

# KIC 004175105

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004175105-01	OBS	4836.01	0.608182	131.625126	130.4	0.627	10.3	17.1	1.04	5981	1.23	6608.98

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004175105-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

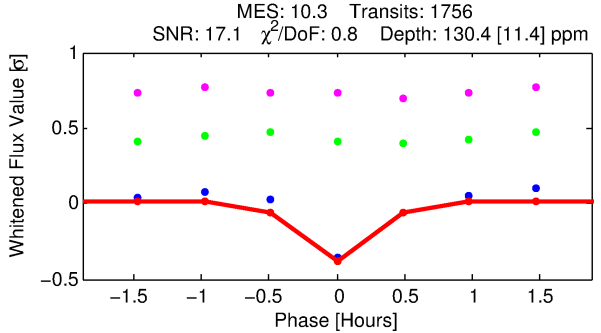
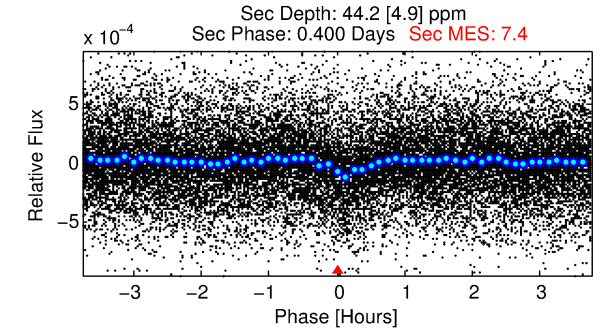
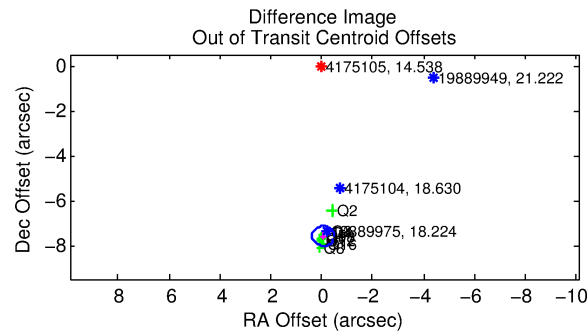
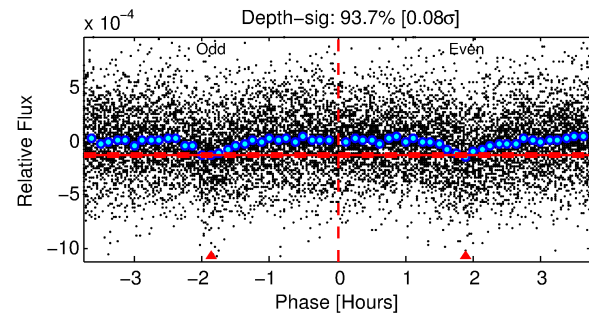
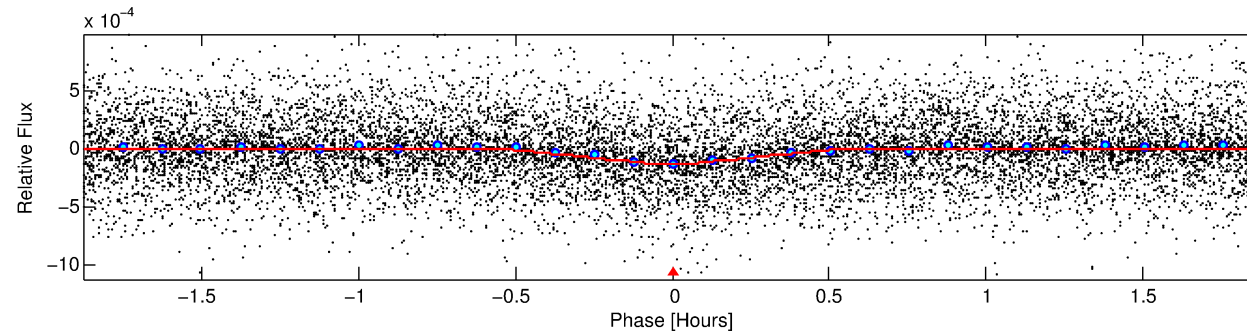
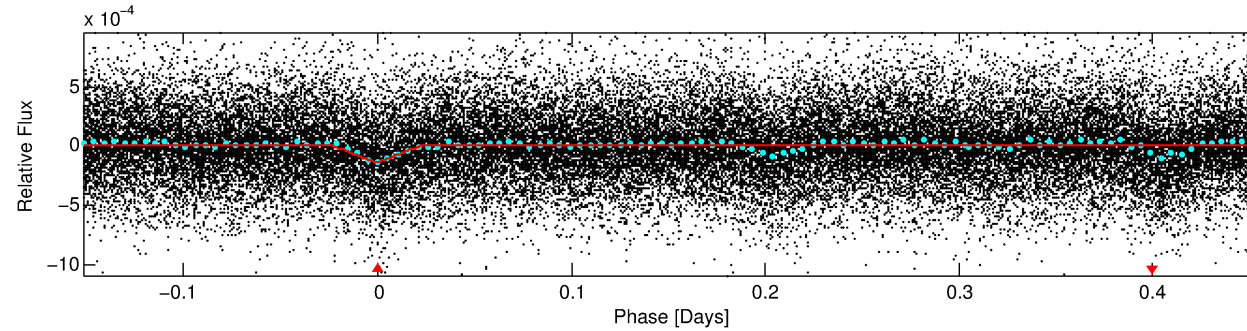
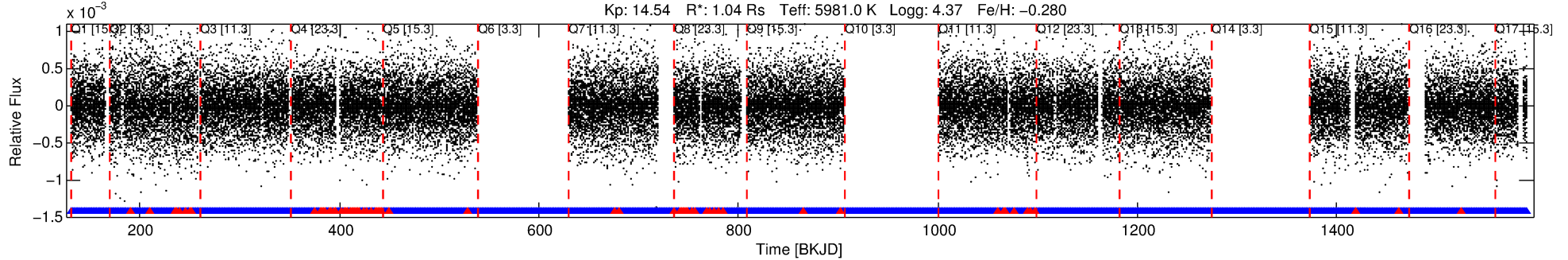
## Ephemeris Match Information For 004175105-01

No Significant Match Found

# DV One-Page Summary

KIC: 4175105 Candidate: 1 of 1 Period: 0.608 d  
KOI: K04836.01 Corr: 0.893

Kp: 14.54 R\*: 1.04 Rs Teff: 5981.0 K Logg: 4.37 Fe/H: -0.280



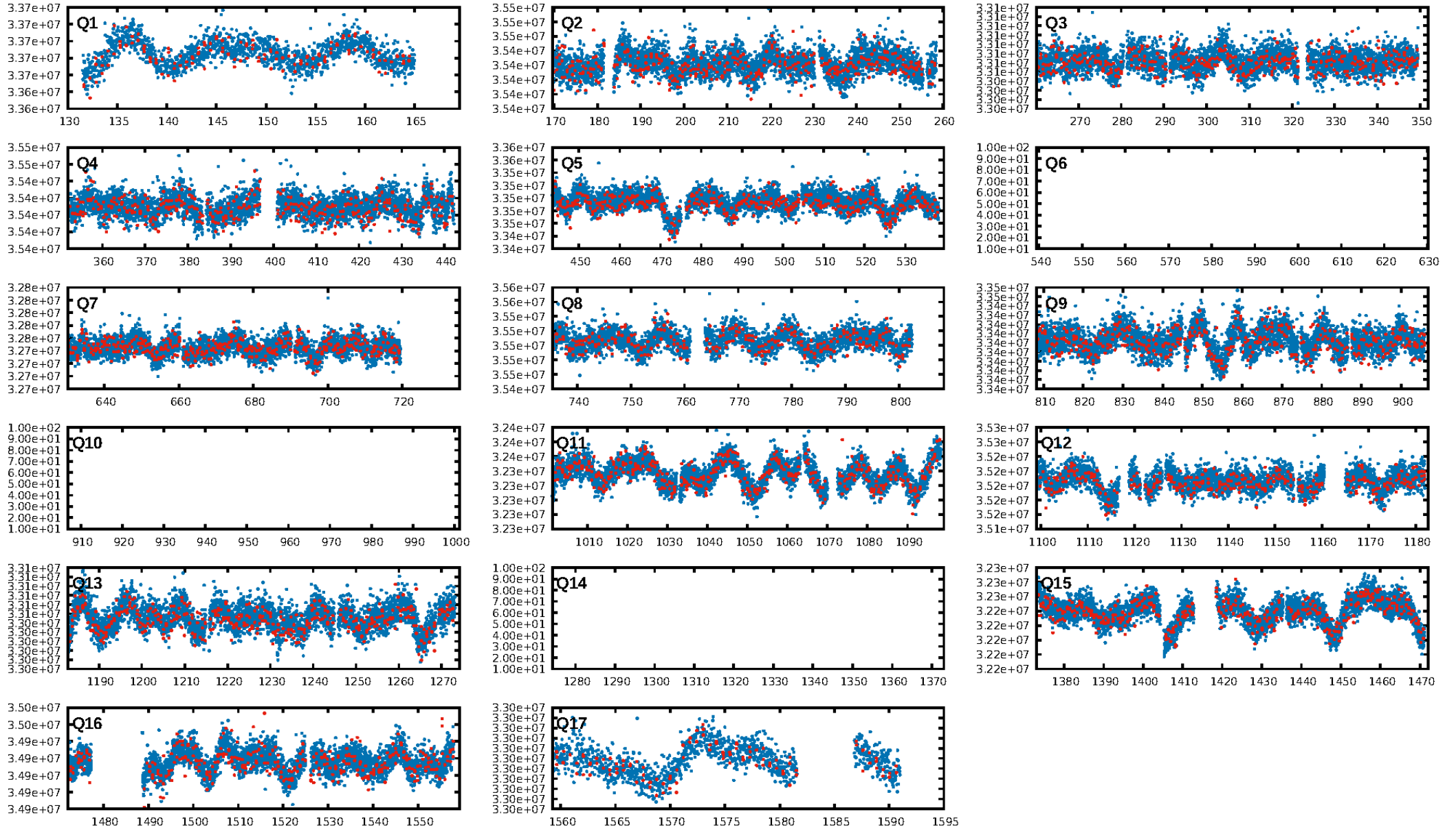
## DV Fit Results:

Period = 0.60818 [0.00001] d  
Epoch = 131.6251 [0.0007] BKJD  
Rp/R\* = 0.0108 [0.0063]  
a/R\* = 7.11 [19.72]  
b = 0.33 [7.65]  
Seff = 6608.97 [2464.53]  
Teq = 2299 [214] K  
Rp = 1.23 [0.79] Re  
a = 0.0137 [0.0033] AU  
Ag = 3.01 [3.65] [0.55σ]  
Teffp = 4682 [1368] K [1.72σ]

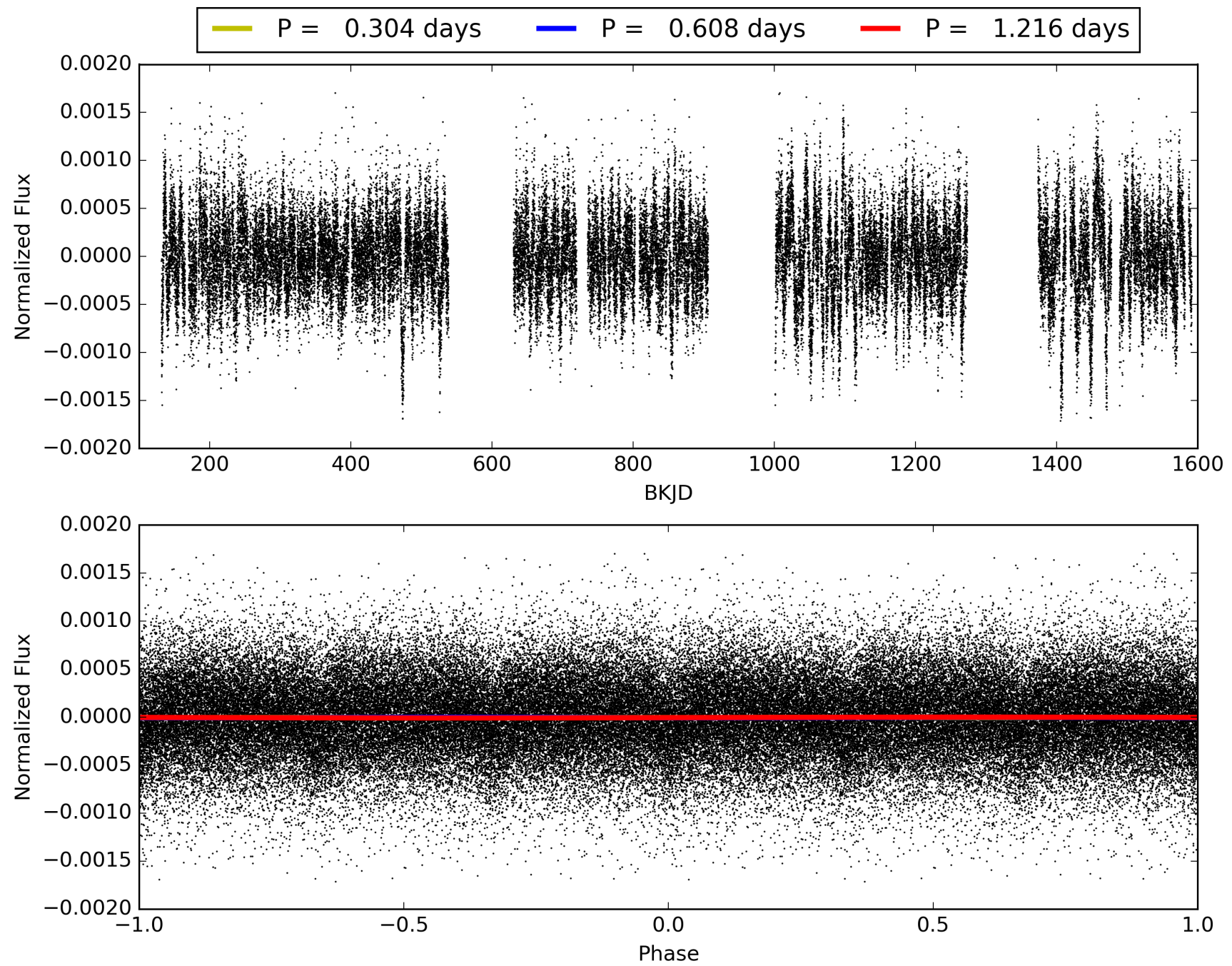
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.71e-23  
RollingBand-fgt: 0.96 [1587/1657]  
GhostDiagnostic-chr: -0.9881  
Centroid-sig: 2.7%  
Centroid-so: 1.209 arcsec [1.64σ]  
OotOffset-rm: 7.590 arcsec [52.50σ]  
KicOffset-rm: 7.484 arcsec [48.28σ]  
OotOffset-st: 1/1/4/4 [10]  
KicOffset-st: 1/1/4/4 [10]  
DiffImageQuality-fgm: 1.00 [10/10]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 004175105-01, PDC Light Curves



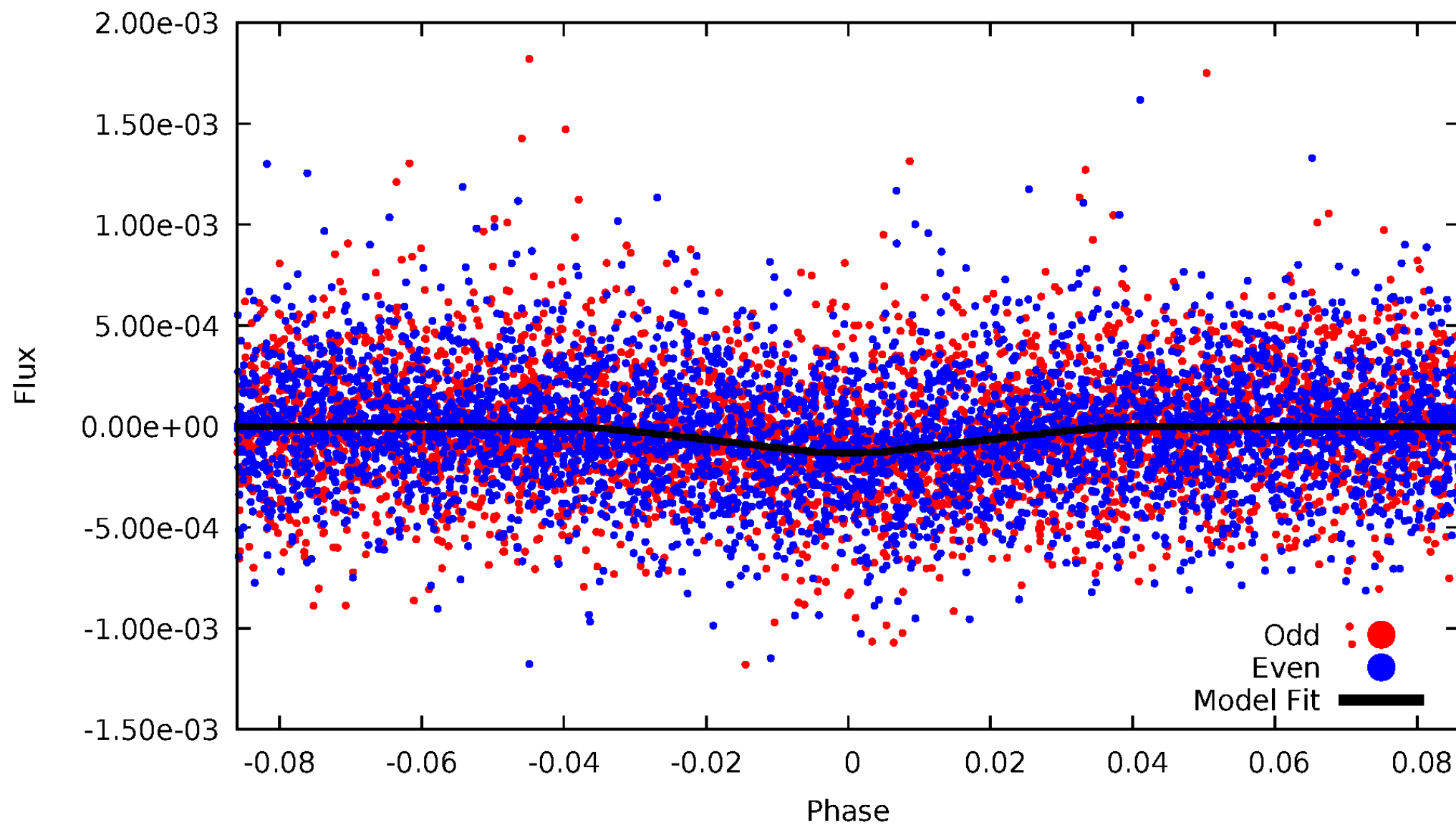
TCE 004175105-01





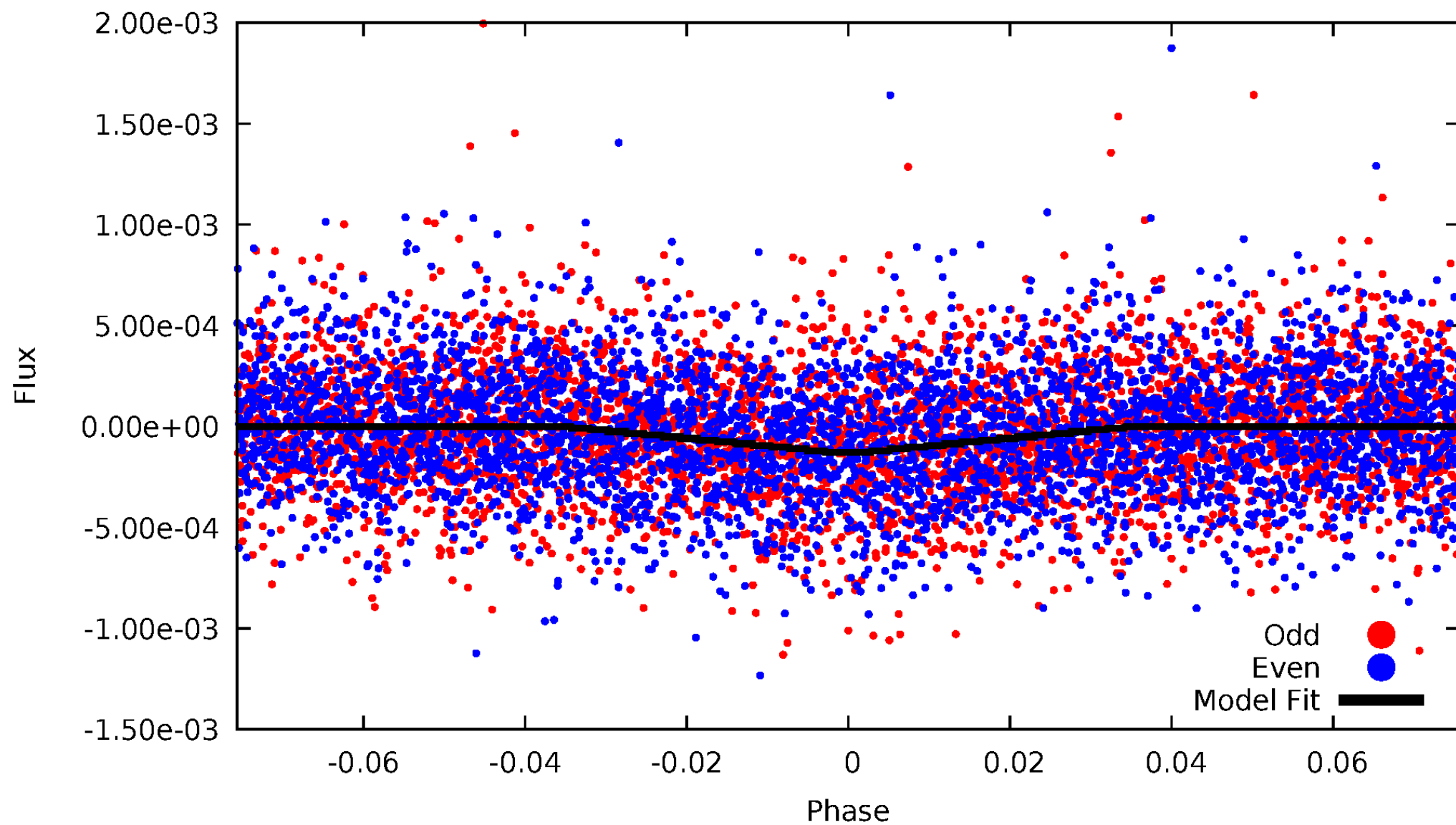
# DV Odd/Even

TCE 004175105-01

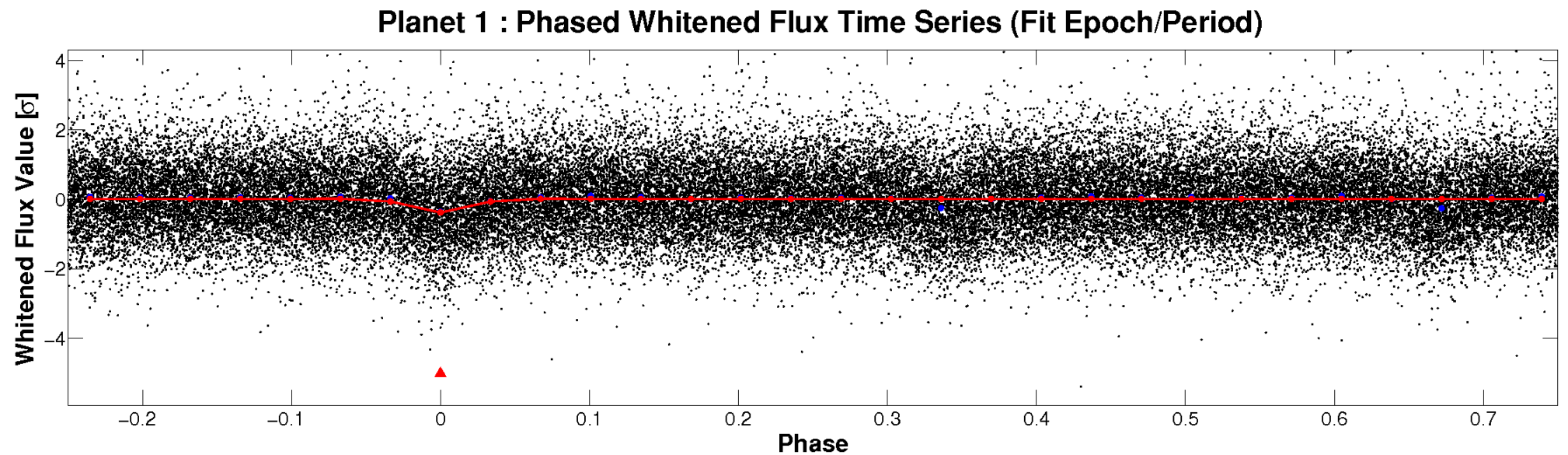
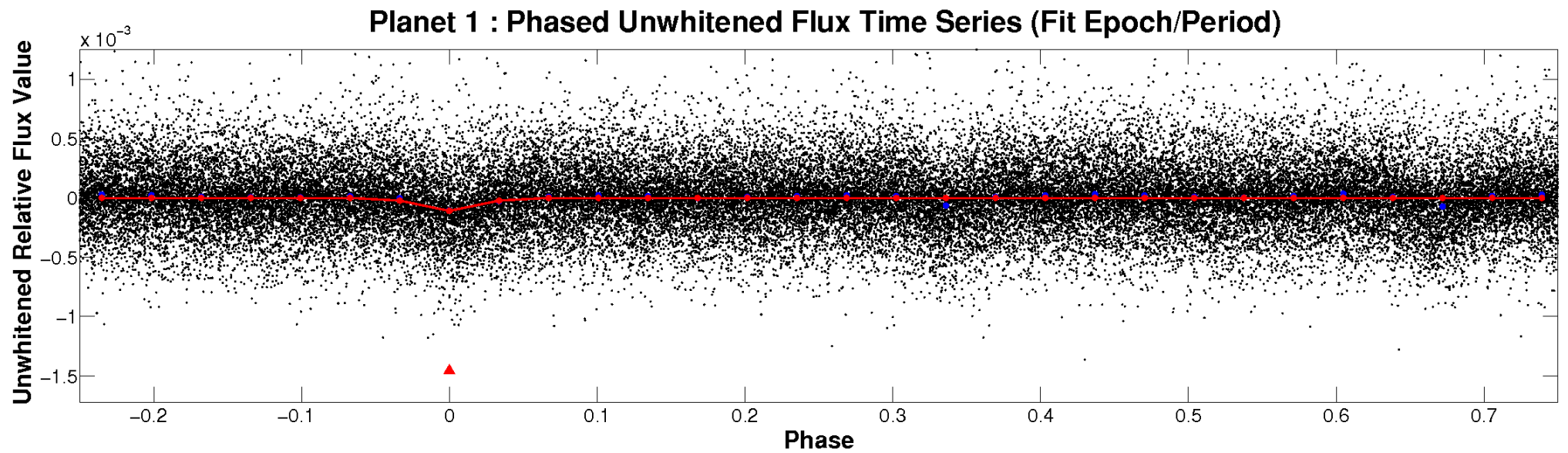


# ALT Odd/Even

TCE 004175105-01

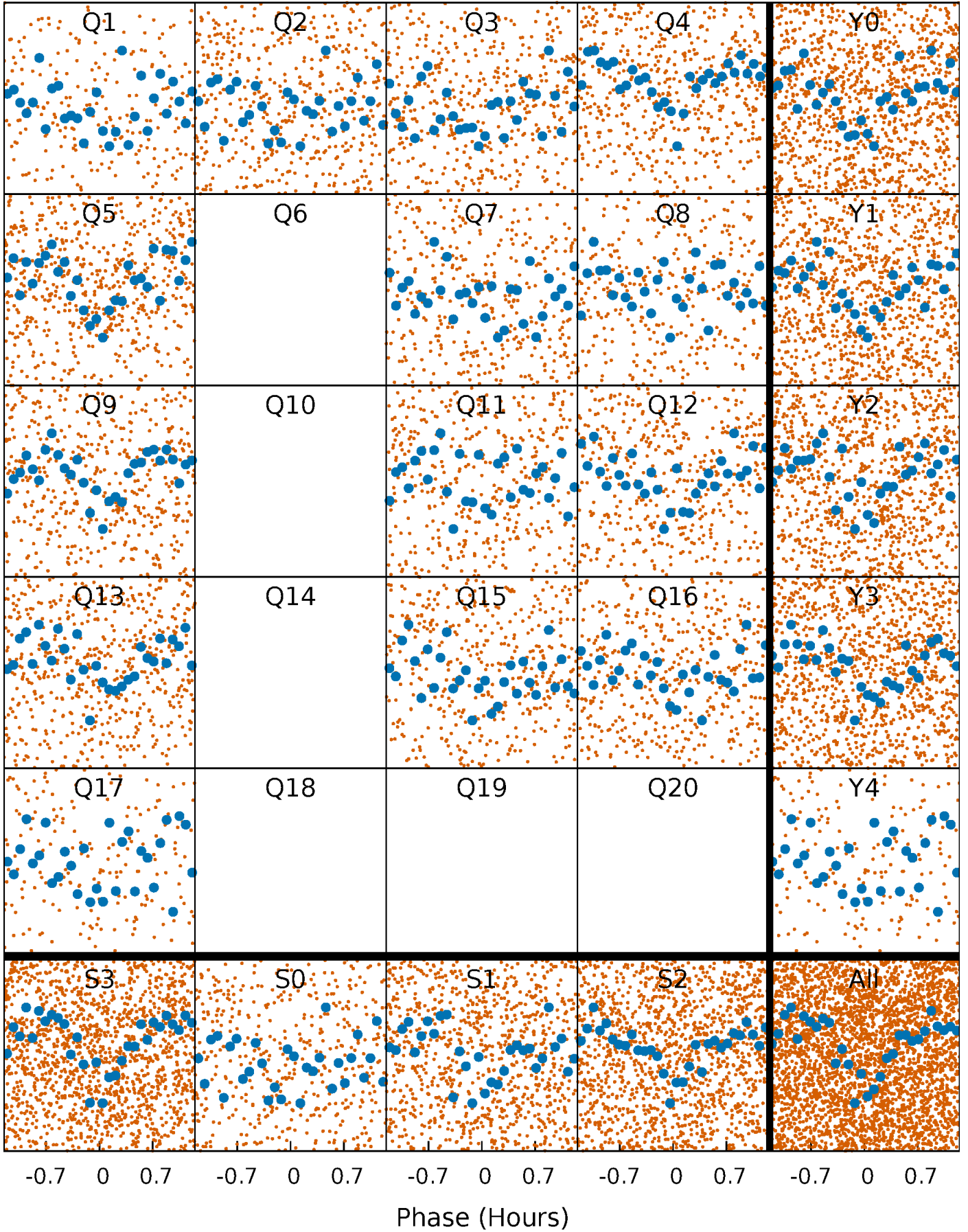


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

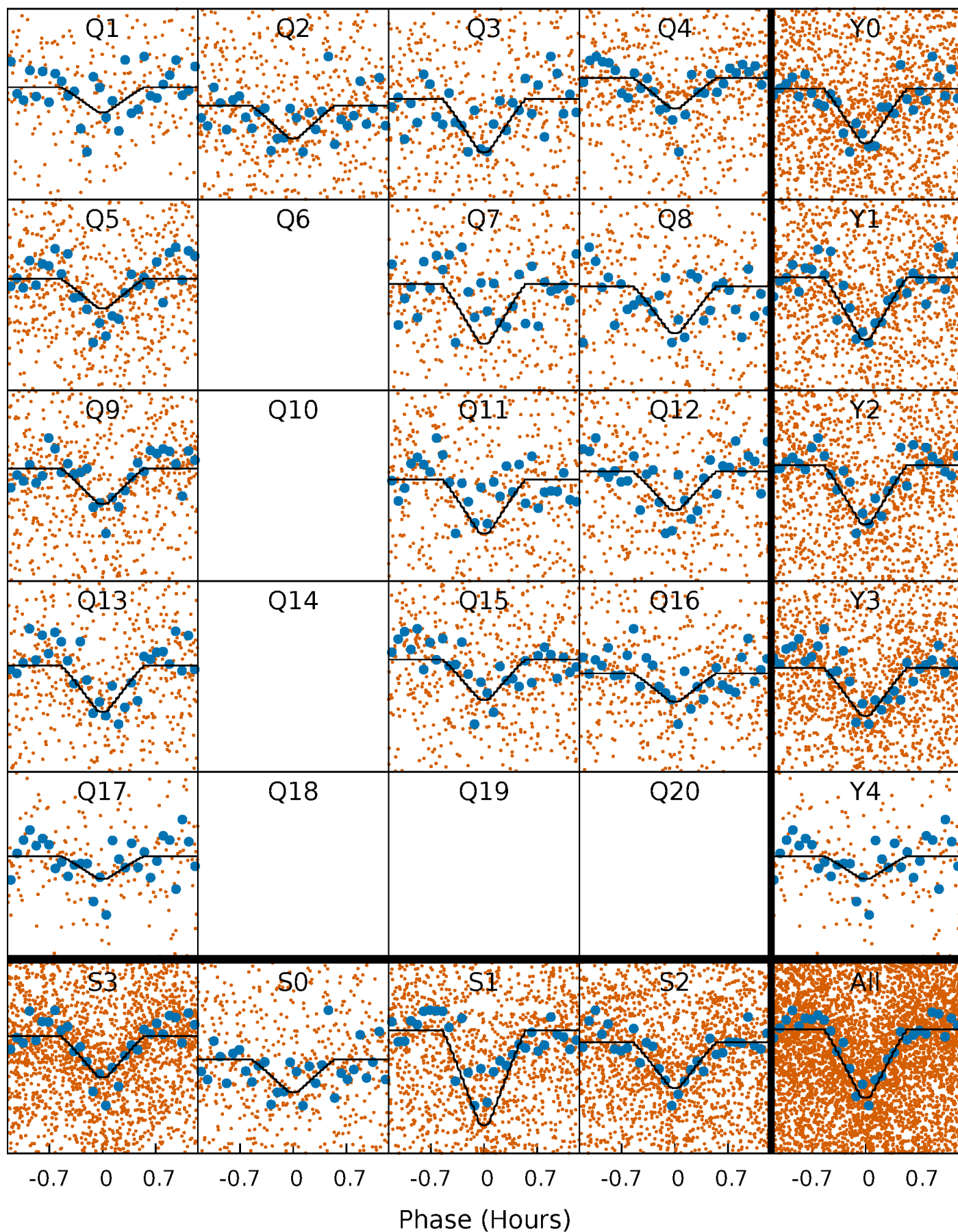
TCE 004175105-01   P= 0.608182 Days    $T_0=131.625126$  (BKJD)





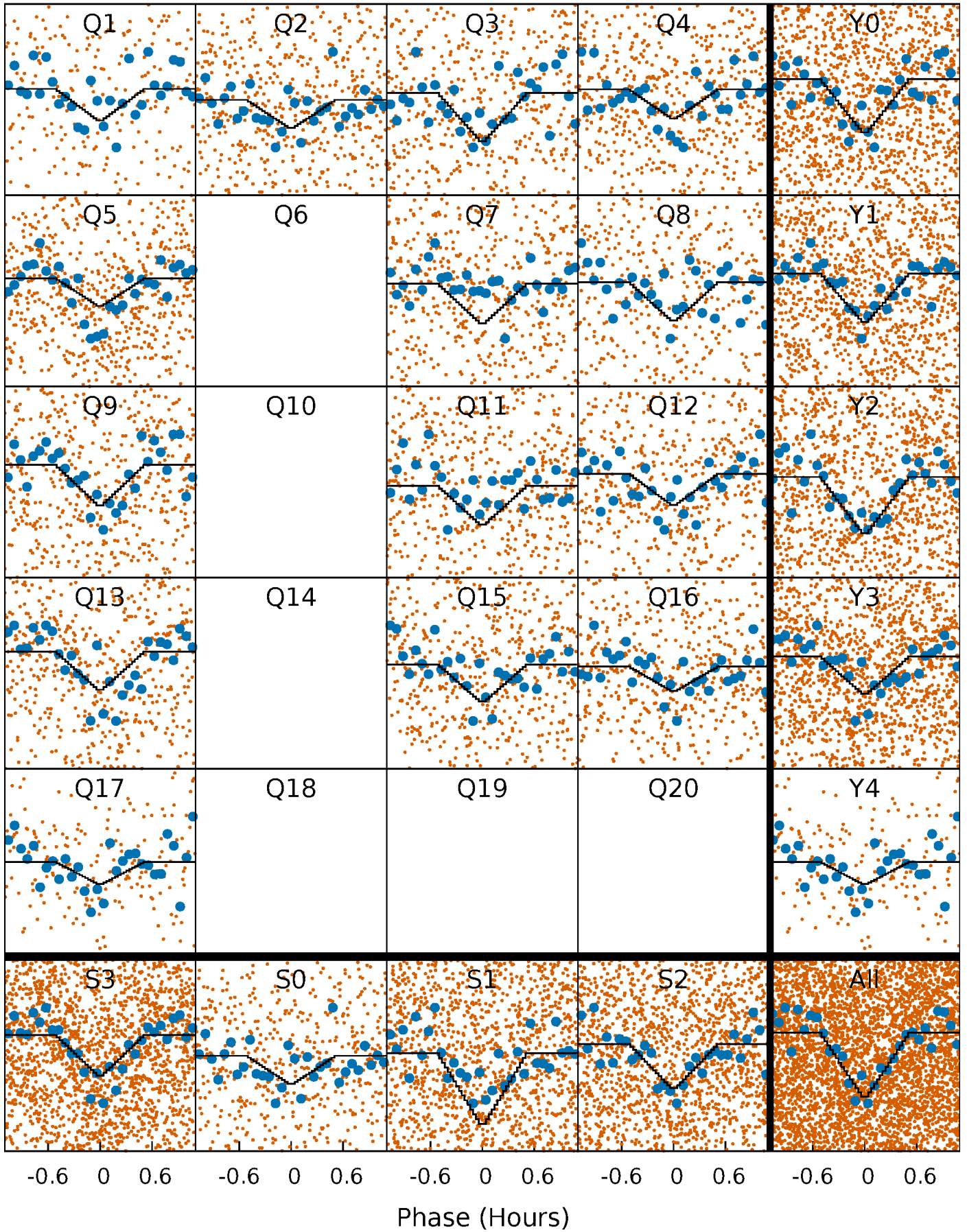
# DV Quarter-Phased Transit Curves

TCE 004175105-01 P= 0.608182 Days  $T_0=131.625126$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

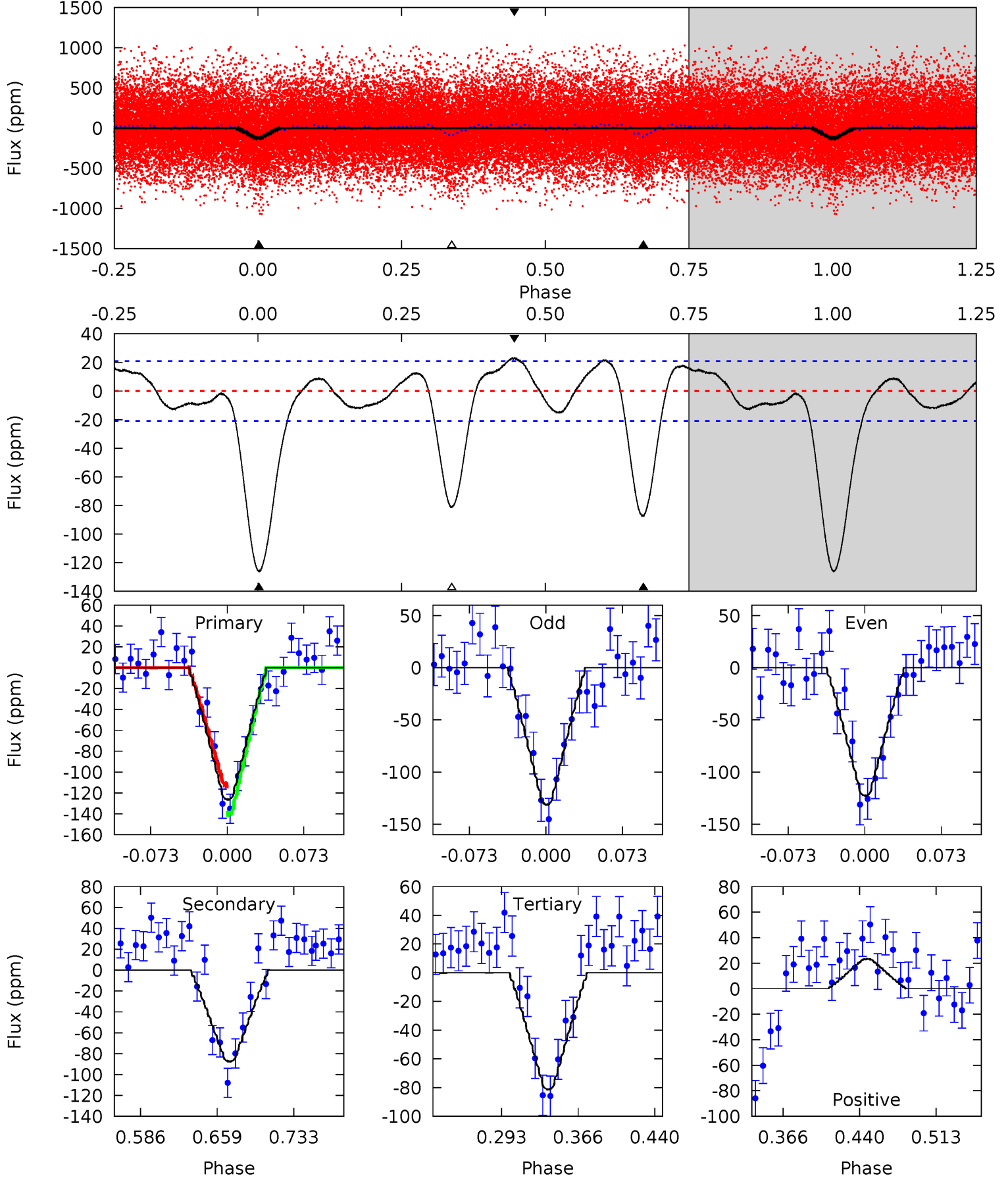
TCE 004175105-01 P= 0.608183 Days  $T_0=131.625054$  (BKJD)



# DV Model-Shift Uniqueness Test

004175105-01, P = 0.608182 Days, E = 131.016944 Days

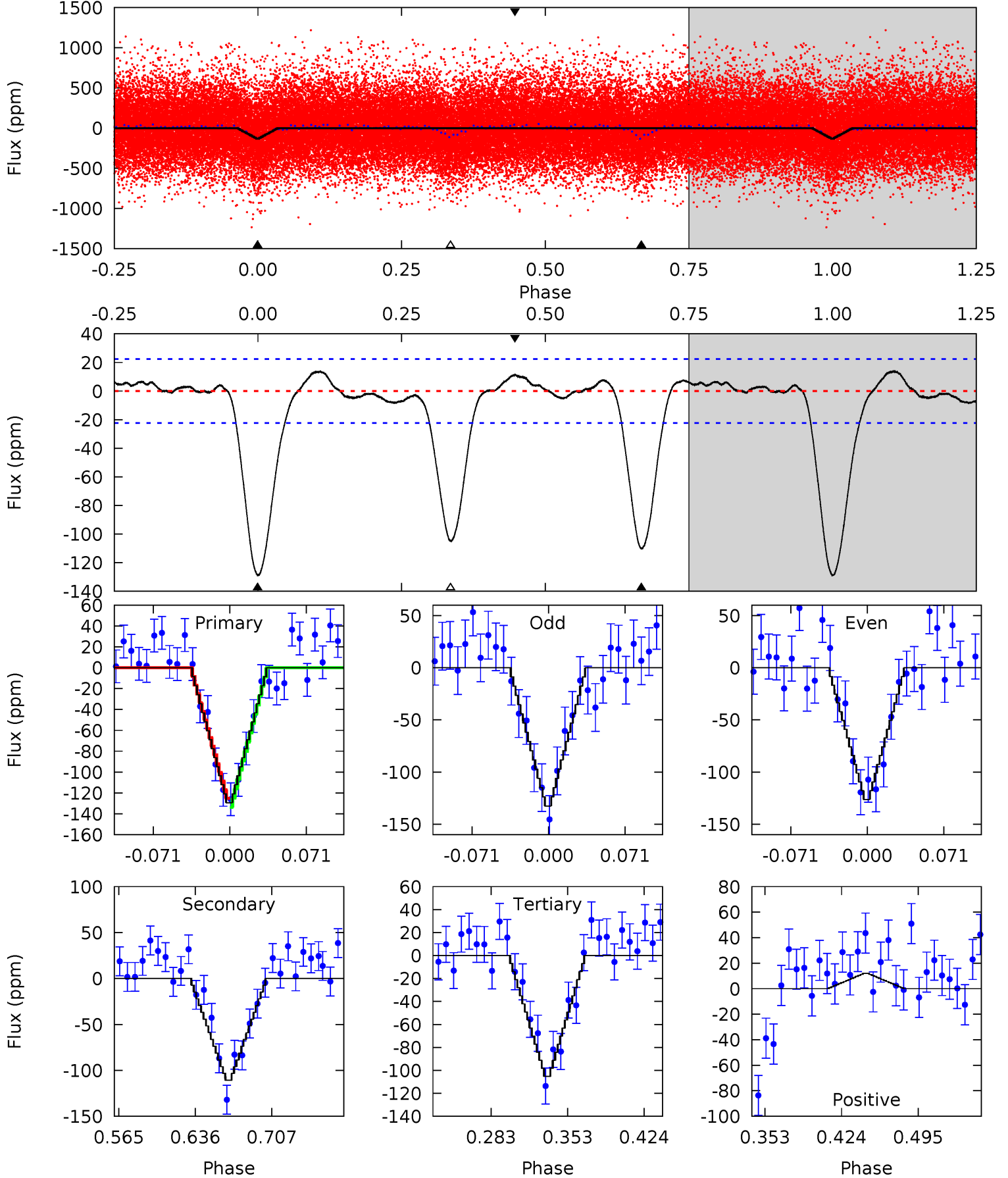
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.9	19.4	18.0	5.13	4.63	1.79	4.51	9.96	22.8	1.39	14.2	0.94	0.99	0.16	3.04



# Alt Model-Shift Uniqueness Test

004175105-01, P = 0.608183 Days, E = 131.016871 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
26.8	22.9	21.8	2.49	4.64	1.81	4.95	4.99	24.3	1.12	20.5	0.65	1.01	0.10	0.90





### Stellar Parameters For KIC 004175105

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5981^{+161}_{-197}$	$4.372^{+0.144}_{-0.192}$	$-0.280^{+0.300}_{-0.300}$	$1.043^{+0.292}_{-0.170}$	$0.933^{+0.129}_{-0.106}$	$1.160^{+0.691}_{-0.583}$
	+3%/-3%	+3%/-4%	+107%/-107%	+28%/-16%	+14%/-11%	+60%/-50%
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 004175105-01 / KOI 4836.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-88 \pm 5$	$1.28^{+0.74}_{-0.64}$	$3227^{+230}_{-201}$	$5480^{+2436}_{-1018}$	$5.654^{+17.055}_{-3.461}$
Alt.	$-111 \pm 5$	$1.33^{+0.79}_{-0.66}$	$3220^{+221}_{-195}$	$5619^{+2647}_{-1031}$	$6.368^{+18.528}_{-3.761}$

$T_{\text{max}}$  = 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

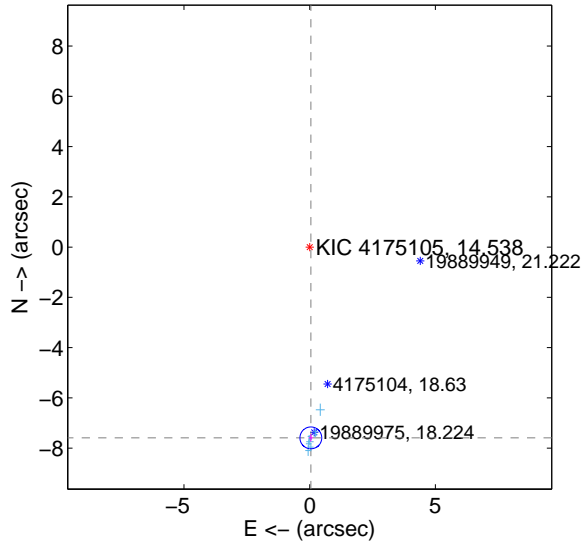
Supplemental centroid analysis for 004175105-01. Kepler magnitude: 14.54. Transit SNR 17.09

There are 10 quarters with good PRF difference image offsets

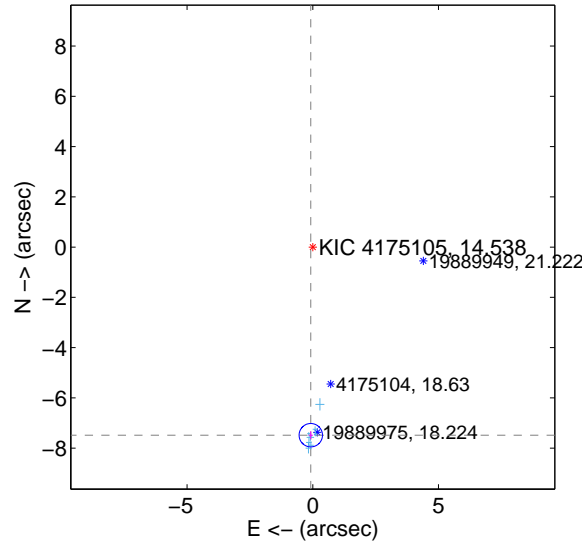
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>7.590 <math>\pm</math> 0.145</b>	<b>52.50</b>	-0.046 $\pm$ 0.082	-7.590 $\pm$ 0.145
PRF-fit source offset from KIC position	<b>7.484 <math>\pm</math> 0.155</b>	<b>48.28</b>	0.079 $\pm$ 0.082	-7.484 $\pm$ 0.155
photometric centroid source offset	1.21 $\pm$ 0.74	1.64	0.85 $\pm$ 0.73	0.86 $\pm$ 0.75

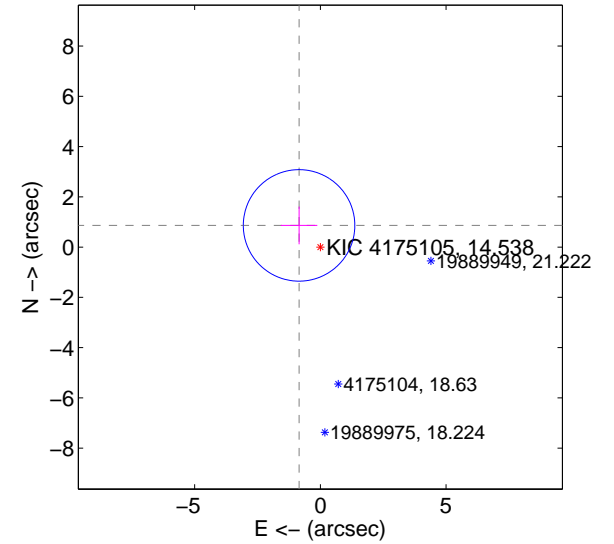
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

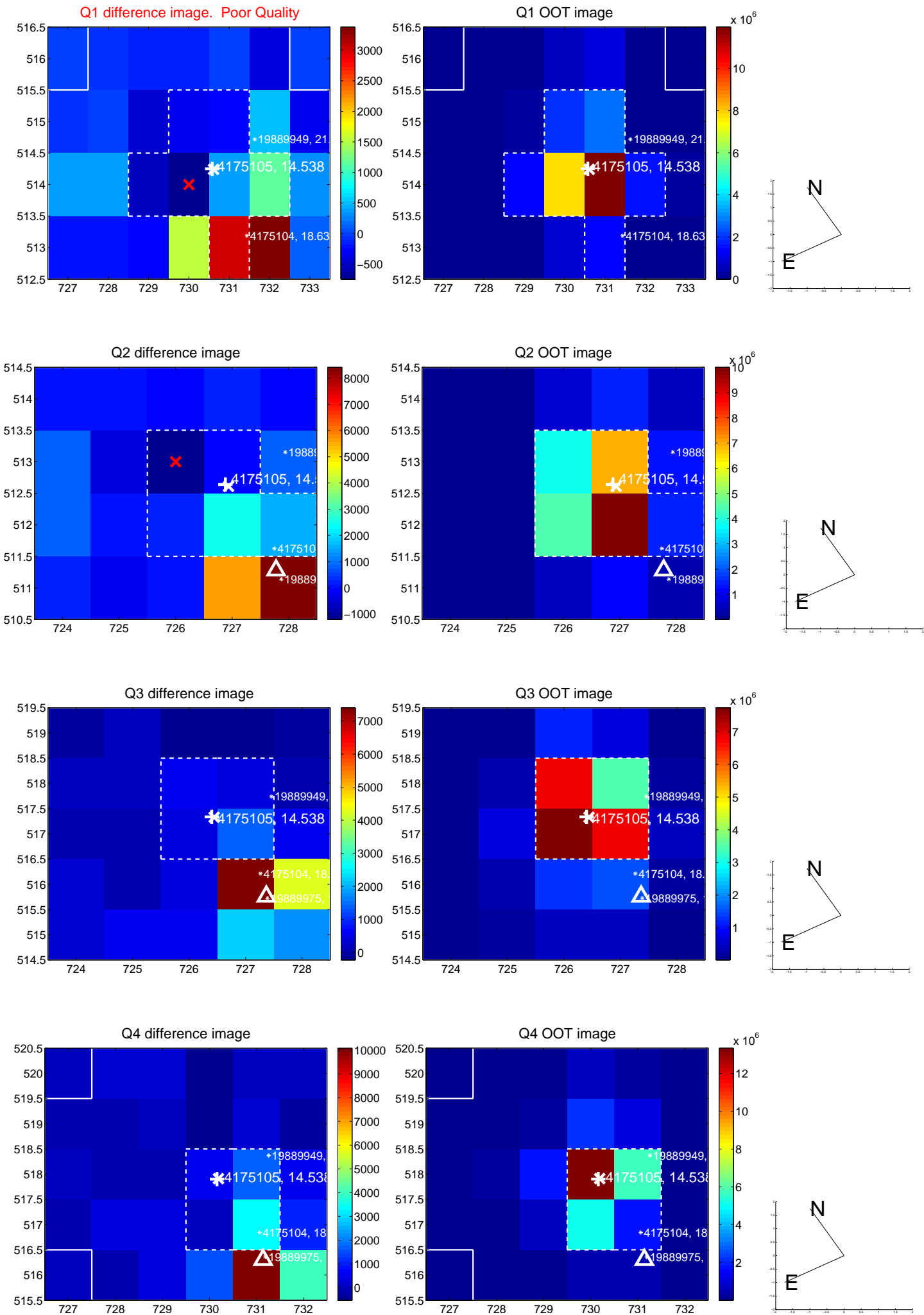


offset from photometric centroids

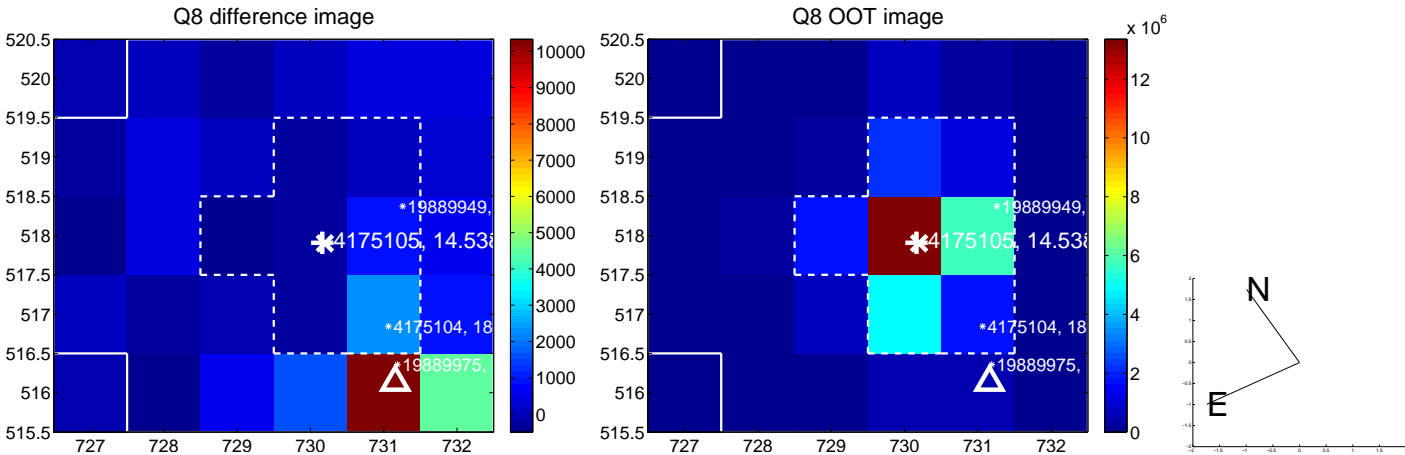
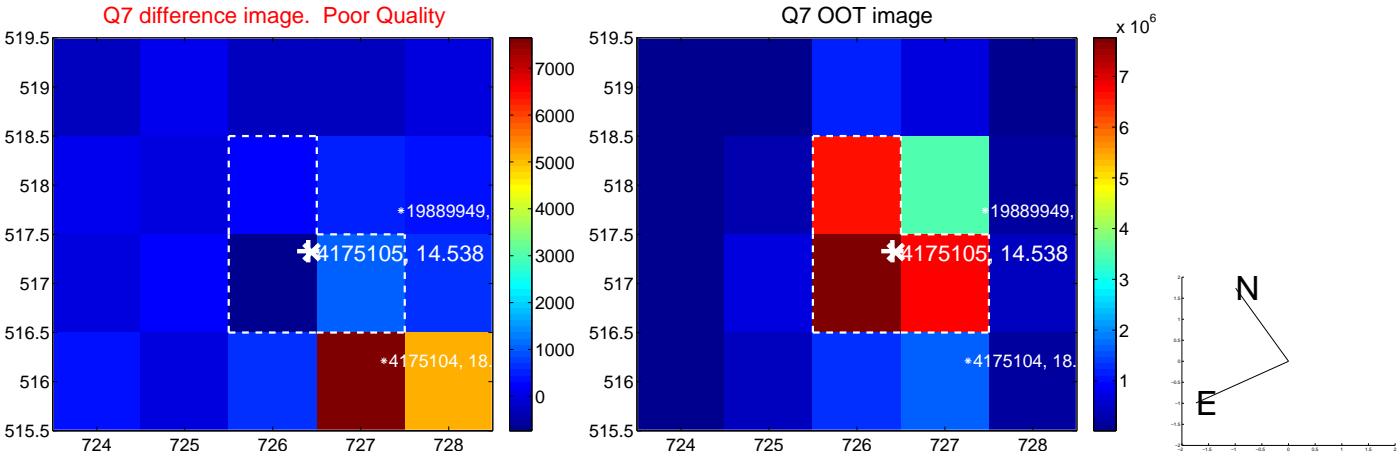
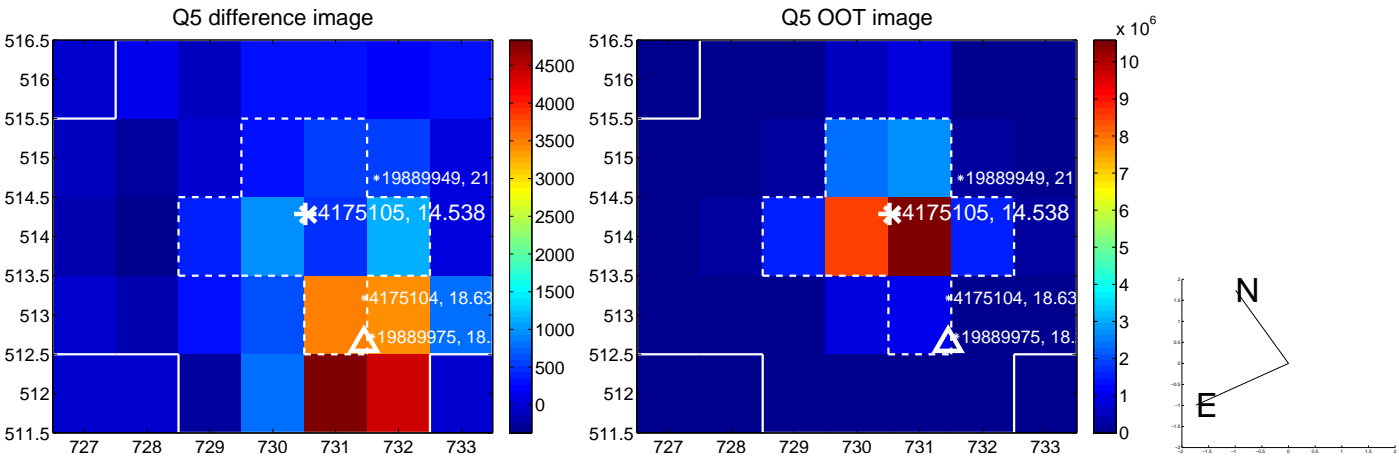


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

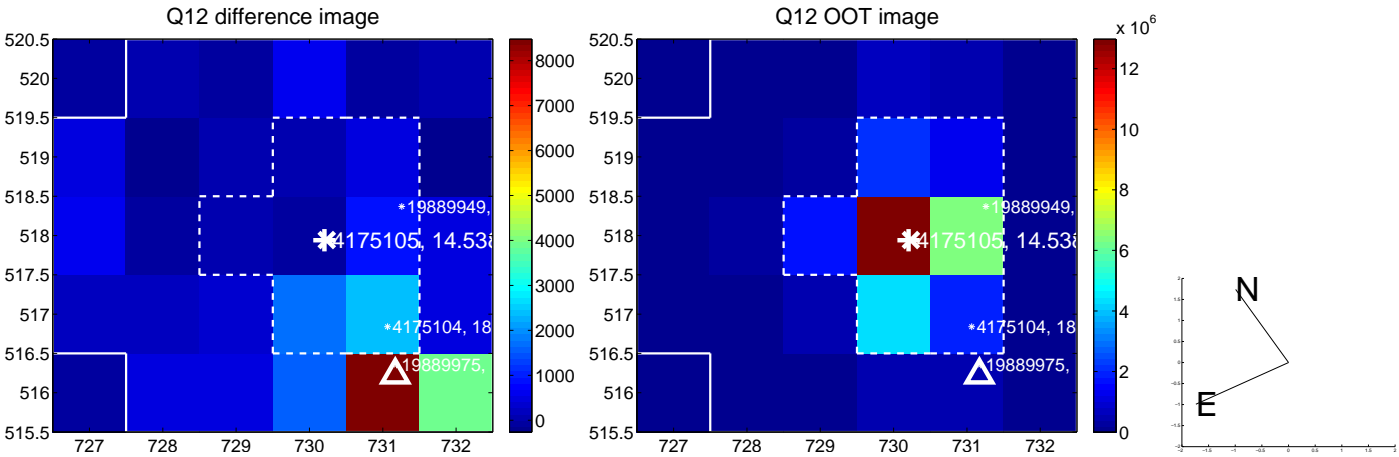
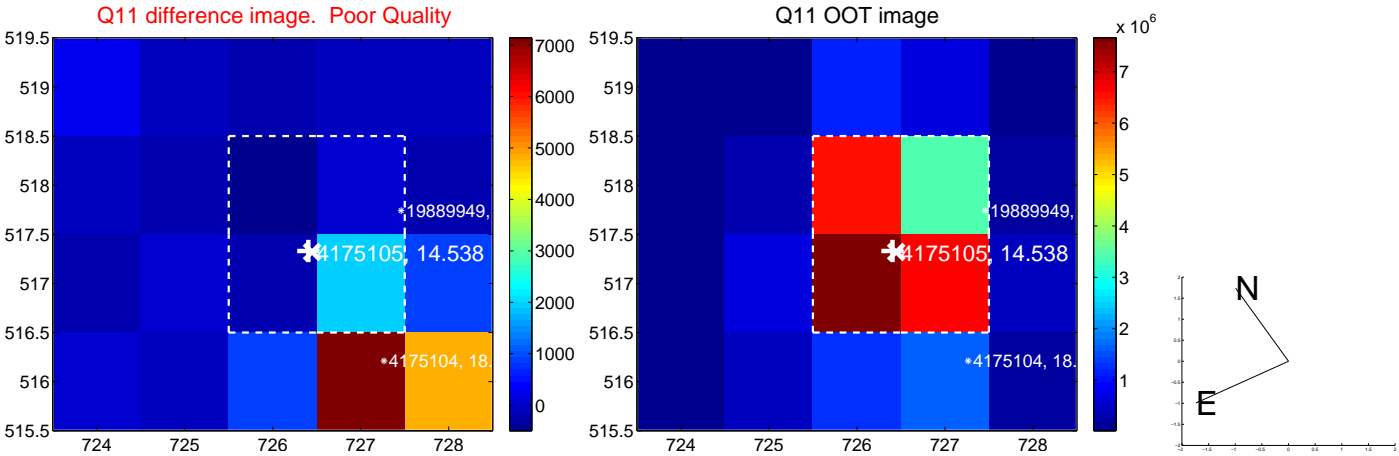
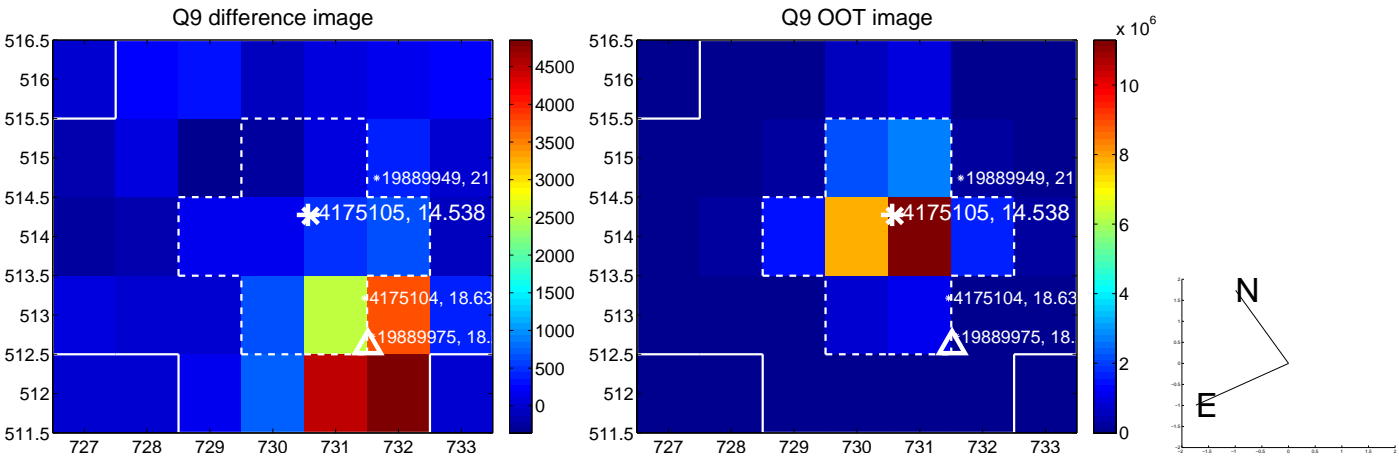


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

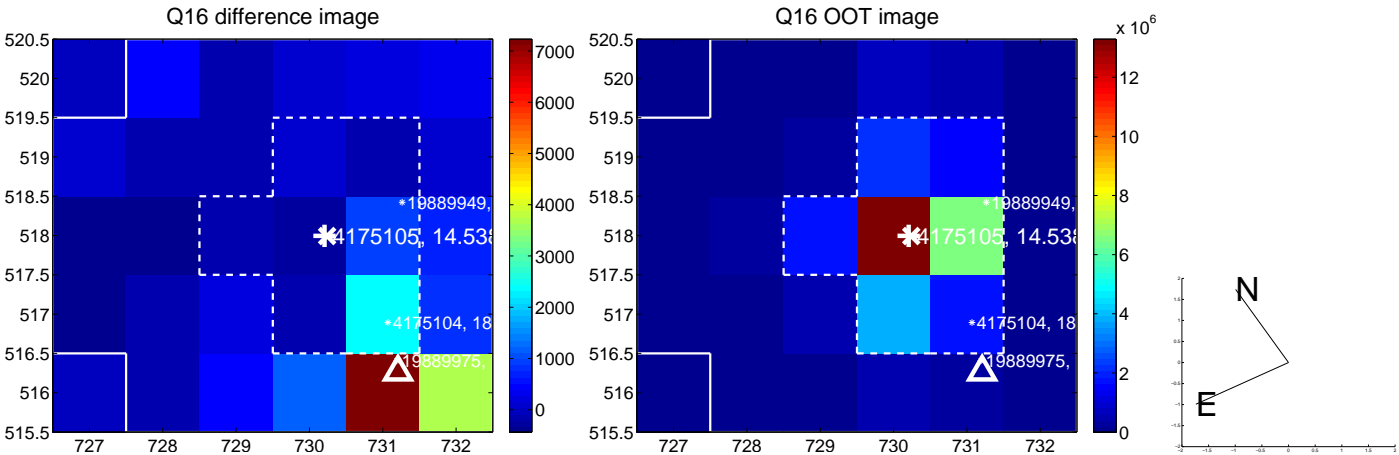
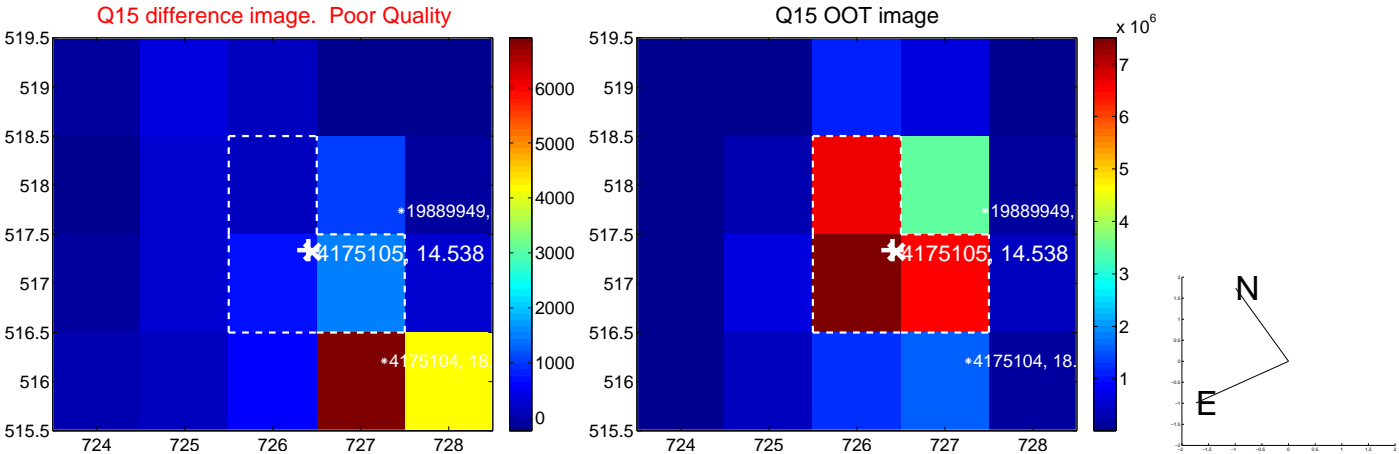
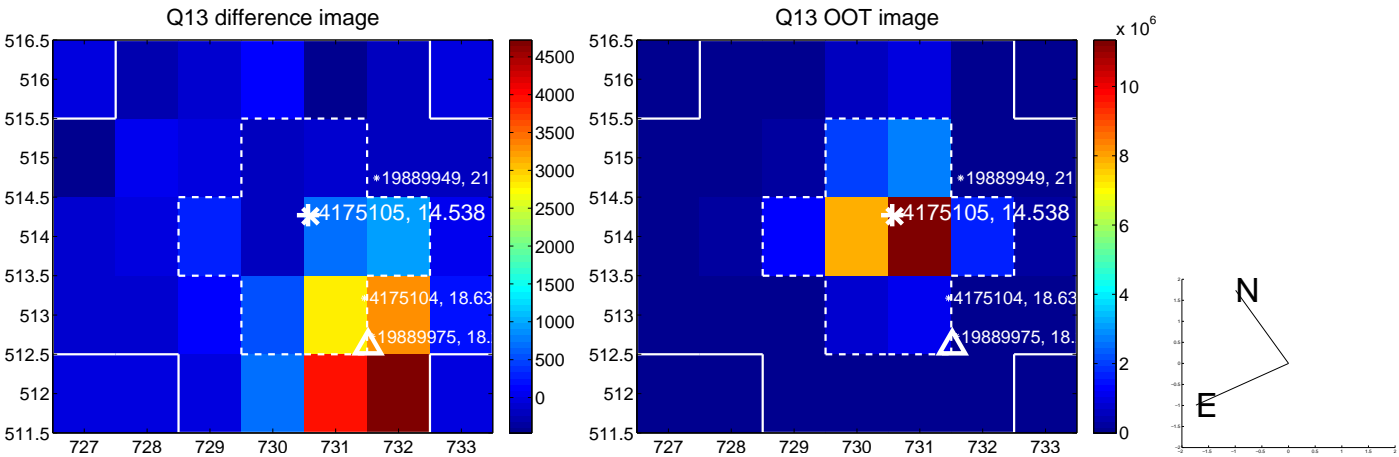




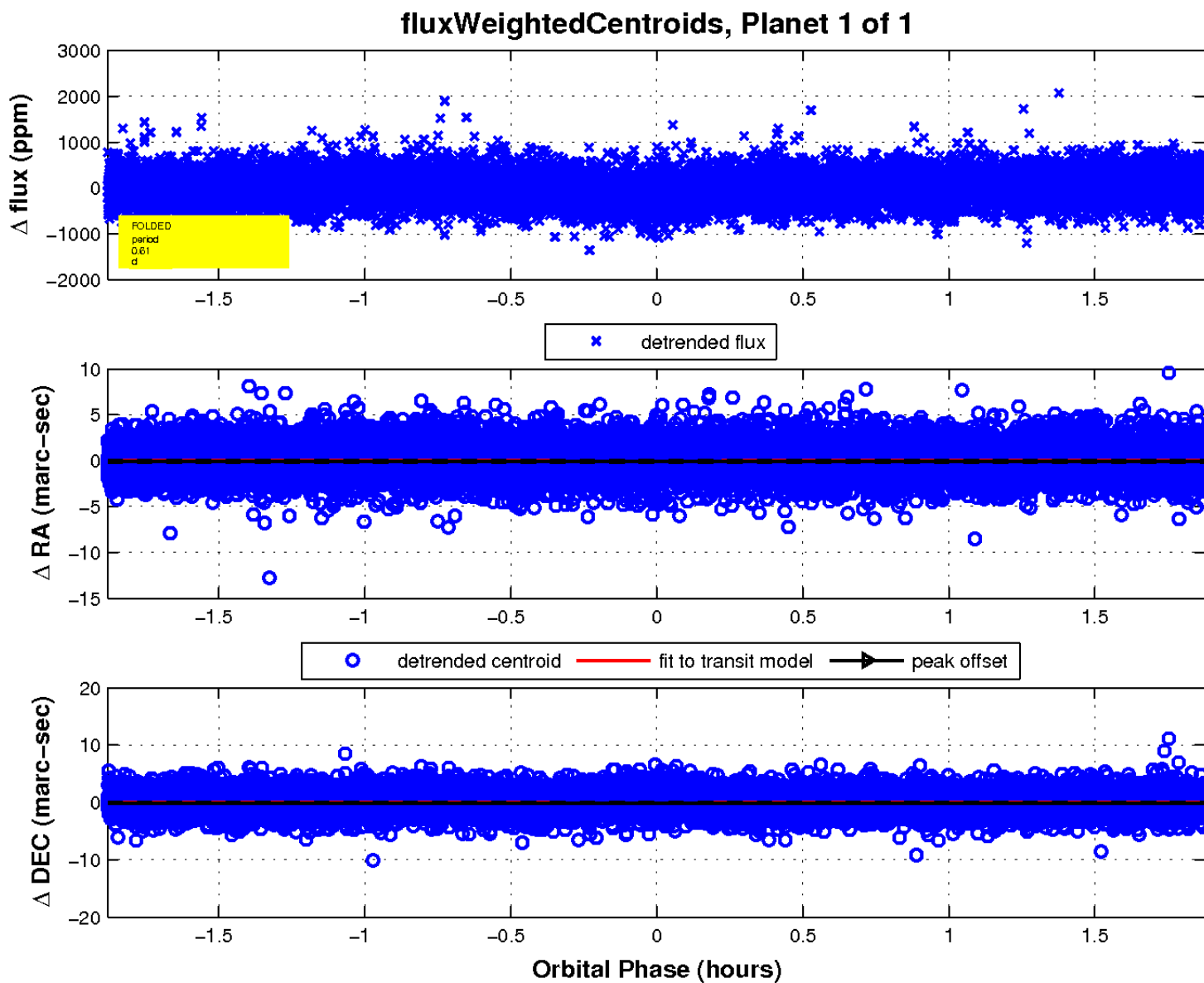
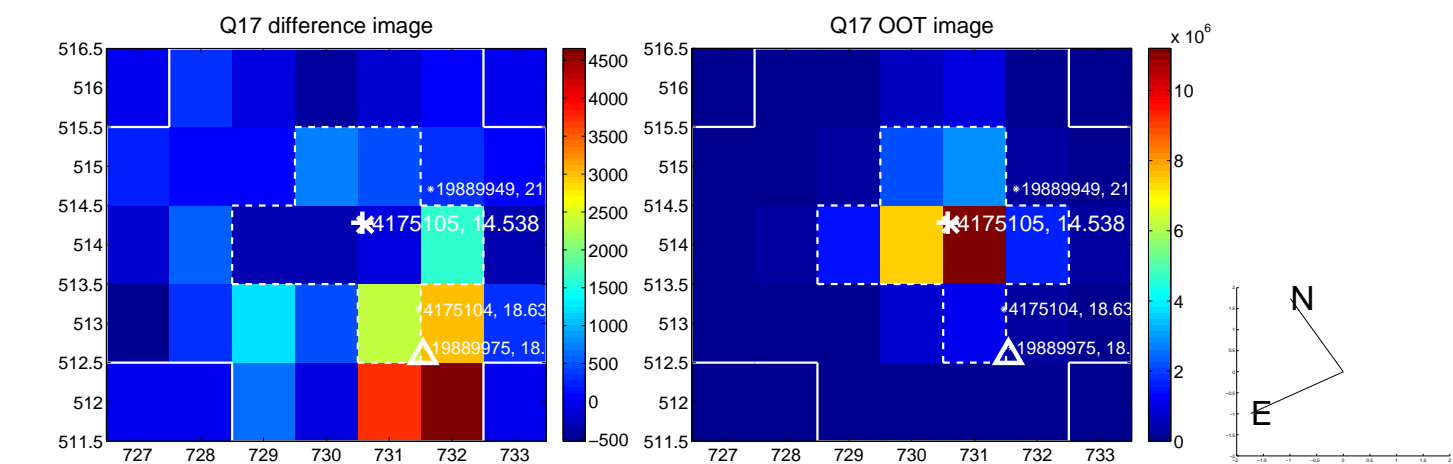
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

