

# KIC 004254466

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004254466-01	OBS	2134.01	42.300695	168.775180	509.4	4.555	20.1	20.6	1.13	5852	2.95	22.98

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004254466-01	OBS	PC	0.91	0	0	0	0	CENT_KIC_POS

**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 004254466-01

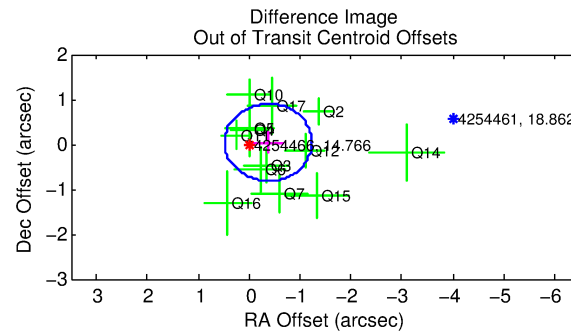
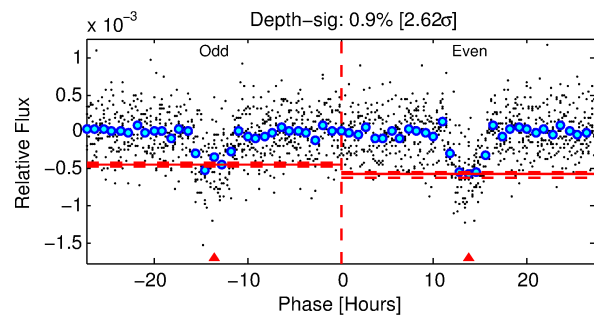
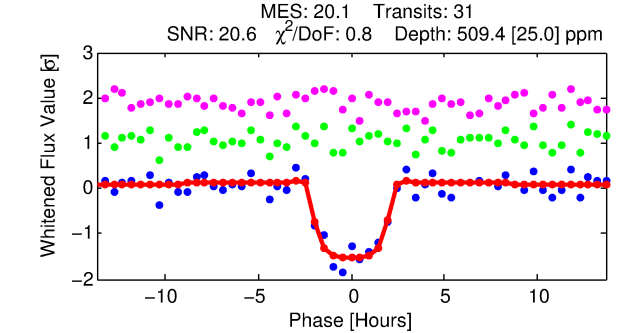
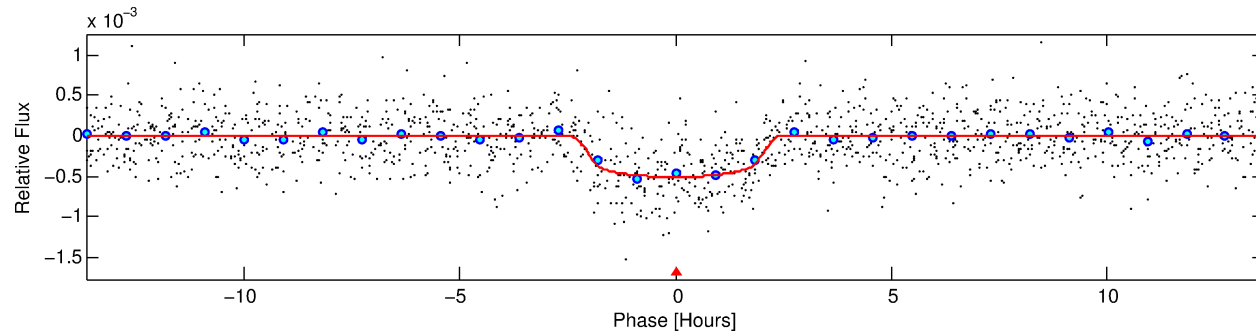
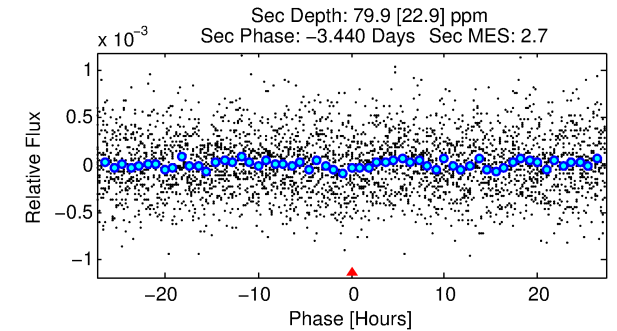
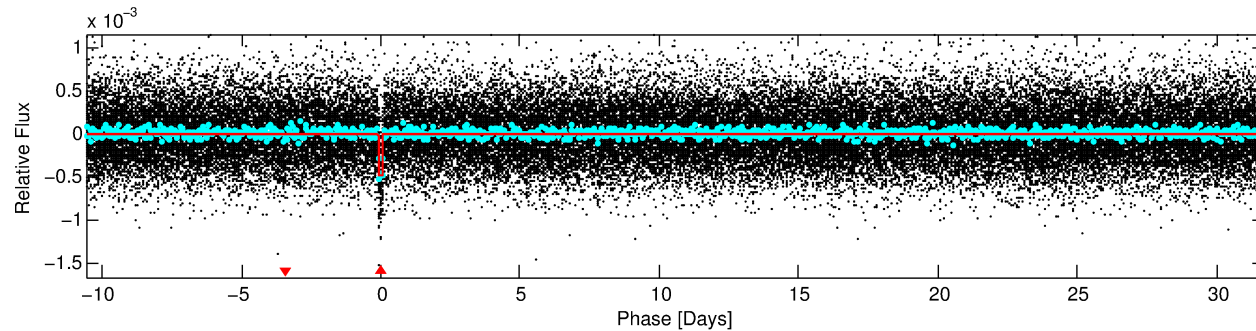
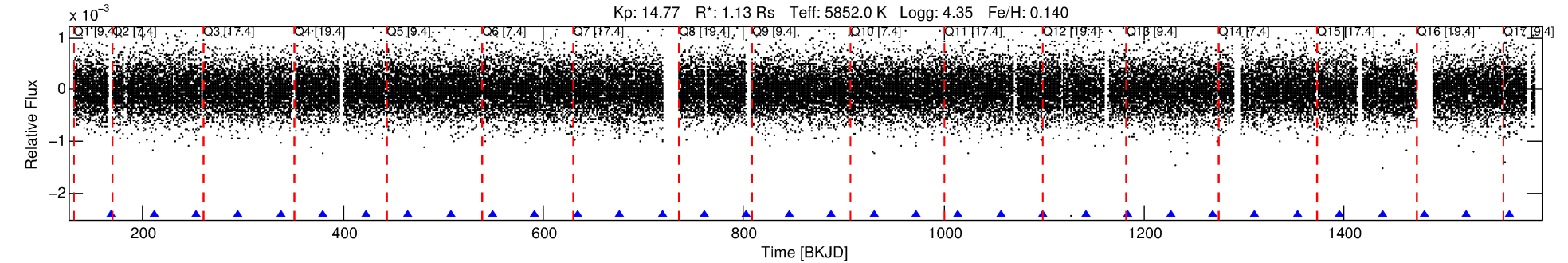
No Significant Match Found

# DV One-Page Summary

KIC: 4254466 Candidate: 1 of 1 Period: 42.301 d

KOI: K02134.01 Corr: 0.980

Kp: 14.77 R\*: 1.13 Rs Teff: 5852.0 K Logg: 4.35 Fe/H: 0.140



## DV Fit Results:

Period = 42.30070 [0.00023] d  
Epoch = 168.7752 [0.0045] BKJD  
Rp/R\* = 0.0239 [0.0037]  
a/R\* = 38.56 [26.75]  
b = 0.87 [0.20]  
Seff = 22.98 [5.05]  
Teff = 558 [31] K  
Rp = 2.95 [0.68] Re  
a = 0.2414 [0.0349] AU  
Ag = 294.96 [138.72] [2.12σ]  
Teffp = 3577 [380] K [7.93σ]

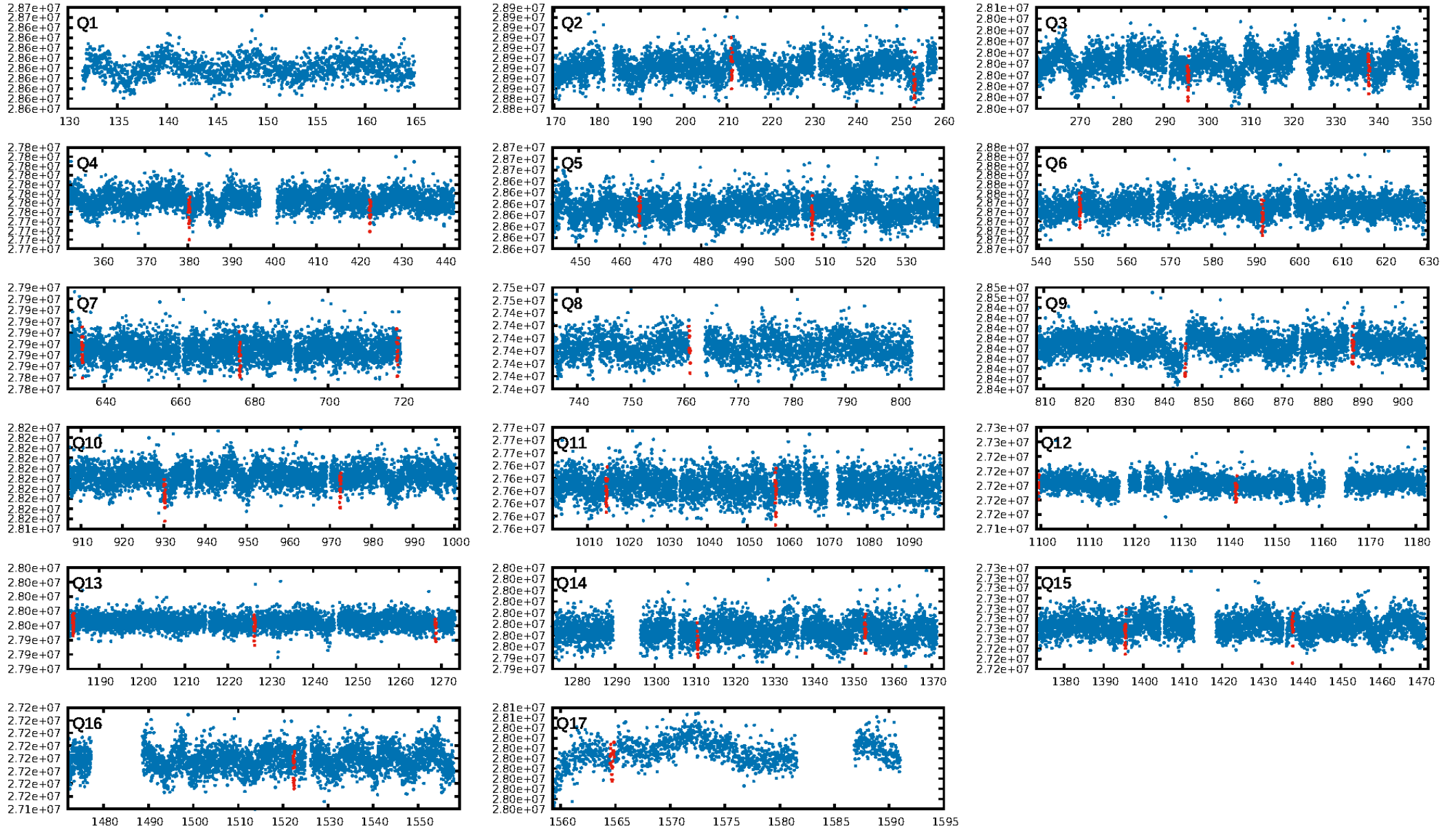
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 72.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.68e-86  
RollingBand-fgt: 1.00 [30/30]  
GhostDiagnostic-chr: 5.09  
Centroid-sig: 0.0%  
Centroid-so: 0.970 arcsec [1.74σ]  
OotOffset-rm: 0.376 arcsec [1.31σ]  
KicOffset-rm: 0.029 arcsec [0.14σ]  
OotOffset-st: 4/4/3/2 [13]  
KicOffset-st: 4/4/3/2 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [13/13]

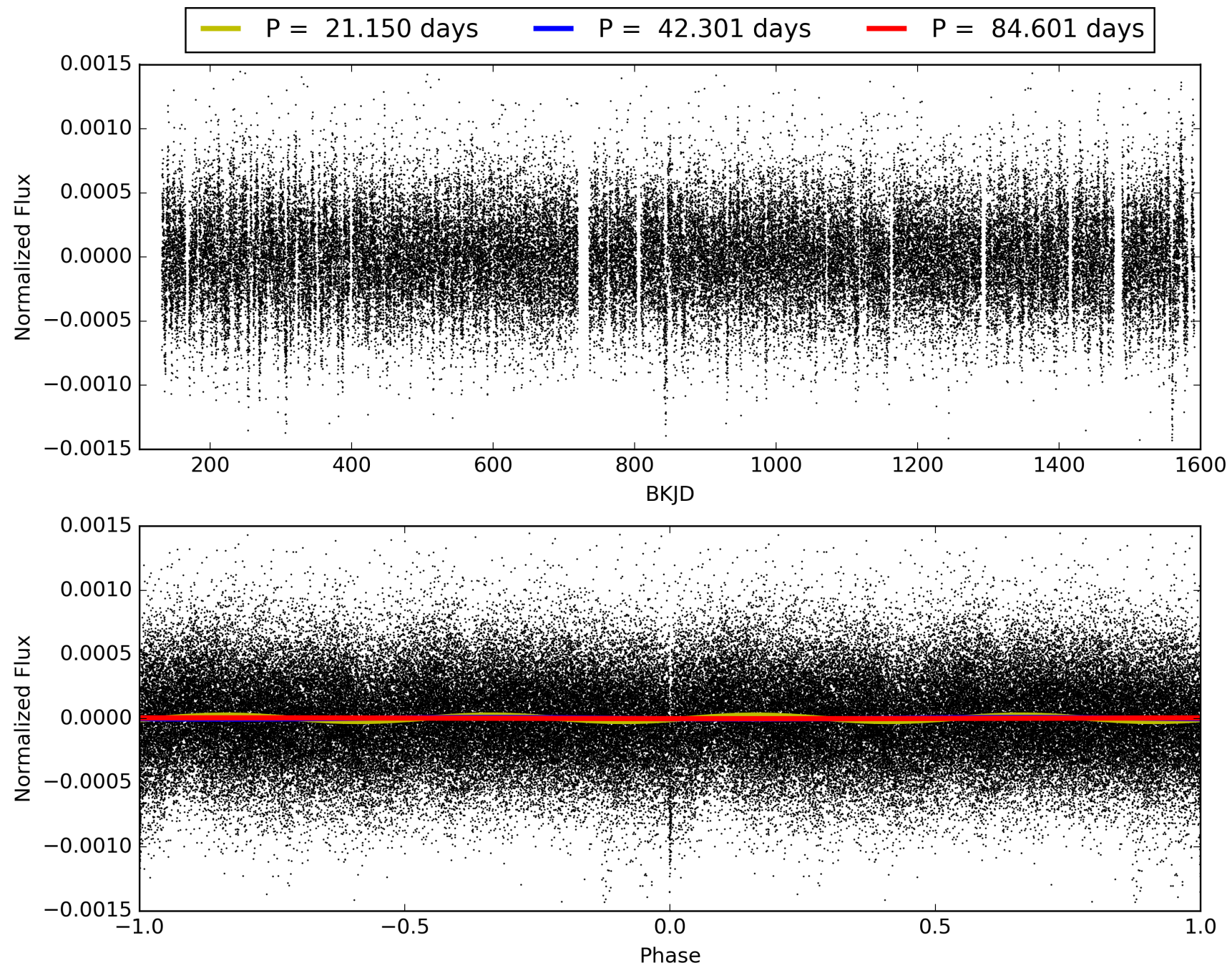
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:09:55 Z

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

# TCE 004254466-01, PDC Light Curves

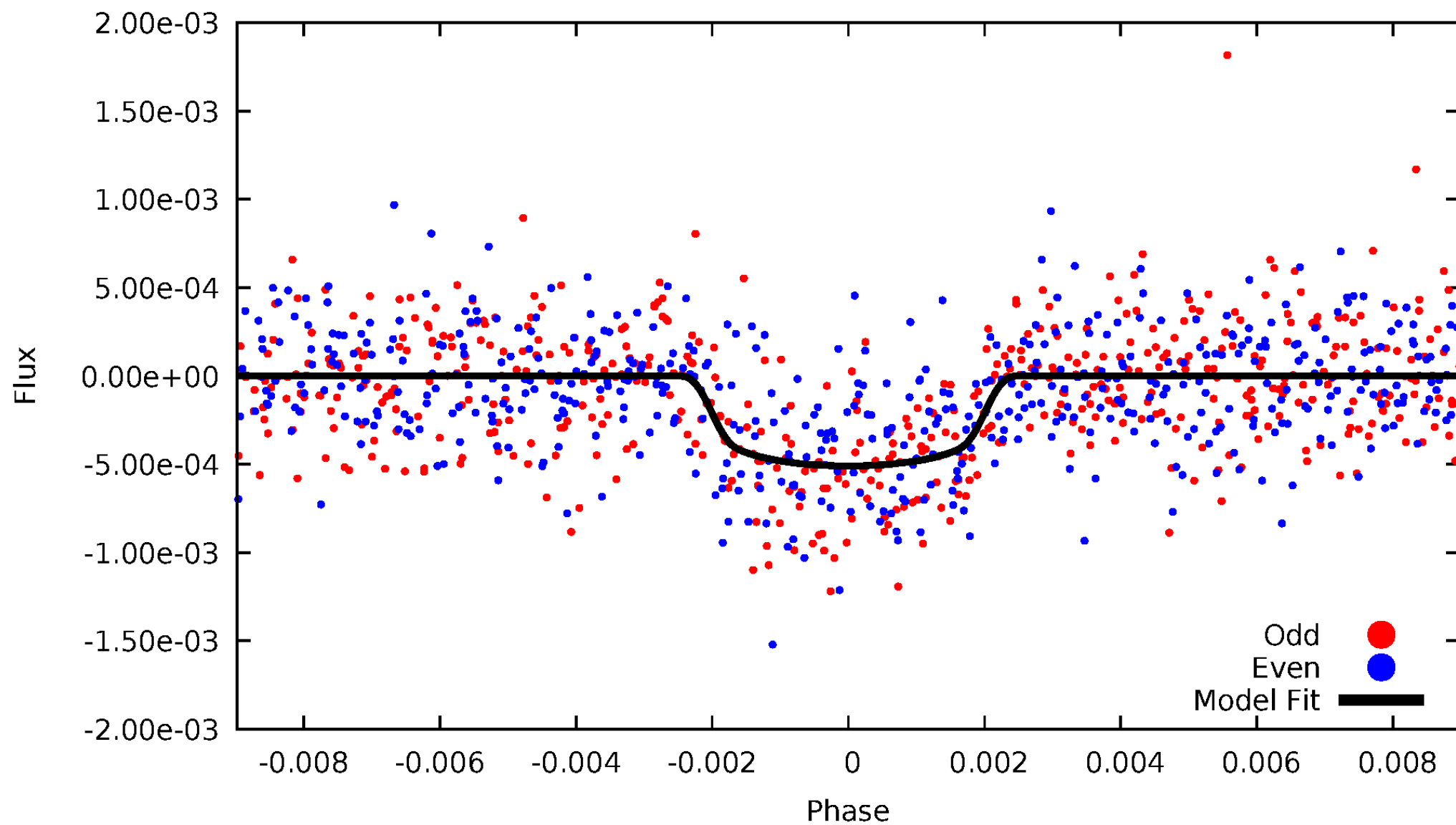


TCE 004254466-01



# DV Odd/Even

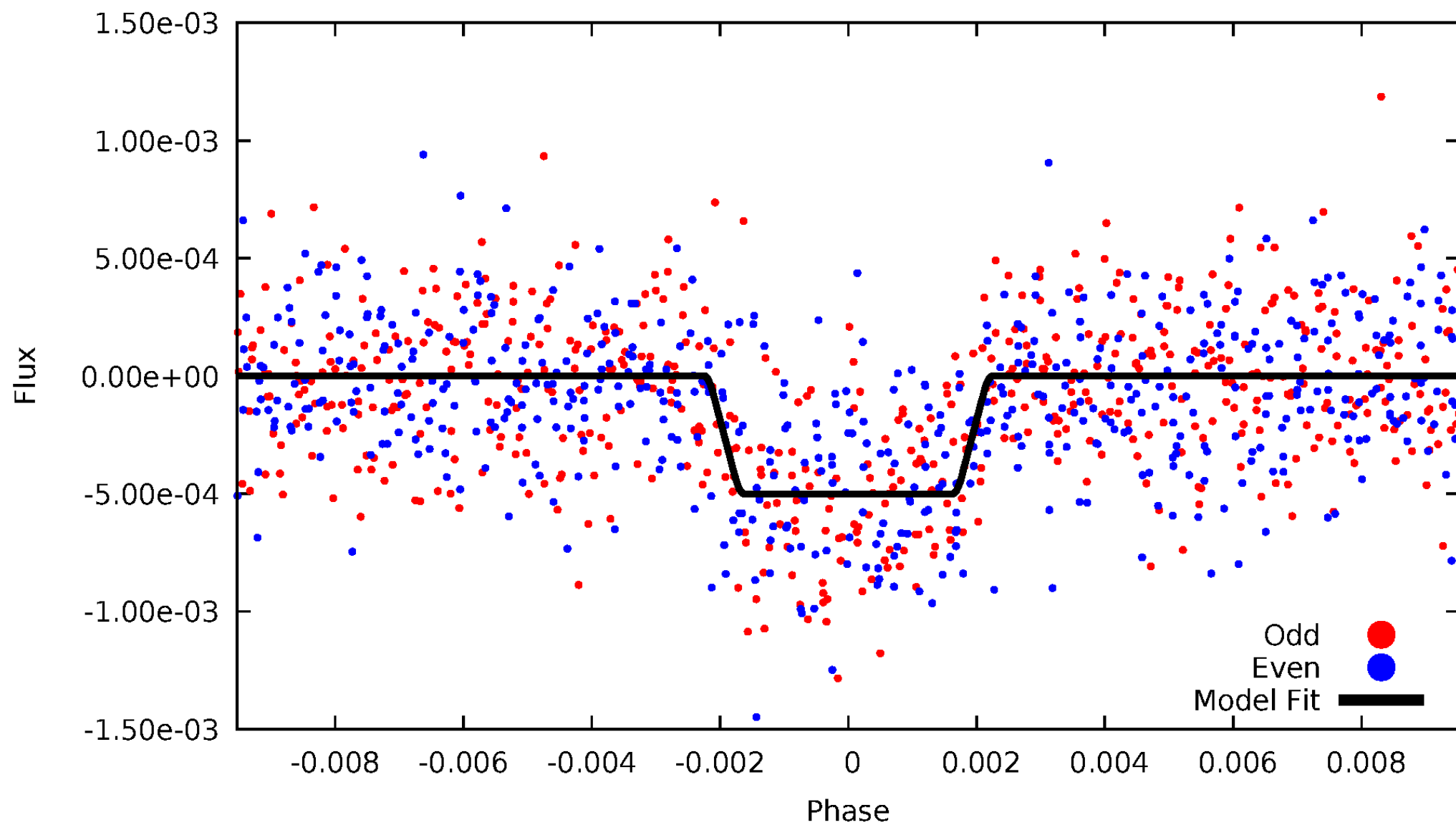
TCE 004254466-01



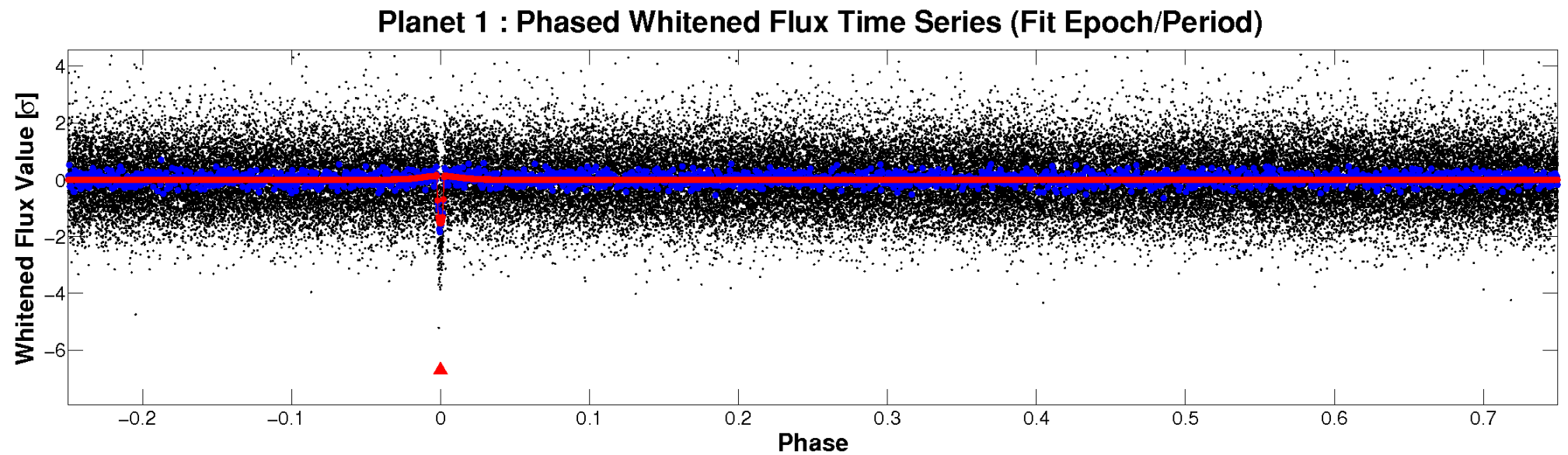
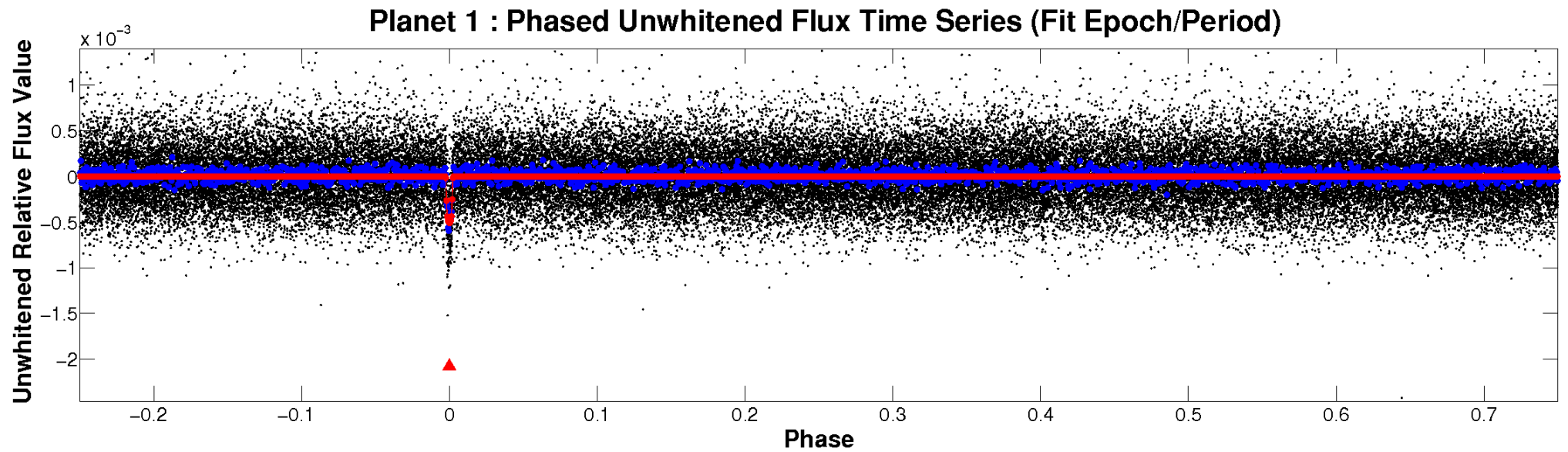


# ALT Odd/Even

TCE 004254466-01

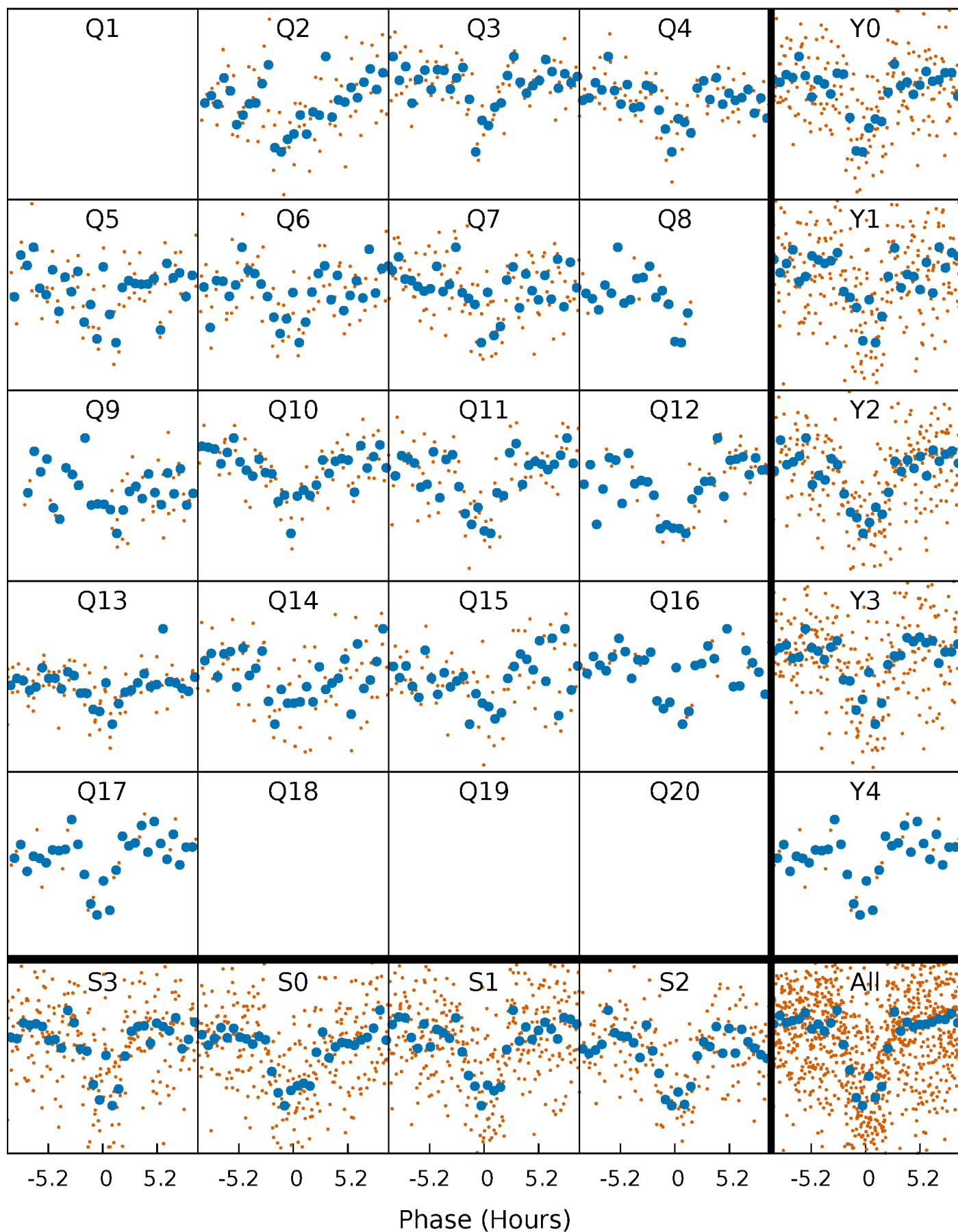


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

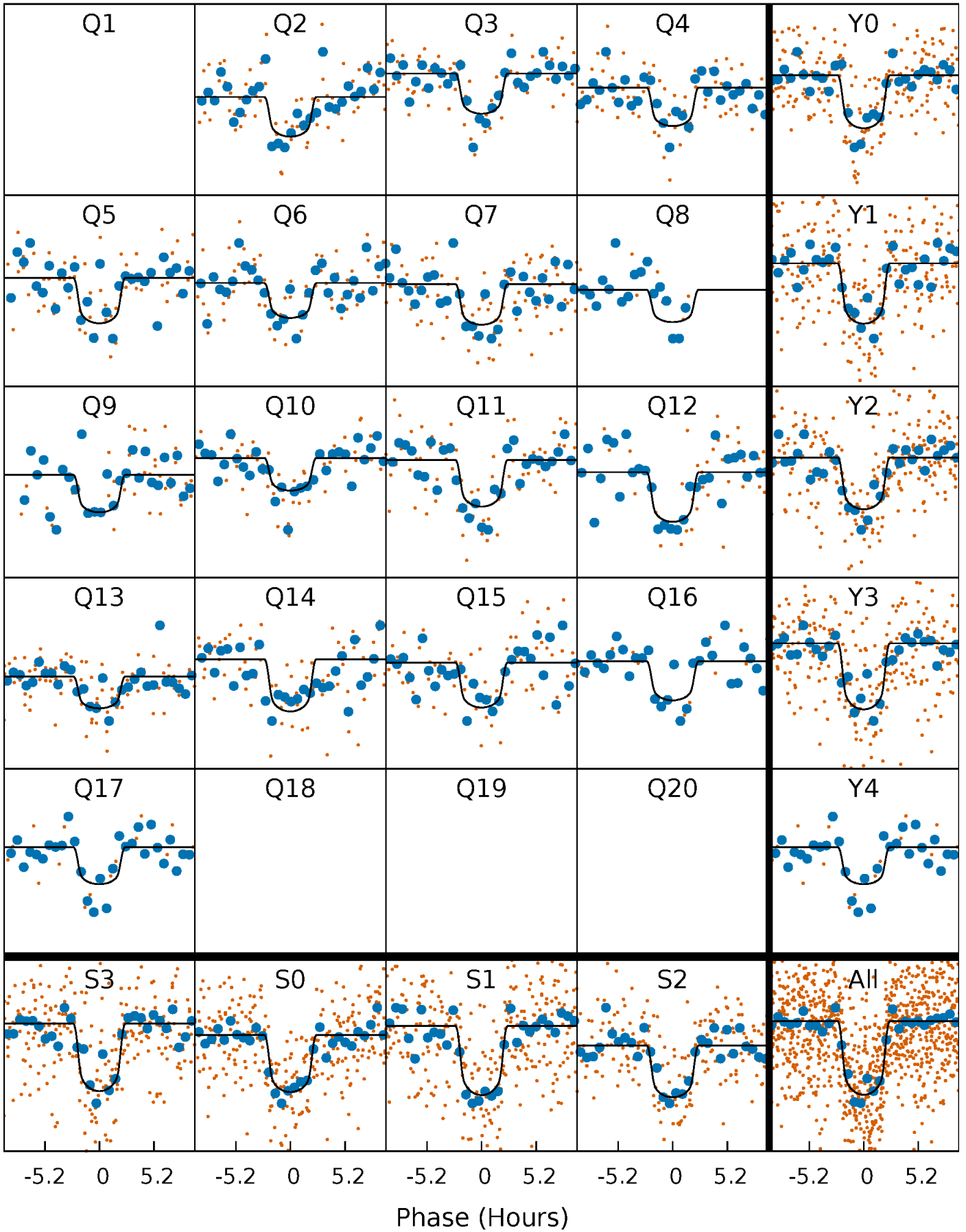
TCE 004254466-01 P= 42.300695 Days  $T_0=168.775180$  (BKJD)





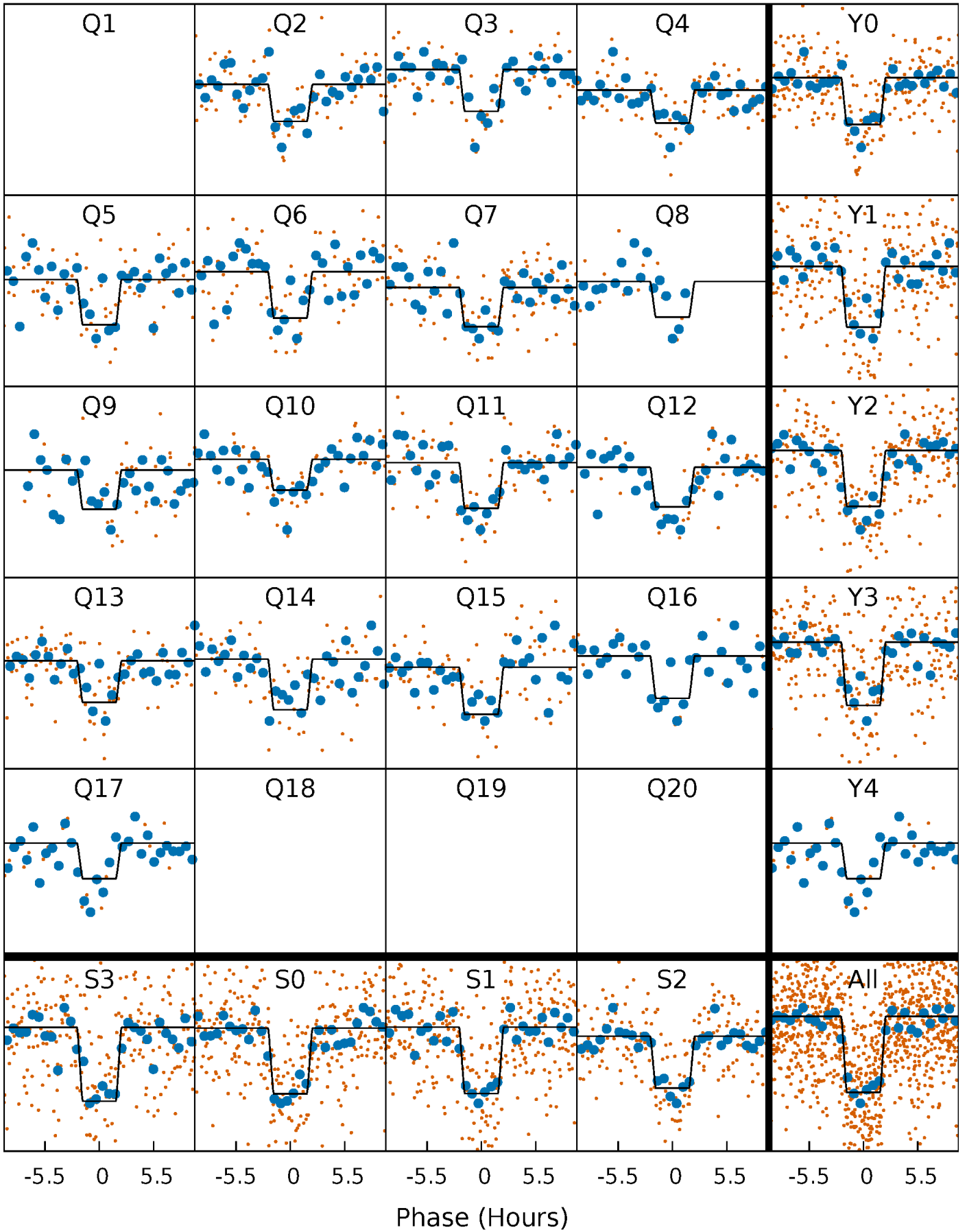
# DV Quarter-Phased Transit Curves

TCE 004254466-01 P= 42.300695 Days  $T_0=168.775180$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

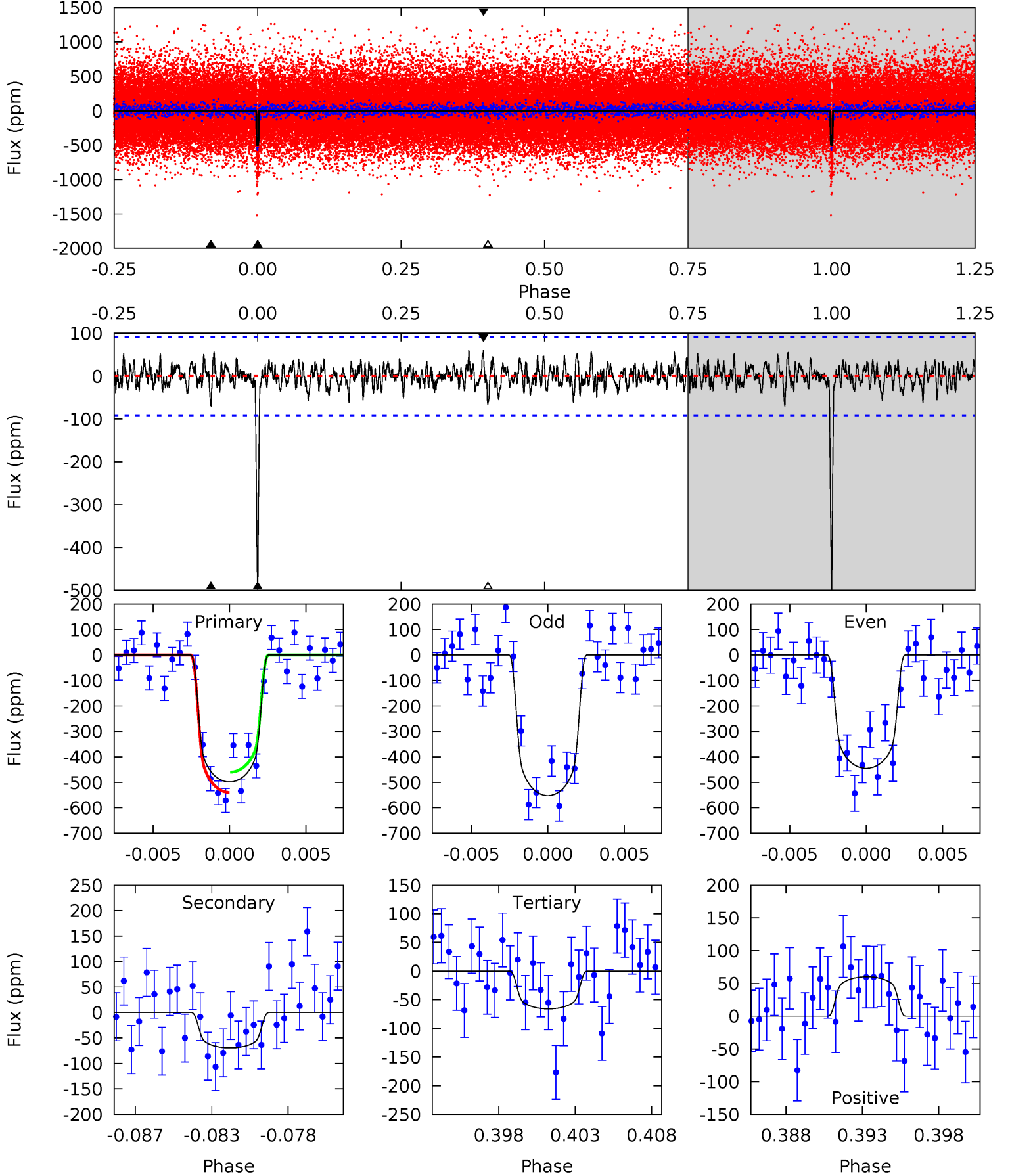
TCE 004254466-01 P= 42.301400 Days  $T_0=168.767501$  (BKJD)



# DV Model-Shift Uniqueness Test

004254466-01,  $P = 42.300695$  Days,  $E = 126.474485$  Days

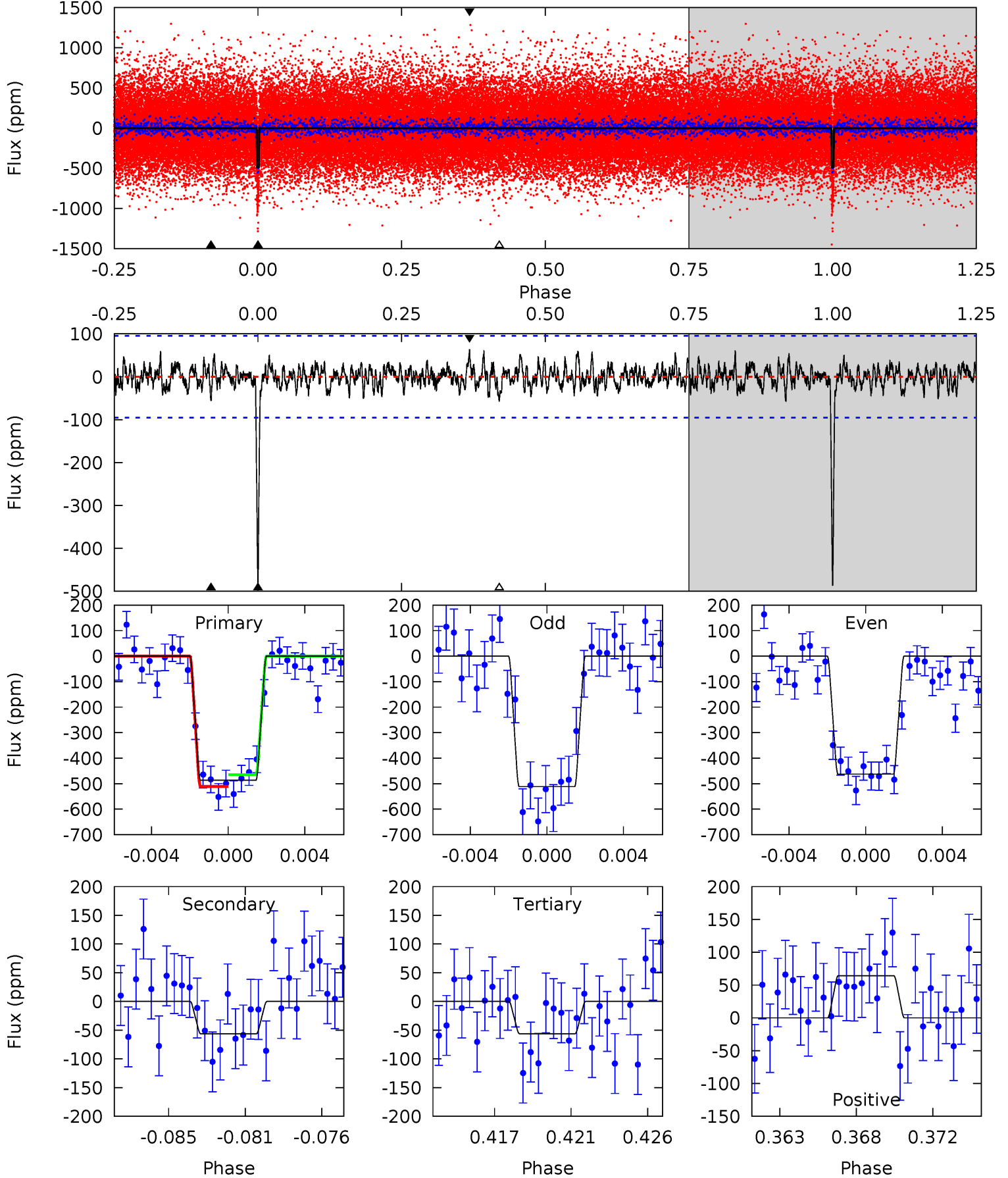
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.1	3.92	3.71	3.39	5.16	2.82	1.14	24.4	24.7	0.20	0.53	3.03	0.92	0.11	2.24



# Alt Model-Shift Uniqueness Test

004254466-01,  $P = 42.301400$  Days,  $E = 126.466101$  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
26.4	3.07	3.05	3.49	5.18	2.84	1.07	23.4	23.0	0.02	-0.42	1.34	0.96	0.12	1.26



### Stellar Parameters For KIC 004254466

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5852^{+70}_{-88}$	$4.353^{+0.095}_{-0.116}$	$0.140^{+0.150}_{-0.150}$	$1.129^{+0.193}_{-0.119}$	$1.048^{+0.074}_{-0.059}$	$1.025^{+0.357}_{-0.372}$
	+1%/-2%	+2%/-3%	+107%/-107%	+17%/-11%	+7%/-6%	+35%/-36%
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 004254466-01 / KOI 2134.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-69 \pm 18$	$2.94^{+0.55}_{-0.47}$	$779^{+36}_{-26}$	$3819^{+286}_{-266}$	$251^{+139}_{-91}$
Alt.	$-56 \pm 18$	$2.76^{+0.51}_{-0.49}$	$778^{+32}_{-28}$	$3767^{+297}_{-281}$	$234^{+151}_{-95}$

$T_{max}$  = 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

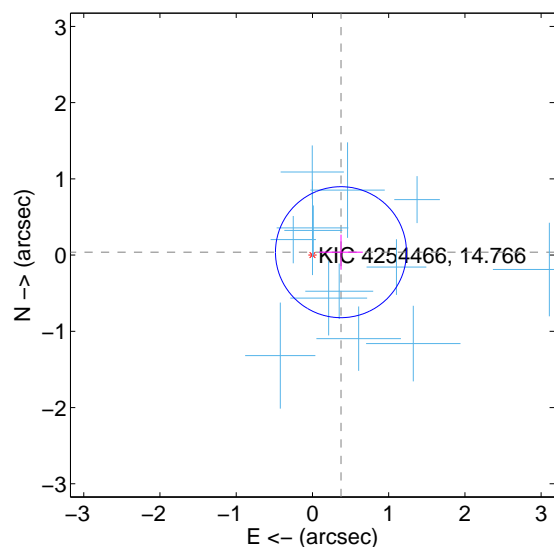
Supplemental centroid analysis for 004254466-01. Kepler magnitude: 14.77. Transit SNR 20.60

There are 13 quarters with good PRF difference image offsets

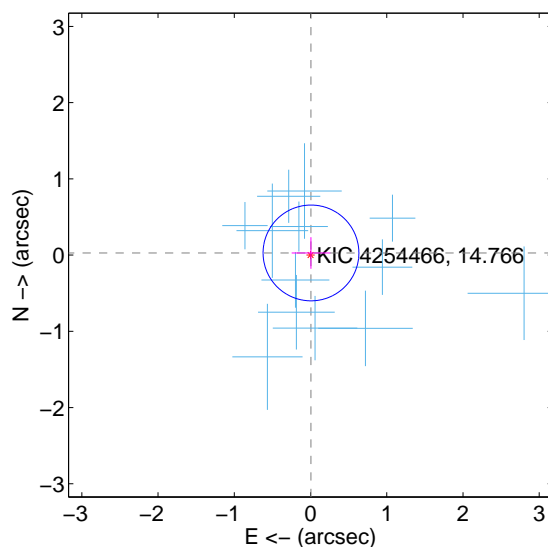
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.376 \pm 0.286$	1.31	$-0.374 \pm 0.286$	$0.038 \pm 0.230$
PRF-fit source offset from KIC position	$0.029 \pm 0.209$	0.14	$-0.006 \pm 0.253$	$0.028 \pm 0.207$
photometric centroid source offset	$0.97 \pm 0.56$	1.74	$-0.27 \pm 0.51$	$-0.93 \pm 0.56$

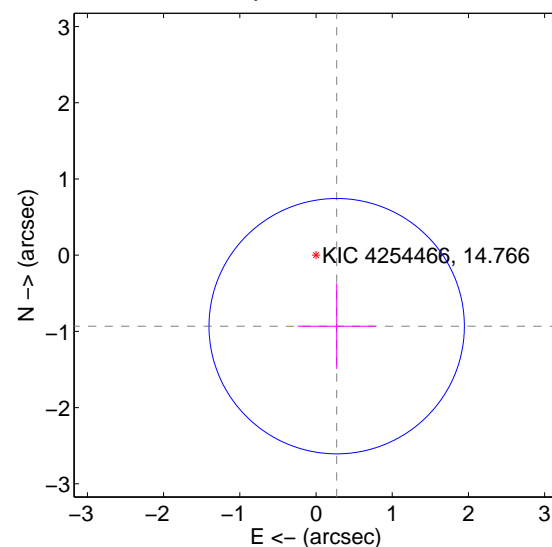
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

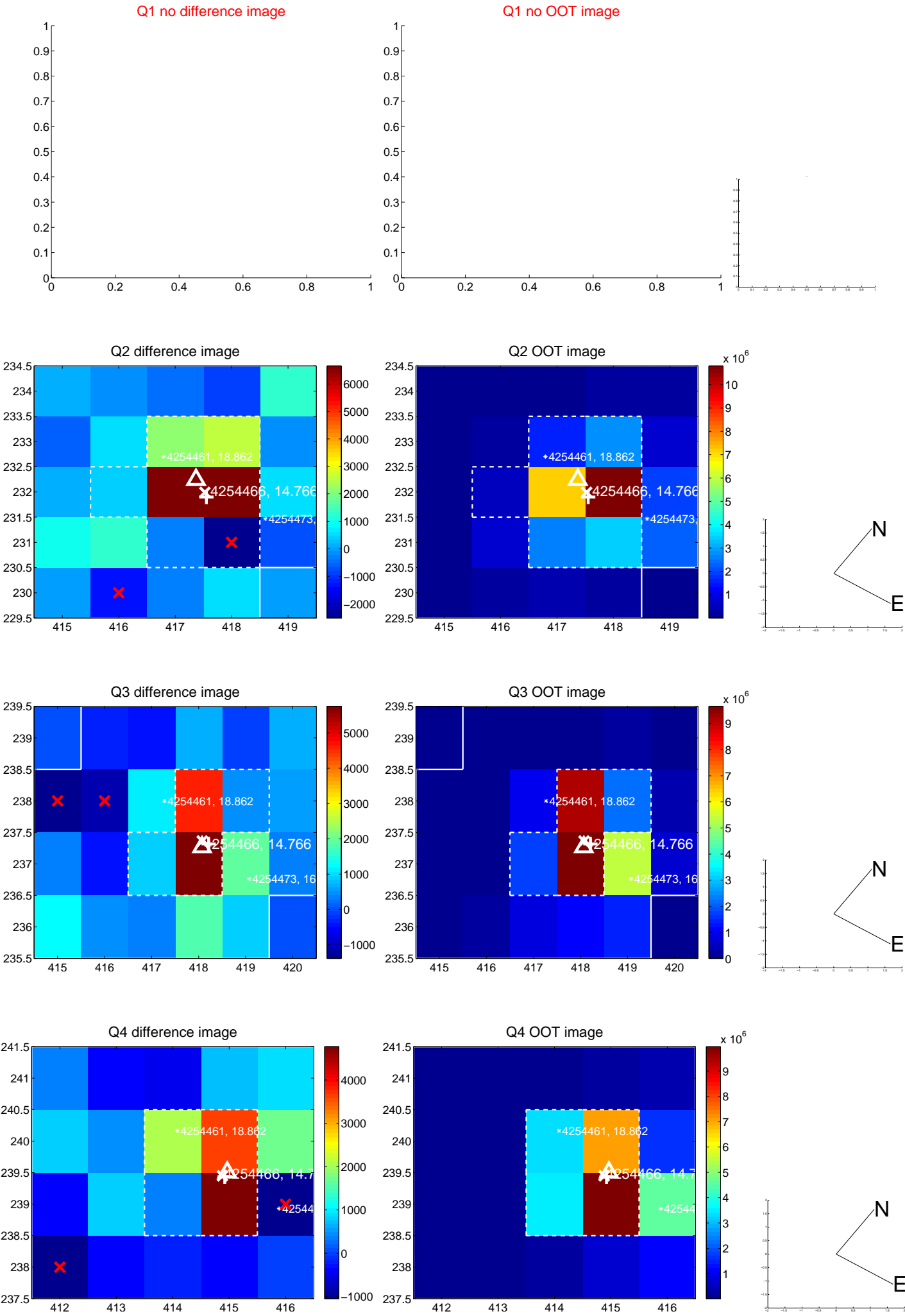


offset from photometric centroids

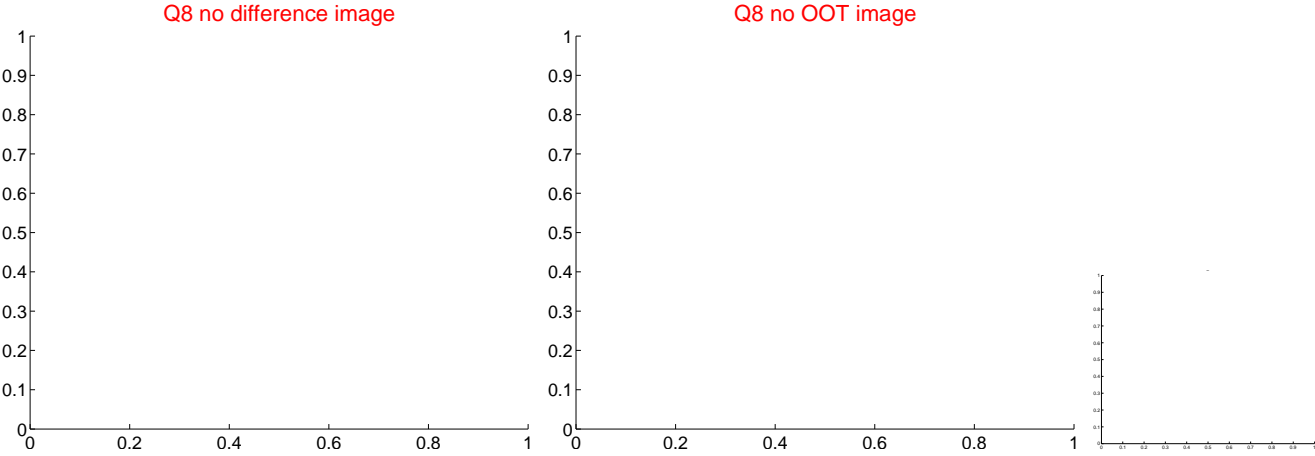
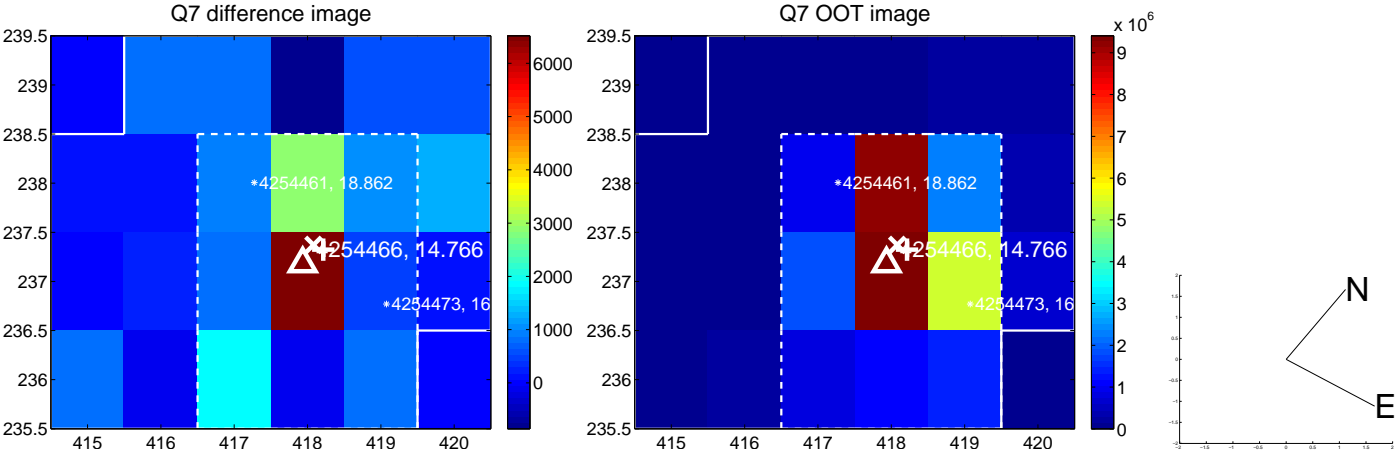
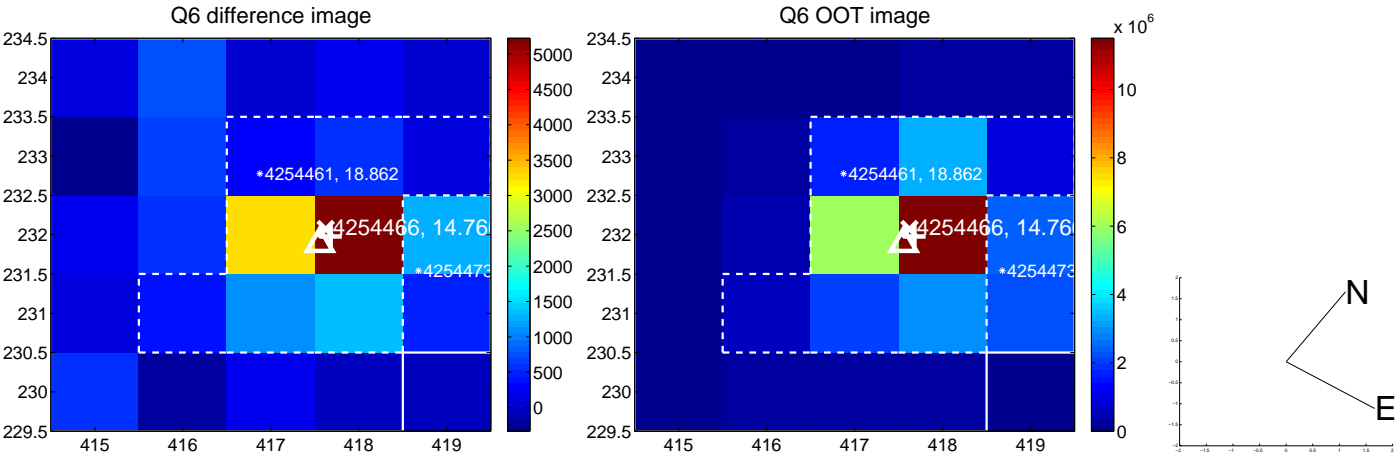
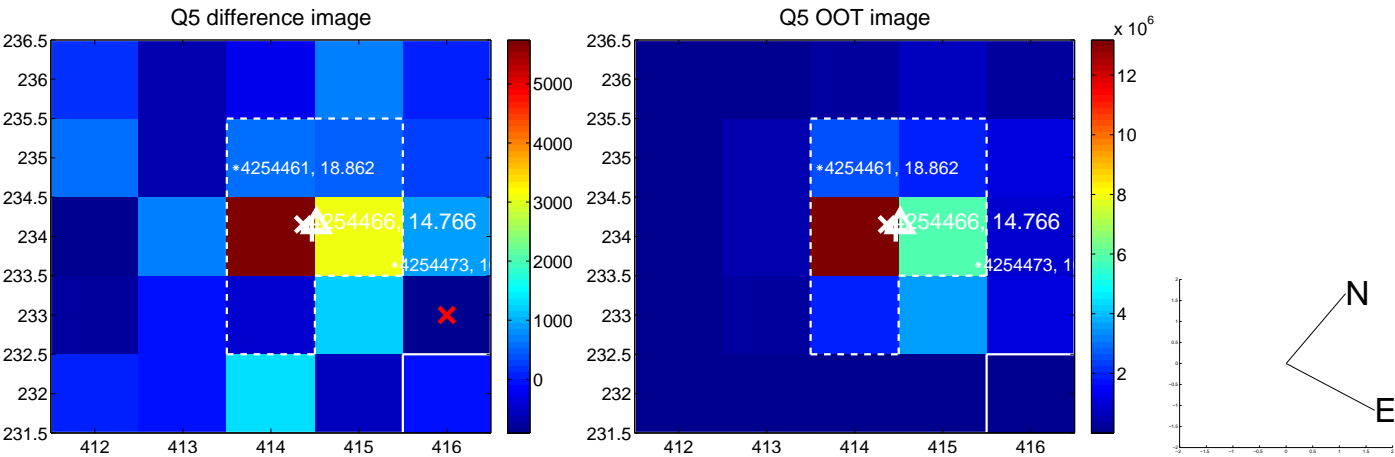


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

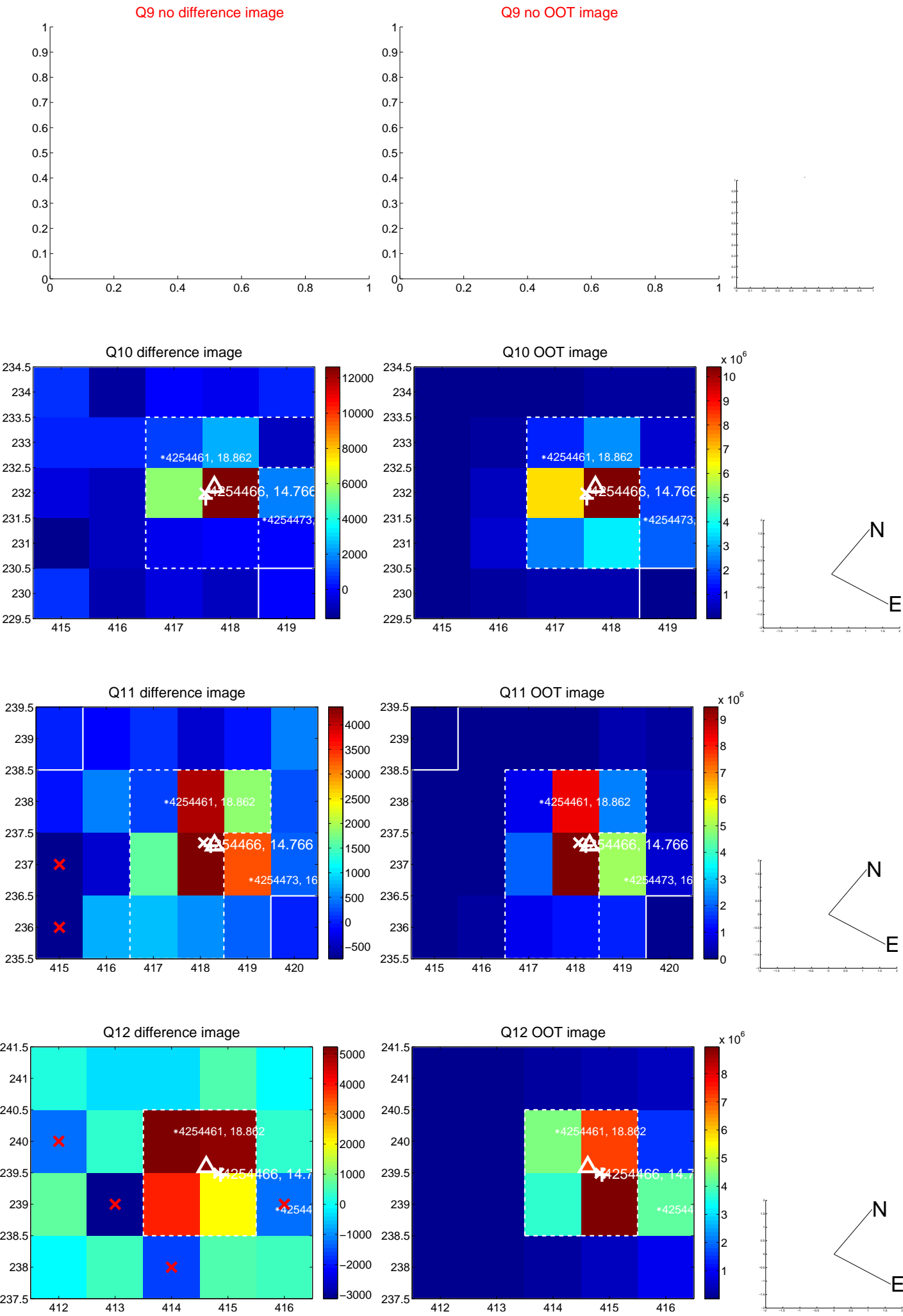
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



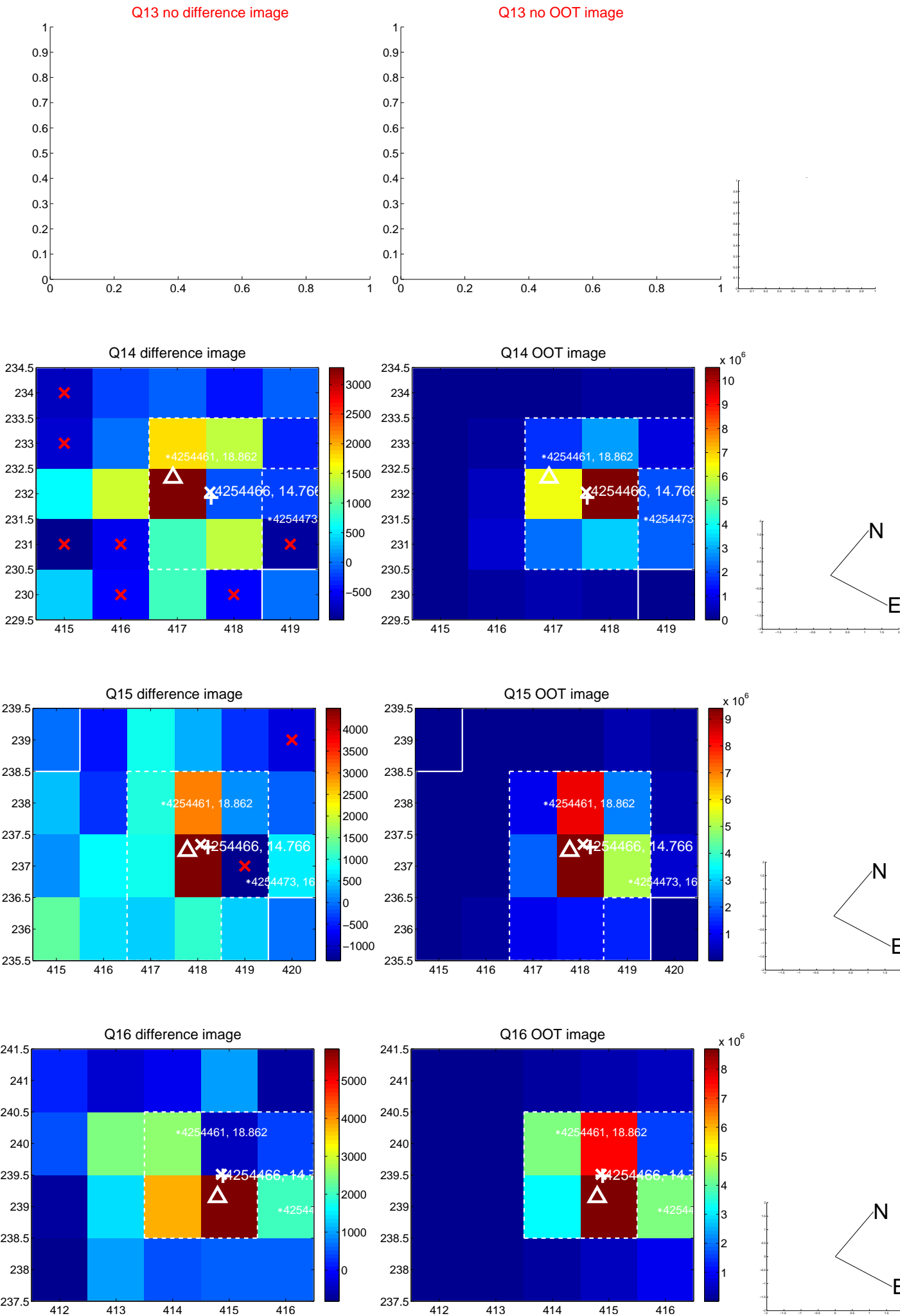
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

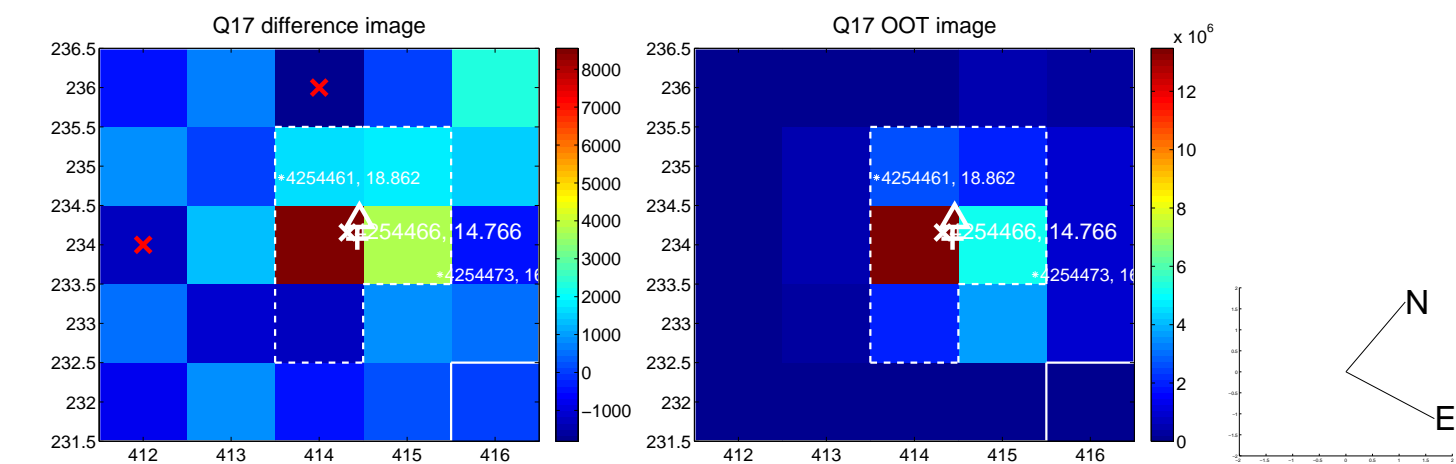


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

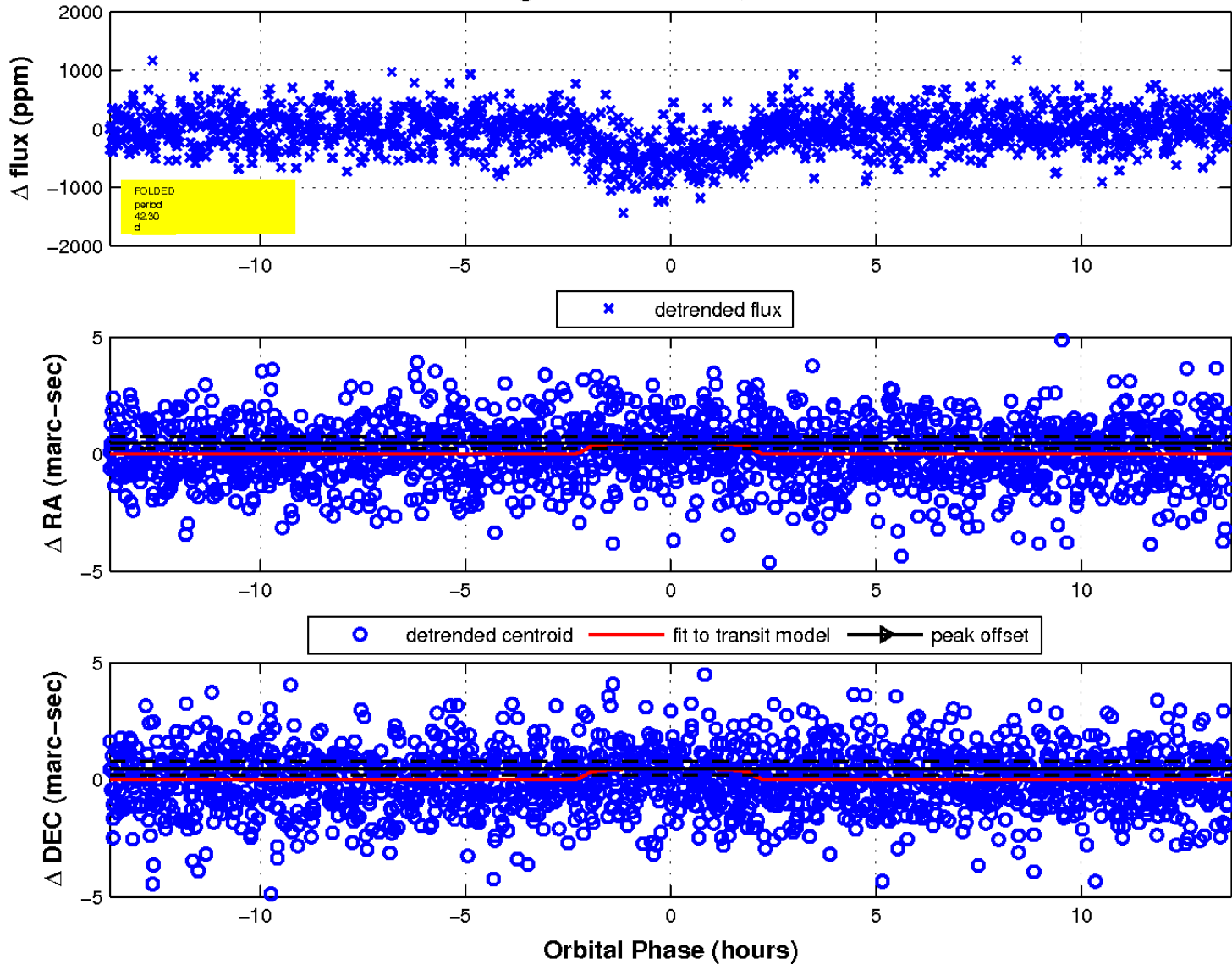




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

