

KIC 005440370

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})
005440370-01	OBS	No	437.586817	218.644126	257.3	27.789	7.9	9.7	0.67	5342	1.39	0.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005440370-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—CENT_FEW_DIFFS

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

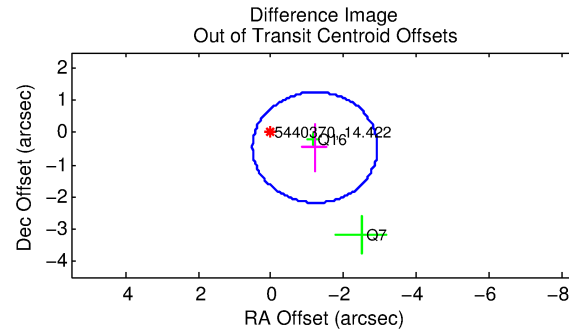
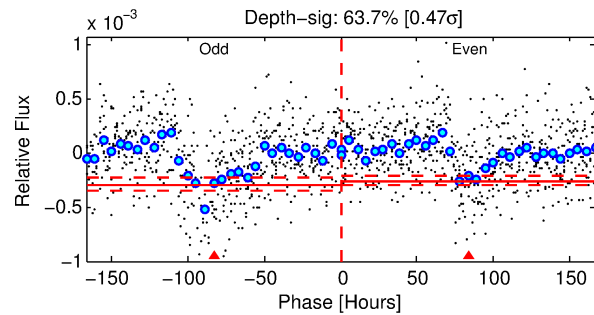
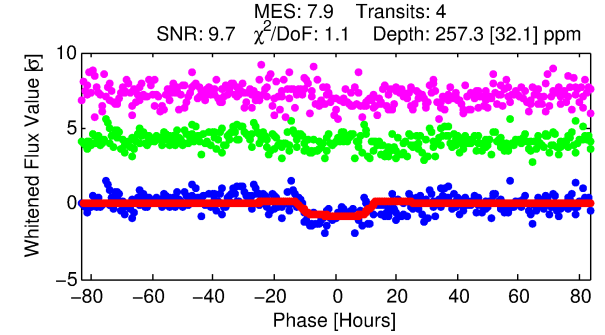
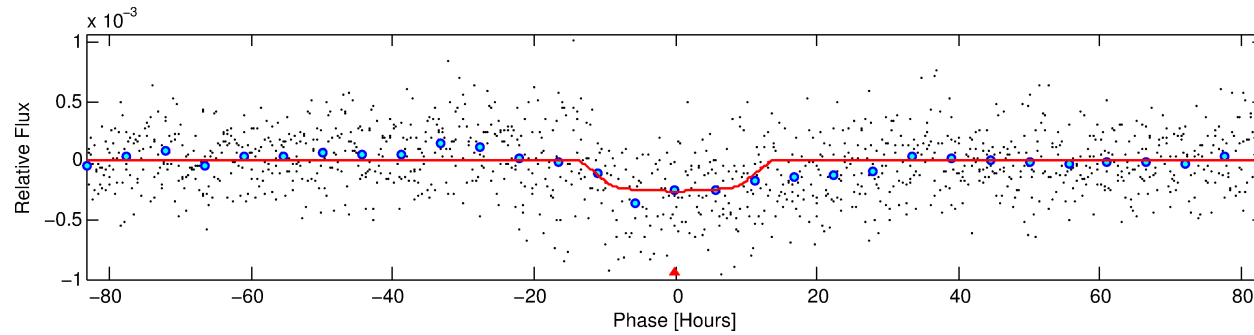
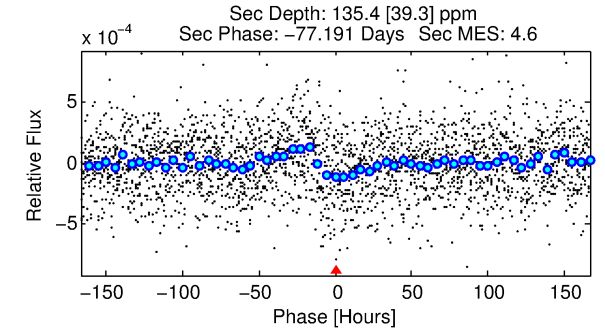
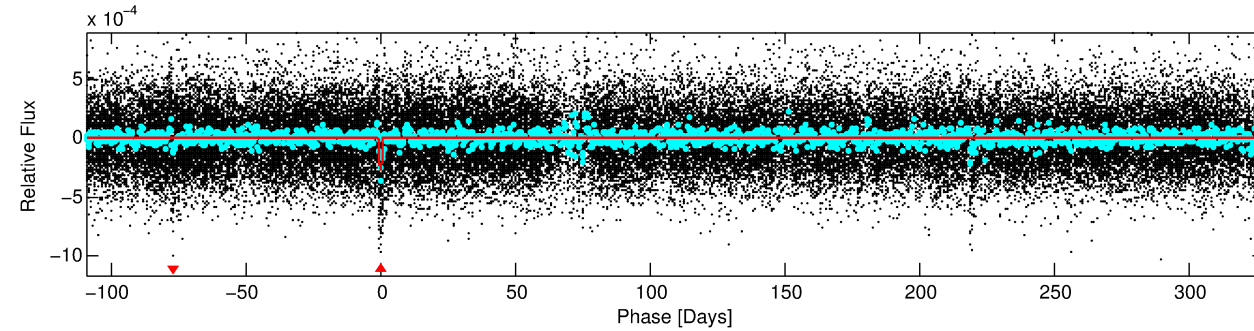
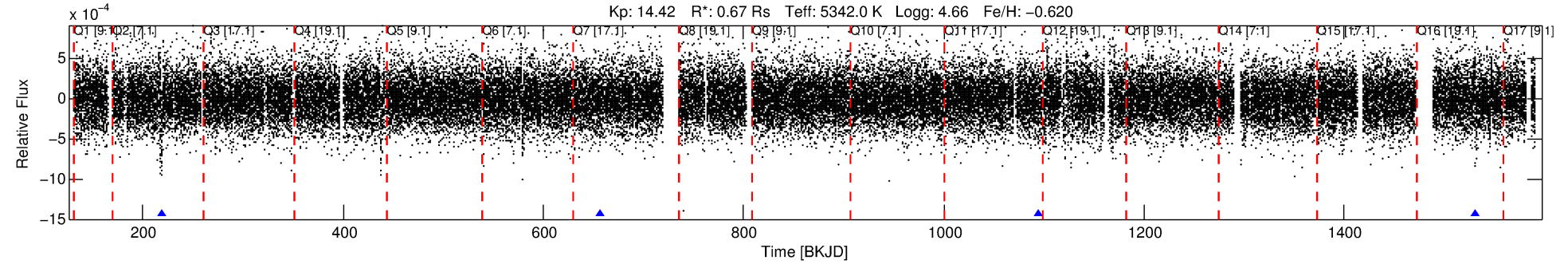
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005440370-01

No Significant Match Found

DV One-Page Summary

KIC: 5440370 Candidate: 1 of 1 Period: 437.587 d



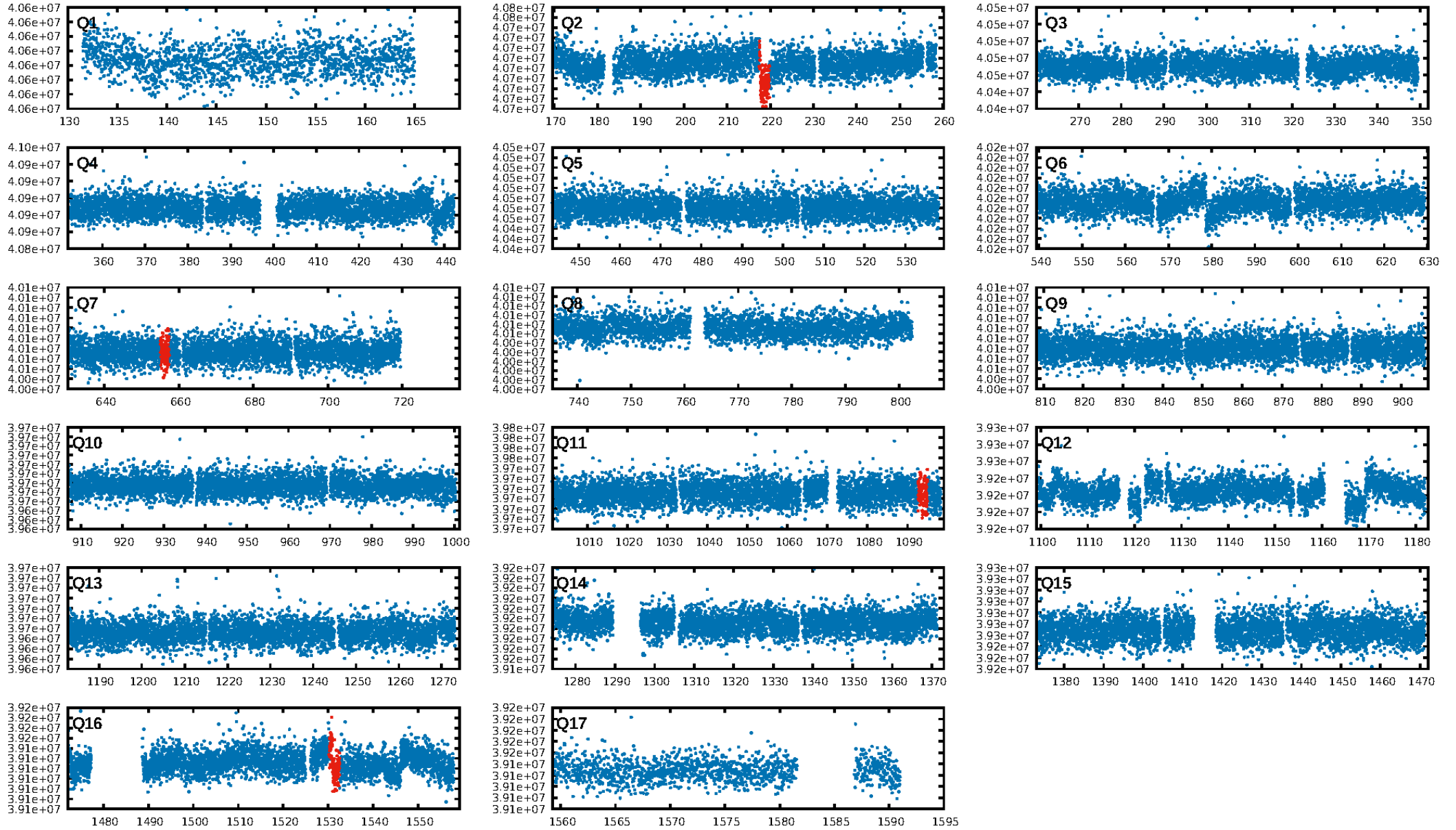
DV Fit Results:

Period = 437.58682 [0.02802] d
Epoch = 218.6441 [0.0523] BKJD
Rp/R* = 0.0191 [0.0019]
a/R* = 42.00 [13.97]
b = 0.96 [0.03]
Seff = 0.31 [0.06]
Teff = 191 [10] K
Rp = 1.39 [0.24] Re
a = 1.0182 [0.1169] AU
Ag = 40063.99 [15540.12] [2.58 σ]
Teffp = 4172 [389] K [10.23 σ]

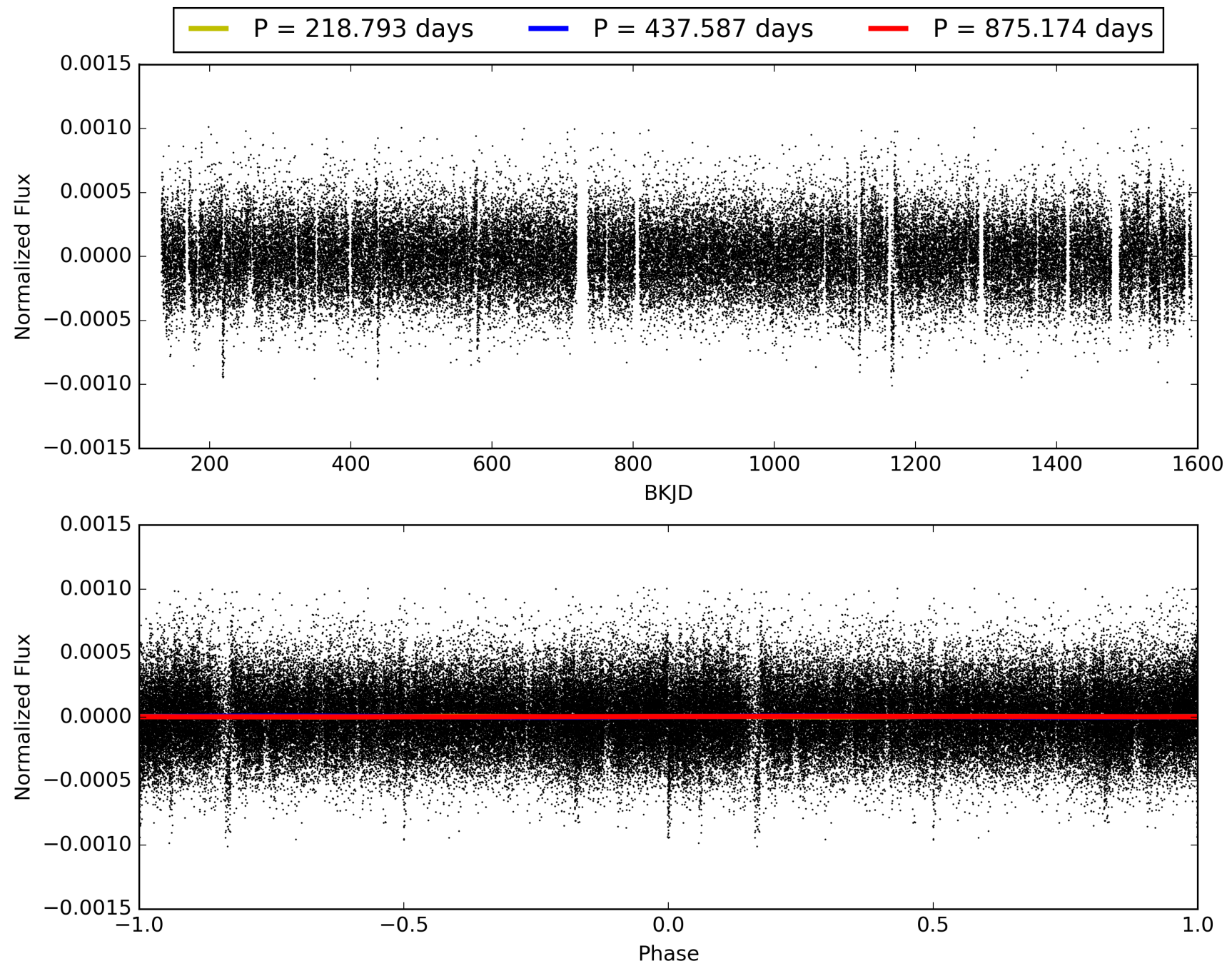
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.14e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.7426
Centroid-sig: 23.8%
Centroid-so: 1.597 arcsec [1.18 σ]
OotOffset-rm: 1.299 arcsec [2.26 σ]
KicOffset-rm: 1.384 arcsec [1.45 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 005440370-01, PDC Light Curves

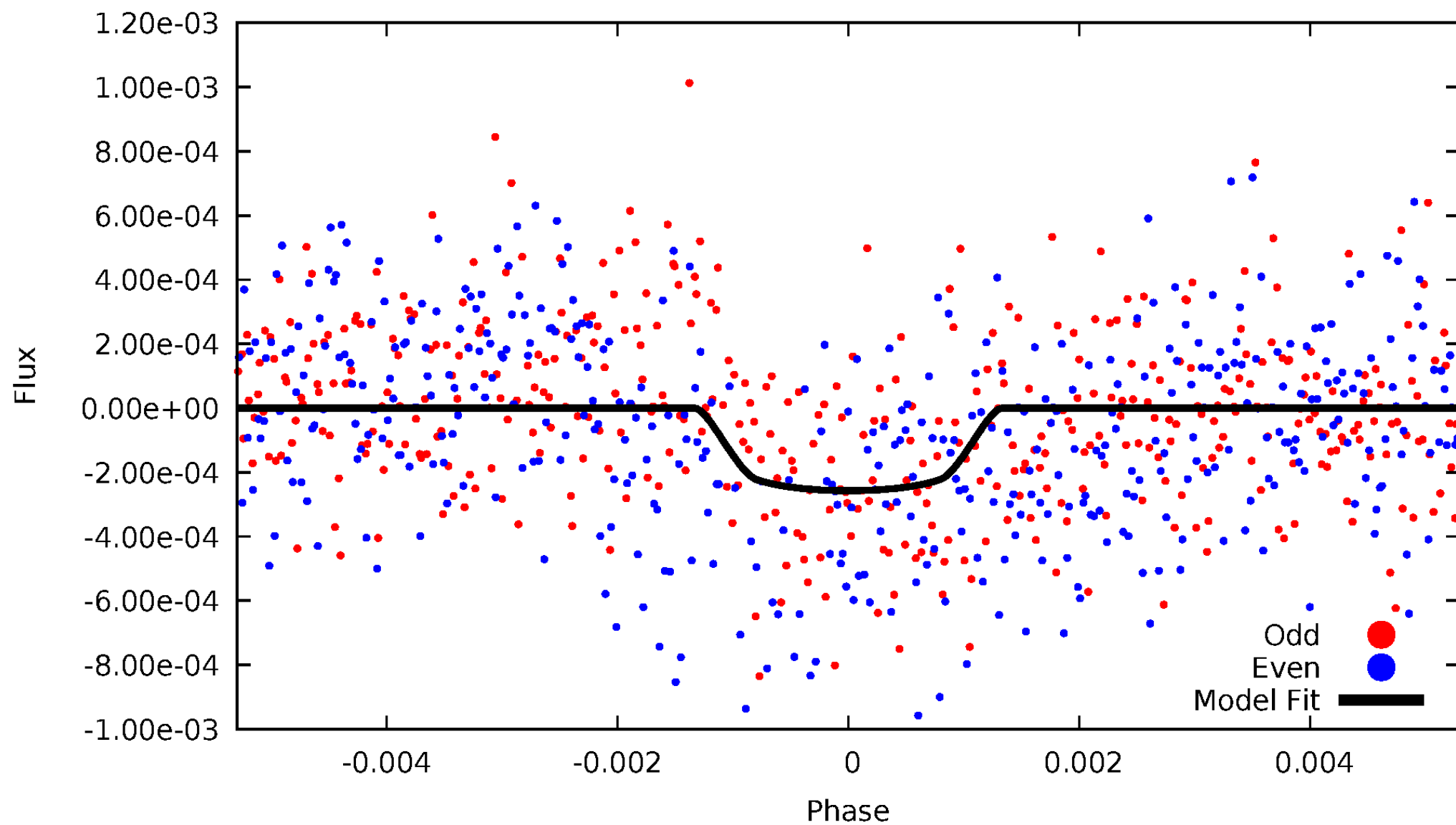


TCE 005440370-01



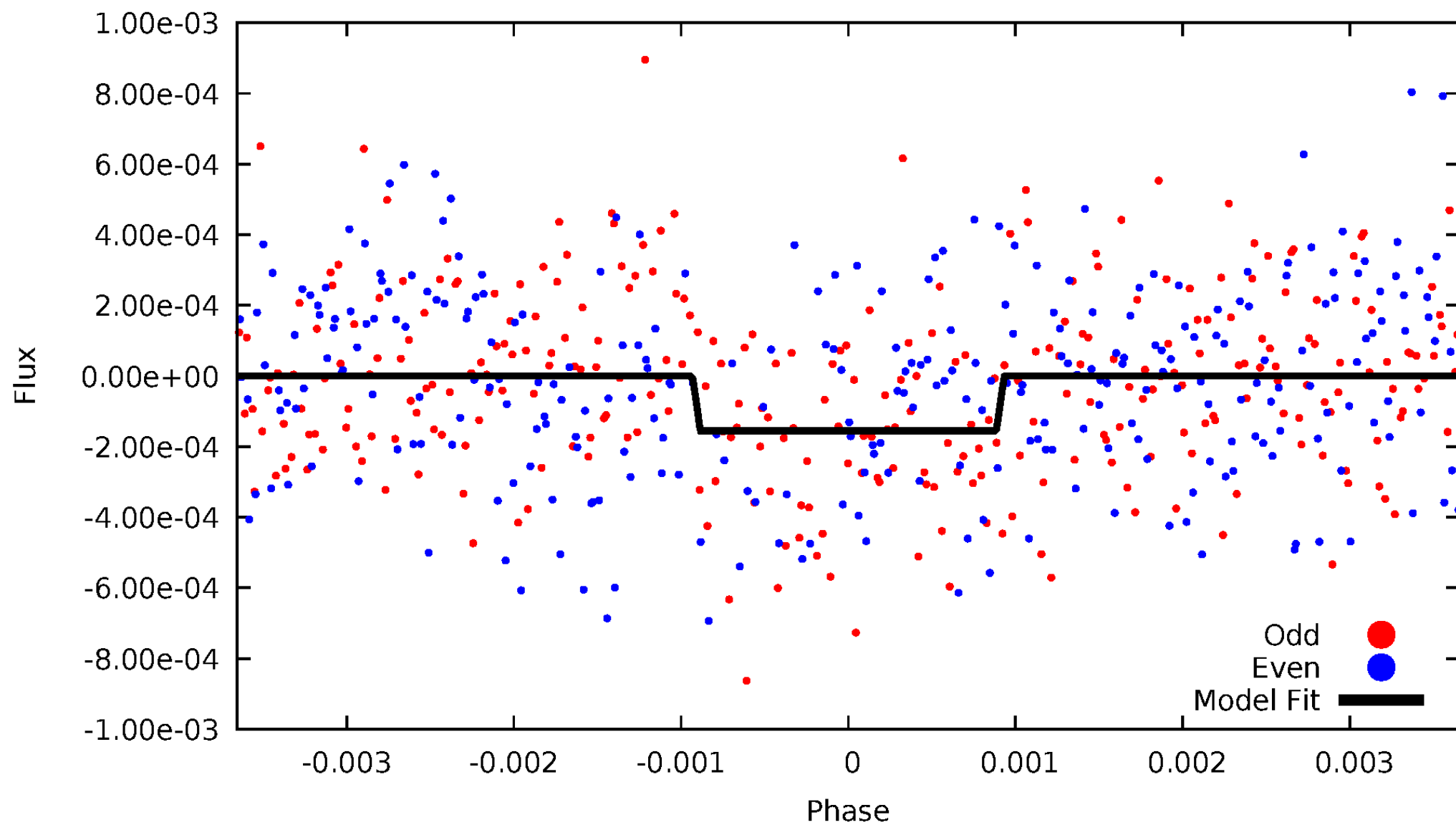
DV Odd/Even

TCE 005440370-01



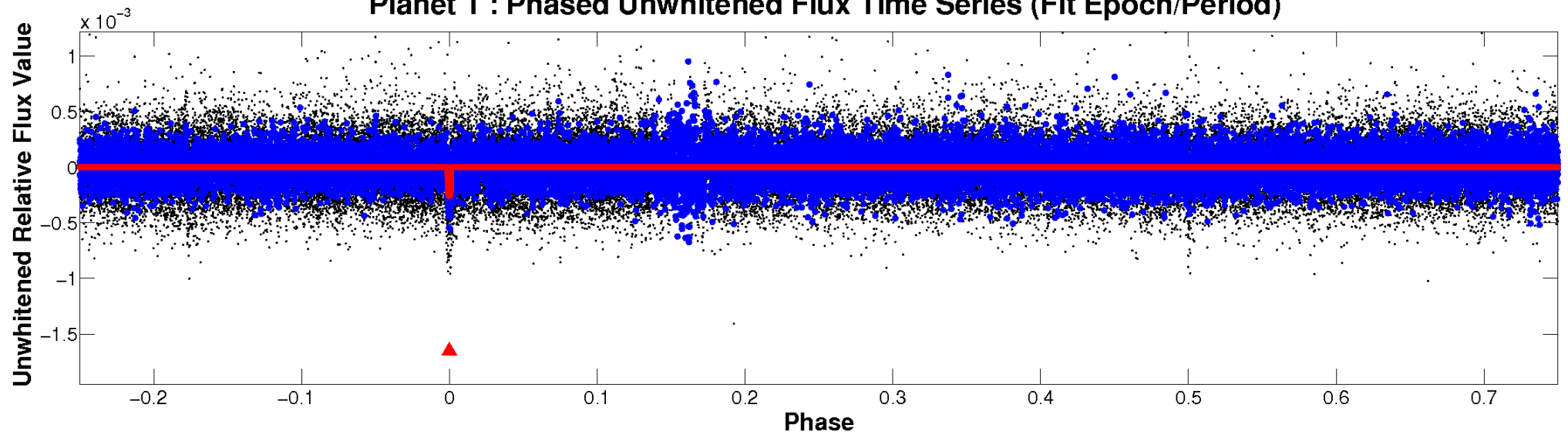
ALT Odd/Even

TCE 005440370-01

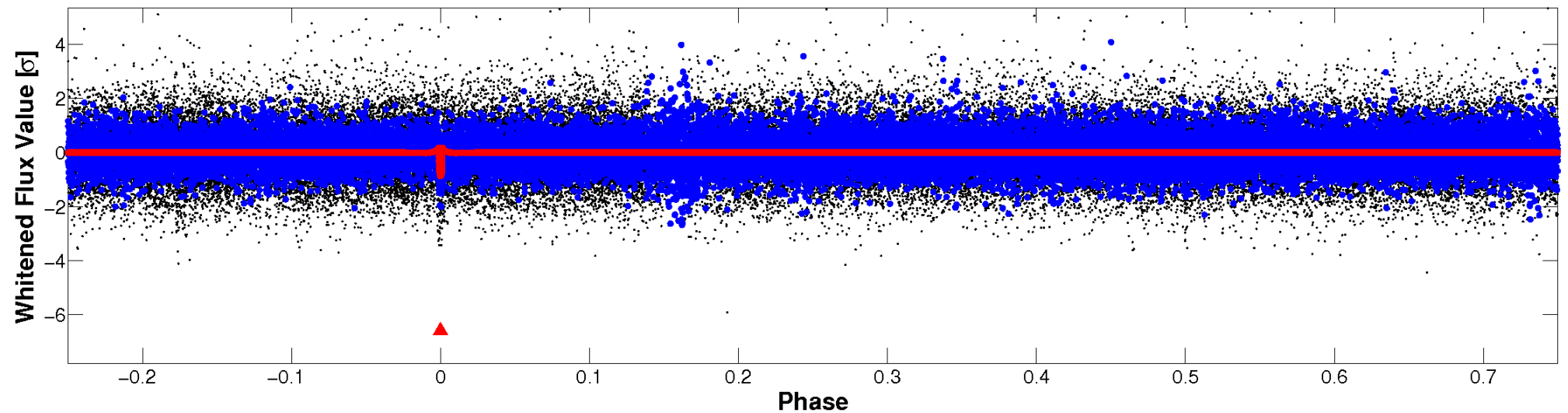


Non-Whitened Vs. Whitened Light Curve

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

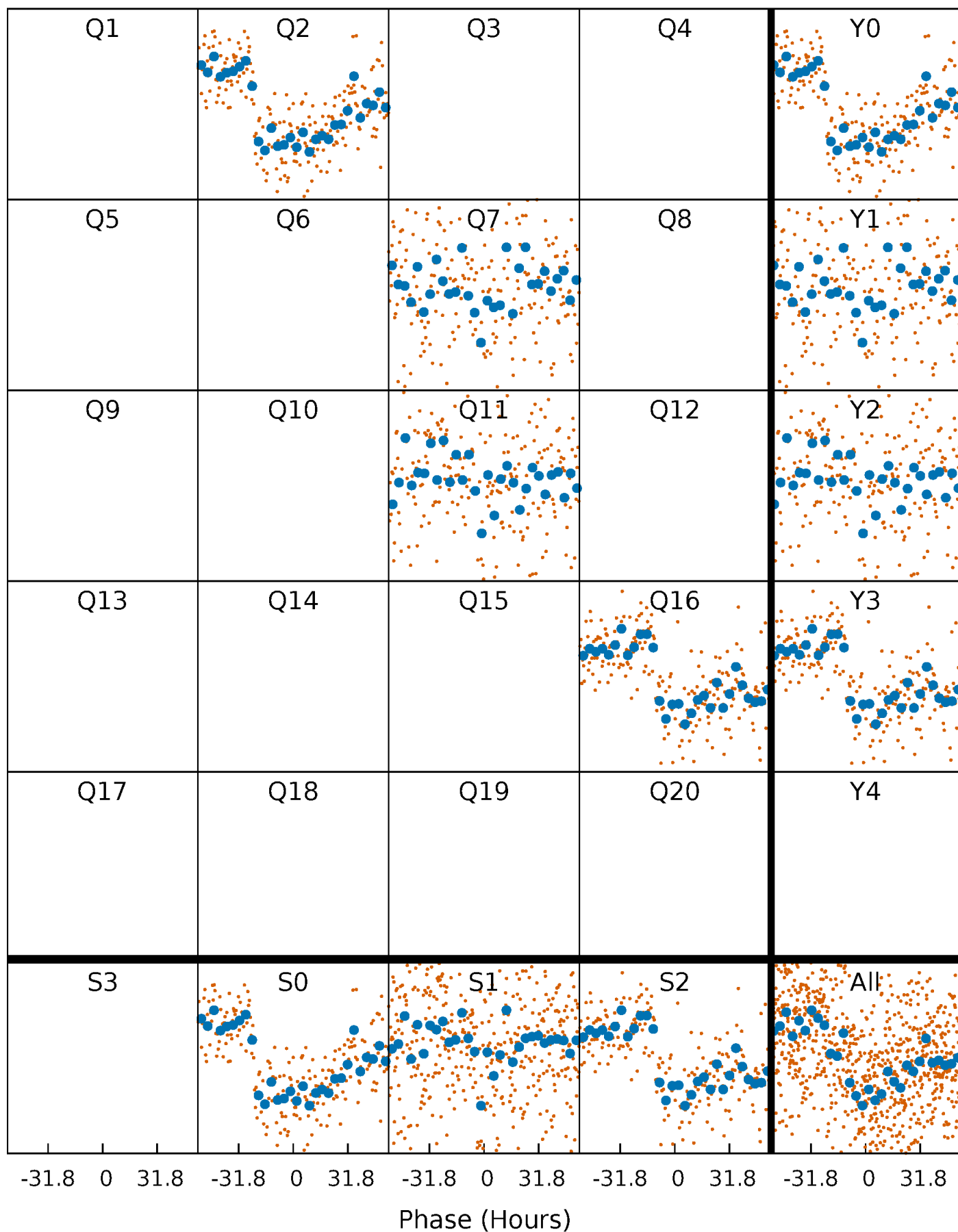


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



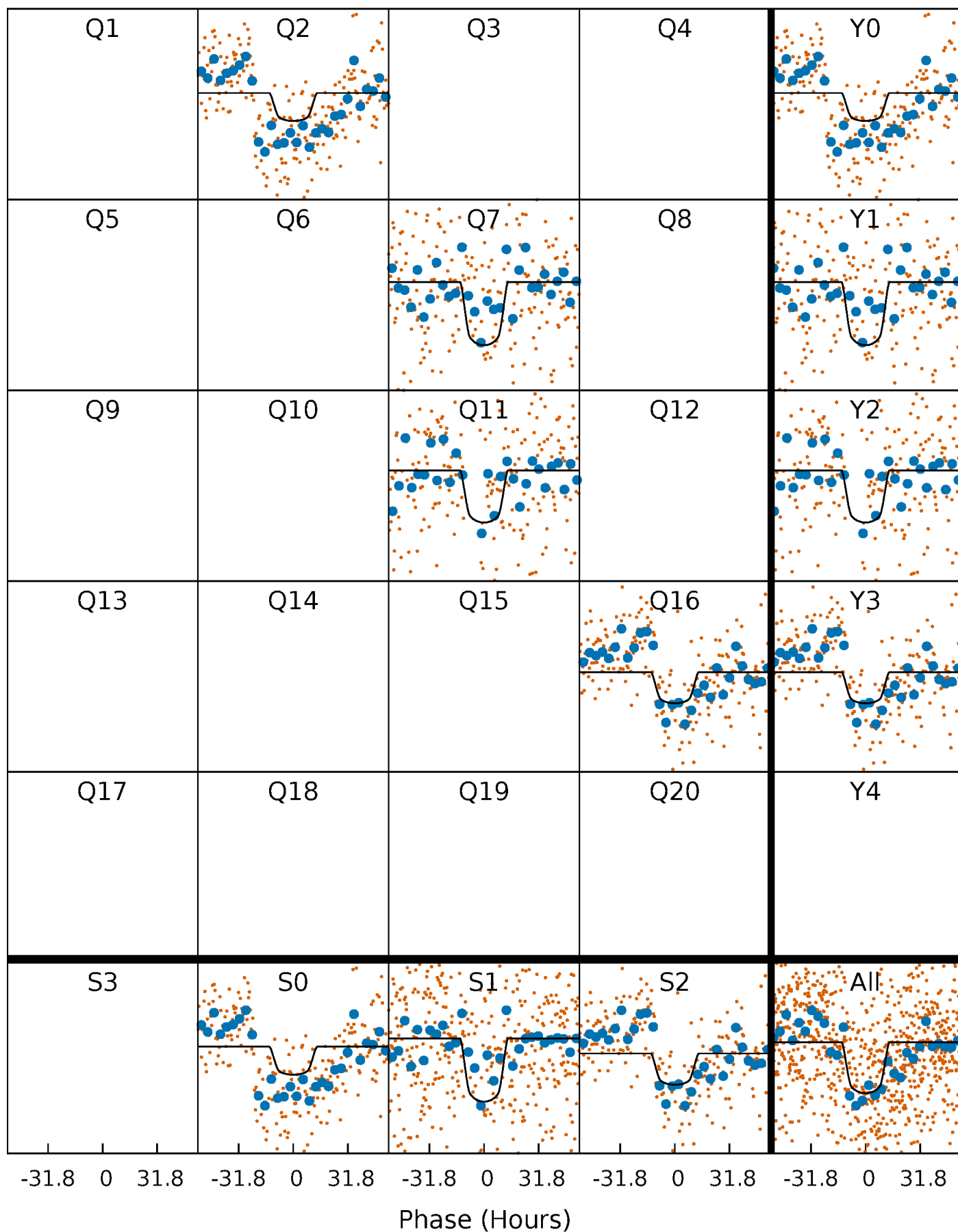
PDC Quarter-Phased Transit Curves

TCE 005440370-01 P=437.586817 Days $T_0=218.644126$ (BKJD)



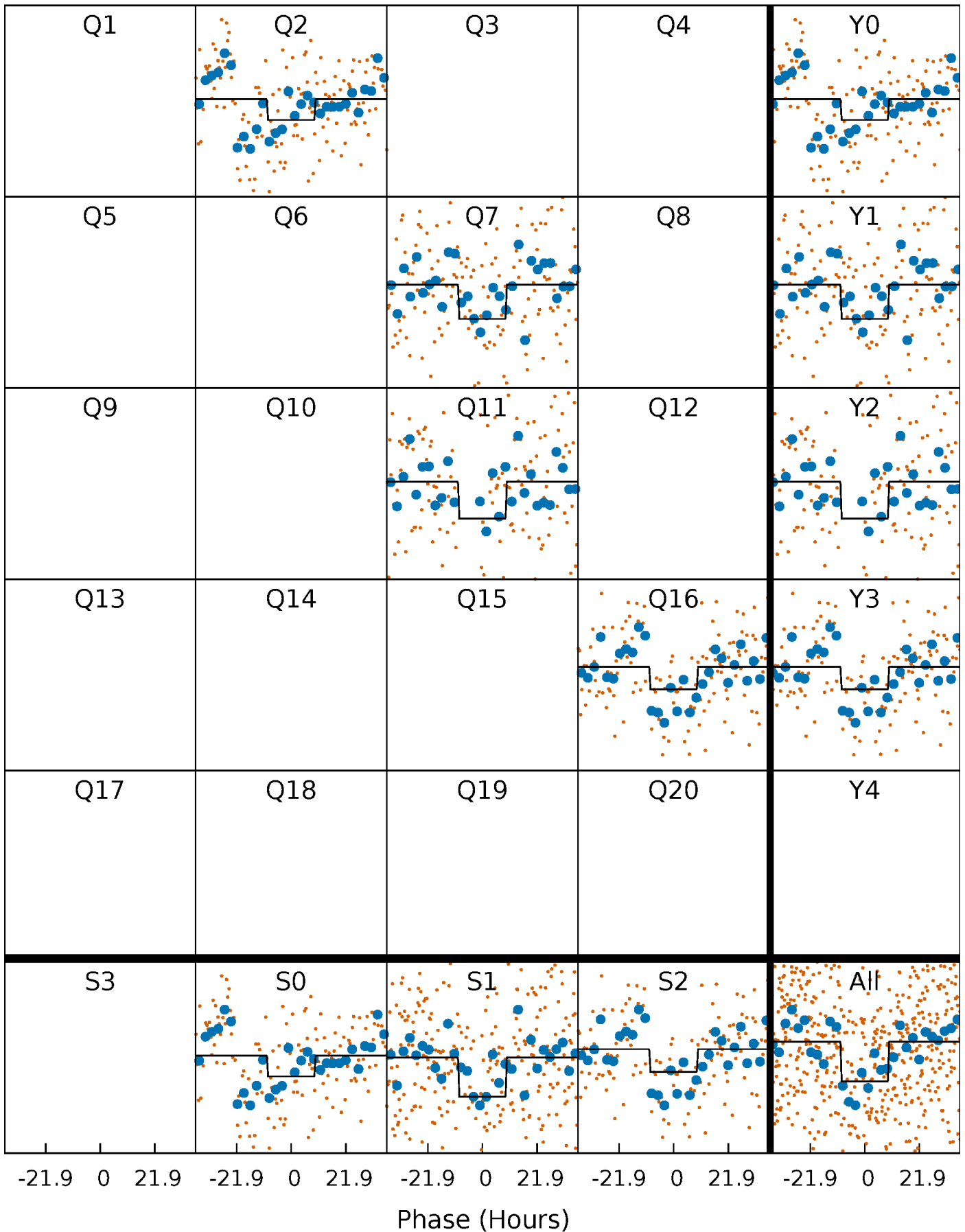
DV Quarter-Phased Transit Curves

TCE 005440370-01 P=437.586817 Days $T_0=218.644126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

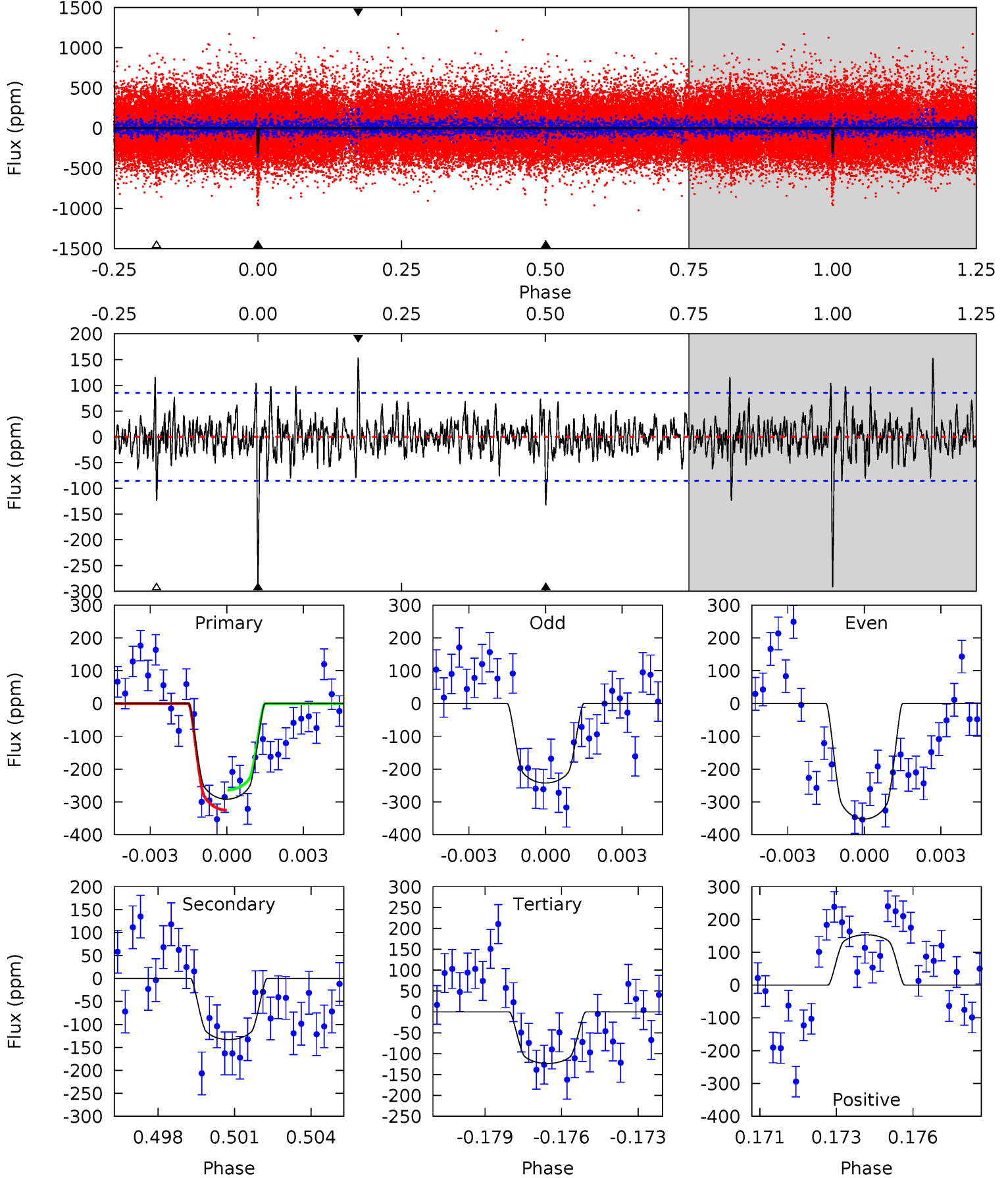
TCE 005440370-01 P=437.571065 Days $T_0=218.620650$ (BKJD)



DV Model-Shift Uniqueness Test

005440370-01, P = 437.586817 Days, E = 218.644126 Days

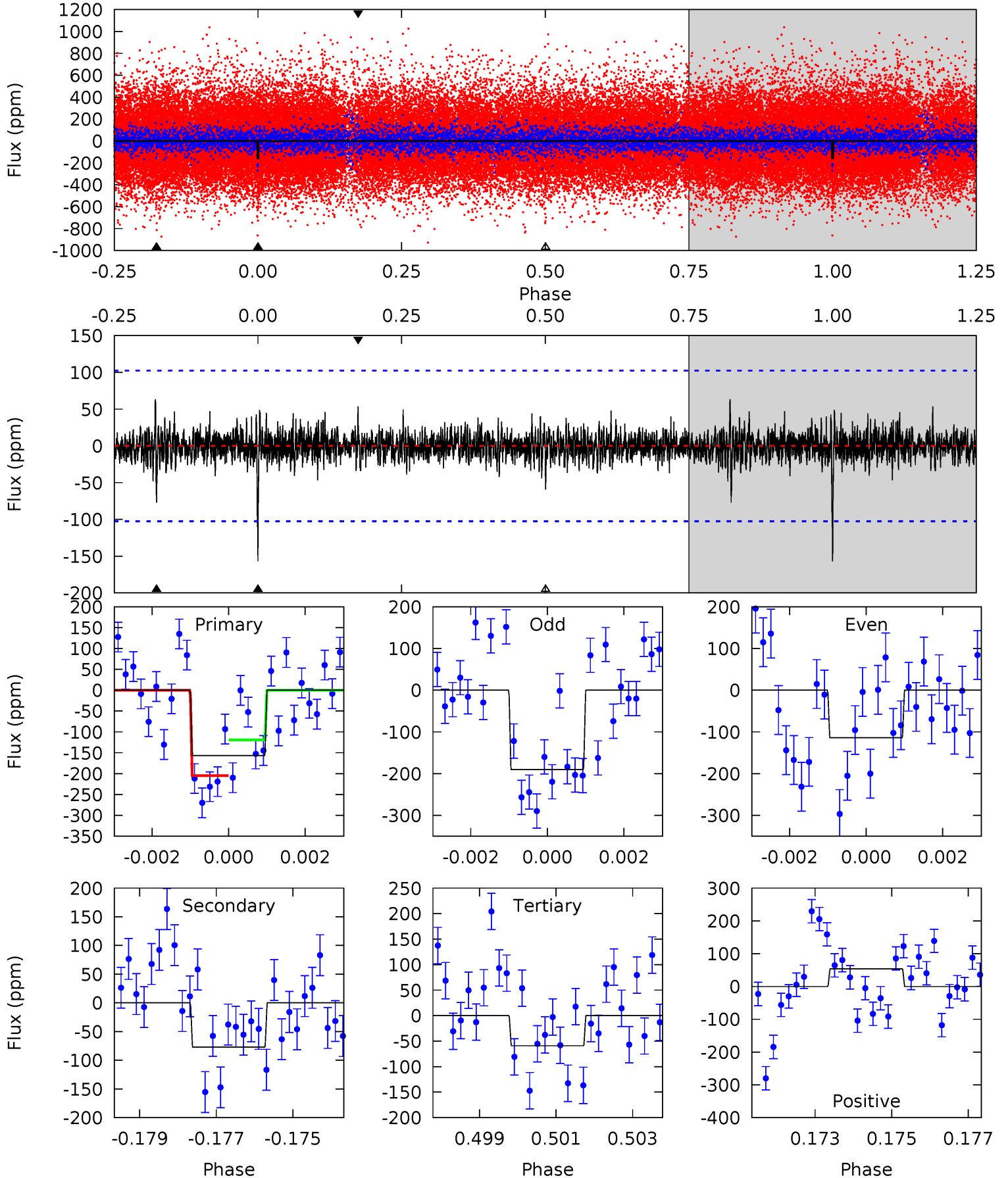
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	8.23	7.64	9.48	5.27	3.00	1.68	10.4	8.57	0.59	-1.25	3.38	1.08	0.34	1.90



Alt Model-Shift Uniqueness Test

005440370-01, P = 437.571065 Days, E = 218.620650 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.17	4.01	3.08	2.80	5.34	3.11	0.67	5.09	5.37	0.93	1.21	1.96	1.21	0.29	2.22



Stellar Parameters For KIC 005440370

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5342^{+160}_{-144}	$4.656^{+0.030}_{-0.084}$	$-0.620^{+0.300}_{-0.300}$	$0.667^{+0.095}_{-0.041}$	$0.739^{+0.071}_{-0.064}$	$3.515^{+0.517}_{-0.962}$
	+3%/-3%	+1%/-2%	+48%/-48%	+14%/-6%	+10%/-9%	+15%/-27%
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 005440370-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-133 ± 16	$1.43^{+0.16}_{-0.17}$	270^{+11}_{-10}	4340^{+225}_{-225}	36616^{+11202}_{-8537}
Alt.	-77 ± 19	$0.92^{+0.16}_{-0.14}$	269^{+10}_{-9}	4598^{+428}_{-339}	50838^{+25932}_{-17619}

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 $A_{obs} \gg 1.0$

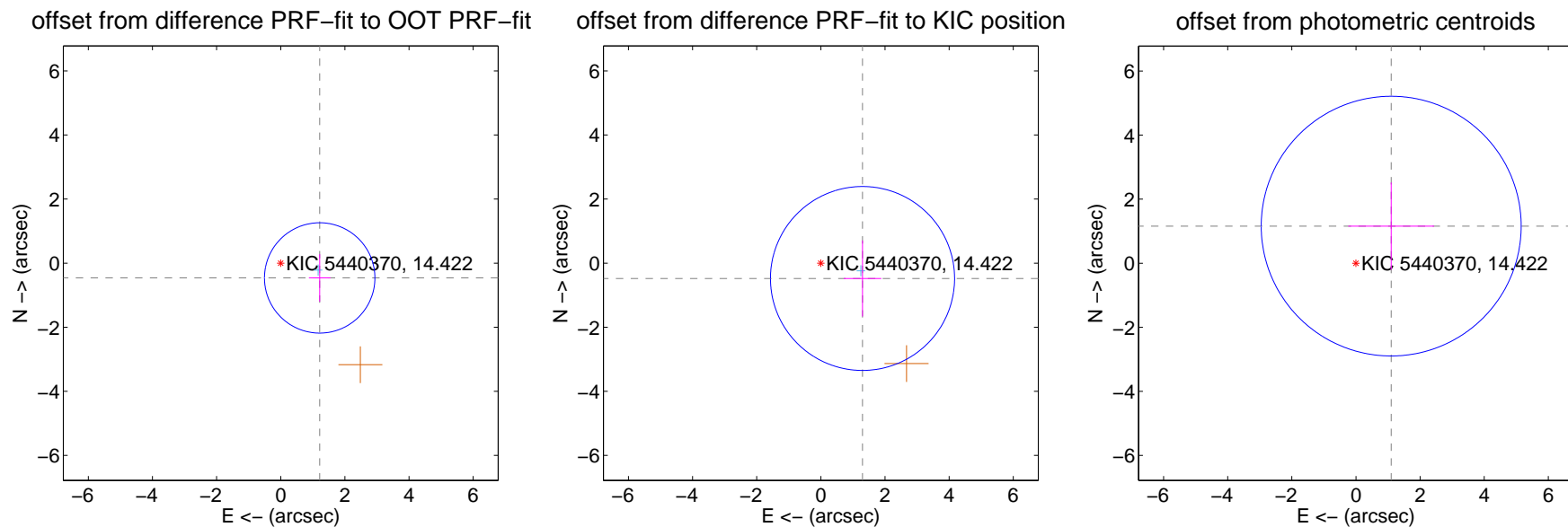
DV Centroid Data

Supplemental centroid analysis for 005440370-01. Kepler magnitude: 14.42. Transit SNR 9.70

There are 1 quarters with good PRF difference image offsets

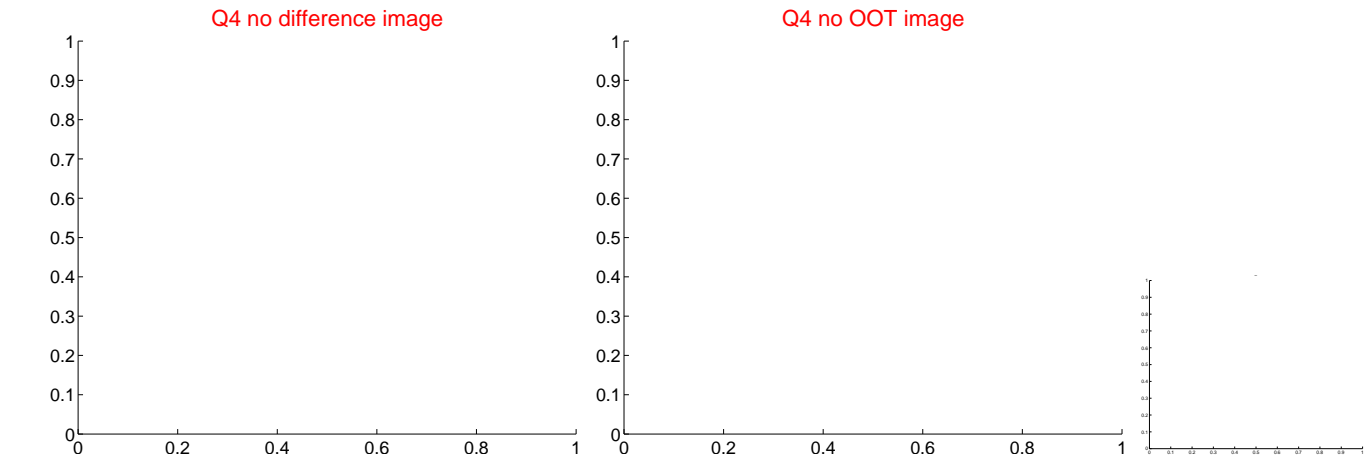
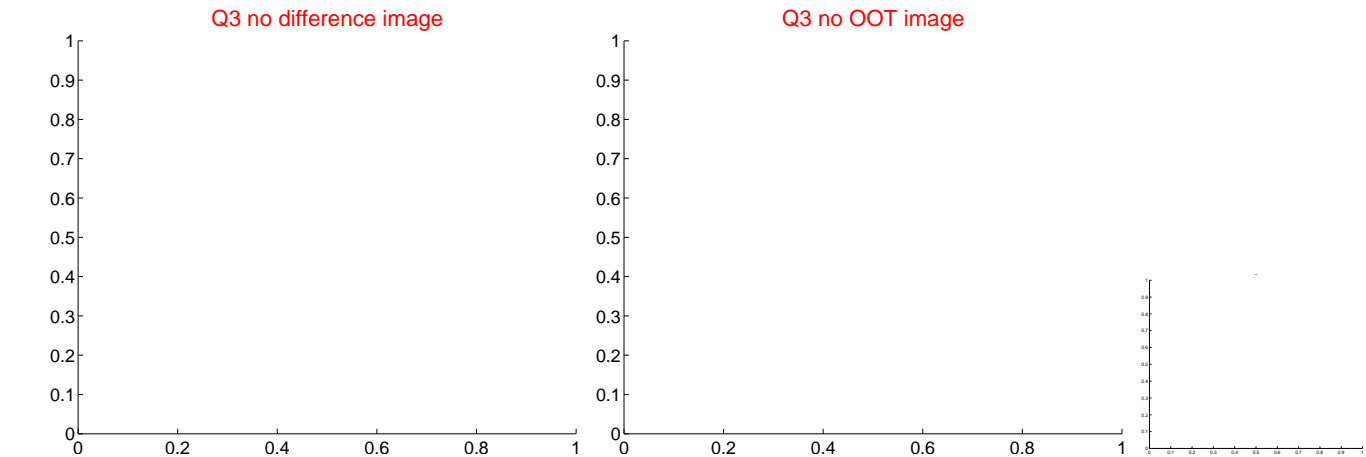
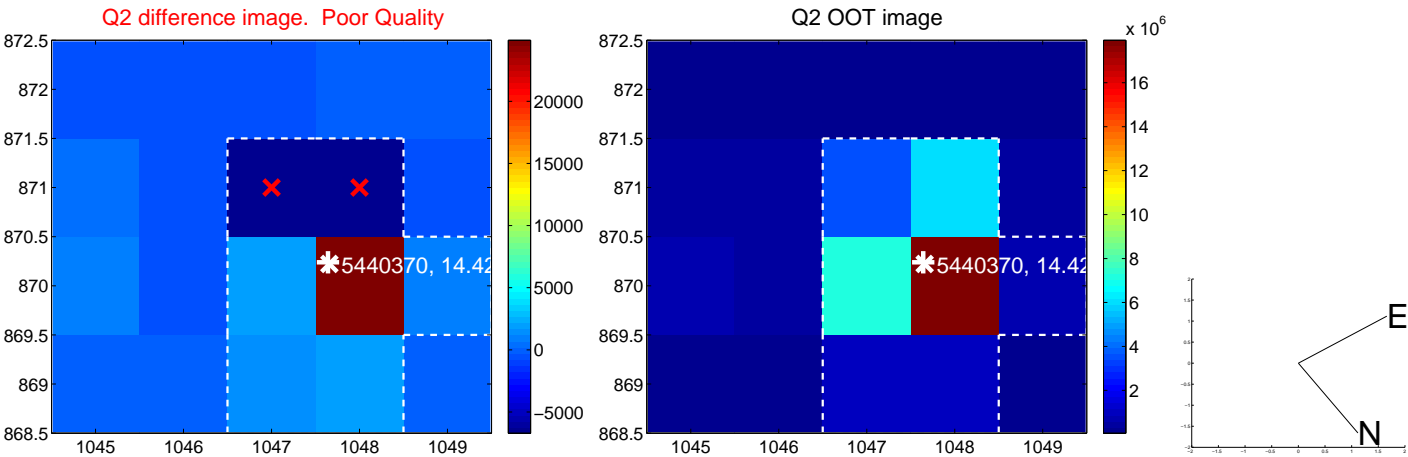
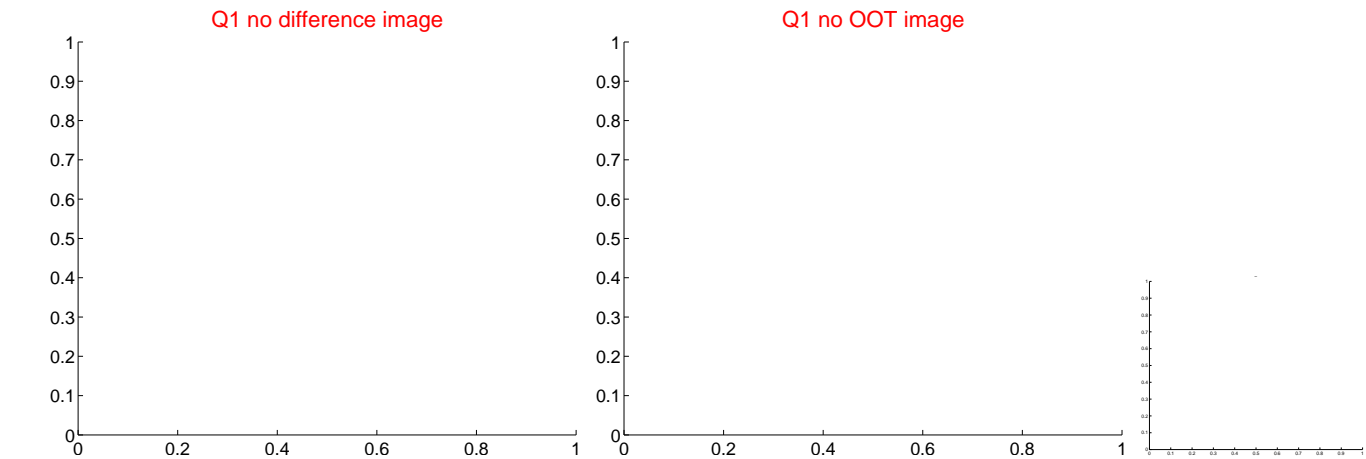
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.299 ± 0.574	2.26	-1.214 ± 0.336	-0.461 ± 0.741
PRF-fit source offset from KIC position	1.384 ± 0.957	1.45	-1.299 ± 0.585	-0.478 ± 1.185
photometric centroid source offset	1.60 ± 1.35	1.18	-1.10 ± 1.34	1.16 ± 1.36



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.

Q5 no difference image



Q5 no OOT image



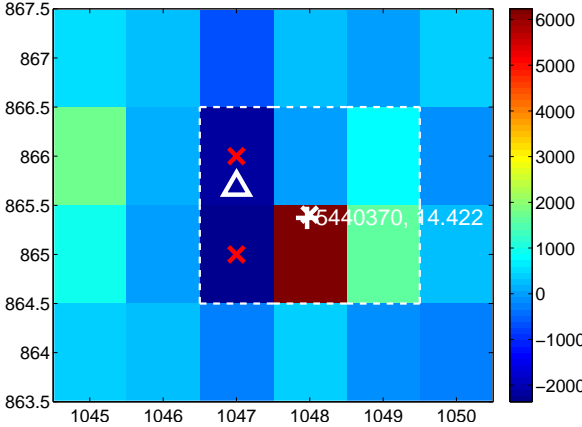
Q6 no difference image



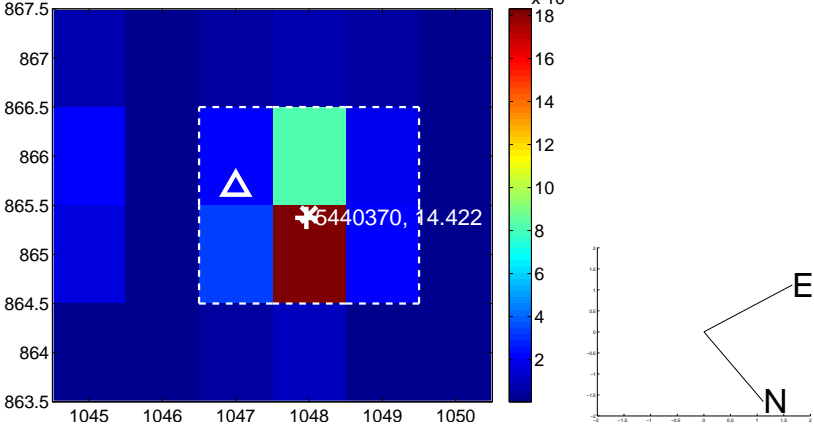
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



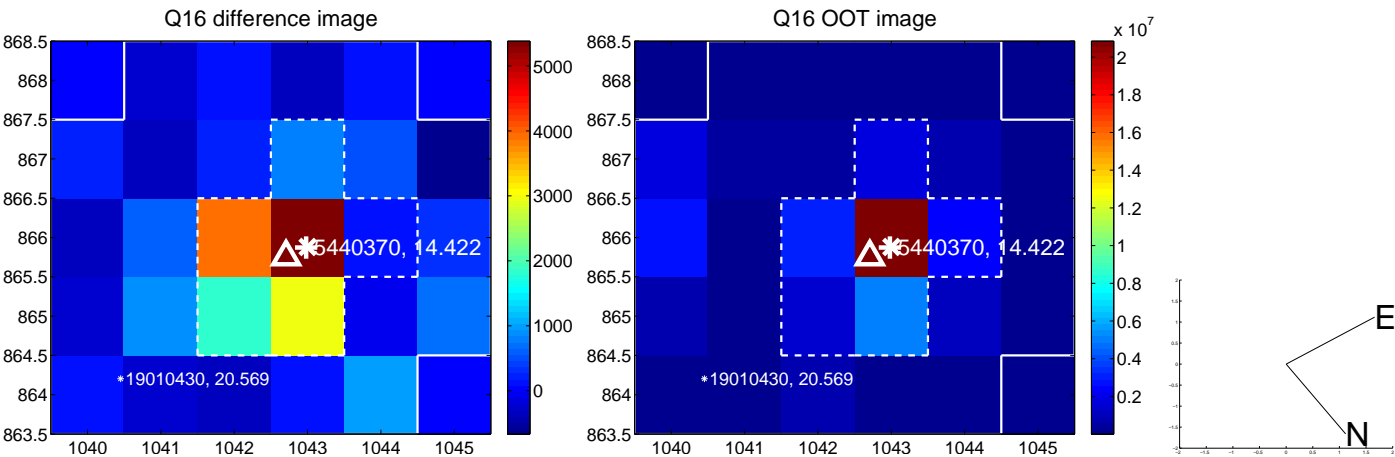
Q8 no OOT image



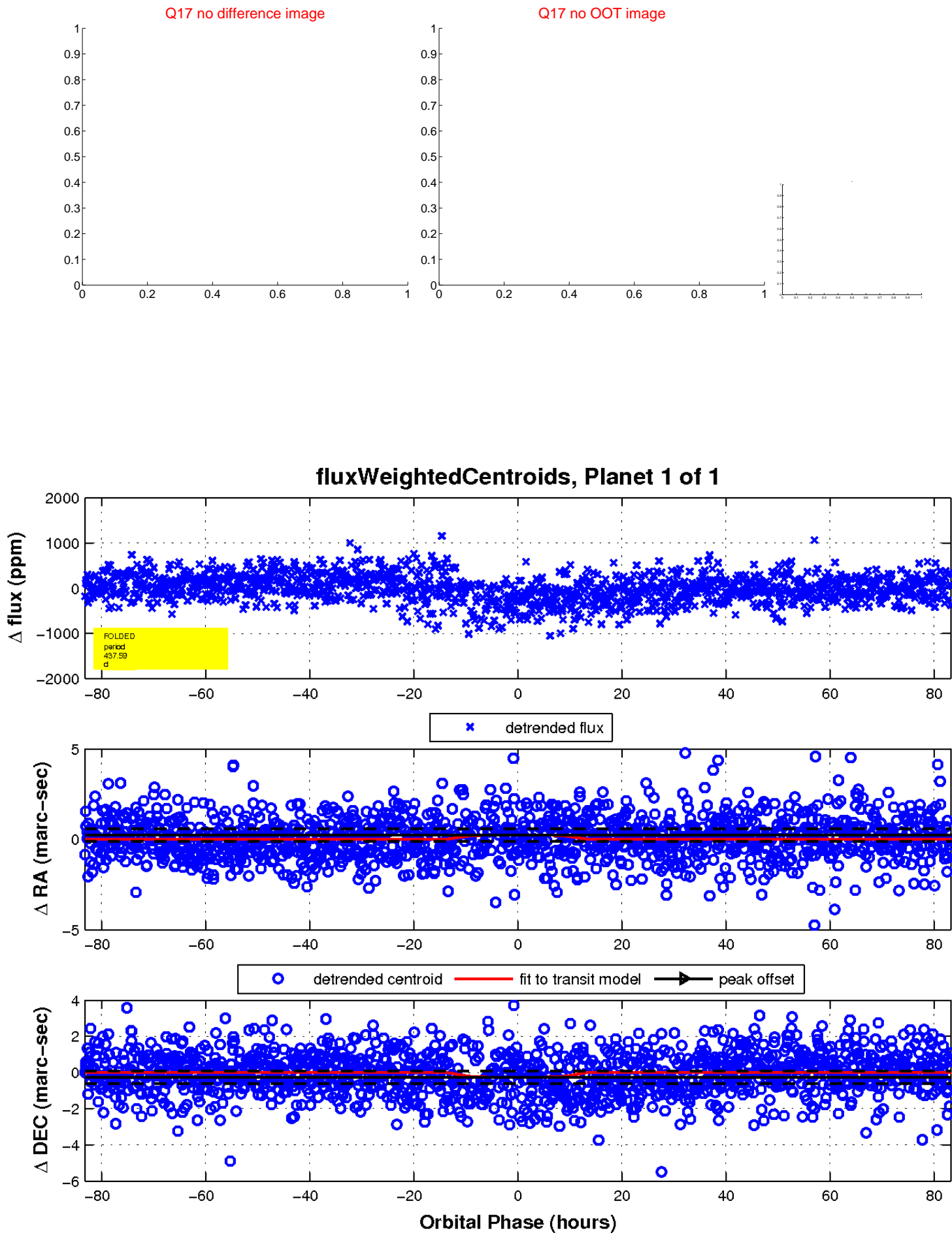
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

