

# KIC 004386607

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004386607-01	OBS	7694.01	5.993142	133.646370	180.5	4.174	7.7	7.6	0.87	5853	1.38	194.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004386607-01	OBS	FP	0.19	0	0	1	0	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.

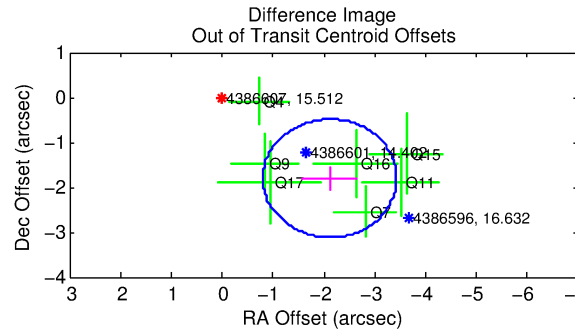
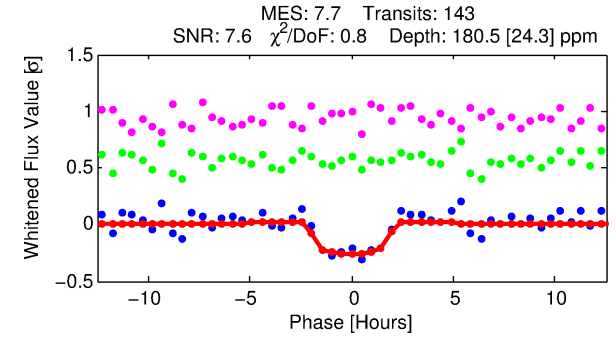
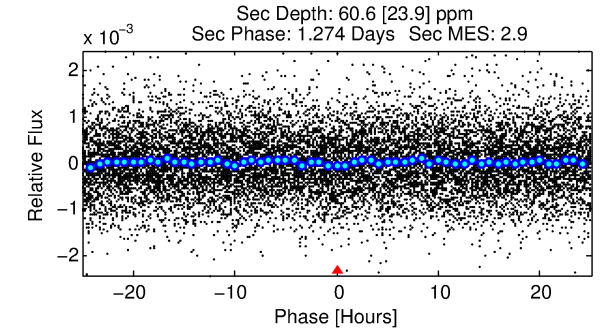
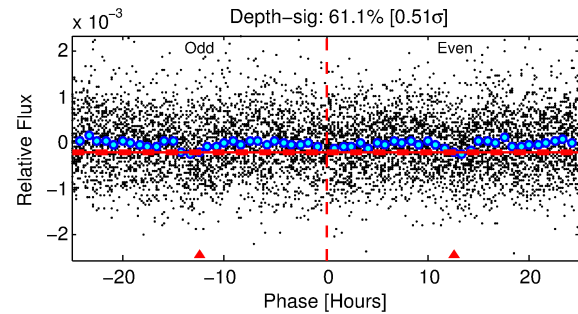
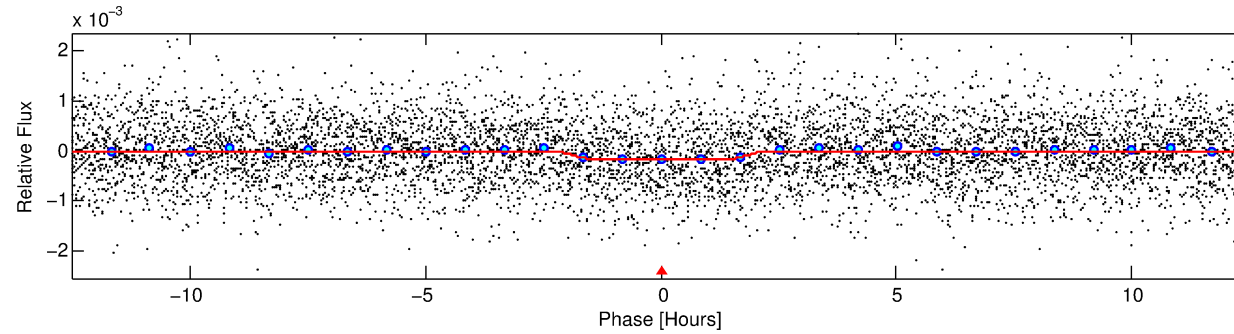
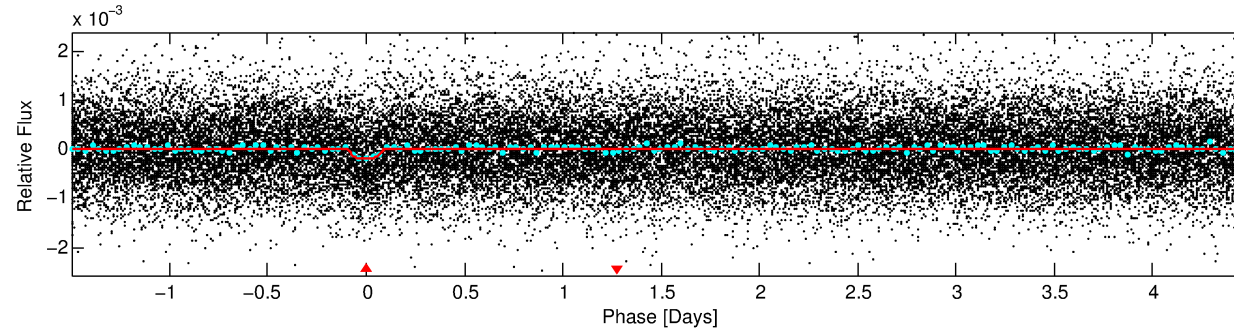
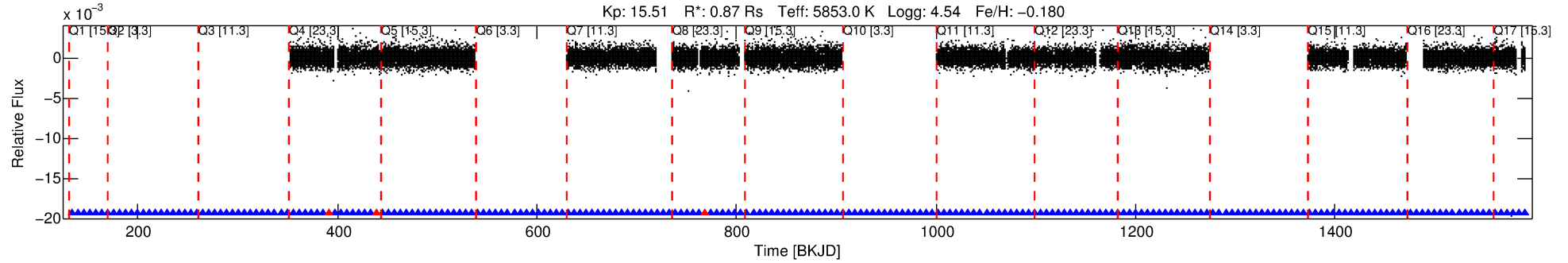
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004386607-01

No Significant Match Found

# DV One-Page Summary

KIC: 4386607 Candidate: 1 of 1 Period: 5.993 d



## DV Fit Results:

Period = 5.99314 [0.00007] d  
Epoch = 133.6464 [0.0097] BKJD  
Rp/R\* = 0.0146 [0.0079]  
a/R\* = 5.25 [13.58]  
b = 0.90 [0.58]  
Seff = 194.93 [73.86]  
Teq = 953 [90] K  
Rp = 1.38 [0.85] Re  
a = 0.0637 [0.0155] AU  
Ag = 71.30 [85.78] [0.82 $\sigma$ ]  
Teffp = 4281 [1240] K [2.68 $\sigma$ ]

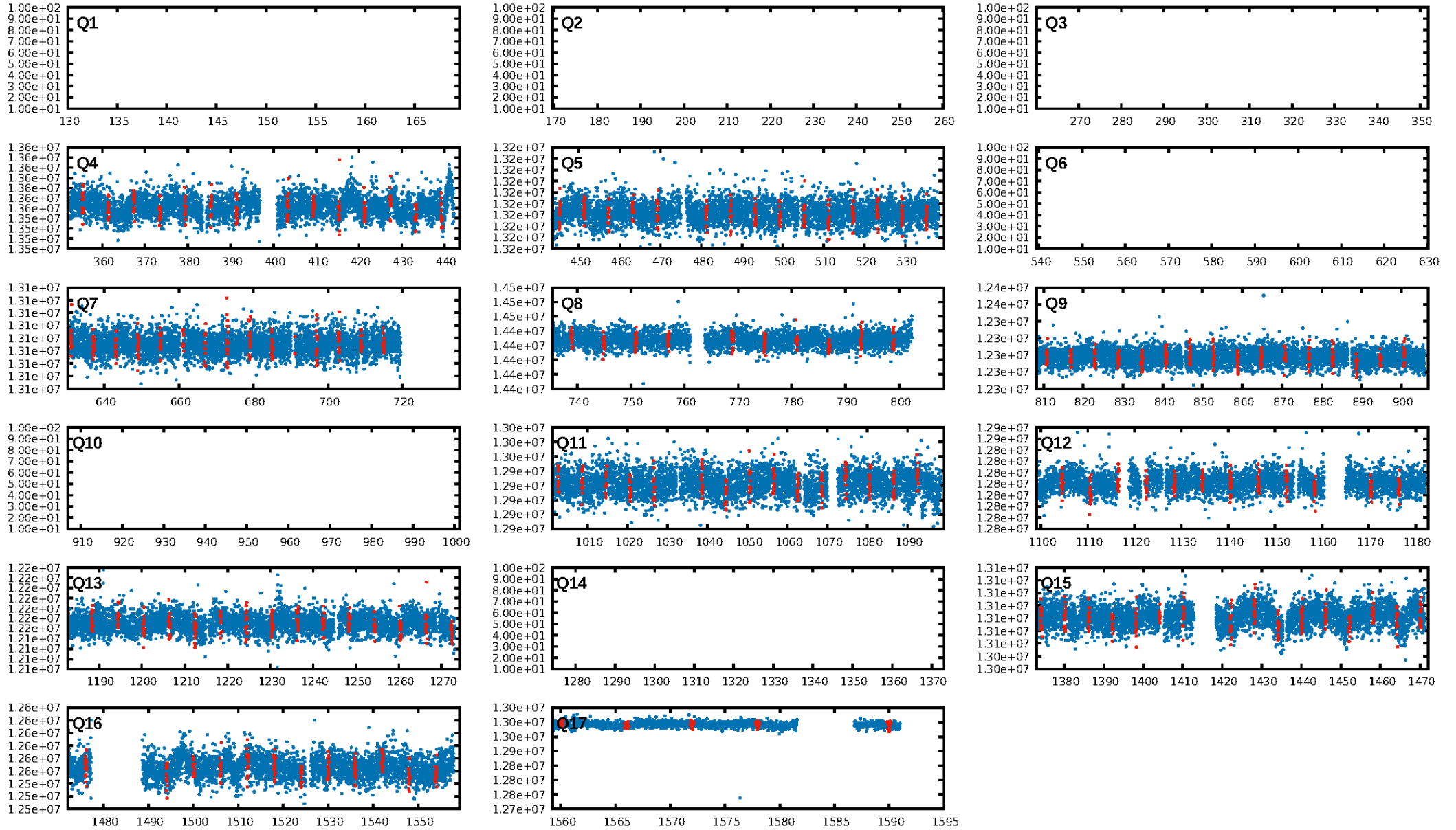
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.54e-14  
RollingBand-fgt: 0.98 [135/138]  
**GhostDiagnostic-chr: 0.7568**  
Centroid-sig: 9.7%  
Centroid-so: 2.016 arcsec [1.88 $\sigma$ ]  
**OotOffset-rm: 2.781 arcsec [6.34 $\sigma$ ]**  
**KicOffset-rm: 3.501 arcsec [10.22 $\sigma$ ]**  
OotOffset-st: 0/3/2/2 [7]  
KicOffset-st: 0/3/2/2 [7]  
DiffImageQuality-fgm: 0.43 [3/7]  
DiffImageOverlap-fno: 1.00 [11/11]

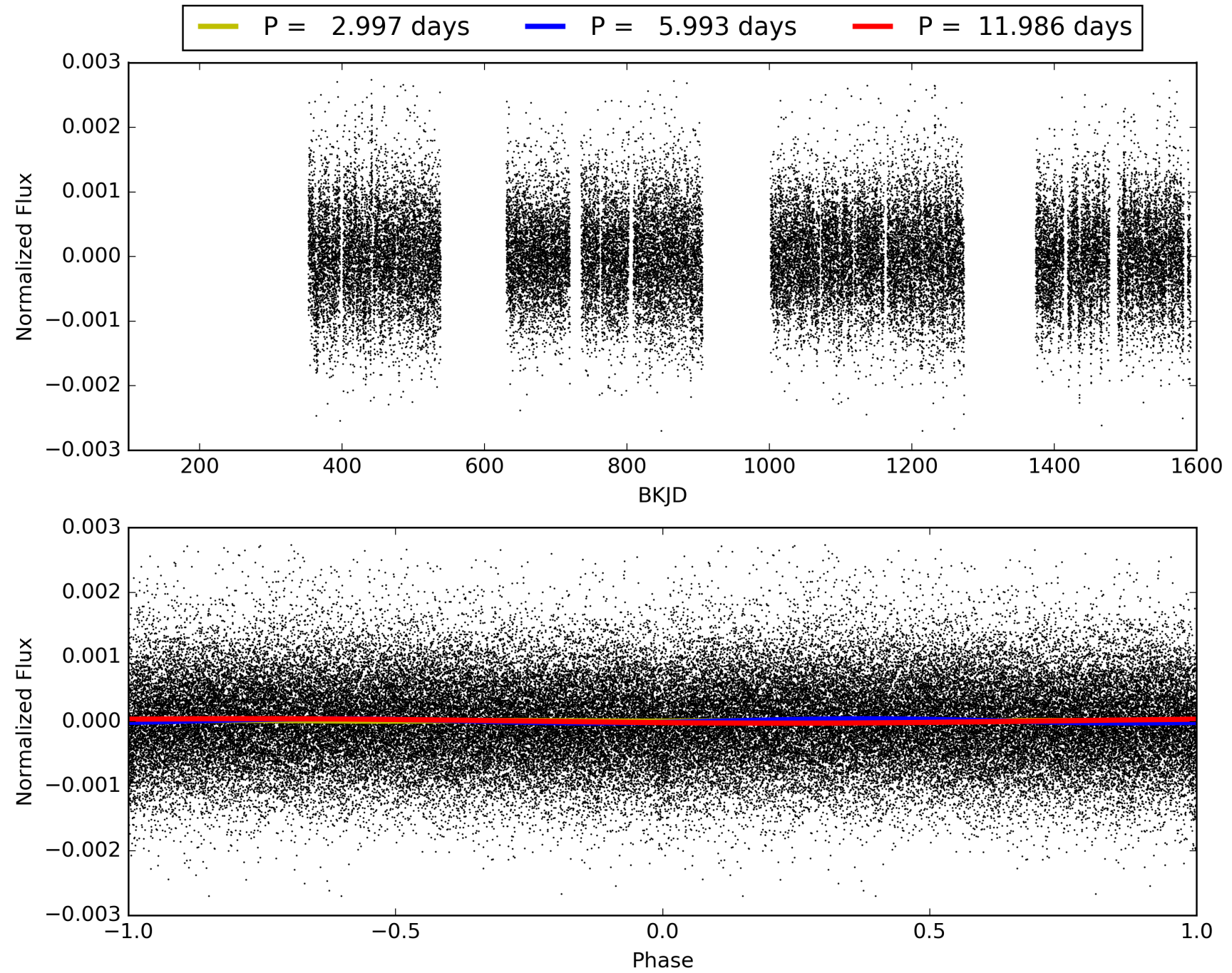
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:00:07 Z

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

# TCE 004386607-01, PDC Light Curves

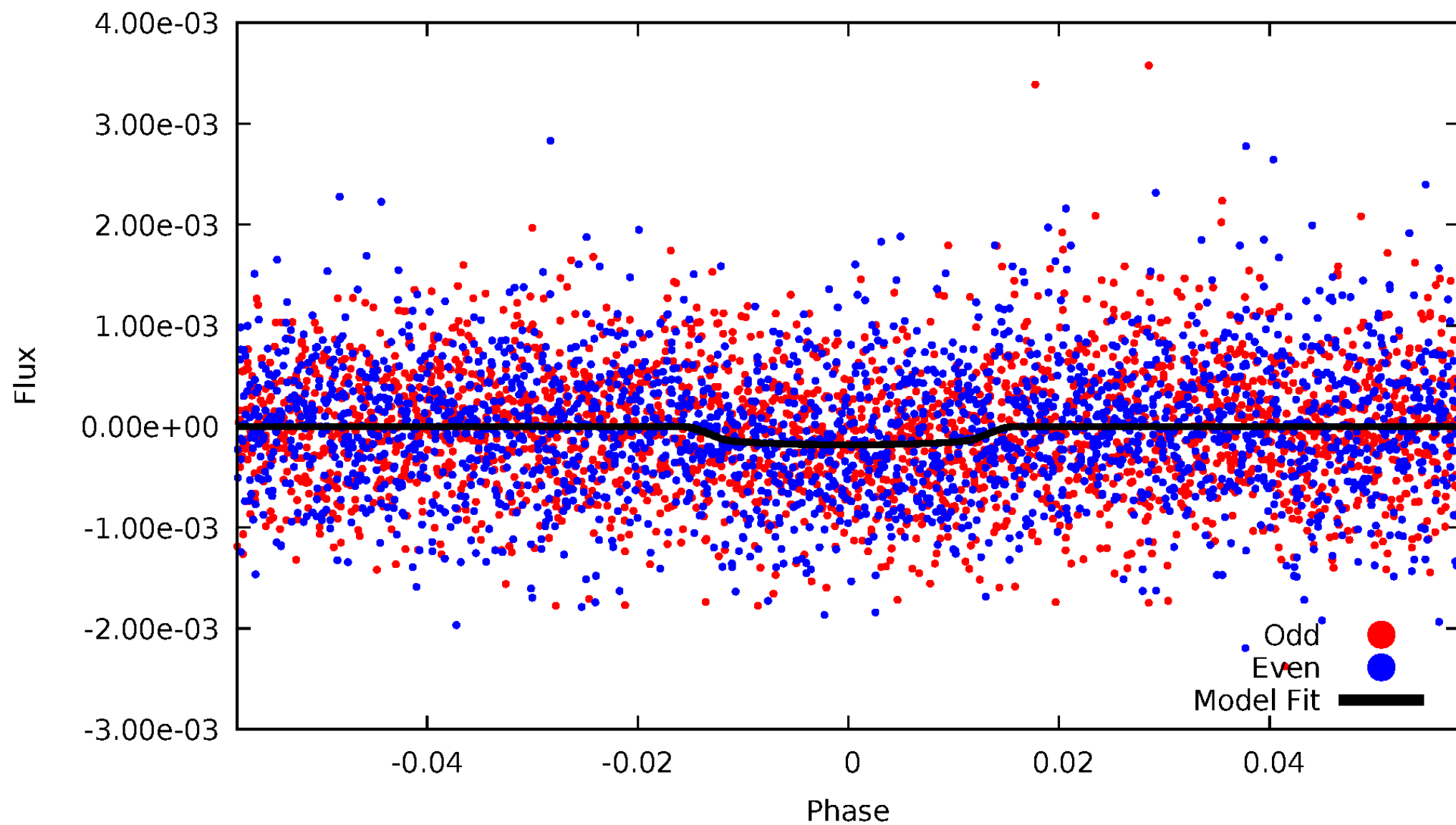


TCE 004386607-01



# DV Odd/Even

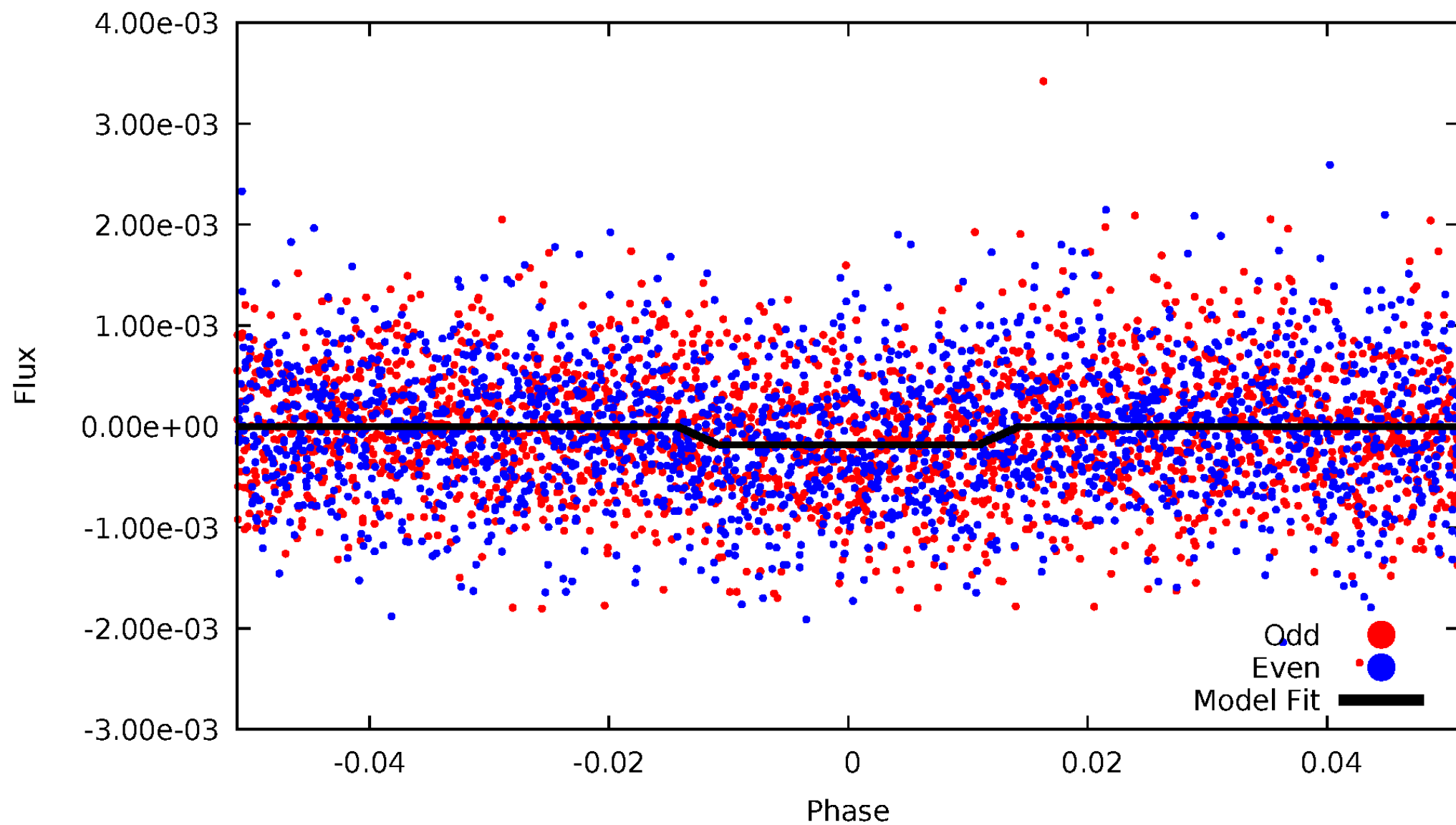
TCE 004386607-01



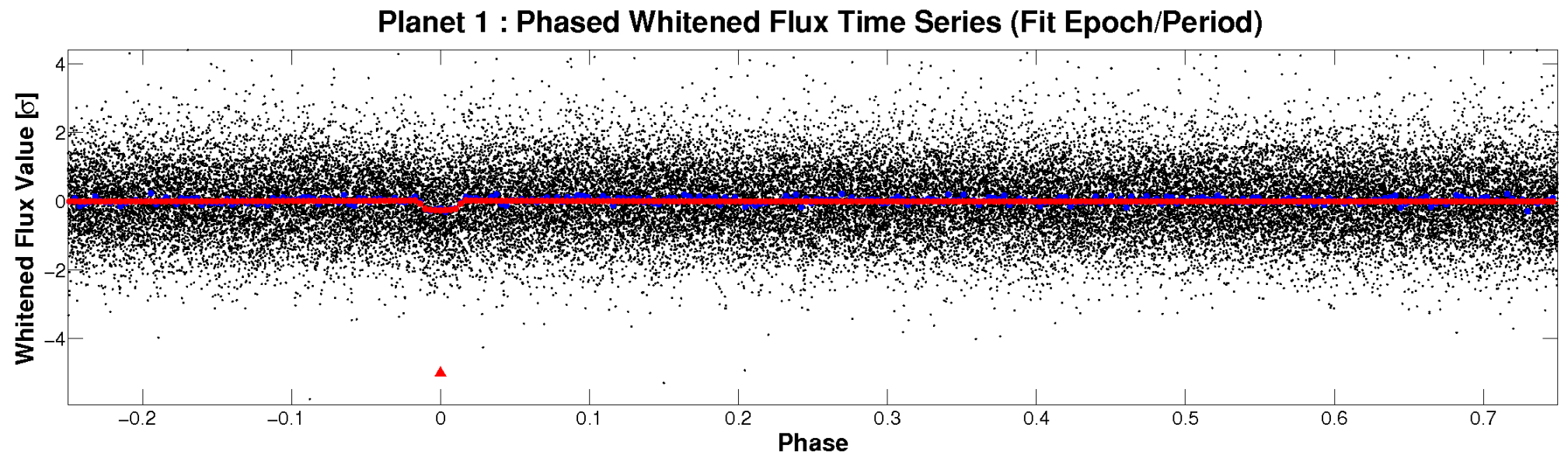
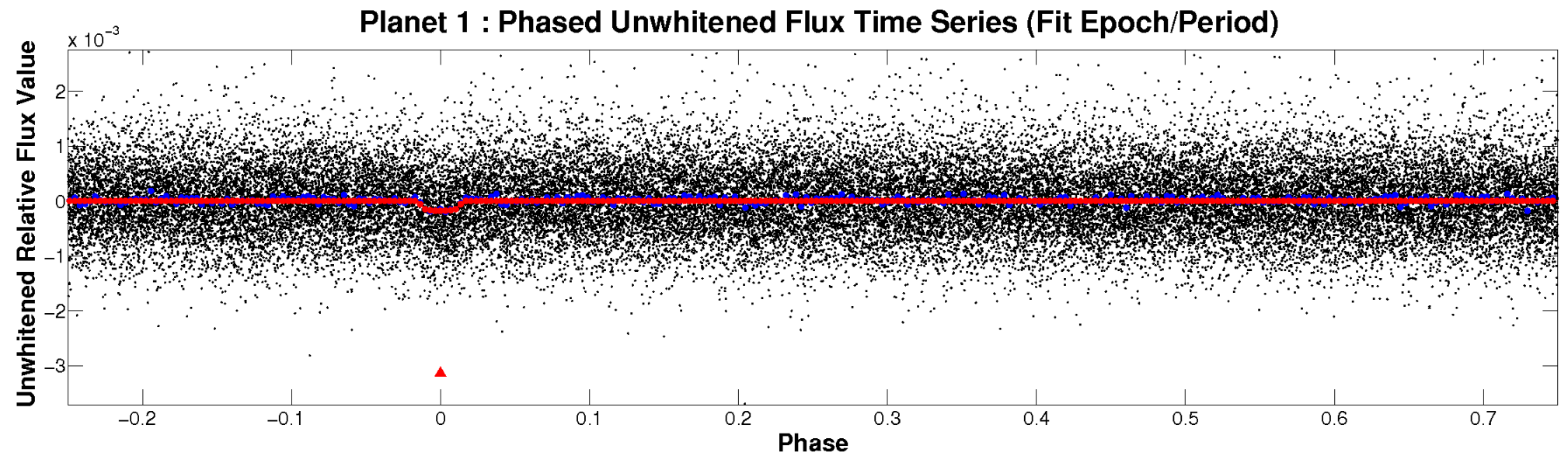


# ALT Odd/Even

TCE 004386607-01

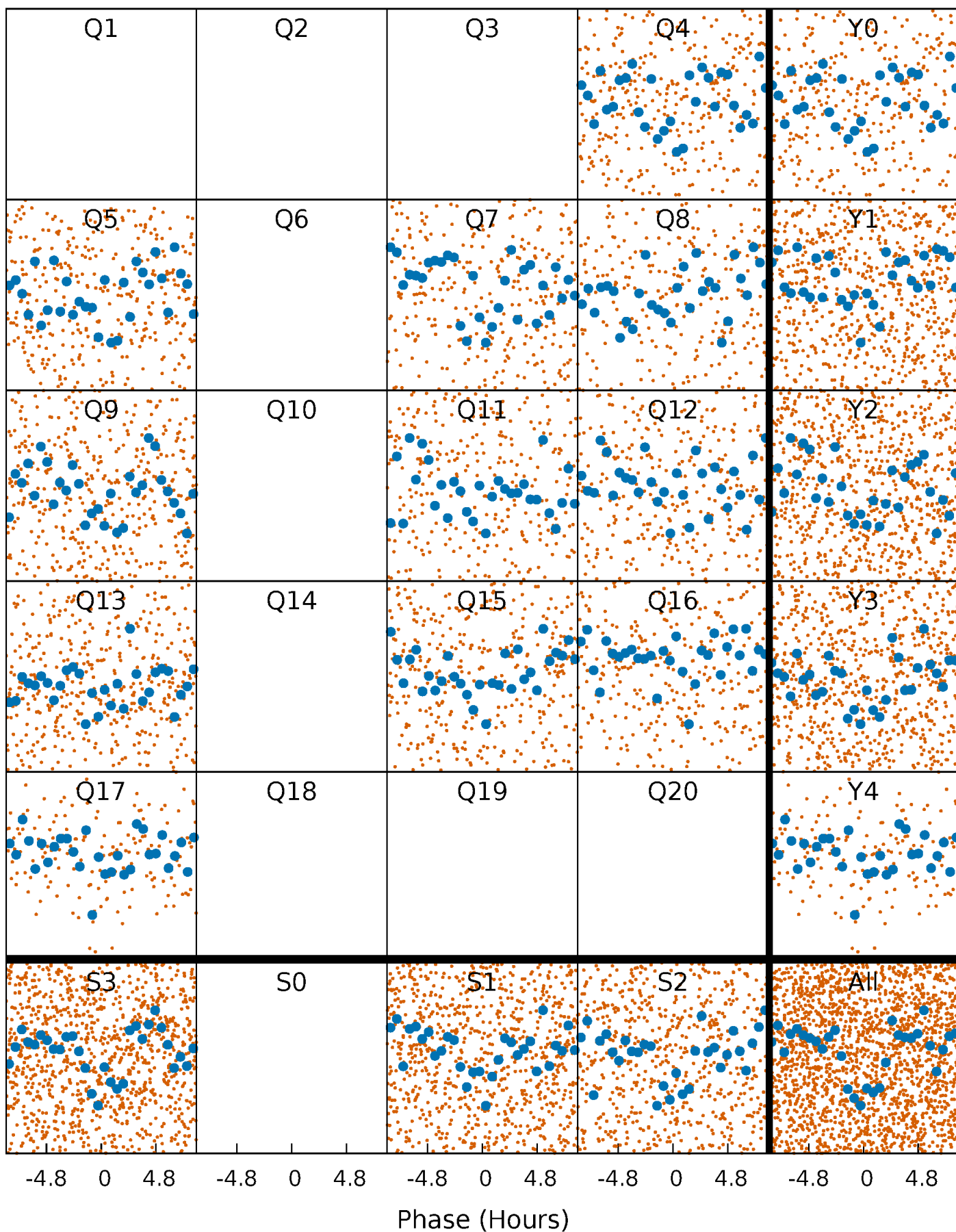


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

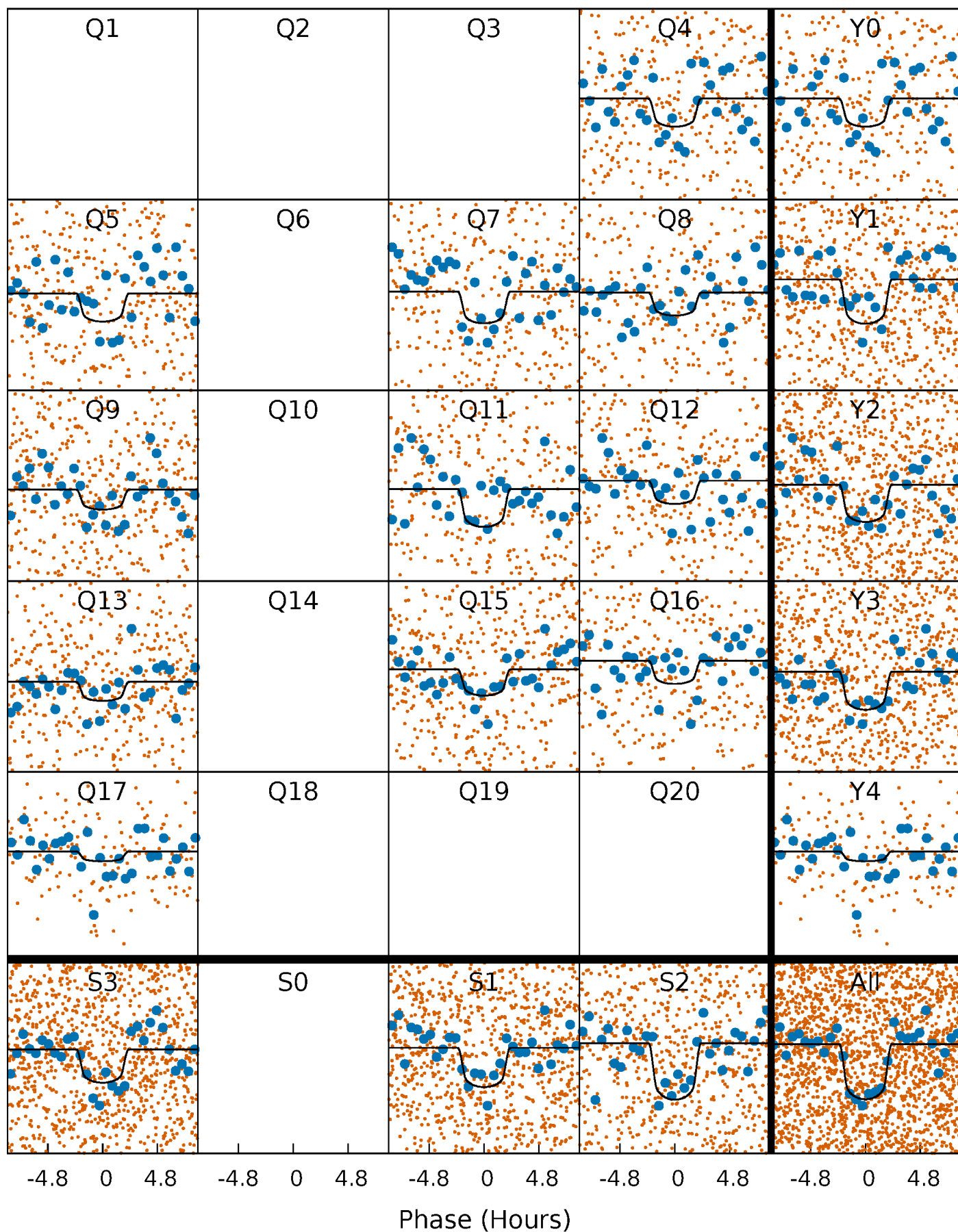
TCE 004386607-01 P= 5.993142 Days  $T_0=133.646370$  (BKJD)





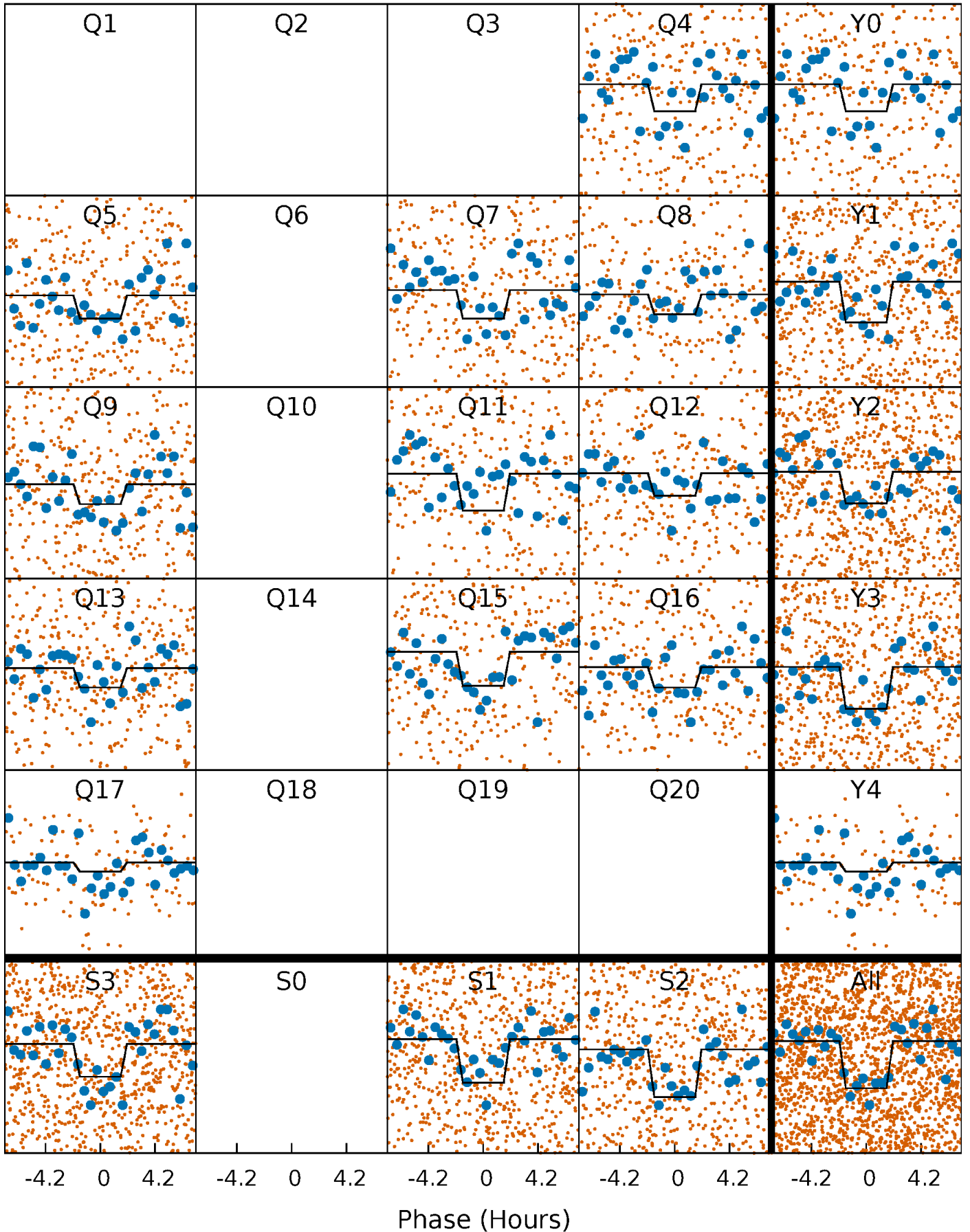
# DV Quarter-Phased Transit Curves

TCE 004386607-01 P= 5.993142 Days  $T_0=133.646370$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

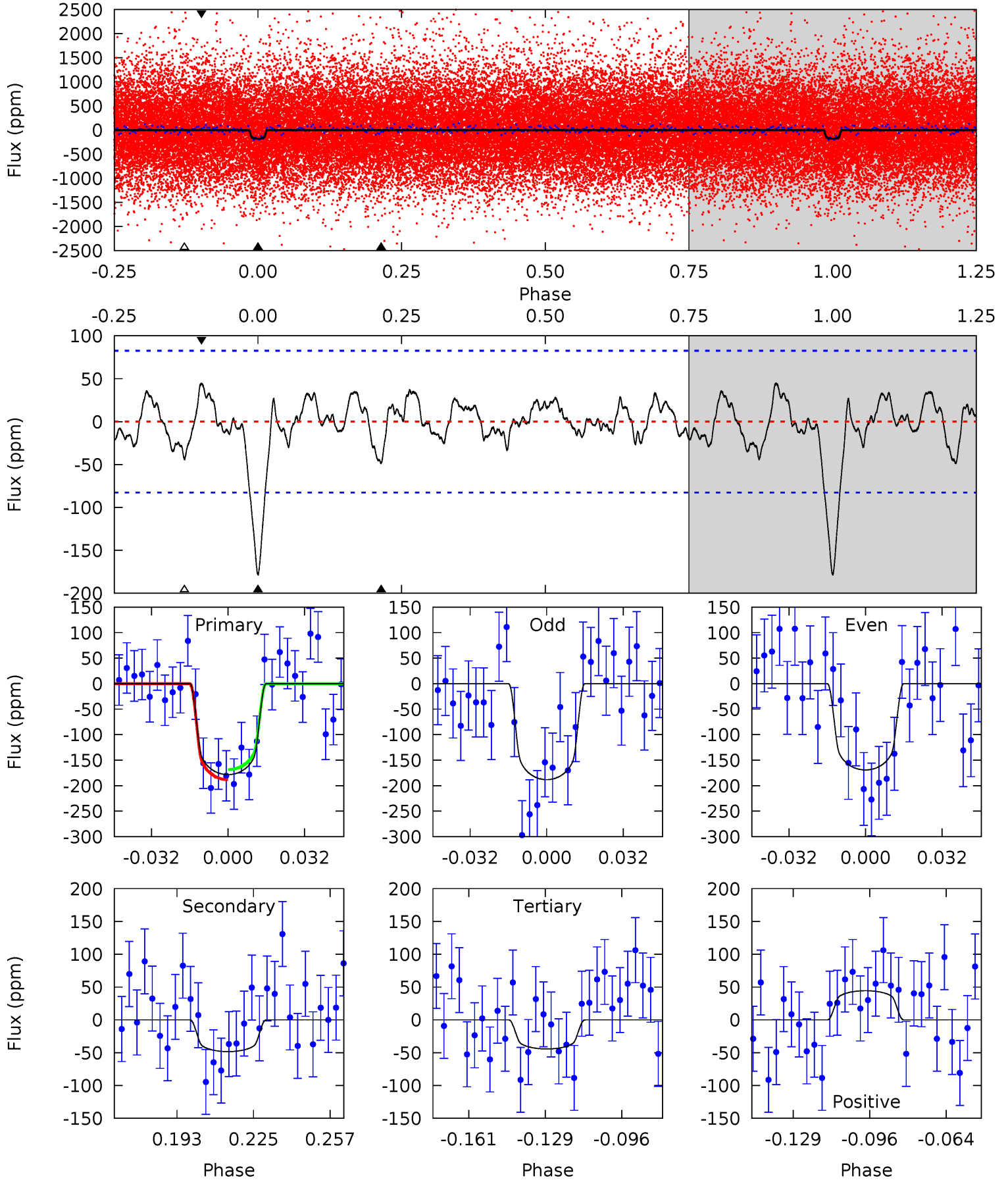
TCE 004386607-01 P= 5.993251 Days  $T_0=133.634451$  (BKJD)



# DV Model-Shift Uniqueness Test

004386607-01, P = 5.993142 Days, E = 133.646370 Days

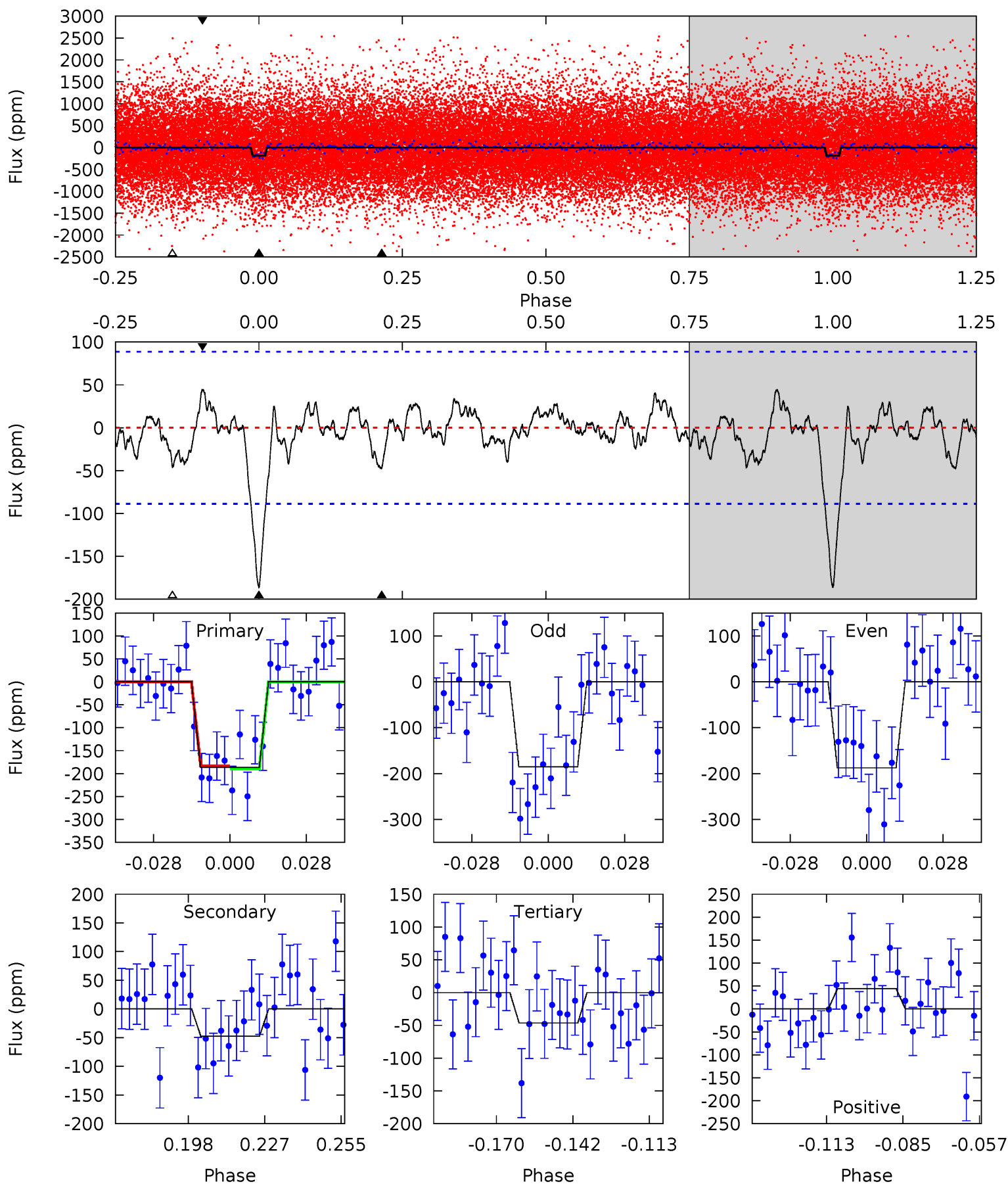
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	2.81	2.57	2.57	4.80	2.14	1.04	7.78	7.77	0.24	0.23	0.55	1.03	0.20	0.58



# Alt Model-Shift Uniqueness Test

004386607-01, P = 5.993251 Days, E = 133.634451 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
10.1	2.59	2.53	2.41	4.82	2.19	0.94	7.62	7.74	0.06	0.18	0.06	1.09	0.19	0.20



### Stellar Parameters For KIC 004386607

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5853^{+162}_{-203}$	$4.544^{+0.048}_{-0.192}$	$-0.180^{+0.300}_{-0.300}$	$0.868^{+0.252}_{-0.084}$	$0.961^{+0.108}_{-0.120}$	$2.069^{+0.504}_{-1.037}$
	+3%/-3%	+1%/-4%	+167%/-167%	+29%/-10%	+11%/-12%	+24%/-50%
Source	KIC0	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 004386607-01 / KOI 7694.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-48 \pm 17$	$1.46^{+0.81}_{-0.73}$	$1361^{+96}_{-68}$	$4201^{+1425}_{-680}$	$48^{+135}_{-32}$
Alt.	$-48 \pm 18$	$1.40^{+0.78}_{-0.75}$	$1359^{+86}_{-62}$	$4276^{+1730}_{-668}$	$52^{+206}_{-34}$

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



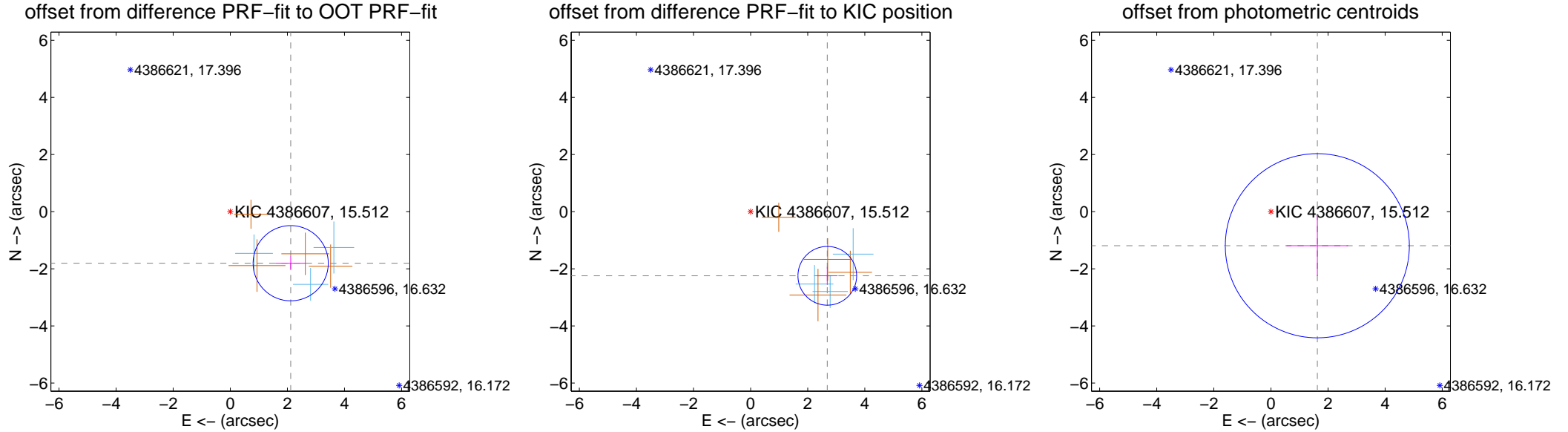
## DV Centroid Data

Supplemental centroid analysis for 004386607-01. Kepler magnitude: 15.51. Transit SNR 7.61

There are 3 quarters with good PRF difference image offsets

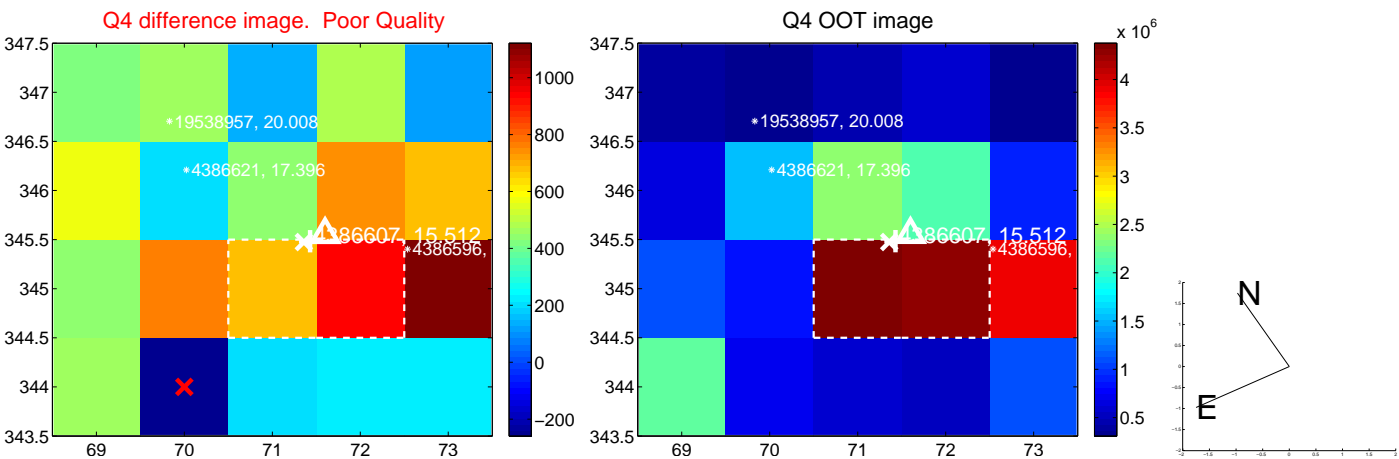
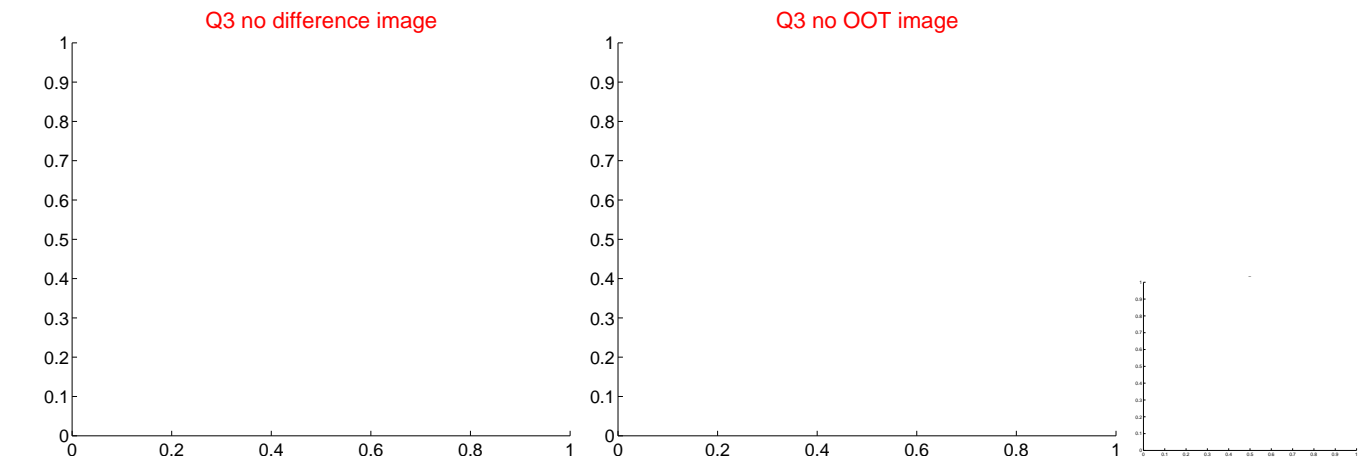
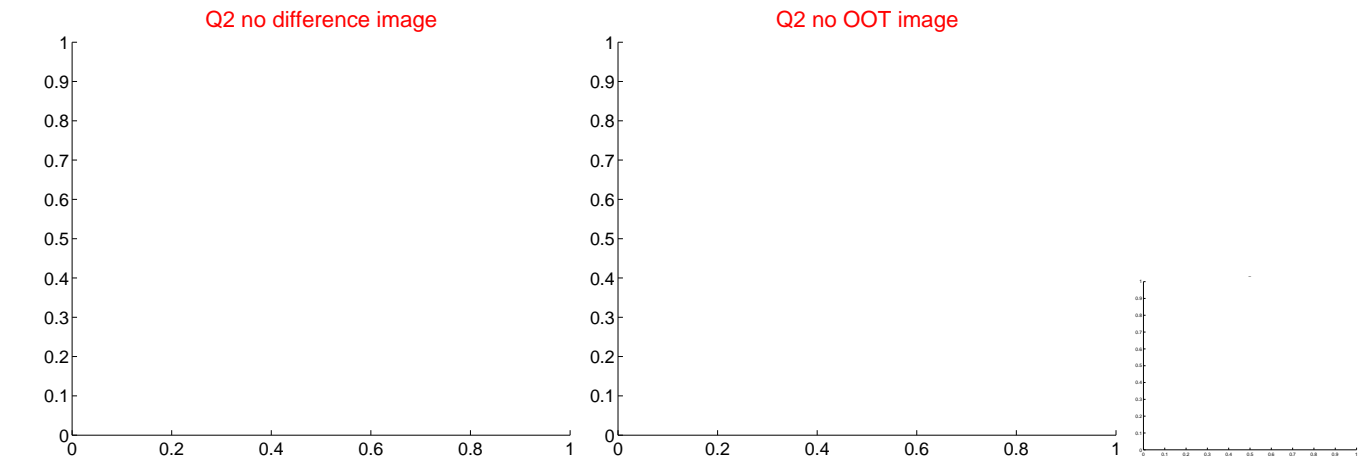
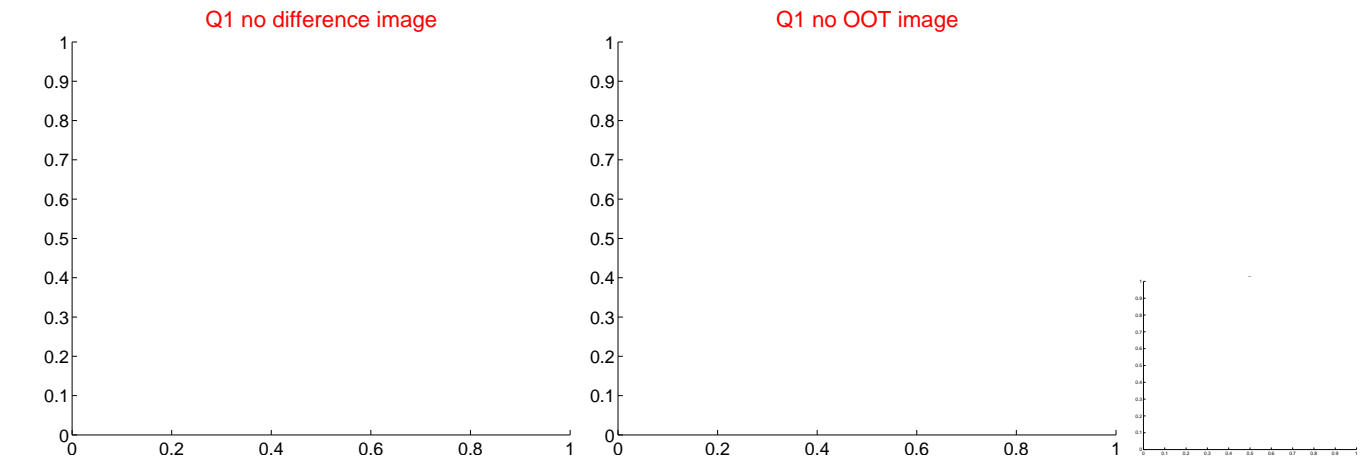
The direct PRF centroid is offset from the target star catalog position by about 1.76 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.781 \pm 0.439$	6.34	$-2.116 \pm 0.539$	$-1.805 \pm 0.241$
PRF-fit source offset from KIC position	$3.501 \pm 0.343$	10.22	$-2.686 \pm 0.359$	$-2.245 \pm 0.318$
photometric centroid source offset	$2.02 \pm 1.07$	1.88	$-1.62 \pm 1.08$	$-1.19 \pm 1.06$

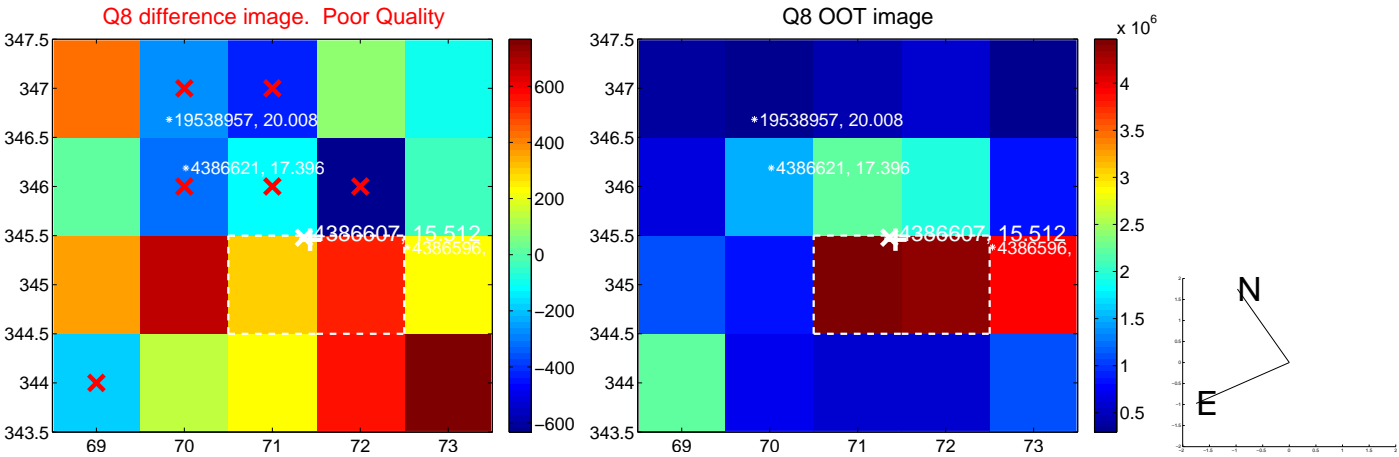
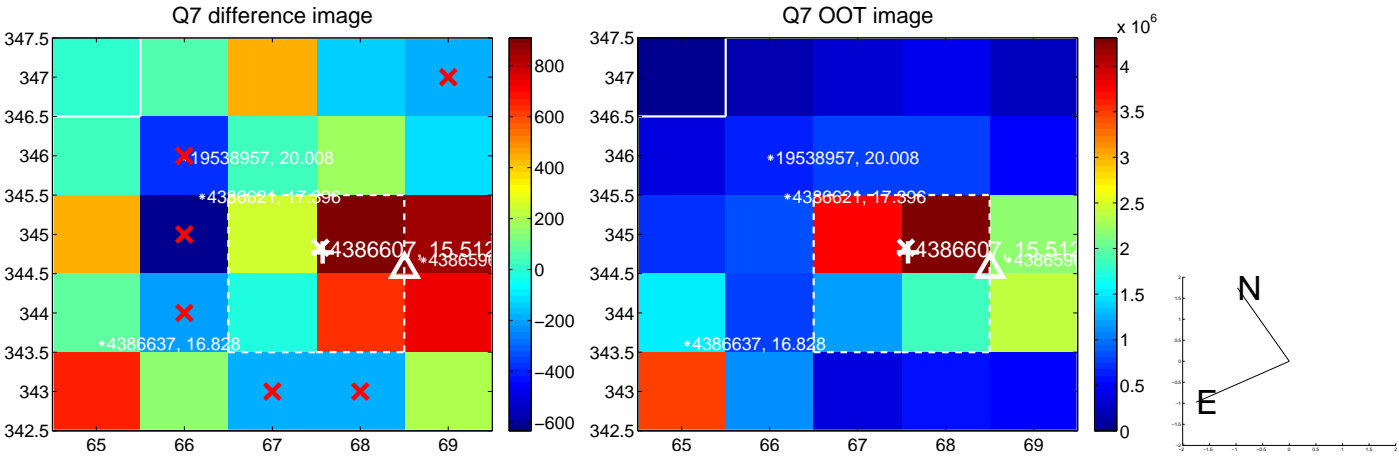
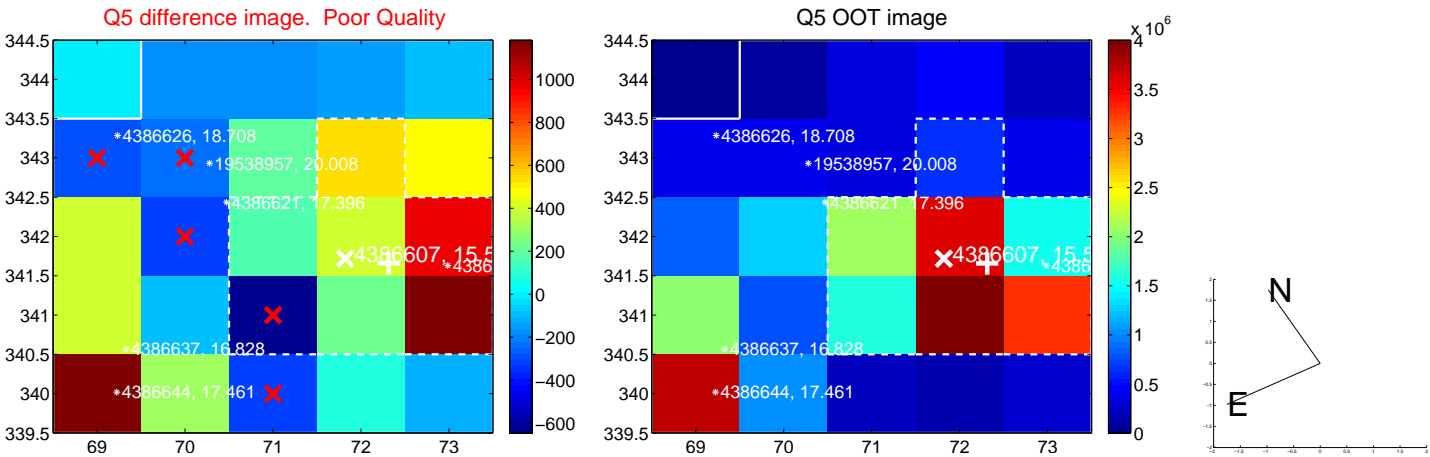


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

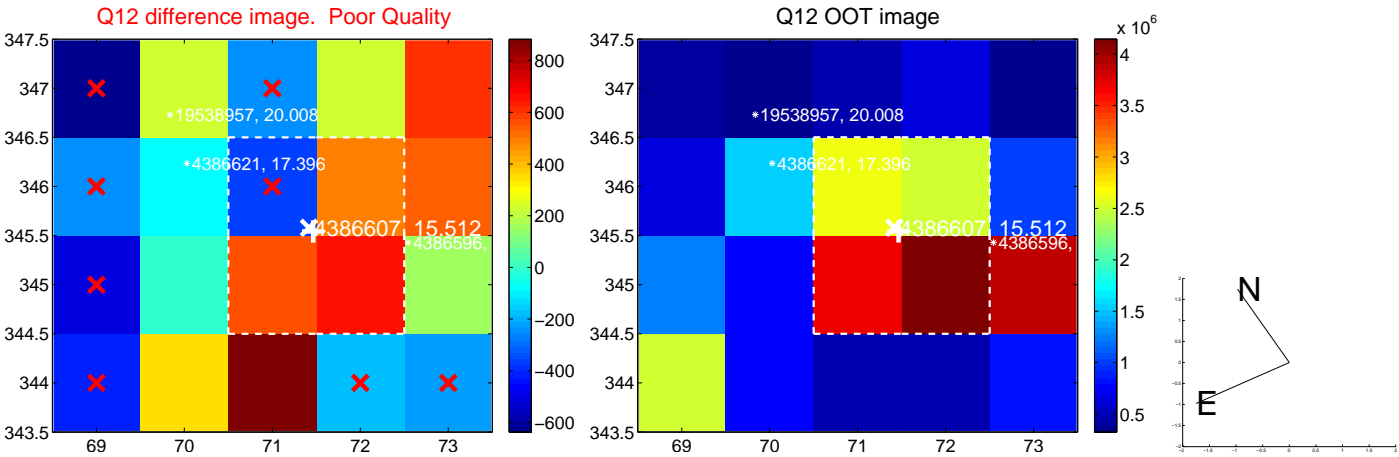
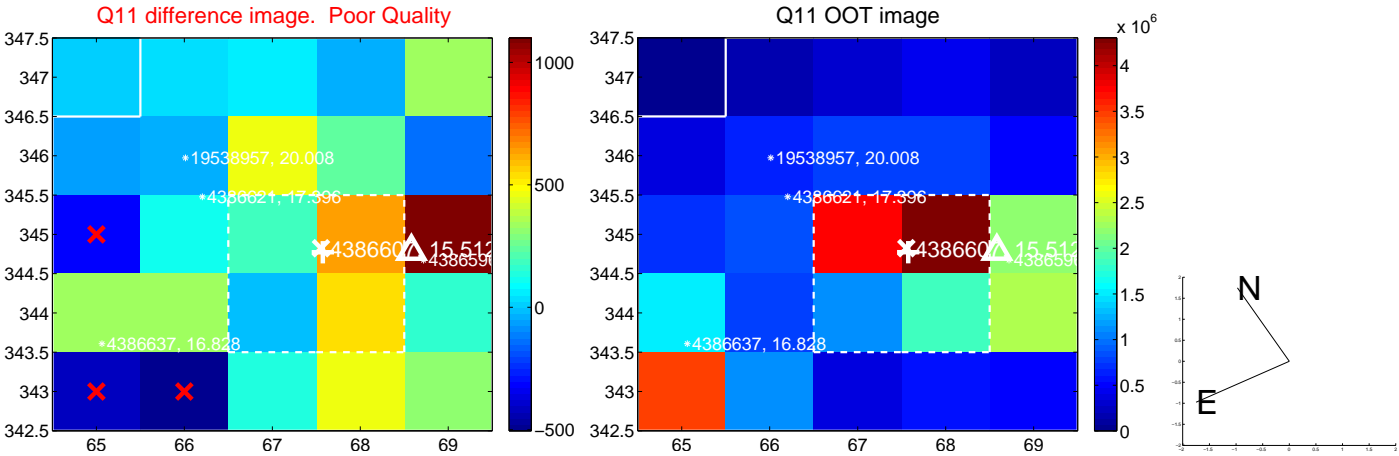
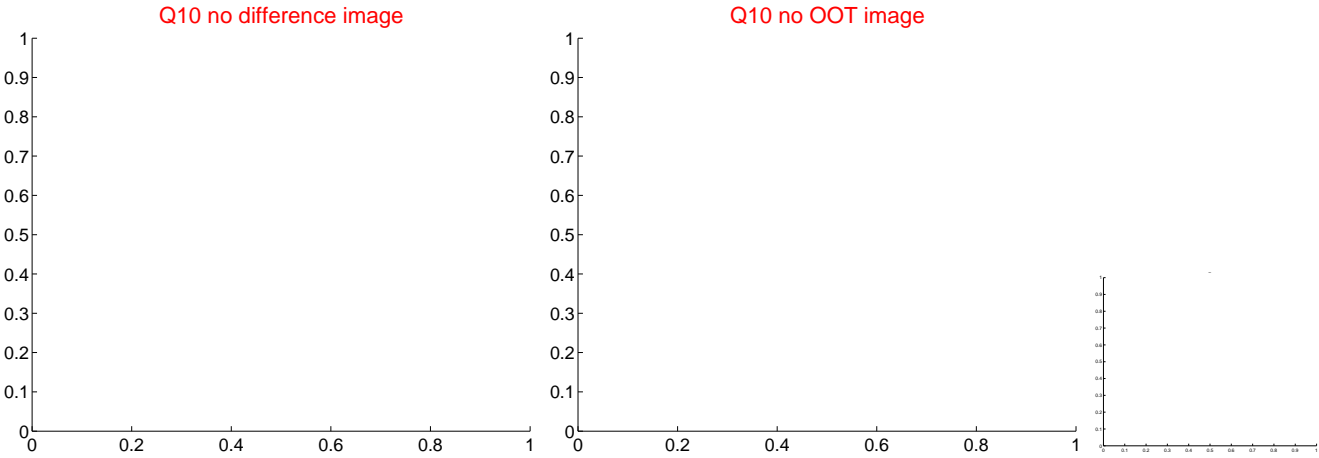
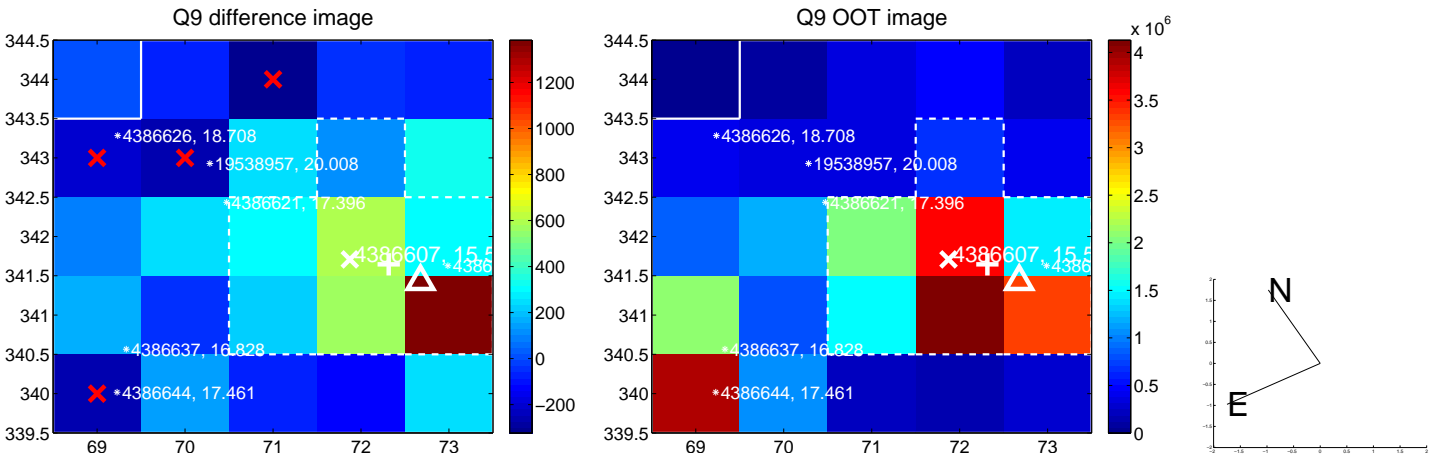
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



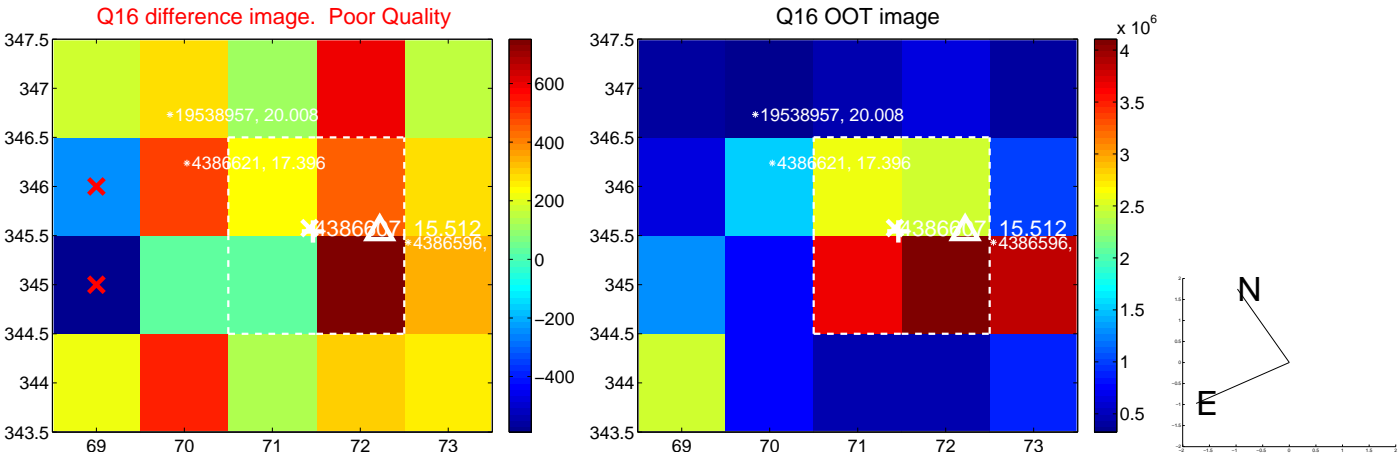
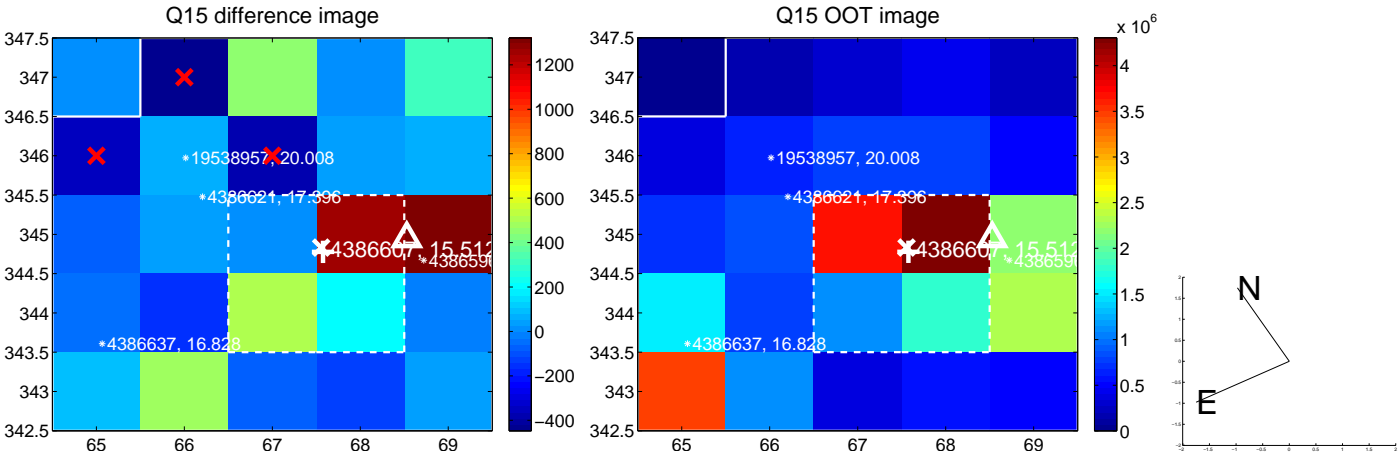
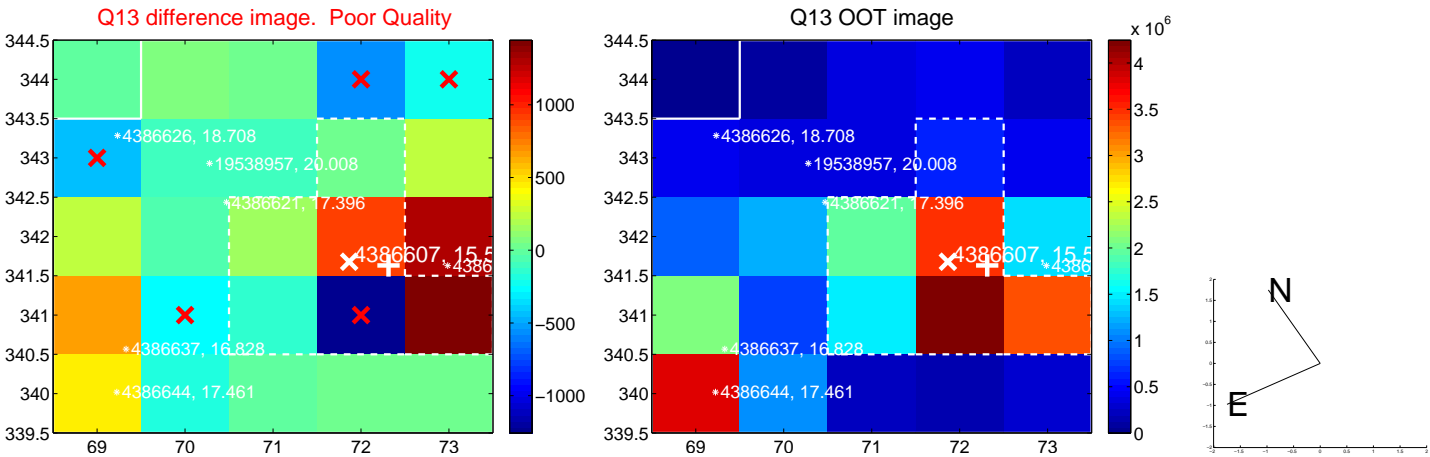
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

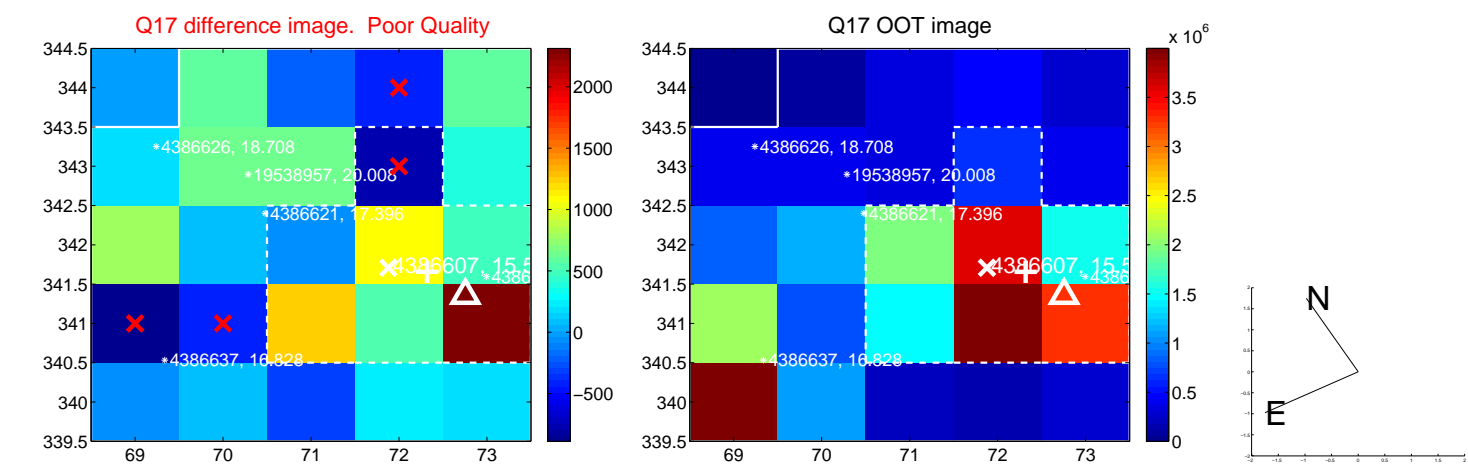


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

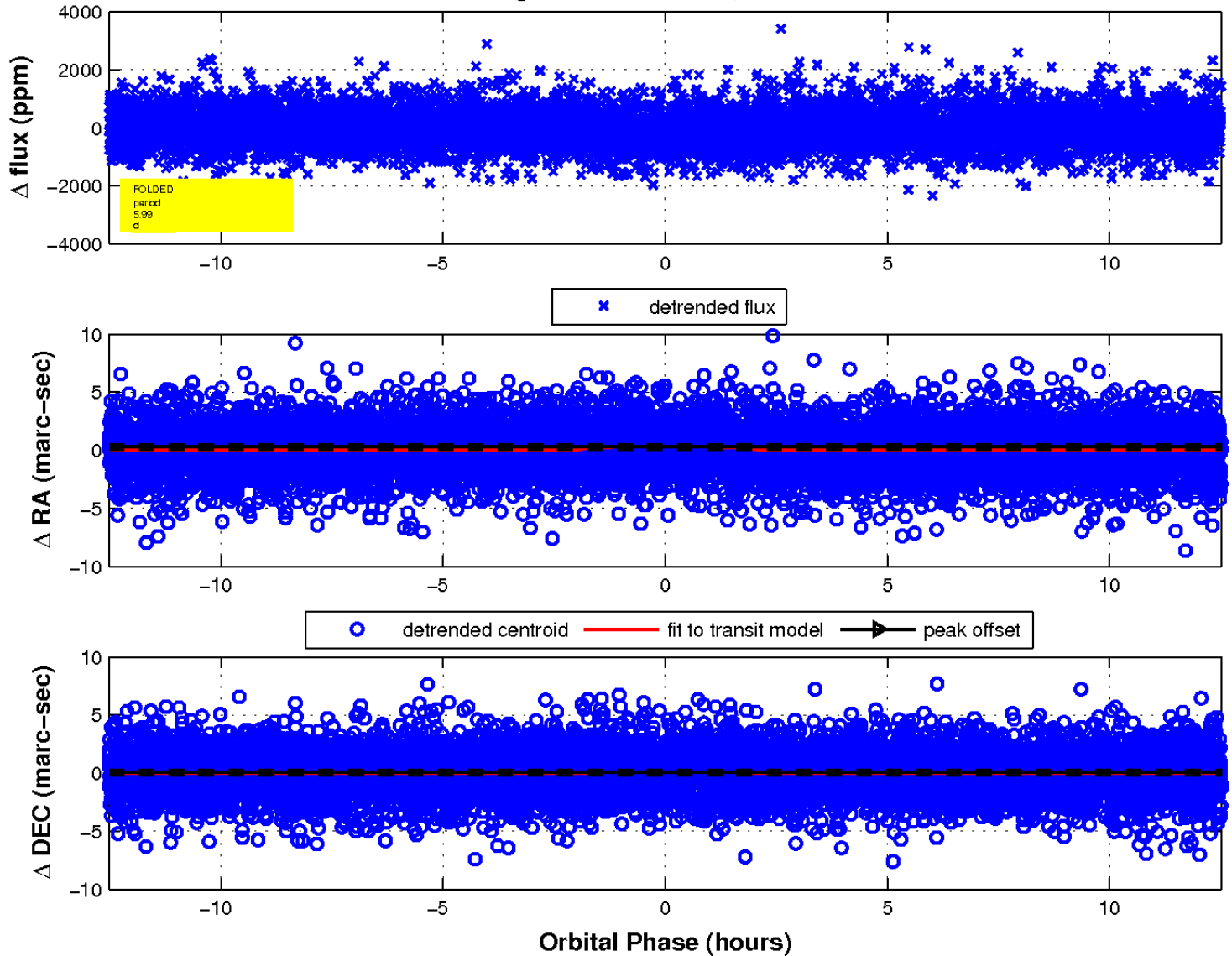




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

