

# KIC 008008646

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008008646-01	OBS	No	314.791710	407.884252	1211.2	8.233	7.4	7.1	0.48	3710	1.76	0.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008008646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

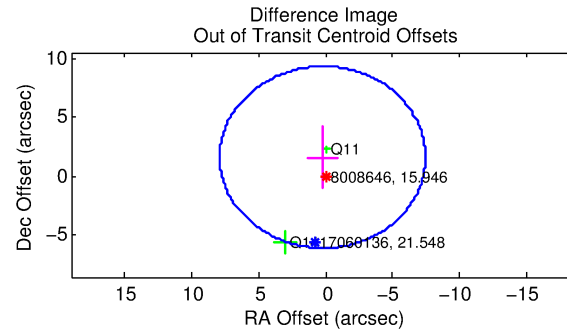
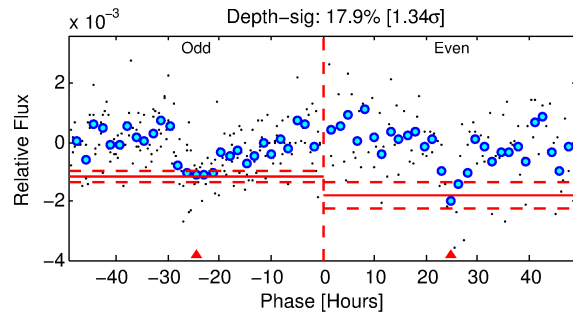
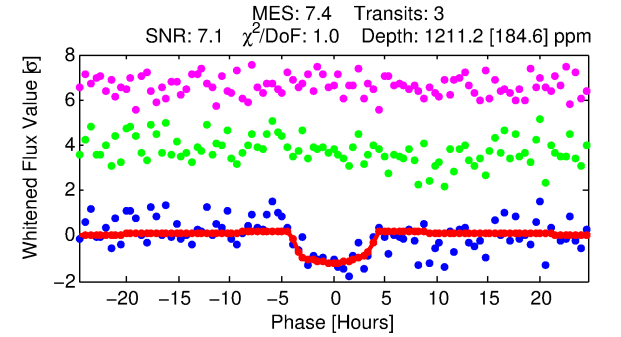
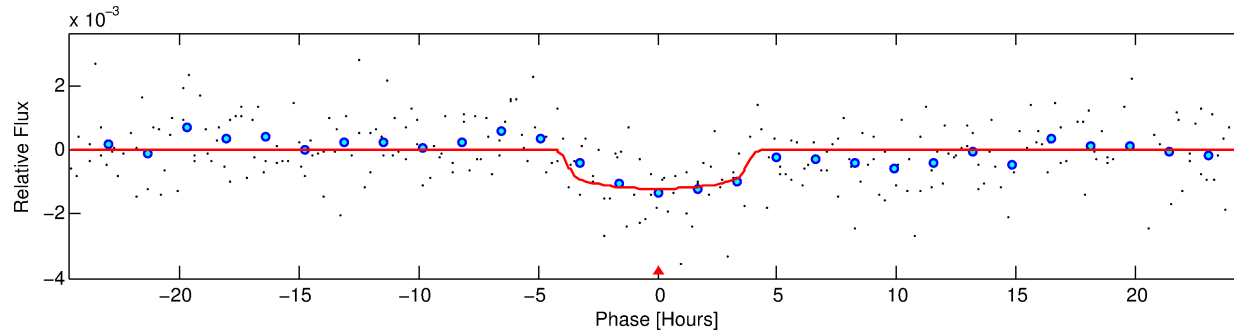
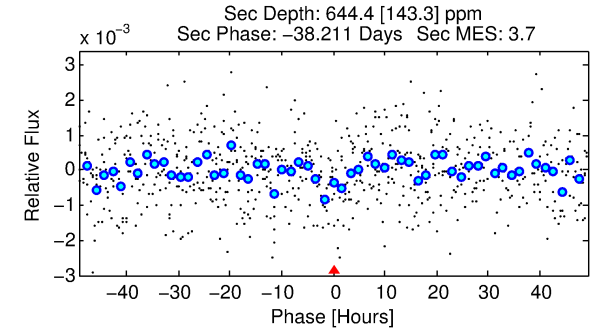
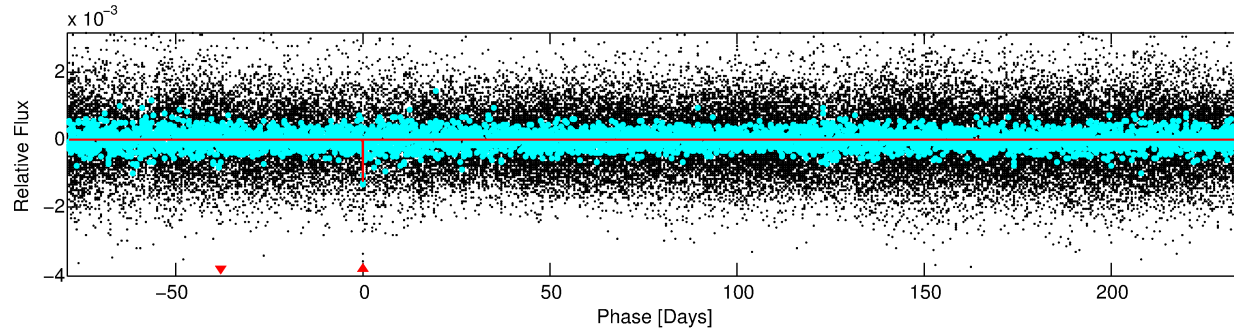
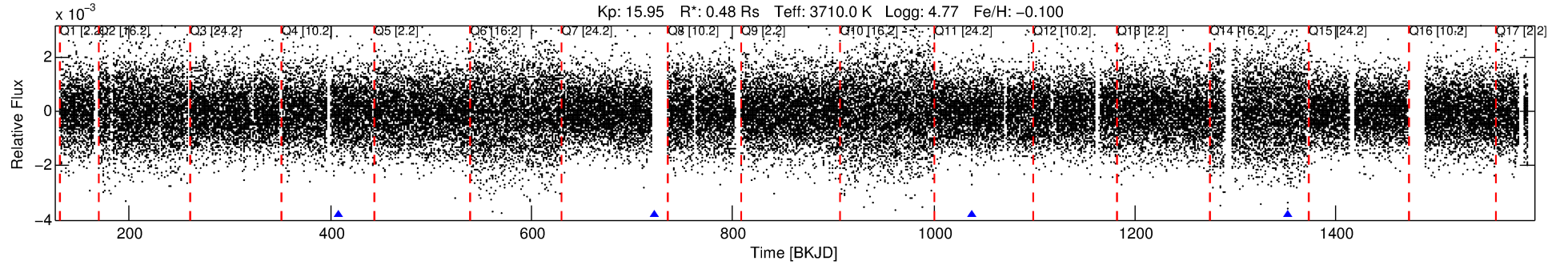
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008008646-01

No Significant Match Found

# DV One-Page Summary

KIC: 8008646 Candidate: 1 of 1 Period: 314.792 d



## DV Fit Results:

Period = 314.79171 [0.00967] d  
Epoch = 407.8843 [0.0188] BKJD  
Rp/R\* = 0.0340 [0.0183]  
a/R\* = 222.59 [532.79]  
b = 0.70 [1.74]  
Seff = 0.08 [0.01]  
Teq = 134 [3] K  
Rp = 1.77 [0.96] Re  
a = 0.7114 [0.0358] AU  
Ag = 57591.66 [63393.71] [0.91σ]  
Teffp = 3207 [882] K [3.49σ]

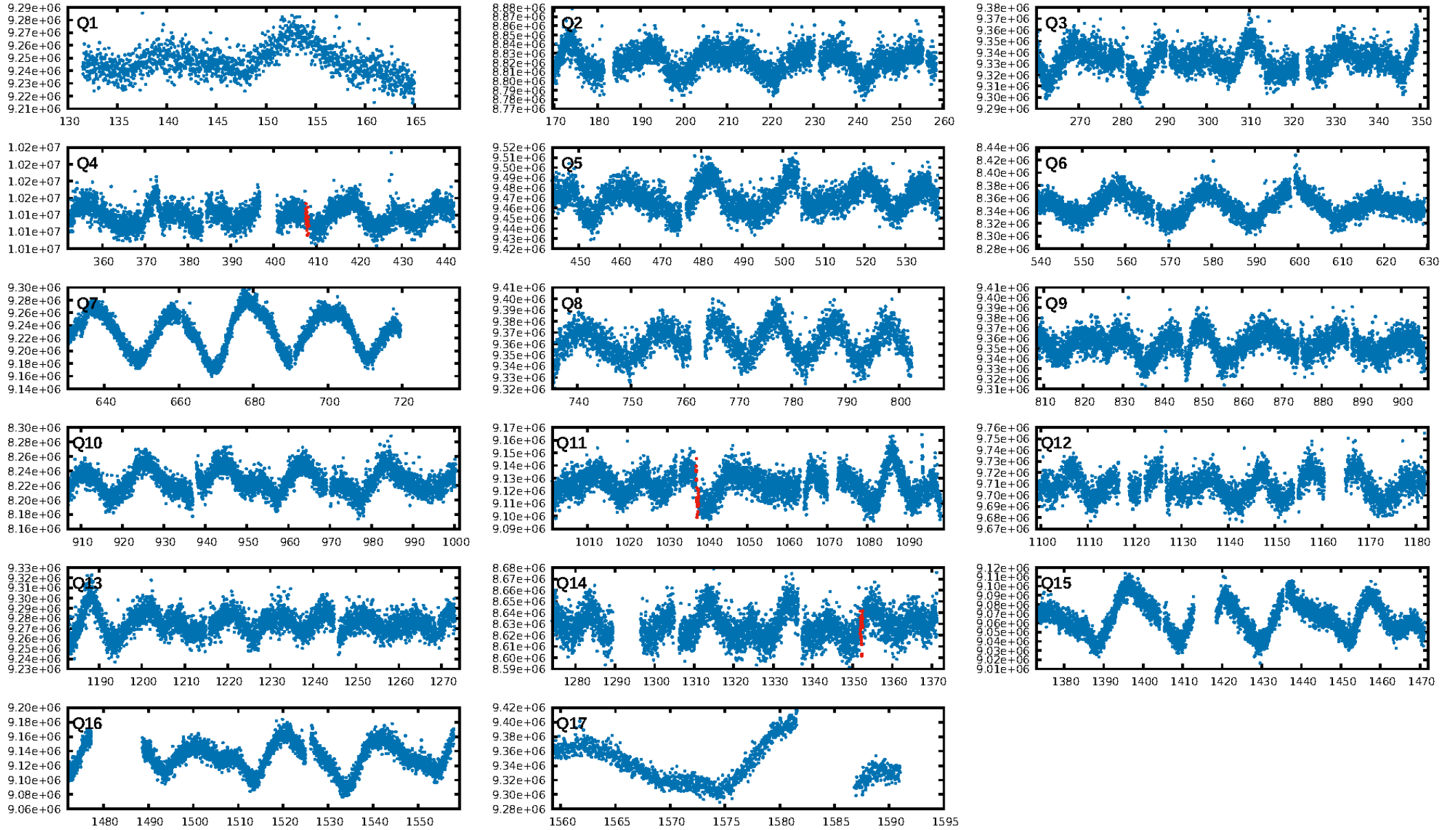
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 23.1%  
ModelChiSquareGof-sig: 98.6%  
Bootstrap-pfa: 4.32e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.131  
Centroid-sig: 17.8%  
Centroid-so: 1.740 arcsec [1.16σ]  
OotOffset-rm: 1.644 arcsec [0.64σ]  
KicOffset-rm: 1.893 arcsec [0.71σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

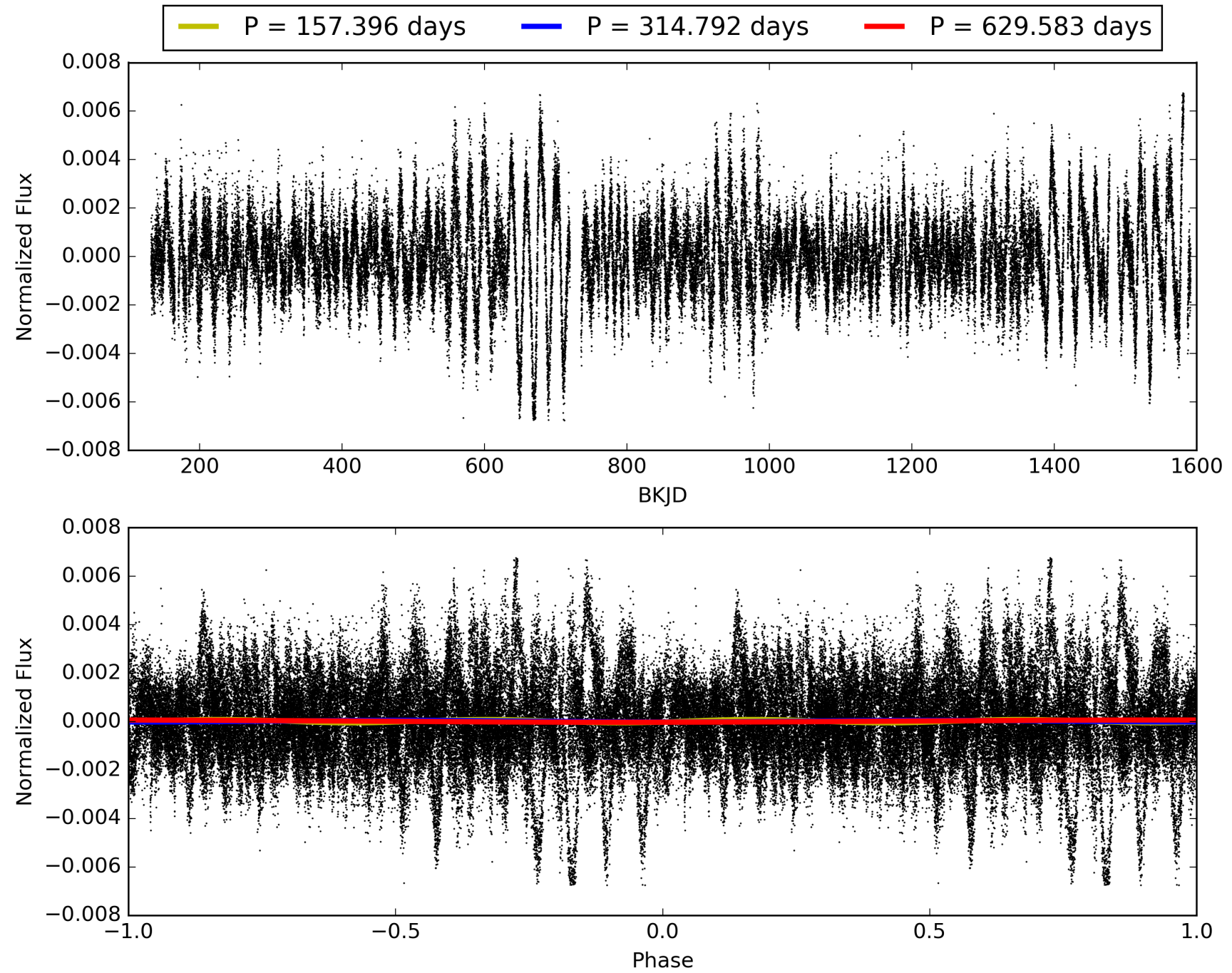
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:41:10 Z

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

# TCE 008008646-01, PDC Light Curves

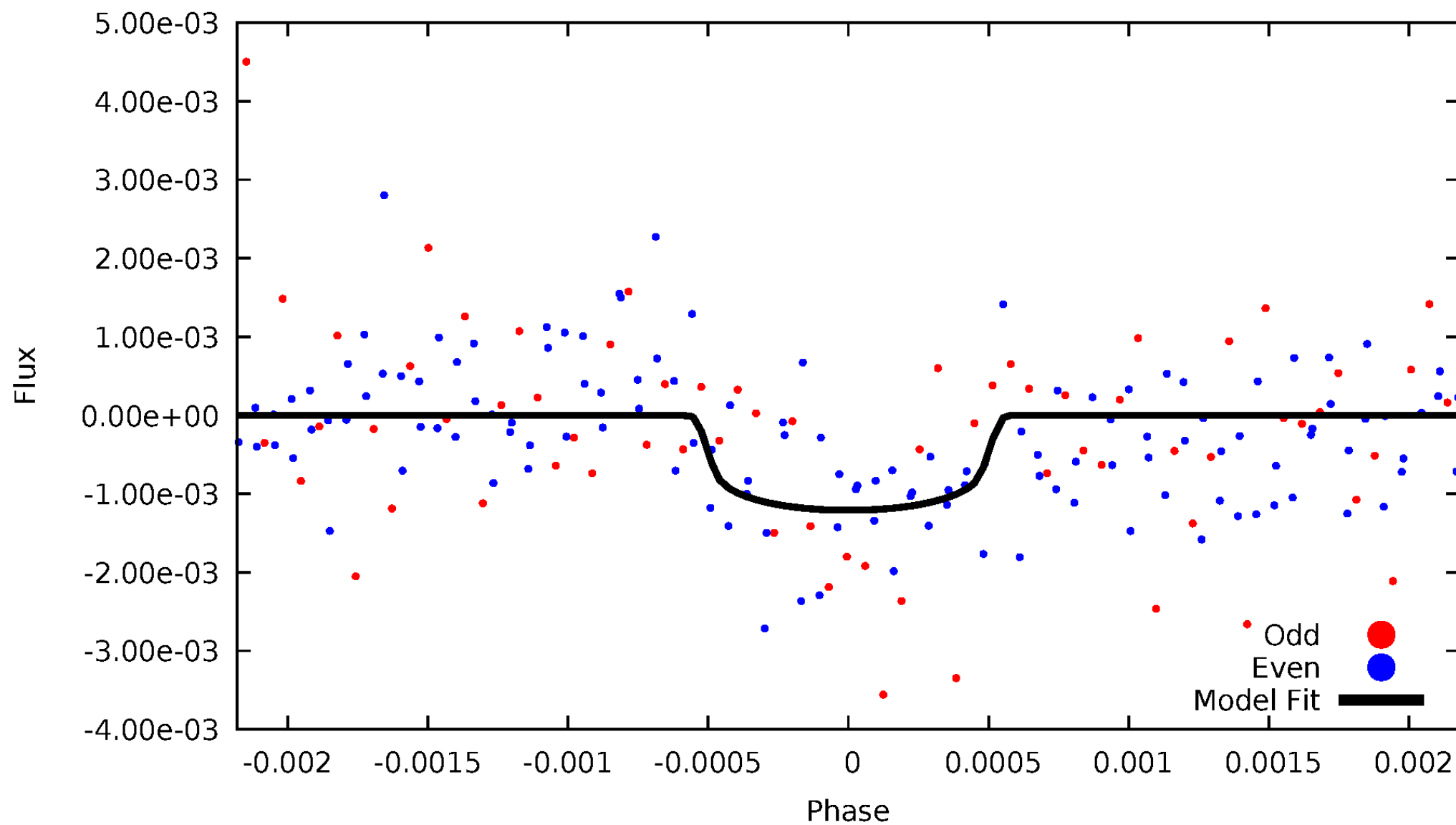


TCE 008008646-01



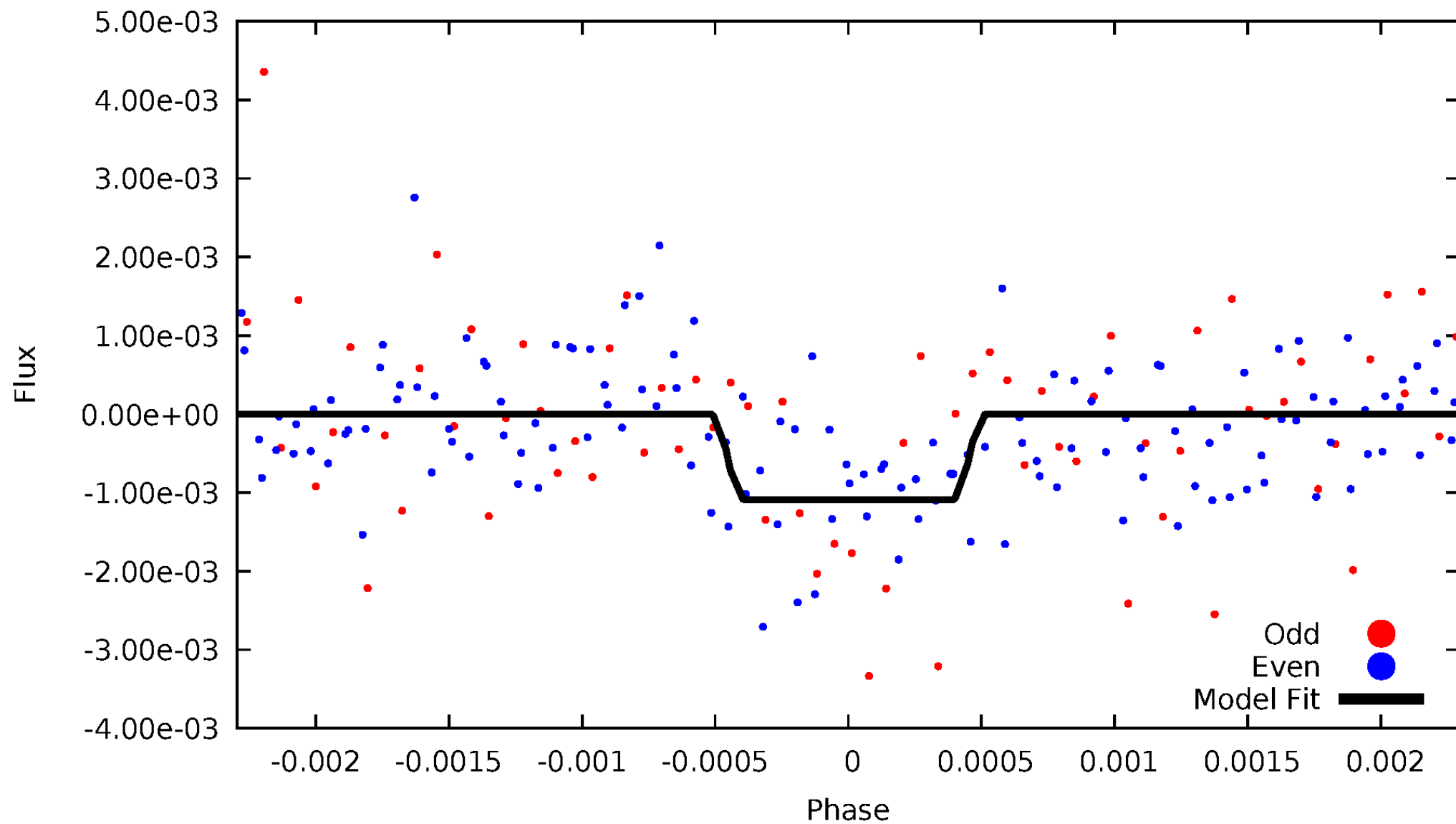
# DV Odd/Even

TCE 008008646-01



# ALT Odd/Even

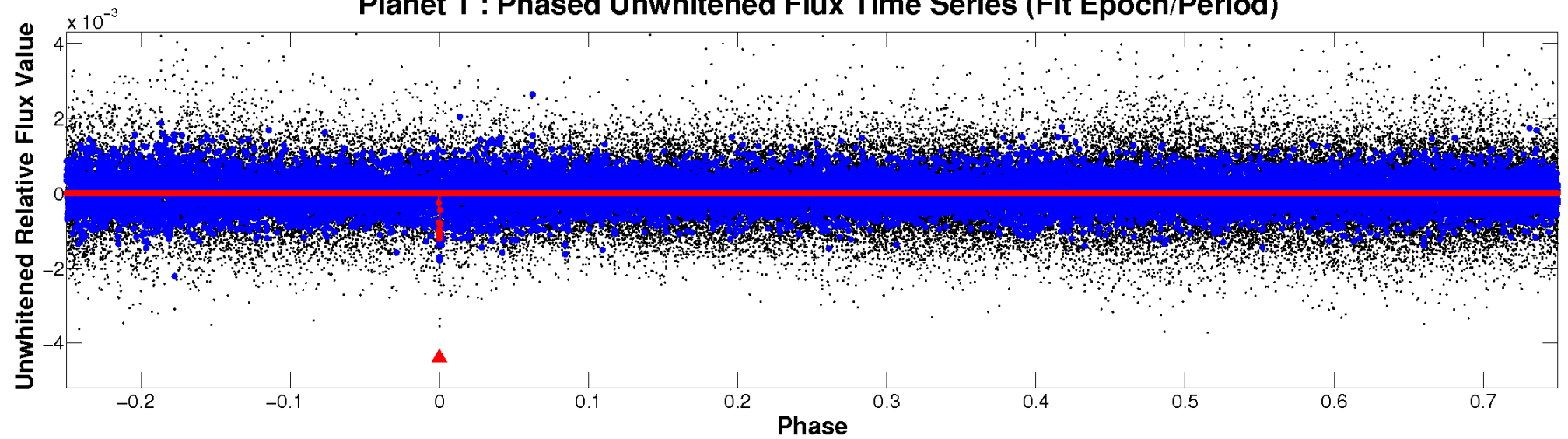
TCE 008008646-01



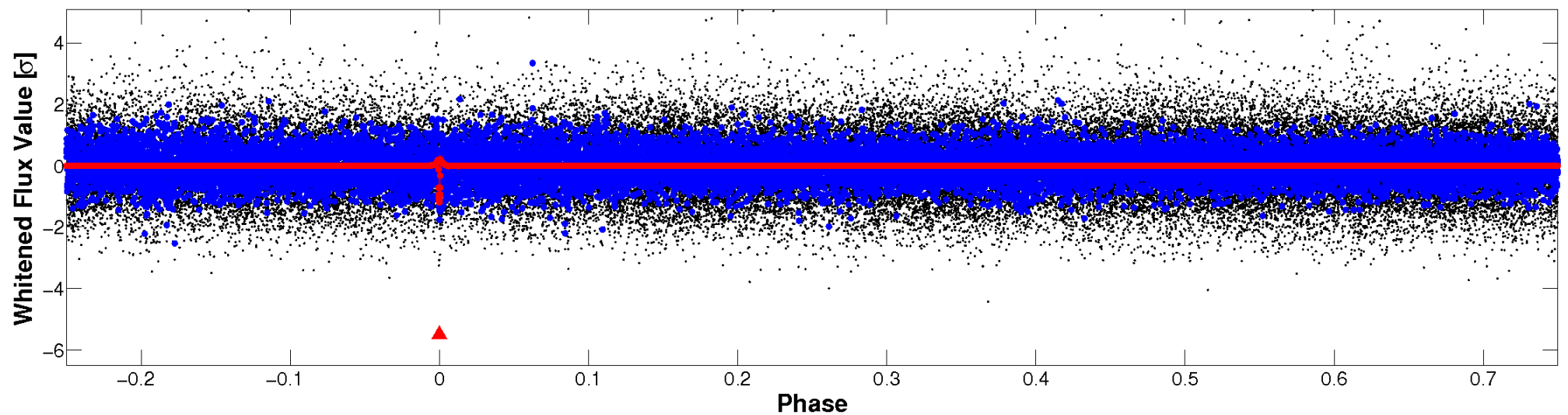


# Non-Whitened Vs. Whitened Light Curve

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

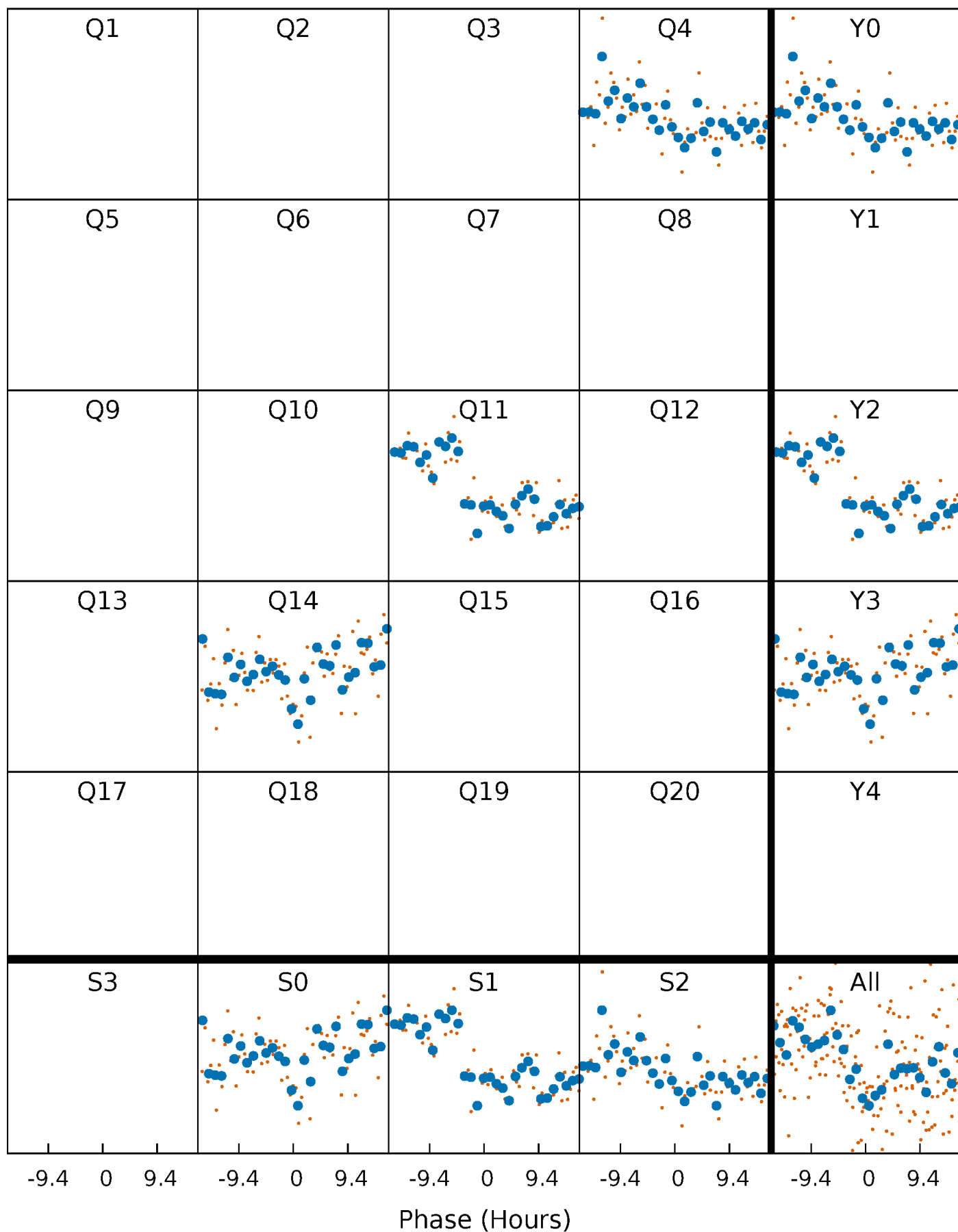


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

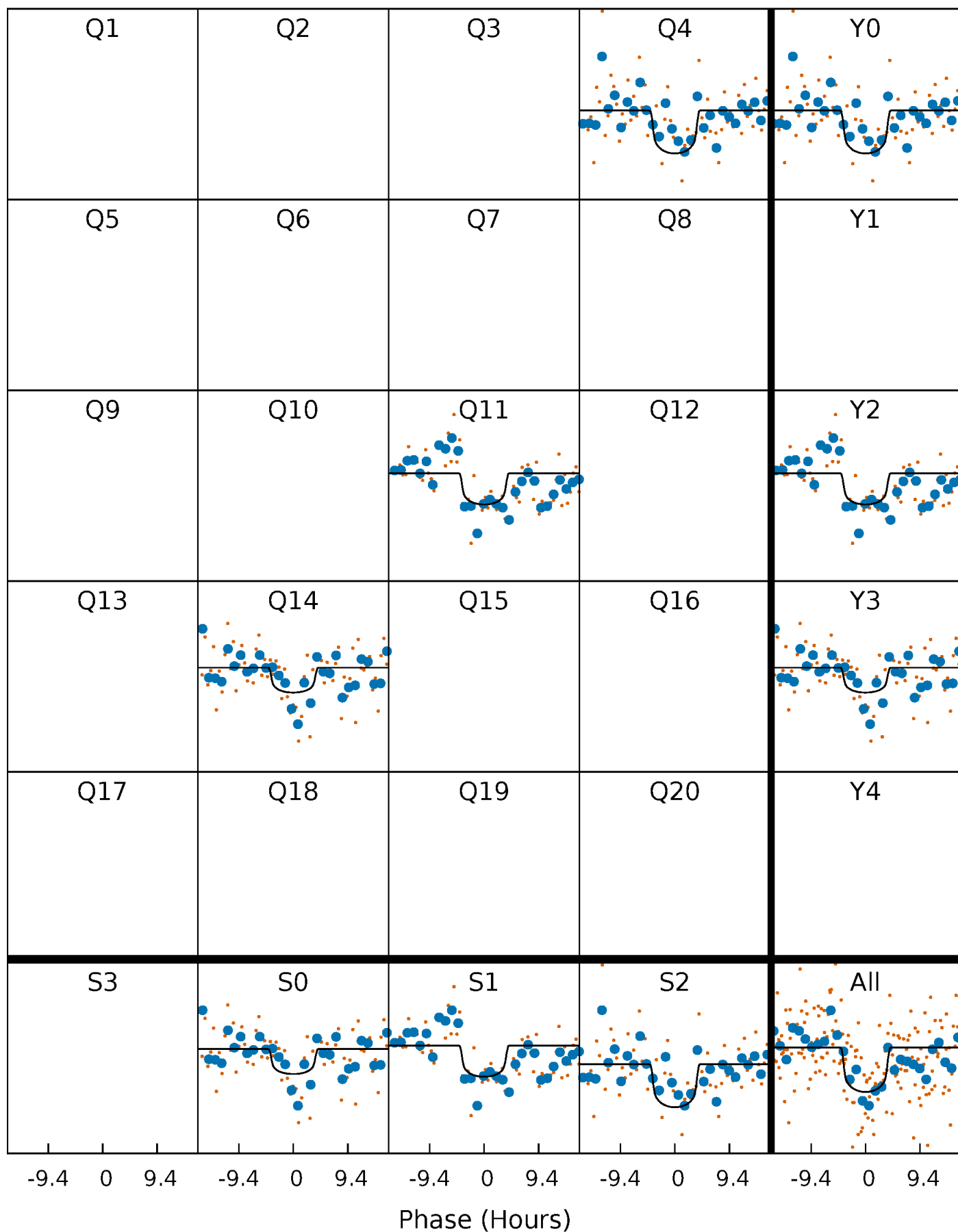
TCE 008008646-01 P=314.791710 Days  $T_0=407.884252$  (BKJD)





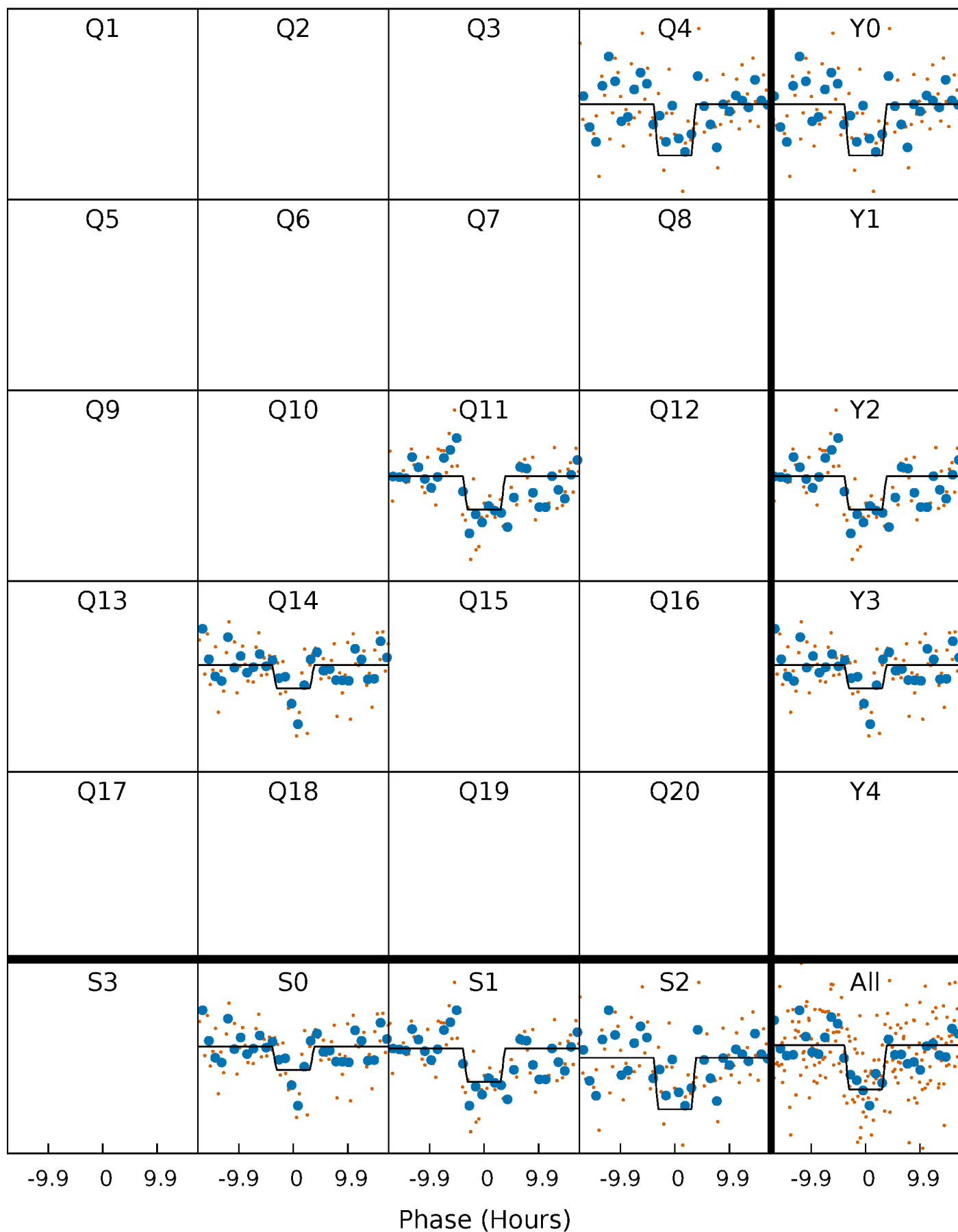
# DV Quarter-Phased Transit Curves

TCE 008008646-01 P=314.791710 Days  $T_0=407.884252$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

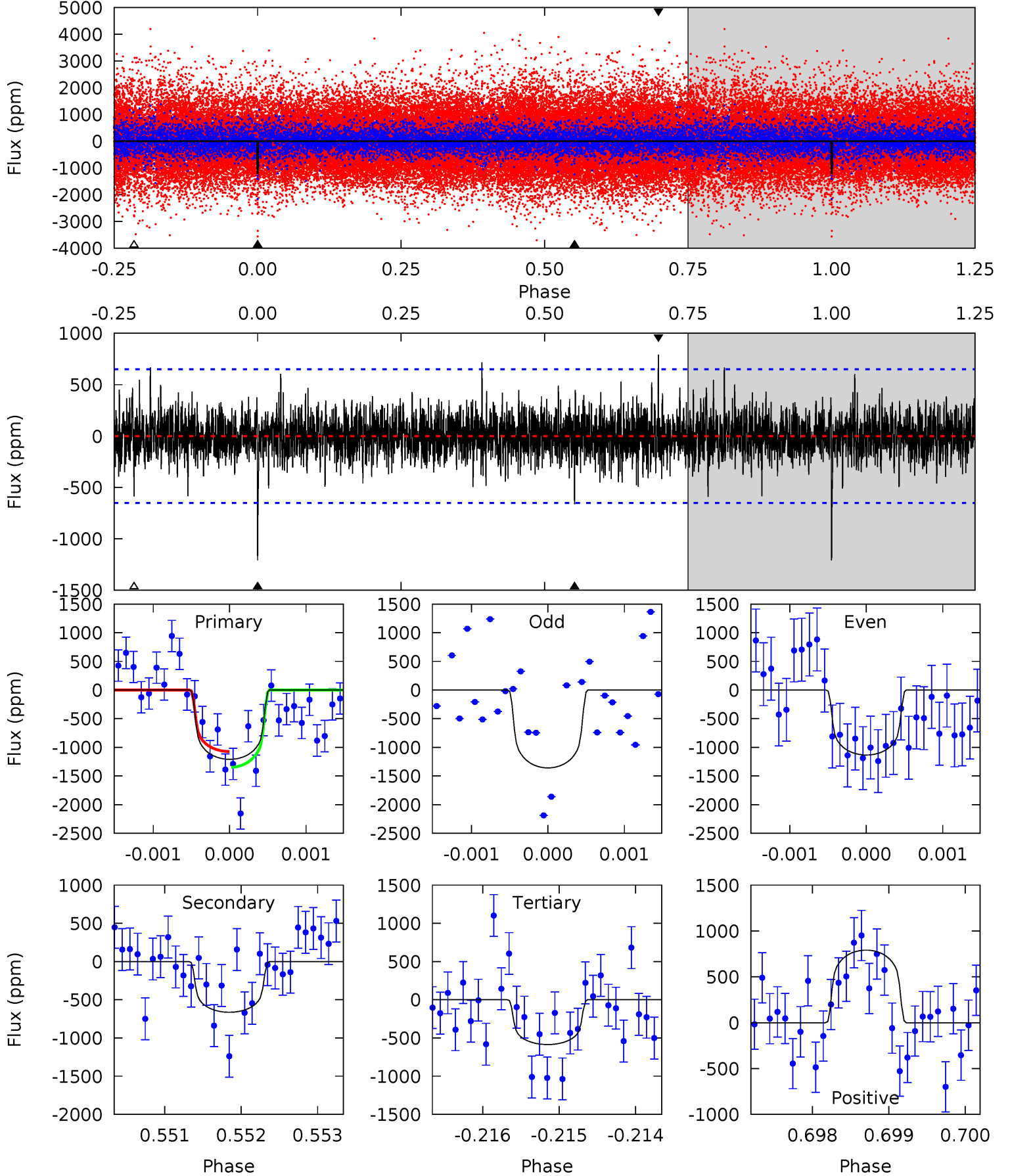
TCE 008008646-01 P=314.799425 Days  $T_0=407.876006$  (BKJD)



# DV Model-Shift Uniqueness Test

008008646-01,  $P = 314.791710$  Days,  $E = 93.092542$  Days

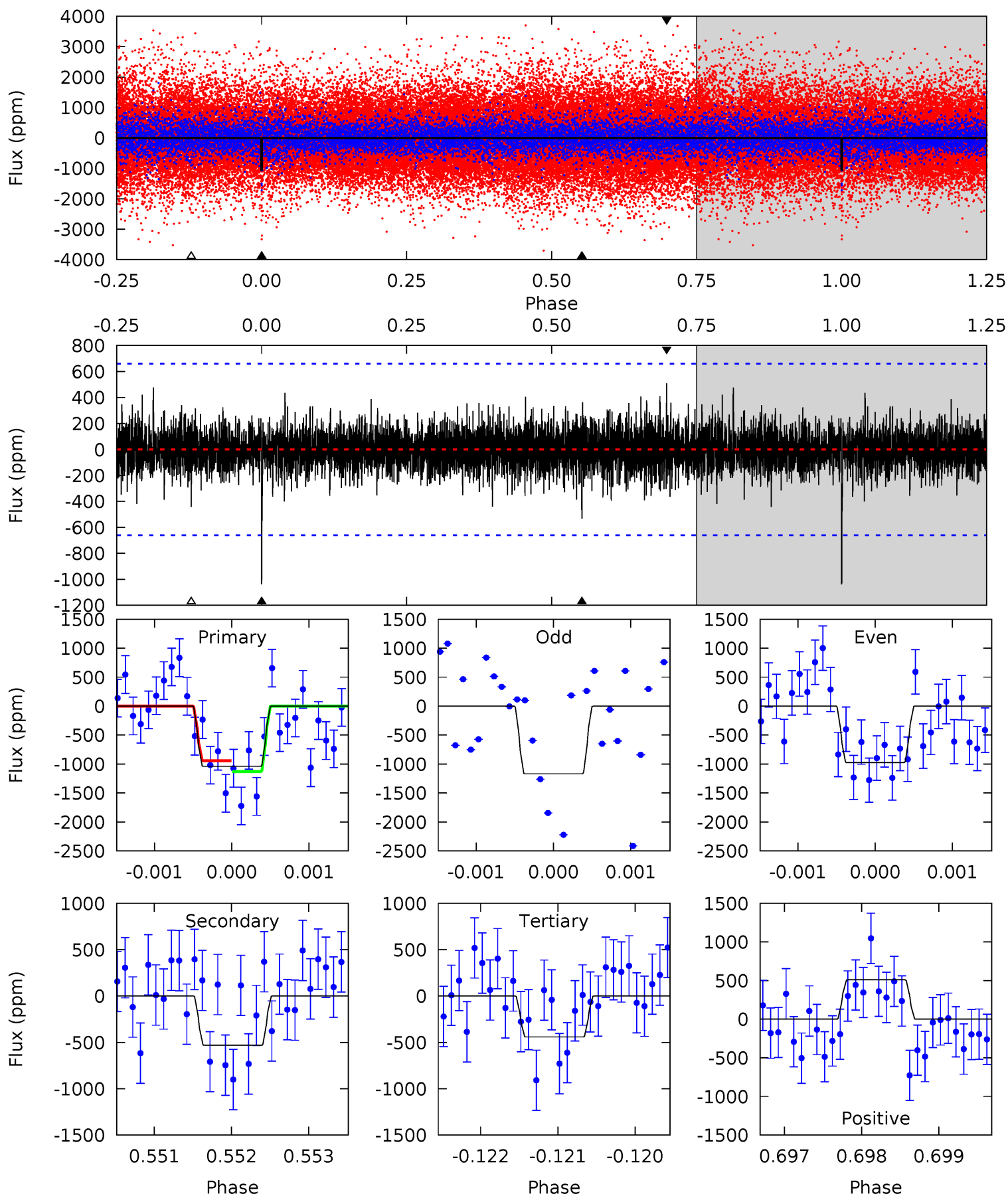
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	5.54	4.90	6.61	5.43	3.26	1.28	5.21	3.49	0.65	-1.07	0.89	0.89	0.40	1.16



# Alt Model-Shift Uniqueness Test

008008646-01, P = 314.799425 Days, E = 93.076581 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.57	4.39	3.65	4.20	5.45	3.28	0.98	4.92	4.37	0.74	0.18	0.77	0.89	0.33	0.77



### Stellar Parameters For KIC 008008646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3710^{+44}_{-49}$	$4.768^{+0.036}_{-0.018}$	$-0.100^{+0.100}_{-0.100}$	$0.476^{+0.022}_{-0.030}$	$0.484^{+0.026}_{-0.026}$	$6.330^{+0.949}_{-0.539}$
	+1%/-1%	+1%/-0%	+100%/-100%	+5%/-6%	+5%/-5%	+15%/-9%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008008646-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-664 \pm 120$	$1.86^{+0.89}_{-0.88}$	$186^{+3}_{-3}$	$3330^{+782}_{-365}$	$53099^{+138465}_{-29379}$
Alt.	$-532 \pm 121$	$1.72^{+0.94}_{-0.87}$	$186^{+3}_{-3}$	$3287^{+865}_{-382}$	$48457^{+151914}_{-27477}$

$T_{max}$  = 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

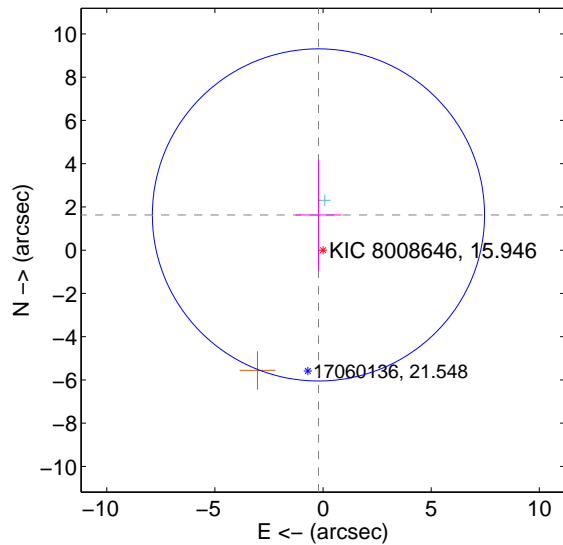
Supplemental centroid analysis for 008008646-01. Kepler magnitude: 15.95. Transit SNR 7.12

There are 1 quarters with good PRF difference image offsets

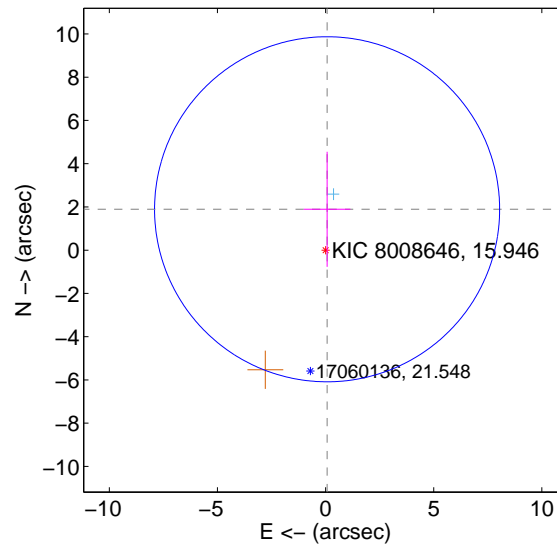
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.644 \pm 2.560$	0.64	$0.211 \pm 1.063$	$1.630 \pm 2.578$
PRF-fit source offset from KIC position	$1.893 \pm 2.659$	0.71	$-0.070 \pm 1.077$	$1.892 \pm 2.661$
photometric centroid source offset	$1.74 \pm 1.50$	1.16	$1.10 \pm 1.52$	$1.35 \pm 1.48$

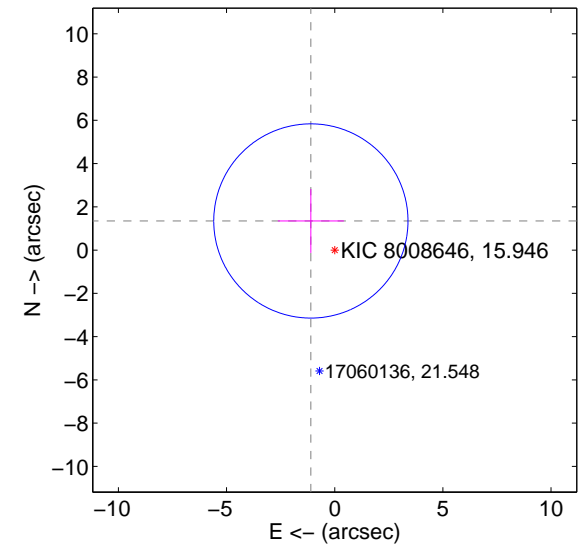
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

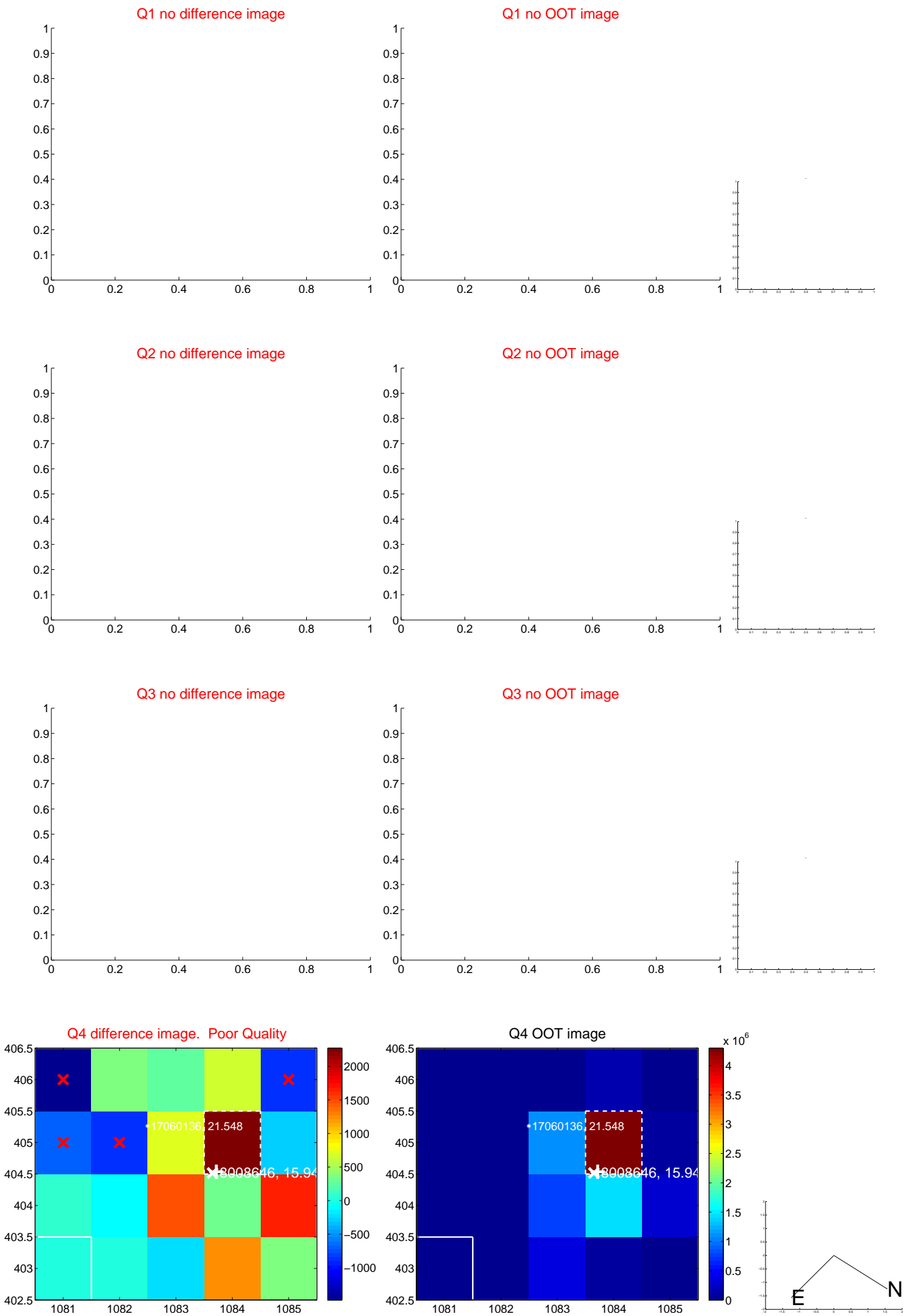


offset from photometric centroids



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- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

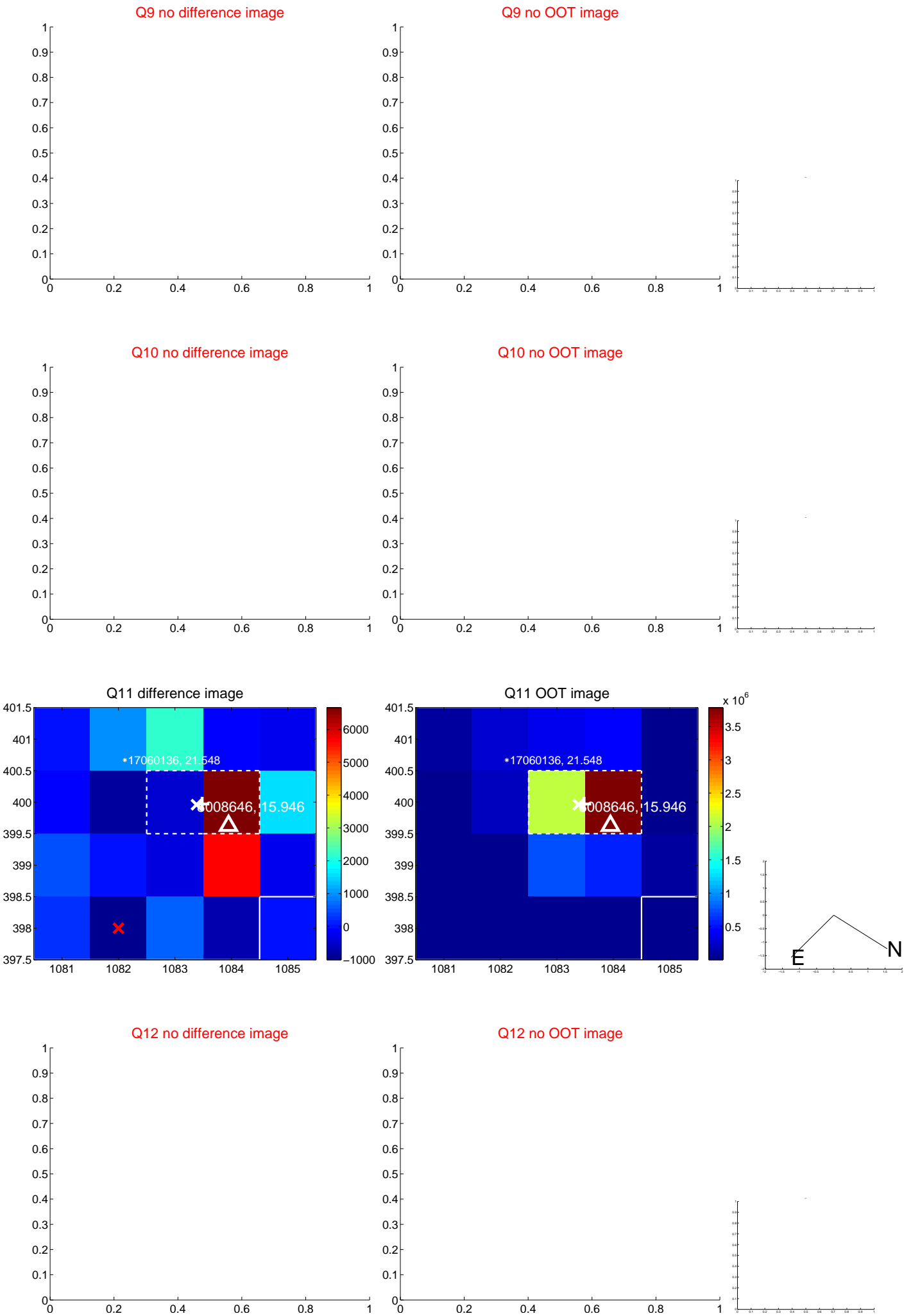




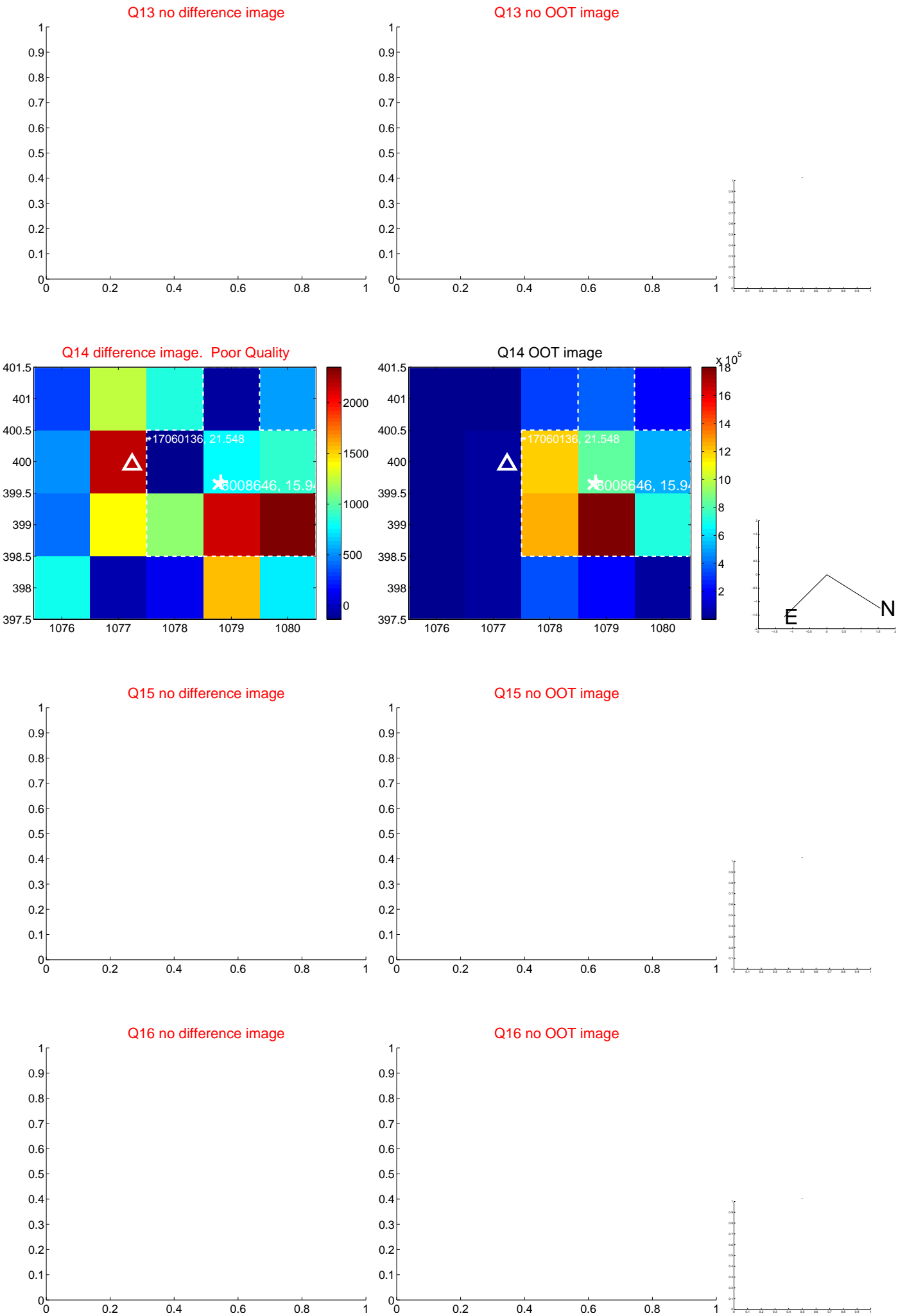
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



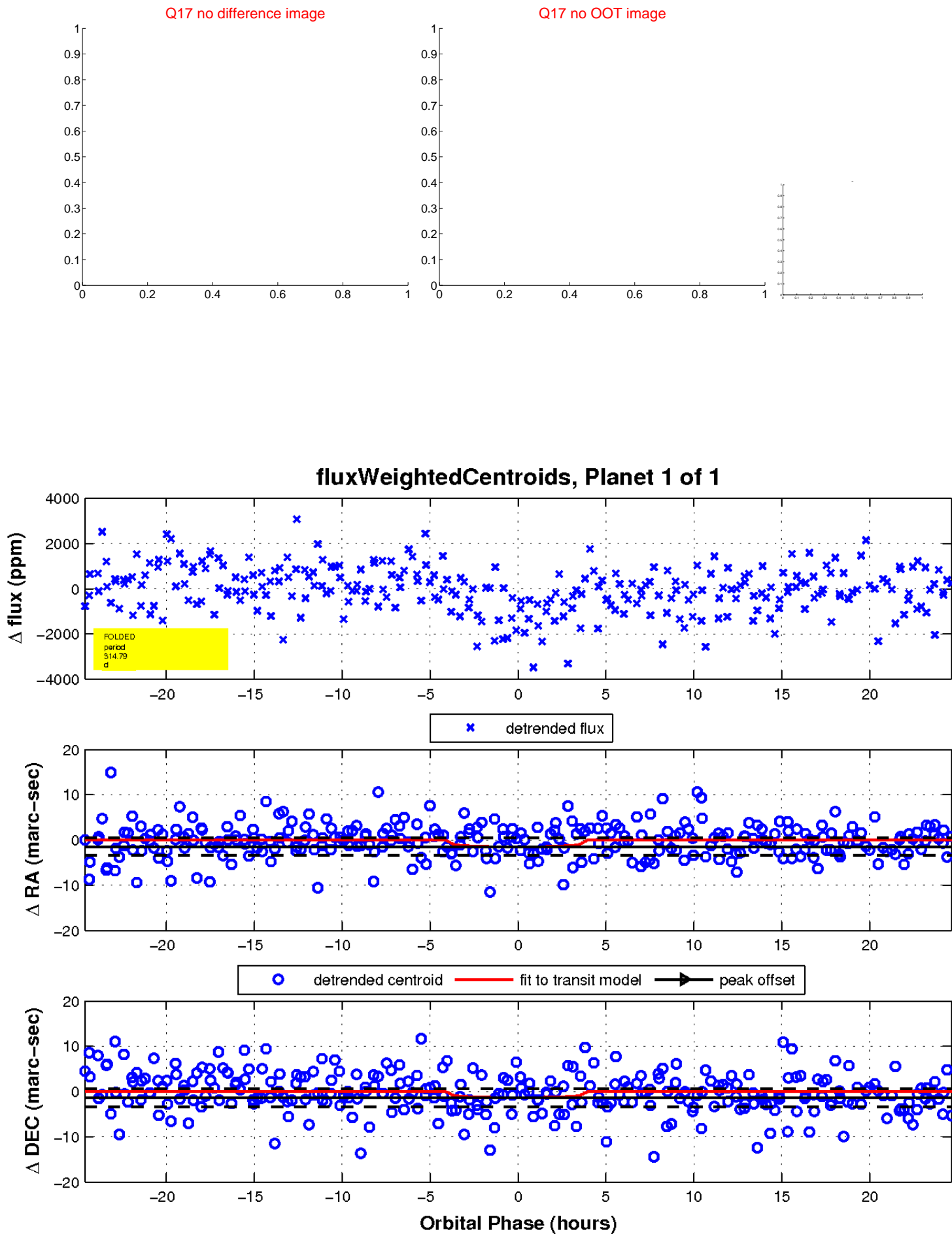
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

