

# KIC 004478142

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004478142-01	OBS	5067.01	219.921795	329.400390	704.6	7.159	9.9	9.9	0.91	5557	3.44	1.44

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004478142-01	OBS	PC	0.90	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.

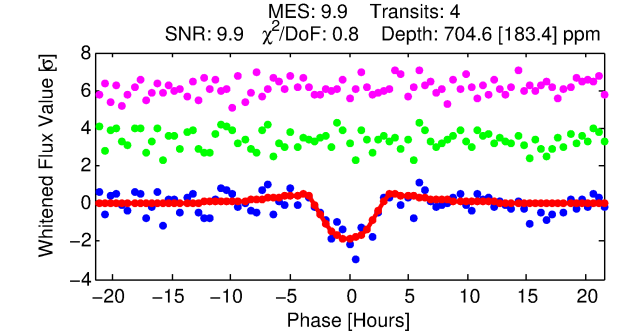
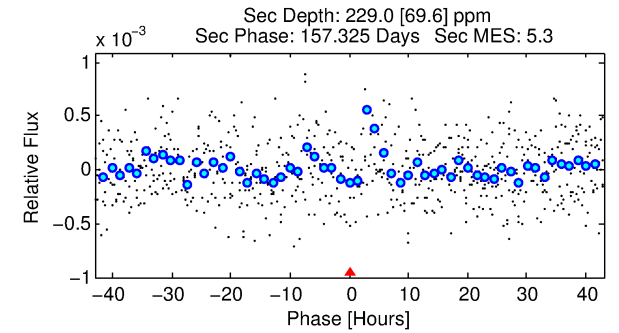
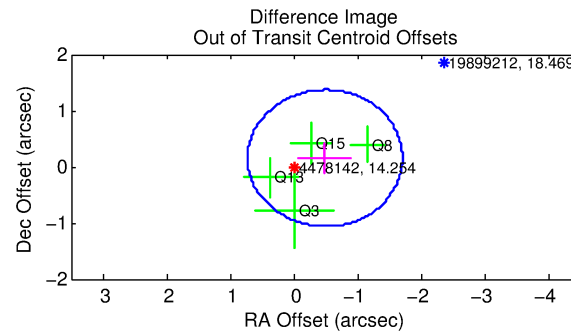
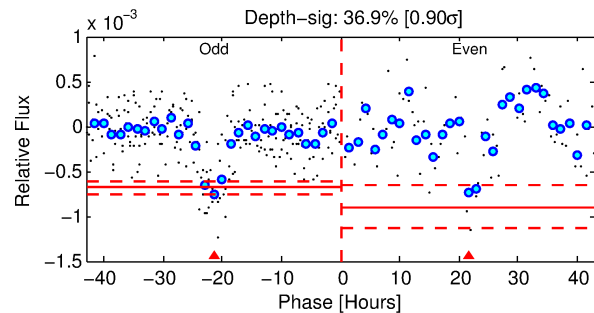
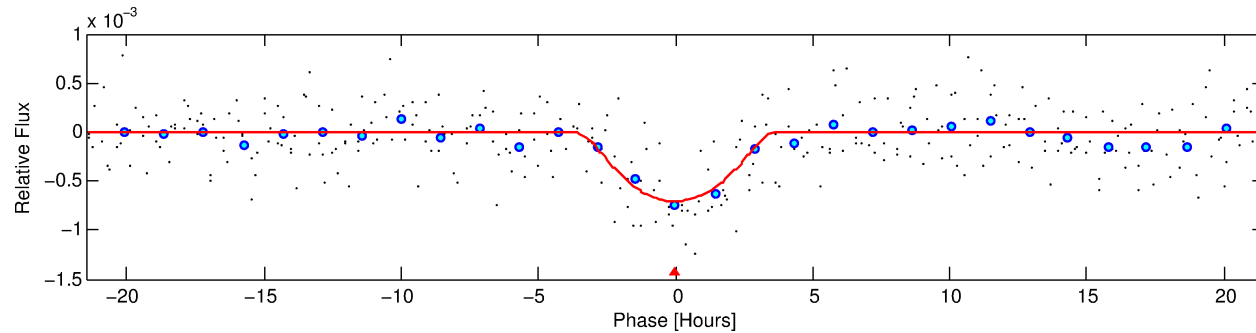
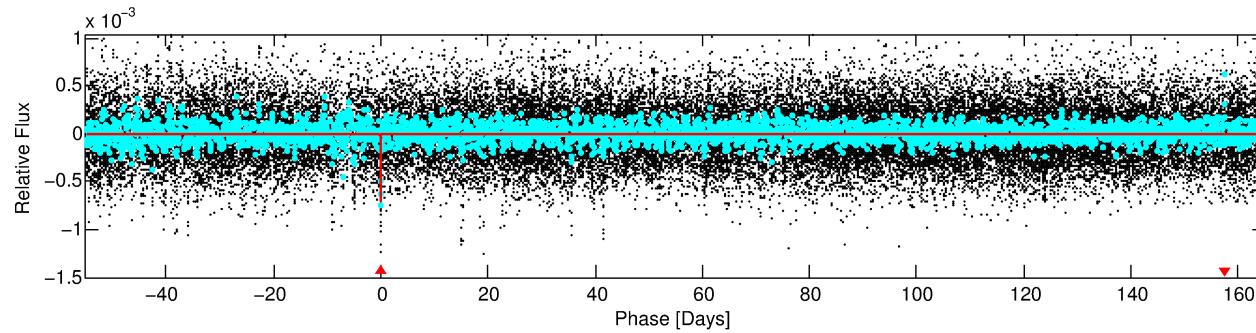
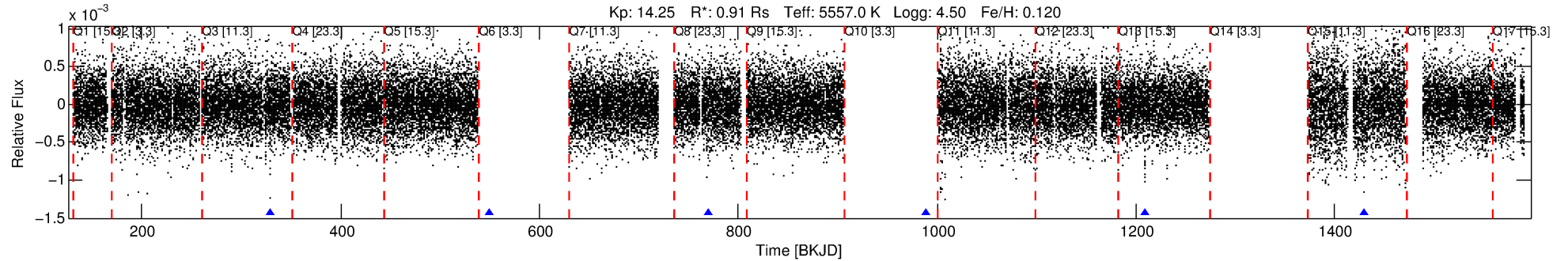
## Ephemeris Match Information For 004478142-01

No Significant Match Found

# DV One-Page Summary

KIC: 4478142 Candidate: 1 of 1 Period: 219.922 d

KOI: K05067.01 Corr: 0.851



## DV Fit Results:

Period = 219.92180 [0.00395] d  
Epoch = 329.4004 [0.0119] BKJD  
Rp/R\* = 0.0346 [0.0163]  
a/R\* = 81.98 [24.37]  
b = 0.97 [0.04]  
Seff = 1.44 [0.29]  
Teff = 279 [14] K  
Rp = 3.44 [1.68] Re  
a = 0.7034 [0.0853] AU  
Ag = 5266.71 [5318.75] [0.99 $\sigma$ ]  
Teffp = 3677 [913] K [3.72 $\sigma$ ]

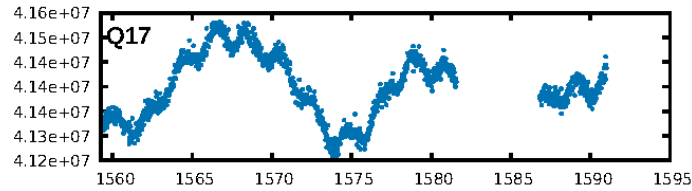
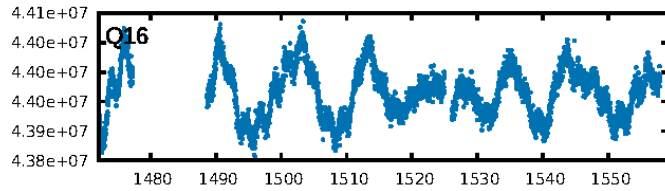
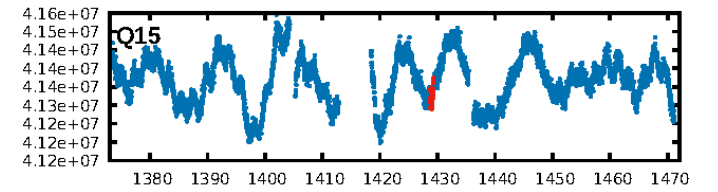
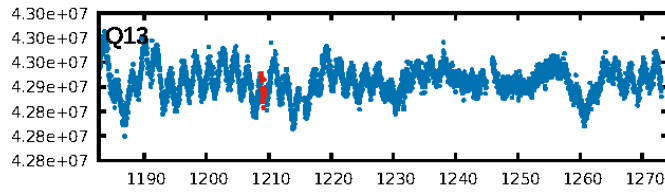
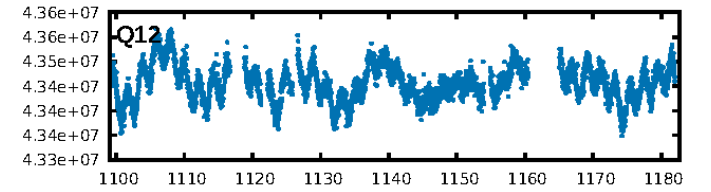
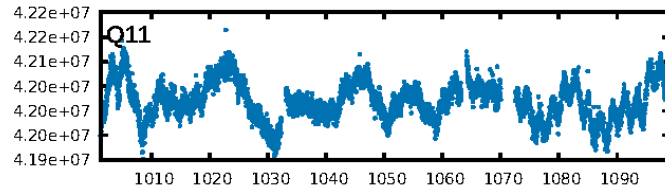
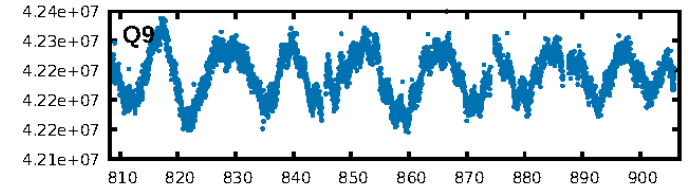
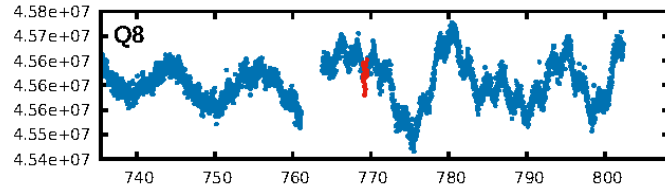
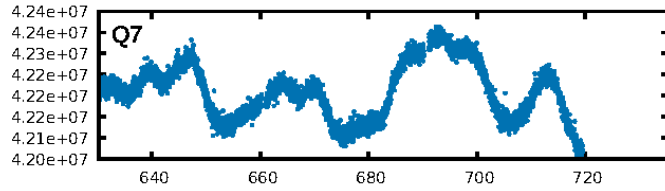
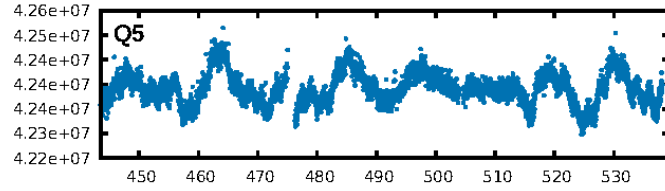
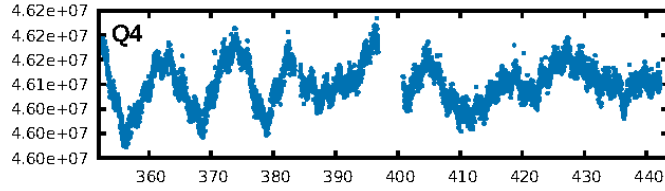
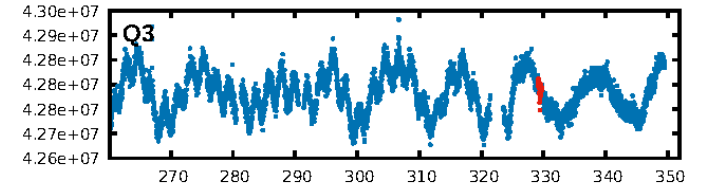
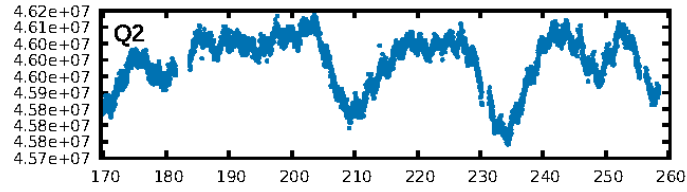
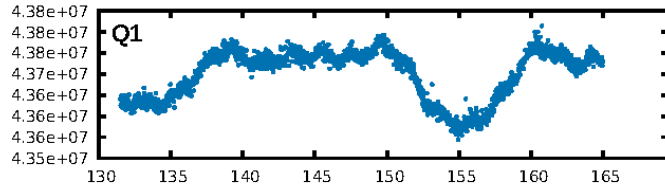
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 61.3%  
ModelChiSquareGof-sig: 98.6%  
Bootstrap-pfa: 6.91e-13  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -33.16  
Centroid-sig: 46.1%  
Centroid-so: 0.588 arcsec [0.56 $\sigma$ ]  
OotOffset-rm: 0.516 arcsec [1.27 $\sigma$ ]  
KicOffset-rm: 0.433 arcsec [1.08 $\sigma$ ]  
OotOffset-st: 0/2/1/1 [4]  
KicOffset-st: 0/2/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [4/4]

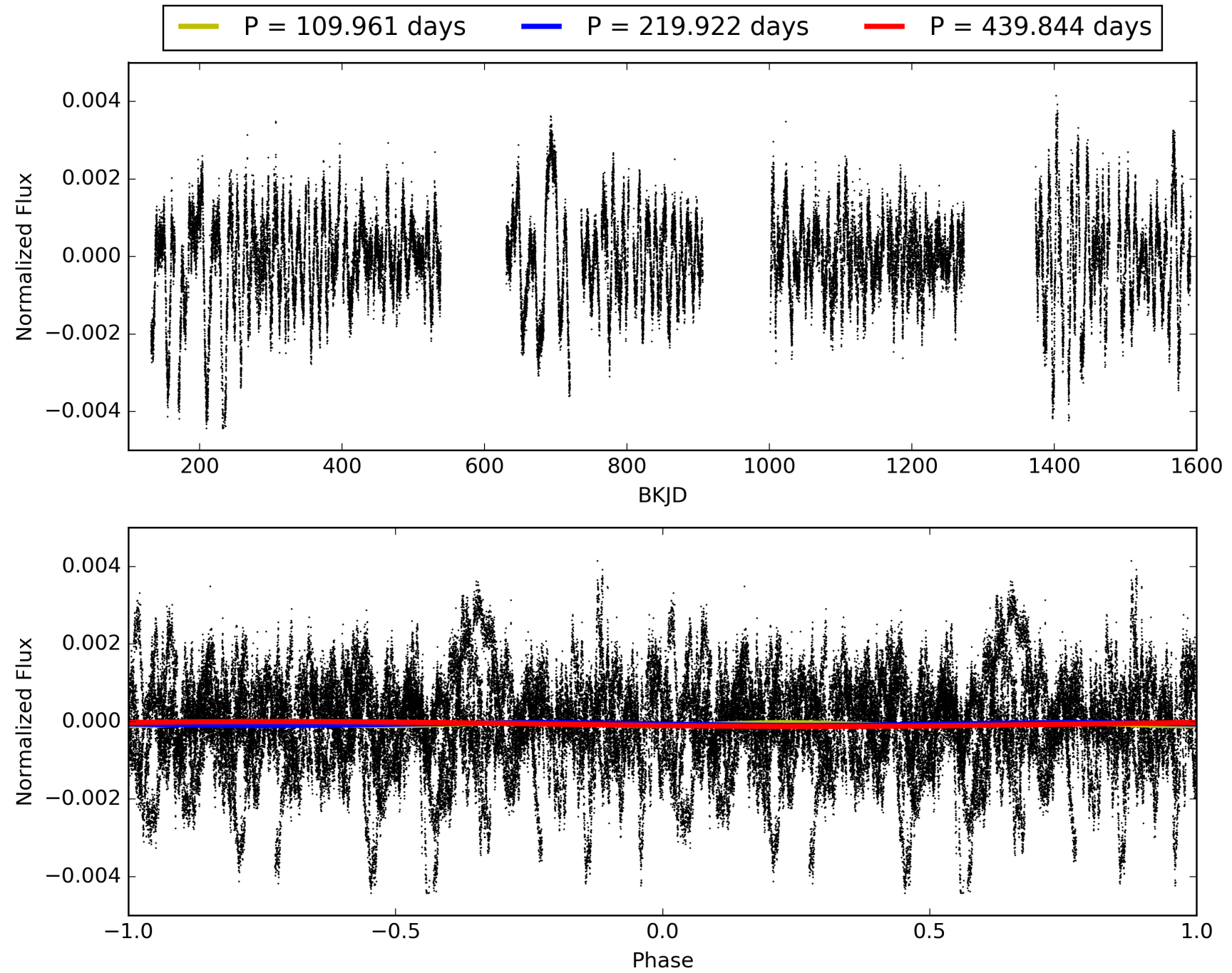
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:17:07 Z

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

# TCE 004478142-01, PDC Light Curves

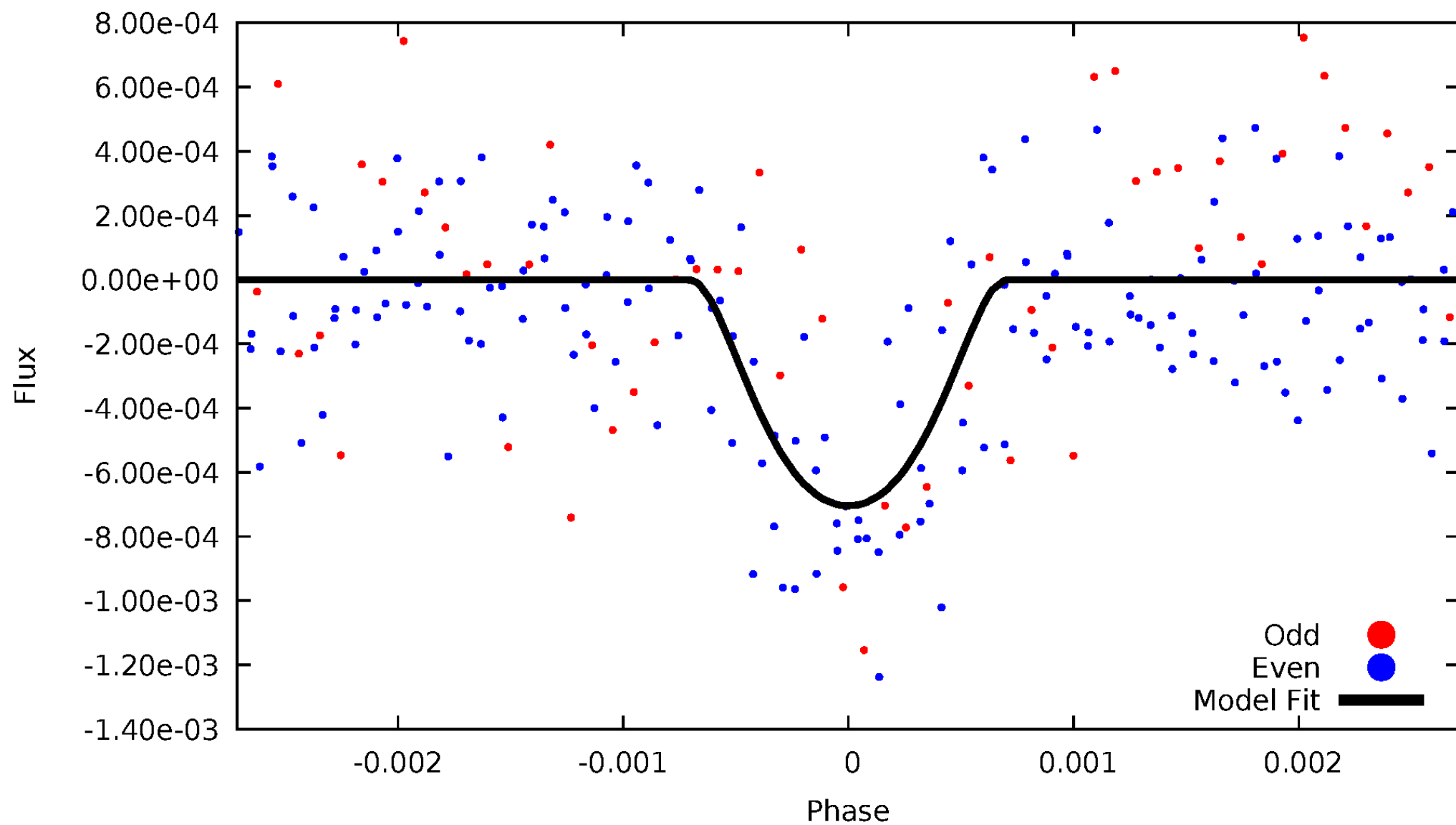


TCE 004478142-01



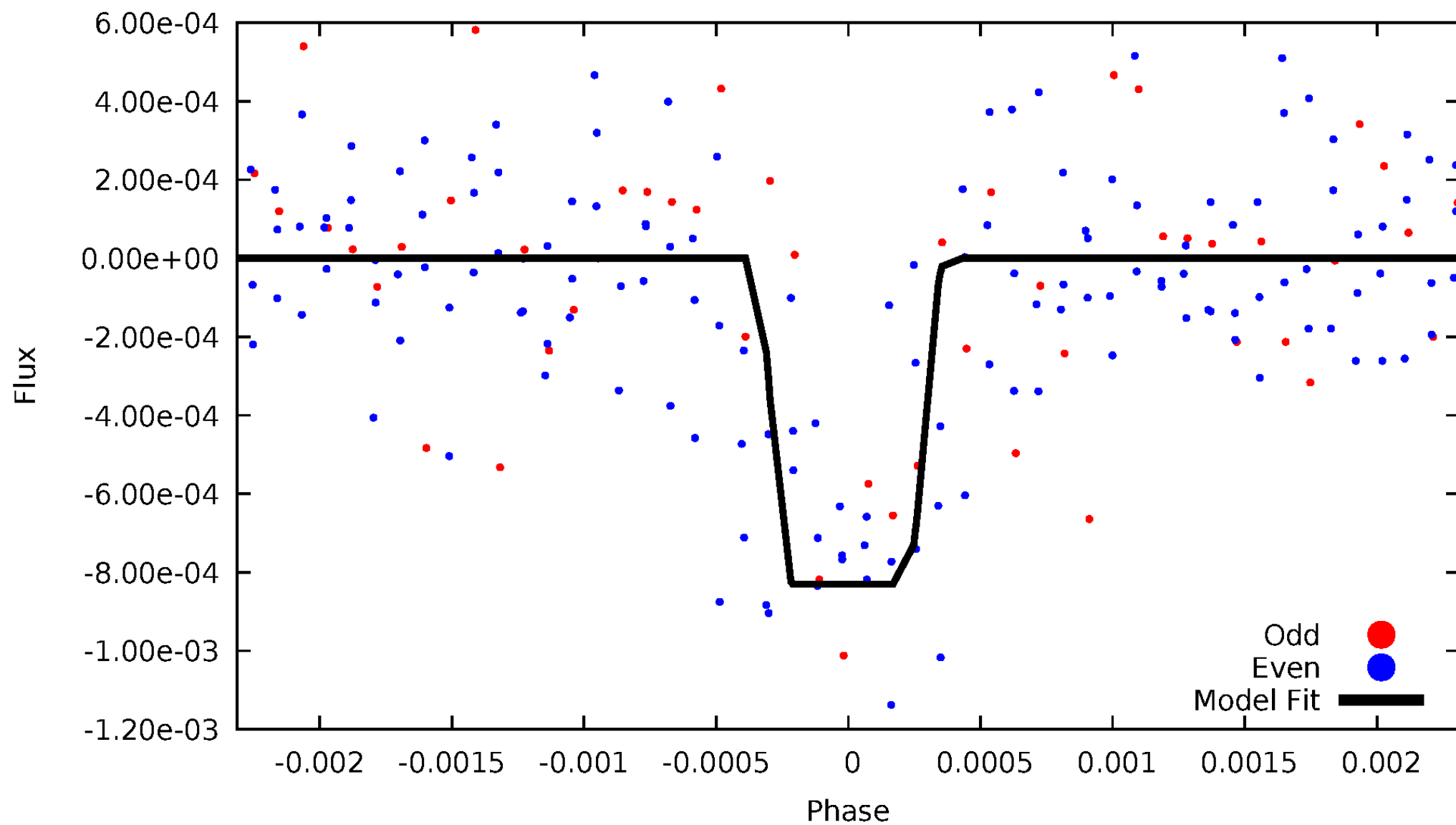
# DV Odd/Even

TCE 004478142-01



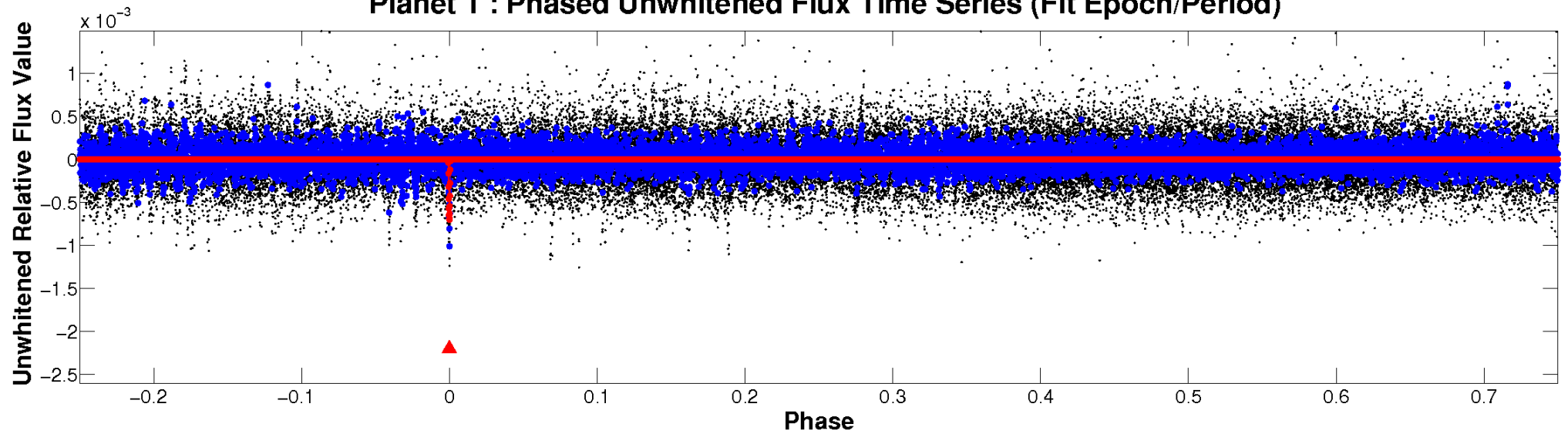
# ALT Odd/Even

TCE 004478142-01

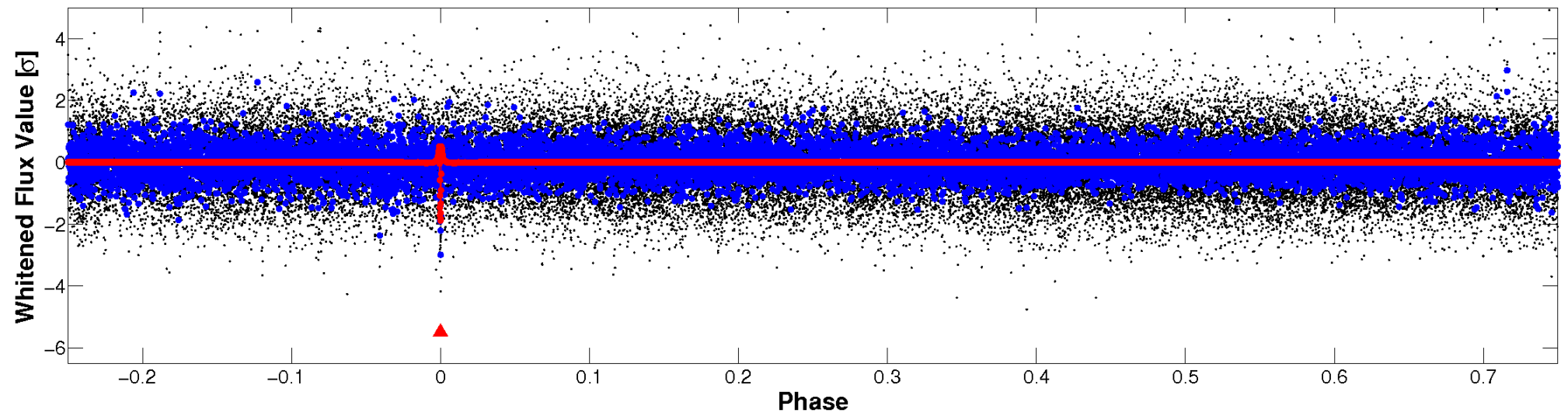


# Non-Whitened Vs. Whitened Light Curve

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

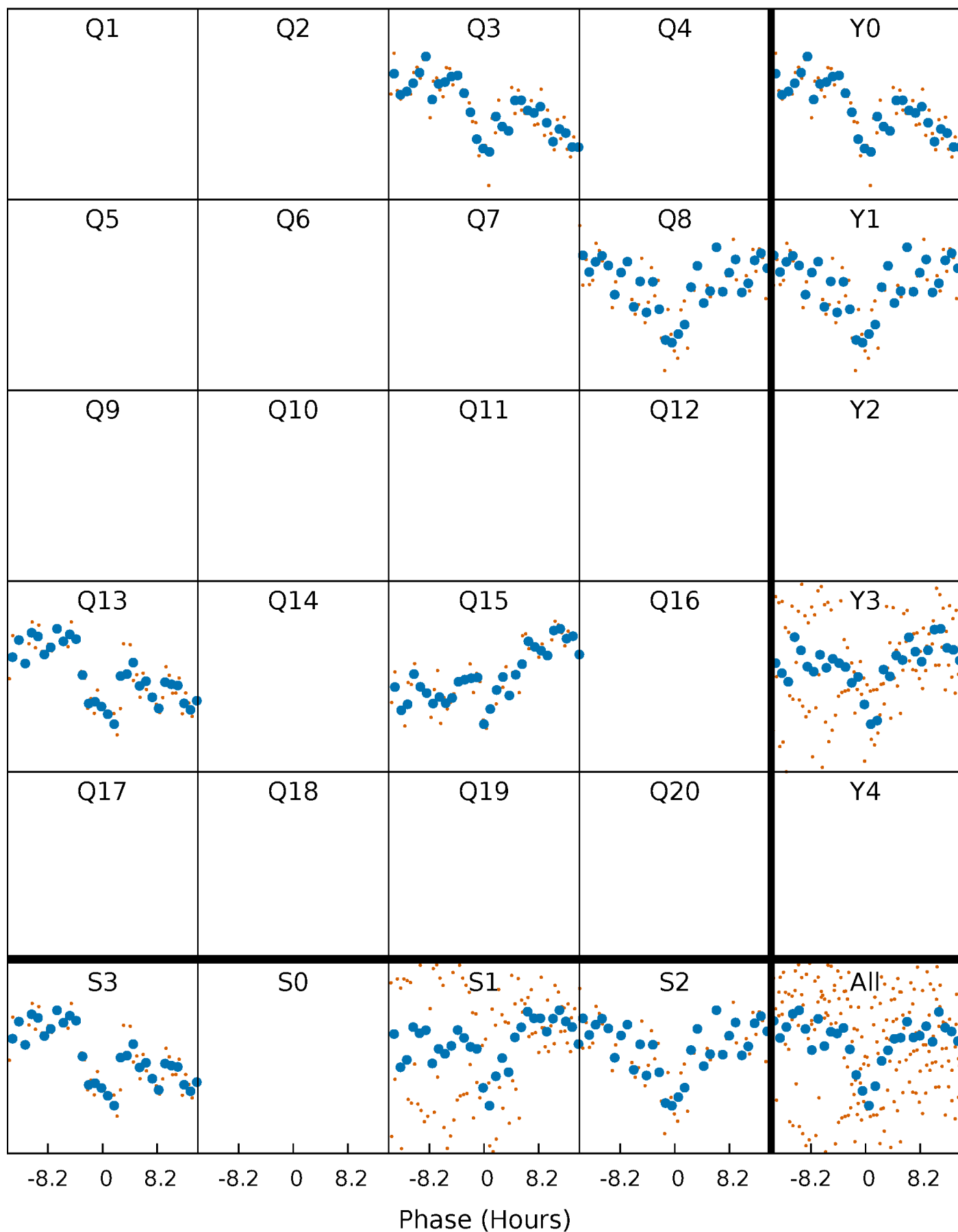


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

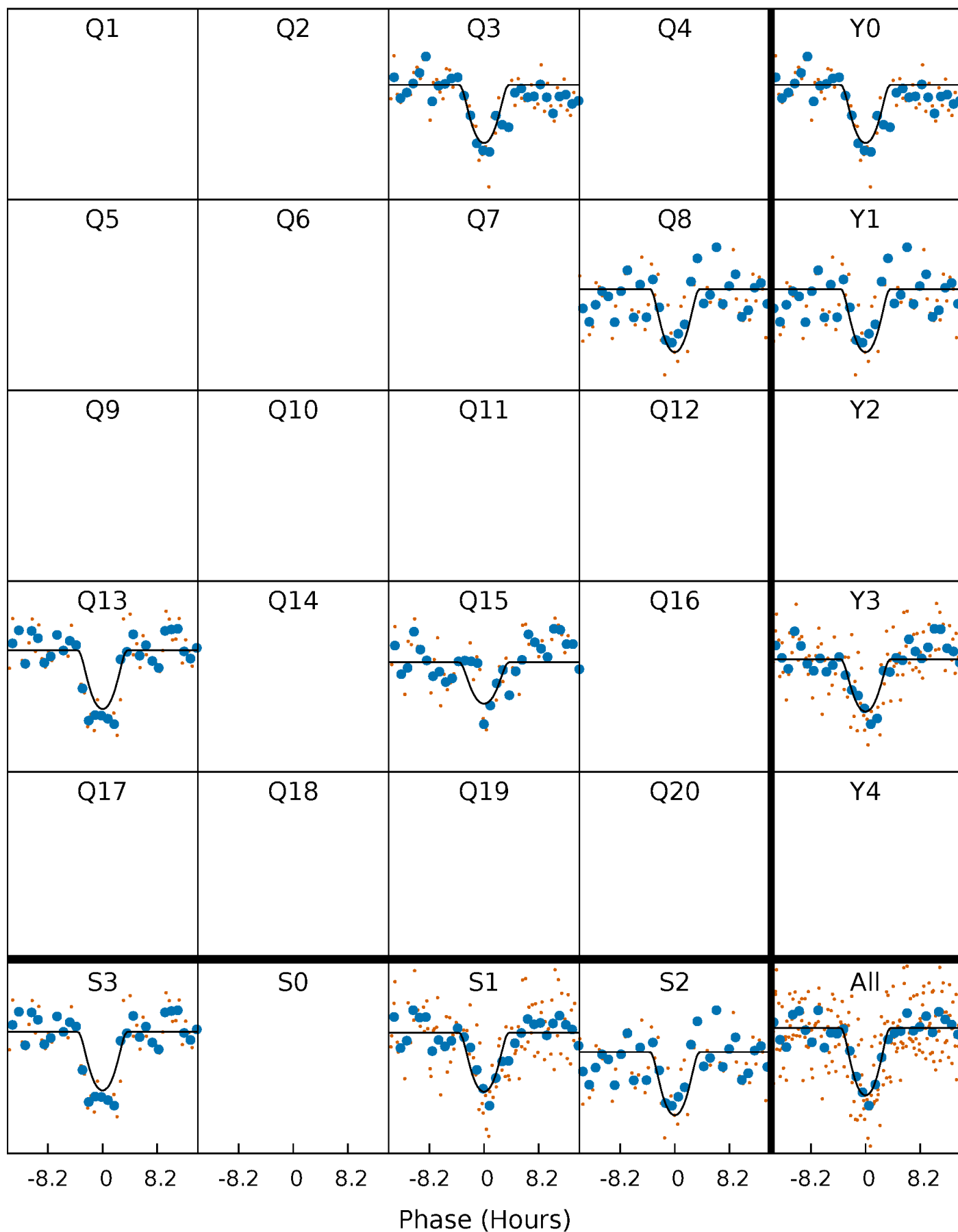
TCE 004478142-01 P=219.921795 Days  $T_0=329.400390$  (BKJD)





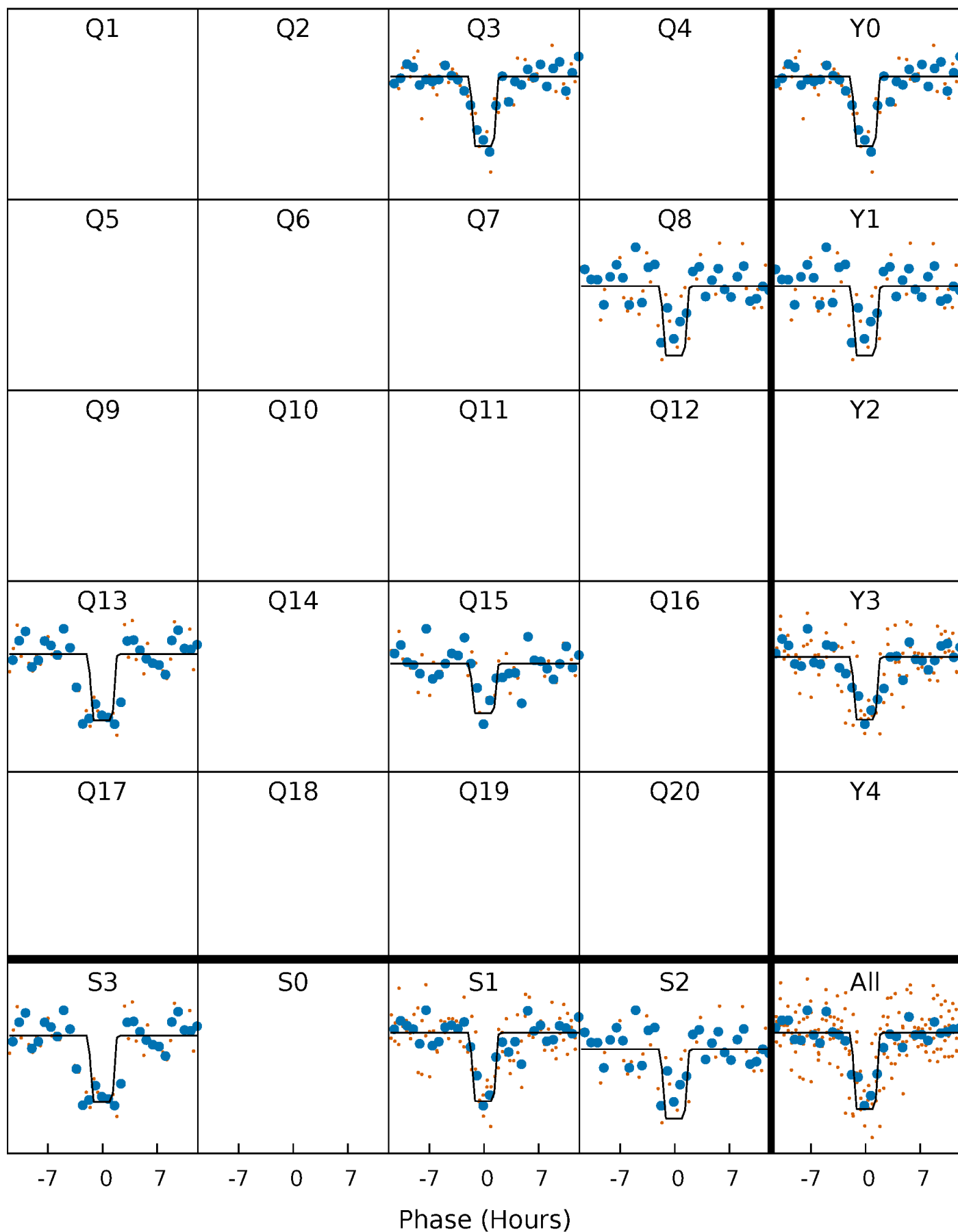
# DV Quarter-Phased Transit Curves

TCE 004478142-01     $P=219.921795$  Days     $T_0=329.400390$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

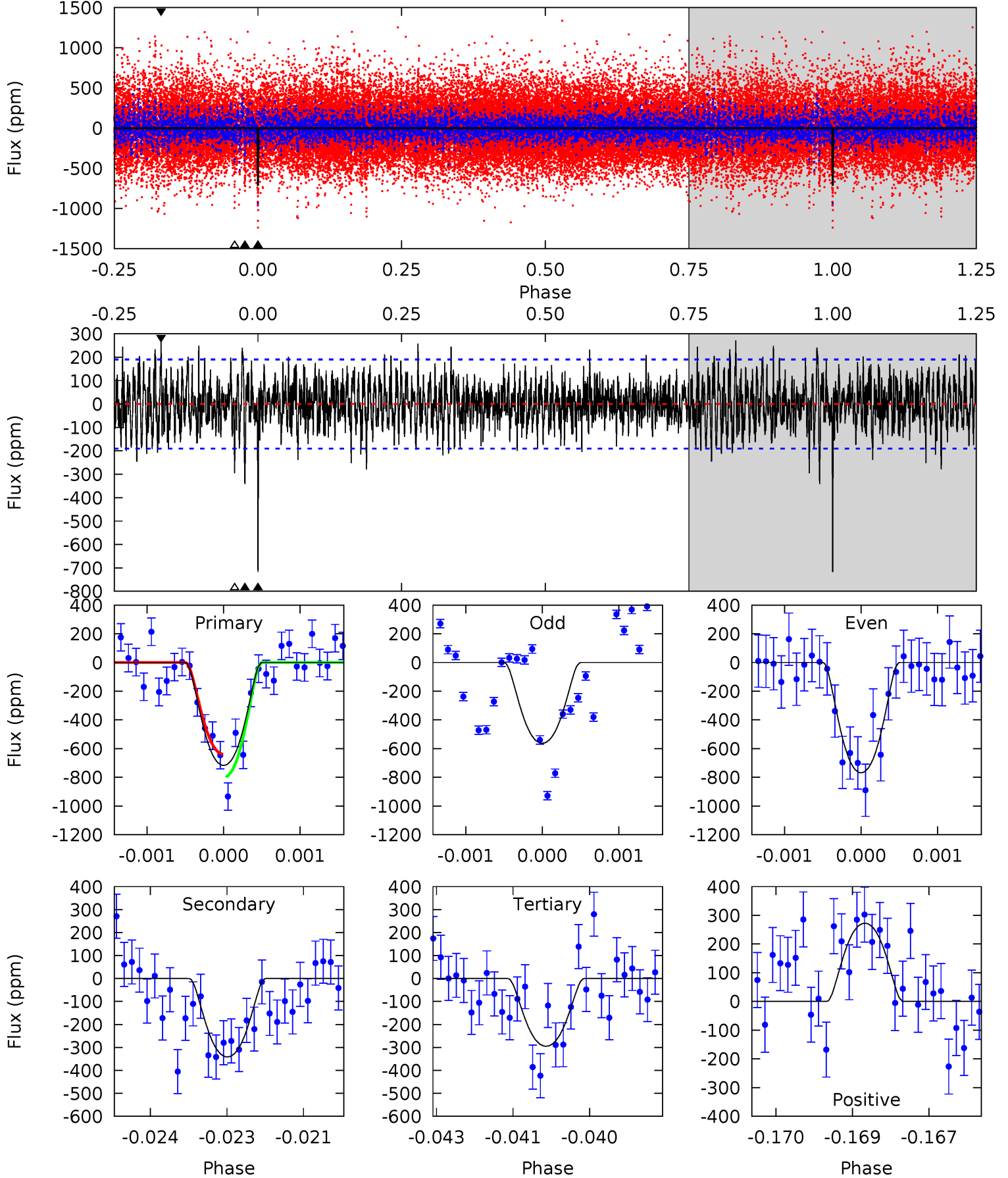
TCE 004478142-01 P=219.926693 Days  $T_0=329.394981$  (BKJD)



# DV Model-Shift Uniqueness Test

004478142-01, P = 219.921795 Days, E = 109.478595 Days

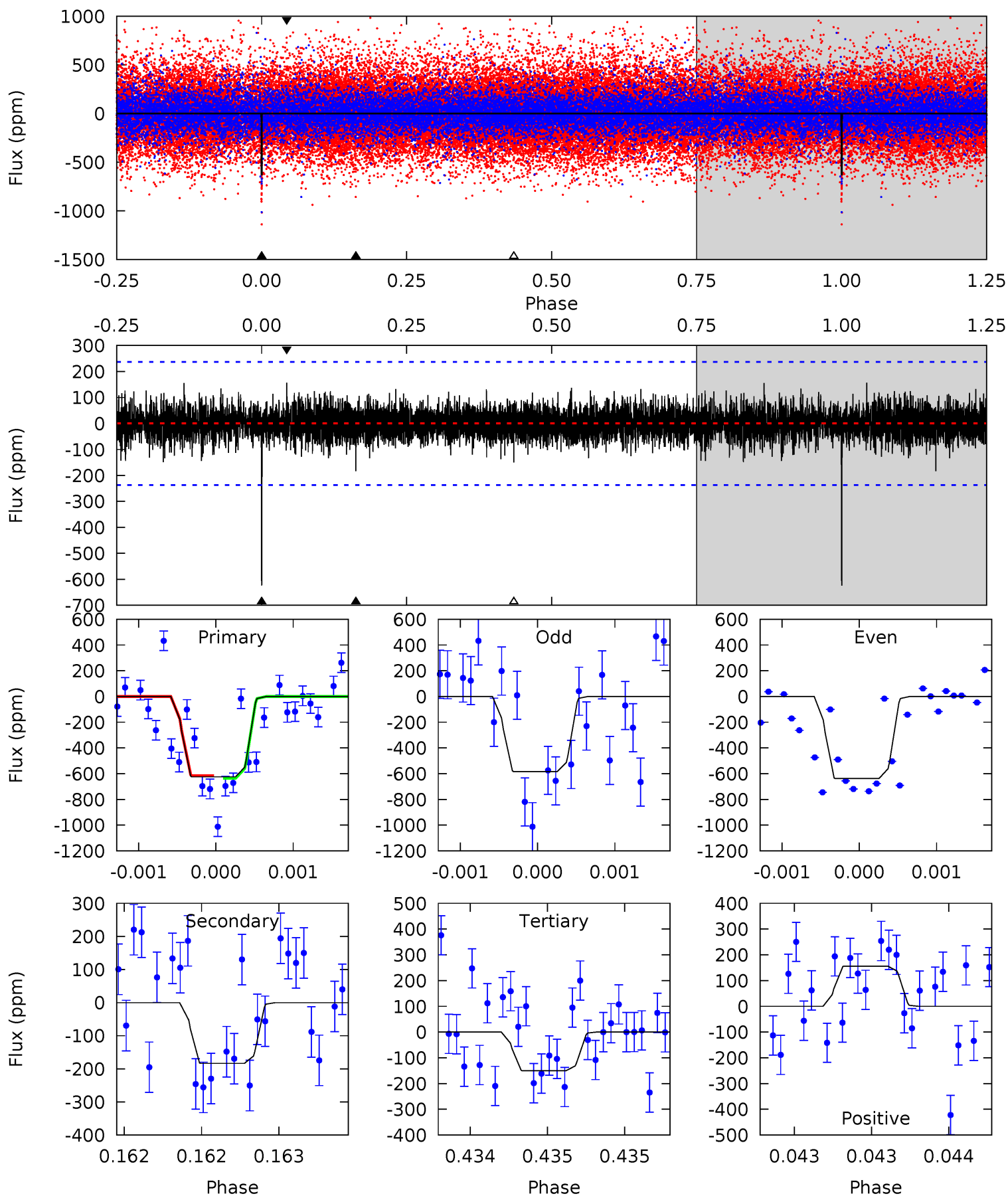
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	9.66	8.34	7.70	5.39	3.19	2.16	11.9	12.6	1.31	1.95	2.43	1.05	0.28	2.25



# Alt Model-Shift Uniqueness Test

004478142-01, P = 219.926693 Days, E = 109.468288 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
14.6	4.28	3.49	3.64	5.52	3.40	0.95	11.1	10.9	0.78	0.64	0.55	0.95	0.20	0.25



### Stellar Parameters For KIC 004478142

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5557^{+75}_{-83}$	$4.500^{+0.038}_{-0.113}$	$0.120^{+0.150}_{-0.150}$	$0.912^{+0.116}_{-0.053}$	$0.958^{+0.047}_{-0.059}$	$1.781^{+0.255}_{-0.557}$
	+1%/-1%	+1%/-3%	+125%/-125%	+13%/-6%	+5%/-6%	+14%/-31%
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 004478142-01 / KOI 5067.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-341 \pm 35$	$3.48^{+1.57}_{-1.60}$	$393^{+14}_{-10}$	$4286^{+1248}_{-528}$	$7627^{+18583}_{-4056}$
Alt.	$-183 \pm 43$	$3.07^{+1.56}_{-1.58}$	$393^{+15}_{-11}$	$4006^{+1447}_{-532}$	$5186^{+19383}_{-3021}$

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

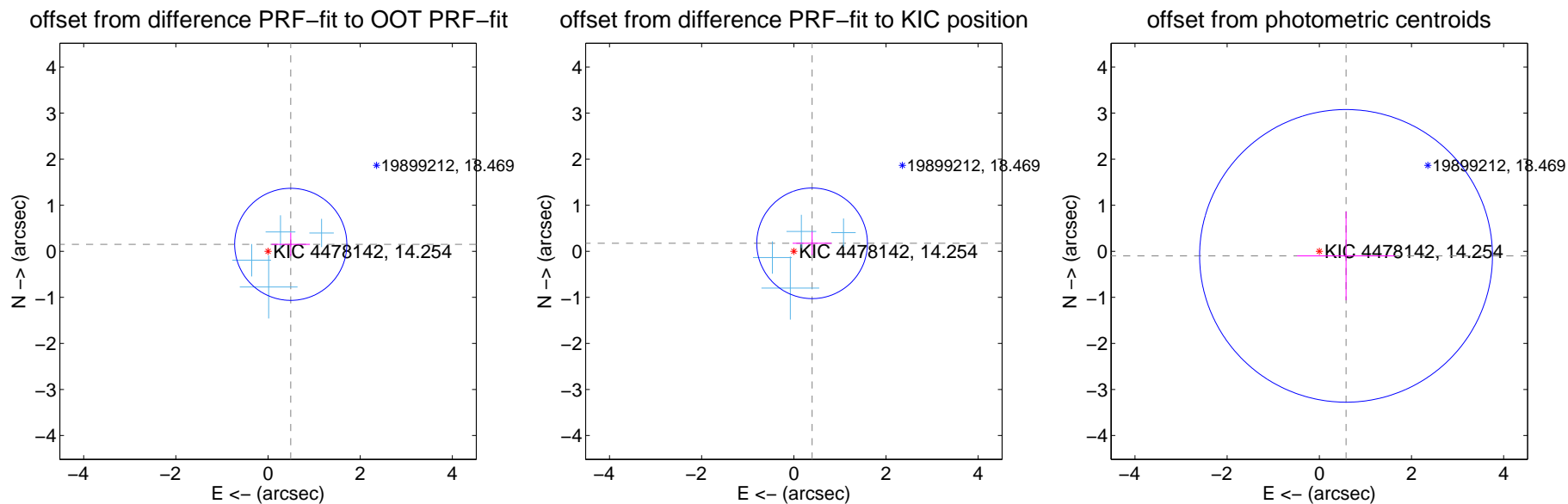
## DV Centroid Data

Supplemental centroid analysis for 004478142-01. Kepler magnitude: 14.25. Transit SNR 9.93

There are 4 quarters with good PRF difference image offsets

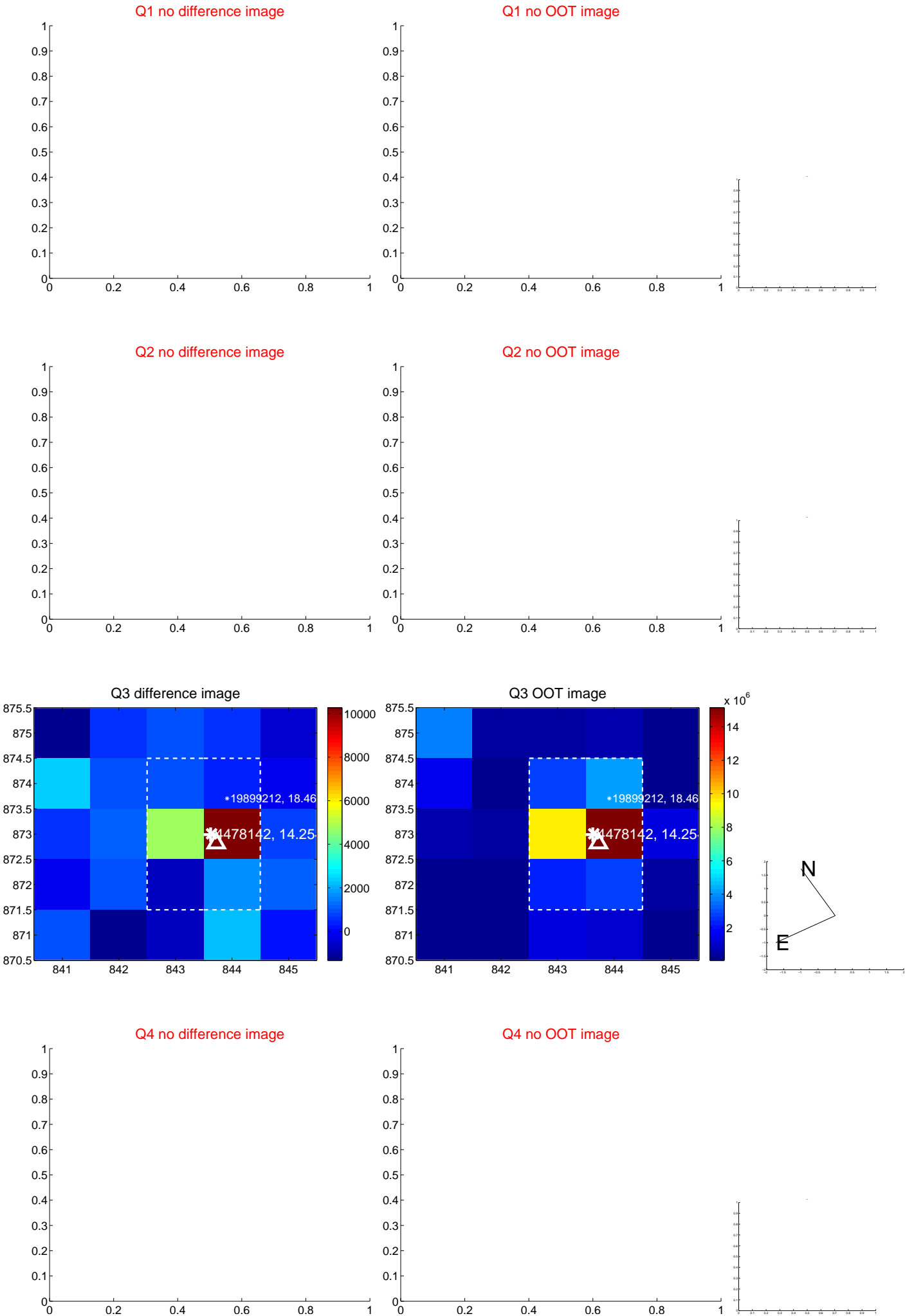
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.516 \pm 0.406$	1.27	$-0.493 \pm 0.417$	$0.151 \pm 0.254$
PRF-fit source offset from KIC position	$0.433 \pm 0.400$	1.08	$-0.397 \pm 0.423$	$0.173 \pm 0.253$
photometric centroid source offset	$0.59 \pm 1.06$	0.56	$-0.58 \pm 1.06$	$-0.10 \pm 0.96$

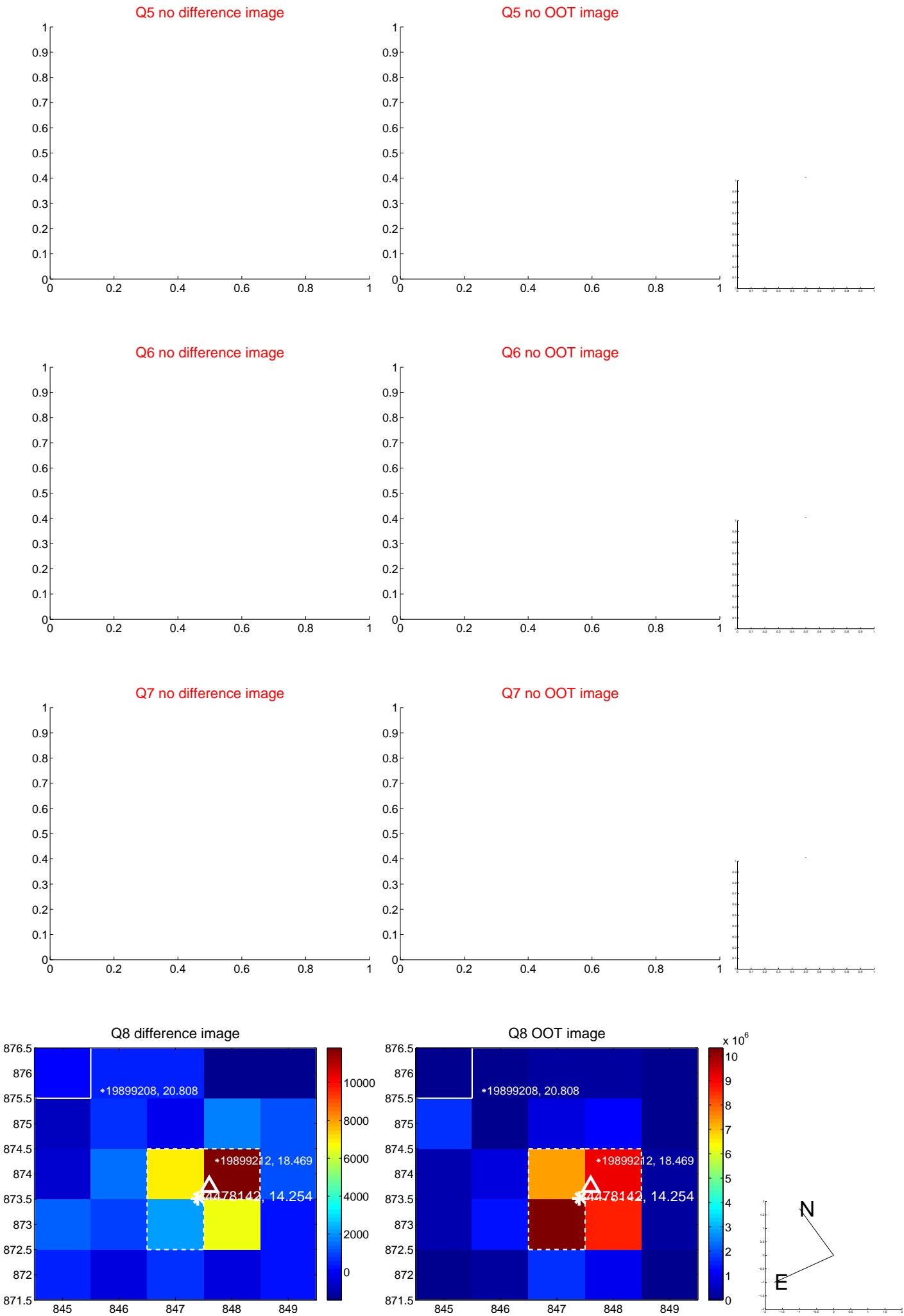


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

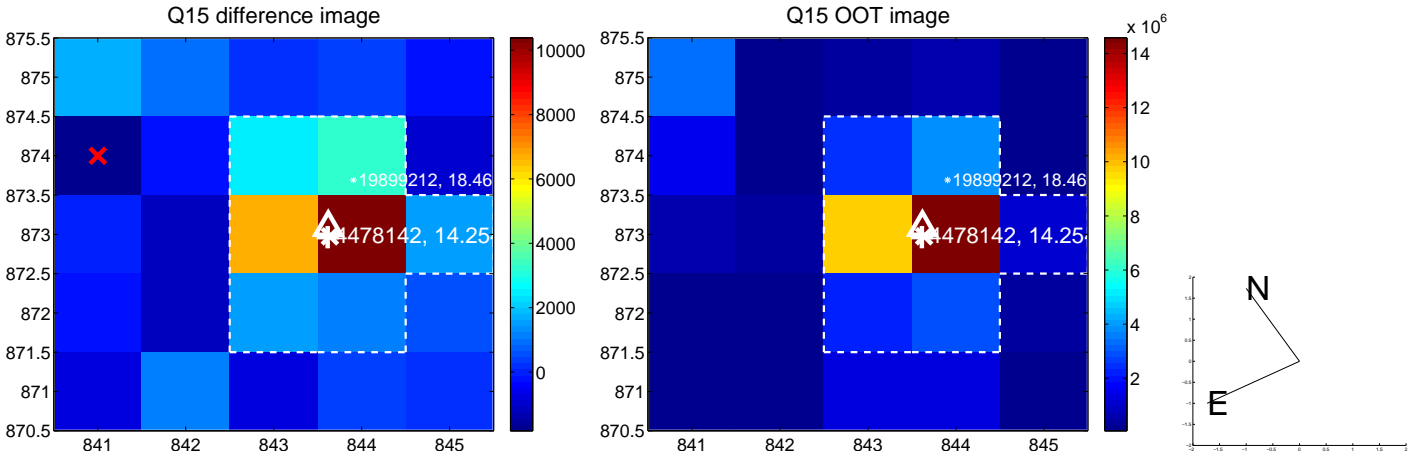
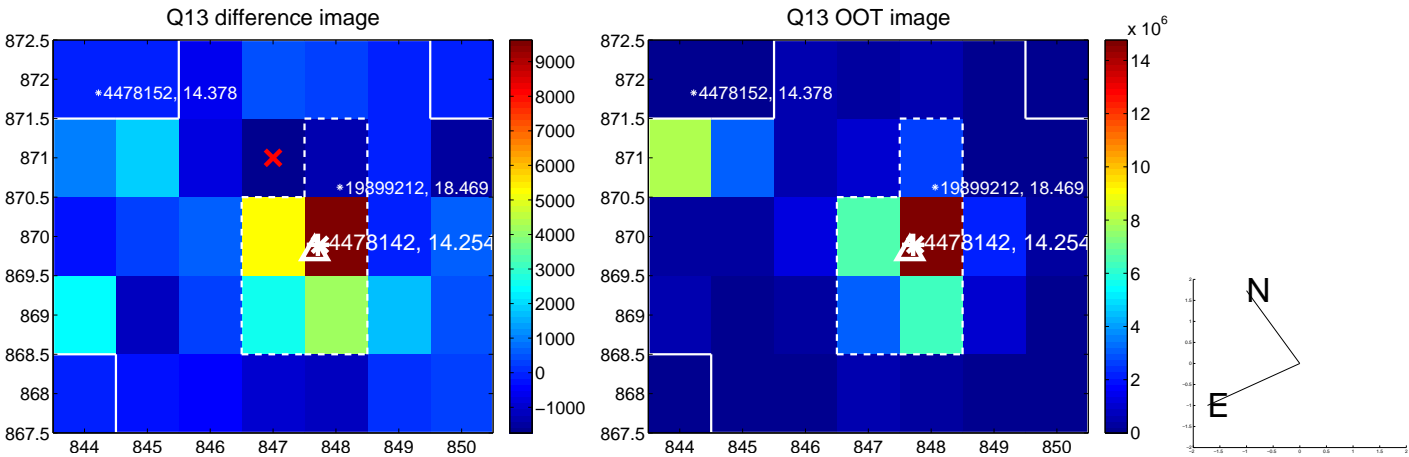




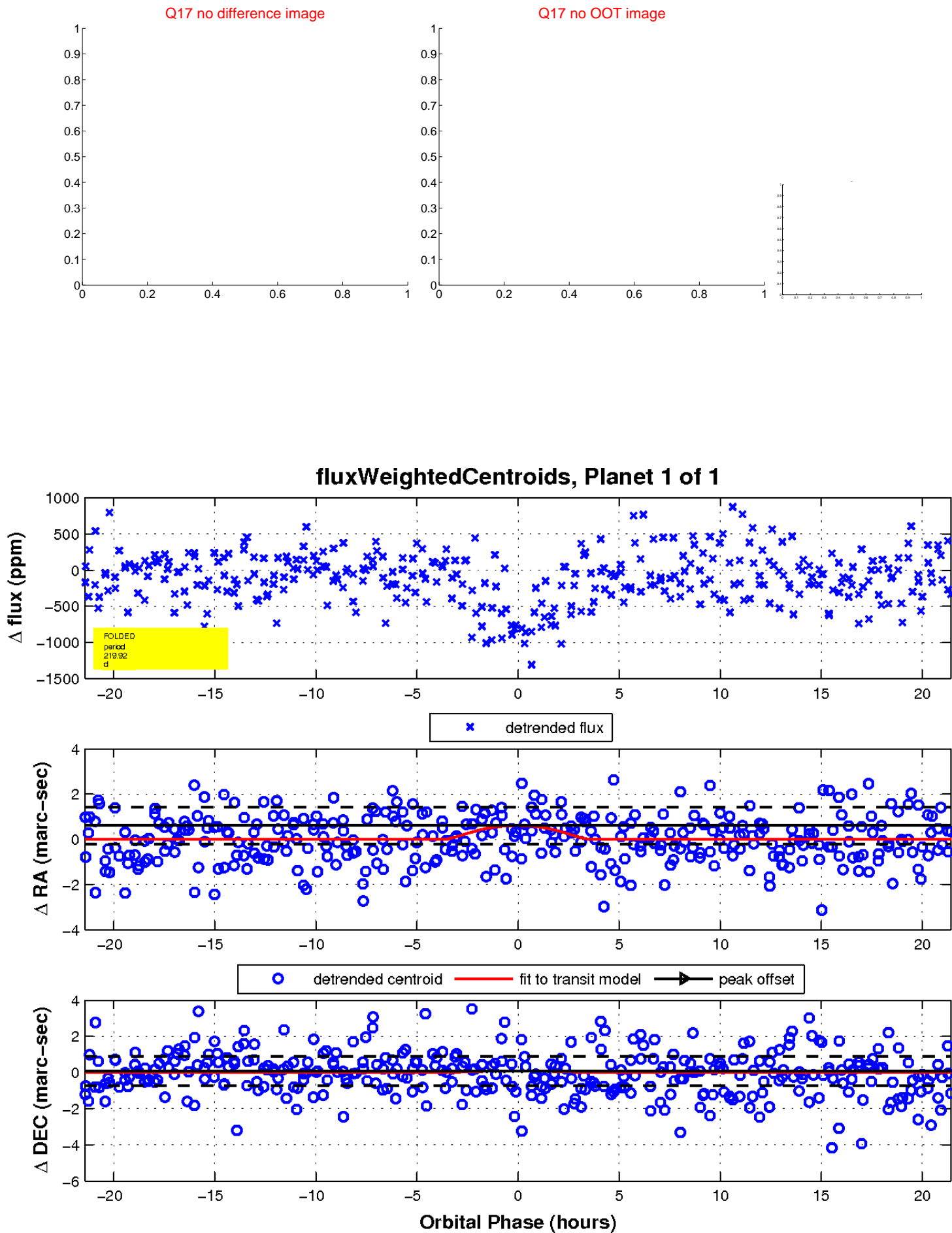
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

