

KIC 002574543

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})
002574543-01	OBS	4947.01	6.702562	134.377116	871.0	4.441	16.5	19.9	13.65	4799	82.44	11410.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002574543-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

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.

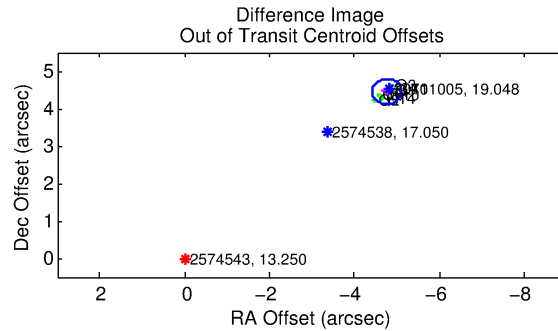
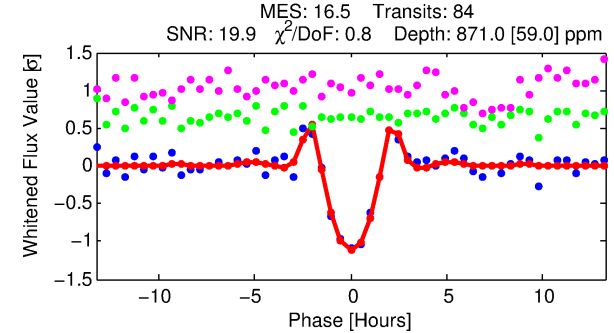
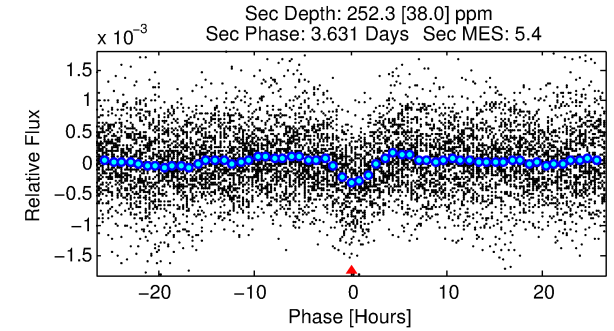
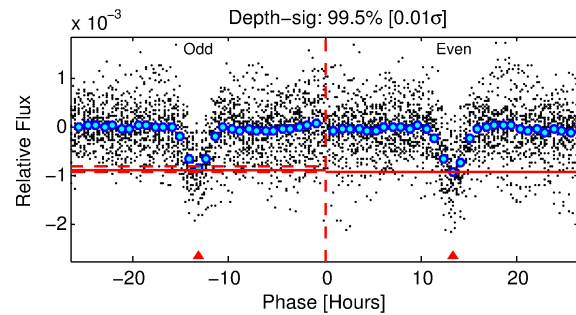
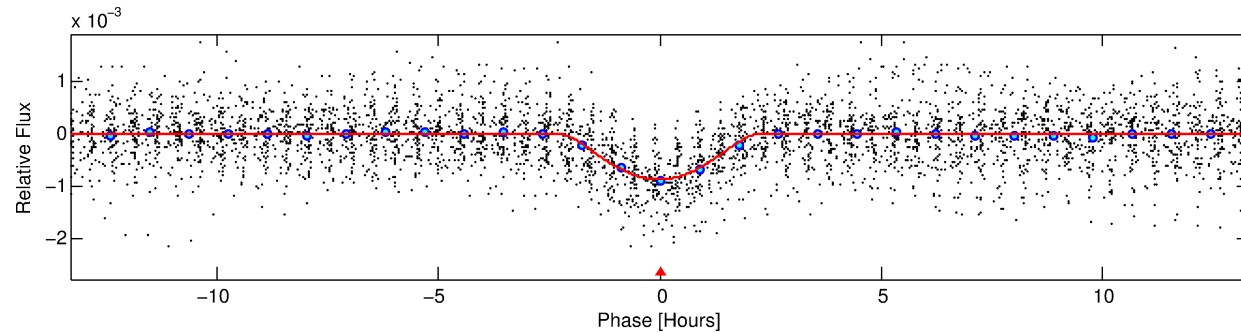
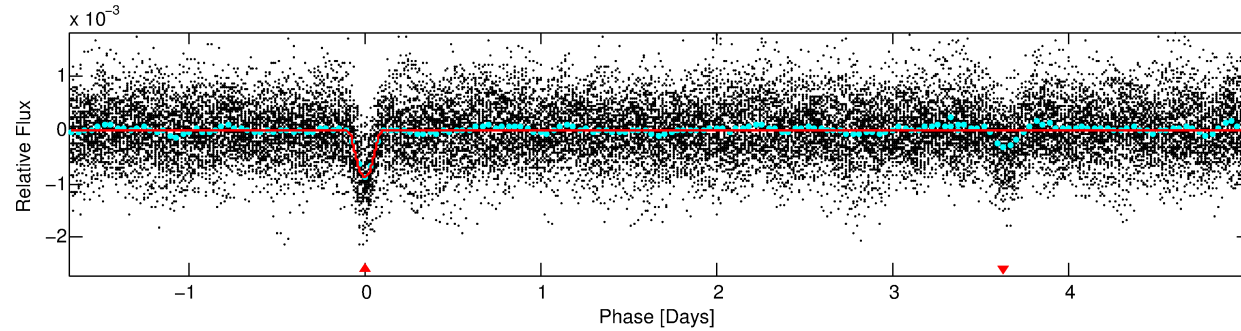
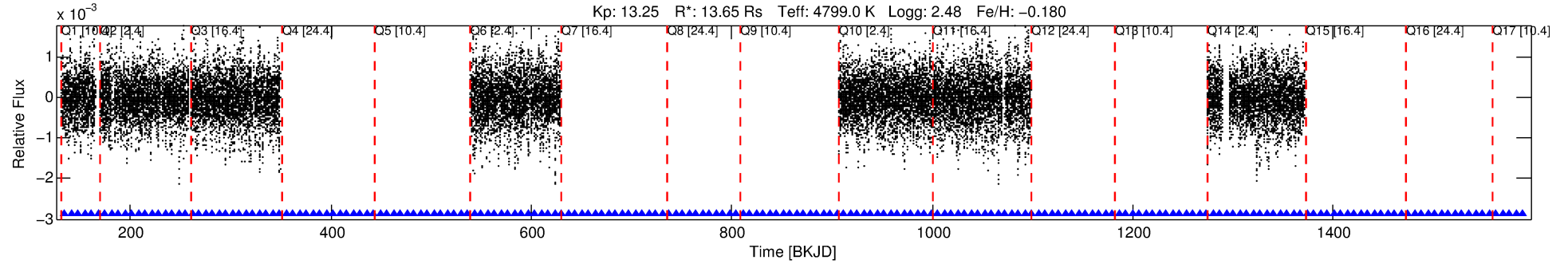
Ephemeris Match Information For 002574543-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
002574543-01	2574543	002987660-01	2987660	6:1	1094.7	116	-8	7.95	13.25	0.17	Direct-PRF	1	2.80	3.11

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 2574543 Candidate: 1 of 1 Period: 6.703 d
KOI: K04947.01 Corr: 0.969



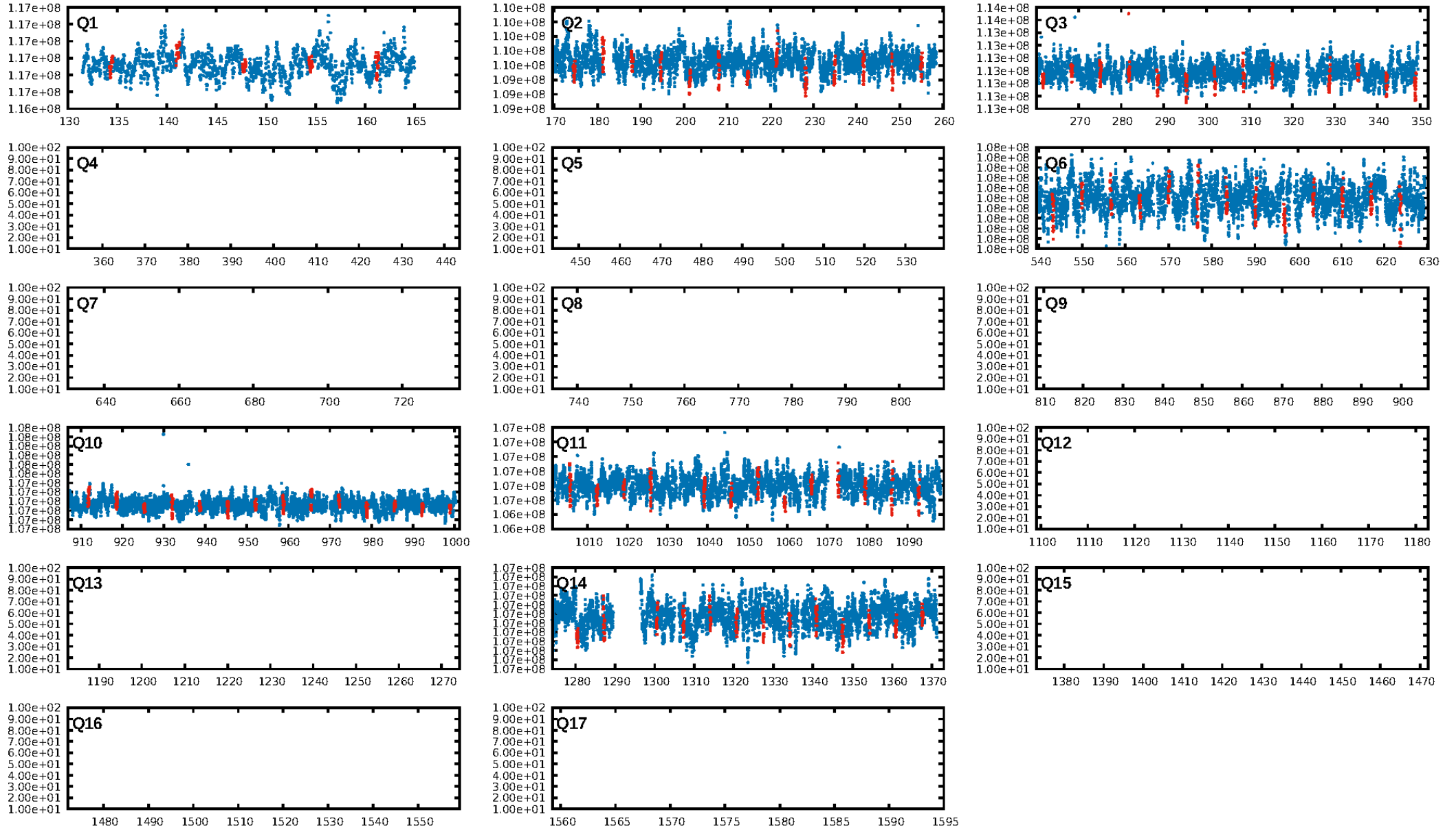
DV Fit Results:

Period = 6.70256 [0.00002] d
Epoch = 134.3771 [0.0024] BKJD
Rp/R* = 0.0553 [0.0314]
a/R* = 4.04 [0.49]
b = 1.00 [0.05]
Seff = 11410.56 [2423.85]
Teq = 2635 [140] K
Rp = 82.44 [51.18] Re
a = 0.0881 [0.0151] AU
Ag = 0.16 [0.18] [-4.59 σ]
Teffp = 2571 [739] K [-0.09 σ]

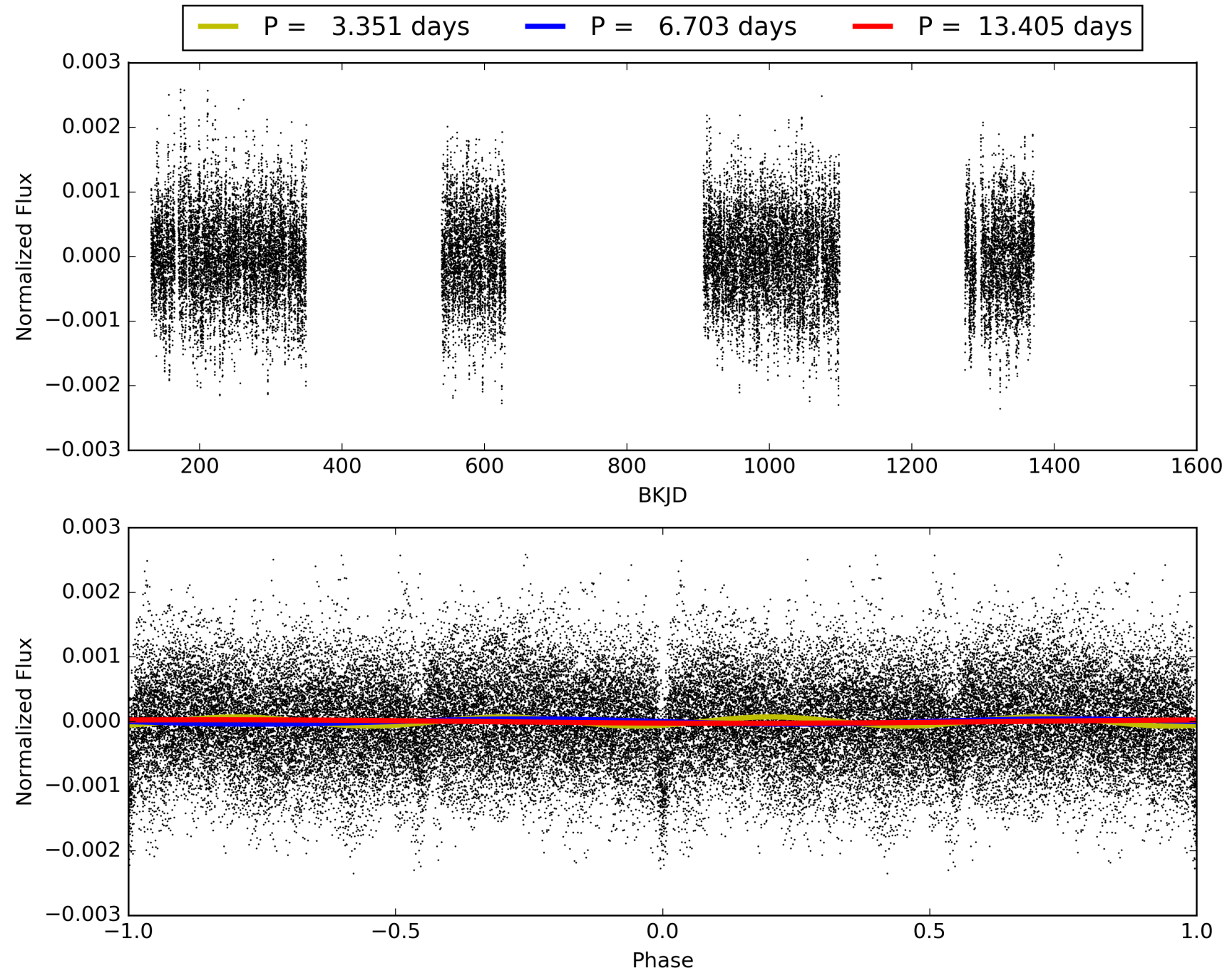
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 8.84e-53
RollingBand-fgt: 1.00 [79/79]
GhostDiagnostic-chr: 0.0688
Centroid-sig: 0.0%
Centroid-so: 9.772 arcsec [55.48 σ]
OotOffset-rm: 6.522 arcsec [56.87 σ]
KicOffset-rm: 6.542 arcsec [75.67 σ]
OotOffset-st: 4/2/0/1 [7]
KicOffset-st: 4/2/0/1 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 1.00 [7/7]

TCE 002574543-01, PDC Light Curves

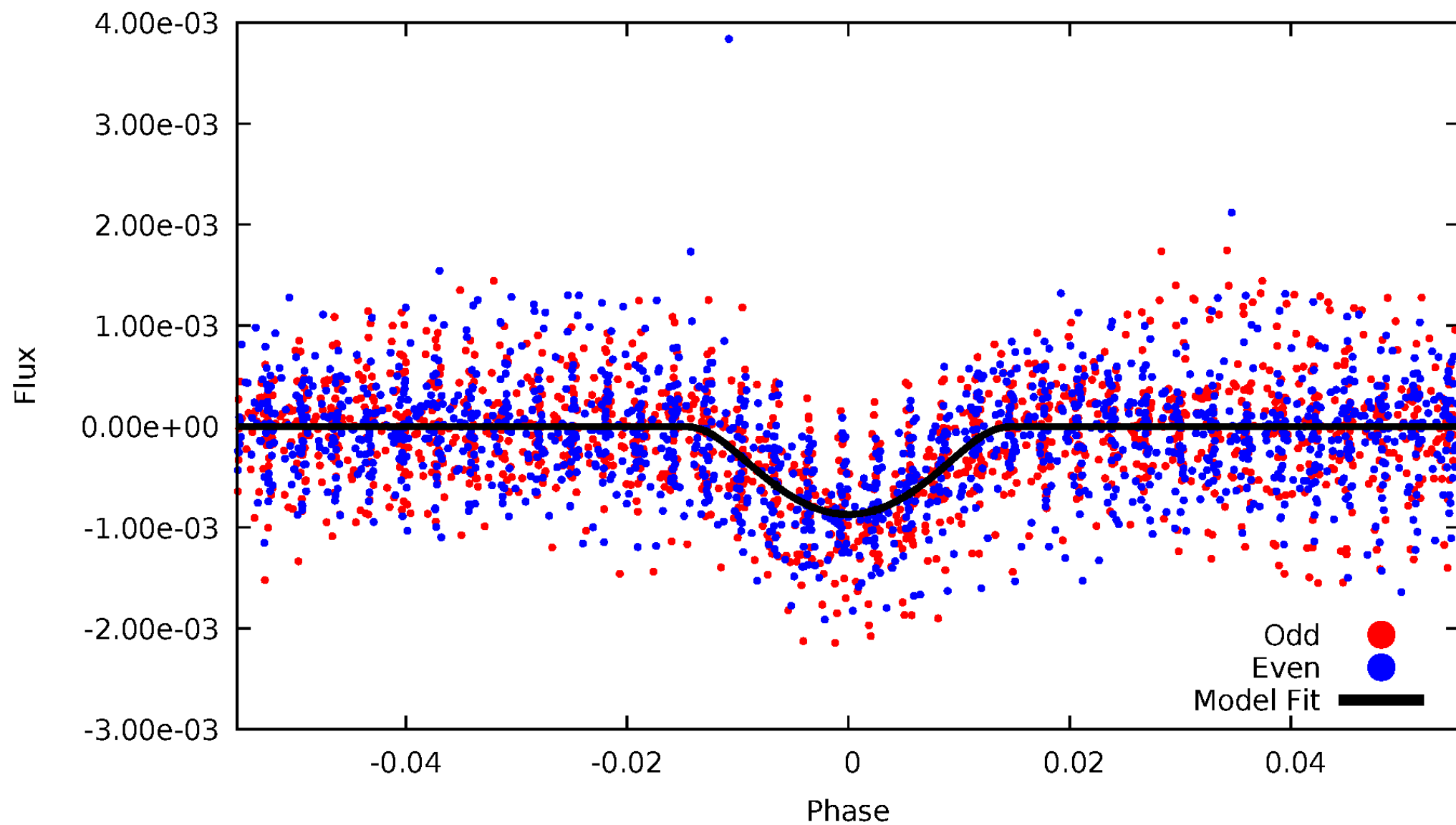


TCE 002574543-01



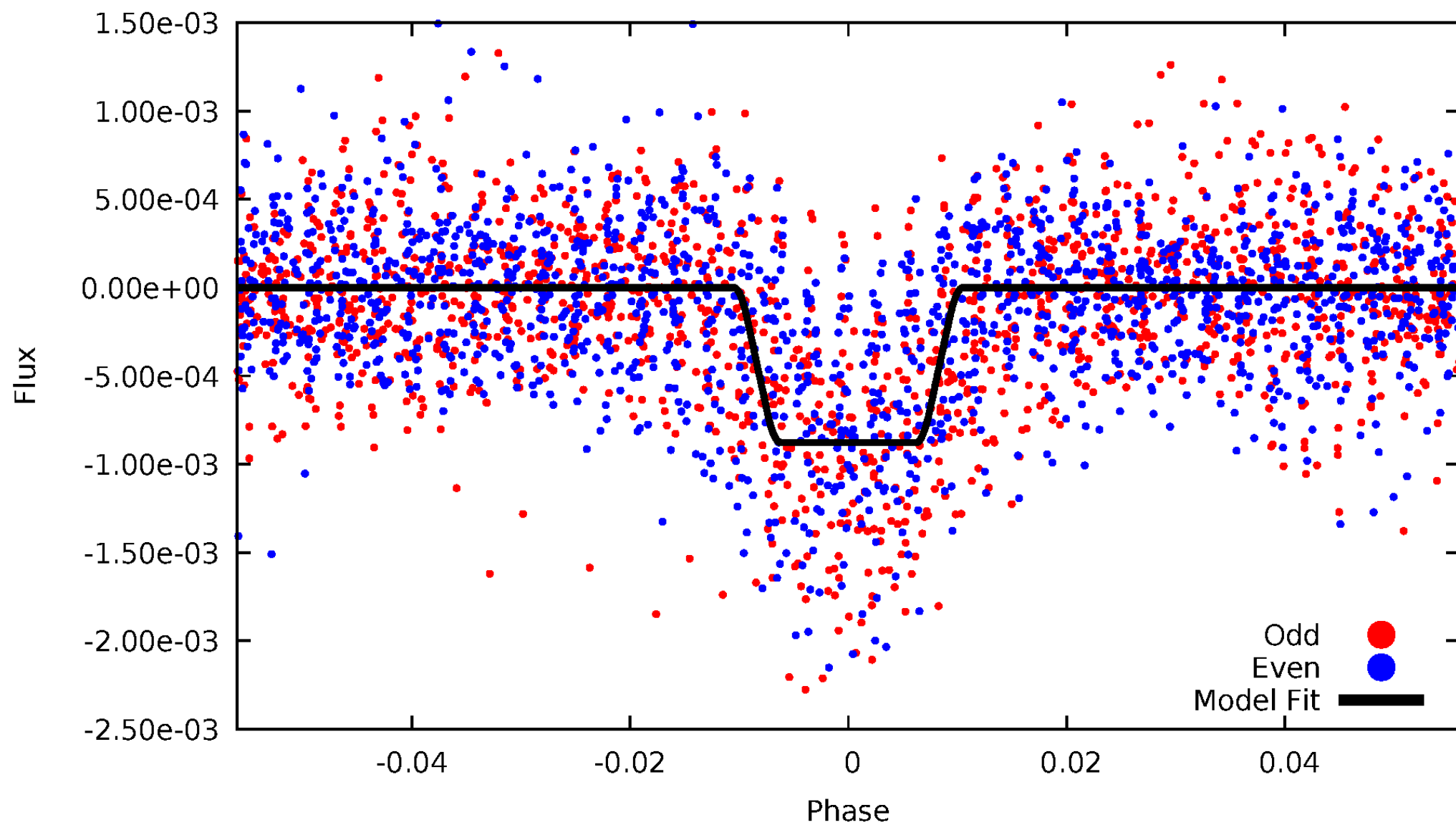
DV Odd/Even

TCE 002574543-01



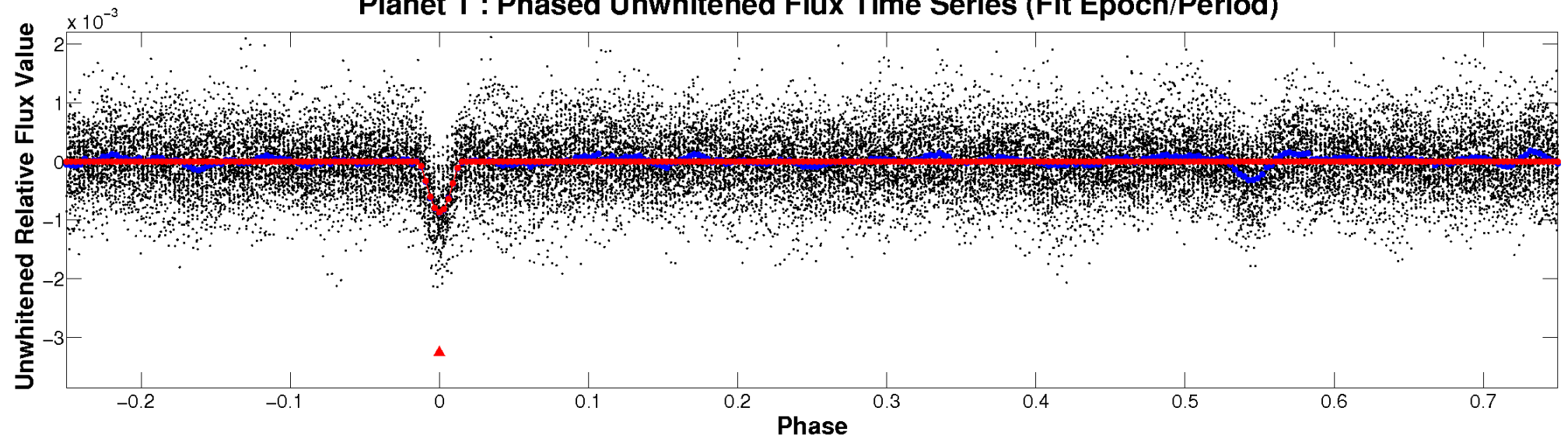
ALT Odd/Even

TCE 002574543-01

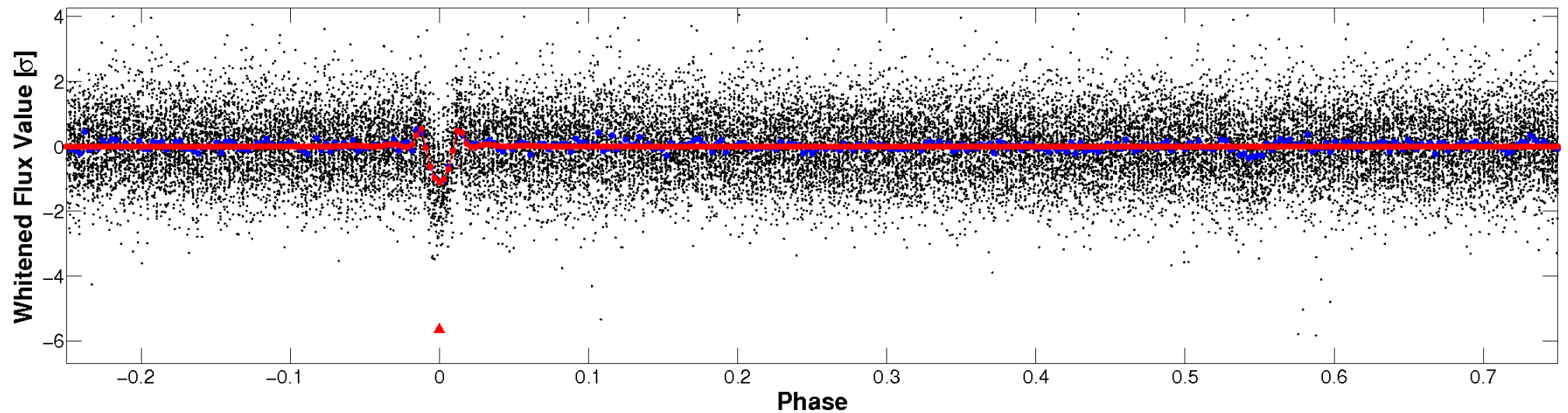


Non-Whitened Vs. Whitened Light Curve

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

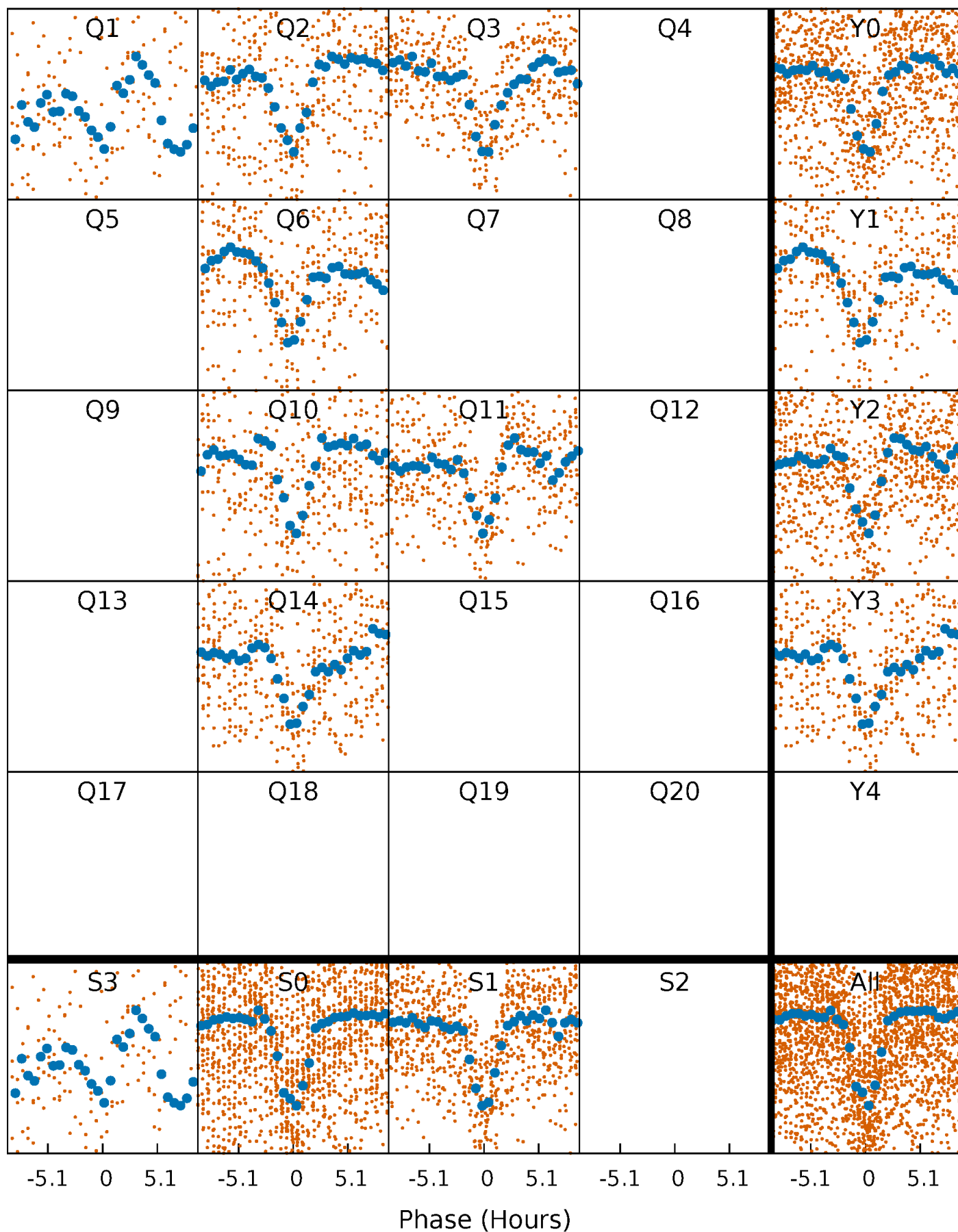


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



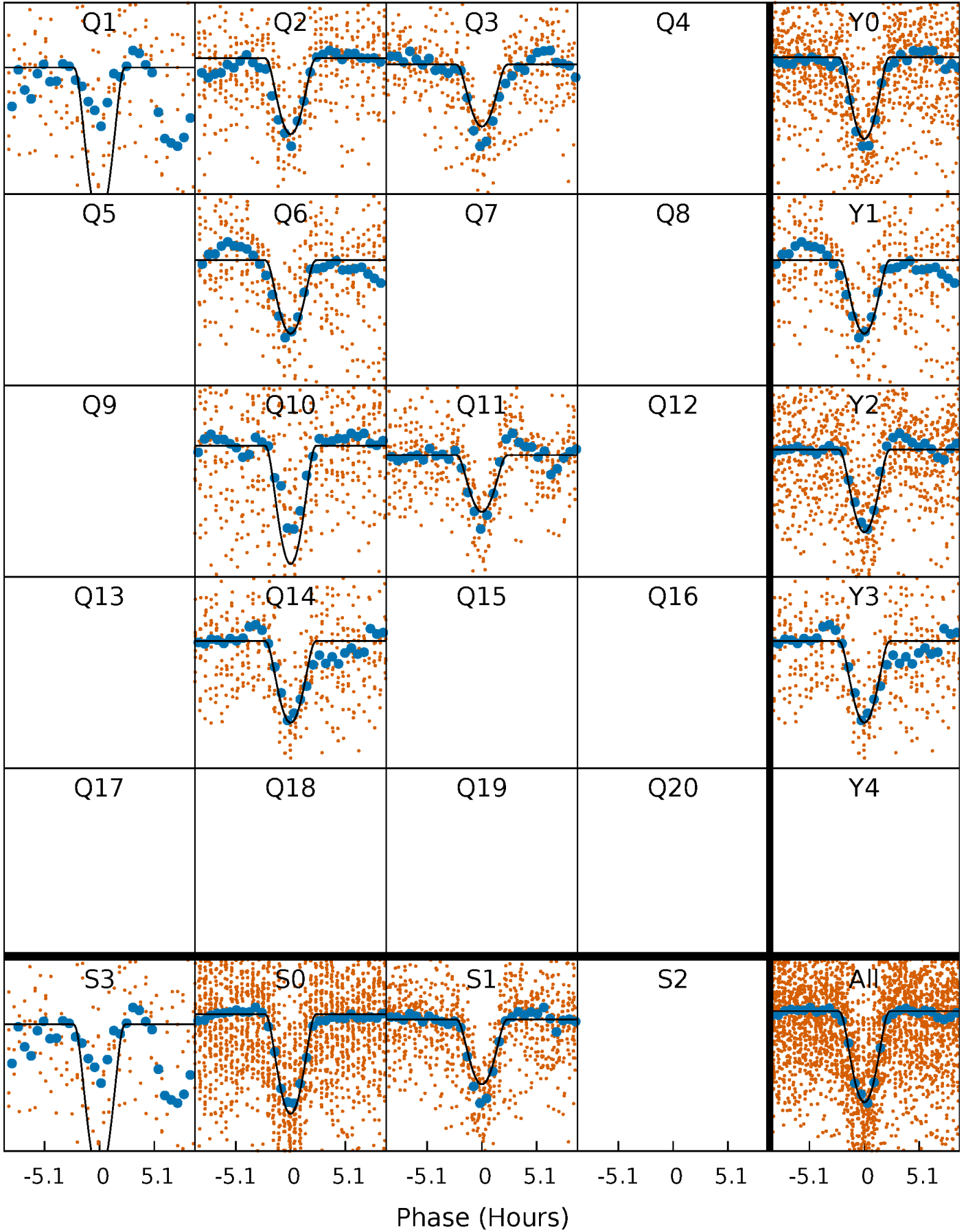
PDC Quarter-Phased Transit Curves

TCE 002574543-01 P= 6.702562 Days $T_0=134.377116$ (BKJD)



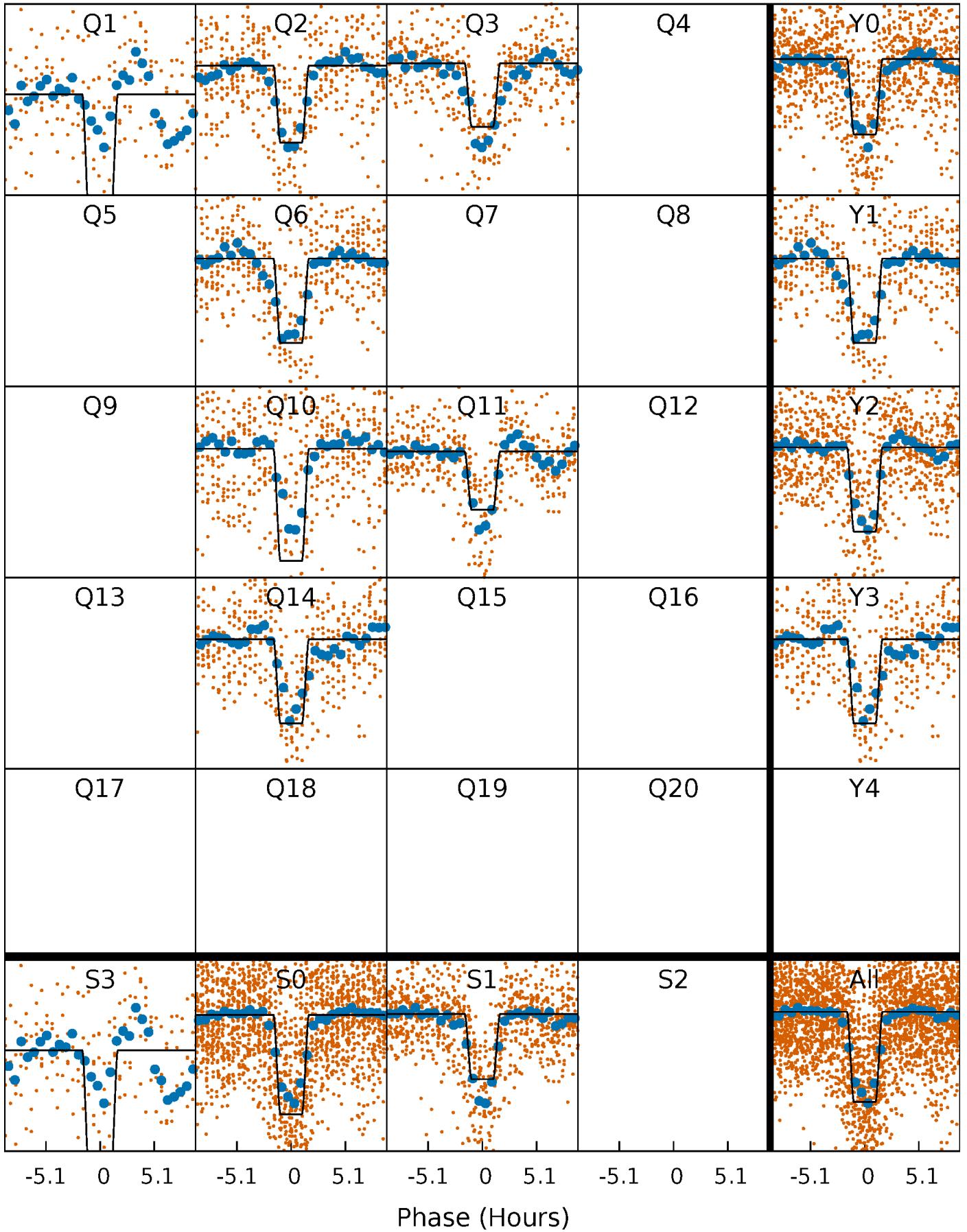
DV Quarter-Phased Transit Curves

TCE 002574543-01 P= 6.702562 Days $T_0=134.377116$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

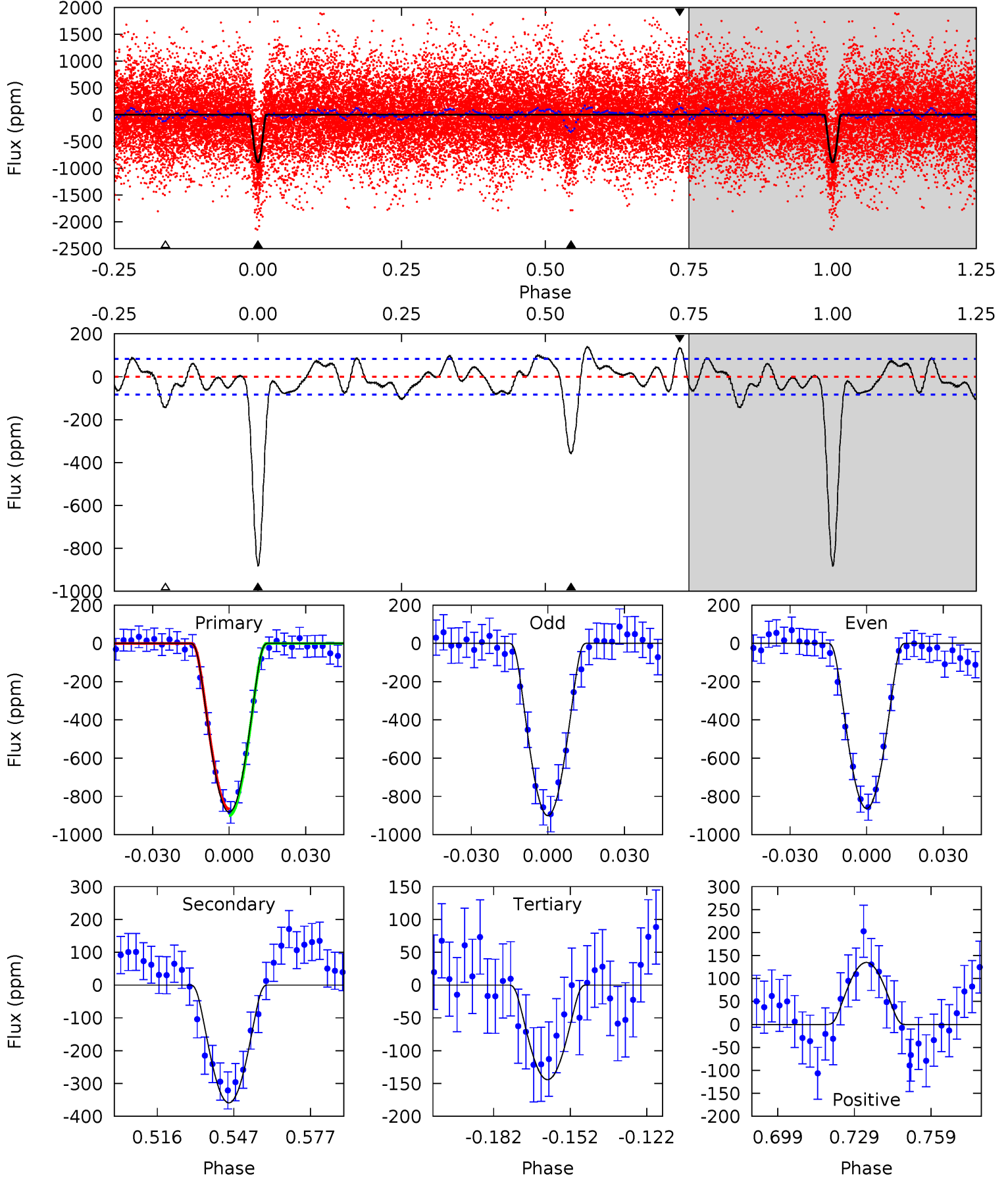
TCE 002574543-01 P= 6.702541 Days $T_0=134.377685$ (BKJD)



DV Model-Shift Uniqueness Test

002574543-01, P = 6.702562 Days, E = 127.674554 Days

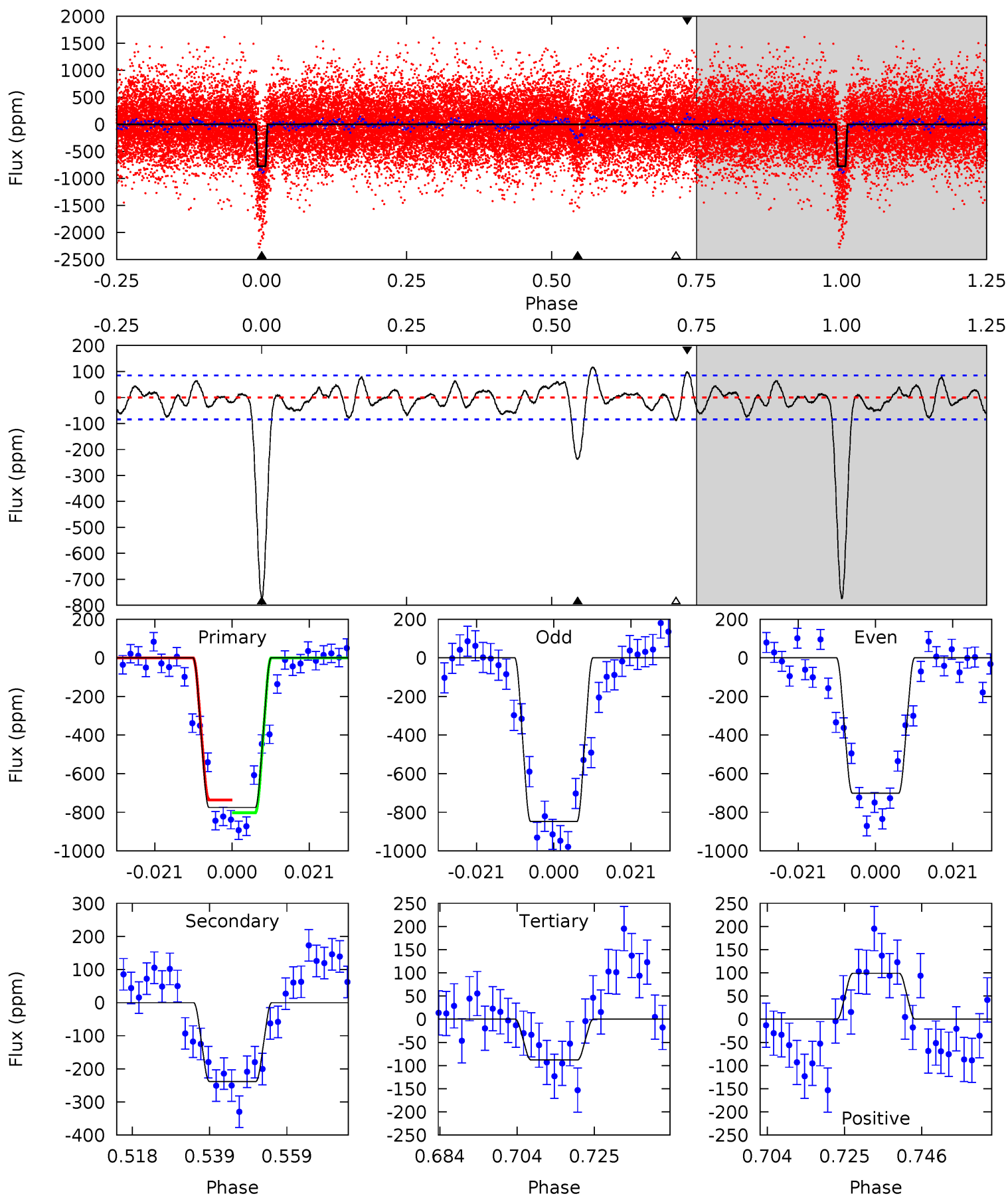
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.0	20.8	8.34	7.81	4.81	2.17	3.13	42.7	43.2	12.4	13.0	1.09	0.95	0.14	1.00



Alt Model-Shift Uniqueness Test

002574543-01, P = 6.702541 Days, E = 127.675144 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.7	13.8	5.08	5.71	4.88	2.31	2.11	39.7	39.0	8.67	8.04	4.25	1.01	0.13	1.89



Stellar Parameters For KIC 002574543

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4799^{+95}_{-142}	$2.475^{+0.033}_{-0.024}$	$-0.180^{+0.200}_{-0.250}$	$13.652^{+3.460}_{-3.460}$	$2.031^{+1.238}_{-0.825}$	$0.001^{+0.000}_{-0.000}$
	+2%/-3%	+1%/-1%	+111%/-139%	+25%/-25%	+61%/-41%	+38%/-17%
Source	PHO1	AST9	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 002574543-01 / KOI 4947.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-359 ± 17	$83.88^{+50.02}_{-44.65}$	3672^{+147}_{-157}	-2849^{+6769}_{-410}	$0.215^{+0.787}_{-0.129}$
Alt.	-238 ± 17	$56.74^{+42.21}_{-35.84}$	3687^{+134}_{-156}	2532^{+2399}_{-5738}	$0.334^{+2.093}_{-0.225}$

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 $A_{obs} \gg 1.0$

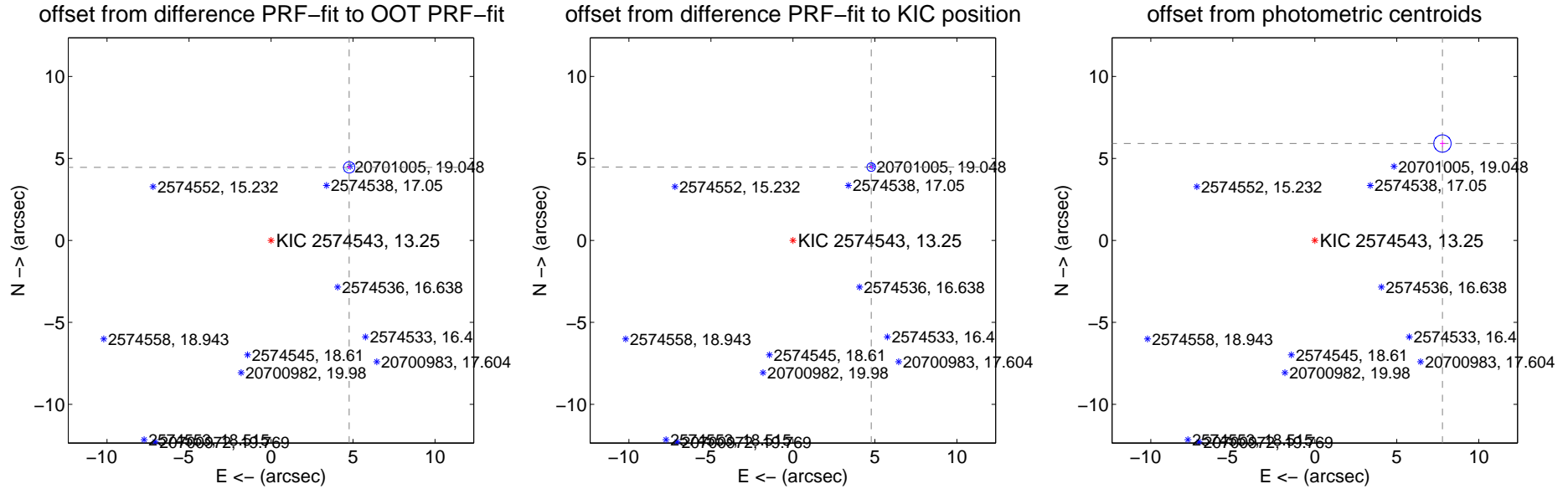
DV Centroid Data

Supplemental centroid analysis for 002574543-01. Kepler magnitude: 13.25. Transit SNR 19.91

There are 7 quarters with good PRF difference image offsets

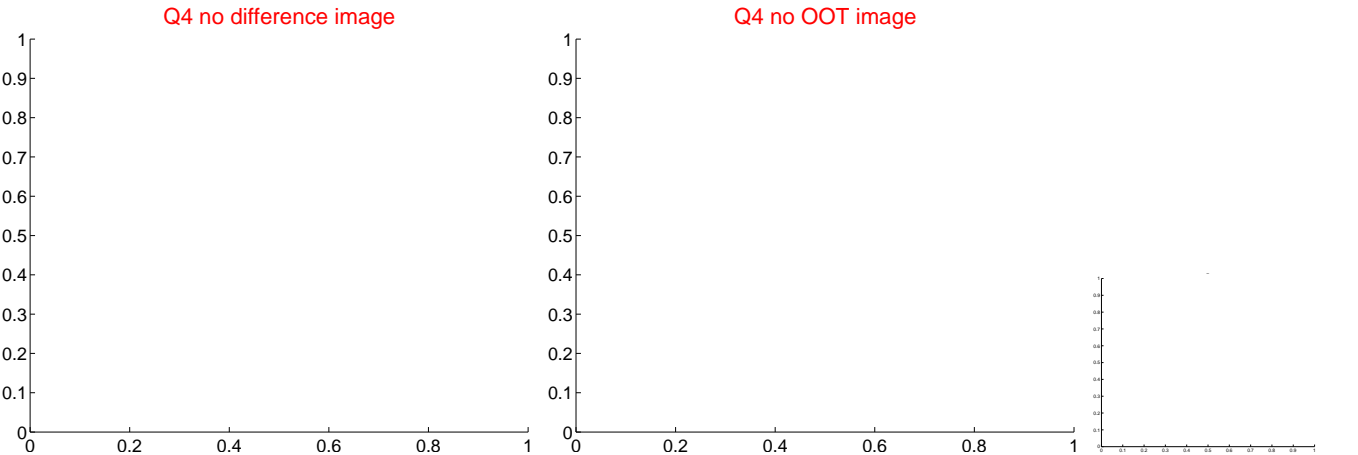
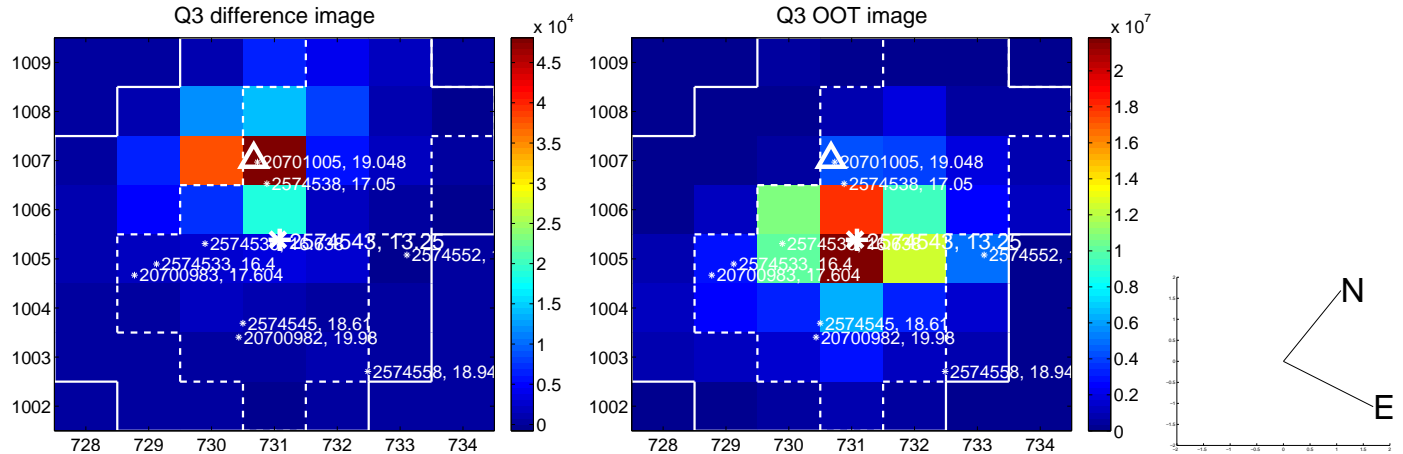
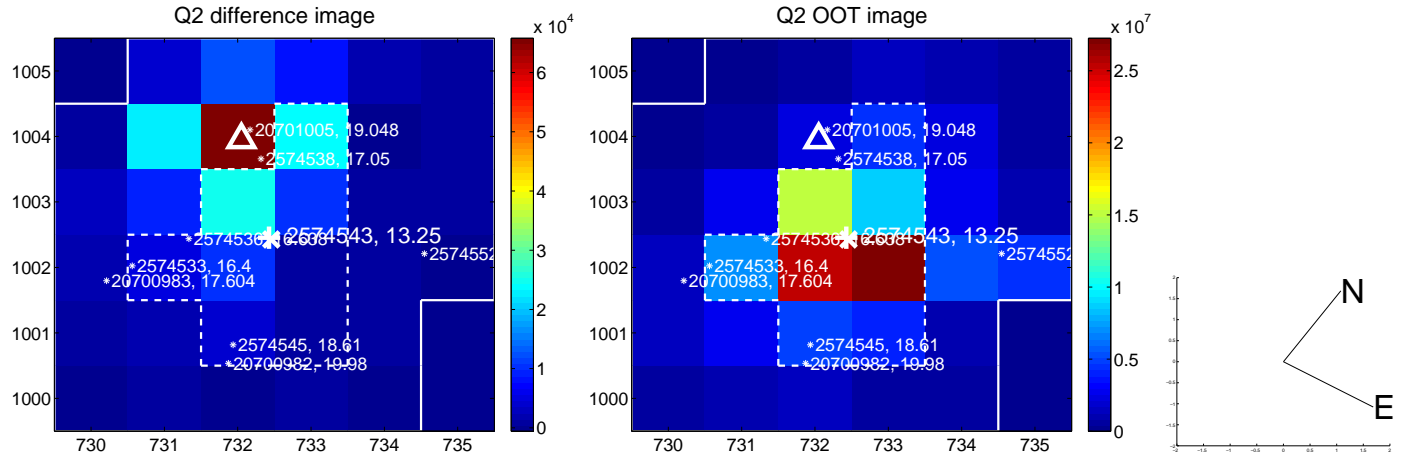
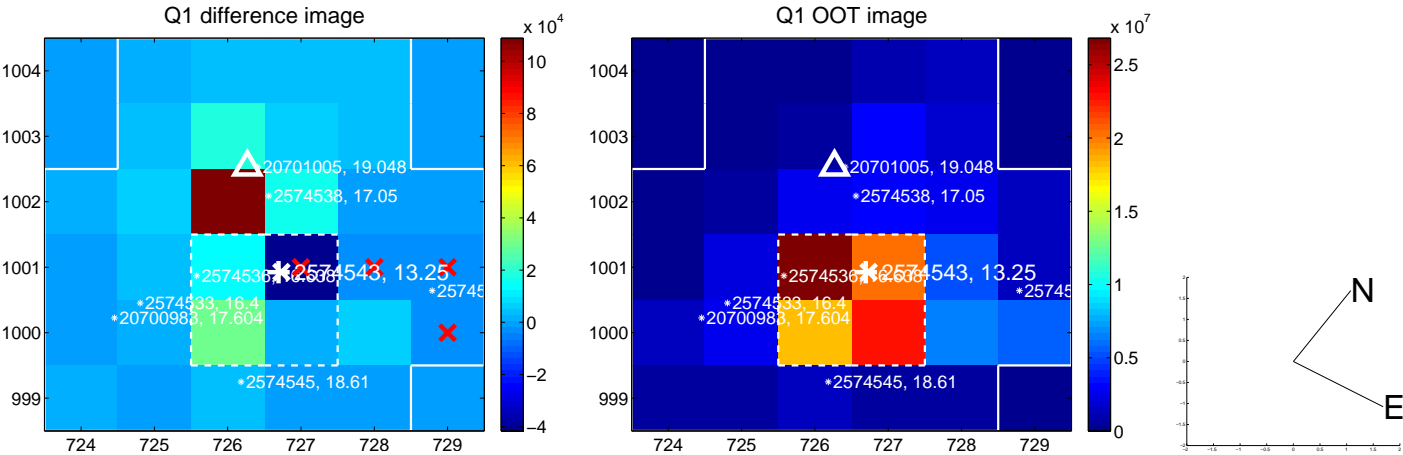
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.522 \pm 0.115	56.87	-4.765 \pm 0.101	4.454 \pm 0.088
PRF-fit source offset from KIC position	6.542 \pm 0.086	75.67	-4.774 \pm 0.079	4.474 \pm 0.094
photometric centroid source offset	9.77 \pm 0.18	55.48	-7.78 \pm 0.16	5.91 \pm 0.20



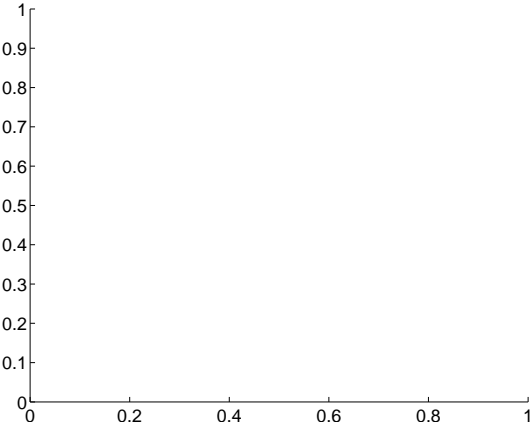
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

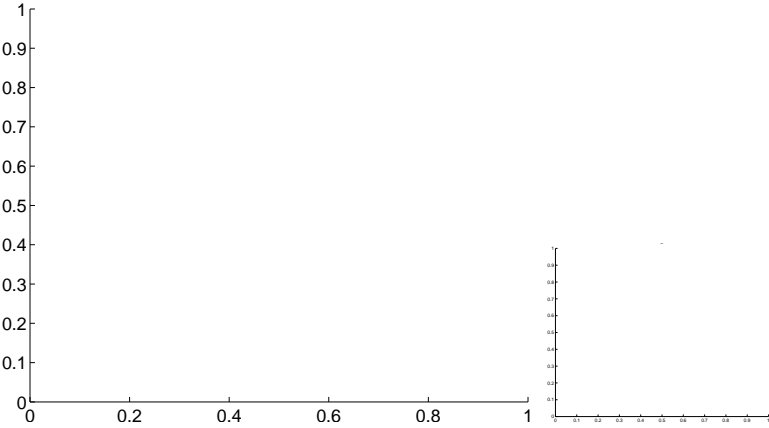


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

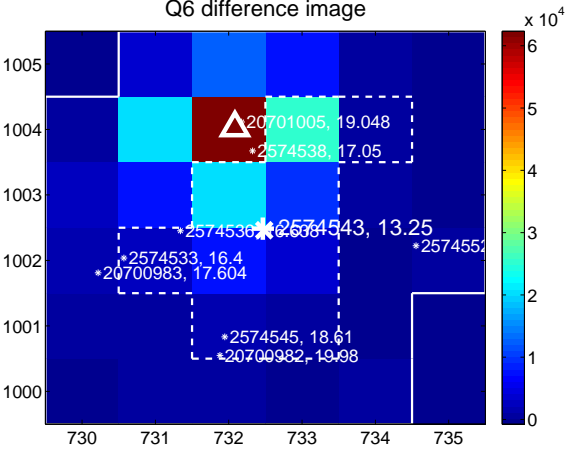
Q5 no difference image



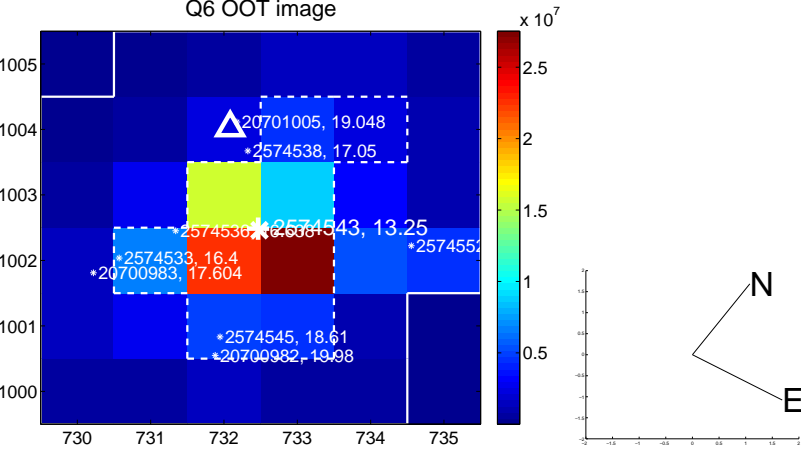
Q5 no OOT image



Q6 difference image



Q6 OOT image



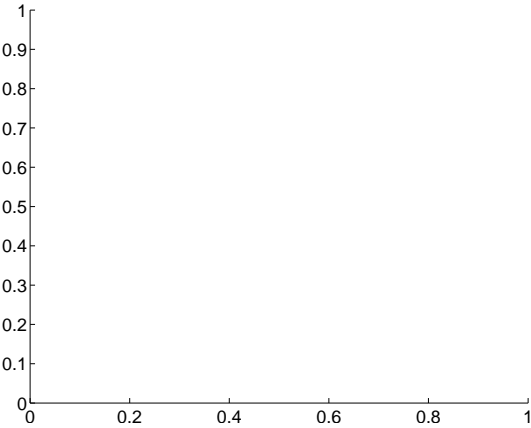
Q7 no difference image



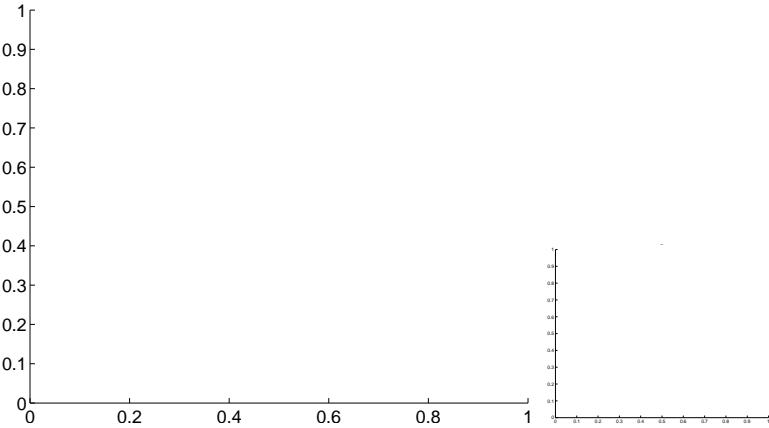
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

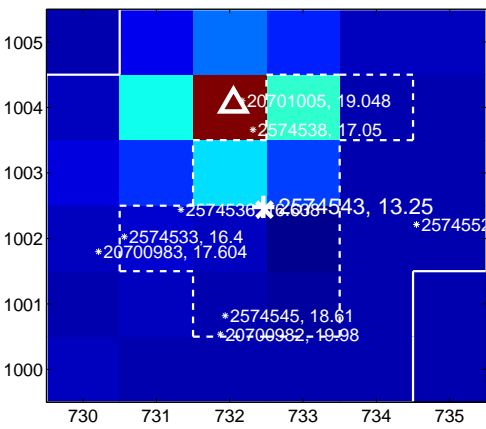
Q9 no difference image



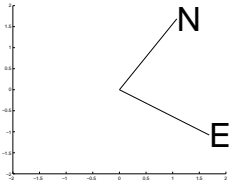
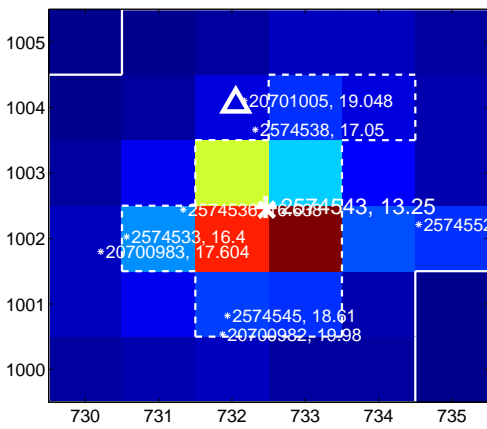
Q9 no OOT image



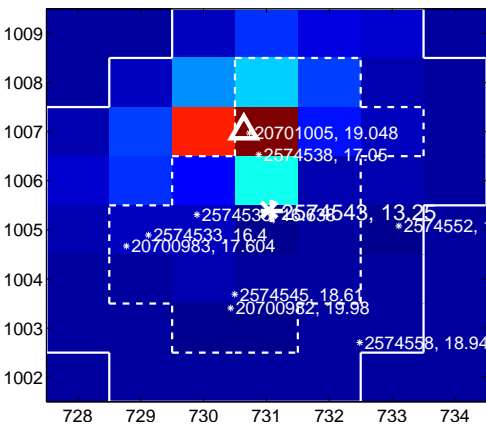
Q10 difference image



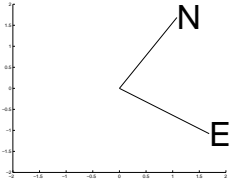
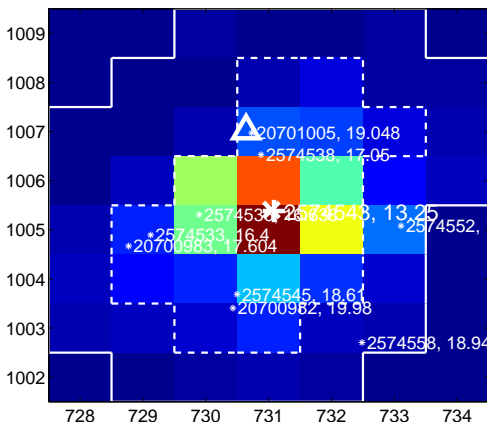
Q10 OOT image



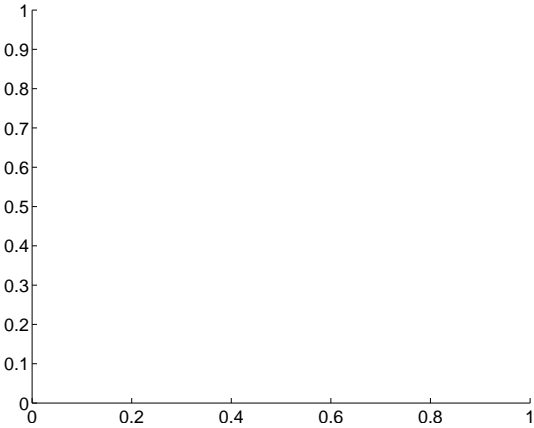
Q11 difference image



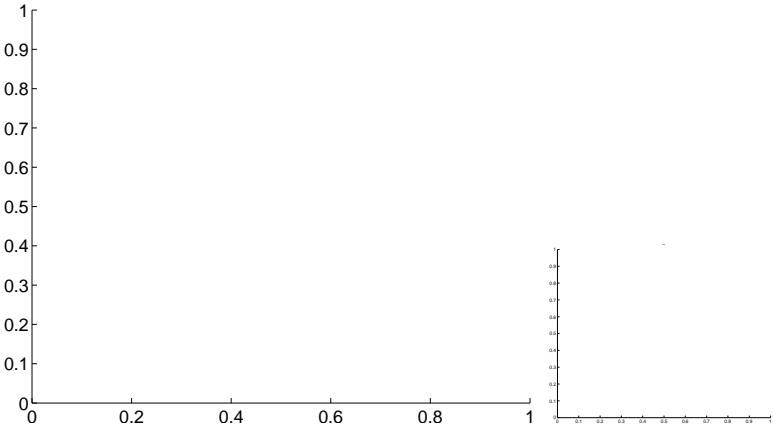
Q11 OOT image



Q12 no difference image



Q12 no OOT image

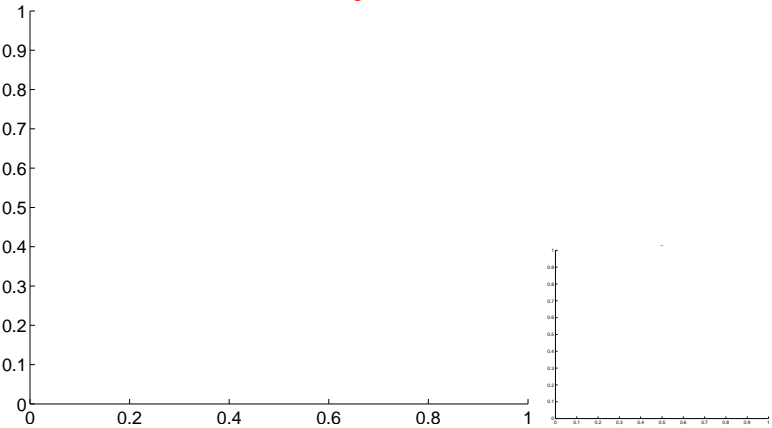


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

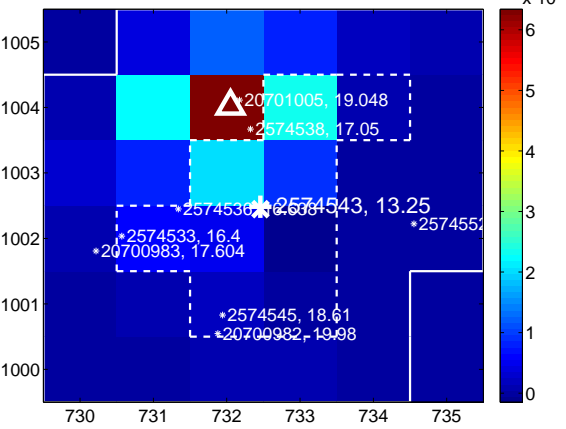
Q13 no difference image



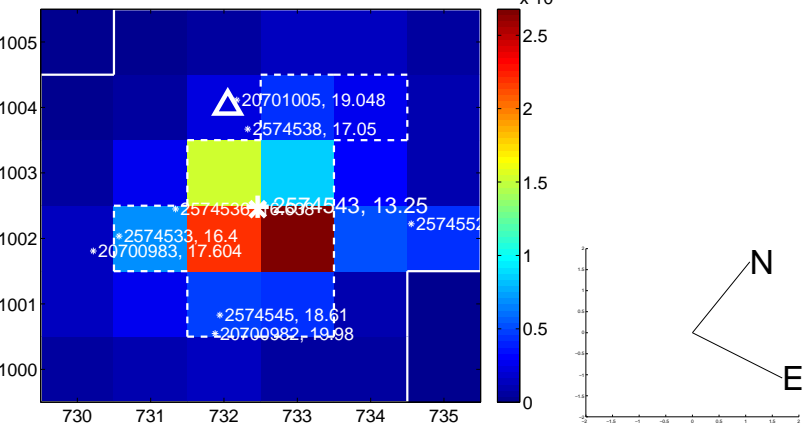
Q13 no OOT image



Q14 difference image



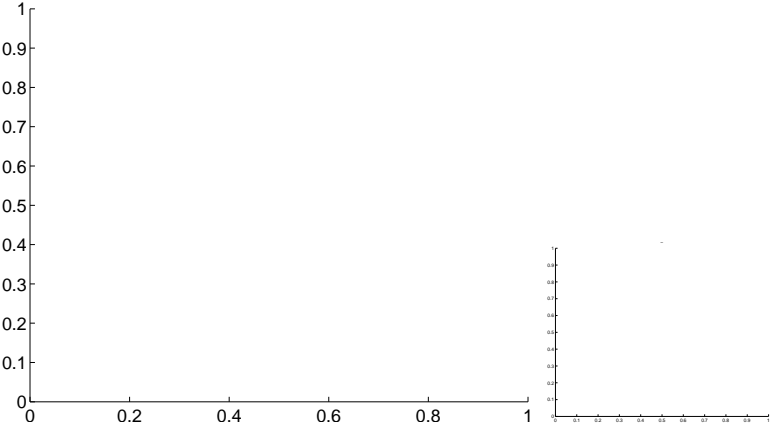
Q14 OOT image



Q15 no difference image



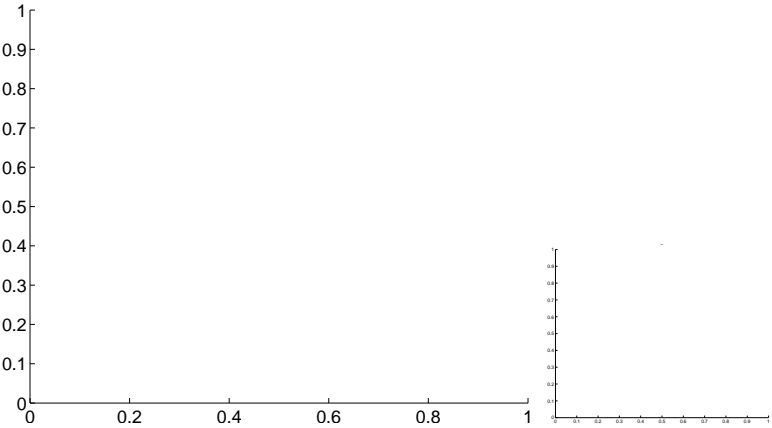
Q15 no OOT image



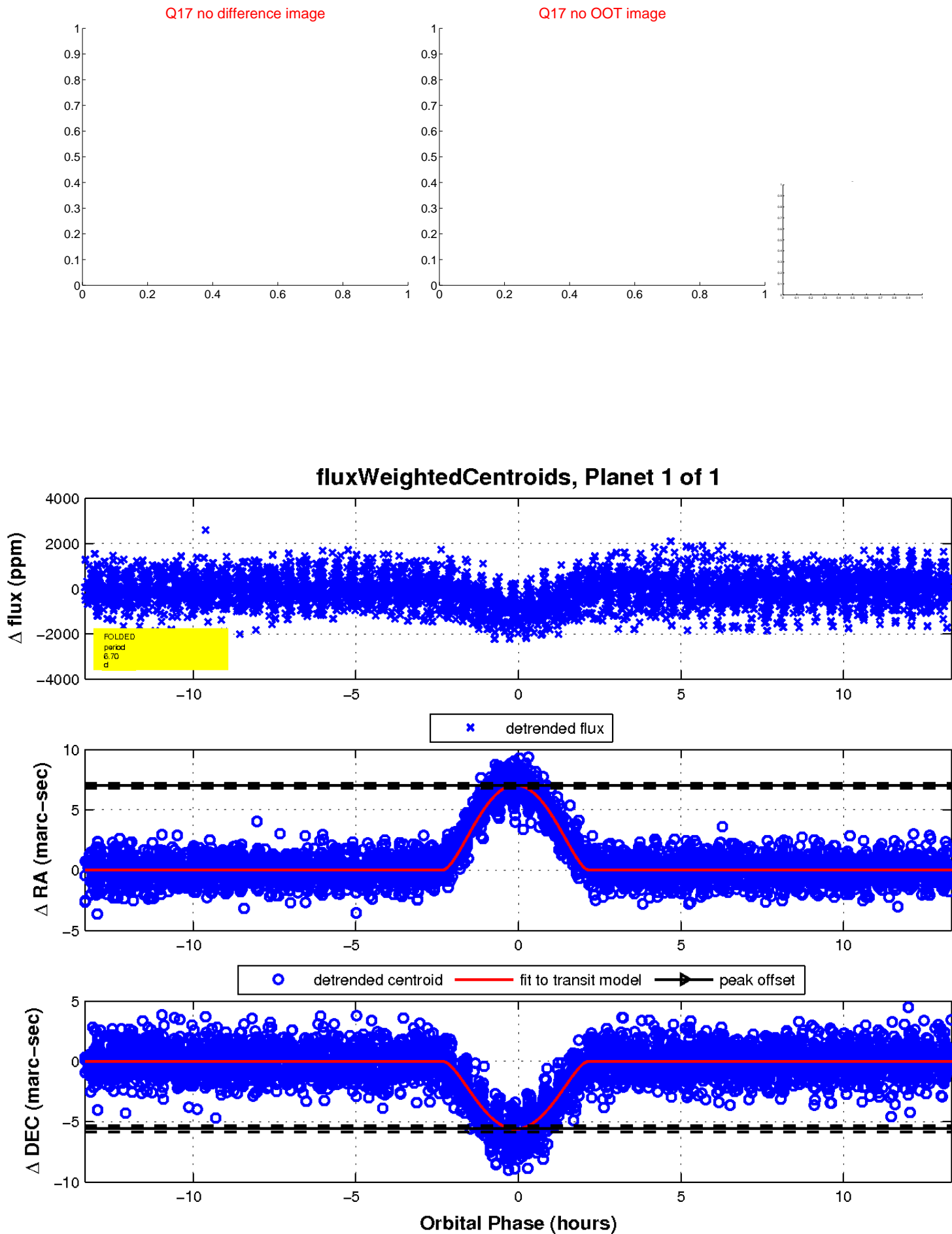
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

