

# KIC 004374122

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004374122-01	OBS	No	1.255589	132.430264	29.6	3.624	9.4	7.9	1.55	6605	0.95	6715.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004374122-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

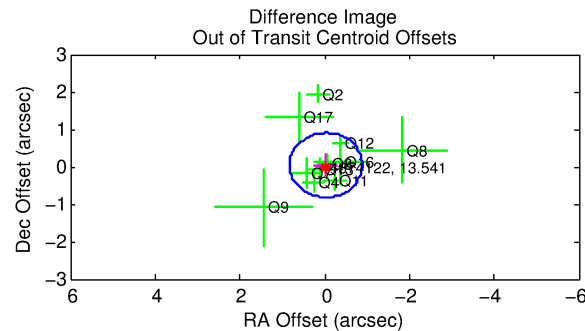
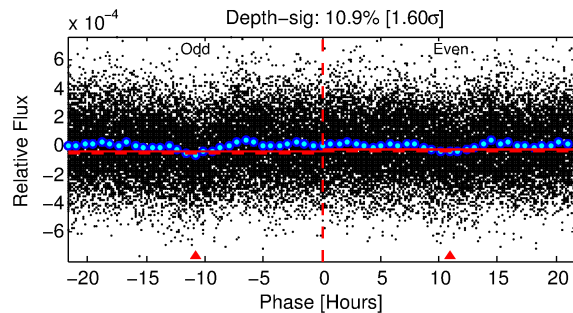
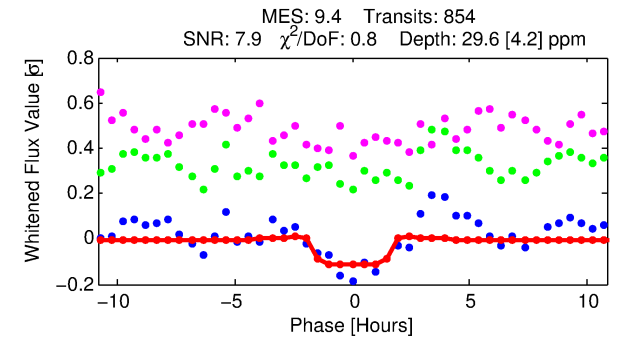
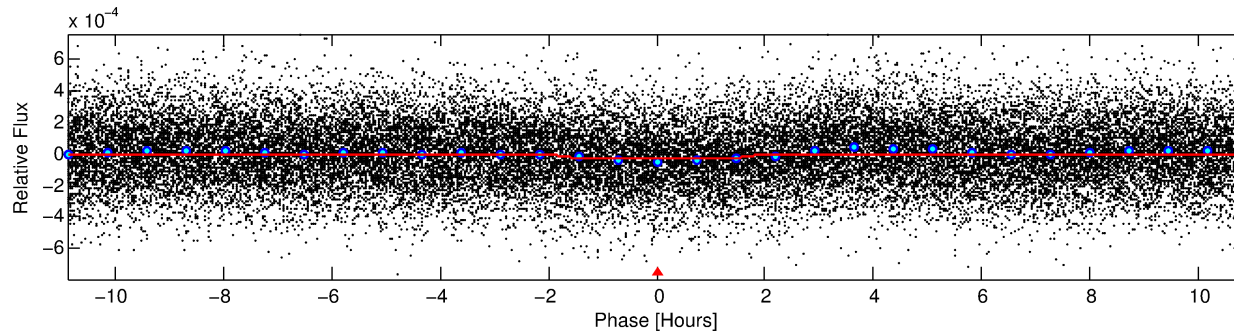
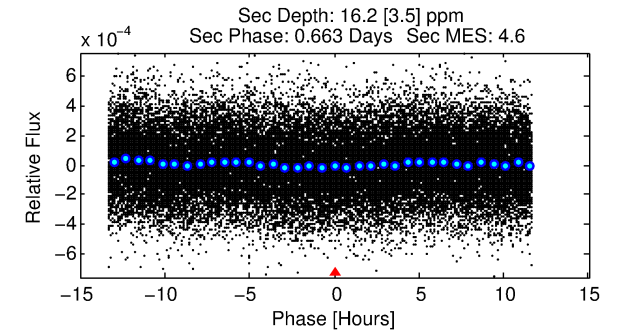
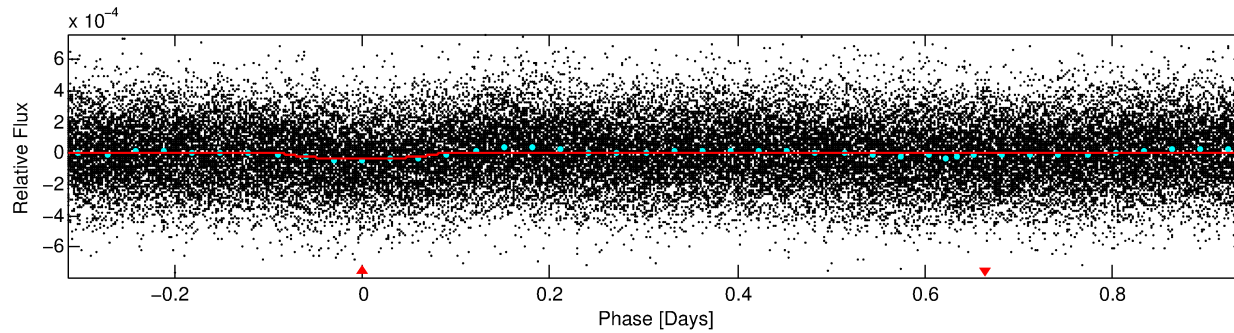
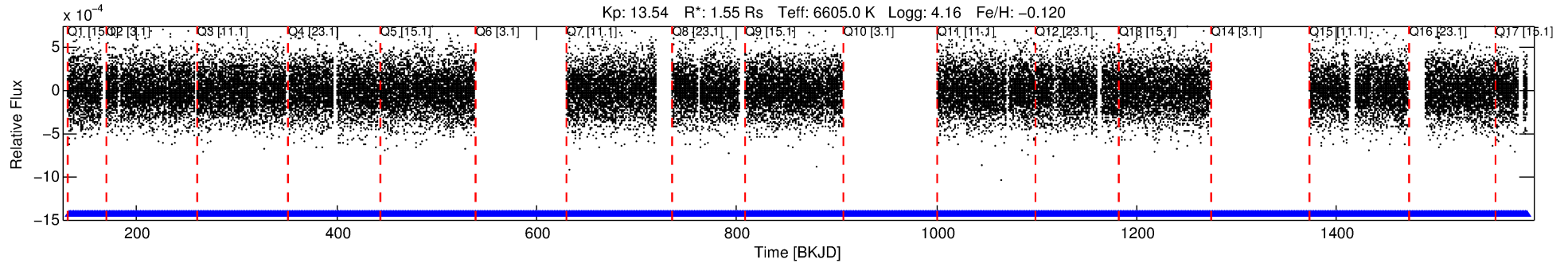
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004374122-01

No Significant Match Found

# DV One-Page Summary

KIC: 4374122 Candidate: 1 of 1 Period: 1.256 d



## DV Fit Results:

Period = 1.25559 [0.00002] d  
Epoch = 132.4303 [0.0045] BKJD  
Rp/R\* = 0.0056 [0.0021]  
a/R\* = 1.73 [2.39]  
b = 0.84 [0.75]  
Seff = 6715.47 [2566.99]  
Teq = 2308 [221] K  
Rp = 0.95 [0.45] Re  
a = 0.0248 [0.0062] AU  
Ag = 6.04 [5.11] [0.99σ]  
Teffp = 5595 [1088] K [2.96σ]

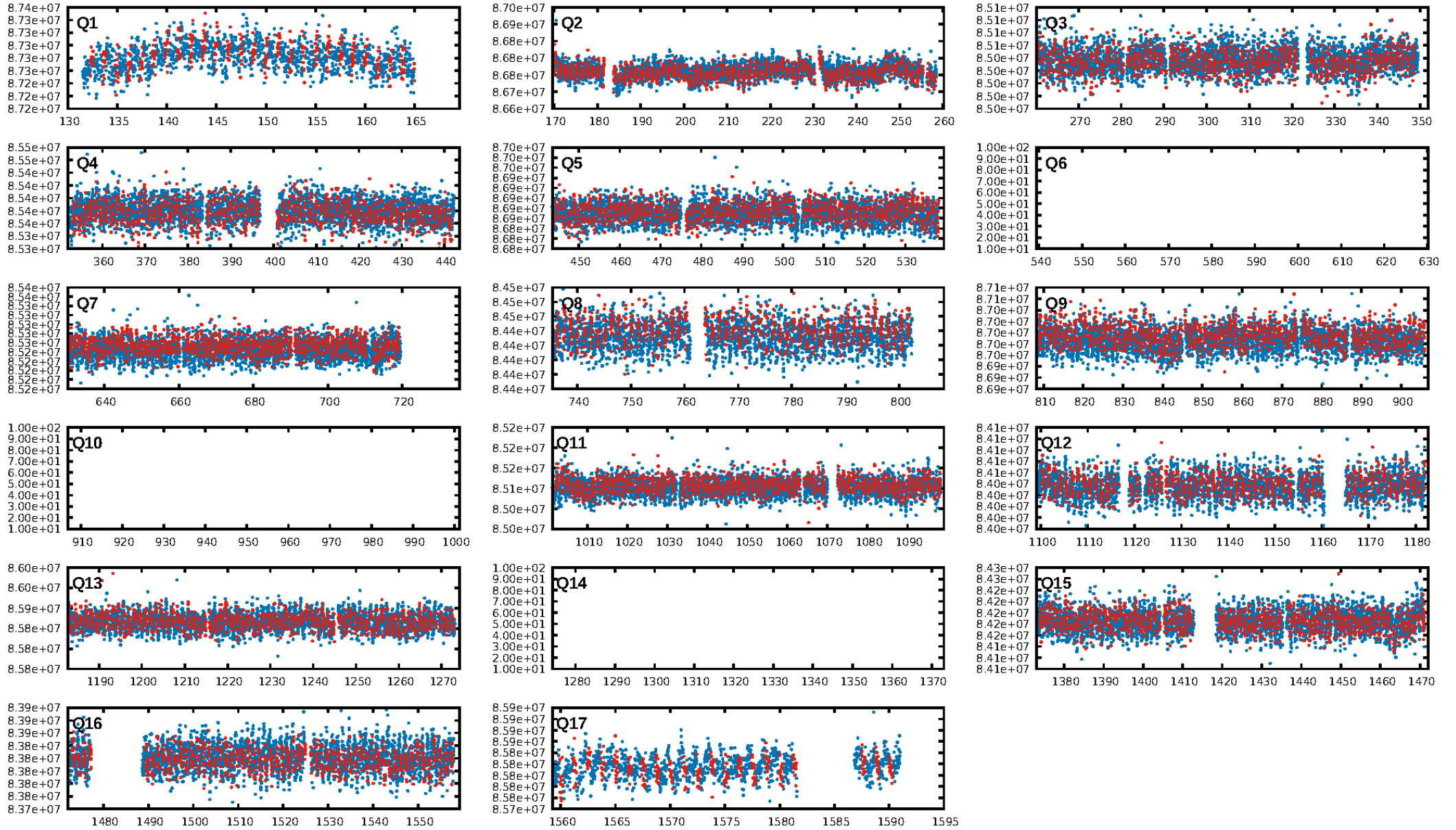
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.58e-16  
RollingBand-fgt: 1.00 [807/807]  
GhostDiagnostic-chr: 5.412  
Centroid-sig: 15.4%  
Centroid-so: 0.934 arcsec [0.82σ]  
OotOffset-rm: 0.048 arcsec [0.17σ]  
OotOffset-st: 1/3/4/3 [11]  
KicOffset-rm: 0.164 arcsec [0.63σ]  
KicOffset-st: 1/3/4/3 [11]  
DiffImageQuality-fgm: 0.91 [10/11]  
DiffImageOverlap-fno: 1.00 [14/14]

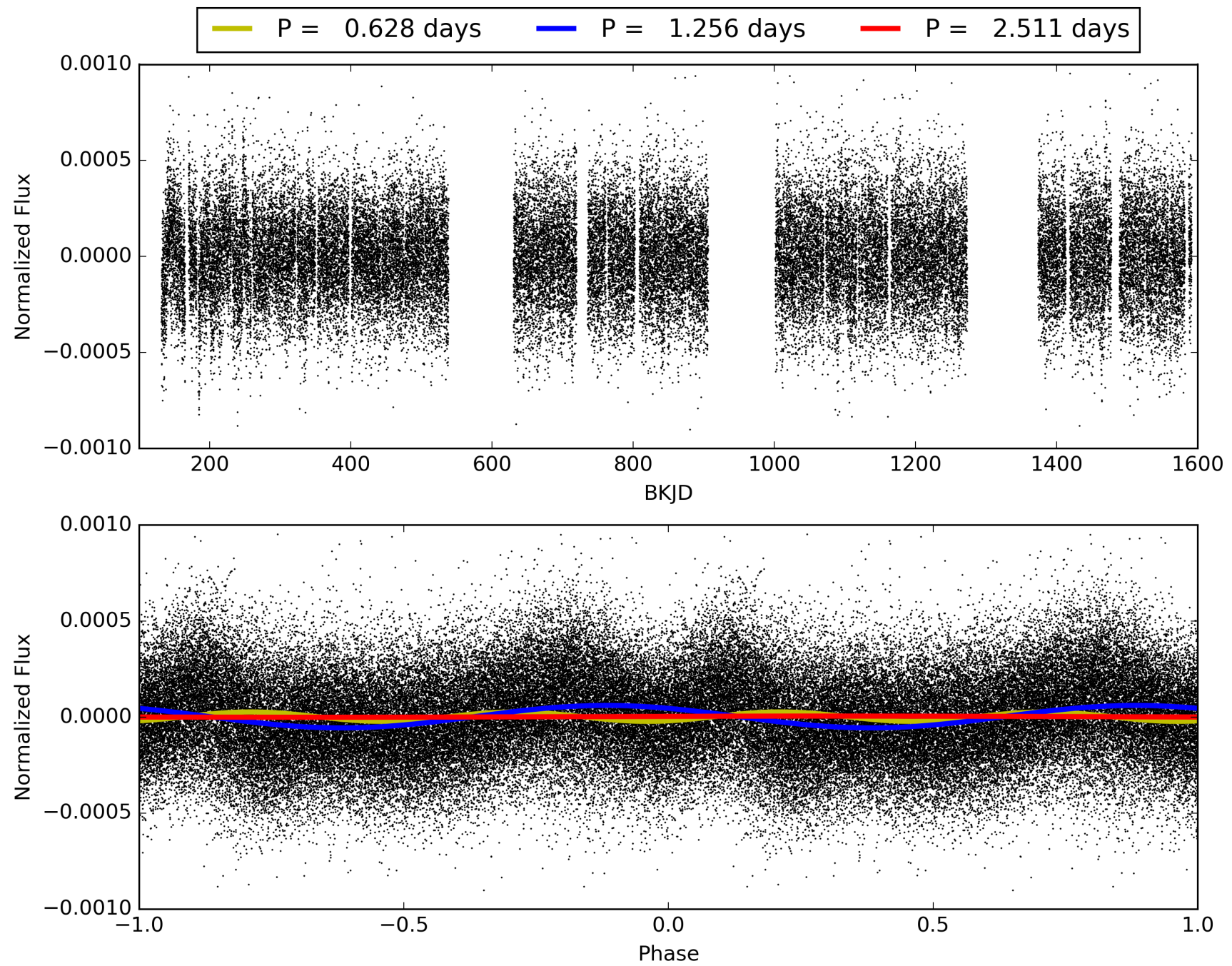
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:26:38 Z

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

# TCE 004374122-01, PDC Light Curves



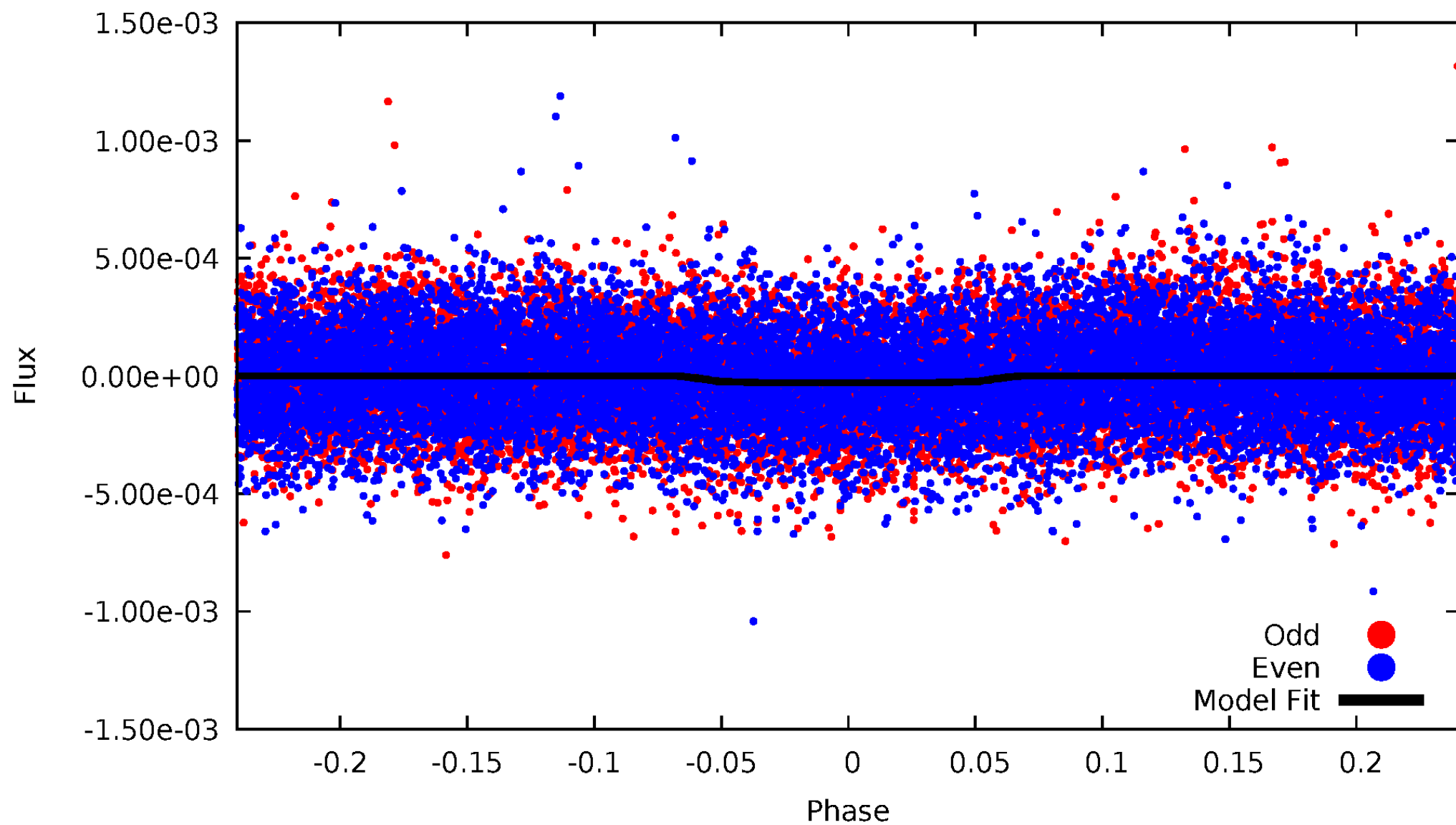
TCE 004374122-01





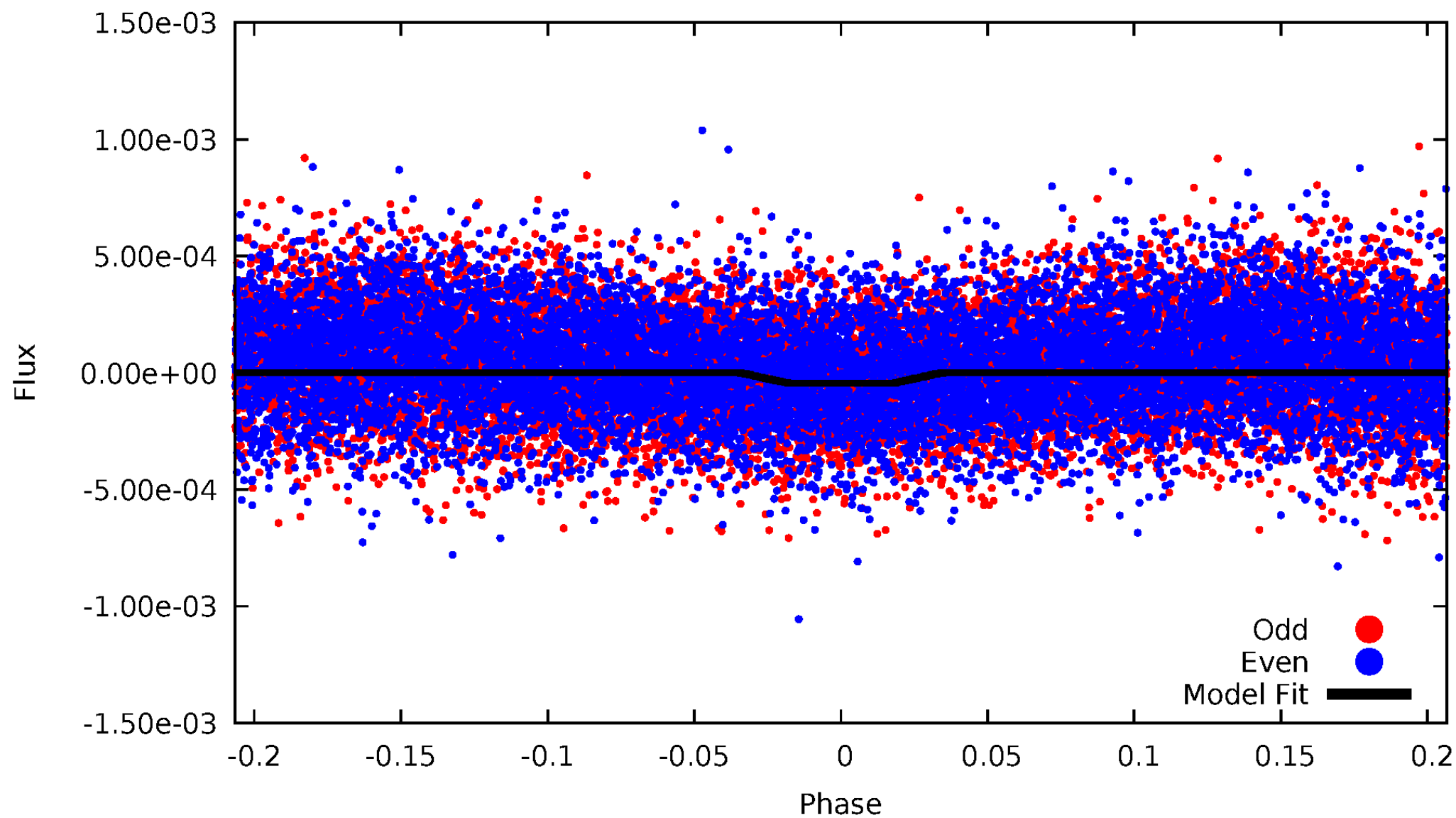
# DV Odd/Even

TCE 004374122-01



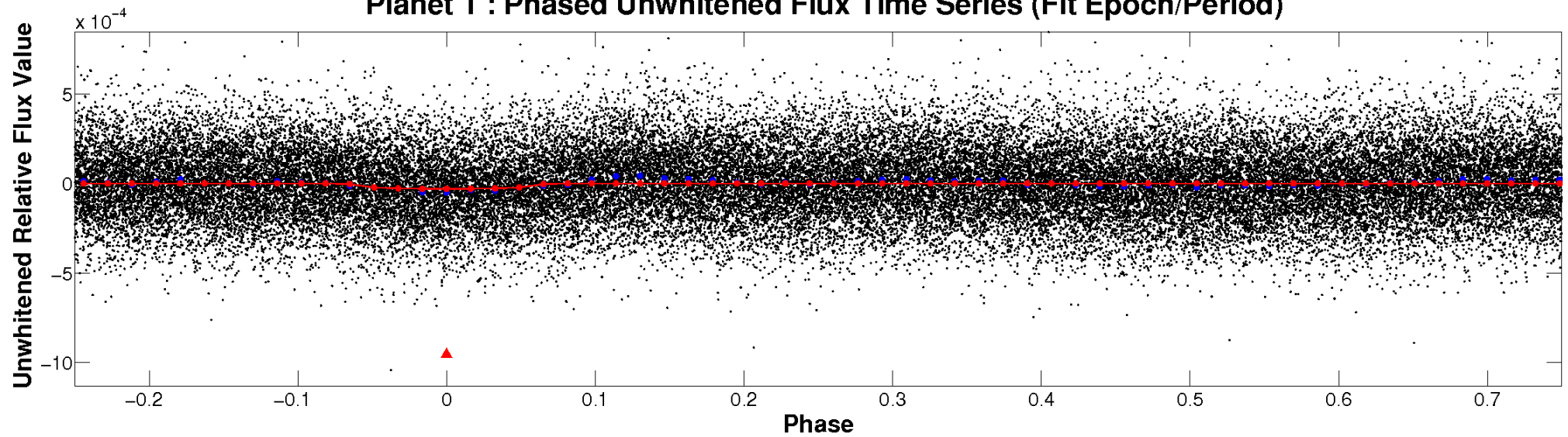
# ALT Odd/Even

TCE 004374122-01

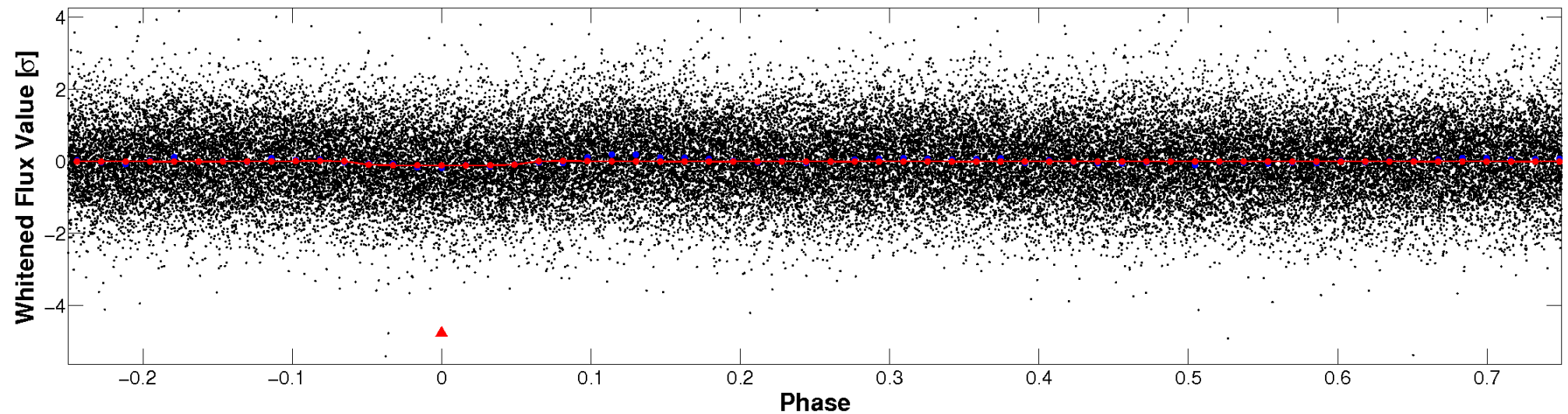


# Non-Whitened Vs. Whitened Light Curve

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

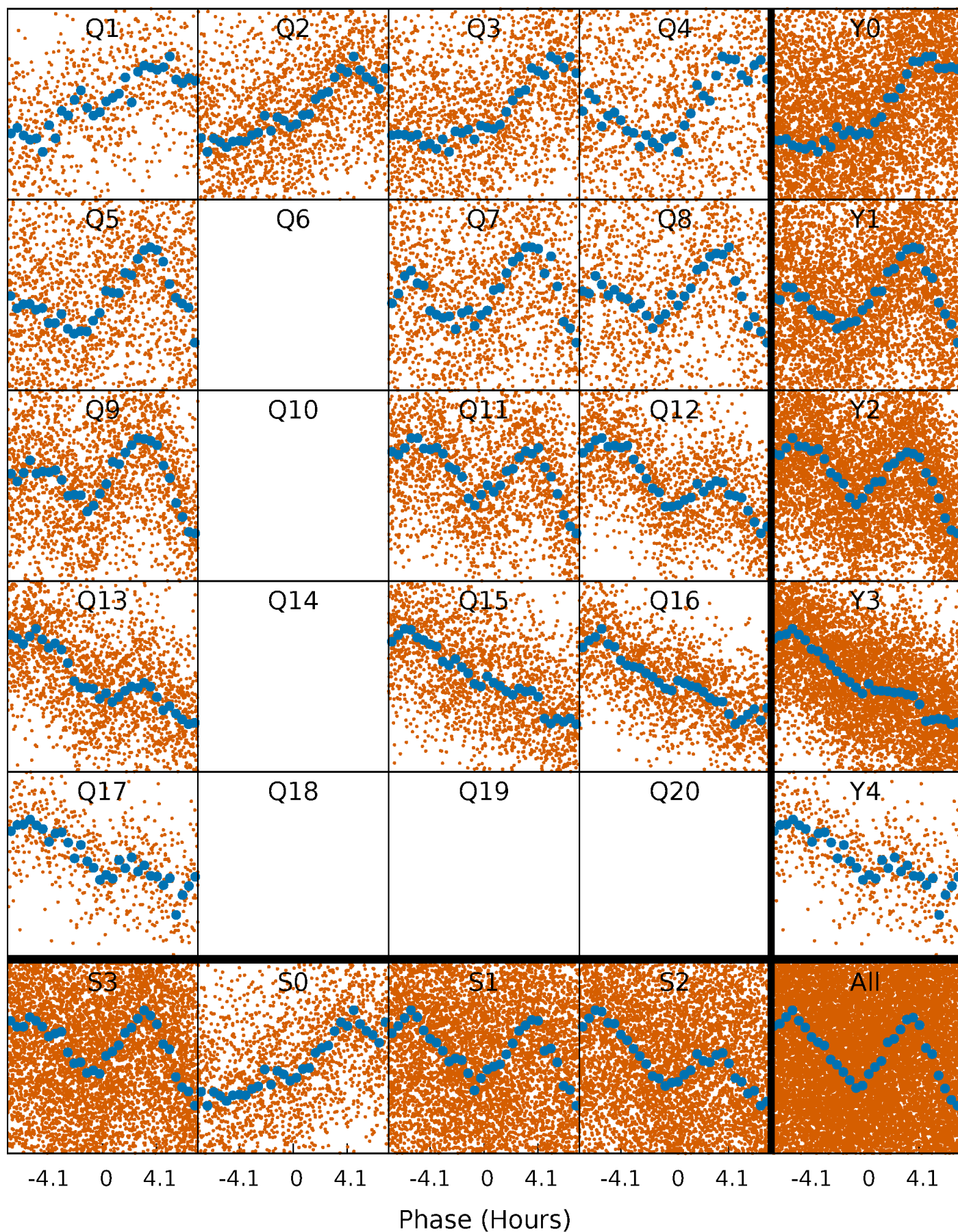


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

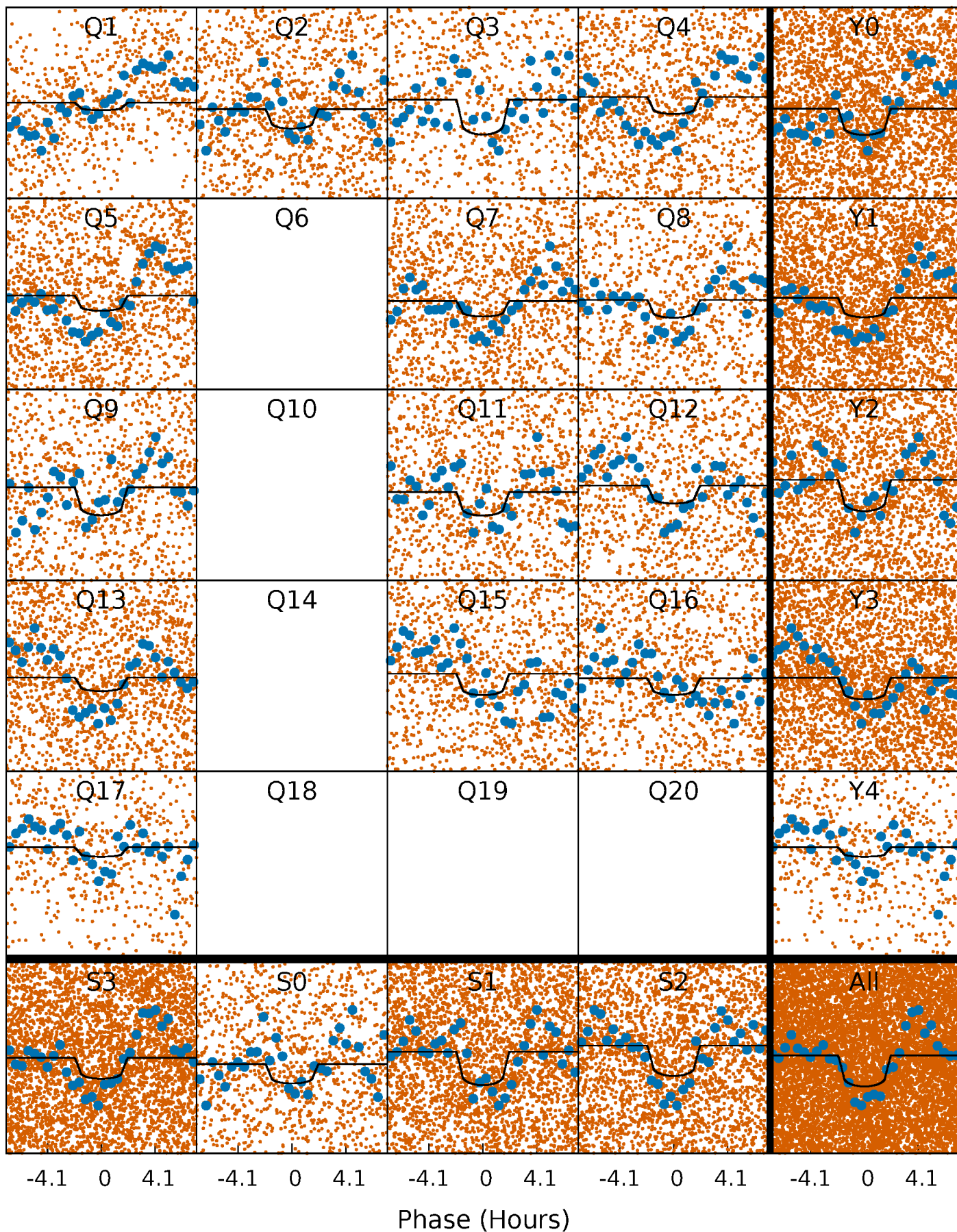
TCE 004374122-01 P= 1.255589 Days  $T_0=132.430264$  (BKJD)





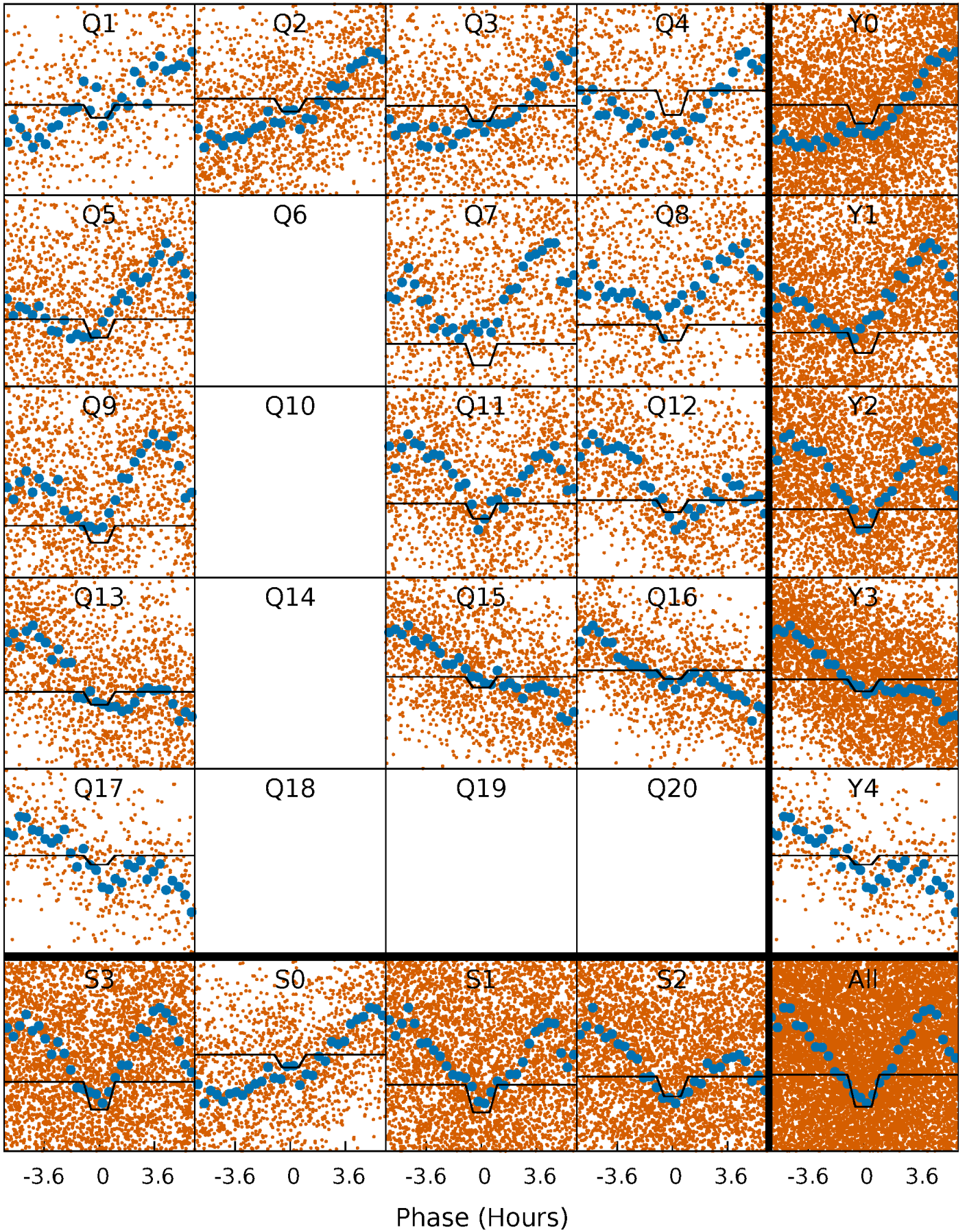
# DV Quarter-Phased Transit Curves

TCE 004374122-01 P= 1.255589 Days  $T_0=132.430264$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004374122-01 P= 1.255597 Days  $T_0=132.394764$  (BKJD)

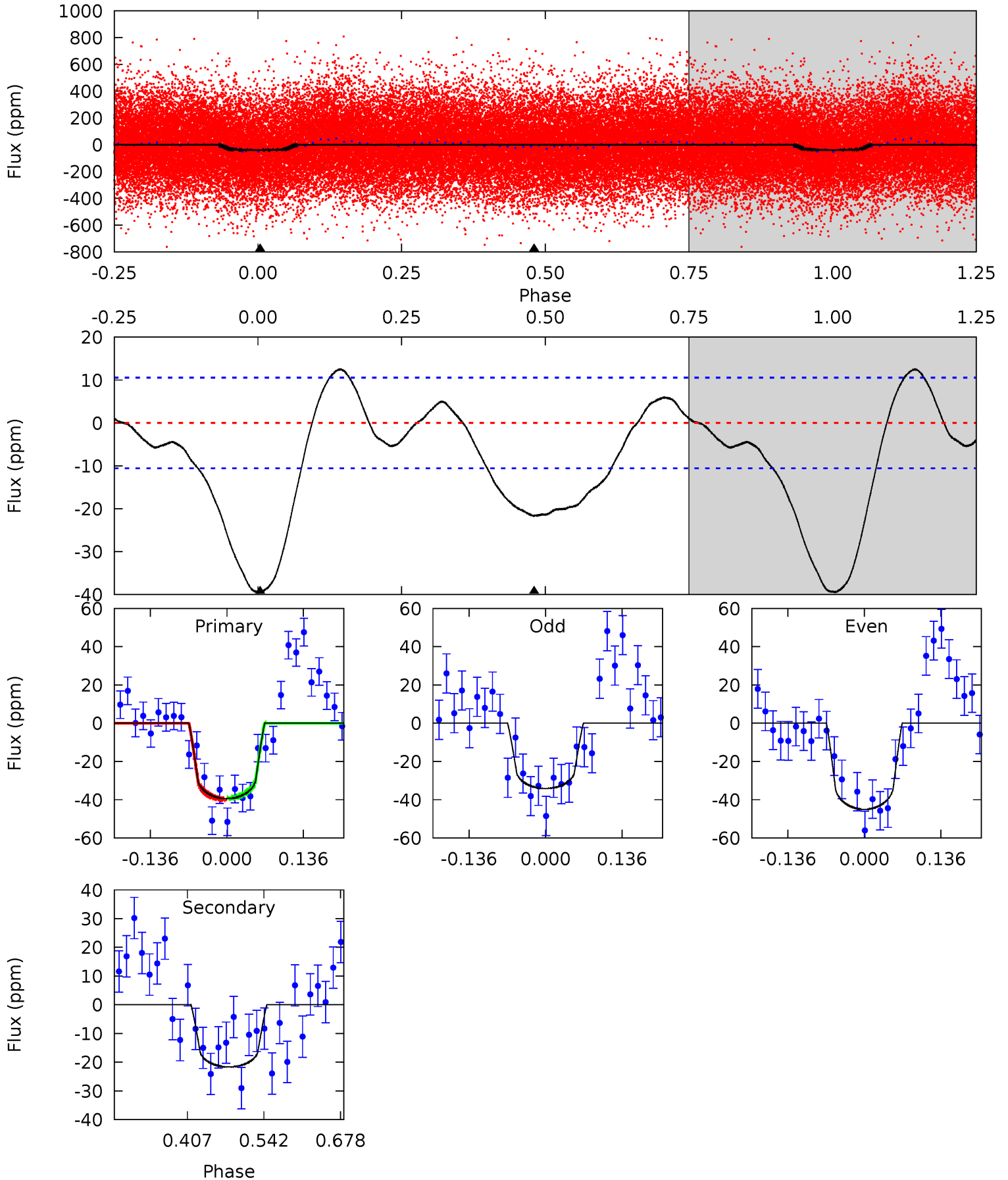




# DV Model-Shift Uniqueness Test

004374122-01, P = 1.255589 Days, E = 131.174675 Days

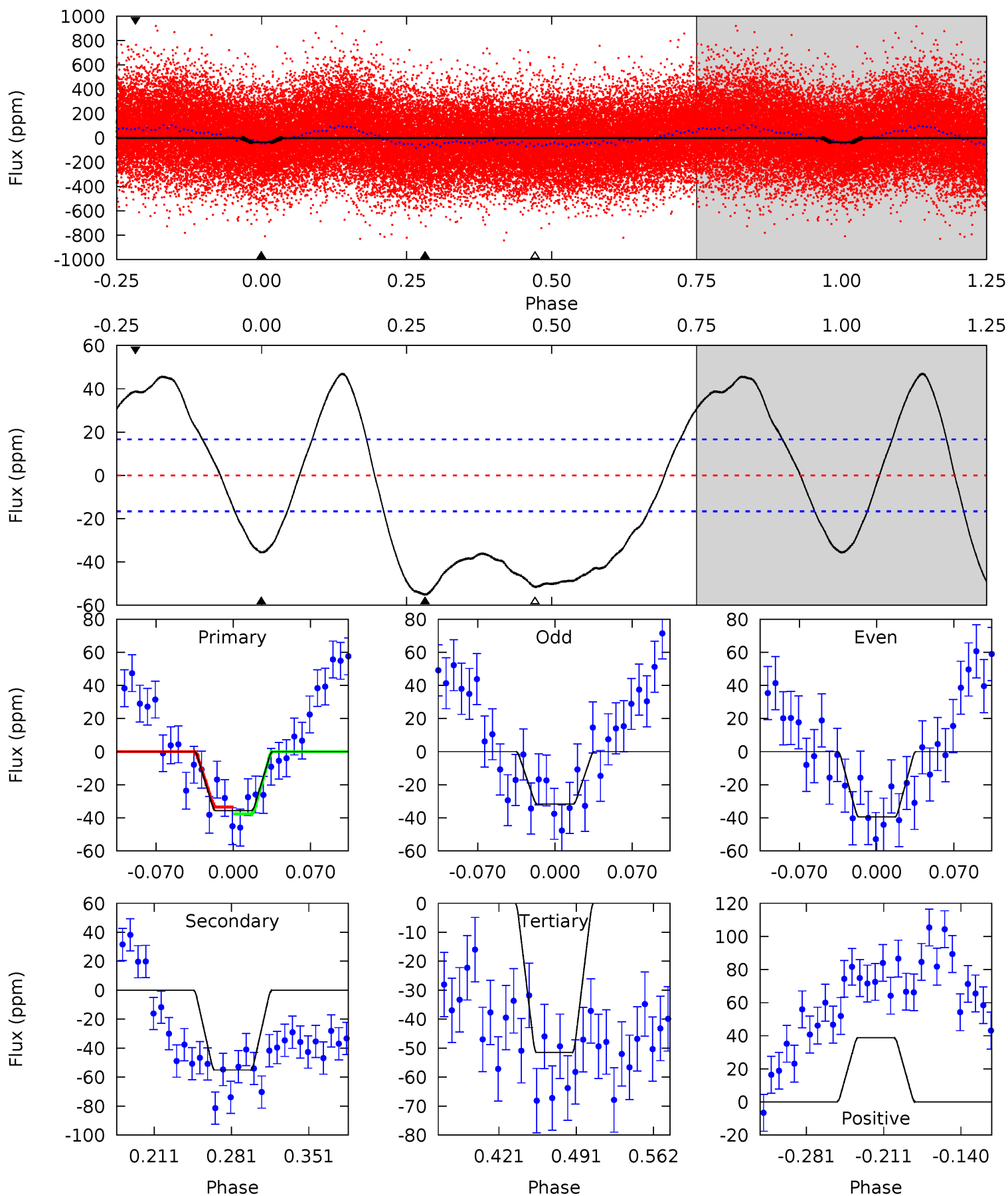
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.8	9.24	0	0	4.50	1.49	2.09	16.8	16.8	9.24	9.24	2.32	1.07	0.24	0.15



# Alt Model-Shift Uniqueness Test

004374122-01, P = 1.255597 Days, E = 131.139167 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
9.95	15.4	14.4	10.8	4.64	1.81	9.91	-4.45	-0.89	1.00	4.56	1.09	1.00	0.46	0.58





### Stellar Parameters For KIC 004374122

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6605^{+181}_{-221}$	$4.164^{+0.175}_{-0.193}$	$-0.120^{+0.250}_{-0.300}$	$1.555^{+0.469}_{-0.341}$	$1.292^{+0.200}_{-0.220}$	$0.484^{+0.466}_{-0.239}$
	+3%/-3%	+4%/-5%	+208%/-250%	+30%/-22%	+15%/-17%	+96%/-49%
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 004374122-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-22 \pm 2$	$0.95^{+0.42}_{-0.35}$	$3225^{+243}_{-208}$	$5917^{+1624}_{-865}$	$8.104^{+11.718}_{-4.227}$
Alt.	$-55 \pm 4$	$1.13^{+0.39}_{-0.37}$	$3229^{+235}_{-231}$	$6907^{+1660}_{-901}$	$14^{+16}_{-6}$

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

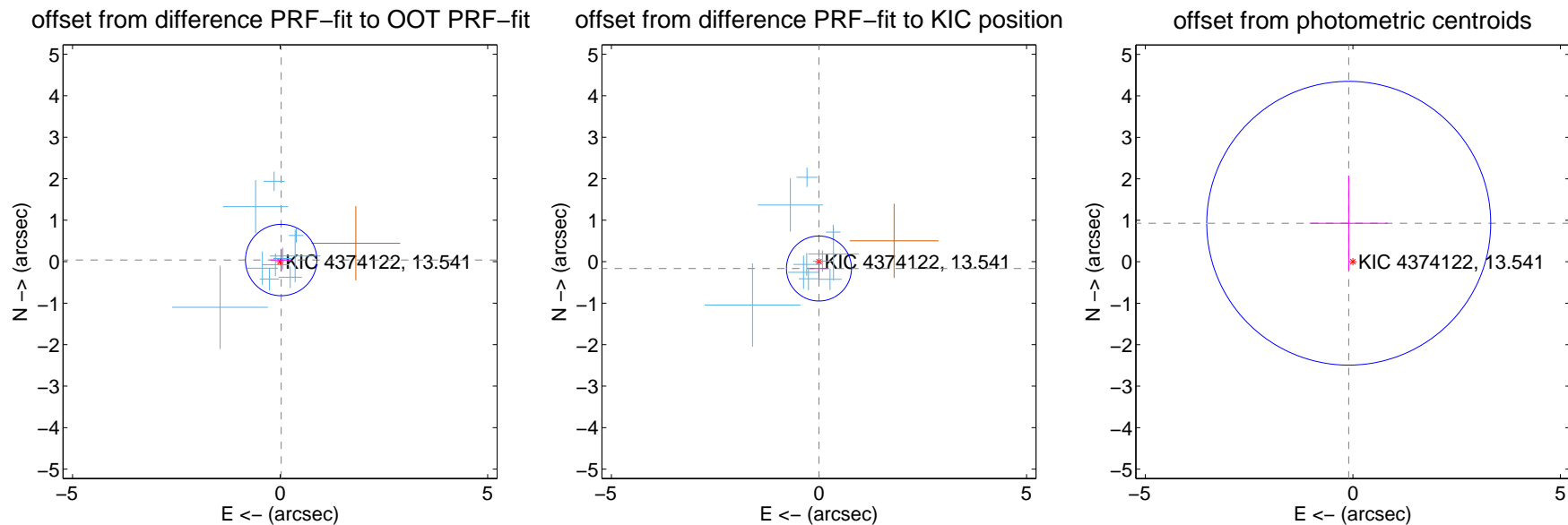
## DV Centroid Data

Supplemental centroid analysis for 004374122-01. Kepler magnitude: 13.54. Transit SNR 7.92

There are 10 quarters with good PRF difference image offsets

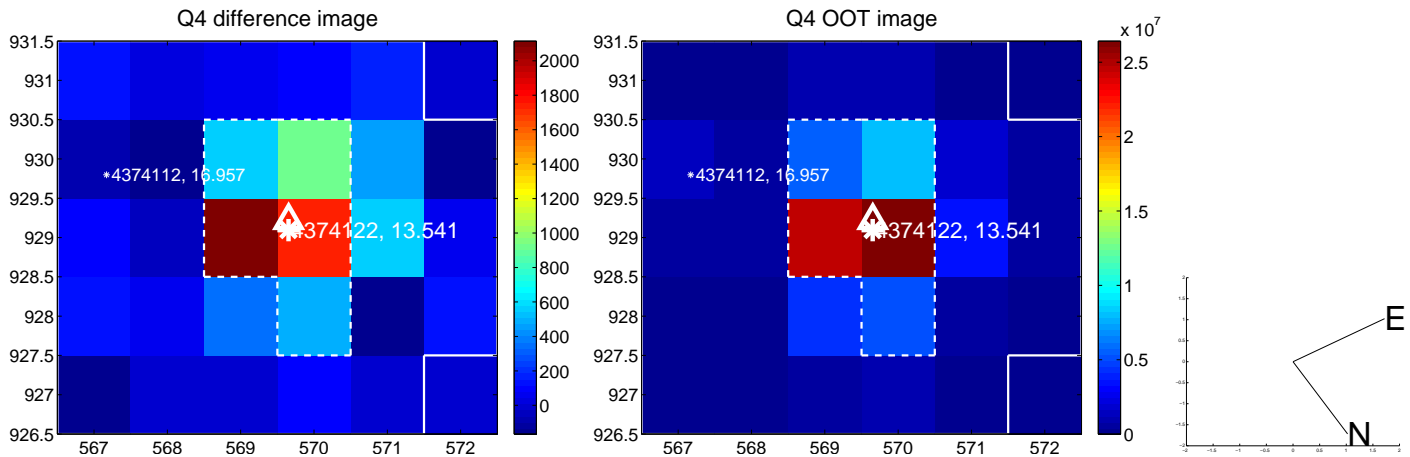
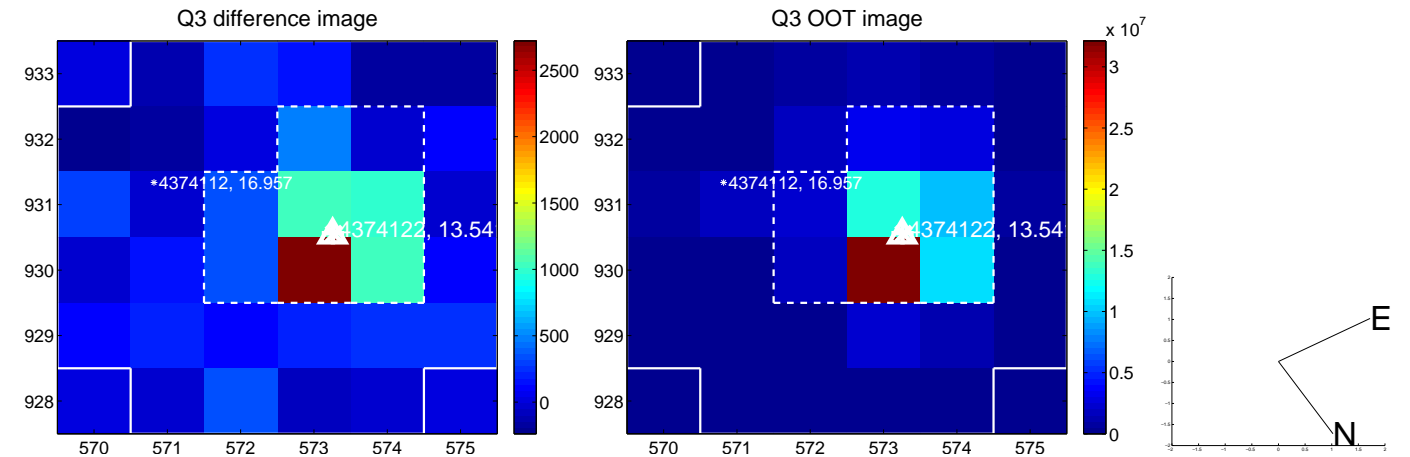
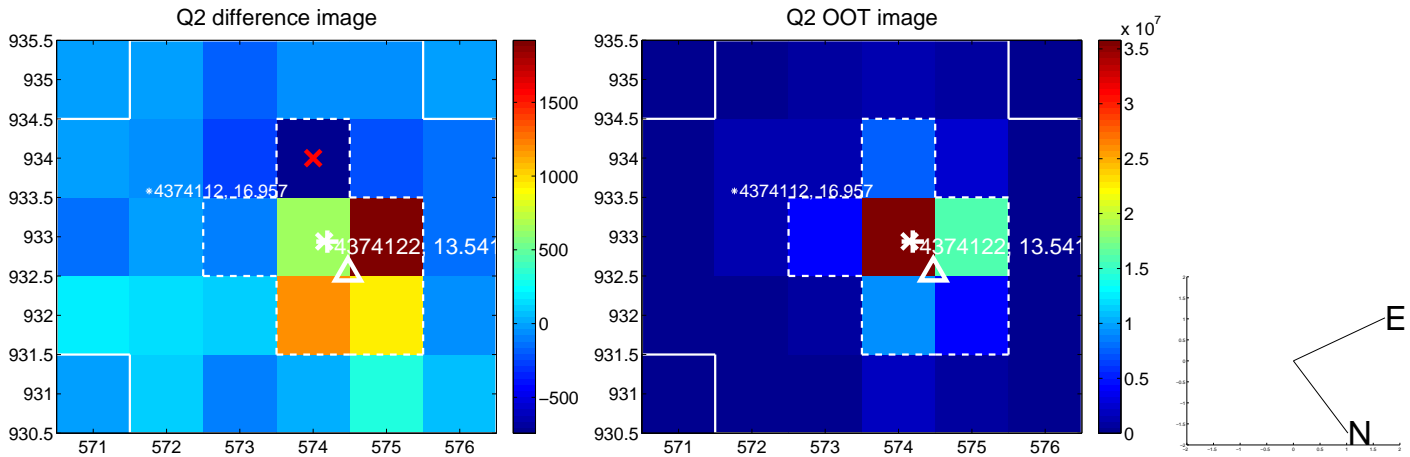
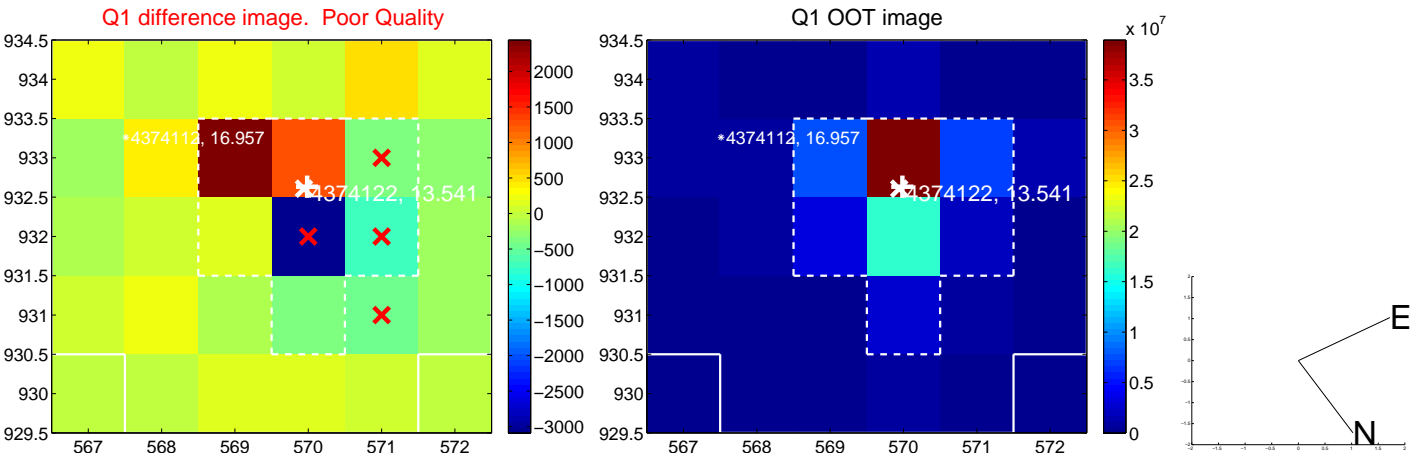
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.048 \pm 0.287$	0.17	$-0.026 \pm 0.259$	$0.040 \pm 0.269$
PRF-fit source offset from KIC position	$0.164 \pm 0.261$	0.63	$0.000 \pm 0.225$	$-0.164 \pm 0.261$
photometric centroid source offset	$0.93 \pm 1.14$	0.82	$0.10 \pm 0.94$	$0.93 \pm 1.14$

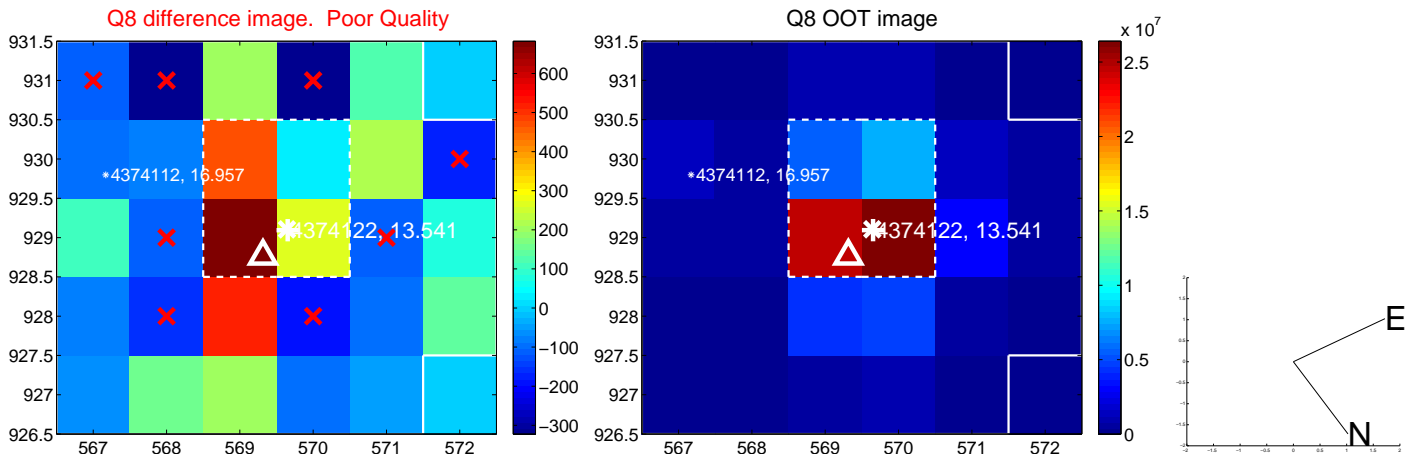
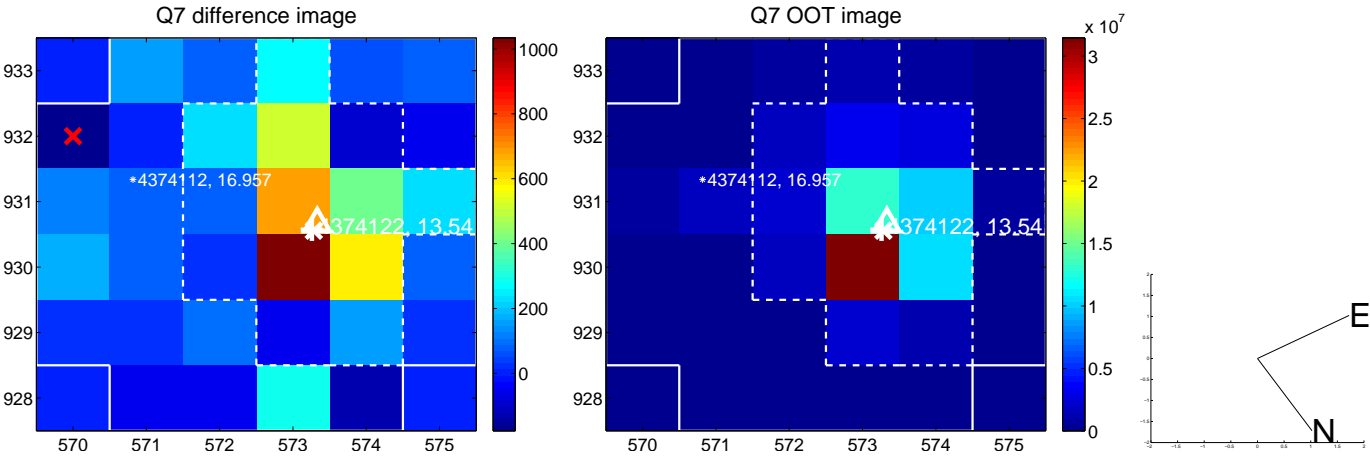
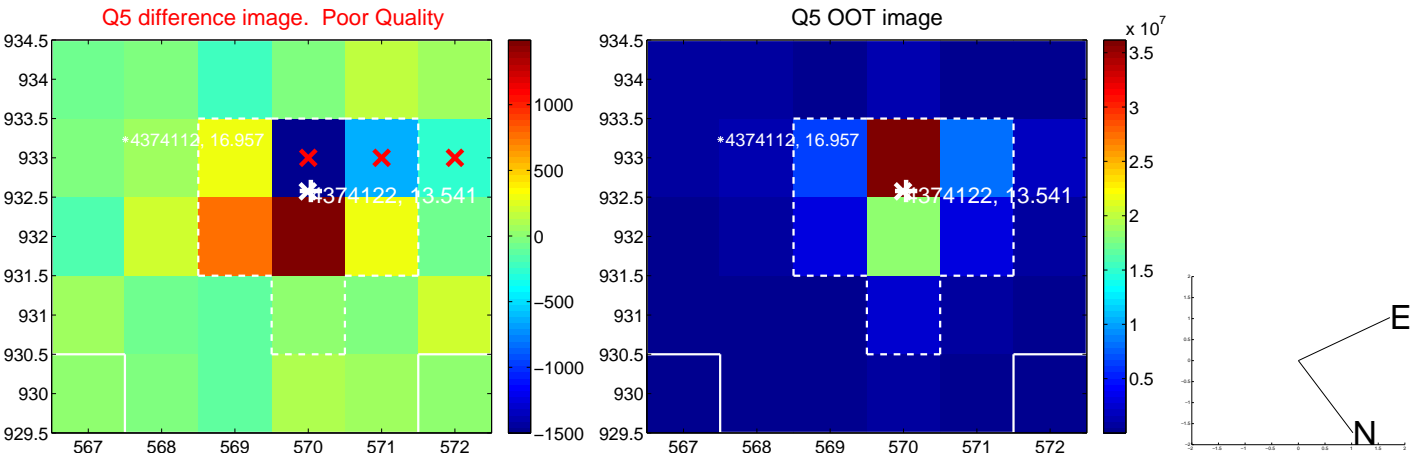


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

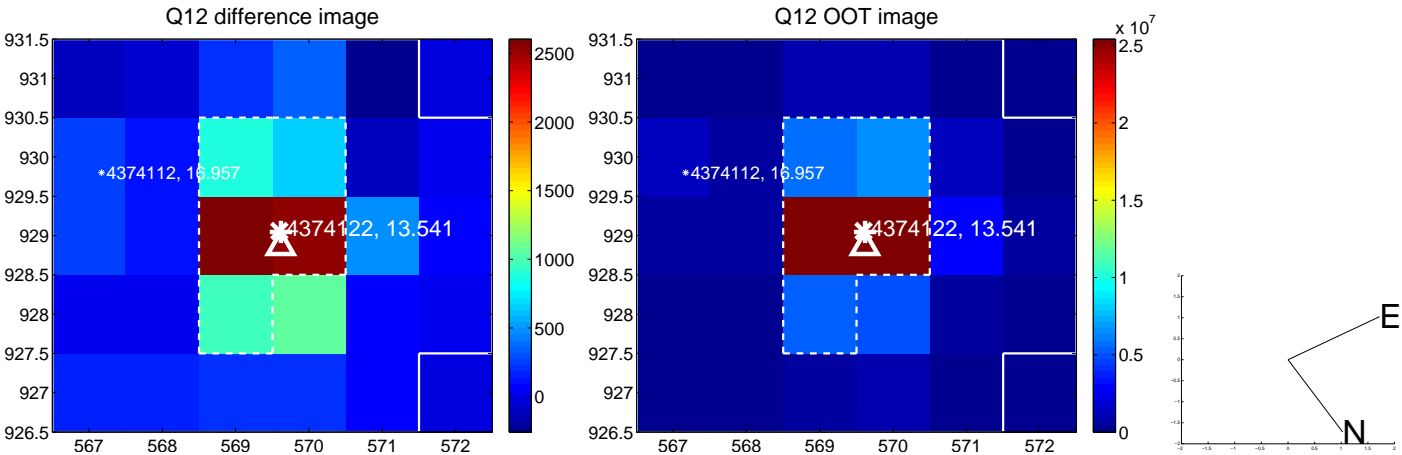
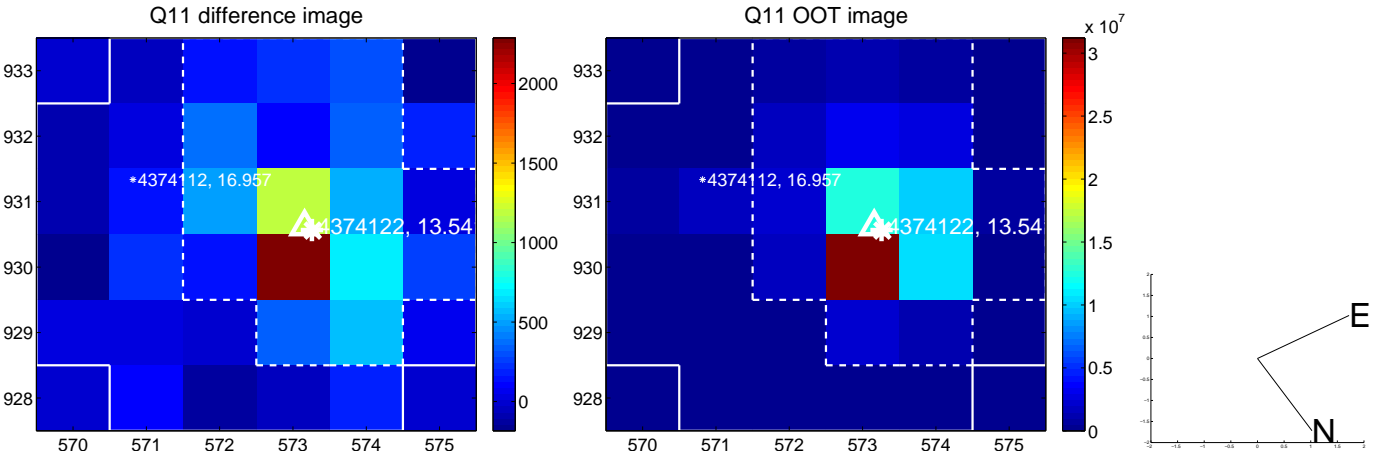
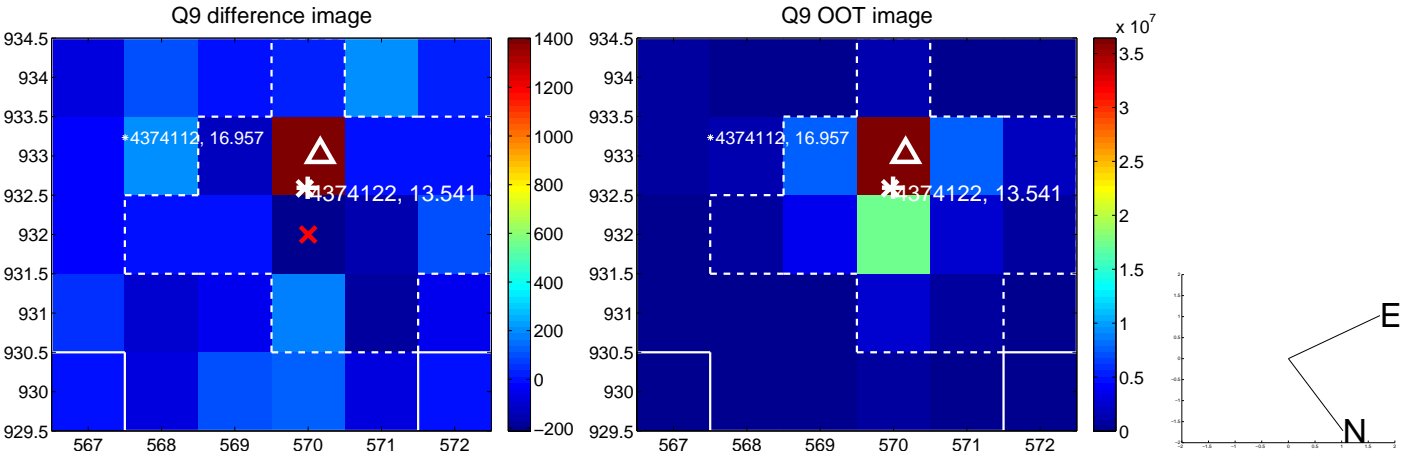


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

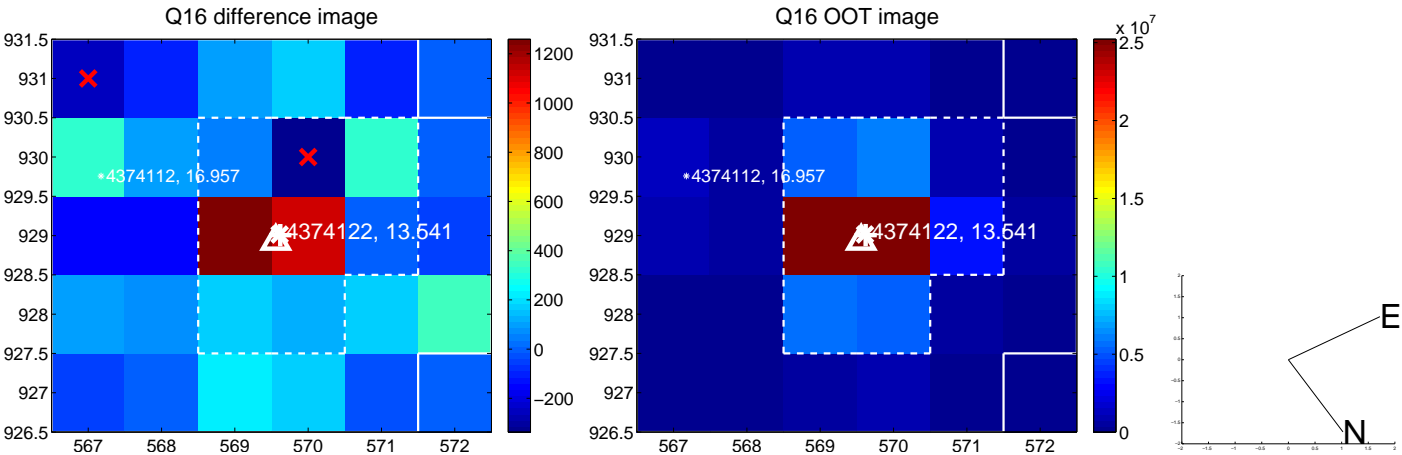
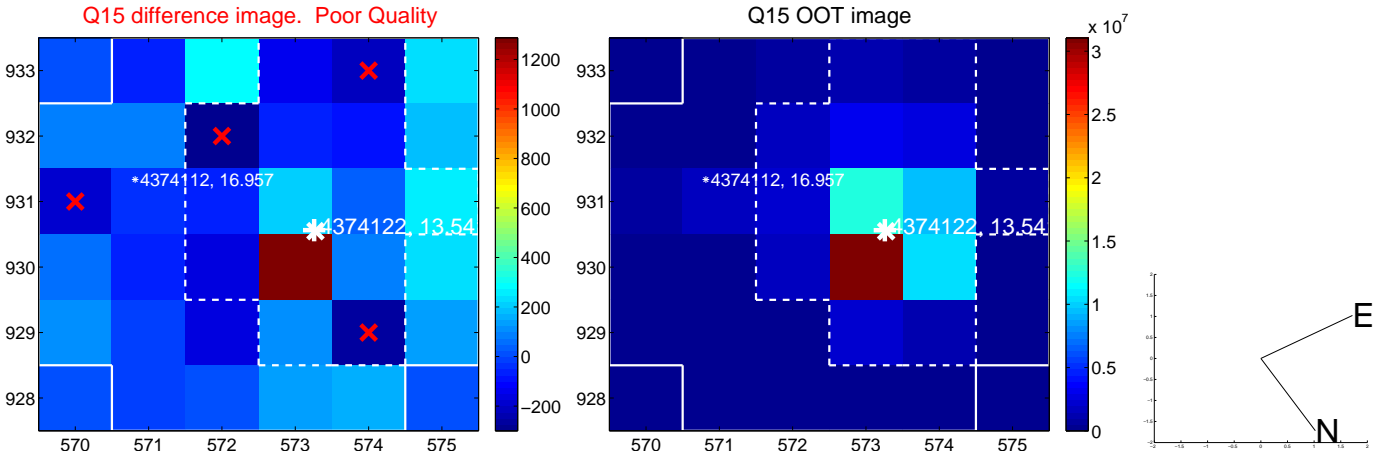
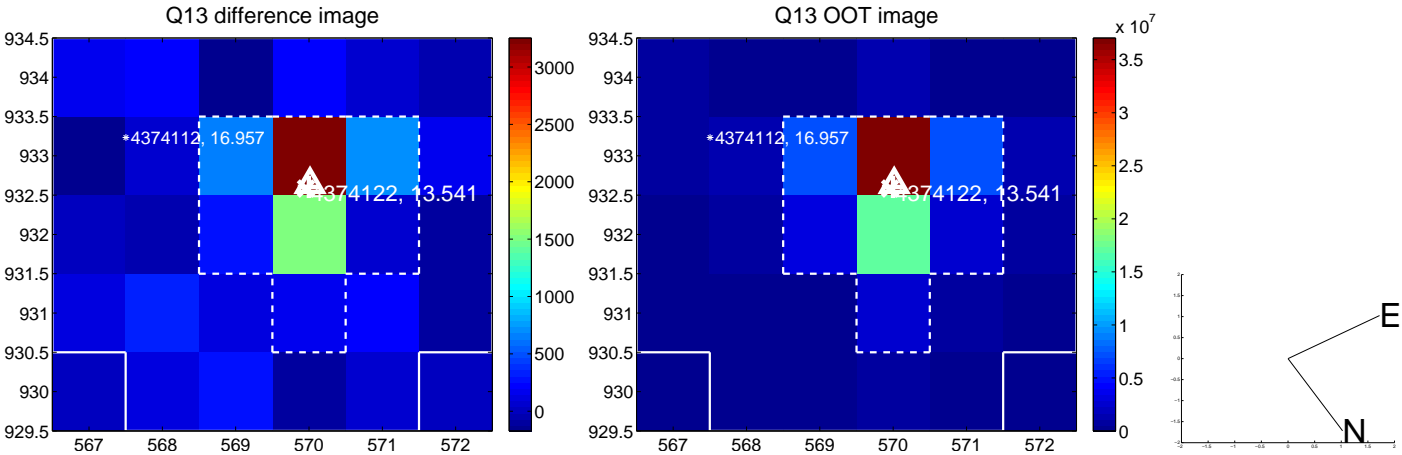




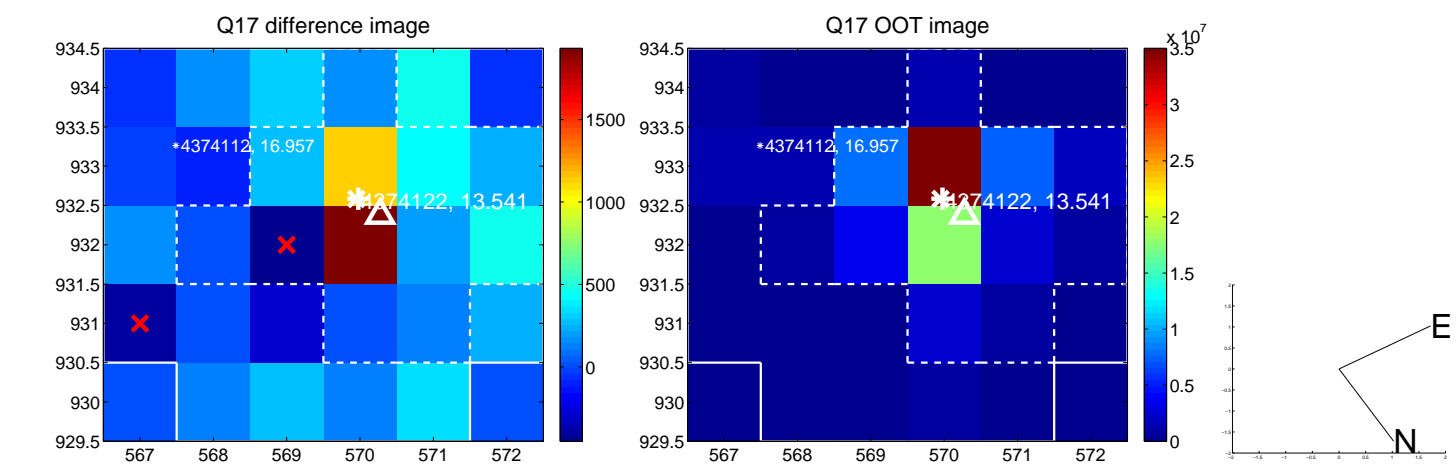
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



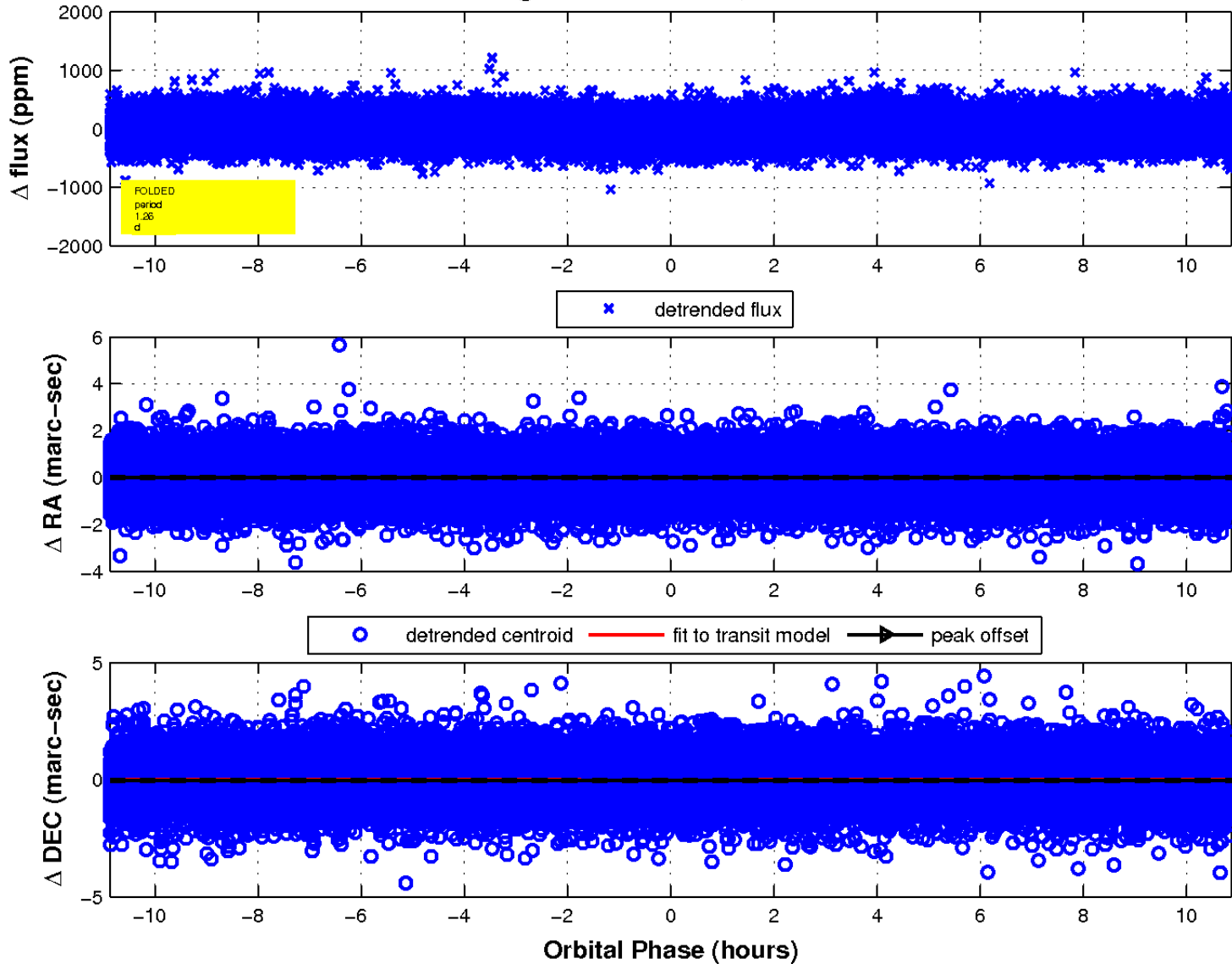
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

