

KIC 009778469

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})
009778469-01	OBS	No	497.427046	240.699109	35.9	14.374	9.2	8.1	1.93	9748	1.32	11.56

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009778469-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—CENT_SATURATED

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

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

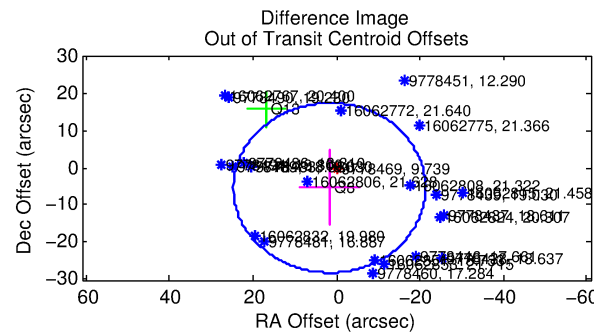
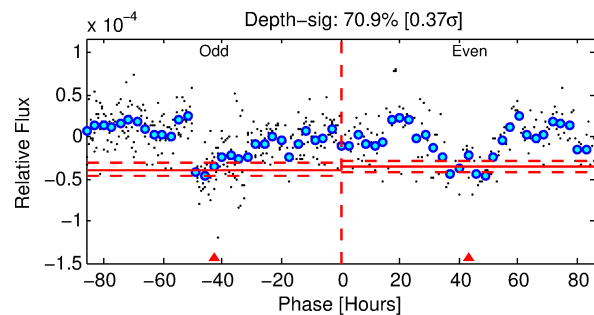
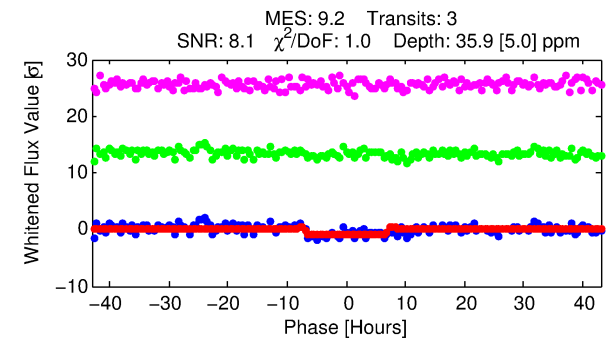
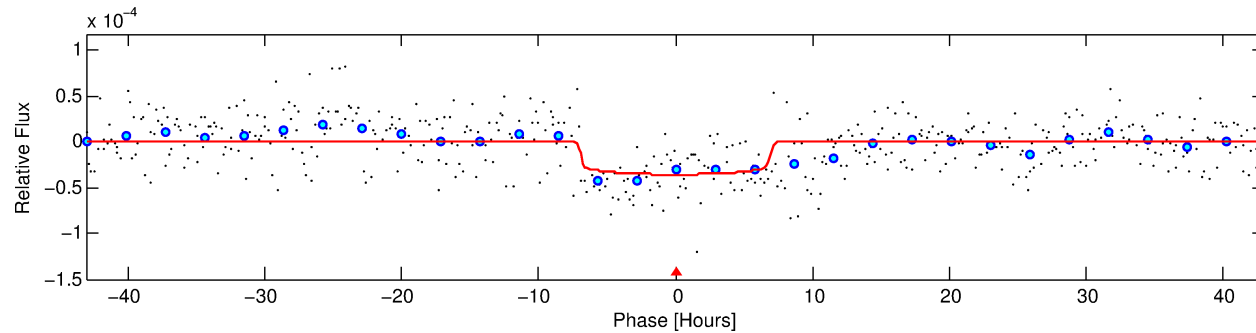
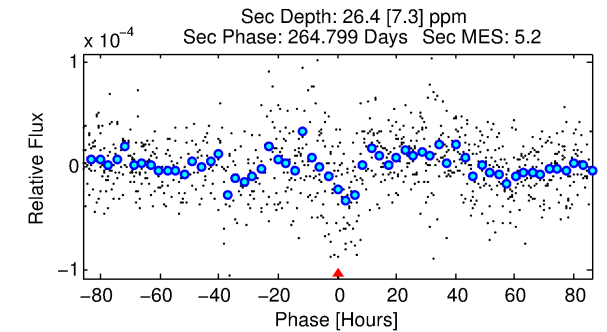
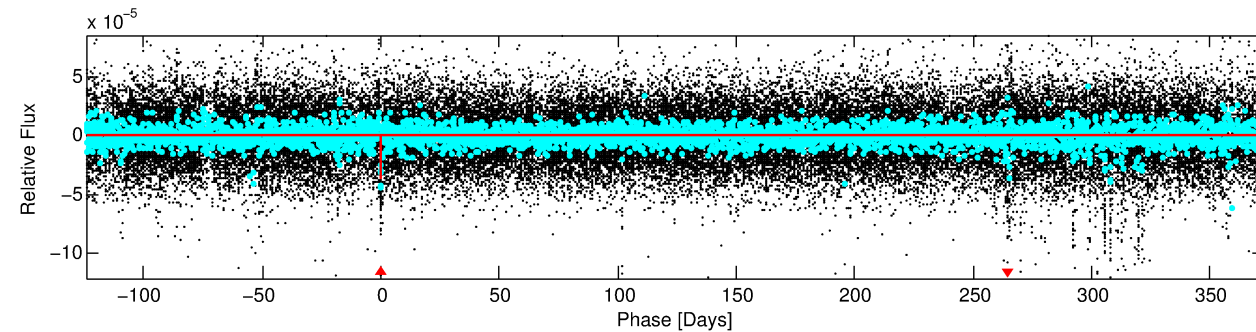
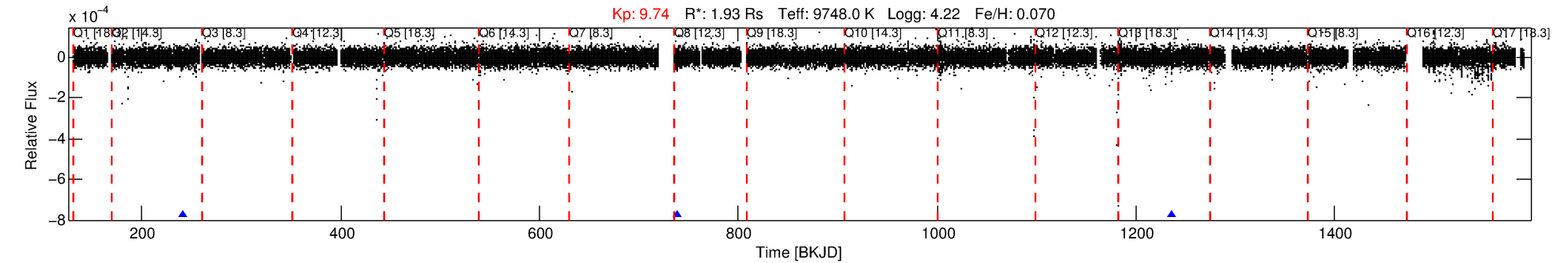
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009778469-01

No Significant Match Found

DV One-Page Summary

KIC: 9778469 Candidate: 1 of 1 Period: 497.427 d



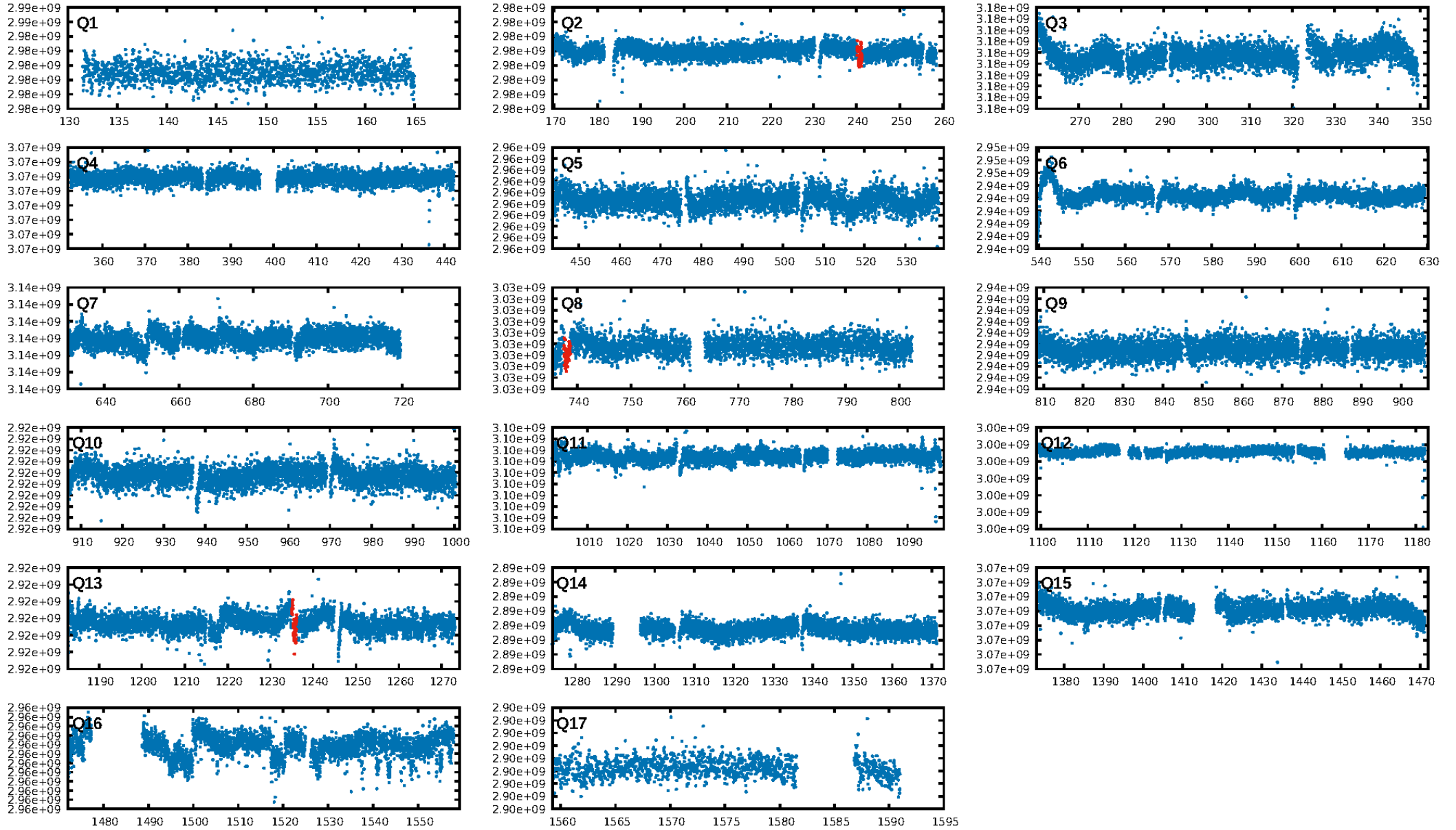
DV Fit Results:

Period = 497.42705 [0.01274] d
Epoch = 240.6991 [0.0153] BKJD
Rp/R* = 0.0063 [0.0009]
a/R* = 119.80 [103.07]
b = 0.90 [0.19]
Seff = 11.56 [5.18]
Teq = 470 [53] K
Rp = 1.32 [0.56] Re
a = 1.6128 [0.5011] AU
Ag = 21551.38 [12189.91] [1.77σ]
Teffp = 8808 [936] K [8.89σ]

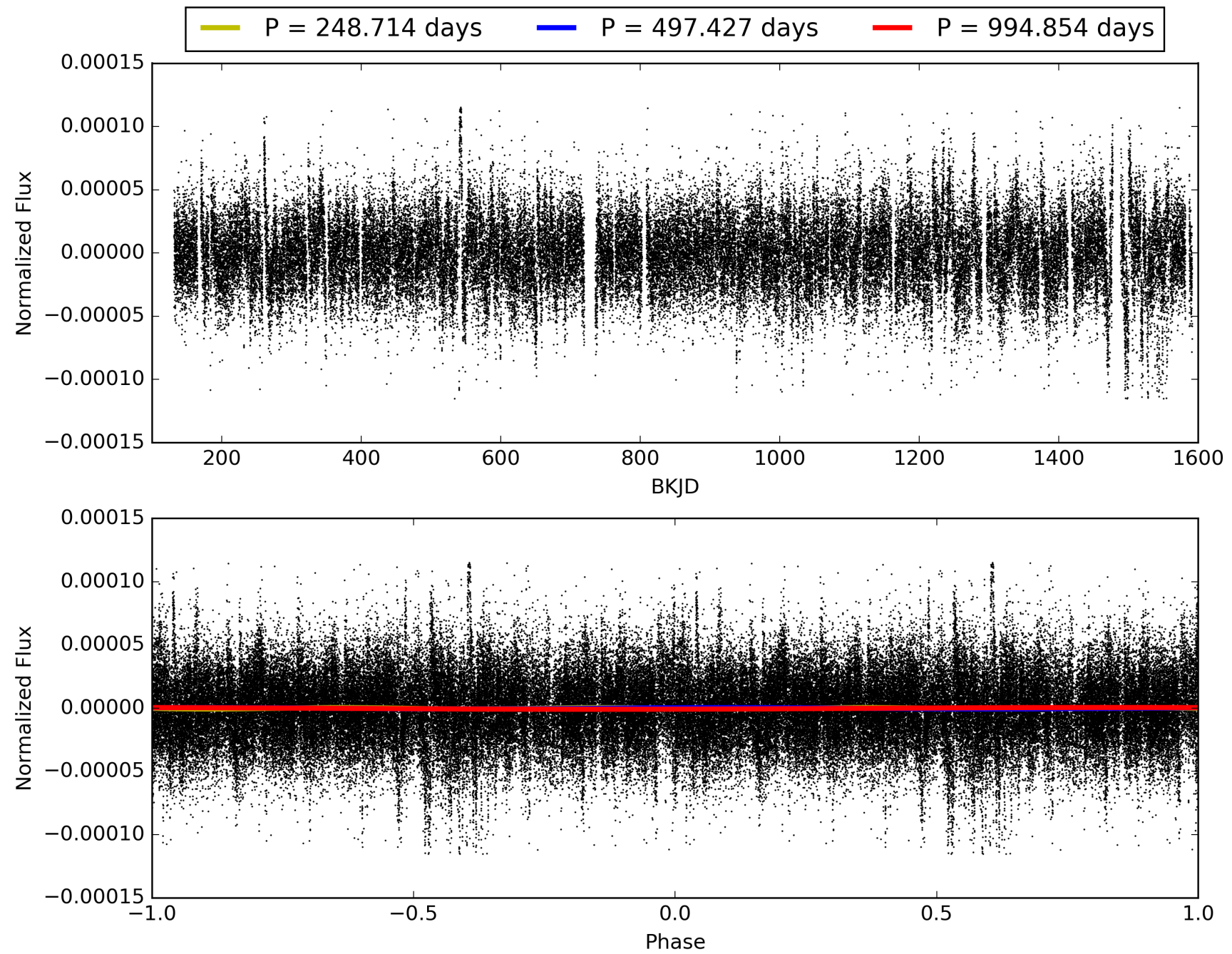
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 72.9%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 5.14e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 2.3%
Centroid-so: 5.481 arcsec [1.57σ]
OotOffset-rm: 5.745 arcsec [0.75σ]
KicOffset-rm: 5.637 arcsec [2.28σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009778469-01, PDC Light Curves

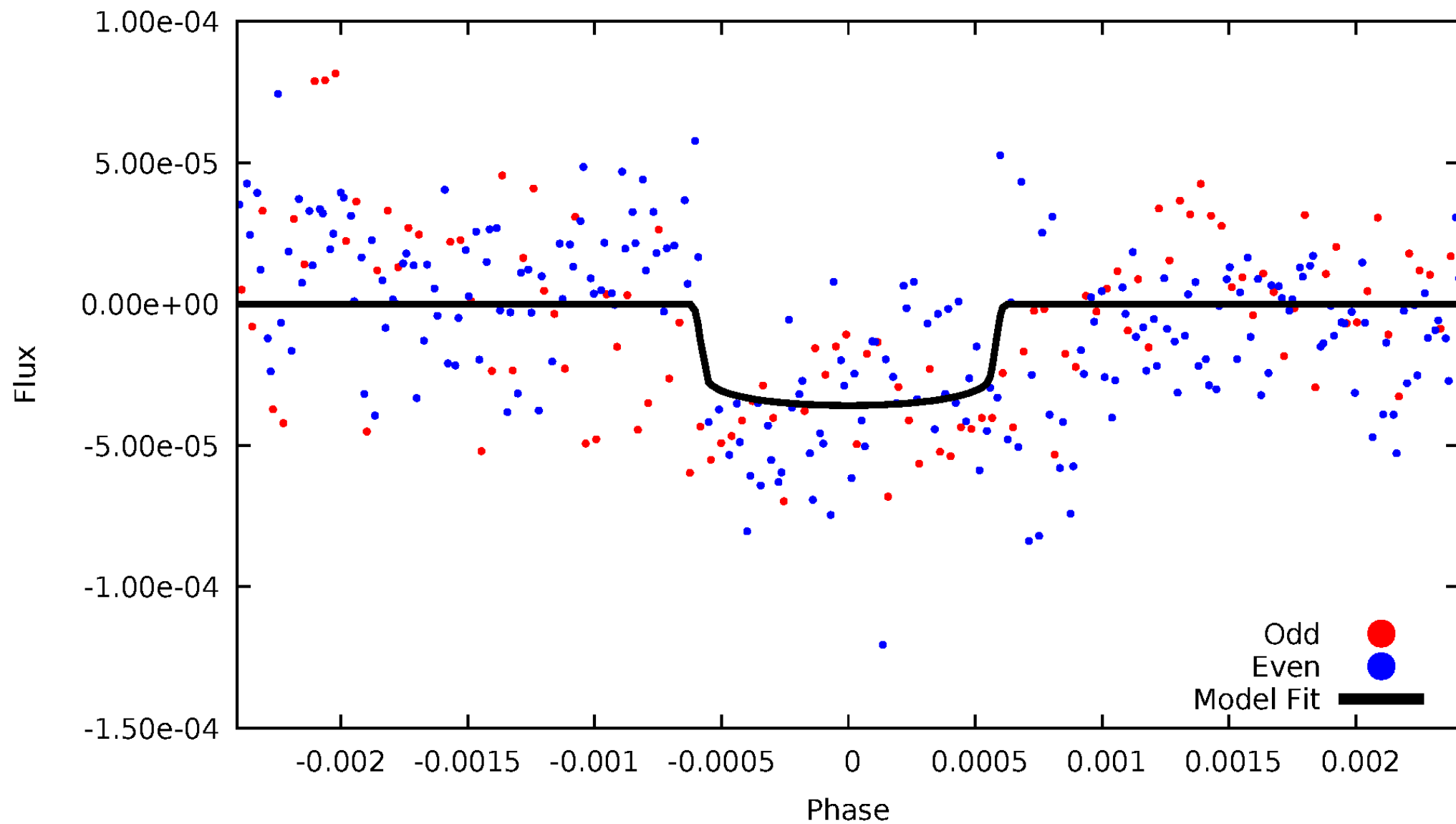


TCE 009778469-01



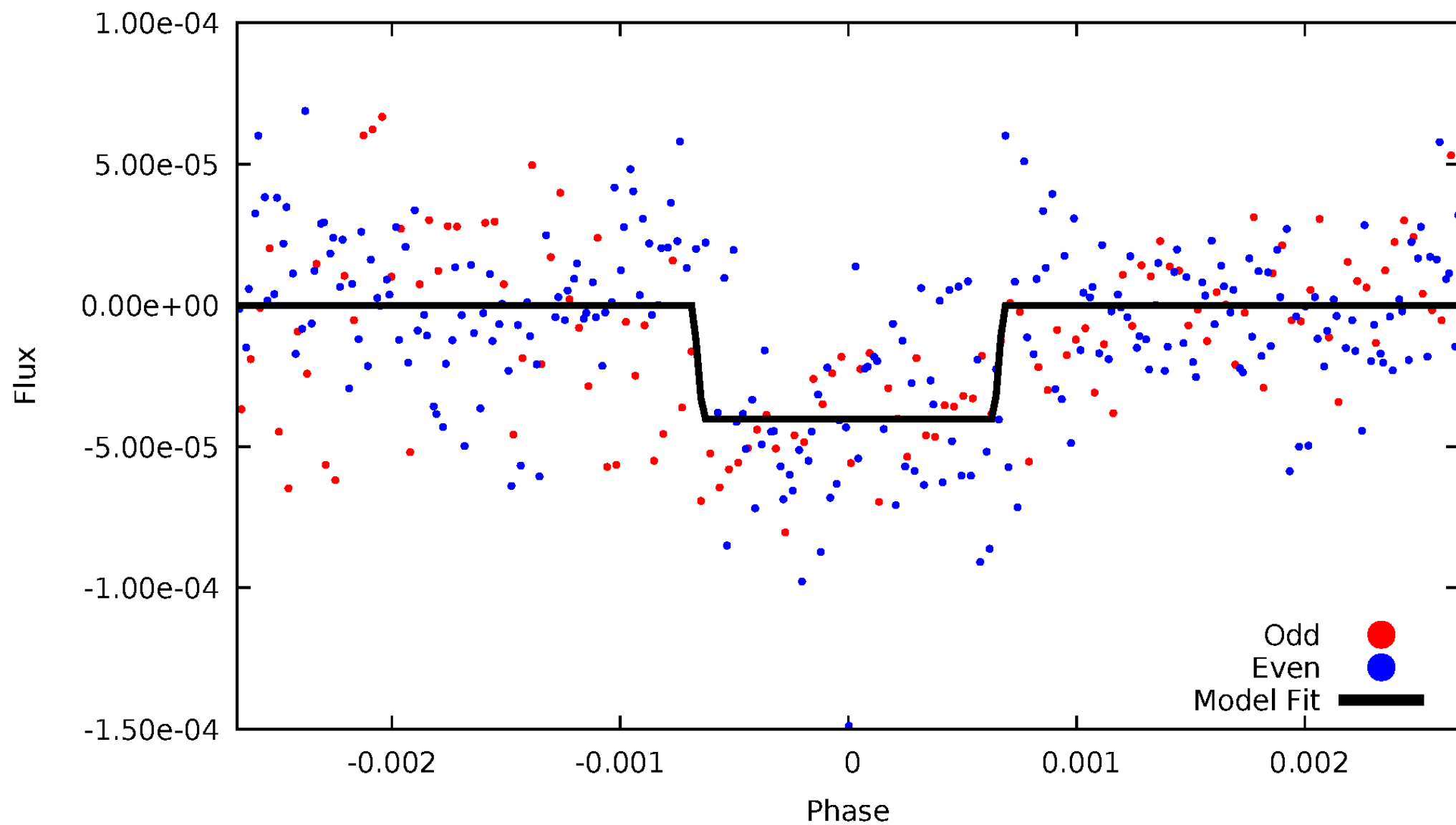
DV Odd/Even

TCE 009778469-01



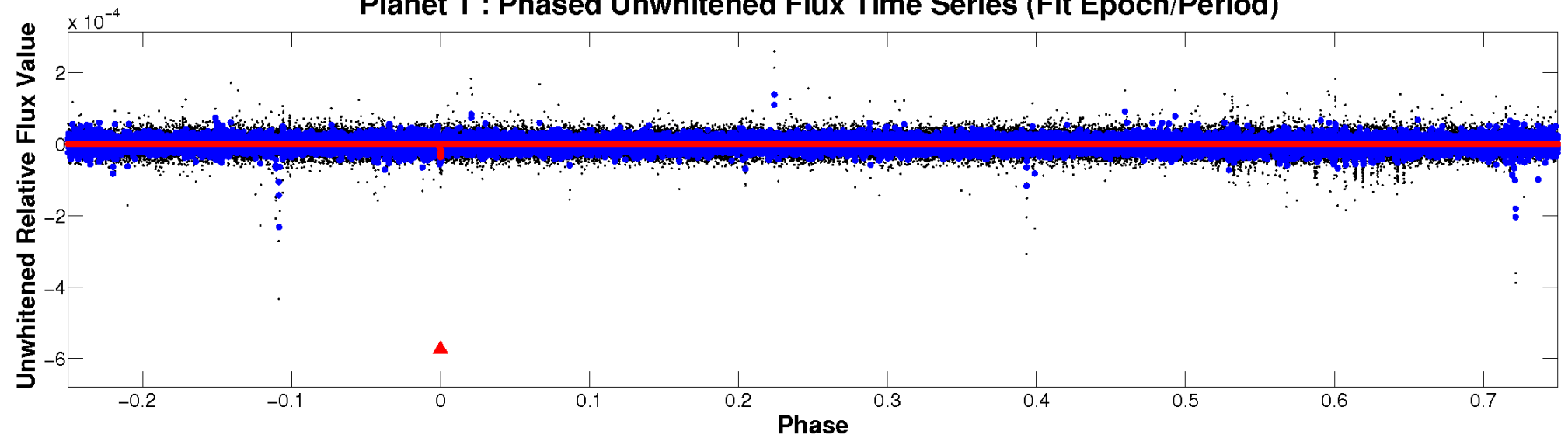
ALT Odd/Even

TCE 009778469-01

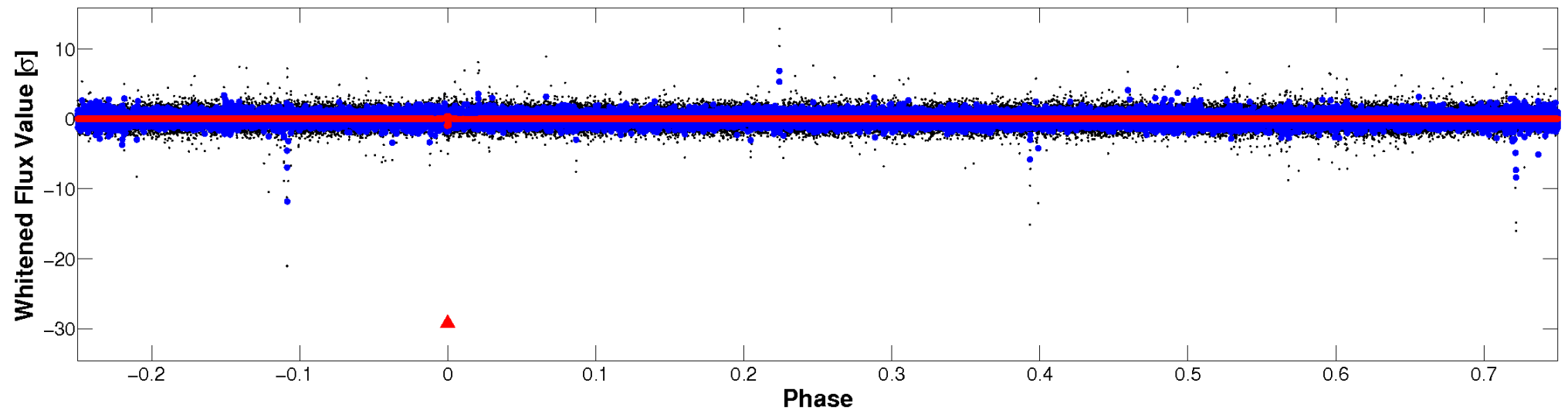


Non-Whitened Vs. Whitened Light Curve

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

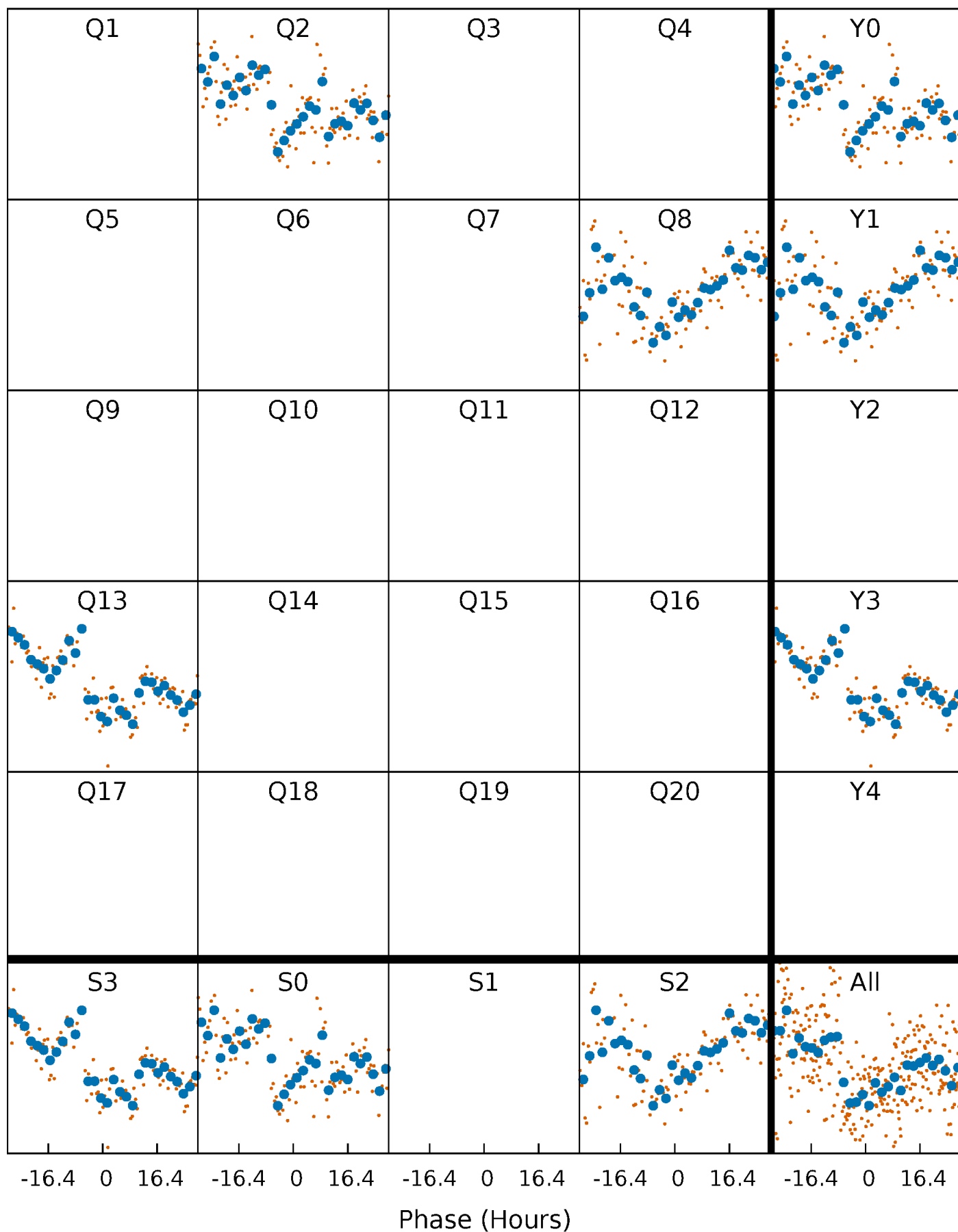


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



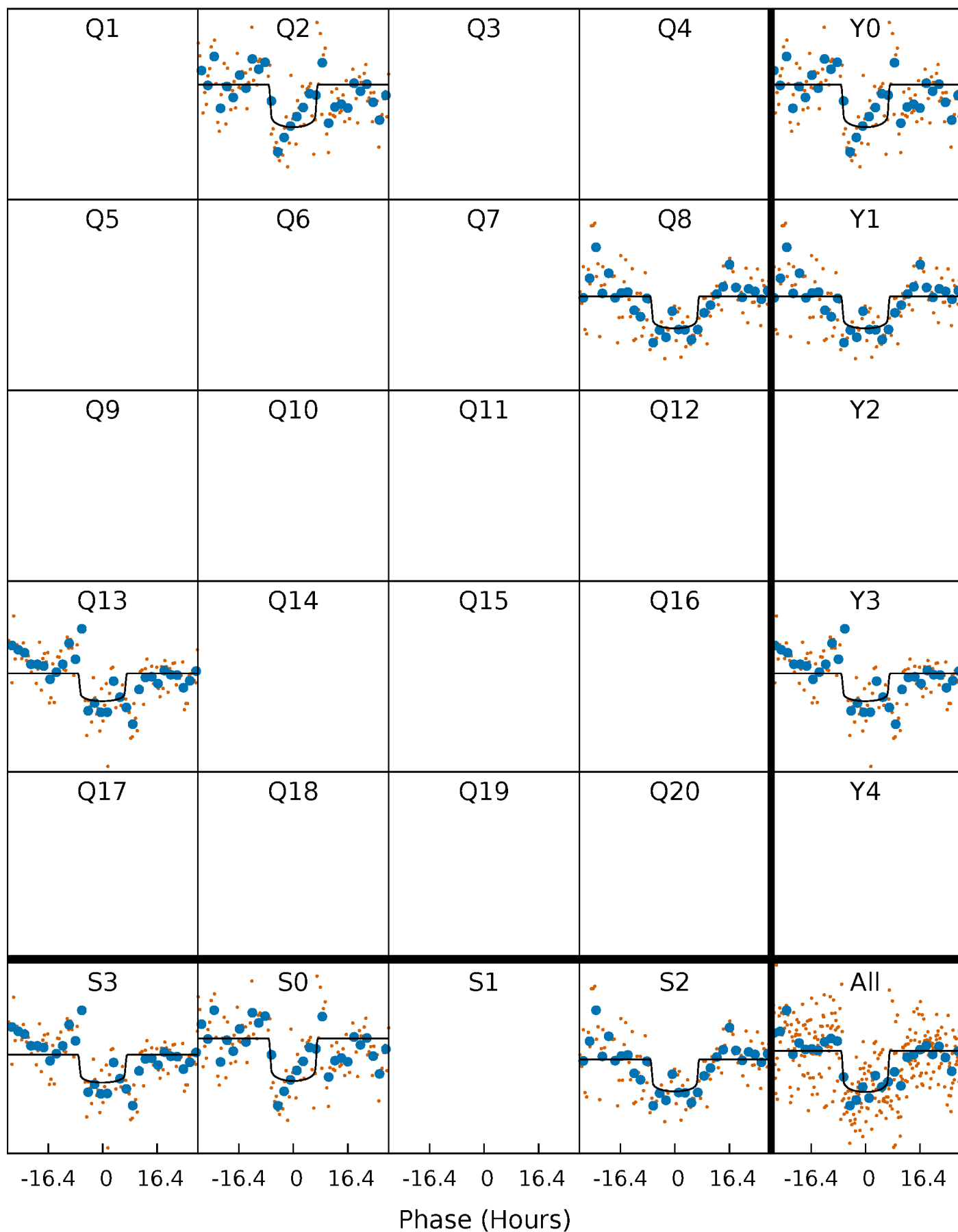
PDC Quarter-Phased Transit Curves

TCE 009778469-01 P=497.427046 Days $T_0=240.699109$ (BKJD)



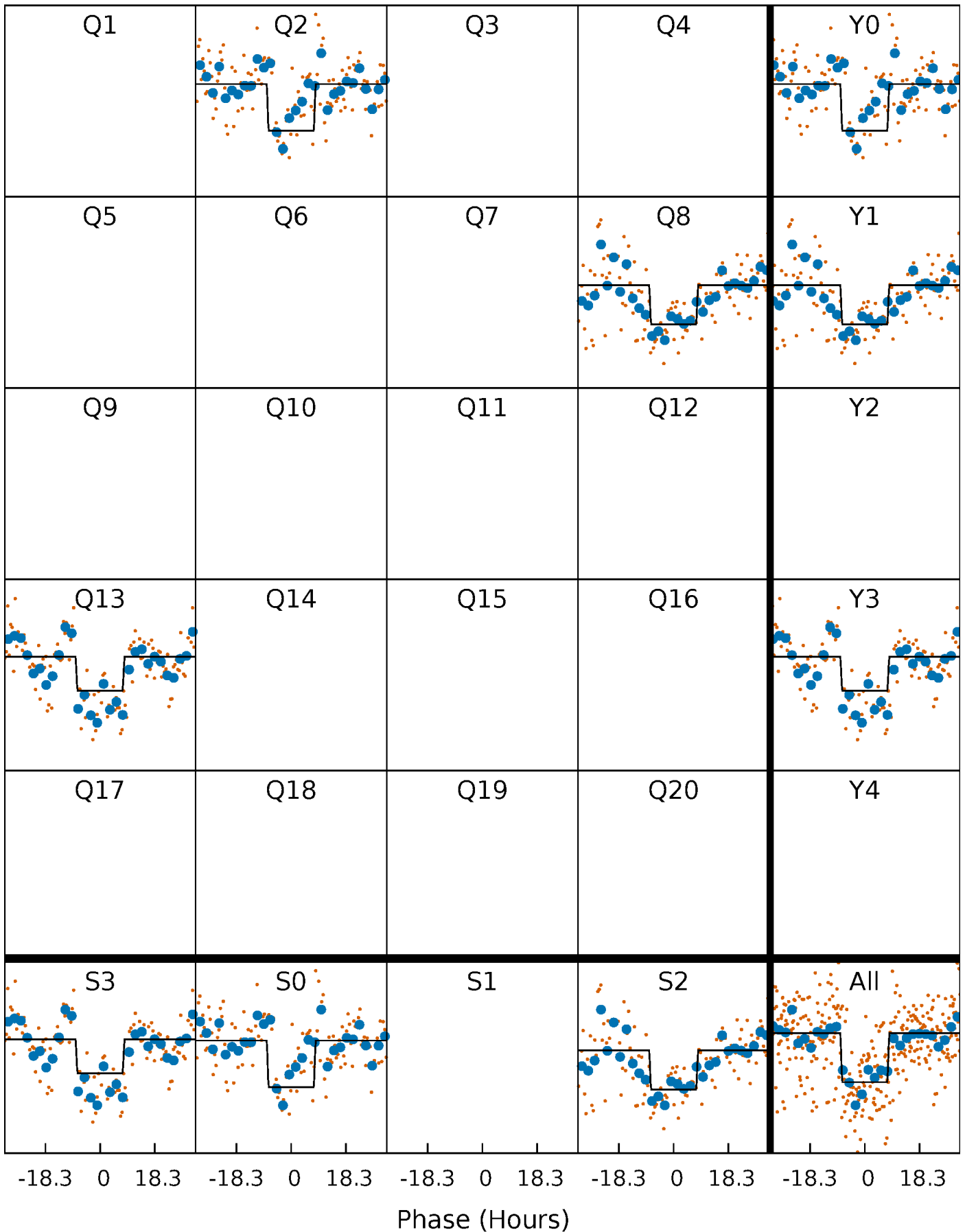
DV Quarter-Phased Transit Curves

TCE 009778469-01 P=497.427046 Days $T_0=240.699109$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

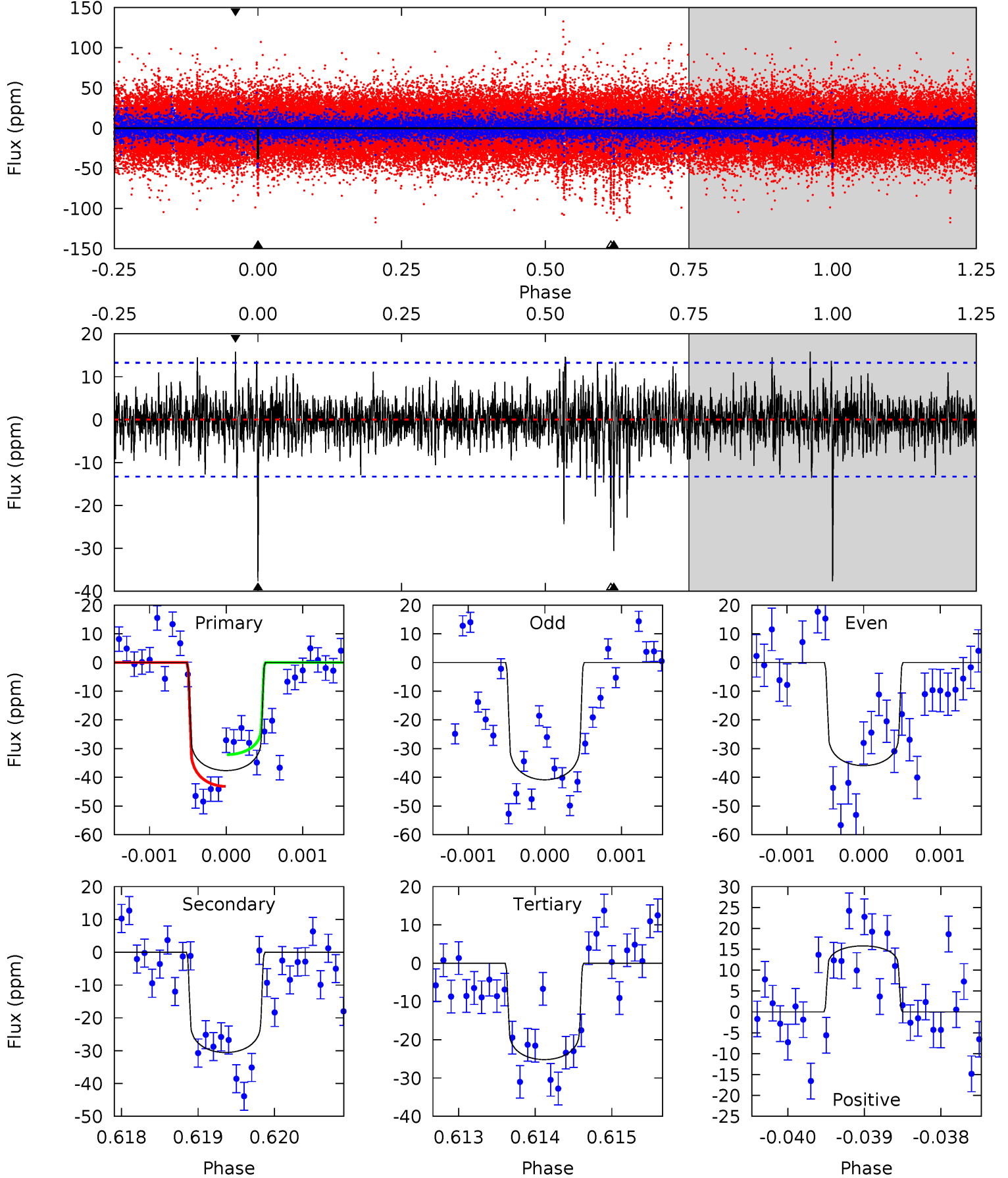
TCE 009778469-01 P=497.482263 Days $T_0=240.654788$ (BKJD)



DV Model-Shift Uniqueness Test

009778469-01, $P = 497.427046$ Days, $E = 240.699109$ Days

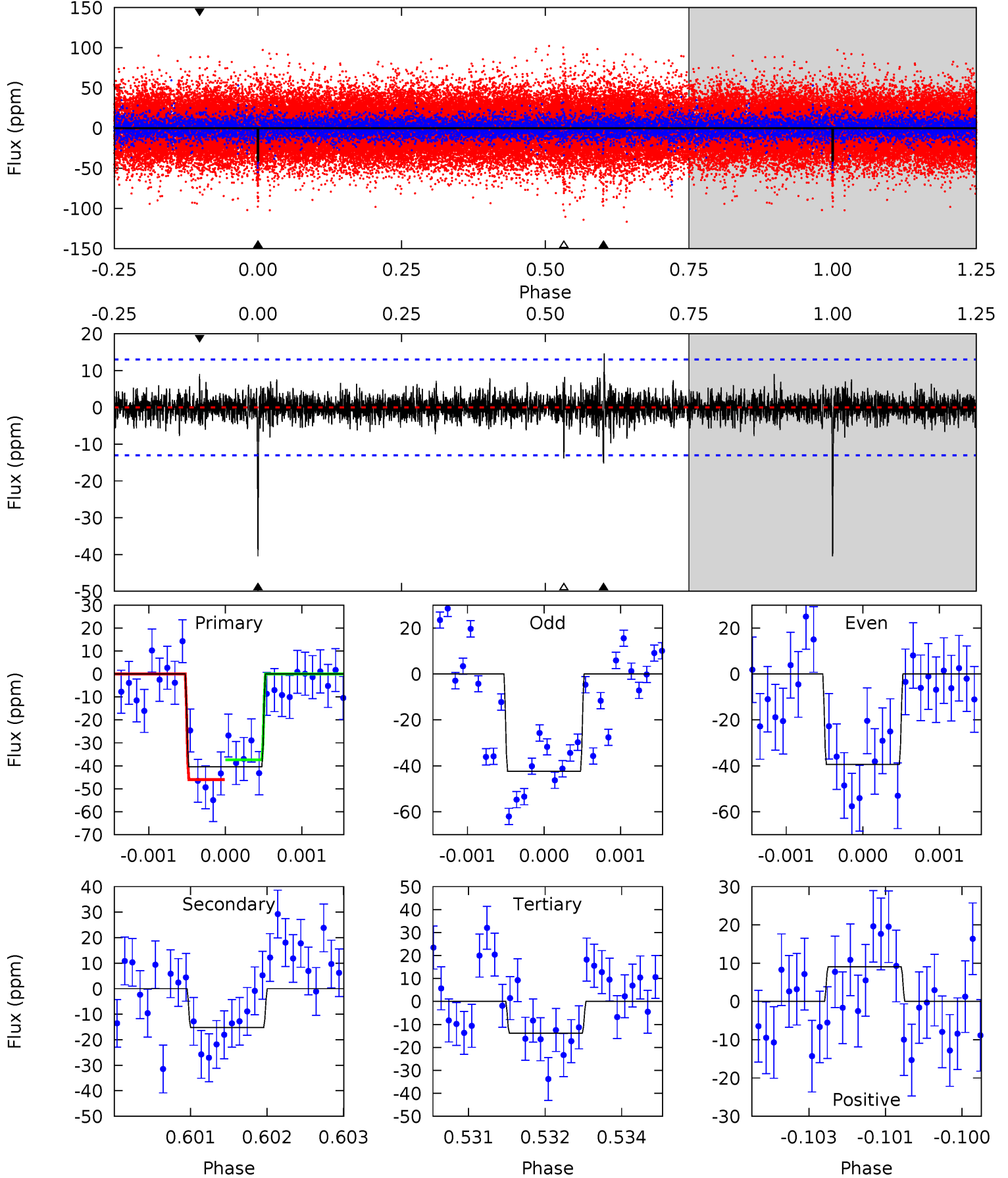
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	12.5	10.3	6.45	5.42	3.23	1.66	5.10	8.92	2.19	6.02	0.96	0.95	0.30	2.24



Alt Model-Shift Uniqueness Test

009778469-01, P = 497.482263 Days, E = 240.654788 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	6.31	5.73	3.76	5.40	3.21	0.93	11.0	13.0	0.58	2.55	0.57	0.99	0.27	1.79



Stellar Parameters For KIC 009778469

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	9748^{+311}_{-428}	$4.222^{+0.136}_{-0.204}$	$0.070^{+0.150}_{-0.700}$	$1.928^{+0.776}_{-0.477}$	$2.257^{+0.384}_{-0.576}$	$0.444^{+0.324}_{-0.250}$
	+3%/-4%	+3%/-5%	+214%/-1000%	+40%/-25%	+17%/-26%	+73%/-56%
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 009778469-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-31 ± 2	$1.33^{+0.32}_{-0.26}$	661^{+59}_{-50}	8902^{+1030}_{-861}	24197^{+11958}_{-8401}
Alt.	-15 ± 2	$1.34^{+0.33}_{-0.27}$	662^{+57}_{-50}	7120^{+789}_{-617}	11536^{+6020}_{-4022}

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 $A_{obs} \gg 1.0$

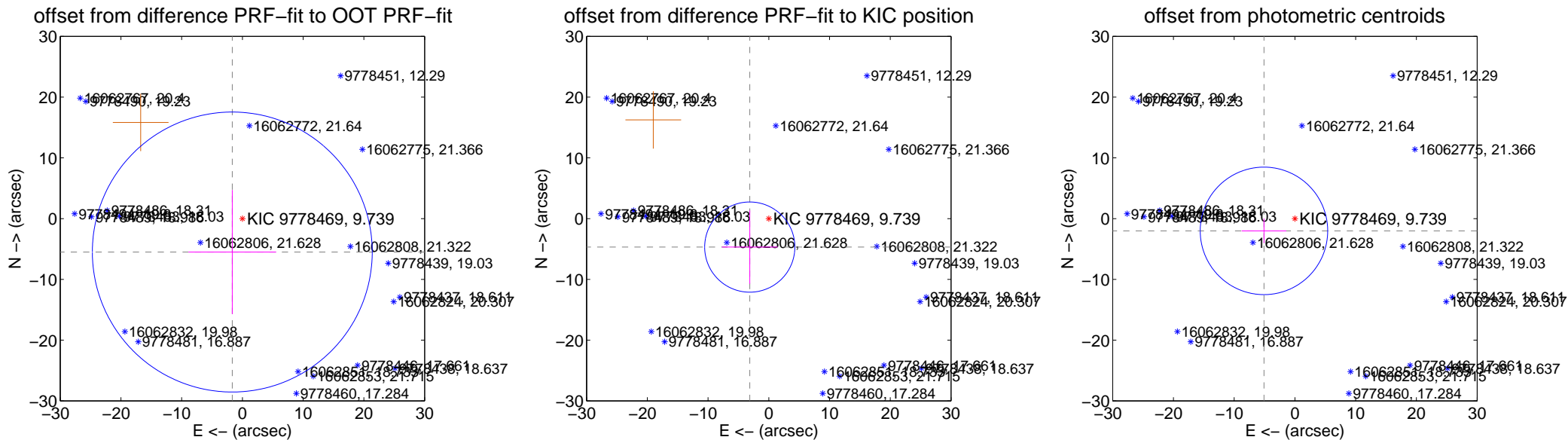
DV Centroid Data

Supplemental centroid analysis for 009778469-01. **Kepler magnitude: 9.74.** Transit SNR 8.07

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.31 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.745 ± 7.679	0.75	1.666 ± 7.220	-5.498 ± 10.211
PRF-fit source offset from KIC position	5.637 ± 2.474	2.28	3.135 ± 4.587	-4.685 ± 6.045
photometric centroid source offset	5.48 ± 3.50	1.57	5.10 ± 3.67	-2.02 ± 2.03



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.

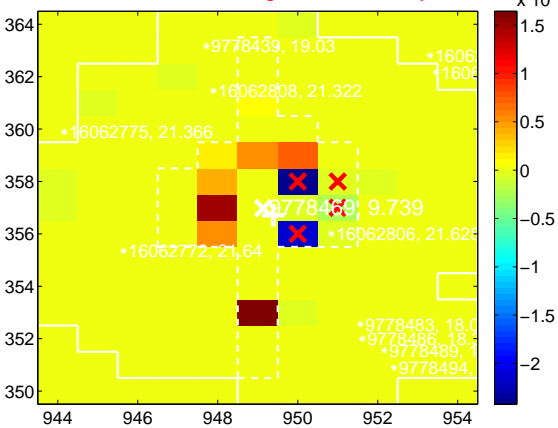
Q1 no difference image



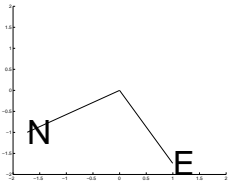
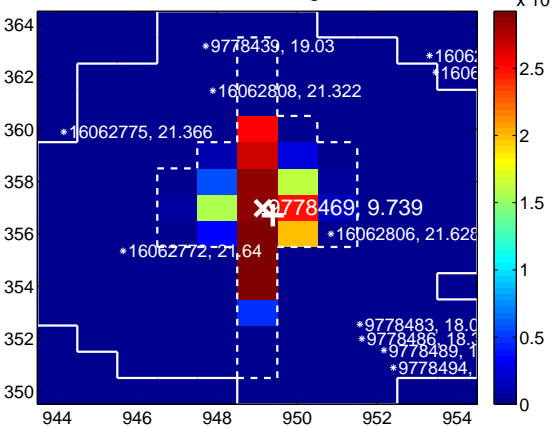
Q1 no OOT image



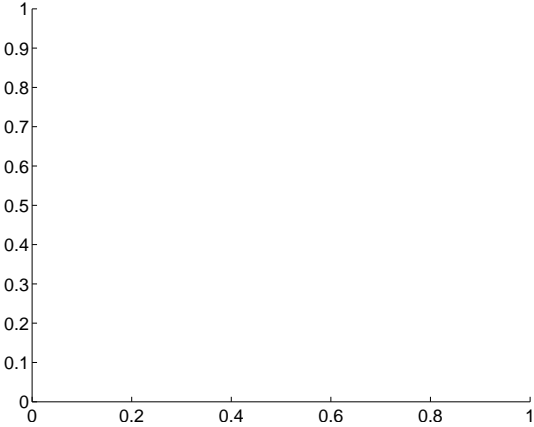
Q2 difference image. Poor Quality



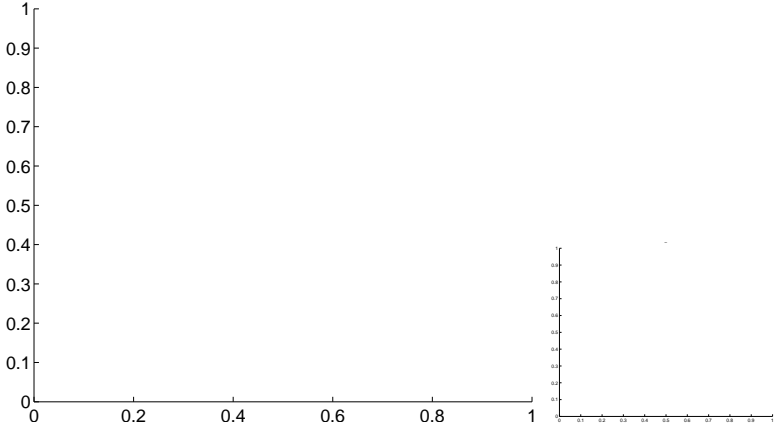
Q2 OOT image



Q3 no difference image



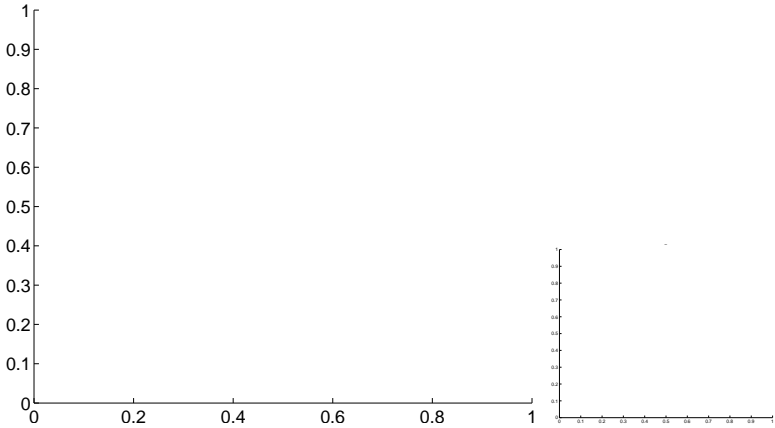
Q3 no OOT image



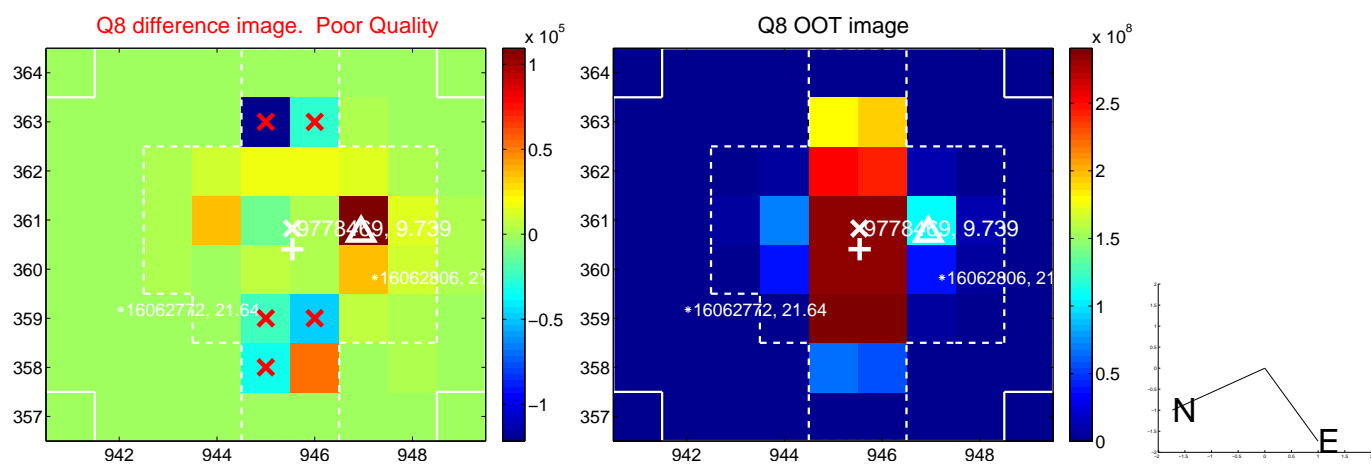
Q4 no difference image



Q4 no OOT image



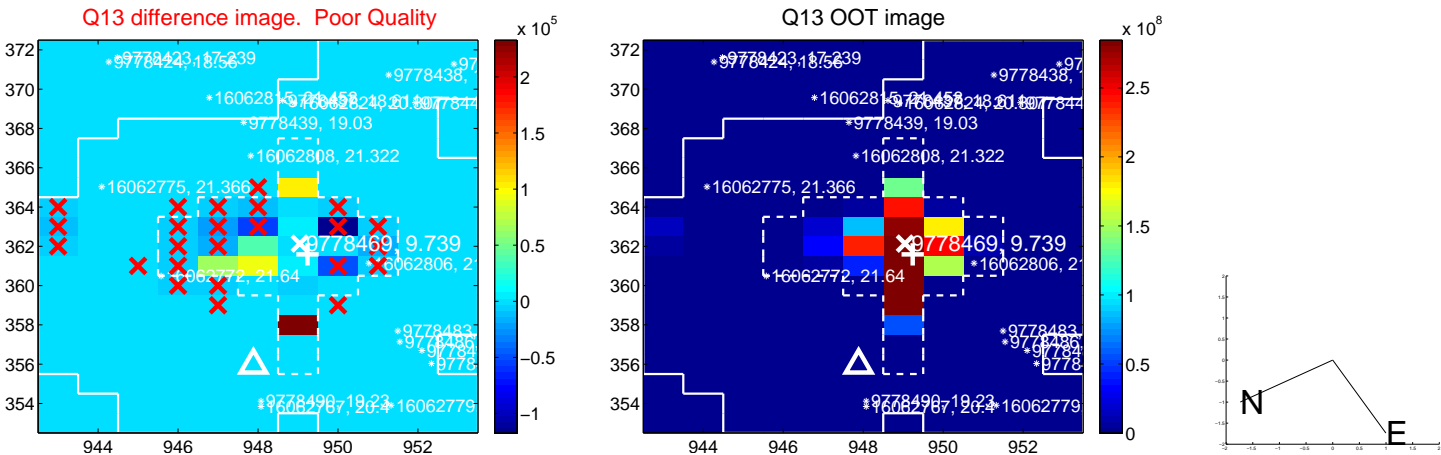
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



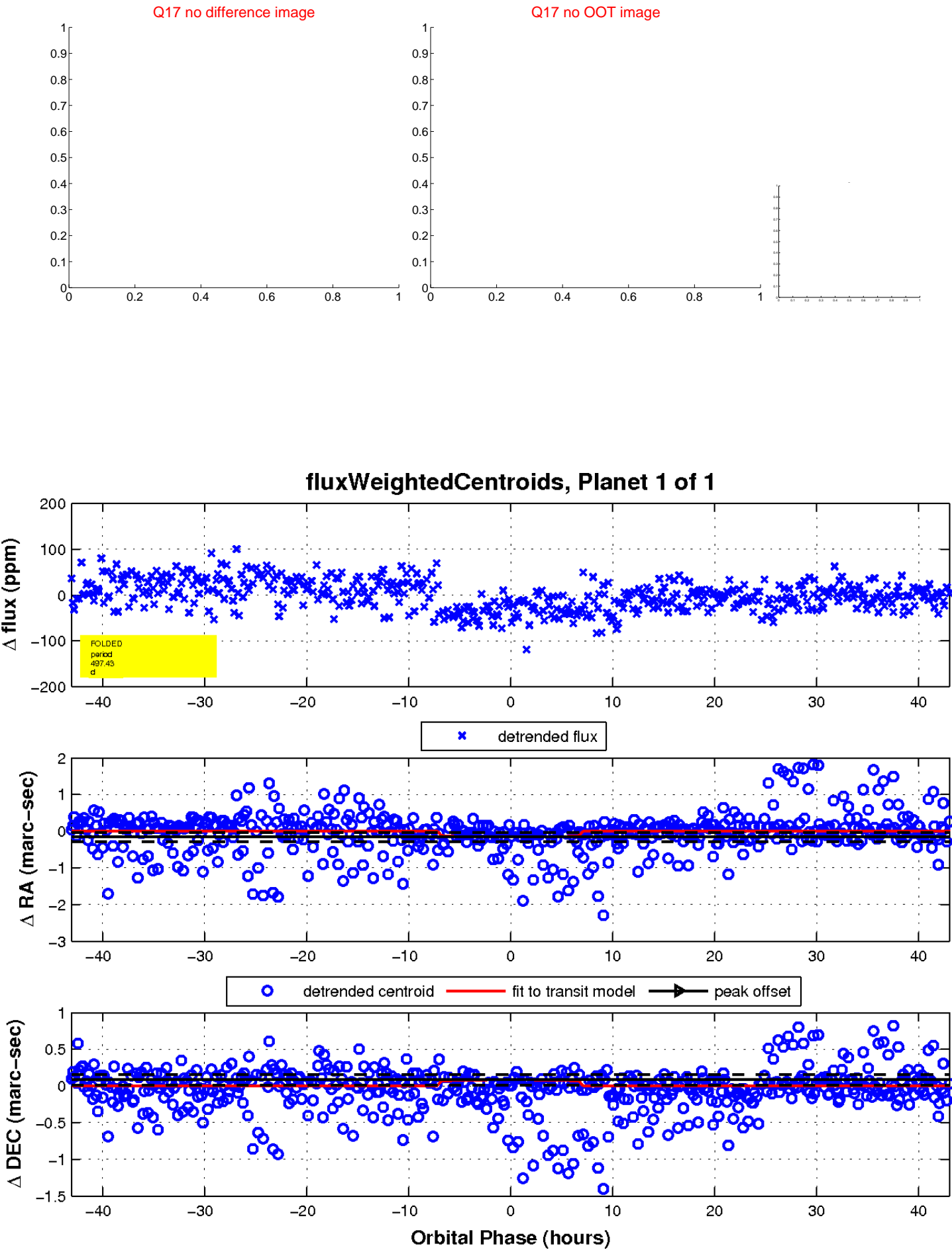
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

