

KIC 009160884

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})
009160884-01	OBS	No	478.169948	279.360794	749.7	24.433	7.2	7.4	0.44	3683	1.43	0.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009160884-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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.

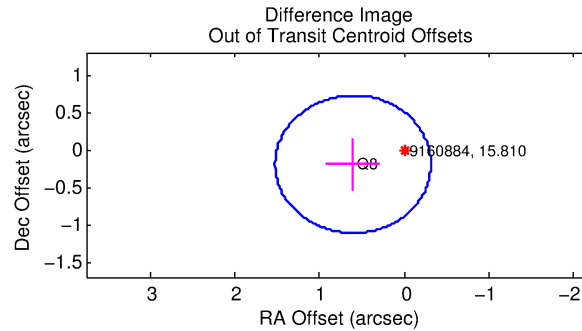
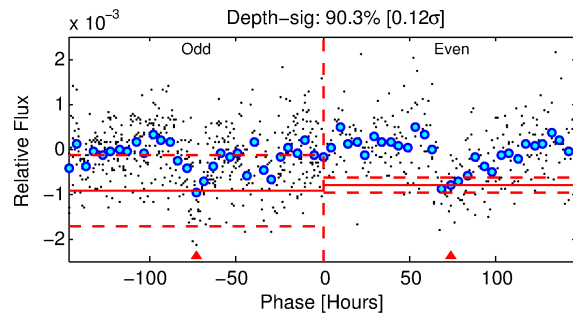
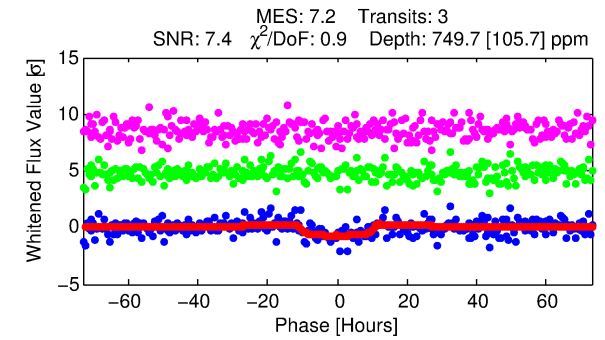
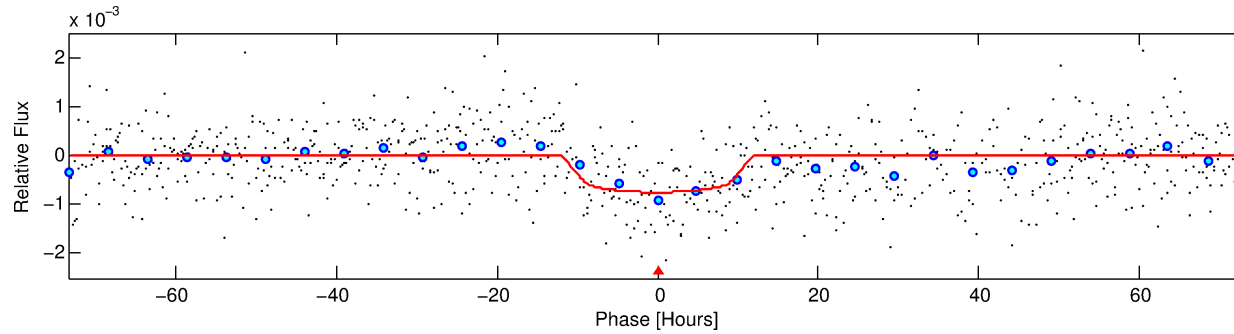
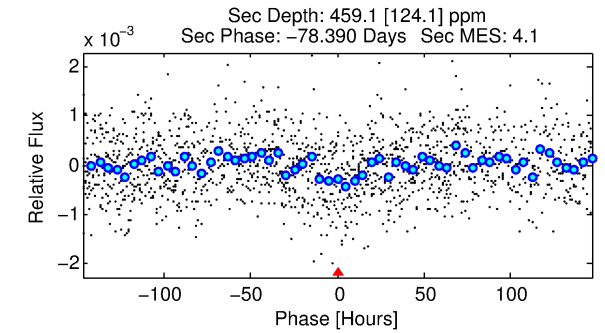
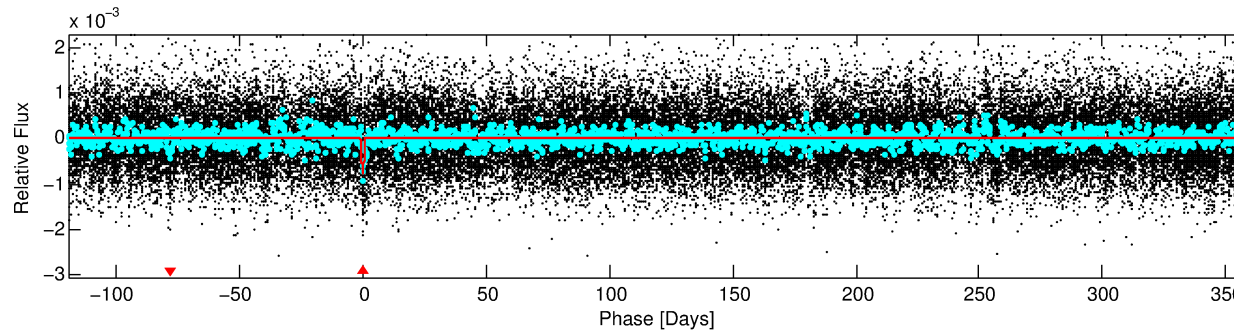
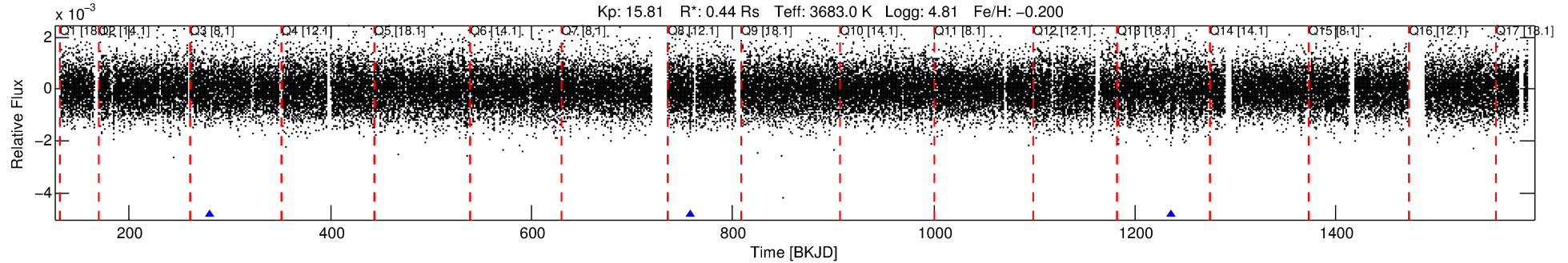
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009160884-01

No Significant Match Found

DV One-Page Summary

KIC: 9160884 Candidate: 1 of 1 Period: 478.170 d



DV Fit Results:

Period = 478.16995 [0.03697] d
Epoch = 279.3608 [0.0405] BKJD
Rp/R* = 0.0298 [0.0037]
a/R* = 74.01 [31.54]
b = 0.90 [0.09]
Seff = 0.04 [0.00]
Teq = 112 [3] K
Rp = 1.43 [0.23] Re
a = 0.9184 [0.0687] AU
Ag = 104255.09 [39755.29] [2.62σ]
Teff = 3124 [293] K [10.27σ]

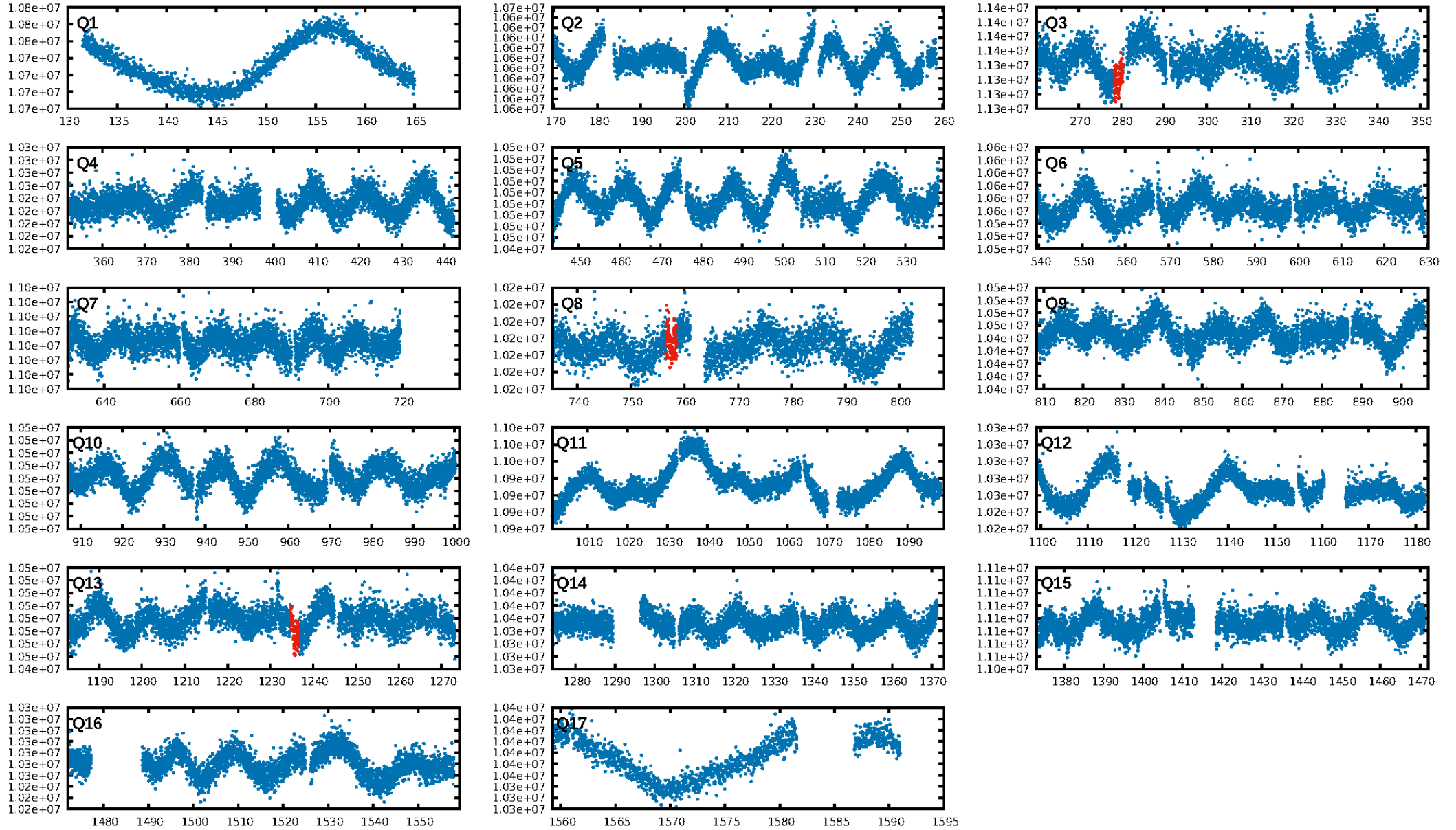
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 18.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.53e-13
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.93
Centroid-sig: 41.2%
Centroid-so: 0.783 arcsec [0.64σ]
OotOffset-rm: 0.634 arcsec [2.07σ]
KicOffset-rm: 0.446 arcsec [1.47σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

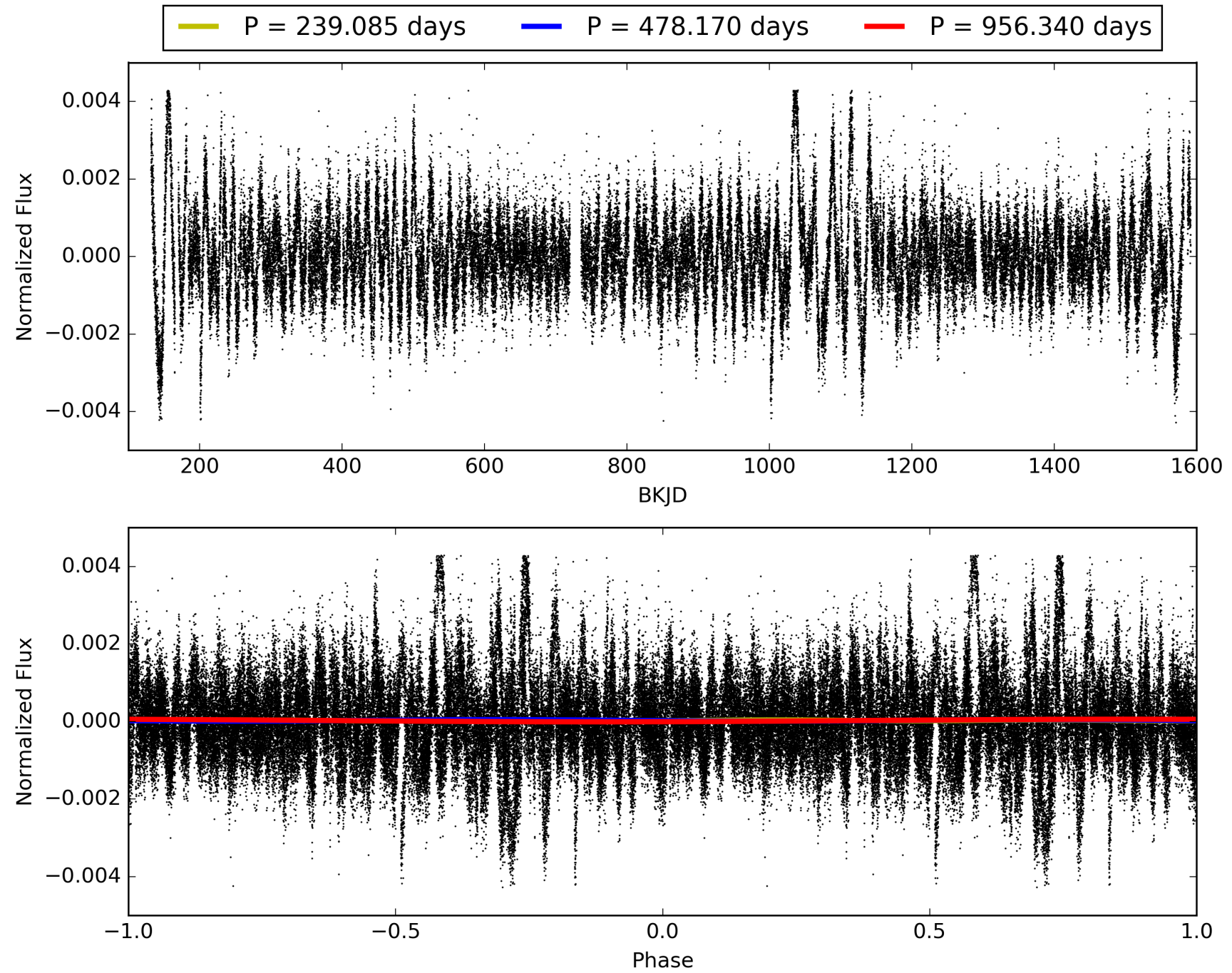
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:36:42 Z

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

TCE 009160884-01, PDC Light Curves

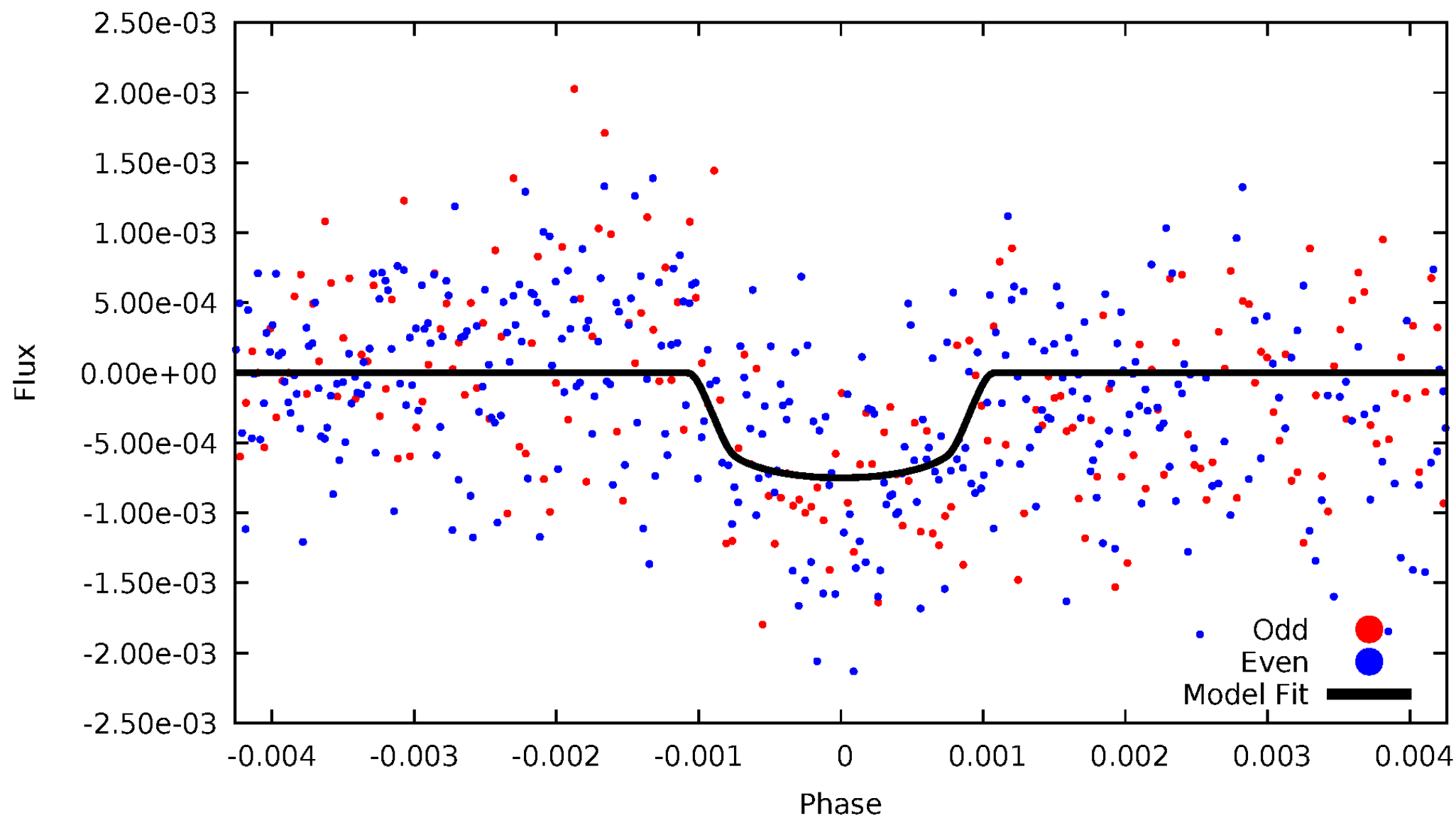


TCE 009160884-01



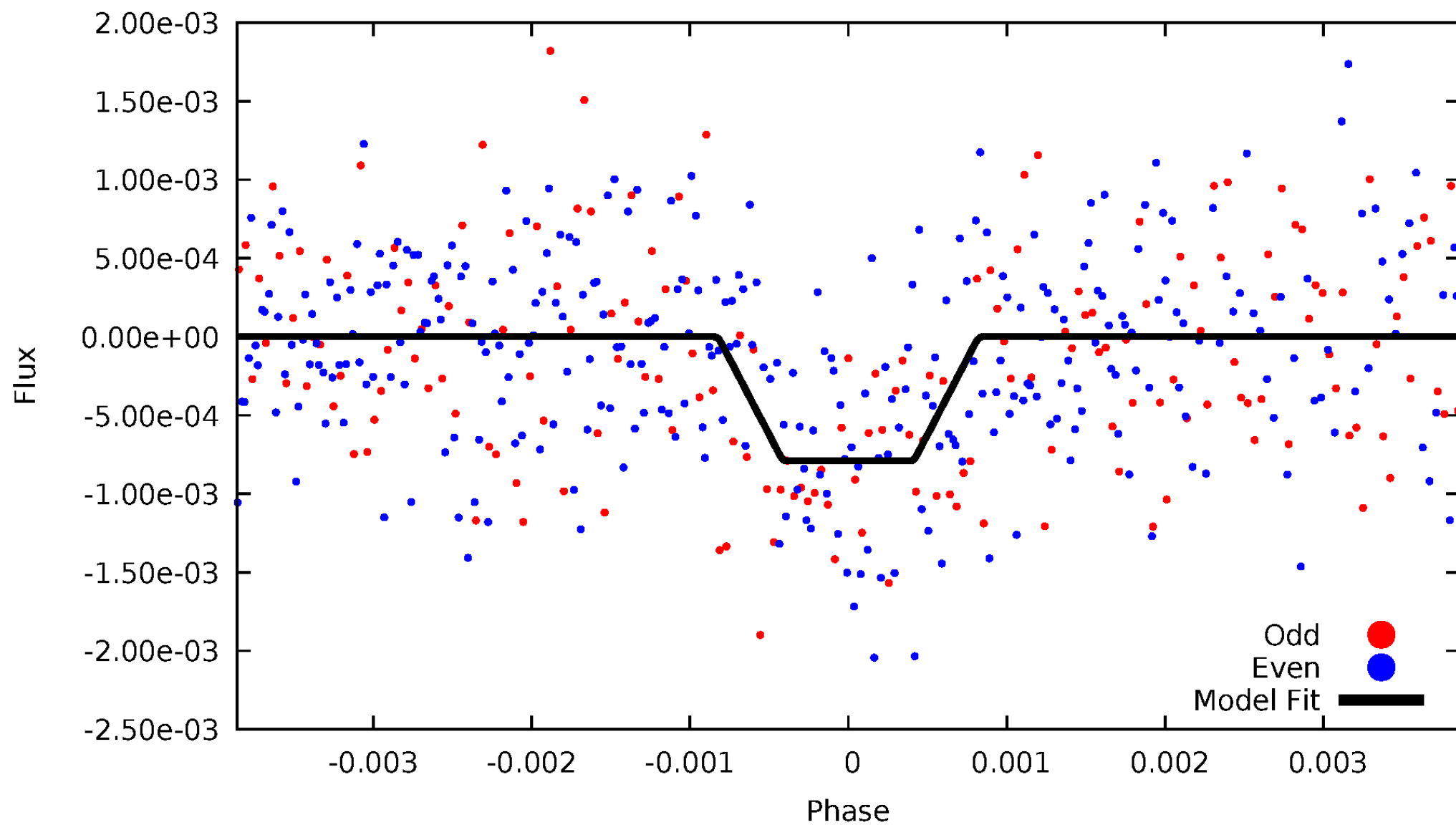
DV Odd/Even

TCE 009160884-01



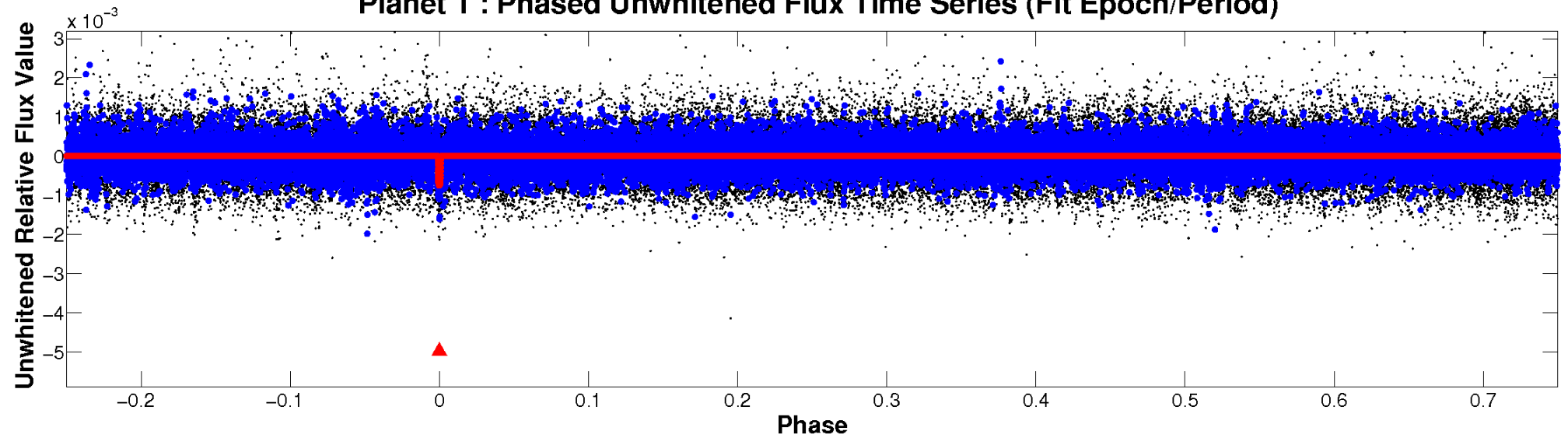
ALT Odd/Even

TCE 009160884-01

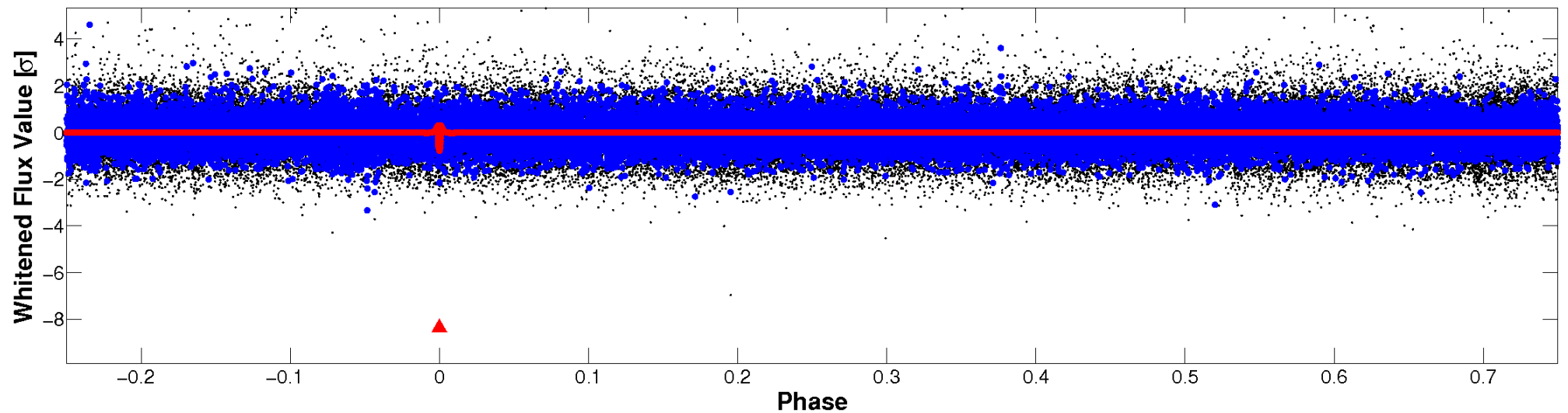


Non-Whitened Vs. Whitened Light Curve

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

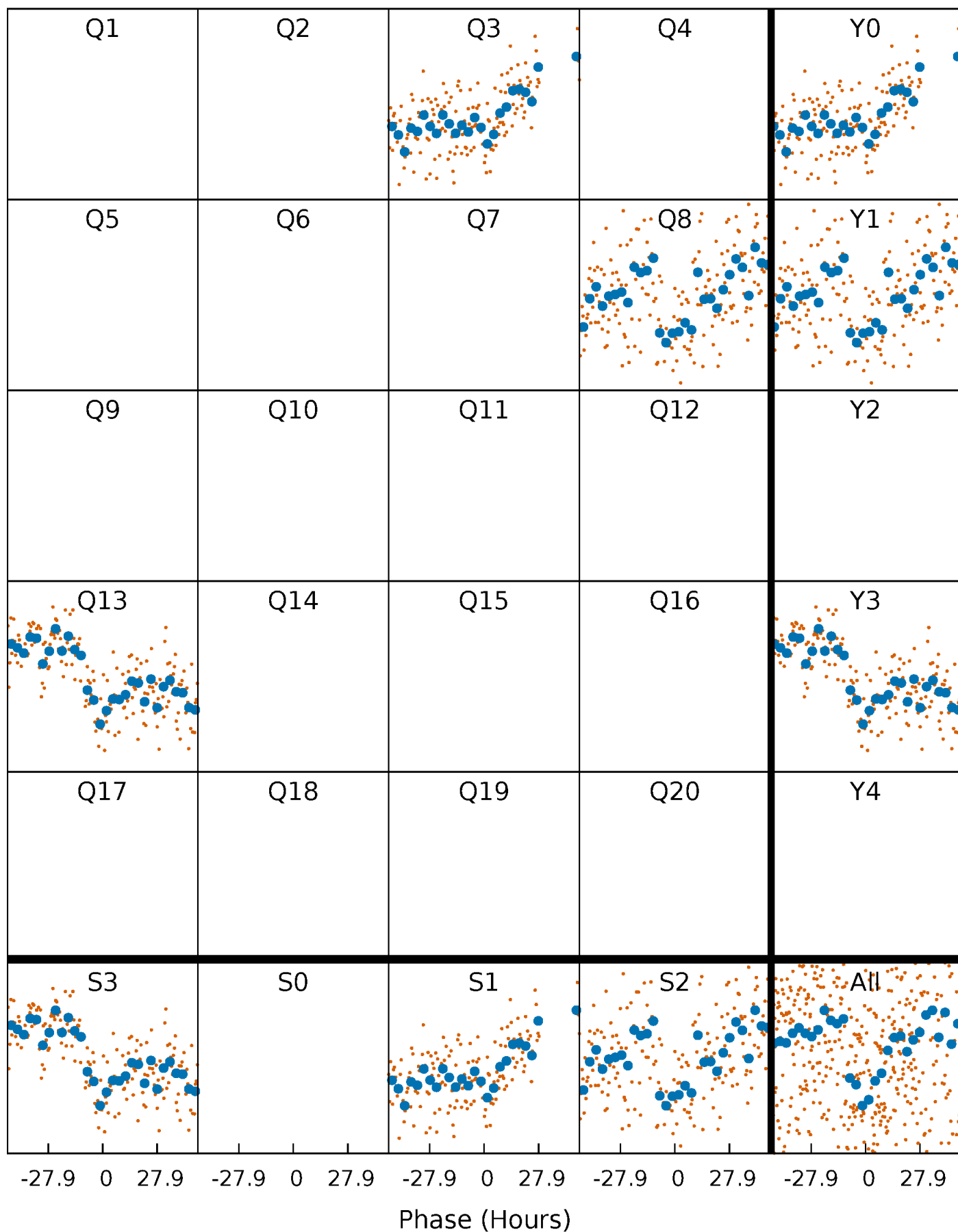


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009160884-01 P=478.169948 Days $T_0=279.360794$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009160884-01 P=478.169948 Days $T_0=279.360794$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

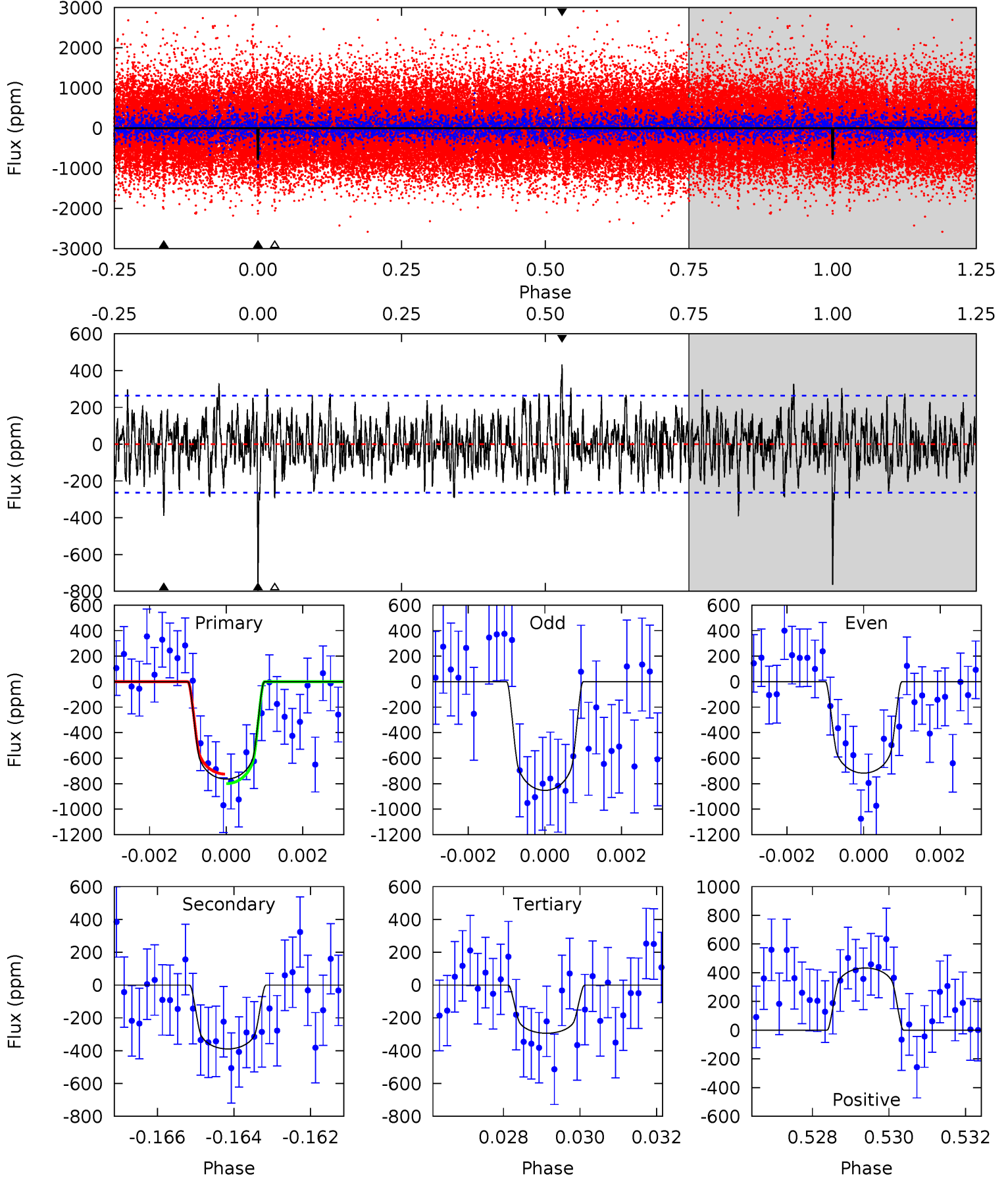
TCE 009160884-01 P=478.009080 Days $T_0=279.524434$ (BKJD)



DV Model-Shift Uniqueness Test

009160884-01, P = 478.169948 Days, E = 279.360794 Days

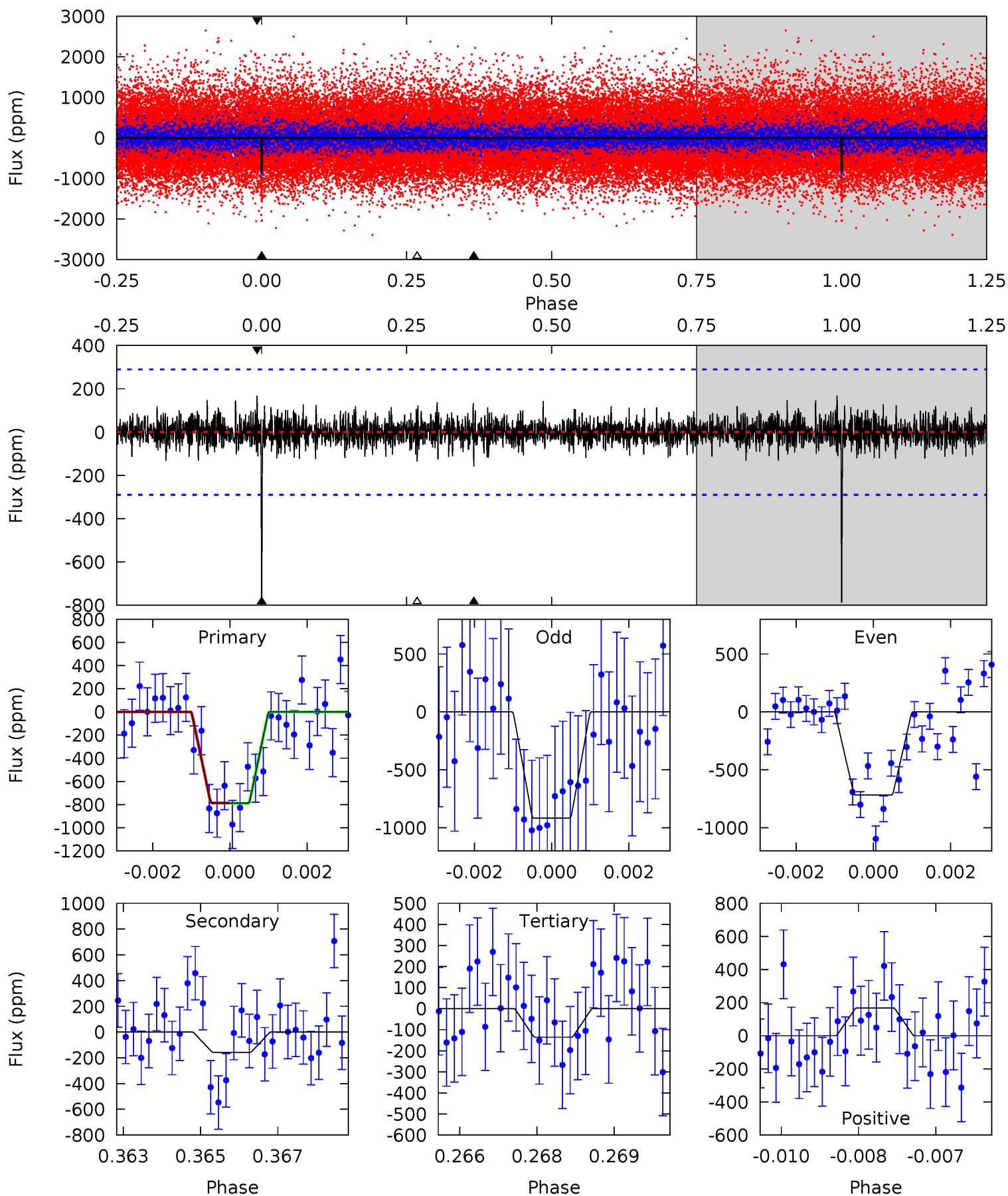
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	7.85	5.92	8.73	5.31	3.07	2.15	9.48	6.66	1.93	-0.88	1.30	0.90	0.36	0.75



Alt Model-Shift Uniqueness Test

009160884-01, P = 478.009080 Days, E = 279.524434 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	2.92	2.51	3.12	5.36	3.15	0.74	12.1	11.5	0.41	-0.19	1.77	0.86	0.18	0.03



Stellar Parameters For KIC 009160884

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3683^{+66}_{-66}	$4.806^{+0.048}_{-0.028}$	$-0.200^{+0.100}_{-0.100}$	$0.440^{+0.031}_{-0.043}$	$0.452^{+0.032}_{-0.039}$	$7.477^{+1.712}_{-0.959}$
	+2%/-2%	+1%/-1%	+50%/-50%	+7%/-10%	+7%/-9%	+23%/-13%
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 009160884-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-389 ± 50	$1.41^{+0.22}_{-0.18}$	157^{+4}_{-4}	3243^{+161}_{-141}	90936^{+31047}_{-23165}
Alt.	-158 ± 54	$1.35^{+0.18}_{-0.20}$	157^{+4}_{-4}	2895^{+173}_{-178}	40714^{+20750}_{-15678}

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

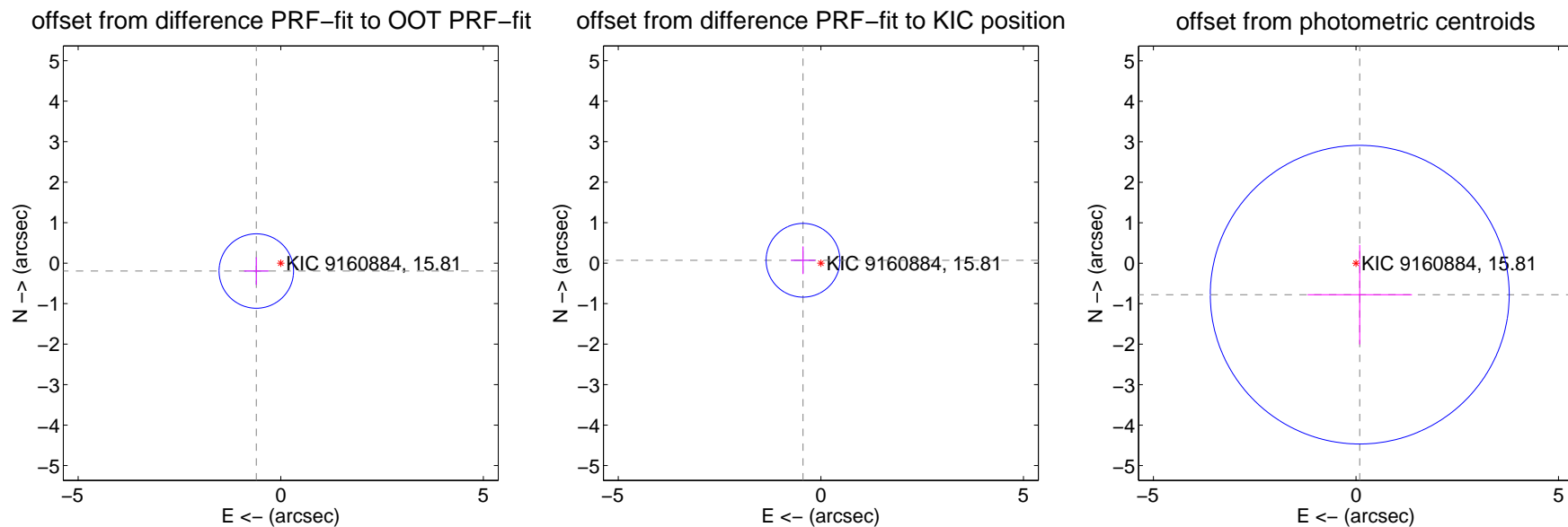
DV Centroid Data

Supplemental centroid analysis for 009160884-01. Kepler magnitude: 15.81. Transit SNR 7.40

There are 1 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.634 ± 0.306	2.07	0.603 ± 0.303	-0.195 ± 0.341
PRF-fit source offset from KIC position	0.446 ± 0.304	1.47	0.440 ± 0.303	0.071 ± 0.341
photometric centroid source offset	0.78 ± 1.23	0.64	-0.09 ± 1.29	-0.78 ± 1.23



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



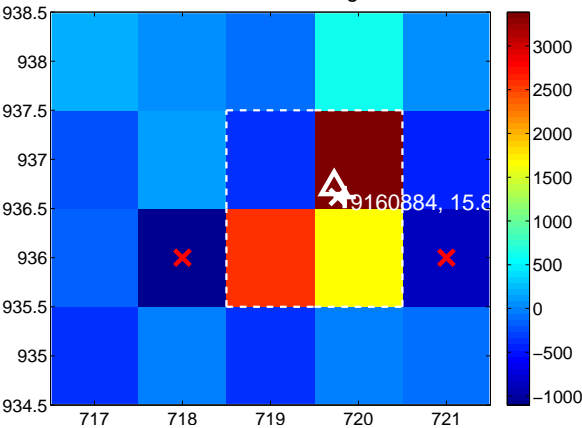
Q7 no difference image



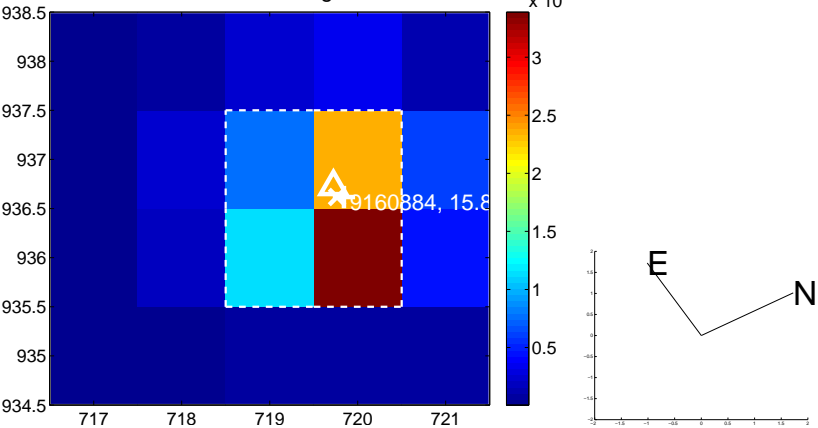
Q7 no OOT image



Q8 difference image



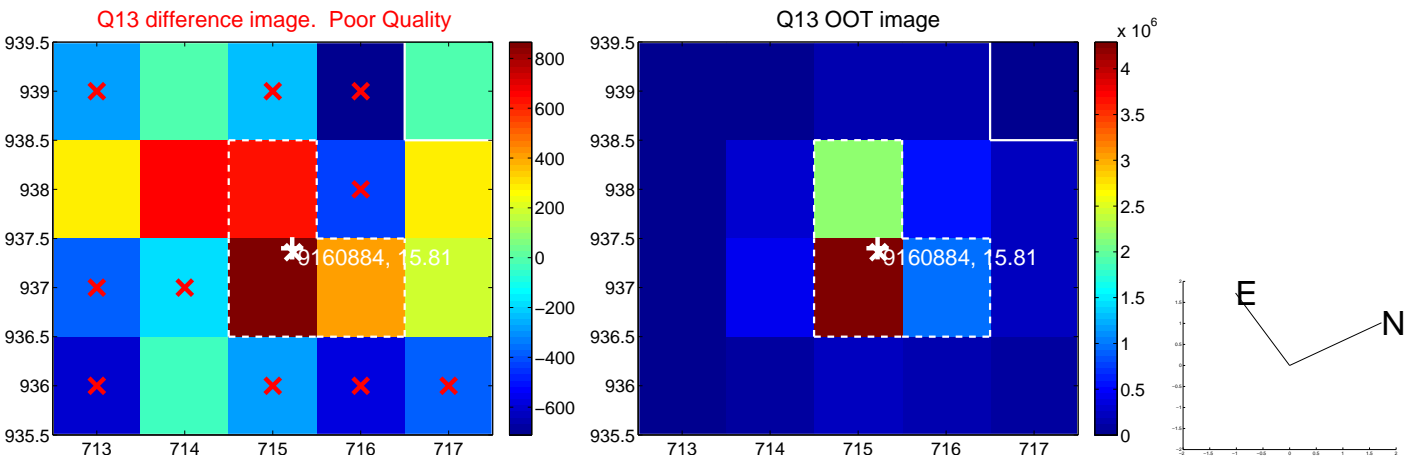
Q8 OOT image



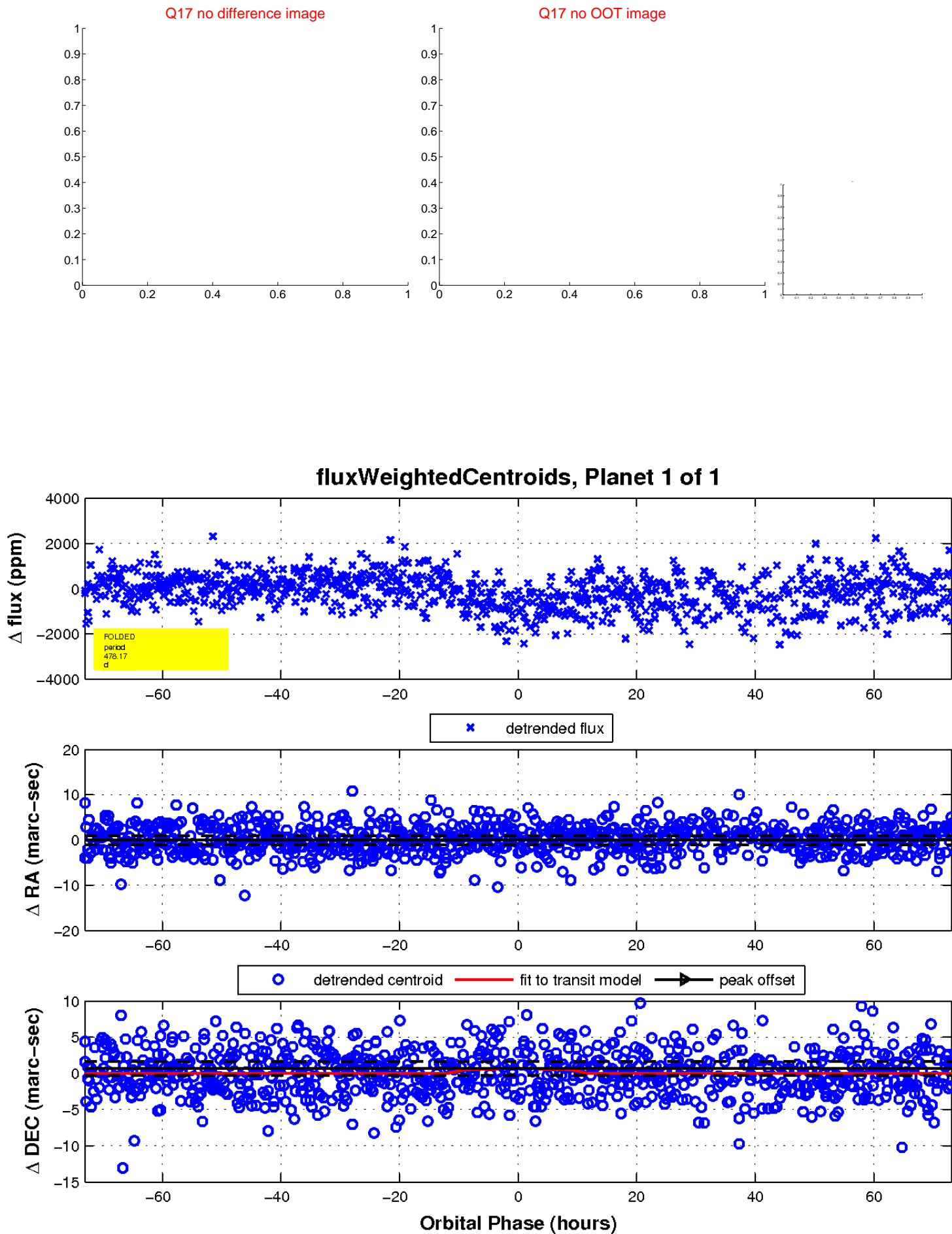
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

