

# KIC 003663904

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003663904-01	OBS	No	4.297016	132.826956	47.1	12.387	7.1	5.9	0.98	6764	0.74	649.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003663904-01	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.

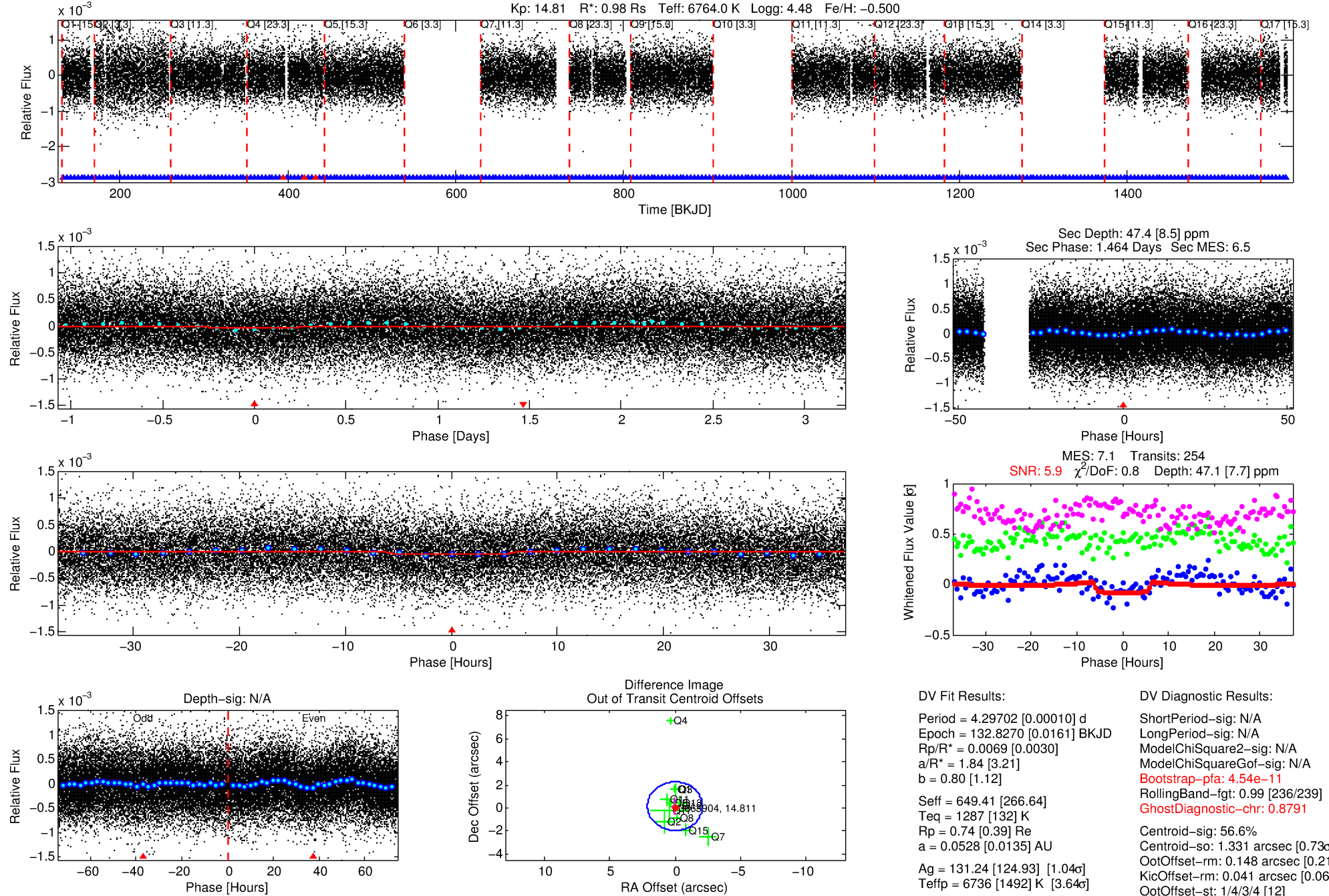
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003663904-01

No Significant Match Found

# DV One-Page Summary

KIC: 3663904 Candidate: 1 of 1 Period: 4.297 d



## DV Fit Results:

Period = 4.29702 [0.00010] d  
Epoch = 132.8270 [0.0161] BKJD  
Rp/R\* = 0.0069 [0.0030]  
a/R\* = 1.84 [3.21]  
b = 0.80 [1.12]  
Seff = 649.41 [266.64]  
Teff = 1287 [132] K  
Rp = 0.74 [0.39] Re  
a = 0.0528 [0.0135] AU  
Ag = 131.24 [124.93] [1.04σ]  
Teffp = 6736 [1492] K [3.64σ]

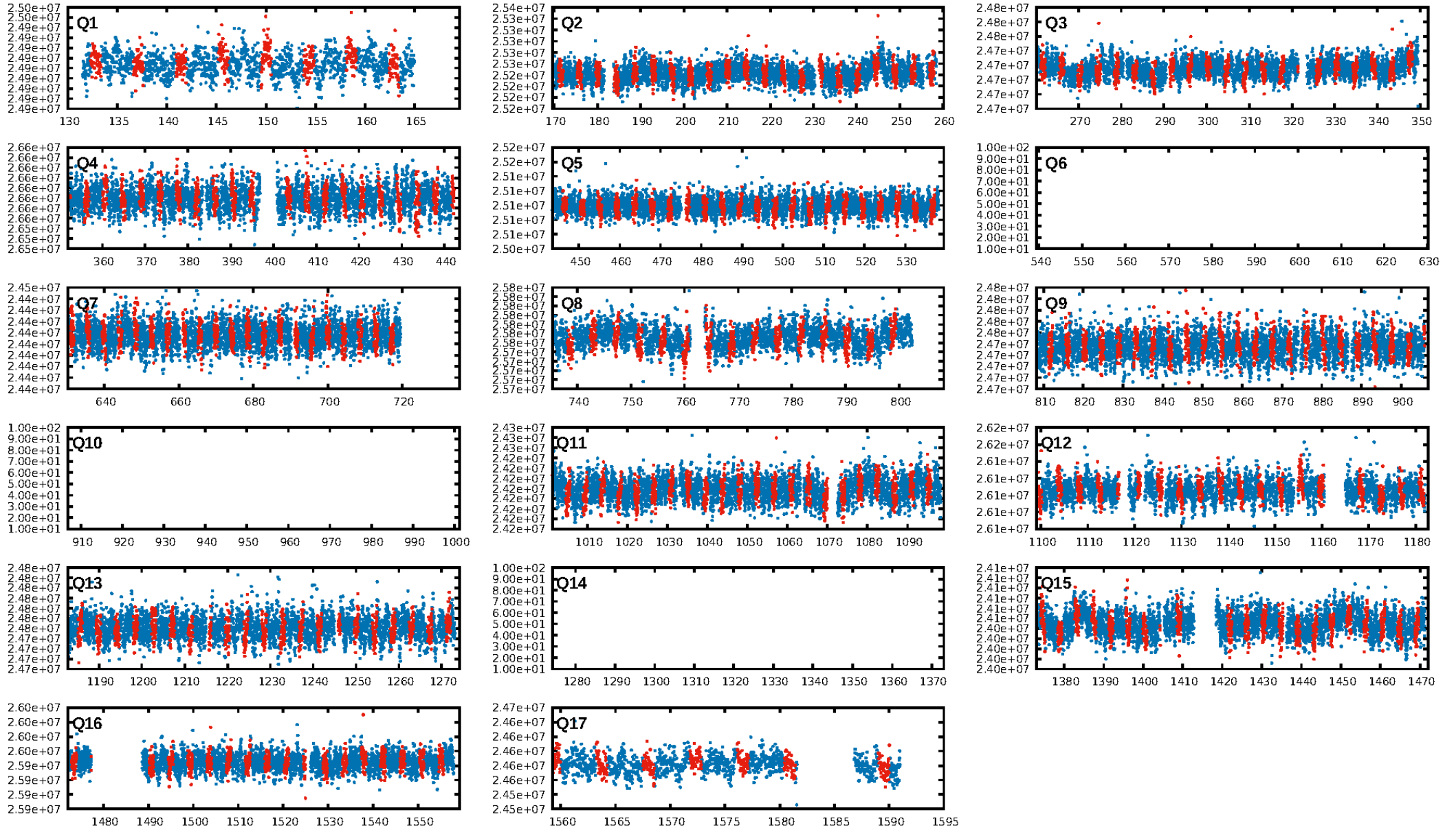
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.54e-11  
RollingBand-fgt: 0.99 [236/239]  
GhostDiagnostic-chr: 0.8791  
Centroid-sig: 56.6%  
Centroid-so: 1.331 arcsec [0.73σ]  
OotOffset-rm: 0.148 arcsec [0.21σ]  
KicOffset-rm: 0.041 arcsec [0.06σ]  
OotOffset-st: 1/4/3/4 [12]  
KicOffset-st: 1/4/3/4 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 1.00 [14/14]

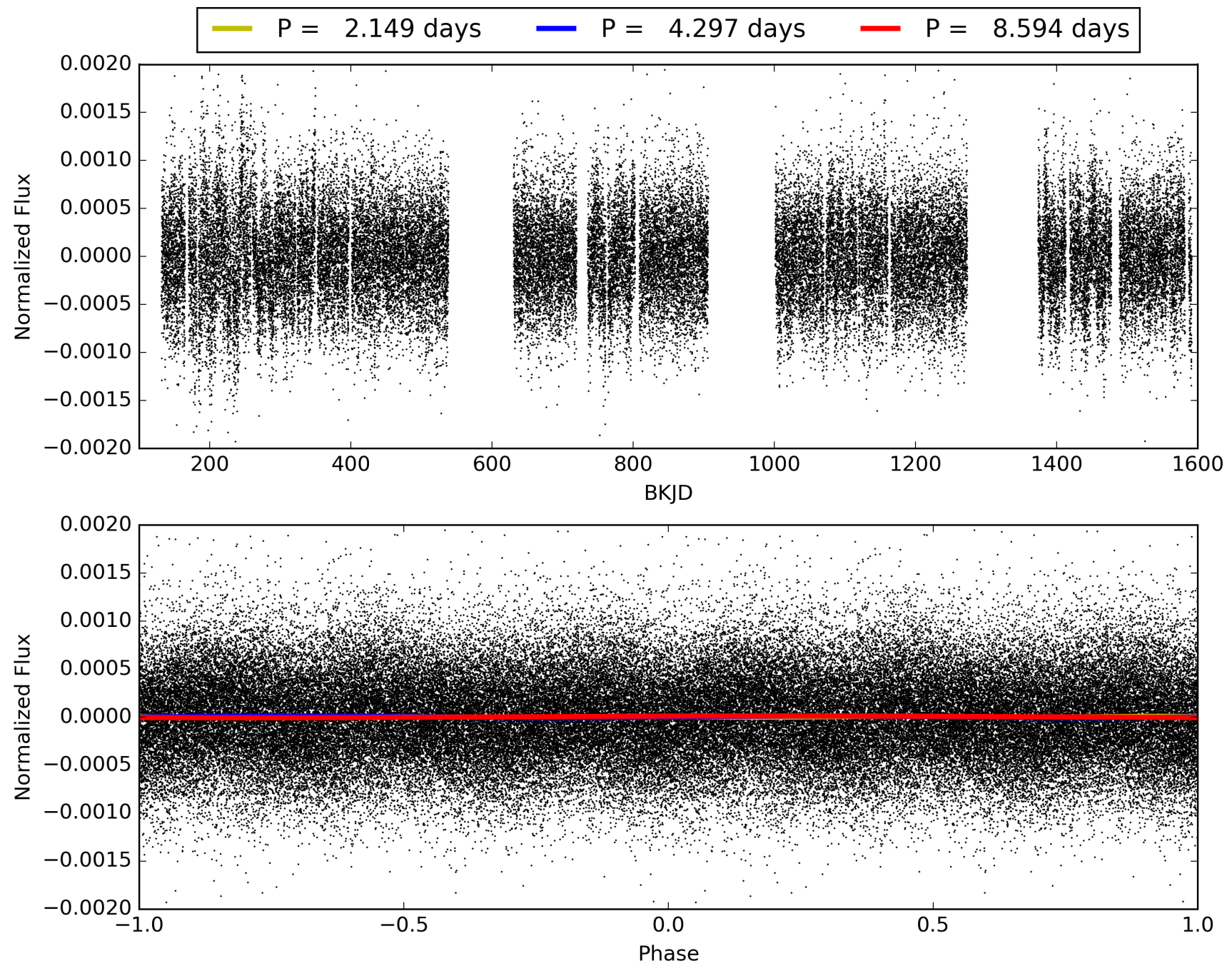
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:24:52 Z

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

# TCE 003663904-01, PDC Light Curves



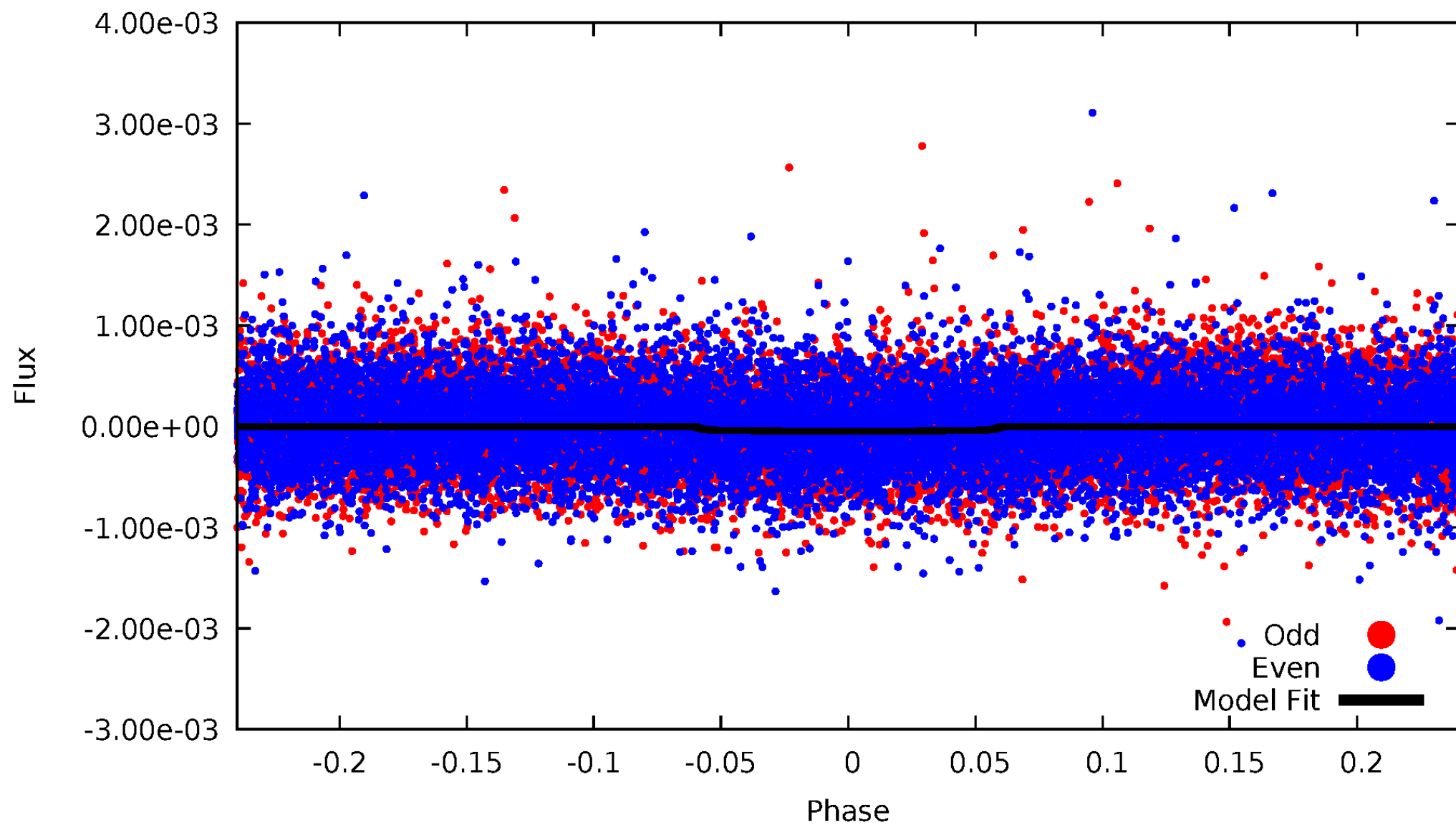
# TCE 003663904-01





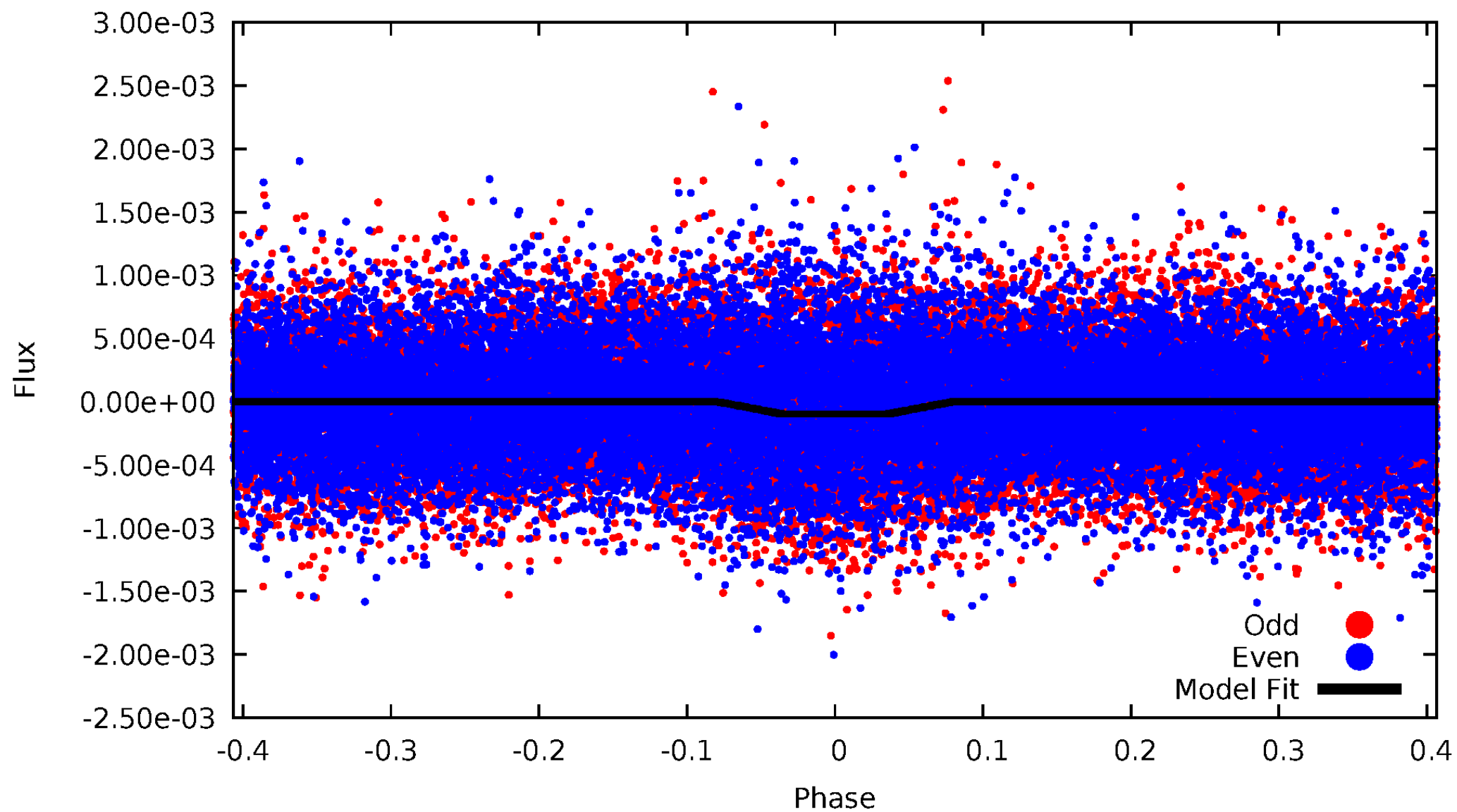
# DV Odd/Even

TCE 003663904-01



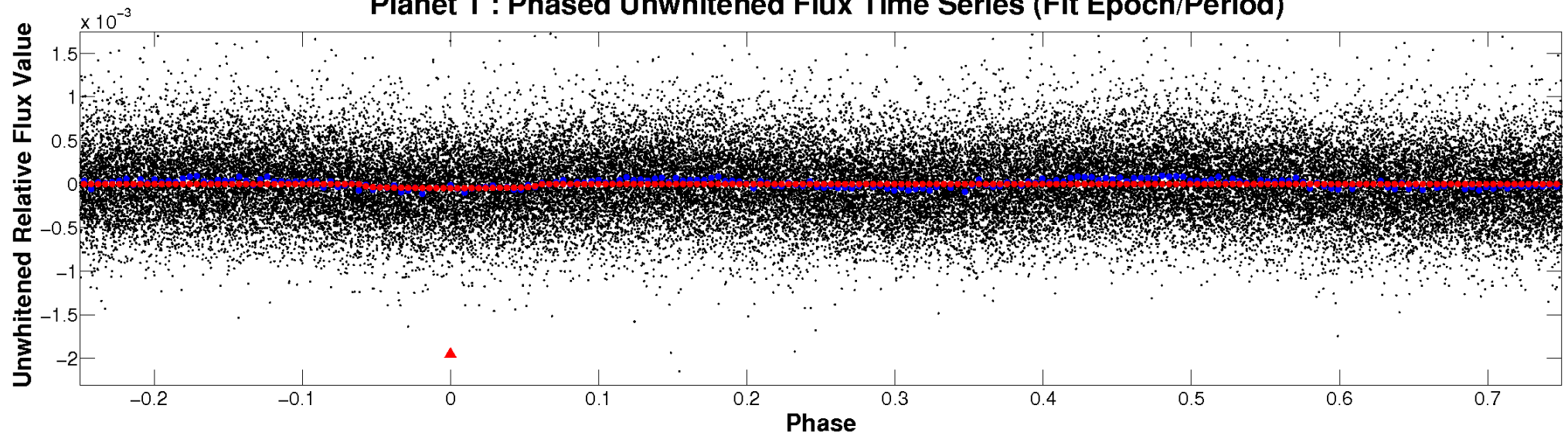
# ALT Odd/Even

TCE 003663904-01

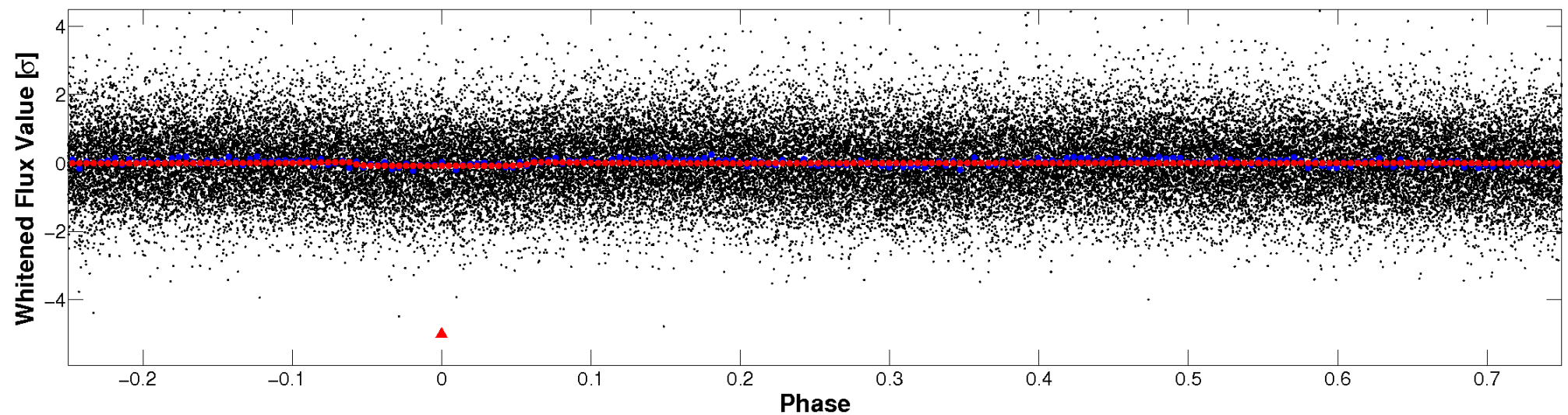


# Non-Whitened Vs. Whitened Light Curve

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

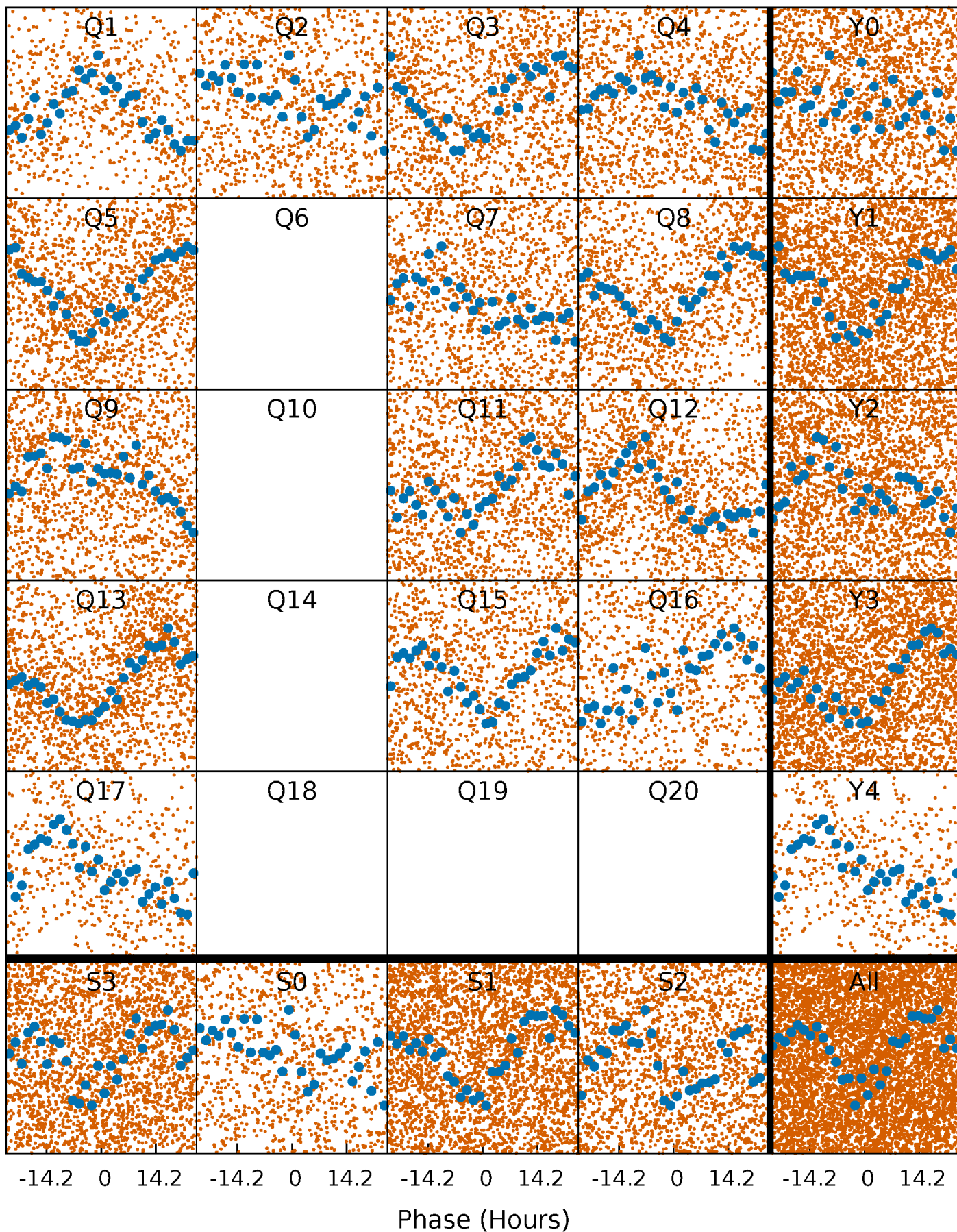


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

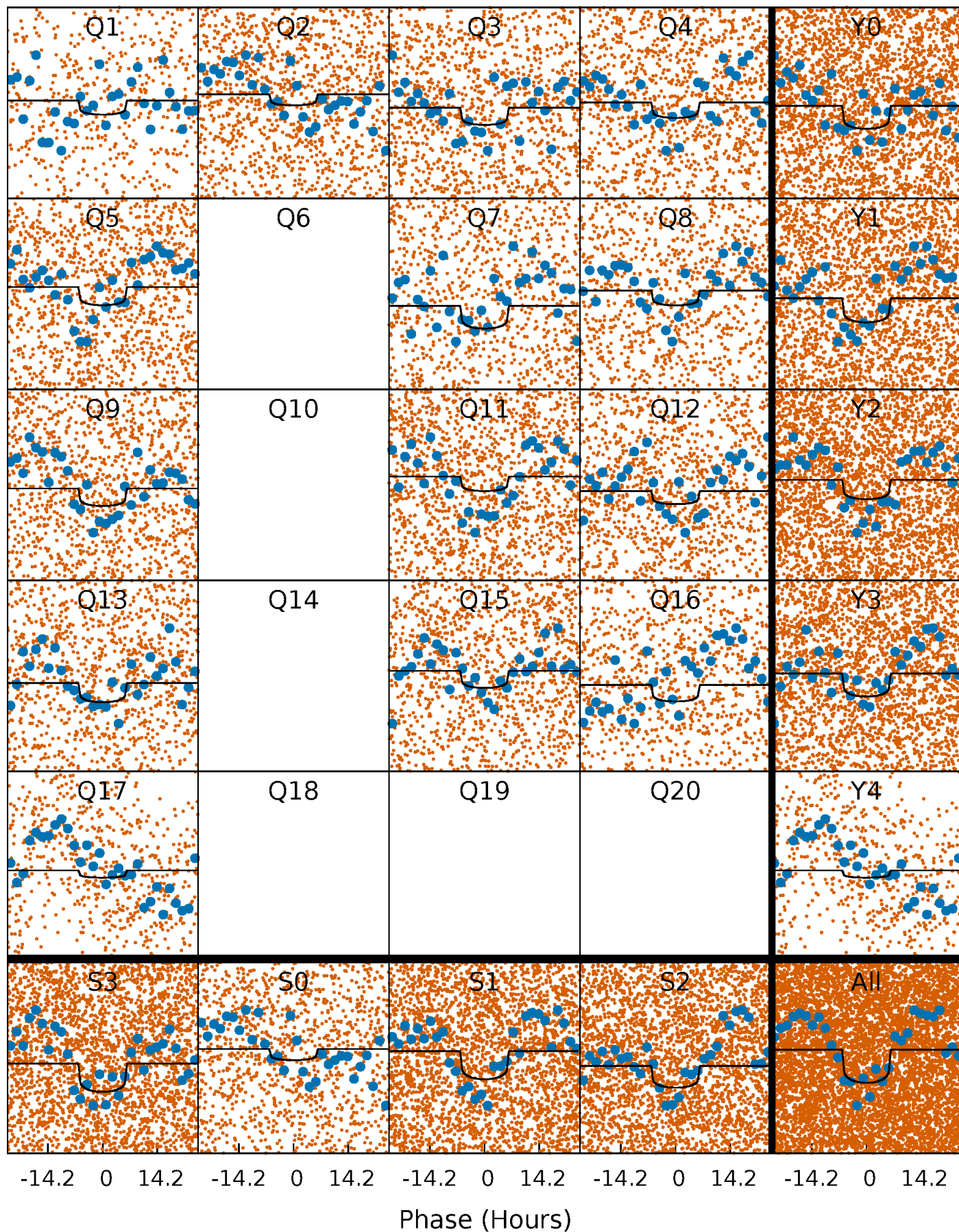
TCE 003663904-01 P= 4.297016 Days  $T_0=132.826956$  (BKJD)





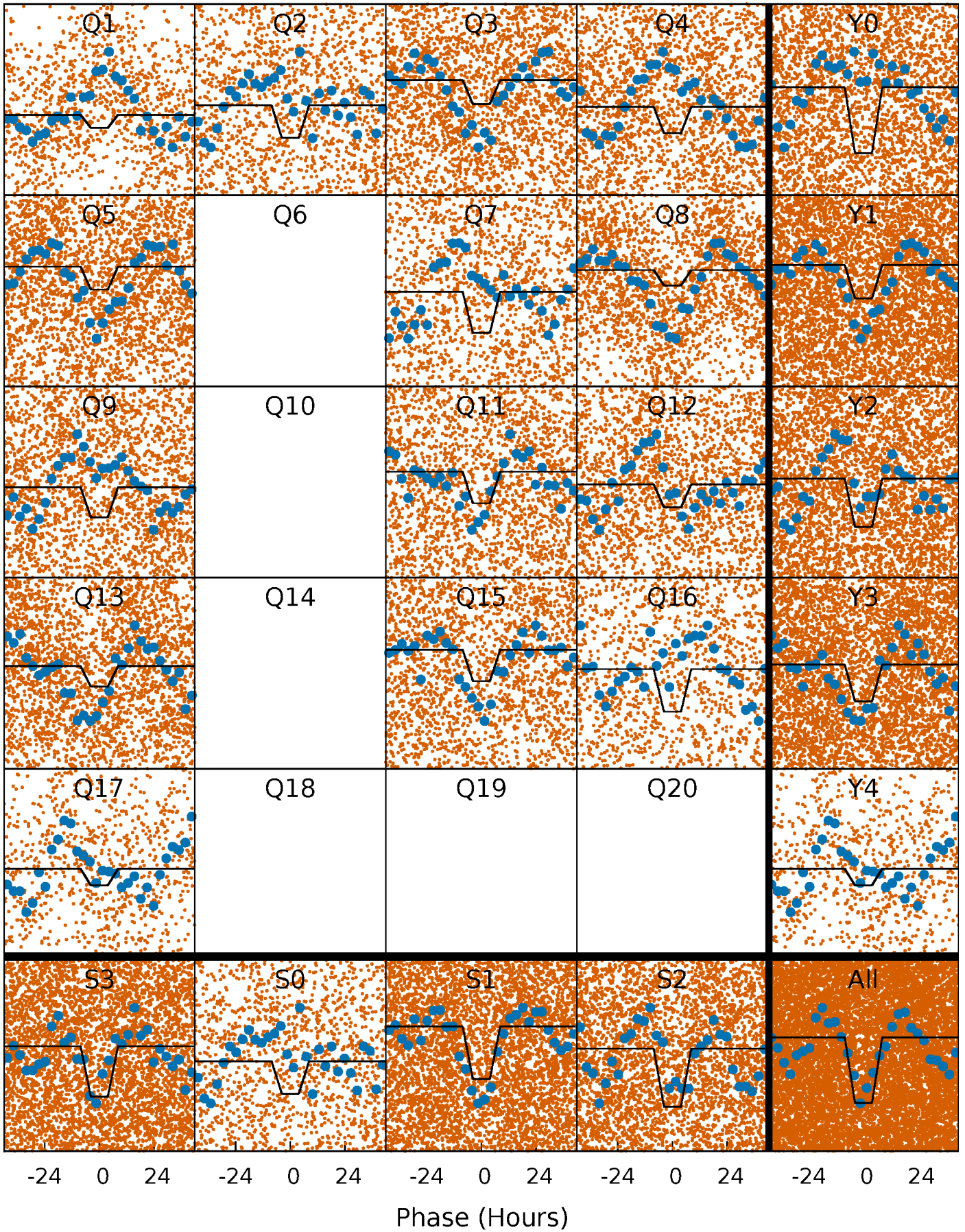
# DV Quarter-Phased Transit Curves

TCE 003663904-01 P= 4.297016 Days  $T_0=132.826956$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003663904-01 P= 4.298066 Days  $T_0=132.588853$  (BKJD)

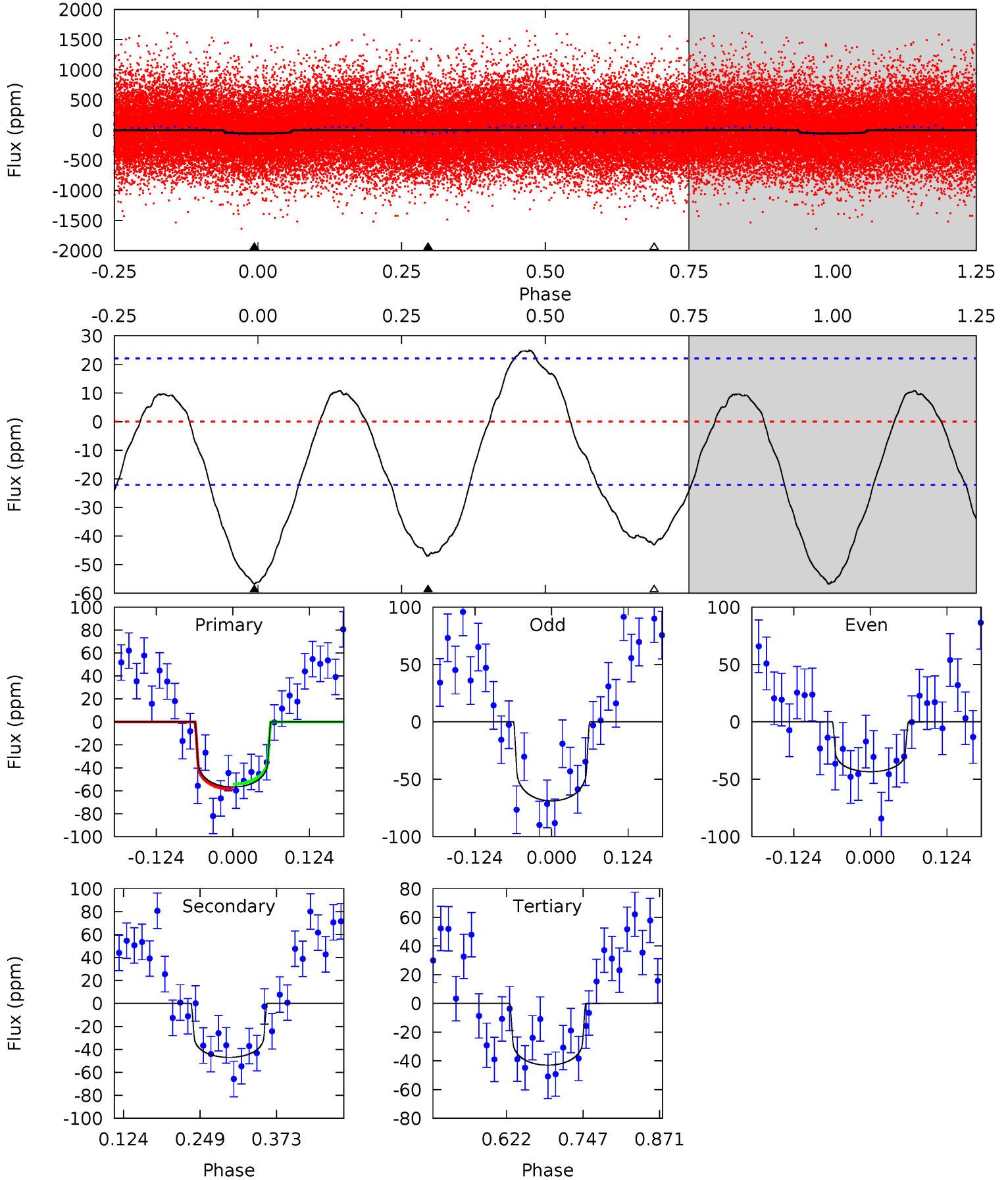




# DV Model-Shift Uniqueness Test

003663904-01, P = 4.297016 Days, E = 128.529940 Days

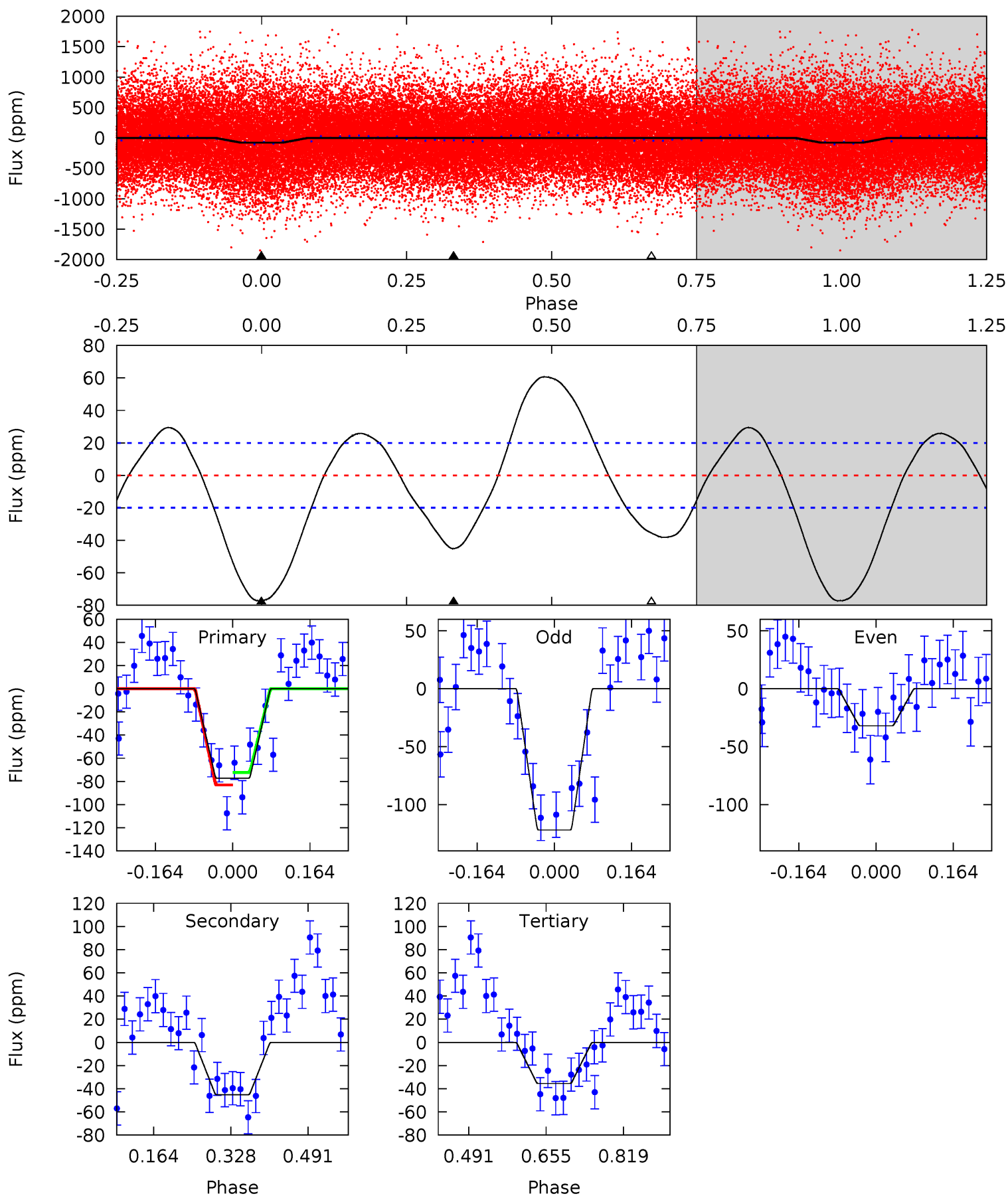
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	9.61	8.80	0	4.52	1.54	4.55	2.81	11.6	0.81	9.61	2.60	1.25	0.30	0.45



# Alt Model-Shift Uniqueness Test

003663904-01, P = 4.298066 Days, E = 128.290787 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
17.3	10.1	7.94	0	4.46	1.39	6.97	9.34	17.3	2.16	10.1	10.0	0.85	0.44	1.19





### Stellar Parameters For KIC 003663904

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6764^{+188}_{-259}$	$4.480^{+0.038}_{-0.212}$	$-0.500^{+0.250}_{-0.400}$	$0.983^{+0.292}_{-0.078}$	$1.106^{+0.128}_{-0.142}$	$1.639^{+0.333}_{-0.894}$
	+3%/-4%	+1%/-5%	+50%/-80%	+30%/-8%	+12%/-13%	+20%/-55%
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 003663904-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-47 \pm 5$	$0.80^{+0.39}_{-0.31}$	$1847^{+125}_{-84}$	$6660^{+2164}_{-1099}$	$113^{+186}_{-62}$
Alt.	$-45 \pm 4$	$1.10^{+0.38}_{-0.33}$	$1839^{+135}_{-88}$	$5579^{+1112}_{-626}$	$57^{+58}_{-26}$

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

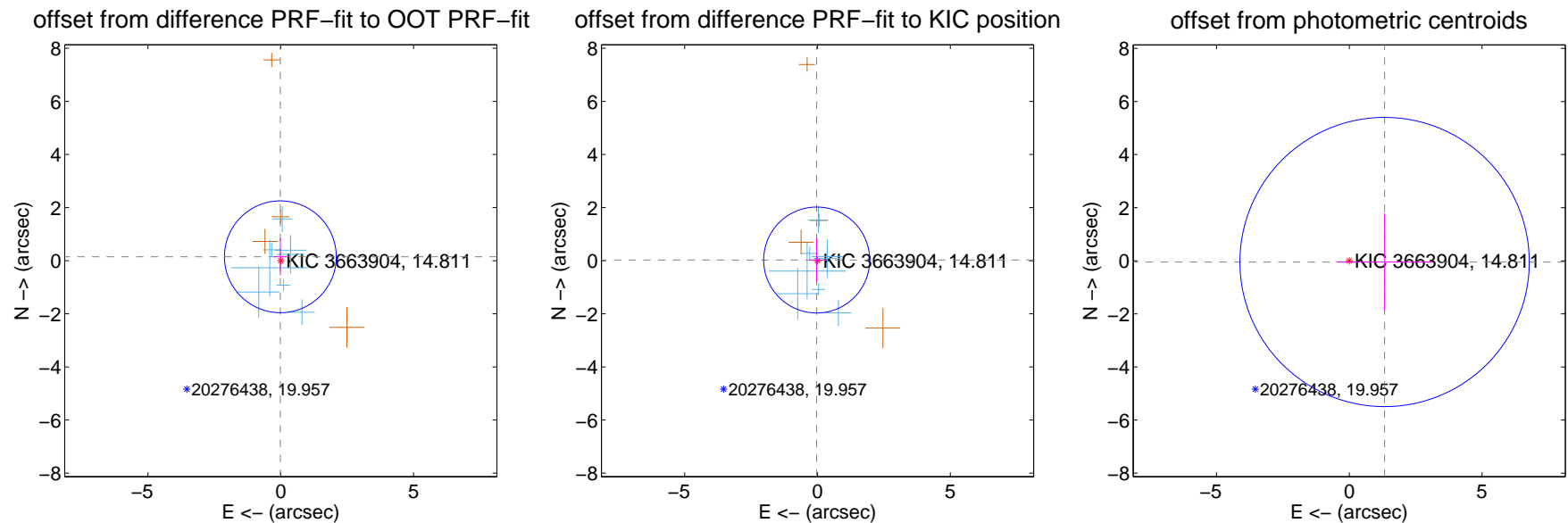
## DV Centroid Data

Supplemental centroid analysis for 003663904-01. Kepler magnitude: 14.81. Transit SNR 5.92

There are 8 quarters with good PRF difference image offsets

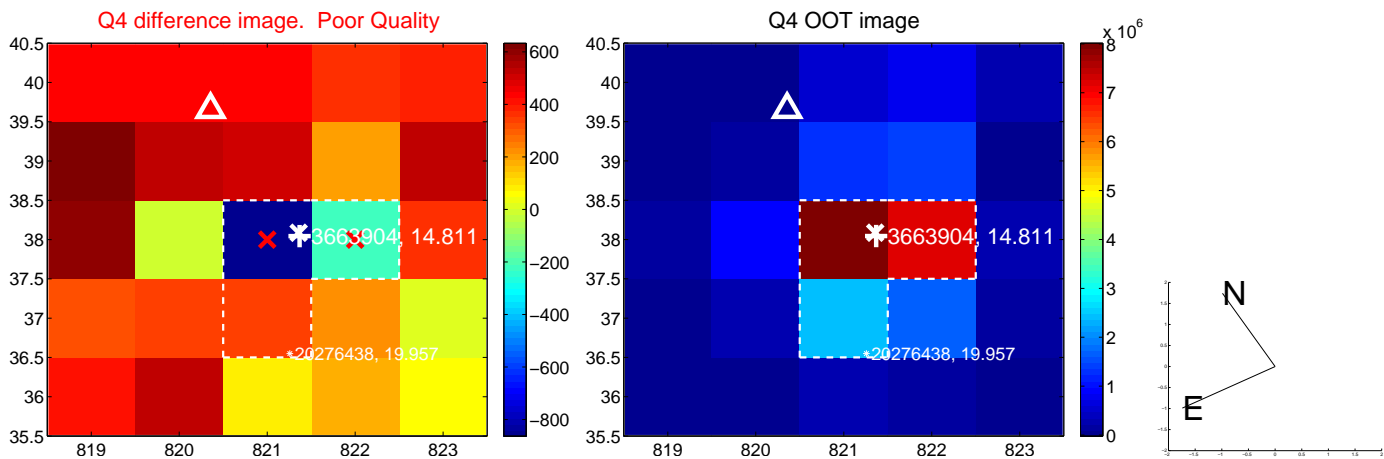
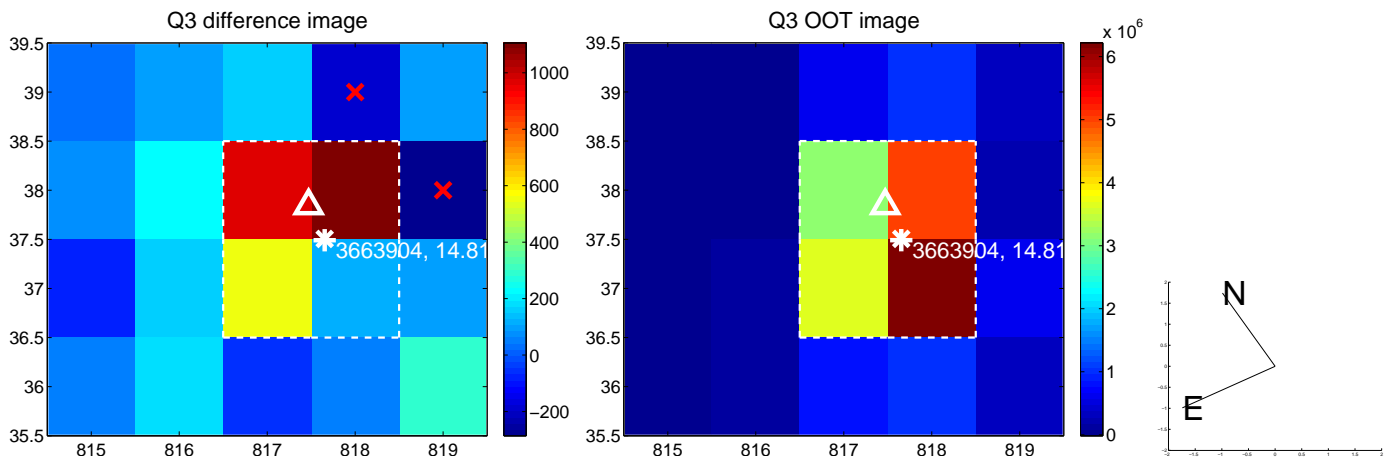
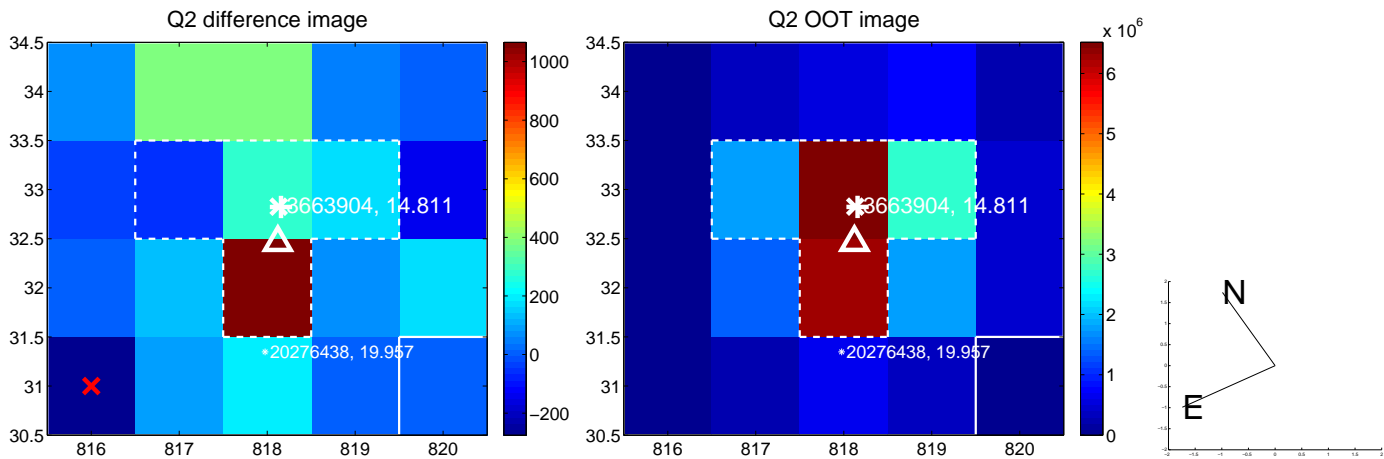
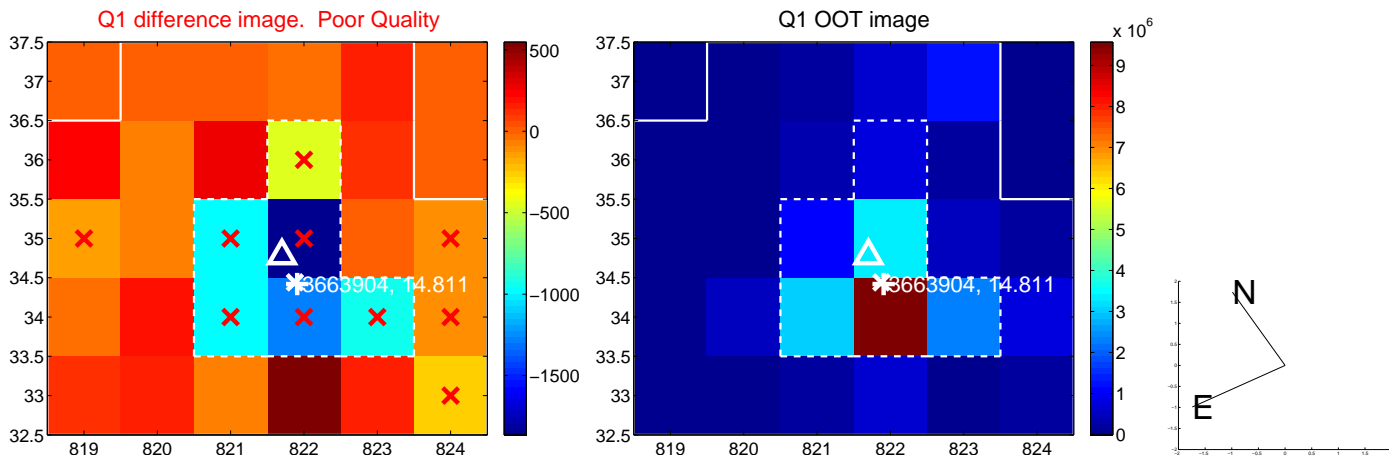
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.148 \pm 0.702$	0.21	$0.016 \pm 0.236$	$0.147 \pm 0.698$
PRF-fit source offset from KIC position	$0.041 \pm 0.665$	0.06	$0.031 \pm 0.279$	$0.026 \pm 0.820$
photometric centroid source offset	$1.33 \pm 1.82$	0.73	$-1.33 \pm 1.82$	$-0.05 \pm 1.83$

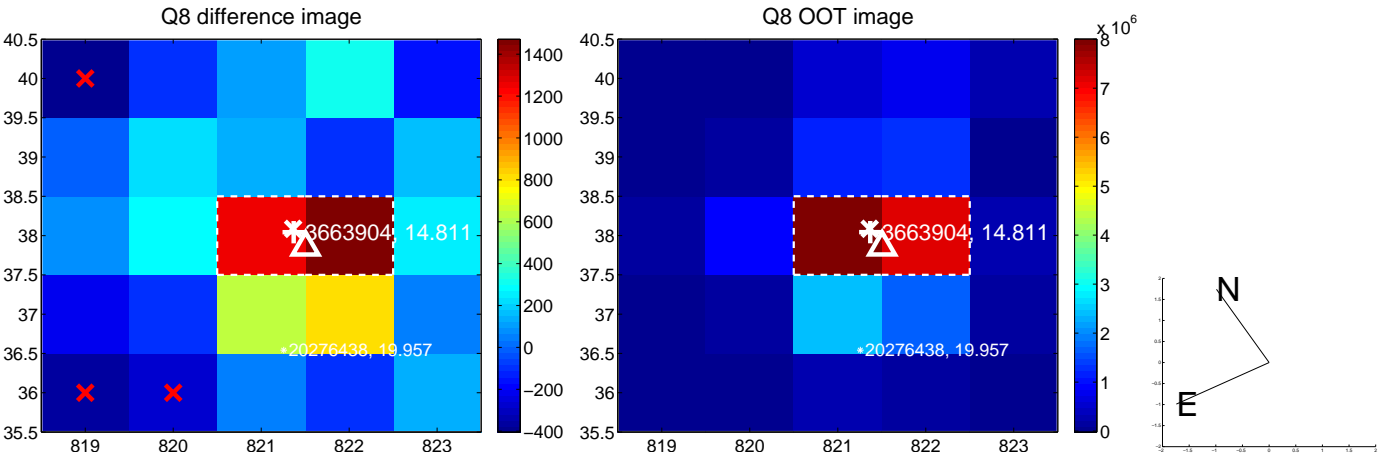
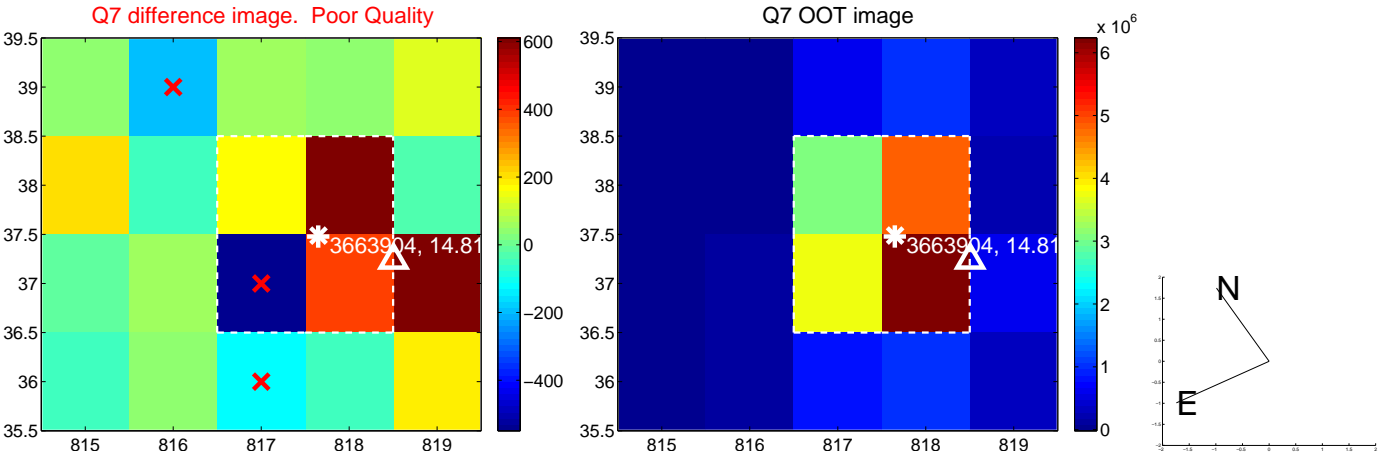
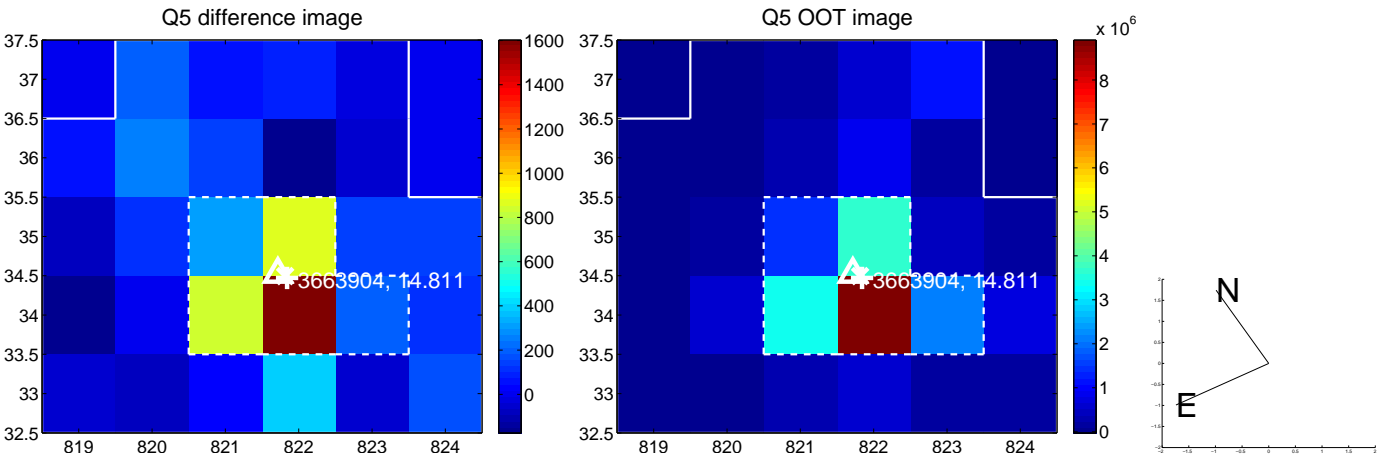


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

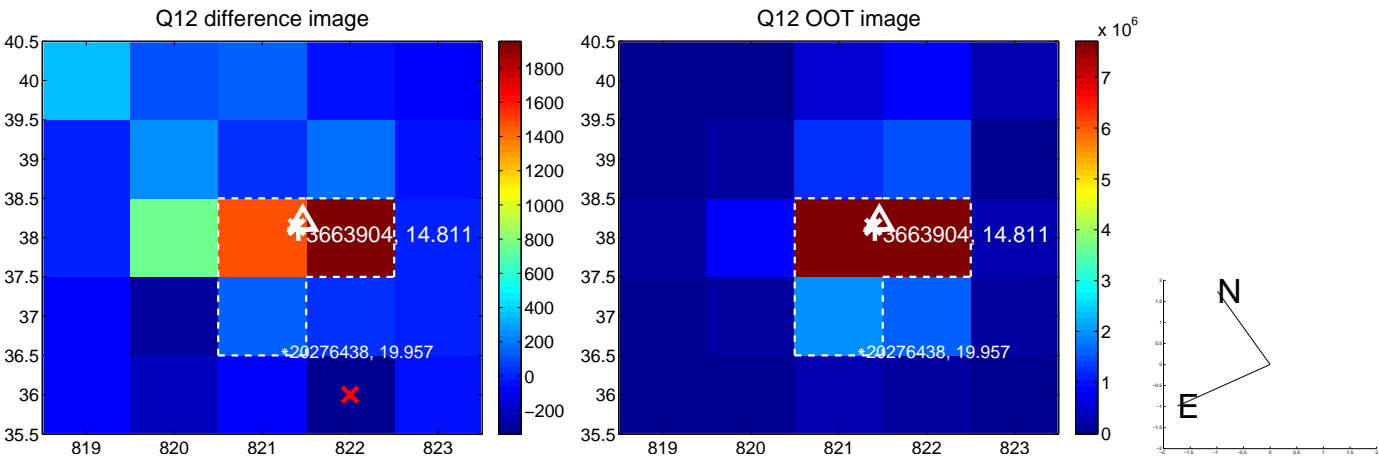
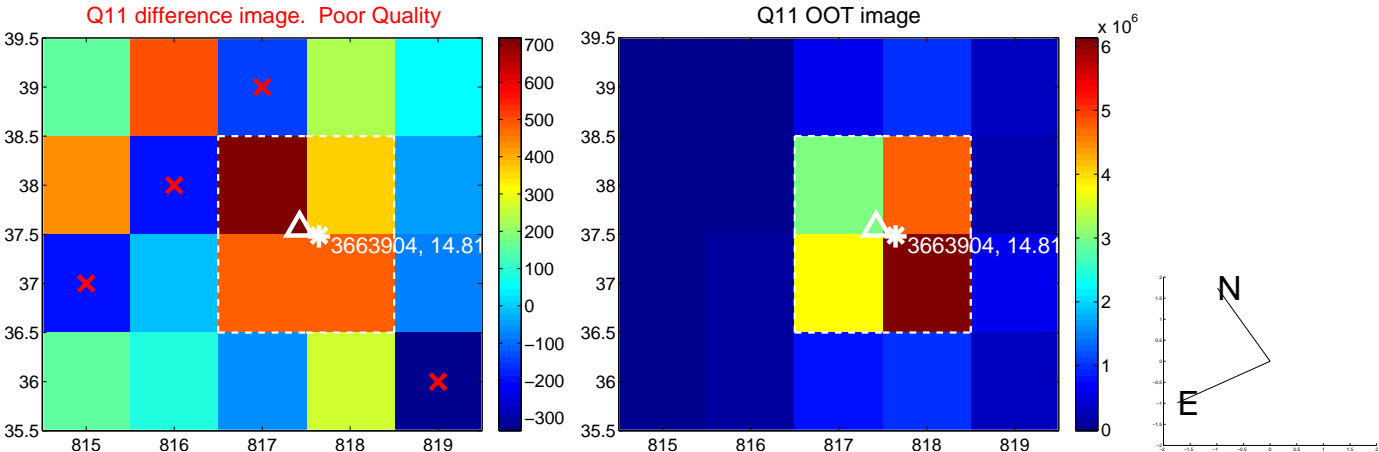
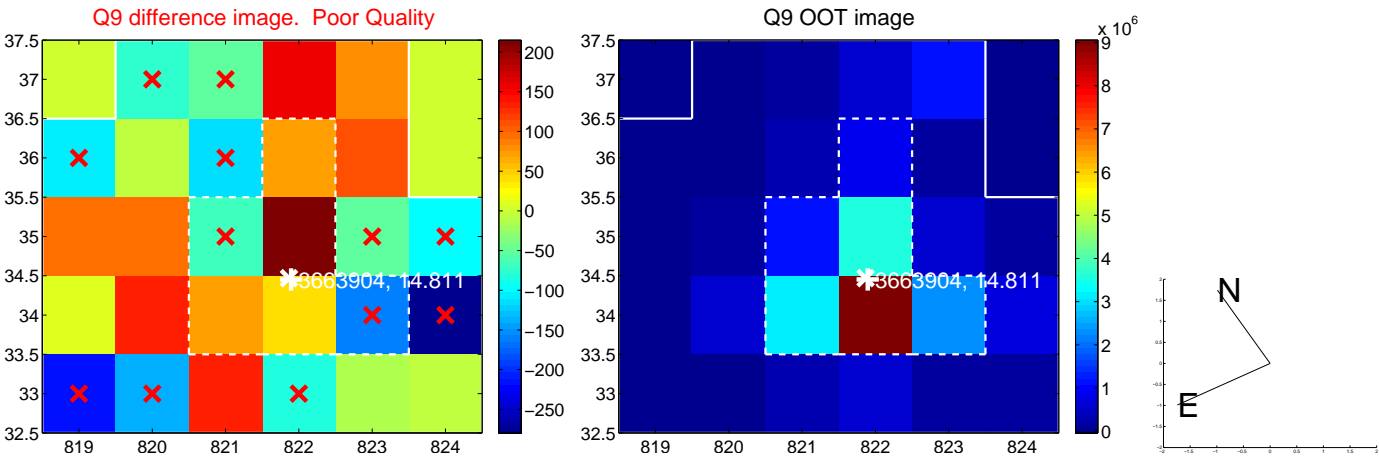


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

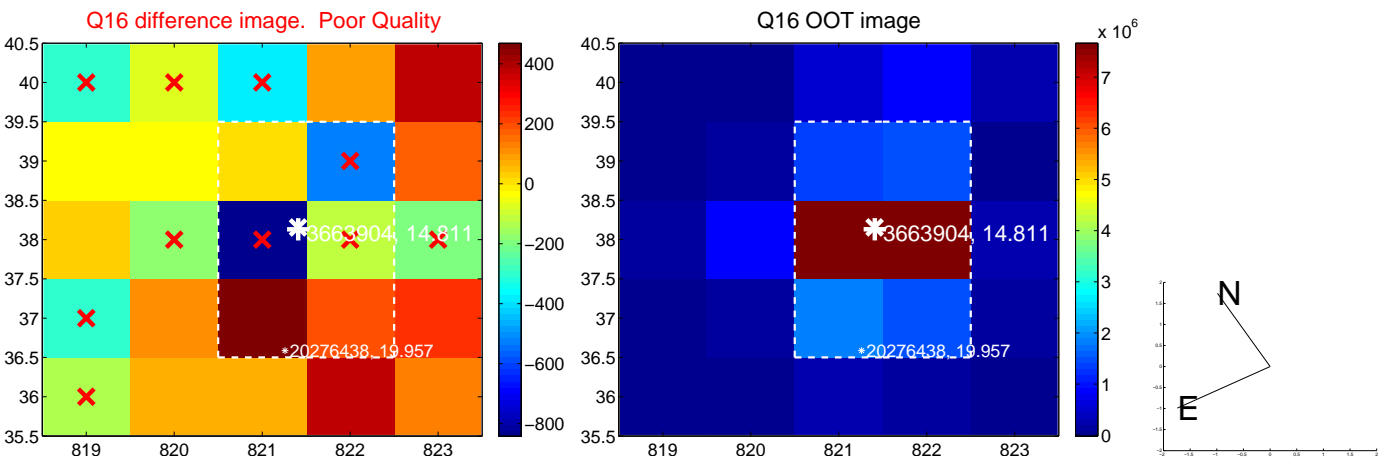
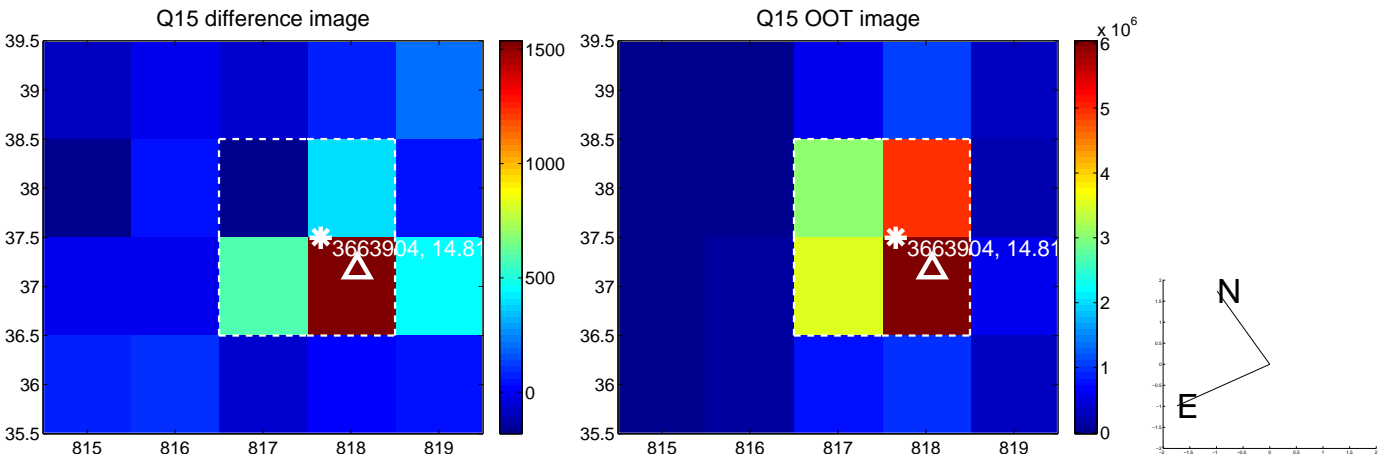
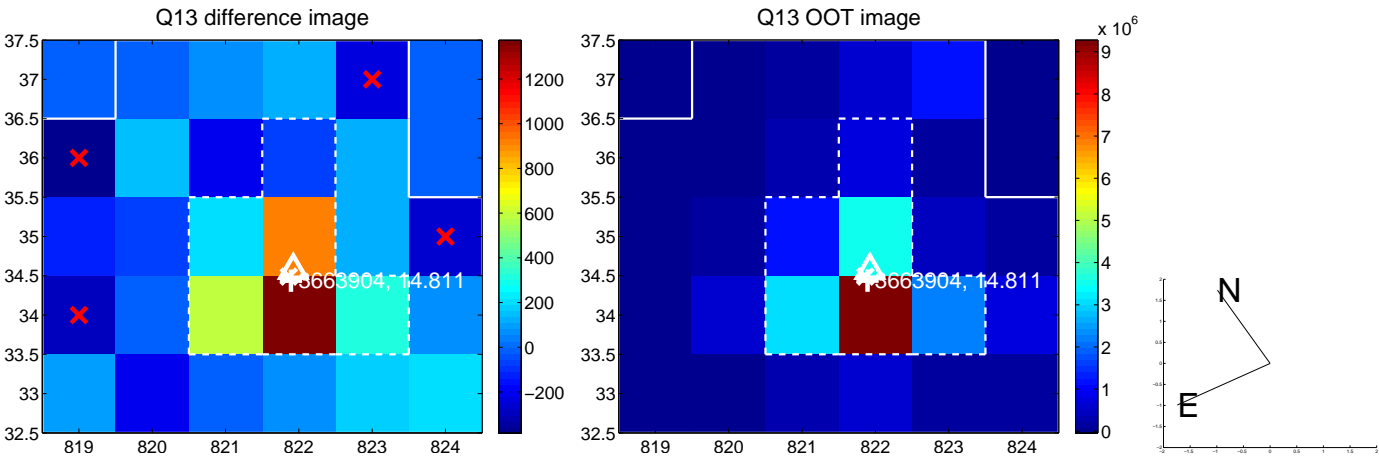




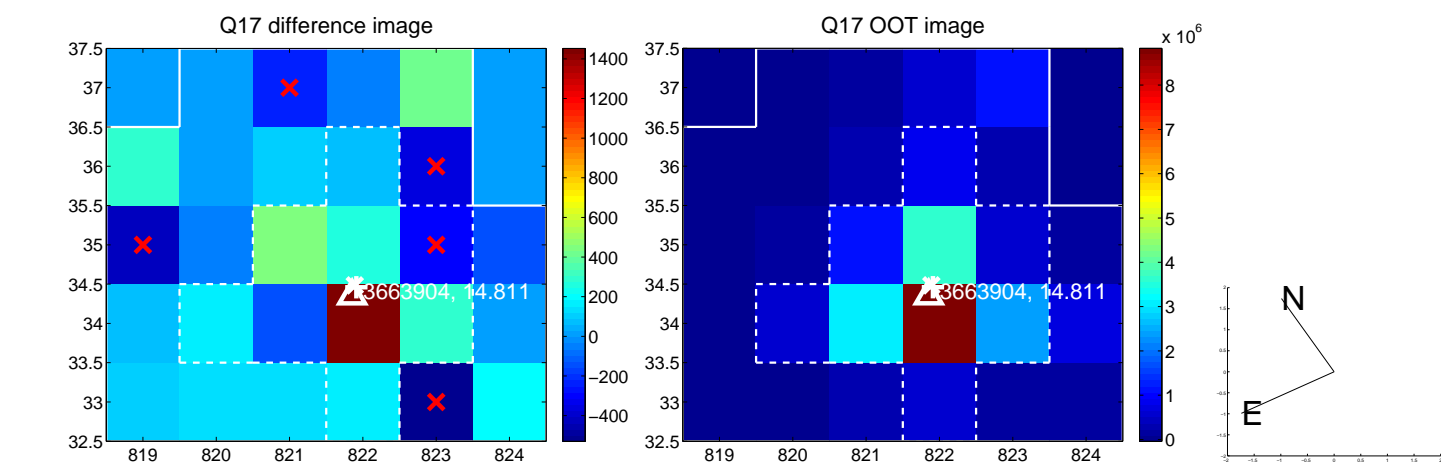
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



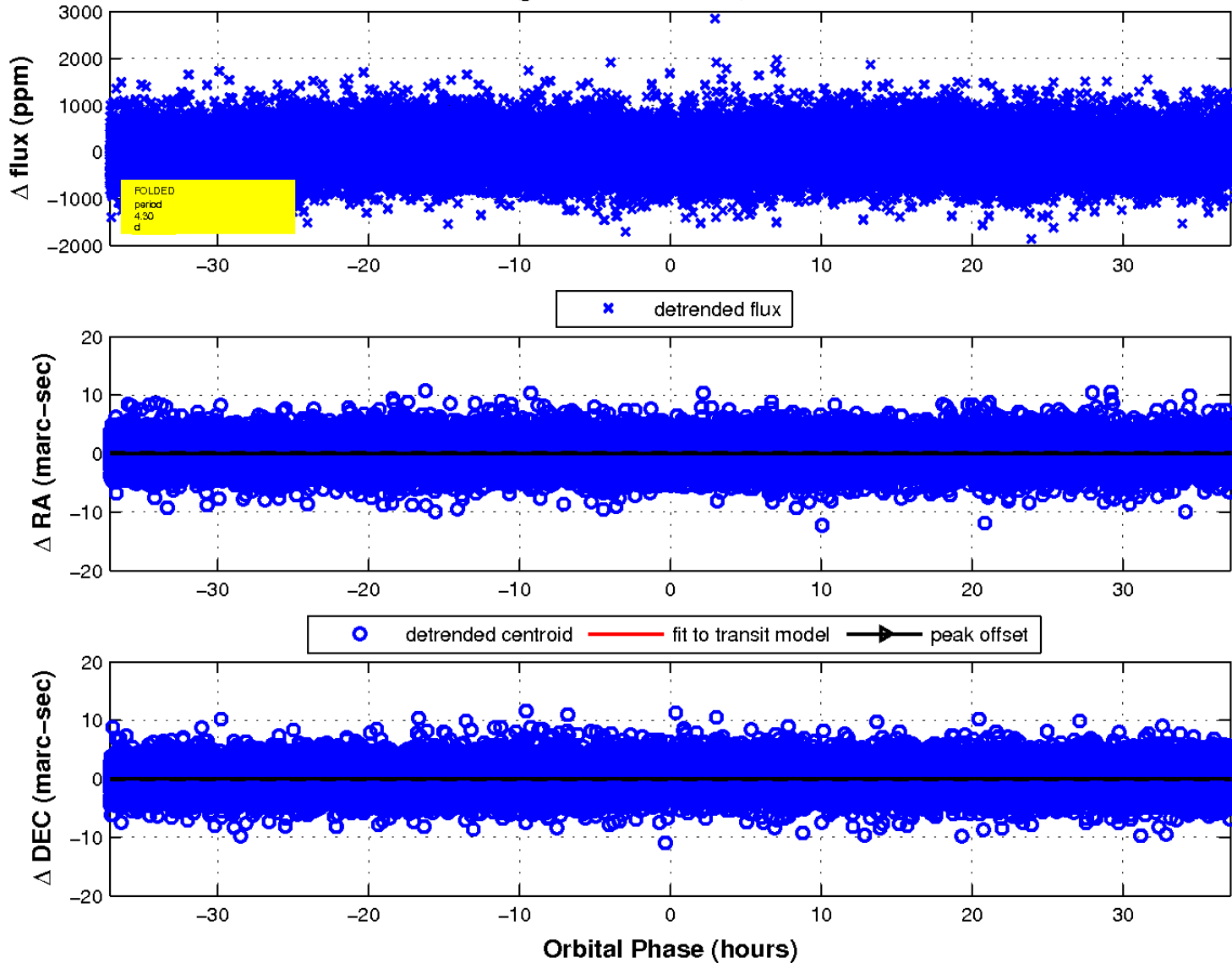
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

