

KIC 004636565

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
004636565-01	OBS	4138.01	2.814031	133.070430	39.9	5.906	18.2	20.2	1.97	5541	1.27	2086.15

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004636565-01	OBS	FP	0.00	0	0	1	1	CENT_UNRESOLVED_OFFSET—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.

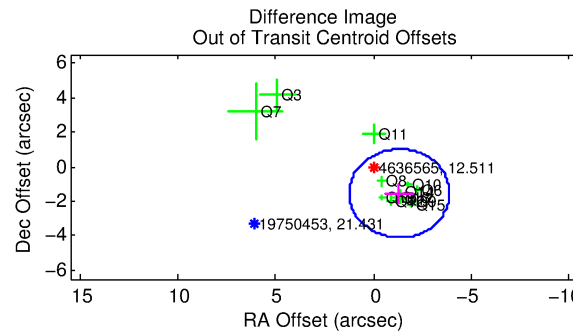
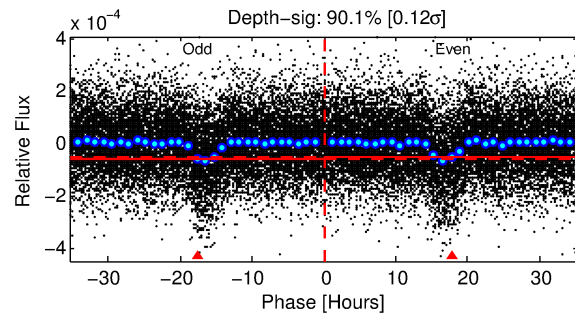
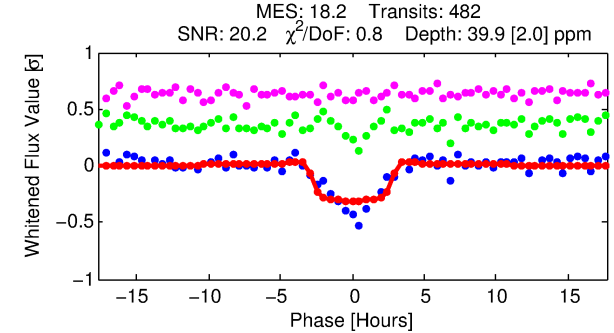
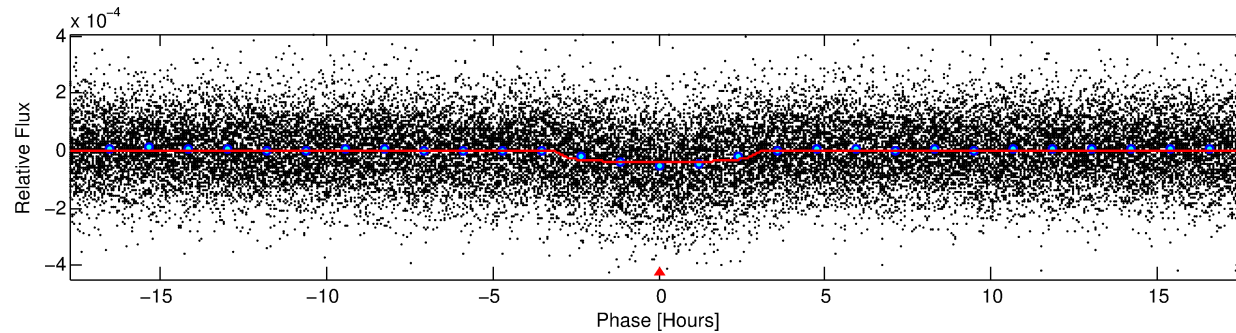
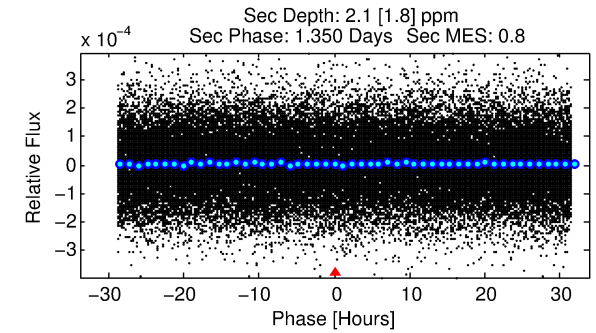
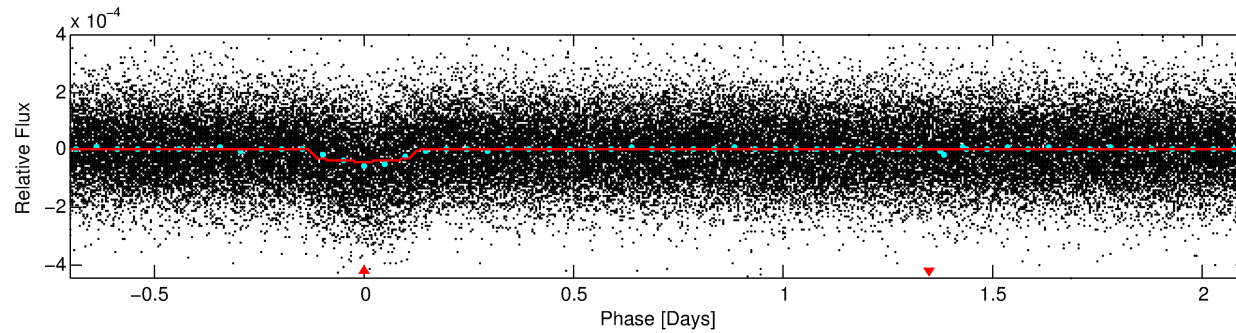
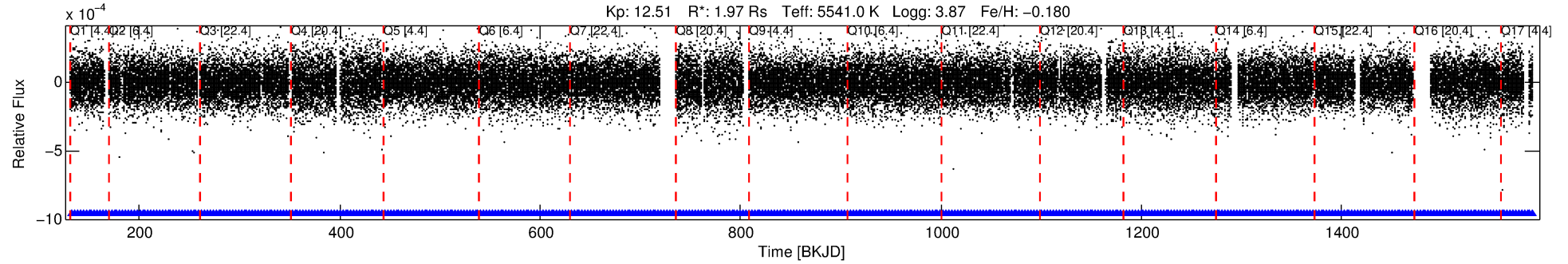
Ephemeris Match Information For 004636565-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
004636565-01	4636565	004445630-01	4445630	1:1	1217.5	306	0	13.86	12.51	11296.00	Col-Anomaly	0	1.47	1.72

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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 σ_P < 5.0 and σ_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: 4636565 Candidate: 1 of 1 Period: 2.814 d
KOI: K04138.01 Corr: 0.983



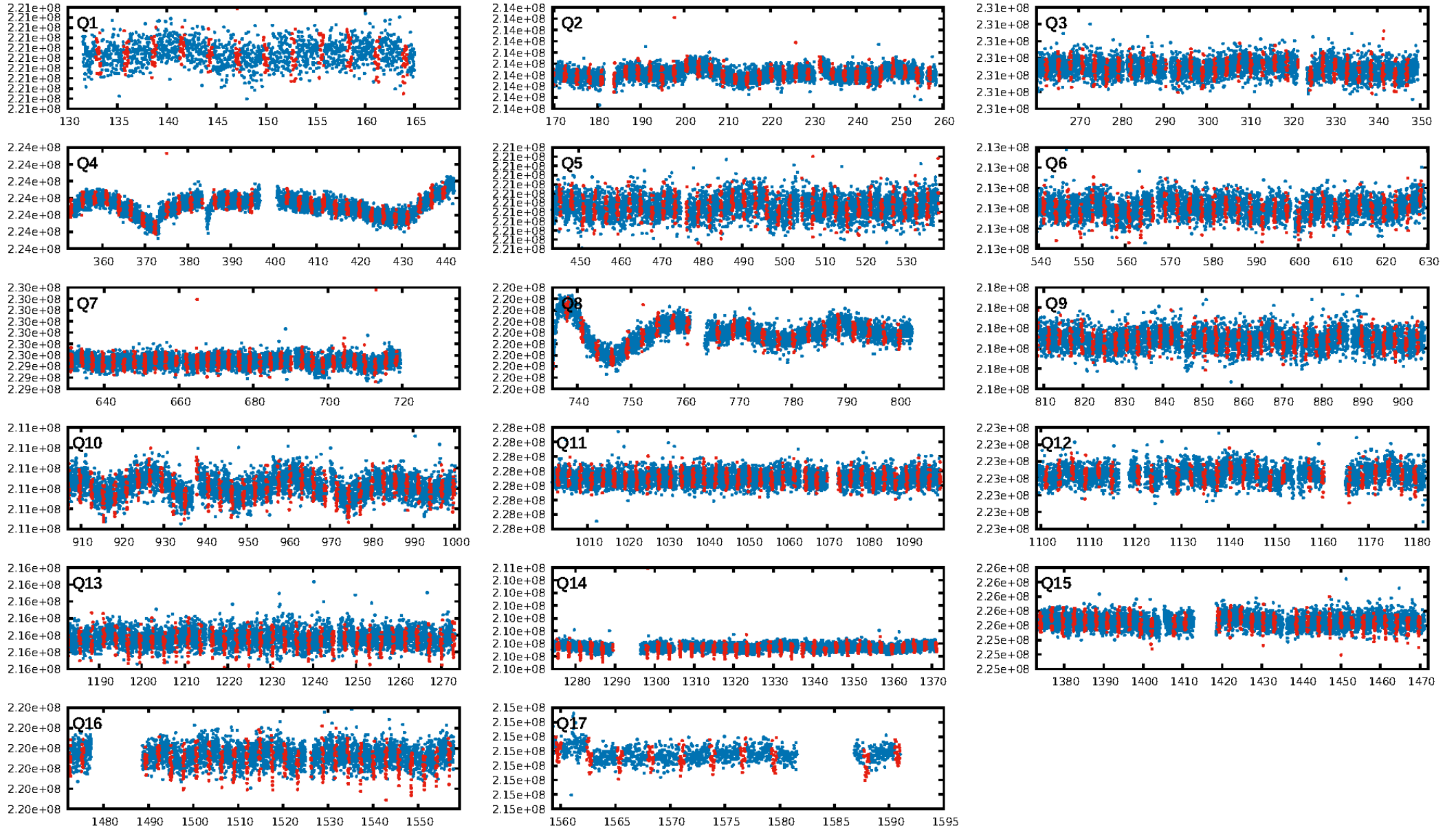
DV Fit Results:

Period = 2.81403 [0.00001] d
Epoch = 133.0704 [0.0033] BKJD
Rp/R* = 0.0059 [0.0017]
a/R* = 3.24 [3.57]
b = 0.51 [1.79]
Seff = 2086.15 [1079.66]
Teq = 1723 [223] K
Rp = 1.27 [0.55] Re
a = 0.0396 [0.0124] AU
Ag = 1.12 [1.28] [0.09σ]
Teffp = 2739 [712] K [1.36σ]

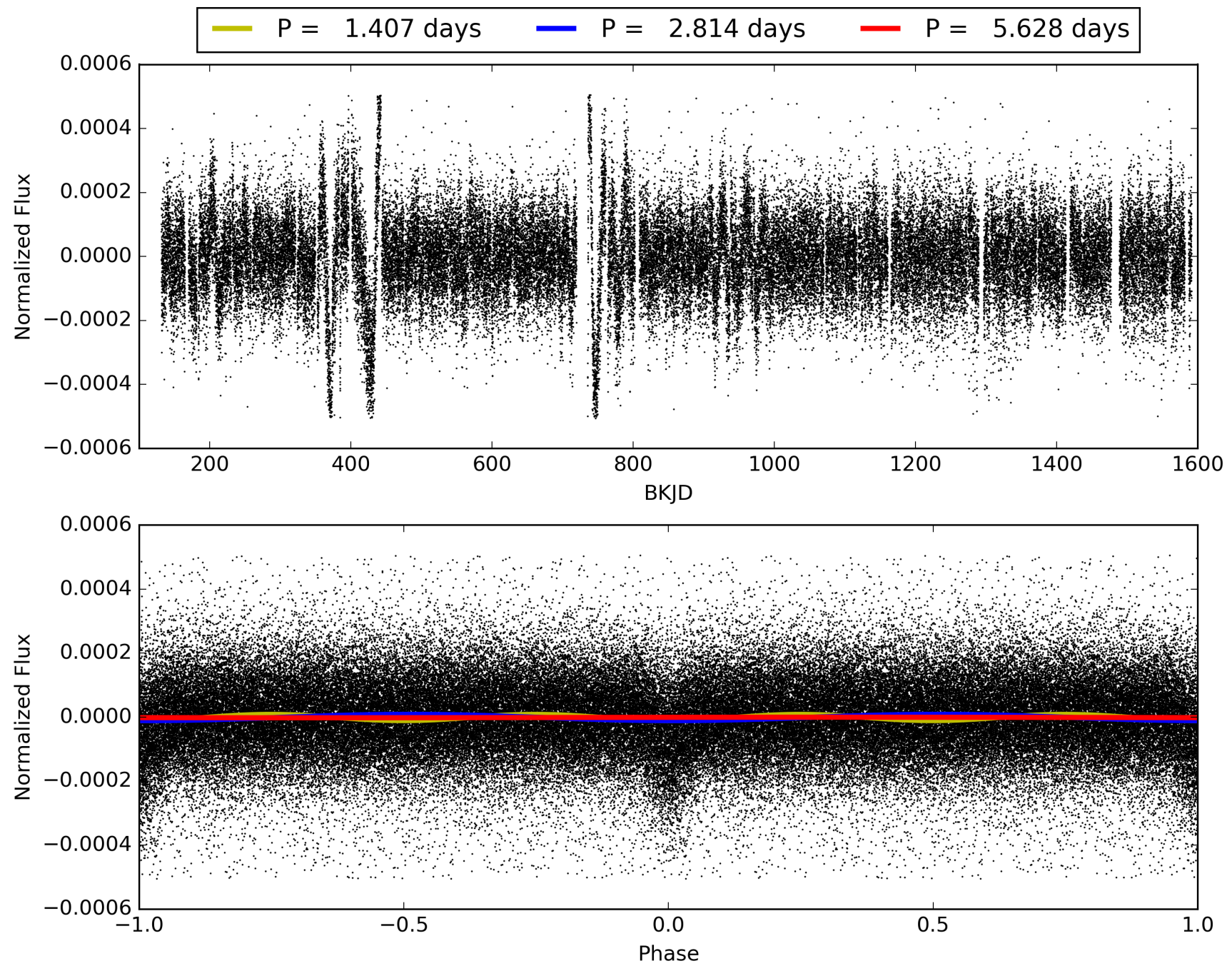
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.37e-70
RollingBand-fgt: 1.00 [460/460]
GhostDiagnostic-chr: 17.61
Centroid-sig: 0.0%
Centroid-so: 2.780 arcsec [4.94σ]
OotOffset-rm: 2.031 arcsec [2.38σ]
KicOffset-rm: 2.248 arcsec [2.93σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 004636565-01, PDC Light Curves

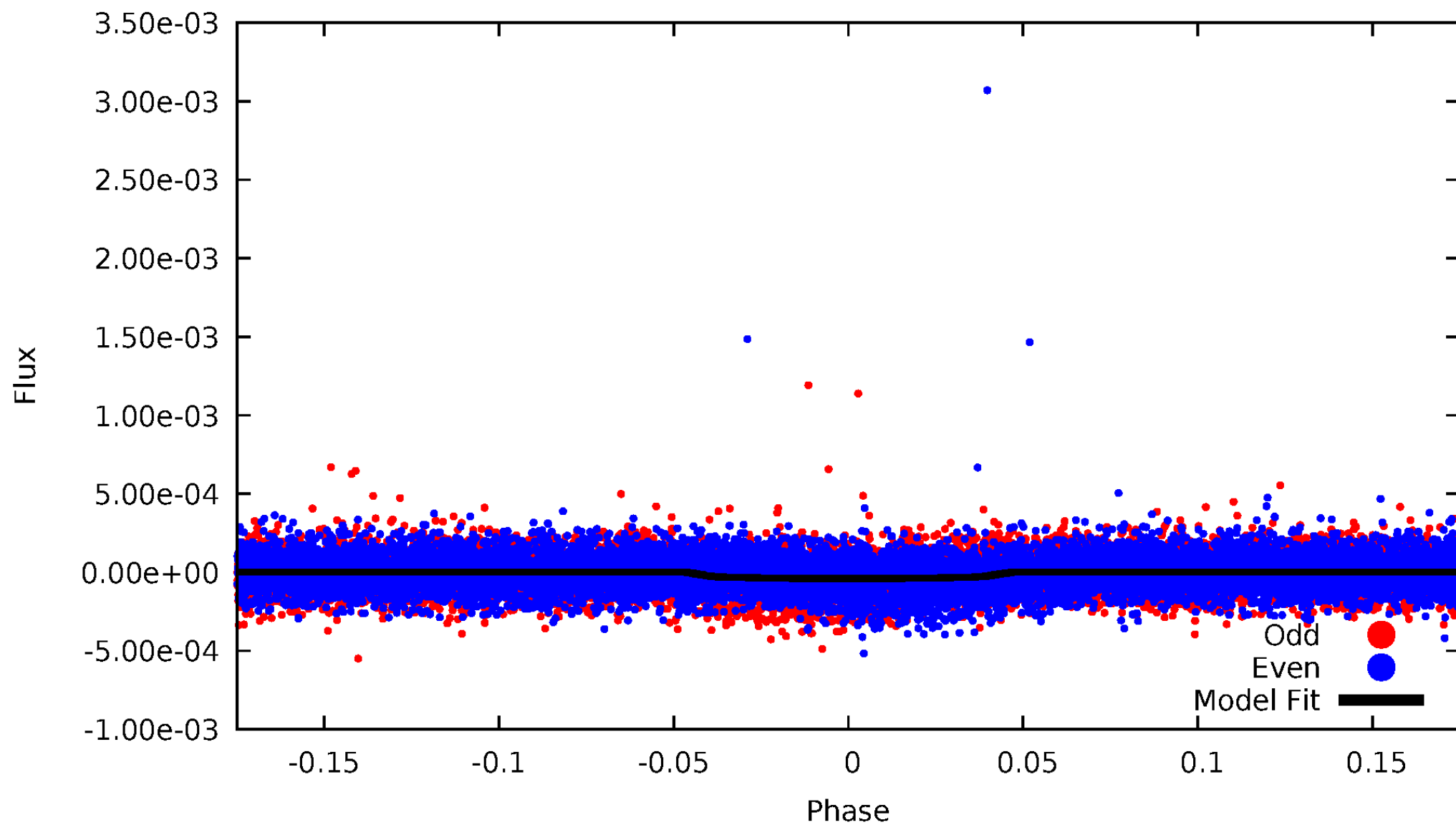


TCE 004636565-01



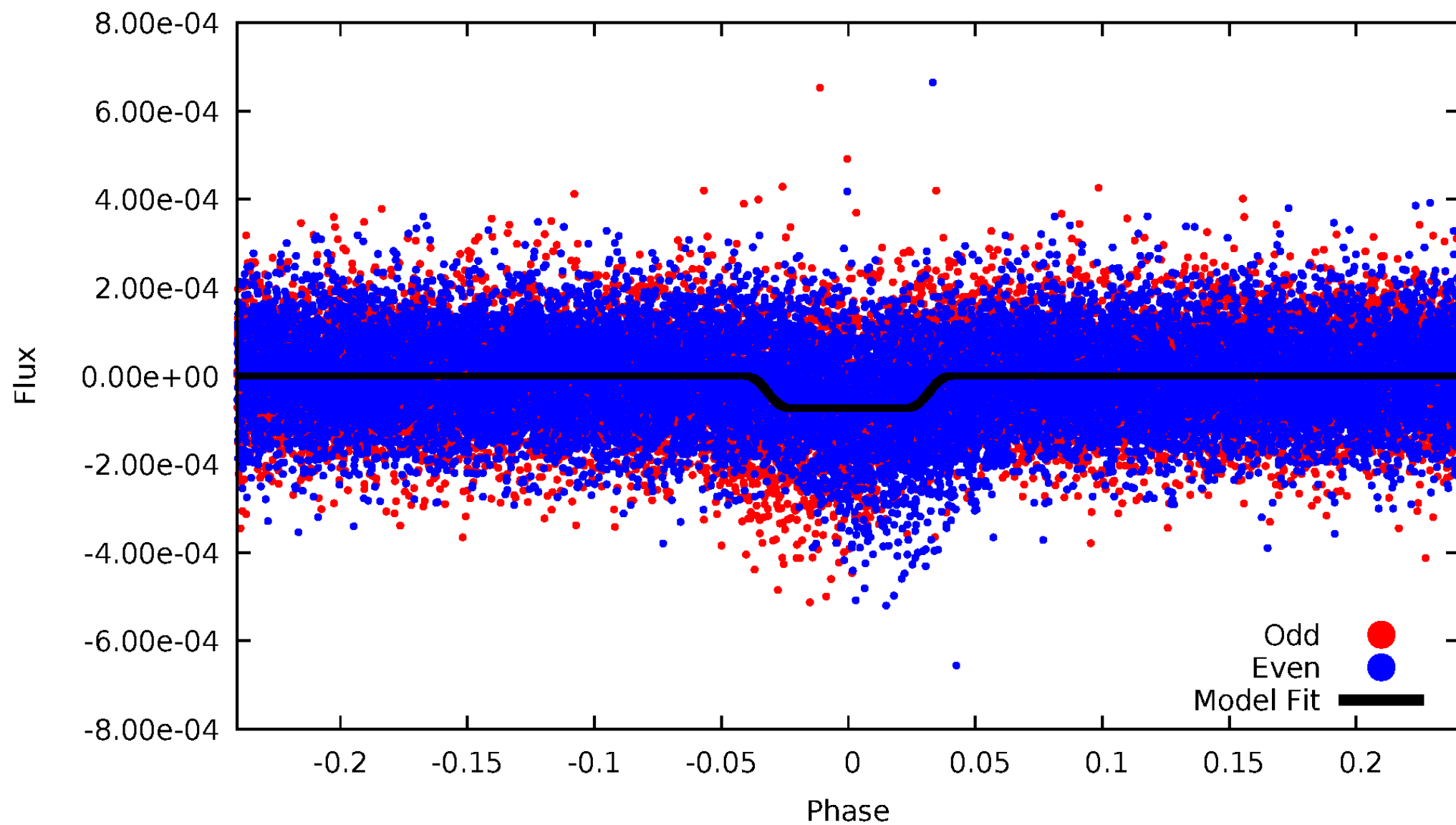
DV Odd/Even

TCE 004636565-01



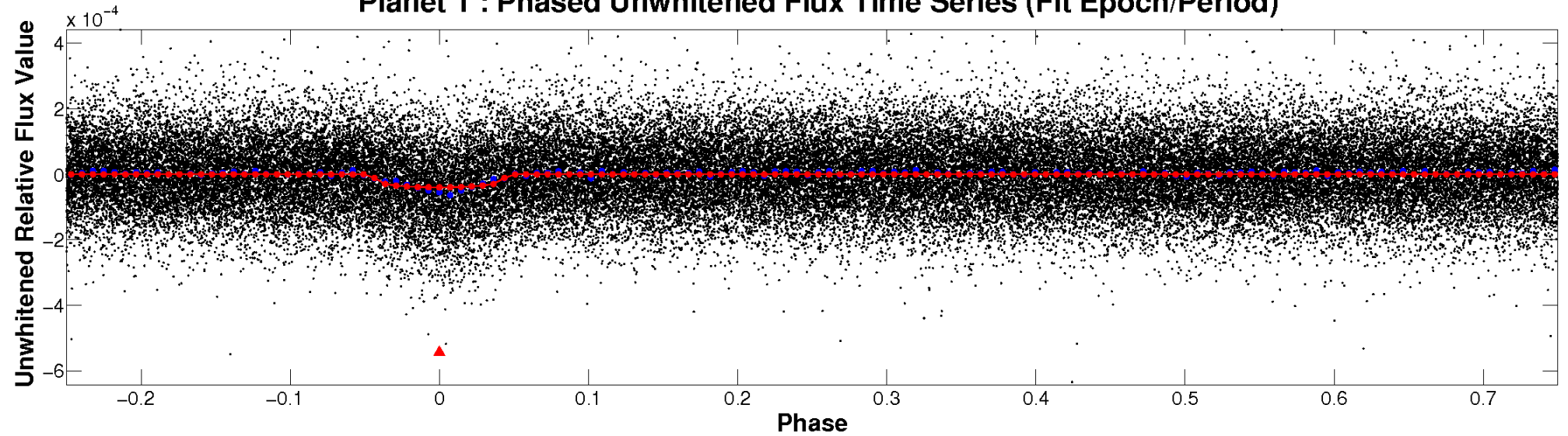
ALT Odd/Even

TCE 004636565-01

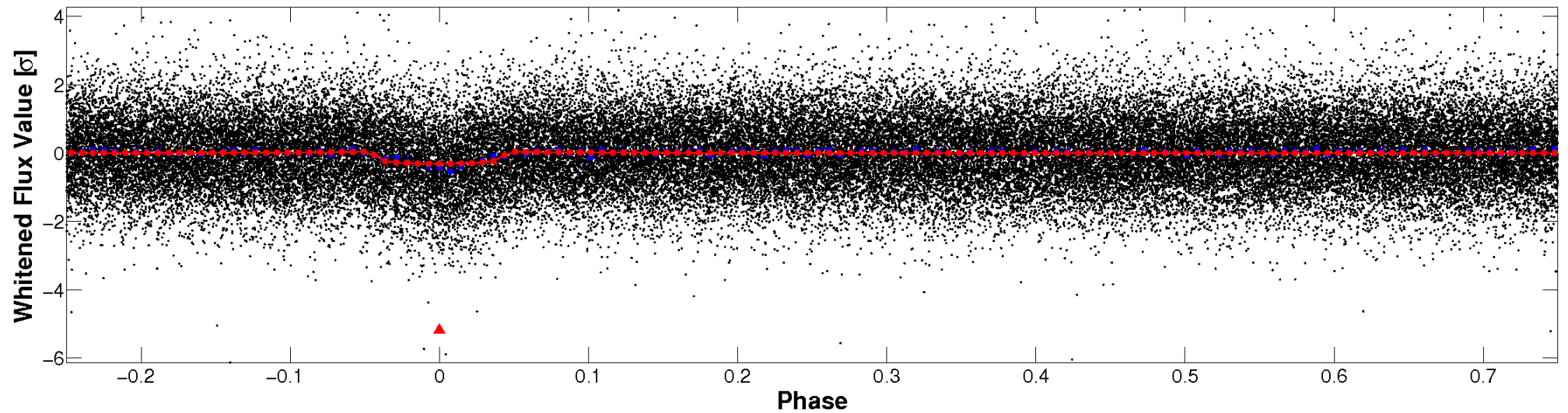


Non-Whitened Vs. Whitened Light Curve

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

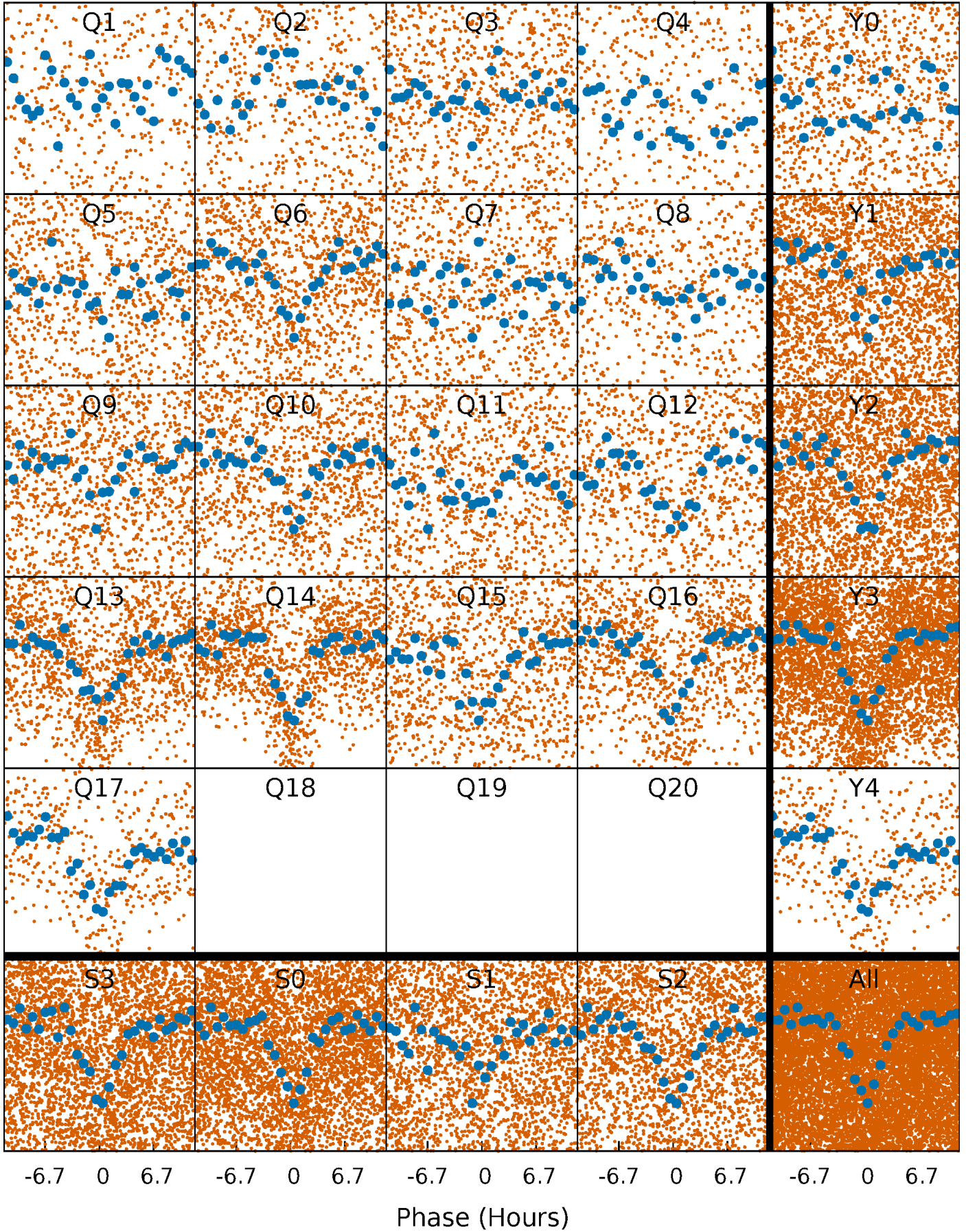


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



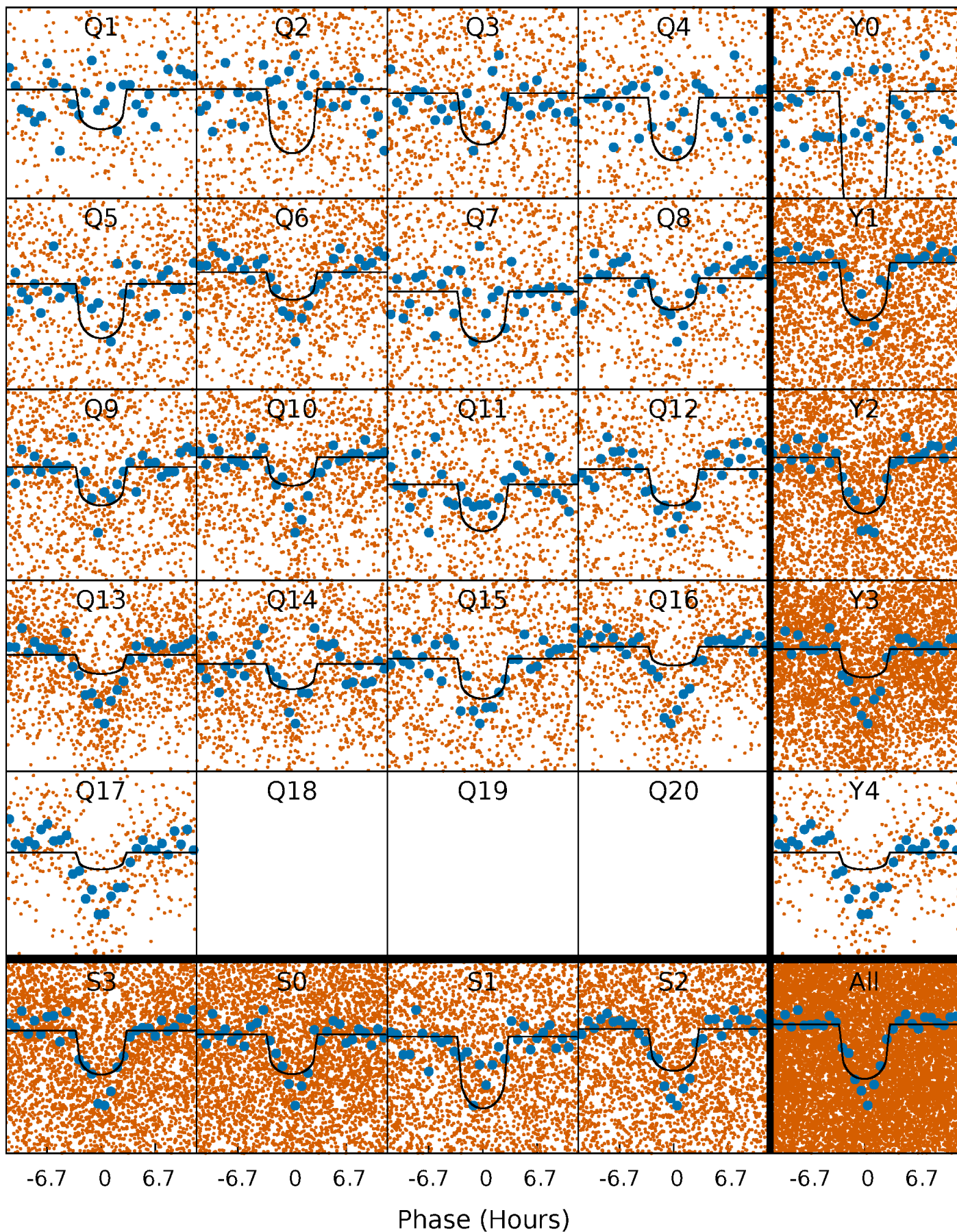
PDC Quarter-Phased Transit Curves

TCE 004636565-01 P= 2.814031 Days $T_0=133.070430$ (BKJD)



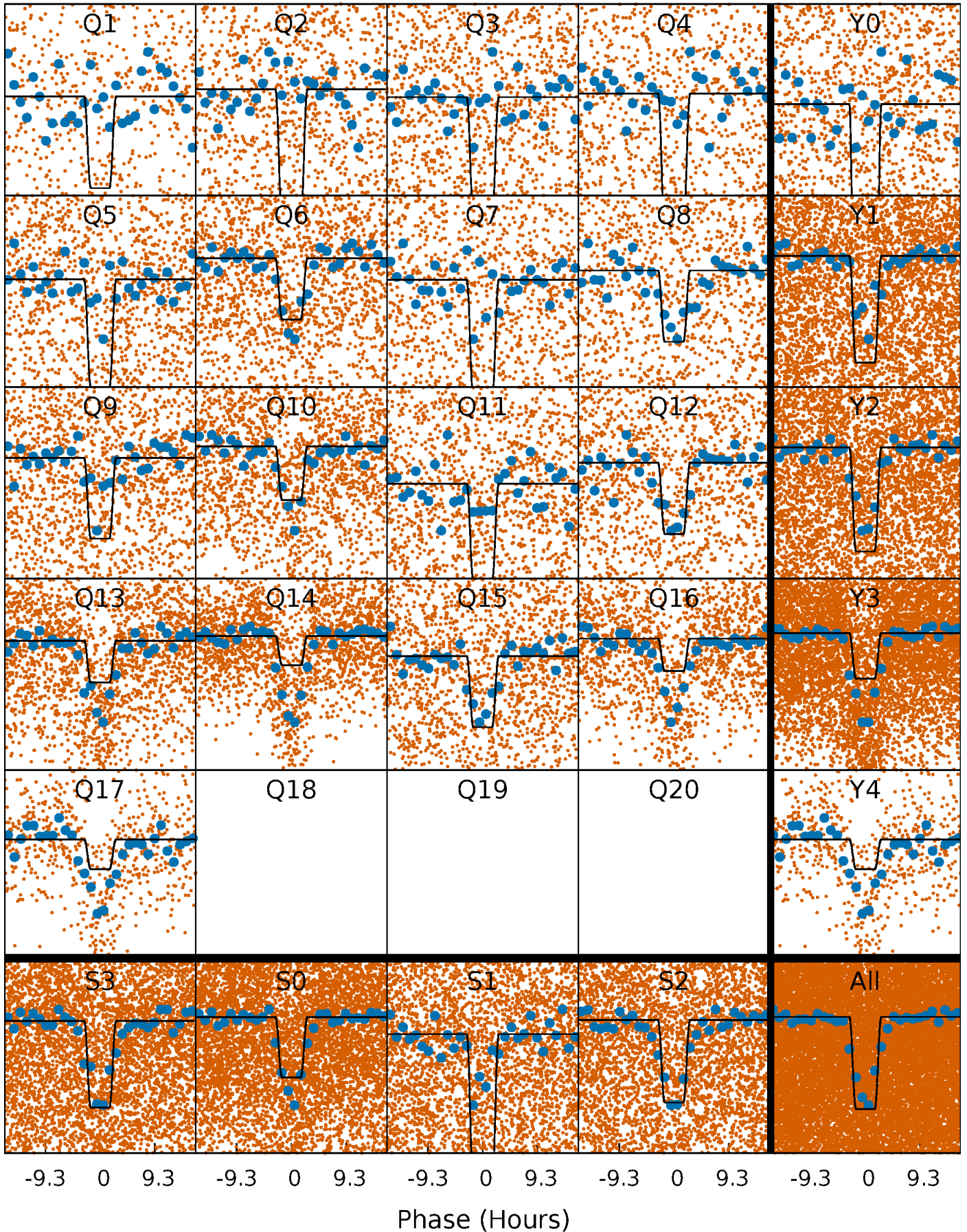
DV Quarter-Phased Transit Curves

TCE 004636565-01 P= 2.814031 Days $T_0=133.070430$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

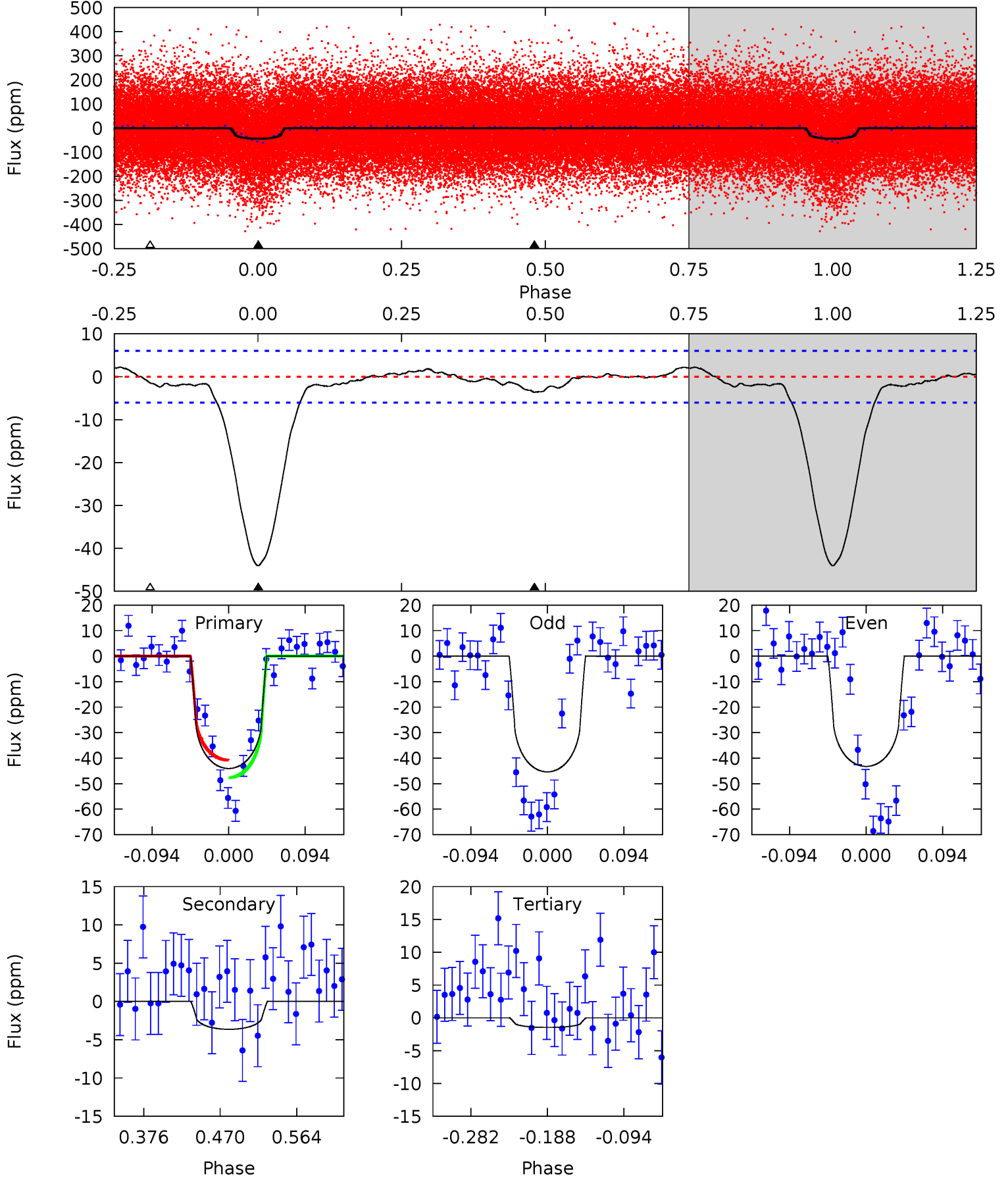
TCE 004636565-01 P= 2.814005 Days $T_0=133.086891$ (BKJD)



DV Model-Shift Uniqueness Test

004636565-01, P = 2.814031 Days, E = 130.256399 Days

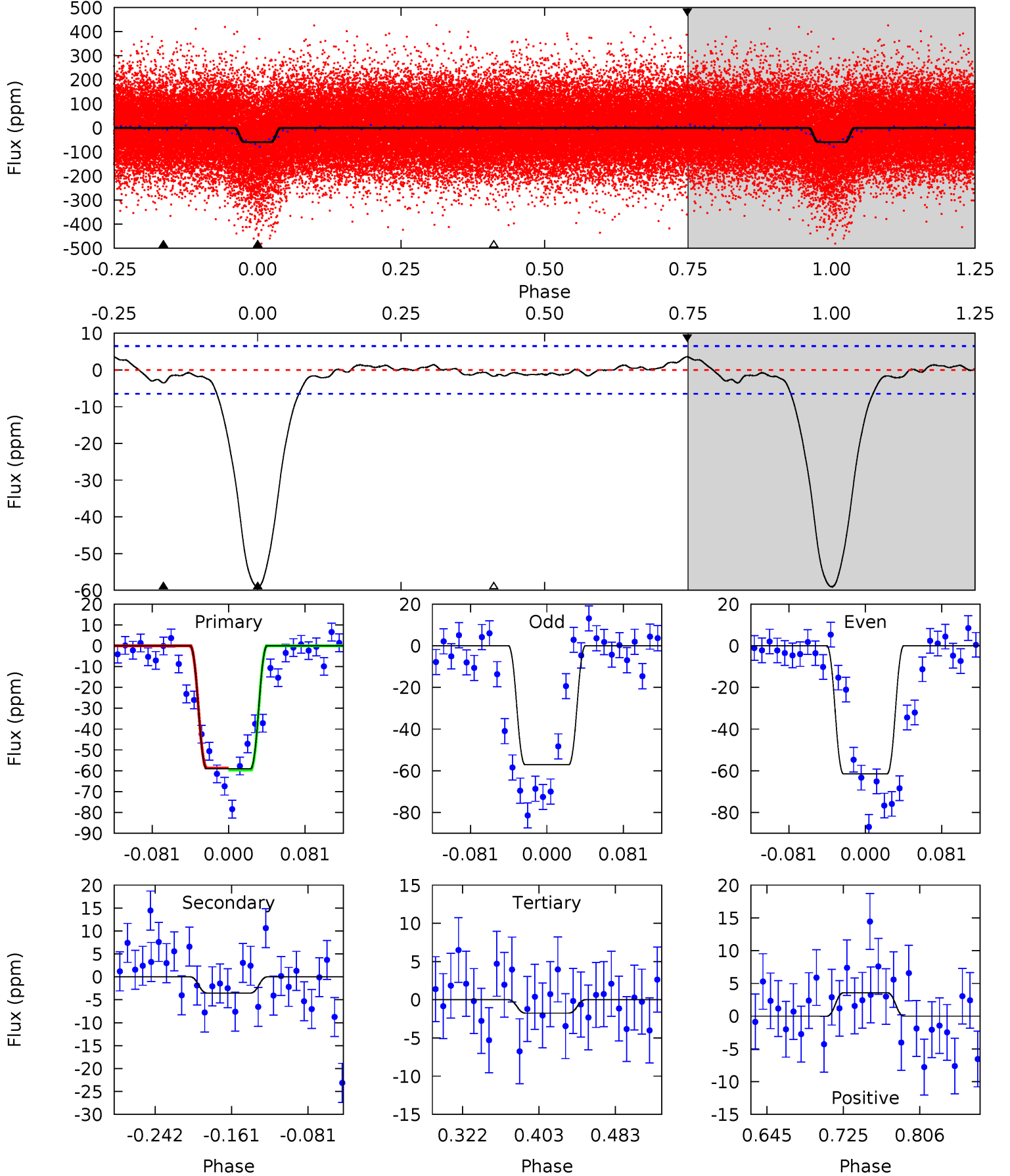
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.3	2.75	1.10	0	4.58	1.67	0.95	32.2	33.3	1.65	2.75	0.81	1.11	0.05	2.61



Alt Model-Shift Uniqueness Test

004636565-01, P = 2.814005 Days, E = 130.272886 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.0	2.51	1.24	2.54	4.61	1.75	0.86	40.7	39.4	1.27	-0.03	1.55	1.17	0.06	0.34



Stellar Parameters For KIC 004636565

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5541^{+182}_{-126}	$3.869^{+0.294}_{-0.126}$	$-0.180^{+0.350}_{-0.200}$	$1.967^{+0.426}_{-0.639}$	$1.046^{+0.155}_{-0.140}$	$0.194^{+0.386}_{-0.074}$
	+3%/-2%	+8%/-3%	+194%/-111%	+22%/-32%	+15%/-13%	+200%/-38%
Source	PHO1	FLK73	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 004636565-01 / KOI 4138.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4 ± 1	$1.24^{+0.39}_{-0.41}$	2379^{+155}_{-206}	3487^{+516}_{-459}	$2.004^{+2.681}_{-1.055}$
Alt.	-4 ± 1	$1.74^{+0.49}_{-0.45}$	2379^{+181}_{-206}	3027^{+395}_{-459}	$1.013^{+1.032}_{-0.529}$

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

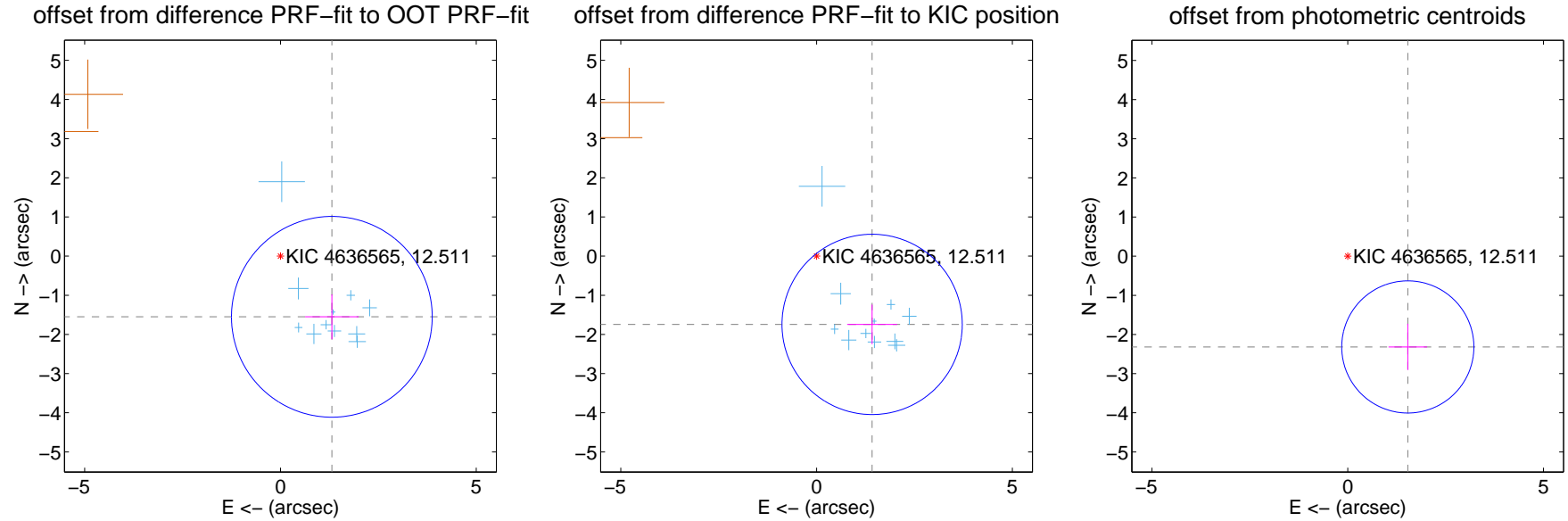
DV Centroid Data

Supplemental centroid analysis for 004636565-01. Kepler magnitude: 12.51. Transit SNR 20.19

There are 11 quarters with good PRF difference image offsets

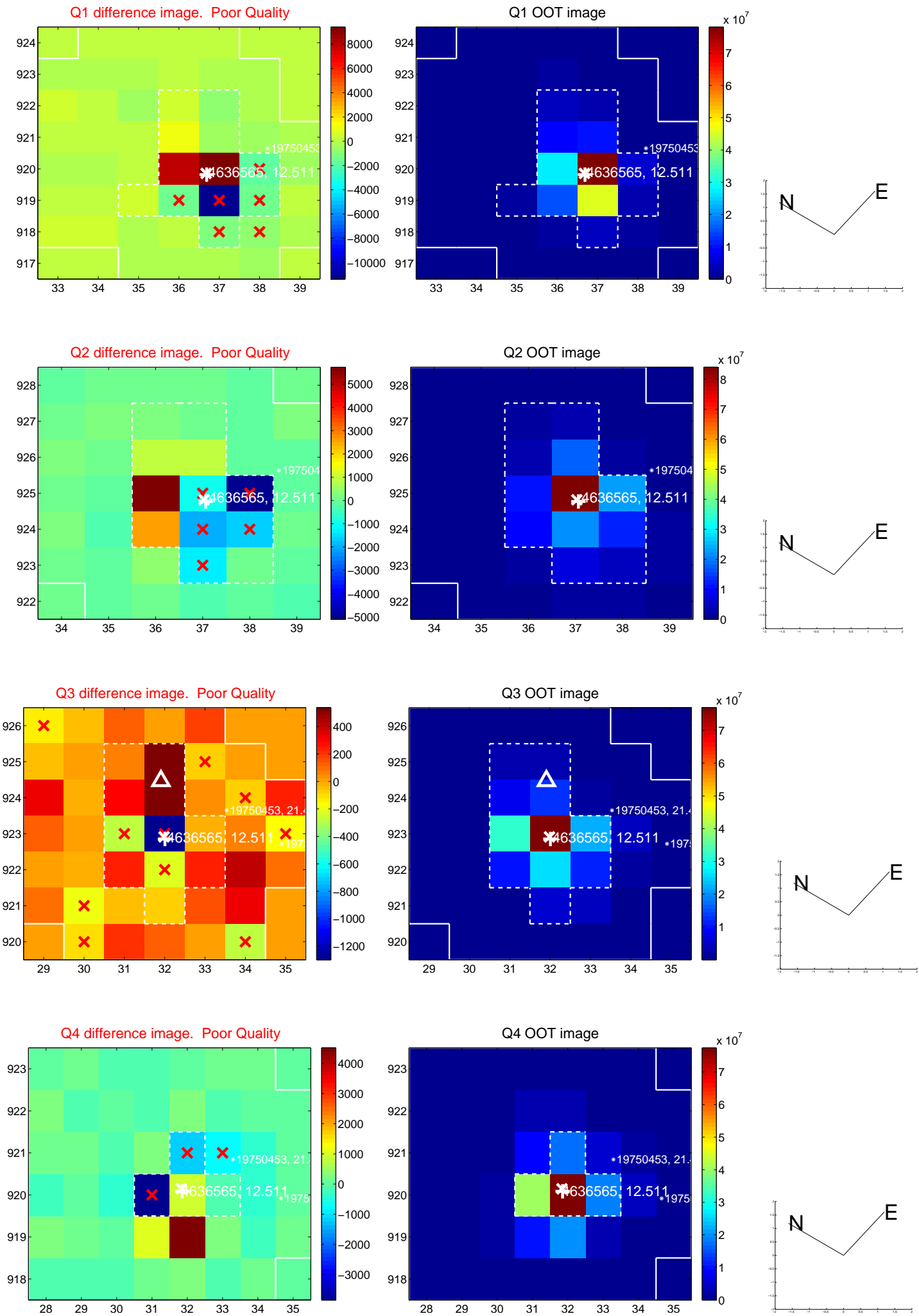
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.031 ± 0.855	2.38	-1.313 ± 0.684	-1.550 ± 0.573
PRF-fit source offset from KIC position	2.248 ± 0.767	2.93	-1.419 ± 0.638	-1.743 ± 0.505
photometric centroid source offset	2.78 ± 0.56	4.94	-1.54 ± 0.49	-2.32 ± 0.59

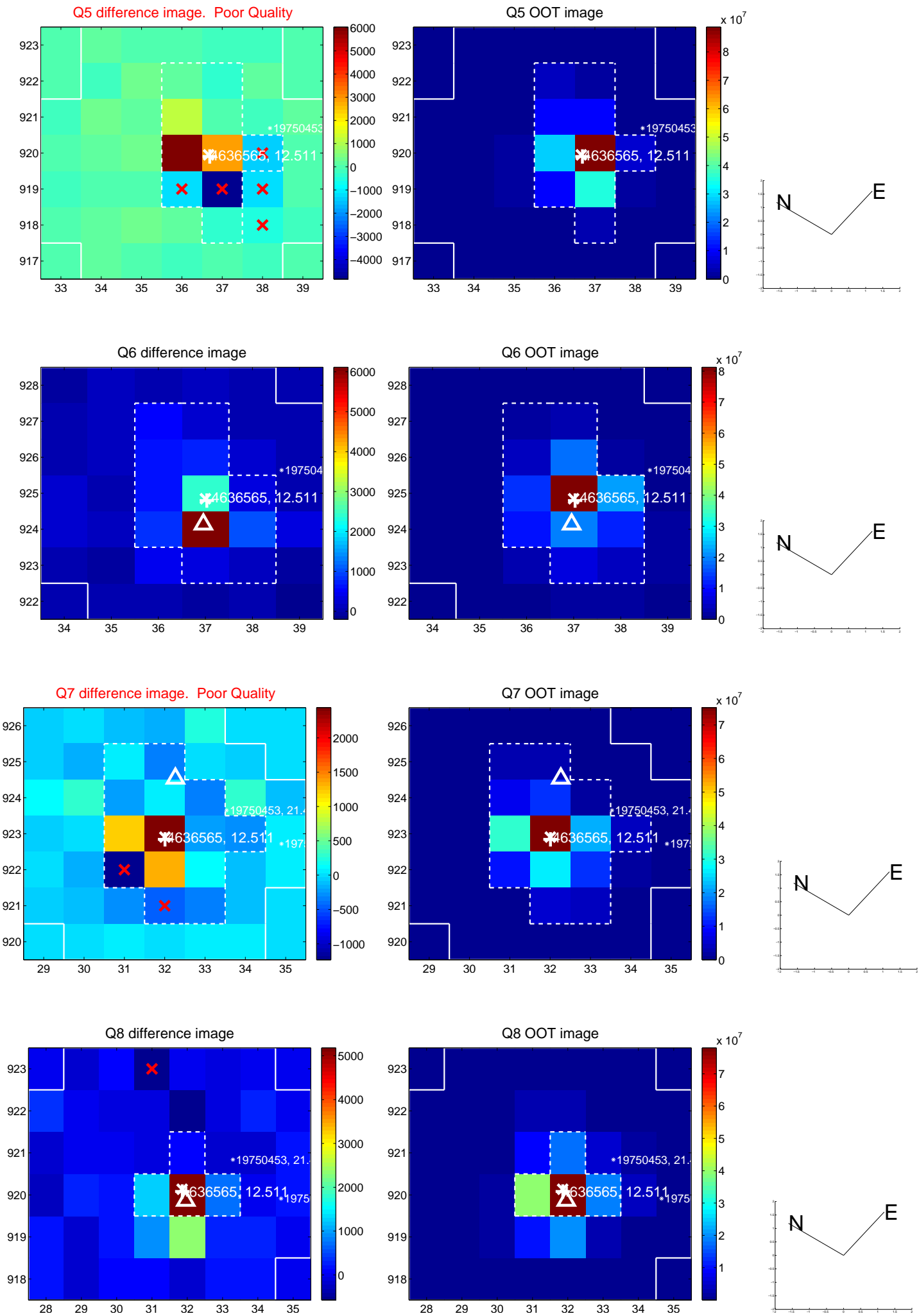


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

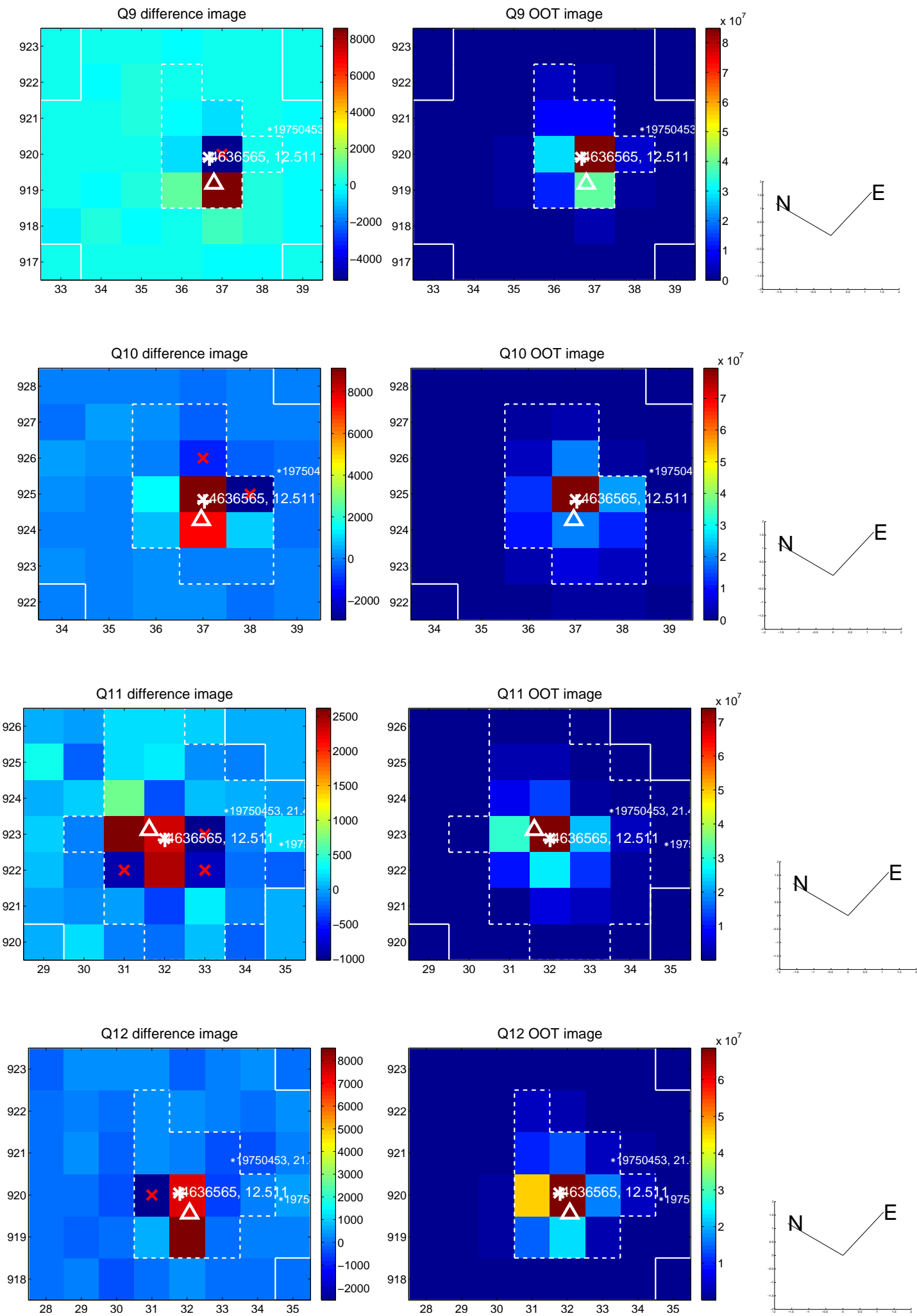
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



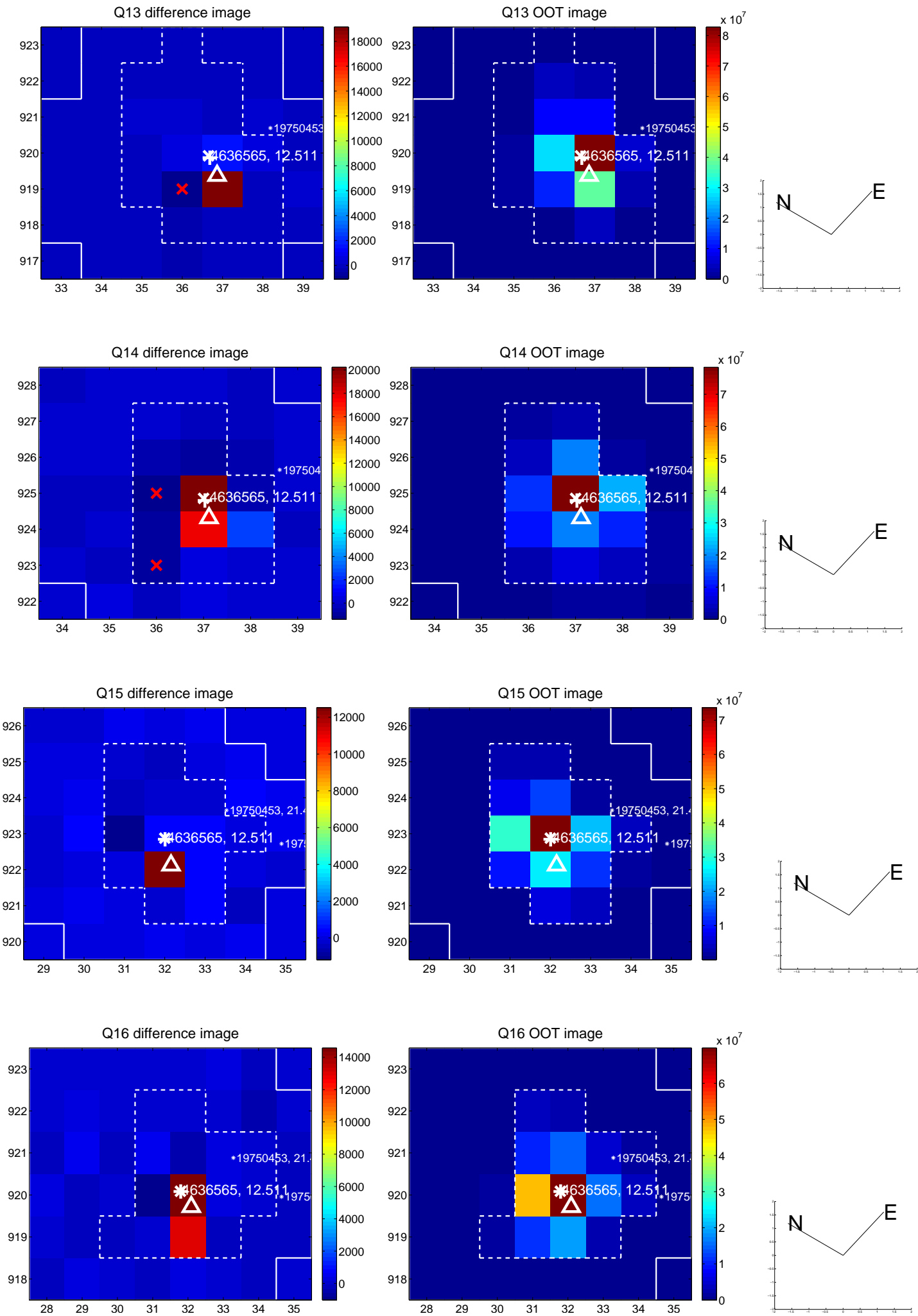
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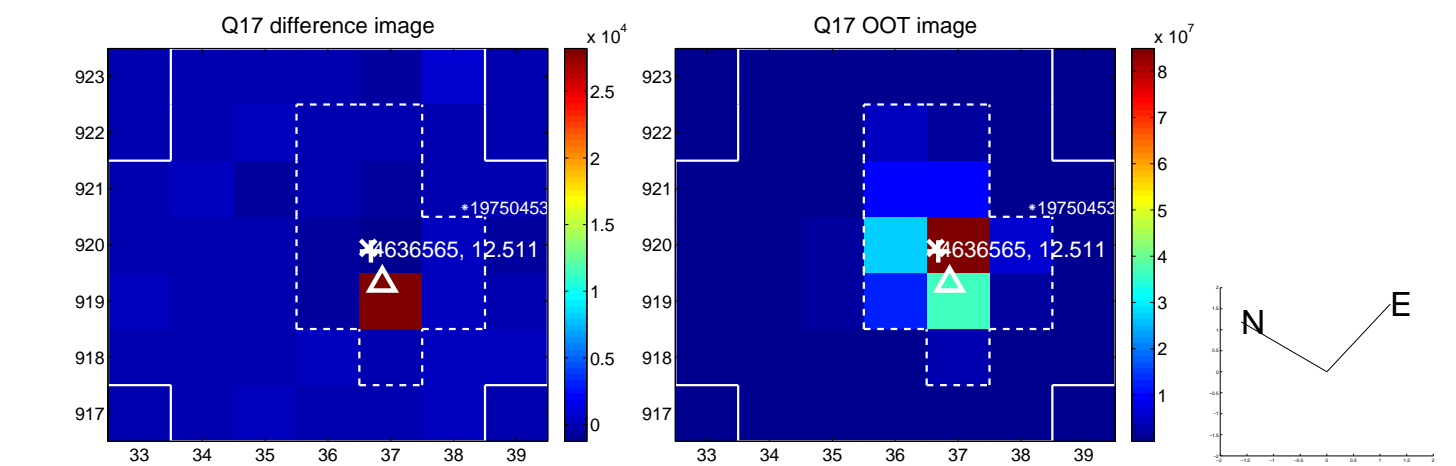
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



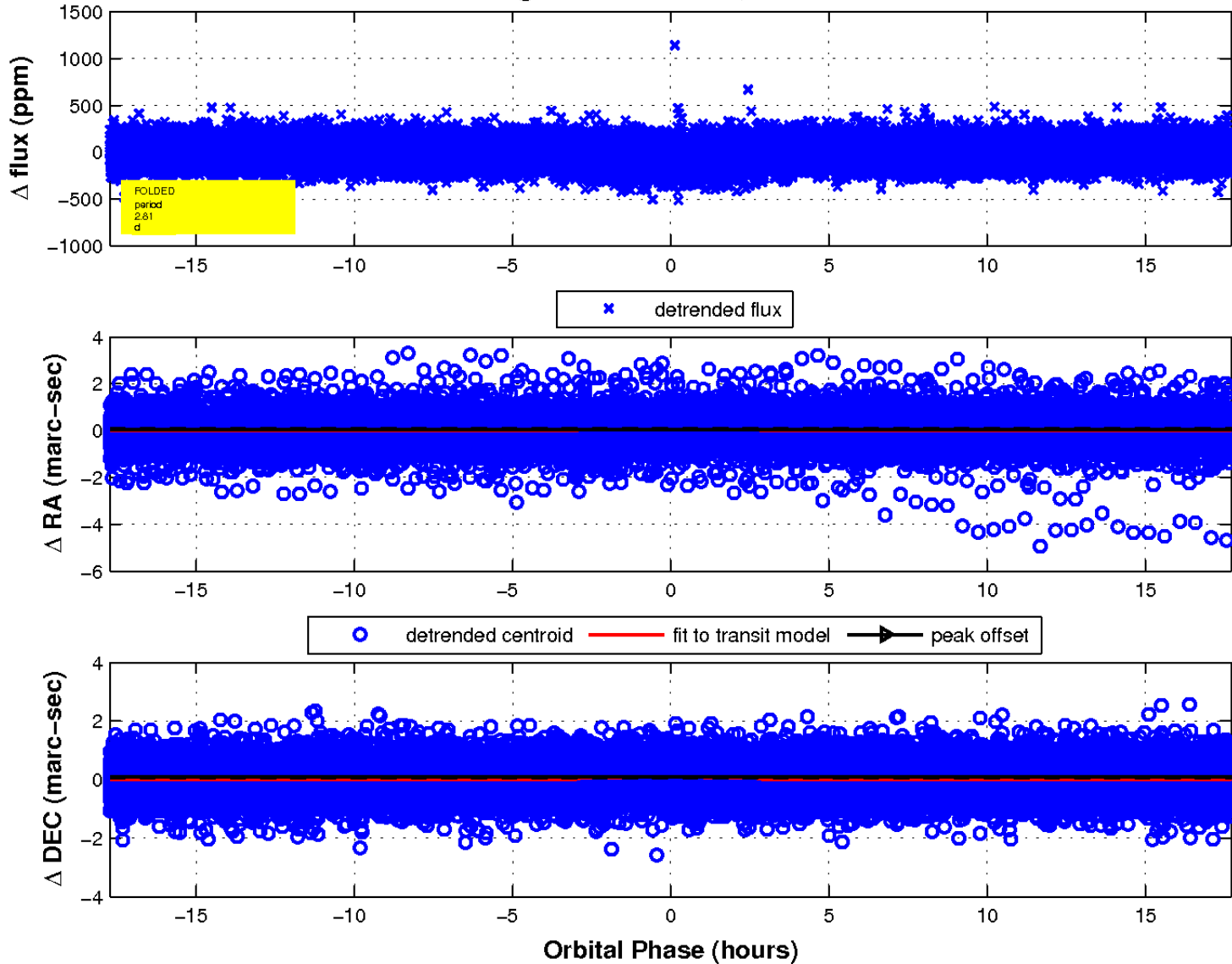
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

