

# KIC 003110496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003110496-01	OBS	No	0.558868	131.659482	28.6	1.219	8.0	8.8	1.56	7166	0.93	27037.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003110496-01	OBS	FP	0.00	1	0	0	0	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.

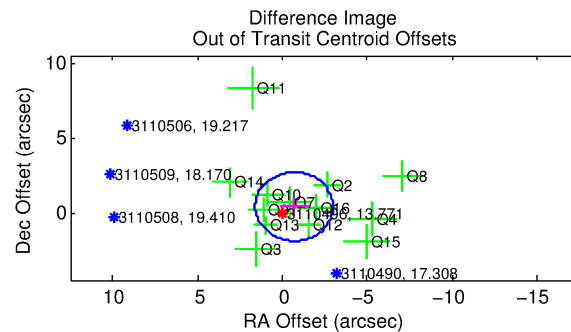
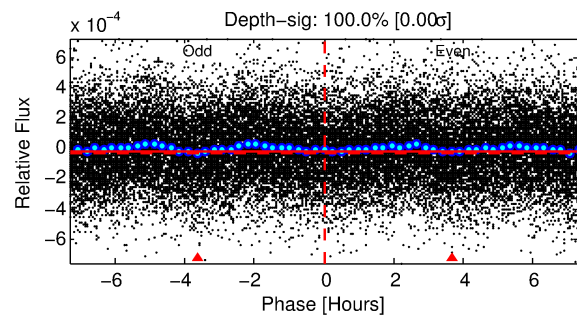
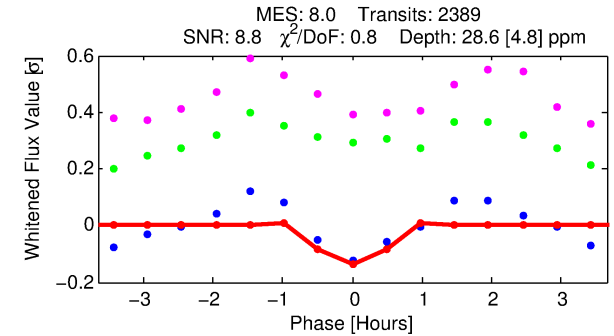
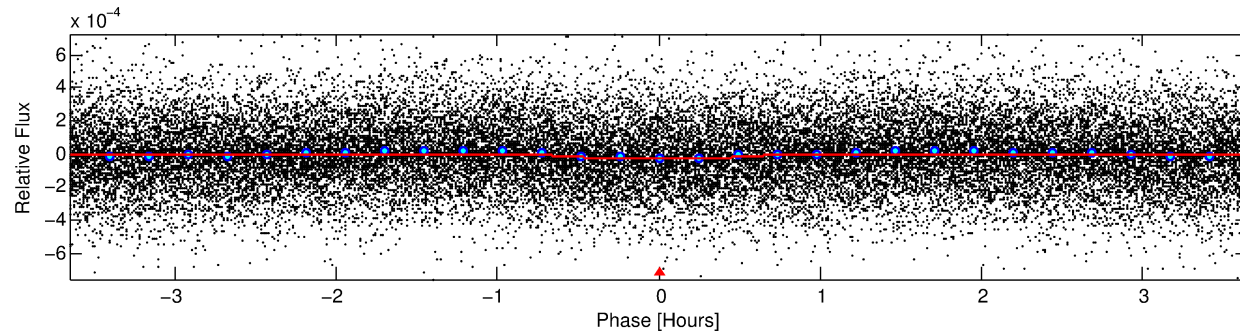
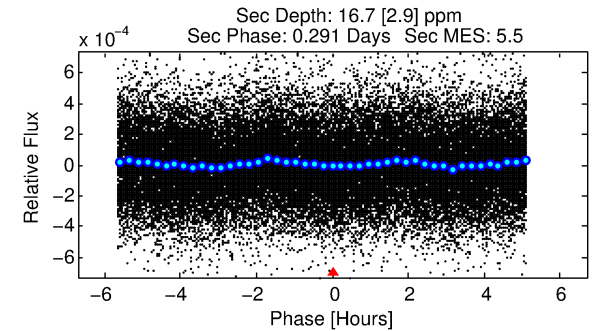
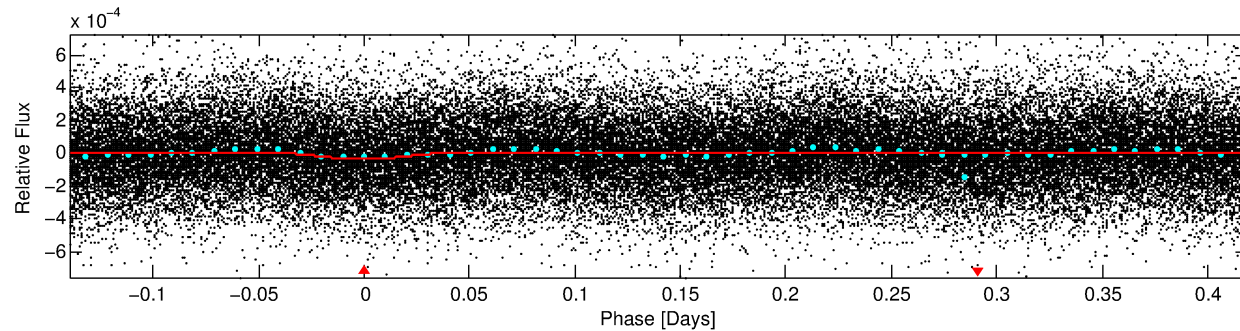
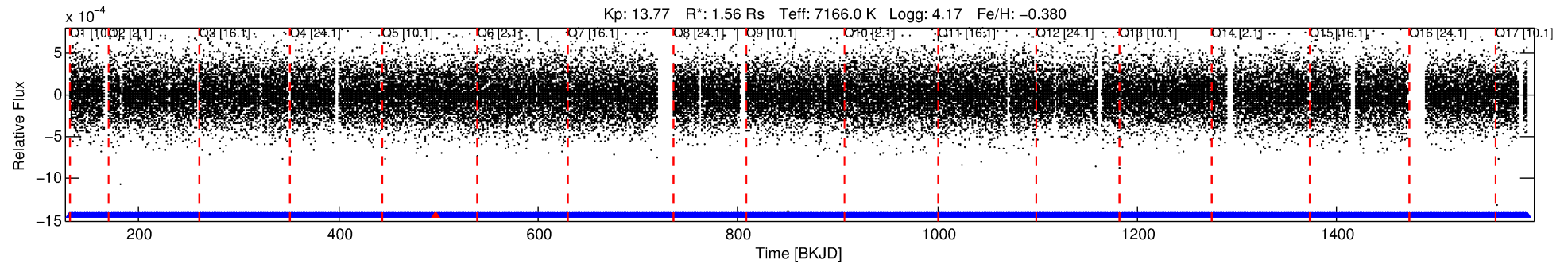
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003110496-01

No Significant Match Found

# DV One-Page Summary

KIC: 3110496 Candidate: 1 of 1 Period: 0.559 d



## DV Fit Results:

Period = 0.55887 [0.00001] d  
Epoch = 131.6595 [0.0022] BKJD  
Rp/R\* = 0.0055 [0.0012]  
a/R\* = 2.19 [2.24]  
b = 0.83 [0.50]  
Seff = 27037.53 [10618.67]  
Teff = 3270 [321] K  
Rp = 0.93 [0.36] Re  
a = 0.0146 [0.0037] AU  
Ag = 2.24 [1.33] [0.93σ]  
Teffp = 6182 [785] K [3.43σ]

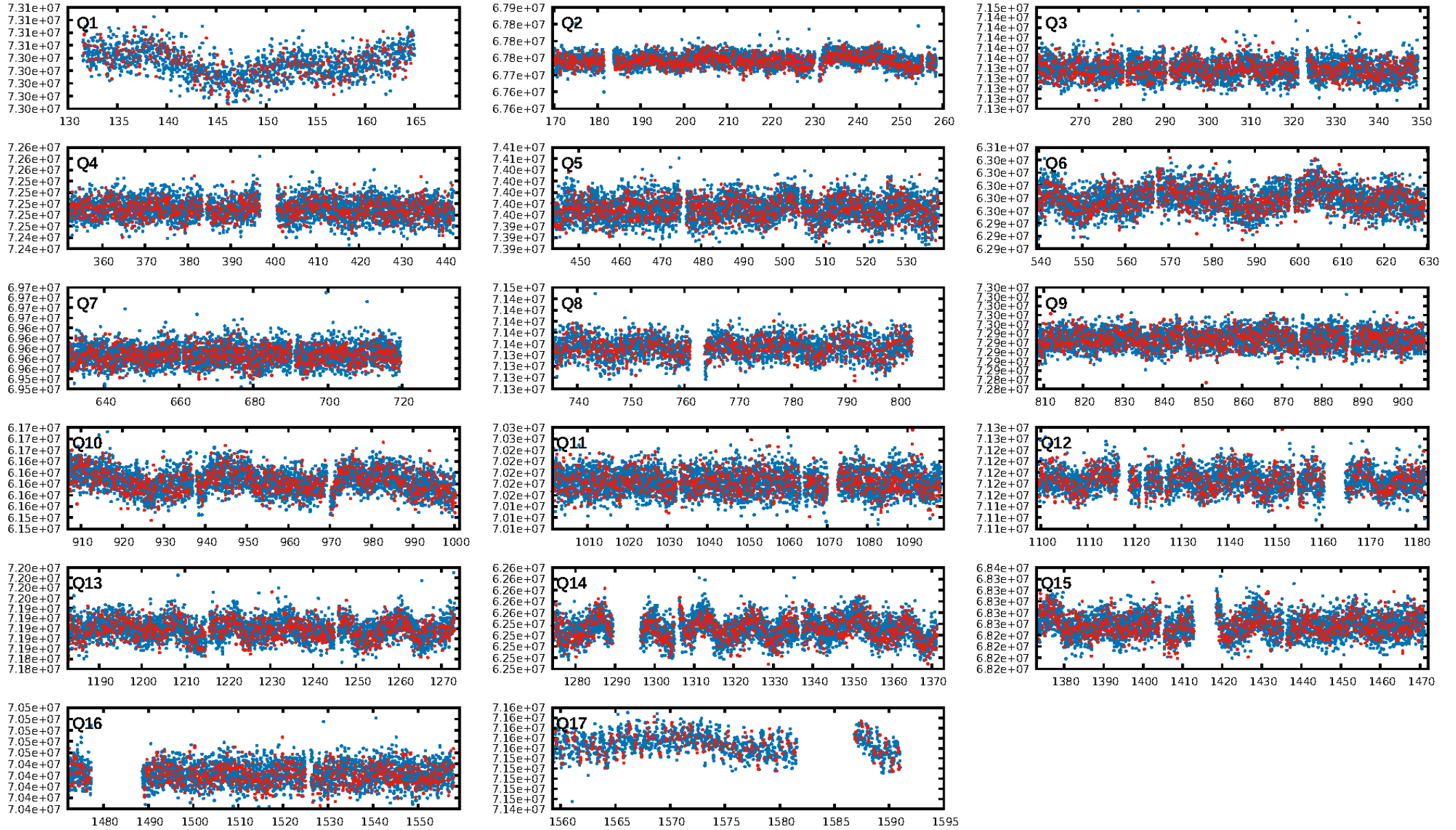
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.12e-14  
RollingBand-fgt: 1.00 [2280/2281]  
**GhostDiagnostic-chr: 0.9346**  
Centroid-sig: 2.5%  
Centroid-so: 2.183 arcsec [1.48σ]  
OotOffset-rm: 0.797 arcsec [1.04σ]  
KicOffset-rm: 0.875 arcsec [1.13σ]  
OotOffset-st: 3/4/4/2 [13]  
KicOffset-st: 3/4/4/2 [13]  
DiffImageQuality-fgm: 0.31 [4/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:55:17 Z

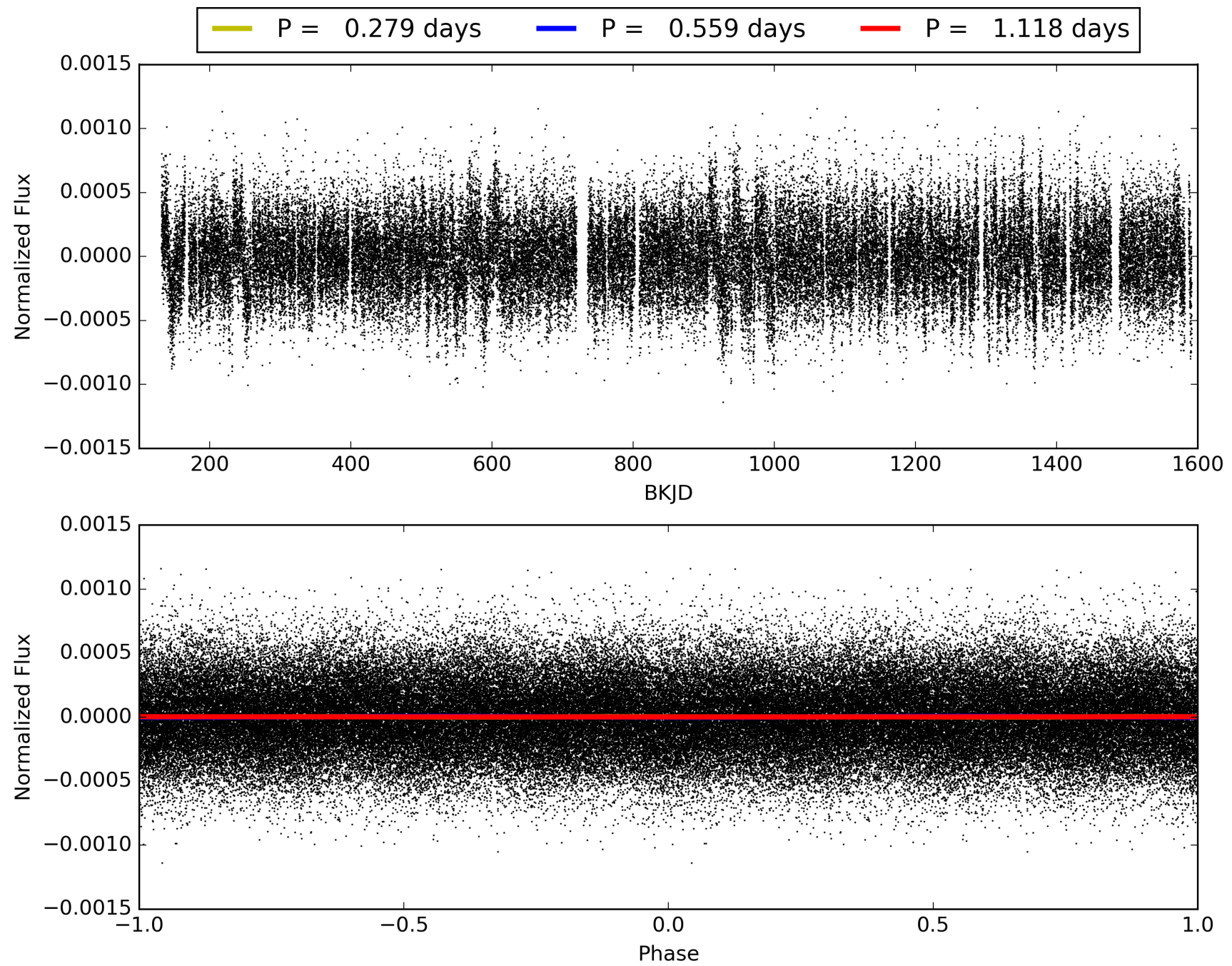
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003110496-01, PDC Light Curves



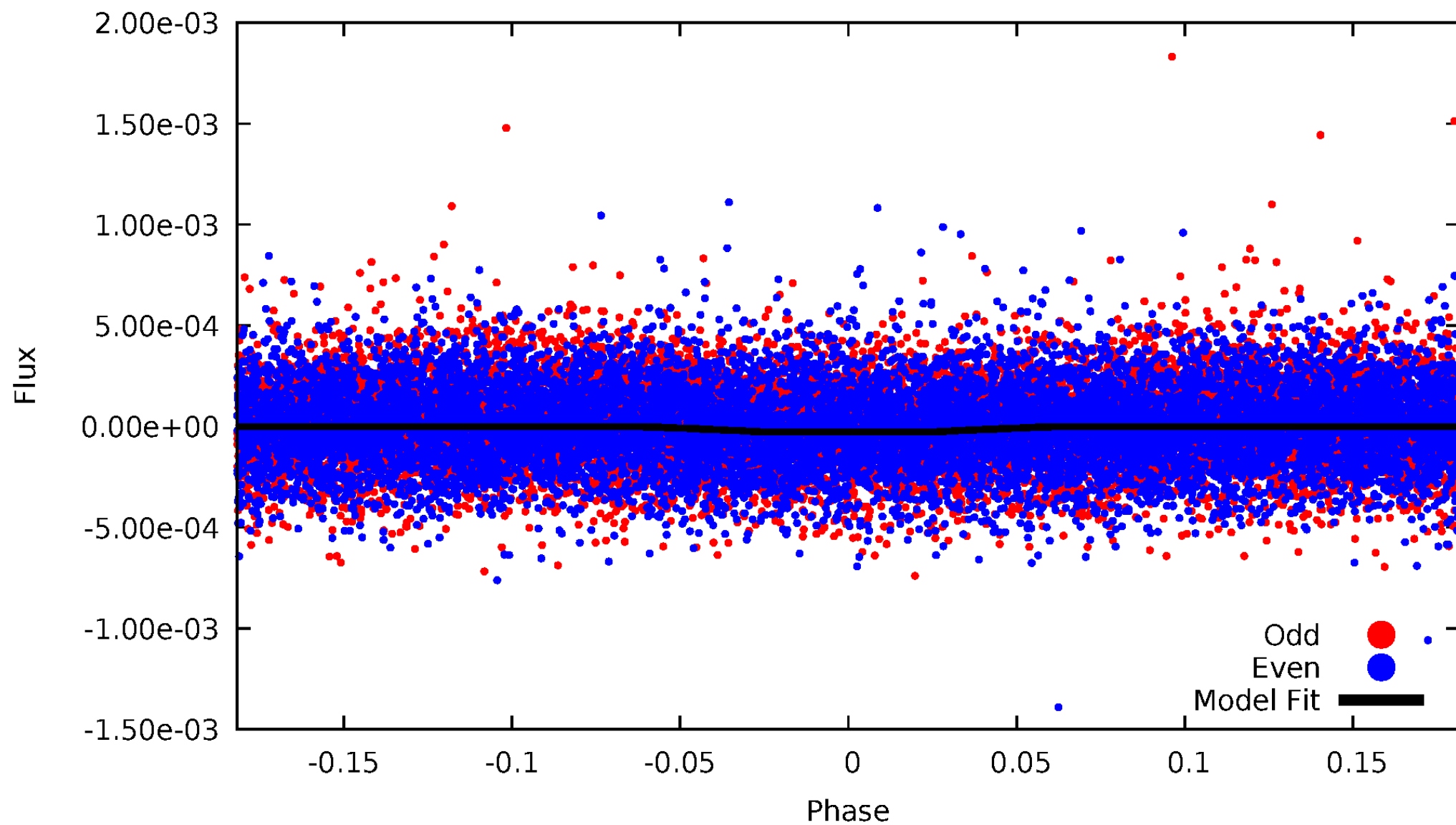


TCE 003110496-01



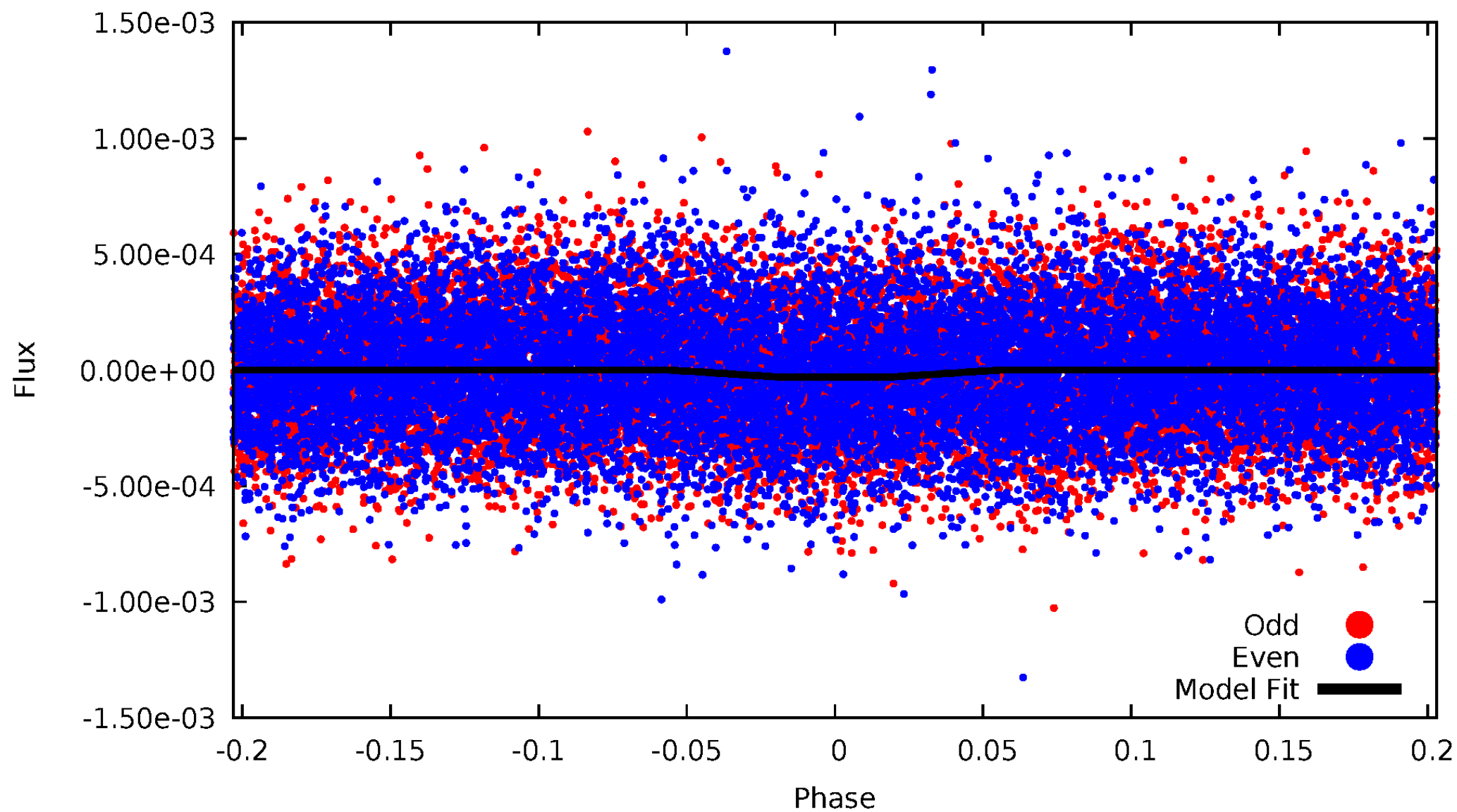
# DV Odd/Even

TCE 003110496-01



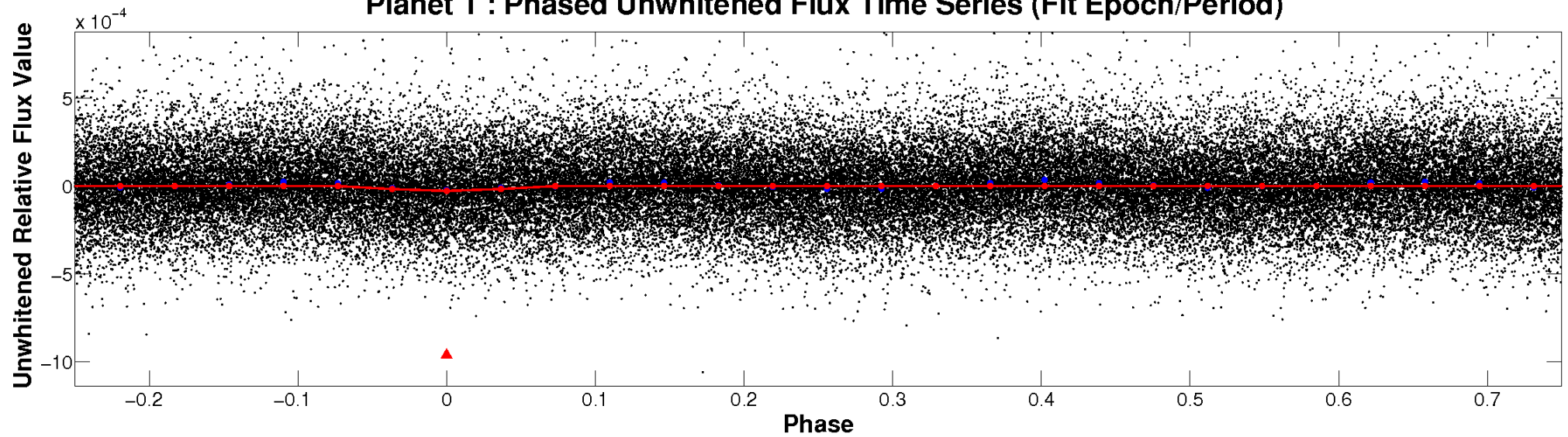
# ALT Odd/Even

TCE 003110496-01

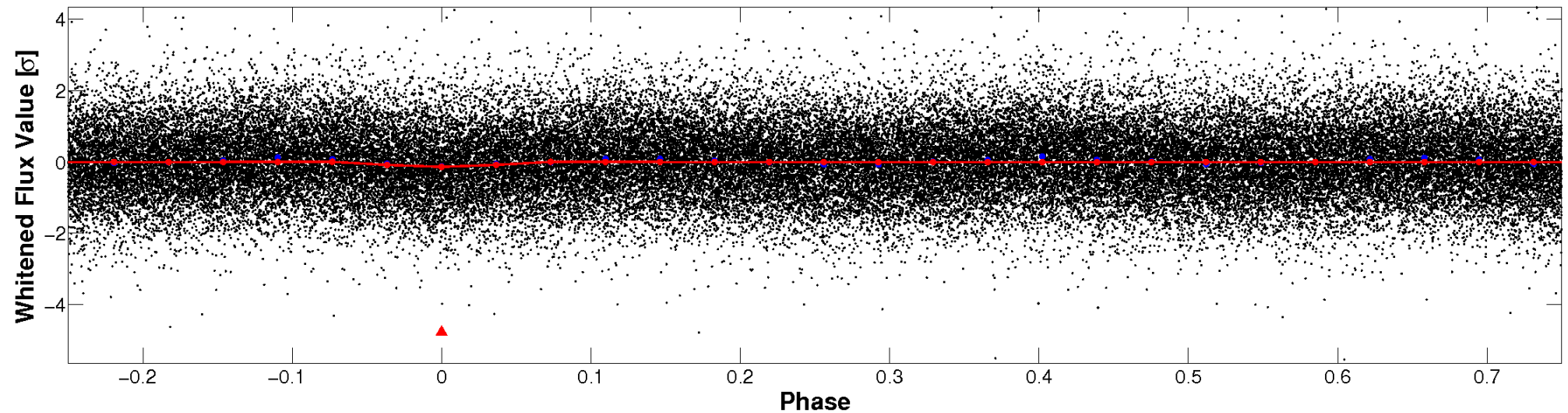


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**



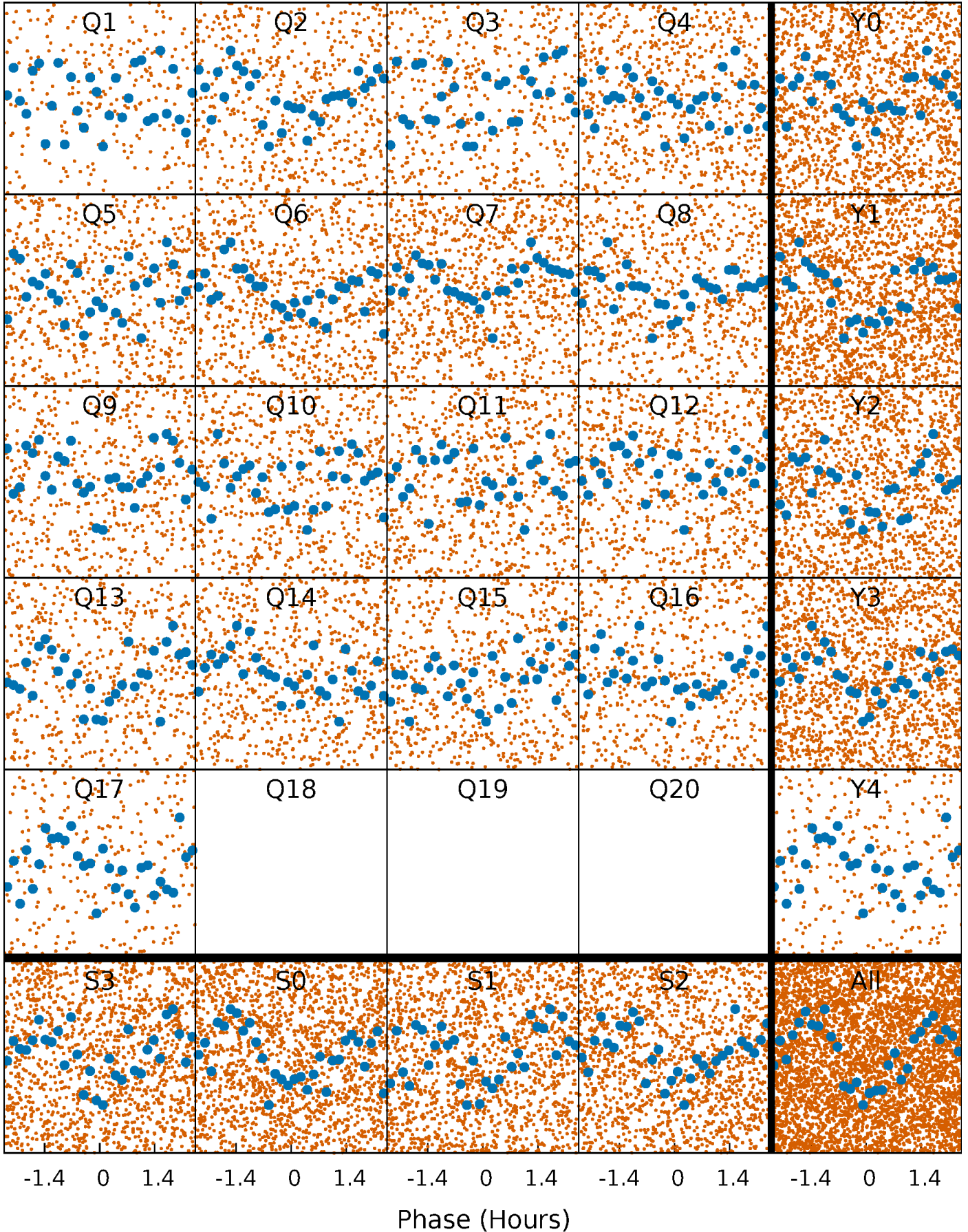
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

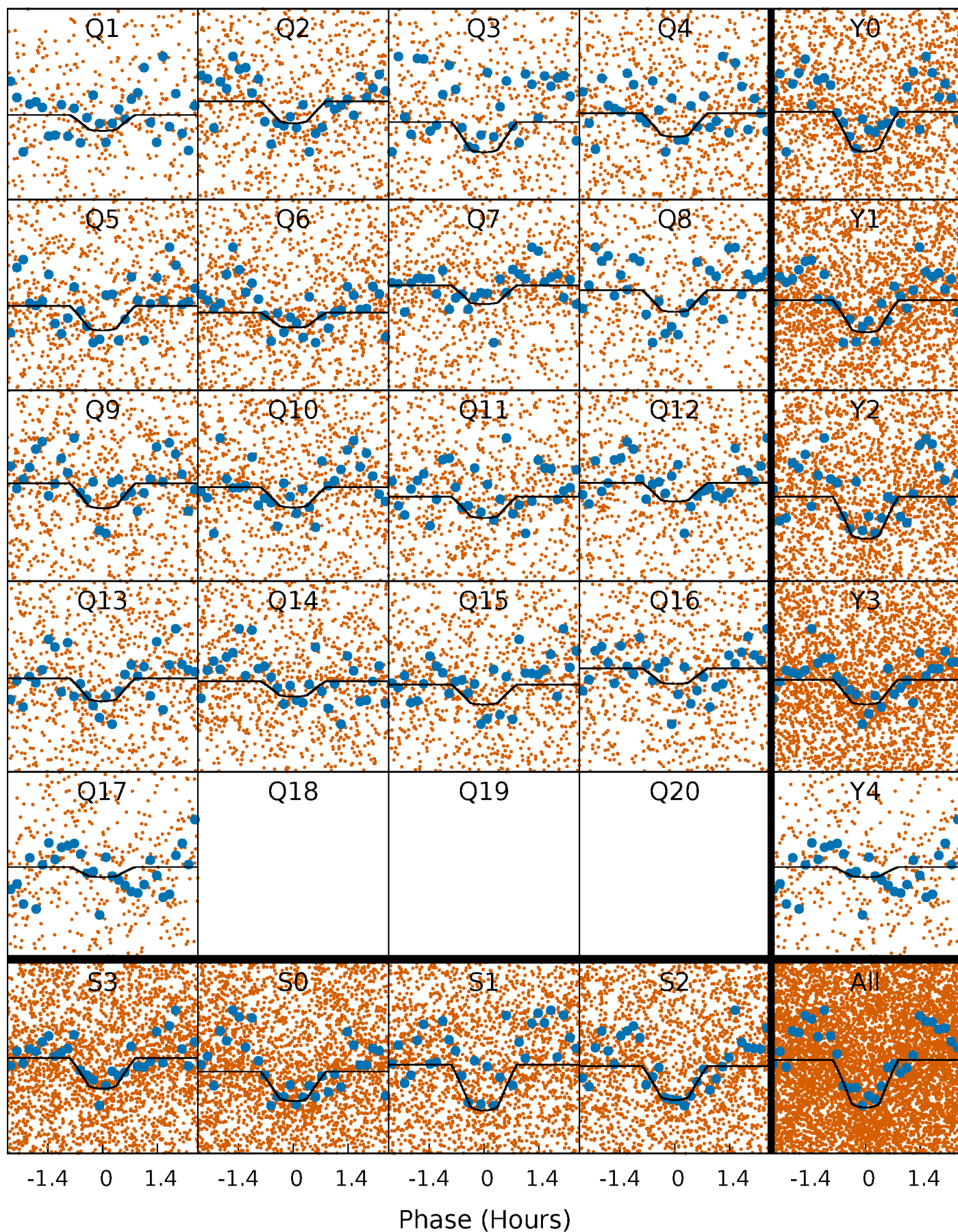
TCE 003110496-01 P= 0.558868 Days  $T_0=131.659482$  (BKJD)





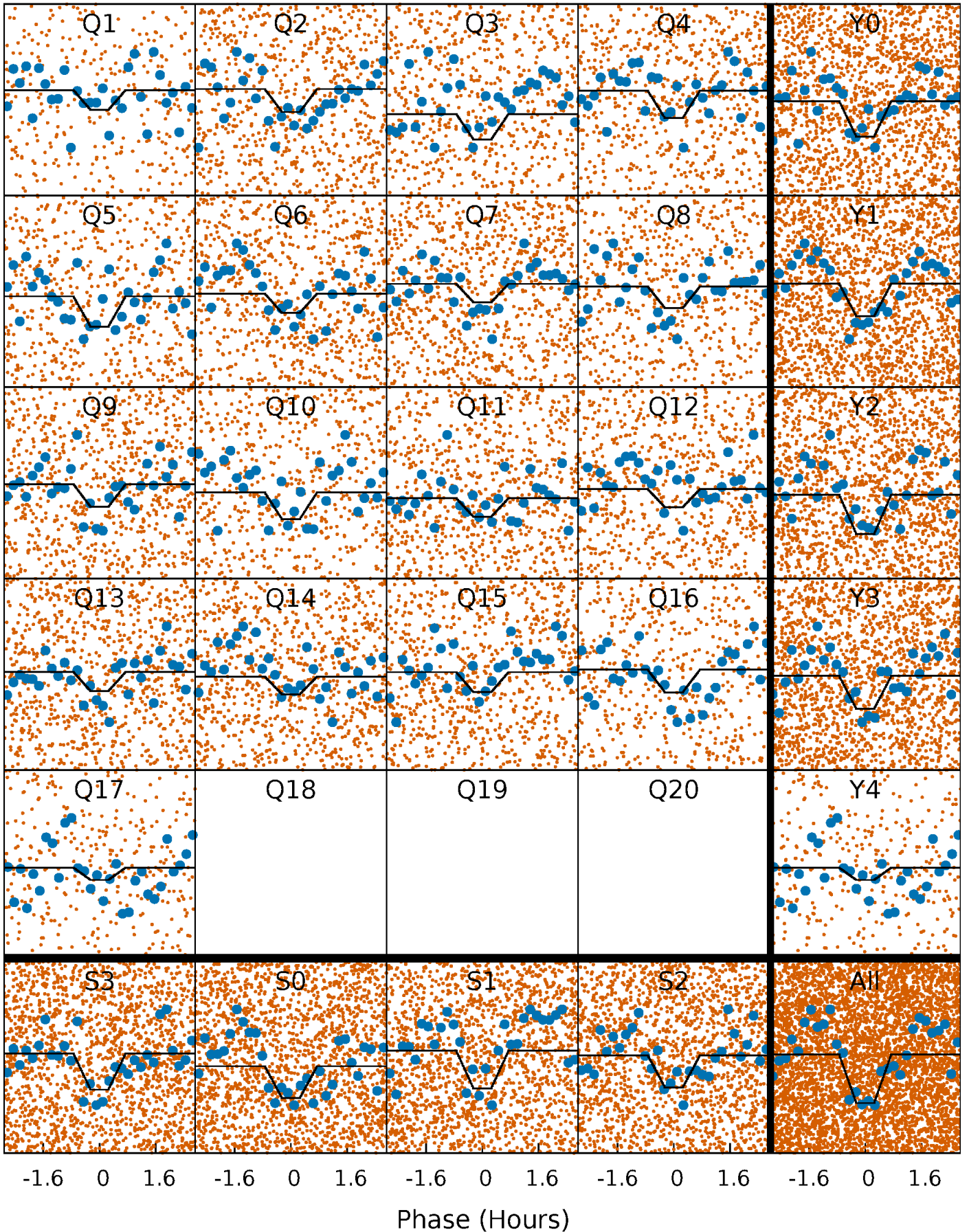
# DV Quarter-Phased Transit Curves

TCE 003110496-01 P= 0.558868 Days  $T_0=131.659482$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

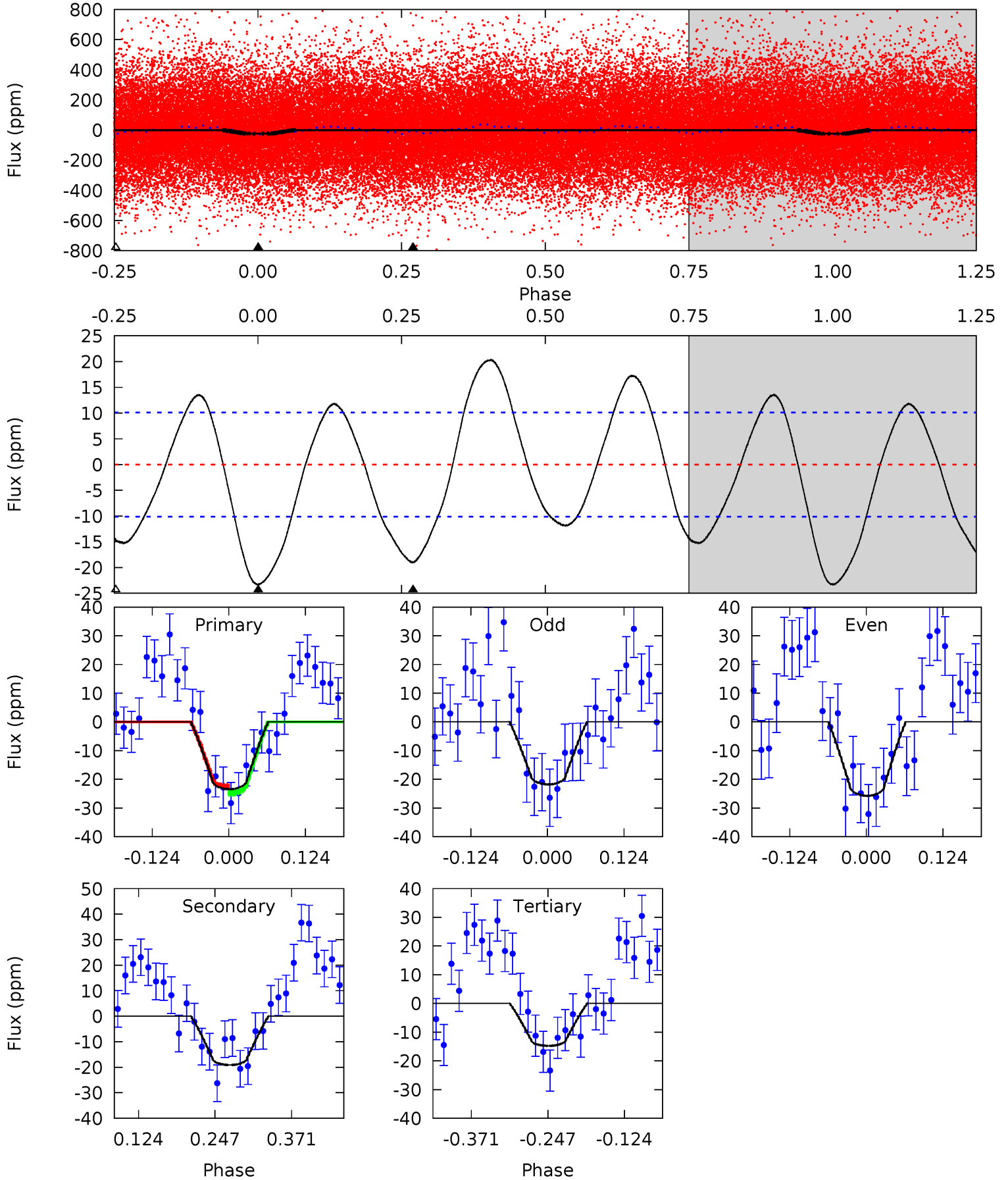
TCE 003110496-01 P= 0.558871 Days  $T_0=131.656341$  (BKJD)



# DV Model-Shift Uniqueness Test

003110496-01, P = 0.558868 Days, E = 131.100614 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
10.5	8.54	6.60	0	4.52	1.54	4.92	3.88	10.5	1.94	8.54	0.89	0.77	0.47	0.53

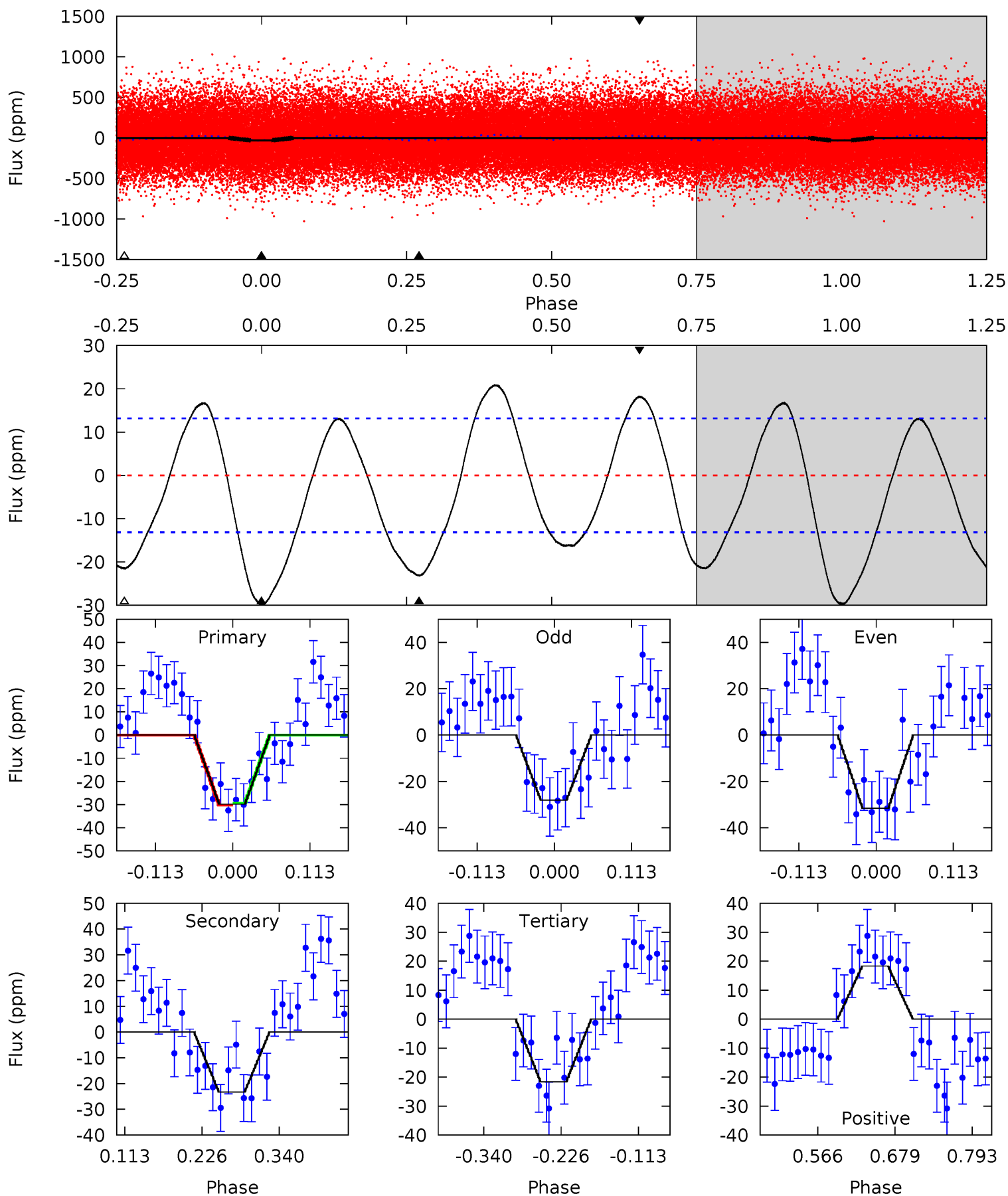




# Alt Model-Shift Uniqueness Test

003110496-01, P = 0.558871 Days, E = 131.097470 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	8.04	7.46	6.33	4.54	1.58	4.61	2.84	3.97	0.58	1.71	0.61	1.02	0.41	0.13





### Stellar Parameters For KIC 003110496

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7166^{+201}_{-302}$	$4.173^{+0.170}_{-0.187}$	$-0.380^{+0.250}_{-0.300}$	$1.558^{+0.487}_{-0.365}$	$1.321^{+0.200}_{-0.220}$	$0.492^{+0.438}_{-0.245}$
	+3%/-4%	+4%/-4%	+66%/-79%	+31%/-23%	+15%/-17%	+89%/-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 003110496-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-19 \pm 2$	$0.94^{+0.27}_{-0.24}$	$4552^{+391}_{-306}$	$6088^{+982}_{-690}$	$2.491^{+1.937}_{-0.955}$
Alt.	$-23 \pm 3$	$0.92^{+0.26}_{-0.22}$	$4542^{+355}_{-319}$	$6419^{+1166}_{-693}$	$3.079^{+2.346}_{-1.169}$

$T_{\text{max}}$  = 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

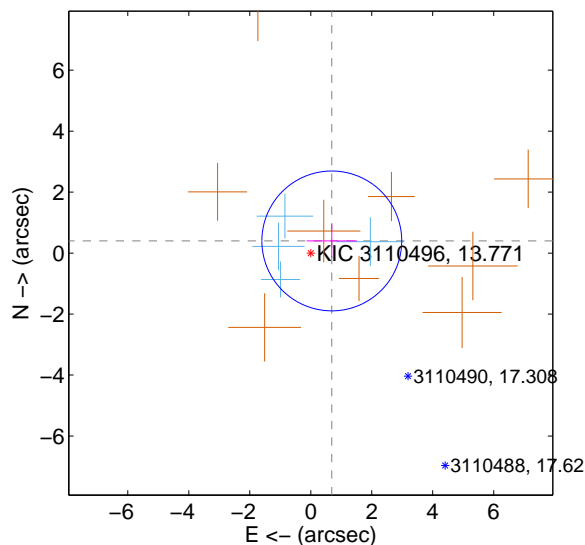
Supplemental centroid analysis for 003110496-01. Kepler magnitude: 13.77. Transit SNR 8.84

There are 4 quarters with good PRF difference image offsets

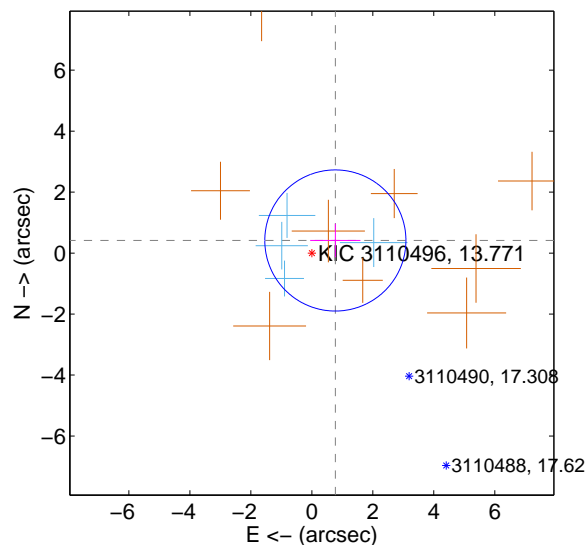
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.797 \pm 0.764$	1.04	$-0.690 \pm 0.825$	$0.399 \pm 0.545$
PRF-fit source offset from KIC position	$0.875 \pm 0.771$	1.13	$-0.771 \pm 0.824$	$0.414 \pm 0.549$
photometric centroid source offset	$2.18 \pm 1.48$	1.48	$1.32 \pm 1.33$	$-1.74 \pm 1.56$

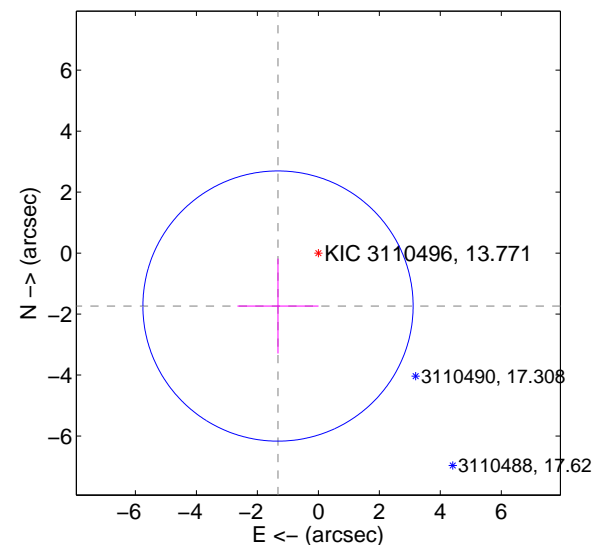
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

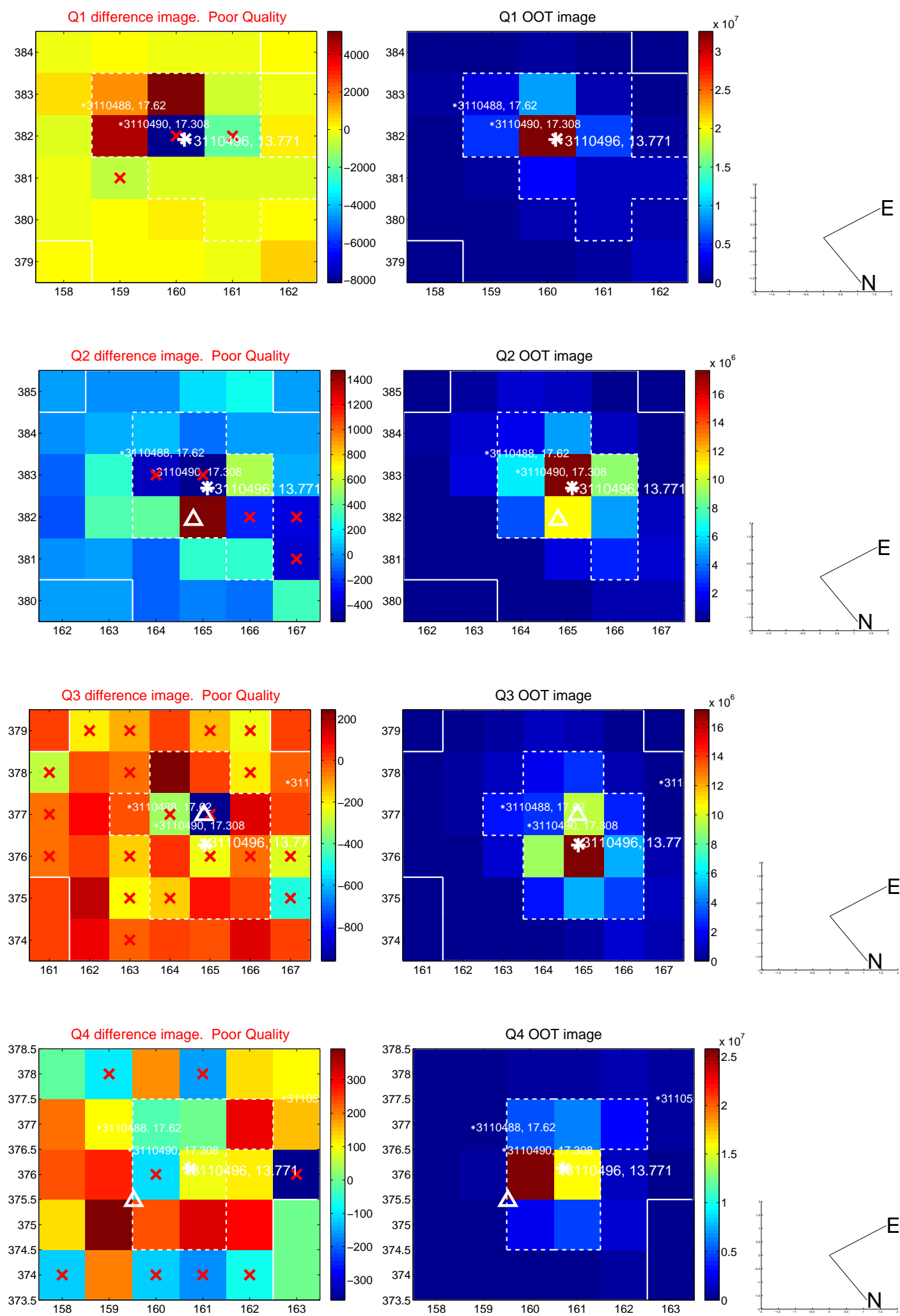


offset from photometric centroids

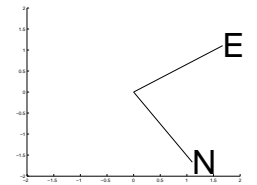
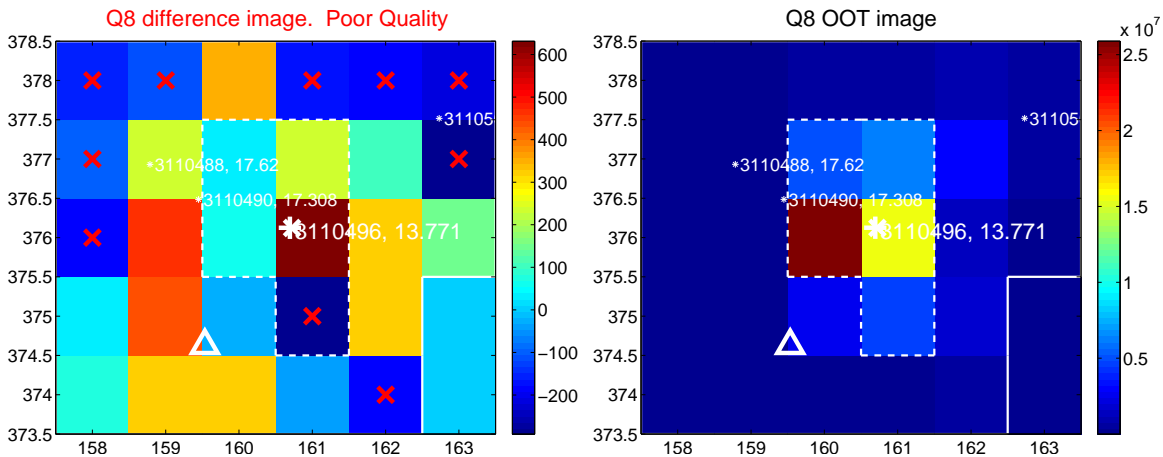
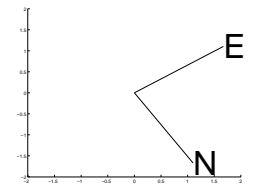
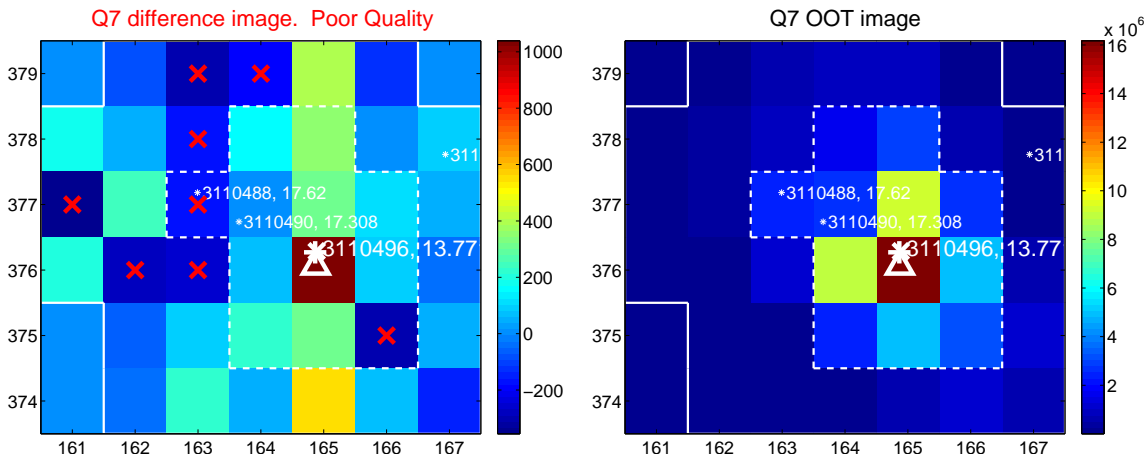
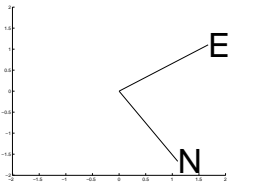
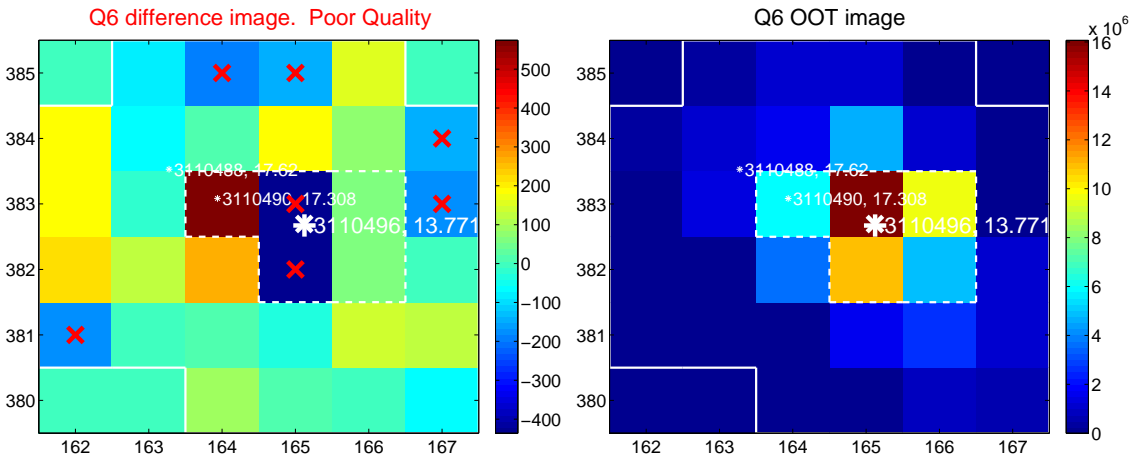
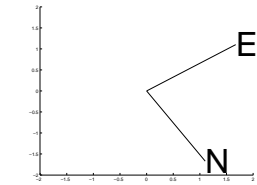
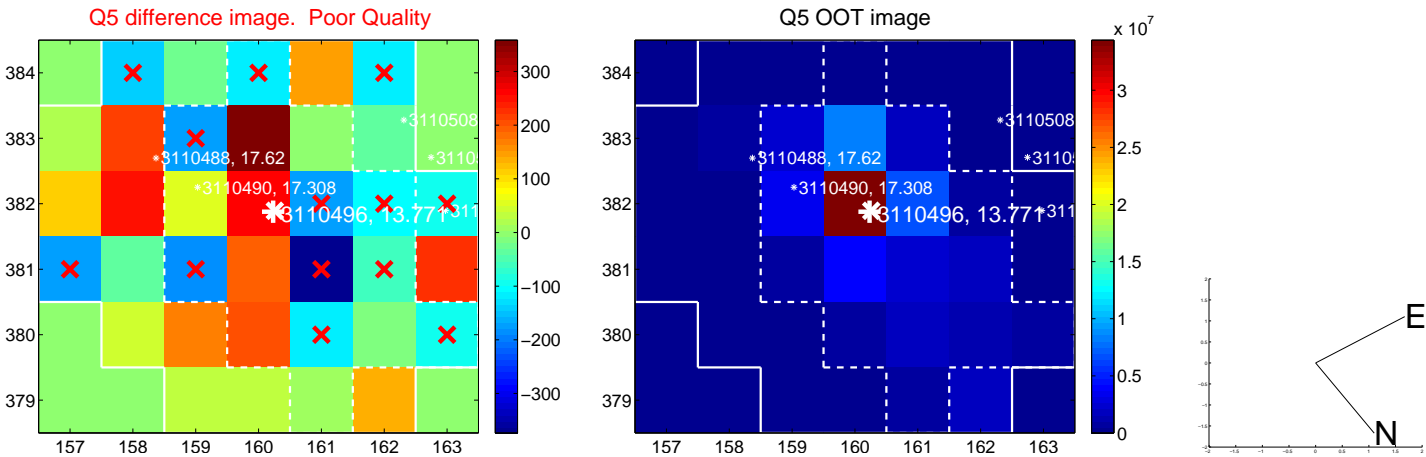


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

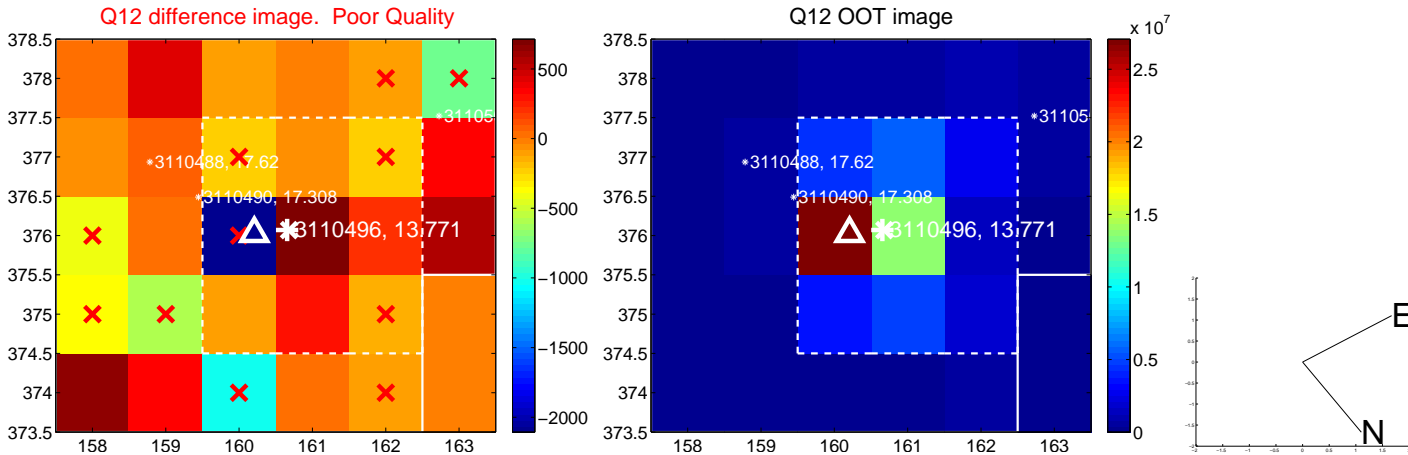
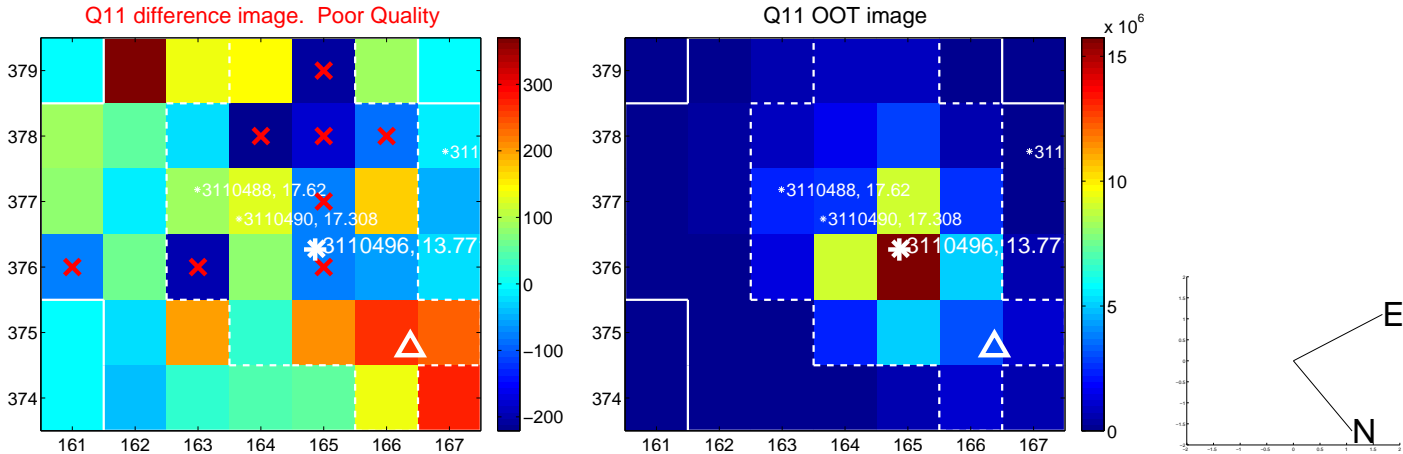
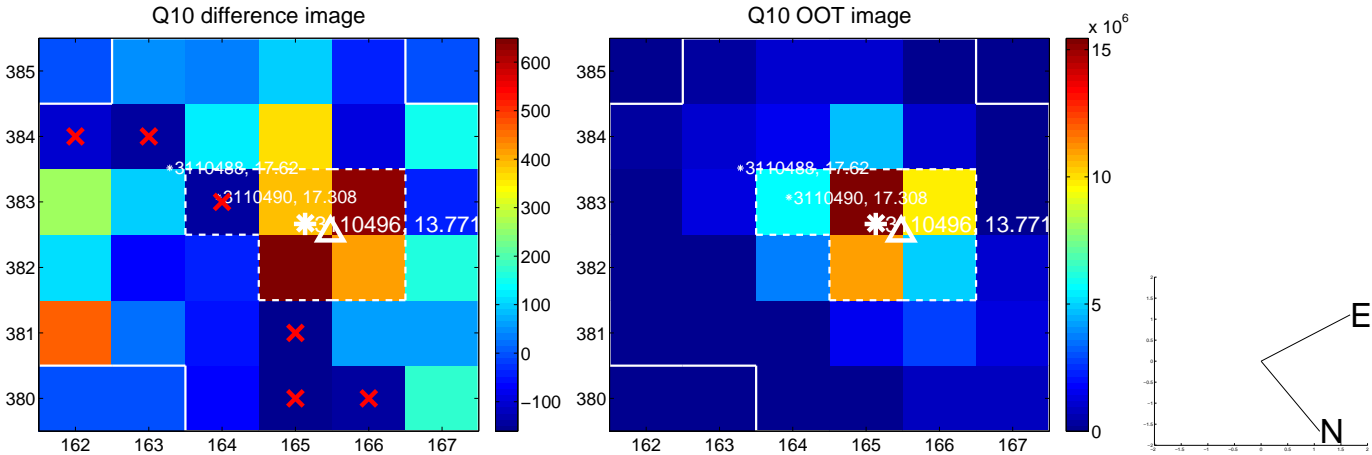
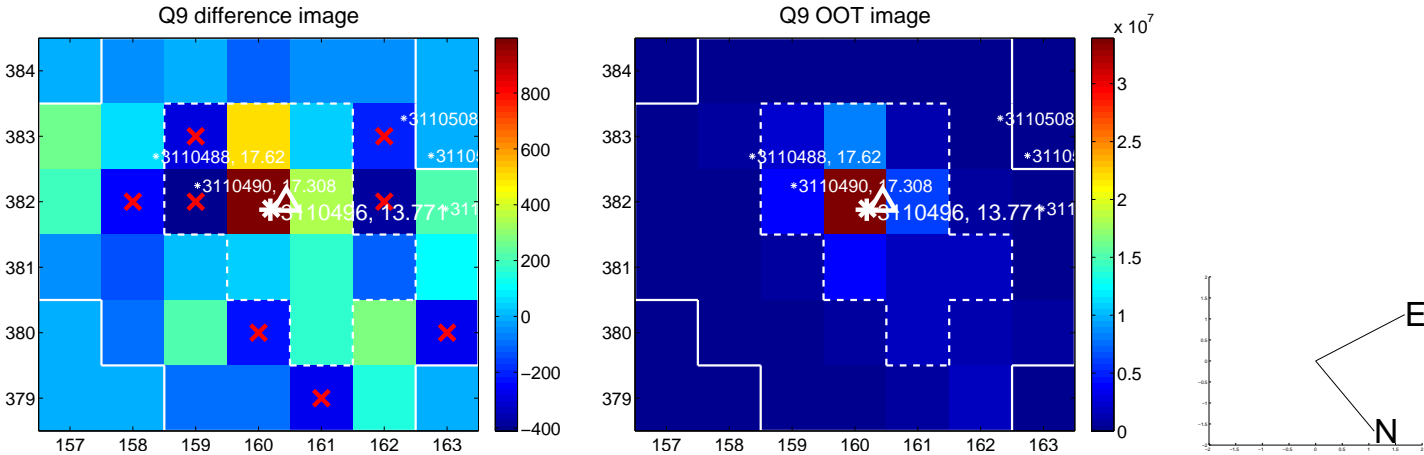


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

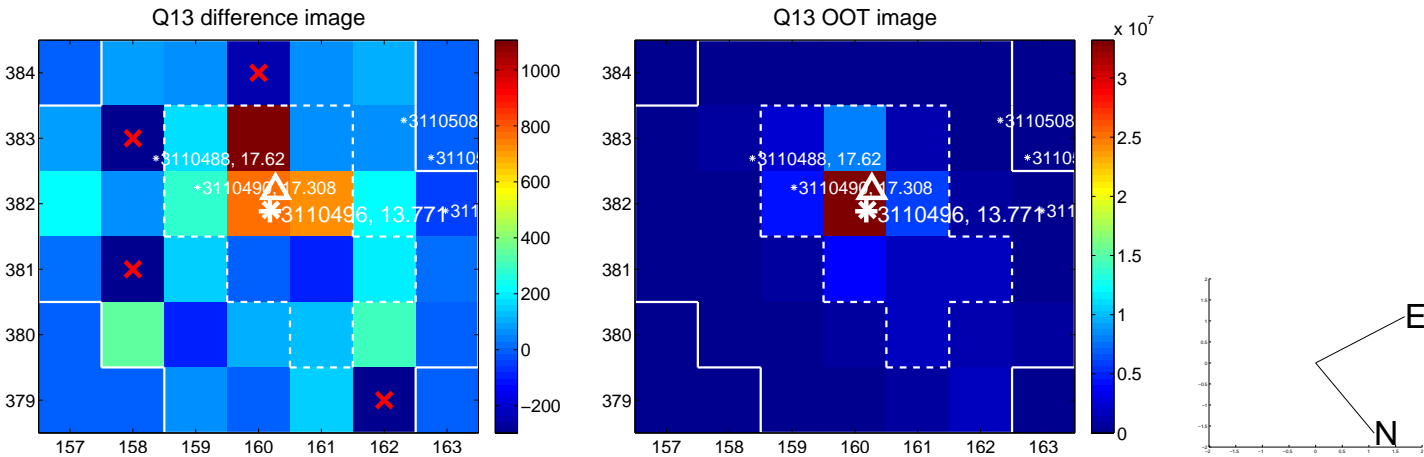




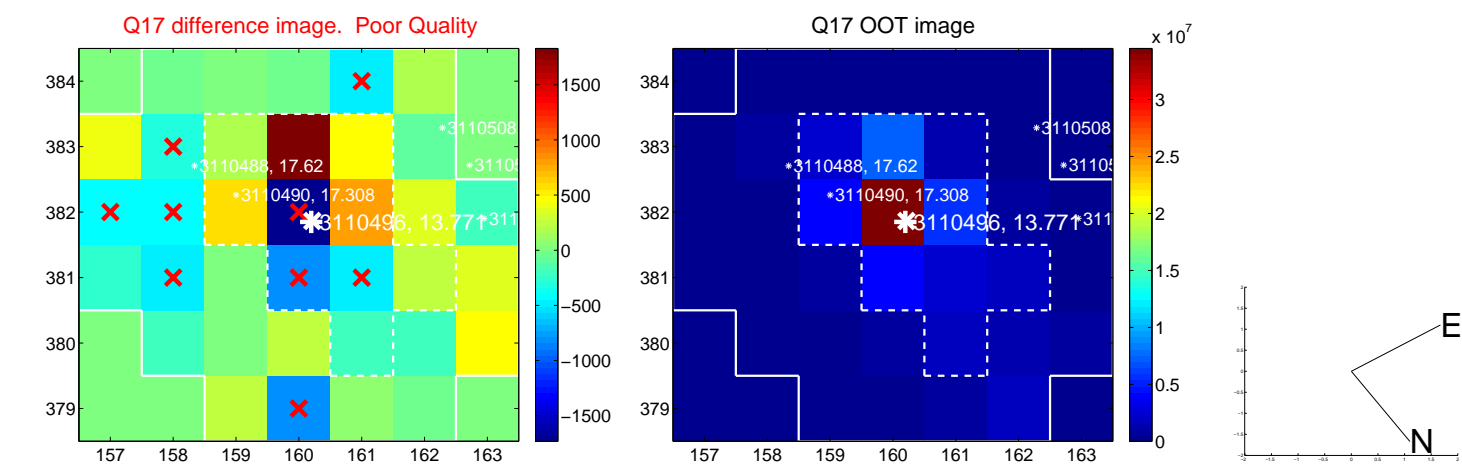
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



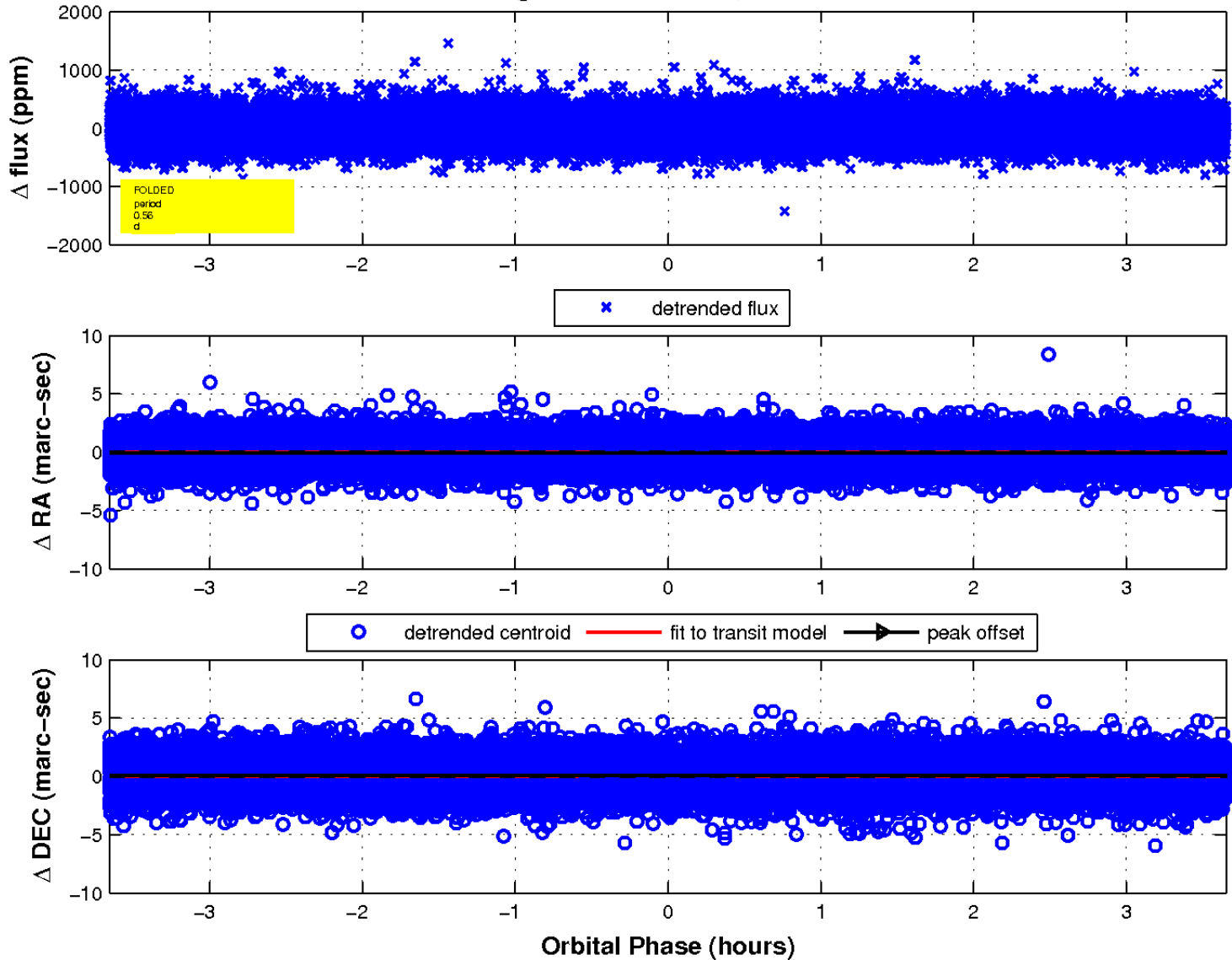
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

