

KIC 009635510

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})
009635510-01	OBS	2234.01	2.351989	131.901543	249.6	5.073	24.1	27.4	1.00	6147	3.04	1029.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009635510-01	OBS	FP	0.00	0	0	1	1	CENT_UNRESOLVED_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 009635510-01

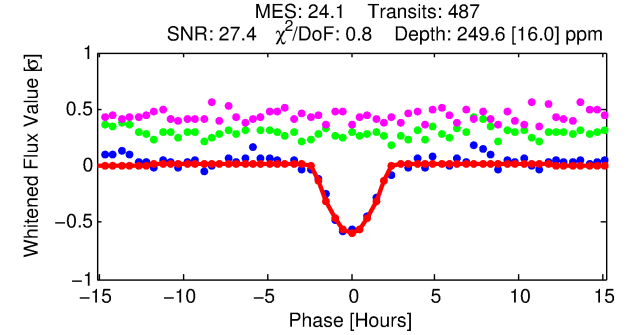
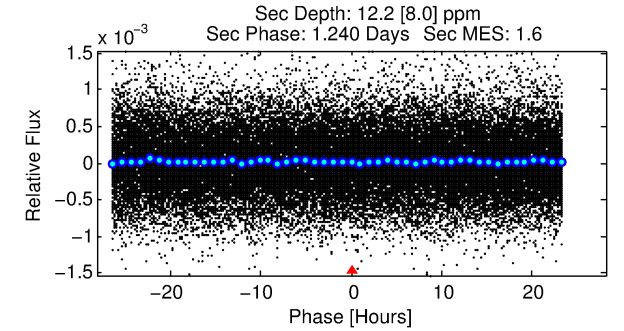
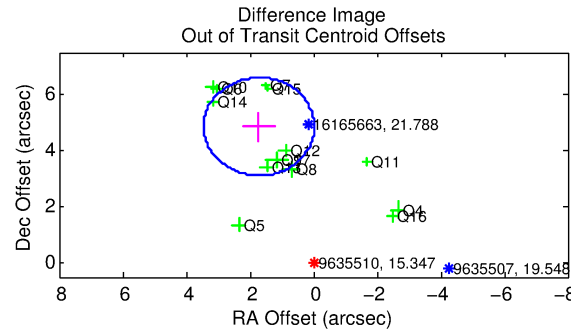
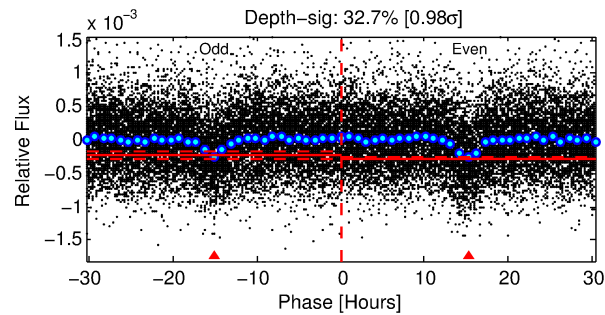
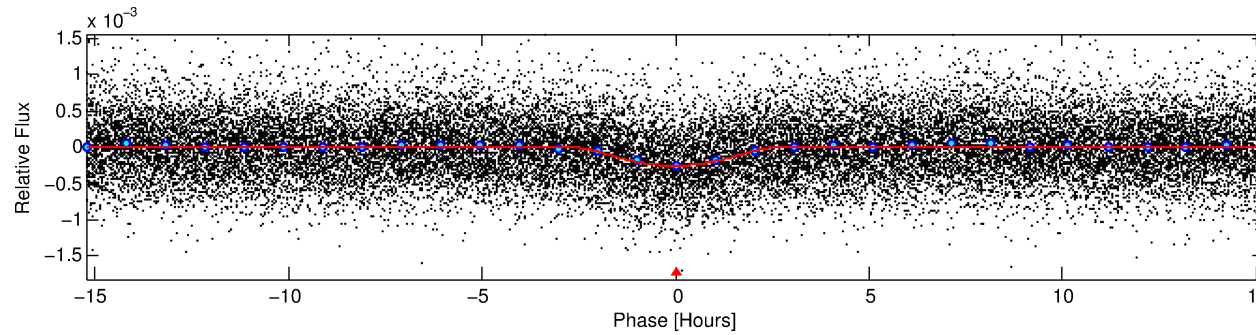
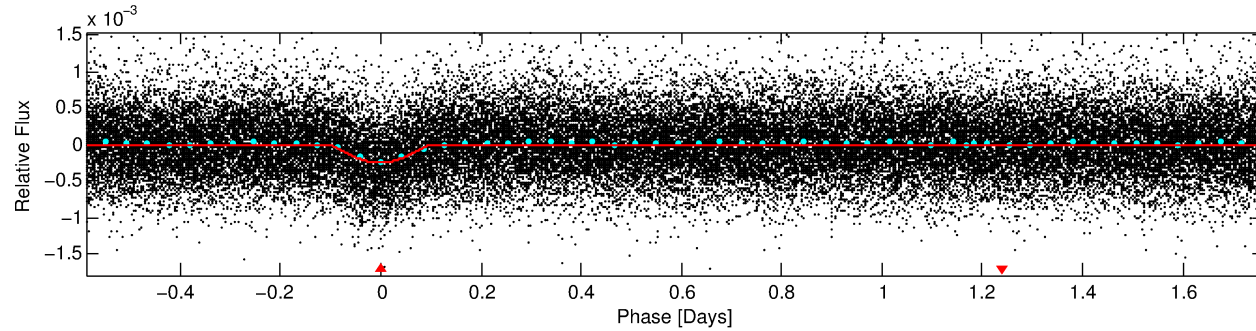
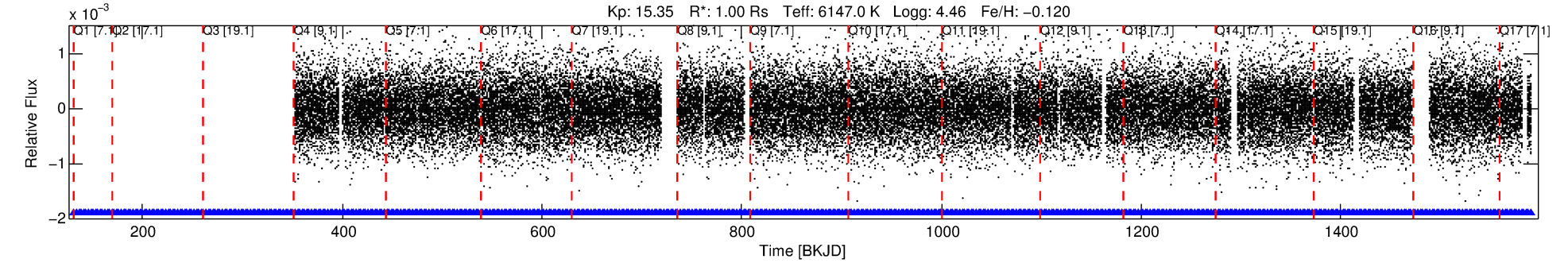
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
009635510-01	9635510	009635529-pri	9635529	1:2	33.1	8	1	12.23	15.35	906.00	Direct-PRF	0	1.96	0.79

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: 9635510 Candidate: 1 of 1 Period: 2.352 d

KOI: K02234.01 Corr: 0.970



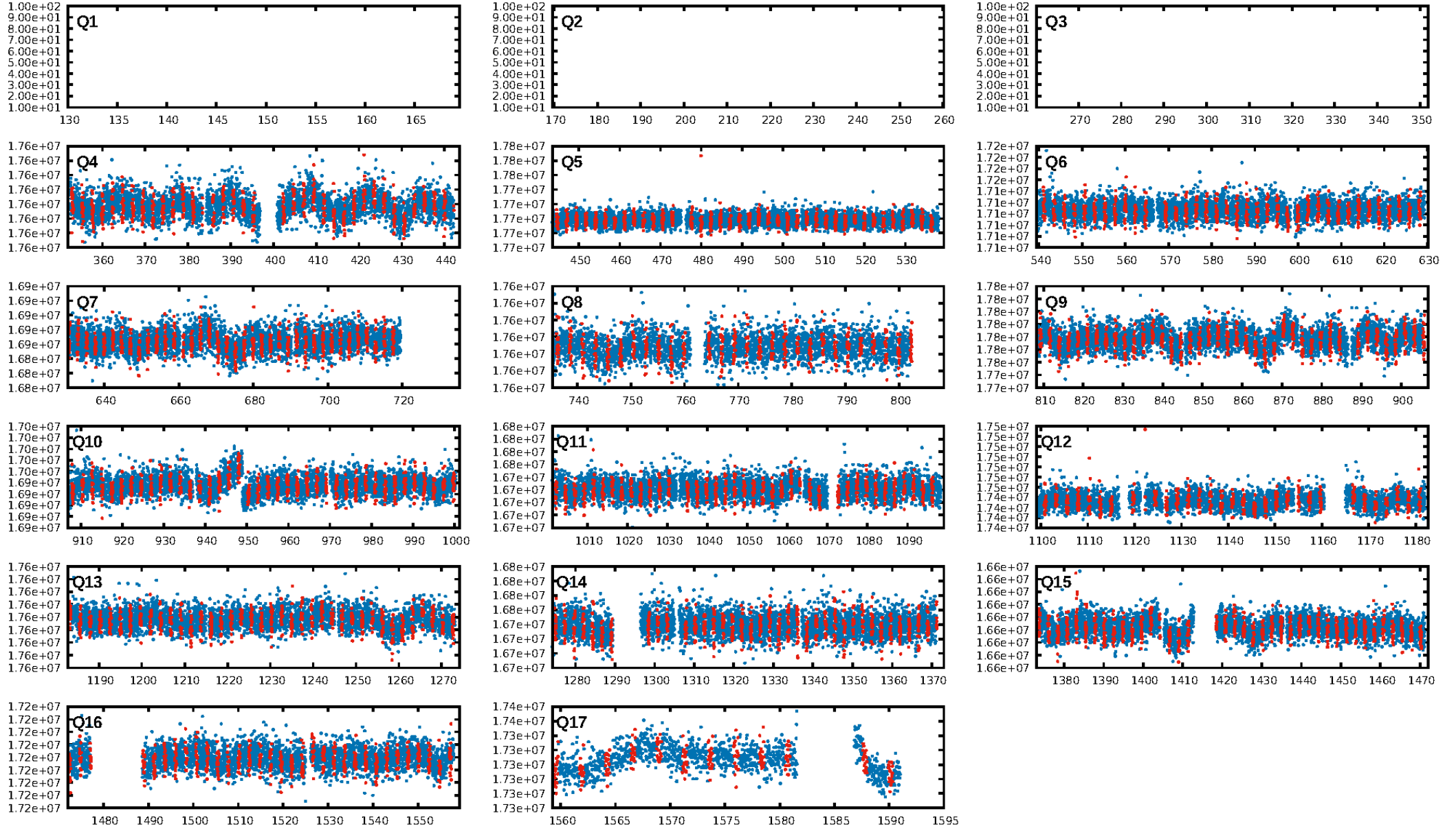
DV Fit Results:

Period = 2.35199 [0.00001] d
Epoch = 131.9015 [0.0043] BKJD
Rp/R* = 0.0278 [0.0343]
a/R* = 1.33 [0.16]
b = 1.00 [0.05]
Seff = 1029.20 [452.37]
Teff = 1444 [159] K
Rp = 3.04 [3.89] Re
a = 0.0354 [0.0101] AU
Ag = 0.91 [2.34] [-0.04 σ]
Teffp = 2178 [1393] K [0.52 σ]

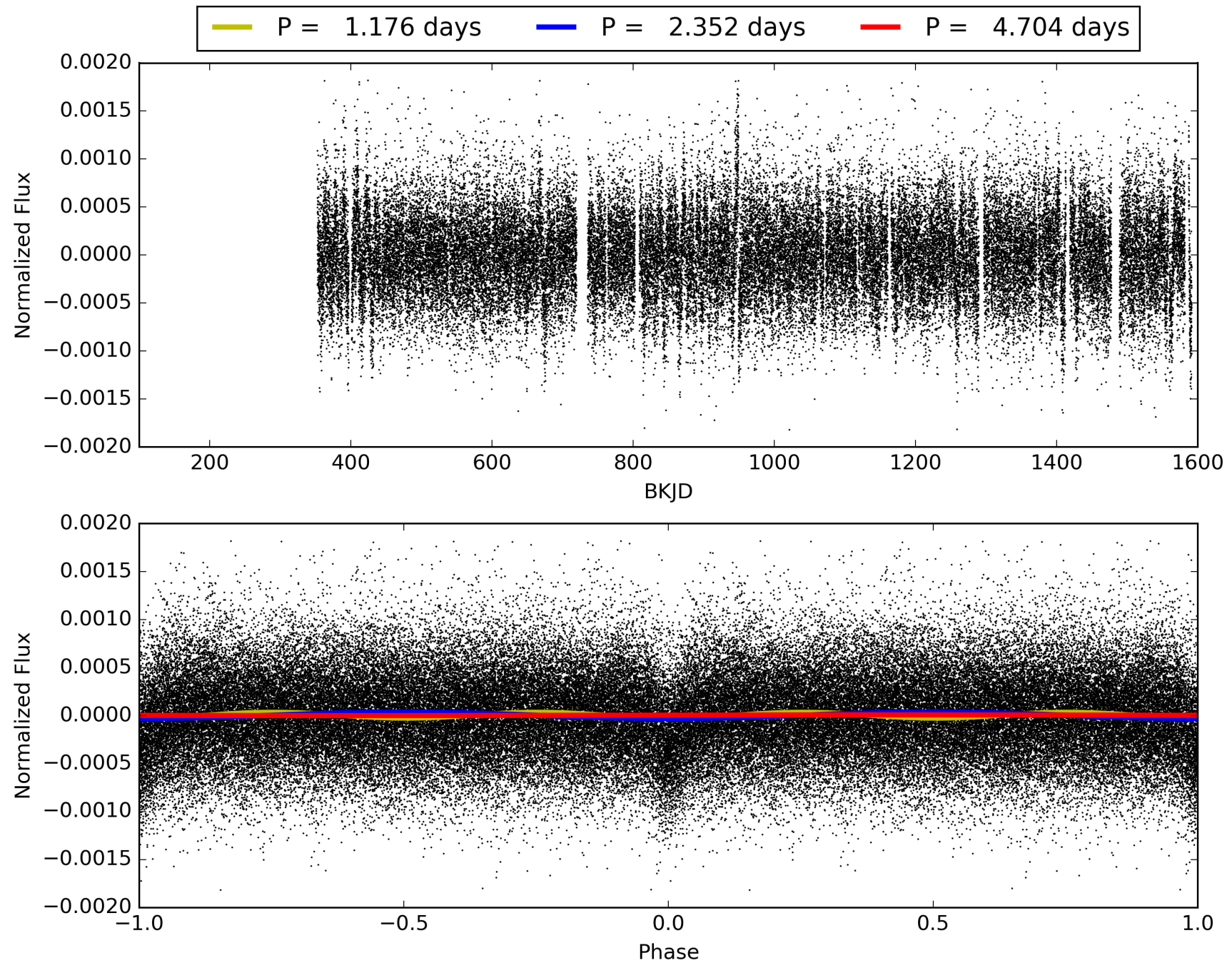
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.71e-118
RollingBand-fgt: 1.00 [475/475]
GhostDiagnostic-chr: 0.02847
Centroid-sig: 0.0%
Centroid-so: 3.806 arcsec [7.33 σ]
OotOffset-rm: 5.150 arcsec [8.87 σ]
KicOffset-rm: 5.064 arcsec [8.92 σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.64 [9/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 009635510-01, PDC Light Curves

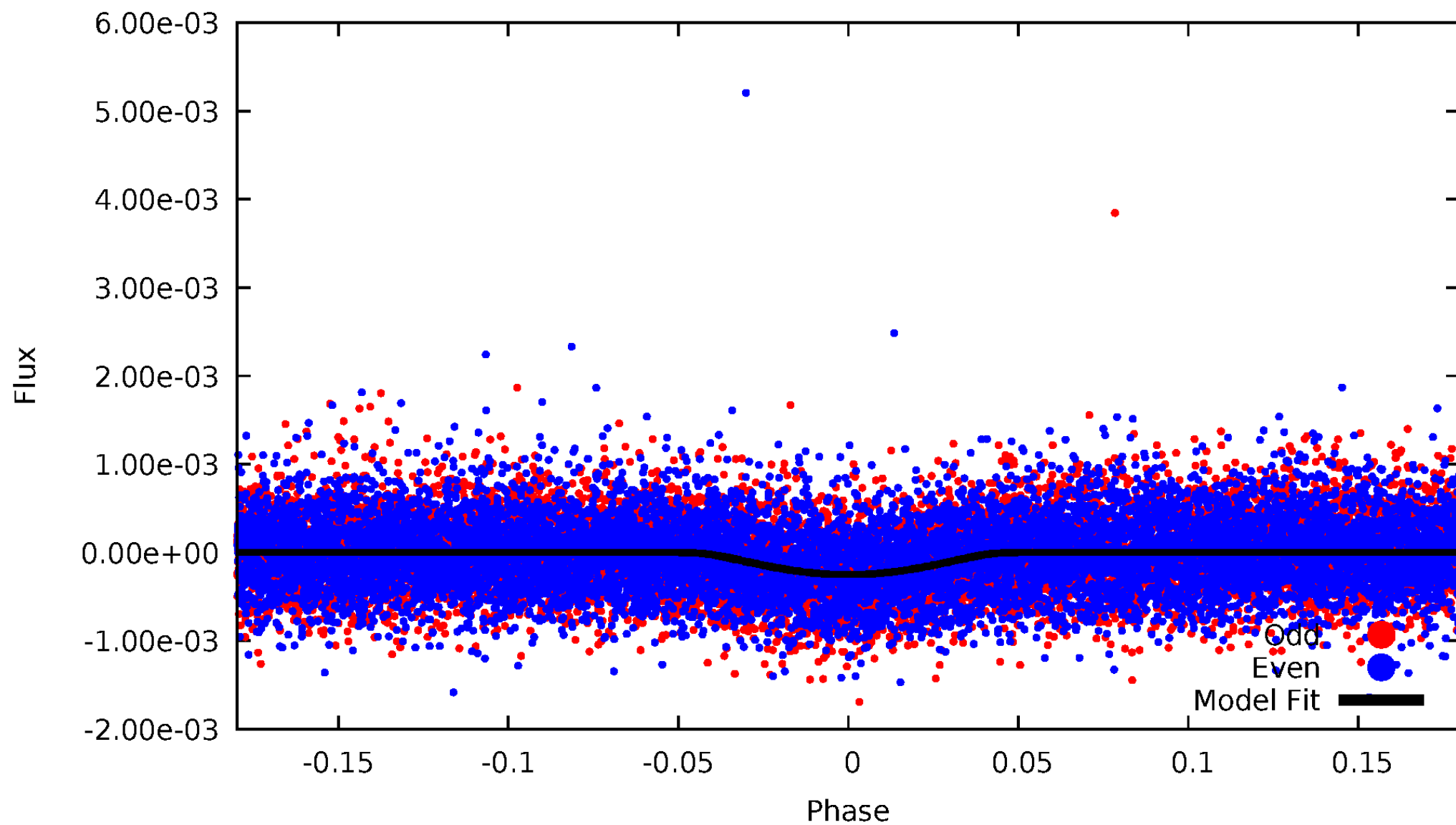


TCE 009635510-01



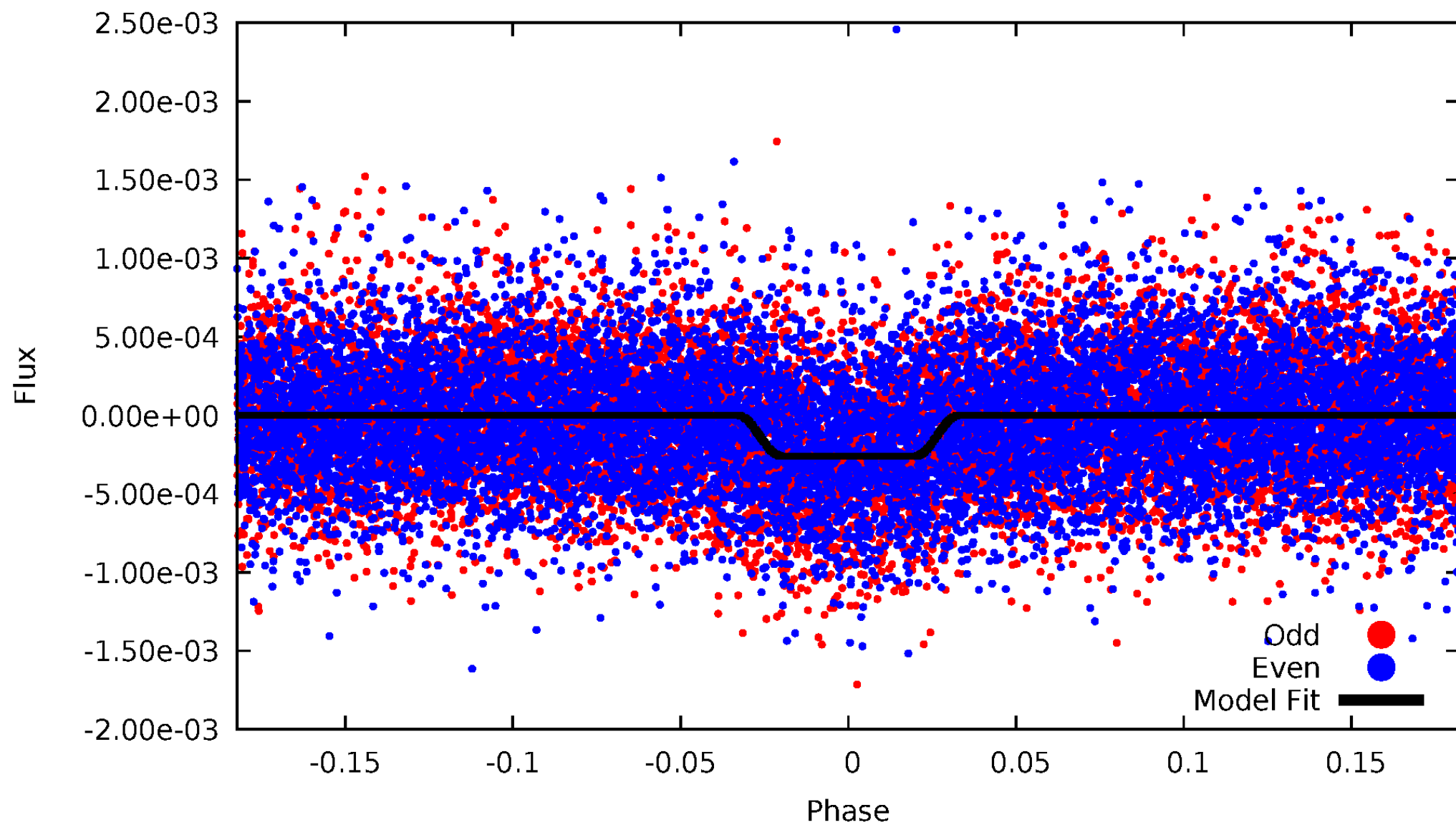
DV Odd/Even

TCE 009635510-01



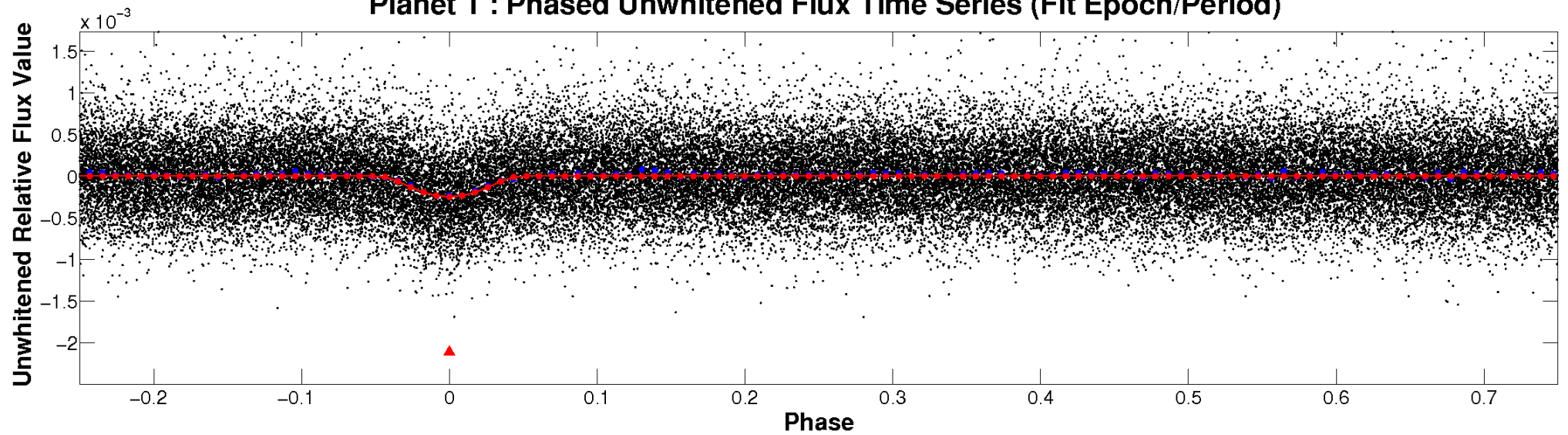
ALT Odd/Even

TCE 009635510-01

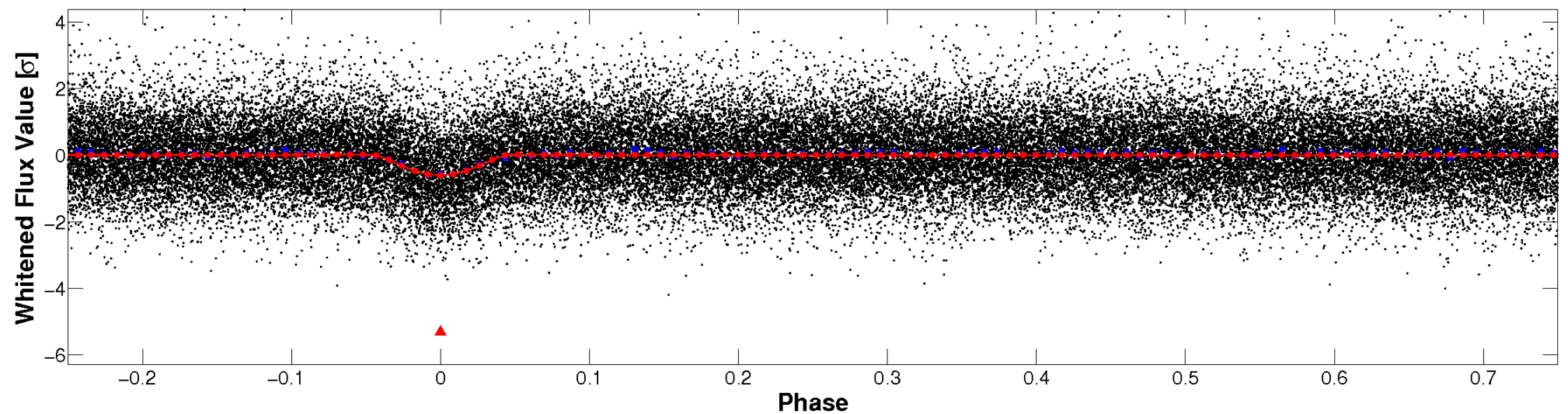


Non-Whitened Vs. Whitened Light Curve

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

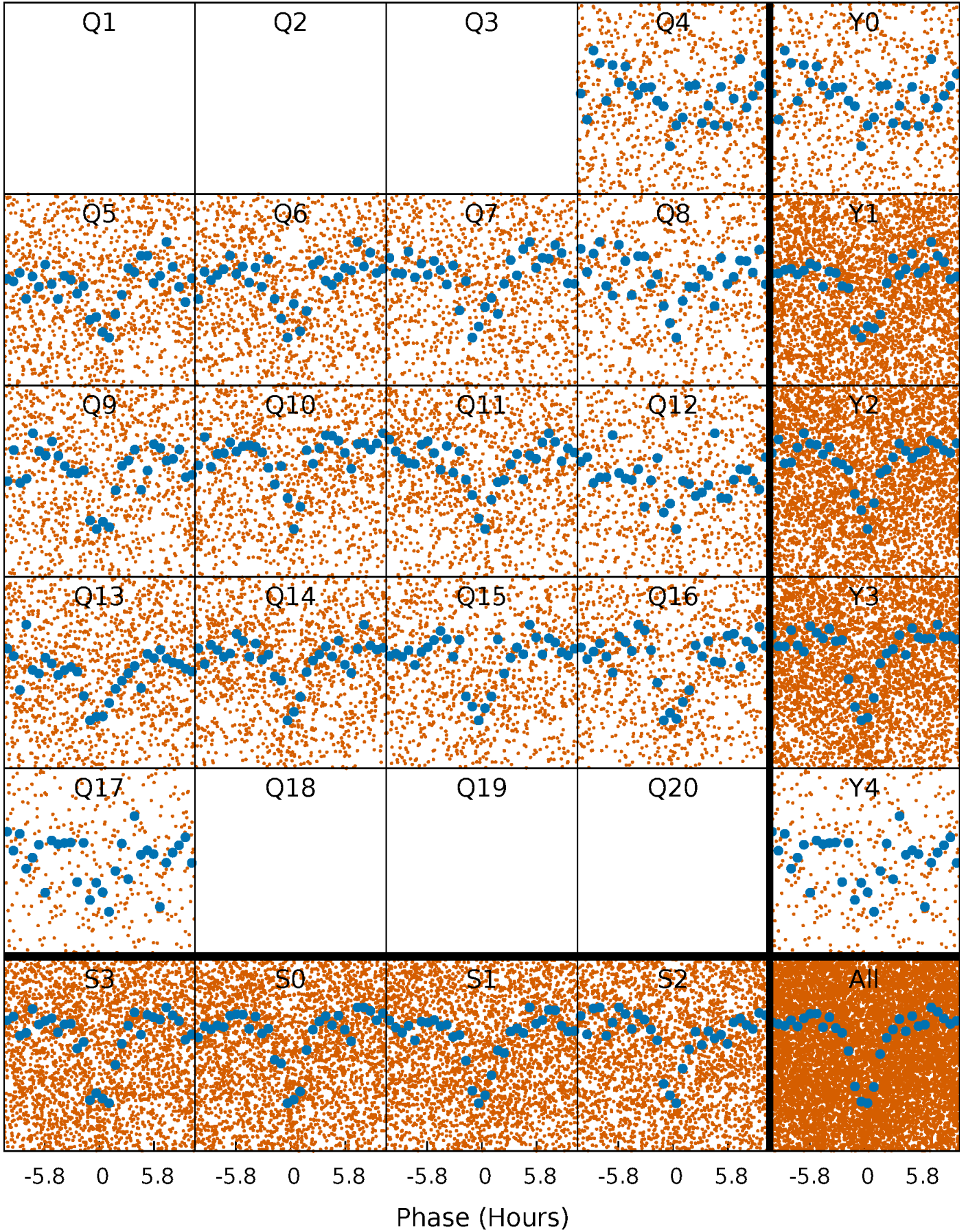


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



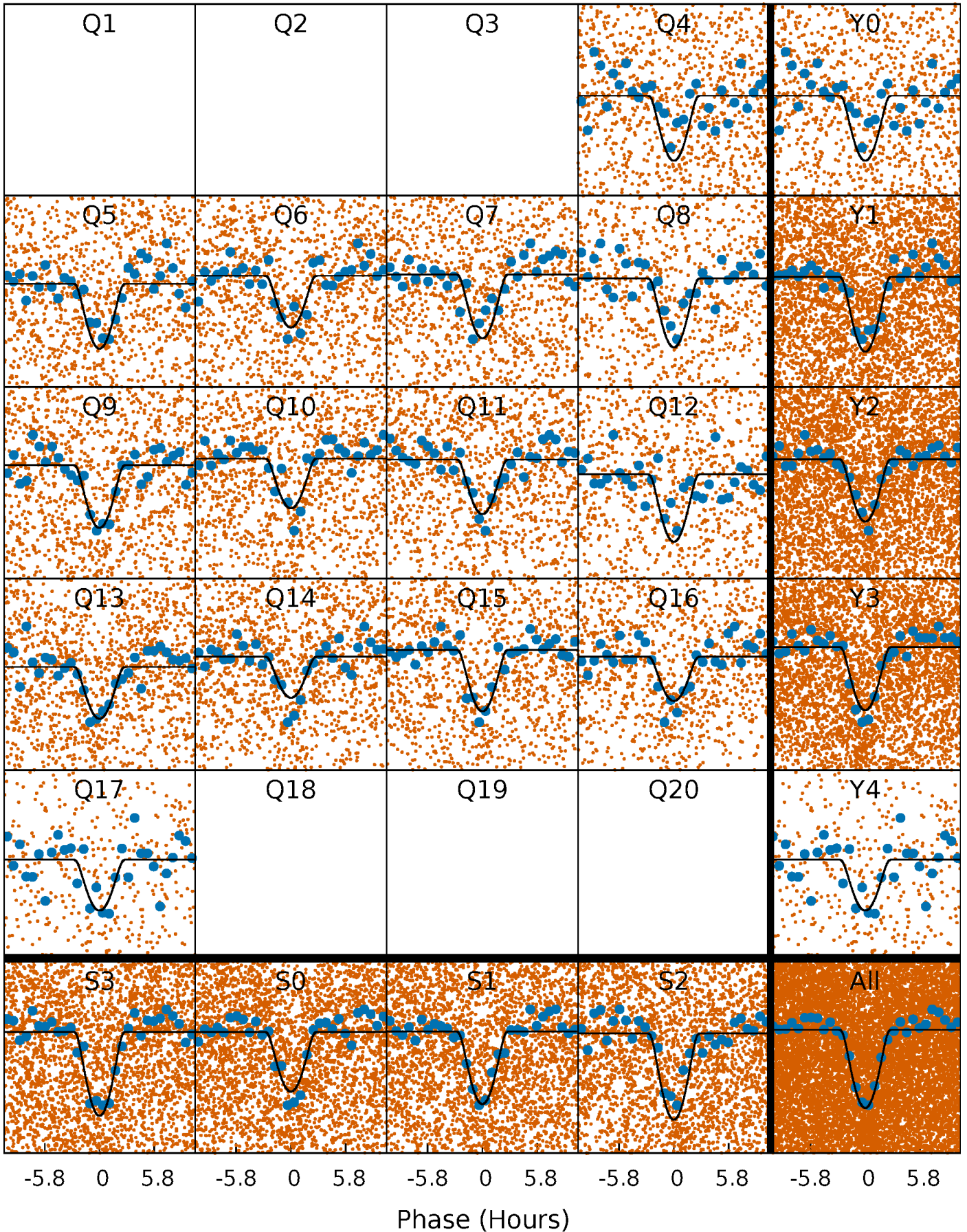
PDC Quarter-Phased Transit Curves

TCE 009635510-01 P= 2.351989 Days $T_0=131.901543$ (BKJD)



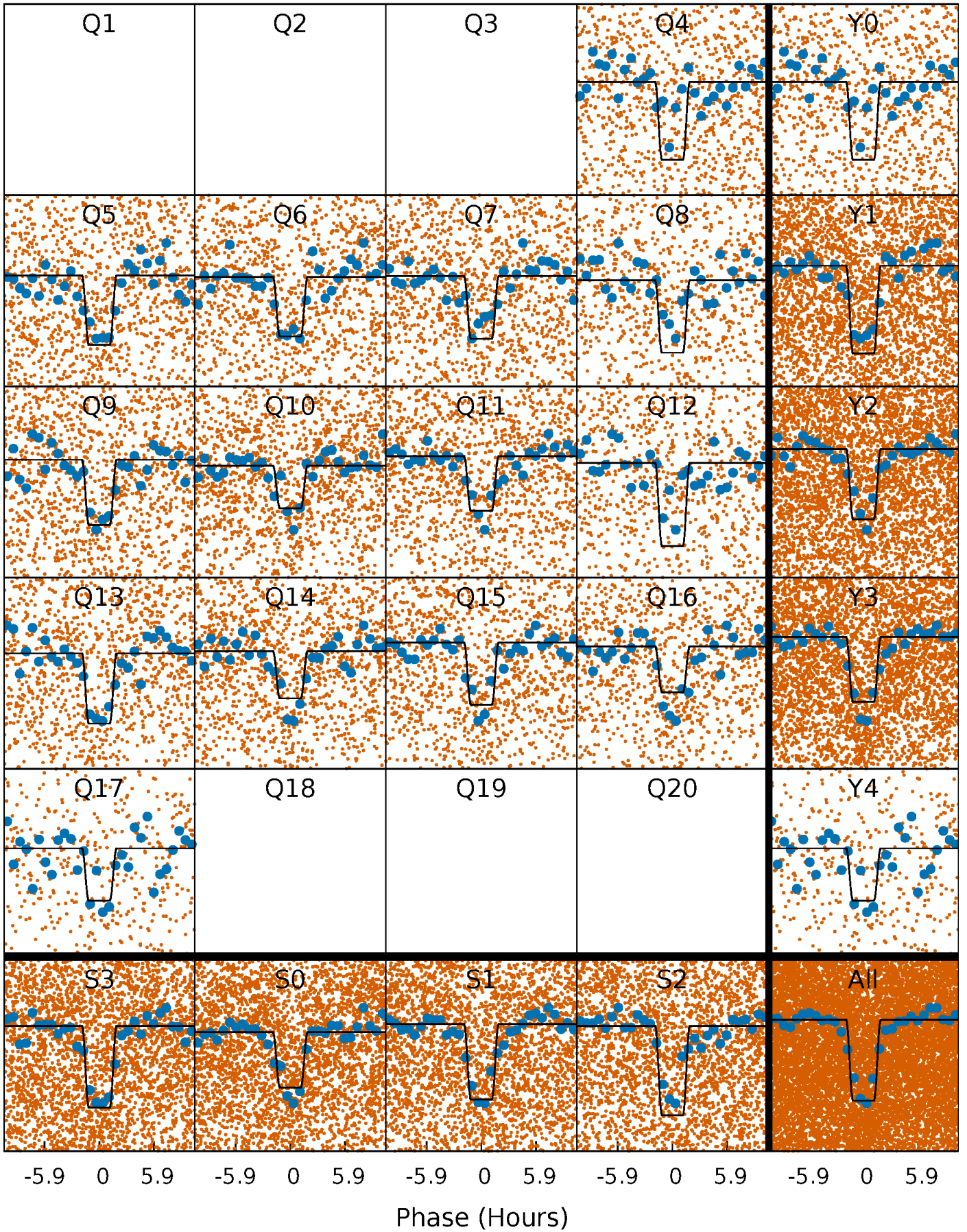
DV Quarter-Phased Transit Curves

TCE 009635510-01 P= 2.351989 Days $T_0=131.901543$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

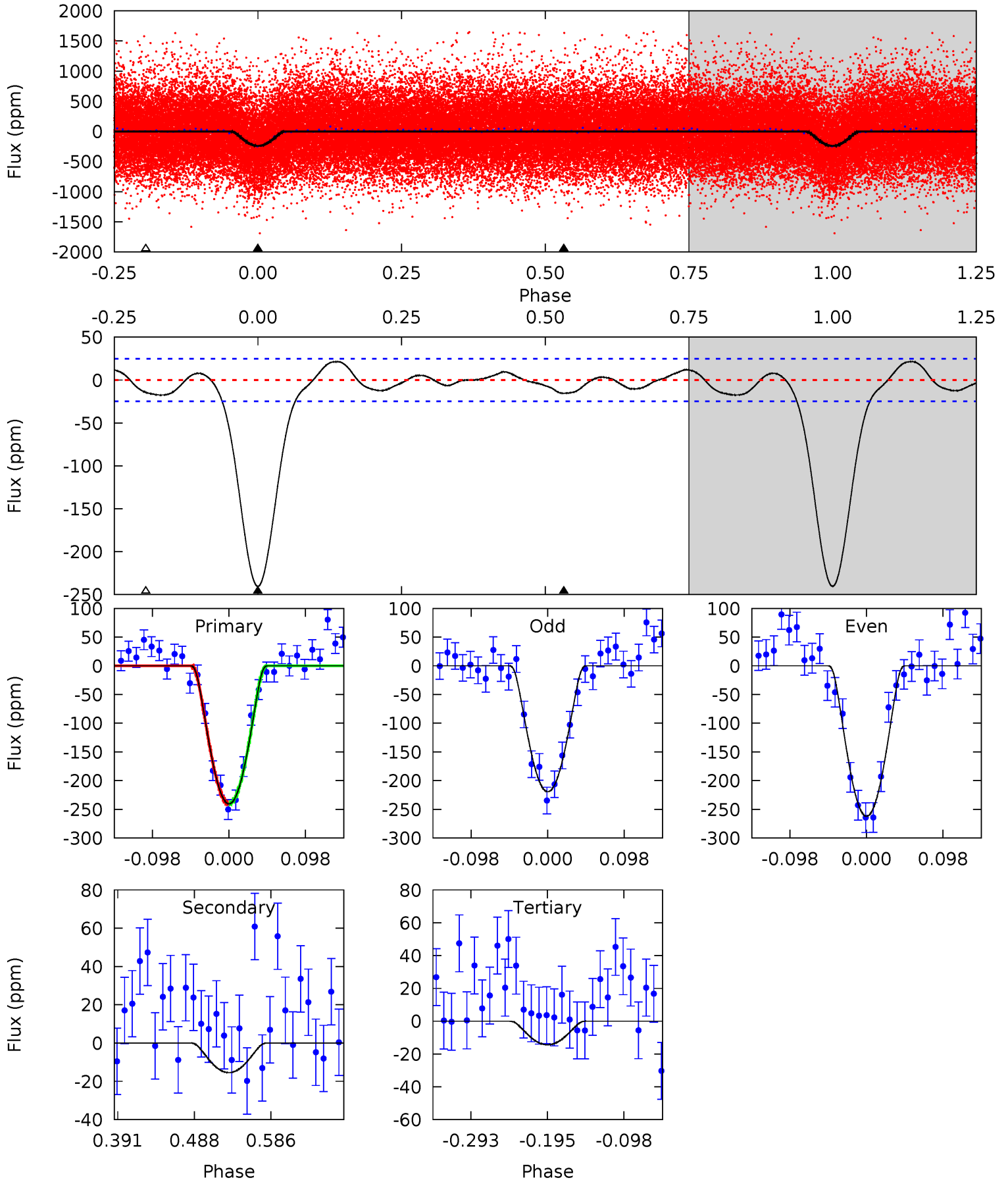
TCE 009635510-01 P= 2.351948 Days $T_0=131.916912$ (BKJD)



DV Model-Shift Uniqueness Test

009635510-01, P = 2.351989 Days, E = 131.901543 Days

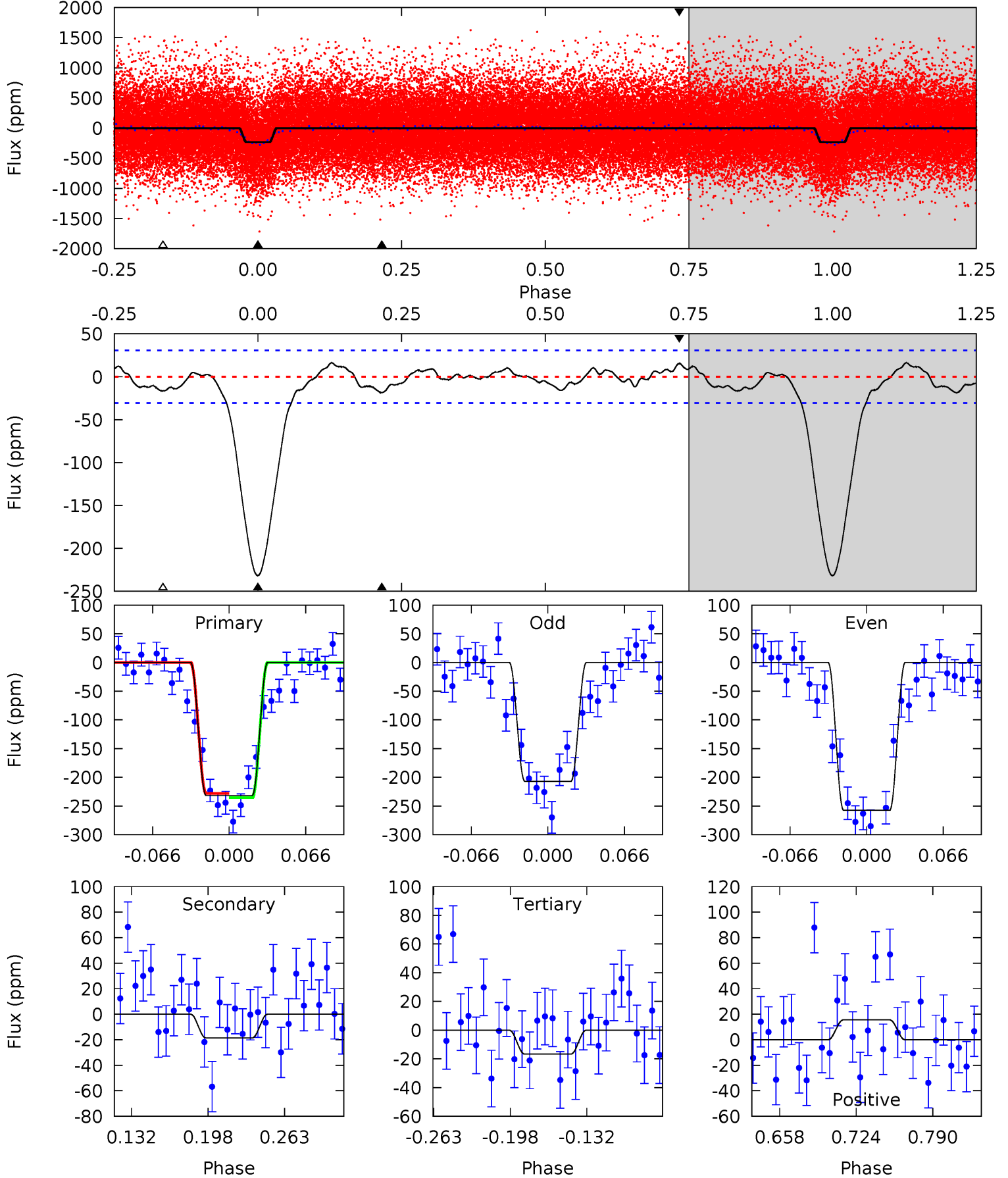
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.1	2.84	2.65	0	4.57	1.66	1.75	41.5	44.1	0.19	2.84	3.94	1.00	0.08	0.04



Alt Model-Shift Uniqueness Test

009635510-01, P = 2.351948 Days, E = 131.916912 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.1	2.82	2.52	2.36	4.65	1.84	1.23	32.6	32.8	0.30	0.46	3.83	0.99	0.07	0.55



Stellar Parameters For KIC 009635510

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6147^{+193}_{-236}	$4.463^{+0.056}_{-0.224}$	$-0.120^{+0.250}_{-0.300}$	$1.003^{+0.341}_{-0.114}$	$1.064^{+0.151}_{-0.151}$	$1.485^{+0.437}_{-0.799}$
	+3%/-4%	+1%/-5%	+208%/-250%	+34%/-11%	+14%/-14%	+29%/-54%
Source	KIC0	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 009635510-01 / KOI 2234.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-15 ± 5	$4.12^{+3.48}_{-2.65}$	2068^{+168}_{-117}	2556^{+1196}_{-4904}	$0.630^{+4.663}_{-0.478}$
Alt.	-19 ± 7	$3.52^{+3.21}_{-2.35}$	2073^{+160}_{-114}	2808^{+1434}_{-4971}	$0.927^{+8.375}_{-0.699}$

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 $A_{obs} \gg 1.0$

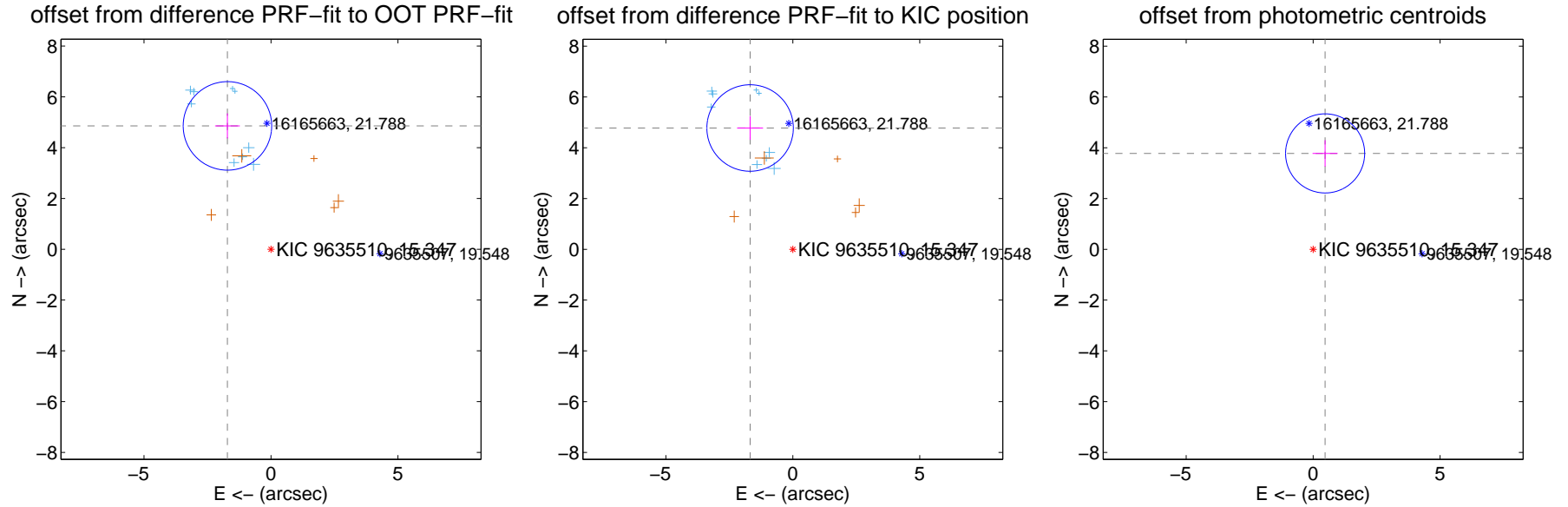
DV Centroid Data

Supplemental centroid analysis for 009635510-01. Kepler magnitude: 15.35. Transit SNR 27.42

There are 9 quarters with good PRF difference image offsets

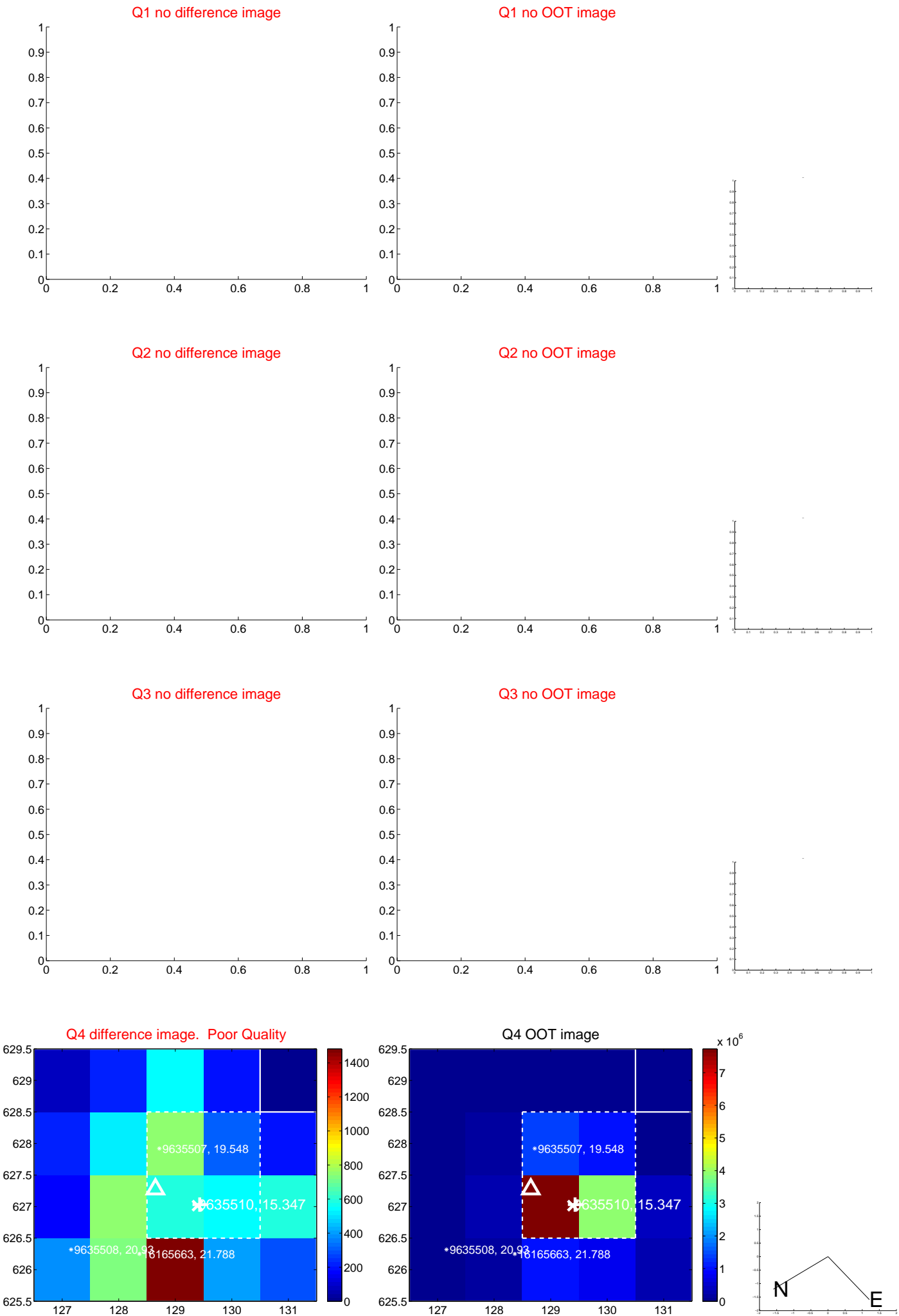
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.150 ± 0.581	8.87	1.714 ± 0.487	4.856 ± 0.494
PRF-fit source offset from KIC position	5.064 ± 0.568	8.92	1.683 ± 0.509	4.777 ± 0.467
photometric centroid source offset	3.81 ± 0.52	7.33	-0.47 ± 0.49	3.78 ± 0.52

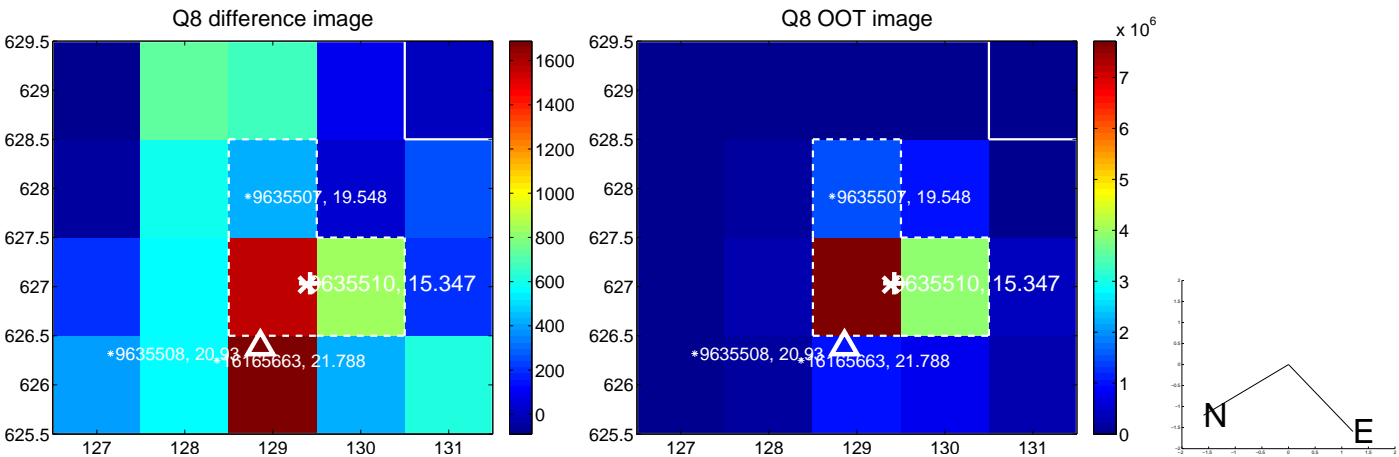
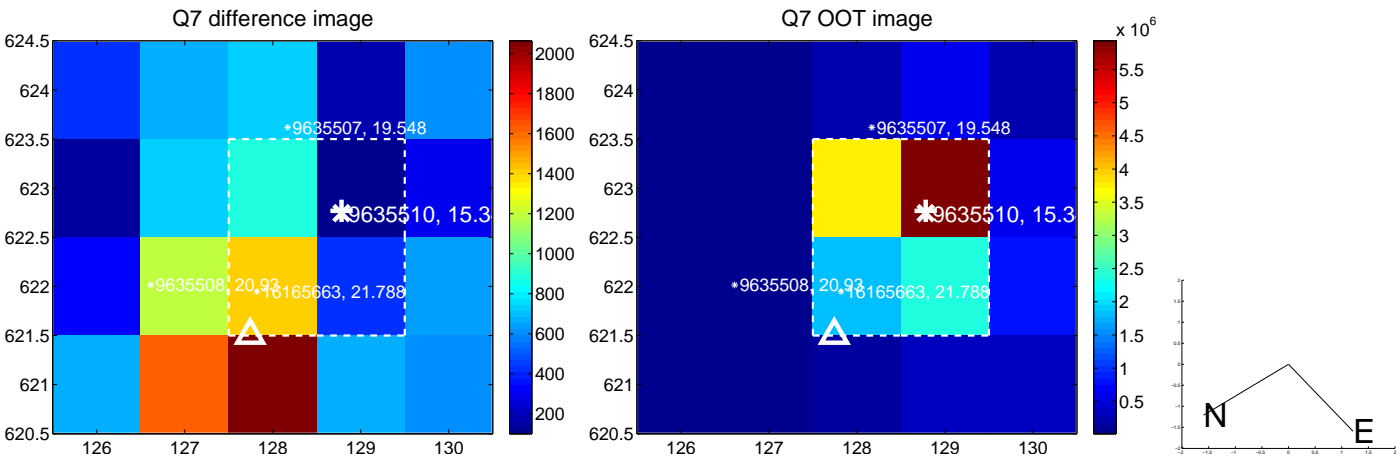
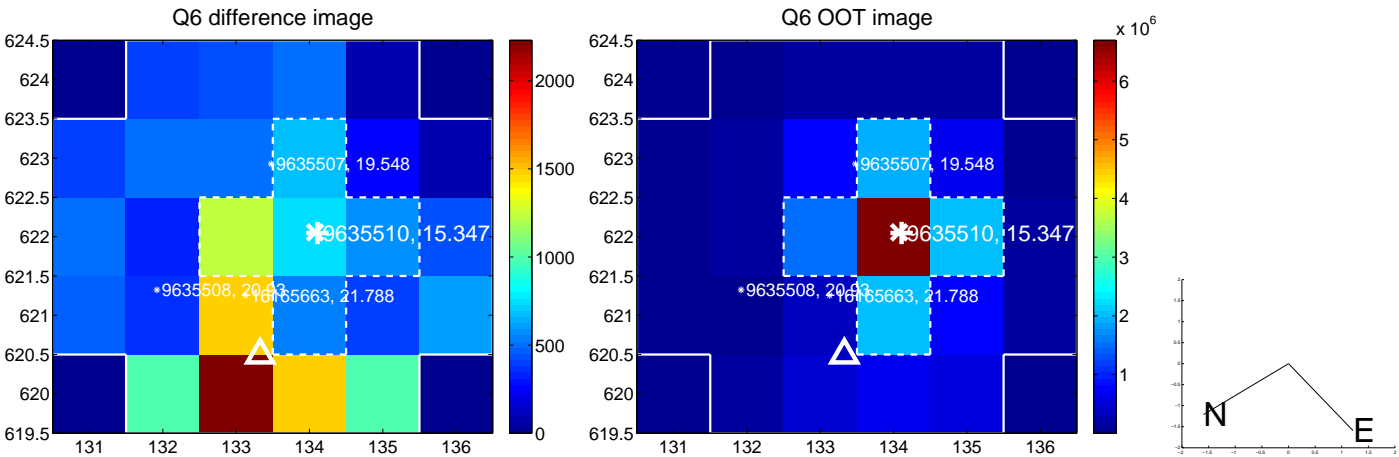
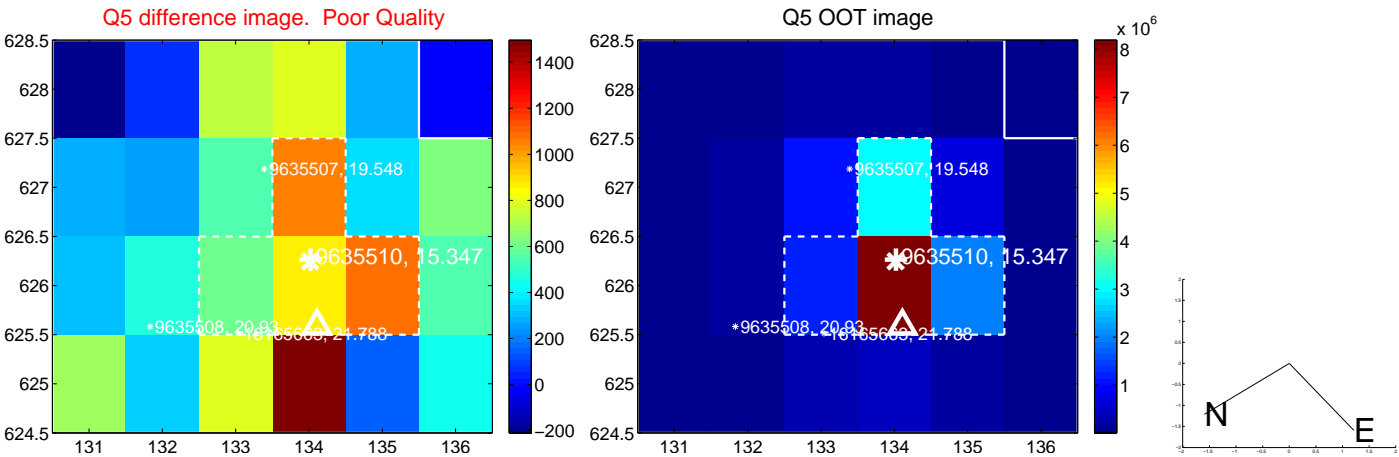


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

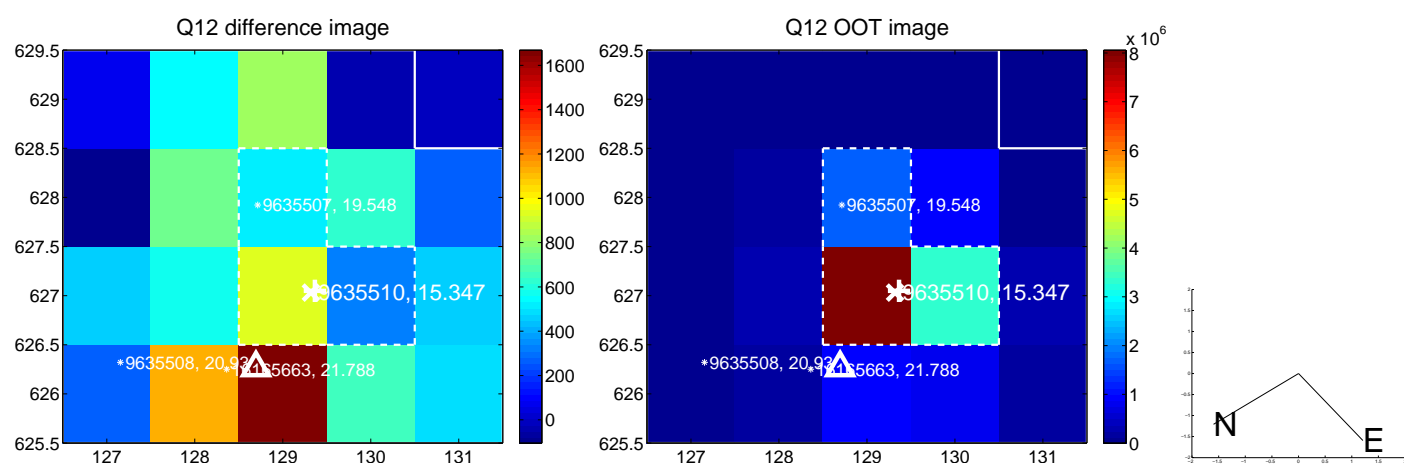
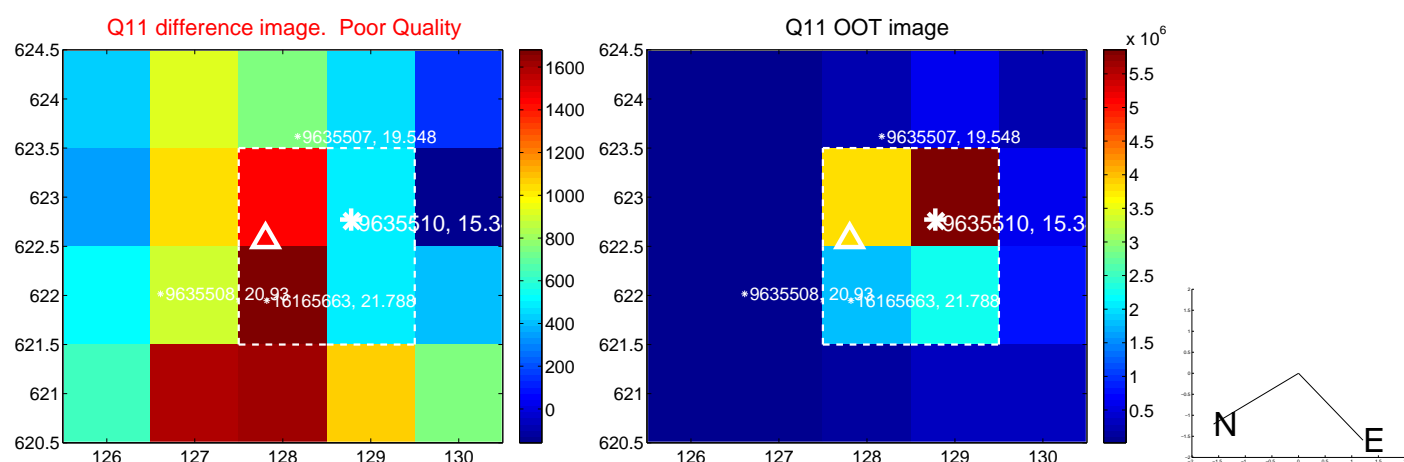
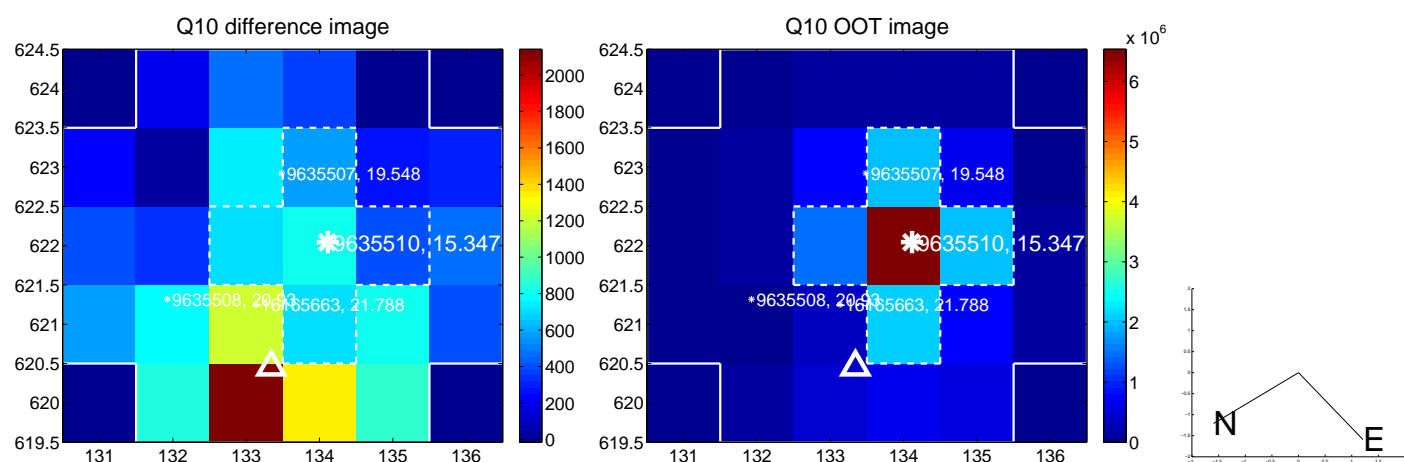
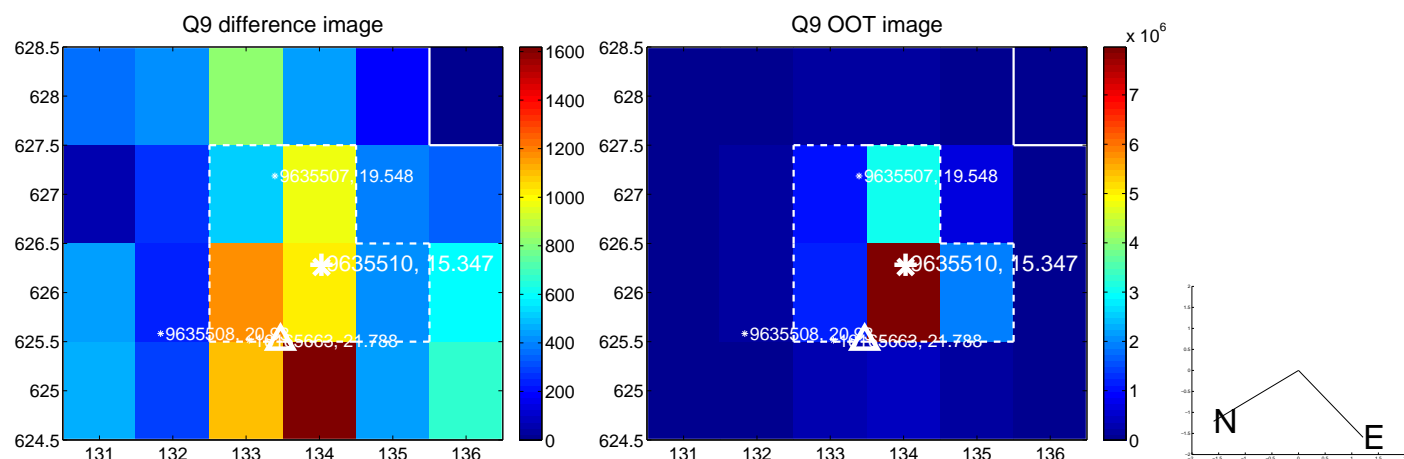
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



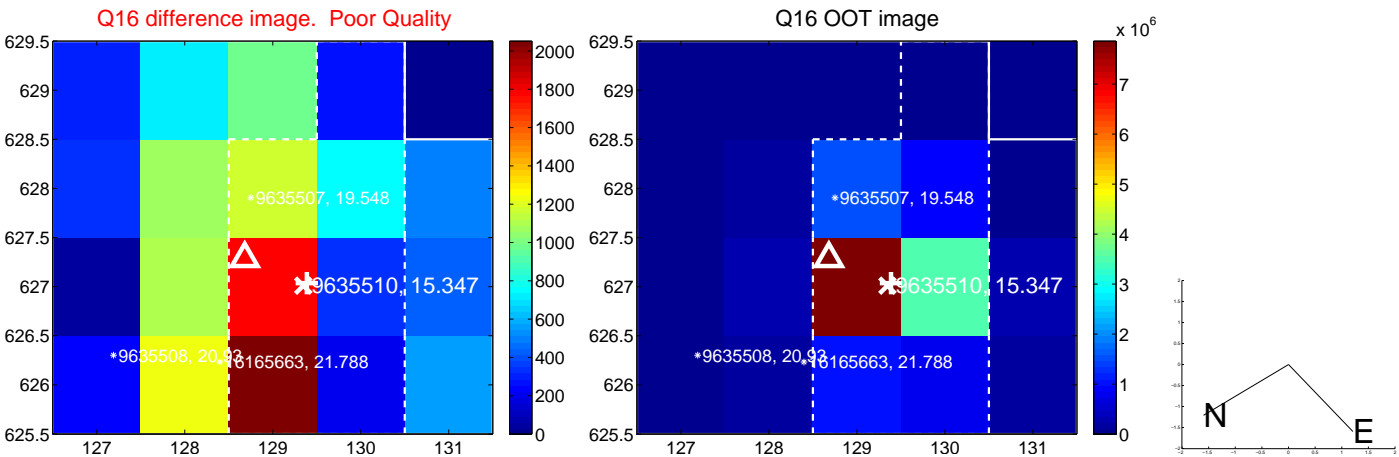
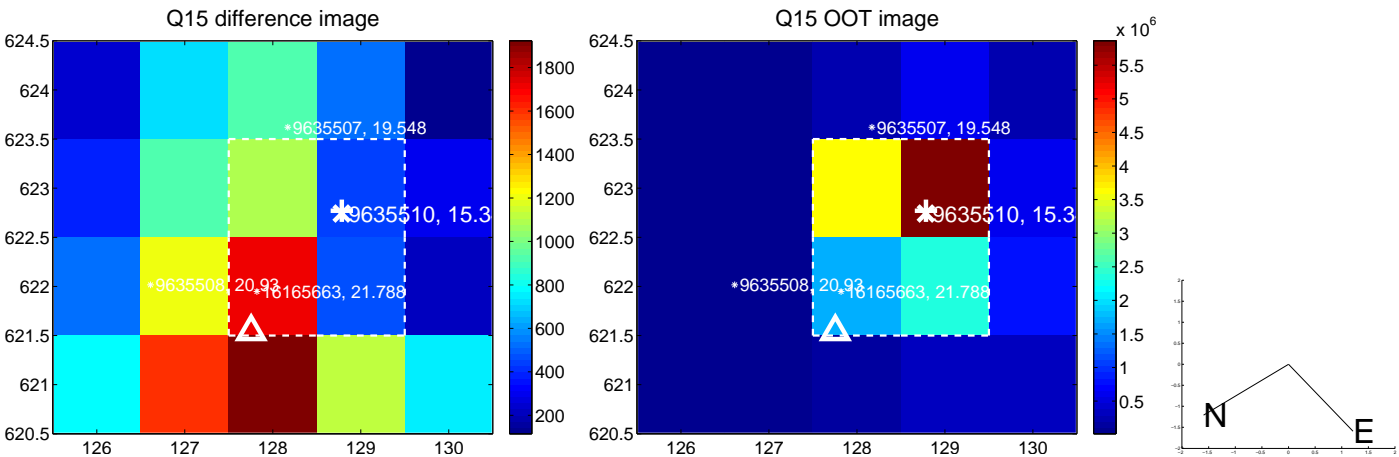
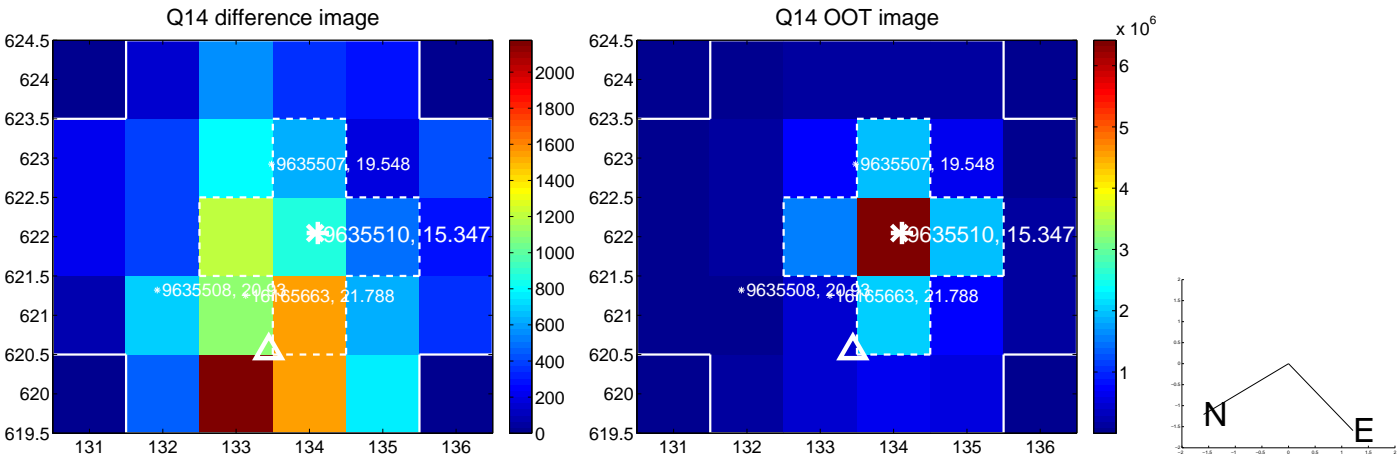
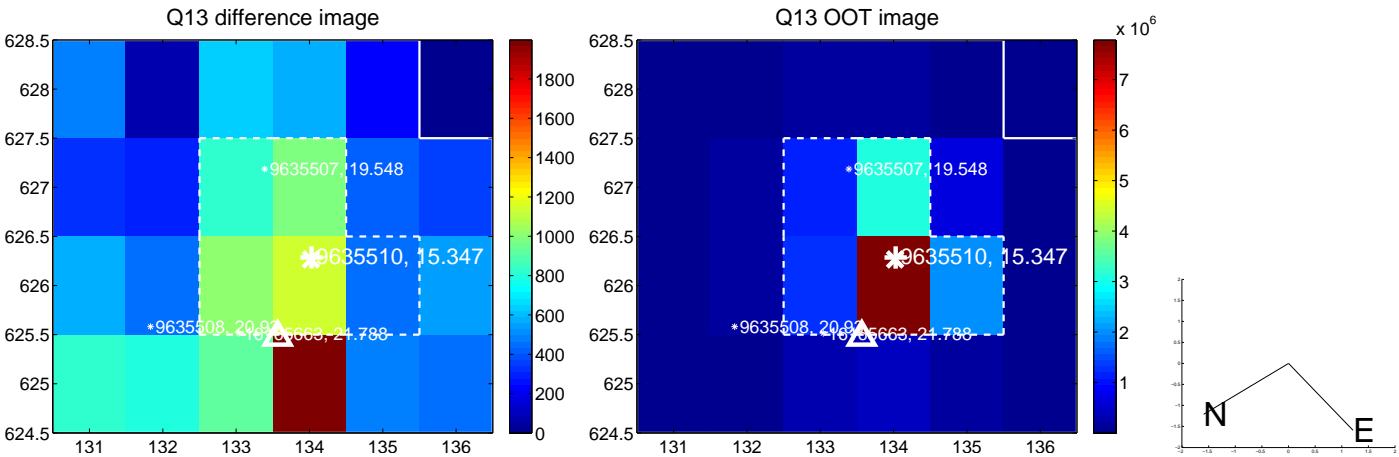
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



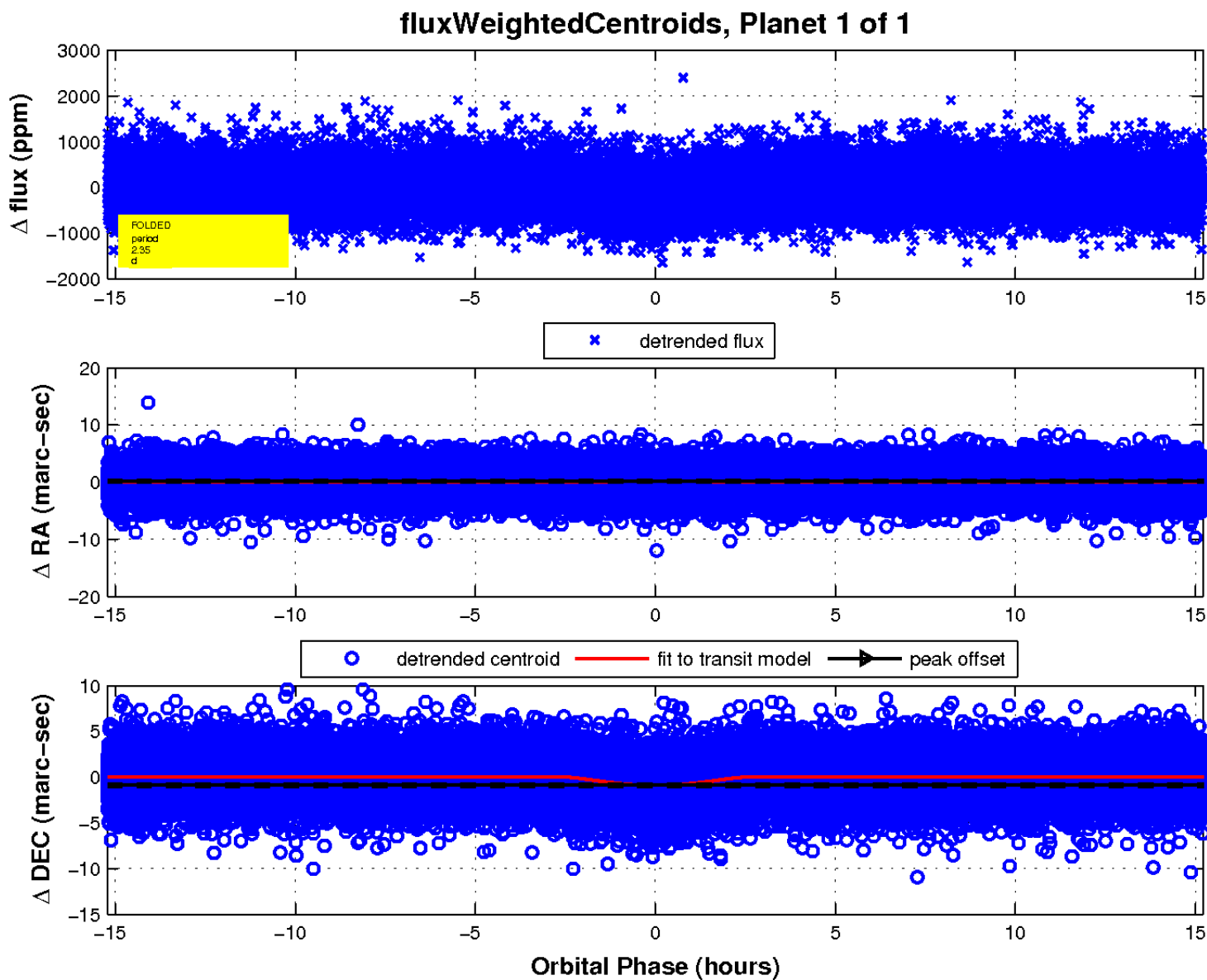
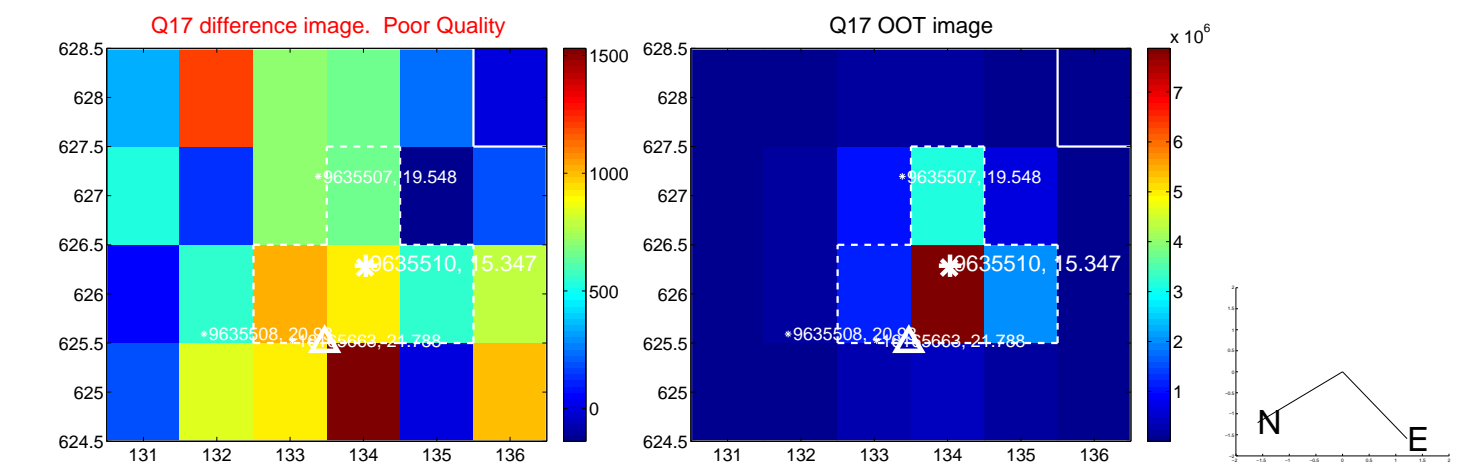
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UKIRT Image

Declination

