

KIC 005216727

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})
005216727-01	OBS	6543.01	1.513029	131.927300	45622.2	2.697	3385.6	3484.7	1.42	6343	41.84	3967.56
005216727-02	OBS	No	1.513024	132.686087	34519.6	2.678	4582.2	2723.4	1.42	6343	36.25	3967.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005216727-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
005216727-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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.

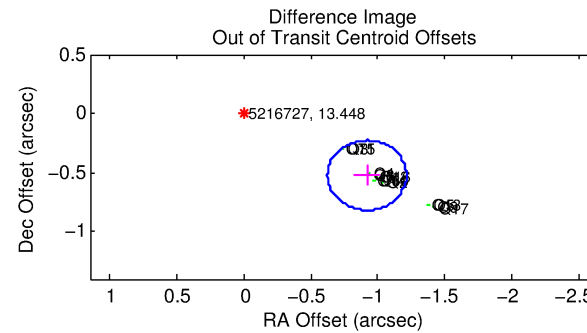
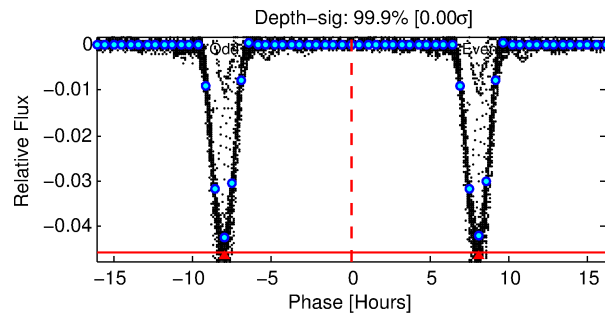
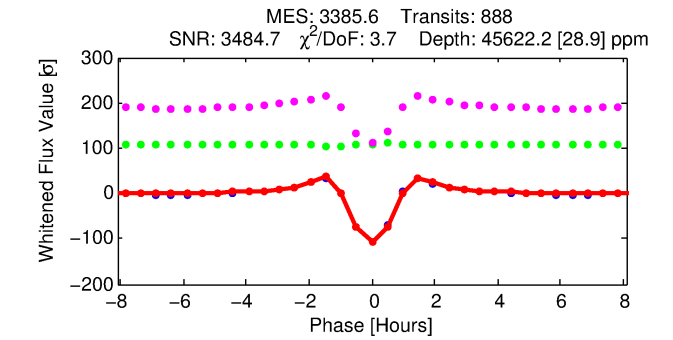
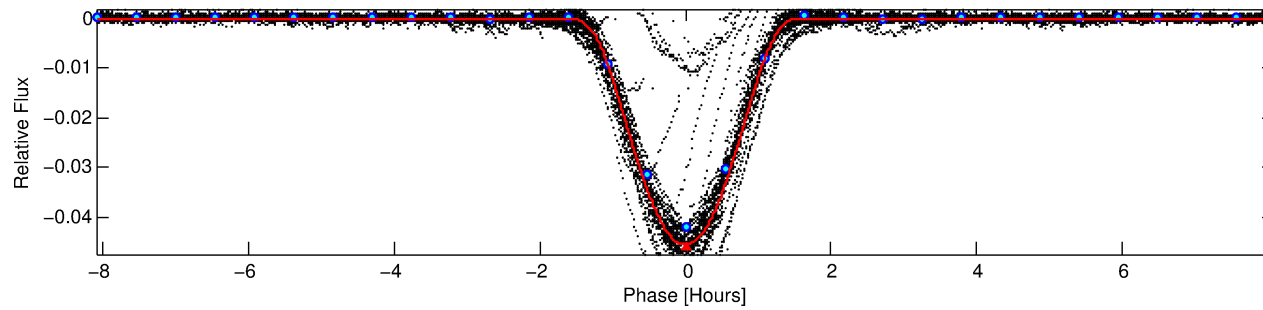
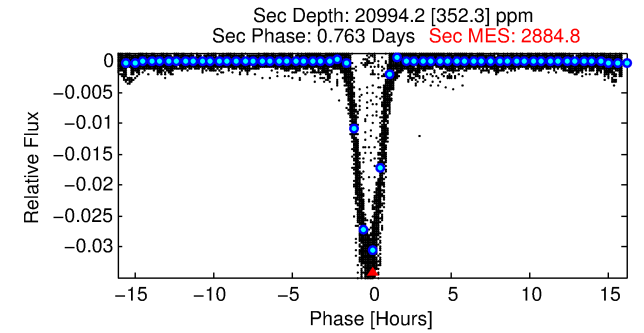
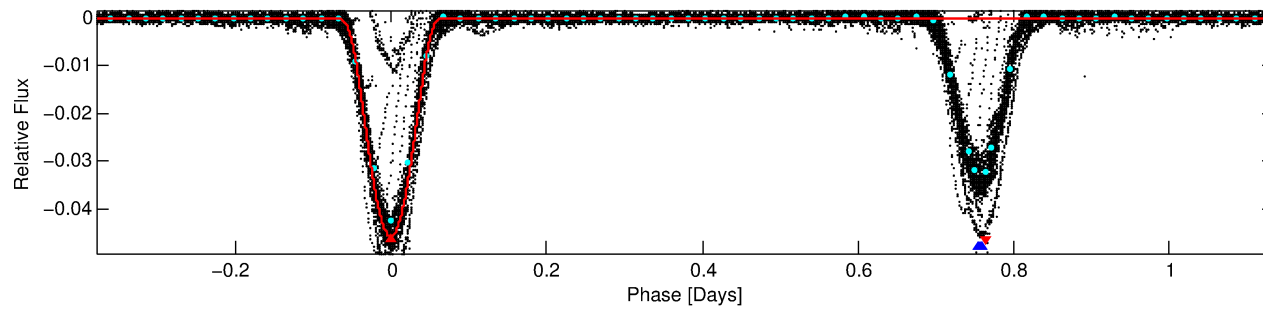
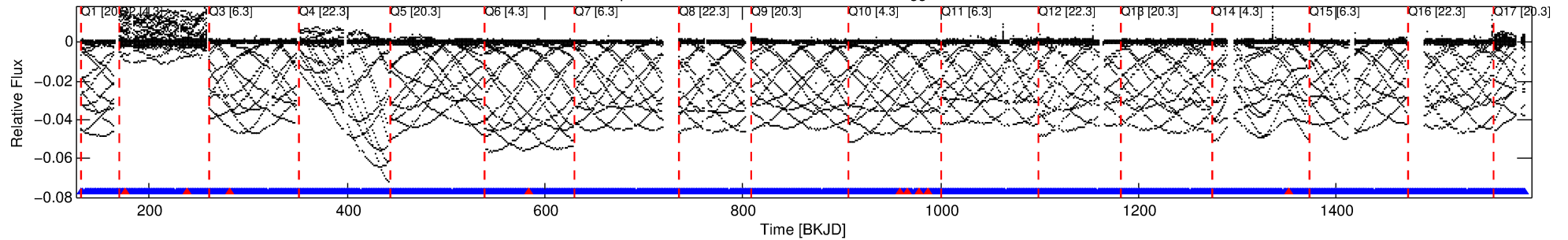
Ephemeris Match Information For 005216727-01

No Significant Match Found

DV One-Page Summary

KIC: 5216727 Candidate: 1 of 2 Period: 1.513 d
KOI: K06543 Corr: No Ephemeris Match

Kp: 13.45 R*: 1.42 Rs Teff: 6343.0 K Logg: 4.20 Fe/H: -0.140



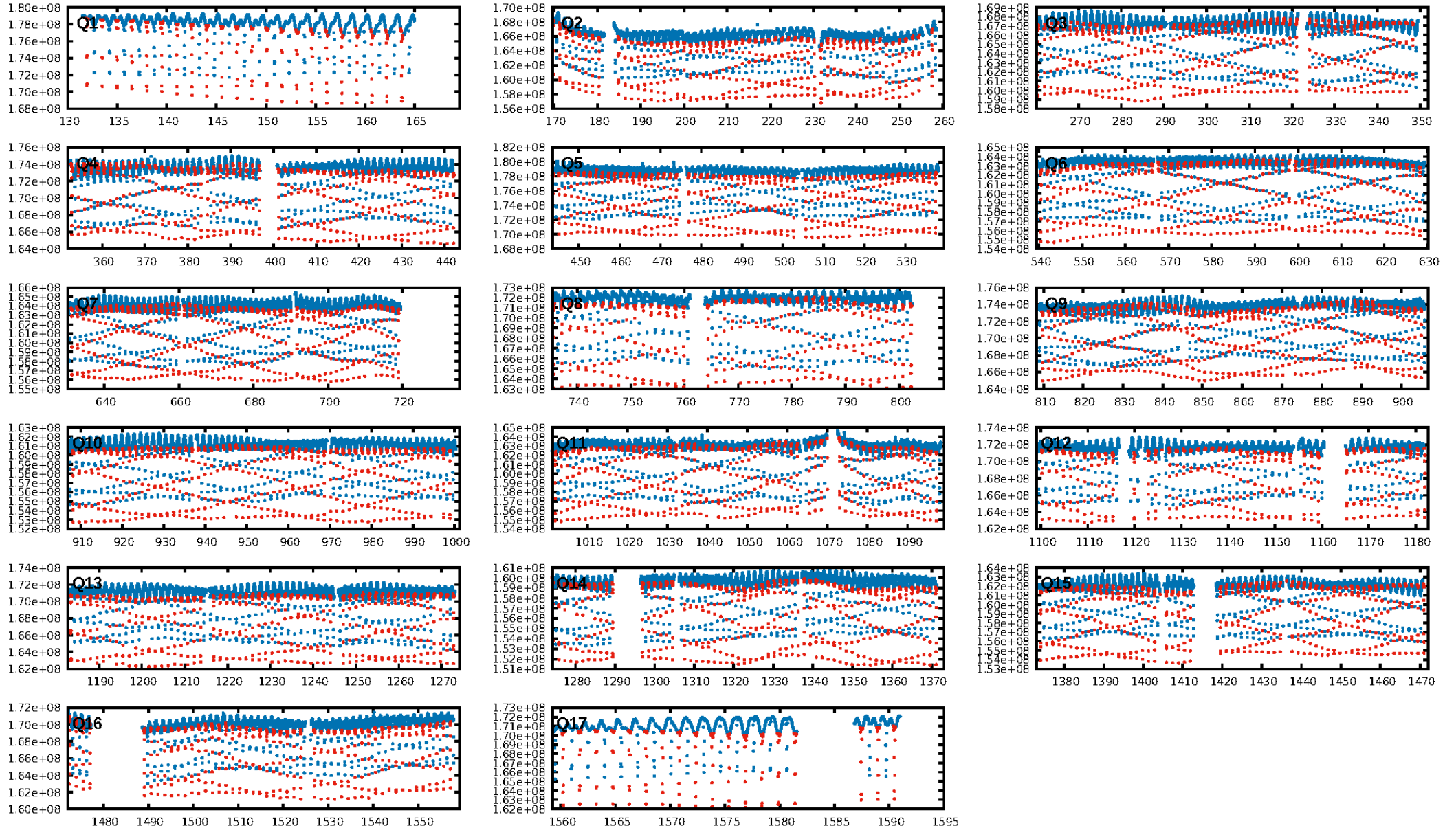
DV Fit Results:

Period = 1.51303 [0.00000] d
Epoch = 131.9273 [0.0000] BKJD
Rp/R* = 0.2706 [0.0024]
a/R* = 3.98 [0.00]
b = 0.90 [0.00]
Seff = 3967.56 [1546.51]
Teff = 2024 [197] K
Rp = 41.84 [12.02] Re
a = 0.0271 [0.0067] AU
Ag = 4.84 [1.78] [2.16σ]
Teffp = 4642 [155] K [10.44σ]

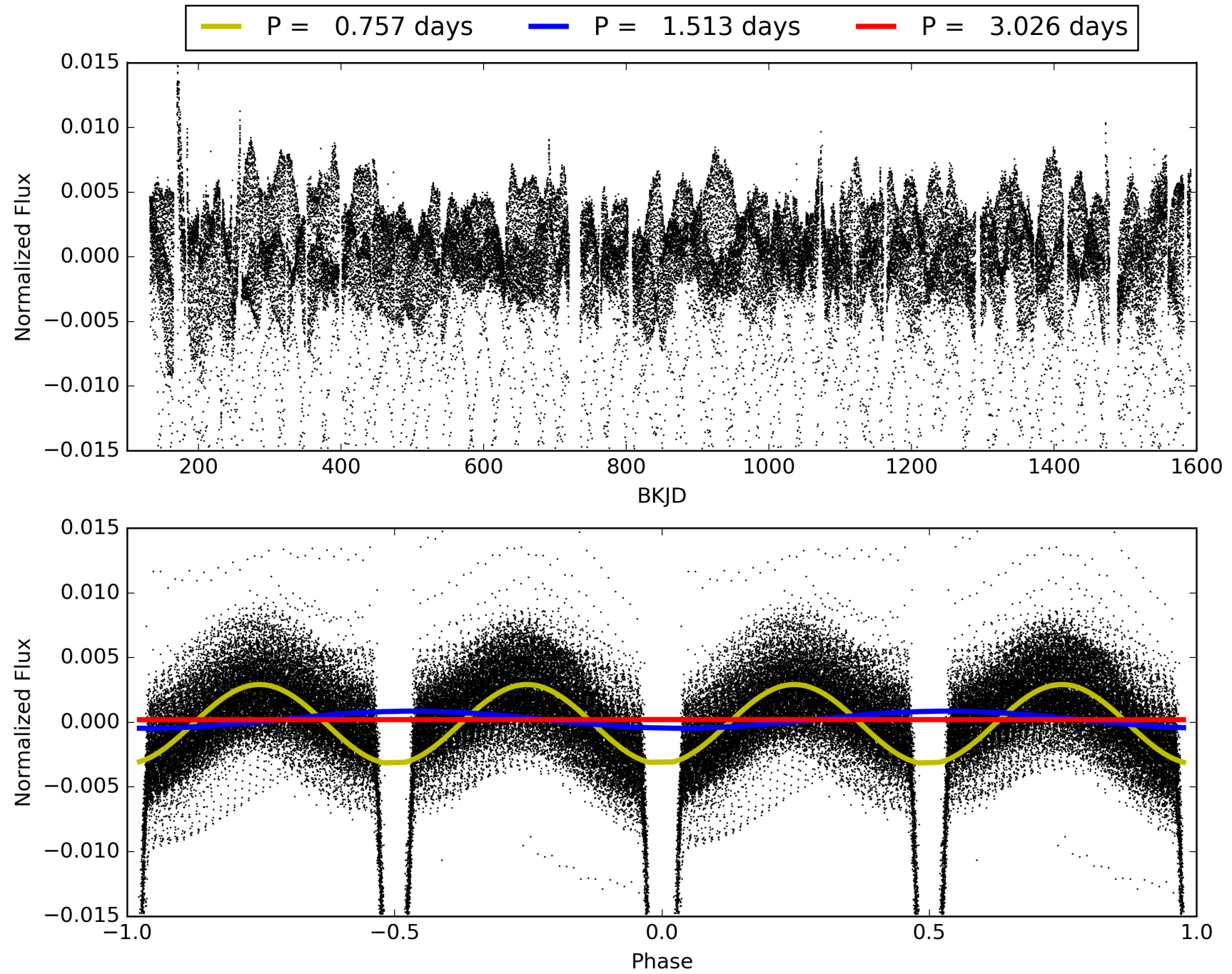
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [839/848]
GhostDiagnostic-chr: 3.079
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.057 arcsec [10.76σ]
KicOffset-rm: 0.761 arcsec [11.21σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005216727-01, PDC Light Curves

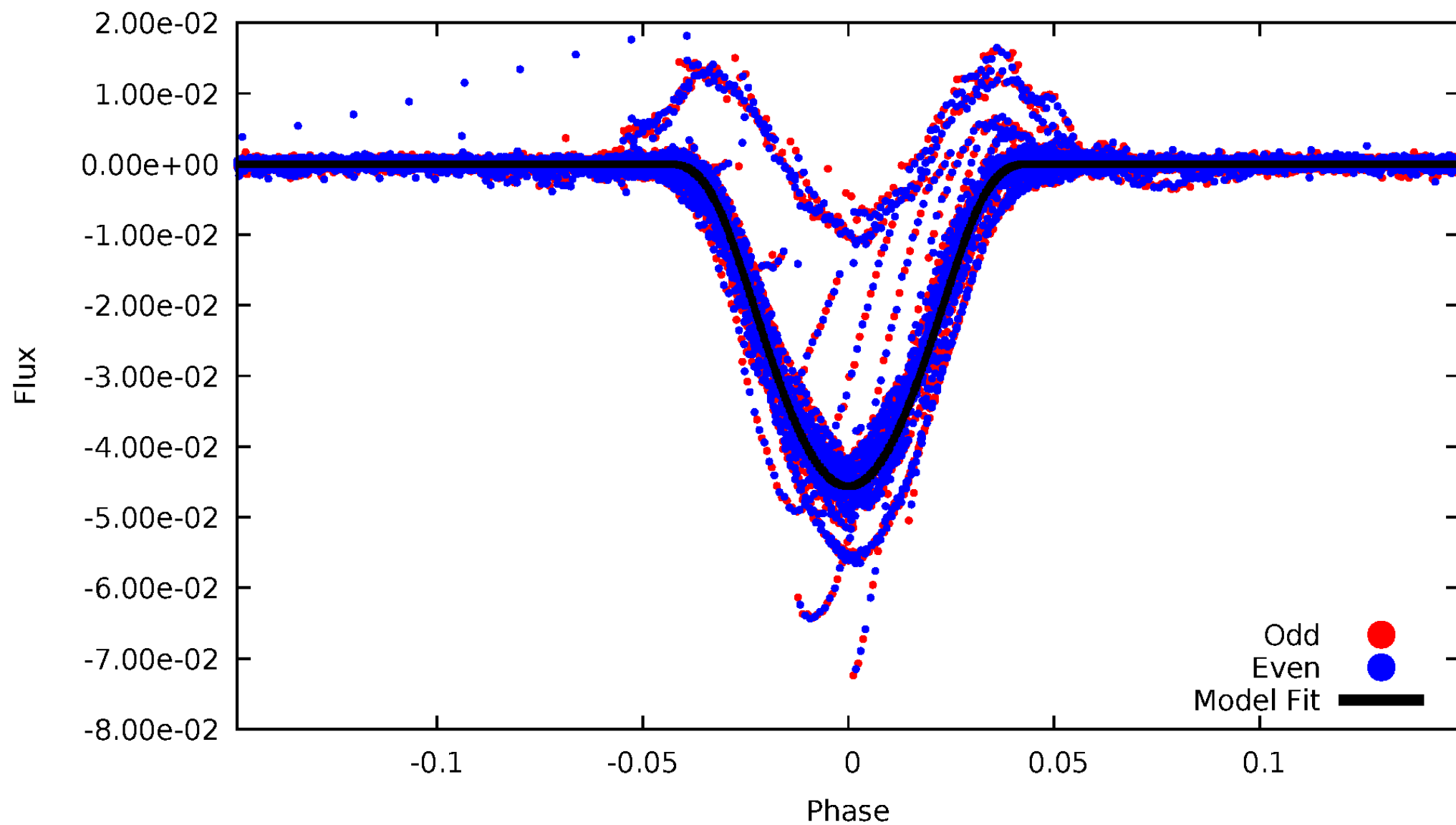


TCE 005216727-01



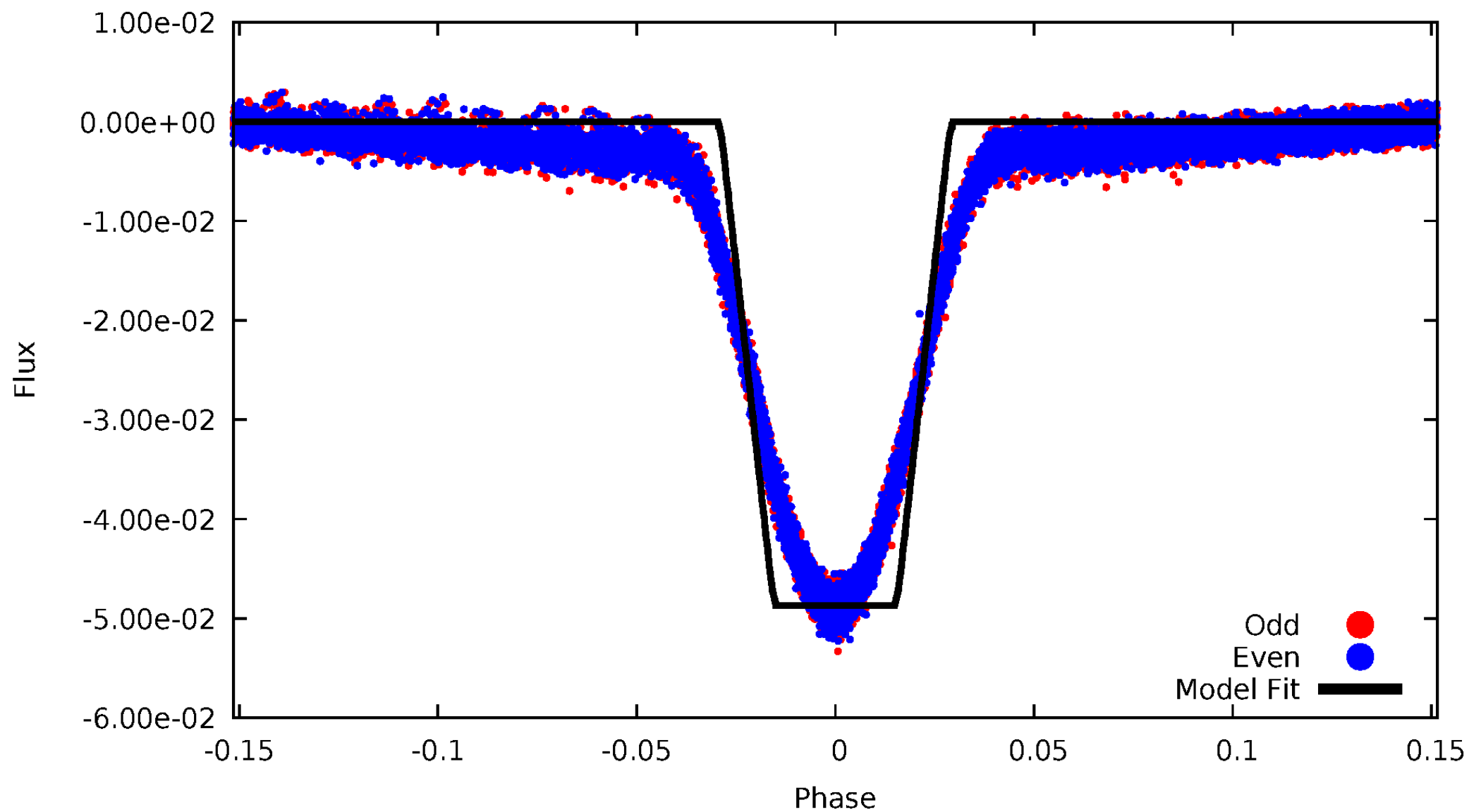
DV Odd/Even

TCE 005216727-01



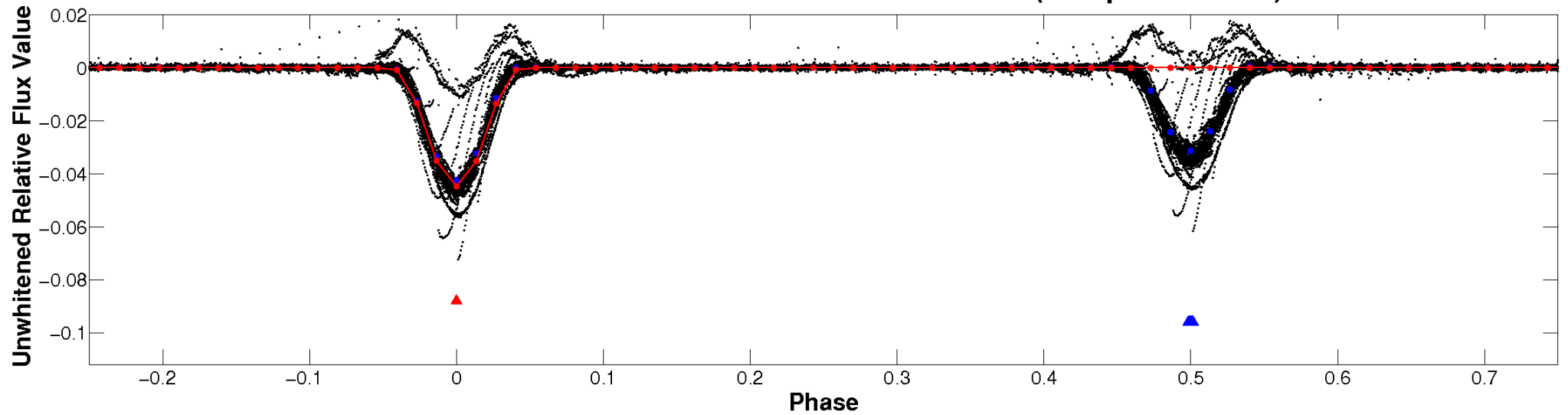
ALT Odd/Even

TCE 005216727-01

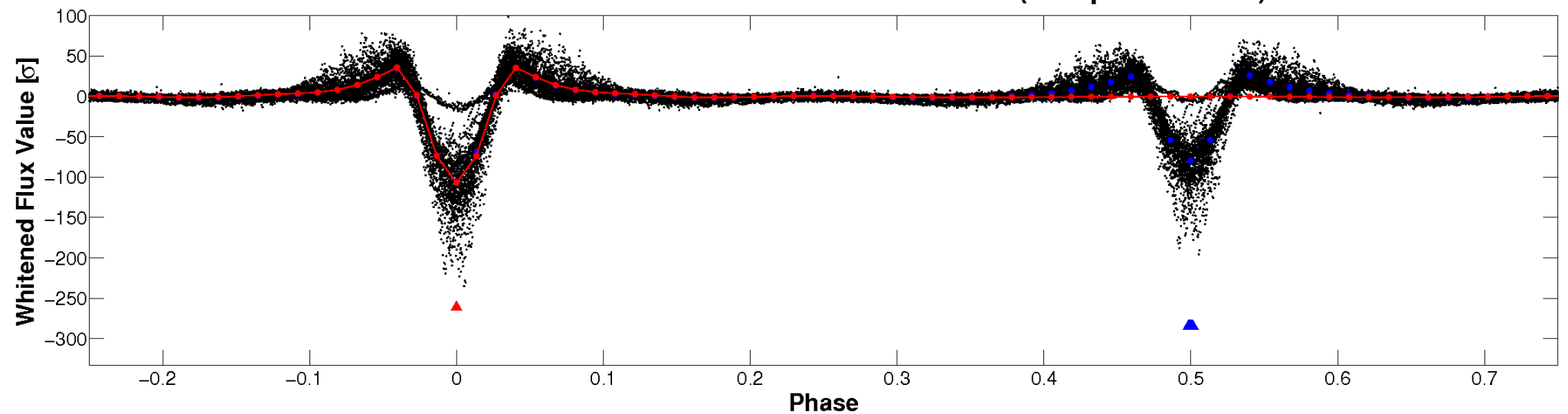


Non-Whitened Vs. Whitened Light Curve

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

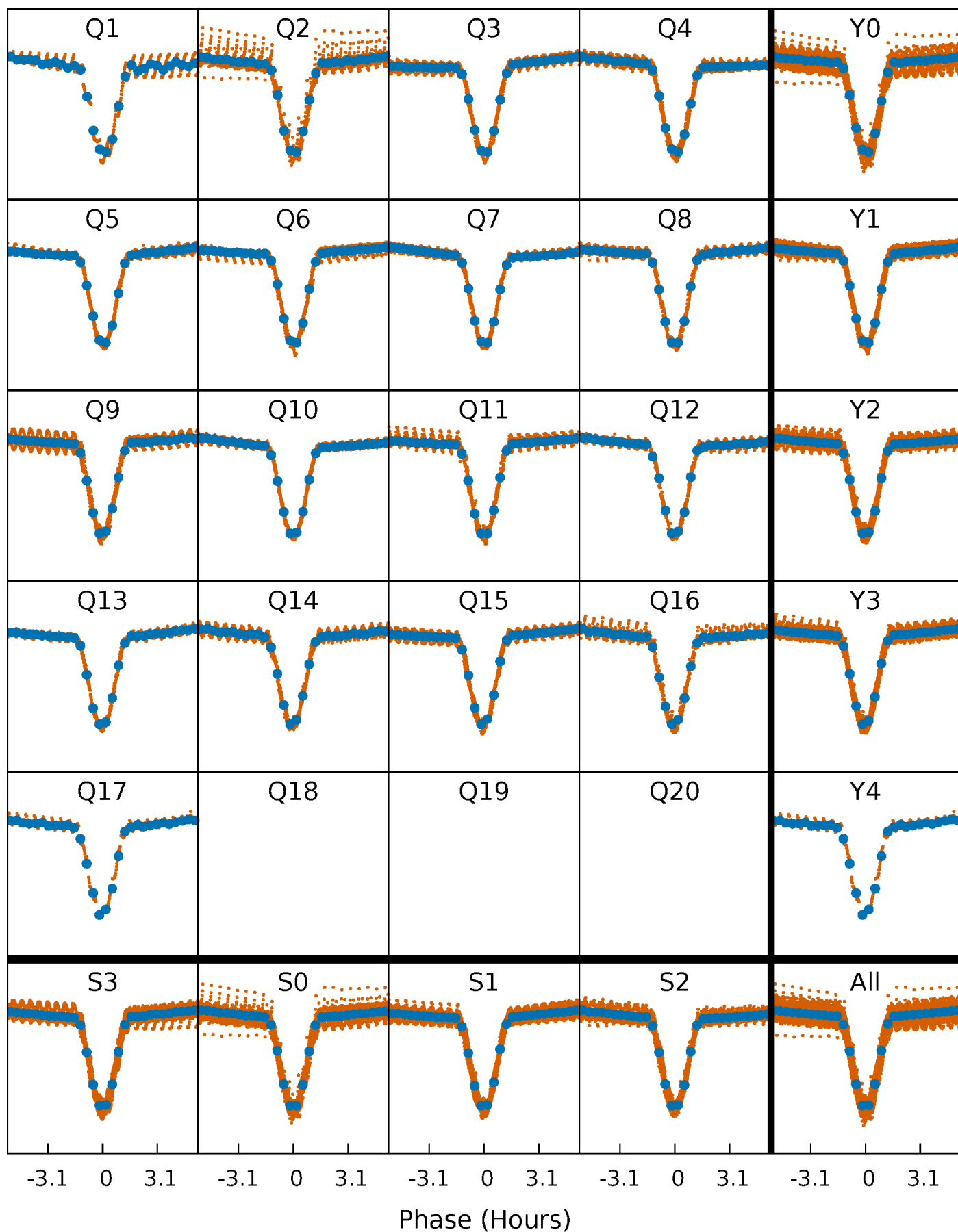


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



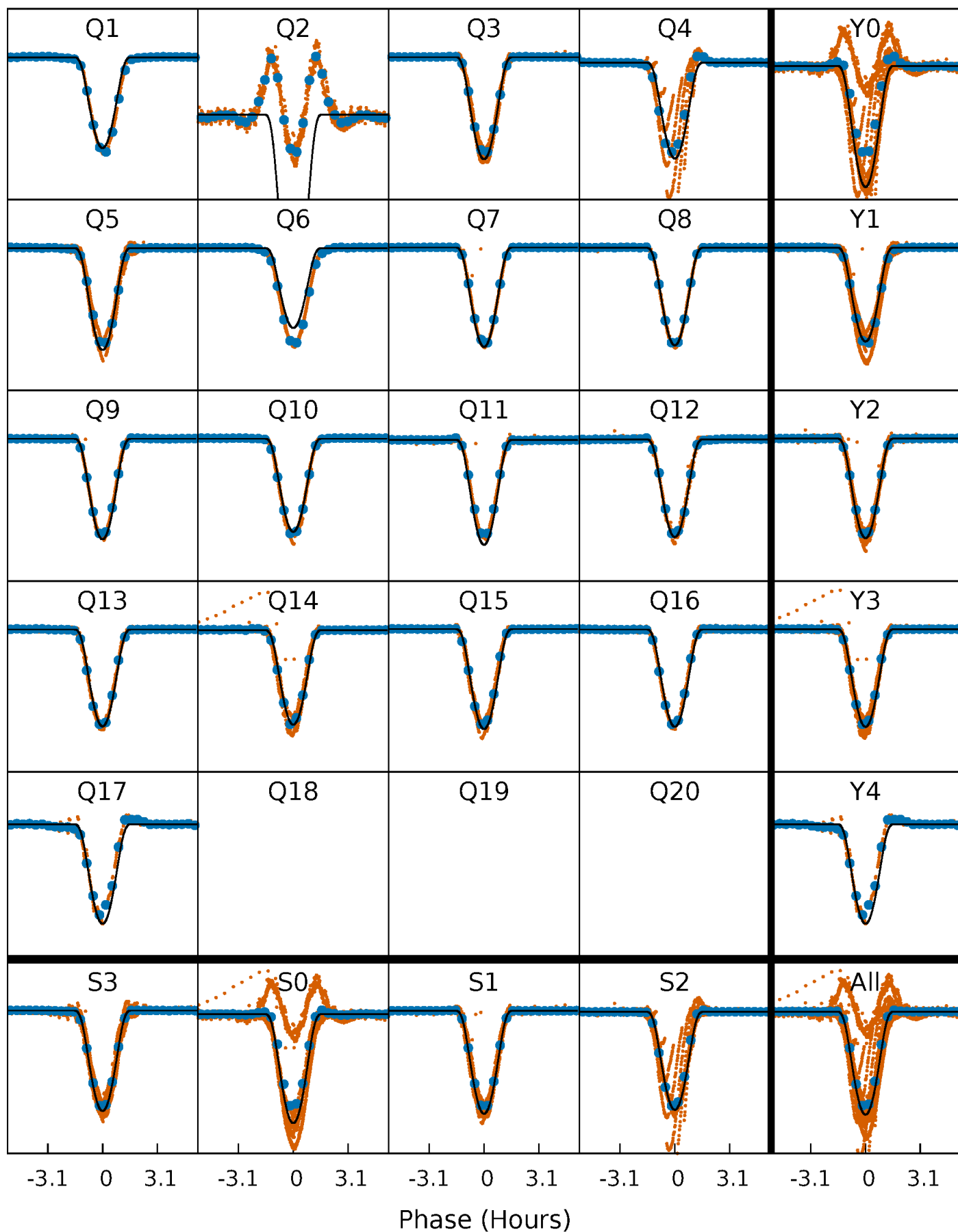
PDC Quarter-Phased Transit Curves

TCE 005216727-01 P= 1.513029 Days $T_0=131.927300$ (BKJD)



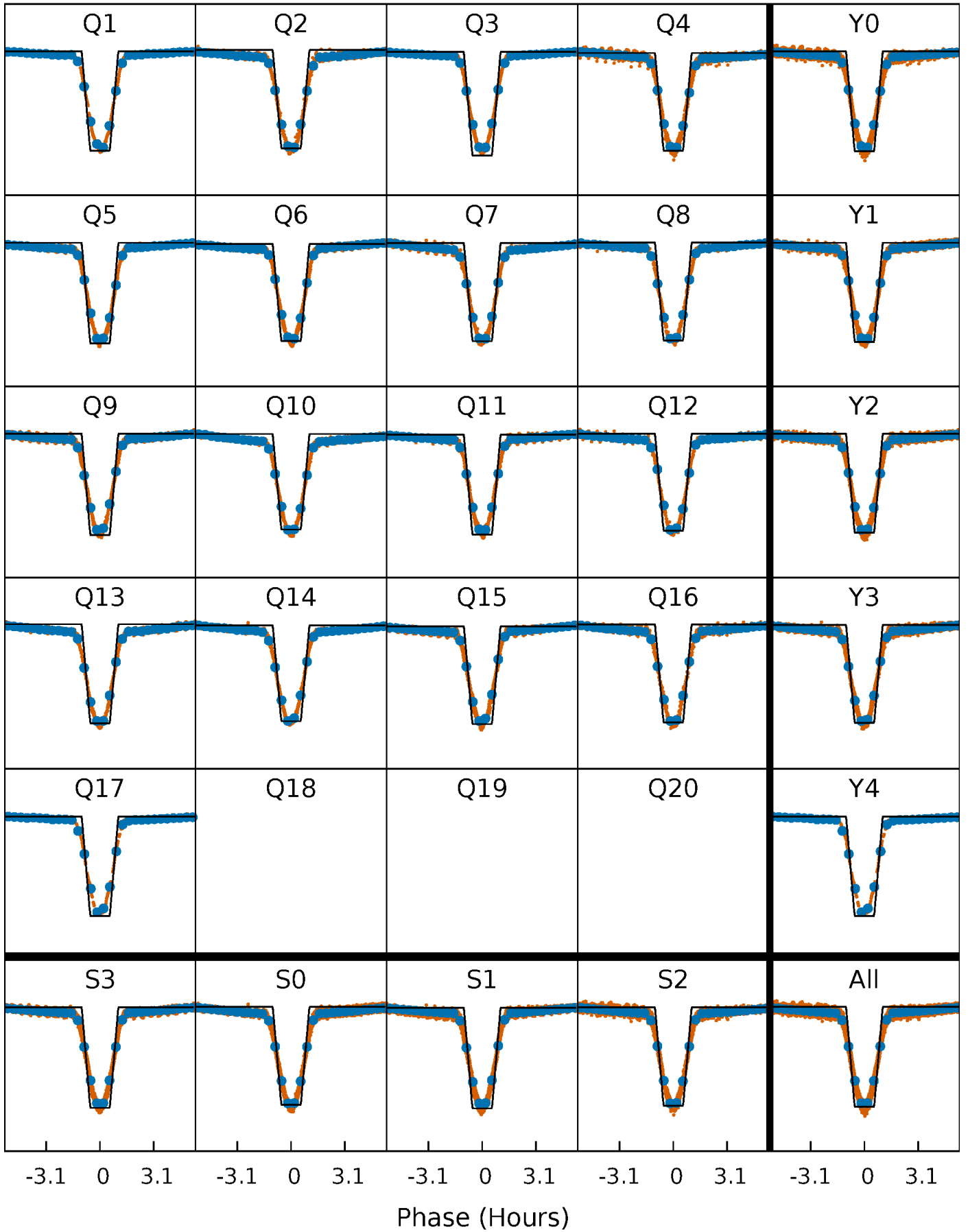
DV Quarter-Phased Transit Curves

TCE 005216727-01 P= 1.513029 Days $T_0=131.927300$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

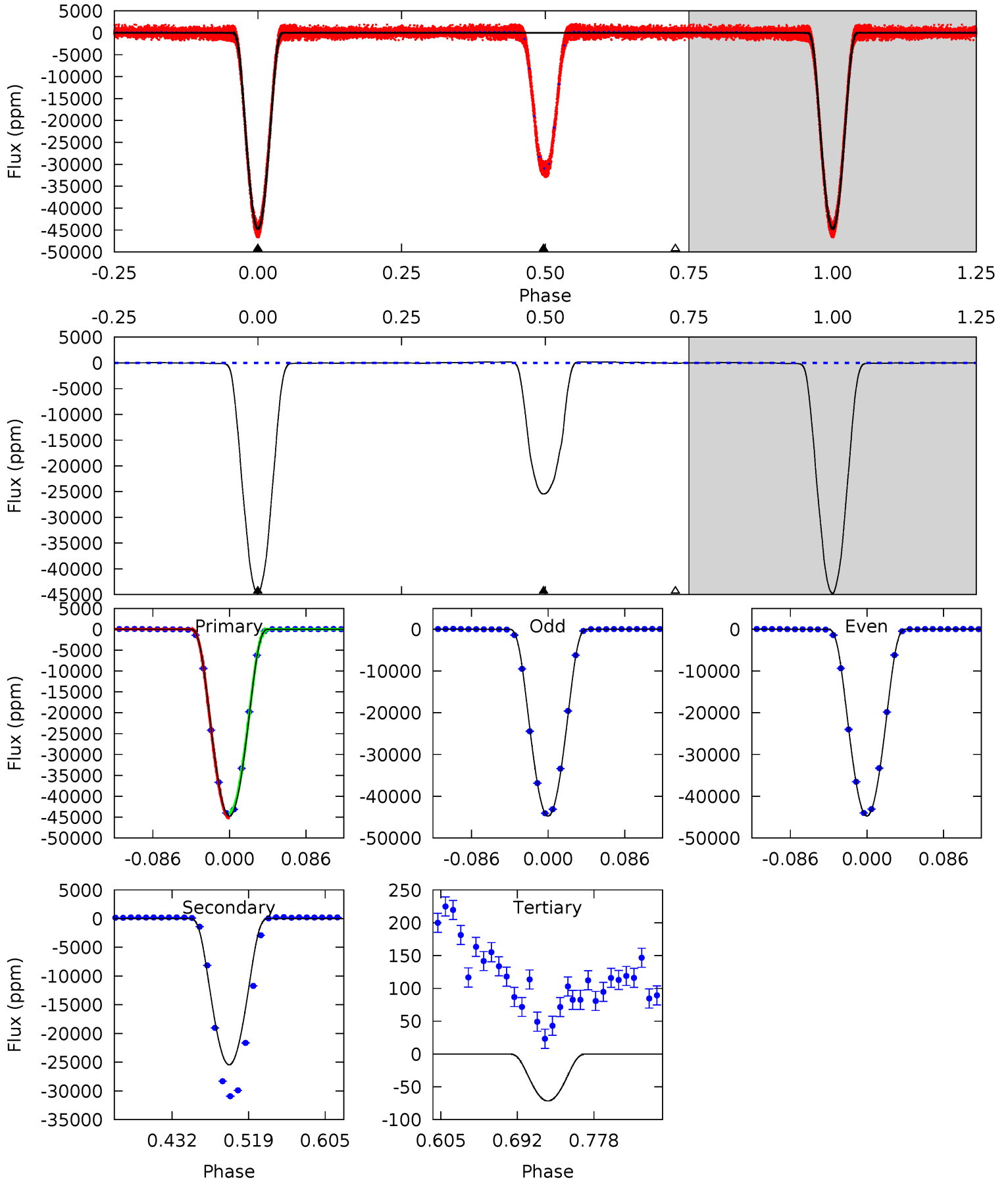
TCE 005216727-01 P= 1.513025 Days $T_0=131.928918$ (BKJD)



DV Model-Shift Uniqueness Test

005216727-01, P = 1.513029 Days, E = 130.414271 Days

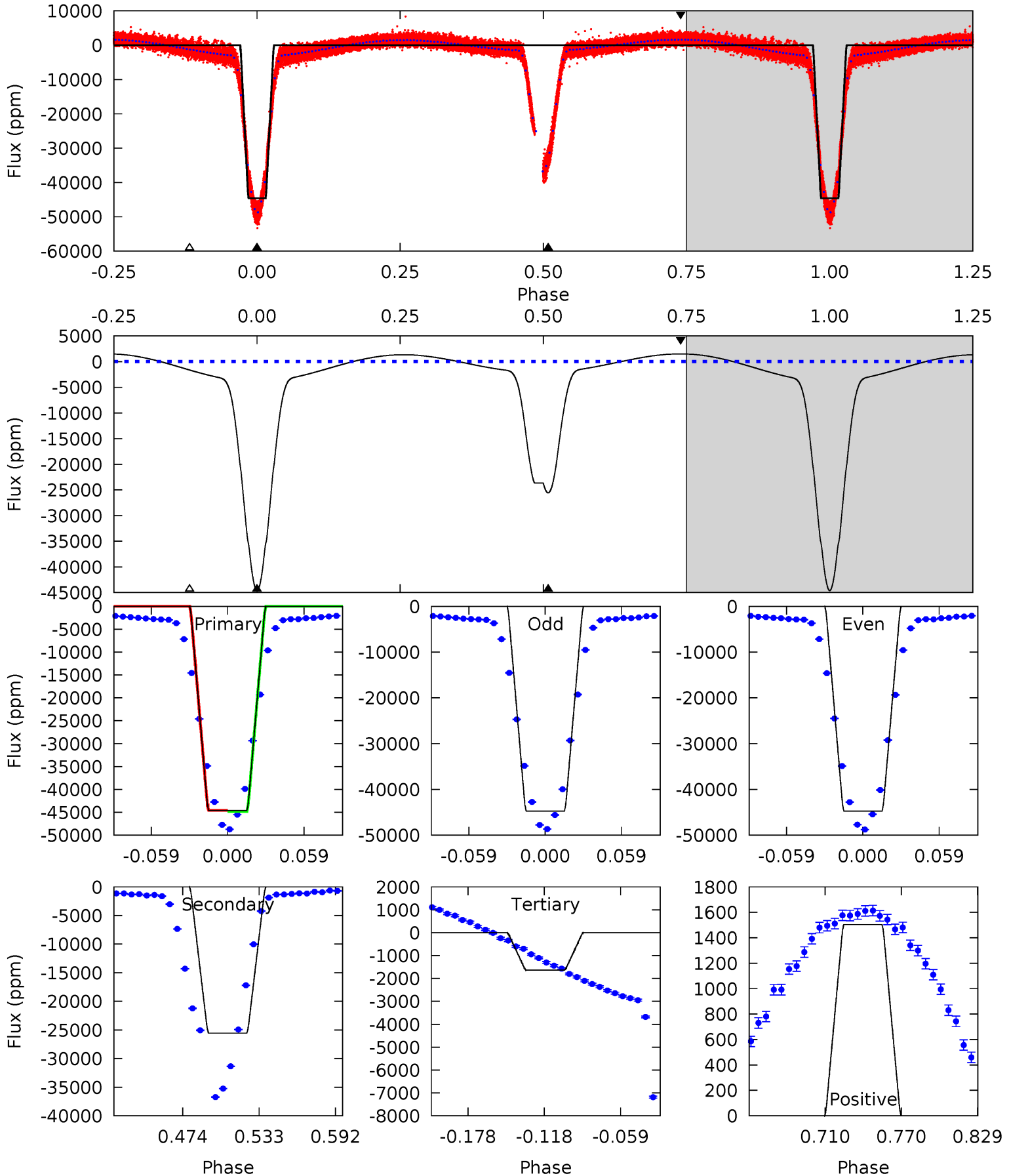
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6038	3435	9.66	0	4.60	1.71	8.95	6029	6038	3425	3435	2.83	0.95	0.00	79.0



Alt Model-Shift Uniqueness Test

005216727-01, P = 1.513025 Days, E = 130.415893 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1812	1038	66.4	61.1	4.67	1.89	54.7	1746	1751	971.9	977.2	0.29	1.00	0.03	4.97



Stellar Parameters For KIC 005216727

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6343^{+170}_{-208}	$4.199^{+0.204}_{-0.185}$	$-0.140^{+0.250}_{-0.300}$	$1.417^{+0.407}_{-0.333}$	$1.157^{+0.181}_{-0.164}$	$0.573^{+0.558}_{-0.280}$
	+3%/-3%	+5%/-4%	+179%/-214%	+29%/-24%	+16%/-14%	+97%/-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 005216727-01 / KOI 6543.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-25450 ± 7	$41.59^{+7.15}_{-5.65}$	2813^{+228}_{-193}	4939^{+109}_{-138}	$6.085^{+1.837}_{-1.514}$
Alt.	-25560 ± 25	$34.20^{+5.61}_{-4.66}$	2822^{+225}_{-205}	5418^{+129}_{-163}	$9.164^{+2.581}_{-2.248}$

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

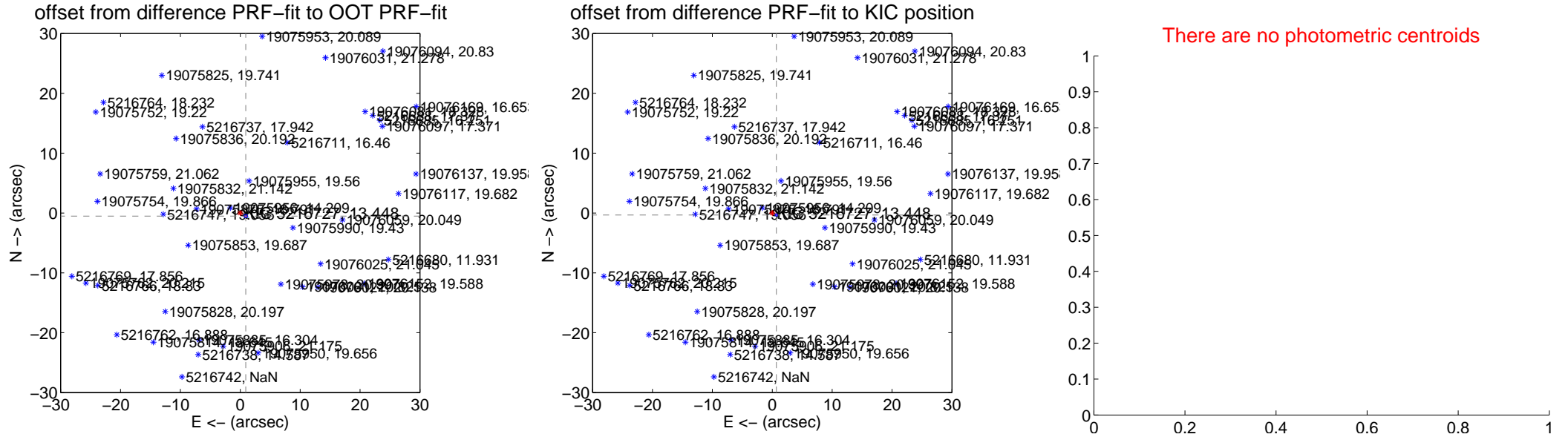
DV Centroid Data

Supplemental centroid analysis for 005216727-01. Kepler magnitude: 13.45. Transit SNR 3484.70

There are 17 quarters with good PRF difference image offsets

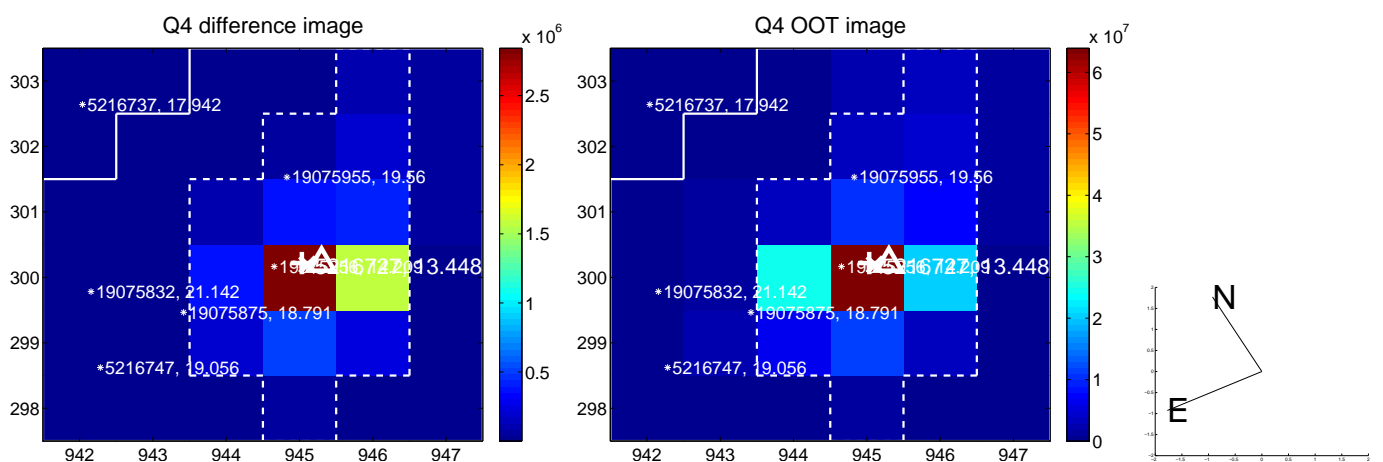
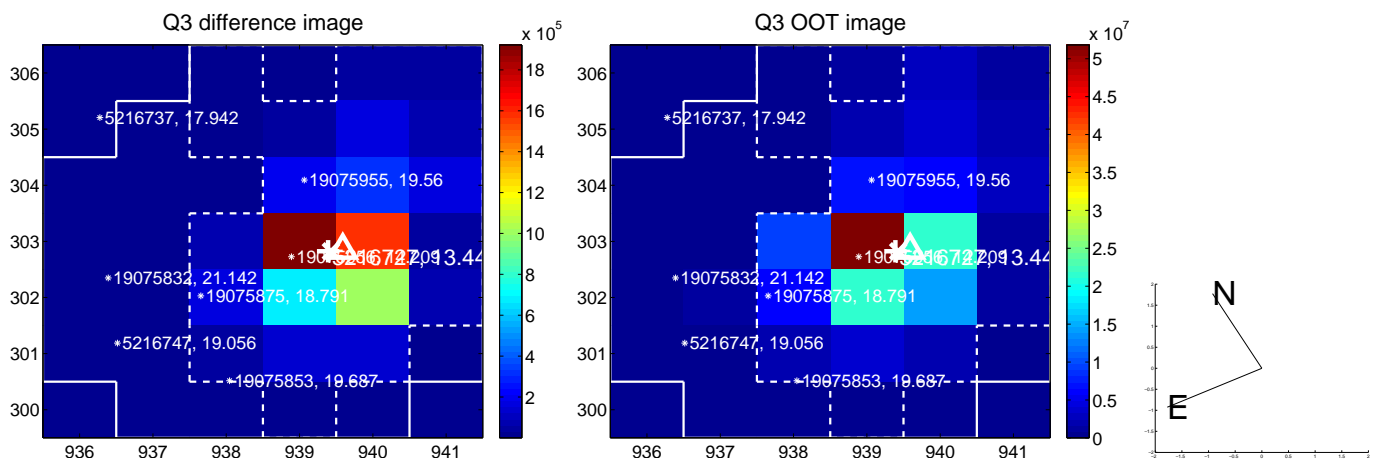
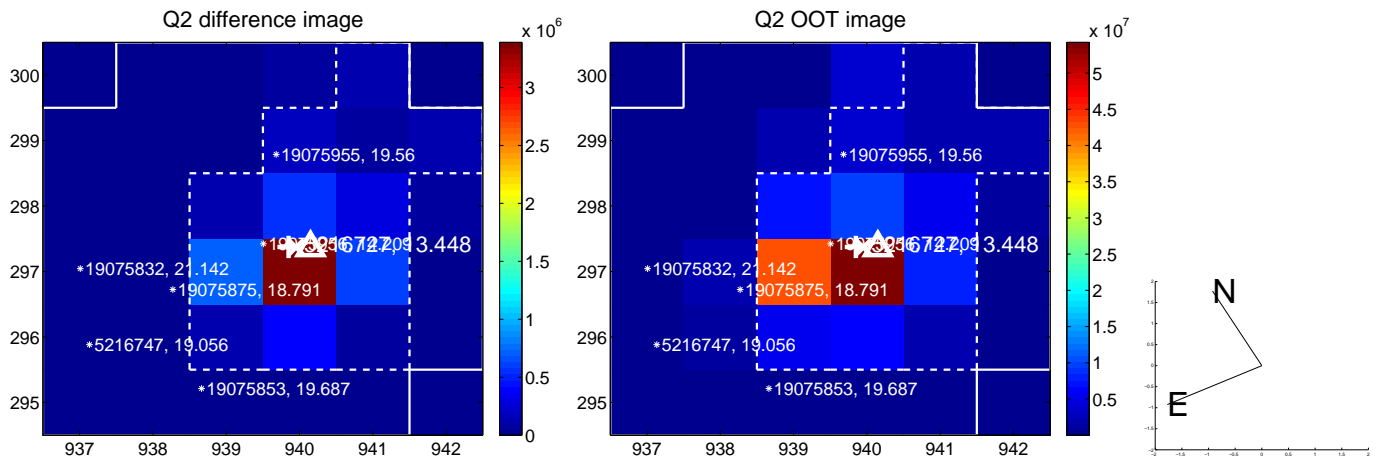
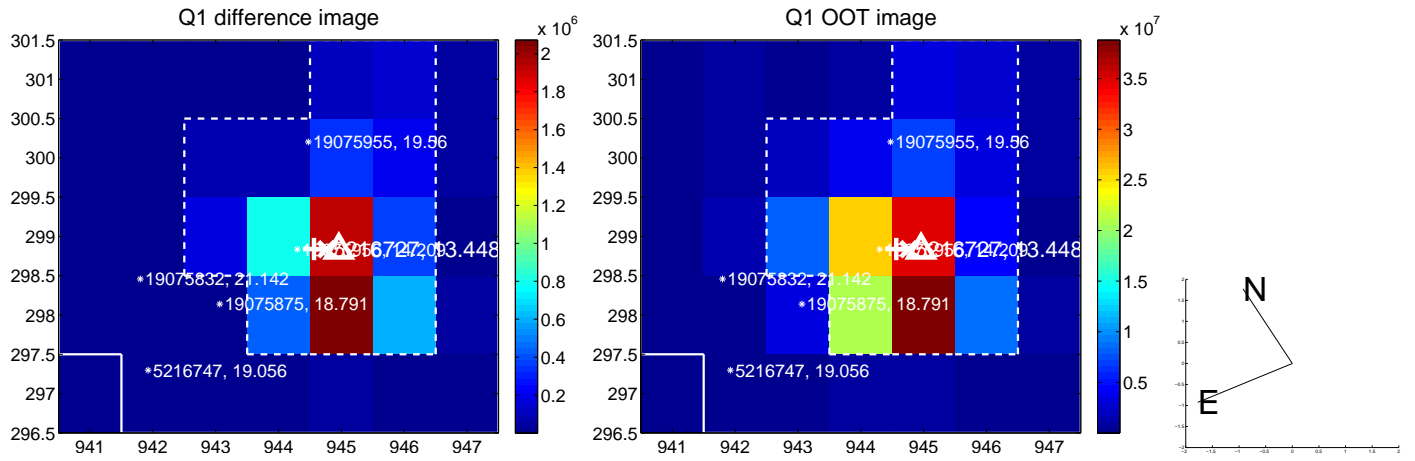
The direct PRF centroid is offset from the target star catalog position by about 0.85 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.057 ± 0.098	10.76	-0.919 ± 0.089	-0.523 ± 0.079
PRF-fit source offset from KIC position	0.761 ± 0.068	11.21	-0.683 ± 0.067	-0.337 ± 0.068
photometric centroid source offset	—	—	—	—

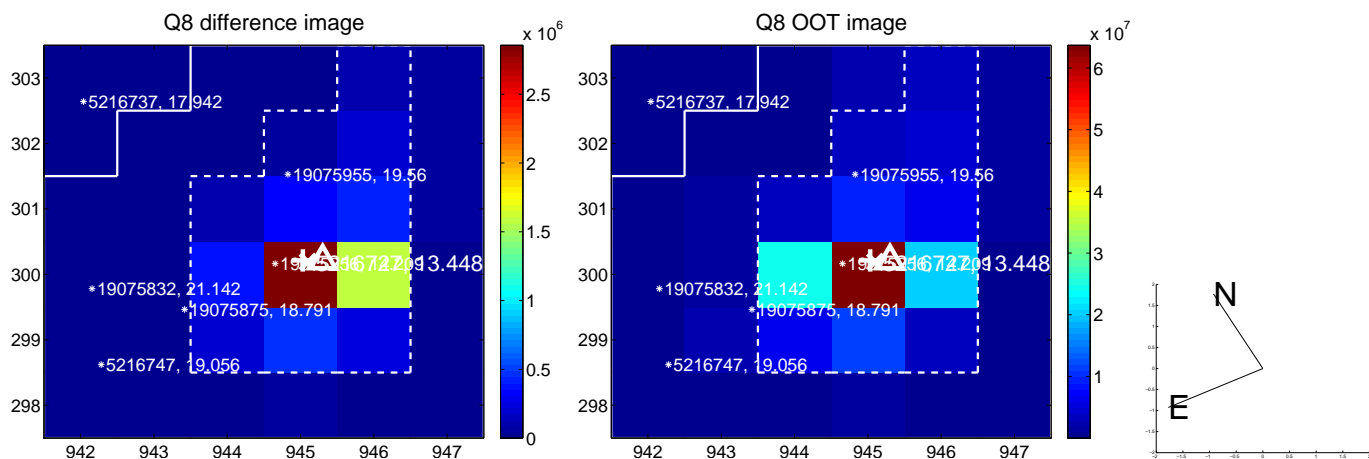
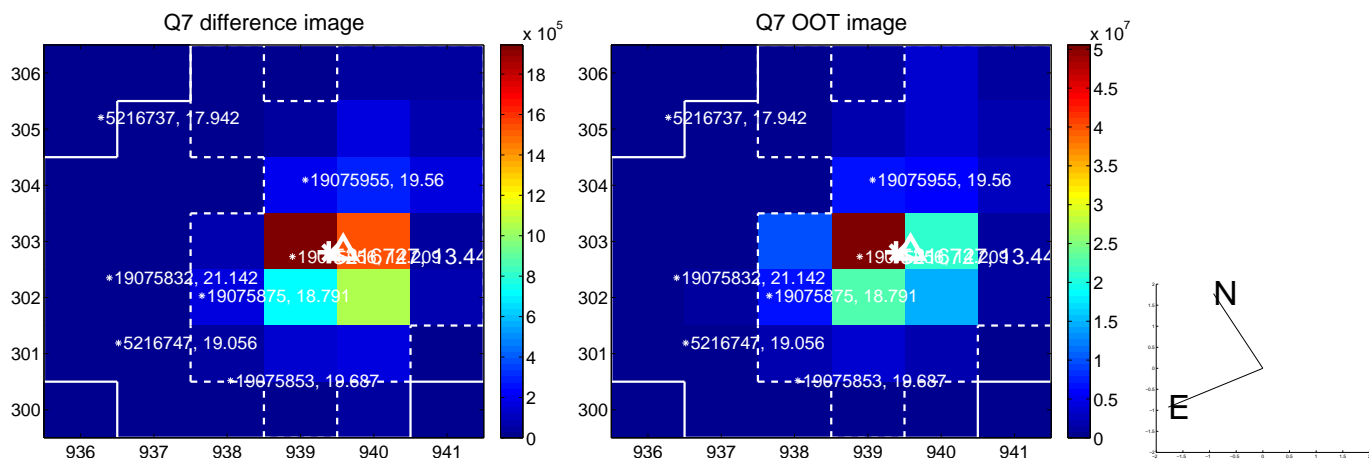
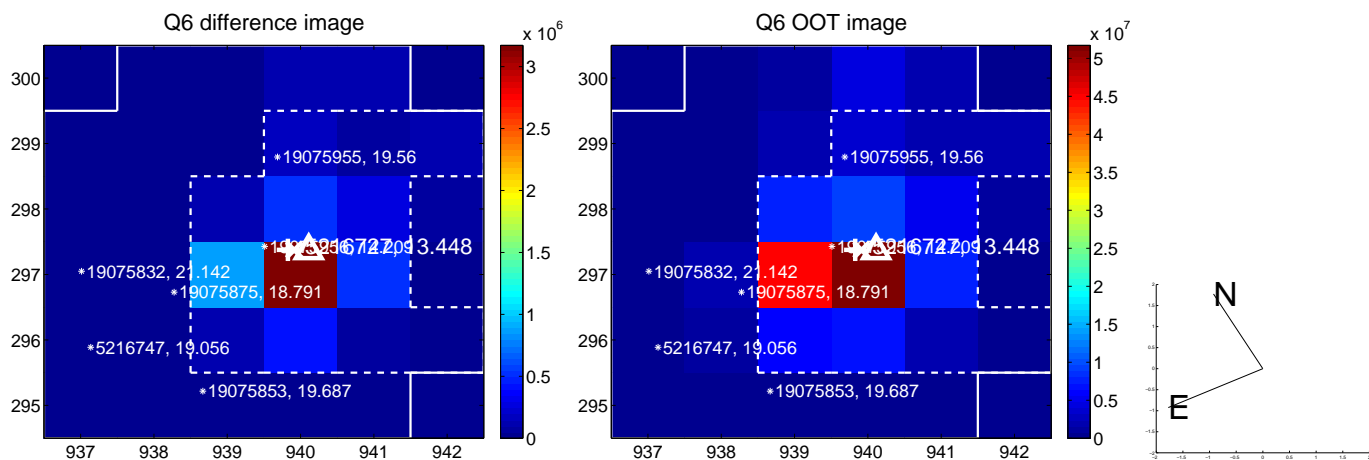
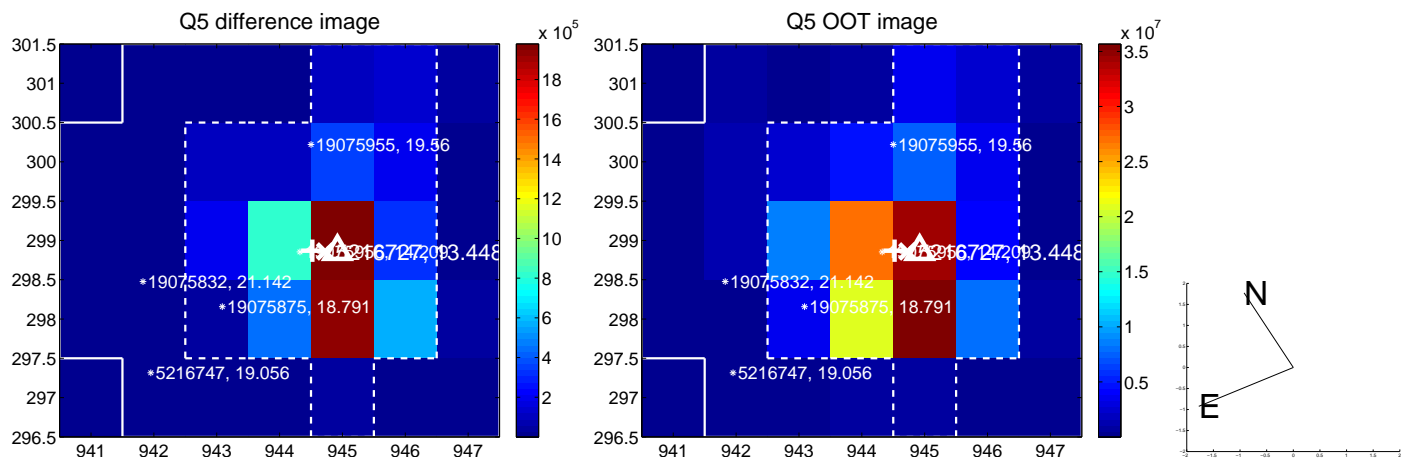


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

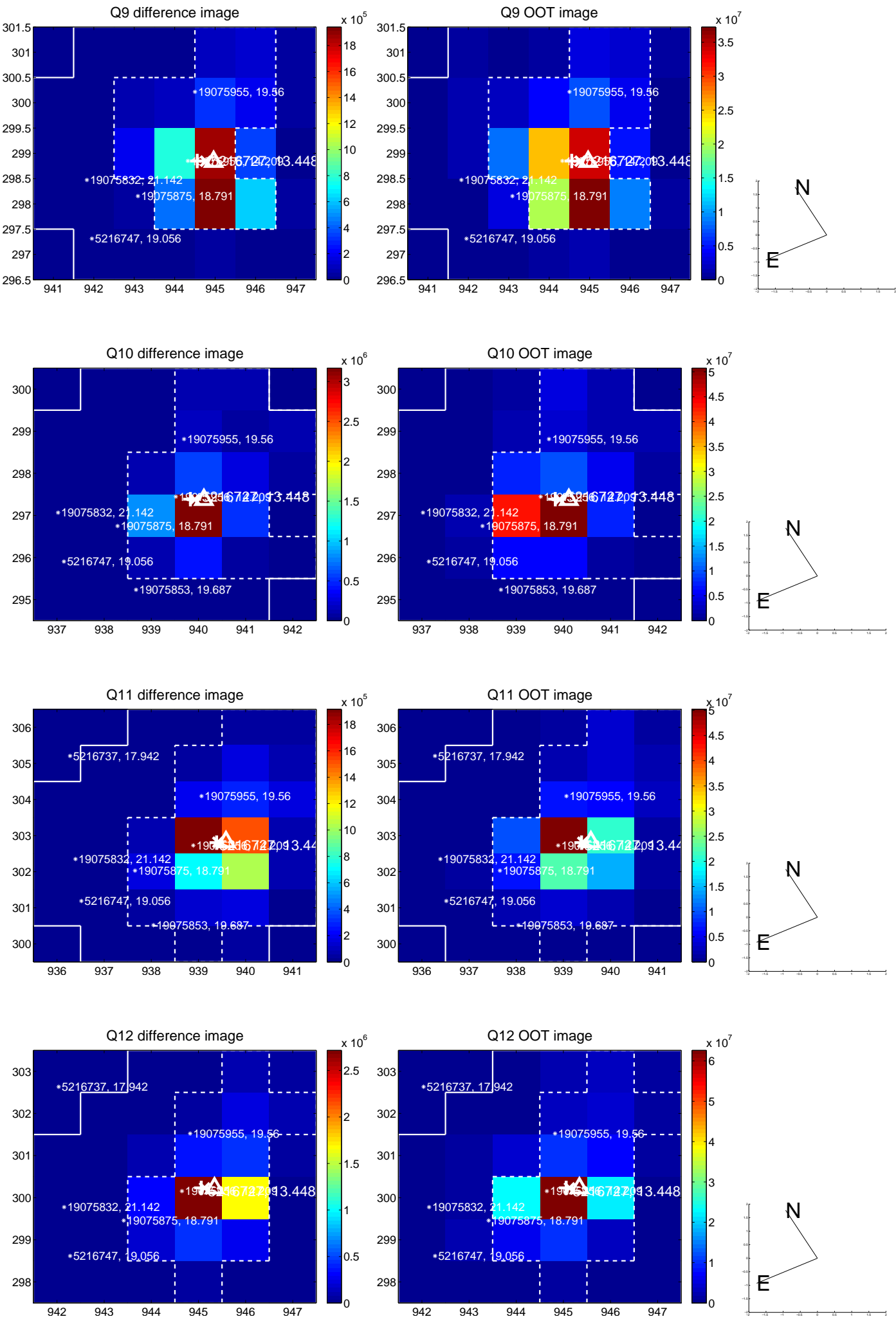
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



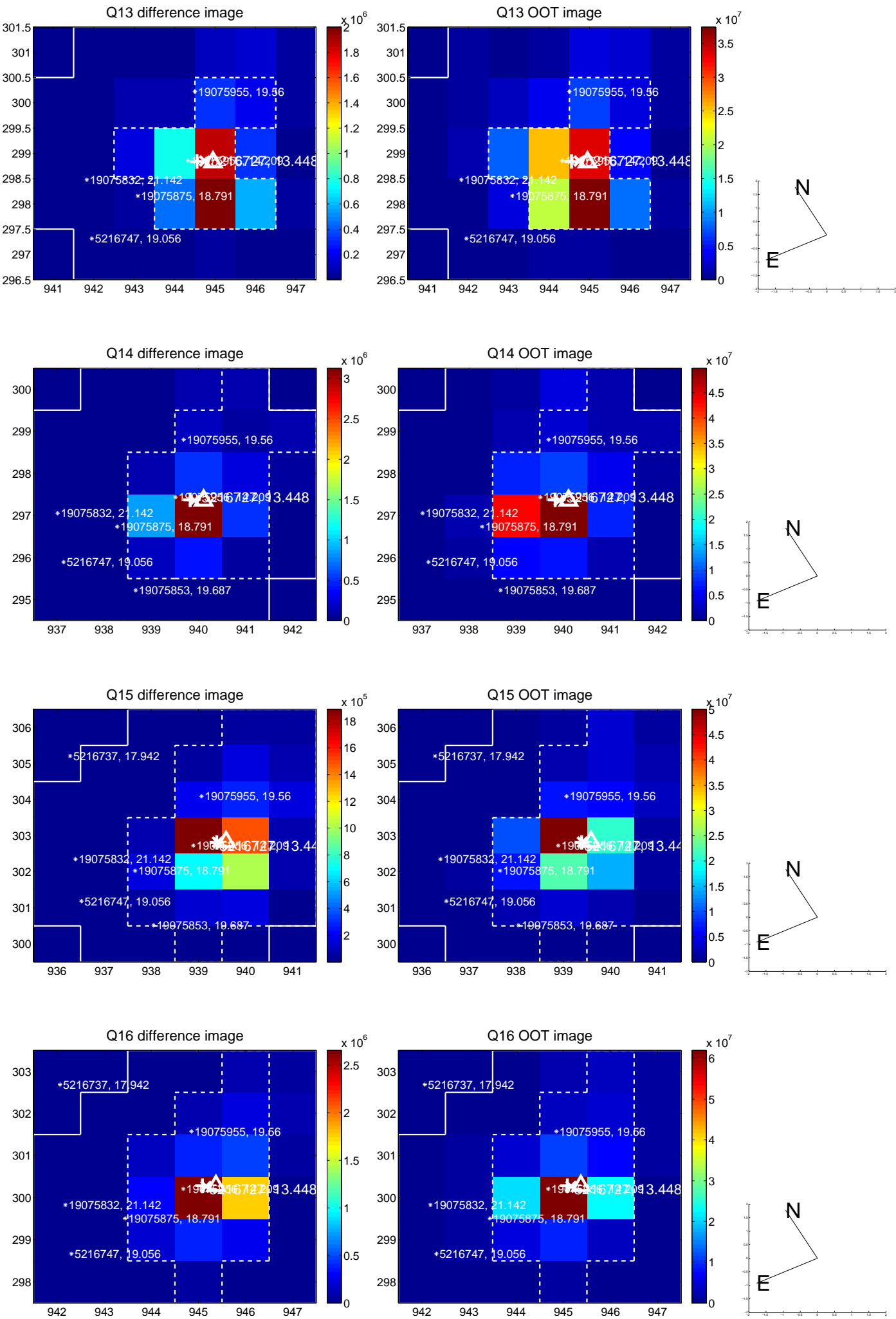
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



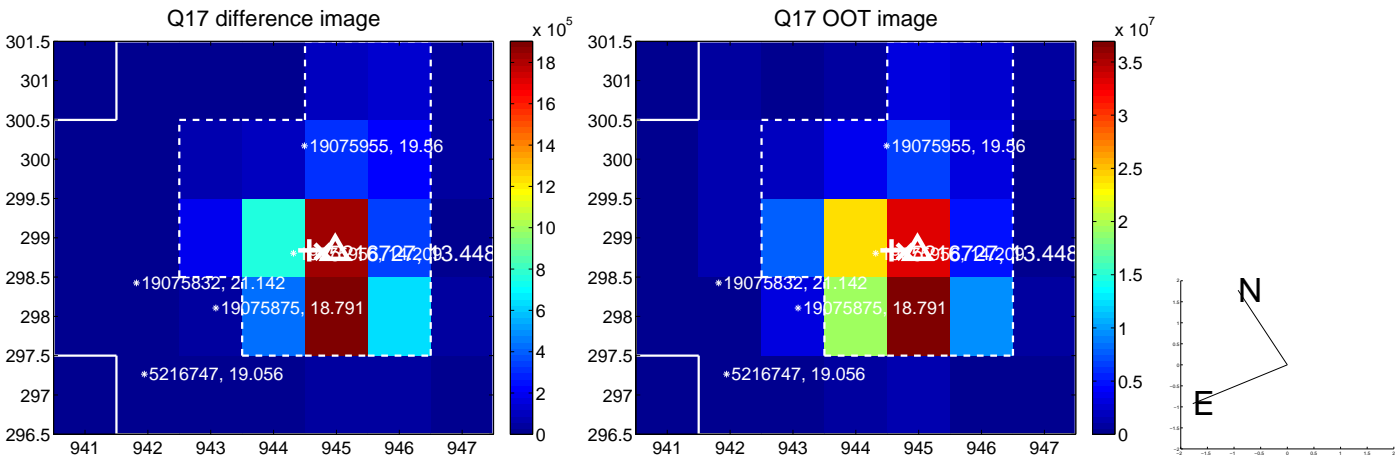
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

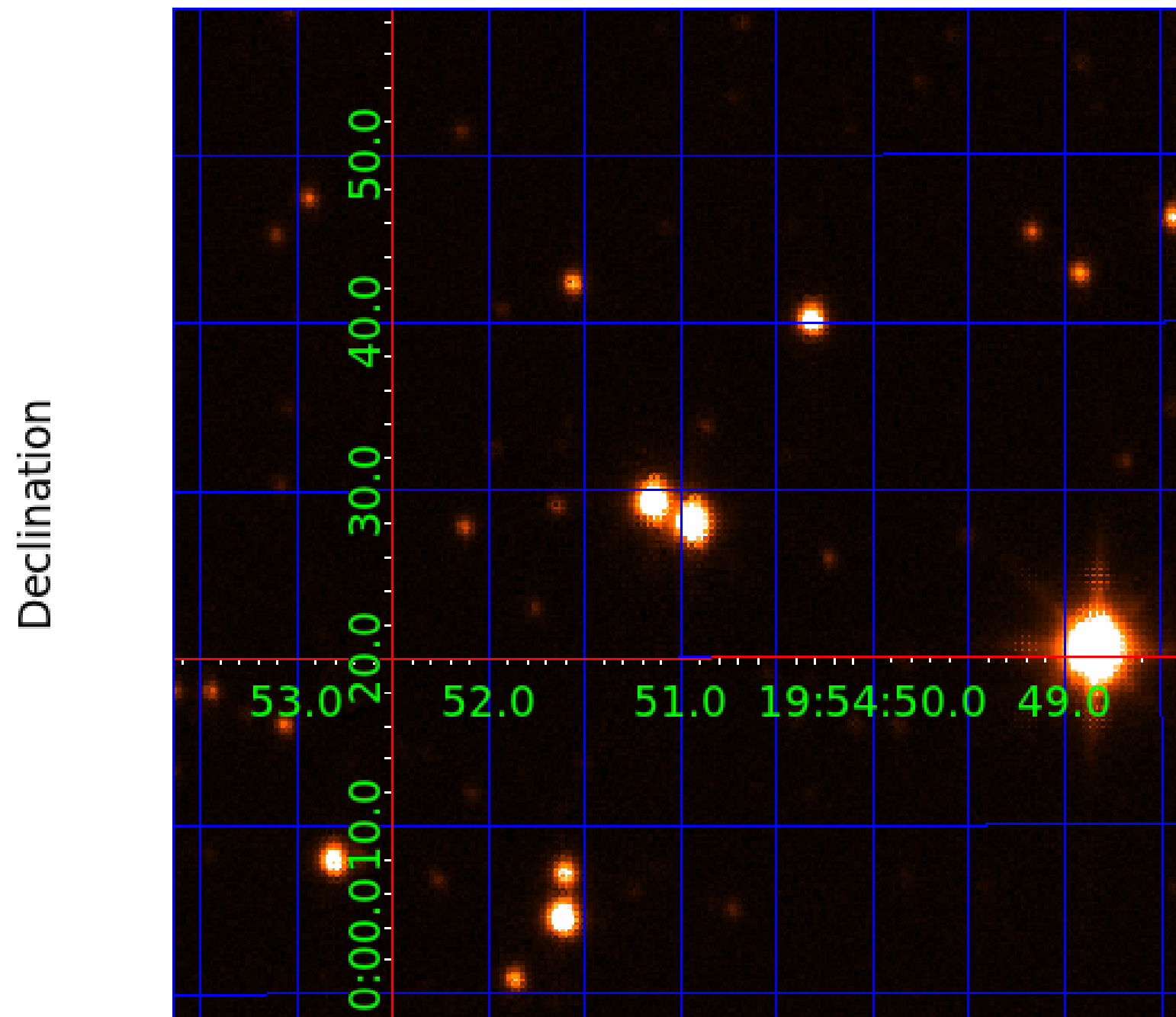


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 005216727

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})
005216727-01	OBS	6543.01	1.513029	131.927300	45622.2	2.697	3385.6	3484.7	1.42	6343	41.84	3967.56
005216727-02	OBS	No	1.513024	132.686087	34519.6	2.678	4582.2	2723.4	1.42	6343	36.25	3967.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005216727-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET
005216727-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_UNRESOLVED_OFFSET

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.

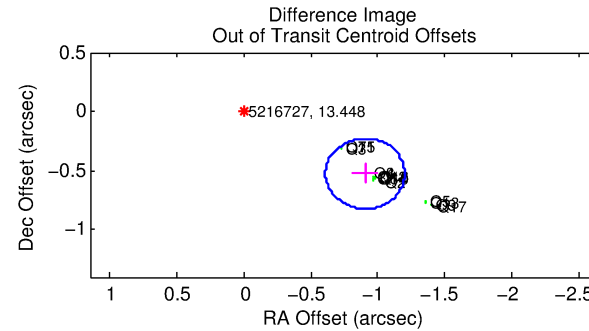
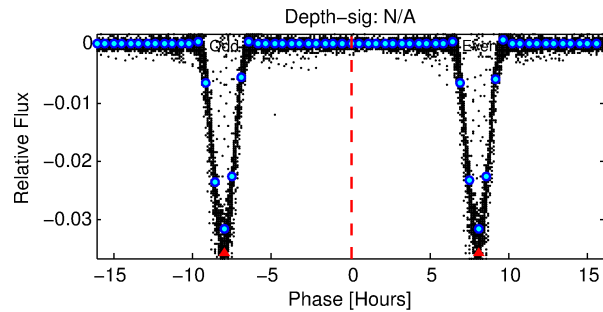
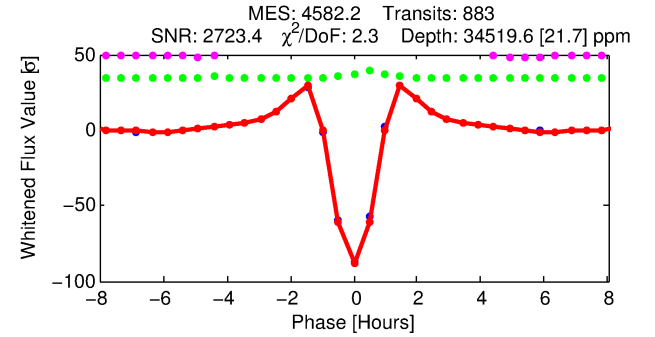
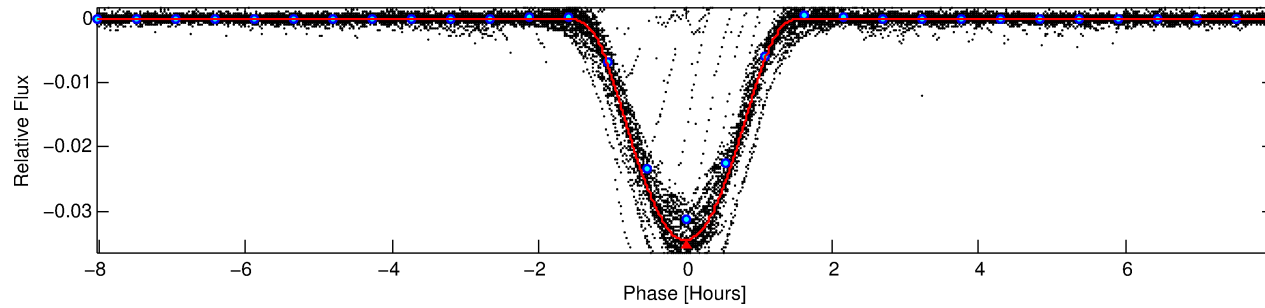
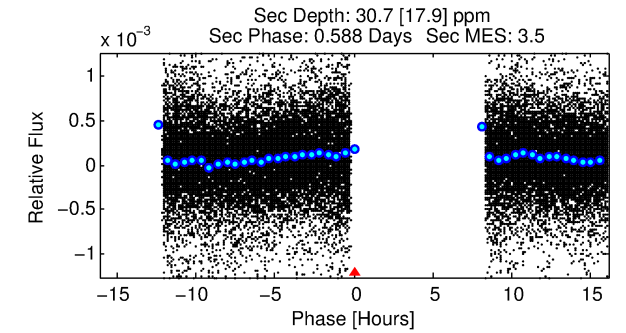
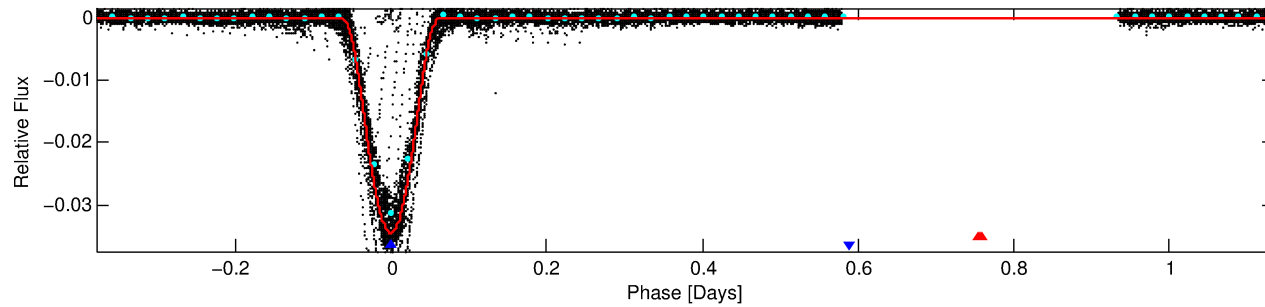
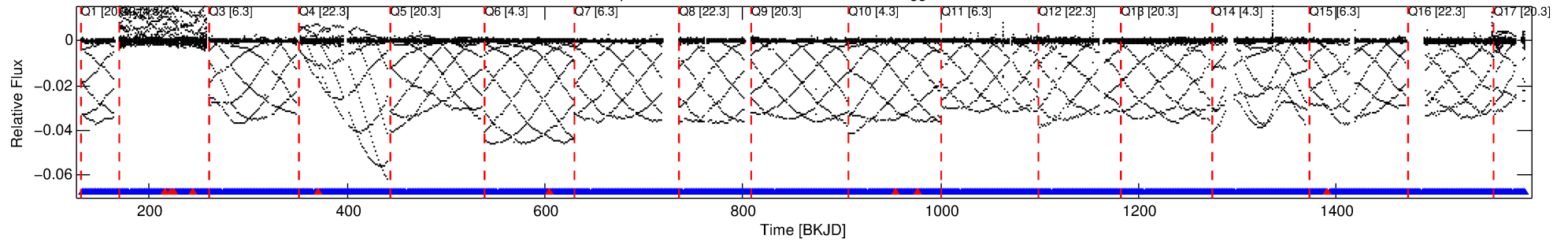
Ephemeris Match Information For 005216727-02

No Significant Match Found

DV One-Page Summary

KIC: 5216727 Candidate: 2 of 2 Period: 1.513 d
KOI: K06543 Corr: No Ephemeris Match

Kp: 13.45 R*: 1.42 Rs Teff: 6343.0 K Logg: 4.20 Fe/H: -0.140



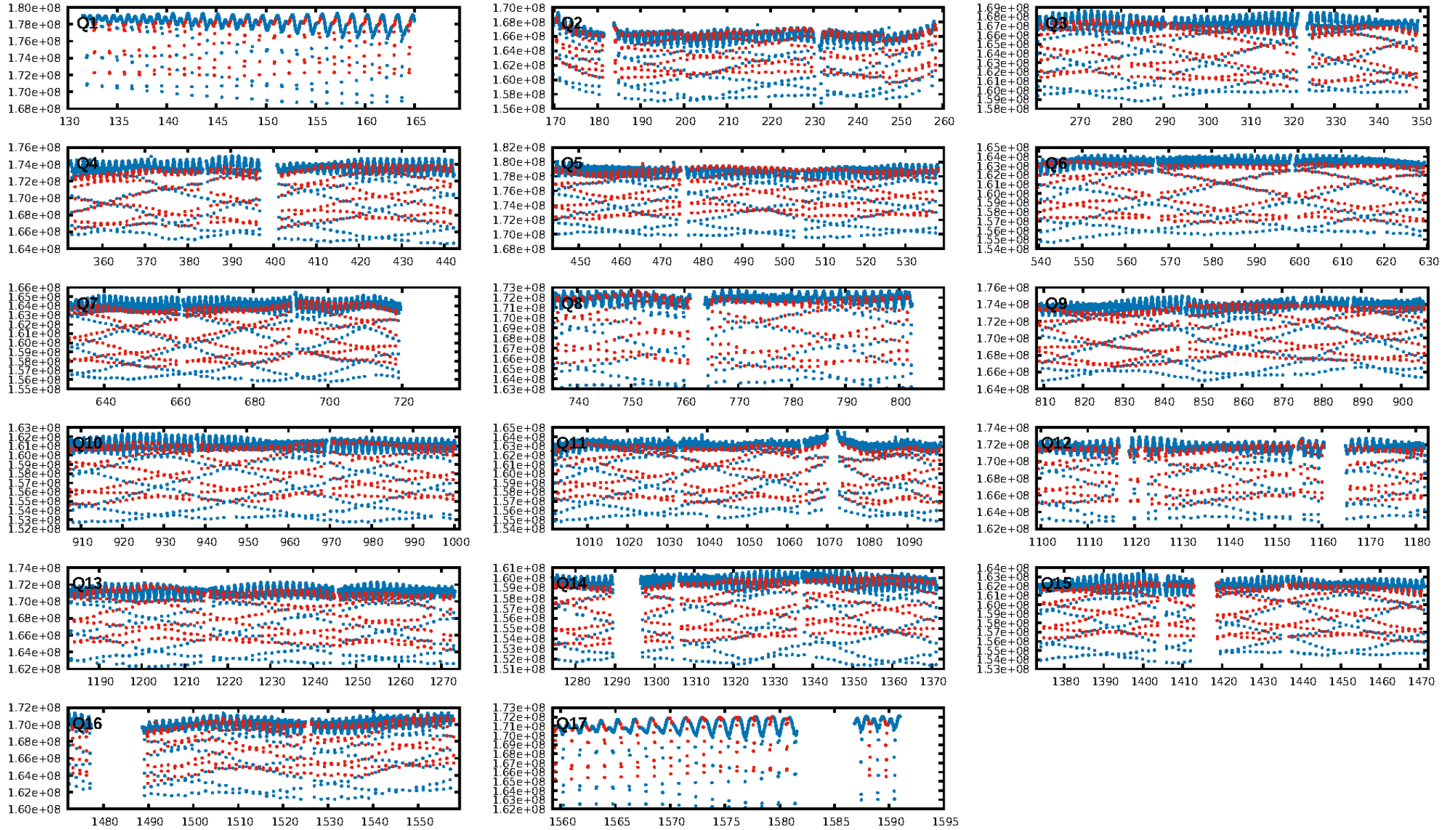
DV Fit Results:

Period = 1.51302 [0.00000] d
Epoch = 132.6861 [0.0000] BKJD
Rp/R* = 0.2344 [0.0019]
a/R* = 3.76 [0.00]
b = 0.91 [0.00]
Seff = 3967.58 [1546.52]
Teff = 2024 [197] K
Rp = 36.25 [10.42] Re
a = 0.0271 [0.0067] AU
Ag = 0.01 [0.01] [-152.40σ]
Teffp = 975 [146] K [-4.28σ]

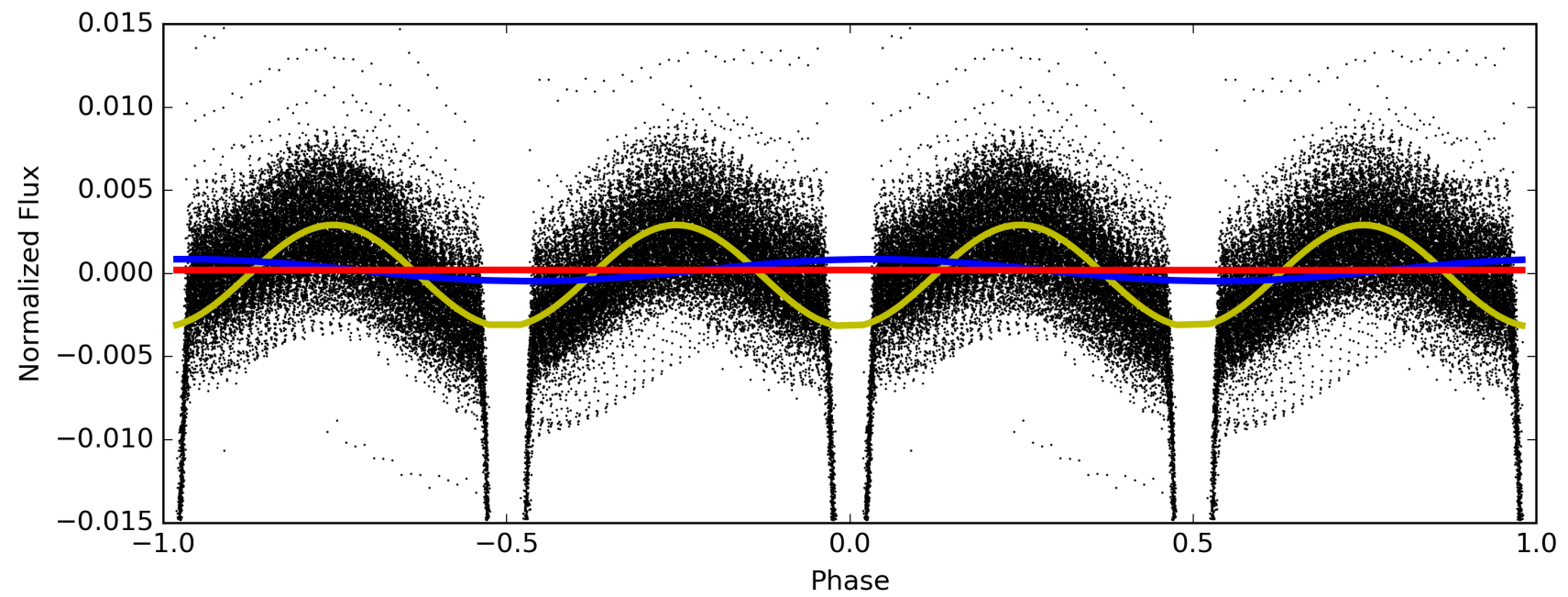
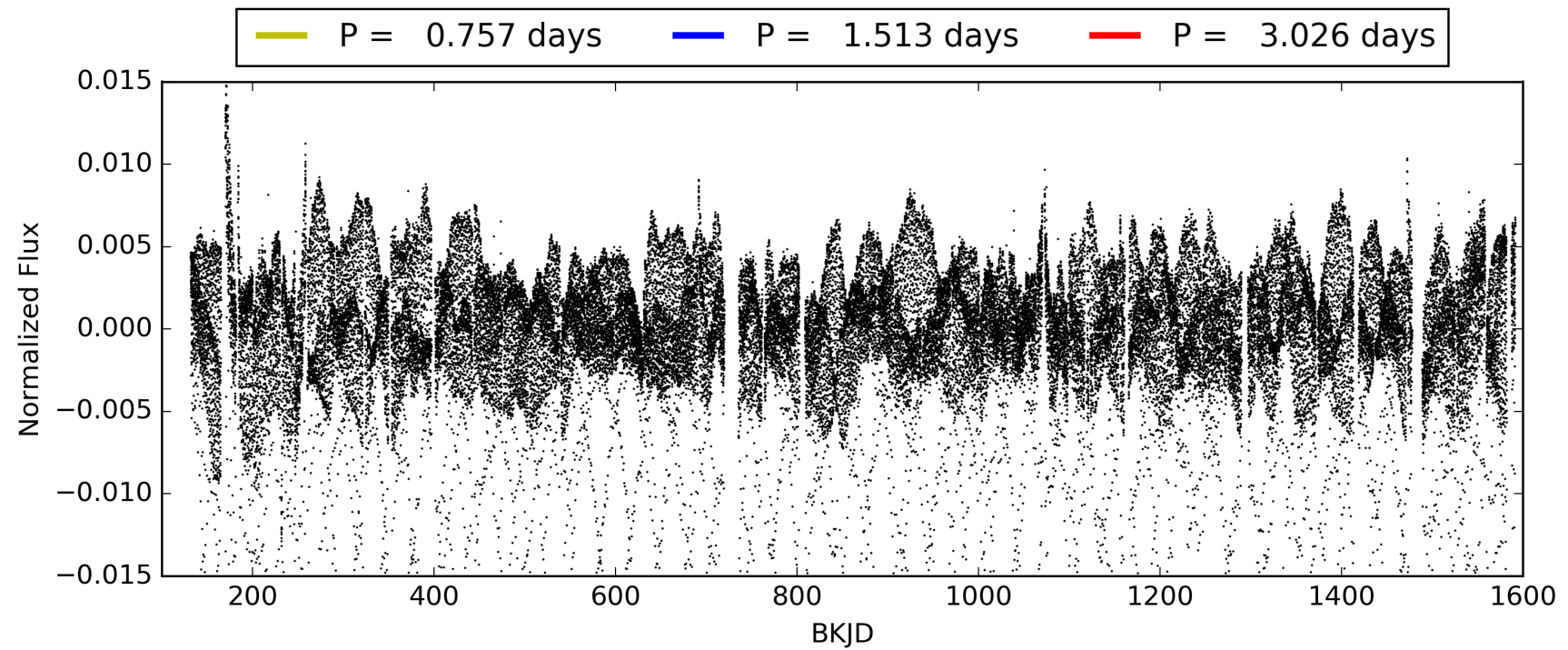
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [835/844]
GhostDiagnostic-chr: 2.997
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.046 arcsec [10.59σ]
KicOffset-rm: 0.748 arcsec [11.04σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005216727-02, PDC Light Curves

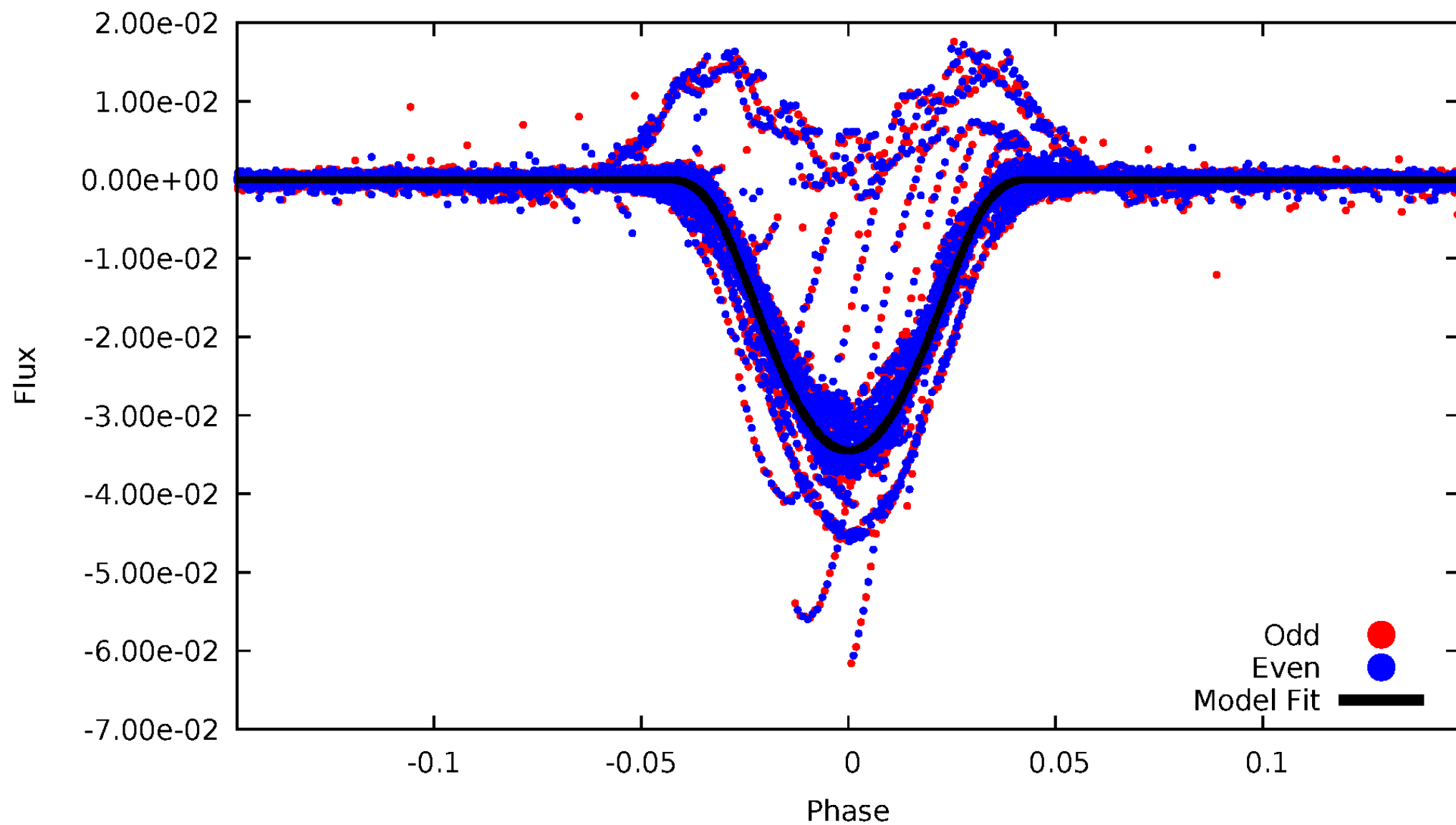


TCE 005216727-02



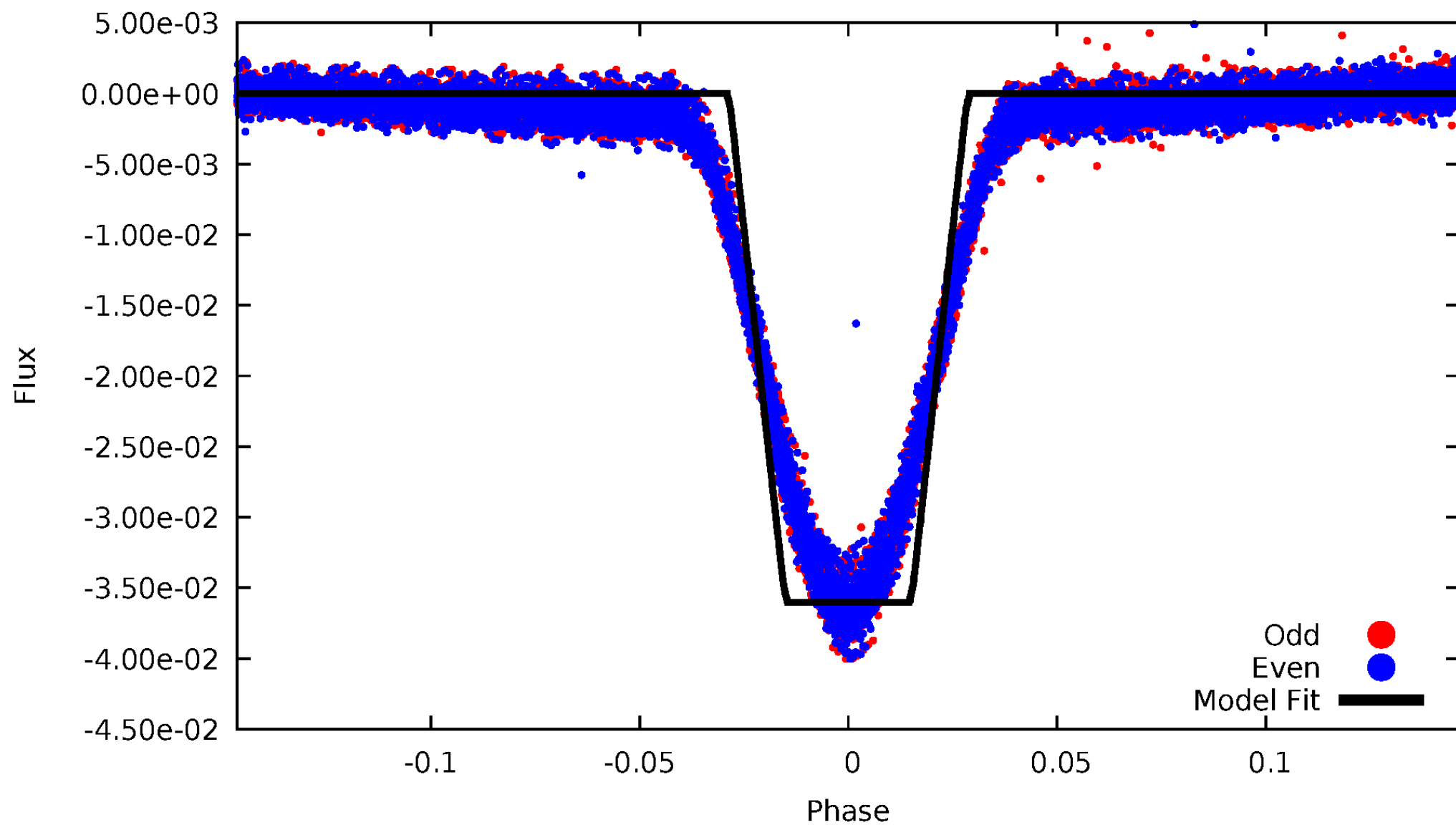
DV Odd/Even

TCE 005216727-02



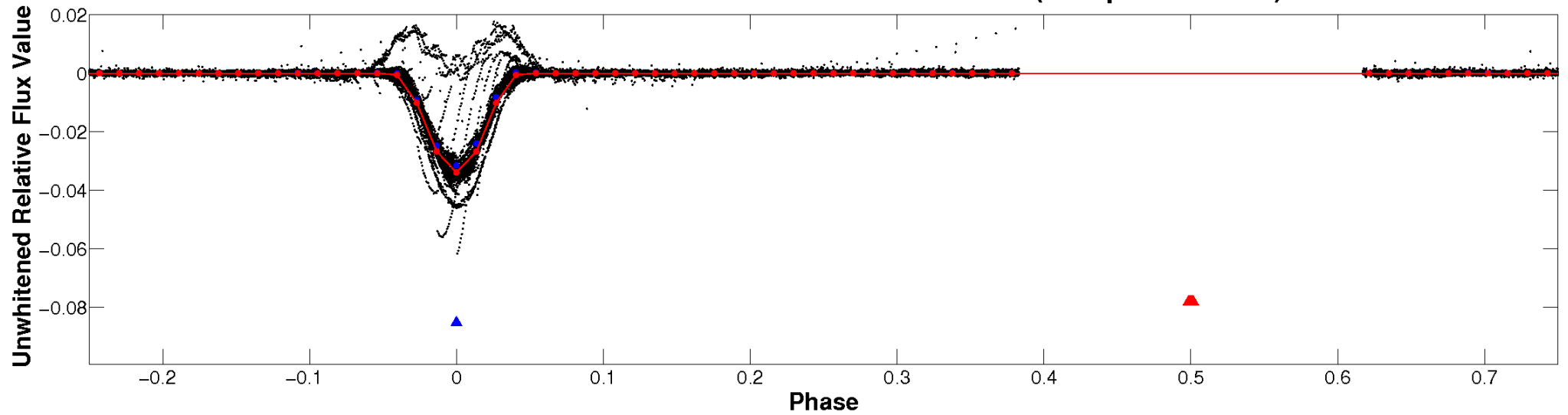
ALT Odd/Even

TCE 005216727-02

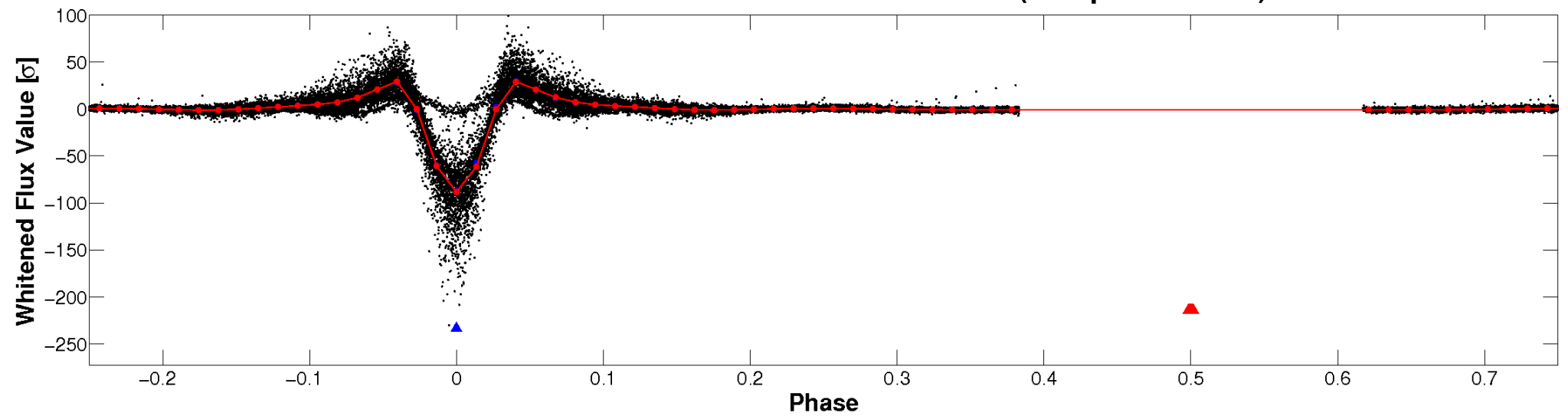


Non-Whitened Vs. Whitened Light Curve

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

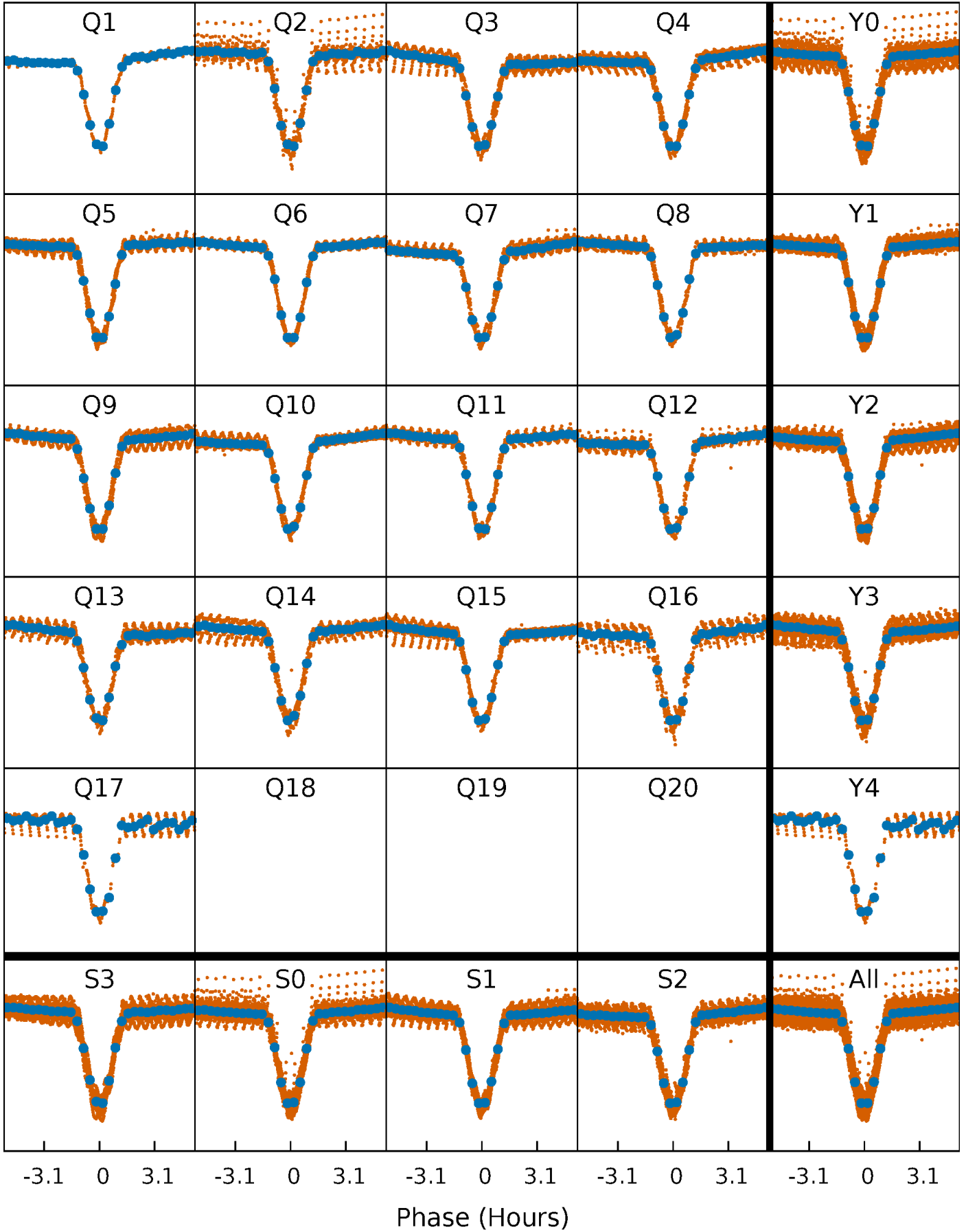


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



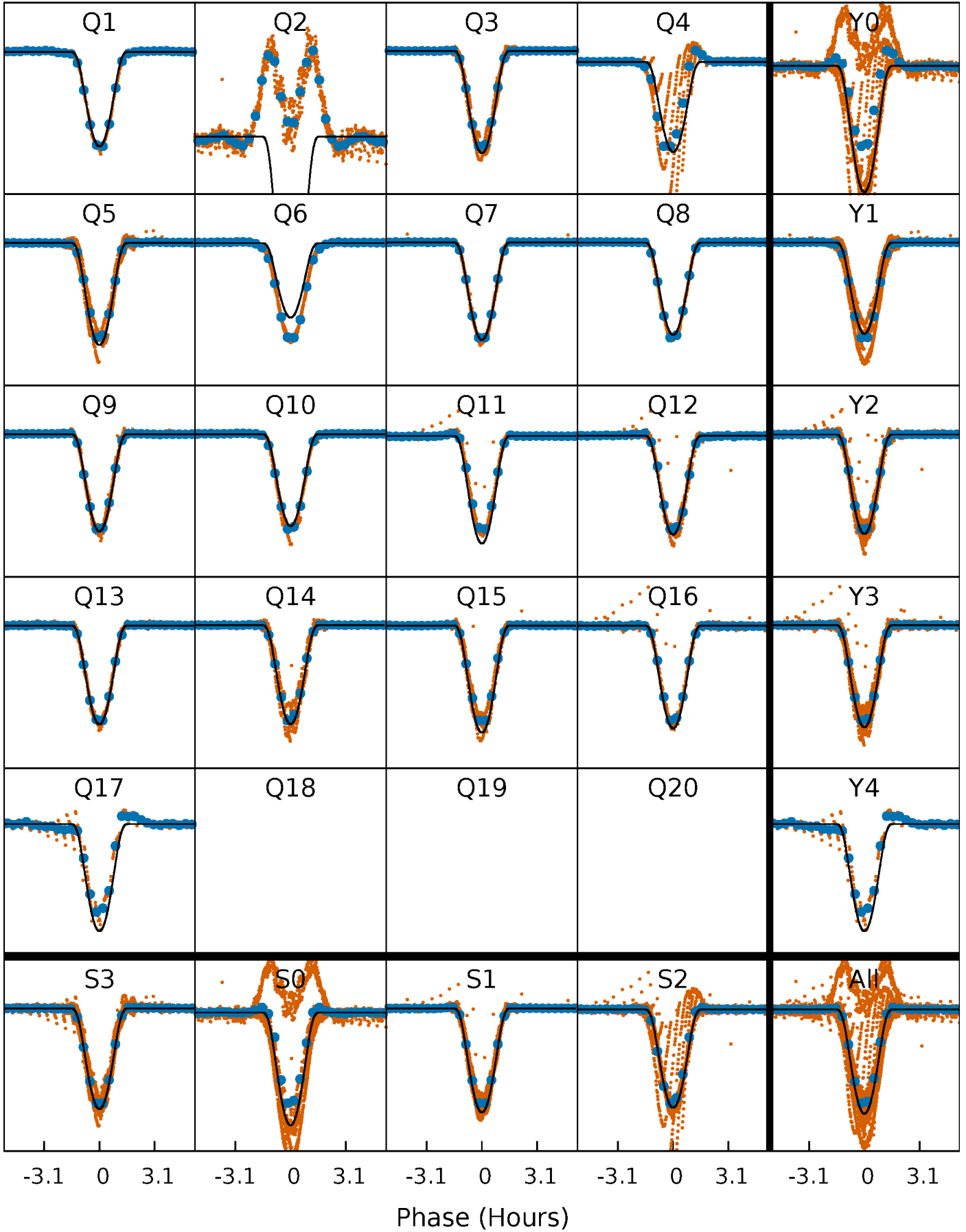
PDC Quarter-Phased Transit Curves

TCE 005216727-02 P= 1.513024 Days $T_0=132.686087$ (BKJD)



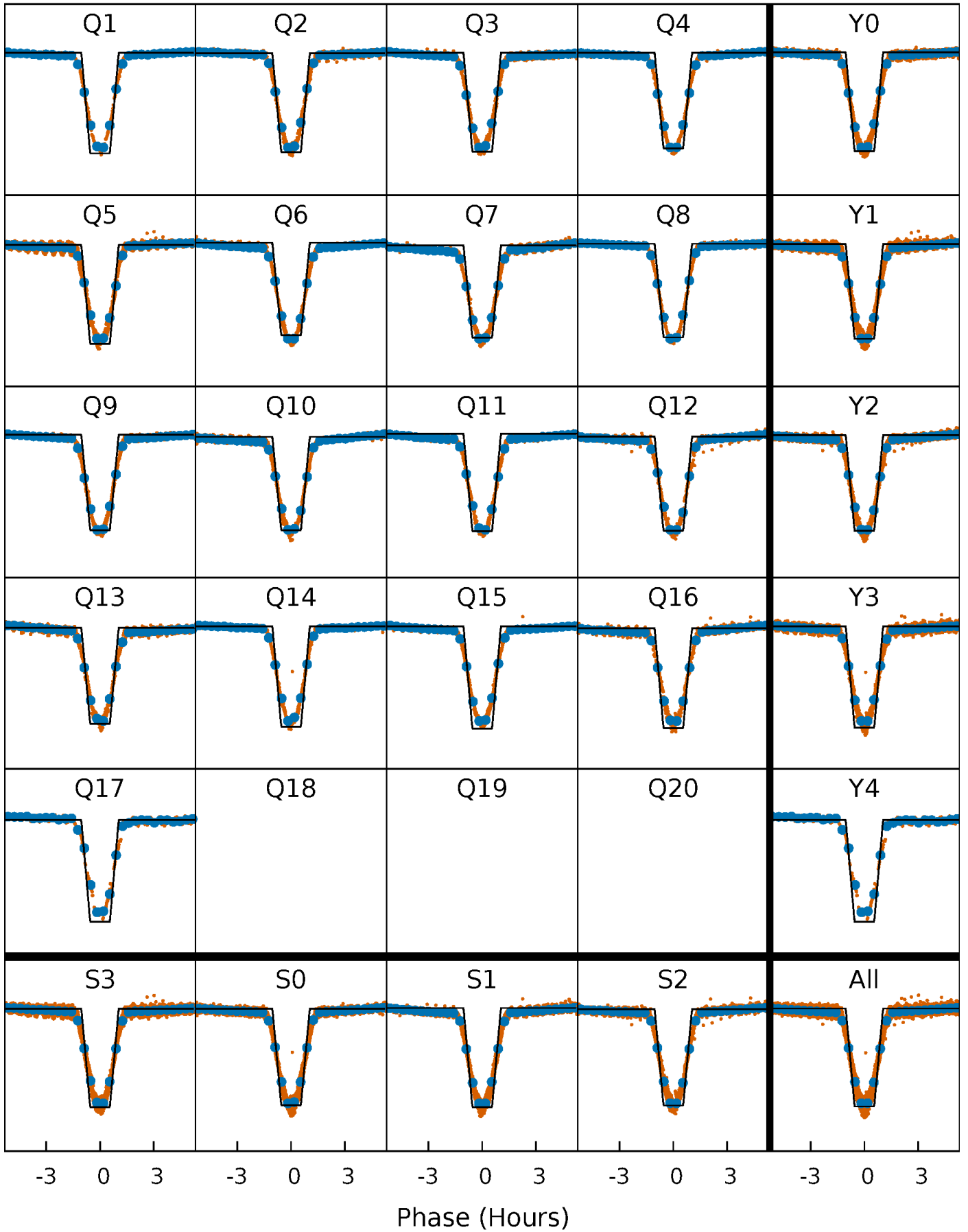
DV Quarter-Phased Transit Curves

TCE 005216727-02 P= 1.513024 Days $T_0=132.686087$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

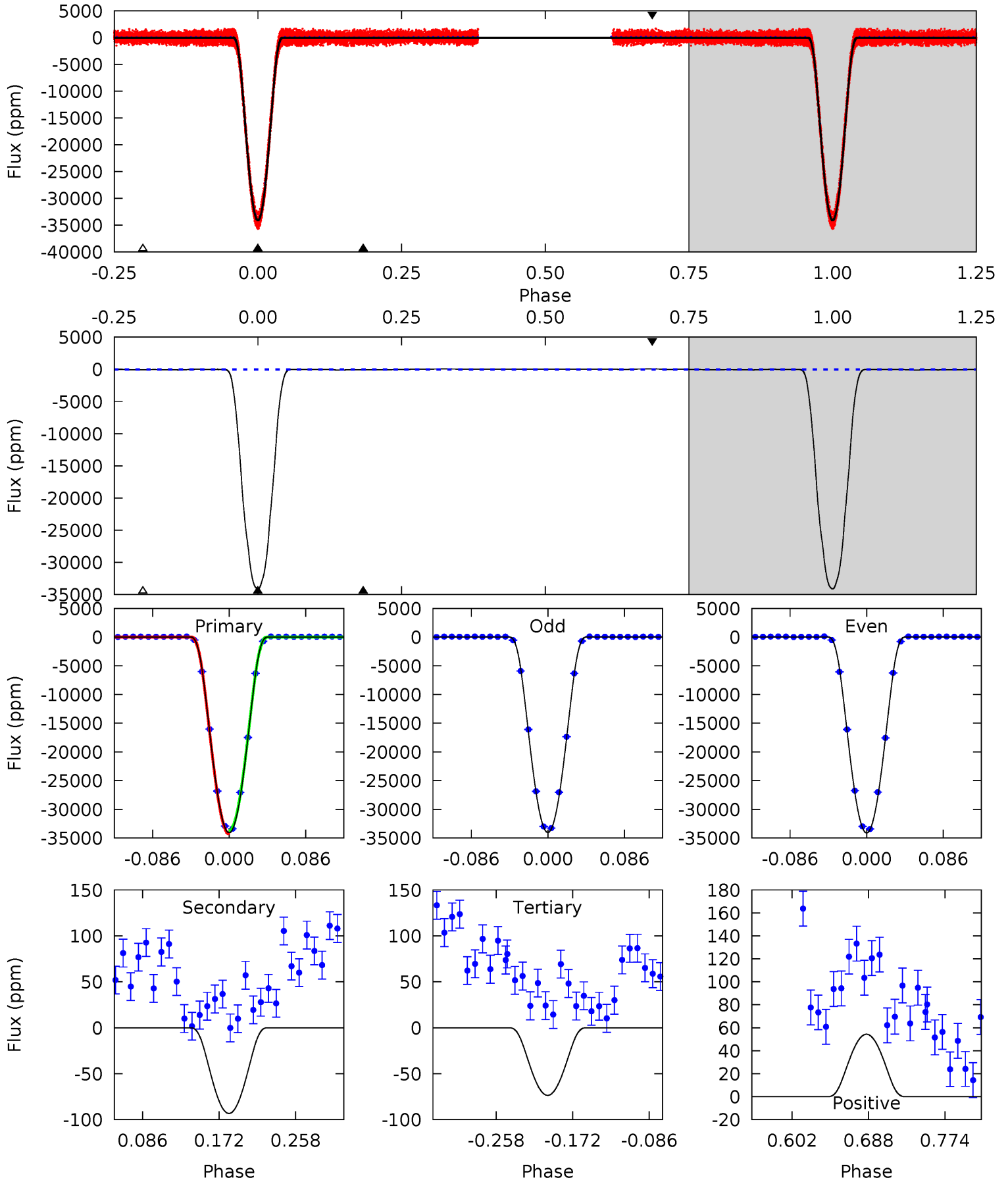
TCE 005216727-02 P= 1.513022 Days $T_0=132.686703$ (BKJD)



DV Model-Shift Uniqueness Test

005216727-02, P = 1.513024 Days, E = 131.173063 Days

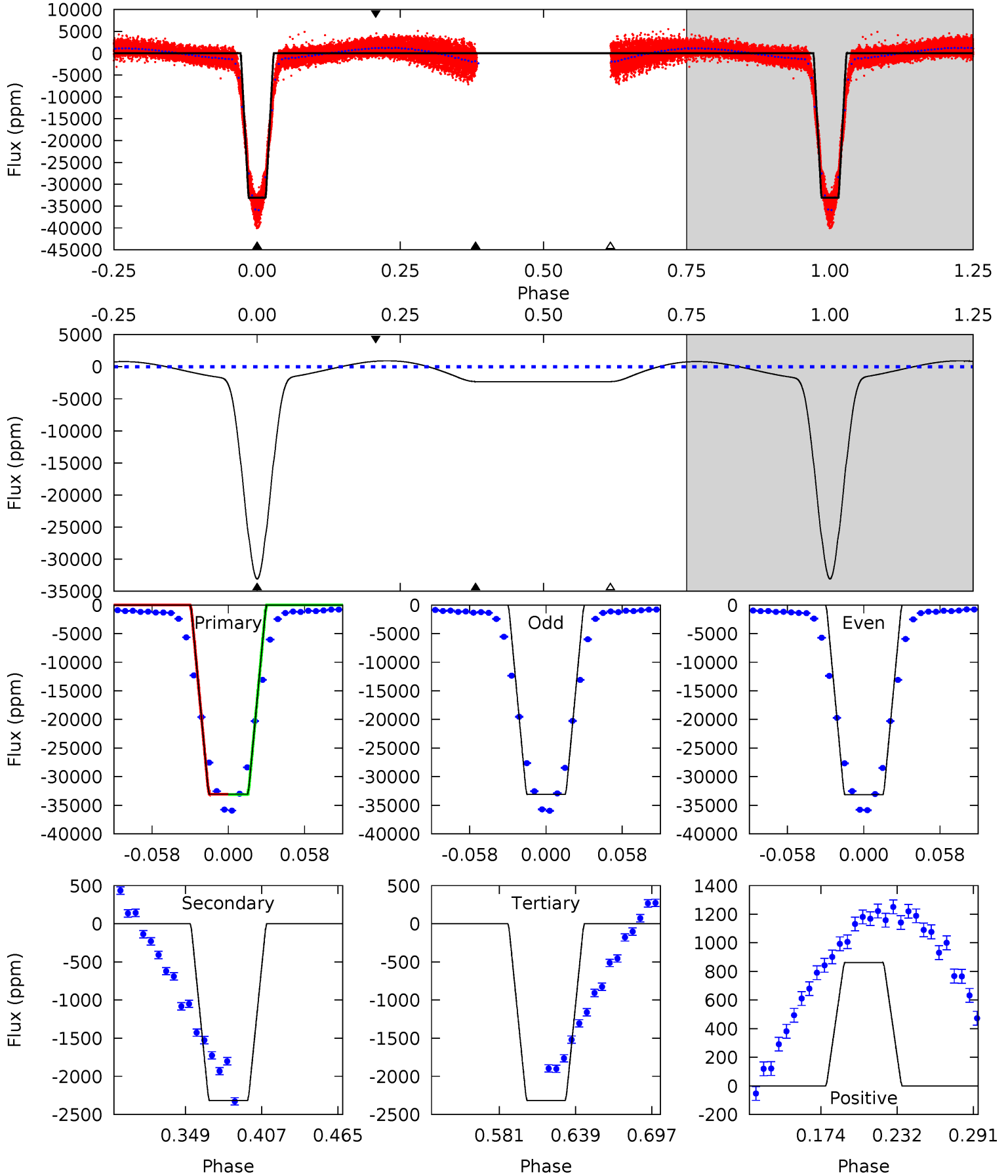
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4535	12.4	9.79	7.23	4.60	1.72	5.66	4525	4528	2.62	5.18	5.12	0.92	0.00	35.9



Alt Model-Shift Uniqueness Test

005216727-02, P = 1.513022 Days, E = 131.173681 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1474	103.3	103.2	38.4	4.68	1.89	39.8	1371	1436	0.04	64.8	0.96	1.00	0.03	1.08



Stellar Parameters For KIC 005216727

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6343^{+170}_{-208}	$4.199^{+0.204}_{-0.185}$	$-0.140^{+0.250}_{-0.300}$	$1.417^{+0.407}_{-0.333}$	$1.157^{+0.181}_{-0.164}$	$0.573^{+0.558}_{-0.280}$
	+3%/-3%	+5%/-4%	+179%/-214%	+29%/-24%	+16%/-14%	+97%/-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 005216727-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-93 ± 8	$35.78^{+6.39}_{-4.62}$	2814^{+205}_{-210}	-2939^{+128}_{-134}	$0.029^{+0.010}_{-0.008}$
Alt.	-2317 ± 22	$29.34^{+4.84}_{-3.78}$	2822^{+227}_{-199}	3441^{+85}_{-91}	$1.084^{+0.320}_{-0.254}$

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

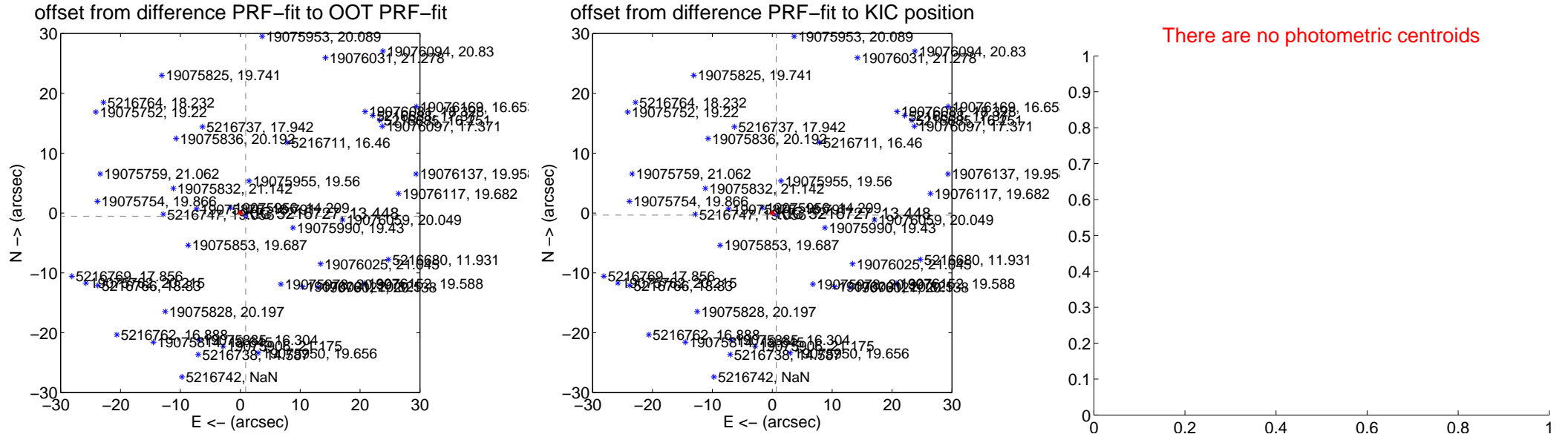
DV Centroid Data

Supplemental centroid analysis for 005216727-02. Kepler magnitude: 13.45. Transit SNR 2723.44

There are 17 quarters with good PRF difference image offsets

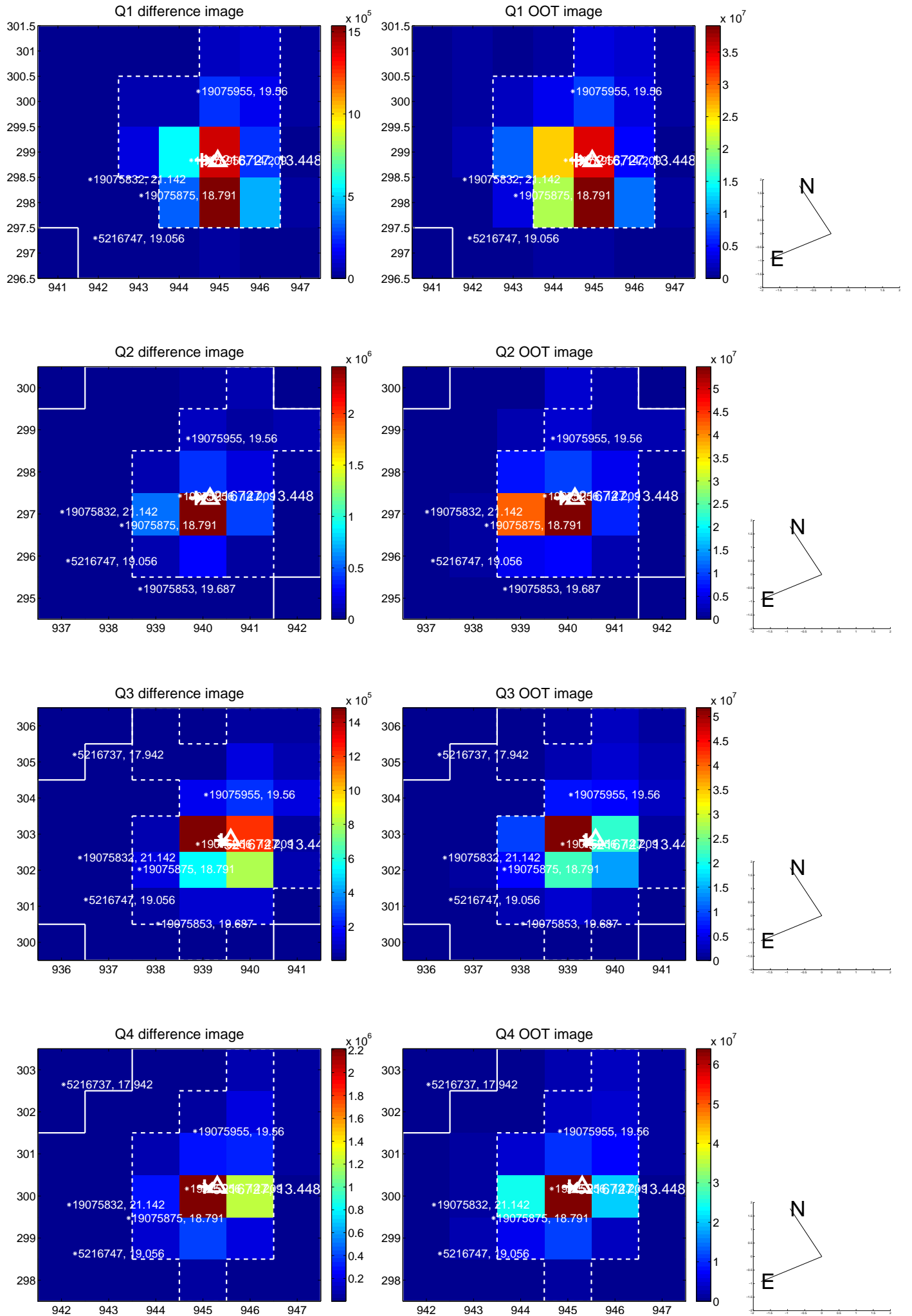
The direct PRF centroid is offset from the target star catalog position by about 0.84 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.046 ± 0.099	10.59	-0.904 ± 0.089	-0.526 ± 0.080
PRF-fit source offset from KIC position	0.748 ± 0.068	11.04	-0.665 ± 0.067	-0.344 ± 0.068
photometric centroid source offset	—	—	—	—

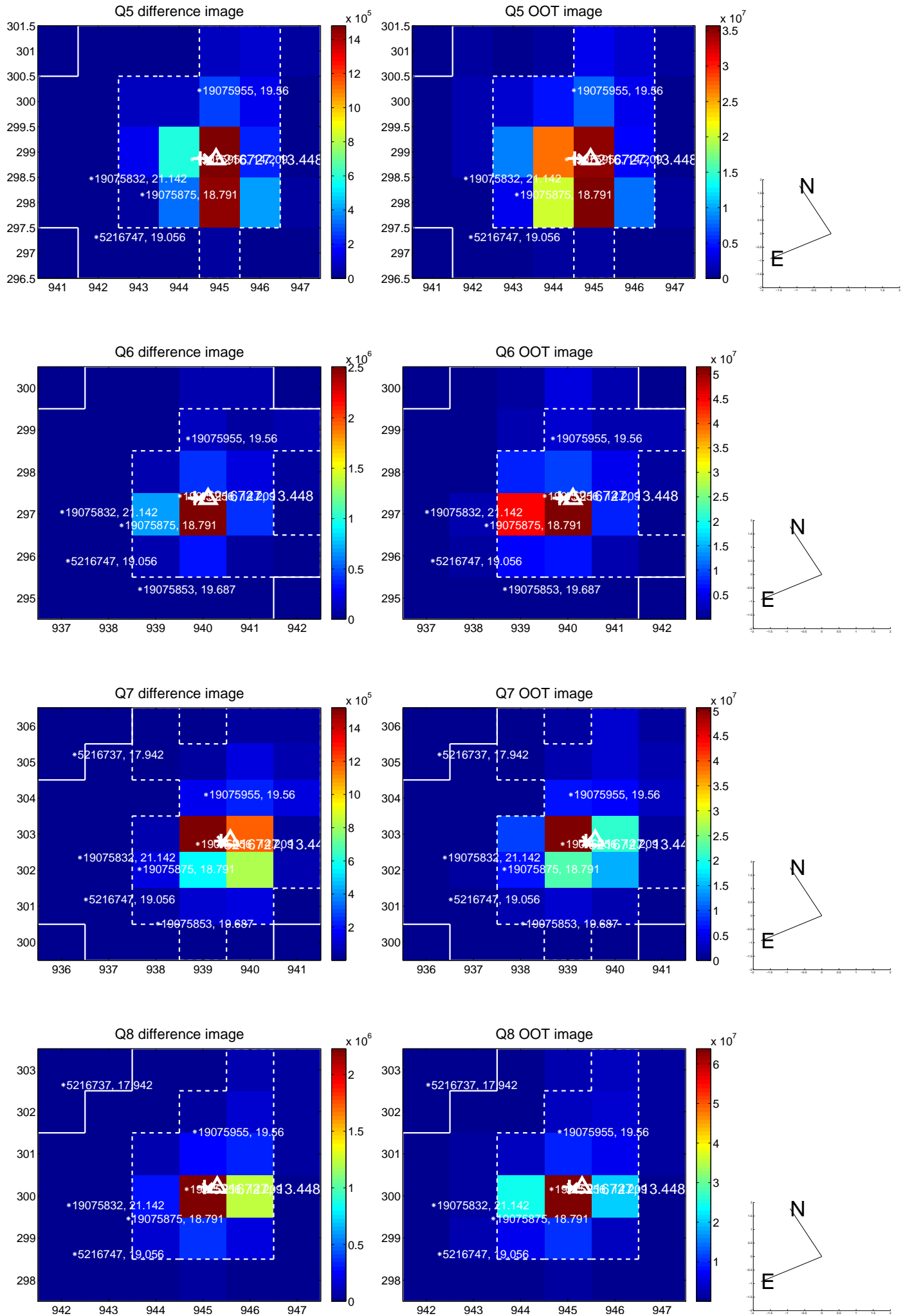


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

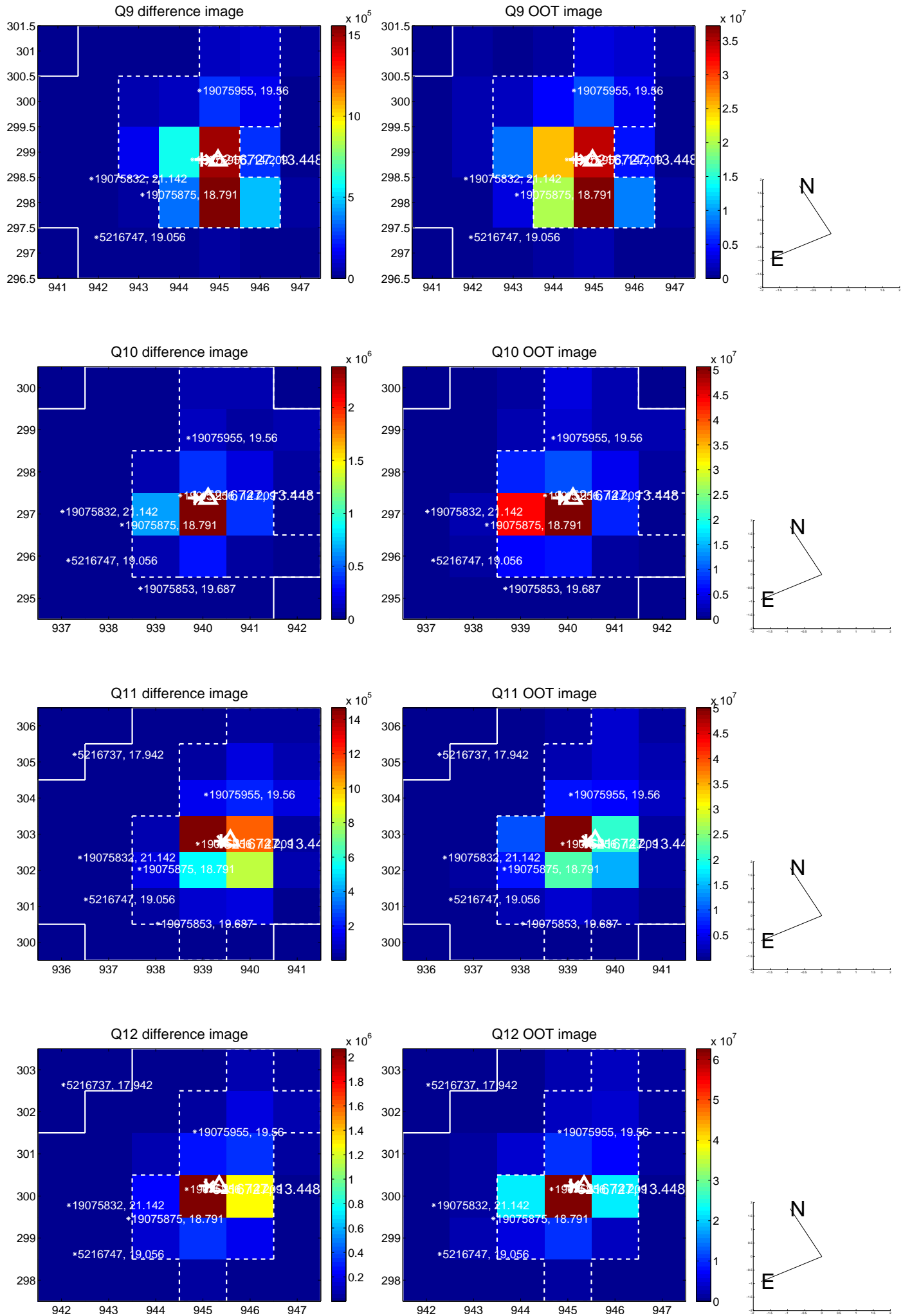
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



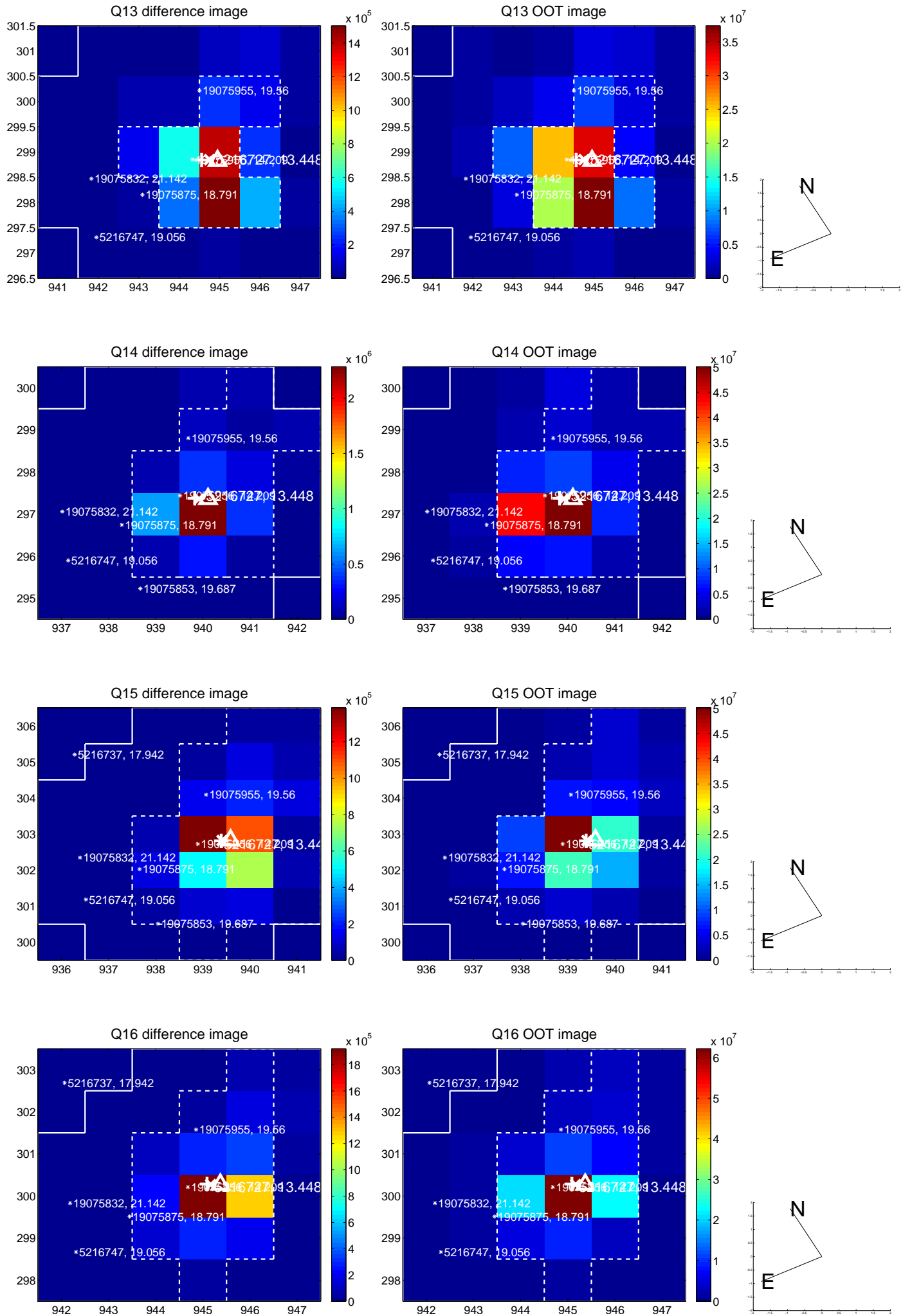
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



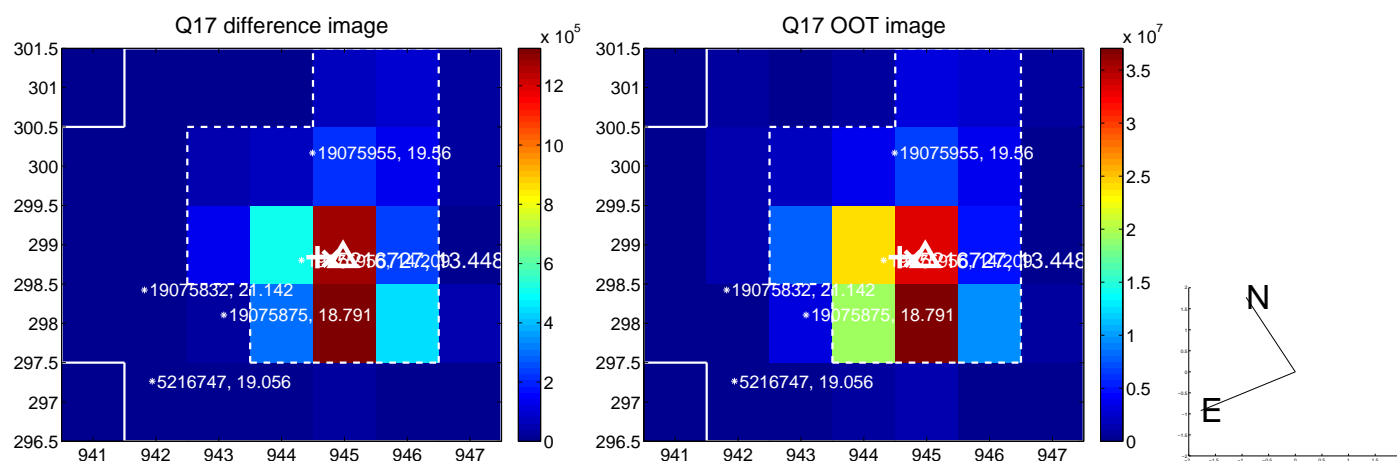
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



folded centroid time series figure for this object.



UKIRT Image

