

# KIC 003764714

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003764714-01	OBS	3963.01	6.634538	134.031840	125.0	11.057	18.7	21.4	2.82	6487	6.29	2069.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003764714-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

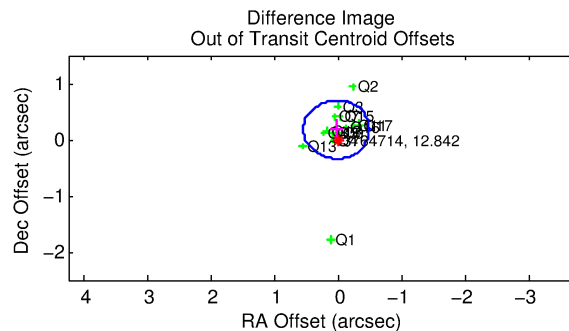
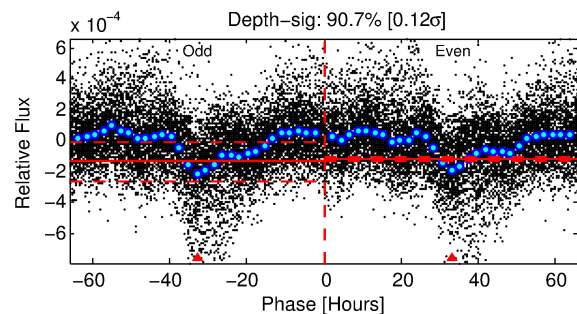
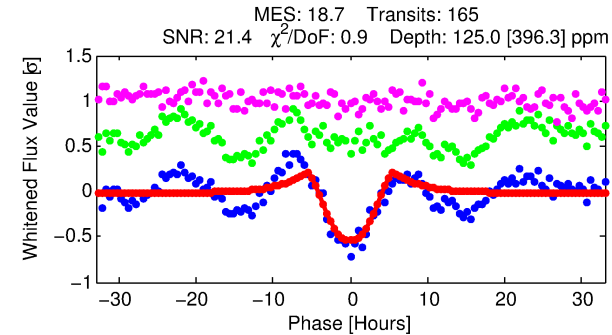
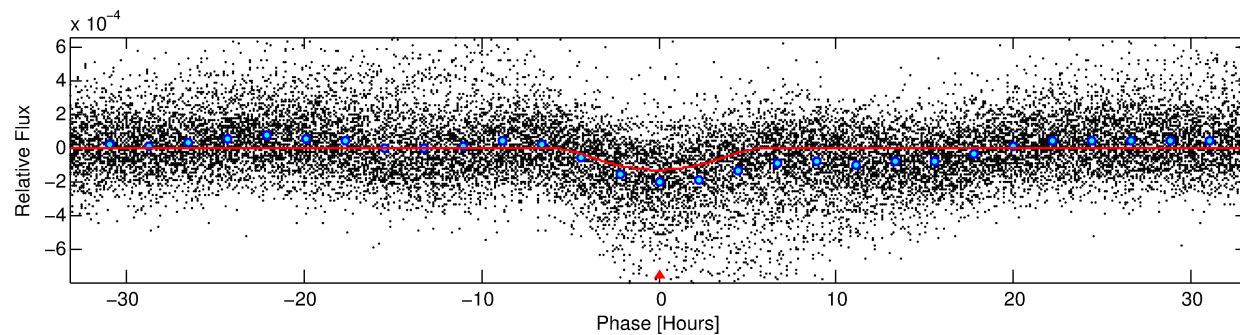
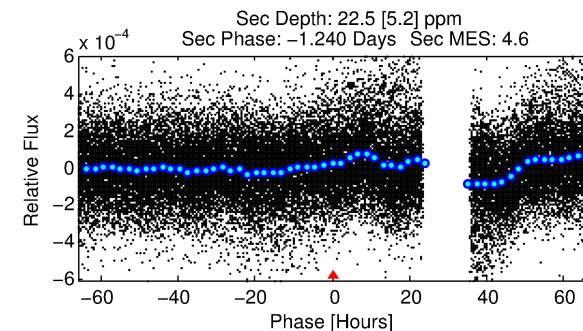
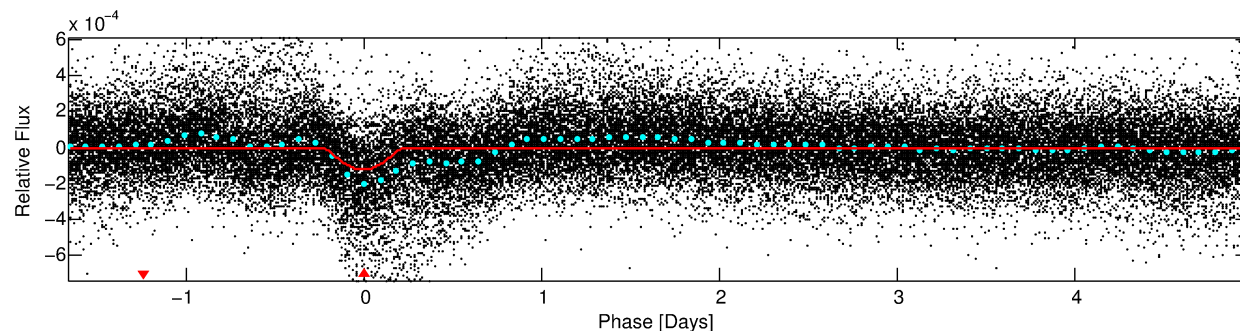
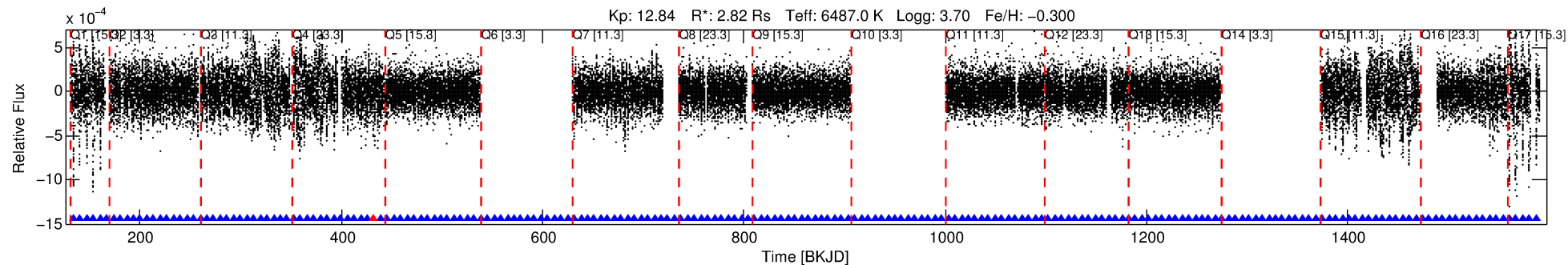
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003764714-01

No Significant Match Found

# DV One-Page Summary

KIC: 3764714 Candidate: 1 of 1 Period: 6.635 d  
KOI: K03963.01 Corr: 0.943



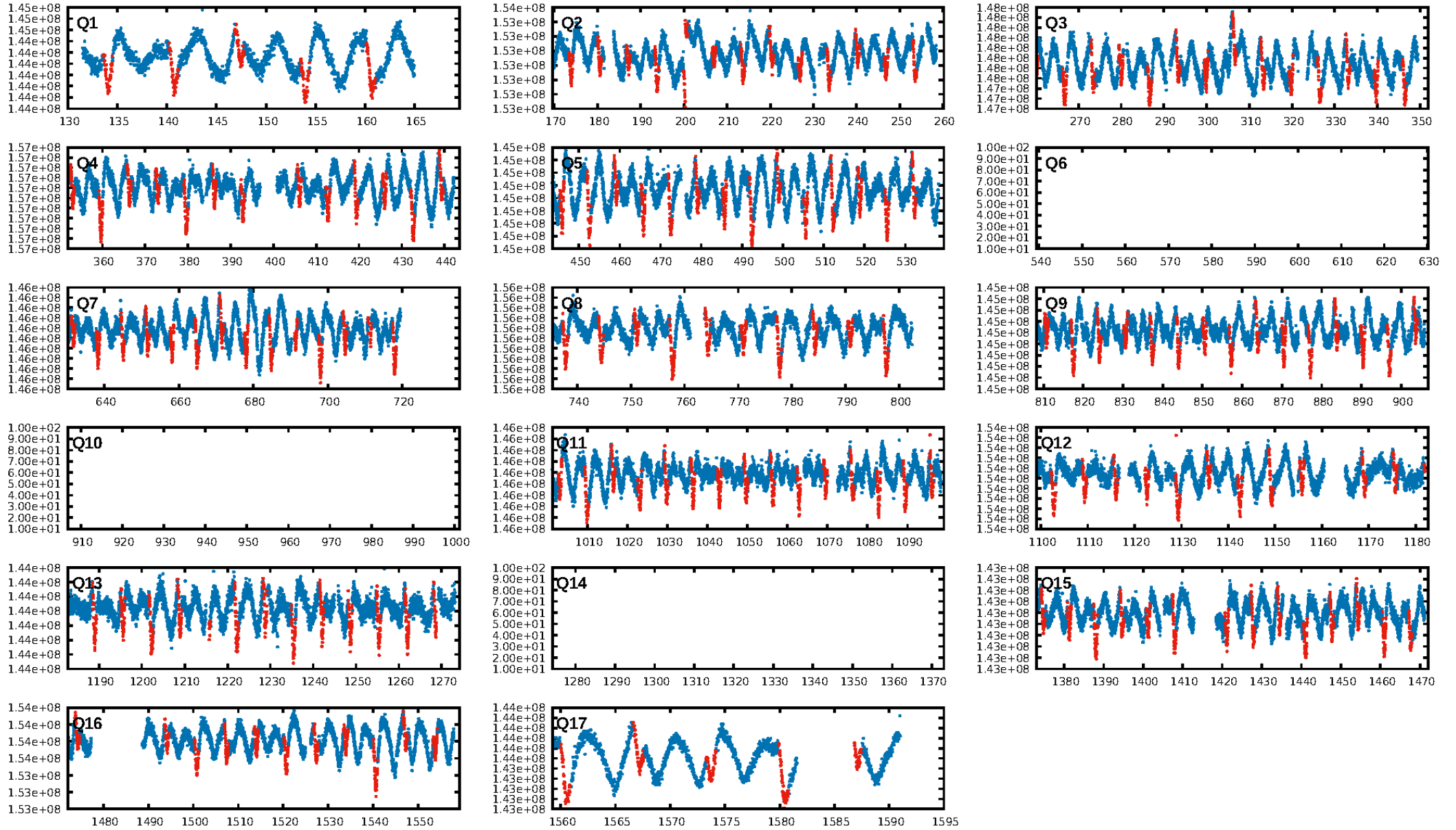
## DV Fit Results:

Period = 6.63454 [0.00007] d  
Epoch = 134.0318 [0.0088] BKJD  
Rp/R\* = 0.0205 [0.0204]  
a/R\* = 1.37 [0.16]  
b = 1.00 [0.08]  
Seff = 2069.41 [1200.54]  
Teq = 1720 [249] K  
Rp = 6.29 [6.77] Re  
a = 0.0780 [0.0286] AU  
Ag = 1.90 [3.96] [0.23σ]  
Teffp = 3121 [1570] K [0.88σ]

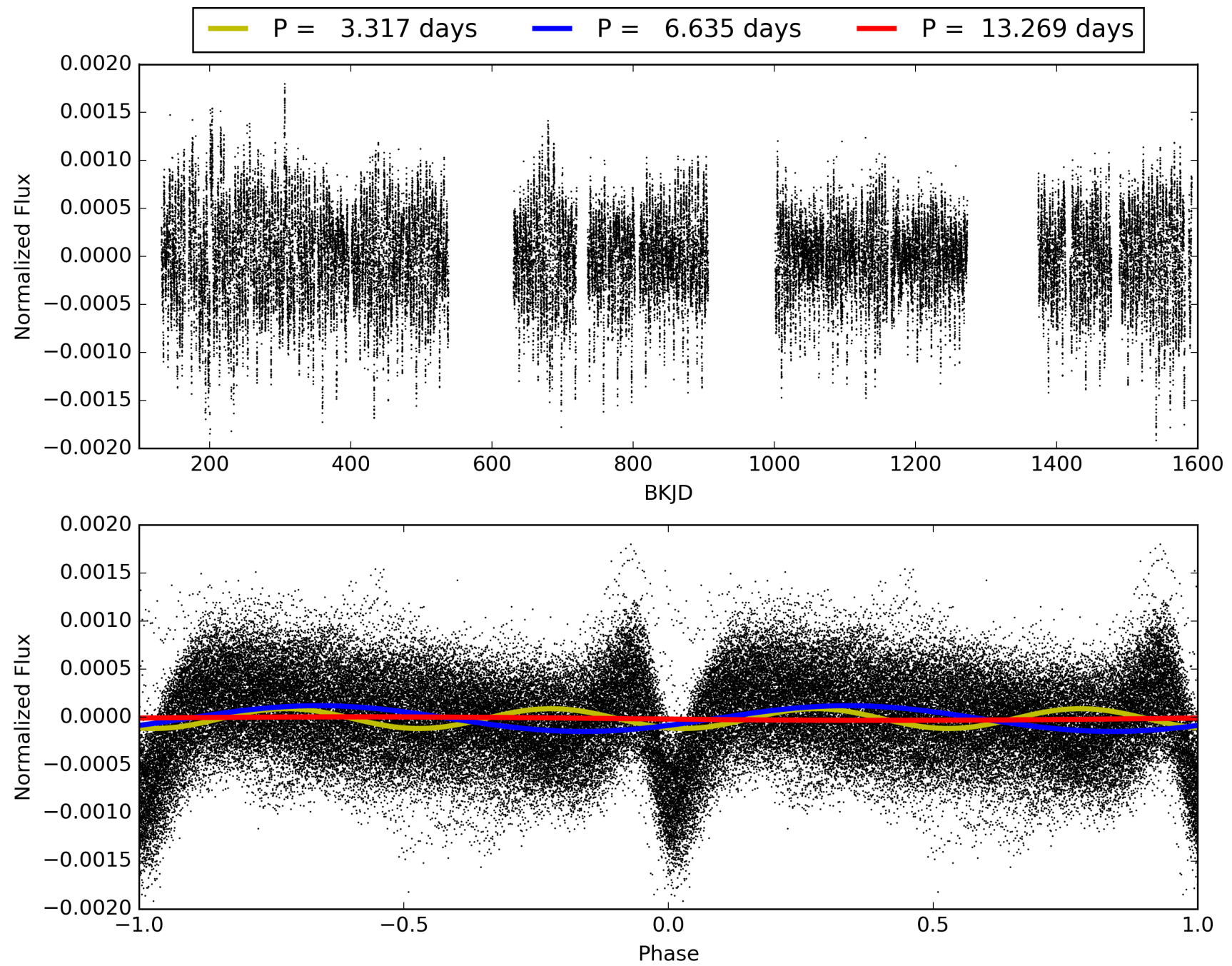
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 3.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.00e-73  
RollingBand-fgt: 0.99 [154/155]  
GhostDiagnostic-chr: 1.207  
Centroid-sig: 0.0%  
Centroid-so: 2.802 arcsec [5.01σ]  
OotOffset-rm: 0.182 arcsec [1.05σ]  
KicOffset-rm: 0.049 arcsec [0.58σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003764714-01, PDC Light Curves

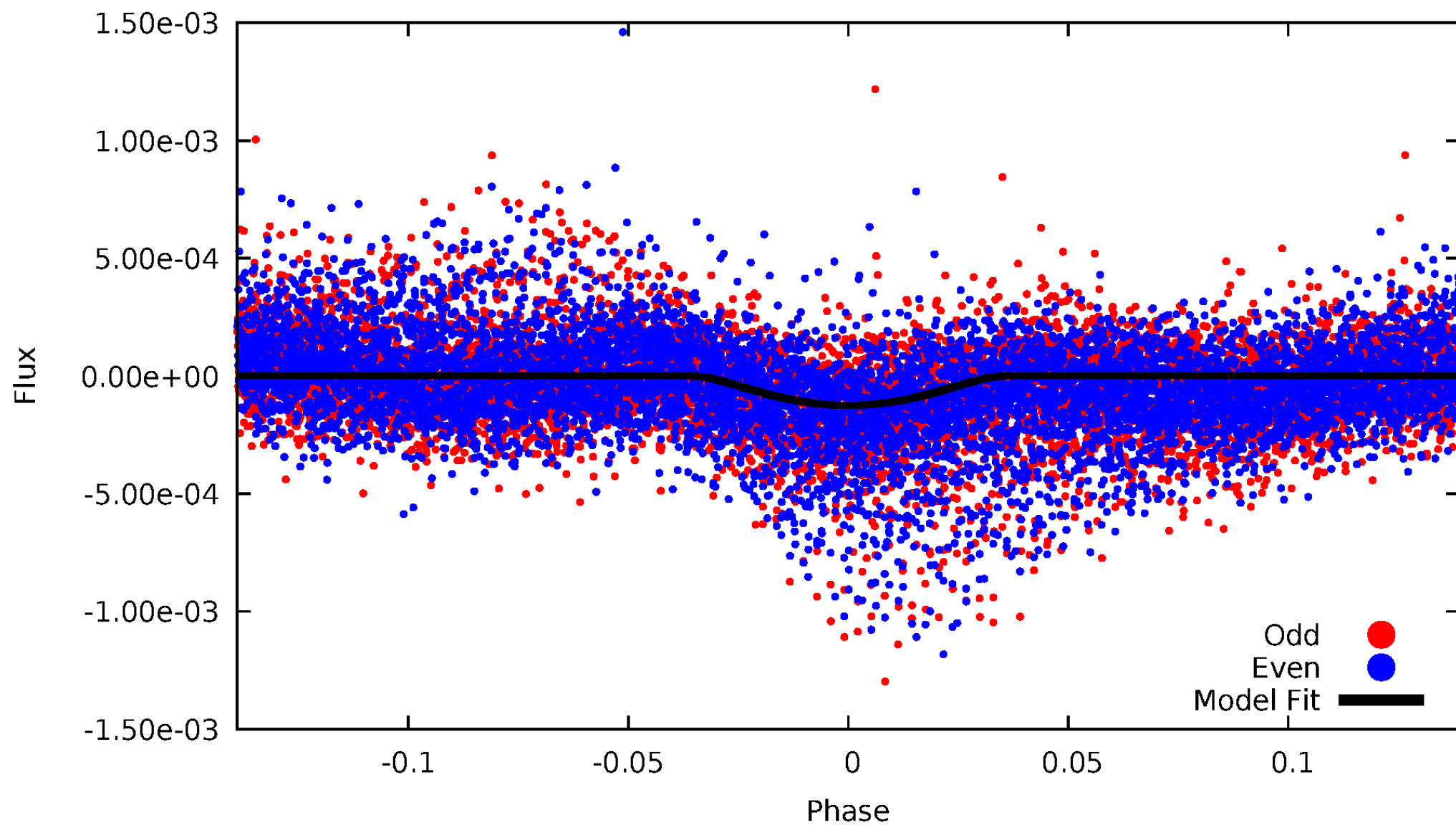


TCE 003764714-01



# DV Odd/Even

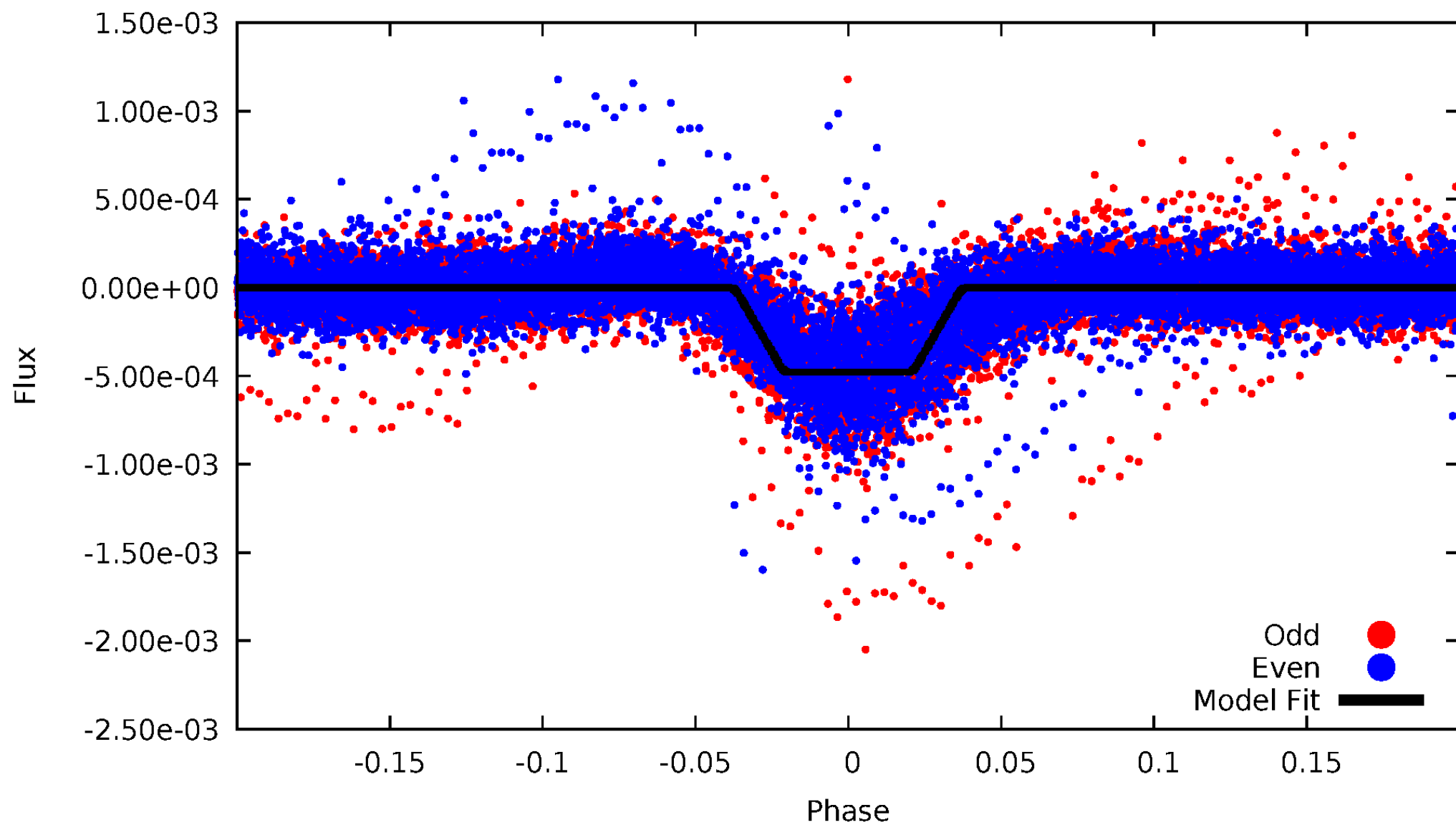
TCE 003764714-01





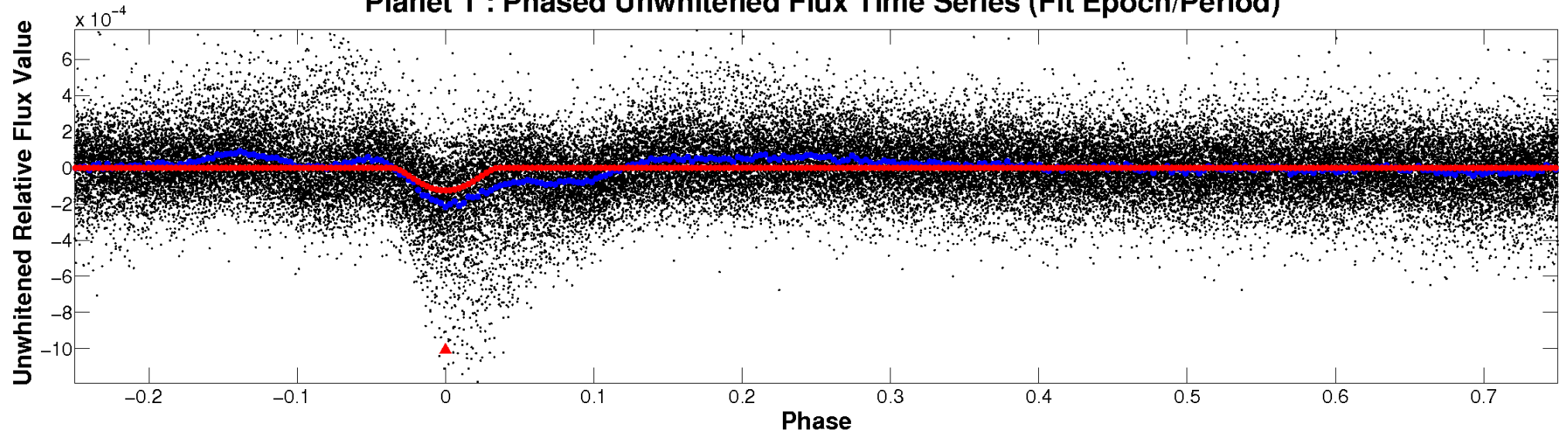
# ALT Odd/Even

TCE 003764714-01

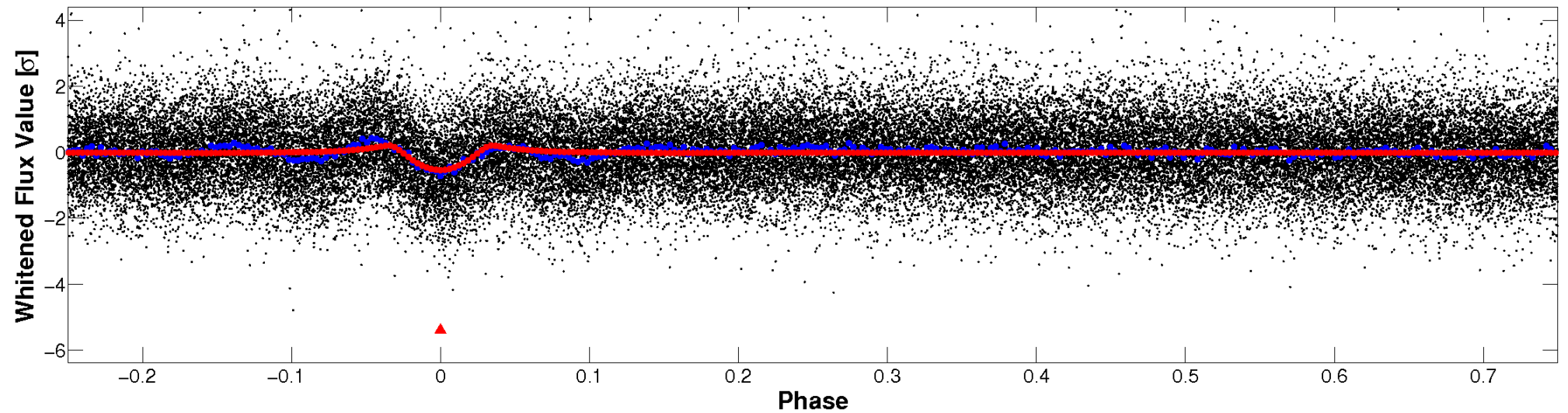


# Non-Whitened Vs. Whitened Light Curve

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

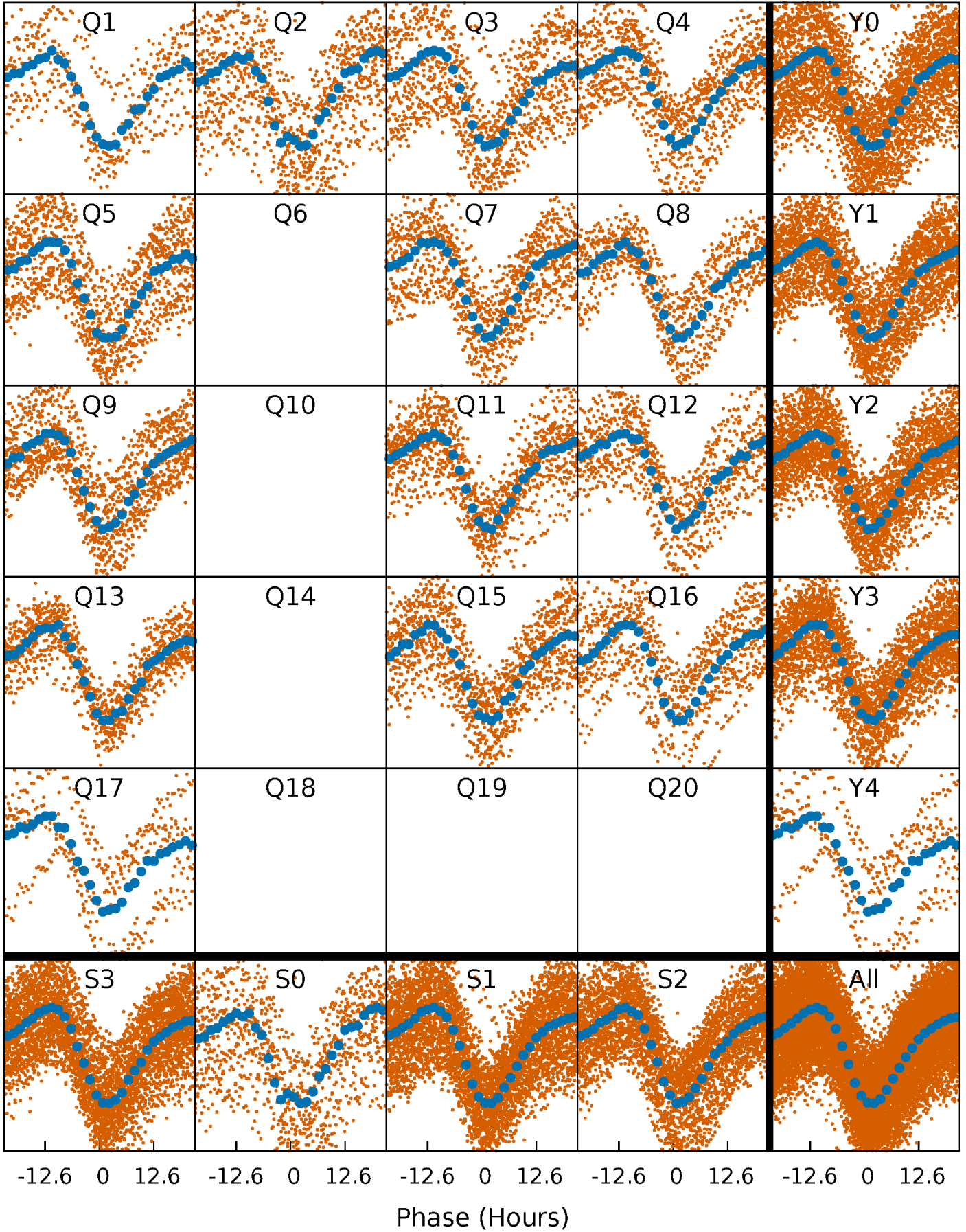


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

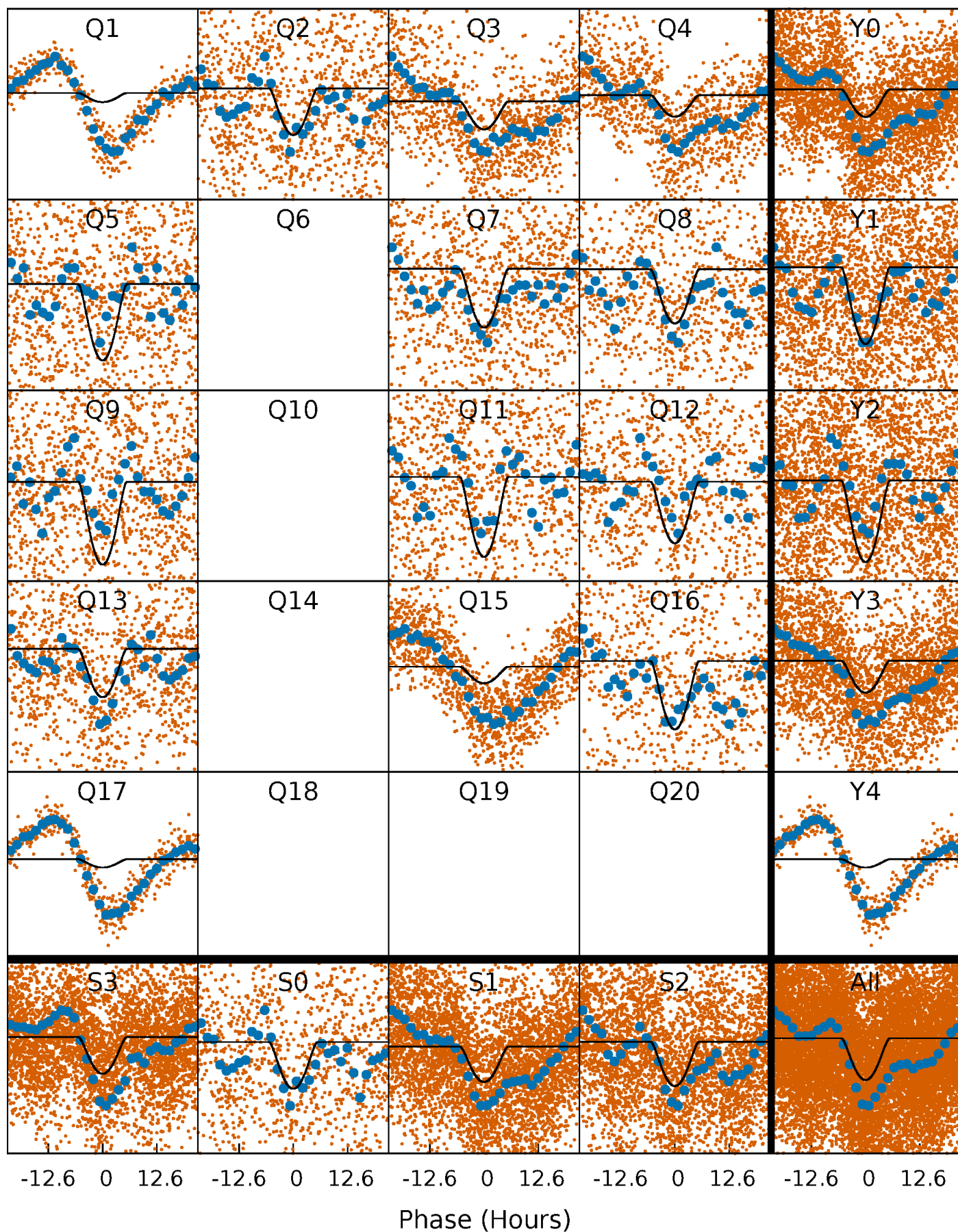
TCE 003764714-01 P= 6.634538 Days  $T_0=134.031840$  (BKJD)





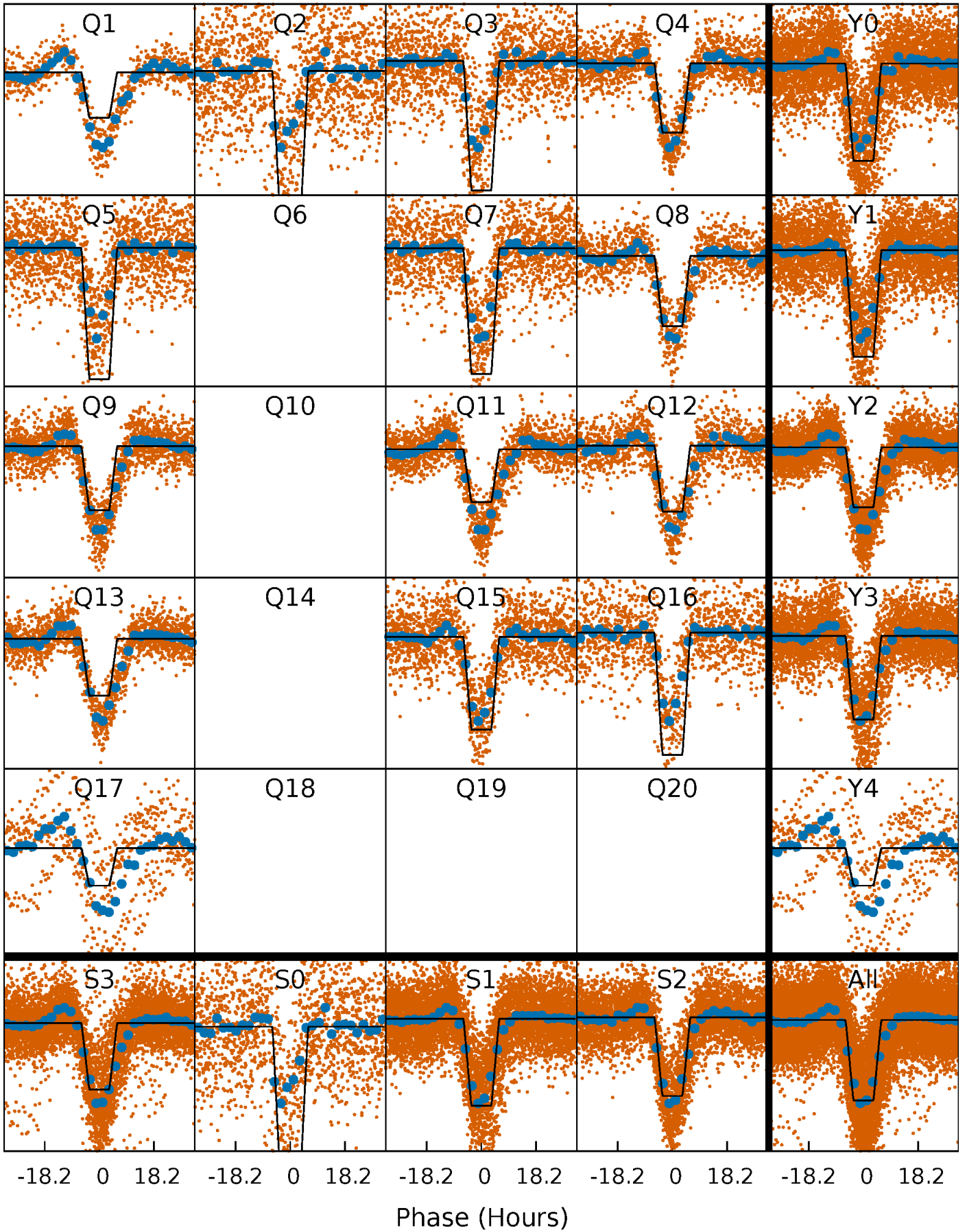
# DV Quarter-Phased Transit Curves

TCE 003764714-01 P= 6.634538 Days  $T_0=134.031840$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

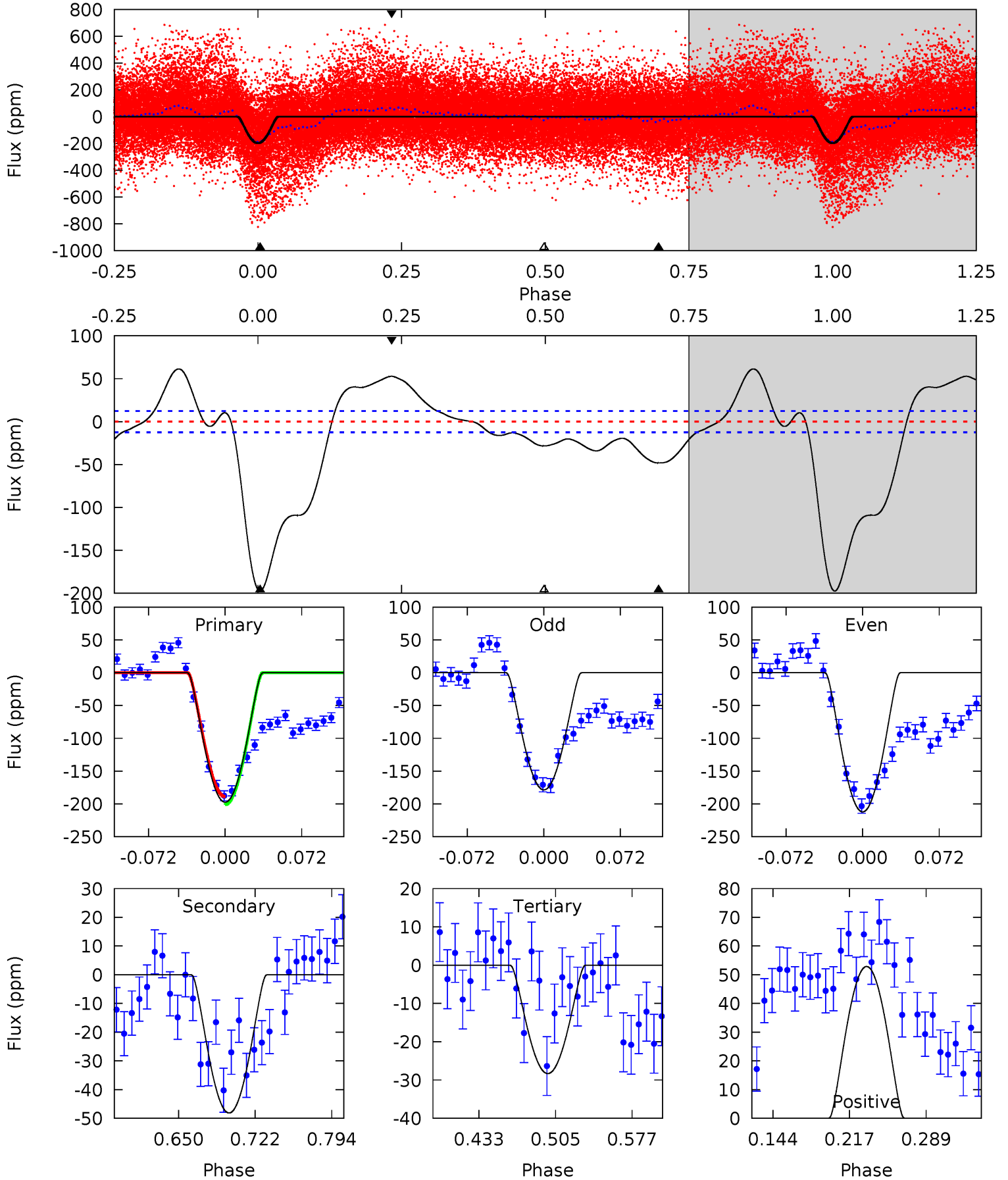
TCE 003764714-01 P= 6.634423 Days  $T_0=134.074548$  (BKJD)



# DV Model-Shift Uniqueness Test

003764714-01, P = 6.634538 Days, E = 127.397302 Days

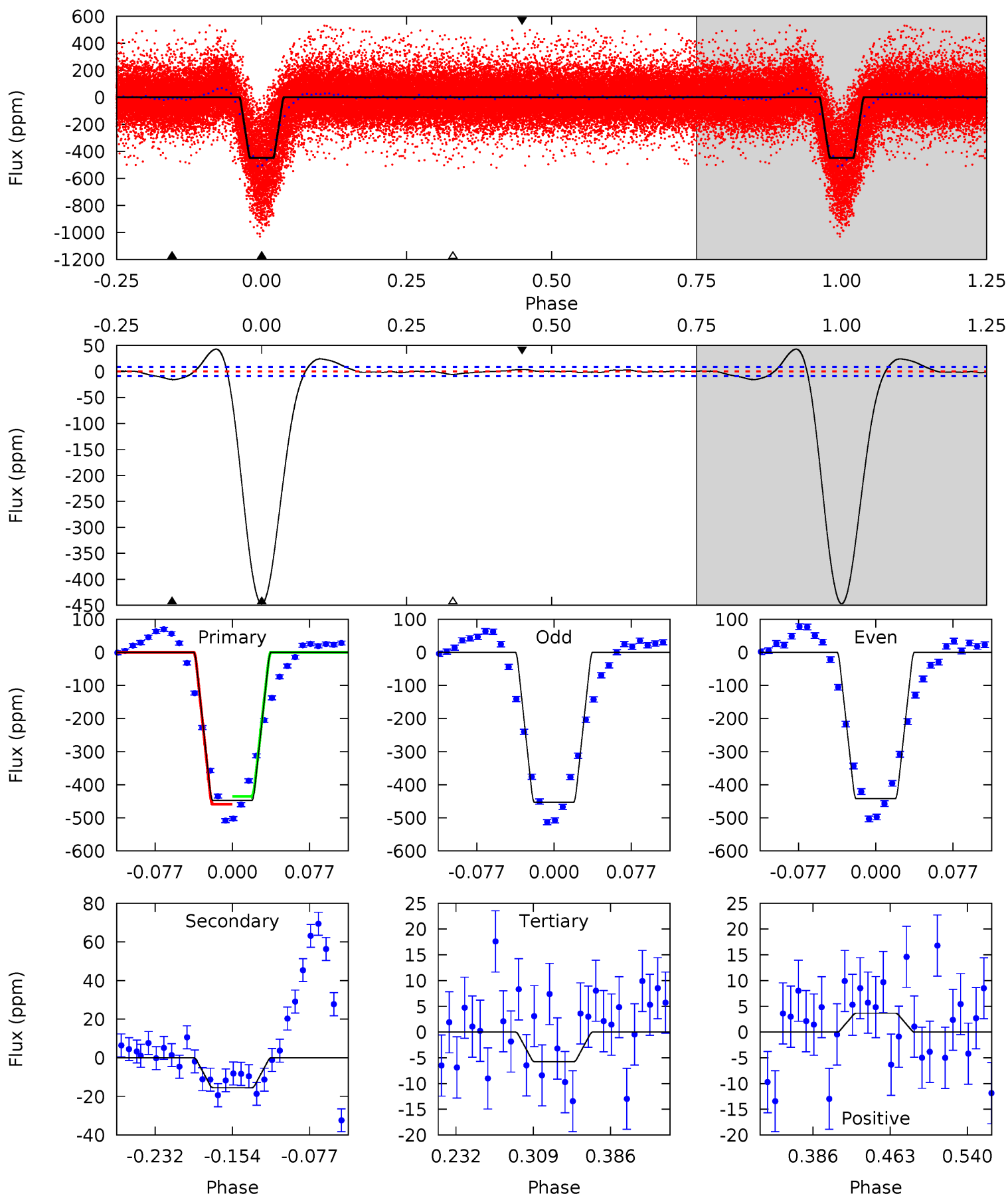
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.8	18.0	10.6	19.8	4.63	1.80	13.0	63.2	54.1	7.42	-1.76	6.27	1.45	0.24	2.20



# Alt Model-Shift Uniqueness Test

003764714-01, P = 6.634423 Days, E = 127.440125 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
231.8	8.01	2.99	1.90	4.62	1.77	3.11	228.8	229.9	5.02	6.10	2.83	0.96	0.09	0



### Stellar Parameters For KIC 003764714

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6487^{+177}_{-177}$	$3.696^{+0.328}_{-0.082}$	$-0.300^{+0.300}_{-0.250}$	$2.817^{+0.451}_{-1.127}$	$1.439^{+0.244}_{-0.298}$	$0.091^{+0.231}_{-0.025}$
	+3%/-3%	+9%/-2%	+100%/-83%	+16%/-40%	+17%/-21%	+255%/-27%
Source	PHO1	FLK73	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 003764714-01 / KOI 3963.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-48 \pm 3$	$7.26^{+5.52}_{-4.47}$	$2354^{+141}_{-221}$	$3716^{+1757}_{-685}$	$3.134^{+18.414}_{-2.133}$
Alt.	$-15 \pm 2$	$7.74^{+5.69}_{-5.00}$	$2350^{+142}_{-225}$	$2923^{+1439}_{-4642}$	$0.897^{+6.426}_{-0.602}$

$T_{max}$  = 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

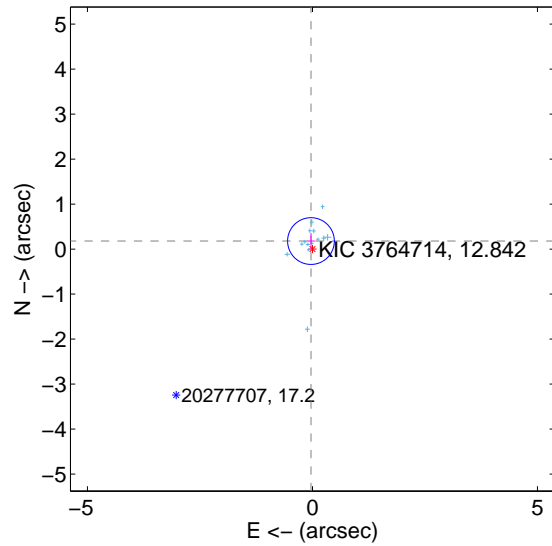
Supplemental centroid analysis for 003764714-01. Kepler magnitude: 12.84. Transit SNR 21.35

There are 14 quarters with good PRF difference image offsets

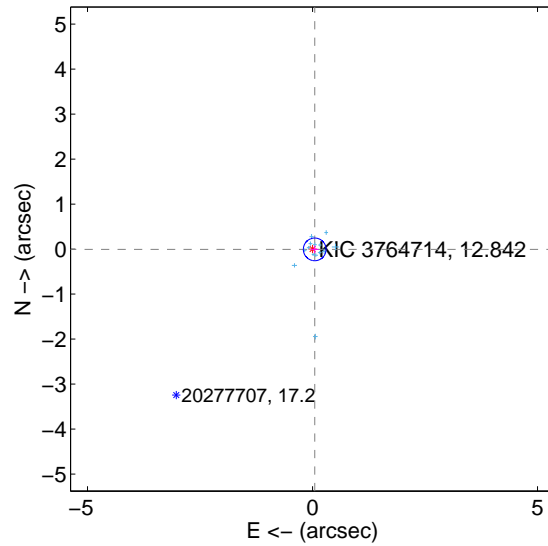
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.182 \pm 0.173$	1.05	$0.033 \pm 0.088$	$0.179 \pm 0.179$
PRF-fit source offset from KIC position	$0.049 \pm 0.084$	0.58	$-0.048 \pm 0.084$	$-0.006 \pm 0.087$
photometric centroid source offset	$2.80 \pm 0.56$	5.01	$-0.56 \pm 0.36$	$2.75 \pm 0.57$

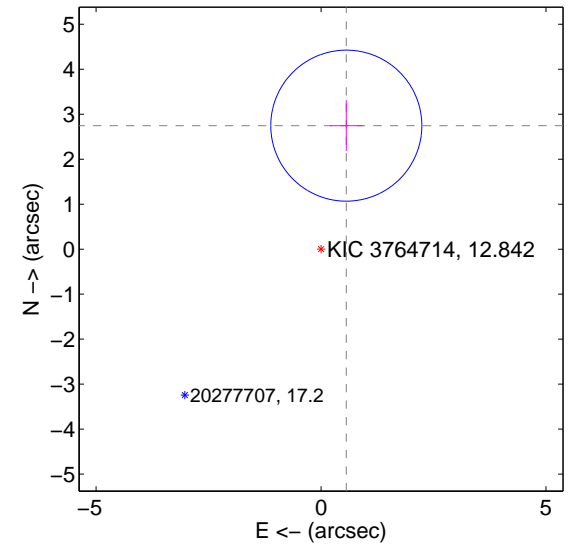
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

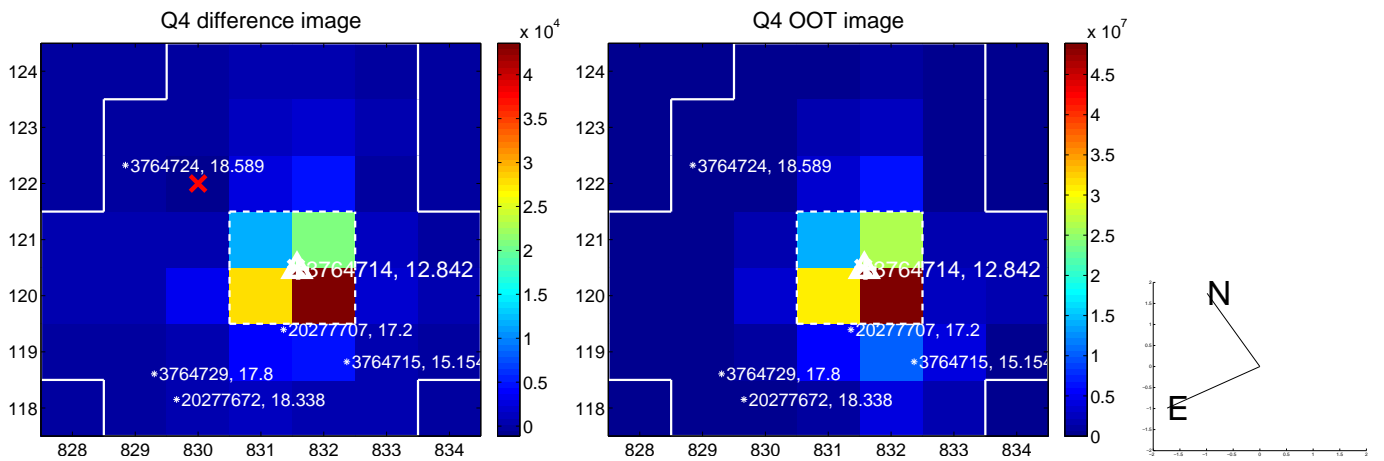
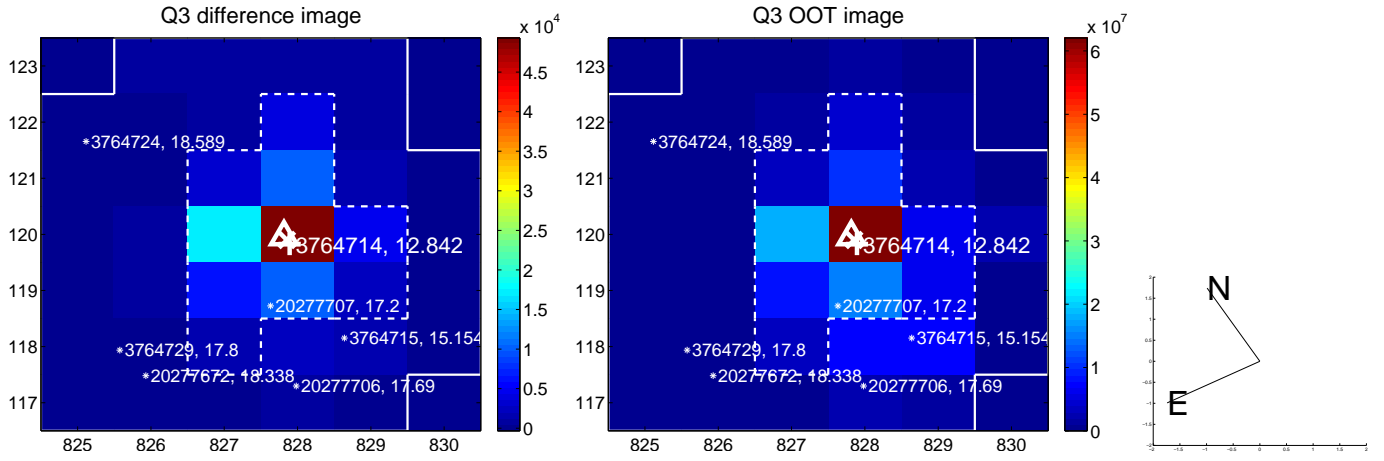
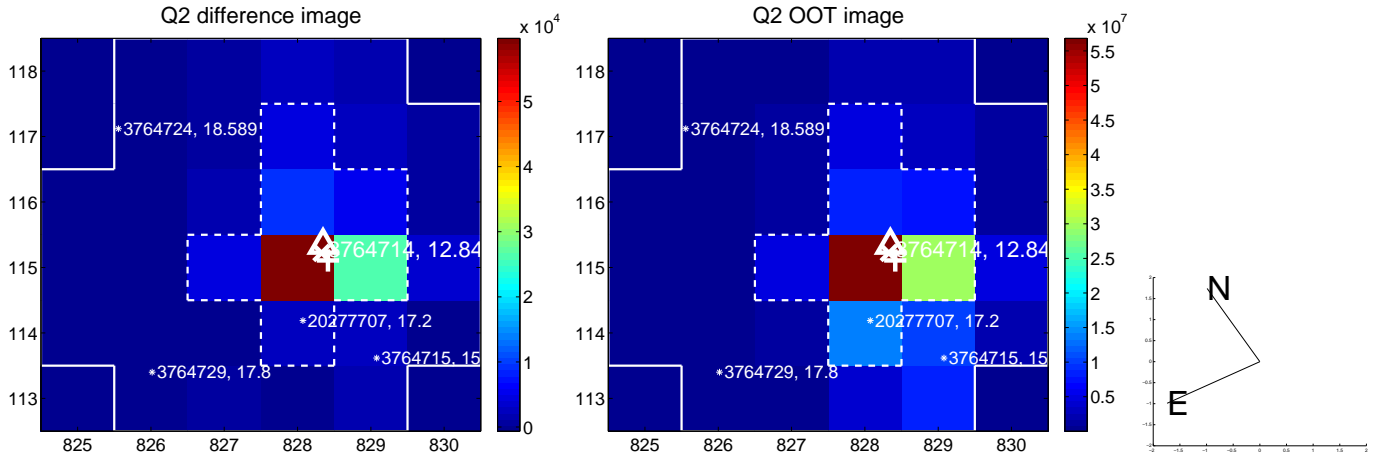
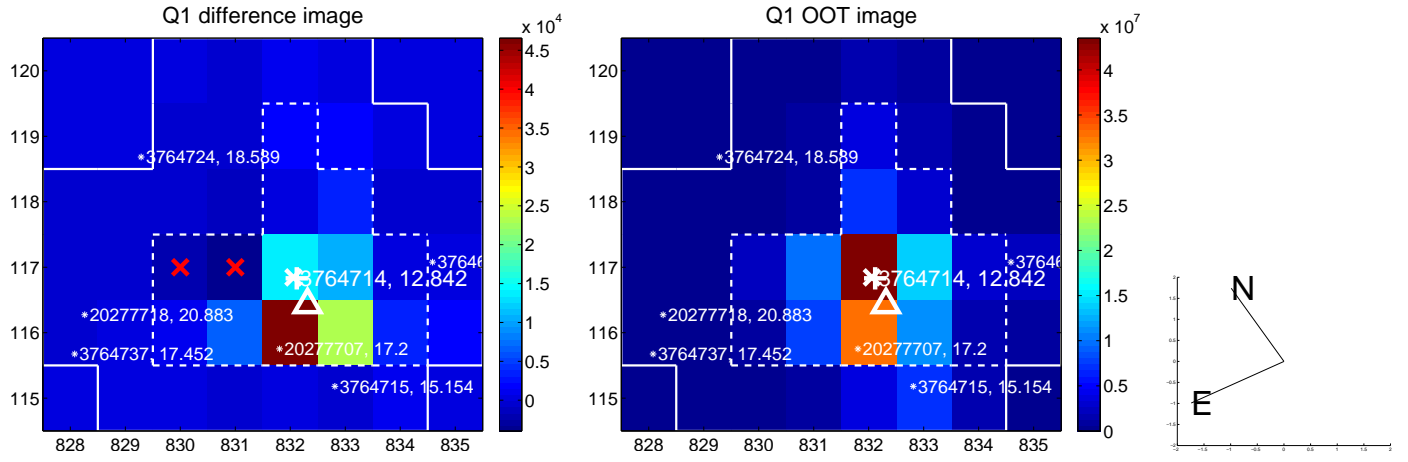


offset from photometric centroids

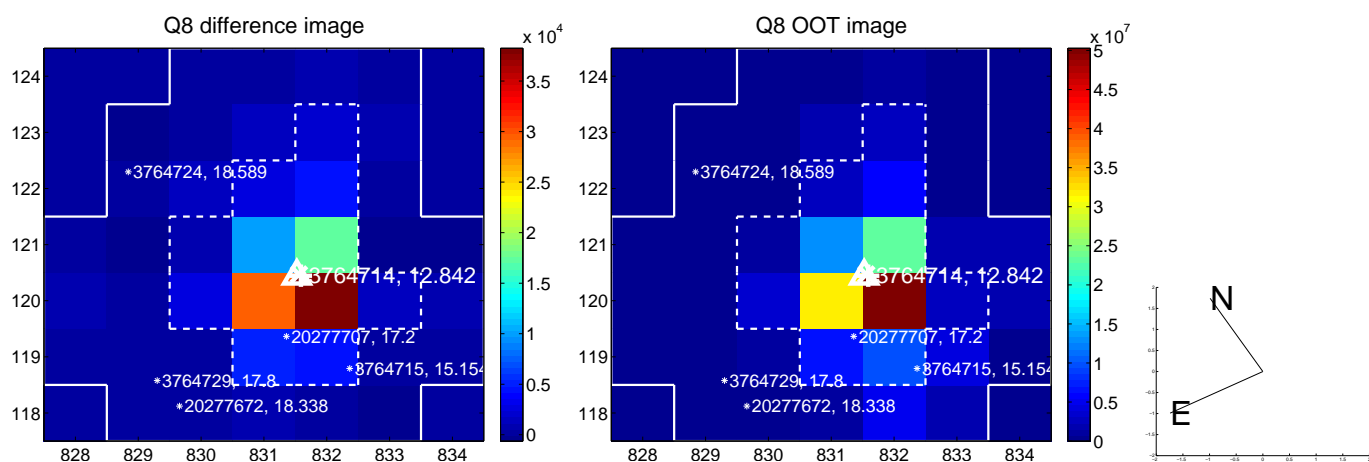
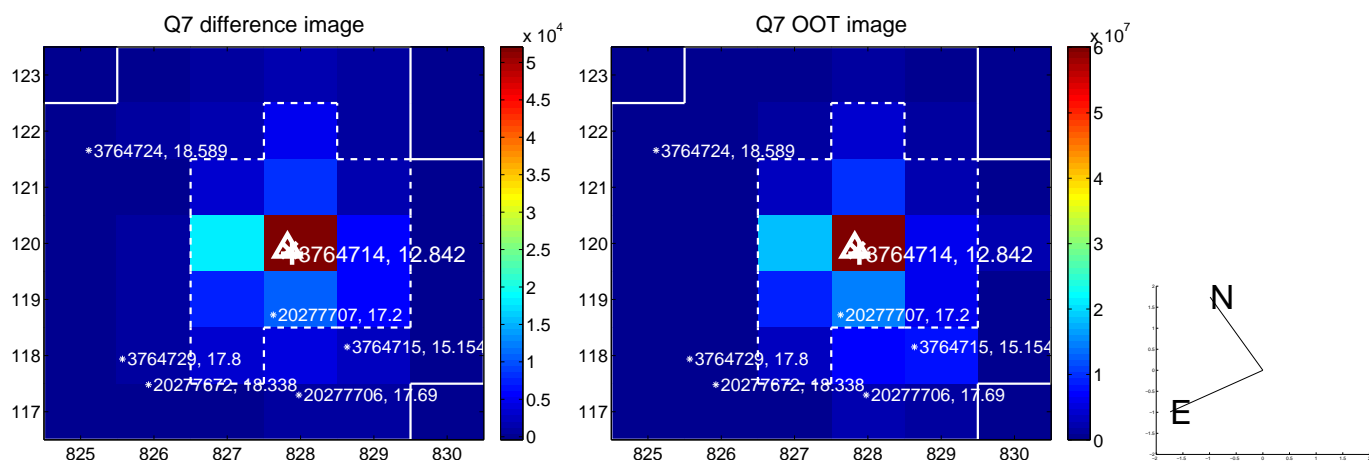
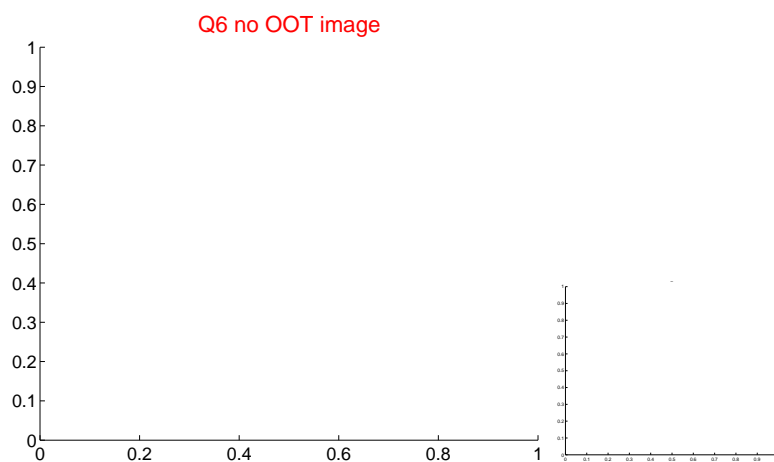
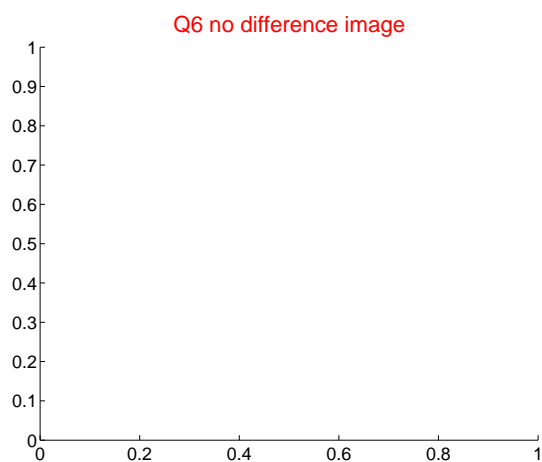
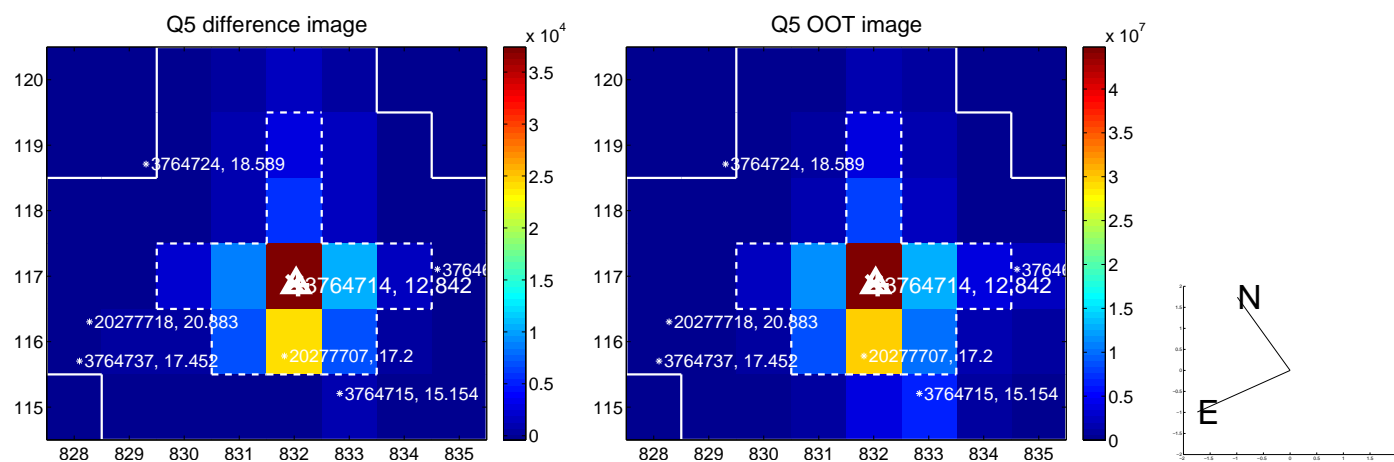


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

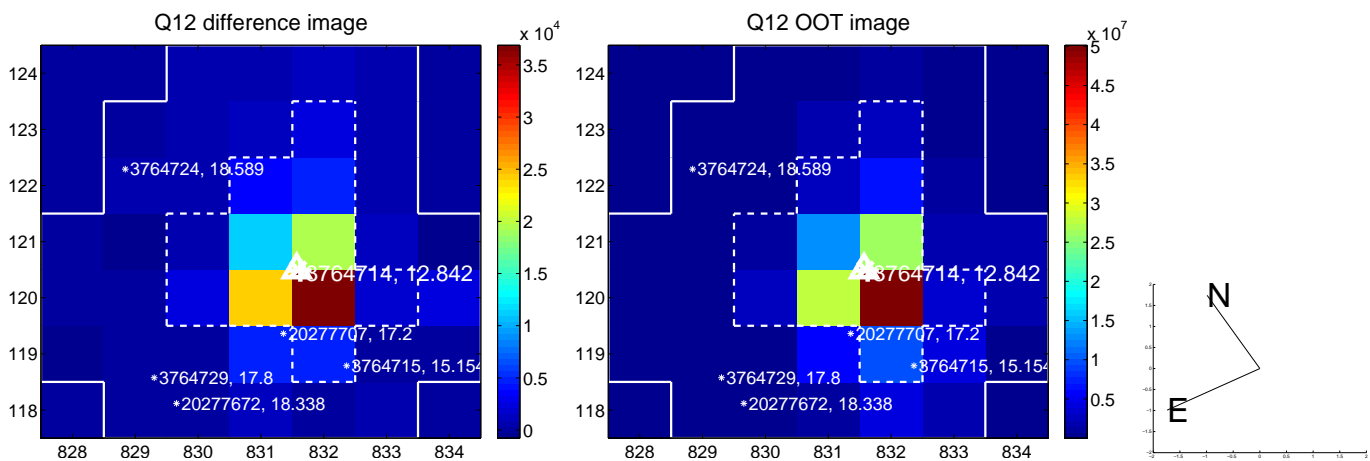
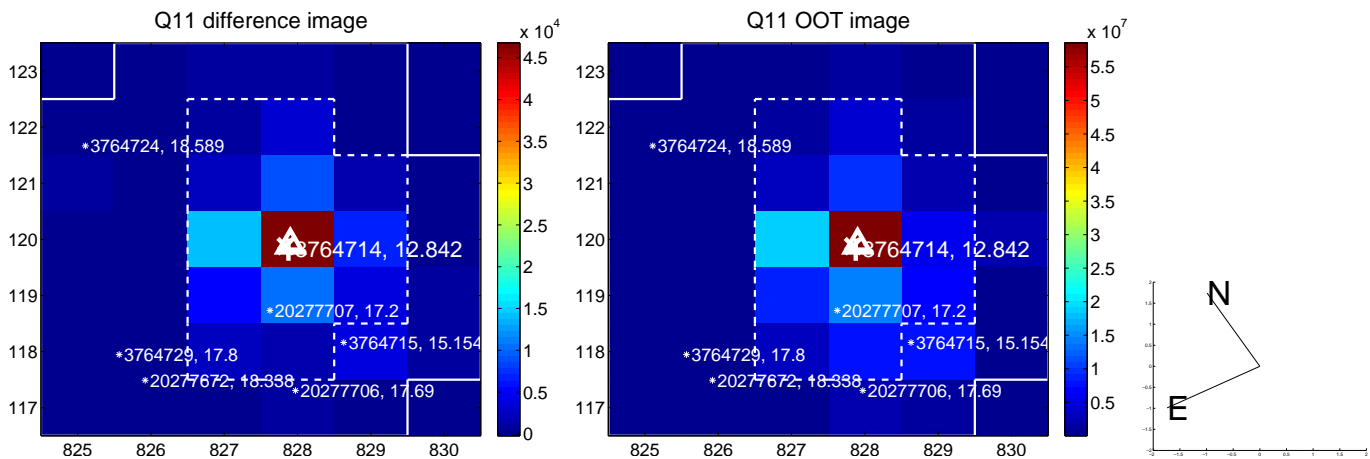
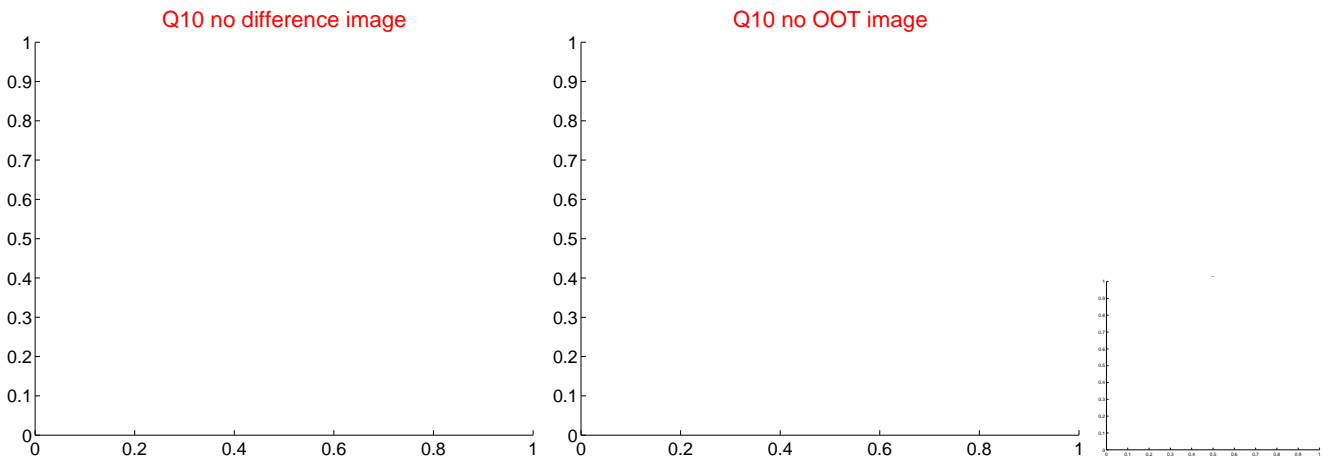
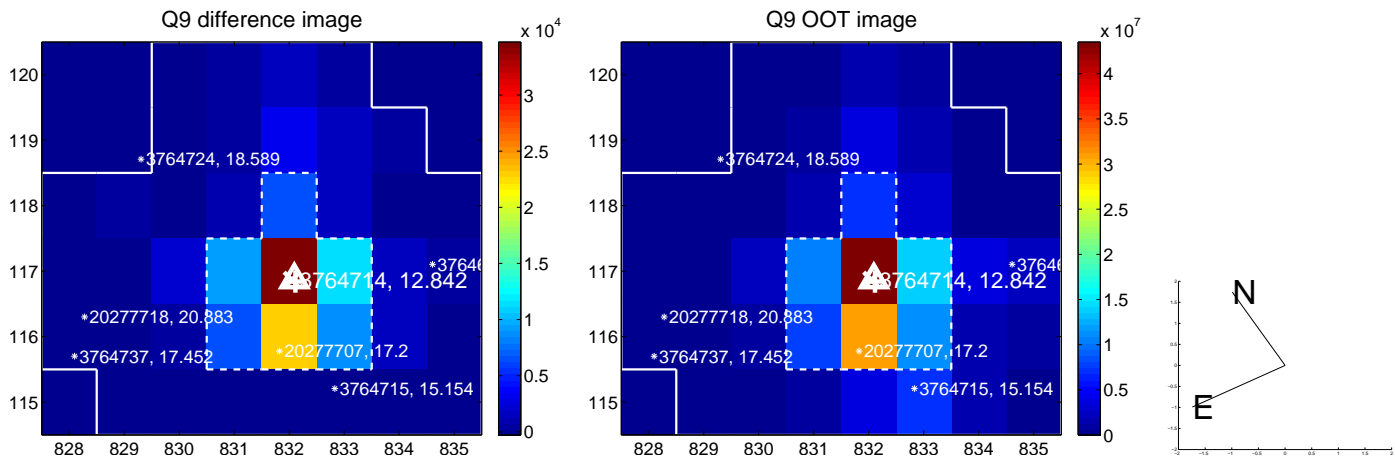
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



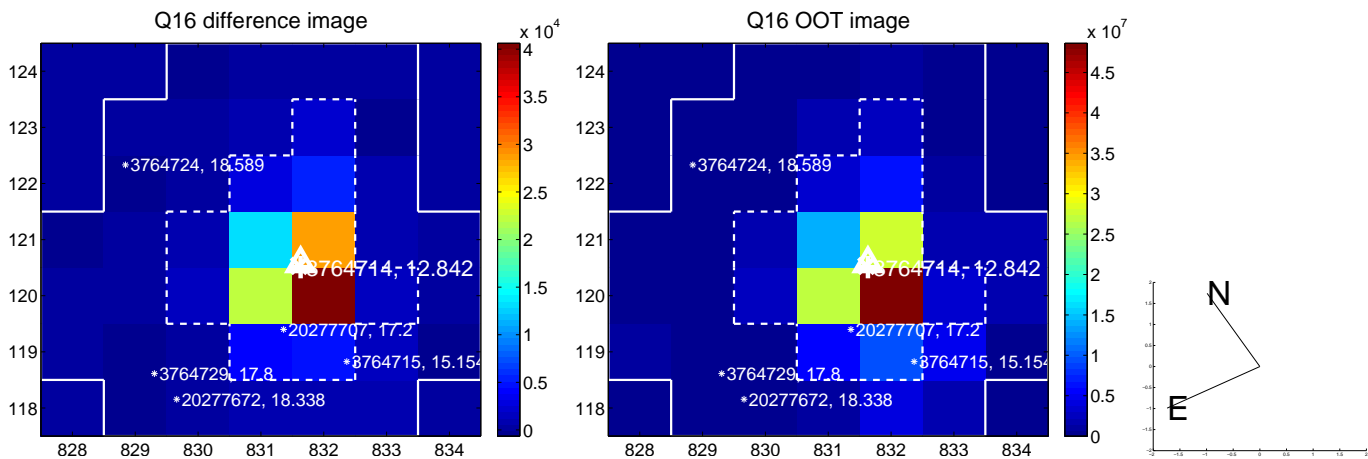
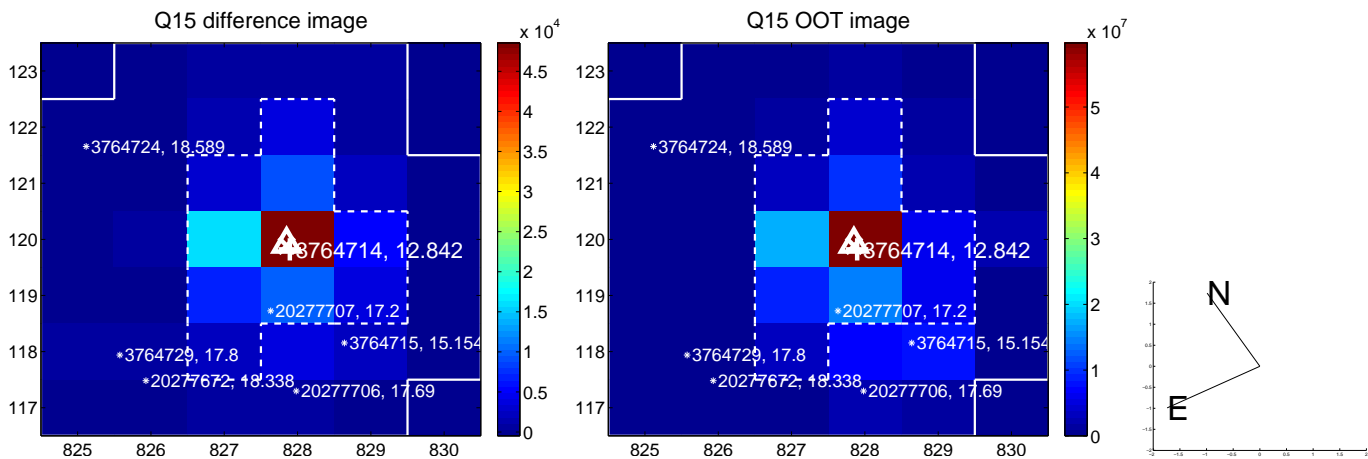
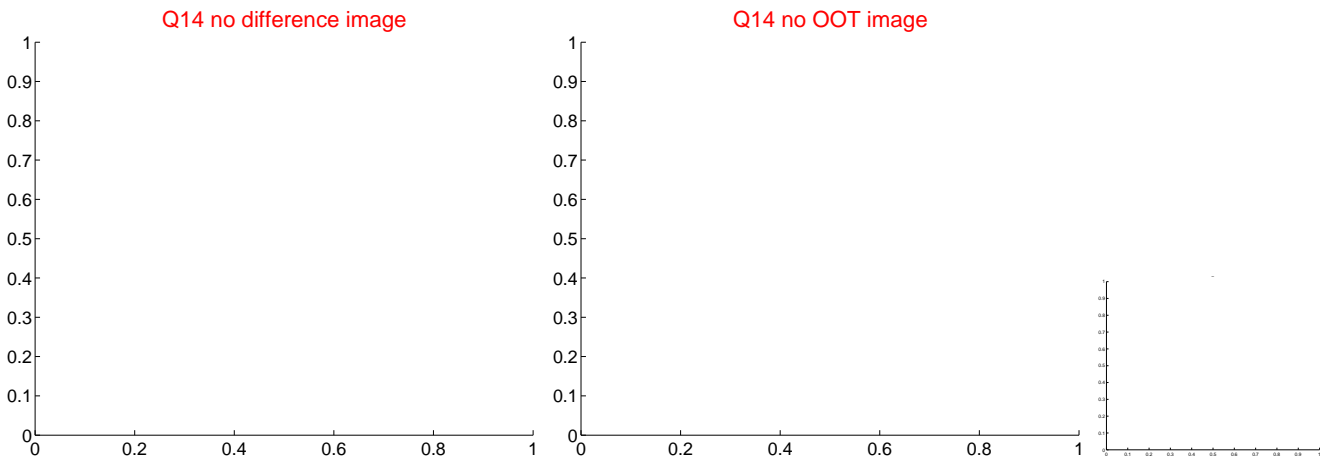
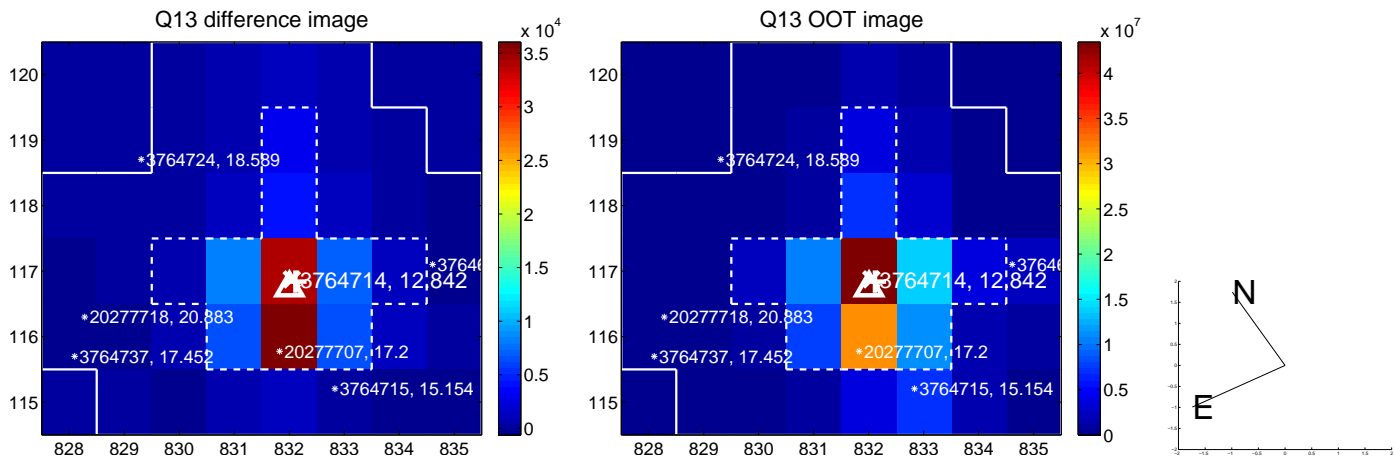
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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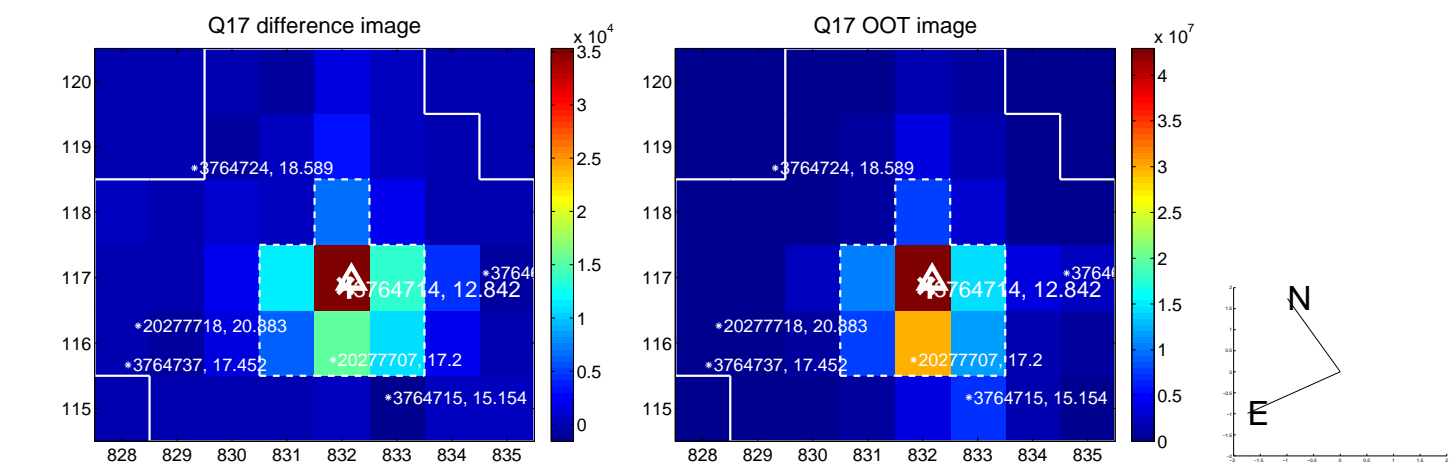


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

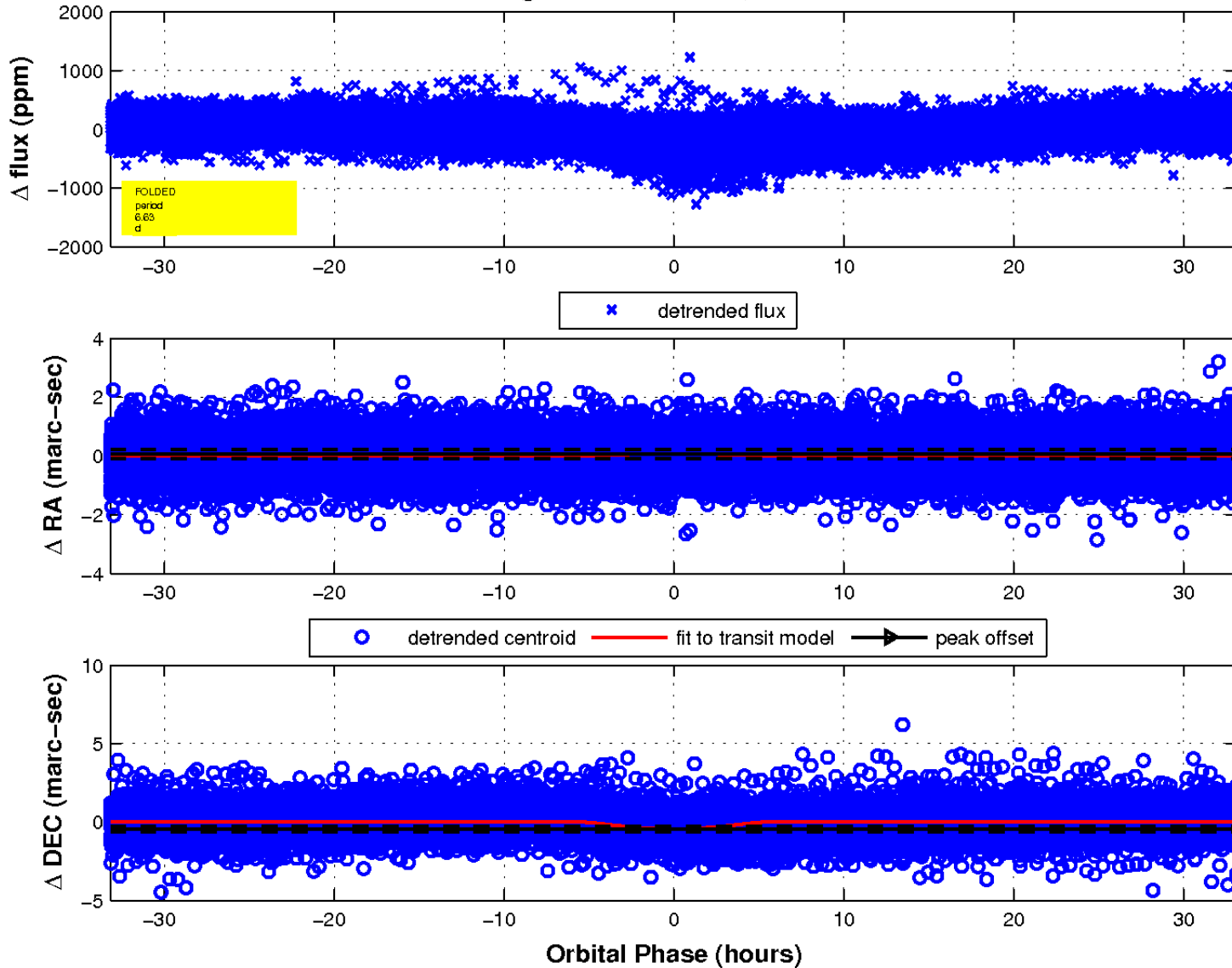




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

