2020-04-08 TSO WG Meeting notes

Date

08 Apr 2020

Attendees

- Nestor Espinoza
- Brian Brooks
- Sarah Kendrew
- Tony Keyes
- Nikolay Nikolov

Goals

- Discussion on (re-)defininition of goals/priorities for FY2020 for the WG.
- Update everyone on the WG on the different TSO activities going on on the different branches.

Discussion items

Time	Item	Who	Notes
	1. News & announcements	Everyone	
	2. Fiscal Year 2020 plan discussion & updating		
	NIRISS tasks updates	Nestor Espinoza	▪ Updated the NIRISS-related tasks on the FY2020 plan. Among them, the most complicated to get a hang on is the *100% duty cycle* one for future JWST cycles, which is actually a cross-instrumental question. Turns out there are at least two problems (1) It might be that switching the read-out modes impacts the bias level and stability of the detectors (this is observed apparently in NIRSpec when switching between regular and IRS^2 readout mode) and (2) persistence effects, which are currently not important for the near-infrared detectors as the reset times are enough to erase their traces. ▪ Before moving forward with that task, we really need a compelling set of science cases that can only happen if they are implemented. Batalha et al. (2018) summarized some of them, but it is unclear if this would be desirable for some systems/science cases, or would greatly enable other science cases as well. The group converged towards inviting members of the exoplanet community to pitch the idea, in order to receive input and motivation on implementing this. Basically, they need to answer "What fraction of observations would be affected by this", as this will be weighed against the effort needed to implement these readout modes (across all subsystems). This should come as a white-paper of some sort, describing why this is of high-priority/interest for exoplanet/TSO science. ▪ Also, before moving forward, It is important to consider the possibility that, even if a 100% duty cycle is enabled, other problems might appear (e.g., see the case of MIRI below). Before moving forward, thus, it would be good to gather the experience of NIRSpec when switching between regular and IRS^2 to understand this better, or do some ground testing with detector copies of the onboard ones. Tony Keyes mentions Unknown User (birkmann)'s input would be very valuable here.
	NIRCam tasks updates	Brian Brooks	▪ Updated the NIRCam-related tasks on the FY2020 plan as well, along with some cross-instrumental tasks. In this latter one, Nikolay Nikolov, Brian Brooks and John Stansberry are going to start work on improving the timing precision which is of great interest and importance for TSO in general and exoplanet-related observations in particular. The group decided to focus an entire meeting in the future to learn about the details of this work.
	NIRSpec task updates	Tony Keyes	▪ Updated the NIRSpec-related tasks on the FY2020 plan as well. Among the things to note, is the task implying that the "Listed NIRSpec gain values do no apply to BOTS mode, need to add BOTS-specific gains". Although relatively low-priority, it appears the JDocs text has to be updated, and so Tony Keyes he is iterating with Unknown User (birkmann) on the details about this.
	MIRI task updates	Sarah Kendrew	▪ Updated the MIRI-related tasks on the FY2020 plan as well. An important question here is how well does the pipeline handle MRS data reduction on TSO mode — this needs to be tested.

	Cross-instrument TSO tasks	Everyone	▪ Brian Brooks reported on the optimal background subtraction task. John Stansberry mentions this algorithm is needed to perform background subtraction in the presence of bad pixels. It might be good to revise this task in order to know exactly what the status of this is. ▪ Sarah Kendrew brings up the "Simulated data" task. It seems all of us at some point or another have been generating simulated datasets, and other cross-instrument work (e.g., DMS) usually needs simulated dataset to run tests. It would perhaps be good to, at the very least, post scripts on how to generate that simulated data with the tools we know. To this end, Nestor Espinoza will create a page in this Outerspace with links to those scripts, so all of us can populate it. ▪ Regarding the previous point, it would be important to reach out to the different groups that need those simulated datasets so we know exactly what they typically want. For example, for DMS, do htey need "real" data? Only proper headers? Proper science?
			Next step: re-prioritize these tasks. Nestor Espinozaasks Sarah Kendrew, Brian Brooks and Tony Keyes to re-prioritize the tasks of their respective instruments.
	3. TSO activities per instrument team		
	NIRISS activities /updates	Nestor Espinoza	
	NIRCam activities /updates	Brian Brooks Nikolay Nikolov	▪ Nikolay Nikolov mentions he has been reducing simulated data for WASP-79b. He will be showing us the details of this on our next meeting.
	NIRSpec activities /updates	Tony Keyes	▪ Tony Keyes updates: 
	MIRI activities /updates	Sarah Kendrew	▪ Sarah Kendrew mentioned some possible new modes for MIRI. She'll update on this once she checks with the MIRI Branch lead (Macarena García-Marin) how much of this information can be shared on that over here.
	Closing remarks of the meeting		Nestor Espinoza reminds these bi-weekly meetings will keep happening Wednesdays at 11 AM ET.

Action items

- [ ] Nestor Espinoza will re-prioritize tasks for NIRISS & Cross-instrument tasks.
- [ ] Nestor Espinoza will create page to share data simulation scripts with the world.
- [ ] Nestor Espinoza will reach out to the transiting exoplanet community to search input on the 100% duty cycle possibilities.
- [ ] Sarah Kendrew will re-prioritize tasks for MIRI.
- [ ] Tony Keyes will re-prioritize tasks for NIRSpec.
- [ ]

- [ ] Brian Brooks will re-prioritize tasks for NIRCam.
- [x] Nikolay Nikolov will present his WASP-79b analysis on the next TSO WG meeting.