

KIC 003654076

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})
003654076-02	OBS	No	367.431570	280.645980	287.0	7.493	25.5	1.6	1.57	6873	2.92	3.98
003654076-03	OBS	No	300.443171	343.632078	914.6	3.000	26.1	-1.0	1.57	6873	4.79	5.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003654076-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
003654076-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

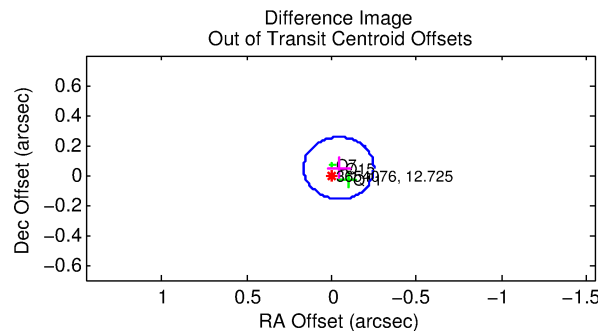
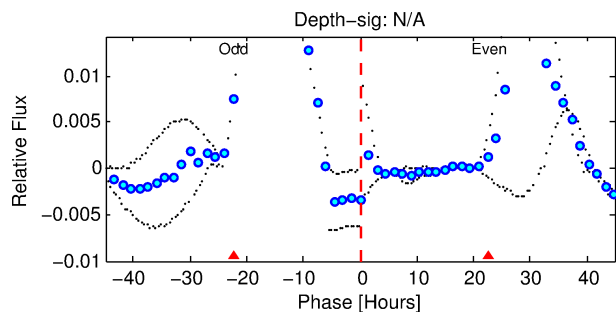
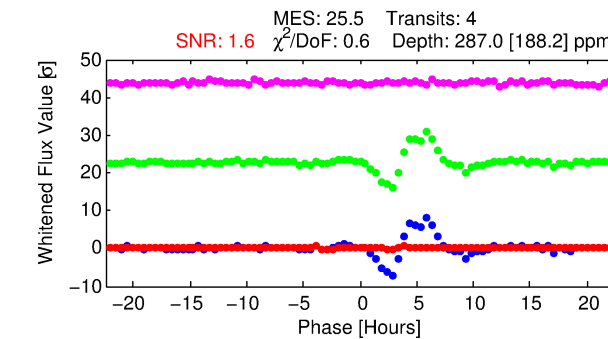
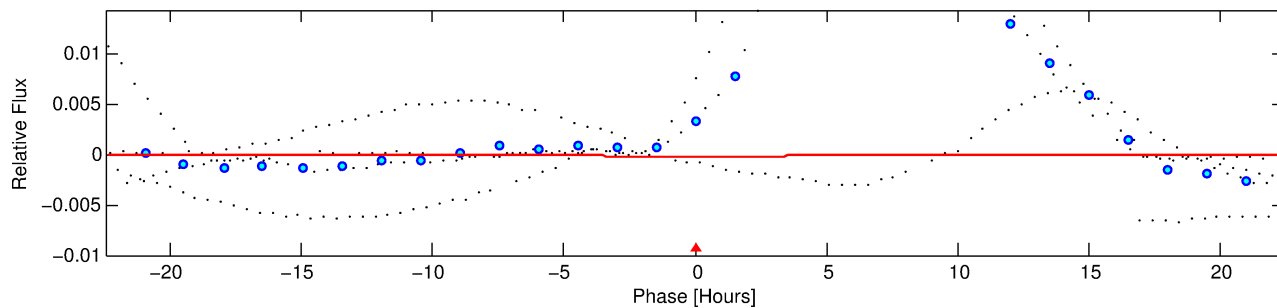
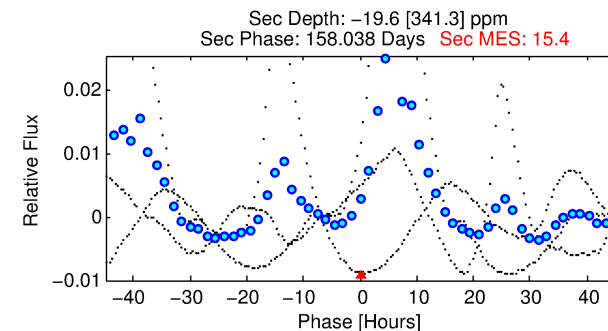
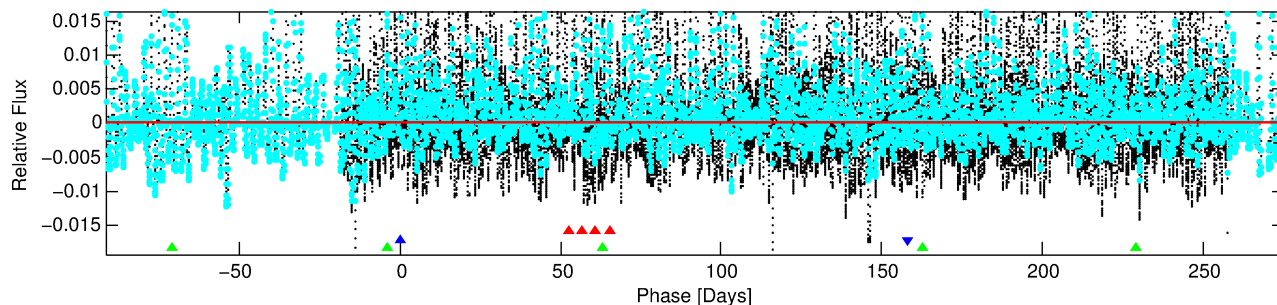
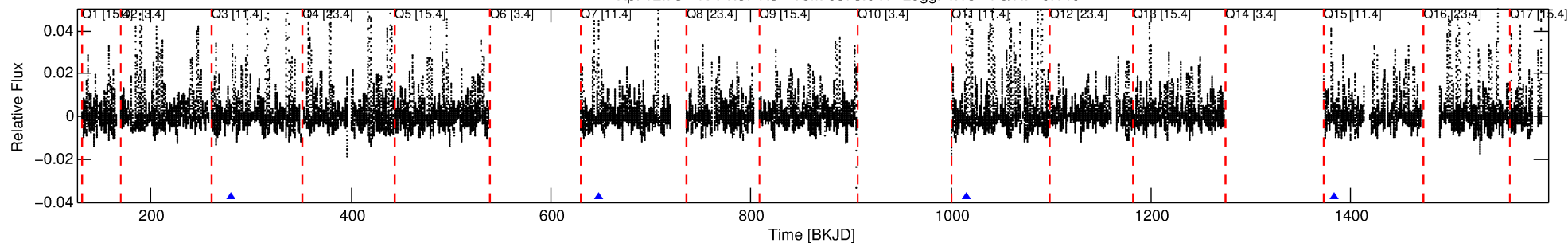
Ephemeris Match Information For 003654076-02

No Significant Match Found

DV One-Page Summary

KIC: 3654076 Candidate: 2 of 3 Period: 367.432 d

Kp: 12.73 R*: 1.57 Rs Teff: 6873.0 K Logg: 4.18 Fe/H: -0.140



DV Fit Results:

Period = 367.43157 [0.00916] d
Epoch = 280.6460 [0.0215] BKJD
Rp/R* = 0.0171 [0.0123]
a/R* = 238.32 [747.01]
b = 0.79 [1.48]
Seff = 3.98 [1.57]
Teq = 360 [36] K
Rp = 2.92 [2.27] Re
a = 1.1118 [0.2795] AU
Ag = N/A
Teffp = N/A

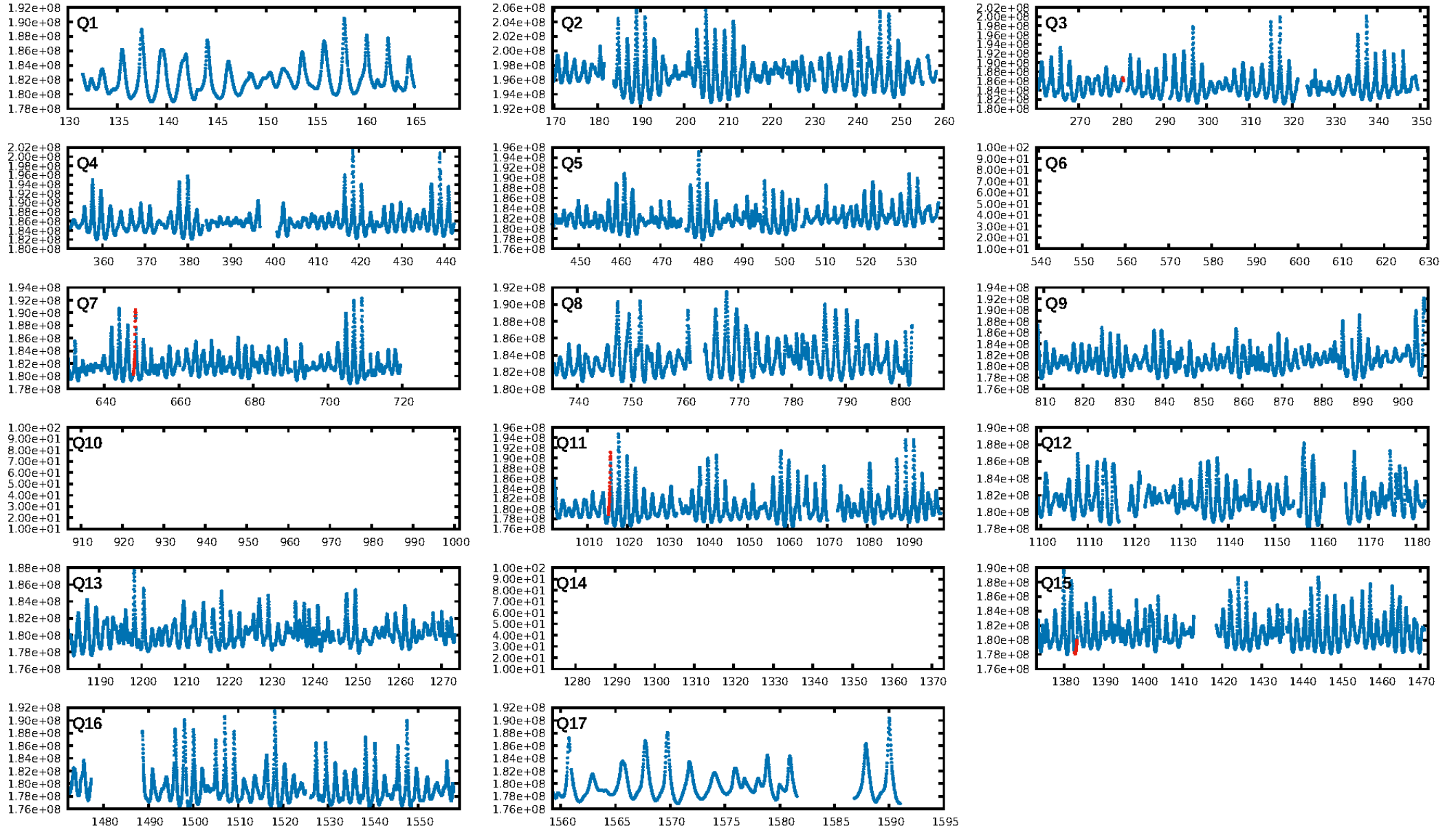
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.80σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 94.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.8463
Centroid-sig: 75.5%
Centroid-so: 0.828 arcsec [0.50σ]
OotOffset-rm: 0.063 arcsec [0.91σ]
KicOffset-rm: 0.174 arcsec [2.49σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

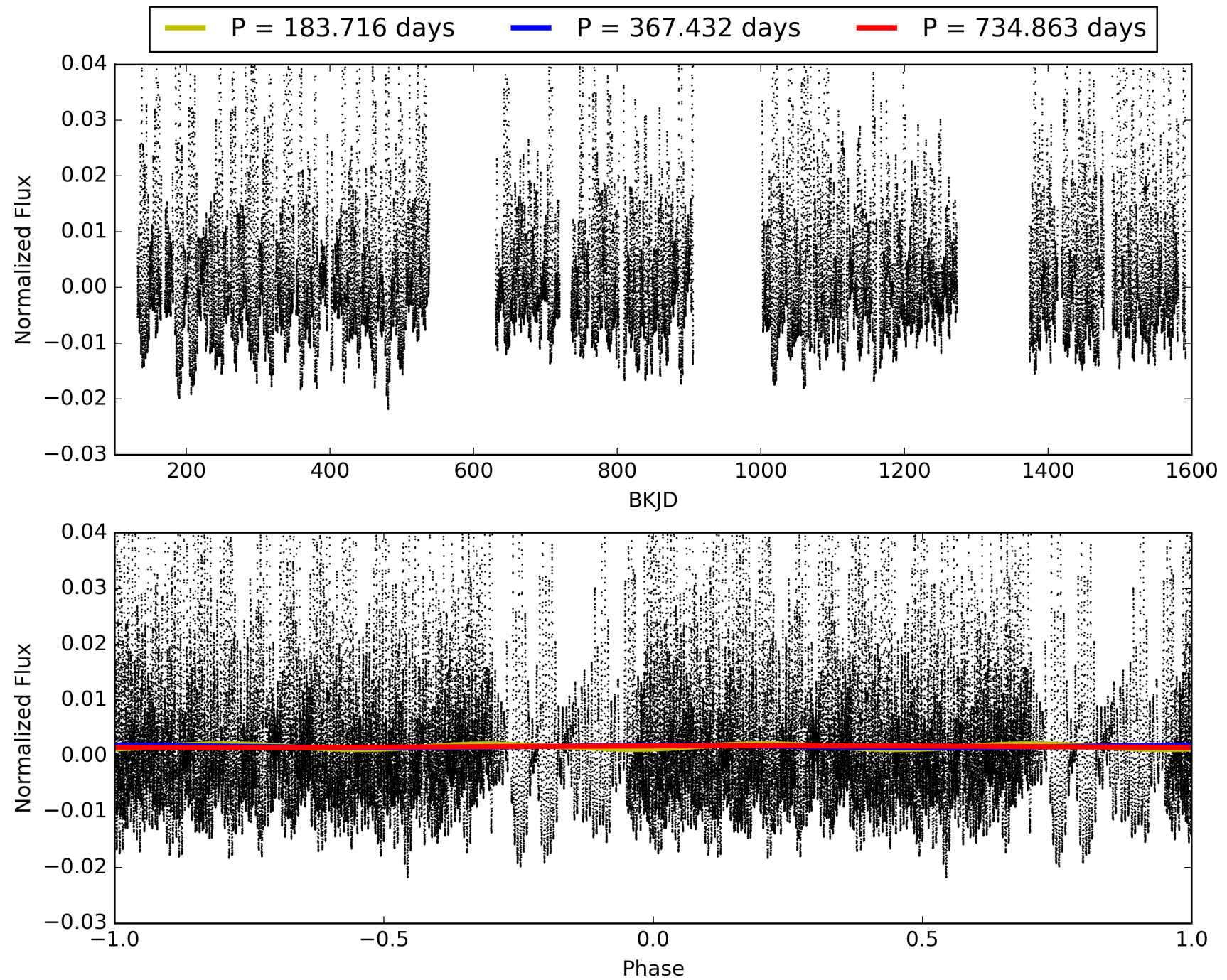
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:43:08 Z

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

TCE 003654076-02, PDC Light Curves

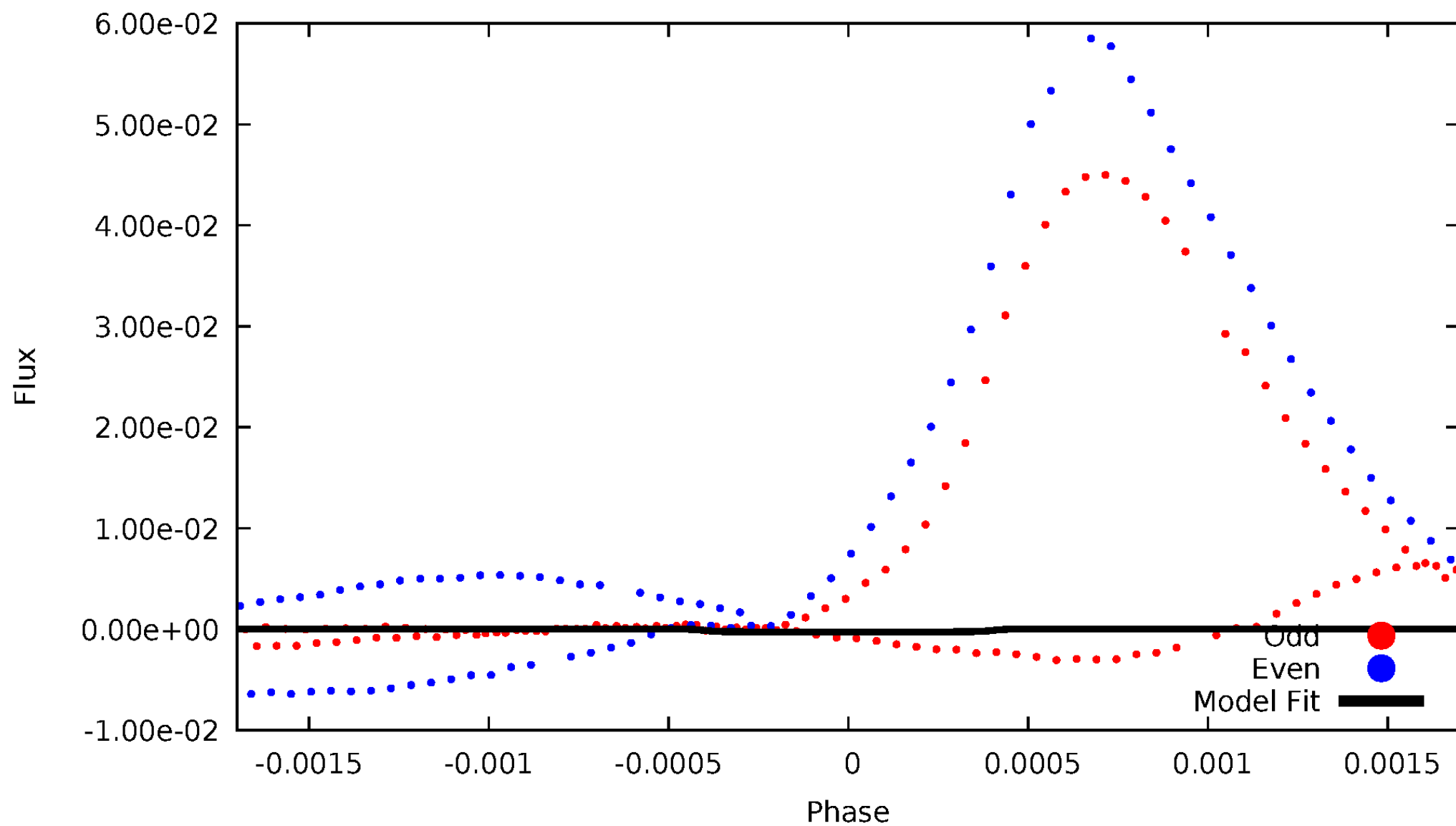


TCE 003654076-02



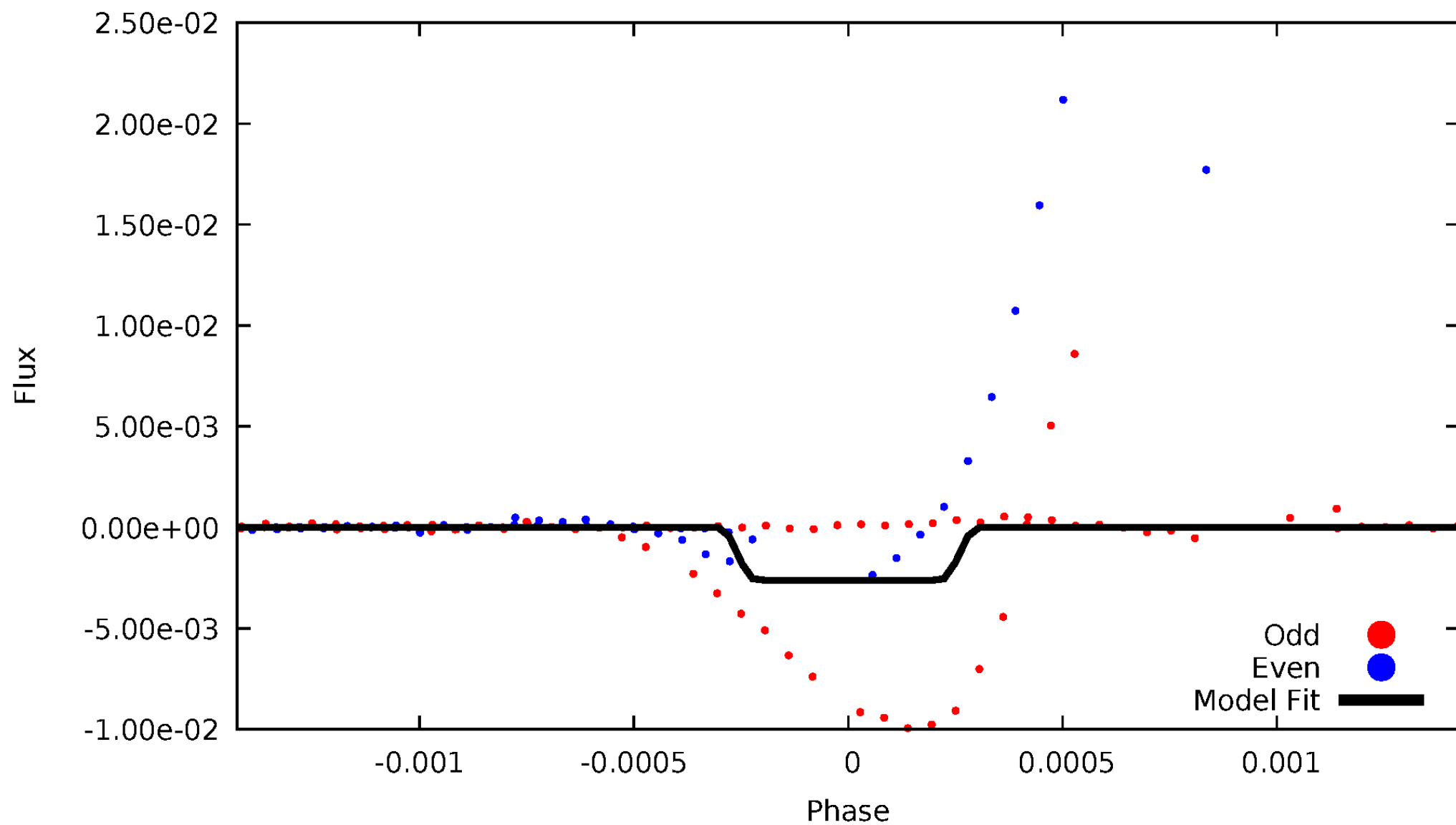
DV Odd/Even

TCE 003654076-02



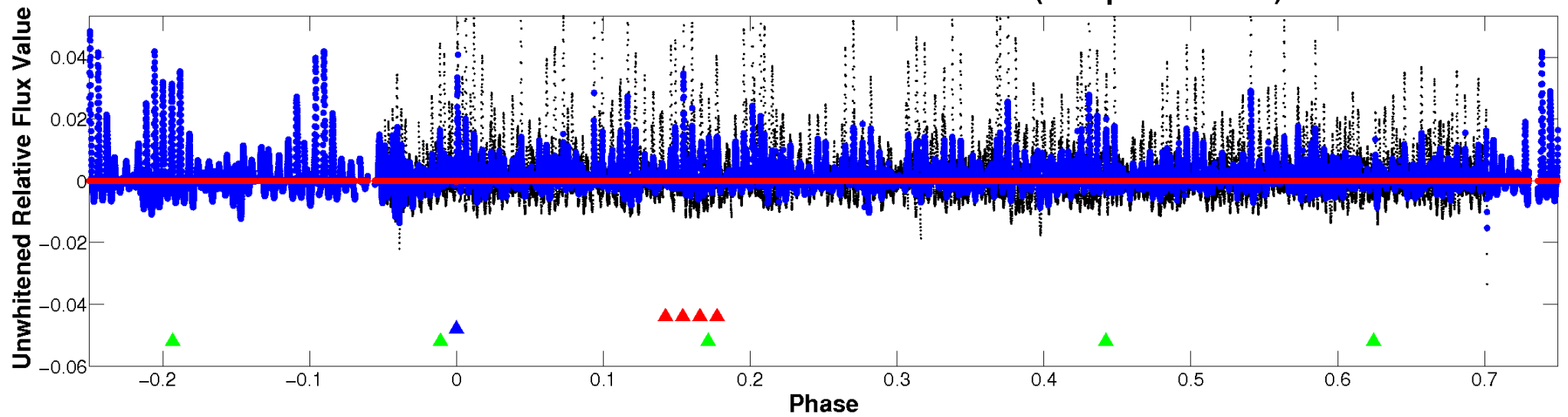
ALT Odd/Even

TCE 003654076-02

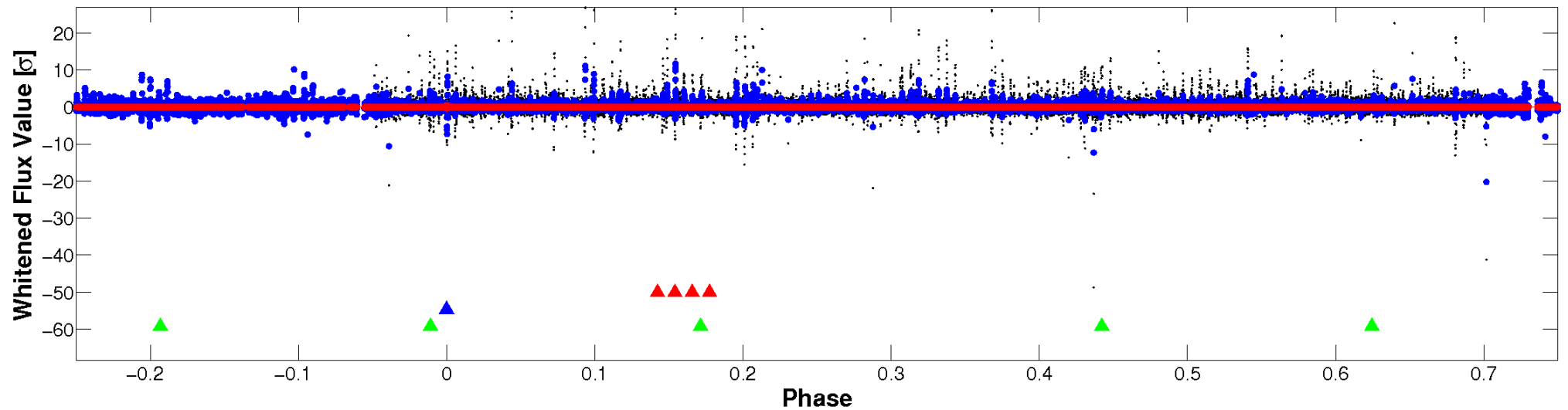


Non-Whitened Vs. Whitened Light Curve

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

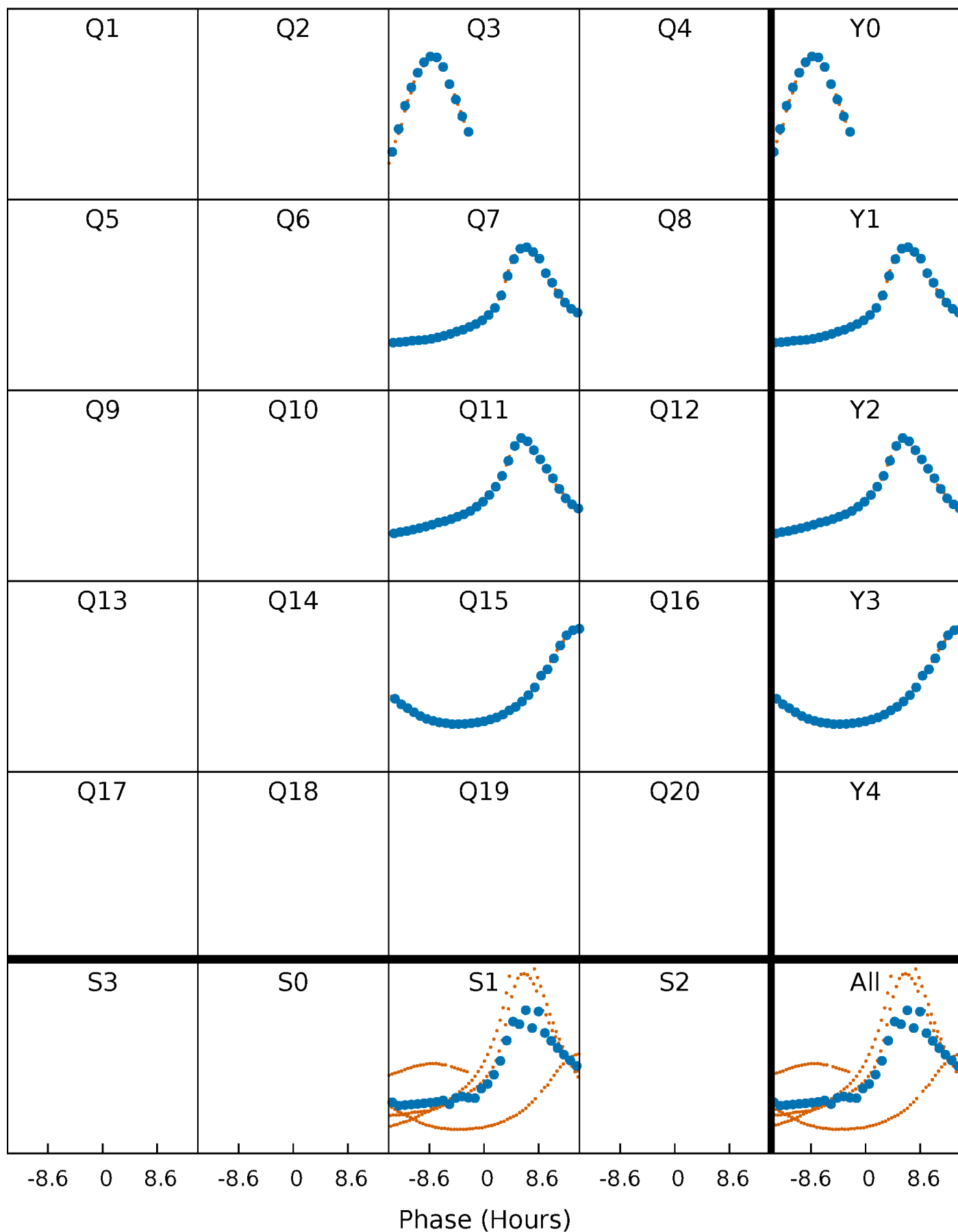


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



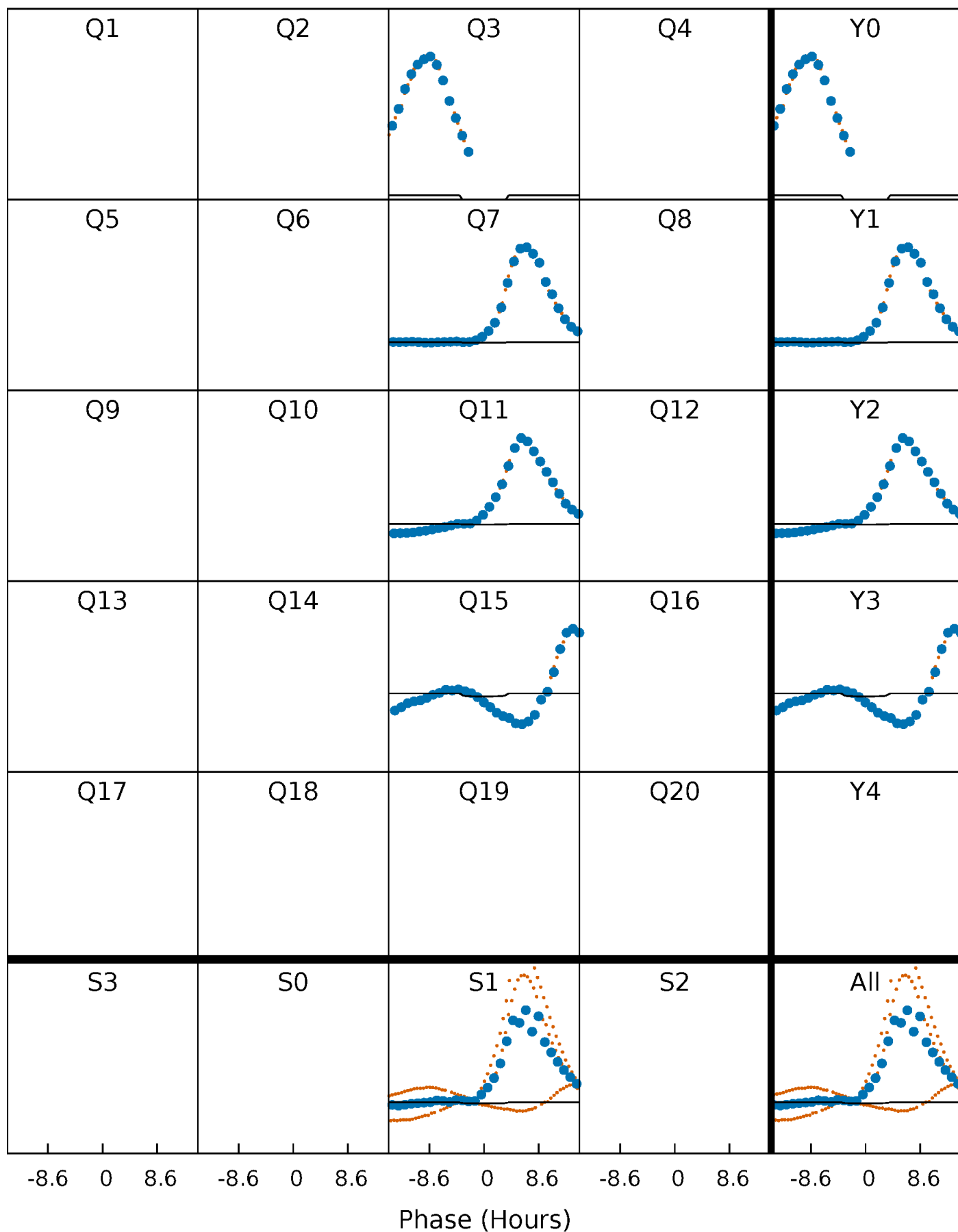
PDC Quarter-Phased Transit Curves

TCE 003654076-02 $P=367.431570$ Days $T_0=280.645980$ (BKJD)



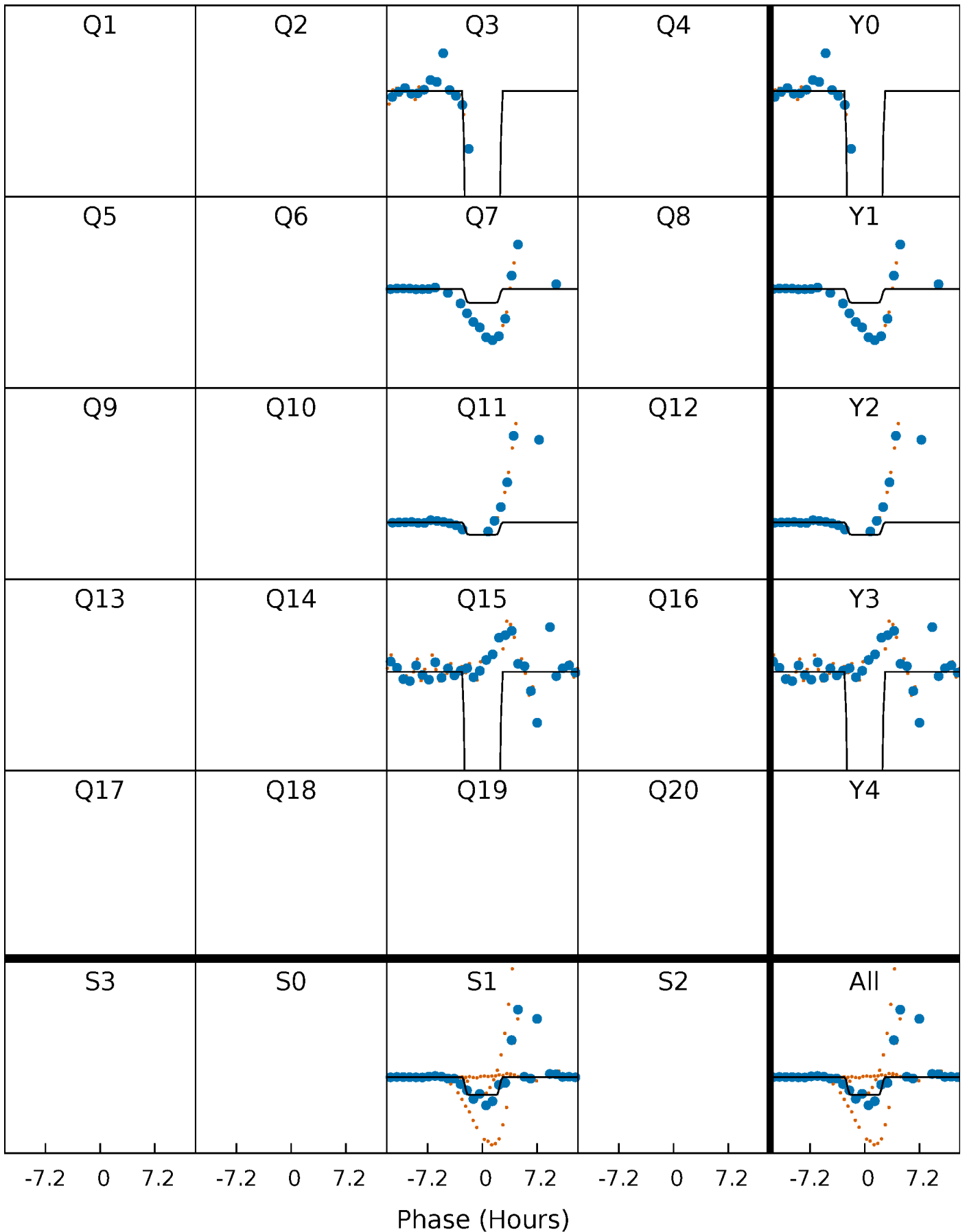
DV Quarter-Phased Transit Curves

TCE 003654076-02 $P=367.431570$ Days $T_0=280.645980$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

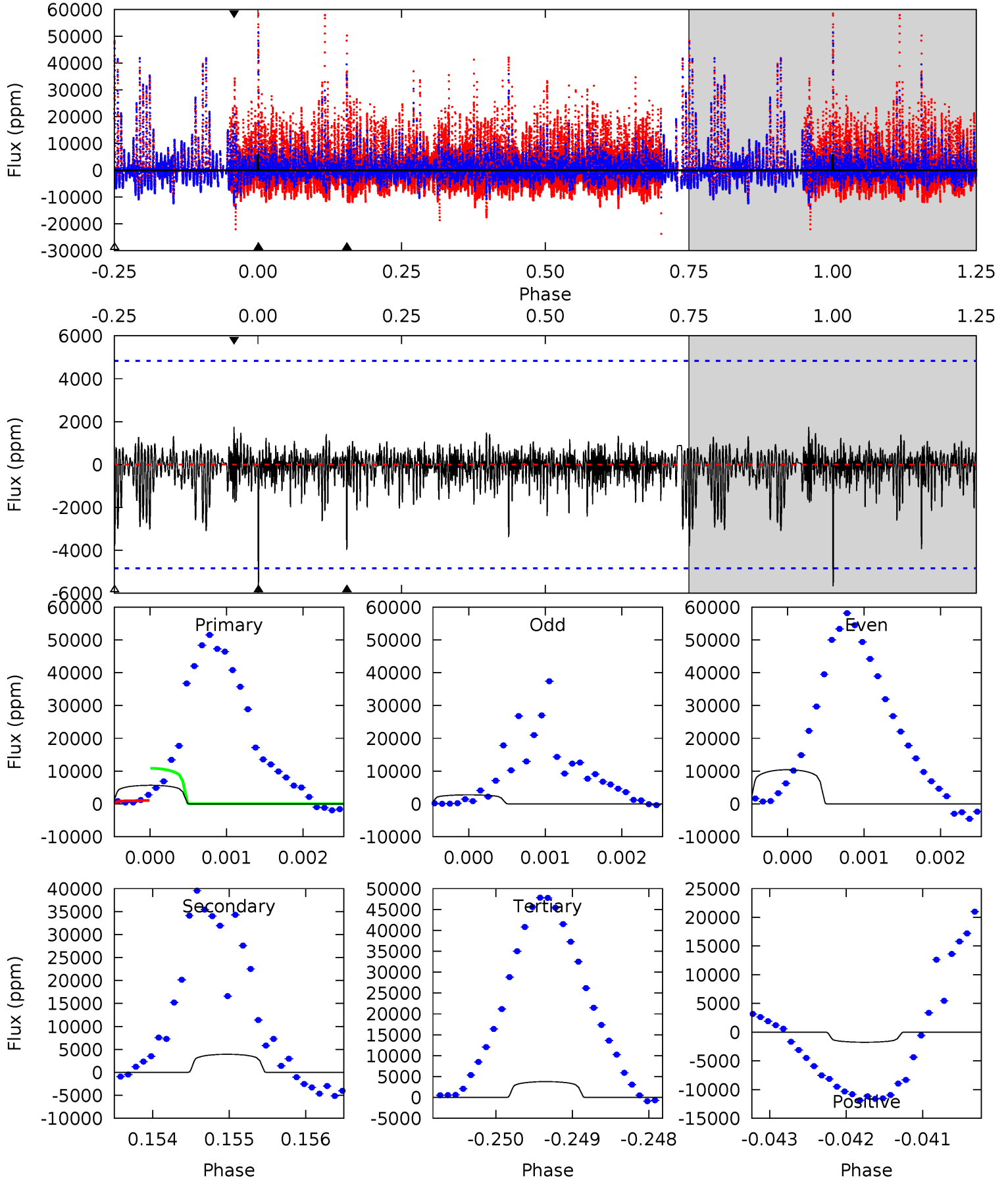
TCE 003654076-02 $P=367.446937$ Days $T_0=280.617569$ (BKJD)



DV Model-Shift Uniqueness Test

003654076-02, P = 367.431570 Days, E = 280.645980 Days

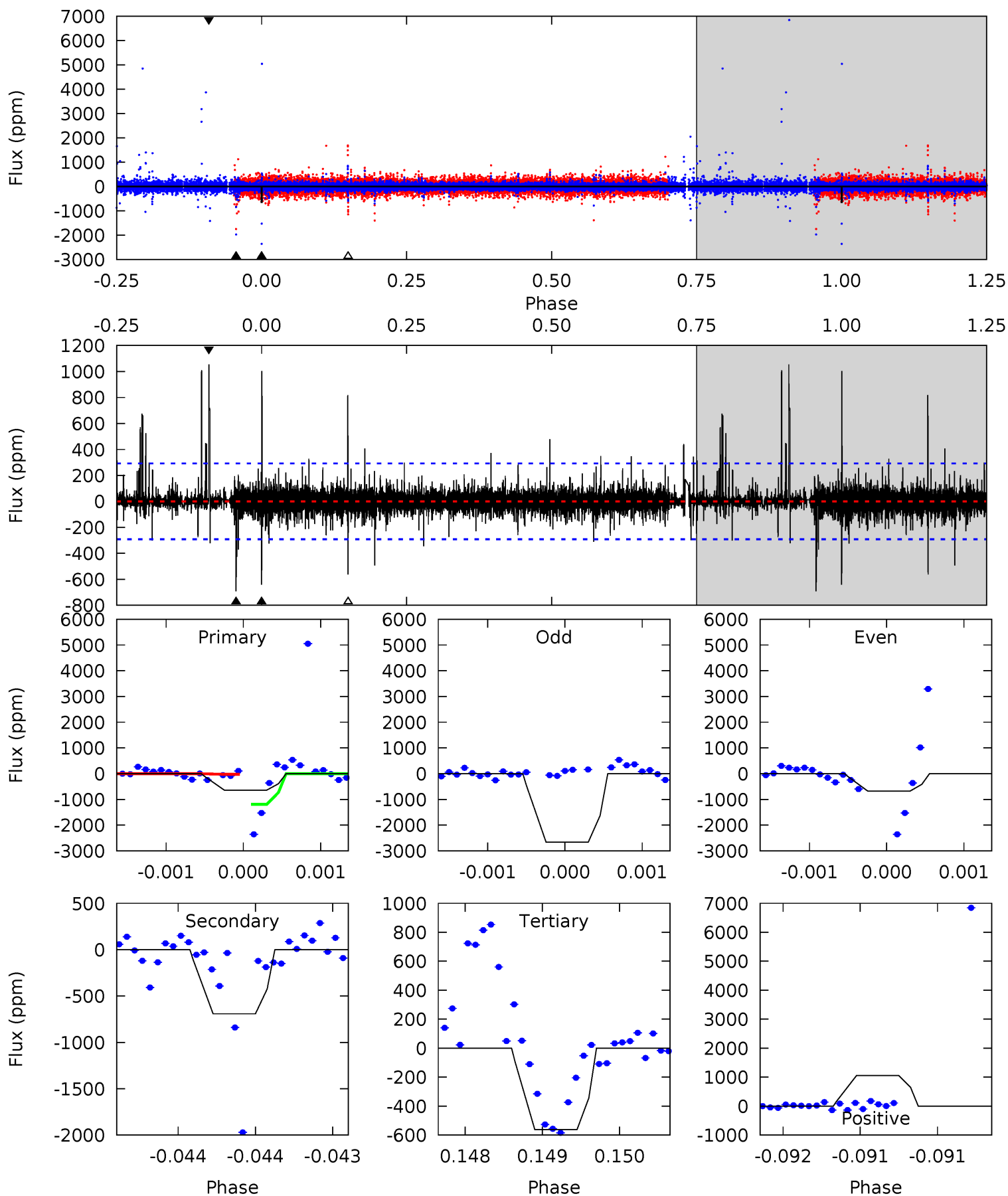
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.42	4.46	4.28	1.98	5.47	3.32	0.70	2.14	4.43	0.17	2.47	3.30	1.07	0.24	5.59



Alt Model-Shift Uniqueness Test

003654076-02, P = 367.446937 Days, E = 280.617569 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.2	13.2	10.7	20.0	5.55	3.45	1.11	1.49	-7.87	2.49	-6.87	12.7	3.46	0.60	10.7



Stellar Parameters For KIC 003654076

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6873^{+166}_{-262}	$4.180^{+0.149}_{-0.198}$	$-0.140^{+0.250}_{-0.350}$	$1.568^{+0.471}_{-0.314}$	$1.367^{+0.202}_{-0.224}$	$0.499^{+0.381}_{-0.249}$
	+2%/-4%	+4%/-5%	+179%/-250%	+30%/-20%	+15%/-16%	+76%/-50%
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 003654076-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3937 ± 884	$3.17^{+2.26}_{-1.86}$	505^{+37}_{-33}	17383^{+38476}_{-6600}	$265217^{+1337431}_{-181440}$
Alt.	-692 ± 53	$8.80^{+2.62}_{-2.25}$	502^{+41}_{-31}	4960^{+641}_{-437}	5945^{+4786}_{-2389}

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

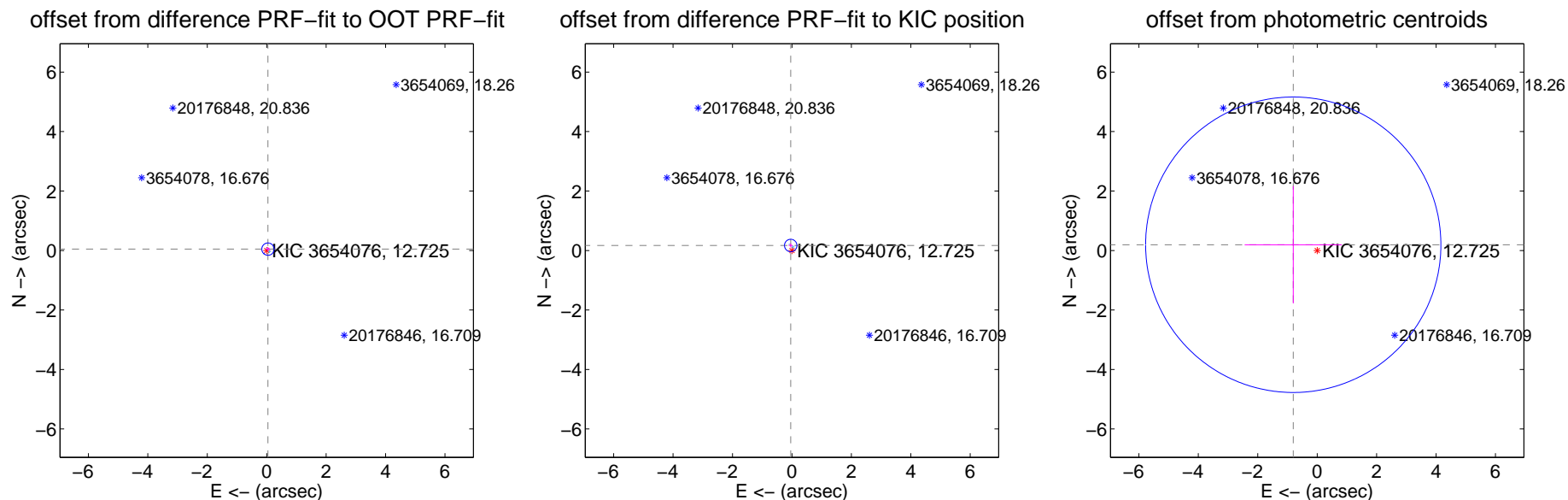
DV Centroid Data

Supplemental centroid analysis for 003654076-02. Kepler magnitude: 12.72. Transit SNR 1.56

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.063 ± 0.069	0.91	-0.042 ± 0.069	0.047 ± 0.069
PRF-fit source offset from KIC position	0.174 ± 0.070	2.49	0.041 ± 0.071	0.169 ± 0.070
photometric centroid source offset	0.83 ± 1.66	0.50	0.80 ± 1.64	0.19 ± 1.97



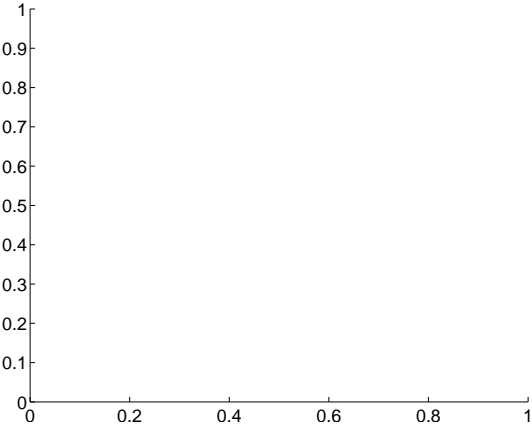
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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.

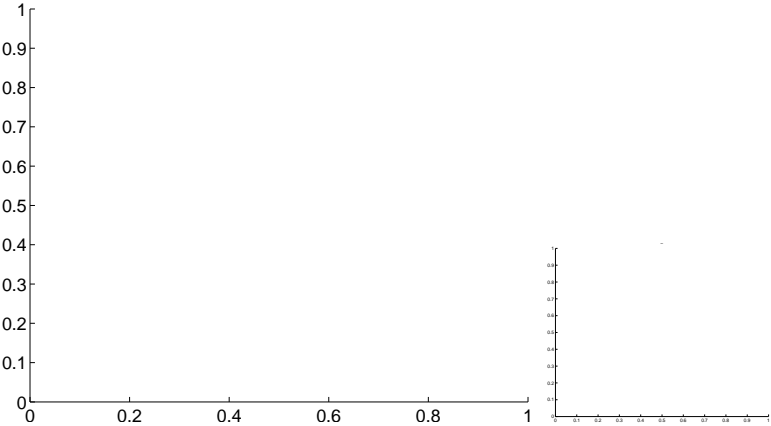


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

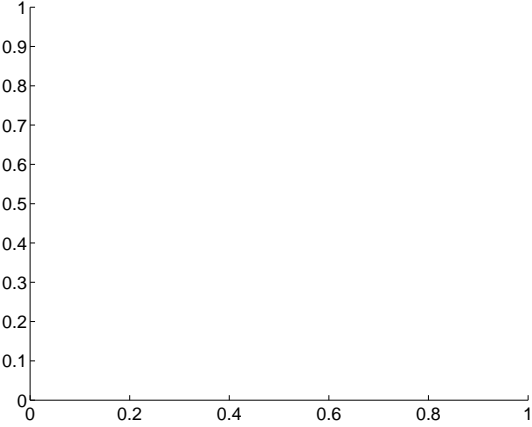
Q5 no difference image



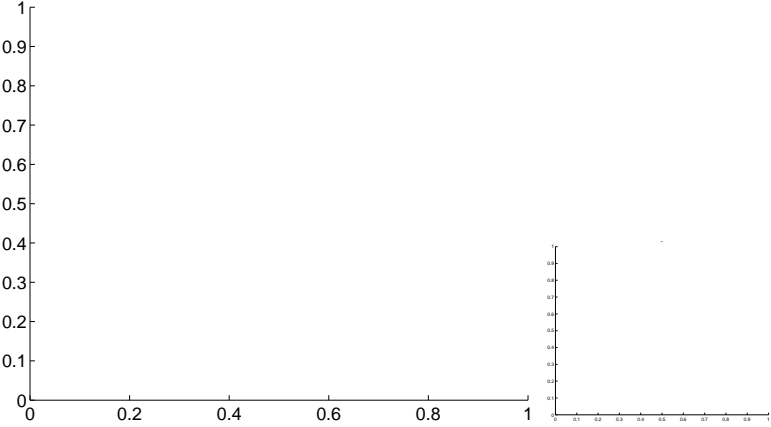
Q5 no OOT image



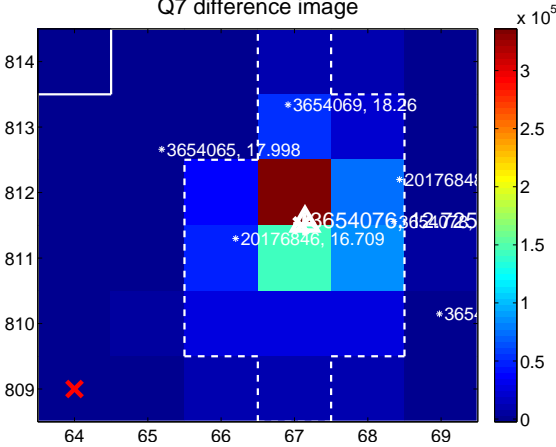
Q6 no difference image



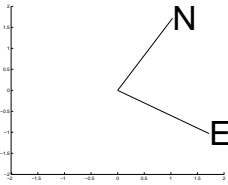
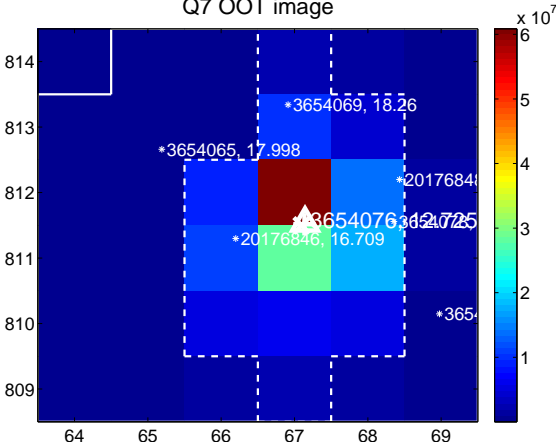
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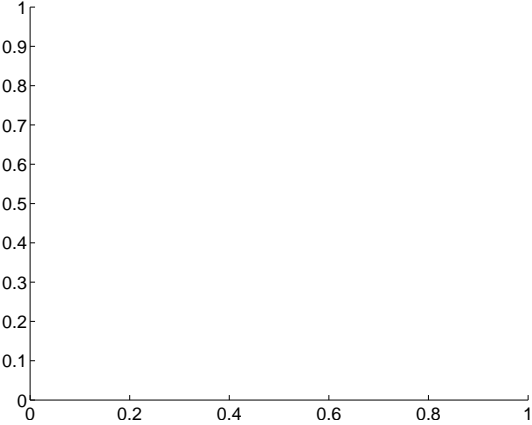
Q7 difference image



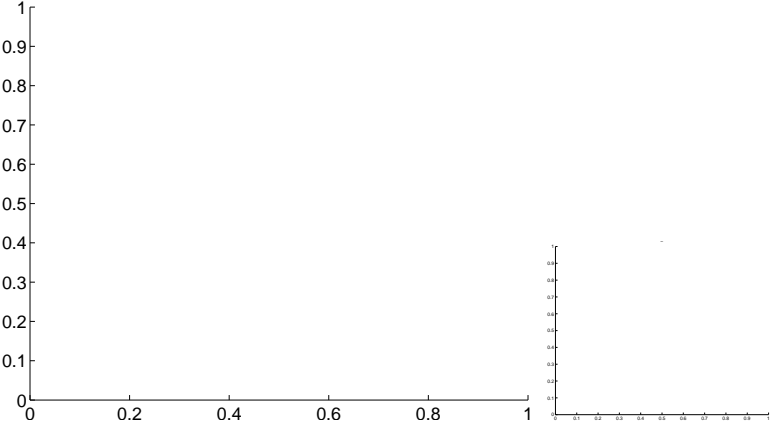
Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

Q9 no difference image



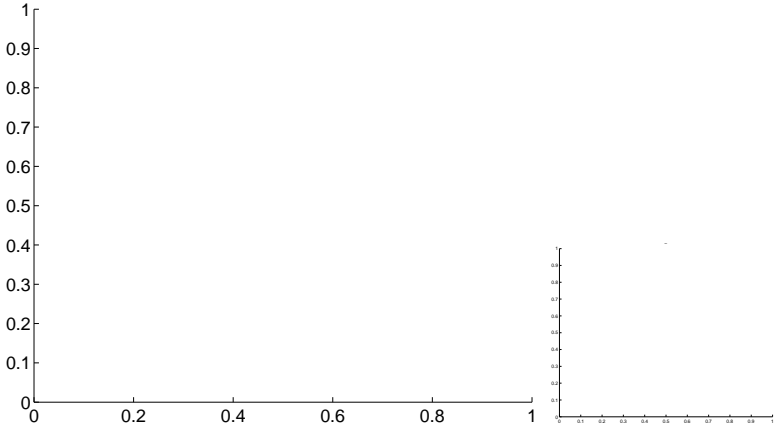
Q9 no OOT image



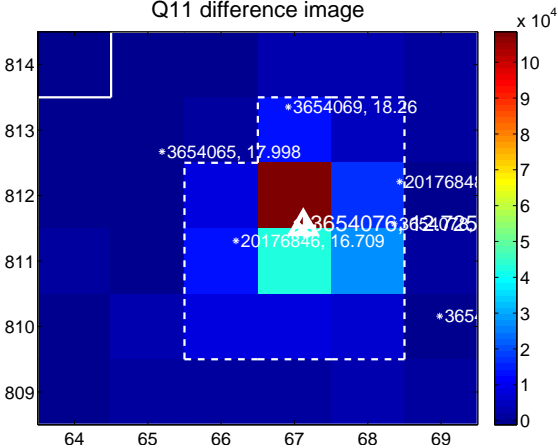
Q10 no difference image



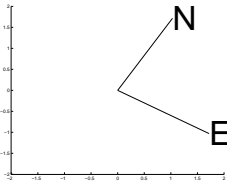
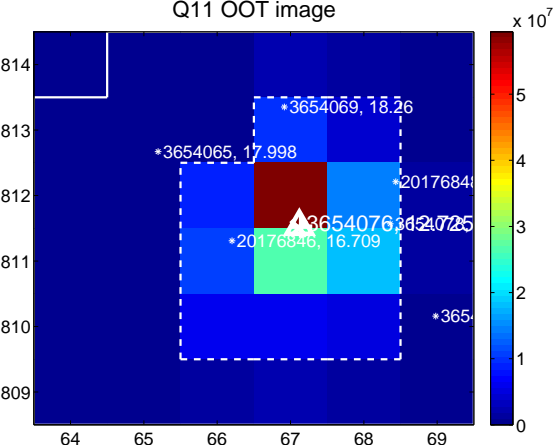
Q10 no OOT image



Q11 difference image



Q11 OOT image



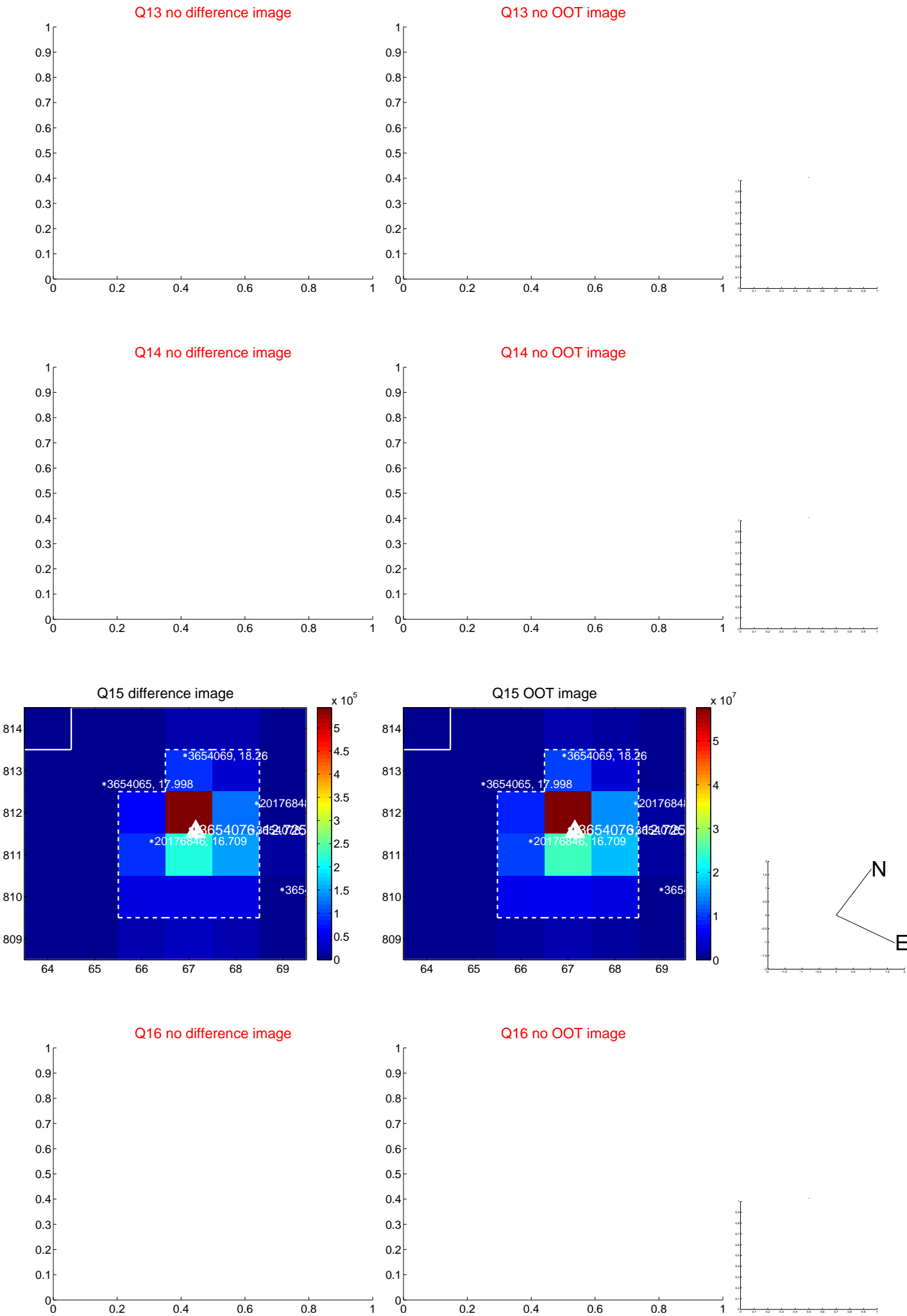
Q12 no difference image



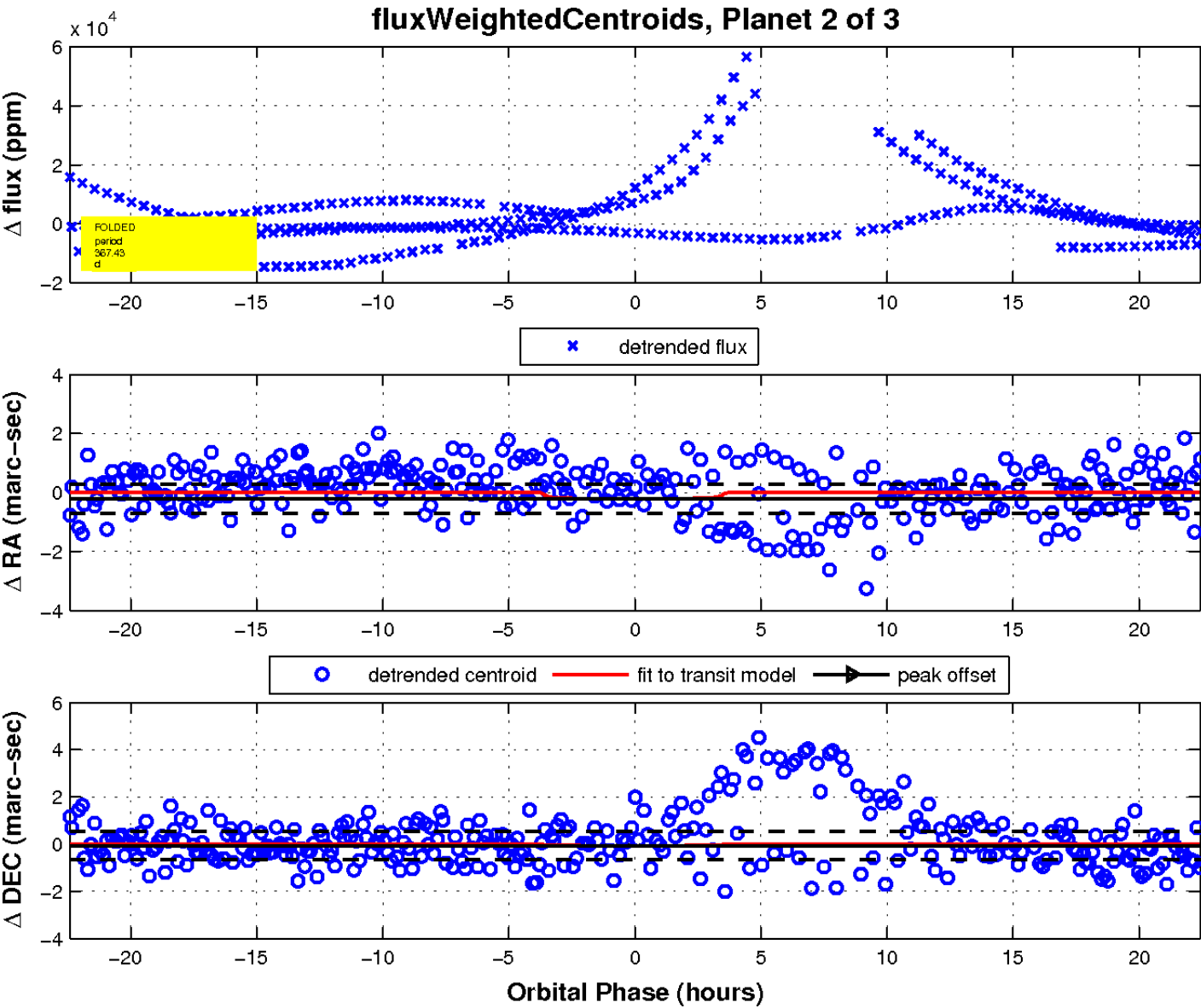
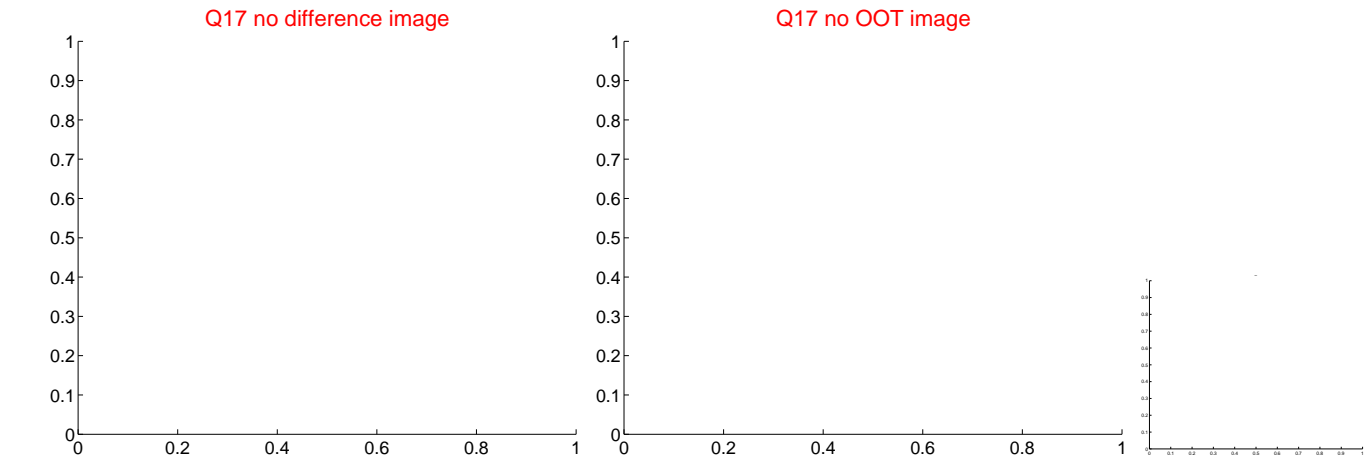
Q12 no OOT image



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

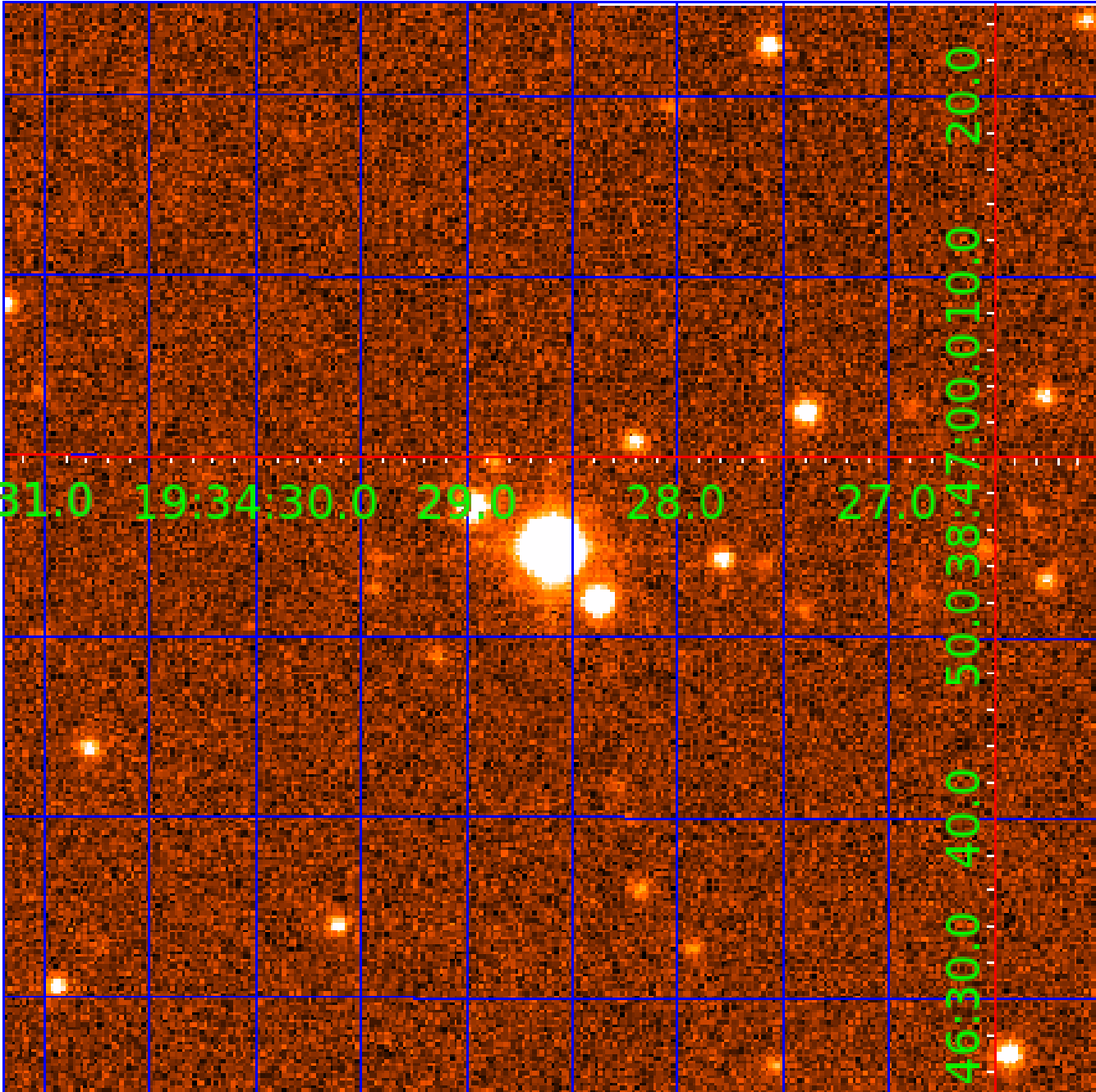


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003654076

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})
003654076-02	OBS	No	367.431570	280.645980	287.0	7.493	25.5	1.6	1.57	6873	2.92	3.98
003654076-03	OBS	No	300.443171	343.632078	914.6	3.000	26.1	-1.0	1.57	6873	4.79	5.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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003654076-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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.

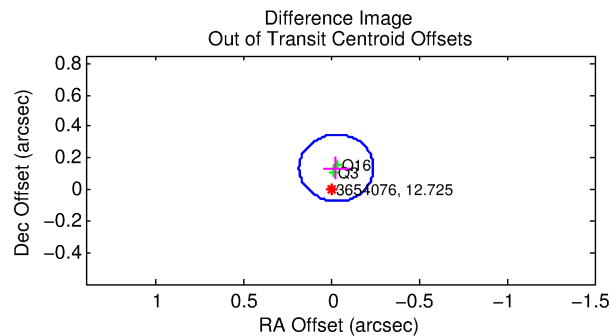
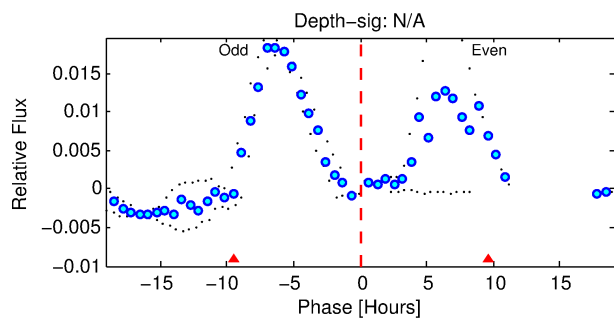
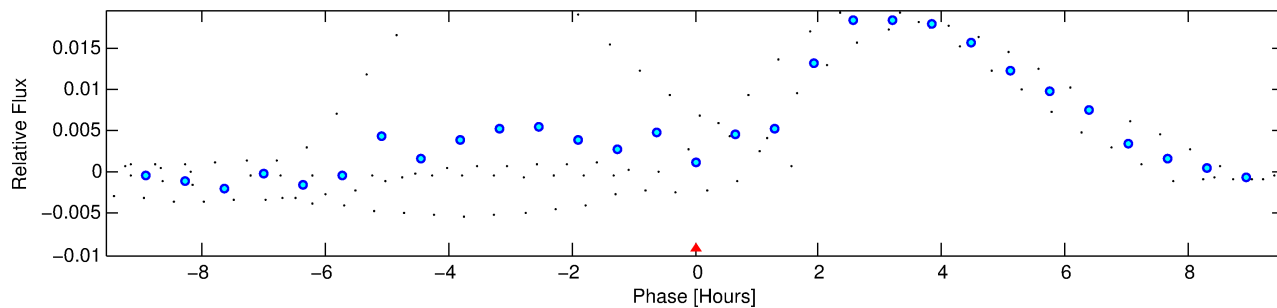
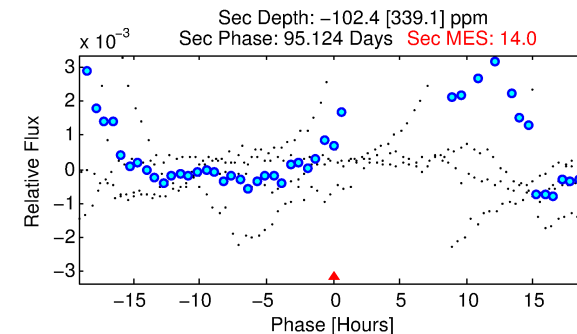
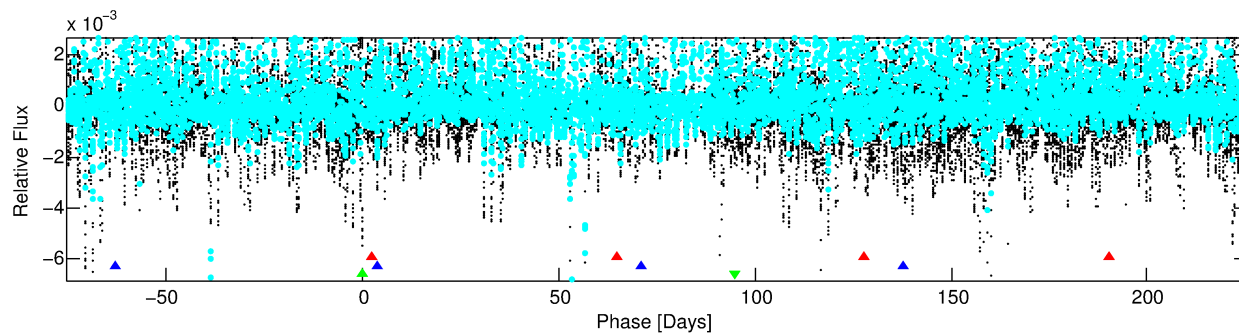
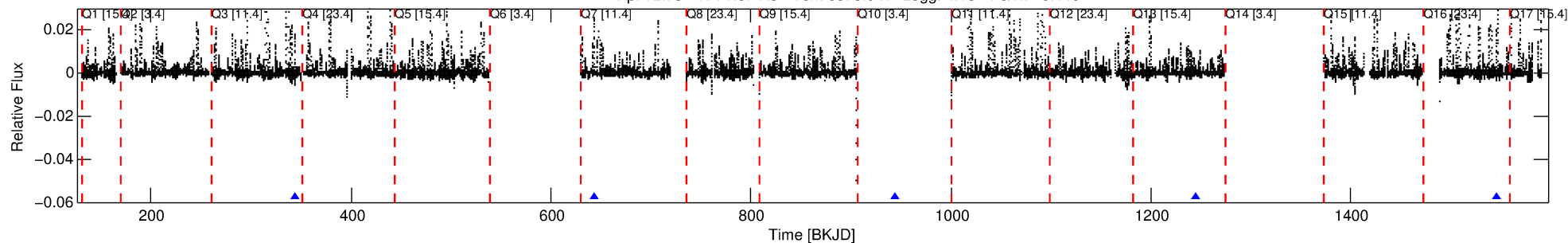
Ephemeris Match Information For 003654076-03

No Significant Match Found

DV One-Page Summary

KIC: 3654076 Candidate: 3 of 3 Period: 300.443 d

Kp: 12.73 R*: 1.57 Rs Teff: 6873.0 K Logg: 4.18 Fe/H: -0.140



TPS TCE Results:

Period = 300.44317 d
Epoch = 343.6321 BKJD

DV fit results are unavailable

DV Diagnostic Results:

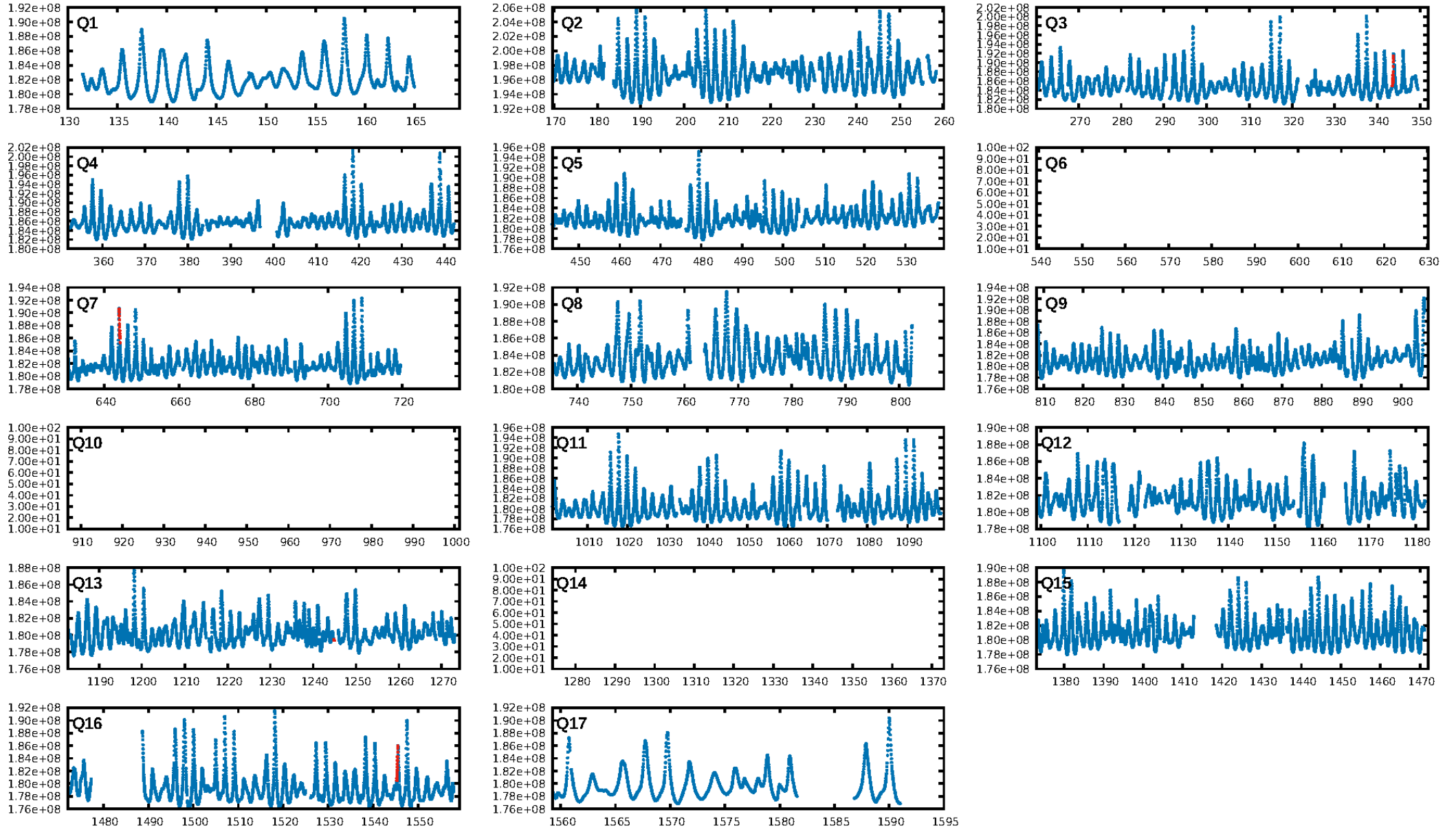
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [158.33σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.208

Centroid-sig: 71.1%
Centroid-so: 0.070 arcsec [0.41σ]
OotOffset-rm: 0.139 arcsec [1.97σ]
KicOffset-rm: 0.154 arcsec [1.24σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
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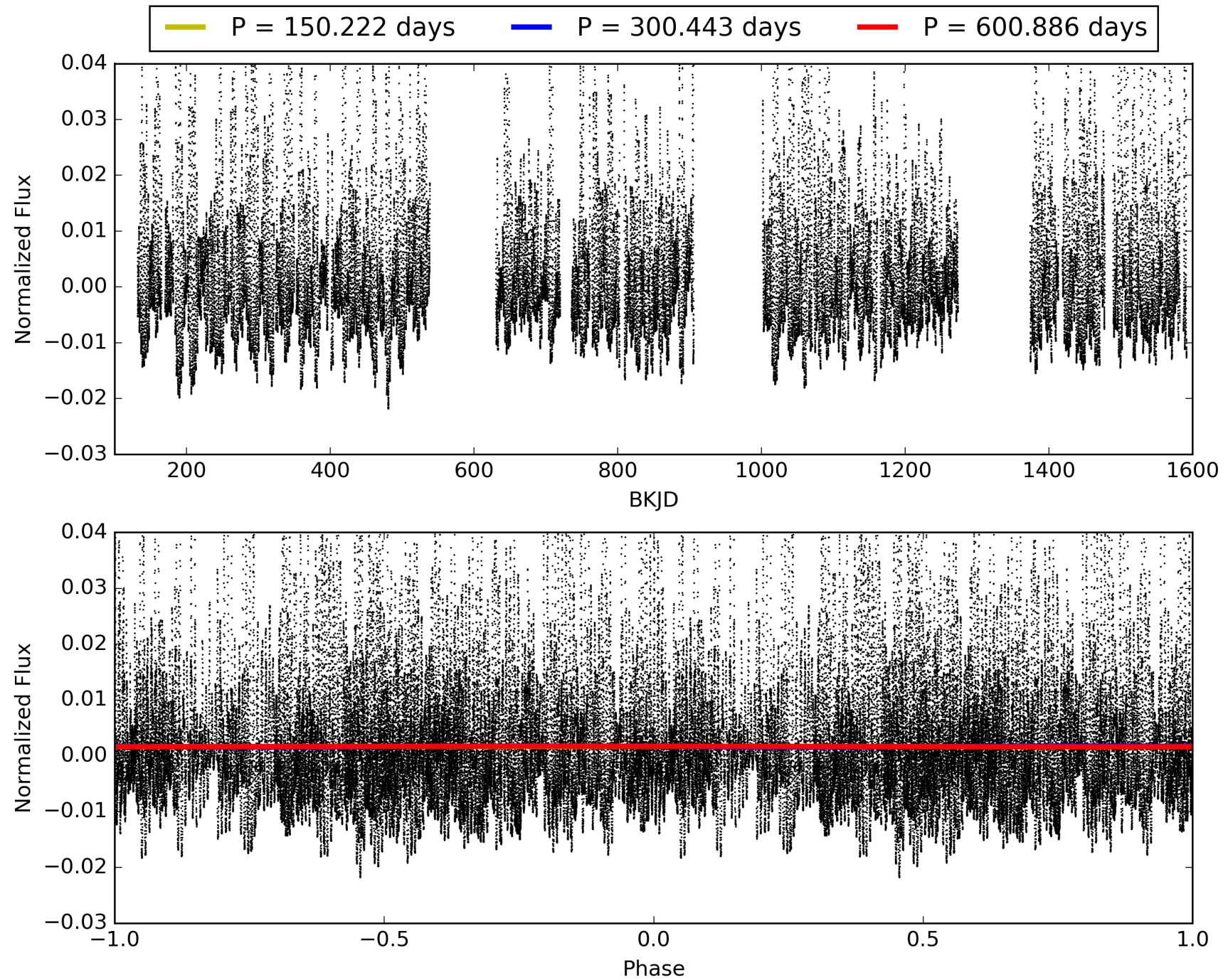
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TCE 003654076-03, PDC Light Curves

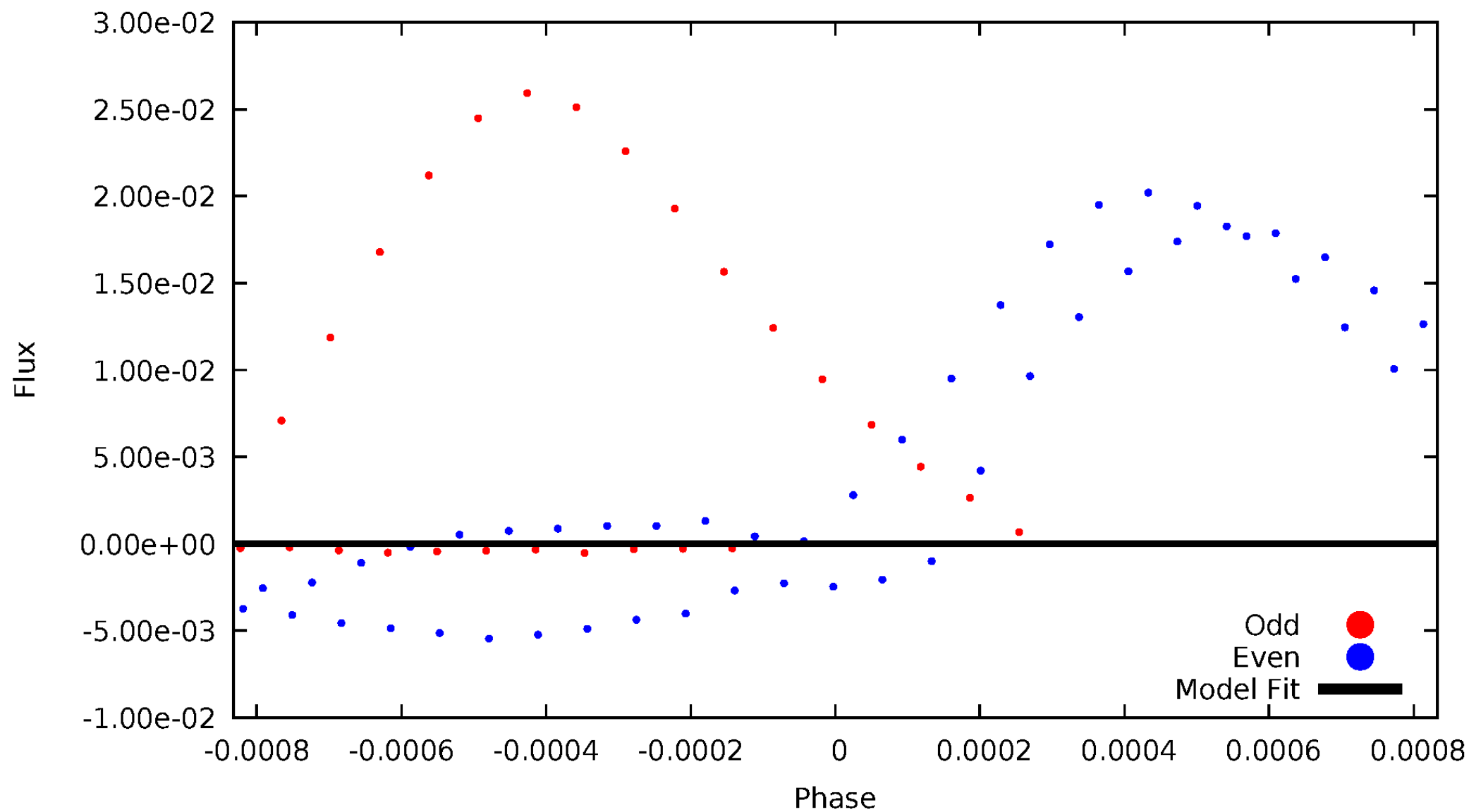


TCE 003654076-03



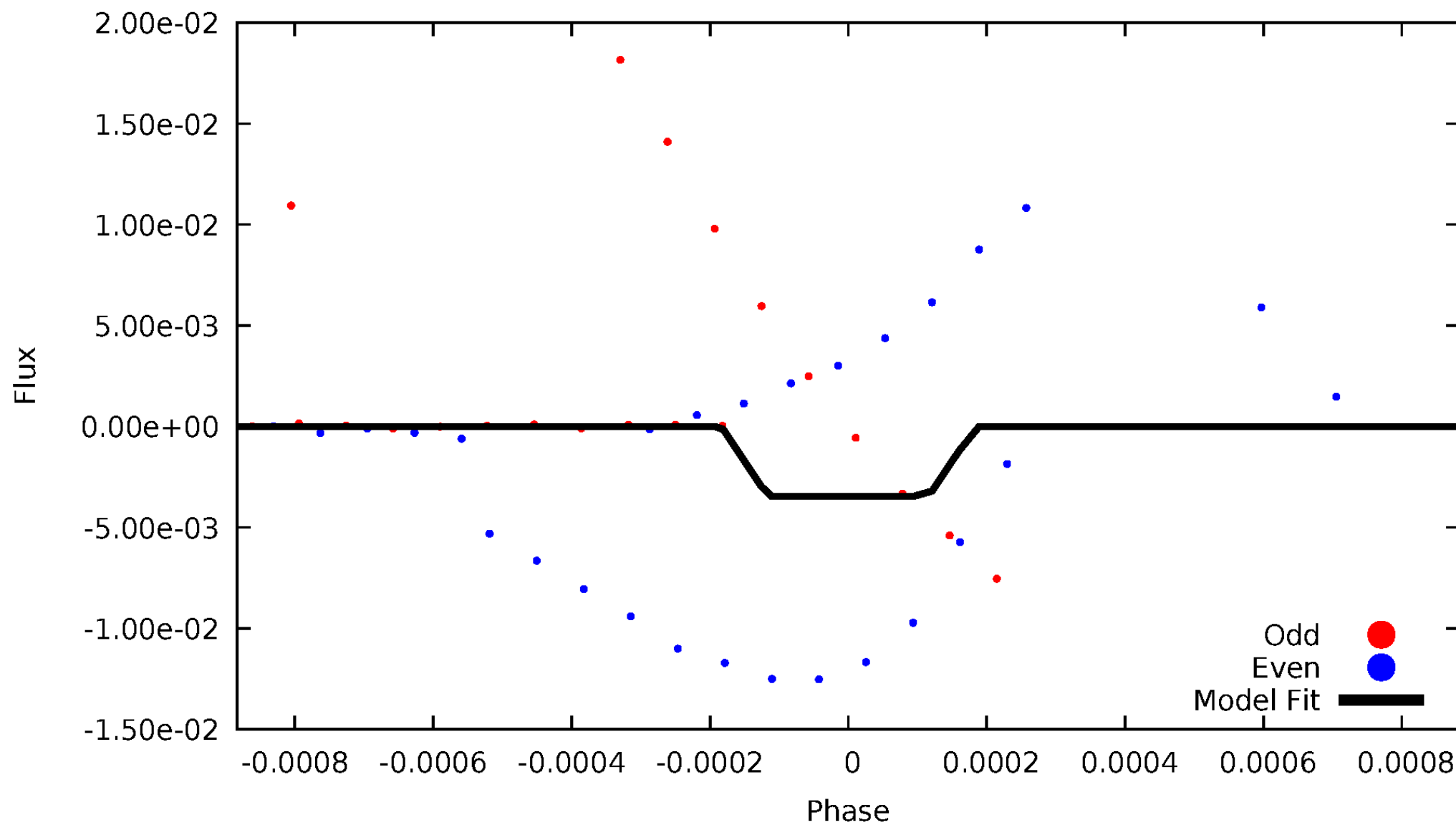
DV Odd/Even

TCE 003654076-03



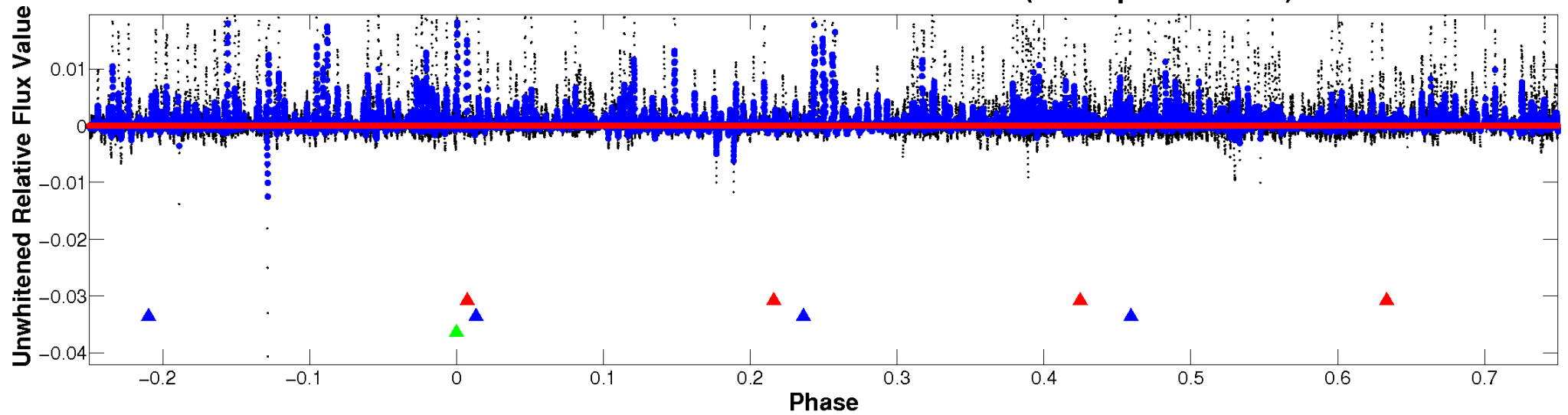
ALT Odd/Even

TCE 003654076-03

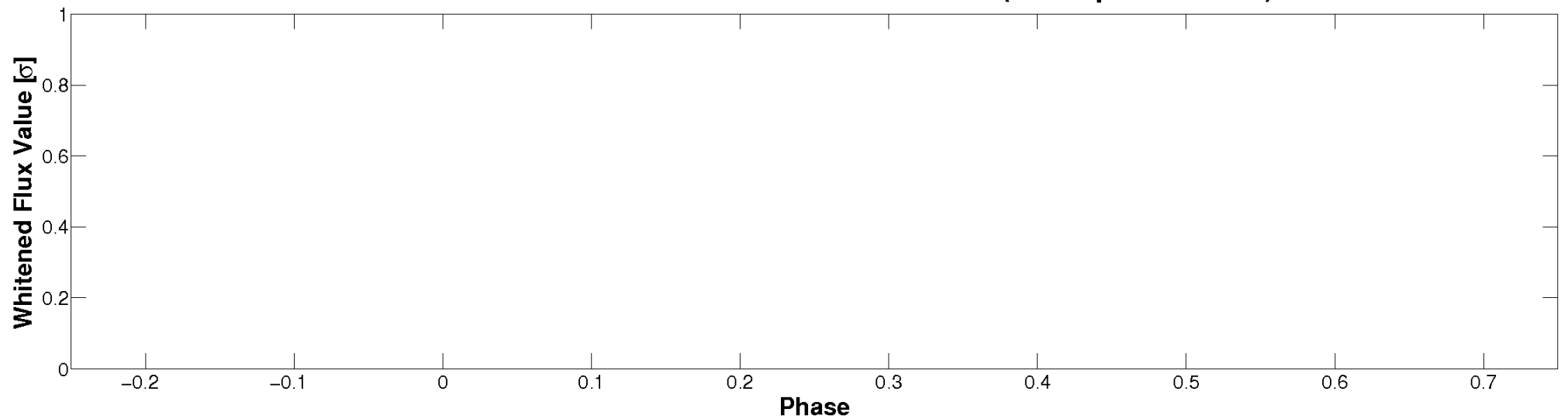


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

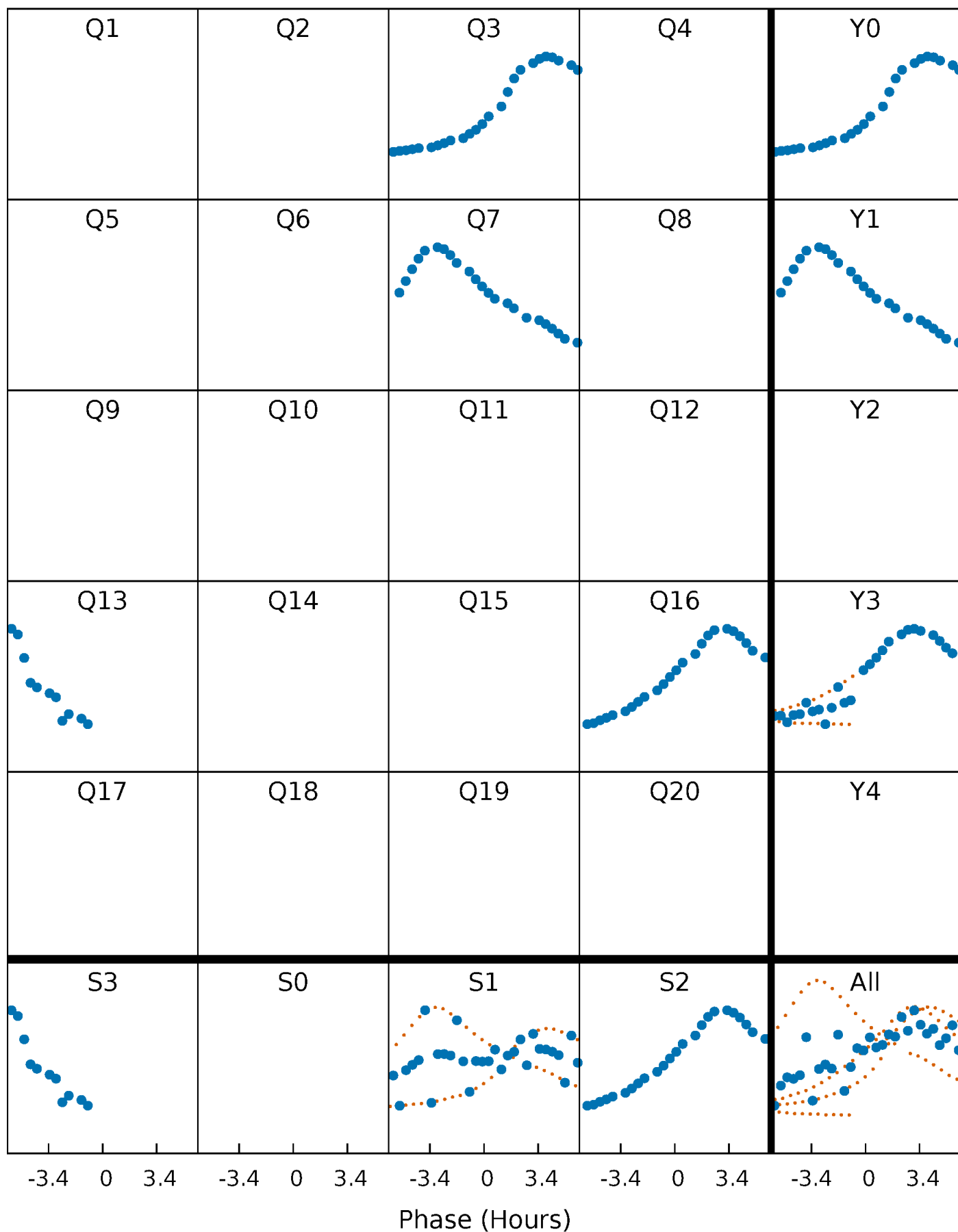


Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)



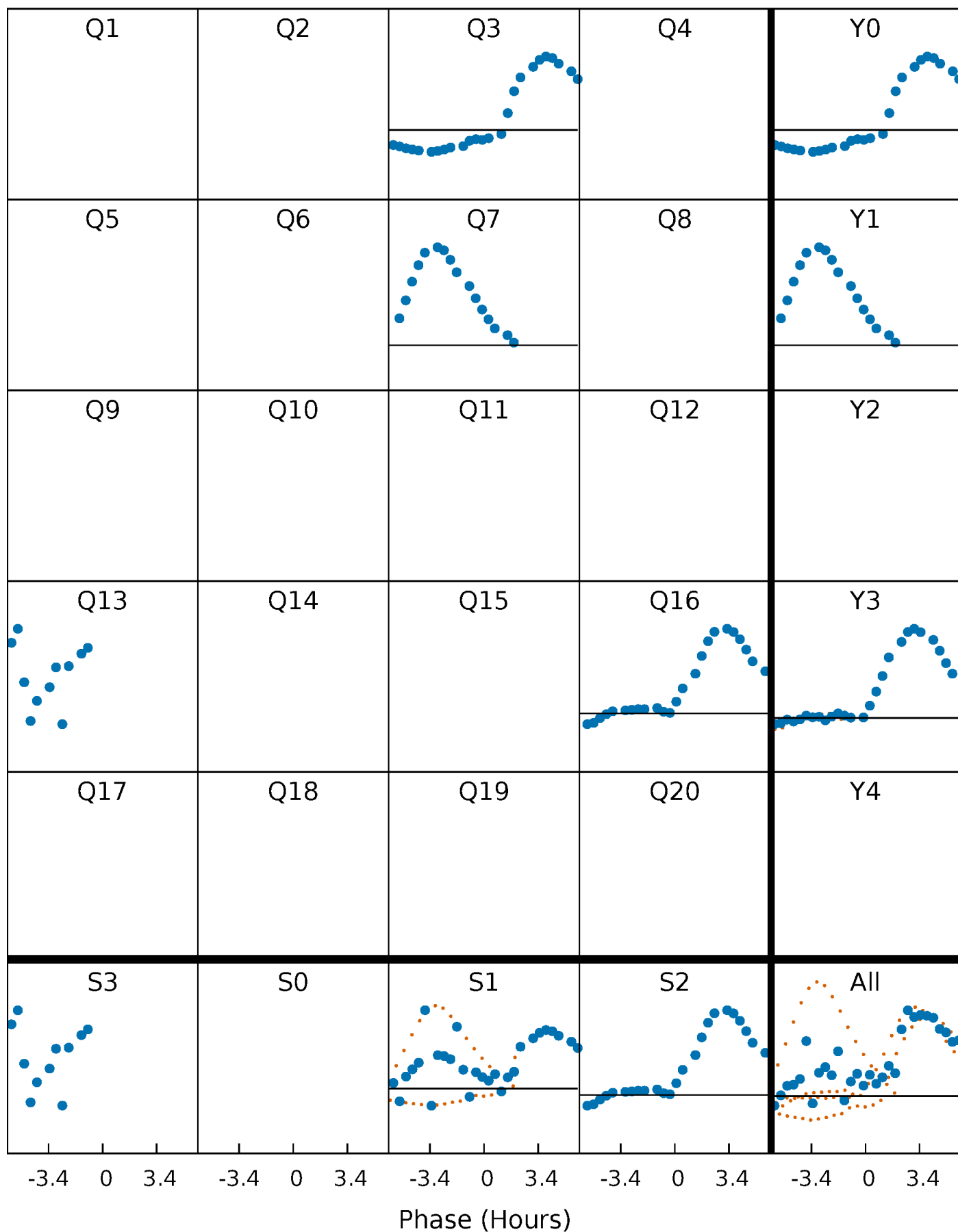
PDC Quarter-Phased Transit Curves

TCE 003654076-03 $P=300.443171$ Days $T_0=343.632078$ (BKJD)



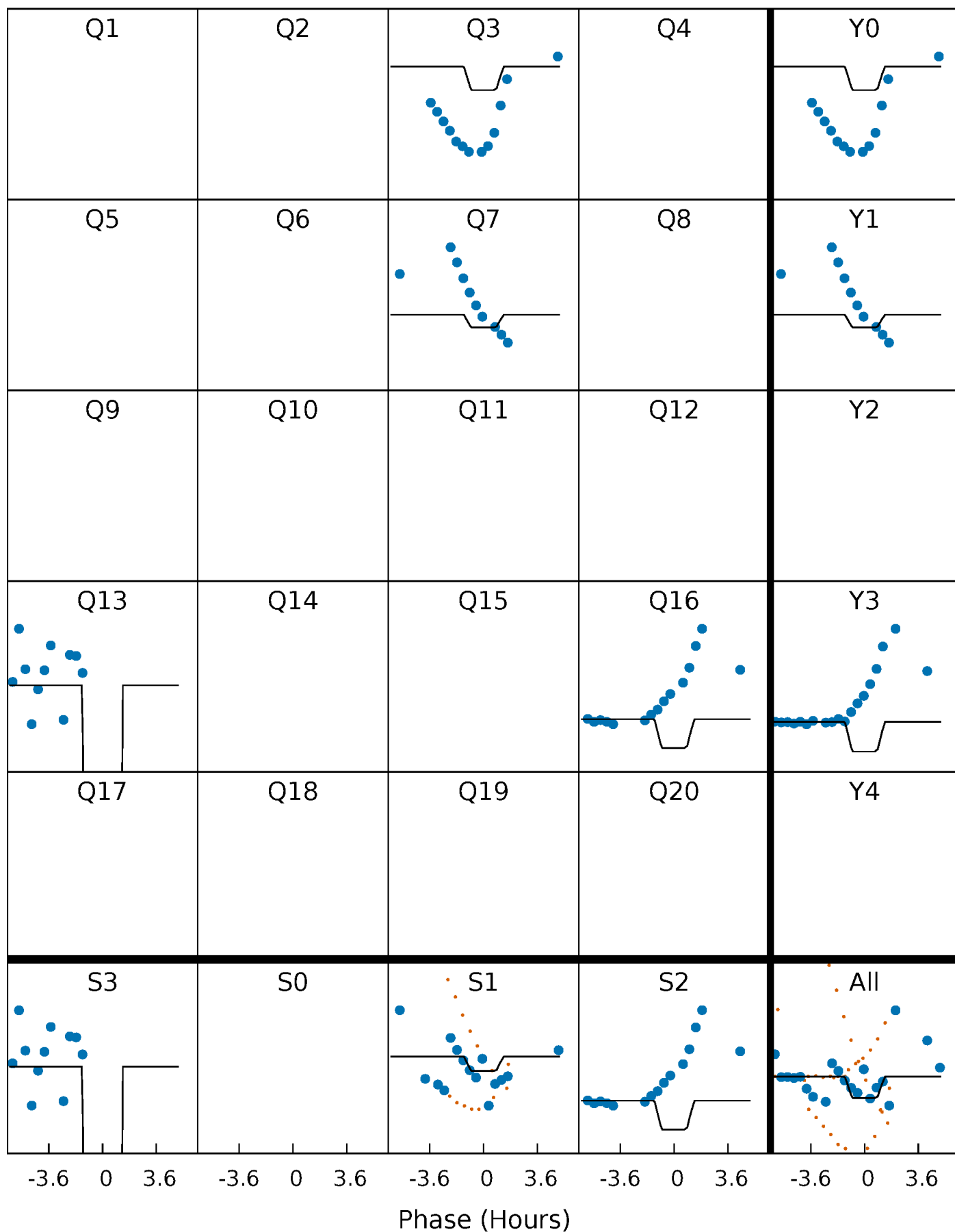
DV Quarter-Phased Transit Curves

TCE 003654076-03 $P=300.443171$ Days $T_0=343.632078$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

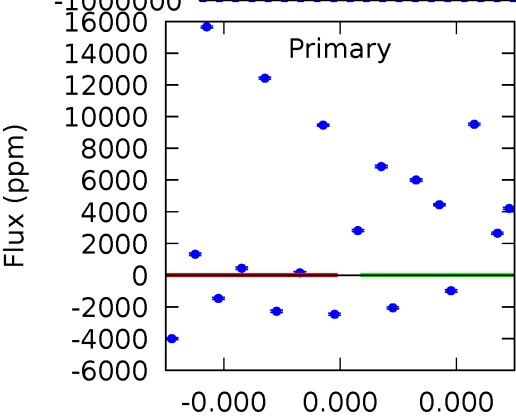
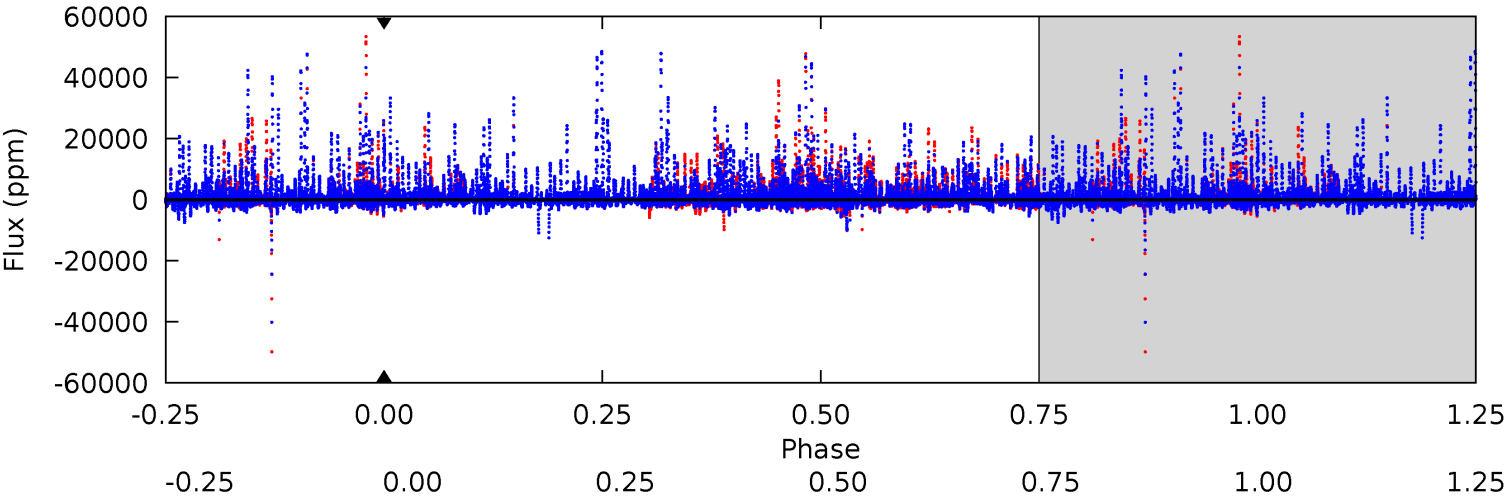
TCE 003654076-03 P=300.443171 Days $T_0=343.643931$ (BKJD)



DV Model-Shift Uniqueness Test

003654076-03, P = 300.443171 Days, E = 43.188907 Days

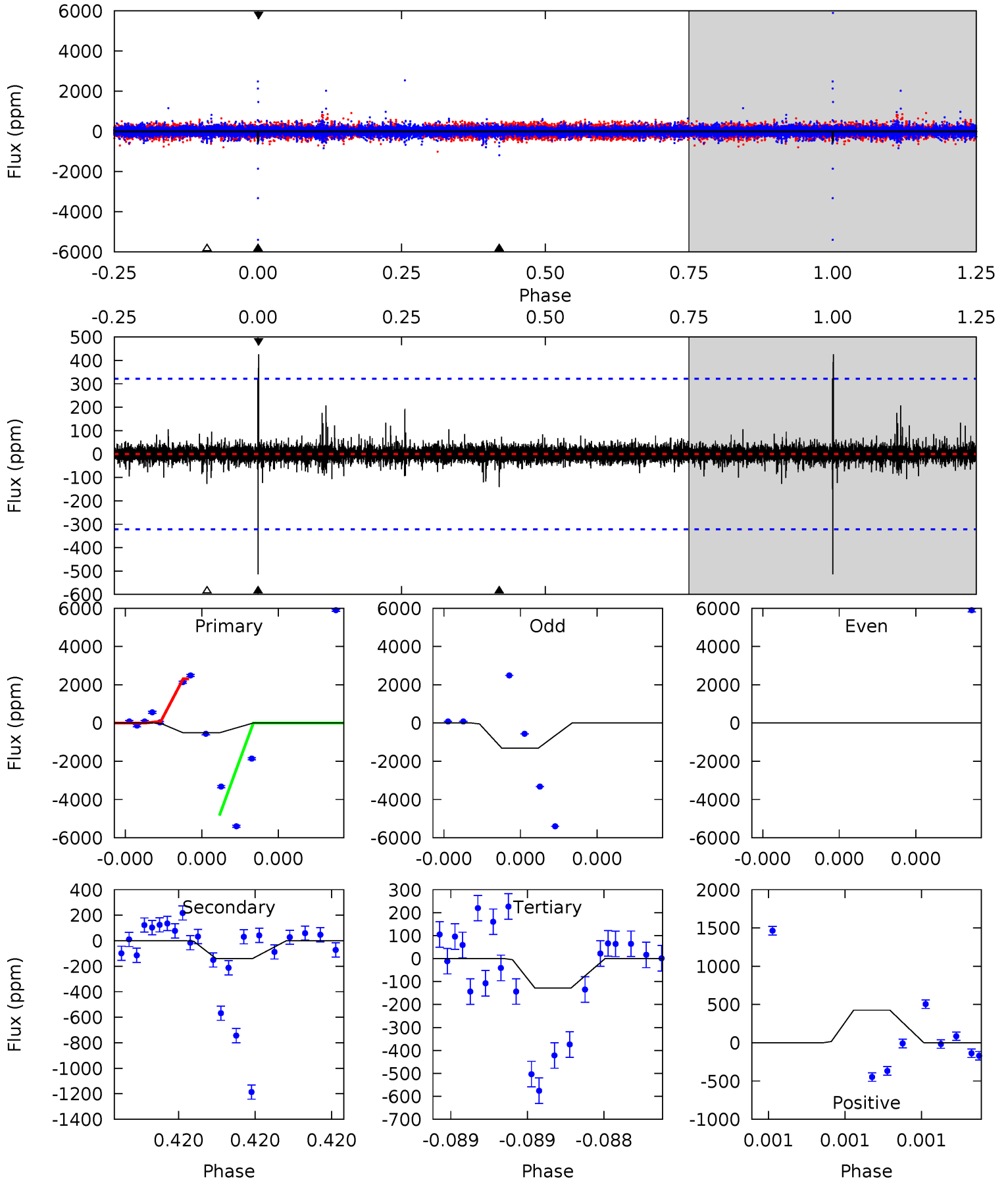
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003654076-03, P = 300.443171 Days, E = 43.200760 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.02	2.46	2.24	7.46	5.64	3.58	0.32	6.77	1.55	0.22	-5.00	0	-13.7	0.45	0



Stellar Parameters For KIC 003654076

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6873^{+166}_{-262}	$4.180^{+0.149}_{-0.198}$	$-0.140^{+0.250}_{-0.350}$	$1.568^{+0.471}_{-0.314}$	$1.367^{+0.202}_{-0.224}$	$0.499^{+0.381}_{-0.249}$
	+2%/-4%	+4%/-5%	+179%/-250%	+30%/-20%	+15%/-16%	+76%/-50%
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 003654076-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$13.96^{+13.97}_{-9.41}$	540^{+42}_{-37}	-4127^{+32020}_{-23257}	$-1548.986^{+434227.555}_{-408704.863}$
Alt.	-140 ± 57	$16.93^{+15.70}_{-10.60}$	541^{+43}_{-37}	3014^{+1177}_{-500}	230^{+1482}_{-171}

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 $A_{obs} \gg 1.0$

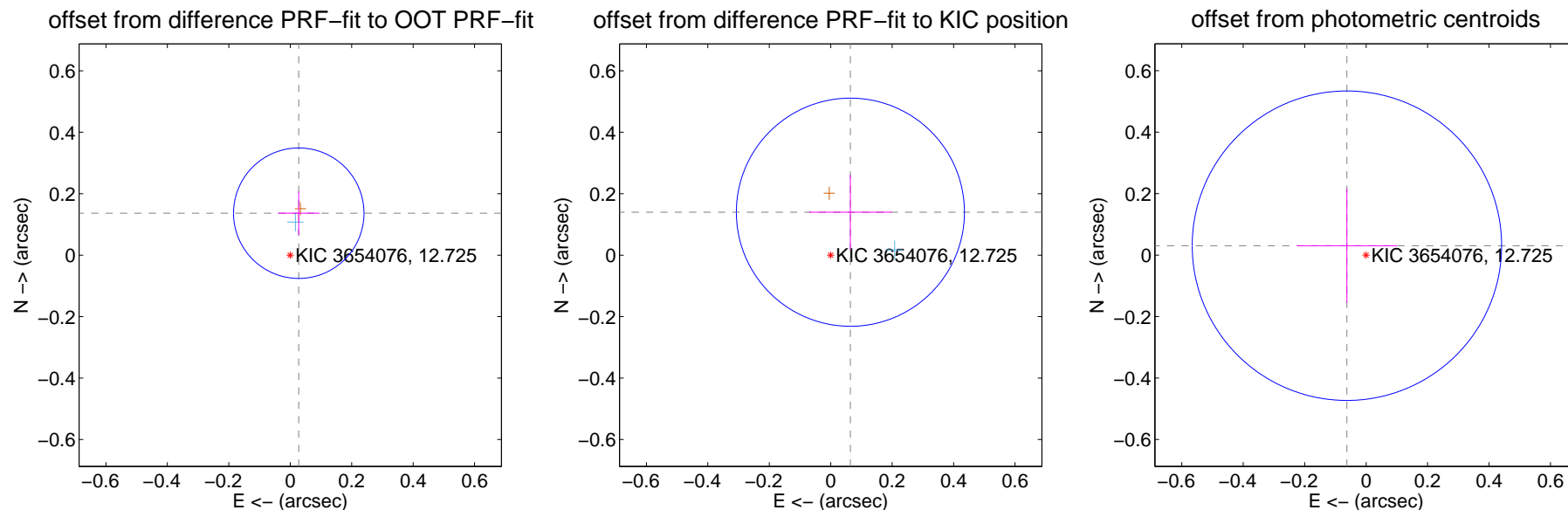
DV Centroid Data

Supplemental centroid analysis for 003654076-03. Kepler magnitude: 12.72. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

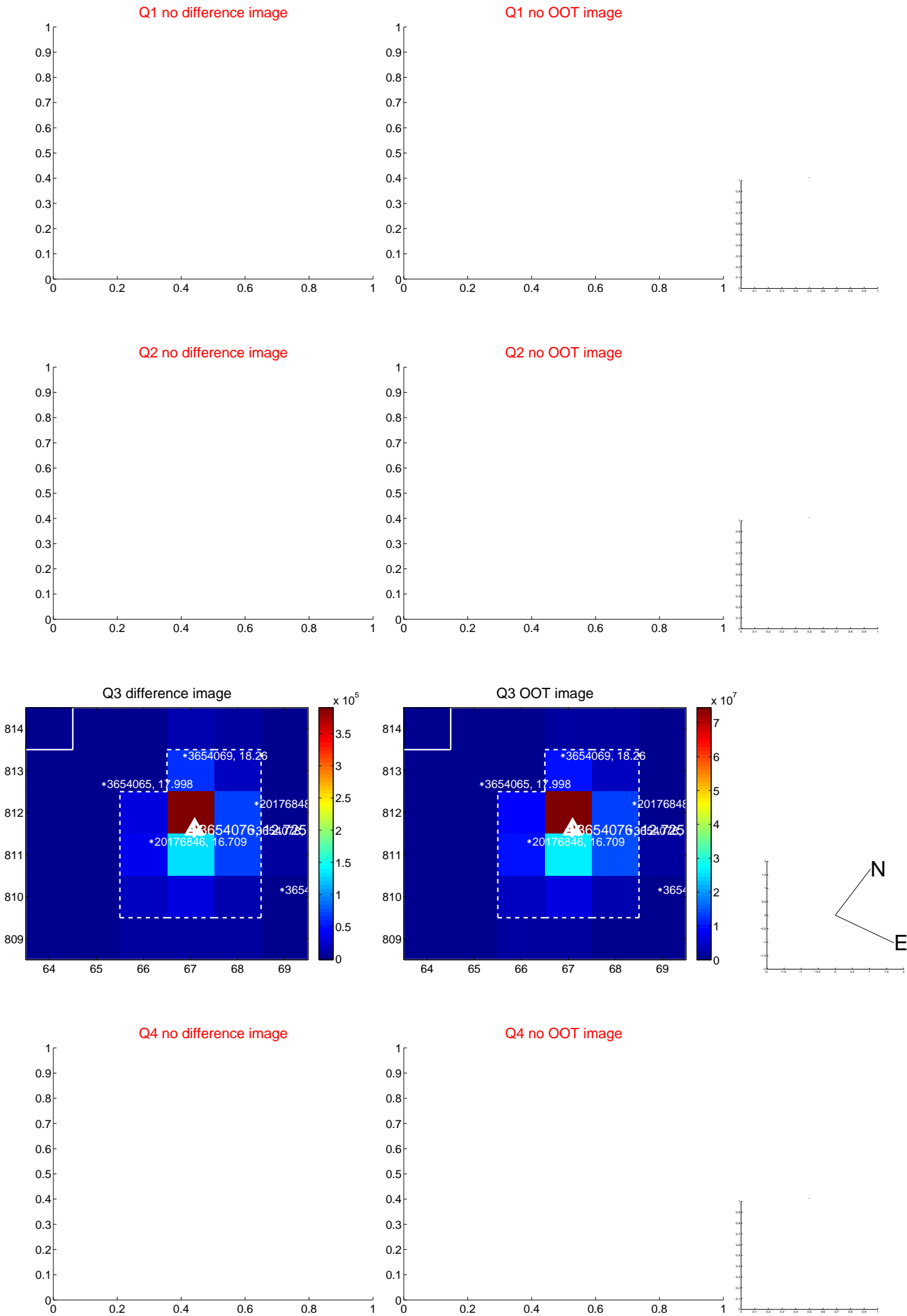
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.139 ± 0.071	1.97	-0.028 ± 0.067	0.137 ± 0.071
PRF-fit source offset from KIC position	0.154 ± 0.124	1.24	-0.064 ± 0.134	0.140 ± 0.121
photometric centroid source offset	0.07 ± 0.17	0.41	0.06 ± 0.16	0.03 ± 0.19

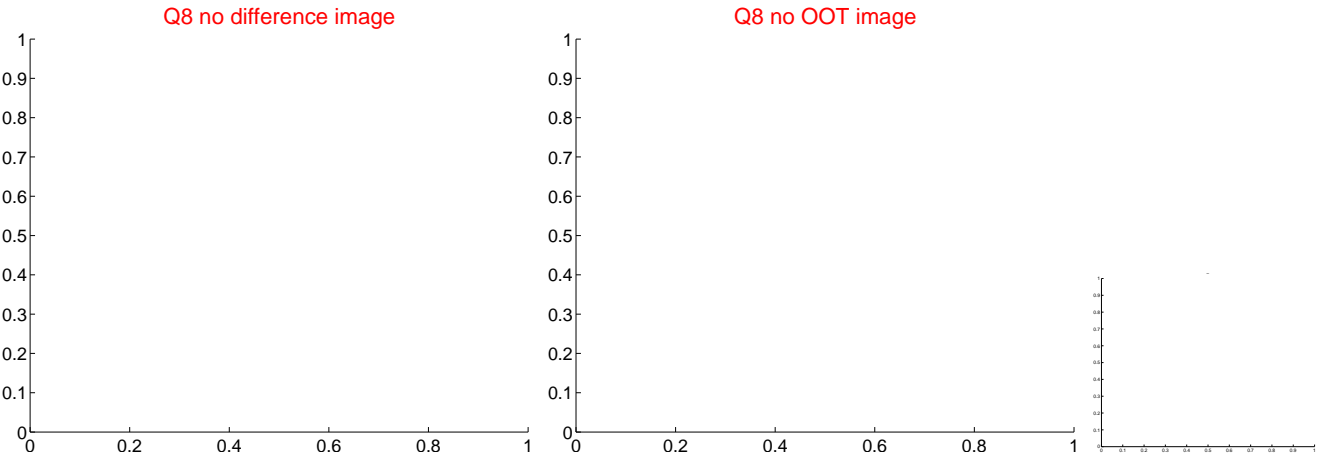
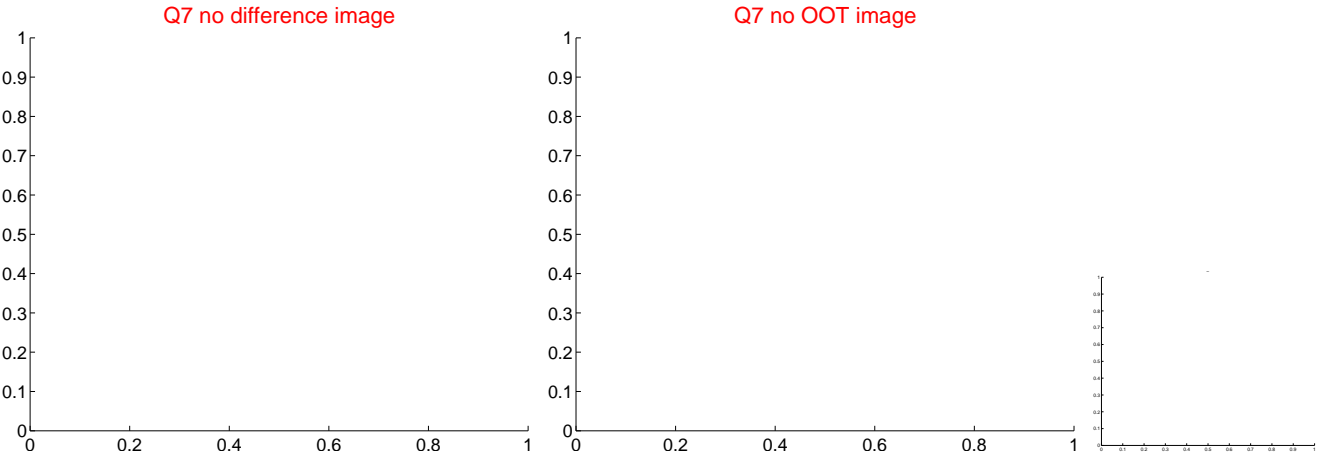
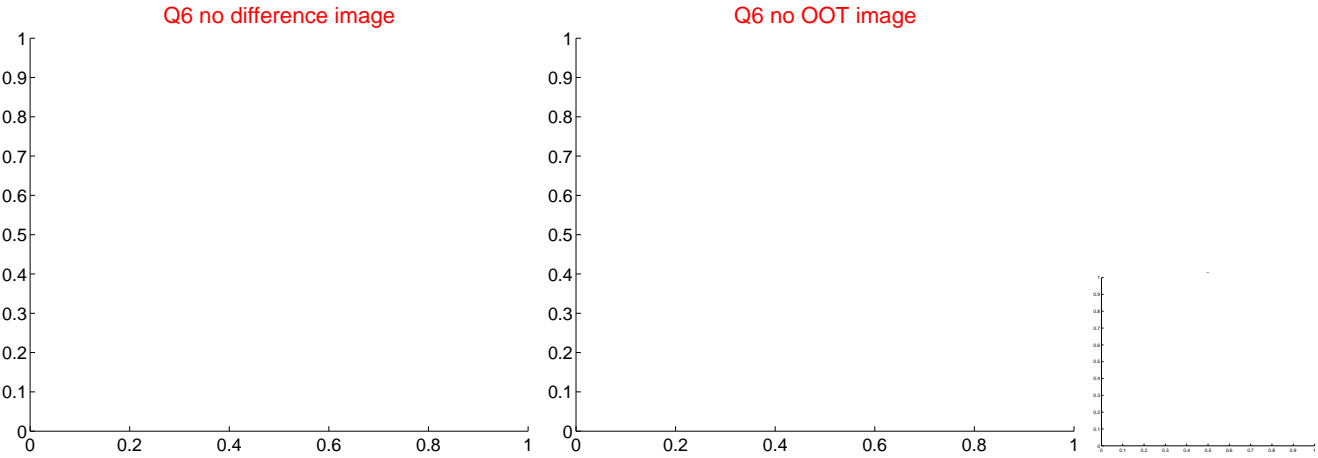
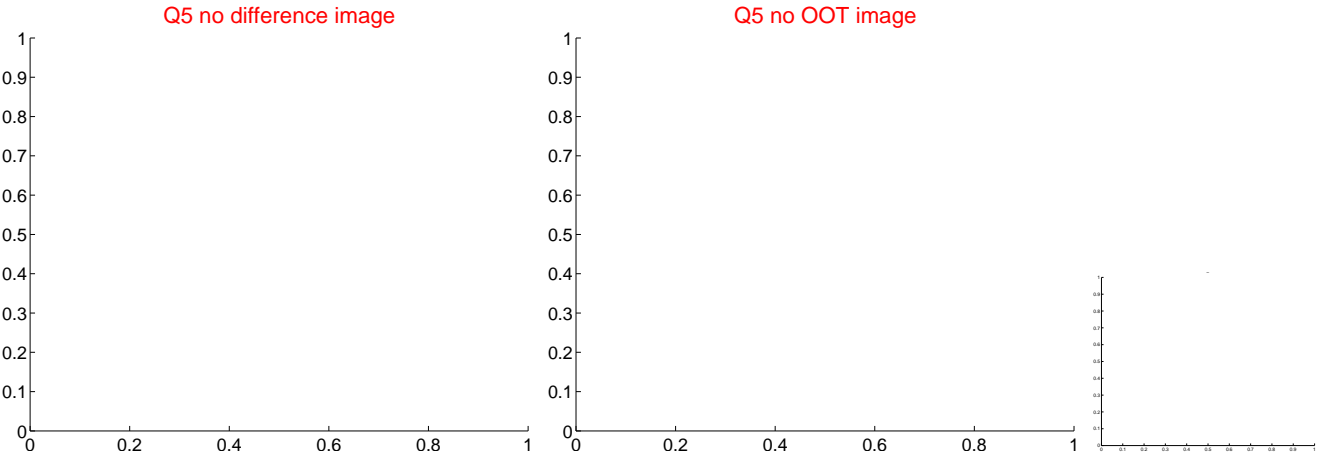


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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.



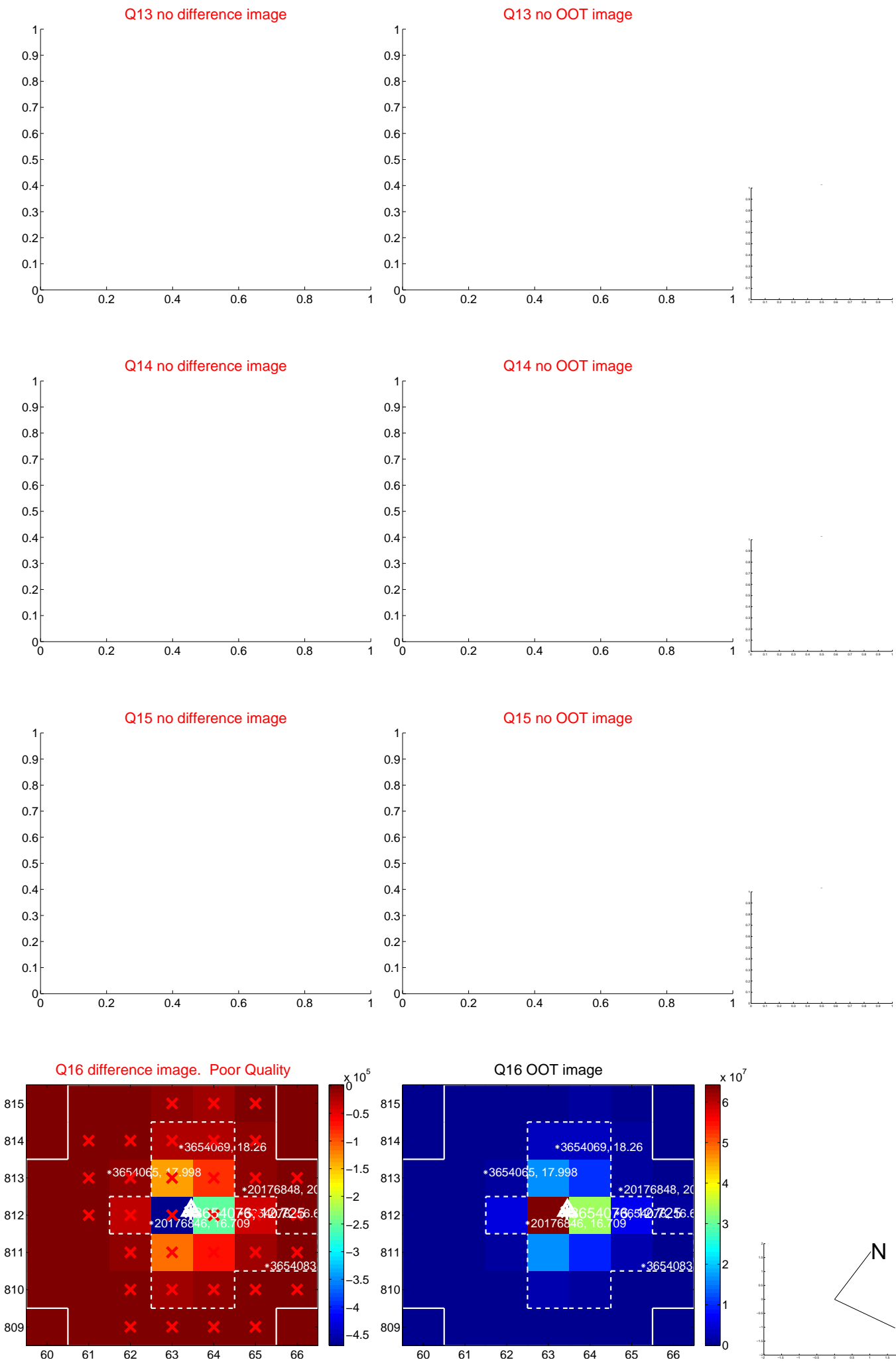
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



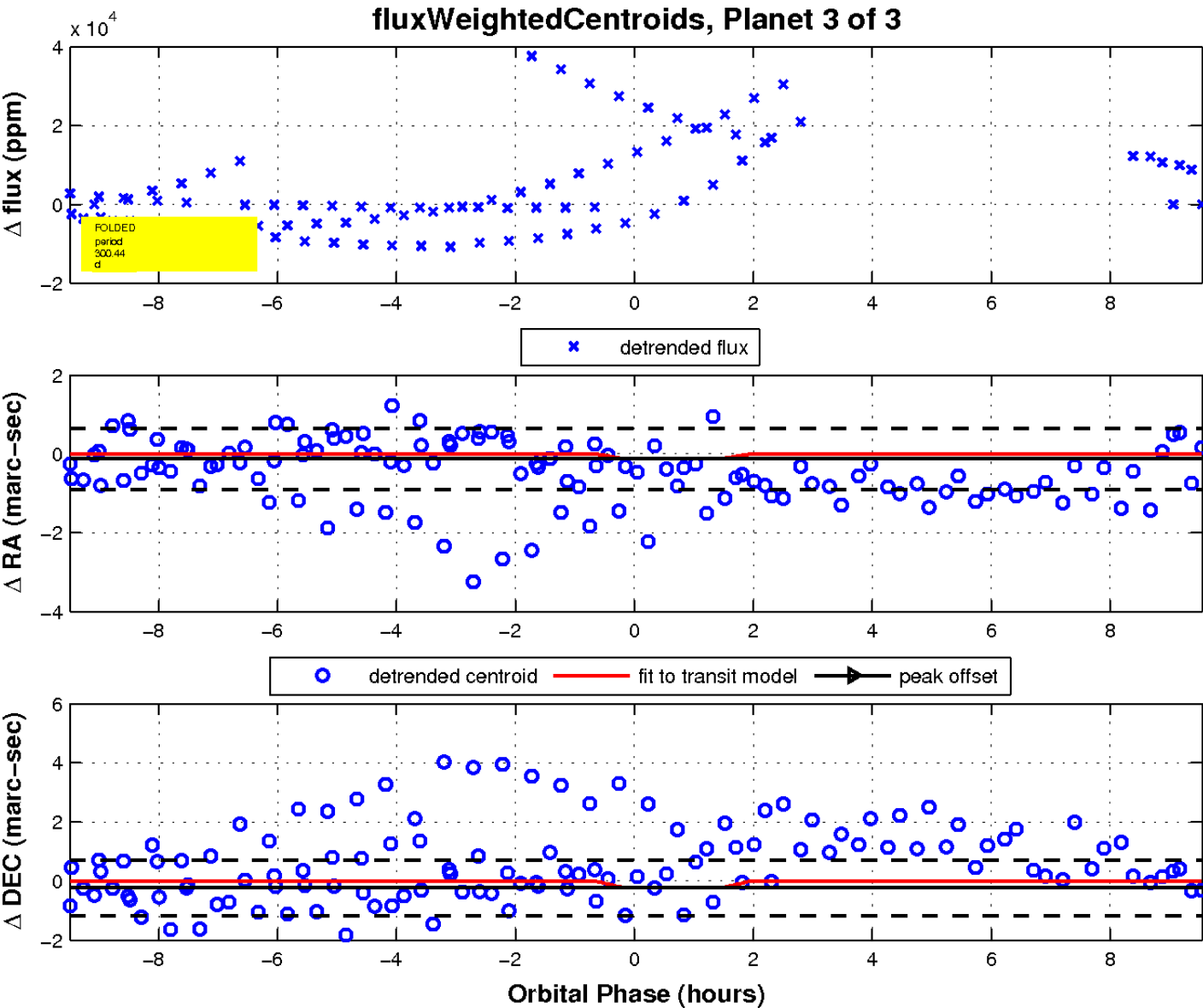
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

