

KIC 005024414

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})
005024414-01	OBS	7555.01	1.525901	132.699441	51.5	2.159	8.3	7.5	10.53	5000	7.56	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005024414-01	OBS	FP	0.00	0	0	1	1	PLANET_IN_STAR—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 005024414-01

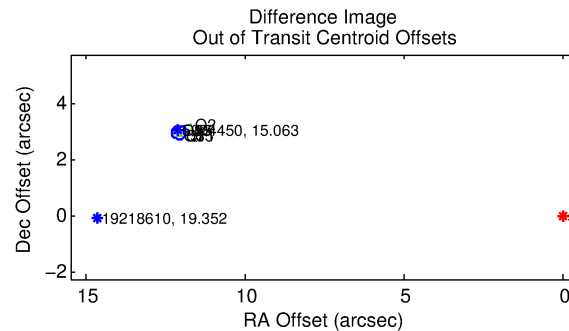
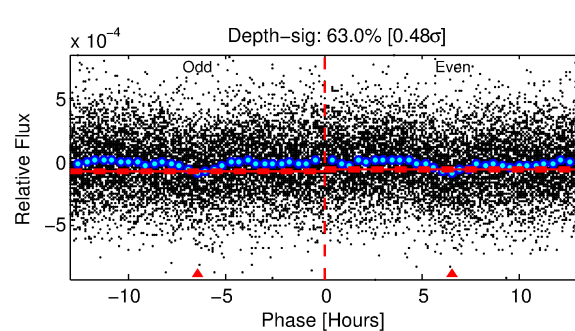
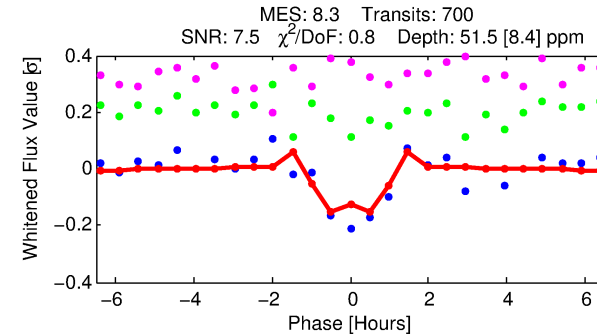
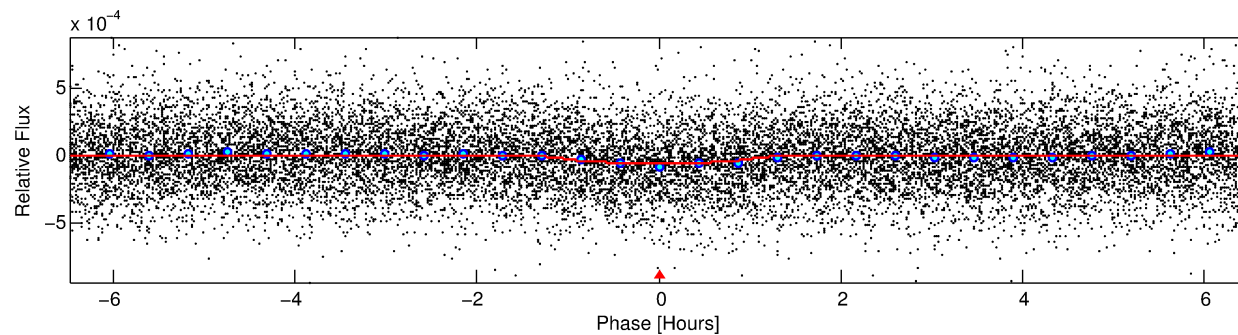
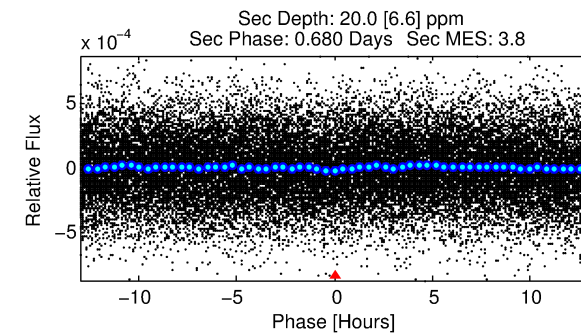
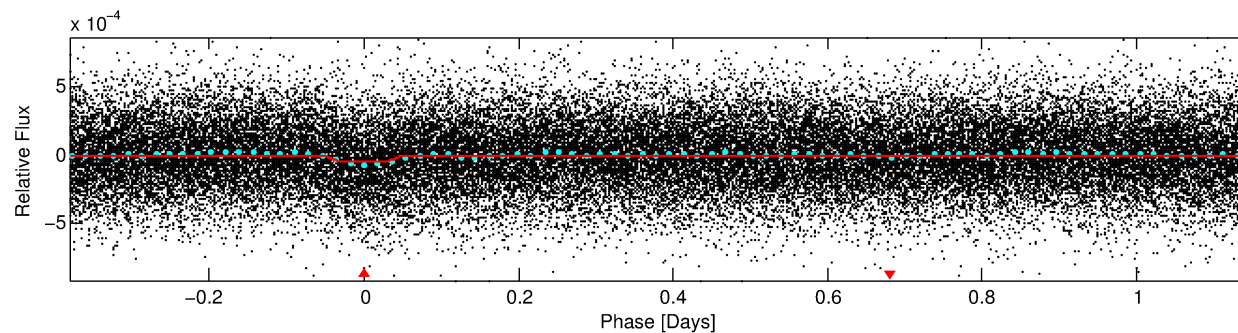
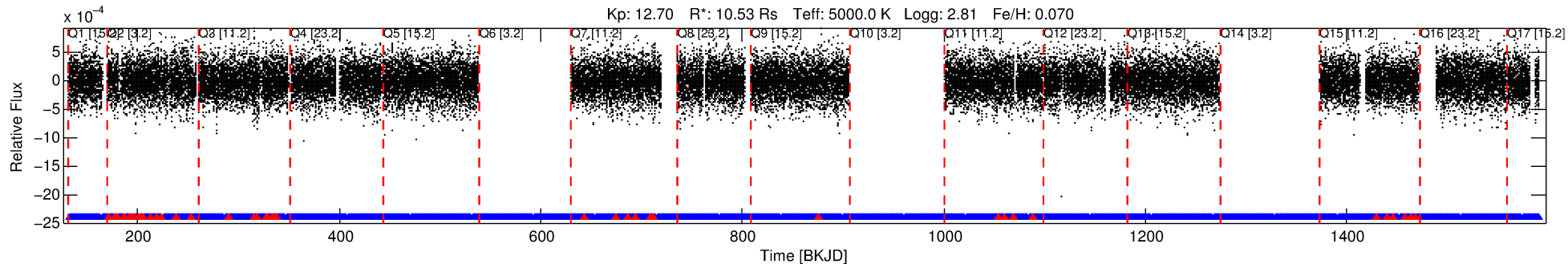
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005024414-01	5024414	1544.01	5024450	1:1	12.4	-1	3	15.06	12.70	491.12	Direct-PRF	0	1.19	0.10

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: 5024414 Candidate: 1 of 1 Period: 1.526 d
KOI: K07555.01 Corr: 0.925

Kp: 12.70 R*: 10.53 Rs Teff: 5000.0 K Logg: 2.81 Fe/H: 0.070



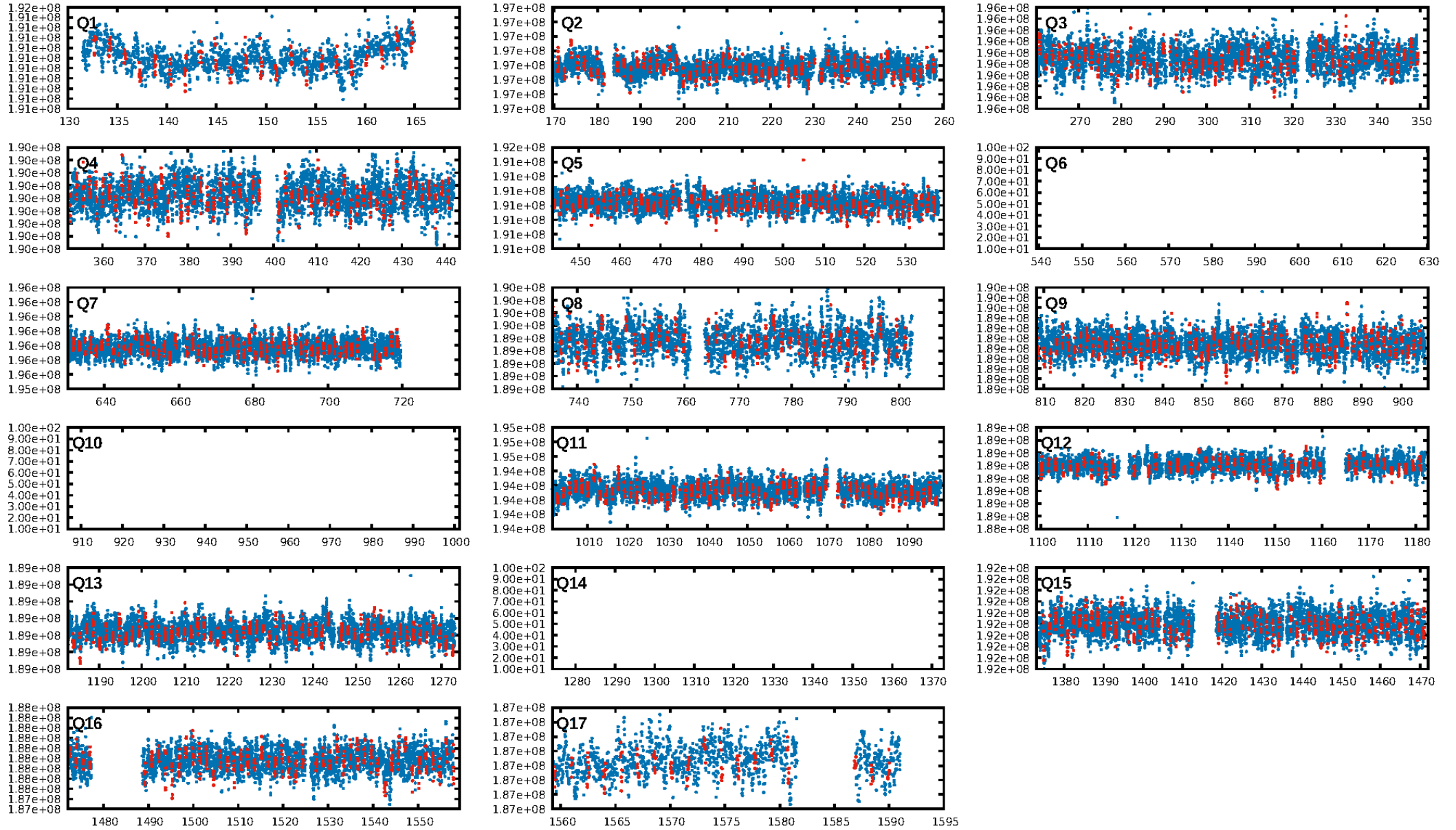
DV Fit Results:

Period = 1.52590 [0.00001] d
Epoch = 132.6994 [0.0022] BKJD
Rp/R* = 0.0066 [0.0032]
a/R* = 4.95 [7.81]
b = 0.43 [3.11]
Seff = N/A
Teq = N/A
Rp = 7.56 [4.37] Re
a = N/A
Ag = N/A
Teff = N/A

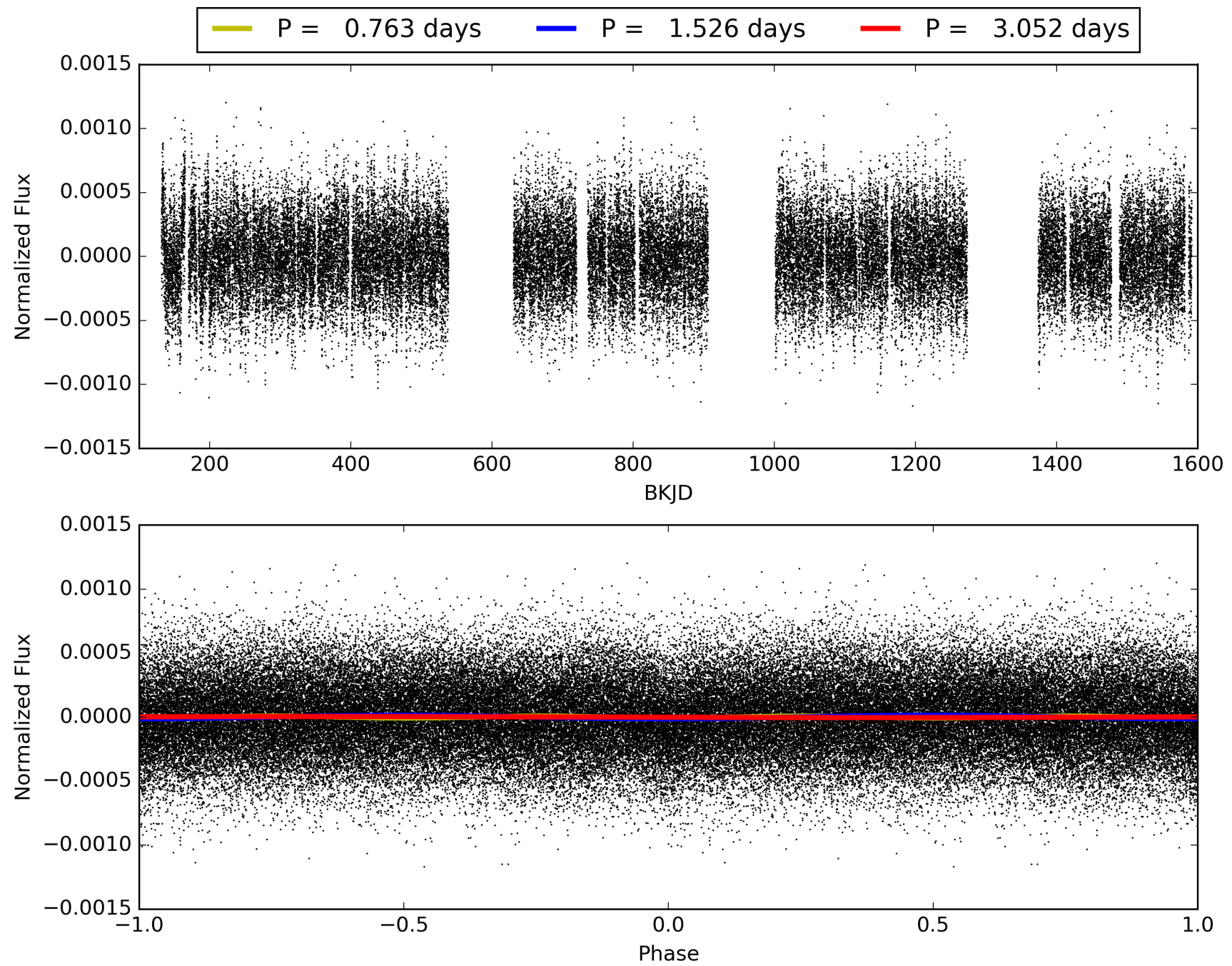
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 7.34e-14
RollingBand-fgt: 0.93 [617/660]
GhostDiagnostic-chr: -1.03
Centroid-sig: 0.0%
Centroid-so: 7.633 arcsec [12.67σ]
OotOffset-rm: 12.448 arcsec [163.48σ]
KicOffset-rm: 12.452 arcsec [164.60σ]
OotOffset-st: 1/4/0/5 [10]
KicOffset-st: 1/4/0/5 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 005024414-01, PDC Light Curves

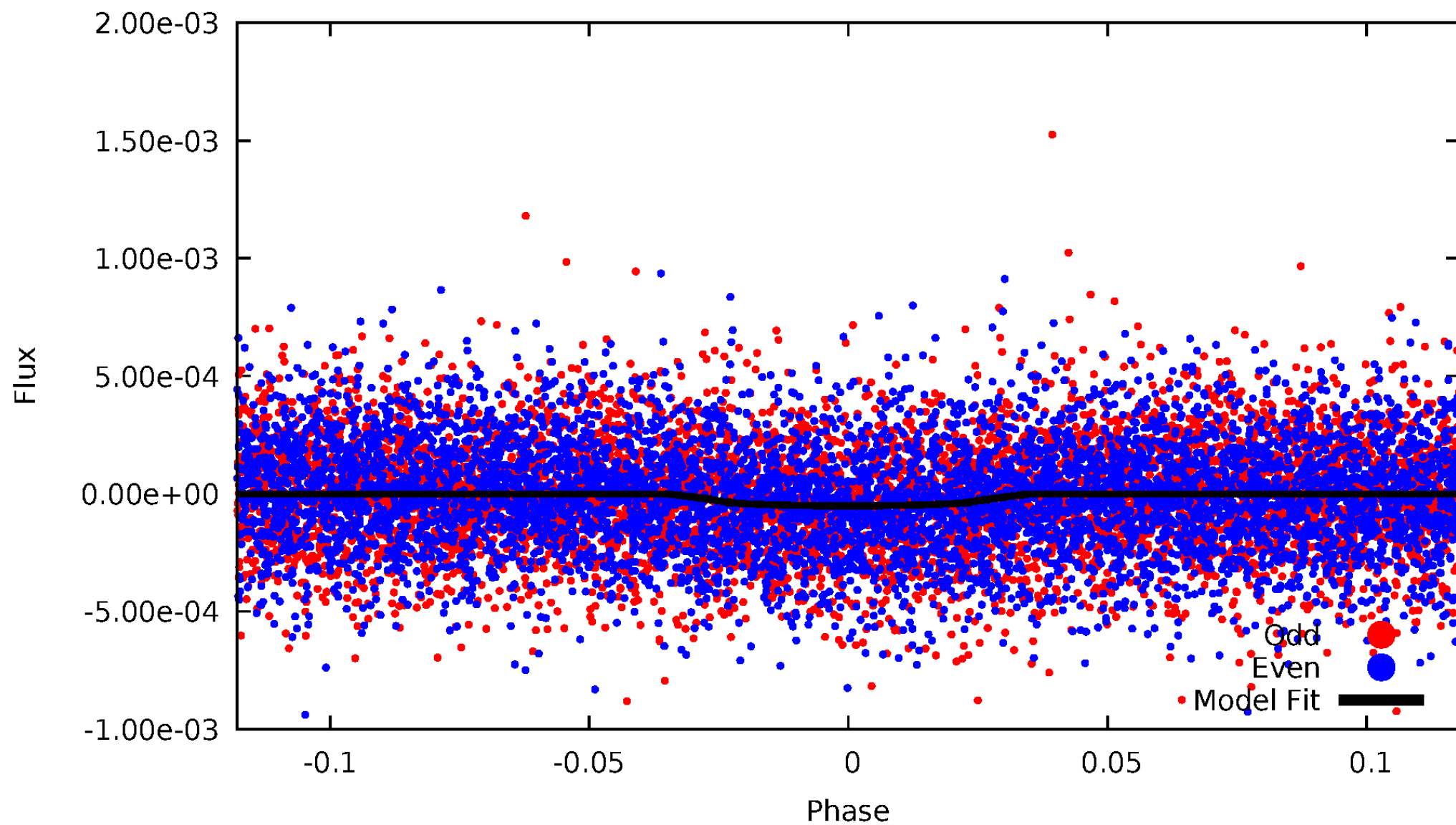


TCE 005024414-01



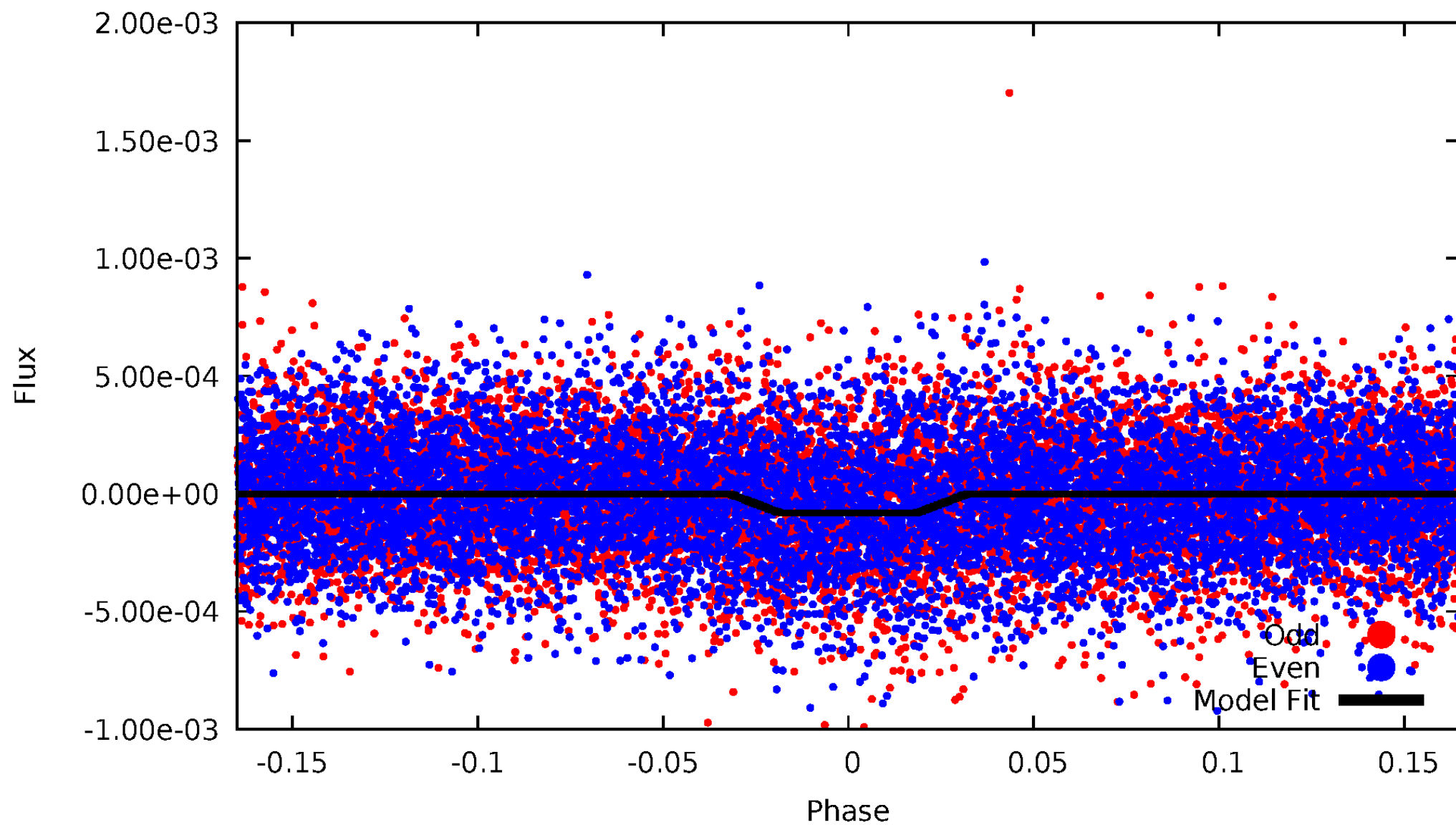
DV Odd/Even

TCE 005024414-01

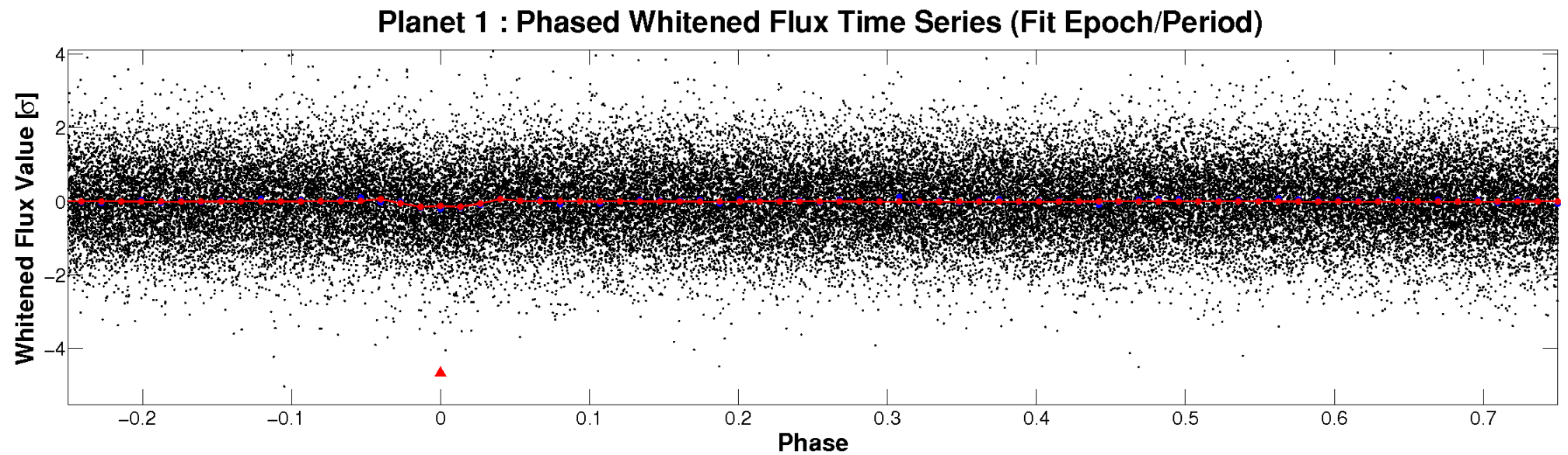
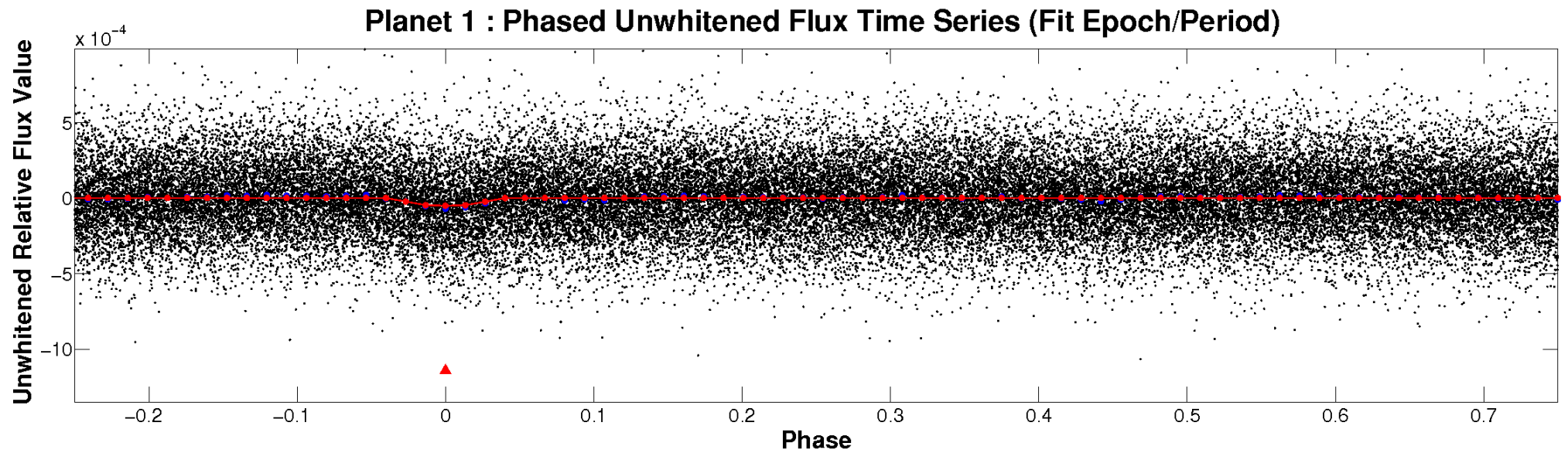


ALT Odd/Even

TCE 005024414-01

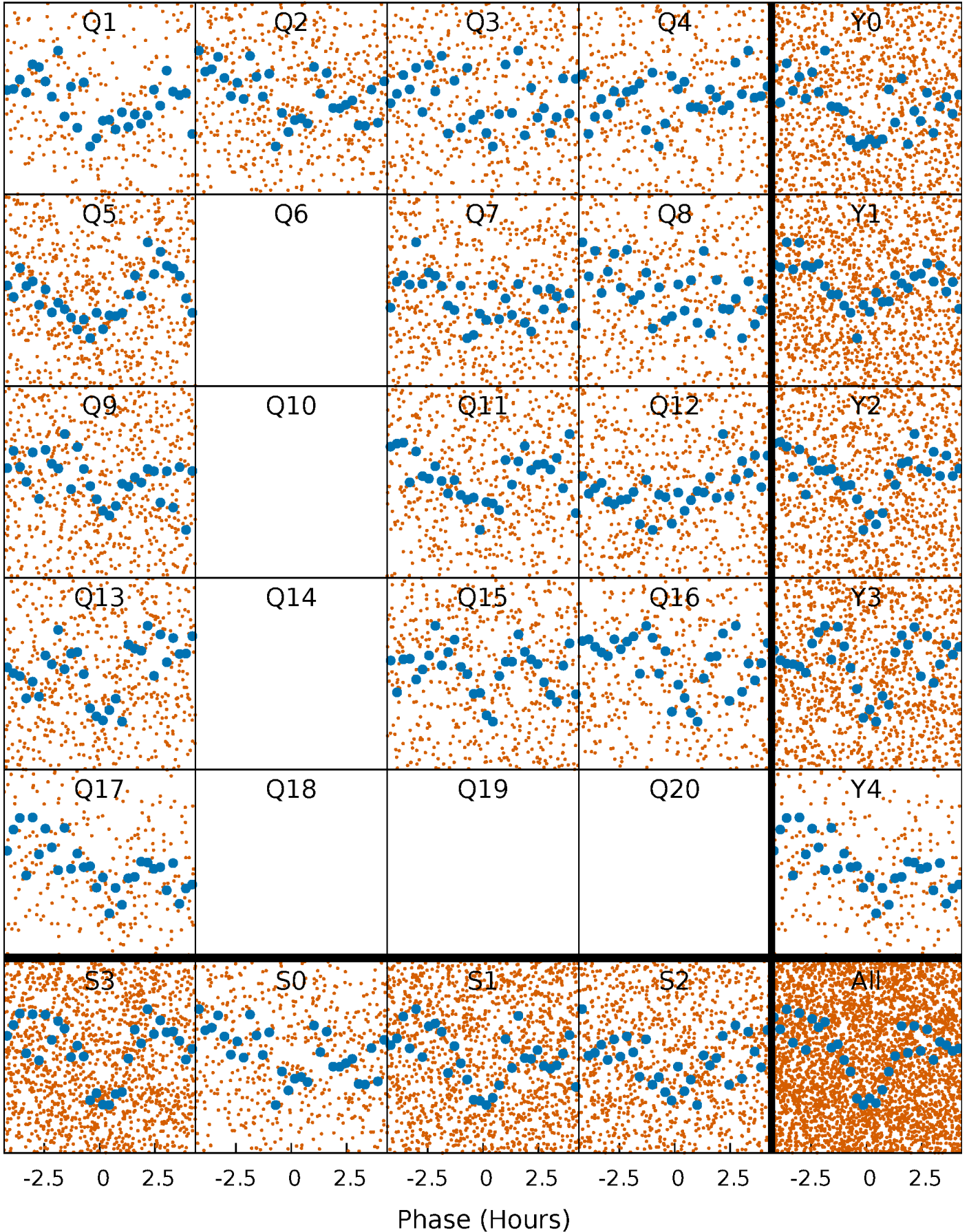


Non-Whitened Vs. Whitened Light Curve



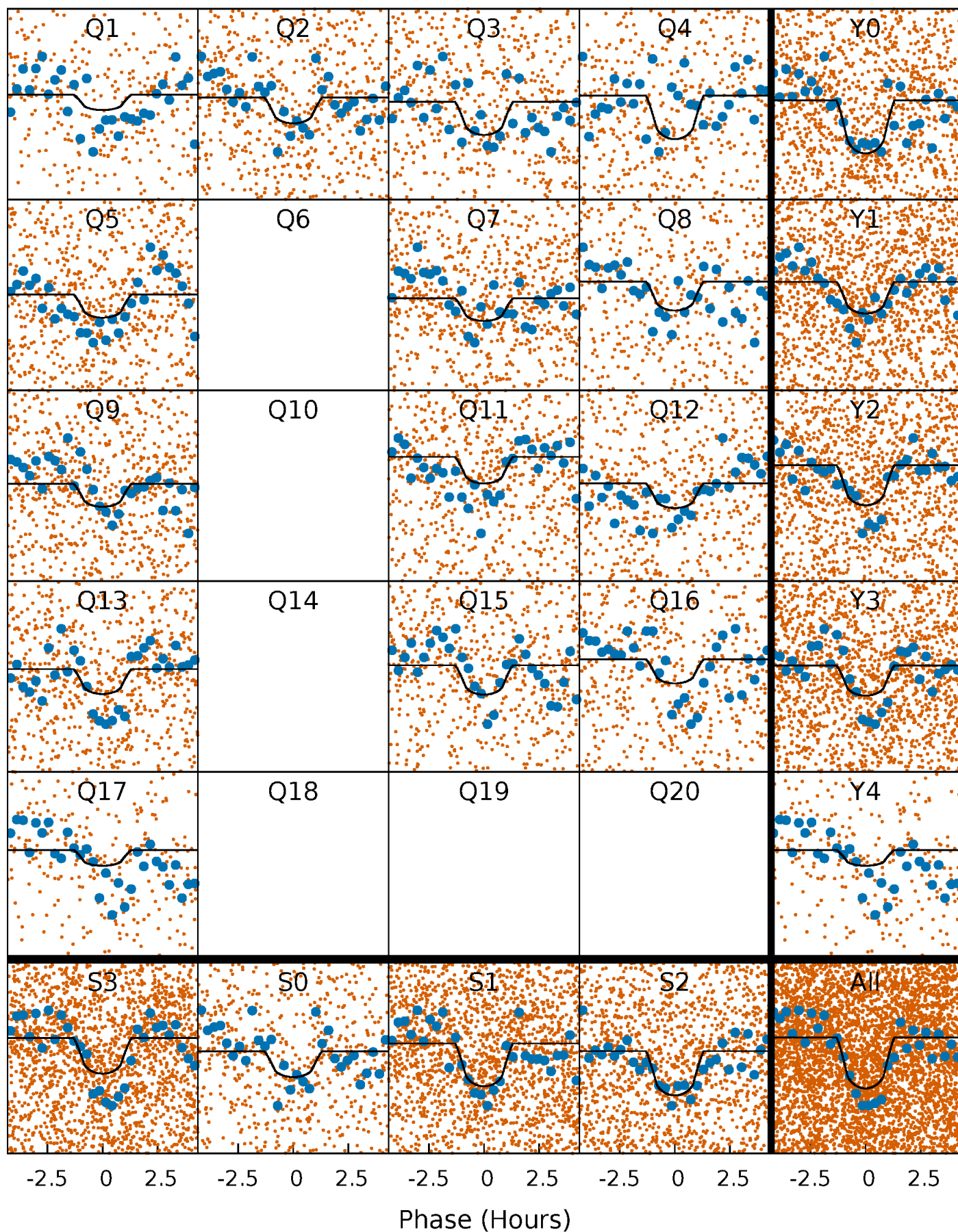
PDC Quarter-Phased Transit Curves

TCE 005024414-01 P= 1.525901 Days $T_0=132.699441$ (BKJD)



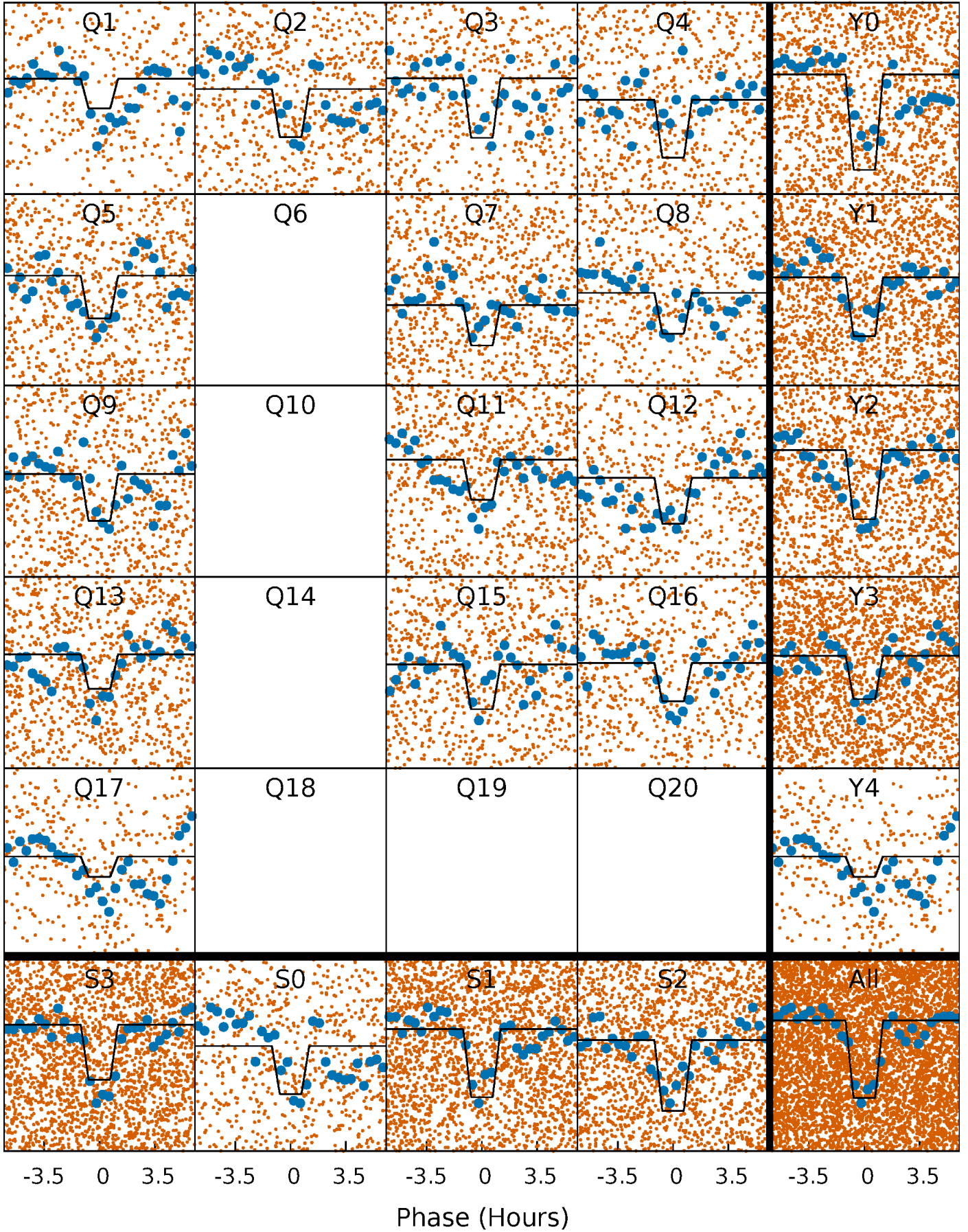
DV Quarter-Phased Transit Curves

TCE 005024414-01 P= 1.525901 Days $T_0=132.699441$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

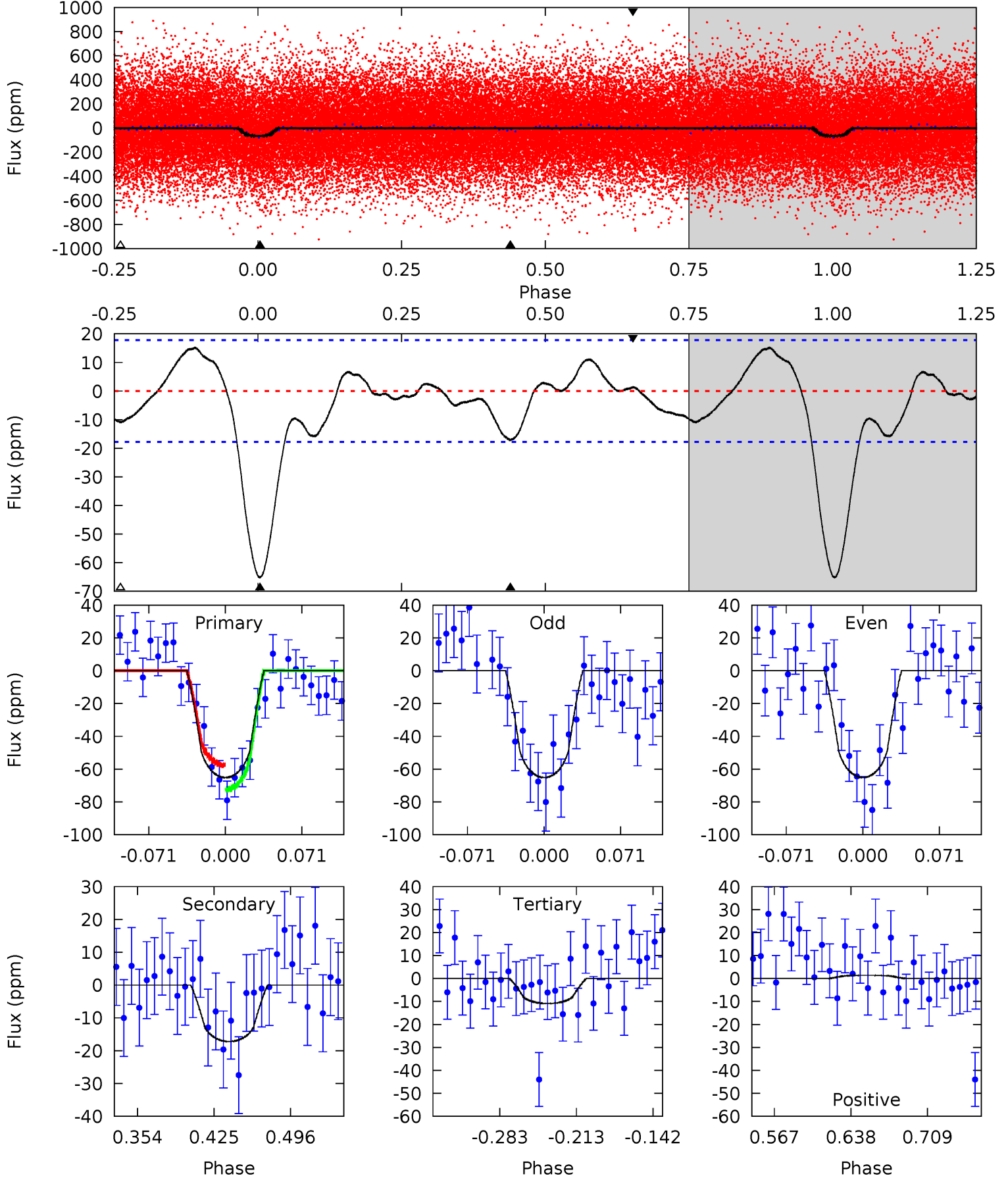
TCE 005024414-01 P= 1.525935 Days $T_0=132.685025$ (BKJD)



DV Model-Shift Uniqueness Test

005024414-01, P = 1.525901 Days, E = 131.173540 Days

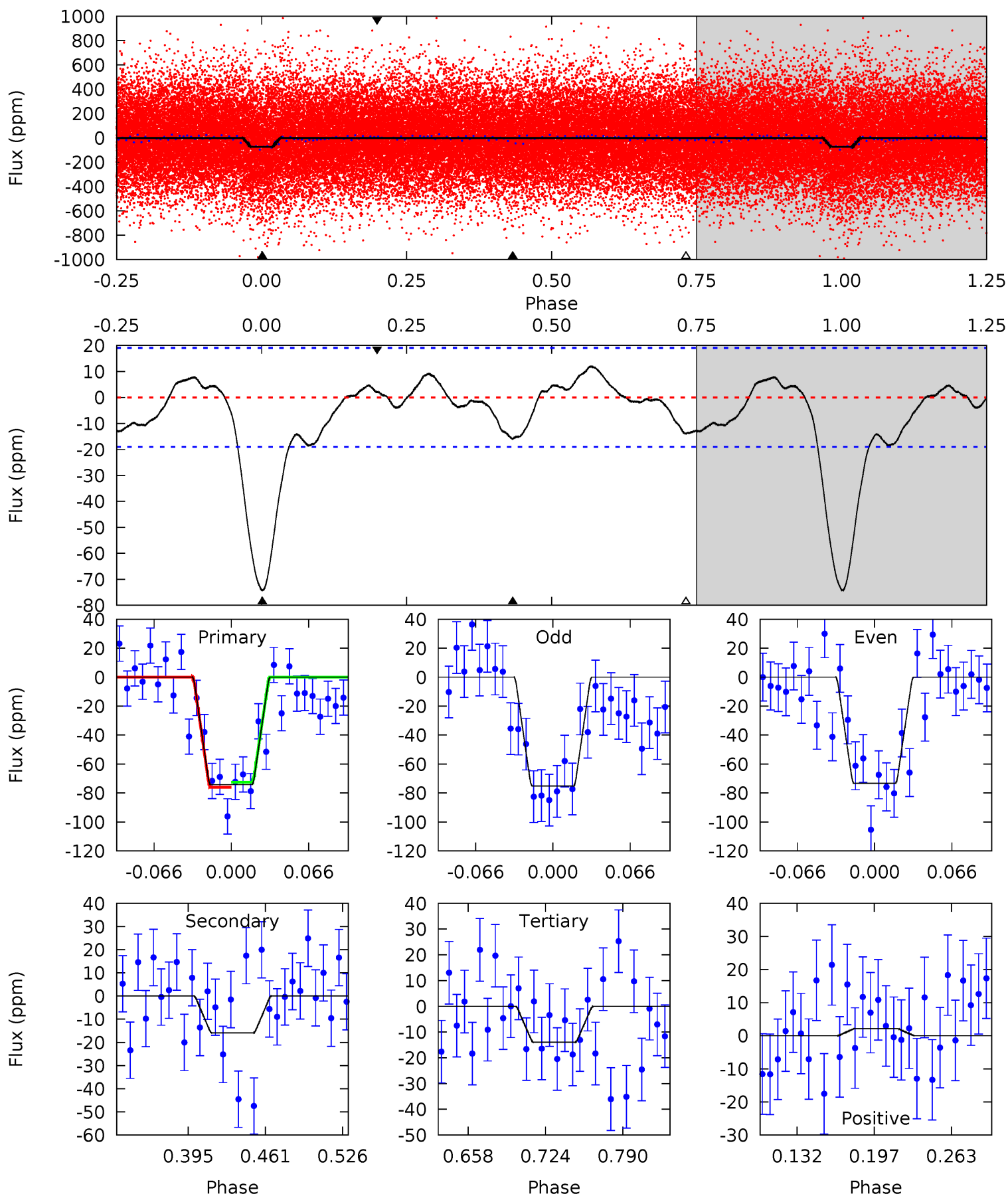
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	4.49	2.84	0.36	4.64	1.81	1.86	14.1	16.6	1.64	4.13	0.01	0.96	0.19	1.94



Alt Model-Shift Uniqueness Test

005024414-01, P = 1.525935 Days, E = 131.159090 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	3.89	3.41	0.52	4.65	1.84	1.78	14.7	17.6	0.48	3.37	0.22	1.12	0.14	0.41



Stellar Parameters For KIC 005024414

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5000^{+60}_{-130}	$2.810^{+0.030}_{-0.030}$	$0.070^{+0.150}_{-0.500}$	$10.533^{+0.602}_{-3.409}$	$2.615^{+0.075}_{-1.434}$	$0.003^{+0.002}_{-0.000}$
	+1%/-3%	+1%/-1%	+214%/-714%	+6%/-32%	+3%/-55%	+53%/-10%
Source	PHO56	AST56	PHO56	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005024414-01 / KOI 7555.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-17 ± 4	$7.53^{+3.58}_{-3.23}$	5291^{+104}_{-158}	-3575^{+8001}_{-570}	$0.212^{+0.400}_{-0.119}$
Alt.	-16 ± 4	$10.44^{+3.80}_{-3.83}$	5299^{+94}_{-164}	-4107^{+887}_{-205}	$0.101^{+0.151}_{-0.049}$

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 $A_{obs} \gg 1.0$

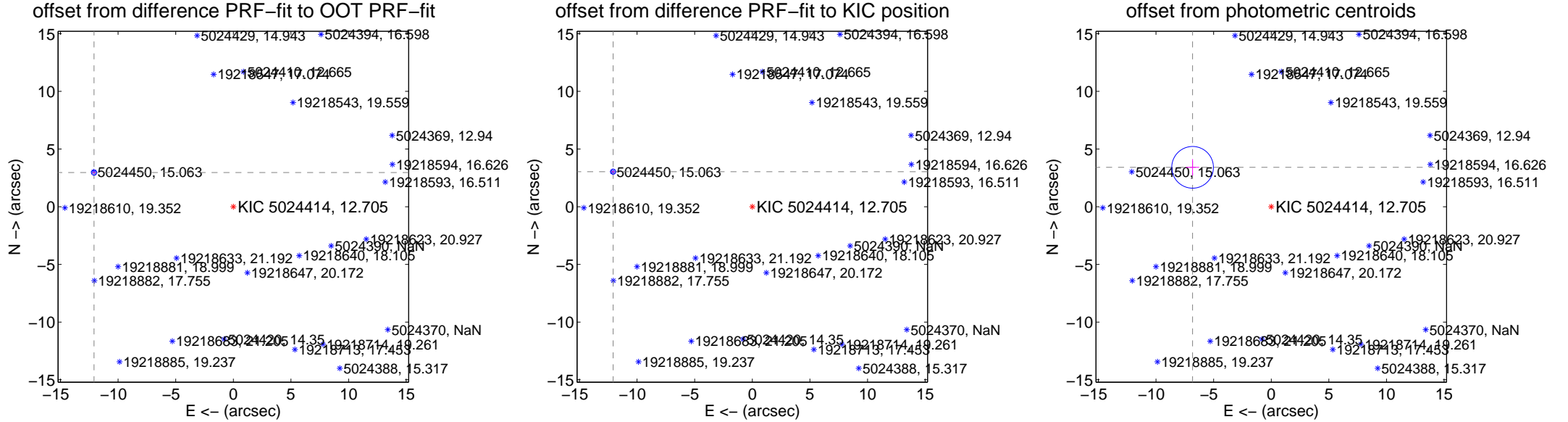
DV Centroid Data

Supplemental centroid analysis for 005024414-01. Kepler magnitude: 12.71. Transit SNR 7.46

There are 10 quarters with good PRF difference image offsets

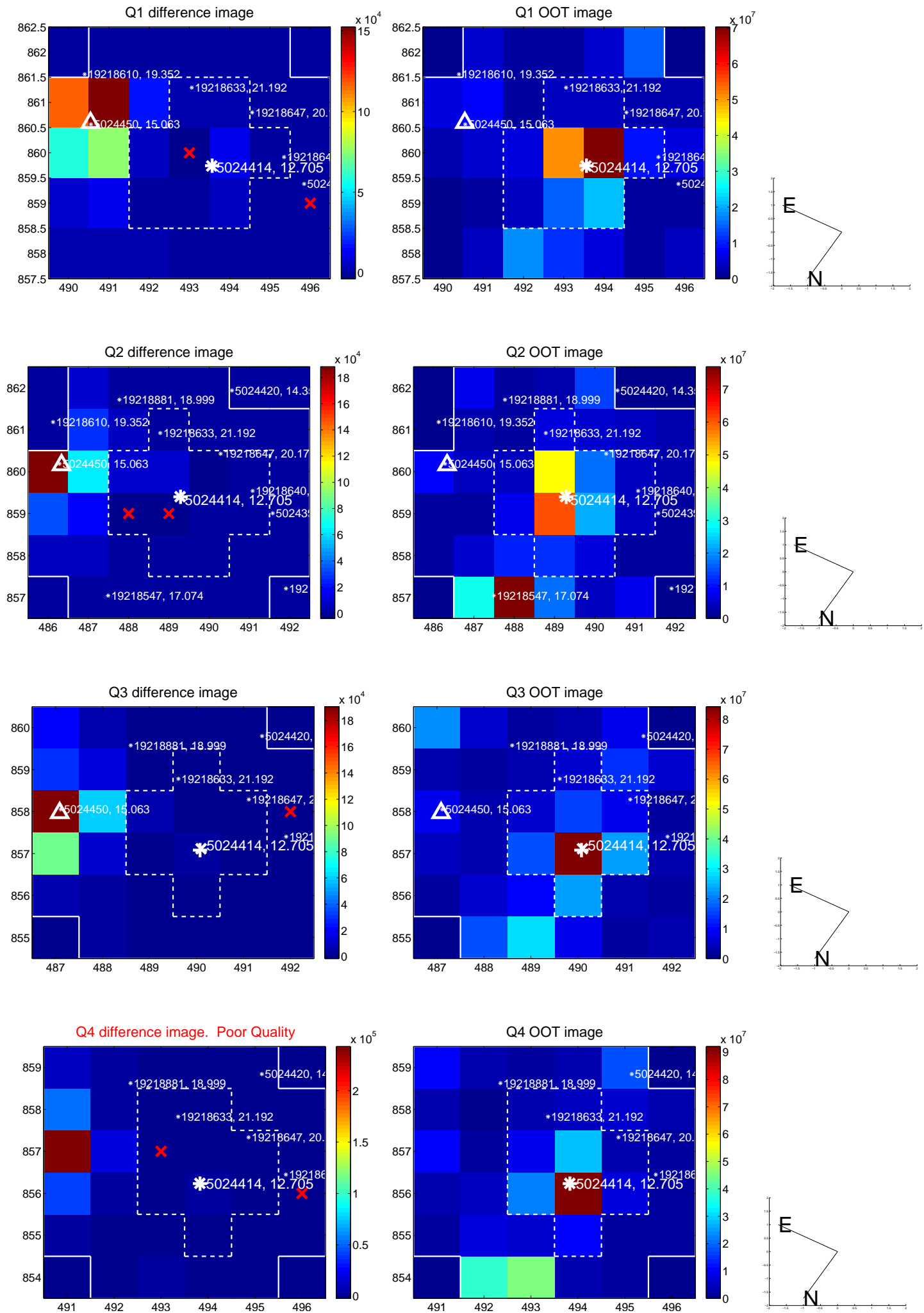
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	12.448 \pm 0.076	163.48	12.091 \pm 0.079	2.960 \pm 0.079
PRF-fit source offset from KIC position	12.452 \pm 0.076	164.60	12.076 \pm 0.078	3.038 \pm 0.070
photometric centroid source offset	7.63 \pm 0.60	12.67	6.83 \pm 0.57	3.42 \pm 0.71

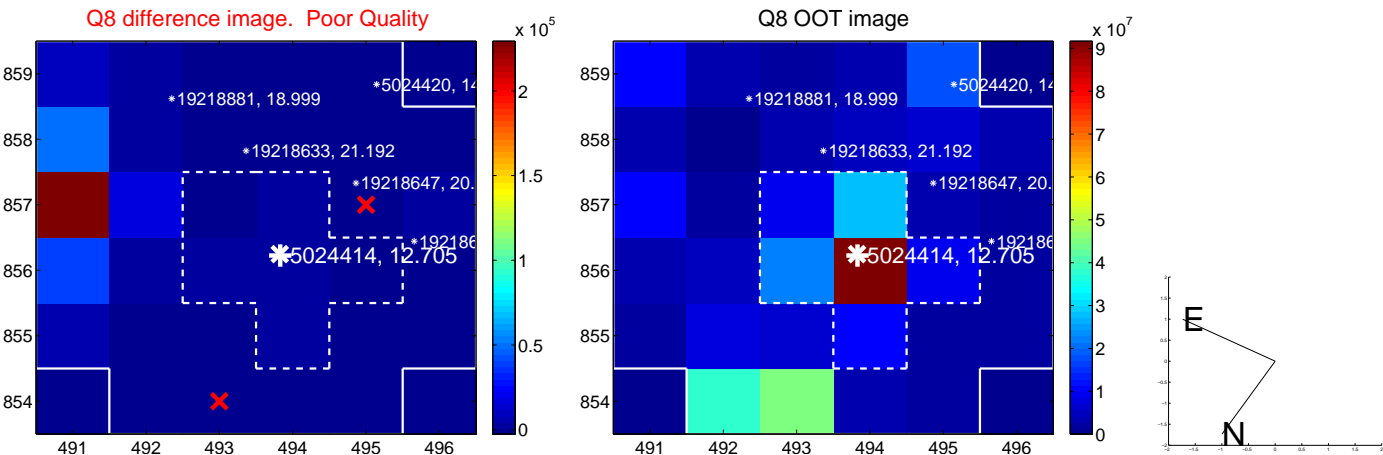
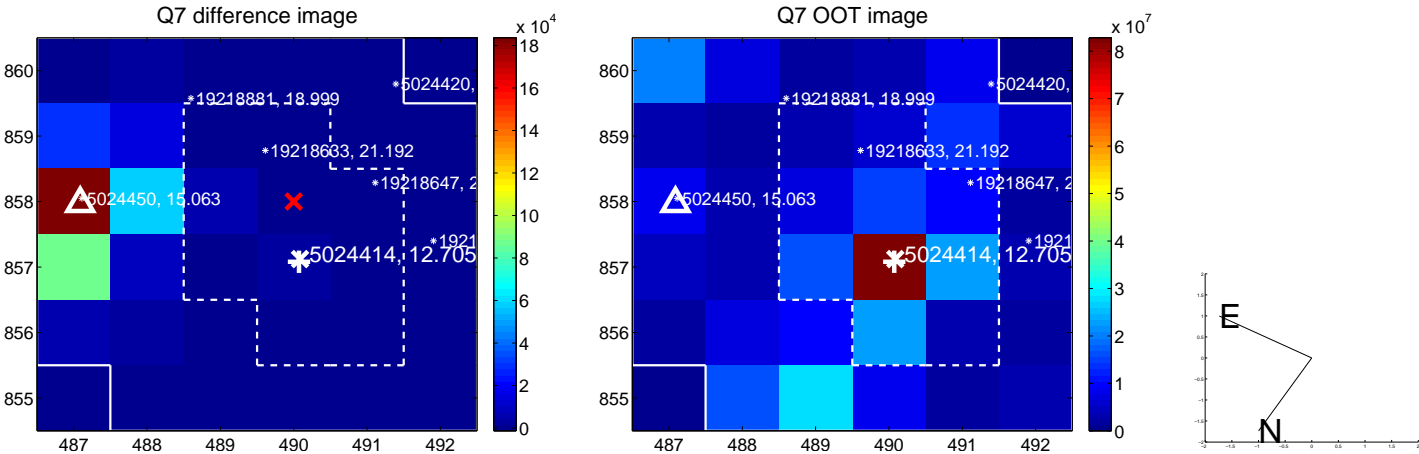
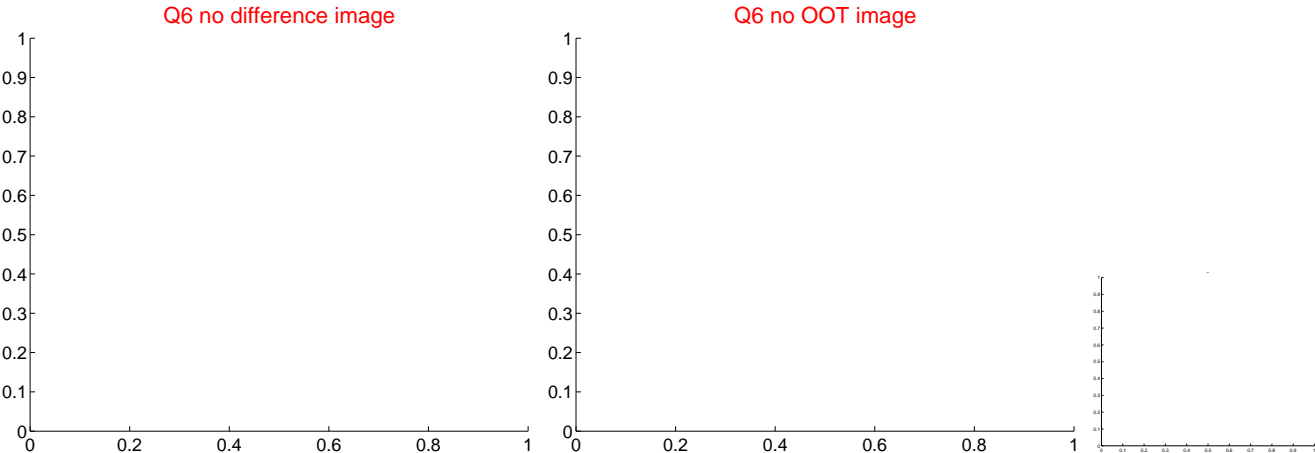
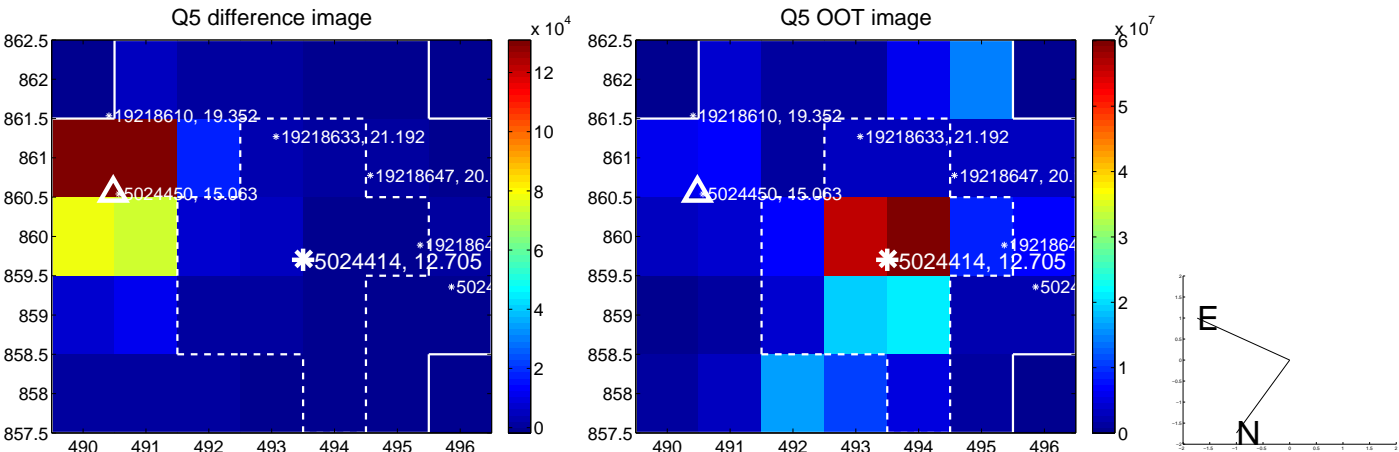


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

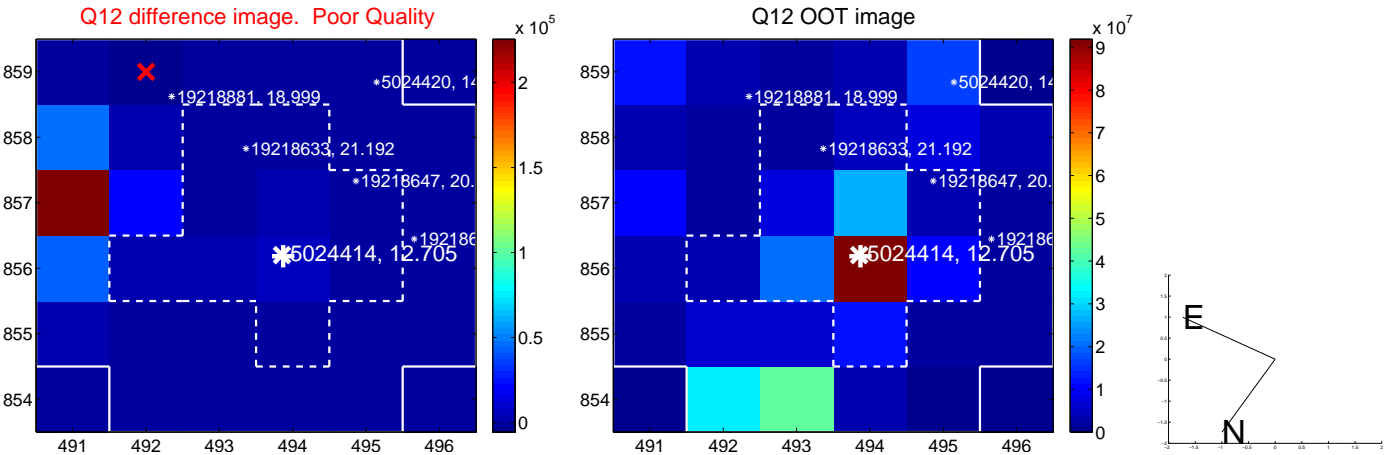
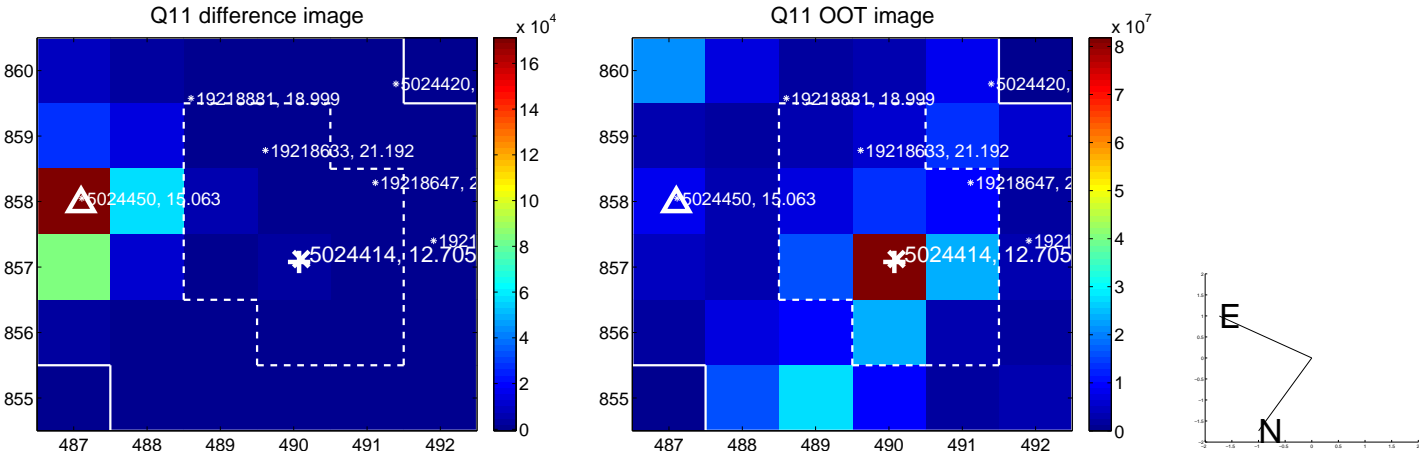
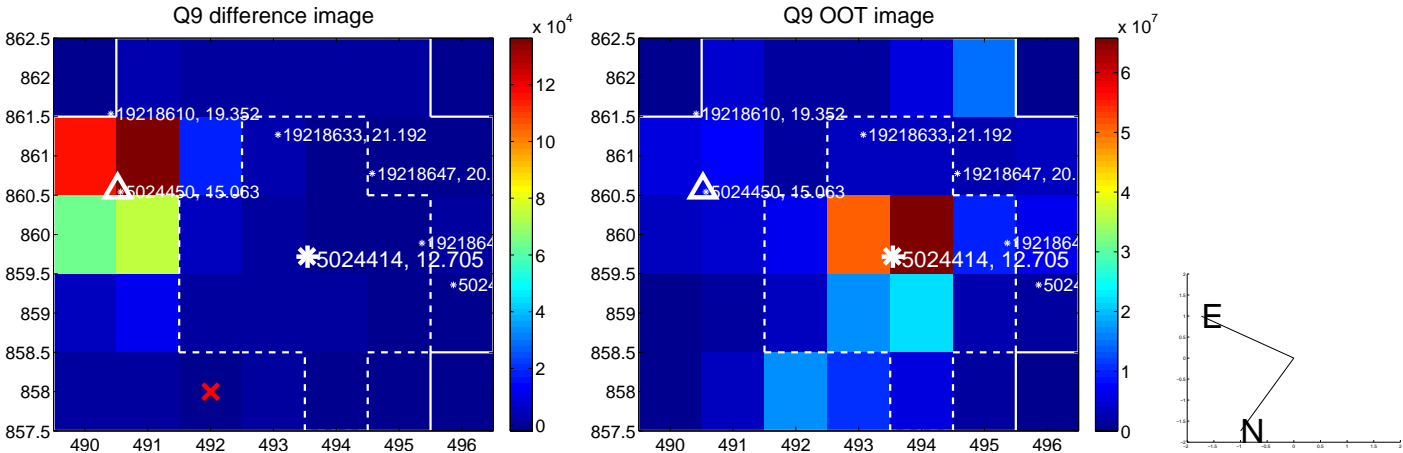
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



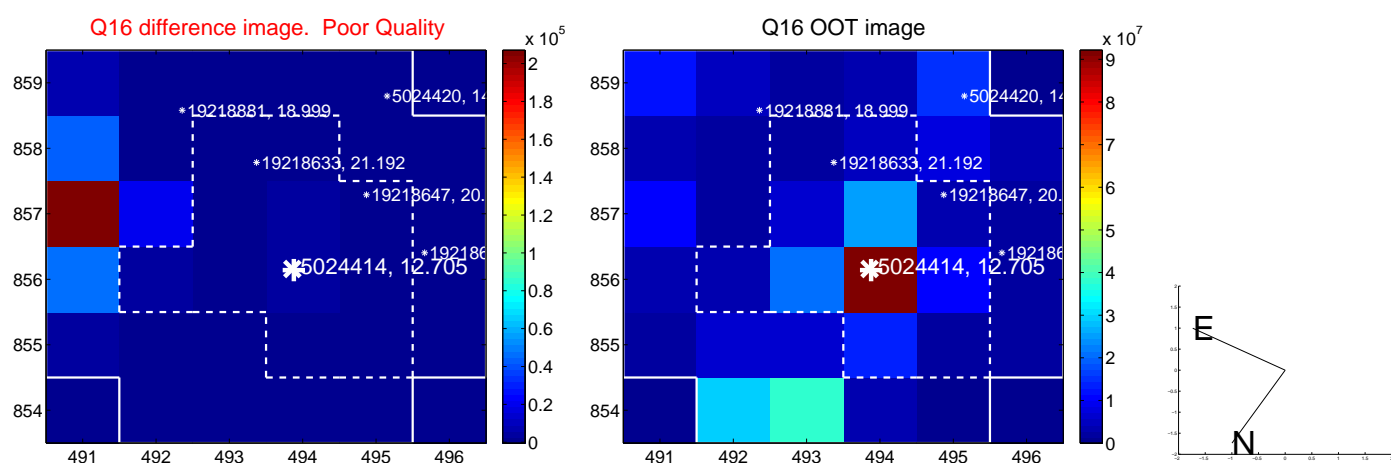
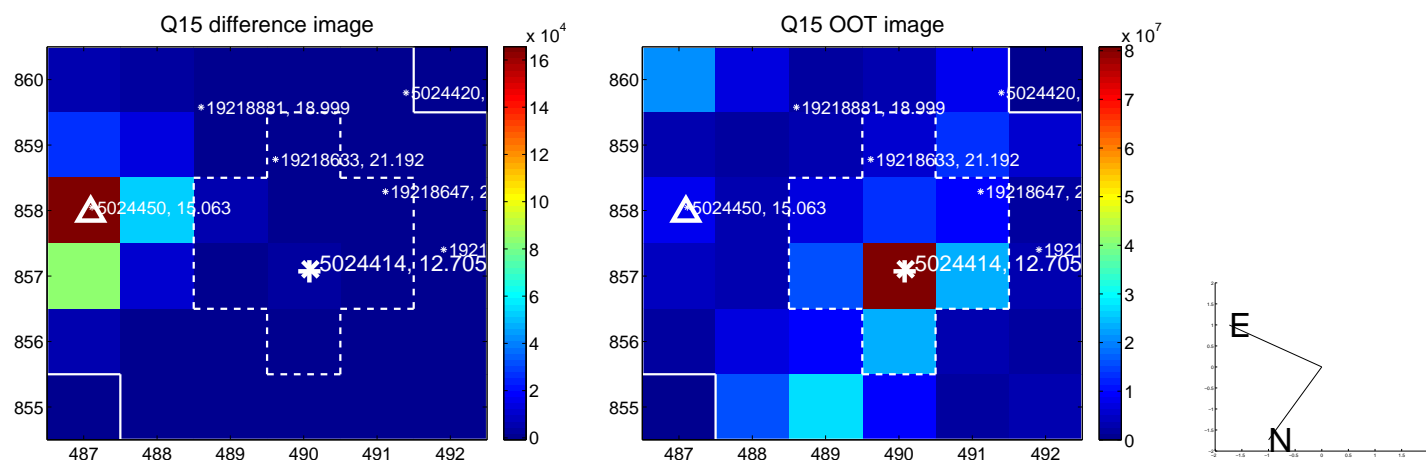
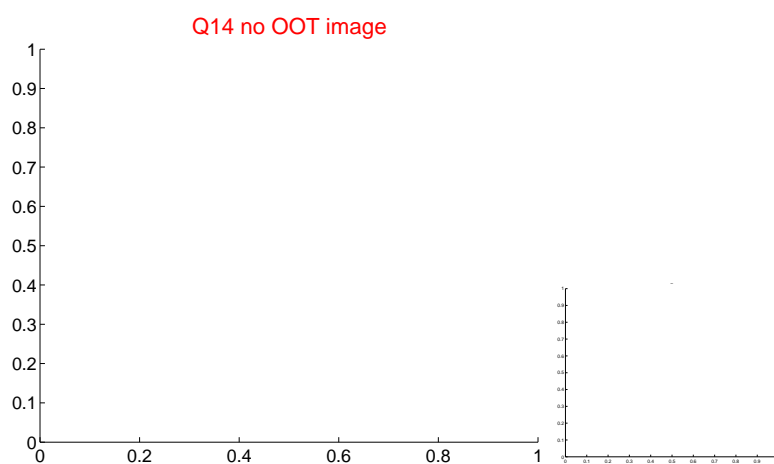
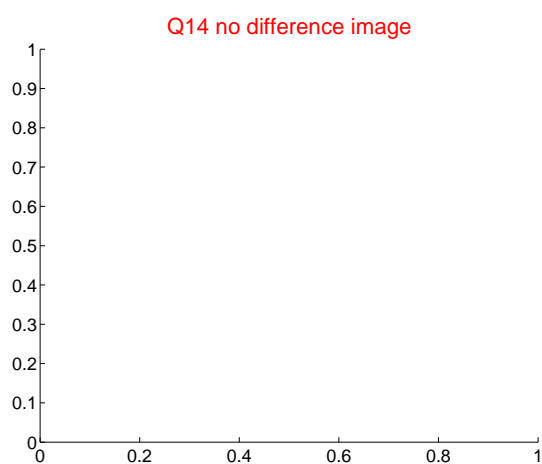
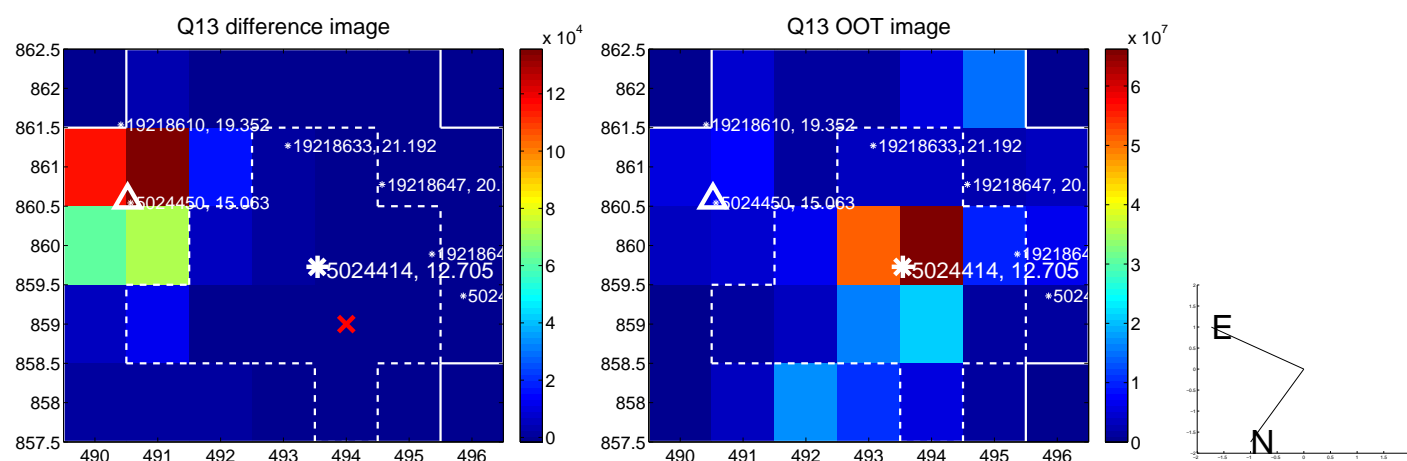
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



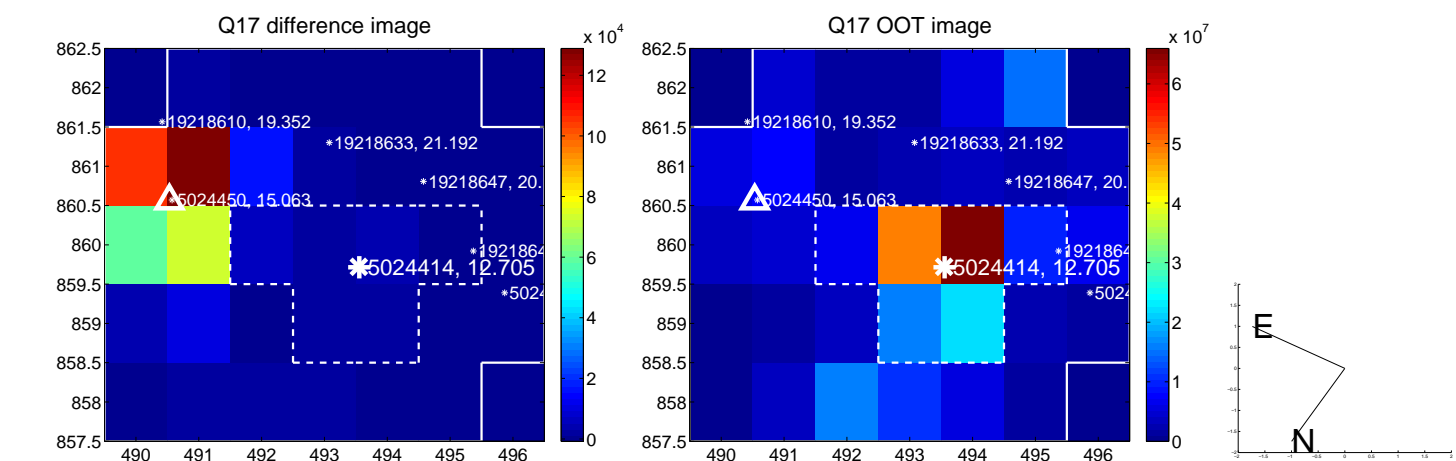
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



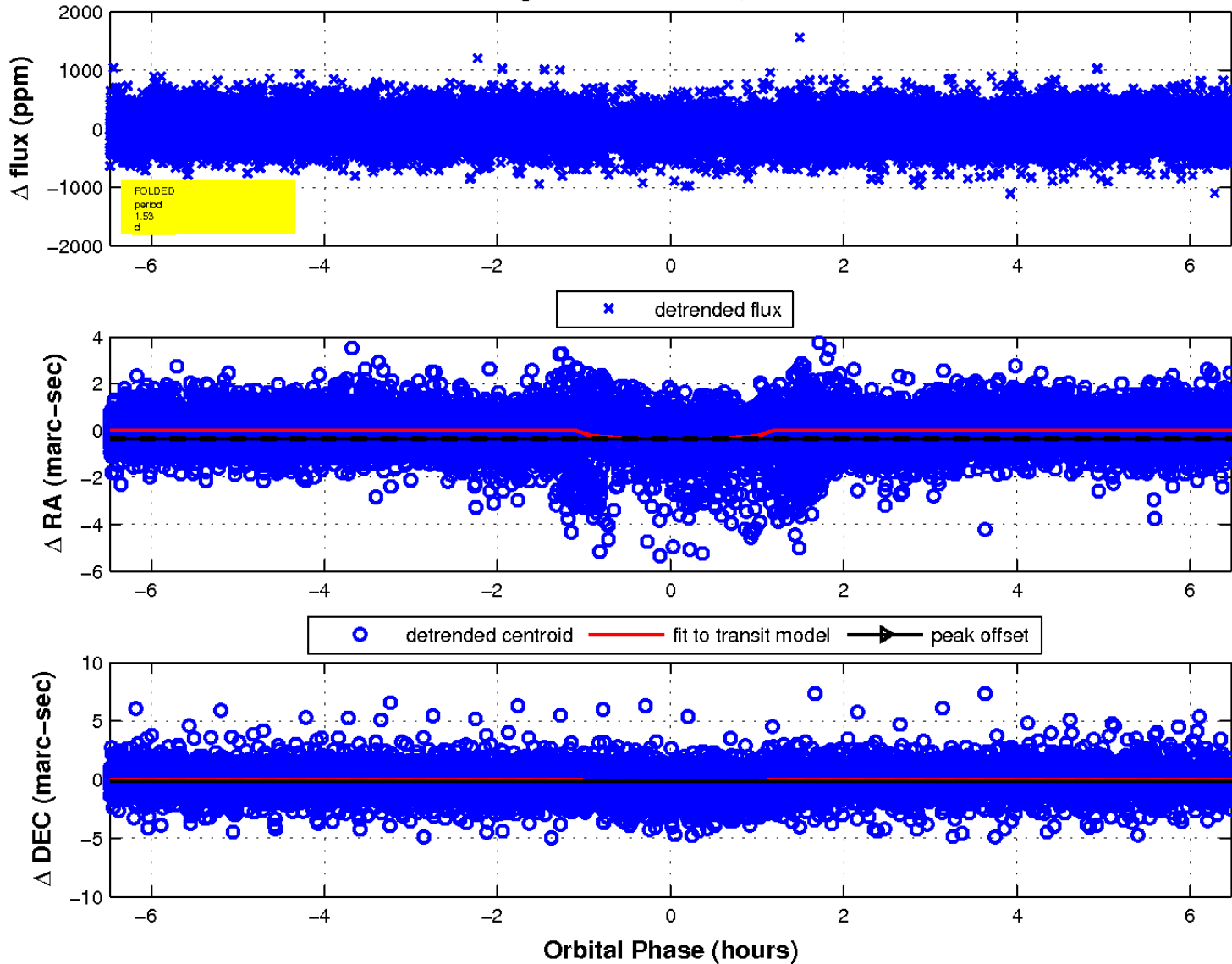
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

