

# KIC 010189542

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010189542-01	OBS	5773.01	24.614756	142.511239	233.4	2.444	8.1	9.3	0.85	5654	1.47	25.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010189542-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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 010189542-01

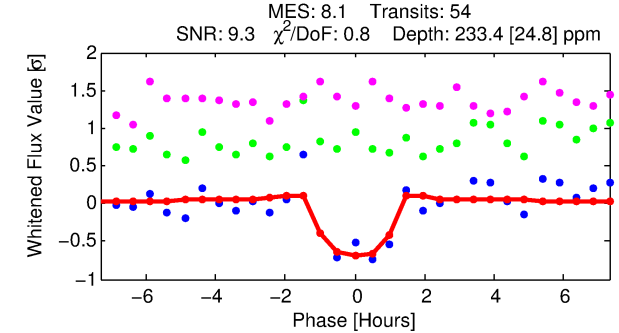
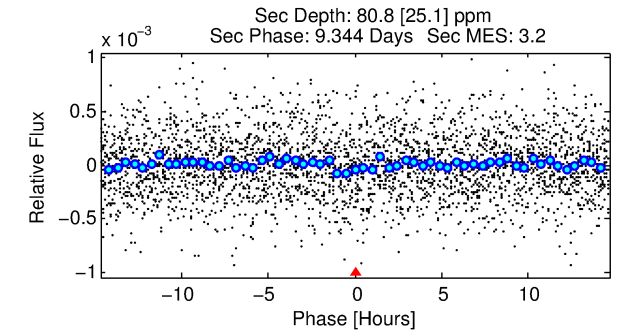
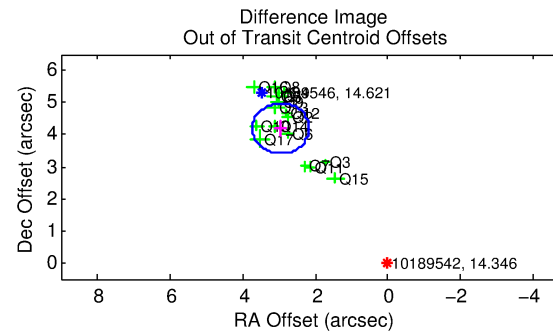
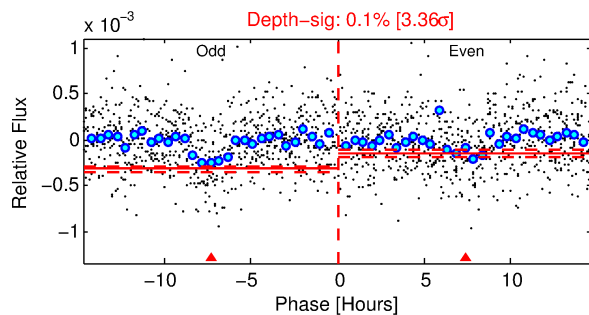
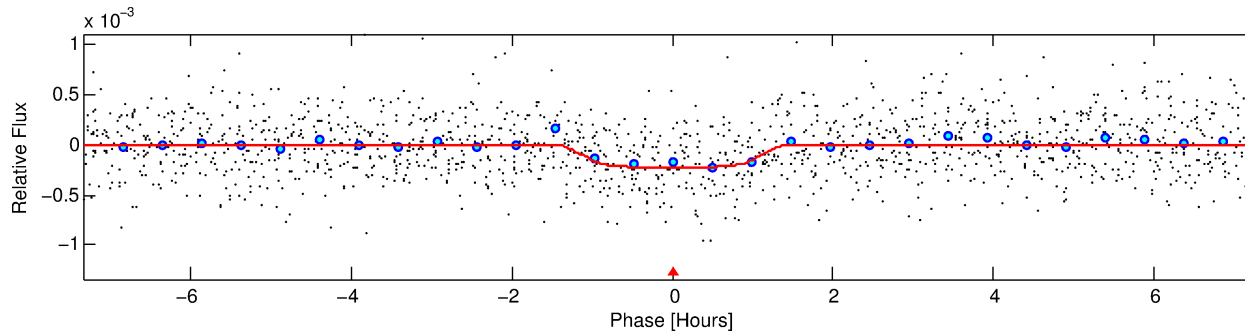
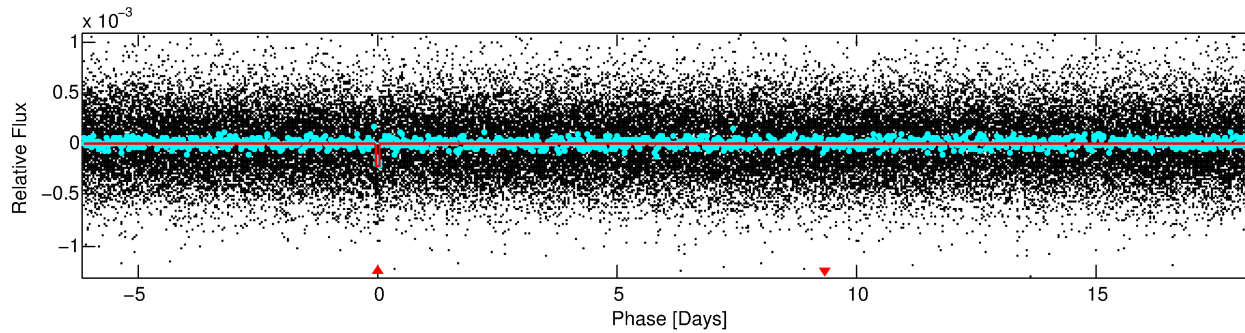
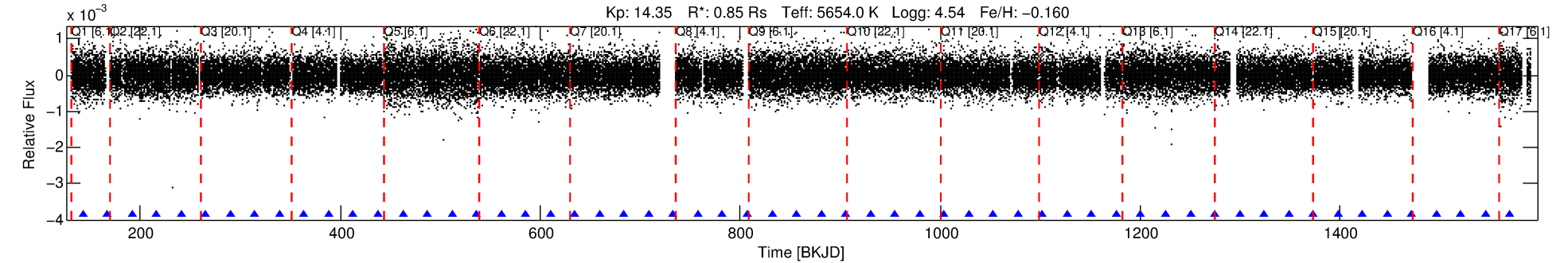
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010189542-01	10189542	427.01	10189546	1:1	6.4	0	1	14.62	14.34	8.03	Direct-PRF	0	0.07	0.00

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10189542 Candidate: 1 of 1 Period: 24.615 d

KOI: K05773.01 Corr: 0.968



## DV Fit Results:

Period = 24.61476 [0.00017] d  
Epoch = 142.5112 [0.0055] BKJD  
Rp/R\* = 0.0159 [0.0159]  
a/R\* = 44.59 [201.89]  
b = 0.83 [1.68]  
Seff = 25.74 [8.58]  
Teq = 574 [48] K  
Rp = 1.47 [1.52] Re  
a = 0.1601 [0.0346] AU  
Ag = 527.44 [1085.91] [0.48σ]  
Teffp = 4256 [2168] K [1.70σ]

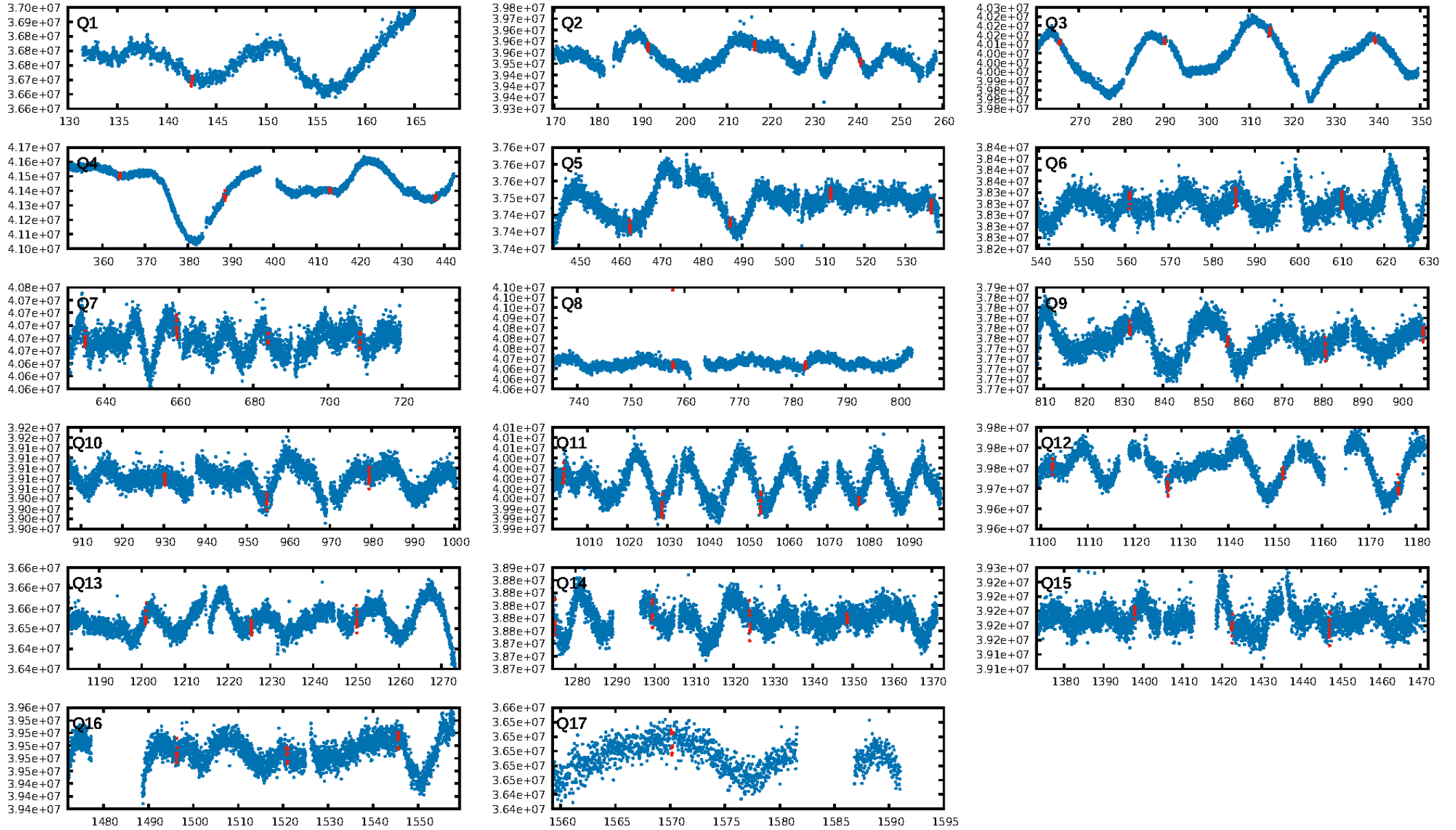
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 29.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.00e-15  
RollingBand-fgt: 1.00 [52/52]  
GhostDiagnostic-chr: -0.1701  
Centroid-sig: 0.0%  
Centroid-so: 10.338 arcsec [12.67σ]  
OotOffset-rm: 5.128 arcsec [19.66σ]  
KicOffset-rm: 6.535 arcsec [63.81σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

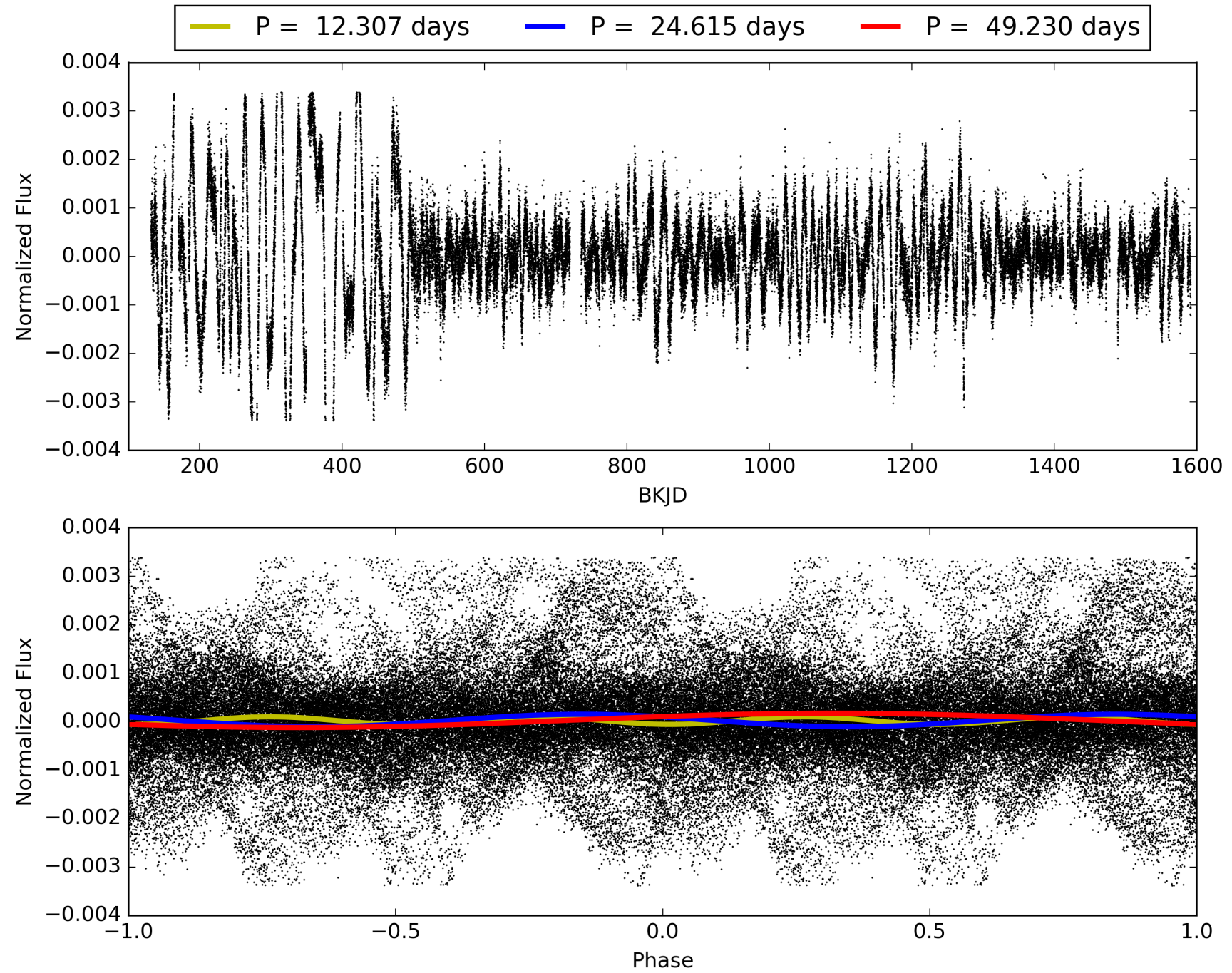
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:20:45 Z

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

# TCE 010189542-01, PDC Light Curves

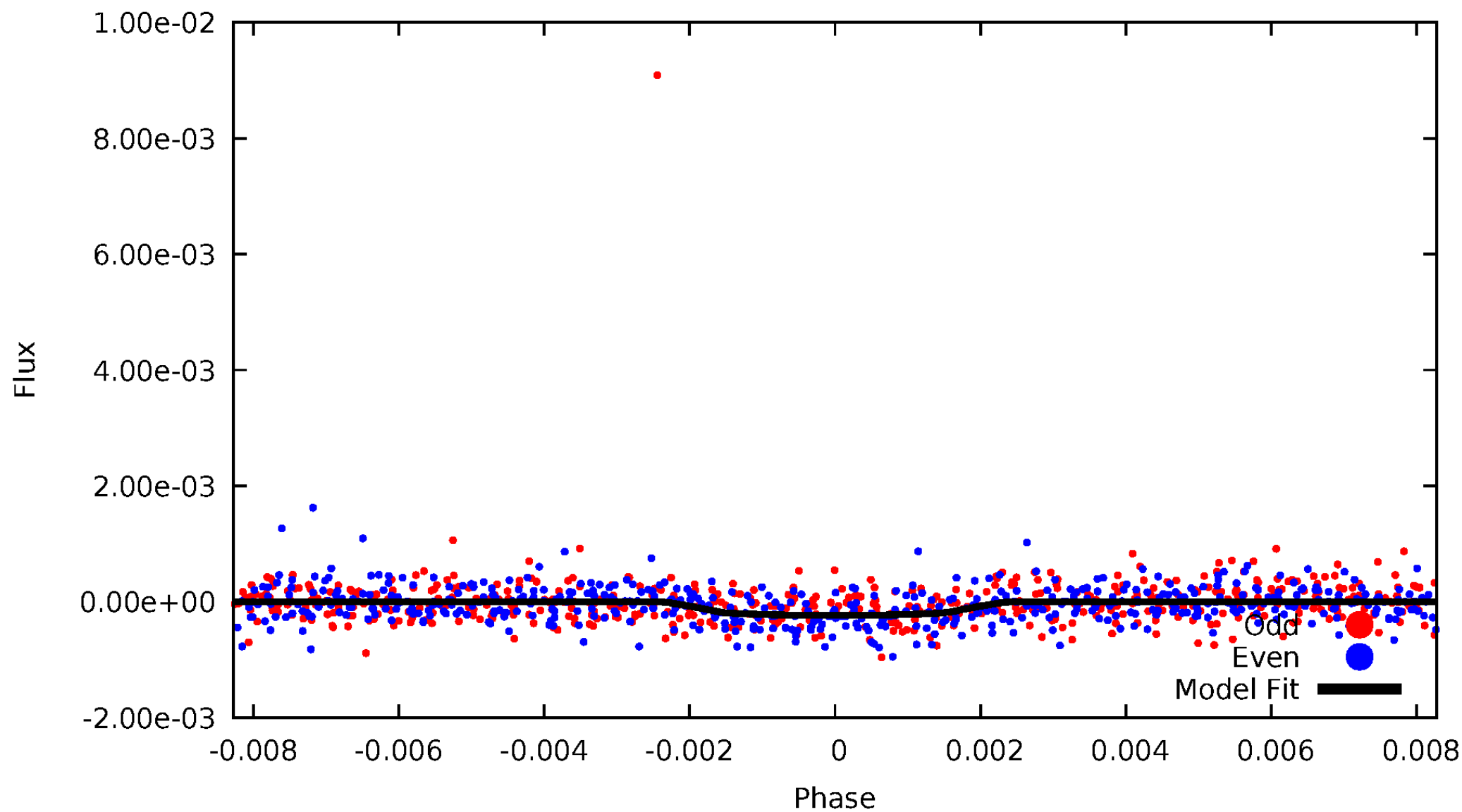


# TCE 010189542-01



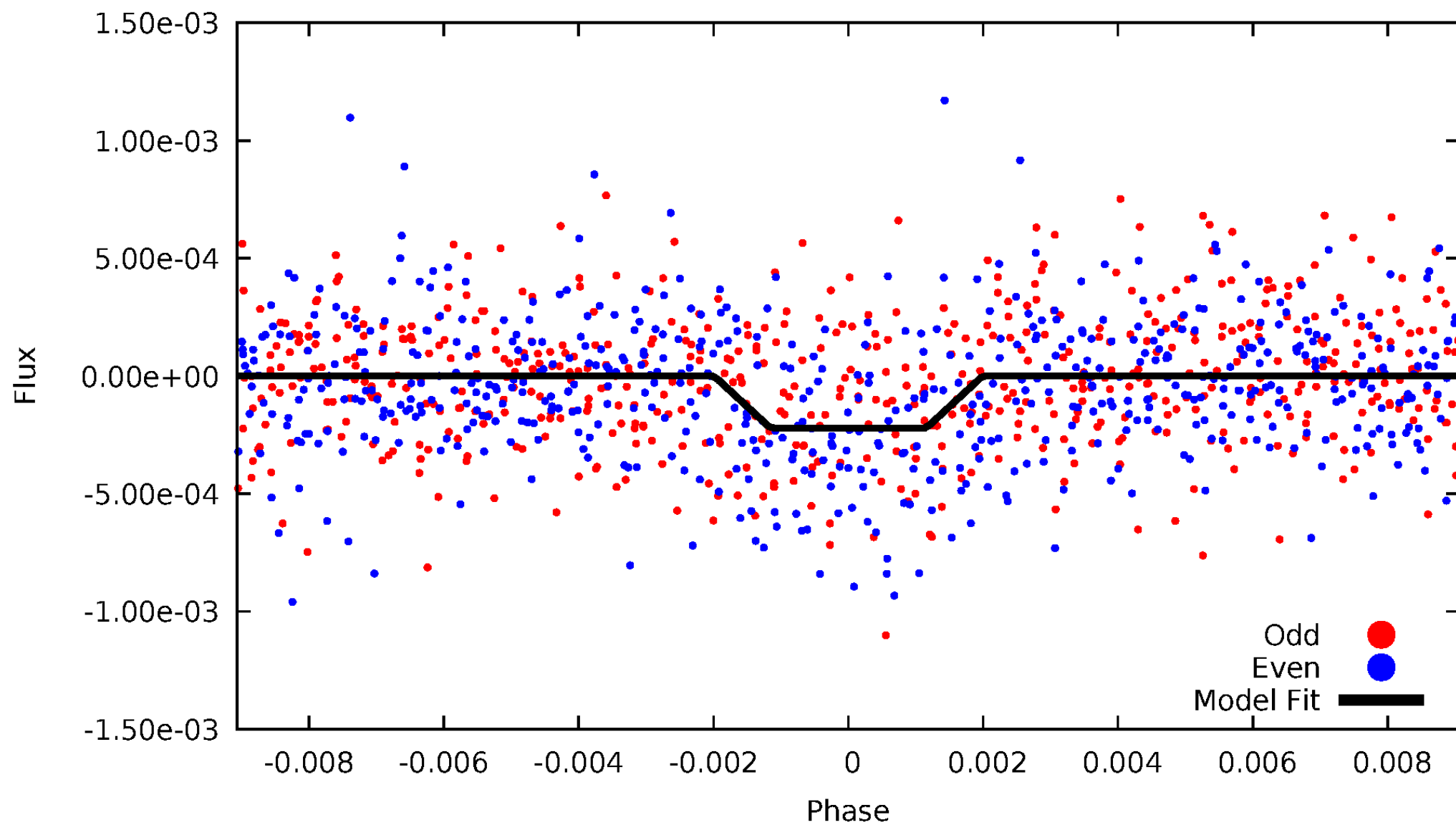
# DV Odd/Even

TCE 010189542-01



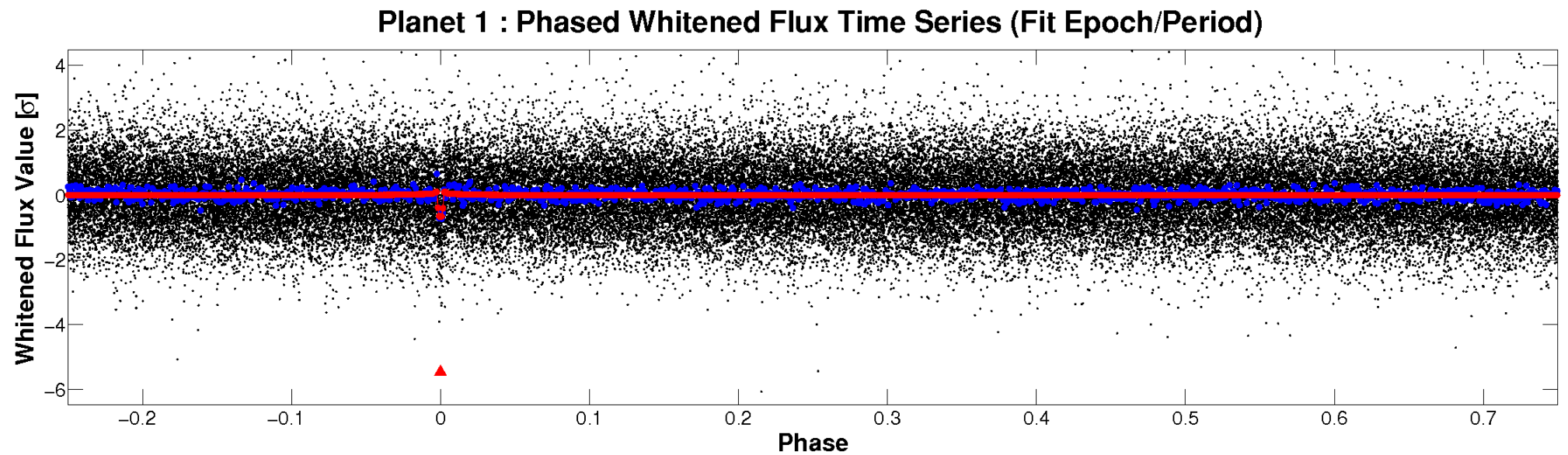
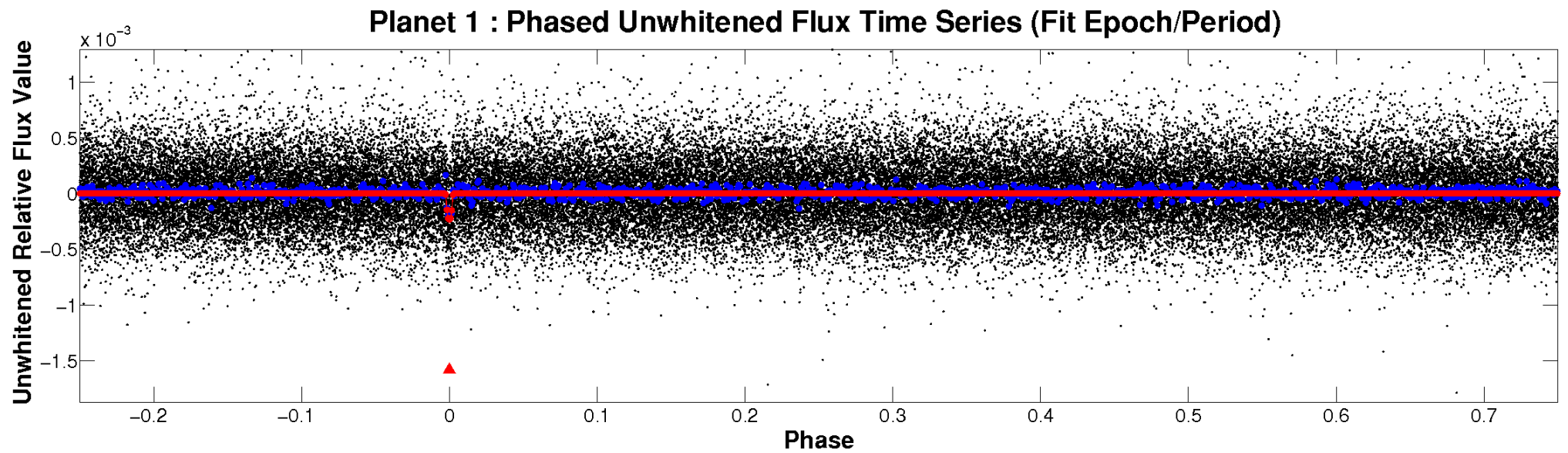
# ALT Odd/Even

TCE 010189542-01



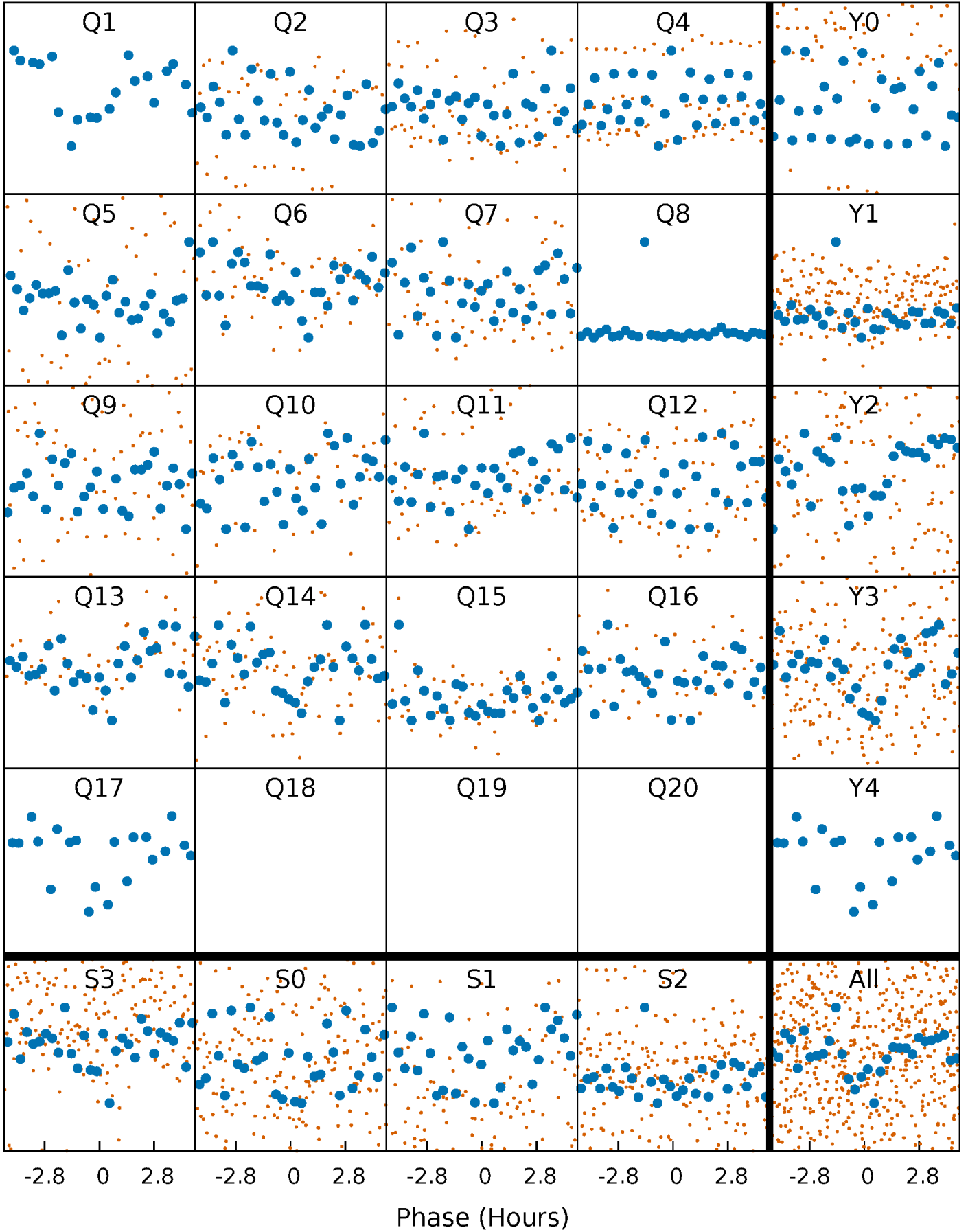


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

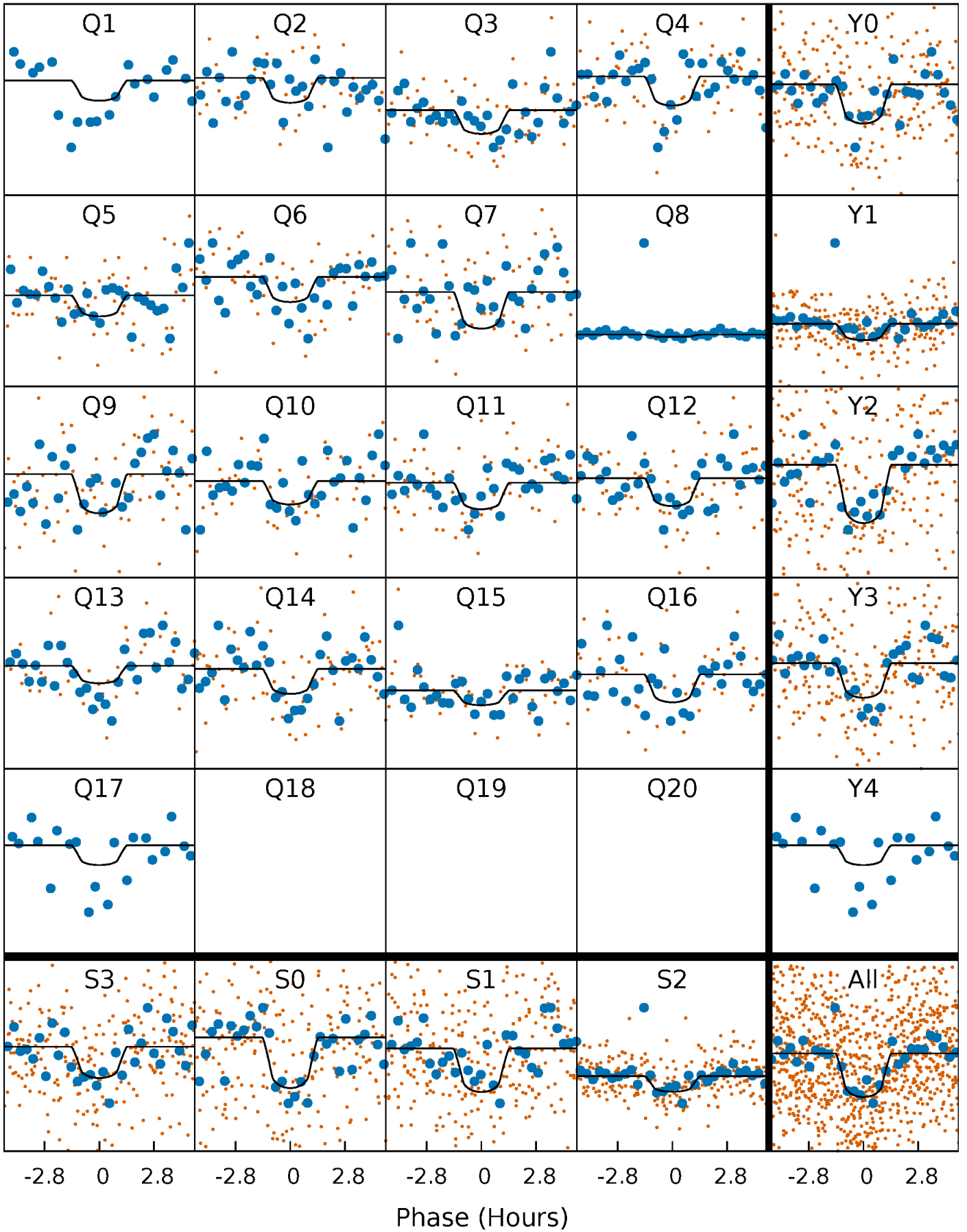
TCE 010189542-01 P= 24.614756 Days  $T_0=142.511239$  (BKJD)





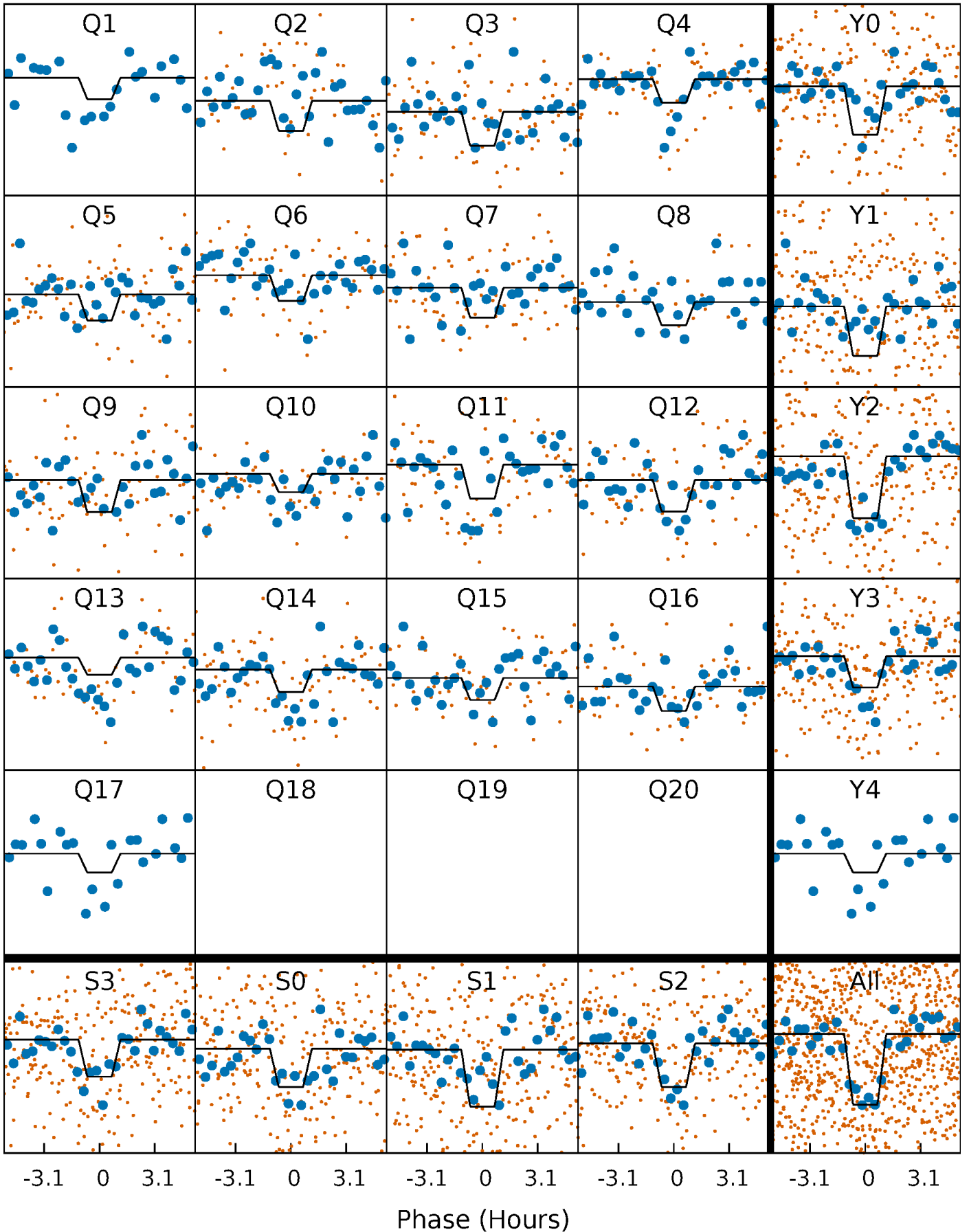
# DV Quarter-Phased Transit Curves

TCE 010189542-01 P= 24.614756 Days  $T_0=142.511239$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

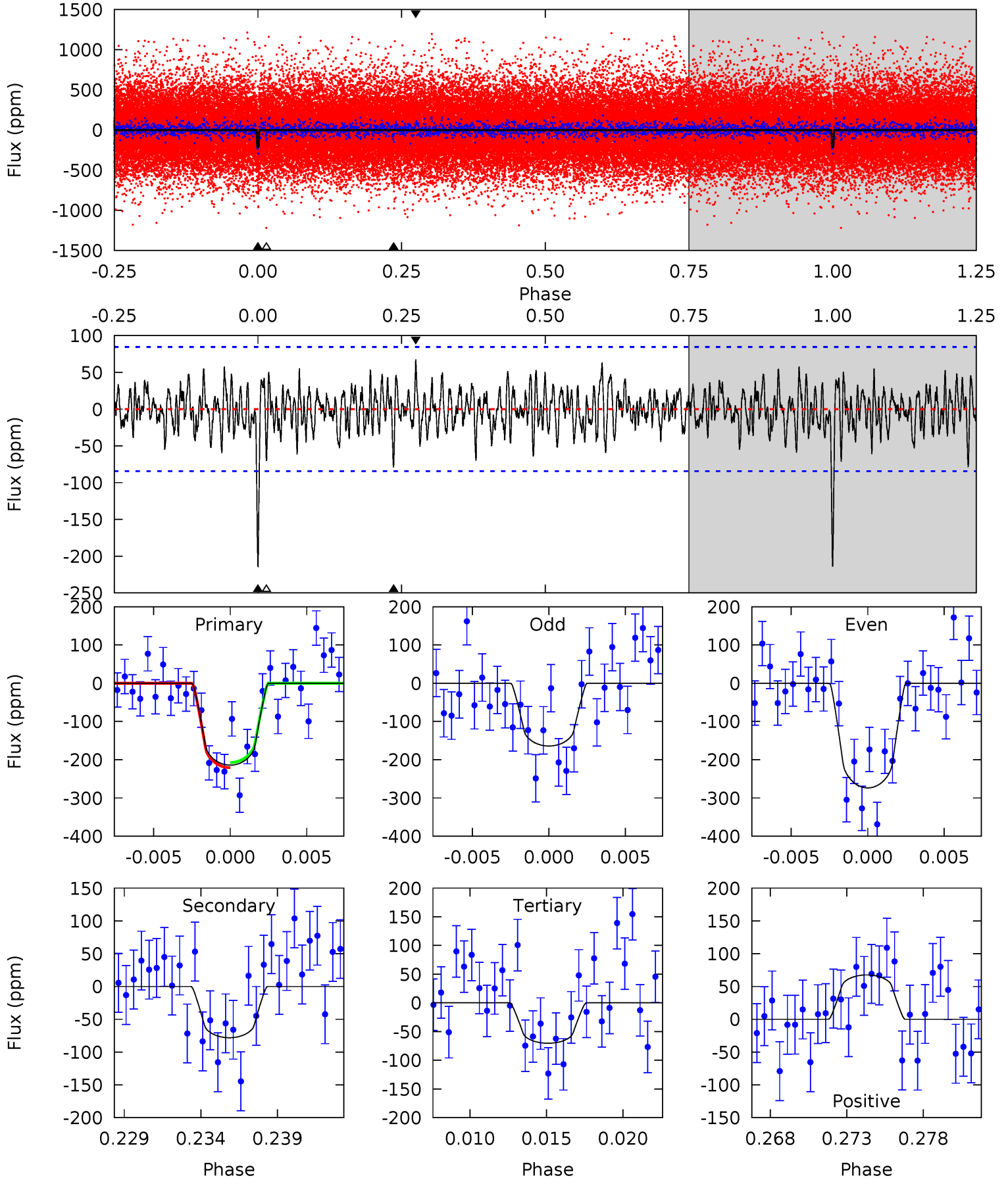
TCE 010189542-01 P= 24.615011 Days  $T_0=142.501743$  (BKJD)



# DV Model-Shift Uniqueness Test

010189542-01,  $P = 24.614756$  Days,  $E = 117.896483$  Days

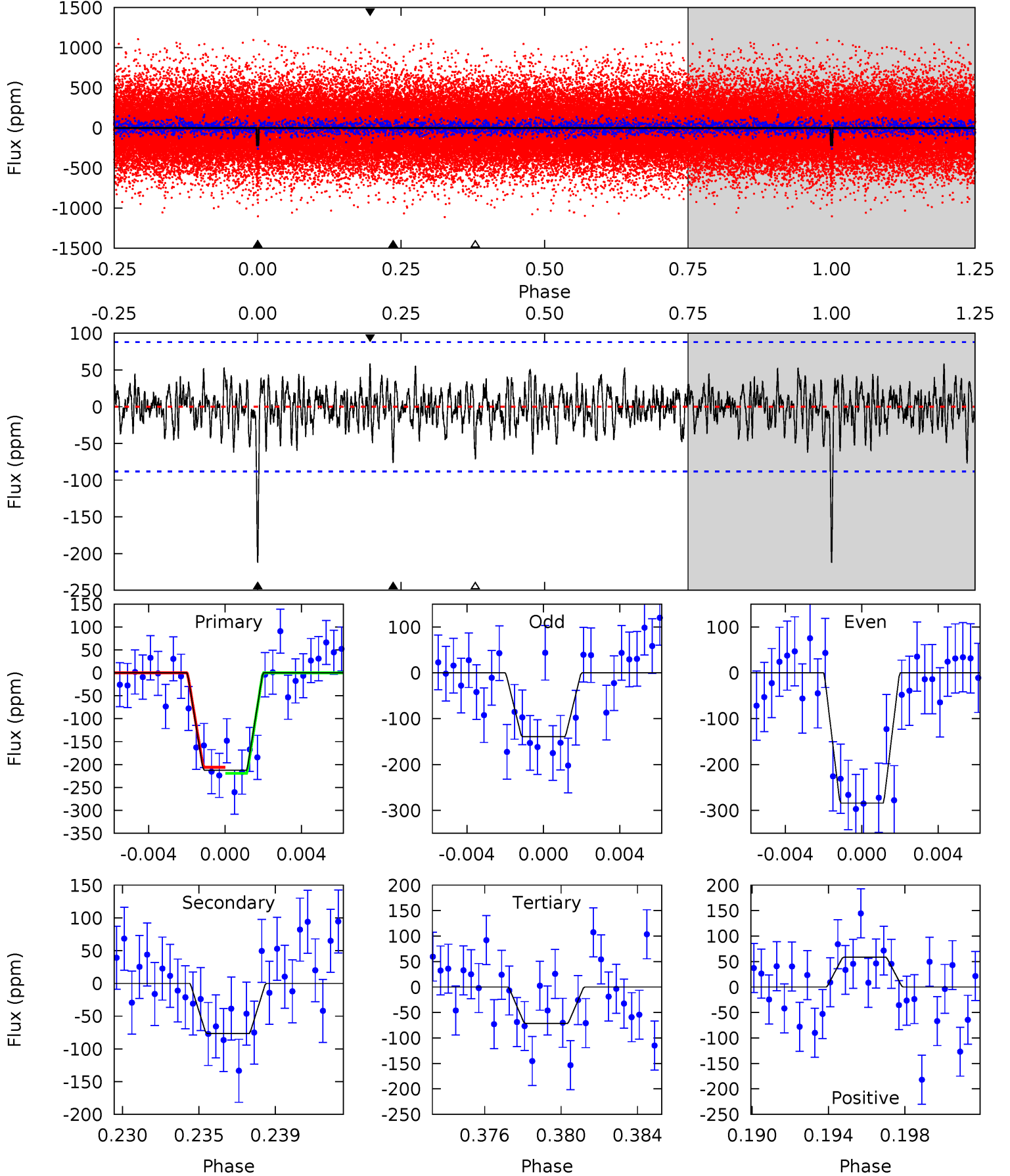
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	4.78	4.30	4.13	5.16	2.81	1.37	8.79	8.96	0.48	0.64	3.35	1.07	0.24	0.42



# Alt Model-Shift Uniqueness Test

010189542-01,  $P = 24.615011$  Days,  $E = 117.886732$  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
12.5	4.51	4.21	3.44	5.20	2.87	1.20	8.32	9.09	0.30	1.07	4.28	1.13	0.22	0.39



### Stellar Parameters For KIC 010189542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5654^{+152}_{-152}$	$4.536^{+0.046}_{-0.173}$	$-0.160^{+0.300}_{-0.300}$	$0.849^{+0.217}_{-0.078}$	$0.904^{+0.095}_{-0.095}$	$2.080^{+0.484}_{-0.962}$
	+3%/-3%	+1%/-4%	+188%/-188%	+26%/-9%	+11%/-11%	+23%/-46%
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 010189542-01 / KOI 5773.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-78 \pm 16$	$1.84^{+1.43}_{-1.16}$	$816^{+48}_{-36}$	$4125^{+2208}_{-752}$	$325^{+2112}_{-228}$
Alt.	$-76 \pm 17$	$1.85^{+1.45}_{-1.20}$	$818^{+54}_{-34}$	$4100^{+2307}_{-744}$	$304^{+2120}_{-213}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

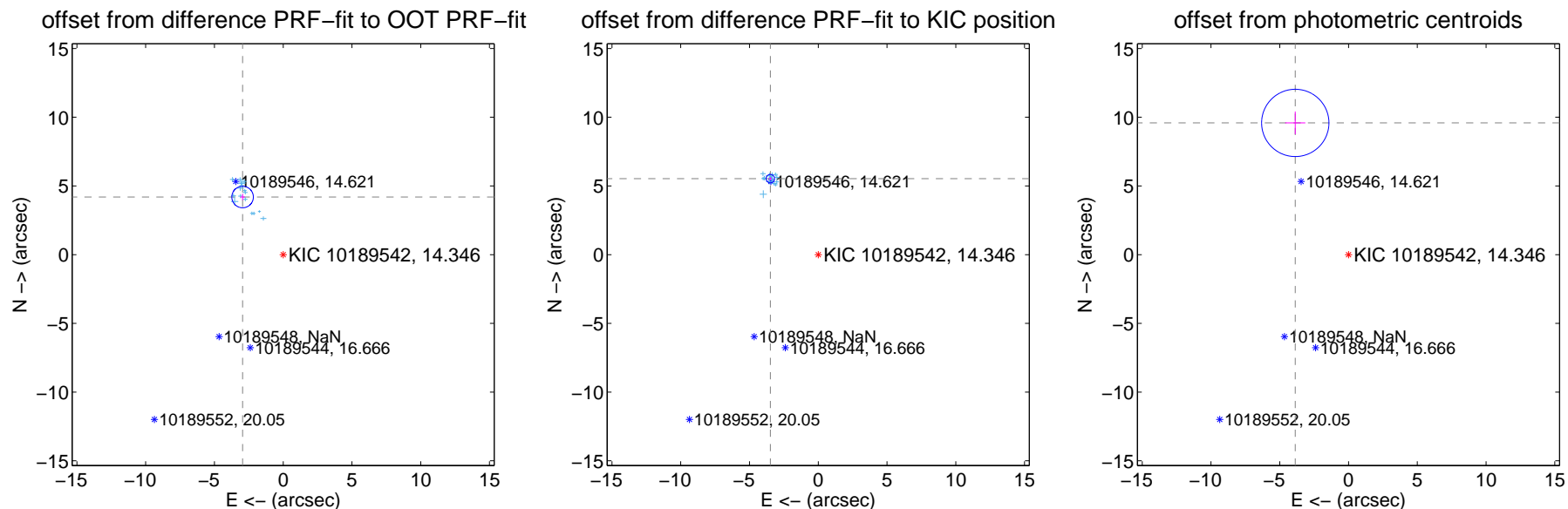
## DV Centroid Data

Supplemental centroid analysis for 010189542-01. Kepler magnitude: 14.35. Transit SNR 9.34

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.70 arcsec

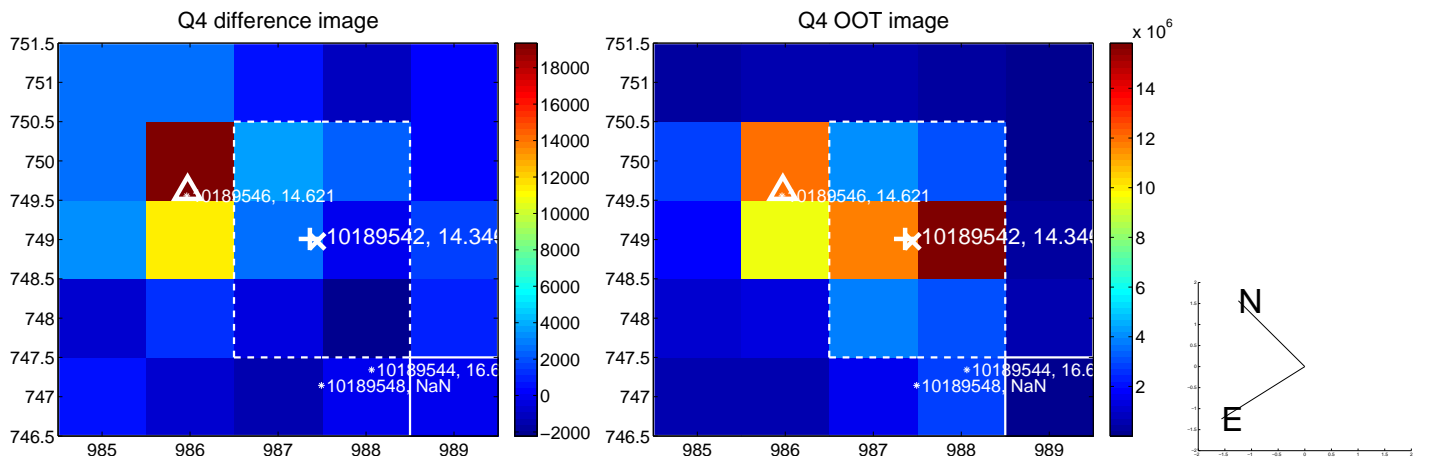
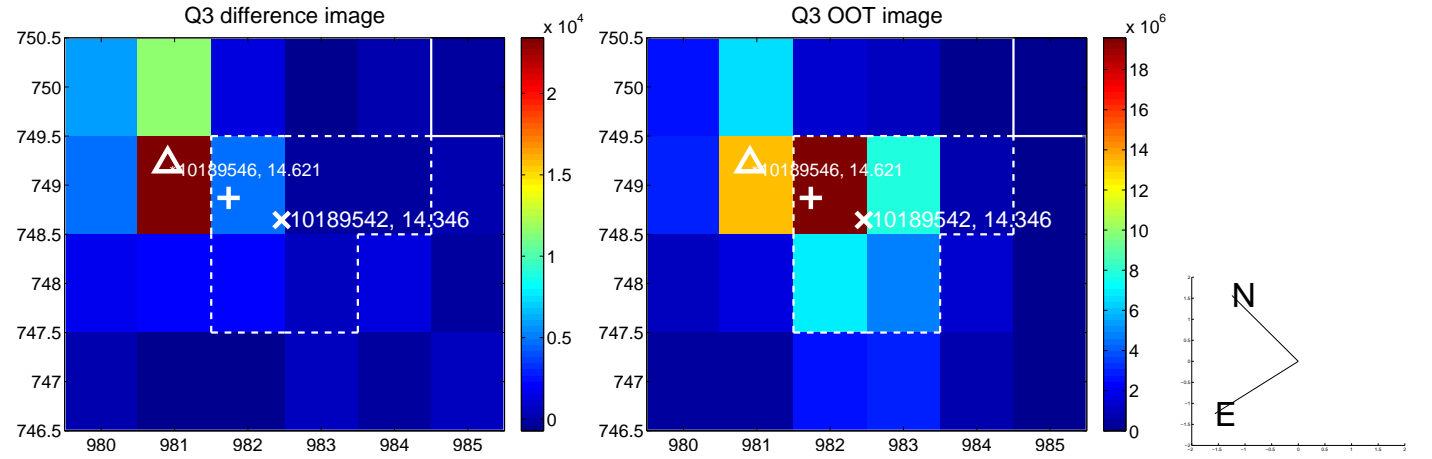
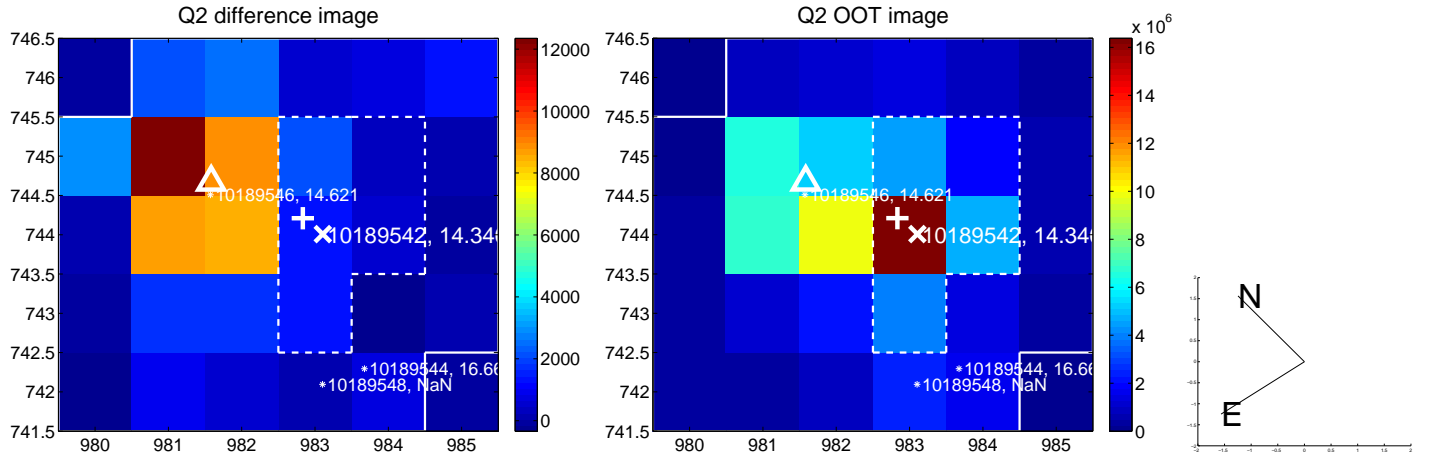
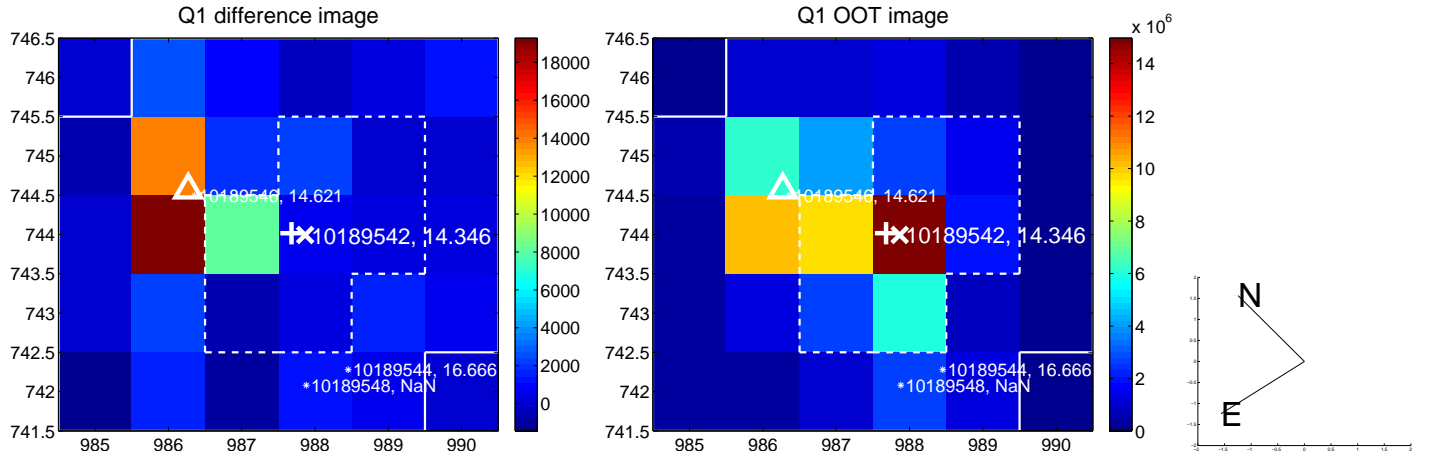
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>5.128 <math>\pm</math> 0.261</b>	<b>19.66</b>	2.952 $\pm$ 0.166	4.193 $\pm$ 0.230
PRF-fit source offset from KIC position	<b>6.535 <math>\pm</math> 0.102</b>	<b>63.81</b>	3.484 $\pm$ 0.105	5.528 $\pm$ 0.103
photometric centroid source offset	<b>10.34 <math>\pm</math> 0.82</b>	<b>12.67</b>	3.87 $\pm$ 0.73	9.59 $\pm$ 0.83



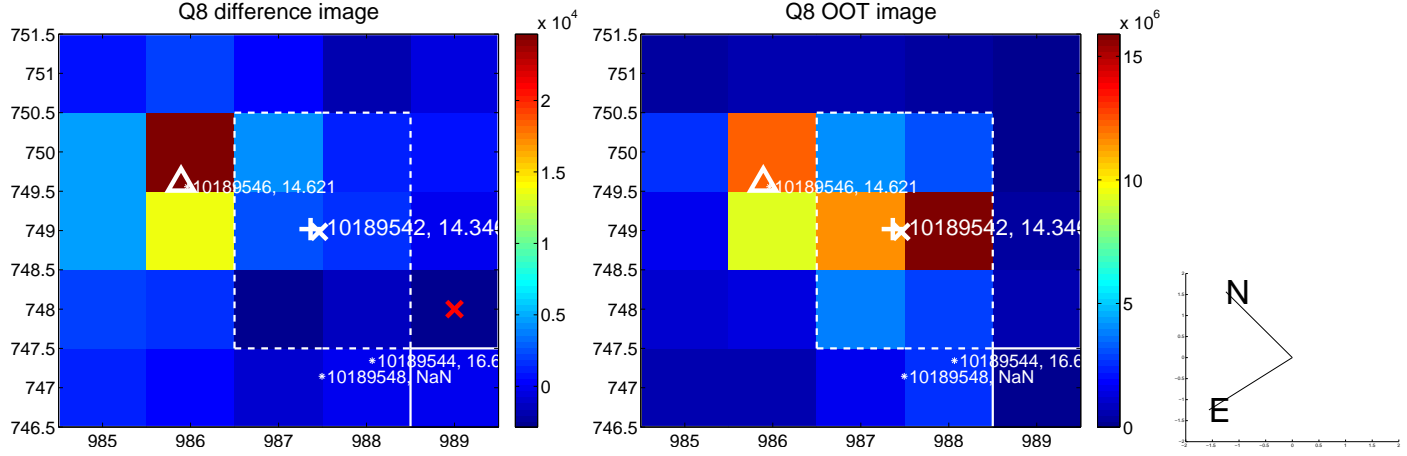
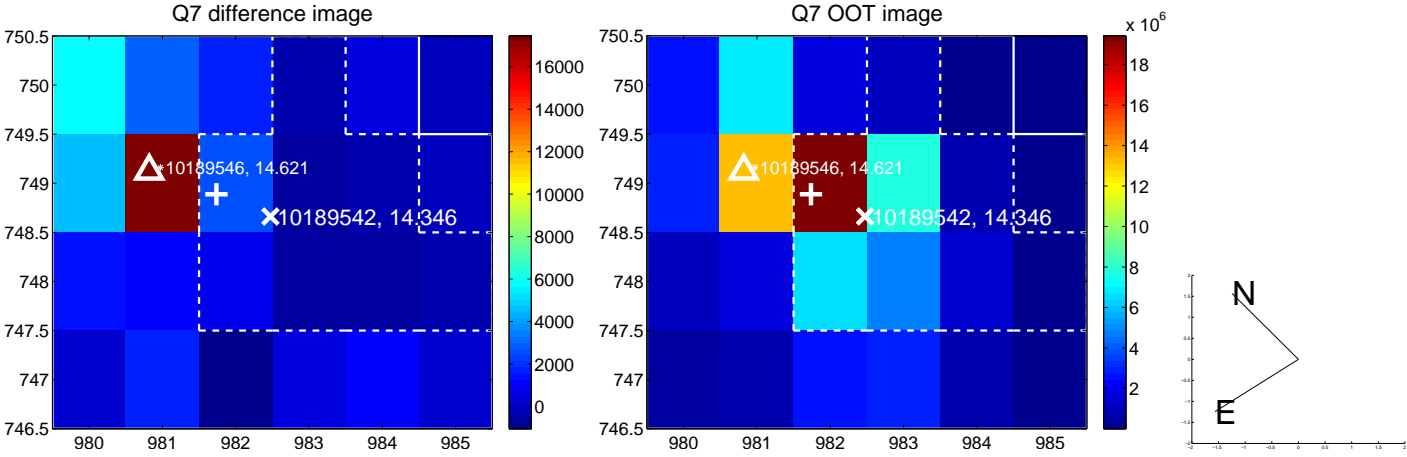
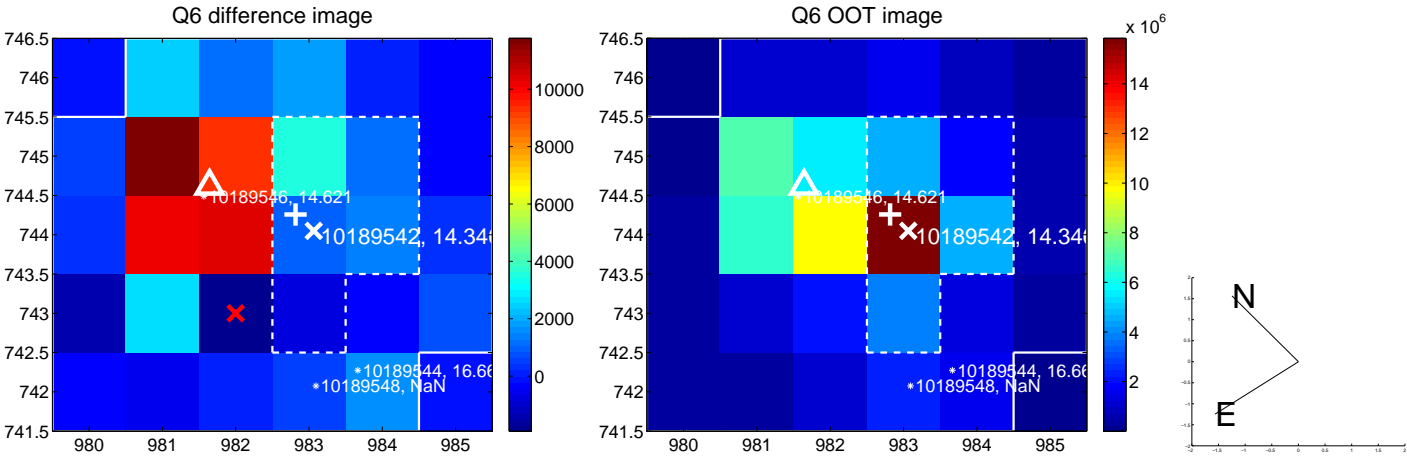
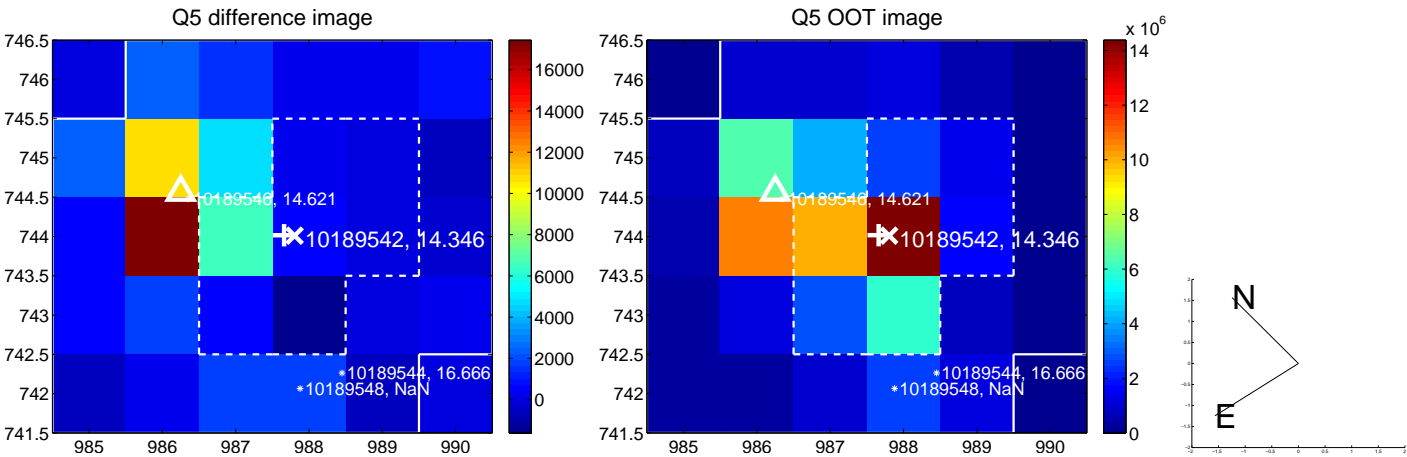
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



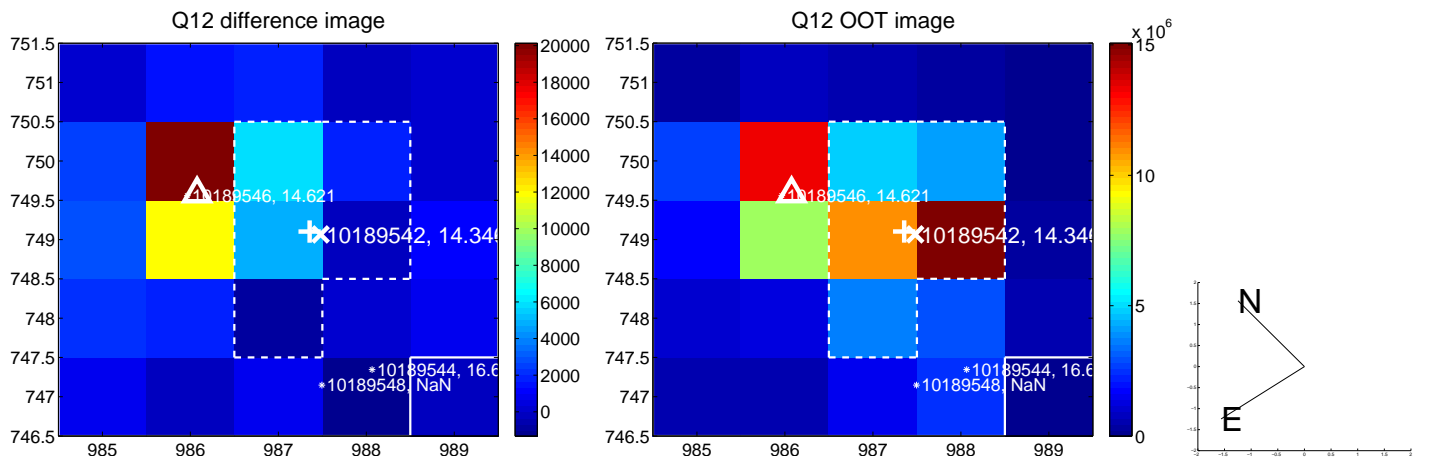
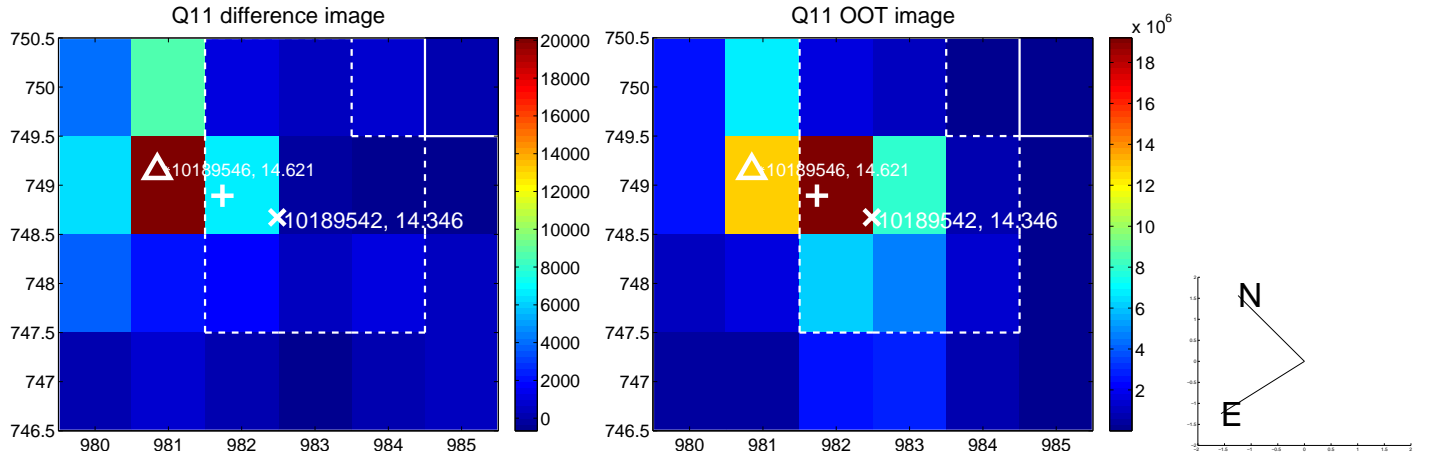
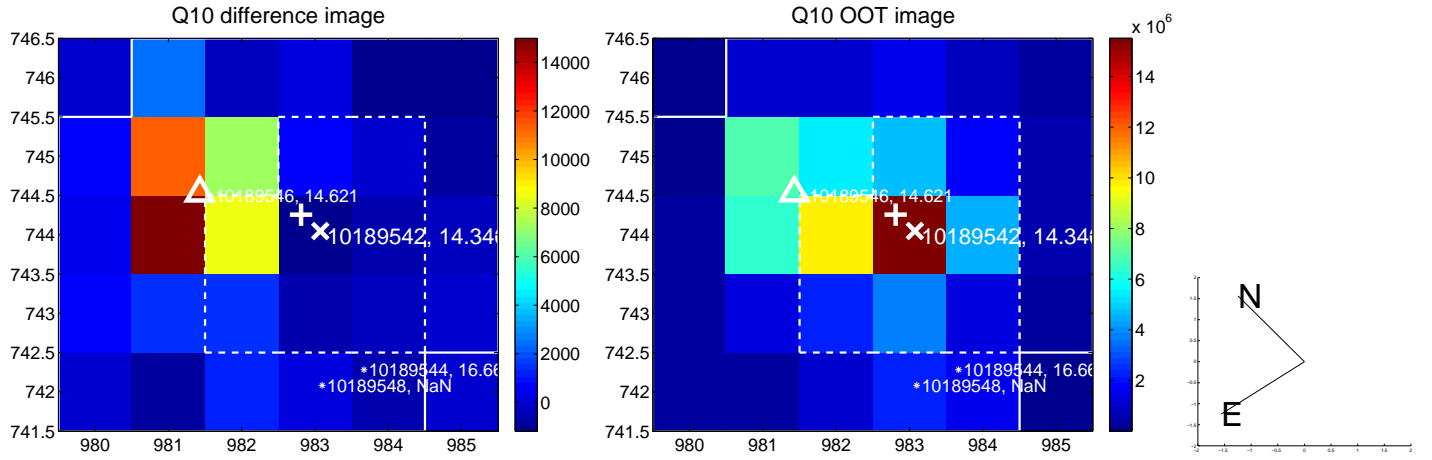
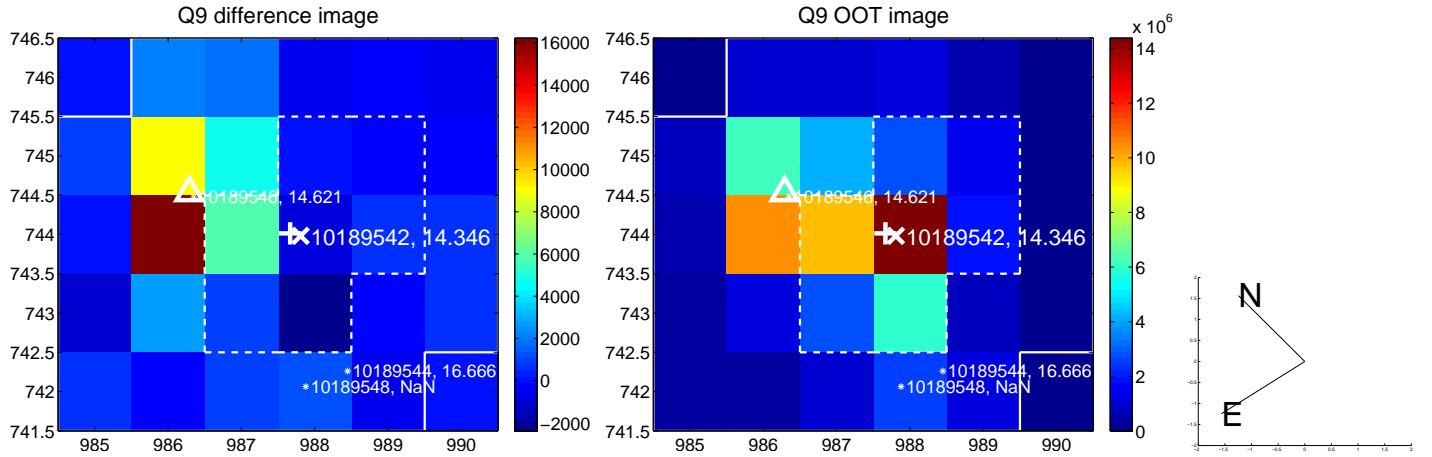
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



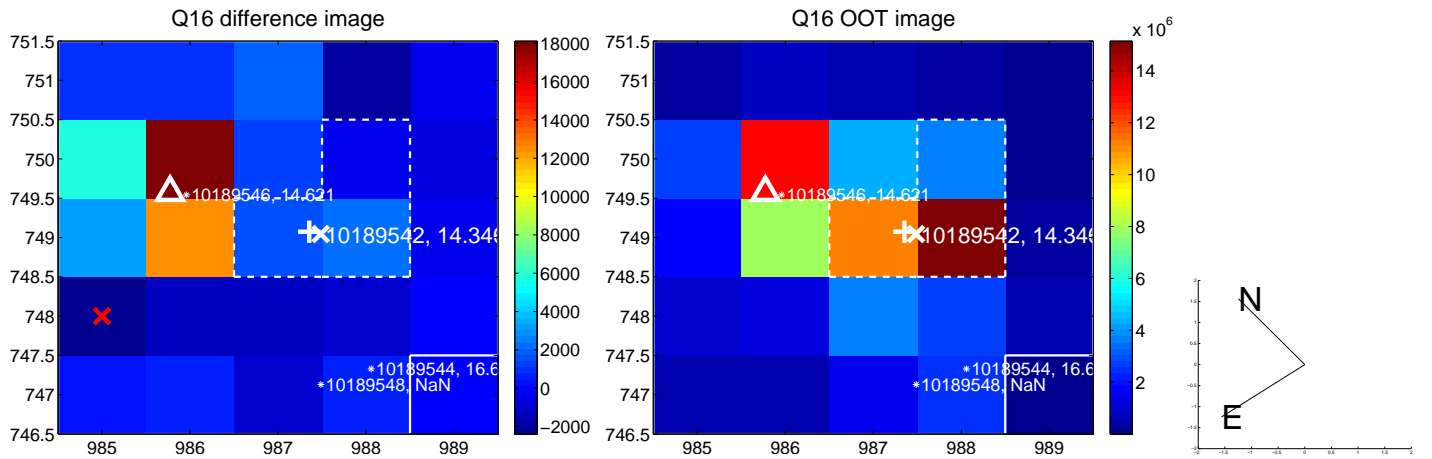
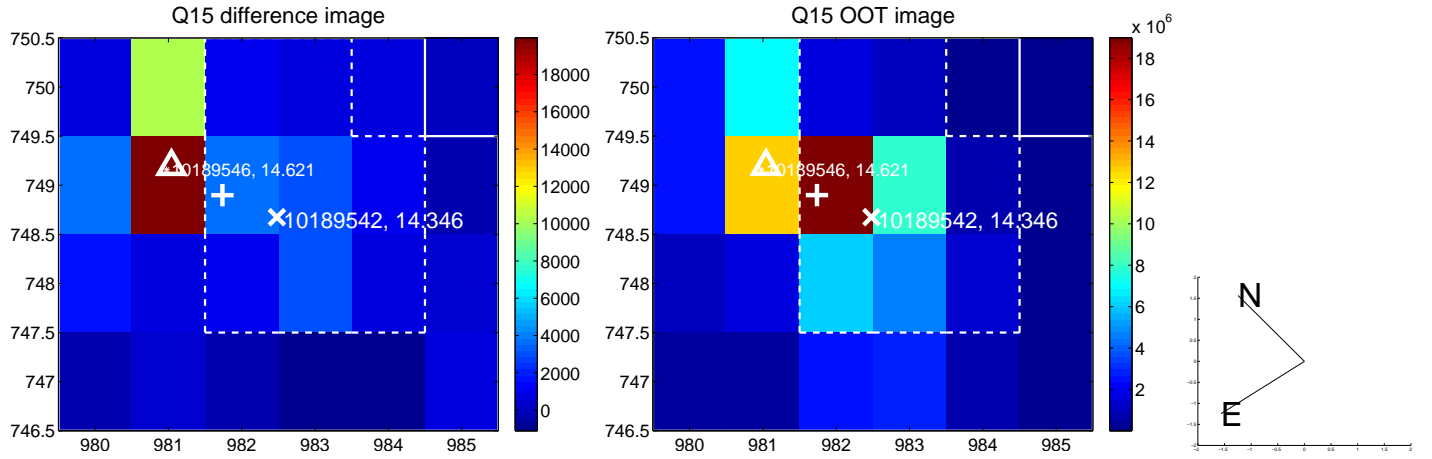
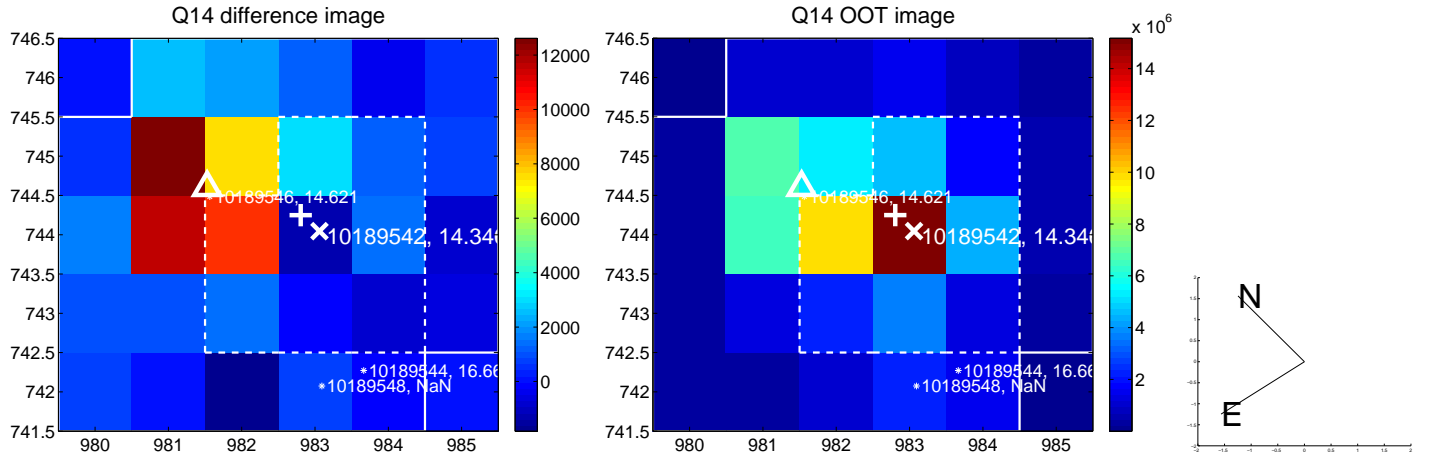
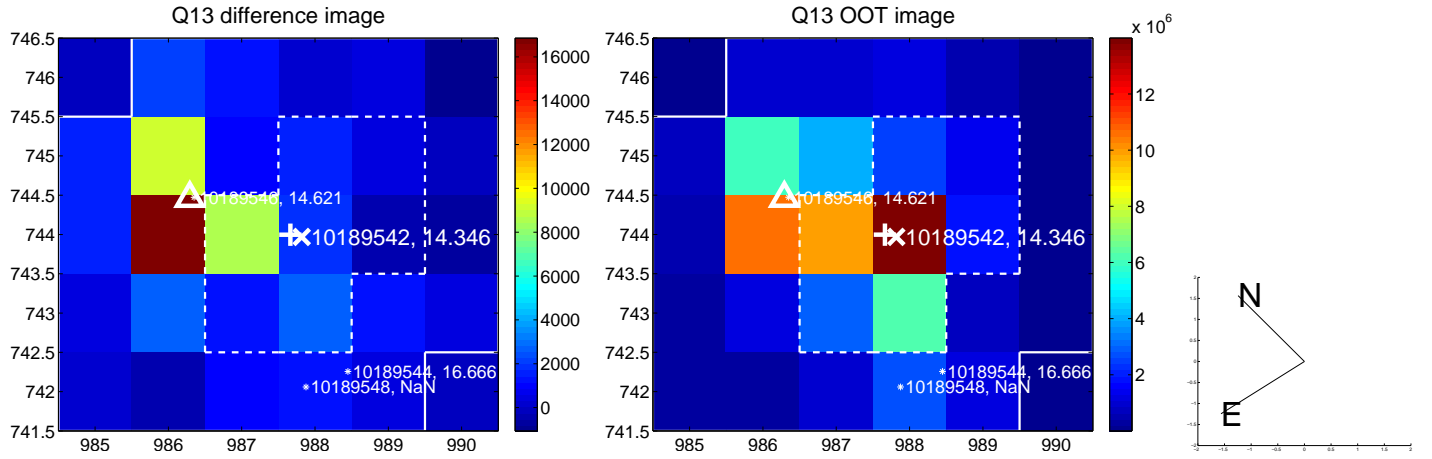
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



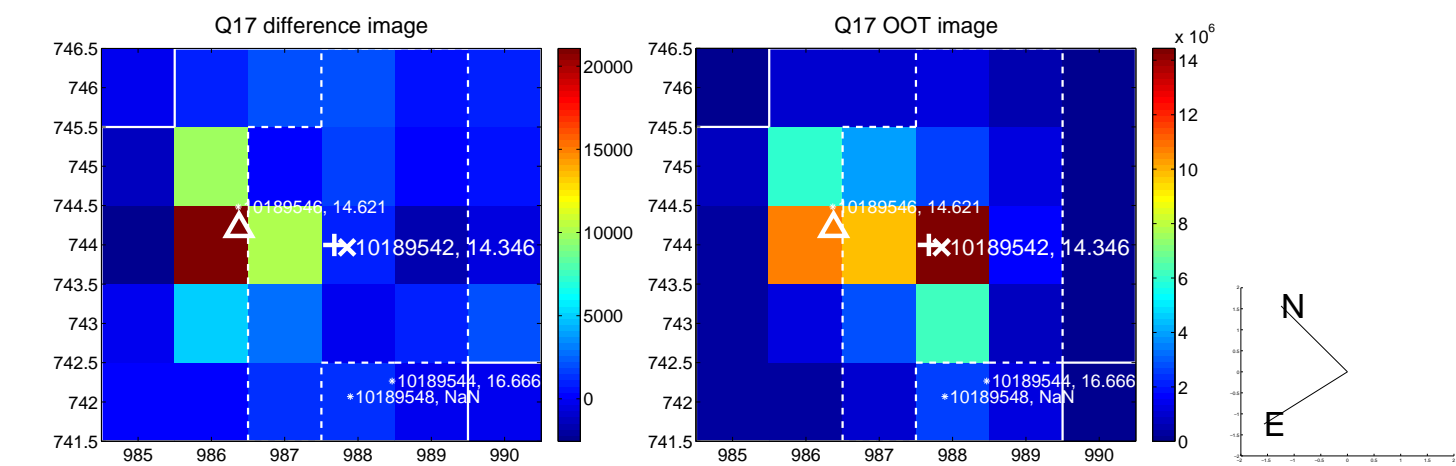
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



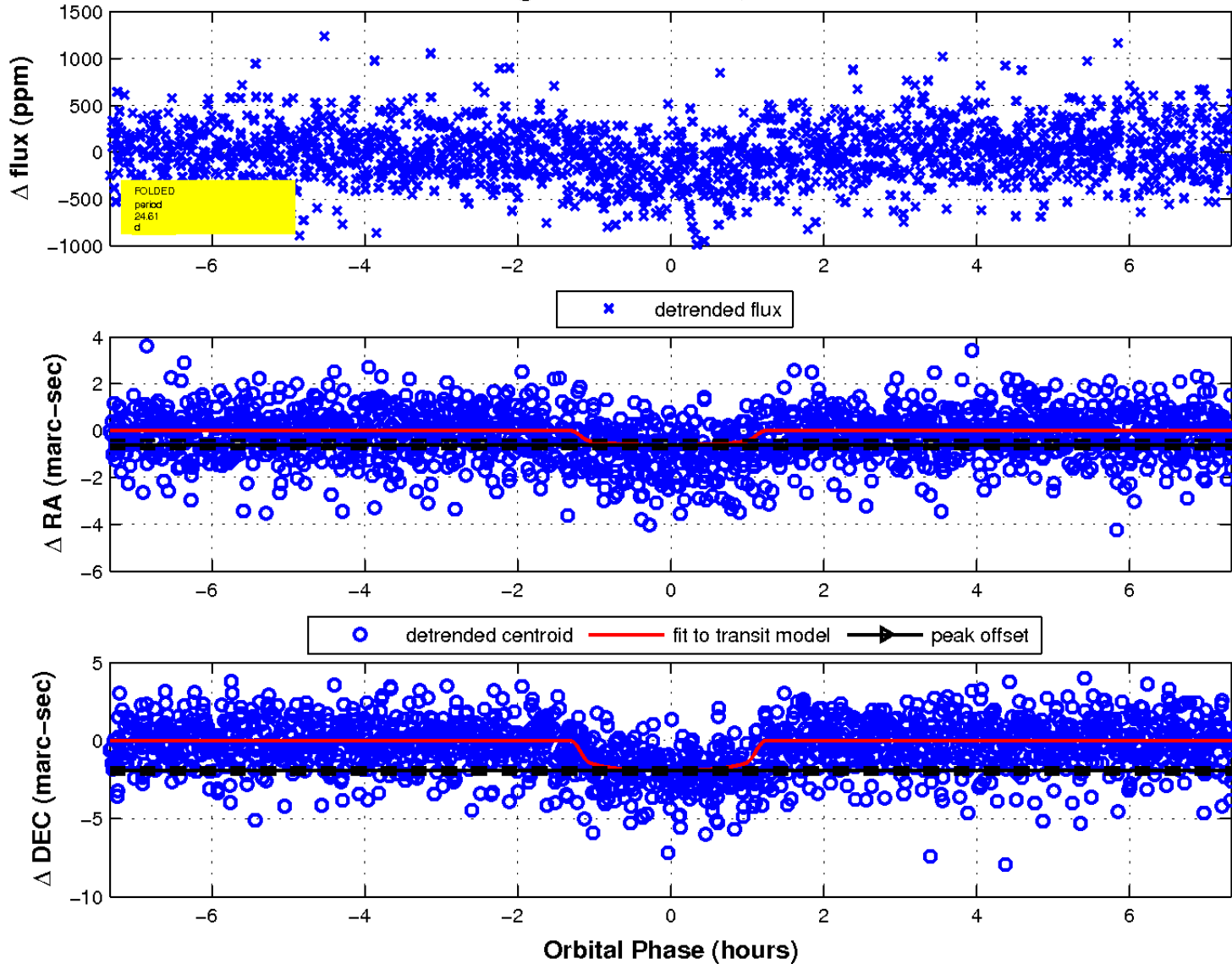
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

