

# KIC 010664150

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010664150-01	OBS	8213.01	370.297184	307.279974	1017.9	25.057	7.3	8.1	0.97	6296	3.92	1.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010664150-01	OBS	FP	0.13	1	0	0	0	INDIV_TRANS_MARSHALL—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.

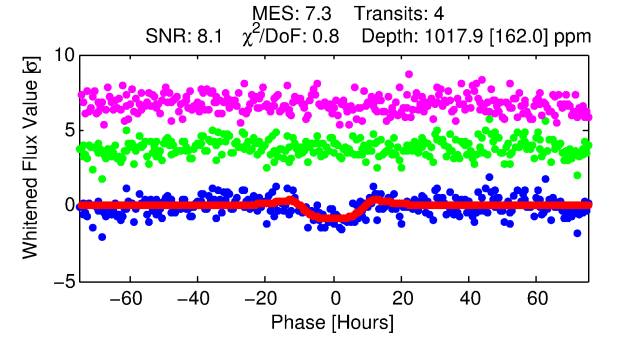
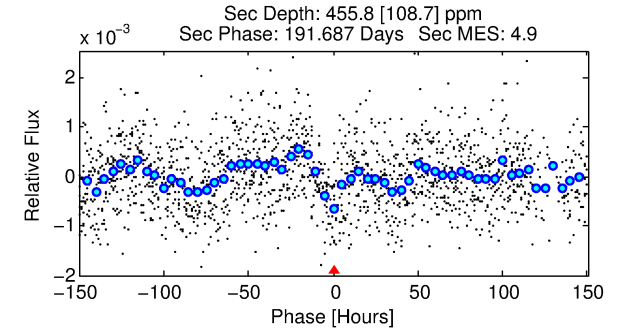
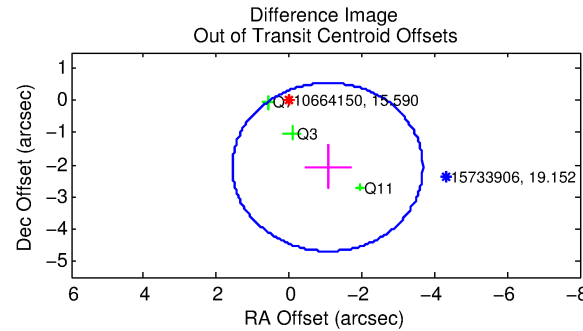
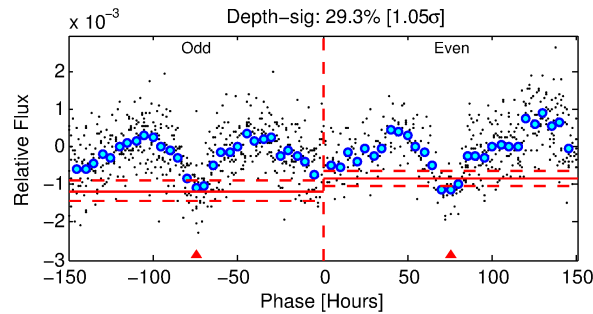
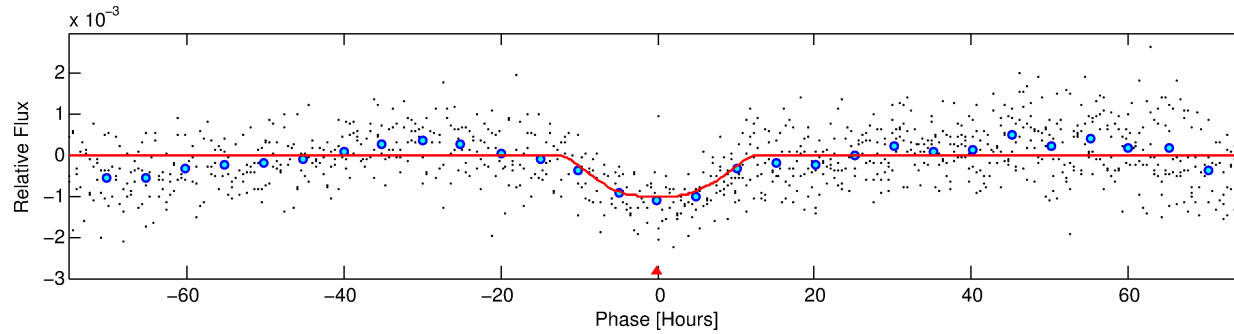
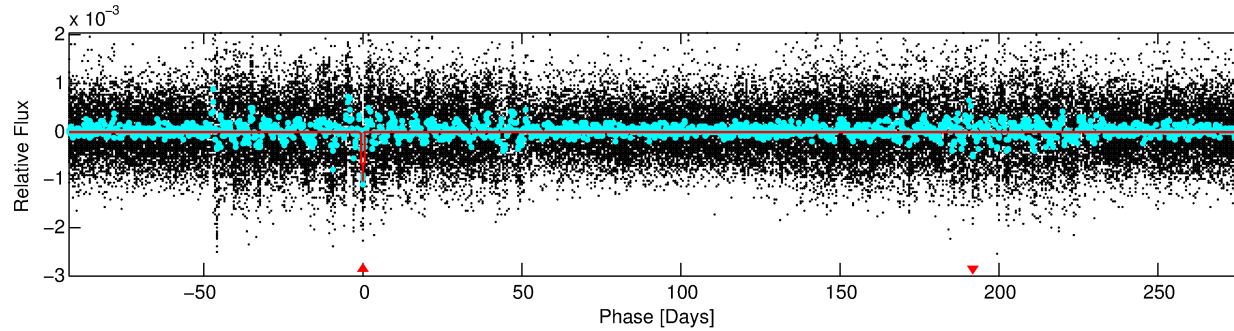
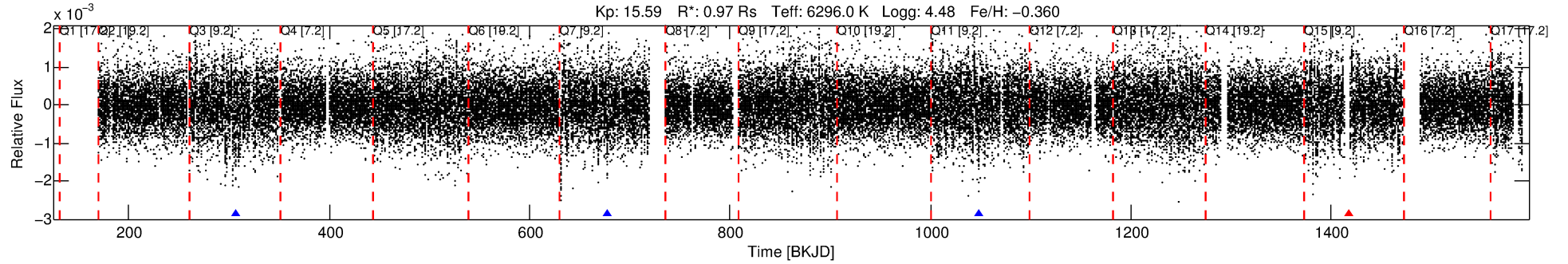
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010664150-01

No Significant Match Found

# DV One-Page Summary

KIC: 10664150 Candidate: 1 of 1 Period: 370.297 d



## DV Fit Results:

Period = 370.29718 [0.02585] d  
Epoch = 307.2800 [0.0412] BKJD  
Rp/R\* = 0.0371 [0.0039]  
a/R\* = 44.23 [6.55]  
b = 0.96 [0.02]  
Seff = 1.26 [0.52]  
Teq = 270 [28] K  
Rp = 3.92 [1.30] Re  
a = 1.0195 [0.2693] AU  
Ag = 16995.49 [8435.27] [2.01 $\sigma$ ]  
Teffp = 4773 [415] K [10.84 $\sigma$ ]

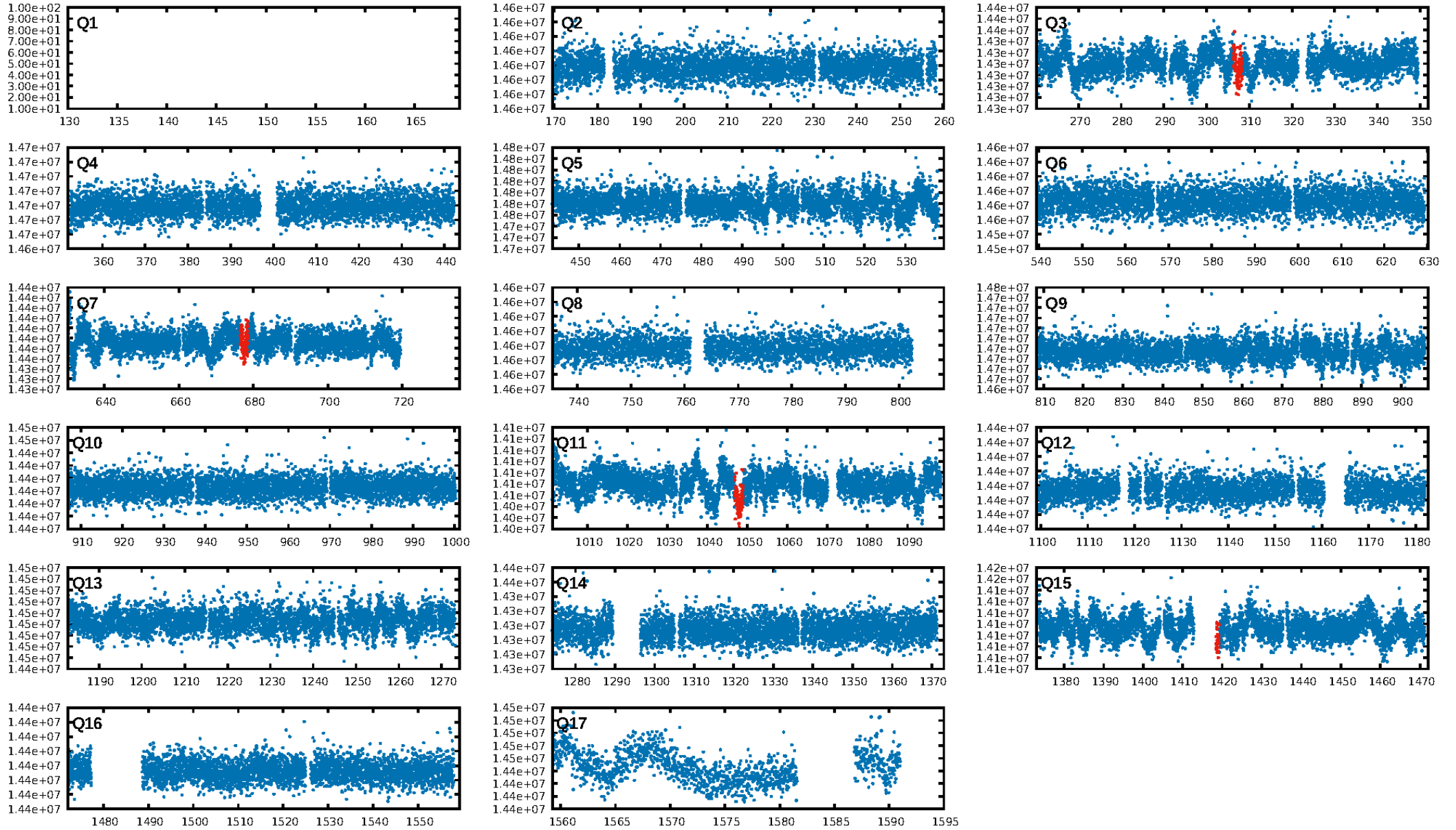
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 38.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.68e-09  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 2.292  
Centroid-sig: 0.0%  
Centroid-so: 6.338 arcsec [2.37 $\sigma$ ]  
OotOffset-rm: 2.332 arcsec [2.67 $\sigma$ ]  
KicOffset-rm: 2.276 arcsec [2.71 $\sigma$ ]  
OotOffset-st: 0/3/0/0 [3]  
KicOffset-st: 0/3/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

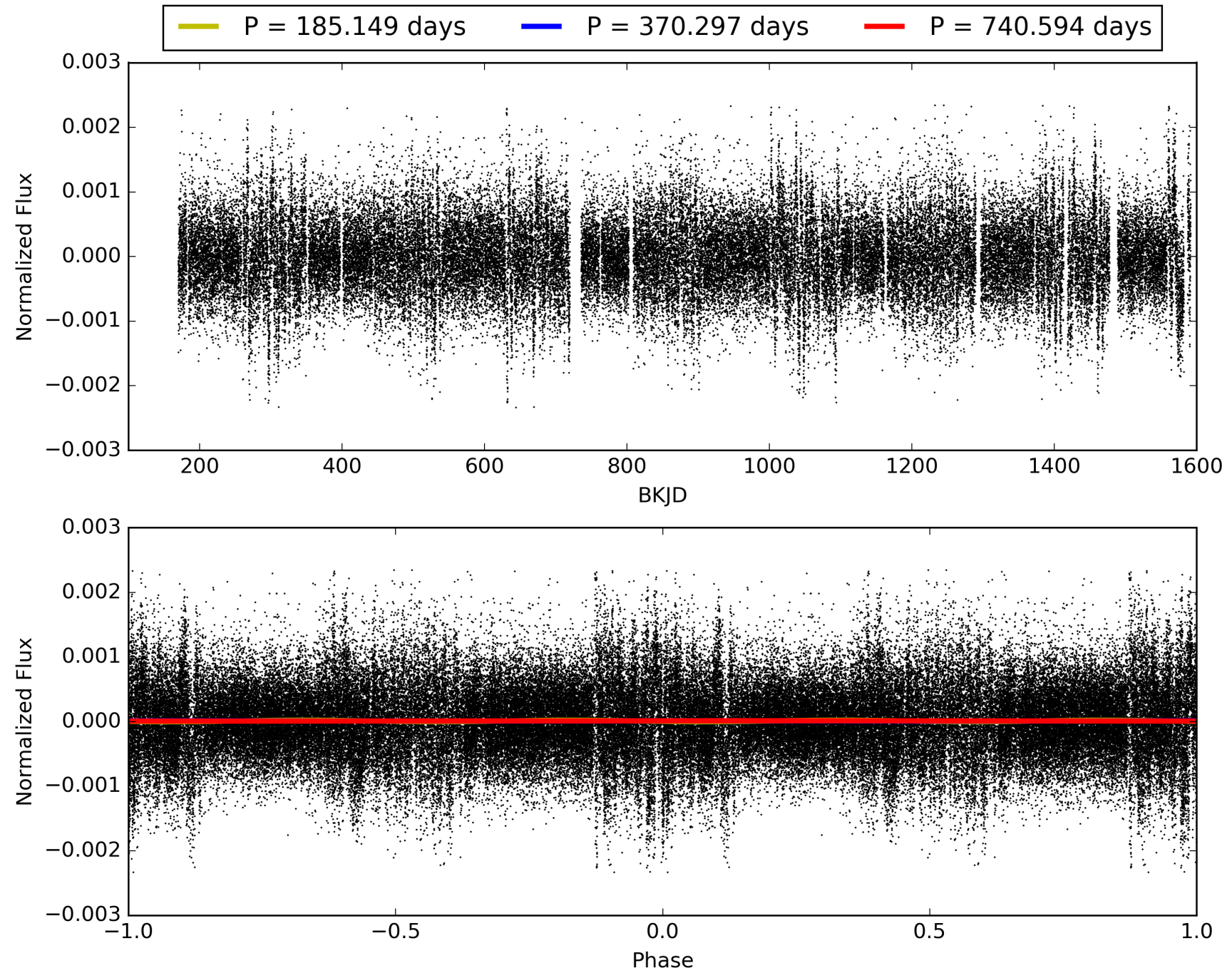
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:01:03 Z

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

# TCE 010664150-01, PDC Light Curves

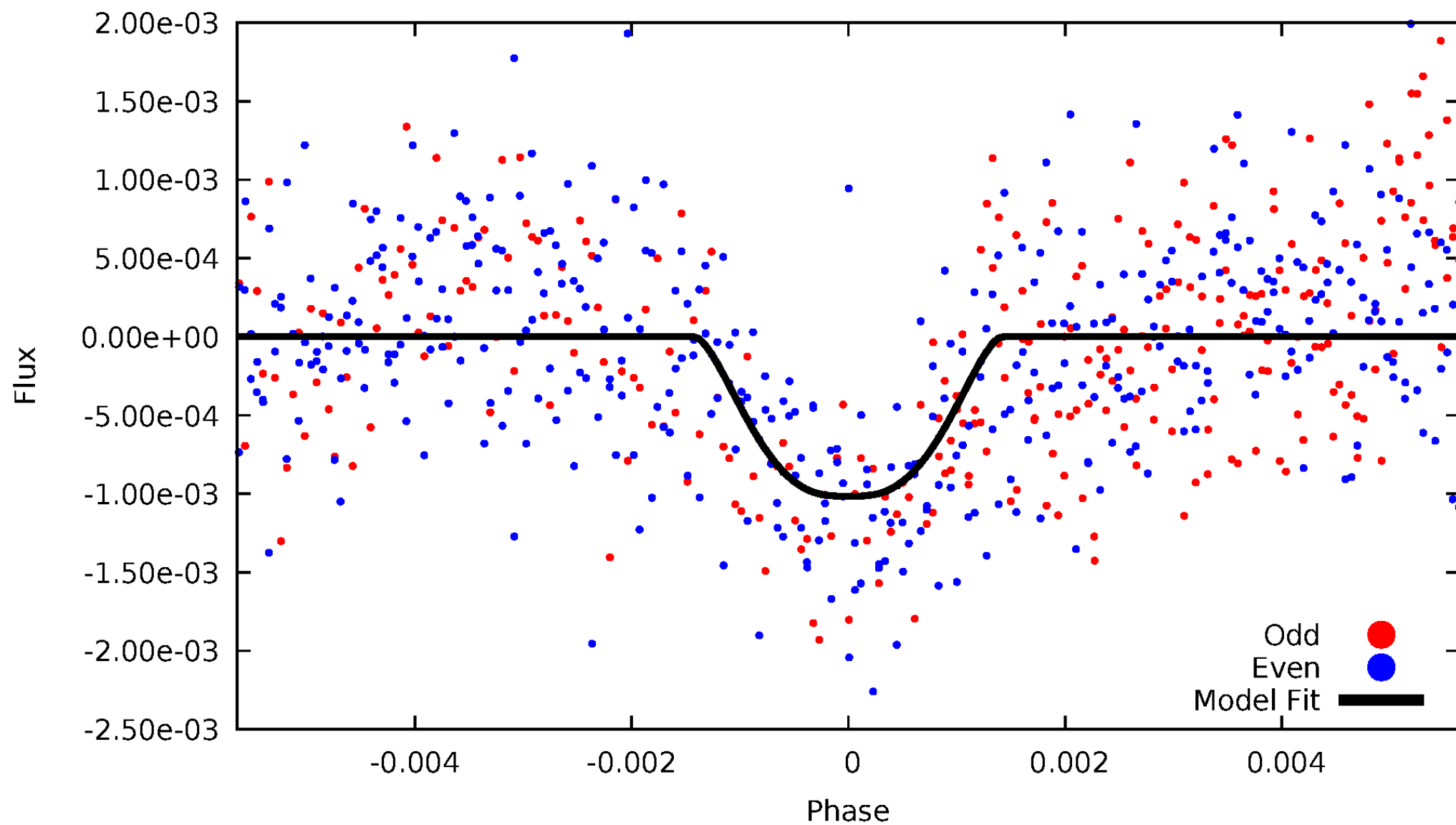


TCE 010664150-01



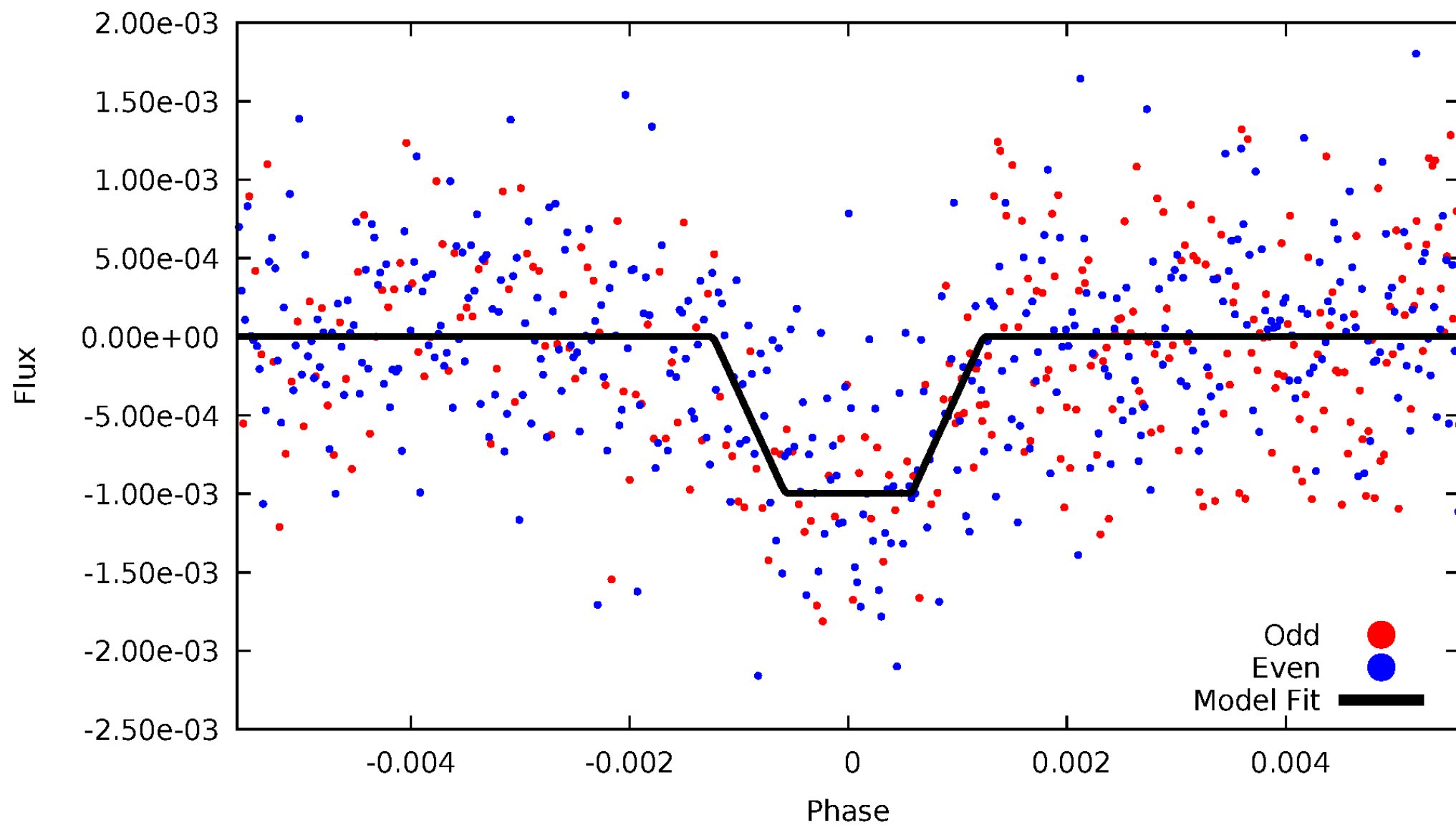
# DV Odd/Even

TCE 010664150-01



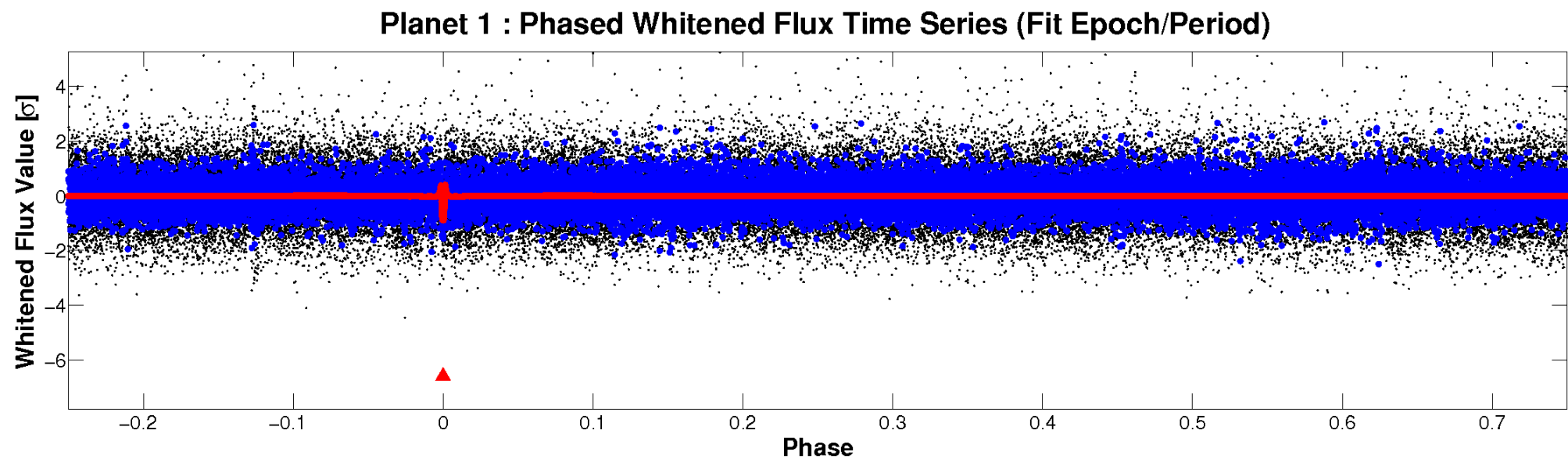
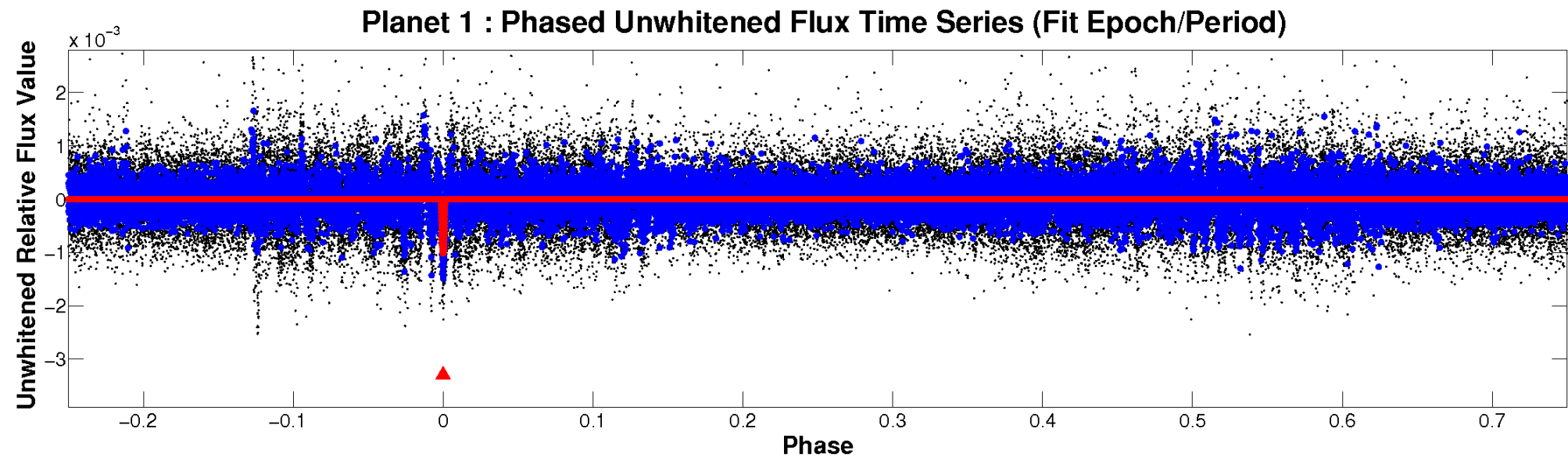
# ALT Odd/Even

TCE 010664150-01



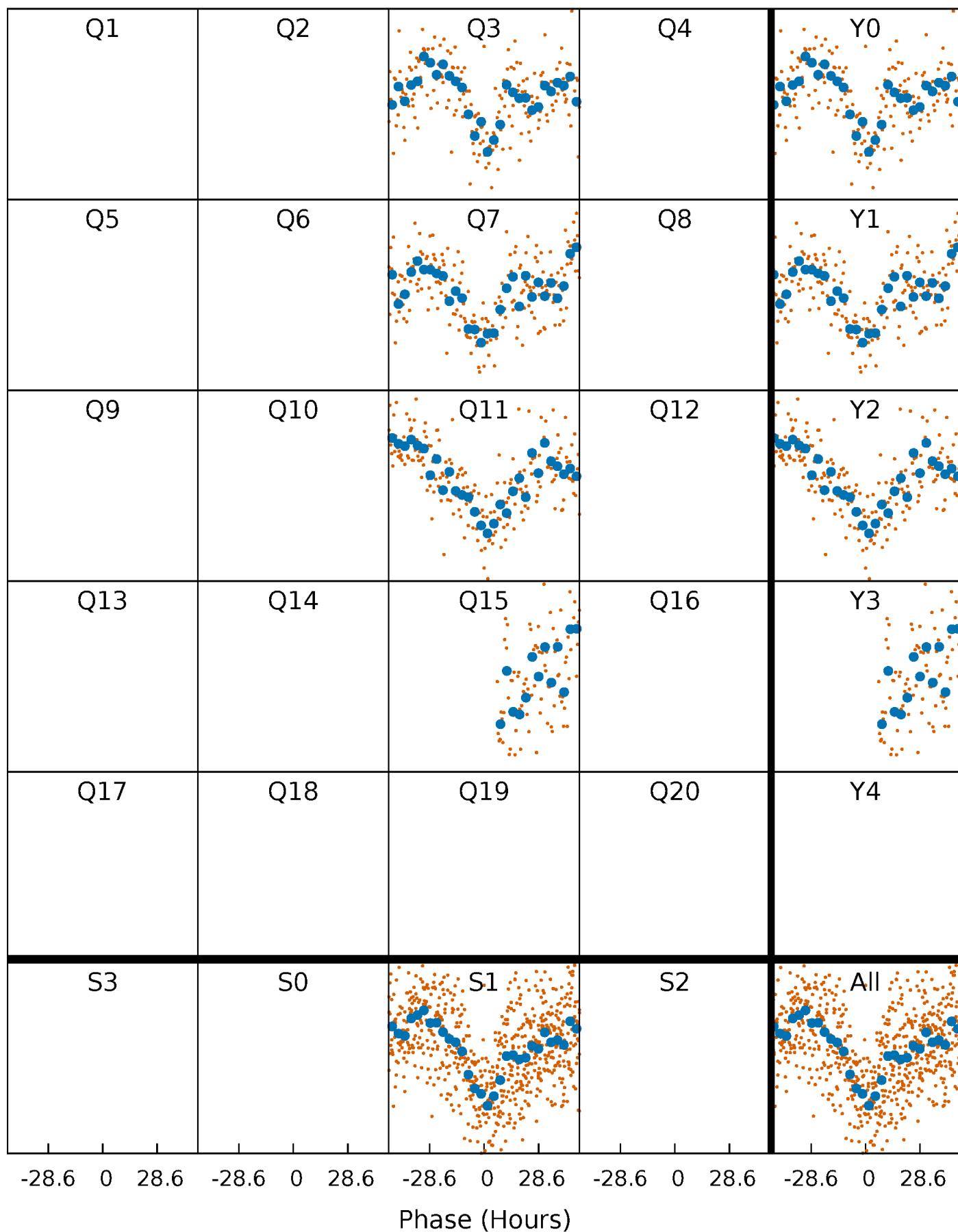


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

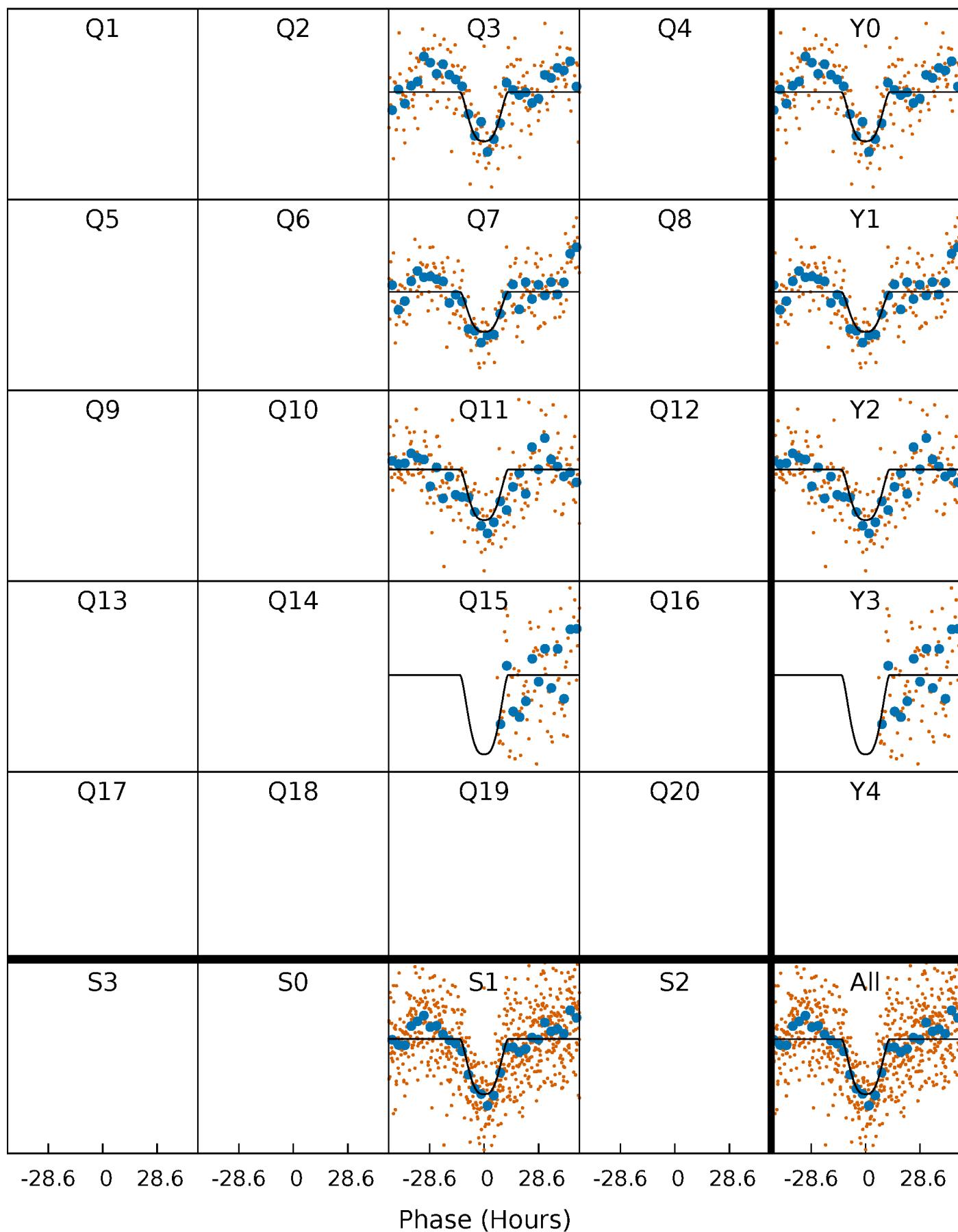
TCE 010664150-01 P=370.297184 Days  $T_0=307.279974$  (BKJD)





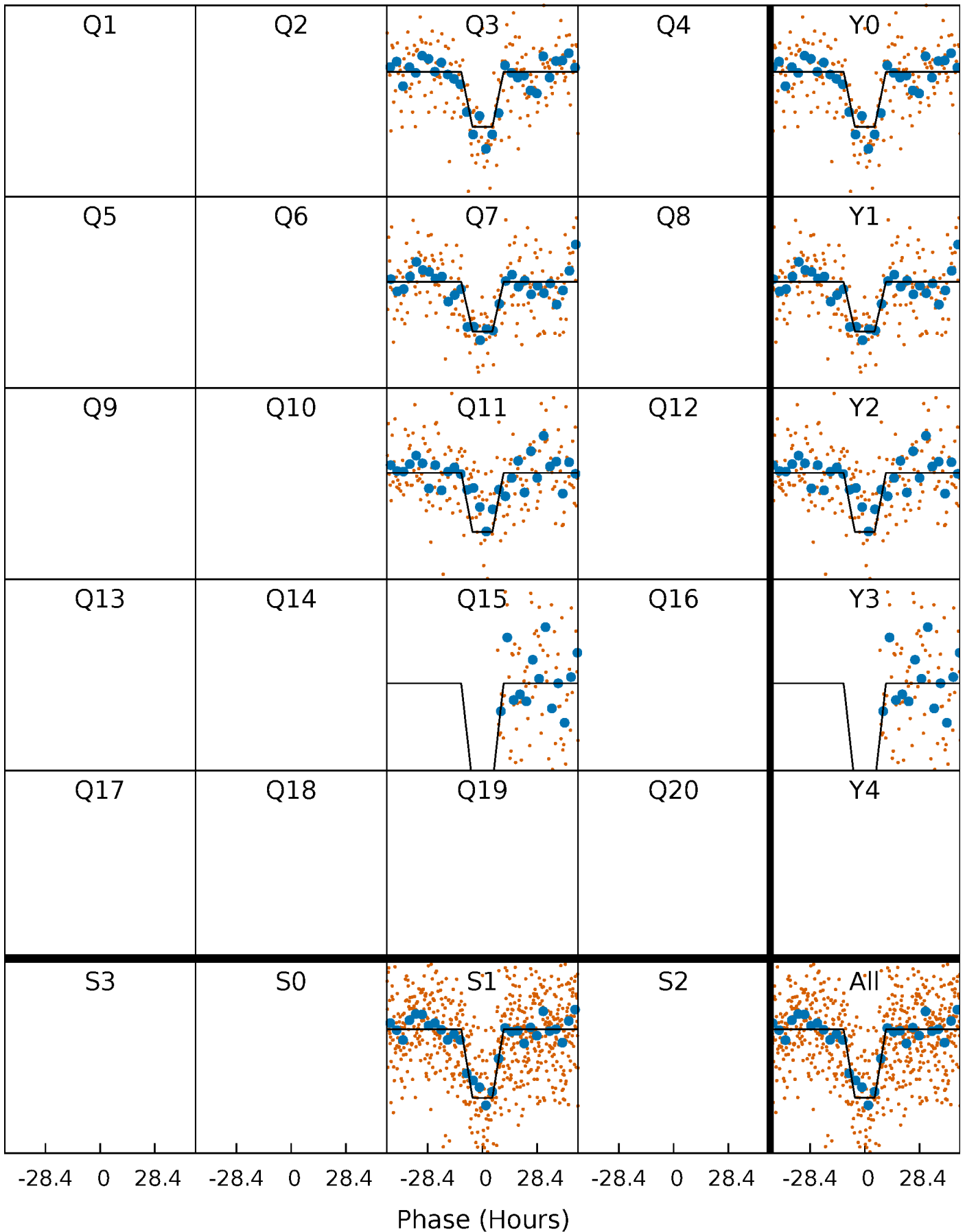
# DV Quarter-Phased Transit Curves

TCE 010664150-01 P=370.297184 Days  $T_0=307.279974$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

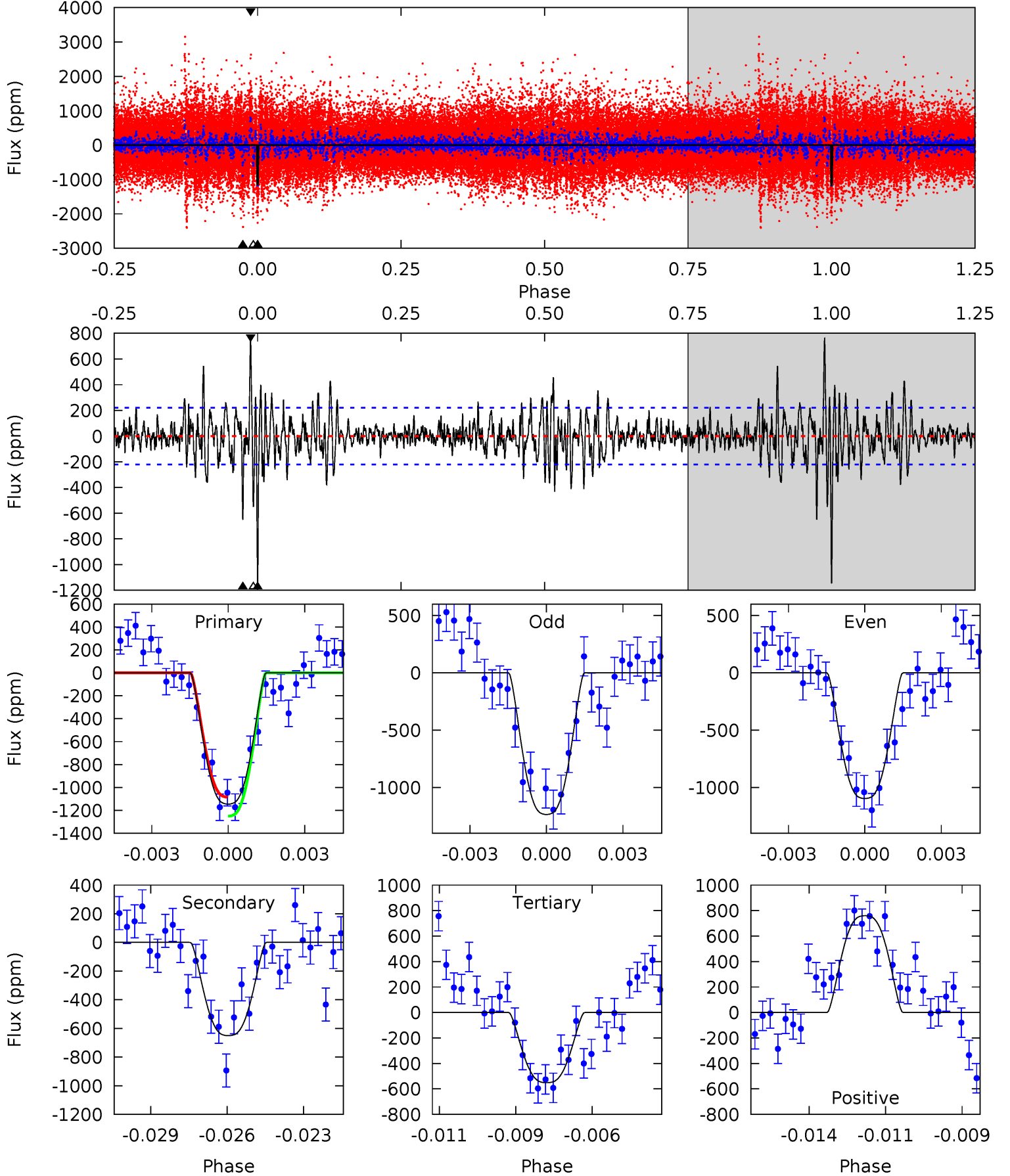
TCE 010664150-01 P=370.283352 Days  $T_0=307.280420$  (BKJD)



# DV Model-Shift Uniqueness Test

010664150-01,  $P = 370.297184$  Days,  $E = 307.279974$  Days

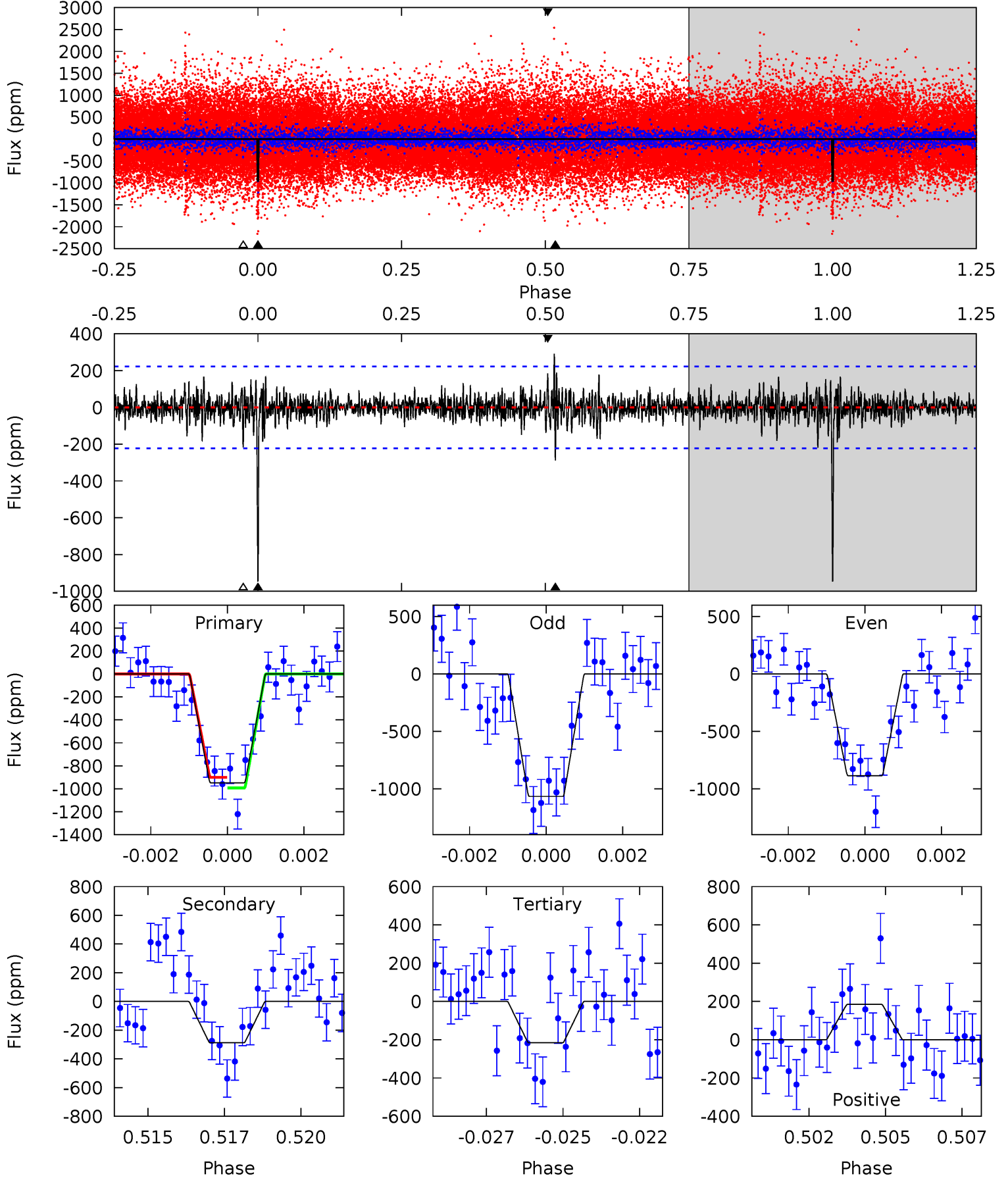
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.3	15.5	13.1	18.1	5.26	2.98	2.93	14.2	9.18	2.37	-2.61	1.60	1.01	0.40	1.96



# Alt Model-Shift Uniqueness Test

010664150-01, P = 370.283352 Days, E = 307.280420 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
22.5	6.83	5.13	4.40	5.29	3.02	1.10	17.4	18.1	1.69	2.43	2.06	1.01	0.23	1.08



### Stellar Parameters For KIC 010664150

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6296^{+169}_{-226}$	$4.481^{+0.052}_{-0.208}$	$-0.360^{+0.300}_{-0.300}$	$0.966^{+0.305}_{-0.102}$	$1.030^{+0.143}_{-0.129}$	$1.608^{+0.455}_{-0.850}$
	+3%/-4%	+1%/-5%	+83%/-83%	+32%/-11%	+14%/-13%	+28%/-53%
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 010664150-01 / KOI 8213.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-651 \pm 42$	$4.11^{+0.82}_{-0.62}$	$387^{+27}_{-22}$	$5246^{+323}_{-260}$	$21512^{+7760}_{-5815}$
Alt.	$-287 \pm 42$	$3.47^{+0.66}_{-0.53}$	$386^{+28}_{-19}$	$4729^{+335}_{-268}$	$13368^{+5274}_{-4210}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

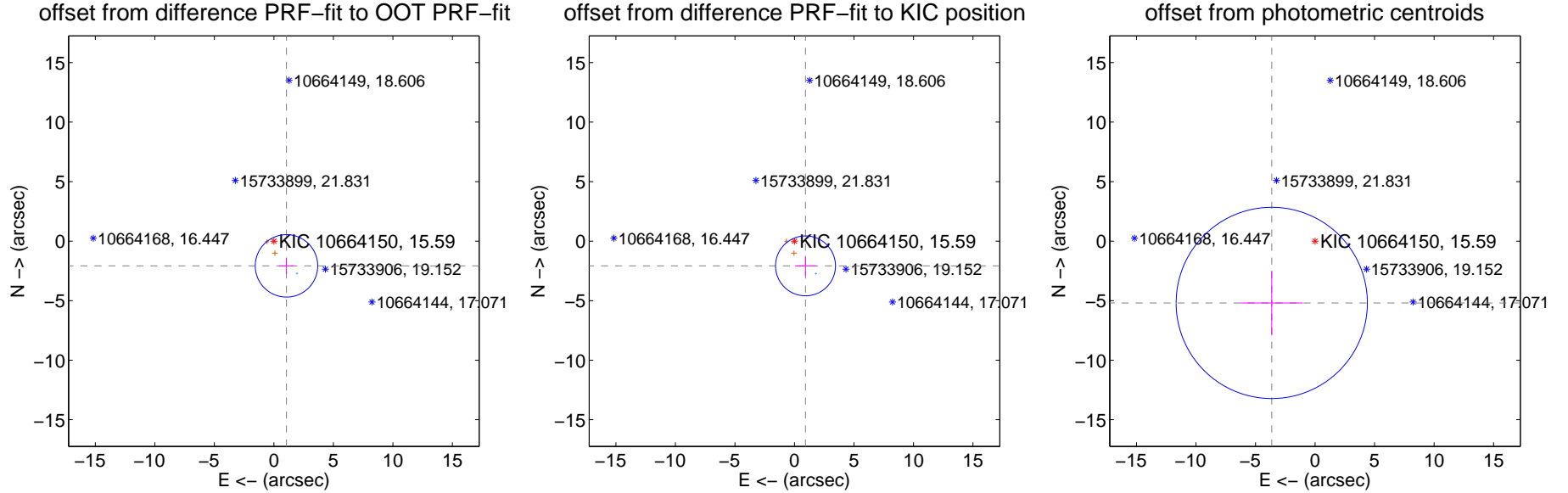
## DV Centroid Data

Supplemental centroid analysis for 010664150-01. Kepler magnitude: 15.59. Transit SNR 8.08

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.332 \pm 0.874$	2.67	$-1.059 \pm 0.614$	$-2.077 \pm 0.671$
PRF-fit source offset from KIC position	$2.276 \pm 0.839$	2.71	$-0.929 \pm 0.879$	$-2.077 \pm 0.830$
photometric centroid source offset	$6.34 \pm 2.68$	2.37	$3.64 \pm 2.61$	$-5.19 \pm 2.71$



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.

Q1 no difference image



Q1 no OOT image



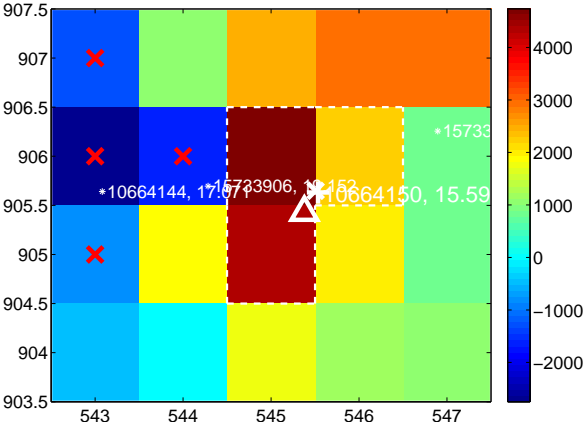
Q2 no difference image



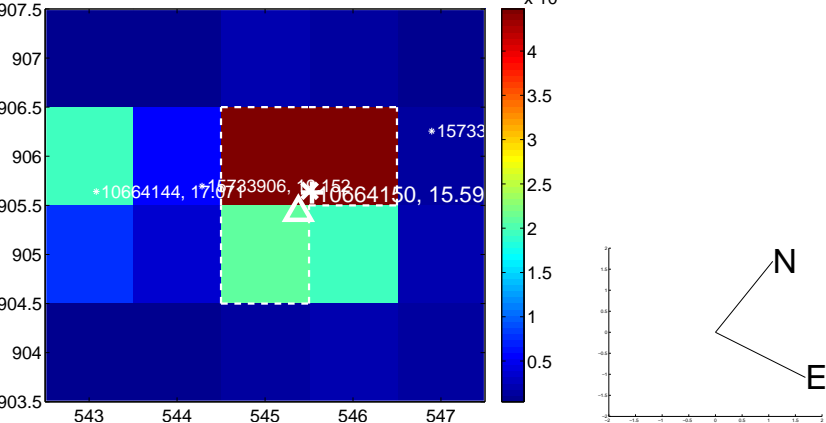
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



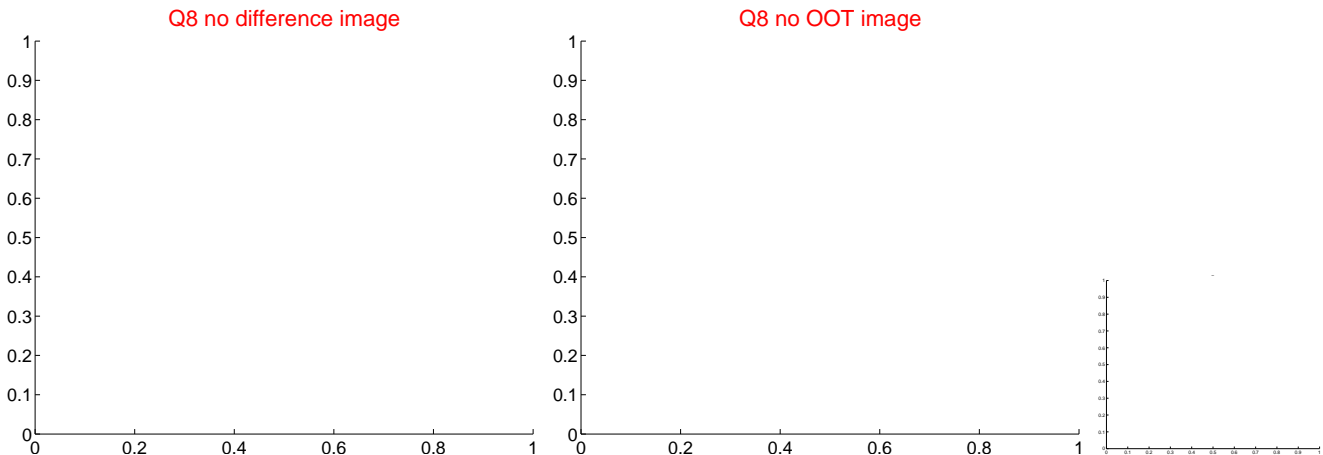
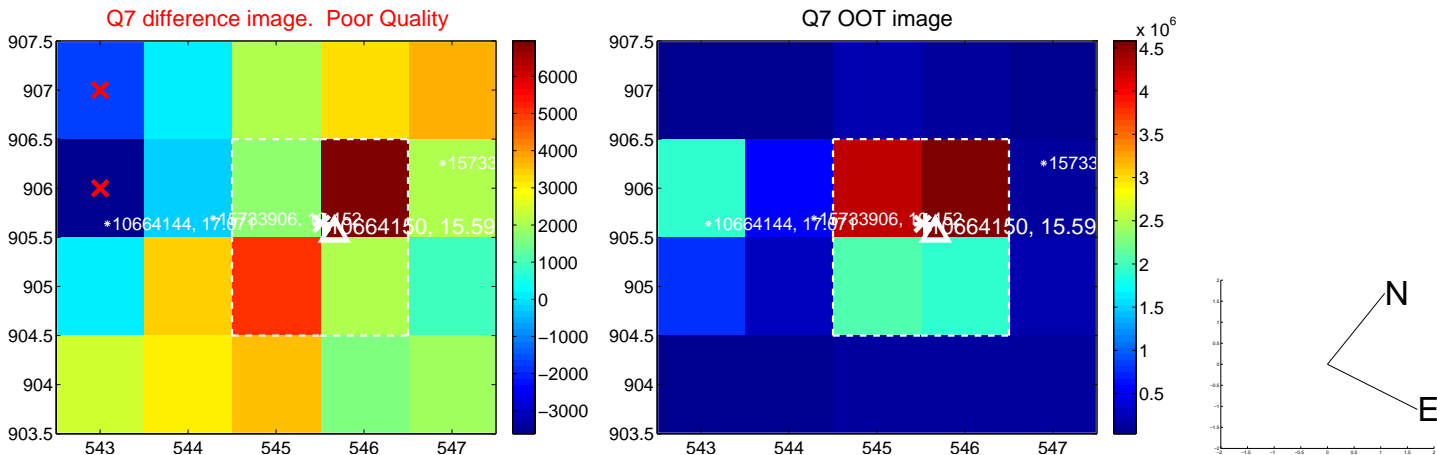
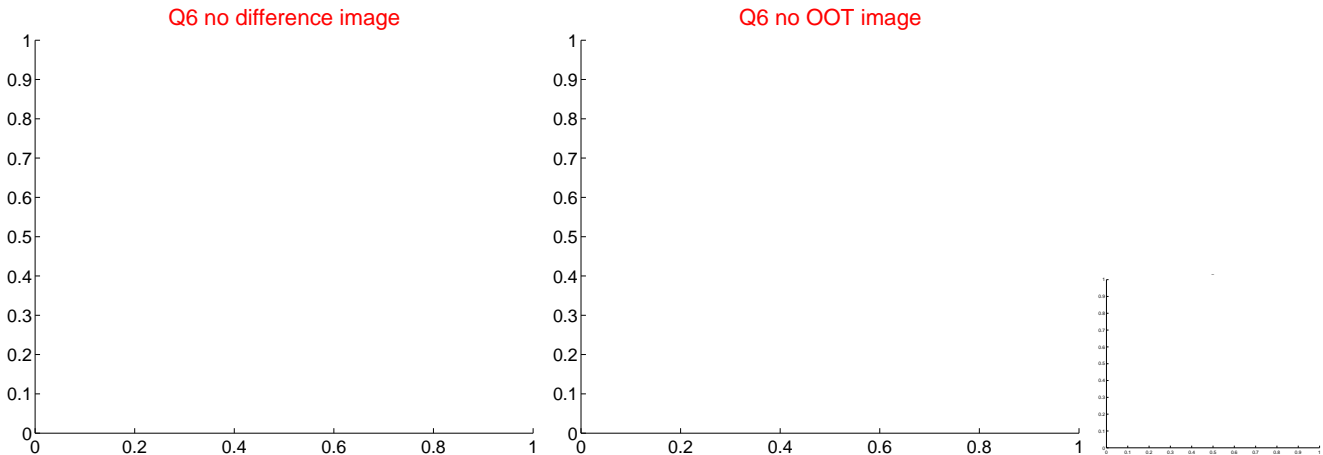
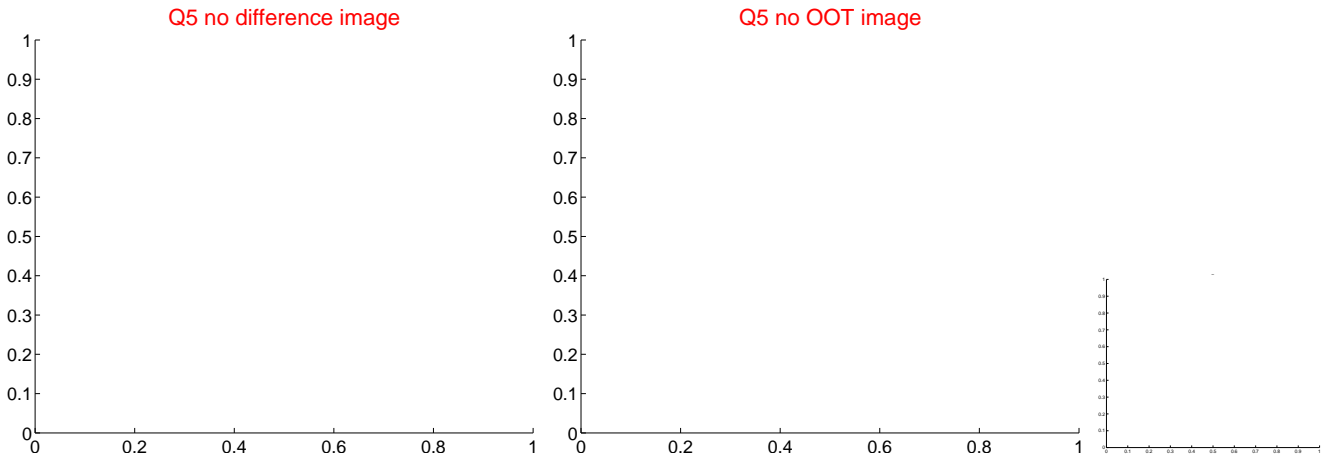
Q4 no difference image



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.

Q9 no difference image



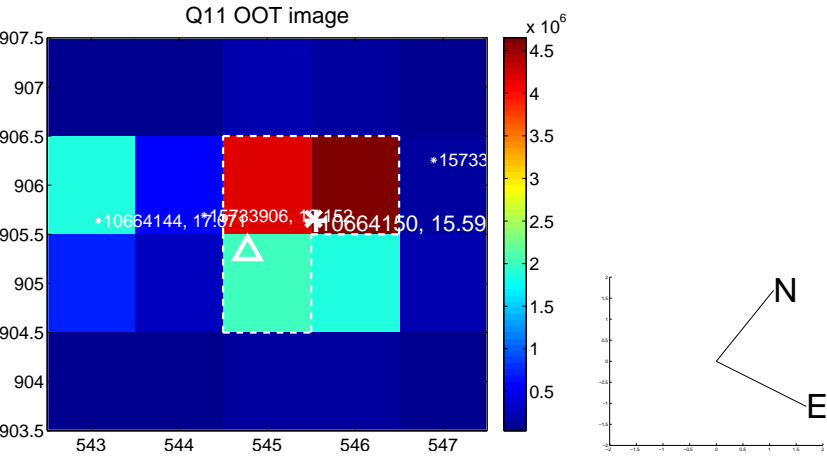
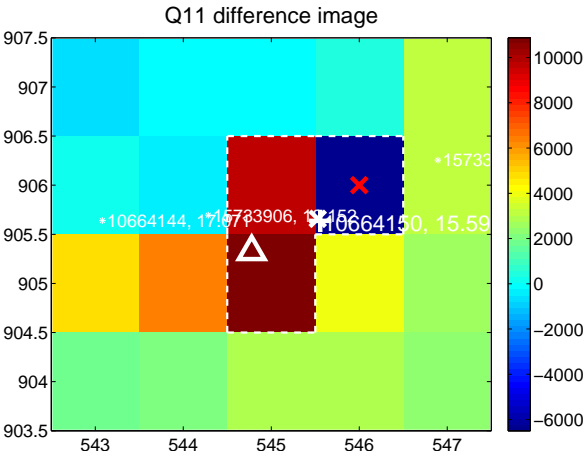
Q9 no OOT image



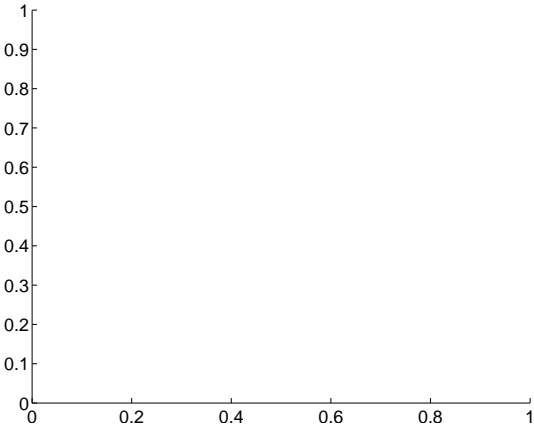
Q10 no difference image



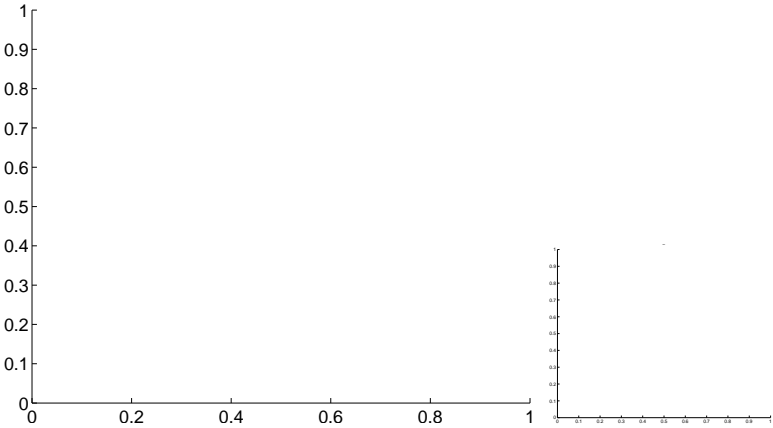
Q10 no OOT image



Q12 no difference image



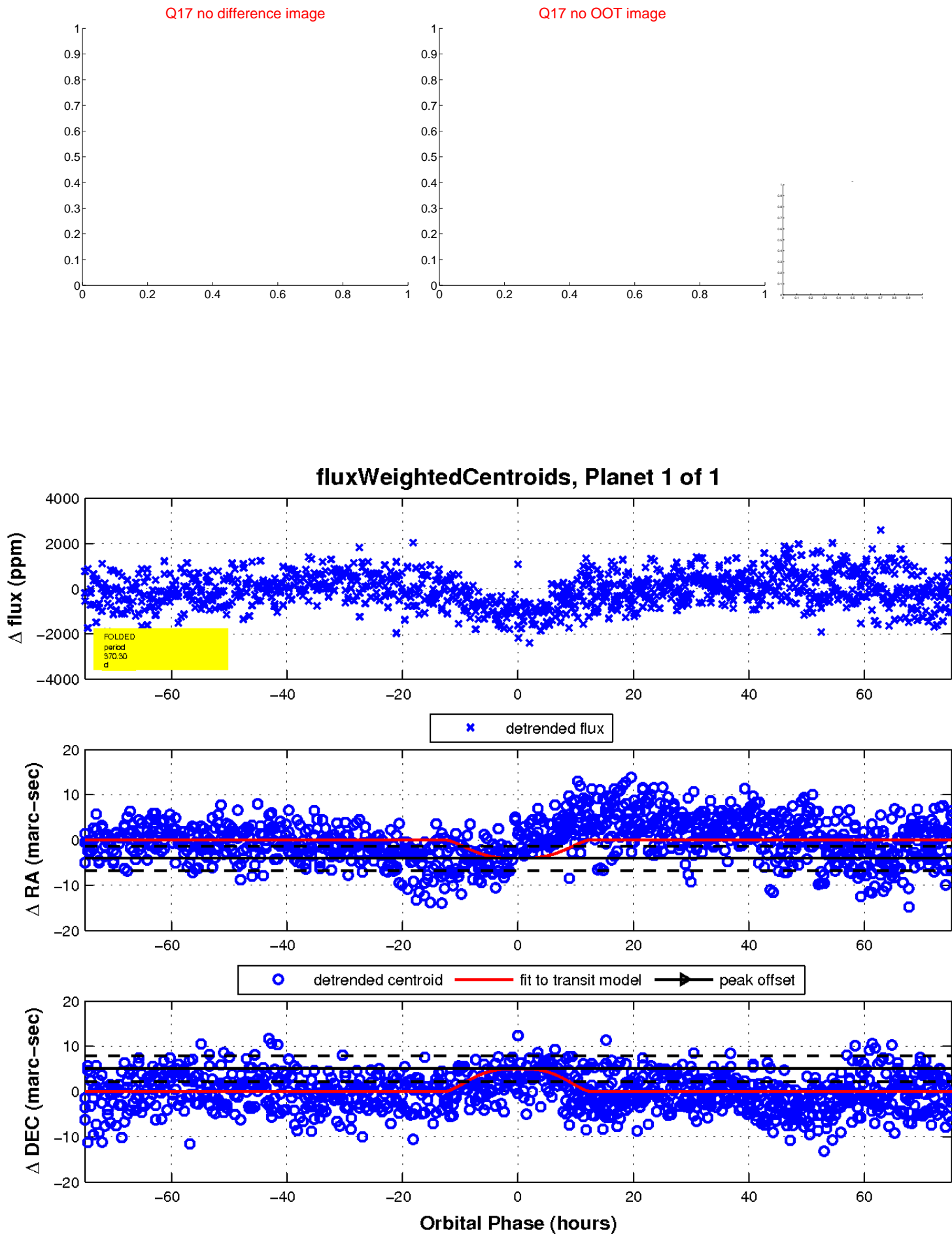
Q12 no OOT image



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.



UKIRT Image

Declination

