

KIC 010872868

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})
010872868-01	OBS	No	455.659682	358.471586	1115.3	4.144	9.1	7.5	0.31	3430	1.11	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010872868-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

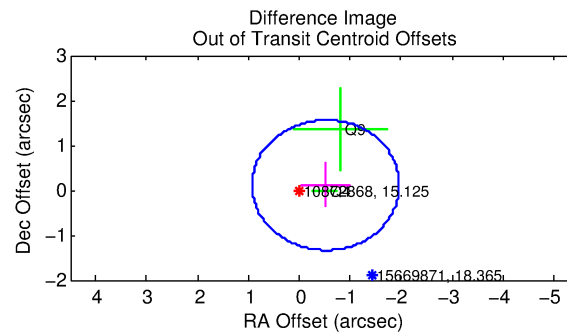
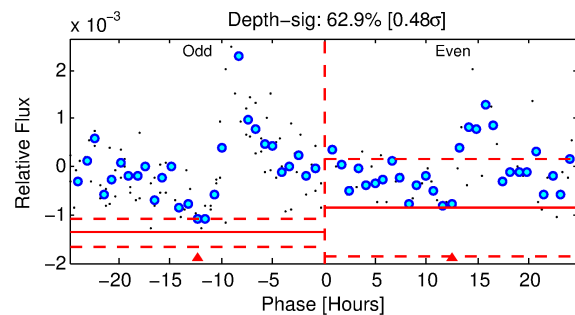
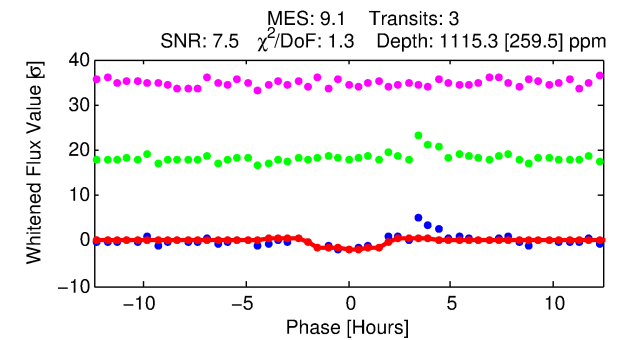
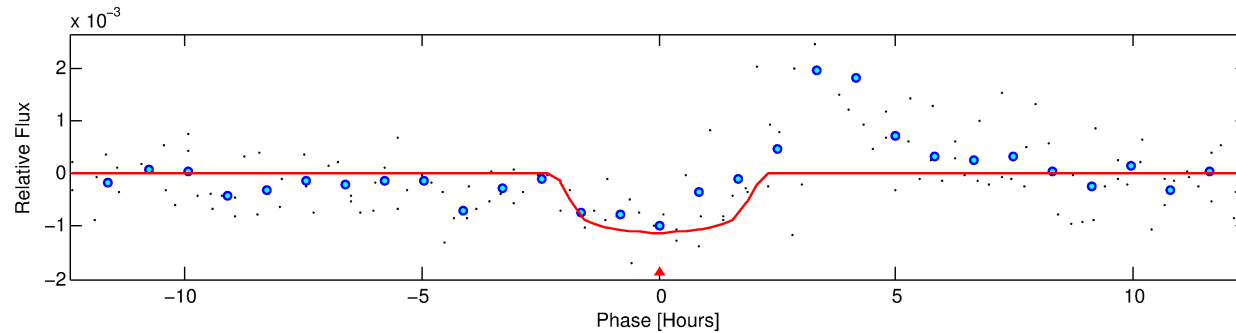
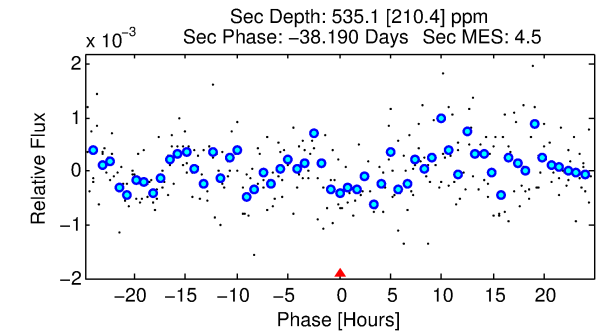
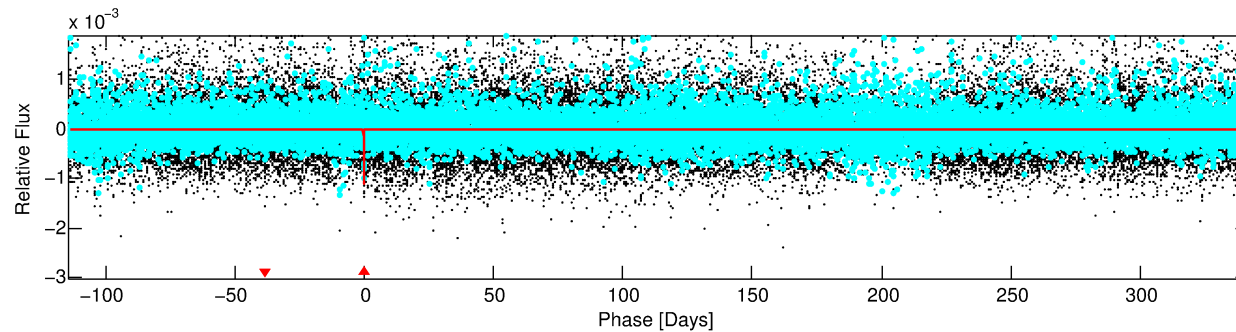
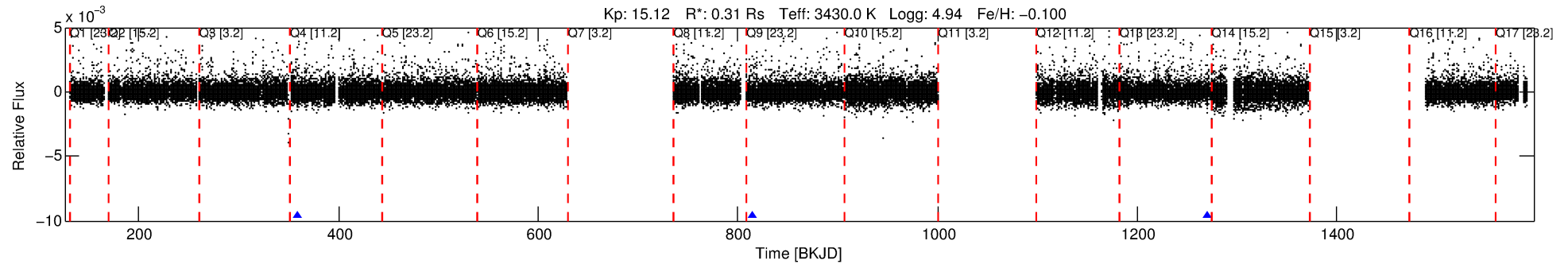
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010872868-01

No Significant Match Found

DV One-Page Summary

KIC: 10872868 Candidate: 1 of 1 Period: 455.660 d



DV Fit Results:

Period = 455.65968 [0.01049] d
Epoch = 358.4716 [0.0157] BKJD
Rp/R* = 0.0324 [0.1801]
a/R* = 654.13 [15876.53]
b = 0.68 [19.50]
Seff = 0.02 [0.00]
Teq = 96 [3] K
Rp = 1.11 [6.15] Re
a = 0.7837 [0.0626] AU
Ag = 147609.84 [1641501.34] [0.09 σ]
Teffp = 2898 [8057] K [0.35 σ]

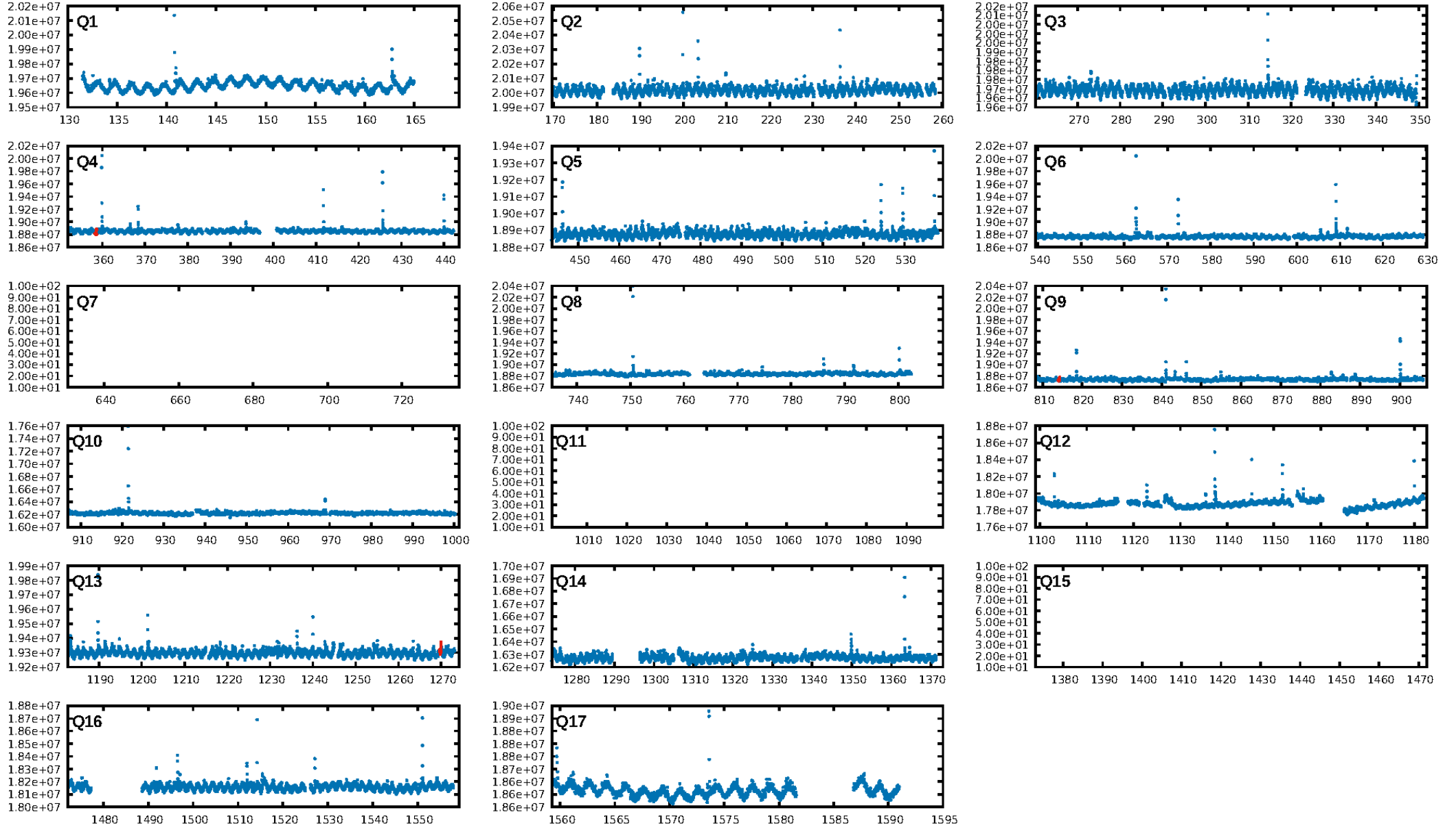
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 5.5%
ModelChiSquareGof-sig: 98.6%
Bootstrap-pfa: 8.28e-11
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 6.81
Centroid-sig: 0.1%
Centroid-so: 2.787 arcsec [2.33 σ]
OotOffset-rm: 0.533 arcsec [1.10 σ]
KicOffset-rm: 0.402 arcsec [0.81 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

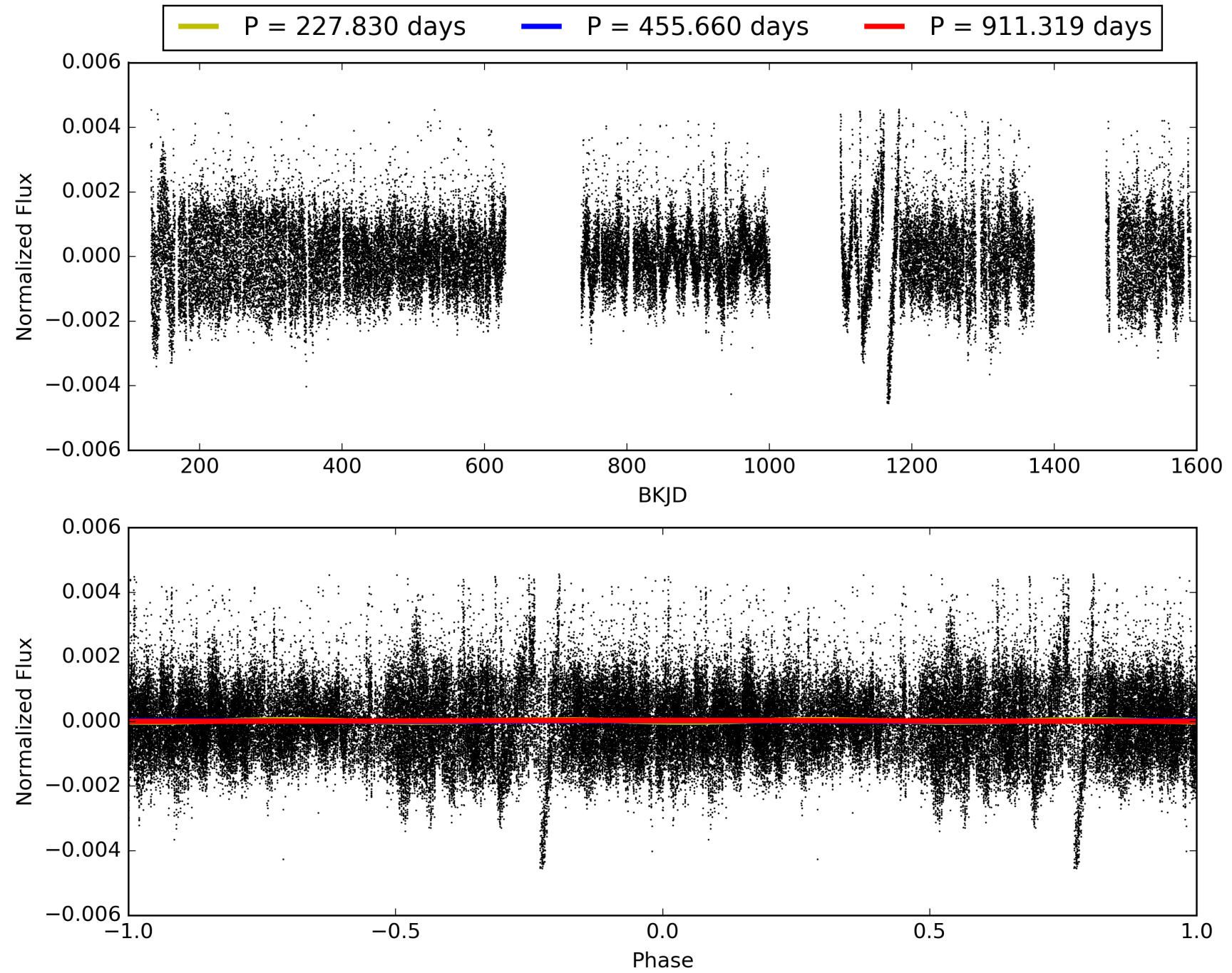
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:12:47 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010872868-01, PDC Light Curves

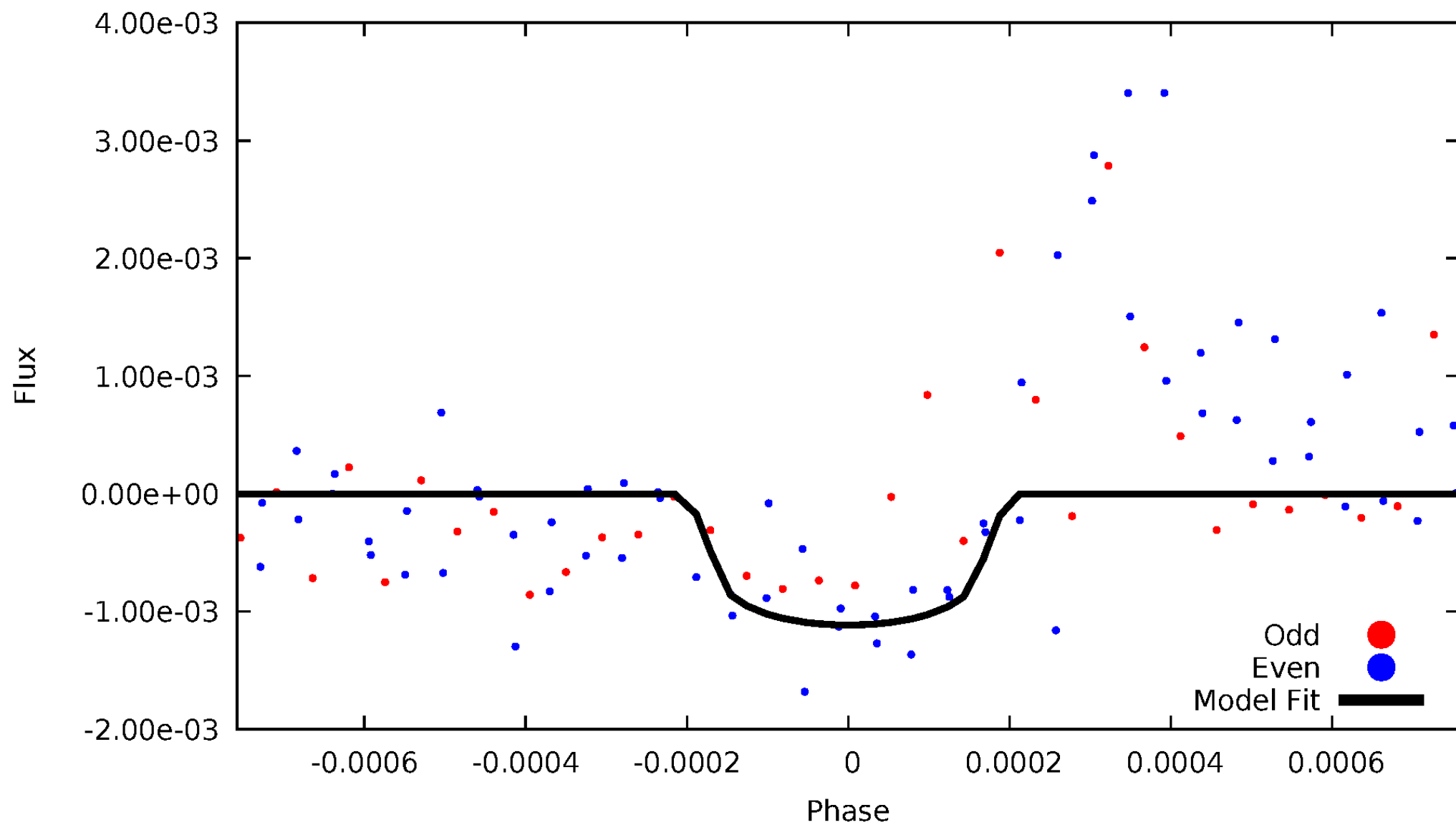


TCE 010872868-01



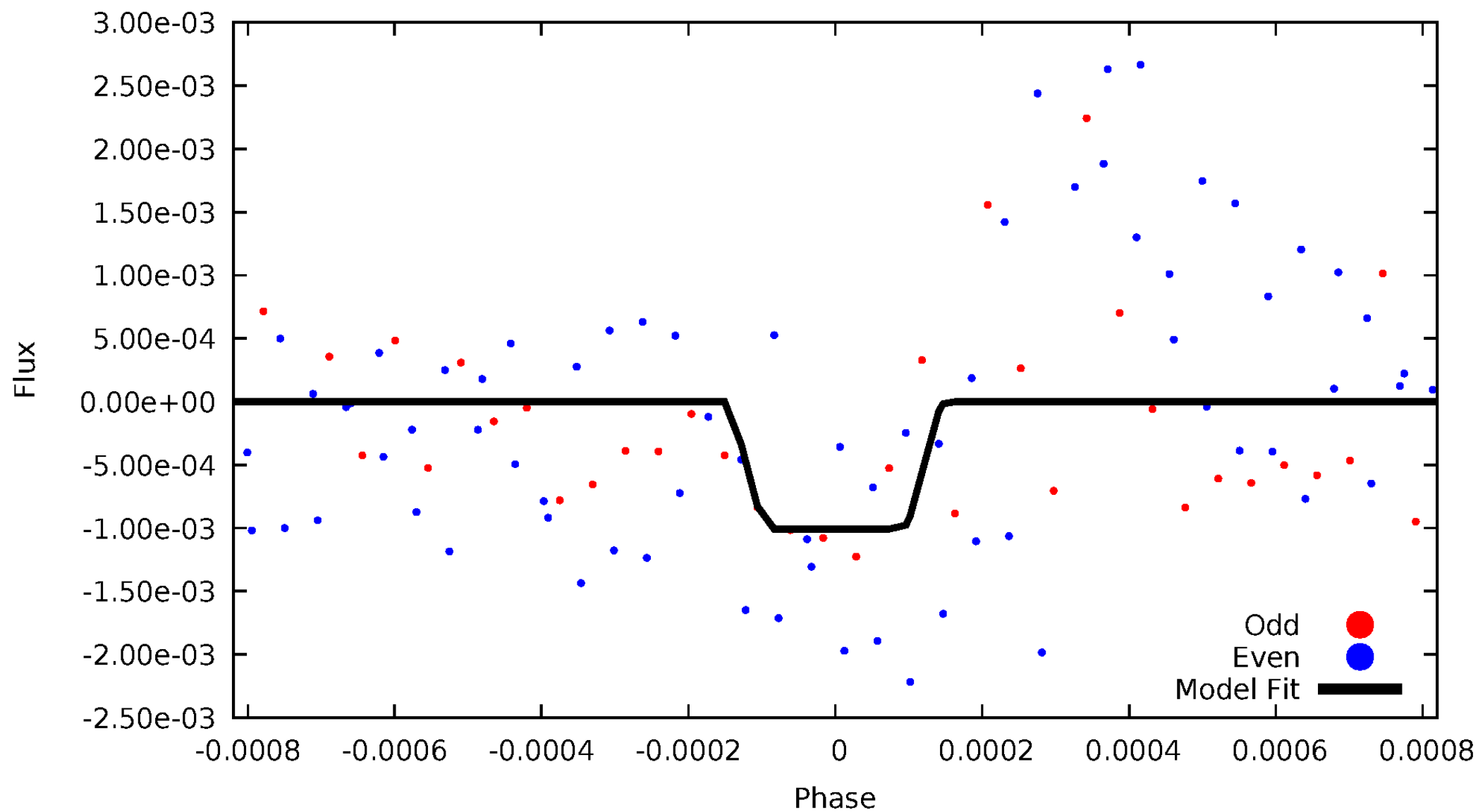
DV Odd/Even

TCE 010872868-01



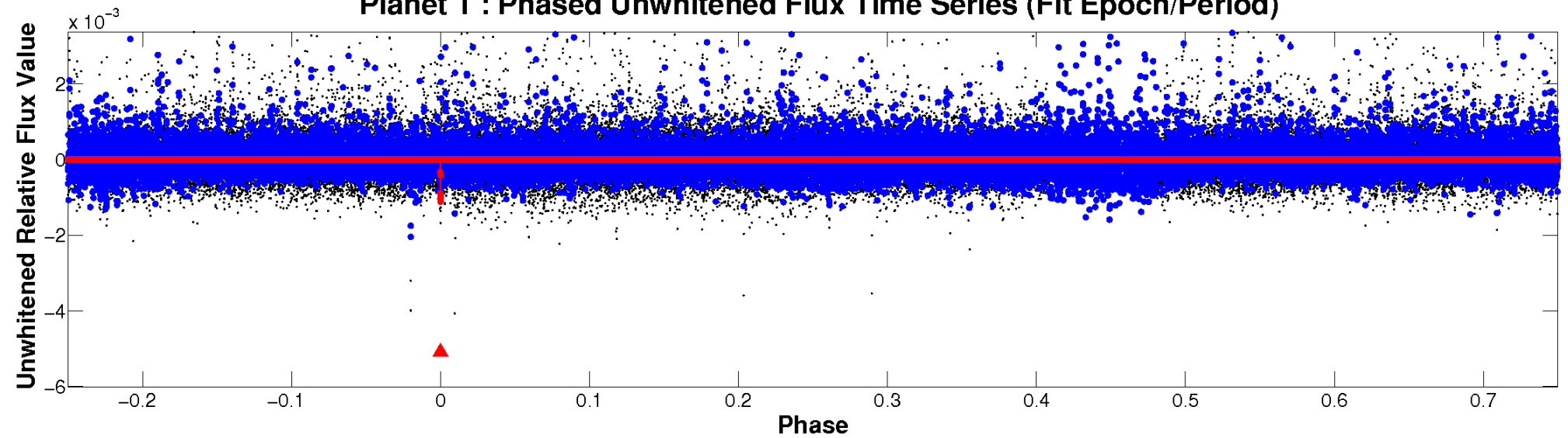
ALT Odd/Even

TCE 010872868-01

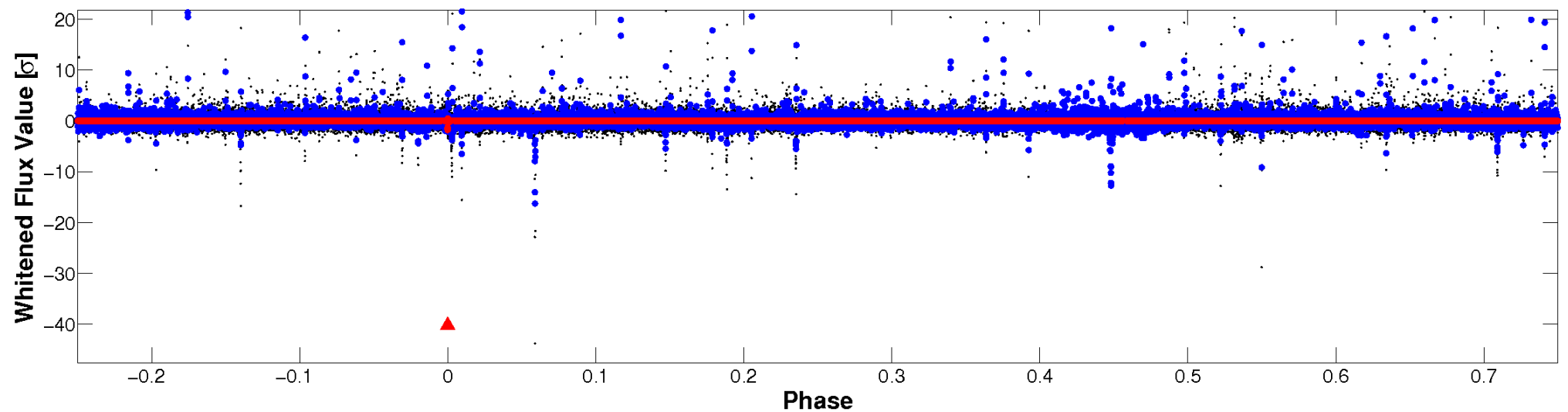


Non-Whitened Vs. Whitened Light Curve

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

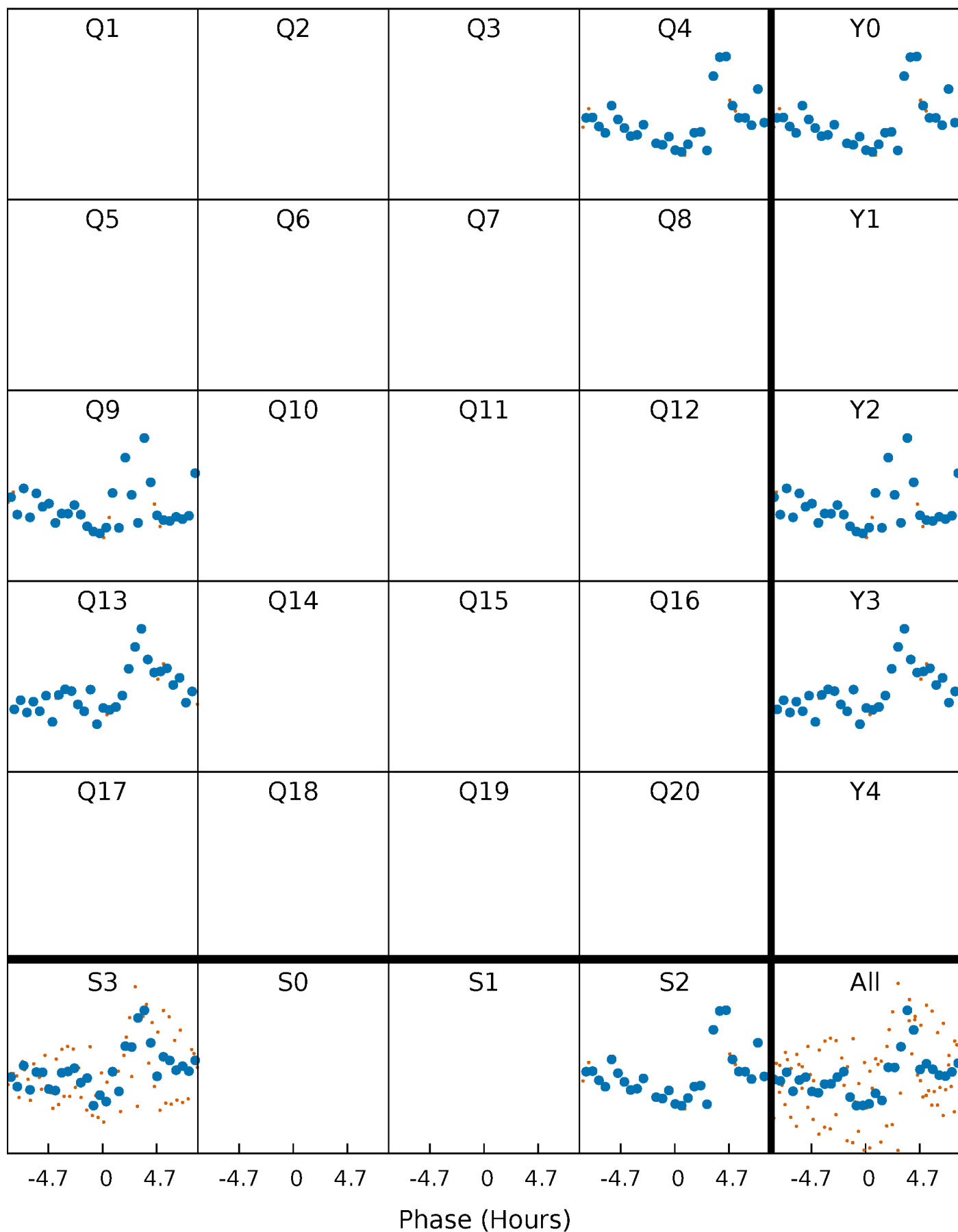


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



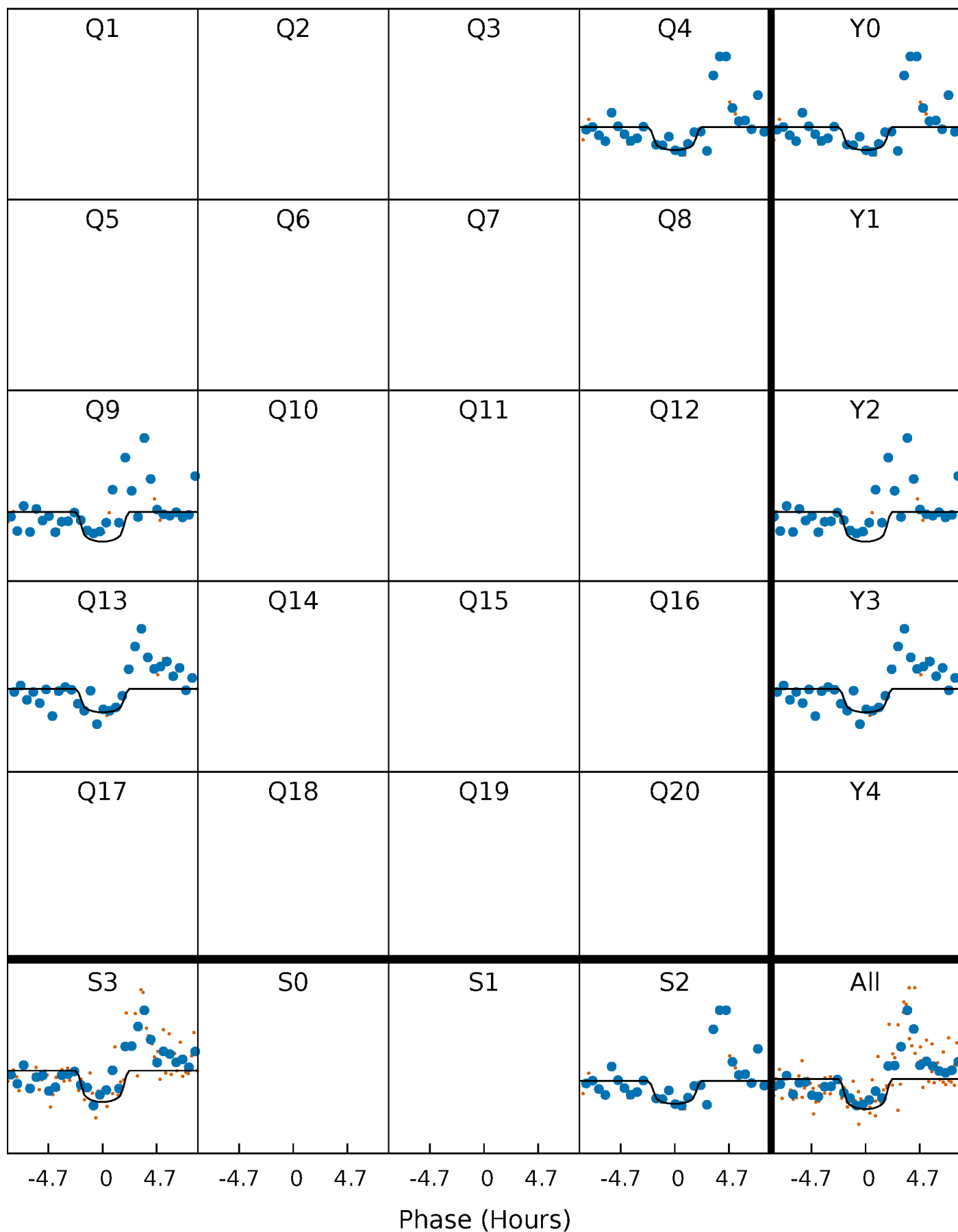
PDC Quarter-Phased Transit Curves

TCE 010872868-01 P=455.659682 Days $T_0=358.471586$ (BKJD)



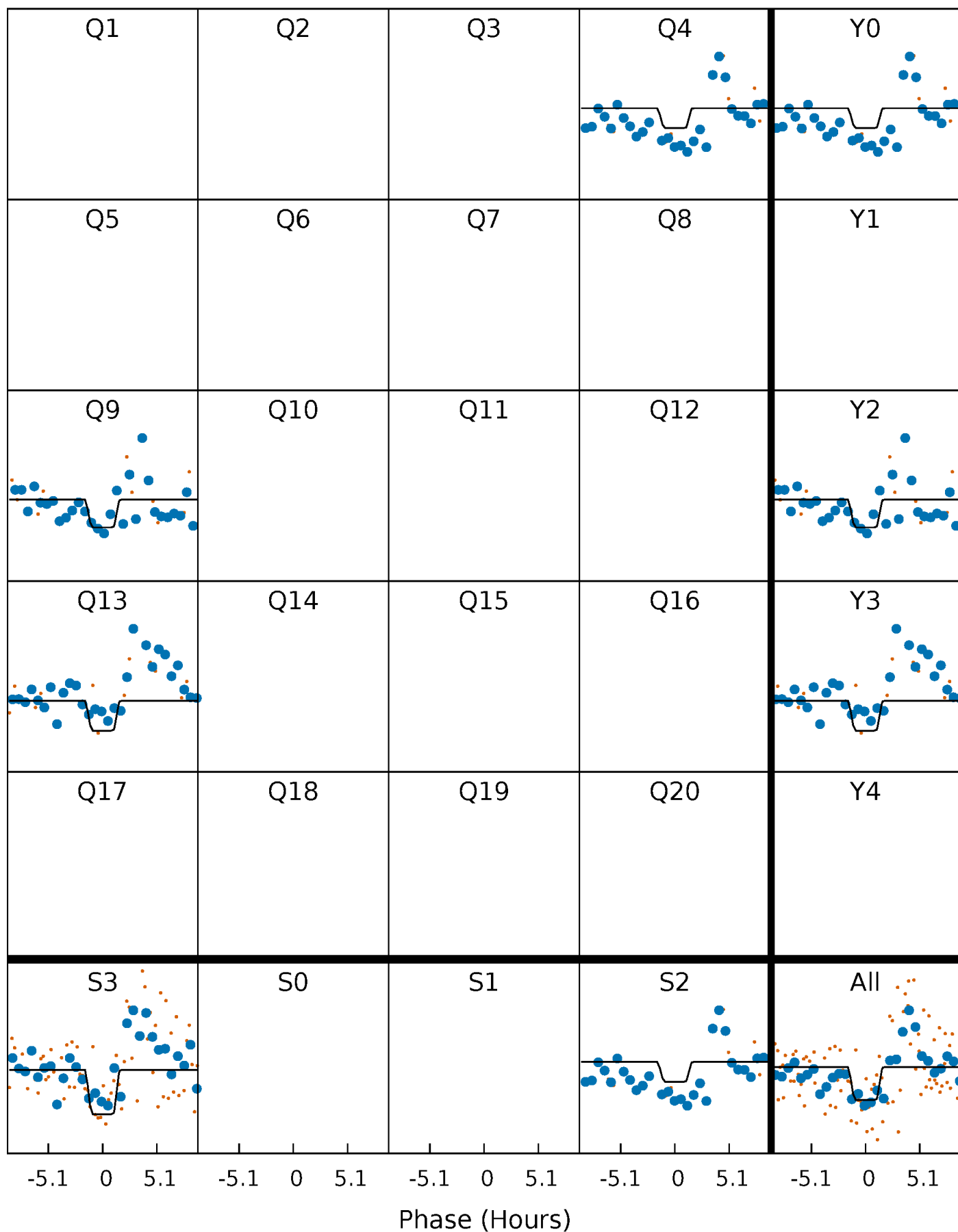
DV Quarter-Phased Transit Curves

TCE 010872868-01 P=455.659682 Days $T_0=358.471586$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

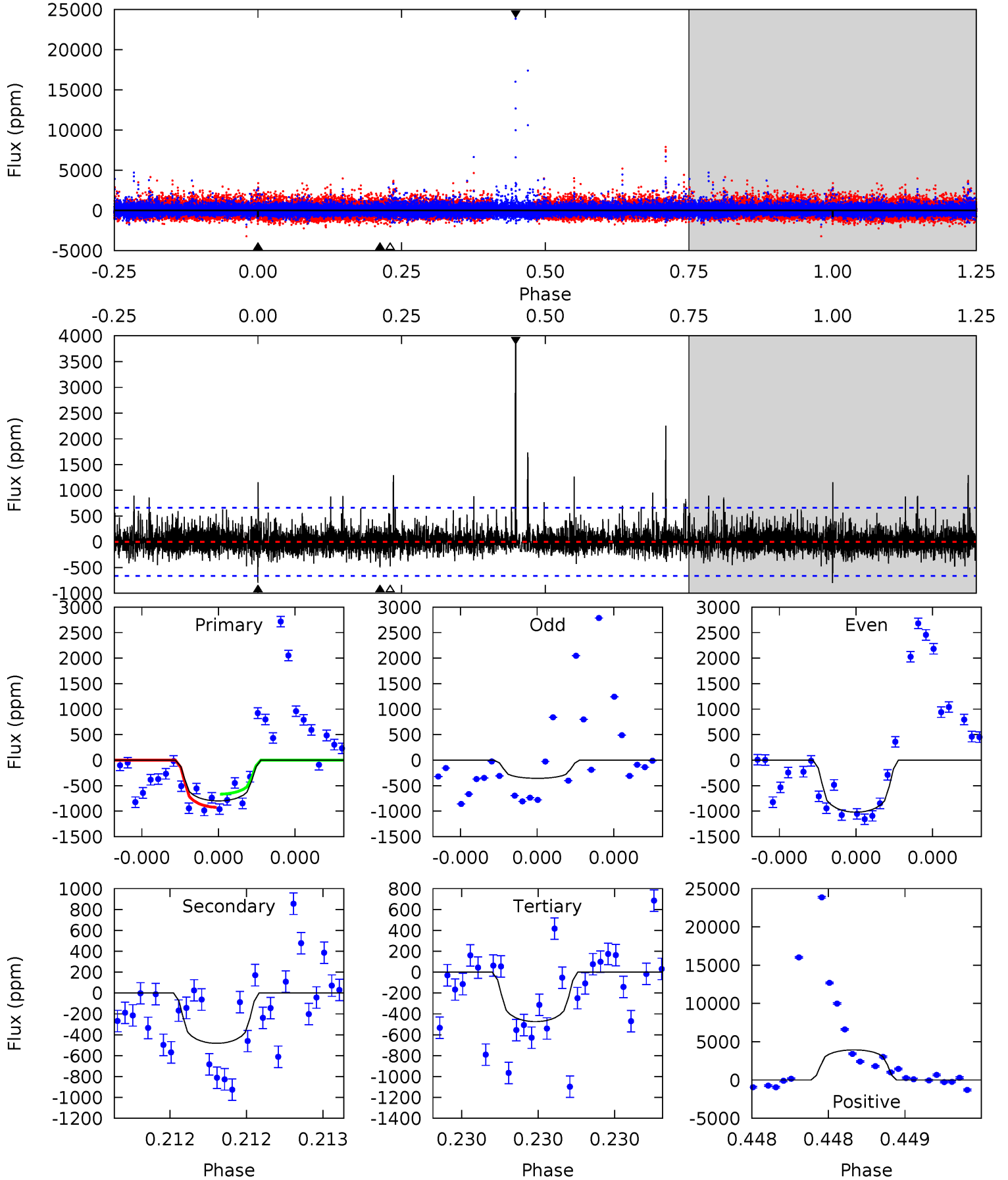
TCE 010872868-01 $P=455.661577$ Days $T_0=358.460599$ (BKJD)



DV Model-Shift Uniqueness Test

010872868-01, P = 455.659682 Days, E = 358.471586 Days

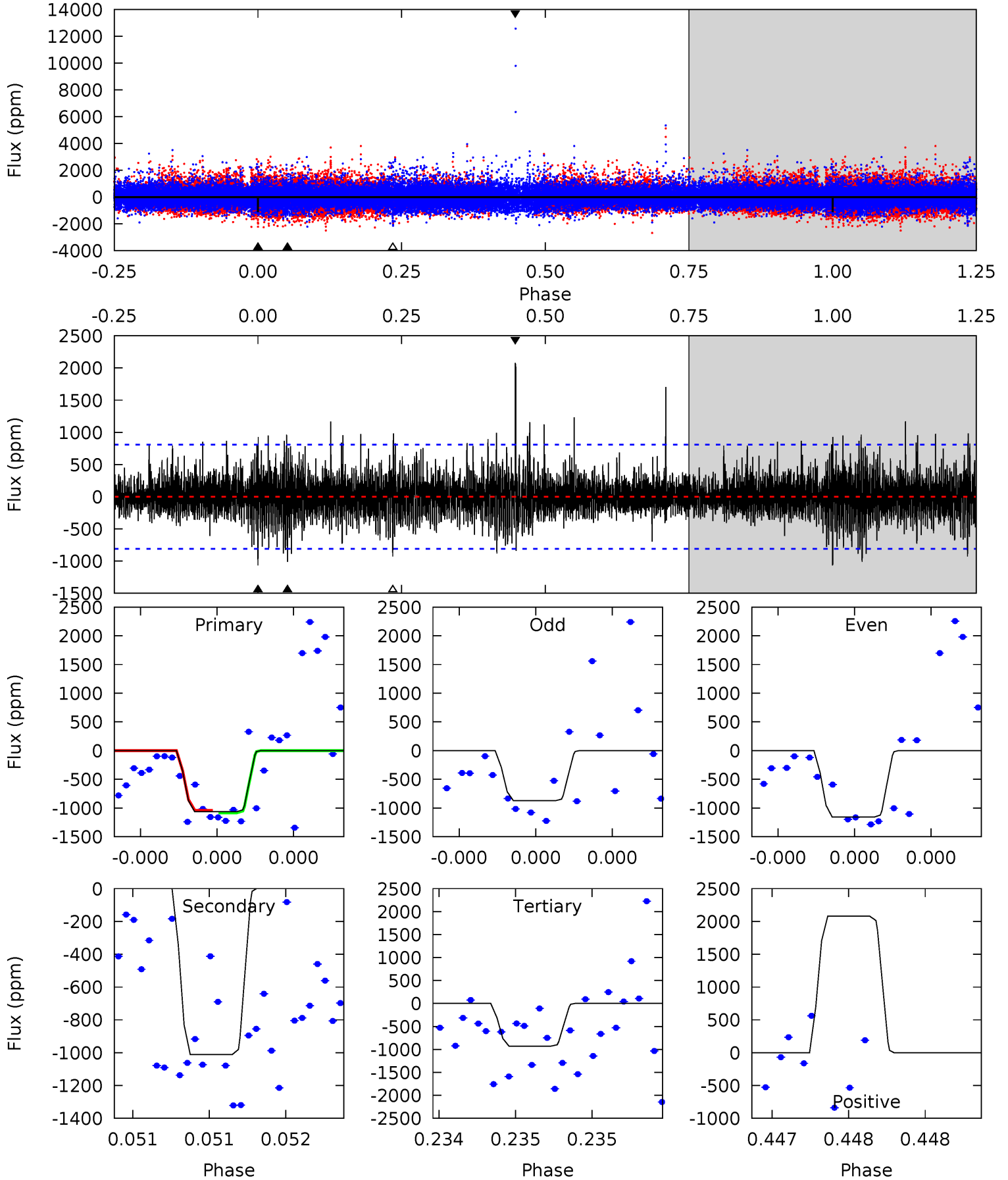
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.77	4.09	4.02	33.4	5.62	3.55	1.58	2.75	-26.6	0.07	-29.3	1.43	0.80	0.83	1.10



Alt Model-Shift Uniqueness Test

010872868-01, P = 455.661577 Days, E = 358.460599 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.46	7.09	6.50	14.6	5.67	3.63	1.64	0.96	-7.11	0.59	-7.48	0.91	1.22	0.66	0.16



Stellar Parameters For KIC 010872868

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3430^{+44}_{-41}	$4.937^{+0.044}_{-0.032}$	$-0.100^{+0.100}_{-0.100}$	$0.313^{+0.034}_{-0.034}$	$0.310^{+0.045}_{-0.038}$	$14.200^{+3.434}_{-2.309}$
	+1%/-1%	+1%/-1%	+100%/-100%	+11%/-11%	+15%/-12%	+24%/-16%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010872868-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-482 ± 118	$4.52^{+4.61}_{-3.17}$	133^{+3}_{-3}	2153^{+729}_{-306}	8016^{+76263}_{-6233}
Alt.	-1012 ± 143	$4.64^{+4.77}_{-3.32}$	133^{+3}_{-3}	2318^{+914}_{-327}	$15635^{+175389}_{-11801}$

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 $A_{\text{obs}} \gg 1.0$

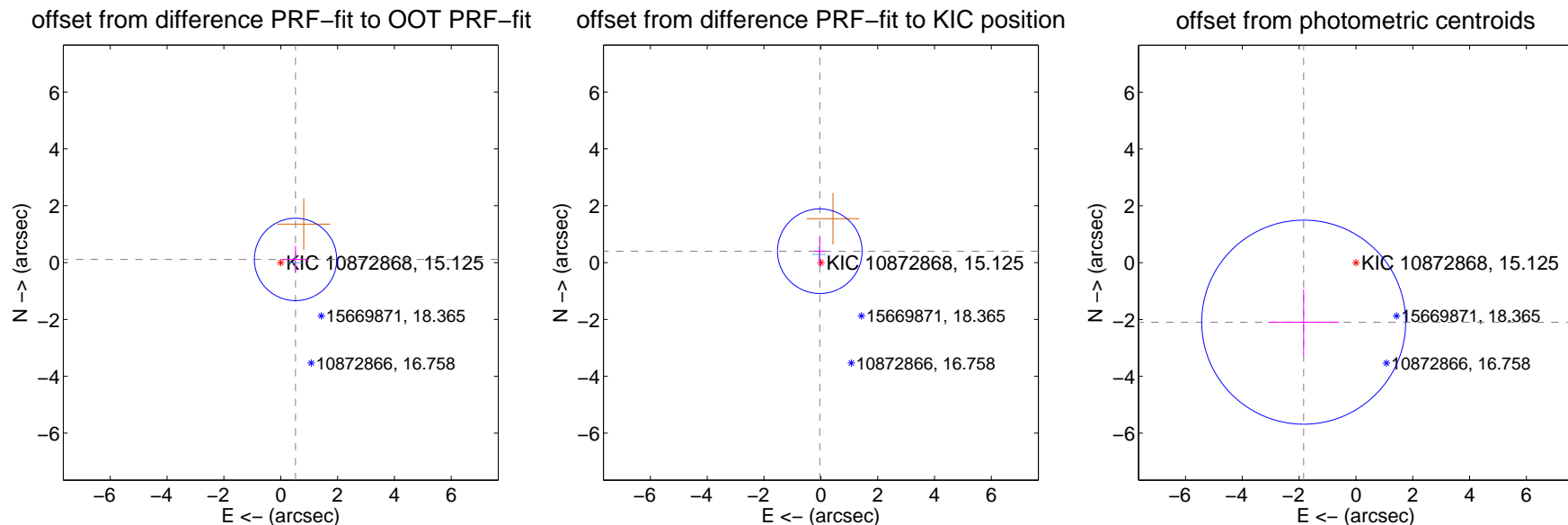
DV Centroid Data

Supplemental centroid analysis for 010872868-01. Kepler magnitude: 15.12. Transit SNR 7.48

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.533 ± 0.483	1.10	-0.521 ± 0.483	0.112 ± 0.478
PRF-fit source offset from KIC position	0.402 ± 0.496	0.81	0.037 ± 0.213	0.400 ± 0.517
photometric centroid source offset	2.79 ± 1.20	2.33	1.84 ± 1.24	-2.09 ± 1.16



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 no difference image



Q2 no OOT image



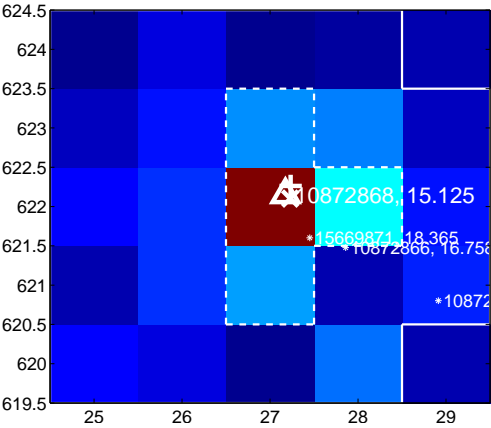
Q3 no difference image



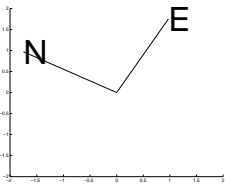
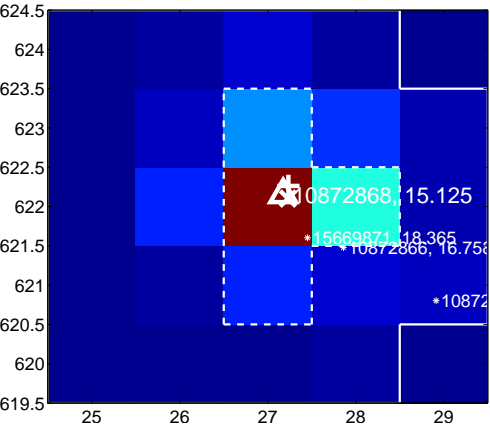
Q3 no OOT image



Q4 difference image



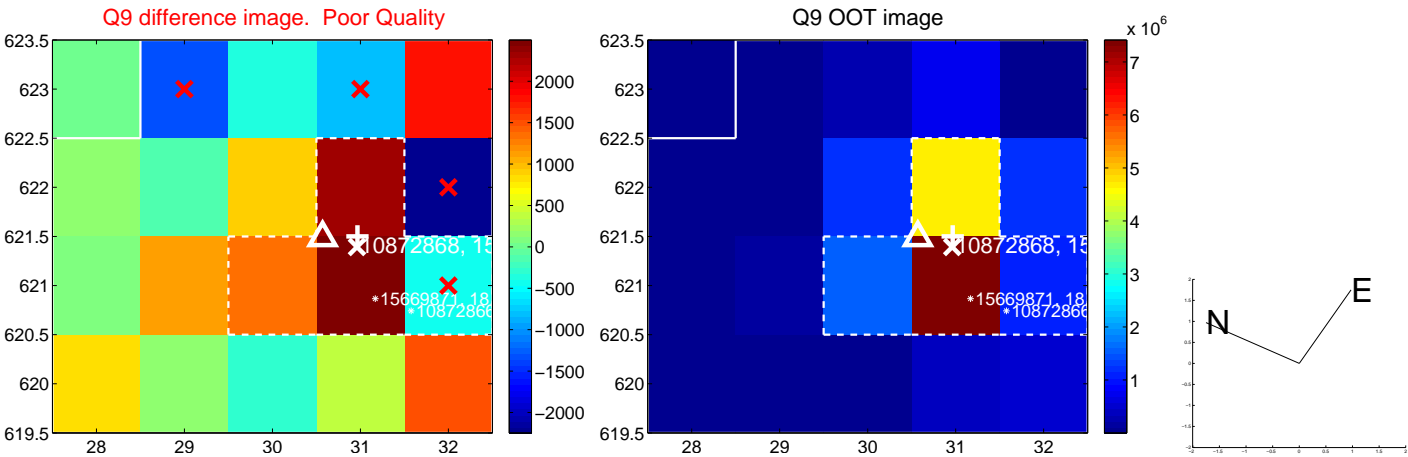
Q4 OOT image



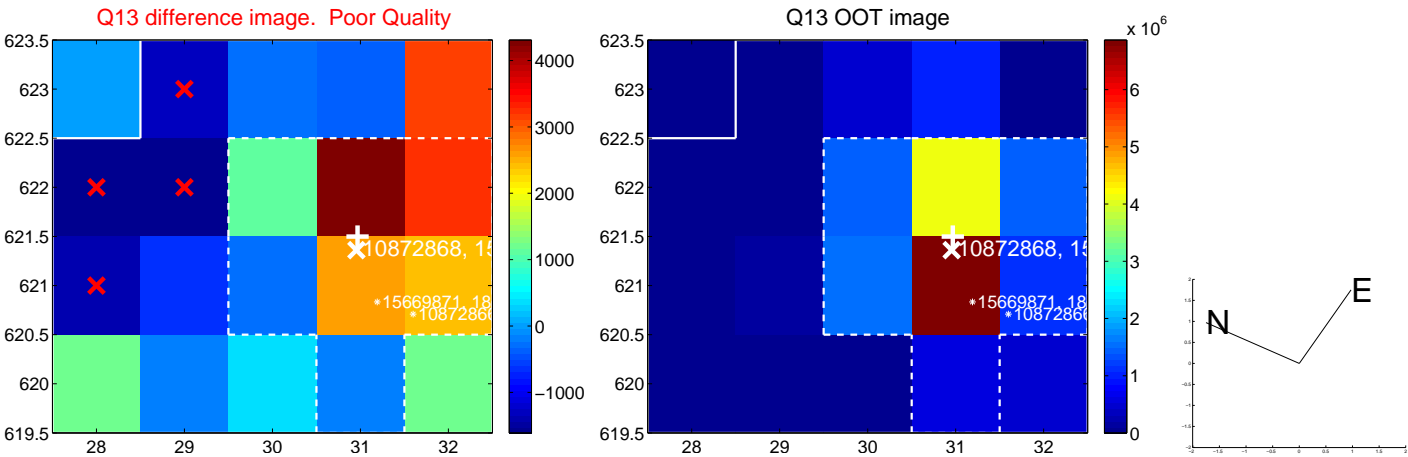
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



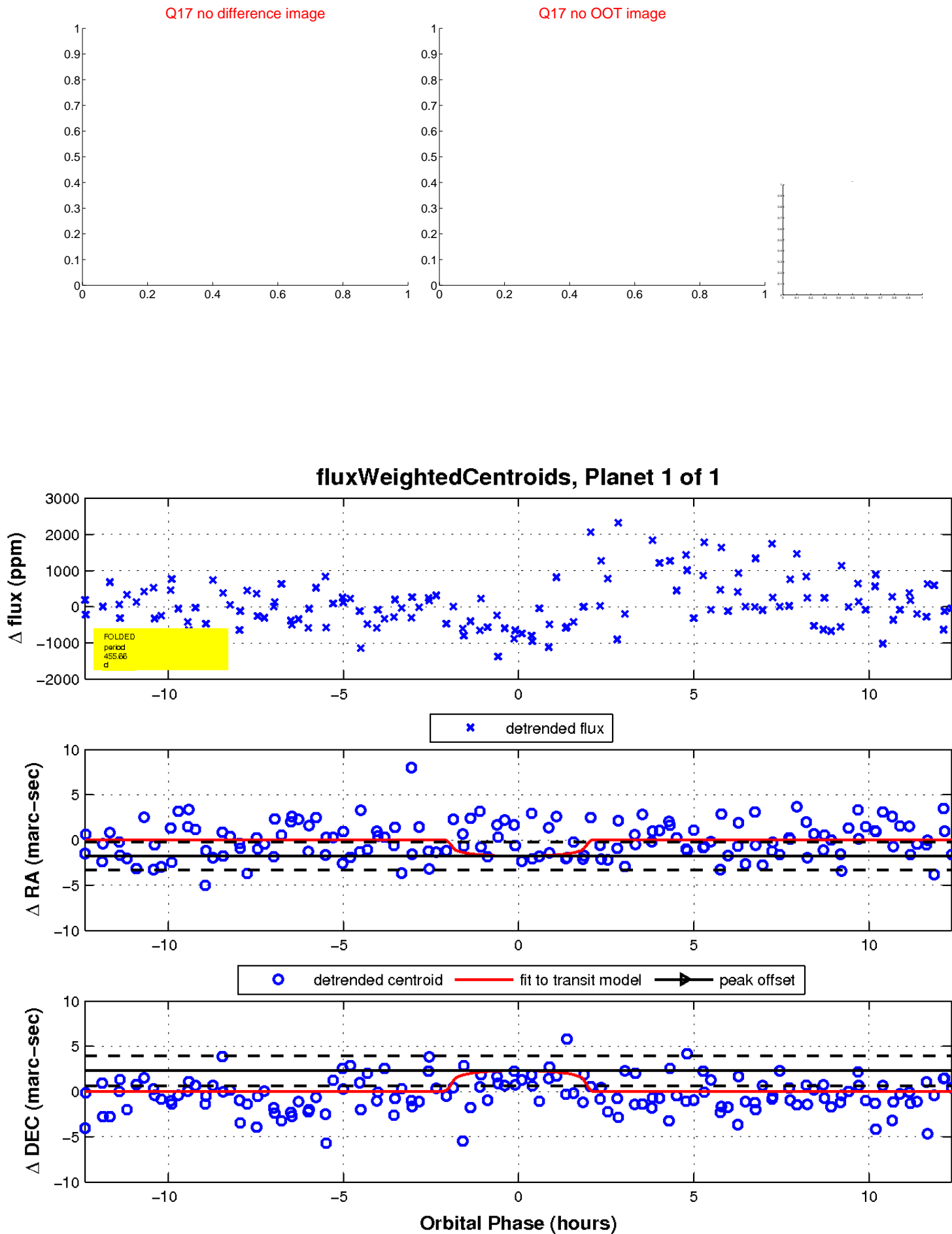
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

