

KIC 009777087

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})
009777087-01	OBS	3747.01	5.508229	134.320460	38030.6	3.361	110.3	142.3	0.62	5188	19.15	86.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009777087-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—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.

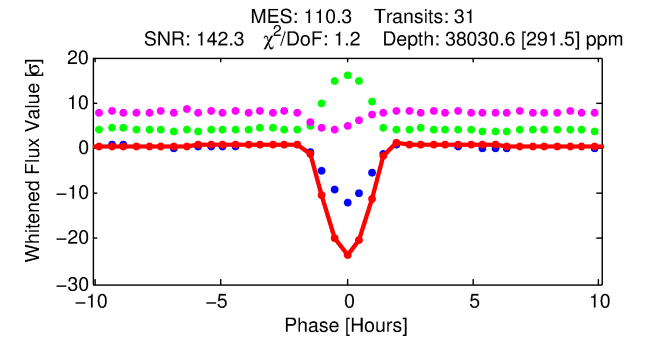
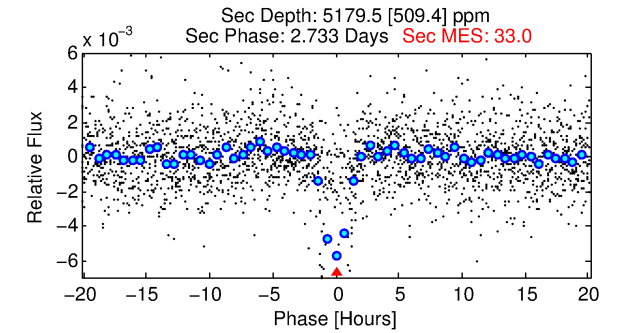
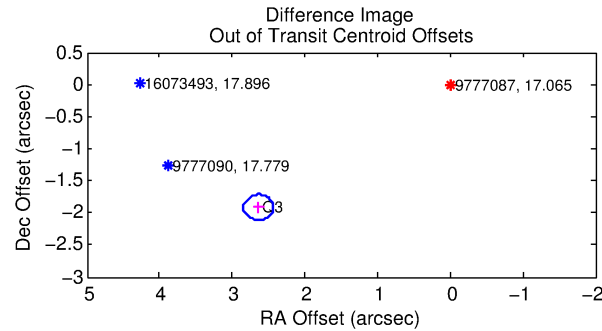
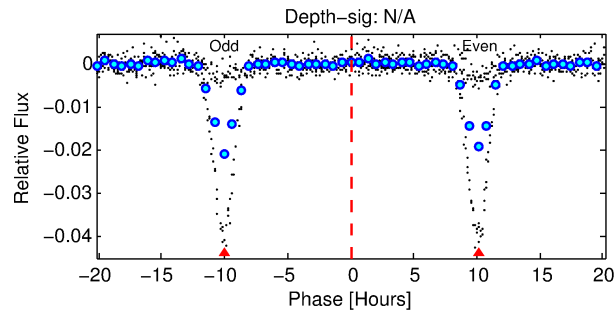
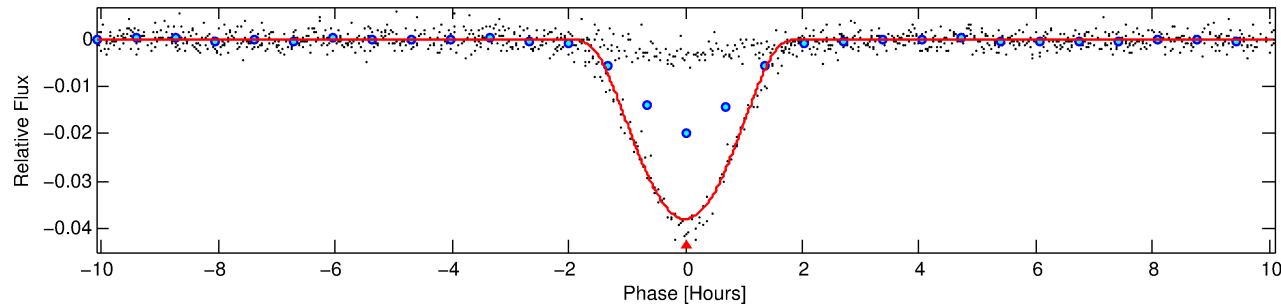
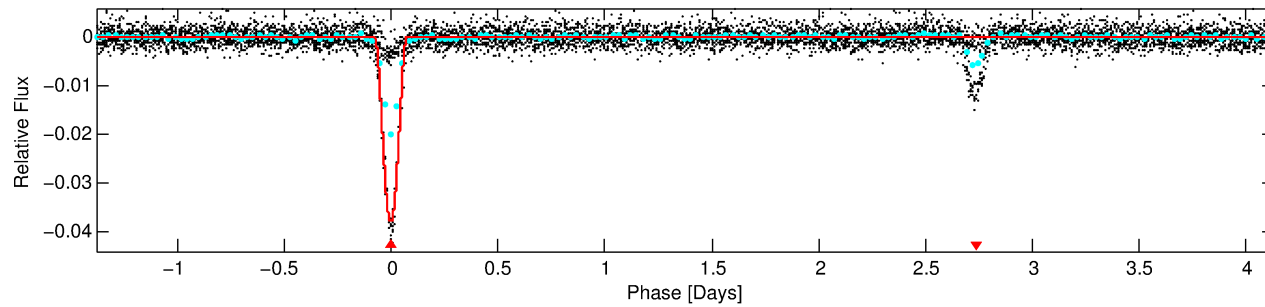
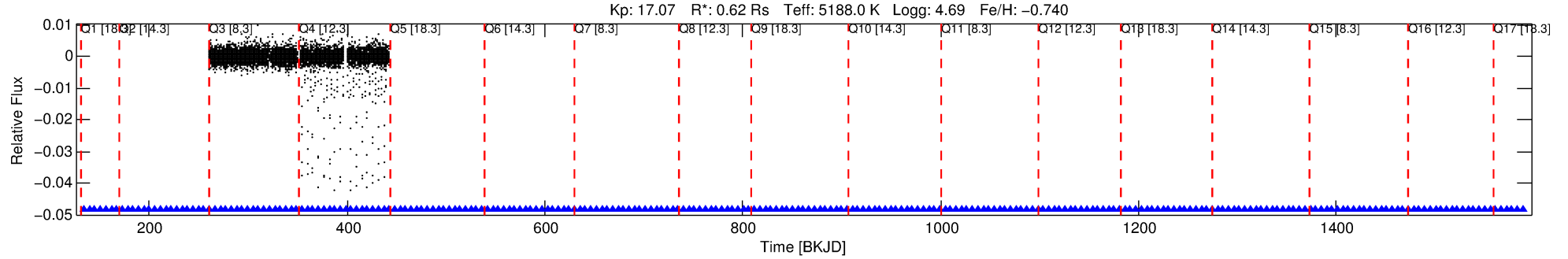
Ephemeris Match Information For 009777087-01

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
009777087-01	9777087	3672.01	9777090	1:1	4.1	1	0	17.78	17.07	10.10	Direct-PRF	0	0.63	0.17

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: 9777087 Candidate: 1 of 1 Period: 5.508 d
KOI: K03747.01 Corr: 0.943



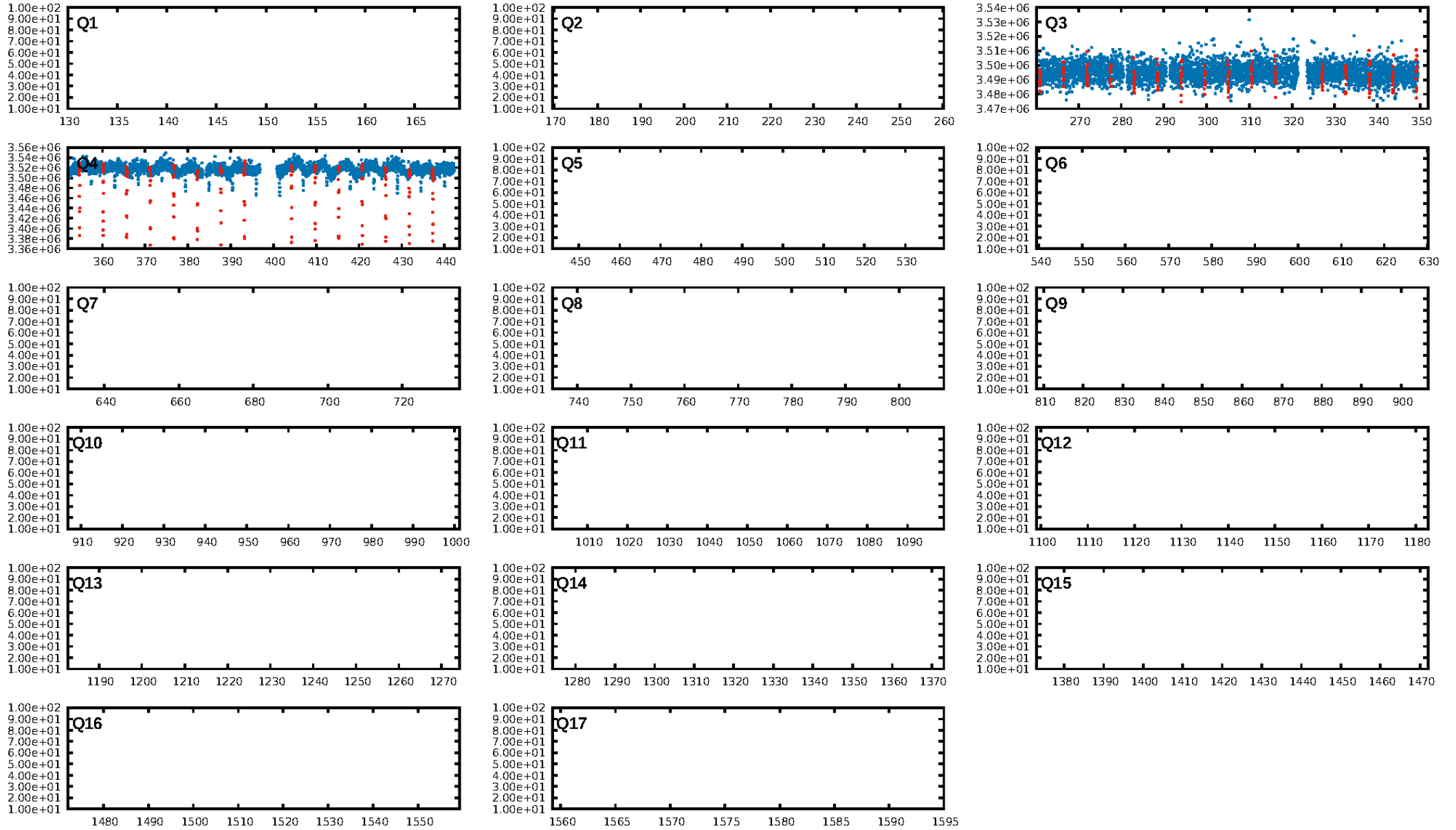
DV Fit Results:

Period = 5.50823 [0.00002] d
Epoch = 134.3205 [0.0010] BKJD
Rp/R* = 0.2812 [0.1201]
a/R* = 10.75 [0.34]
b = 0.95 [0.18]
Seff = 86.76 [17.21]
Teff = 778 [39] K
Rp = 19.15 [8.50] Re
a = 0.0540 [0.0053] AU
Ag = 22.64 [19.72] [1.10σ]
Teffp = 2625 [572] K [3.22σ]

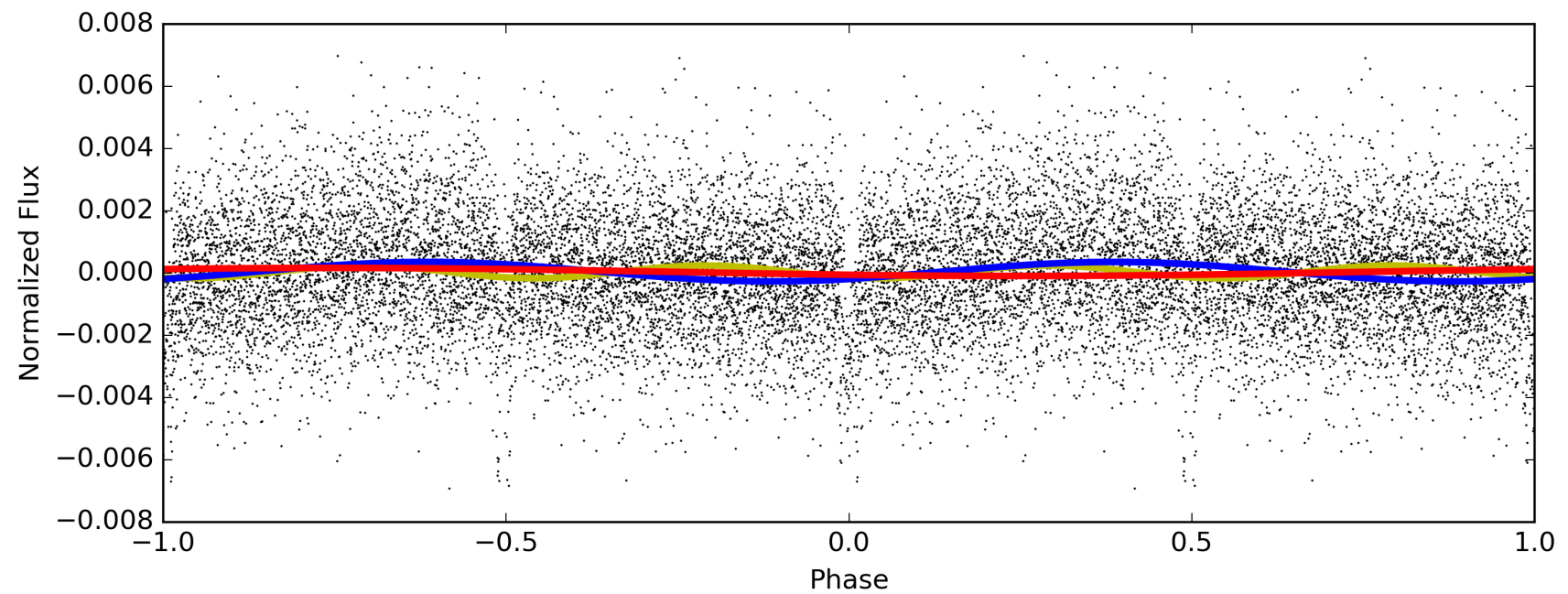
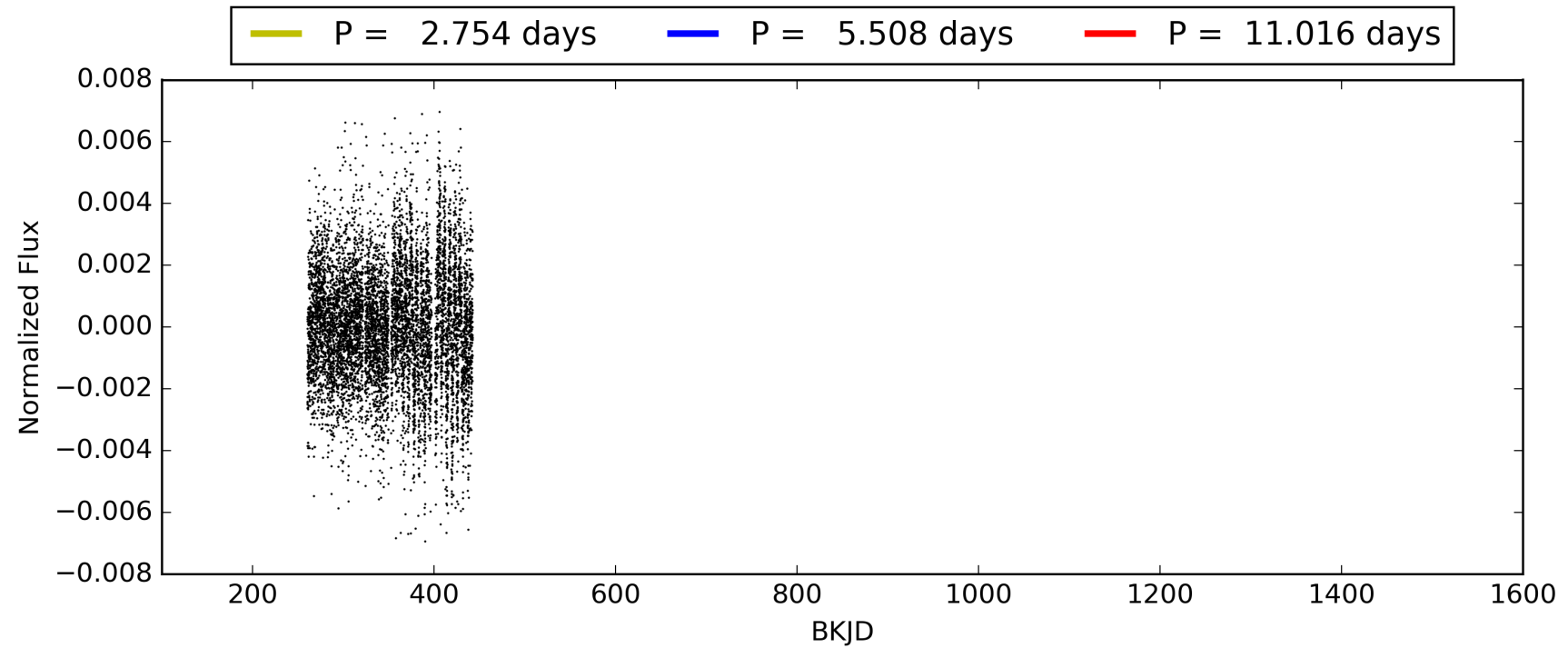
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [31/31]
GhostDiagnostic-chr: -0.1167
Centroid-sig: 0.0%
Centroid-so: 5.538 arcsec [140.98σ]
OotOffset-rm: 3.263 arcsec [48.82σ]
KicOffset-rm: 4.341 arcsec [58.53σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009777087-01, PDC Light Curves

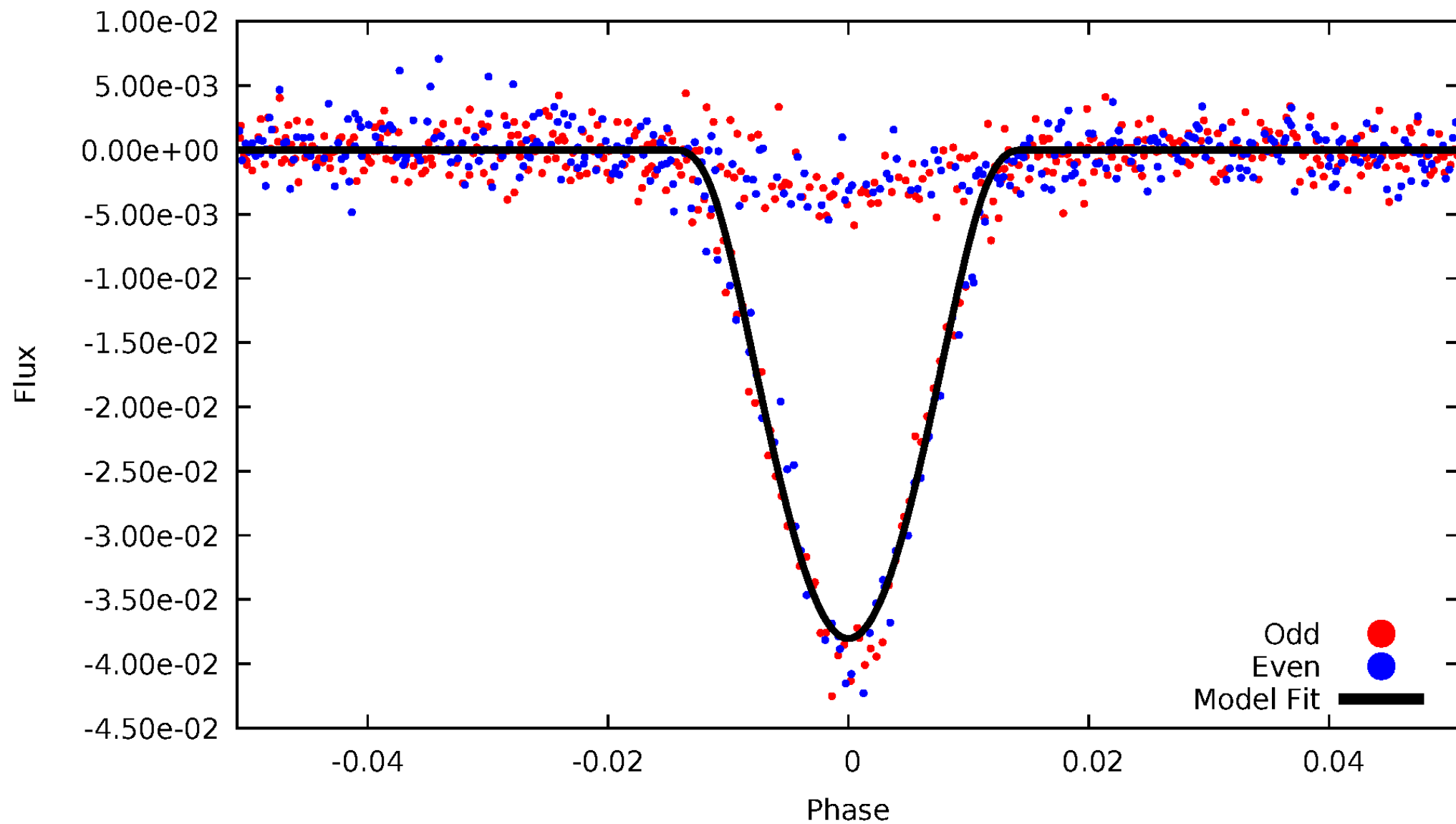


TCE 009777087-01



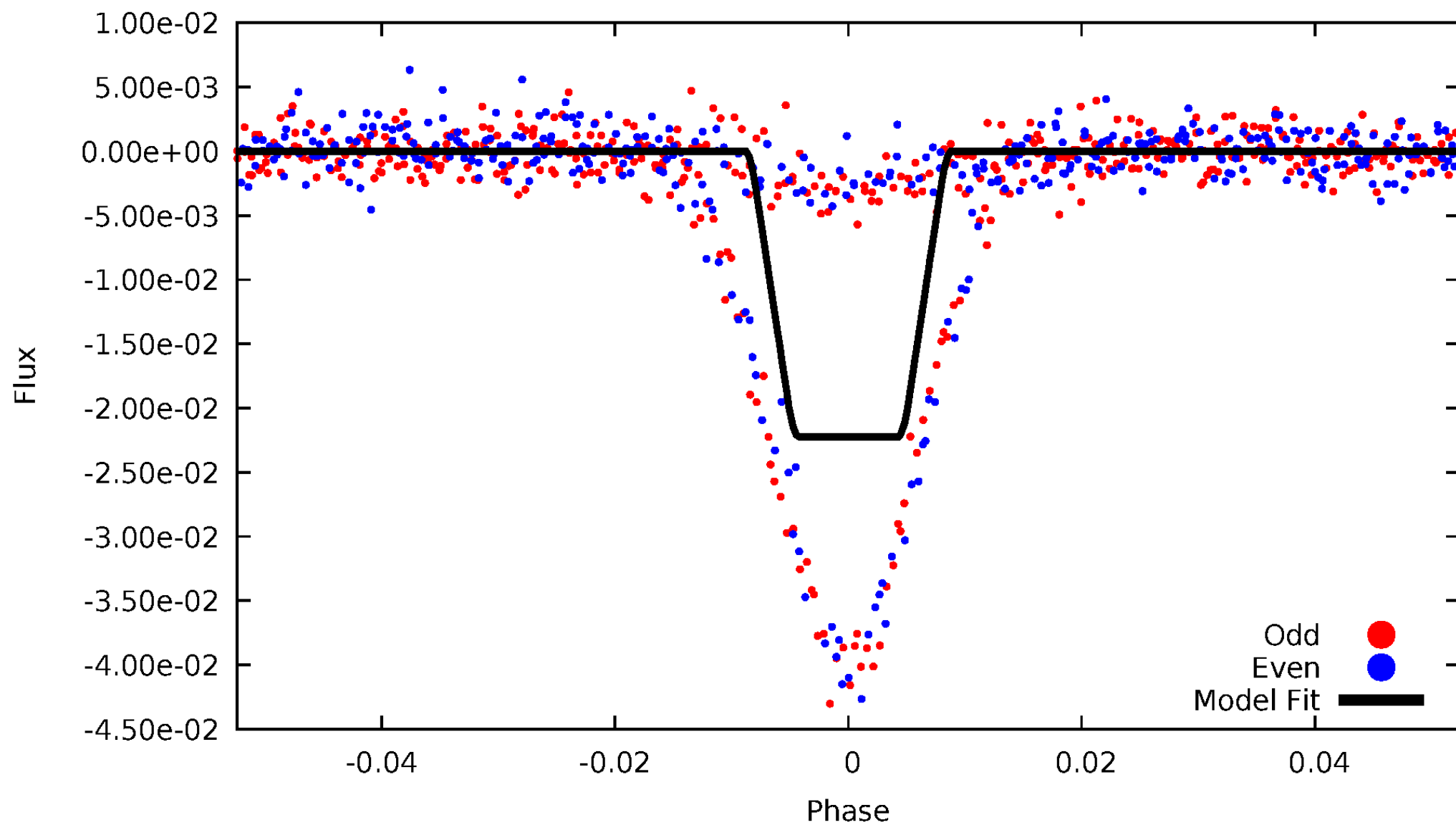
DV Odd/Even

TCE 009777087-01



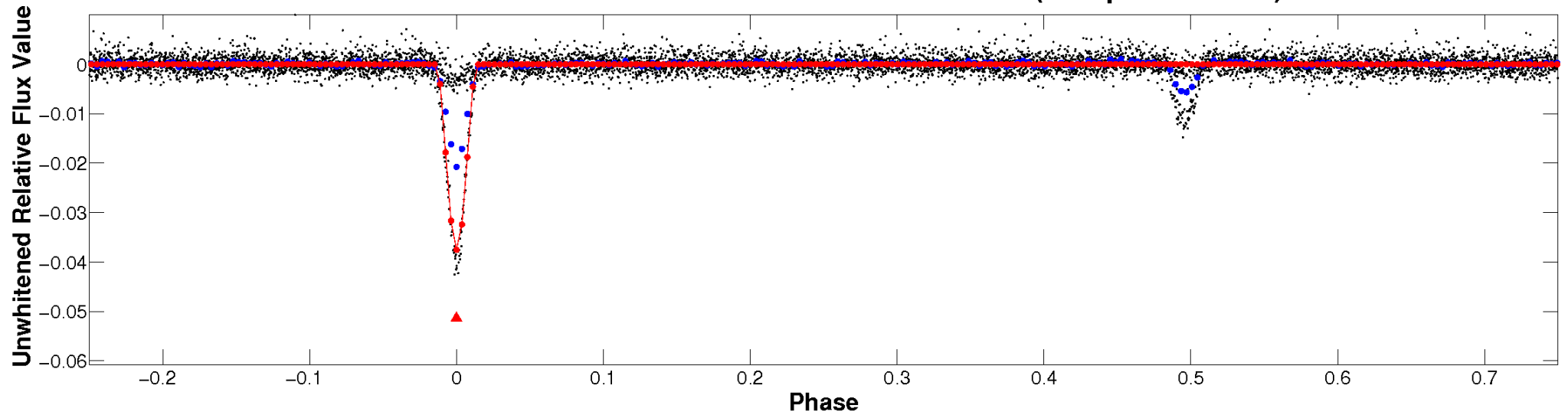
ALT Odd/Even

TCE 009777087-01

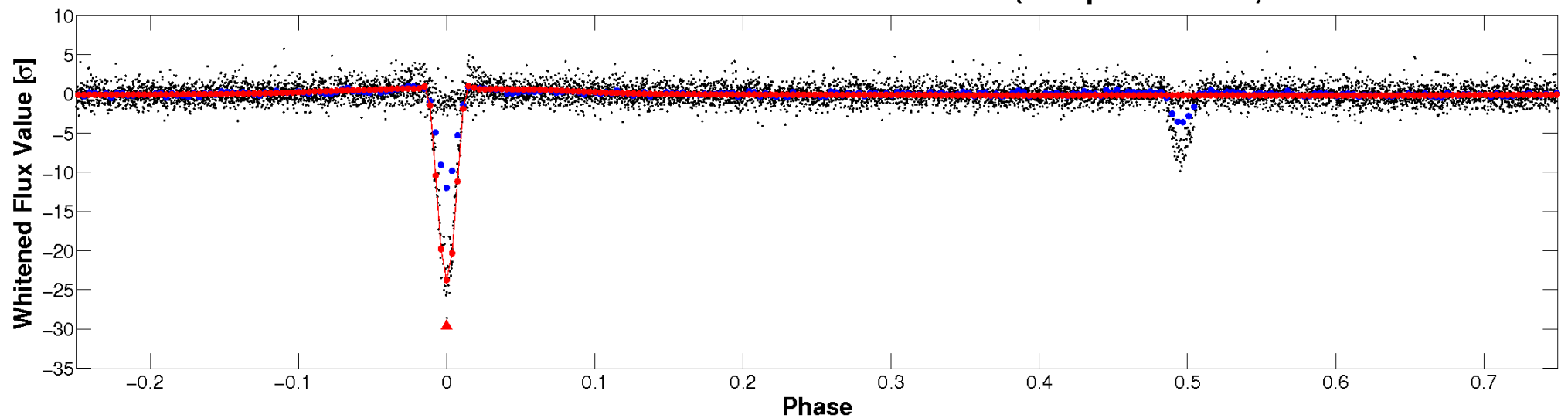


Non-Whitened Vs. Whitened Light Curve

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

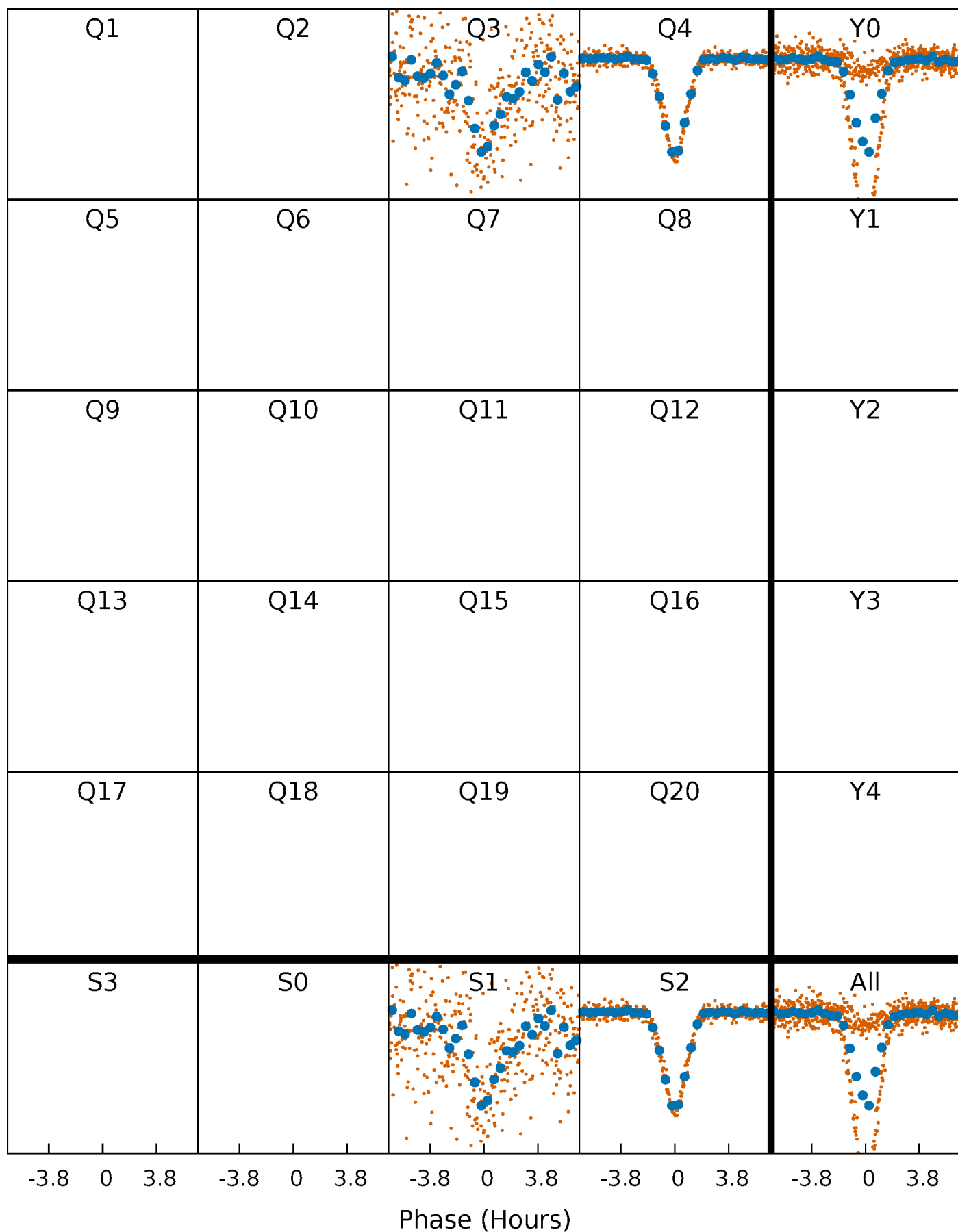


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



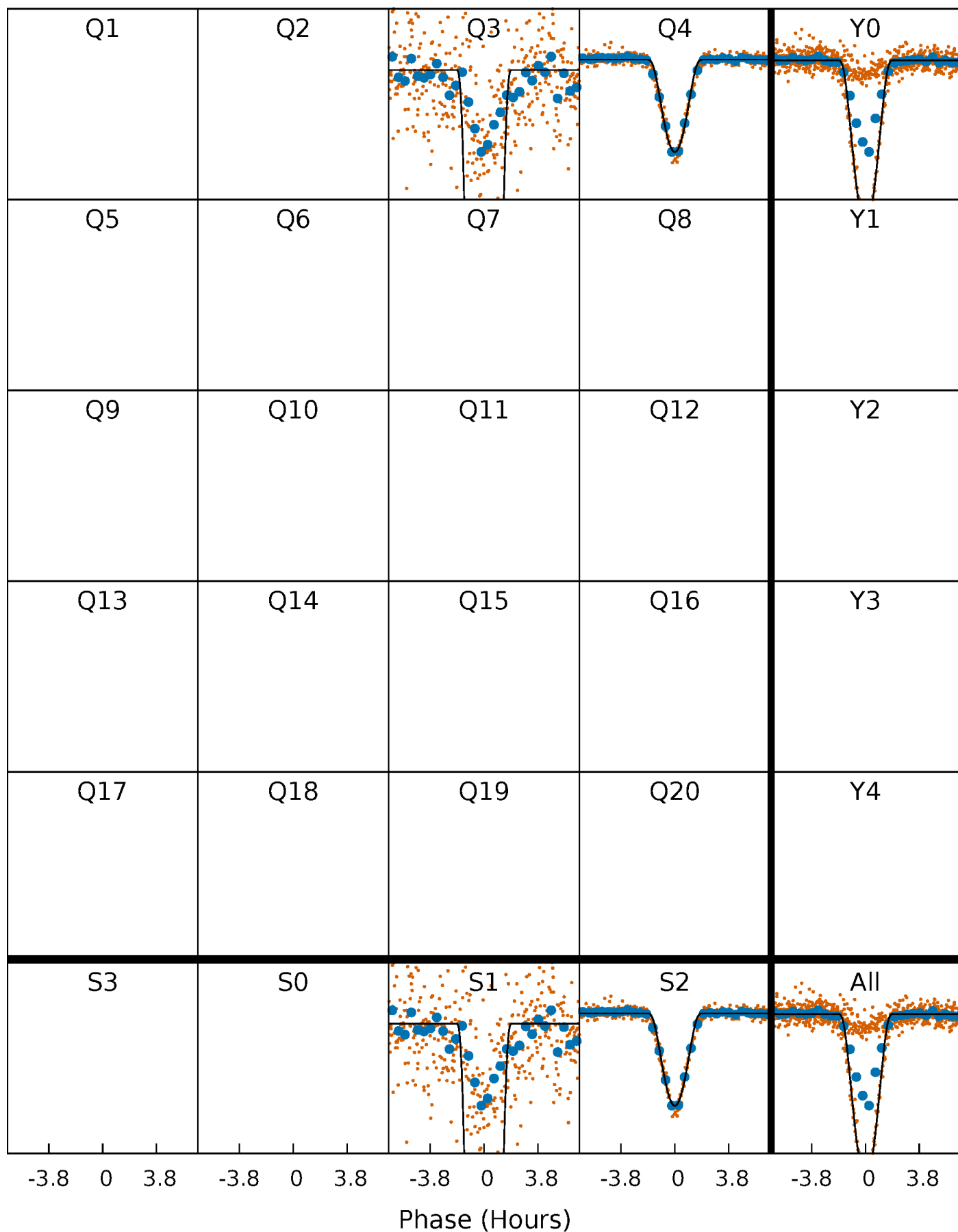
PDC Quarter-Phased Transit Curves

TCE 009777087-01 P= 5.508229 Days $T_0=134.320460$ (BKJD)



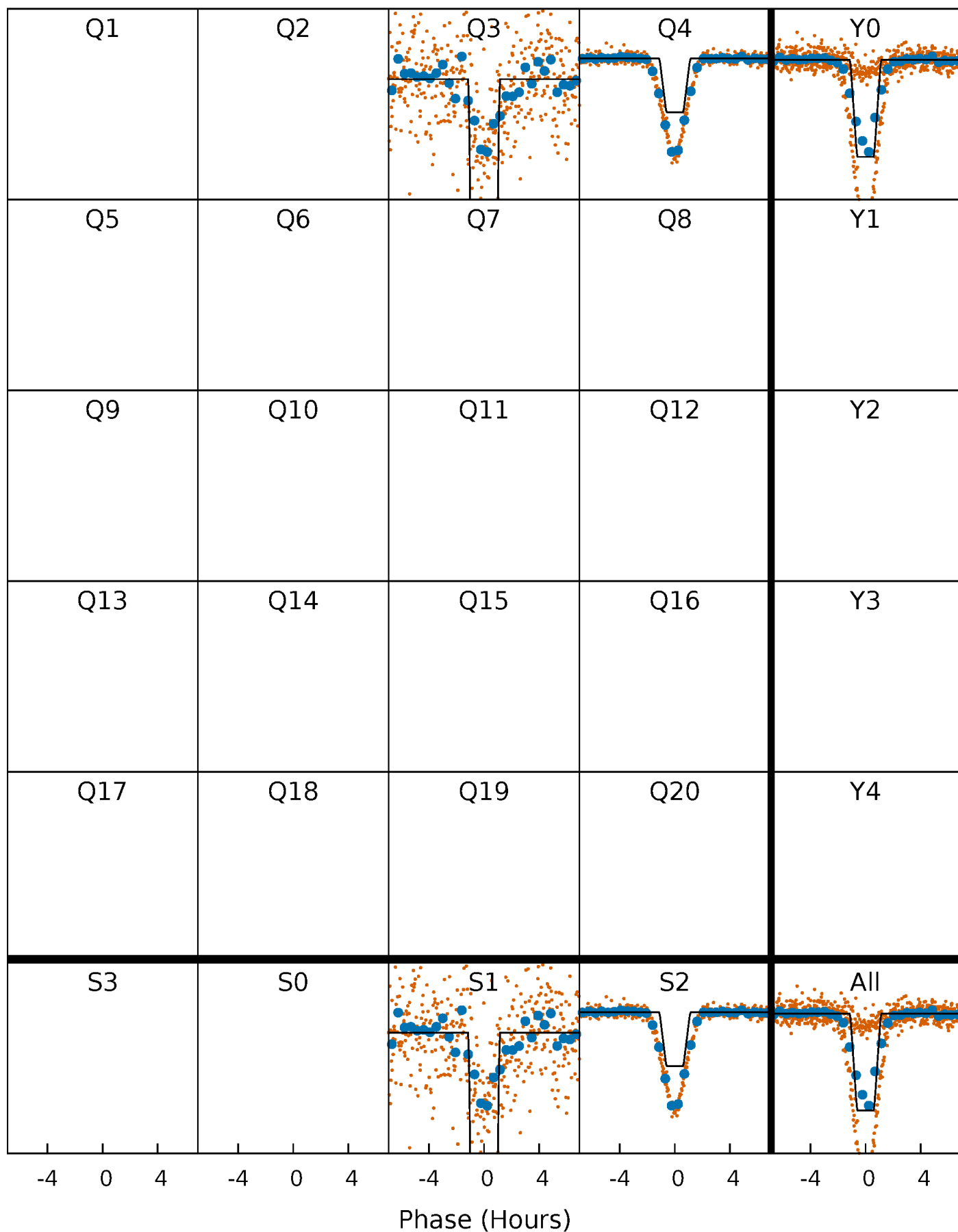
DV Quarter-Phased Transit Curves

TCE 009777087-01 P= 5.508229 Days $T_0=134.320460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

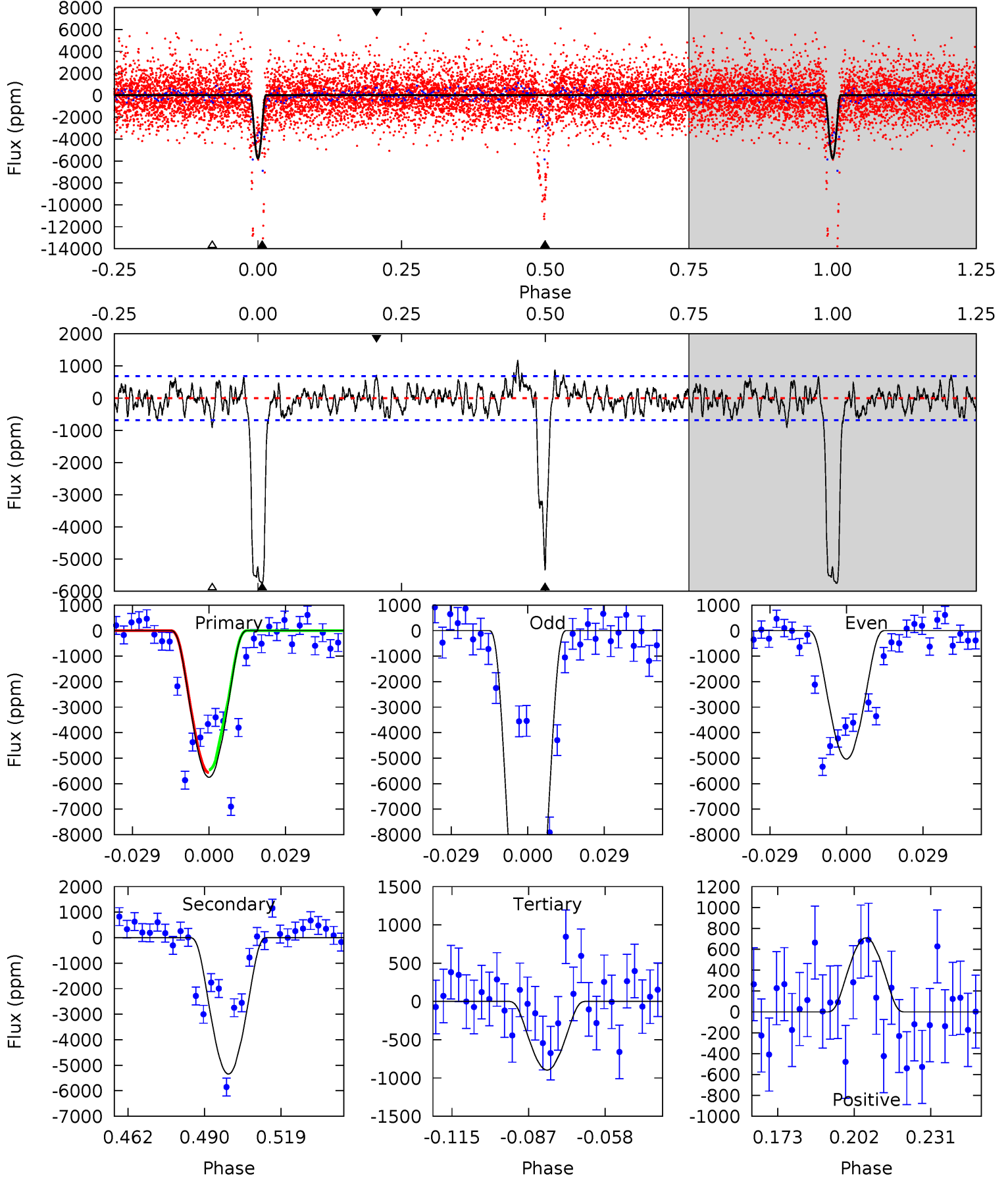
TCE 009777087-01 P= 5.508370 Days $T_0=134.314695$ (BKJD)



DV Model-Shift Uniqueness Test

009777087-01, P = 5.508229 Days, E = 134.320460 Days

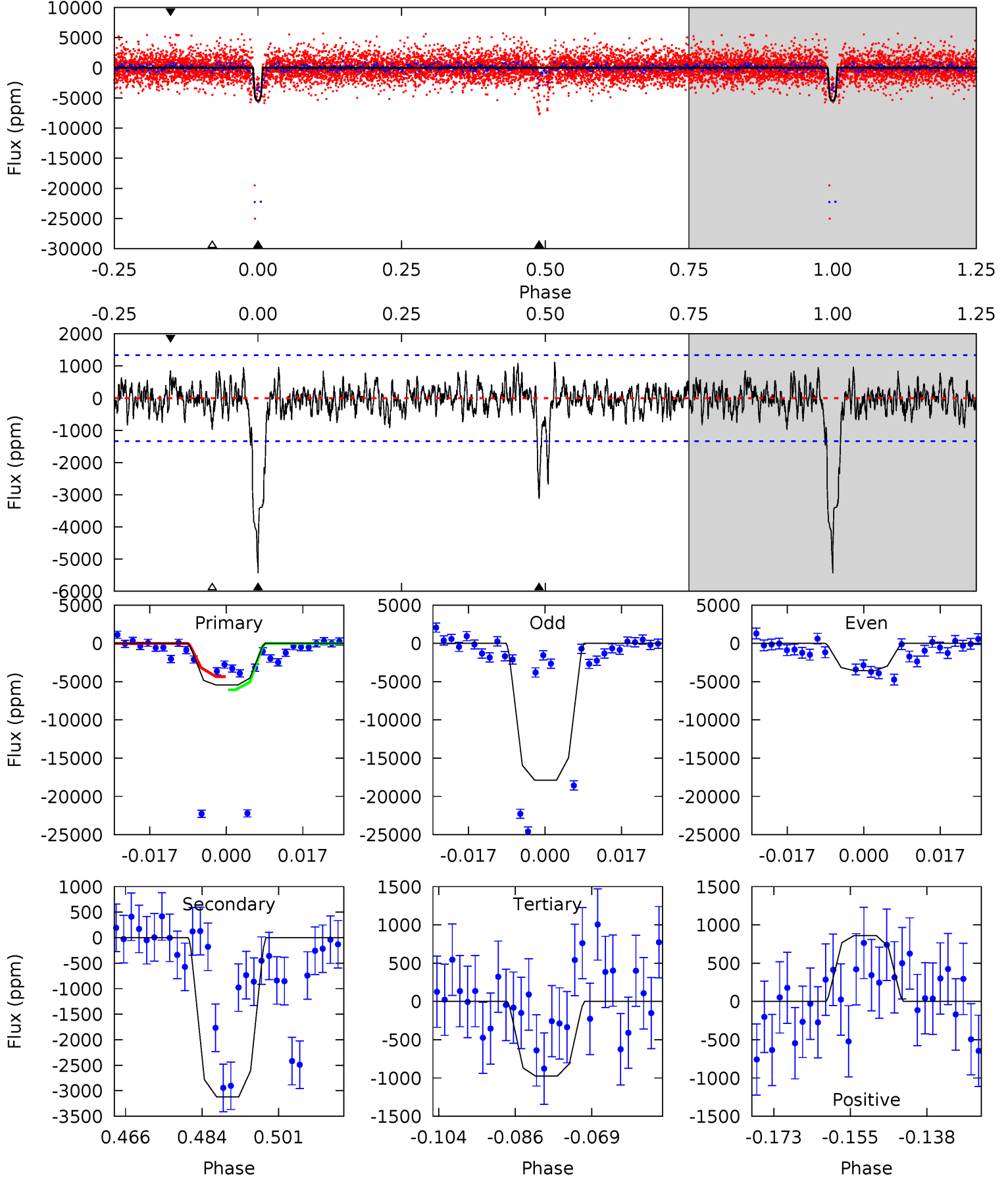
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.5	37.7	6.31	5.00	4.82	2.19	2.06	34.2	35.5	31.3	32.7	41.2	4.08	0.17	0.36



Alt Model-Shift Uniqueness Test

009777087-01, P = 5.508370 Days, E = 134.314695 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	11.5	3.59	3.17	4.92	2.38	1.20	16.4	16.8	7.90	8.32	29.1	4.60	0.17	0



Stellar Parameters For KIC 009777087

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5188^{+182}_{-182}	$4.687^{+0.025}_{-0.075}$	$-0.740^{+0.300}_{-0.300}$	$0.624^{+0.075}_{-0.034}$	$0.689^{+0.059}_{-0.053}$	$3.998^{+0.495}_{-0.953}$
	+4%/-4%	+1%/-2%	+41%/-41%	+12%/-5%	+9%/-8%	+12%/-24%
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 009777087-01 / KOI 3747.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-5344 ± 142	$20.29^{+7.91}_{-8.34}$	1098^{+48}_{-44}	3170^{+574}_{-296}	21^{+39}_{-10}
Alt.	-3121 ± 272	$11.34^{+7.80}_{-6.55}$	1098^{+45}_{-46}	3486^{+1239}_{-522}	38^{+171}_{-25}

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 $A_{obs} \gg 1.0$

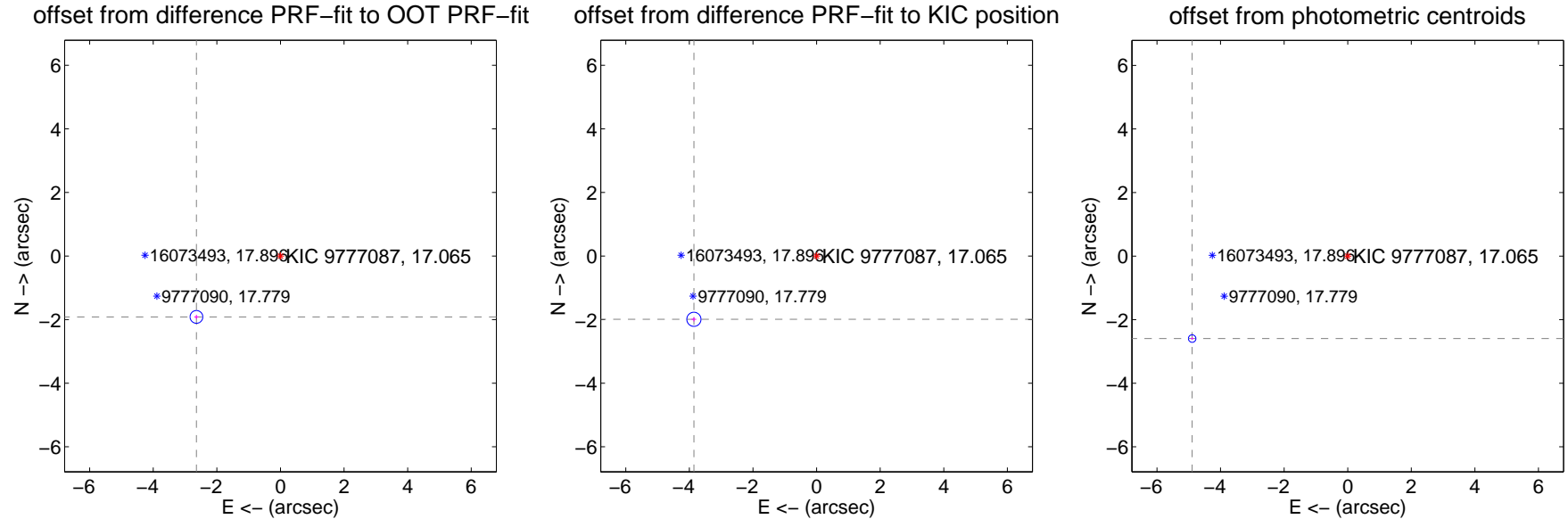
DV Centroid Data

Supplemental centroid analysis for 009777087-01. Kepler magnitude: 17.07. Transit SNR 142.30

There are 2 quarters with good PRF difference image offsets

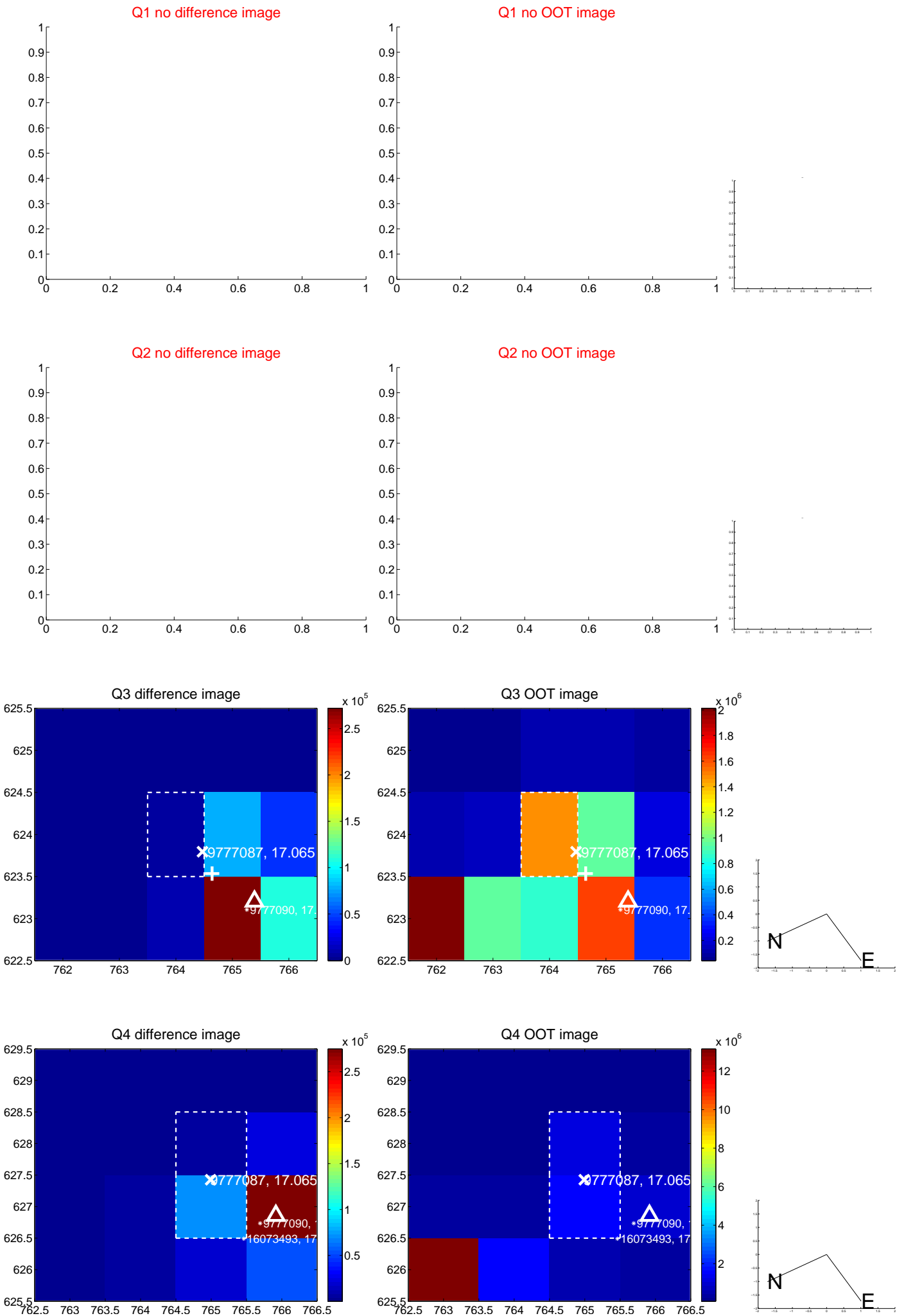
The direct PRF centroid is offset from the target star catalog position by about 1.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.263 ± 0.067	48.82	2.642 ± 0.067	-1.915 ± 0.067
PRF-fit source offset from KIC position	4.341 ± 0.074	58.53	3.858 ± 0.075	-1.991 ± 0.071
photometric centroid source offset	5.54 ± 0.04	140.98	4.89 ± 0.04	-2.59 ± 0.03



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.



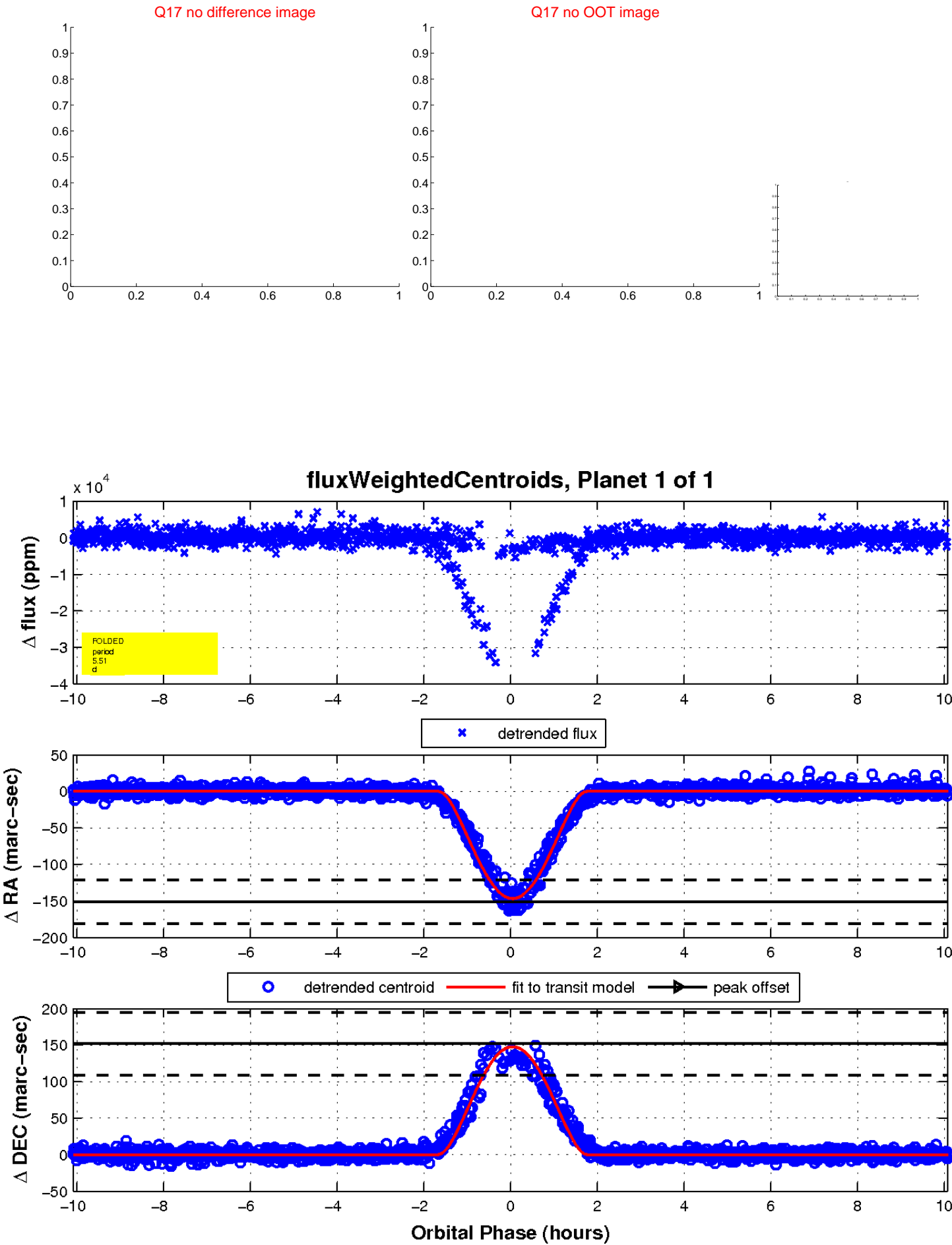
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

