



TIC 198153540 TRANSITS VALIDATION REPORT

This document is created by the WATSON report generator (<https://github.com/PlanetHunters/watson>) and focuses on the target star TIC 198153540.

RA (deg)	Dec (deg)	V (mag)	J (mag)	H (mag)	K (mag)
14:04:22.59	46:31:09.84	-	-	-	-

Table 1: The proposed target parameters.

T0 (d)	Period (d)	Duration (h)	Depth (ppt)
1741.586	8.0217	1.7	0.867

Table 2: The candidate parameters.

Metric	Value	Passed
fast_snr	6.664	True
short_snr	9.914	True
long_snr	8.202	True
snr_p_t0	35.439	True
snr_p_2t0	4.87	False
snr_2p_t0	30.102	True
snr_2p_2t0	18.228	True
snr_p2_t0	4.87	False
snr_p2_t02	2.146	True
transit_offset_ra	211.098	True
transit_offset_dec	46.52	True
transit_offset_err	0.007	True
transit_offset_pos	0.004	True
core_flux_snr	0.133	nan
halo_flux_snr	-0.304	nan
og_score	-2.285	nan
centroids_ra_snr	-1.191	True
centroids_dec_snr	-0.488	True

Table 3: The results of the numerical tests.



WATSON Transits Validation Report: TIC 198153540

Thu, 18 May 2023, 21:14:47

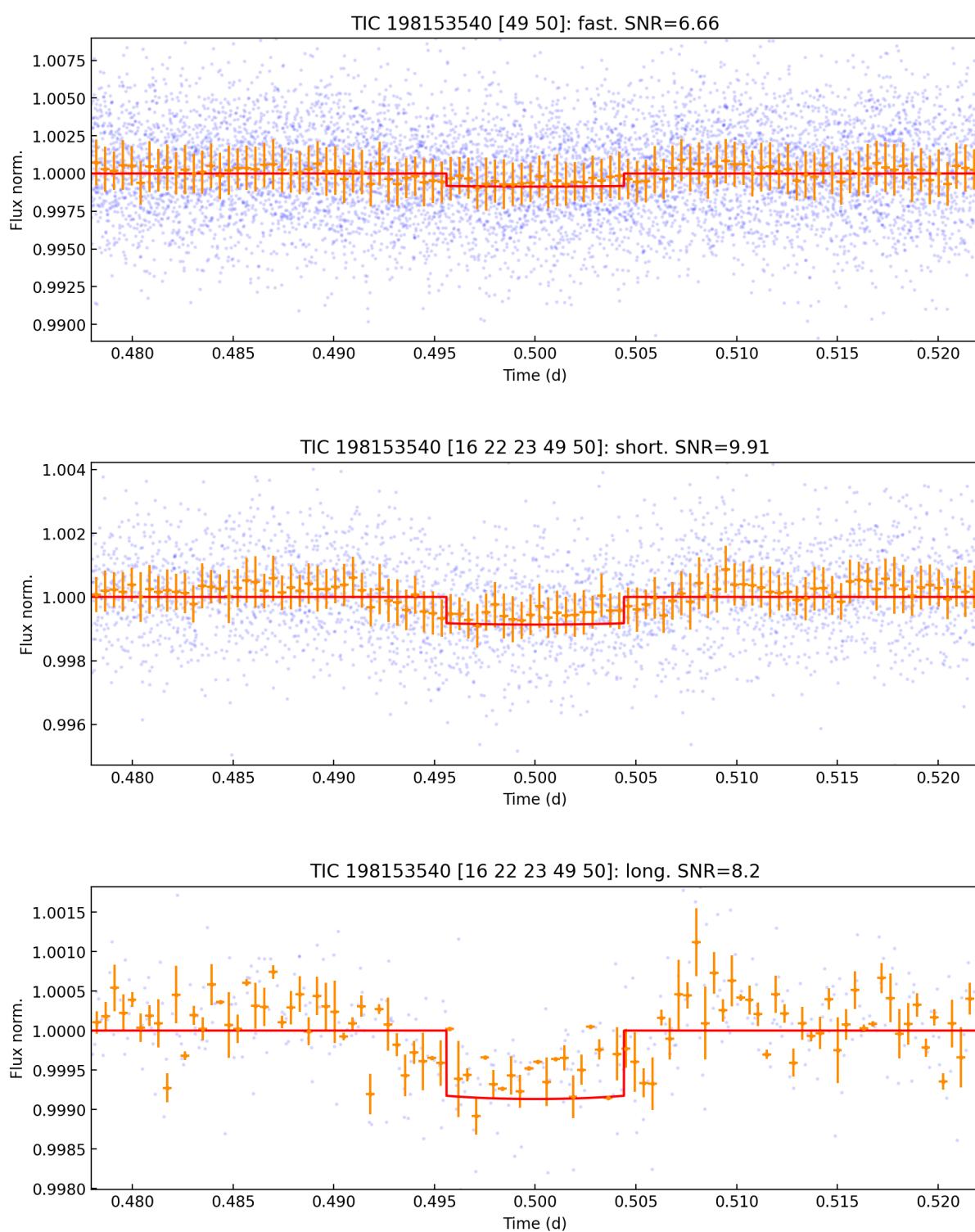


Figure 1: Folded curve for all available cadences.



WATSON Transits Validation Report: TIC 198153540

Thu, 18 May 2023, 21:14:47

TIC 198153540 Transits depth analysis $T_0=1741.59$ $P=8.02d$

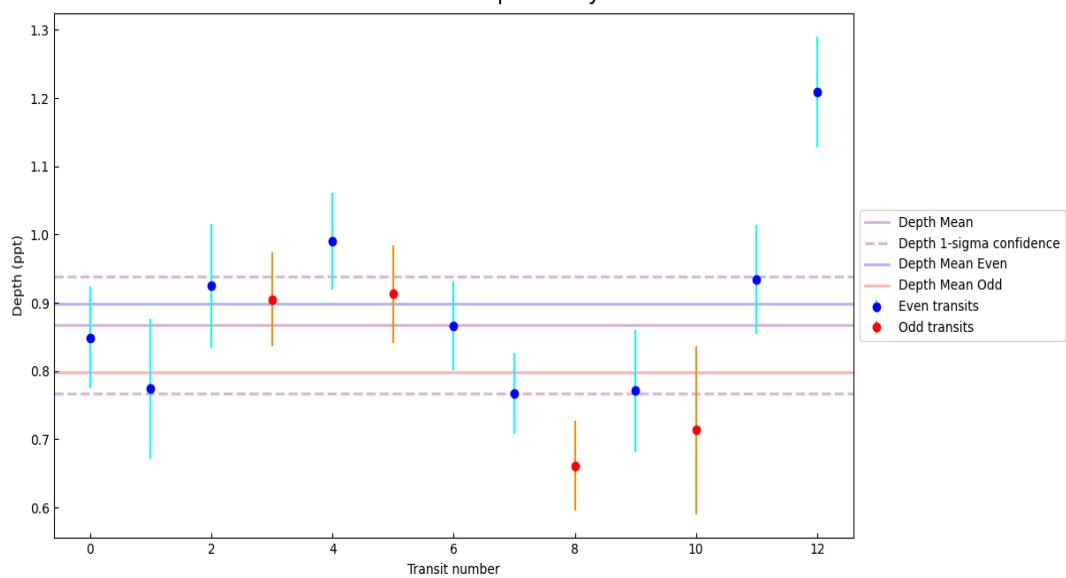


Figure 2: The candidate single-transits depths plot.

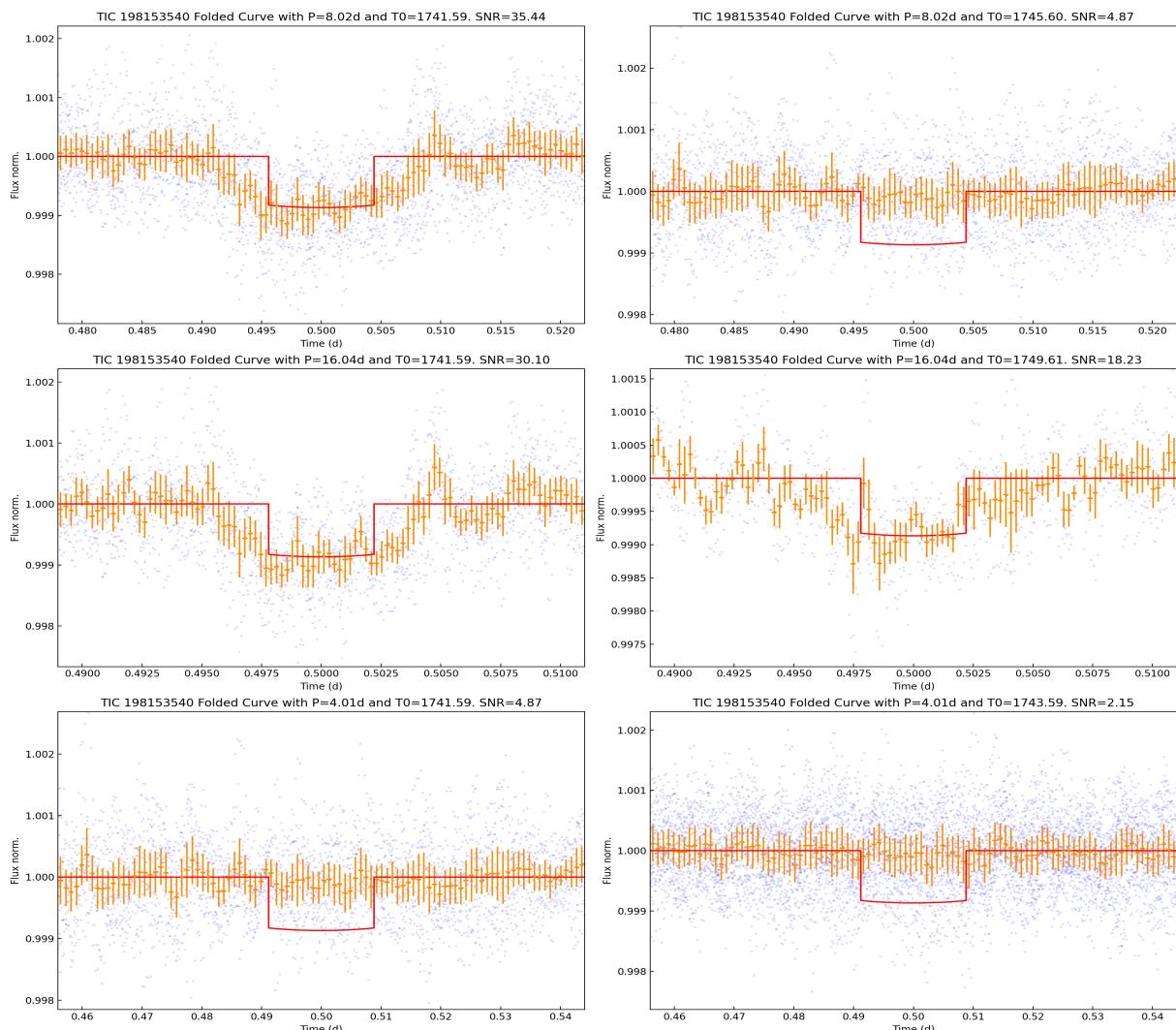


Figure 3: Above, the candidate folded at its found period for the found epoch and epoch + $P/2$. Middle, the candidate folded at its harmonic for the found epoch and epoch + P . Bottom, the candidate folded at its subharmonic for the found epoch and epoch + $P/2$, where the candidate has been masked.

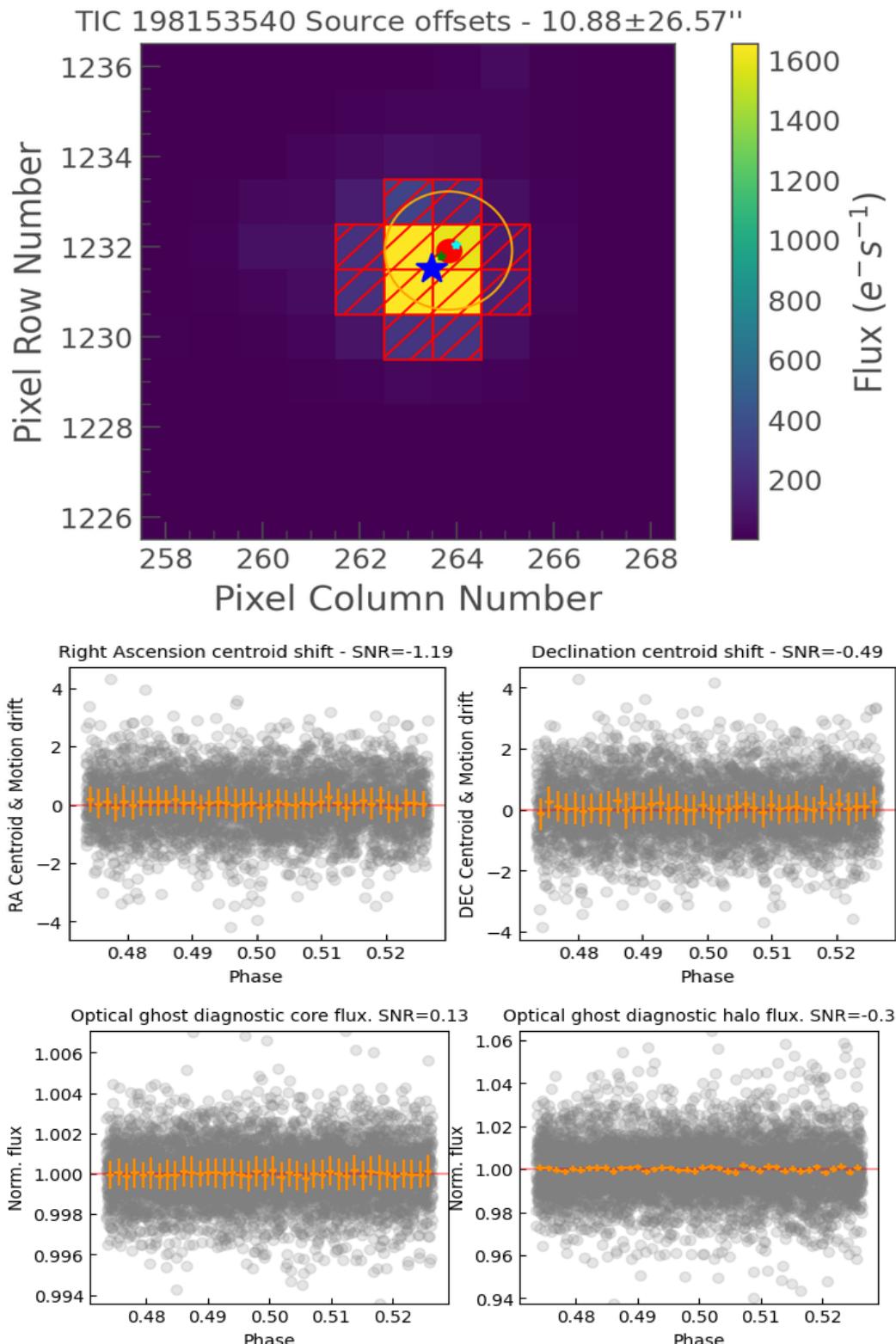


Figure 4: Above, the computed target offset (red circle) from the differential image offset (cyan dot) and the per-pixel BLS SNR offset (green dot). Middle left, the right ascension centroid shift with binning. Middle right, the declination centroid shift with binning. Bottom left, optical ghost diagnostic curve for core flux. Bottom right, optical ghost diagnostic curve for halo flux

The next pages will contain each of the single-transits vetting sheets with the next information:

1. **TOP-LEFT:** Plot with single transit photometry found in the analyzed curve (with momentum dumps, if any).
2. **TOP-CENTER:** Plot with X-axis data drift (X-axis motion vs X-axis centroid offset) around the transit times.



3. **TOP-RIGHT:** Plot with Y-axis data drift (Y-axis motion vs Y-axis centroid offset) around the transit times.
4. **CENTER-LEFT:** Plot with SAP for used aperture vs SAP for smaller aperture around the transit times.
5. **CENTER-CENTER:** Plot with smaller aperture over used aperture on the target.
6. **CENTER-RIGHT:** Plot with single transit photometry found in the analyzed curve around the transit times.
7. **BOTTOM:** Plot TPF flux measurements for each pixel around the transit times.

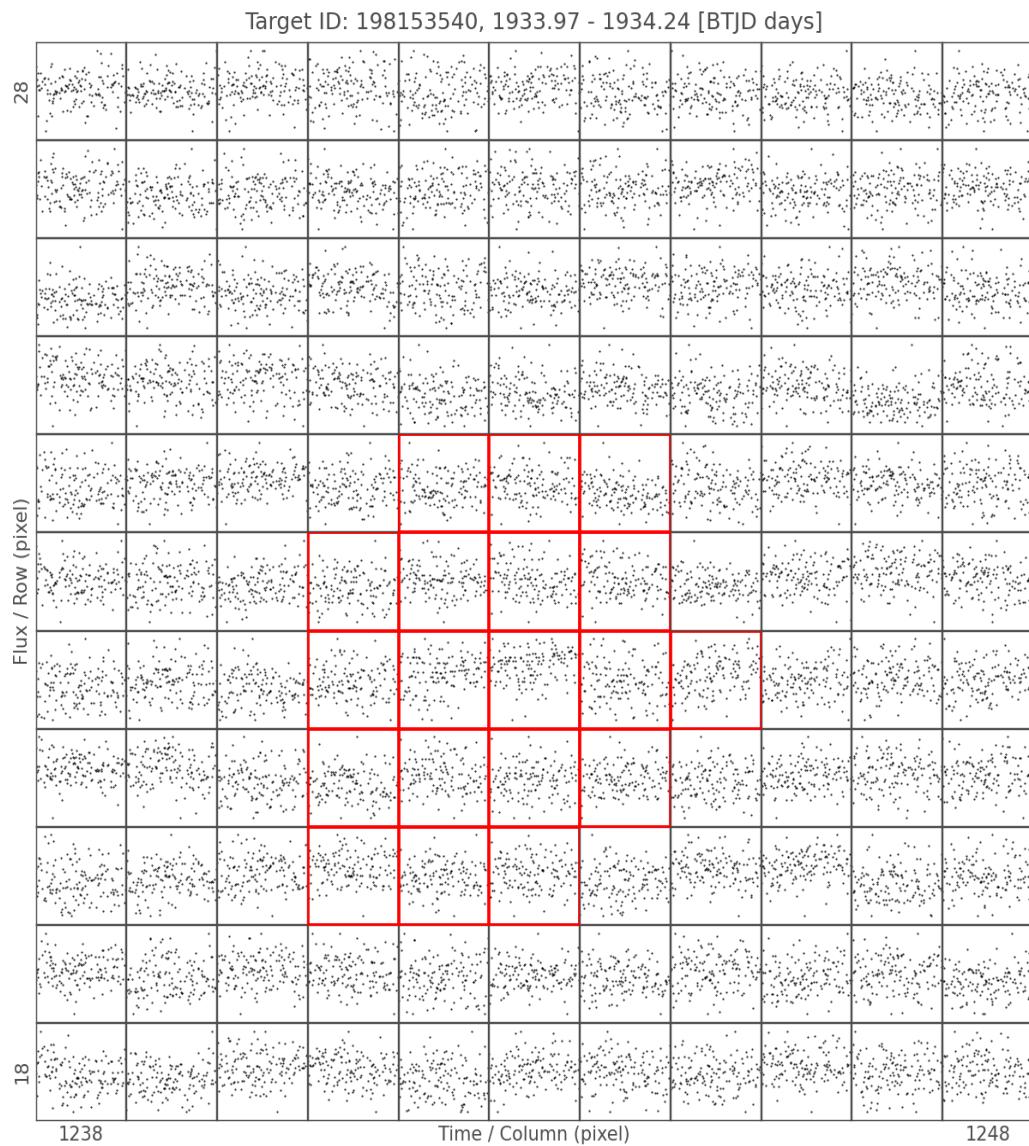
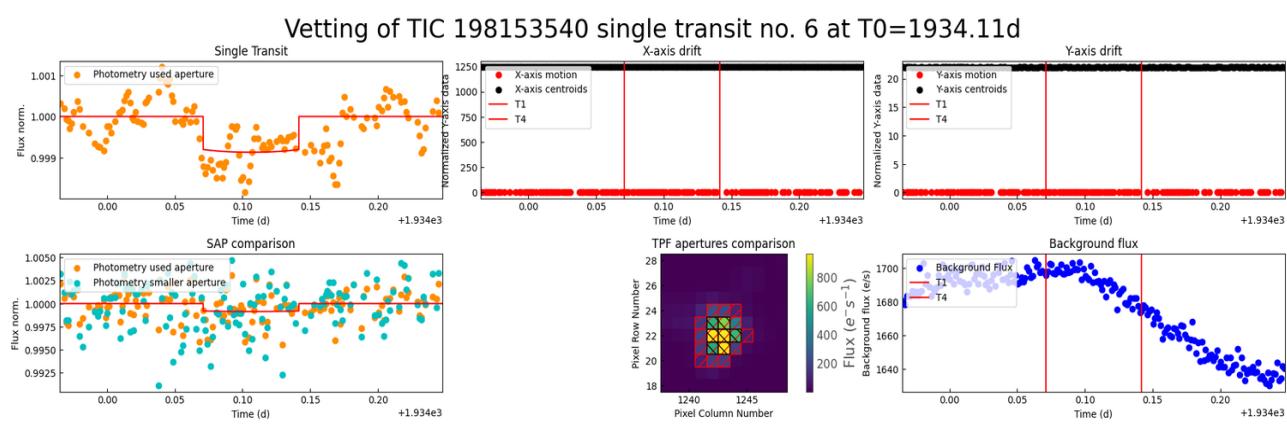


Figure 5: The single transit no. 6 vetting plots



WATSON Transits Validation Report: TIC 198153540

Thu, 18 May 2023, 21:14:48

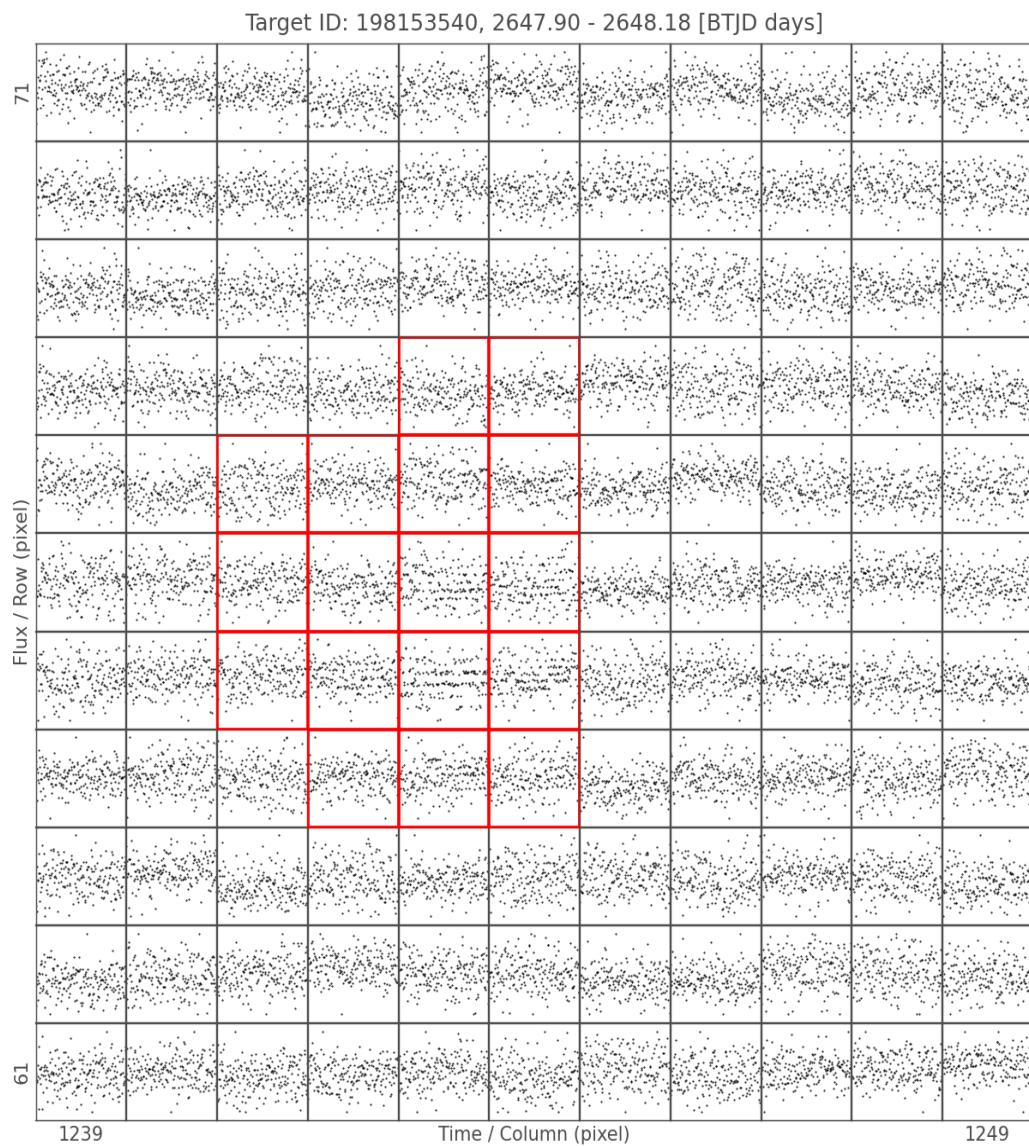
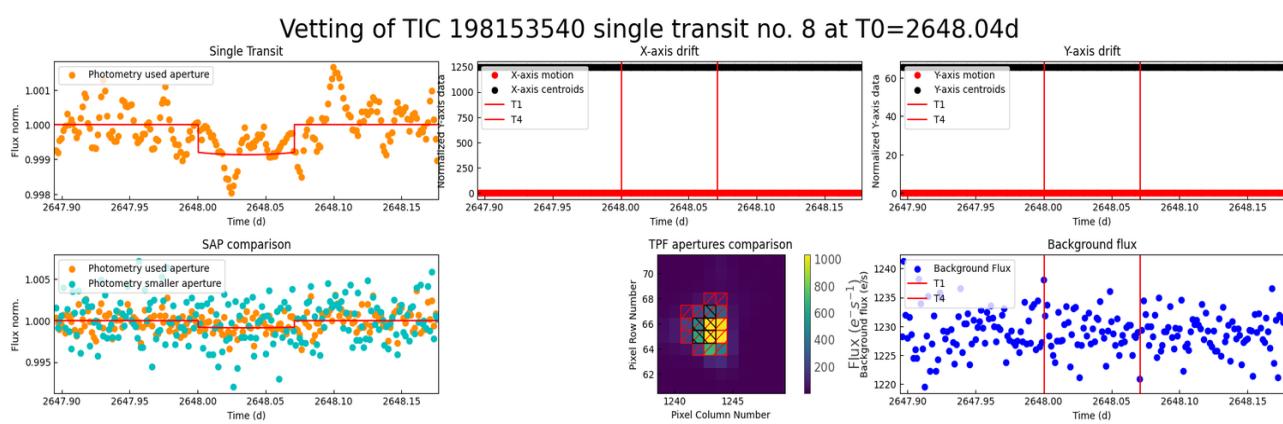


Figure 6: The single transit no. 8 vetting plots



WATSON Transits Validation Report: TIC 198153540

Thu, 18 May 2023, 21:14:49

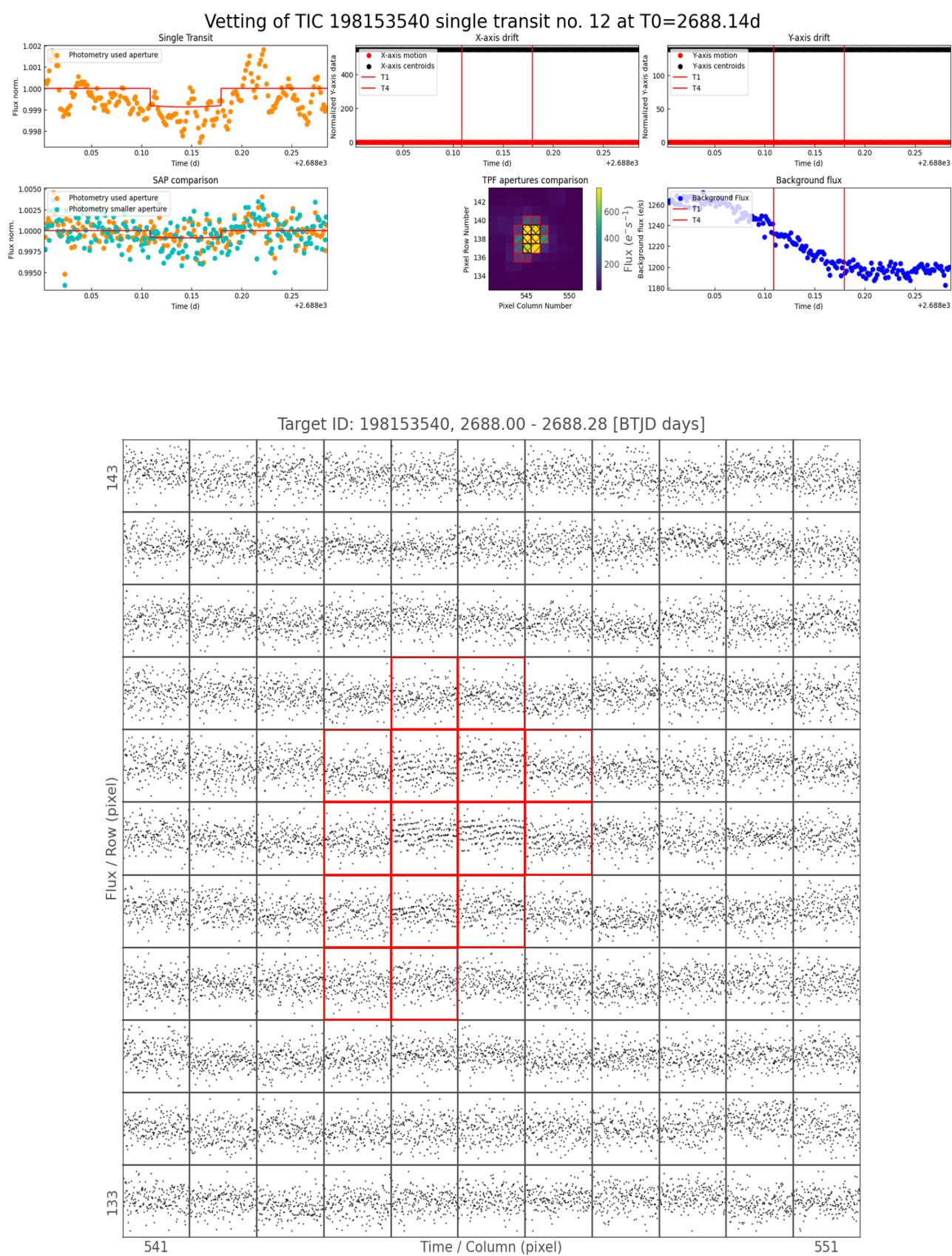


Figure 7: The single transit no. 12 vetting plots