

2018-01-25 TrEx WG Meeting notes

Date

25 Jan 2018

Attendees

- [Kevin Stevenson](#)
- [Unknown User \(birkmann\)](#)
- [John Stansberry](#)
- [Bryan Hilbert](#)
- [Nikole Lewis](#)
- [Sarah Kendrew](#)
- [Jonathan Fraine](#)
- Online attendees

Acronyms

- TA = target acquisition
- TSO = time-series observations
- FoV = field of view
- ETC = JWST exposure time calculator
- WATA = wide-angle target acquisition

Discussion items

Time	Item	Who	Notes
	General Update	Kevin	<ul style="list-style-type: none">• See slides titled "TrExWG-2018-01.pdf"• TA was recently brought up as a concern for TSOs of bright targets and how STScI would handle proposals/targets for which TA was not feasible• WG performed study of TA limits for all four instruments<ul style="list-style-type: none">◦ NIRISS: no concerns, can always perform TA on science target◦ NIRCam: can achieve 0.1 pixel pointing accuracy with 4 partially and 1 fully saturated pixels ($K = 6.1$), brighter objects may need to use offset TA or saturate additional pixels with a decrease in pointing accuracy (~ 1 pixel)◦ NIRSpec: most objects will need to use offset TA, but brightness range is $11 < K < 25$ therefore finding a suitable offset target should not be an issue◦ MIRI LRS: no concerns with LRS mode, can always perform TA on science target◦ MIRI Photometry: no TA for MIRI photometry, blind pointing accuracy (4 pixels at 1 sigma) is well within FoV for smallest subarray (SUB64)• Conclusion from TA study is that all science targets should have a viable means to perform TA• Potential improvements for Cycle 2<ul style="list-style-type: none">◦ Narrow filter for NIRCam, fewer groups for NIRSpec, improved TA on saturated targets (software), micro-shutter assembly TA for NIRSpec• Other highlights include...<ul style="list-style-type: none">◦ MIRI TSO photometry enabled for Cycle 1, includes full array and all subarray modes◦ Developed strategy to provide timestamps for each integration since time is recorded once every science (full frame) image, will create FITS extension with BJD_TDB times◦ Finalized "chunking" strategy for large datasets, exposures will be evenly divided into segments of ≤ 2 GB each; will enable faster processing of data and easier sharing on MAST• Everyone should update their local version of PandExo
	NIRCam TA with saturated pixels	Bryan	<ul style="list-style-type: none">• See slides titled "TA_with_saturated_pix.pdf"• Tested TA accuracy for various levels of saturation with NIRCam• Range: $K = 3.3 - 7.3$ in 0.5 mag intervals• Pixel scale = 0.065/pix• Fully saturated: saturates in Group 1• Partially saturated: saturates in Group 2 or 3• Can achieve < 1 pixel pointing accuracy with up to 8 fully saturated pixels ($K \sim 3.5$)• The "desirement" is for 0.1 pixel TA accuracy, which is possible without saturating any pixels, but we cannot specify a requirement until we're on sky and can evaluate the impact of systematics• Proposers should evaluate how their science goals might be impacted by reduced (~ 1 pixel) TA accuracy for very bright targets before determining their preferred TA strategy (offset vs saturation)

ETC vs PandExo	Jonathan	<ul style="list-style-type: none"> • See slides titled "Comparisons_between_Pandeia_and_PandExo.pdf" • ETC and PandExo produce consistent results (SNR) when the # of integrations is 1 • ETC produces a significantly lower SNR (compared to PandExo) when the # of integrations is large • This is because the ETC includes the flat field uncertainty for every integration, which is correct for non-TSO data, whereas TSOs are a relative measurement that don't depend on a precise flat fielding, so long as the pointing jitter is small • ETC and PandExo do agree when we use the ETC SNR for 1 integration and then bin down assuming "root N" statistics • CONCLUSION: We should encourage people to use PandExo for their TSO planning
APT	Sarah	<ul style="list-style-type: none"> • See slides titled "jan18_updates.pdf" • APT has gone through a series of updates over the past few months <ul style="list-style-type: none"> ◦ NIRCam: max NGROUPS for TA = 65 ◦ NIRSpec: optional TA, added WATA ◦ MIRI: optional TA for LRS ◦ NIRISS: only NISRAPID permitted in SOSS template ◦ ALL: TSO special requirement added, NINTS <= 65535, warning (not error) for exposures > 10,000s • Ran out of time to discuss JDOx

Slides



TrExWG-2018-01.pdf



TA_with_saturated_pix.pdf



Comparisons_between_Pandeia_and_PandExo.pdf



jan18_updates.pdf

Action items

- ☐ [Unknown User \(birkmann\)](#): PR to enable MSATA for TSOs