

# 2021-01-13 TSO WG Meeting notes

## Date

13 Jan 2021

## Attendees

- [Nestor Espinoza](#)
- [Sarah Kendrew](#)
- [Brian Brooks](#)
- [Unknown User \(aroy\)](#)
- [Leonardo Ubeda](#)
- [Diane Karakla](#)
- [Loic Albert](#)
- [Unknown User \(birkmann\)](#)
- [Tony Keyes](#)
- [Nikolay Nikolov](#)

## Meeting agenda:


1. News & announcements.
2. Outlier detection algorithm
3. Labour schedule for 2021
4. Updates on ongoing work per branch

## Slides

[TSO WG - Jan 12 Meeting Slides.key](#)

## Discussion items

Time	Item	Who	Notes
10 mins	<b>1. News &amp; announcements</b>	Everyone	<ul style="list-style-type: none"><li>▪ New member from NIRSpec team: Leonardo Ubeda (15% level). Quick introductions.</li></ul>
20min	<b>2. Outlier detection algorithm</b>		

		Nestor Espinoza Nikolay Nikolov	<p>See</p> <div>  JP-1655 - Jira project doesn't exist or you don't have permission to view it. </div> <p>and slides for illustration of the problem.</p> <p>The step is part of calwebb_tso3, supposed to flag cosmic rays. This step should identify cosmic rays or other outliers that were missed by the jump_step in stage 1 of the pipeline.</p> <p>The algorithm is flagging a lot of in-transit pixels. NE discovered that although the docs says the step is using a "custom algorithm for TSOs" this is not the case.</p> <p>Proposed solution is what Nikolay Nikolov developed for HST data, using a "difference image filter". Use the time series of slope images to construct a master difference image. Using the master difference image, then identify outlier pixels using spatial median. Uses only 3 parameters: number of images before &amp; after to create master diff image; the box size for spatial median; the sigma level to mark outliers.</p> <p>What in case of glancing CRs that cause a trail? NN uses detector rows or columns (direction along dispersion) instead of pixel boxes.</p> <p>How handle HGA move jitter? NN did see residuals in the HST data from thermal breathing pointing variations so again this was mitigated by looking at entire detector rows/columns (dispersion direction). SK - should put in some kind of mitigation in the algorithm until we know what these pointing variations will look like.</p> <p>In the case of steep flux decline (short sudden transit), could the algorithm erroneously flag pixels due to this? NN - yes that is a risk, though depends on the thresholds we set for detection &amp; should be driven by the data.</p> <p>What should the algorithm do with the outliers? NE - was long discussion in the CalWG and ultimately should be the job of the next step (extraction) to "do something". The outlier_detection step should just flag the pixels.</p> <p>What is required for moving forward? Should test and approve.</p> <p>Kendrew and Nikolov will work on a python version of the function for testing purposes.</p>
30min	<b>3. Labor schedule for 2021</b>		
		Nestor Espinoza Sarah Kendrew	<p>See Espinoza's slides for estimate of deadline and timelines for various tasks. These deadlines are self-imposed so please provide feedback or speak up if not achievable.</p> <p>Plans for a transiting exoplanet ERS bootcamp in the summer.</p> <p>Major work item is the 1/f noise.</p> <p>Non-linearity impact: for Q3 of the fiscal year (starting ~ April)</p> <p>High efficiency modes: this requires community input, so is scheduled around the time of the ERS bootcamp. If this science push for it is sufficient then we can work it in the project for implementation in cycle 2.</p> <p>Difference imaging pipeline: Nikolov the natural person to work on this bc of past experience with HST. But will require testing for all instruments.</p> <p>Action to all: please check with your other branch duties to assess feasibility of this work? Share with branch manager as needed. Please flag any concerns in next 2 weeks - Nestor will reach out.</p>