

# KIC 010668646

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010668646-01	OBS	No	626.504824	196.147271	4547.8	12.407	27.4	34.3	0.86	5258	7.08	0.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010668646-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—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.

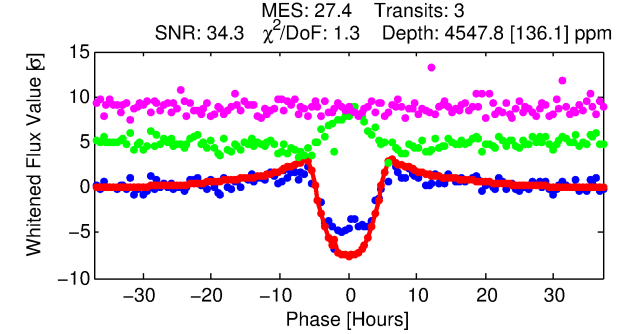
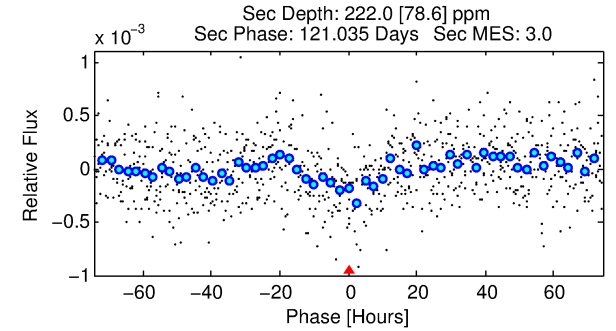
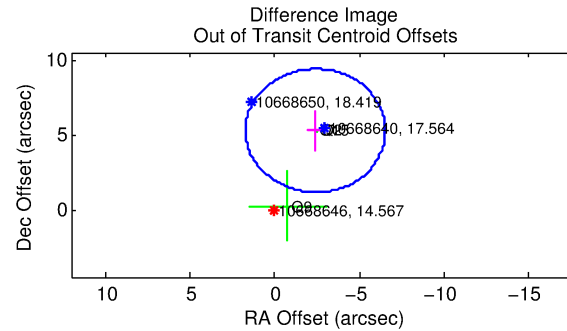
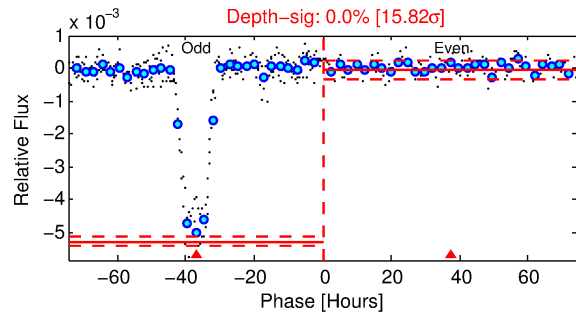
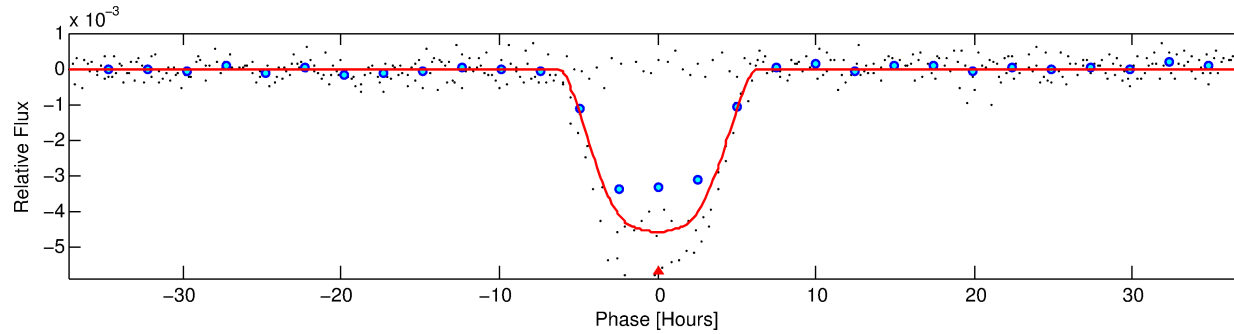
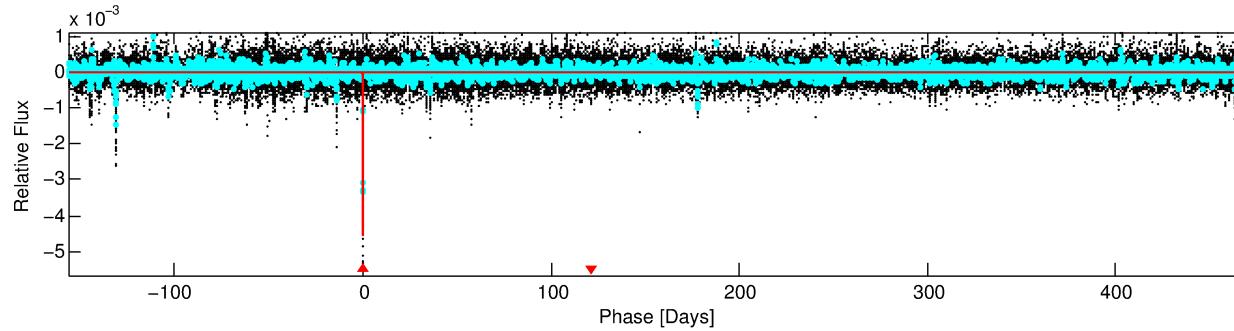
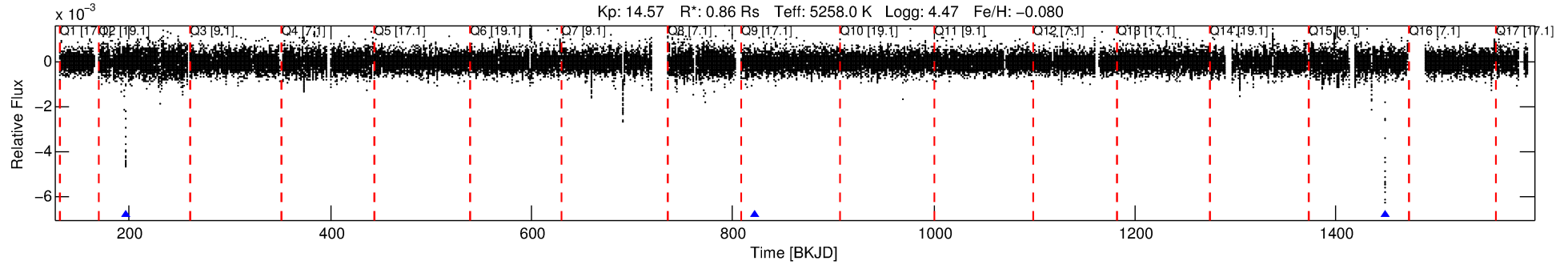
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010668646-01

No Significant Match Found

# DV One-Page Summary

KIC: 10668646 Candidate: 1 of 1 Period: 626.505 d



## DV Fit Results:

Period = 626.50482 [0.00439] d  
Epoch = 196.1473 [0.0057] BKJD  
Rp/R\* = 0.0755 [0.0017]  
a/R\* = 224.13 [8.83]  
b = 0.91 [0.01]  
Seff = 0.29 [0.07]  
Teq = 187 [11] K  
Rp = 7.08 [1.04] Re  
a = 1.3243 [0.1770] AU  
Ag = 4267.74 [1763.91] [2.42σ]  
Teffp = 2336 [220] K [9.75σ]

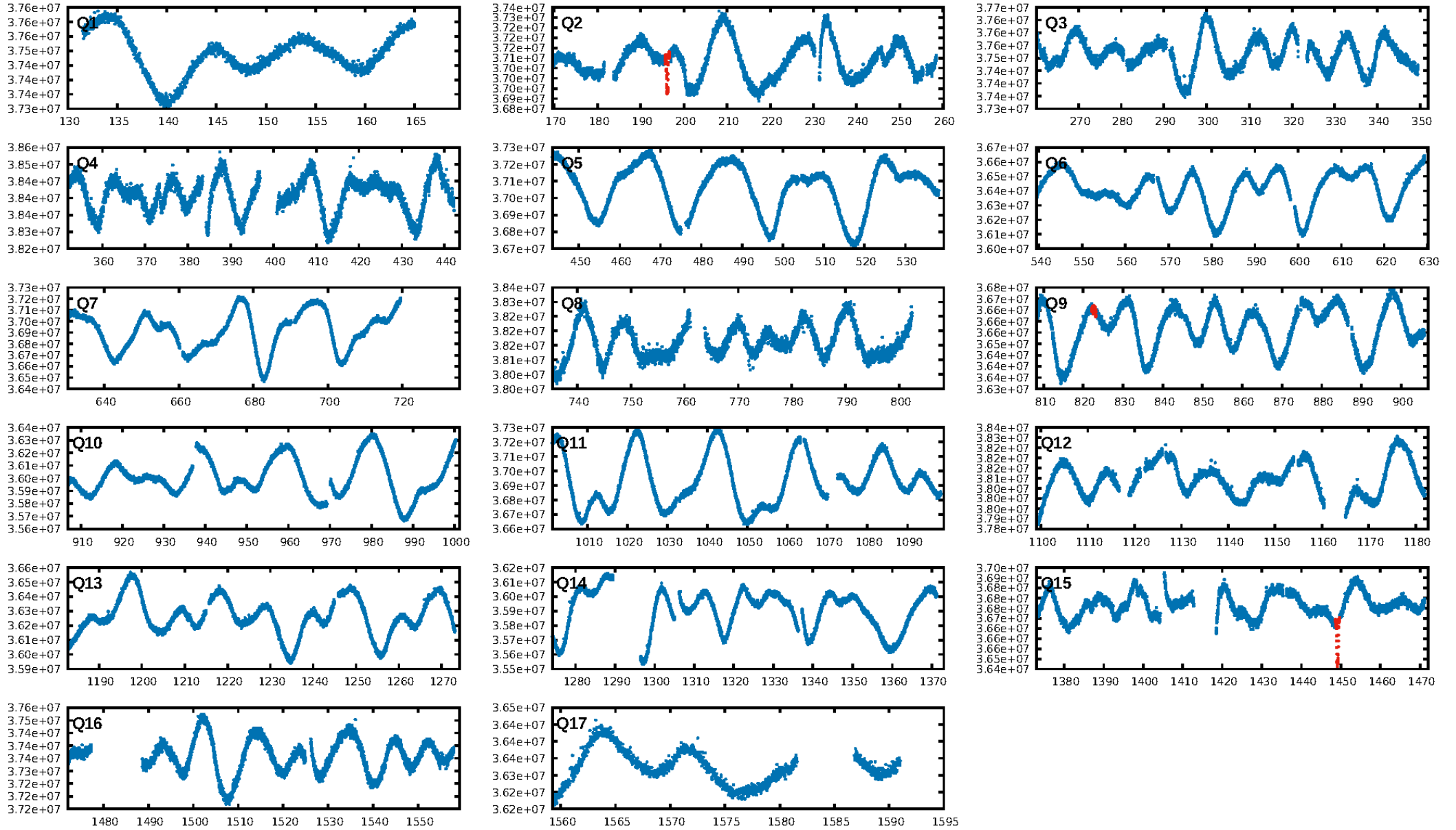
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 98.4%  
Bootstrap-pfa: 2.40e-58  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.792  
Centroid-sig: 0.0%  
Centroid-so: 3.776 arcsec [26.34σ]  
OotOffset-rm: 5.790 arcsec [4.21σ]  
KicOffset-rm: 5.817 arcsec [4.49σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

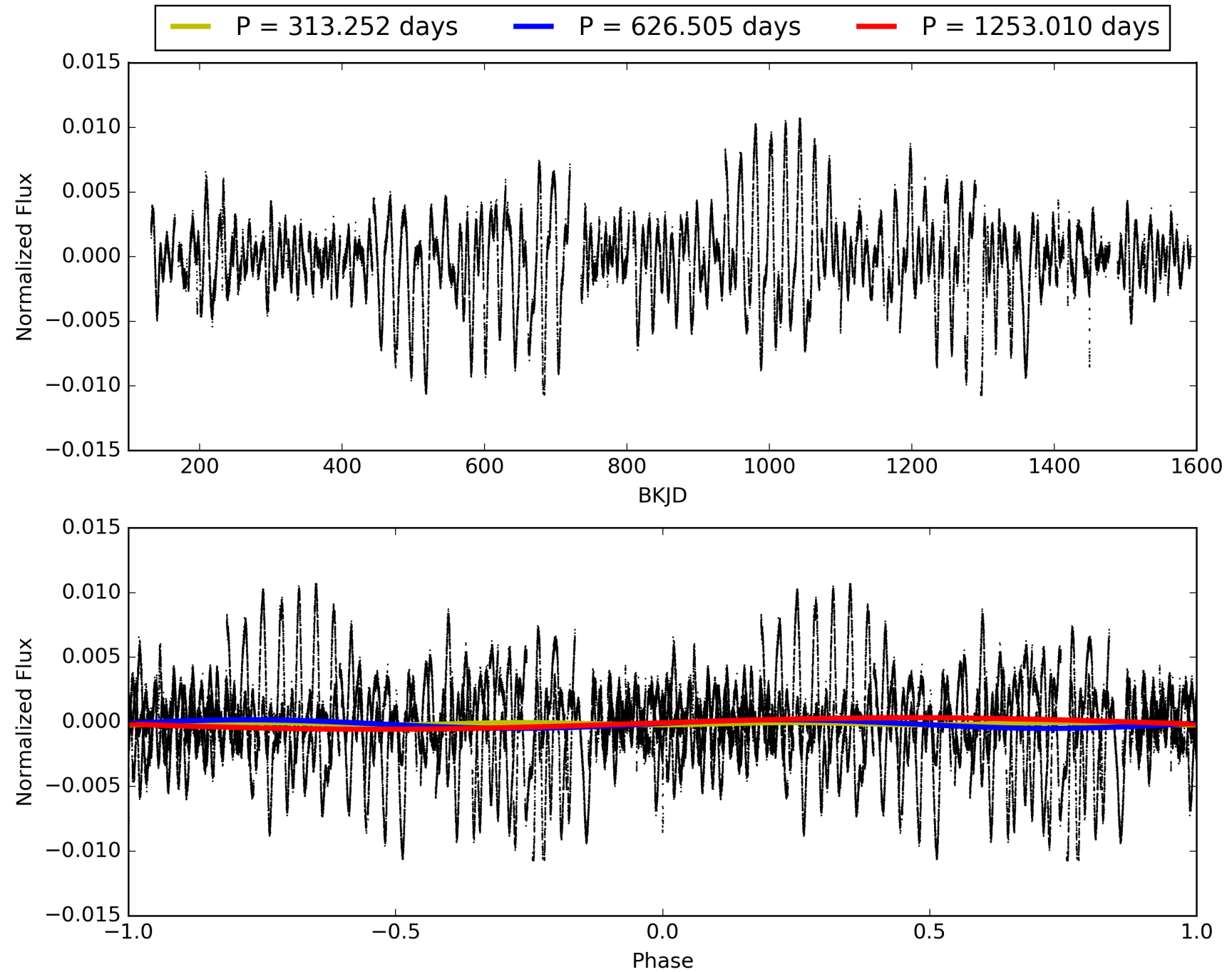
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:32:45 Z

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

# TCE 010668646-01, PDC Light Curves

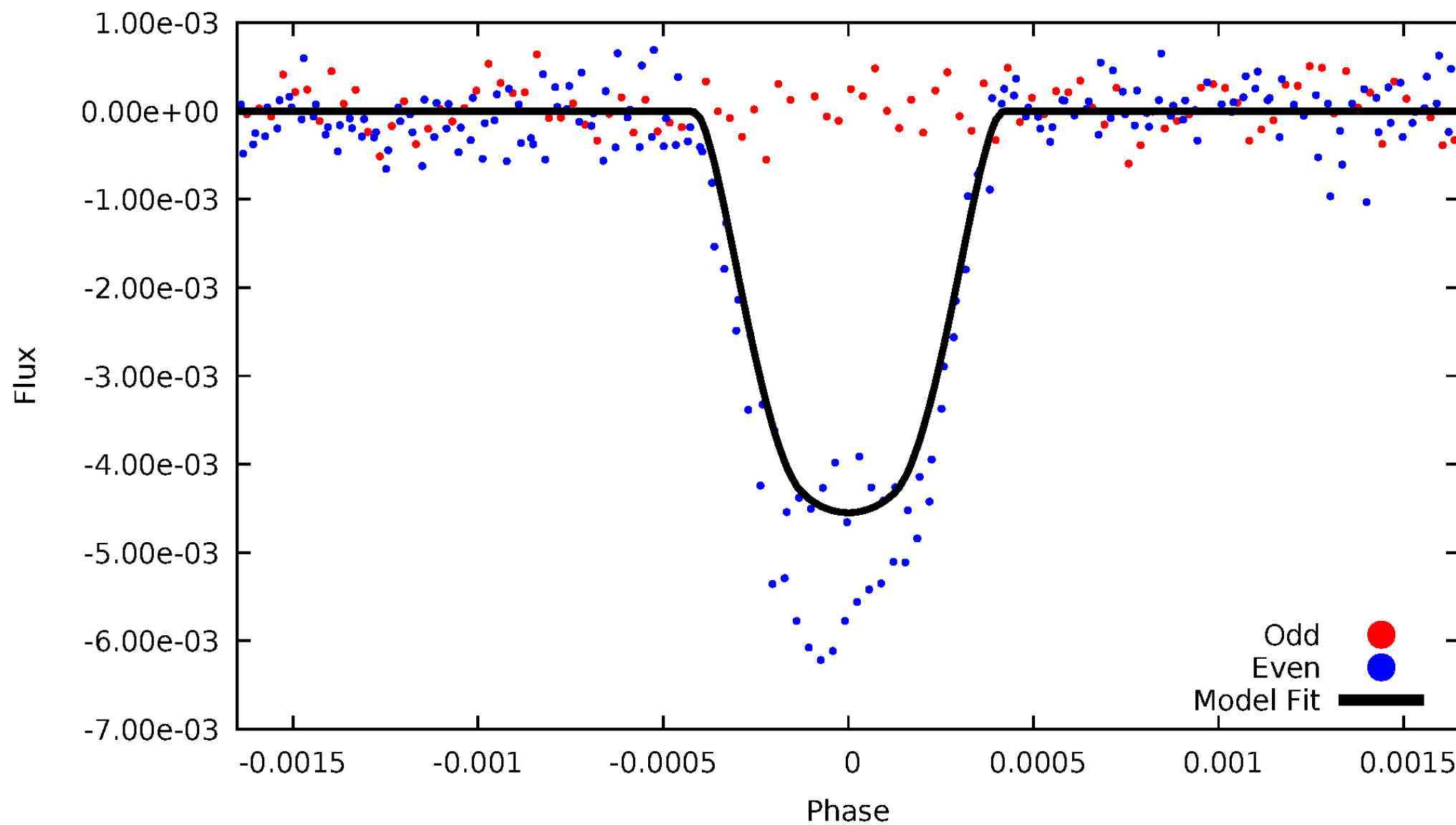


TCE 010668646-01



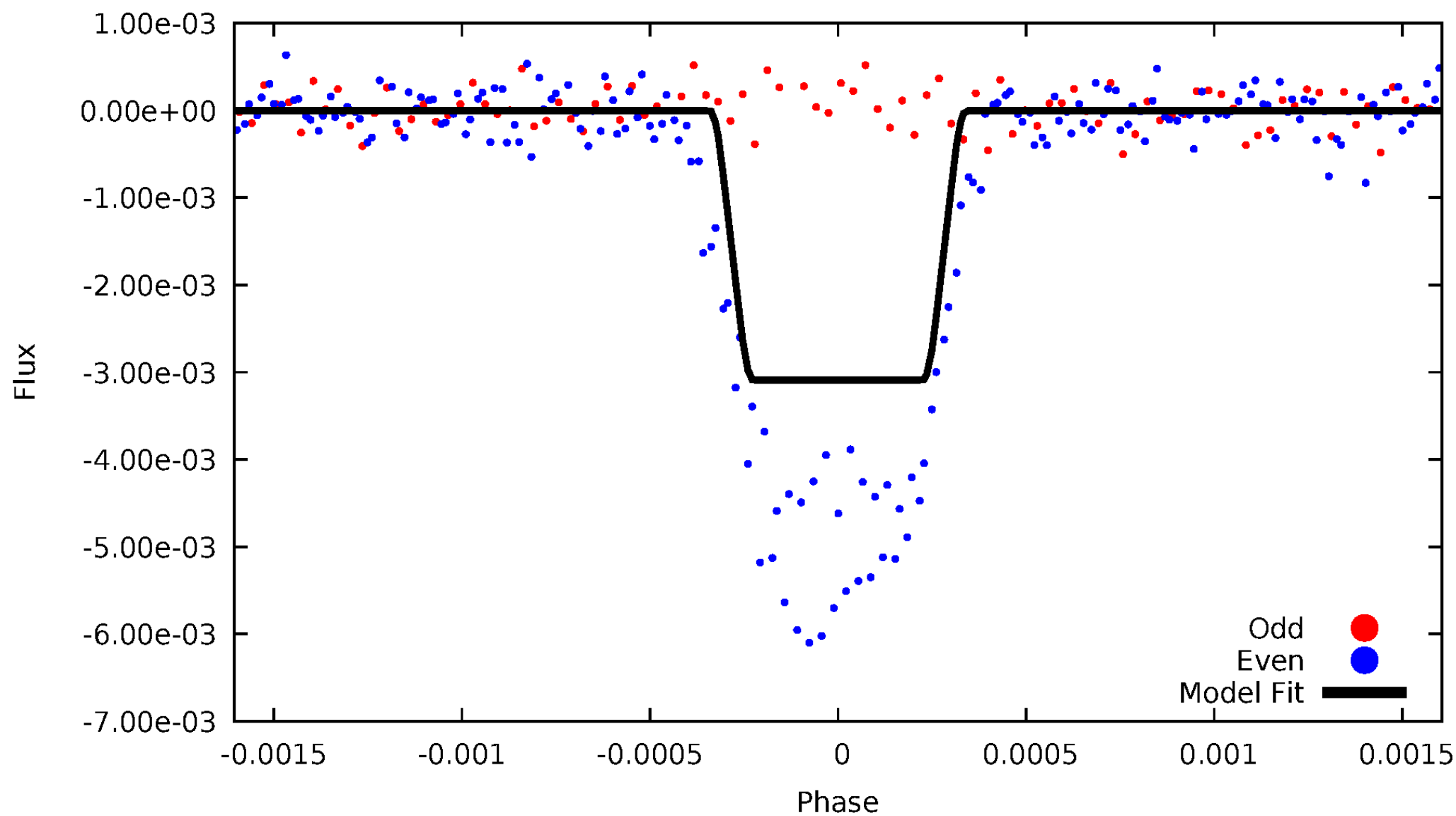
# DV Odd/Even

TCE 010668646-01

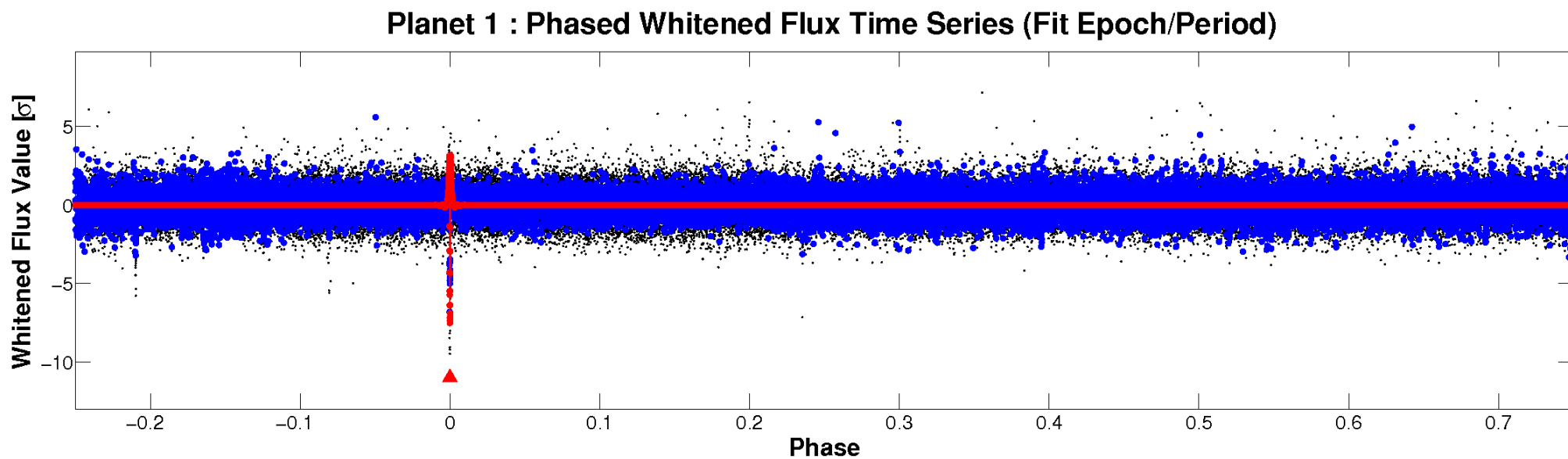
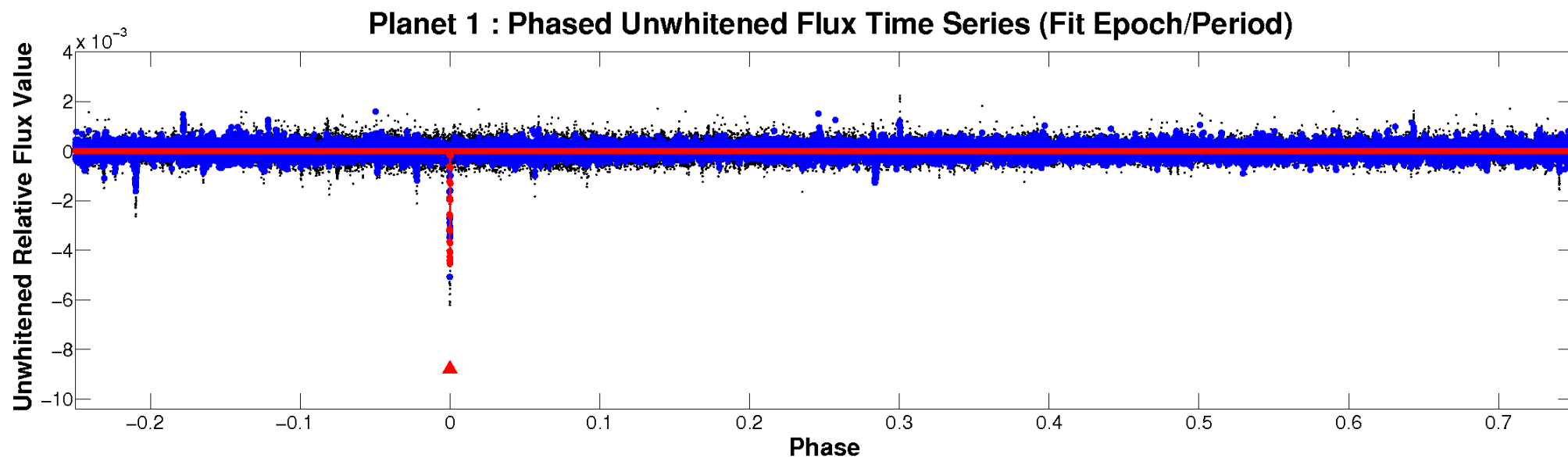


# ALT Odd/Even

TCE 010668646-01

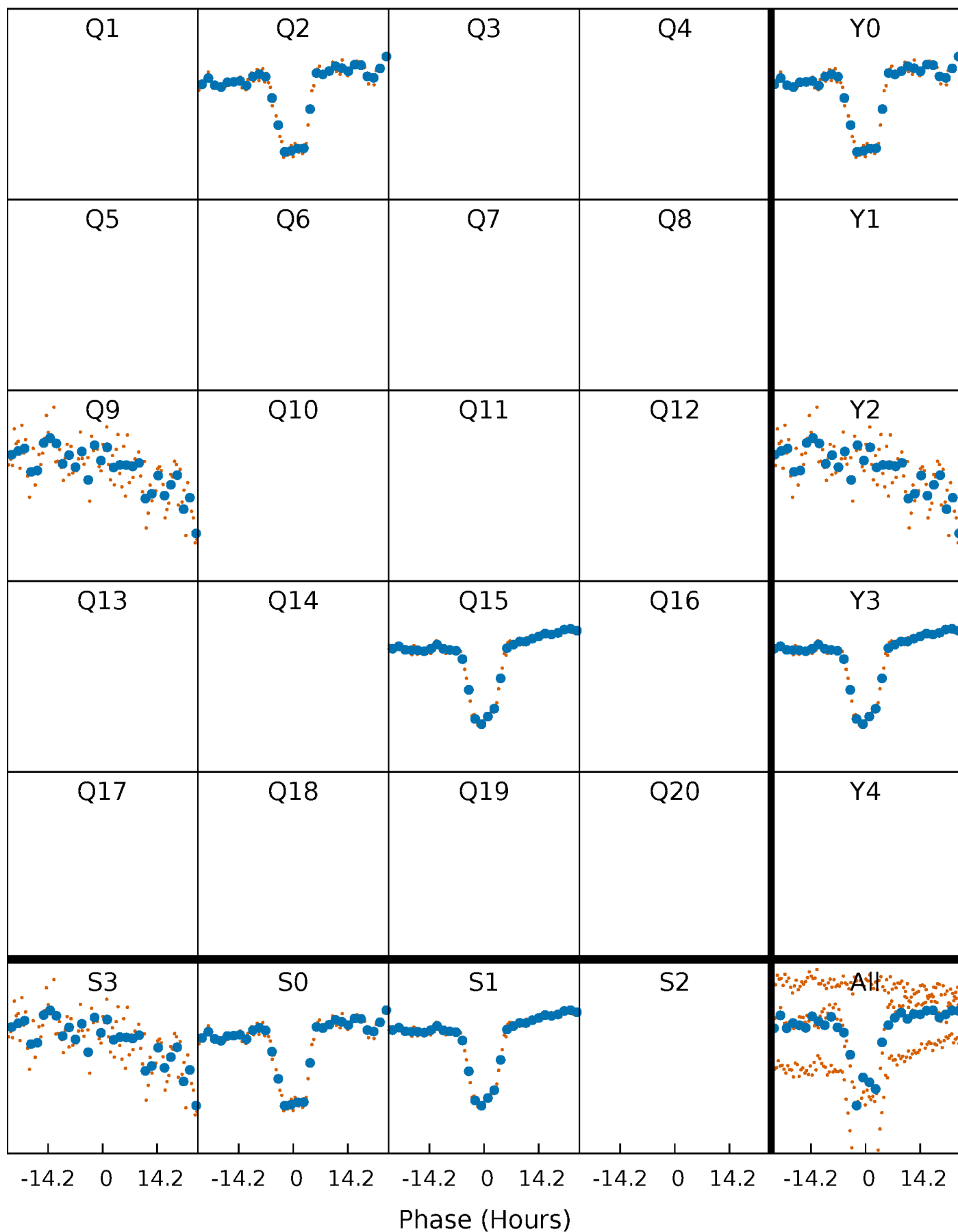


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

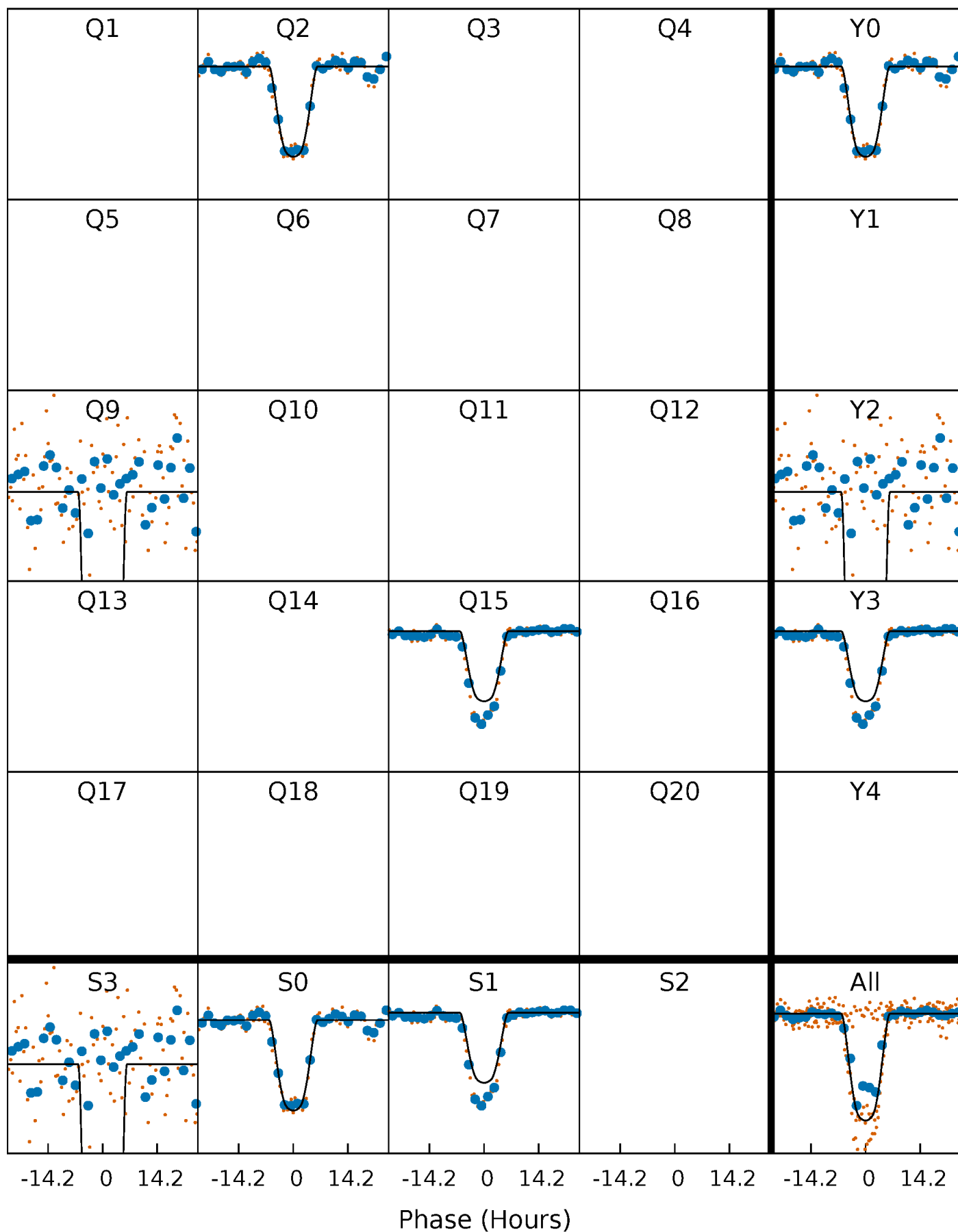
TCE 010668646-01 P=626.504824 Days  $T_0=196.147271$  (BKJD)





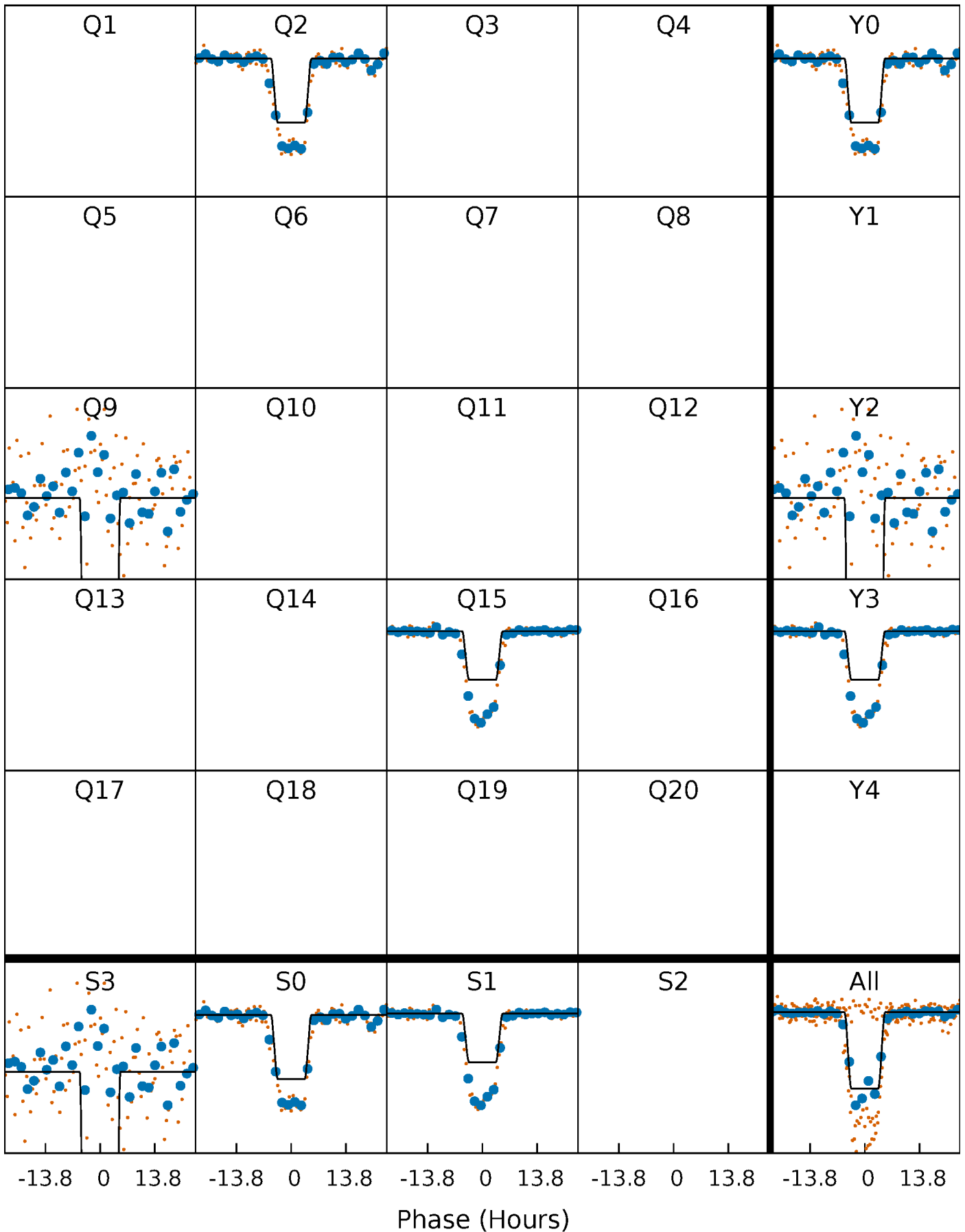
# DV Quarter-Phased Transit Curves

TCE 010668646-01 P=626.504824 Days  $T_0=196.147271$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

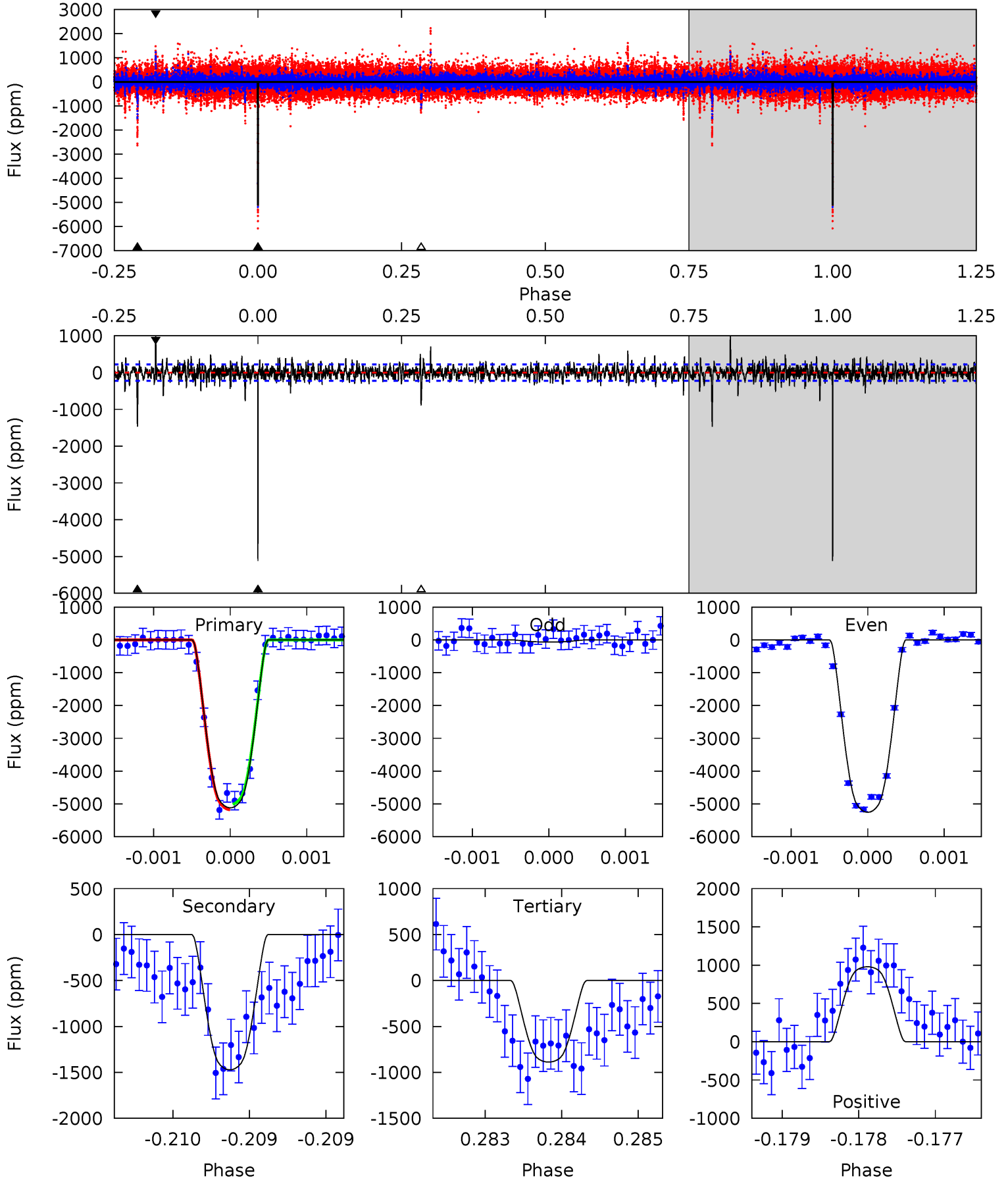
TCE 010668646-01 P=626.506572 Days  $T_0=196.145052$  (BKJD)



# DV Model-Shift Uniqueness Test

010668646-01, P = 626.504824 Days, E = 196.147271 Days

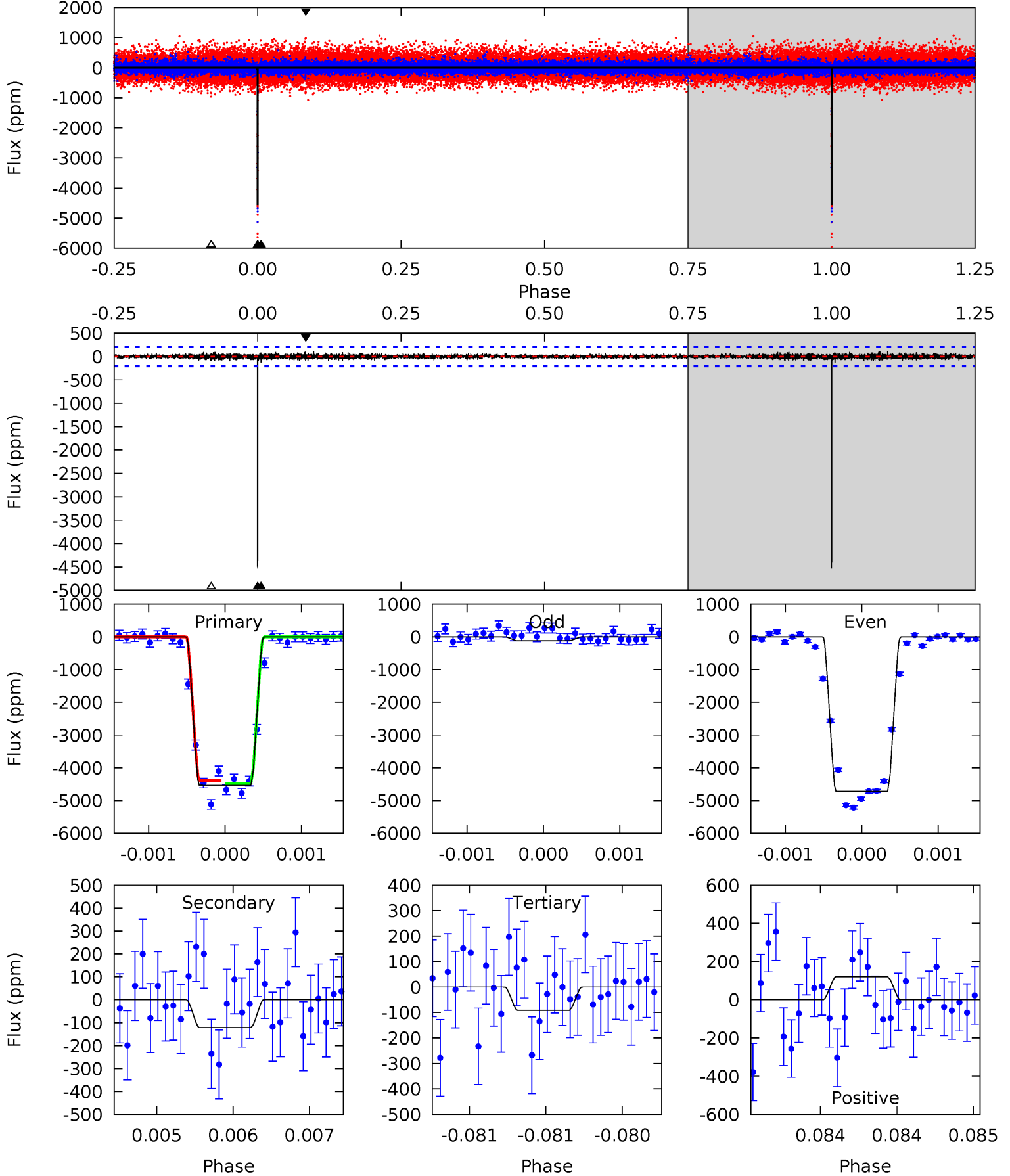
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
126.5	36.4	22.0	24.2	5.48	3.34	3.27	104.5	102.3	14.4	12.2	72.5	0.76	0.16	1.99



# Alt Model-Shift Uniqueness Test

010668646-01, P = 626.506572 Days, E = 196.145052 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
119.9	3.20	2.42	3.19	5.52	3.40	0.56	117.5	116.7	0.78	0.02	76.9	0.74	0.03	0



### Stellar Parameters For KIC 010668646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5258^{+158}_{-142}$	$4.466^{+0.108}_{-0.120}$	$-0.080^{+0.300}_{-0.300}$	$0.860^{+0.125}_{-0.112}$	$0.788^{+0.112}_{-0.060}$	$1.747^{+0.803}_{-0.603}$
	+3%/-3%	+2%/-3%	+375%/-375%	+15%/-13%	+14%/-8%	+46%/-34%
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 010668646-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1472 \pm 40$	$7.15^{+0.69}_{-0.54}$	$263^{+12}_{-13}$	$4025^{+106}_{-96}$	$27857^{+4815}_{-4098}$
Alt.	$-121 \pm 38$	$5.25^{+0.53}_{-0.43}$	$262^{+13}_{-12}$	$2985^{+140}_{-161}$	$4215^{+1671}_{-1507}$

$T_{max}$  = 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

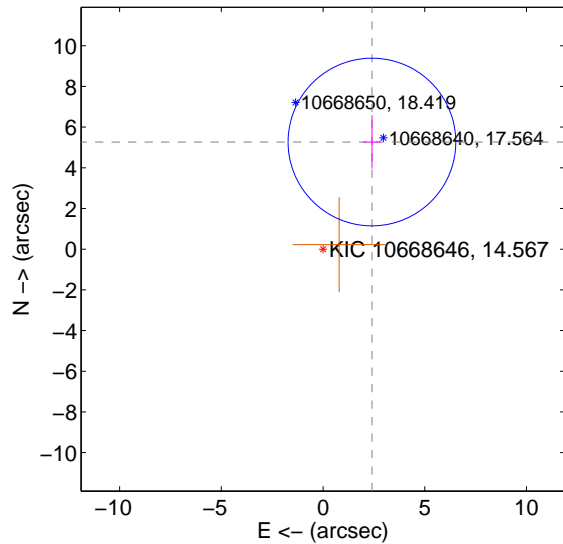
Supplemental centroid analysis for 010668646-01. Kepler magnitude: 14.57. Transit SNR 34.31

There are 2 quarters with good PRF difference image offsets

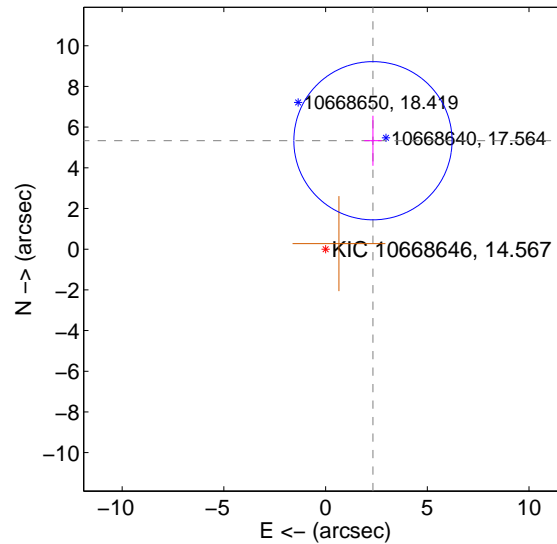
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.790 \pm 1.374$	4.21	$-2.404 \pm 0.432$	$5.267 \pm 1.315$
PRF-fit source offset from KIC position	$5.817 \pm 1.296$	4.49	$-2.328 \pm 0.426$	$5.331 \pm 1.231$
photometric centroid source offset	$3.78 \pm 0.14$	26.34	$-2.58 \pm 0.14$	$2.75 \pm 0.14$

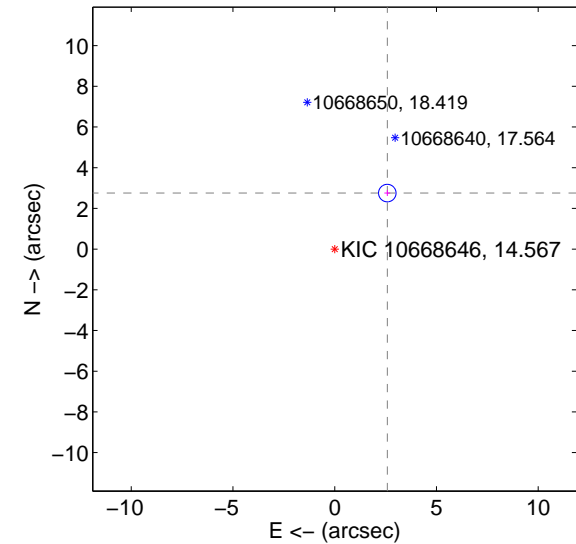
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

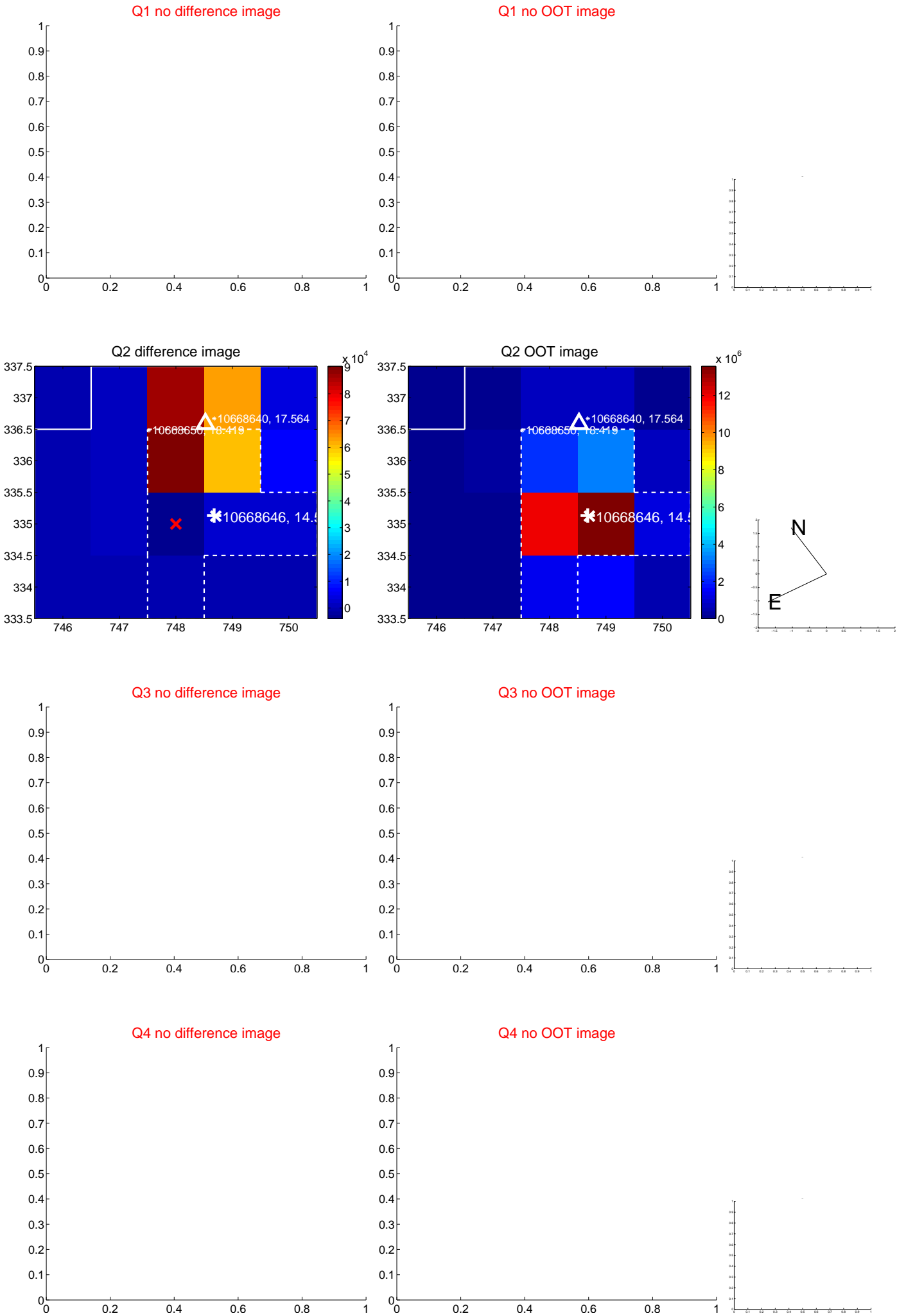


offset from photometric centroids



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.

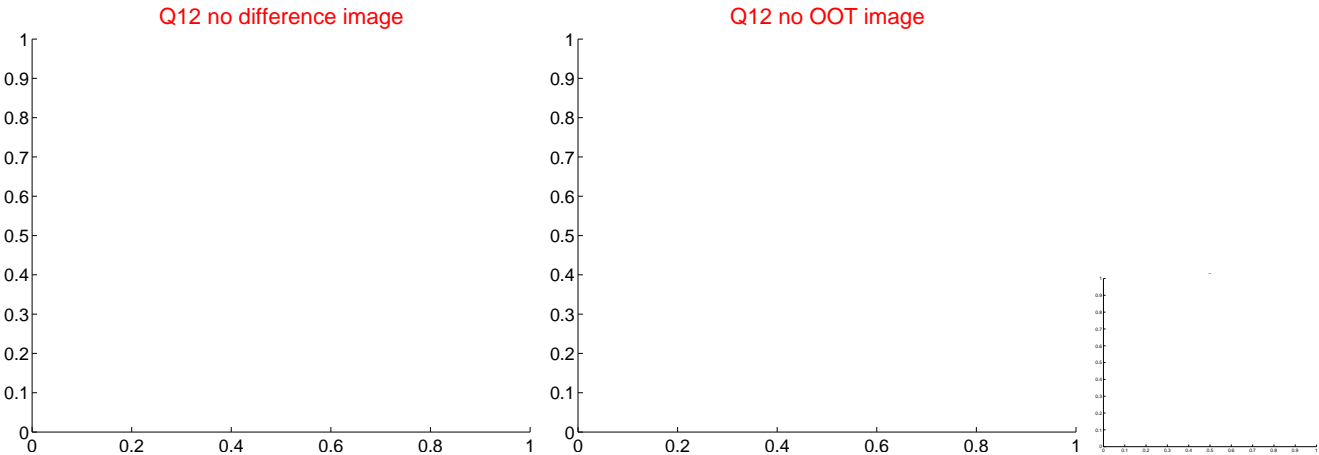
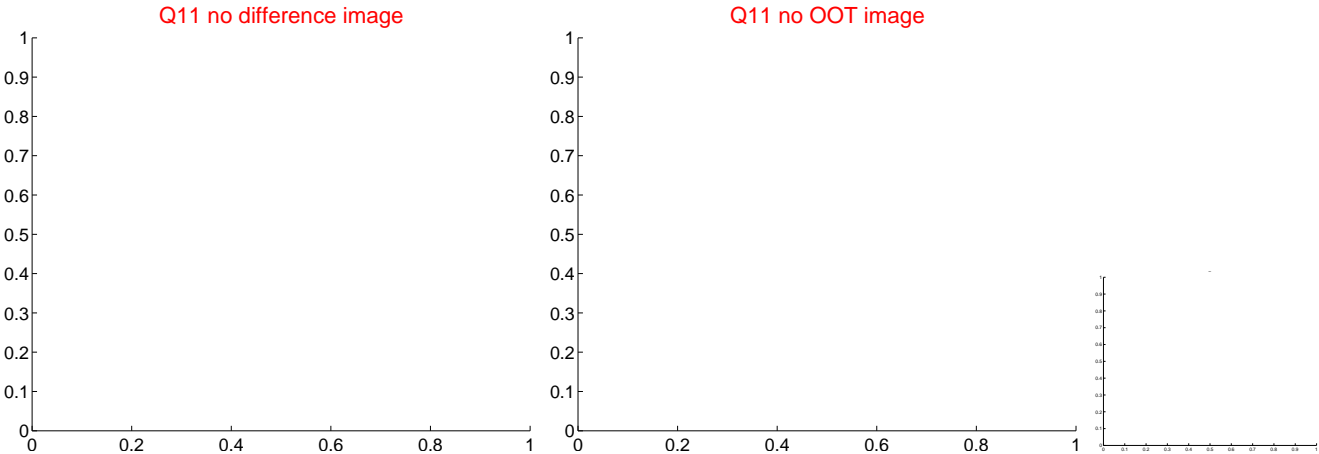
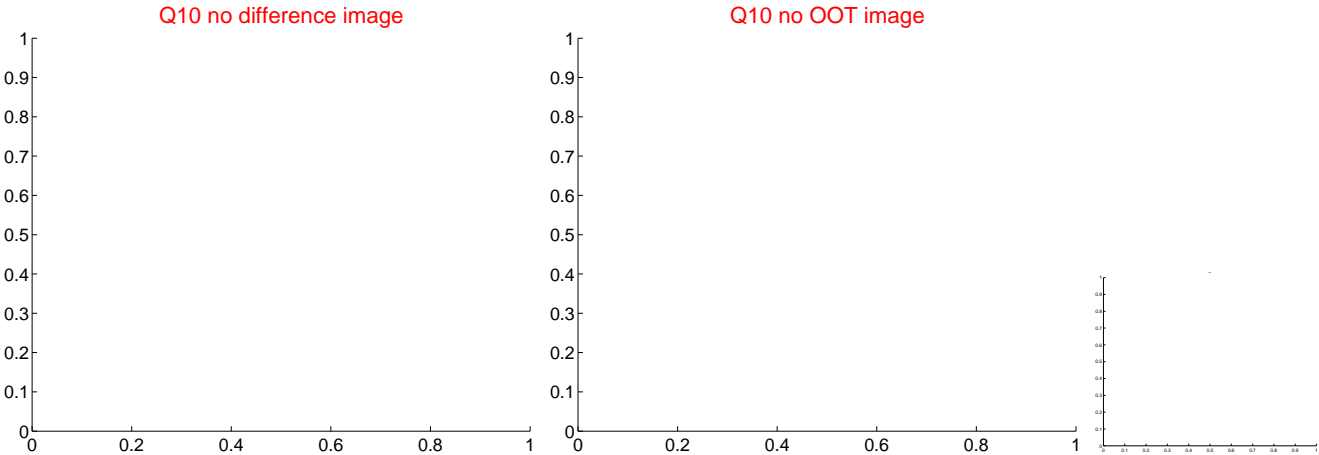
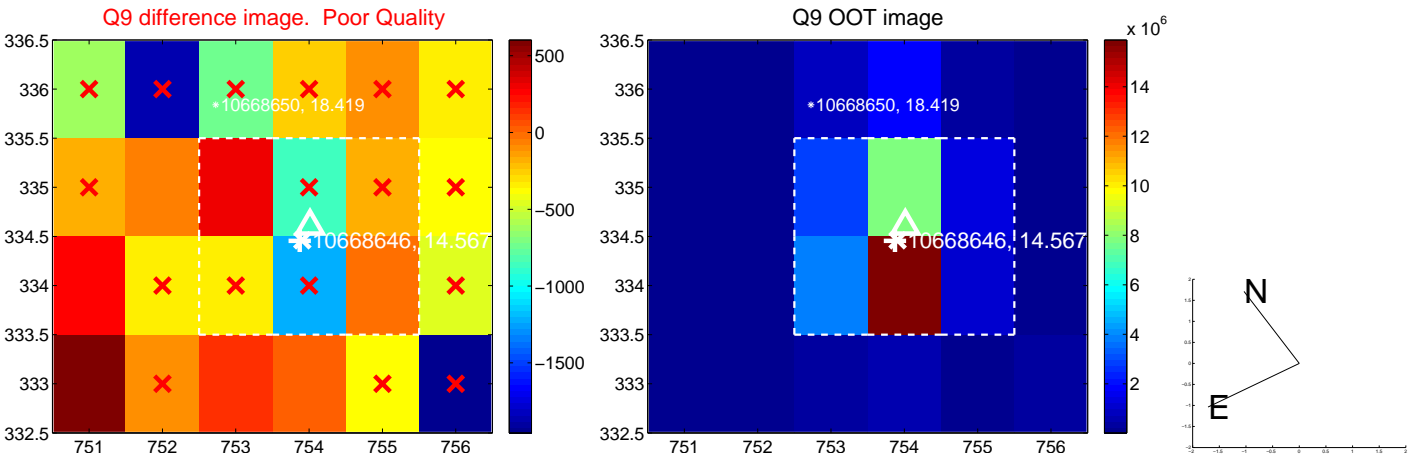


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

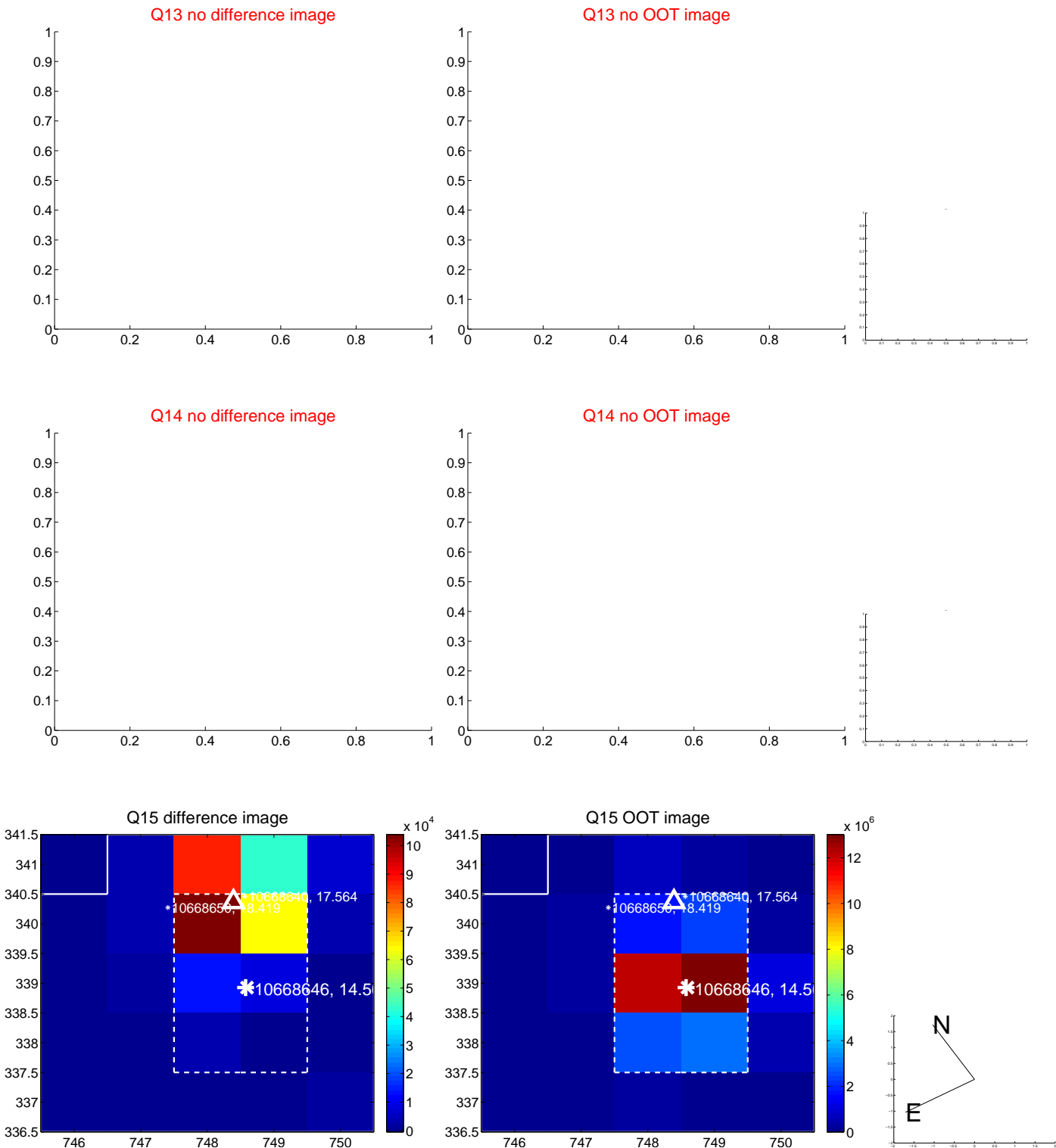




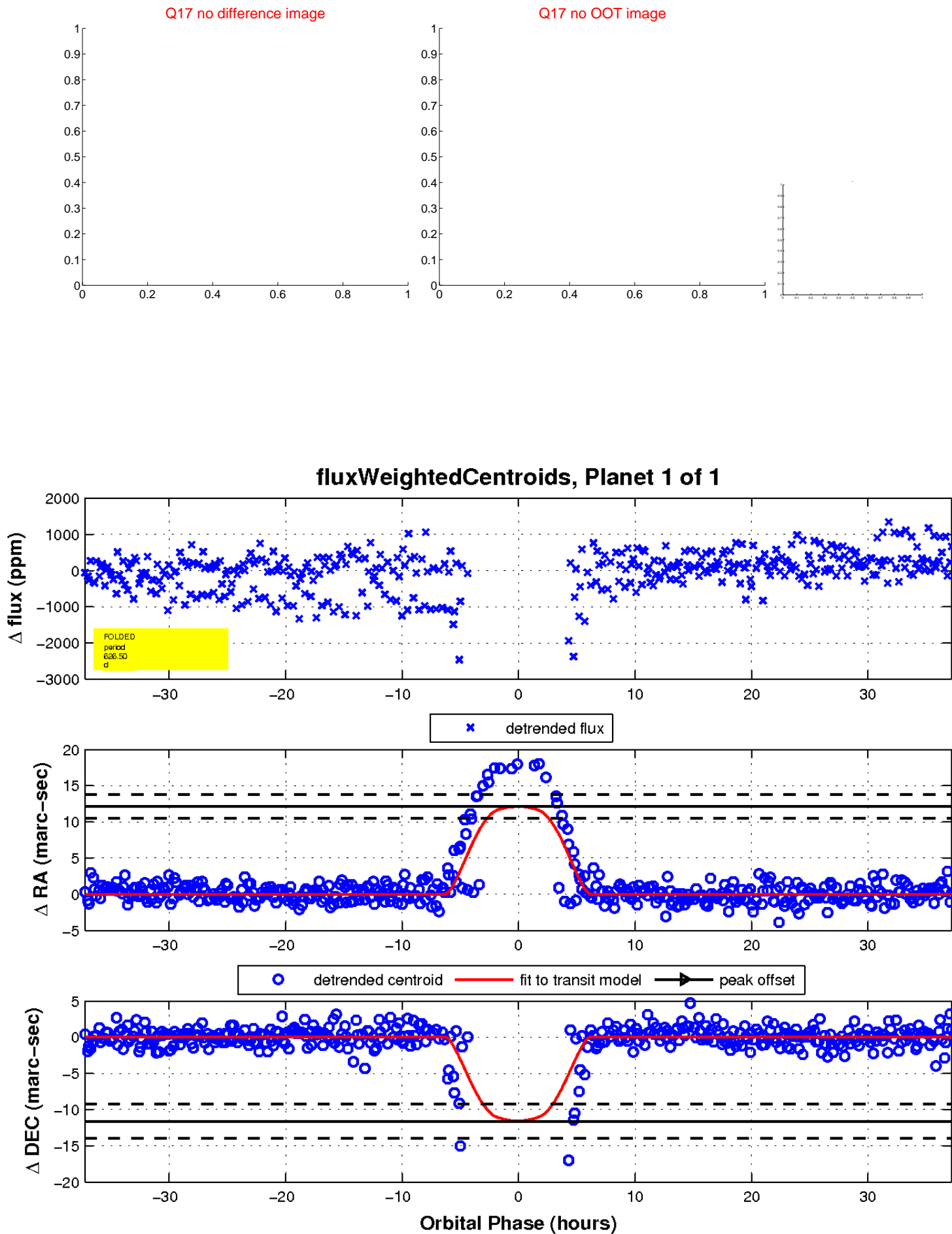
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

