolay Nikolov	- Nikolay Nikolov doing a lot of pipeline testing as well in the past few weeks, along with a notebook for the community on imaging and spectroscopy. Also working on a quick analysis on CV3 dark frames, "cleaning" images obtained in the row (R) and column (C) orientation on the detector (i.e. similar to what Grism R and GRISM C orientations would produce) and checking for which case the data would be better cleaned from noise. Expects to finish this analysis this week. - Brian Brooks and Nikolay Nikolov met last week on a workbook on the measurement of the FPE clock oscillator and fitting a model to it. Working on how to get the model to work on a discontinuous dataset (which is more realistic). Idea is to check how this oscillator data are impacted by thermal fluctuations.
7min	NIRSpec activities/updates	Tony Keyes	Working on getting pipeline installed, setting up a Linux server for running it.
7min	MIRI activities/updates	Sarah Kendrew	Appart from pipeline testing there has been progress on the MIRI/MRS TSO pipeline implementation. Nestor Espinoza and Sarah had to figure out some details about what the pipeline will produce as minimal products, so some questions had been answered on that. Latest update on this is related to the fringe correction, which was discussed yesterday in the CalWebb WG meeting. It seems to be progressing; seems like the minimal level of support can be implemented without too many issues. Idea is for it to be supported up to the photom step — extract1d would be left to the user.
5min	**4. Closing remarks of the meeting**		