

KIC 010345862

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})
010345862-01	OBS	7315.01	58.288205	135.876482	156512.6	21.595	6381.0	5074.5	1.04	5463	42.65	10.81
010345862-02	OBS	No	58.288231	152.461571	58178.6	7.891	1886.1	1051.4	1.04	5463	25.70	10.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010345862-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—HAS_SEC_TCE
010345862-02	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 010345862-01

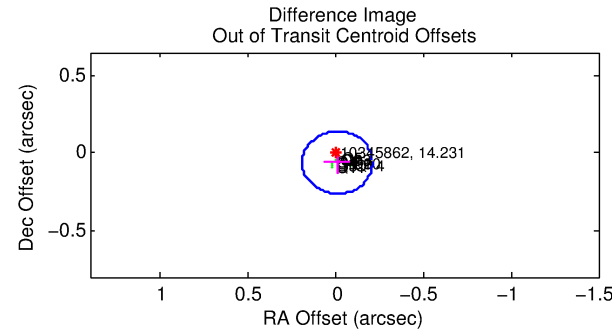
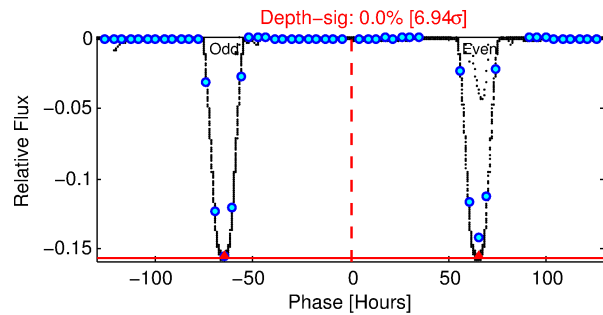
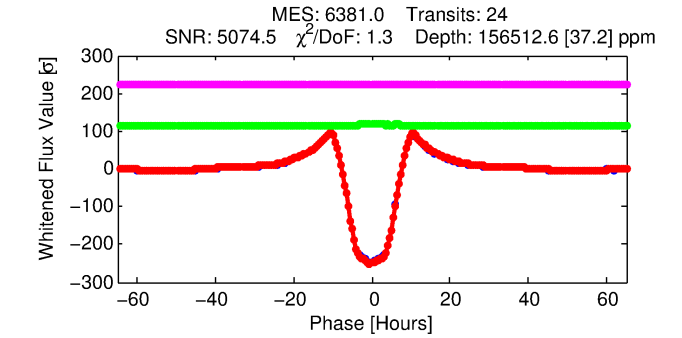
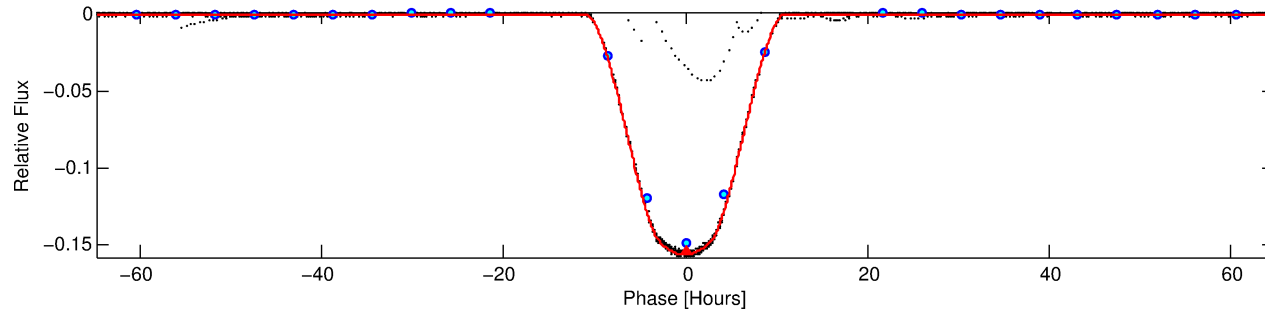
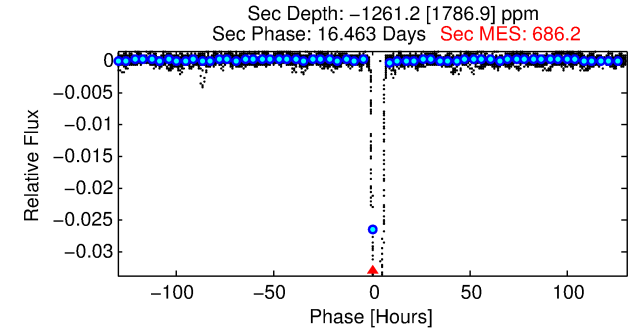
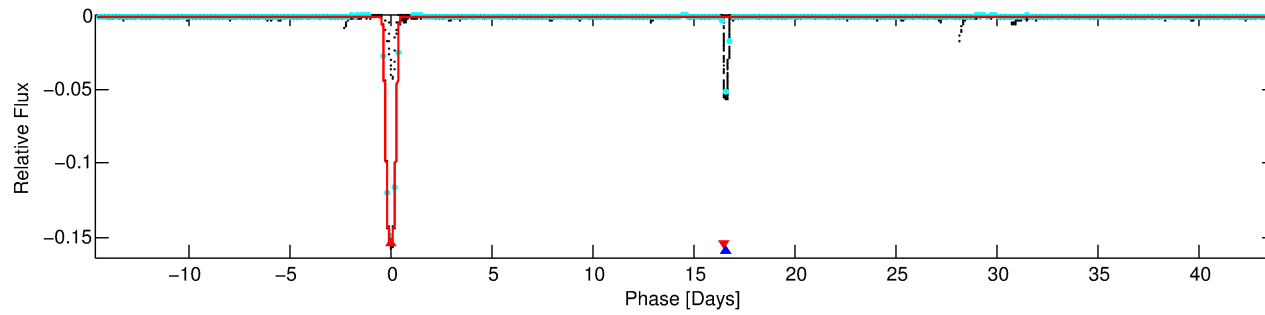
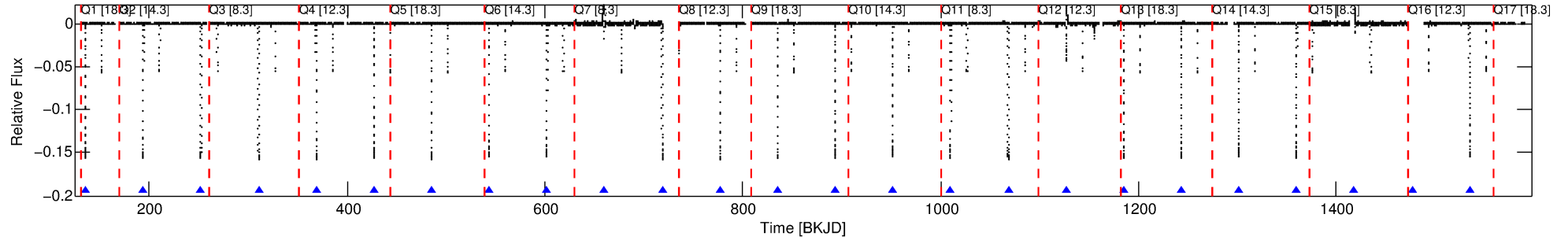
No Significant Match Found

DV One-Page Summary

KIC: 10345862 Candidate: 1 of 2 Period: 58.288 d

KOI: K07315.01 Corr: 0.999

Kp: 14.23 R*: 1.04 Rs Teff: 5463.0 K Logg: 4.35 Fe/H: 0.120



DV Fit Results:

Period = 58.28820 [0.00001] d
Epoch = 135.8765 [0.0001] BKJD
Rp/R* = 0.3744 [0.0001]
a/R* = 26.40 [0.01]
b = 0.50 [0.00]
Seff = 10.81 [4.05]
Teq = 462 [43] K
Rp = 42.65 [11.68] Re
a = 0.2837 [0.0674] AU
Ag = N/A
Teffp = N/A

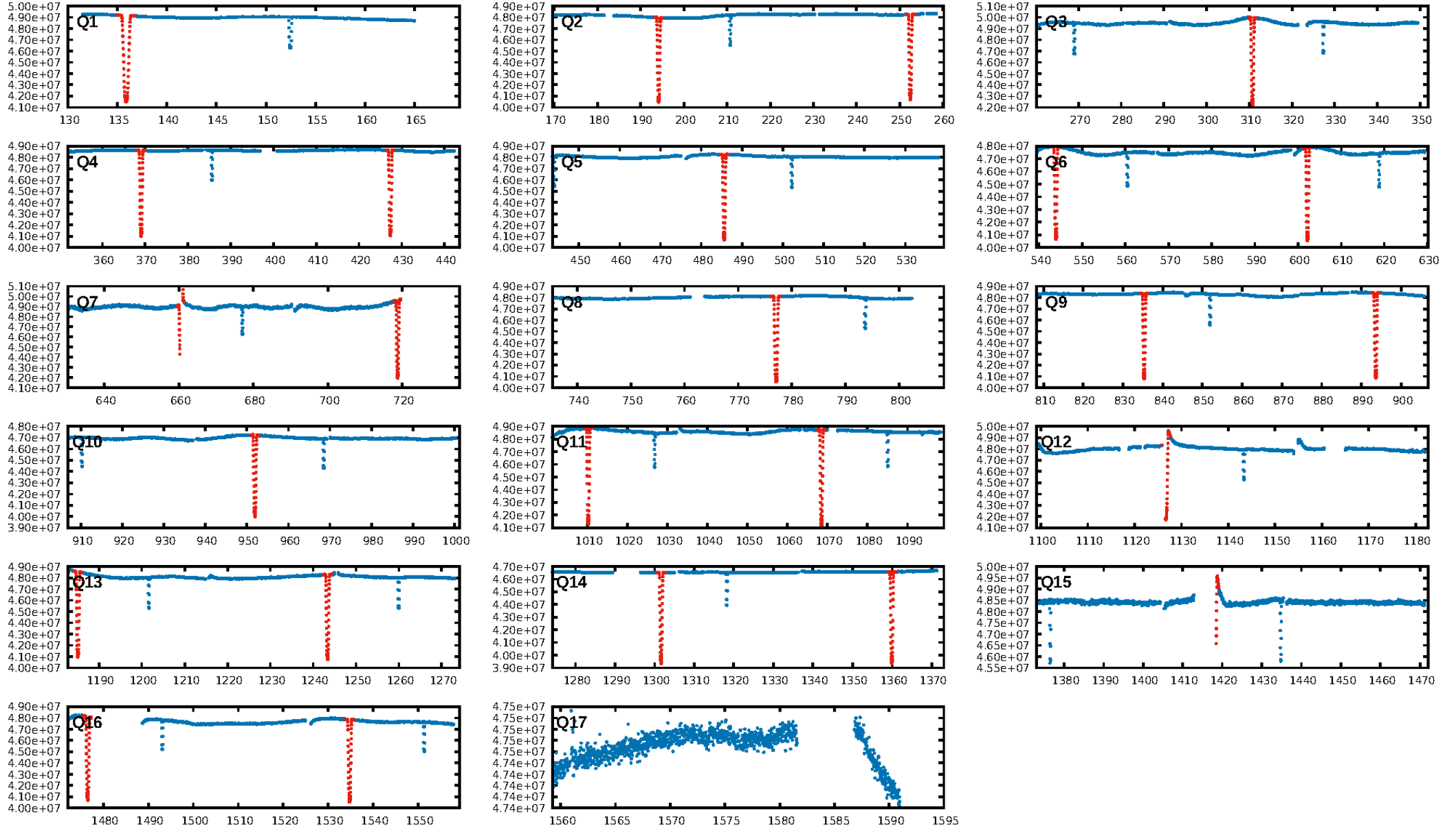
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 7.8%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 10
Centroid-sig: 0.0%
Centroid-so: 0.134 arcsec [111.95σ]
OotOffset-rm: 0.062 arcsec [0.93σ]
KicOffset-rm: 0.103 arcsec [1.49σ]
OotOffset-st: 4/2/2/4 [12]
KicOffset-st: 4/2/2/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [12/12]

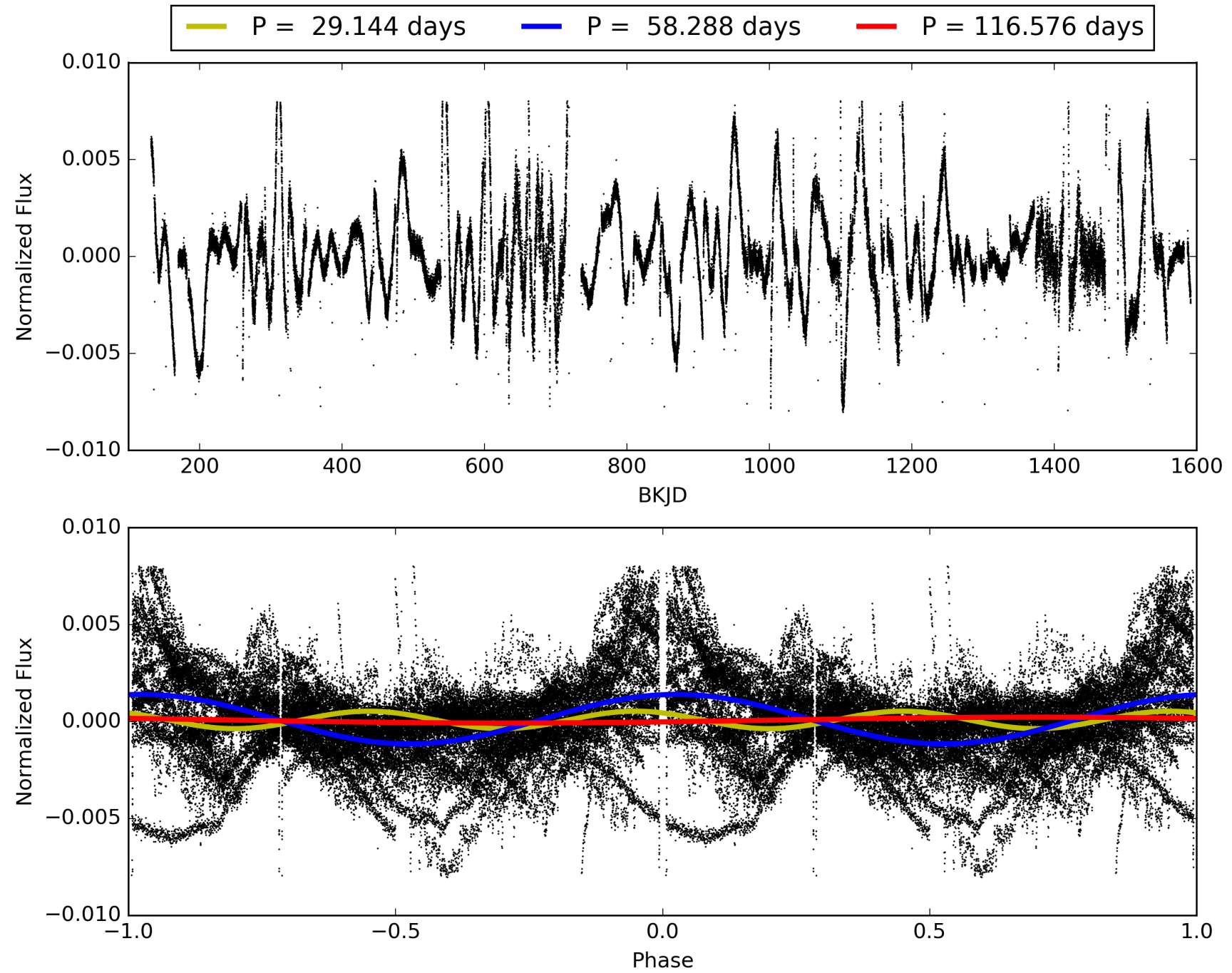
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:15:55 Z

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

TCE 010345862-01, PDC Light Curves

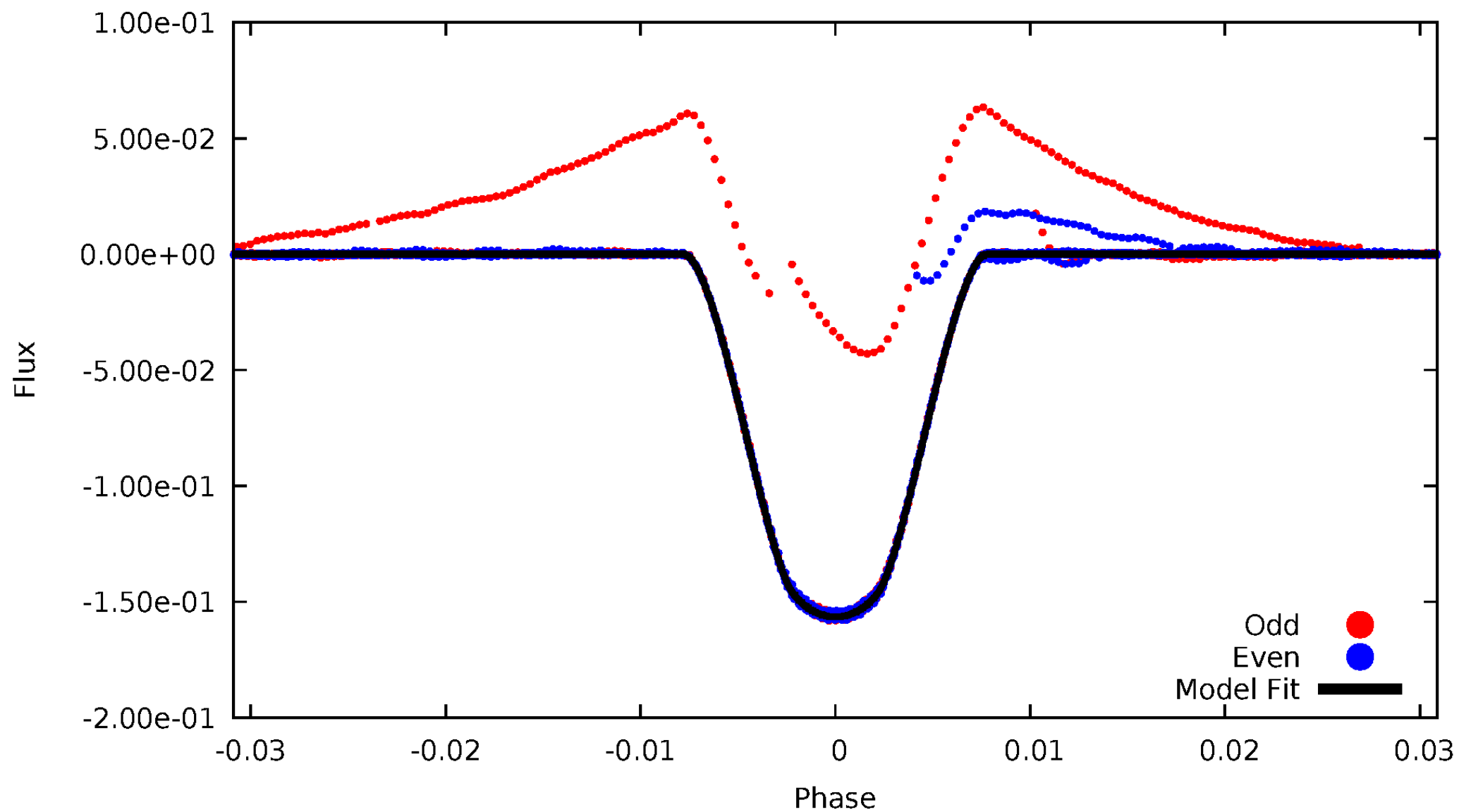


TCE 010345862-01



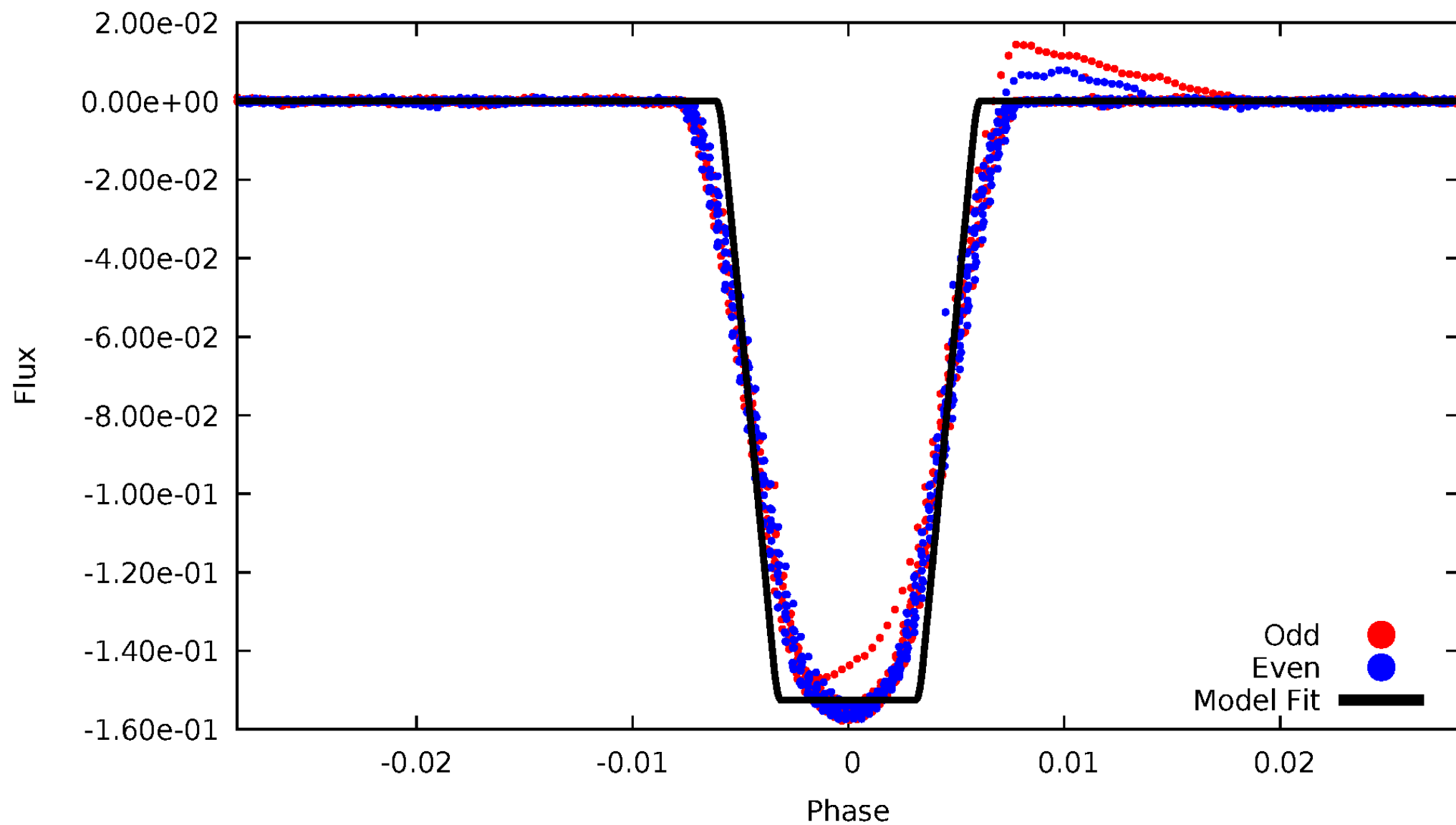
DV Odd/Even

TCE 010345862-01



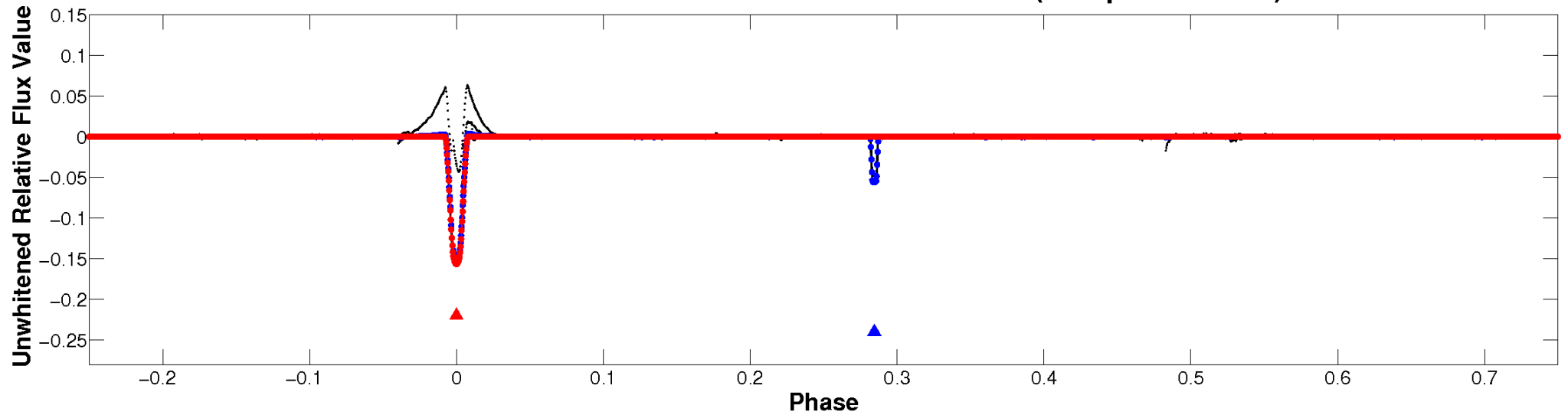
ALT Odd/Even

TCE 010345862-01

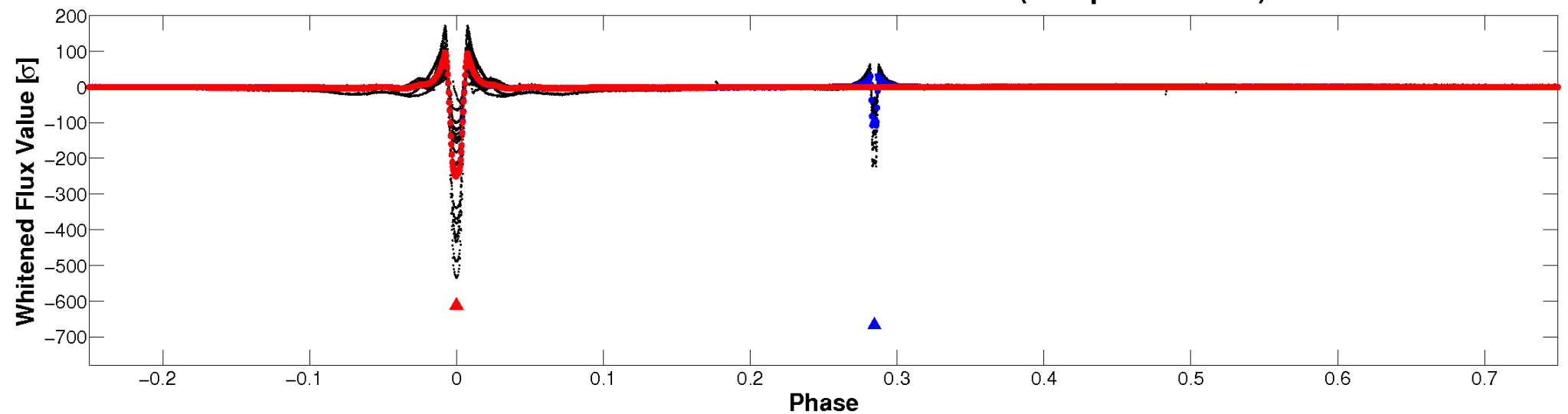


Non-Whitened Vs. Whitened Light Curve

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

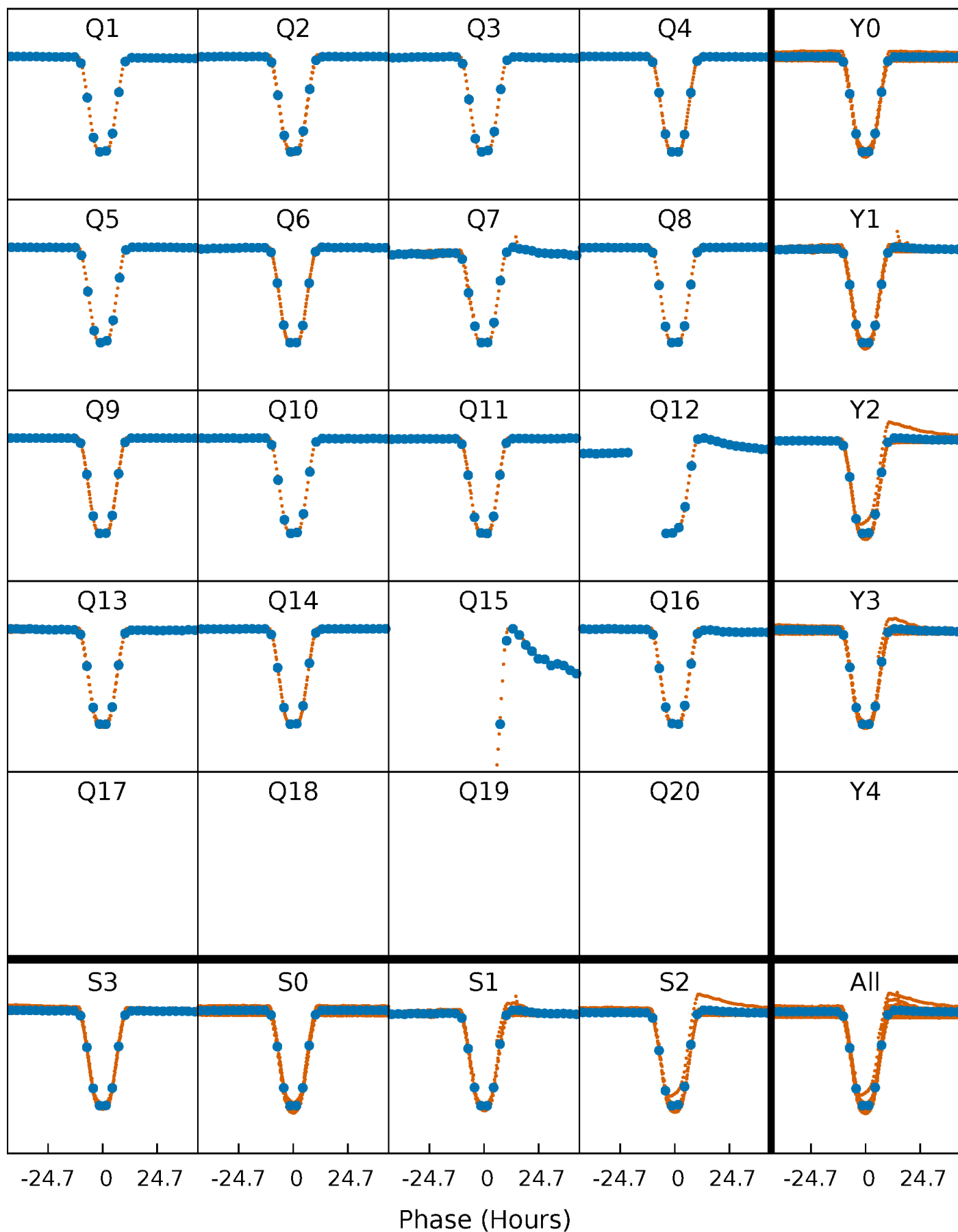


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



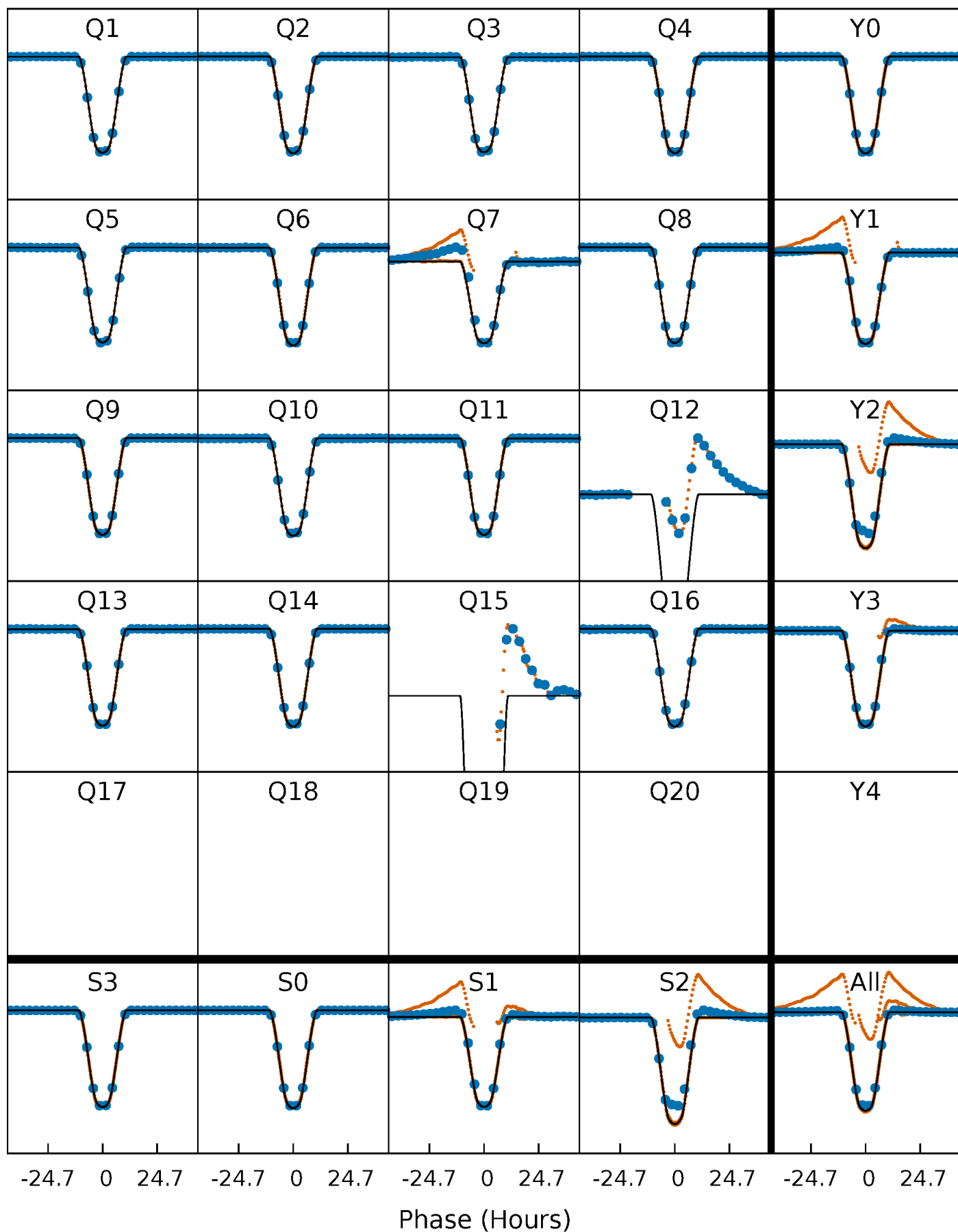
PDC Quarter-Phased Transit Curves

TCE 010345862-01 P= 58.288205 Days $T_0=135.876482$ (BKJD)



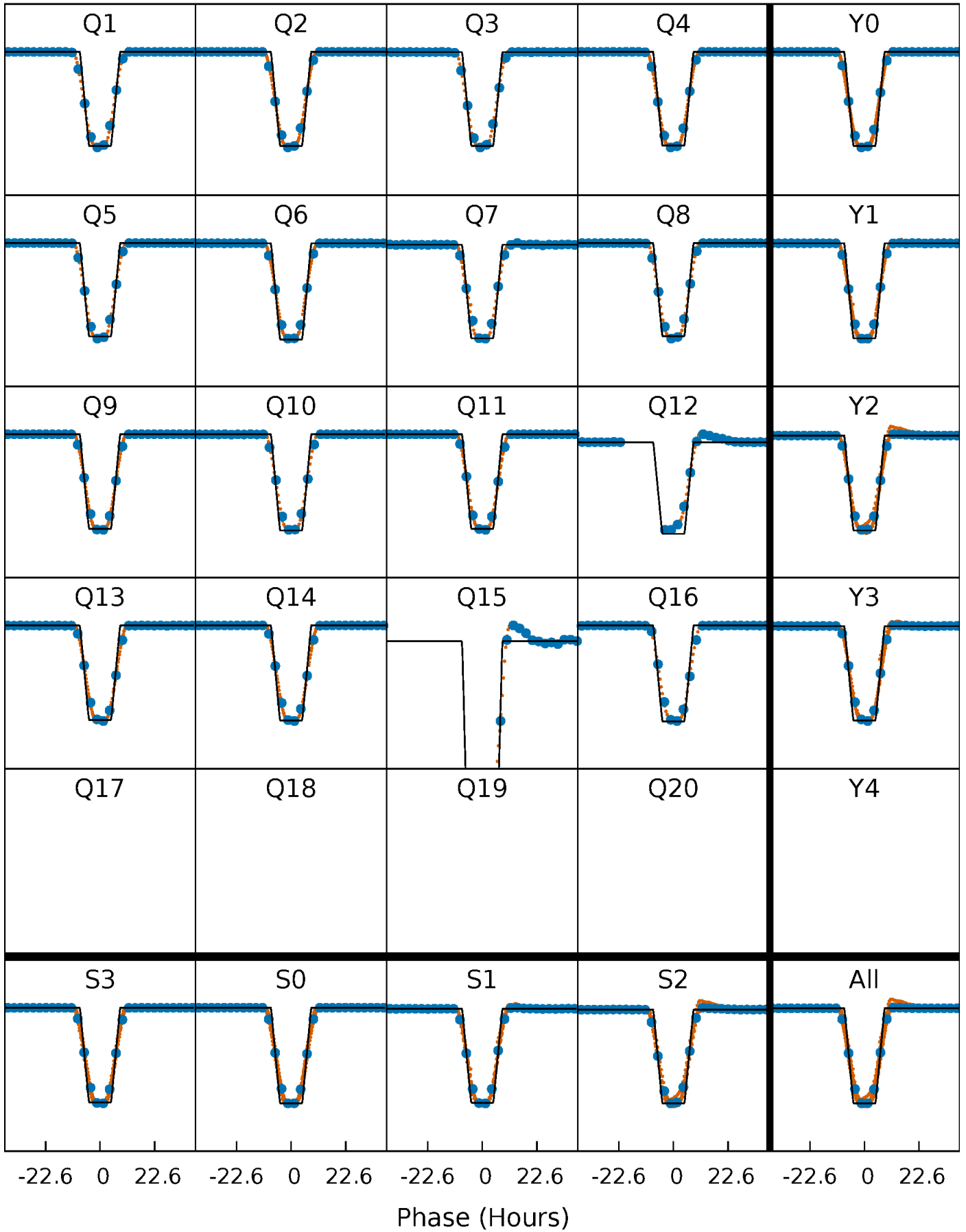
DV Quarter-Phased Transit Curves

TCE 010345862-01 P= 58.288205 Days $T_0=135.876482$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

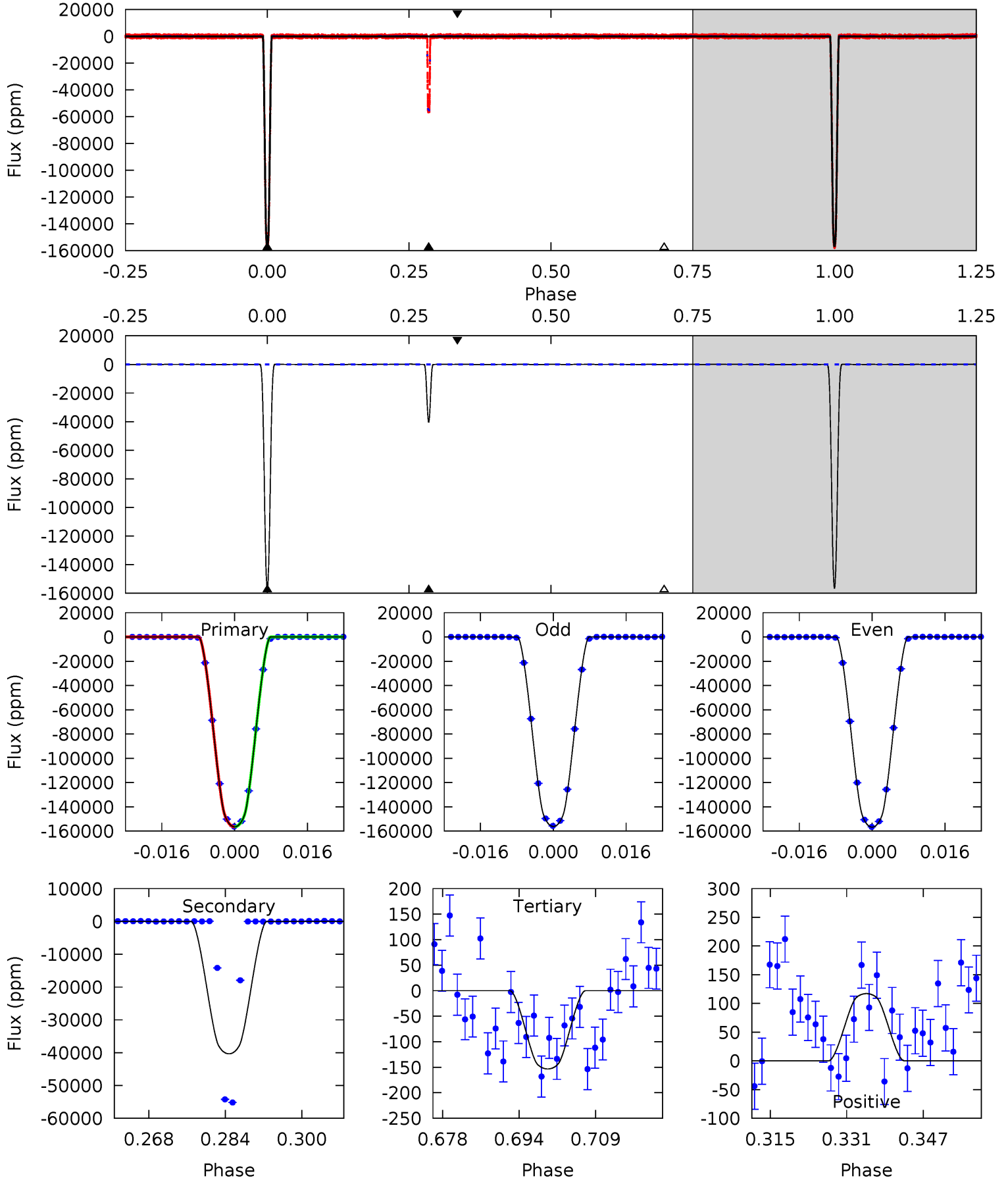
TCE 010345862-01 P= 58.286709 Days $T_0=135.891260$ (BKJD)



DV Model-Shift Uniqueness Test

010345862-01, P = 58.288205 Days, E = 77.588277 Days

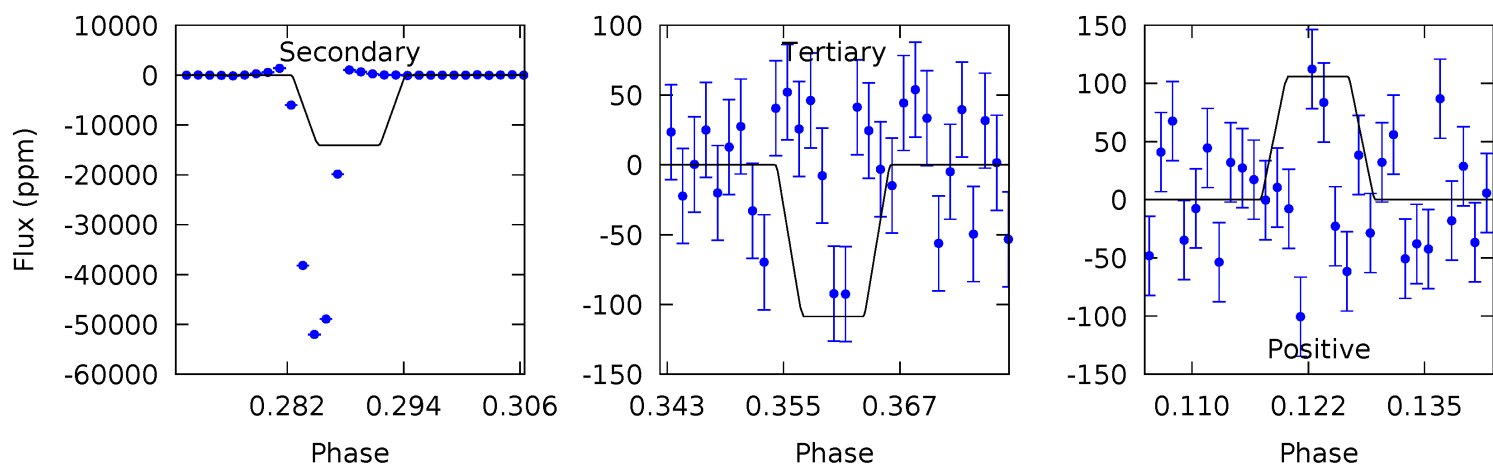
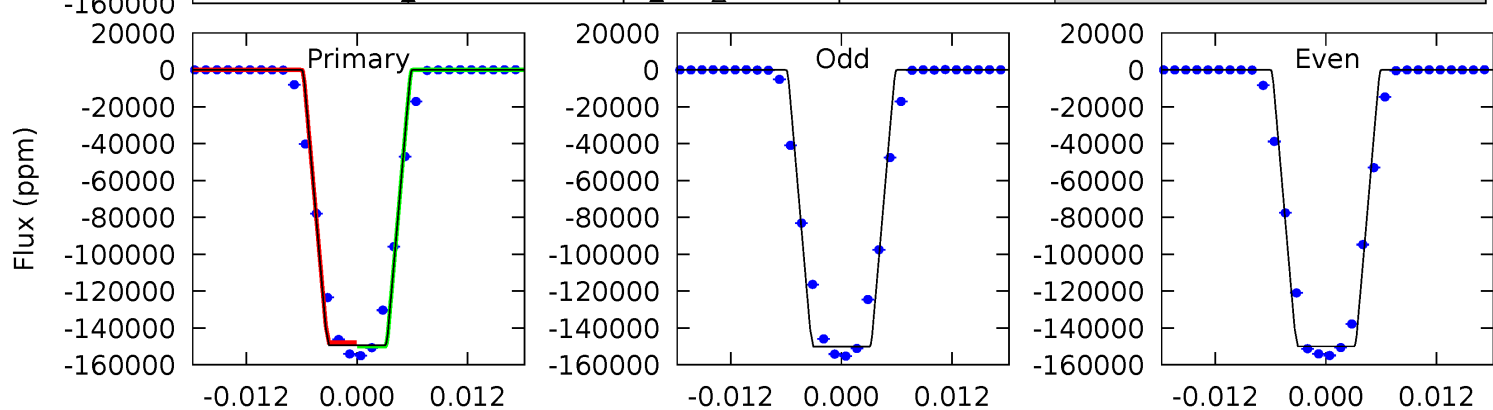
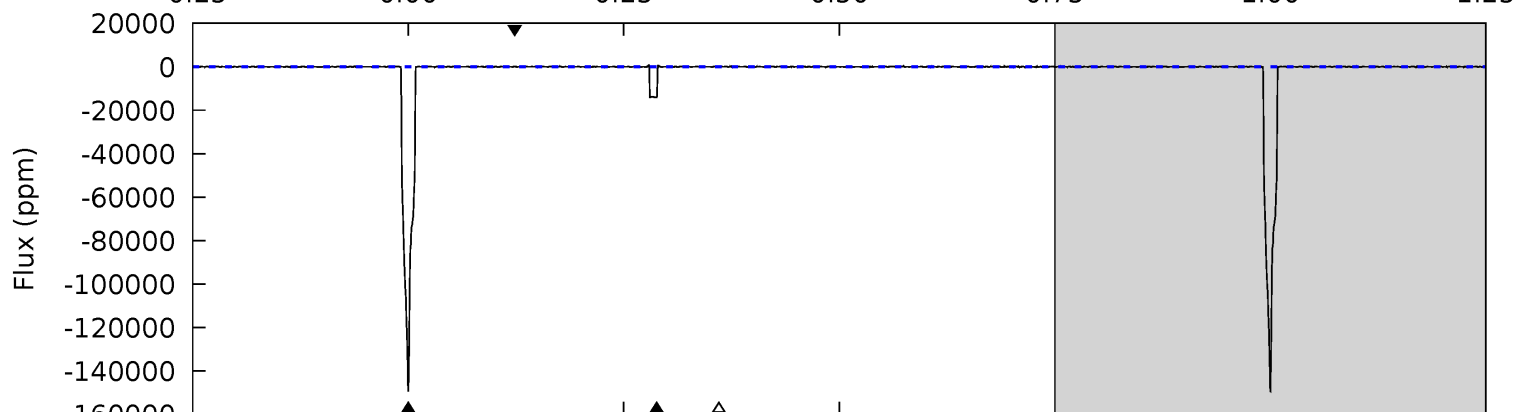
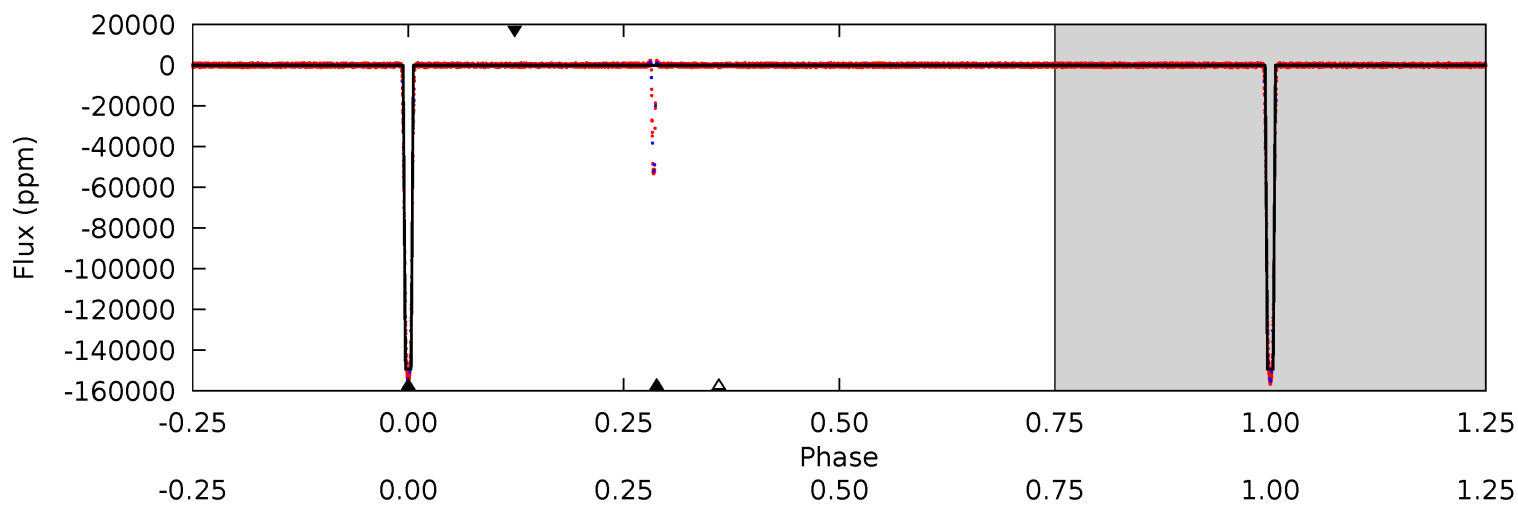
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10455	2695	10.2	7.83	4.94	2.41	4.70	10445	10447	2685	2687	19.2	0.88	0.00	0.46



Alt Model-Shift Uniqueness Test

010345862-01, P = 58.286709 Days, E = 77.604551 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6680	628.8	4.86	4.74	4.99	2.51	1.48	6675	6675	623.9	624.0	2.58	0.98	0.00	0



Stellar Parameters For KIC 010345862

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5463^{+164}_{-164}	$4.353^{+0.162}_{-0.198}$	$0.120^{+0.250}_{-0.250}$	$1.044^{+0.286}_{-0.191}$	$0.894^{+0.106}_{-0.074}$	$1.107^{+0.837}_{-0.547}$
	+3%/-3%	+4%/-5%	+208%/-208%	+27%/-18%	+12%/-8%	+76%/-49%
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 010345862-01 / KOI 7315.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-40344 ± 15	$43.33^{+6.45}_{-4.64}$	651^{+49}_{-41}	4271^{+102}_{-116}	998^{+239}_{-227}
Alt.	-14052 ± 22	$44.62^{+7.62}_{-4.49}$	650^{+49}_{-41}	3489^{+75}_{-71}	315^{+76}_{-81}

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 $A_{\text{obs}} \gg 1.0$

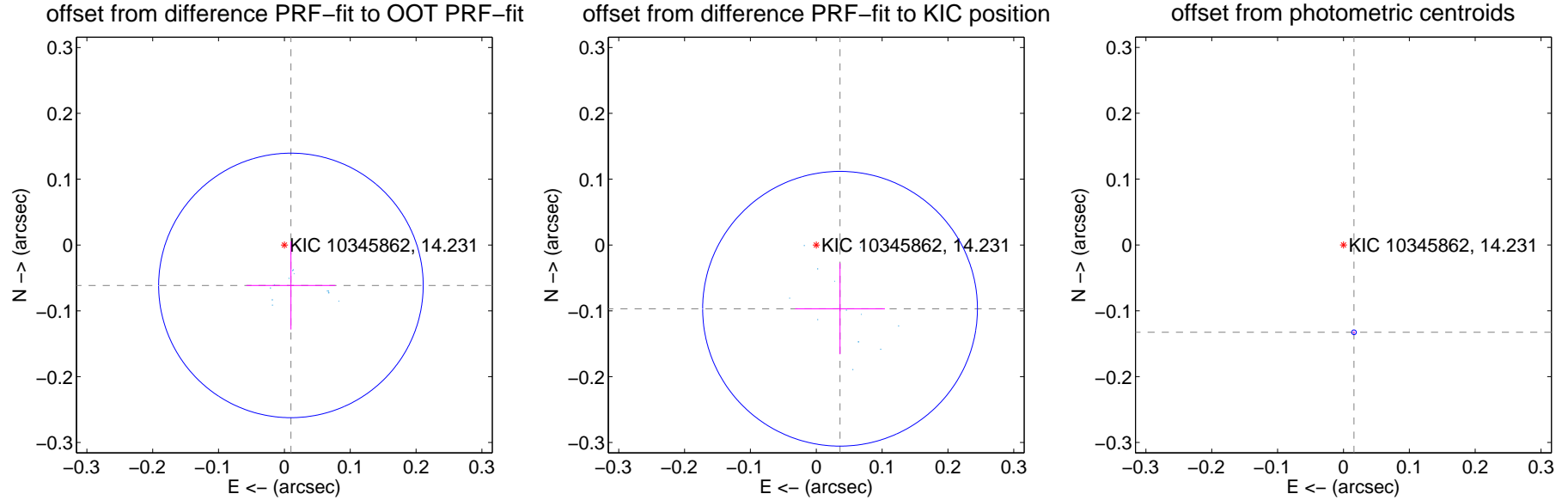
DV Centroid Data

Supplemental centroid analysis for 010345862-01. Kepler magnitude: 14.23. Transit SNR 5074.54

There are 12 quarters with good PRF difference image offsets

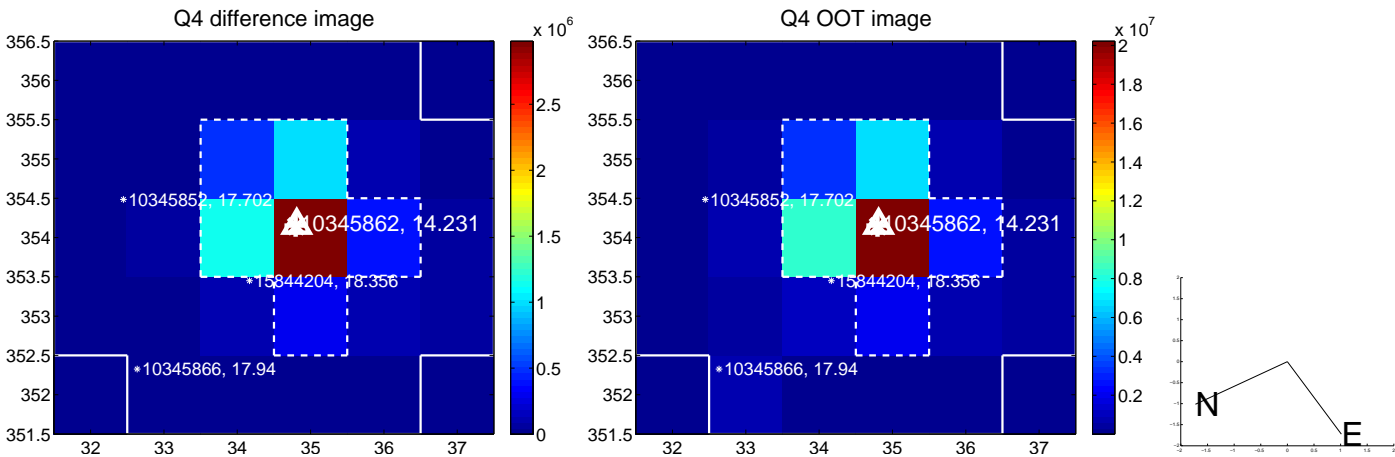
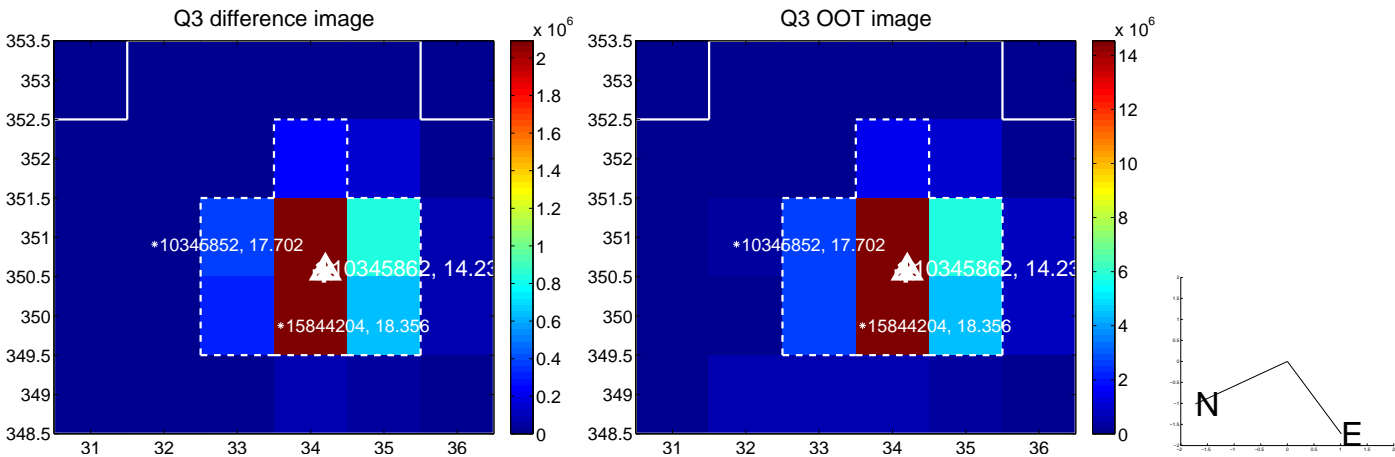
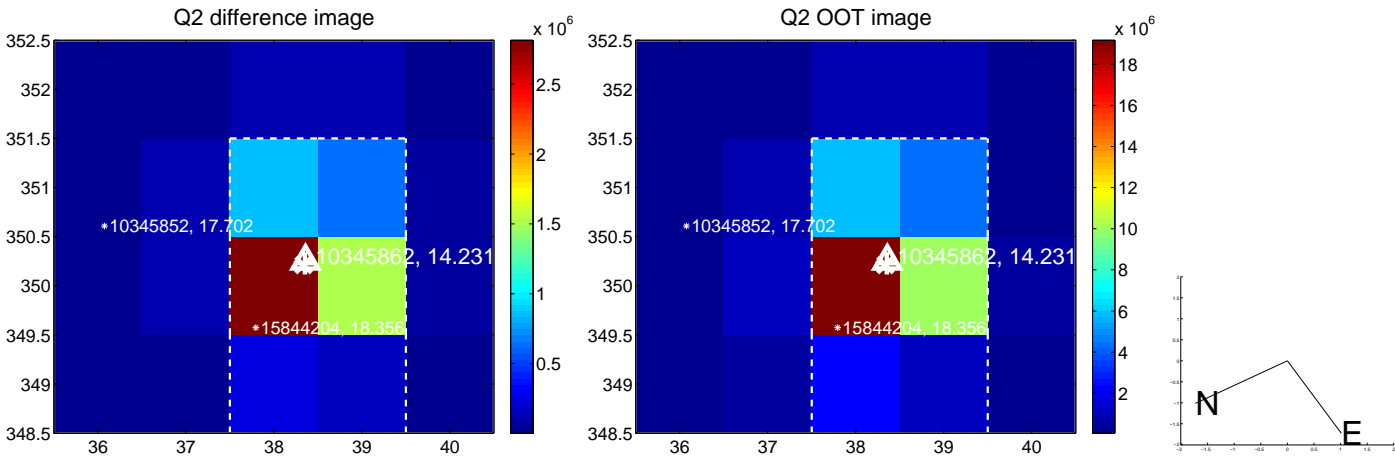
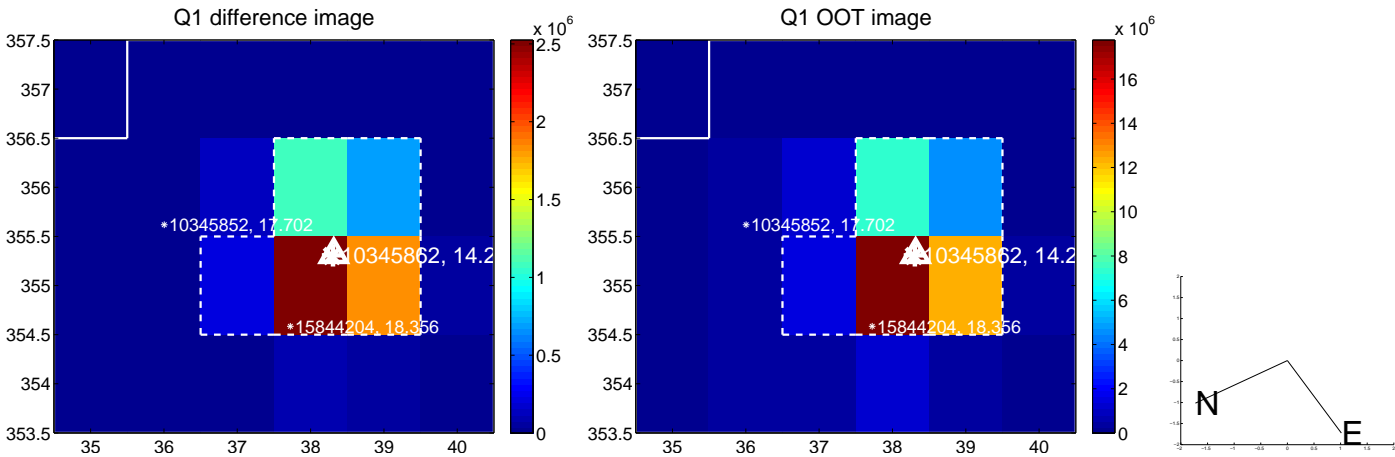
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.062 ± 0.067	0.93	-0.010 ± 0.068	-0.061 ± 0.067
PRF-fit source offset from KIC position	0.103 ± 0.070	1.49	-0.036 ± 0.068	-0.097 ± 0.069
photometric centroid source offset	0.13 ± 0.00	111.95	-0.02 ± 0.00	-0.13 ± 0.00

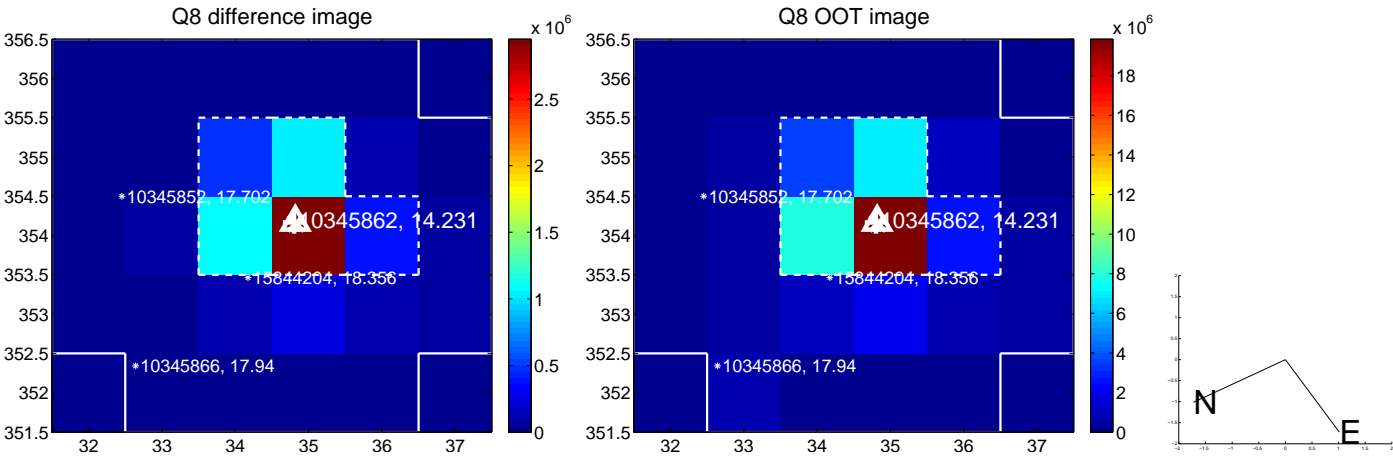
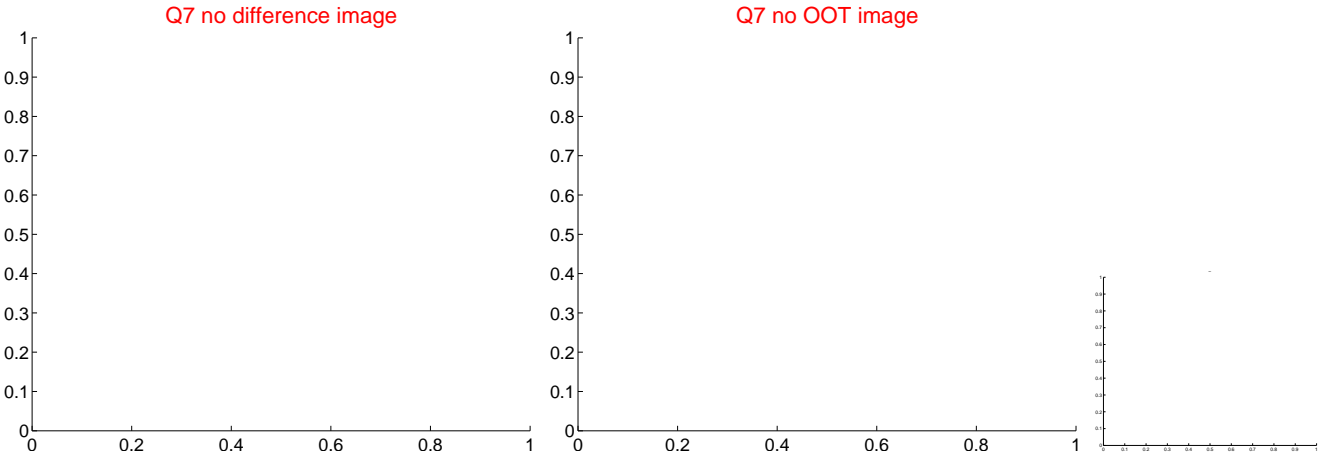
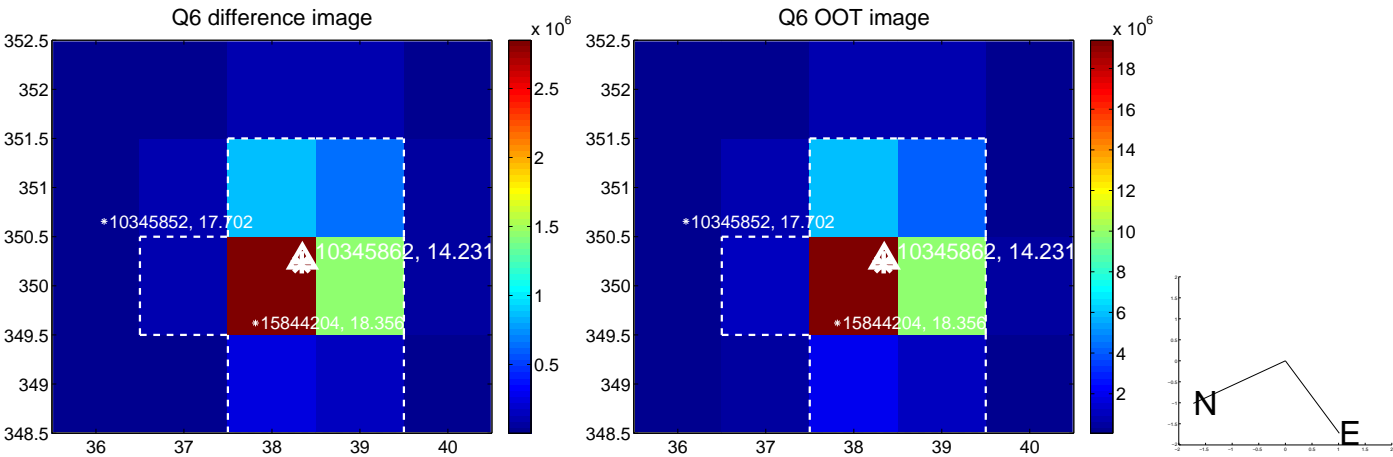
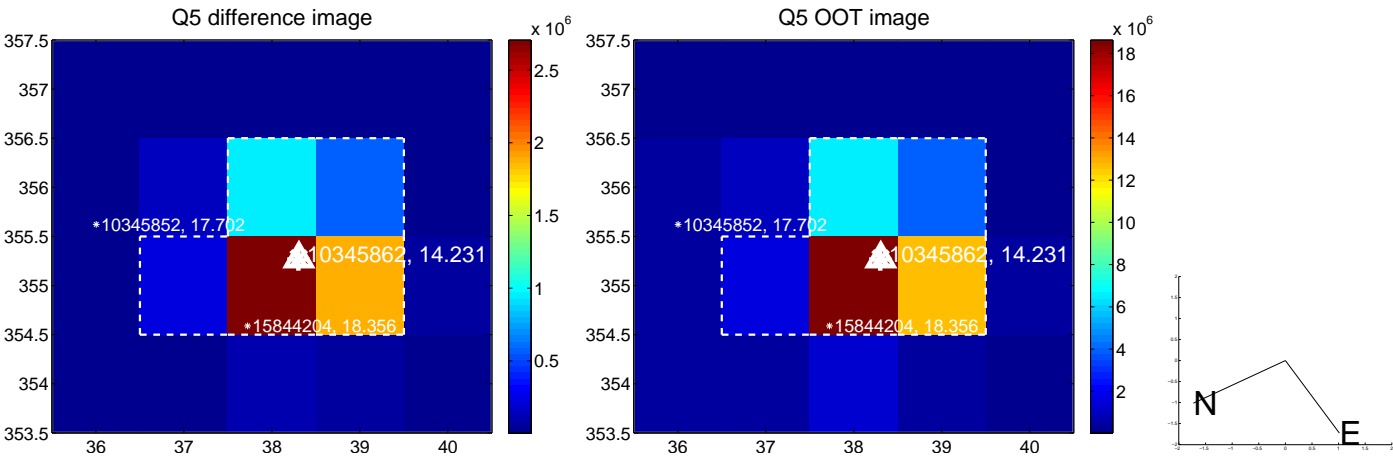


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

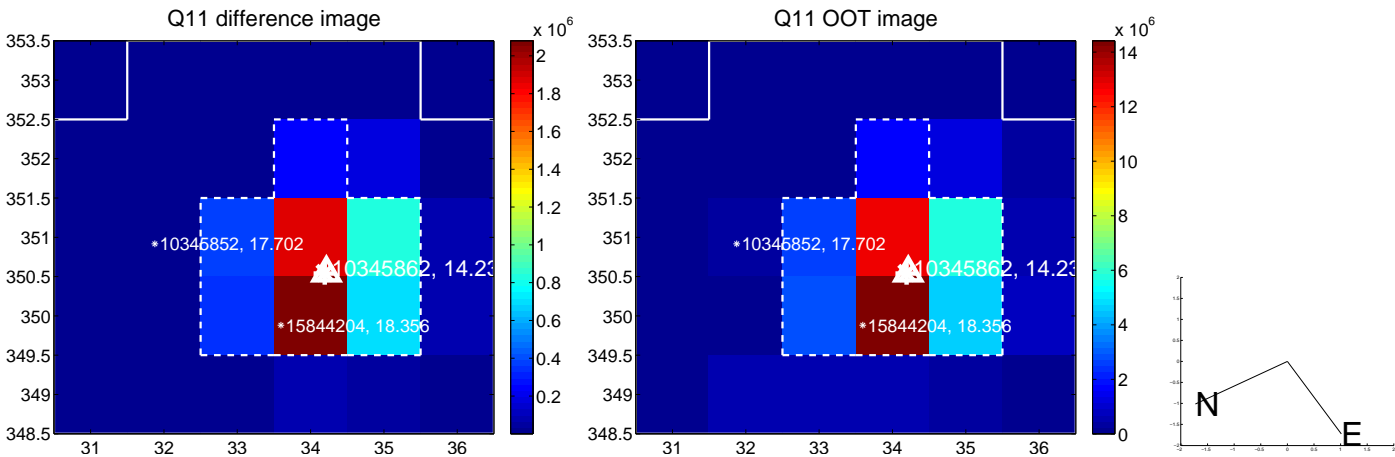
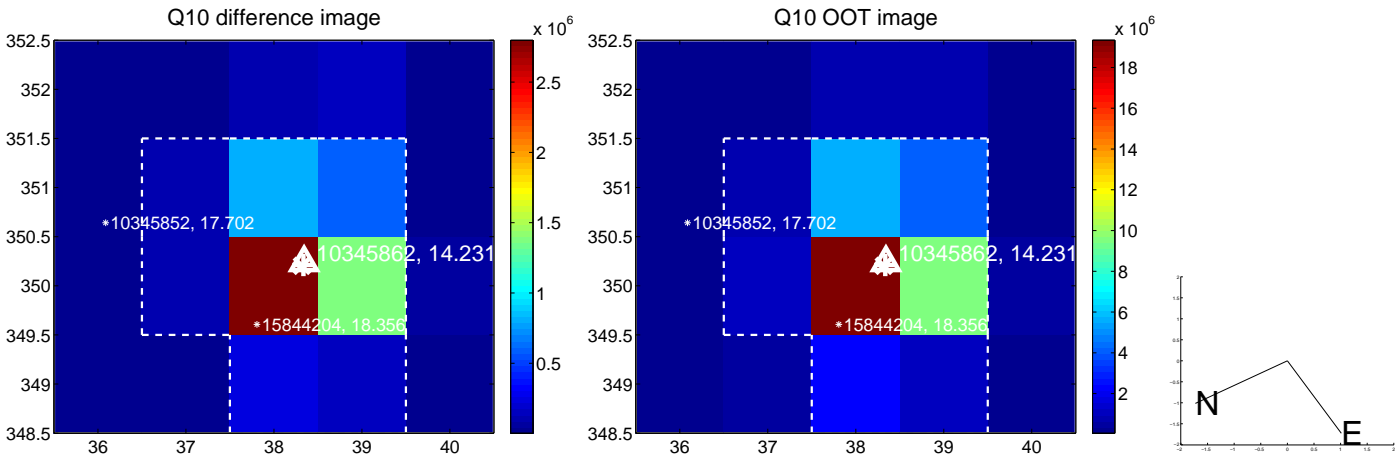
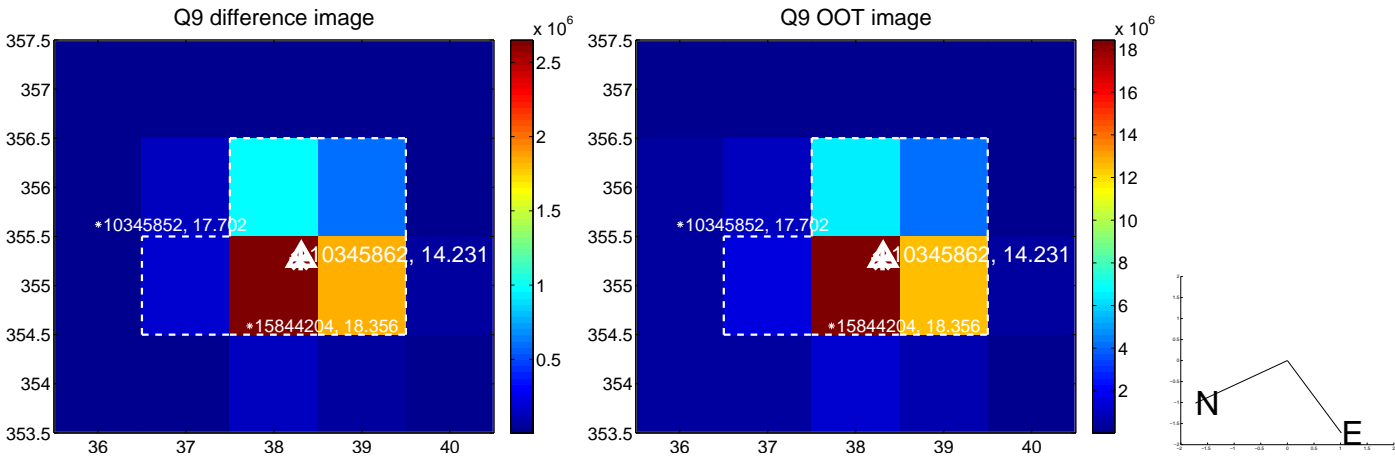
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



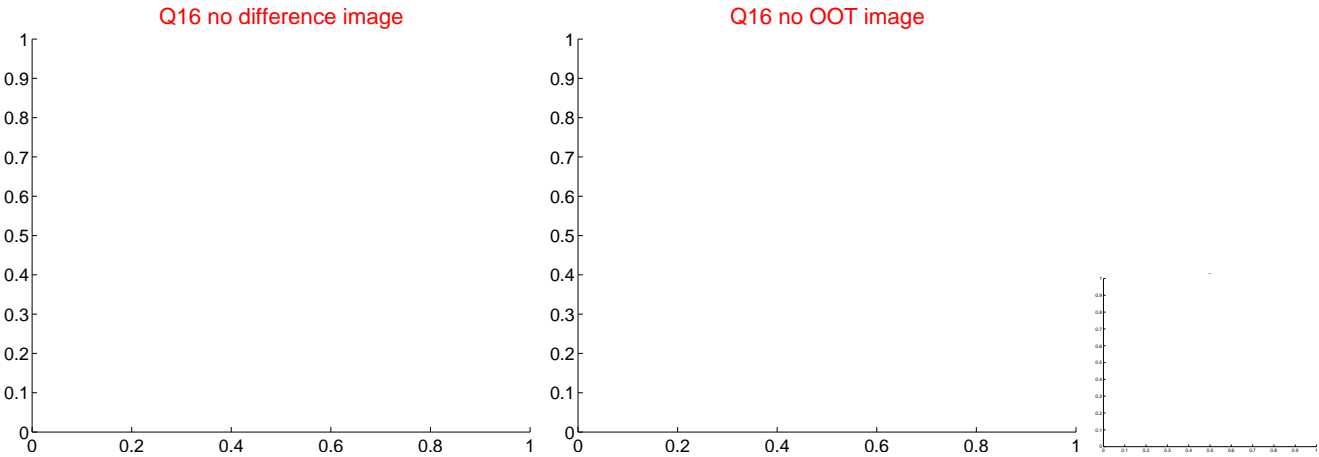
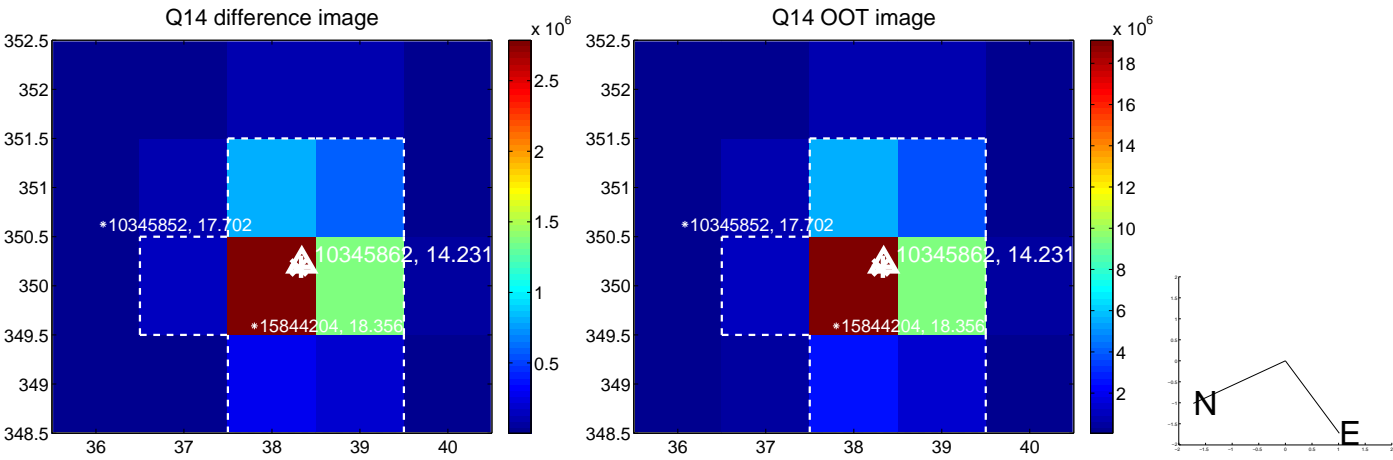
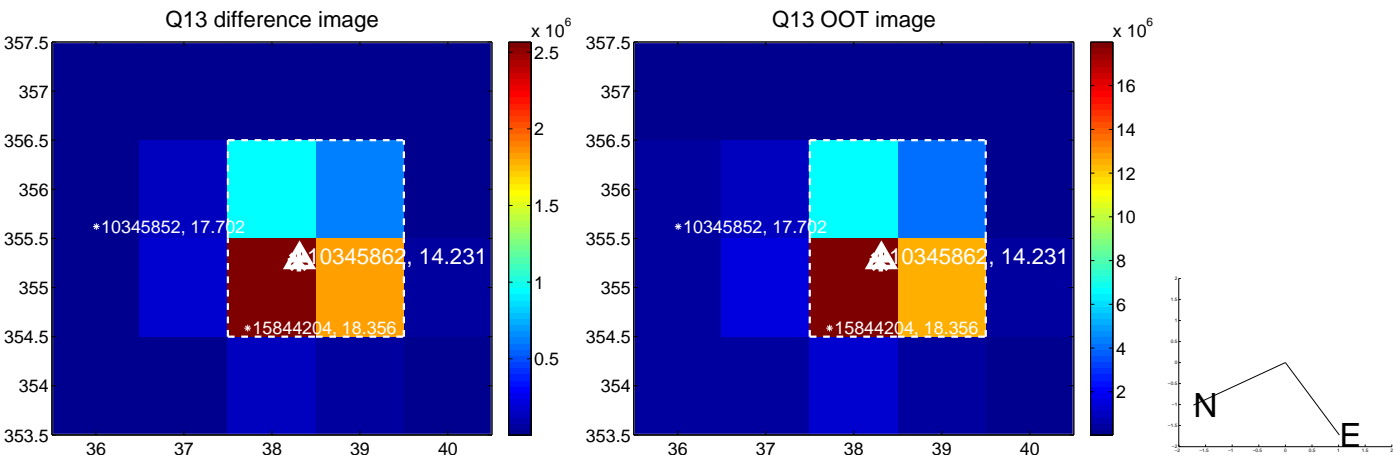
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



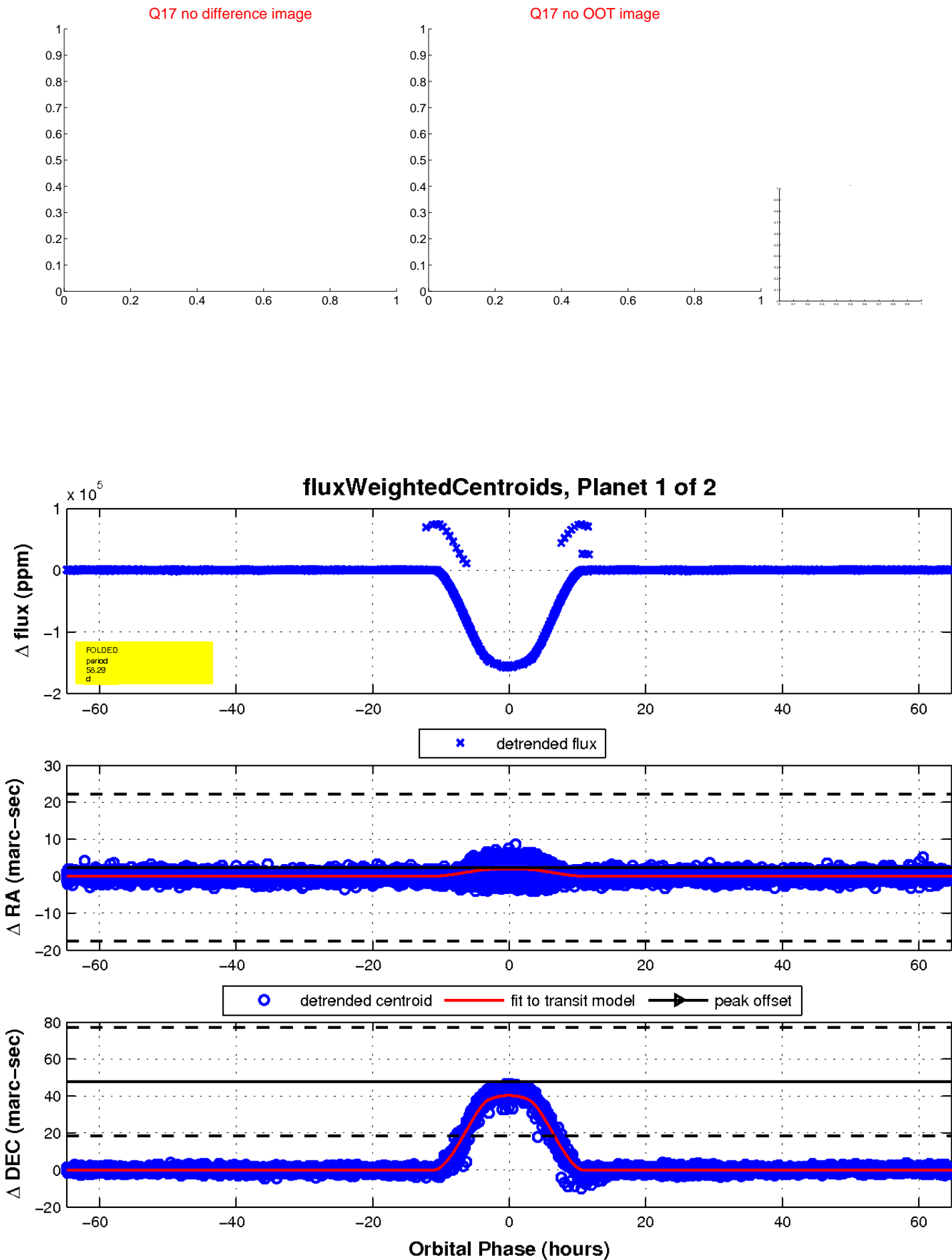
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

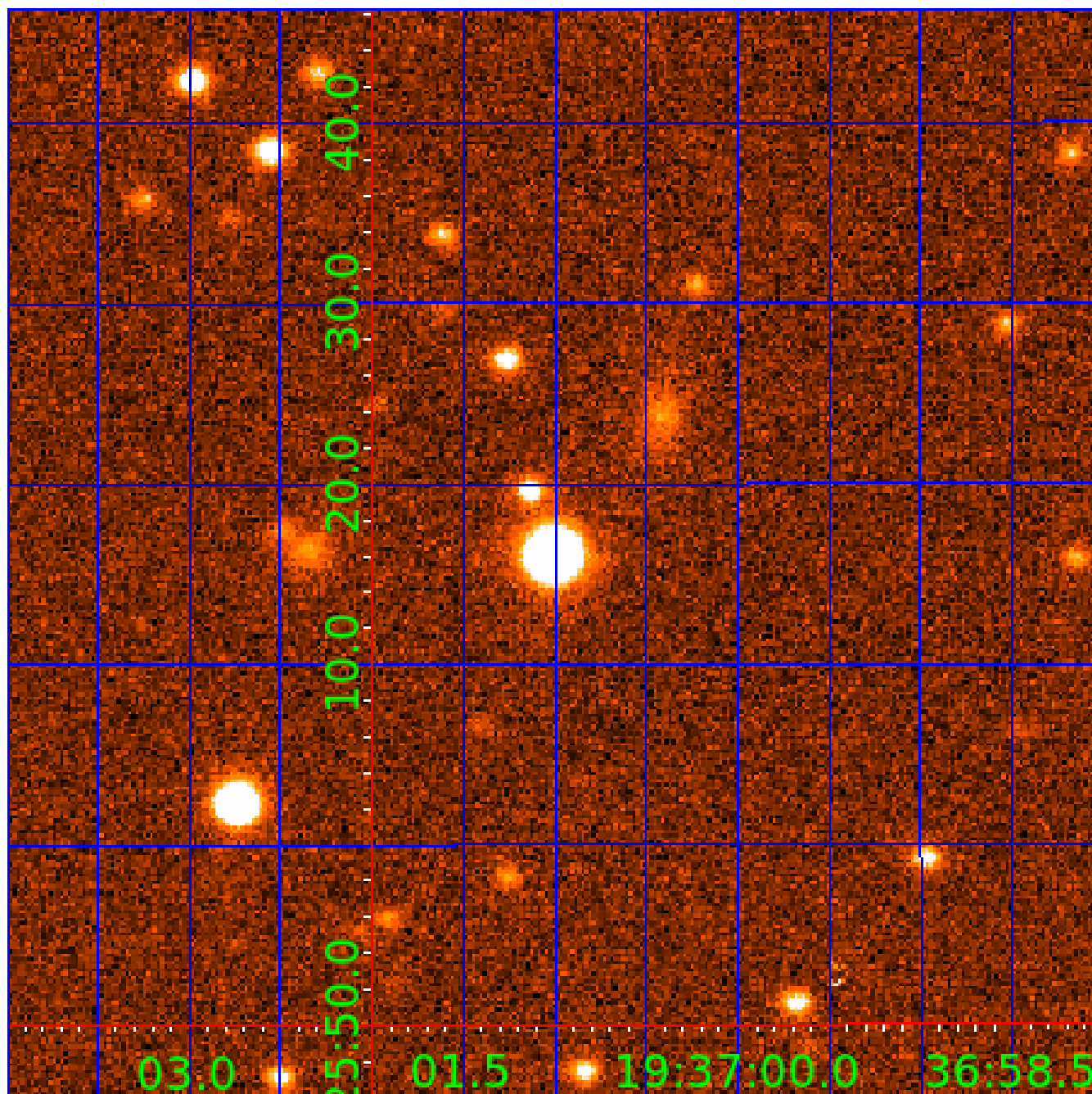


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010345862

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})
010345862-01	OBS	7315.01	58.288205	135.876482	156512.6	21.595	6381.0	5074.5	1.04	5463	42.65	10.81
010345862-02	OBS	No	58.288231	152.461571	58178.6	7.891	1886.1	1051.4	1.04	5463	25.70	10.81

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010345862-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—HAS_SEC_TCE
010345862-02	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.

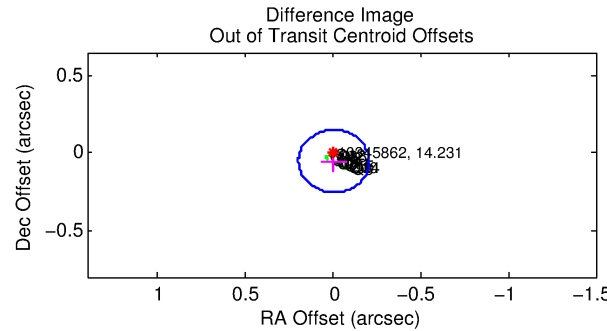
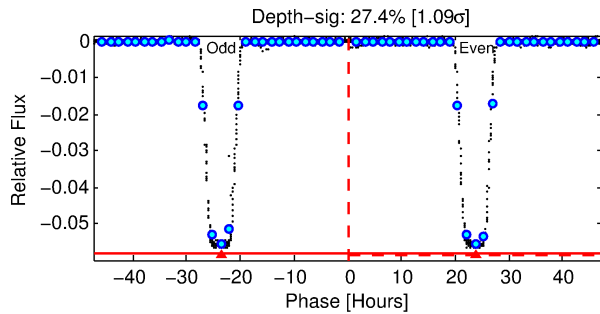
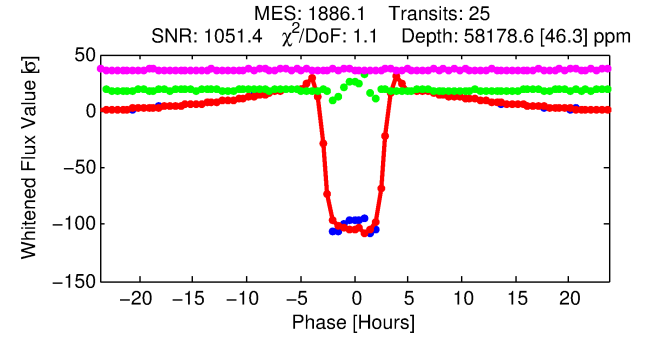
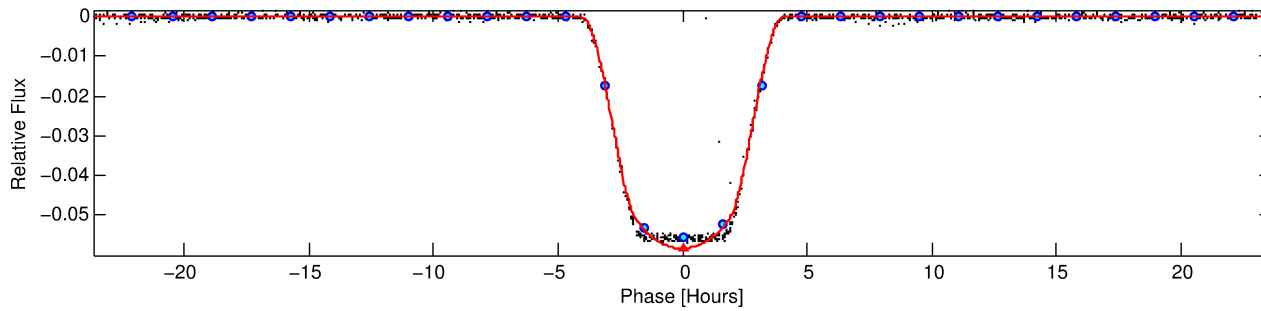
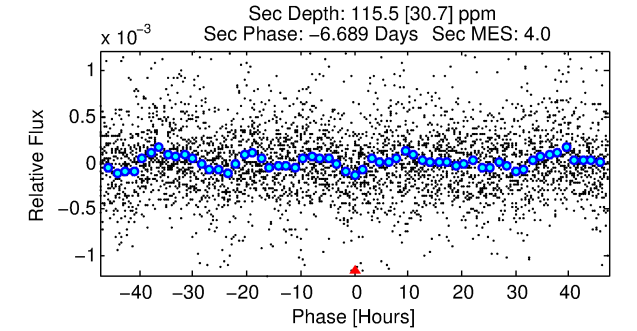
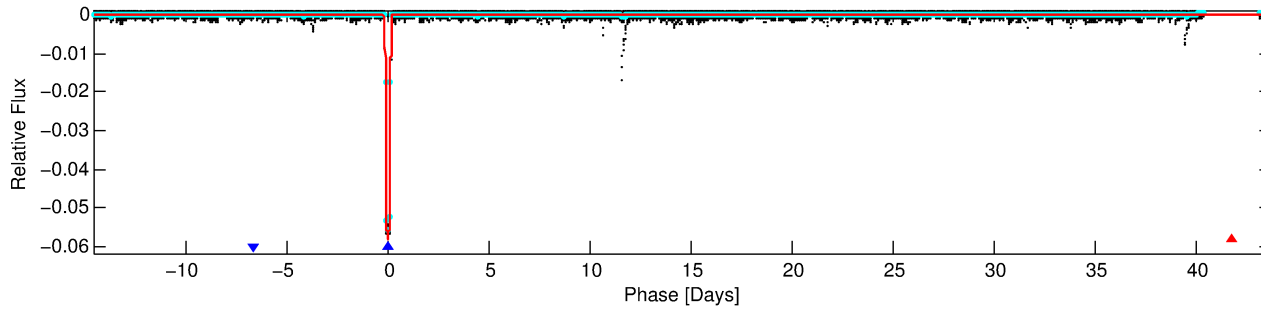
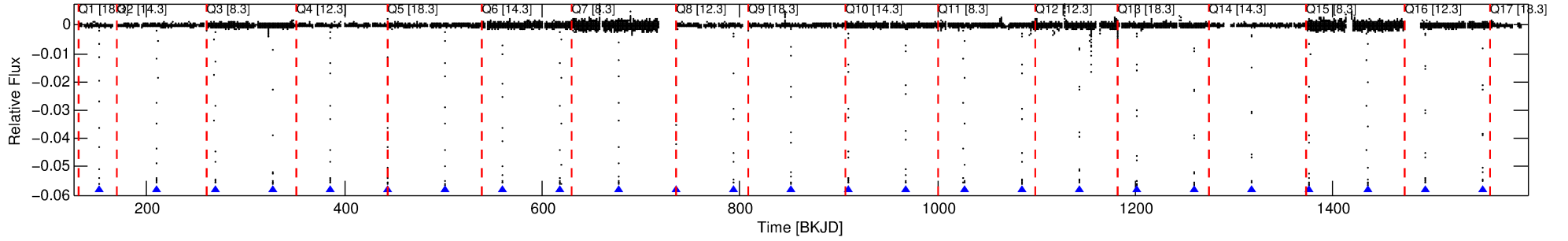
Ephemeris Match Information For 010345862-02

No Significant Match Found

DV One-Page Summary

KIC: 10345862 Candidate: 2 of 2 Period: 58.288 d
KOI: K07315 Corr: No Ephemeris Match

Kp: 14.23 R*: 1.04 Rs Teff: 5463.0 K Logg: 4.35 Fe/H: 0.120



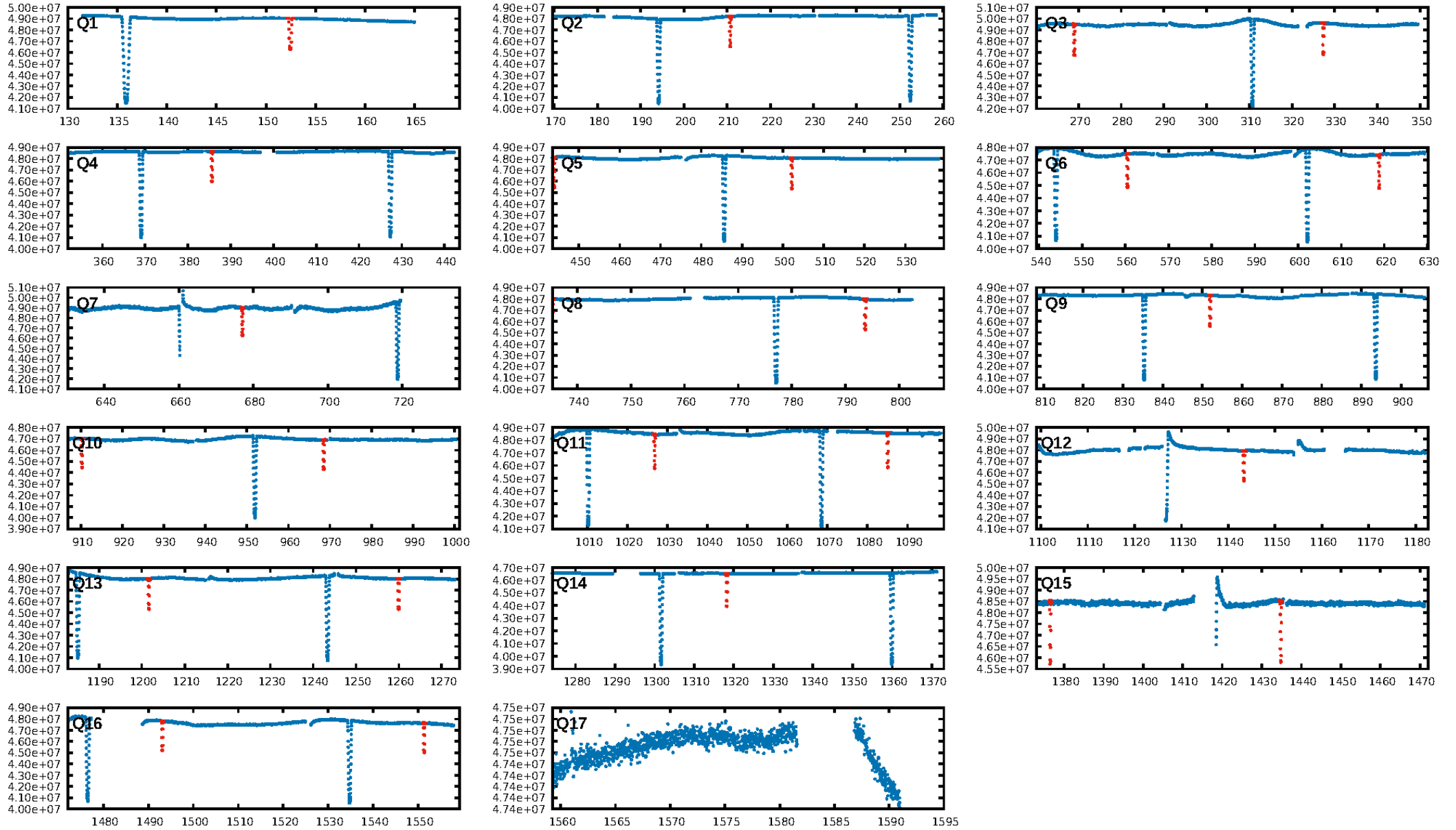
DV Fit Results:

Period = 58.28823 [0.00001] d
Epoch = 152.4616 [0.0001] BKJD
Rp/R* = 0.2256 [0.0001]
a/R* = 63.24 [0.10]
b = 0.50 [0.00]
Seff = 10.81 [4.05]
Teff = 462 [43] K
Rp = 25.70 [7.04] Re
a = 0.2837 [0.0674] AU
Ag = 7.74 [3.43] [1.97σ]
Teffp = 1192 [87] K [7.52σ]

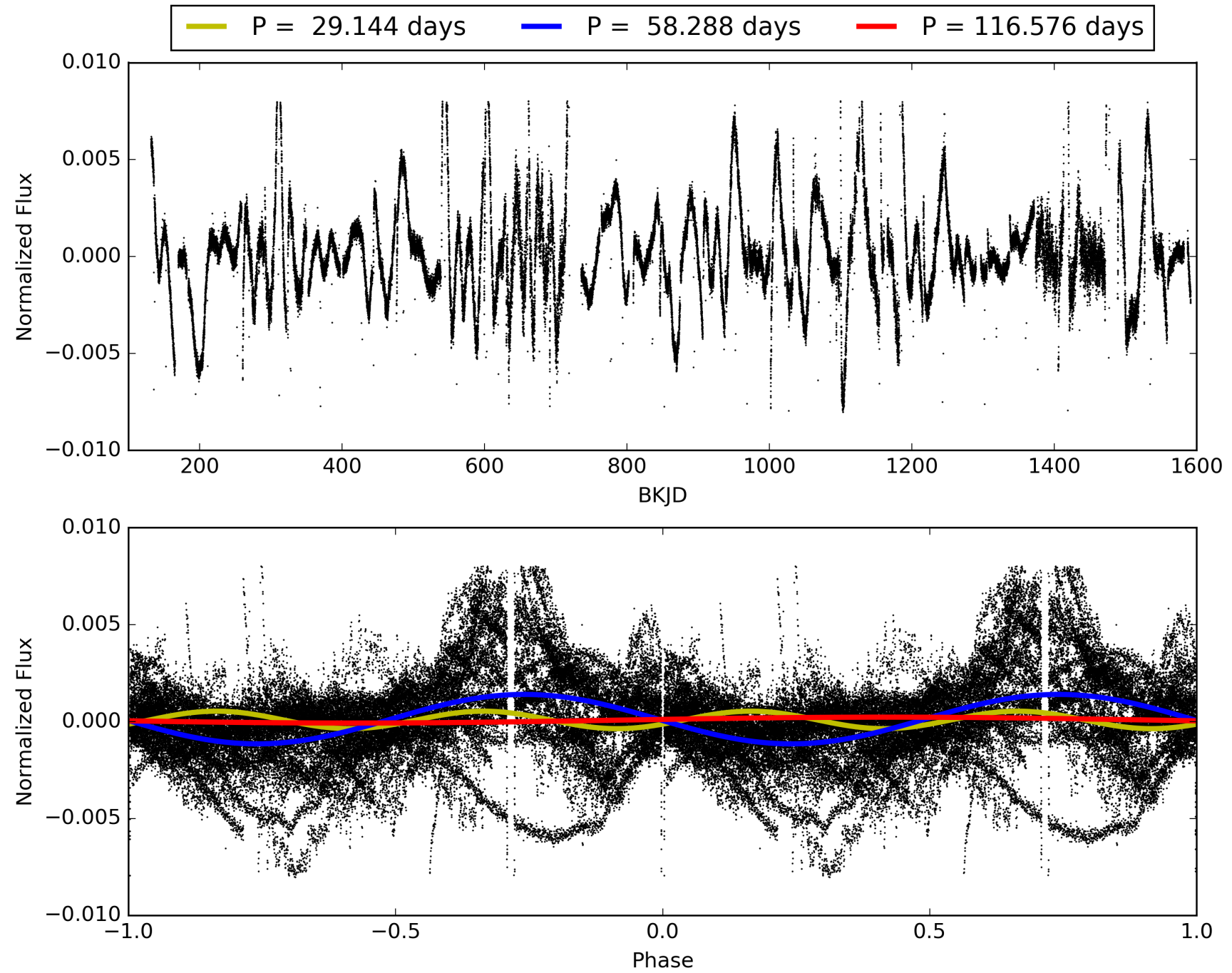
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [24/24]
GhostDiagnostic-chr: 4.747
Centroid-sig: 0.0%
Centroid-so: 0.094 arcsec [24.29σ]
OotOffset-rm: 0.052 arcsec [0.78σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.084 arcsec [1.21σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
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TCE 010345862-02, PDC Light Curves

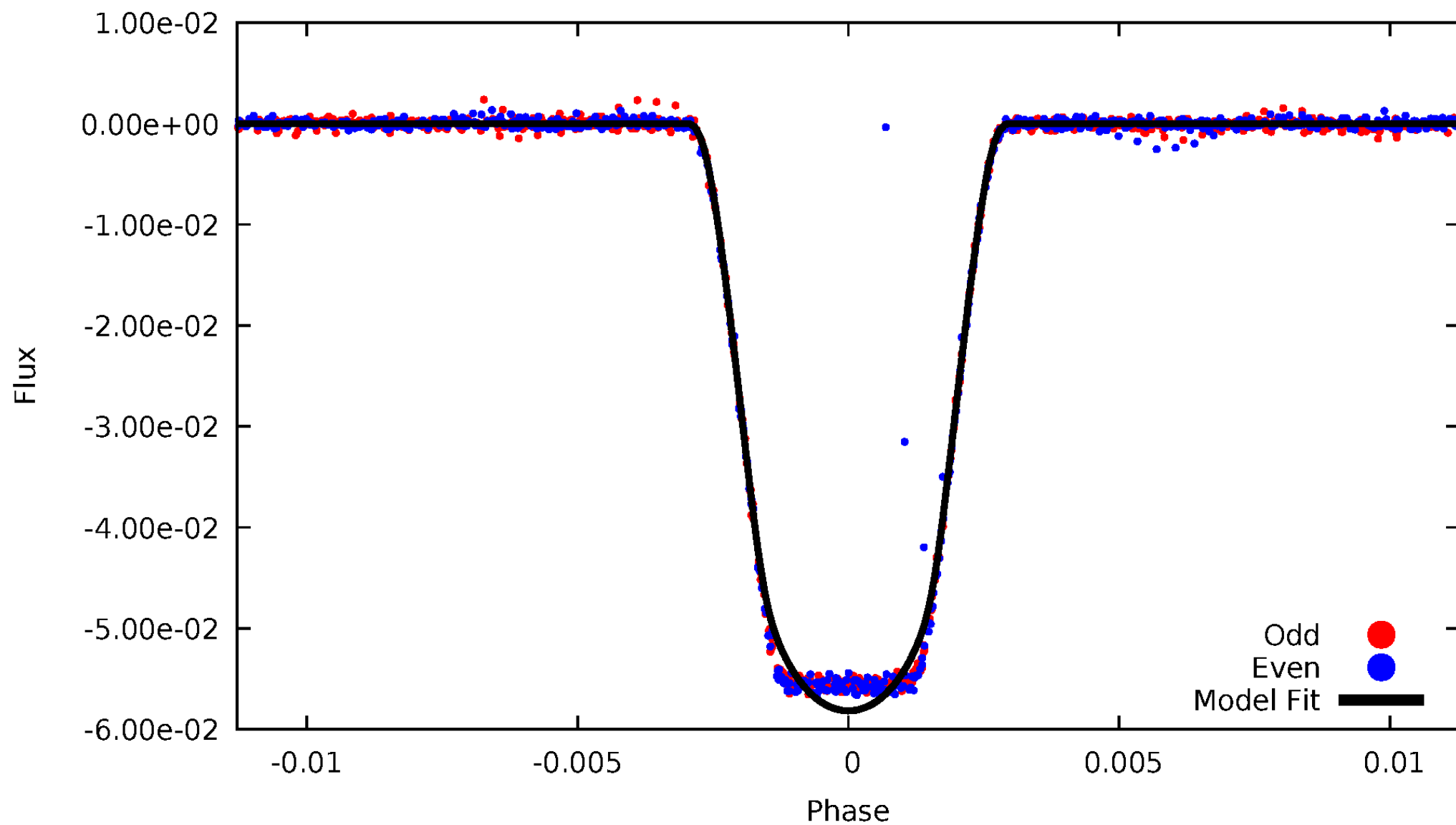


TCE 010345862-02



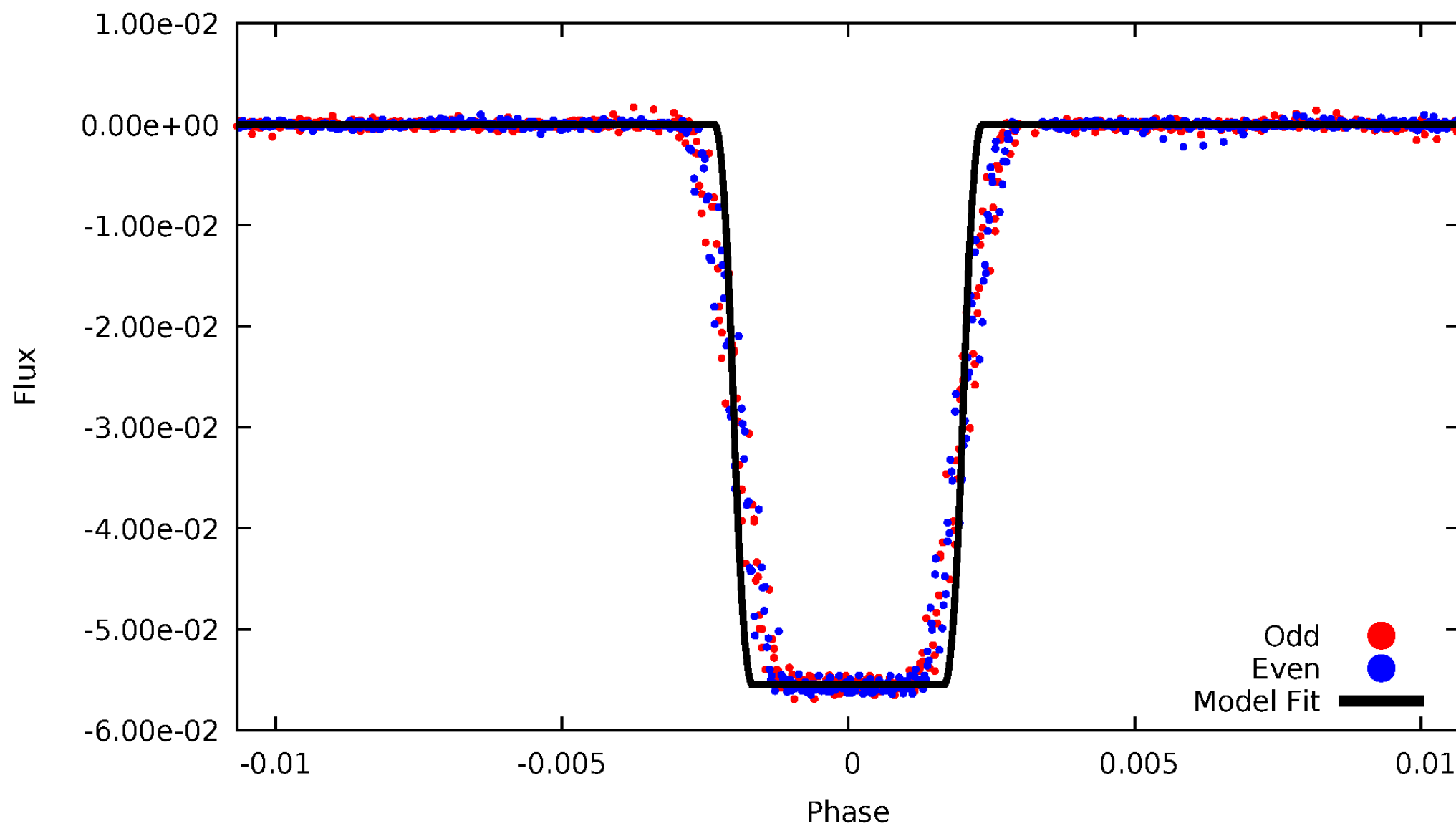
DV Odd/Even

TCE 010345862-02



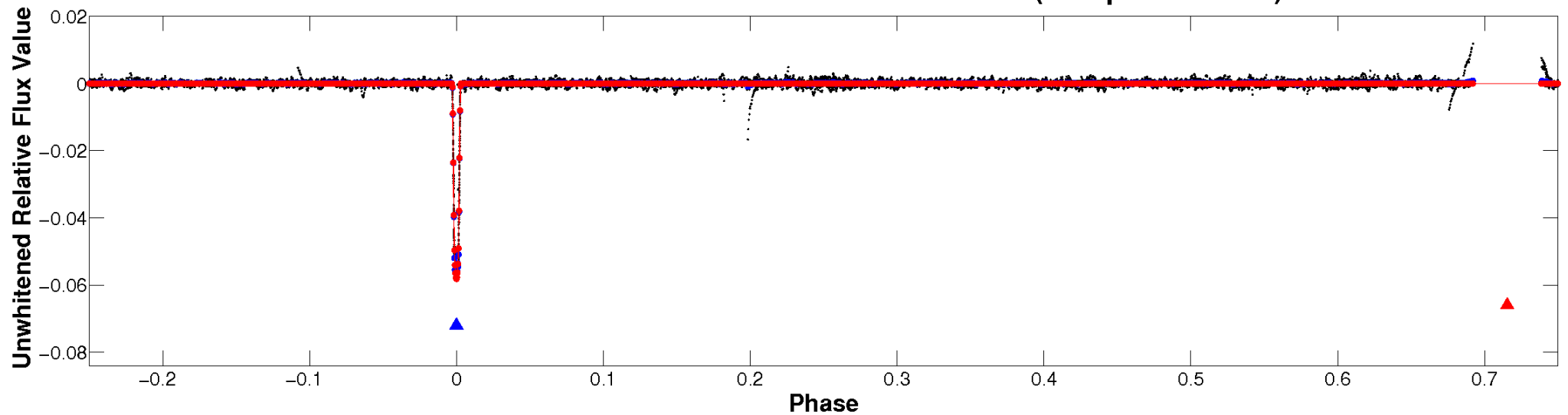
ALT Odd/Even

TCE 010345862-02

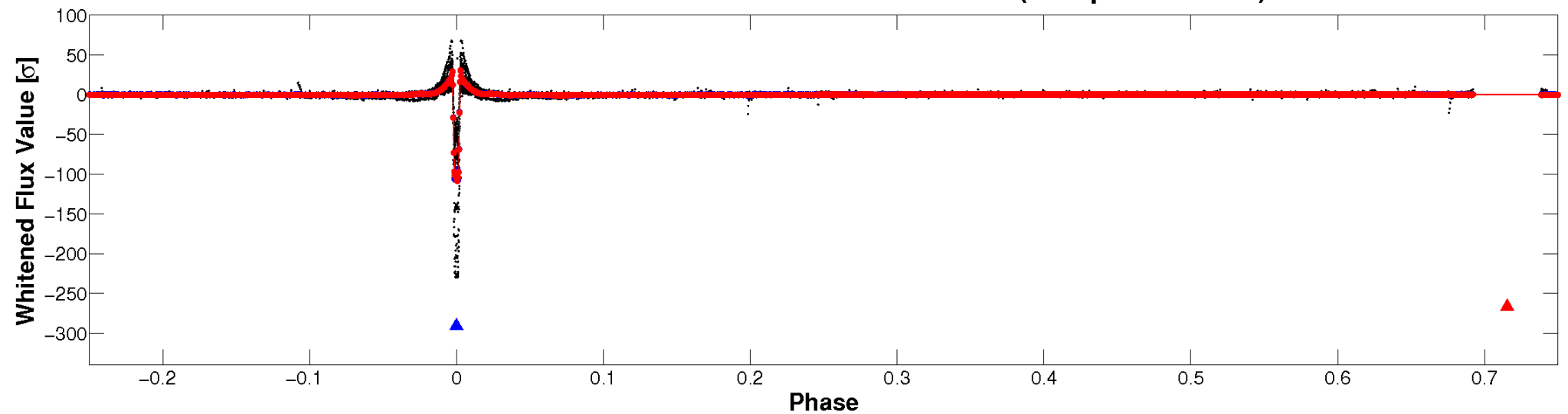


Non-Whitened Vs. Whitened Light Curve

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

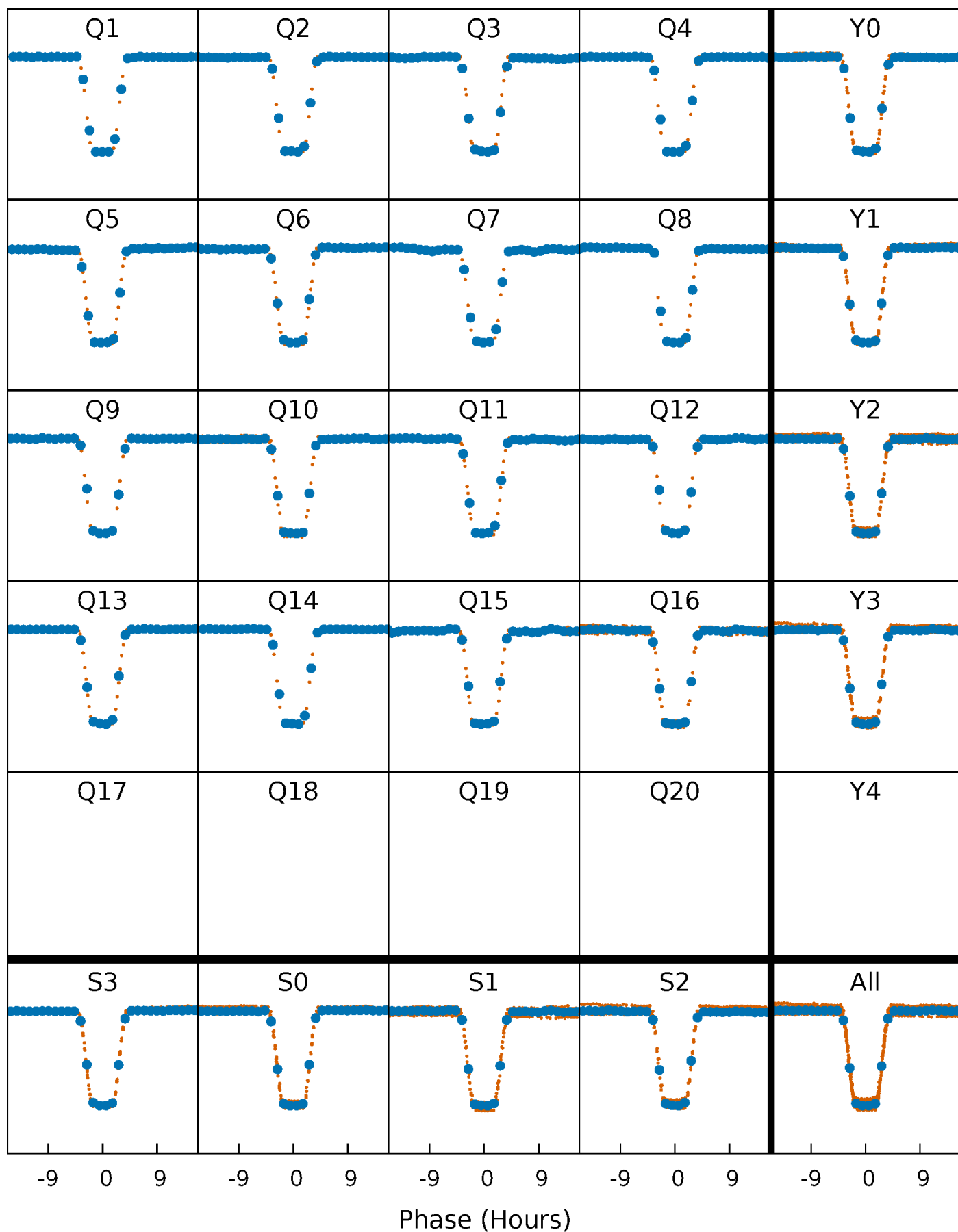


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



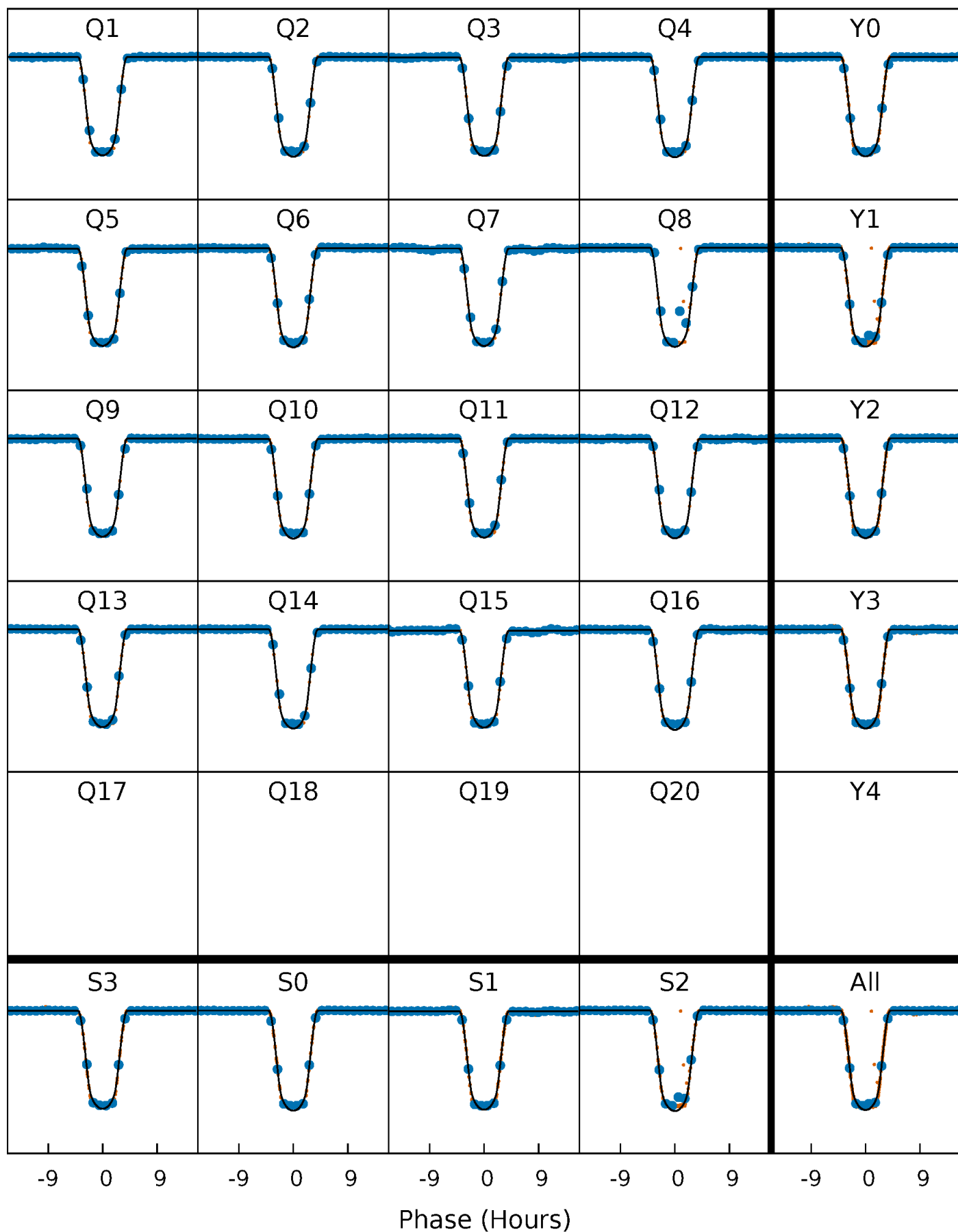
PDC Quarter-Phased Transit Curves

TCE 010345862-02 P= 58.288231 Days $T_0=152.461571$ (BKJD)



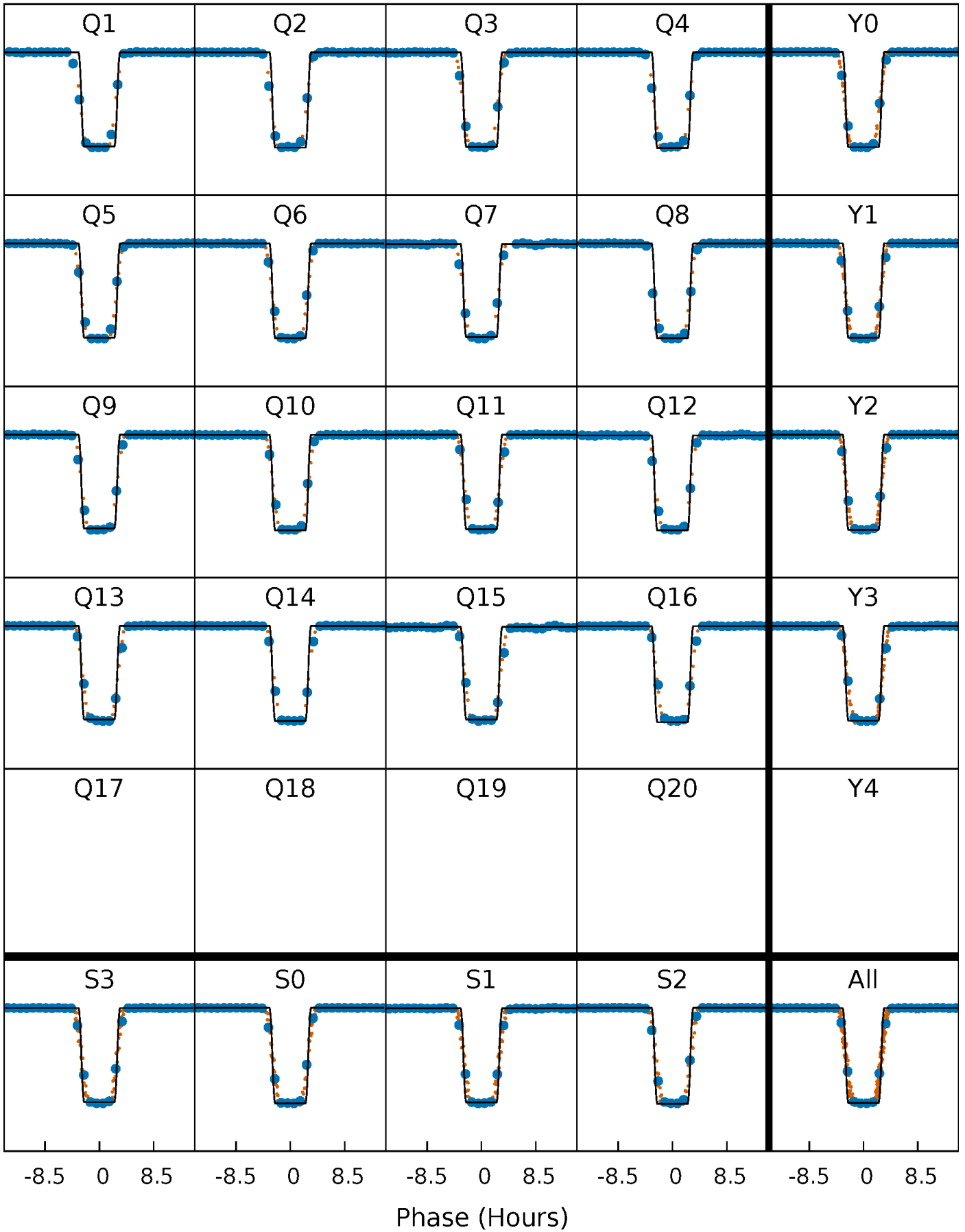
DV Quarter-Phased Transit Curves

TCE 010345862-02 P= 58.288231 Days $T_0=152.461571$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

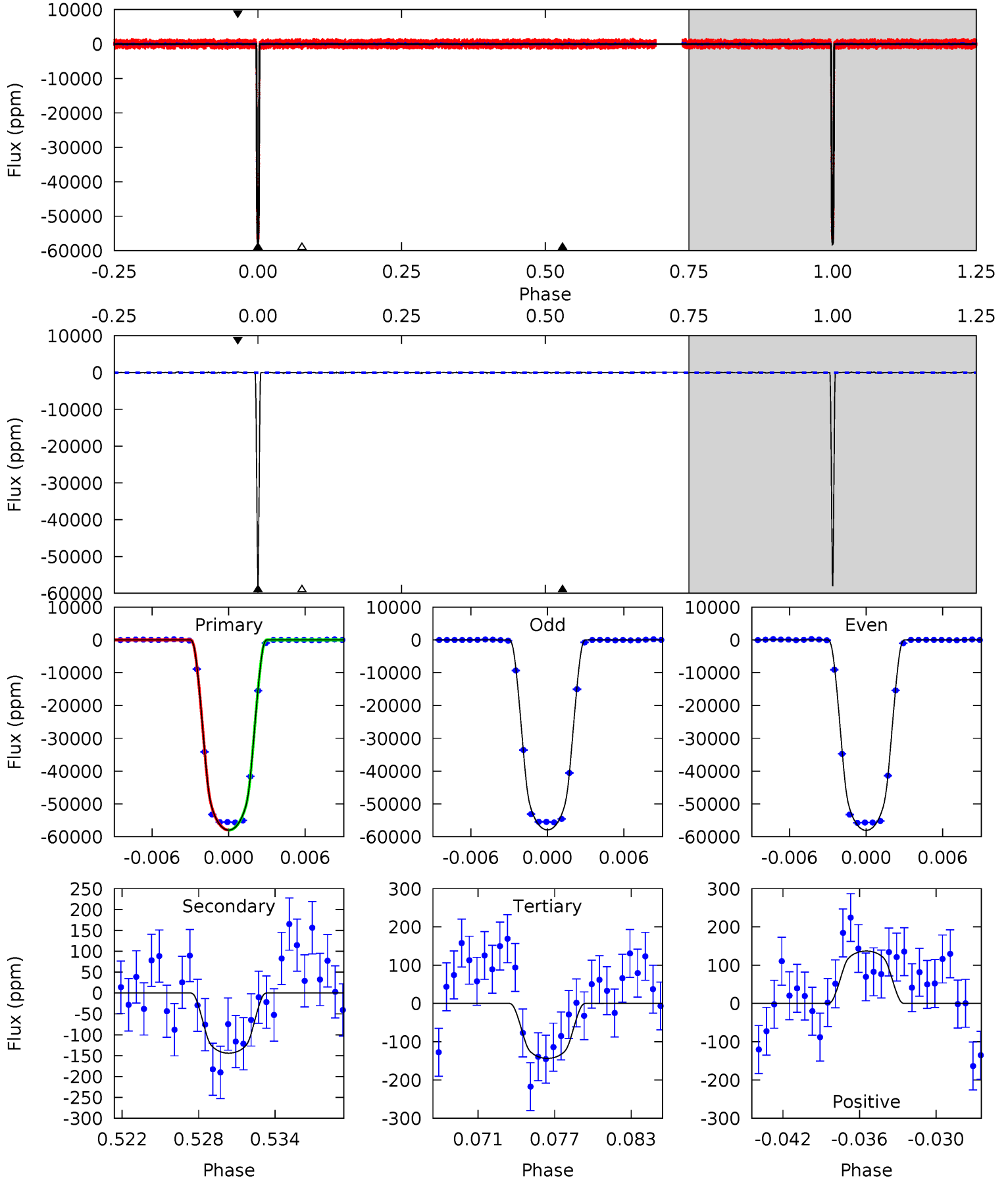
TCE 010345862-02 P= 58.287409 Days $T_0=152.470462$ (BKJD)



DV Model-Shift Uniqueness Test

010345862-02, P = 58.288231 Days, E = 94.173340 Days

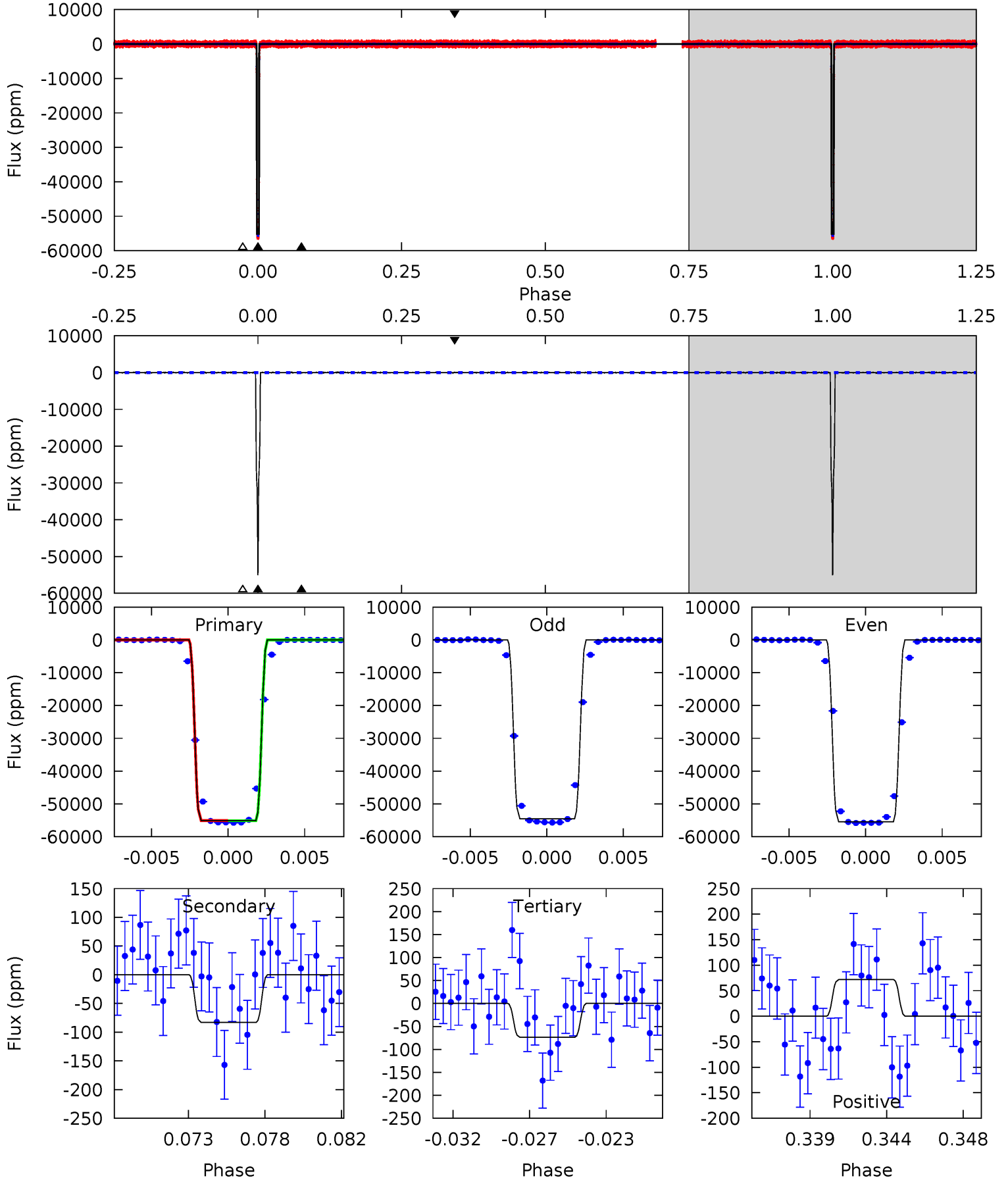
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3073	7.64	7.61	7.26	5.13	2.75	2.57	3066	3066	0.03	0.38	3.95	0.98	0.00	1.19



Alt Model-Shift Uniqueness Test

010345862-02, P = 58.287409 Days, E = 94.183053 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2701	4.07	3.62	3.52	5.17	2.84	1.11	2697	2697	0.45	0.55	24.3	1.00	0.00	0.52



Stellar Parameters For KIC 010345862

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5463^{+164}_{-164}	$4.353^{+0.162}_{-0.198}$	$0.120^{+0.250}_{-0.250}$	$1.044^{+0.286}_{-0.191}$	$0.894^{+0.106}_{-0.074}$	$1.107^{+0.837}_{-0.547}$
	+3%/-3%	+4%/-5%	+208%/-208%	+27%/-18%	+12%/-8%	+76%/-49%
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 010345862-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-144 ± 19	$25.88^{+4.31}_{-2.89}$	650^{+51}_{-46}	2193^{+48}_{-44}	$9.293^{+3.210}_{-2.472}$
Alt.	-83 ± 20	$27.02^{+3.96}_{-2.91}$	649^{+52}_{-43}	2039^{+60}_{-70}	$4.814^{+2.011}_{-1.563}$

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 $A_{obs} \gg 1.0$

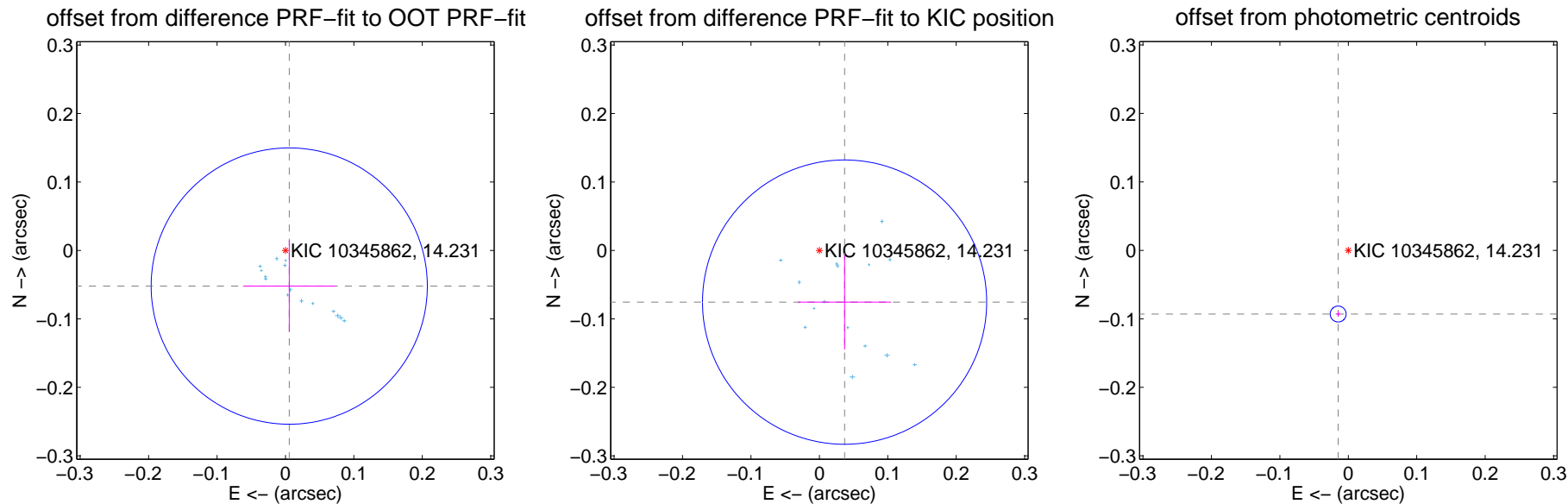
DV Centroid Data

Supplemental centroid analysis for 010345862-02. Kepler magnitude: 14.23. Transit SNR 1051.36

There are 15 quarters with good PRF difference image offsets

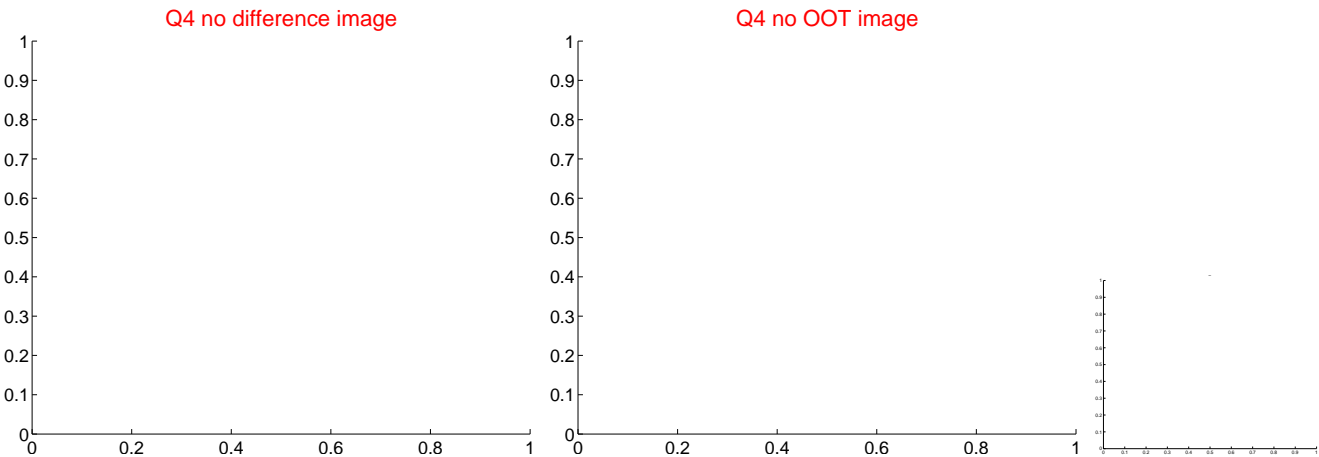
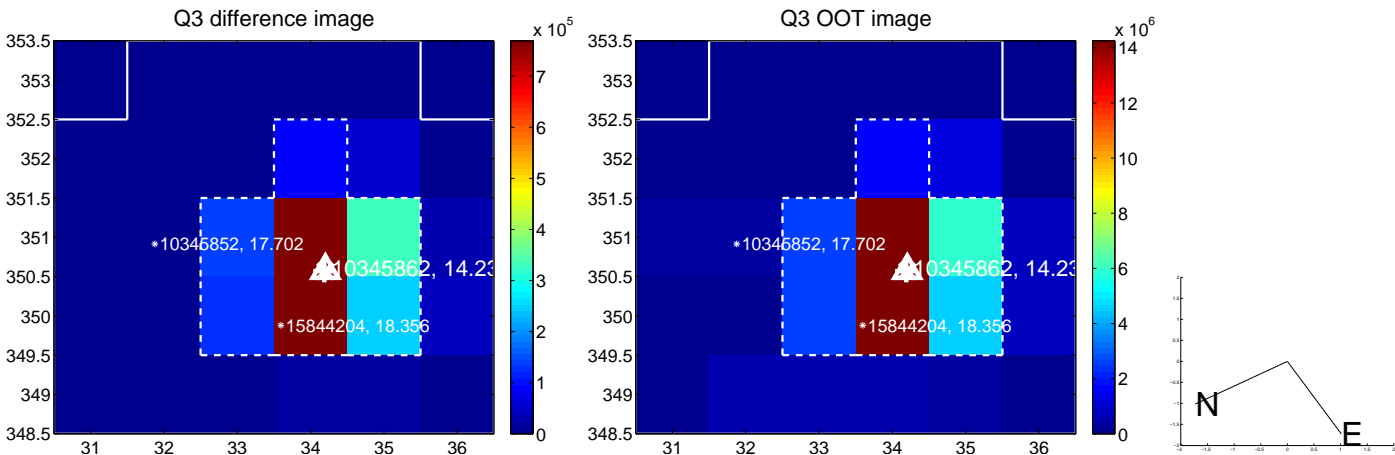
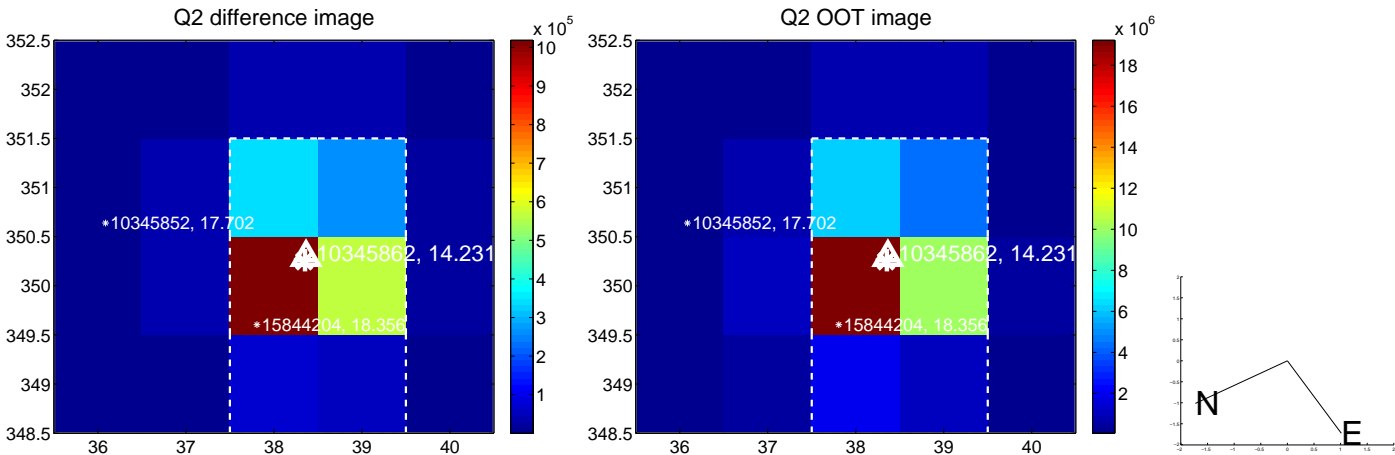
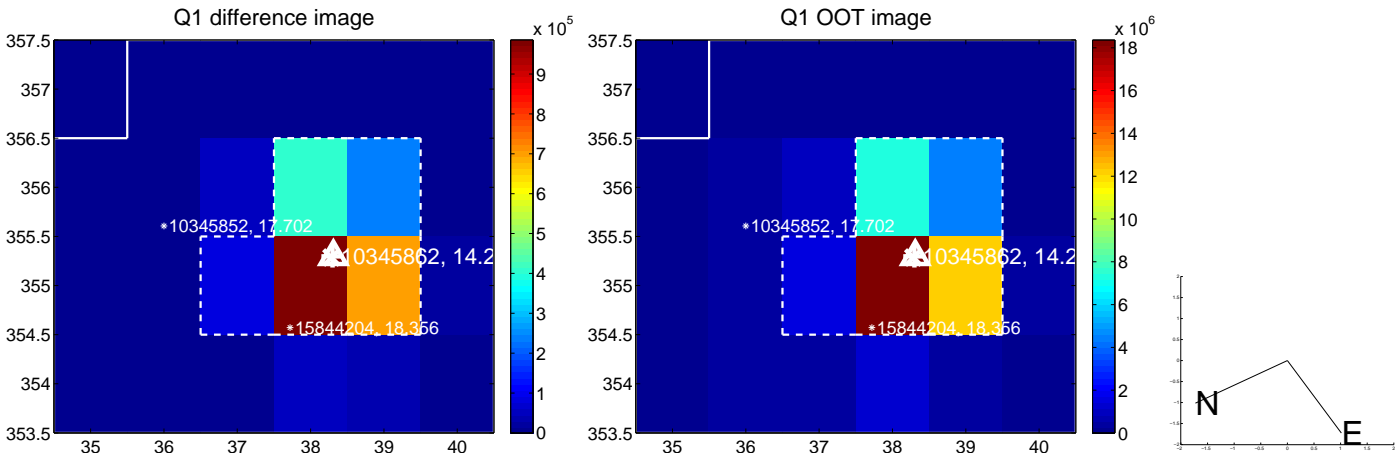
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.052 ± 0.067	0.78	-0.006 ± 0.068	-0.052 ± 0.067
PRF-fit source offset from KIC position	0.084 ± 0.069	1.21	-0.037 ± 0.068	-0.076 ± 0.069
photometric centroid source offset	0.09 ± 0.00	24.29	0.01 ± 0.00	-0.09 ± 0.00

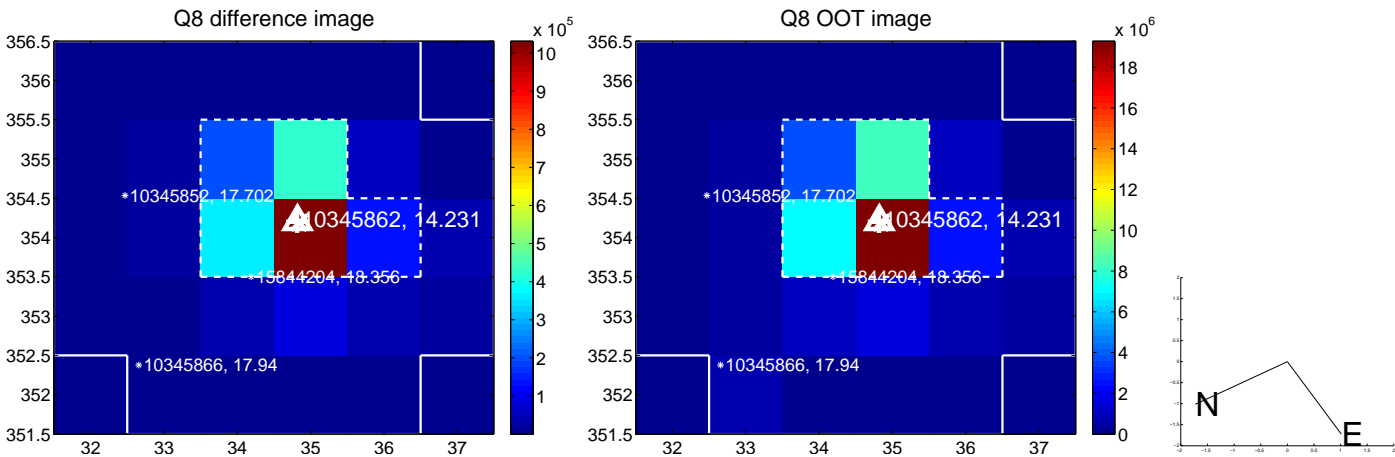
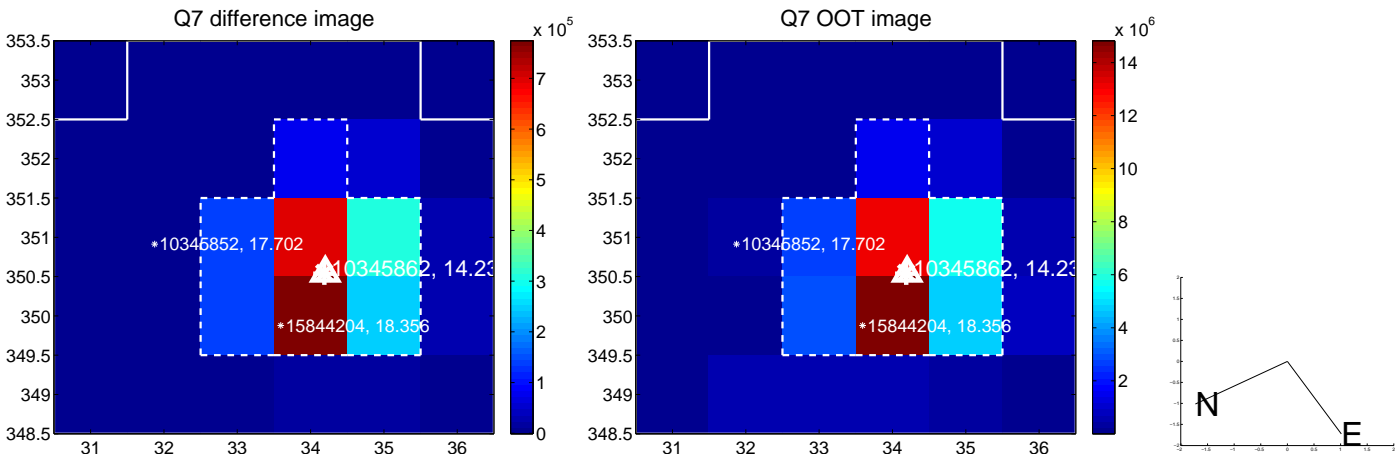
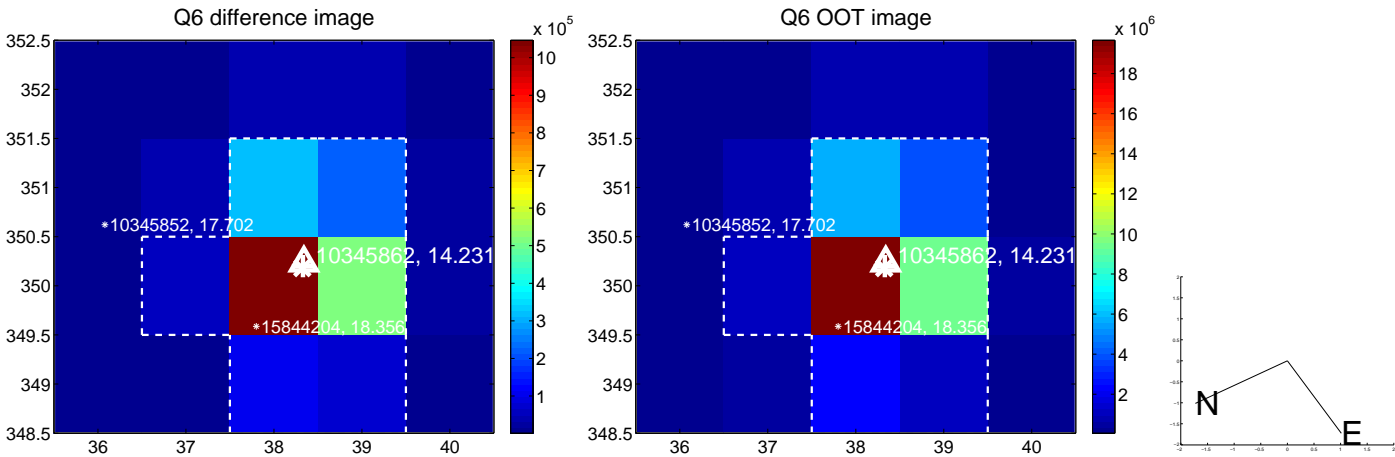
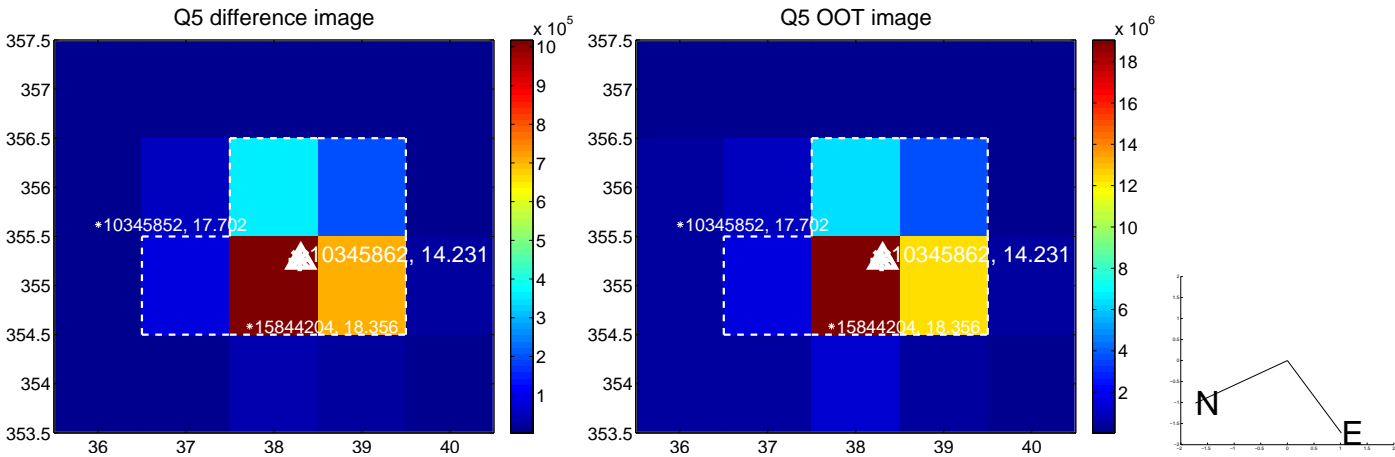


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

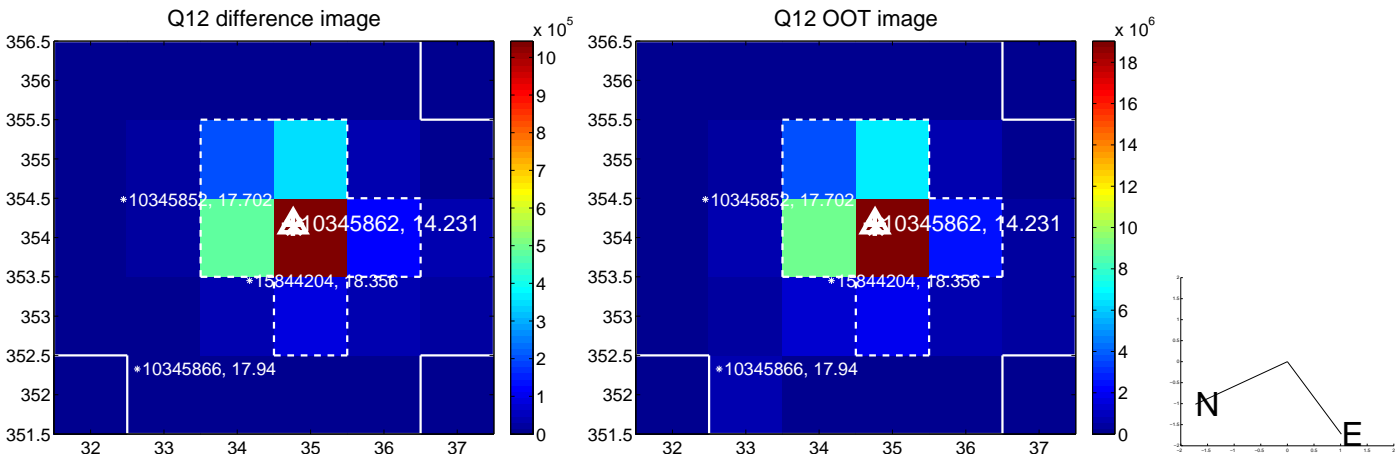
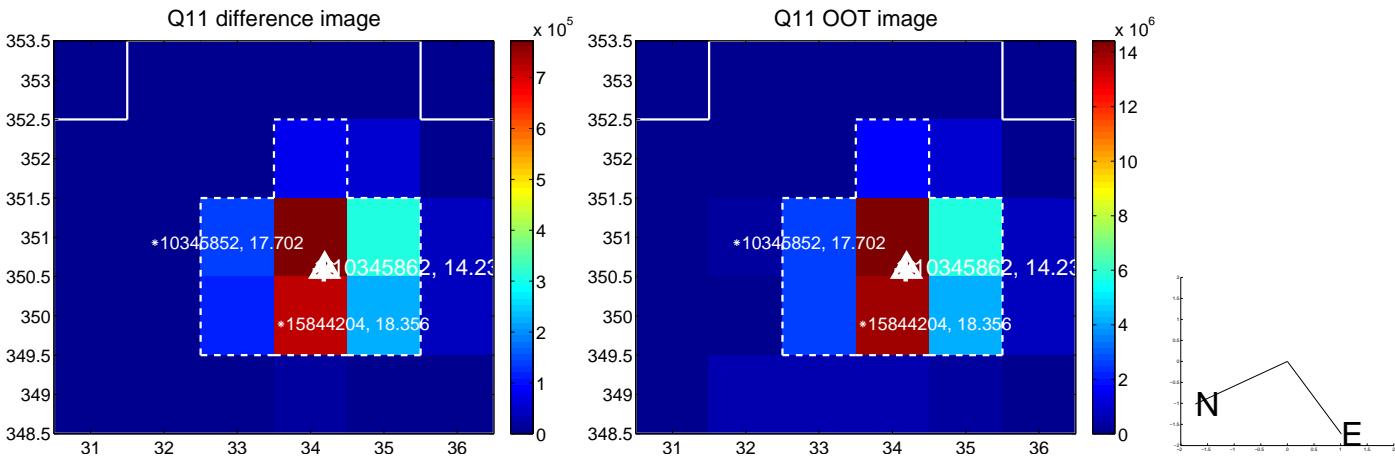
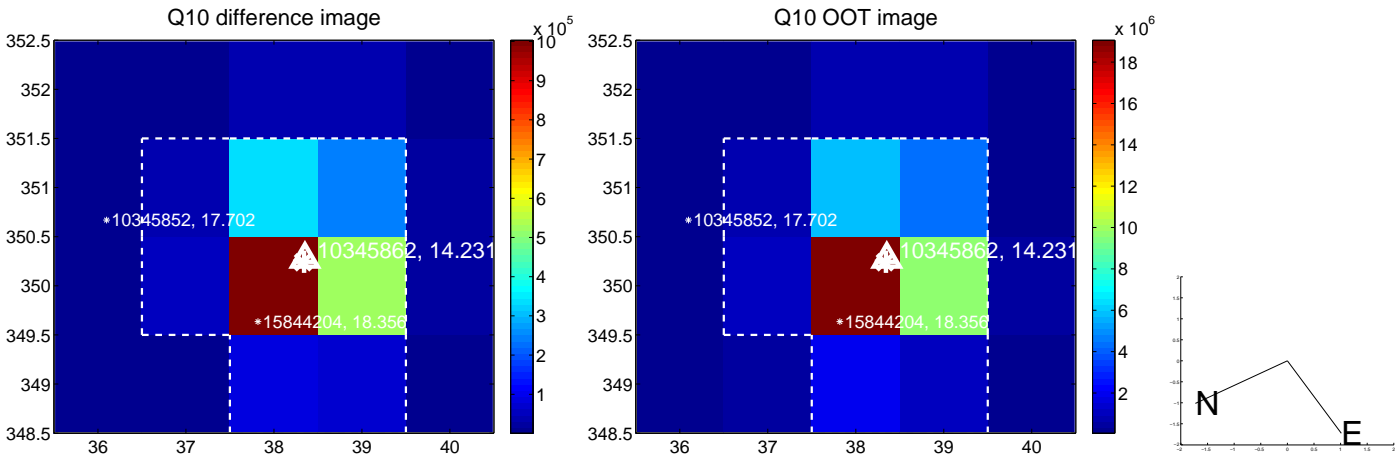
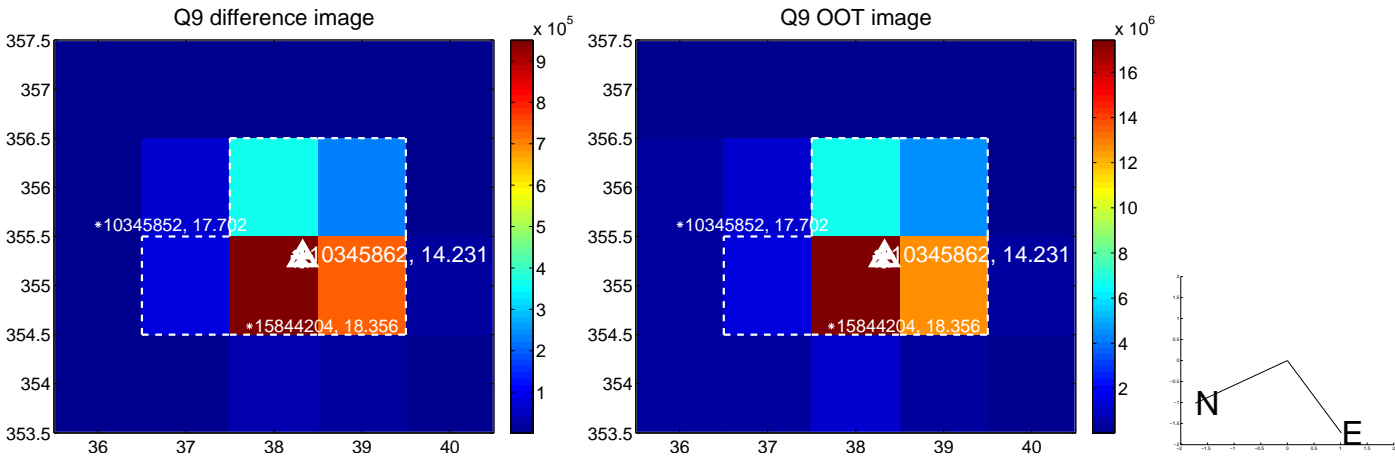
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



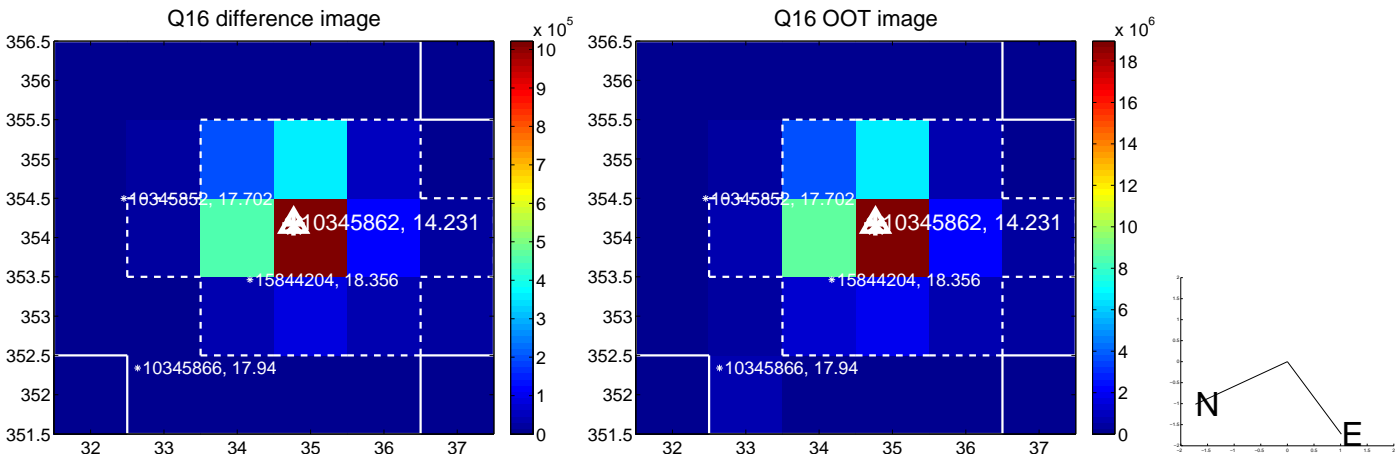
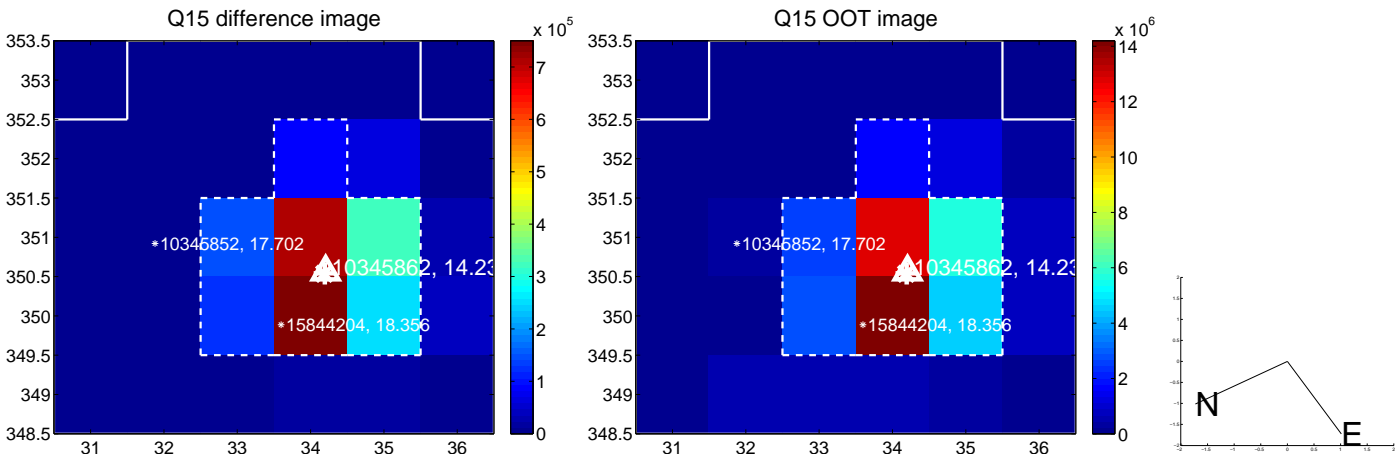
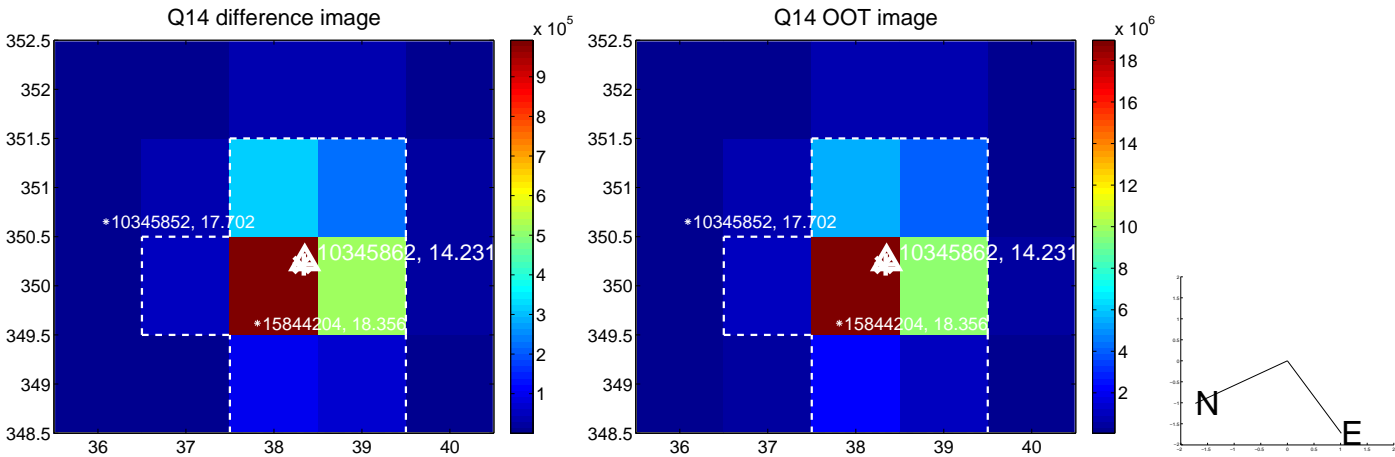
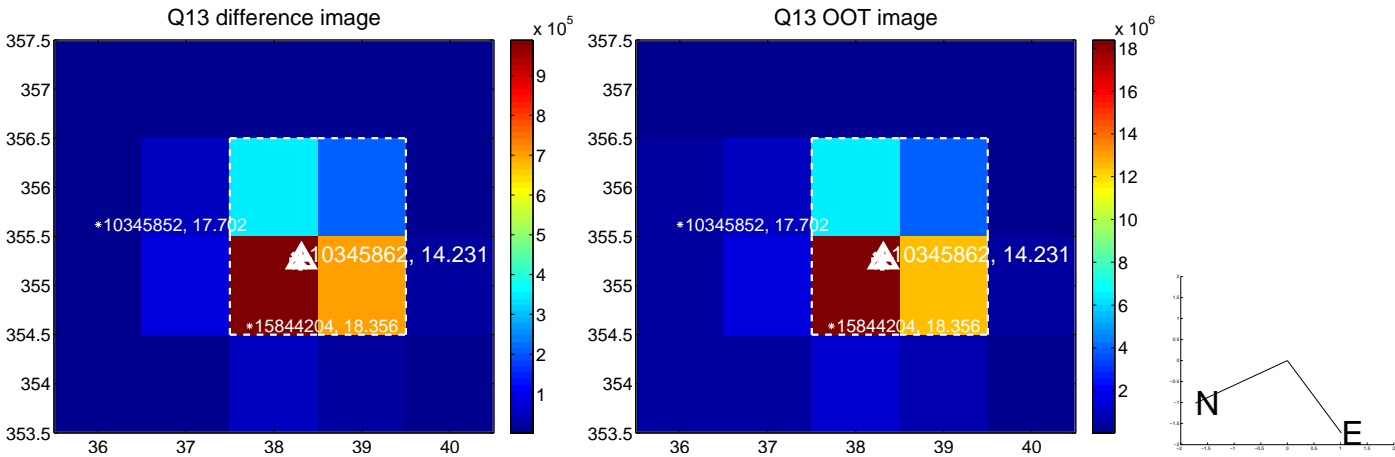
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



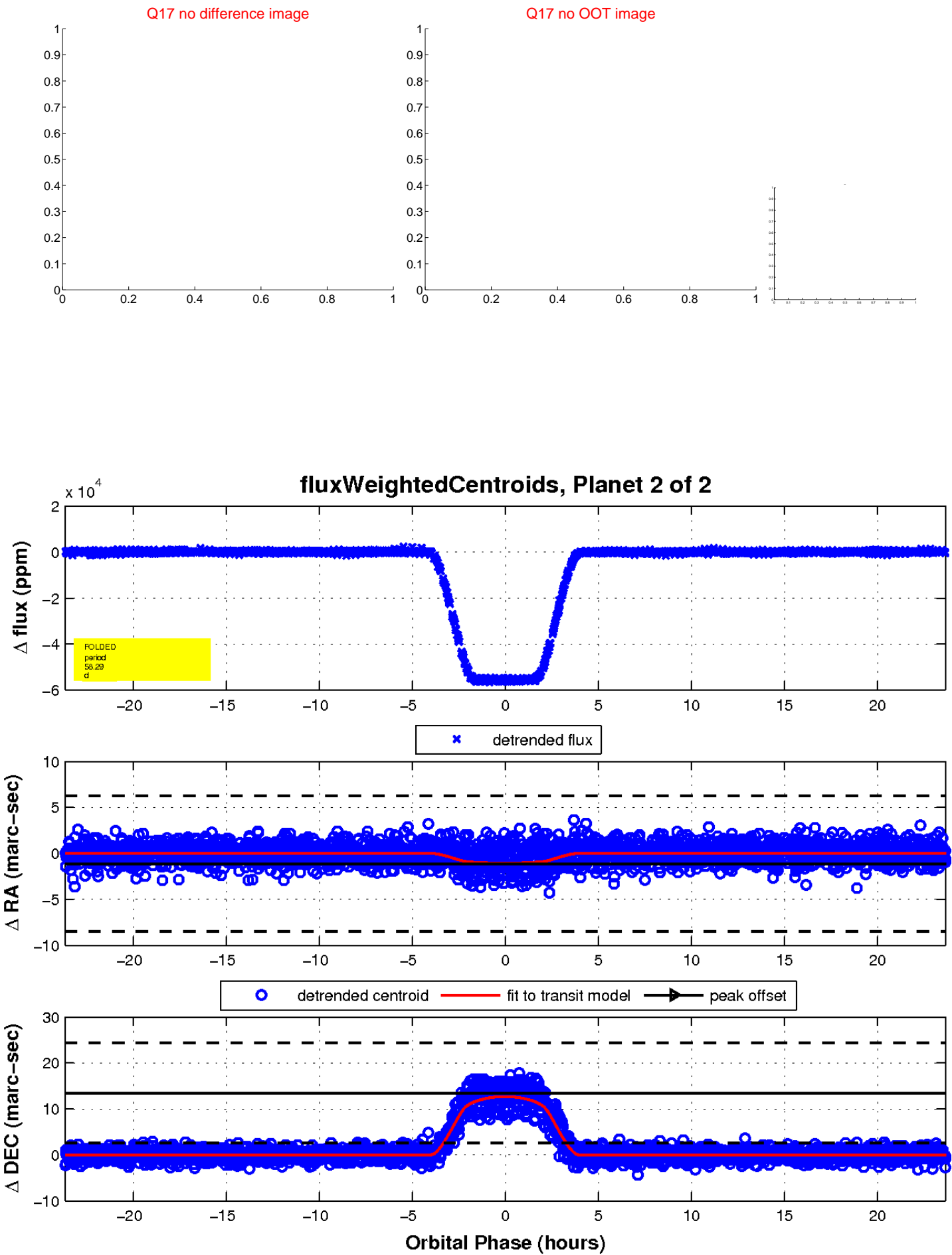
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

