

# KIC 011506654

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011506654-01	OBS	4586.01	75.211680	202.301782	337.0	3.289	10.5	11.6	1.50	5818	3.12	16.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011506654-01	OBS	PC	0.75	0	0	0	0	NO_COMMENT

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

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

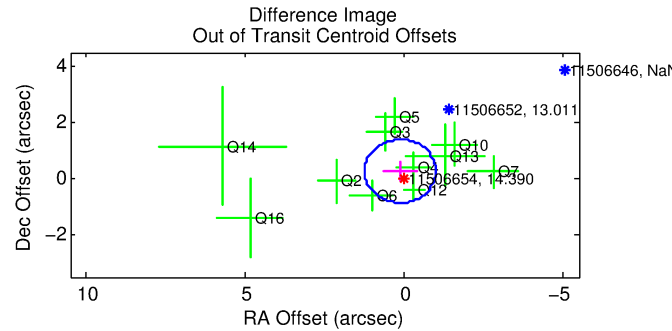
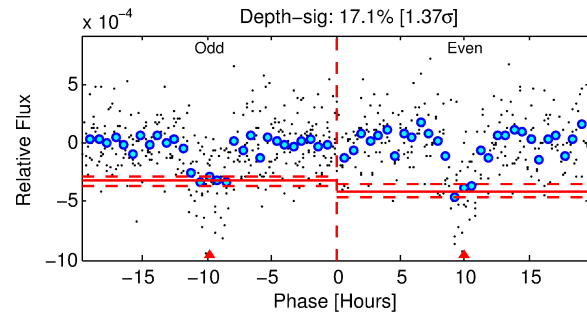
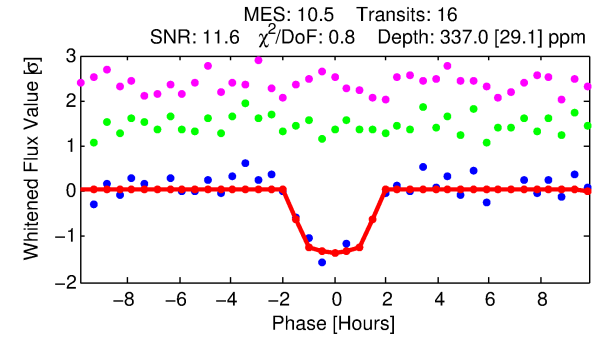
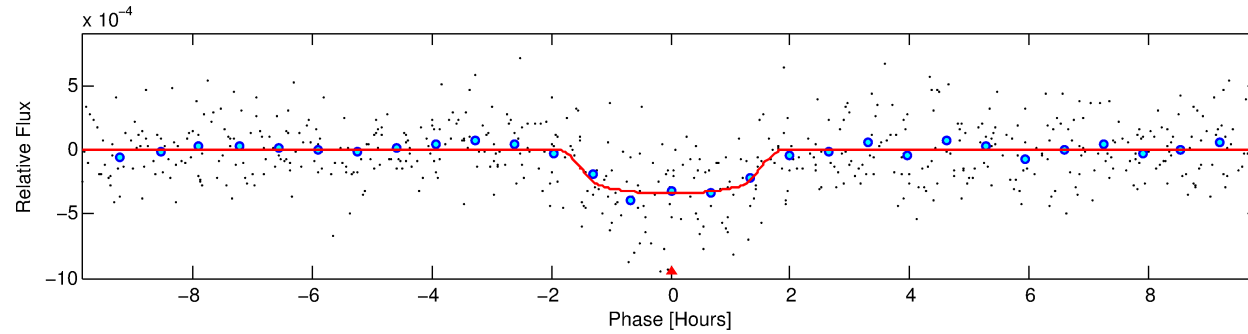
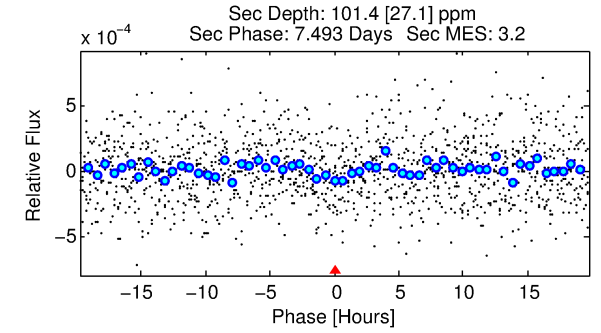
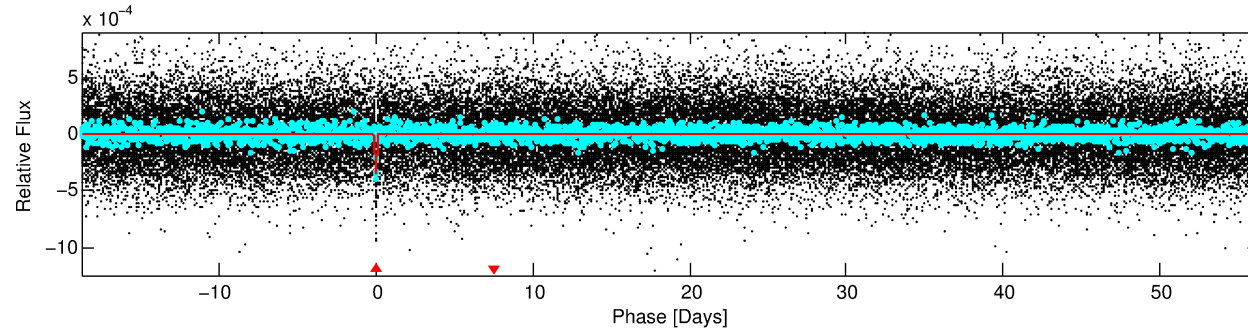
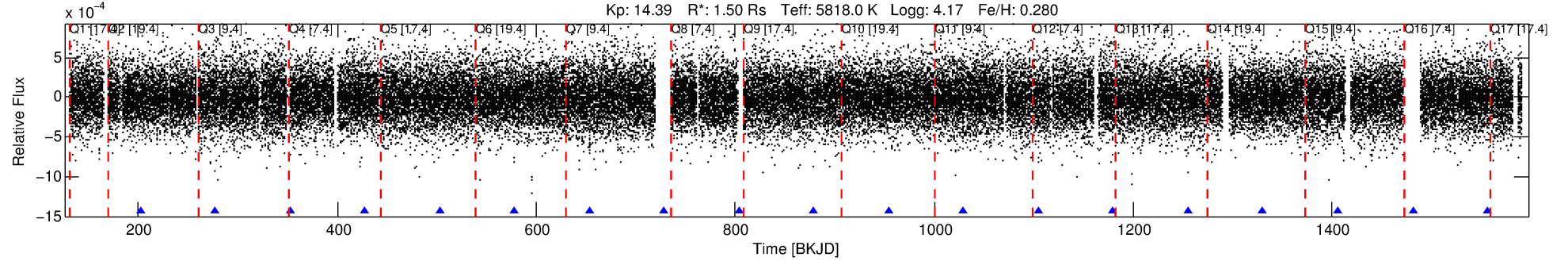
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011506654-01

No Significant Match Found

# DV One-Page Summary

KIC: 11506654 Candidate: 1 of 1 Period: 75.212 d  
KOI: K04586.01 Corr: 0.968



## DV Fit Results:

Period = 75.21168 [0.00058] d  
Epoch = 202.3018 [0.0059] BKJD  
Rp/R\* = 0.0191 [0.0111]  
a/R\* = 101.57 [262.26]  
b = 0.84 [0.94]  
Seff = 16.81 [5.25]  
Teq = 516 [40] K  
Rp = 3.12 [1.94] Re  
a = 0.3706 [0.0740] AU  
Ag = 785.01 [964.95] [0.81σ]  
Teffp = 4226 [1259] K [2.95σ]

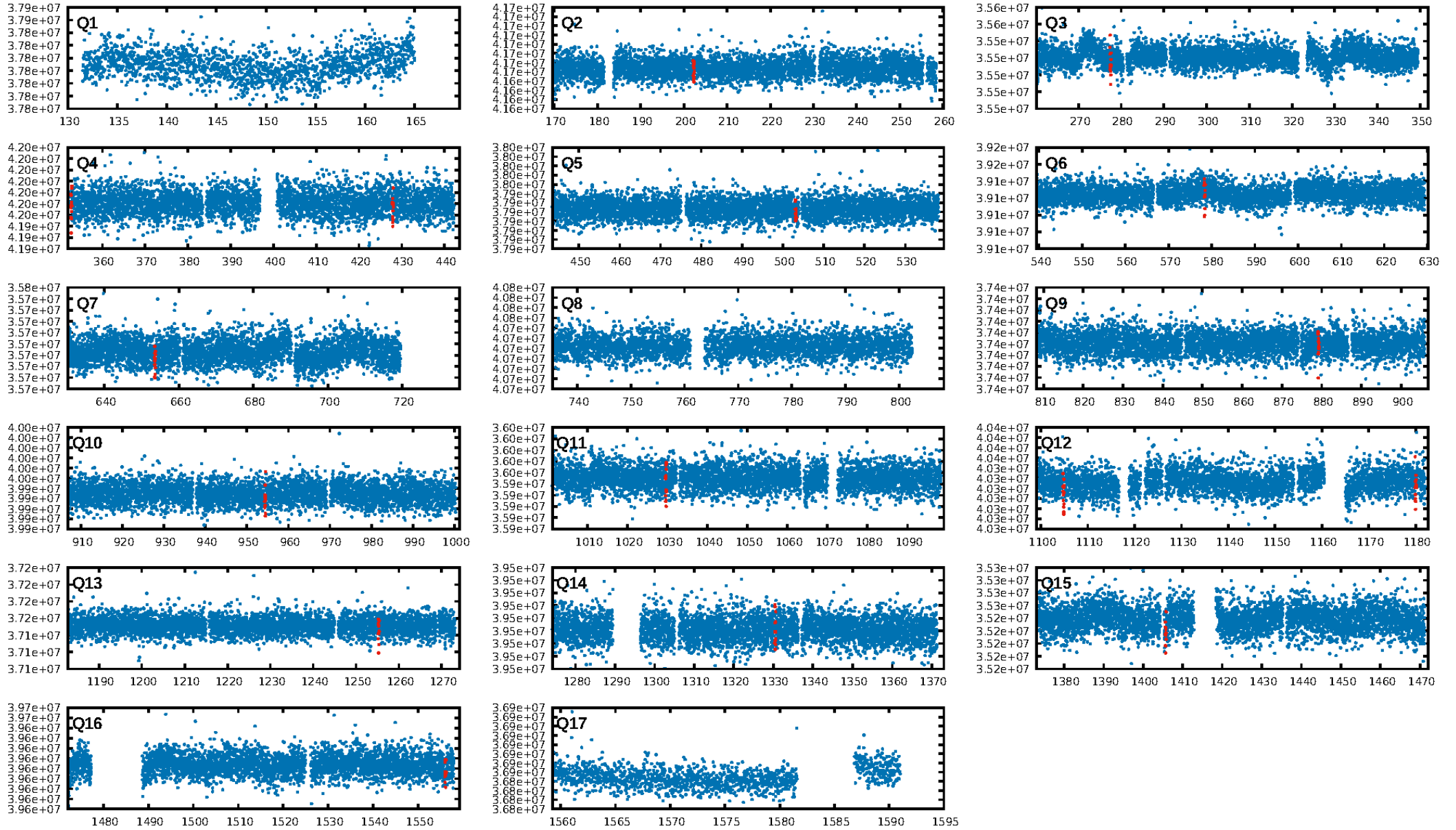
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 52.8%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: 2.34e-26  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: -67.05  
Centroid-sig: 1.2%  
Centroid-so: 0.853 arcsec [0.89σ]  
OotOffset-rm: 0.296 arcsec [0.79σ]  
OotOffset-st: 4/2/3/2 [11]  
KicOffset-rm: 0.517 arcsec [1.52σ]  
KicOffset-st: 4/2/3/2 [11]  
DiffImageQuality-fgm: 0.73 [8/11]  
DiffImageOverlap-fno: 1.00 [13/13]

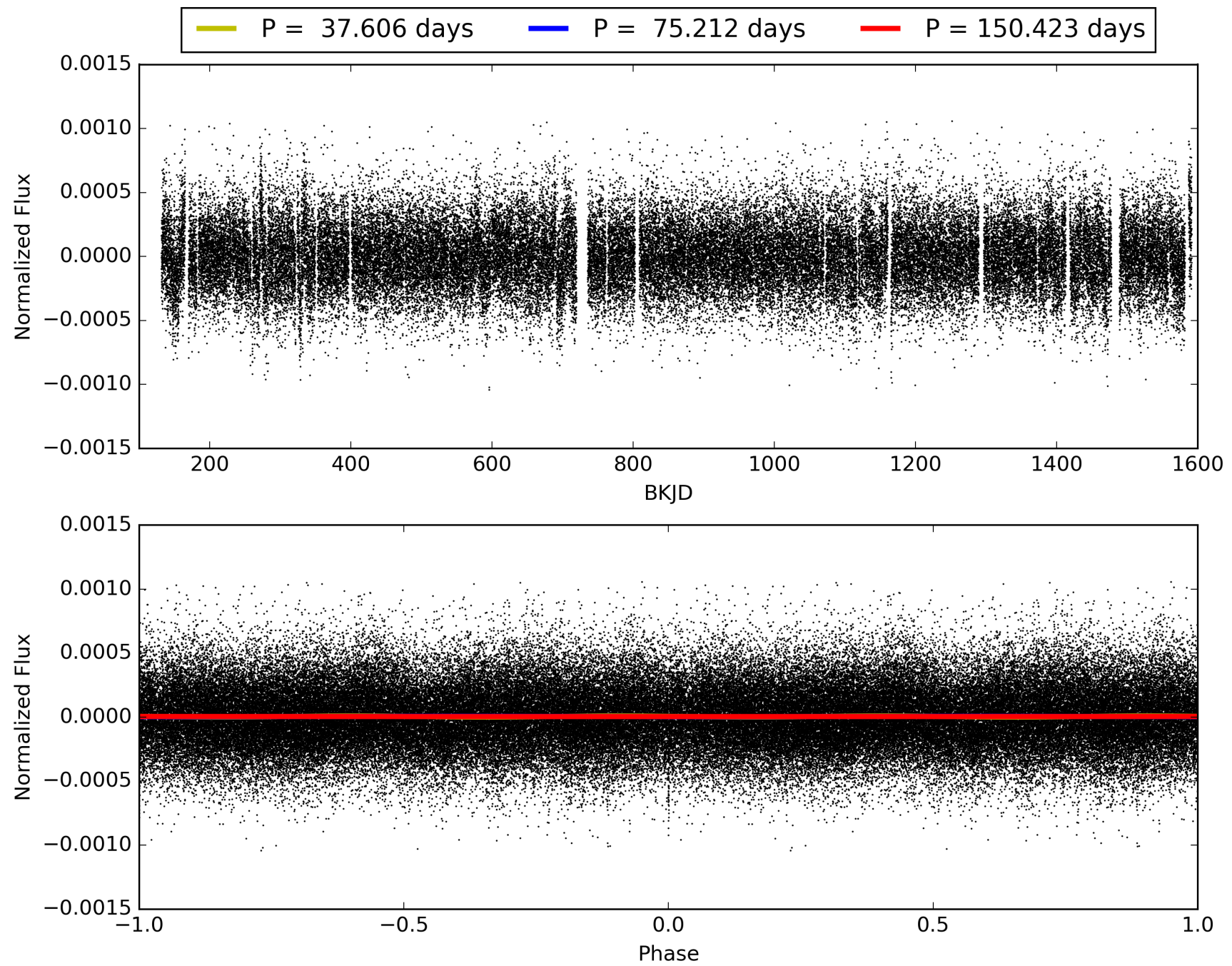
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:09:22 Z

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

# TCE 011506654-01, PDC Light Curves

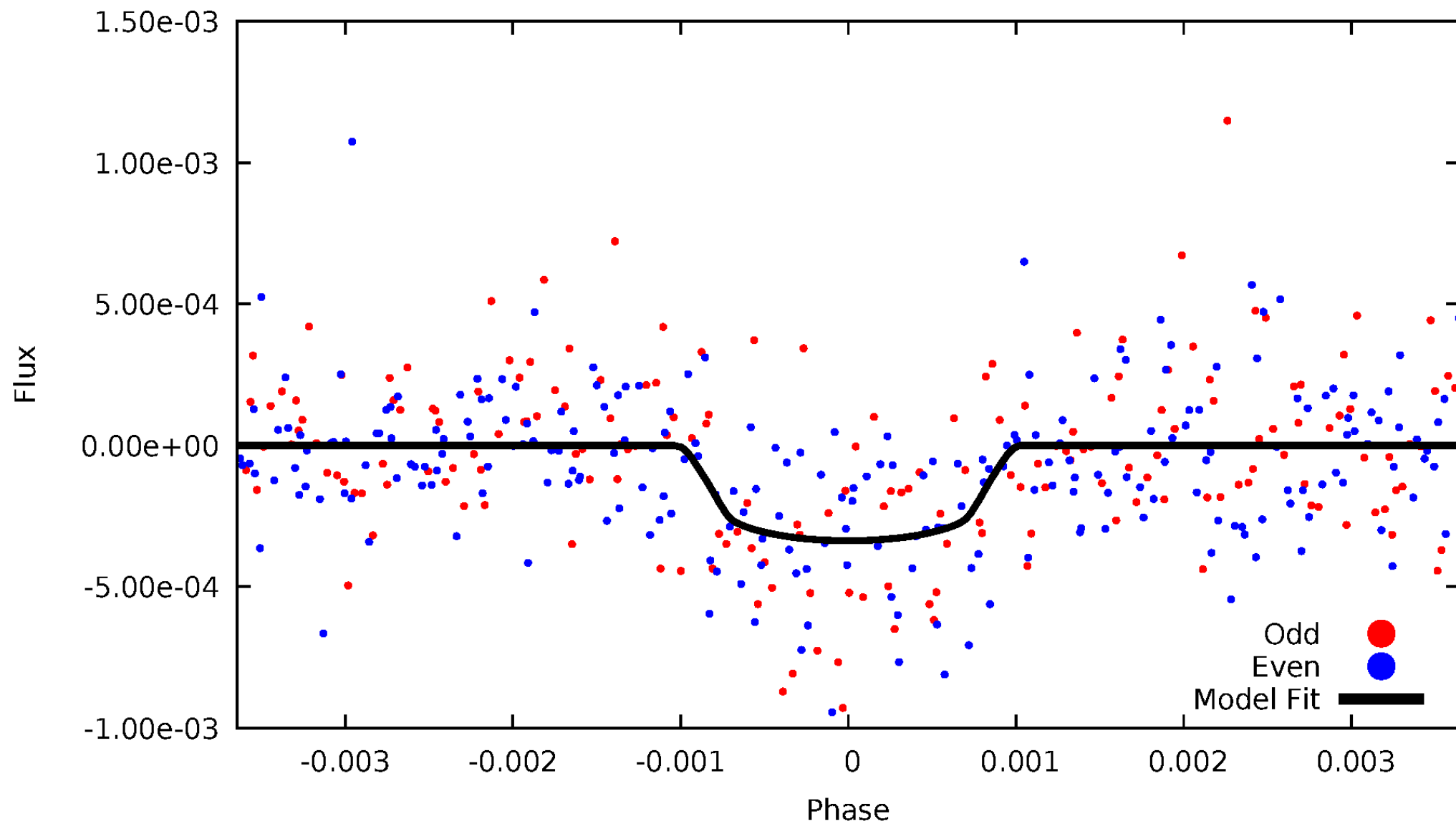


TCE 011506654-01



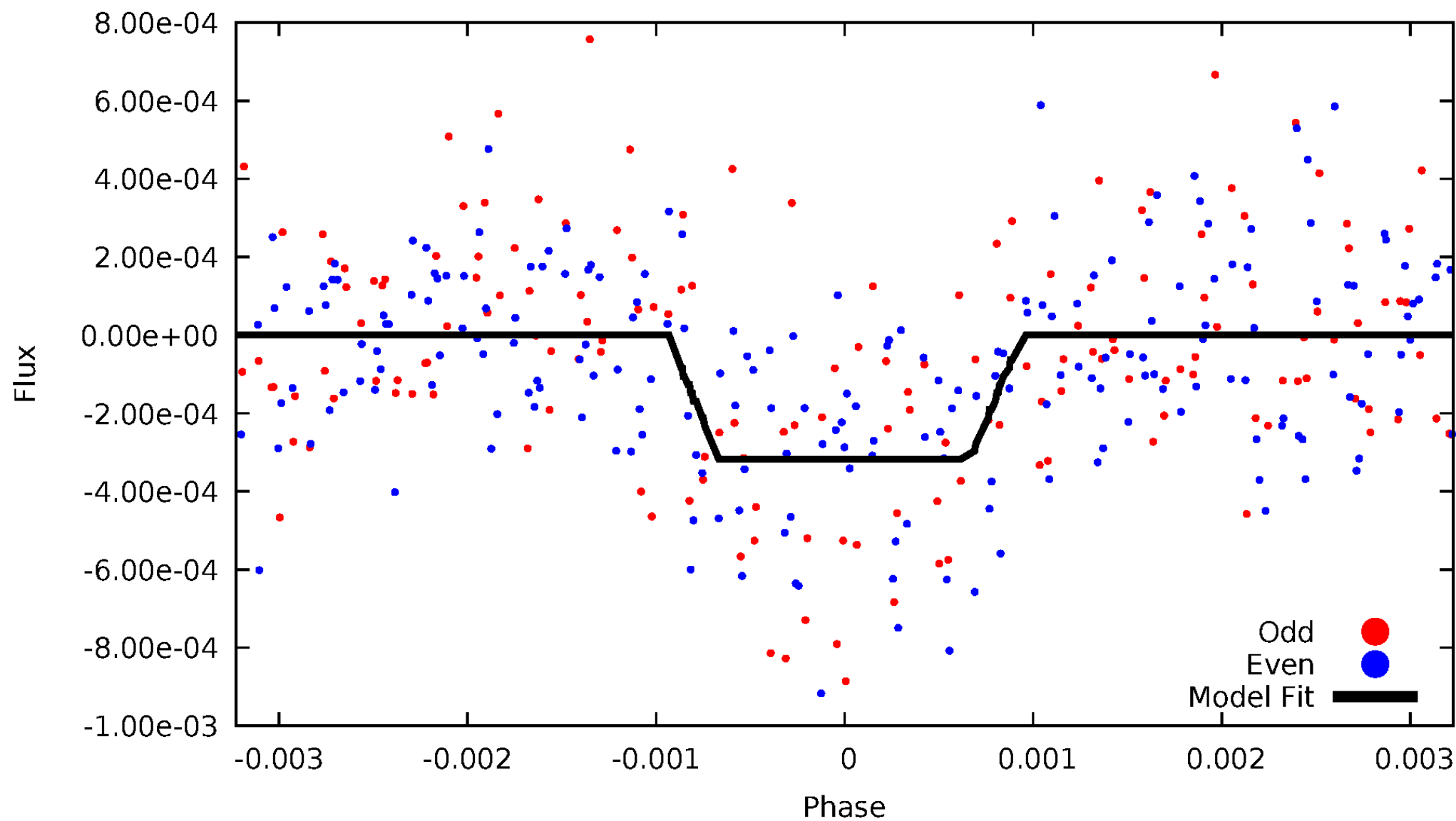
# DV Odd/Even

TCE 011506654-01



# ALT Odd/Even

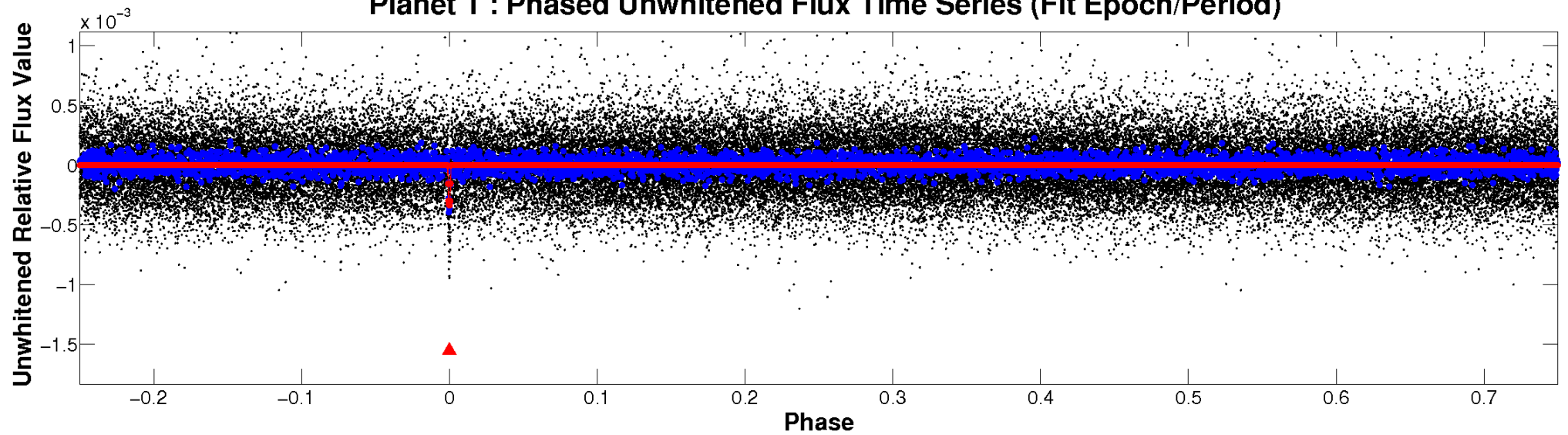
TCE 011506654-01



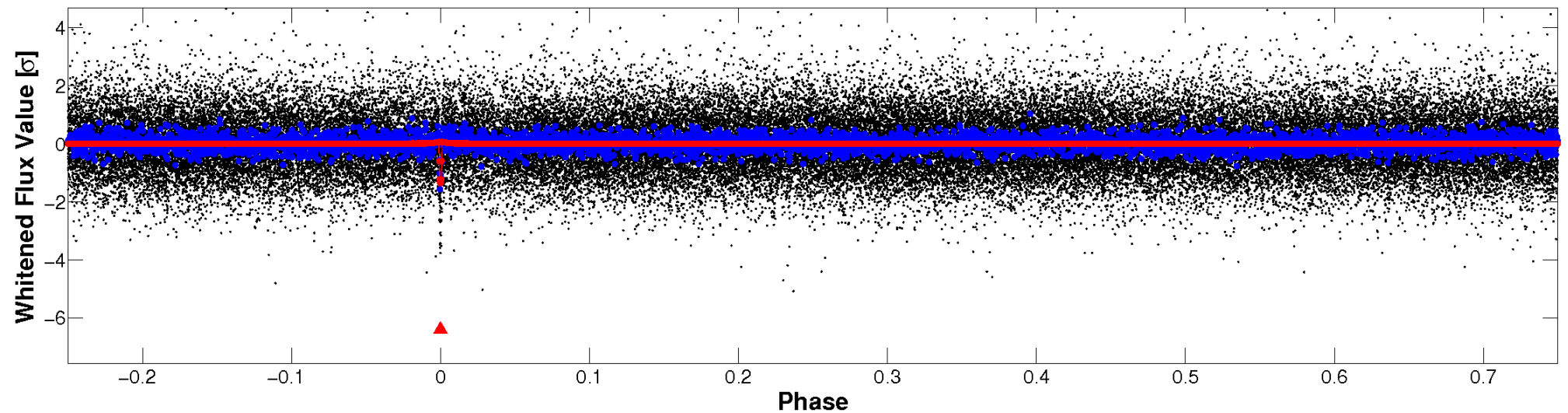


# Non-Whitened Vs. Whitened Light Curve

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

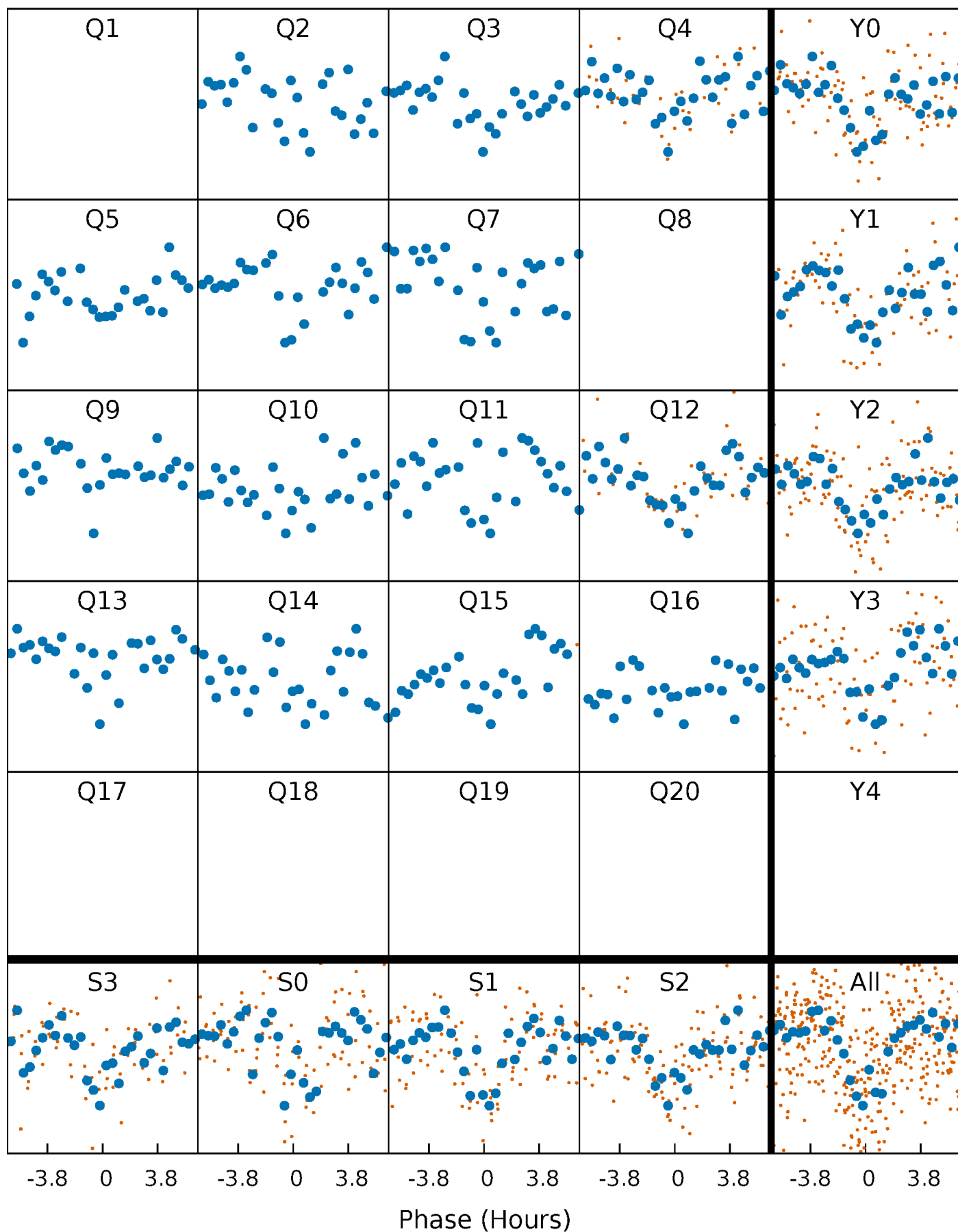


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

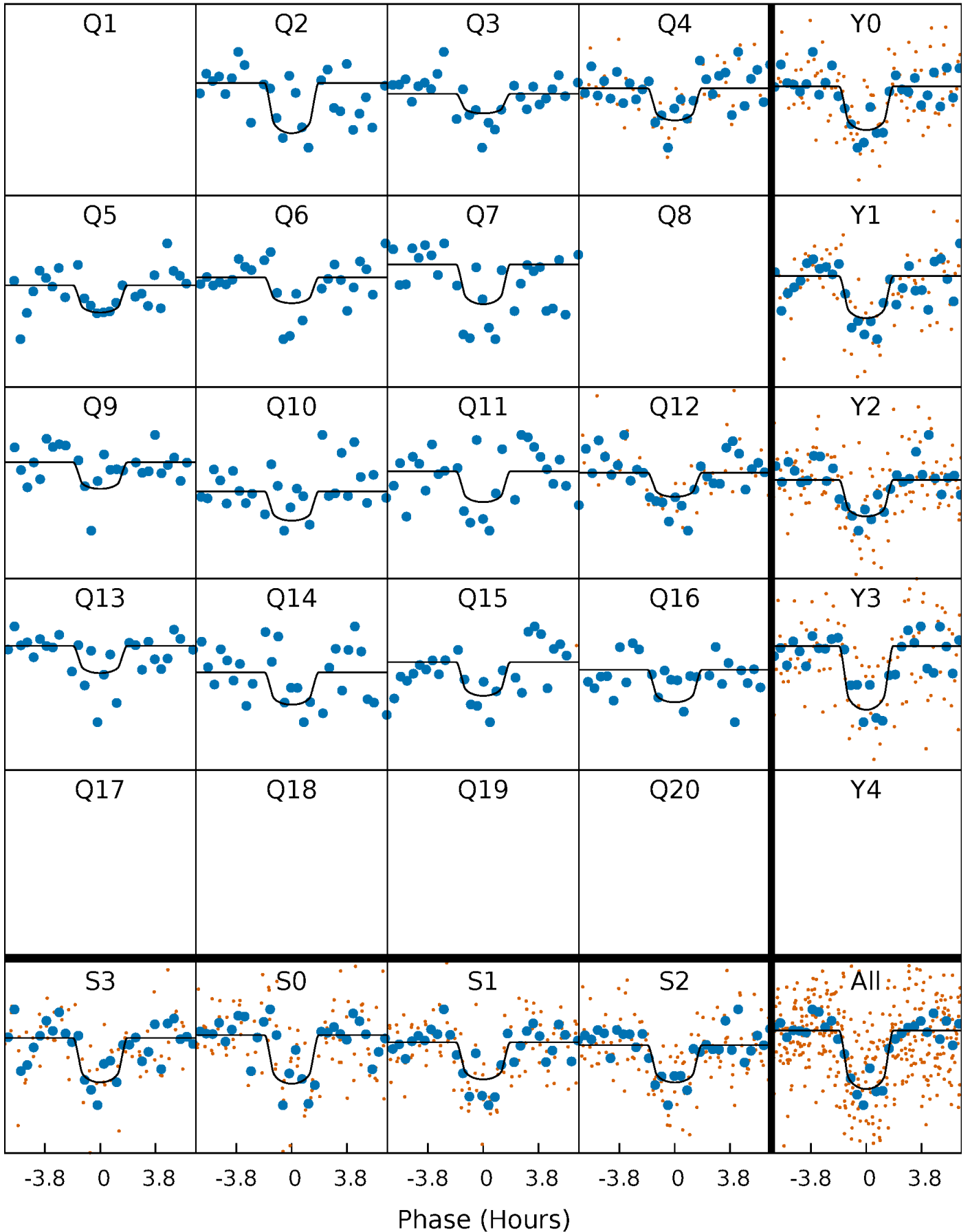
TCE 011506654-01 P= 75.211680 Days  $T_0=202.301782$  (BKJD)





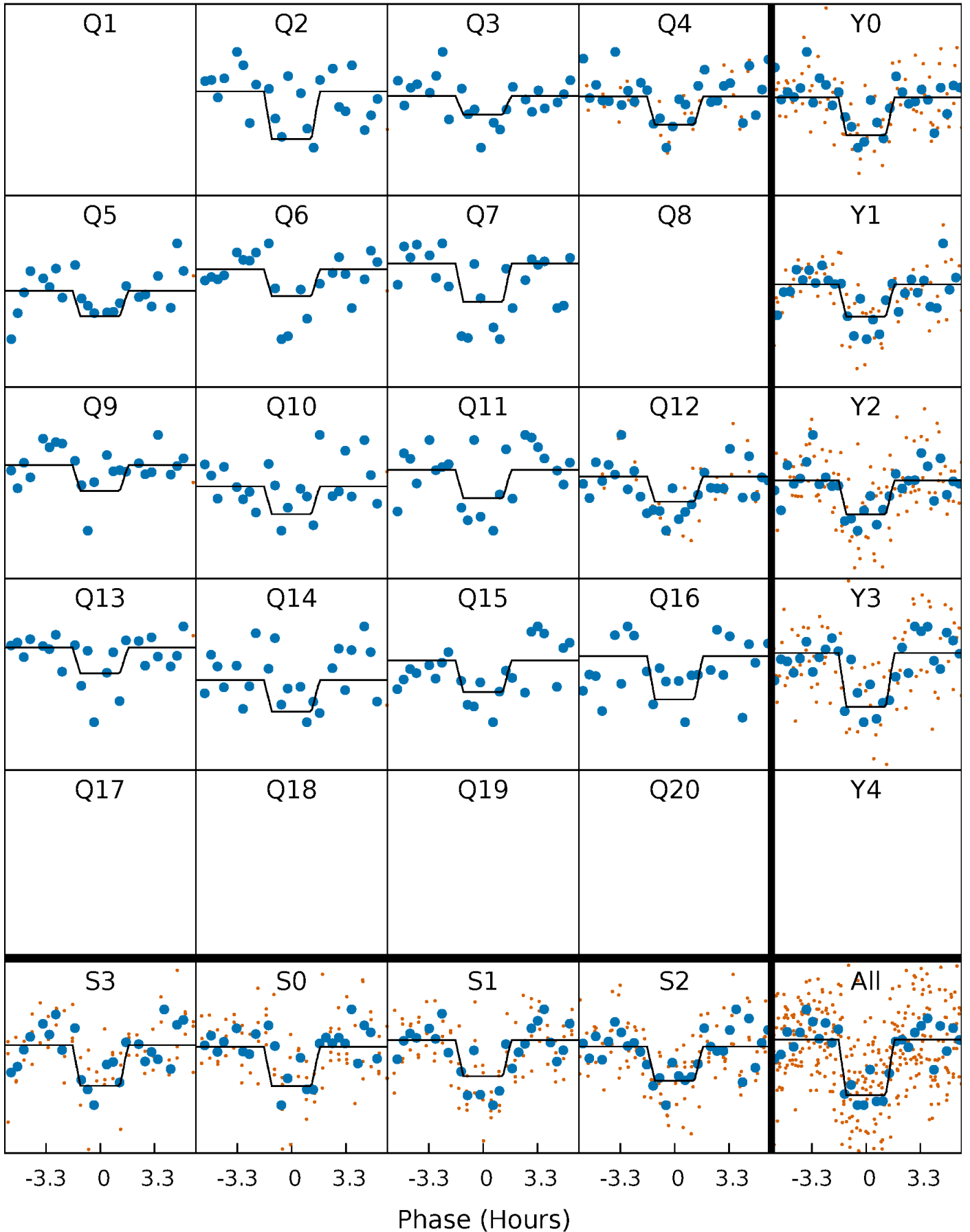
# DV Quarter-Phased Transit Curves

TCE 011506654-01 P= 75.211680 Days  $T_0=202.301782$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

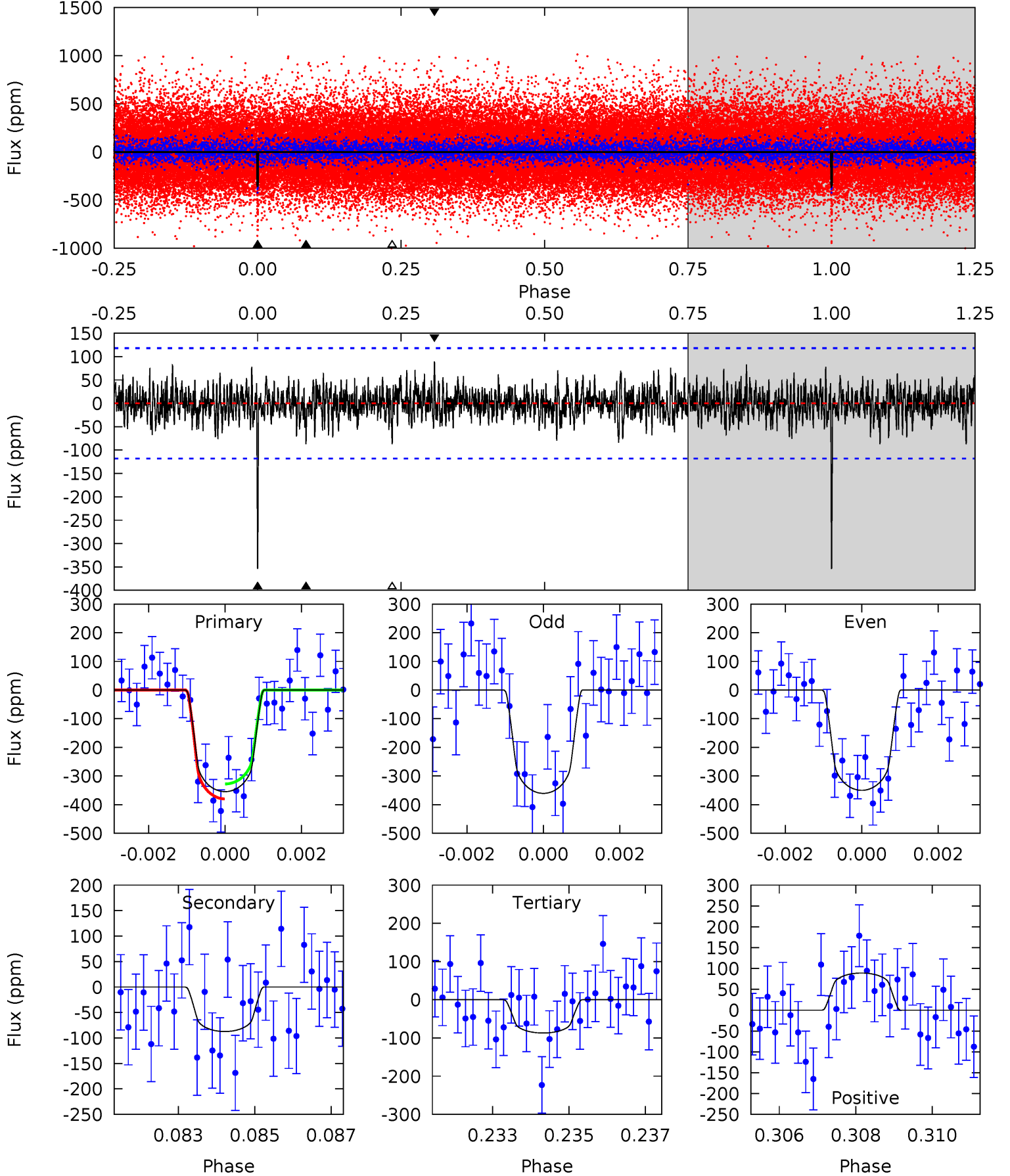
TCE 011506654-01 P= 75.212075 Days  $T_0=202.298396$  (BKJD)



# DV Model-Shift Uniqueness Test

011506654-01,  $P = 75.211680$  Days,  $E = 127.090102$  Days

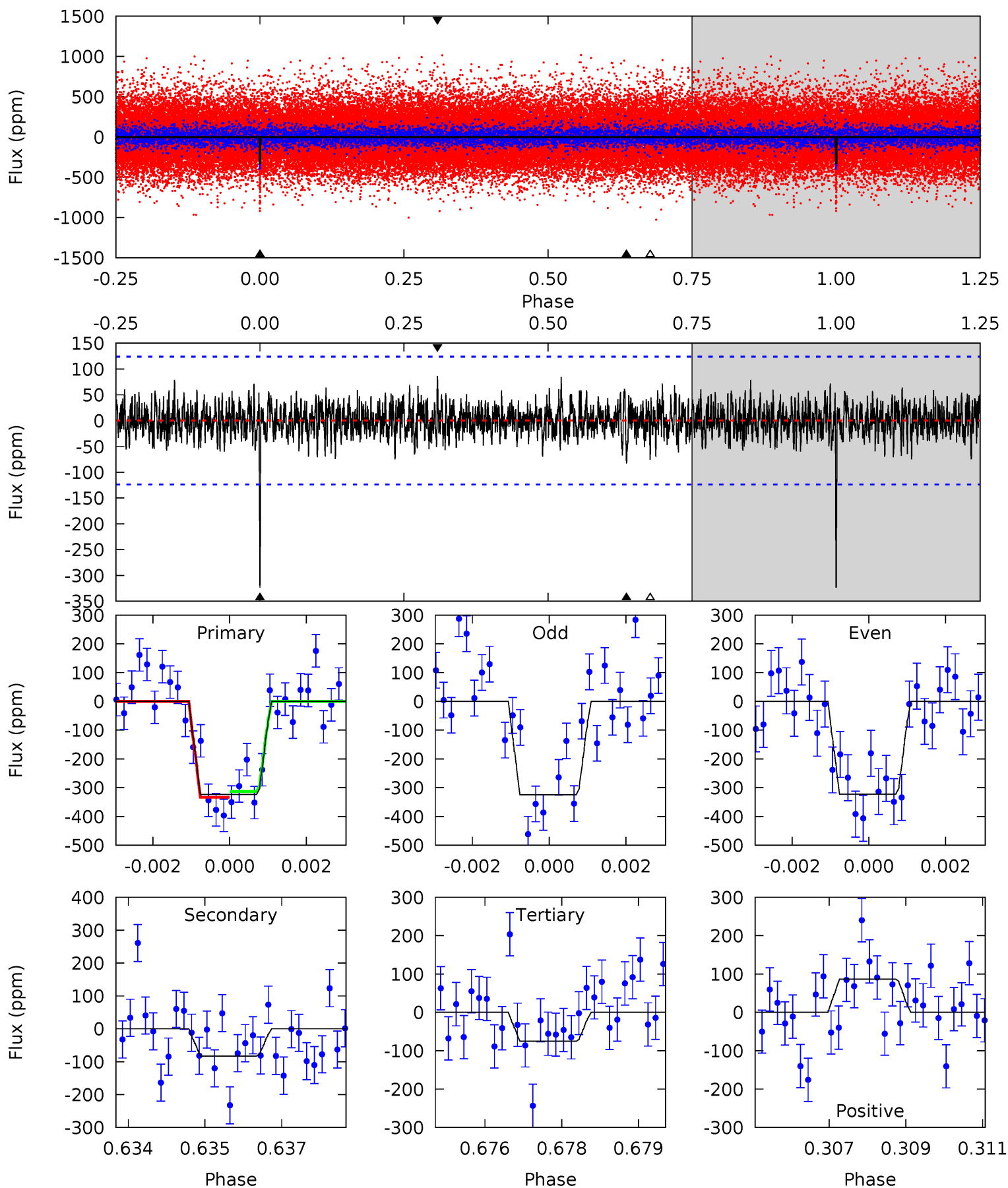
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	3.94	3.93	4.02	5.32	3.09	1.15	12.1	12.0	0.02	-0.08	0.24	1.01	0.20	1.18



# Alt Model-Shift Uniqueness Test

011506654-01, P = 75.212075 Days, E = 127.086321 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
14.0	3.57	3.25	3.73	5.35	3.13	1.04	10.7	10.2	0.32	-0.16	0.04	1.02	0.21	0.43



### Stellar Parameters For KIC 011506654

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5818^{+70}_{-79}$	$4.165^{+0.176}_{-0.108}$	$0.280^{+0.150}_{-0.100}$	$1.500^{+0.221}_{-0.331}$	$1.200^{+0.088}_{-0.133}$	$0.501^{+0.450}_{-0.163}$
	+1%/-1%	+4%/-3%	+54%/-36%	+15%/-22%	+7%/-11%	+90%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 011506654-01 / KOI 4586.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-87 \pm 22$	$2.98^{+1.86}_{-1.47}$	$717^{+33}_{-39}$	$4308^{+1521}_{-658}$	$723^{+2195}_{-449}$
Alt.	$-83 \pm 23$	$3.00^{+1.79}_{-1.50}$	$719^{+33}_{-39}$	$4282^{+1506}_{-668}$	$677^{+2073}_{-417}$

$T_{max}$  = 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

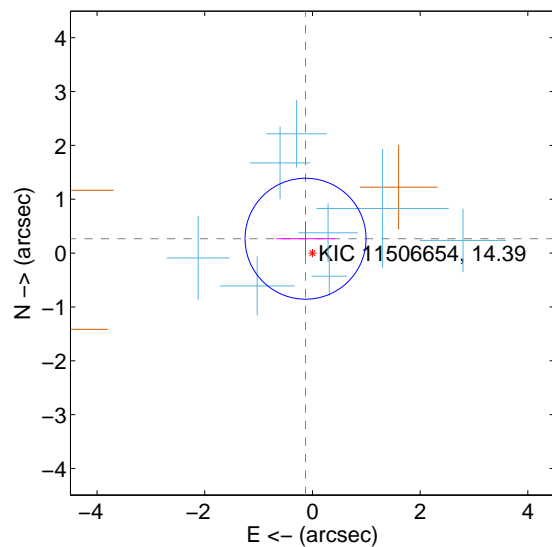
Supplemental centroid analysis for 011506654-01. Kepler magnitude: 14.39. Transit SNR 11.61

There are 8 quarters with good PRF difference image offsets

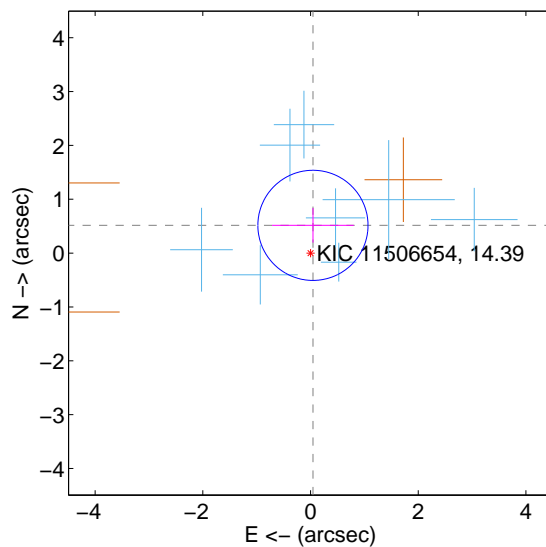
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.296 \pm 0.374$	0.79	$0.128 \pm 0.546$	$0.267 \pm 0.323$
PRF-fit source offset from KIC position	$0.517 \pm 0.341$	1.52	$-0.045 \pm 0.758$	$0.515 \pm 0.321$
photometric centroid source offset	$0.85 \pm 0.96$	0.89	$-0.37 \pm 0.96$	$-0.77 \pm 0.97$

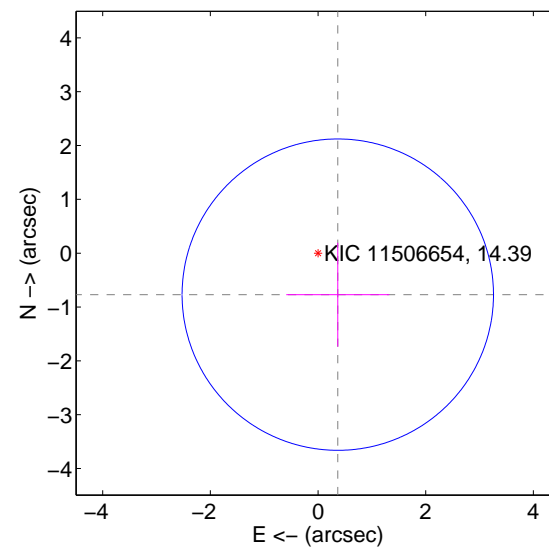
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



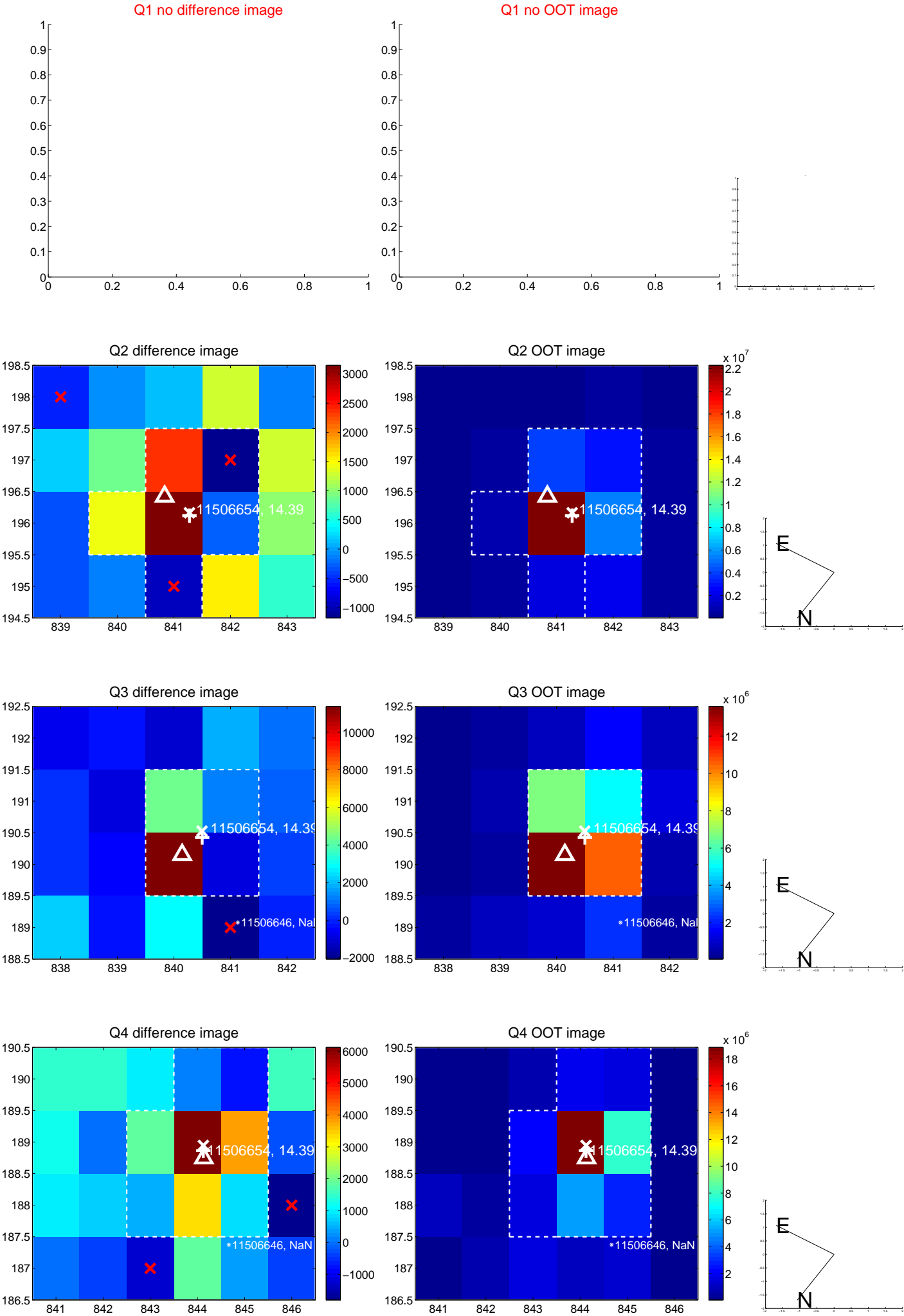
offset from photometric centroids



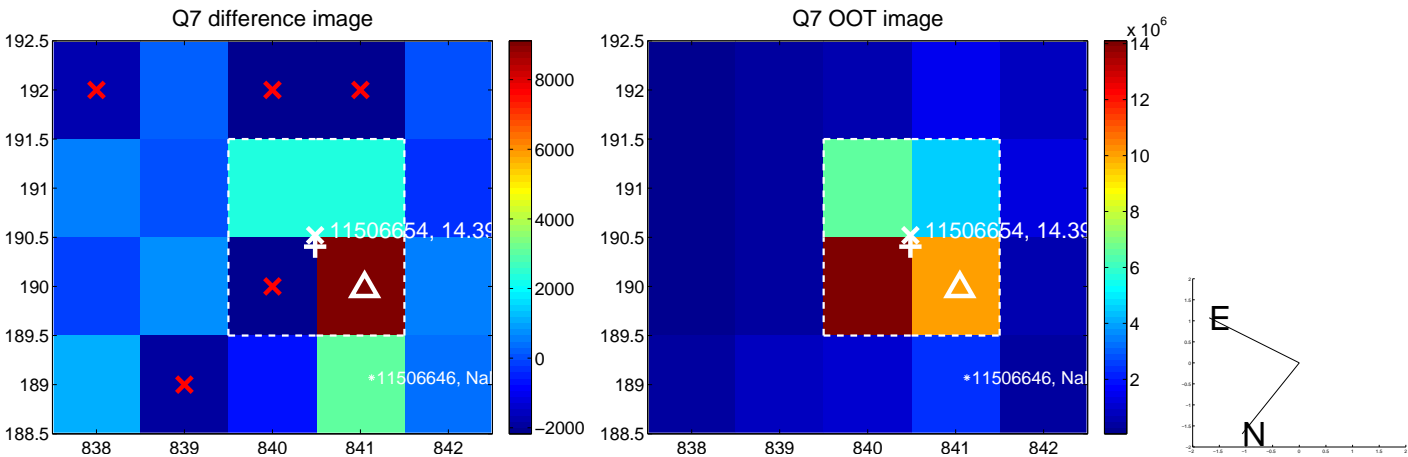
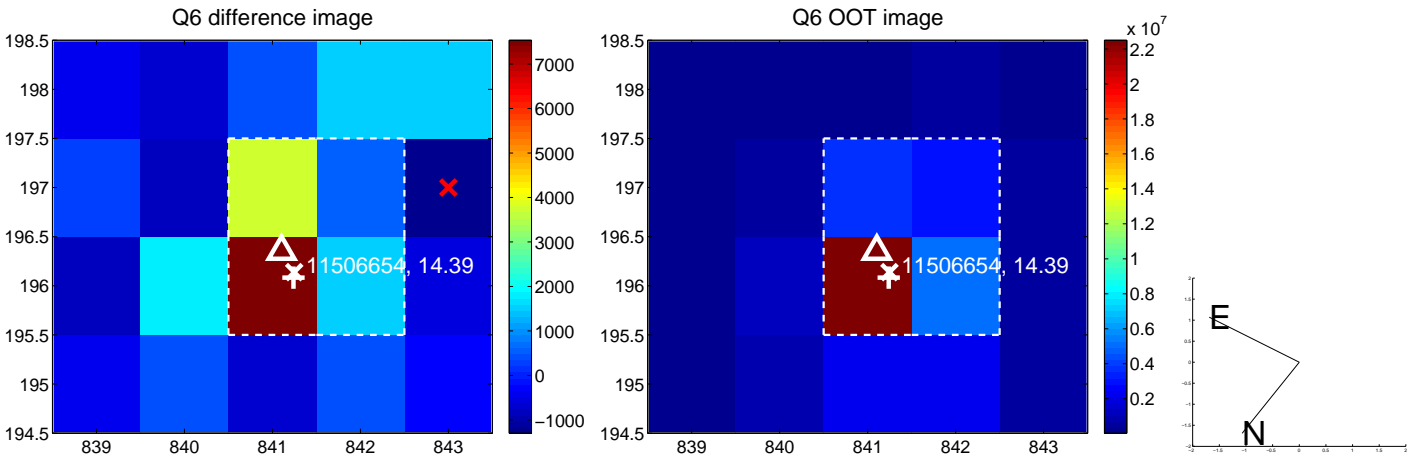
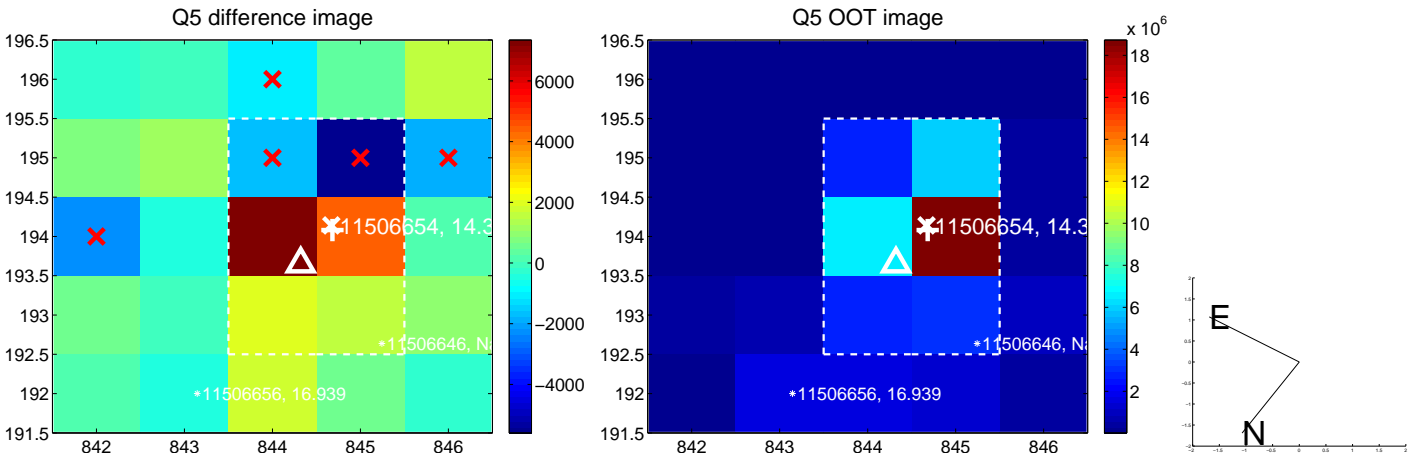
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



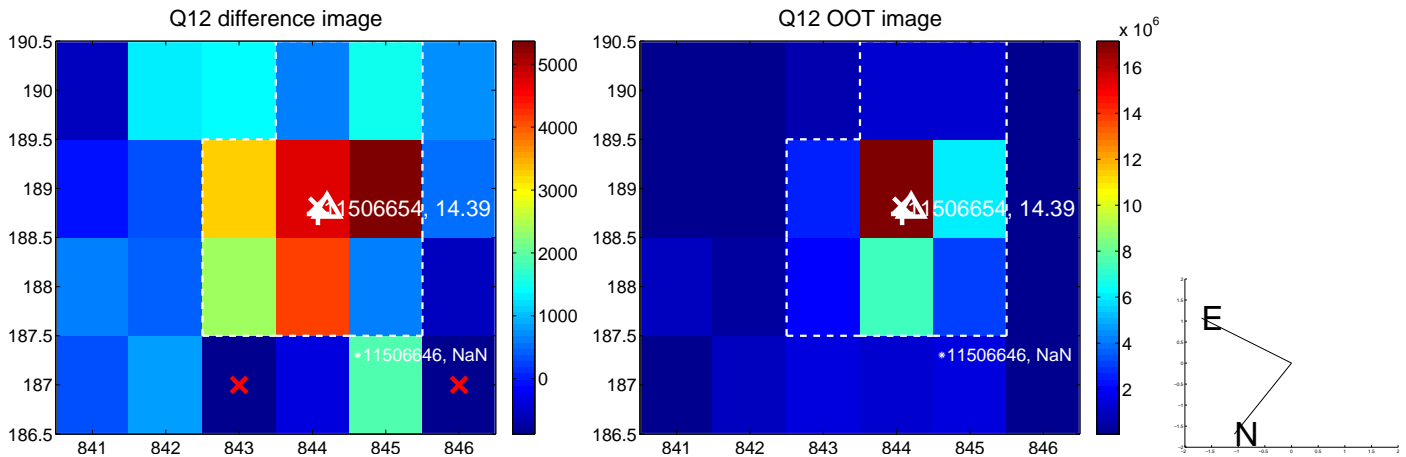
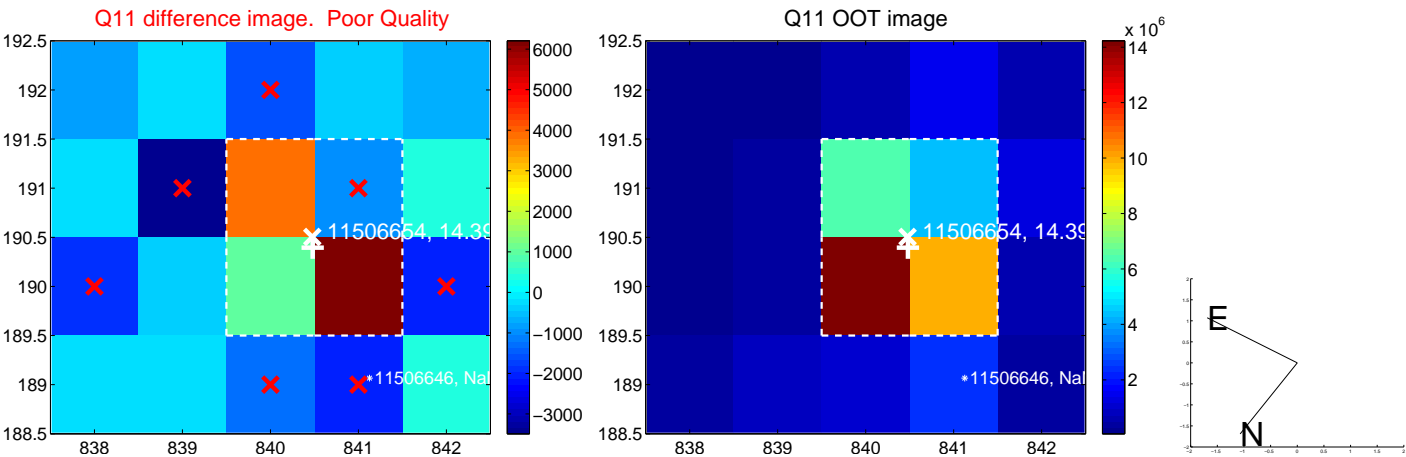
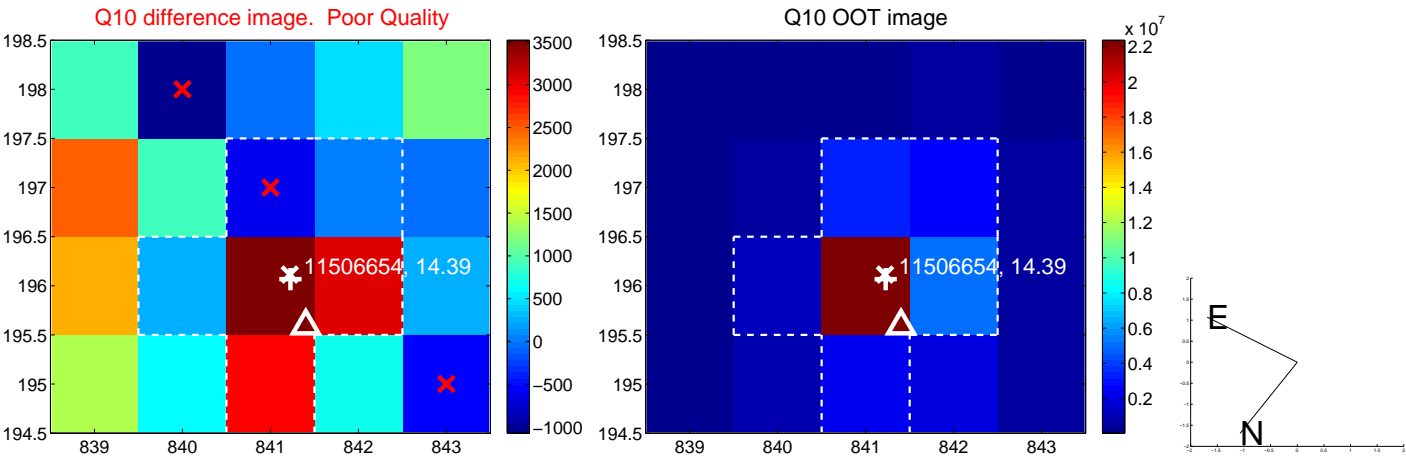
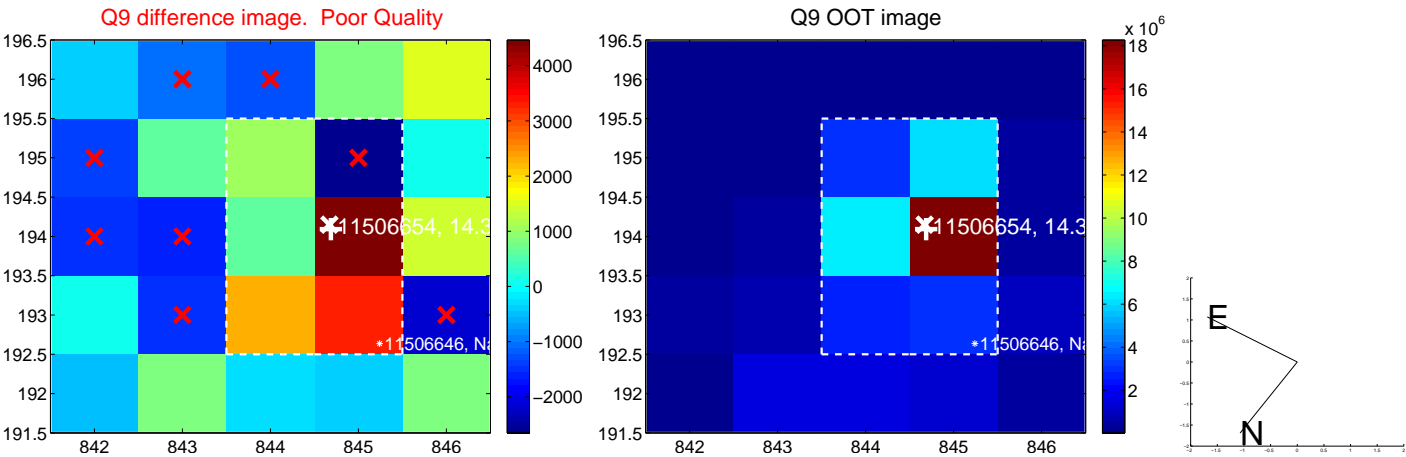
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



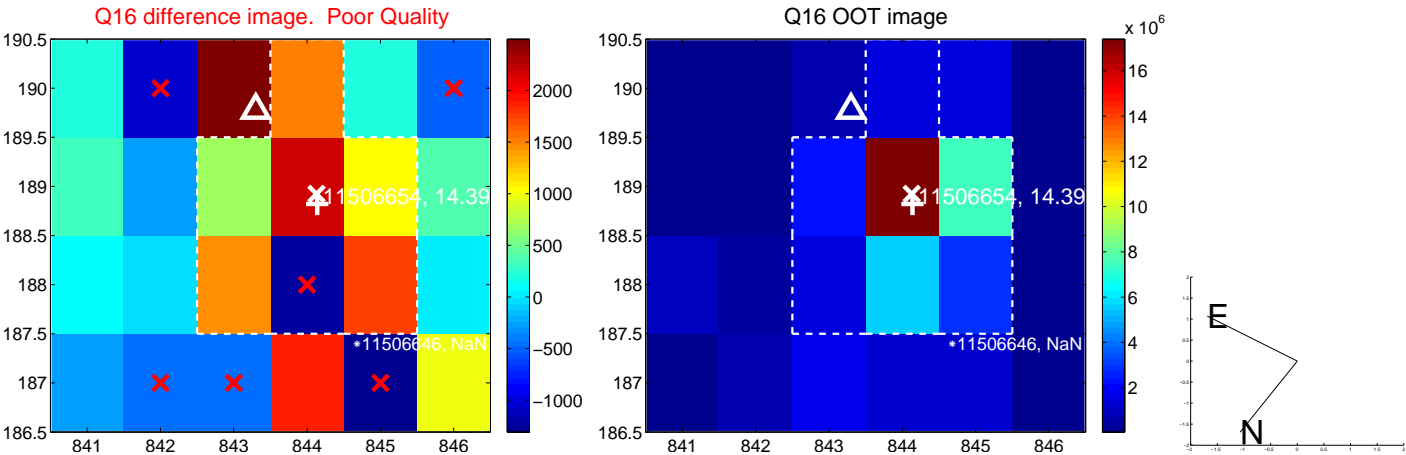
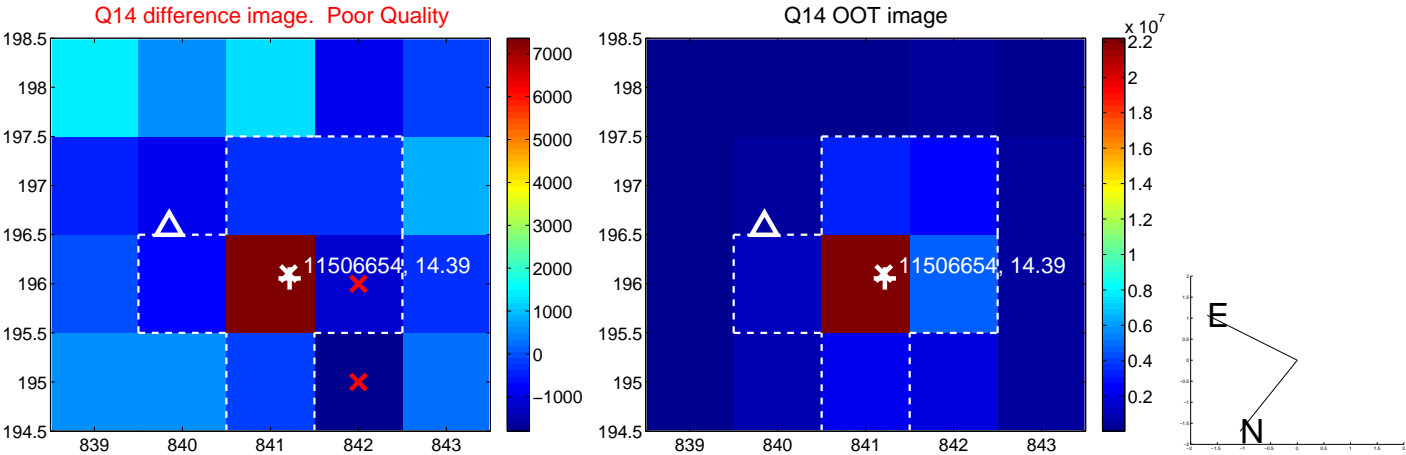
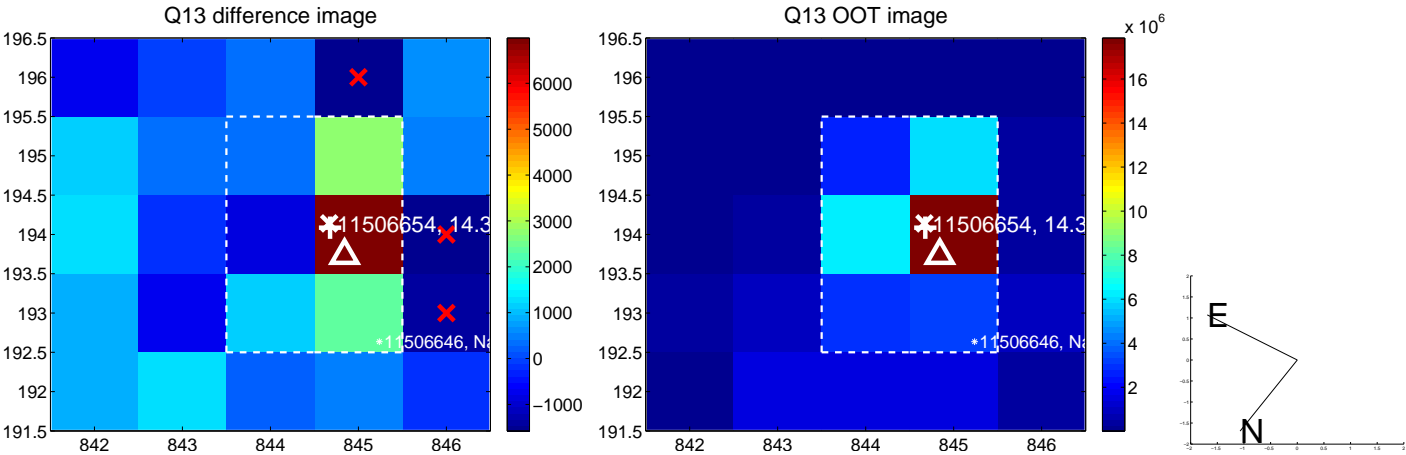
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



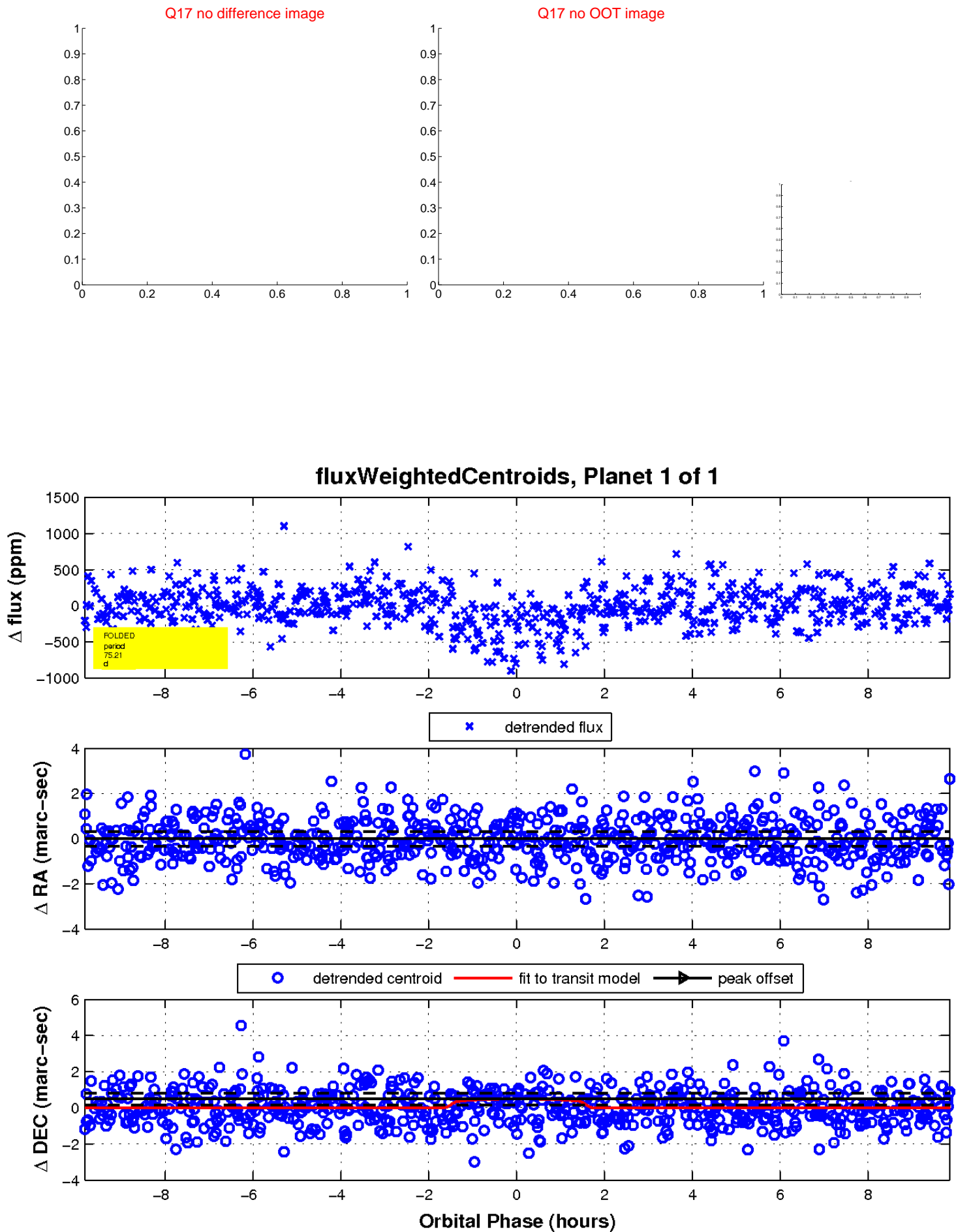
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

