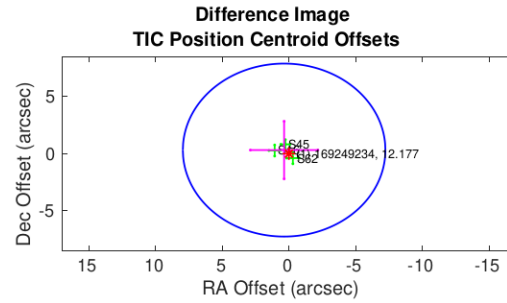
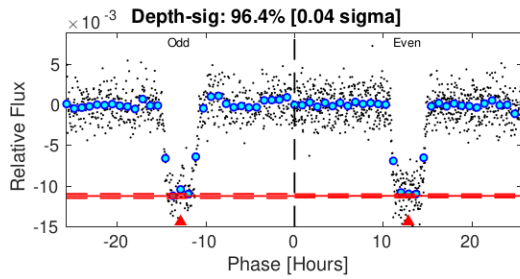
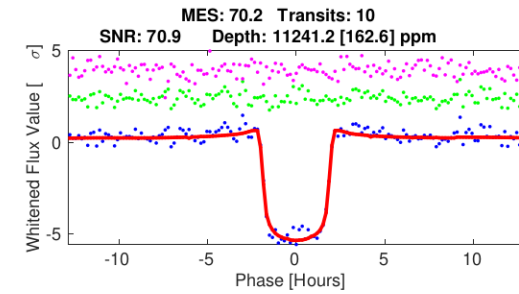
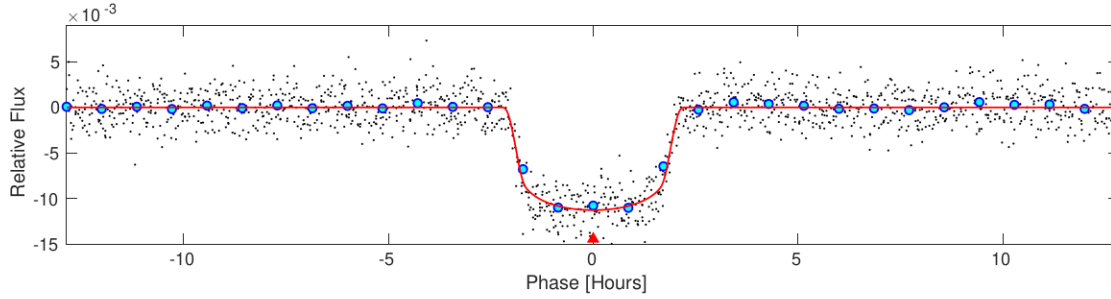
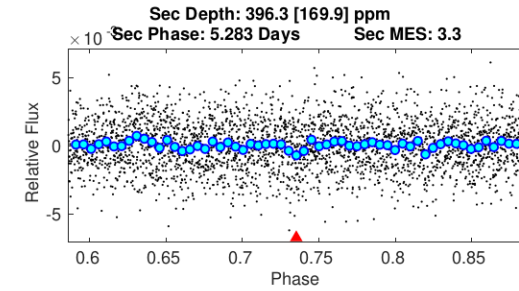
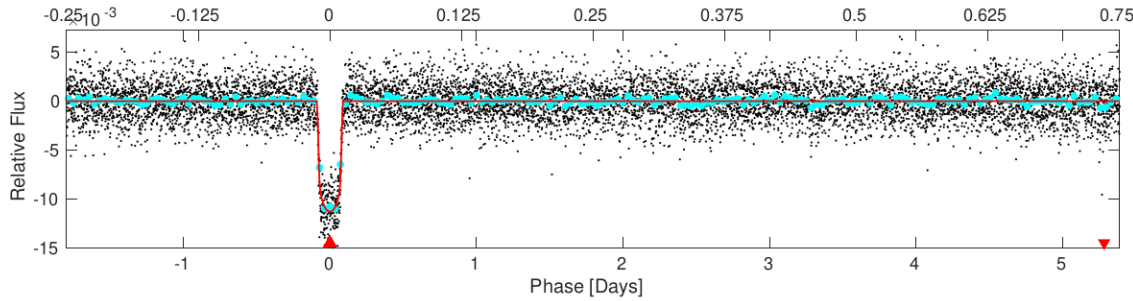
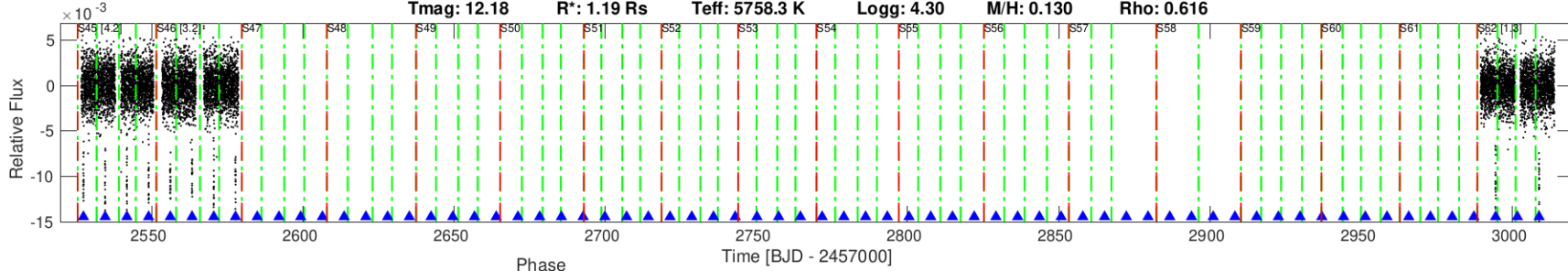


TIC: 169249234 Candidate: 1 of 1 Period: 7.186 d
TOI: 2524.01 Corr: 0.974

Tmag: 12.18 R*: 1.19 Rs Teff: 5758.3 K Logg: 4.30 M/H: 0.130 Rho: 0.616



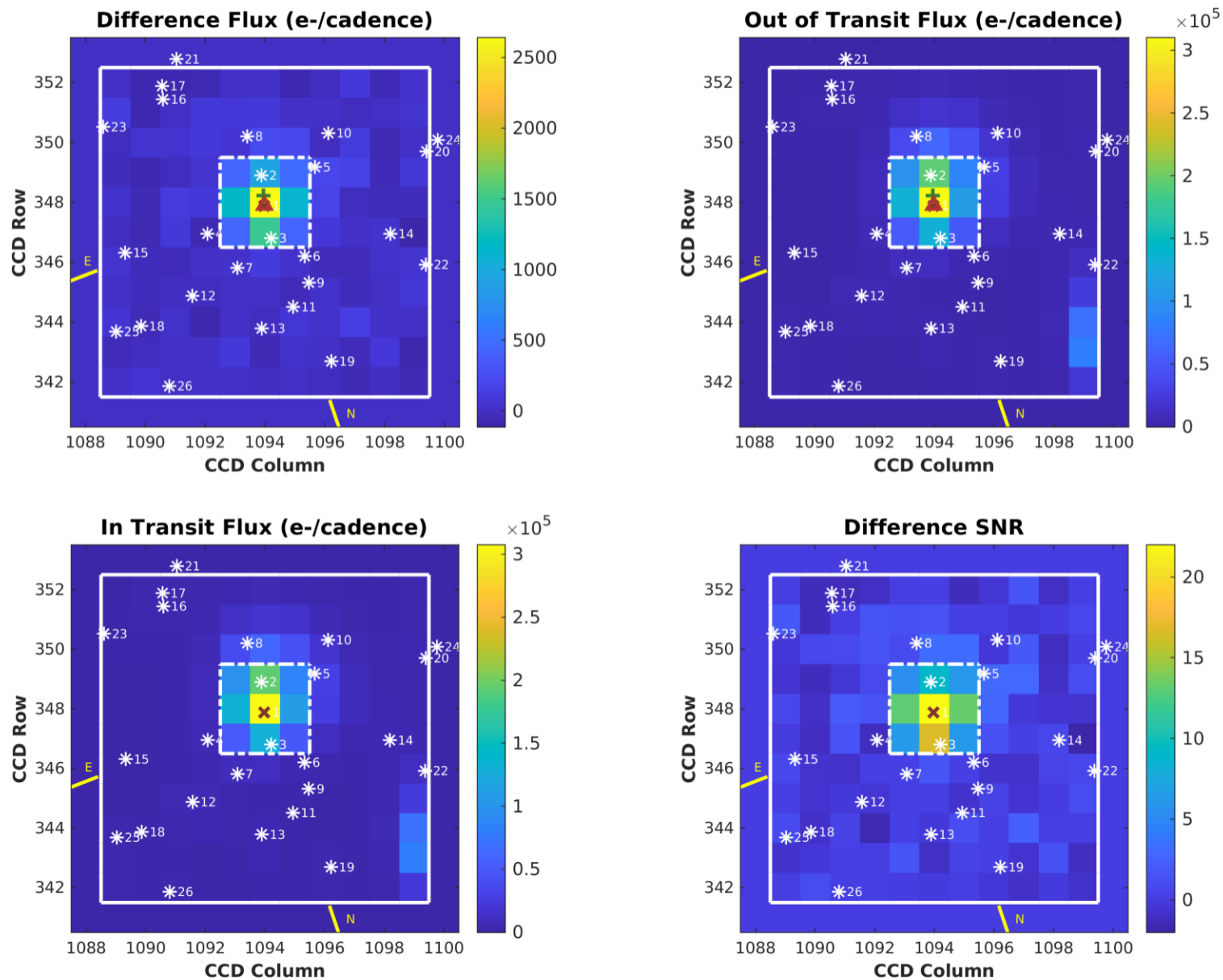
DV Fit Results:
 Period = 7.18580 [0.00002] d
 Epoch = 2527.4319 [0.0006] BTJD
 Rp/R* = 0.0991 [0.0018]
 a/R* = 13.34 [1.14]
 b = 0.36 [0.21]
 Seff = 256.08 [41.11]
 Teq = 1020 [41] K
 Rp = 12.85 [0.74] Re
 a = 0.0736 [0.0053] AU
 Rho = 0.618 [0.158]
 Ag = 7.16 [3.22] [1.91 sigma]
 Tp = 2580 [284] K [5.43 sigma]

DV Diagnostic Results:
 ShortPeriod-sig: N/A
 LongPeriod-sig: N/A
 ModelChiSquare2-sig: 64.5%
 ModelChiSquareGof-sig: 100.0%
 Bootstrap-pfa: 0.00e+00
 GhostDiagnostic-chr: 2.832
 OotOffset-rm: 6.515 arcsec [2.59 sigma]
 TicOffset-rm: 0.477 arcsec [0.19 sigma]
 OotOffset-tot: 3
 TicOffset-tot: 3
 DiffImageQuality-fgm: 1.00 [3/3]
 DiffImageOverlap-fno: 1.00 [3/3]

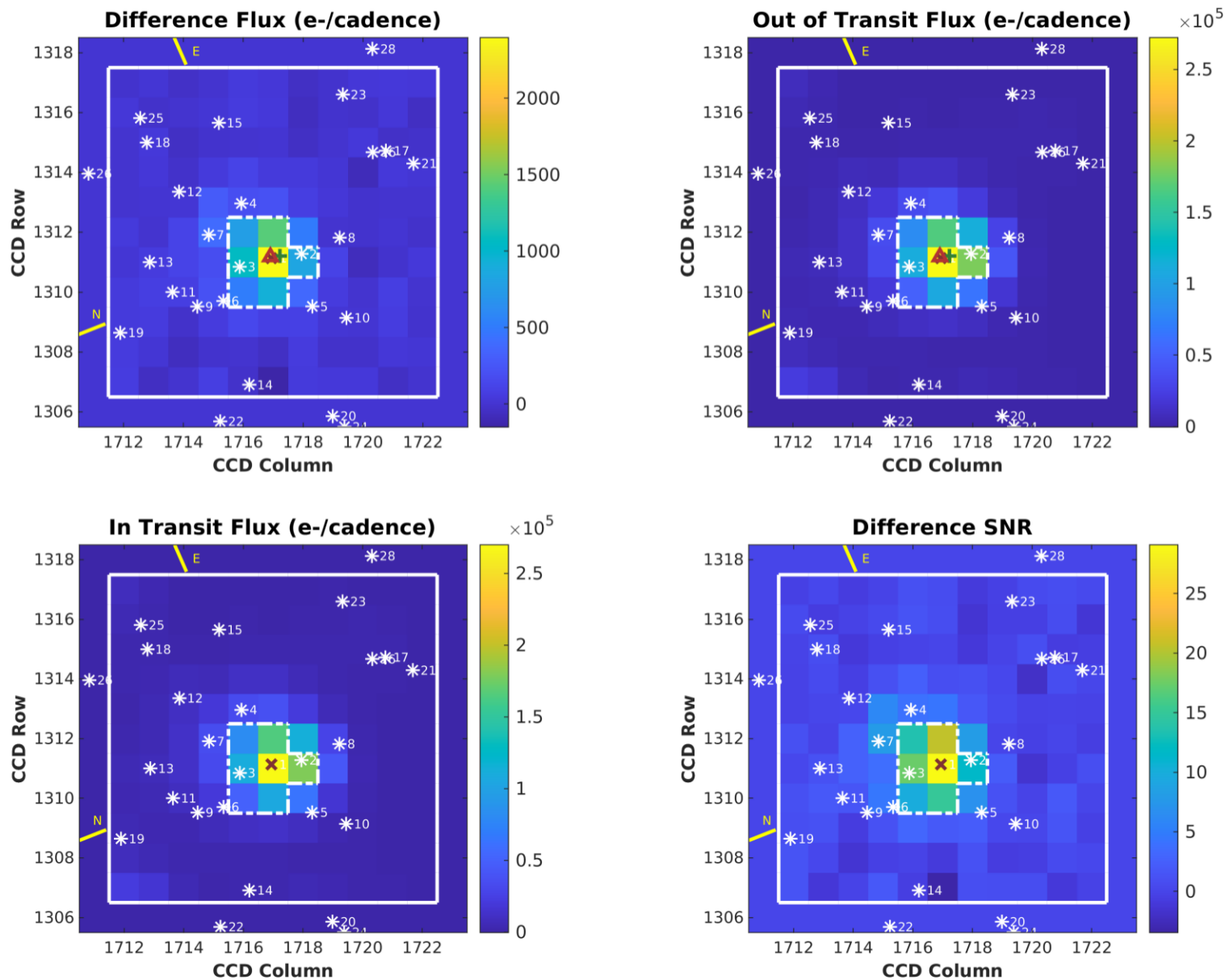
Software Revision: spoc-5.0.93-20230629 -- Cadence Type: TARGET (10.0-min) -- Date Generated: 11-Jul-2023 23:01:38 Z

This Data Validation Report Summary was produced in the TESS Science Processing Operations Center Pipeline at NASA Ames Research Center

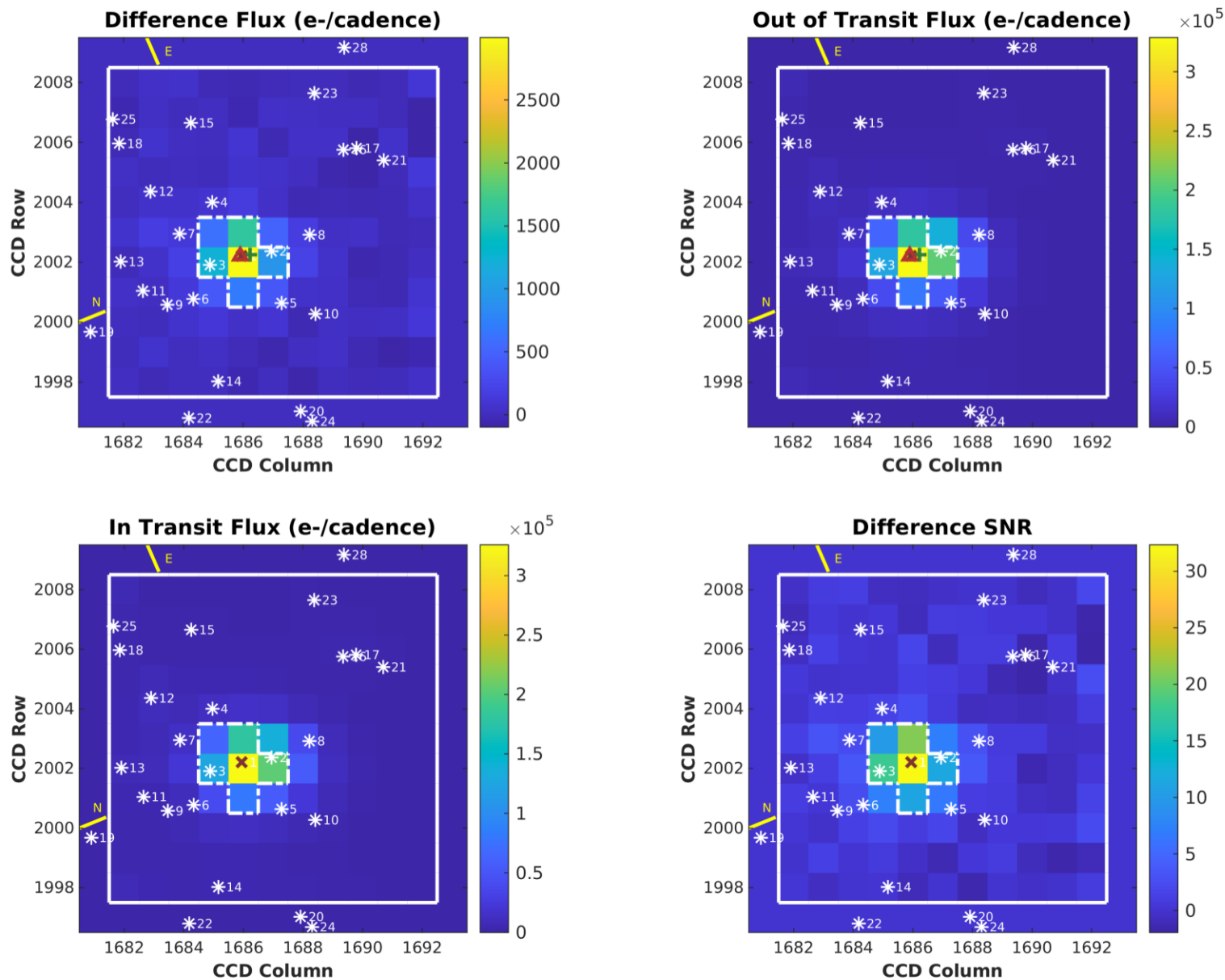
Planet Candidate 1 / Sector 62 / Target Pixel Table 390

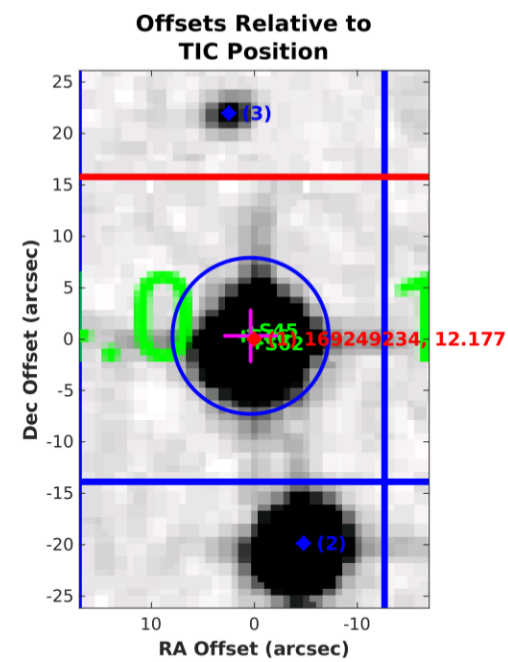
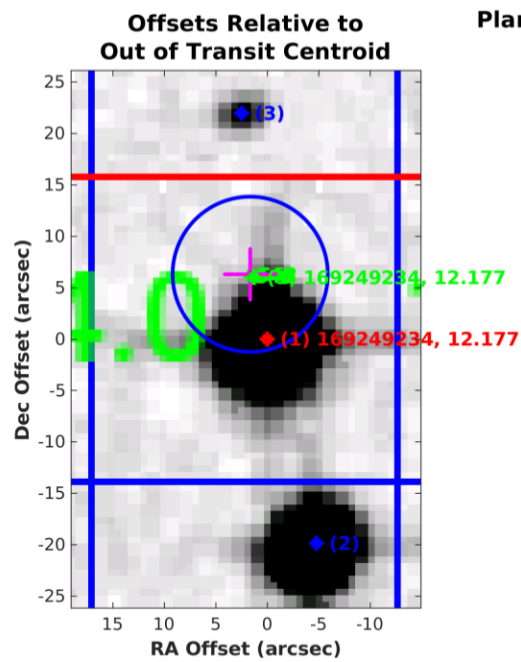
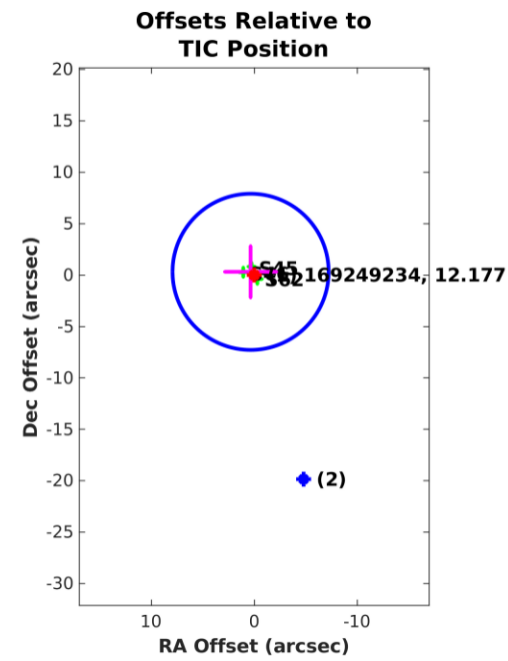
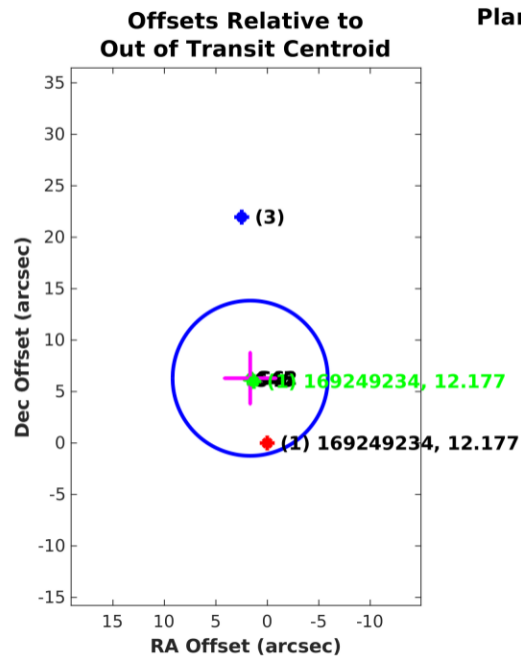


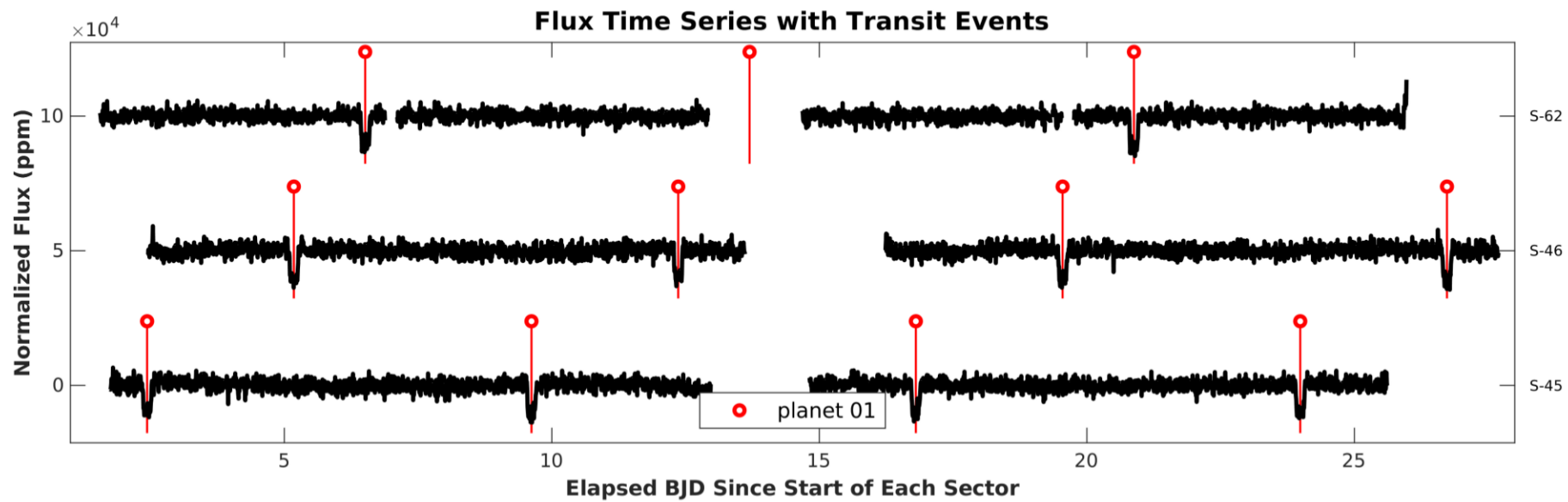
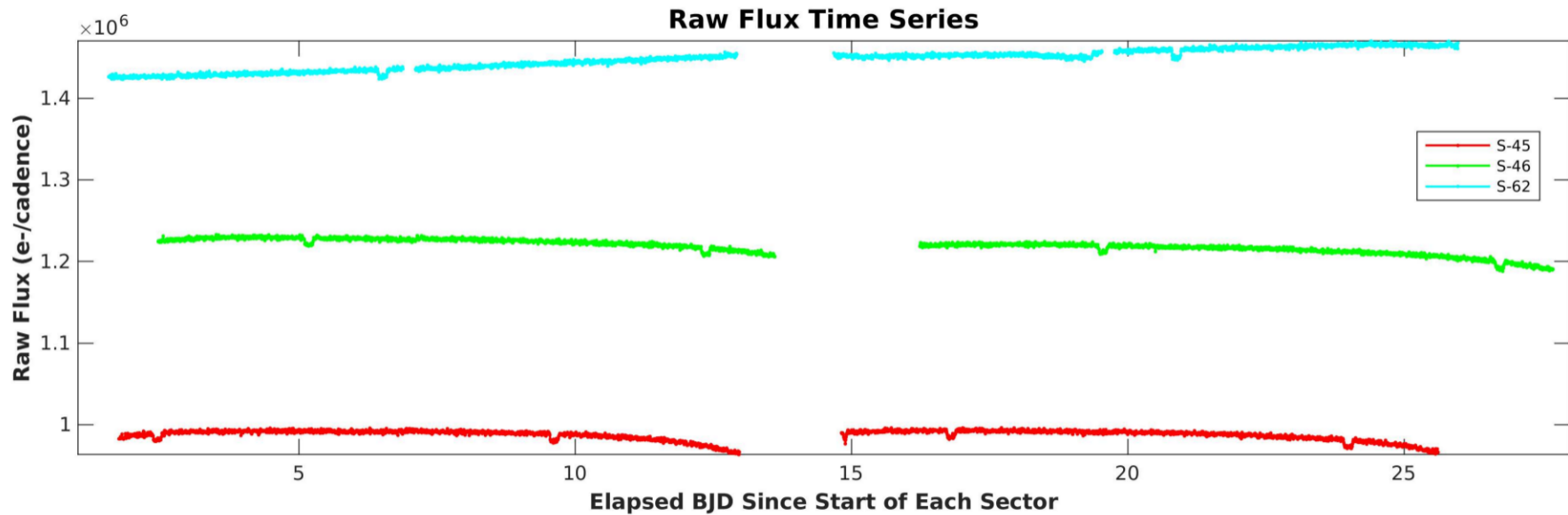
Planet Candidate 1 / Sector 46 / Target Pixel Table 336

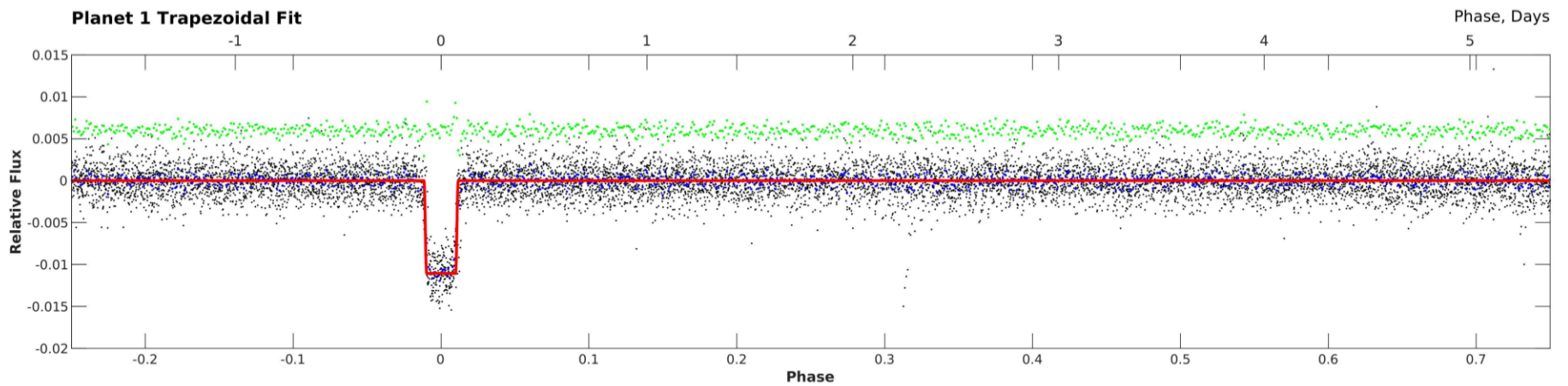
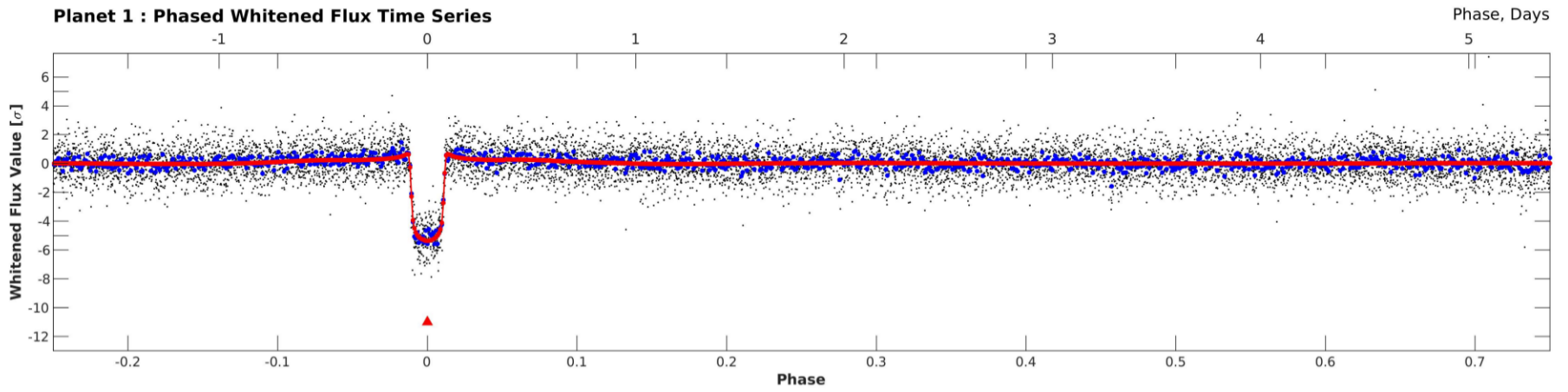
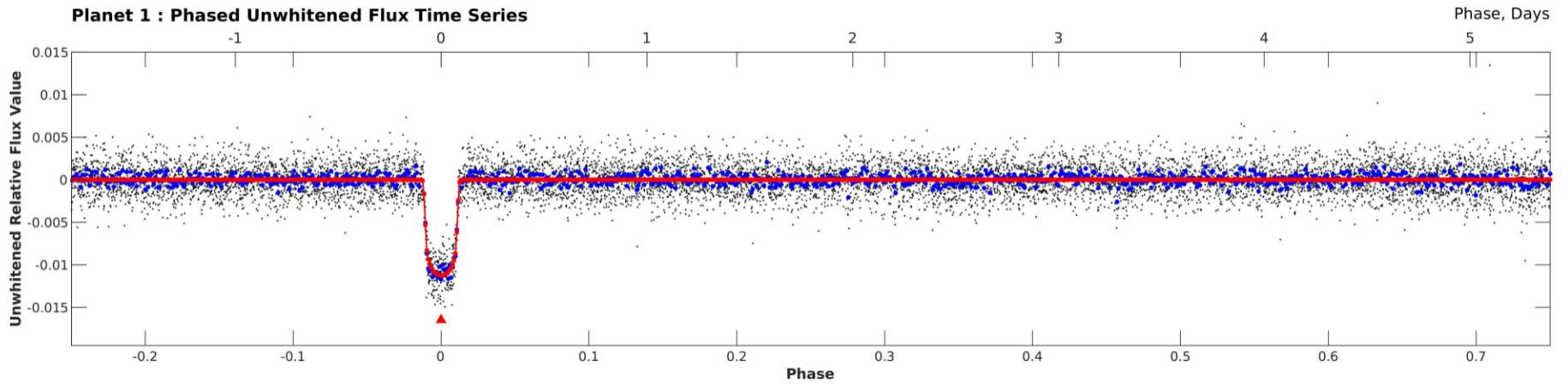


Planet Candidate 1 / Sector 45 / Target Pixel Table 332



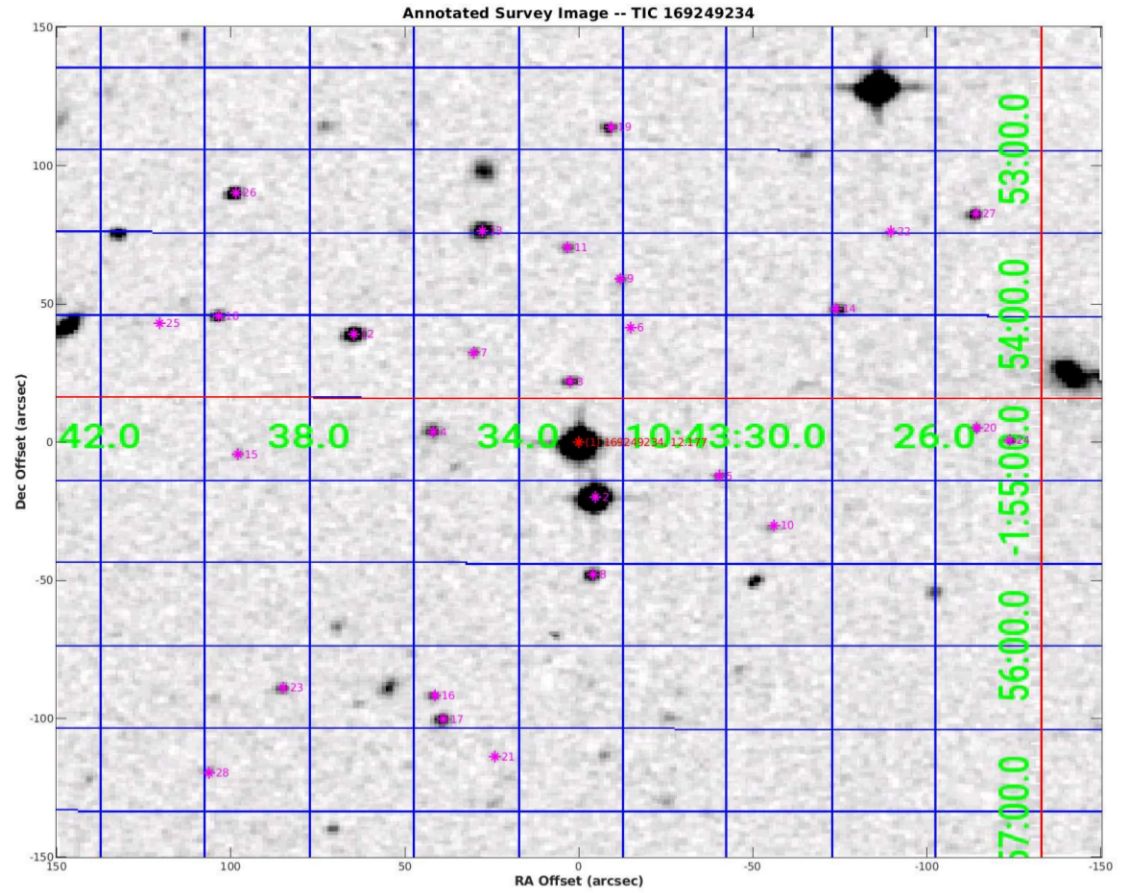




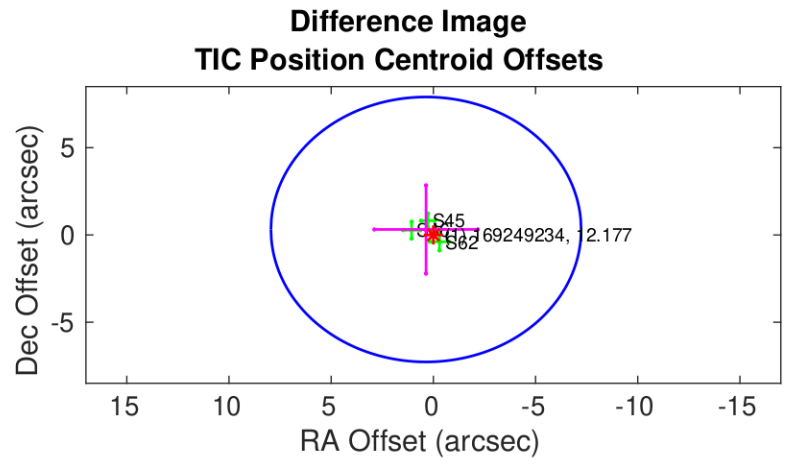
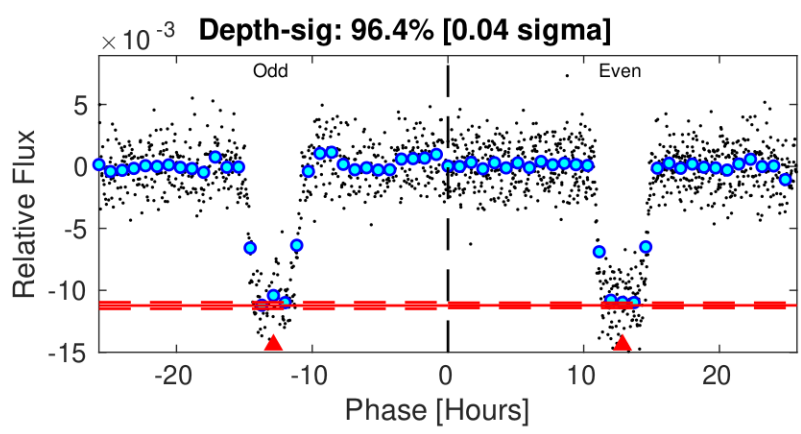
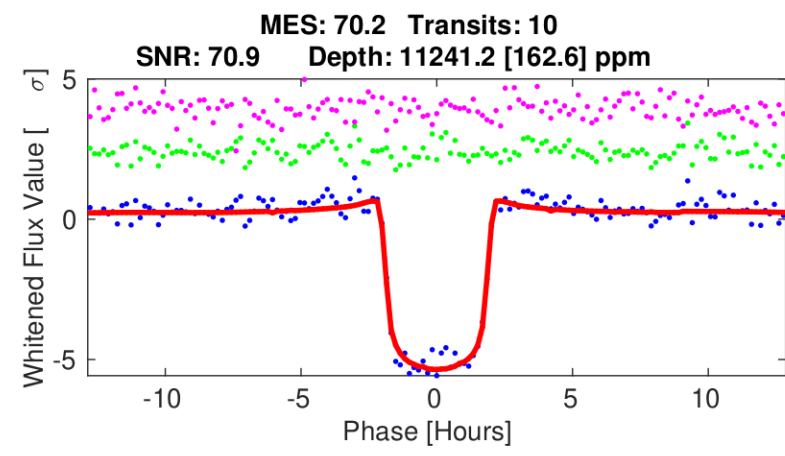
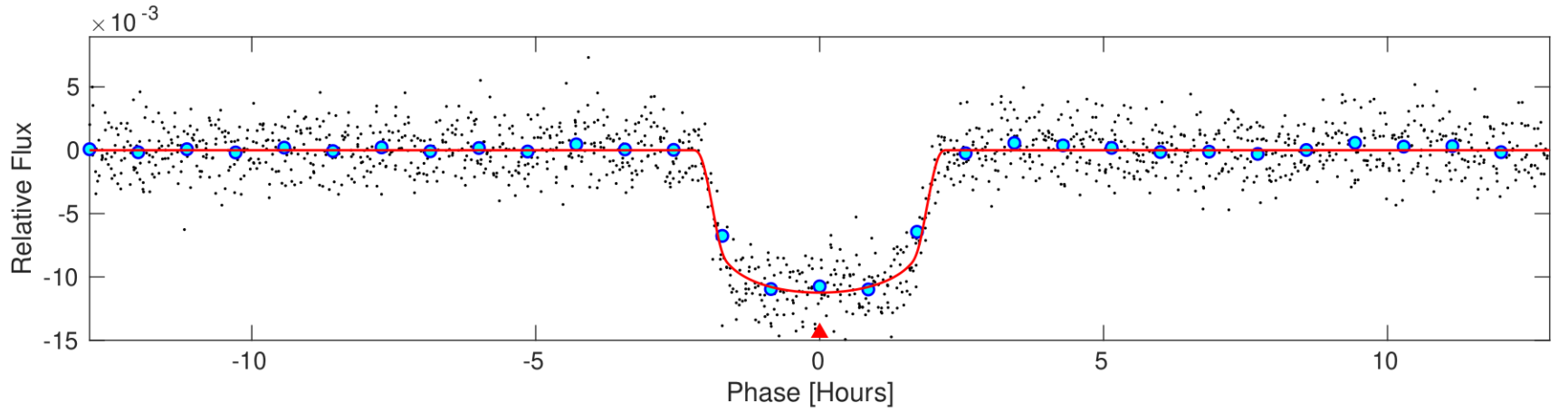
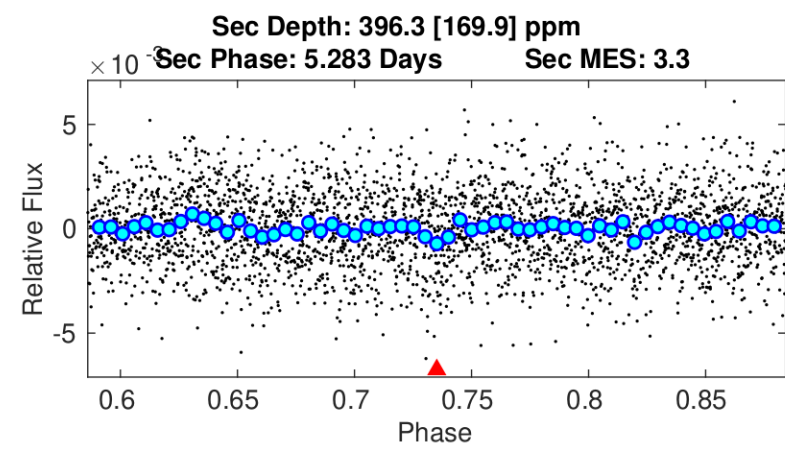
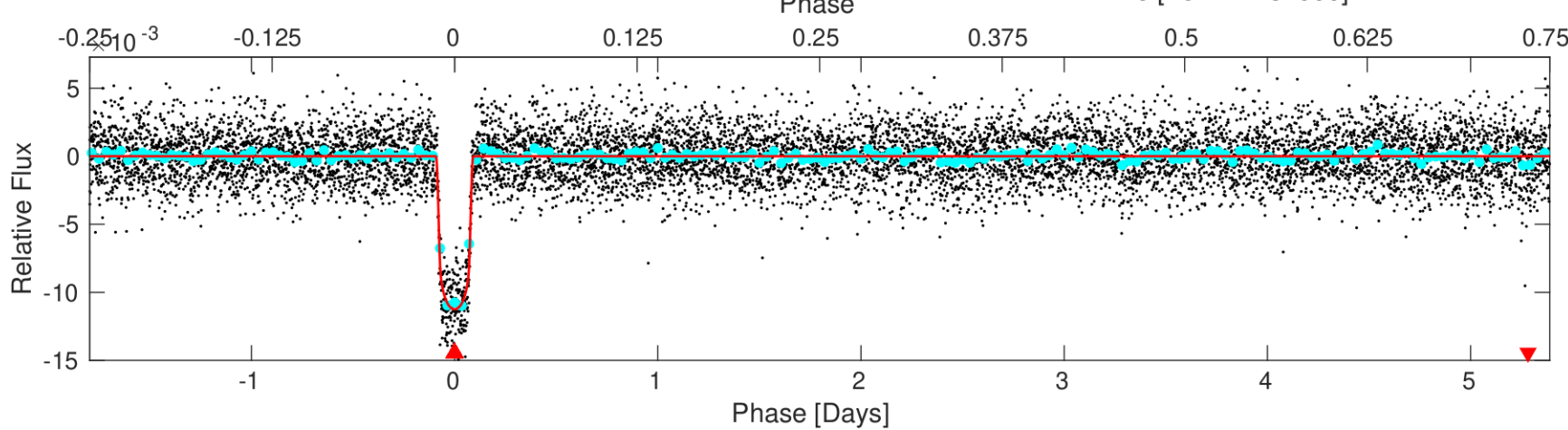
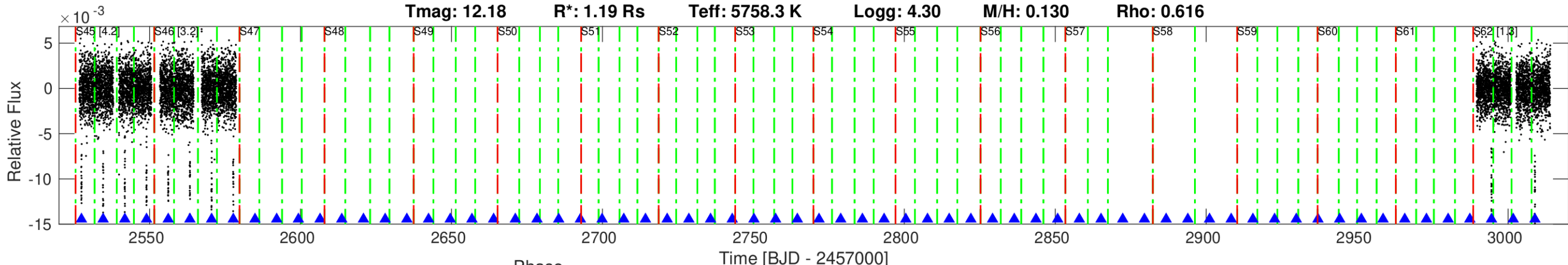


Stellar Distance Table

Index	TIC ID	TESS Mag	Distance (arcsec)
1	0000000169249234	12.18	0.00
2	0000000169249237	12.99	20.41
3	0000000902975470	18.23	22.10
4	0000000169249233	17.79	41.96
5	0000000902975469	19.17	42.22
6	0000000903007151	20.58	44.02
7	0000000902975477	19.40	44.25
8	0000000169249240	17.57	48.05
9	0000000903007152	19.60	60.25
10	0000000169249238	18.94	63.72
11	0000000903007153	19.42	70.53
12	0000000169249229	16.15	75.51
13	0000000169249224	17.33	81.25
14	0000000169249226	18.41	88.22
15	0000000169249235	18.64	98.06
16	0000000902975467	19.33	100.51
17	0000000169249241	17.77	107.50
18	0000000902975475	17.86	113.04
19	0000000169249221	17.14	114.31
20	0000000903007144	18.91	114.46
21	0000000902975466	20.39	116.27
22	0000000903007145	20.67	117.69
23	0000000902975464	18.30	122.93
24	0000000903007143	19.02	123.88
25	0000000169249227	16.75	127.88
26	0000000169249222	17.23	133.52
27	0000000169249223	16.83	140.94
28	0000000902975465	20.22	160.00



Distances are corrected for proper motion. This table may not contain all of the objects shown.

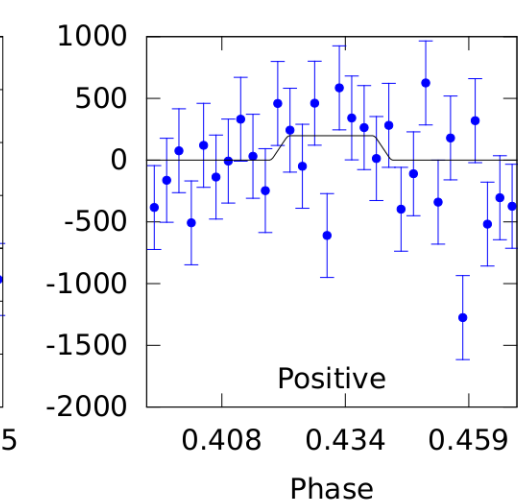
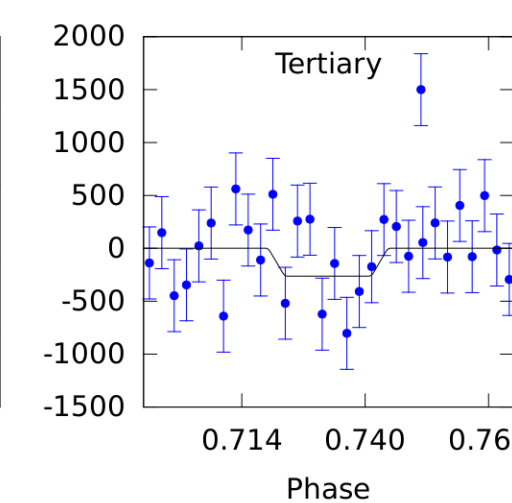
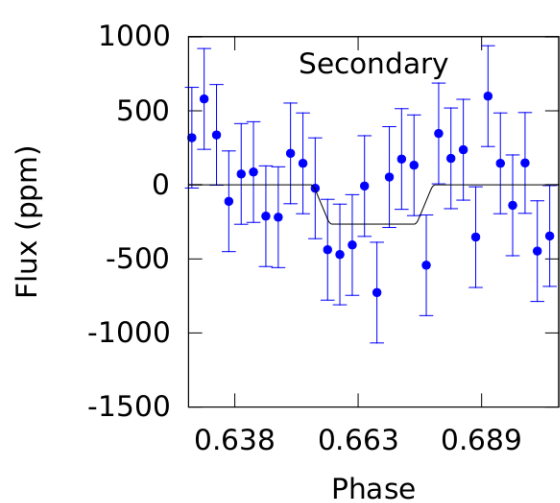
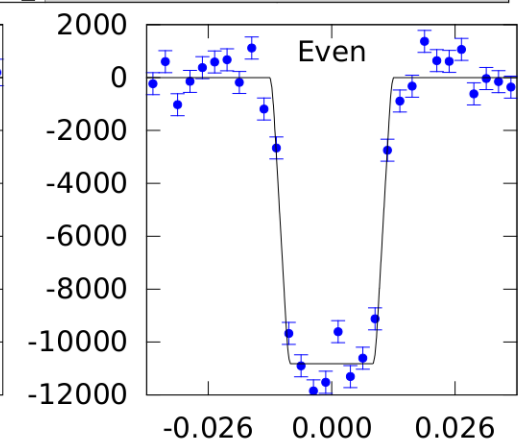
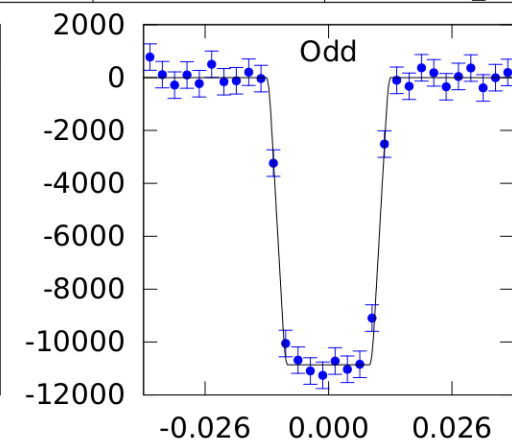
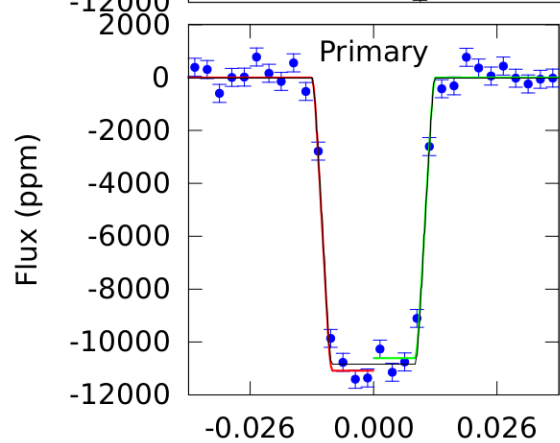
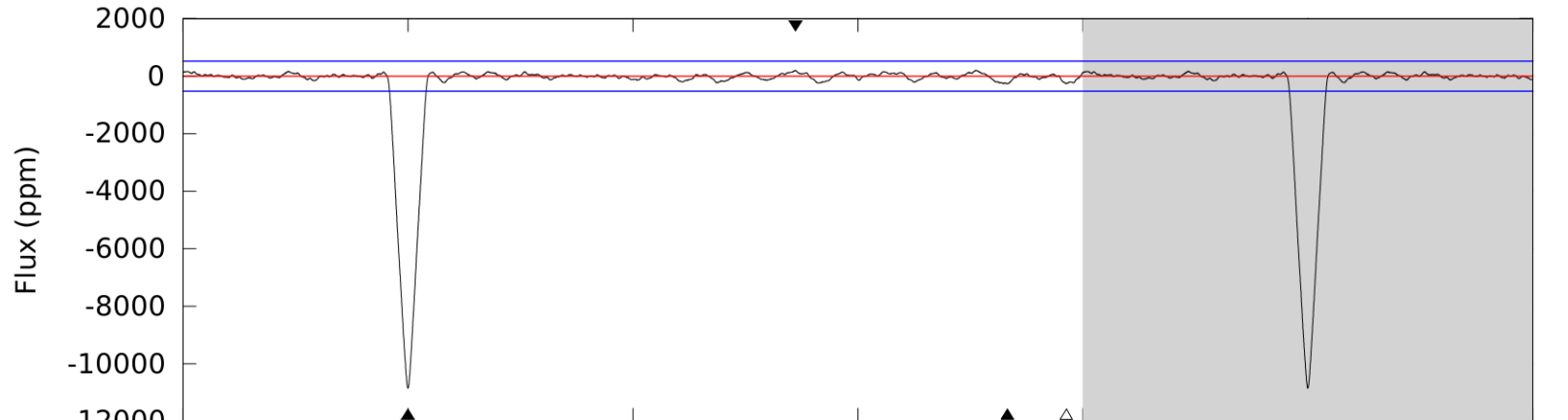
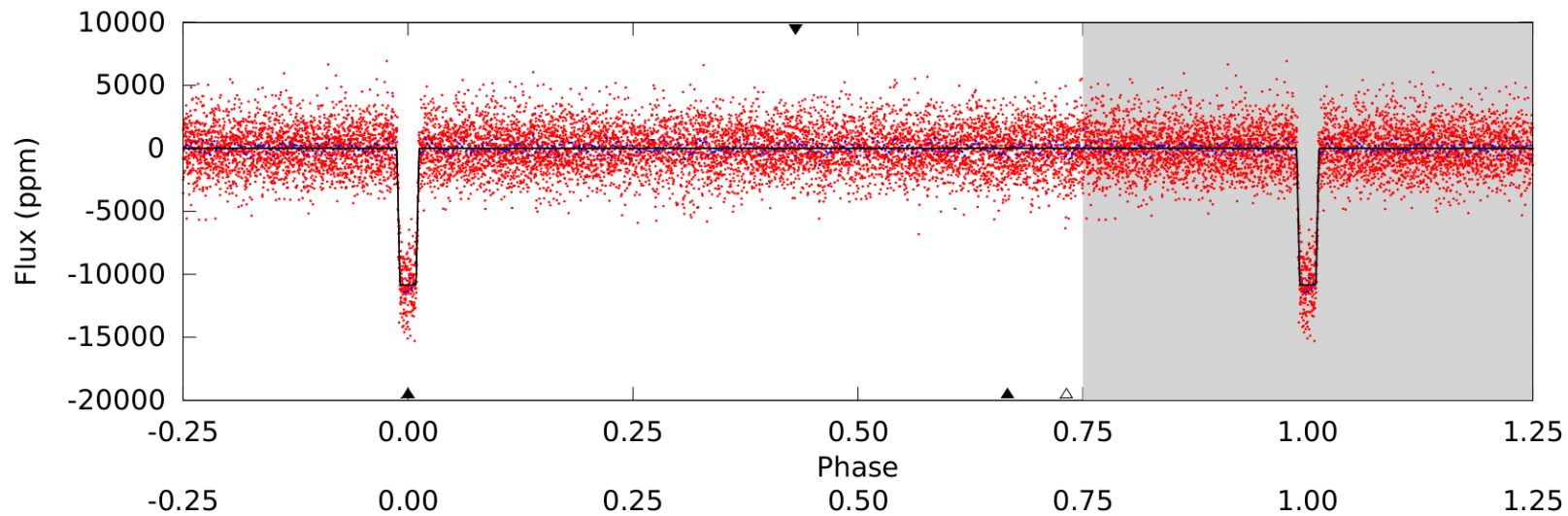


DV Fit Results:
 Period = 7.18580 [0.00002] d
 Epoch = 2527.4319 [0.0006] BTJD
 Rp/R* = 0.0991 [0.0018]
 a/R* = 13.34 [1.14]
 b = 0.36 [0.21]
 Seff = 256.08 [41.11]
 Teq = 1020 [41] K
 Rp = 12.85 [0.74] Re
 a = 0.0736 [0.0053] AU
 Rho = 0.618 [0.158]
 Ag = 7.16 [3.22] [1.91 sigma]
 Tp = 2580 [284] K [5.43 sigma]

DV Diagnostic Results:
 ShortPeriod-sig: N/A
 LongPeriod-sig: N/A
 ModelChiSquare2-sig: 64.5%
 ModelChiSquareGof-sig: 100.0%
 Bootstrap-pfa: 0.00e+00
 GhostDiagnostic-chr: 2.832
 OotOffset-rm: 6.515 arcsec [2.59 sigma]
 TicOffset-rm: 0.477 arcsec [0.19 sigma]
 OotOffset-tot: 3
 TicOffset-tot: 3
 DiffImageQuality-fgm: 1.00 [3/3]
 DiffImageOverlap-fno: 1.00 [3/3]

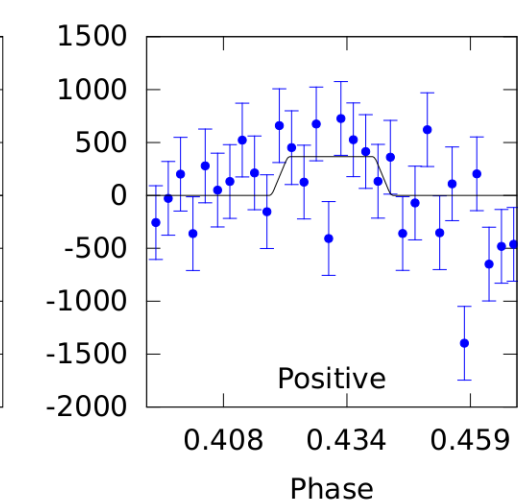
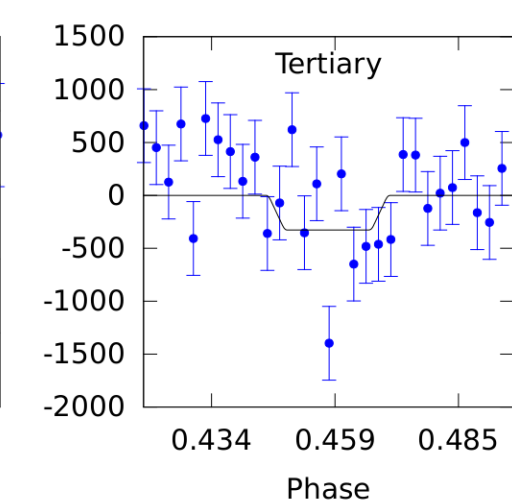
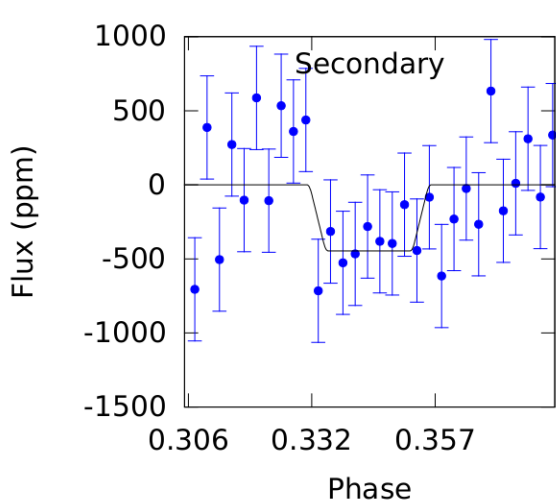
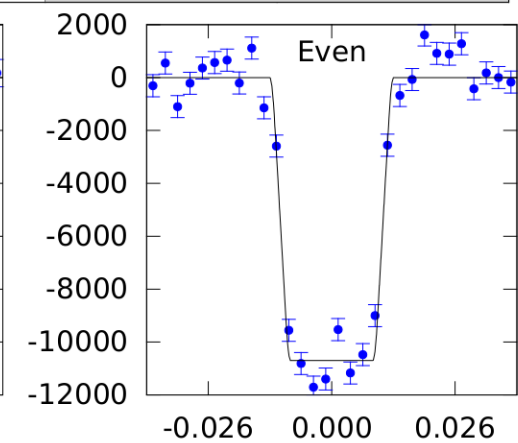
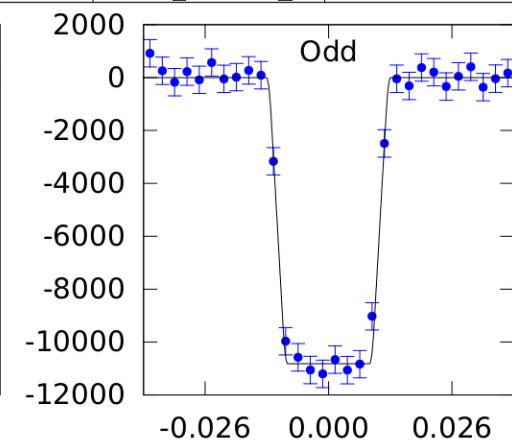
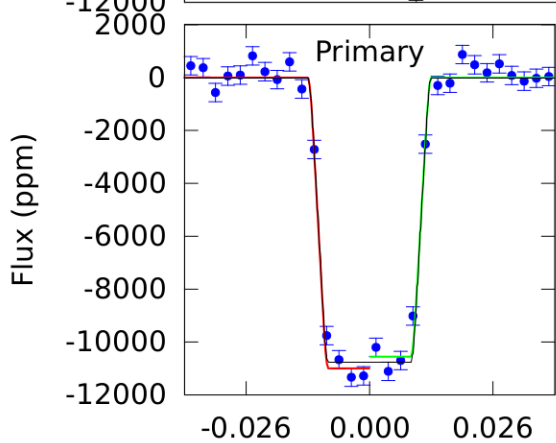
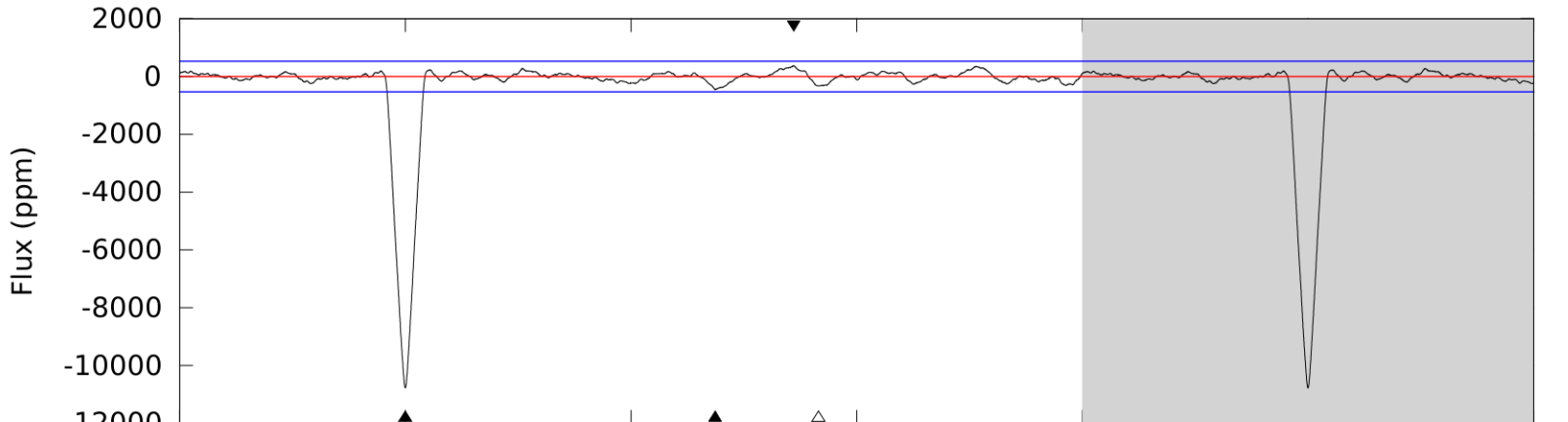
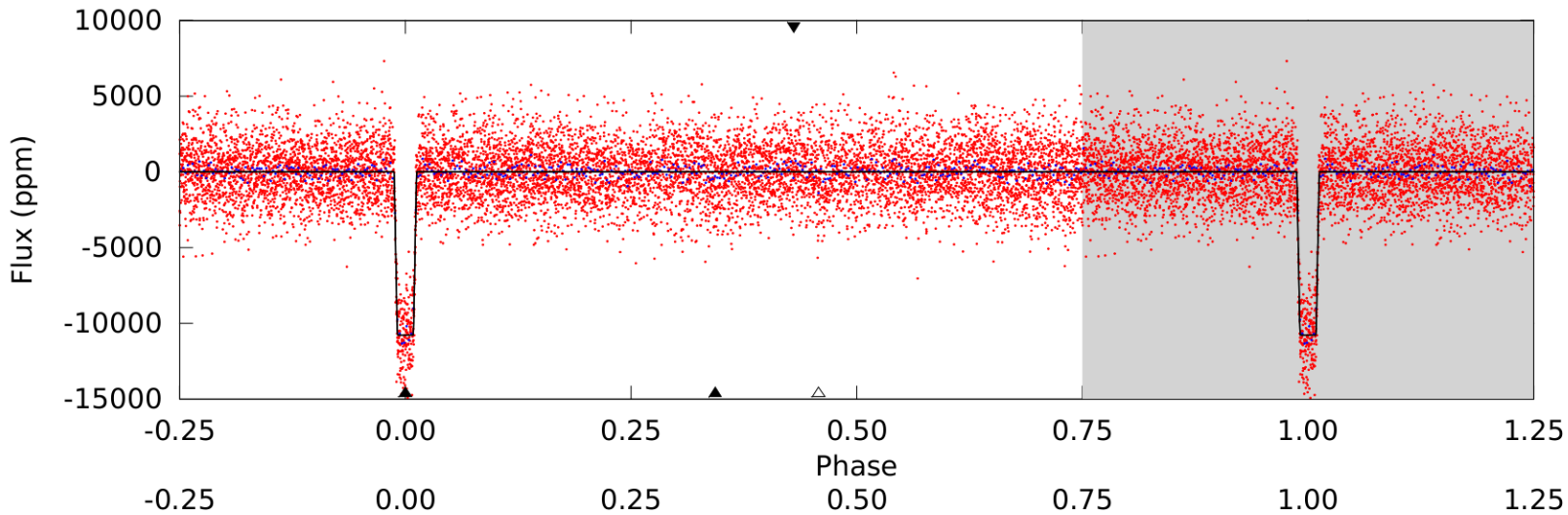
Tier 1 0000000169249234₀1, P = 7.185800 Days, E = 2520.246022 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
100.5	2.46	2.43	1.84	4.84	2.23	0.84	98.1	98.7	0.03	0.62	0.19	0.98	0.02	2.20

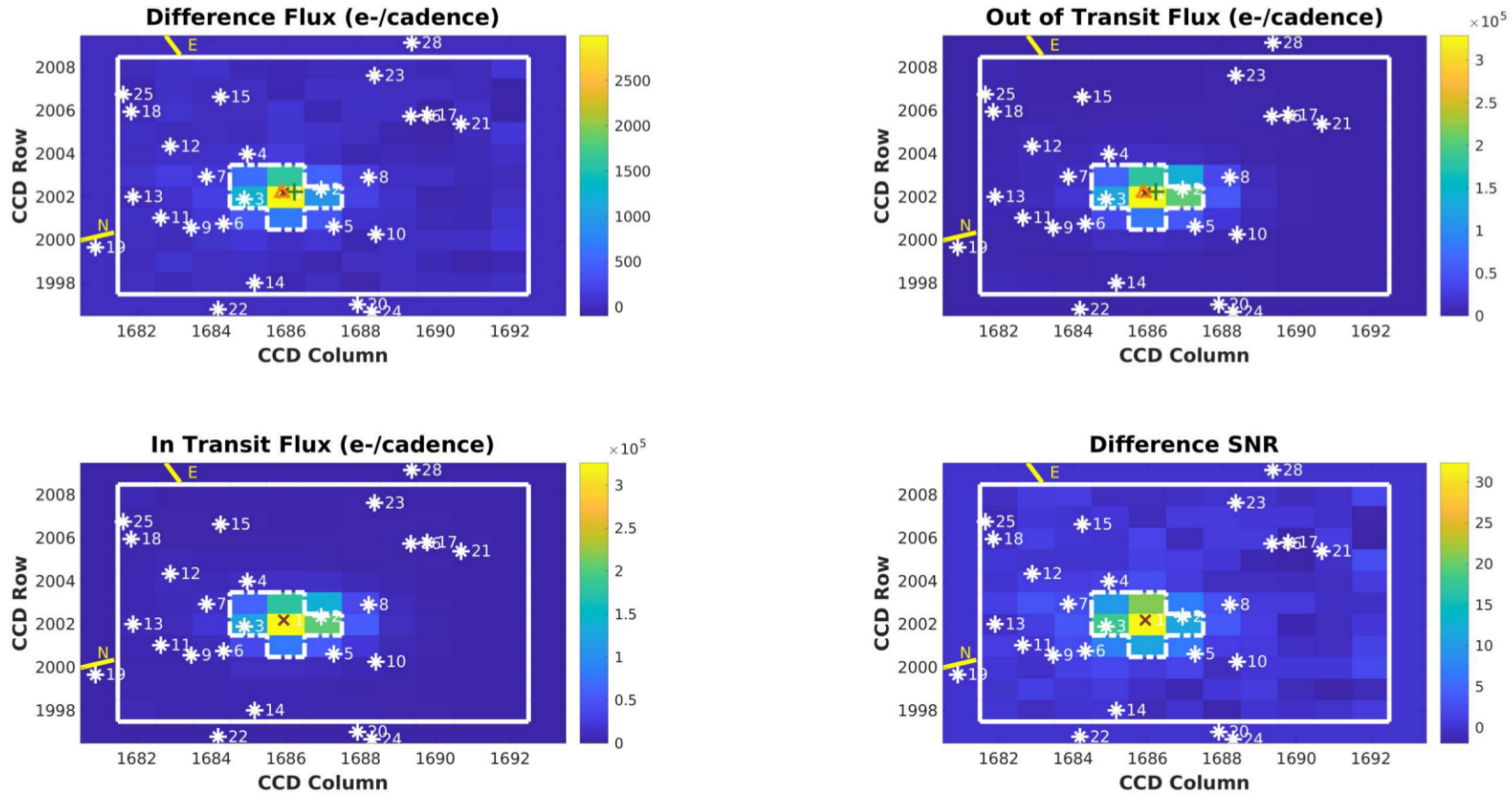


Tier 1 0000000169249234₀1, P = 7.185800 Days, E = 2520.246022 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.6	4.08	2.99	3.36	4.84	2.23	1.22	95.7	95.3	1.09	0.73	0.53	1.00	0.03	2.03



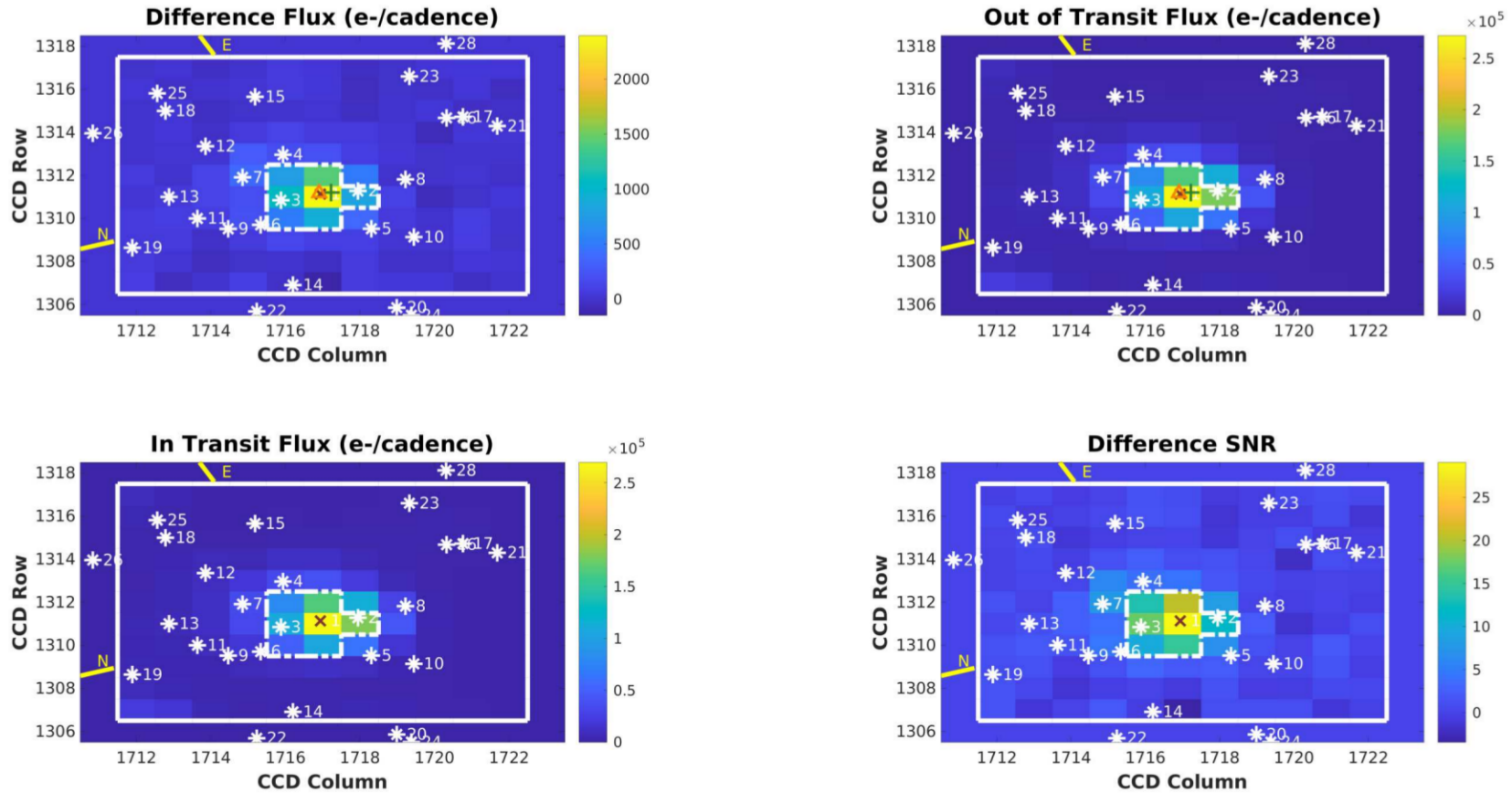
Difference Image
Planet Candidate 1 / Sector 45 / Target Pixel Table 332



Difference image for target 169249234, planet candidate 1, sector 45, target pixel table 332. Upper left: difference between mean flux out-of-transit and in-transit; upper right: mean out-of-transit flux; lower left: mean in-transit flux; lower right: difference between mean flux out-of-transit and in-transit after normalizing by the uncertainty in the difference for each pixel. The optimal aperture is outlined with a white dash-dotted line in each panel and the target mask is outlined with a solid white line. Symbol key: x: target position from TIC RA and Dec converted to CCD coordinates via motion polynomials; *: position of nearby TIC objects converted to CCD coordinates via motion polynomials; +: PRF-fit location of target from out-of-transit image; triangle: PRF-fit location of transit source from the difference image. Number of transits = 4; number of valid in-transit cadences = 79; number of in-transit cadence gaps = 1; number of valid out-of-transit cadences = 214; number of out-of-transit cadence gaps = 0. Difference image quality metric = 0.99 (good).

Open `./planet-01/difference-image/0000000169249234-01-difference-image-45-332.fig`

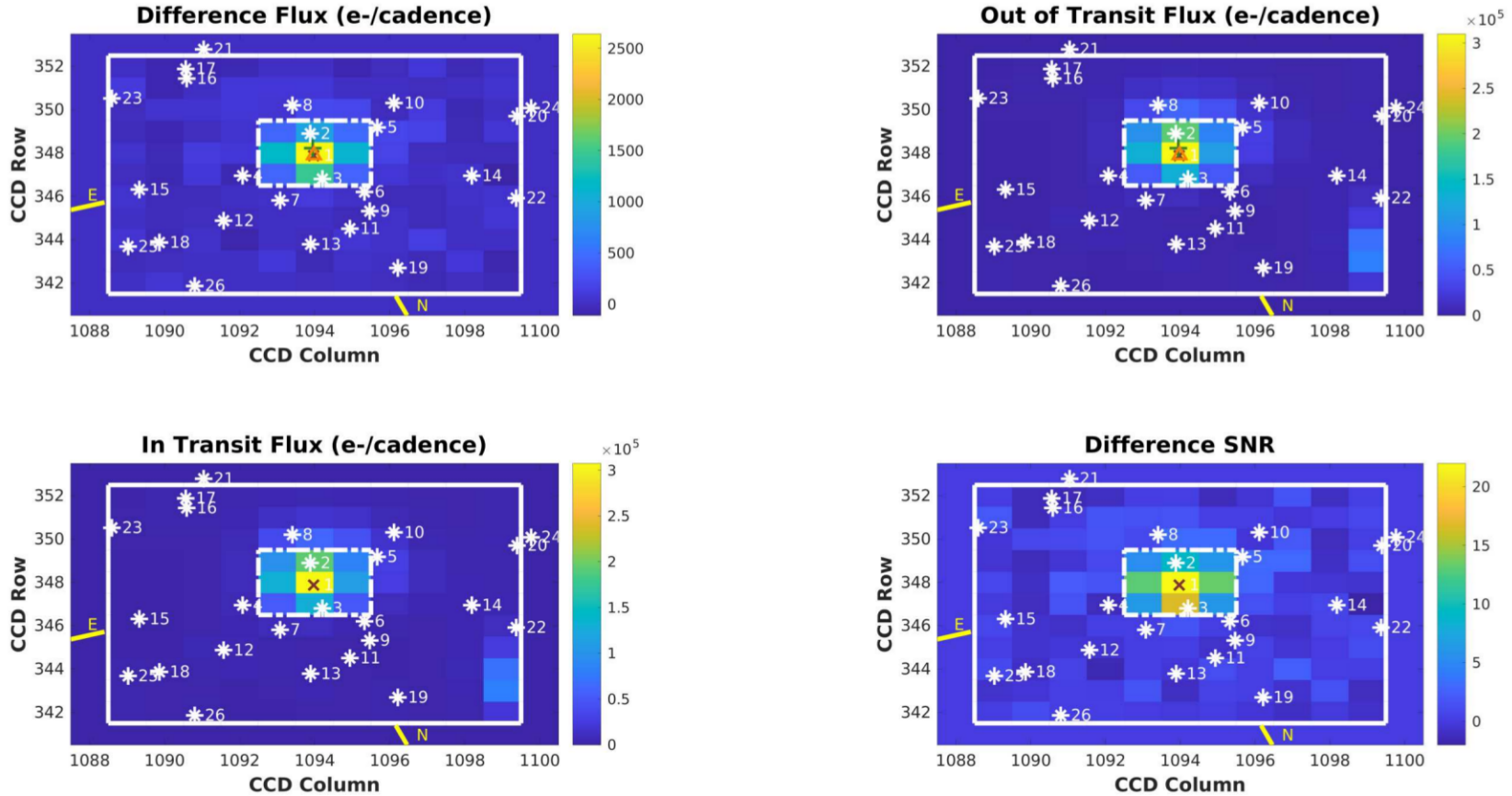
Difference Image
Planet Candidate 1 / Sector 46 / Target Pixel Table 336



Difference image for target 169249234, planet candidate 1, sector 46, target pixel table 336. Upper left: difference between mean flux out-of-transit and in-transit; upper right: mean out-of-transit flux; lower left: mean in-transit flux; lower right: difference between mean flux out-of-transit and in-transit after normalizing by the uncertainty in the difference for each pixel. The optimal aperture is outlined with a white dash-dotted line in each panel and the target mask is outlined with a solid white line. Symbol key: x: target position from TIC RA and Dec converted to CCD coordinates via motion polynomials; *: position of nearby TIC objects converted to CCD coordinates via motion polynomials; +: PRF-fit location of target from out-of-transit image; triangle: PRF-fit location of transit source from the difference image. Number of transits = 4; number of valid in-transit cadences = 80; number of in-transit cadence gaps = 0; number of valid out-of-transit cadences = 211; number of out-of-transit cadence gaps = 1. Difference image quality metric = 0.99 (good).

Open `./planet-01/difference-image/0000000169249234-01-difference-image-46-336.fig`

Difference Image
Planet Candidate 1 / Sector 62 / Target Pixel Table 390



Difference image for target 169249234, planet candidate 1, sector 62, target pixel table 390. Upper left: difference between mean flux out-of-transit and in-transit; upper right: mean out-of-transit flux; lower left: mean in-transit flux; lower right: difference between mean flux out-of-transit and in-transit after normalizing by the uncertainty in the difference for each pixel. The optimal aperture is outlined with a white dash-dotted line in each panel and the target mask is outlined with a solid white line. Symbol key: x: target position from TIC RA and Dec converted to CCD coordinates via motion polynomials; *: position of nearby TIC objects converted to CCD coordinates via motion polynomials; +: PRF-fit location of target from out-of-transit image; triangle: PRF-fit location of transit source from the difference image. Number of transits = 2; number of valid in-transit cadences = 39; number of in-transit cadence gaps = 1; number of valid out-of-transit cadences = 106; number of out-of-transit cadence gaps = 0. Difference image quality metric = 0.99 (good).

Open `./planet-01/difference-image/0000000169249234-01-difference-image-62-390.fig`

5 Pixel Level Diagnostics

To reduce clutter, the catalog IDs in the difference images have been replaced by indices representing distance from the target star. The mapping between the indices and the catalog IDs is found in a table at the end of this section.

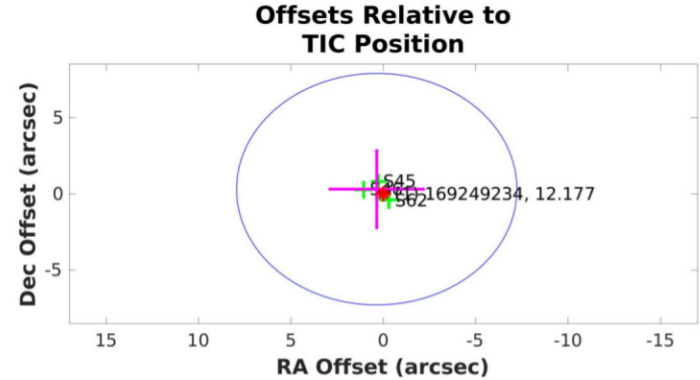
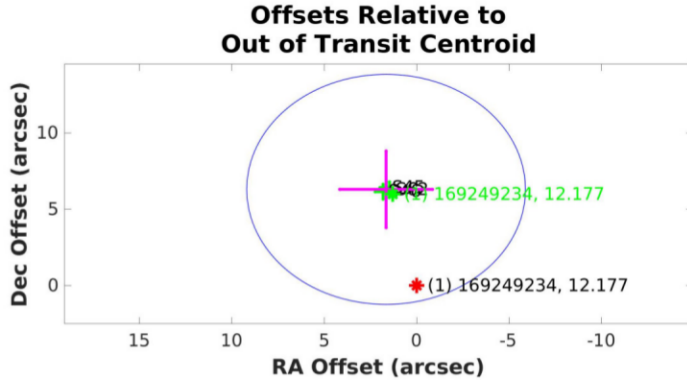
5.1 Planet Candidate 1

Multi-Sector Average PRF Fit of the Difference Images

Mean offset from the PRF fit to the out of transit image			
	RA	Dec	Units
Offset	$1.6546 \pm 2.51e + 00$	$6.3009 \pm 2.51e + 00$	arcseconds
Offset/ σ	0.66	2.51	
Offset Distance	$6.5146 \pm 2.51e + 00$		arcseconds
Offset Distance/ σ	2.59		
3σ Radius	7.5429		arcseconds

Mean offset from the TIC RA and Dec			
	RA	Dec	Units
Offset	$0.3587 \pm 2.53e + 00$	$0.3145 \pm 2.53e + 00$	arcseconds
Offset/ σ	0.14	0.12	
Offset Distance	$0.4770 \pm 2.53e + 00$		arcseconds
Offset Distance/ σ	0.19		
3σ Radius	7.5892		arcseconds

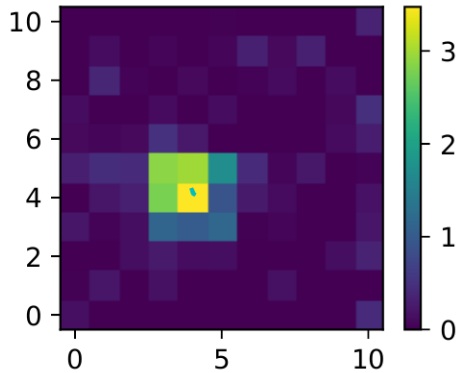
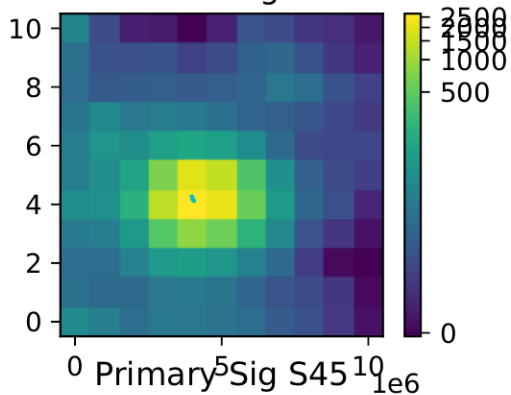
Planet Candidate 1



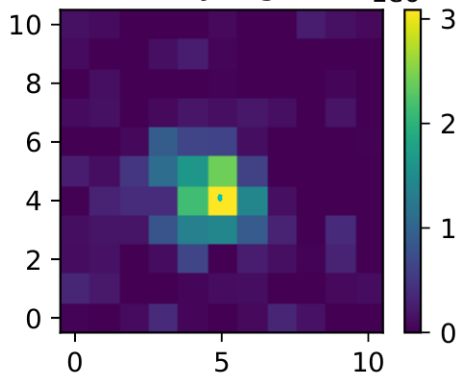
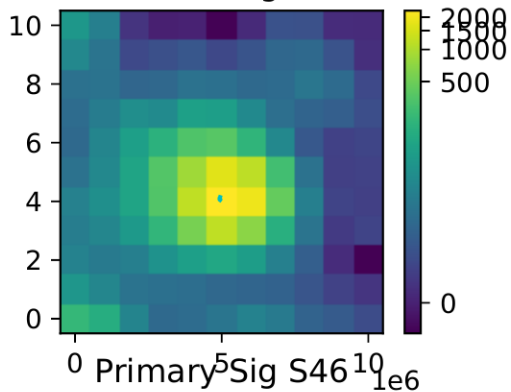
Difference image centroid offsets for target 169249234, planet candidate 1. Left: difference image PRF centroid offsets in RA and Dec with respect to the per sector out-of-transit centroids for the given target. Right: difference image PRF centroid offsets in RA and Dec with respect to the TC coordinates of the given target. Symbol key: green cross: per sector centroid offsets with 1-sigma error bars in RA and Dec; magenta cross: robust weighted mean offset over all sectors with 1-sigma error bars in RA and Dec; blue circle: 3-sigma radius of confusion for weighted mean offset; red asterisk: location of target star (out-of-transit centroid in left panel and TIC position in right panel); green asterisk: TIC location of target star with respect to out-of-transit centroid; blue asterisk: location of other TIC objects in the neighborhood. TIC ID and magnitude are noted in the text associated with each marked object. A constant error term of 2.5000 arcseconds has been added in quadrature to the computed uncertainty in the RA and Dec components of the robust mean offset.

Open `./planet-01/difference-image/0000000169249234-01-difference-image-centroid-offsets.fig`

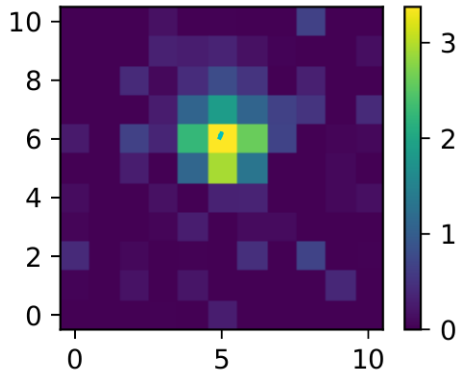
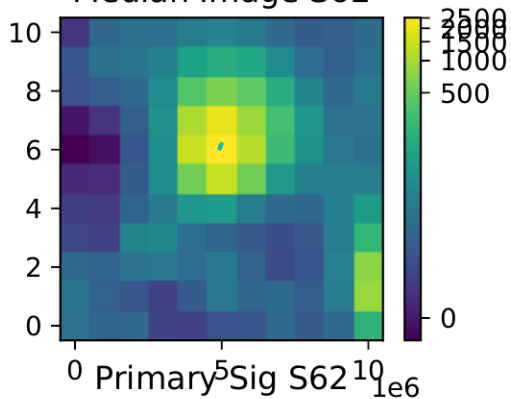
Median Image S45



Median Image S46



Median Image S62



Using TIC: 169249234

Tier 1

Using TIC catalog position 160.886801 -1.912719 [J2000.0; epoch 2000.0]

Predicted GAIA position 160.886843 -1.912698 [J2000.0; epoch 2015.5]

2MASS J10433283-0154457 From TIC

6 TIC entries within 60.0 arcsec of target 169249234

169249237 Sep [arcsec]: 20.211 Tmag: 12.99 Teff: 6174.0 Logg: 4.10 Rs[Rsun]: 1.61
902975470 Sep [arcsec]: 22.336 Tmag: 18.23 Teff: 5024.0 Logg: 4.85 Rs[Rsun]: 0.57
902975469 Sep [arcsec]: 41.999 Tmag: 19.17 Teff: 0.0 Logg: 0.00 Rs[Rsun]: 0.00
169249233 Sep [arcsec]: 42.196 Tmag: 17.79 Teff: 0.0 Logg: 0.00 Rs[Rsun]: 0.00
902975477 Sep [arcsec]: 44.568 Tmag: 19.40 Teff: 0.0 Logg: 0.00 Rs[Rsun]: 0.00
169249240 Sep [arcsec]: 47.959 Tmag: 17.57 Teff: 4270.0 Logg: 4.68 Rs[Rsun]: 0.62

TIC Hosts TOIs

2524.01

Target Parameters

Catalog	Tmag/Rpmag	Teff	Logg	Rstar	Mstar
TIC	12.1772	5758.3±135.6	4.30±0.08	1.19± 0.1	1.03± 0.12
GAIA DR2	12.127	5704.7±202.4	...	1.18± 0.1	...

Other GAIA G: 12.62 Bp: 12.98 AbsG: 4.20 (Bp-Rp)o: 0.760 AstroGOF: 2.89 AstroExNoiSig: 0.00

Target Links

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NASA Ames SPOC DV Results Available at MAST

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Tier 1

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169249234 35 1 3 508.41 608.94

169249234 45 4 2 1686.23 2002.61

169249234 46 3 2 1716.99 1311.14

169249234 62 1 3 1095.08 348.05

169249234 72 4 2 1484.73 1327.43