

KIC 009836422

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})
009836422-01	OBS	No	1.395113	133.130318	678.0	13.296	7.6	7.3	0.63	4191	2.03	245.96

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009836422-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_ALT—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.

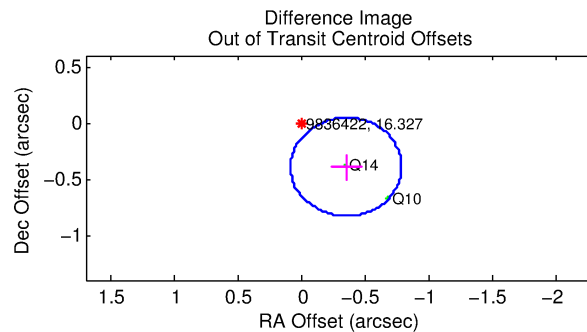
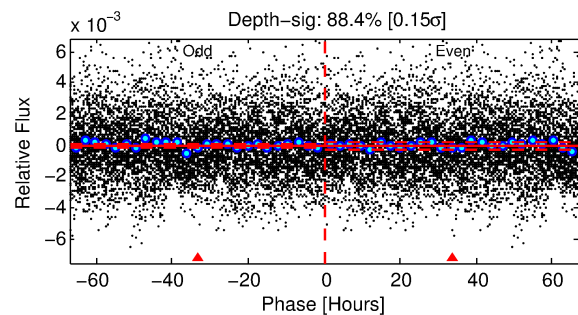
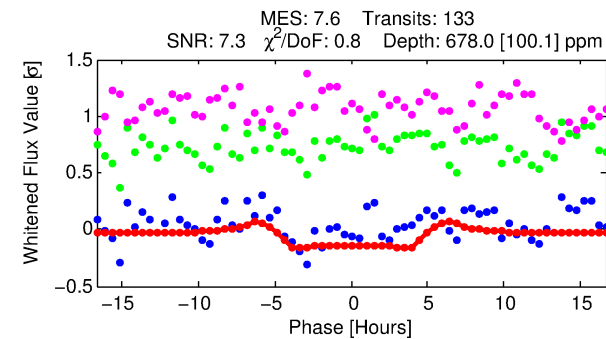
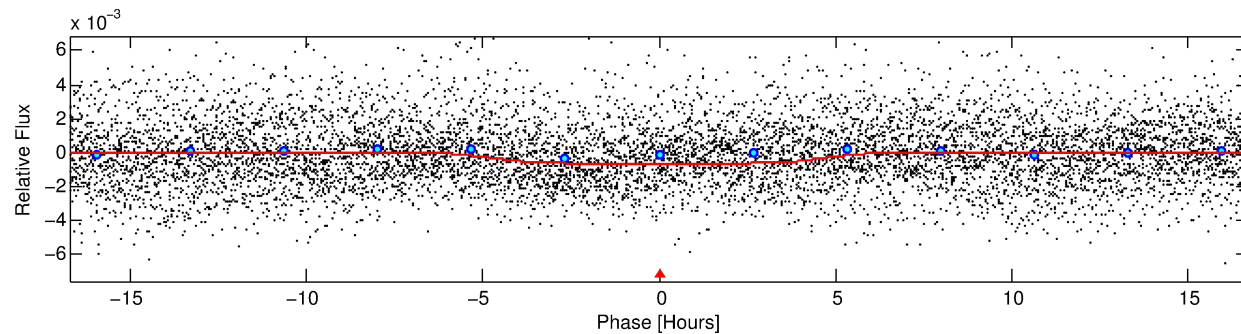
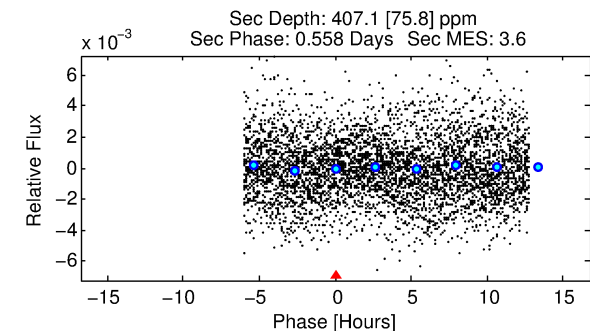
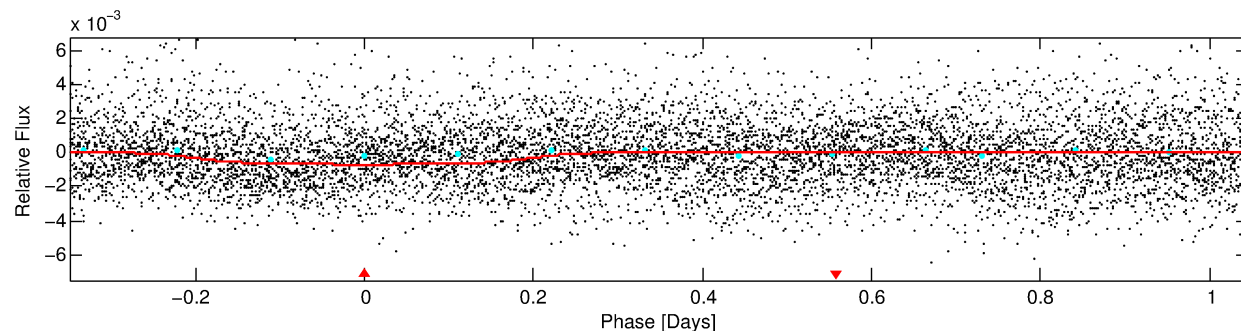
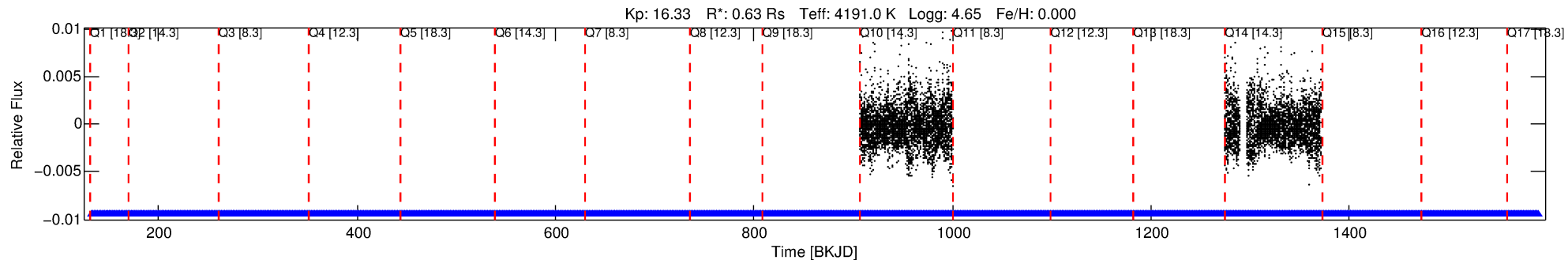
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009836422-01

No Significant Match Found

DV One-Page Summary

KIC: 9836422 Candidate: 1 of 1 Period: 1.395 d



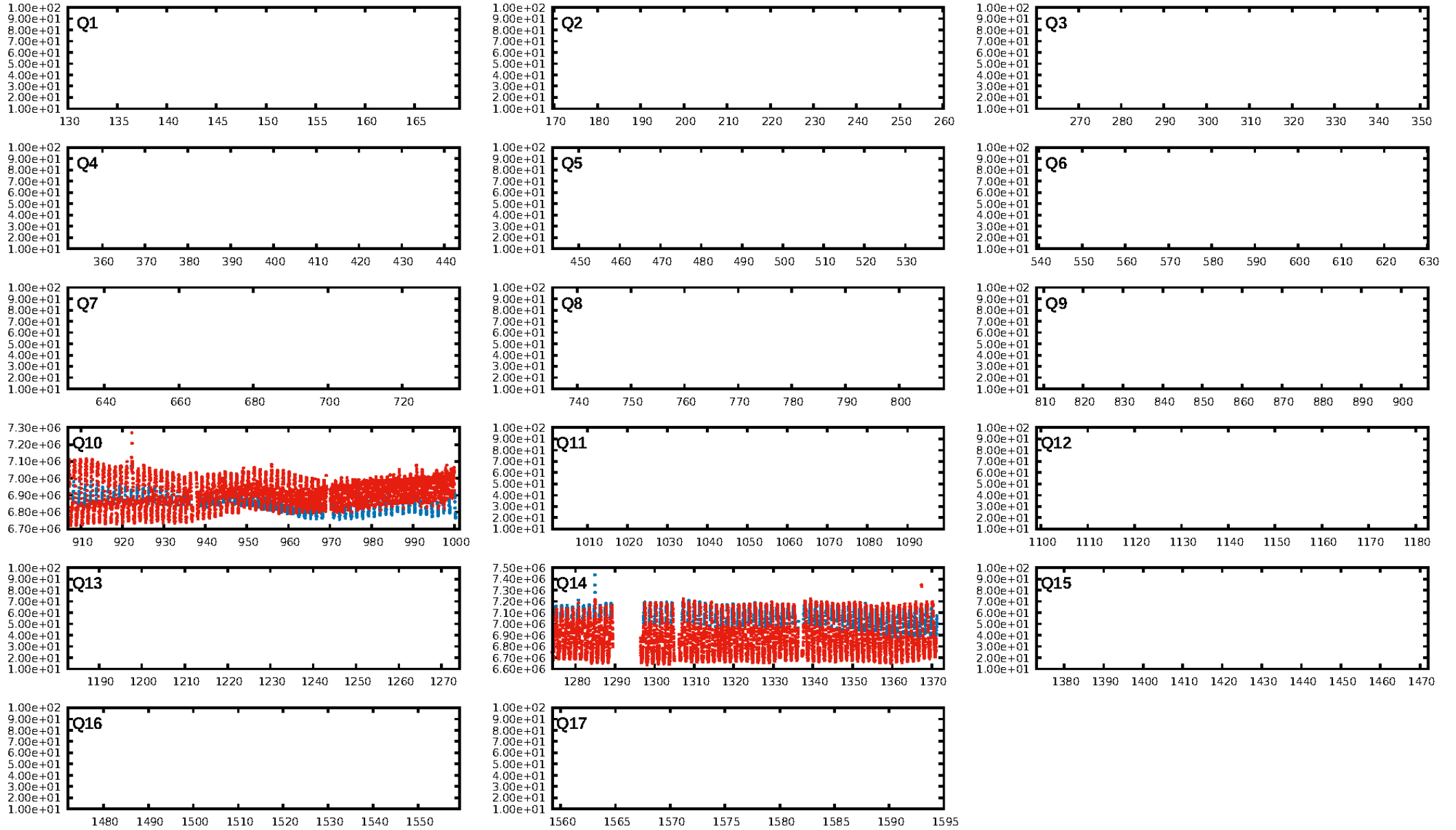
DV Fit Results:

Period = 1.39511 [0.00003] d
Epoch = 133.1303 [0.0146] BKJD
Rp/R* = 0.0296 [0.0024]
a/R* = 1.04 [0.02]
b = 0.91 [0.04]
Seff = 245.96 [44.09]
Teff = 1010 [45] K
Rp = 2.03 [0.26] Re
a = 0.0210 [0.0015] AU
Ag = 24.08 [6.38] [3.62σ]
Teffp = 3458 [253] K [9.51σ]

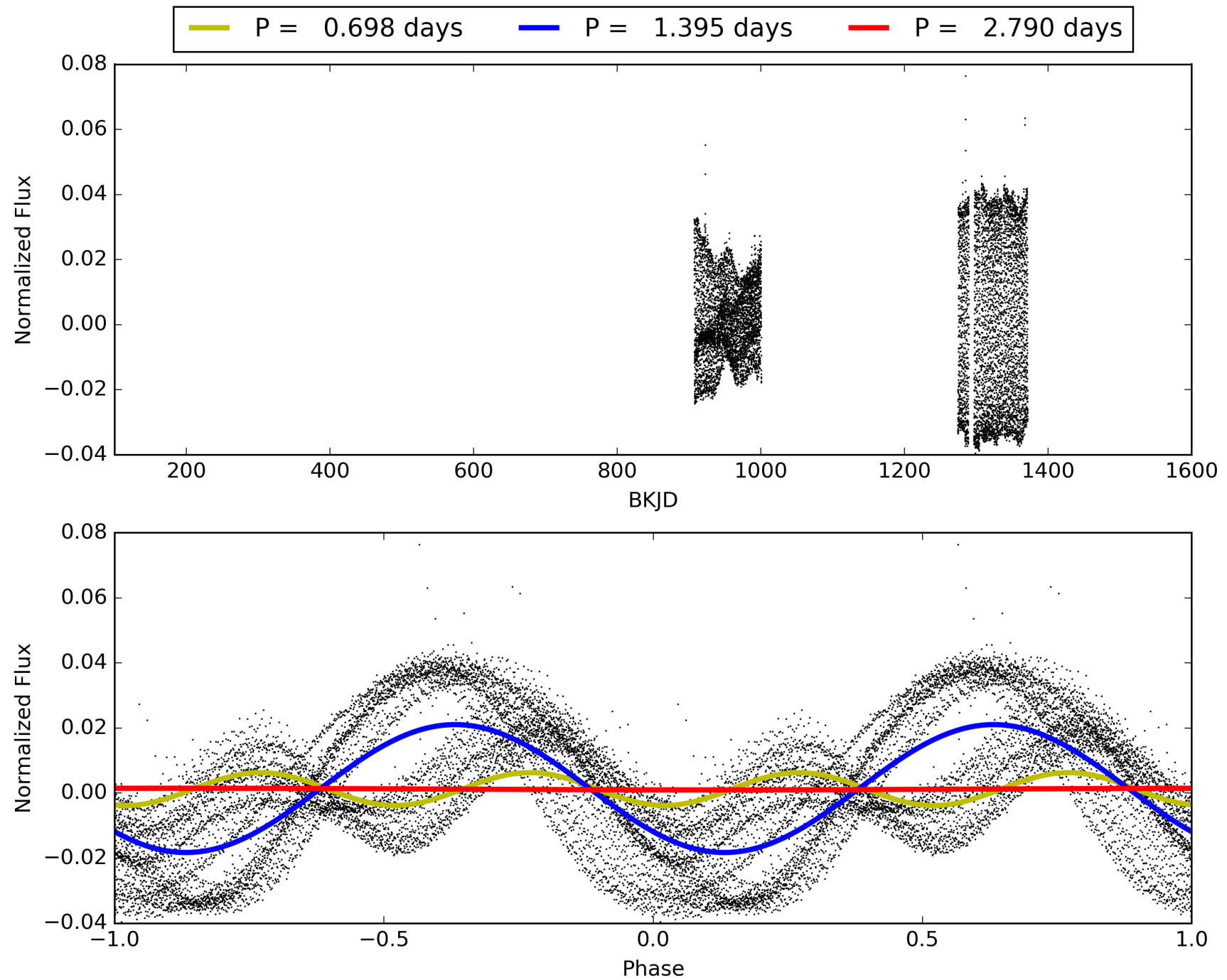
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [133/133]
GhostDiagnostic-chr: 0.9184
Centroid-sig: 0.0%
Centroid-so: 0.737 arcsec [1.26σ]
OotOffset-rm: 0.524 arcsec [3.60σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009836422-01, PDC Light Curves

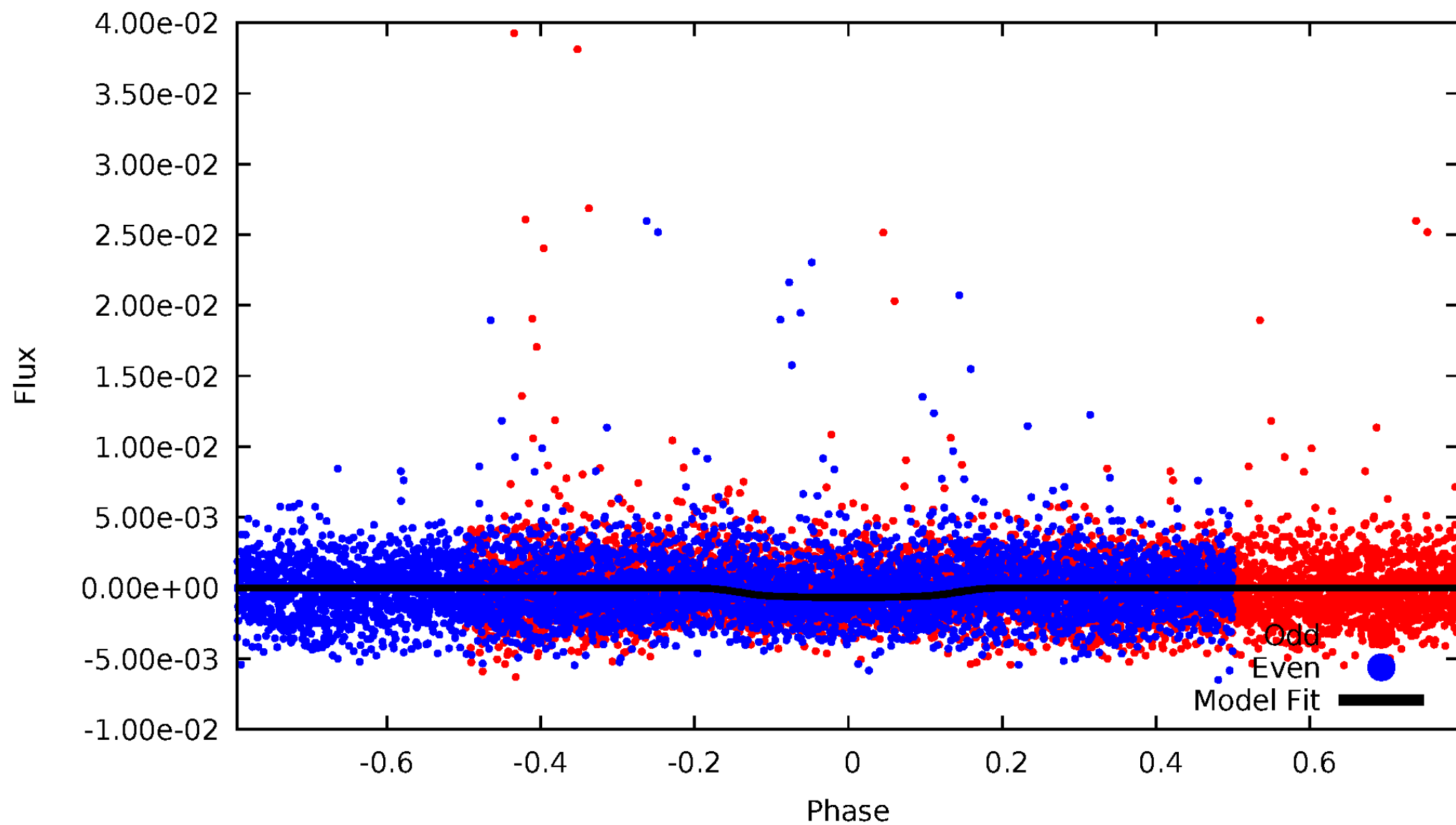


TCE 009836422-01



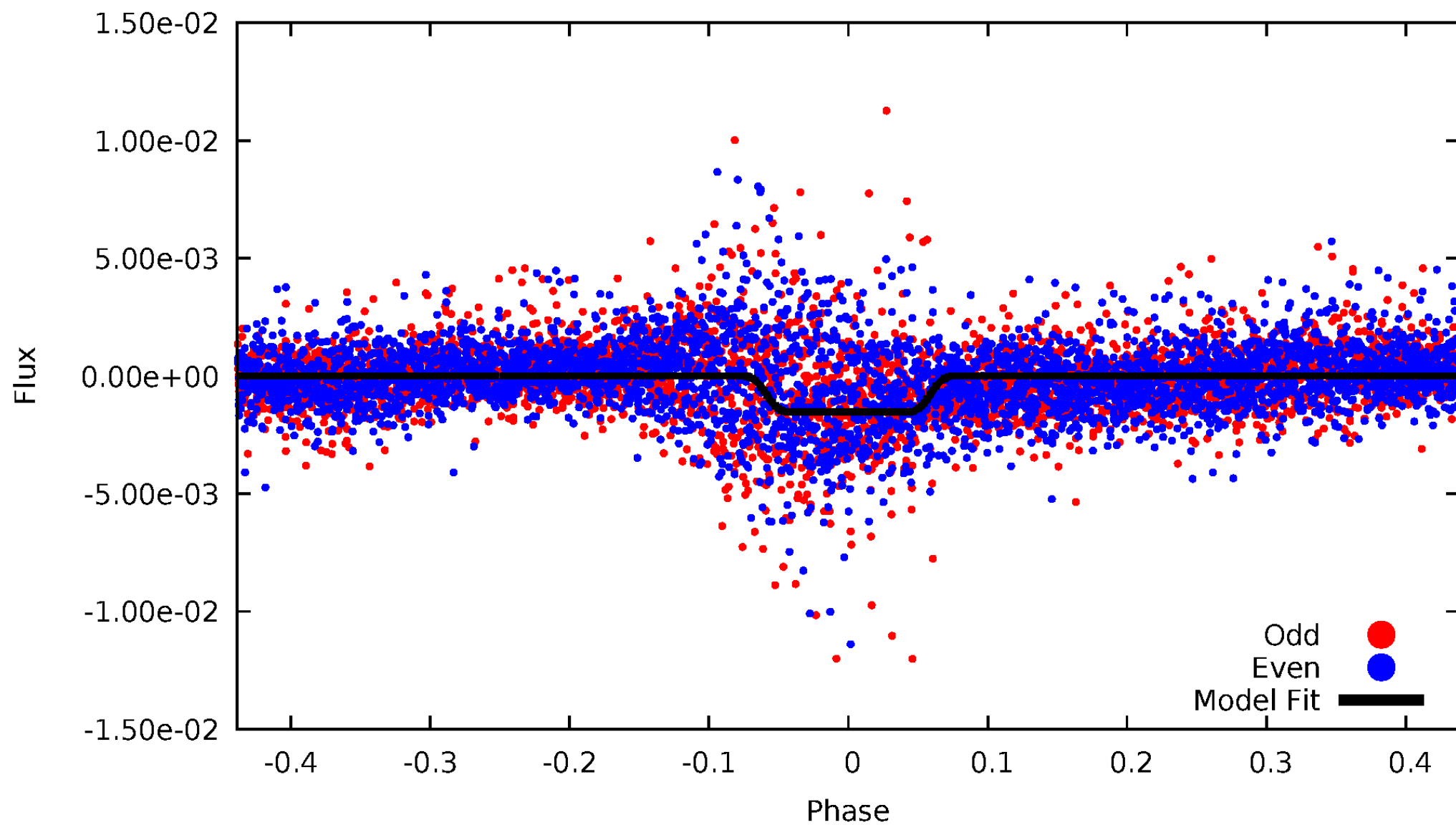
DV Odd/Even

TCE 009836422-01

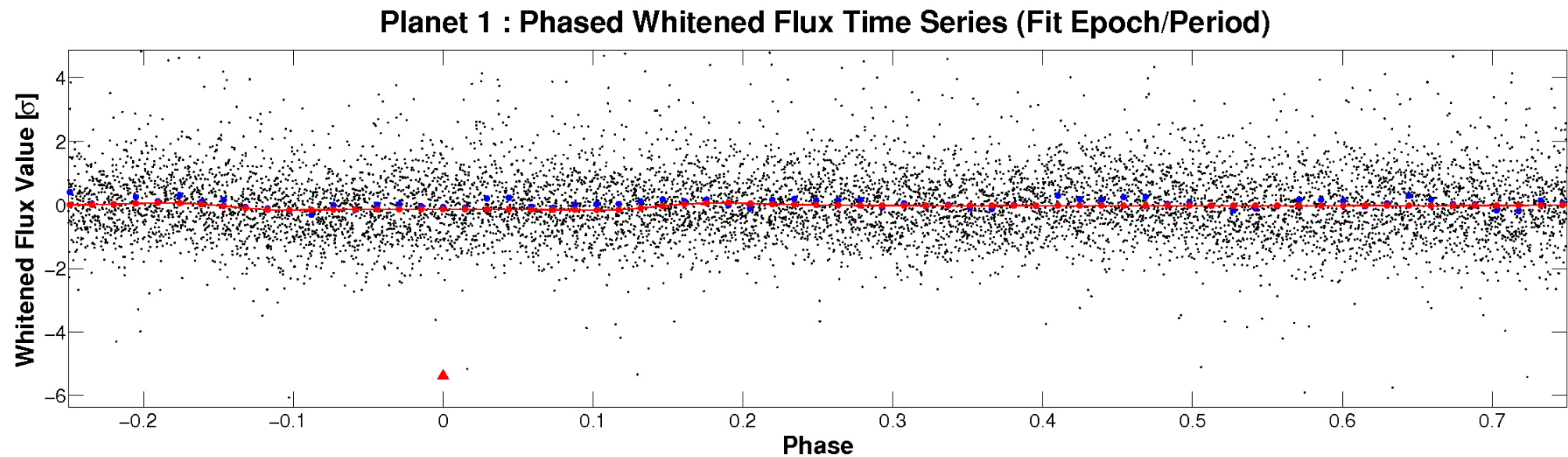
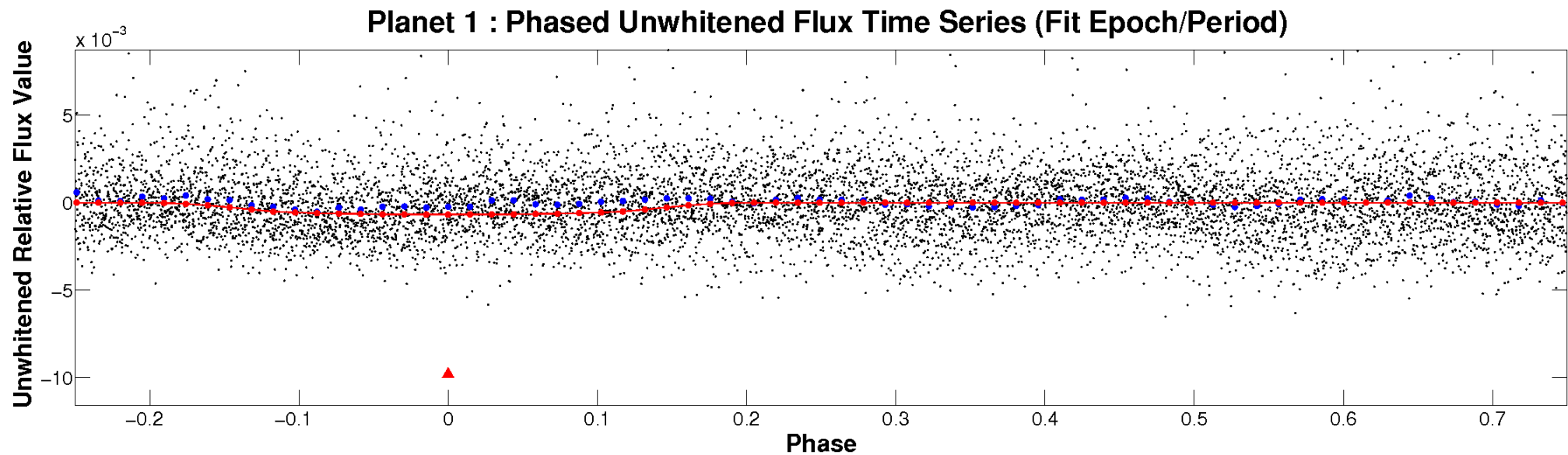


ALT Odd/Even

TCE 009836422-01

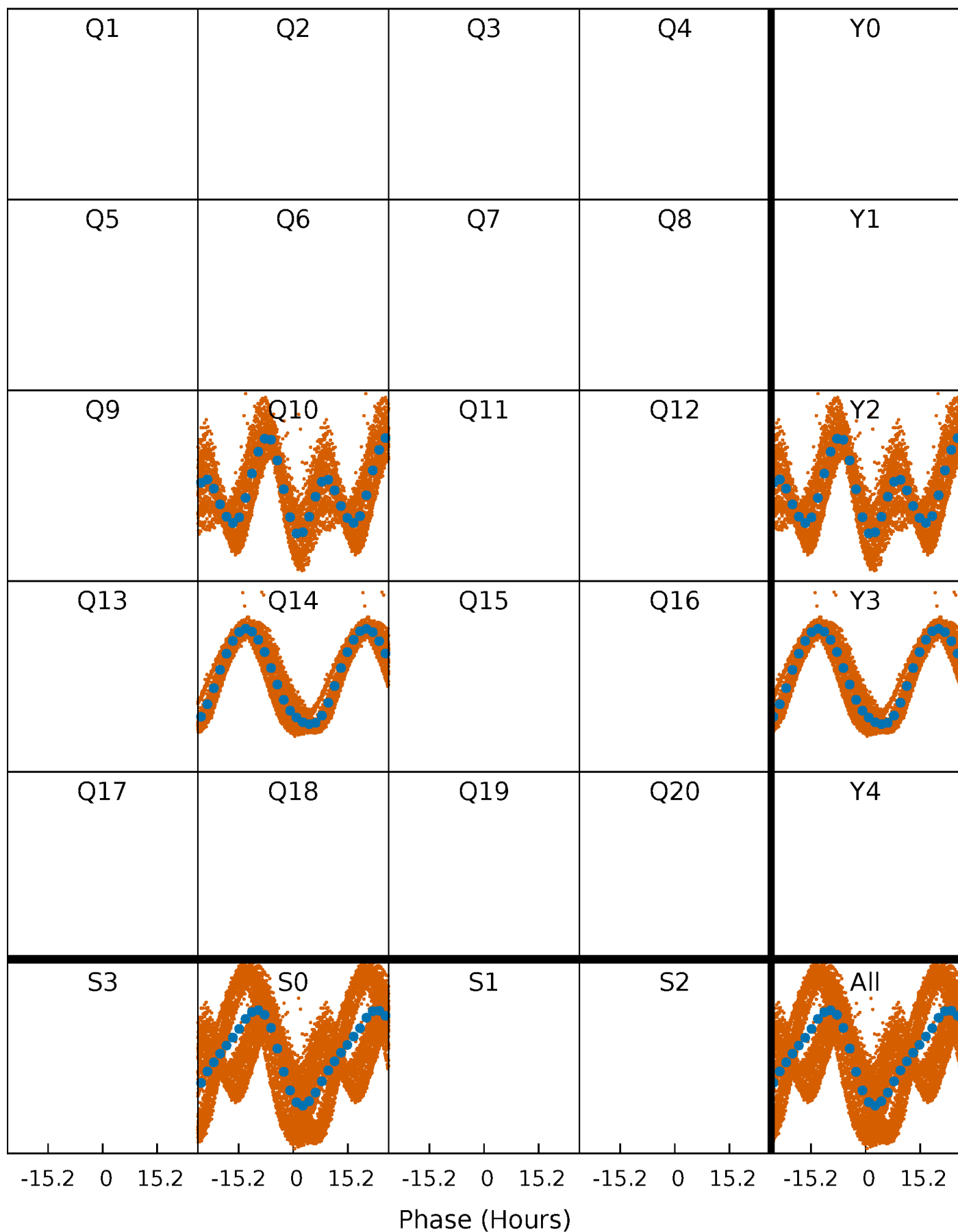


Non-Whitened Vs. Whitened Light Curve



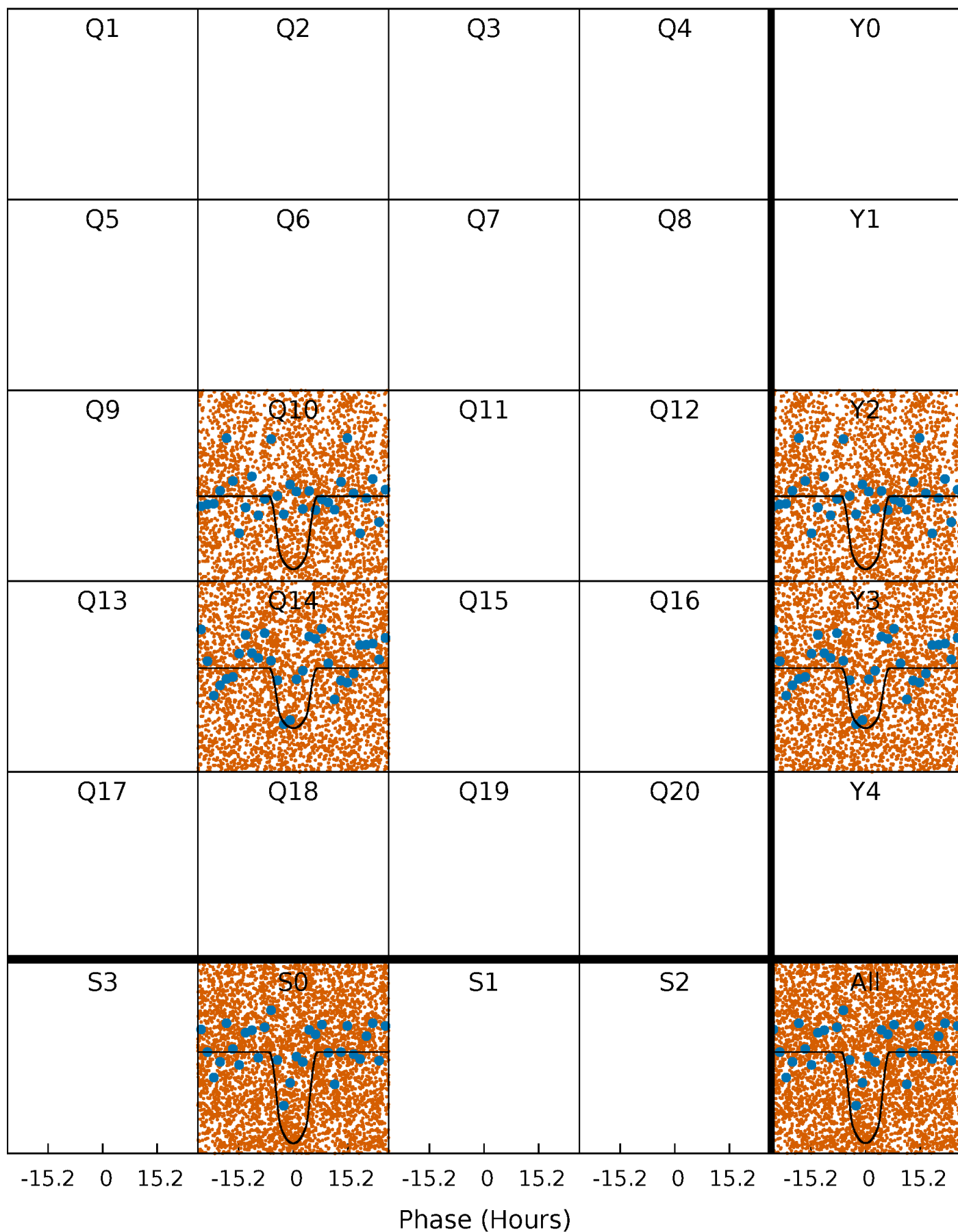
PDC Quarter-Phased Transit Curves

TCE 009836422-01 P= 1.395113 Days $T_0=133.130318$ (BKJD)



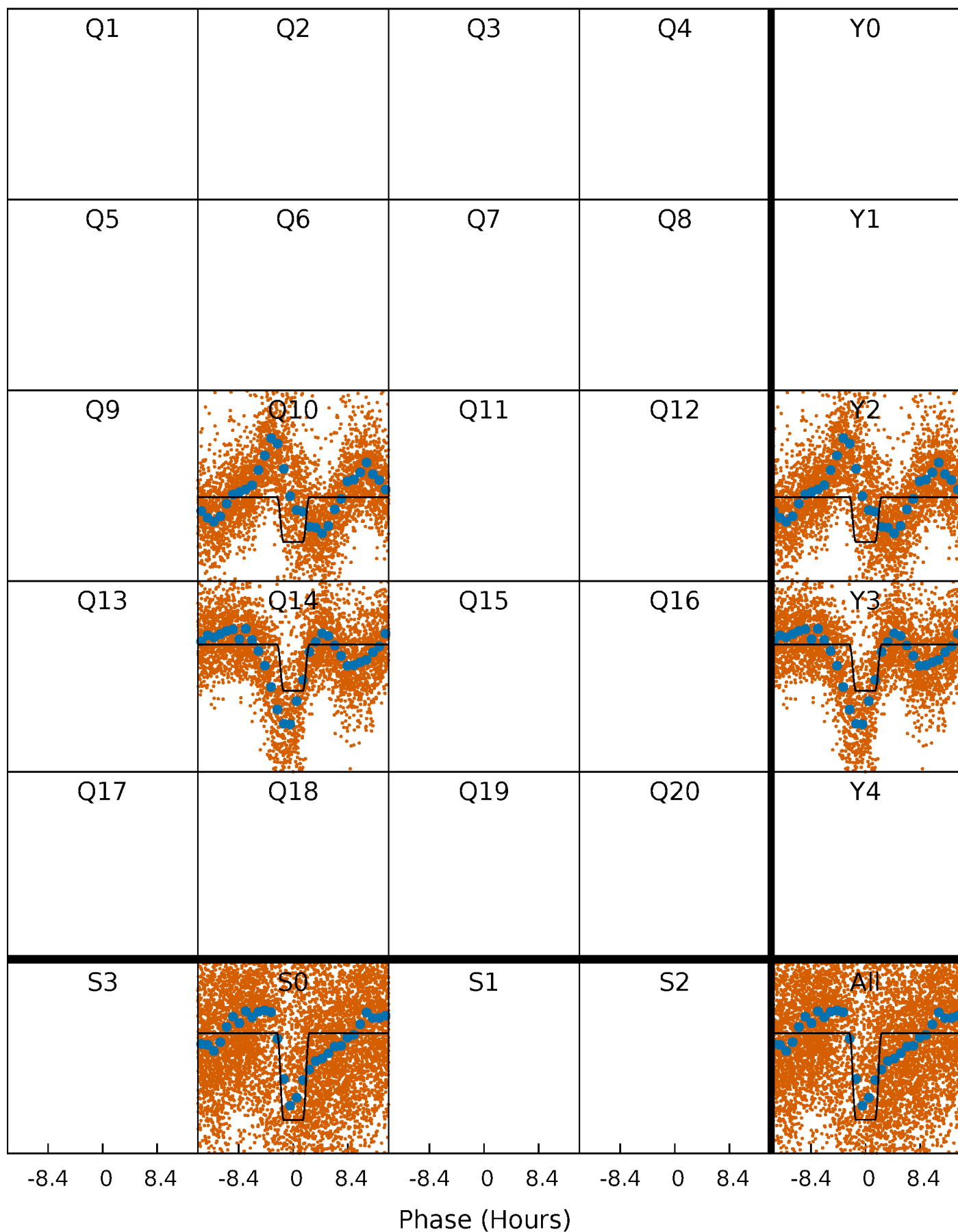
DV Quarter-Phased Transit Curves

TCE 009836422-01 P= 1.395113 Days $T_0=133.130318$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

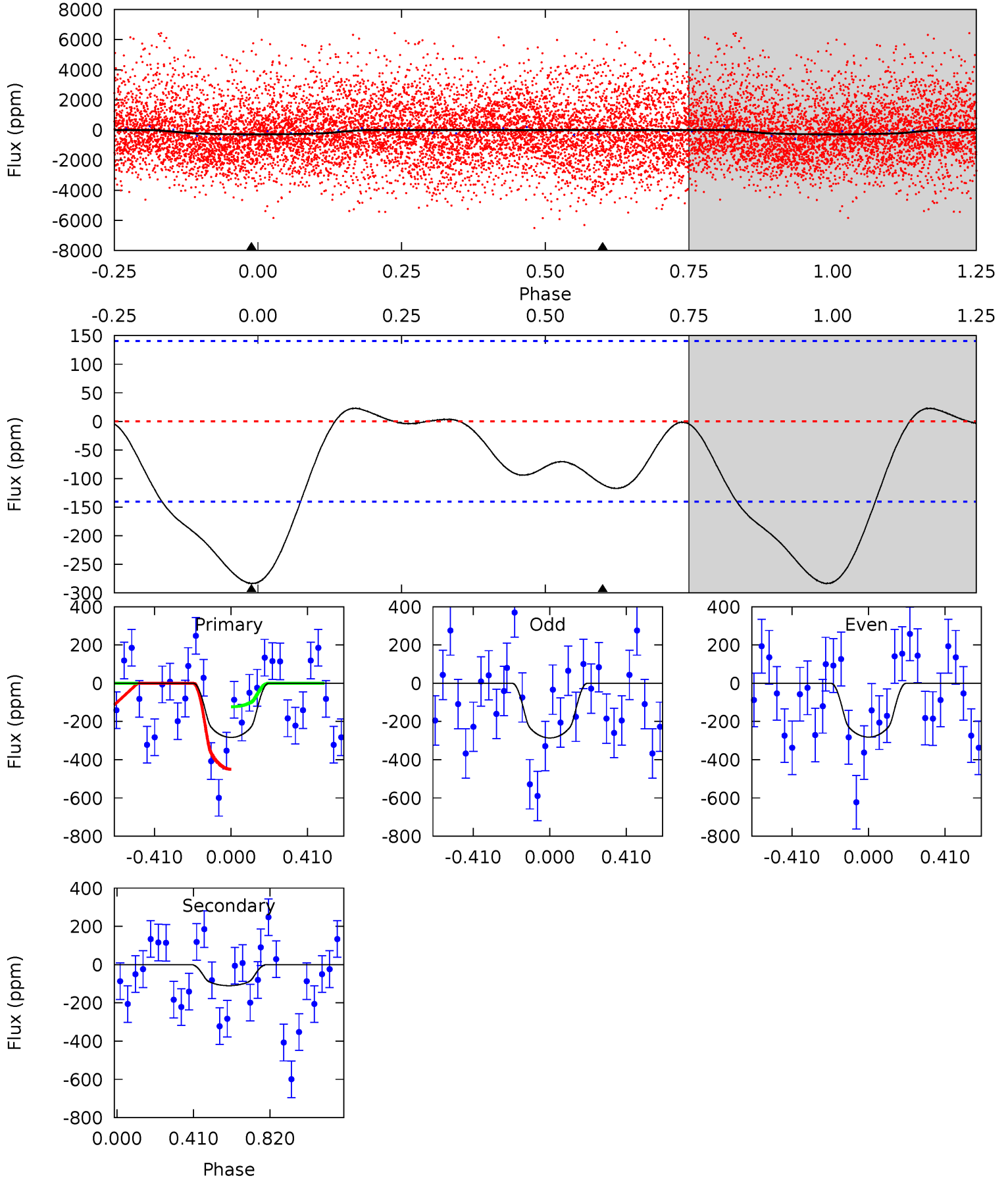
TCE 009836422-01 P= 1.395311 Days $T_0=132.904699$ (BKJD)



DV Model-Shift Uniqueness Test

009836422-01, P = 1.395113 Days, E = 133.130318 Days

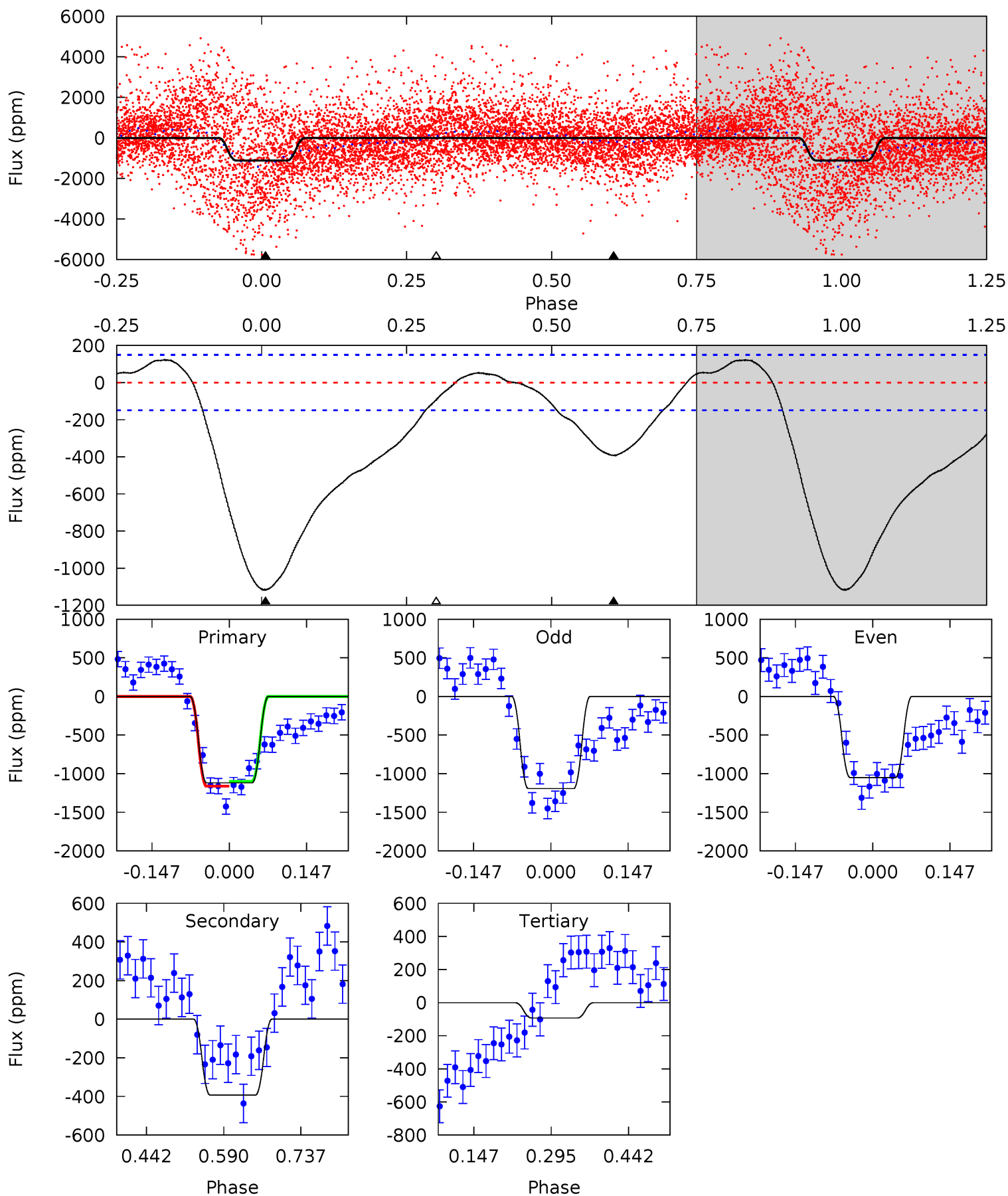
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.60	3.34	0	0	4.26	0.82	0.08	8.60	8.60	3.34	3.34	0.07	0.68	0.07	5.46



Alt Model-Shift Uniqueness Test

009836422-01, P = 1.395311 Days, E = 132.904699 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.6	11.8	2.79	0	4.48	1.45	5.84	30.8	33.6	9.01	11.8	2.17	0.83	0.10	0.94



Stellar Parameters For KIC 009836422

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4191^{+132}_{-162}	$4.647^{+0.042}_{-0.028}$	$0.000^{+0.250}_{-0.300}$	$0.627^{+0.040}_{-0.060}$	$0.637^{+0.055}_{-0.067}$	$3.632^{+0.777}_{-0.408}$
	+3%/-4%	+1%/-1%	+inf%/-inf%	+6%/-10%	+9%/-11%	+21%/-11%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009836422-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-110 ± 33	$2.03^{+0.19}_{-0.19}$	1404^{+49}_{-51}	2966^{+182}_{-175}	$6.459^{+2.541}_{-2.022}$
Alt.	-393 ± 33	$2.66^{+0.21}_{-0.20}$	1407^{+52}_{-56}	3325^{+129}_{-121}	13^{+2}_{-2}

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

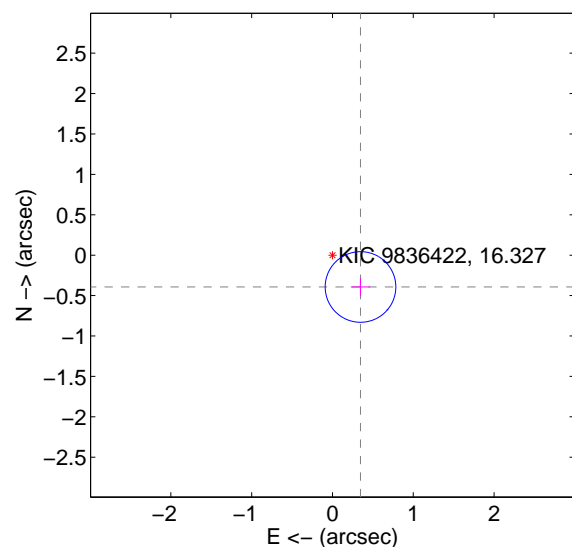
Supplemental centroid analysis for 009836422-01. Kepler magnitude: 16.33. Transit SNR 7.31

There are 2 quarters with good PRF difference image offsets

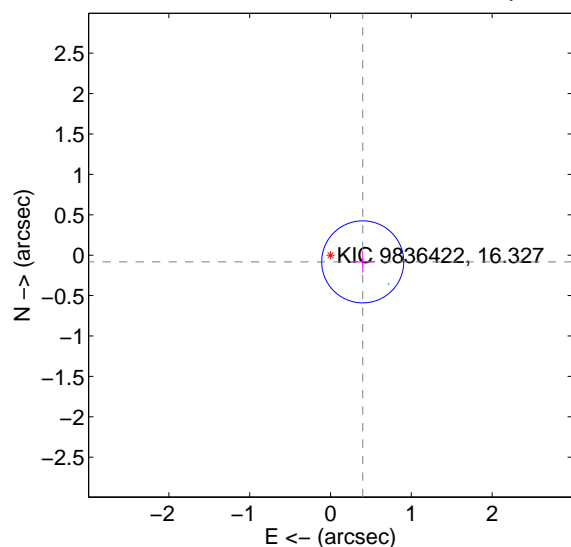
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.524 ± 0.146	3.60	-0.347 ± 0.120	-0.393 ± 0.108
PRF-fit source offset from KIC position	0.407 ± 0.169	2.41	-0.399 ± 0.150	-0.083 ± 0.133
photometric centroid source offset	0.74 ± 0.59	1.26	0.53 ± 0.32	0.52 ± 0.77

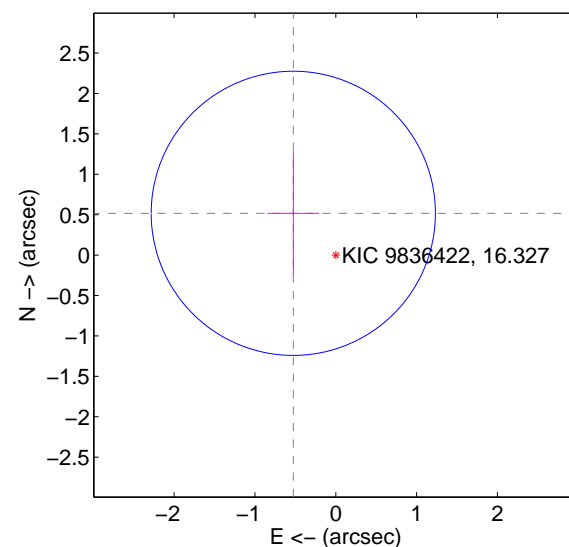
offset from difference PRF-fit to OOT PRF-fit



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.



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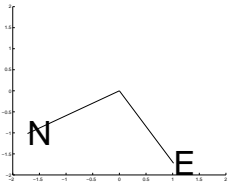
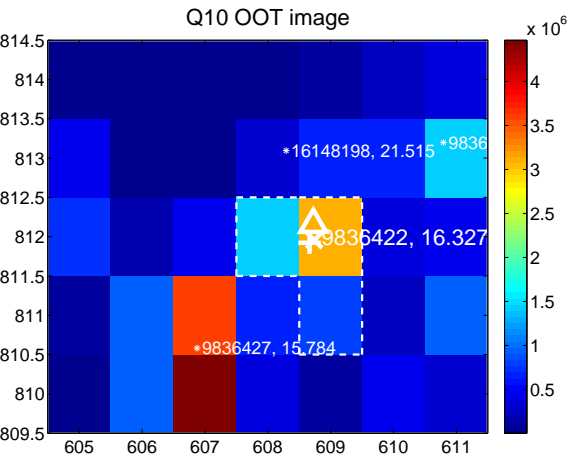
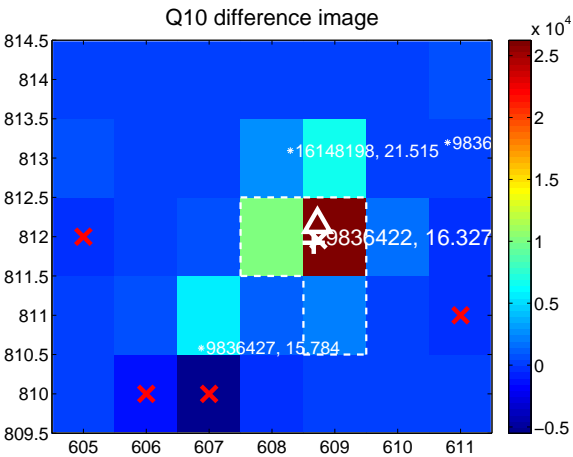


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

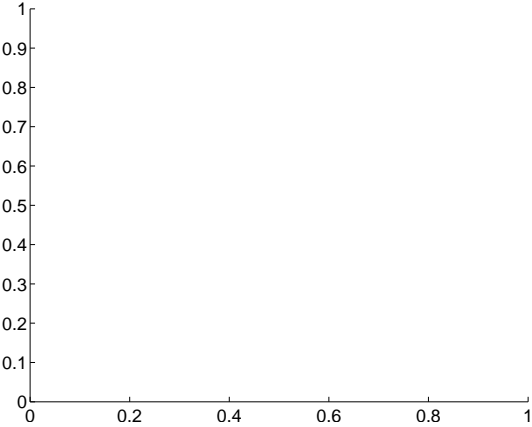
Q9 no difference image



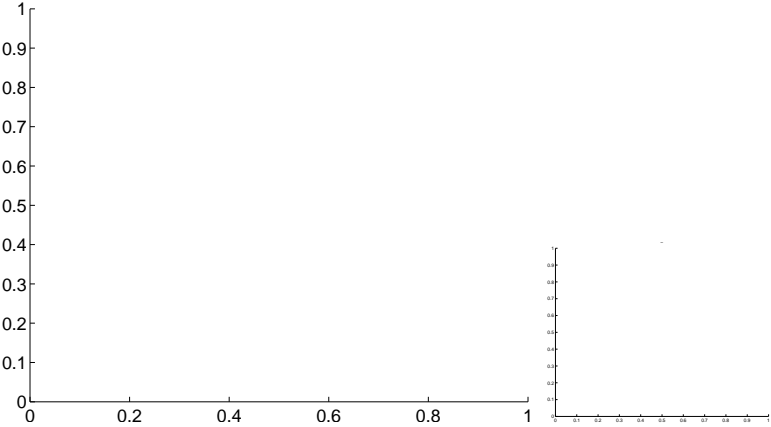
Q9 no OOT image



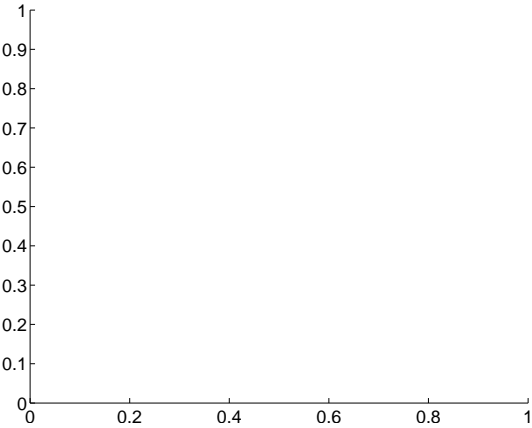
Q11 no difference image



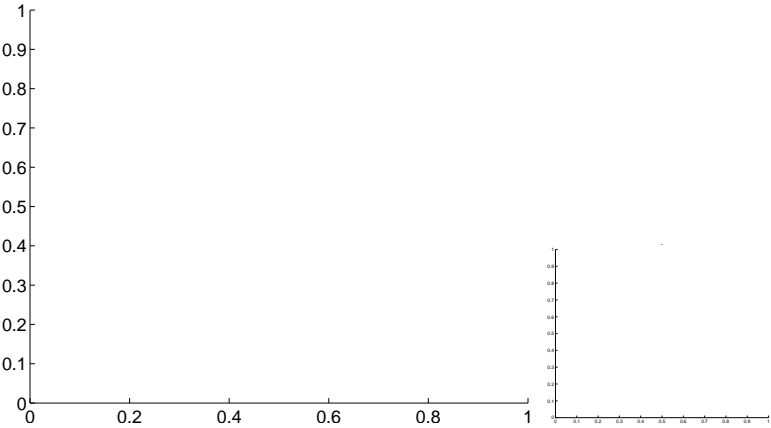
Q11 no OOT image



Q12 no difference image



Q12 no OOT image

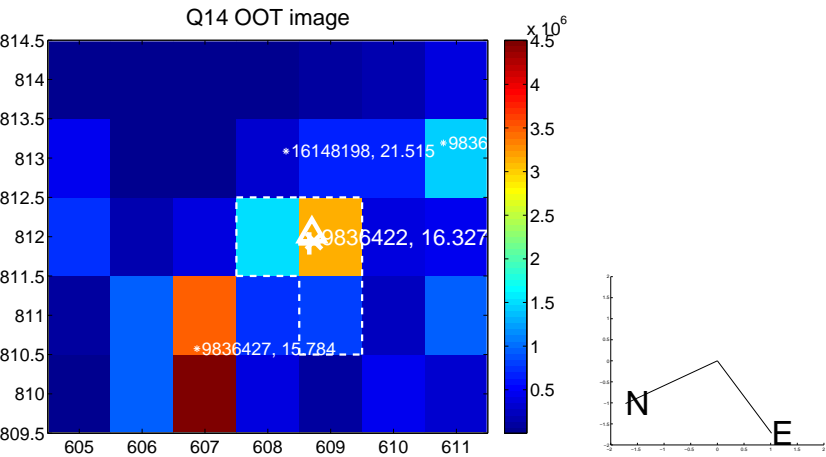
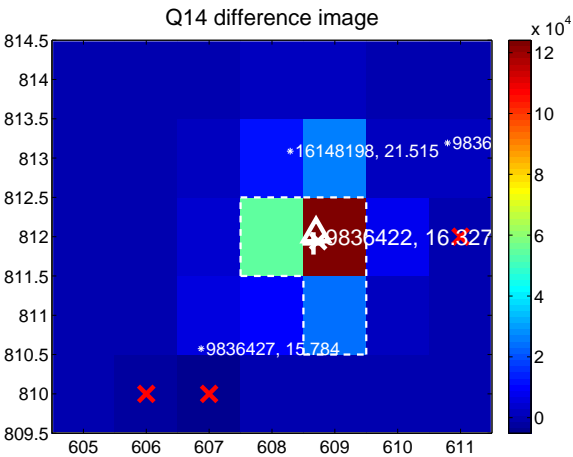


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

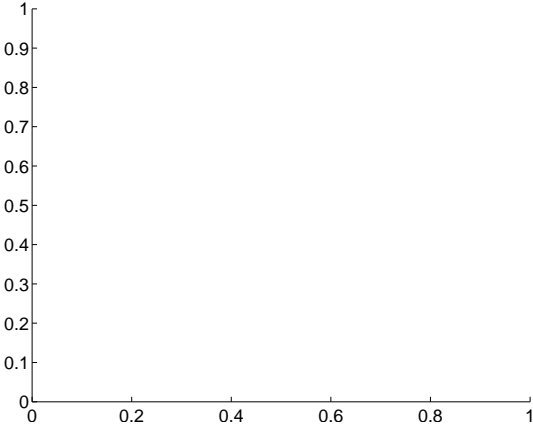
Q13 no difference image



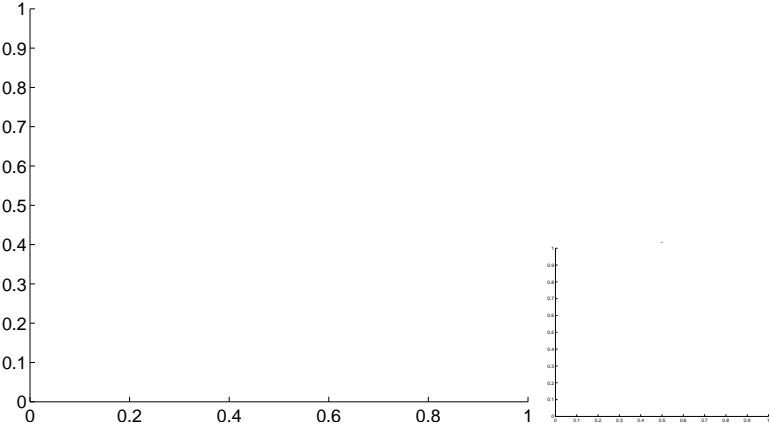
Q13 no OOT image



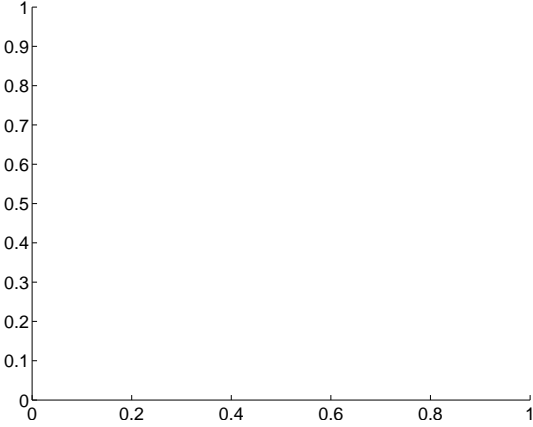
Q15 no difference image



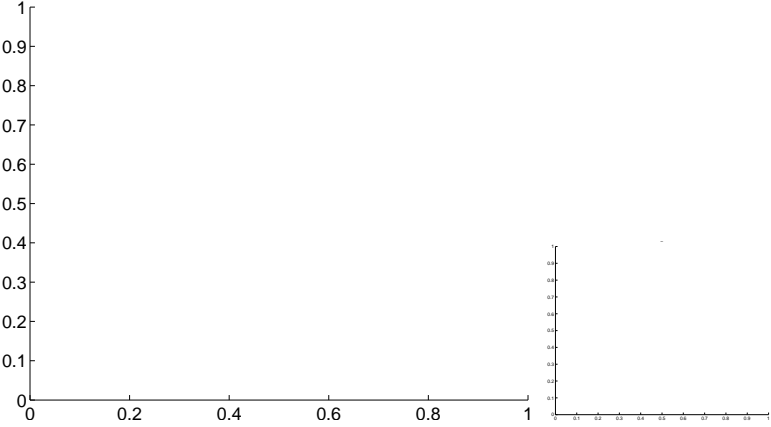
Q15 no OOT image



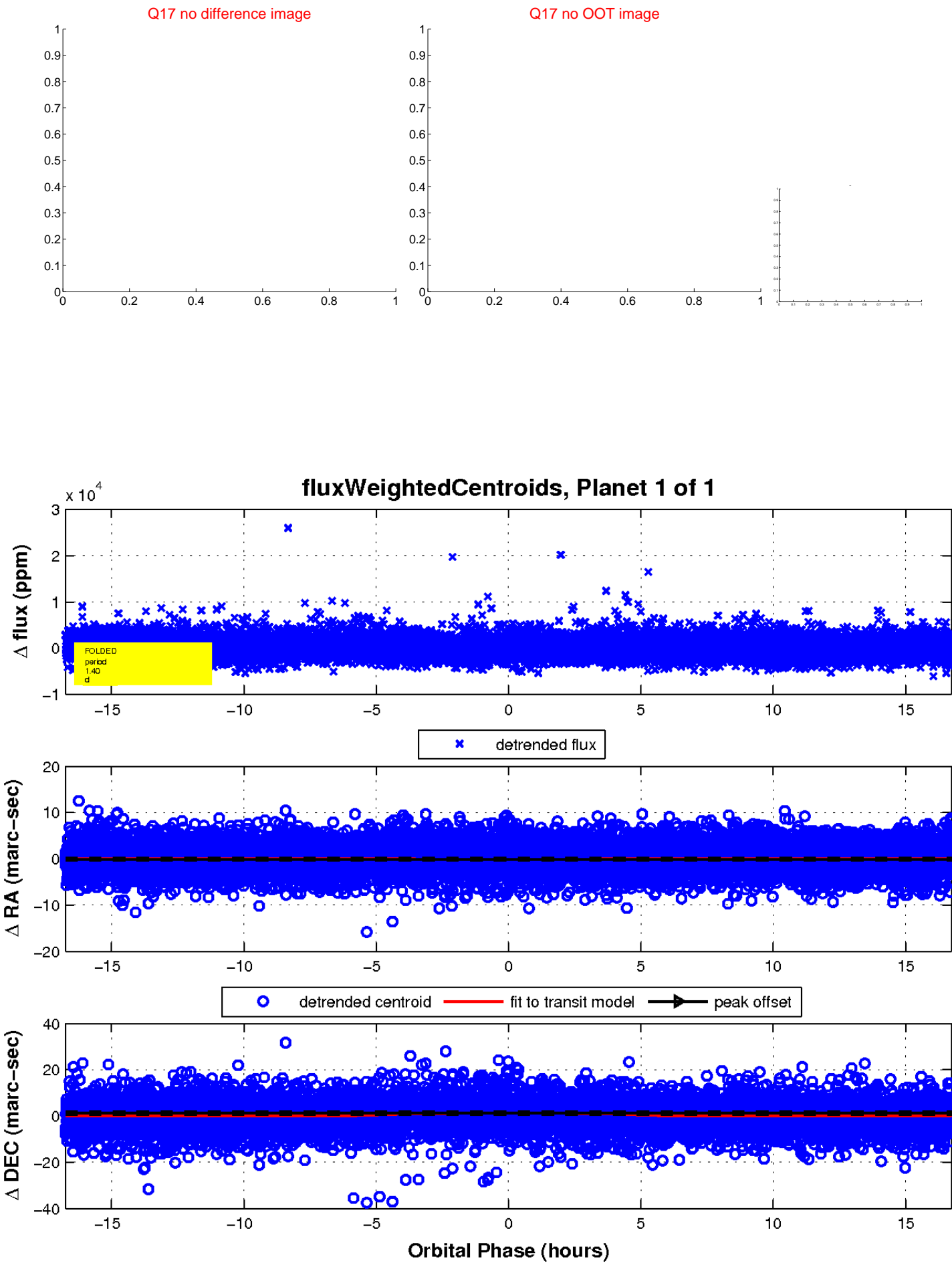
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

