

KIC 003851949

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
003851949-01	OBS	3808.01	54.771469	143.744091	7292.3	37.384	82.7	224.3	3.87	5145	34.72	86.27
003851949-02	OBS	No	54.771721	178.926016	1933.3	26.187	36.2	60.7	3.87	5145	17.77	86.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003851949-01	OBS	FP	0.01	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003851949-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

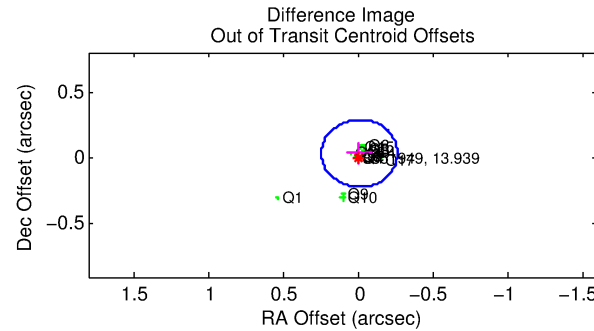
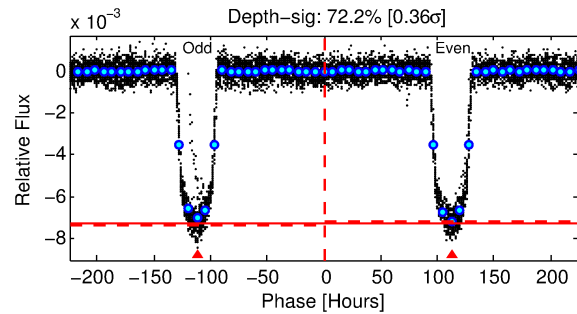
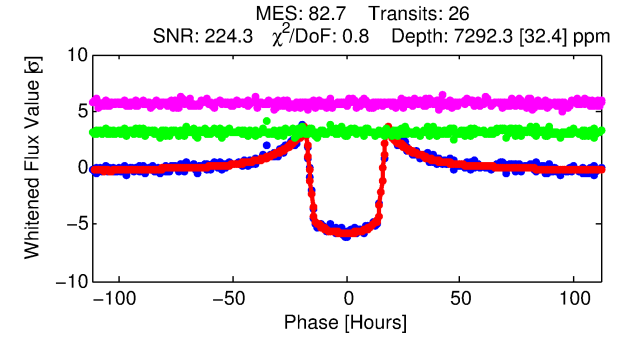
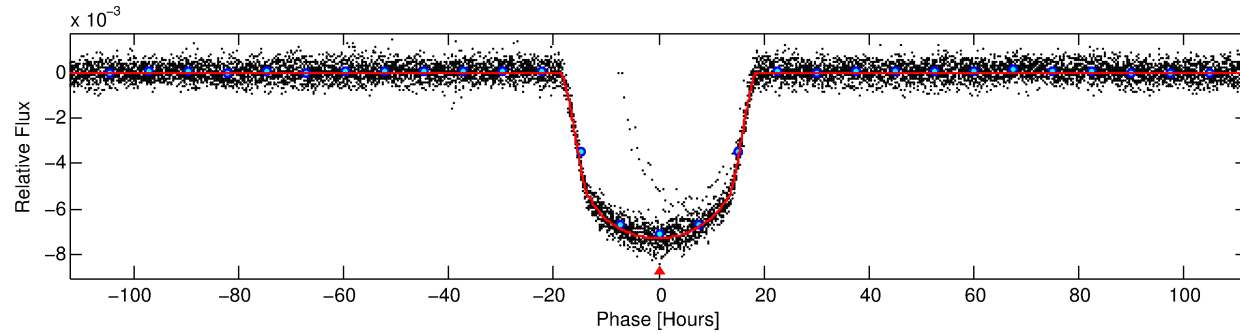
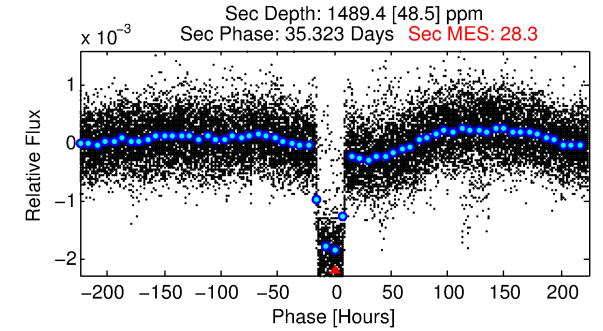
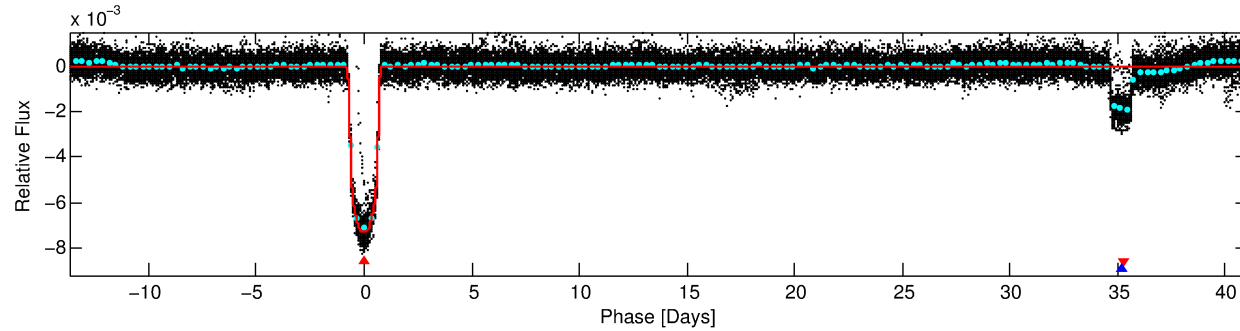
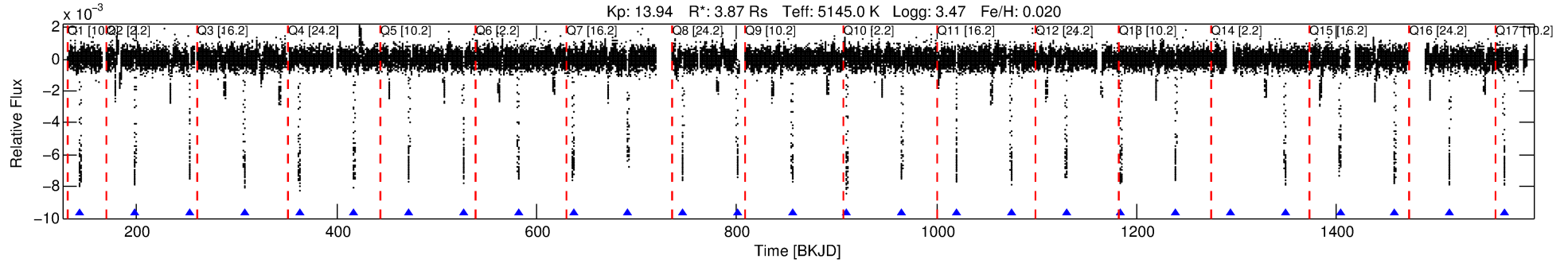
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003851949-01

No Significant Match Found

DV One-Page Summary

KIC: 3851949 Candidate: 1 of 2 Period: 54.771 d
KOI: K03808.01 Corr: 0.999



DV Fit Results:

Period = 54.77147 [0.00013] d
Epoch = 143.7441 [0.0019] BKJD
Rp/R* = 0.0823 [0.0003]
a/R* = 9.66 [0.09]
b = 0.66 [0.01]
Seff = 86.27 [89.41]
Teq = 777 [201] K
Rp = 34.72 [19.49] Re
a = 0.3298 [0.2002] AU
Ag = 73.93 [75.96] [0.96 σ]
Teffp = 3523 [126] K [11.56 σ]

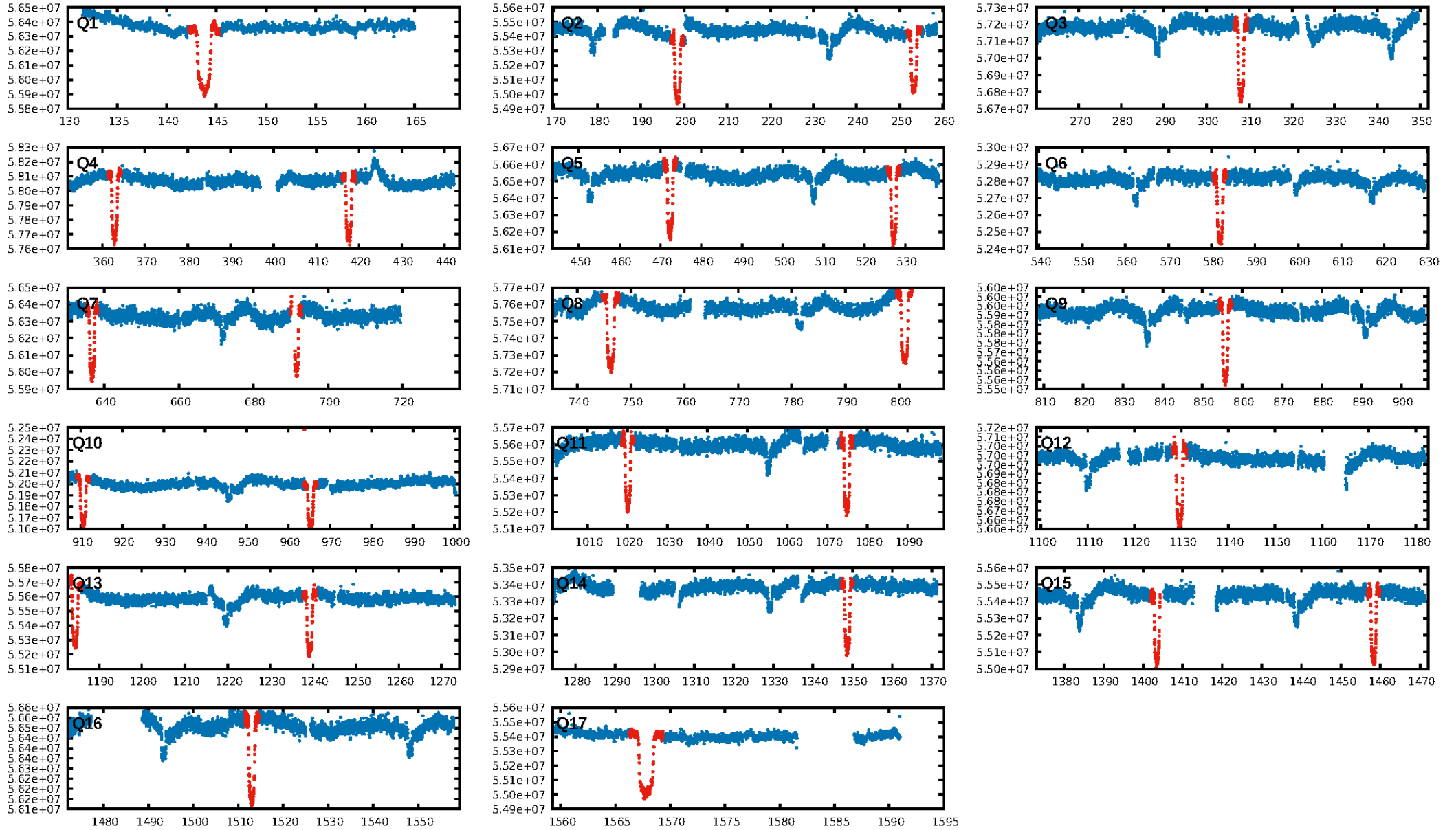
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 5.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 1.748
Centroid-sig: 87.8%
Centroid-so: 0.029 arcsec [1.77 σ]
OotOffset-rm: 0.037 arcsec [0.44 σ]
OotOffset-st: 3/3/3/4 [13]
KicOffset-rm: 0.070 arcsec [0.83 σ]
KicOffset-st: 3/3/3/4 [13]
DiffImageQuality-fgm: 1.00 [13/13]
DiffImageOverlap-fno: 1.00 [13/13]

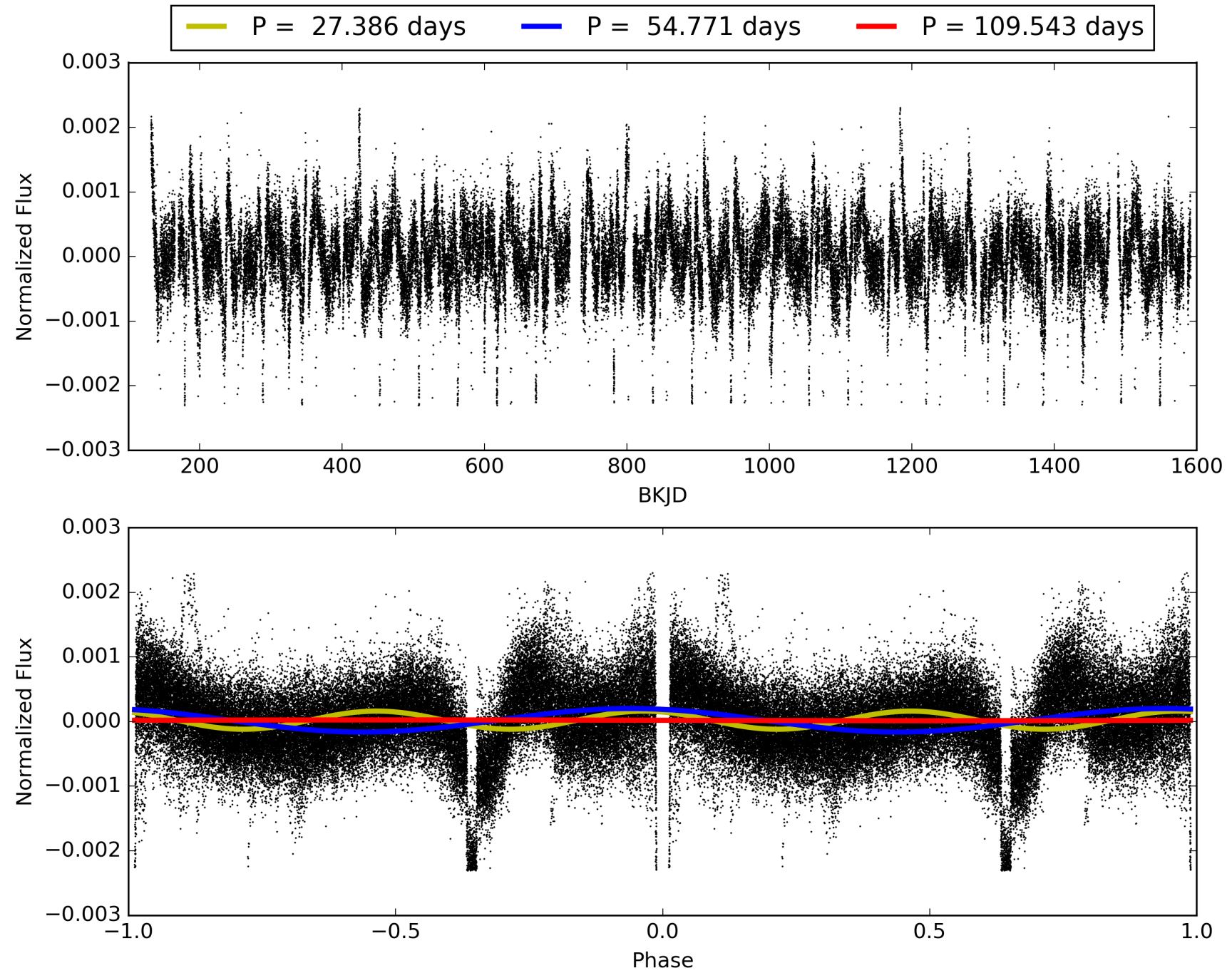
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:17:49 Z

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

TCE 003851949-01, PDC Light Curves

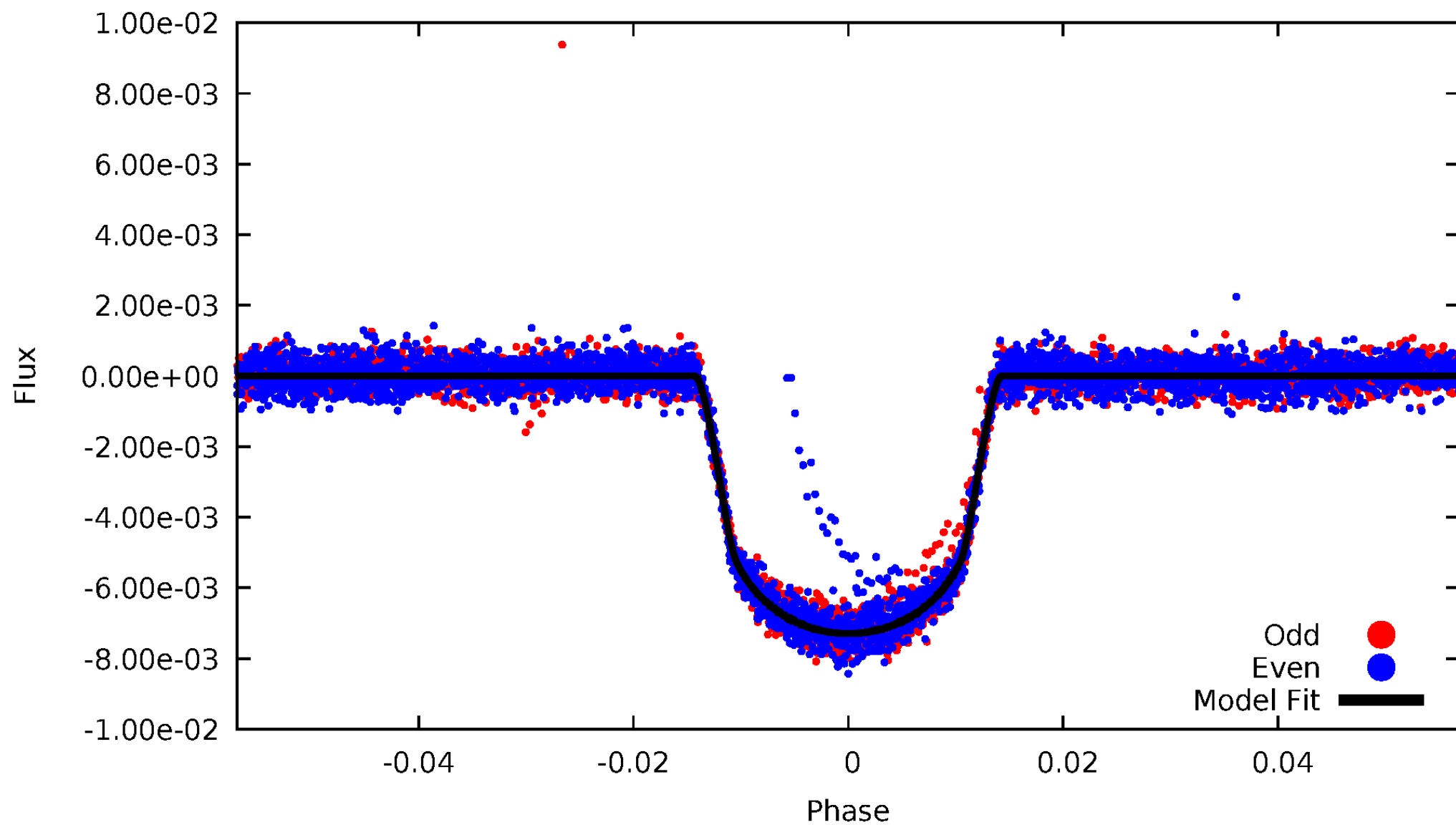


TCE 003851949-01



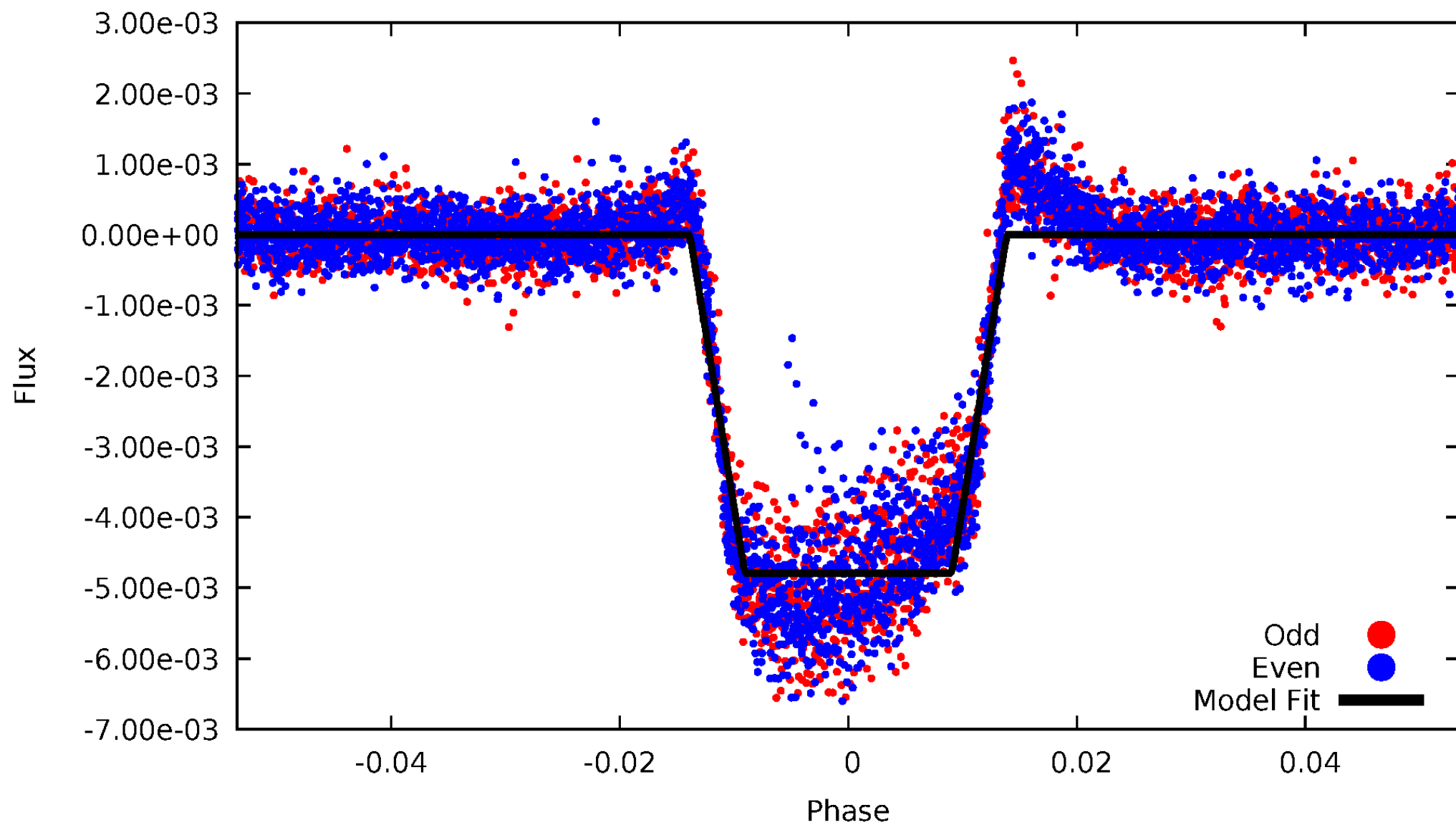
DV Odd/Even

TCE 003851949-01



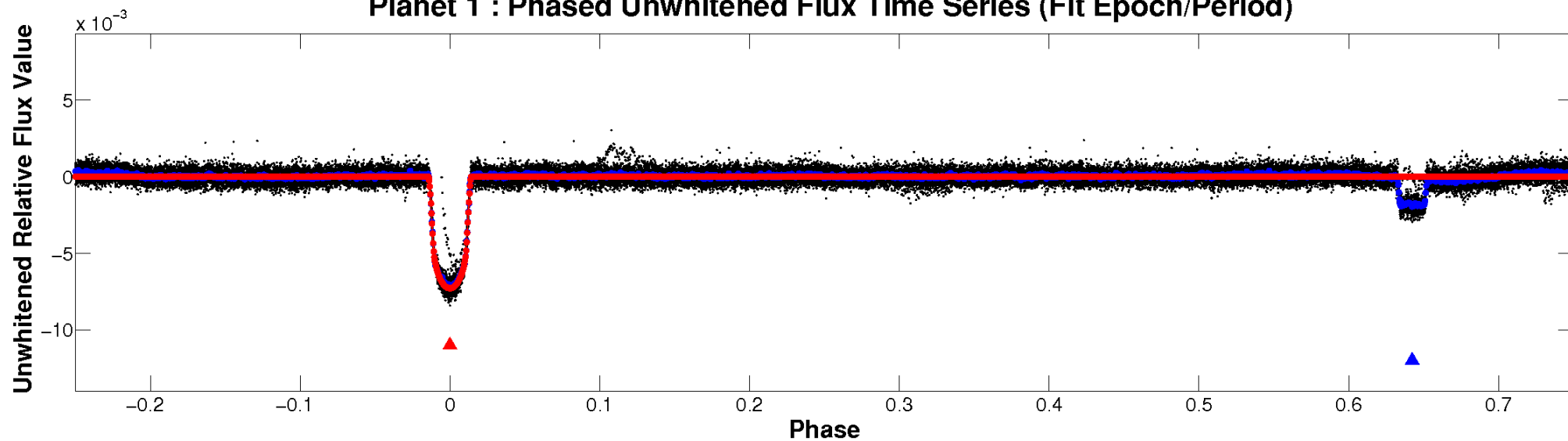
ALT Odd/Even

TCE 003851949-01

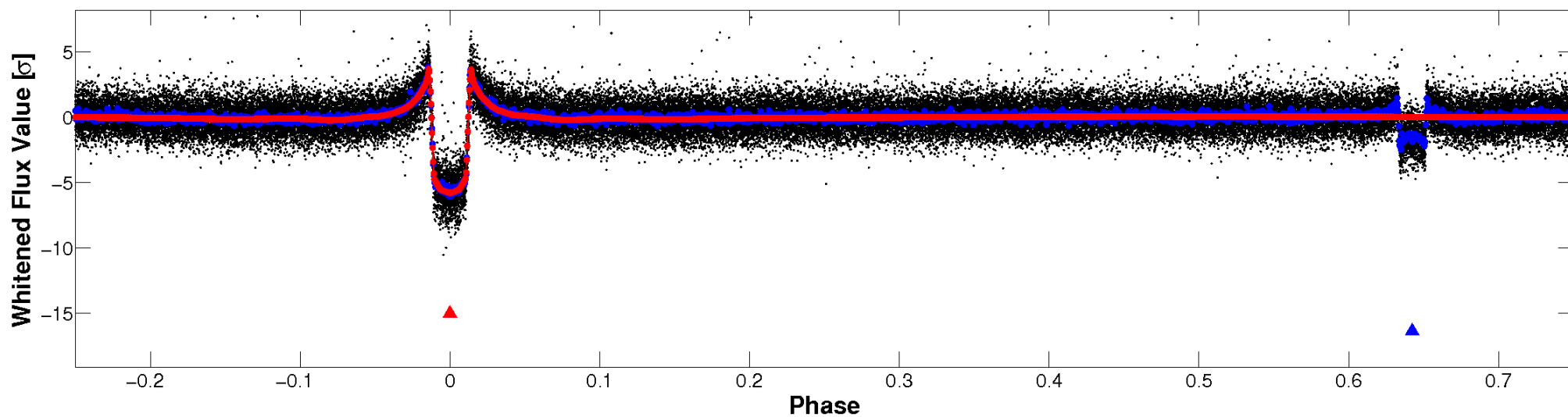


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

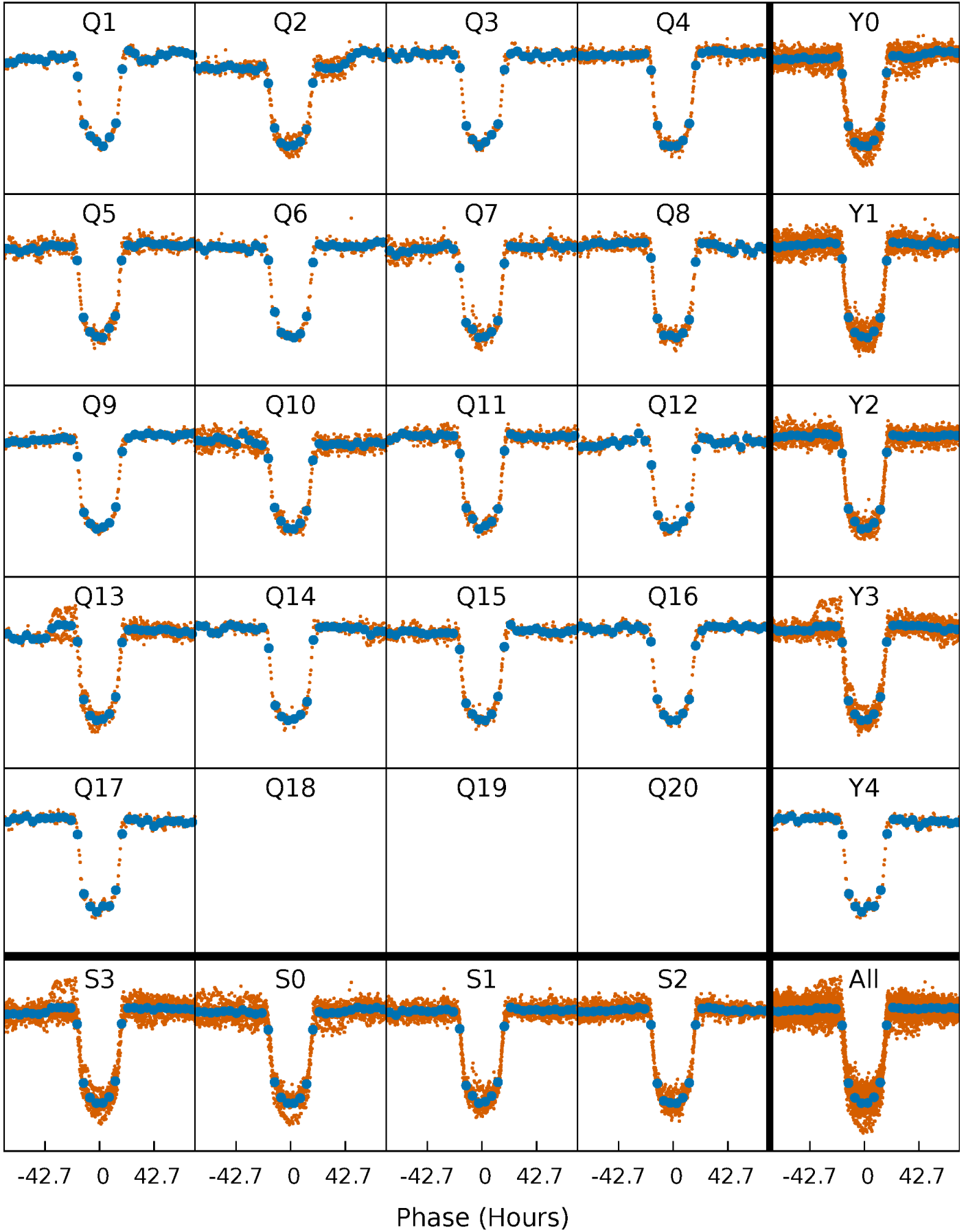


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



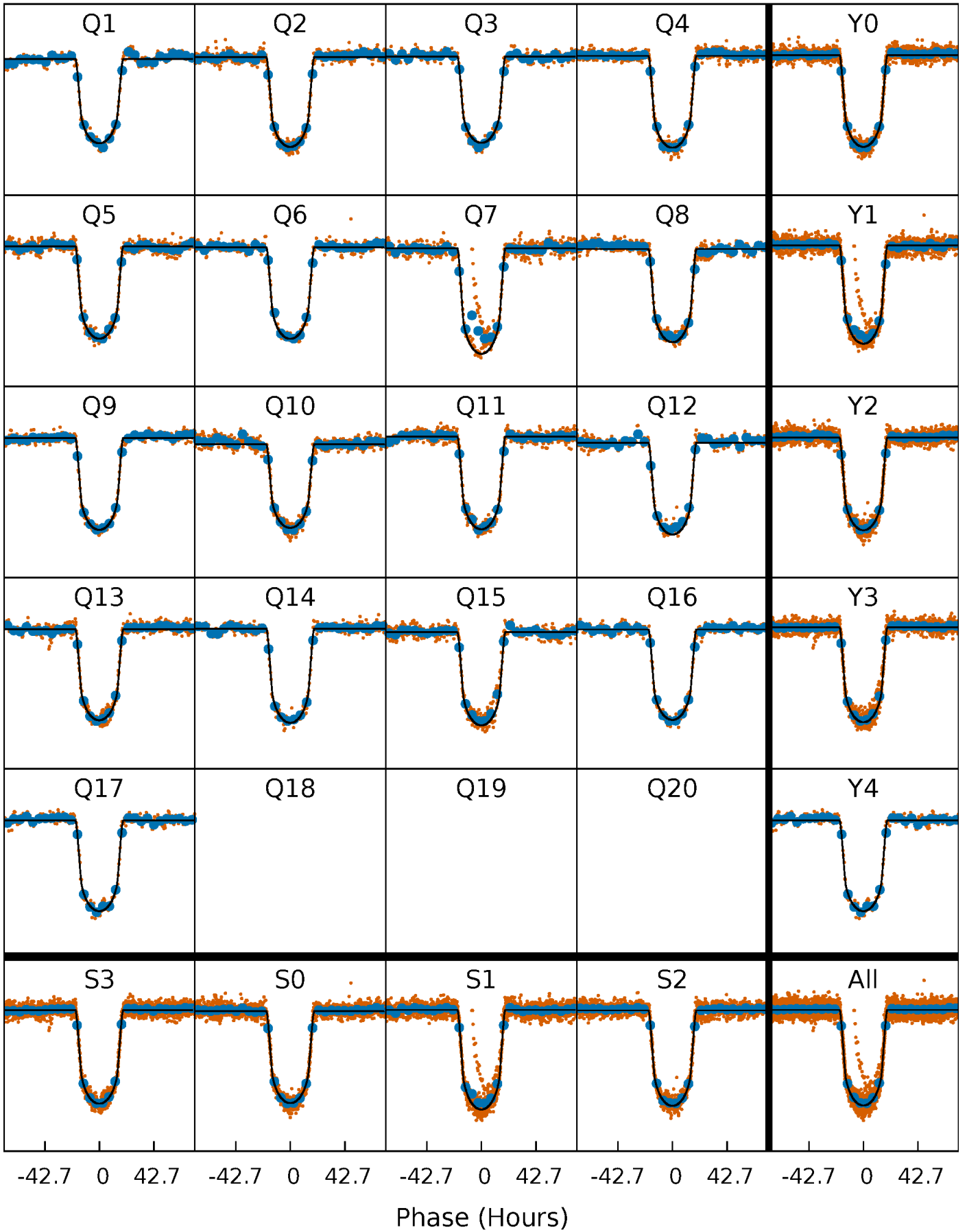
PDC Quarter-Phased Transit Curves

TCE 003851949-01 P= 54.771469 Days $T_0=143.744091$ (BKJD)



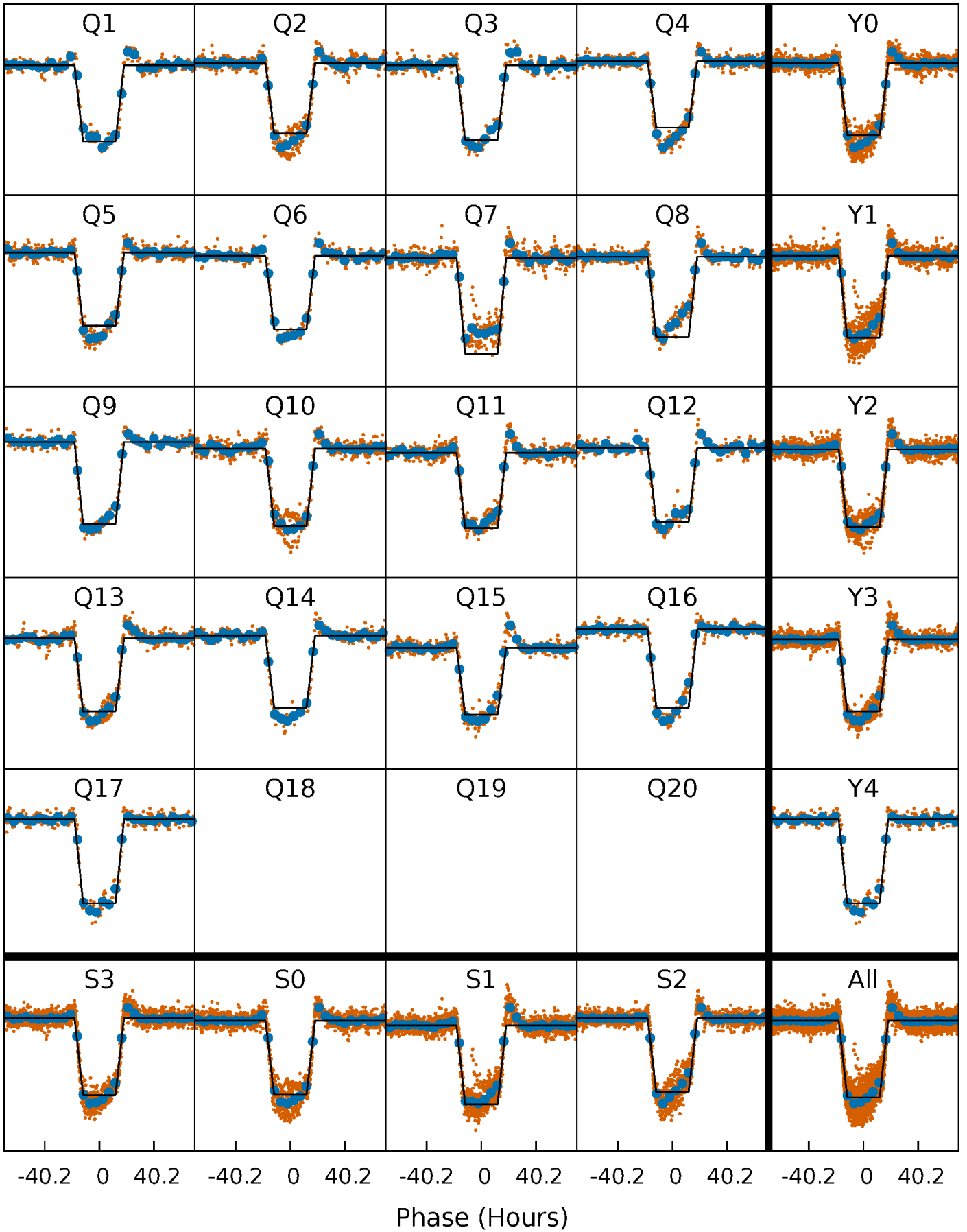
DV Quarter-Phased Transit Curves

TCE 003851949-01 P= 54.771469 Days $T_0=143.744091$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

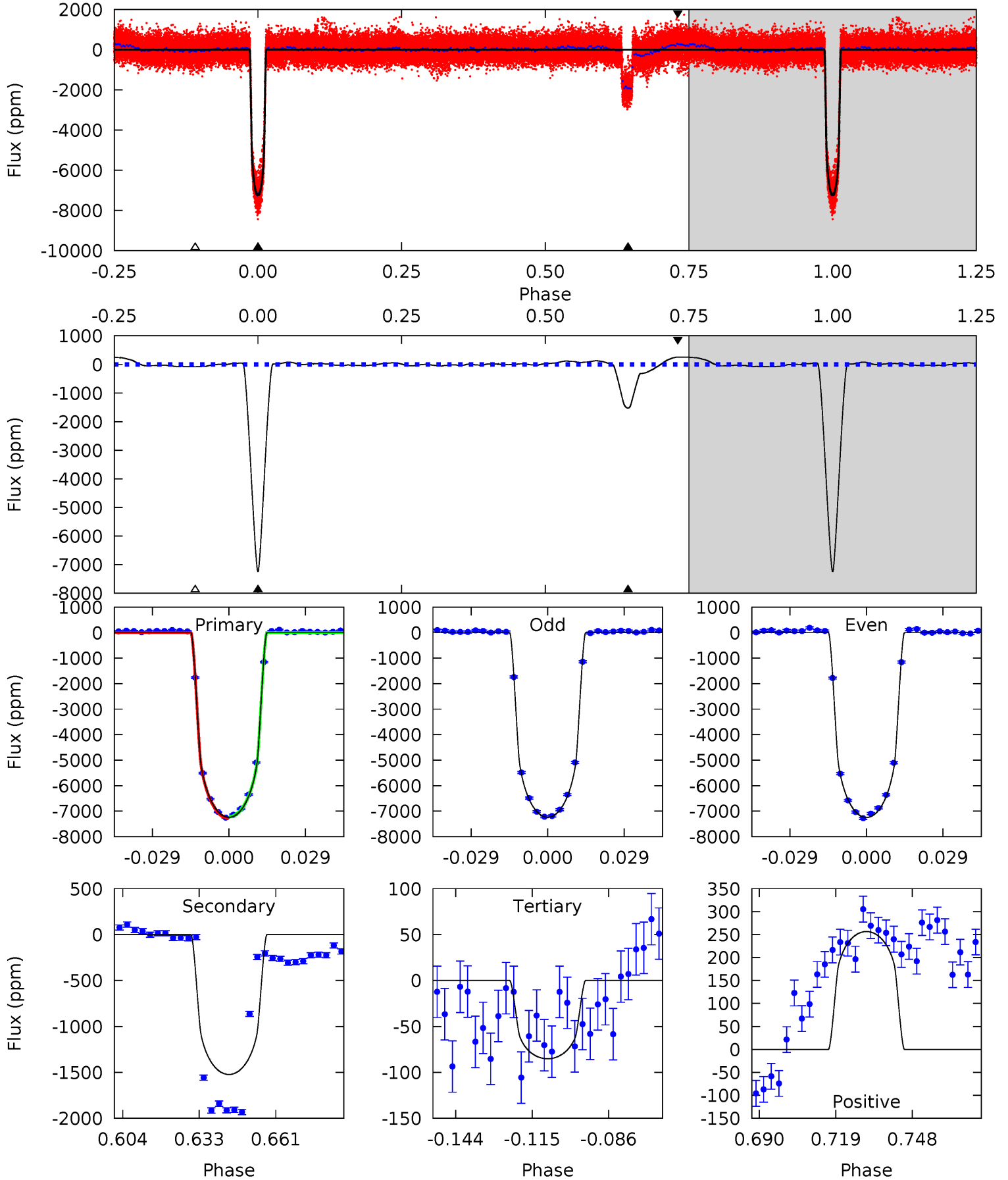
TCE 003851949-01 P= 54.771929 Days $T_0=143.716890$ (BKJD)



DV Model-Shift Uniqueness Test

003851949-01, P = 54.771469 Days, E = 88.972622 Days

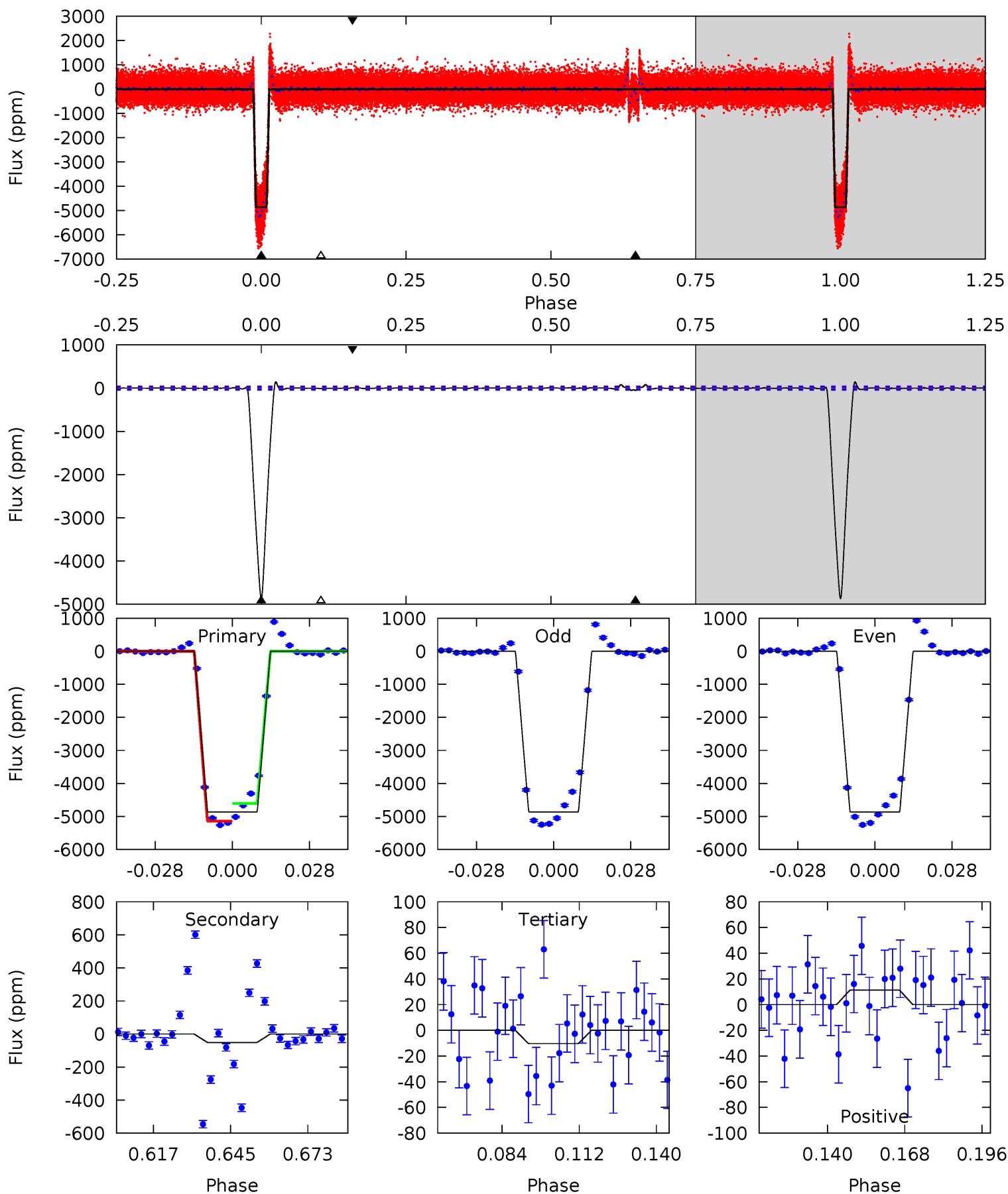
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
874.2	183.9	10.3	31.0	4.82	2.19	10.1	863.9	843.2	173.6	152.9	0.45	0.99	0.03	2.62



Alt Model-Shift Uniqueness Test

003851949-01, P = 54.771929 Days, E = 88.944961 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
690.8	7.24	1.47	1.60	4.82	2.20	0.77	689.3	689.2	5.77	5.64	0.16	1.00	0.03	36.9



Stellar Parameters For KIC 003851949

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5145^{+179}_{-179}	$3.466^{+0.623}_{-0.208}$	$0.020^{+0.250}_{-0.300}$	$3.866^{+1.169}_{-2.170}$	$1.594^{+0.220}_{-0.616}$	$0.039^{+0.311}_{-0.020}$
	+3%/-3%	+18%/-6%	+1250%/-1500%	+30%/-56%	+14%/-39%	+800%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003851949-01 / KOI 3808.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1523 ± 8	$33.40^{+6.33}_{-10.57}$	1060^{+109}_{-163}	3860^{+110}_{-109}	81^{+74}_{-24}
Alt.	-51 ± 7	$28.52^{+5.74}_{-9.54}$	1063^{+114}_{-162}	2458^{+72}_{-67}	$3.729^{+3.680}_{-1.209}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

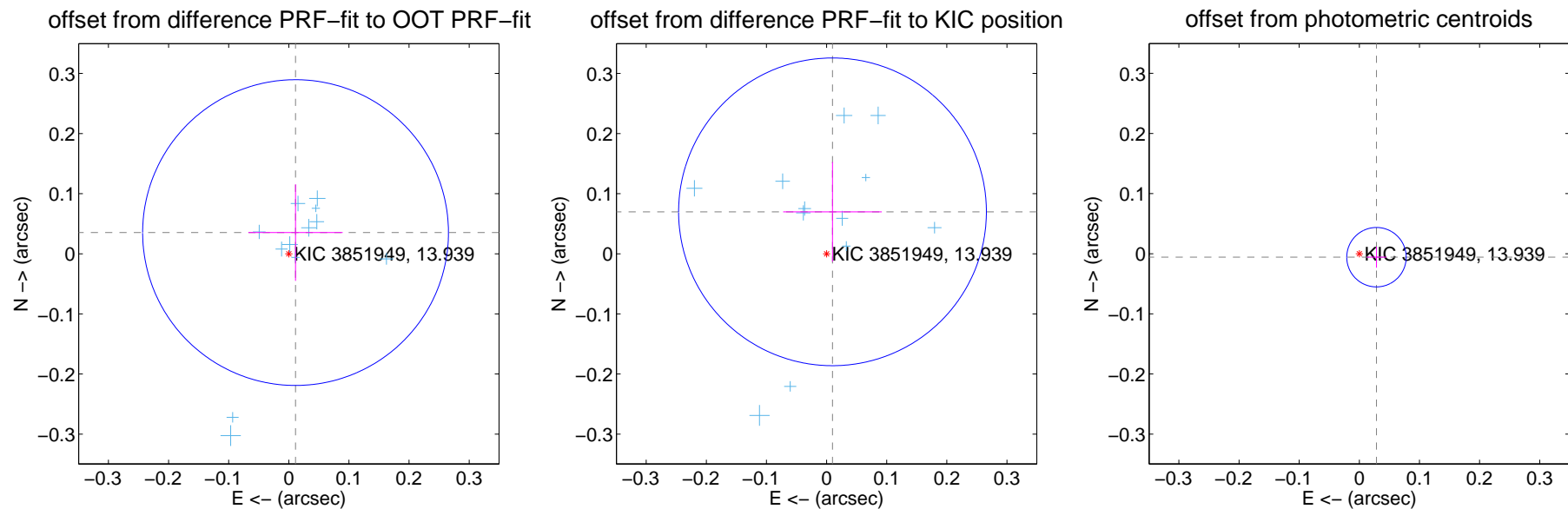
DV Centroid Data

Supplemental centroid analysis for 003851949-01. Kepler magnitude: 13.94. Transit SNR 224.30

There are 13 quarters with good PRF difference image offsets

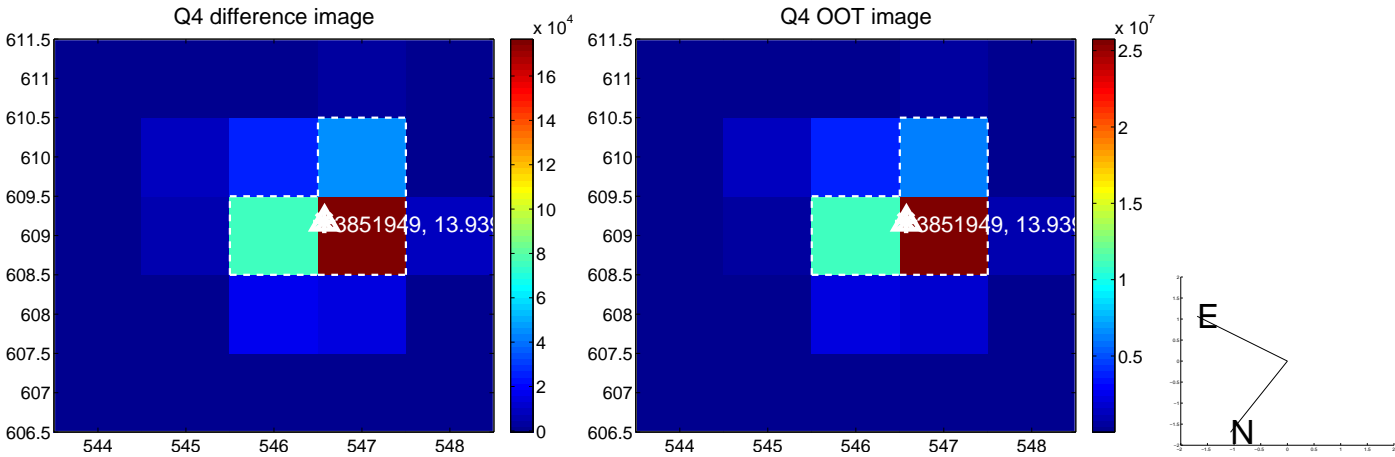
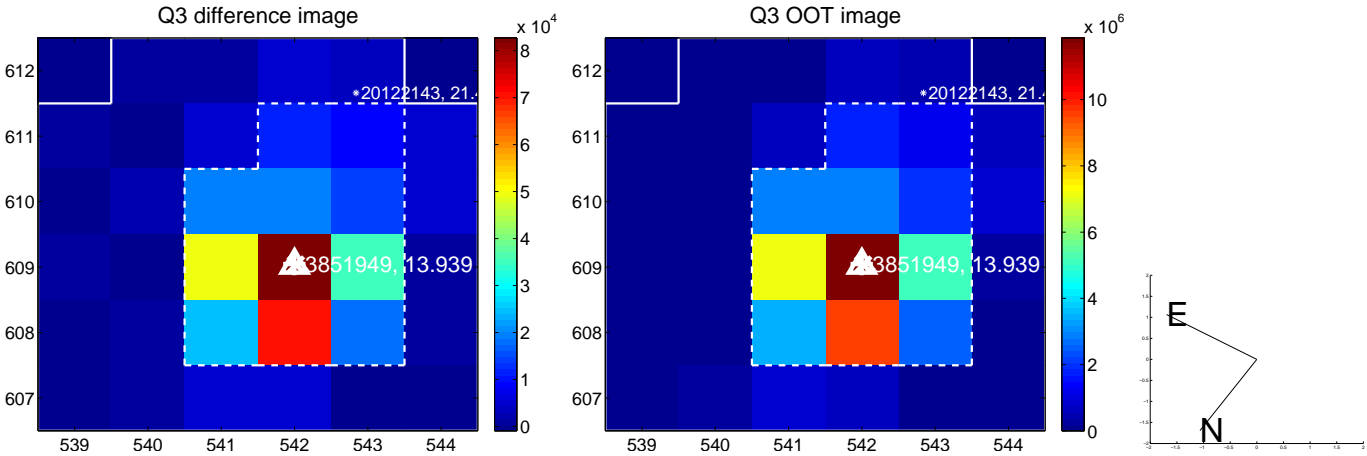
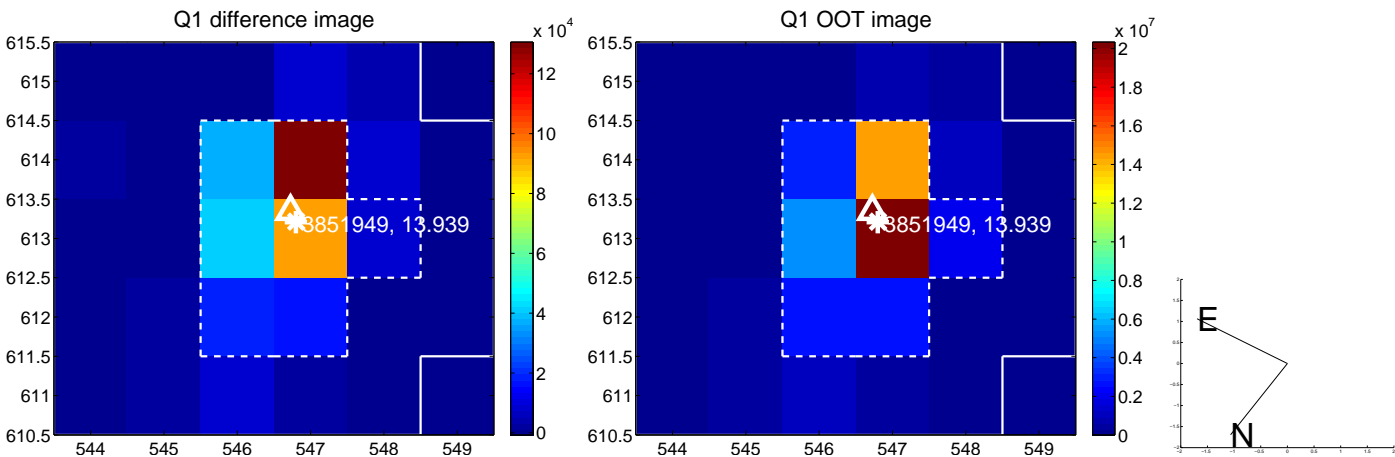
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.037 ± 0.085	0.44	-0.011 ± 0.078	0.035 ± 0.080
PRF-fit source offset from KIC position	0.070 ± 0.085	0.83	-0.010 ± 0.082	0.070 ± 0.083
photometric centroid source offset	0.03 ± 0.02	1.77	-0.03 ± 0.02	-0.01 ± 0.02

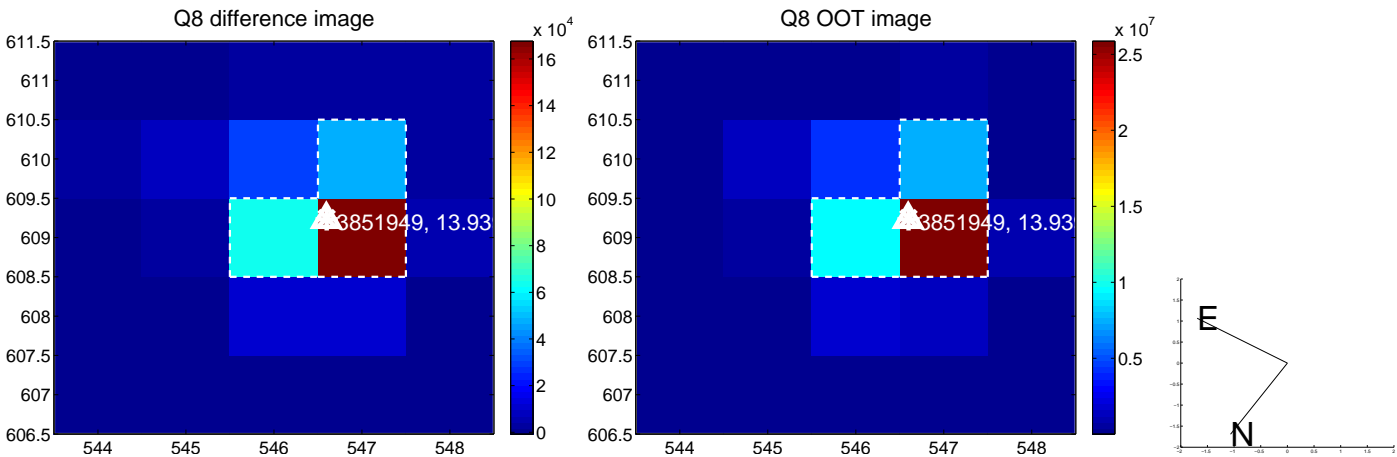
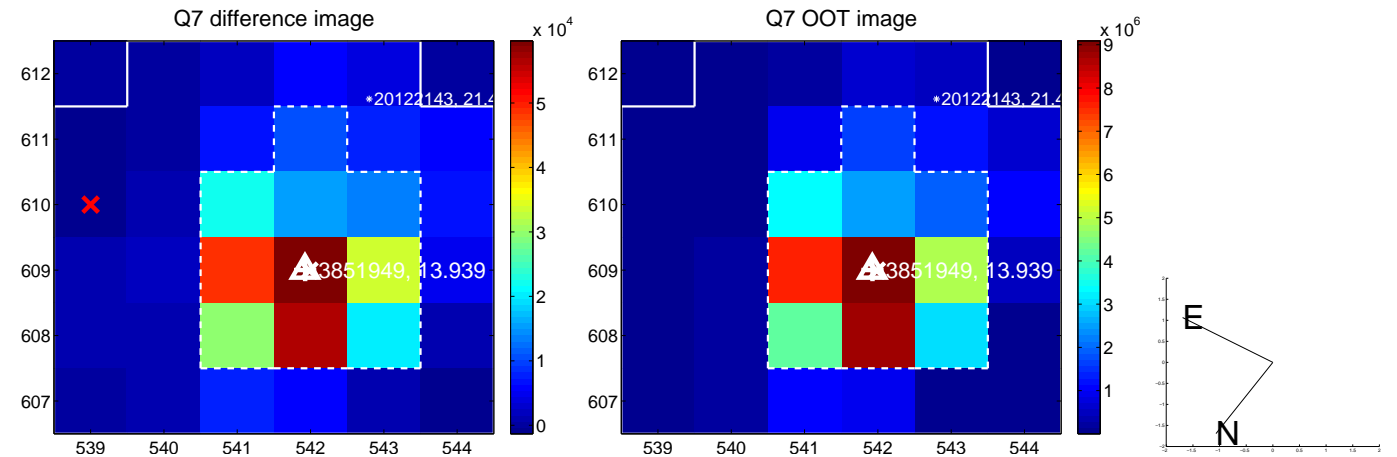
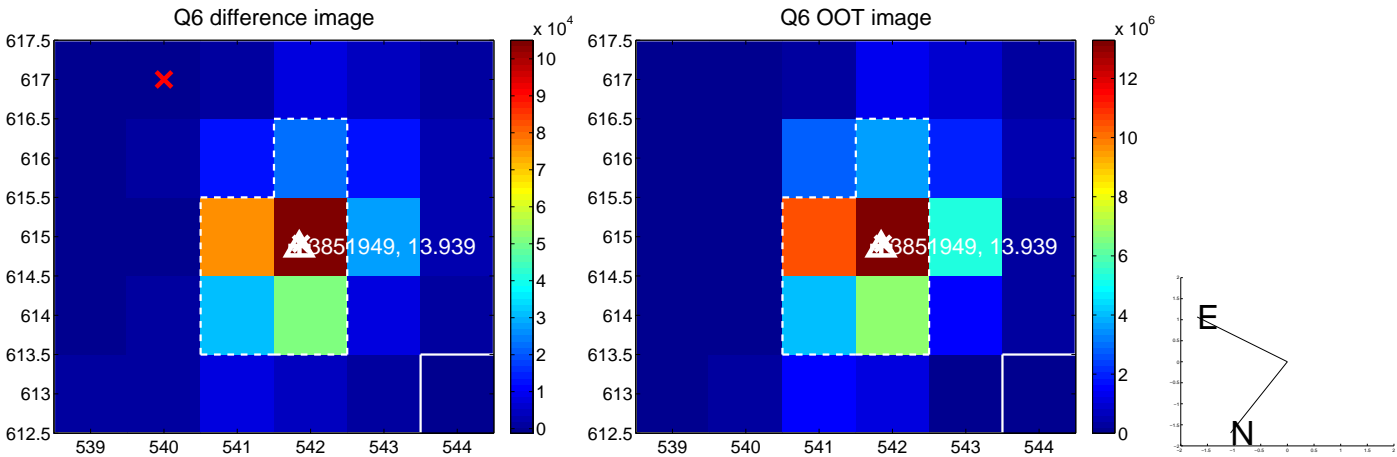
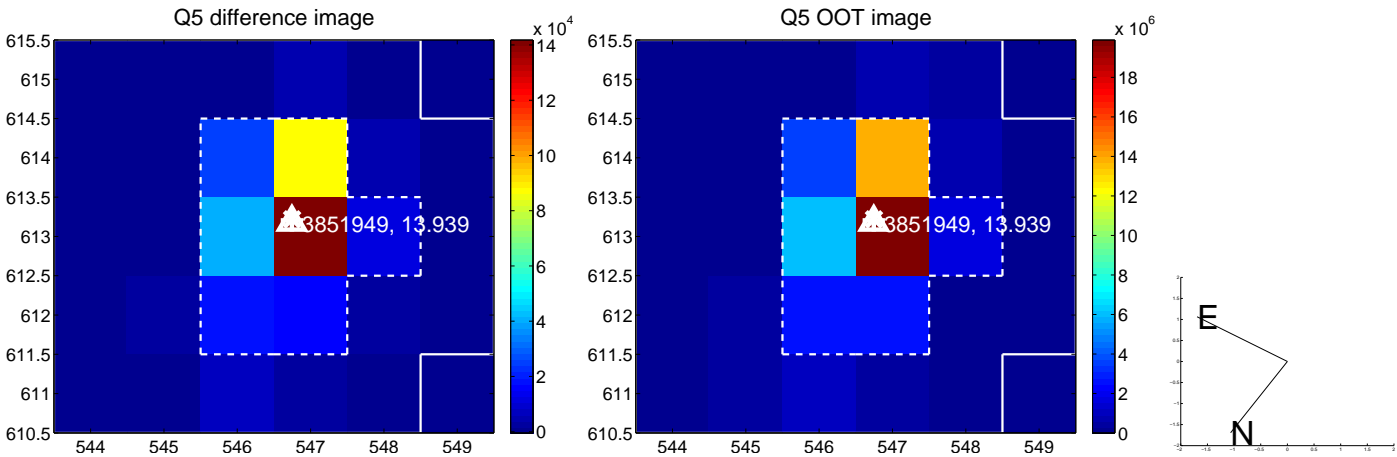


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

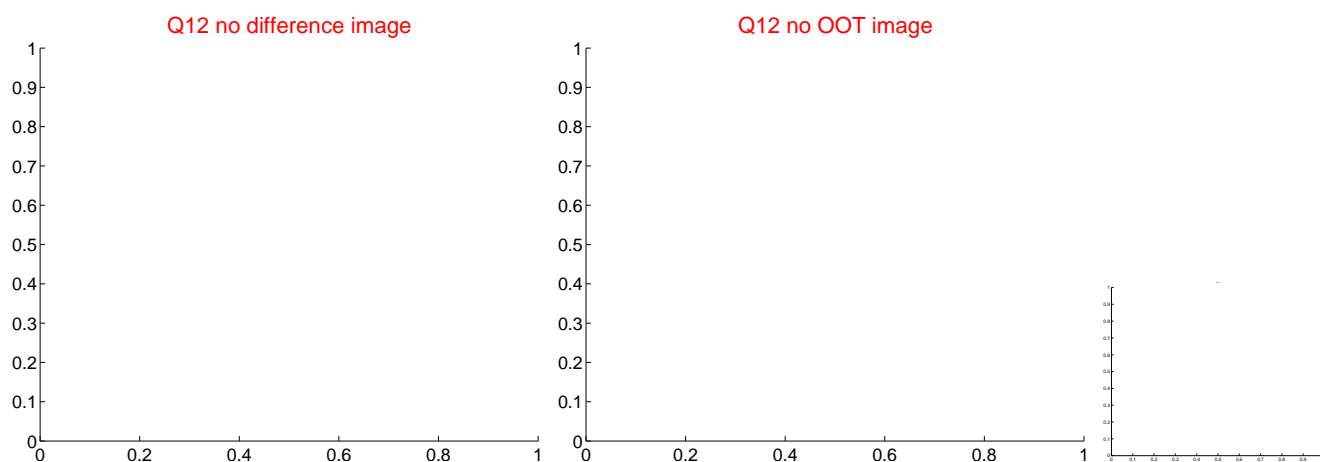
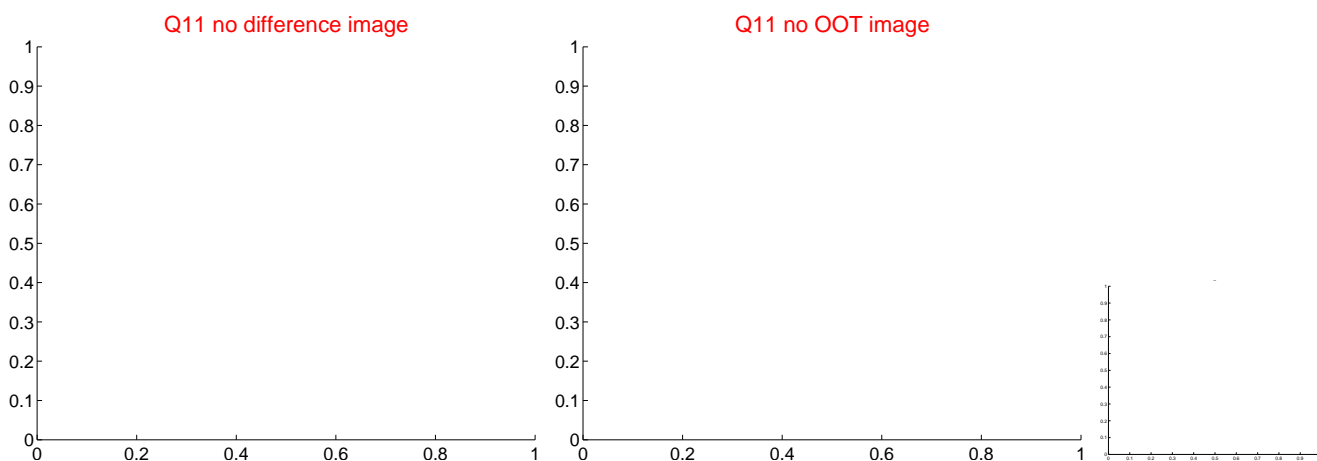
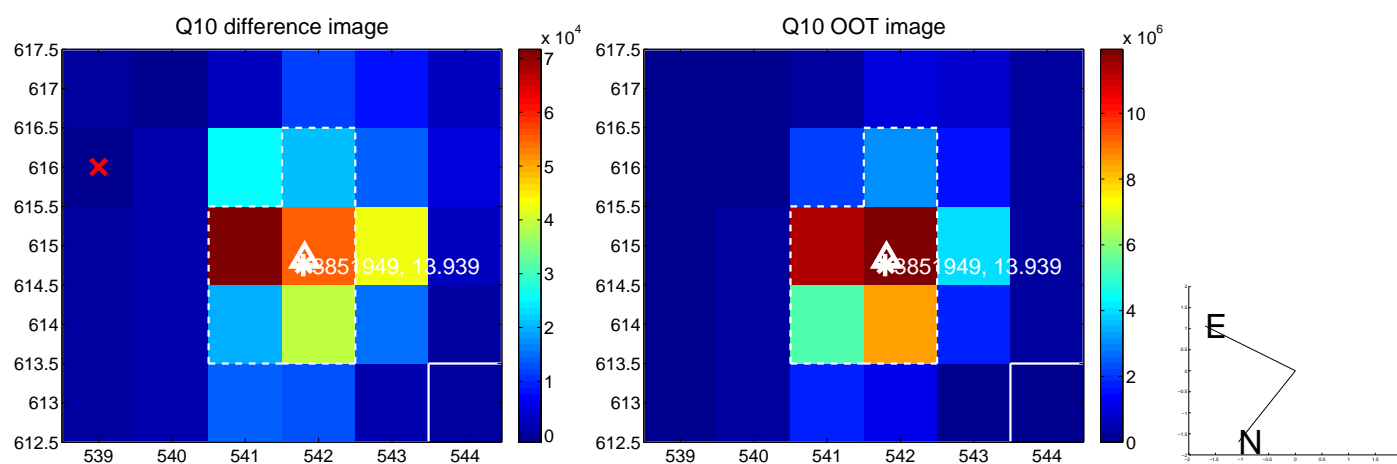
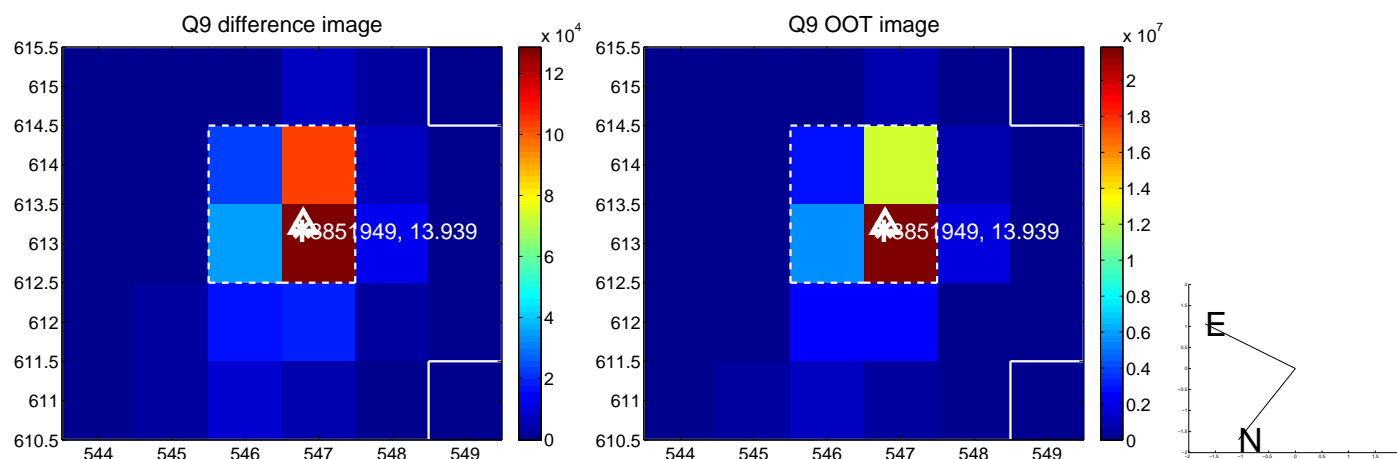
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



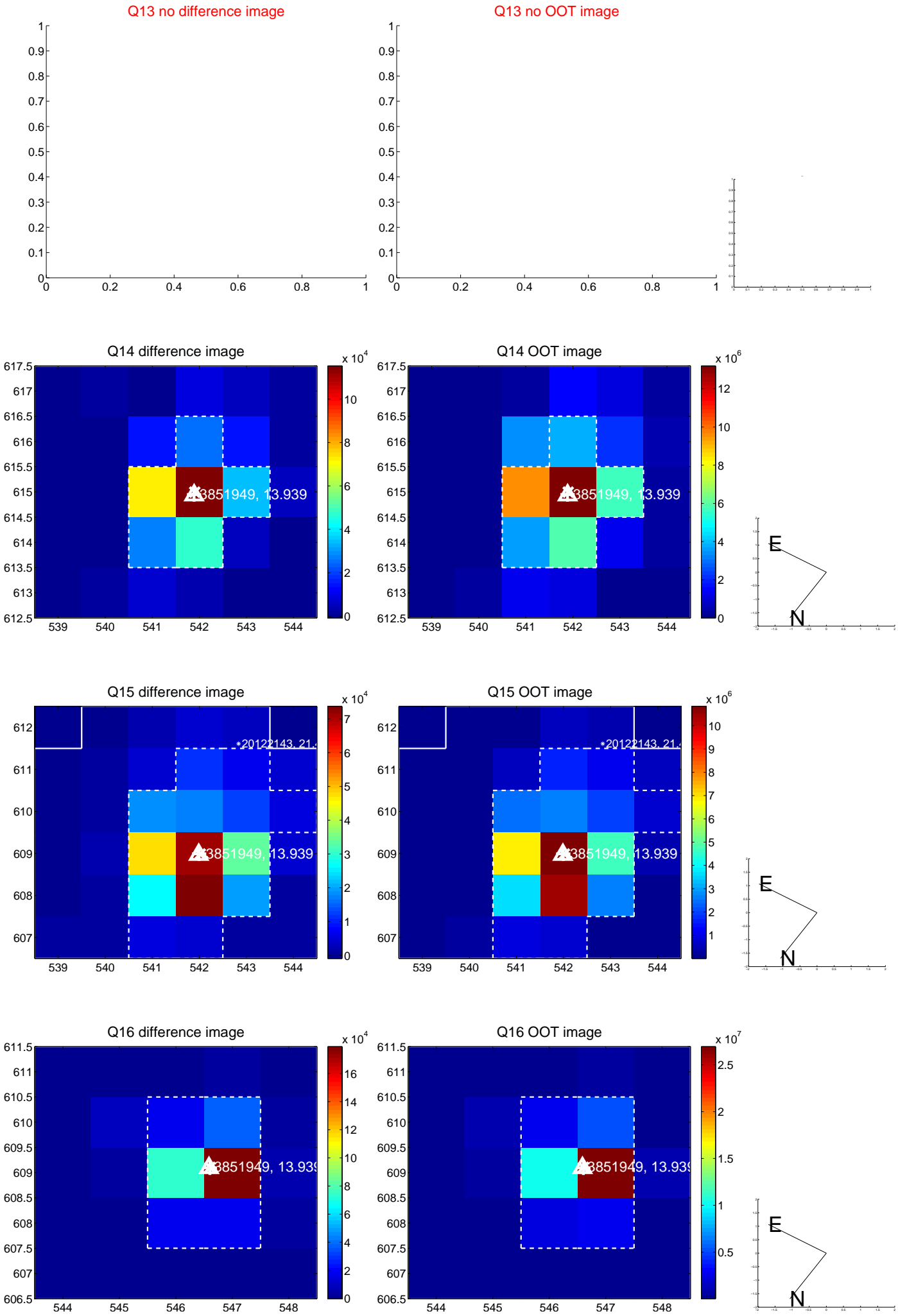
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

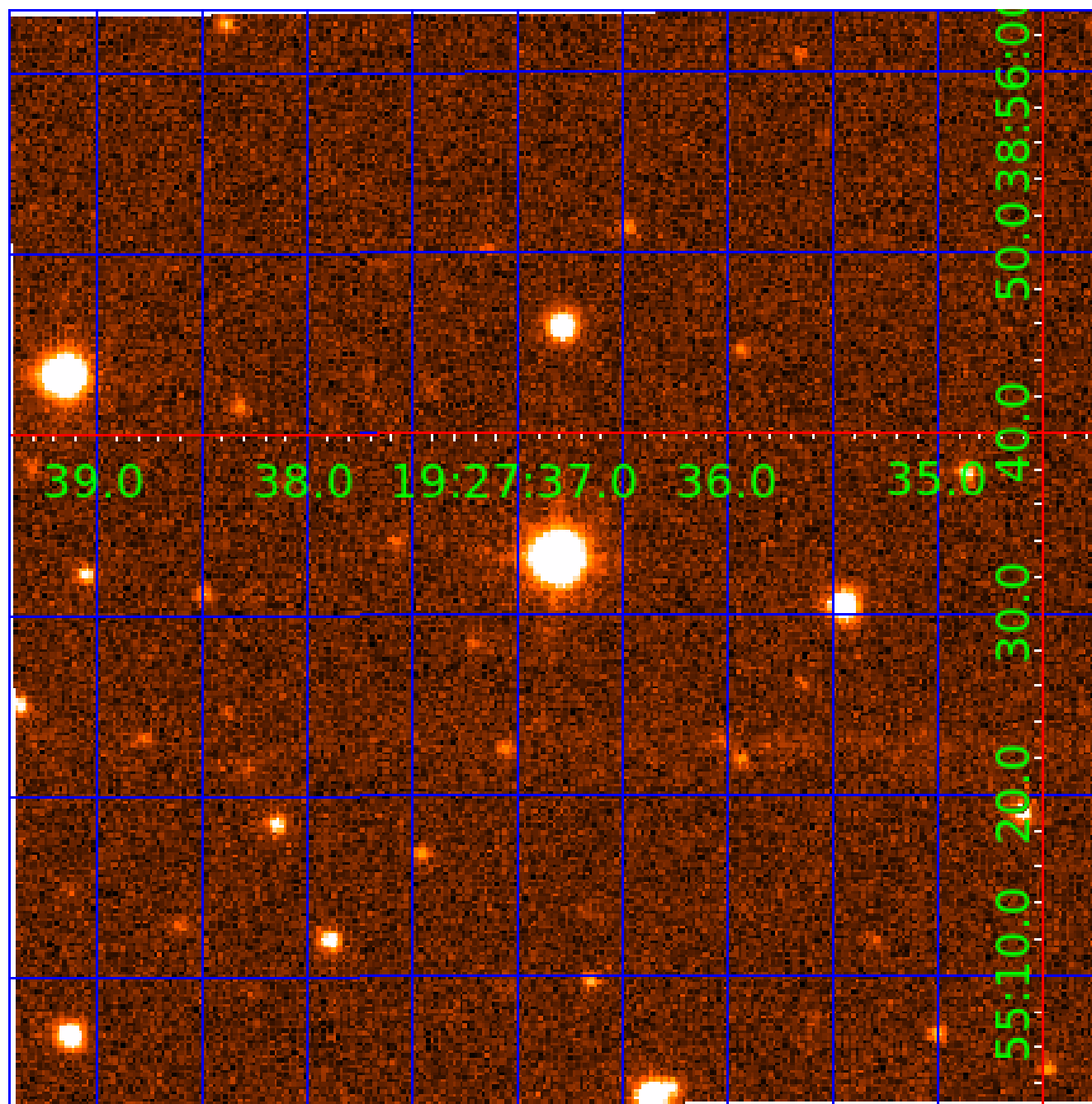


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003851949

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
003851949-01	OBS	3808.01	54.771469	143.744091	7292.3	37.384	82.7	224.3	3.87	5145	34.72	86.27
003851949-02	OBS	No	54.771721	178.926016	1933.3	26.187	36.2	60.7	3.87	5145	17.77	86.27

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003851949-01	OBS	FP	0.01	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
003851949-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

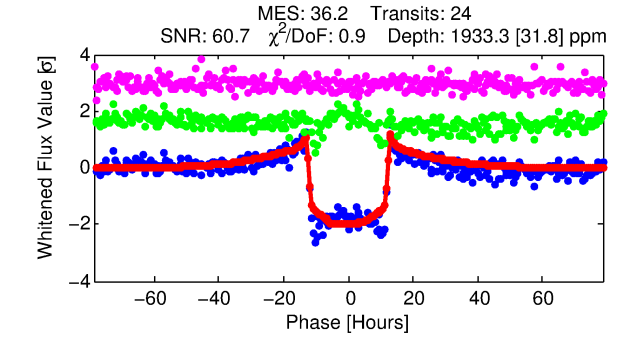
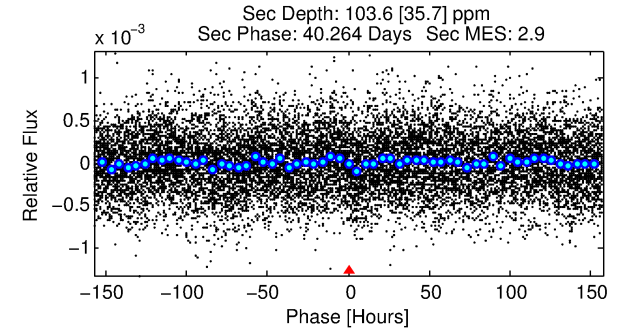
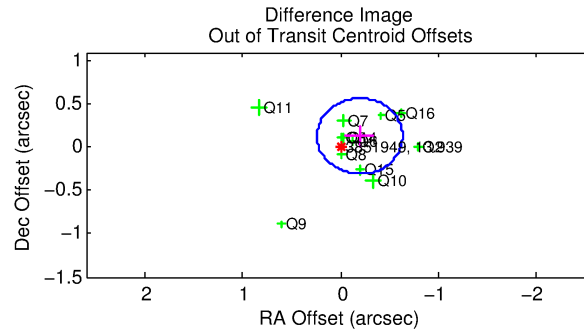
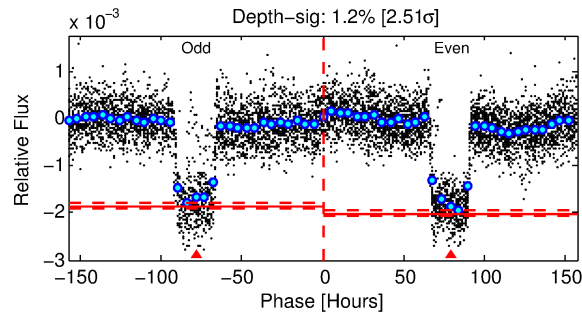
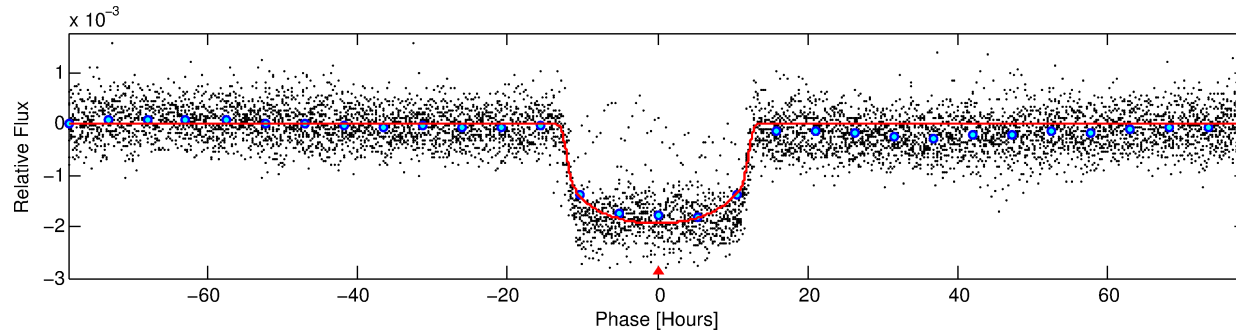
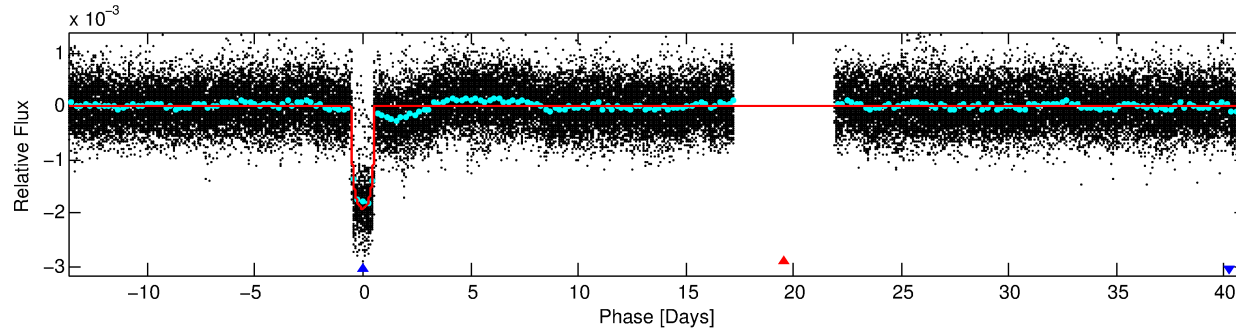
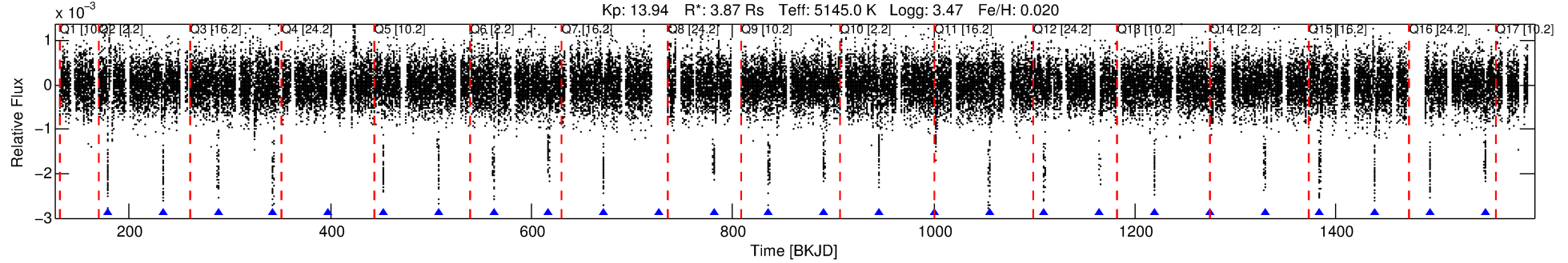
Ephemeris Match Information For 003851949-02

No Significant Match Found

DV One-Page Summary

KIC: 3851949 Candidate: 2 of 2 Period: 54.772 d
KOI: K03808 Corr: No Ephemeris Match

Kp: 13.94 R*: 3.87 Rs Teff: 5145.0 K Logg: 3.47 Fe/H: 0.020



DV Fit Results:

Period = 54.77172 [0.00027] d
Epoch = 178.9260 [0.0040] BKJD
Rp/R* = 0.0421 [0.0007]
a/R* = 13.15 [0.69]
b = 0.64 [0.05]
Seff = 86.27 [89.41]
Teff = 777 [201] K
Rp = 17.77 [9.98] Re
a = 0.3298 [0.2002] AU
Ag = 19.62 [21.26] [0.88σ]
Teffp = 2529 [236] K [5.65σ]

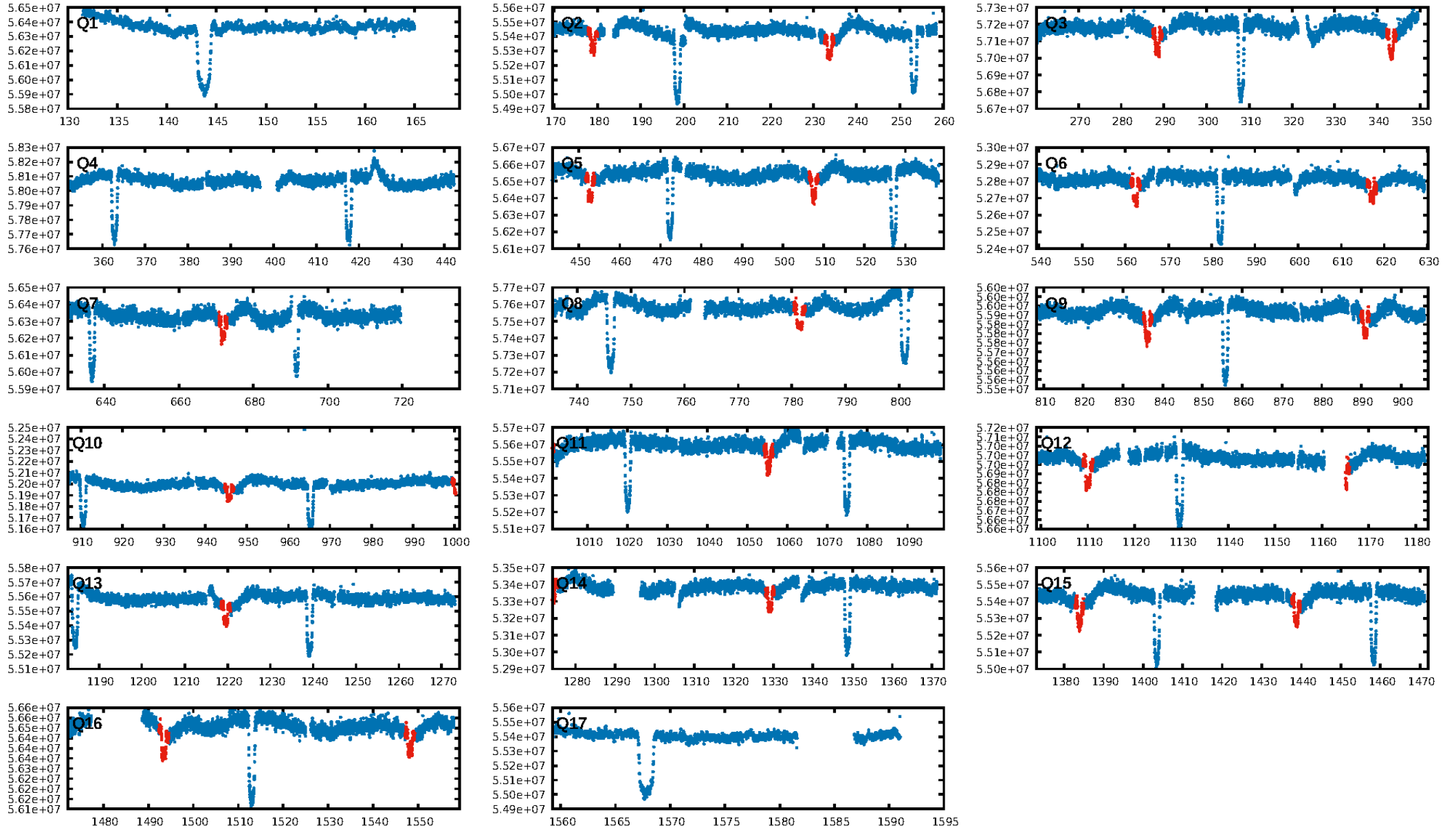
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.00e-280
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 2.001
Centroid-sig: 16.5%
Centroid-so: 0.081 arcsec [1.08σ]
OotOffset-rm: 0.235 arcsec [1.61σ]
KicOffset-rm: 0.245 arcsec [1.80σ]
OotOffset-st: 4/4/2/2 [12]
KicOffset-st: 4/4/2/2 [12]
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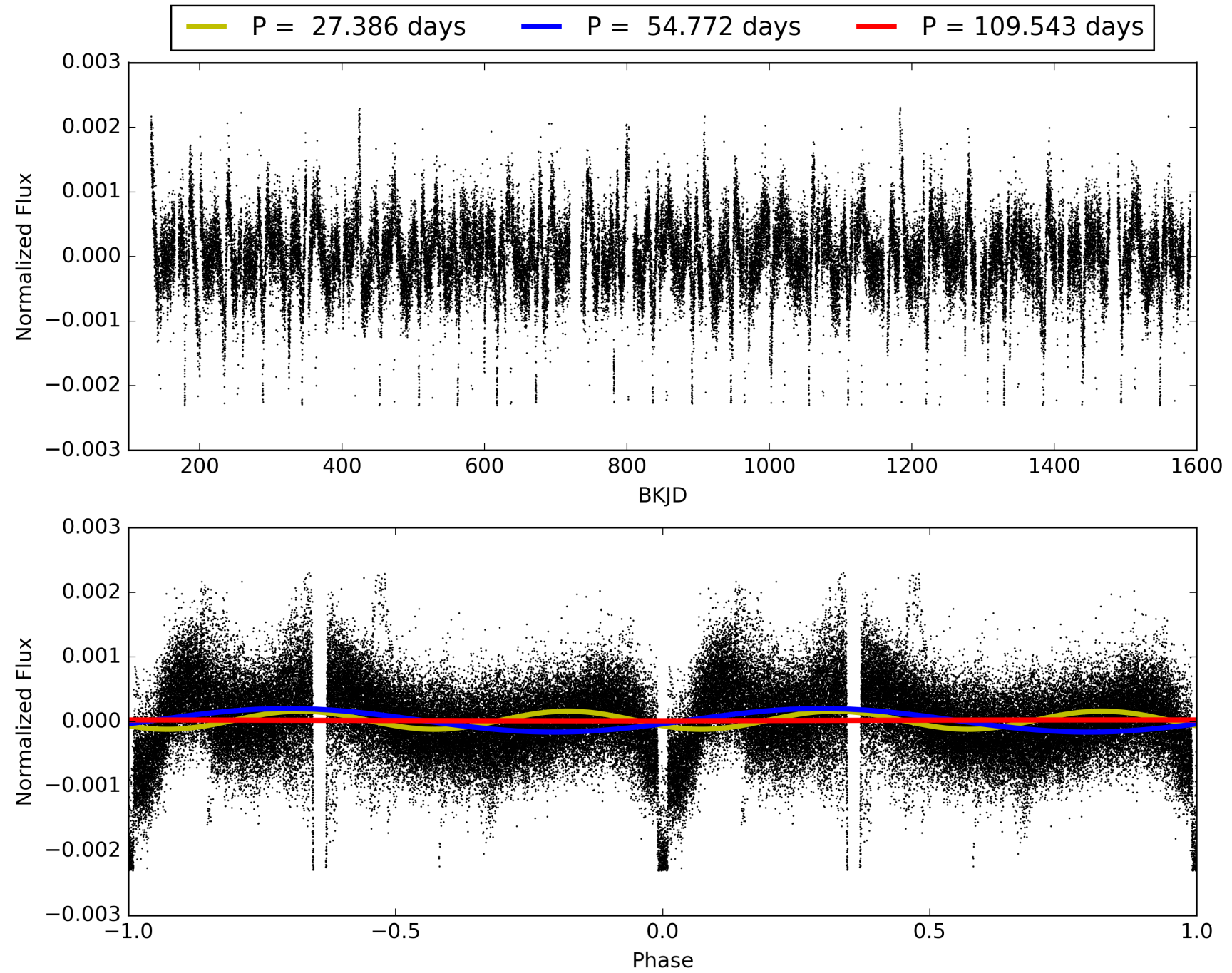
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 01:18:01 Z

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

TCE 003851949-02, PDC Light Curves

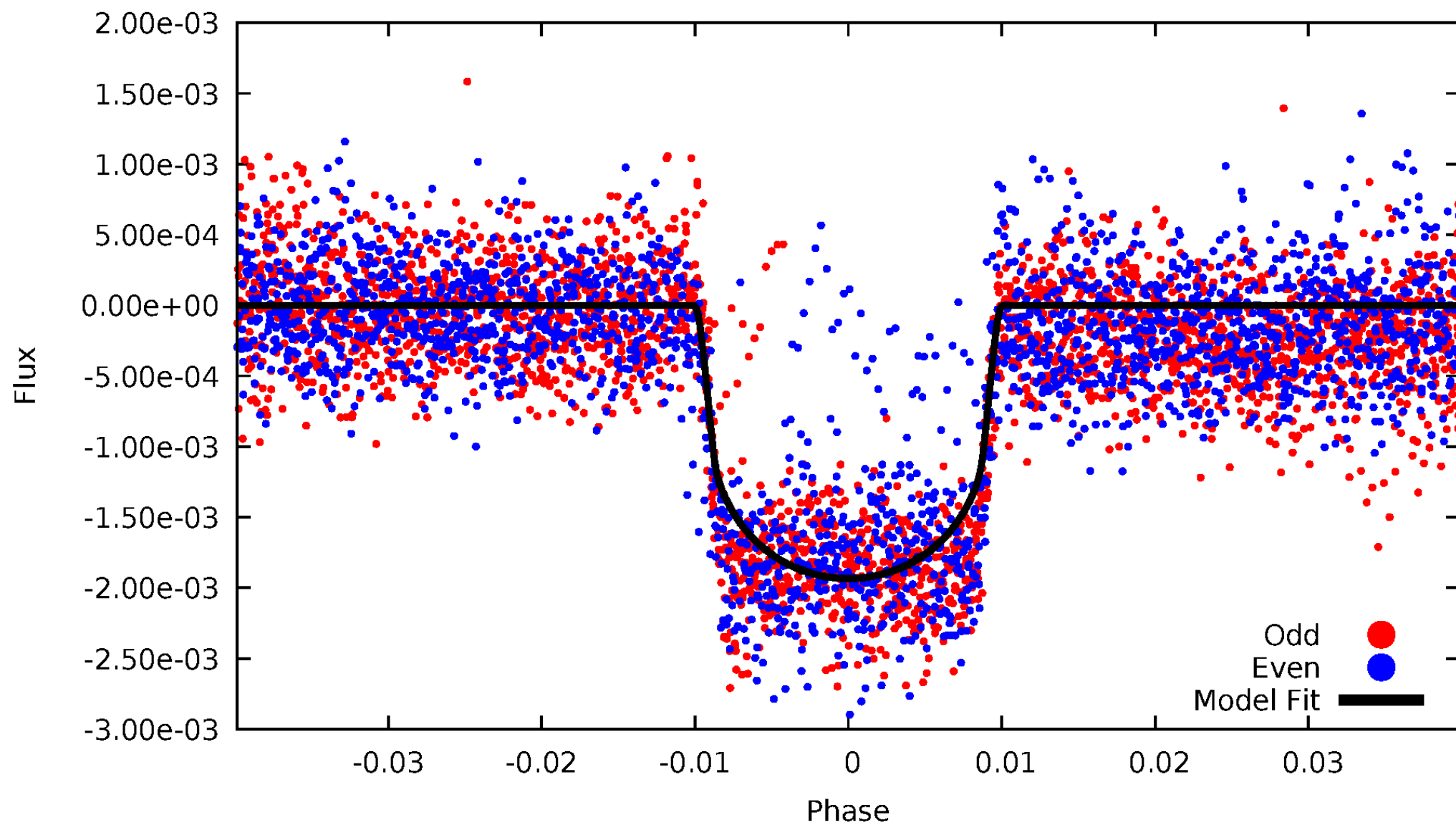


TCE 003851949-02



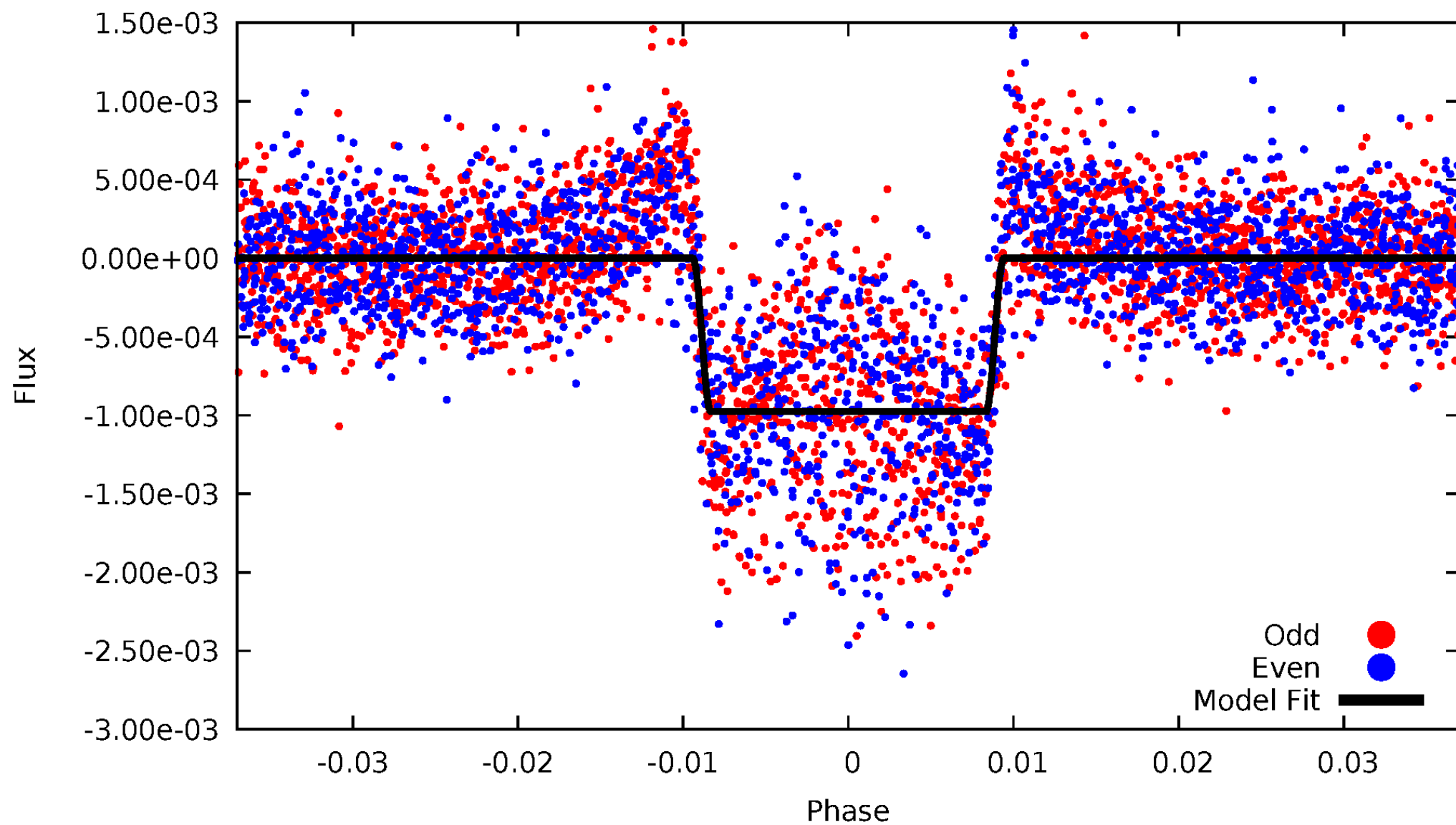
DV Odd/Even

TCE 003851949-02



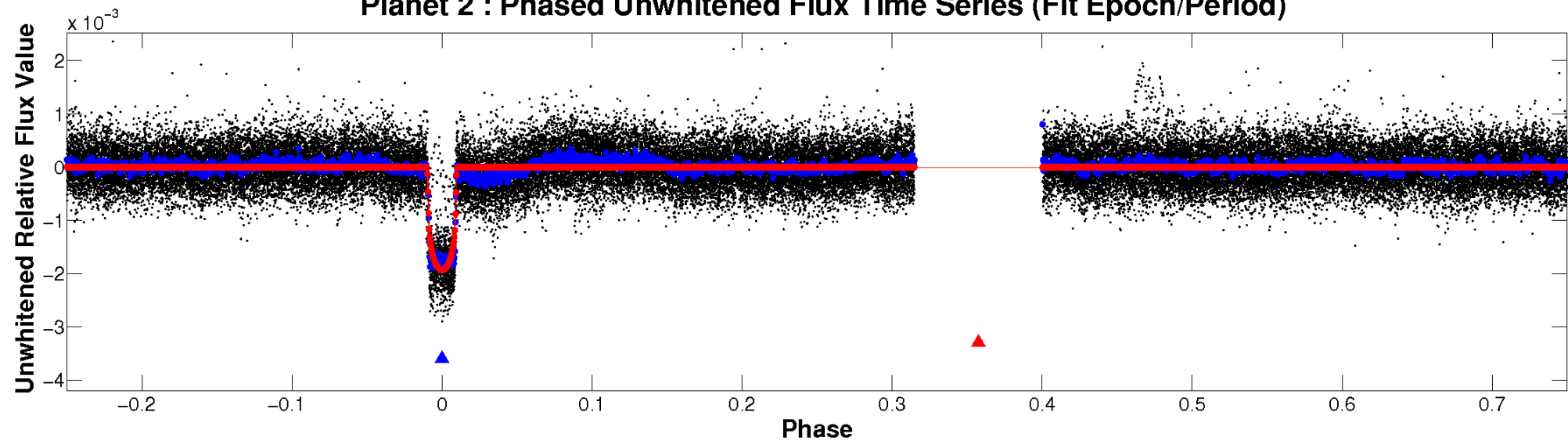
ALT Odd/Even

TCE 003851949-02

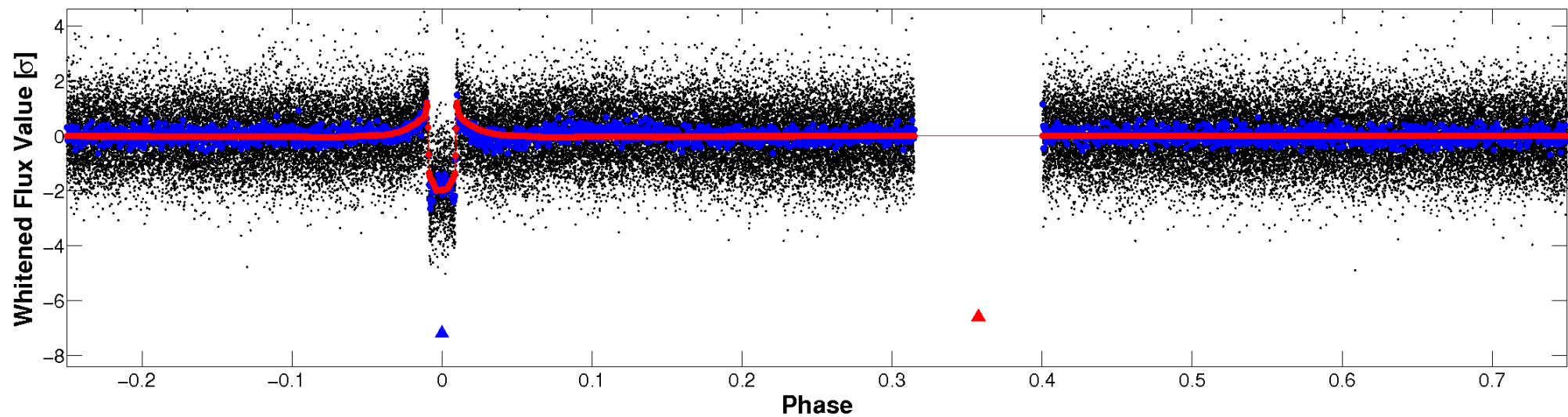


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

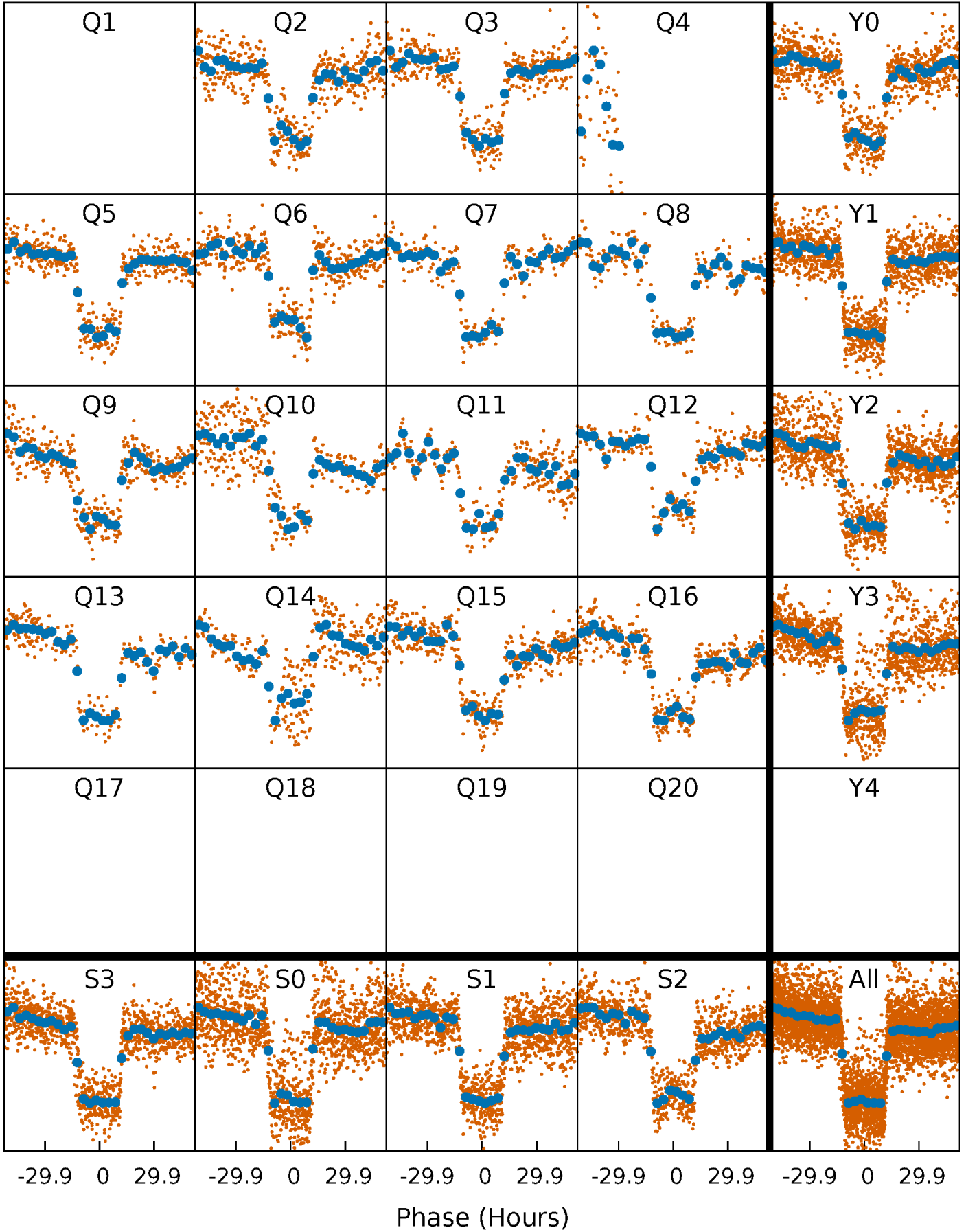


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



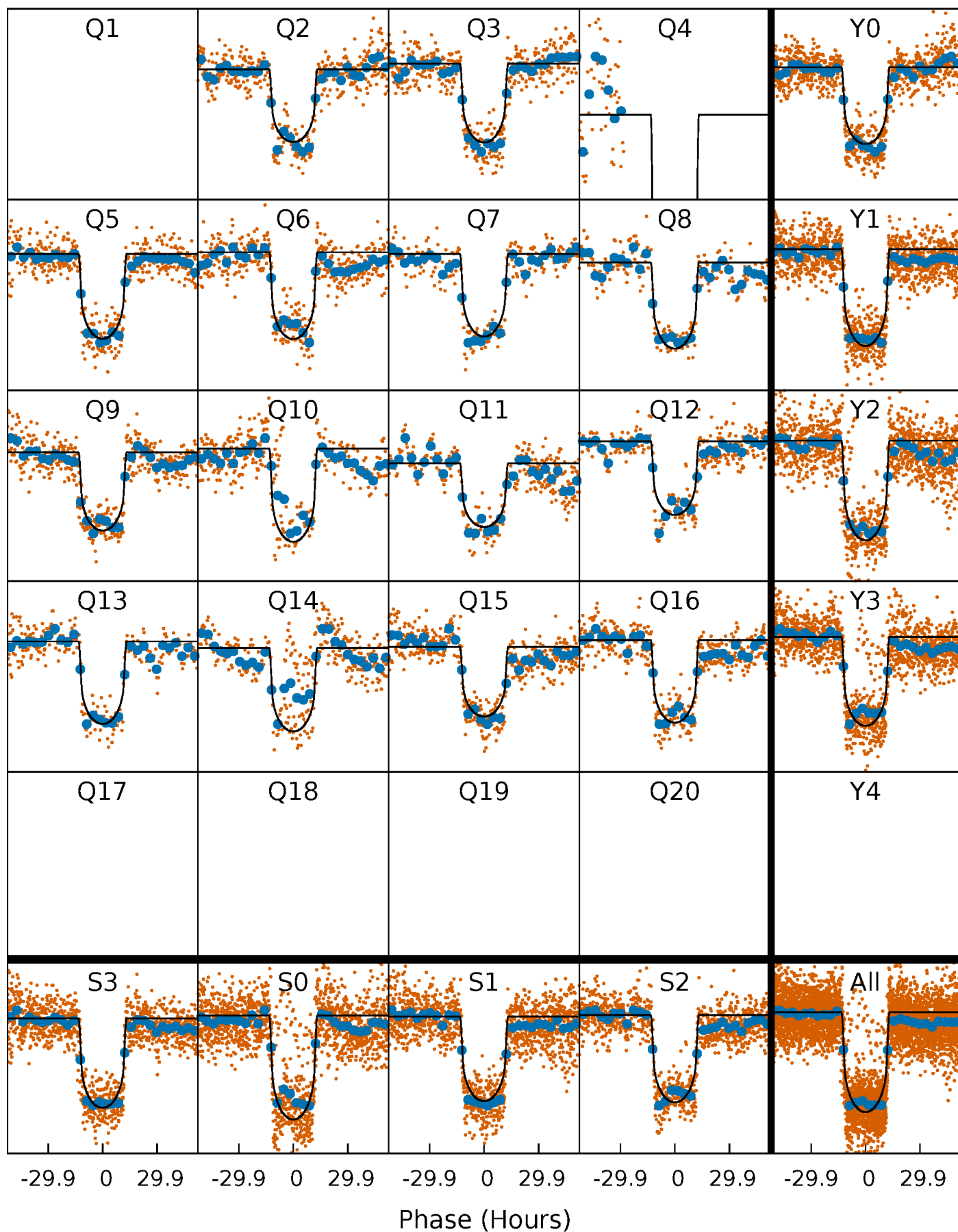
PDC Quarter-Phased Transit Curves

TCE 003851949-02 P= 54.771721 Days $T_0=178.926016$ (BKJD)



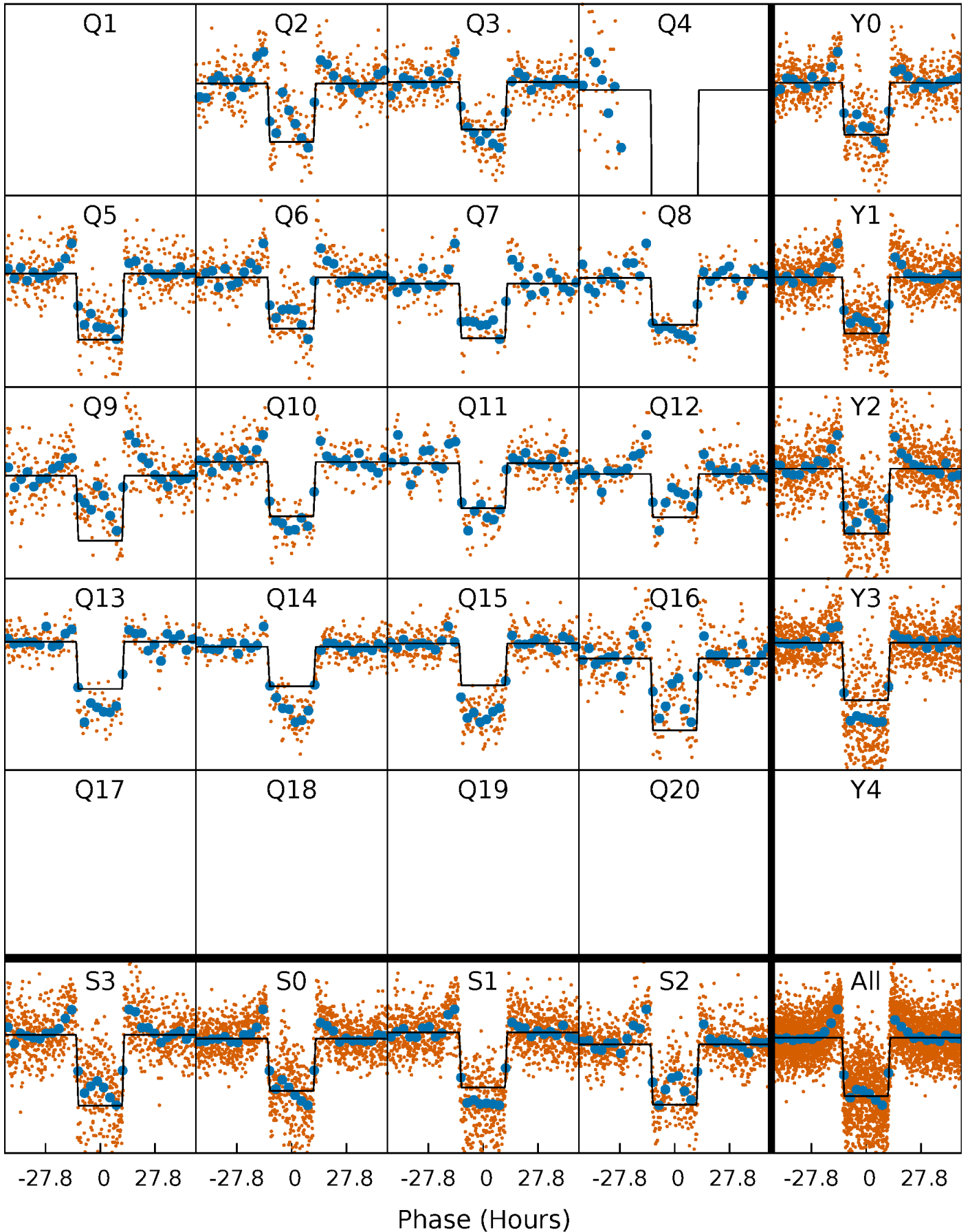
DV Quarter-Phased Transit Curves

TCE 003851949-02 P= 54.771721 Days $T_0=178.926016$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

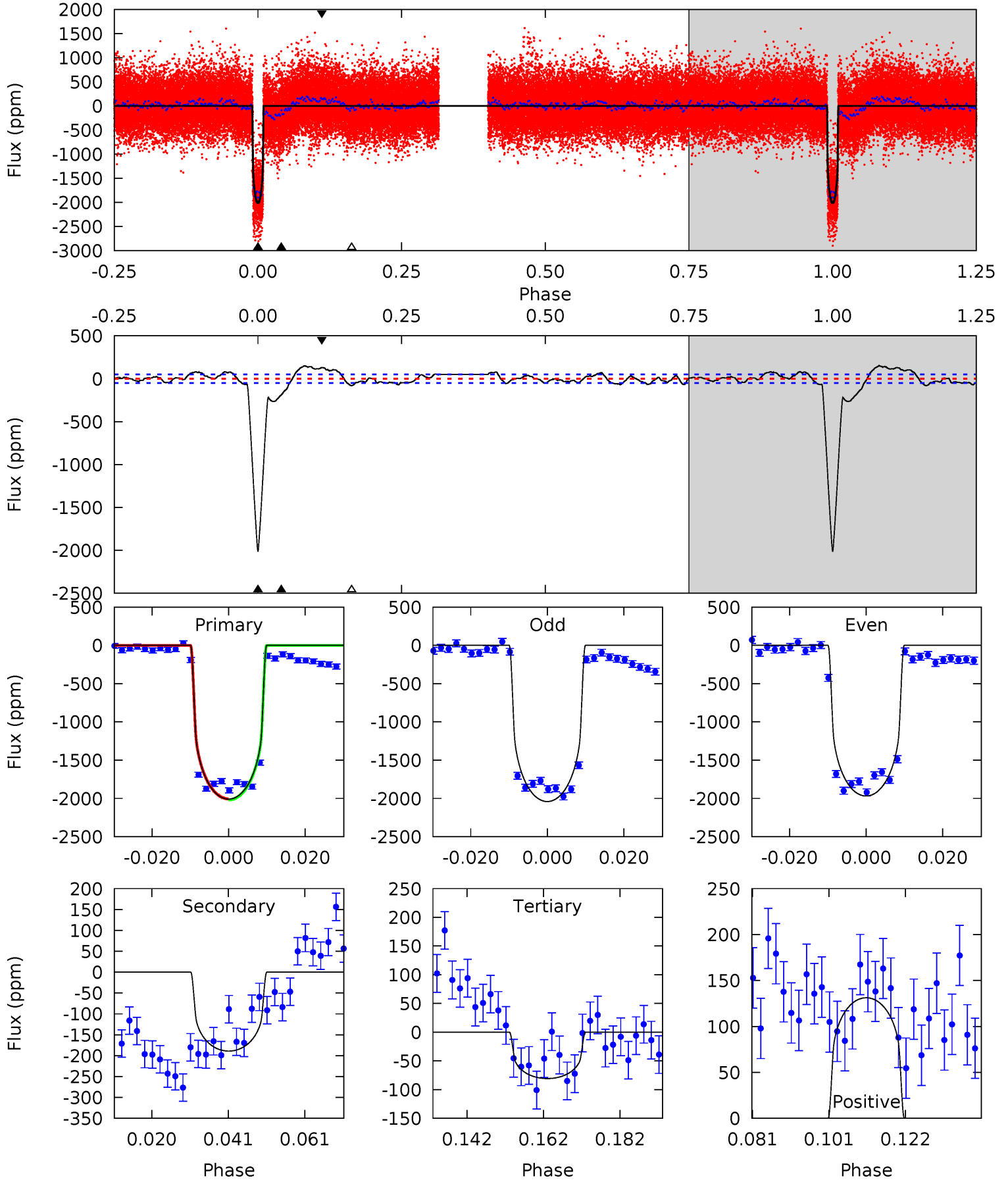
TCE 003851949-02 P= 54.771929 Days $T_0=178.927020$ (BKJD)



DV Model-Shift Uniqueness Test

003851949-02, P = 54.771721 Days, E = 124.154295 Days

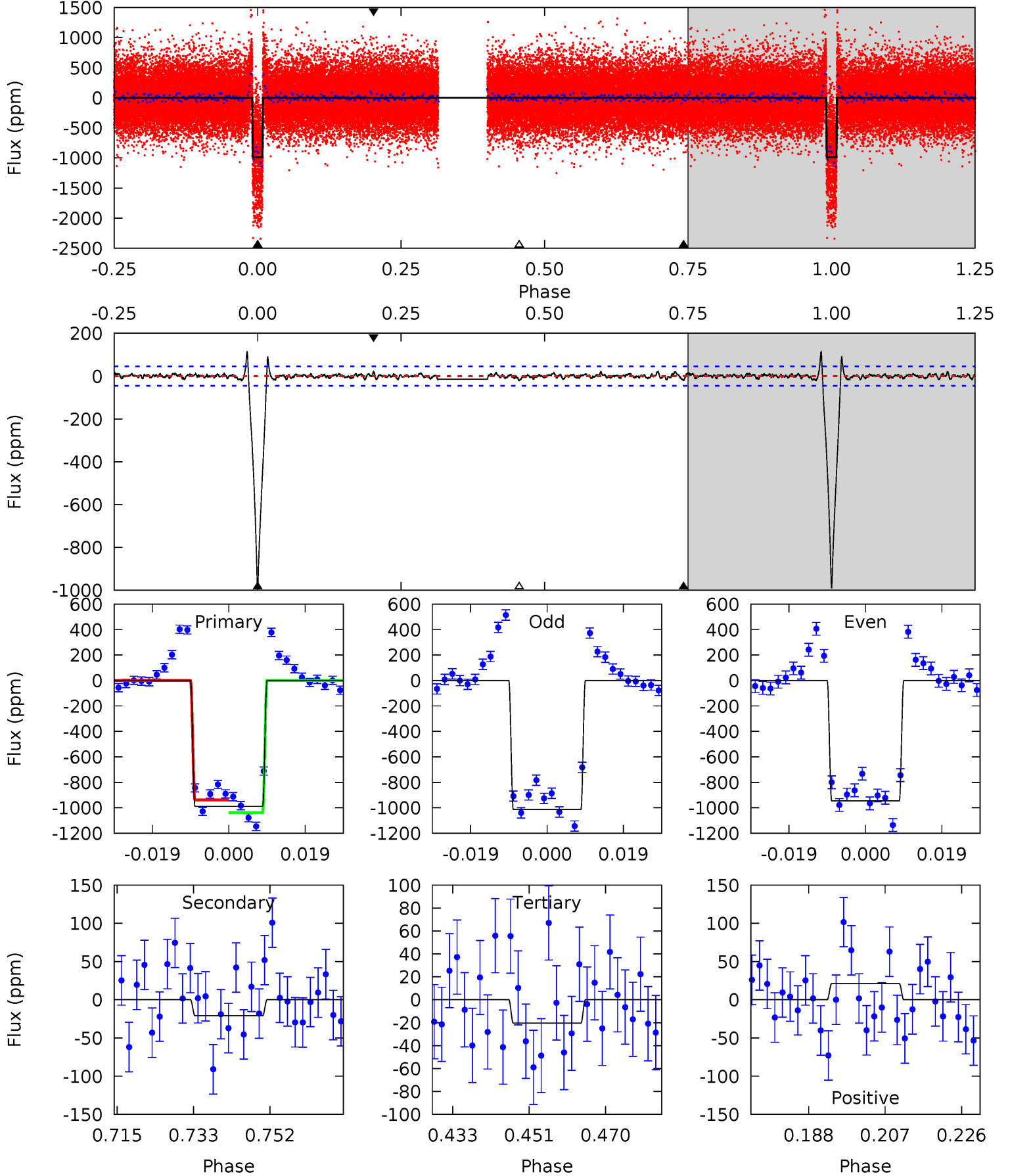
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
197.7	18.6	7.95	12.9	4.89	2.32	4.98	189.8	184.8	10.7	5.69	3.54	0.91	0.07	0.63



Alt Model-Shift Uniqueness Test

003851949-02, $P = 54.771929$ Days, $E = 124.155091$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
107.5	2.28	2.21	2.29	4.90	2.35	0.87	105.3	105.2	0.07	-0.01	3.60	1.12	0.10	0



Stellar Parameters For KIC 003851949

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5145^{+179}_{-179}	$3.466^{+0.623}_{-0.208}$	$0.020^{+0.250}_{-0.300}$	$3.866^{+1.169}_{-2.170}$	$1.594^{+0.220}_{-0.616}$	$0.039^{+0.311}_{-0.020}$
	+3%/-3%	+18%/-6%	+1250%/-1500%	+30%/-56%	+14%/-39%	+800%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 003851949-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-189 ± 10	$17.07^{+3.75}_{-5.52}$	1063^{+104}_{-170}	3418^{+89}_{-103}	38^{+39}_{-12}
Alt.	-21 ± 9	$12.99^{+2.42}_{-3.93}$	1076^{+101}_{-161}	2704^{+157}_{-182}	$7.754^{+7.885}_{-3.804}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

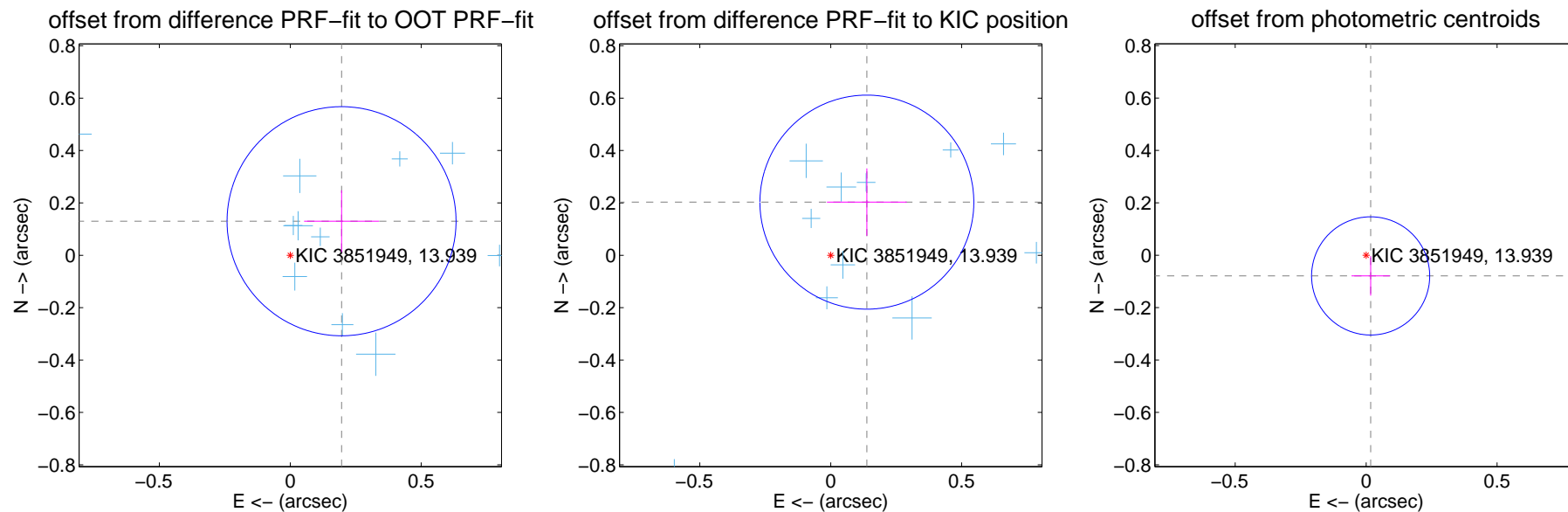
DV Centroid Data

Supplemental centroid analysis for 003851949-02. Kepler magnitude: 13.94. Transit SNR 60.70

There are 12 quarters with good PRF difference image offsets

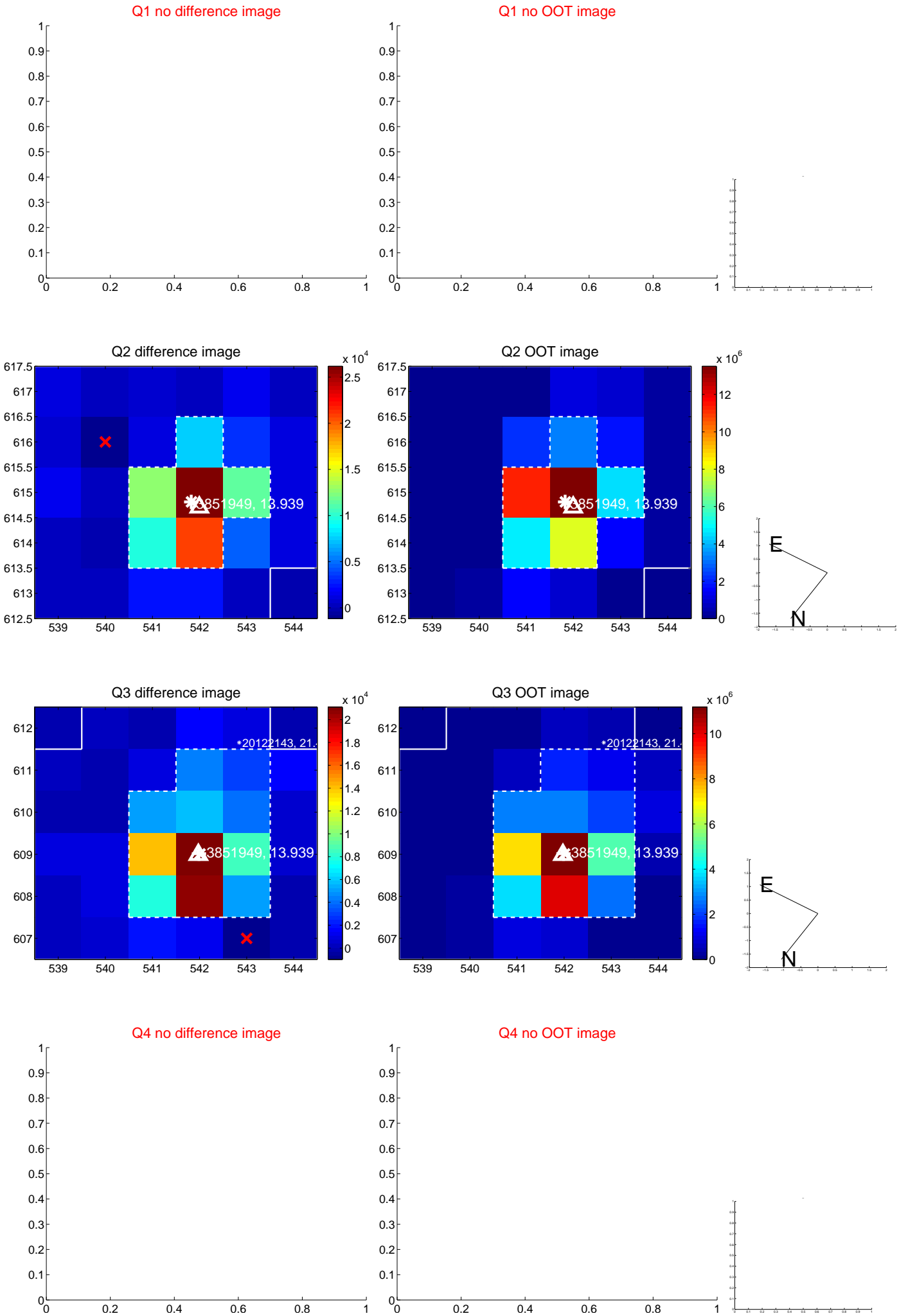
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.235 ± 0.146	1.61	-0.196 ± 0.143	0.130 ± 0.118
PRF-fit source offset from KIC position	0.245 ± 0.136	1.80	-0.138 ± 0.152	0.203 ± 0.129
photometric centroid source offset	0.08 ± 0.08	1.08	-0.02 ± 0.07	-0.08 ± 0.08

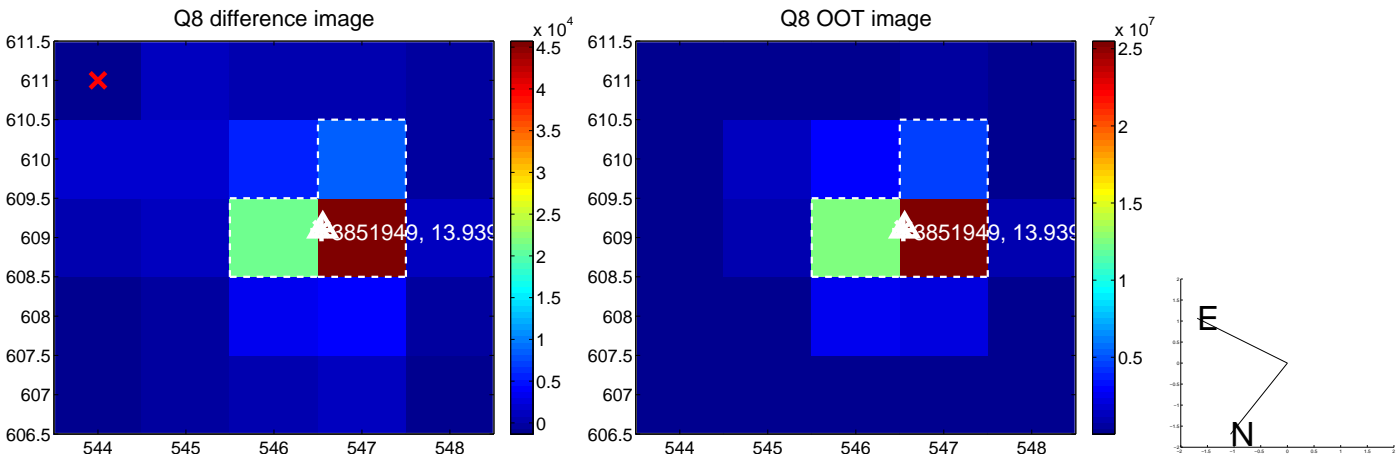
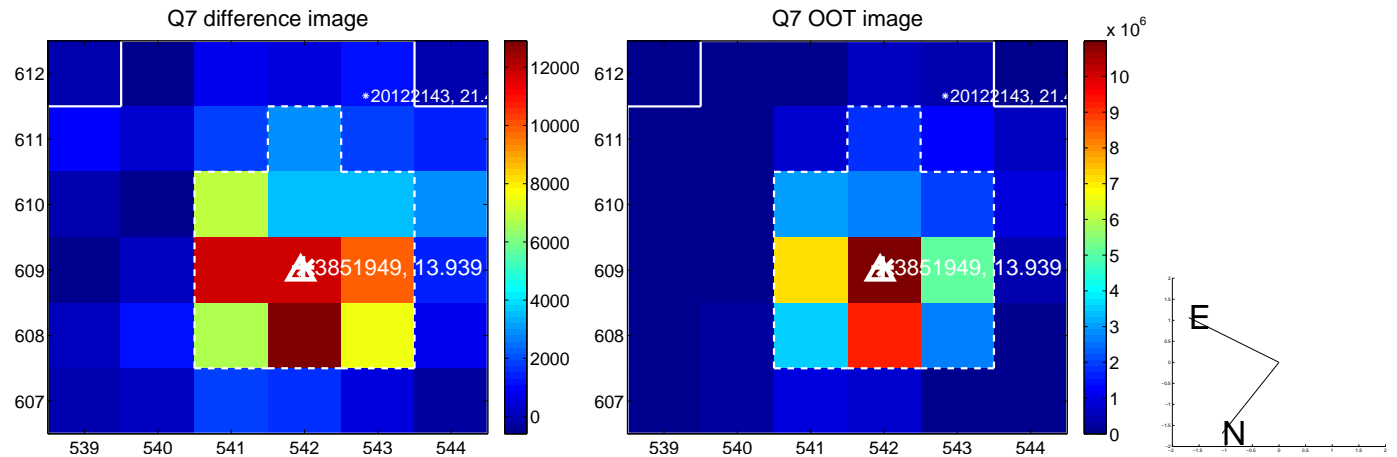
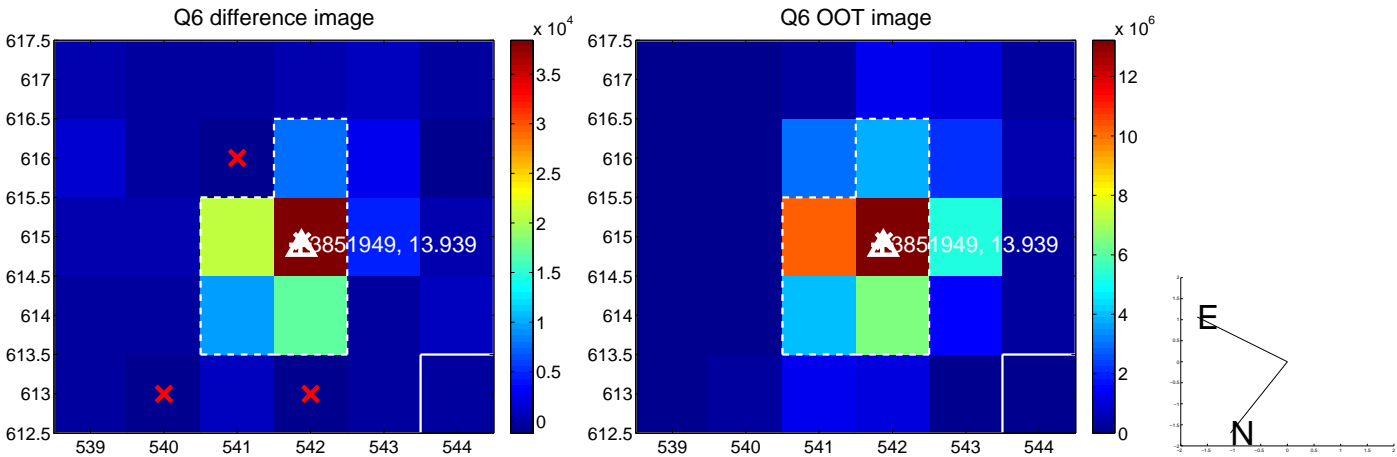
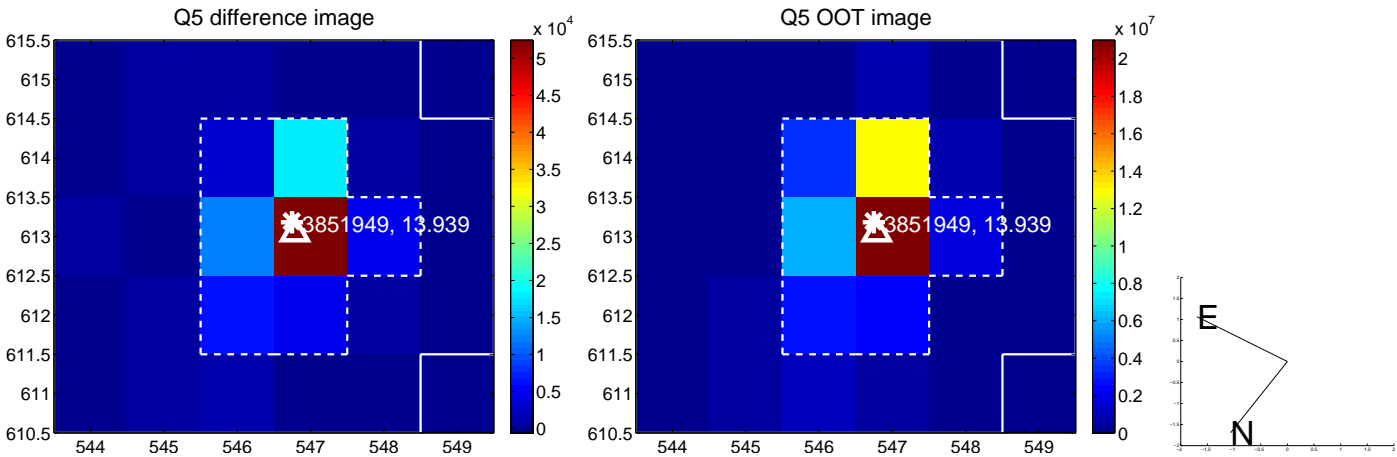


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

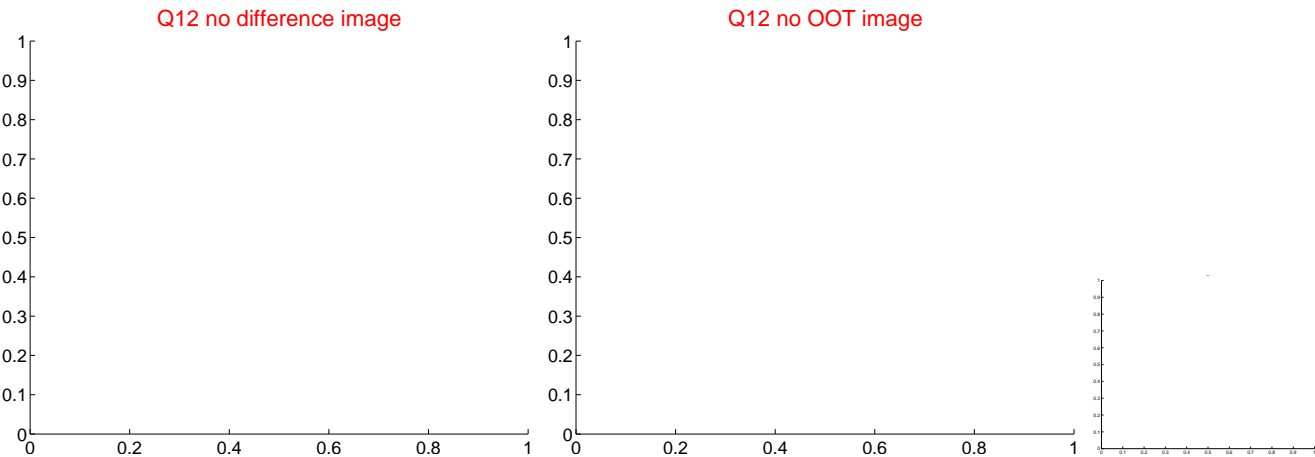
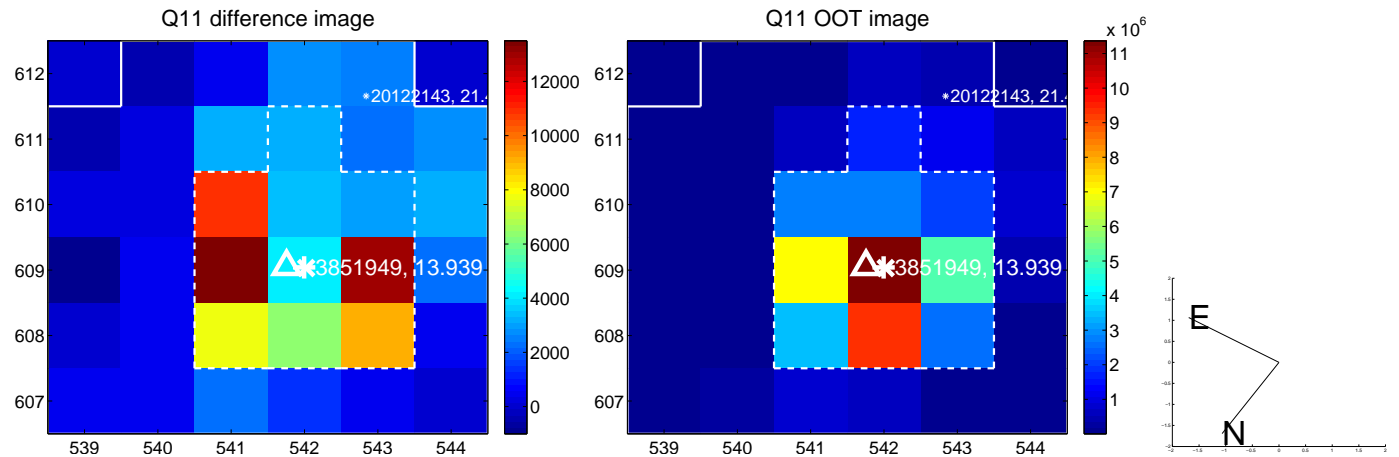
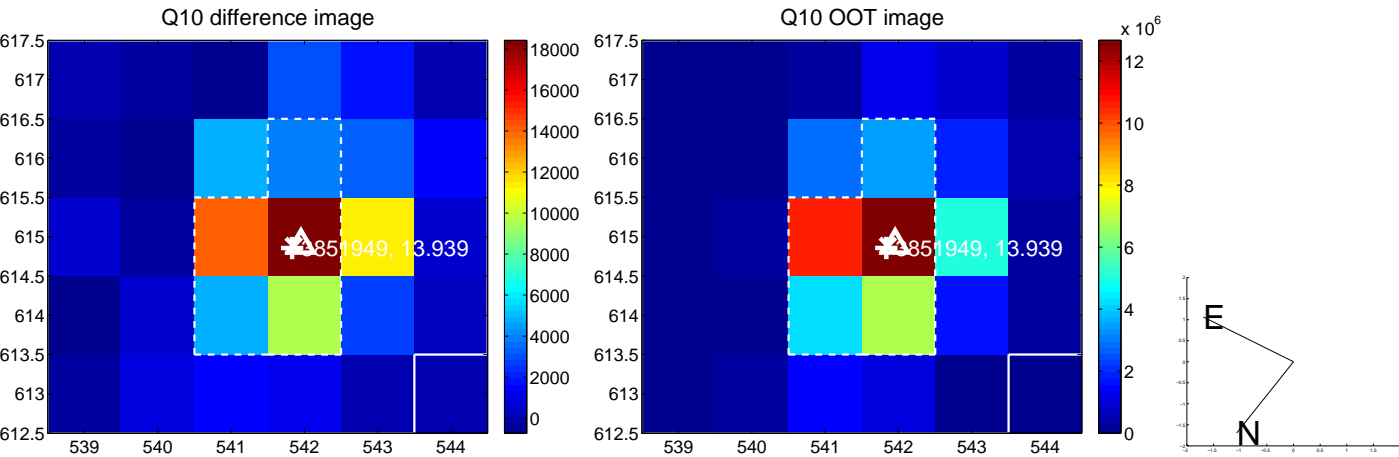
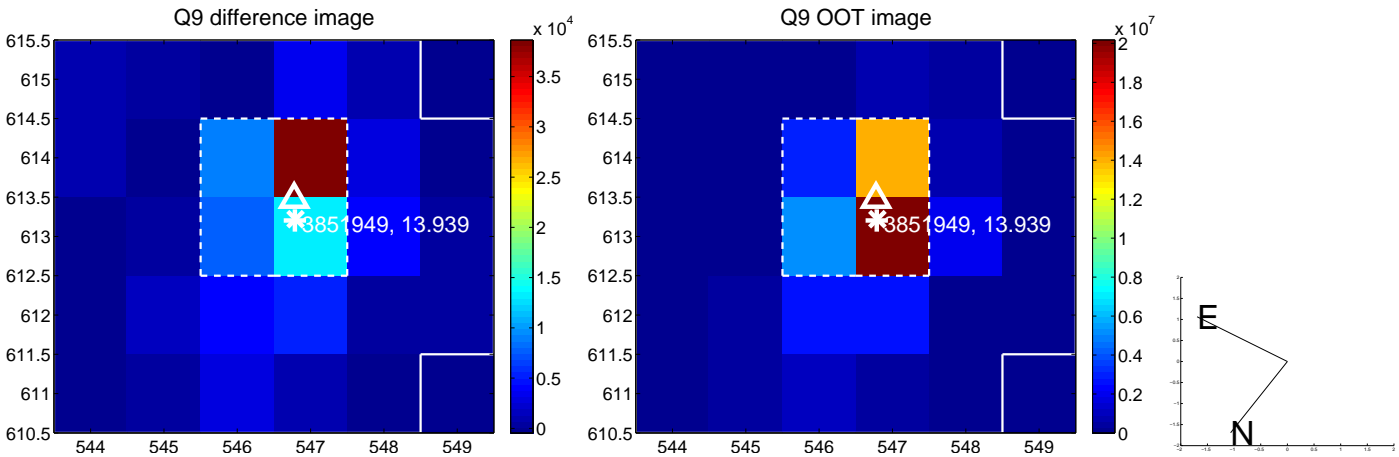
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



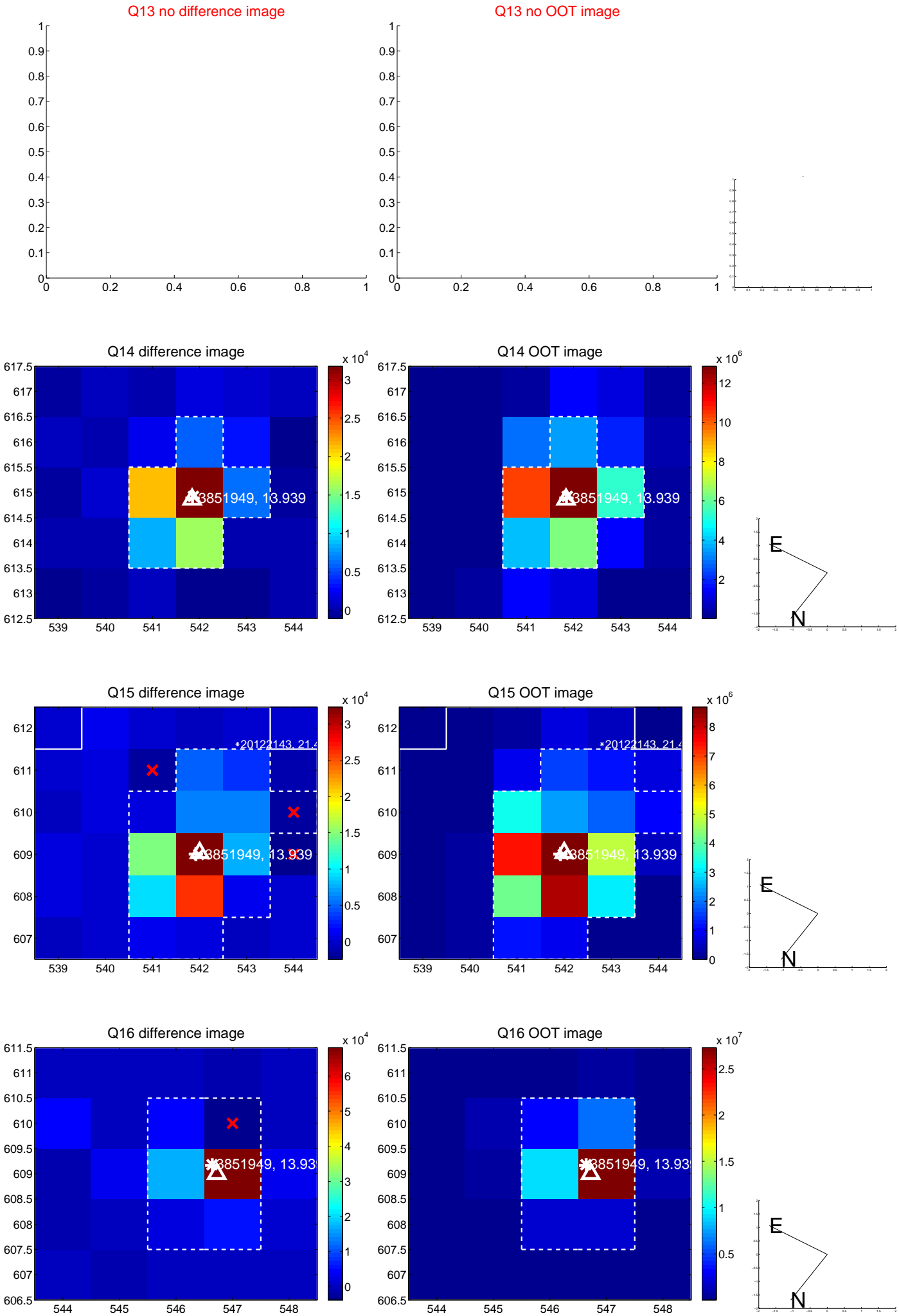
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



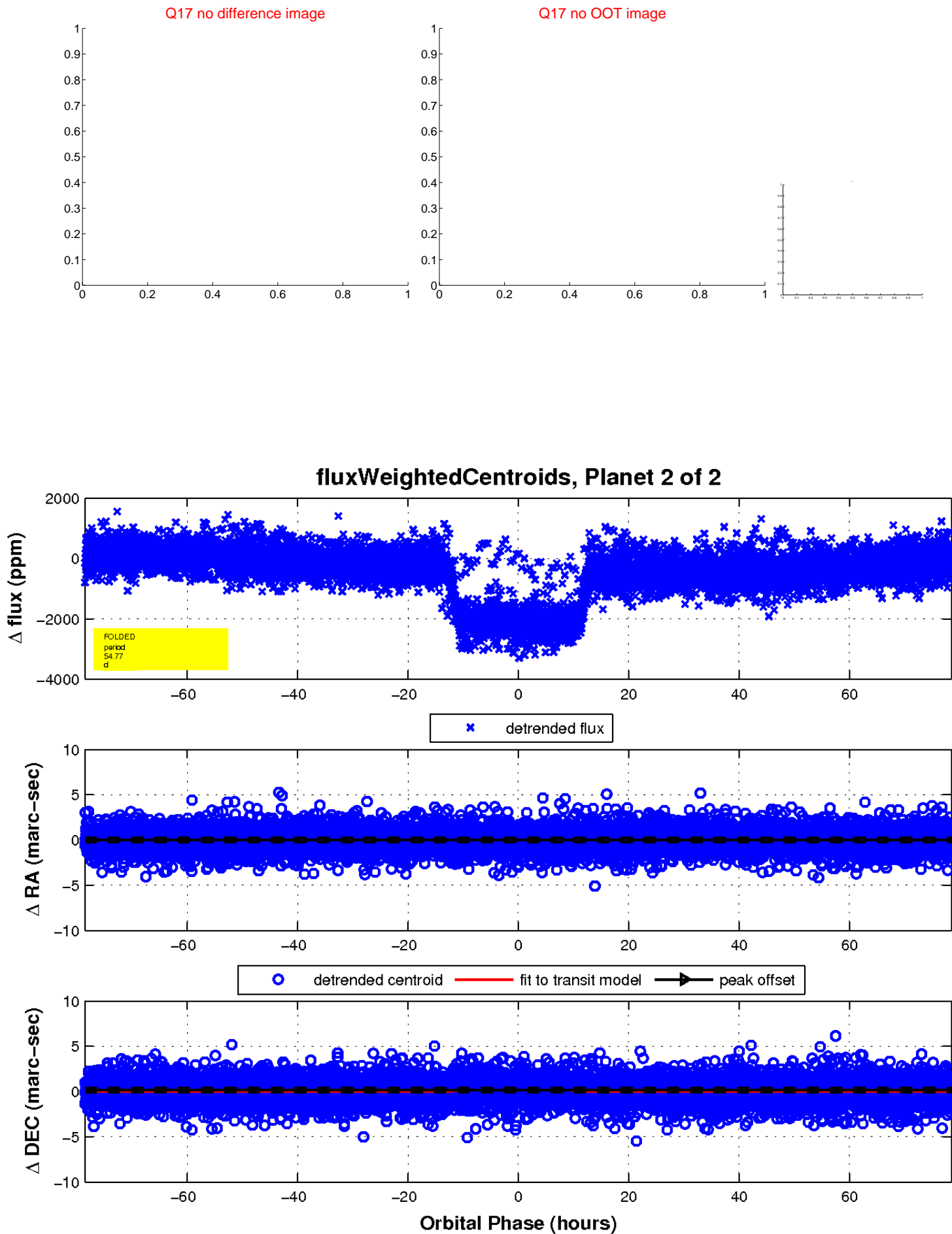
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UKIRT Image

Declination

