

KIC 008040409

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})
008040409-01	OBS	No	352.950582	216.054555	924.0	10.030	8.7	6.3	0.87	5861	2.83	0.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008040409-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

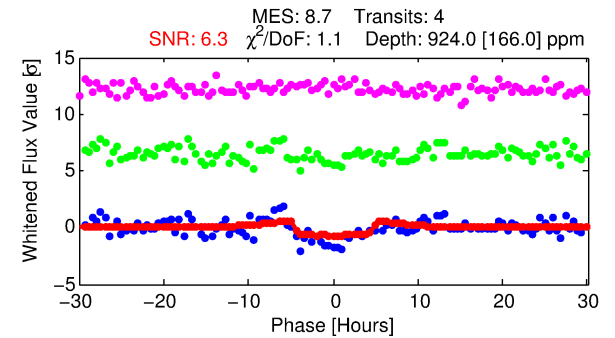
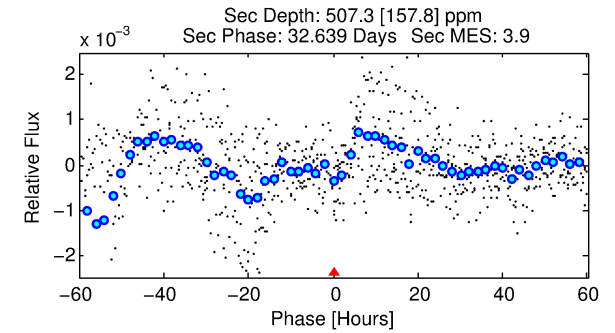
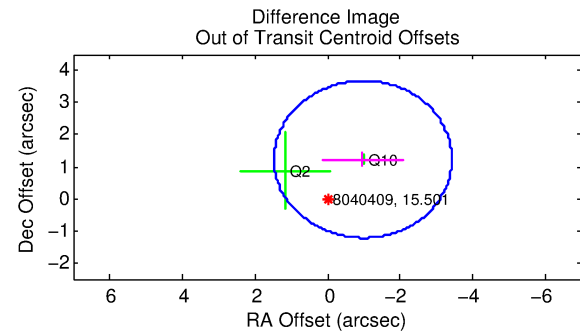
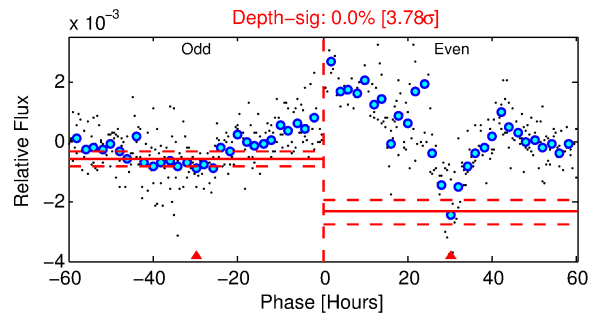
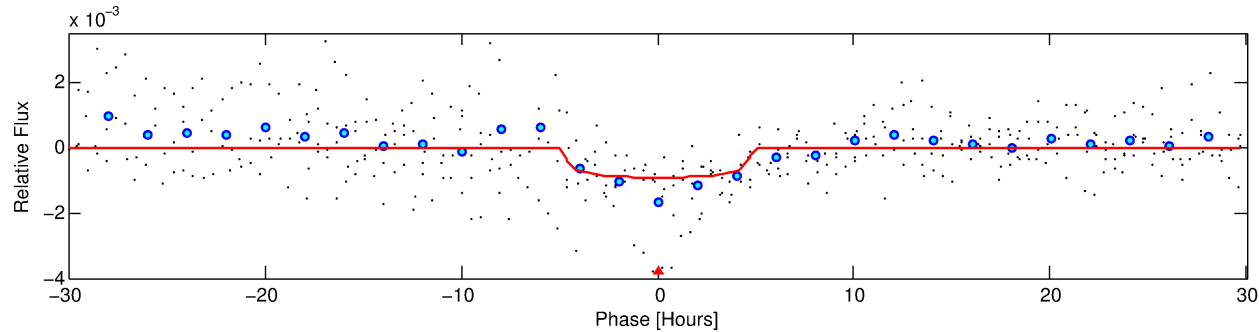
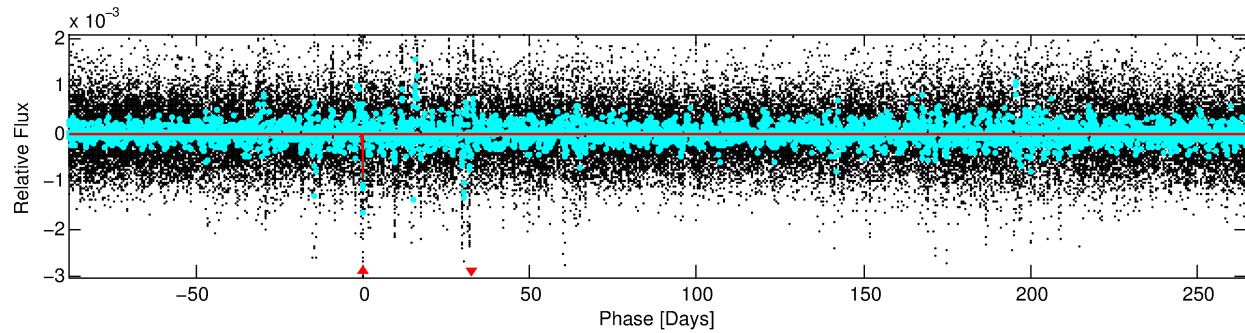
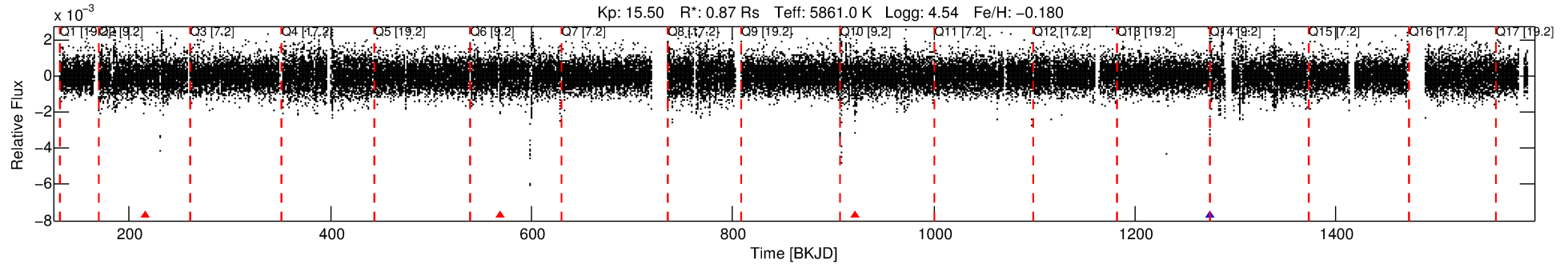
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008040409-01

No Significant Match Found

DV One-Page Summary

KIC: 8040409 Candidate: 1 of 1 Period: 352.951 d



DV Fit Results:

Period = 352.95058 [0.00849] d
Epoch = 216.0546 [0.0160] BKJD
Rp/R* = 0.0298 [0.0153]
a/R* = 203.09 [468.30]
b = 0.70 [1.68]
Seff = 0.86 [0.32]
Teq = 246 [23] K
Rp = 2.83 [1.66] Re
a = 0.9657 [0.2327] AU
Ag = 32476.08 [36672.23] [0.89 σ]
Teffp = 5100 [1376] K [3.53 σ]

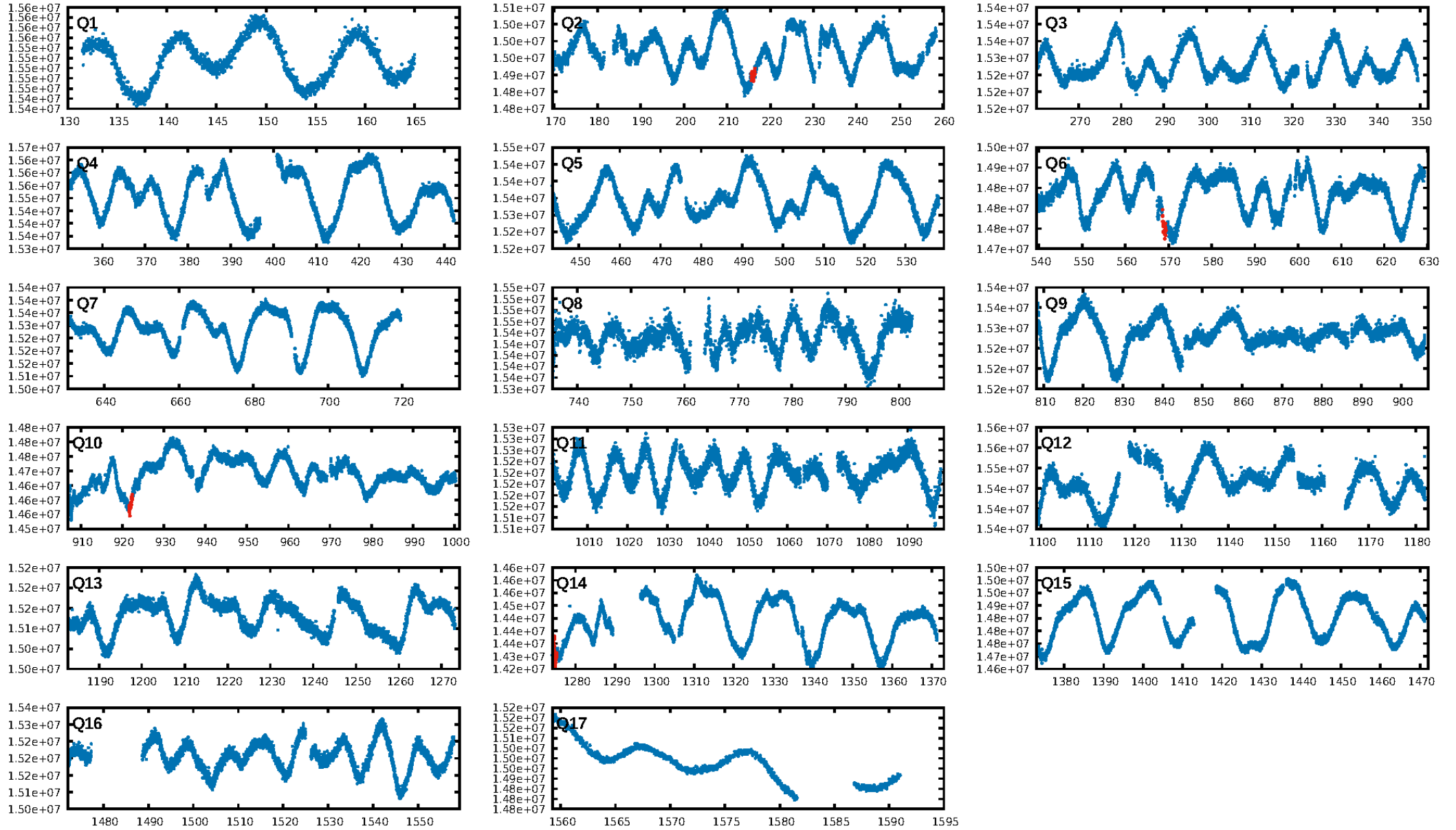
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.5%
ModelChiSquareGof-sig: 99.1%
Bootstrap-pfa: 1.64e-07
RollingBand-fgt: 0.25 [1/4]
GhostDiagnostic-chr: 0.1728
Centroid-sig: 0.0%
Centroid-so: 6.479 arcsec [2.95 σ]
OotOffset-rm: 1.568 arcsec [1.92 σ]
KicOffset-rm: 1.602 arcsec [2.63 σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

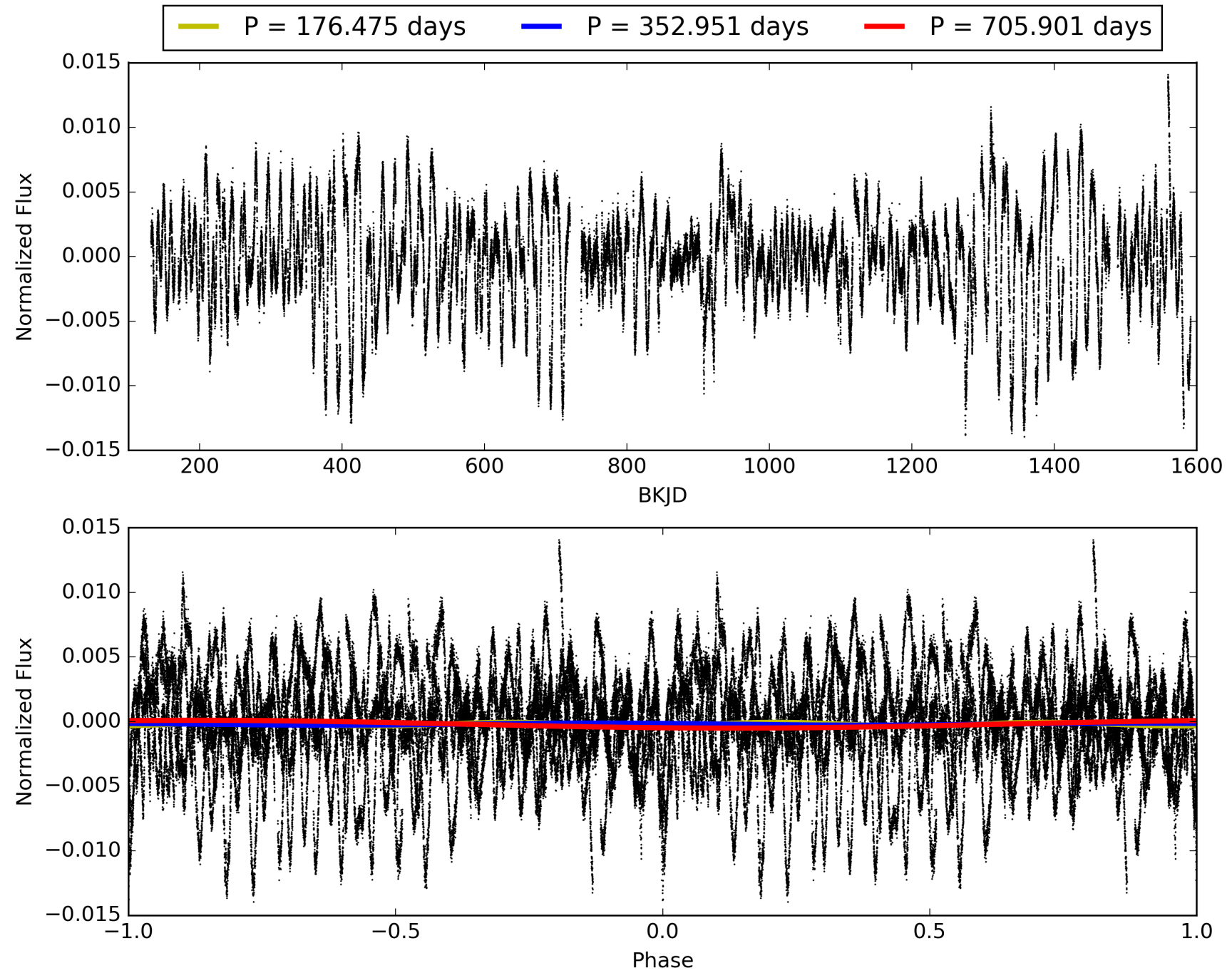
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:04:03 Z

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

TCE 008040409-01, PDC Light Curves

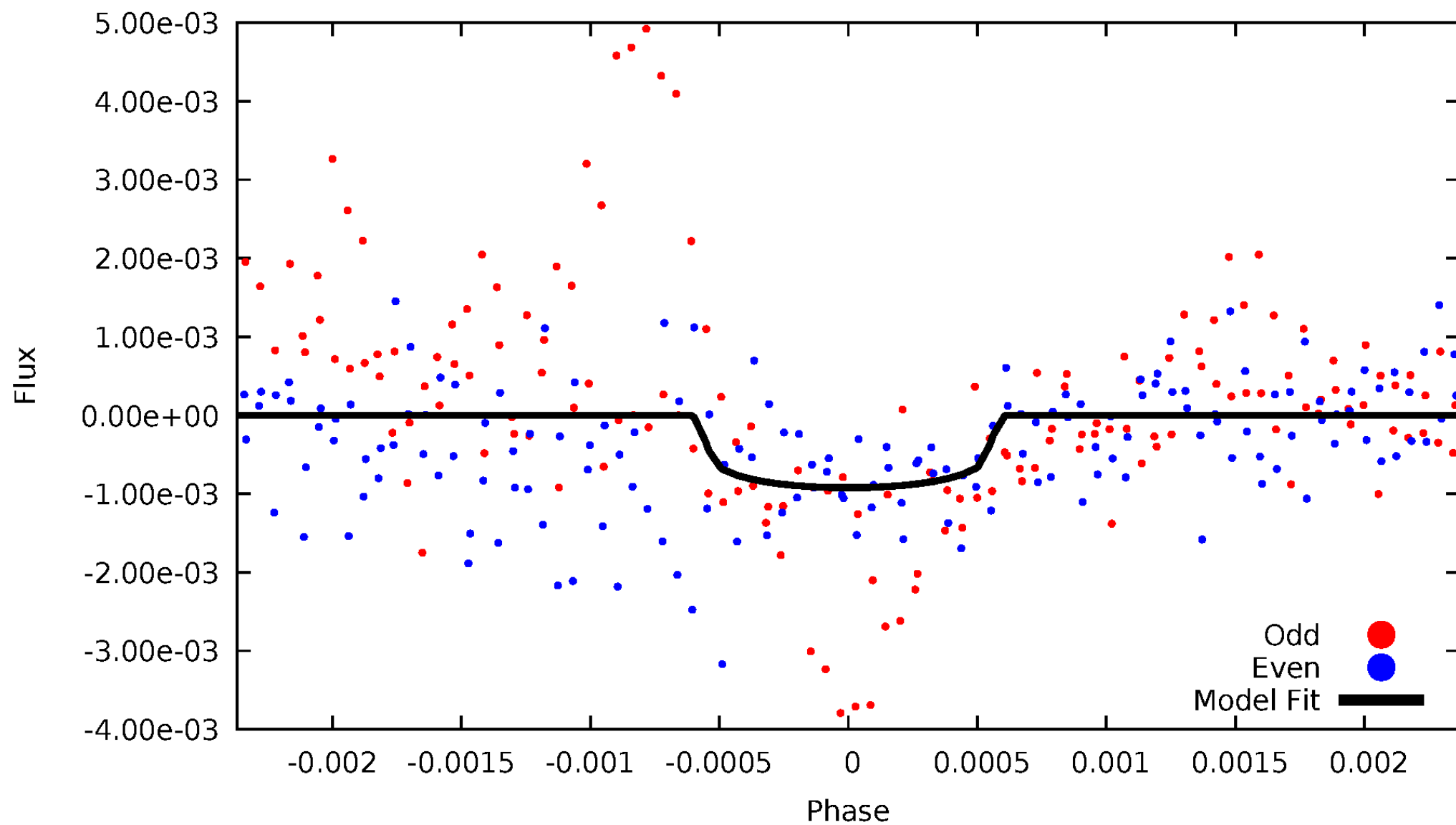


TCE 008040409-01



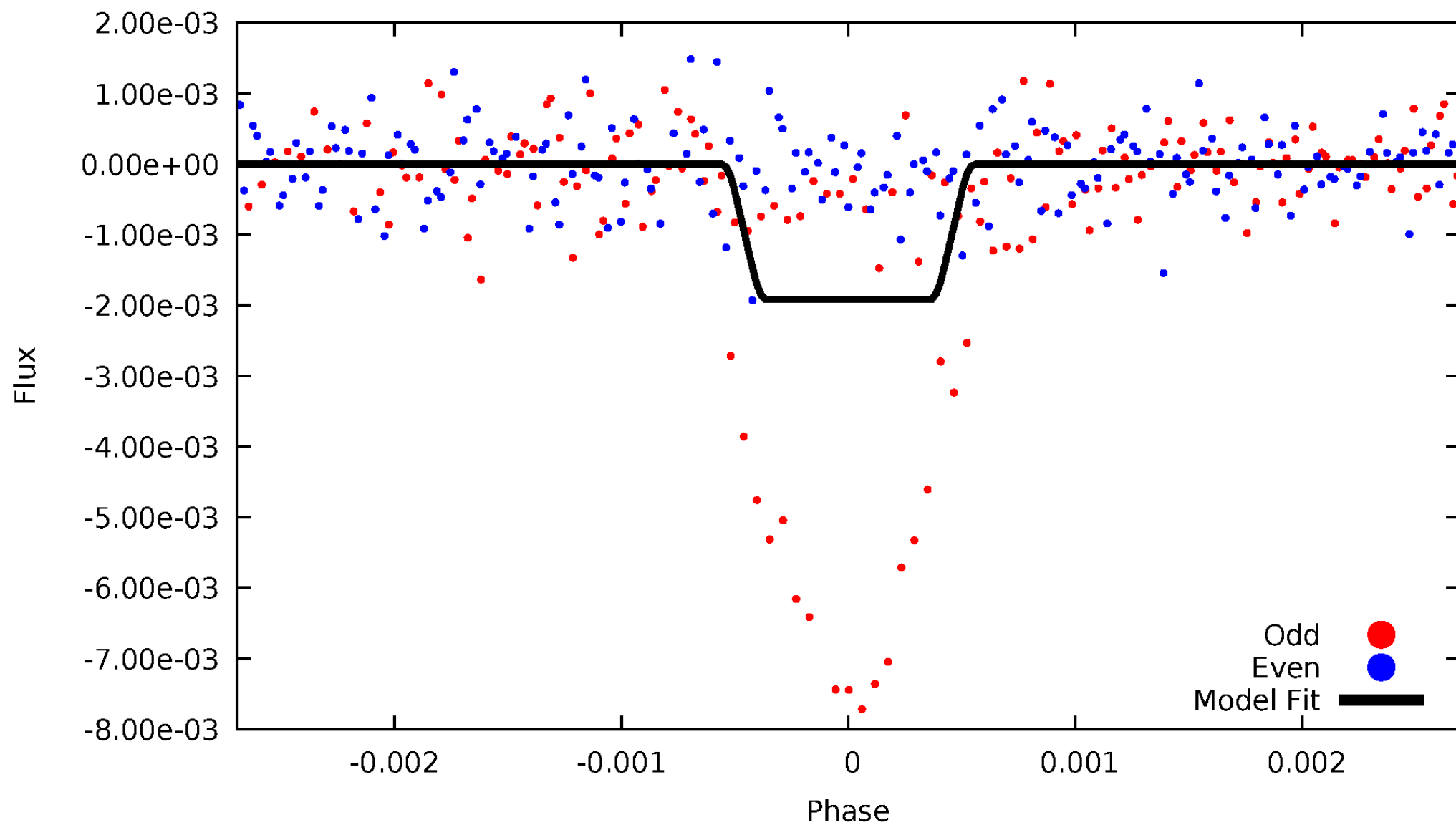
DV Odd/Even

TCE 008040409-01



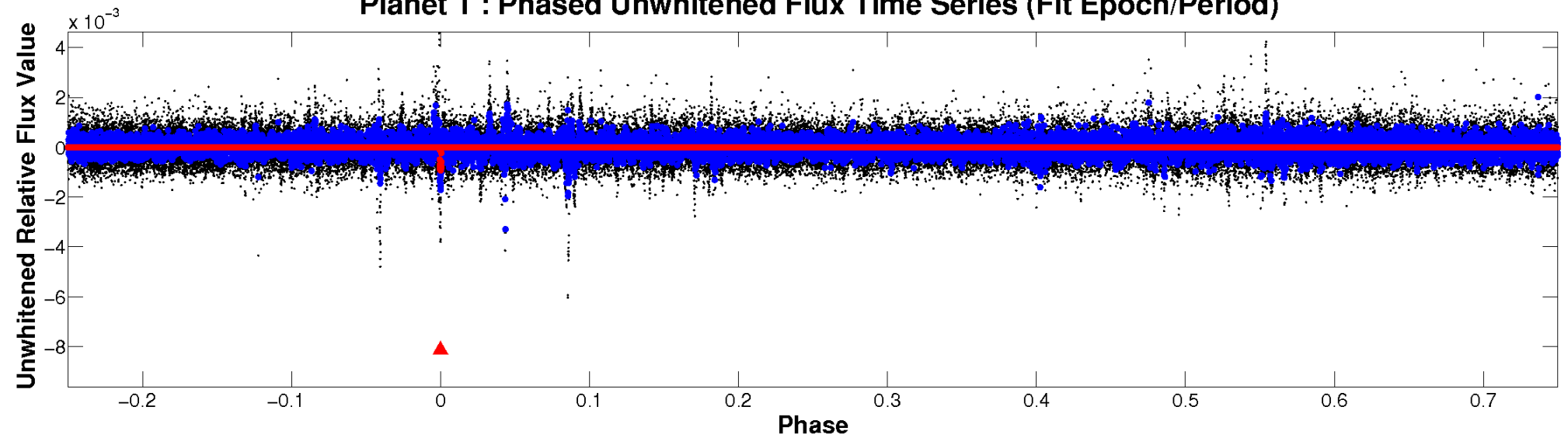
ALT Odd/Even

TCE 008040409-01

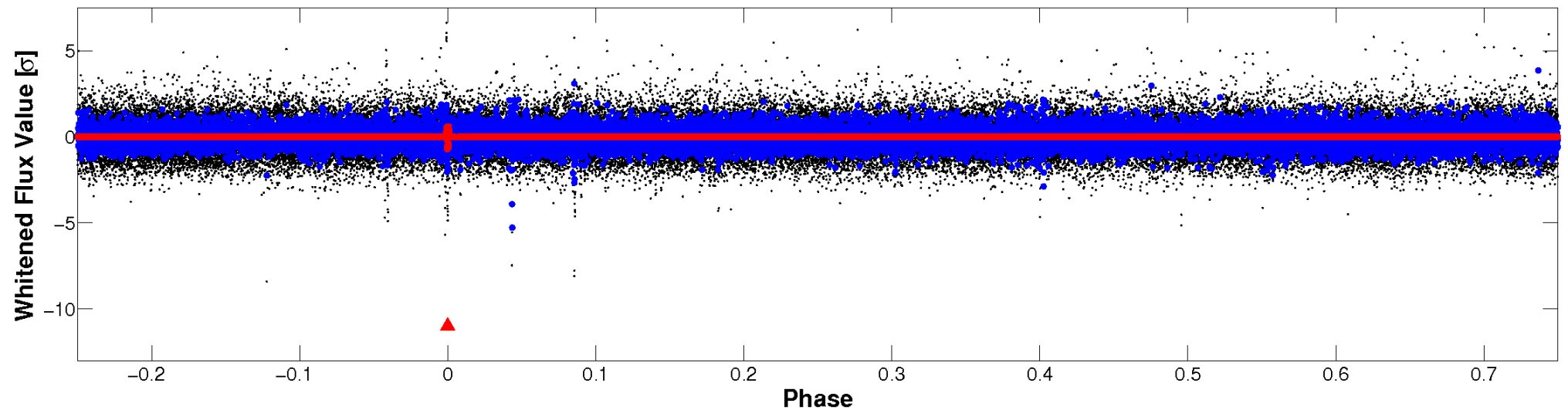


Non-Whitened Vs. Whitened Light Curve

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

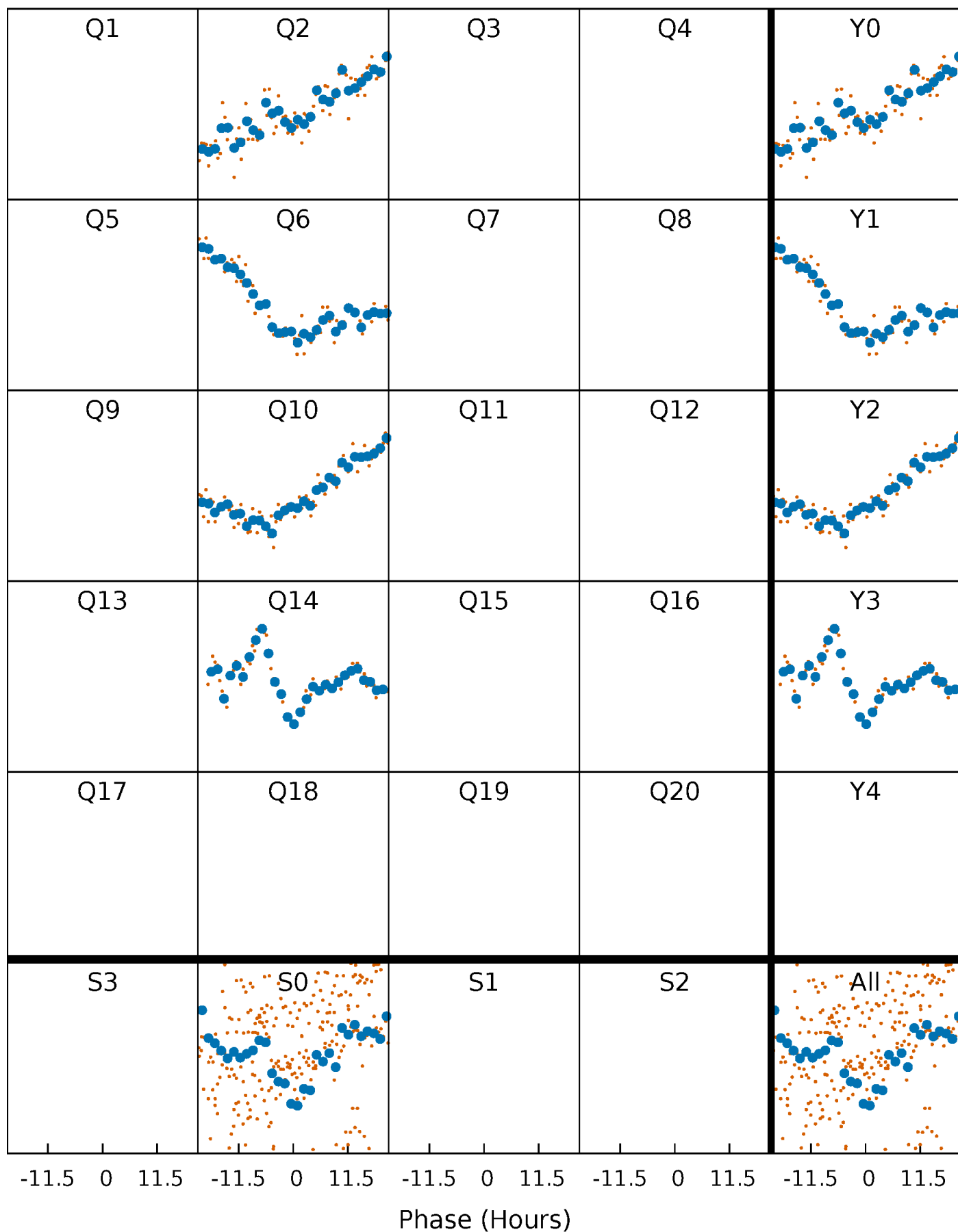


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



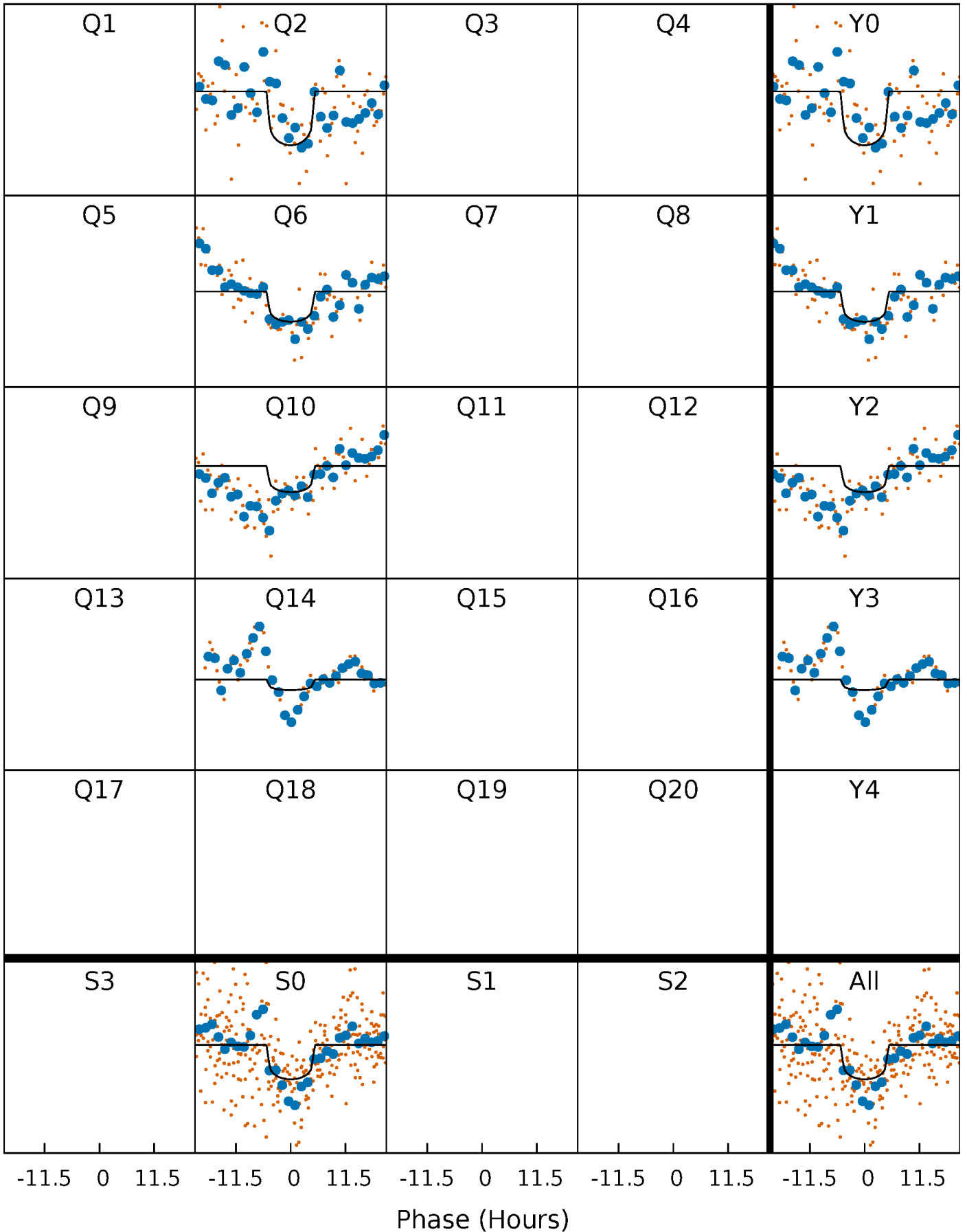
PDC Quarter-Phased Transit Curves

TCE 008040409-01 P=352.950582 Days $T_0=216.054555$ (BKJD)



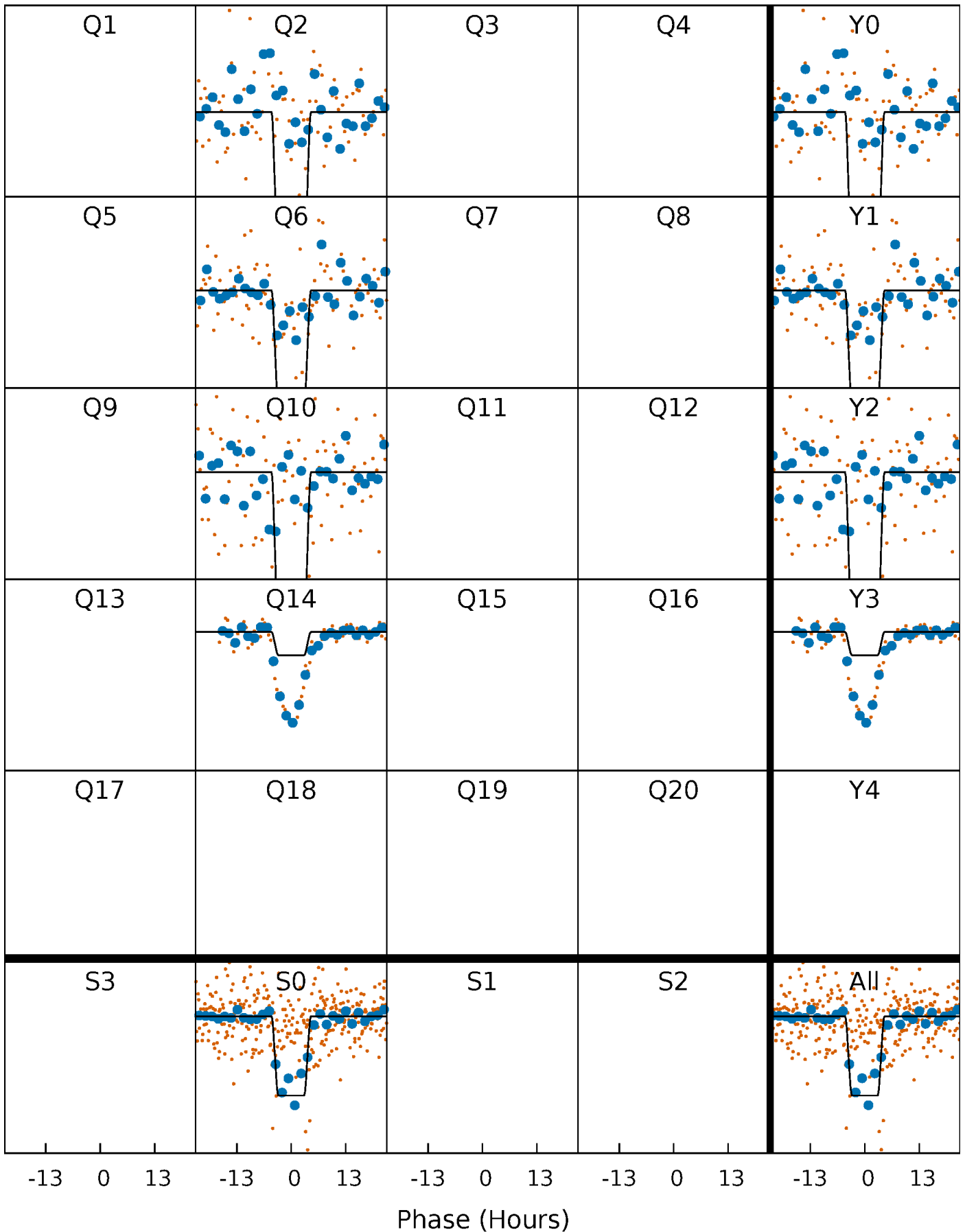
DV Quarter-Phased Transit Curves

TCE 008040409-01 P=352.950582 Days $T_0=216.054555$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

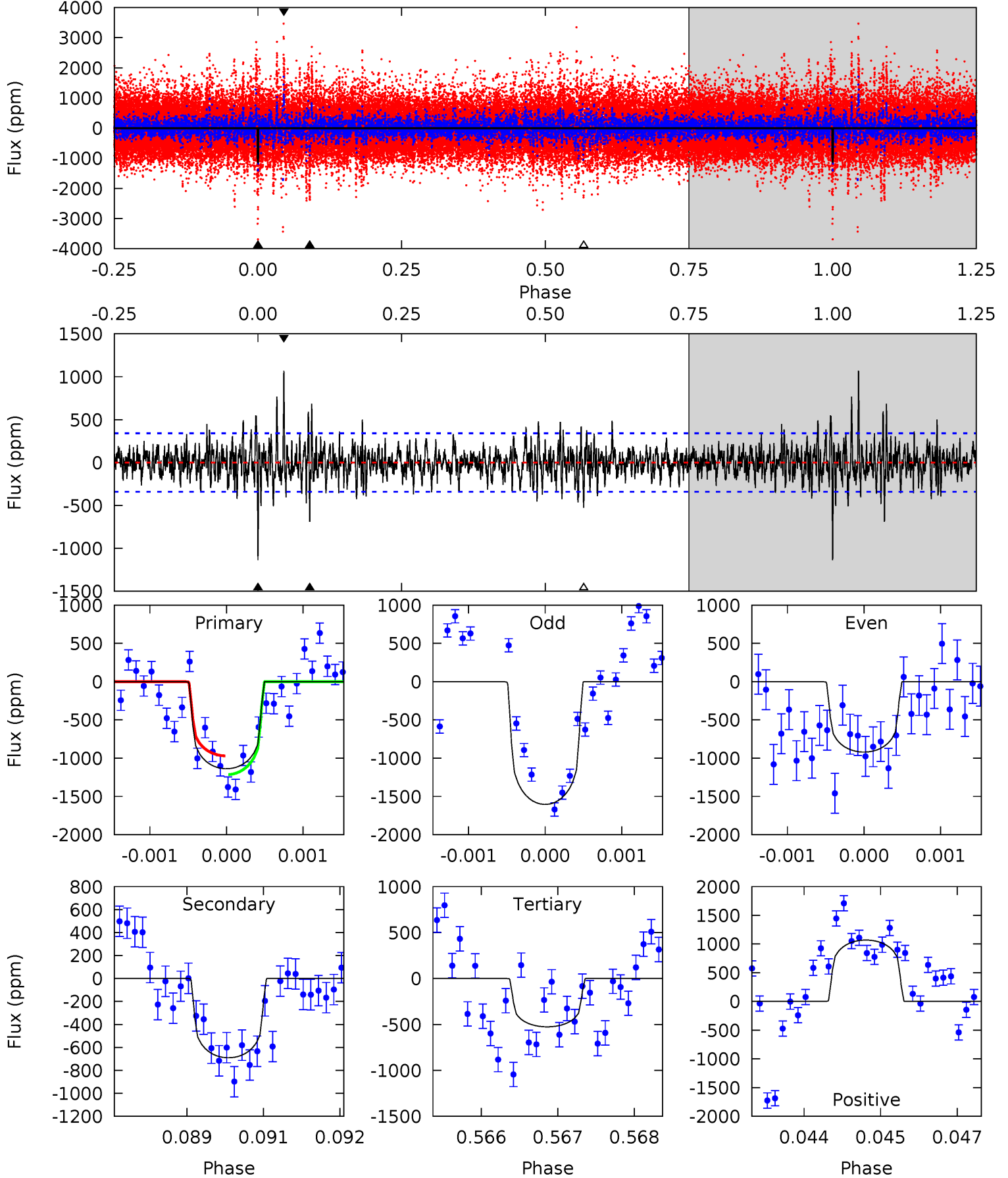
TCE 008040409-01 P=352.942071 Days $T_0=216.048338$ (BKJD)



DV Model-Shift Uniqueness Test

008040409-01, P = 352.950582 Days, E = 216.054555 Days

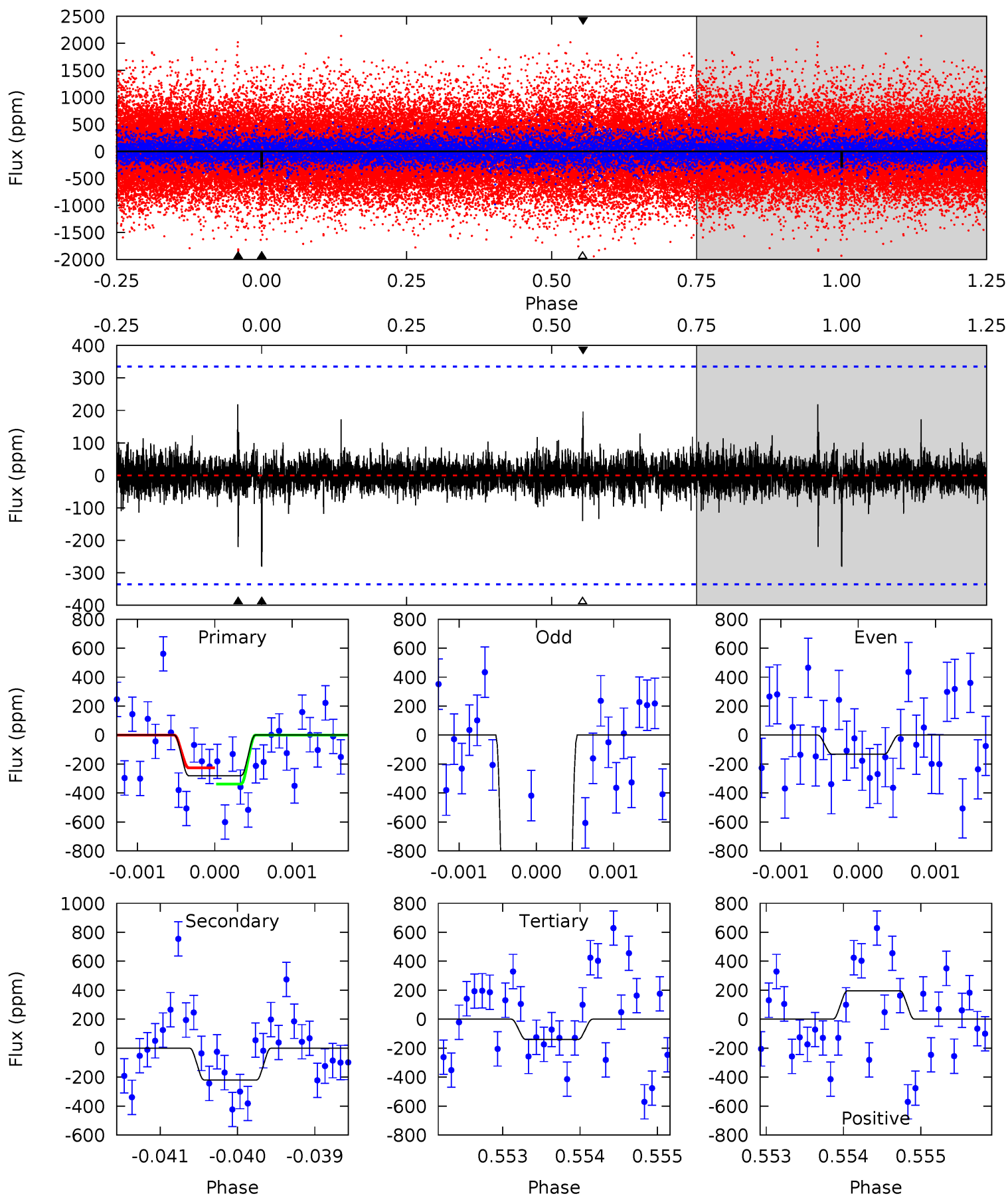
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	11.0	8.39	17.0	5.42	3.23	2.34	9.74	1.08	2.61	-6.05	5.54	1.06	0.48	1.94



Alt Model-Shift Uniqueness Test

008040409-01, P = 352.942071 Days, E = 216.048338 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.56	3.57	2.28	3.19	5.44	3.27	0.50	2.28	1.37	1.29	0.39	27.1	4.84	0.44	0.91



Stellar Parameters For KIC 008040409

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5861^{+158}_{-176}	$4.541^{+0.034}_{-0.195}$	$-0.180^{+0.300}_{-0.300}$	$0.872^{+0.247}_{-0.082}$	$0.966^{+0.110}_{-0.121}$	$2.051^{+0.389}_{-1.024}$
	+3%/-3%	+1%/-4%	+167%/-167%	+28%/-9%	+11%/-13%	+19%/-50%
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 008040409-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-690 ± 63	$3.13^{+1.47}_{-1.52}$	352^{+24}_{-15}	5412^{+2243}_{-794}	35408^{+97699}_{-18854}
Alt.	-220 ± 62	$4.43^{+1.63}_{-1.68}$	352^{+23}_{-15}	3787^{+693}_{-406}	5610^{+8723}_{-2802}

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

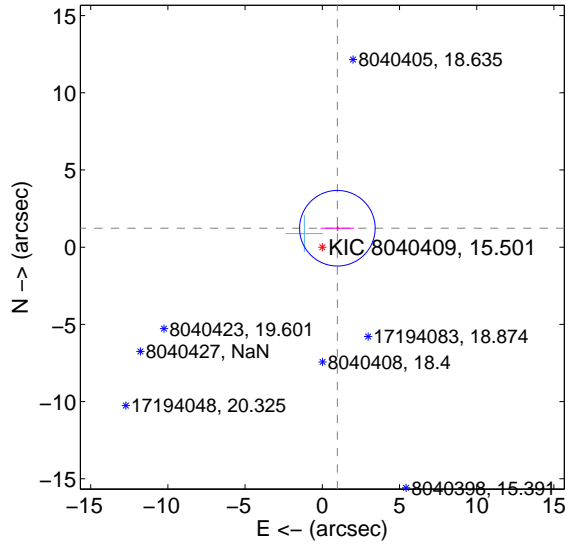
Supplemental centroid analysis for 008040409-01. Kepler magnitude: 15.50. Transit SNR 6.29

There are 1 quarters with good PRF difference image offsets

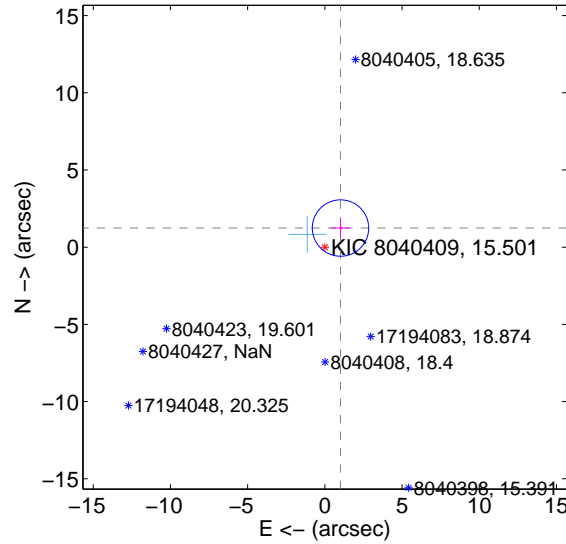
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.568 ± 0.816	1.92	-0.976 ± 1.086	1.227 ± 0.189
PRF-fit source offset from KIC position	1.602 ± 0.609	2.63	-1.014 ± 0.617	1.240 ± 0.603
photometric centroid source offset	6.48 ± 2.19	2.95	4.93 ± 2.40	4.21 ± 1.87

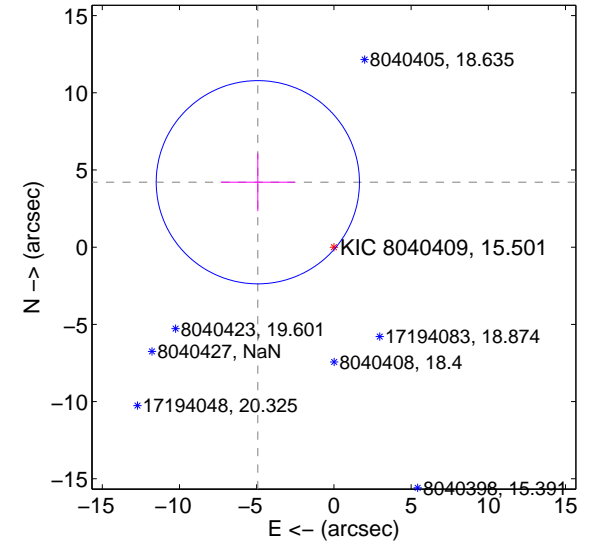
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



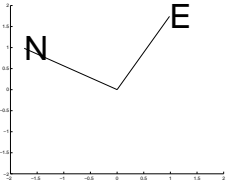
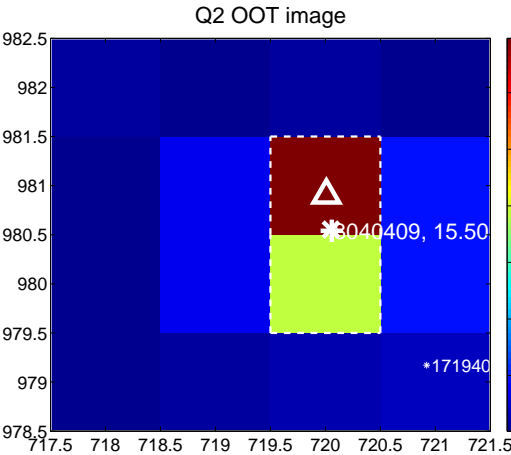
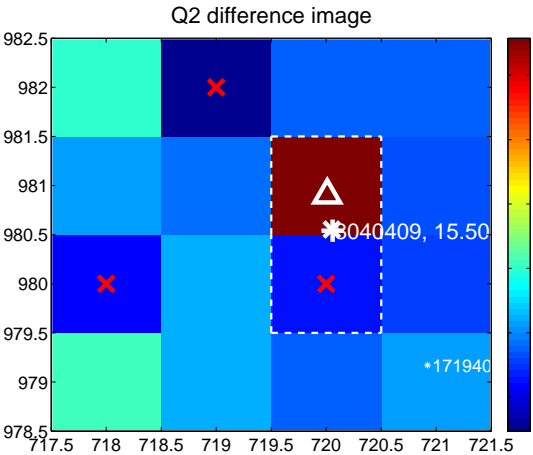
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

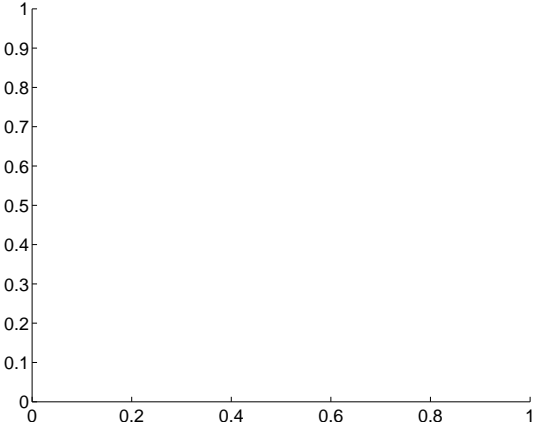
Q1 no difference image



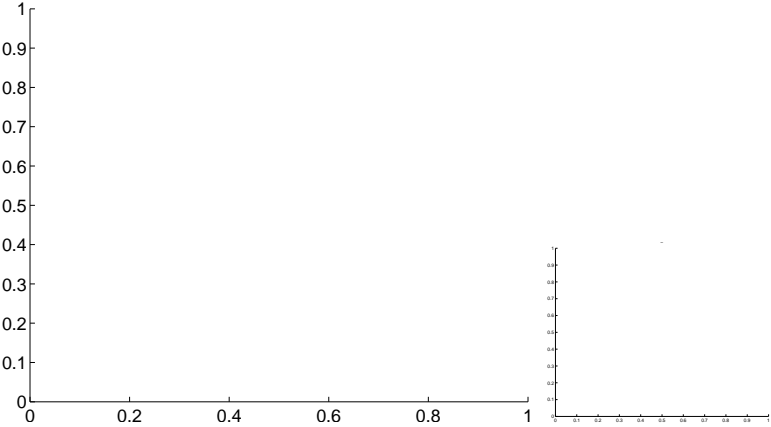
Q1 no OOT image



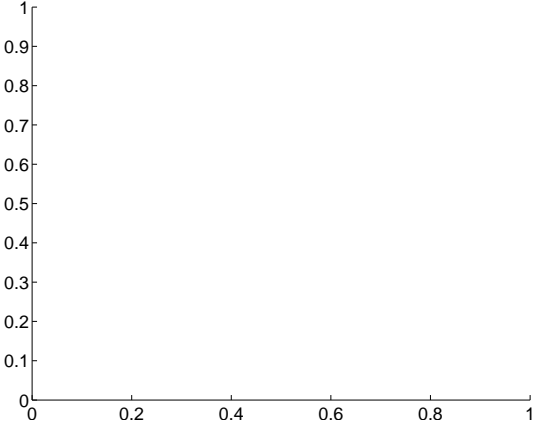
Q3 no difference image



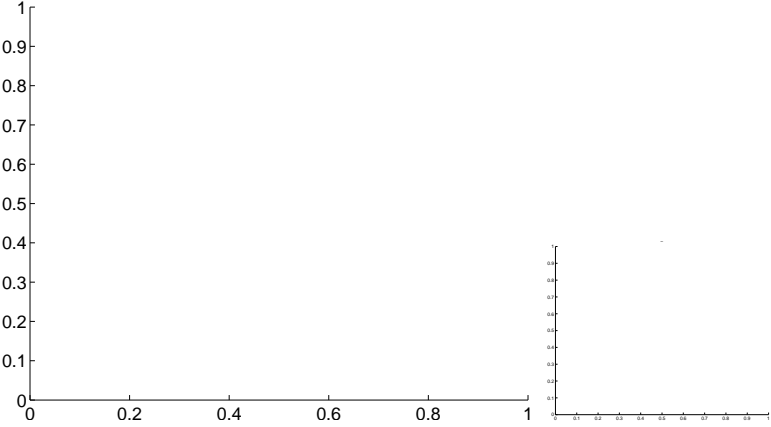
Q3 no OOT image



Q4 no difference image



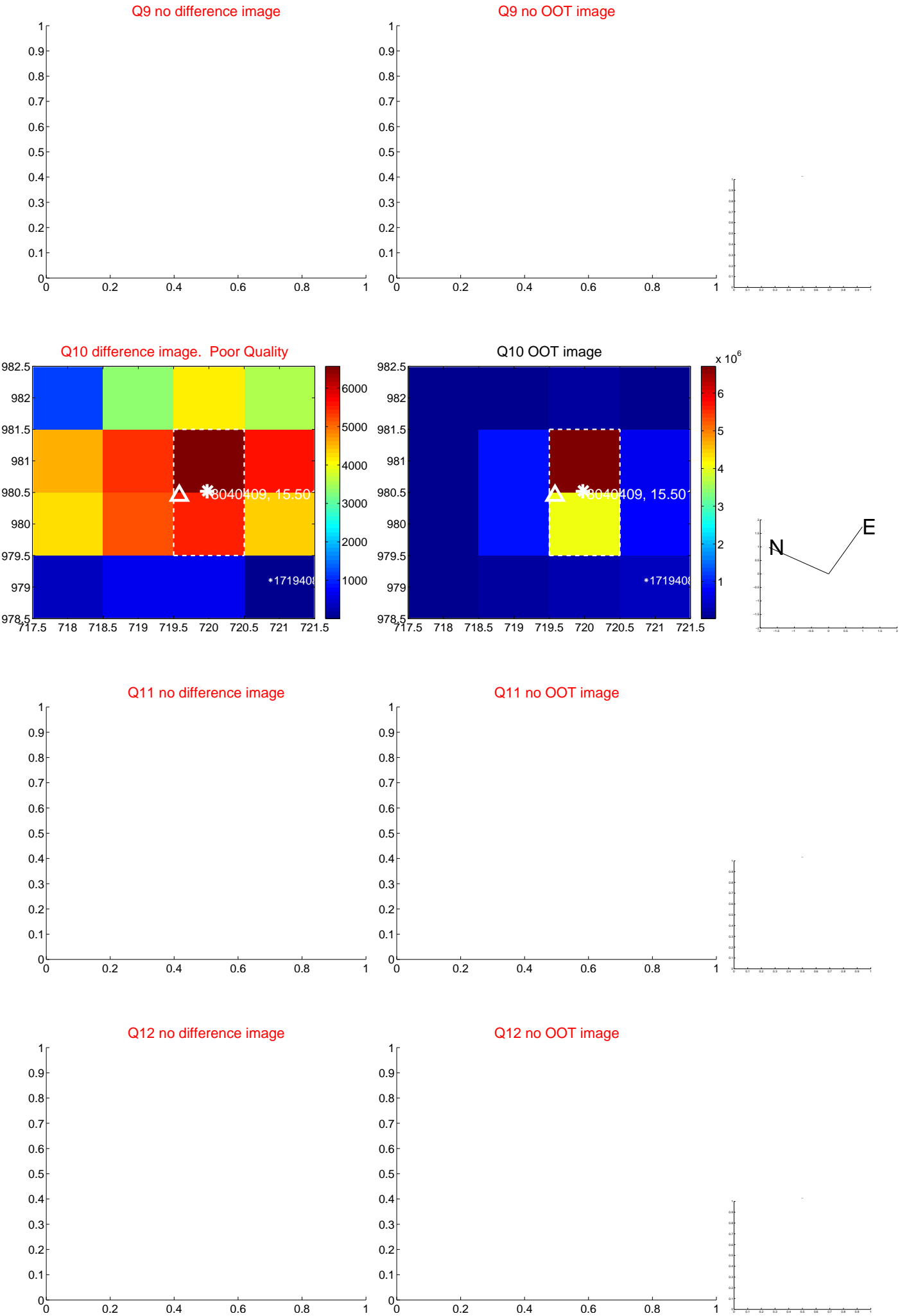
Q4 no OOT image



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



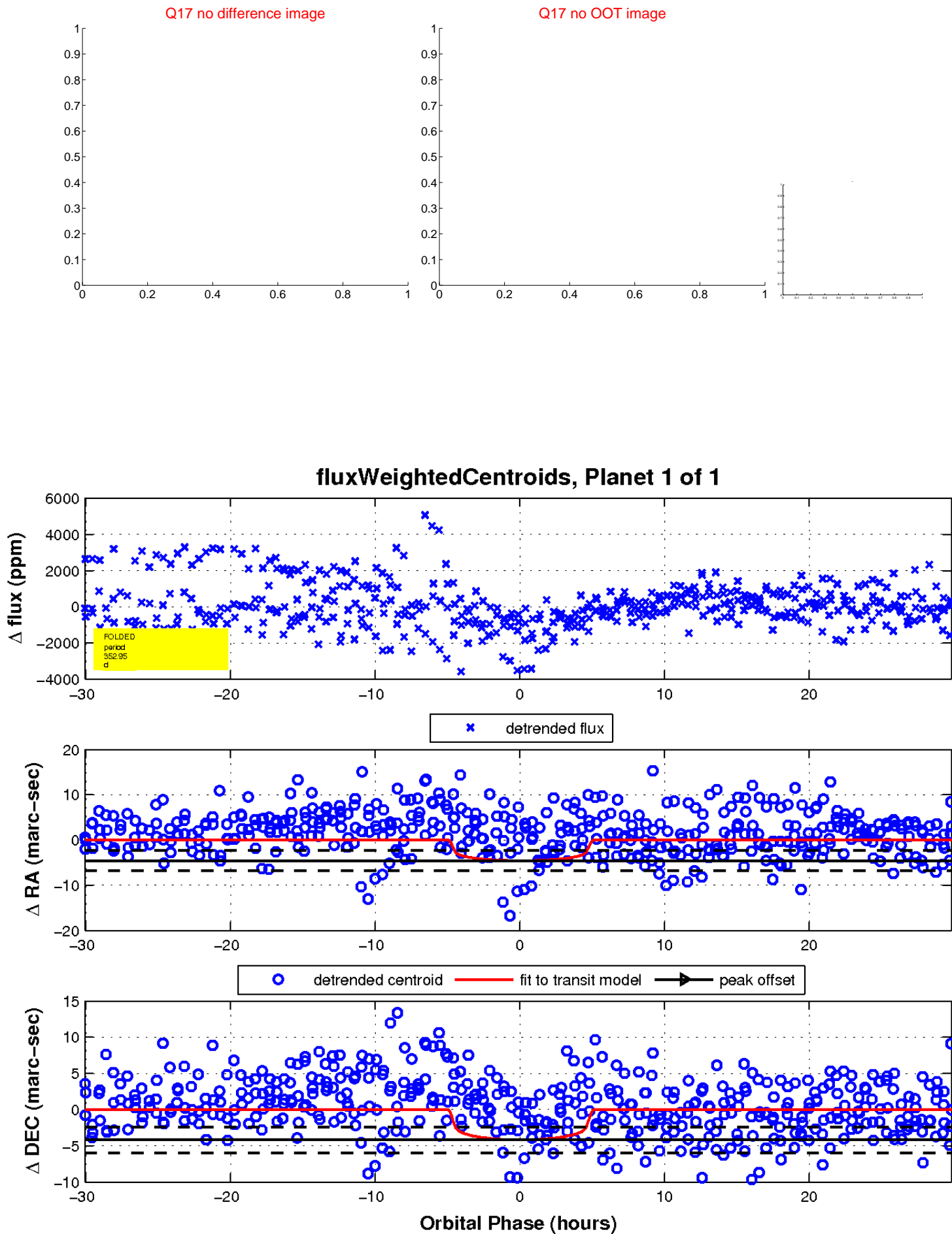
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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.



UKIRT Image

Declination

