

# KIC 004774646

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004774646-01	OBS	7707.01	0.559517	132.073774	52.2	0.640	8.6	12.3	1.31	6462	1.03	13779.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004774646-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST

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

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

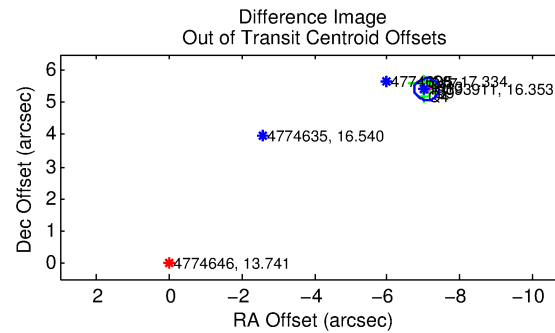
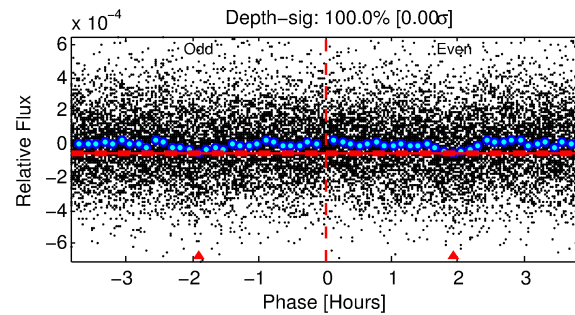
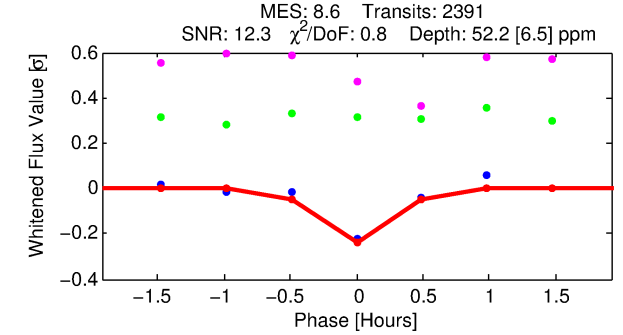
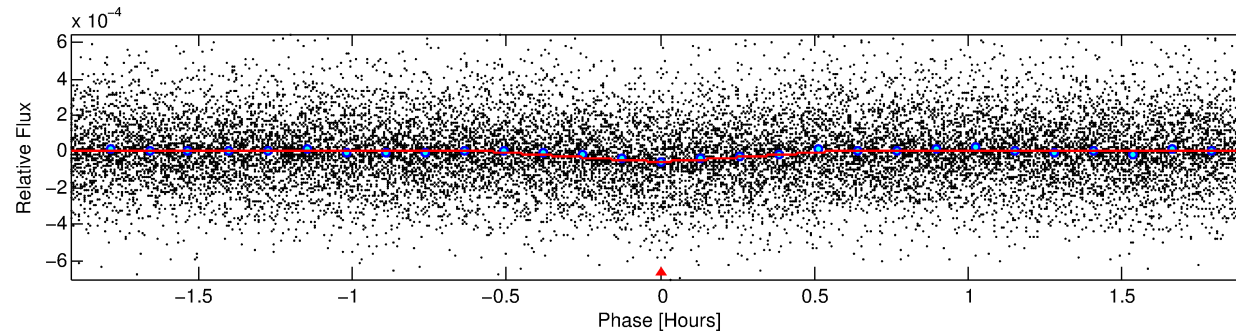
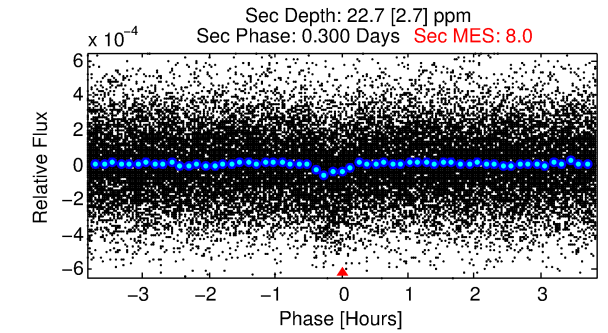
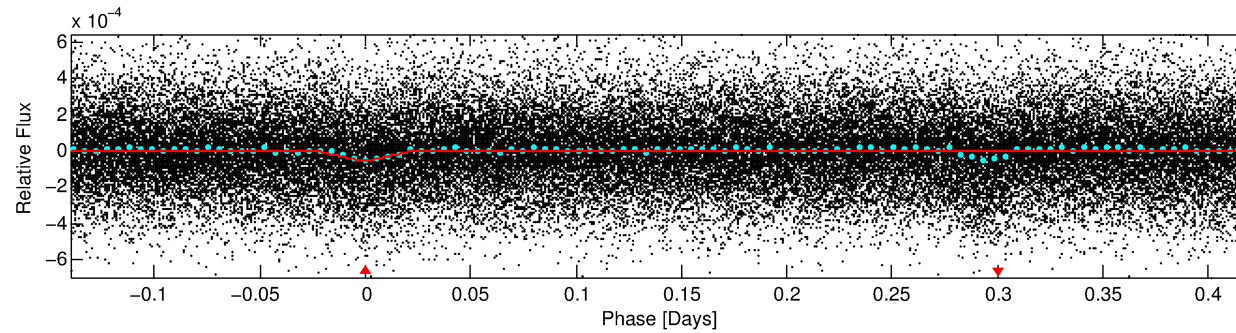
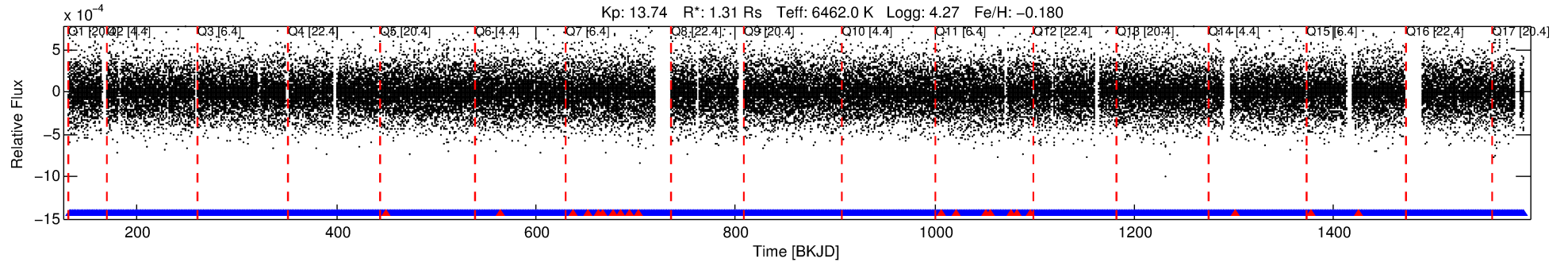
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004774646-01

No Significant Match Found

# DV One-Page Summary

KIC: 4774646 Candidate: 1 of 1 Period: 0.560 d



## DV Fit Results:

Period = 0.55952 [0.00001] d  
Epoch = 132.0738 [0.0011] BKJD  
Rp/R\* = 0.0072 [0.0016]  
a/R\* = 4.91 [5.44]  
b = 0.70 [0.85]  
Seff = 13779.64 [5245.02]  
Teq = 2763 [263] K  
Rp = 1.04 [0.39] Re  
a = 0.0139 [0.0035] AU  
Ag = 2.27 [1.31] [0.97σ]  
**Teffp = 5242 [623] K [3.67σ]**

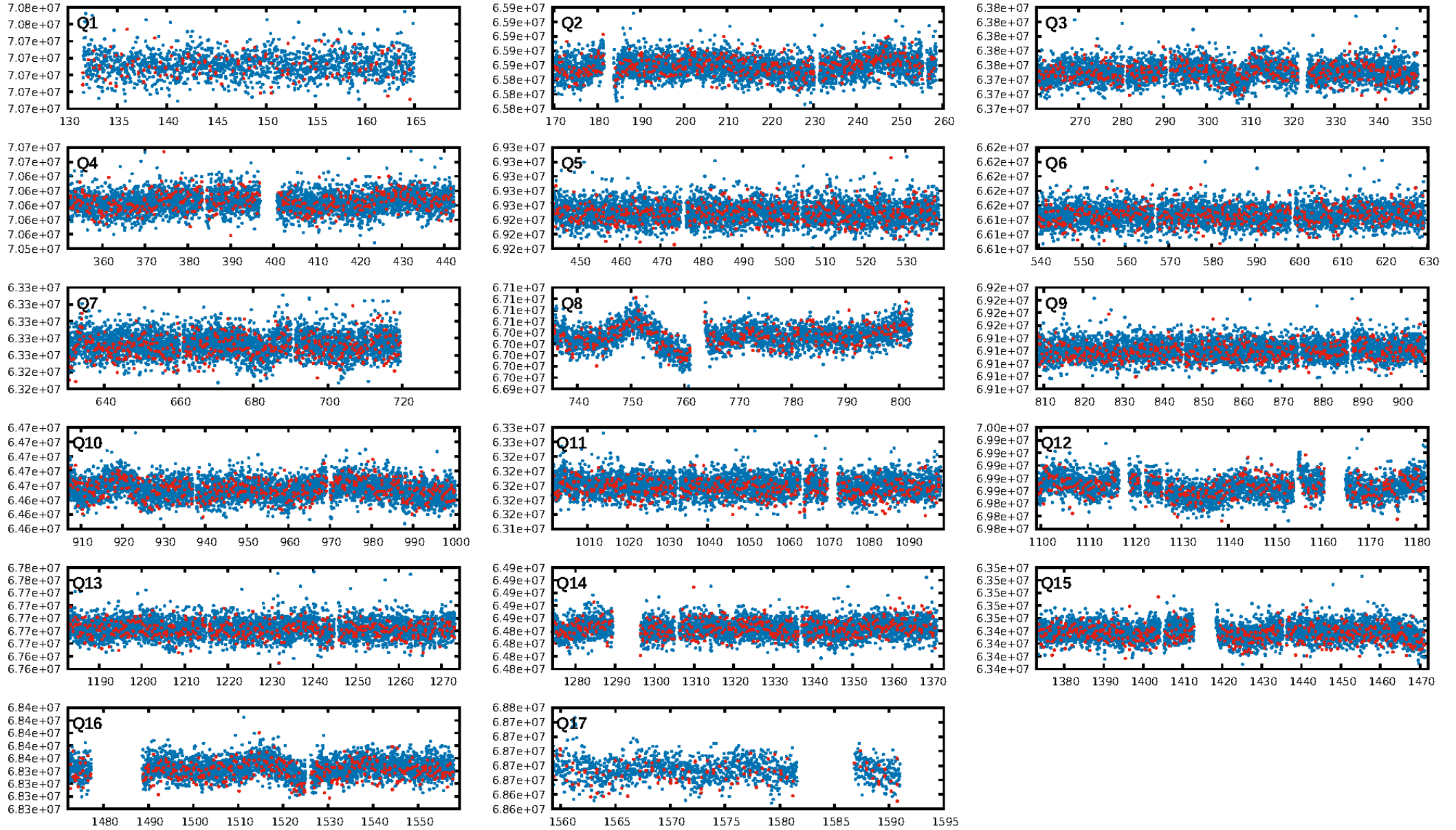
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.31e-18  
RollingBand-fgt: 0.99 [2263/2283]  
**GhostDiagnostic-chr: -0.03262**  
Centroid-sig: 0.0%  
**Centroid-so: 10.632 arcsec [12.51σ]**  
**OotOffset-rm: 8.920 arcsec [79.34σ]**  
**KicOffset-rm: 8.758 arcsec [77.83σ]**  
OotOffset-st: 0/0/1/4 [5]  
KicOffset-st: 0/0/1/4 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:09:12 Z

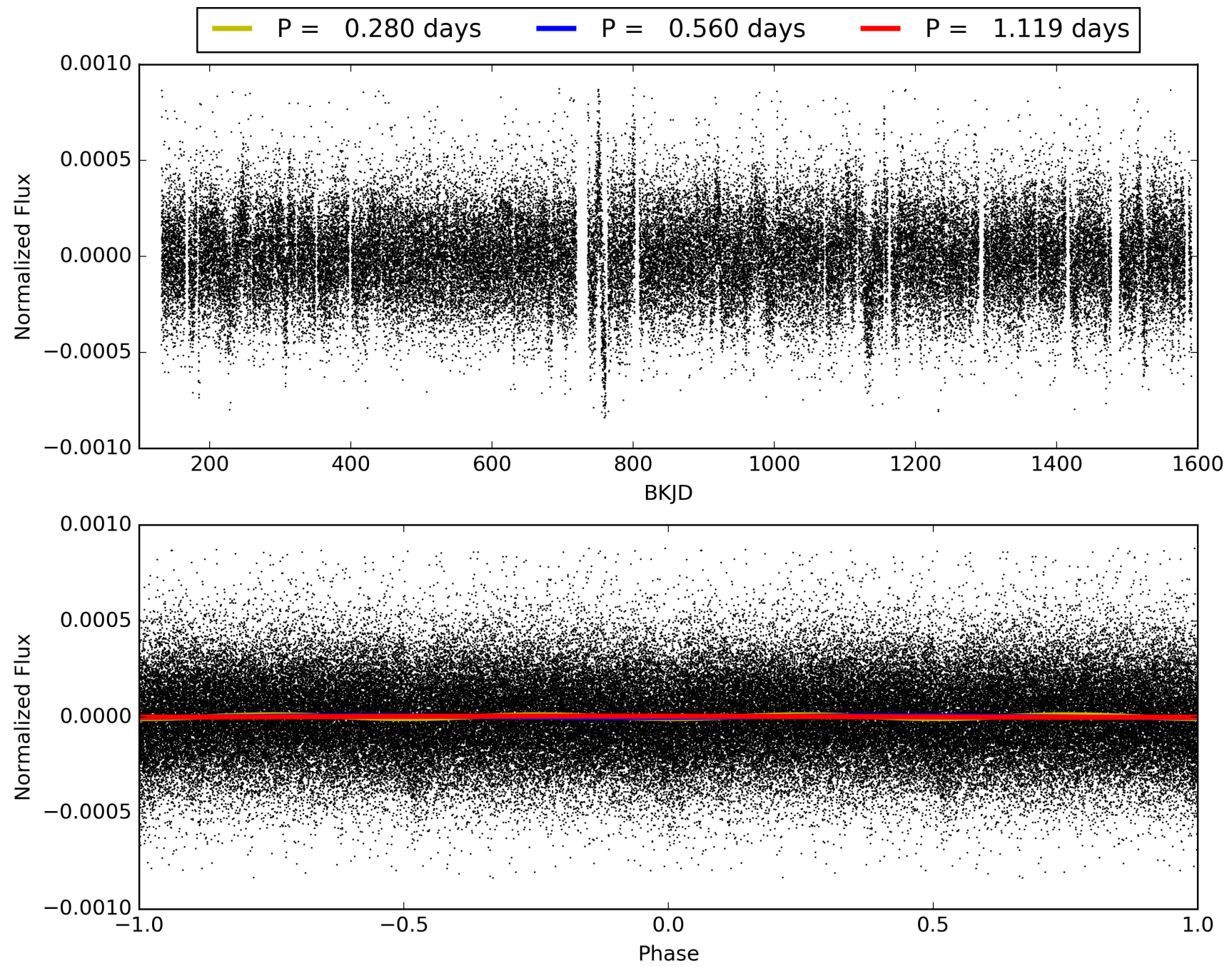
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004774646-01, PDC Light Curves



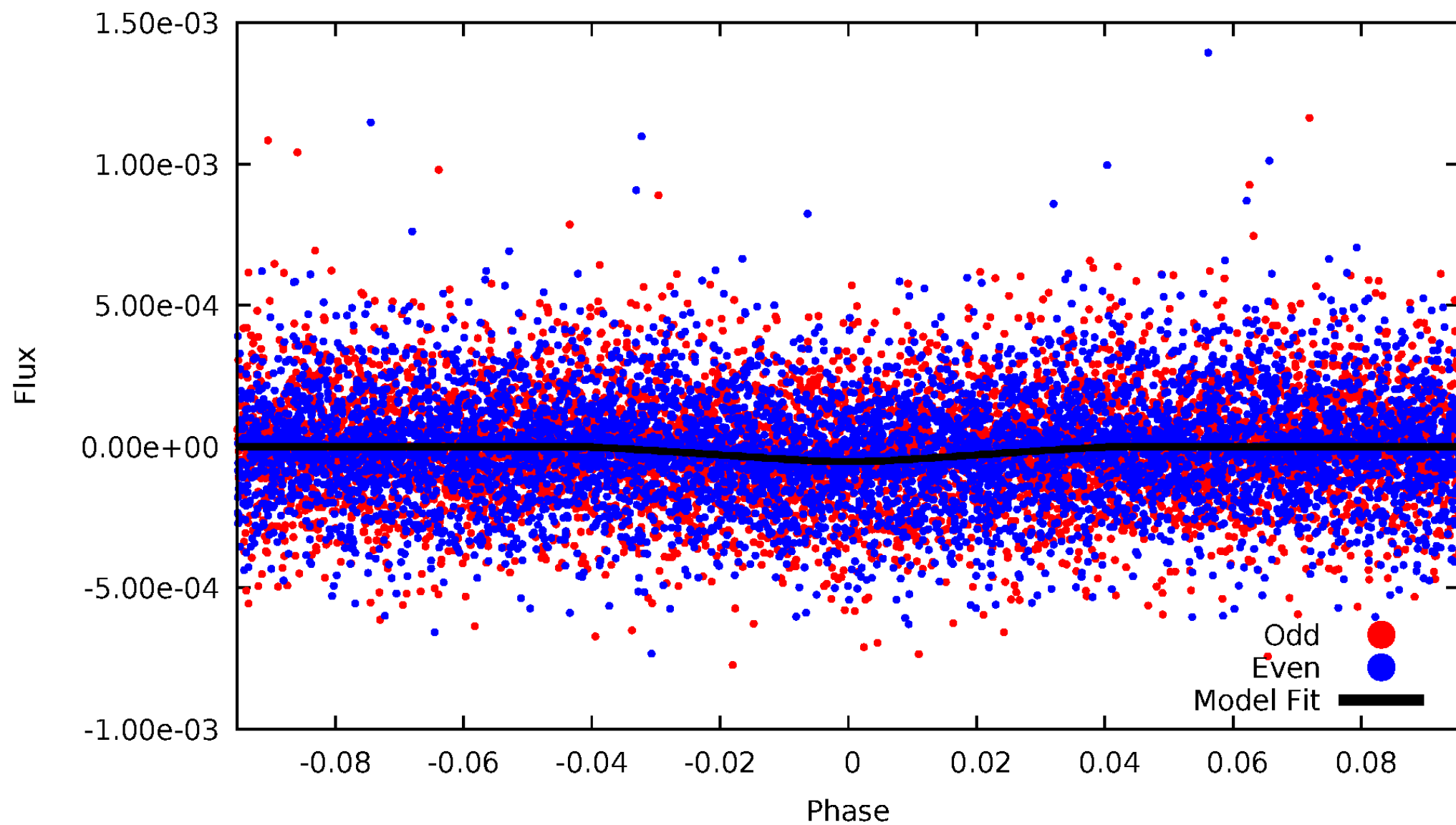


TCE 004774646-01



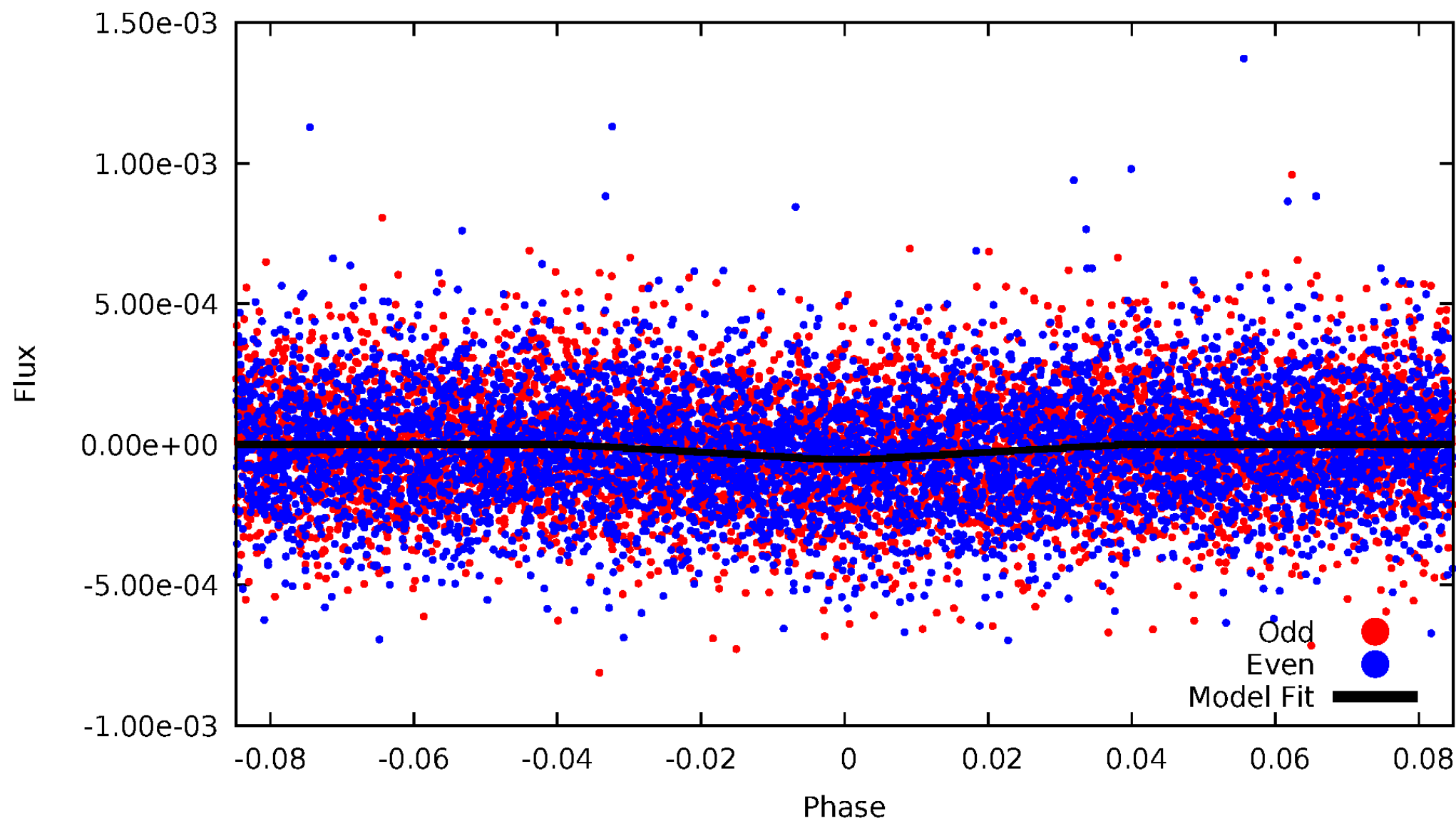
# DV Odd/Even

TCE 004774646-01

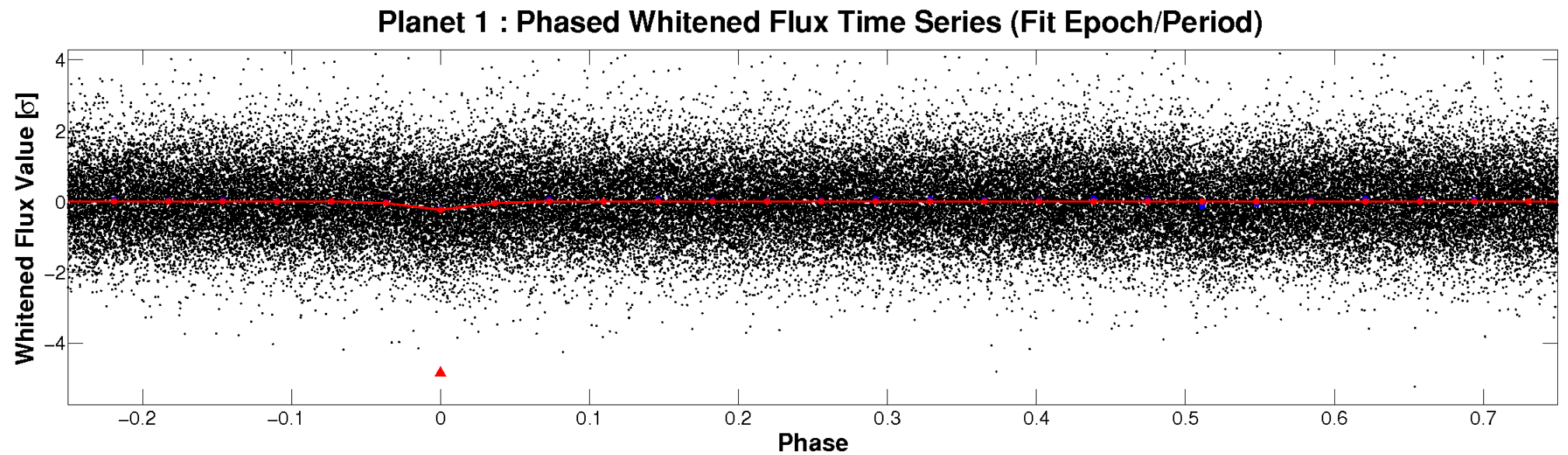
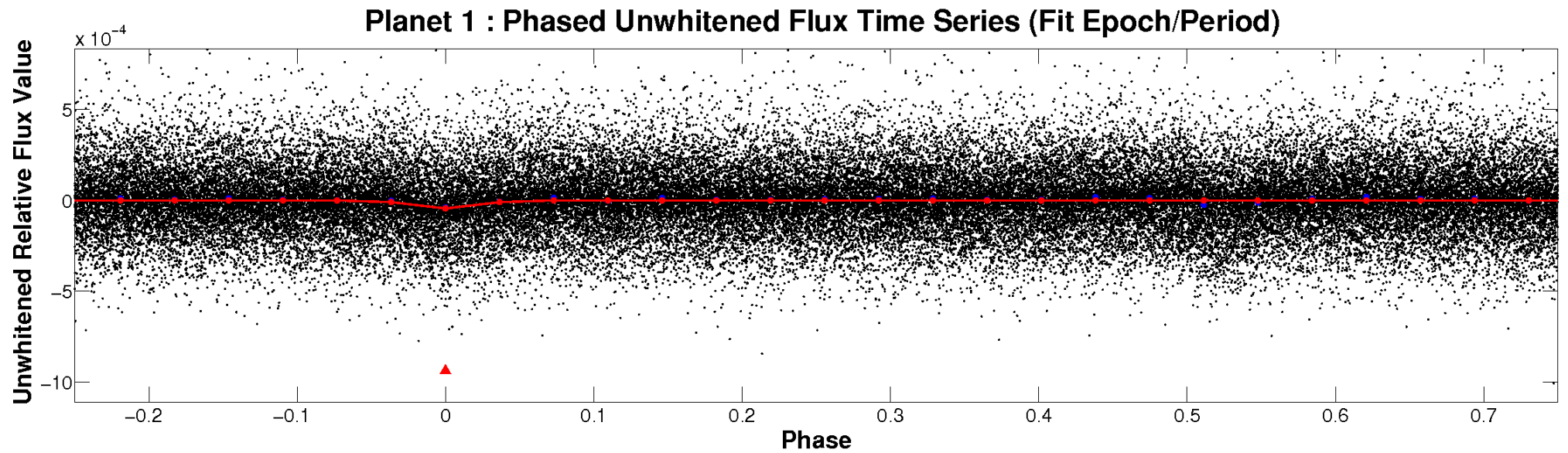


# ALT Odd/Even

TCE 004774646-01



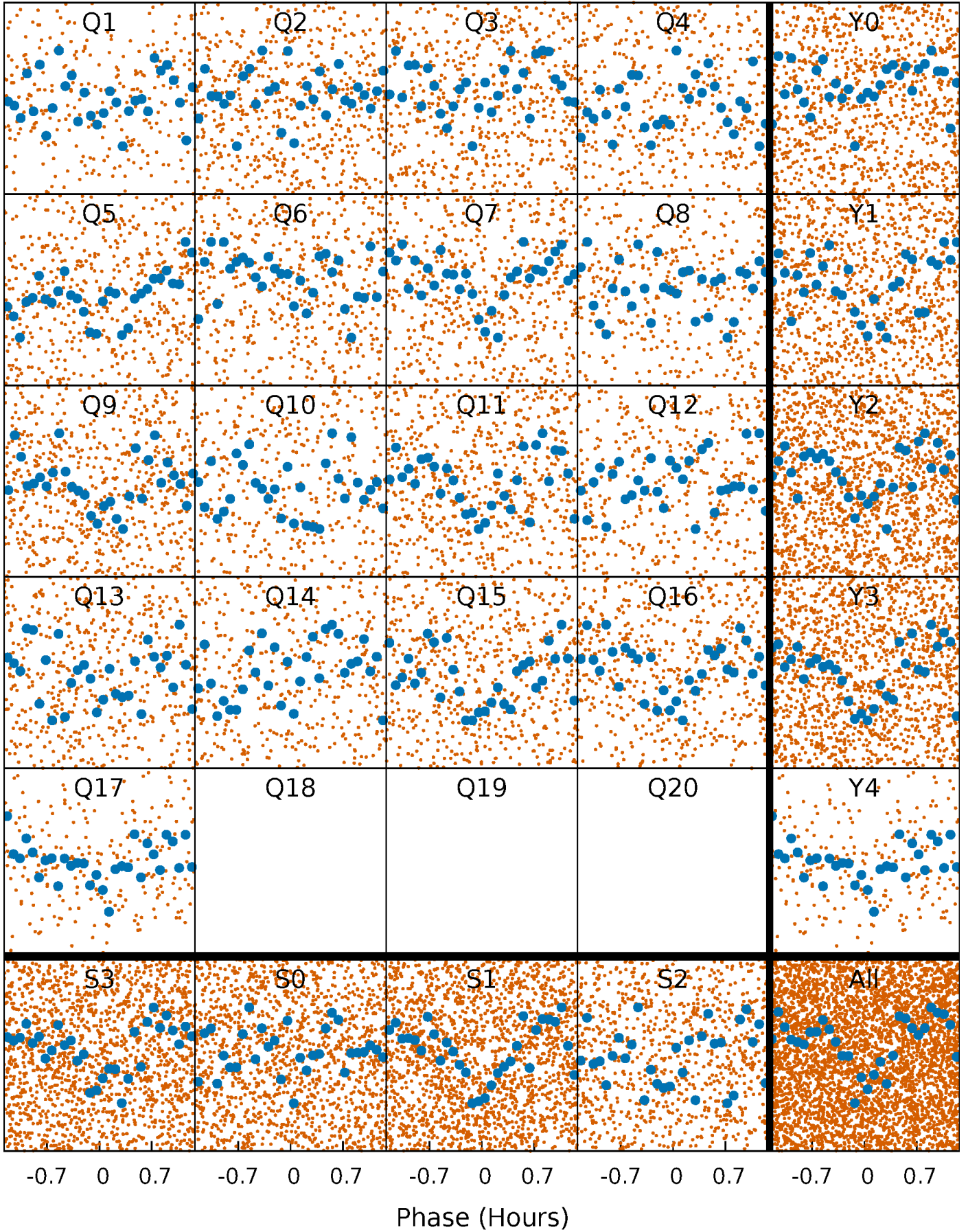
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

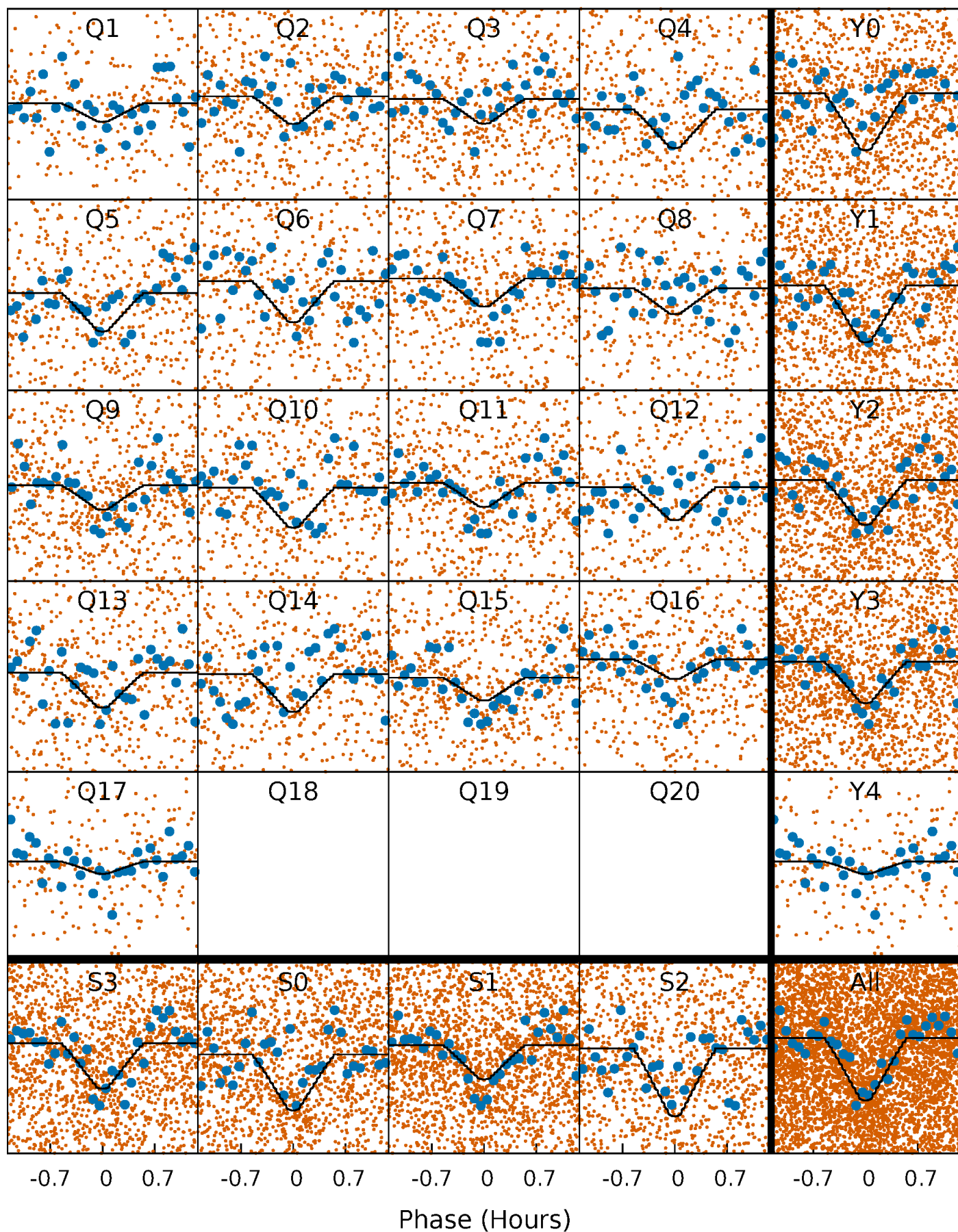
TCE 004774646-01   P= 0.559517 Days    $T_0=132.073774$  (BKJD)





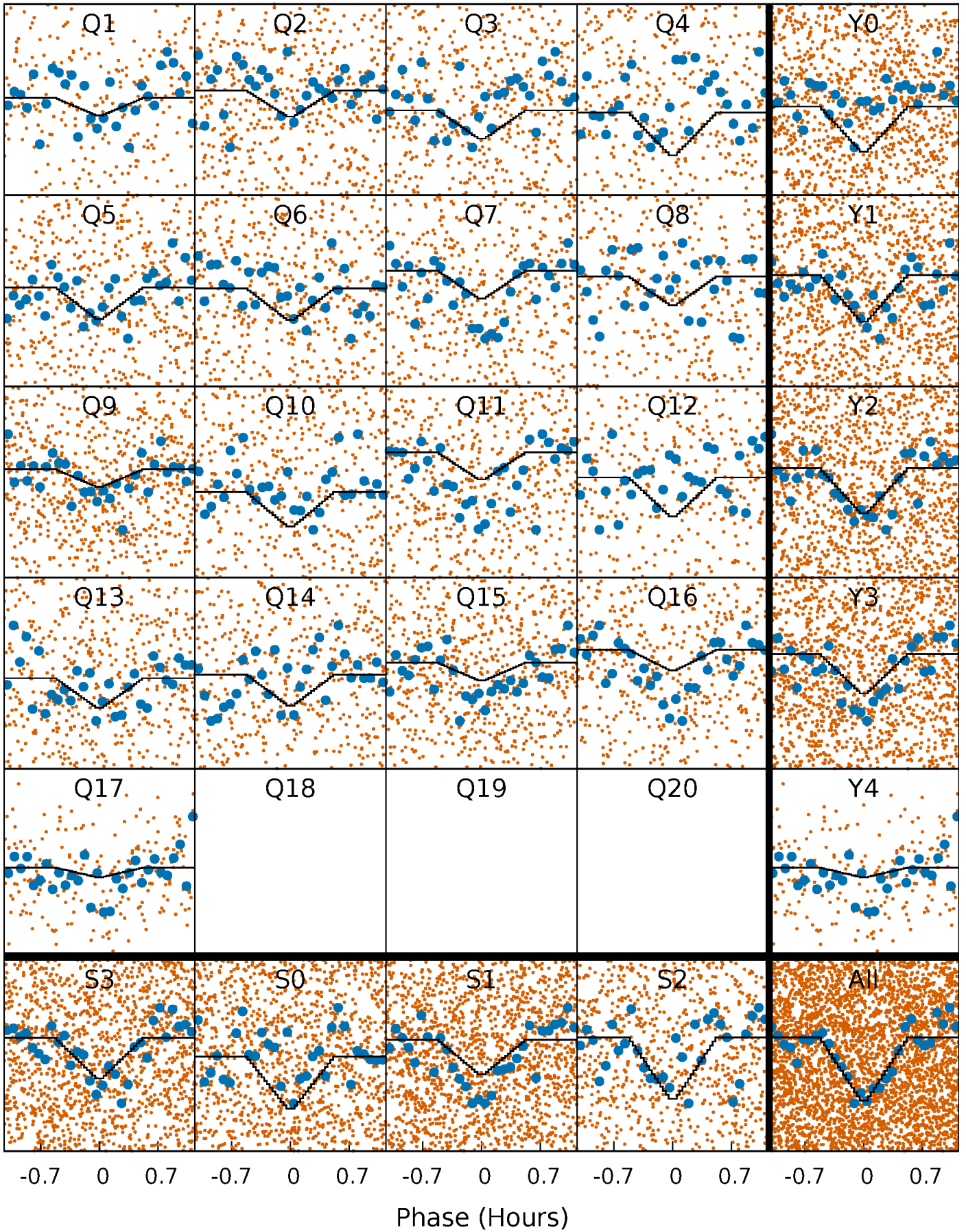
# DV Quarter-Phased Transit Curves

TCE 004774646-01 P= 0.559517 Days  $T_0=132.073774$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

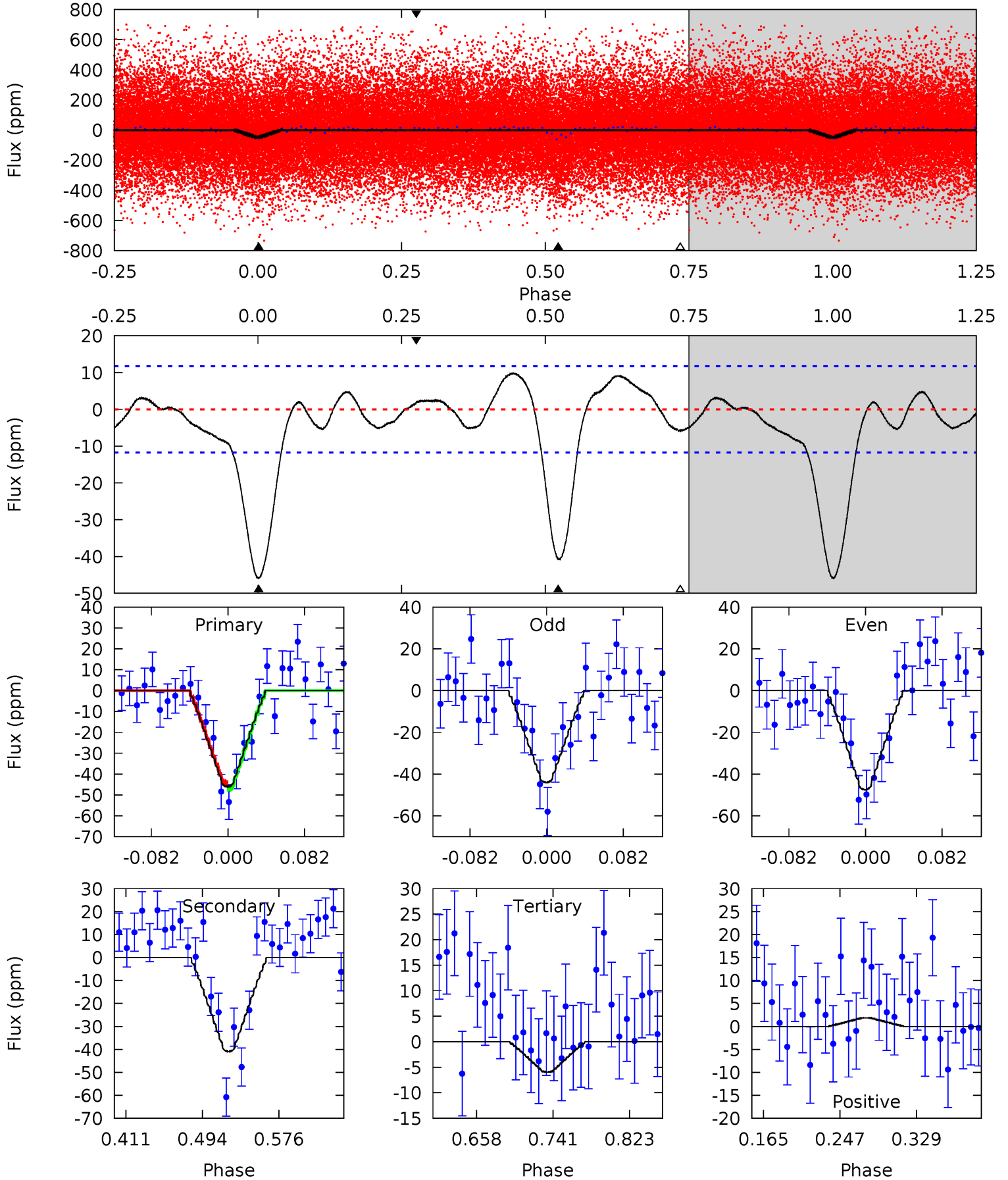
TCE 004774646-01 P= 0.559517 Days  $T_0=132.073765$  (BKJD)



# DV Model-Shift Uniqueness Test

004774646-01, P = 0.559517 Days, E = 130.954740 Days

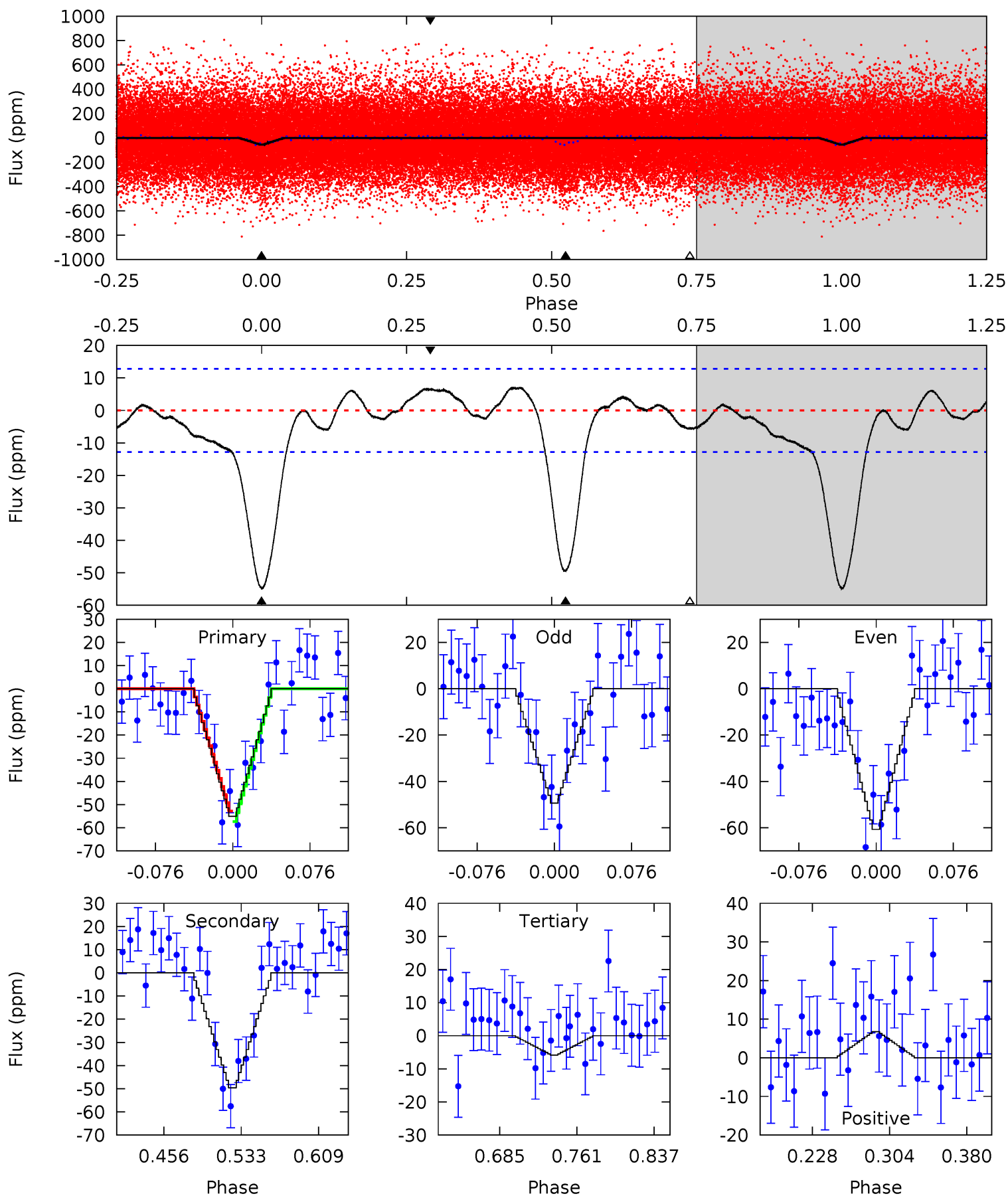
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	16.1	2.33	0.73	4.61	1.74	1.64	15.7	17.3	13.7	15.3	0.67	0.98	0.18	0.52



# Alt Model-Shift Uniqueness Test

004774646-01, P = 0.559517 Days, E = 130.954731 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
19.9	17.9	2.11	2.44	4.62	1.77	1.52	17.8	17.4	15.8	15.5	2.06	0.94	0.12	0.82





### Stellar Parameters For KIC 004774646

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6462^{+155}_{-214}$	$4.266^{+0.128}_{-0.192}$	$-0.180^{+0.250}_{-0.300}$	$1.309^{+0.395}_{-0.230}$	$1.153^{+0.192}_{-0.157}$	$0.724^{+0.455}_{-0.380}$
	+2%/-3%	+3%/-5%	+139%/-167%	+30%/-18%	+17%/-14%	+63%/-52%
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 004774646-01 / KOI 7707.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-41 \pm 3$	$1.06^{+0.30}_{-0.24}$	$3885^{+293}_{-225}$	$5892^{+824}_{-613}$	$3.835^{+2.504}_{-1.482}$
Alt.	$-50 \pm 3$	$1.02^{+0.29}_{-0.24}$	$3883^{+295}_{-225}$	$6351^{+922}_{-733}$	$5.038^{+3.432}_{-1.954}$

$T_{\text{max}}$  = 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

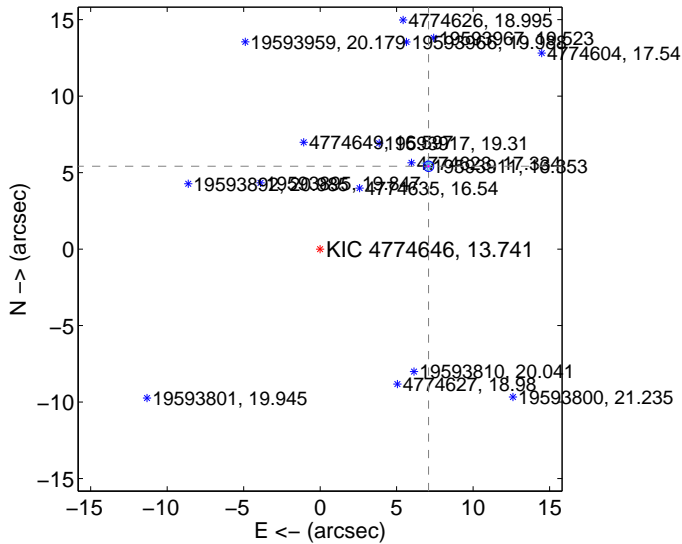
Supplemental centroid analysis for 004774646-01. Kepler magnitude: 13.74. Transit SNR 12.30

There are 5 quarters with good PRF difference image offsets

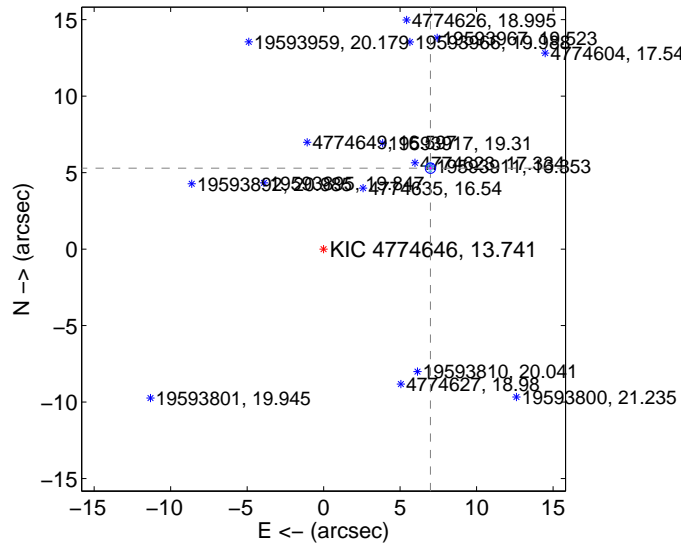
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	8.920 $\pm$ 0.112	79.34	-7.089 $\pm$ 0.121	5.414 $\pm$ 0.095
PRF-fit source offset from KIC position	8.758 $\pm$ 0.113	77.83	-6.981 $\pm$ 0.121	5.288 $\pm$ 0.095
photometric centroid source offset	10.63 $\pm$ 0.85	12.51	-8.90 $\pm$ 0.88	5.81 $\pm$ 0.78

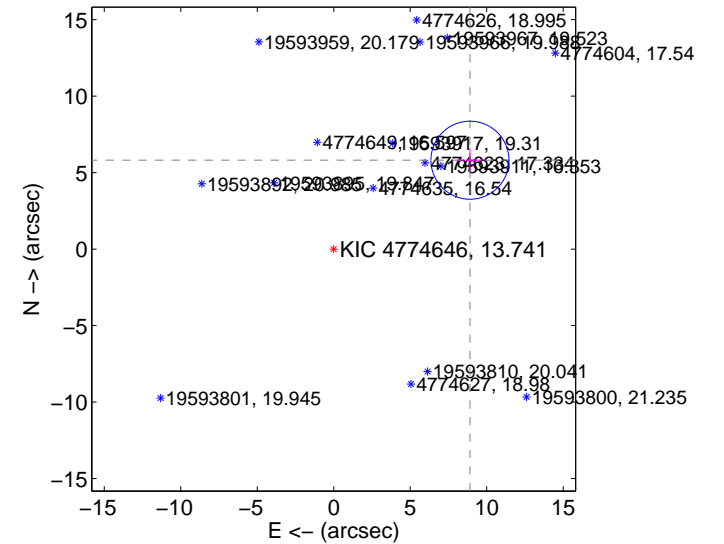
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

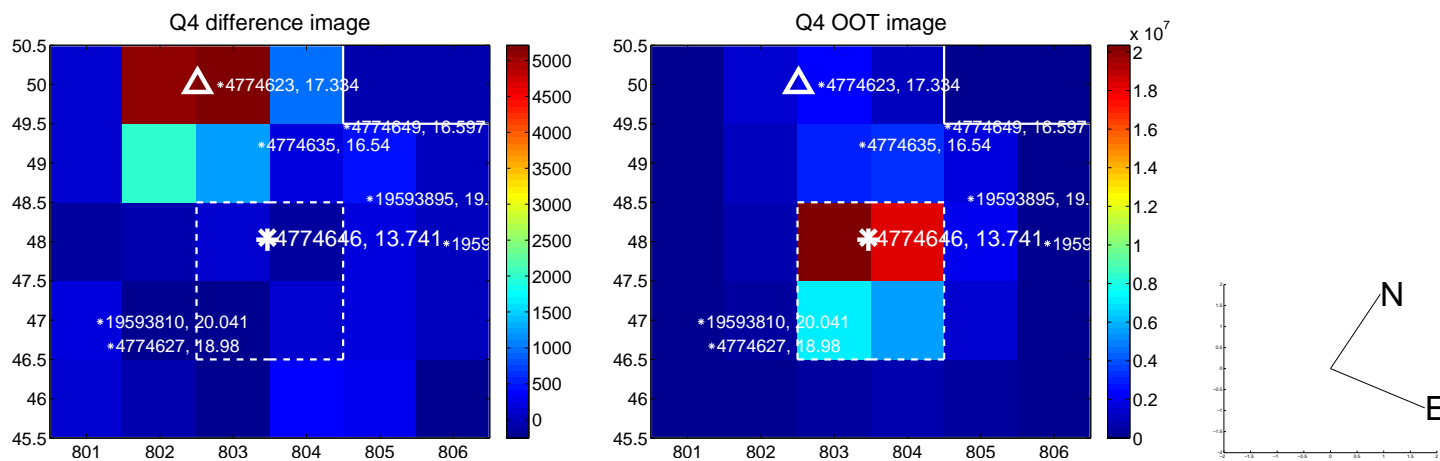
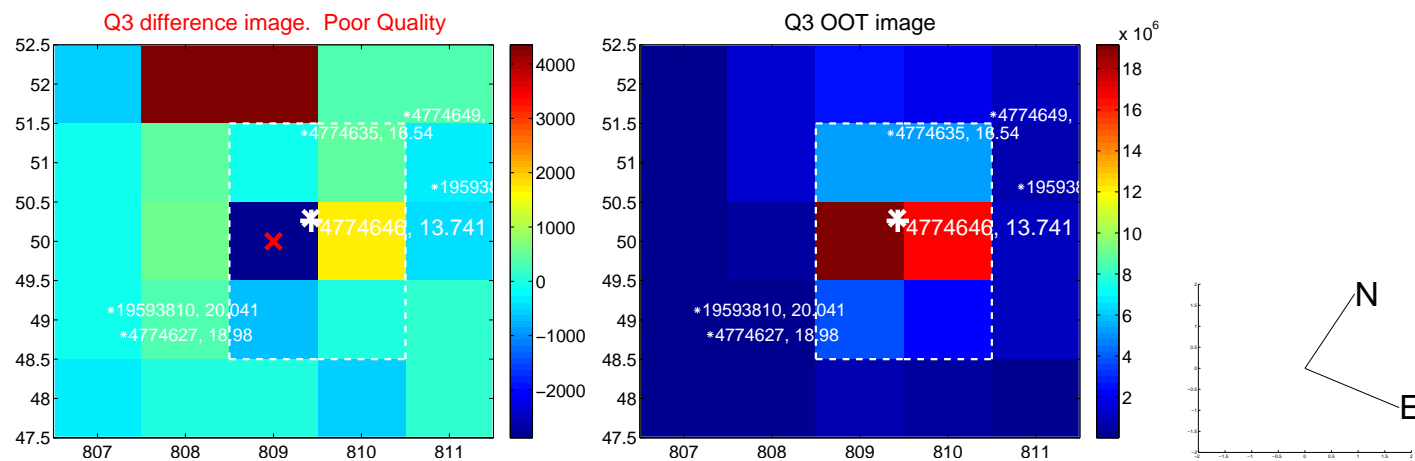
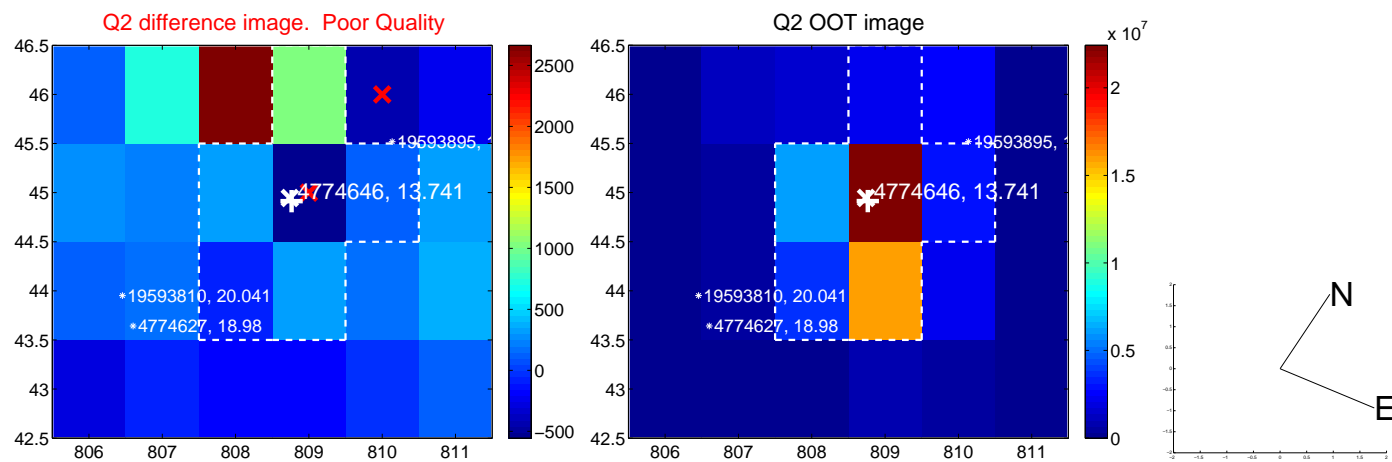
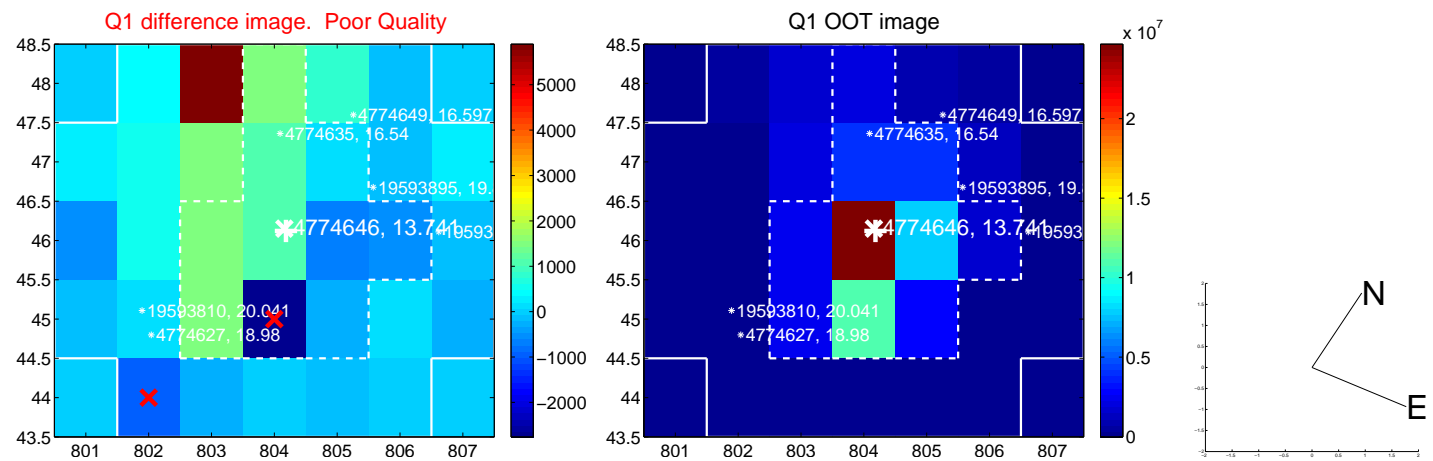


offset from photometric centroids

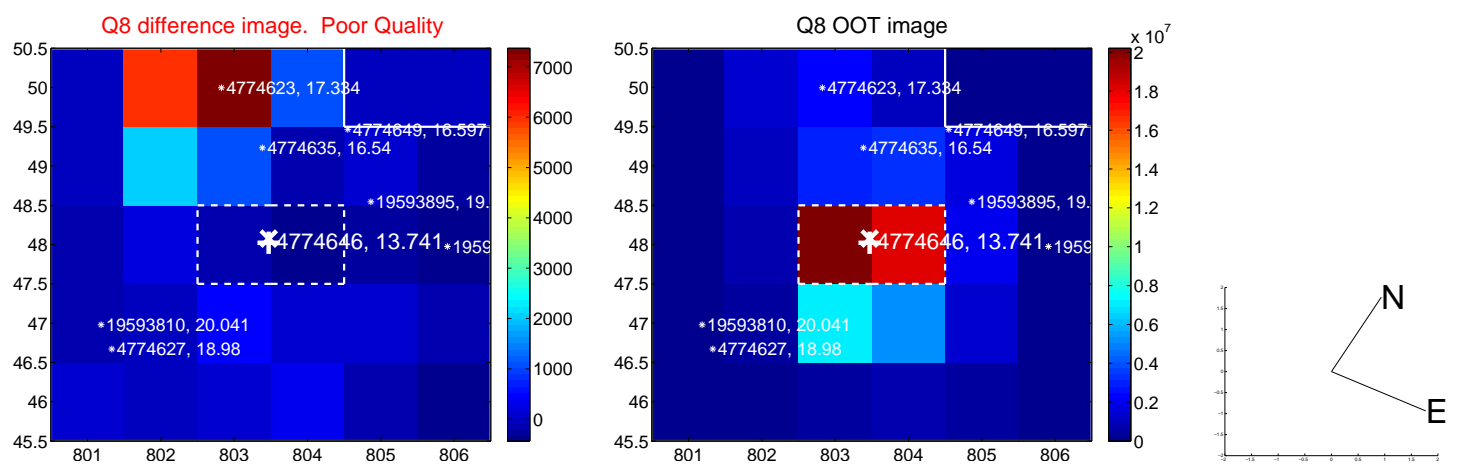
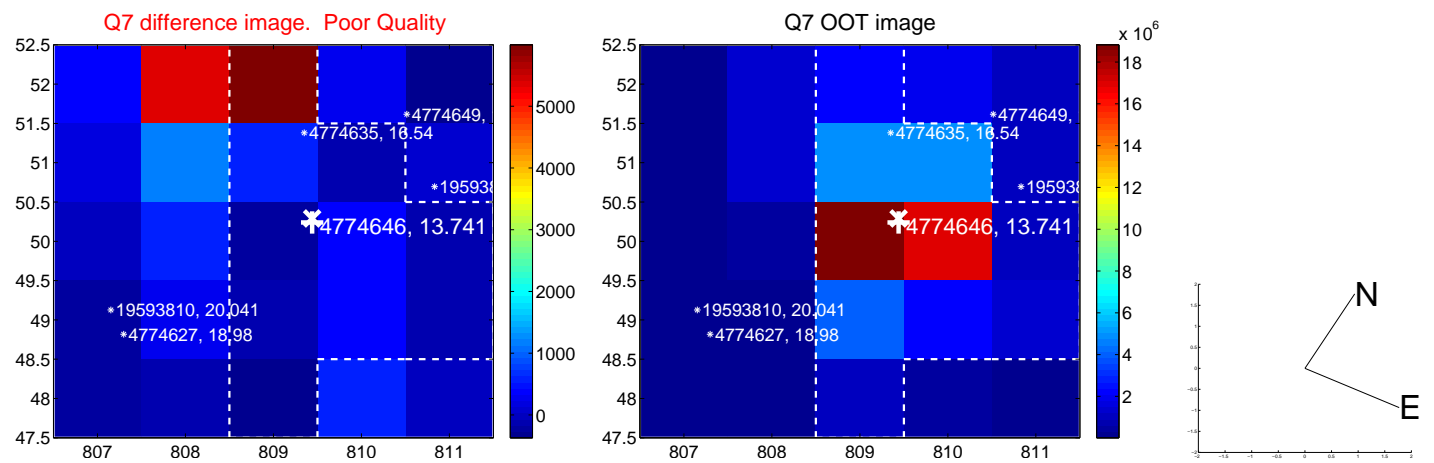
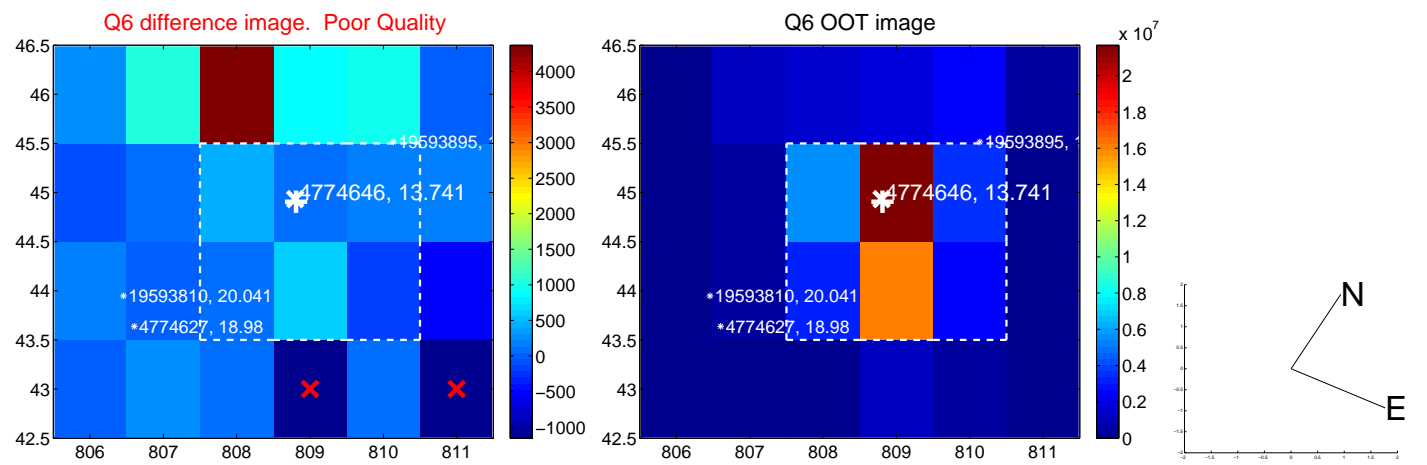
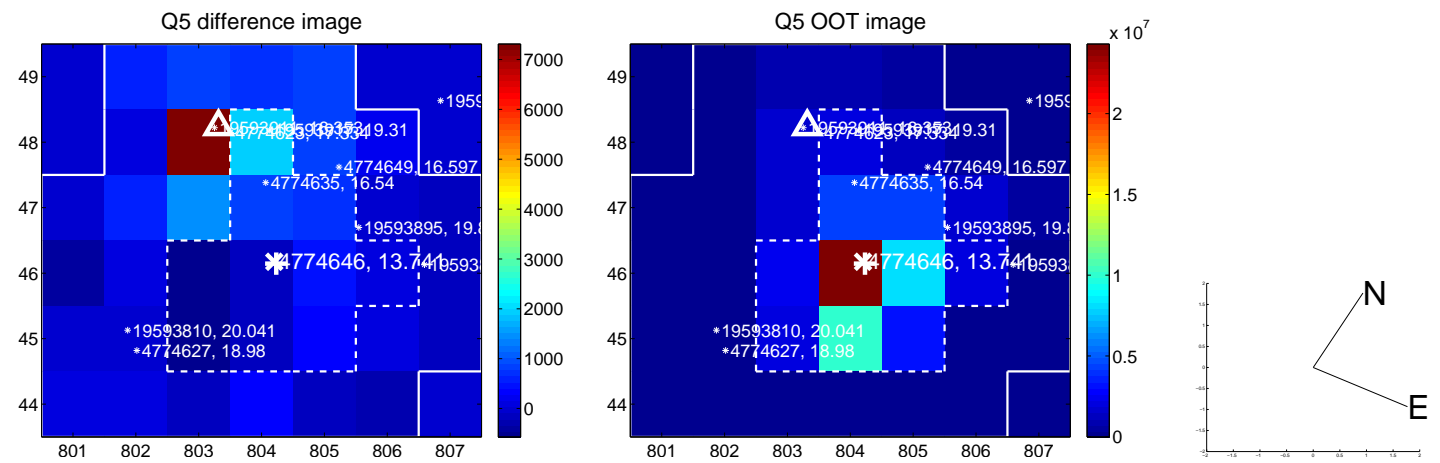


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

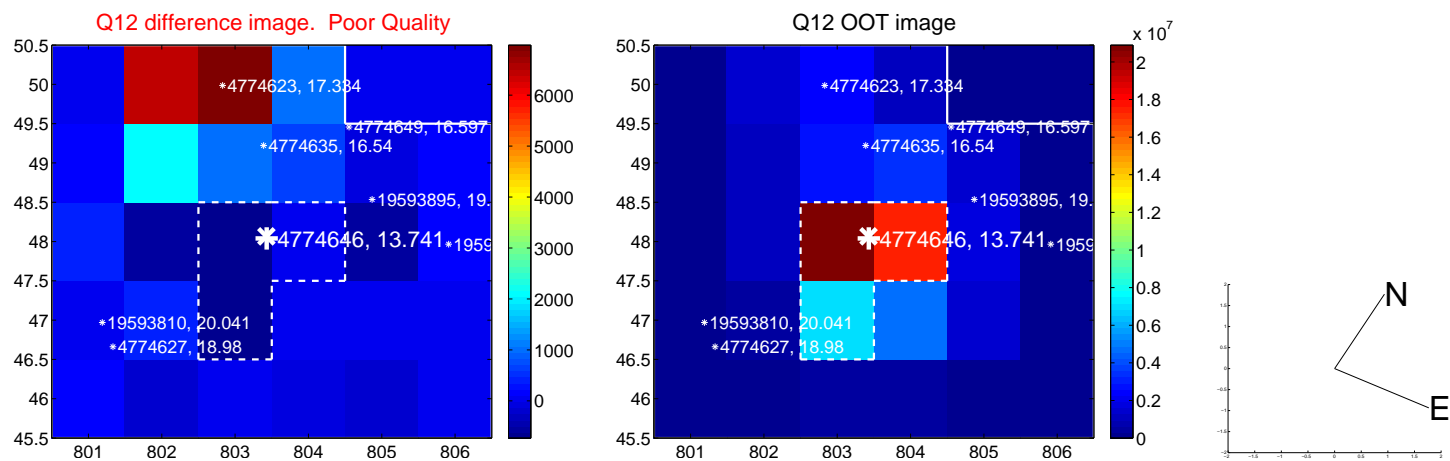
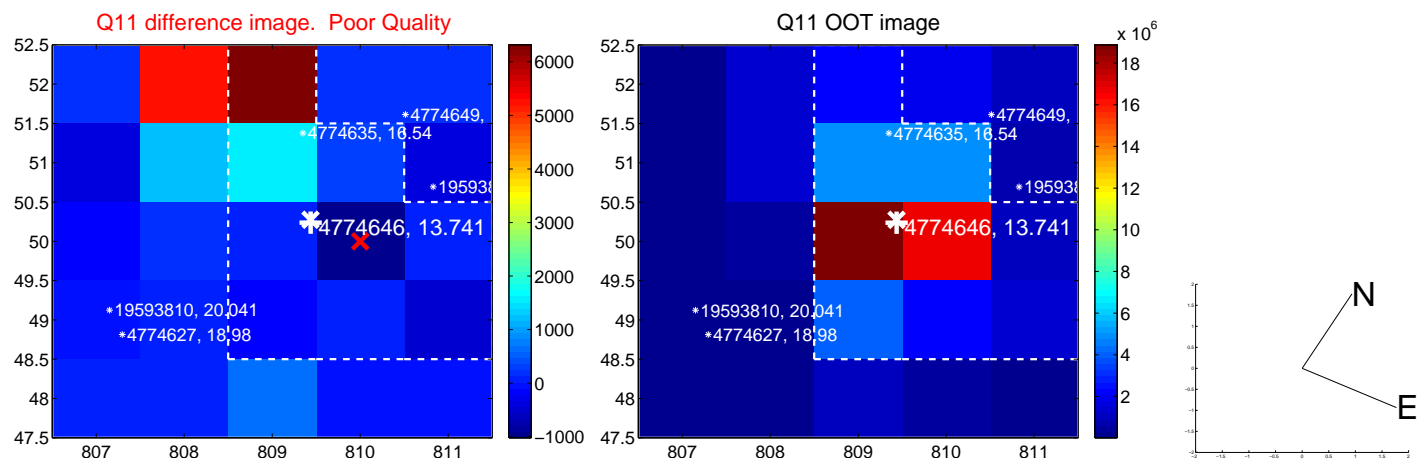
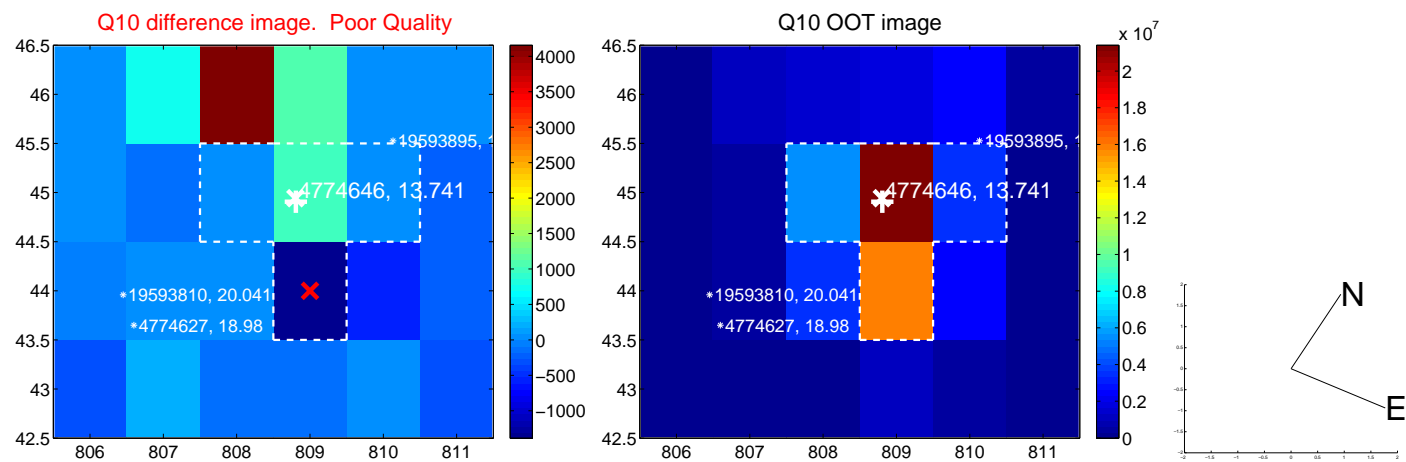
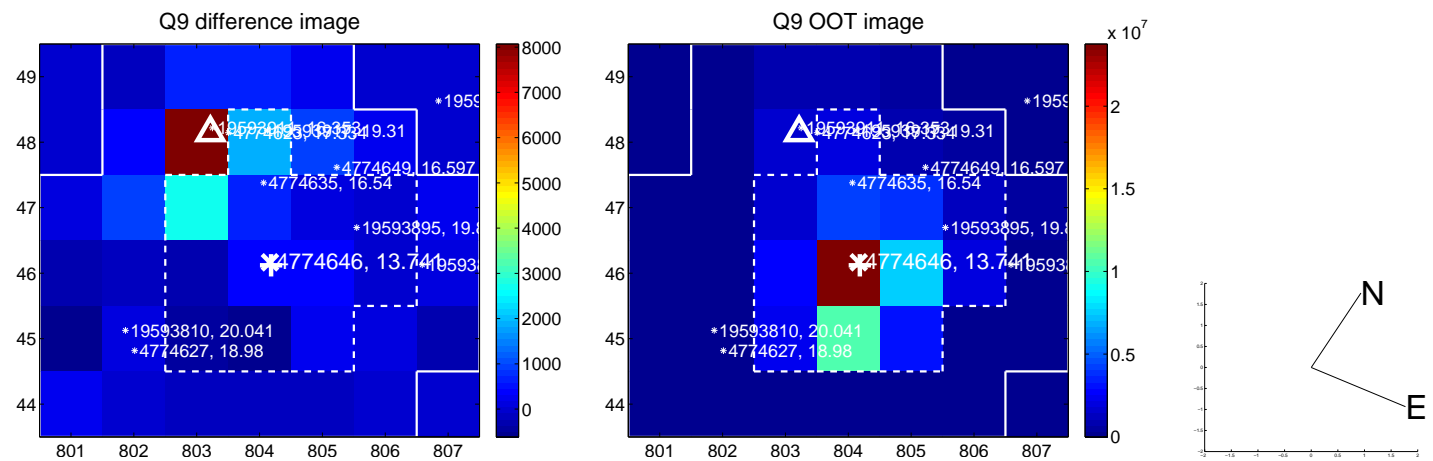


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

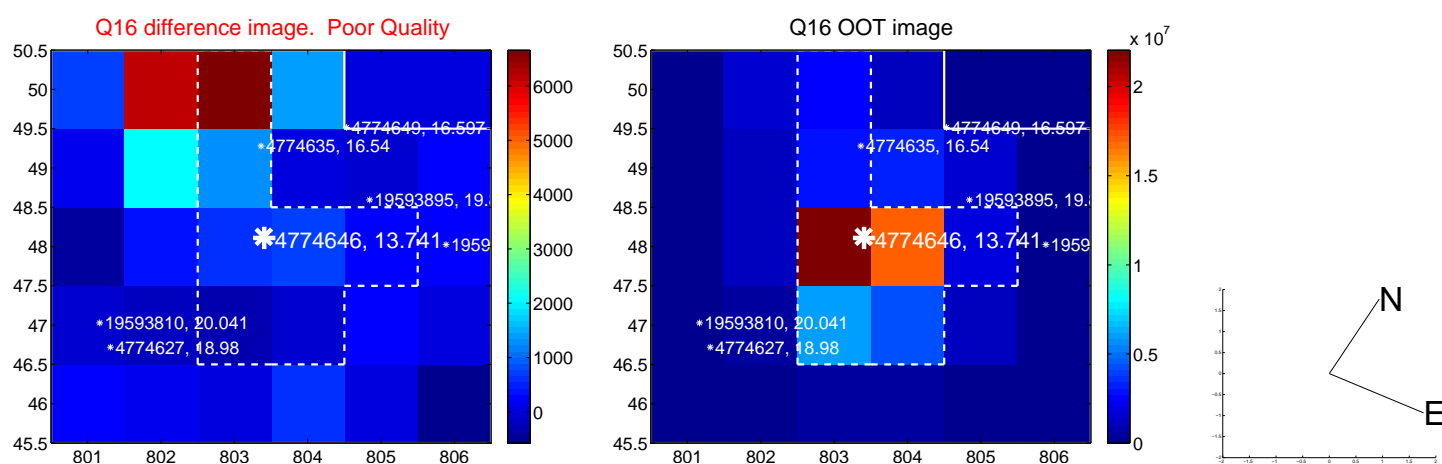
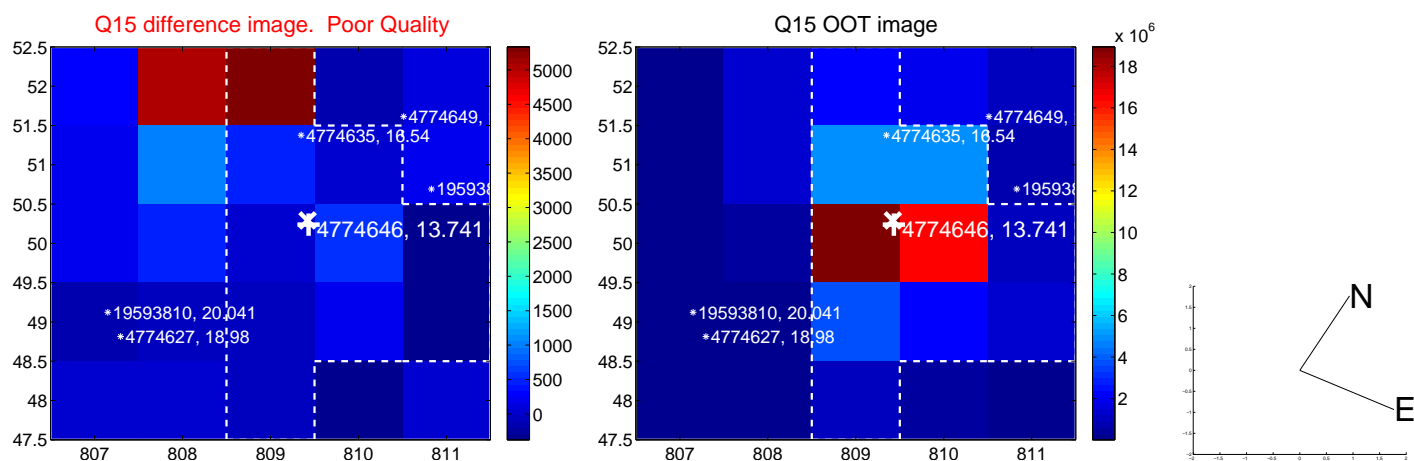
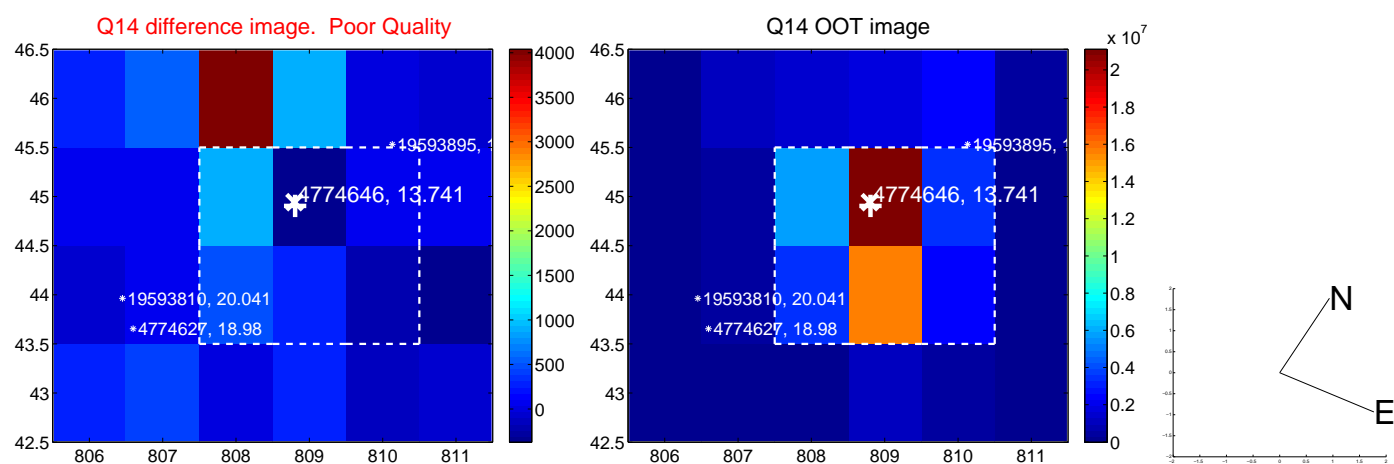
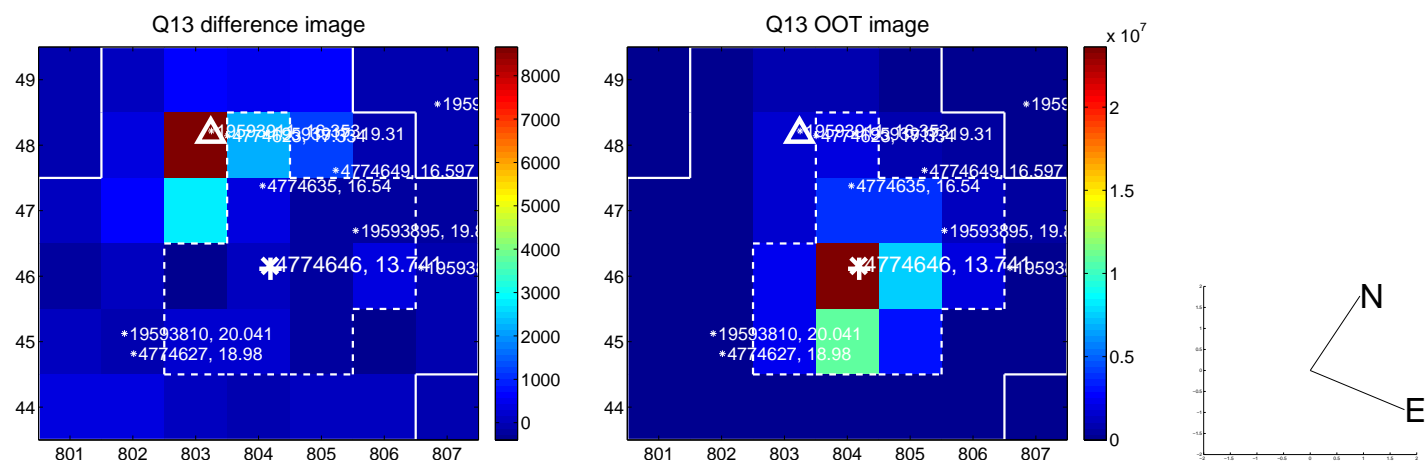




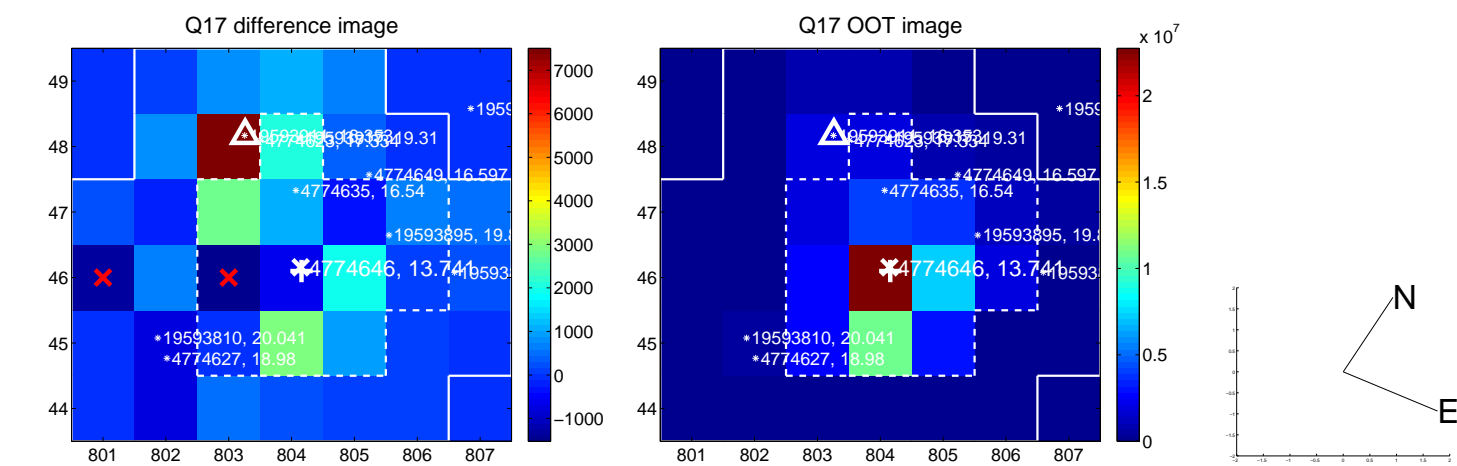
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



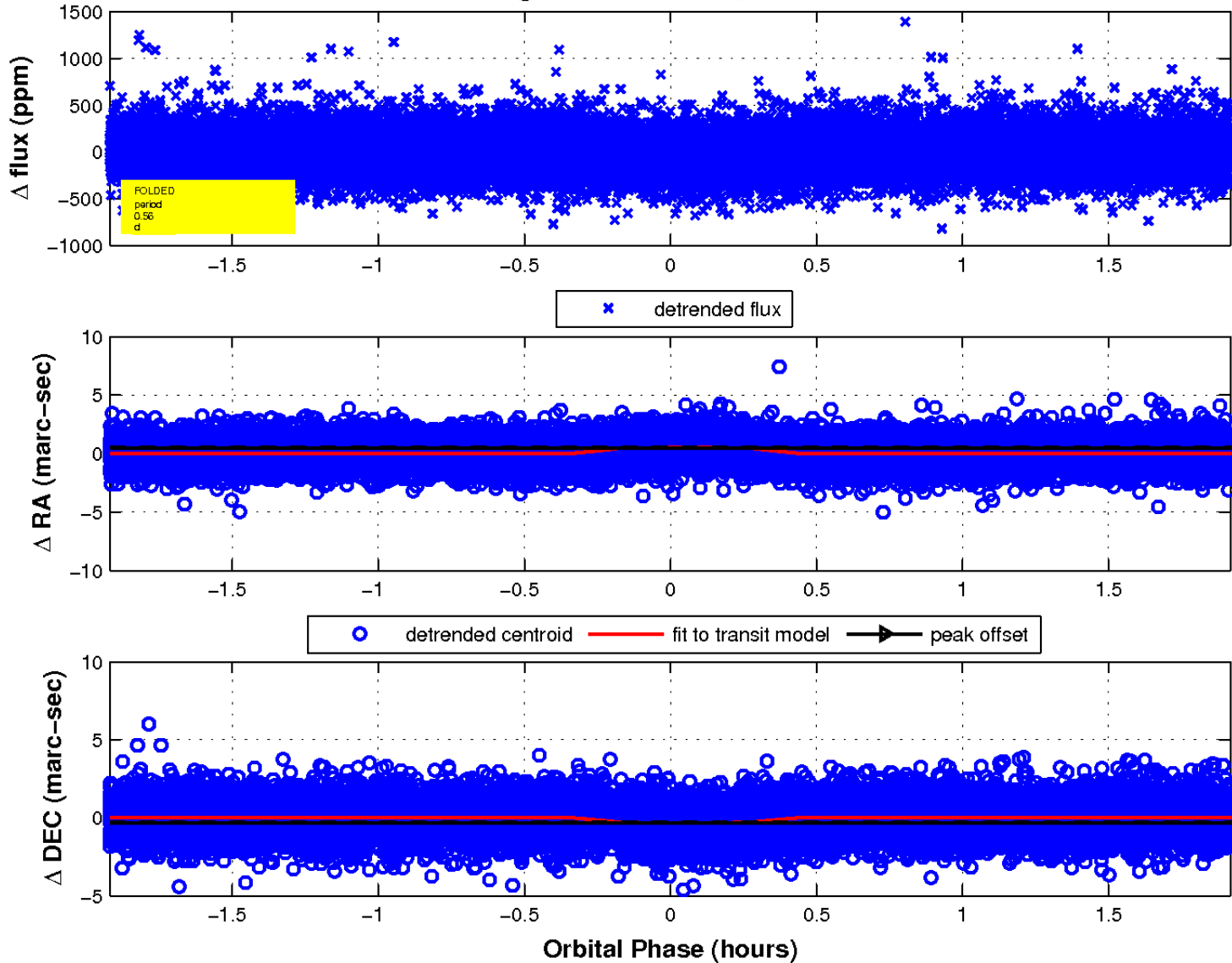
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

