

# 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"><li>• See slides titled "TrExWG-2018-01.pdf"</li><li>• 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</li><li>• WG performed study of TA limits for all four instruments<ul style="list-style-type: none"><li>◦ NIRISS: no concerns, can always perform TA on science target</li><li>◦ NIRCam: can achieve 0.1 pixel pointing accuracy with 4 partially and 1 fully saturated pixels (<math>K = 6.1</math>), brighter objects may need to use offset TA or saturate additional pixels with a decrease in pointing accuracy (<math>\sim 1</math> pixel)</li><li>◦ NIRSpec: most objects will need to use offset TA, but brightness range is <math>11 &lt; K &lt; 25</math> therefore finding a suitable offset target should not be an issue</li><li>◦ MIRI LRS: no concerns with LRS mode, can always perform TA on science target</li><li>◦ MIRI Photometry: no TA for MIRI photometry, blind pointing accuracy (4 pixels at 1 sigma) is well within FoV for smallest subarray (SUB64)</li></ul></li><li>• Conclusion from TA study is that all science targets should have a viable means to perform TA</li><li>• Potential improvements for Cycle 2<ul style="list-style-type: none"><li>◦ Narrow filter for NIRCam, fewer groups for NIRSpec, improved TA on saturated targets (software), micro-shutter assembly TA for NIRSpec</li></ul></li><li>• Other highlights include...<ul style="list-style-type: none"><li>◦ MIRI TSO photometry enabled for Cycle 1, includes full array and all subarray modes</li><li>◦ 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</li><li>◦ Finalized "chunking" strategy for large datasets, exposures will be evenly divided into segments of <math>\leq 2</math> GB each; will enable faster processing of data and easier sharing on MAST</li></ul></li><li>• Everyone should update their local version of PandExo</li></ul>
	NIRCam TA with saturated pixels	Bryan	<ul style="list-style-type: none"><li>• See slides titled "TA_with_saturated_pix.pdf"</li><li>• Tested TA accuracy for various levels of saturation with NIRCam</li><li>• Range: <math>K = 3.3 - 7.3</math> in 0.5 mag intervals</li><li>• Pixel scale = 0.065/pix</li><li>• Fully saturated: saturates in Group 1</li><li>• Partially saturated: saturates in Group 2 or 3</li><li>• Can achieve <math>&lt; 1</math> pixel pointing accuracy with up to 8 fully saturated pixels (<math>K \sim 3.5</math>)</li><li>• 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</li><li>• Proposers should evaluate how their science goals might be impacted by reduced (<math>\sim 1</math> pixel) TA accuracy for very bright targets before determining their preferred TA strategy (offset vs saturation)</li></ul>

ETC vs PandExo	Jonathan	<ul style="list-style-type: none"> <li>• See slides titled "Comparisons_between_Pandeia_and_PandExo.pdf"</li> <li>• ETC and PandExo produce consistent results (SNR) when the # of integrations is 1</li> <li>• ETC produces a significantly lower SNR (compared to PandExo) when the # of integrations is large</li> <li>• 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</li> <li>• ETC and PandExo do agree when we use the ETC SNR for 1 integration and then bin down assuming "root N" statistics</li> <li>• <b>CONCLUSION:</b> We should encourage people to use PandExo for their TSO planning</li> </ul>
APT	Sarah	<ul style="list-style-type: none"> <li>• See slides titled "jan18_updates.pdf"</li> <li>• APT has gone through a series of updates over the past few months <ul style="list-style-type: none"> <li>◦ NIRCcam: max NGROUPS for TA = 65</li> <li>◦ NIRSpec: optional TA, added WATA</li> <li>◦ MIRI: optional TA for LRS</li> <li>◦ NIRISS: only NISRAPID permitted in SOSS template</li> <li>◦ ALL: TSO special requirement added, NINTS &lt;= 65535, warning (not error) for exposures &gt; 10,000s</li> </ul> </li> <li>• Ran out of time to discuss JDOx</li> </ul>

## 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