

# KIC 006437765

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006437765-01	OBS	No	453.313799	559.719988	830.4	11.924	10.6	9.5	0.76	5556	2.21	0.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006437765-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—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.

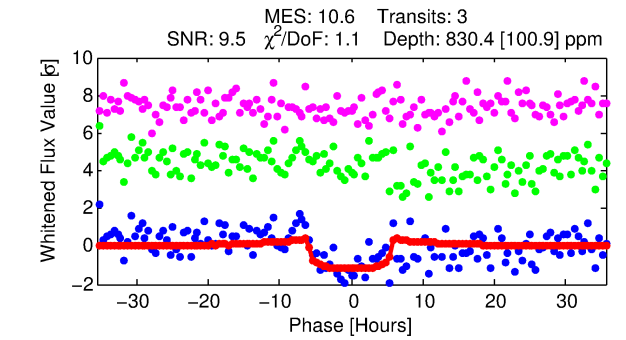
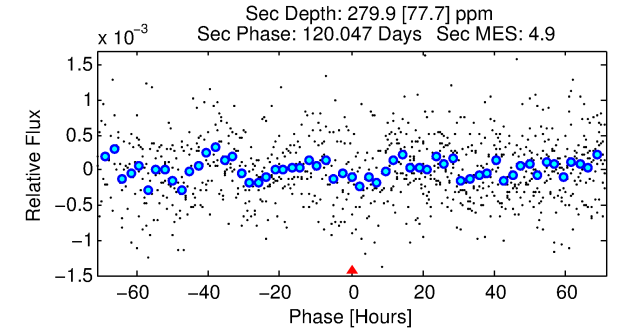
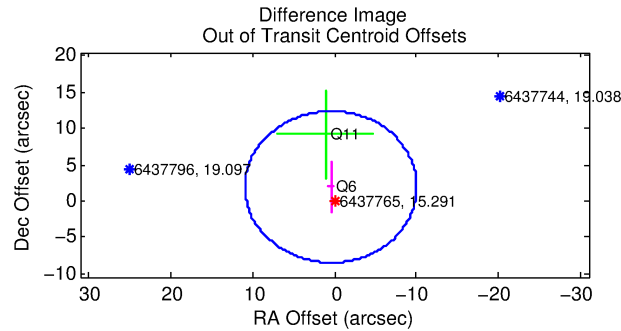
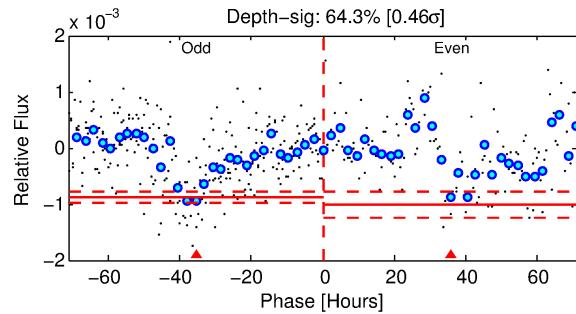
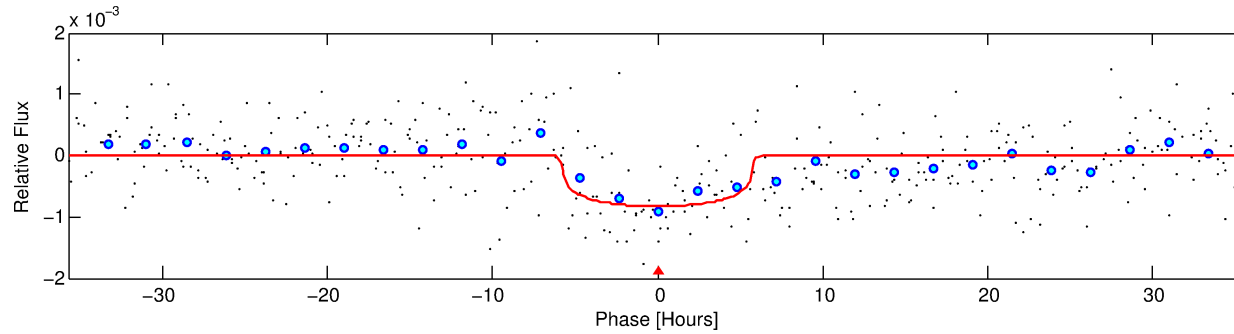
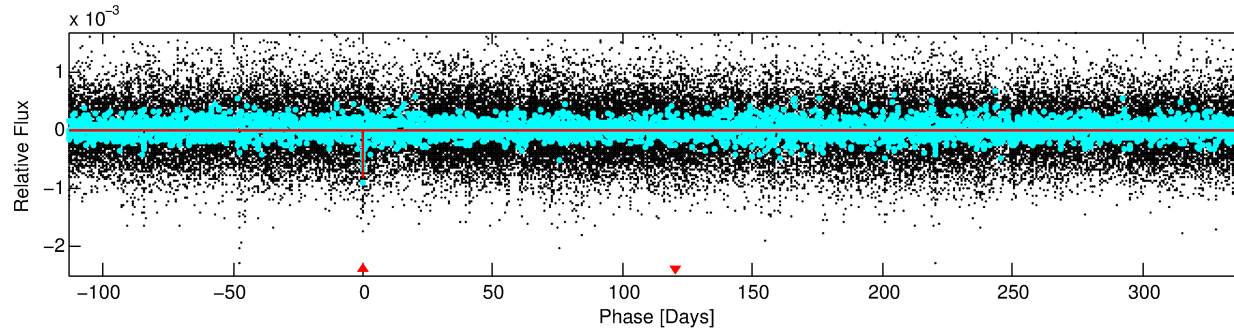
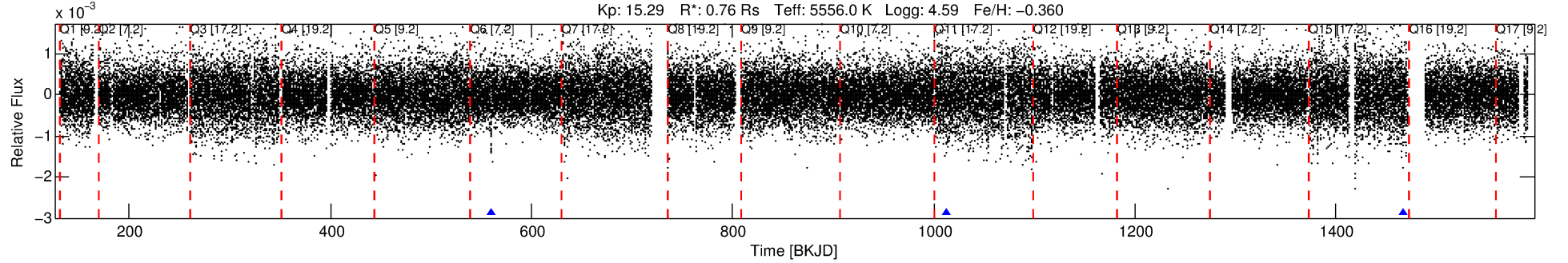
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006437765-01

No Significant Match Found

# DV One-Page Summary

KIC: 6437765 Candidate: 1 of 1 Period: 453.314 d



## DV Fit Results:

Period = 453.31380 [0.01183] d  
Epoch = 559.7200 [0.0140] BKJD  
Rp/R\* = 0.0266 [0.0241]  
a/R\* = 274.82 [1074.84]  
b = 0.40 [8.33]  
Seff = 0.42 [0.12]  
Teq = 205 [14] K  
Rp = 2.21 [2.07] Re  
a = 1.0863 [0.1961] AU  
Ag = 37116.79 [68801.09] [0.54 $\sigma$ ]  
Teff = 4406 [2027] K [2.07 $\sigma$ ]

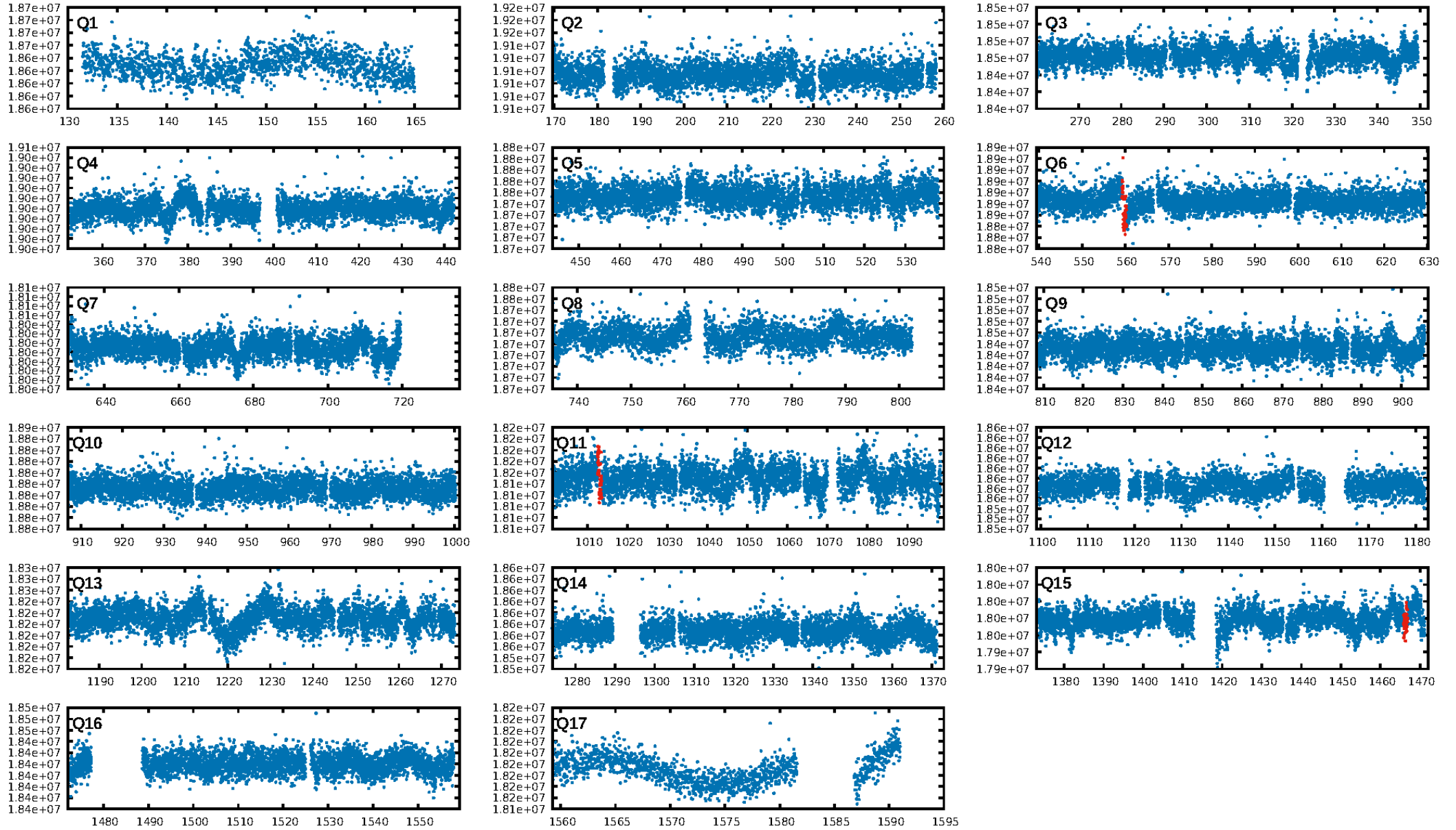
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 27.0%  
ModelChiSquareGof-sig: 98.1%  
Bootstrap-pfa: 5.84e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 7.683  
Centroid-sig: 30.4%  
Centroid-so: 1.267 arcsec [0.91 $\sigma$ ]  
OotOffset-rm: 1.971 arcsec [0.57 $\sigma$ ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-rm: 2.047 arcsec [0.67 $\sigma$ ]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

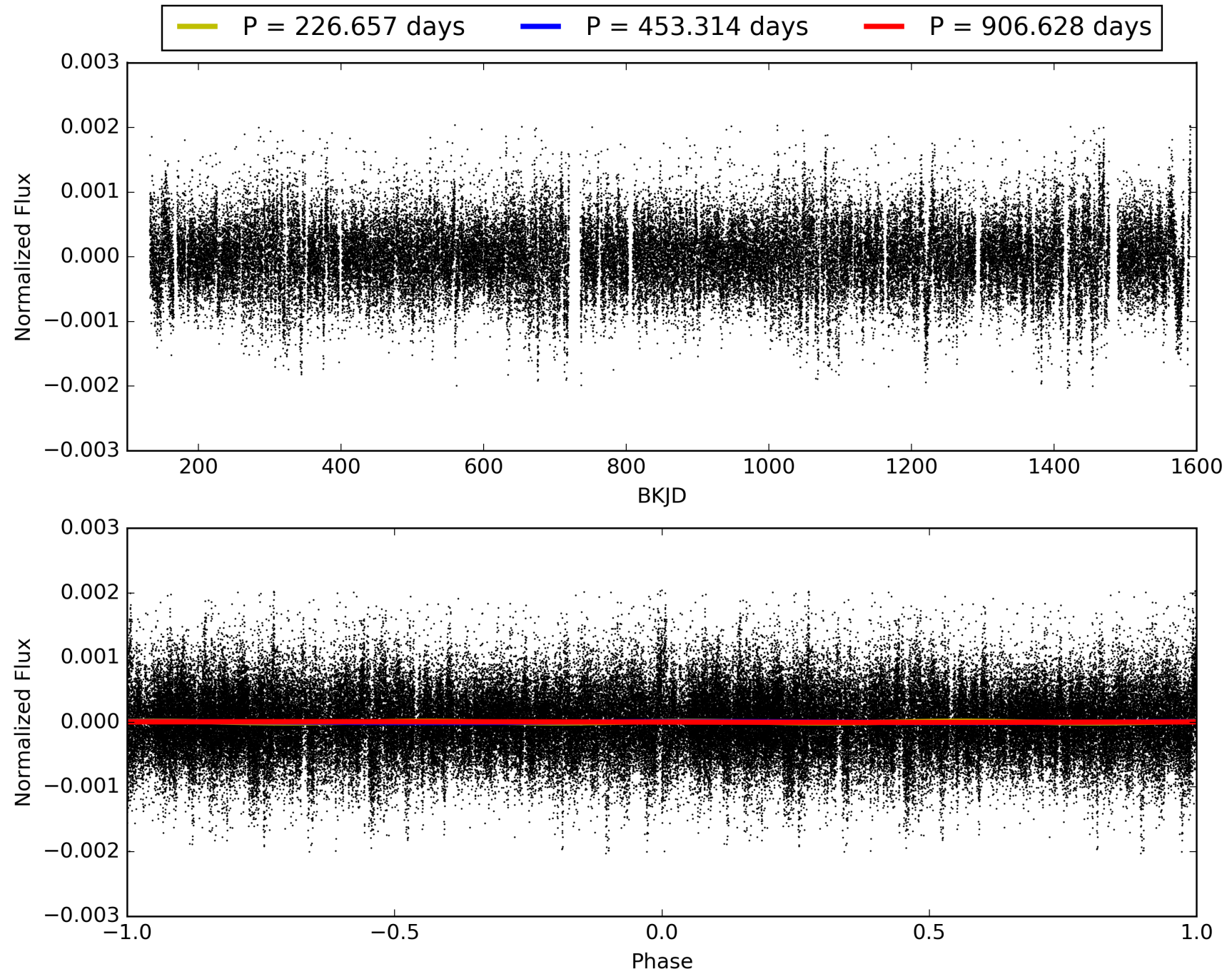
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:55:51 Z

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

# TCE 006437765-01, PDC Light Curves

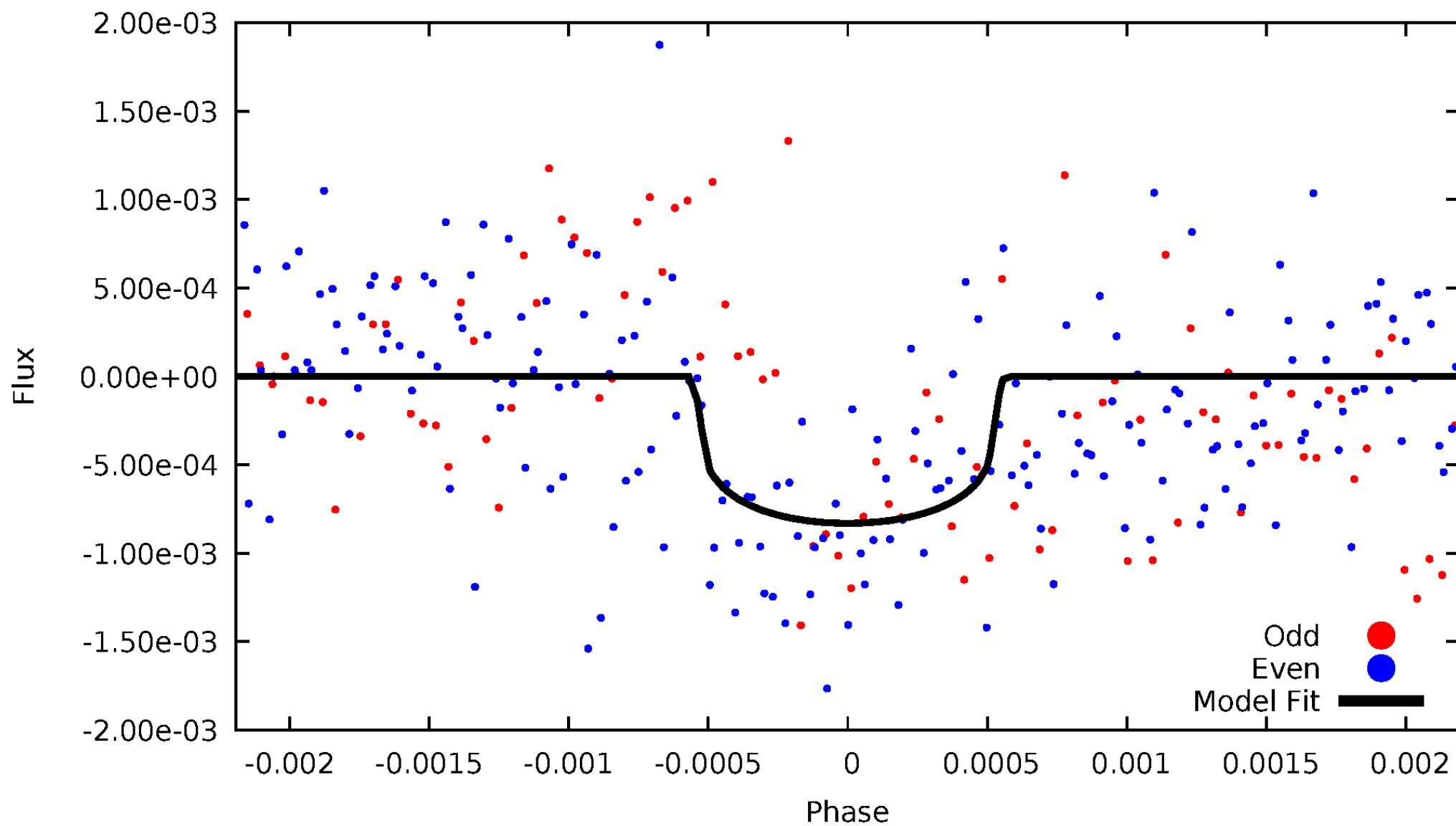


TCE 006437765-01



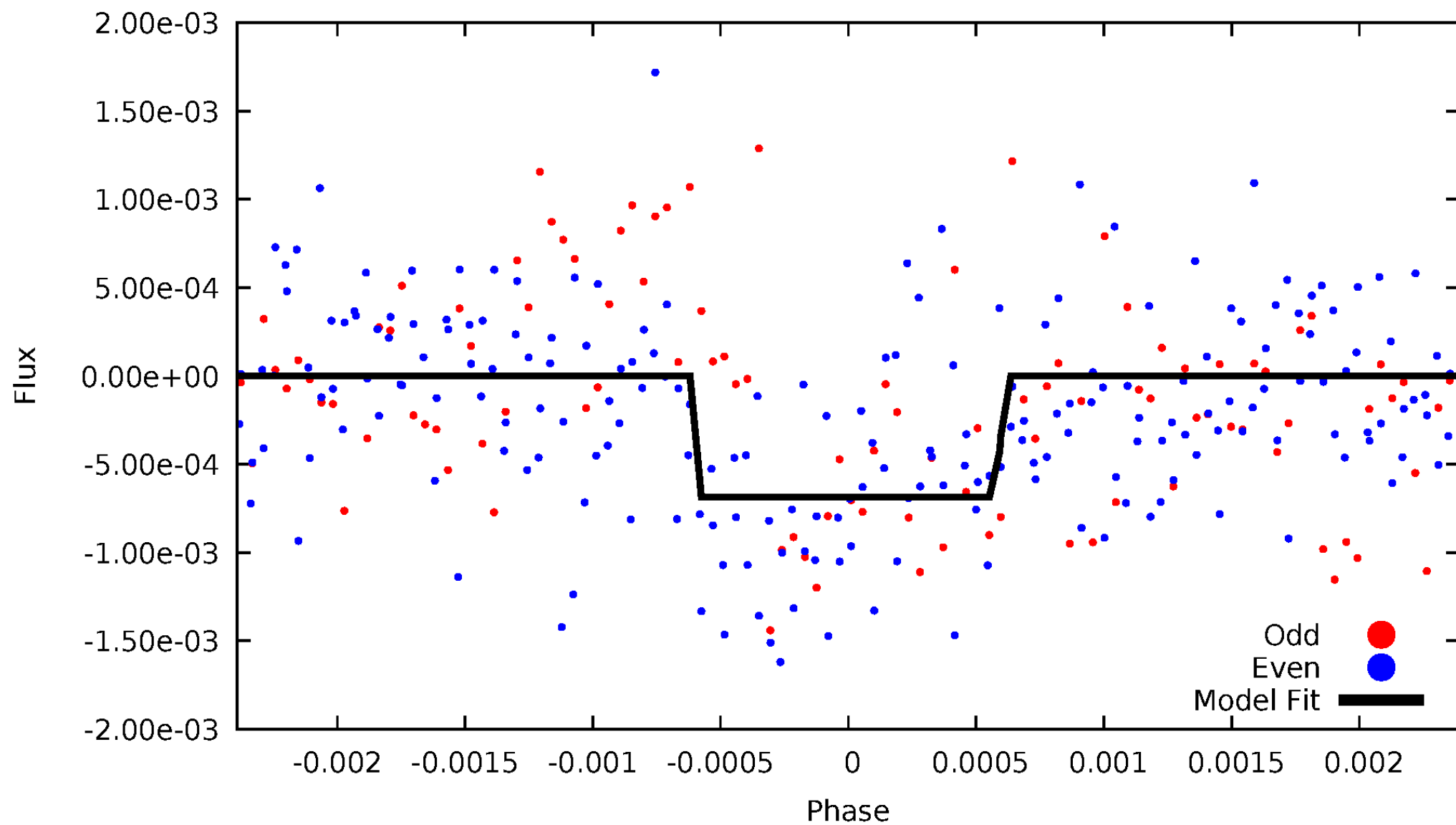
# DV Odd/Even

TCE 006437765-01



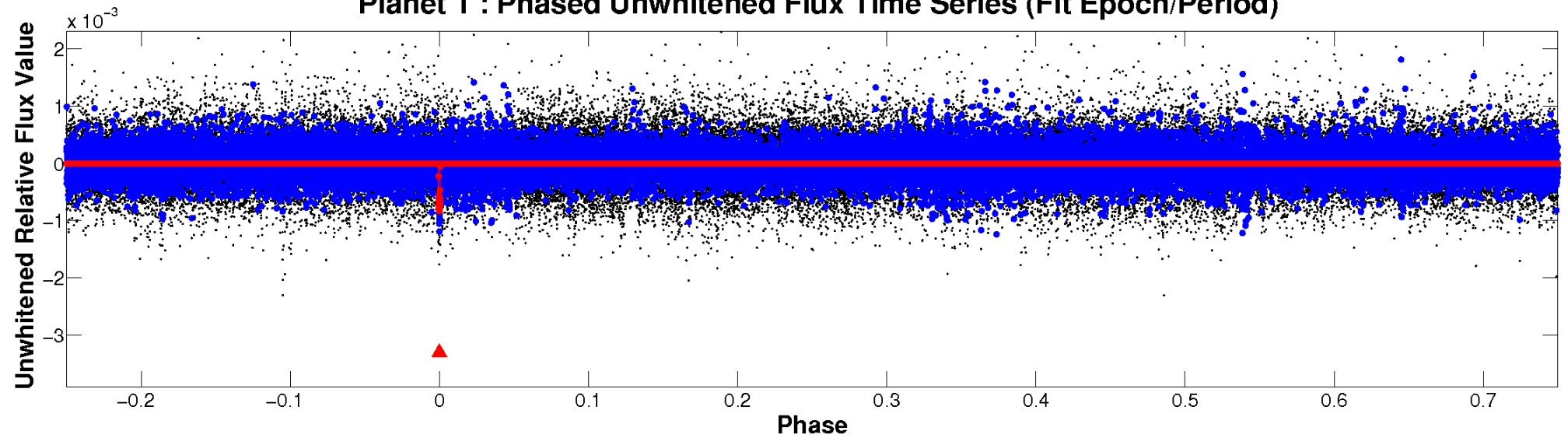
# ALT Odd/Even

TCE 006437765-01

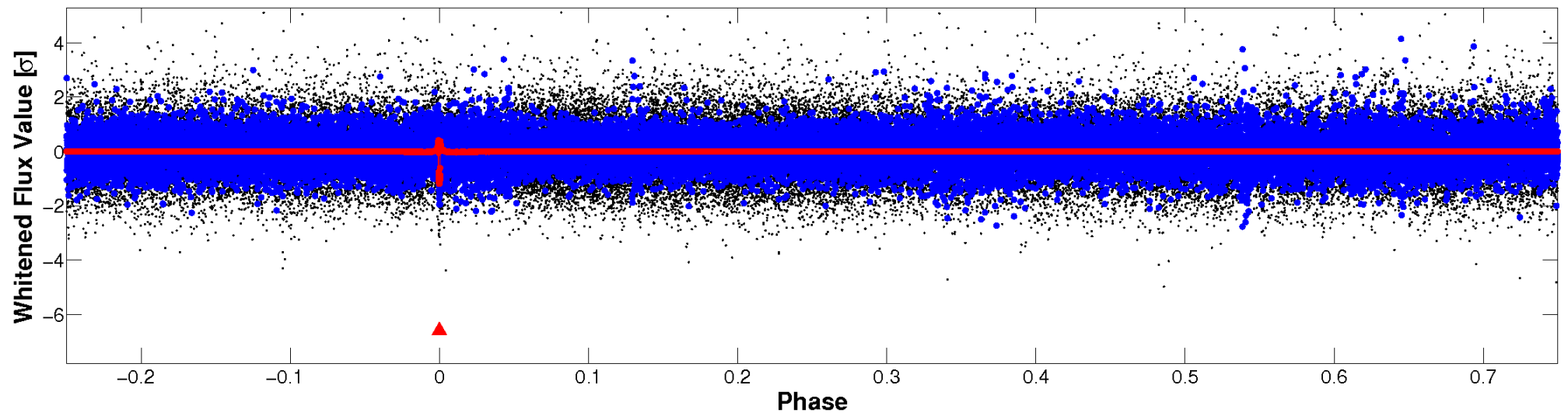


# Non-Whitened Vs. Whitened Light Curve

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



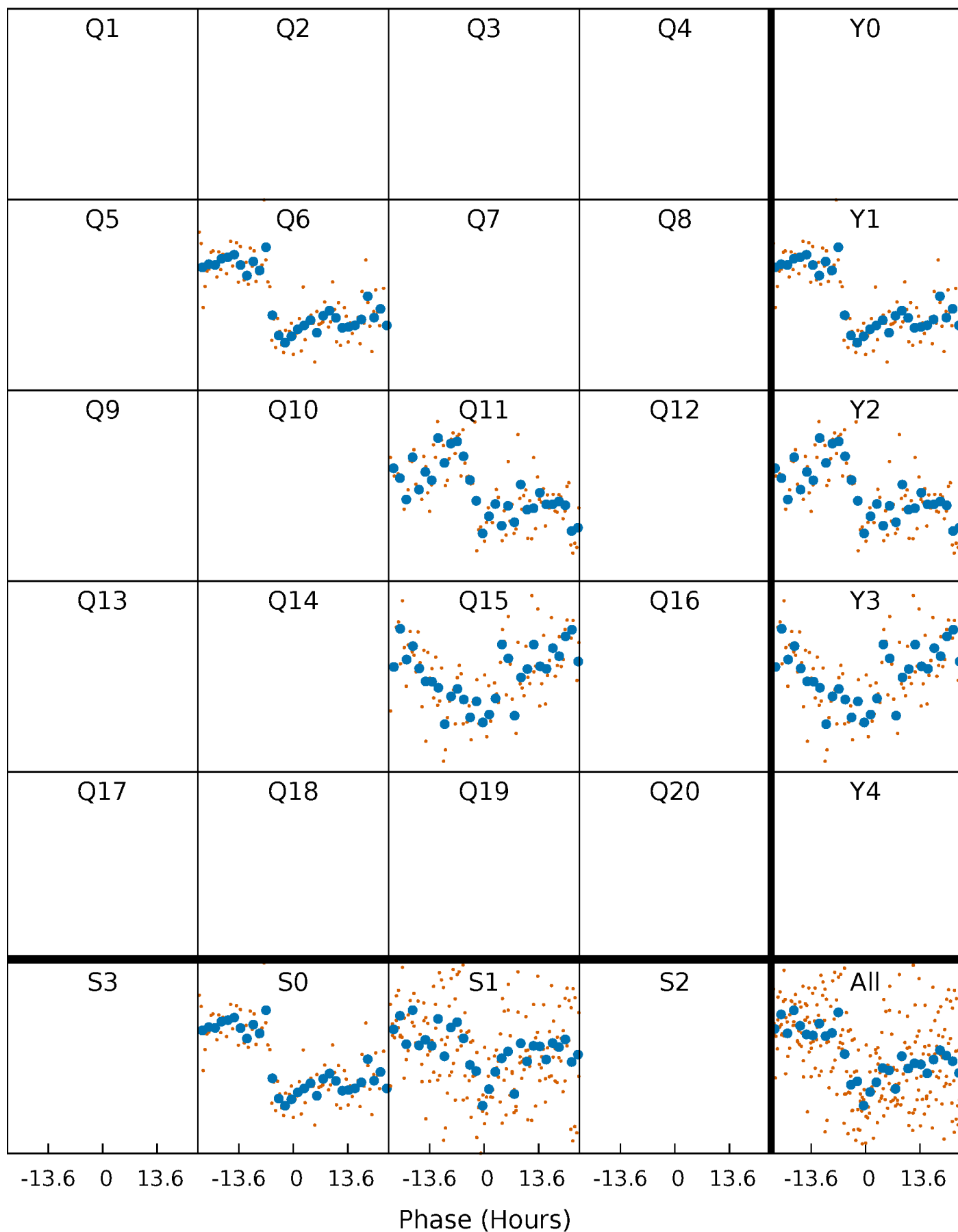
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

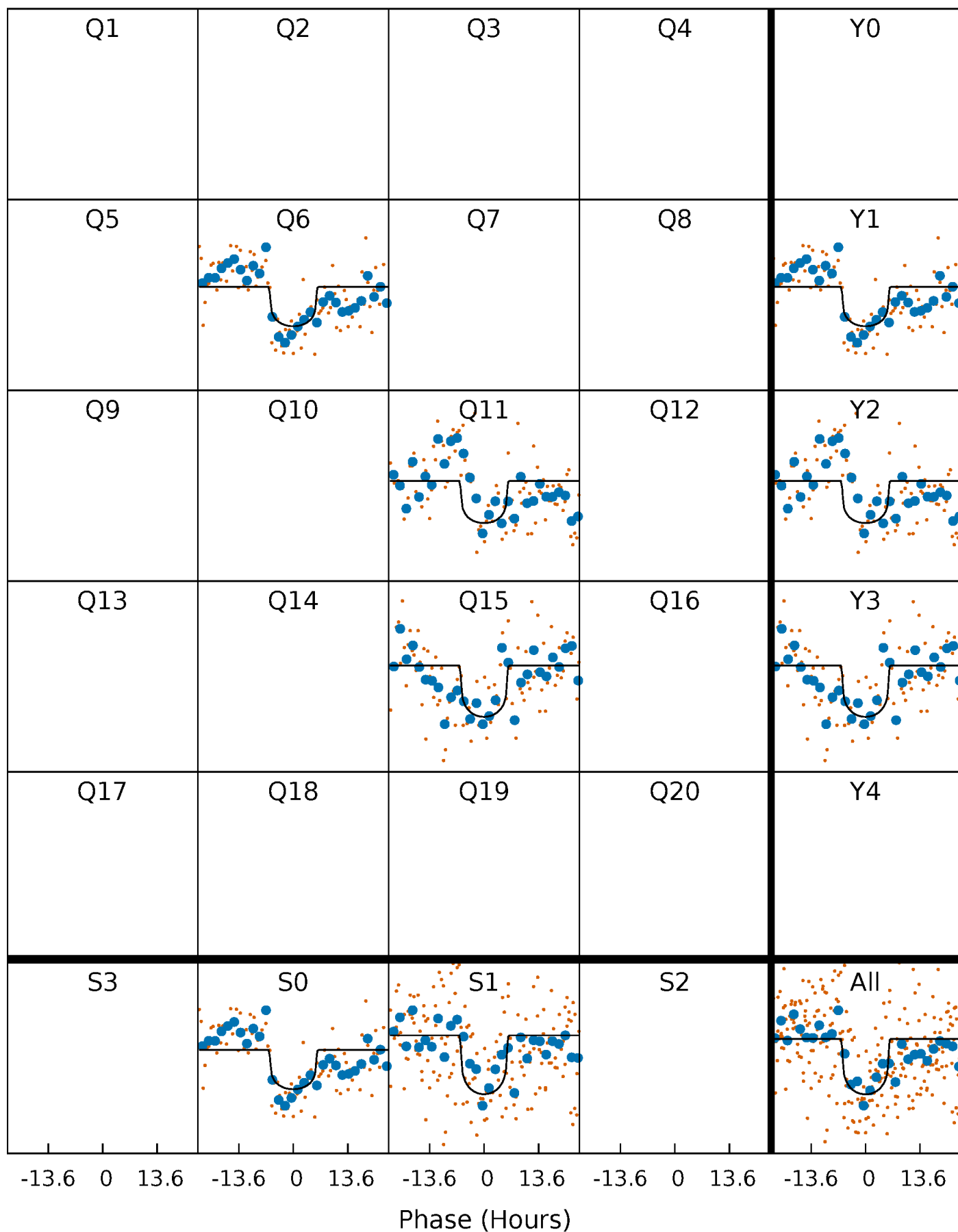
TCE 006437765-01 P=453.313799 Days  $T_0=559.719988$  (BKJD)





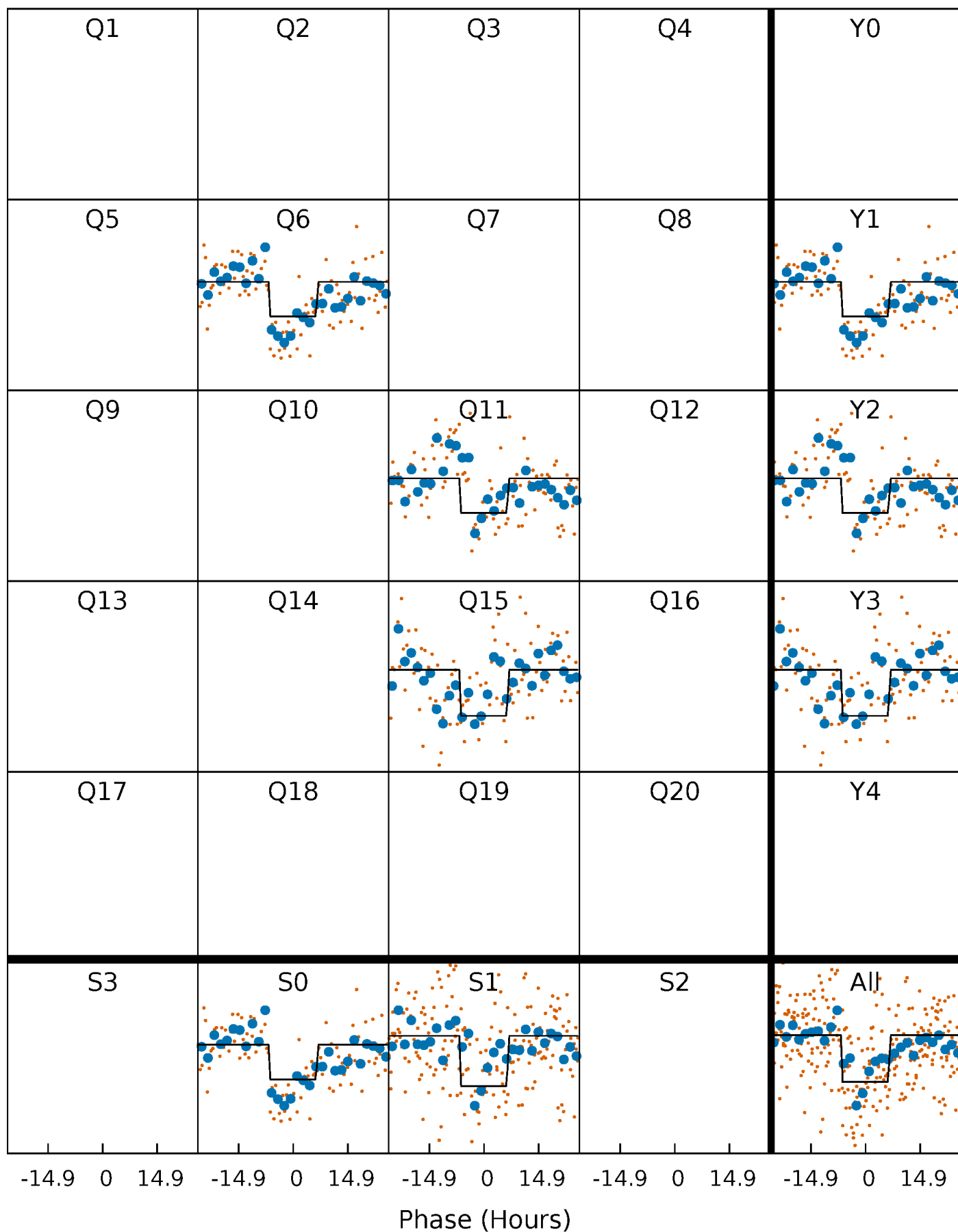
# DV Quarter-Phased Transit Curves

TCE 006437765-01 P=453.313799 Days  $T_0=559.719988$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

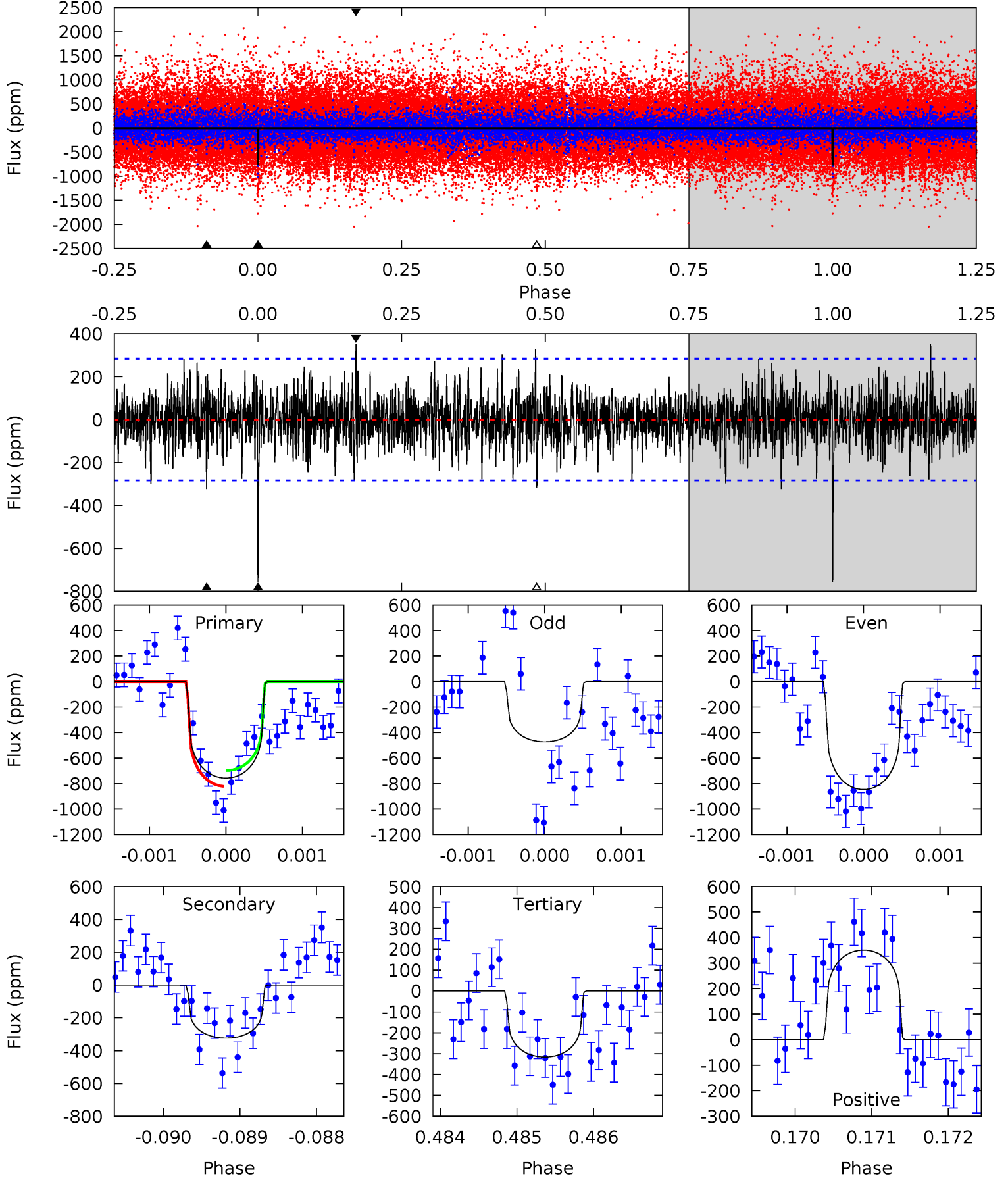
TCE 006437765-01 P=453.338962 Days  $T_0=559.756673$  (BKJD)



# DV Model-Shift Uniqueness Test

006437765-01, P = 453.313799 Days, E = 106.406189 Days

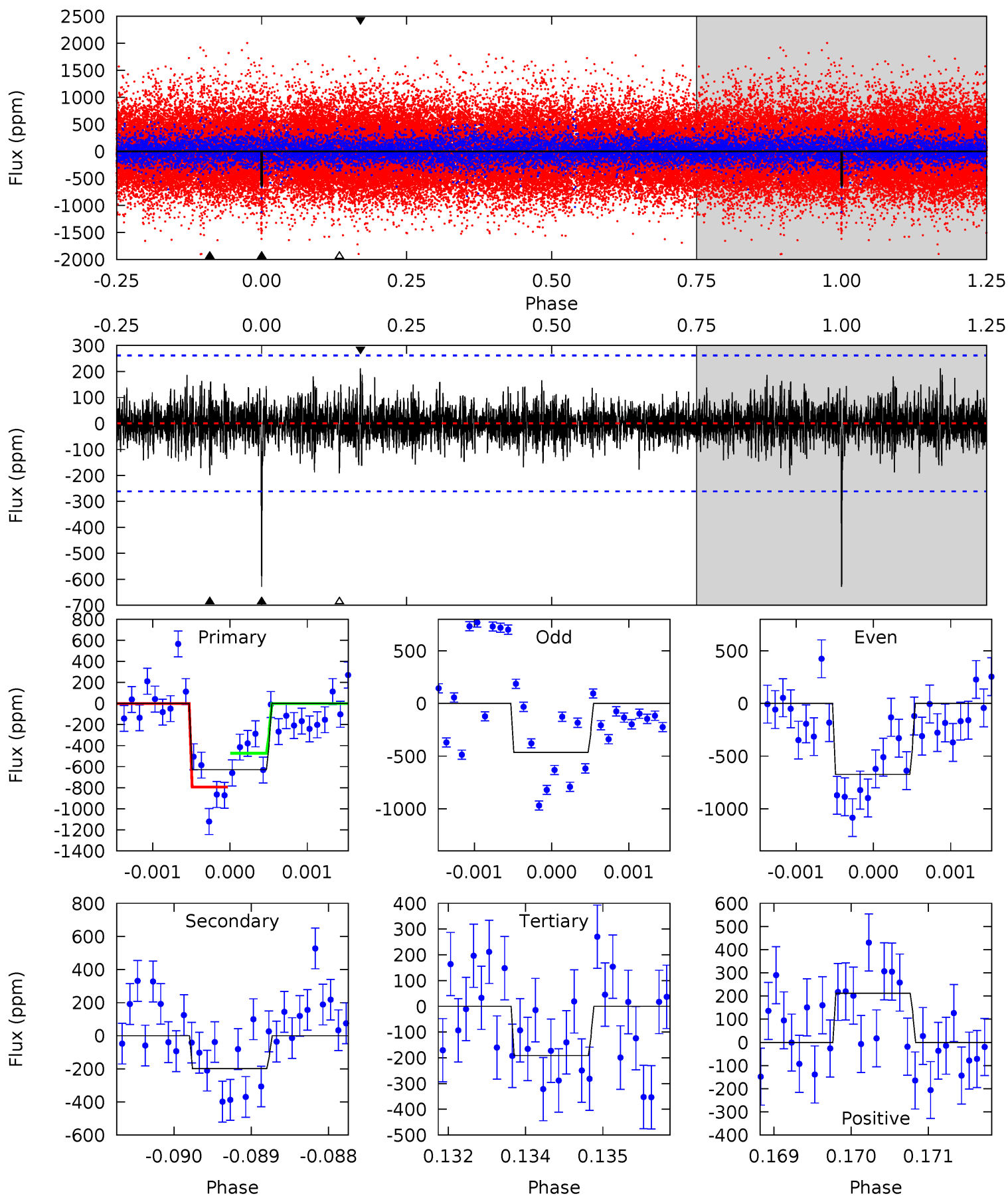
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	6.21	6.07	6.74	5.44	3.27	1.64	8.45	7.77	0.14	-0.53	3.39	1.04	0.32	1.19



# Alt Model-Shift Uniqueness Test

006437765-01, P = 453.338962 Days, E = 106.417711 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
13.0	4.12	3.97	4.39	5.42	3.25	1.01	9.05	8.62	0.15	-0.28	2.06	1.30	0.25	3.33



### Stellar Parameters For KIC 006437765

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5556^{+169}_{-152}$	$4.594^{+0.036}_{-0.135}$	$-0.360^{+0.300}_{-0.300}$	$0.762^{+0.169}_{-0.068}$	$0.831^{+0.089}_{-0.089}$	$2.652^{+0.484}_{-1.049}$
	+3%/-3%	+1%/-3%	+83%/-83%	+22%/-9%	+11%/-11%	+18%/-40%
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 006437765-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-323 \pm 52$	$2.62^{+2.12}_{-1.61}$	$292^{+16}_{-12}$	$4409^{+2544}_{-792}$	$30526^{+171263}_{-21258}$
Alt.	$-199 \pm 48$	$2.61^{+1.97}_{-1.61}$	$291^{+16}_{-11}$	$4040^{+2052}_{-693}$	$18359^{+102154}_{-12620}$

$T_{max}$  = 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

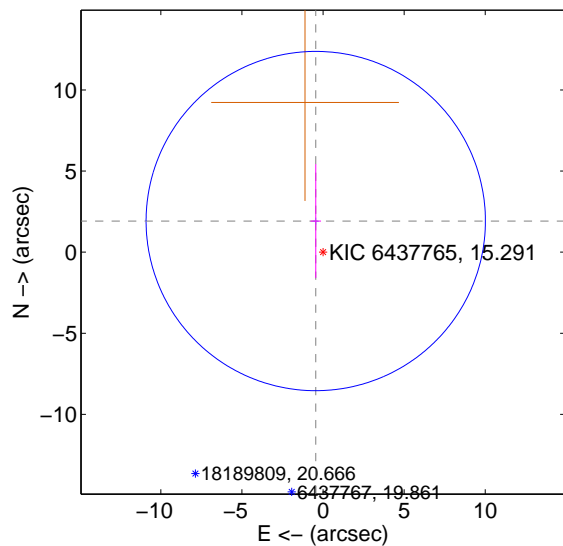
Supplemental centroid analysis for 006437765-01. Kepler magnitude: 15.29. Transit SNR 9.49

There are 1 quarters with good PRF difference image offsets

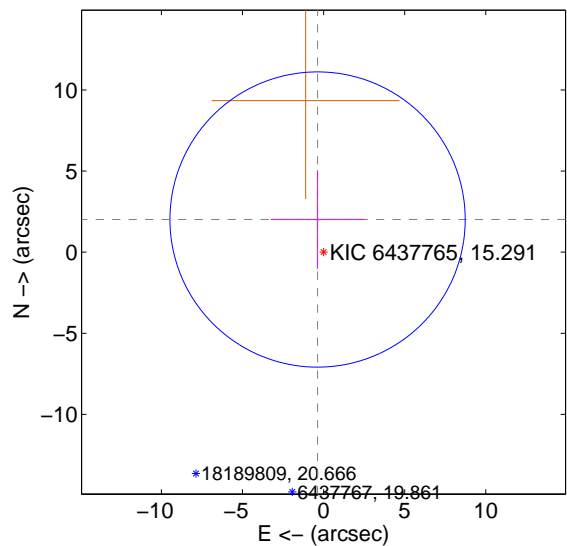
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.971 \pm 3.486$	0.57	$0.449 \pm 0.324$	$1.919 \pm 3.506$
PRF-fit source offset from KIC position	$2.047 \pm 3.033$	0.67	$0.371 \pm 2.895$	$2.013 \pm 3.038$
photometric centroid source offset	$1.27 \pm 1.39$	0.91	$-0.54 \pm 1.28$	$1.15 \pm 1.41$

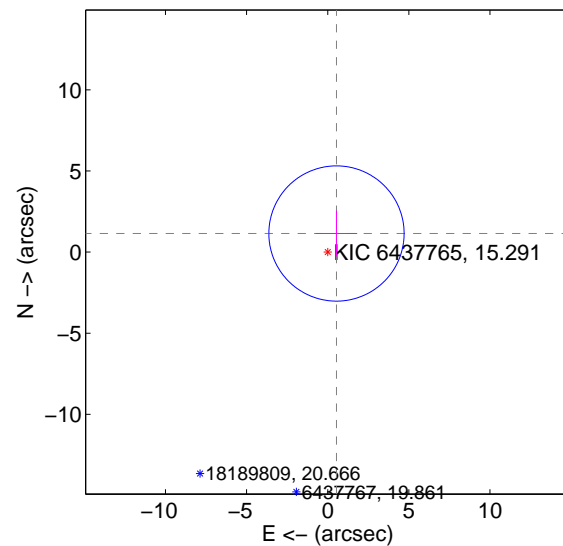
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



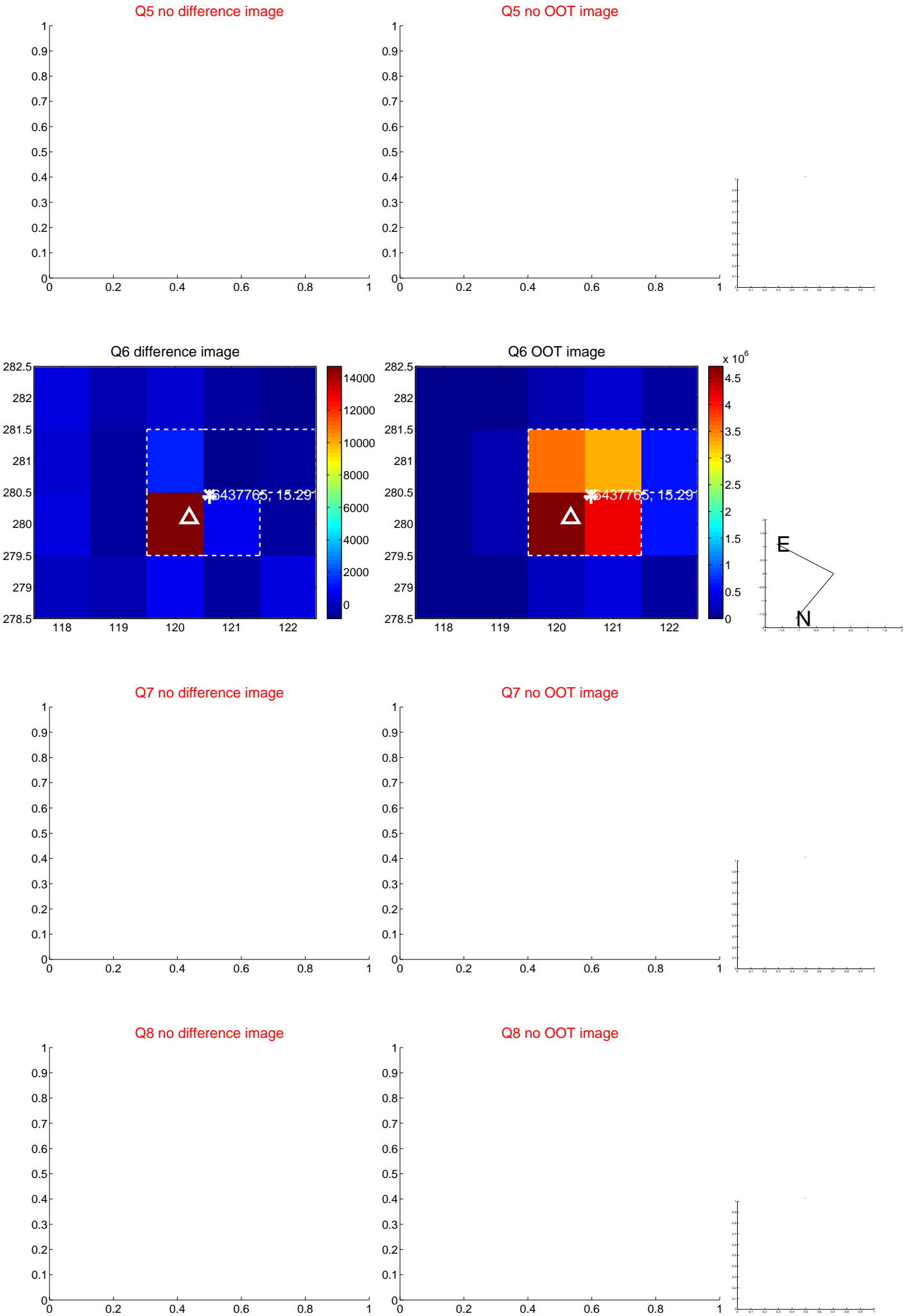
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: 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.

Q9 no difference image



Q9 no OOT image



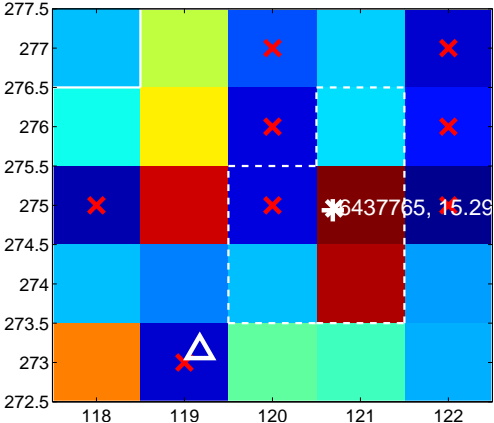
Q10 no difference image



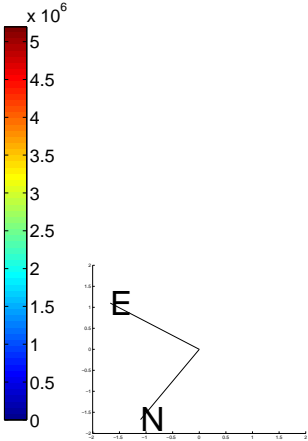
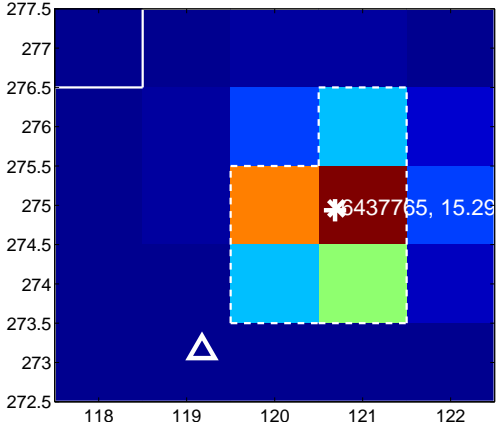
Q10 no OOT image



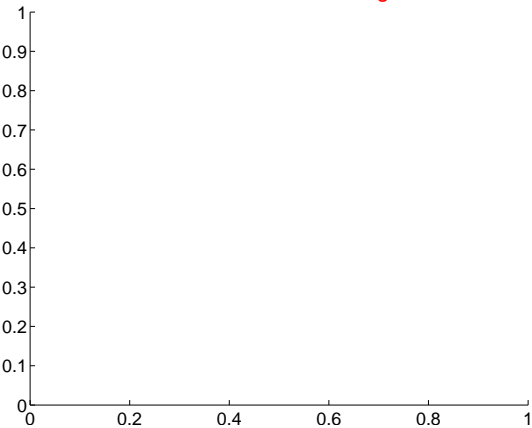
Q11 difference image. Poor Quality



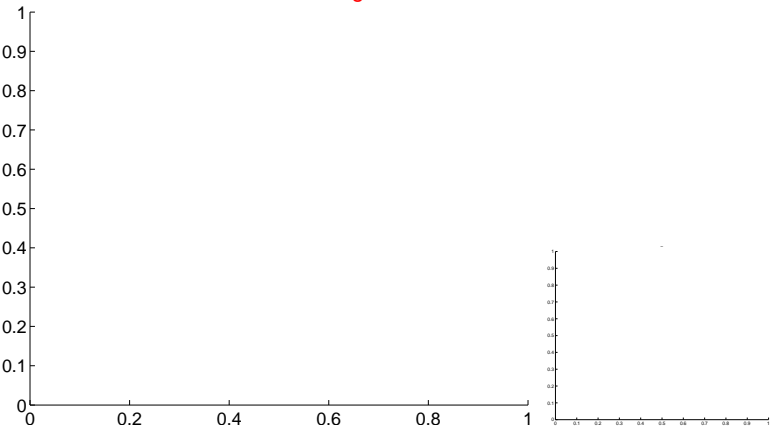
Q11 OOT image



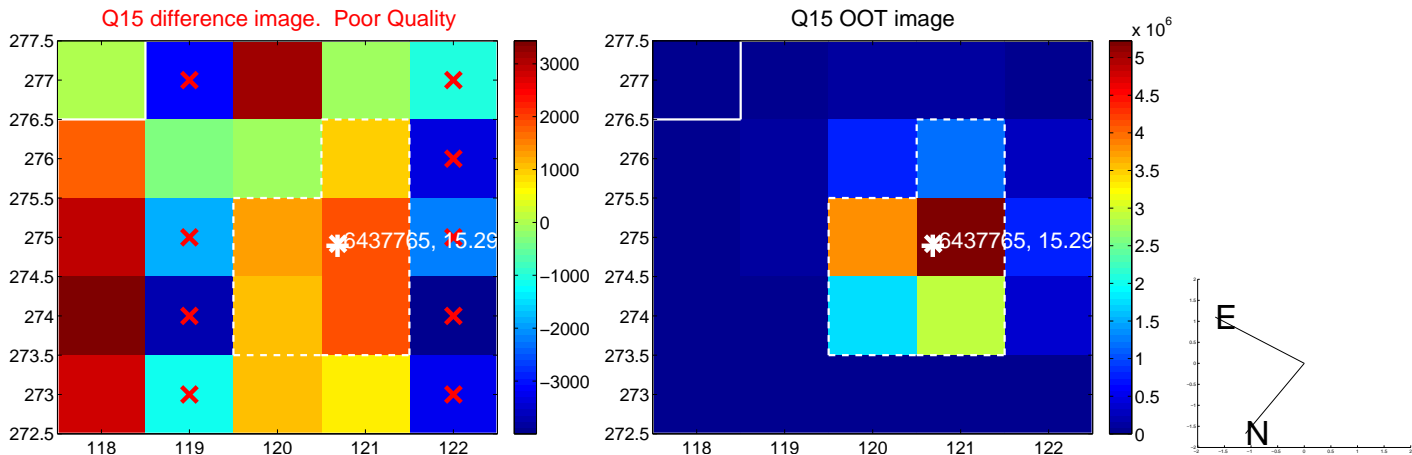
Q12 no difference image



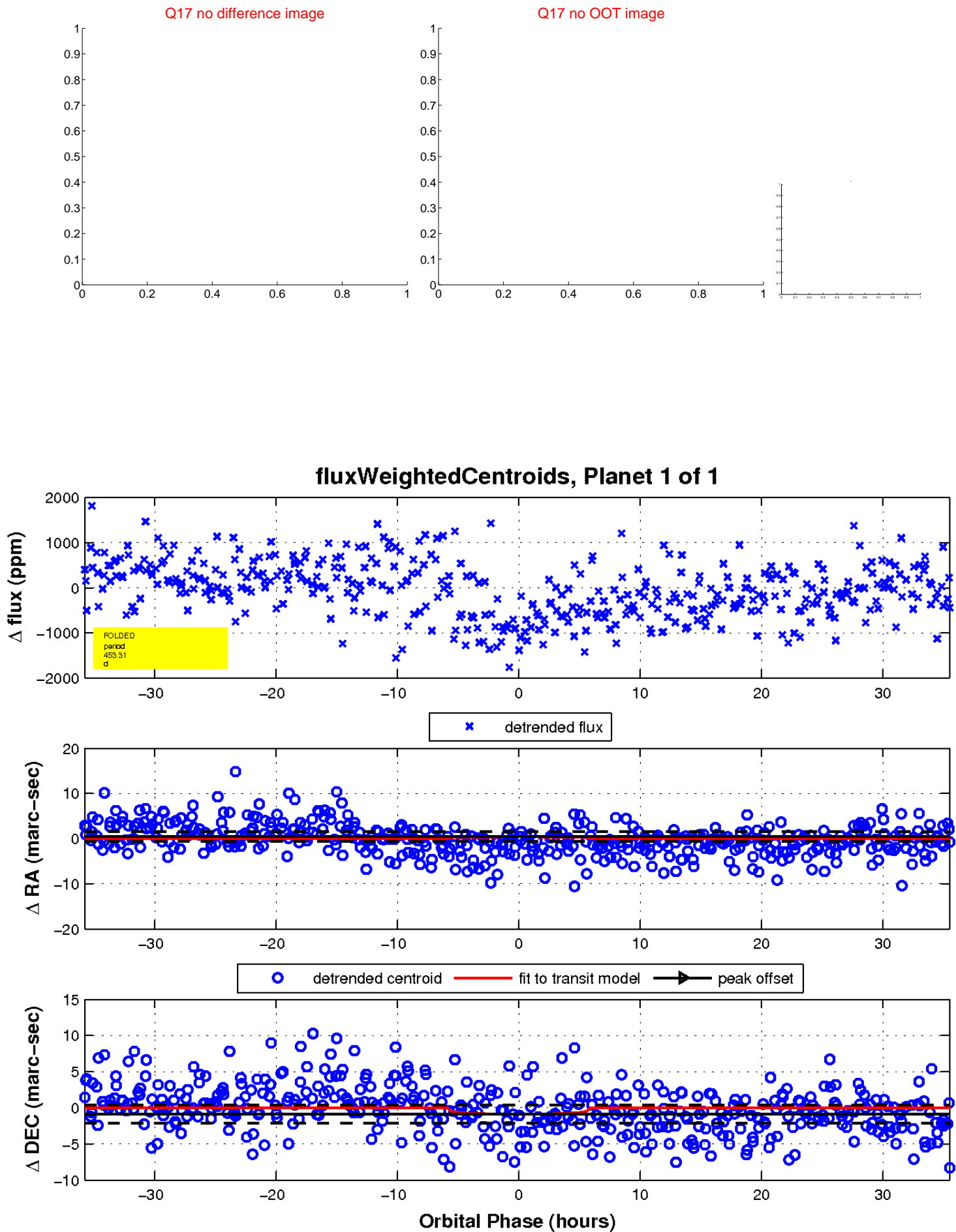
Q12 no OOT image



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

