

KIC 012644020

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})
012644020-01	OBS	8083.01	234.525446	346.421450	859.5	3.985	7.1	6.5	0.73	4987	2.39	0.62

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012644020-01	OBS	FP	0.15	1	0	0	0	MOD_NONUNIQ_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.

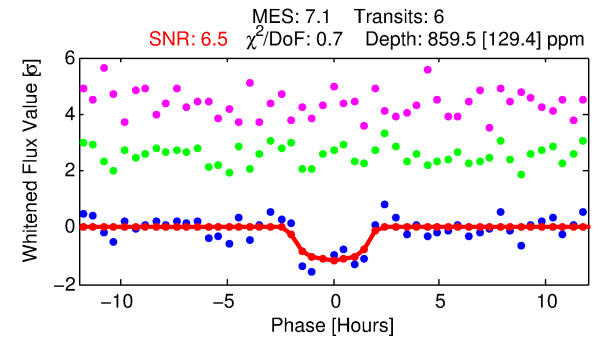
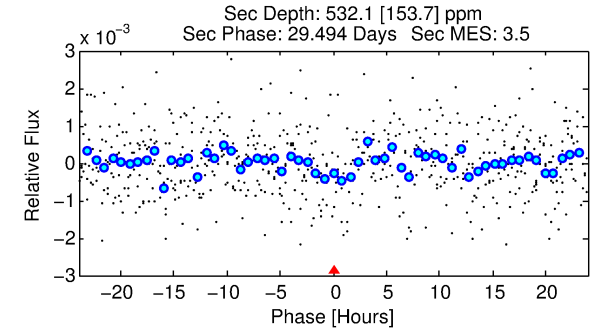
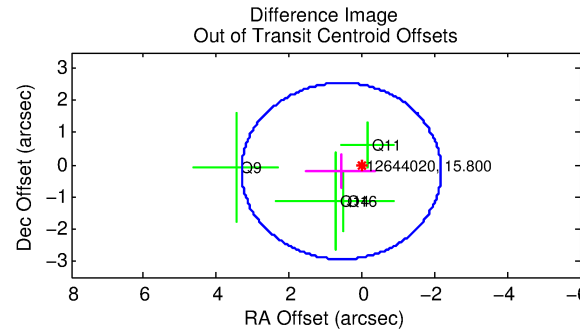
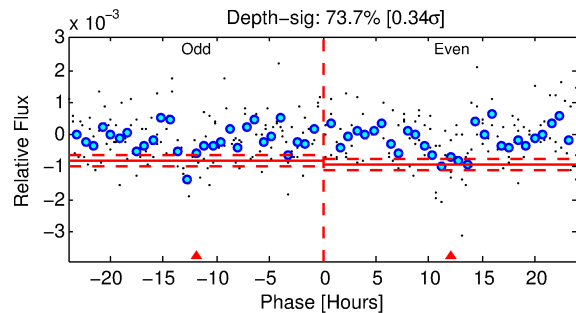
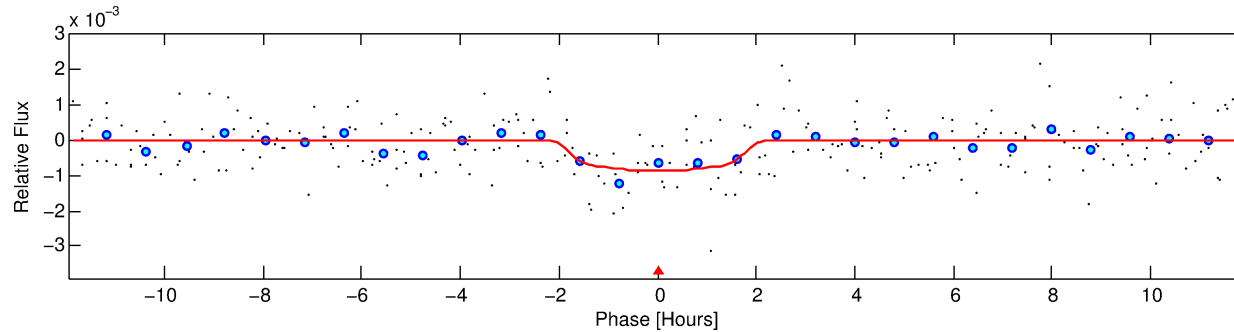
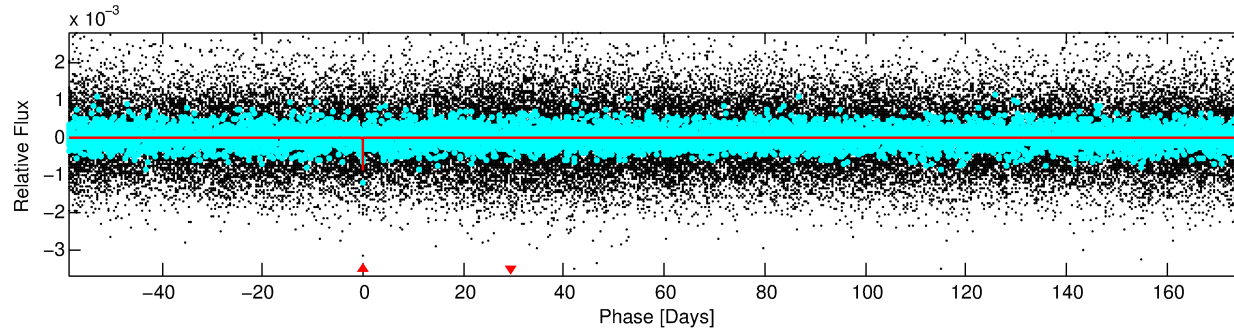
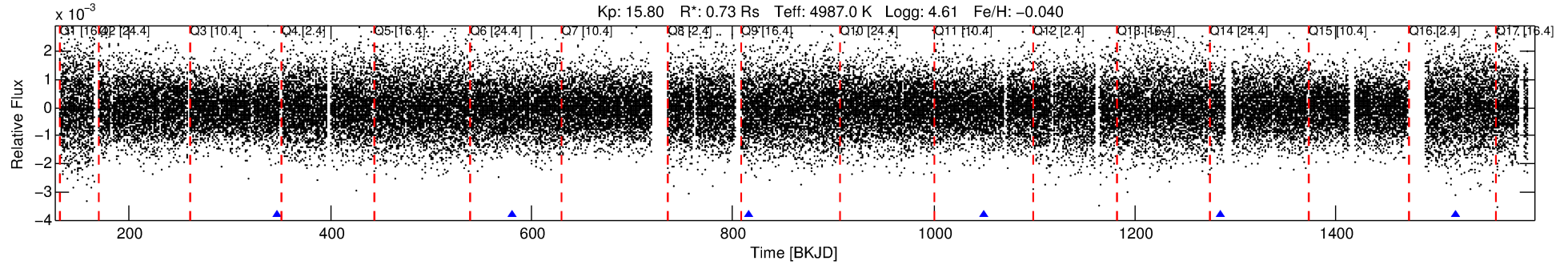
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012644020-01

No Significant Match Found

DV One-Page Summary

KIC: 12644020 Candidate: 1 of 1 Period: 234.525 d



DV Fit Results:

Period = 234.52545 [0.00379] d
Epoch = 346.4214 [0.0110] BKJD
Rp/R* = 0.0301 [0.0335]
a/R* = 292.73 [1161.89]
b = 0.80 [1.86]
Seff = 0.62 [0.11]
Teq = 226 [10] K
Rp = 2.39 [2.67] Re
a = 0.6884 [0.0657] AU
Ag = 24362.50 [54839.63] [0.44 σ]
Teffp = 4367 [2457] K [1.69 σ]

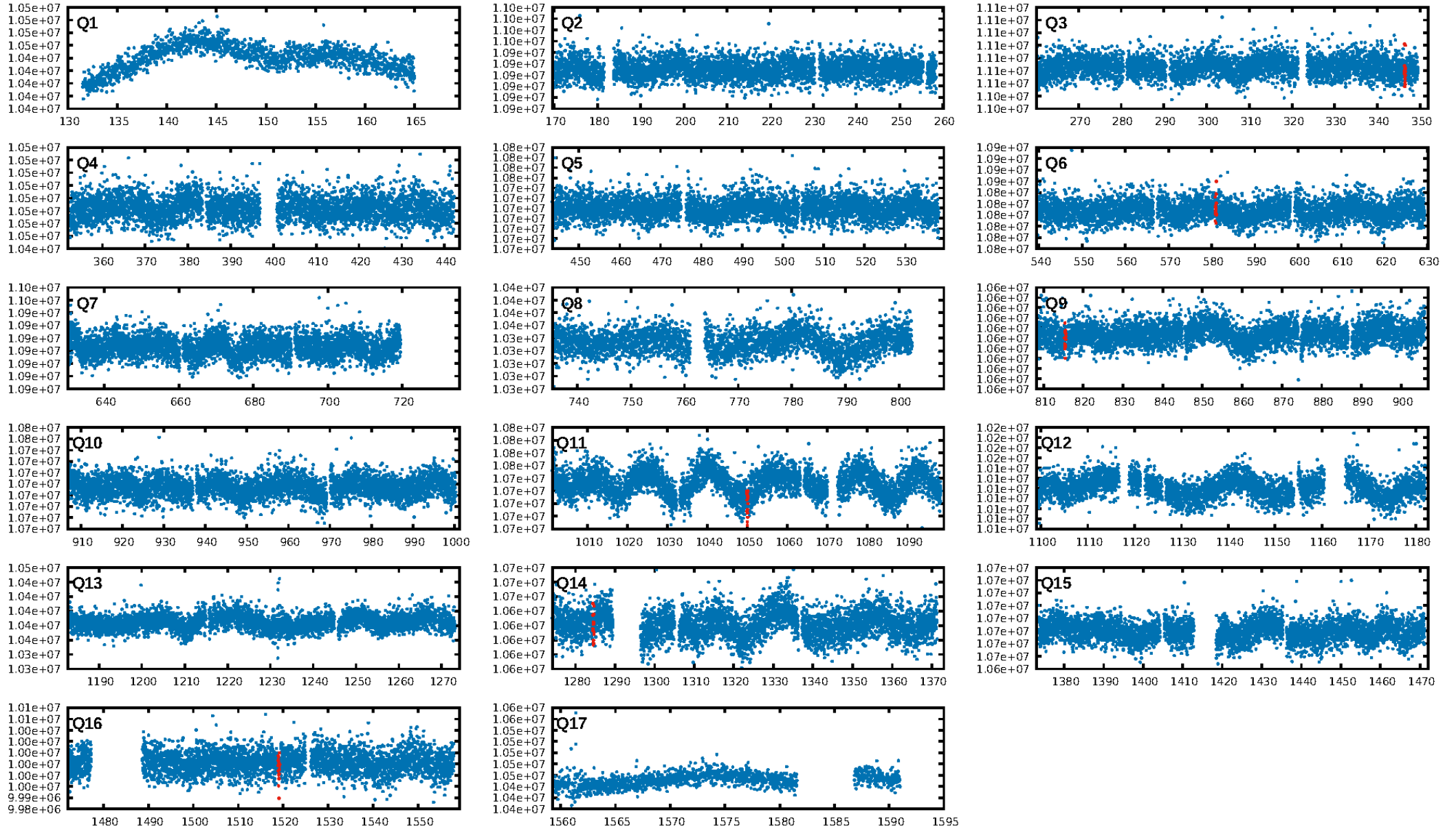
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 51.8%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 5.38e-13
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -6.759
Centroid-sig: 27.5%
Centroid-so: 3.337 arcsec [1.50 σ]
OotOffset-rm: 0.602 arcsec [0.66 σ]
KicOffset-rm: 0.435 arcsec [0.46 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [6/6]

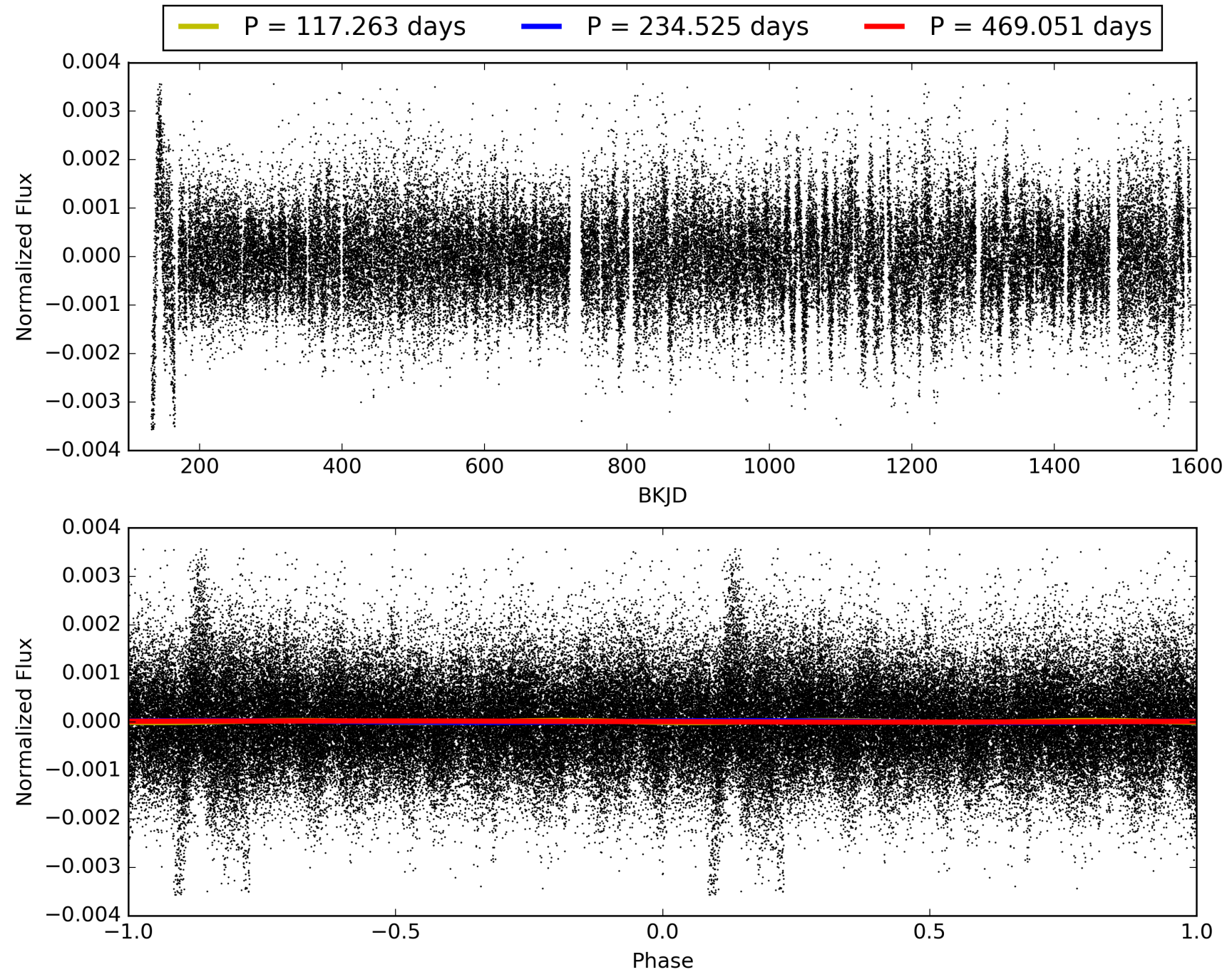
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:36:14 Z

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

TCE 012644020-01, PDC Light Curves

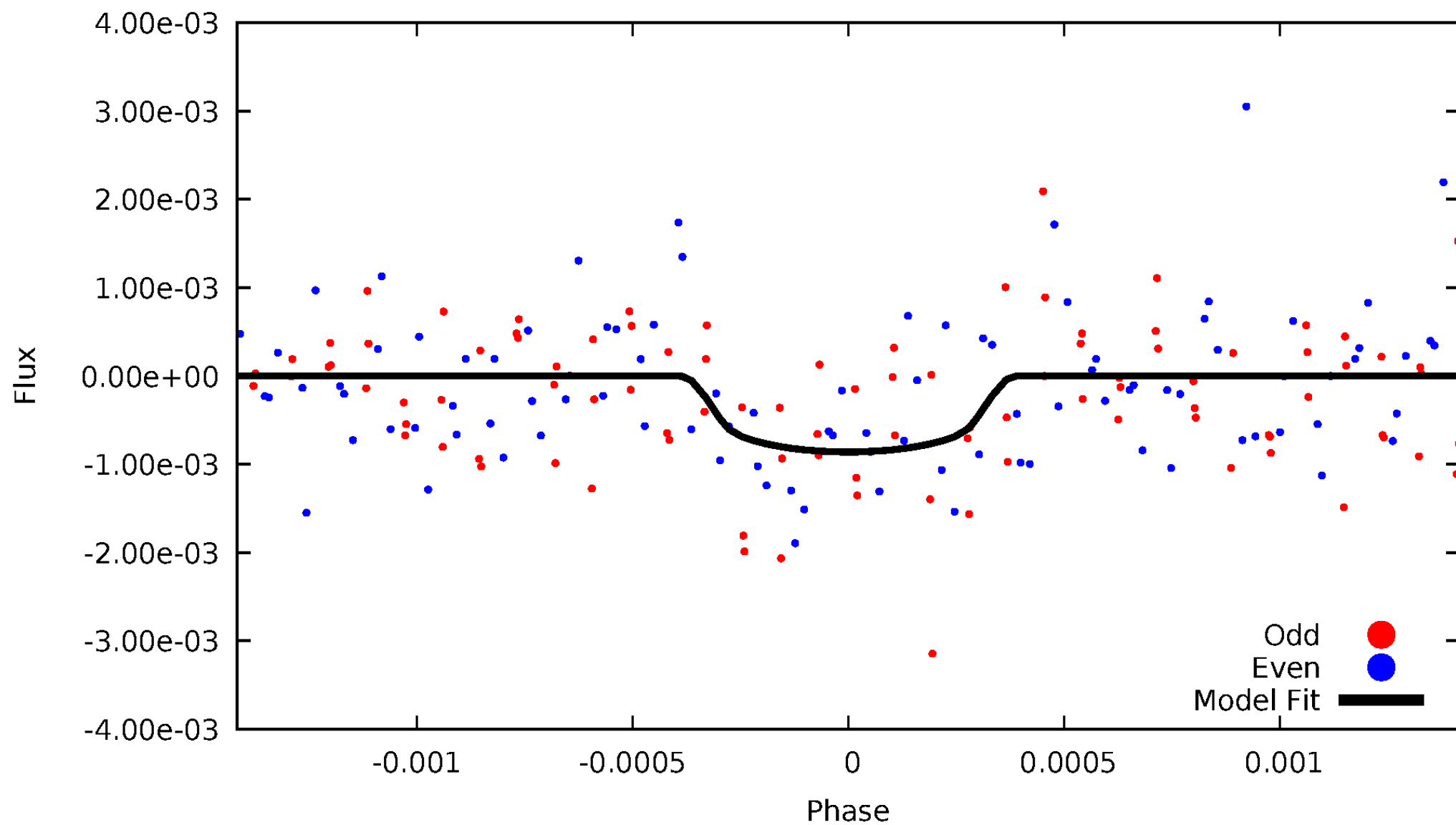


TCE 012644020-01



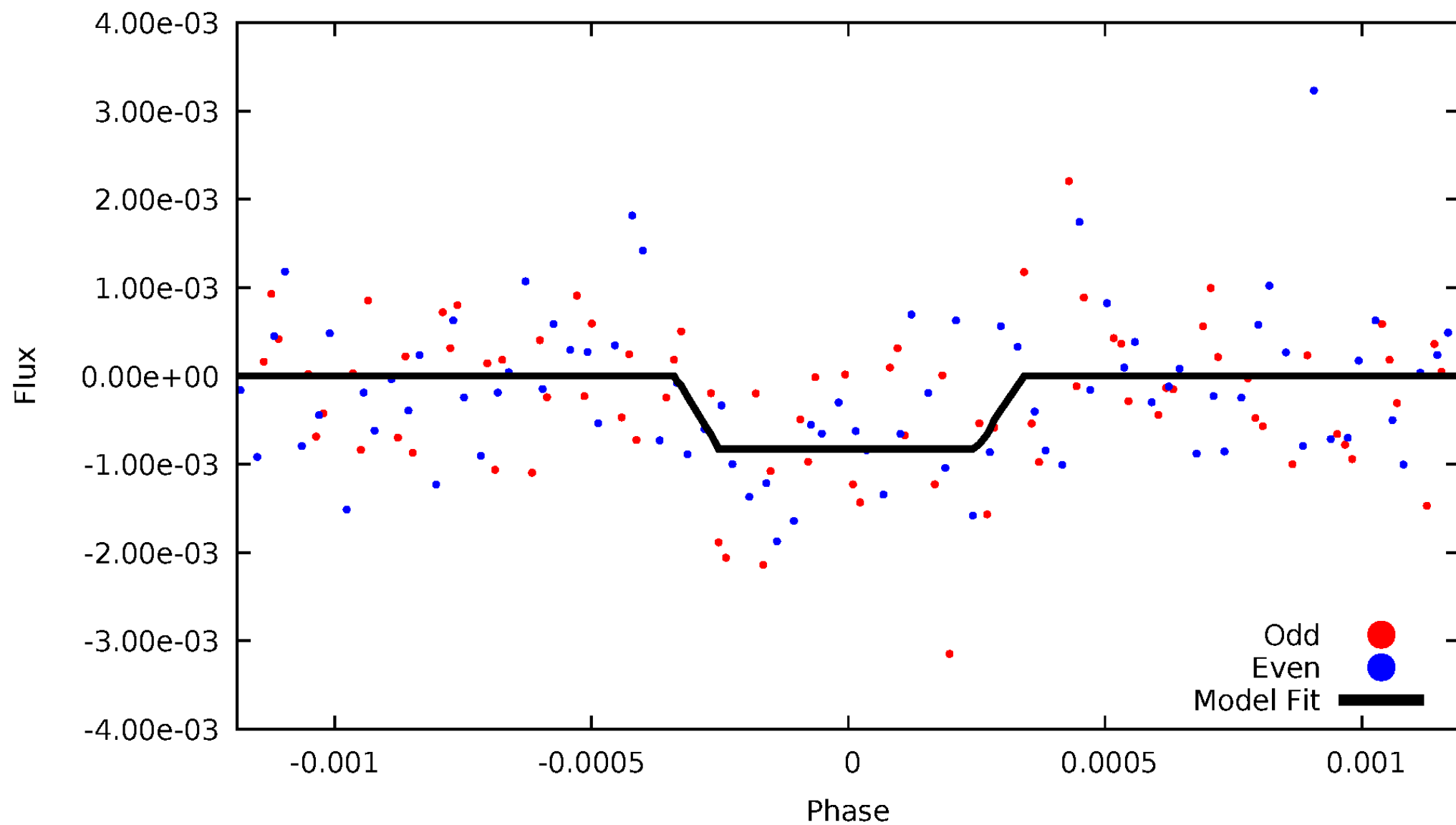
DV Odd/Even

TCE 012644020-01



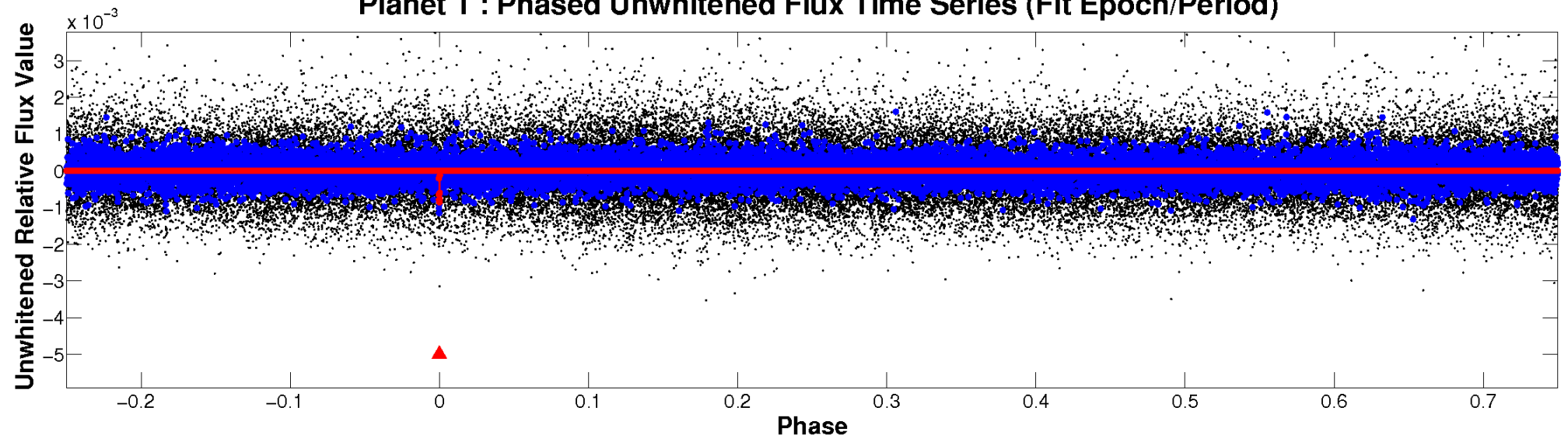
ALT Odd/Even

TCE 012644020-01

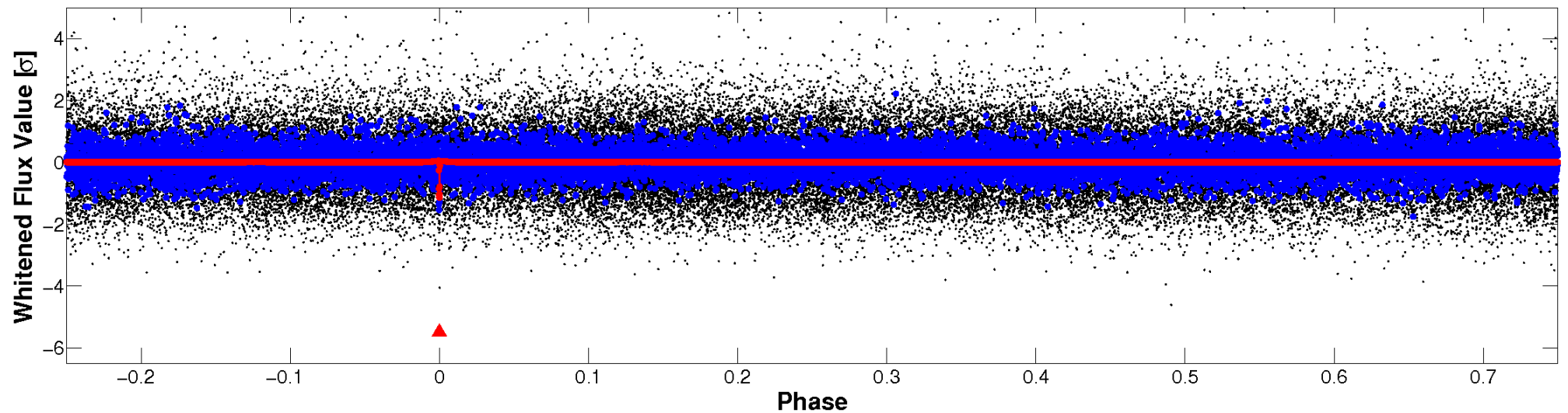


Non-Whitened Vs. Whitened Light Curve

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

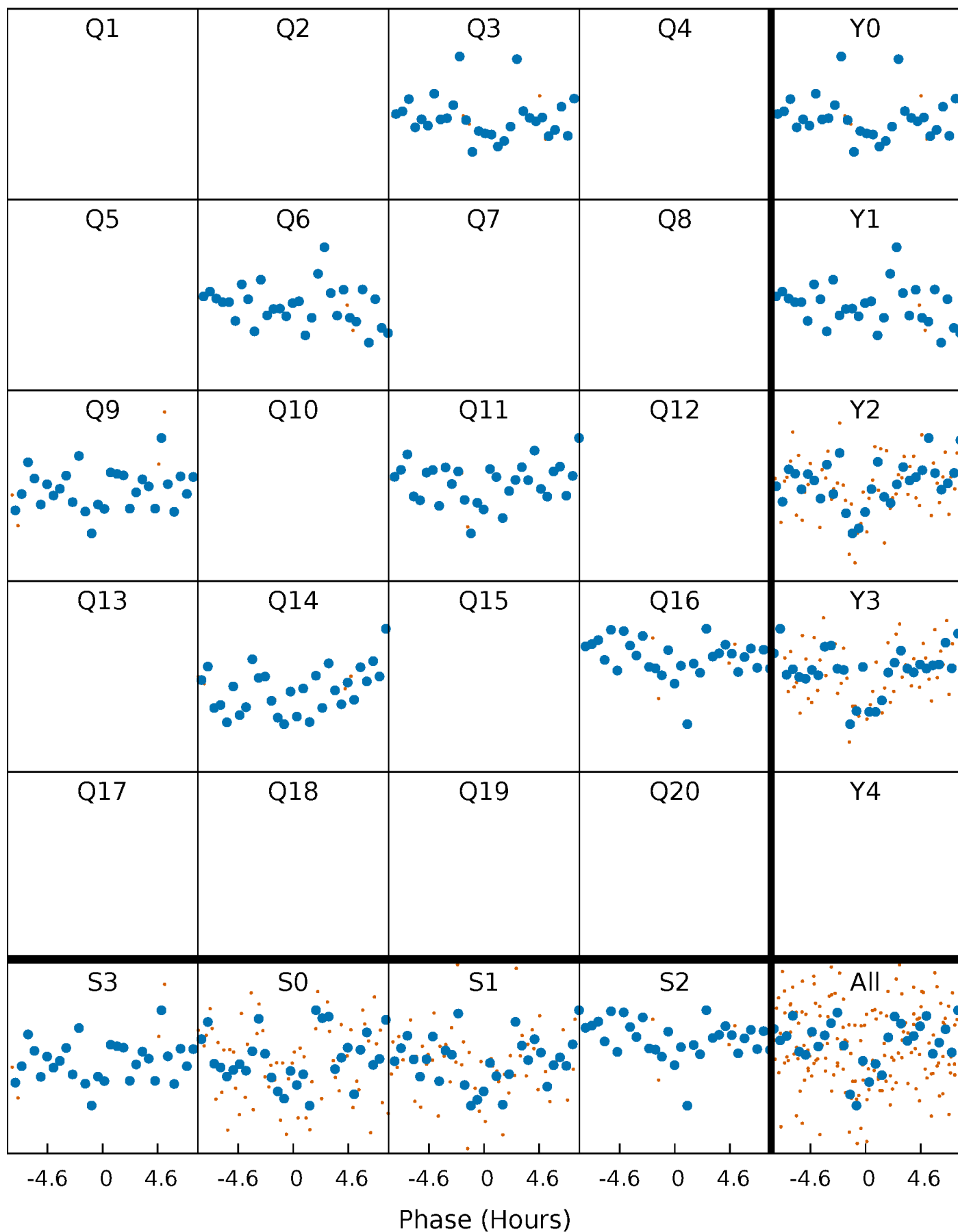


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



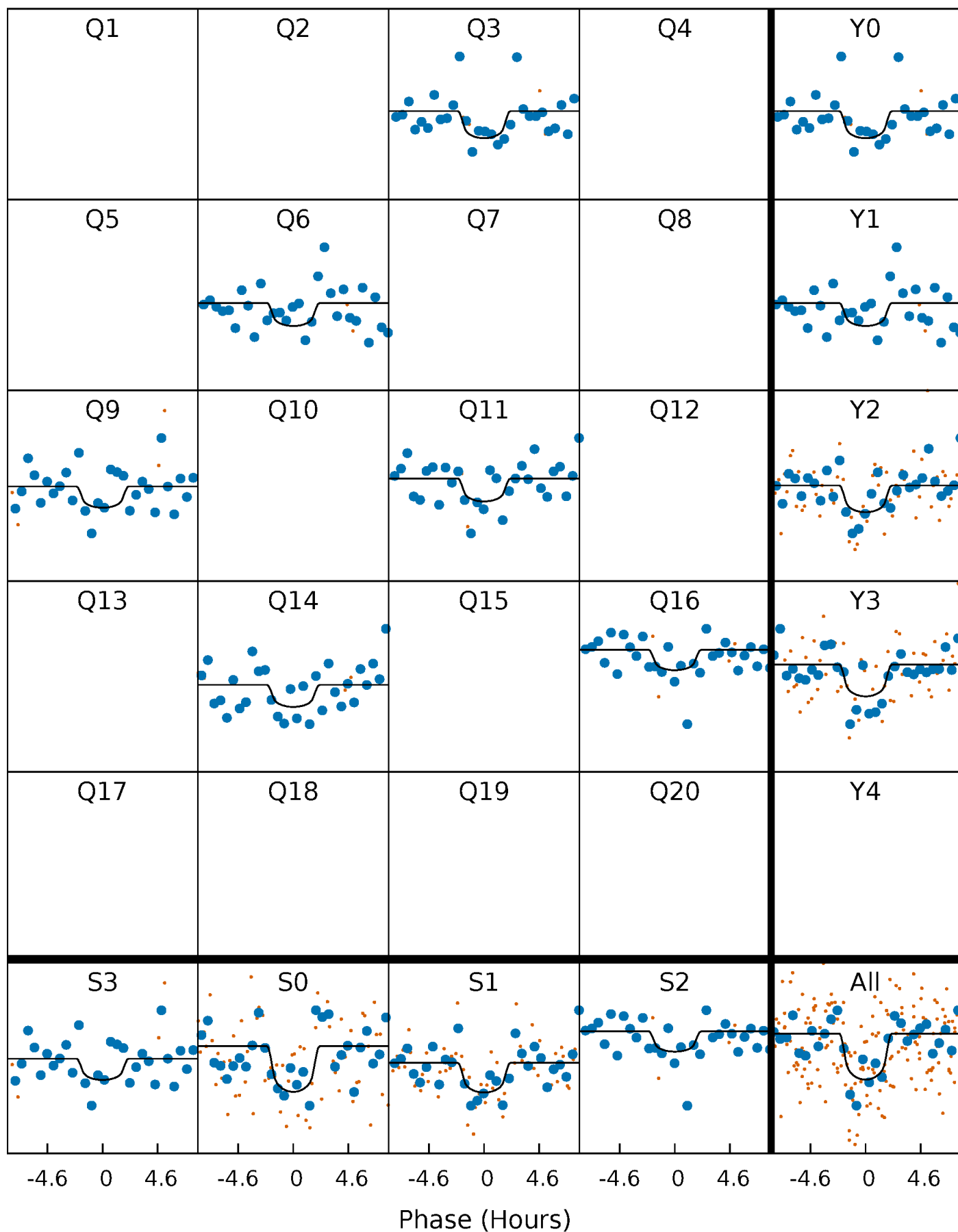
PDC Quarter-Phased Transit Curves

TCE 012644020-01 P=234.525445 Days $T_0=346.421450$ (BKJD)



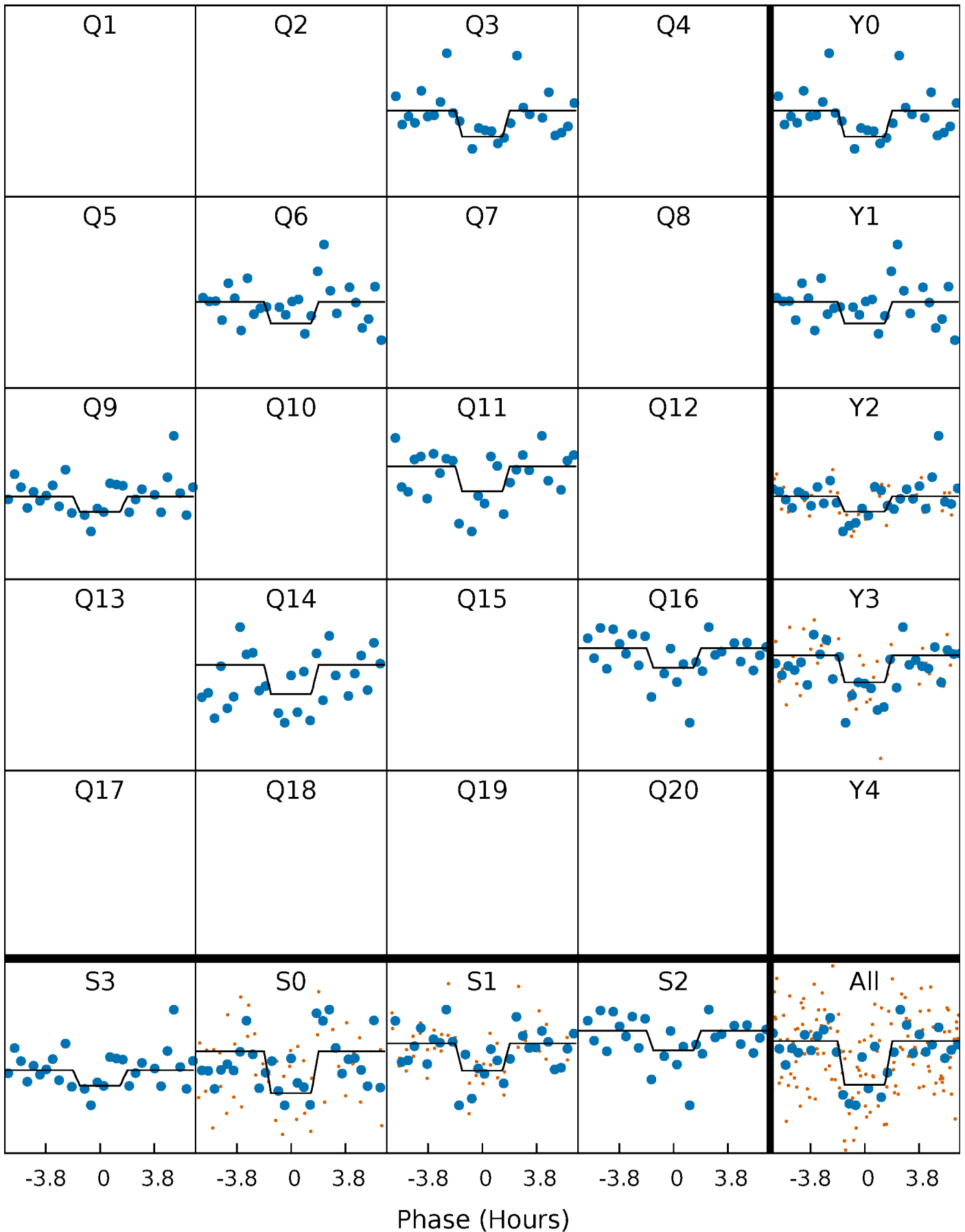
DV Quarter-Phased Transit Curves

TCE 012644020-01 P=234.525445 Days $T_0=346.421450$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

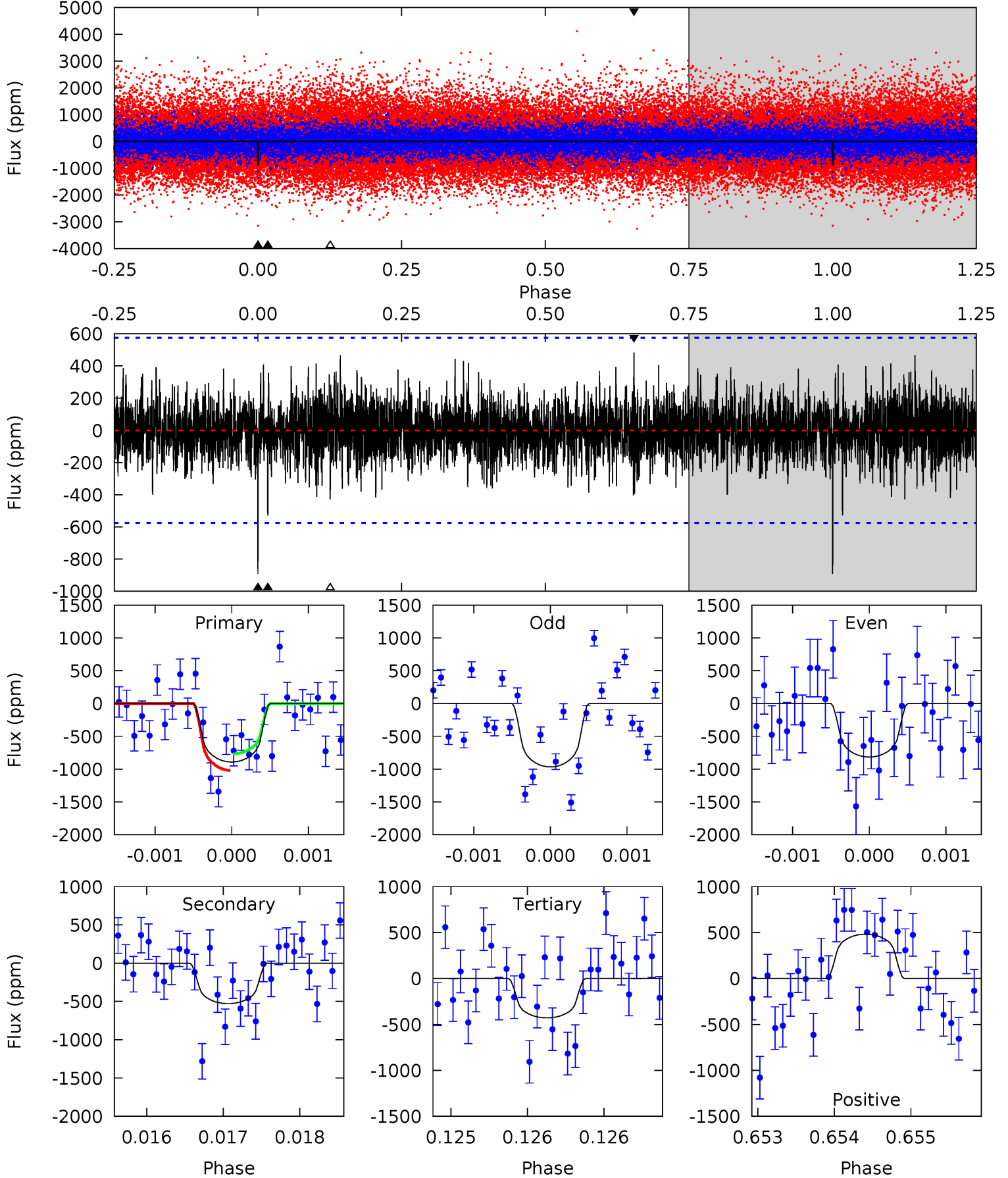
TCE 012644020-01 P=234.524049 Days $T_0=346.427891$ (BKJD)



DV Model-Shift Uniqueness Test

012644020-01, P = 234.525445 Days, E = 111.896005 Days

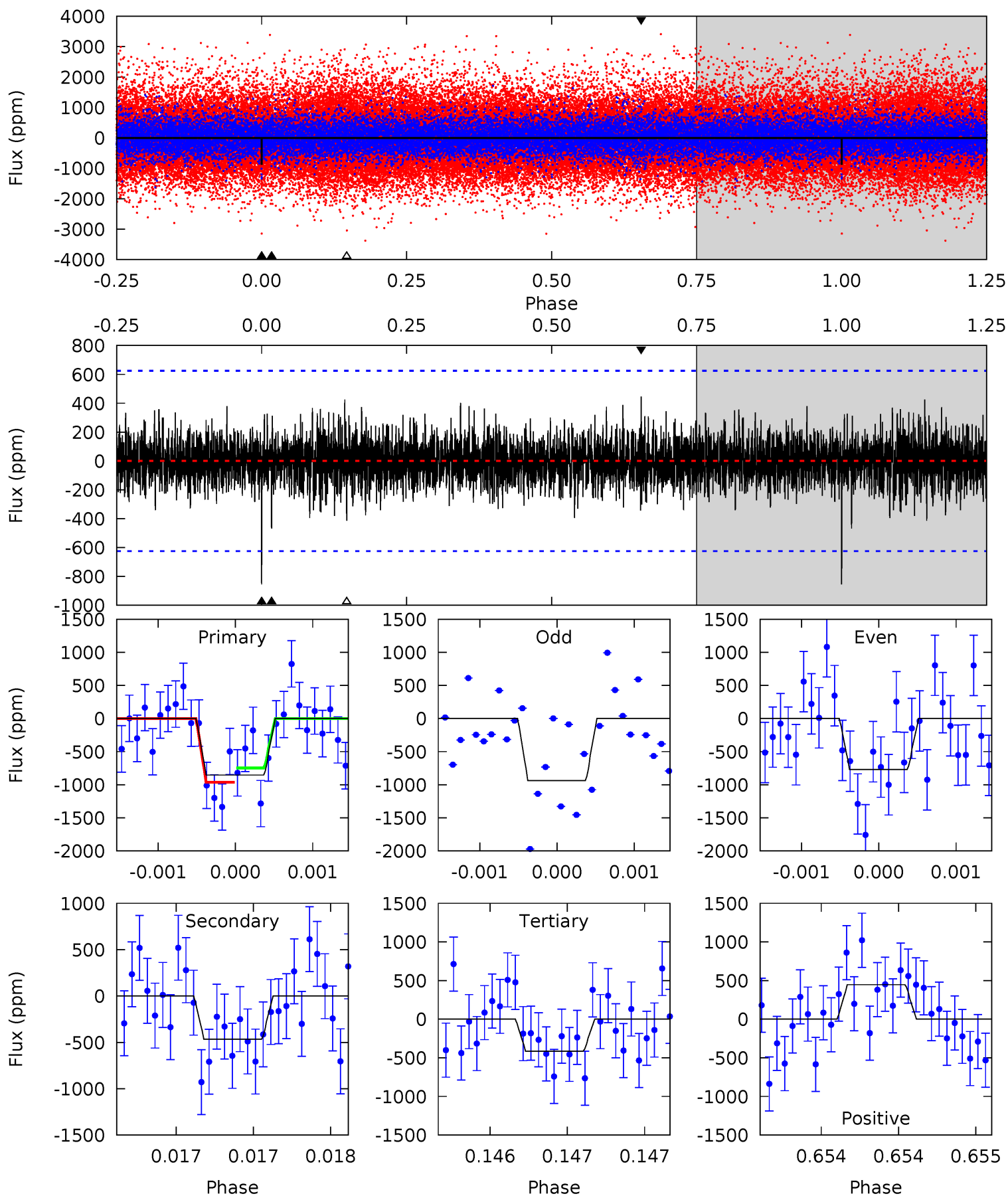
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.51	5.04	4.09	4.61	5.50	3.36	1.17	4.42	3.91	0.95	0.44	0.72	0.96	0.35	1.21



Alt Model-Shift Uniqueness Test

012644020-01, P = 234.524049 Days, E = 111.903842 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.55	4.13	3.67	3.95	5.52	3.40	1.00	3.89	3.60	0.46	0.18	0.74	0.94	0.34	0.96



Stellar Parameters For KIC 012644020

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4987^{+151}_{-136}	$4.613^{+0.030}_{-0.070}$	$-0.040^{+0.300}_{-0.300}$	$0.727^{+0.086}_{-0.050}$	$0.810^{+0.057}_{-0.085}$	$2.967^{+0.393}_{-0.747}$
	+3%/-3%	+1%/-2%	+750%/-750%	+12%/-7%	+7%/-10%	+13%/-25%
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 012644020-01 / KOI 8083.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-528 ± 105	$3.00^{+2.49}_{-1.86}$	319^{+13}_{-11}	4143^{+2115}_{-760}	15356^{+94386}_{-10789}
Alt.	-467 ± 113	$3.02^{+2.42}_{-1.91}$	320^{+12}_{-11}	4053^{+1997}_{-757}	13438^{+79372}_{-9742}

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

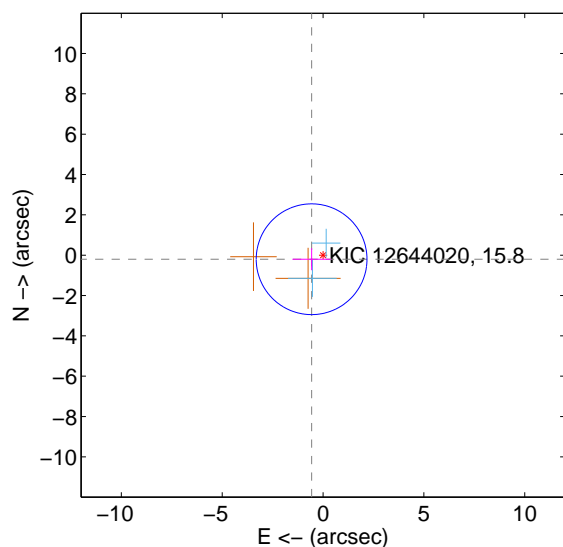
Supplemental centroid analysis for 012644020-01. Kepler magnitude: 15.80. Transit SNR 6.53

There are 2 quarters with good PRF difference image offsets

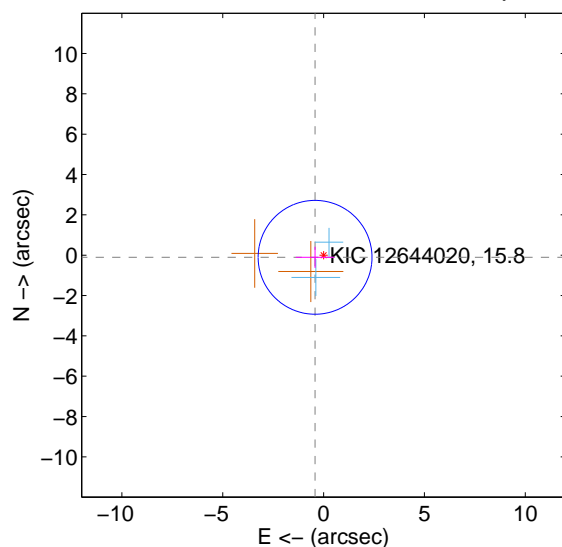
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.602 ± 0.915	0.66	0.567 ± 0.952	-0.201 ± 0.546
PRF-fit source offset from KIC position	0.435 ± 0.941	0.46	0.422 ± 0.961	-0.106 ± 0.525
photometric centroid source offset	3.34 ± 2.22	1.50	-2.13 ± 2.44	2.57 ± 2.05

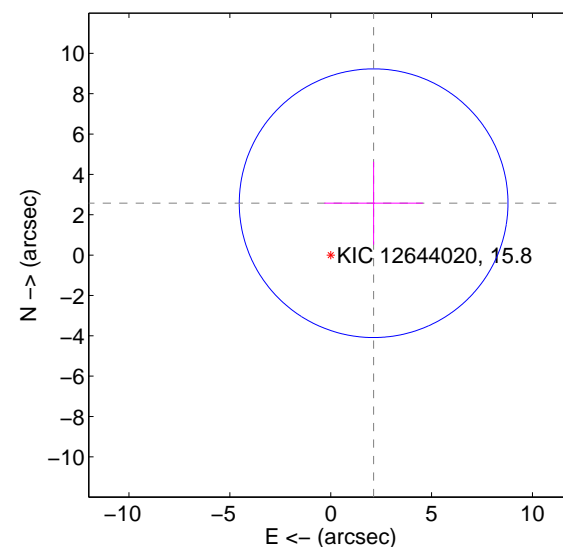
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



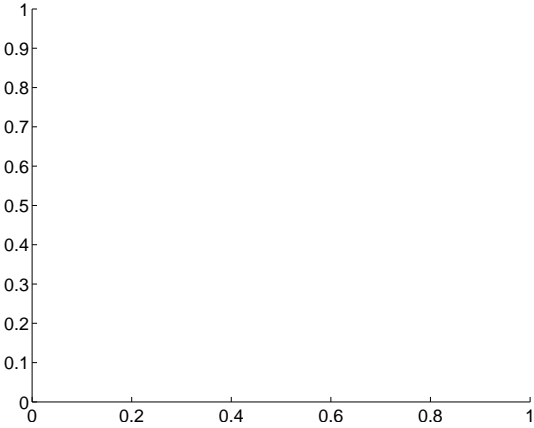
offset from photometric centroids



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

Q1 no difference image



Q1 no OOT image



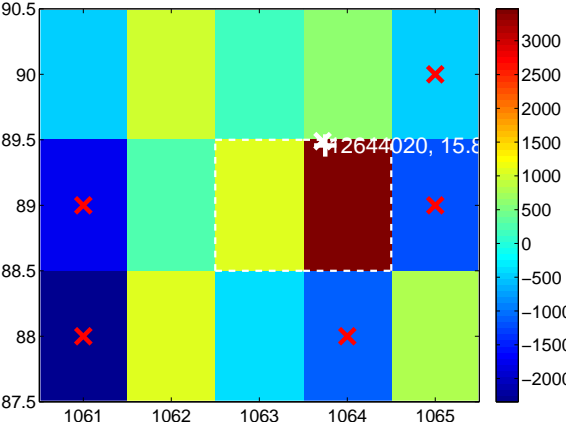
Q2 no difference image



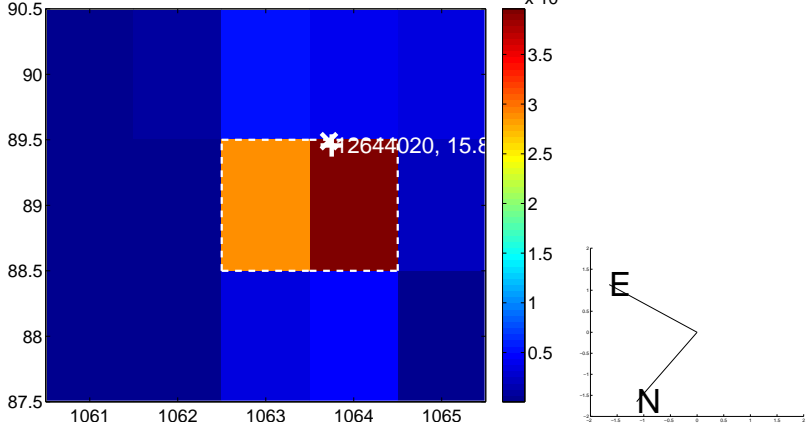
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 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.

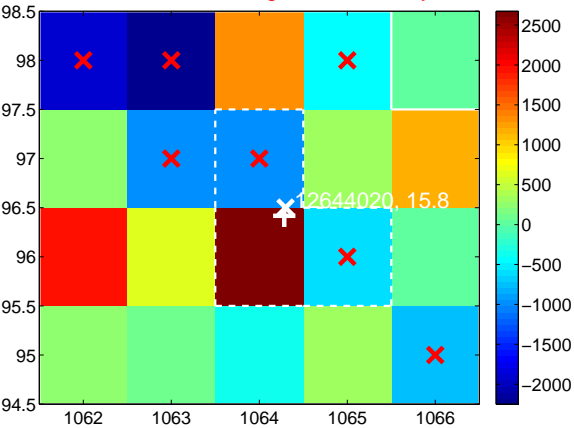
Q5 no difference image



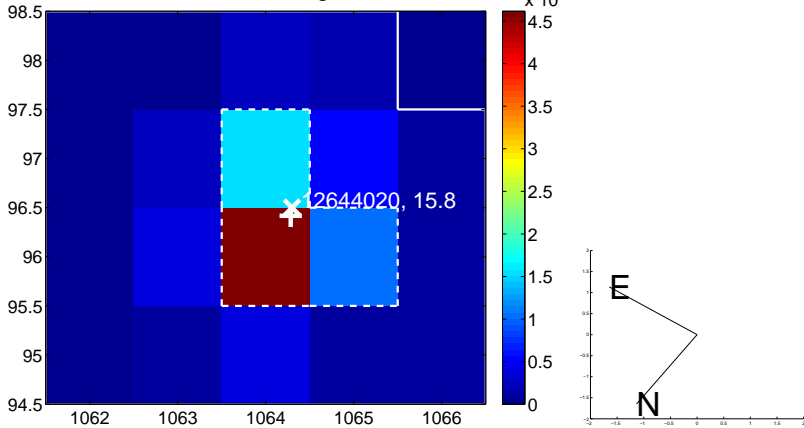
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



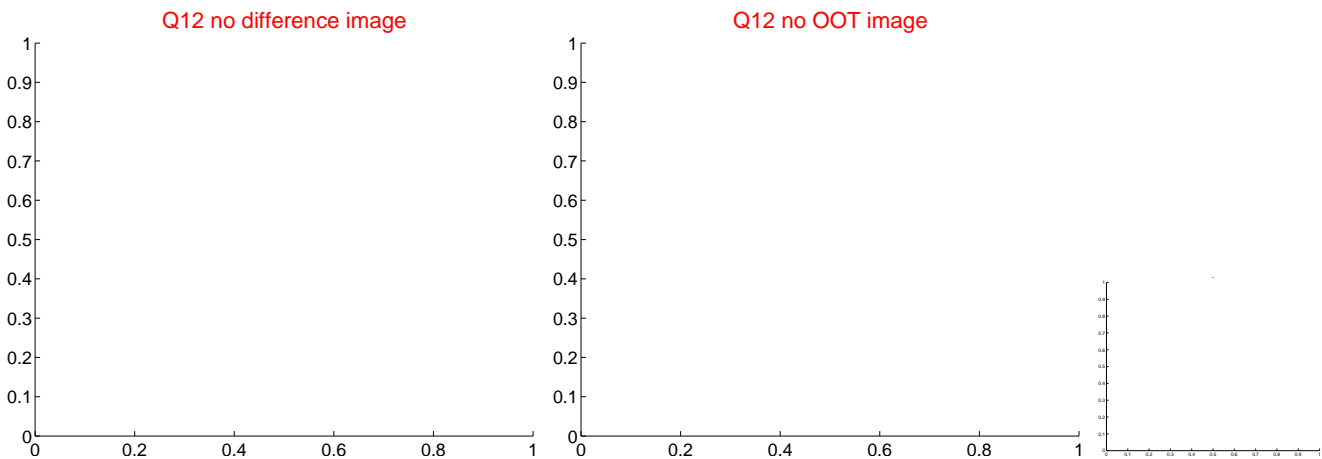
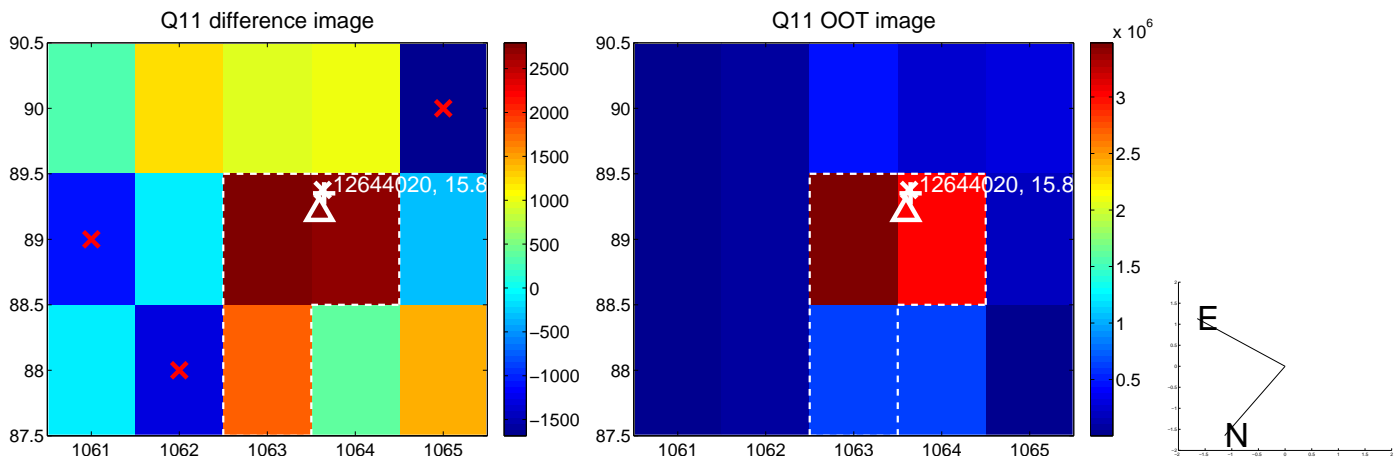
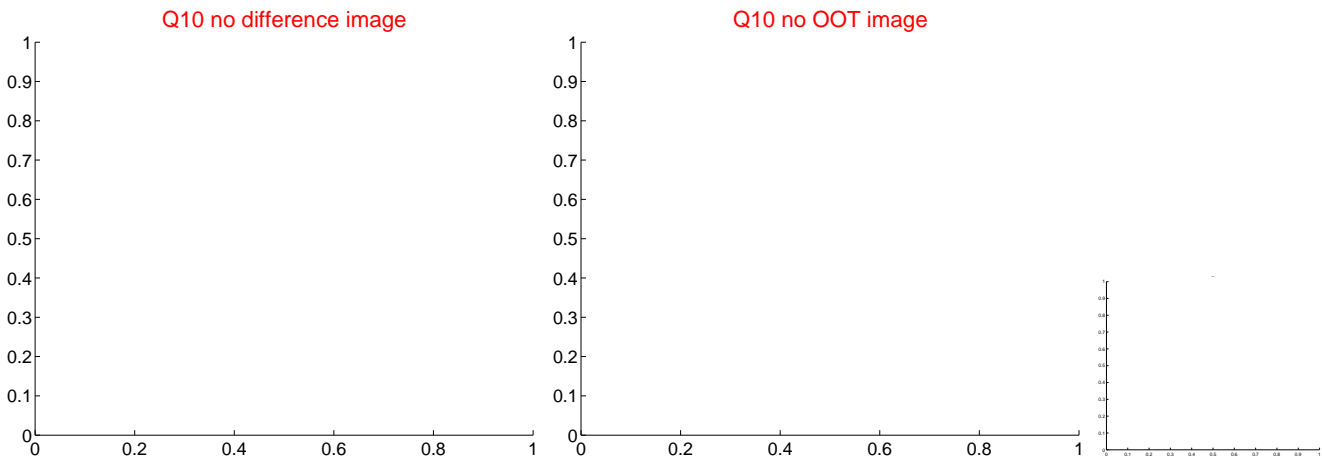
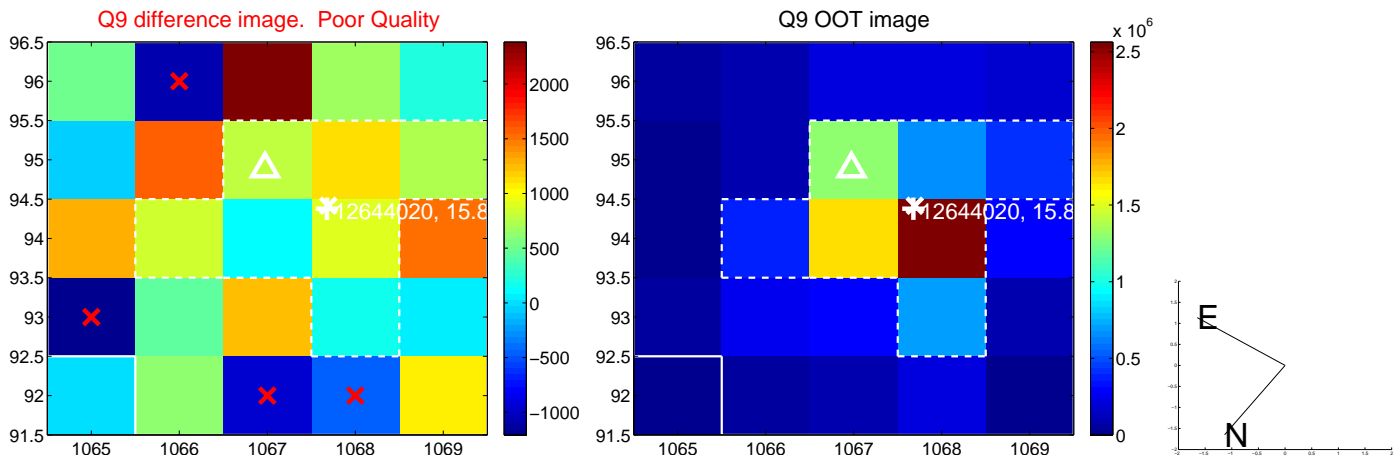
Q8 no difference image



Q8 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.

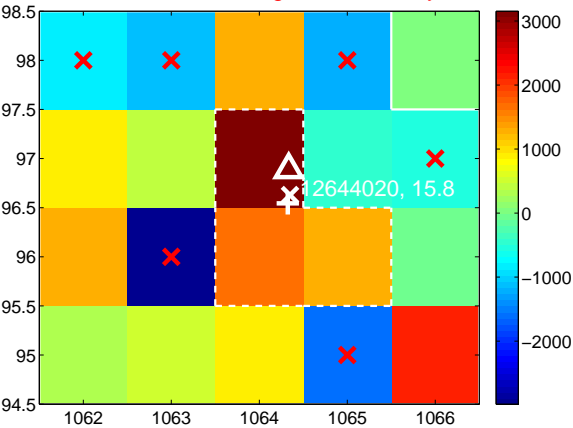
Q13 no difference image



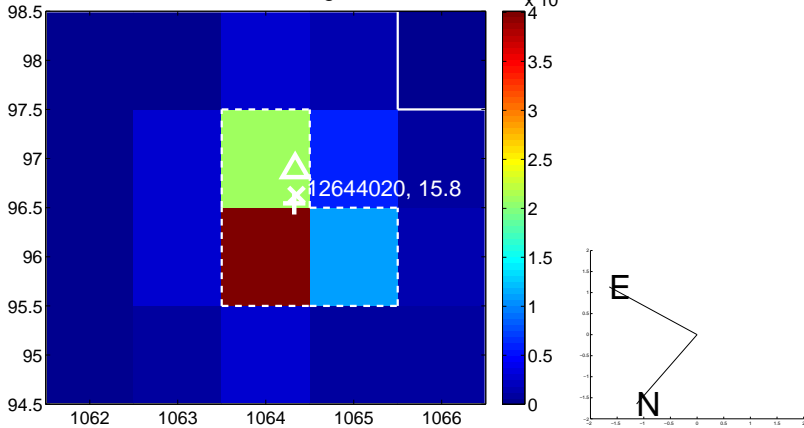
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



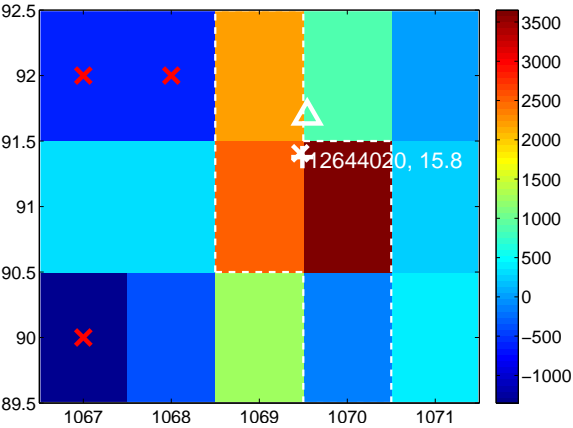
Q15 no difference image



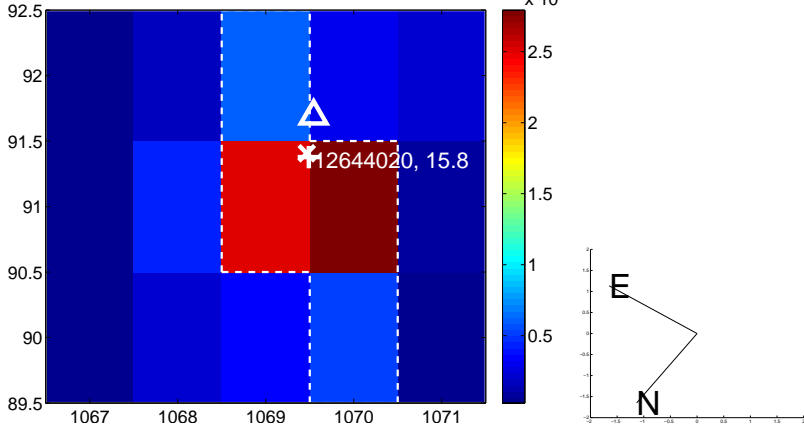
Q15 no OOT image



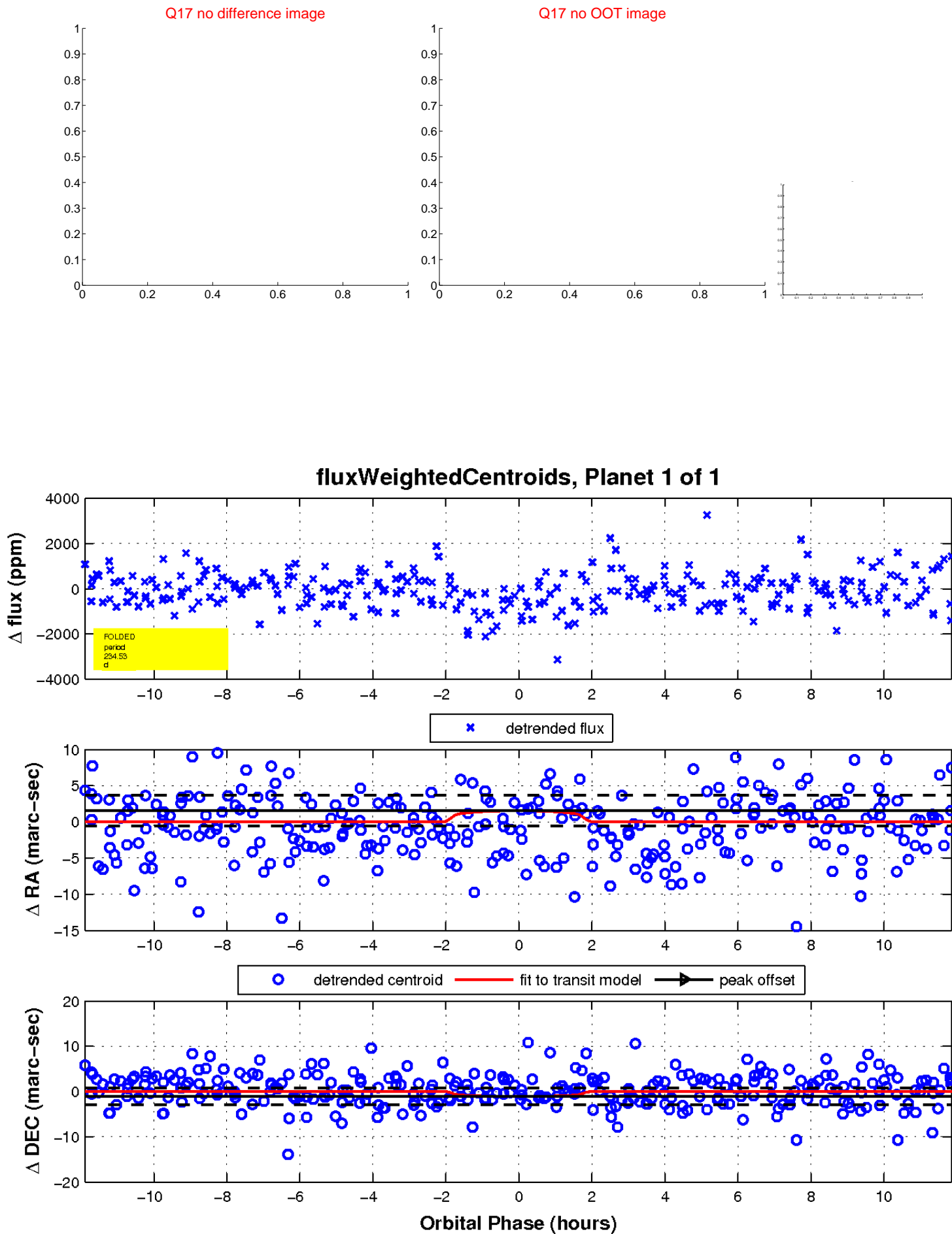
Q16 difference image



Q16 OOT image



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



UKIRT Image

