

KIC 004474645

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})
004474645-01	OBS	1657.01	3.886734	135.019314	3226.2	12.268	376.6	264.9	0.77	5798	5.31	287.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004474645-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_ALT—CENT_RESOLVED_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 004474645-01

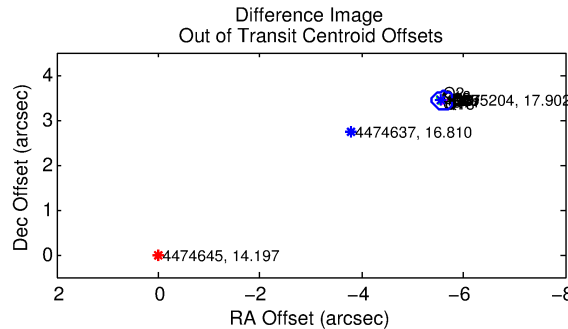
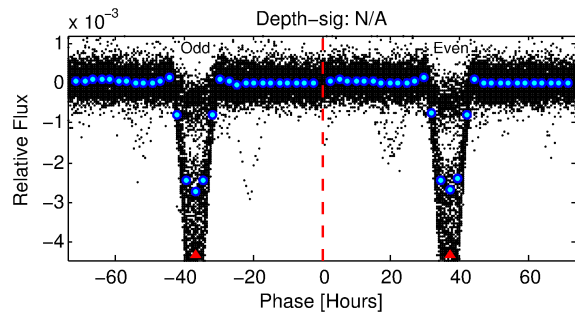
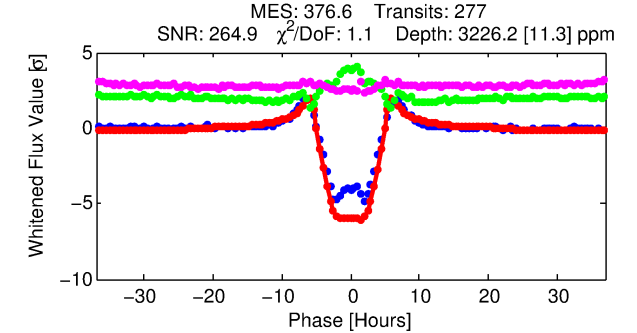
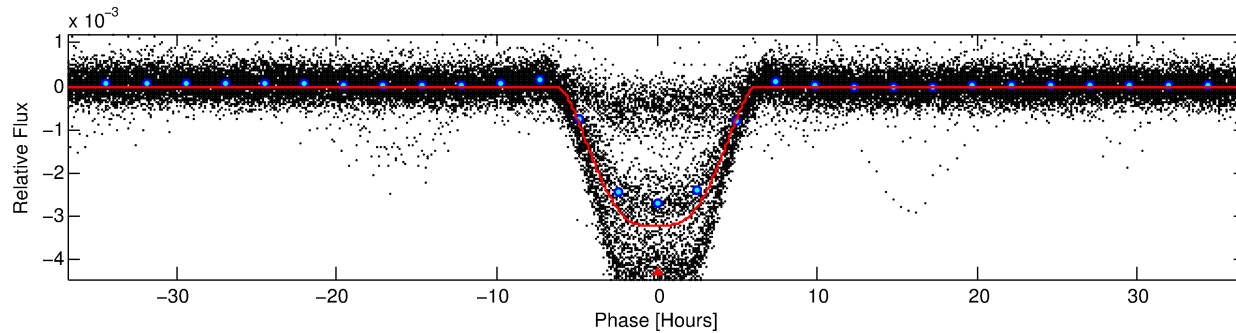
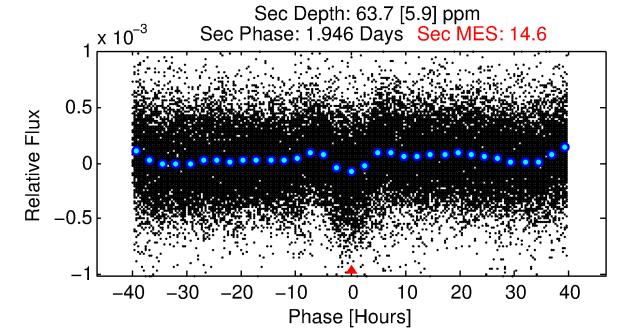
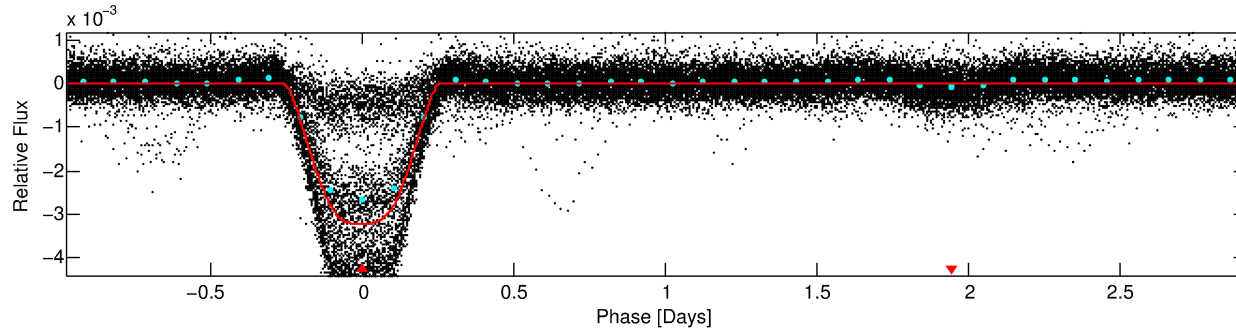
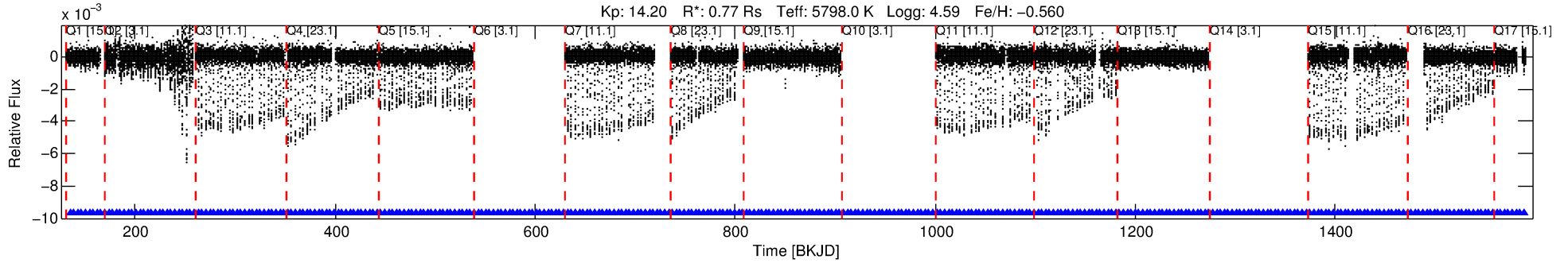
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004474645-01	4474645	3829.01	4474637	1:1	4.6	1	1	16.81	14.20	113.43	Direct-PRF	0	0.07	0.10

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: 4474645 Candidate: 1 of 1 Period: 3.887 d
KOI: K01657 Corr: No Ephemeris Match

Kp: 14.20 R*: 0.77 Rs Teff: 5798.0 K Logg: 4.59 Fe/H: -0.560



DV Fit Results:

Period = 3.88673 [0.00000] d
Epoch = 135.0193 [0.0006] BKJD
Rp/R* = 0.0635 [0.0001]
a/R* = 1.60 [0.00]
b = 0.93 [0.00]
Seff = 287.36 [90.43]
Teq = 1050 [83] K
Rp = 5.31 [1.31] Re
a = 0.0455 [0.0093] AU
Ag = 2.57 [0.80] [1.97σ]
Teffp = 2056 [74] K [9.10σ]

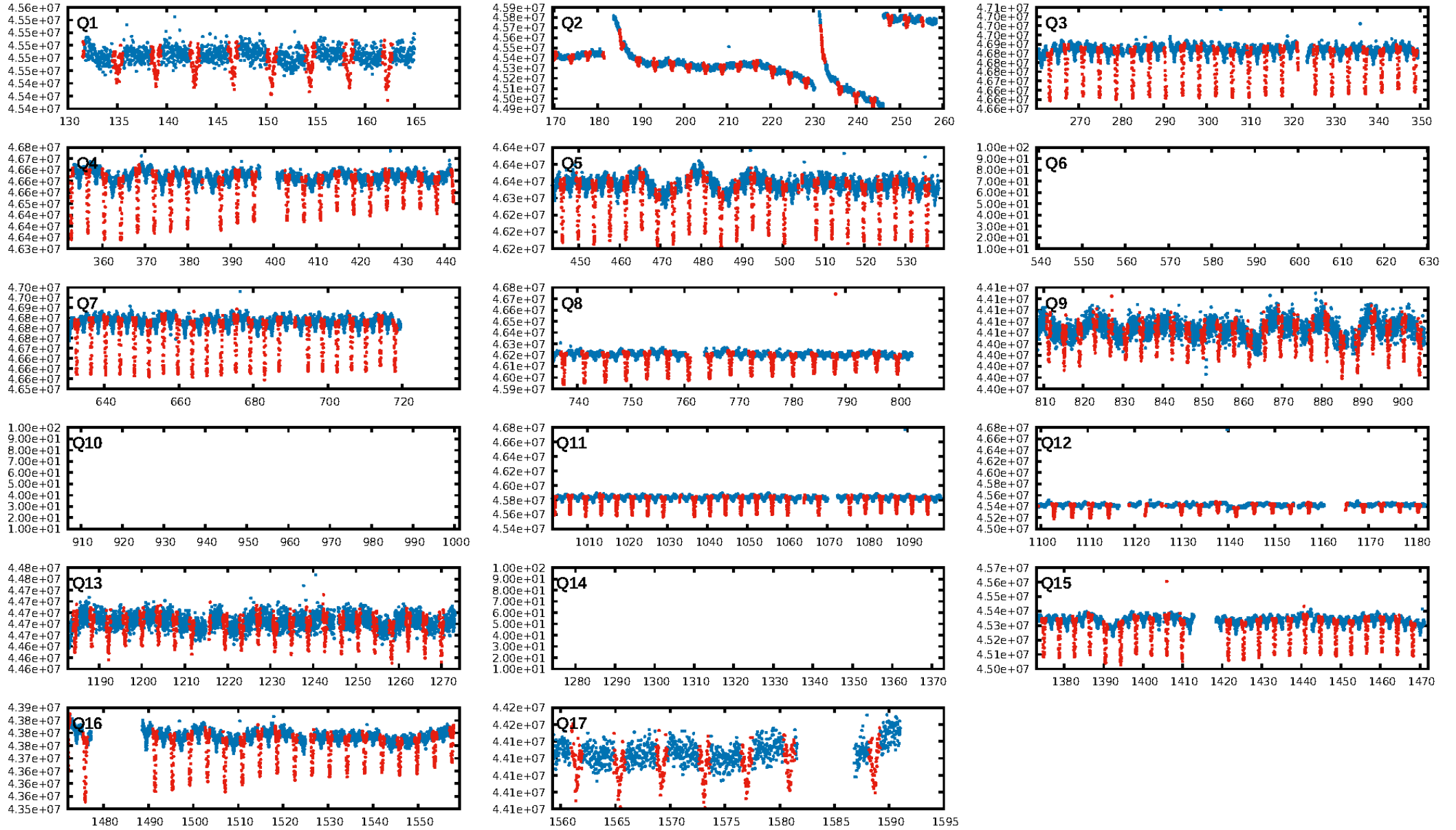
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [262/262]
GhostDiagnostic-chr: -0.4413
Centroid-sig: 0.0%
Centroid-so: 35.064 arcsec [446.58σ]
OotOffset-rm: 6.555 arcsec [94.20σ]
KicOffset-rm: 6.654 arcsec [96.38σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

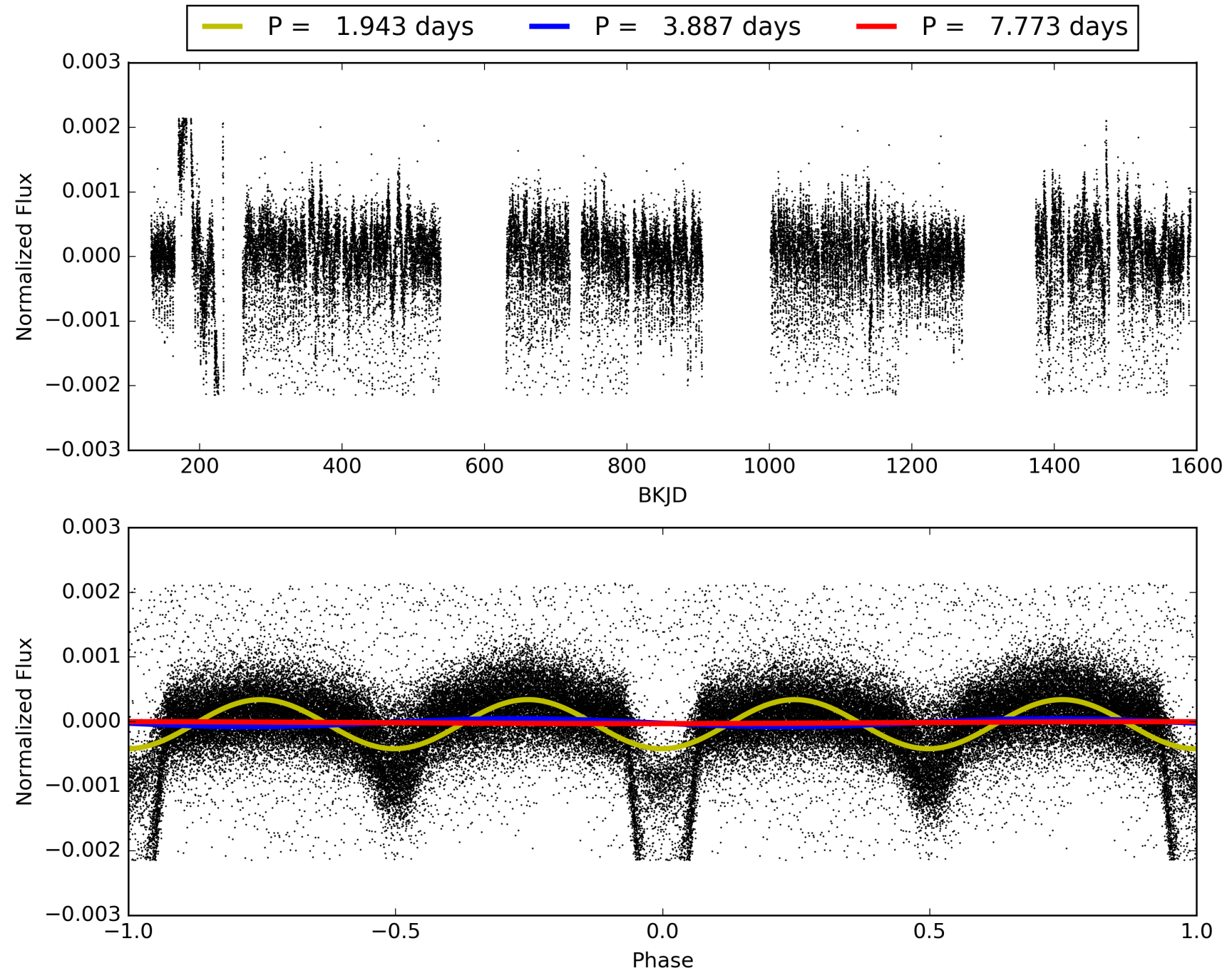
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:13:21 Z

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

TCE 004474645-01, PDC Light Curves

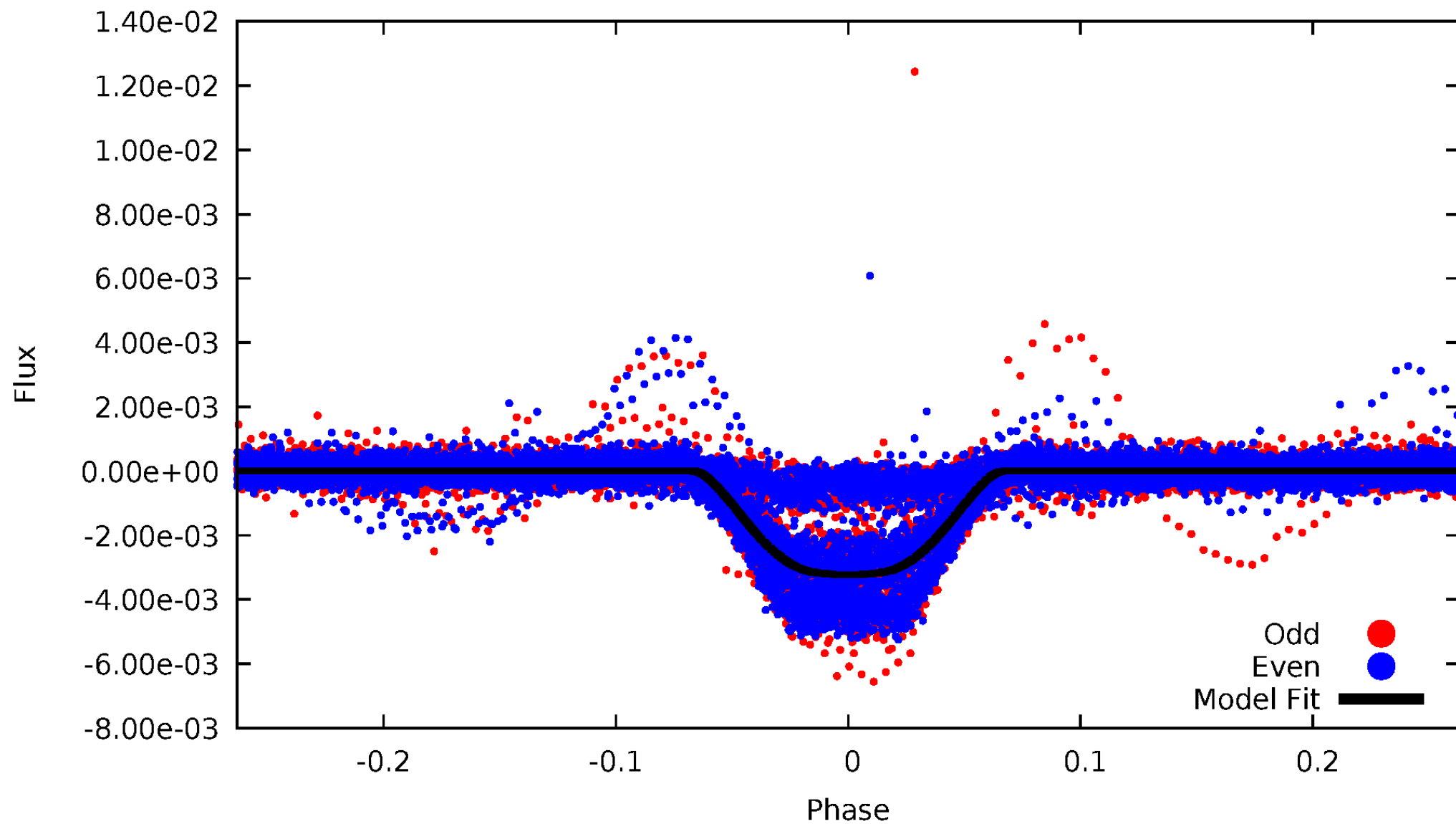


TCE 004474645-01



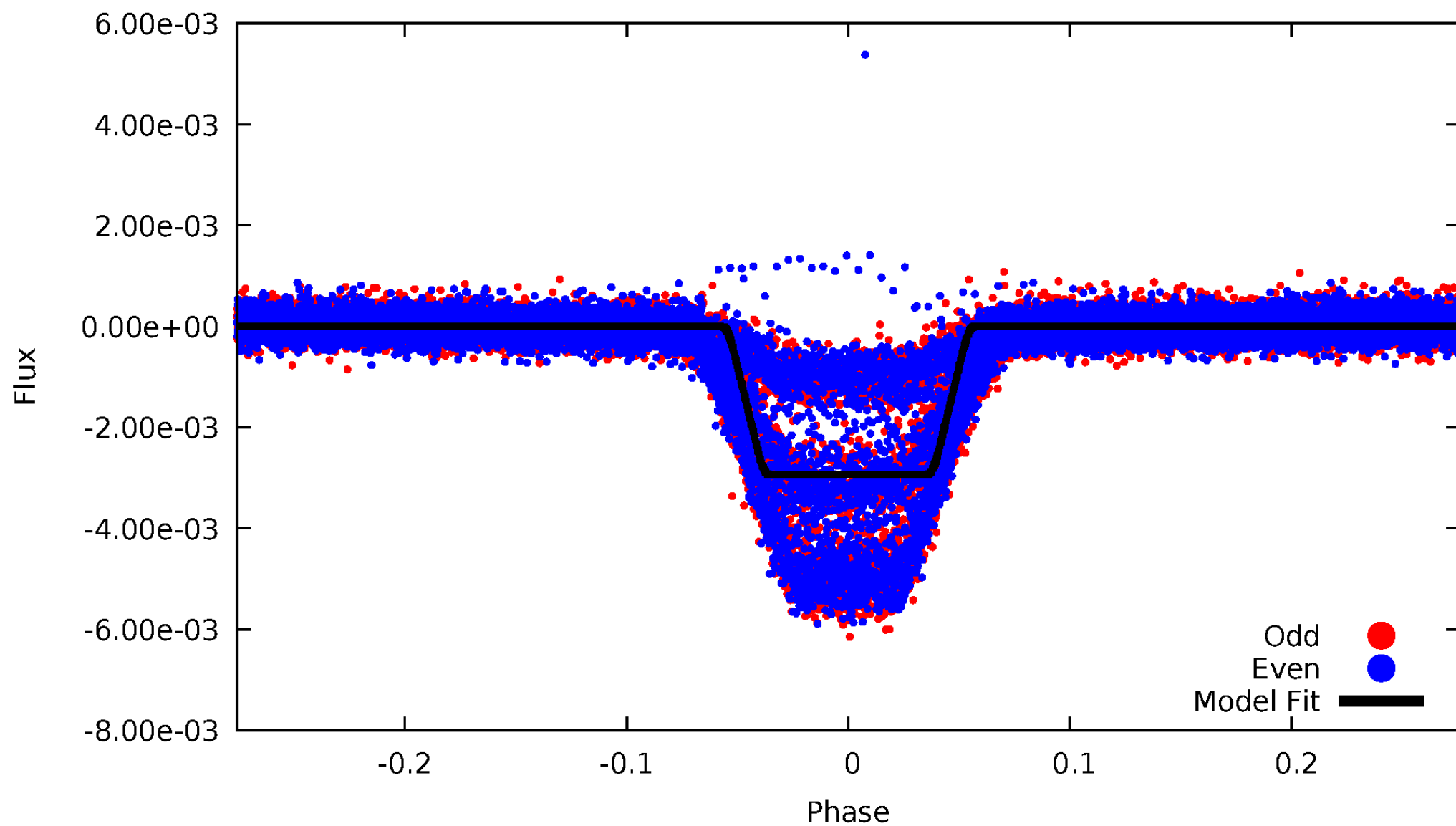
DV Odd/Even

TCE 004474645-01



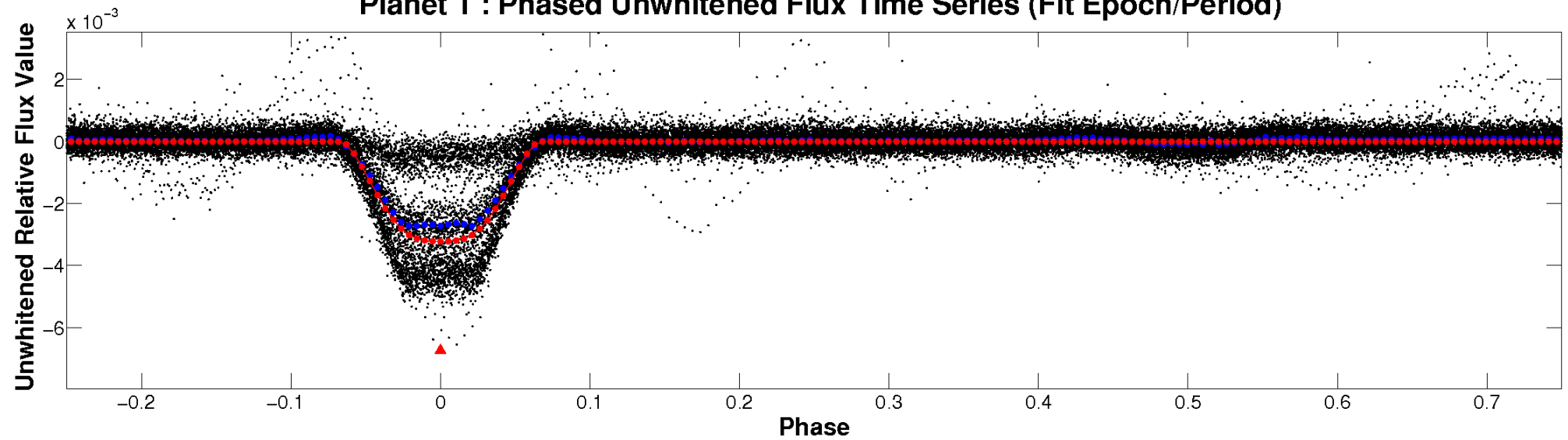
ALT Odd/Even

TCE 004474645-01

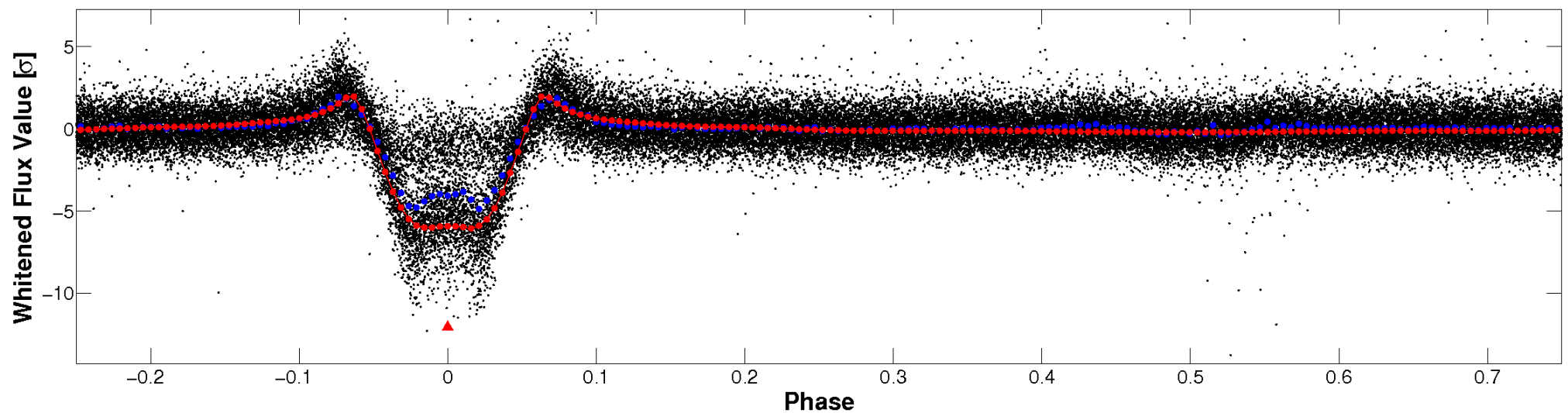


Non-Whitened Vs. Whitened Light Curve

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

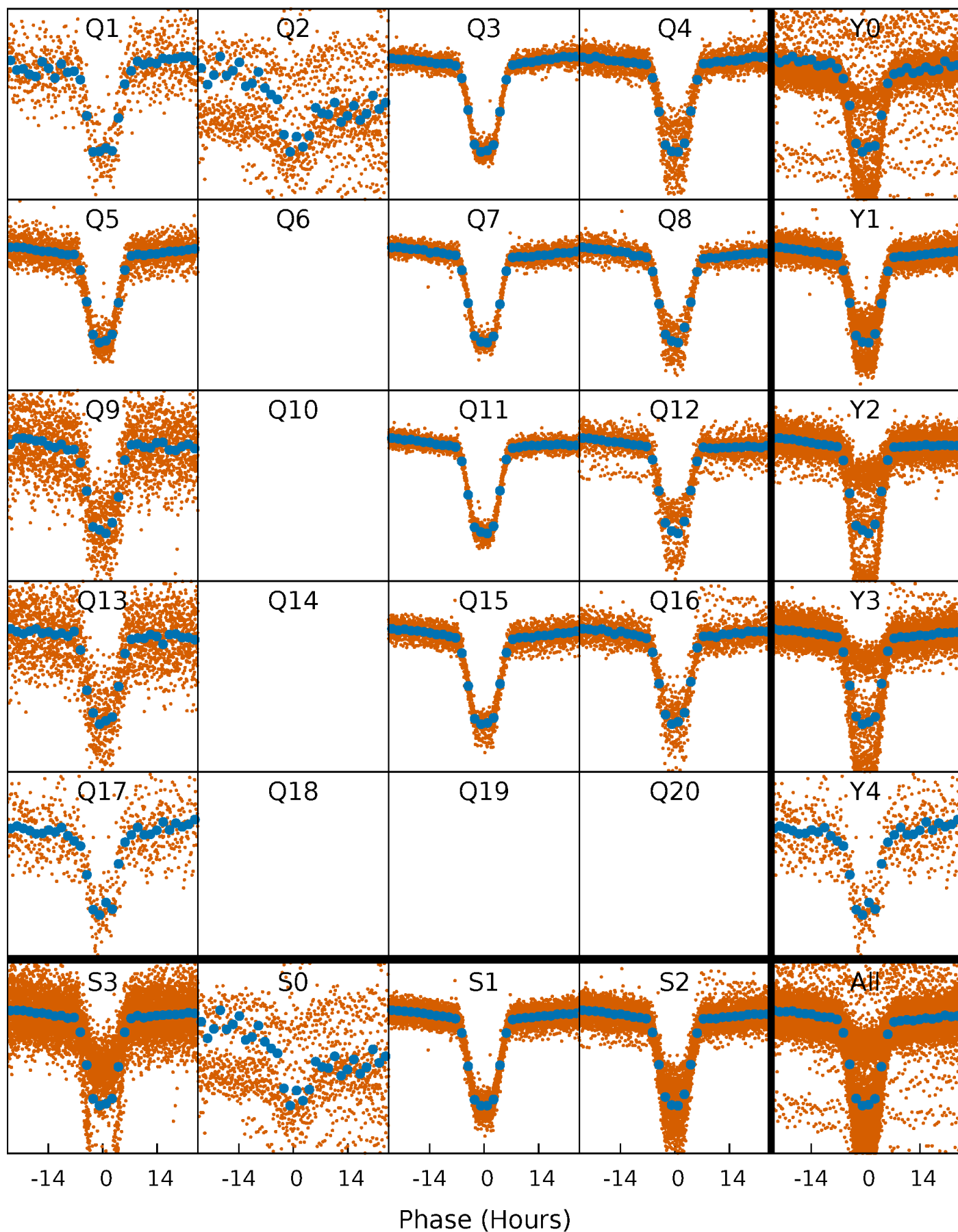


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



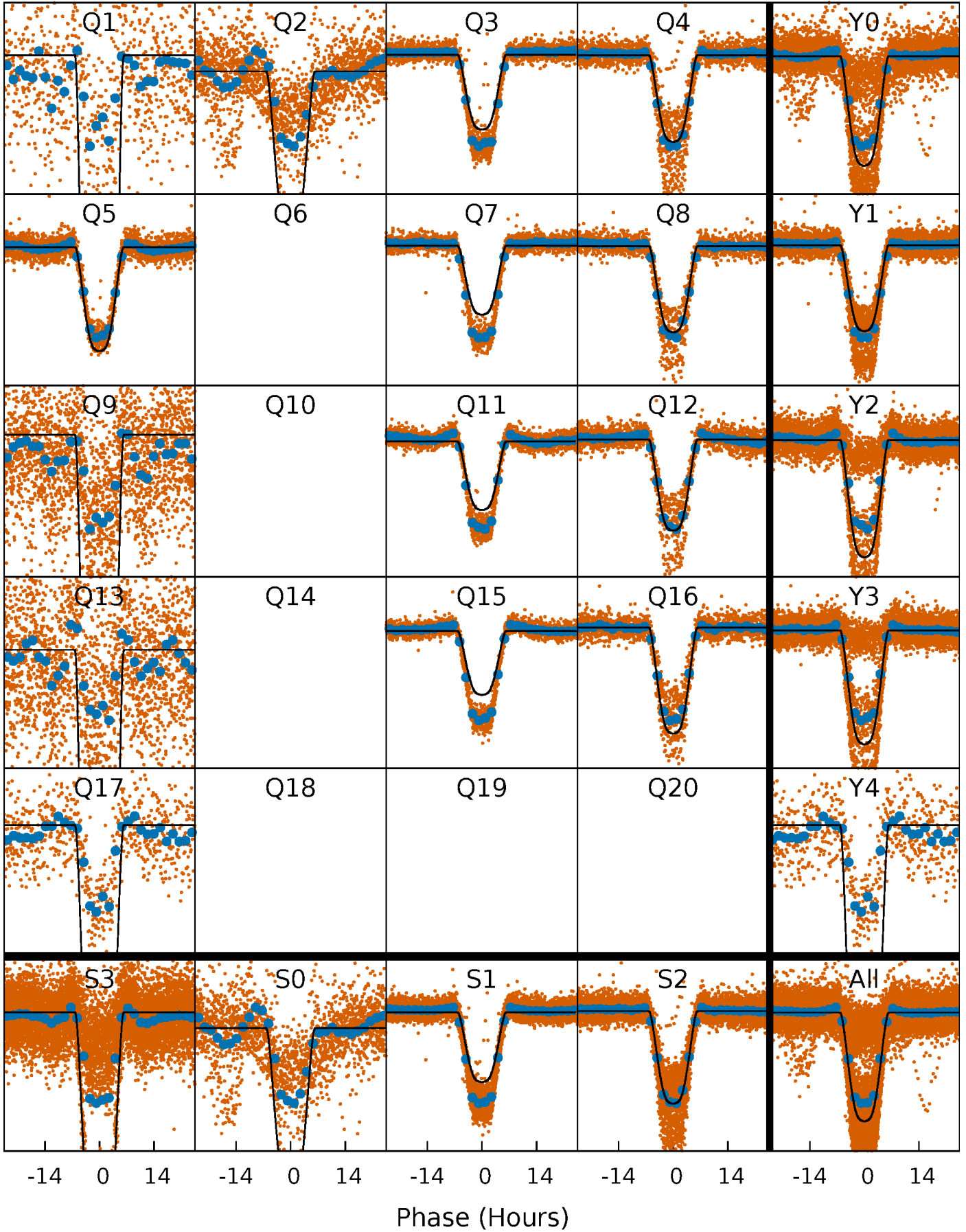
PDC Quarter-Phased Transit Curves

TCE 004474645-01 P= 3.886734 Days $T_0=135.019314$ (BKJD)



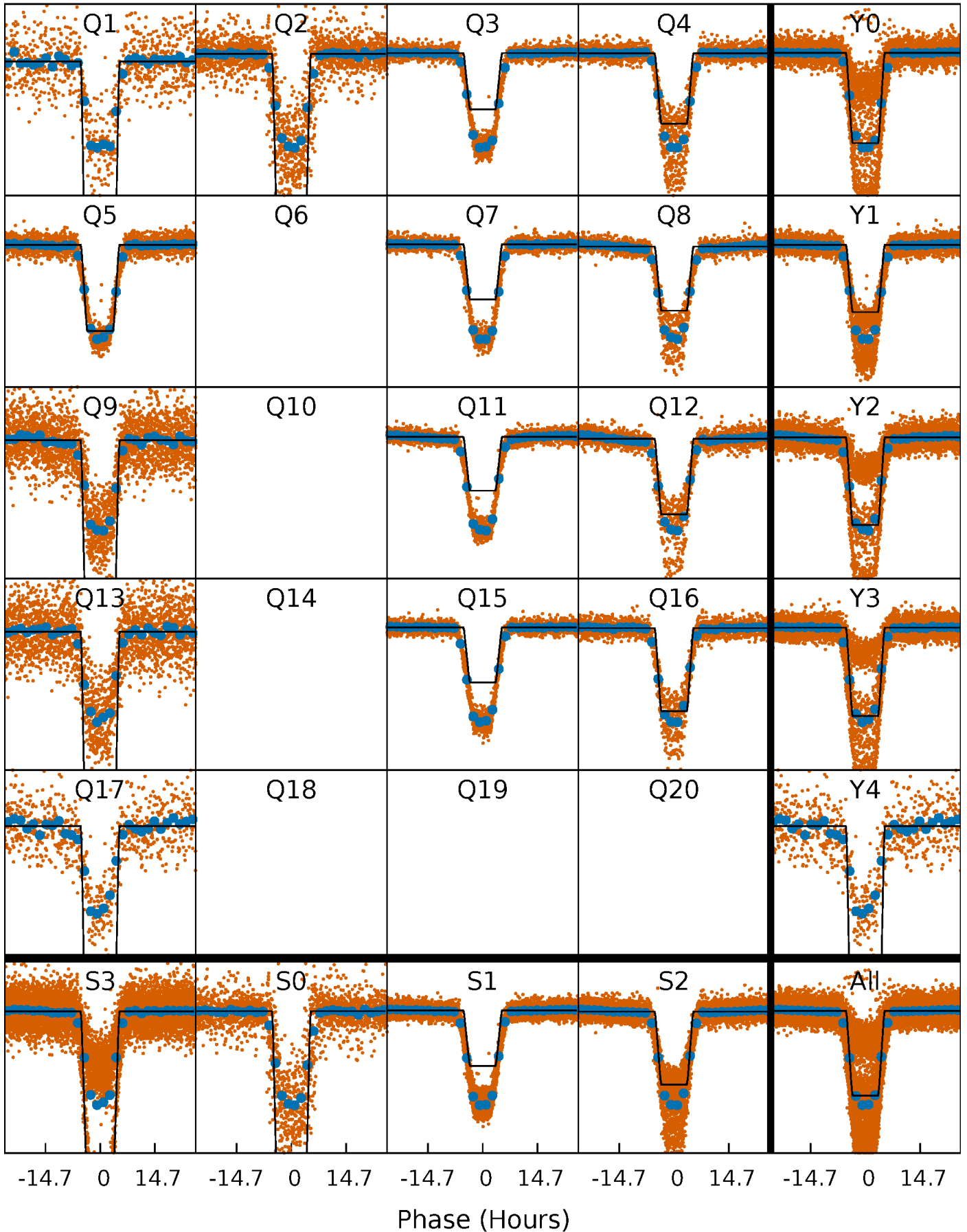
DV Quarter-Phased Transit Curves

TCE 004474645-01 P= 3.886734 Days $T_0=135.019314$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

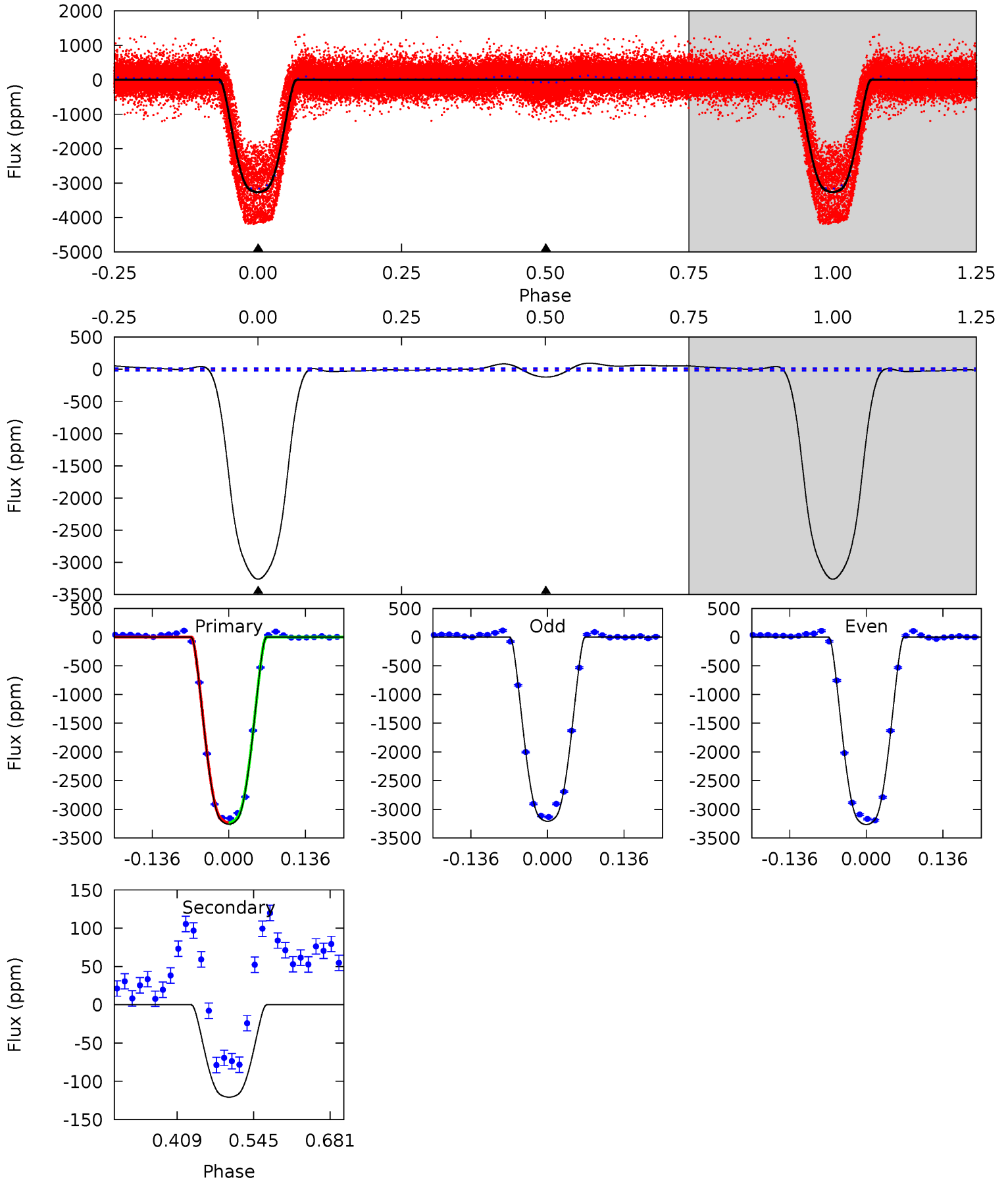
TCE 004474645-01 P= 3.886775 Days $T_0=135.012340$ (BKJD)



DV Model-Shift Uniqueness Test

004474645-01, P = 3.886734 Days, E = 131.132580 Days

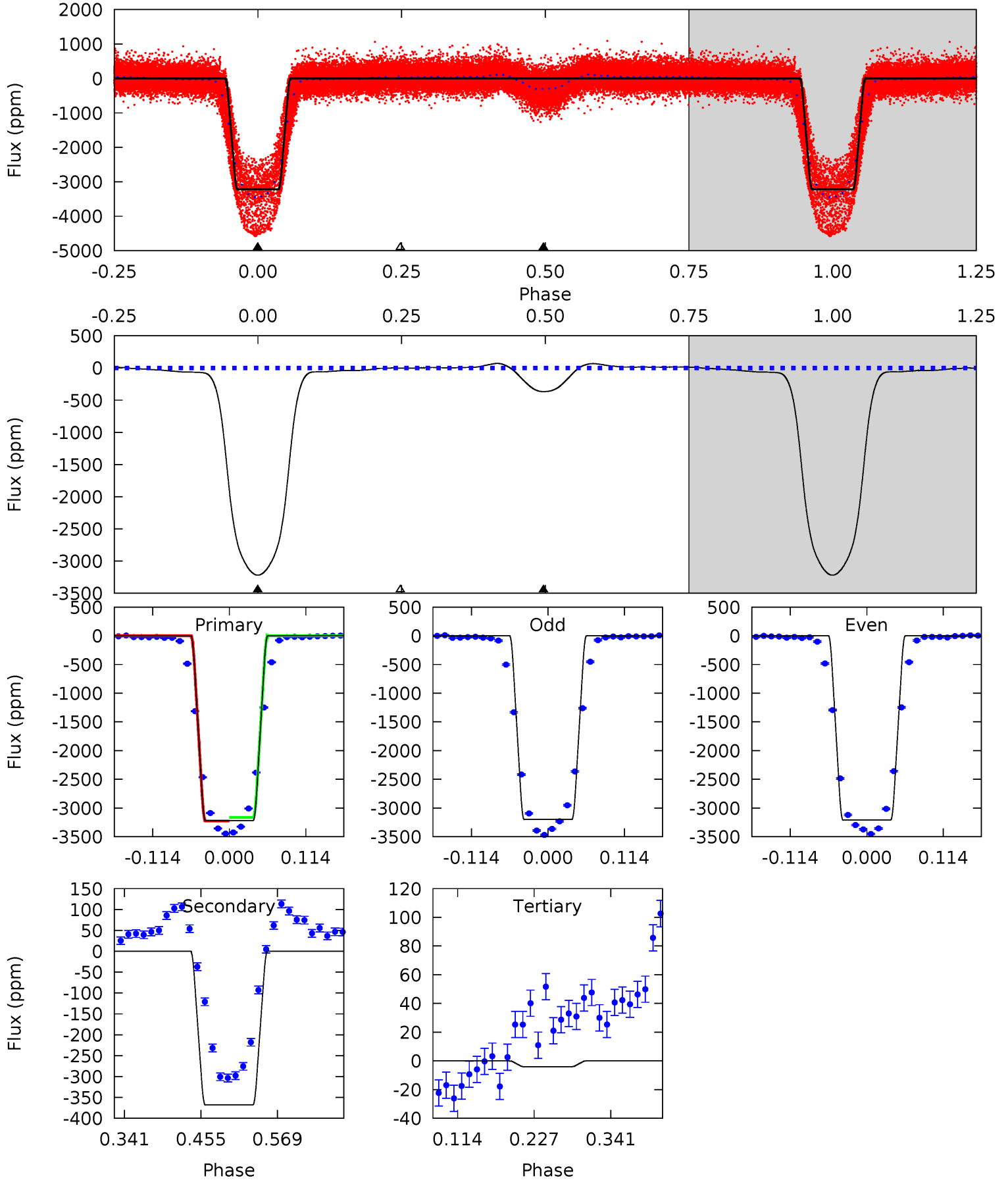
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
842.5	31.2	0	0	4.50	1.49	7.89	842.5	842.5	31.2	31.2	7.27	0.93	0.03	0



Alt Model-Shift Uniqueness Test

004474645-01, P = 3.886775 Days, E = 131.125565 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
779.1	89.0	0.98	0	4.54	1.58	6.00	778.1	779.1	88.0	89.0	1.20	0.98	0.02	7.27



Stellar Parameters For KIC 004474645

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5798^{+157}_{-157}	$4.589^{+0.040}_{-0.160}$	$-0.560^{+0.300}_{-0.300}$	$0.767^{+0.189}_{-0.063}$	$0.833^{+0.085}_{-0.077}$	$2.601^{+0.531}_{-1.170}$
	+3%/-3%	+1%/-3%	+54%/-54%	+25%/-8%	+10%/-9%	+20%/-45%
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 004474645-01 / KOI 1657.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-121 ± 4	$5.41^{+0.75}_{-0.30}$	1497^{+86}_{-60}	3025^{+53}_{-50}	$4.584^{+0.553}_{-0.901}$
Alt.	-368 ± 4	$4.60^{+0.59}_{-0.26}$	1487^{+87}_{-57}	3814^{+70}_{-77}	20^{+2}_{-4}

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

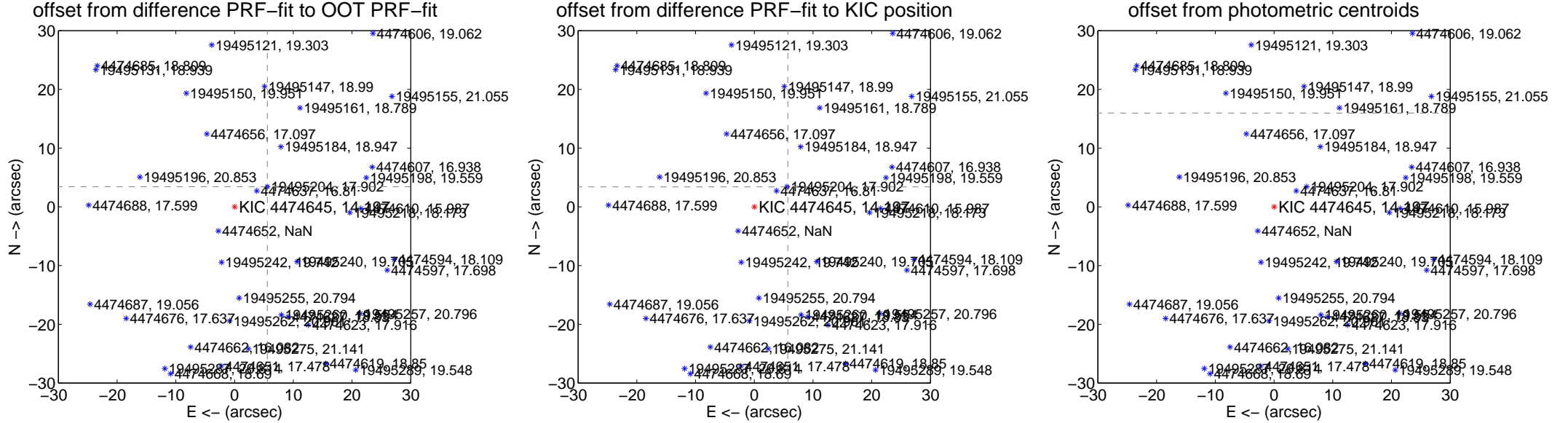
DV Centroid Data

Supplemental centroid analysis for 004474645-01. Kepler magnitude: 14.20. Transit SNR 264.91

There are 14 quarters with good PRF difference image offsets

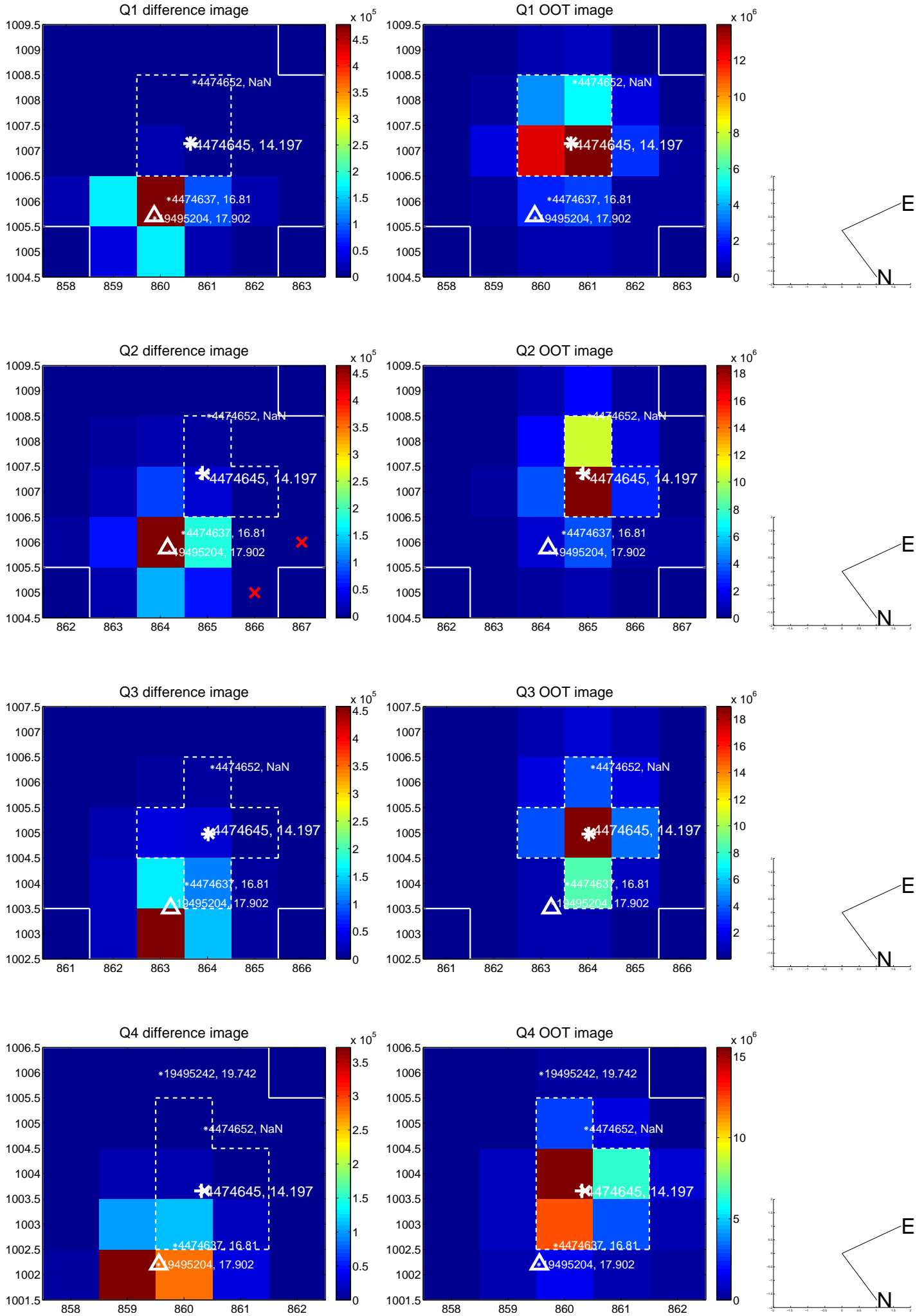
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.555 \pm 0.070	94.20	-5.590 \pm 0.070	3.423 \pm 0.067
PRF-fit source offset from KIC position	6.654 \pm 0.069	96.38	-5.717 \pm 0.070	3.406 \pm 0.067
photometric centroid source offset	35.06 \pm 0.08	446.59	-31.22 \pm 0.08	15.96 \pm 0.06

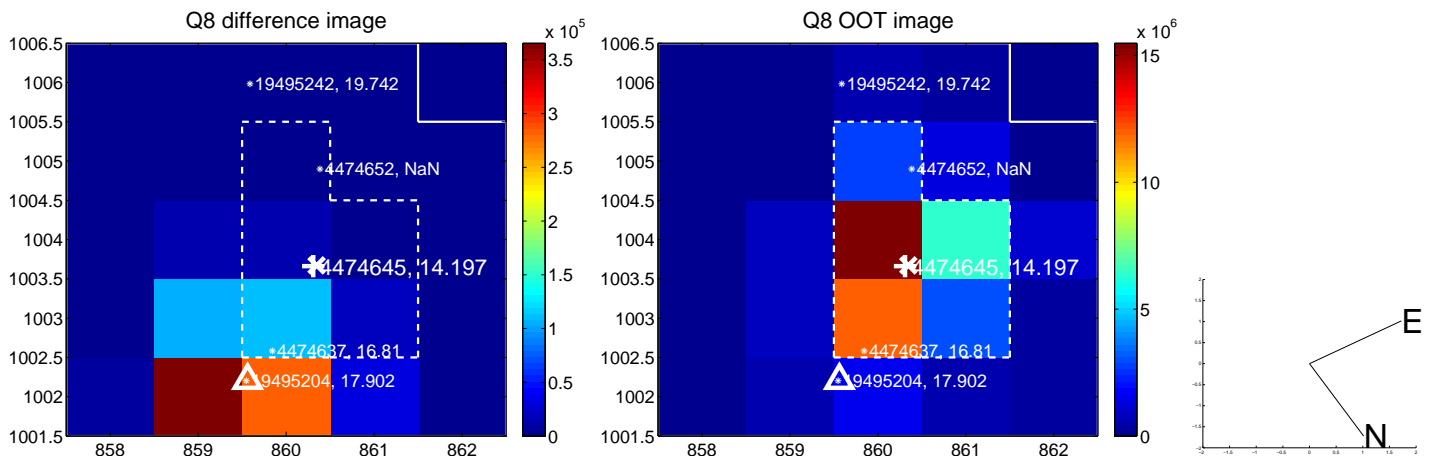
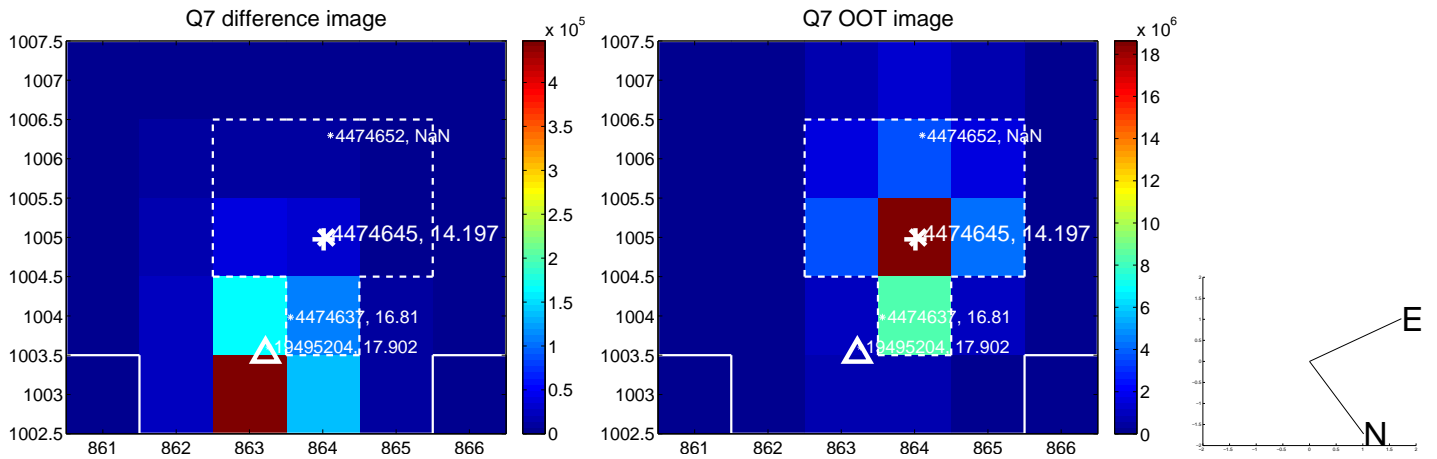
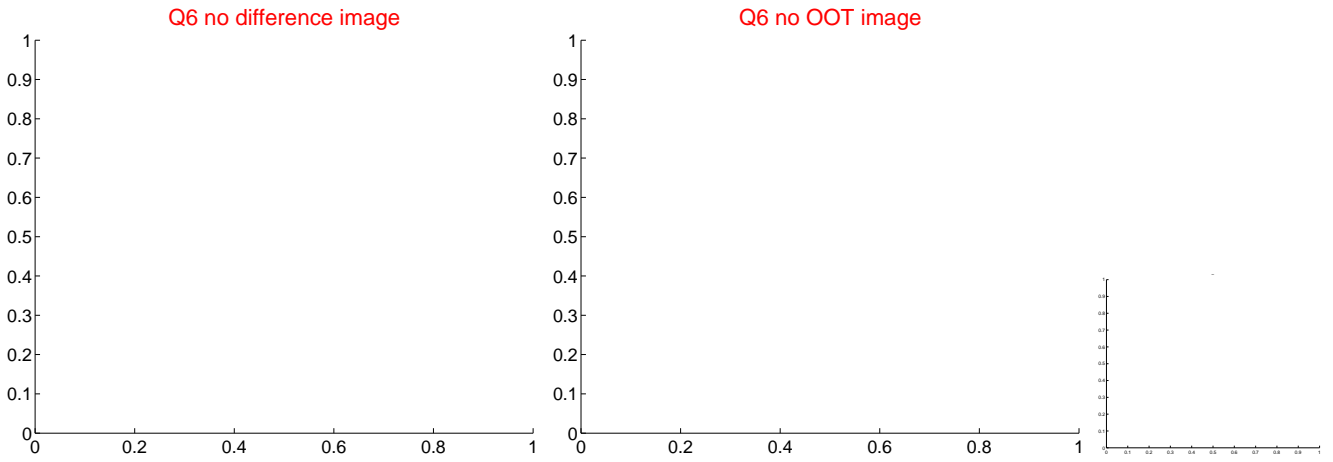
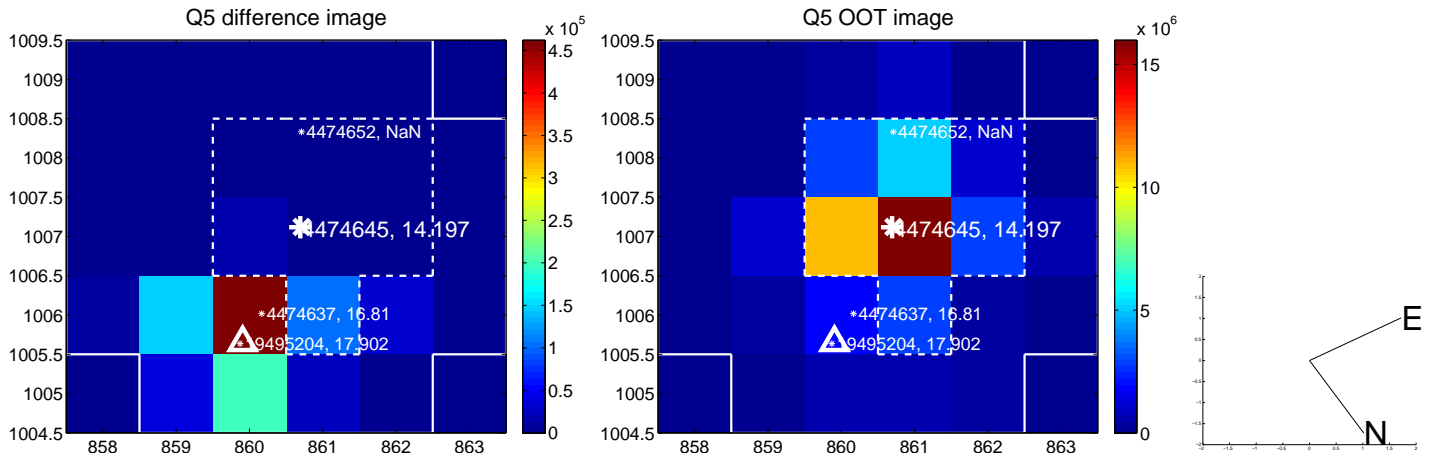


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

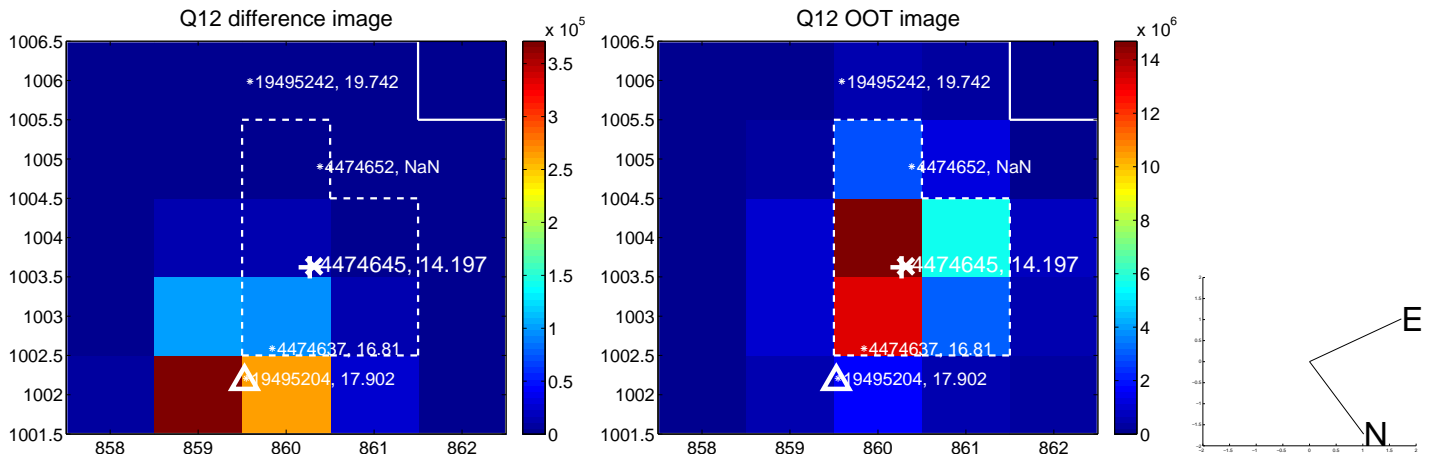
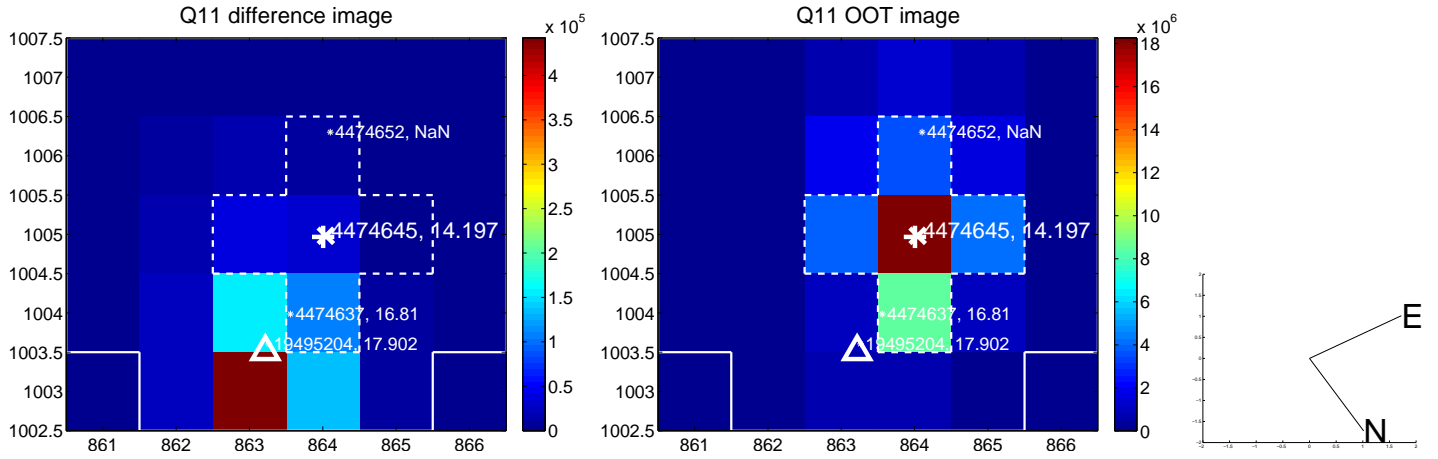
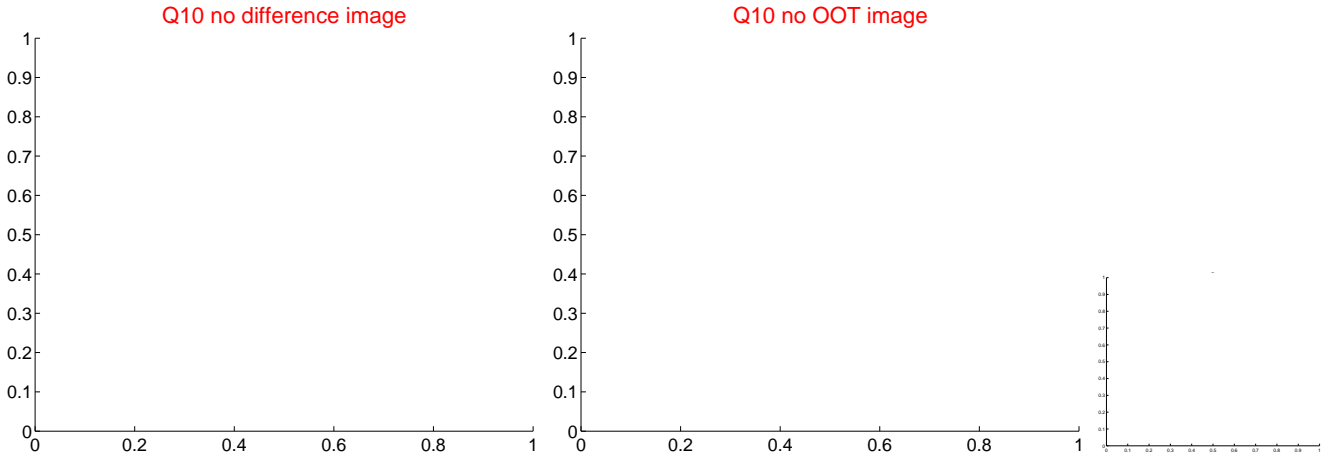
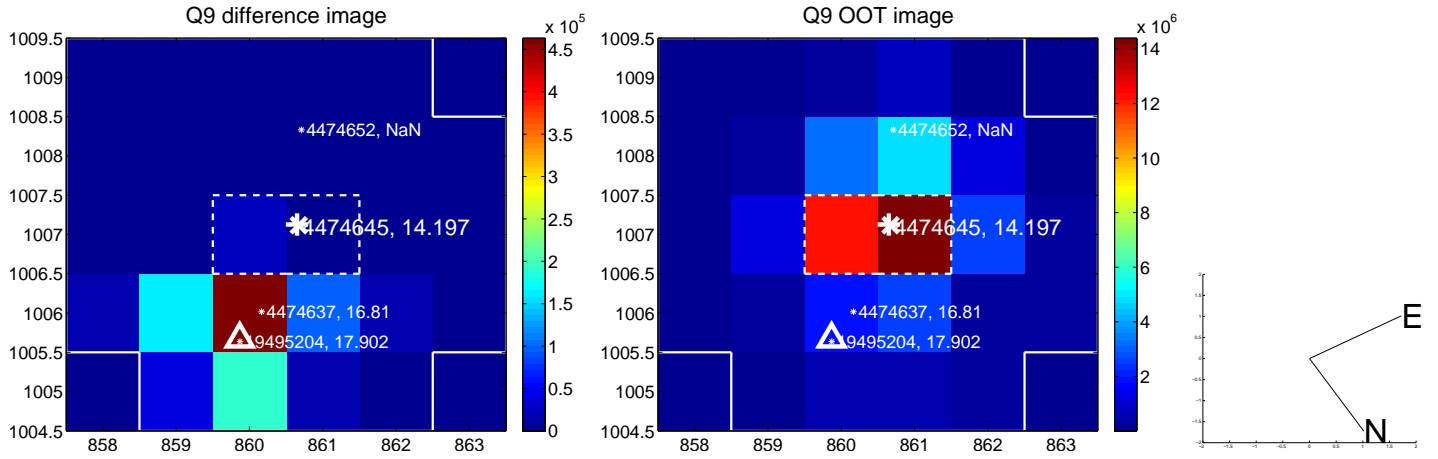
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



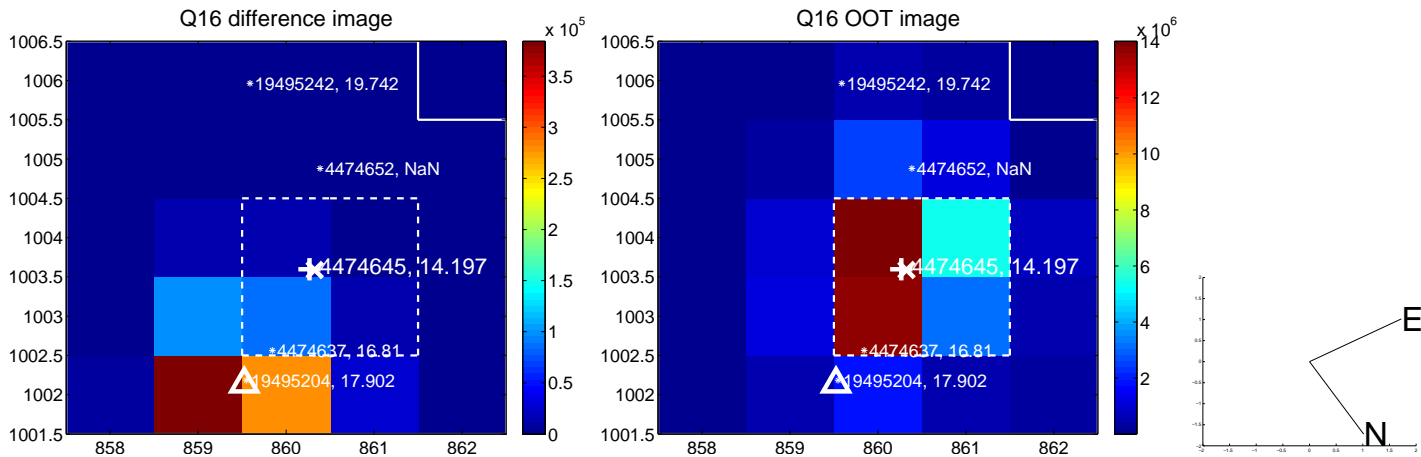
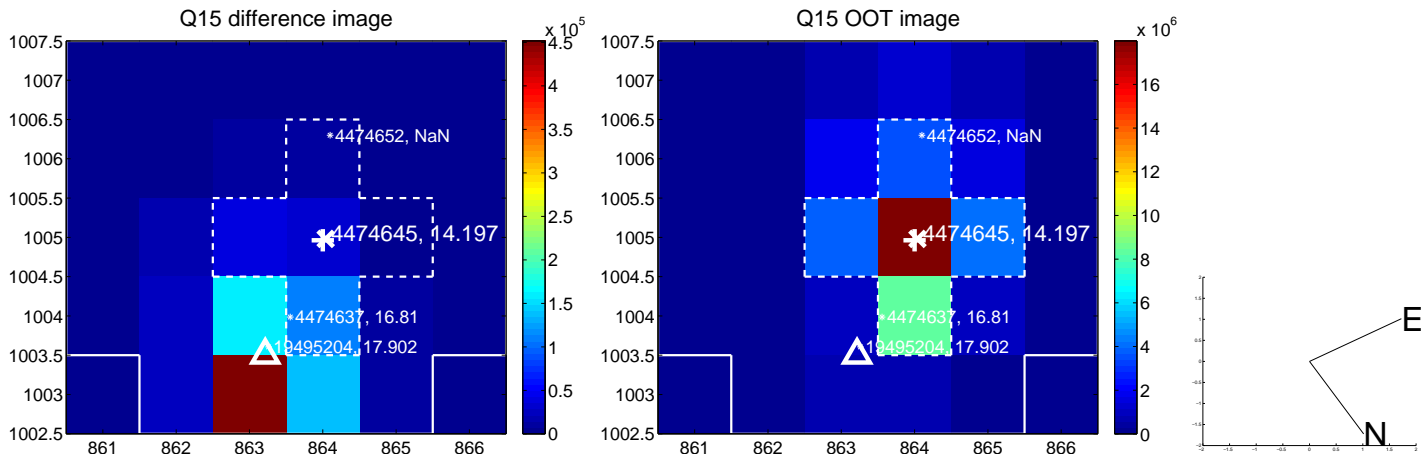
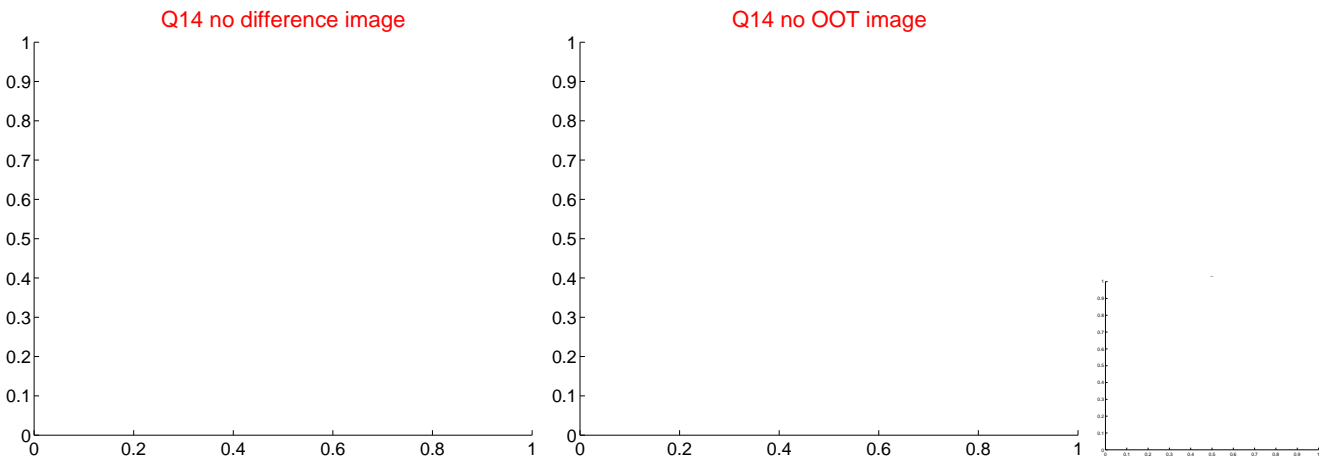
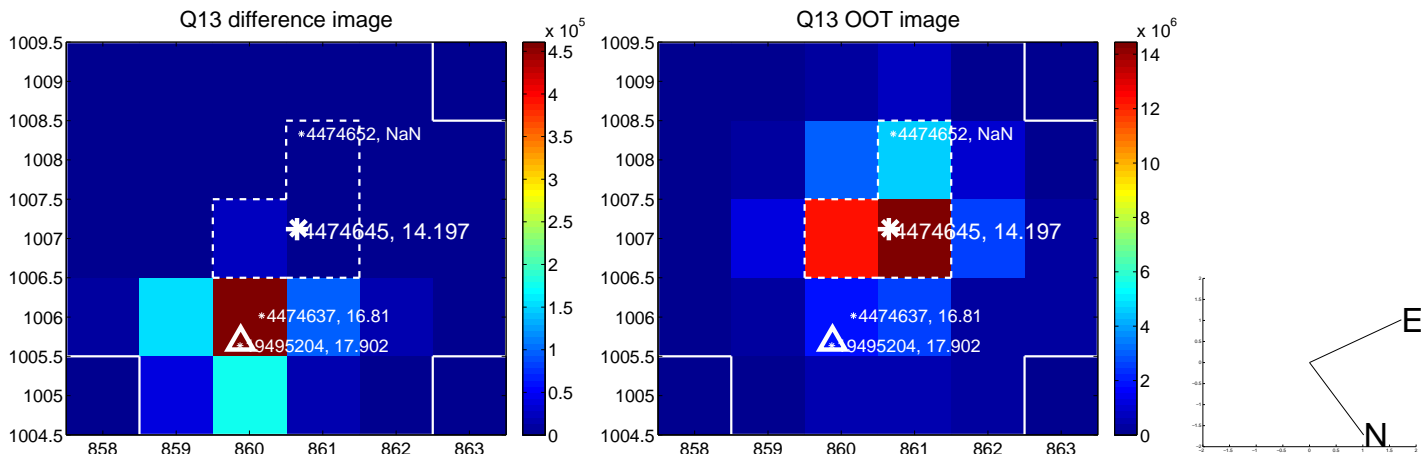
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



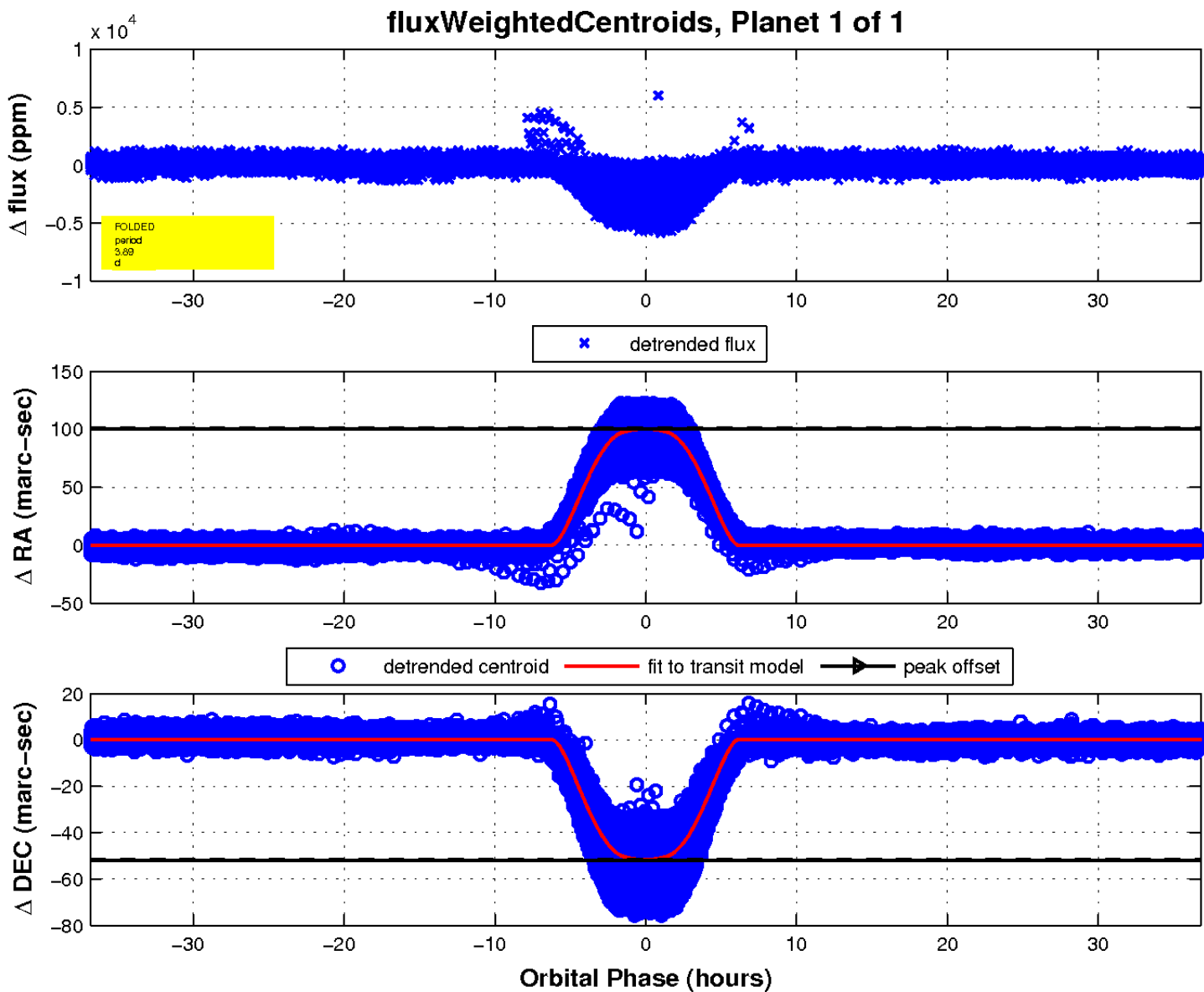
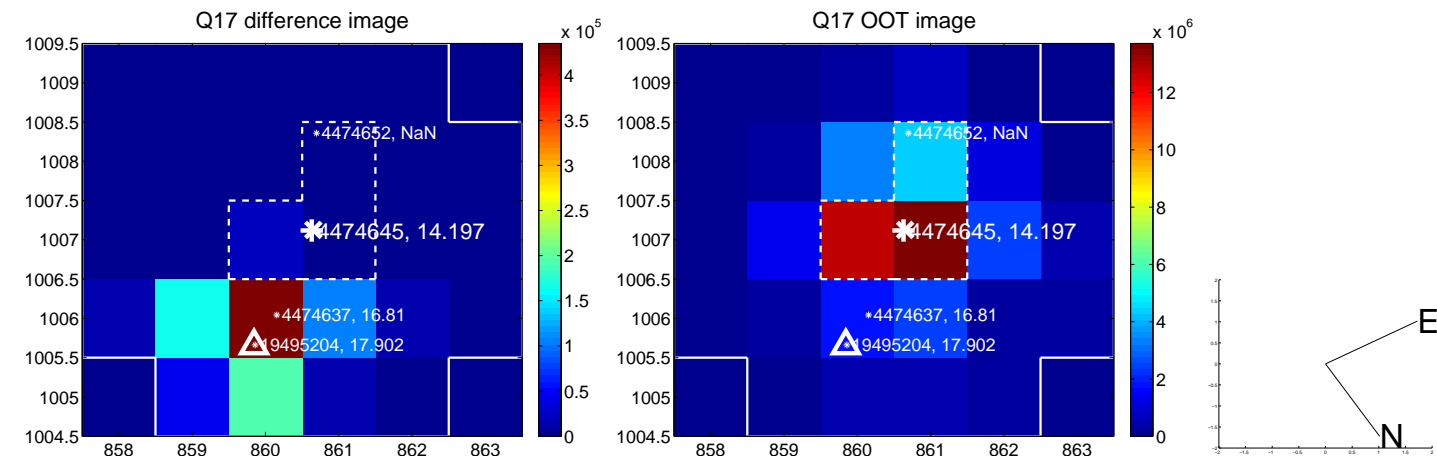
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

