

KIC 010068002

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})
010068002-01	OBS	No	516.550240	253.525467	721.9	10.870	9.1	9.5	0.74	4783	2.11	0.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010068002-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

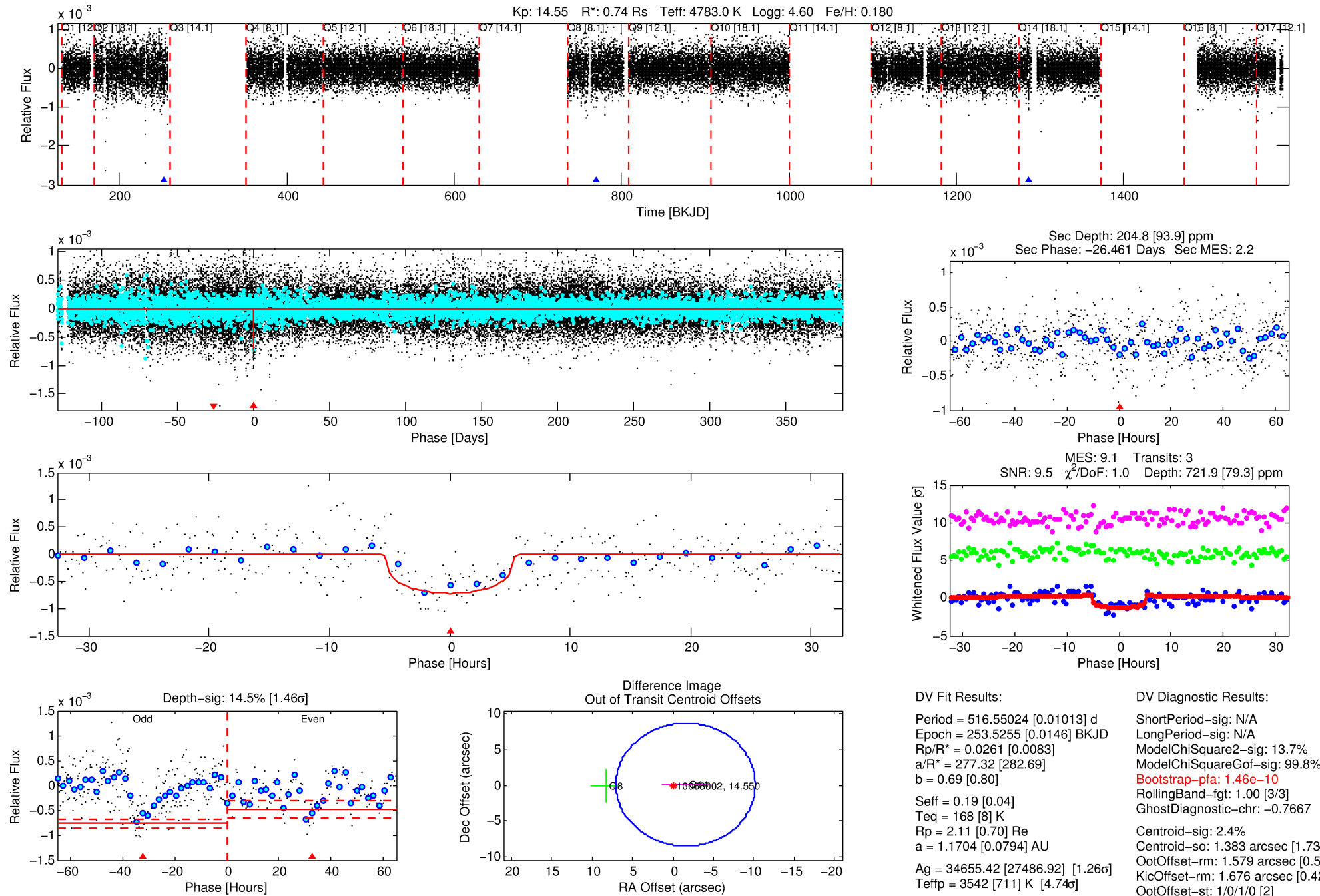
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010068002-01

No Significant Match Found

DV One-Page Summary

KIC: 10068002 Candidate: 1 of 1 Period: 516.550 d



DV Fit Results:

Period = 516.55024 [0.01013] d
Epoch = 253.5255 [0.0146] BKJD
Rp/R* = 0.0261 [0.0083]
a/R* = 277.32 [282.69]
b = 0.69 [0.80]
Seff = 0.19 [0.04]
Teq = 168 [8] K
Rp = 2.11 [0.70] Re
a = 1.1704 [0.0794] AU
Ag = 34655.42 [27486.92] [1.26 σ]
Teff = 3542 [711] K [4.74 σ]

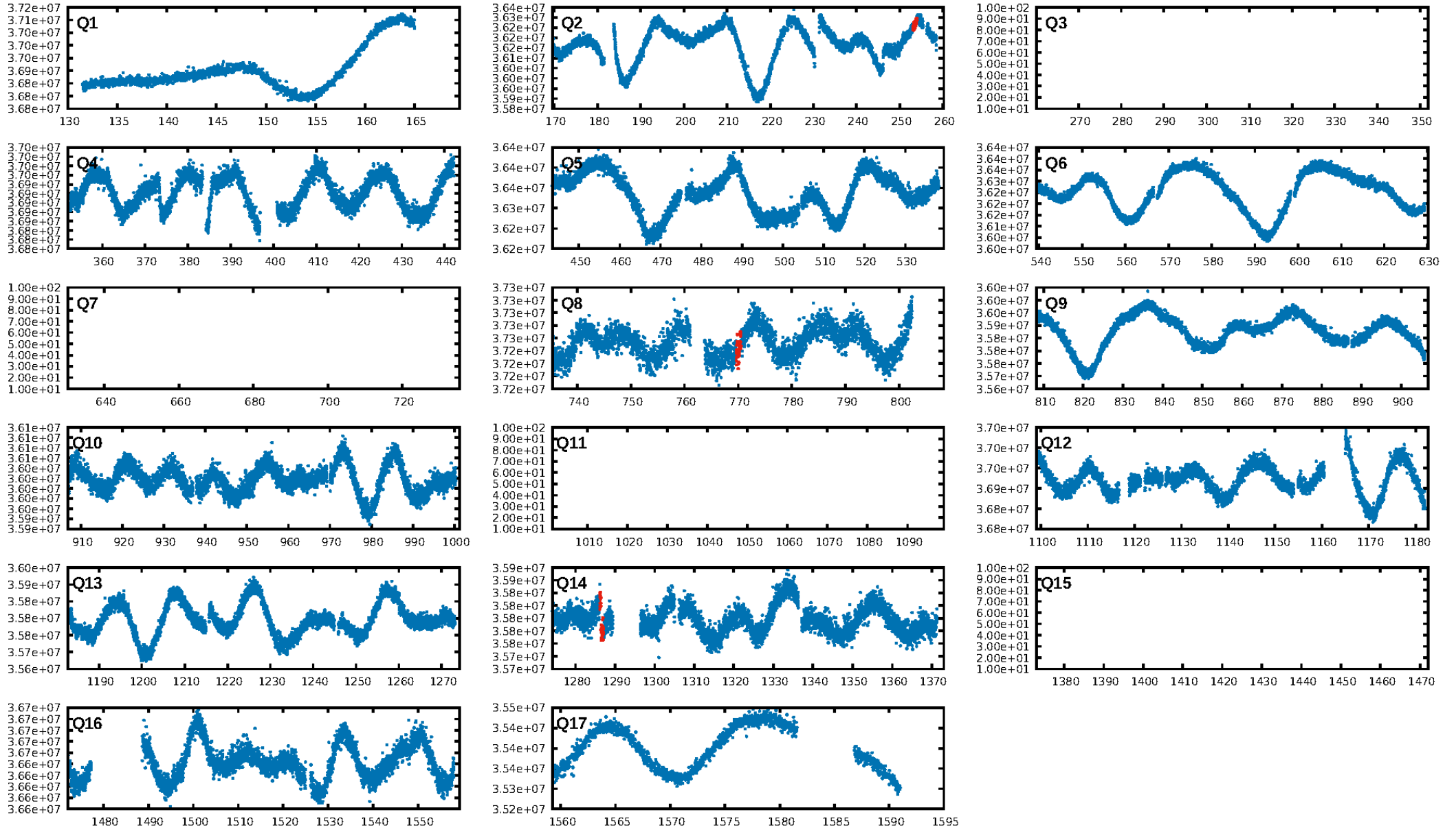
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.7%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 1.46e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.7667
Centroid-sig: 2.4%
Centroid-so: 1.383 arcsec [1.73 σ]
OotOffset-rm: 1.579 arcsec [0.55 σ]
KicOffset-rm: 1.676 arcsec [0.42 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

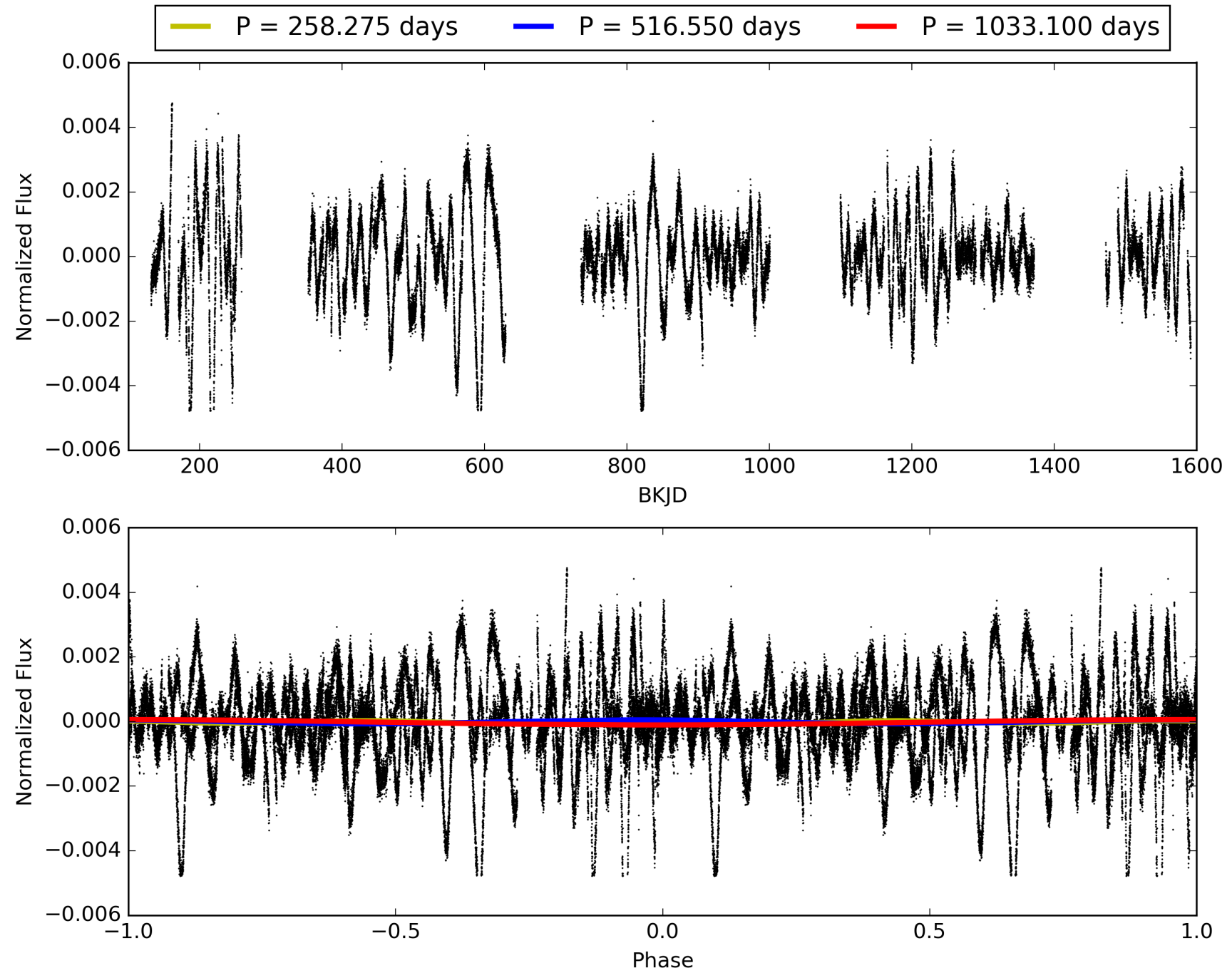
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:52:22 Z

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

TCE 010068002-01, PDC Light Curves

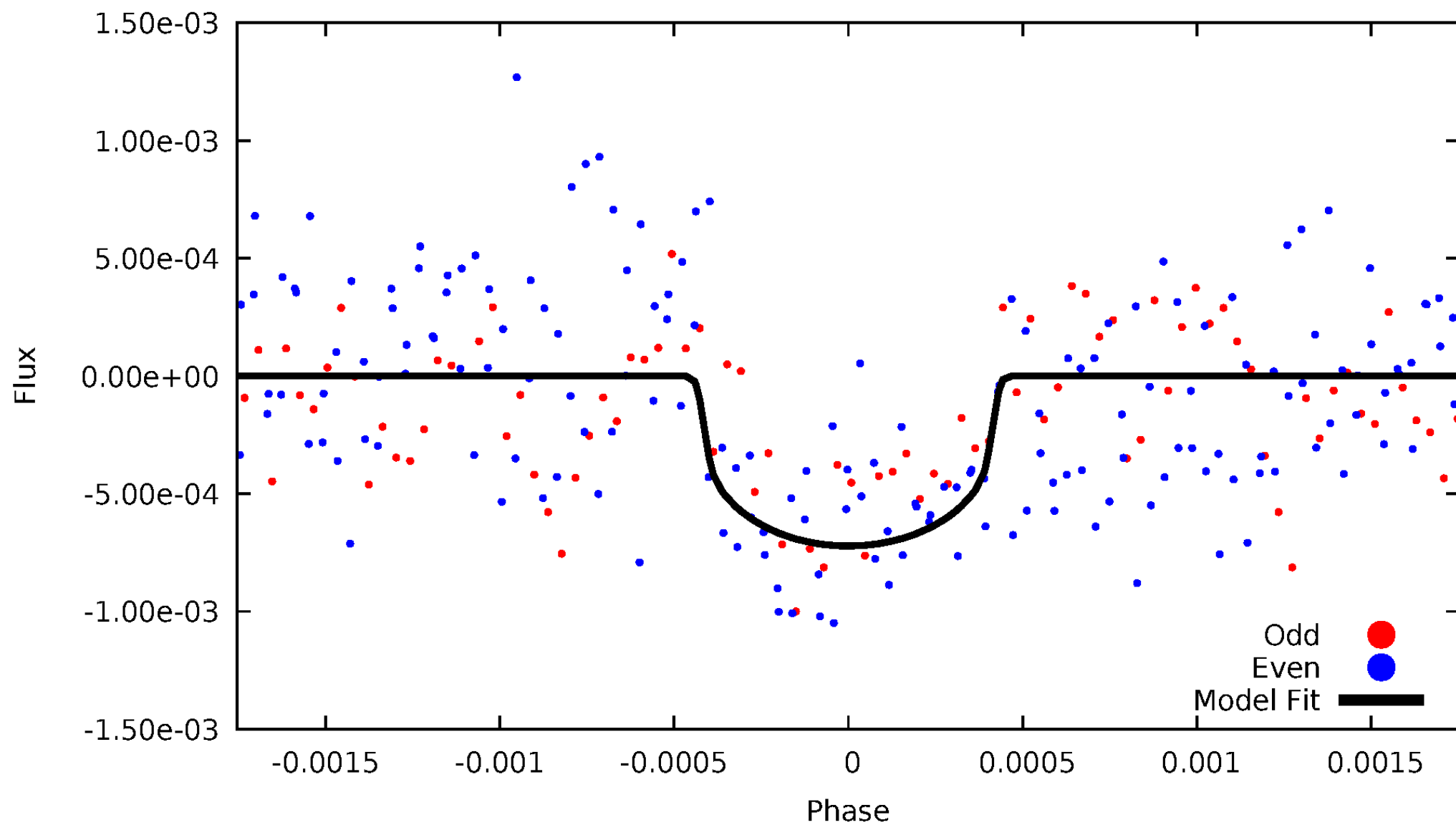


TCE 010068002-01



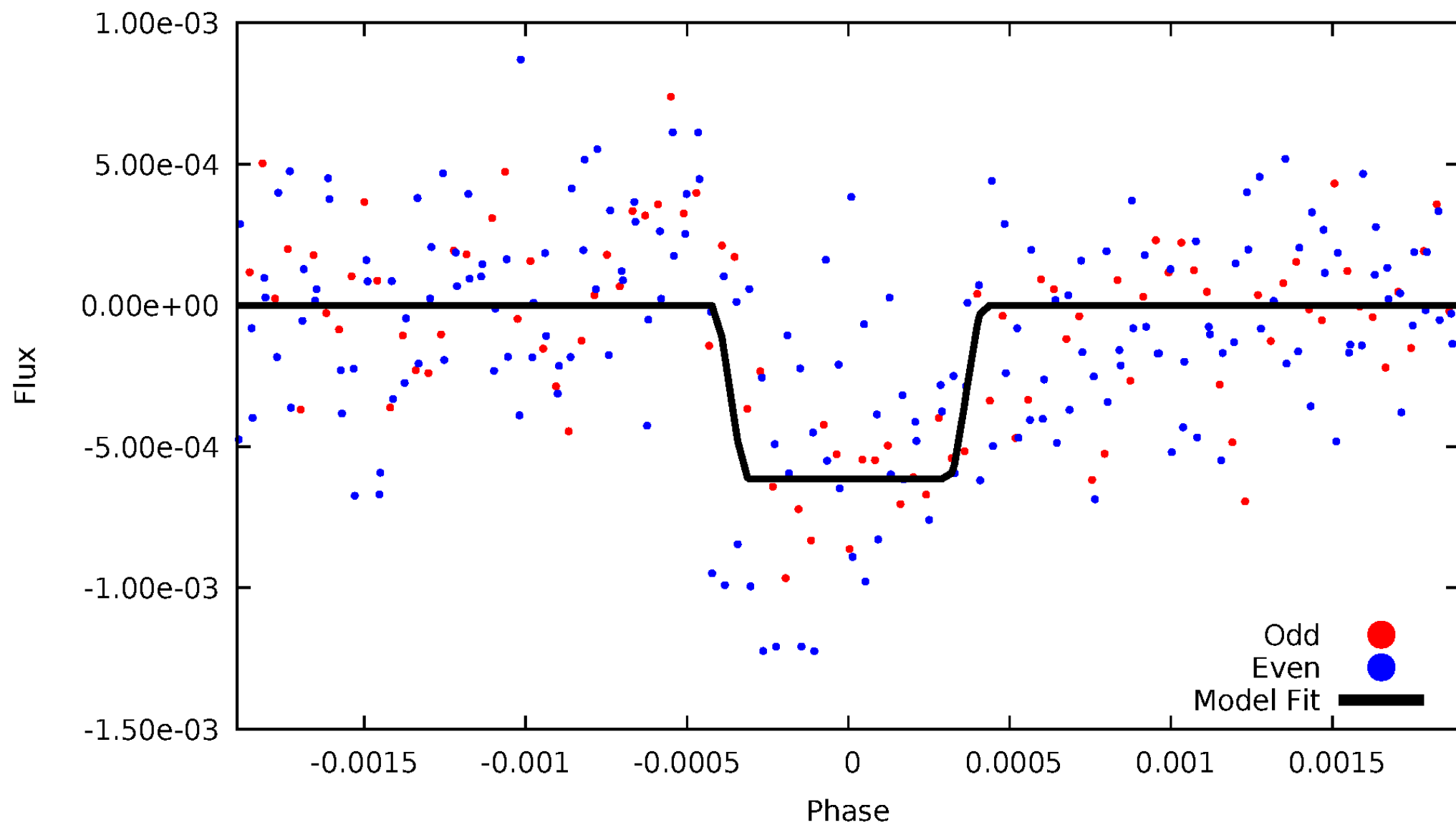
DV Odd/Even

TCE 010068002-01



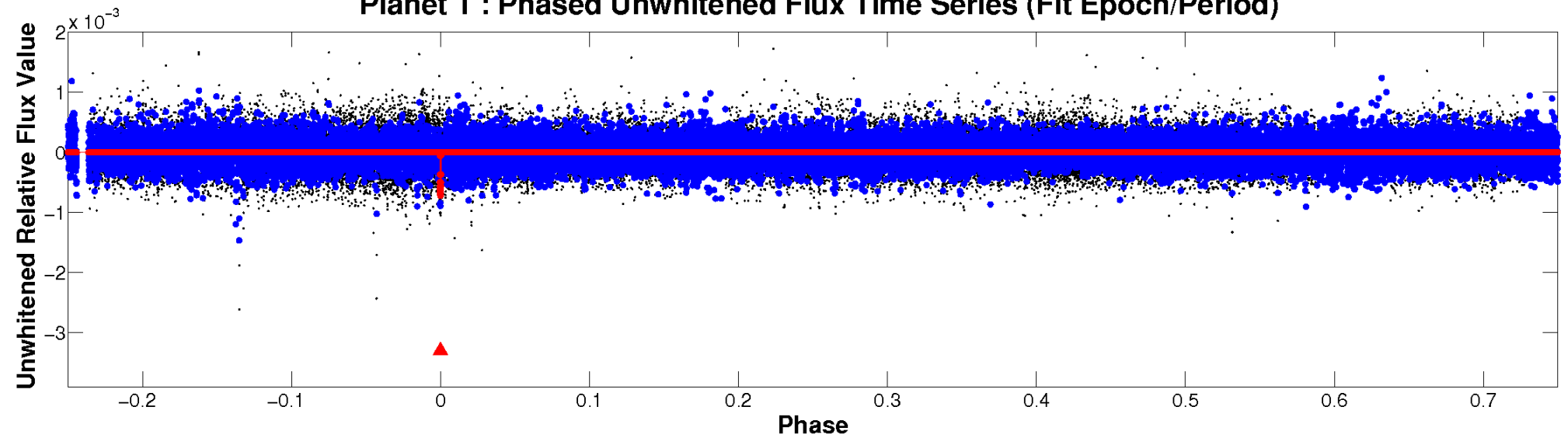
ALT Odd/Even

TCE 010068002-01

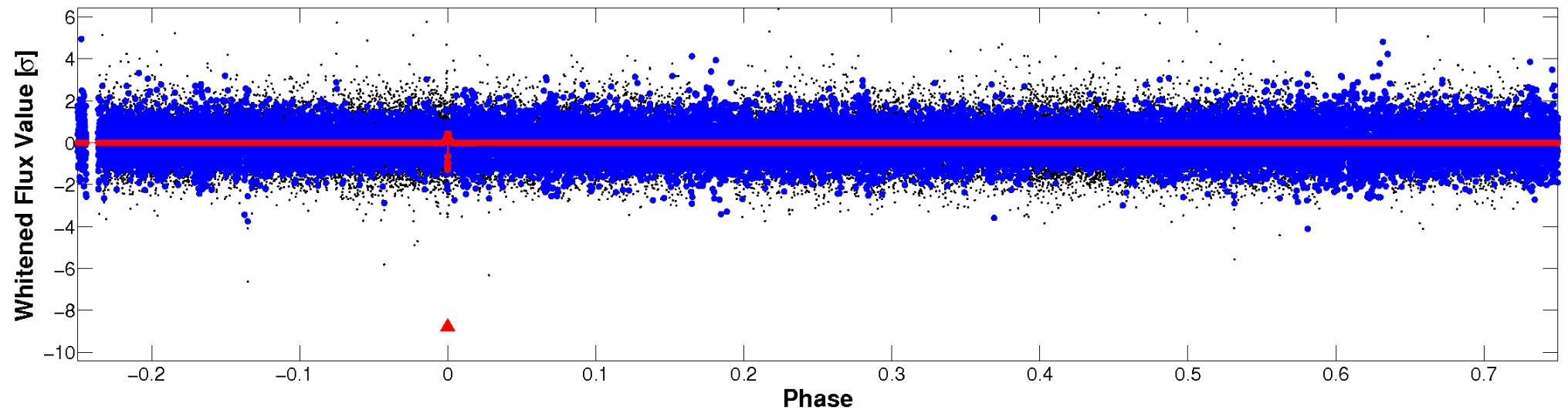


Non-Whitened Vs. Whitened Light Curve

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

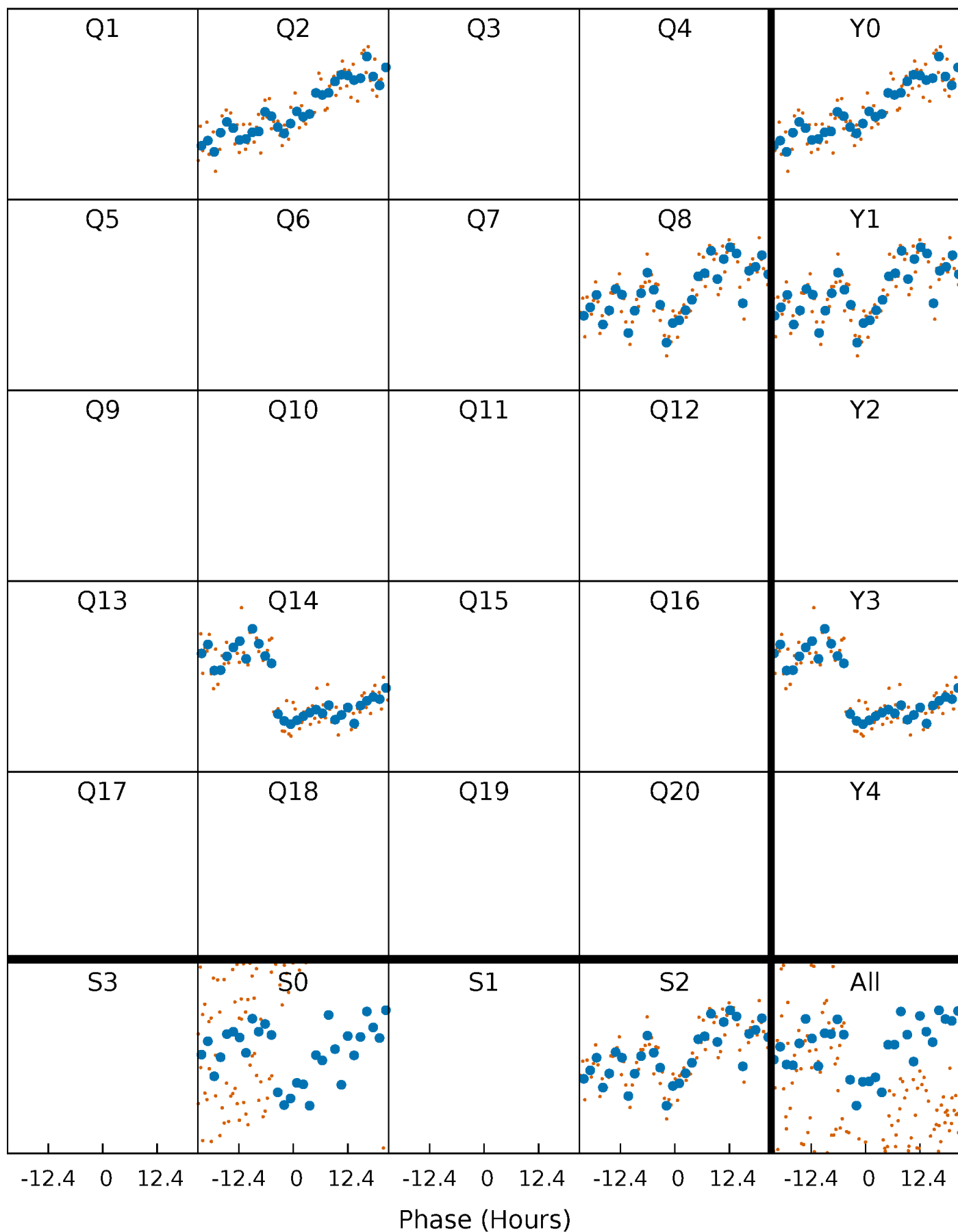


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



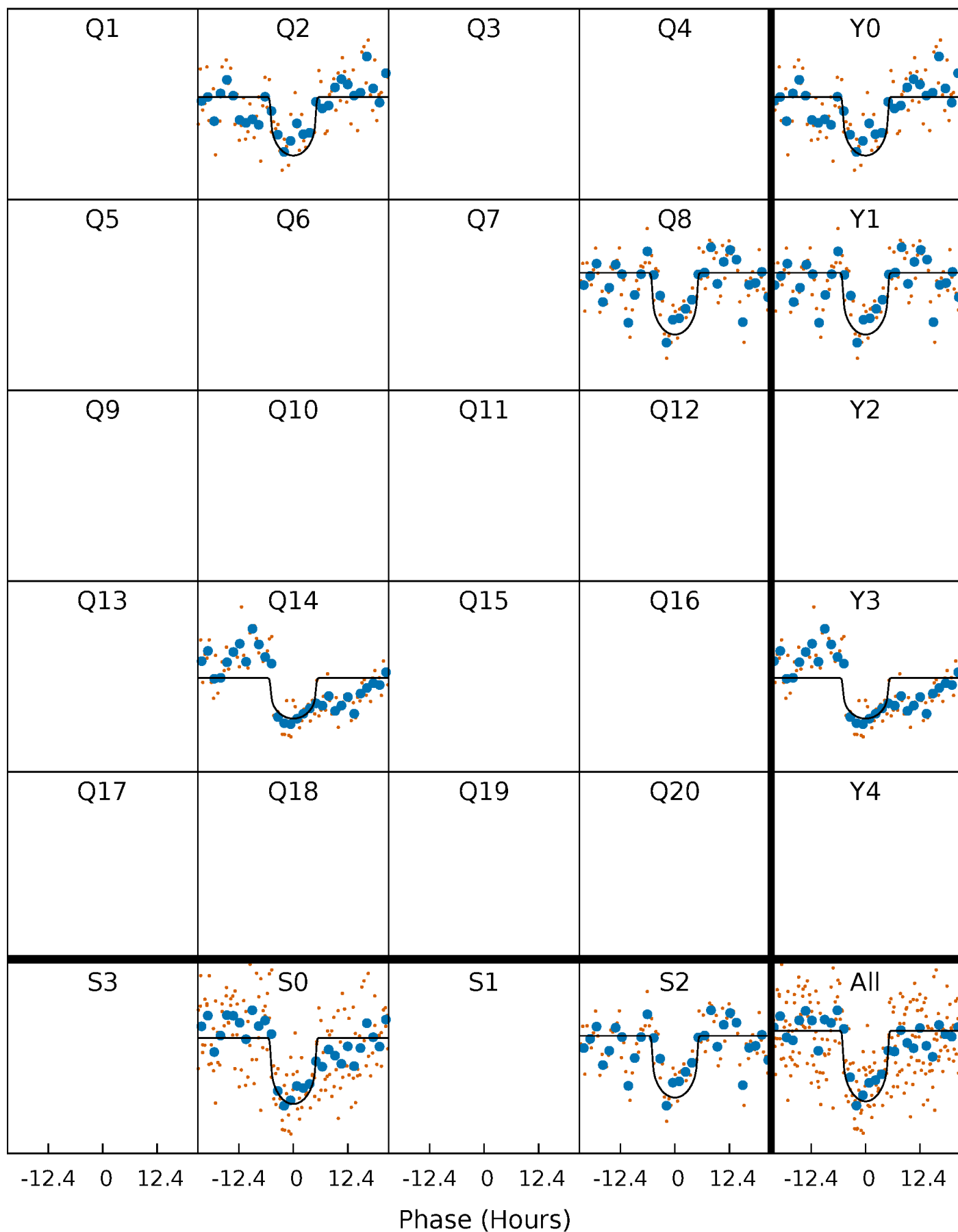
PDC Quarter-Phased Transit Curves

TCE 010068002-01 P=516.550240 Days $T_0=253.525467$ (BKJD)



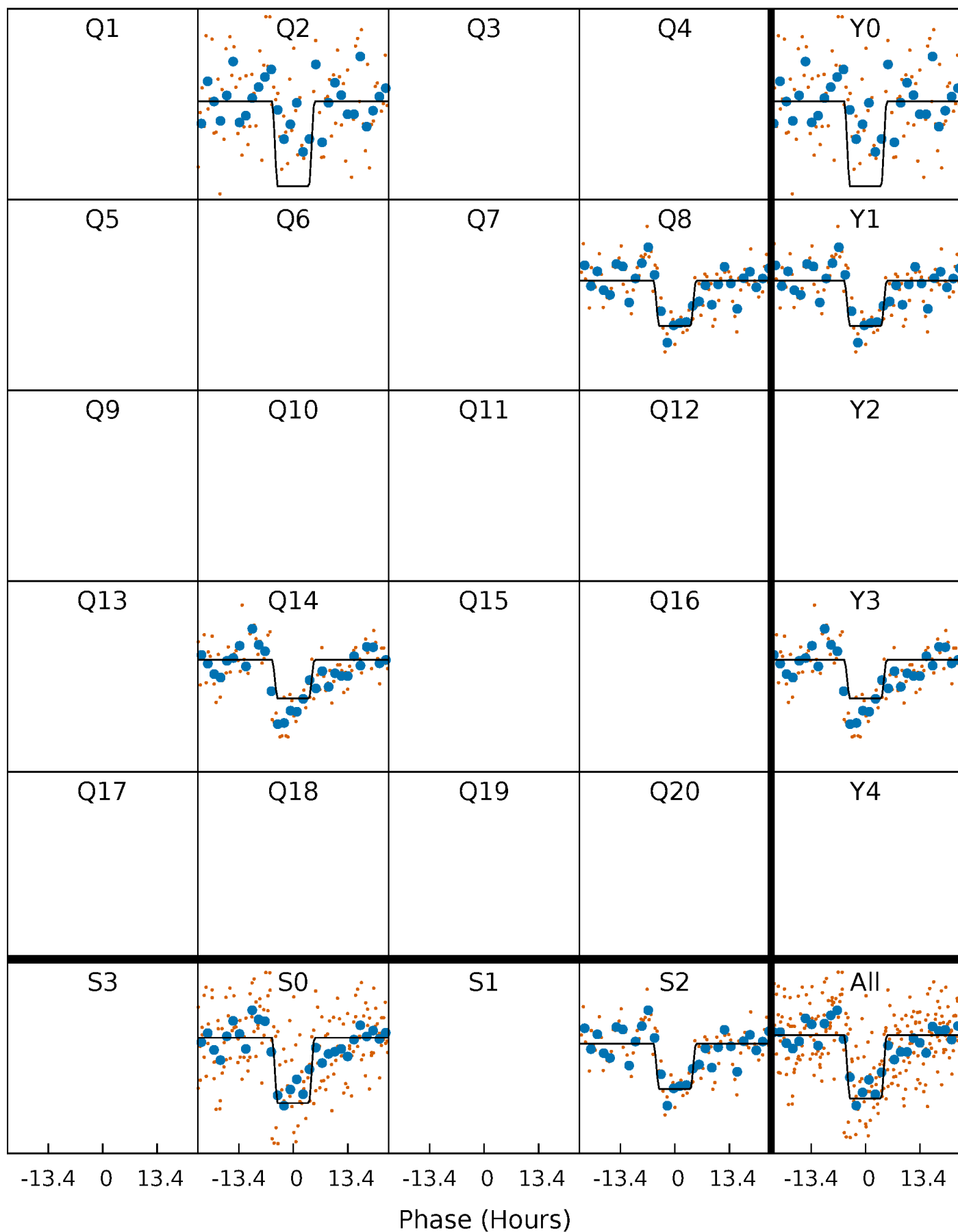
DV Quarter-Phased Transit Curves

TCE 010068002-01 P=516.550240 Days $T_0=253.525467$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

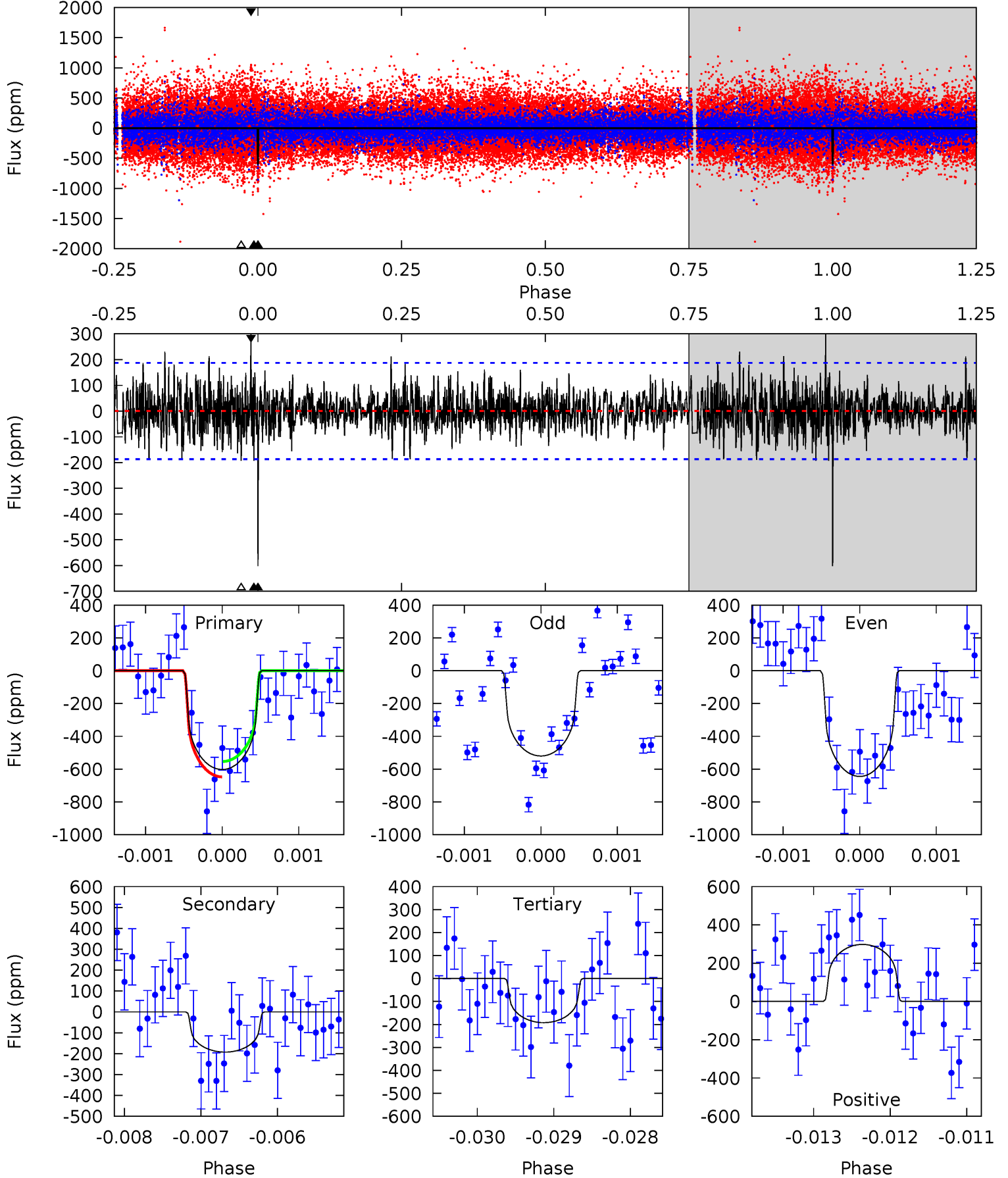
TCE 010068002-01 P=516.560397 Days $T_0=253.538134$ (BKJD)



DV Model-Shift Uniqueness Test

010068002-01, P = 516.550240 Days, E = 253.525467 Days

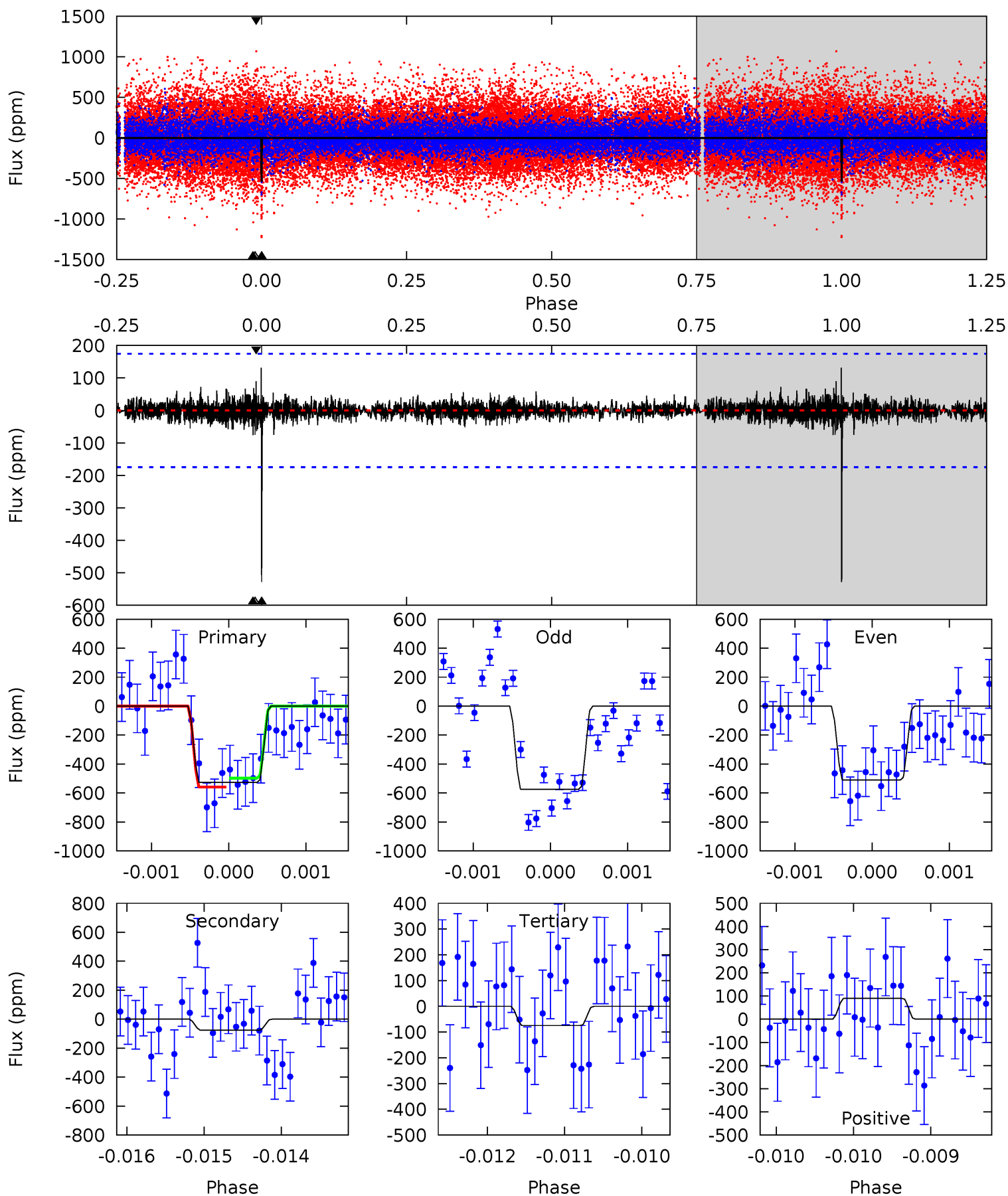
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	5.63	5.63	8.72	5.47	3.32	1.65	12.0	8.91	0.01	-3.09	1.76	1.12	0.33	1.37



Alt Model-Shift Uniqueness Test

010068002-01, P = 516.560397 Days, E = 253.538134 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	2.40	2.34	2.83	5.49	3.35	0.50	14.3	13.8	0.05	-0.43	0.98	0.91	0.20	0.96



Stellar Parameters For KIC 010068002

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4783^{+191}_{-191}	$4.602^{+0.028}_{-0.052}$	$0.180^{+0.200}_{-0.300}$	$0.741^{+0.061}_{-0.055}$	$0.805^{+0.047}_{-0.077}$	$2.788^{+0.470}_{-0.523}$
	+4%/-4%	+1%/-1%	+111%/-167%	+8%/-7%	+6%/-10%	+17%/-19%
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 010068002-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-193 ± 34	$2.18^{+0.70}_{-0.72}$	237^{+10}_{-10}	3762^{+603}_{-367}	30166^{+39009}_{-13596}
Alt.	-76 ± 32	$2.05^{+0.69}_{-0.71}$	235^{+11}_{-10}	3286^{+532}_{-379}	12915^{+19153}_{-7020}

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

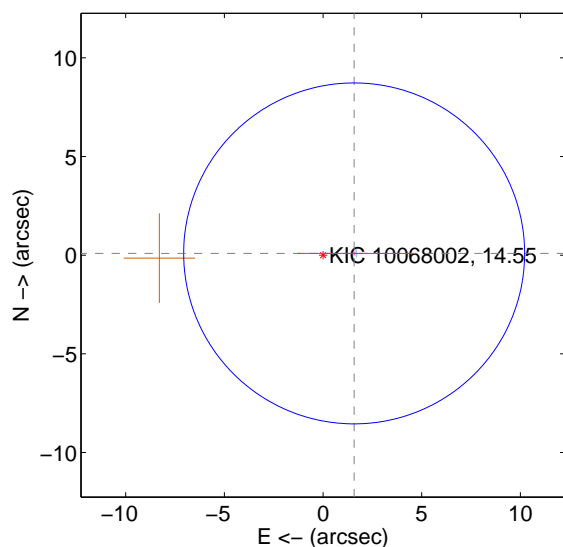
Supplemental centroid analysis for 010068002-01. Kepler magnitude: 14.55. Transit SNR 9.49

There are 1 quarters with good PRF difference image offsets

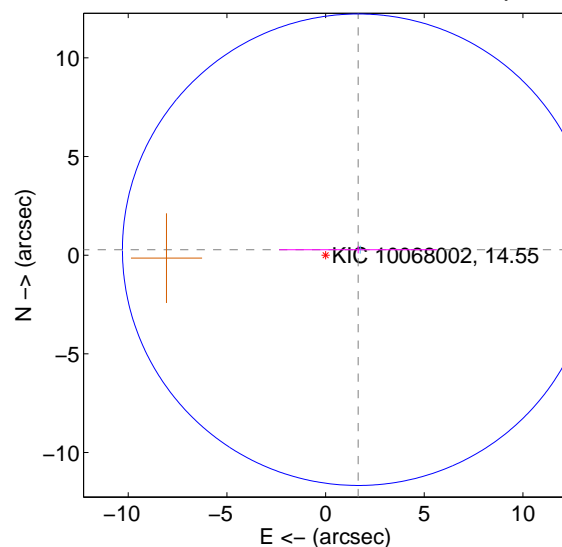
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.579 ± 2.879	0.55	-1.576 ± 2.880	0.090 ± 0.097
PRF-fit source offset from KIC position	1.676 ± 3.982	0.42	-1.653 ± 4.008	0.276 ± 0.188
photometric centroid source offset	1.38 ± 0.80	1.73	-1.04 ± 0.82	0.91 ± 0.77

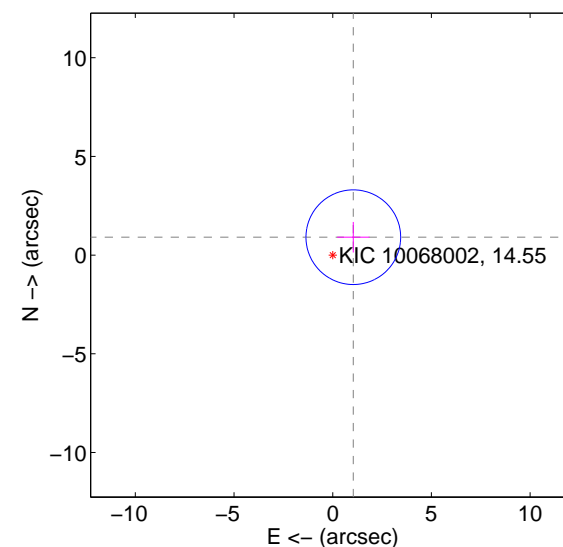
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

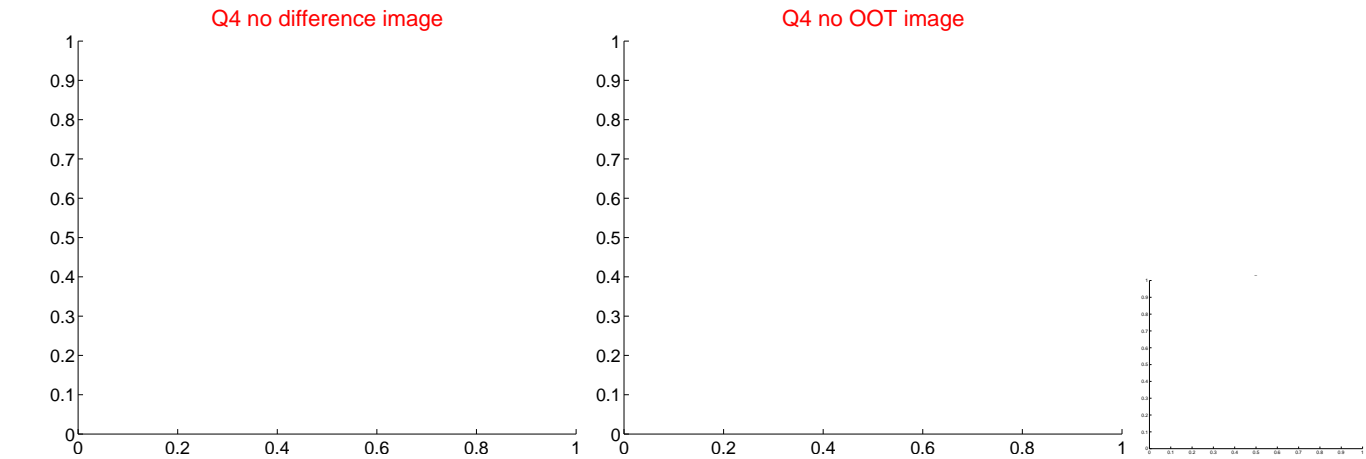
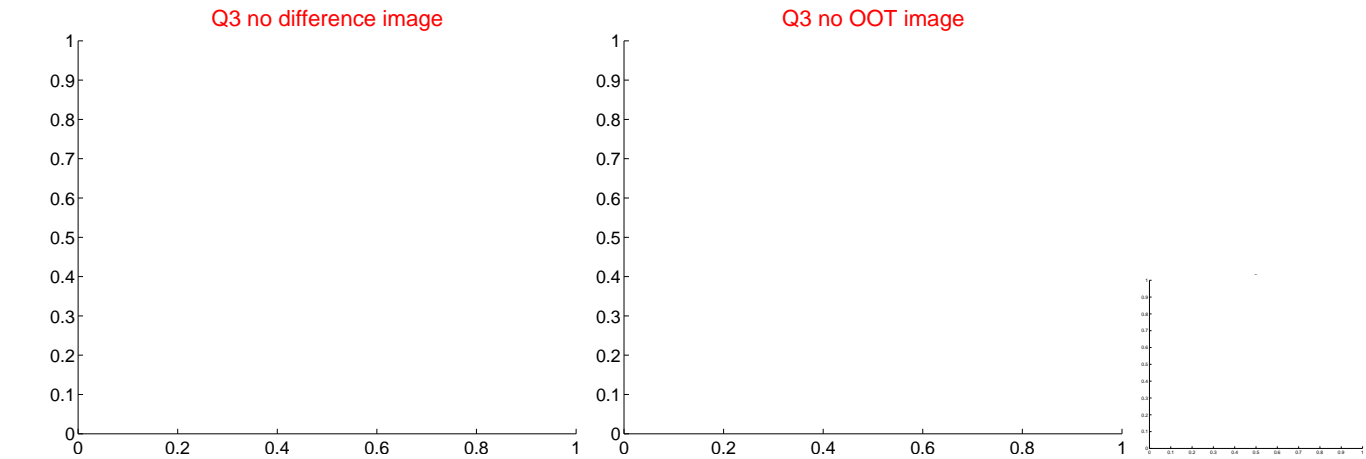
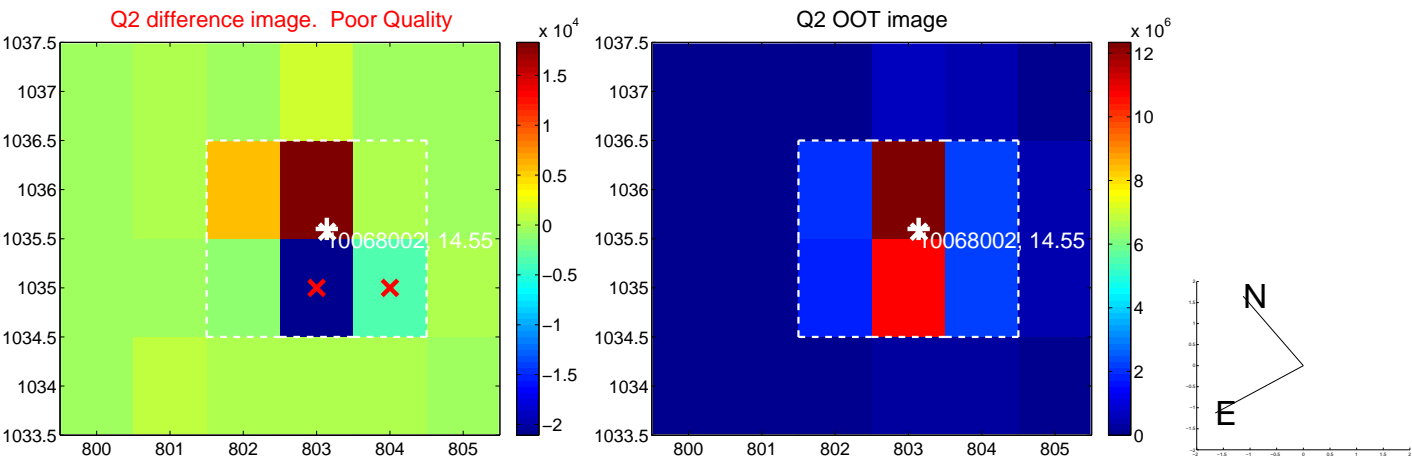
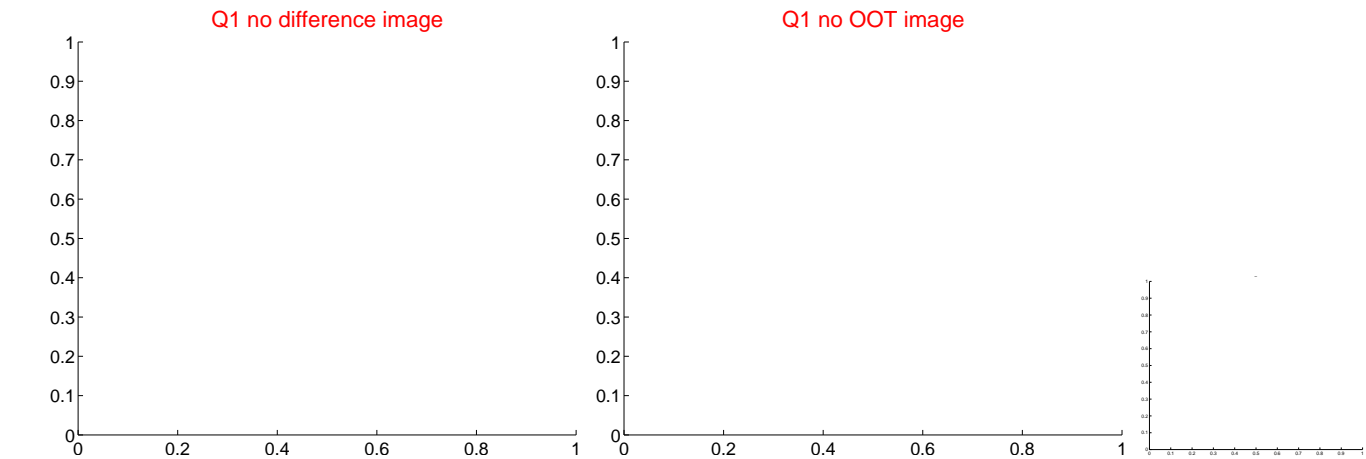


offset from photometric centroids

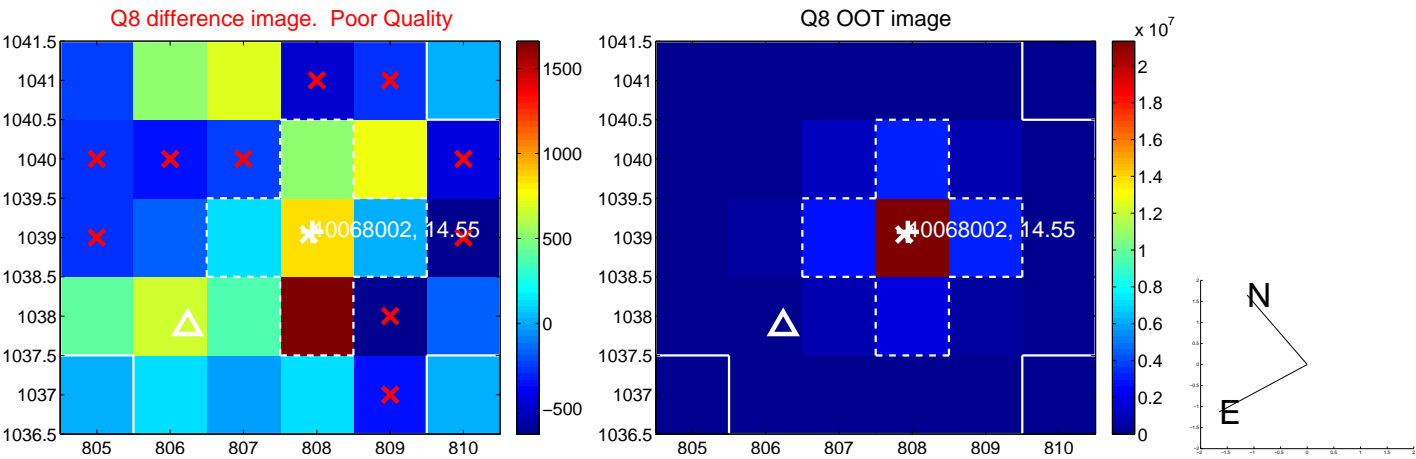


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: 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.



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.

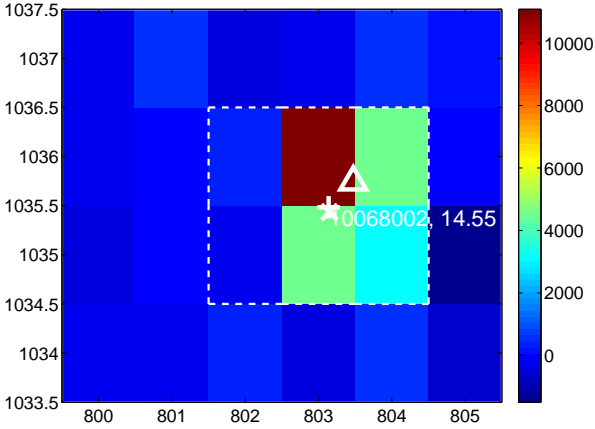
Q13 no difference image



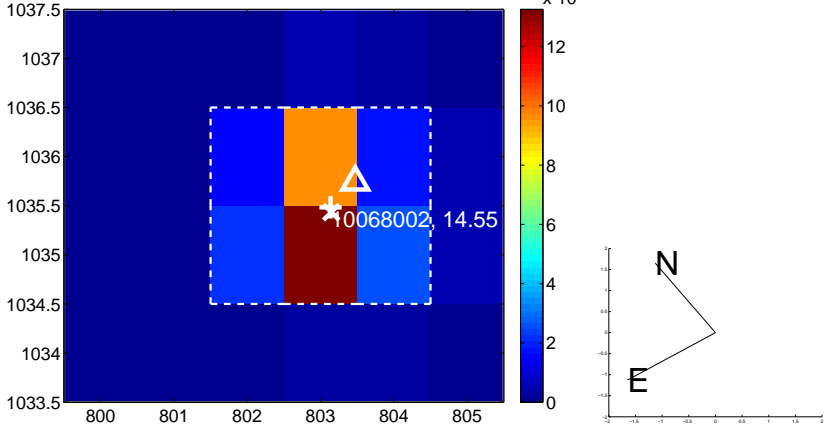
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



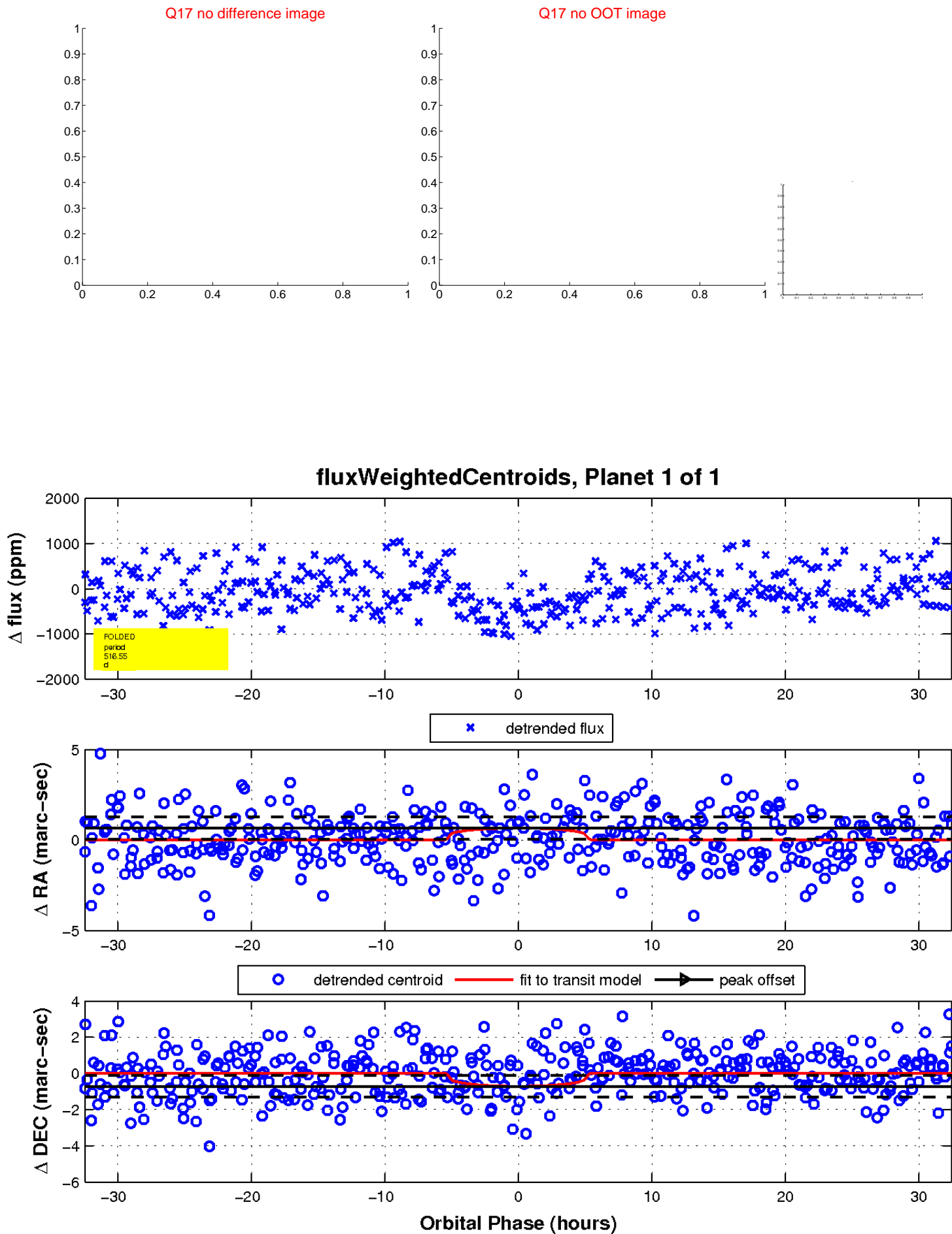
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

