

# KIC 004846539

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004846539-01	OBS	No	2.493523	133.319051	45.0	8.727	7.8	8.0	1.21	6434	1.10	1622.58

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004846539-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT

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

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

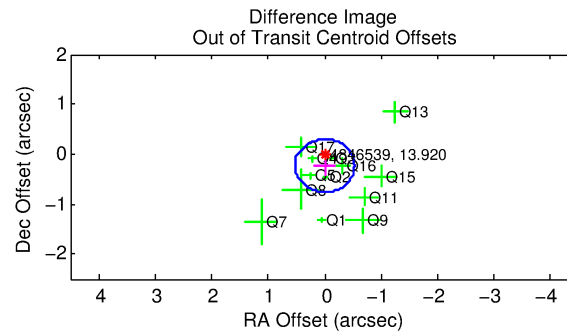
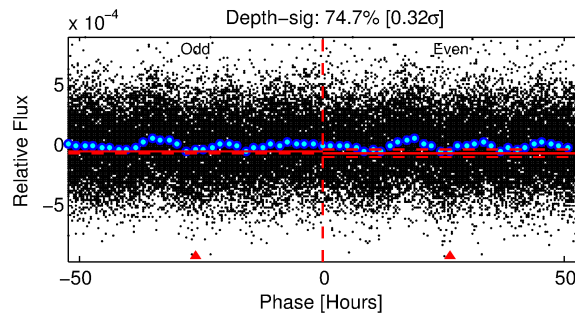
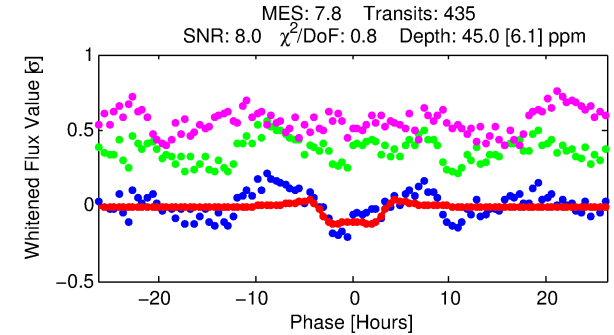
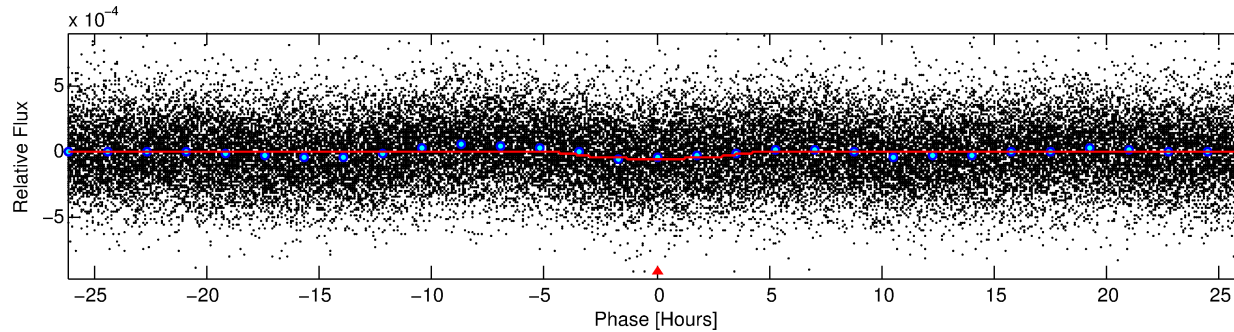
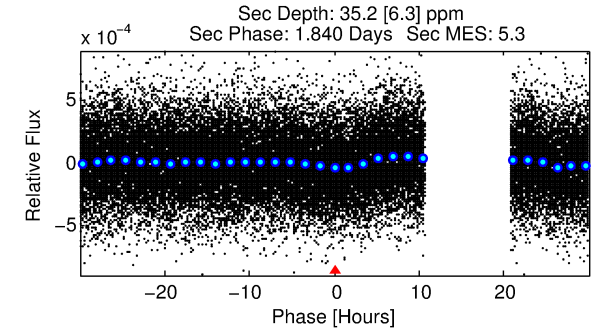
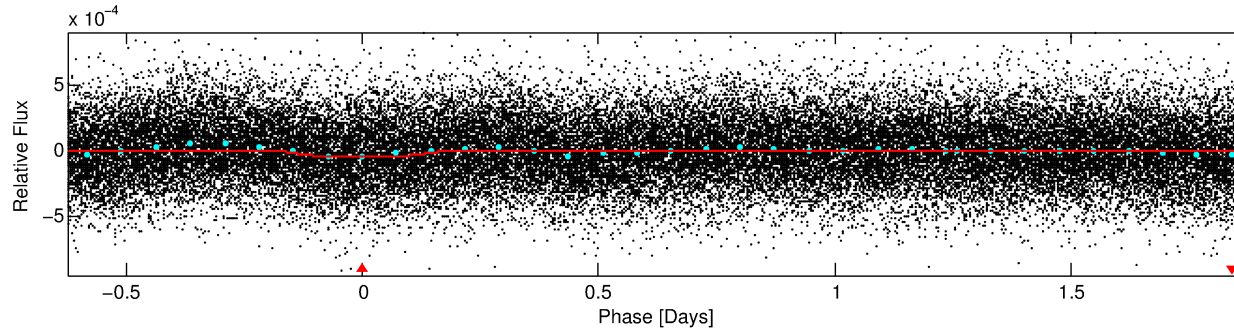
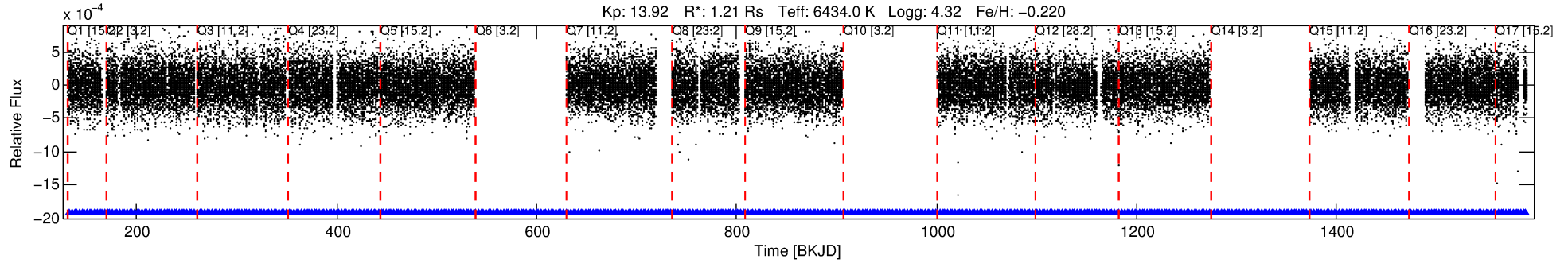
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004846539-01

No Significant Match Found

# DV One-Page Summary

KIC: 4846539 Candidate: 1 of 1 Period: 2.494 d



## DV Fit Results:

Period = 2.49352 [0.00005] d  
Epoch = 133.3191 [0.0147] BKJD  
Rp/R\* = 0.0084 [0.0007]  
a/R\* = 1.09 [0.04]  
b = 0.99 [0.01]  
Seff = 1622.58 [633.19]  
Teq = 1618 [158] K  
Rp = 1.10 [0.36] Re  
a = 0.0371 [0.0096] AU  
Ag = 21.86 [9.62] [2.17σ]  
Teffp = 5410 [375] K [9.33σ]

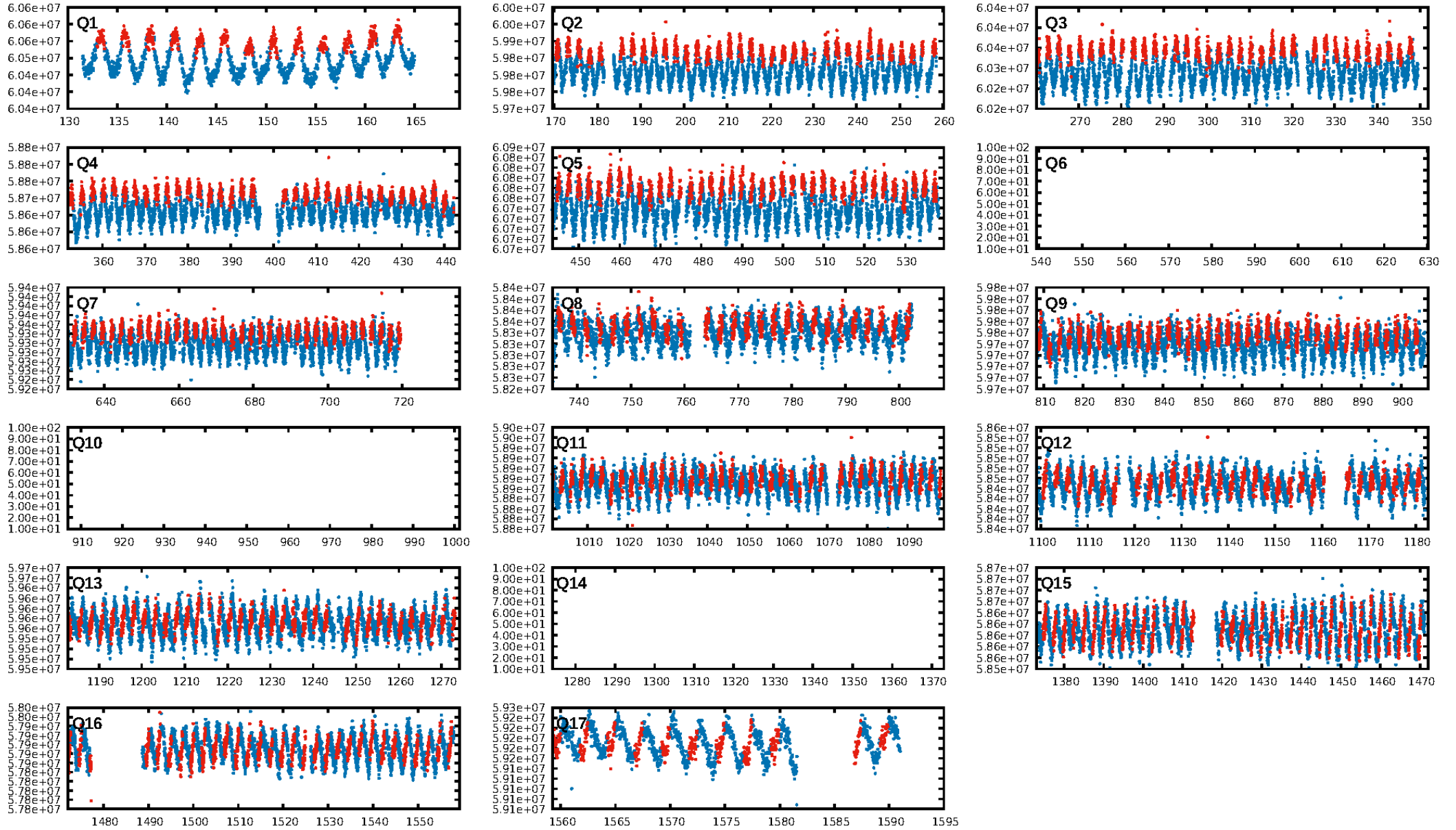
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 6.68e-10**  
RollingBand-fgt: 1.00 [411/411]  
**GhostDiagnostic-chr: -0.9425**  
Centroid-sig: 3.3%  
Centroid-so: 1.672 arcsec [1.92σ]  
OotOffset-rm: 0.229 arcsec [1.30σ]  
KicOffset-rm: 0.111 arcsec [0.54σ]  
OotOffset-st: 1/4/3/5 [13]  
KicOffset-st: 1/4/3/5 [13]  
DiffImageQuality-fgm: 0.31 [4/13]  
DiffImageOverlap-fno: 1.00 [14/14]

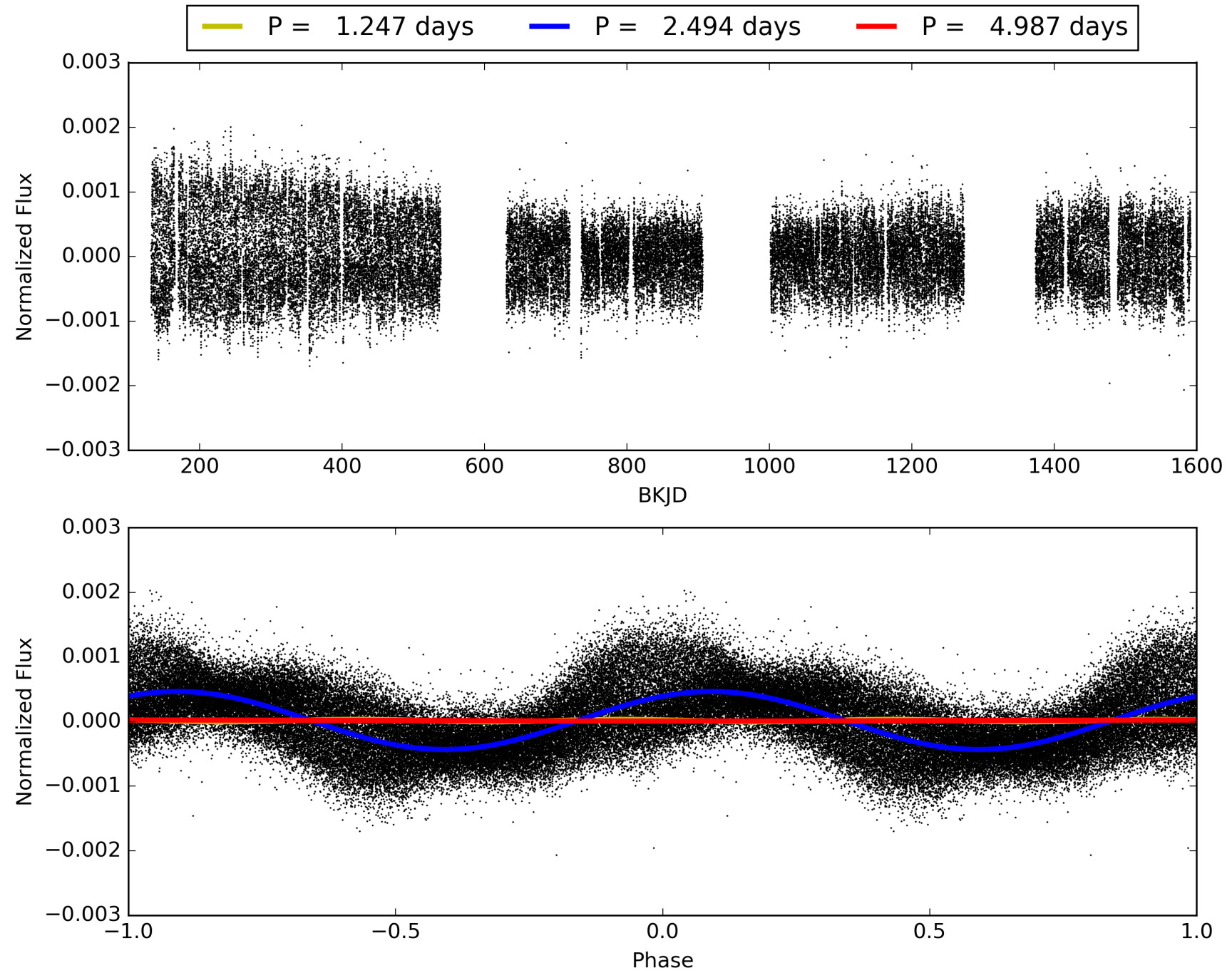
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:46:20 Z

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

# TCE 004846539-01, PDC Light Curves

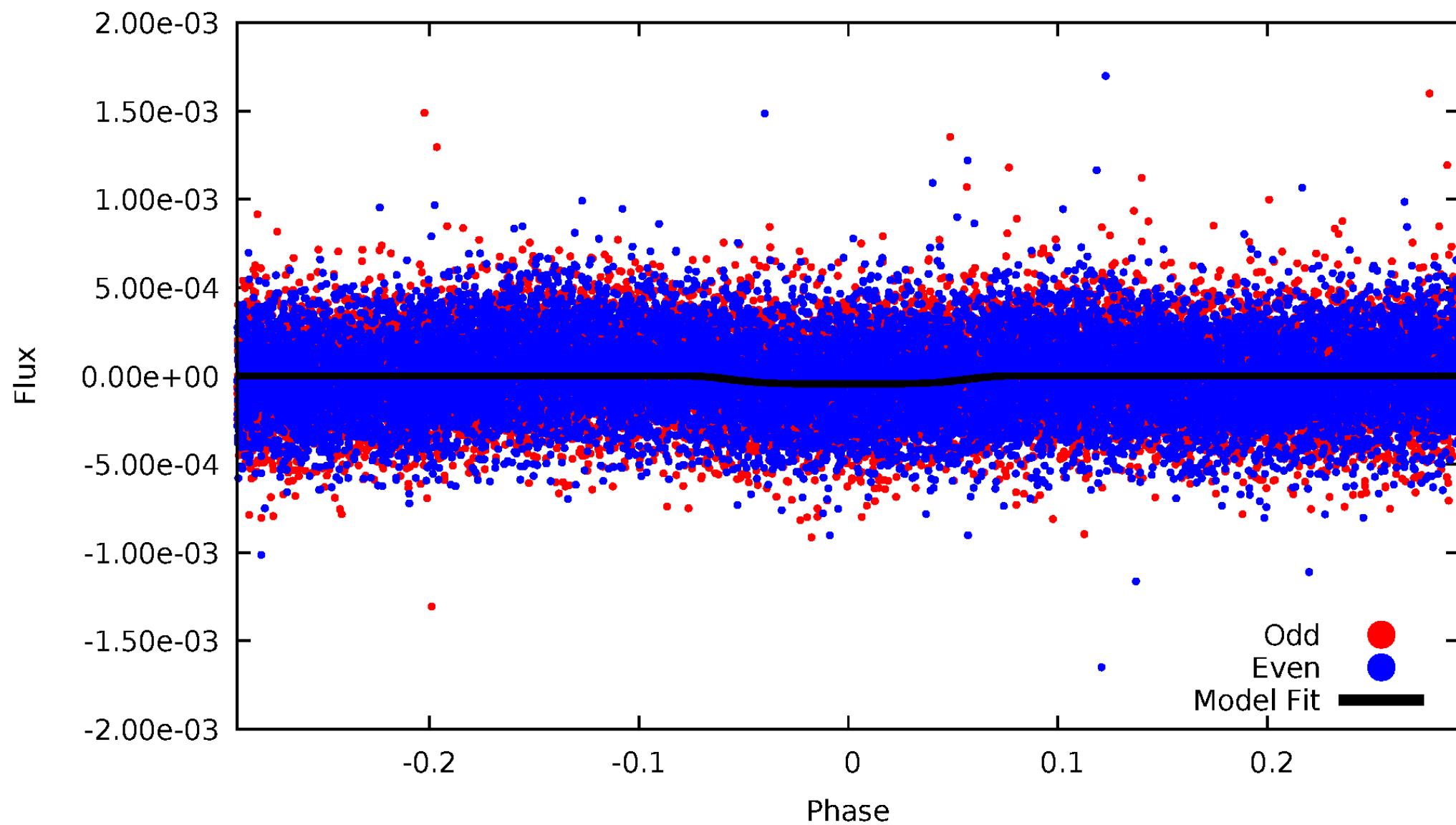


TCE 004846539-01



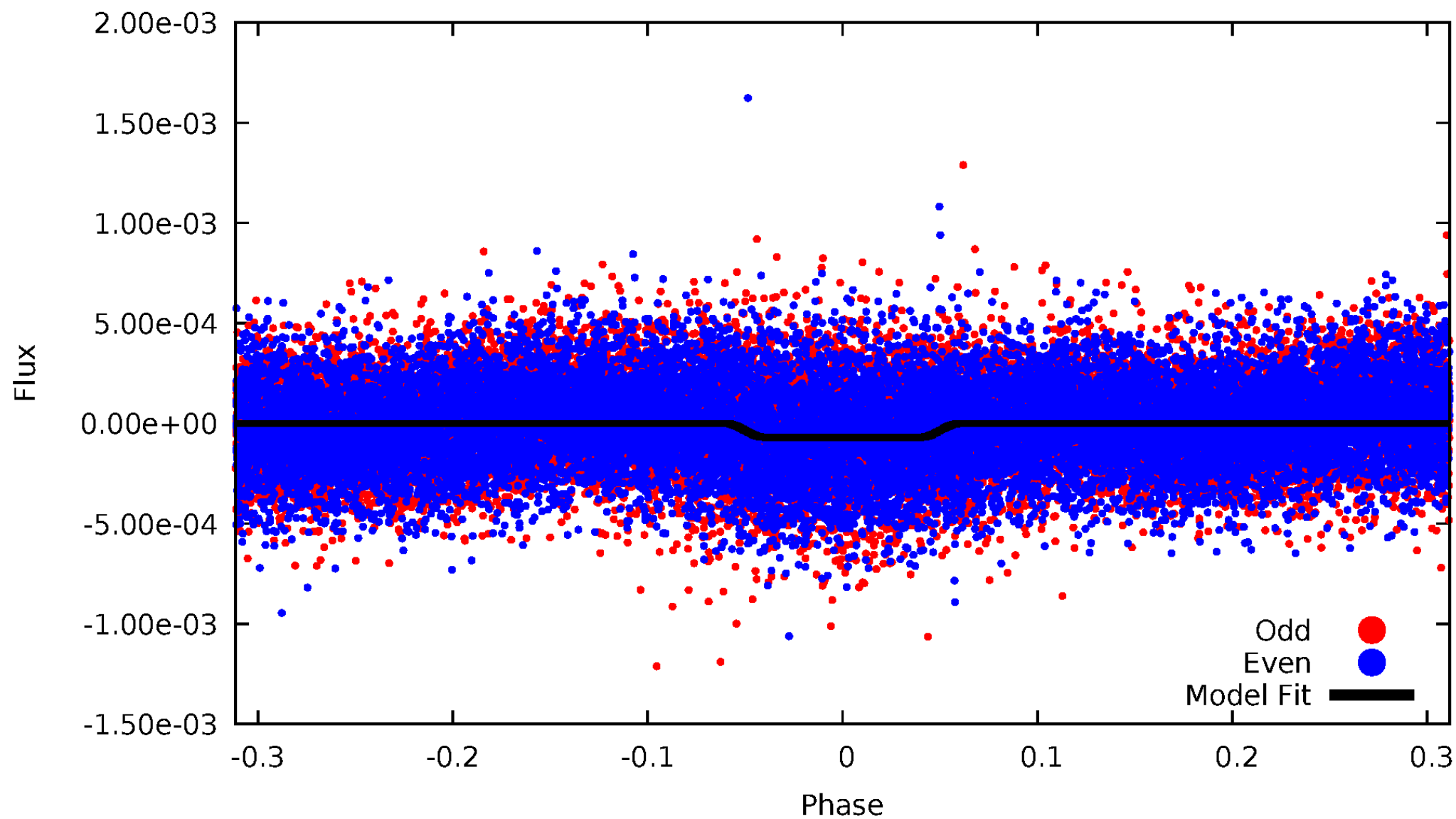
# DV Odd/Even

TCE 004846539-01



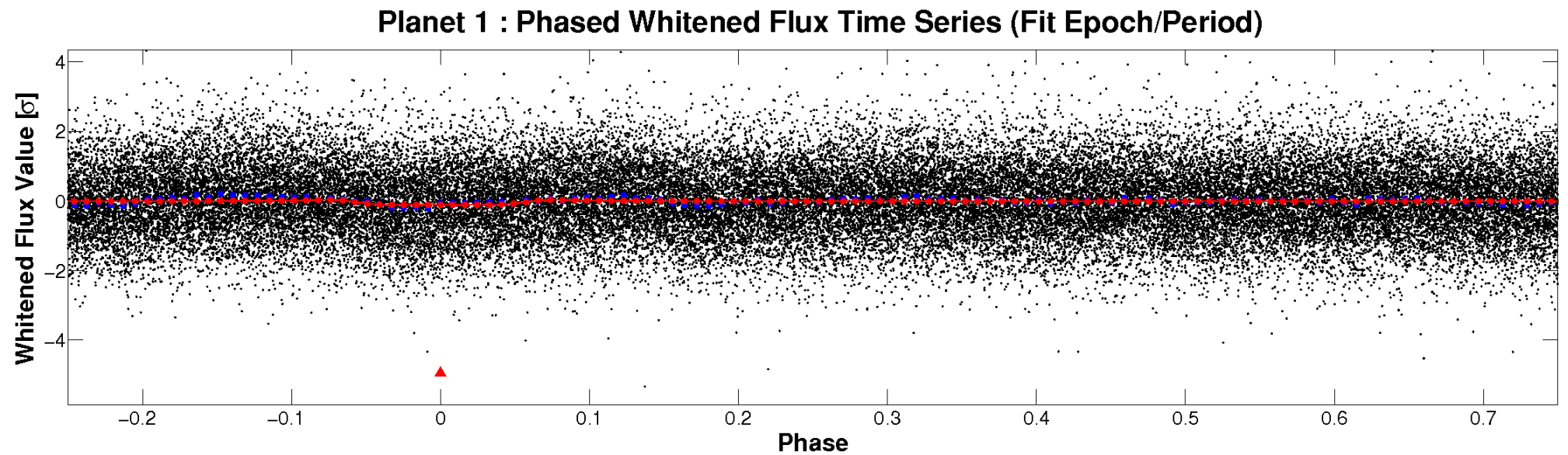
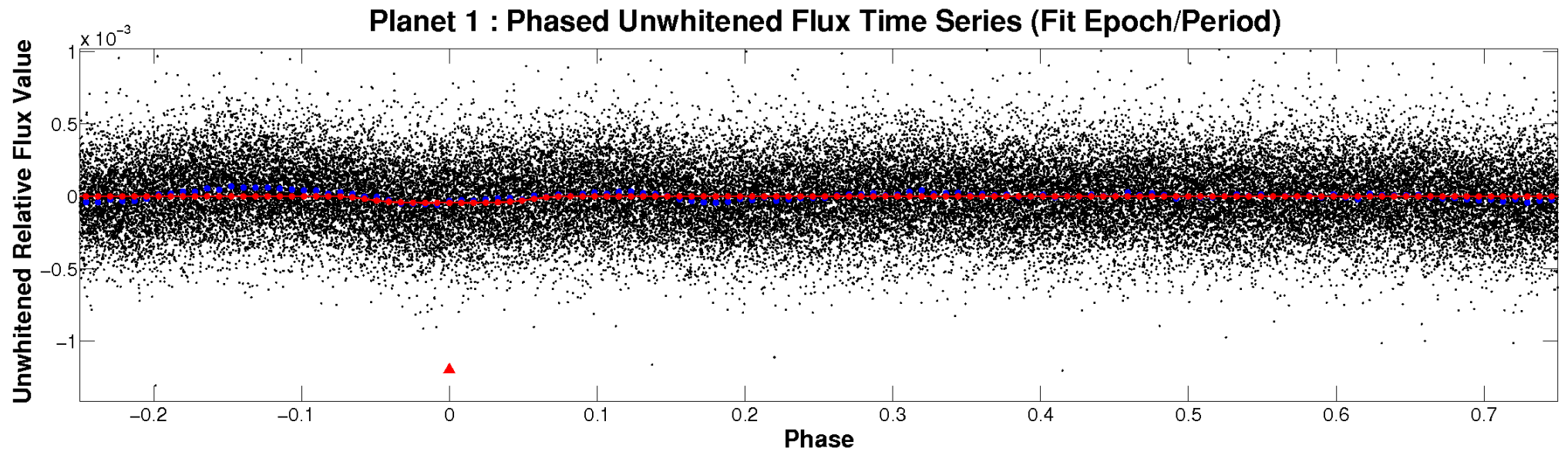
# ALT Odd/Even

TCE 004846539-01



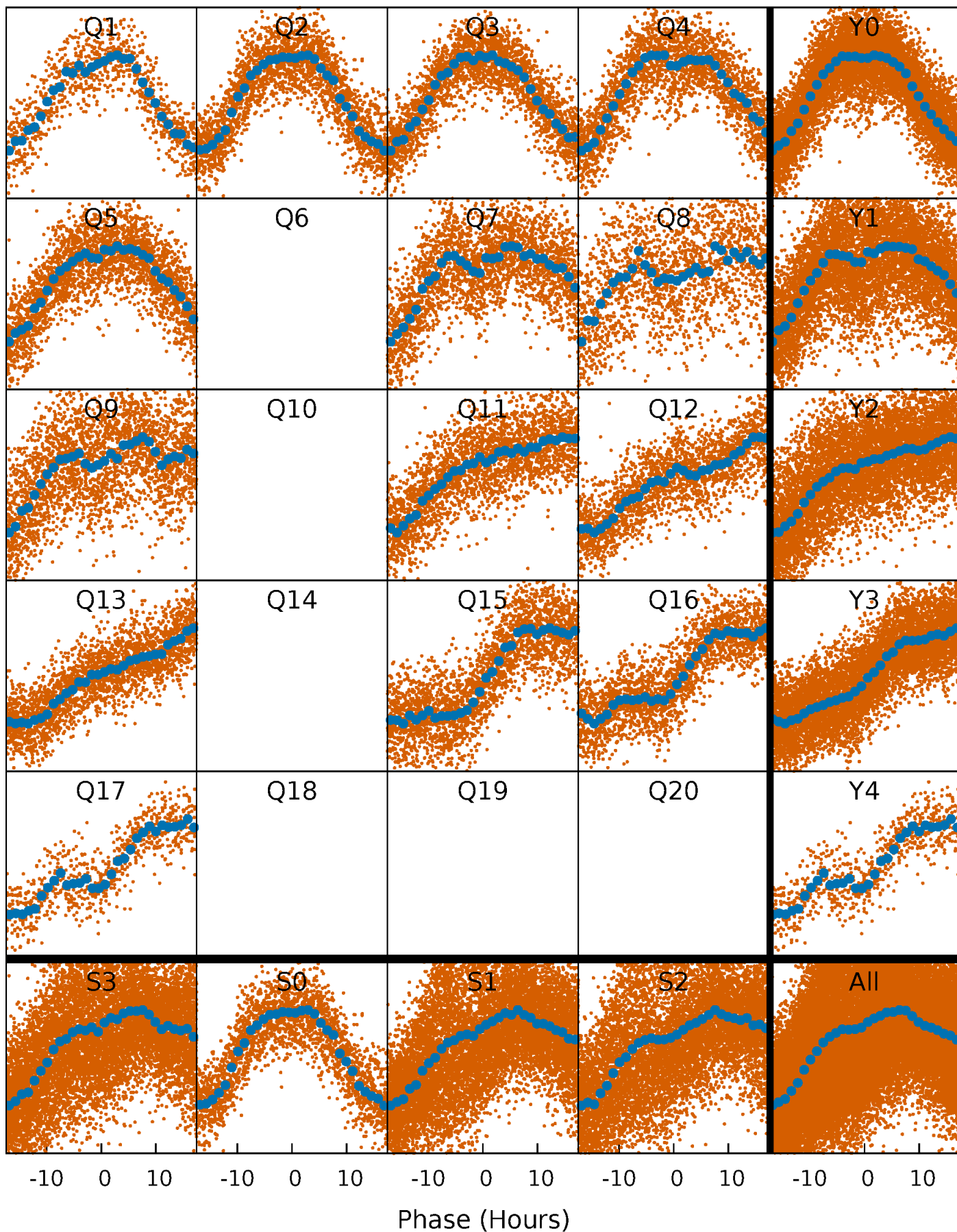


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

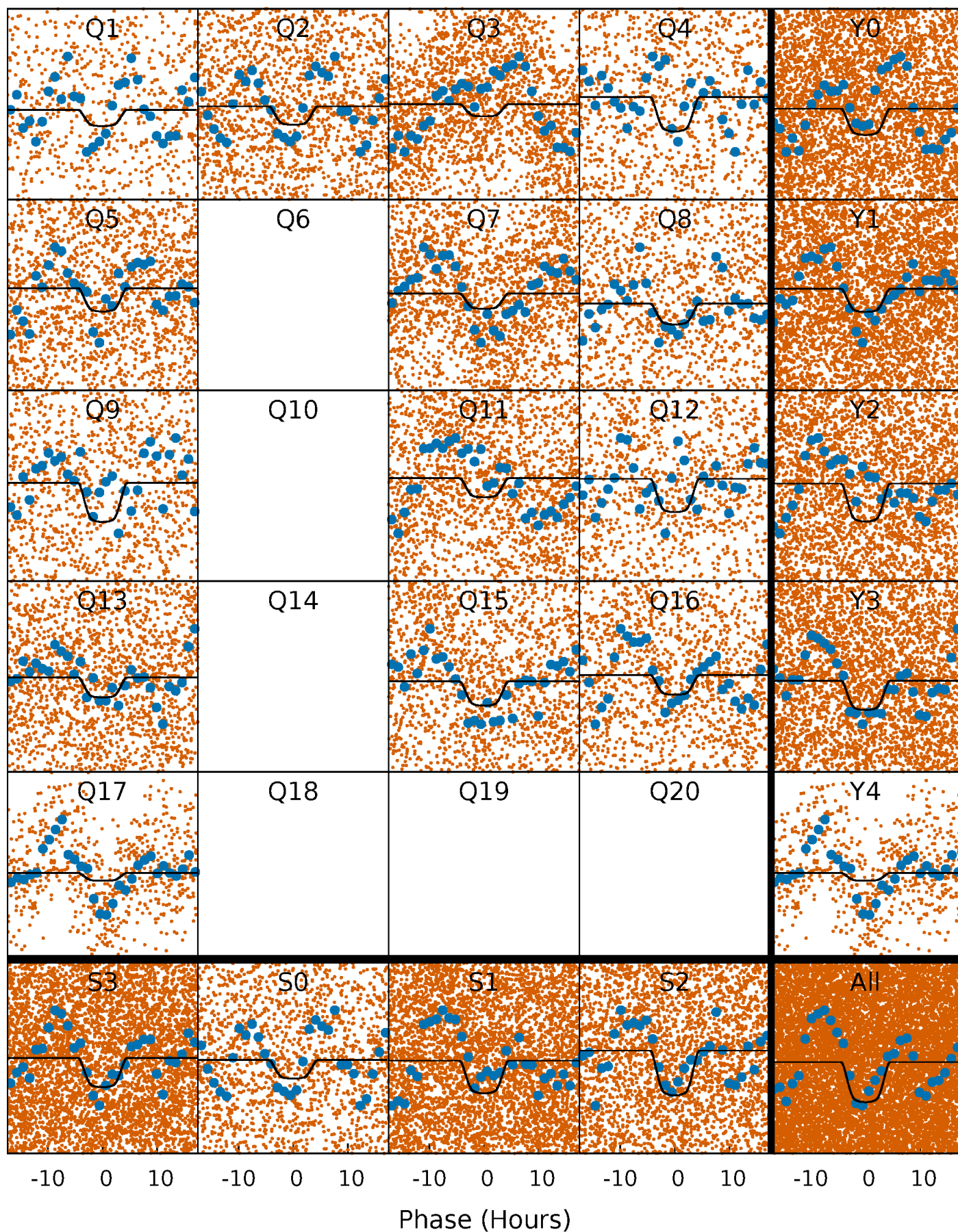
TCE 004846539-01 P= 2.493523 Days  $T_0=133.319051$  (BKJD)





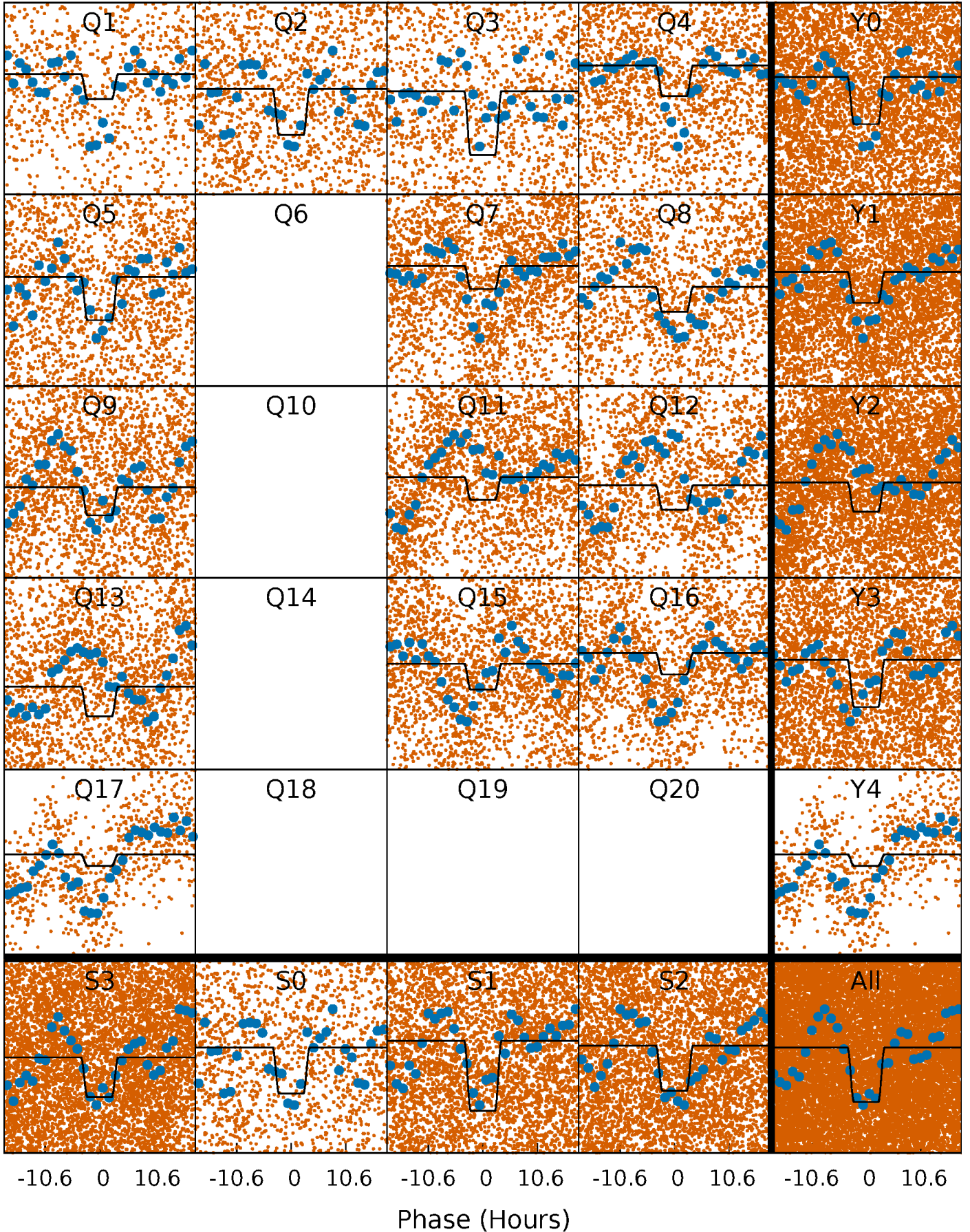
# DV Quarter-Phased Transit Curves

TCE 004846539-01 P= 2.493523 Days  $T_0=133.319051$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004846539-01 P= 2.493668 Days  $T_0=133.282188$  (BKJD)

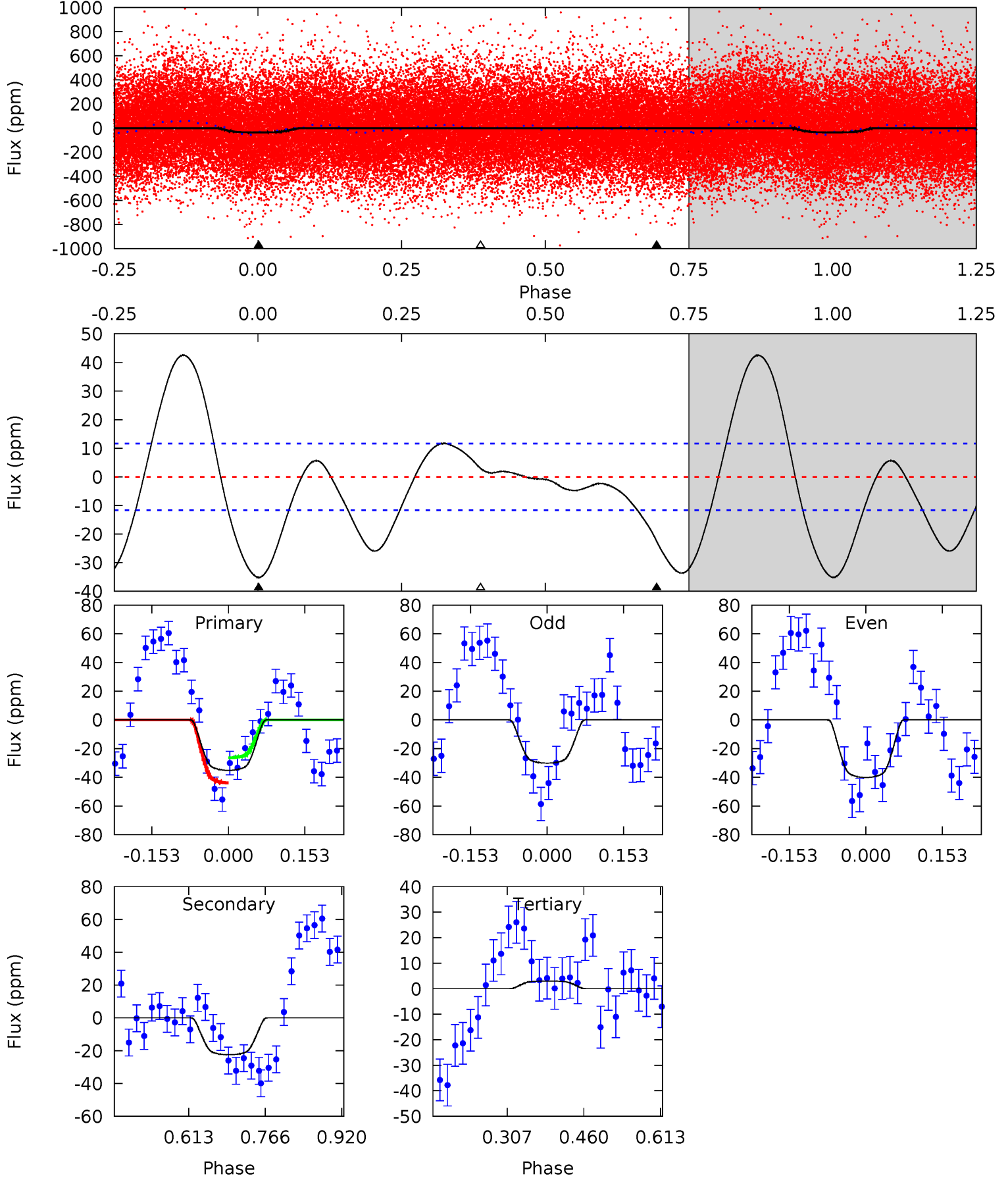




# DV Model-Shift Uniqueness Test

004846539-01, P = 2.493523 Days, E = 130.825528 Days

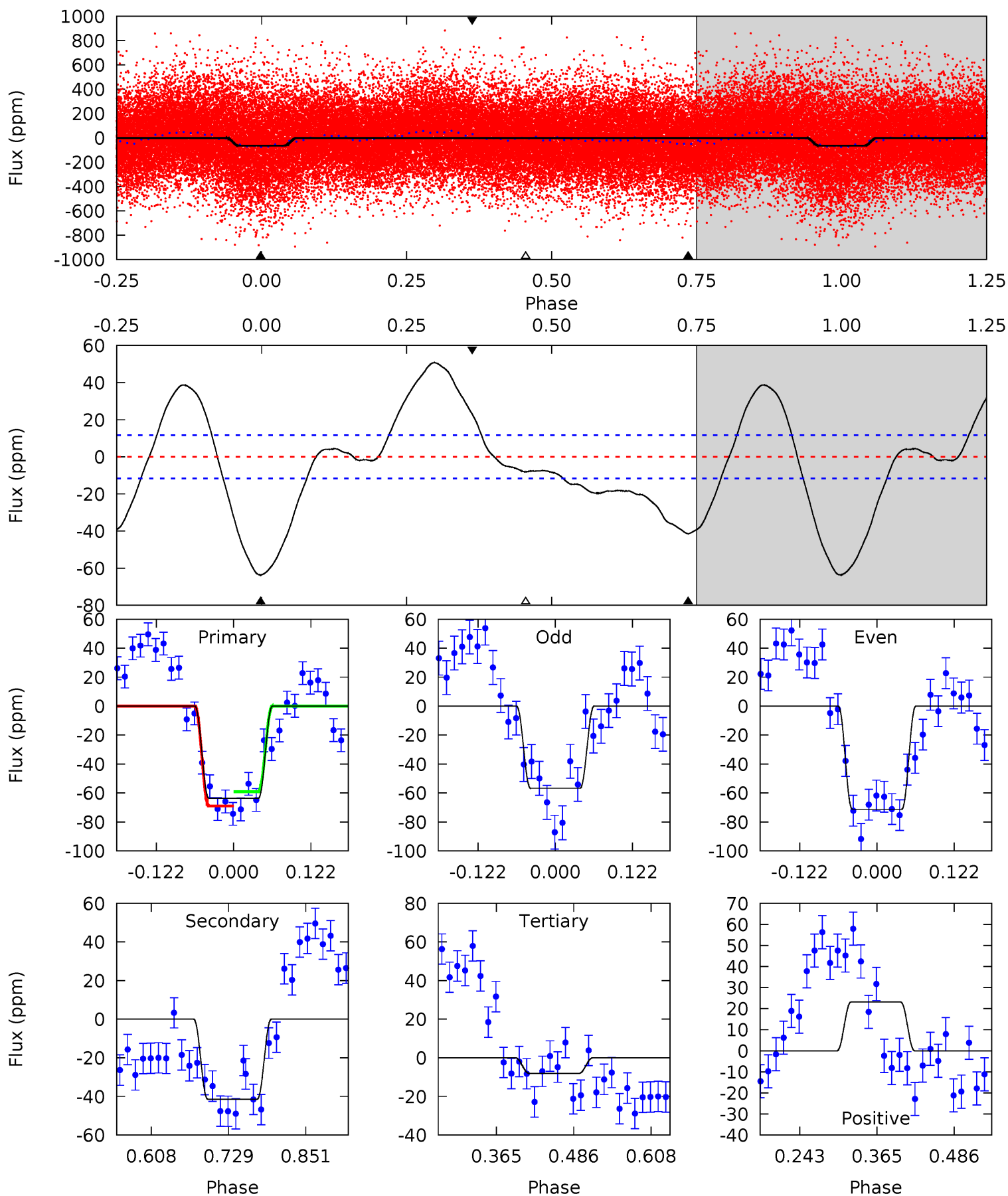
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	8.64	-1.14	0	4.47	1.43	4.29	14.7	13.5	9.79	8.64	1.92	0.59	0.55	3.37



# Alt Model-Shift Uniqueness Test

004846539-01, P = 2.493668 Days, E = 130.788520 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
24.8	16.1	3.14	9.01	4.52	1.55	8.56	21.6	15.8	13.0	7.10	2.82	0.98	0.44	1.90



### Stellar Parameters For KIC 004846539

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6434^{+155}_{-214}$	$4.315^{+0.105}_{-0.195}$	$-0.220^{+0.250}_{-0.300}$	$1.207^{+0.384}_{-0.192}$	$1.095^{+0.177}_{-0.129}$	$0.878^{+0.422}_{-0.453}$
	+2%/-3%	+2%/-5%	+114%/-136%	+32%/-16%	+16%/-12%	+48%/-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 004846539-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-22 \pm 3$	$1.14^{+0.21}_{-0.15}$	$2288^{+175}_{-125}$	$4892^{+249}_{-233}$	$13^{+4}_{-4}$
Alt.	$-41 \pm 3$	$1.13^{+0.19}_{-0.15}$	$2282^{+158}_{-128}$	$5607^{+280}_{-253}$	$24^{+7}_{-6}$

$T_{\text{max}}$  = 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

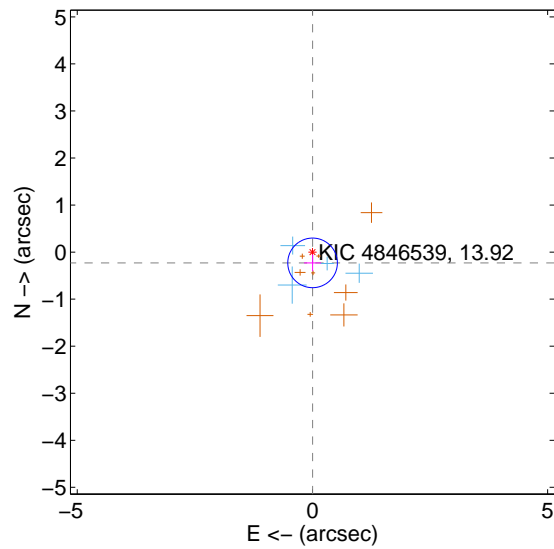
Supplemental centroid analysis for 004846539-01. Kepler magnitude: 13.92. Transit SNR 8.03

There are 4 quarters with good PRF difference image offsets

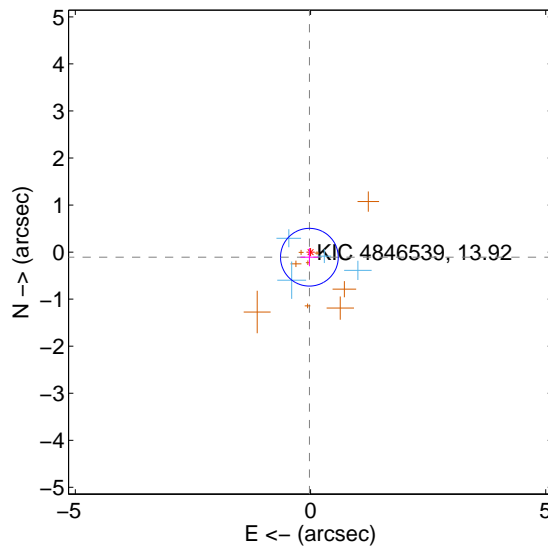
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.229 \pm 0.176$	1.30	$-0.003 \pm 0.182$	$-0.229 \pm 0.176$
PRF-fit source offset from KIC position	$0.111 \pm 0.205$	0.54	$0.024 \pm 0.189$	$-0.109 \pm 0.193$
photometric centroid source offset	$1.67 \pm 0.87$	1.92	$-1.19 \pm 0.83$	$1.18 \pm 0.91$

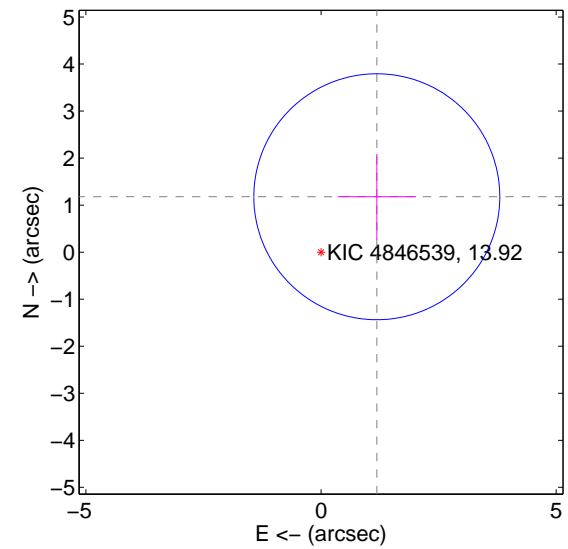
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

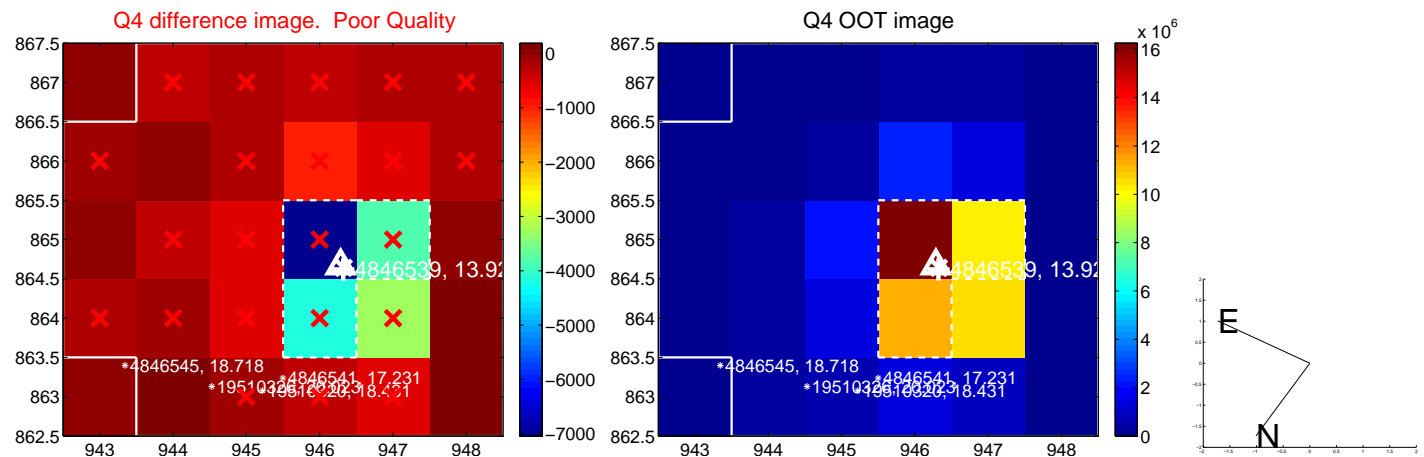
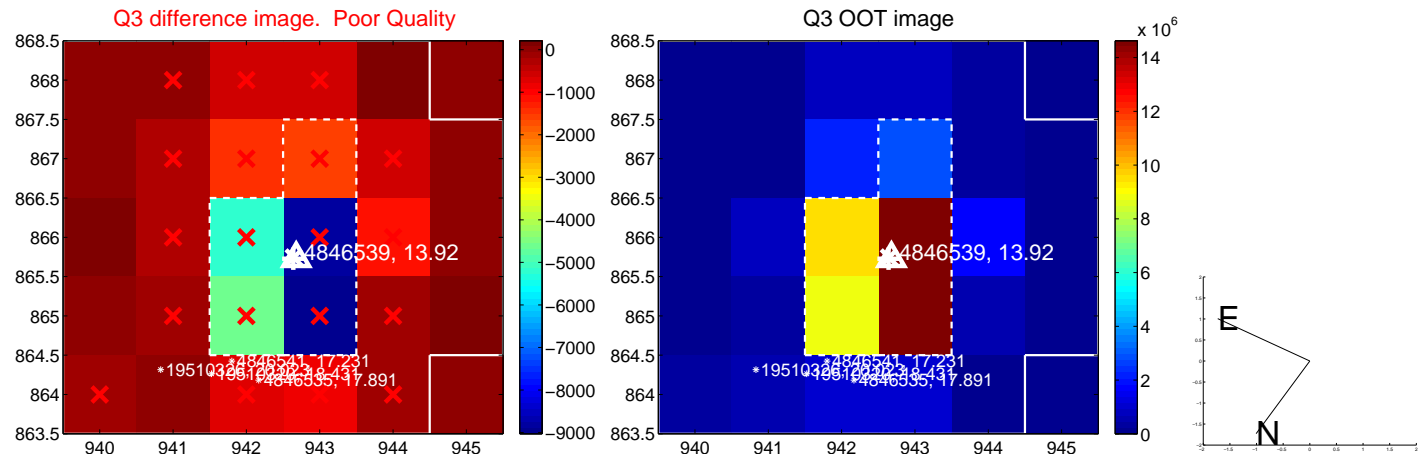
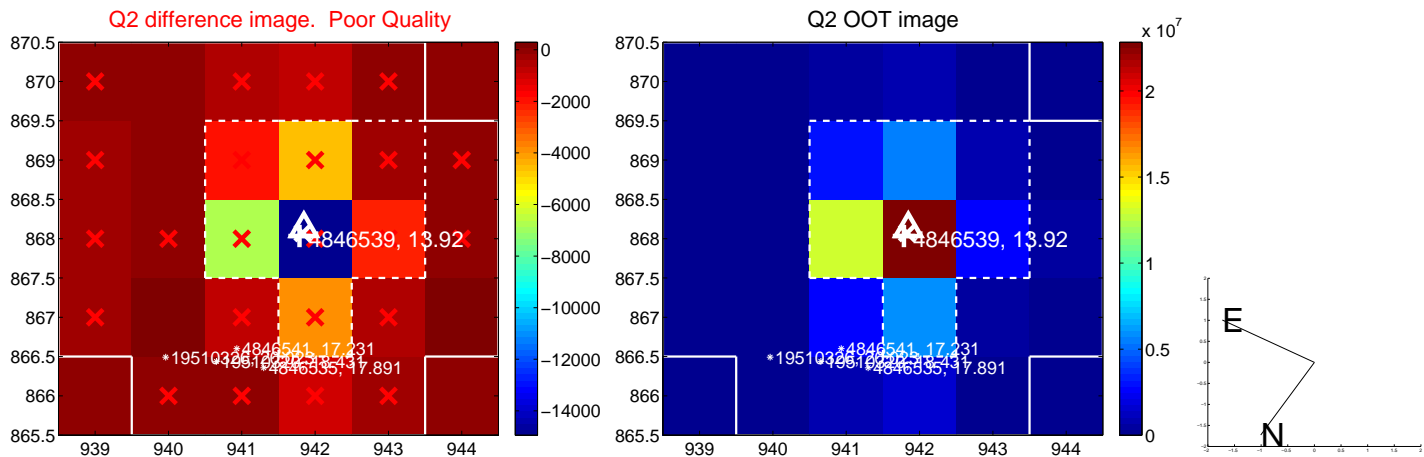
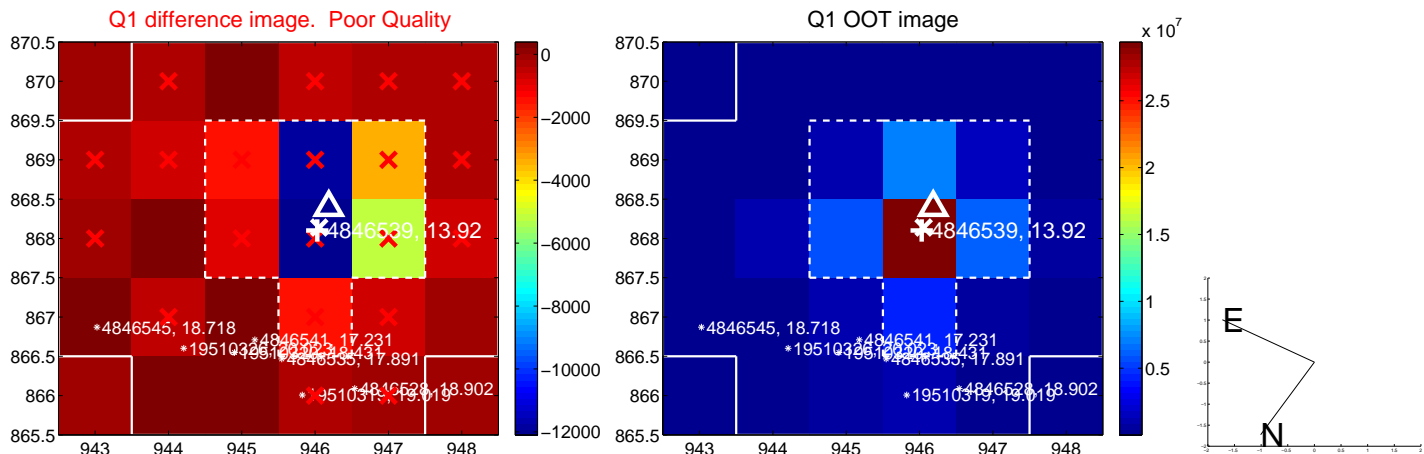


offset from photometric centroids

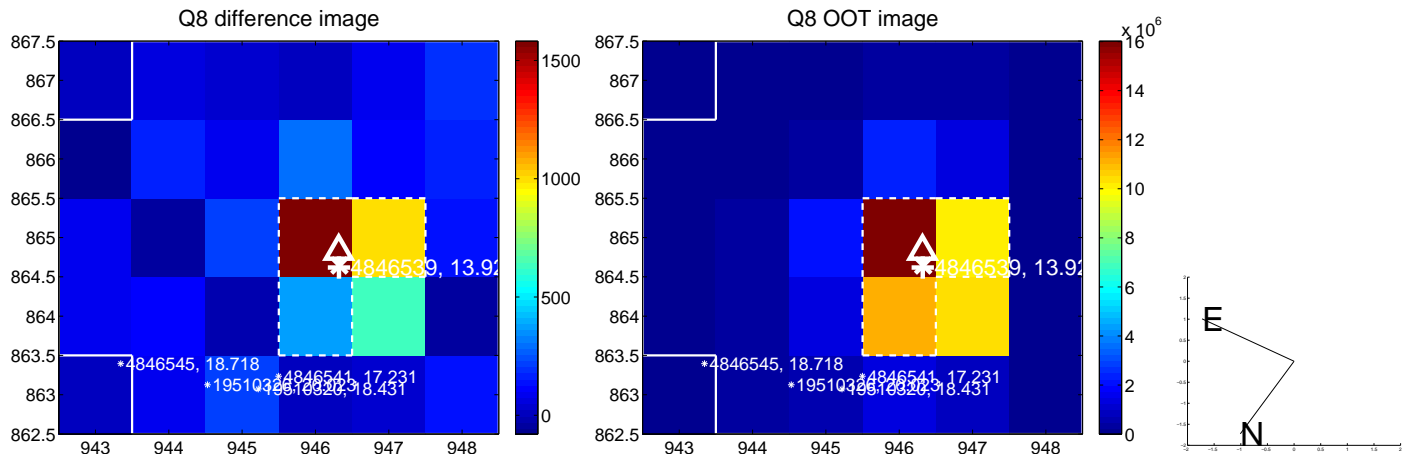
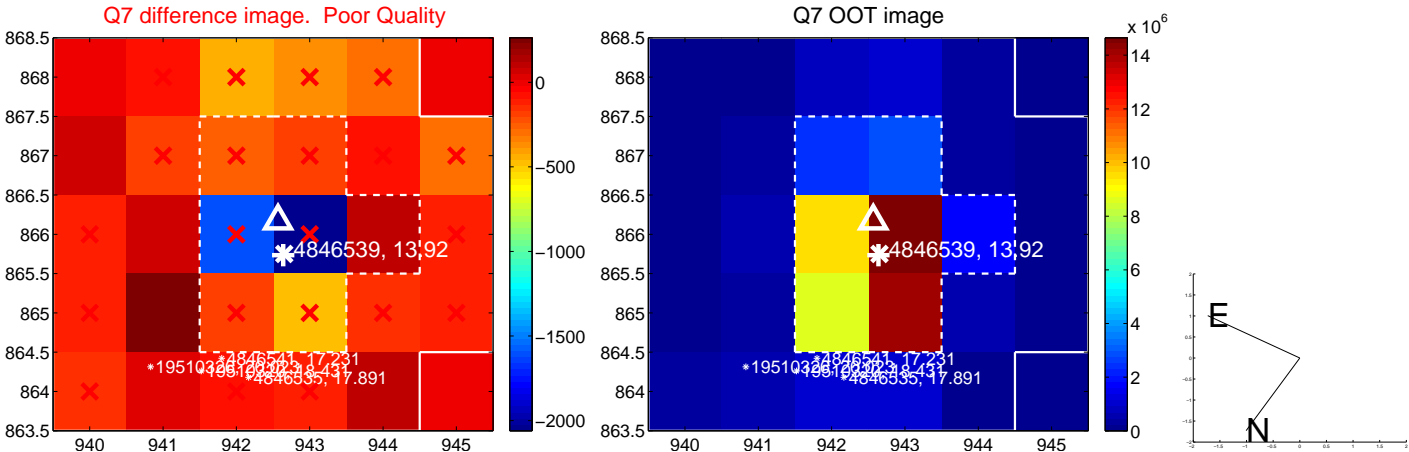
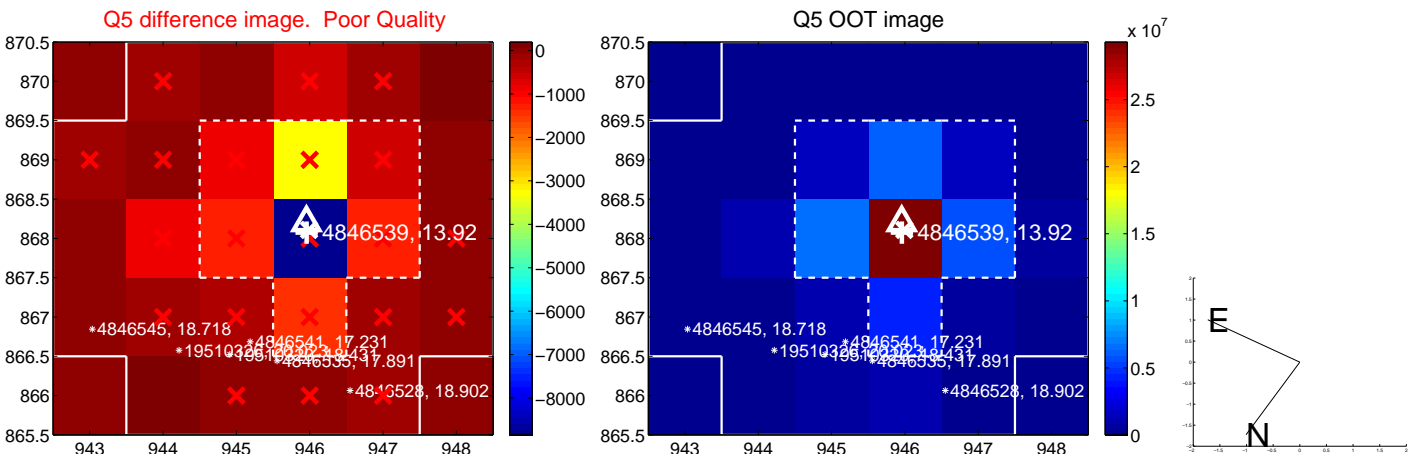


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

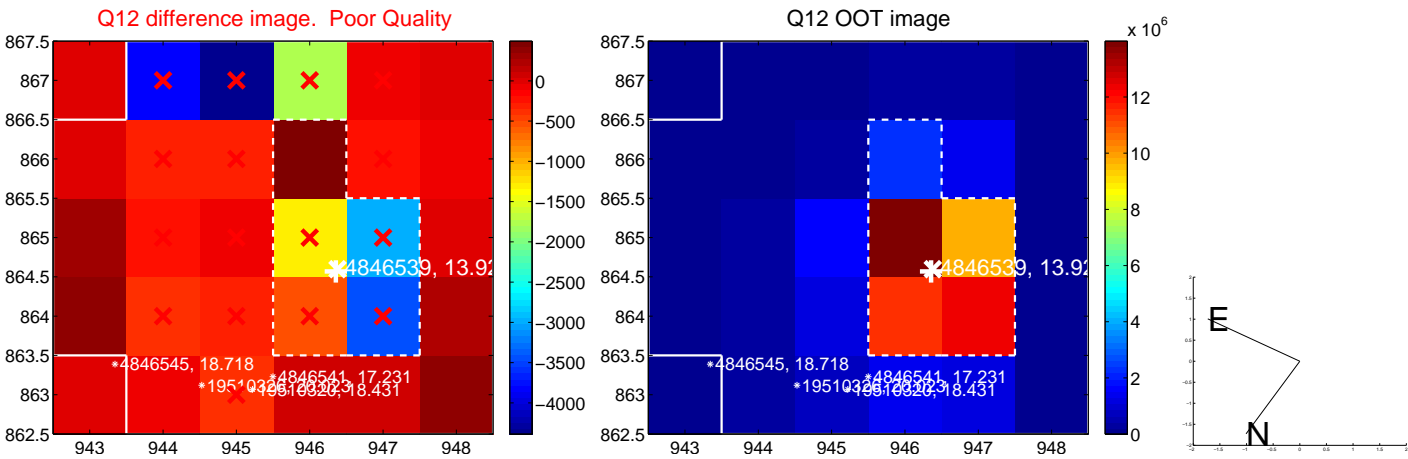
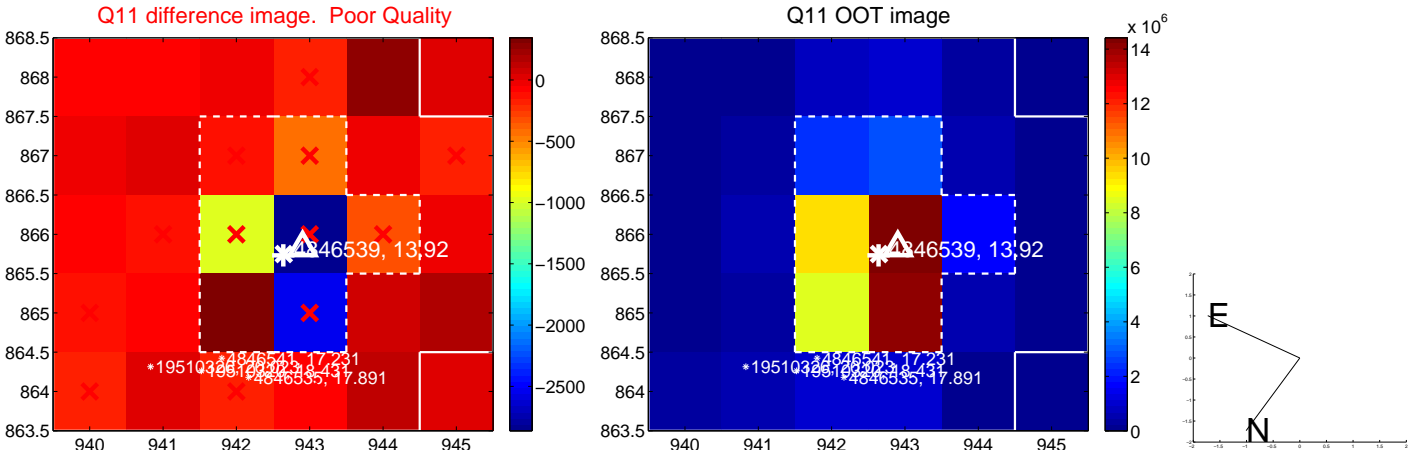
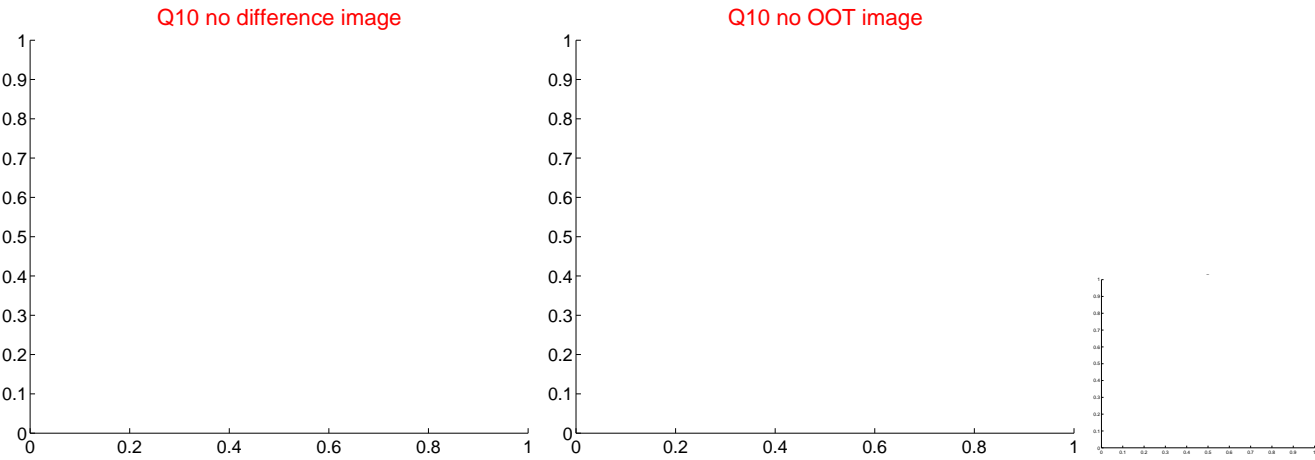
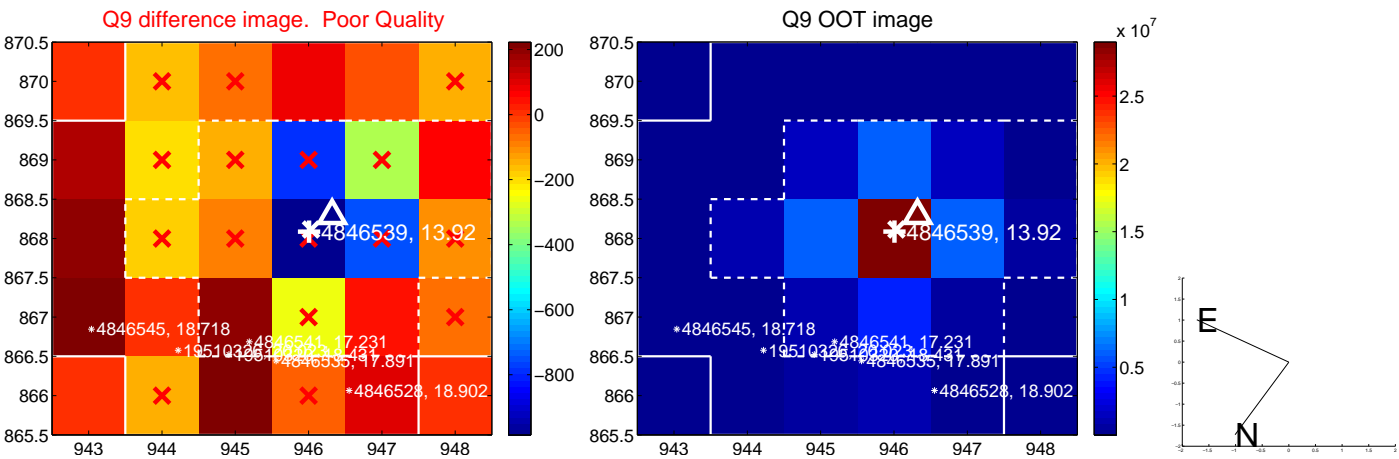
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



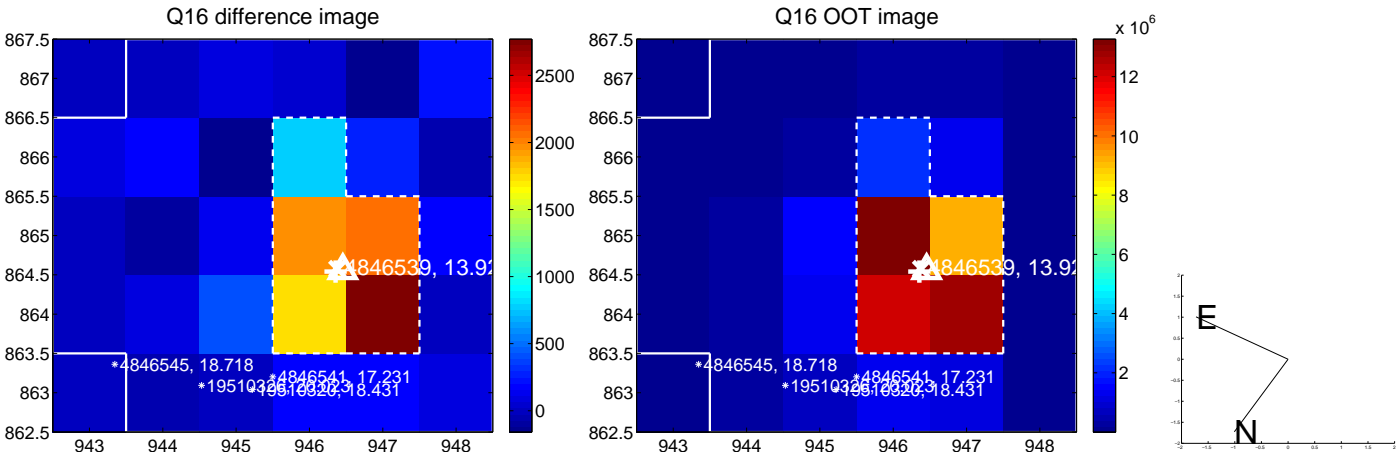
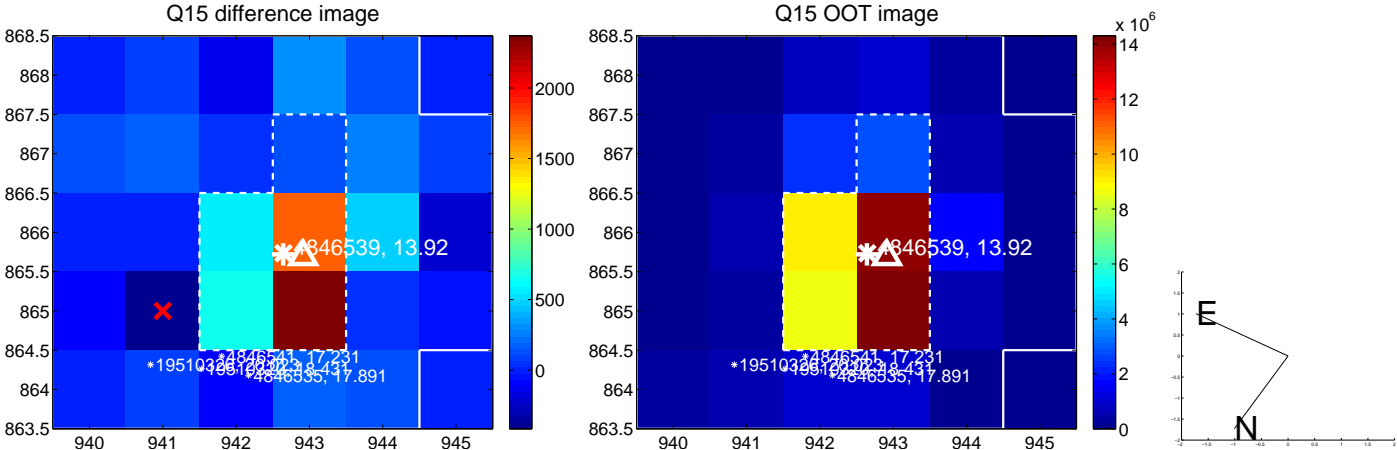
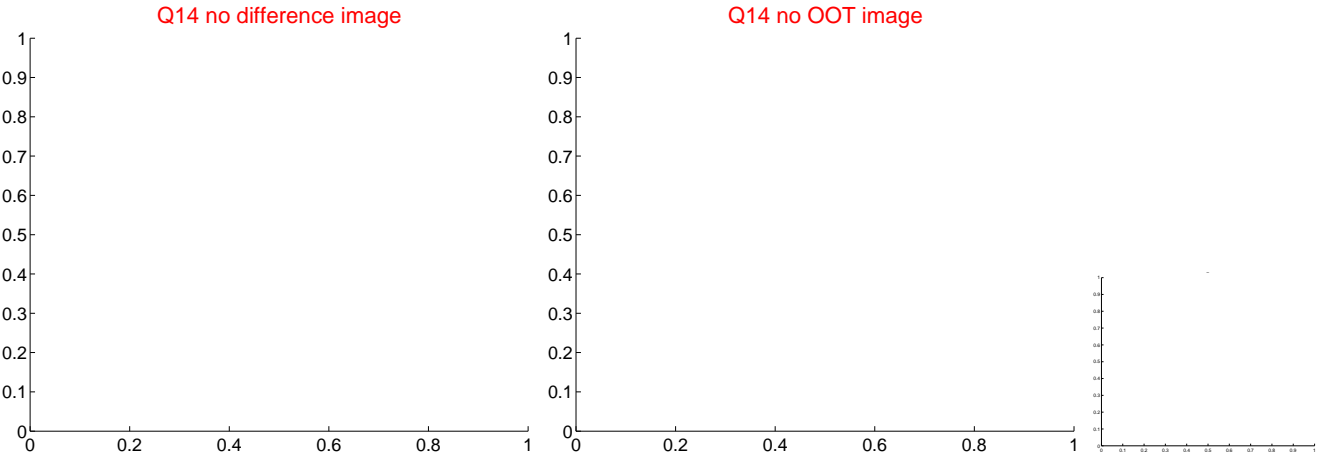
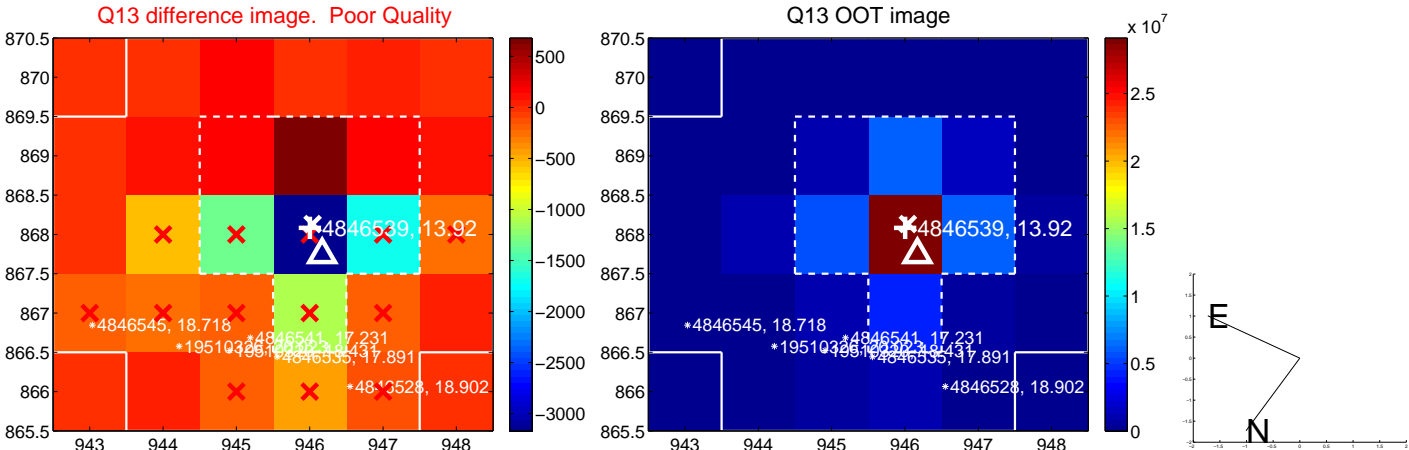
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.







UKIRT Image

Declination

