

KIC 010416390

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})
010416390-01	OBS	5792.01	215.734949	330.890022	8639.2	7.486	43.4	39.6	0.72	4889	9.02	0.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010416390-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—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.

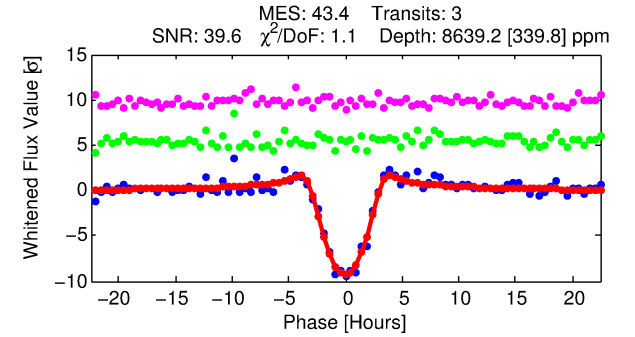
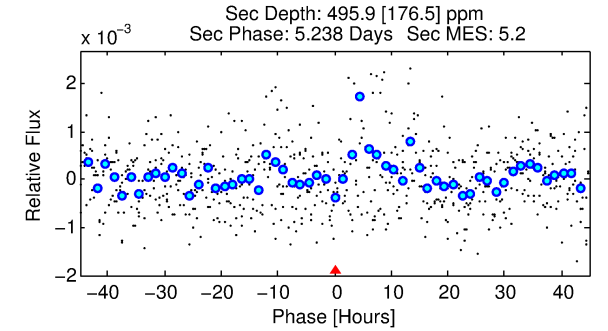
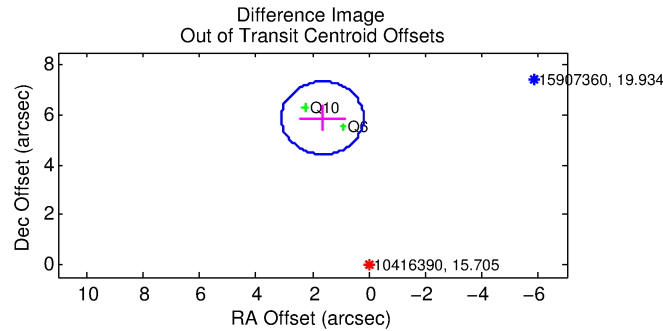
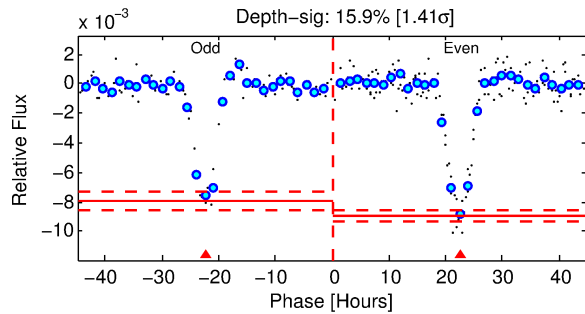
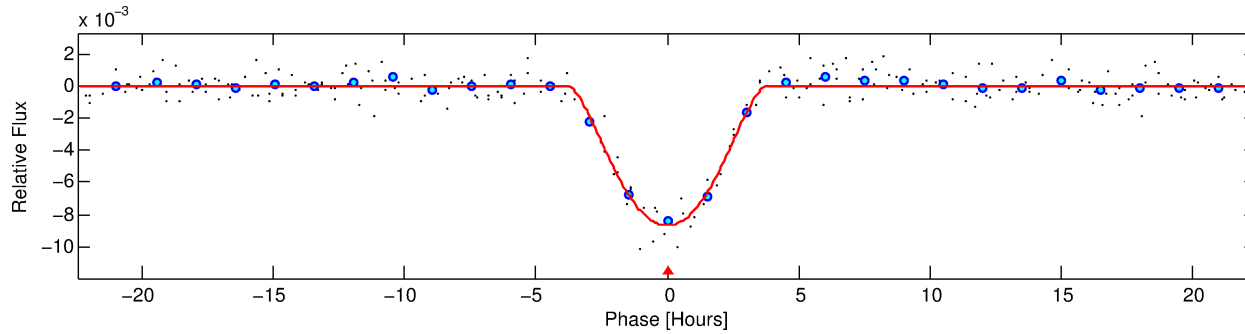
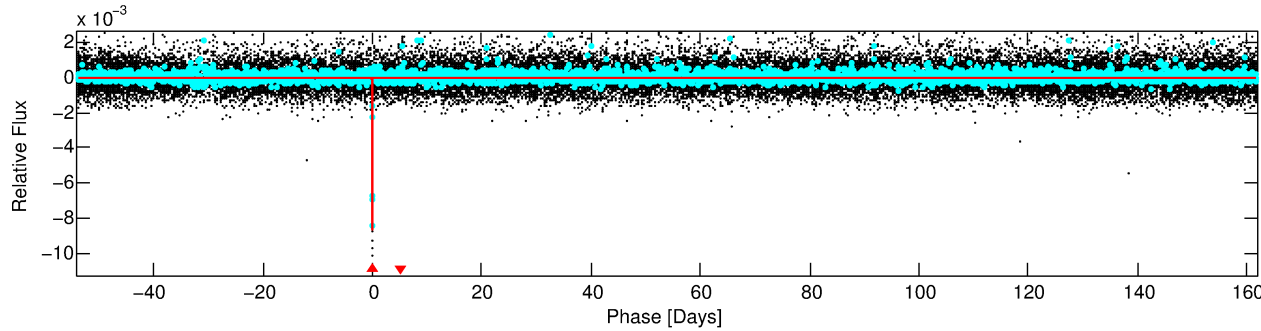
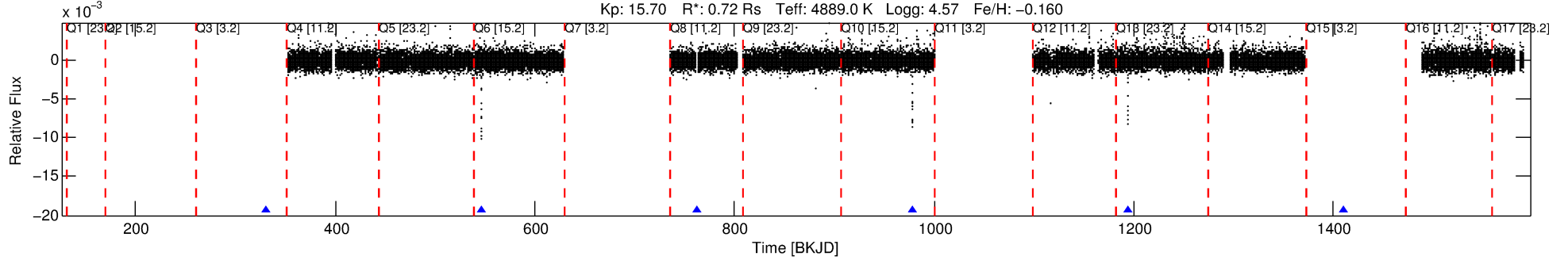
Ephemeris Match Information For 010416390-01

No Significant Match Found

DV One-Page Summary

KIC: 10416390 Candidate: 1 of 1 Period: 215.735 d
KOI: K05792.01 Corr: 0.982

Kp: 15.70 R*: 0.72 Rs Teff: 4889.0 K Logg: 4.57 Fe/H: -0.160



DV Fit Results:

Period = 215.73495 [0.00190] d
Epoch = 330.8900 [0.0055] BKJD
Rp/R* = 0.1141 [0.0247]
a/R* = 137.26 [12.47]
b = 0.92 [0.05]
Seff = 0.68 [0.12]
Teq = 231 [10] K
Rp = 9.01 [2.13] Re
a = 0.6302 [0.0481] AU
Ag = 1333.24 [759.42] [1.75σ]
Teffp = 2160 [312] K [6.18σ]

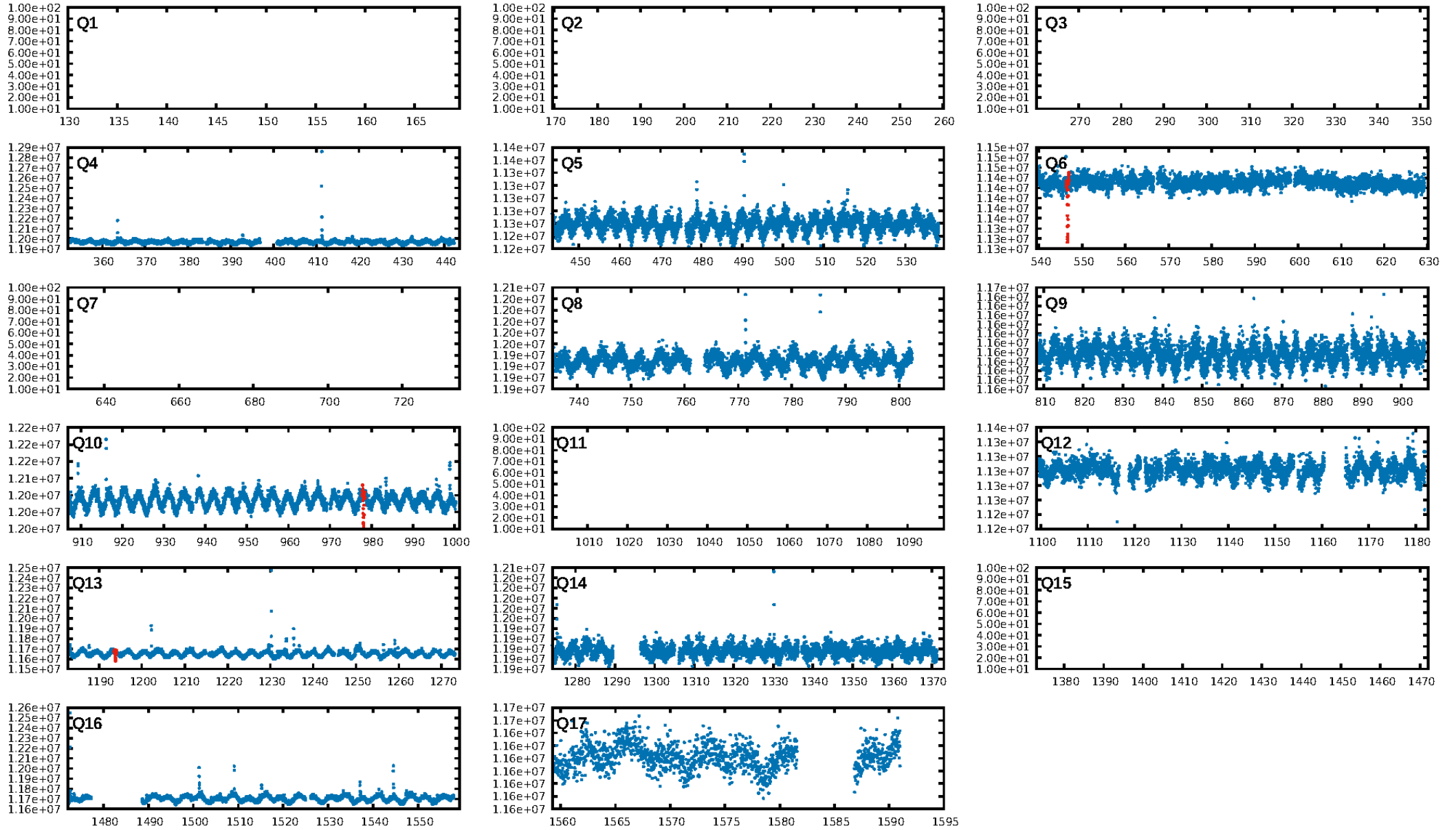
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 96.5%
Bootstrap-pfa: 8.36e-236
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 5.768
Centroid-sig: 0.0%
Centroid-so: 1.862 arcsec [15.34σ]
OotOffset-rm: 6.097 arcsec [12.55σ]
KicOffset-rm: 0.487 arcsec [3.92σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

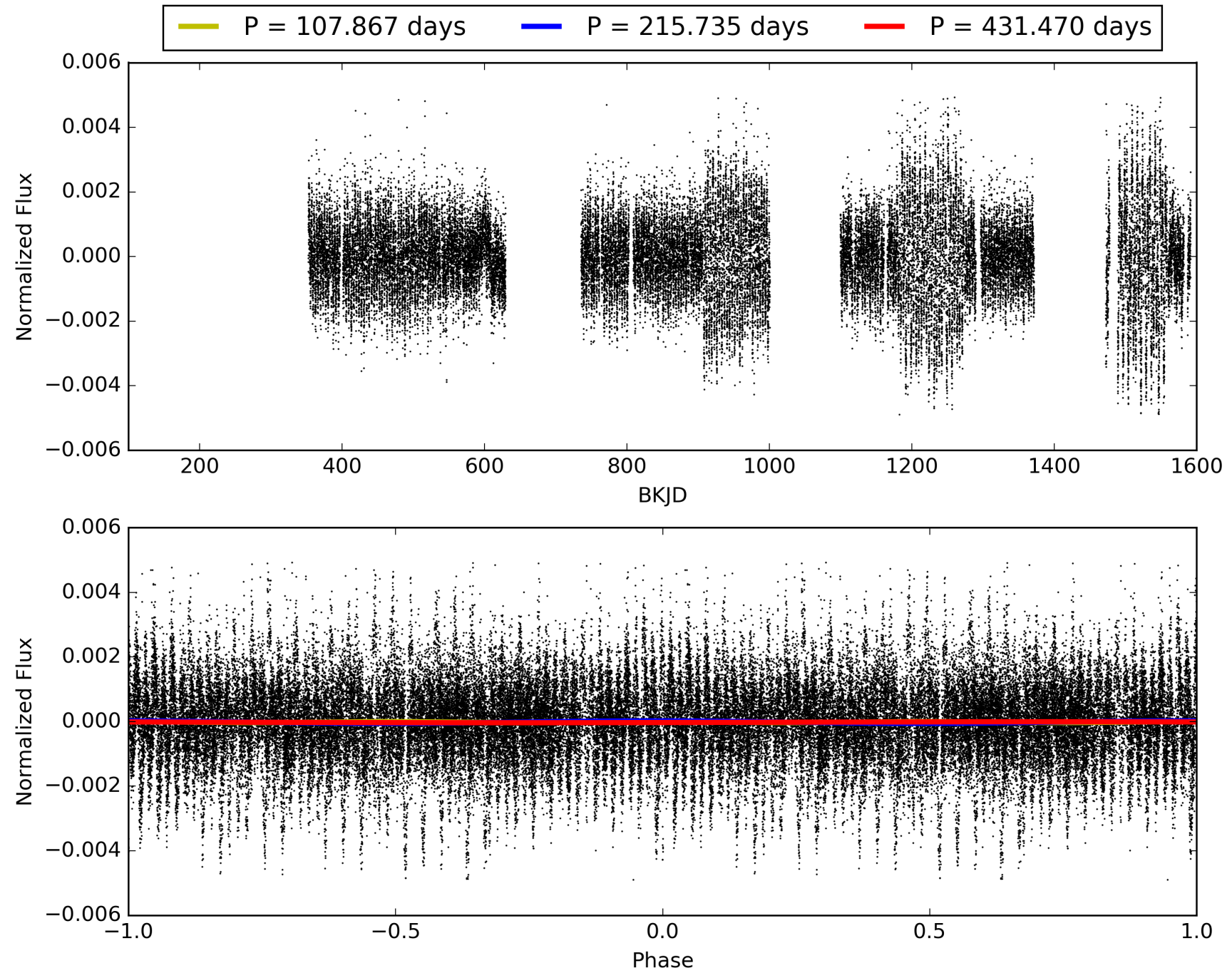
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:52:11 Z

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

TCE 010416390-01, PDC Light Curves

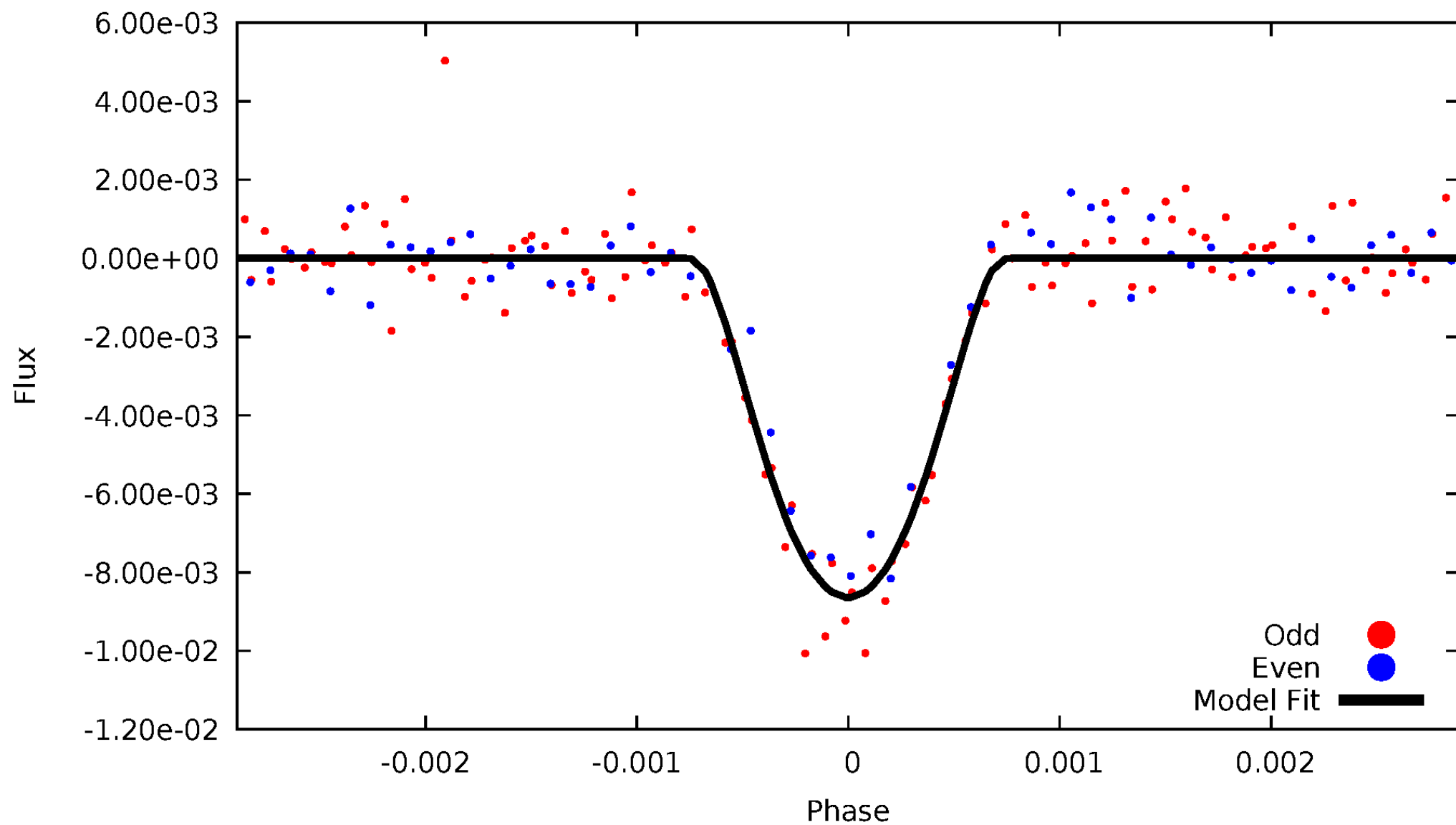


TCE 010416390-01



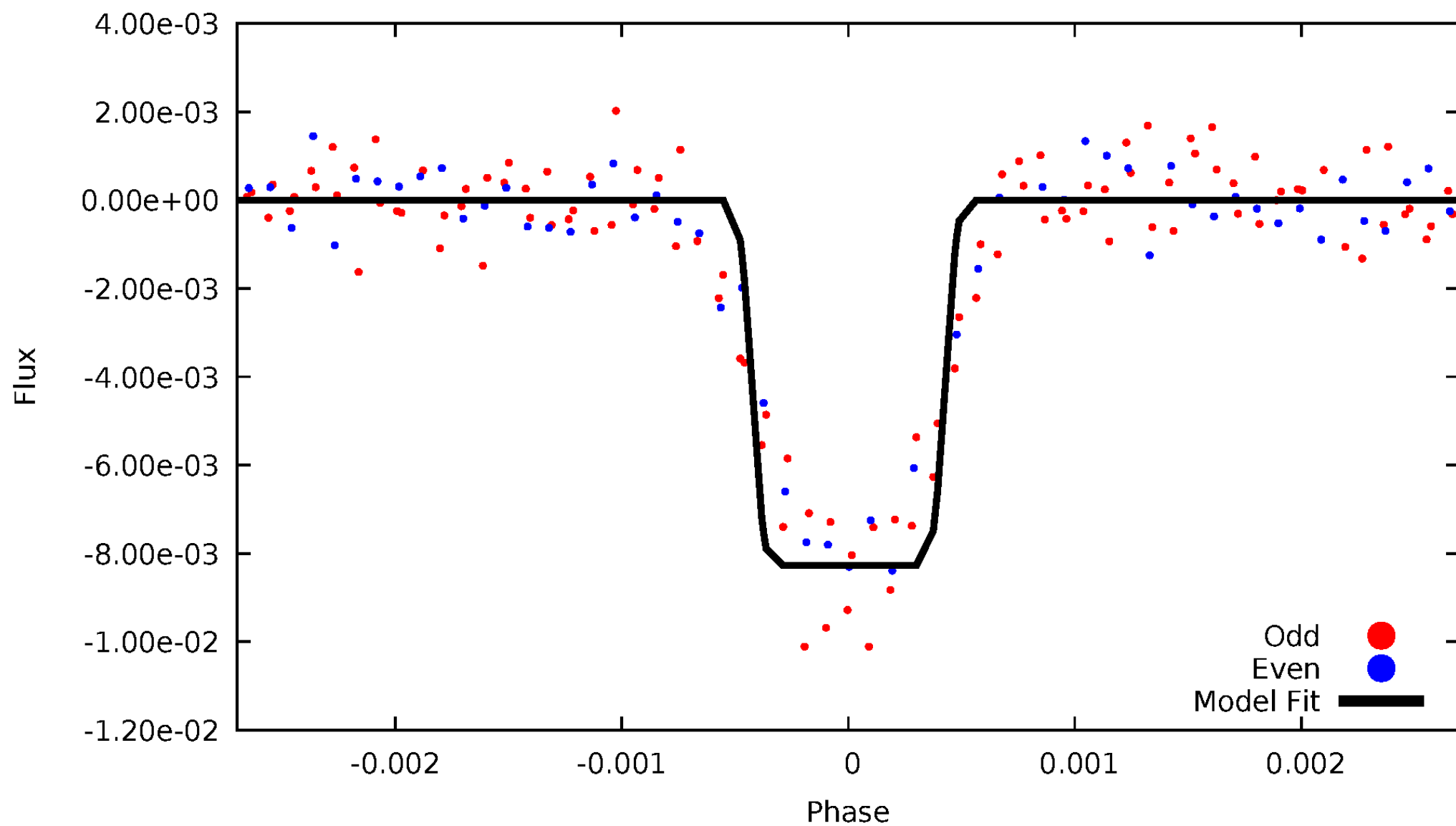
DV Odd/Even

TCE 010416390-01



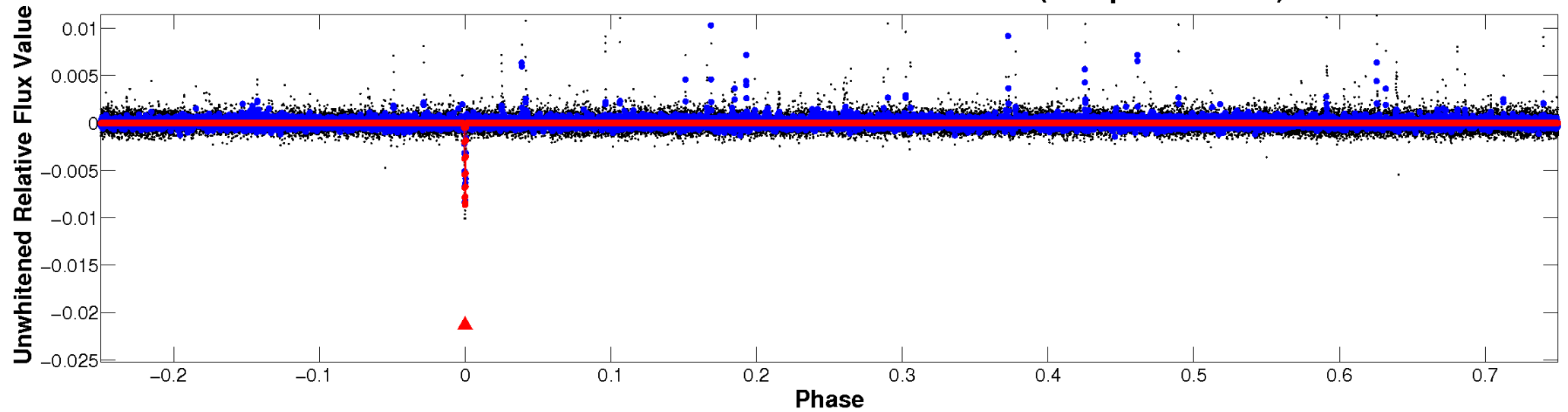
ALT Odd/Even

TCE 010416390-01

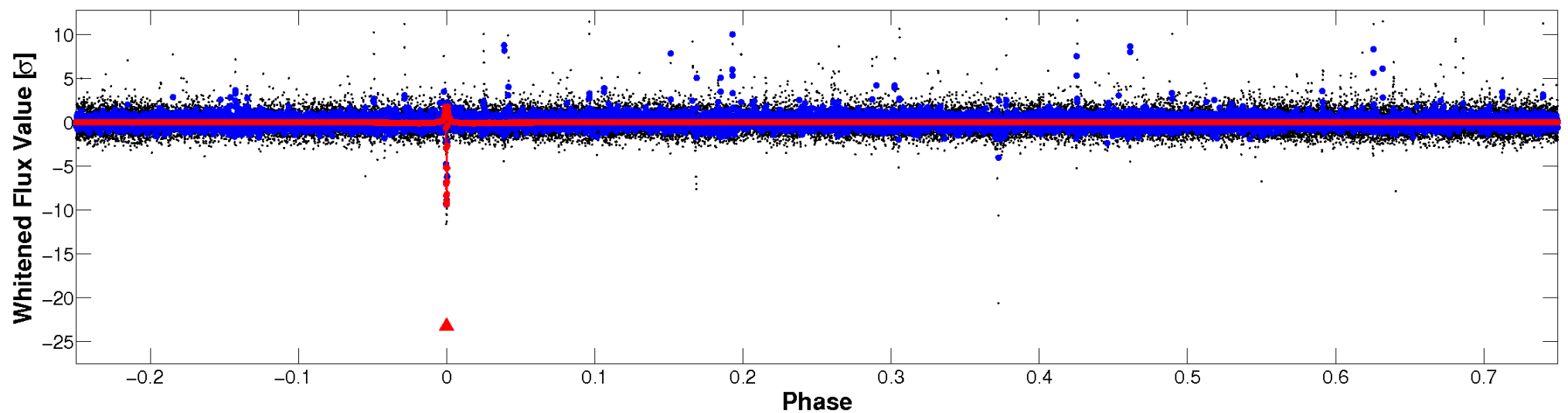


Non-Whitened Vs. Whitened Light Curve

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

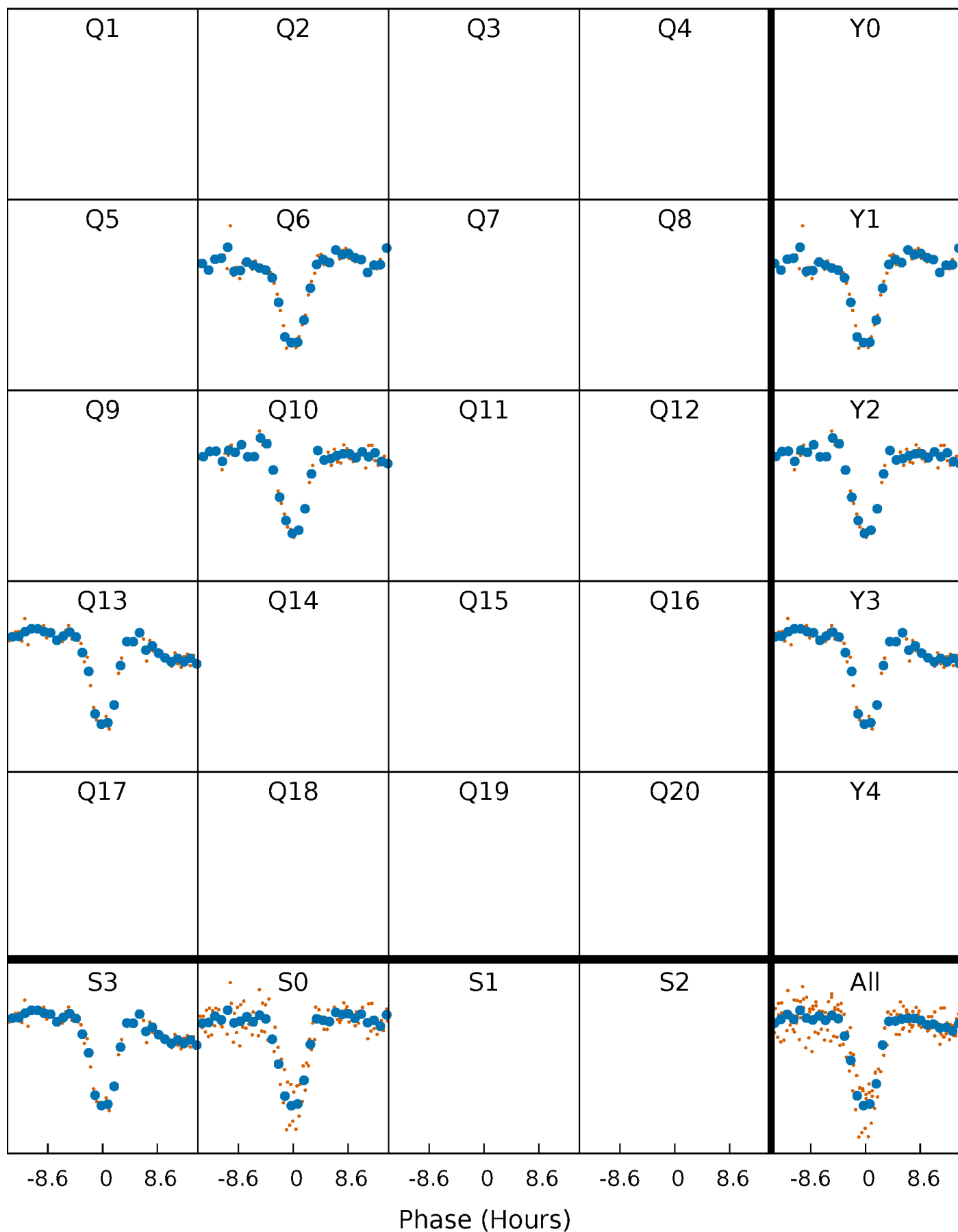


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



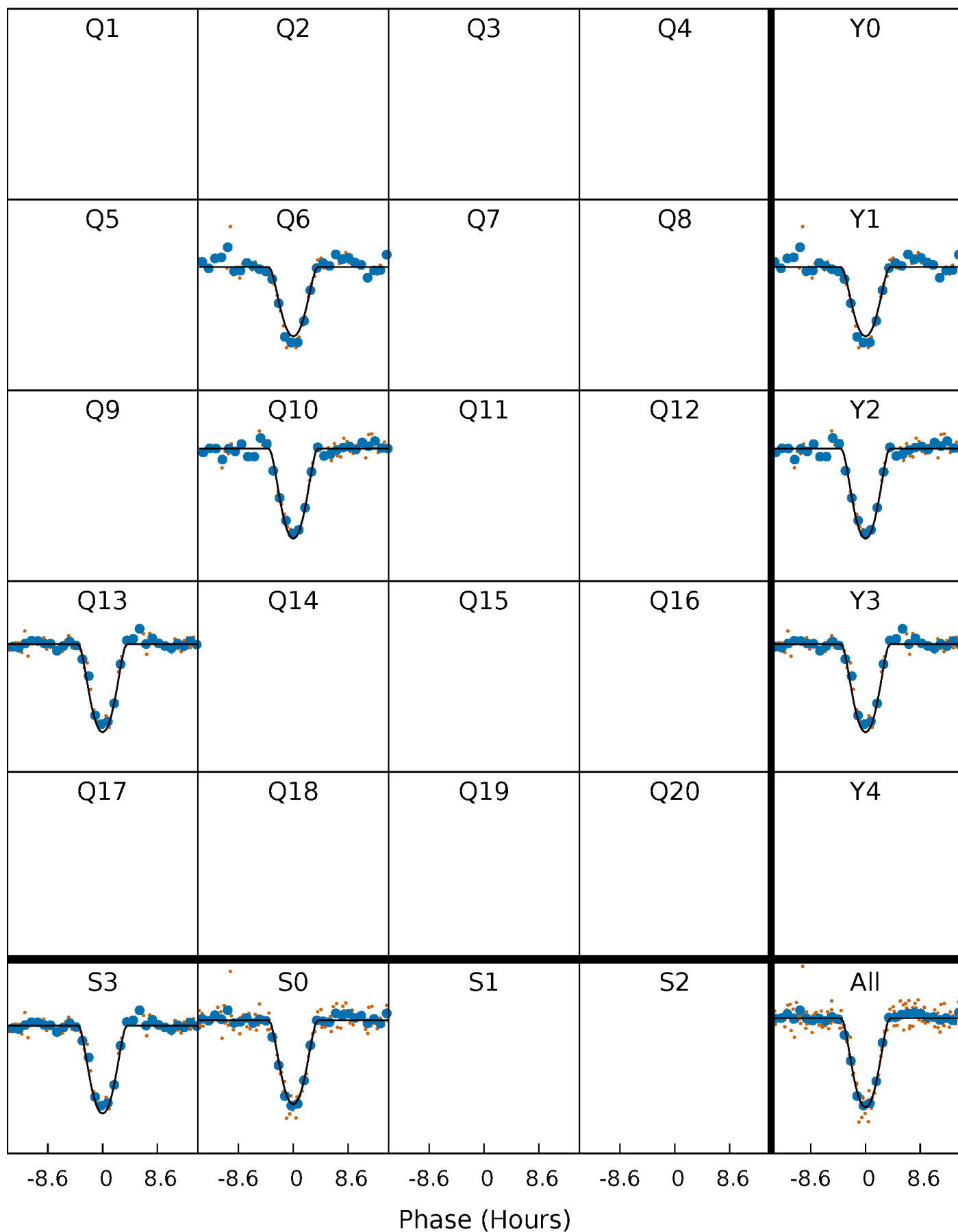
PDC Quarter-Phased Transit Curves

TCE 010416390-01 P=215.734949 Days $T_0=330.890022$ (BKJD)



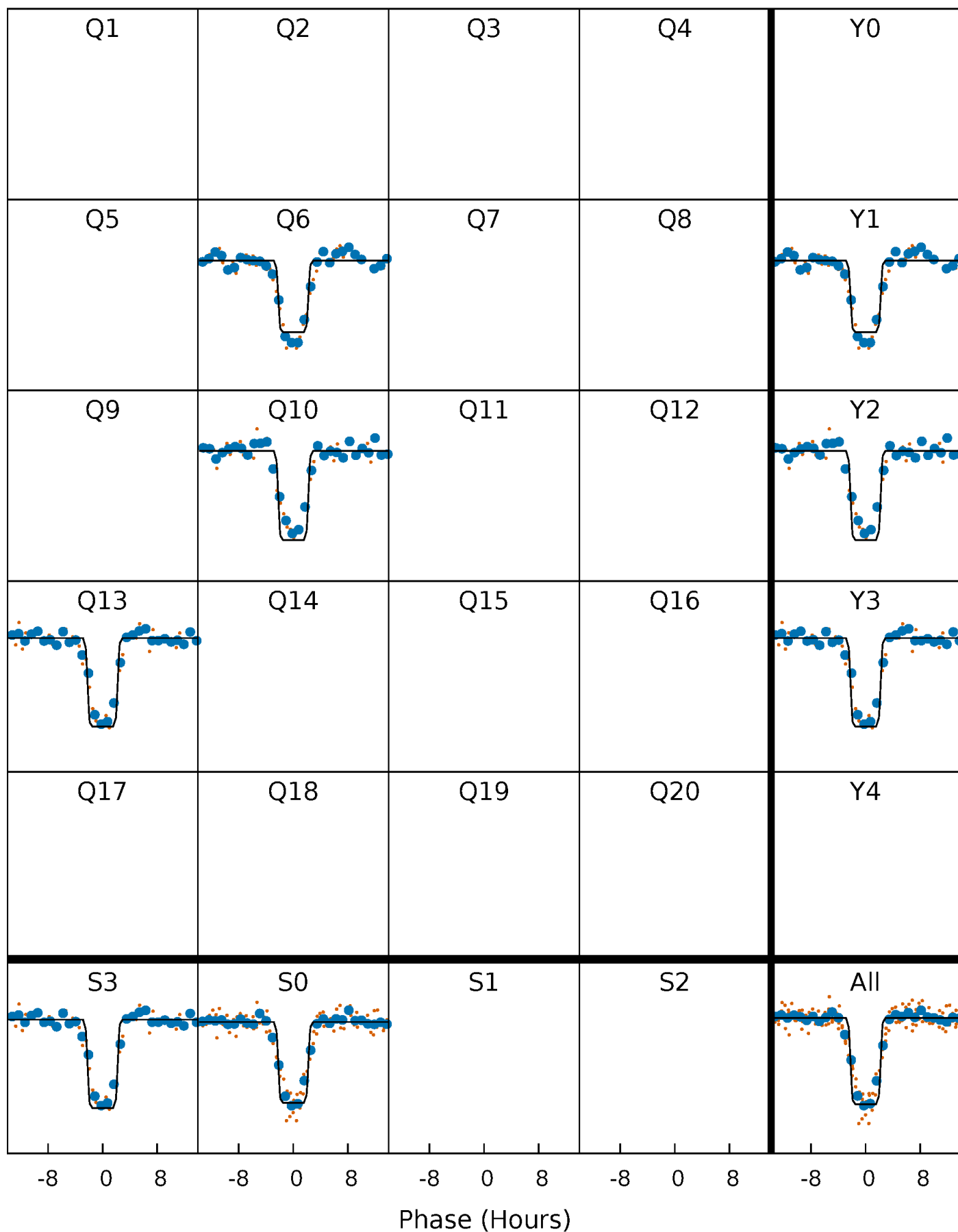
DV Quarter-Phased Transit Curves

TCE 010416390-01 P=215.734949 Days $T_0=330.890022$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

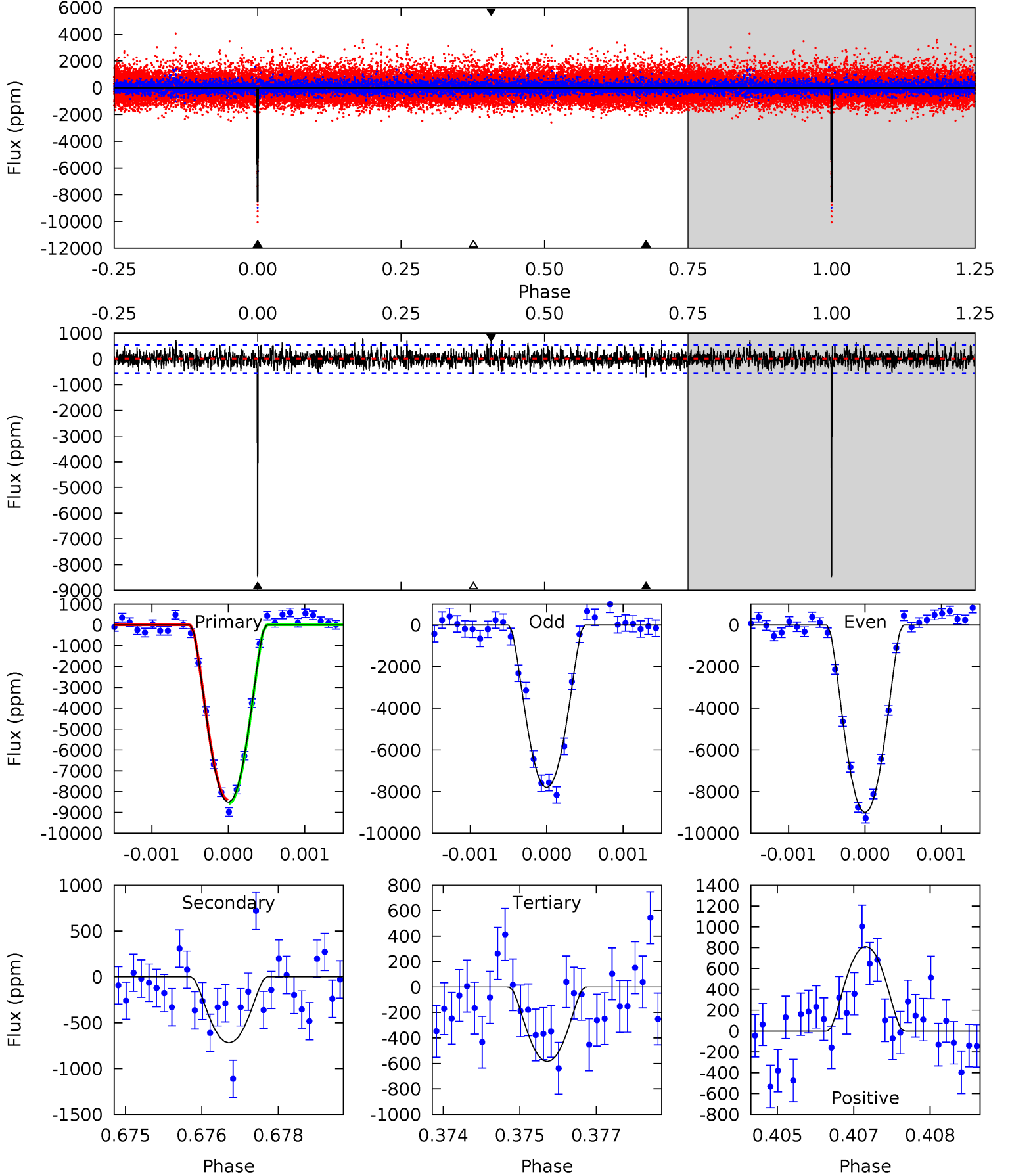
TCE 010416390-01 P=215.736216 Days $T_0=330.886482$ (BKJD)



DV Model-Shift Uniqueness Test

010416390-01, P = 215.734949 Days, E = 330.890022 Days

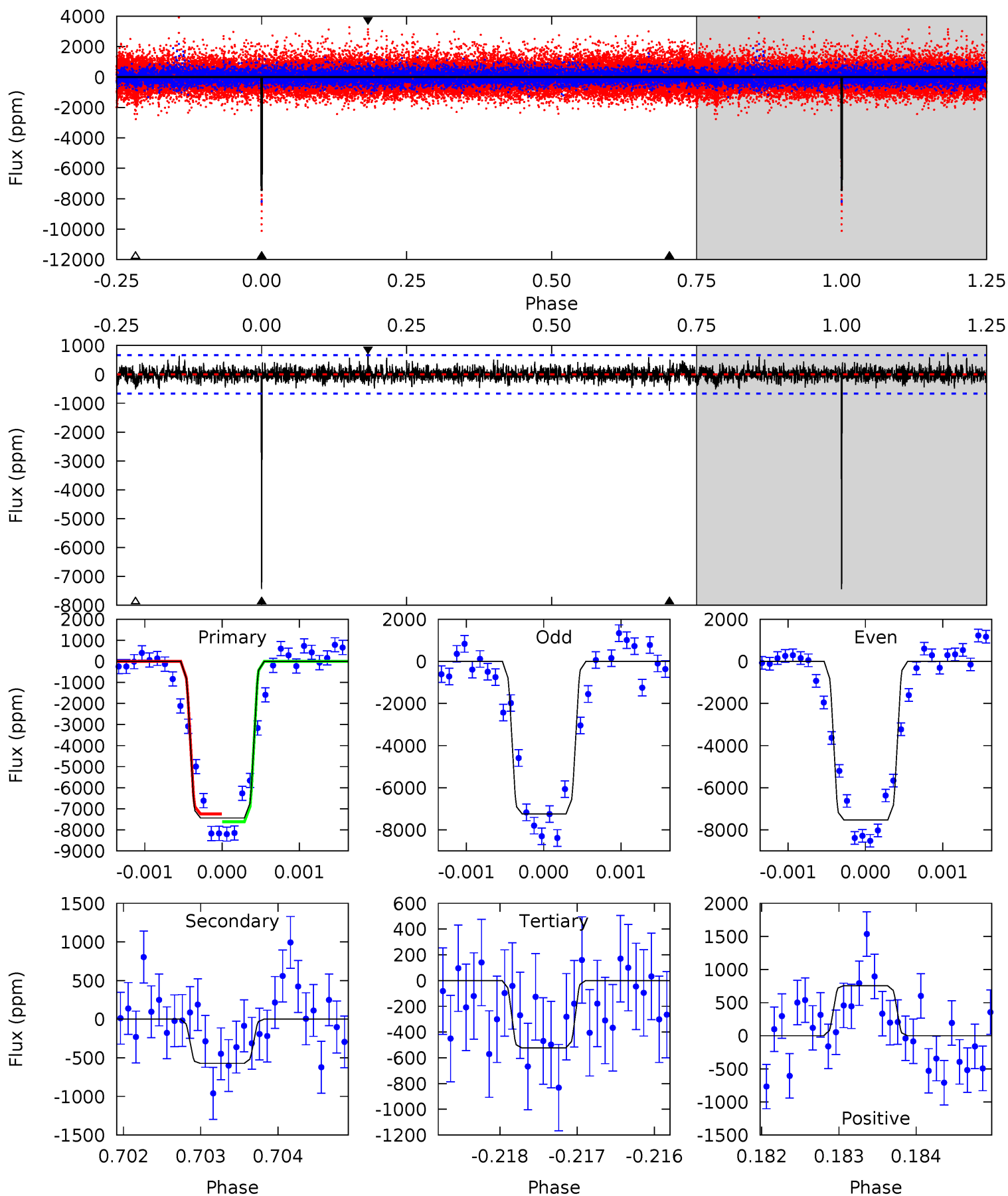
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.7	6.98	5.68	7.87	5.38	3.18	1.74	77.0	74.8	1.30	-0.90	5.26	1.04	0.09	0.84



Alt Model-Shift Uniqueness Test

010416390-01, $P = 215.736216$ Days, $E = 330.886482$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.0	4.69	4.29	6.20	5.45	3.28	1.17	56.7	54.8	0.40	-1.51	1.09	1.04	0.09	1.51



Stellar Parameters For KIC 010416390

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4889^{+175}_{-175}	$4.574^{+0.055}_{-0.045}$	$-0.160^{+0.300}_{-0.300}$	$0.724^{+0.069}_{-0.069}$	$0.718^{+0.083}_{-0.060}$	$2.662^{+0.686}_{-0.456}$
	+4%/-4%	+1%/-1%	+188%/-188%	+10%/-10%	+12%/-8%	+26%/-17%
Source	KIC0	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 010416390-01 / KOI 5792.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-718 ± 103	$9.03^{+2.10}_{-2.03}$	323^{+14}_{-13}	2992^{+257}_{-183}	1944^{+1211}_{-708}
Alt.	-572 ± 122	$7.20^{+1.94}_{-1.96}$	323^{+13}_{-13}	3081^{+326}_{-224}	2400^{+2279}_{-979}

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

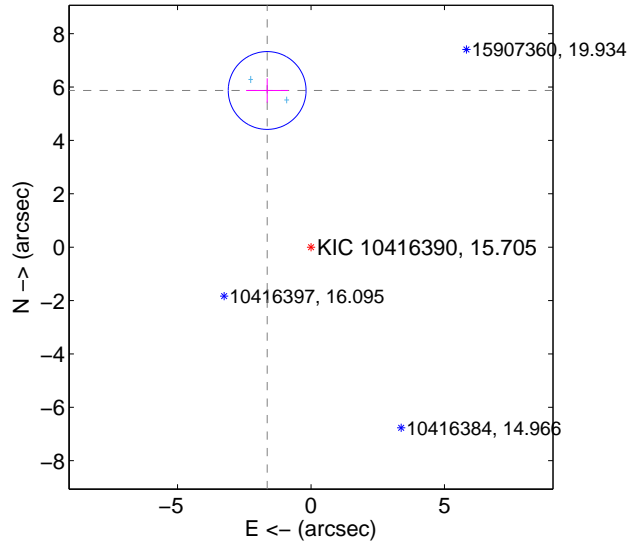
Supplemental centroid analysis for 010416390-01. Kepler magnitude: 15.71. Transit SNR 39.61

There are 2 quarters with good PRF difference image offsets

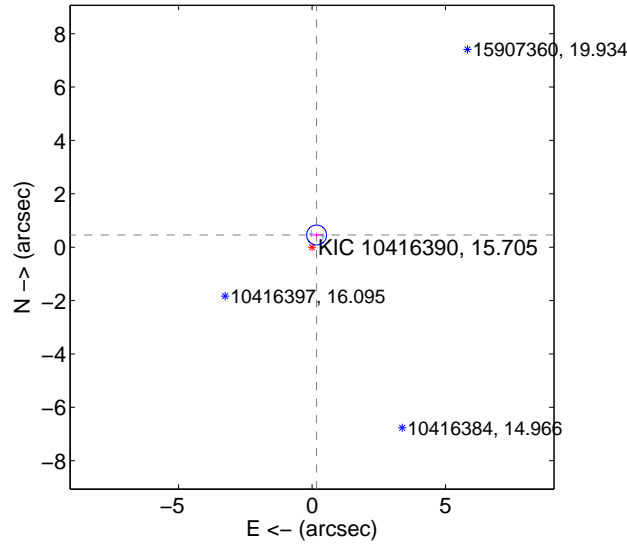
The OOT PRF centroid is offset from the target star catalog position by about 6.19 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.097 ± 0.486	12.55	1.643 ± 0.788	5.871 ± 0.454
PRF-fit source offset from KIC position	0.487 ± 0.124	3.92	-0.171 ± 0.265	0.456 ± 0.088
photometric centroid source offset	1.86 ± 0.12	15.34	-0.46 ± 0.16	-1.80 ± 0.12

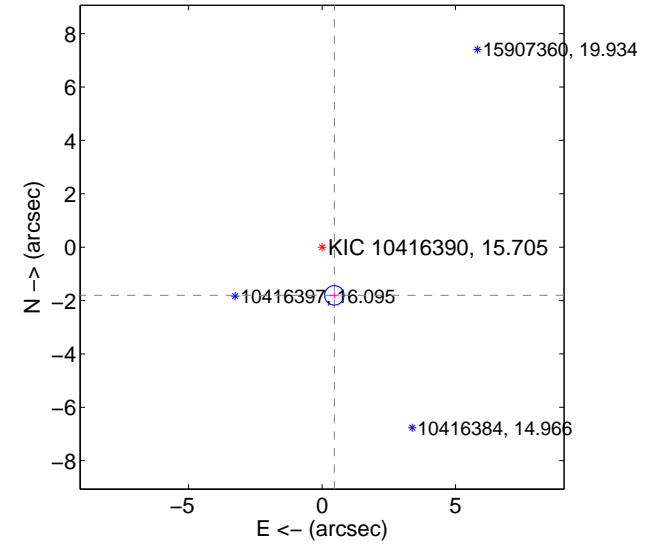
offset from difference PRF-fit to OOT PRF-fit



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.



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

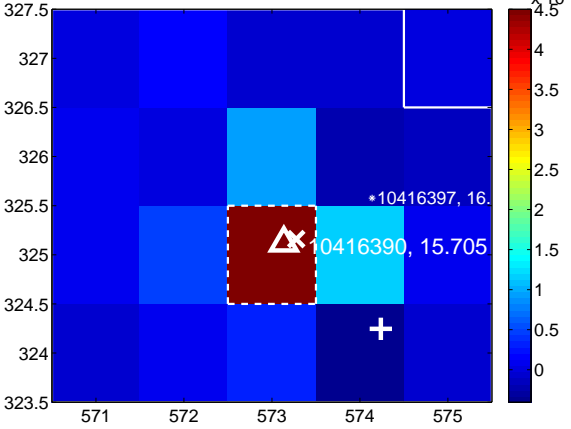
Q5 no difference image



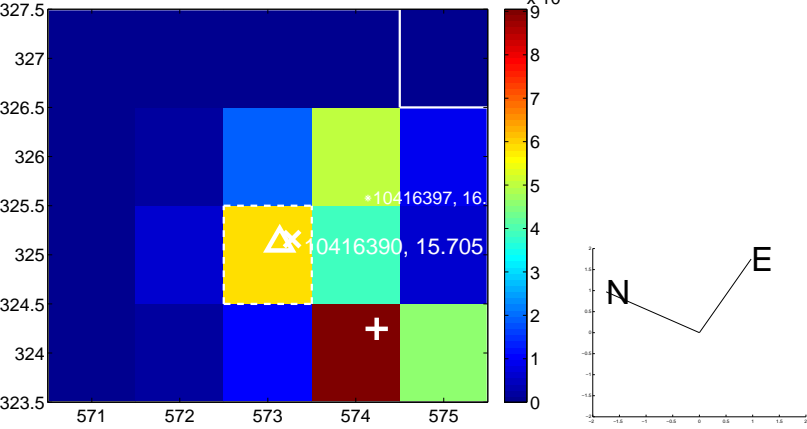
Q5 no OOT image



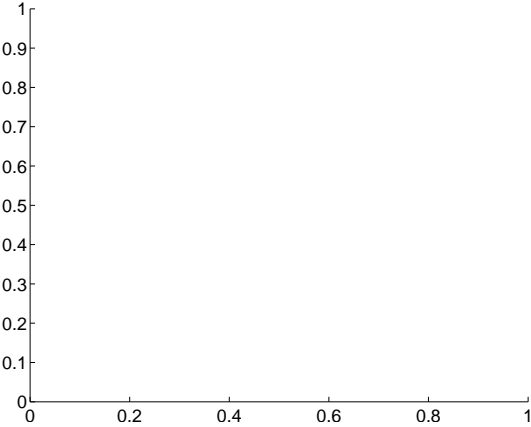
Q6 difference image



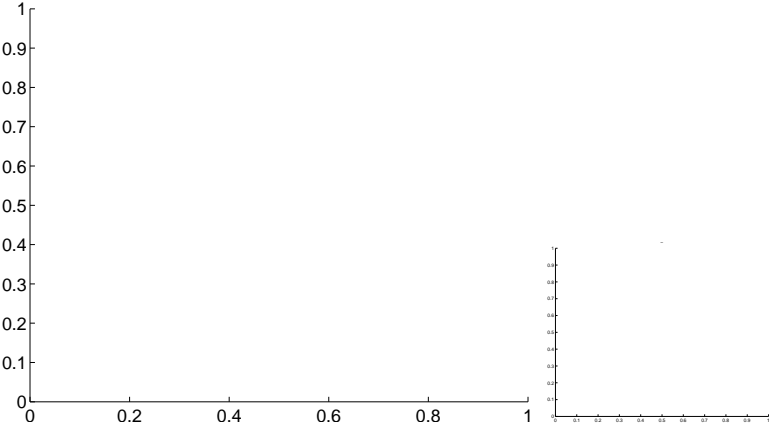
Q6 OOT image



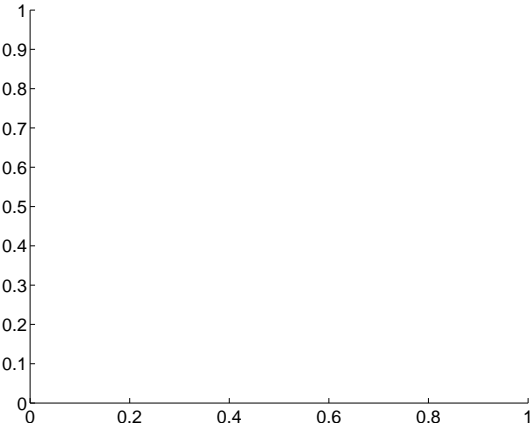
Q7 no difference image



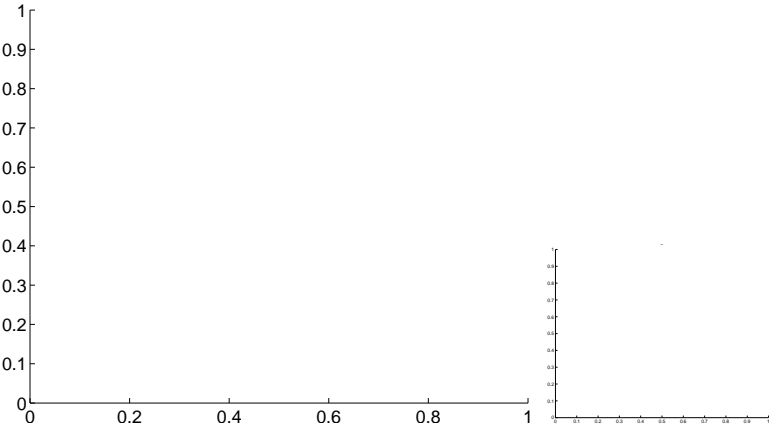
Q7 no OOT image



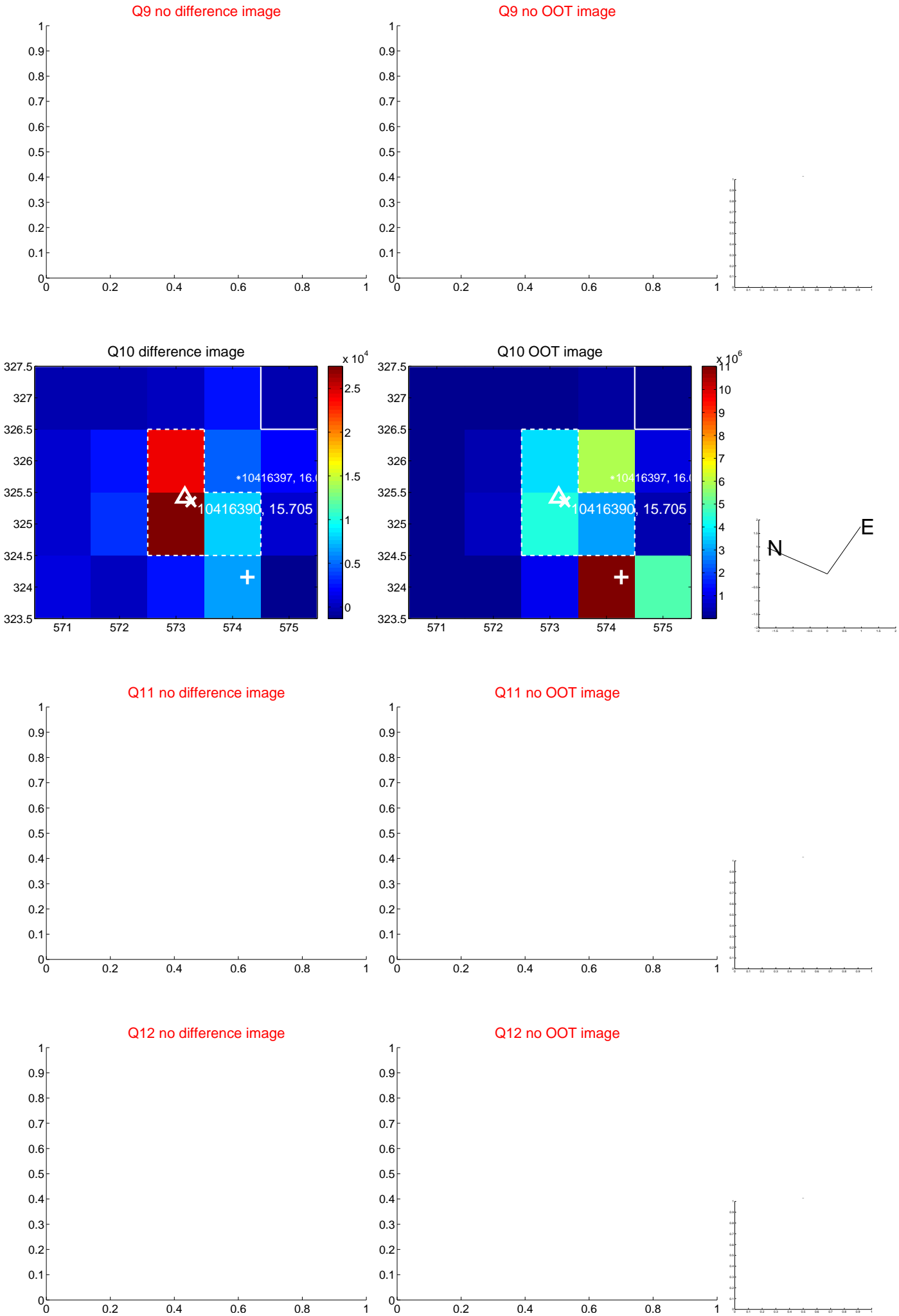
Q8 no difference image



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.



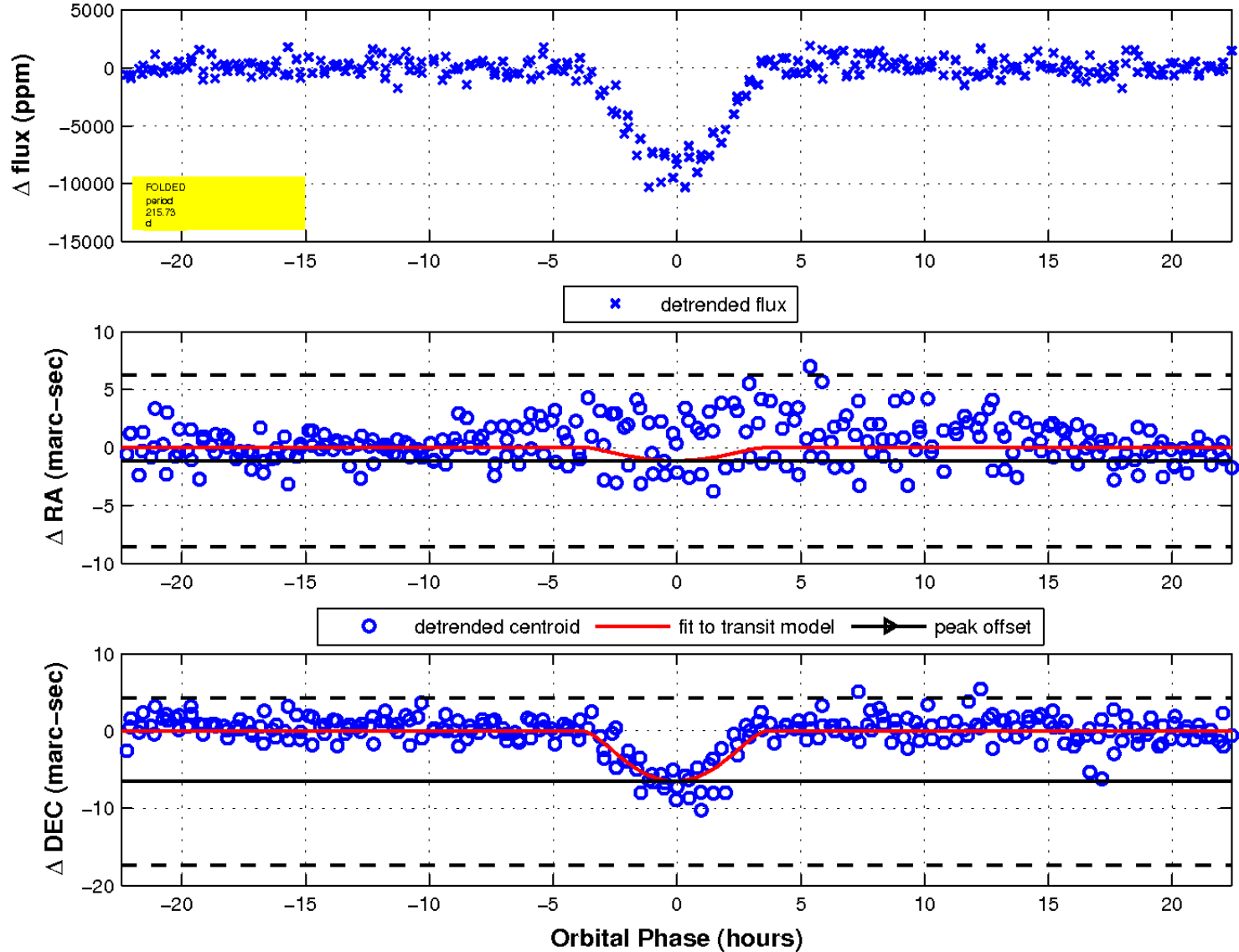
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

