

KIC 009474232

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})
009474232-01	OBS	4760.01	13.691739	133.790179	143.3	4.143	11.4	12.4	0.93	5906	1.26	83.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009474232-01	OBS	FP	0.00	0	0	1	1	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 009474232-01

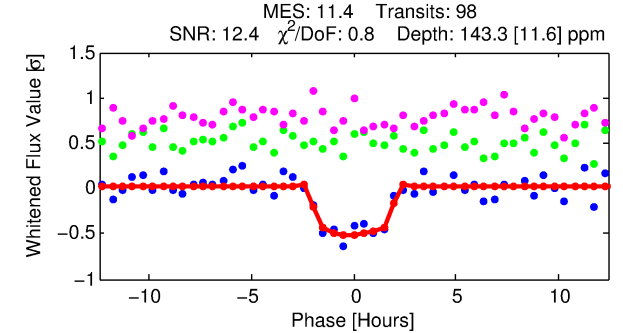
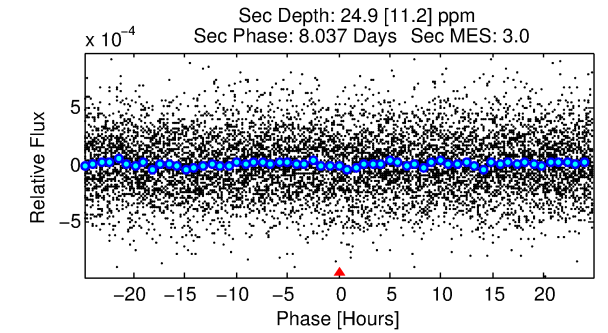
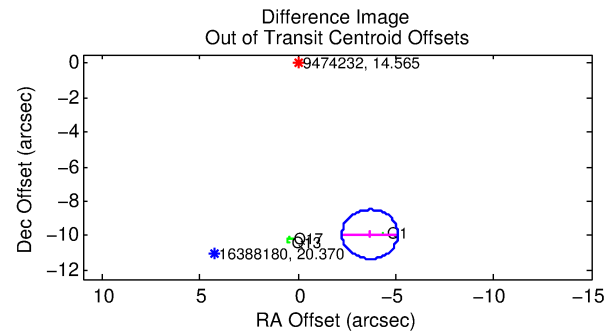
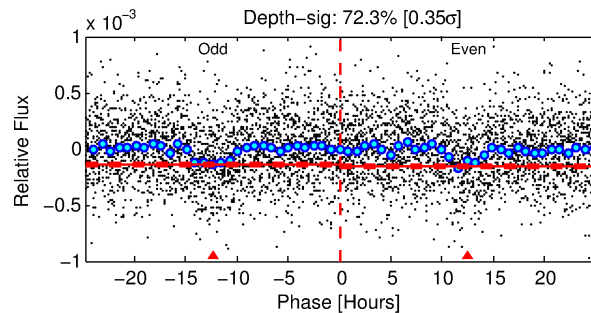
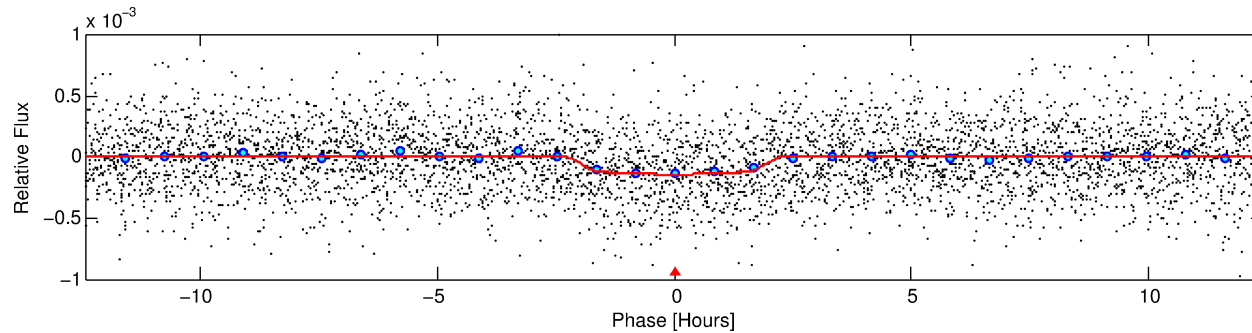
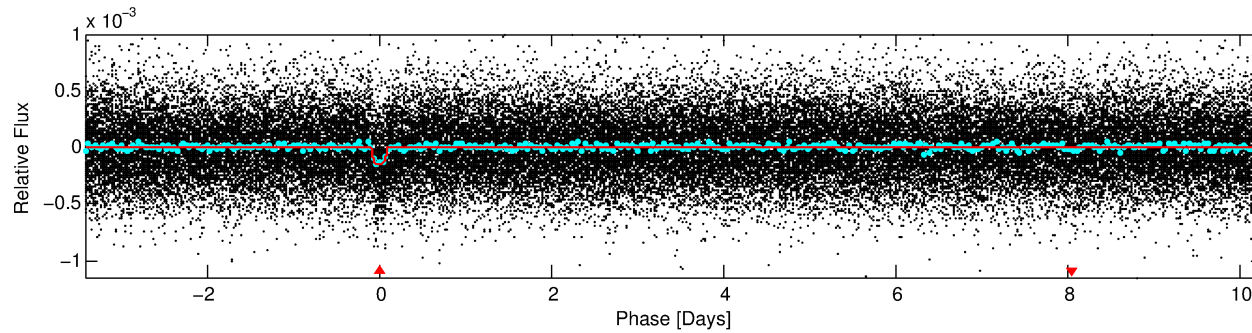
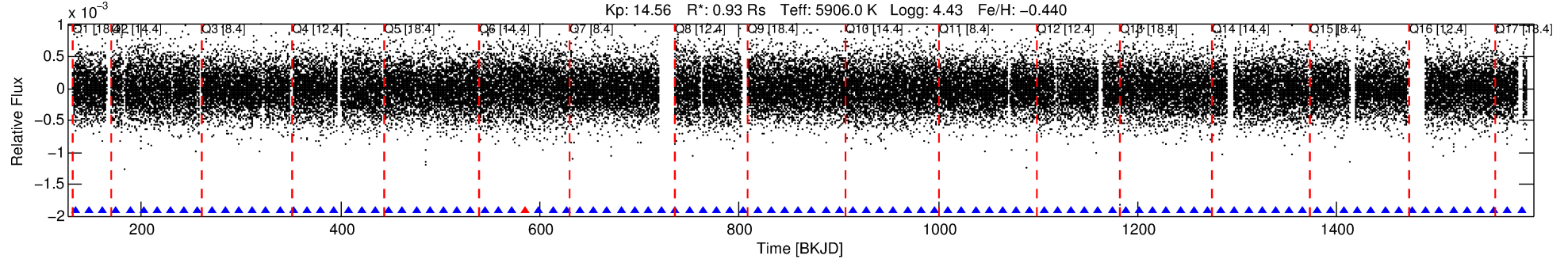
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009474232-01	9474232	009474222-pri	9474222	1:1	18.2	-3	3	13.28	14.57	737.06	Direct-PRF	0	0.12	0.02

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: 9474232 Candidate: 1 of 1 Period: 13.692 d
KOI: K04760.01 Corr: 0.962

Kp: 14.56 R*: 0.93 Rs Teff: 5906.0 K Logg: 4.43 Fe/H: -0.440



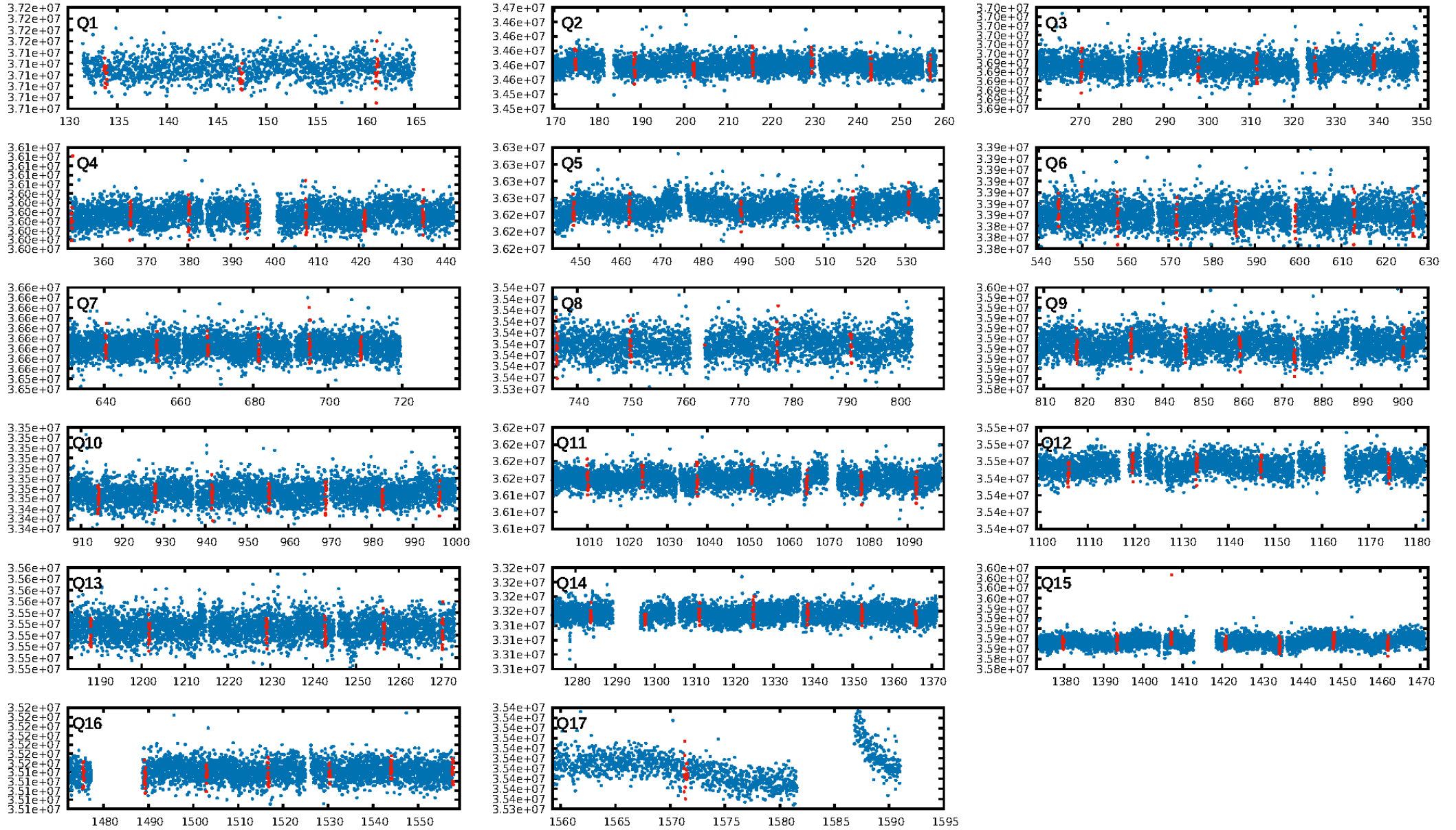
DV Fit Results:

Period = 13.69174 [0.00011] d
Epoch = 133.7902 [0.0067] BKJD
Rp/R* = 0.0124 [0.0065]
a/R* = 14.43 [38.30]
b = 0.84 [0.97]
Seff = 83.45 [29.00]
Teq = 771 [67] K
Rp = 1.26 [0.74] Re
a = 0.1064 [0.0236] AU
Ag = 98.39 [116.95] [0.83σ]
Teff = 3753 [1078] K [2.76σ]

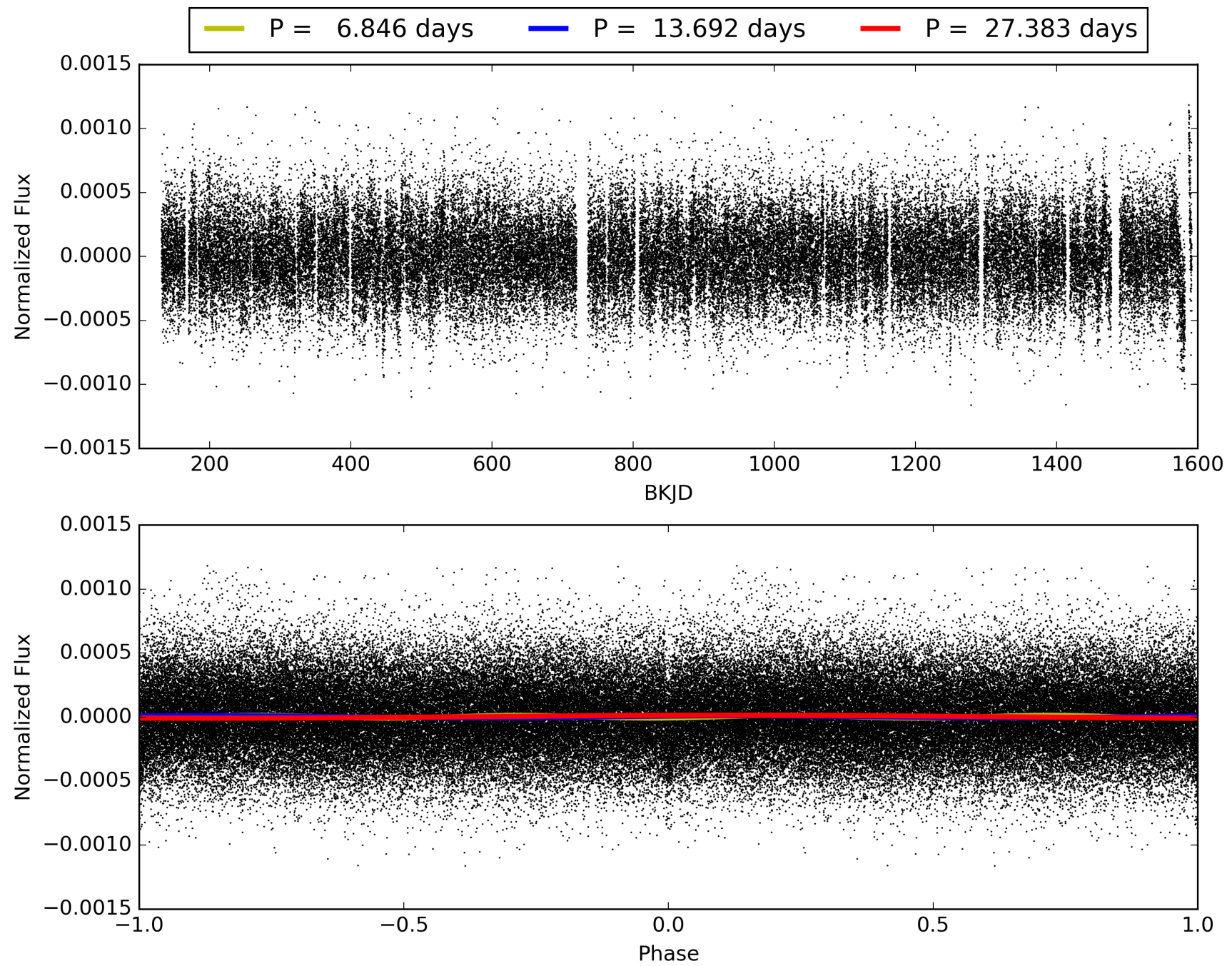
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.72e-30
RollingBand-fgt: 0.99 [93/94]
GhostDiagnostic-chr: -0.2851
Centroid-sig: 0.0%
Centroid-so: 19.783 arcsec [20.74σ]
OotOffset-rm: 10.570 arcsec [22.29σ]
KicOffset-rm: 10.361 arcsec [20.92σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009474232-01, PDC Light Curves

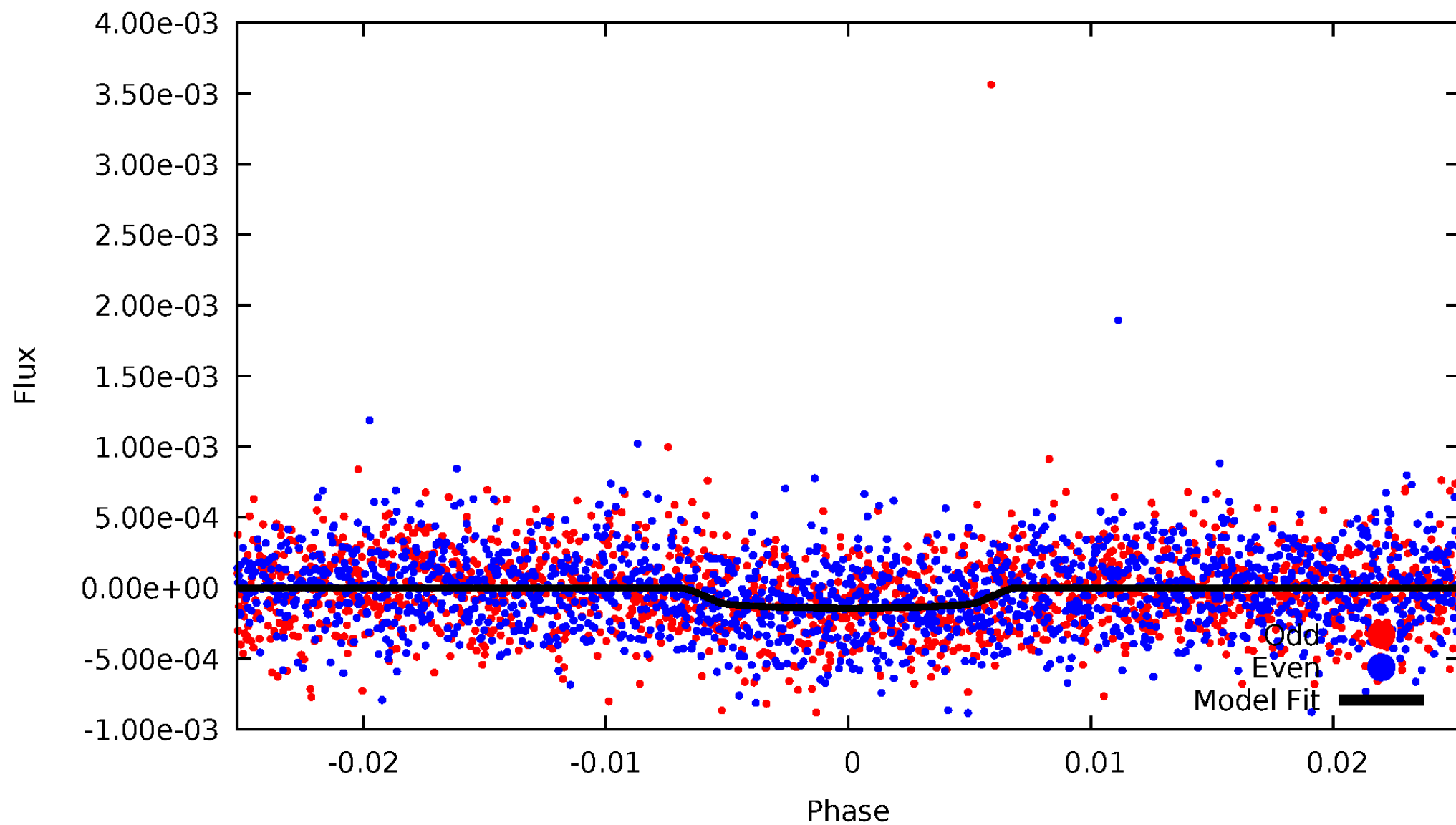


TCE 009474232-01



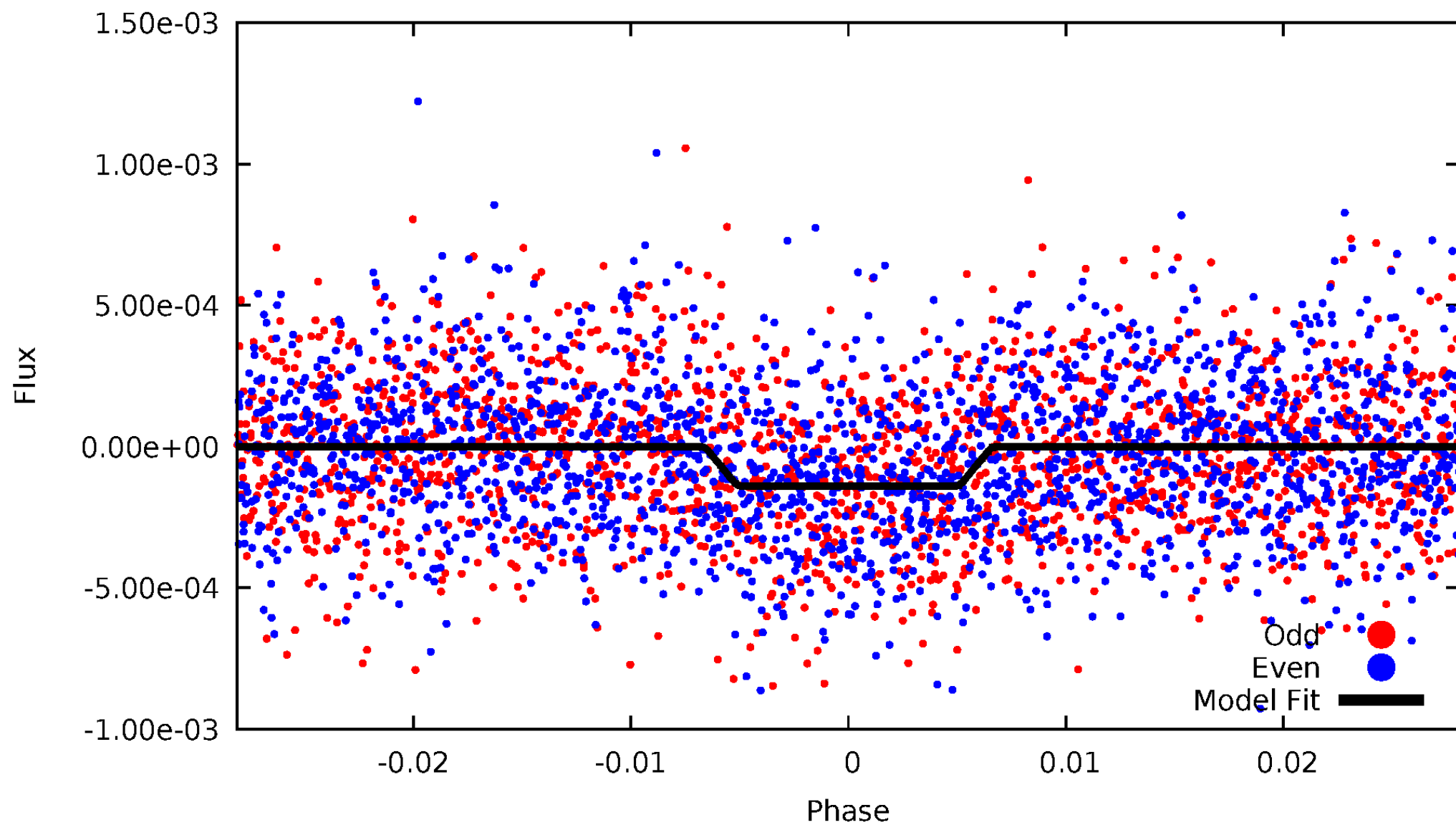
DV Odd/Even

TCE 009474232-01

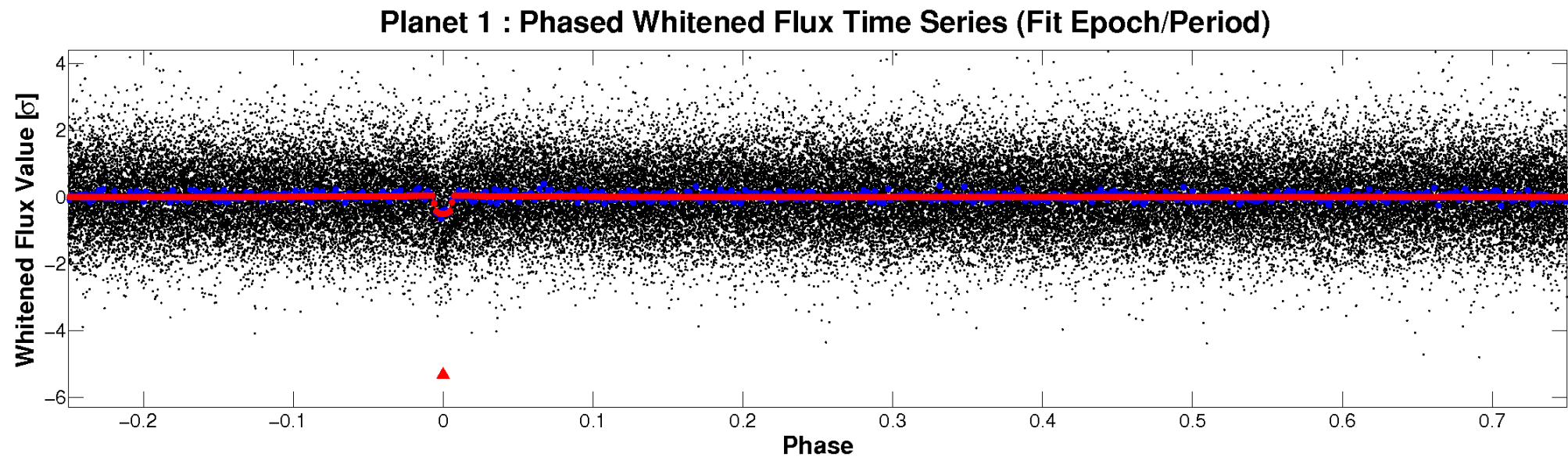
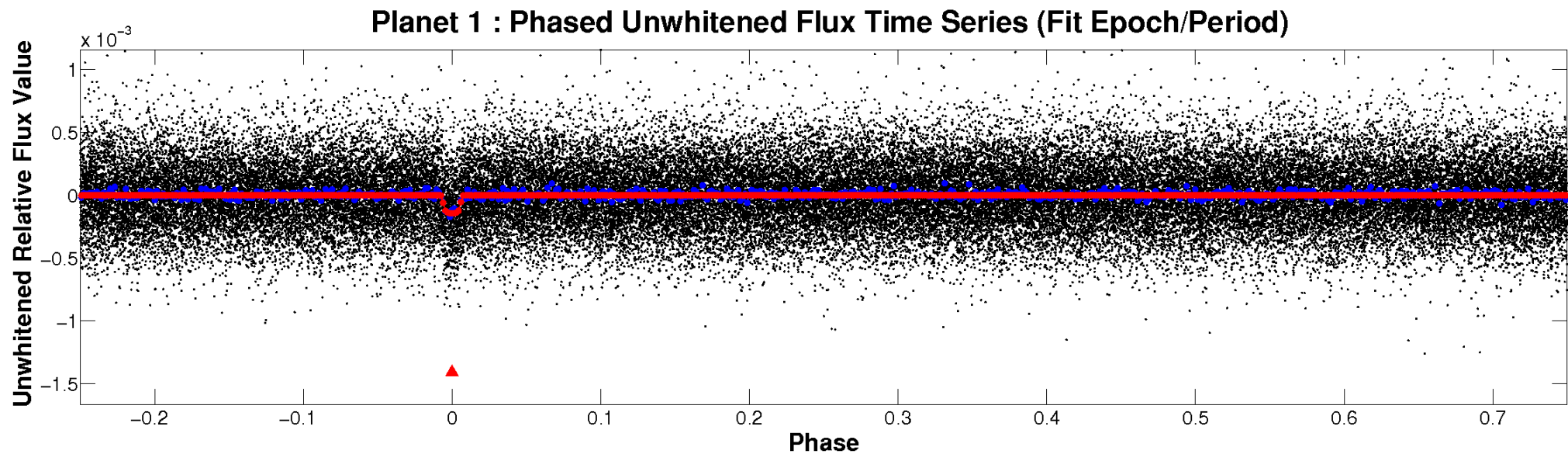


ALT Odd/Even

TCE 009474232-01

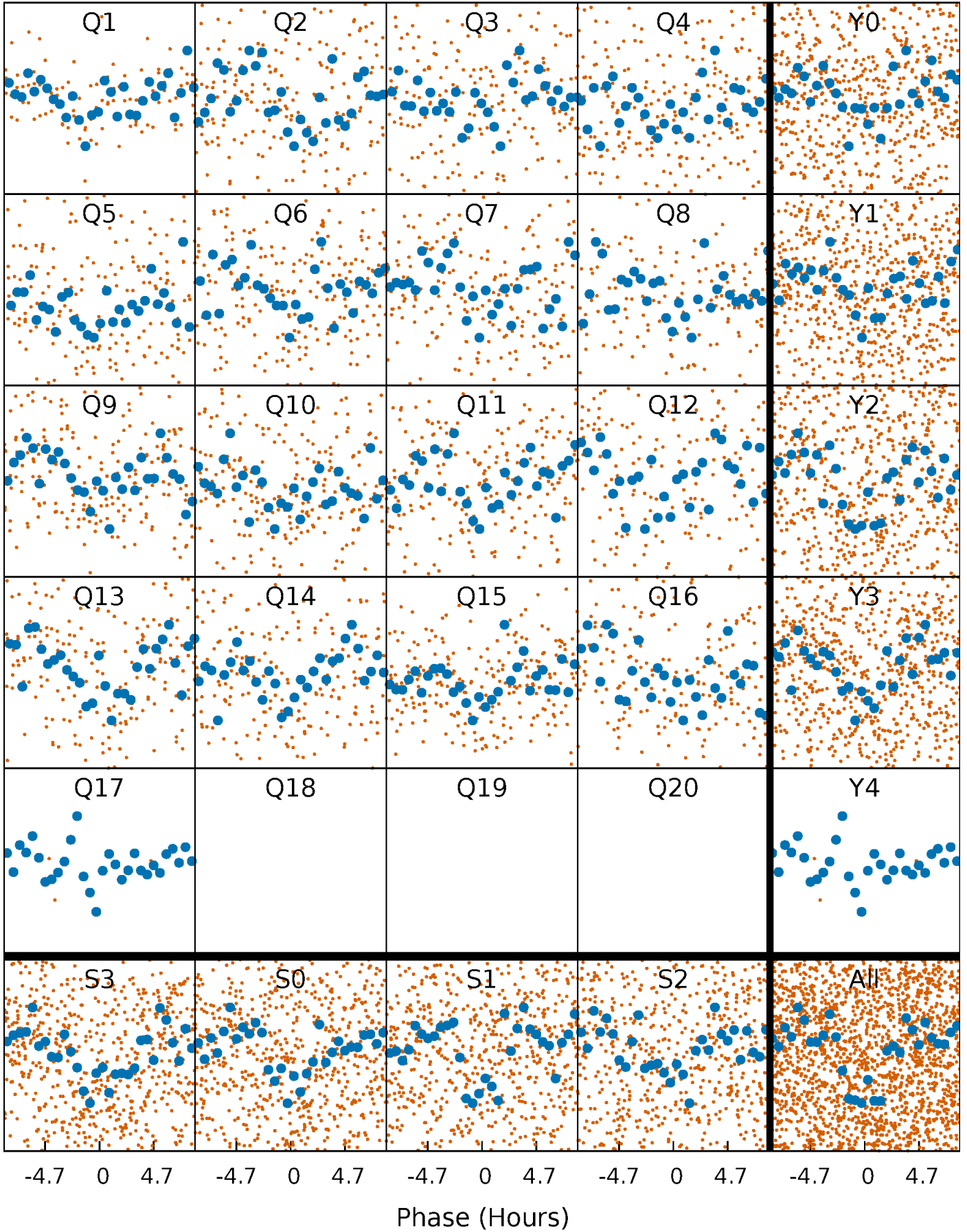


Non-Whitened Vs. Whitened Light Curve



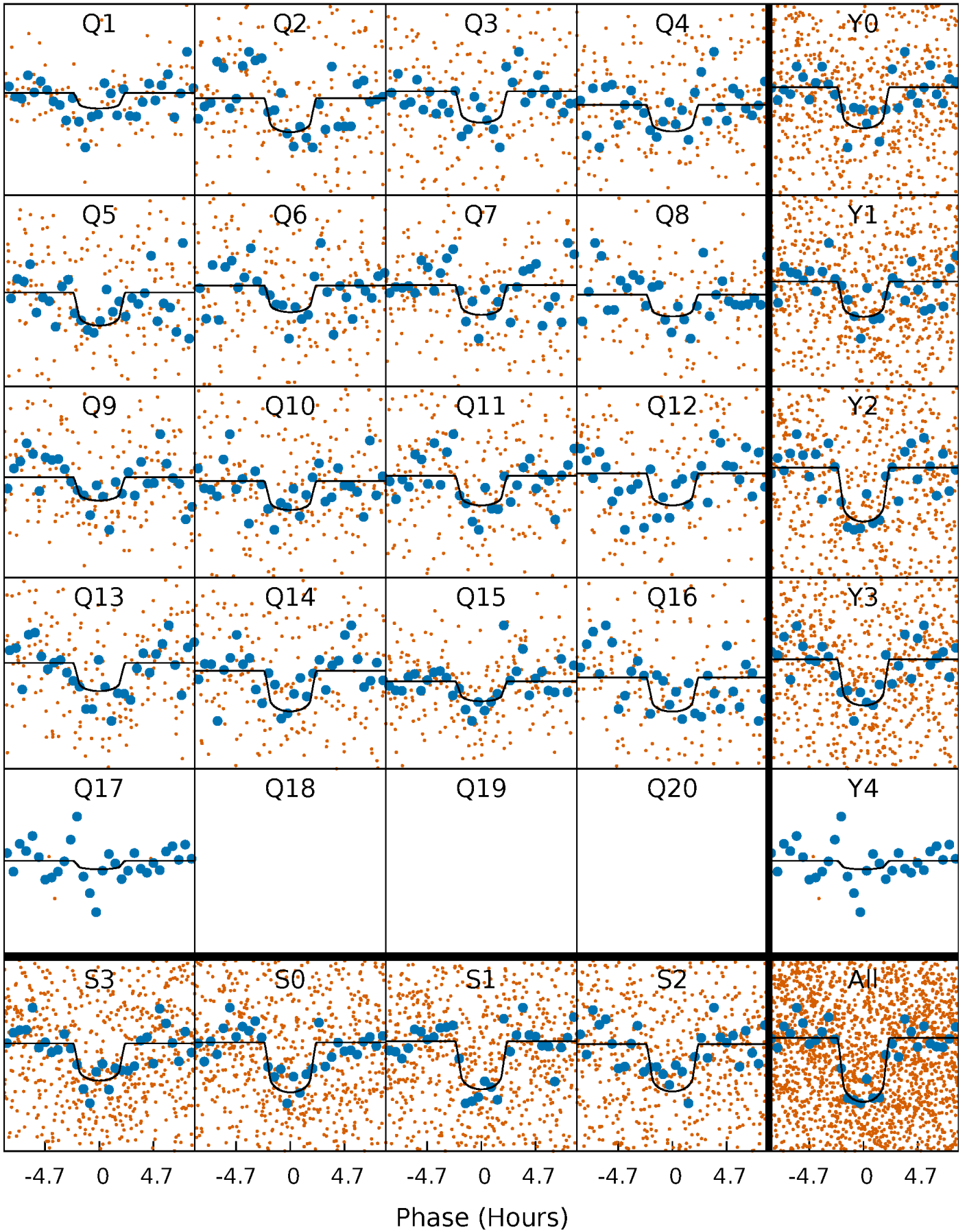
PDC Quarter-Phased Transit Curves

TCE 009474232-01 P= 13.691739 Days $T_0=133.790179$ (BKJD)



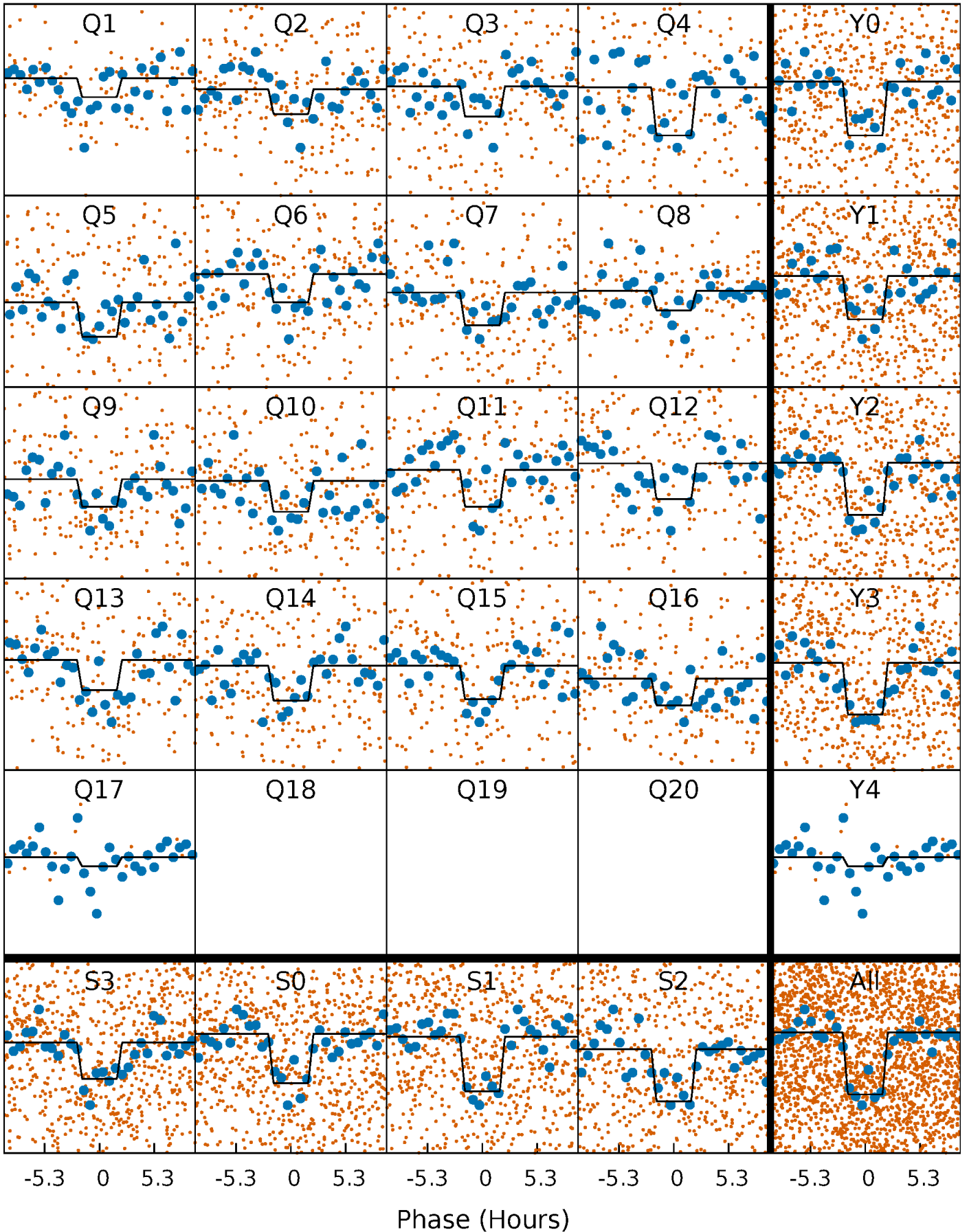
DV Quarter-Phased Transit Curves

TCE 009474232-01 P= 13.691739 Days $T_0=133.790179$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

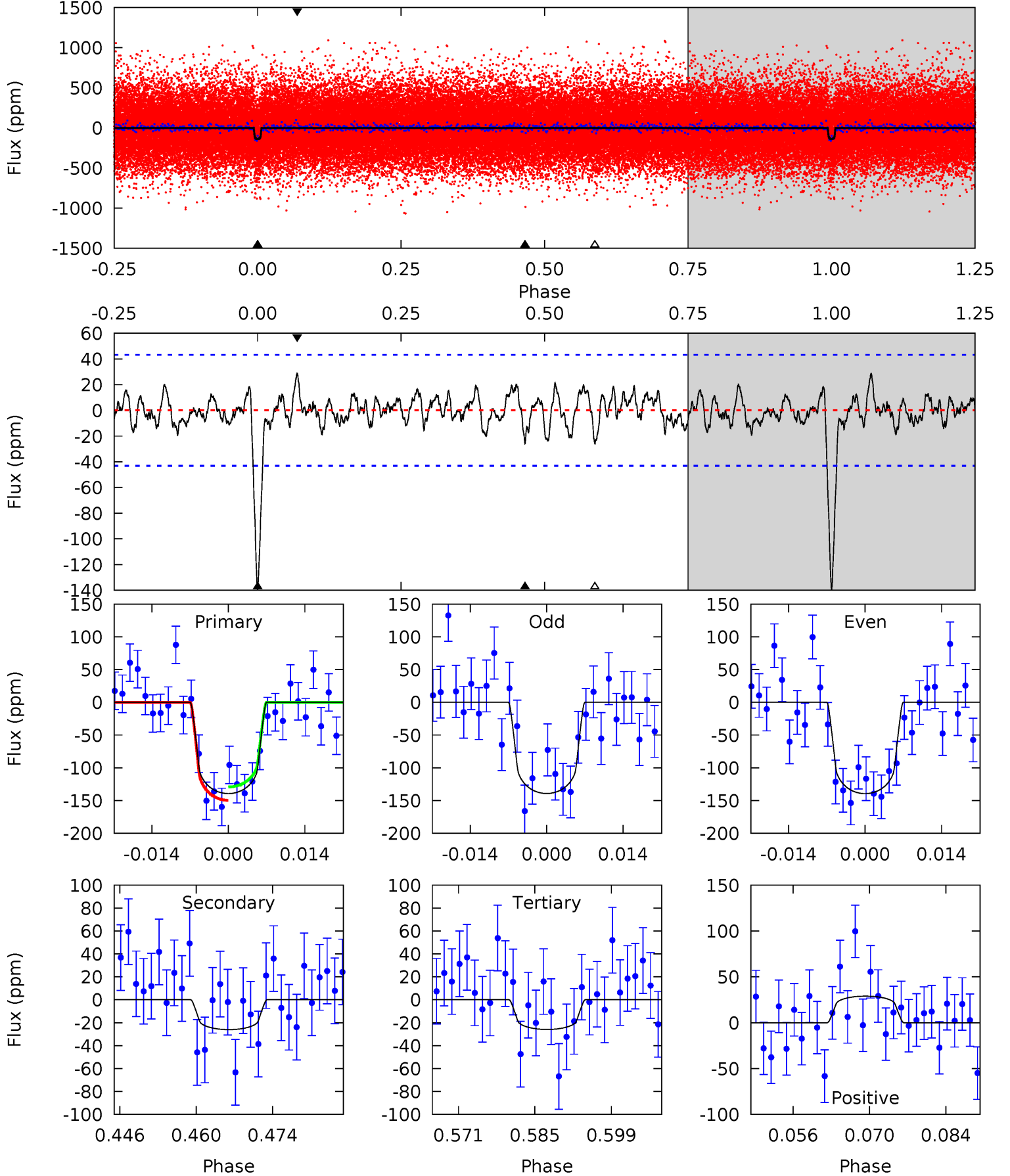
TCE 009474232-01 P= 13.691681 Days $T_0=133.793186$ (BKJD)



DV Model-Shift Uniqueness Test

009474232-01, P = 13.691739 Days, E = 120.098440 Days

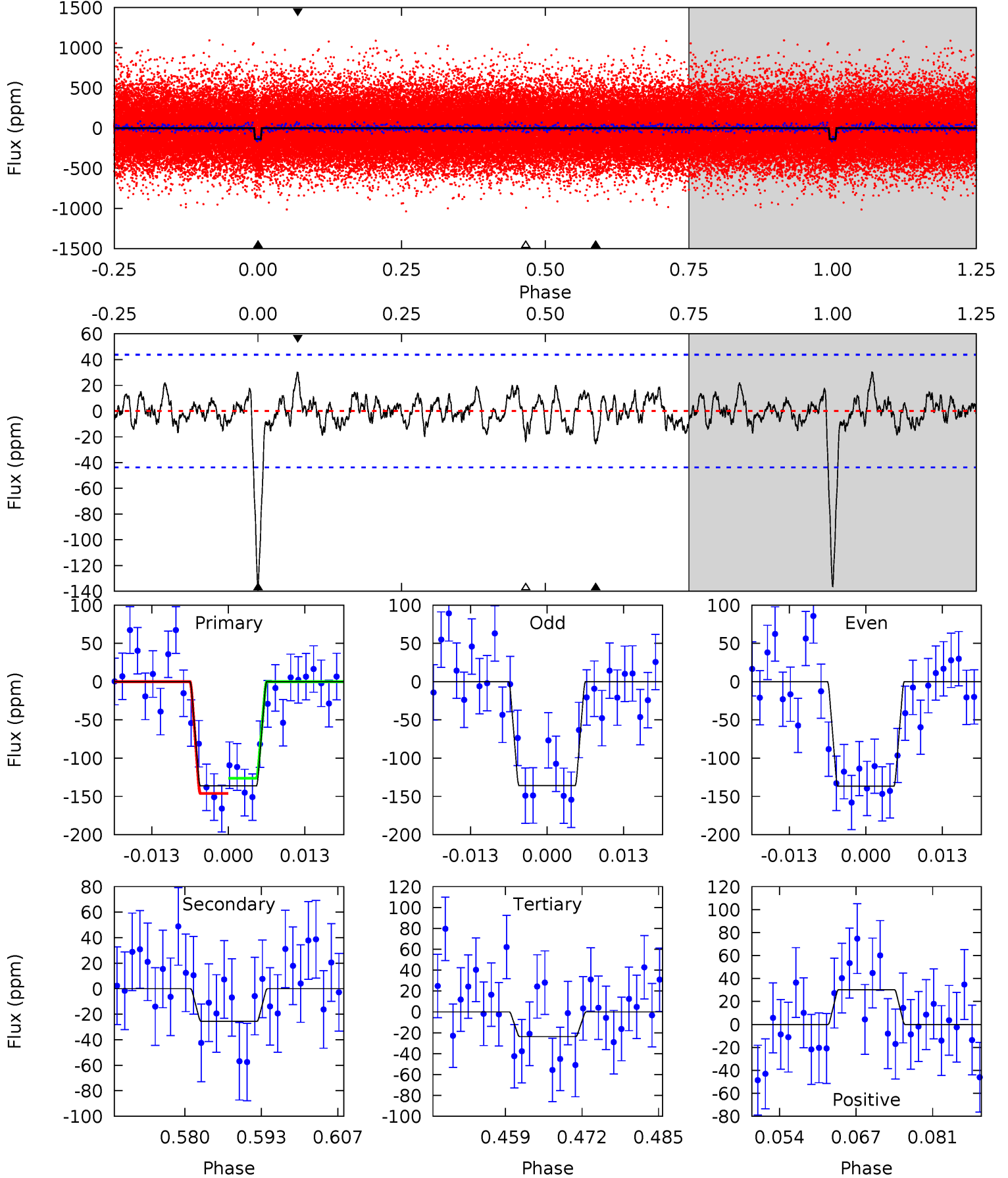
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	2.99	2.98	3.33	4.96	2.46	1.08	13.0	12.7	0.02	-0.33	0.01	0.90	0.17	1.18



Alt Model-Shift Uniqueness Test

009474232-01, P = 13.691681 Days, E = 120.101505 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	2.89	2.69	3.43	4.97	2.47	1.00	12.8	12.0	0.20	-0.53	0.04	0.92	0.18	1.12



Stellar Parameters For KIC 009474232

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5906^{+159}_{-177}	$4.433^{+0.120}_{-0.180}$	$-0.440^{+0.300}_{-0.300}$	$0.931^{+0.242}_{-0.130}$	$0.857^{+0.106}_{-0.077}$	$1.497^{+0.781}_{-0.697}$
	+3%/-3%	+3%/-4%	+68%/-68%	+26%/-14%	+12%/-9%	+52%/-47%
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 009474232-01 / KOI 4760.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-26 ± 9	$1.30^{+0.69}_{-0.67}$	1081^{+71}_{-58}	4070^{+1354}_{-631}	97^{+305}_{-62}
Alt.	-25 ± 9	$1.24^{+0.68}_{-0.64}$	1077^{+71}_{-57}	4100^{+1345}_{-658}	104^{+316}_{-68}

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

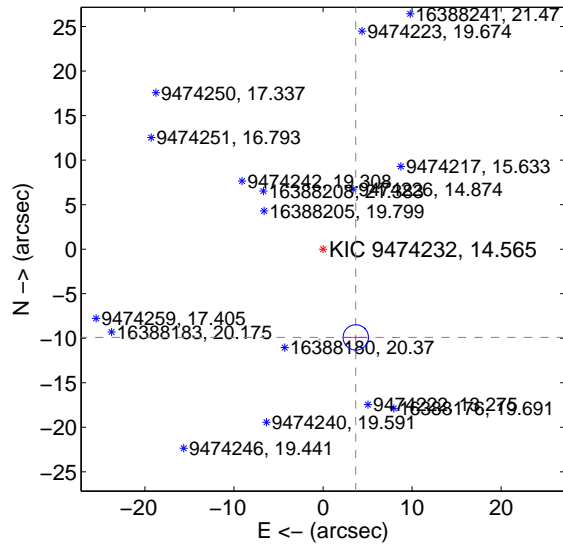
Supplemental centroid analysis for 009474232-01. Kepler magnitude: 14.56. Transit SNR 12.44

There are 3 quarters with good PRF difference image offsets

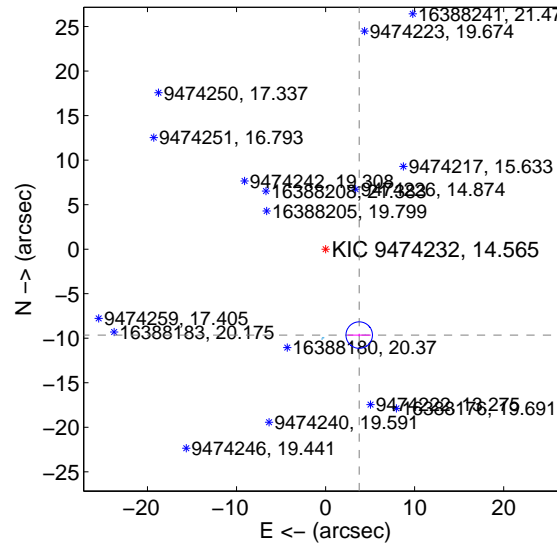
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.570 ± 0.474	22.29	-3.677 ± 1.310	-9.910 ± 0.140
PRF-fit source offset from KIC position	10.361 ± 0.495	20.92	-3.777 ± 1.307	-9.649 ± 0.146
photometric centroid source offset	19.78 ± 0.95	20.74	-2.45 ± 0.87	-19.63 ± 0.96

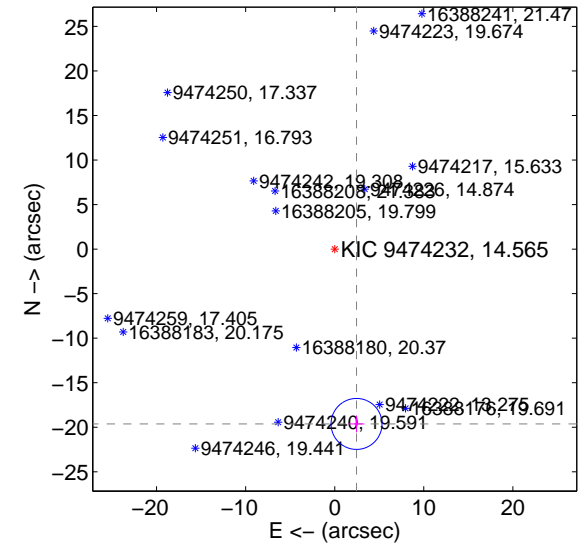
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

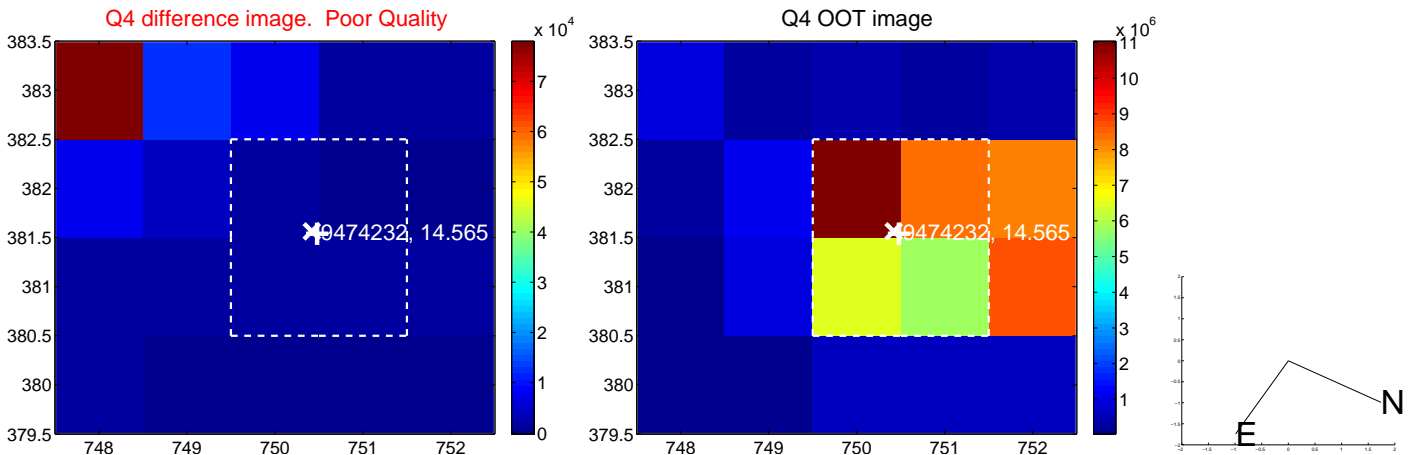
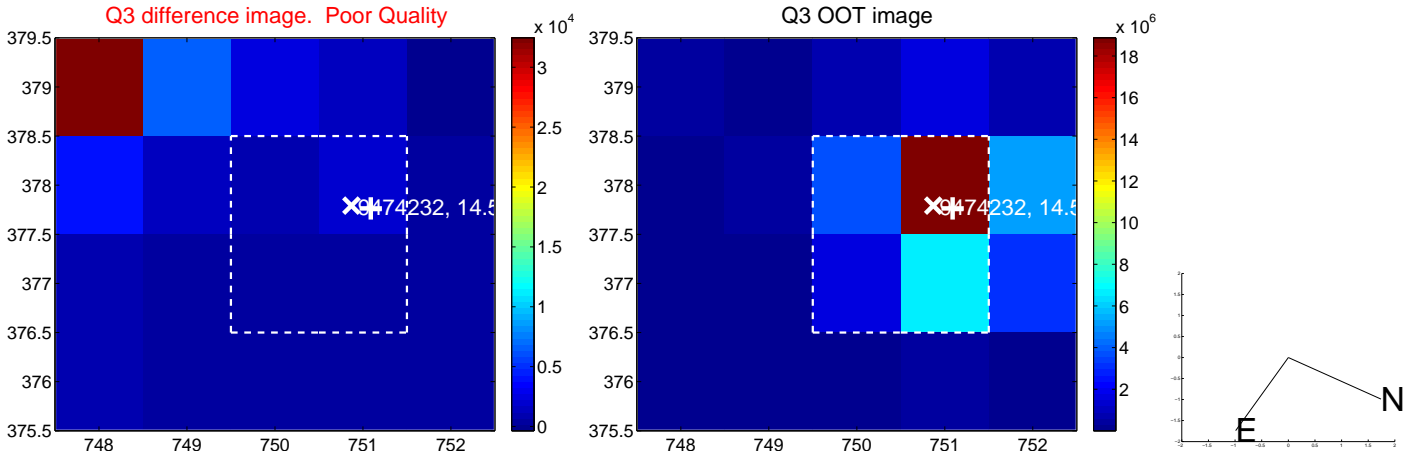
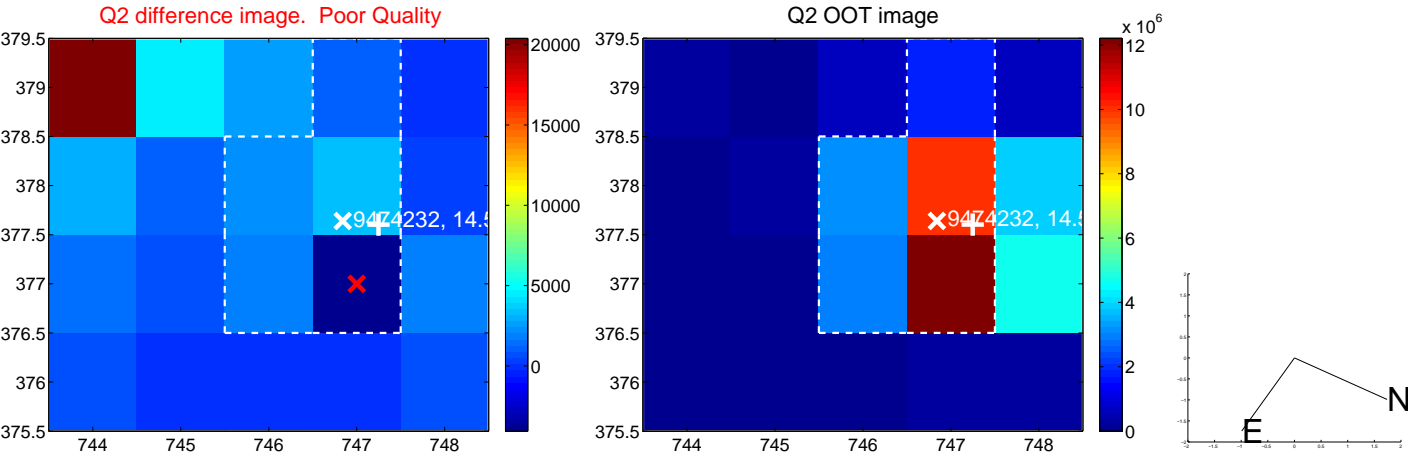
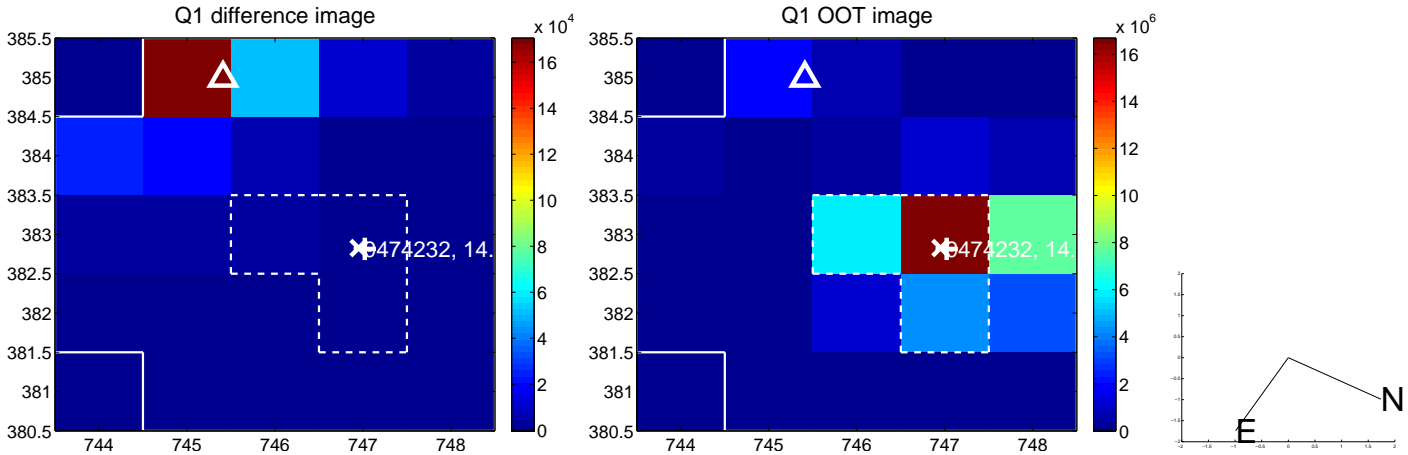


offset from photometric centroids

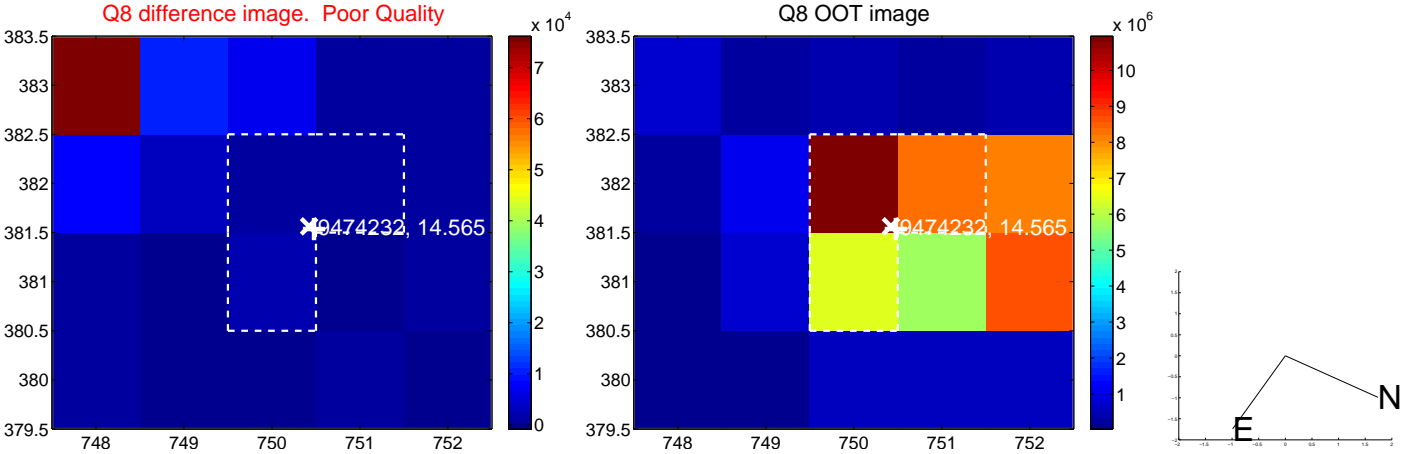
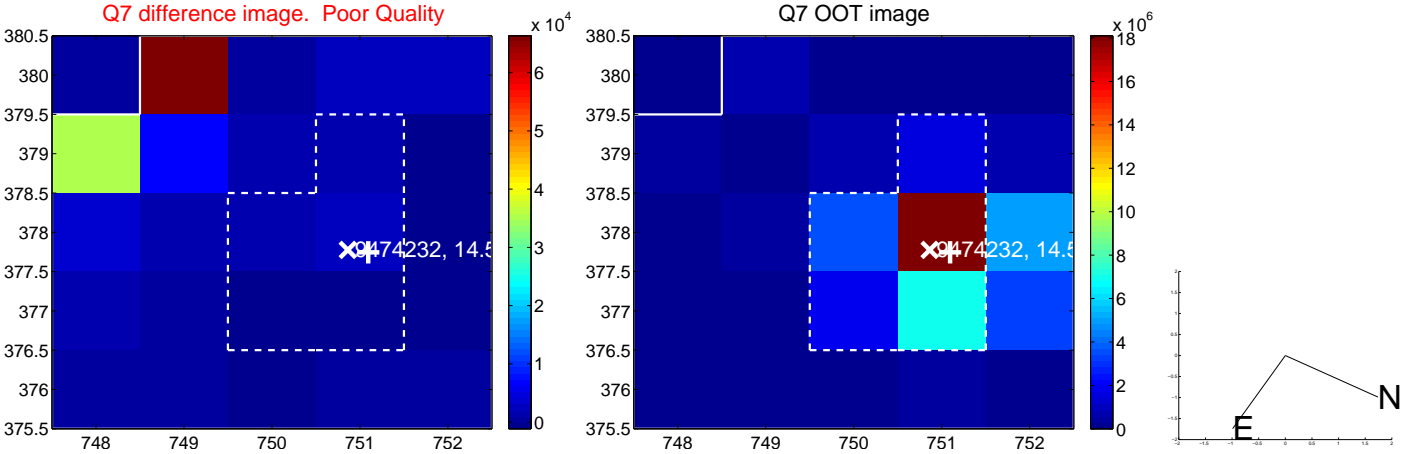
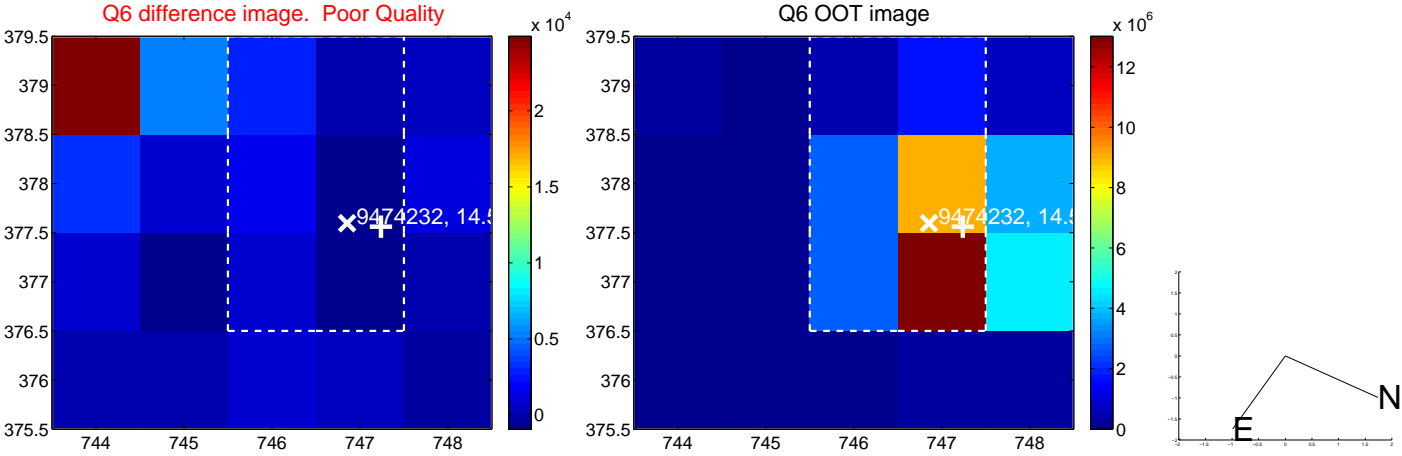
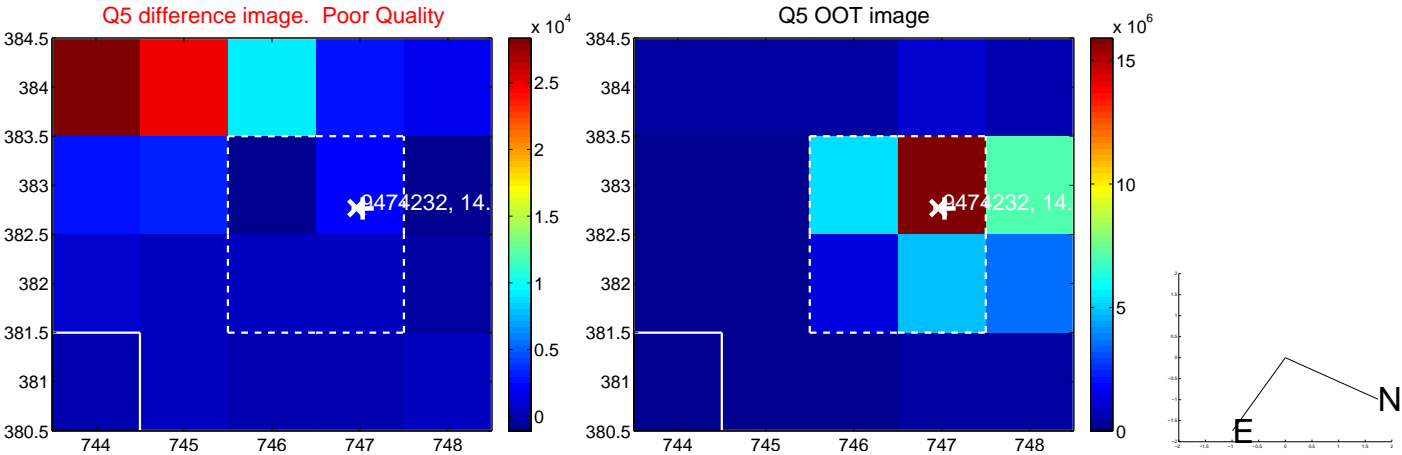


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

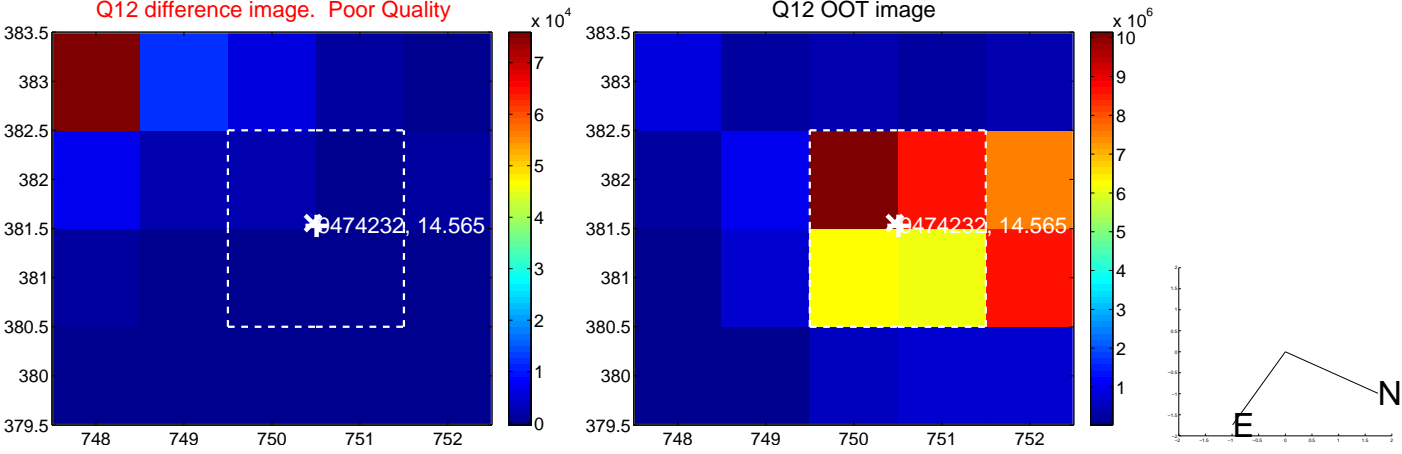
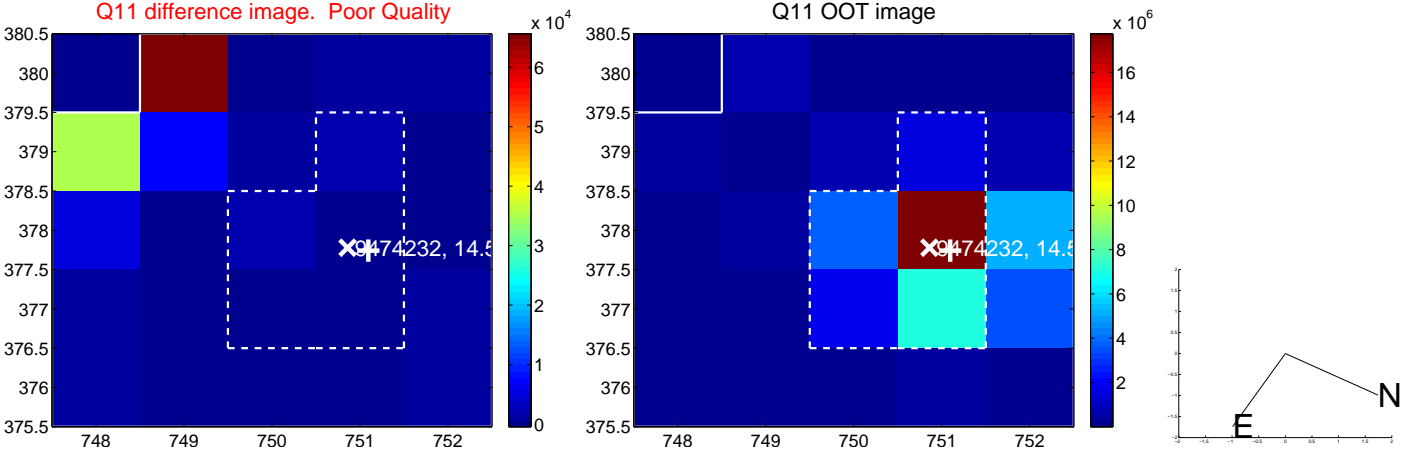
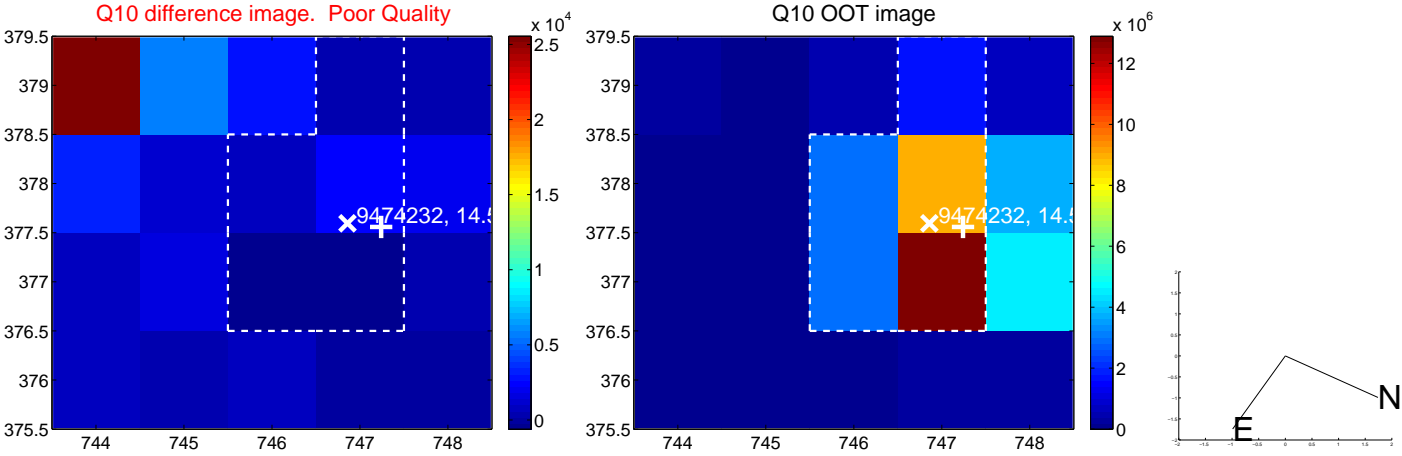
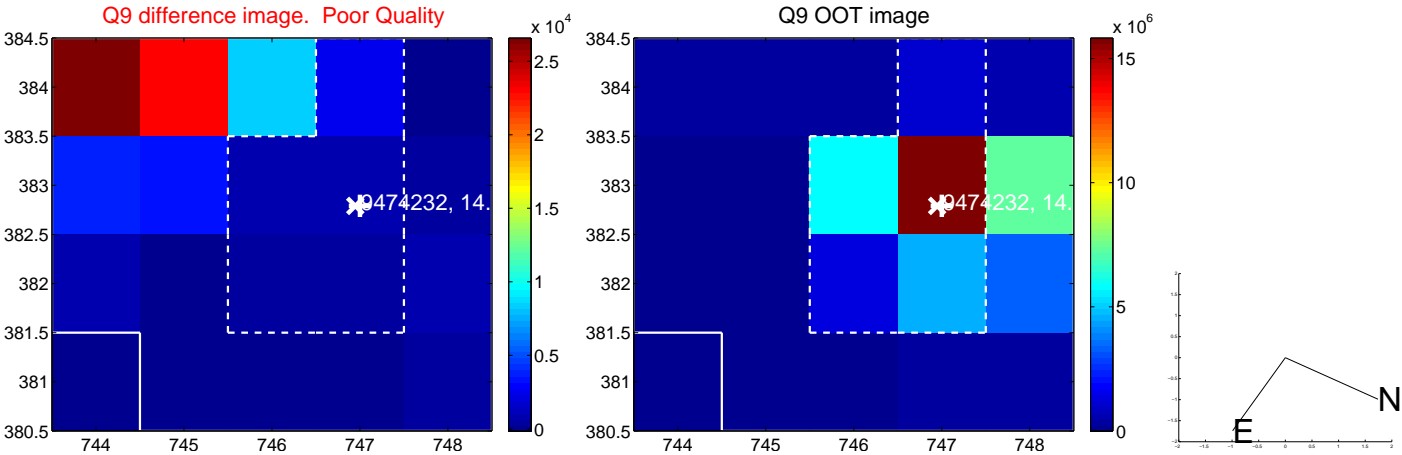
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



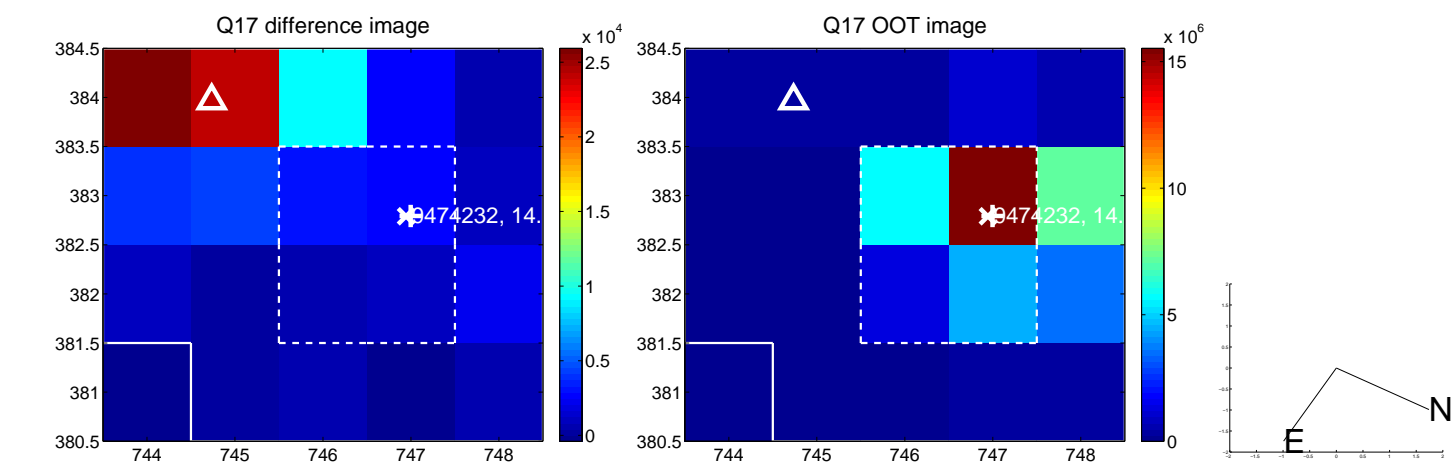
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



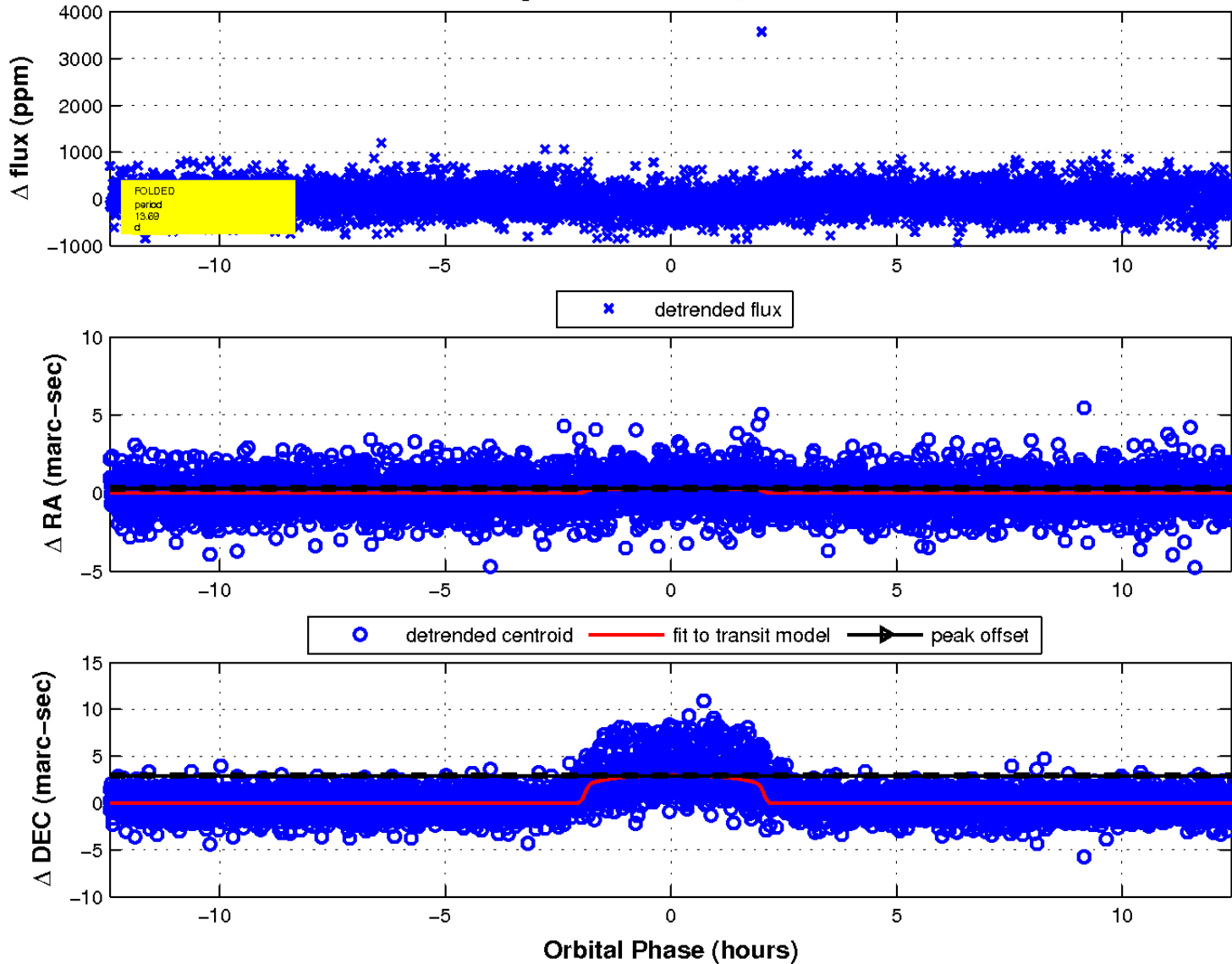
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

