

KIC 012010646

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})
012010646-01	OBS	No	230.482171	192.832762	837.8	2.556	9.6	7.0	13.61	4764	50.19	97.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012010646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS

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

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

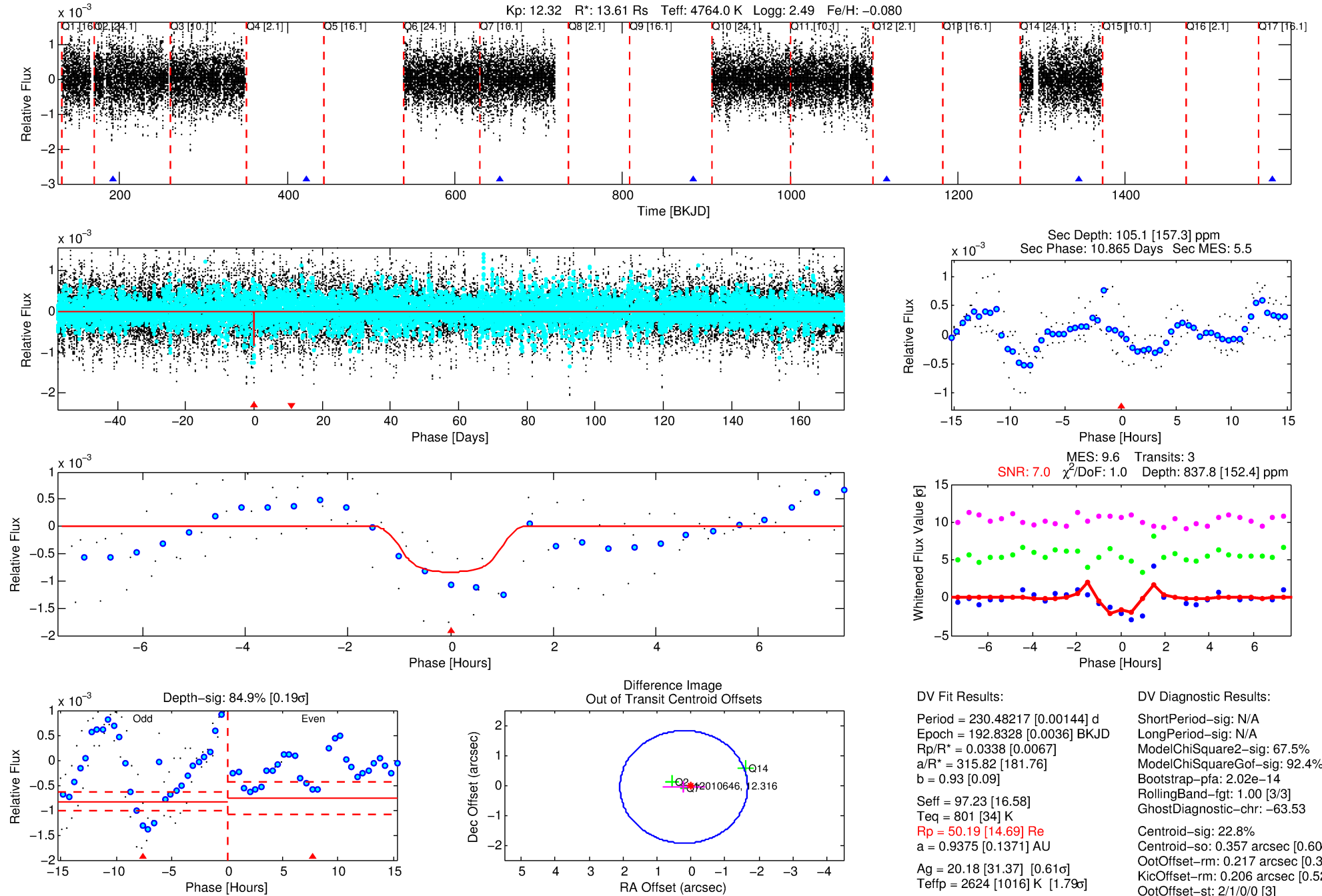
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012010646-01

No Significant Match Found

DV One-Page Summary

KIC: 12010646 Candidate: 1 of 1 Period: 230.482 d



DV Fit Results:

Period = 230.48217 [0.00144] d
Epoch = 192.8328 [0.0036] BKJD
Rp/R* = 0.0338 [0.0067]
a/R* = 315.82 [181.76]
b = 0.93 [0.09]
Seff = 97.23 [16.58]
Teq = 801 [34] K
Rp = 50.19 [14.69] Re
a = 0.9375 [0.1371] AU
Ag = 20.18 [31.37] [0.61 σ]
Teffp = 2624 [1016] K [1.79 σ]

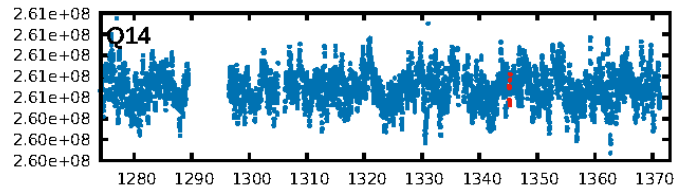
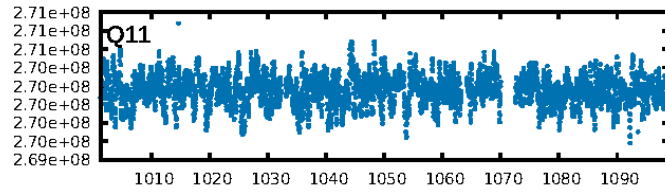
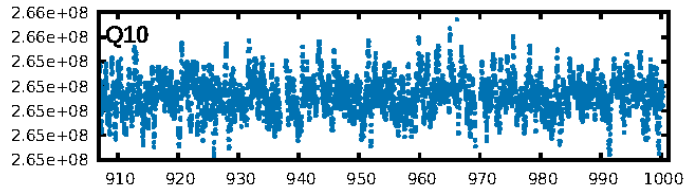
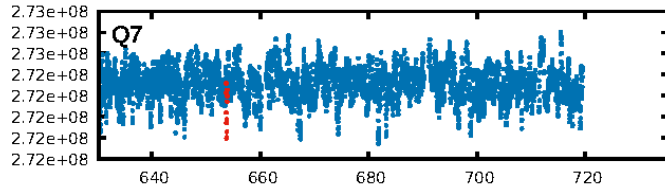
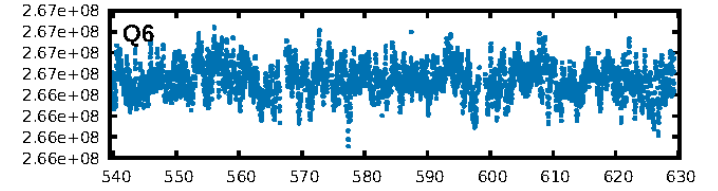
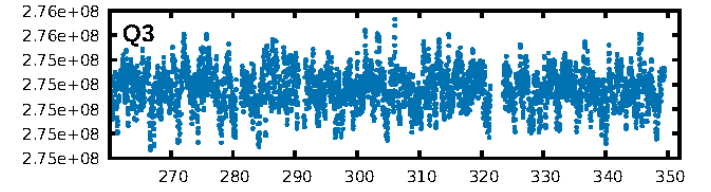
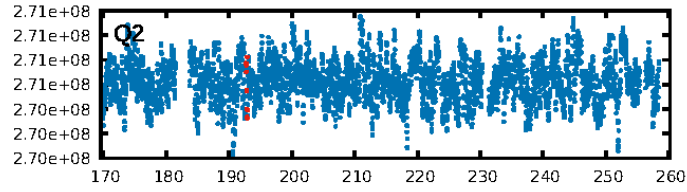
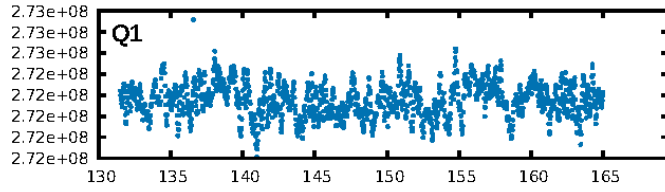
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 67.5%
ModelChiSquareGof-sig: 92.4%
Bootstrap-pfa: 2.02e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -63.53
Centroid-sig: 22.8%
Centroid-so: 0.357 arcsec [0.60 σ]
OotOffset-rm: 0.217 arcsec [0.35 σ]
KicOffset-rm: 0.206 arcsec [0.52 σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

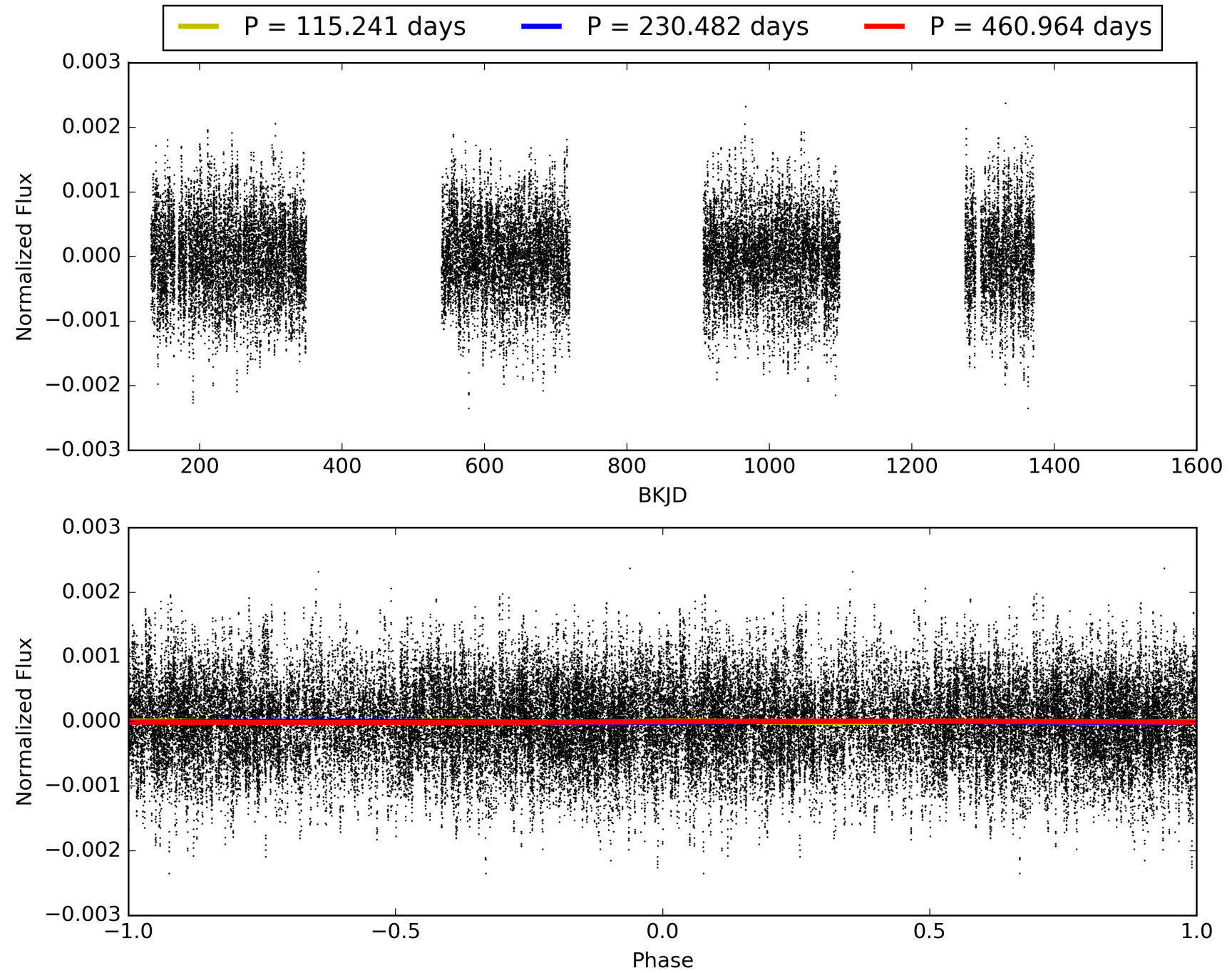
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:04:33 Z

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

TCE 012010646-01, PDC Light Curves

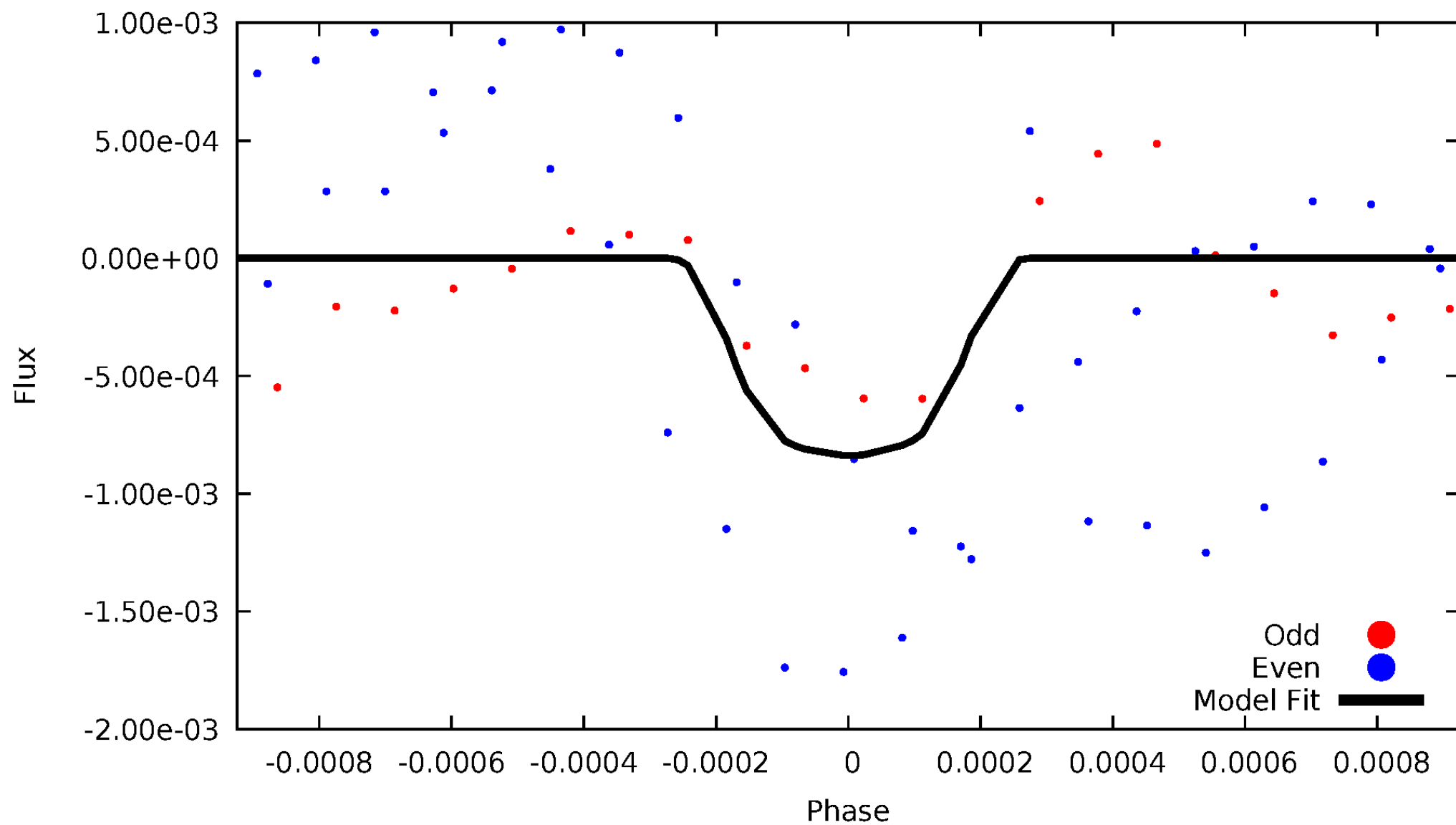


TCE 012010646-01



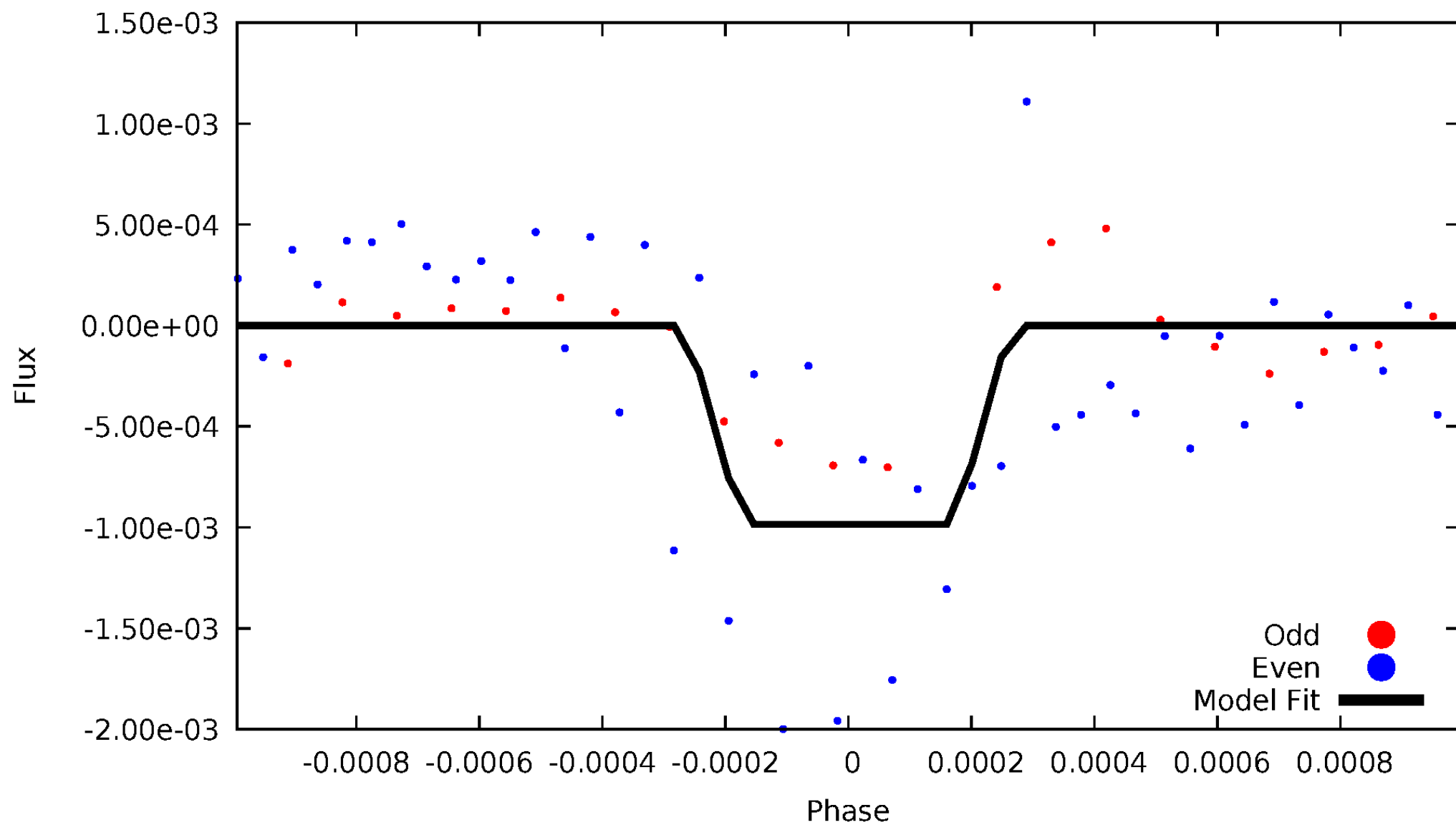
DV Odd/Even

TCE 012010646-01



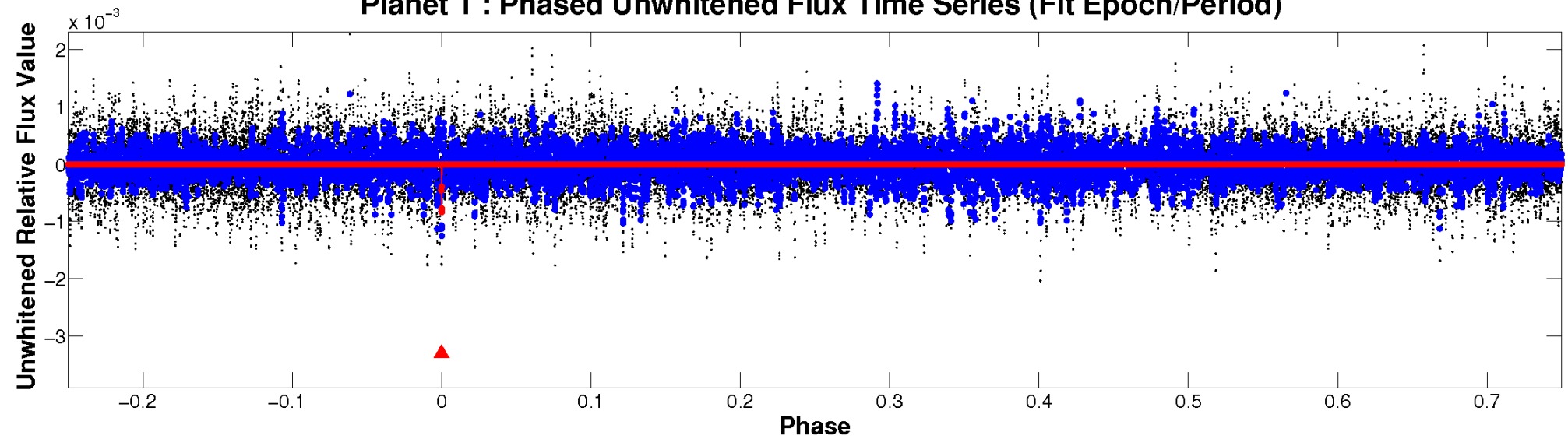
ALT Odd/Even

TCE 012010646-01

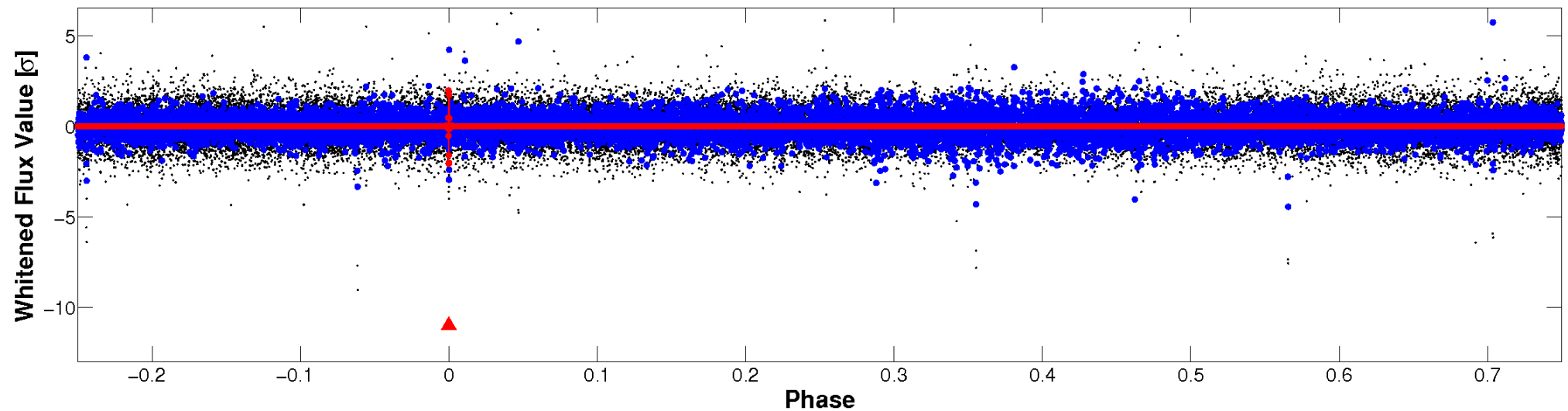


Non-Whitened Vs. Whitened Light Curve

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

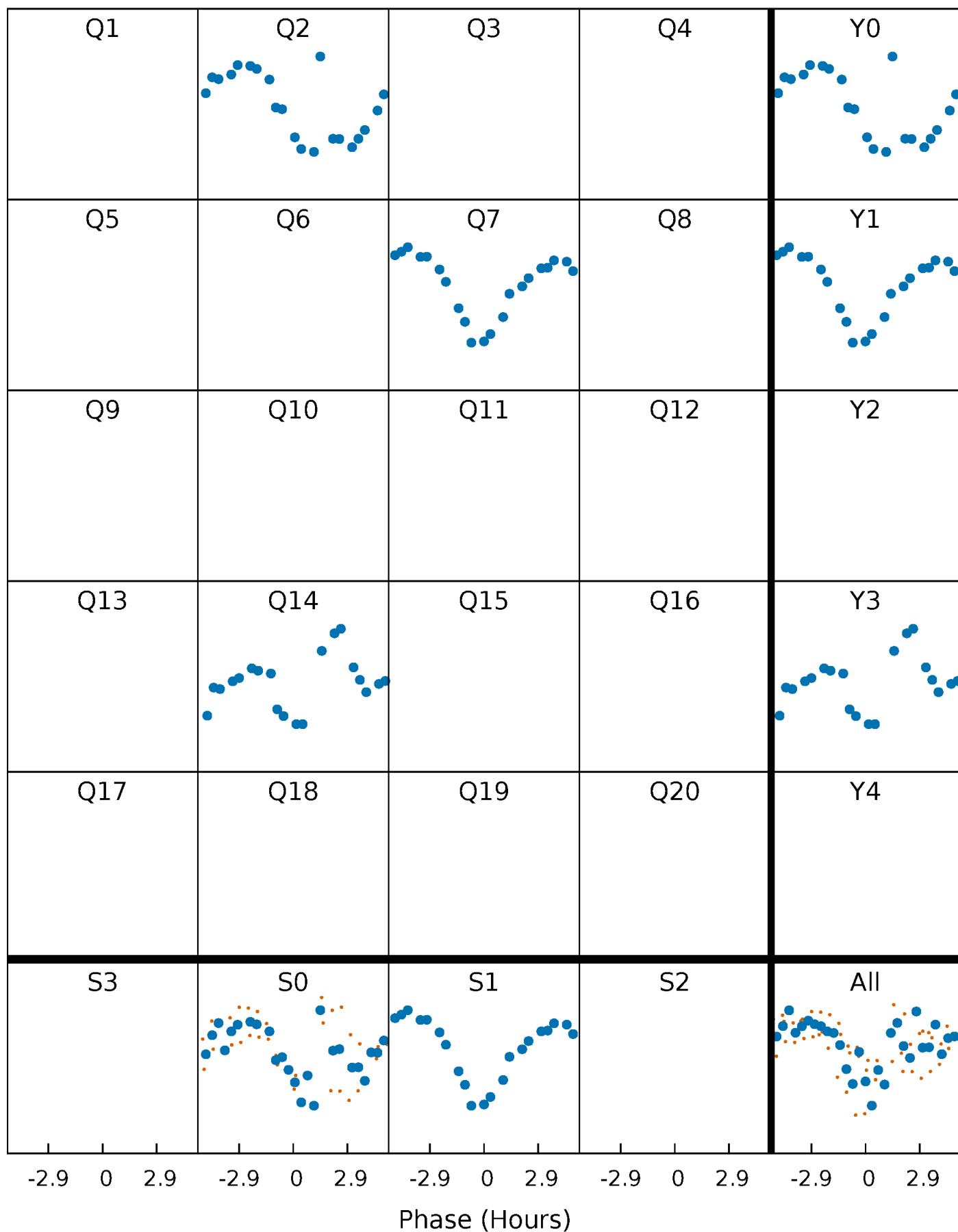


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



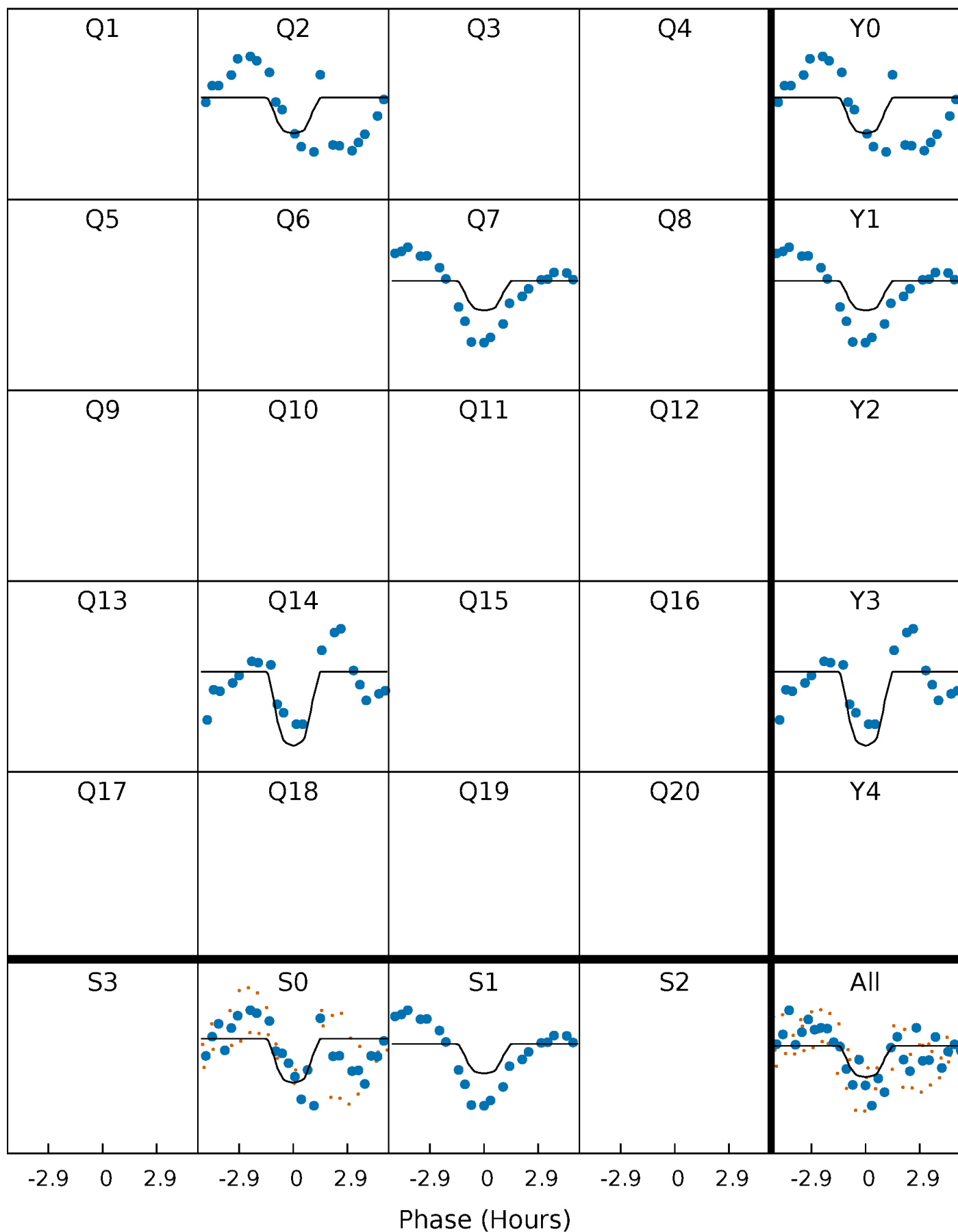
PDC Quarter-Phased Transit Curves

TCE 012010646-01 P=230.482171 Days $T_0=192.832762$ (BKJD)



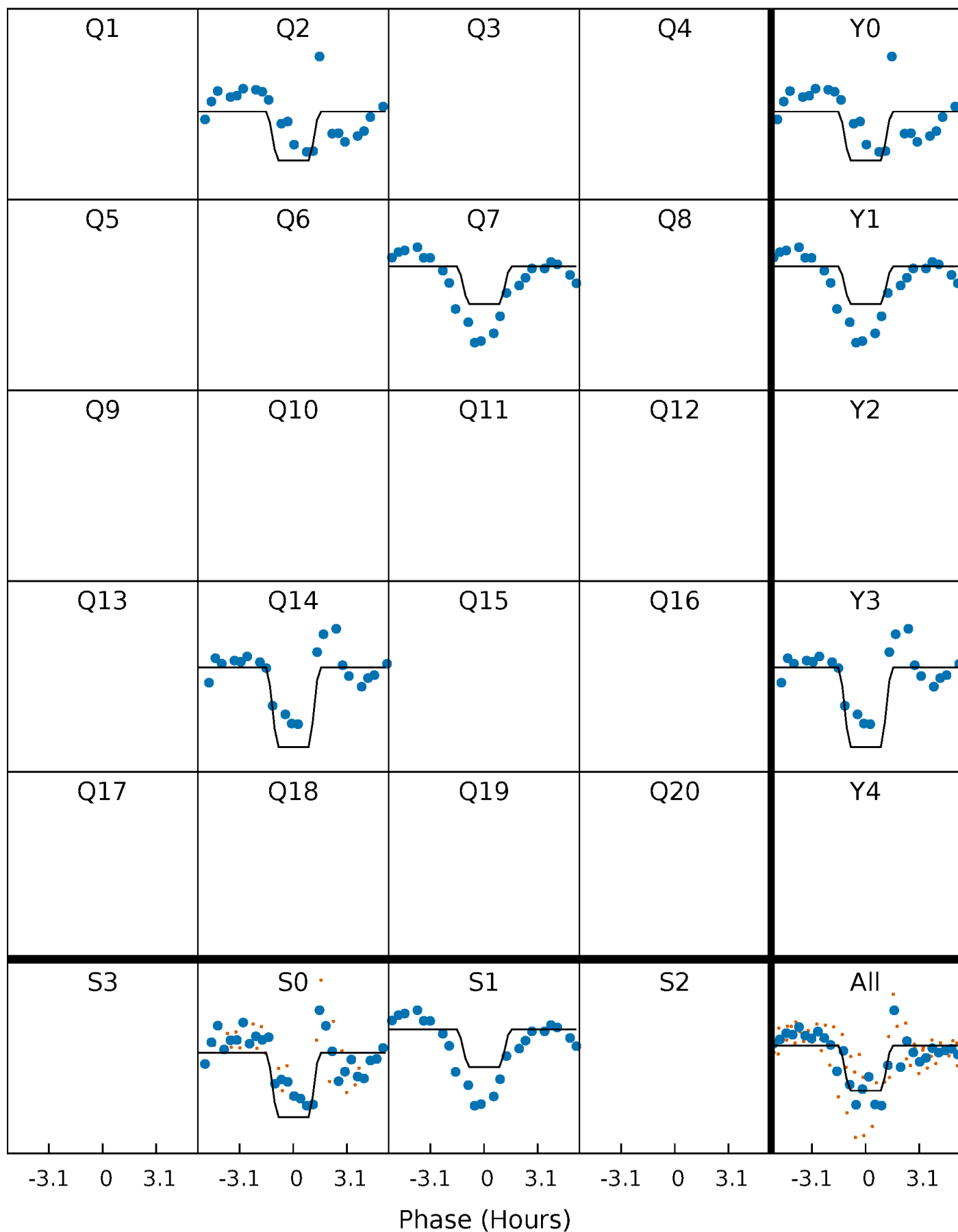
DV Quarter-Phased Transit Curves

TCE 012010646-01 P=230.482171 Days $T_0=192.832762$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

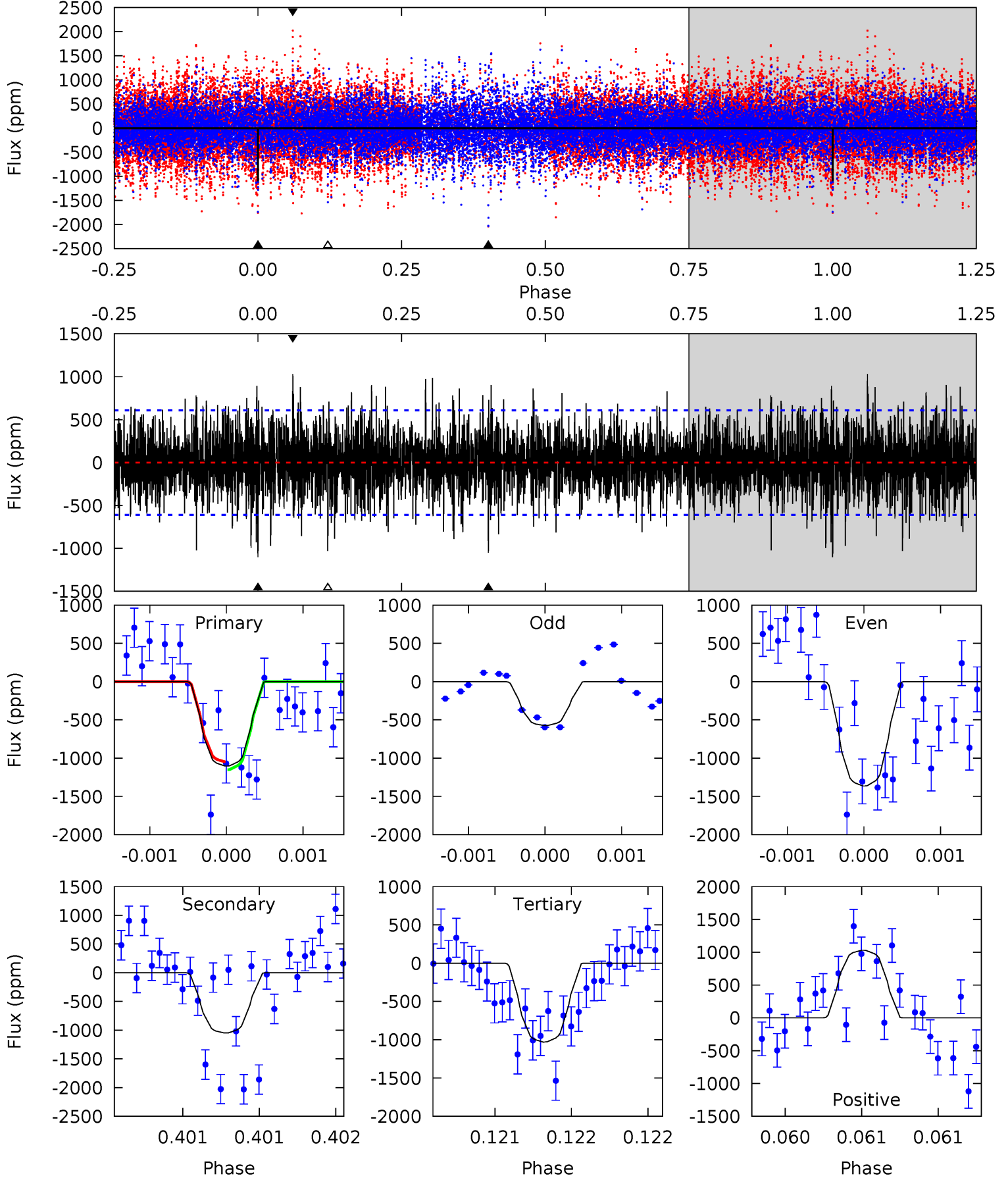
TCE 012010646-01 P=230.485079 Days $T_0=192.829264$ (BKJD)



DV Model-Shift Uniqueness Test

012010646-01, P = 230.482171 Days, E = 192.832762 Days

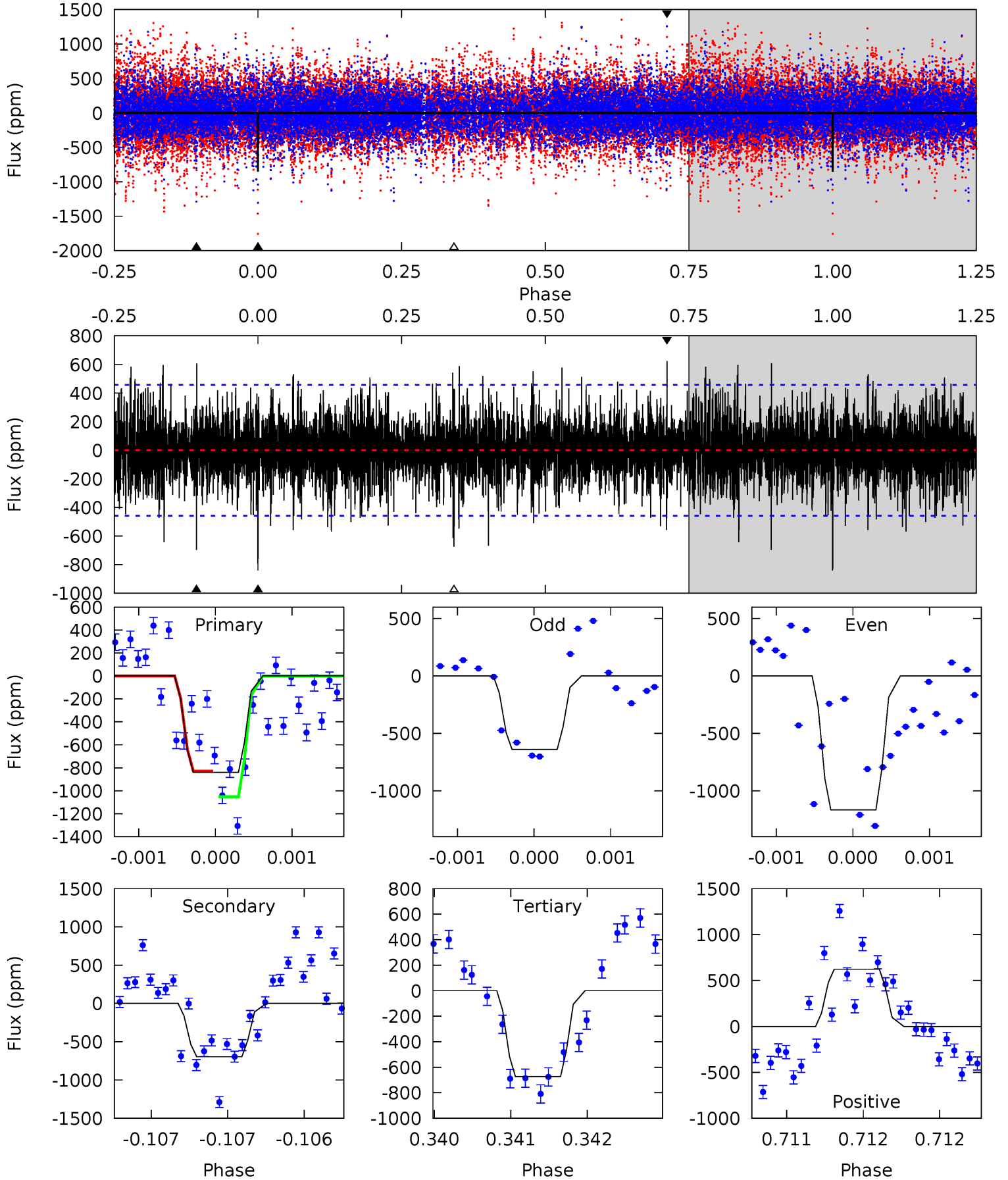
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	9.58	9.40	9.40	5.56	3.46	2.41	0.67	0.67	0.18	0.18	3.36	1.29	0.48	0.47



Alt Model-Shift Uniqueness Test

012010646-01, P = 230.485079 Days, E = 192.829264 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	8.47	8.18	7.56	5.56	3.46	2.00	2.02	2.64	0.29	0.90	3.30	1.54	0.43	1.40



Stellar Parameters For KIC 012010646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4764^{+64}_{-93}	$2.486^{+0.030}_{-0.027}$	$-0.080^{+0.150}_{-0.200}$	$13.608^{+2.947}_{-2.947}$	$2.067^{+0.915}_{-0.749}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+1%/-1%	+188%/-250%	+22%/-22%	+44%/-36%	+34%/-18%
Source	SPE74	AST9	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012010646-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1049 ± 109	$50.52^{+13.81}_{-11.64}$	1120^{+35}_{-39}	4669^{+478}_{-337}	202^{+119}_{-67}
Alt.	-697 ± 82	$47.07^{+14.12}_{-11.69}$	1119^{+35}_{-38}	4432^{+471}_{-337}	155^{+102}_{-58}

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

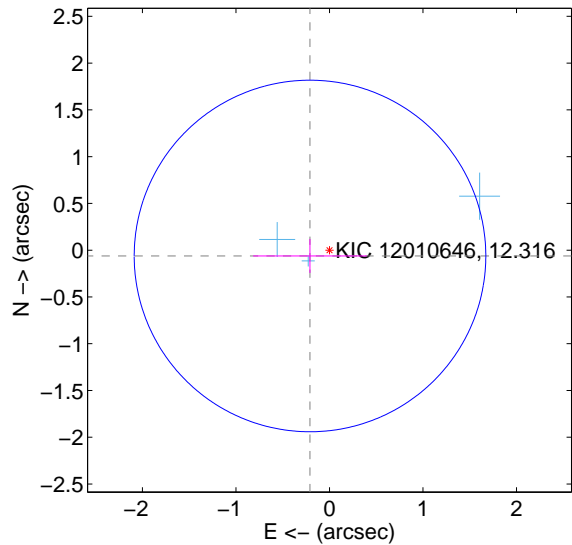
Supplemental centroid analysis for 012010646-01. Kepler magnitude: 12.32. Transit SNR 7.04

There are 3 quarters with good PRF difference image offsets

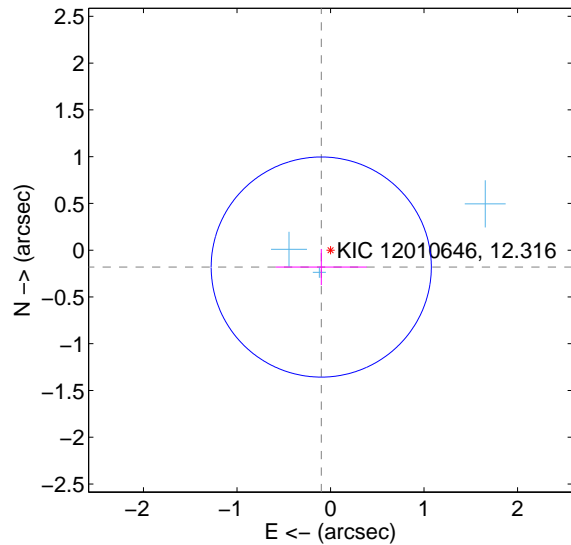
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.217 ± 0.626	0.35	0.208 ± 0.607	-0.062 ± 0.181
PRF-fit source offset from KIC position	0.206 ± 0.392	0.52	0.099 ± 0.487	-0.180 ± 0.194
photometric centroid source offset	0.36 ± 0.60	0.60	-0.30 ± 0.55	-0.20 ± 0.69

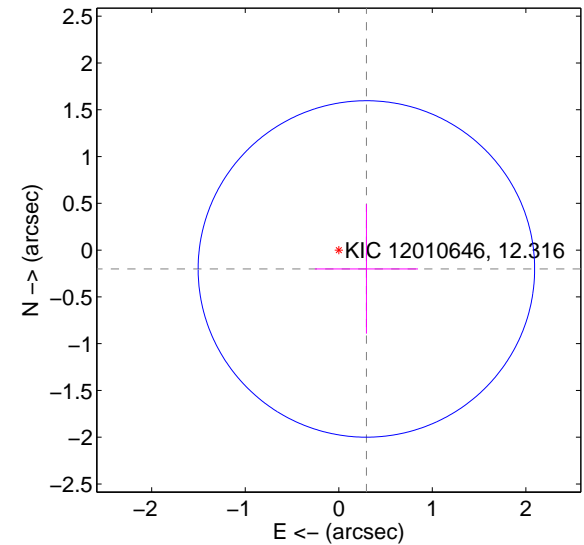
offset from difference PRF-fit to OOT PRF-fit



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.

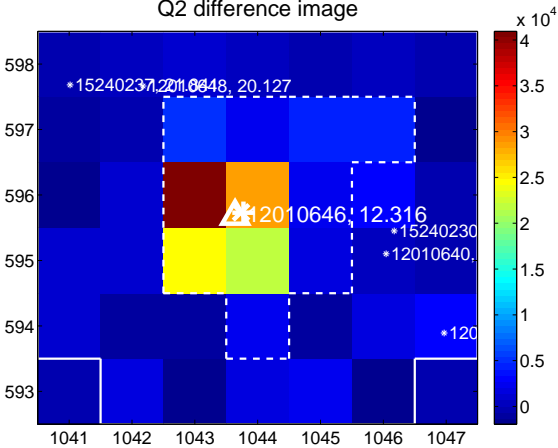
Q1 no difference image



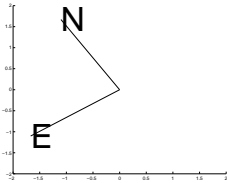
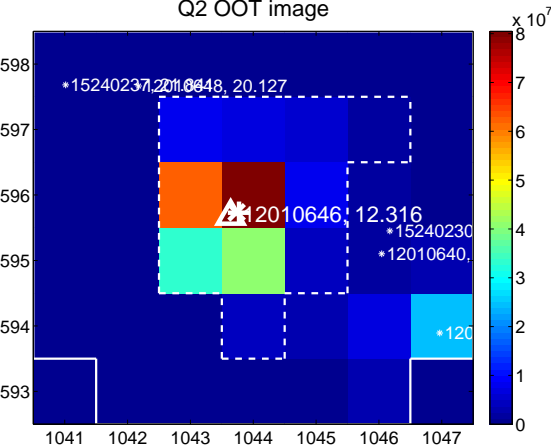
Q1 no OOT image



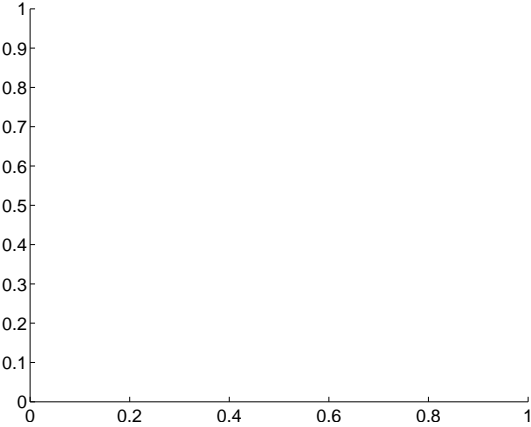
Q2 difference image



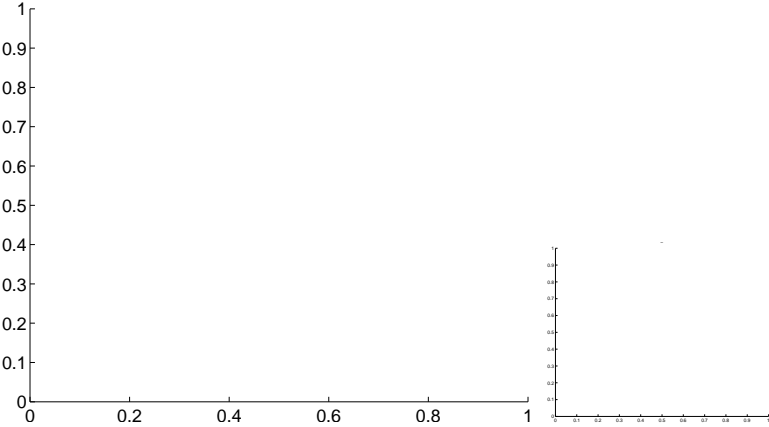
Q2 OOT image



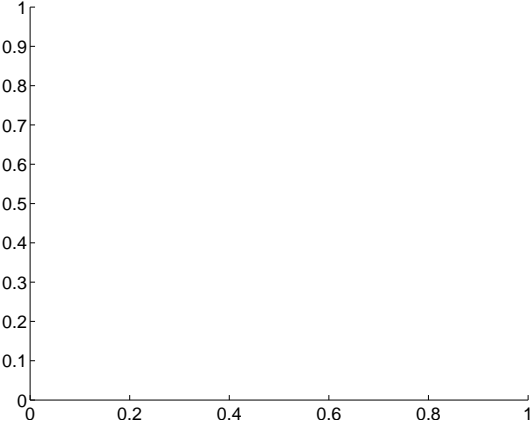
Q3 no difference image



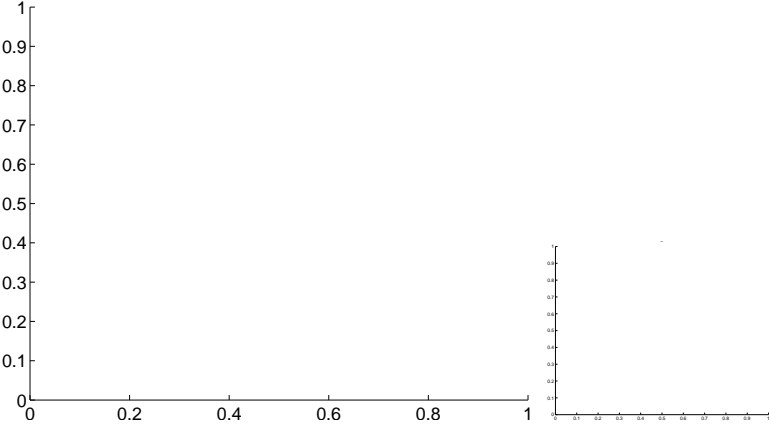
Q3 no OOT image



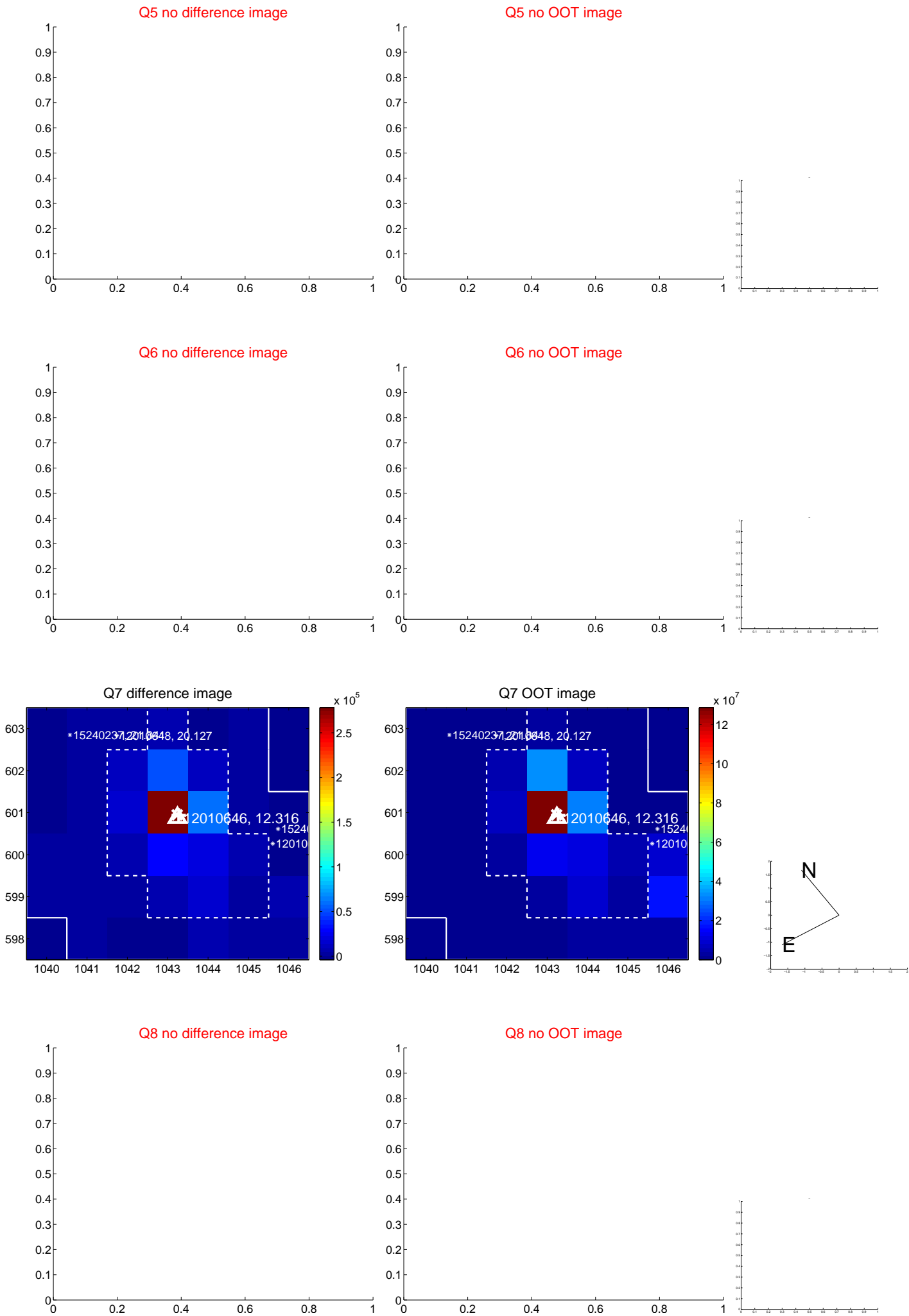
Q4 no difference image



Q4 no OOT image



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



white \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.

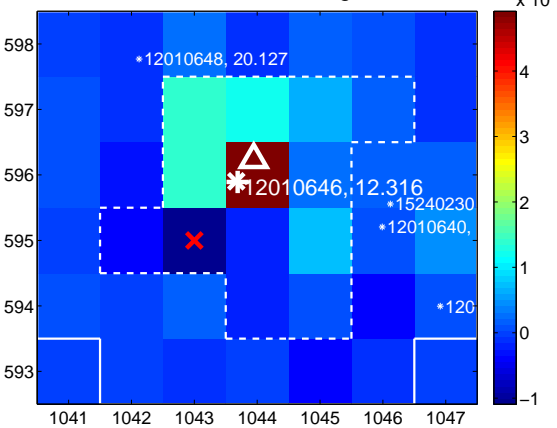
Q13 no difference image



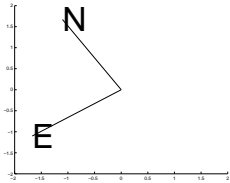
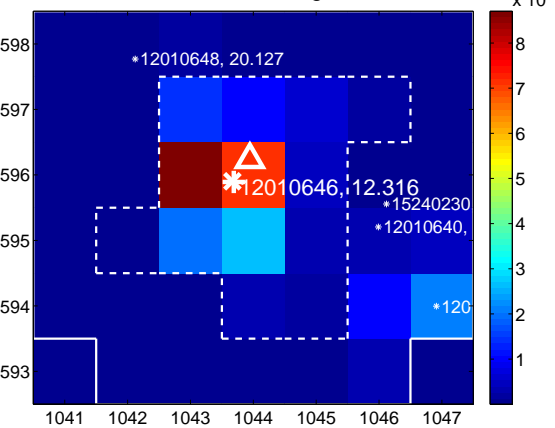
Q13 no OOT image



Q14 difference image



Q14 OOT image



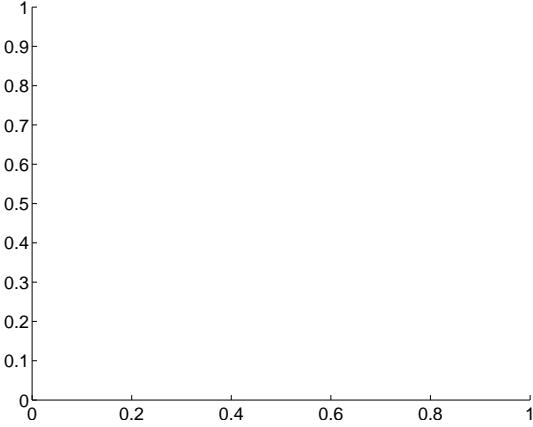
Q15 no difference image



Q15 no OOT image



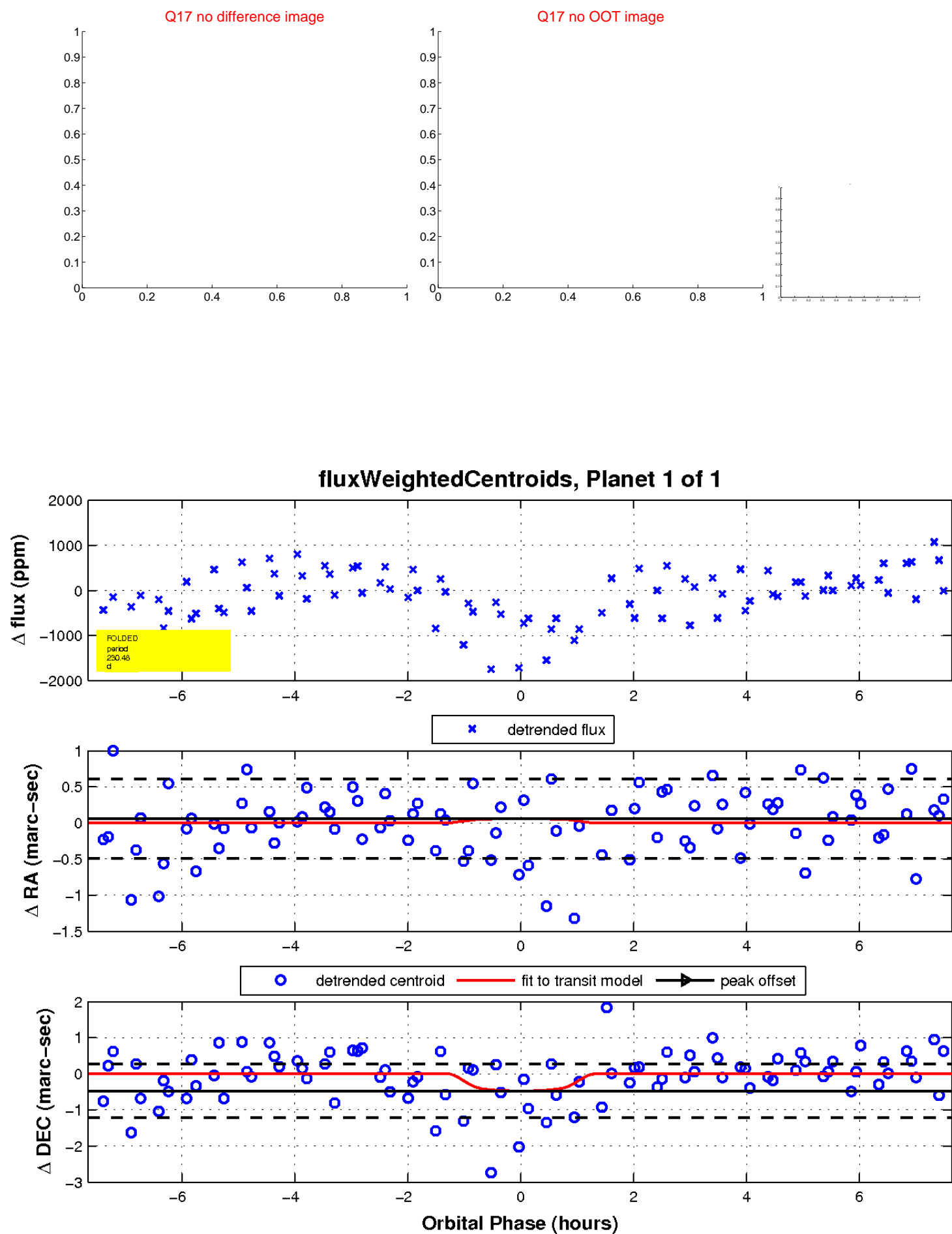
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

