

KIC 009776824

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})
009776824-01	OBS	No	435.987175	523.764504	149.9	22.015	8.5	8.5	2.53	6338	3.55	5.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009776824-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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.

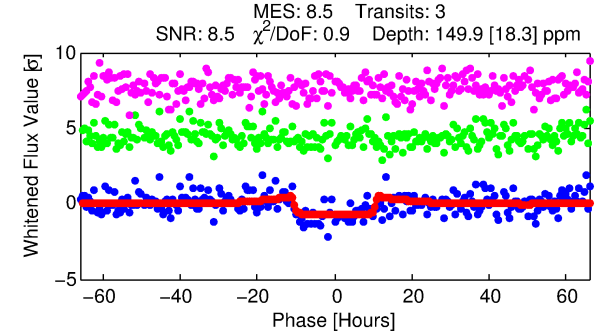
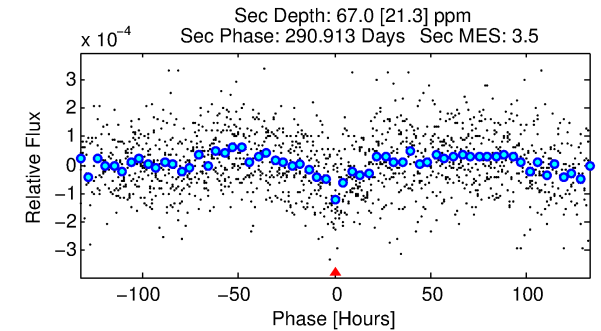
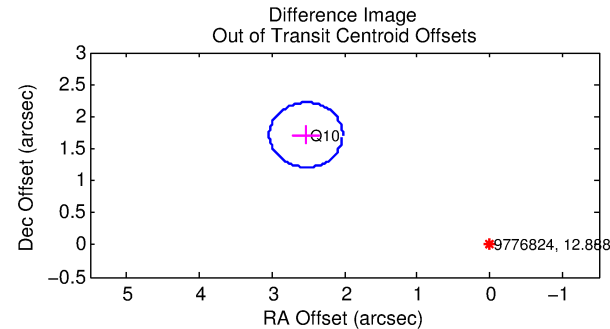
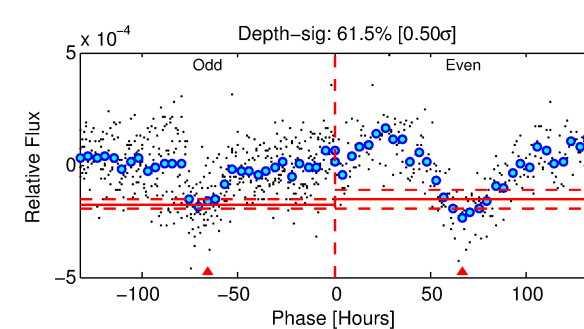
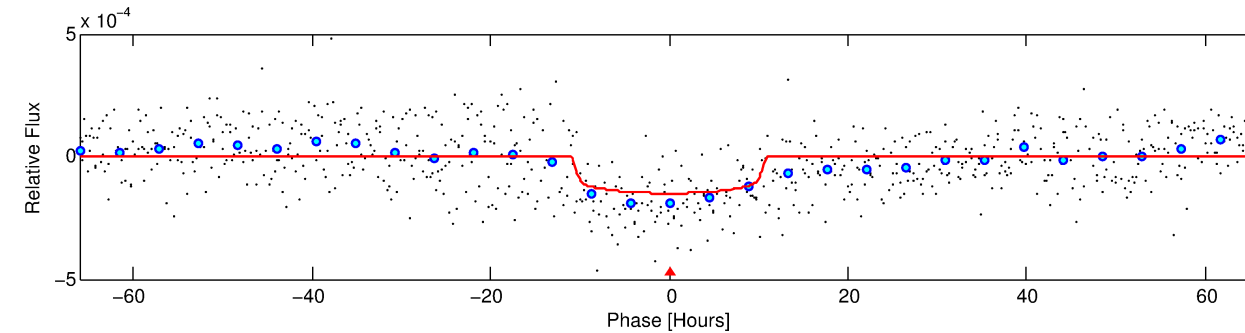
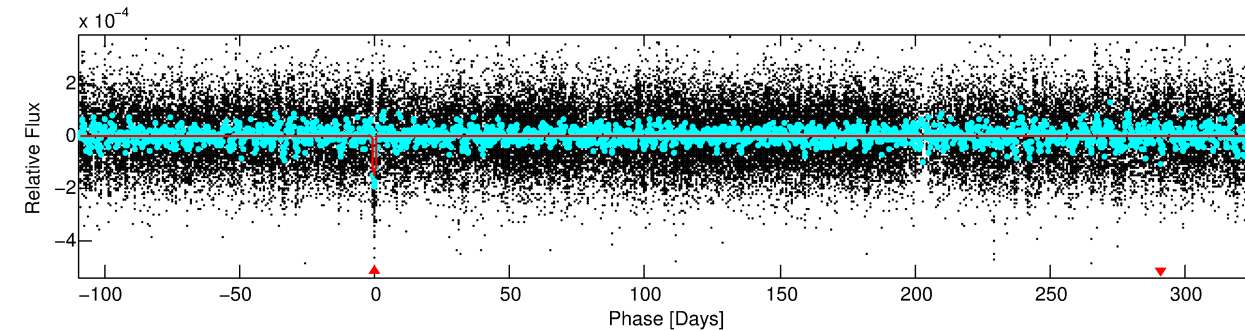
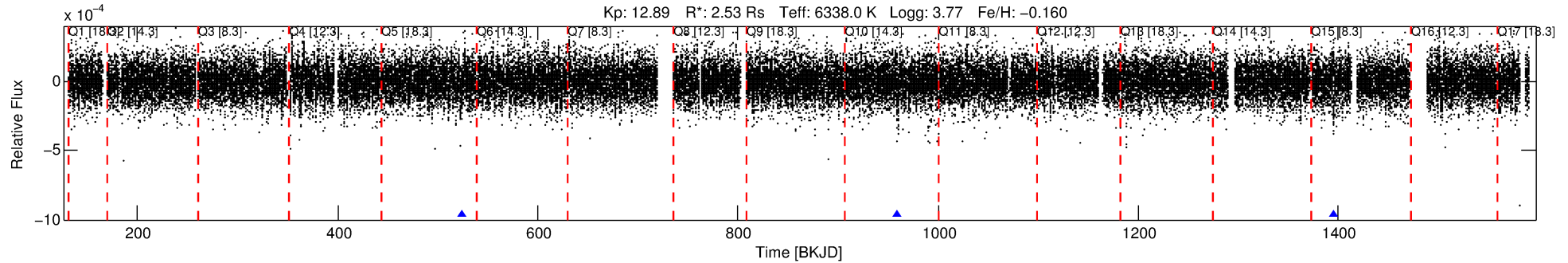
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009776824-01

No Significant Match Found

DV One-Page Summary

KIC: 9776824 Candidate: 1 of 1 Period: 435.987 d



DV Fit Results:

Period = 435.98718 [0.01566] d
Epoch = 523.7645 [0.0209] BKJD
Rp/R* = 0.0129 [0.0015]
a/R* = 77.94 [41.73]
b = 0.87 [0.15]
Seff = 5.87 [5.14]
Teq = 397 [87] K
Rp = 3.55 [1.84] Re
a = 1.2553 [0.6543] AU
Ag = 4607.84 [4380.28] [1.05 σ]
Teffp = 5056 [534] K [8.62 σ]

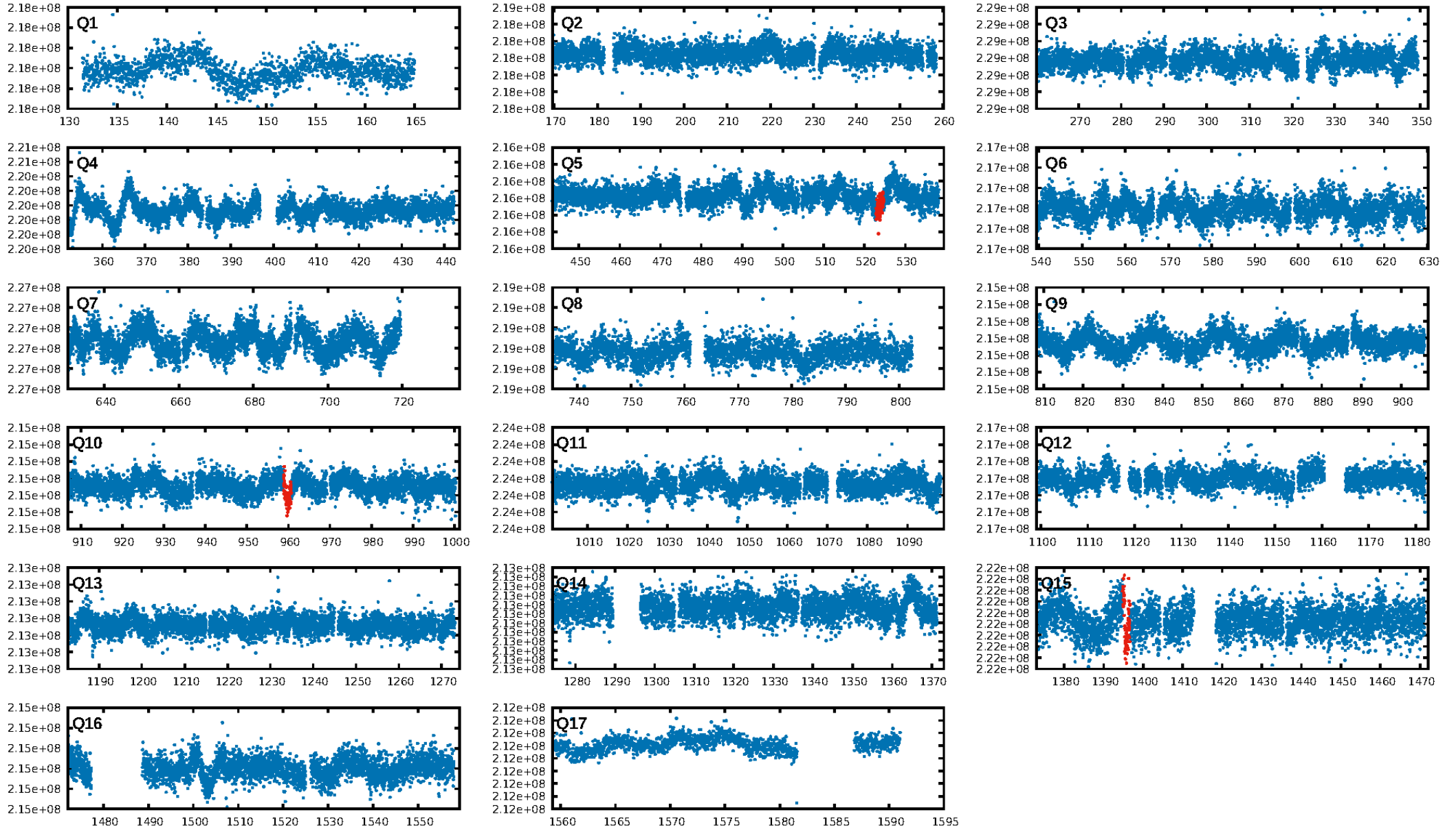
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.58e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -7.628
Centroid-sig: 0.0%
Centroid-so: 3.092 arcsec [3.70 σ]
OotOffset-rm: 3.054 arcsec [18.17 σ]
KicOffset-rm: 3.108 arcsec [18.58 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [2/2]

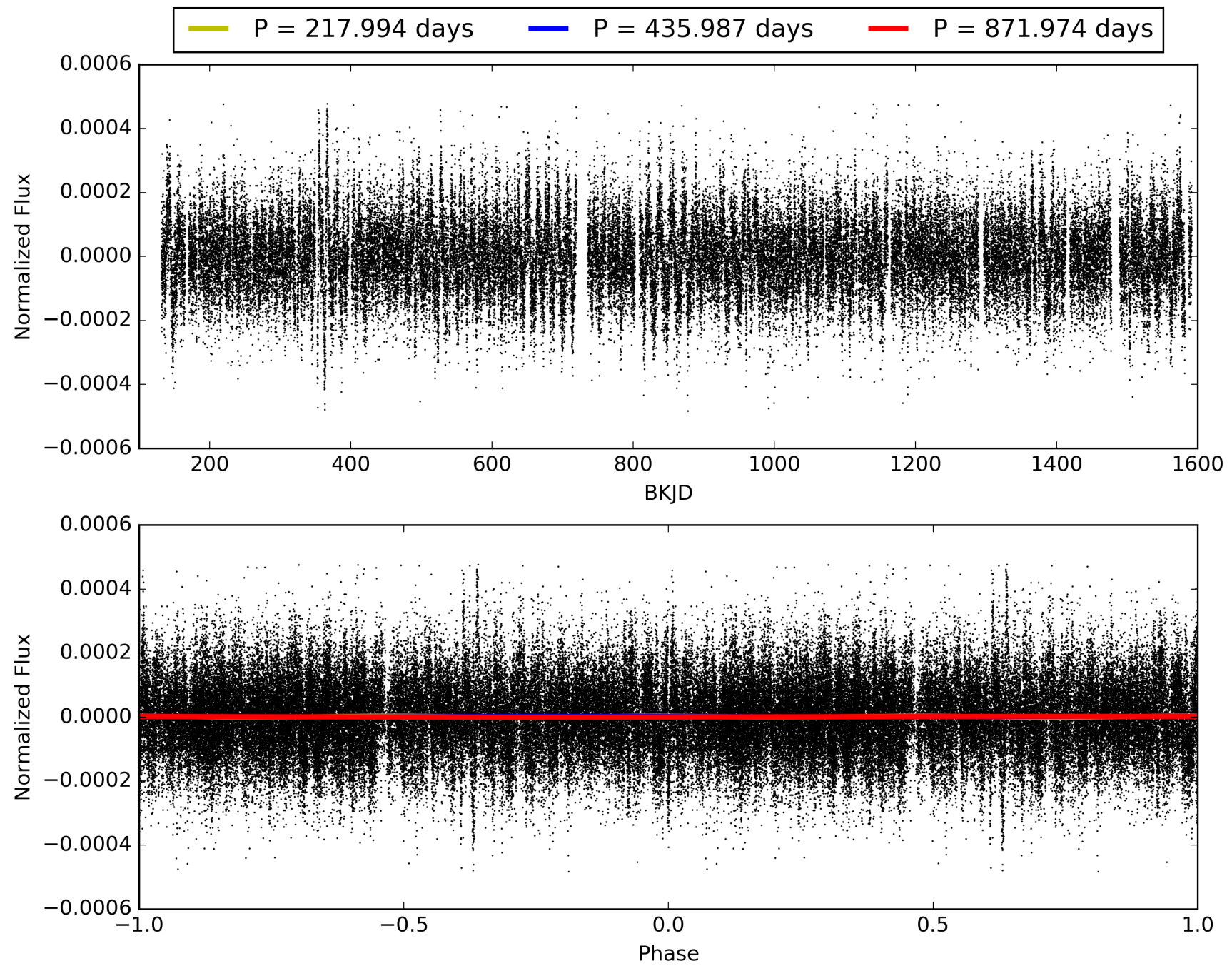
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:45:16 Z

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

TCE 009776824-01, PDC Light Curves

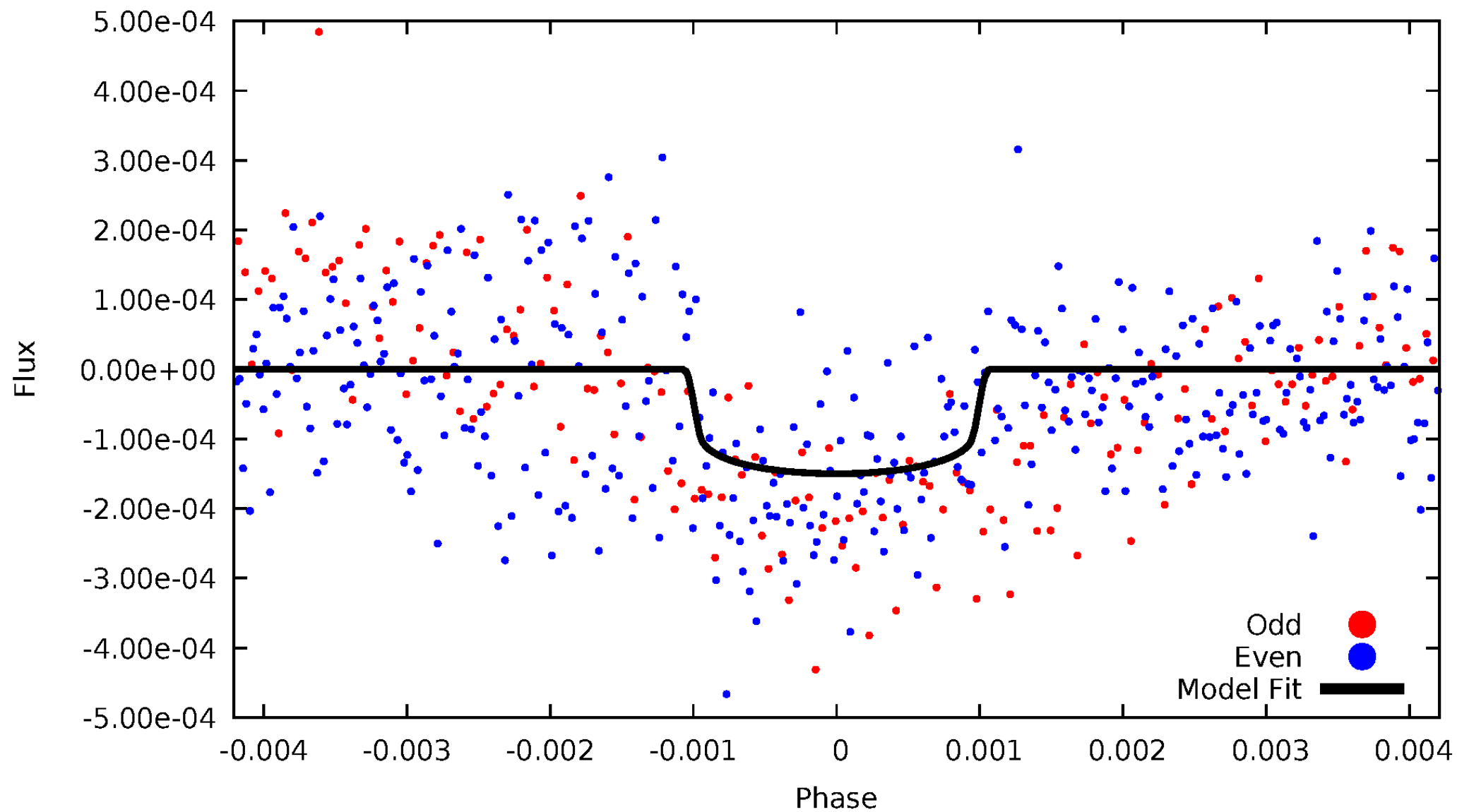


TCE 009776824-01



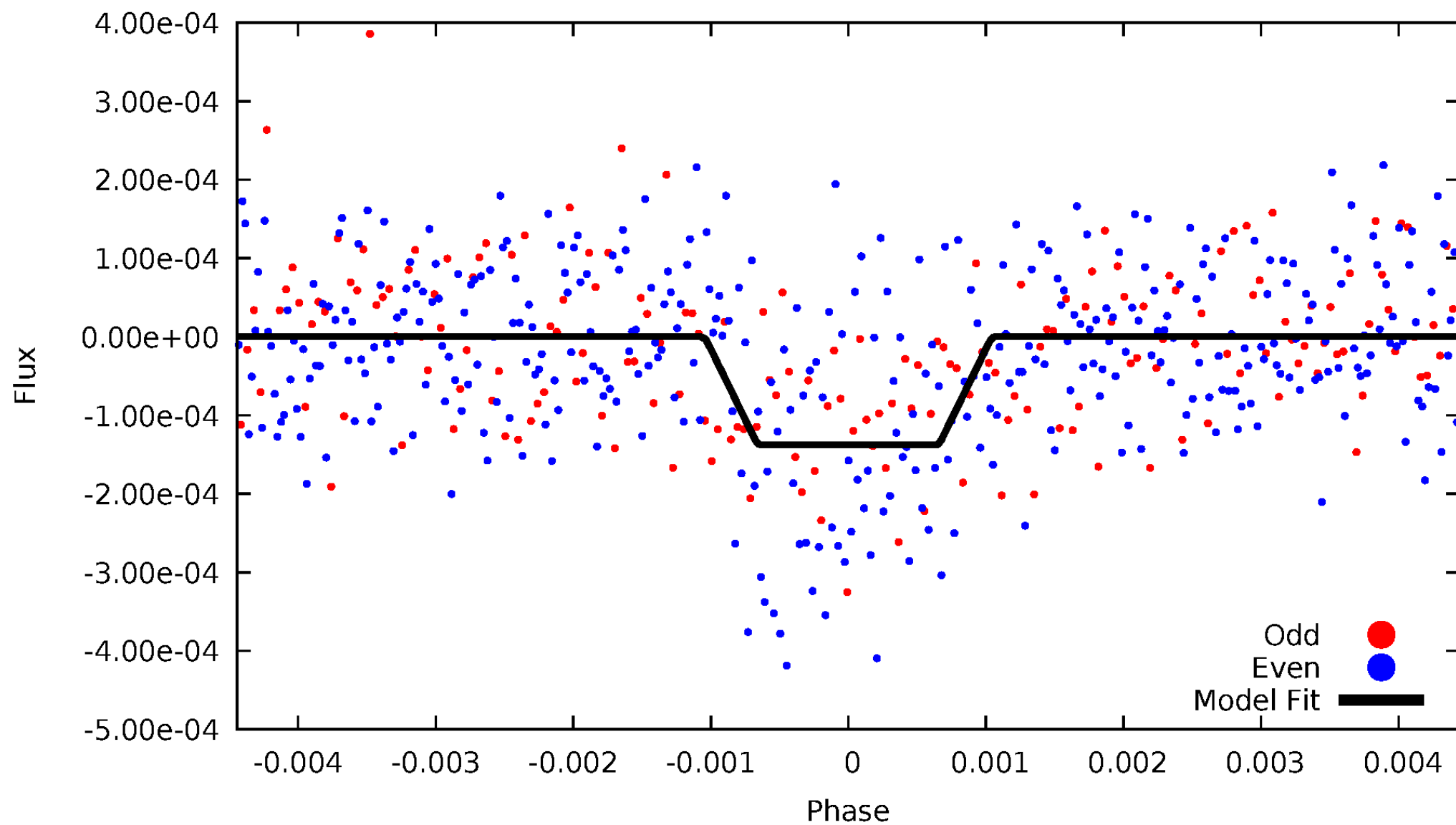
DV Odd/Even

TCE 009776824-01



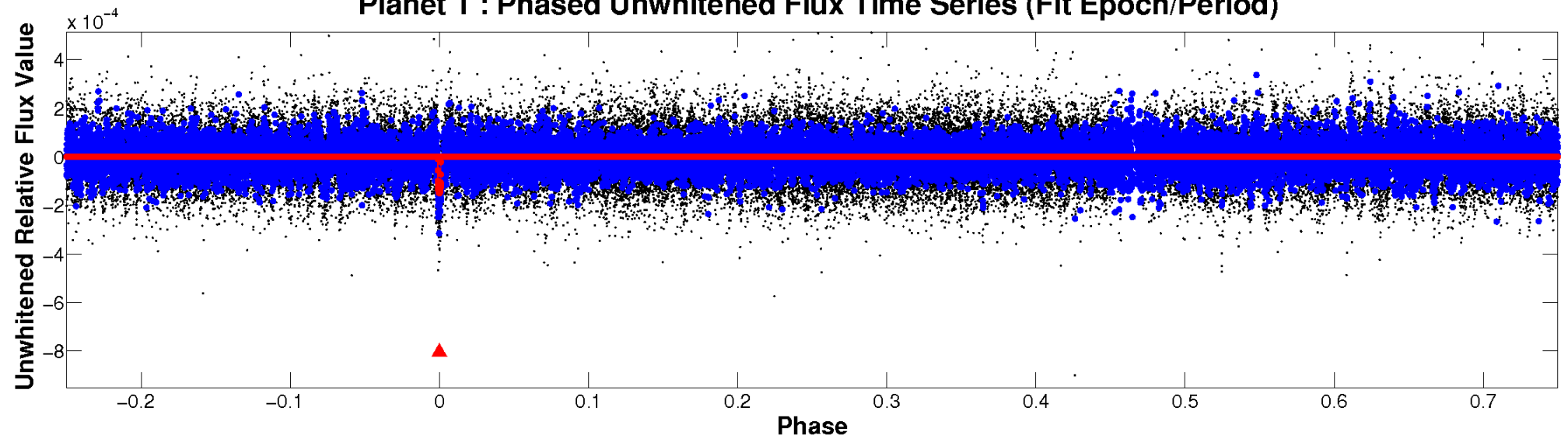
ALT Odd/Even

TCE 009776824-01

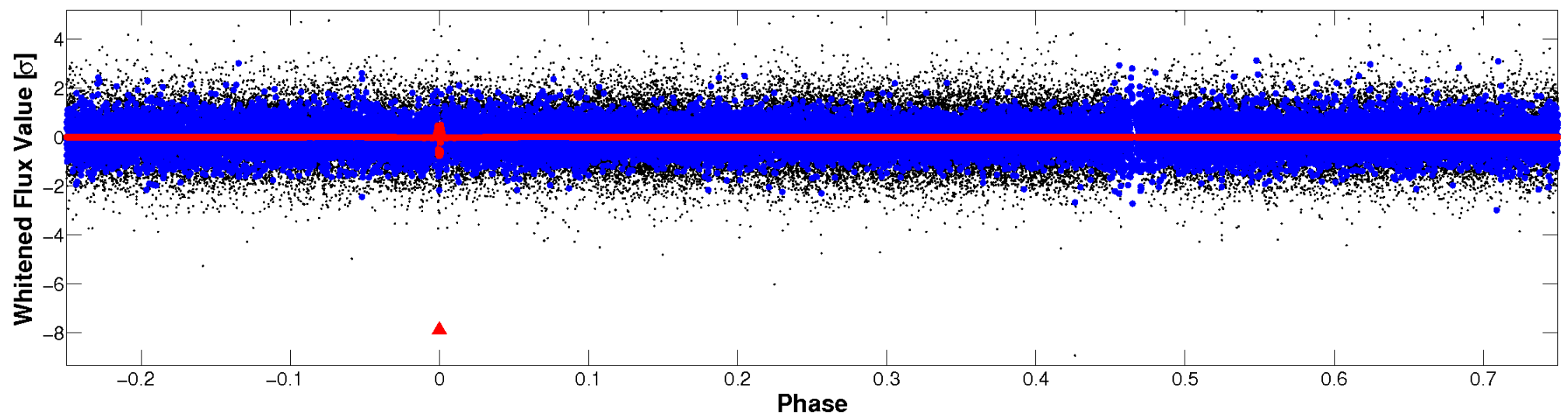


Non-Whitened Vs. Whitened Light Curve

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



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



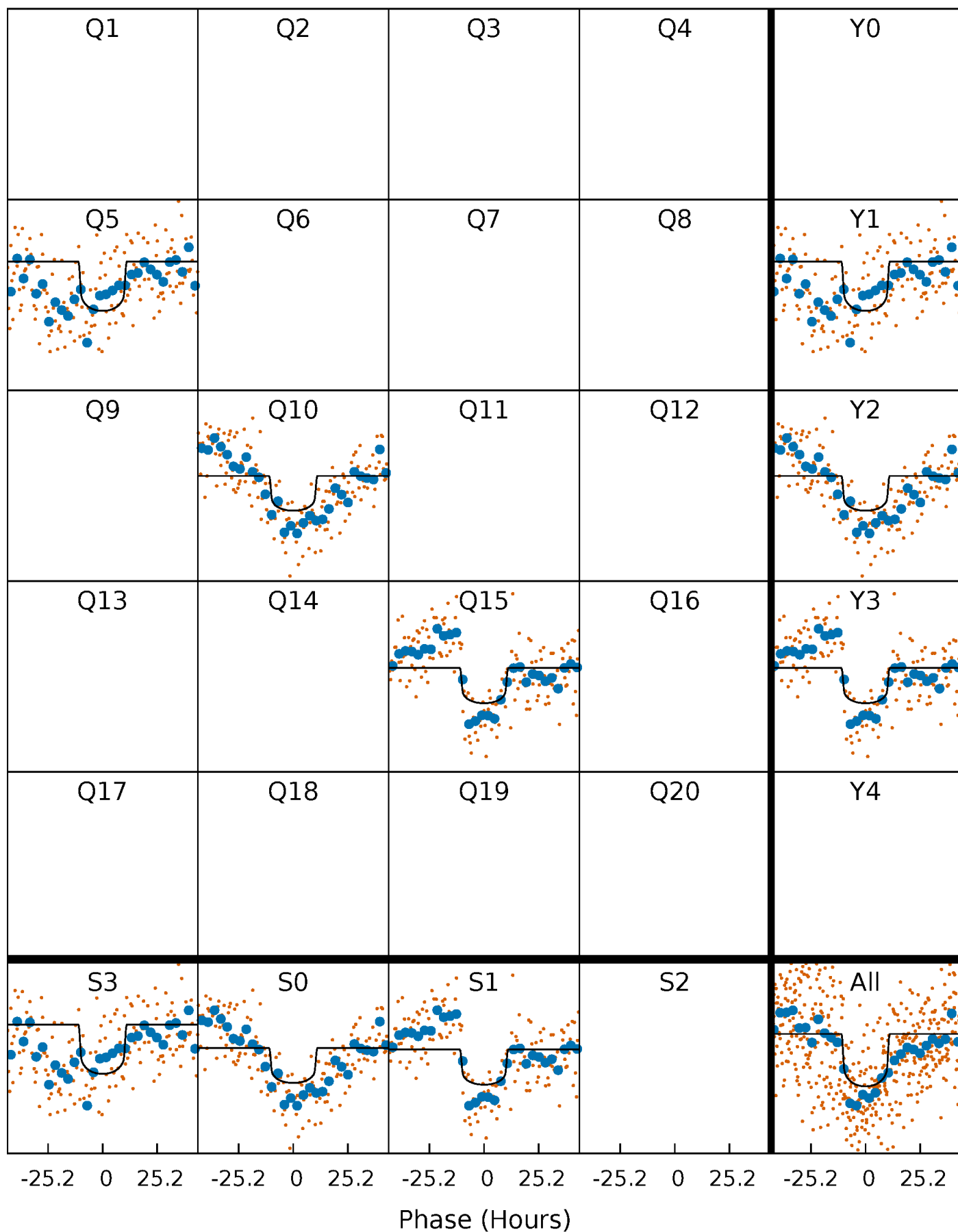
PDC Quarter-Phased Transit Curves

TCE 009776824-01 P=435.987175 Days $T_0=523.764504$ (BKJD)



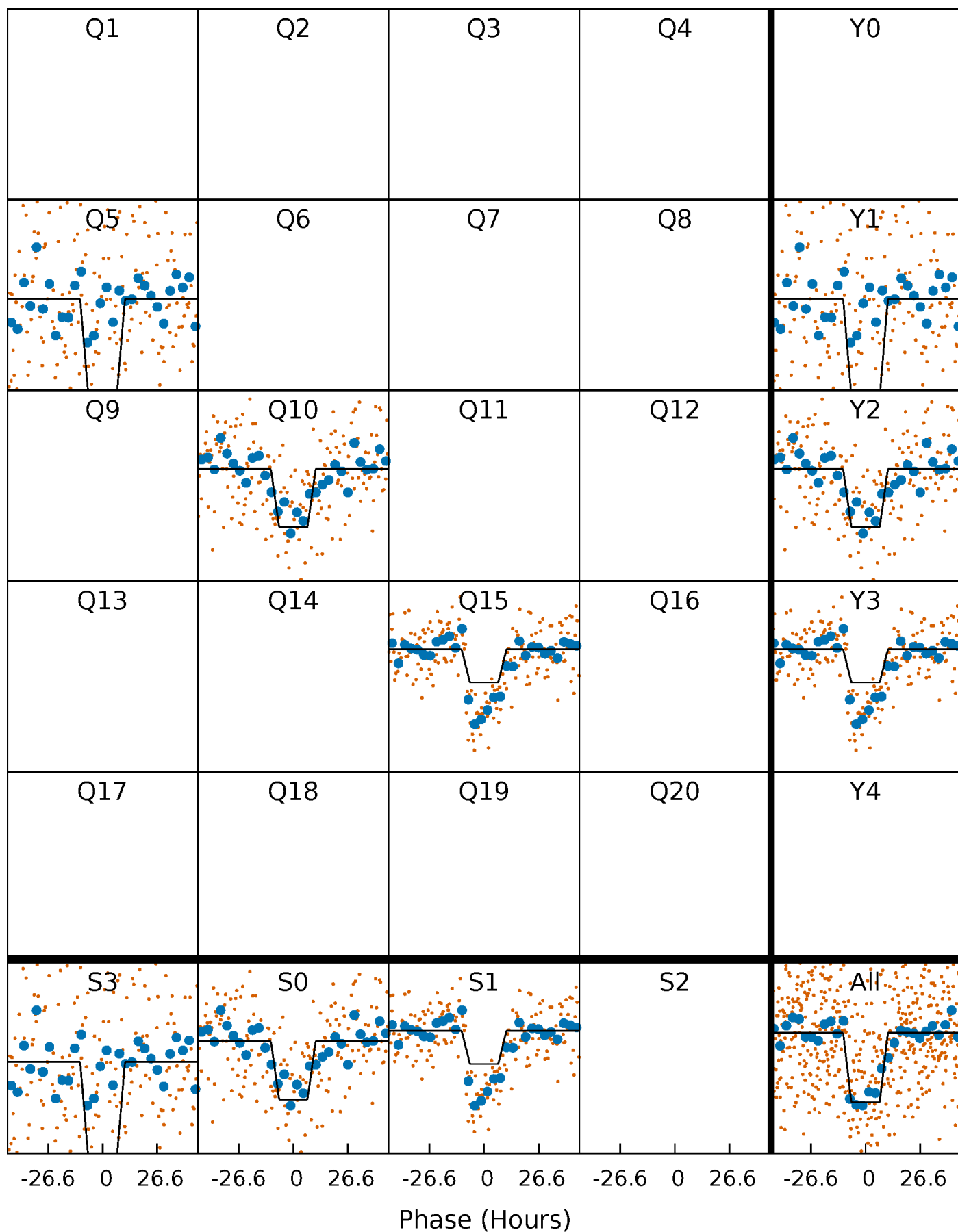
DV Quarter-Phased Transit Curves

TCE 009776824-01 P=435.987175 Days $T_0=523.764504$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

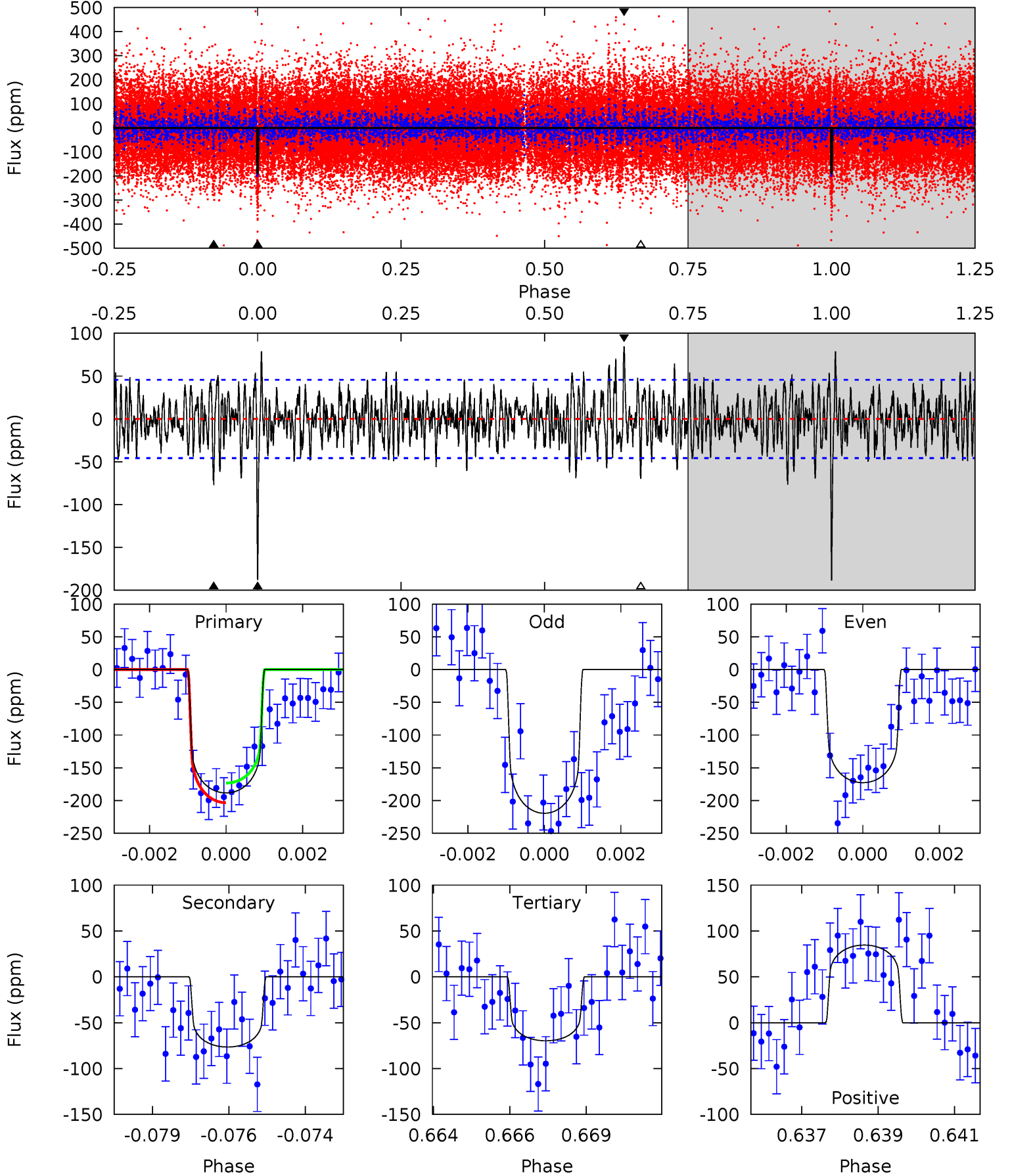
TCE 009776824-01 P=435.997681 Days $T_0=523.694486$ (BKJD)



DV Model-Shift Uniqueness Test

009776824-01, $P = 435.987175$ Days, $E = 87.777329$ Days

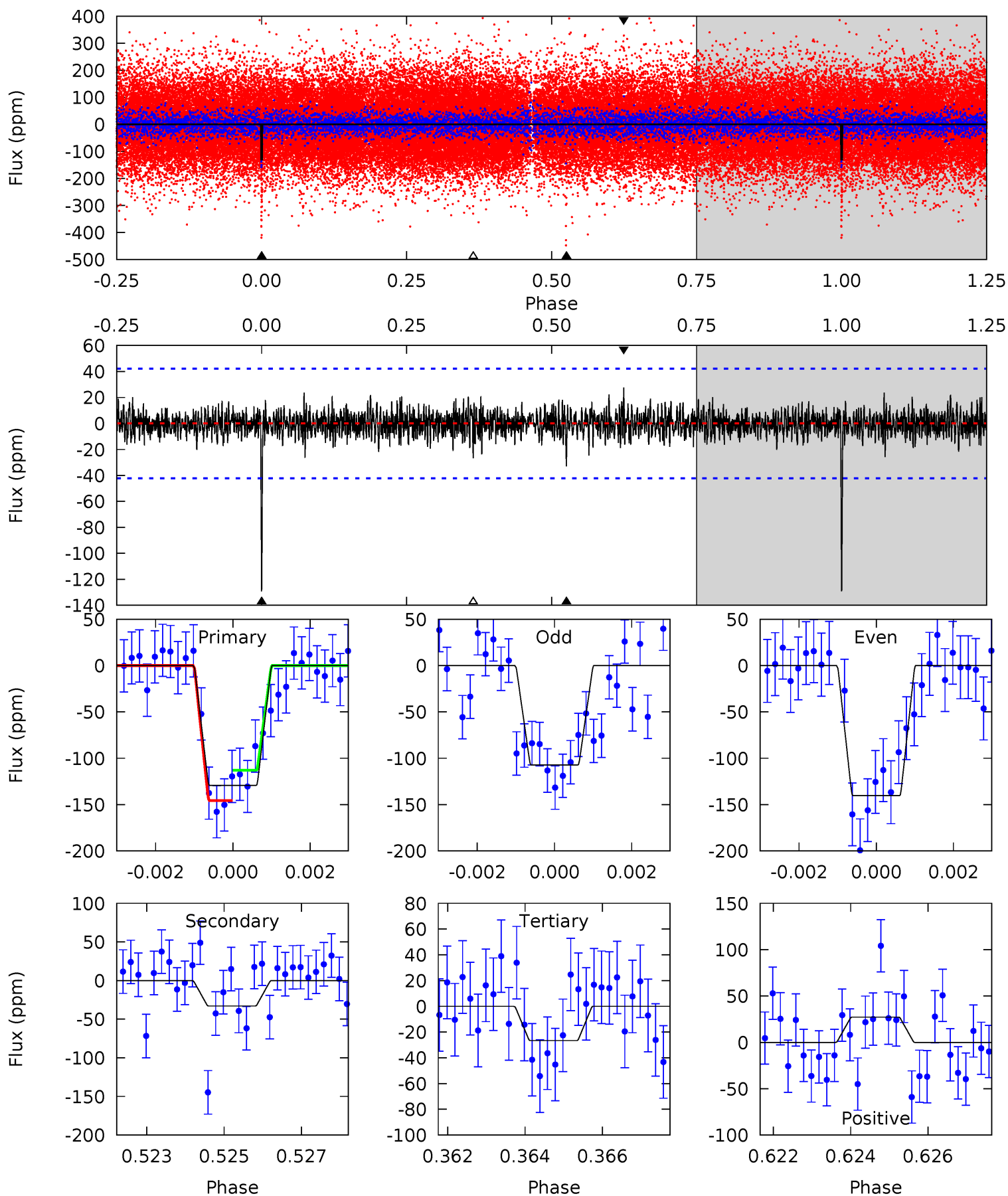
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.9	8.91	8.12	9.85	5.32	3.07	2.57	13.8	12.1	0.79	-0.94	2.59	0.88	0.31	1.74



Alt Model-Shift Uniqueness Test

009776824-01, $P = 435.997681$ Days, $E = 87.696805$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.3	4.15	3.35	3.44	5.32	3.08	0.92	12.9	12.9	0.80	0.71	1.97	1.21	0.17	2.07



Stellar Parameters For KIC 009776824

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6338^{+181}_{-226}	$3.774^{+0.518}_{-0.091}$	$-0.160^{+0.300}_{-0.300}$	$2.530^{+0.548}_{-1.279}$	$1.389^{+0.199}_{-0.341}$	$0.121^{+0.711}_{-0.043}$
	+3%/-4%	+14%/-2%	+188%/-188%	+22%/-51%	+14%/-25%	+589%/-36%
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 009776824-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-77 ± 9	$3.24^{+0.72}_{-0.88}$	532^{+42}_{-66}	5263^{+371}_{-316}	6403^{+4824}_{-2117}
Alt.	-33 ± 8	$2.91^{+0.72}_{-0.84}$	529^{+46}_{-72}	4590^{+356}_{-345}	3419^{+2962}_{-1350}

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

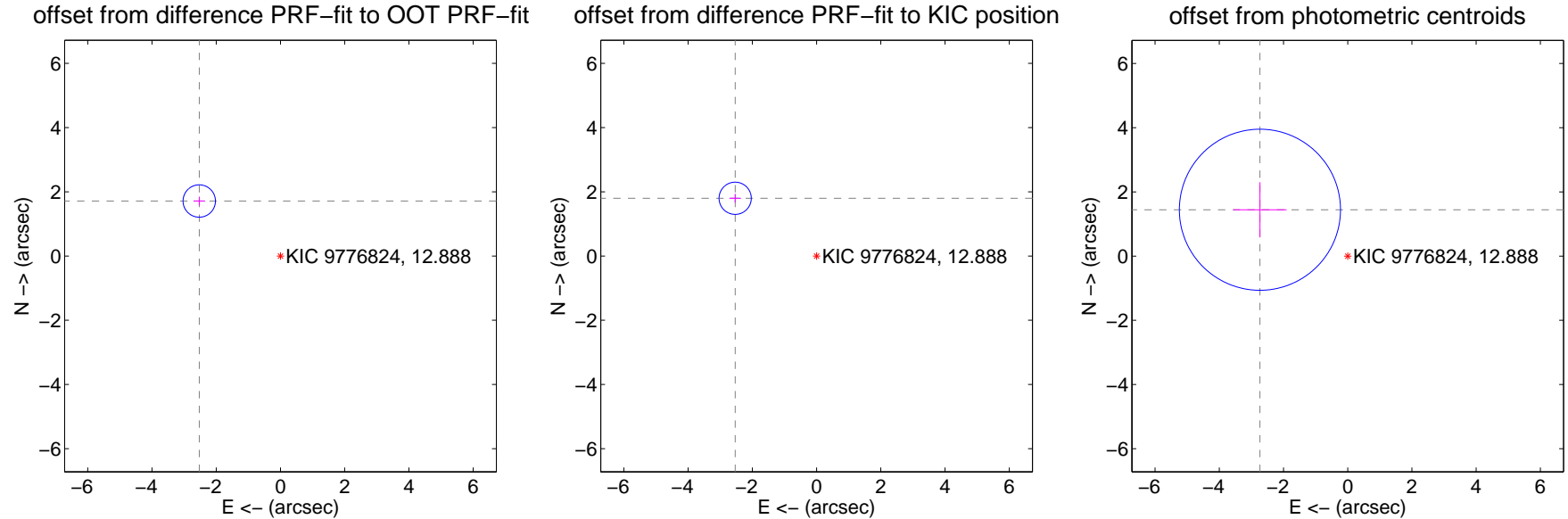
DV Centroid Data

Supplemental centroid analysis for 009776824-01. Kepler magnitude: 12.89. Transit SNR 8.49

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.054 ± 0.168	18.17	2.528 ± 0.180	1.713 ± 0.137
PRF-fit source offset from KIC position	3.108 ± 0.167	18.58	2.534 ± 0.180	1.798 ± 0.137
photometric centroid source offset	3.09 ± 0.84	3.70	2.73 ± 0.83	1.44 ± 0.86

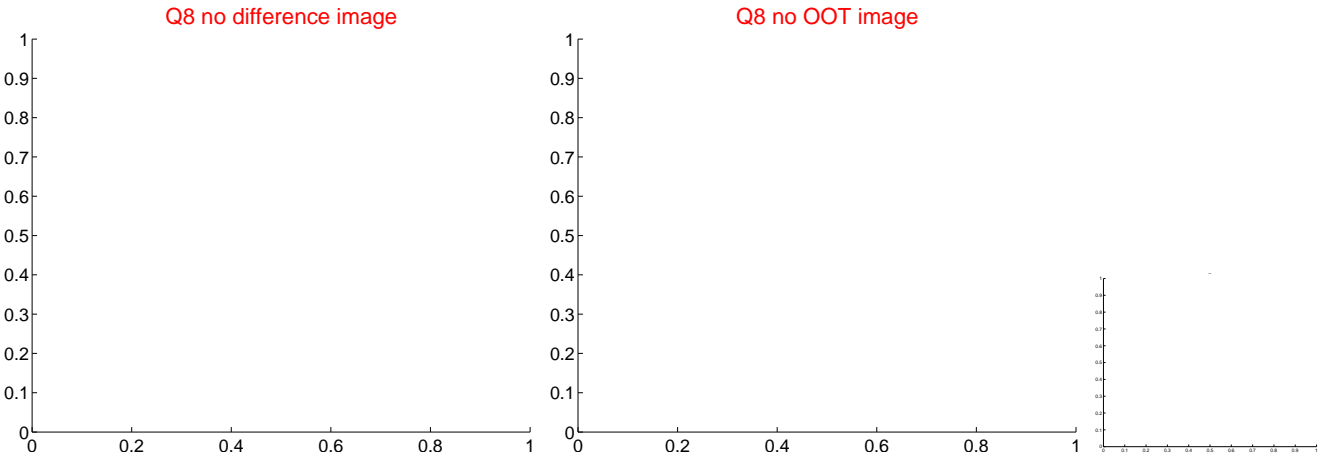
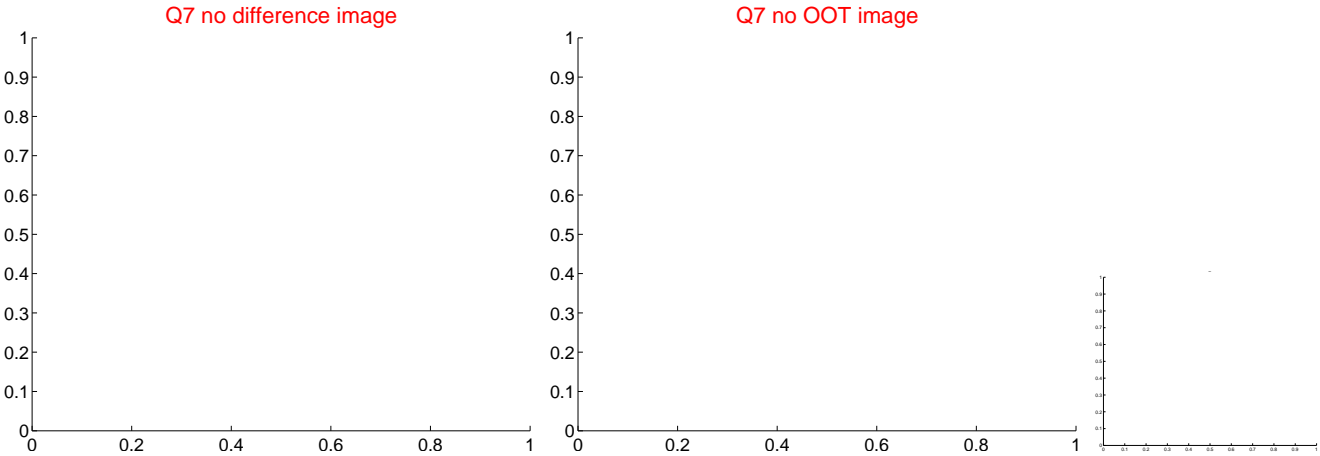
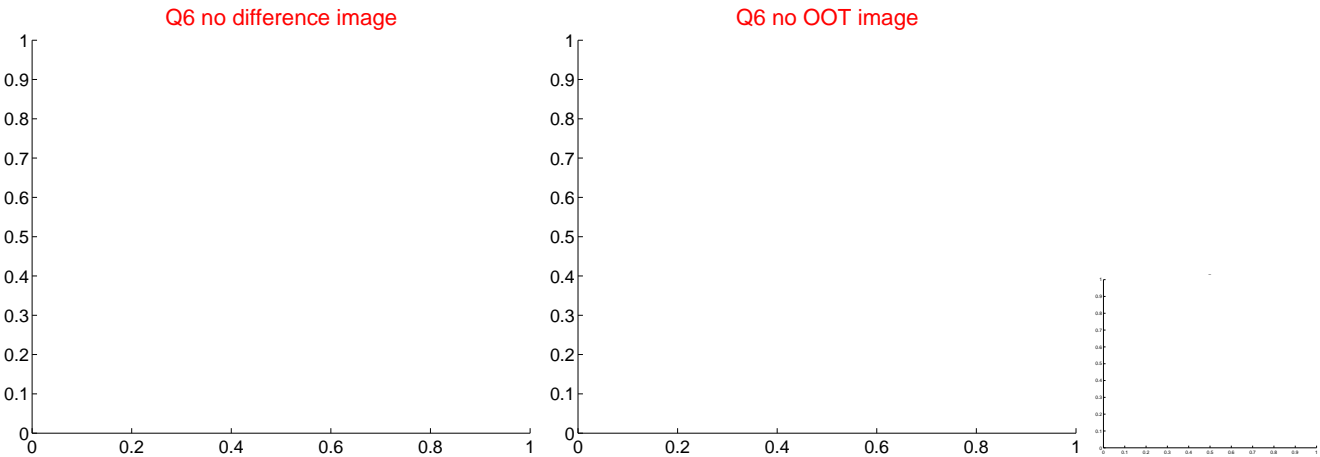
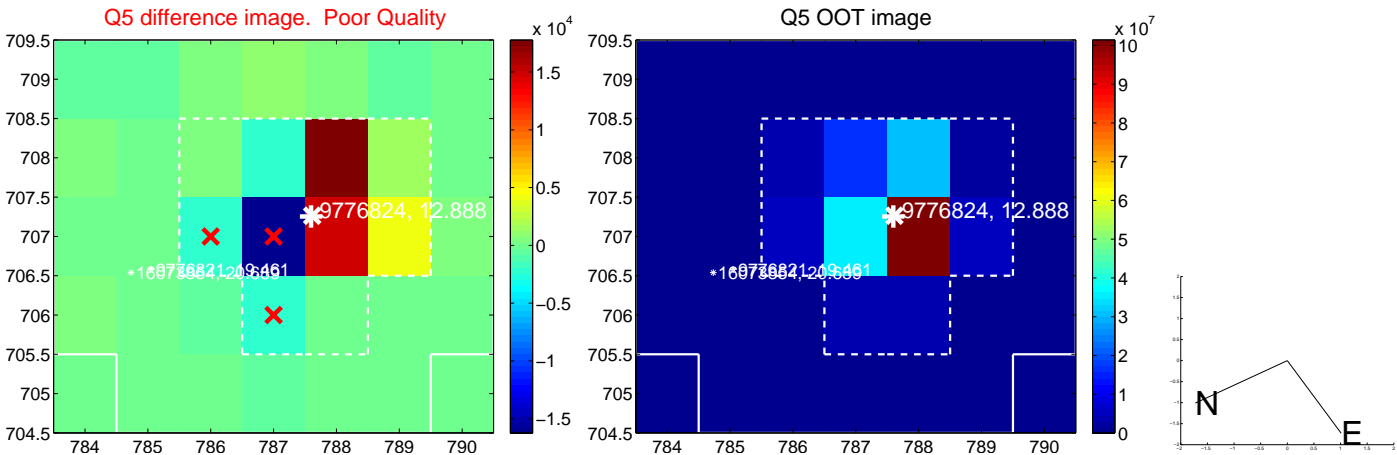


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

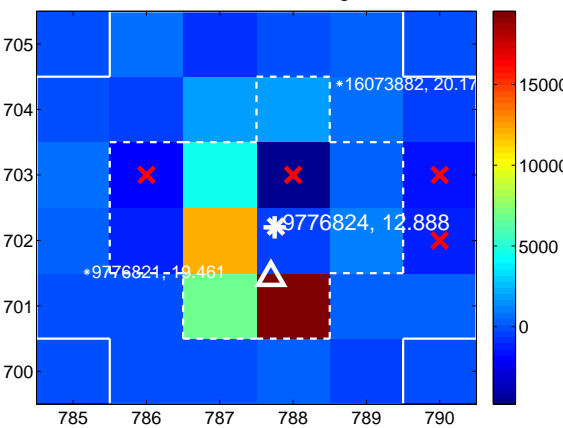
Q9 no difference image



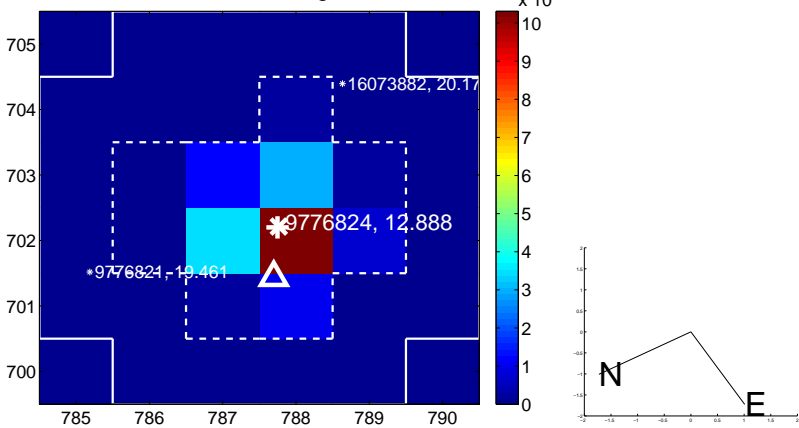
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



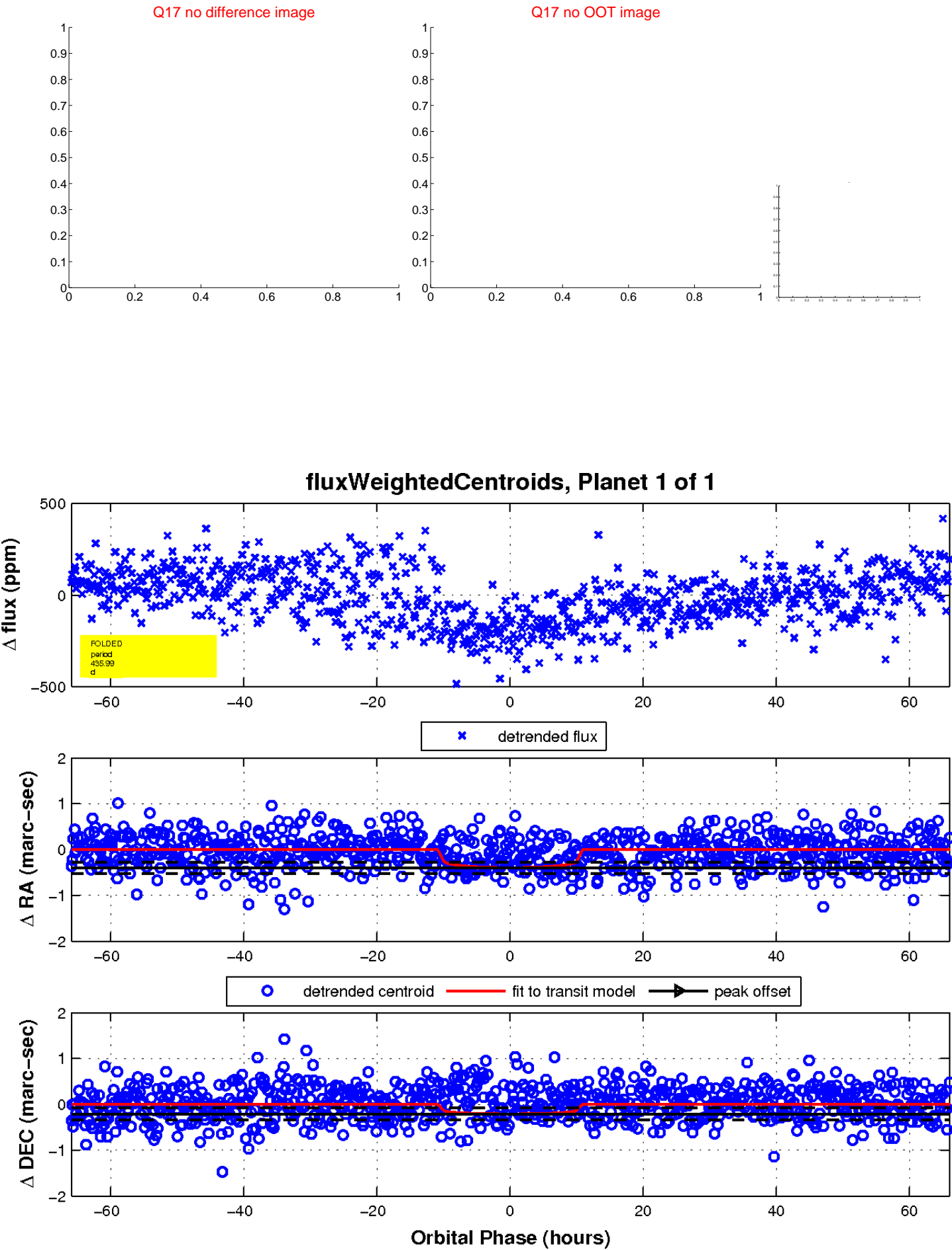
Q12 no OOT image



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



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



UKIRT Image

Declination

