

# KIC 004859694

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004859694-01	OBS	No	0.626268	131.516619	17.8	2.132	7.7	5.5	1.07	6230	0.53	7037.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004859694-01	OBS	FP	0.00	1	0	1	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

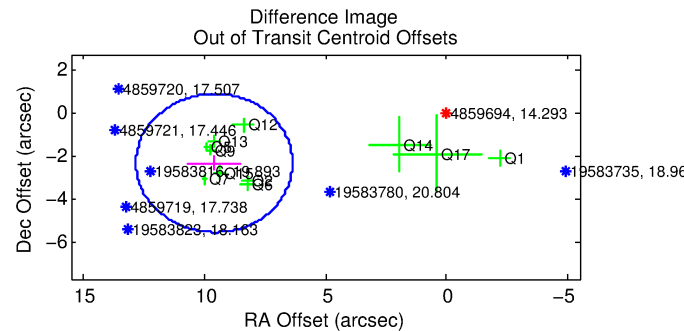
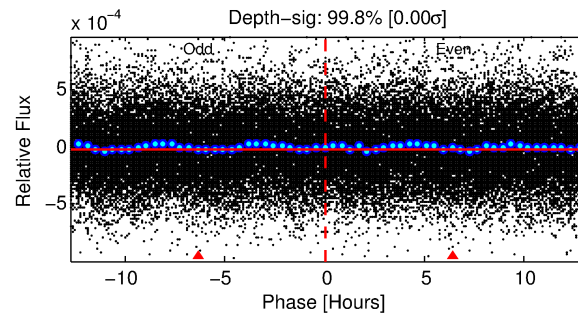
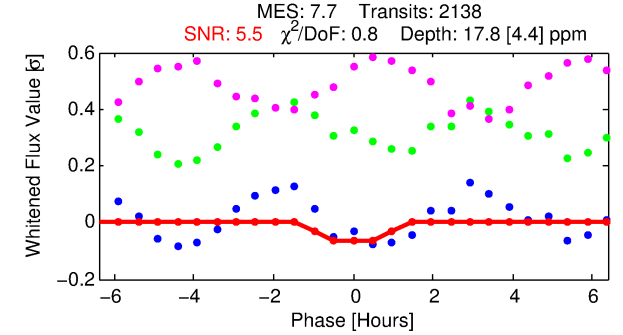
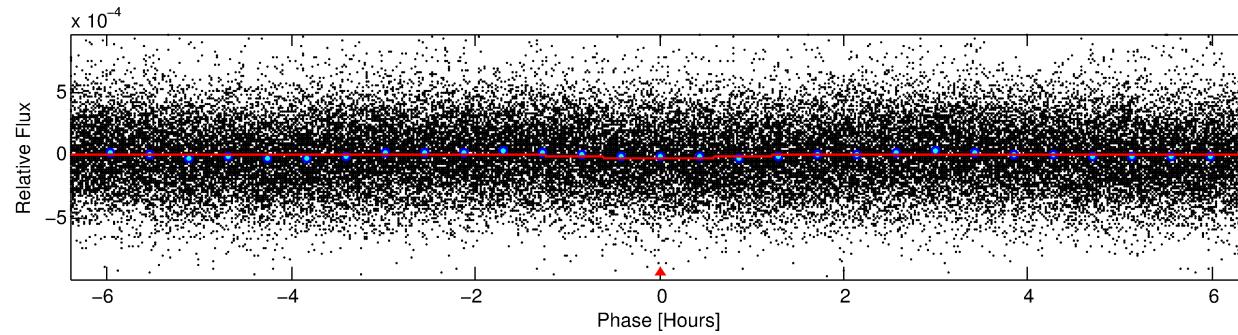
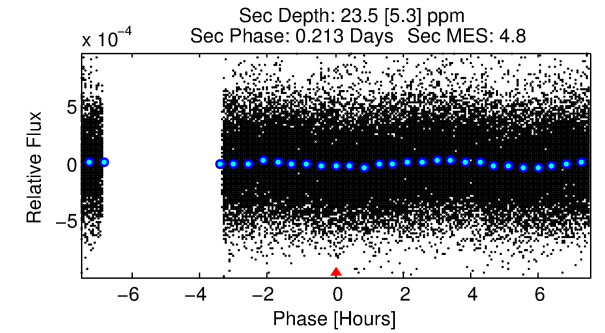
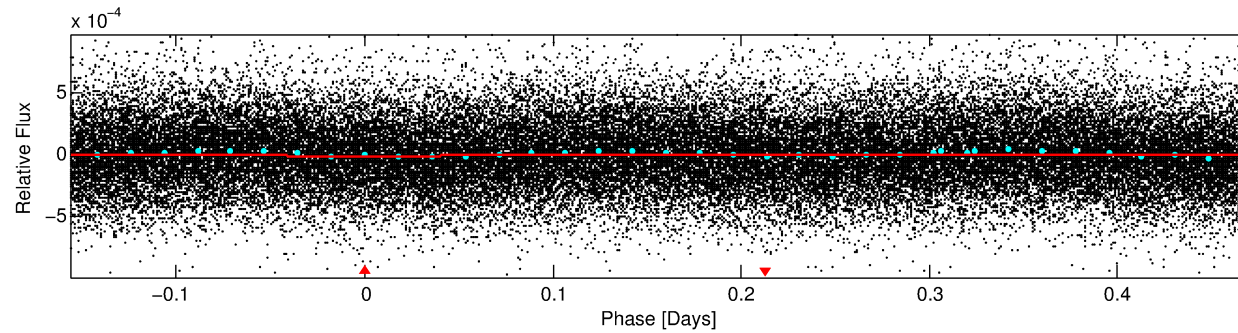
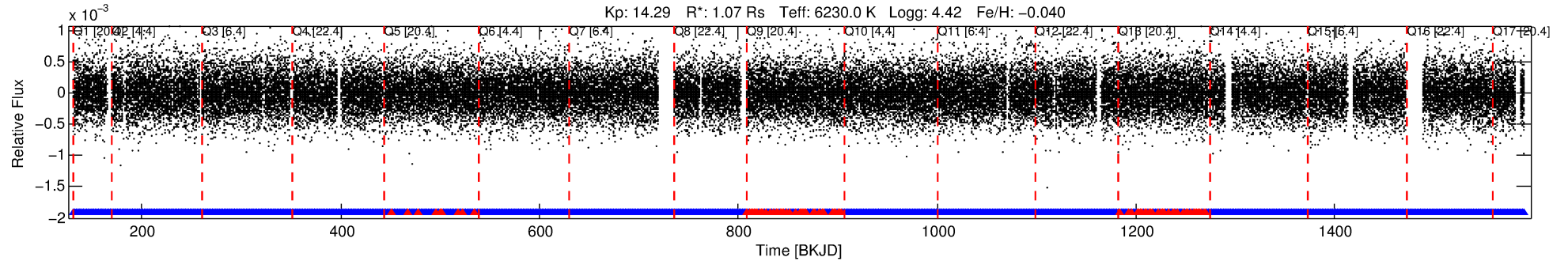
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004859694-01

No Significant Match Found

# DV One-Page Summary

KIC: 4859694 Candidate: 1 of 1 Period: 0.626 d



## DV Fit Results:

Period = 0.62627 [0.00002] d  
Epoch = 131.5166 [0.0054] BKJD  
Rp/R\* = 0.0045 [0.0036]  
a/R\* = 1.37 [2.75]  
b = 0.90 [0.92]  
Seff = 7037.83 [3073.21]  
Teq = 2336 [255] K  
Rp = 0.53 [0.46] Re  
a = 0.0149 [0.0042] AU  
Ag = 10.06 [16.62] [0.55σ]  
Teffp = 6431 [2585] K [1.58σ]

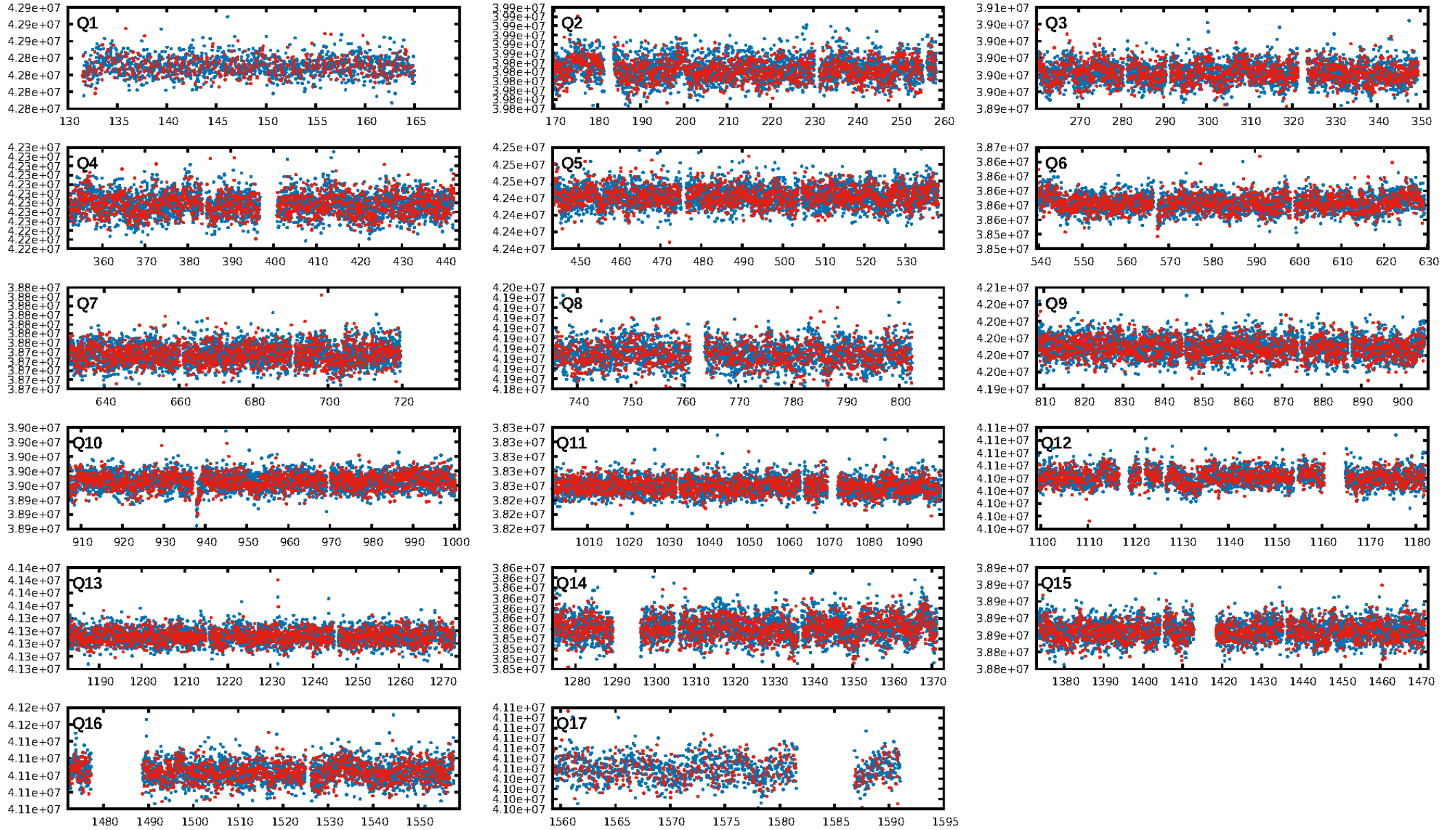
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.03e-15  
RollingBand-fgt: 0.95 [1945/2041]  
GhostDiagnostic-chr: 2.649  
Centroid-sig: 5.3%  
Centroid-so: 3.503 arcsec [1.43σ]  
OotOffset-rm: 9.866 arcsec [9.16σ]  
KicOffset-rm: 9.820 arcsec [7.08σ]  
OotOffset-st: 3/2/1/5 [11]  
KicOffset-st: 3/2/1/5 [11]  
DiffImageQuality-fgm: 0.73 [8/11]  
DiffImageOverlap-fno: 1.00 [17/17]

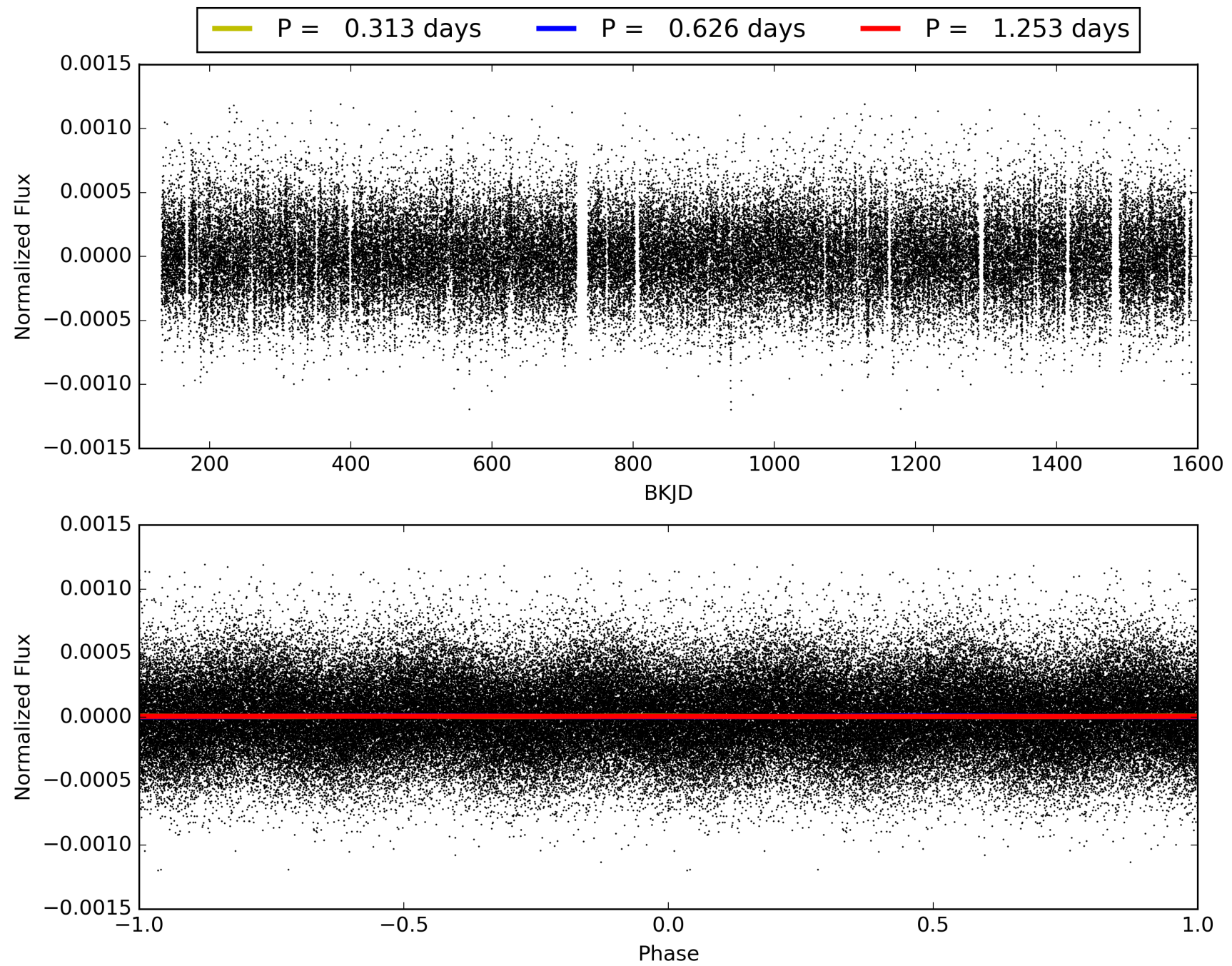
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:46:15 Z

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

# TCE 004859694-01, PDC Light Curves



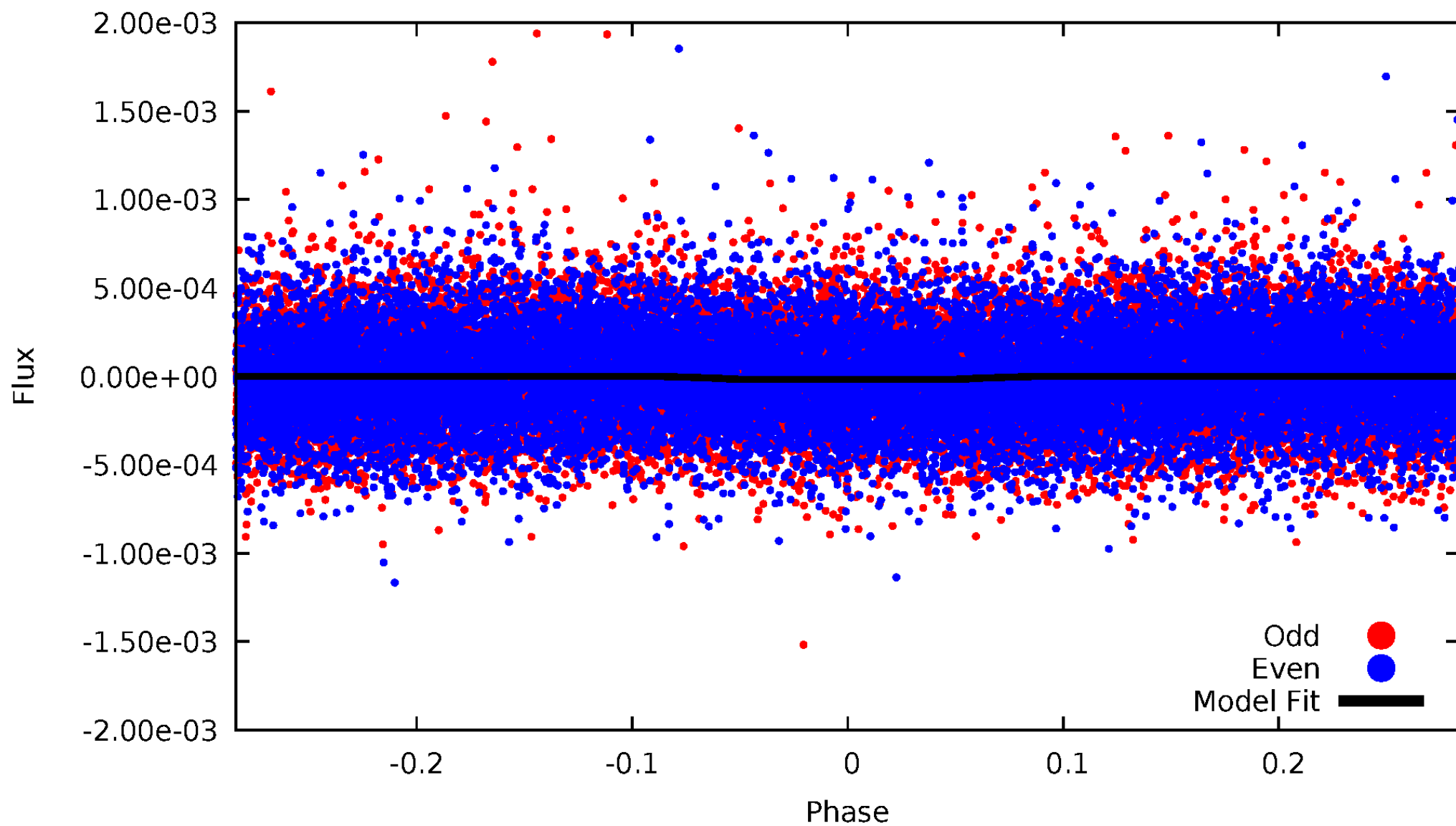
TCE 004859694-01





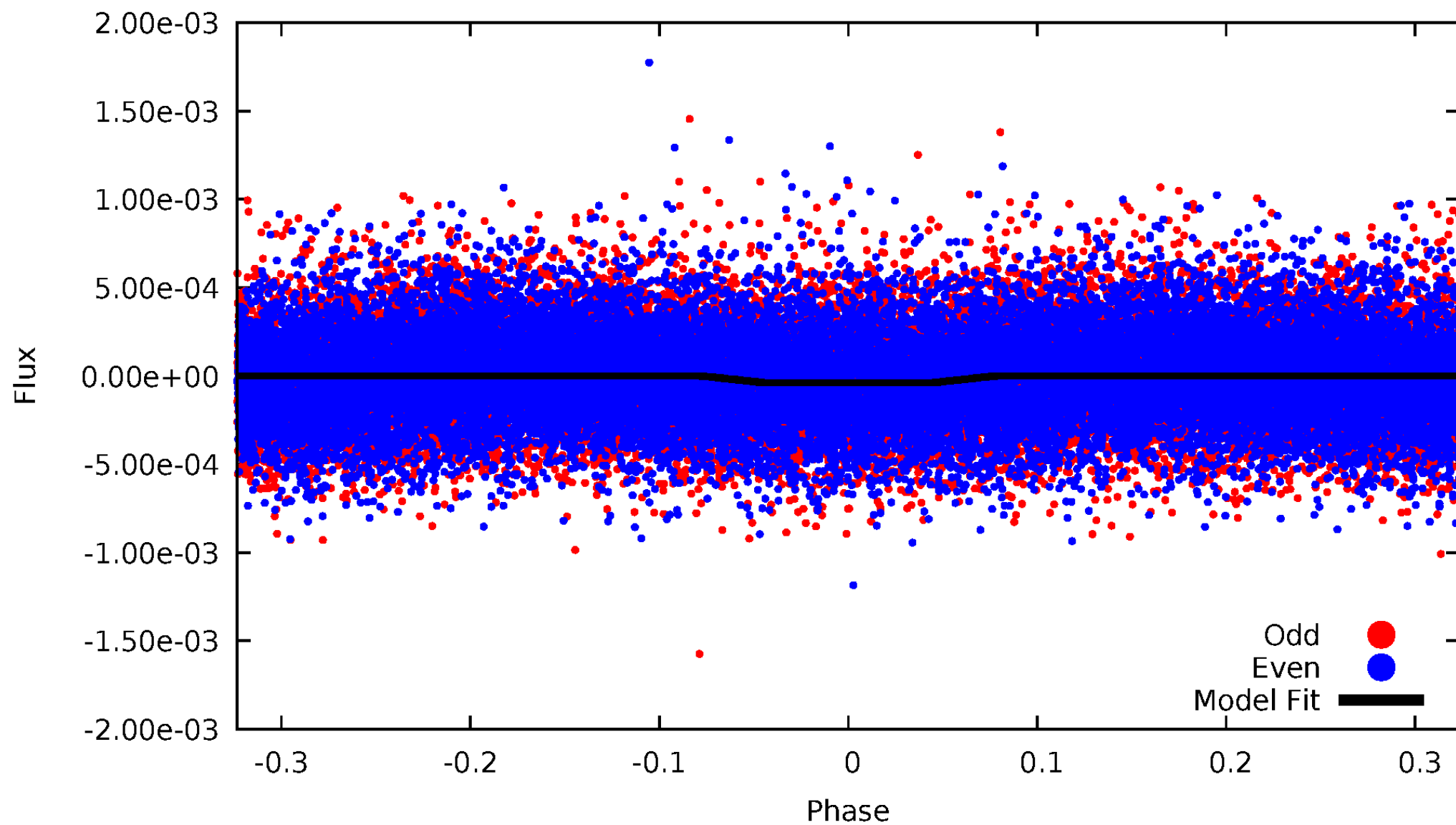
# DV Odd/Even

TCE 004859694-01



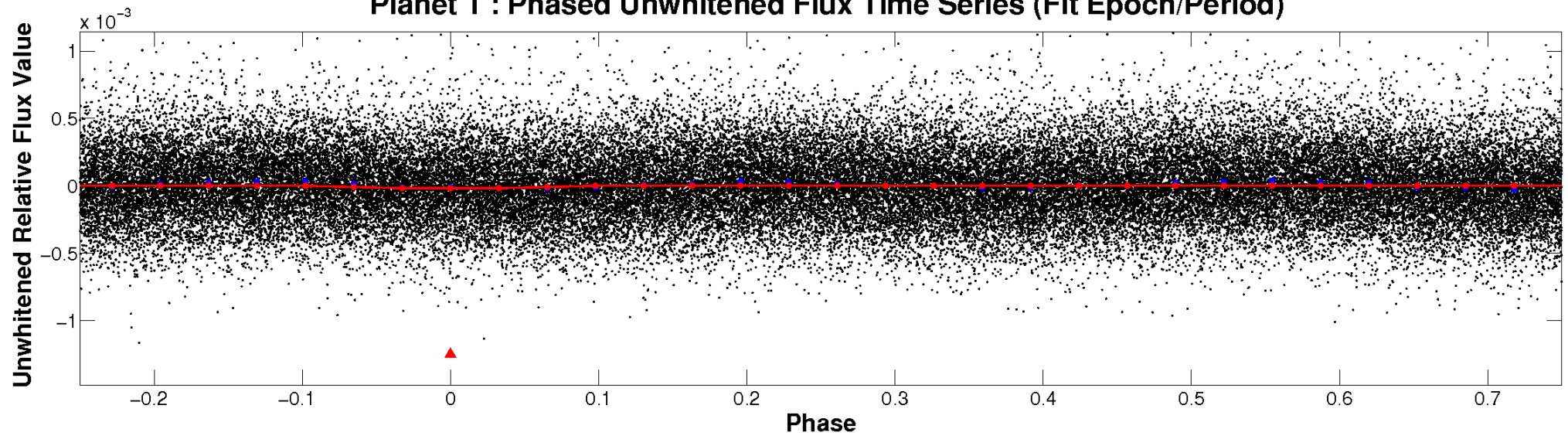
# ALT Odd/Even

TCE 004859694-01

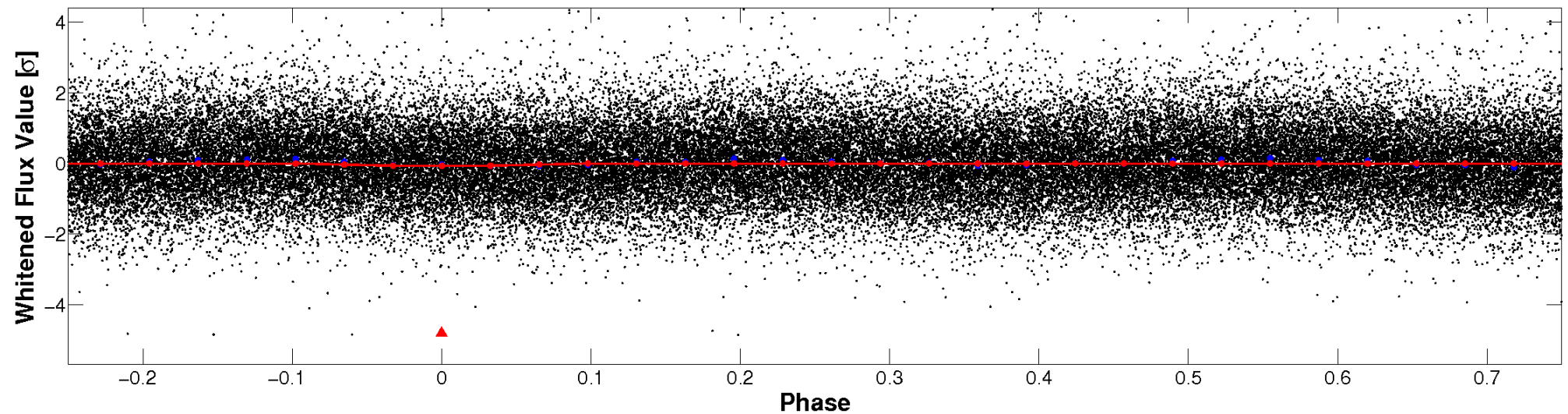


# Non-Whitened Vs. Whitened Light Curve

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

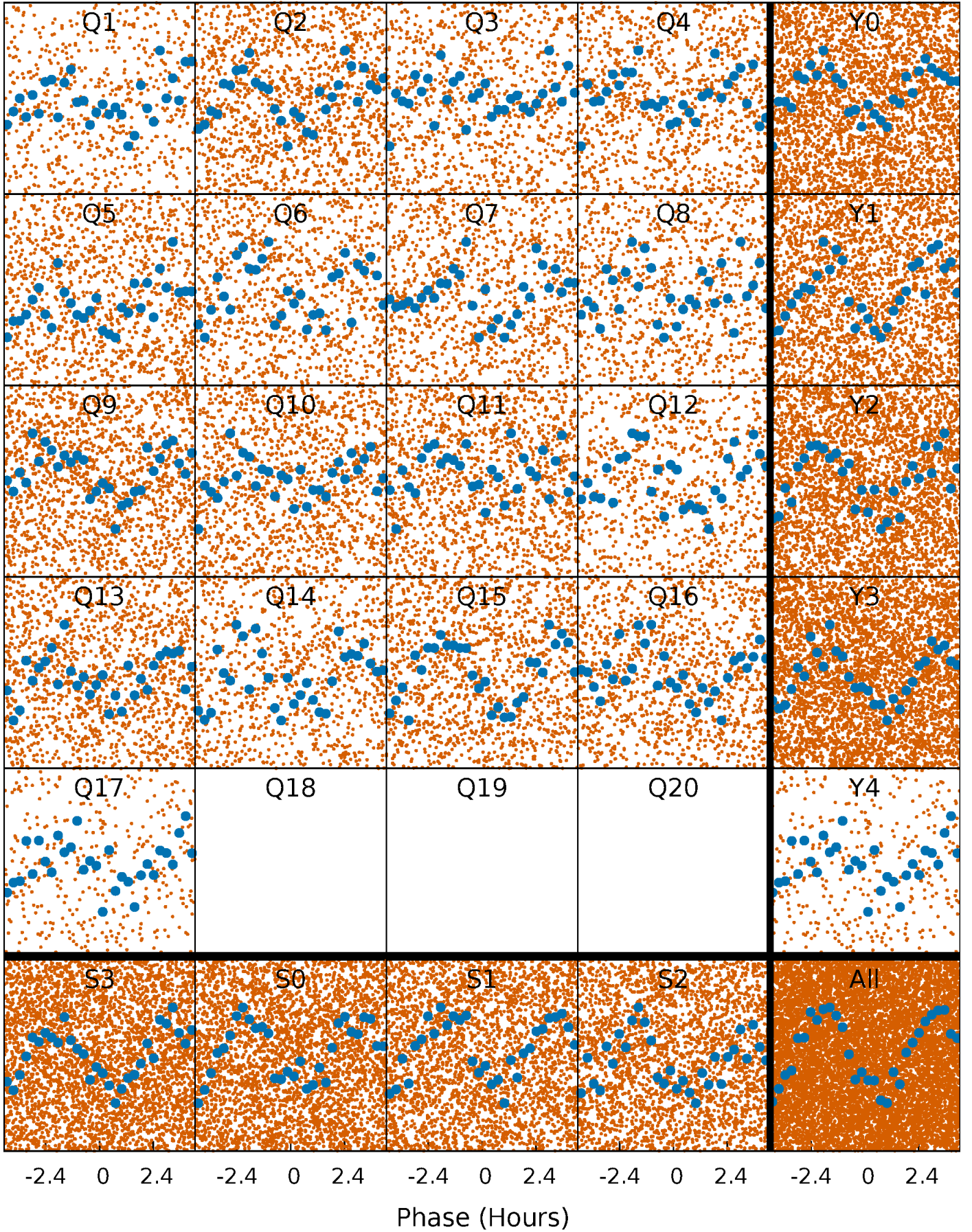


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

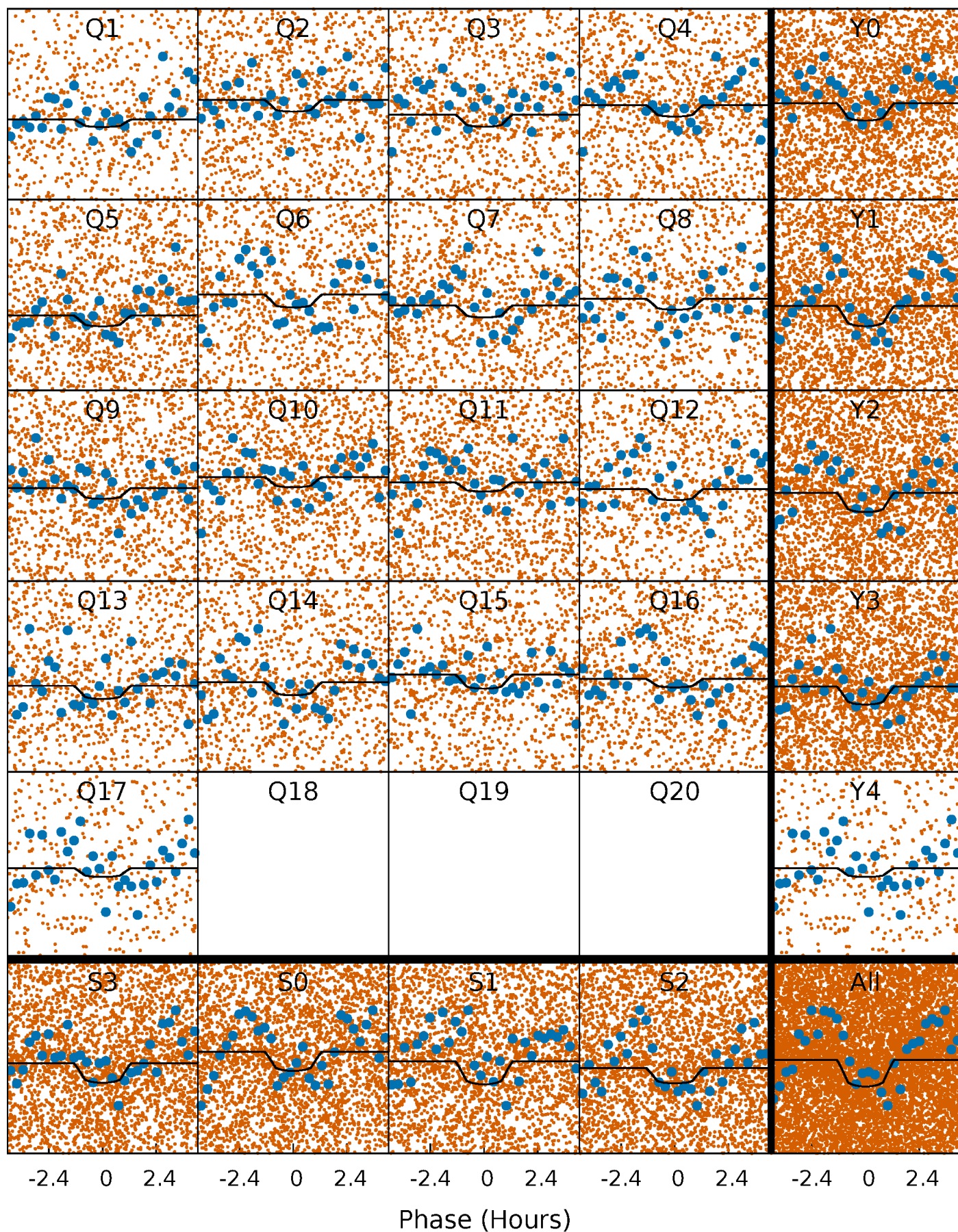
TCE 004859694-01   P= 0.626268 Days    $T_0=131.516619$  (BKJD)





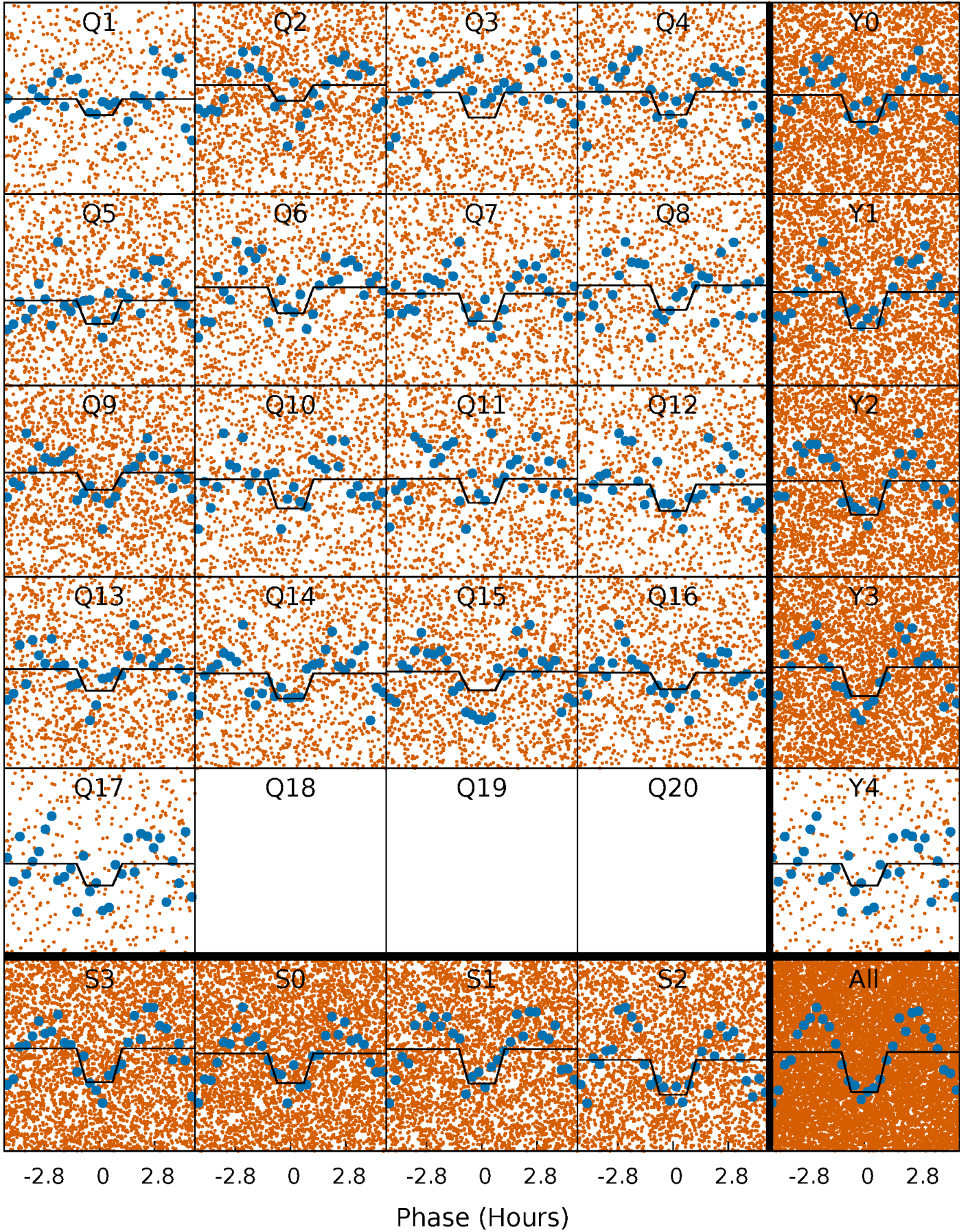
# DV Quarter-Phased Transit Curves

TCE 004859694-01 P= 0.626268 Days  $T_0=131.516619$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004859694-01 P= 0.626291 Days  $T_0=131.516218$  (BKJD)

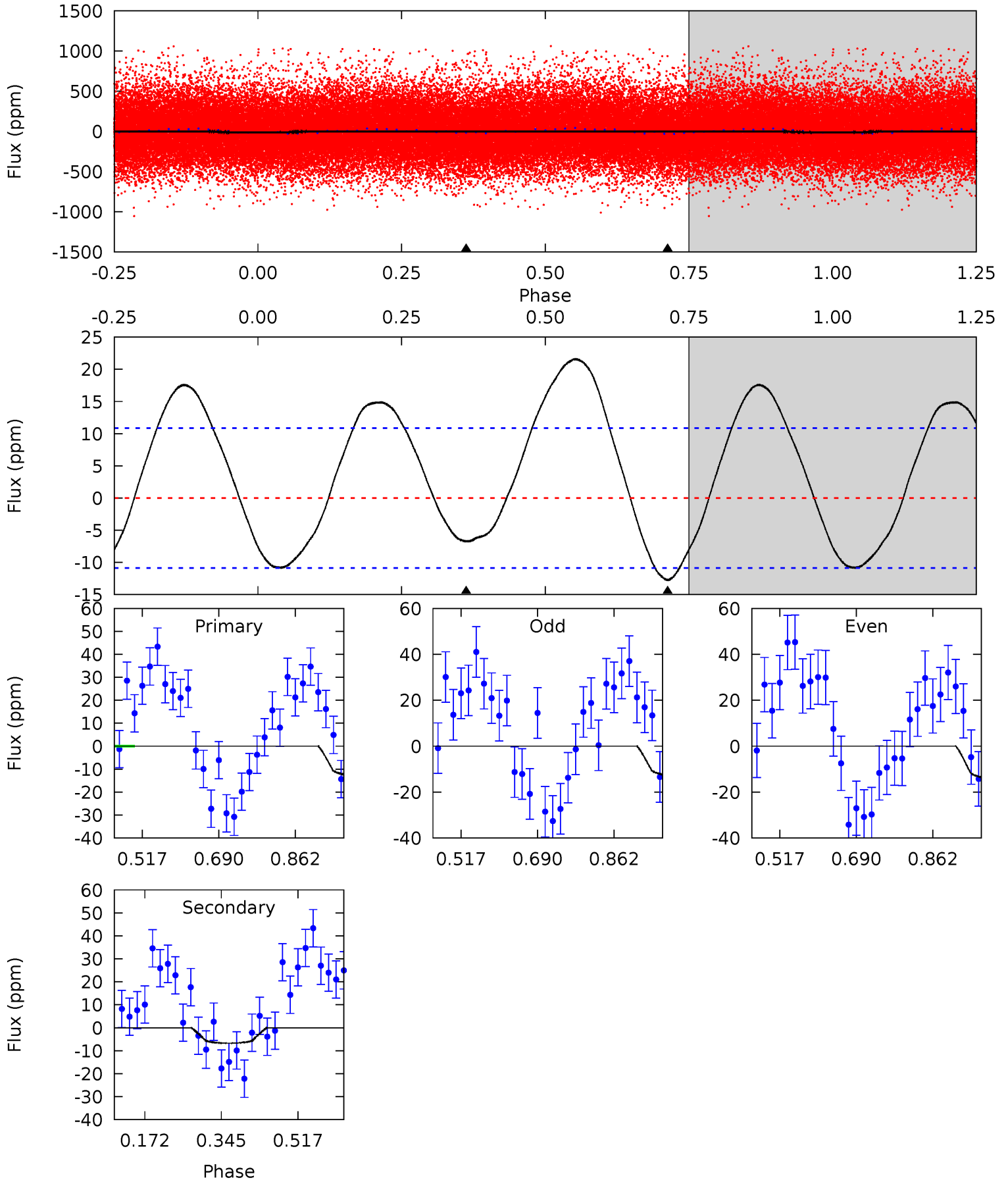




# DV Model-Shift Uniqueness Test

004859694-01, P = 0.626268 Days, E = 130.890351 Days

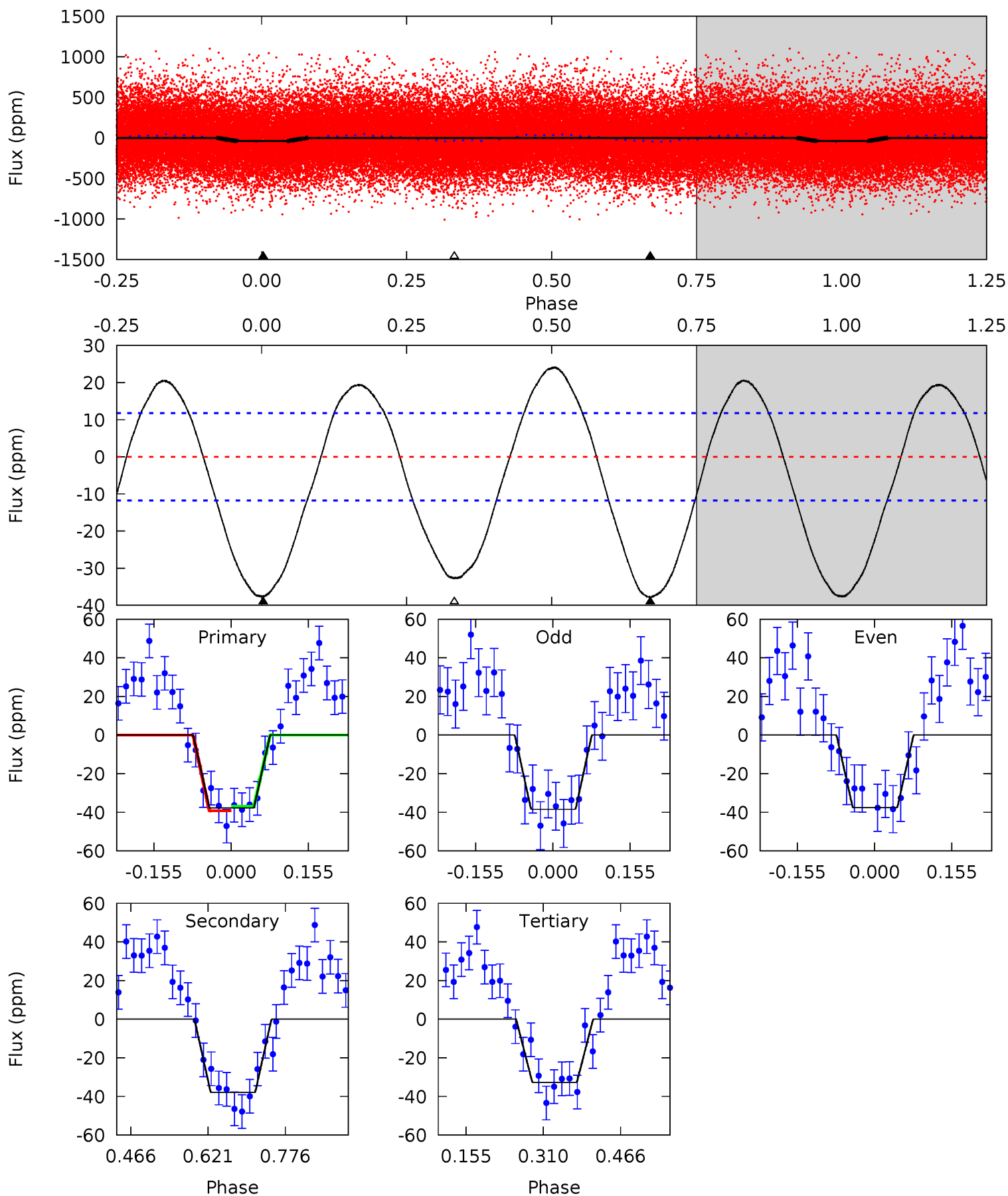
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.22	2.76	0	0	4.45	1.36	3.82	5.22	5.22	2.76	2.76	0.25	0.86	0.63	2.37



# Alt Model-Shift Uniqueness Test

004859694-01, P = 0.626291 Days, E = 130.889927 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
14.3	14.4	12.4	0	4.47	1.42	7.58	1.89	14.3	1.96	14.4	0.16	0.95	0.39	0.46





### Stellar Parameters For KIC 004859694

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6230^{+172}_{-237}$	$4.425^{+0.056}_{-0.224}$	$-0.040^{+0.250}_{-0.300}$	$1.075^{+0.358}_{-0.128}$	$1.121^{+0.164}_{-0.164}$	$1.271^{+0.400}_{-0.715}$
	+3%/-4%	+1%/-5%	+625%/-750%	+33%/-12%	+15%/-15%	+31%/-56%
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 004859694-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-7 \pm 2$	$0.65^{+0.41}_{-0.40}$	$3329^{+239}_{-179}$	$4334^{+2823}_{-977}$	$1.793^{+10.698}_{-1.180}$
Alt.	$-38 \pm 3$	$0.75^{+0.48}_{-0.37}$	$3340^{+246}_{-191}$	$6154^{+3328}_{-1279}$	$7.956^{+23.694}_{-4.944}$

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

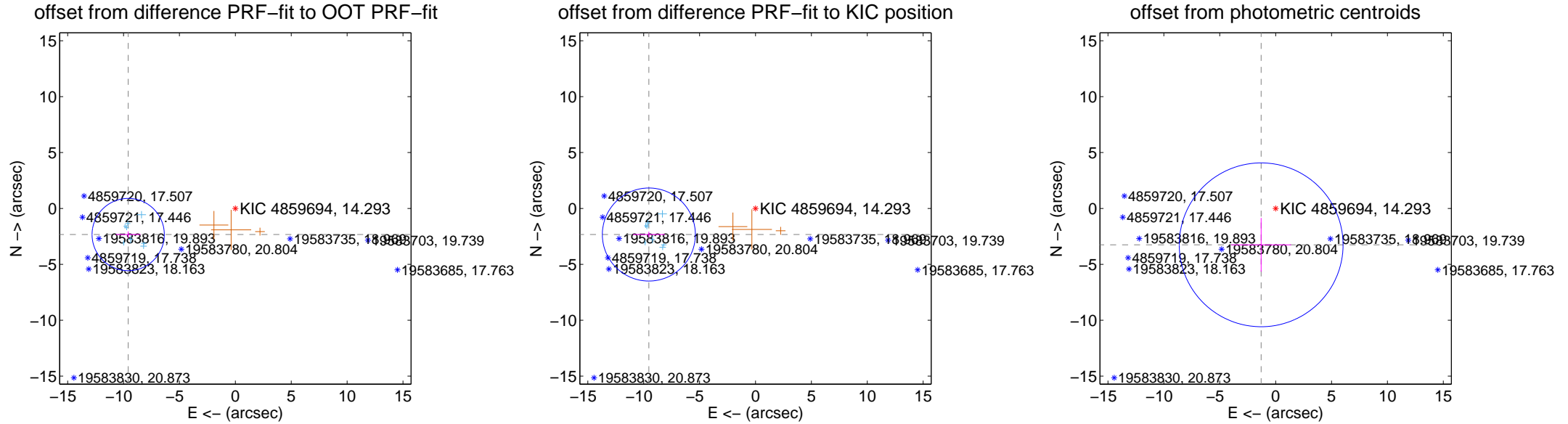
## DV Centroid Data

Supplemental centroid analysis for 004859694-01. Kepler magnitude: 14.29. Transit SNR 5.47

There are 8 quarters with good PRF difference image offsets

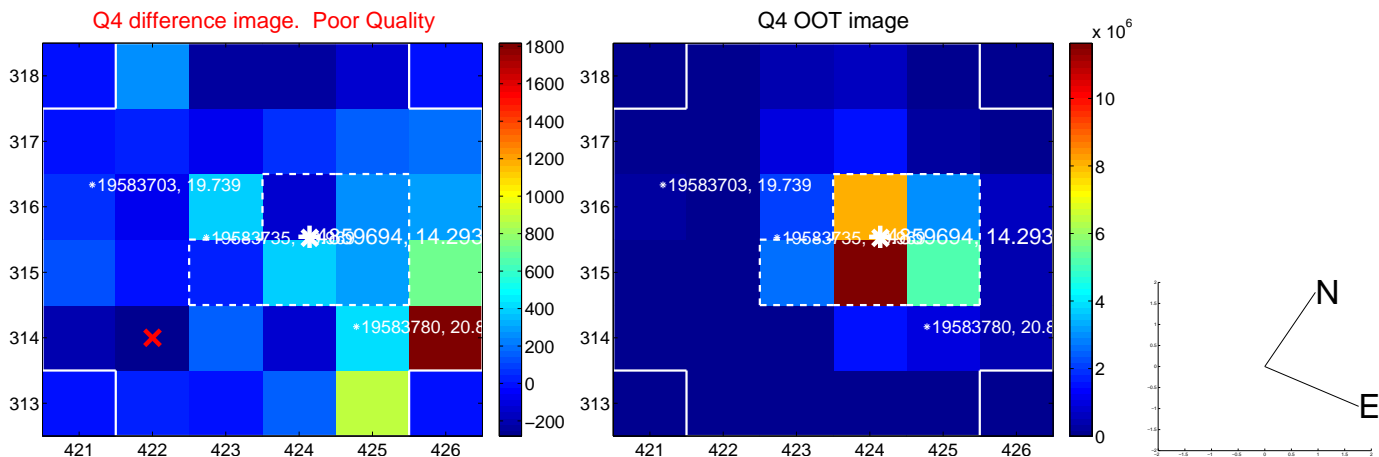
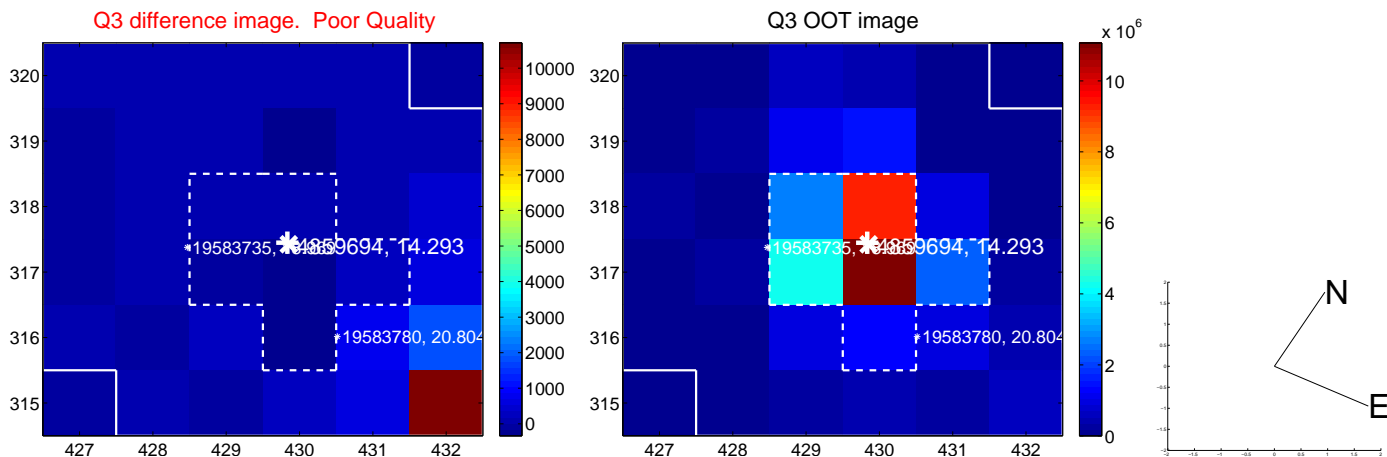
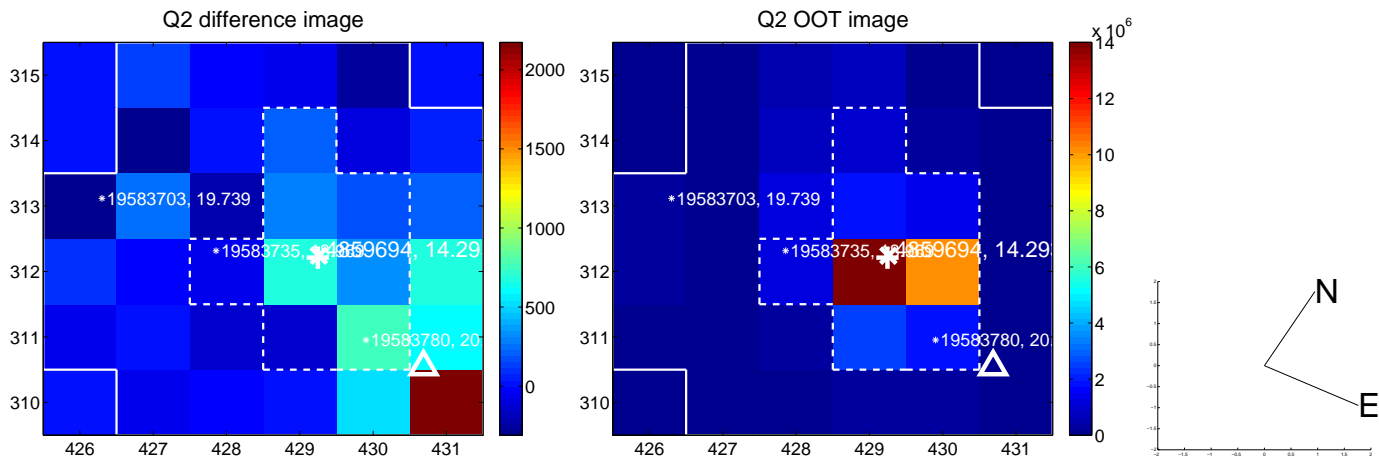
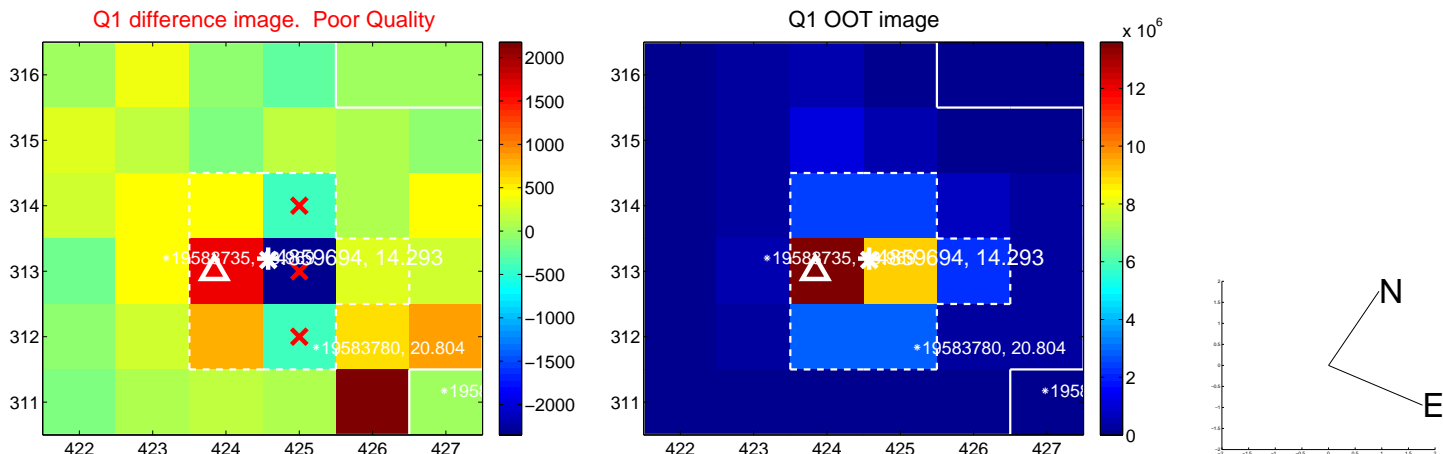
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$9.866 \pm 1.077$	9.16	$9.586 \pm 1.104$	$-2.335 \pm 0.281$
PRF-fit source offset from KIC position	$9.820 \pm 1.387$	7.08	$9.539 \pm 1.421$	$-2.333 \pm 0.252$
photometric centroid source offset	$3.50 \pm 2.44$	1.43	$1.30 \pm 2.68$	$-3.25 \pm 2.40$

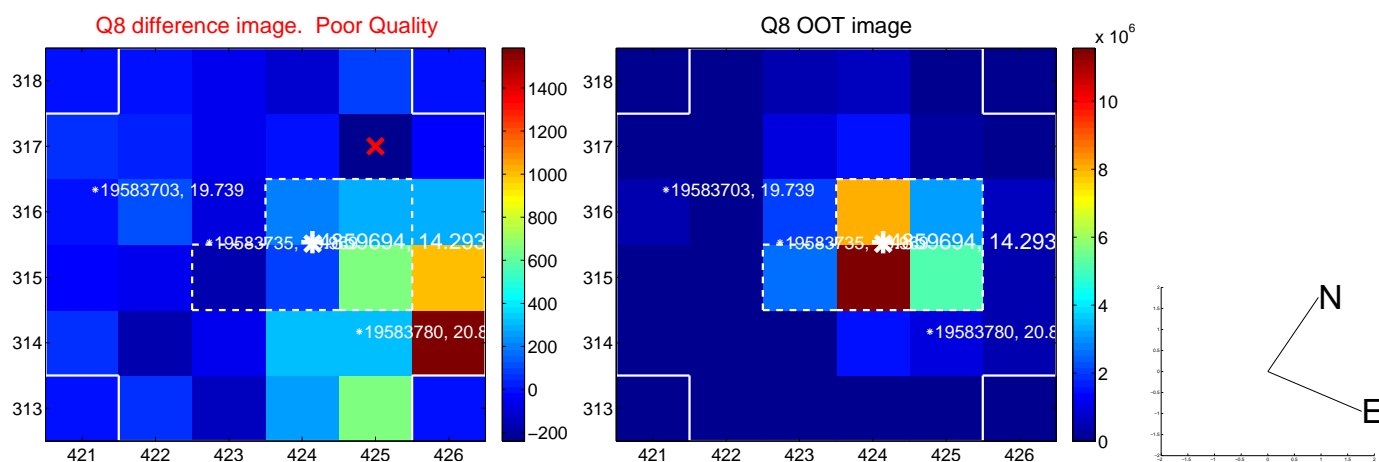
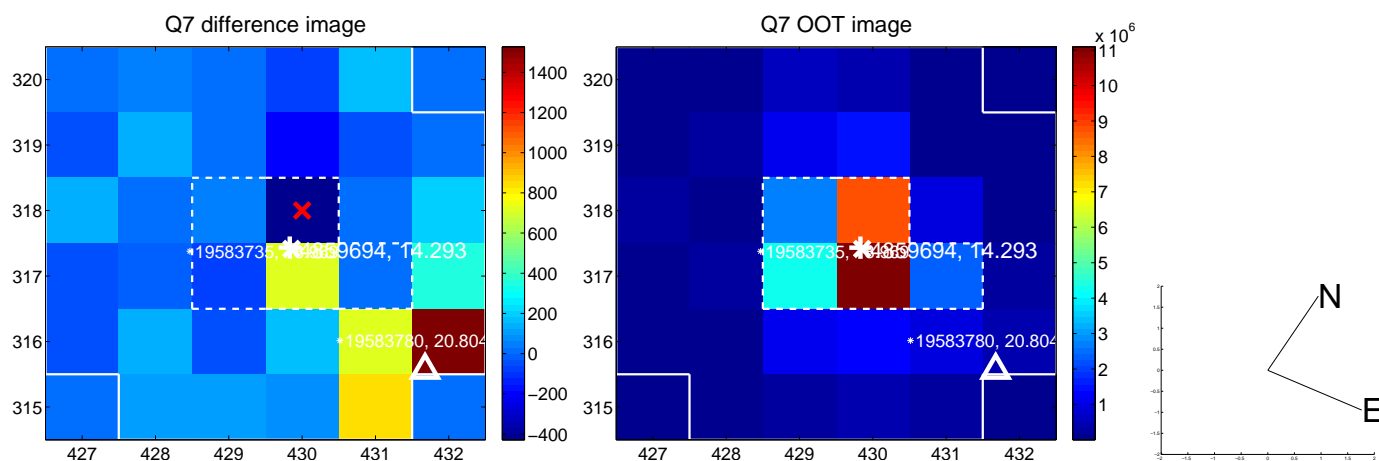
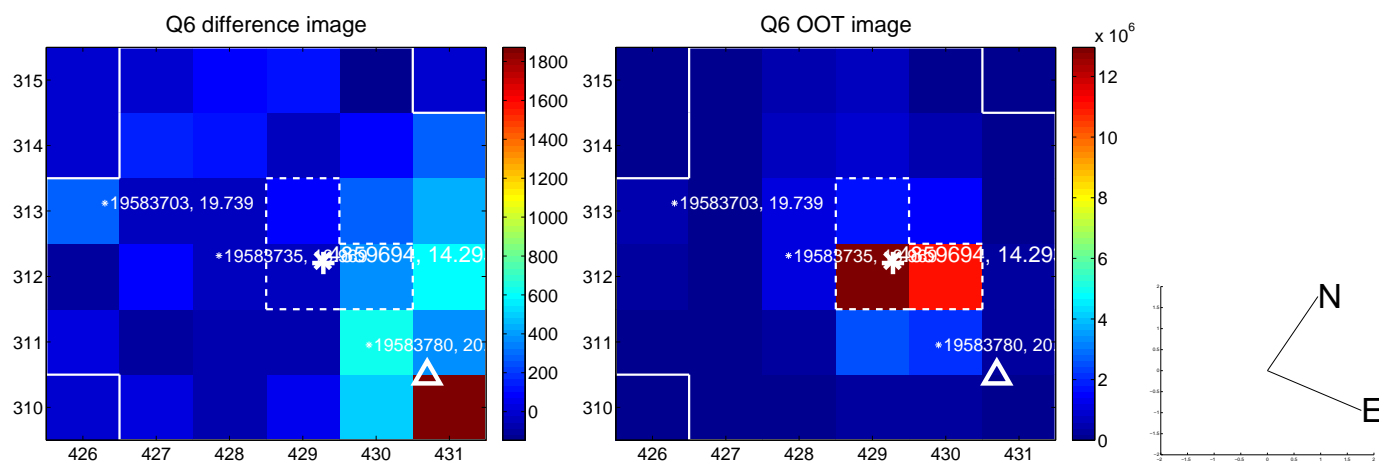
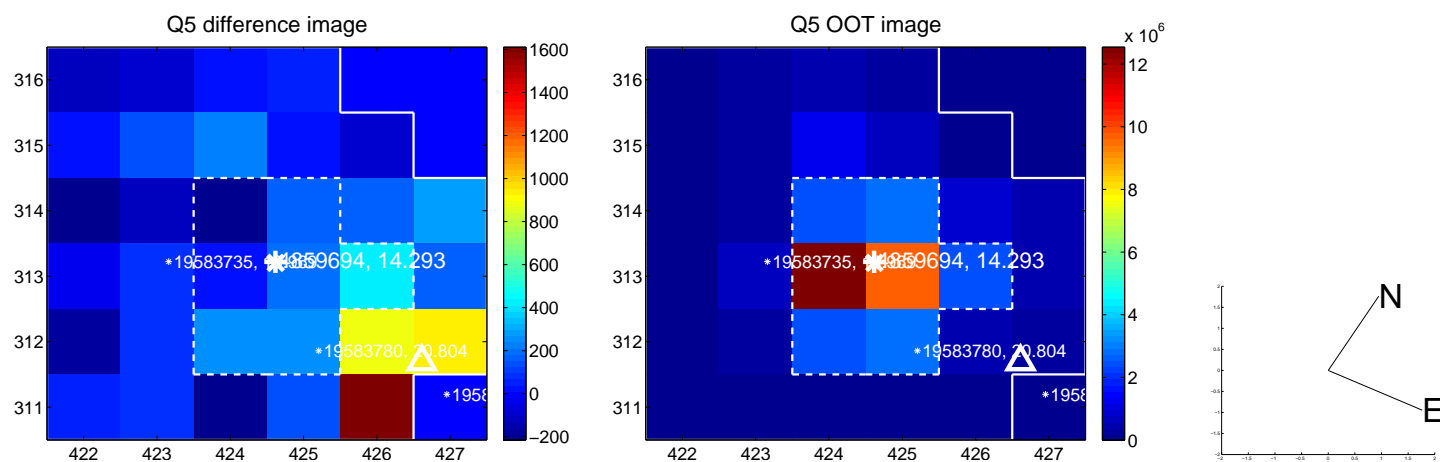


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

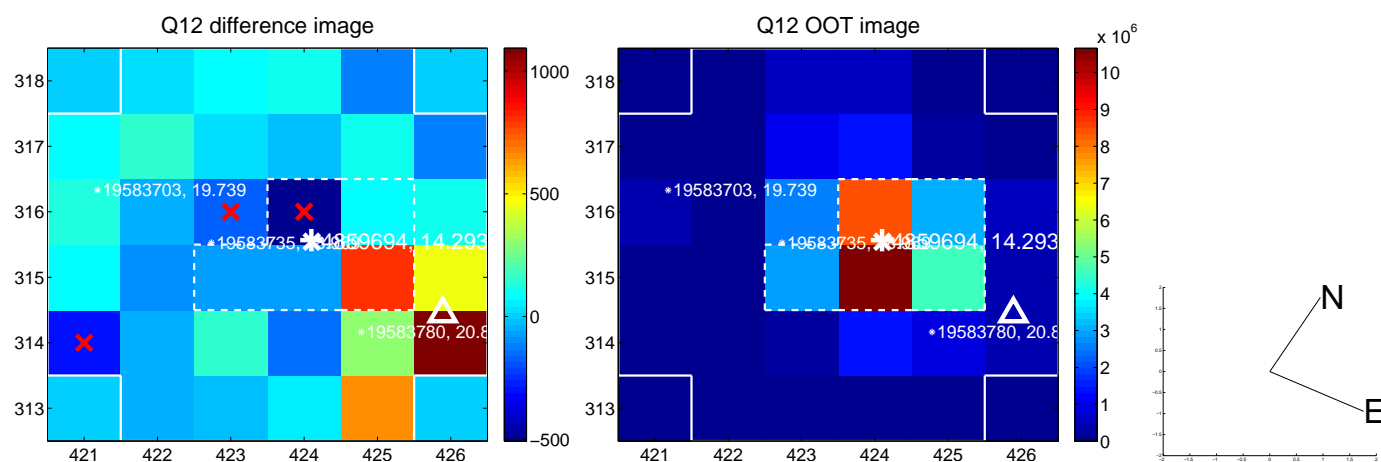
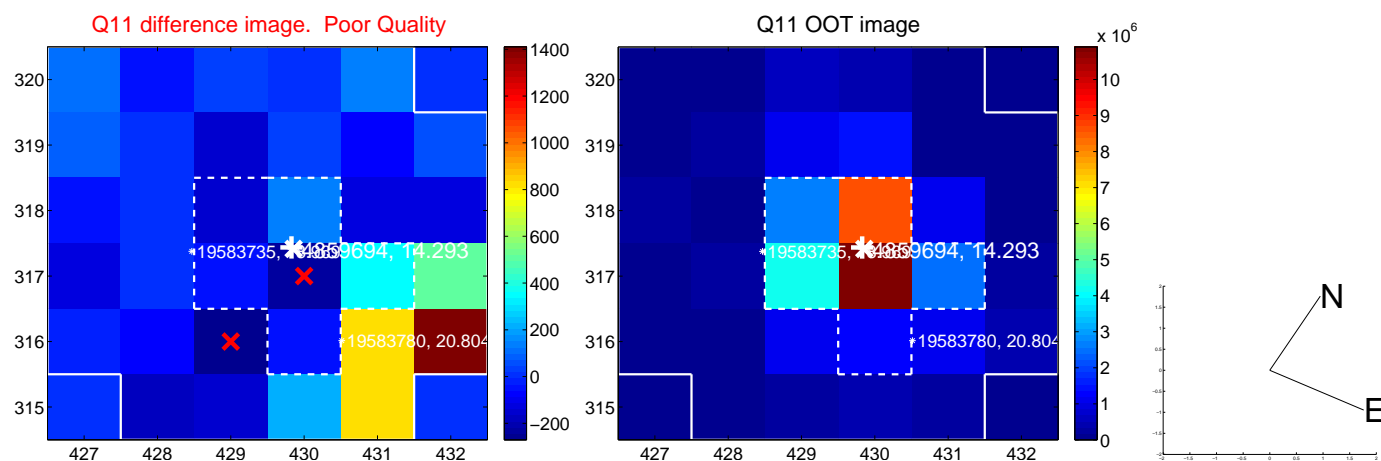
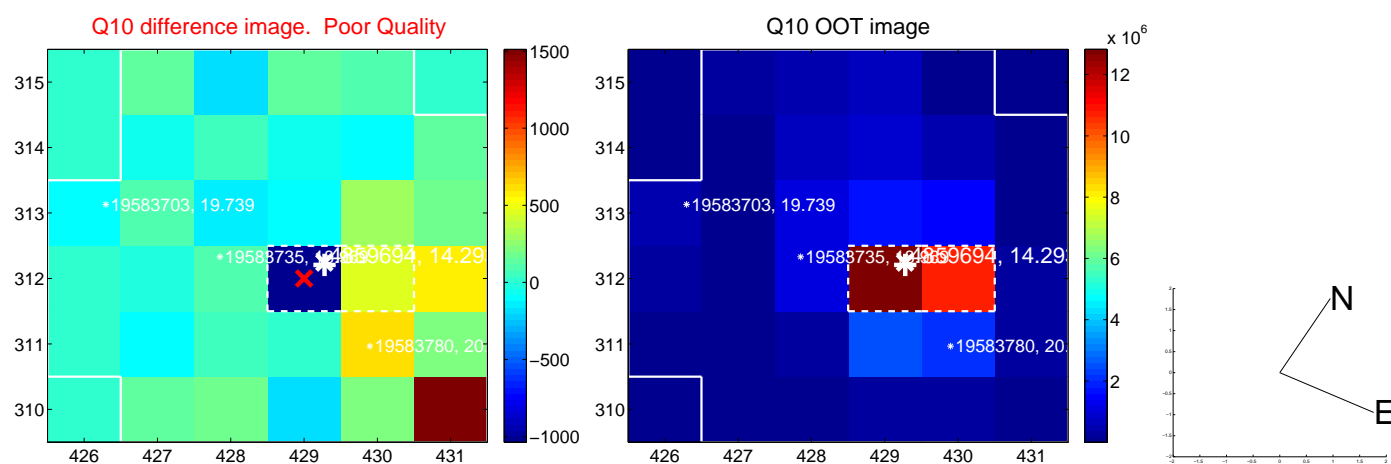
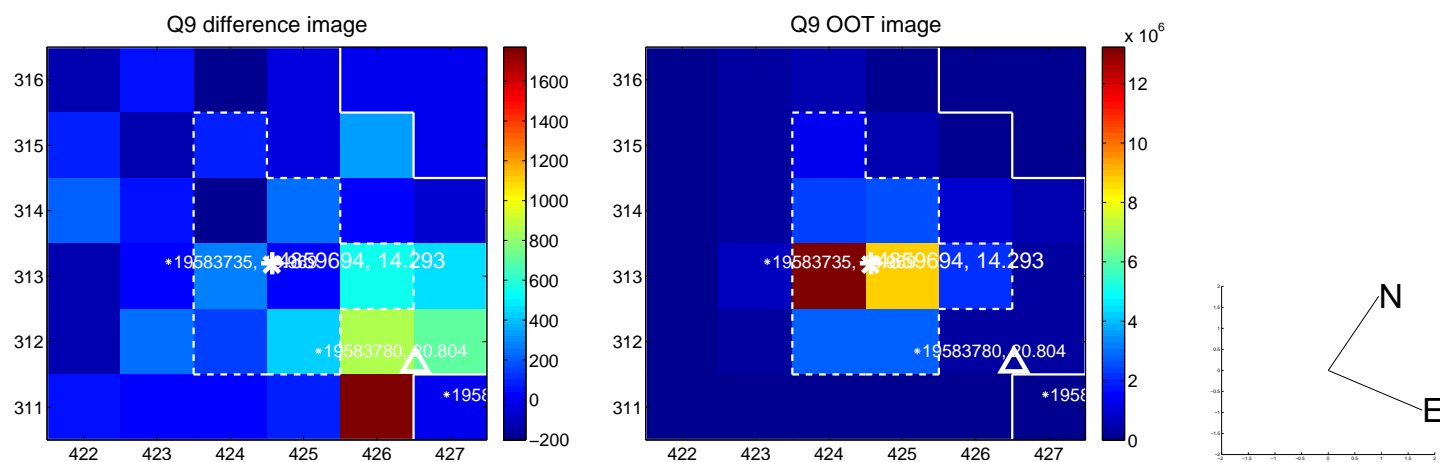


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

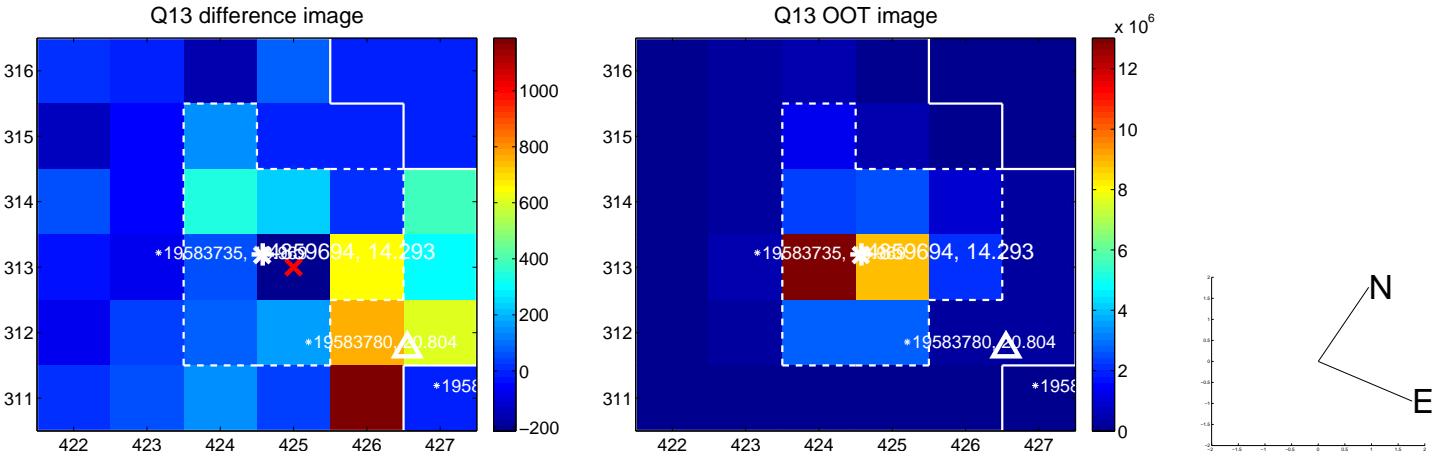




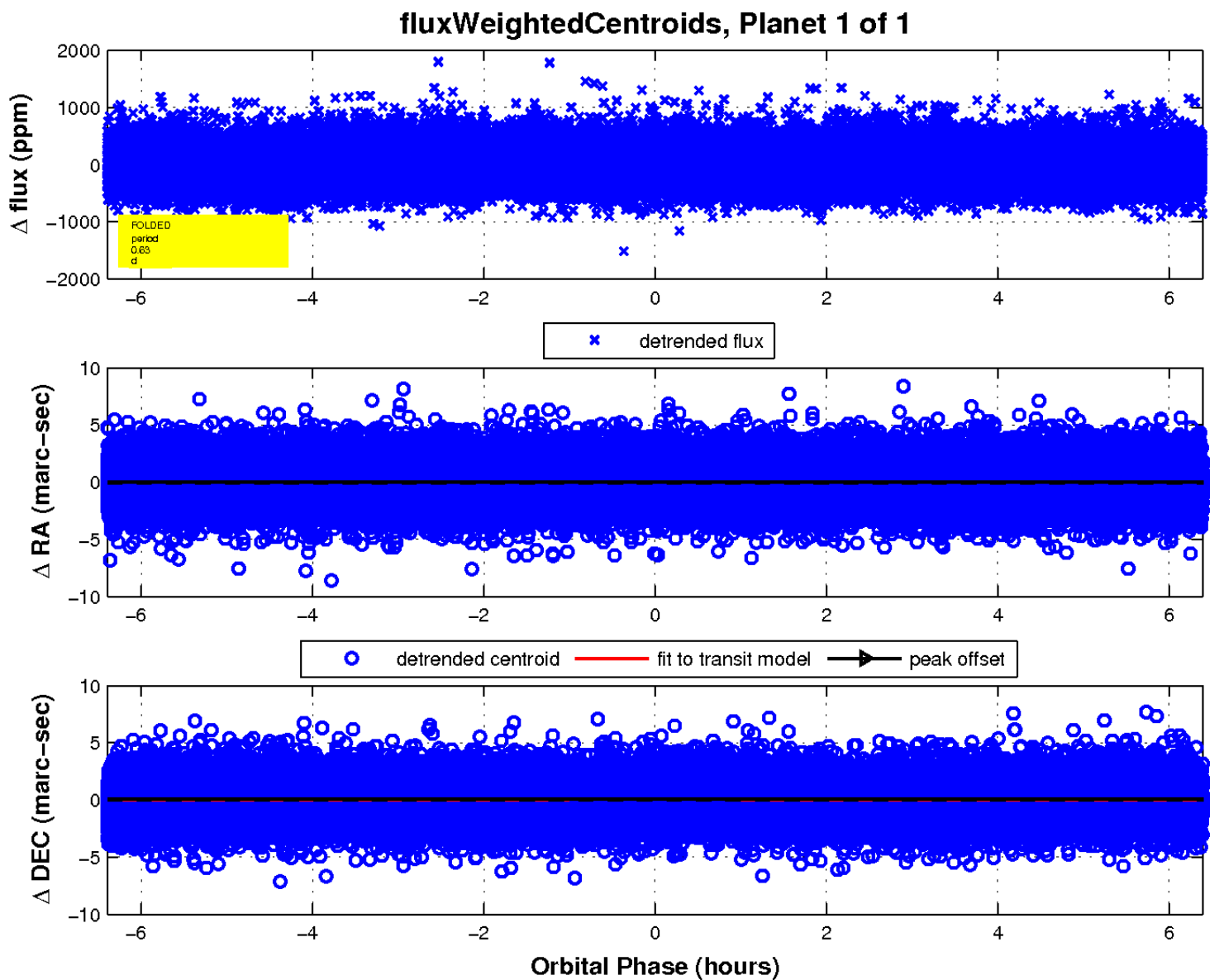
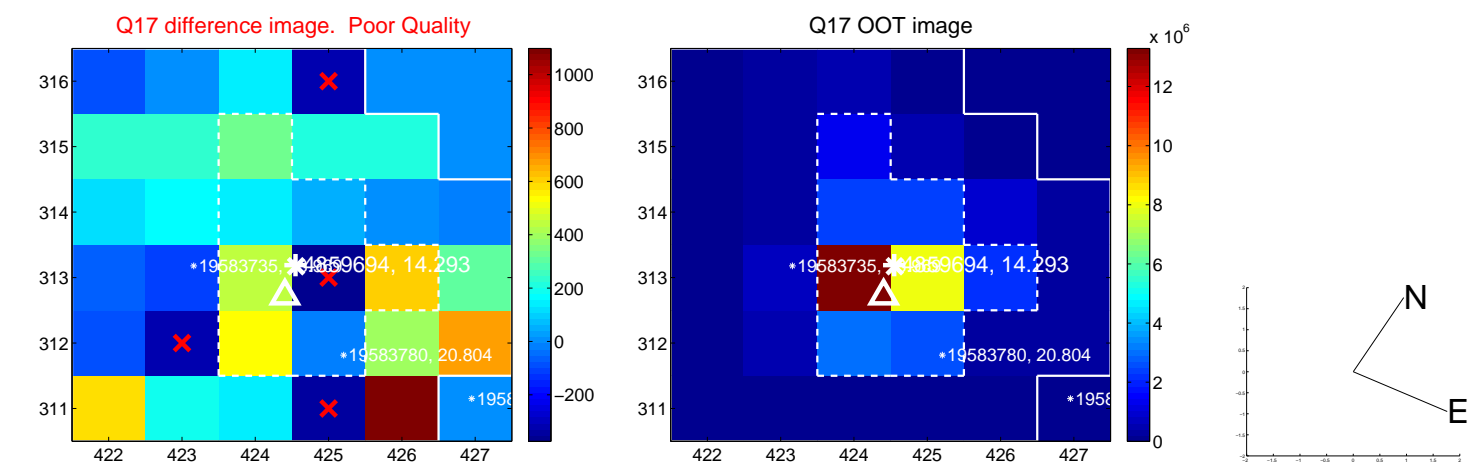
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

