

# KIC 010963242

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010963242-01	OBS	1312.01	6.146996	135.071593	246.7	3.451	22.5	23.9	1.30	6110	2.35	435.09

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010963242-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**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.

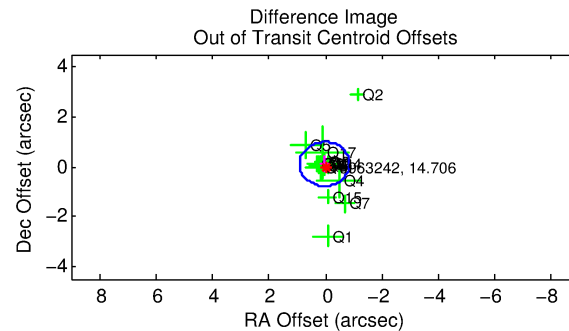
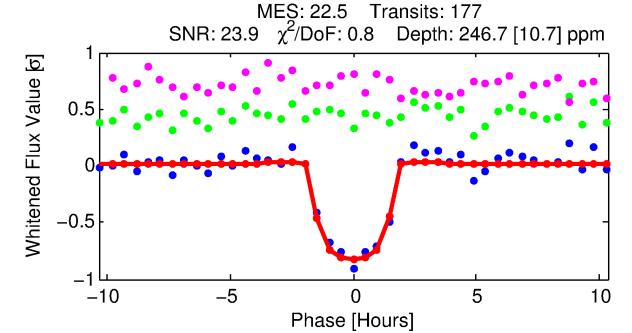
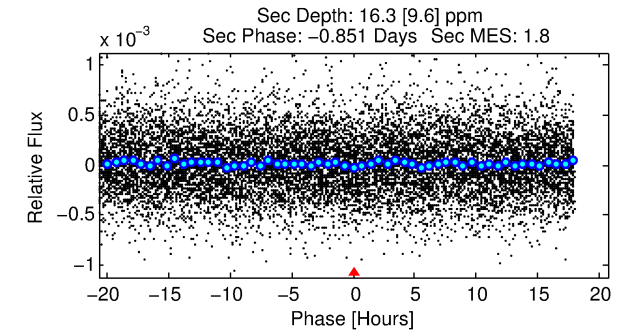
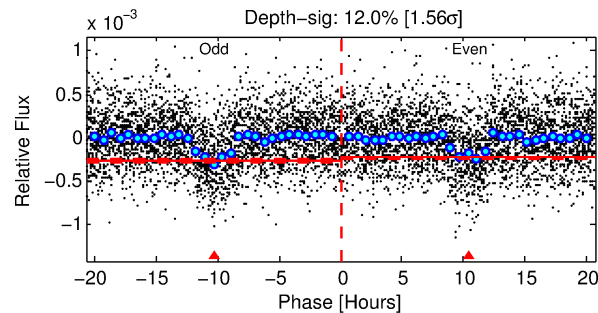
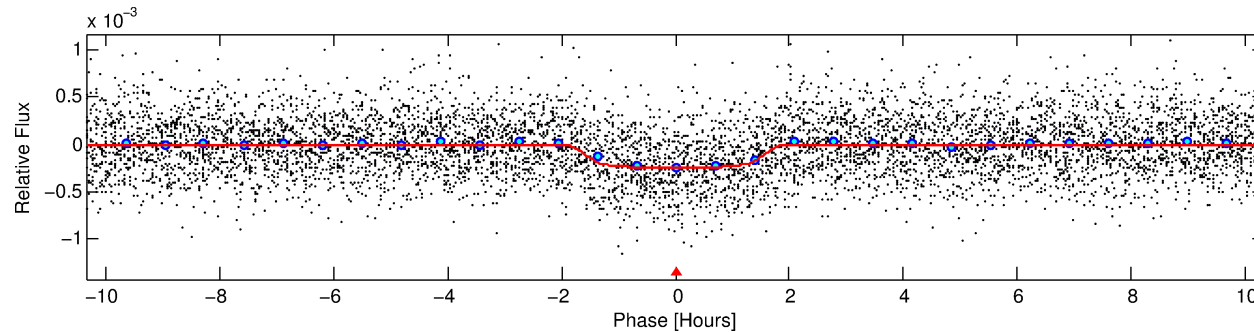
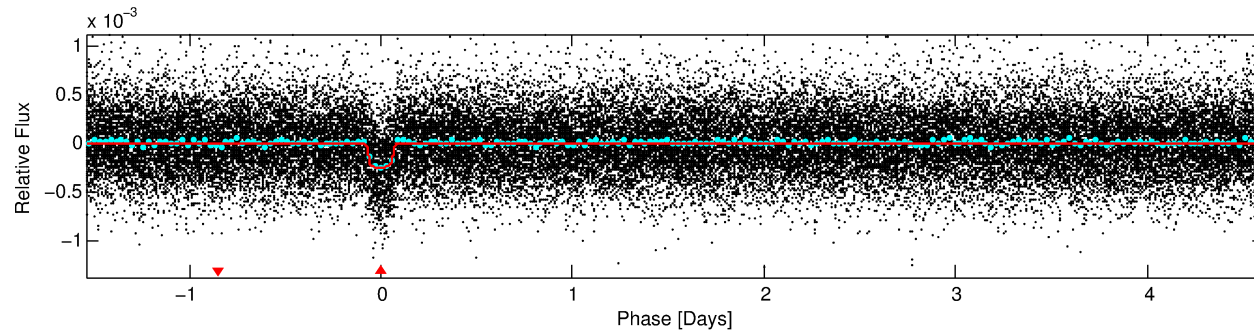
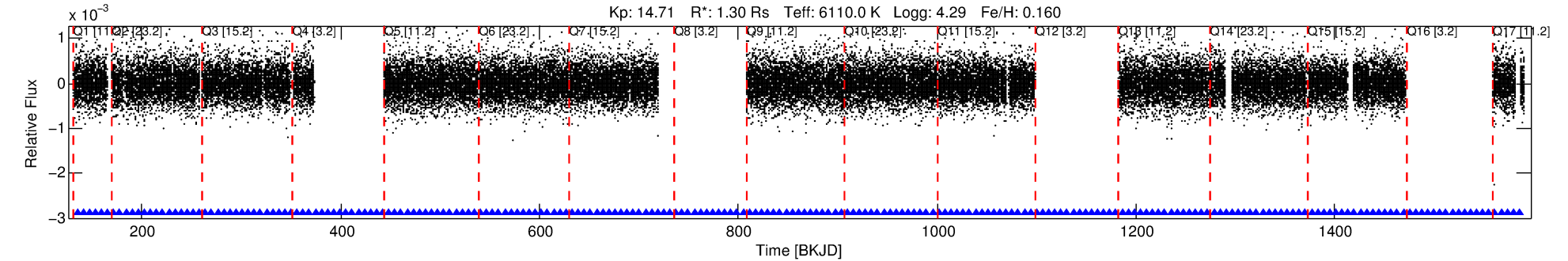
## Ephemeris Match Information For 010963242-01

No Significant Match Found

# DV One-Page Summary

KIC: 10963242 Candidate: 1 of 1 Period: 6.147 d

KOI: K01312.01 Corr: 0.989



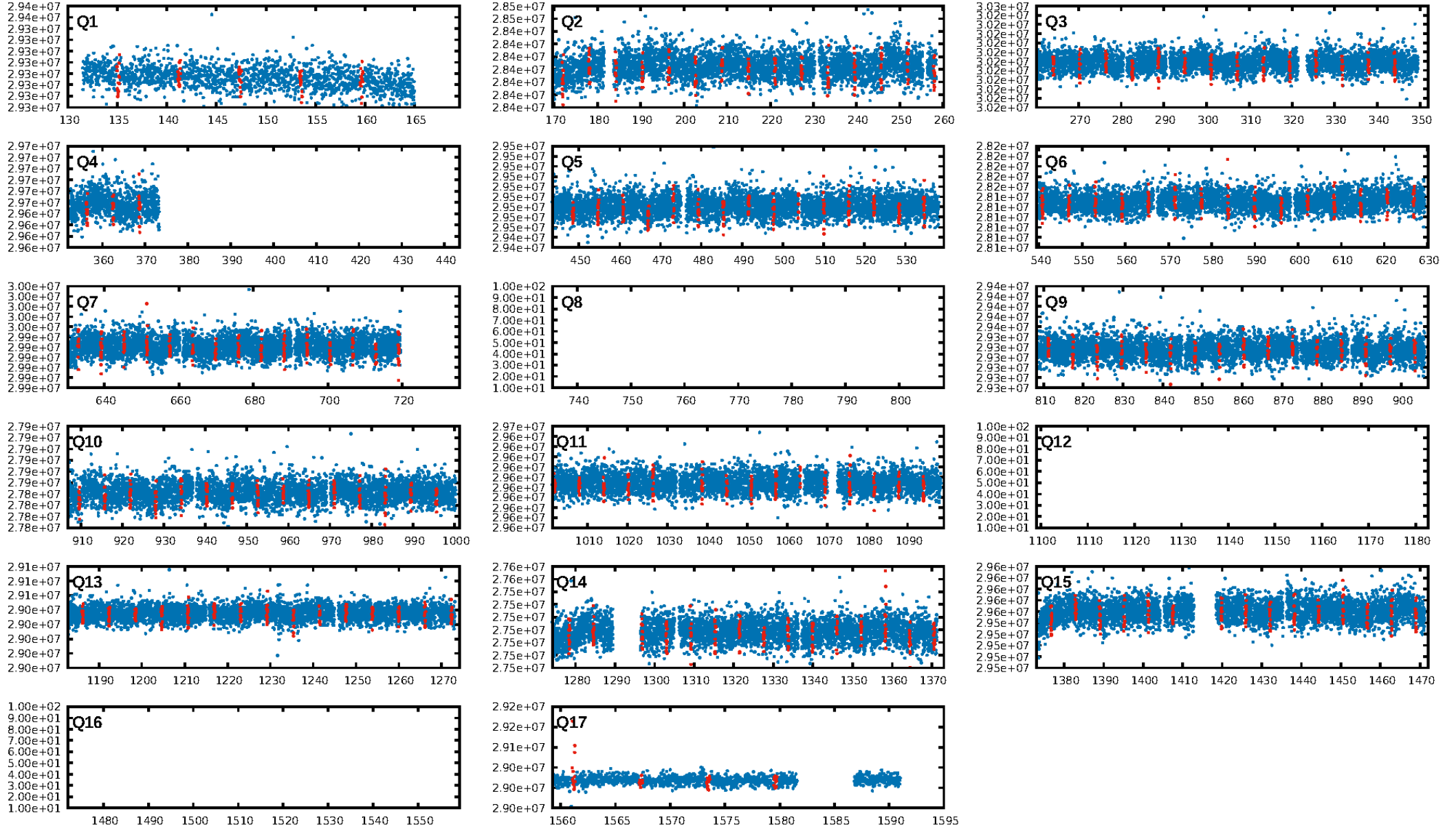
## DV Fit Results:

Period = 6.14700 [0.00002] d  
Epoch = 135.0716 [0.0026] BKJD  
Rp/R\* = 0.0166 [0.0039]  
a/R\* = 7.12 [8.13]  
b = 0.87 [0.32]  
Seff = 435.09 [97.12]  
Teff = 1165 [65] K  
Rp = 2.35 [0.67] Re  
a = 0.0694 [0.0100] AU  
Ag = 7.80 [6.09] [1.12 $\sigma$ ]  
Teffp = 3009 [566] K [3.24 $\sigma$ ]

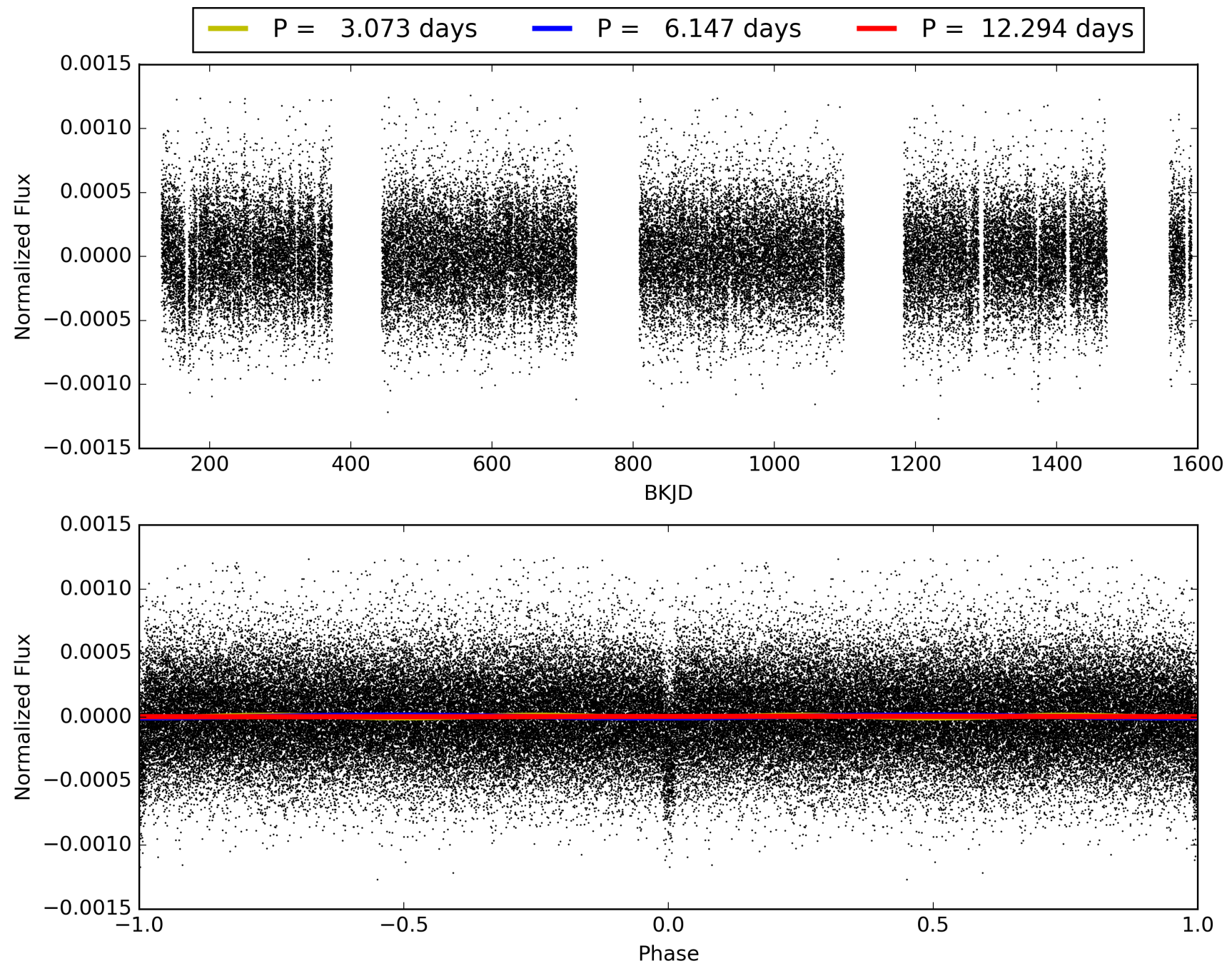
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.28e-109  
RollingBand-fgt: 1.00 [165/165]  
GhostDiagnostic-chr: 119.9  
Centroid-sig: 39.1%  
Centroid-so: 0.614 arcsec [0.94 $\sigma$ ]  
OotOffset-rm: 0.109 arcsec [0.37 $\sigma$ ]  
KicOffset-rm: 0.245 arcsec [1.67 $\sigma$ ]  
OotOffset-st: 4/4/1/5 [14]  
KicOffset-st: 4/4/1/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010963242-01, PDC Light Curves

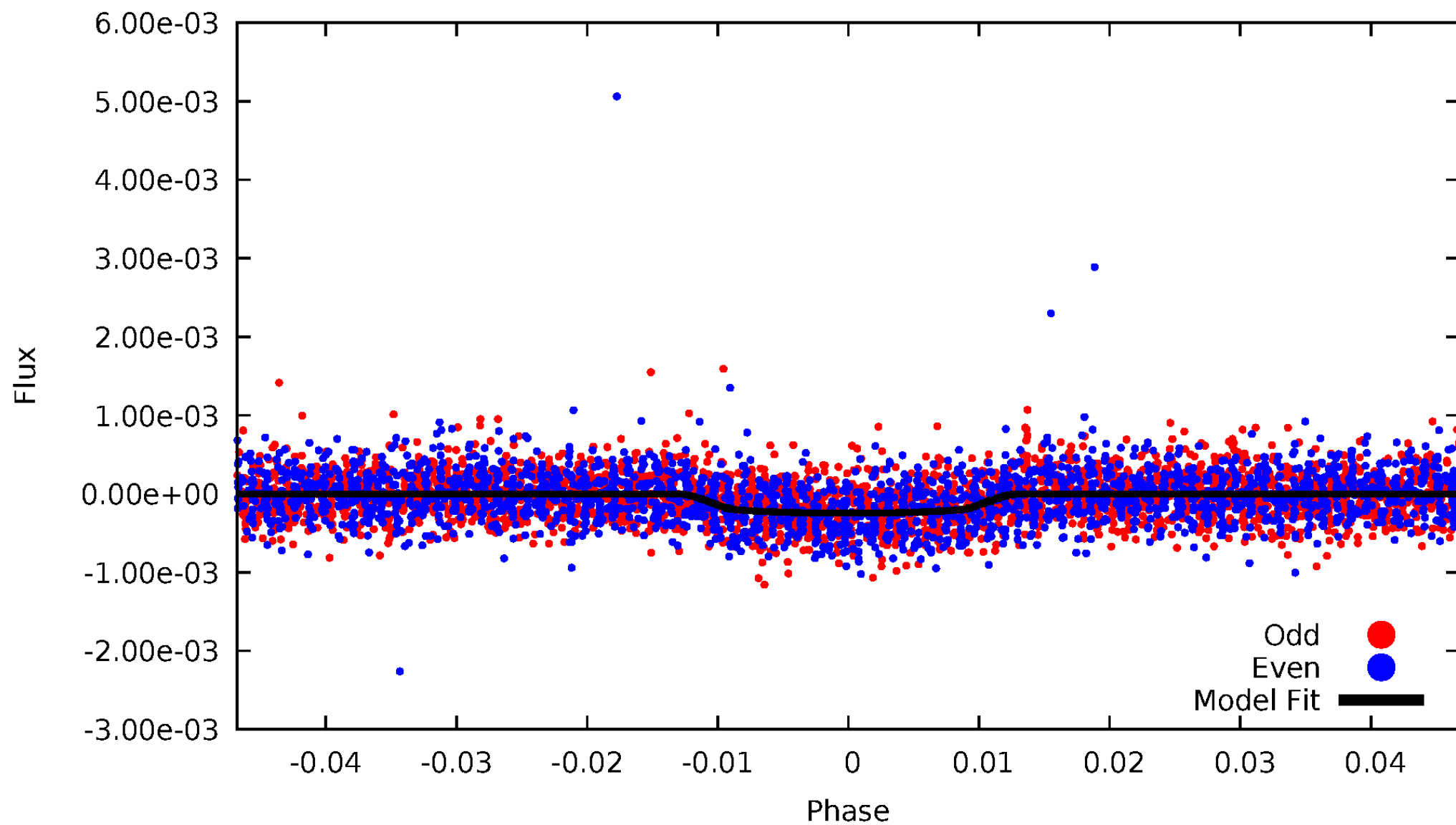


TCE 010963242-01



# DV Odd/Even

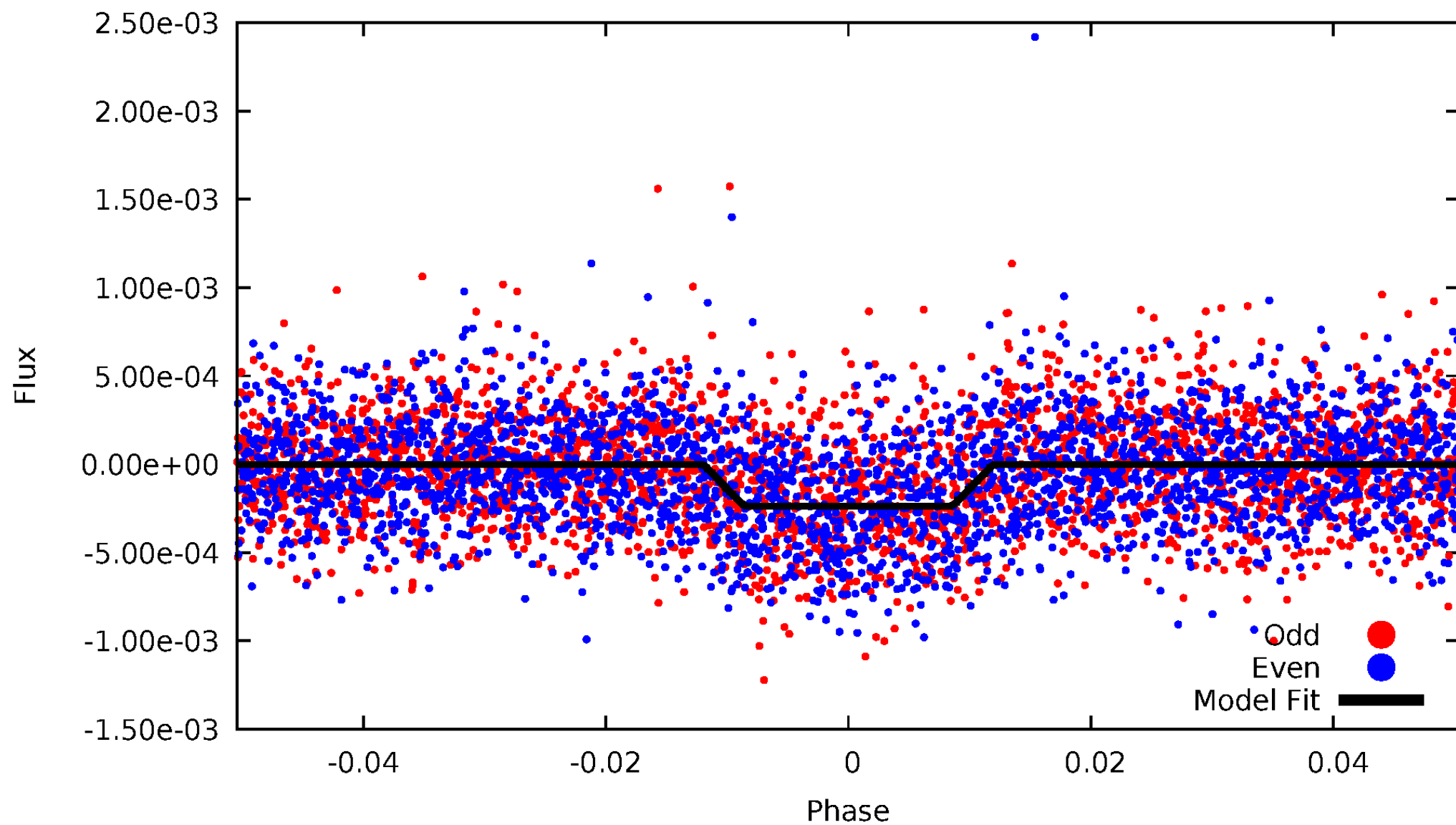
TCE 010963242-01





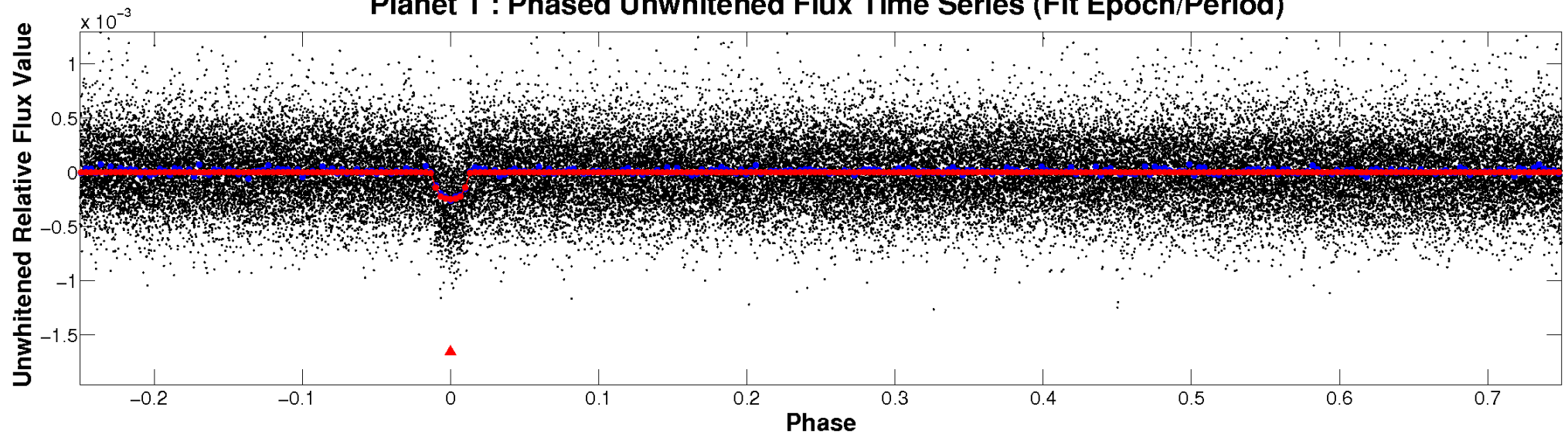
# ALT Odd/Even

TCE 010963242-01

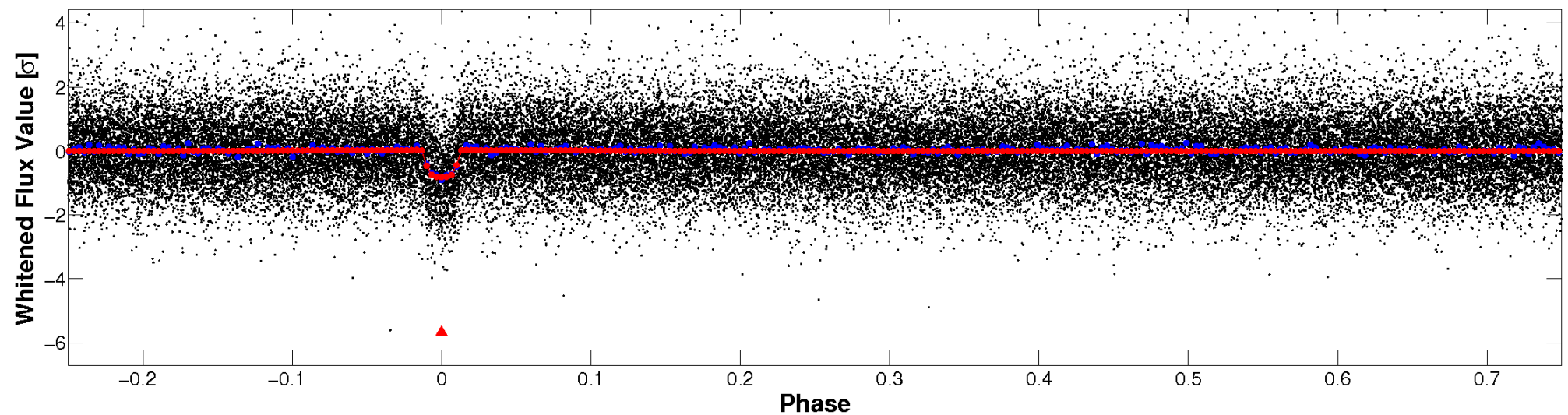


# Non-Whitened Vs. Whitened Light Curve

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

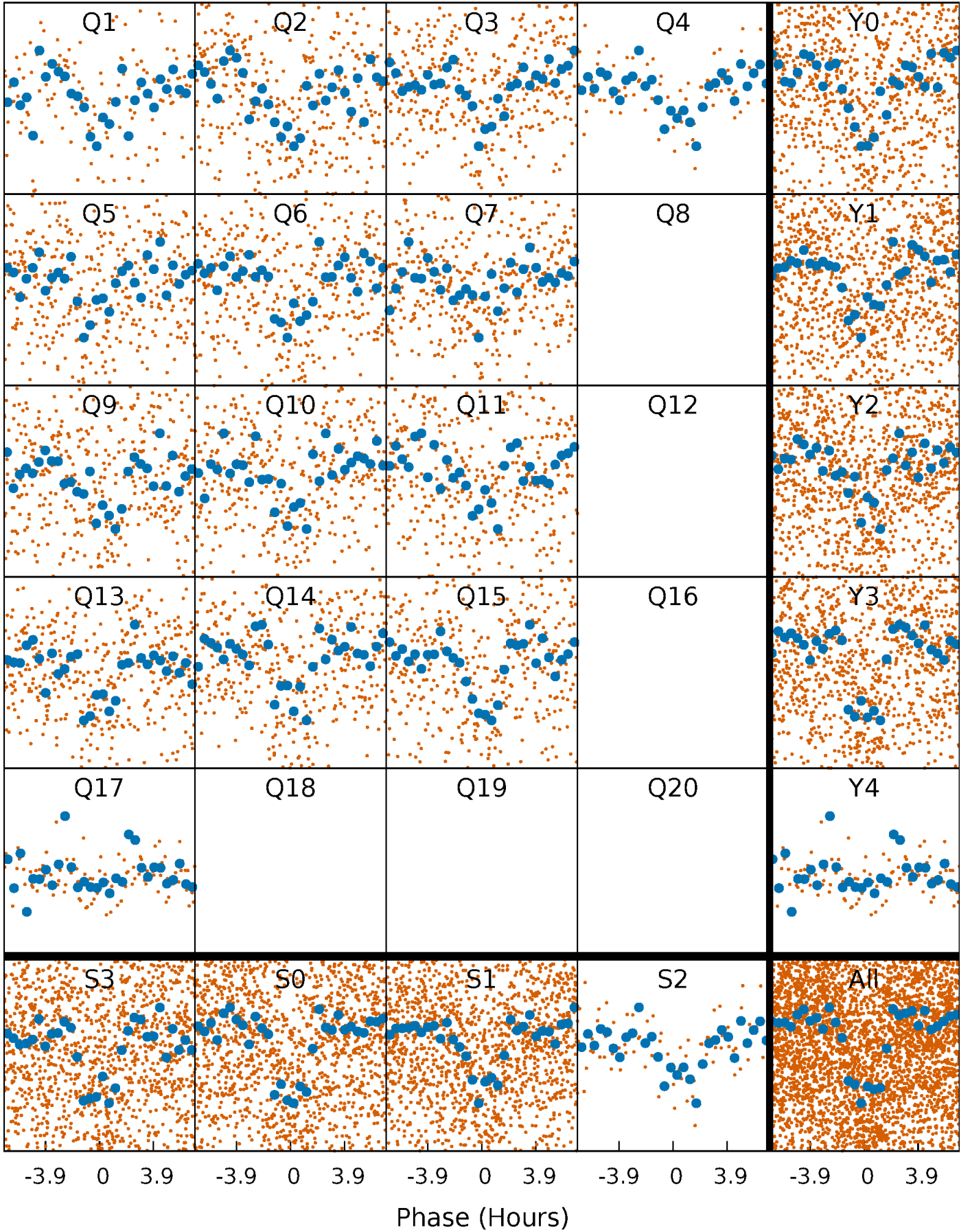


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

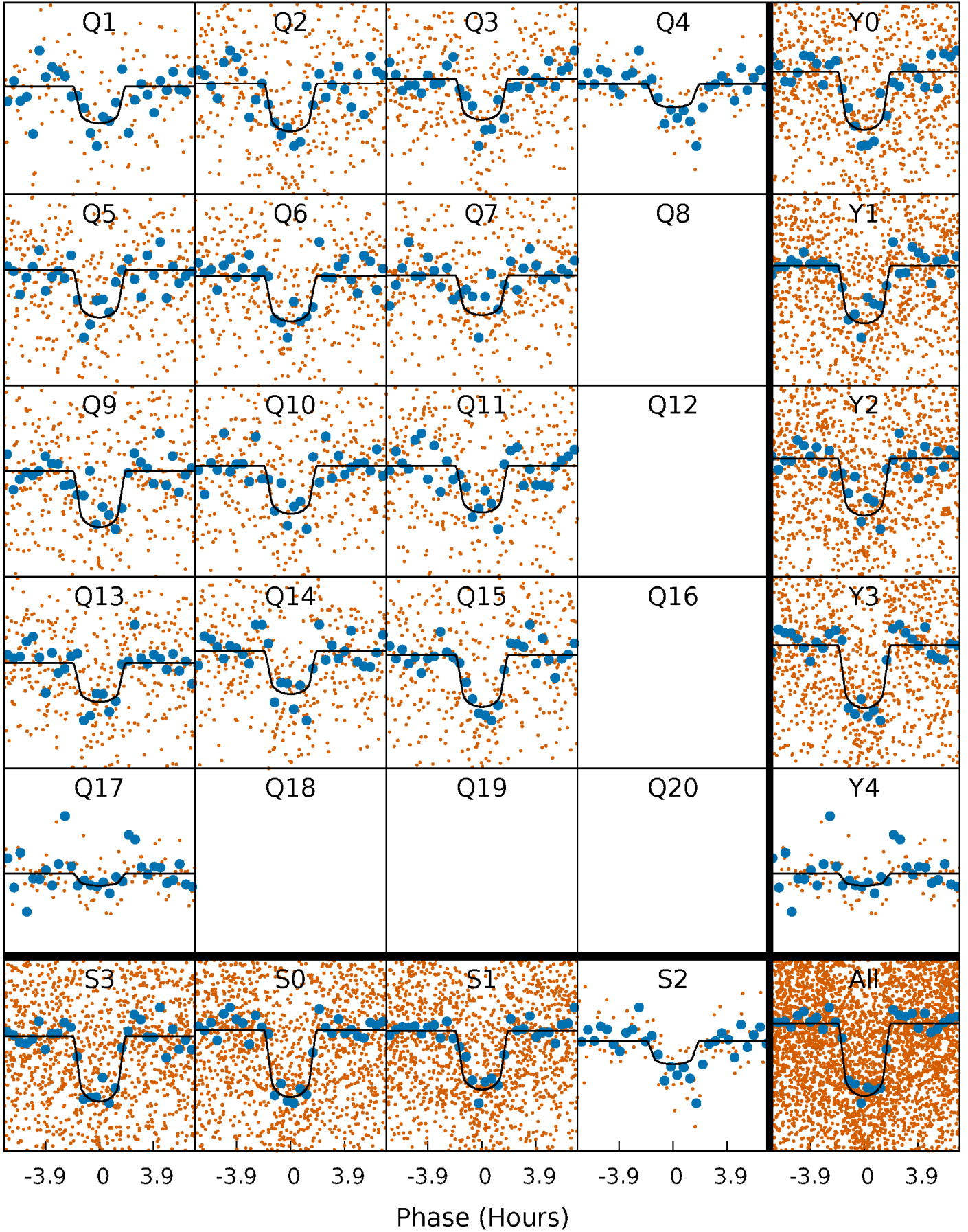
TCE 010963242-01     $P = 6.146996$  Days     $T_0 = 135.071593$  (BKJD)





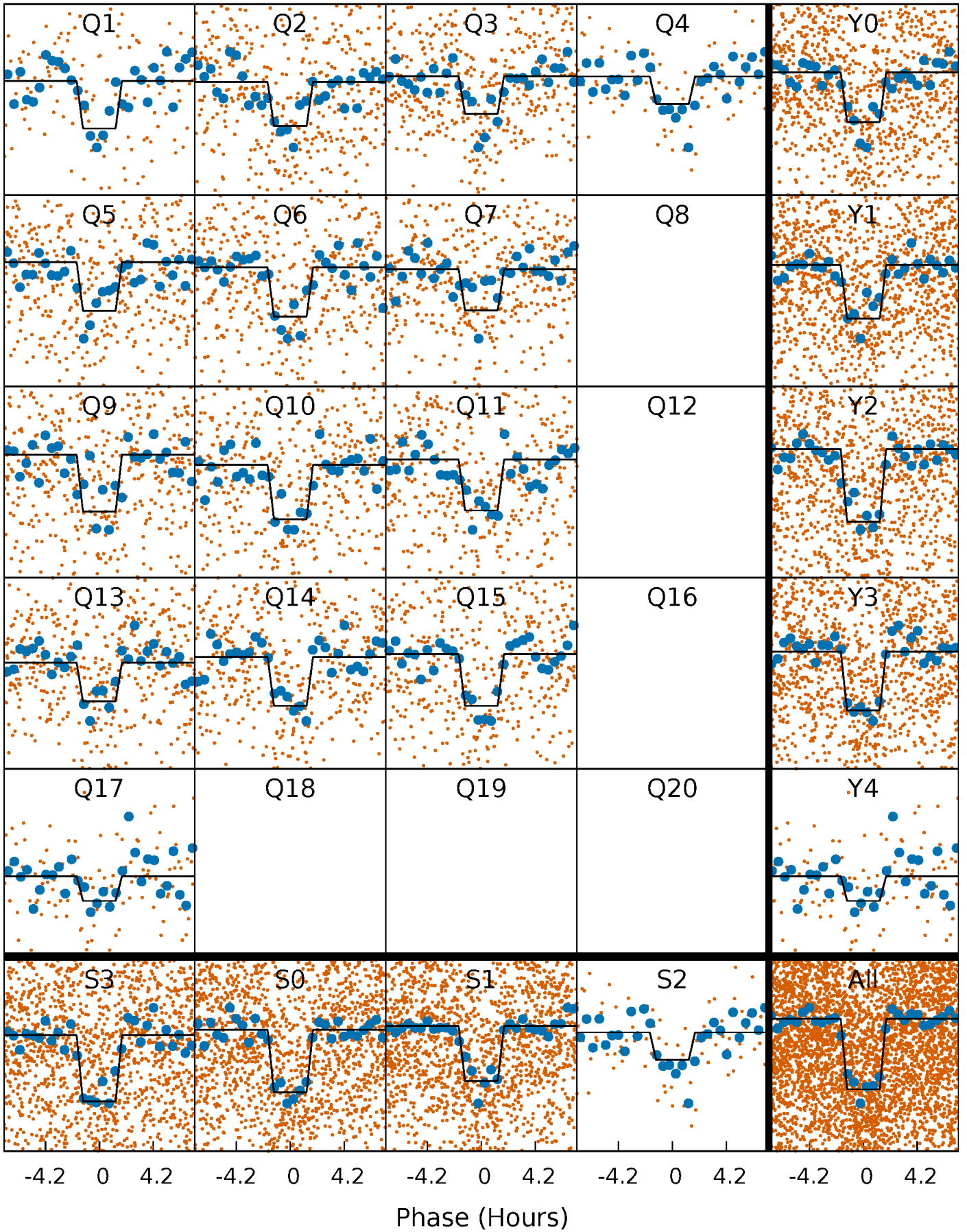
# DV Quarter-Phased Transit Curves

TCE 010963242-01 P= 6.146996 Days  $T_0=135.071593$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

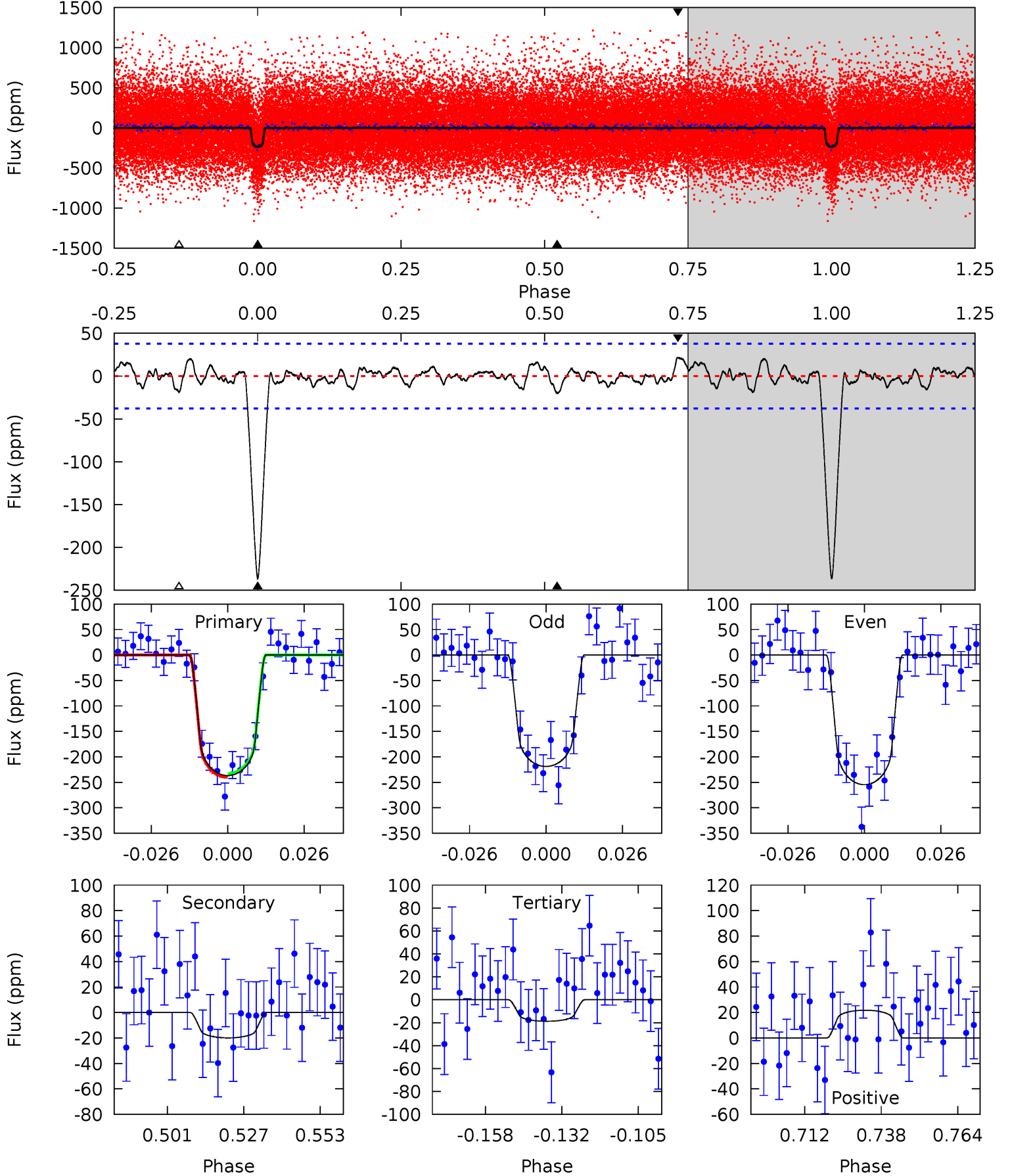
TCE 010963242-01 P= 6.146978 Days  $T_0=135.076451$  (BKJD)



# DV Model-Shift Uniqueness Test

010963242-01, P = 6.146996 Days, E = 128.924597 Days

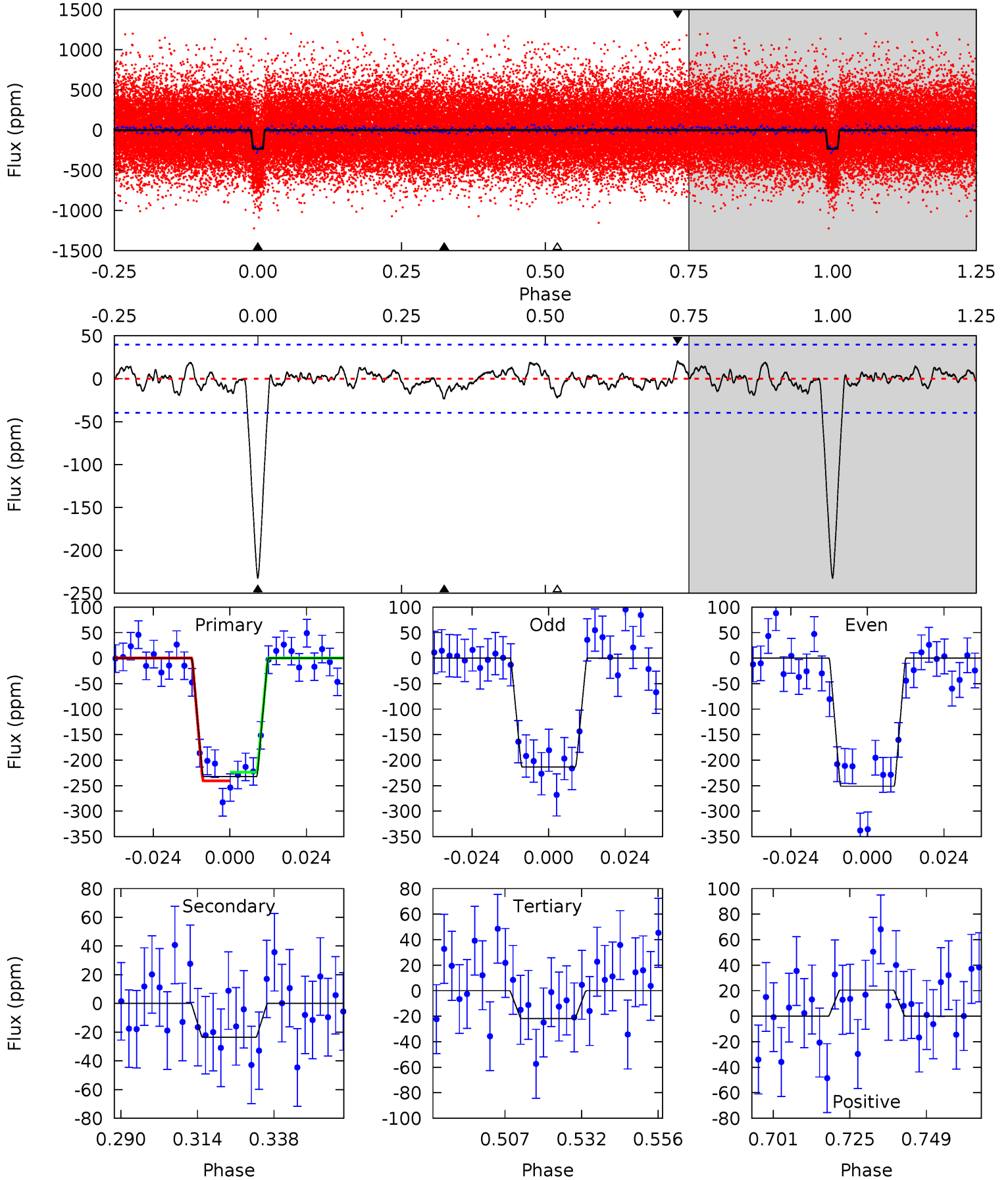
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.3	2.55	2.40	2.79	4.84	2.22	0.98	27.9	27.5	0.15	-0.24	2.30	0.98	0.08	0.44



# Alt Model-Shift Uniqueness Test

010963242-01, P = 6.146978 Days, E = 128.929473 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
28.4	2.89	2.67	2.51	4.85	2.25	1.00	25.7	25.9	0.22	0.38	2.31	0.98	0.08	1.04



### Stellar Parameters For KIC 010963242

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6110^{+79}_{-85}$	$4.285^{+0.099}_{-0.121}$	$0.160^{+0.150}_{-0.150}$	$1.296^{+0.215}_{-0.176}$	$1.185^{+0.074}_{-0.098}$	$0.766^{+0.333}_{-0.273}$
	+1%/-1%	+2%/-3%	+94%/-94%	+17%/-14%	+6%/-8%	+43%/-36%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010963242-01 / KOI 1312.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-20 \pm 8$	$2.35^{+0.61}_{-0.59}$	$1630^{+70}_{-63}$	$3597^{+417}_{-377}$	$9.054^{+9.033}_{-4.320}$
Alt.	$-24 \pm 8$	$2.14^{+0.62}_{-0.54}$	$1628^{+72}_{-65}$	$3799^{+468}_{-372}$	$13^{+13}_{-6}$

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



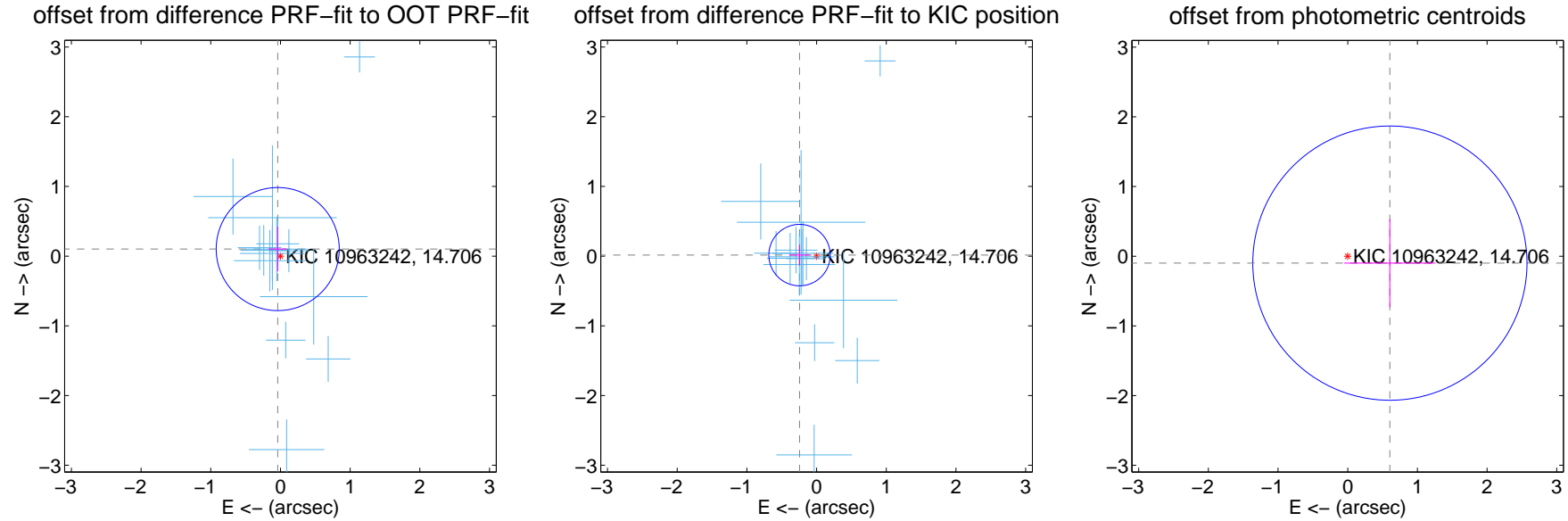
## DV Centroid Data

Supplemental centroid analysis for 010963242-01. Kepler magnitude: 14.71. Transit SNR 23.90

There are 14 quarters with good PRF difference image offsets

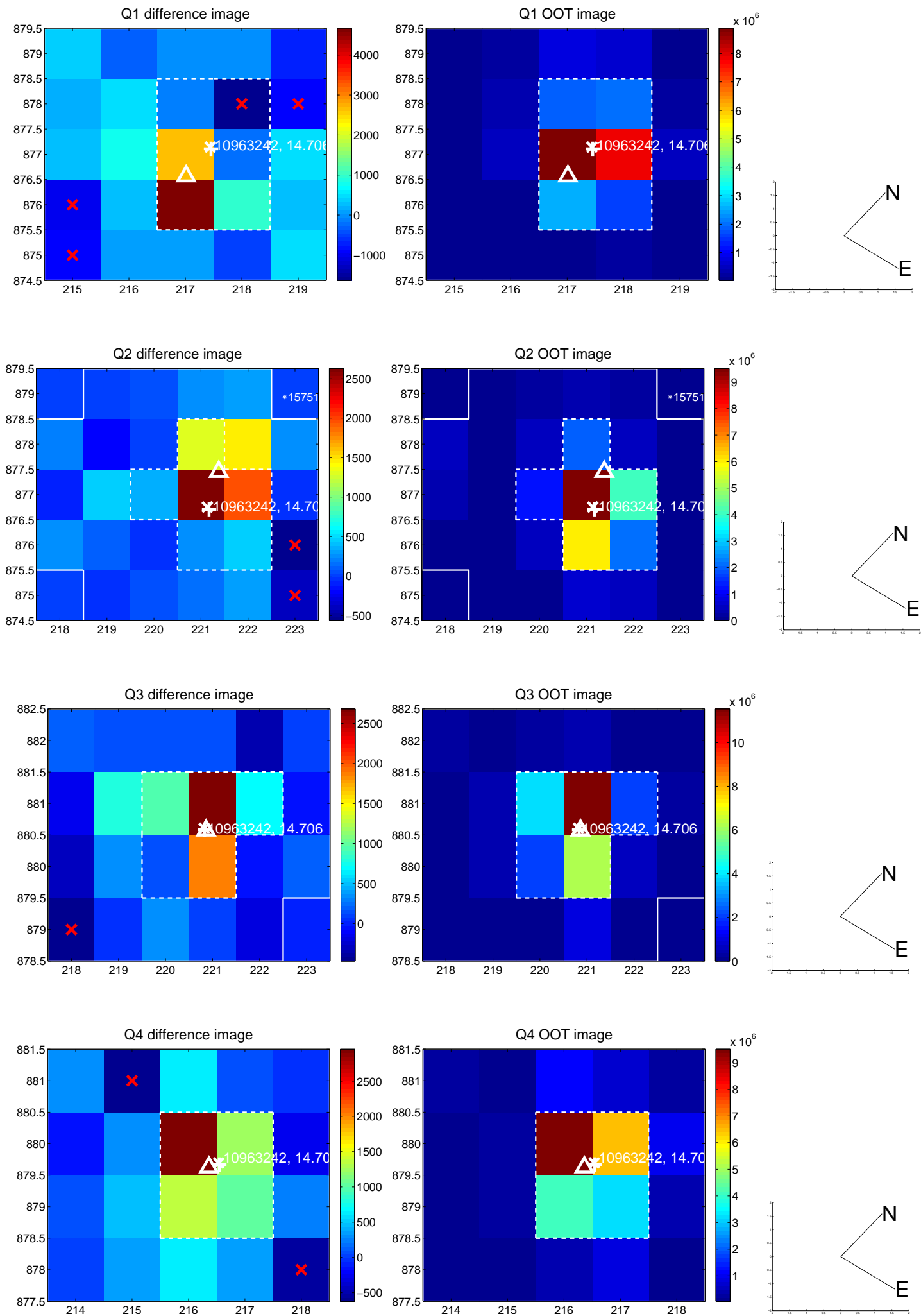
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.109 \pm 0.294$	0.37	$0.039 \pm 0.127$	$0.101 \pm 0.321$
PRF-fit source offset from KIC position	$0.245 \pm 0.147$	1.67	$0.245 \pm 0.147$	$0.015 \pm 0.145$
photometric centroid source offset	$0.61 \pm 0.66$	0.94	$-0.61 \pm 0.66$	$-0.10 \pm 0.63$

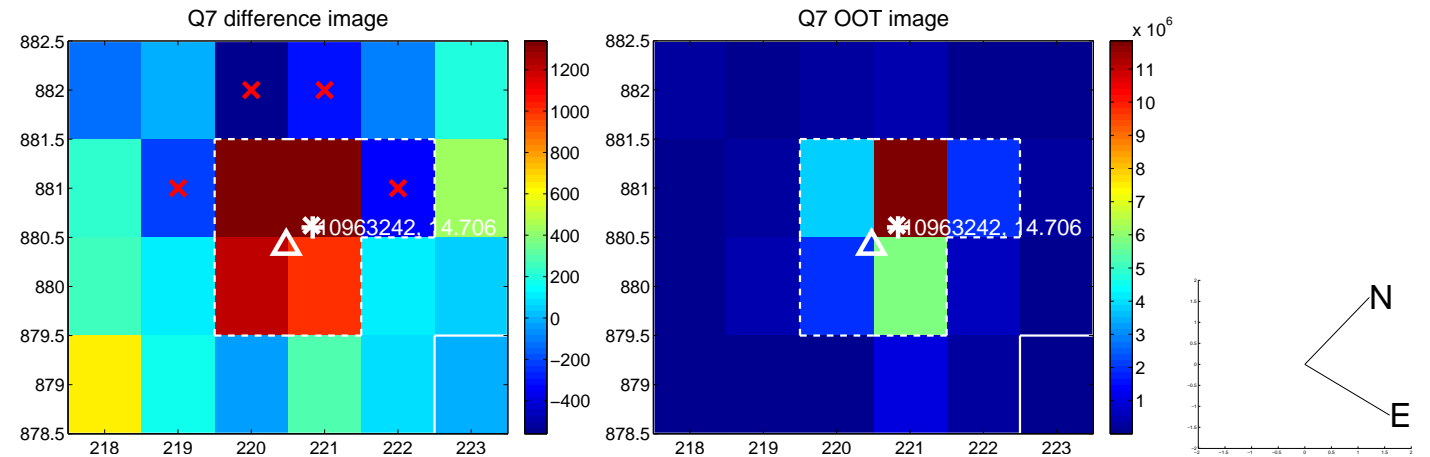
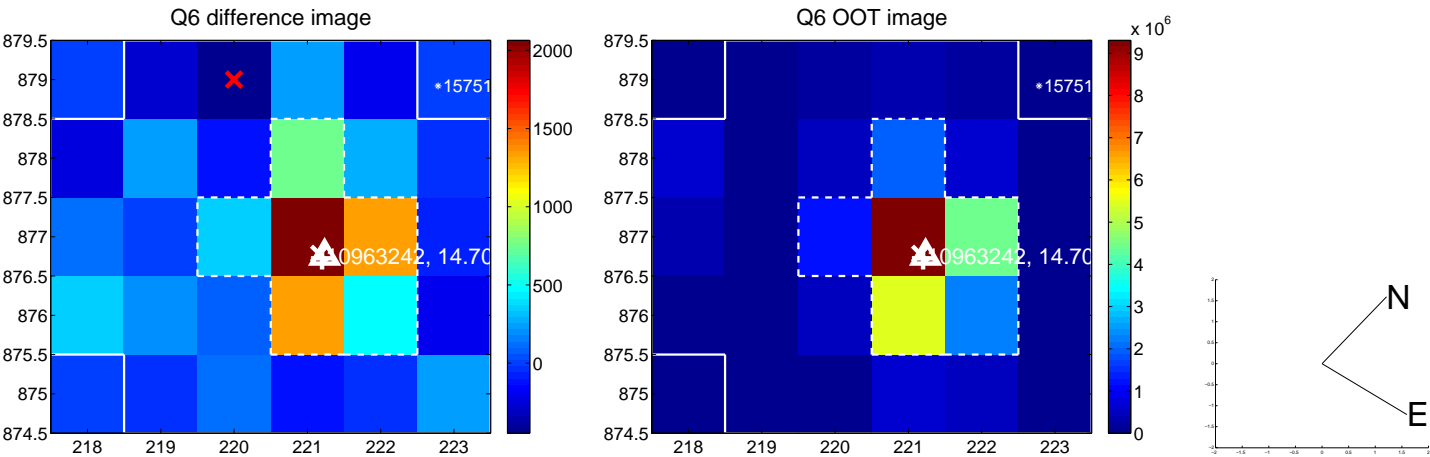
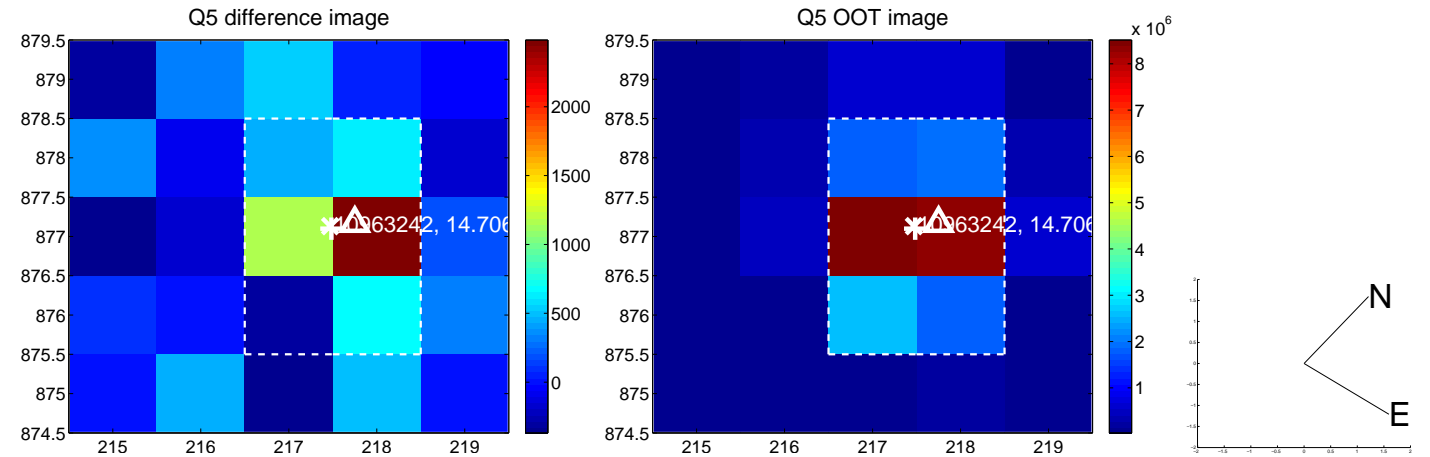


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

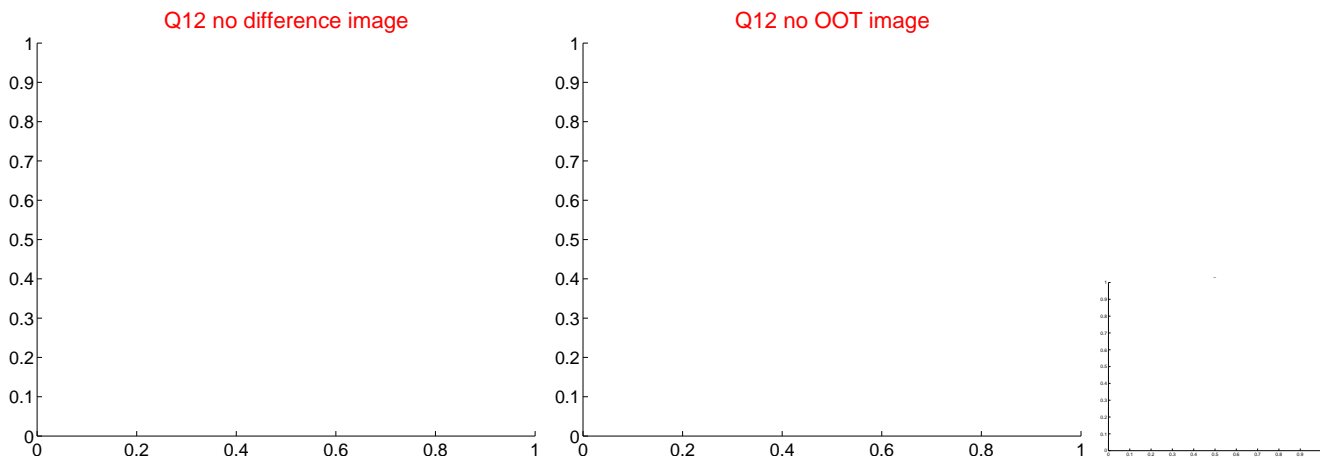
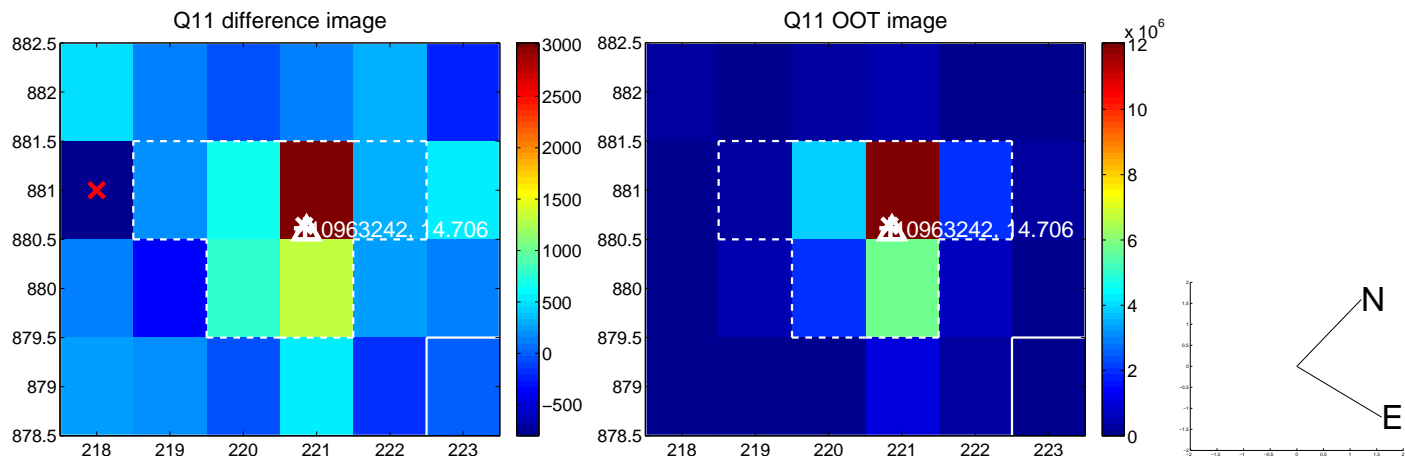
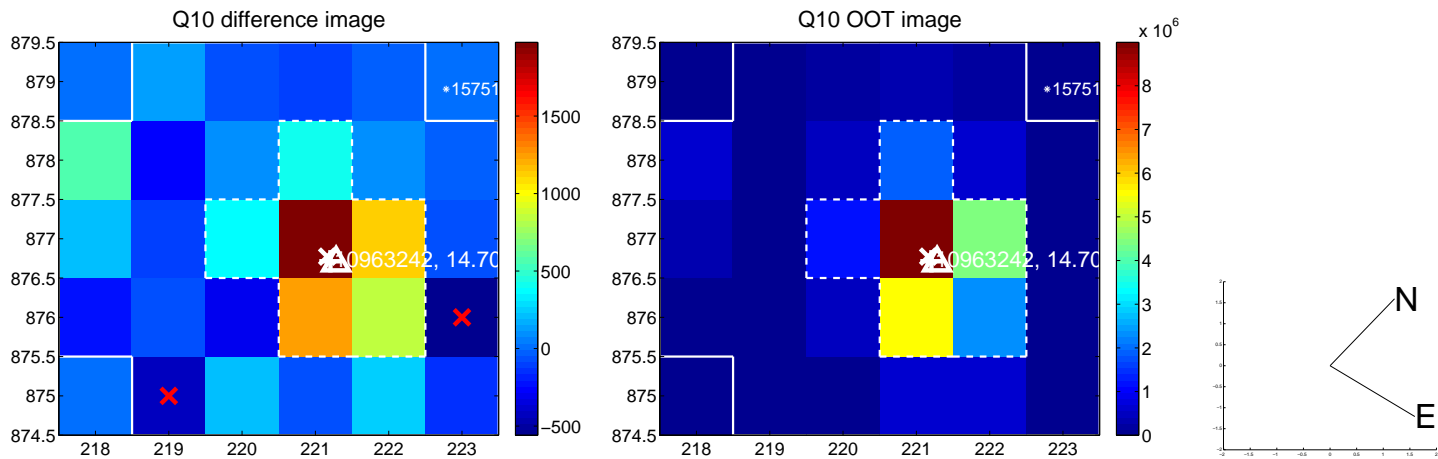
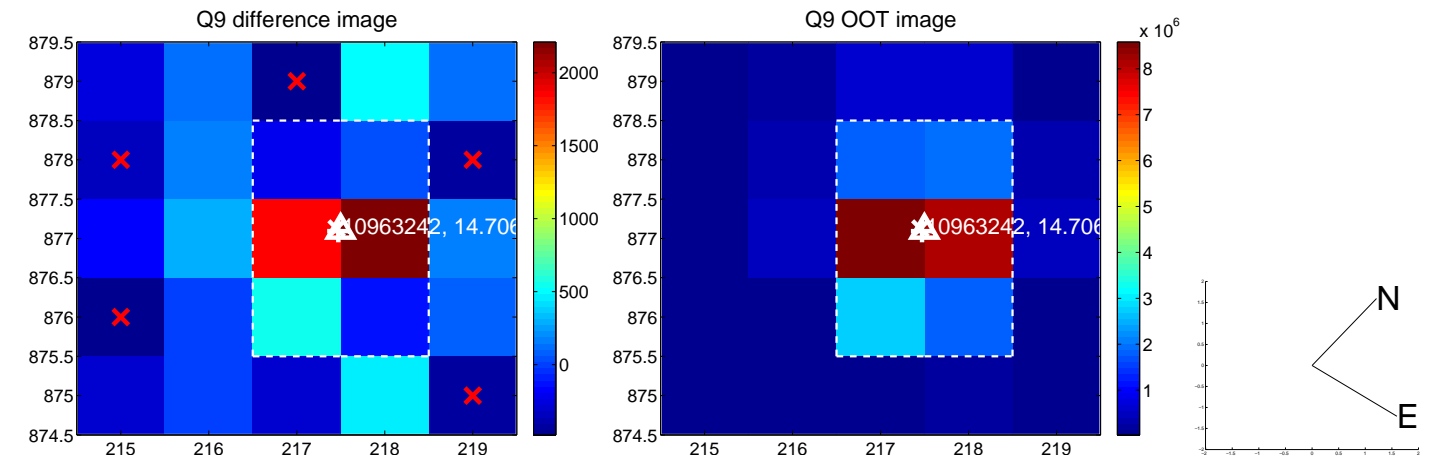
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



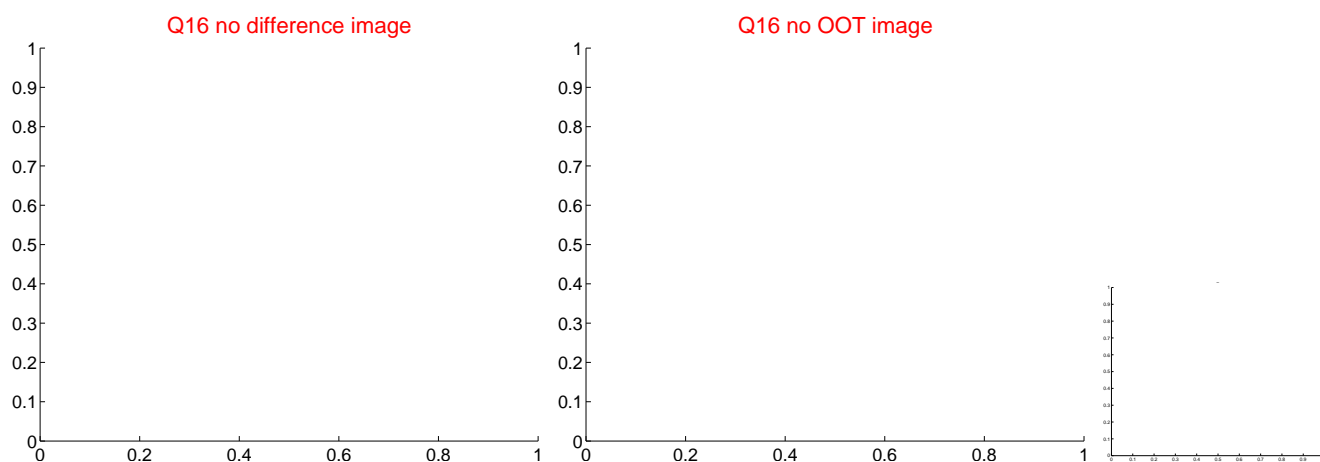
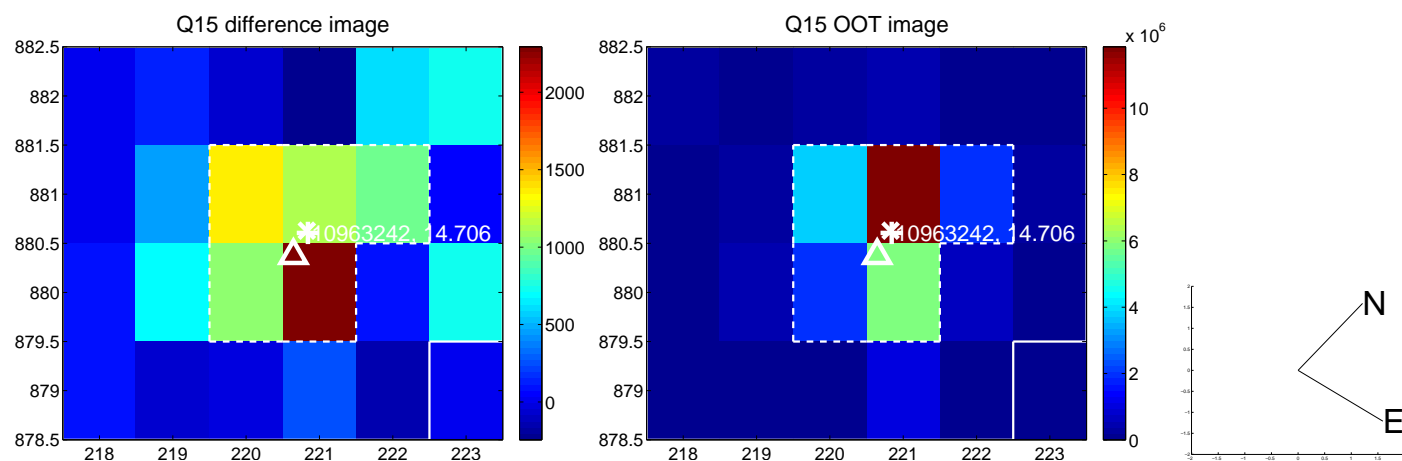
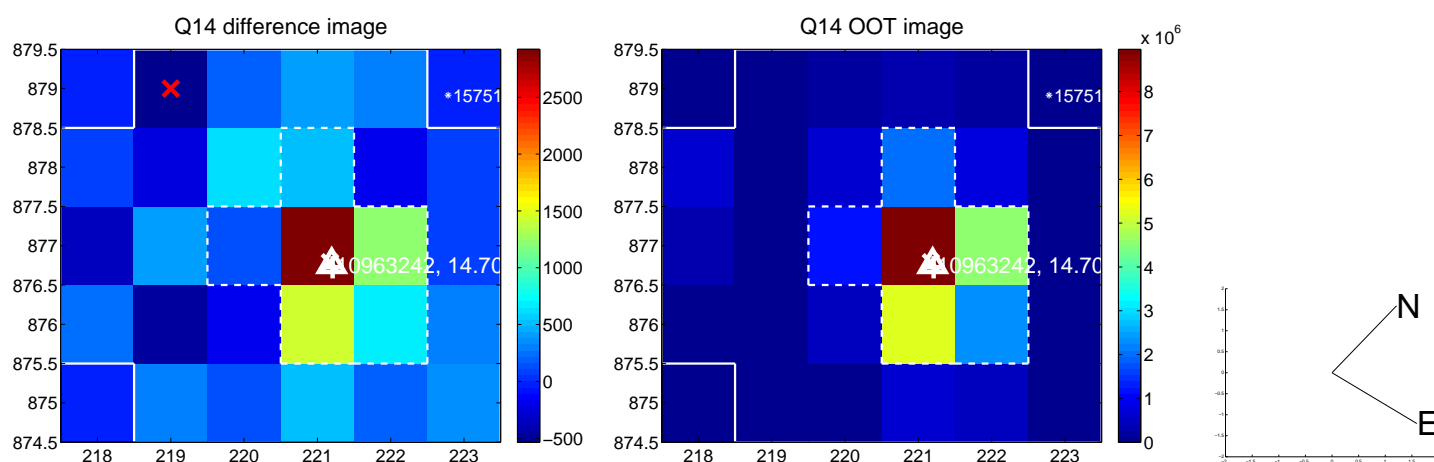
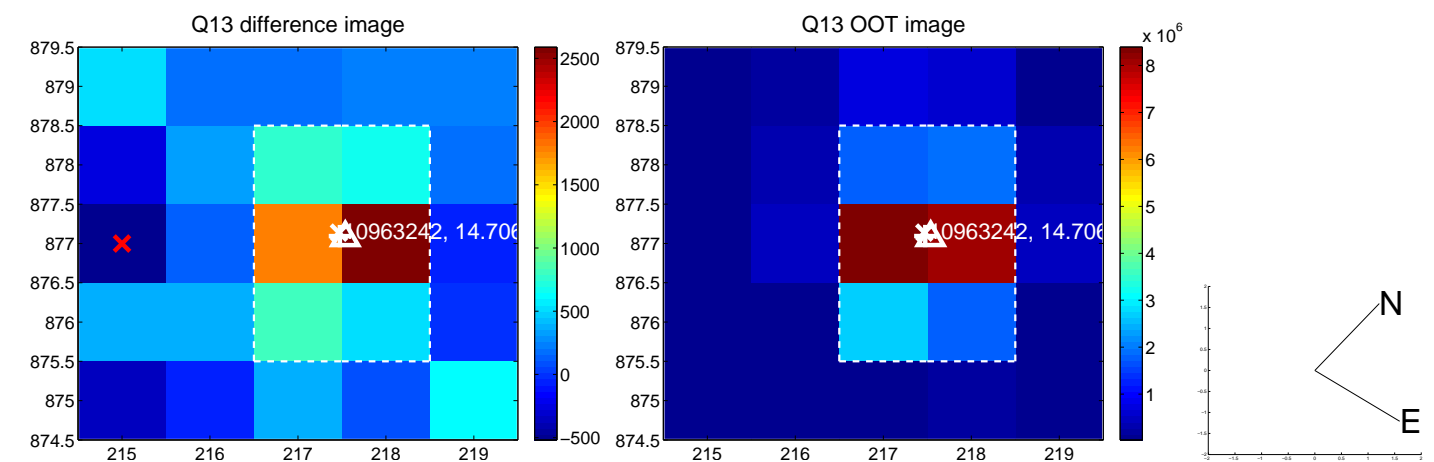
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

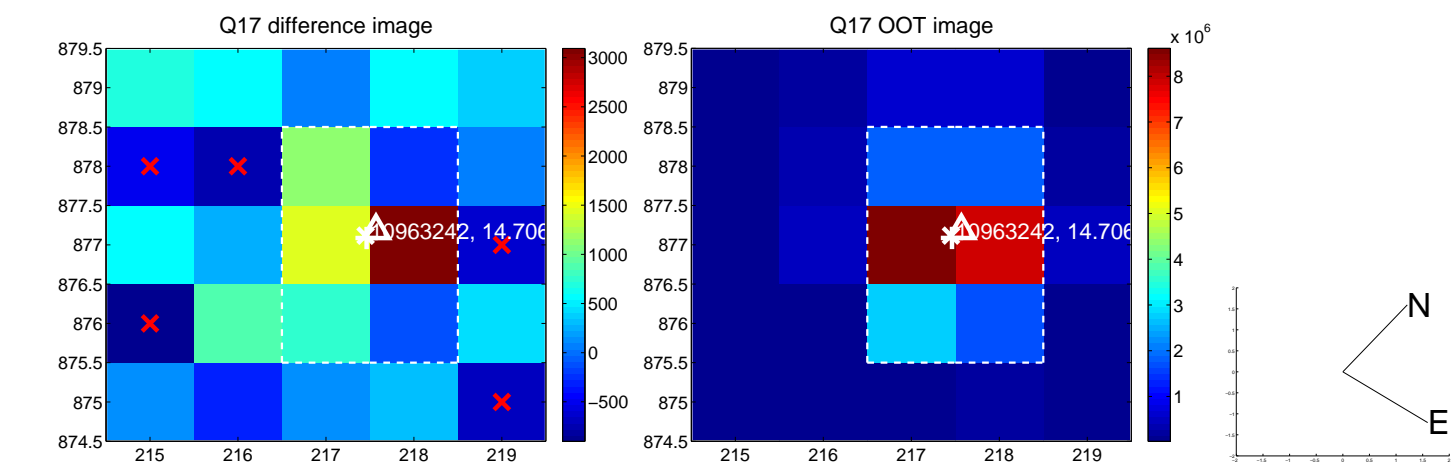


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

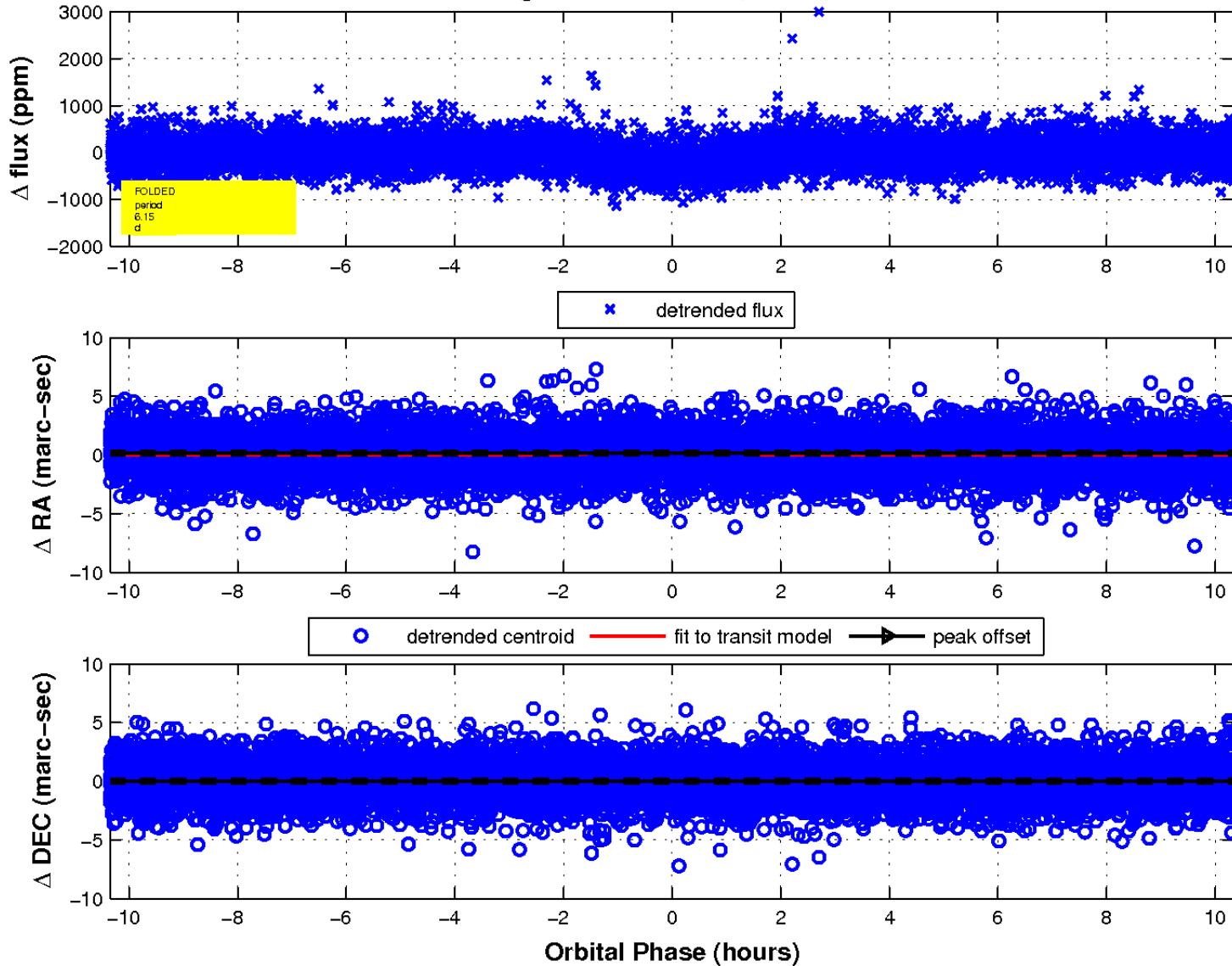




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

