

# KIC 005814013

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005814013-01	OBS	4865.01	1.570132	132.123902	125.6	2.444	8.9	8.1	0.66	5300	0.88	545.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005814013-01	OBS	FP	0.00	0	0	1	0	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.

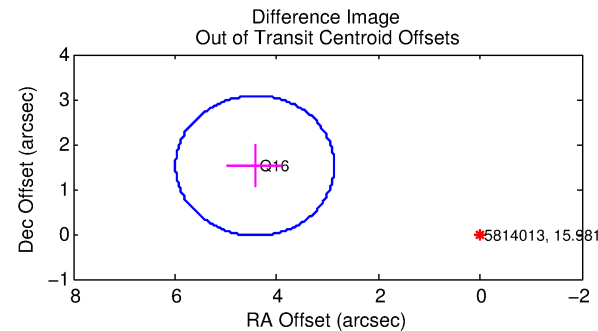
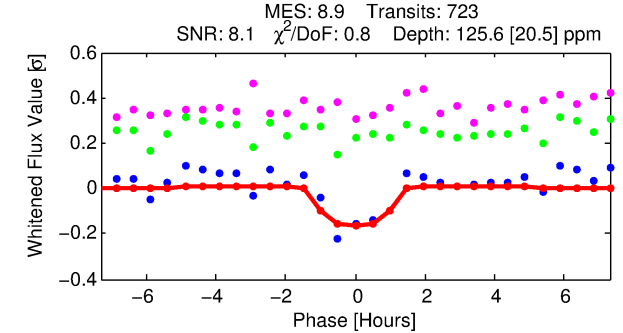
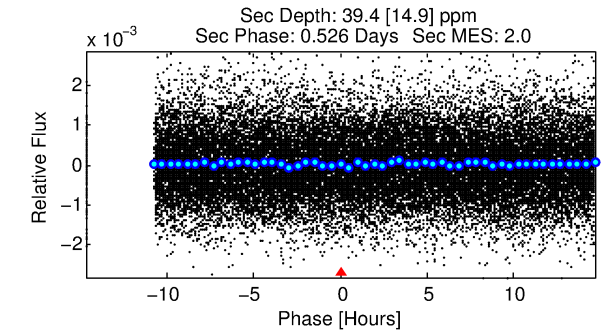
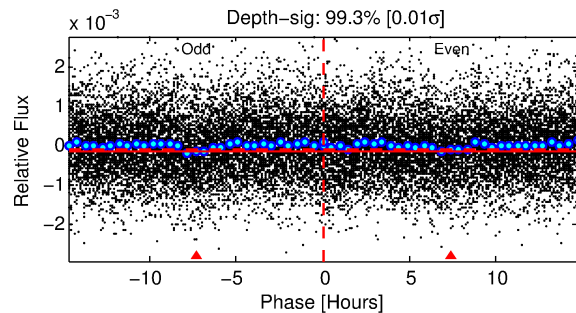
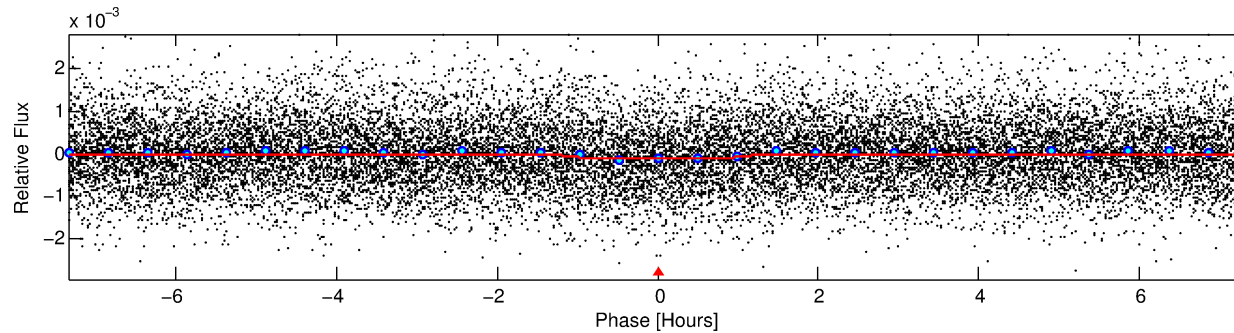
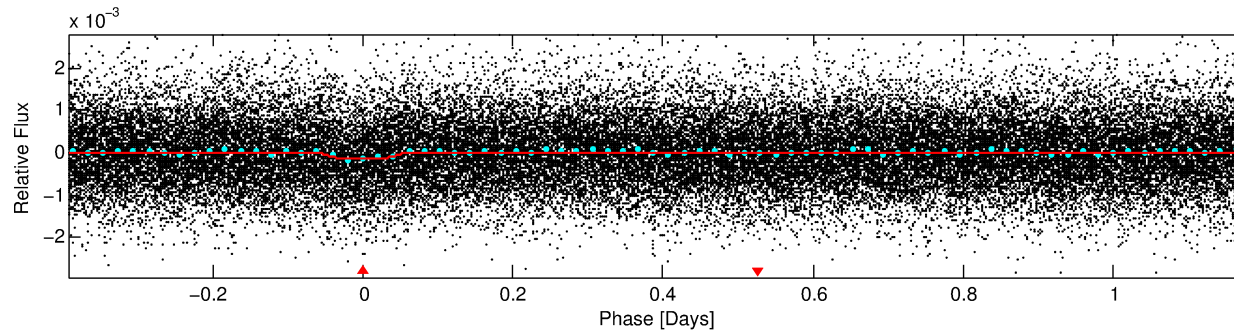
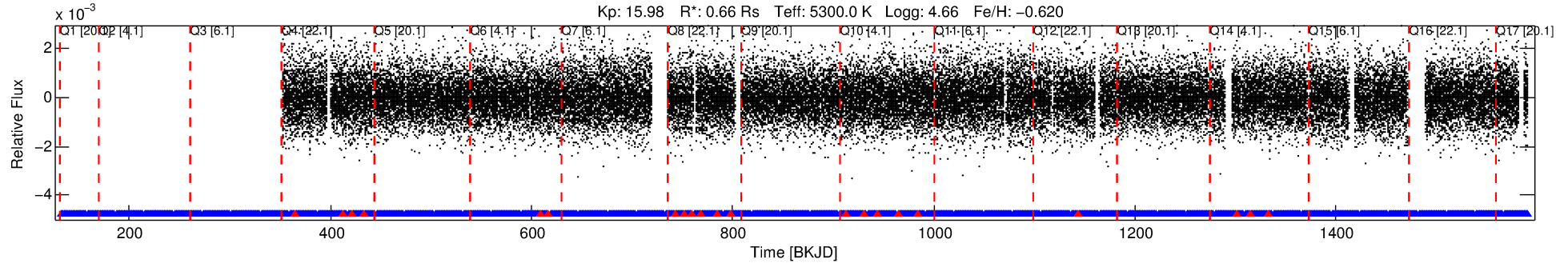
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005814013-01

No Significant Match Found

# DV One-Page Summary

KIC: 5814013 Candidate: 1 of 1 Period: 1.570 d  
KOI: K04865.01 Corr: 0.956



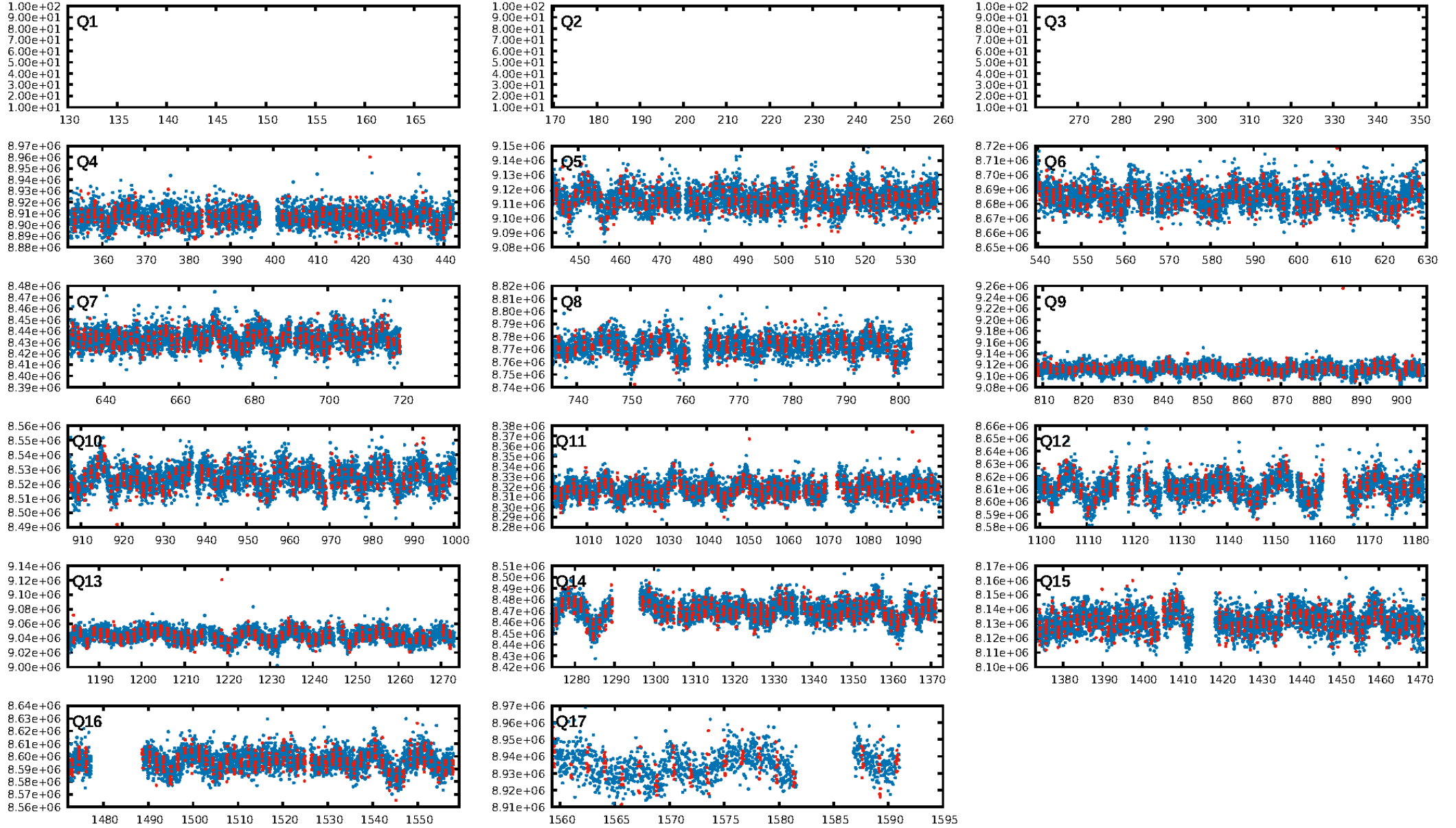
## DV Fit Results:

Period = 1.57013 [0.00002] d  
Epoch = 132.1239 [0.0044] BKJD  
Rp/R\* = 0.0123 [0.0130]  
a/R\* = 2.46 [9.89]  
b = 0.90 [1.04]  
Seff = 545.06 [119.68]  
Teq = 1232 [68] K  
Rp = 0.88 [0.94] Re  
a = 0.0238 [0.0028] AU  
Ag = 15.67 [33.72] [0.43 $\sigma$ ]  
Teffp = 3790 [2037] K [1.25 $\sigma$ ]

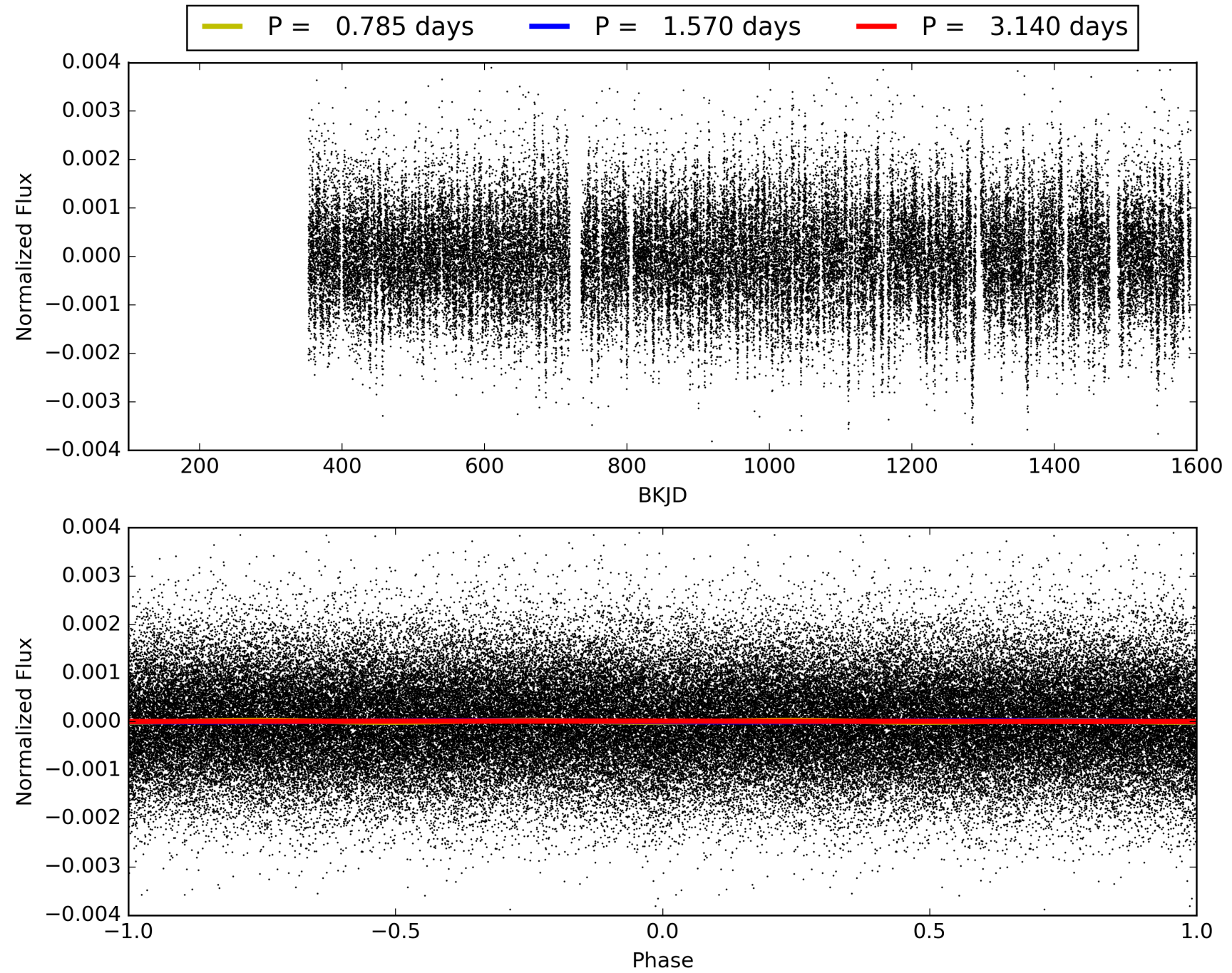
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.45e-19  
RollingBand-fgt: 0.97 [684/705]  
GhostDiagnostic-chr: -0.5433  
Centroid-sig: 0.0%  
Centroid-so: 14.896 arcsec [8.55 $\sigma$ ]  
OotOffset-rm: 4.680 arcsec [9.01 $\sigma$ ]  
KicOffset-rm: 4.763 arcsec [9.15 $\sigma$ ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 005814013-01, PDC Light Curves



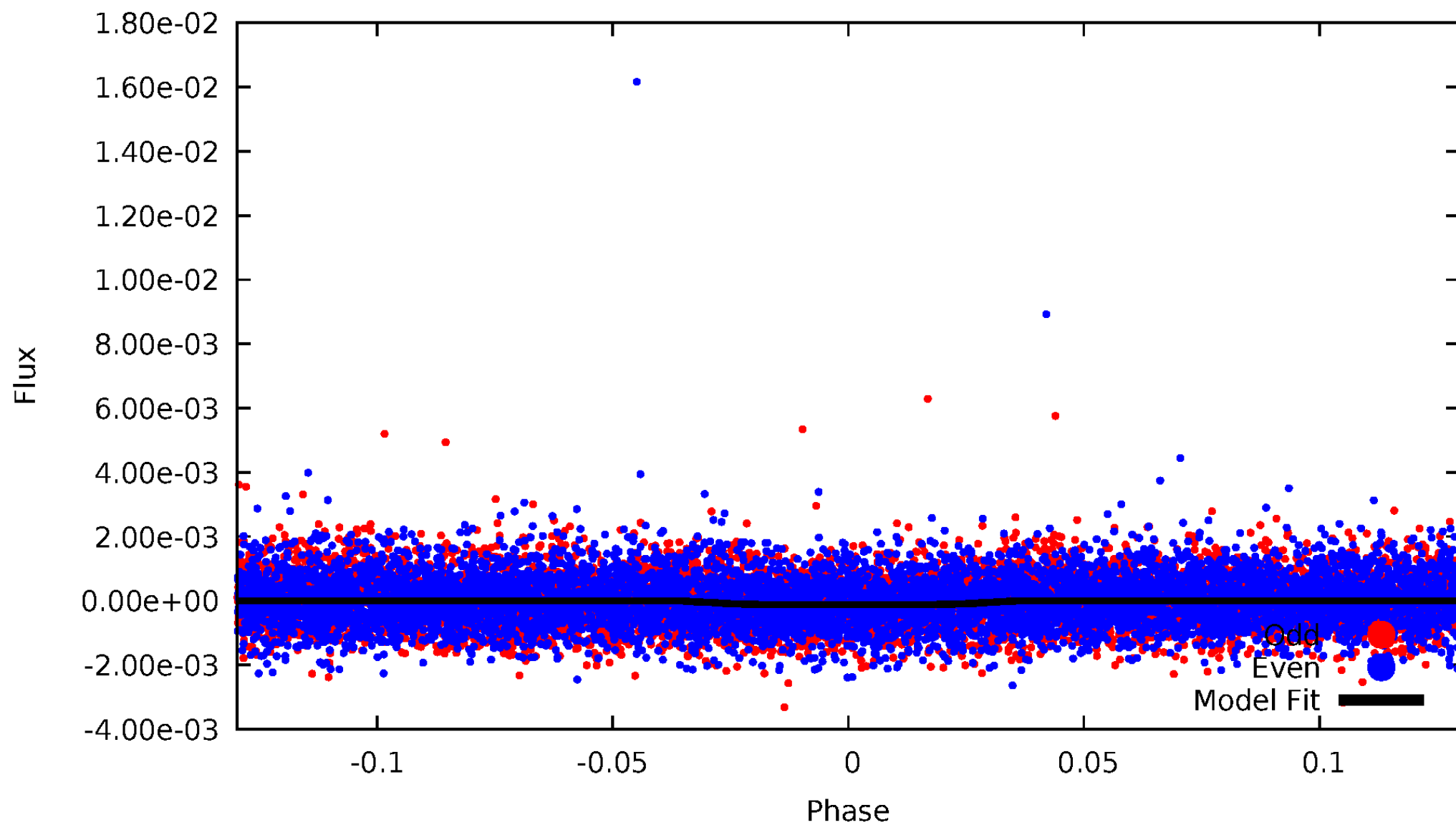
TCE 005814013-01





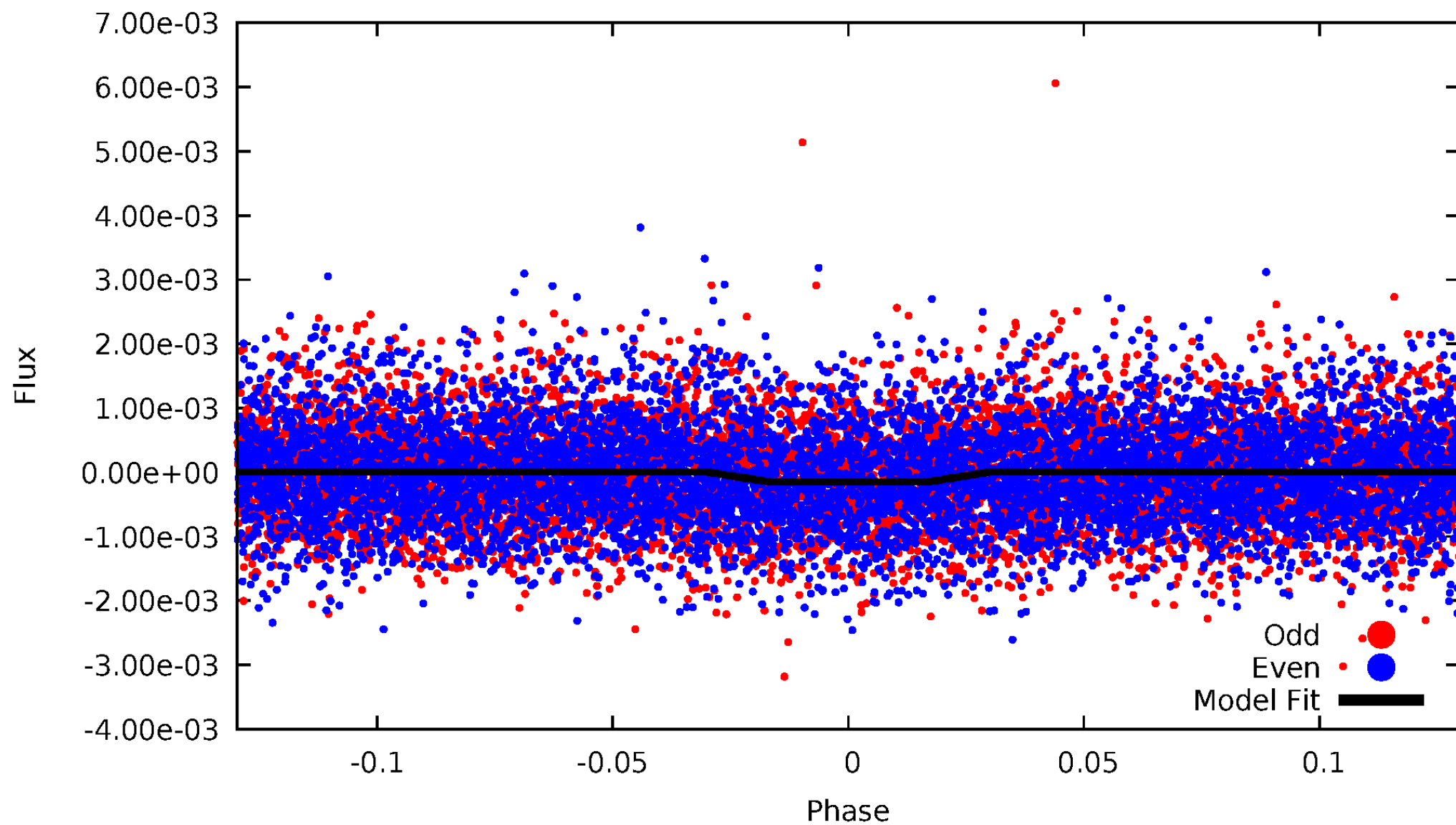
# DV Odd/Even

TCE 005814013-01



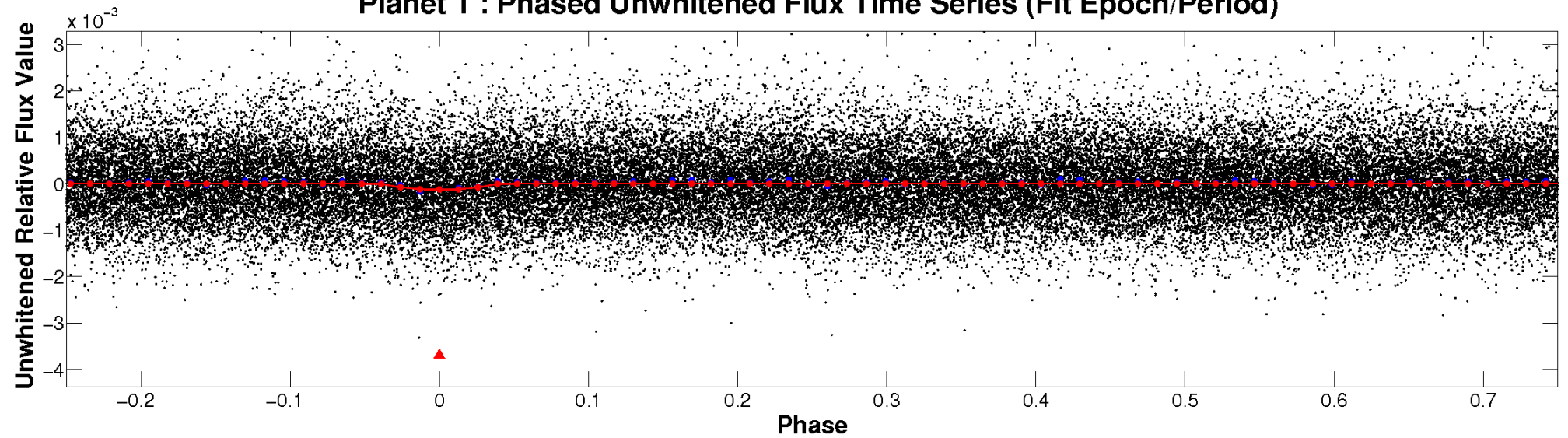
# ALT Odd/Even

TCE 005814013-01

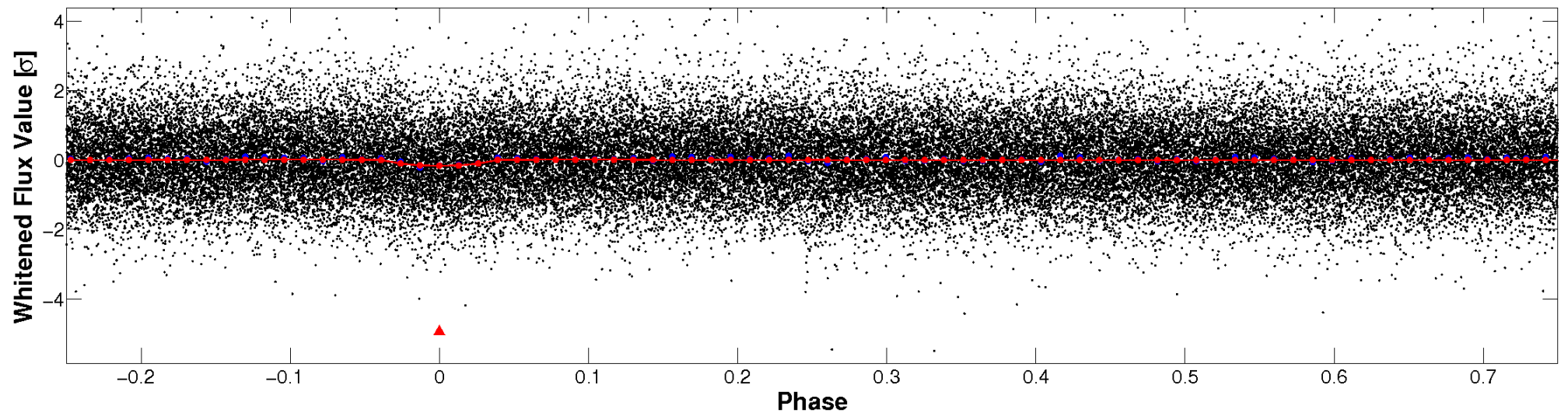


# Non-Whitened Vs. Whitened Light Curve

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

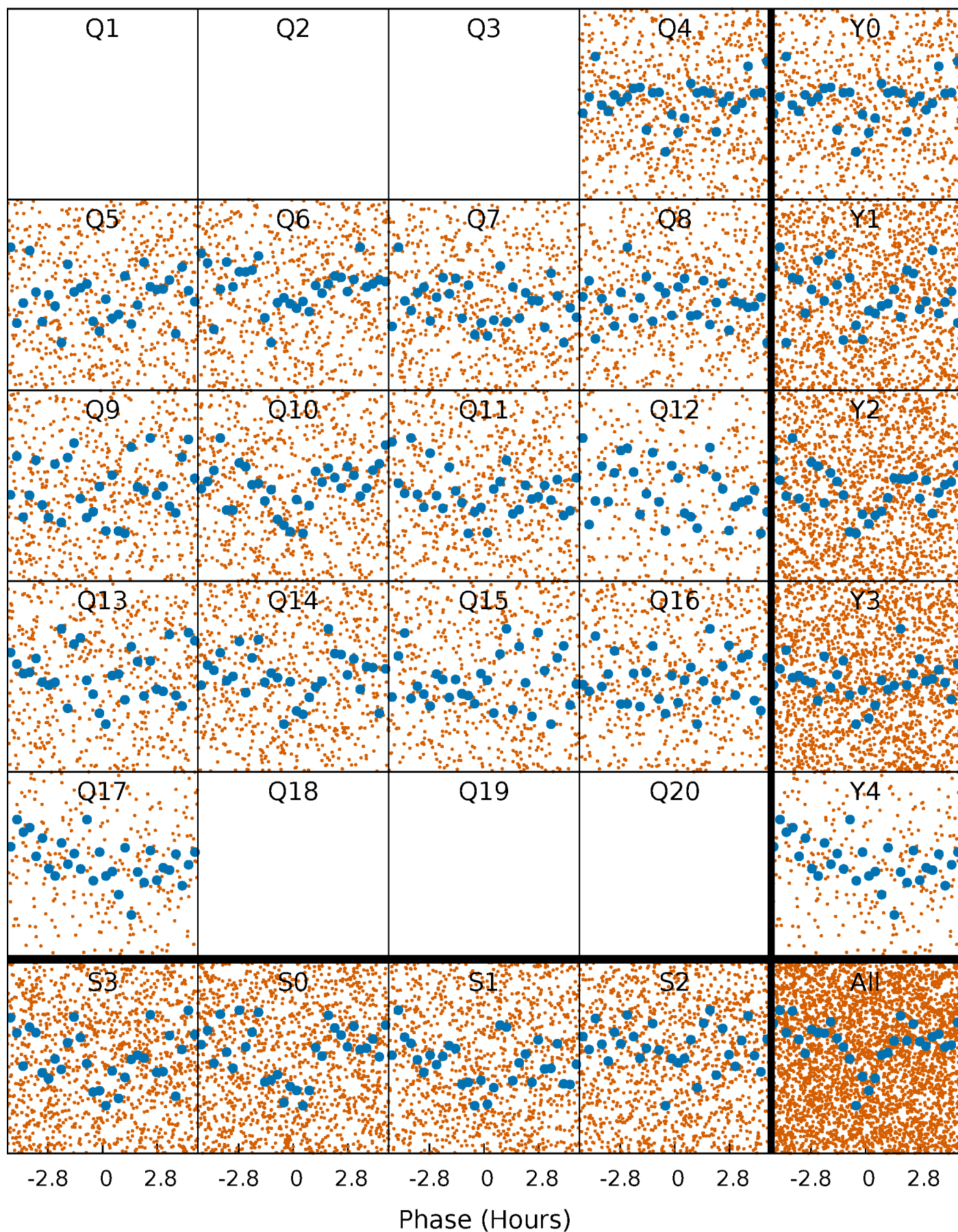


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

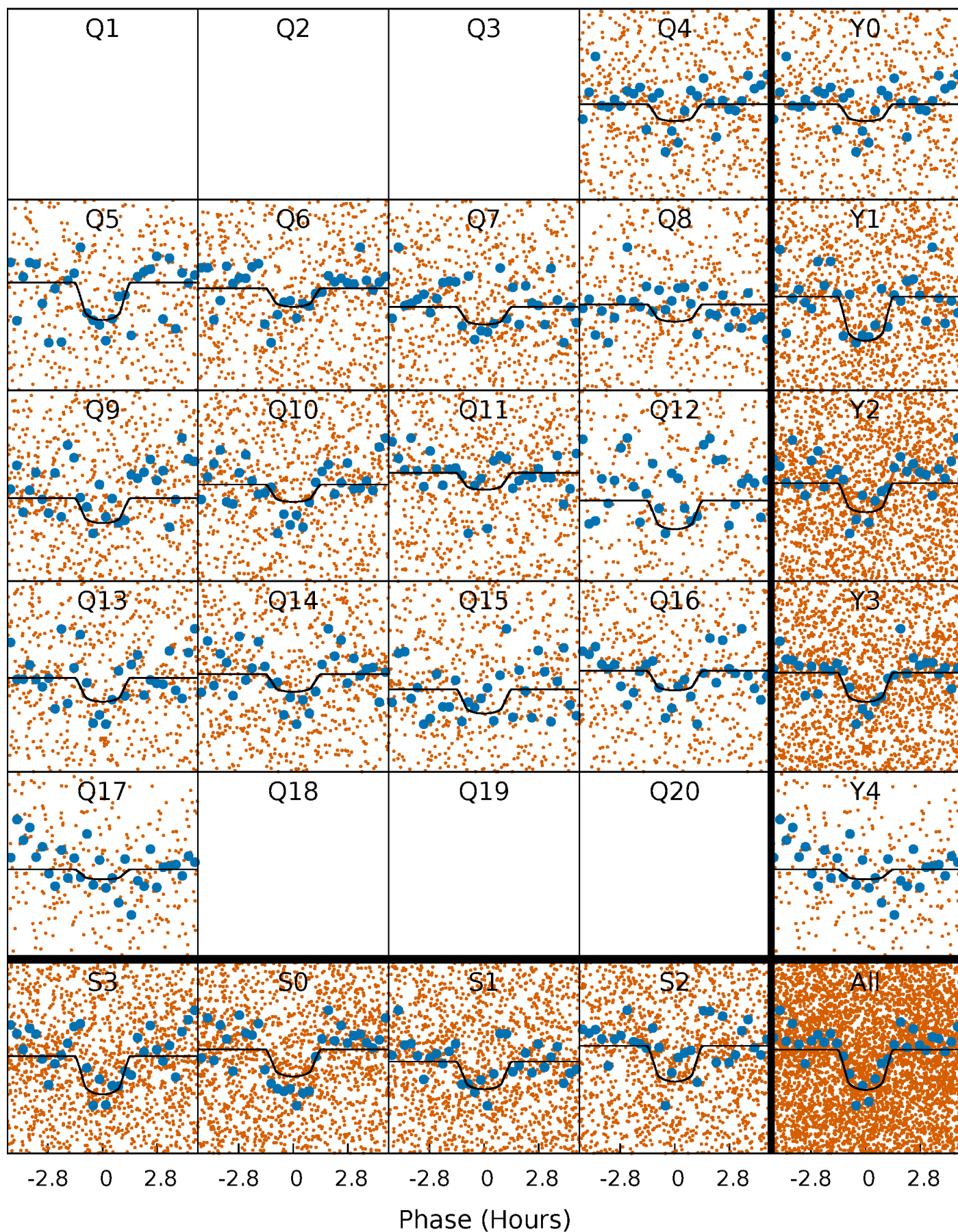
TCE 005814013-01 P= 1.570132 Days  $T_0=132.123902$  (BKJD)





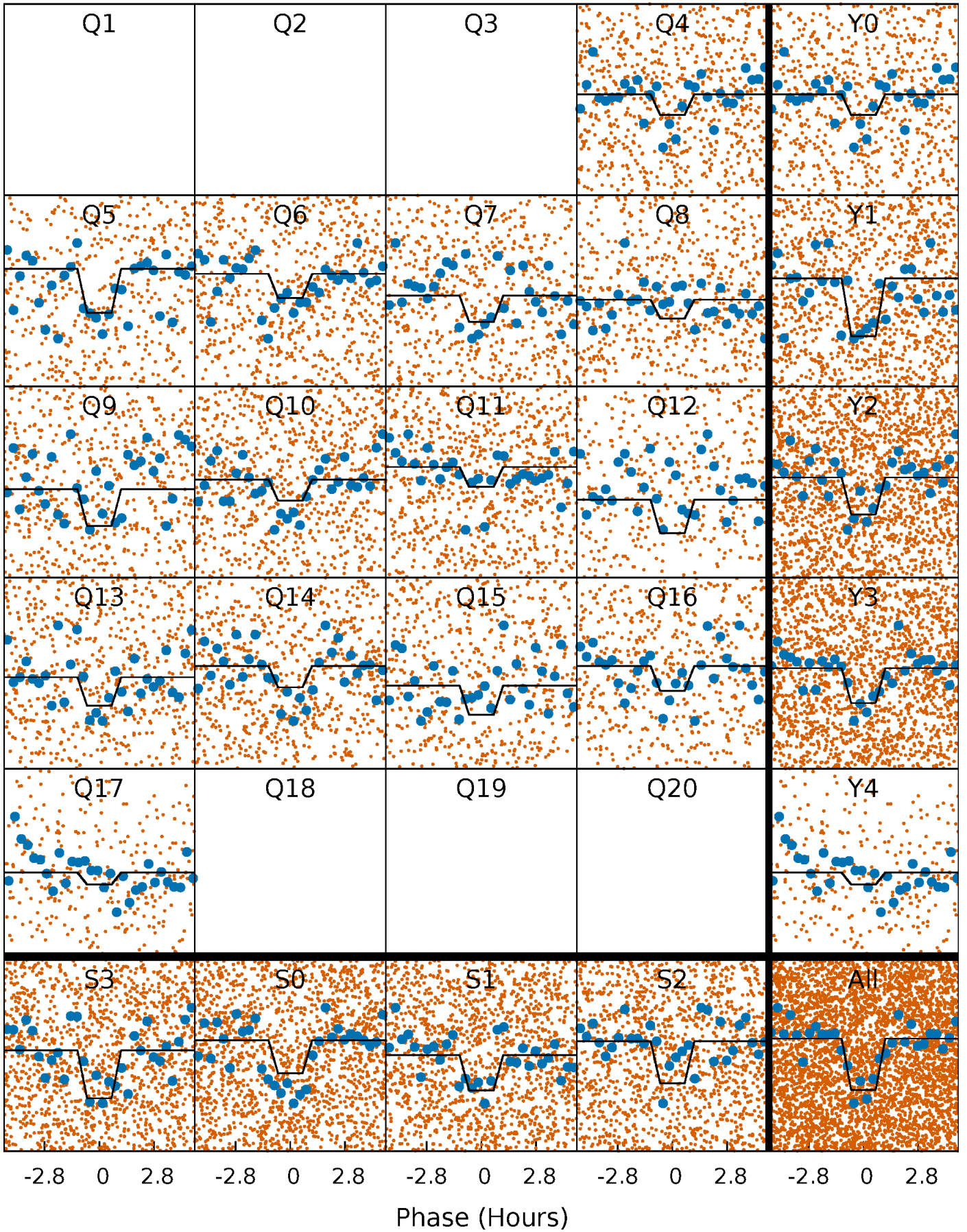
# DV Quarter-Phased Transit Curves

TCE 005814013-01 P= 1.570132 Days  $T_0=132.123902$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

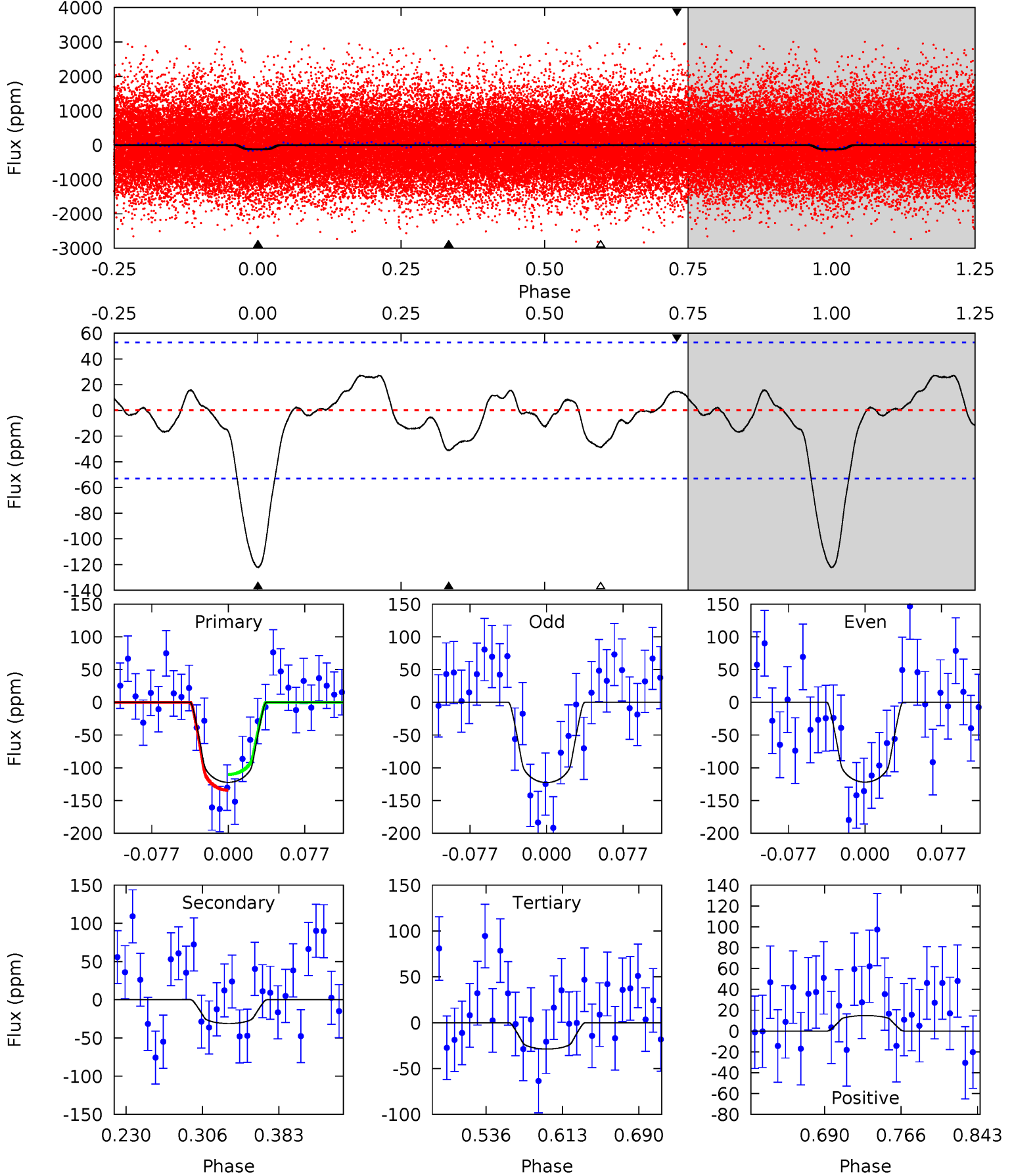
TCE 005814013-01 P= 1.570132 Days  $T_0=132.123902$  (BKJD)



# DV Model-Shift Uniqueness Test

005814013-01, P = 1.570132 Days, E = 132.123902 Days

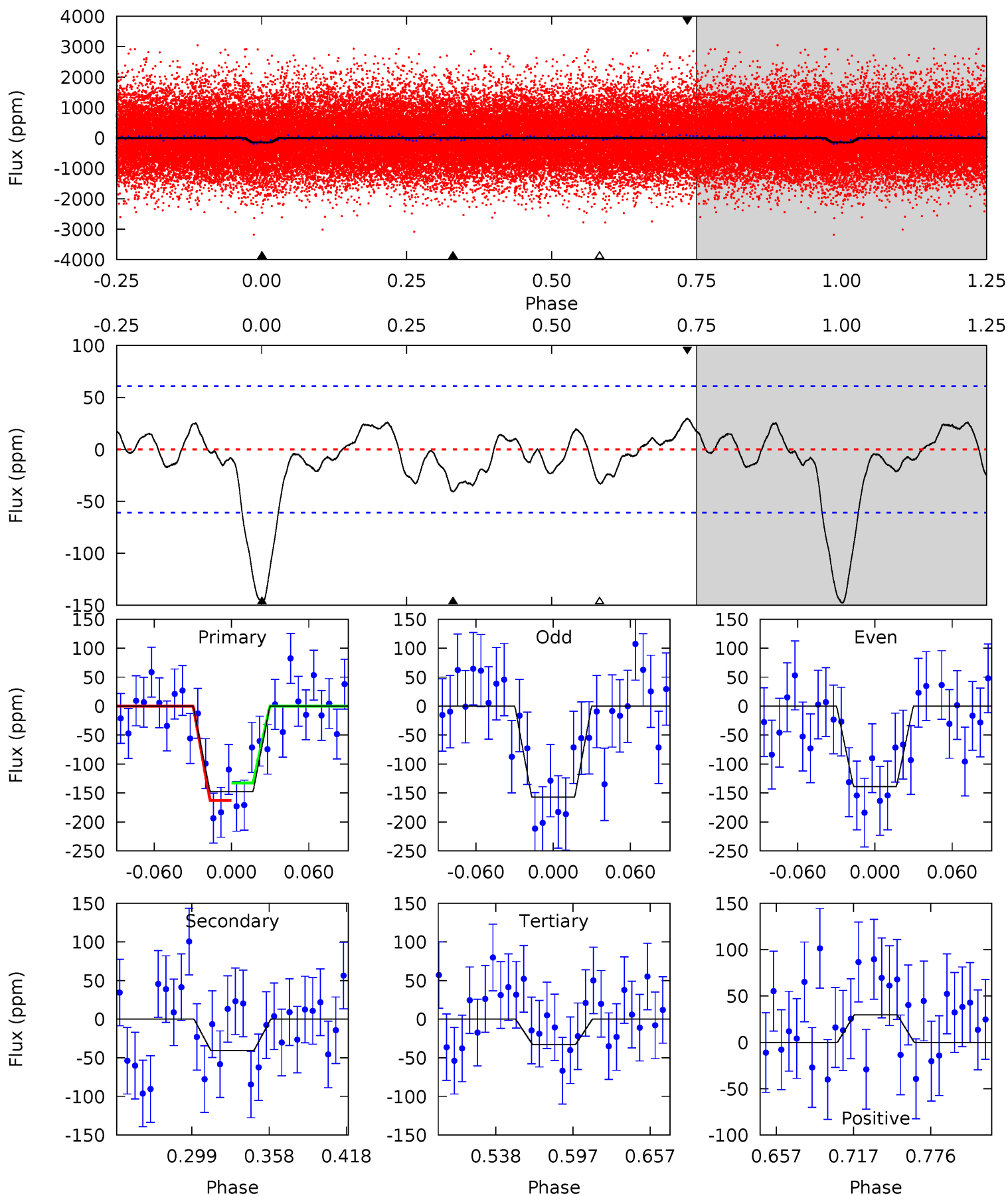
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	2.71	2.51	1.29	4.62	1.77	1.10	8.16	9.37	0.20	1.42	0.03	0.82	0.18	1.05



# Alt Model-Shift Uniqueness Test

005814013-01, P = 1.570132 Days, E = 132.123902 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
11.3	3.12	2.53	2.28	4.67	1.88	1.17	8.81	9.06	0.59	0.85	0.71	1.01	0.17	1.16





### Stellar Parameters For KIC 005814013

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5300^{+187}_{-187}$	$4.660^{+0.030}_{-0.090}$	$-0.620^{+0.300}_{-0.300}$	$0.660^{+0.095}_{-0.048}$	$0.731^{+0.071}_{-0.064}$	$3.583^{+0.460}_{-1.027}$
	+4%/-4%	+1%/-2%	+48%/-48%	+14%/-7%	+10%/-9%	+13%/-29%
Source	KIC0	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 005814013-01 / KOI 4865.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-31 \pm 11$	$1.11^{+0.92}_{-0.70}$	$1746^{+80}_{-72}$	$3586^{+1694}_{-668}$	$7.259^{+46.367}_{-5.204}$
Alt.	$-41 \pm 13$	$1.09^{+0.84}_{-0.67}$	$1743^{+80}_{-79}$	$3763^{+1837}_{-681}$	$9.960^{+60.479}_{-6.892}$

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

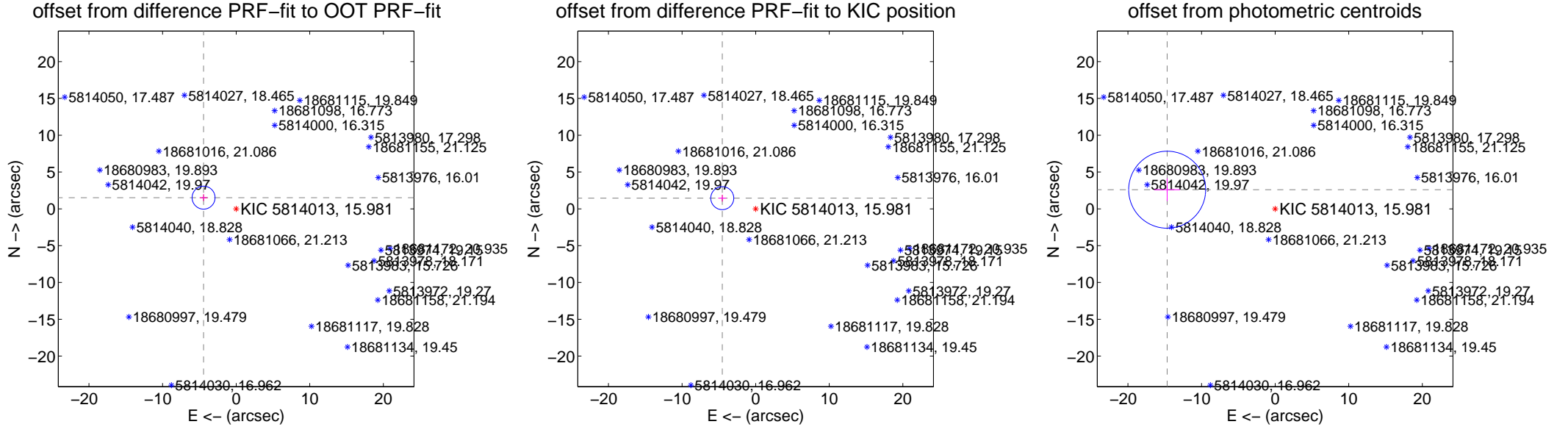
## DV Centroid Data

Supplemental centroid analysis for 005814013-01. Kepler magnitude: 15.98. Transit SNR 8.09

There are 0 quarters with good PRF difference image offsets

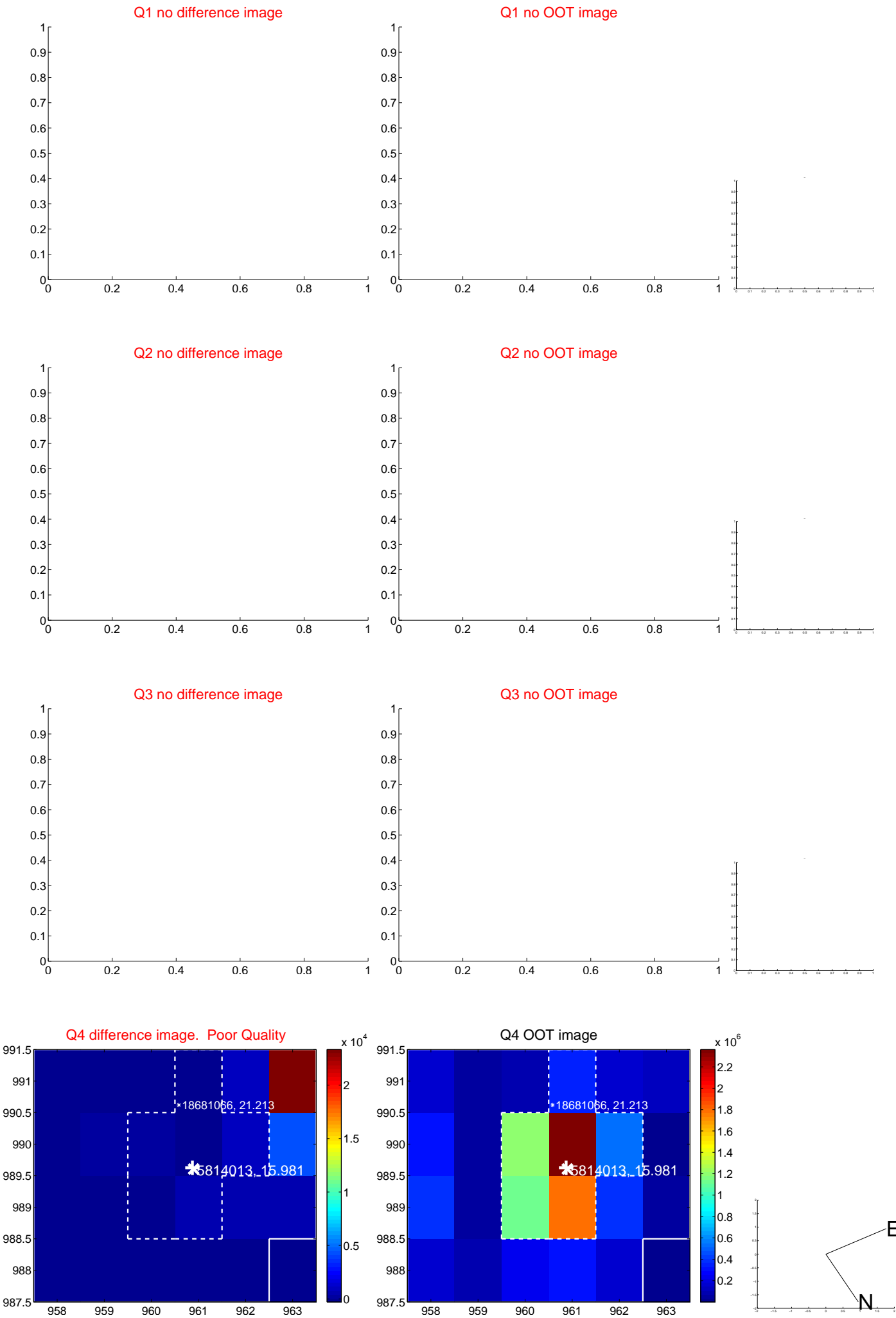
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	4.680 $\pm$ 0.520	9.01	4.426 $\pm$ 0.527	1.520 $\pm$ 0.454
PRF-fit source offset from KIC position	4.763 $\pm$ 0.520	9.15	4.535 $\pm$ 0.527	1.454 $\pm$ 0.454
photometric centroid source offset	14.90 $\pm$ 1.74	8.55	14.67 $\pm$ 1.75	2.60 $\pm$ 1.53

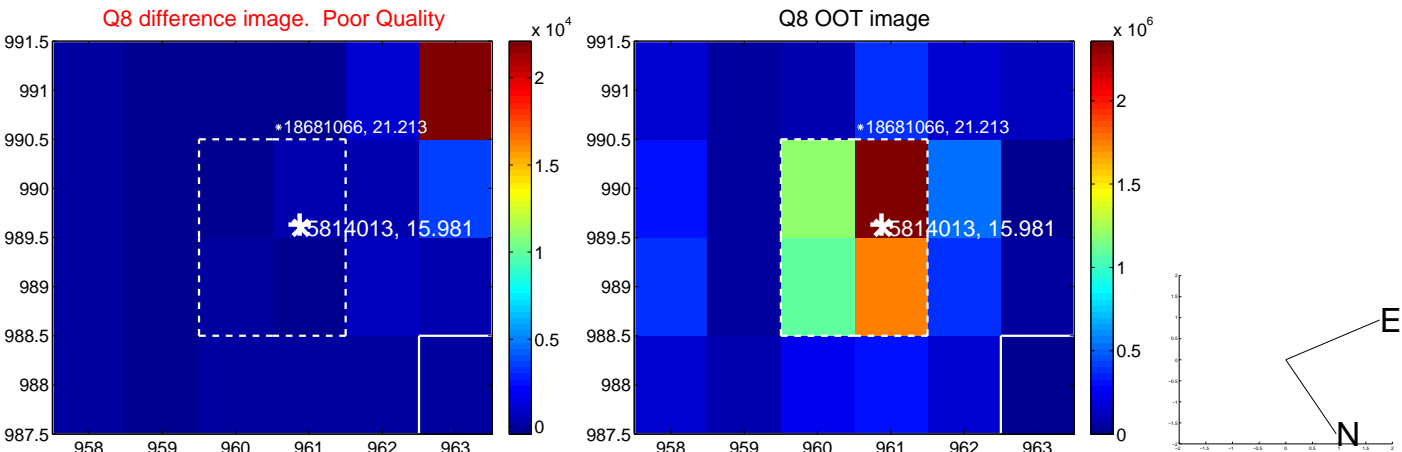
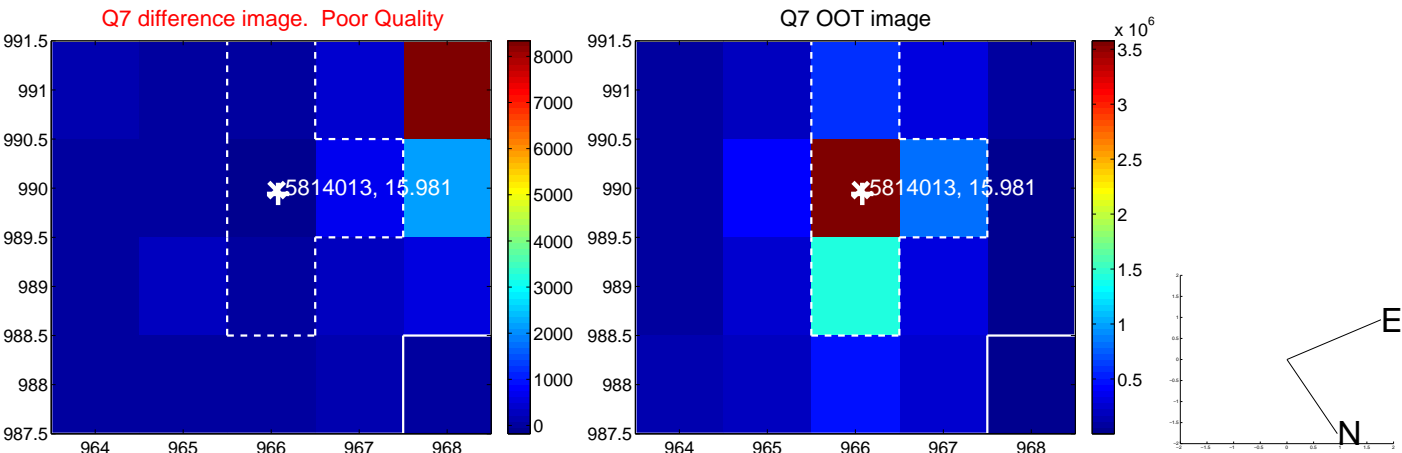
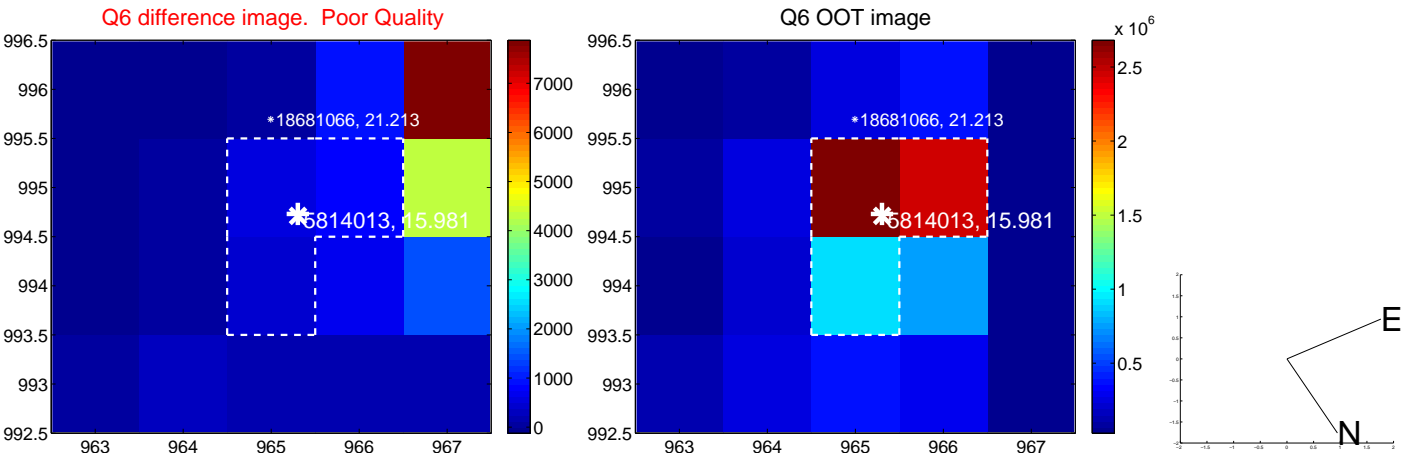
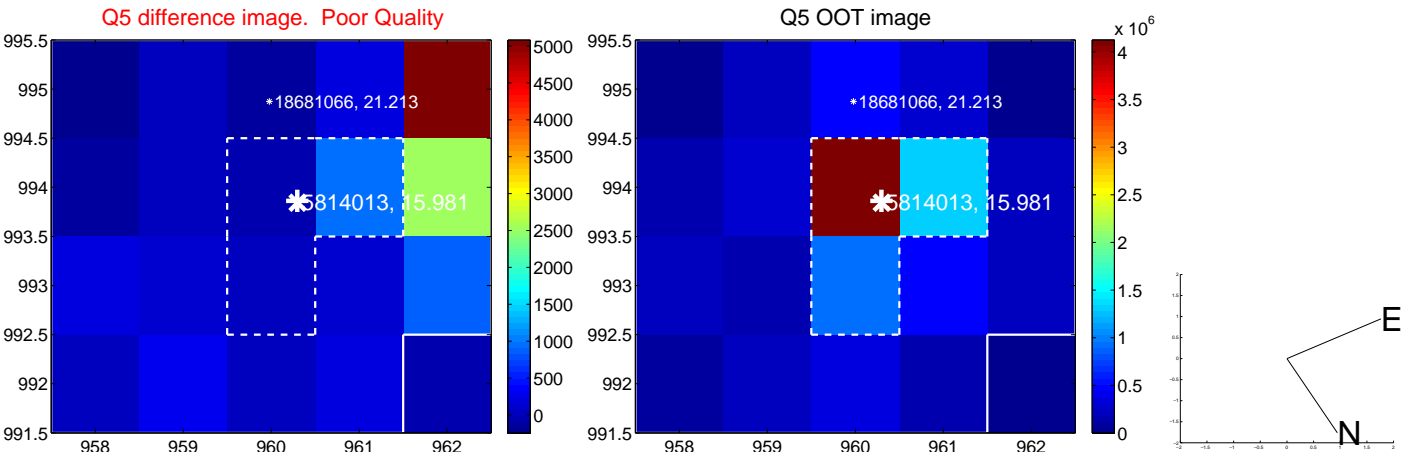


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

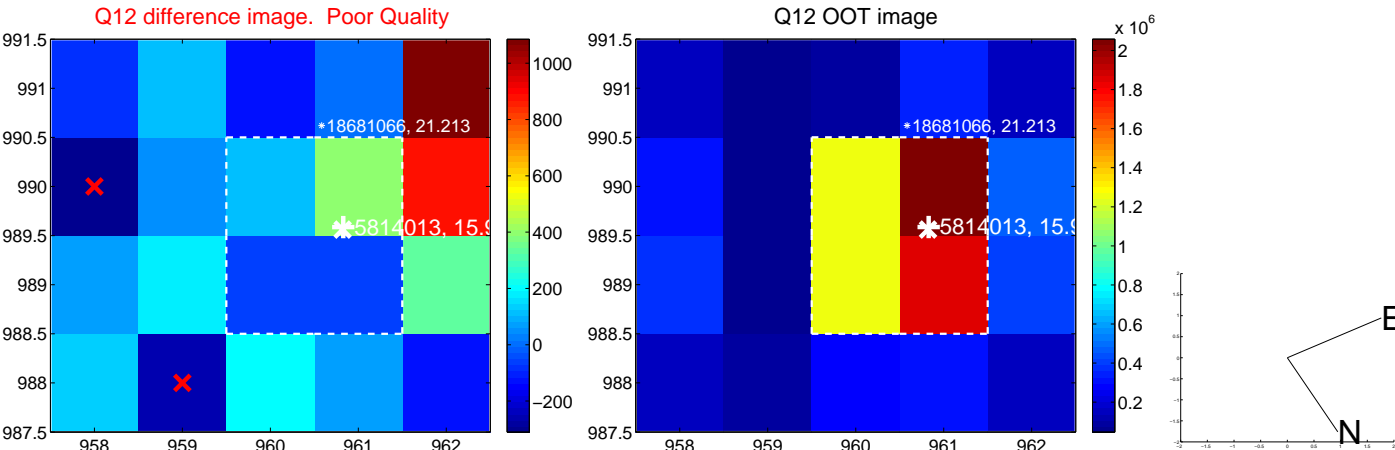
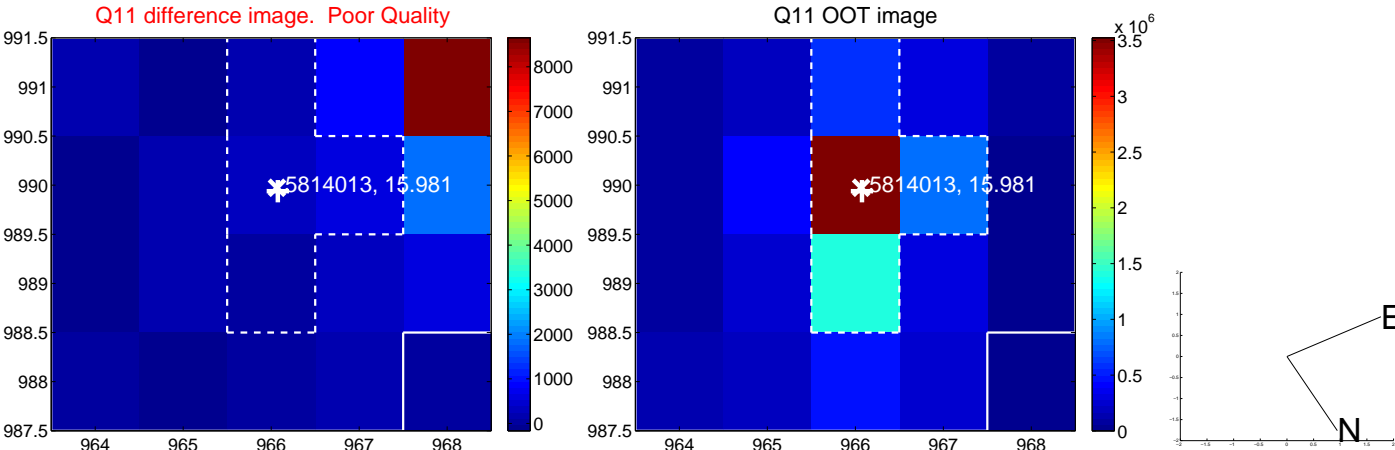
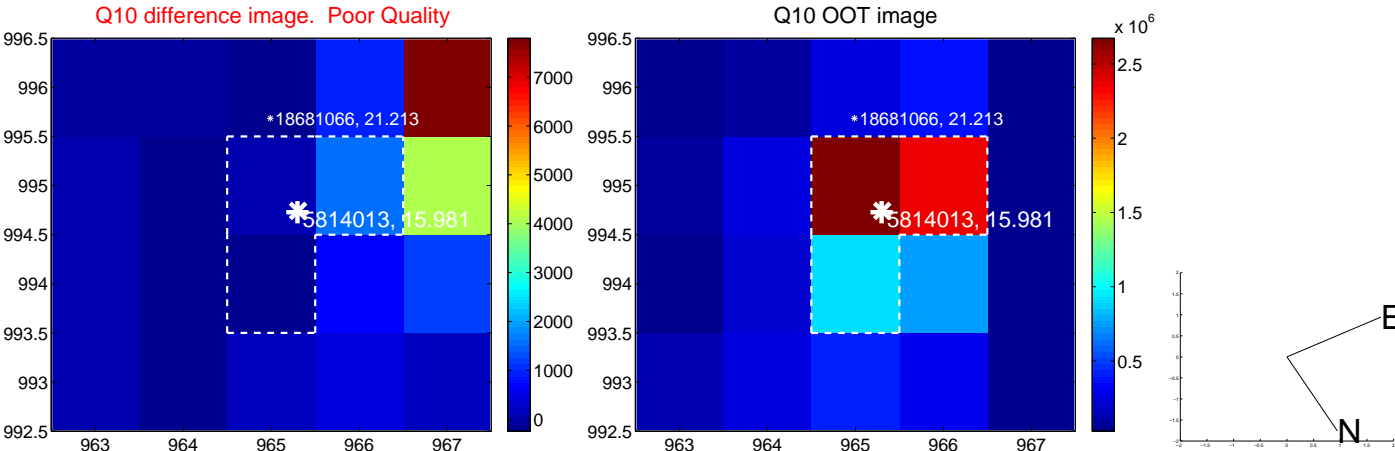
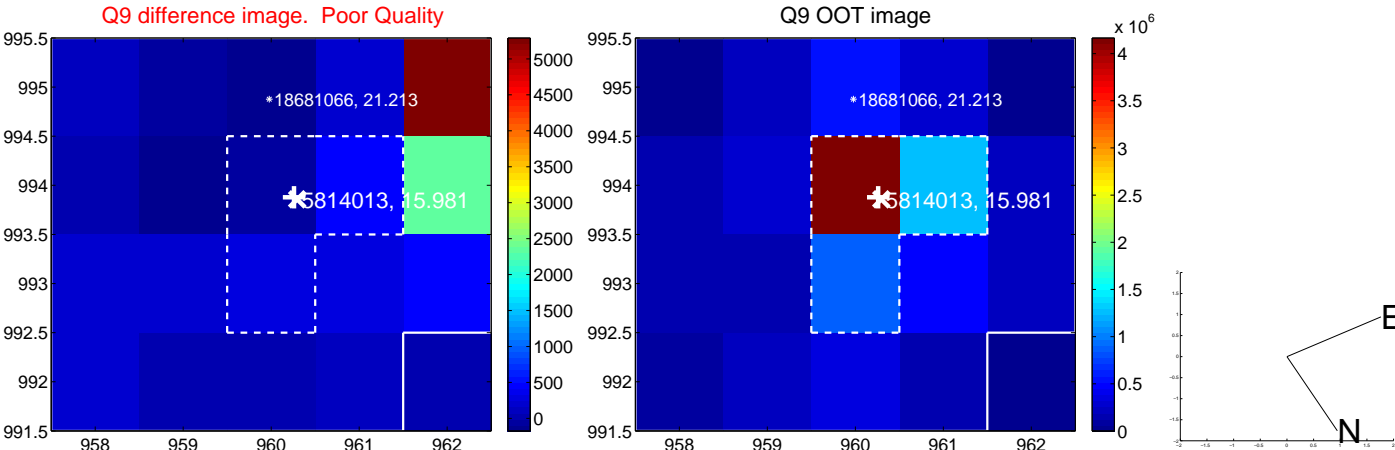


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

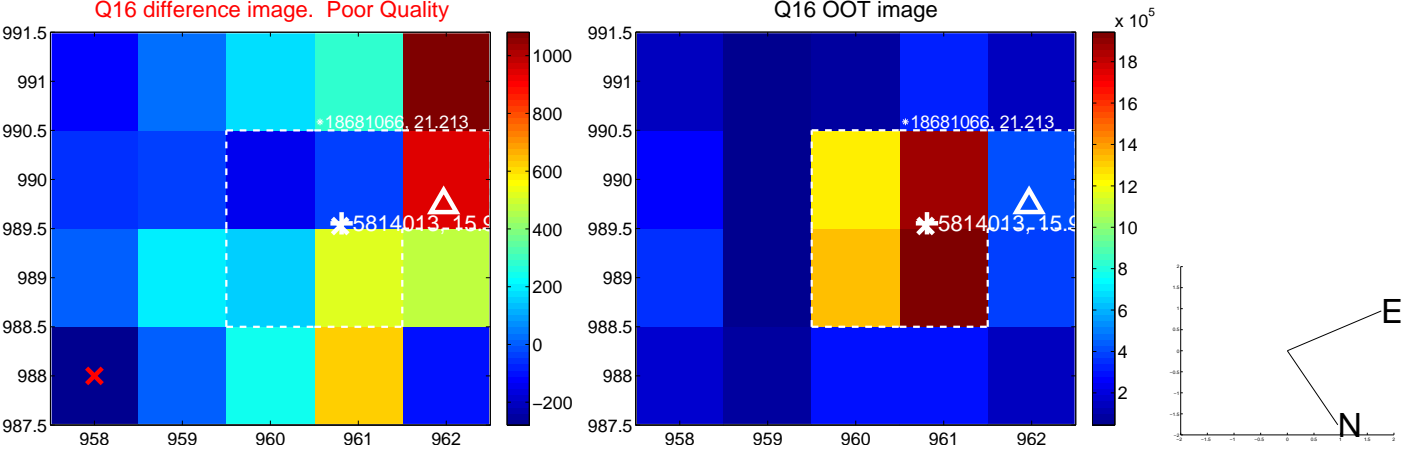
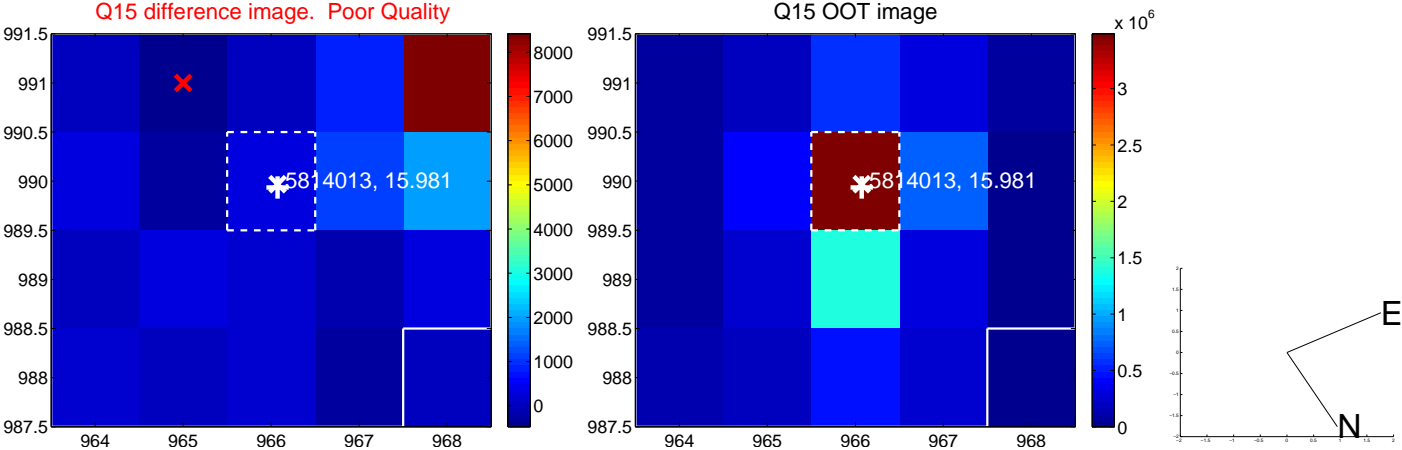
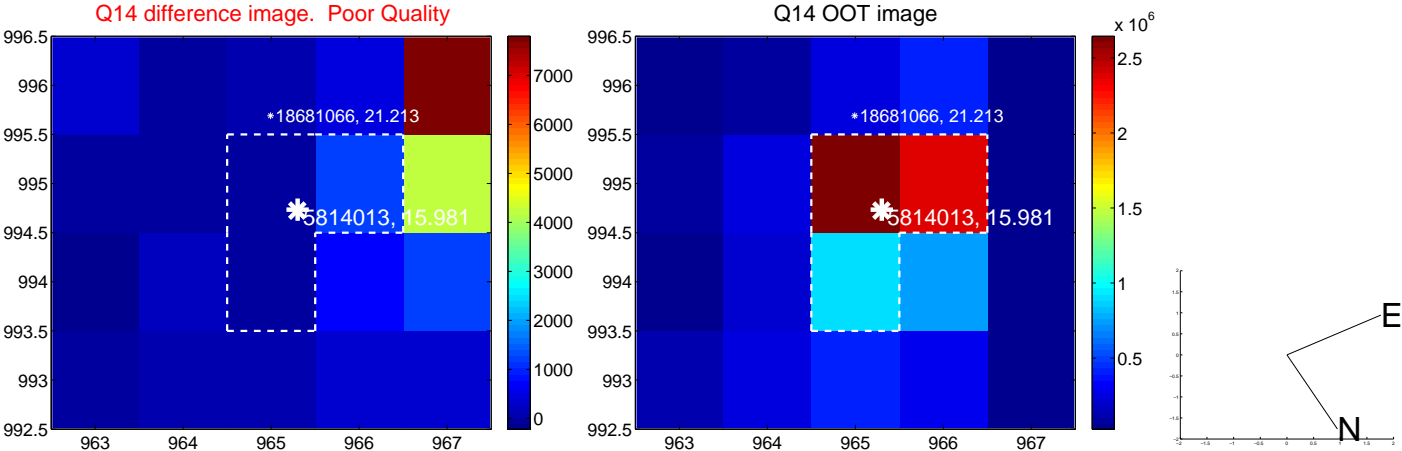
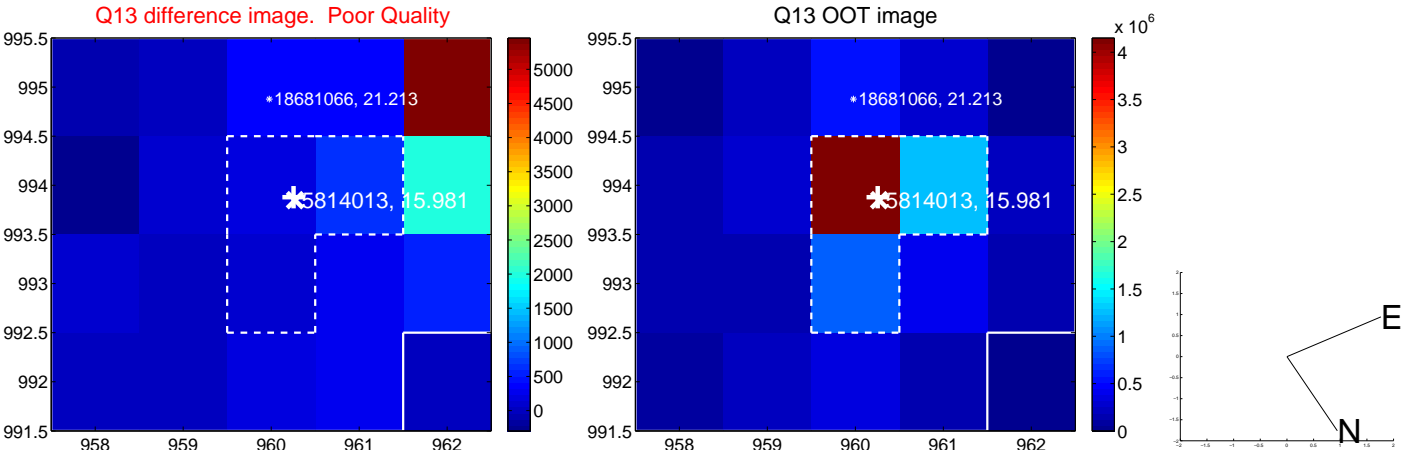




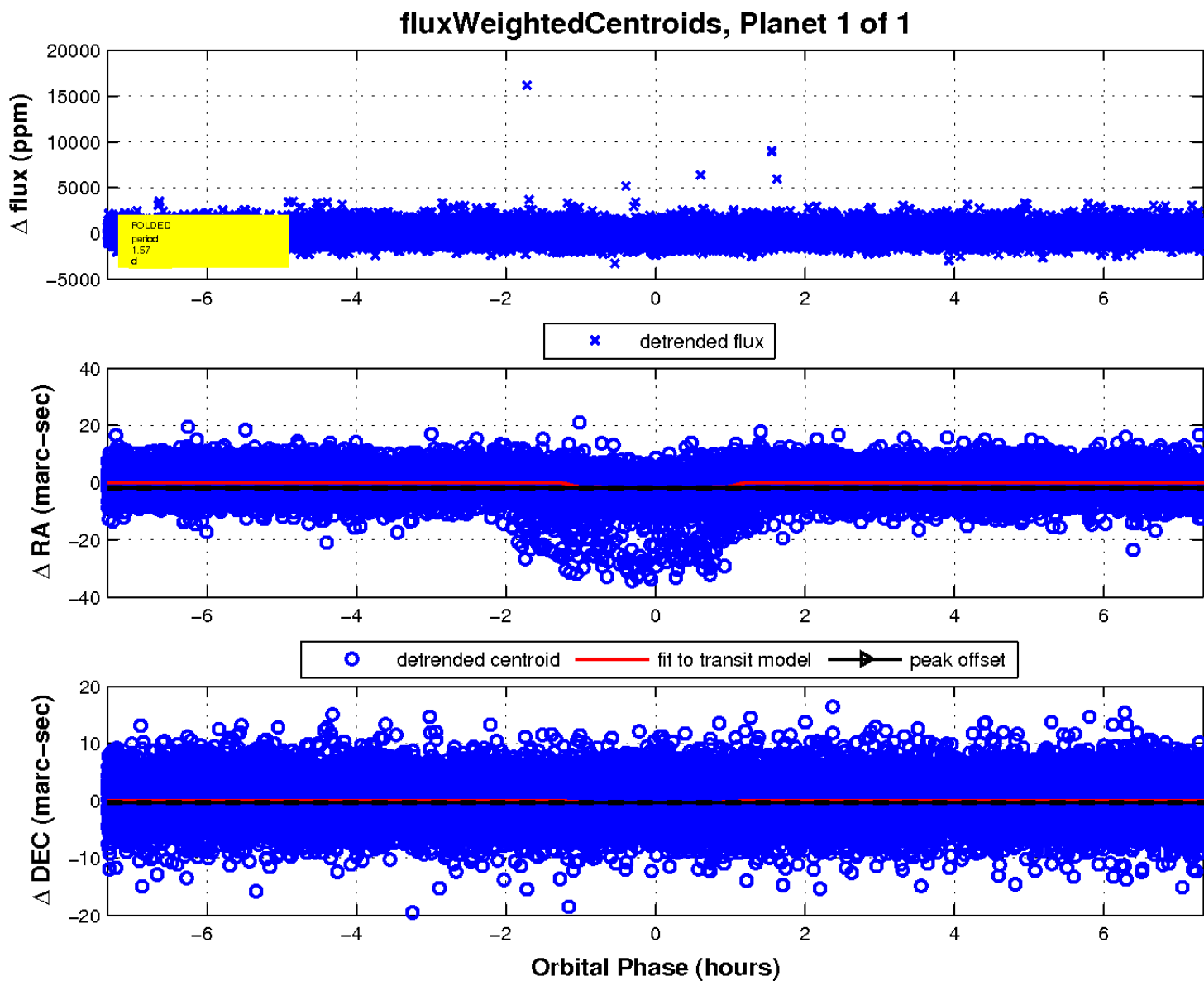
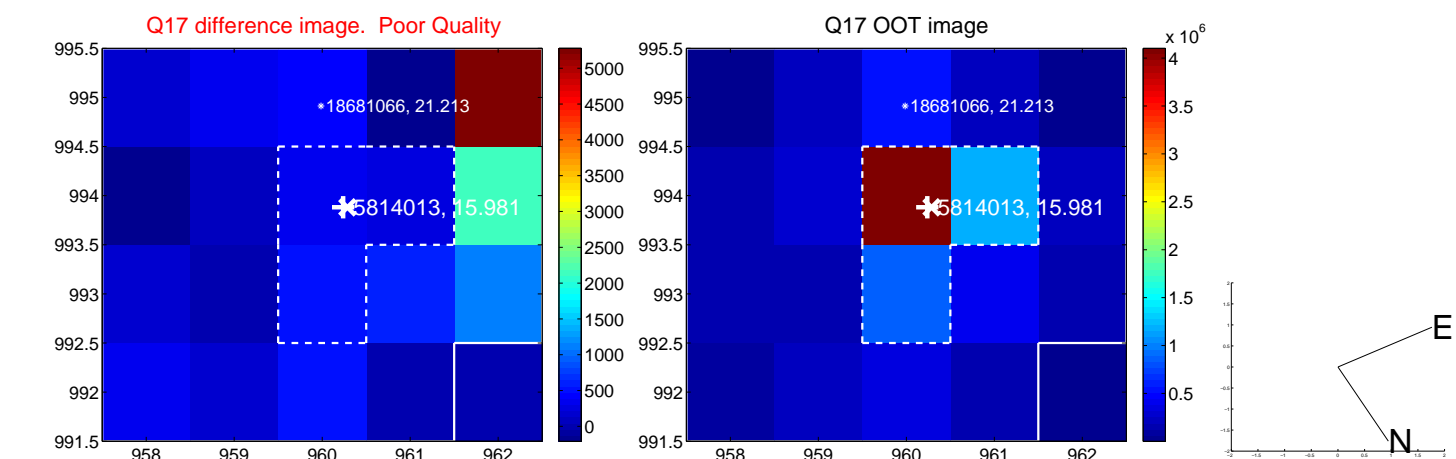
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

