

# KIC 009898447

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009898447-01	OBS	2803.01	2.377570	133.383257	29.3	2.603	14.0	15.1	0.94	5615	0.59	632.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009898447-01	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.

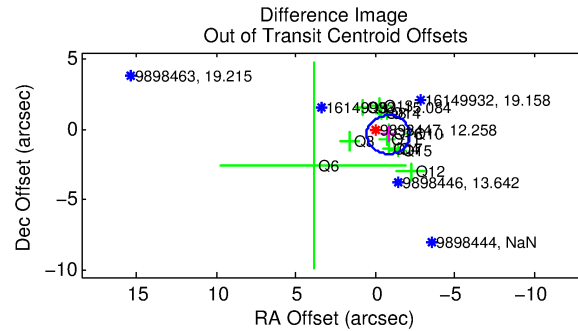
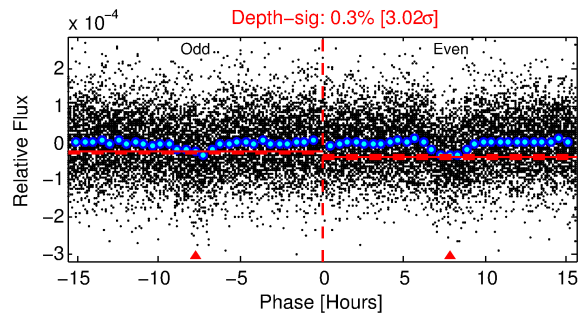
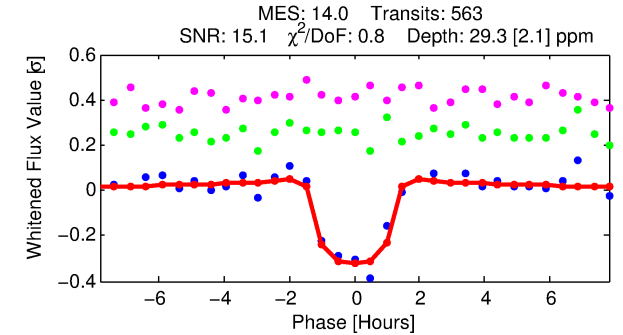
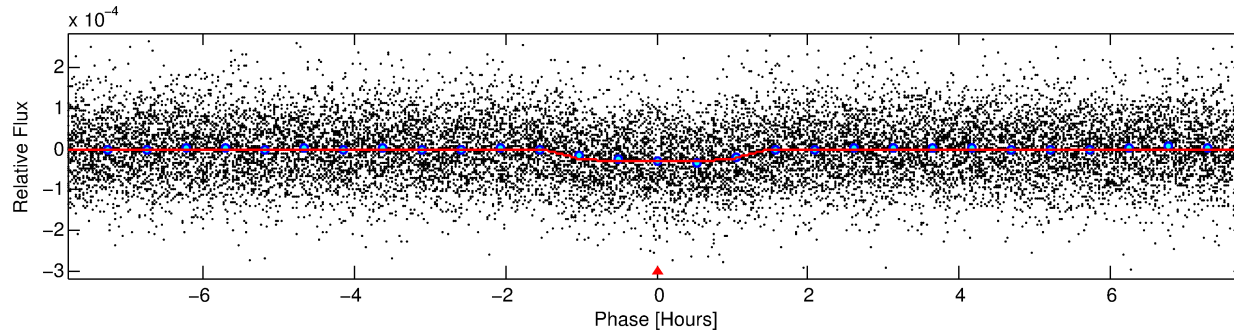
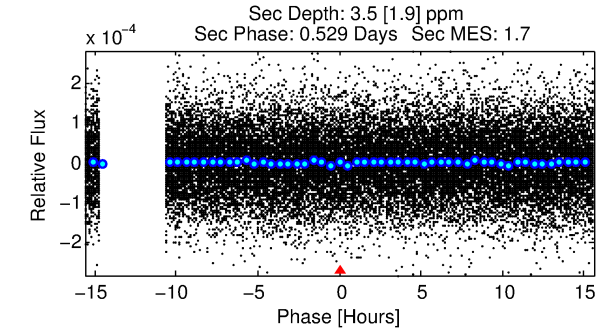
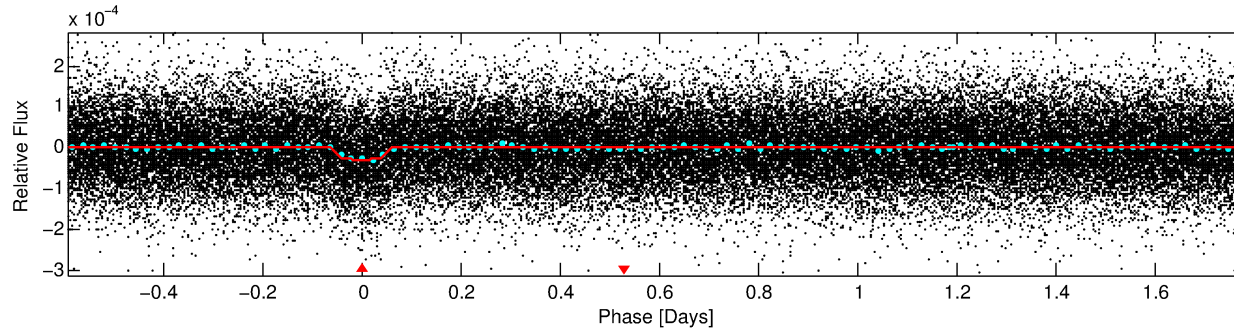
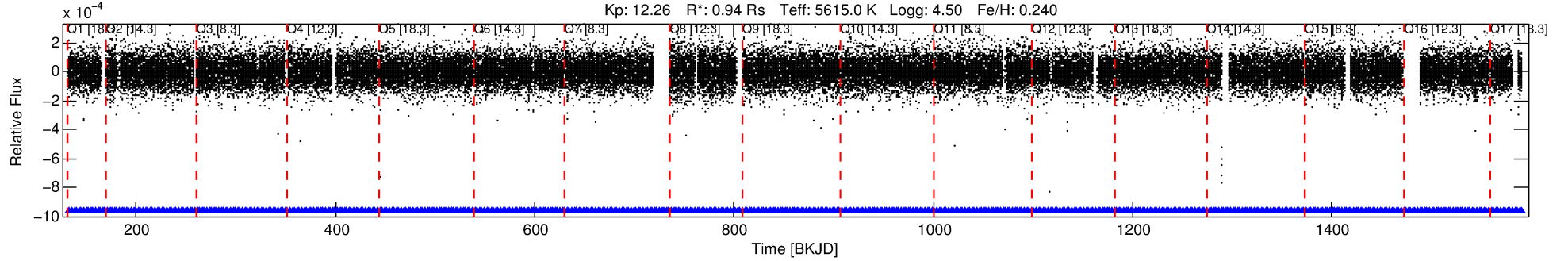
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009898447-01

No Significant Match Found

# DV One-Page Summary

KIC: 9898447 Candidate: 1 of 1 Period: 2.378 d  
KOI: K02803.01 Corr: 0.920



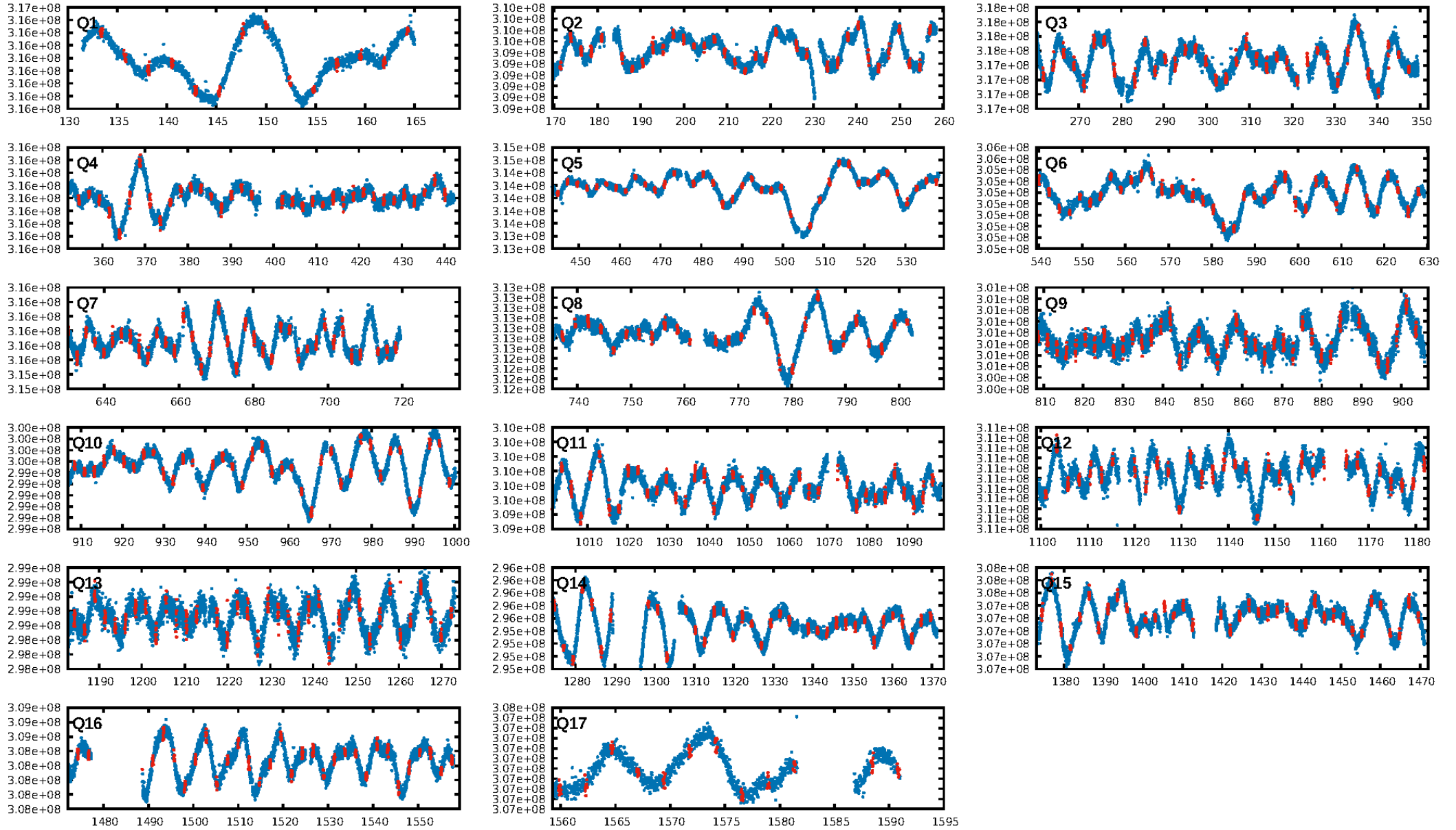
## DV Fit Results:

Period = 2.37757 [0.00001] d  
Epoch = 133.3833 [0.0023] BKJD  
Rp/R\* = 0.0058 [0.0017]  
a/R\* = 3.61 [4.27]  
b = 0.87 [0.36]  
Seff = 632.36 [142.03]  
Teq = 1279 [72] K  
Rp = 0.59 [0.19] Re  
a = 0.0351 [0.0046] AU  
Ag = 6.82 [5.66] [1.03σ]  
Teffp = 3195 [646] K [2.95σ]

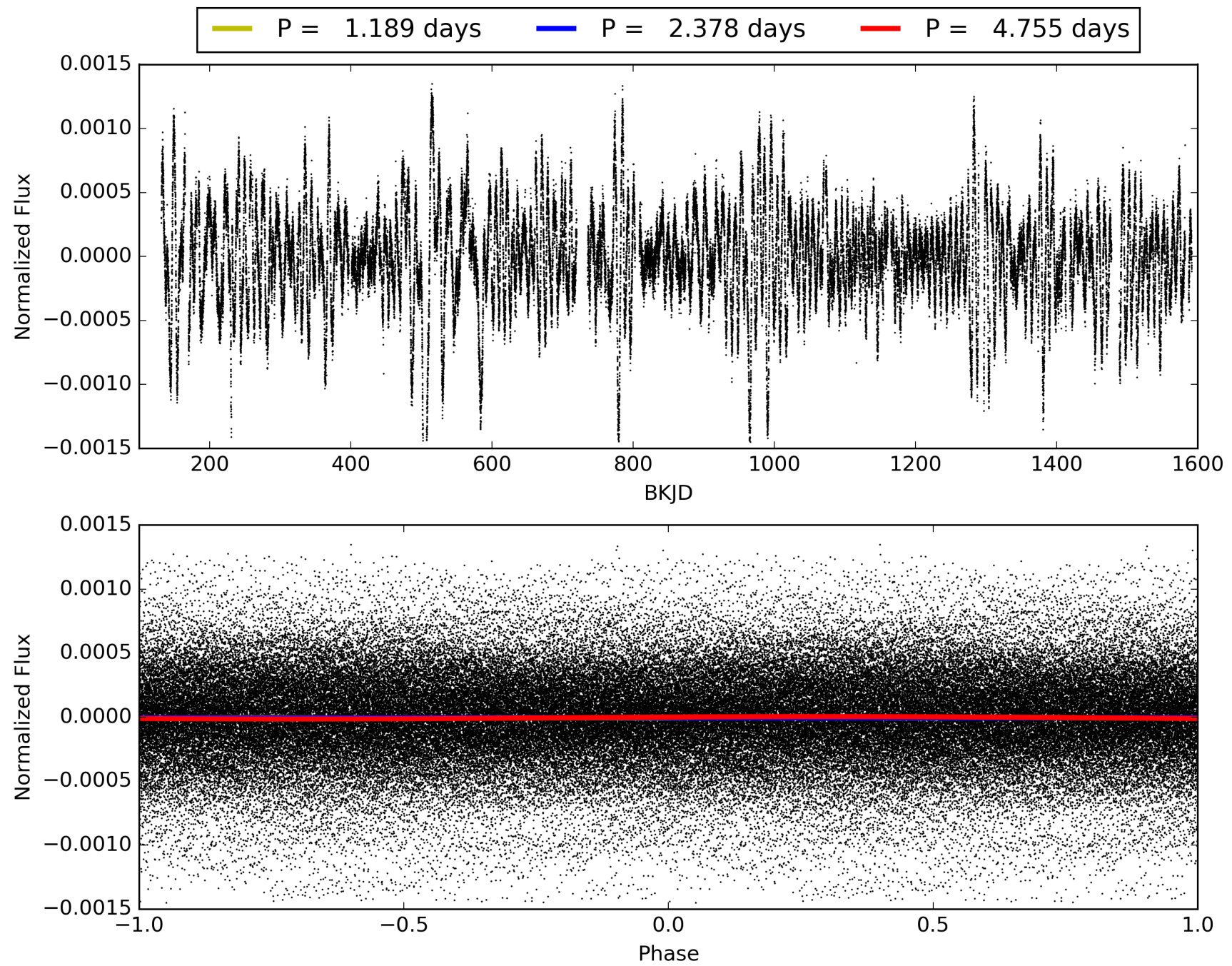
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.15e-41  
RollingBand-fgt: 1.00 [537/537]  
GhostDiagnostic-chr: 14.47  
Centroid-sig: 2.2%  
Centroid-so: 1.283 arcsec [1.79σ]  
OotOffset-rm: 0.889 arcsec [1.95σ]  
KicOffset-rm: 0.777 arcsec [1.63σ]  
OotOffset-st: 3/4/4/3 [14]  
KicOffset-st: 3/4/4/3 [14]  
DiffImageQuality-fgm: 0.86 [12/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009898447-01, PDC Light Curves

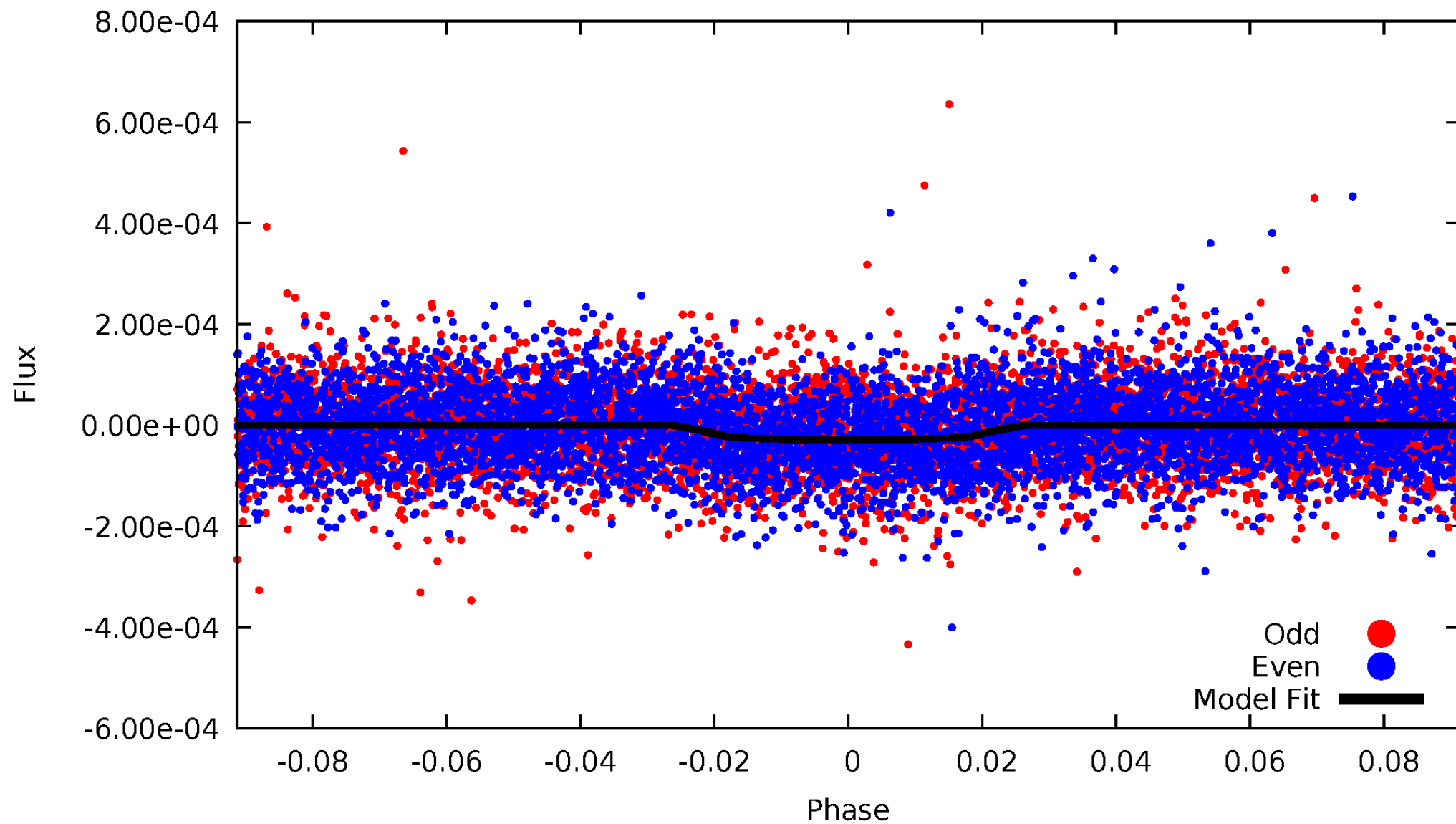


TCE 009898447-01



# DV Odd/Even

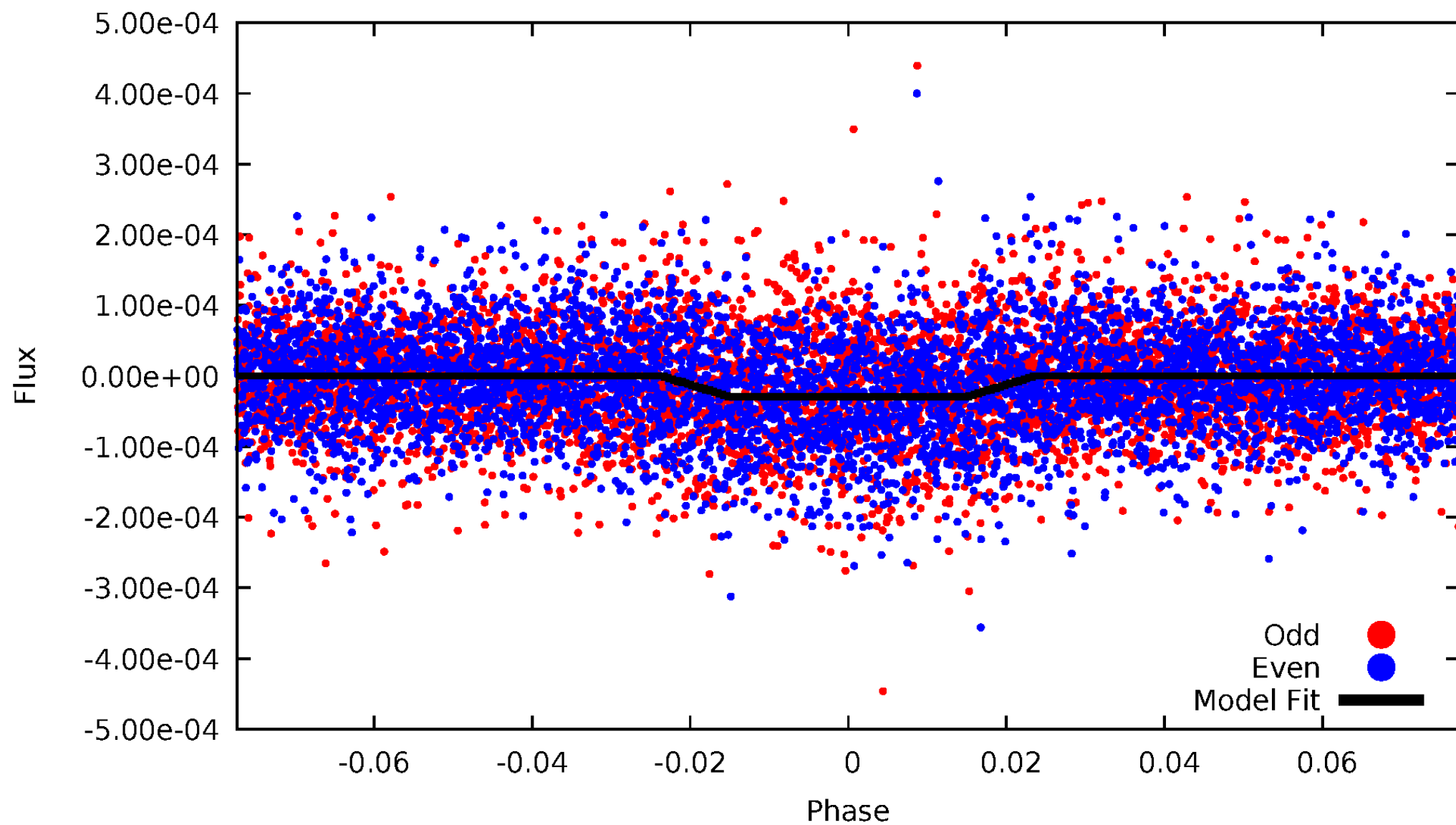
TCE 009898447-01





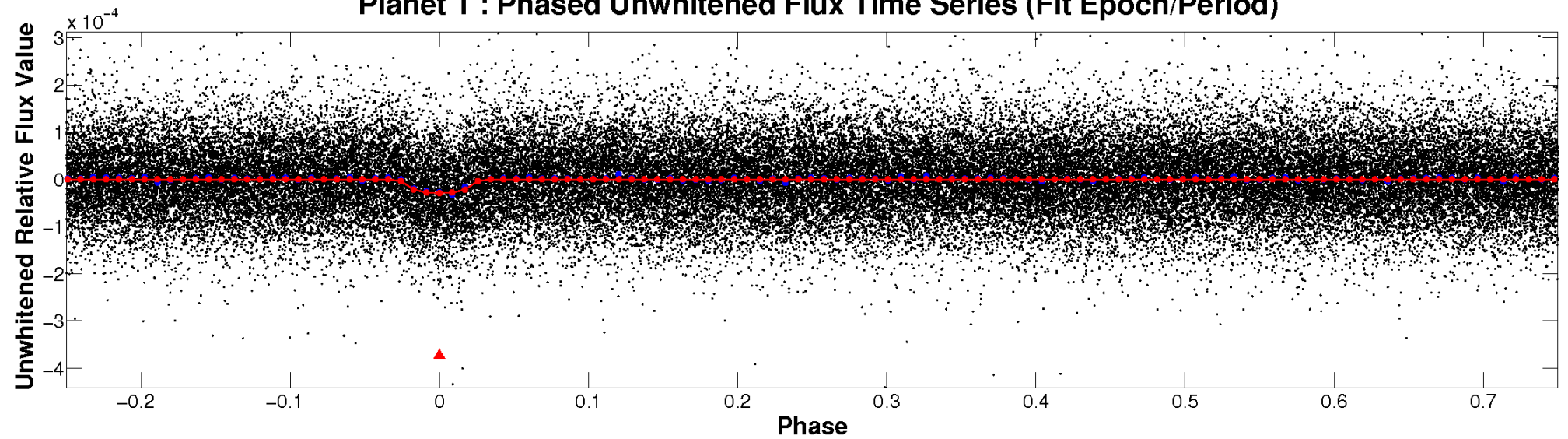
# ALT Odd/Even

TCE 009898447-01

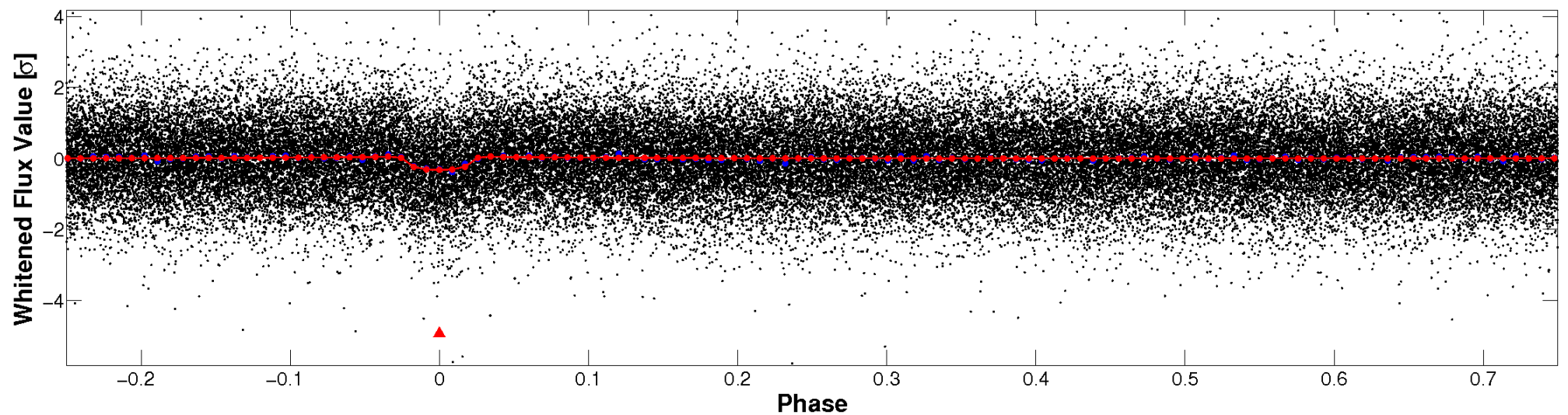


# Non-Whitened Vs. Whitened Light Curve

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

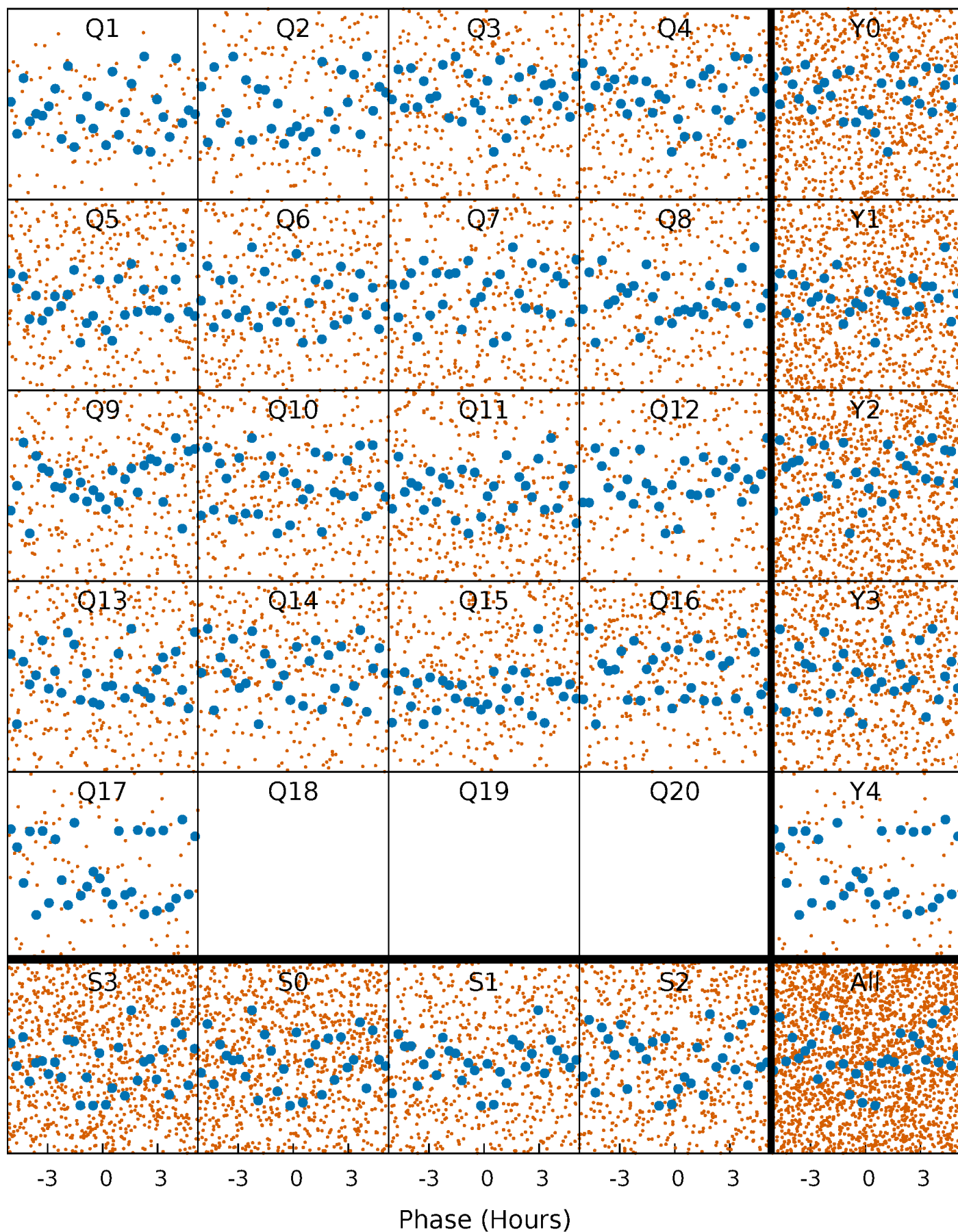


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

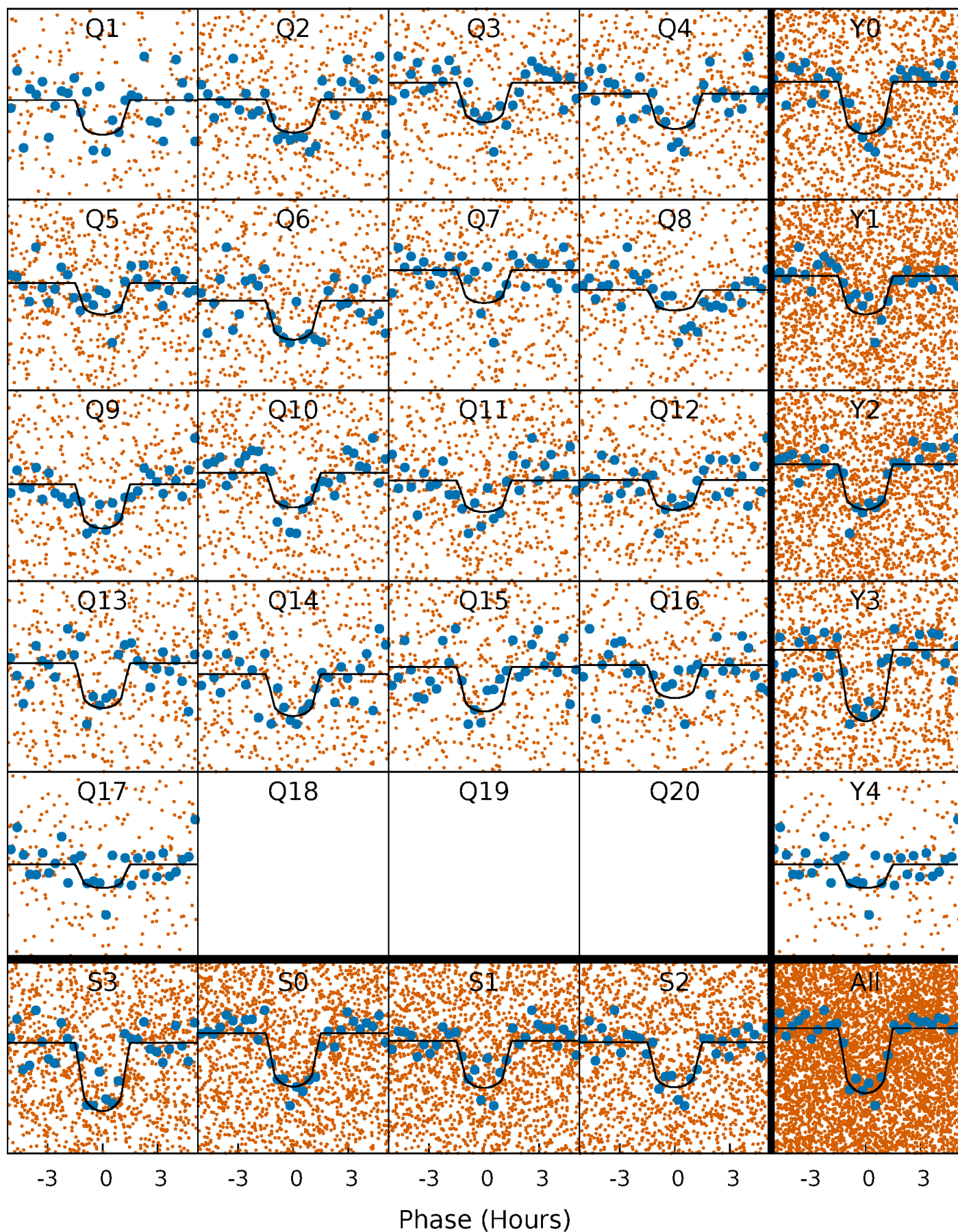
TCE 009898447-01 P= 2.377570 Days  $T_0=133.383257$  (BKJD)





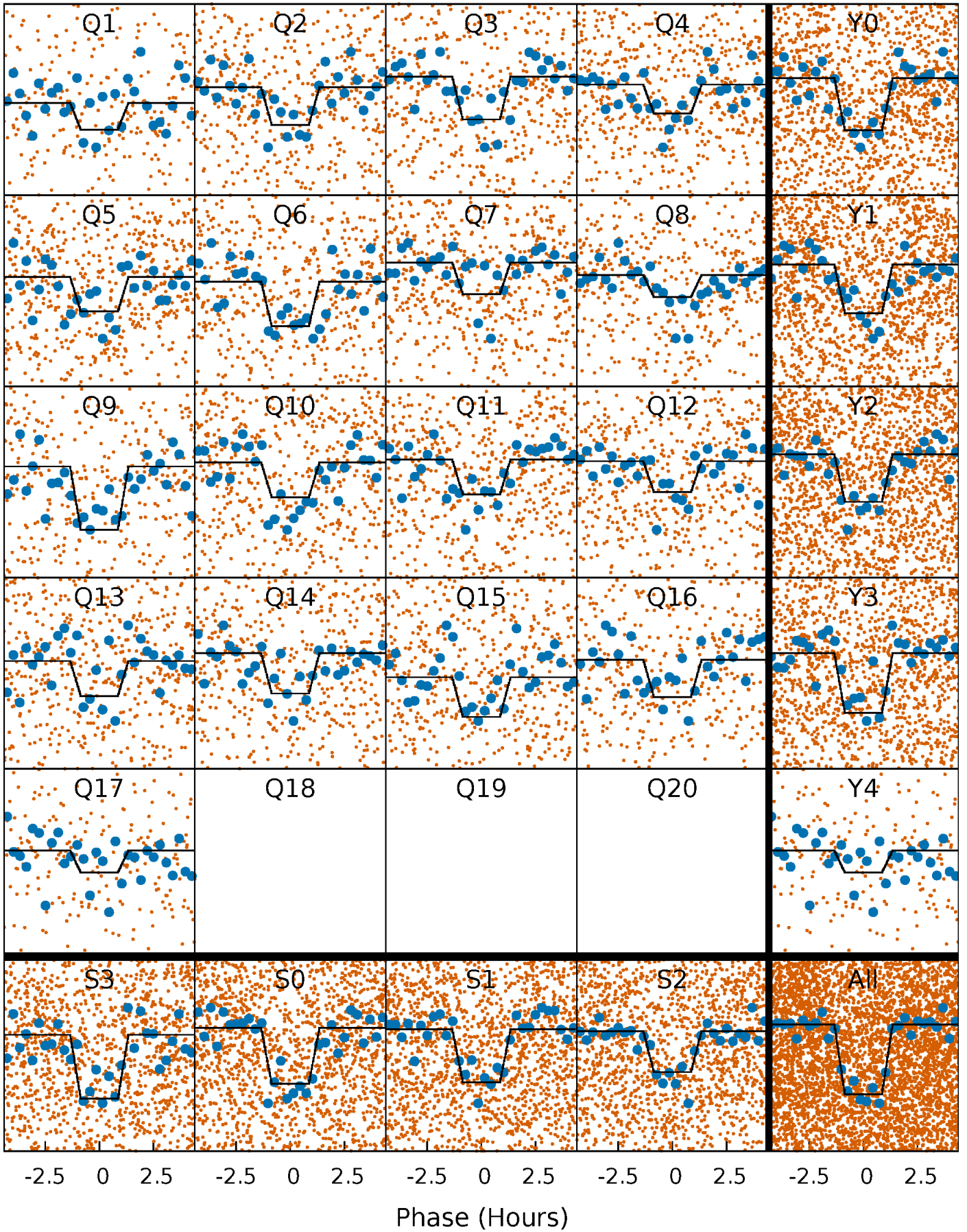
# DV Quarter-Phased Transit Curves

TCE 009898447-01 P= 2.377570 Days  $T_0=133.383257$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

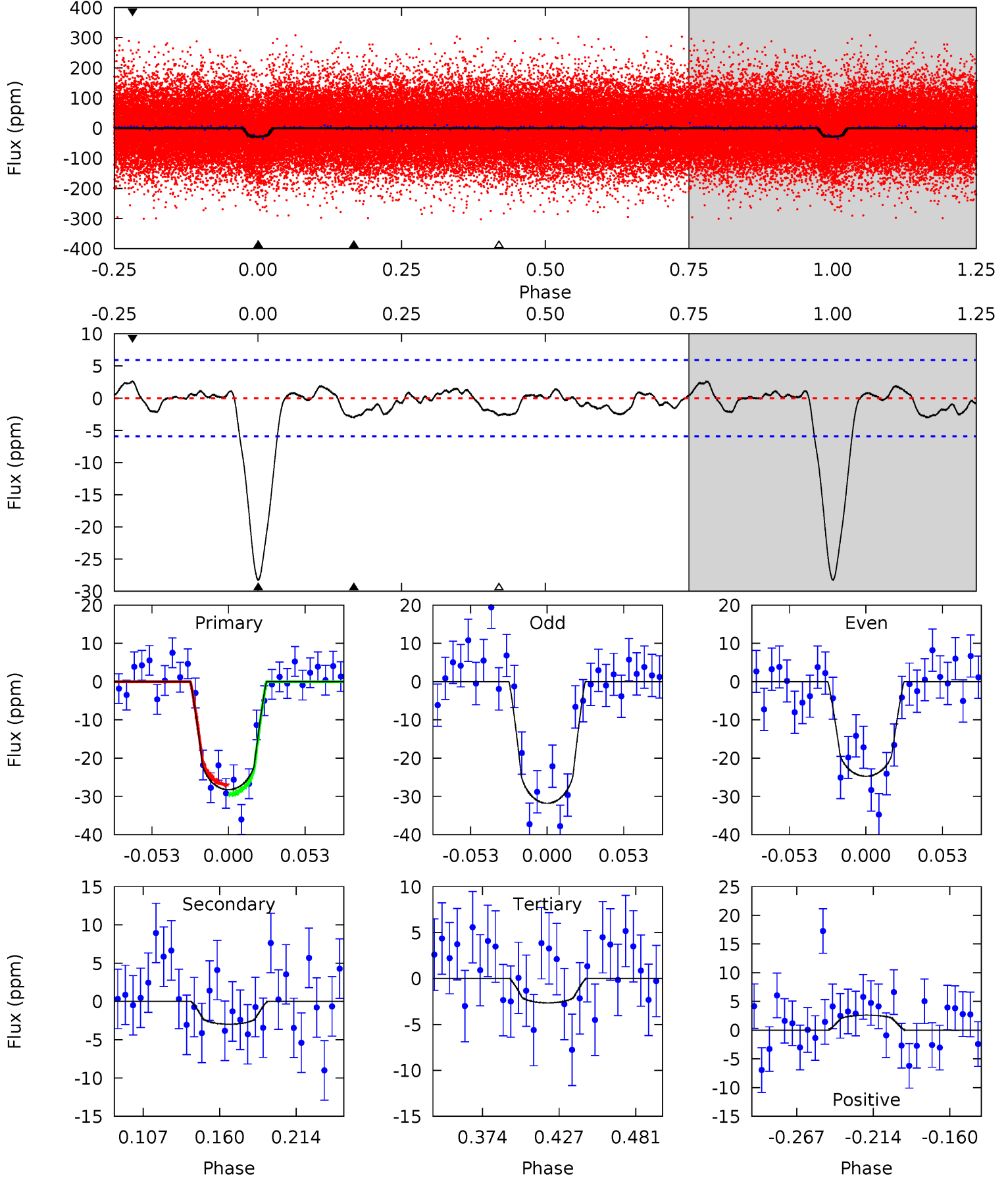
TCE 009898447-01 P= 2.377525 Days  $T_0=133.397949$  (BKJD)



# DV Model-Shift Uniqueness Test

009898447-01, P = 2.377570 Days, E = 131.005687 Days

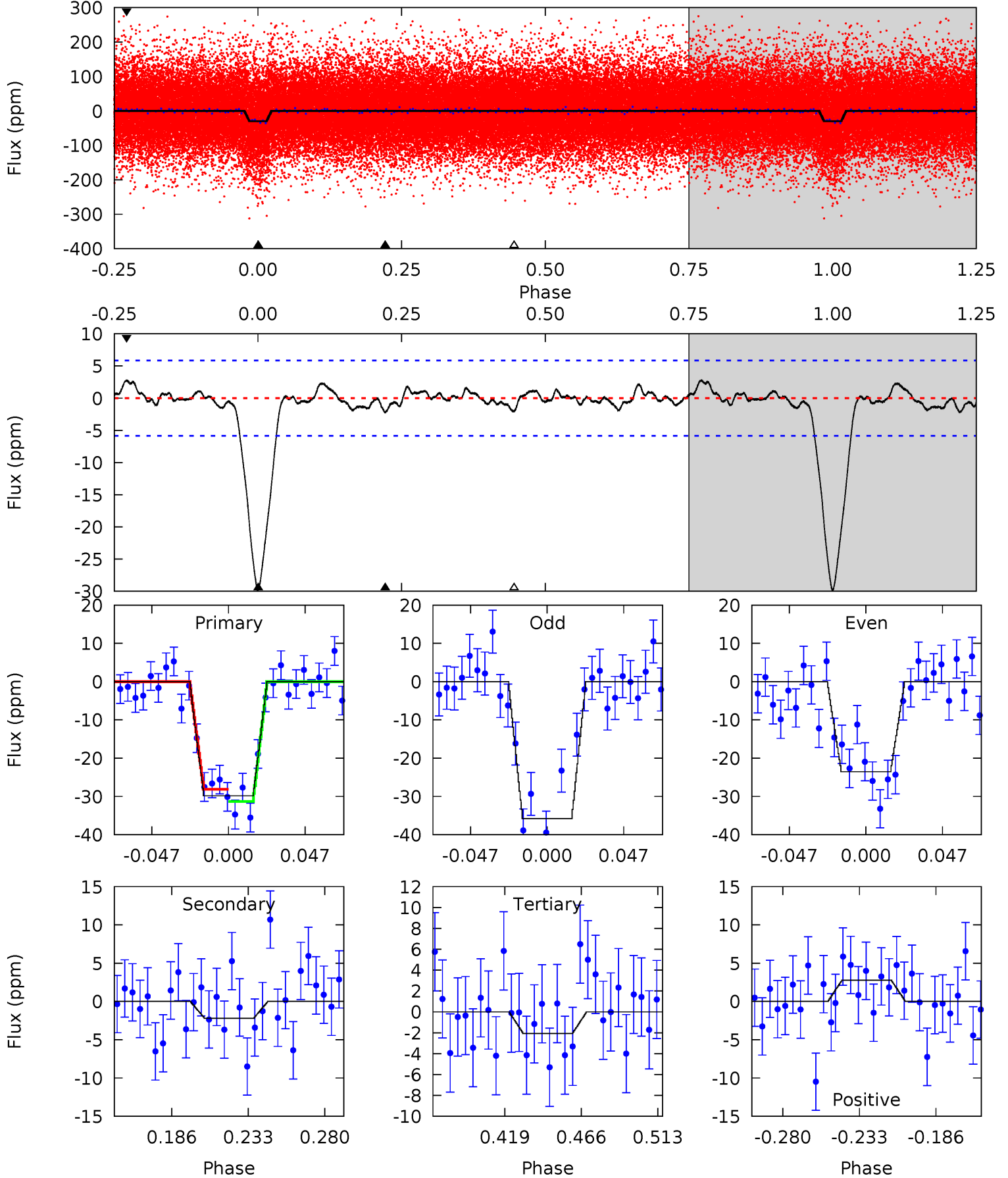
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.4	2.36	2.11	2.07	4.69	1.93	0.95	20.3	20.3	0.25	0.28	2.81	0.99	0.08	0.99



# Alt Model-Shift Uniqueness Test

009898447-01, P = 2.377525 Days, E = 131.020424 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
24.1	1.76	1.67	2.24	4.72	1.99	0.73	22.4	21.8	0.10	-0.48	4.93	1.05	0.09	1.30





### Stellar Parameters For KIC 009898447

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5615^{+101}_{-123}$	$4.505^{+0.030}_{-0.120}$	$0.240^{+0.150}_{-0.150}$	$0.936^{+0.132}_{-0.047}$	$1.022^{+0.043}_{-0.074}$	$1.754^{+0.194}_{-0.568}$
	+2%/-2%	+1%/-3%	+62%/-62%	+14%/-5%	+4%/-7%	+11%/-32%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 009898447-01 / KOI 2803.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-3\pm 1$	$0.61^{+0.18}_{-0.18}$	$1806^{+70}_{-52}$	$3470^{+505}_{-414}$	$5.155^{+6.554}_{-2.744}$
Alt.	$-2\pm 1$	$0.58^{+0.20}_{-0.17}$	$1805^{+72}_{-54}$	$3319^{+528}_{-456}$	$4.022^{+5.367}_{-2.398}$

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

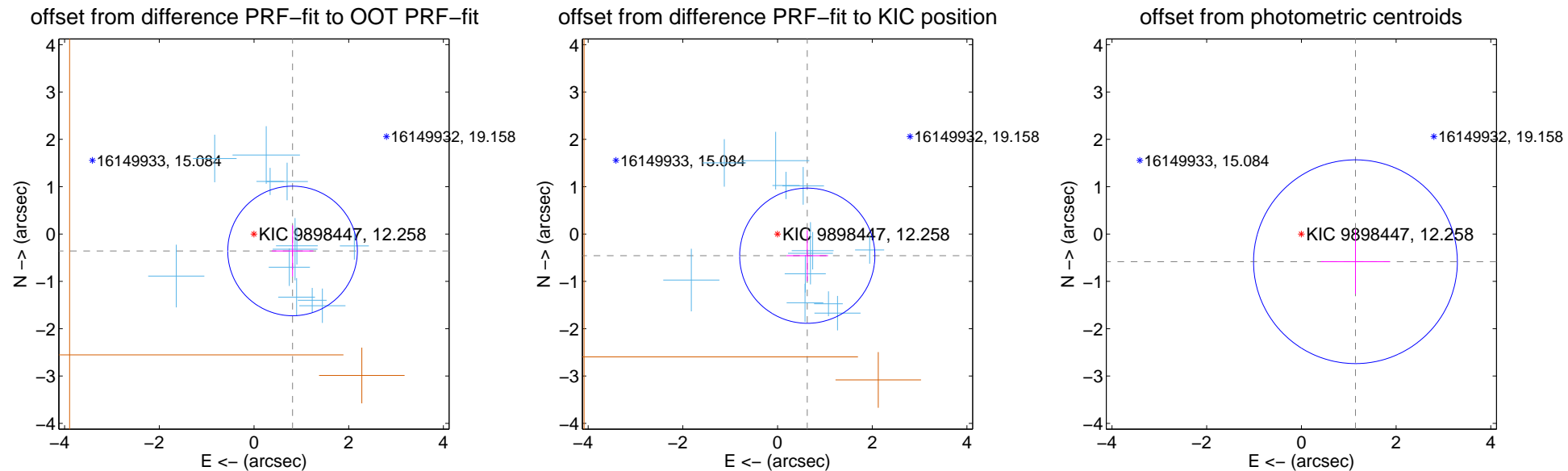
## DV Centroid Data

Supplemental centroid analysis for 009898447-01. Kepler magnitude: 12.26. Transit SNR 15.09

There are 12 quarters with good PRF difference image offsets

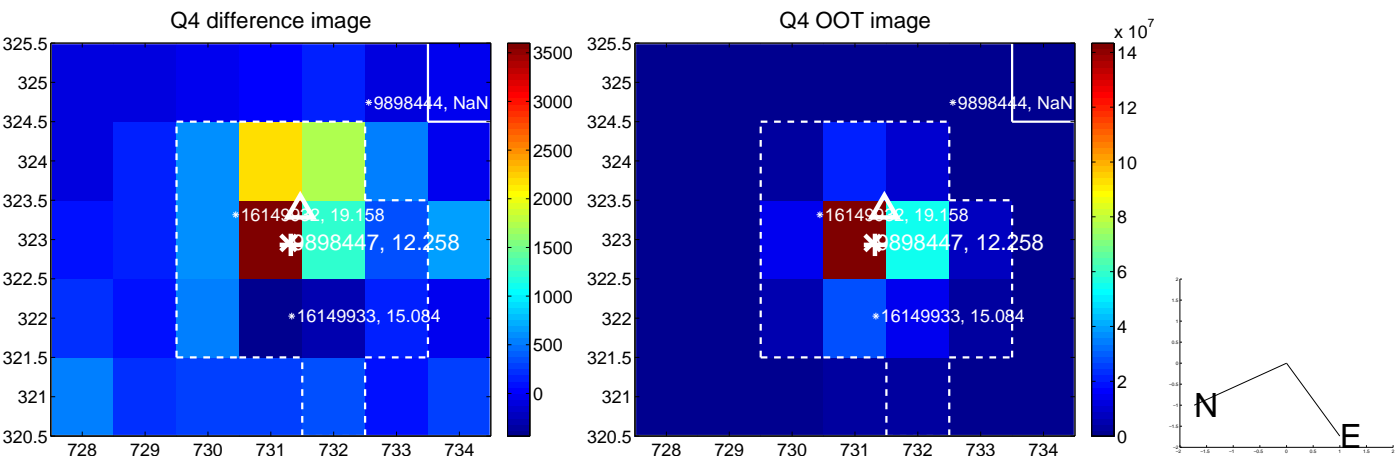
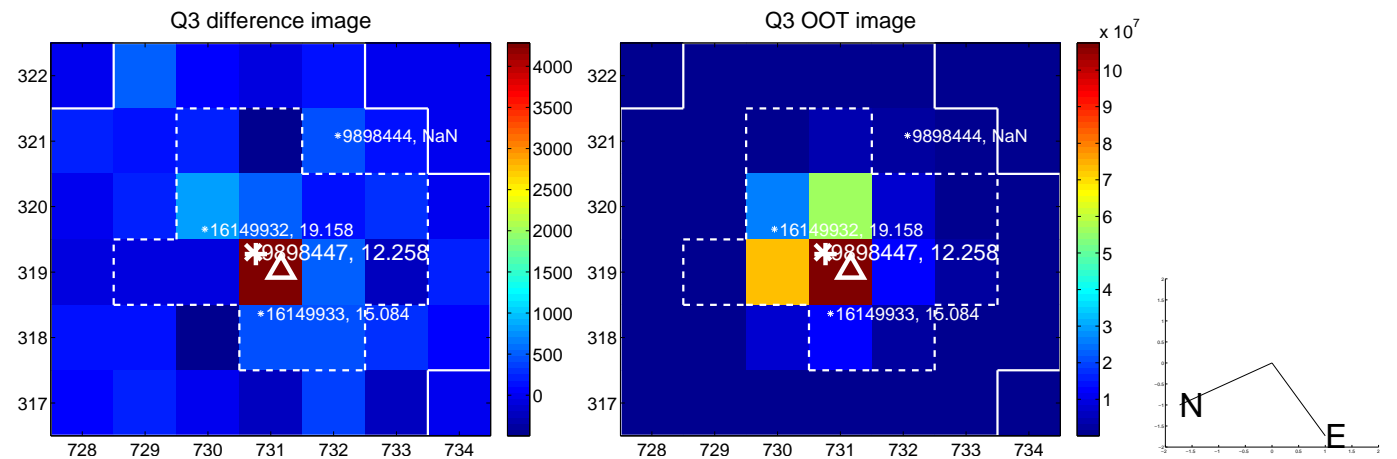
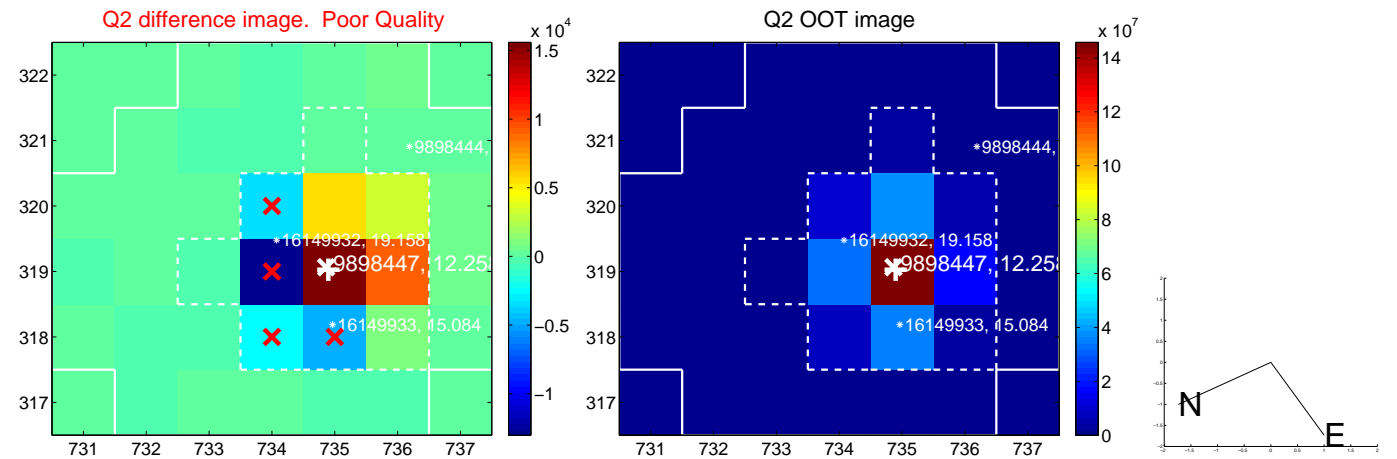
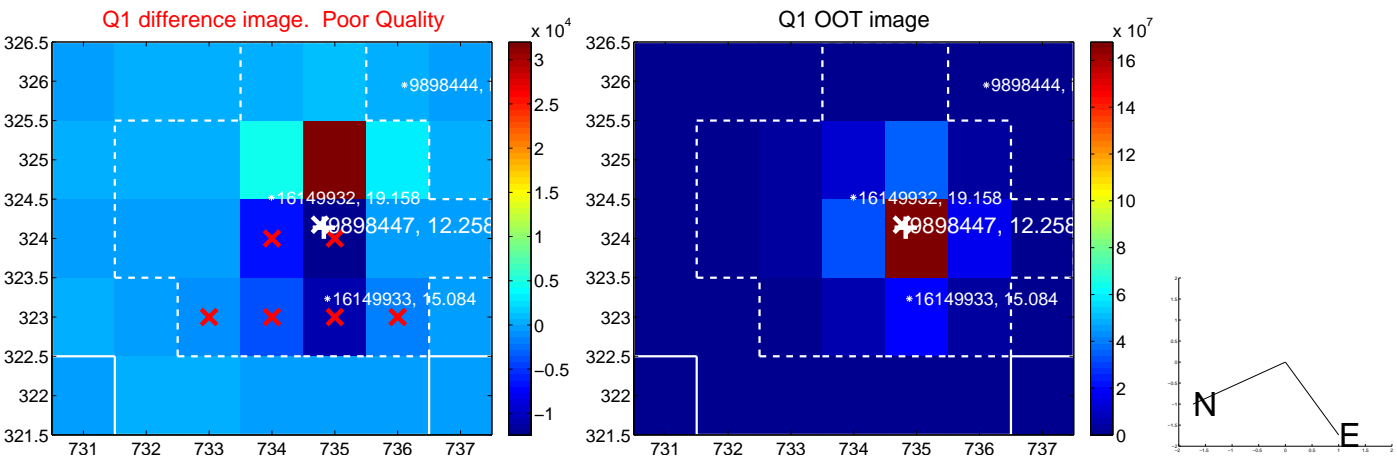
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.889 \pm 0.456$	1.95	$-0.814 \pm 0.438$	$-0.357 \pm 0.540$
PRF-fit source offset from KIC position	$0.777 \pm 0.476$	1.63	$-0.628 \pm 0.438$	$-0.458 \pm 0.540$
photometric centroid source offset	$1.28 \pm 0.72$	1.79	$-1.14 \pm 0.73$	$-0.58 \pm 0.68$

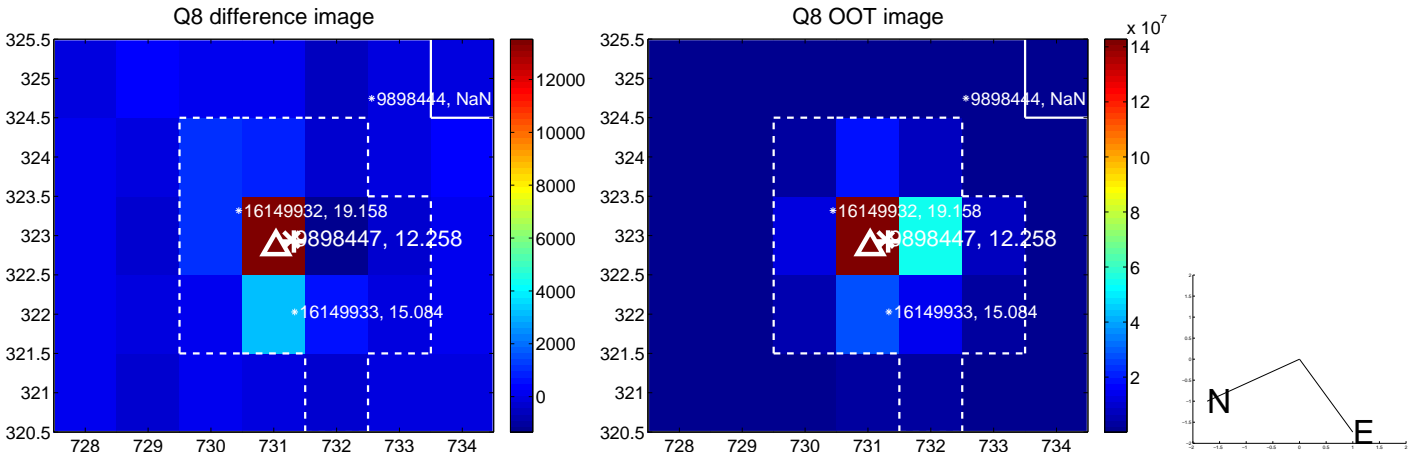
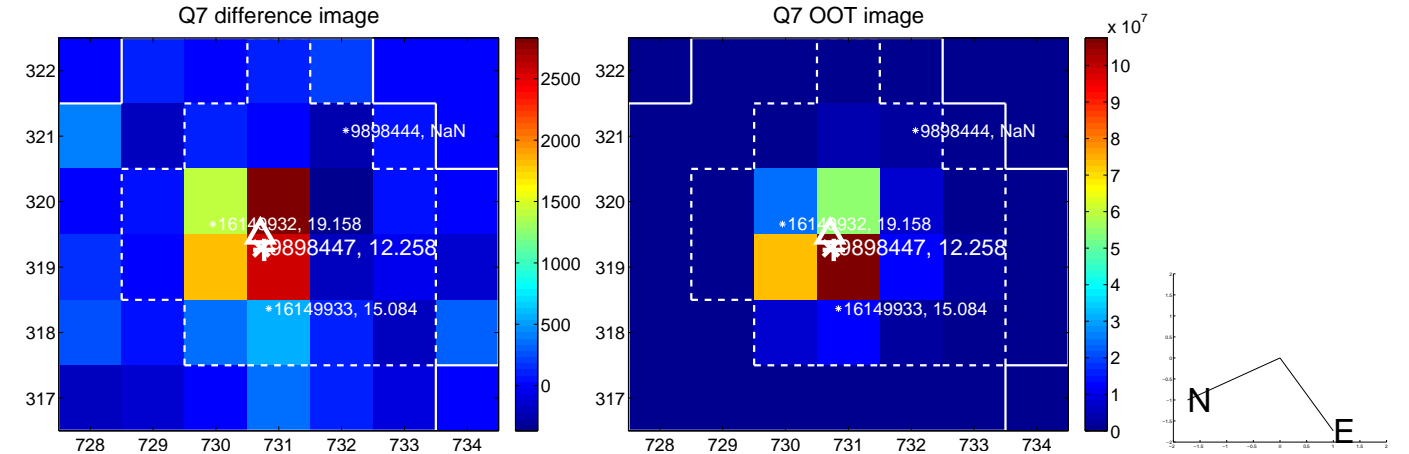
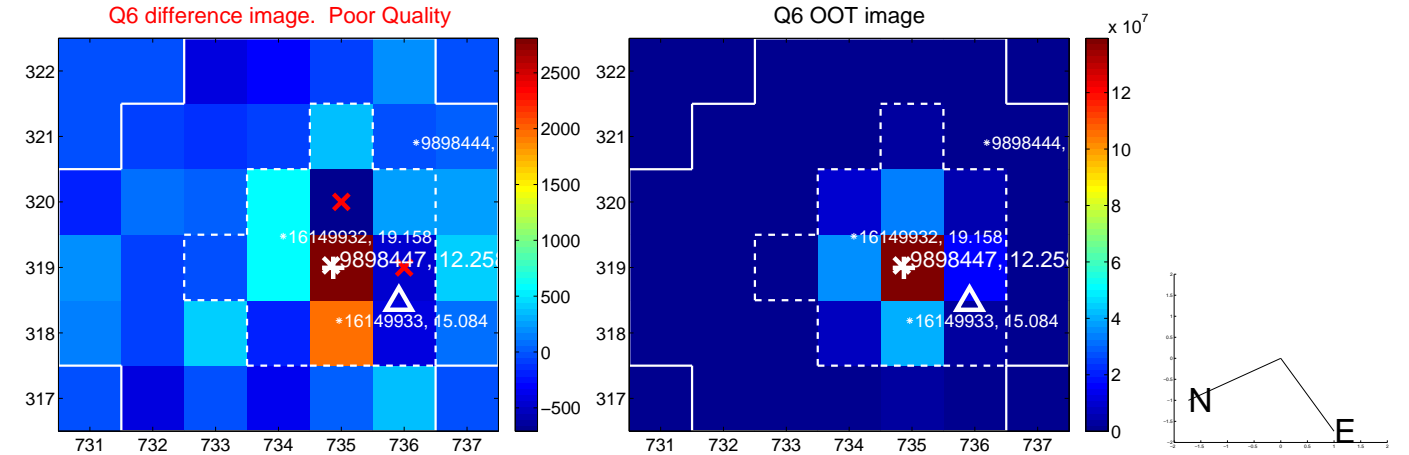
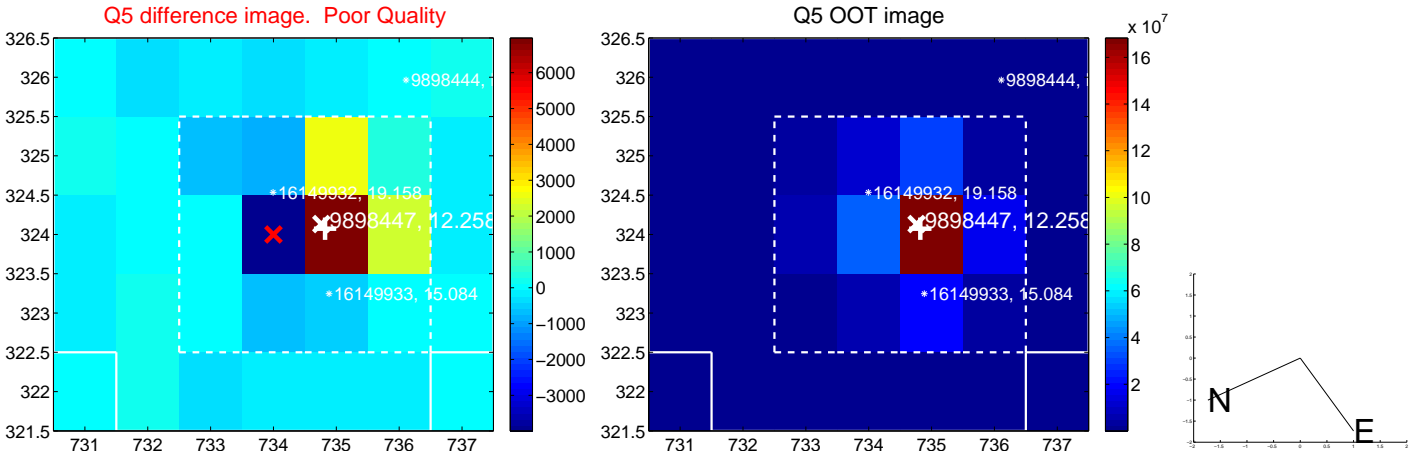


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

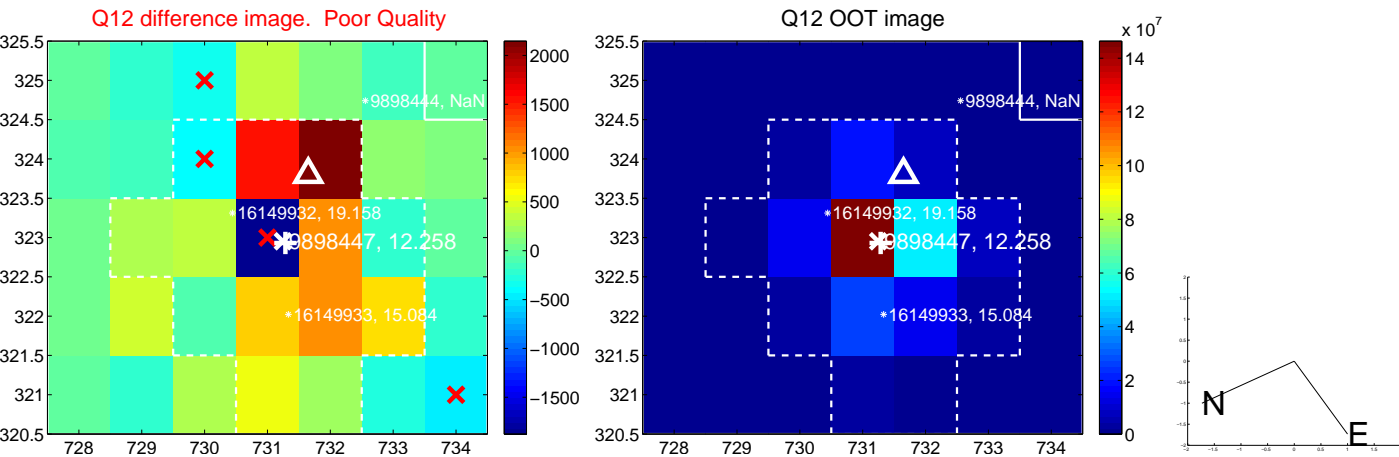
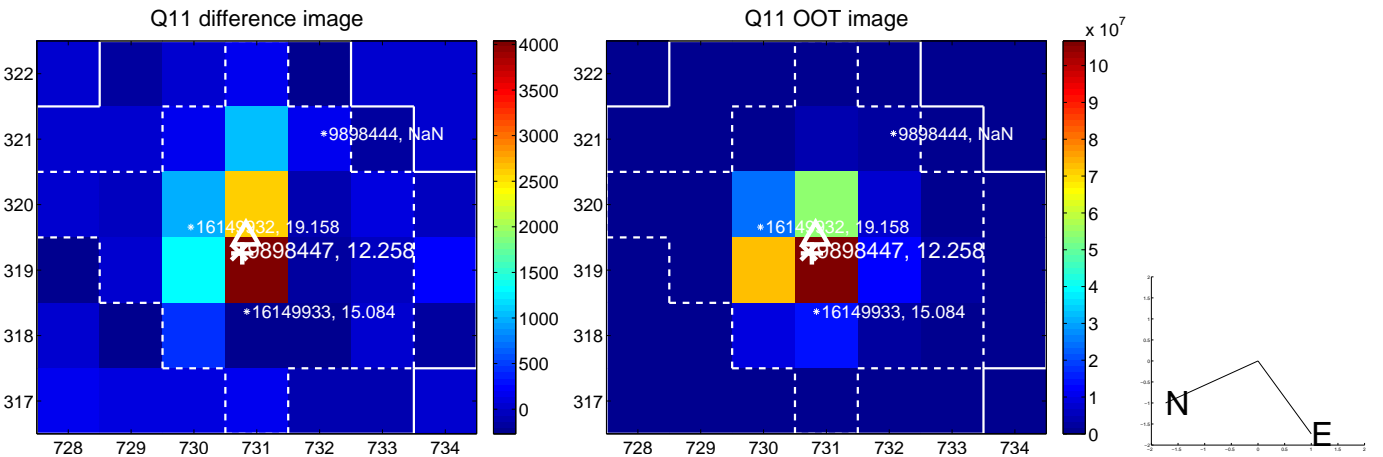
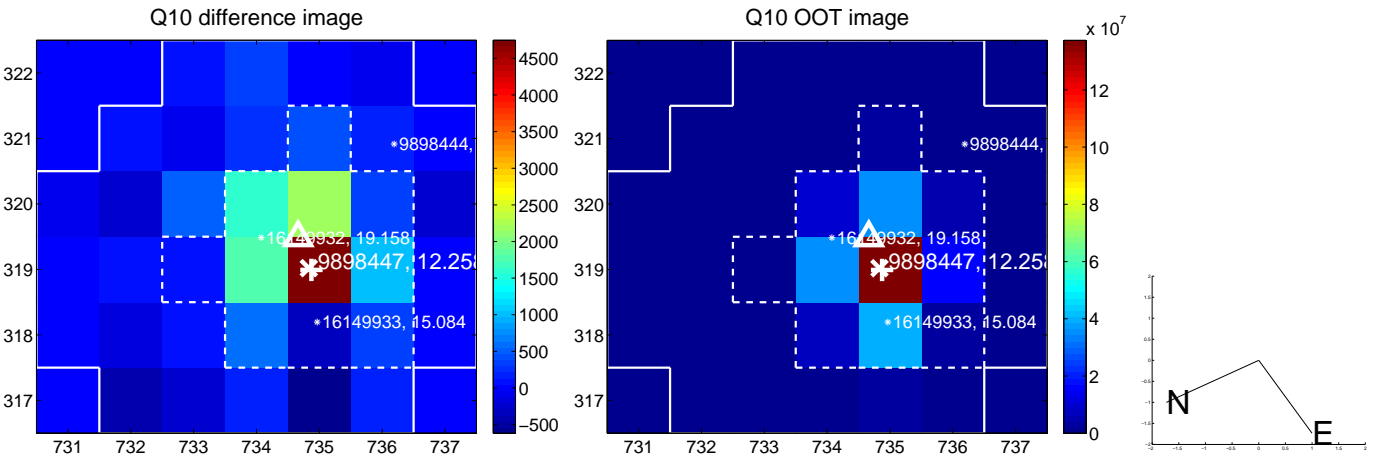
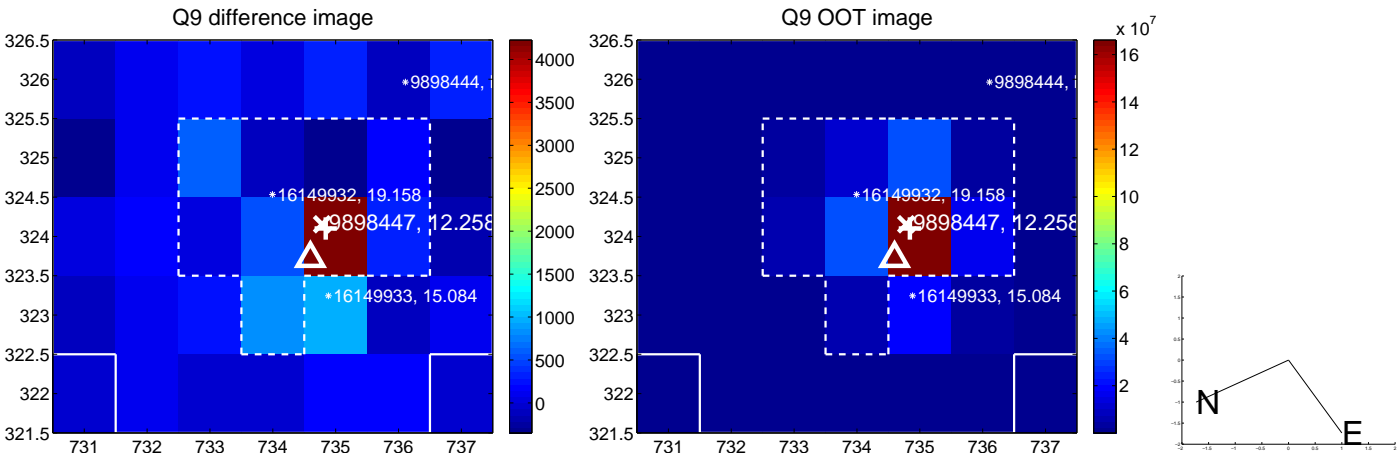


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

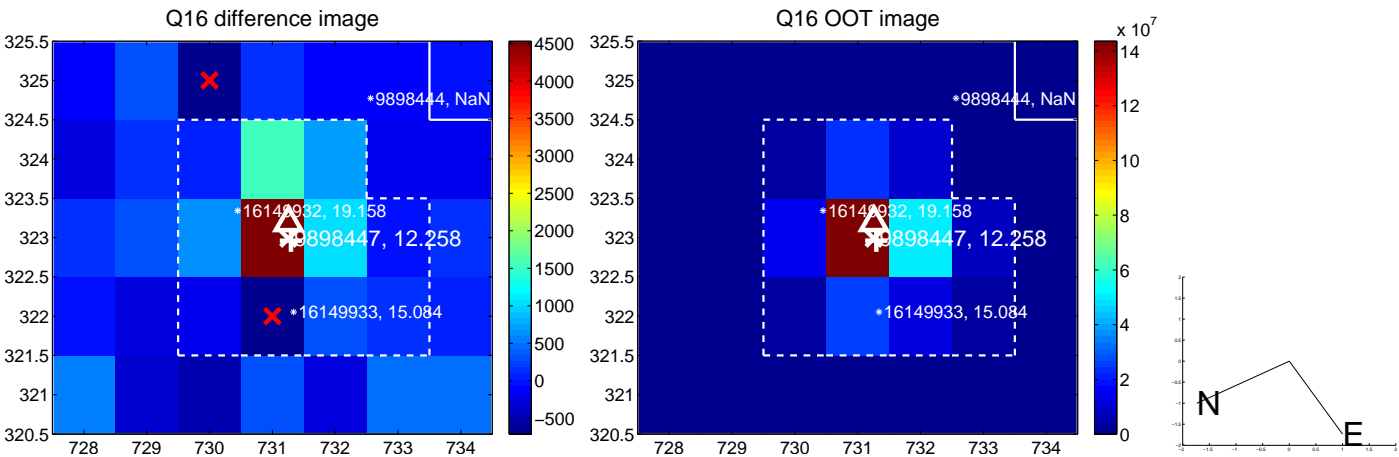
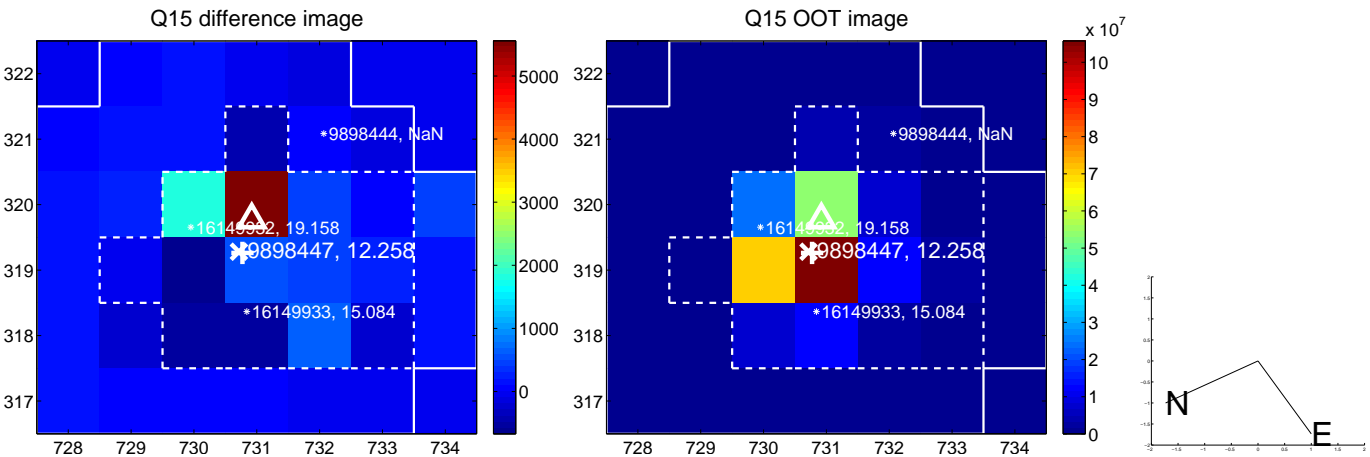
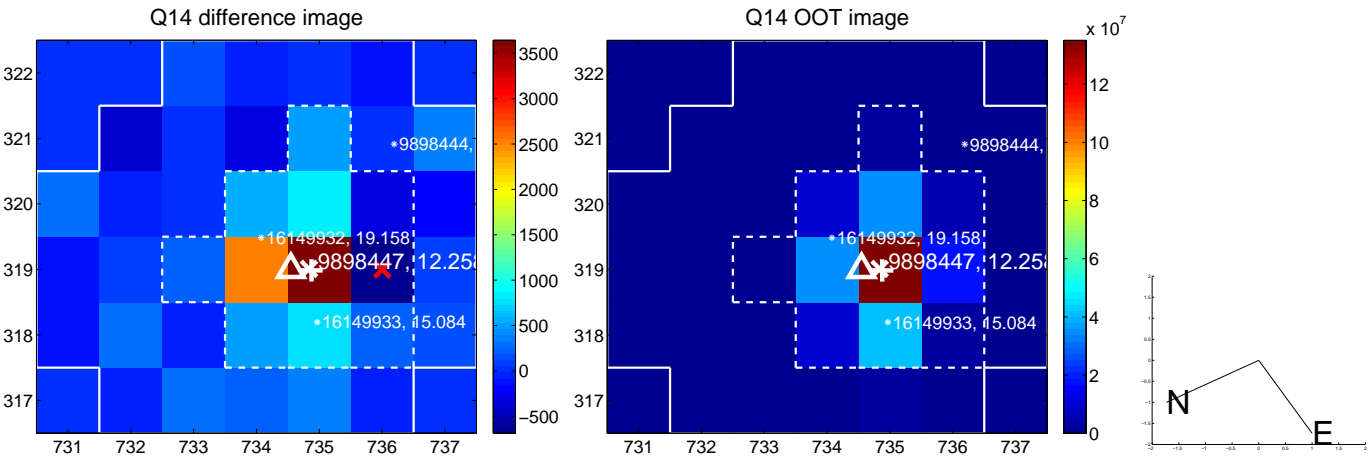
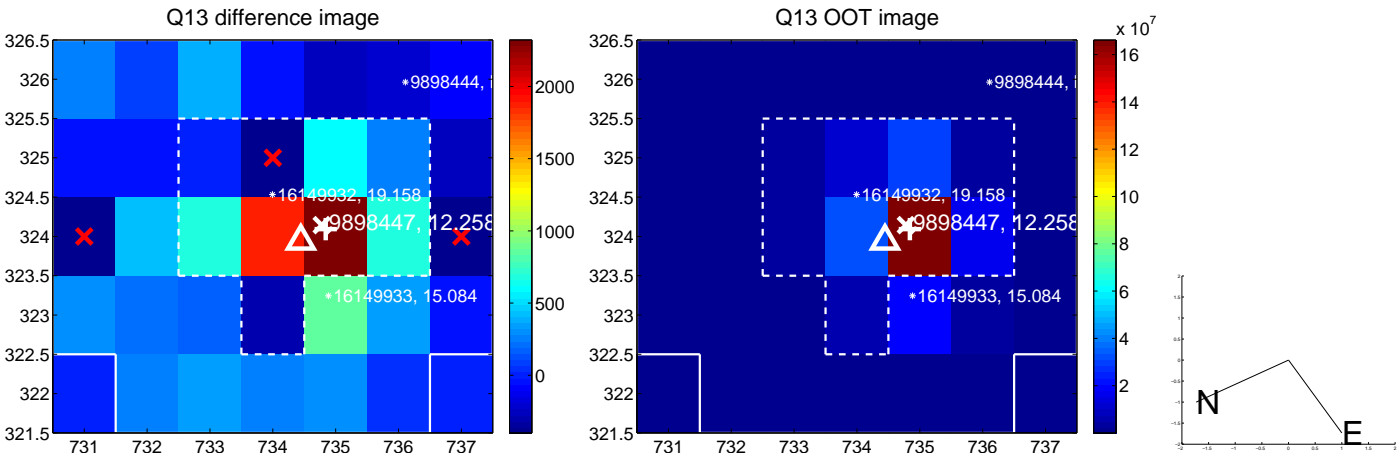




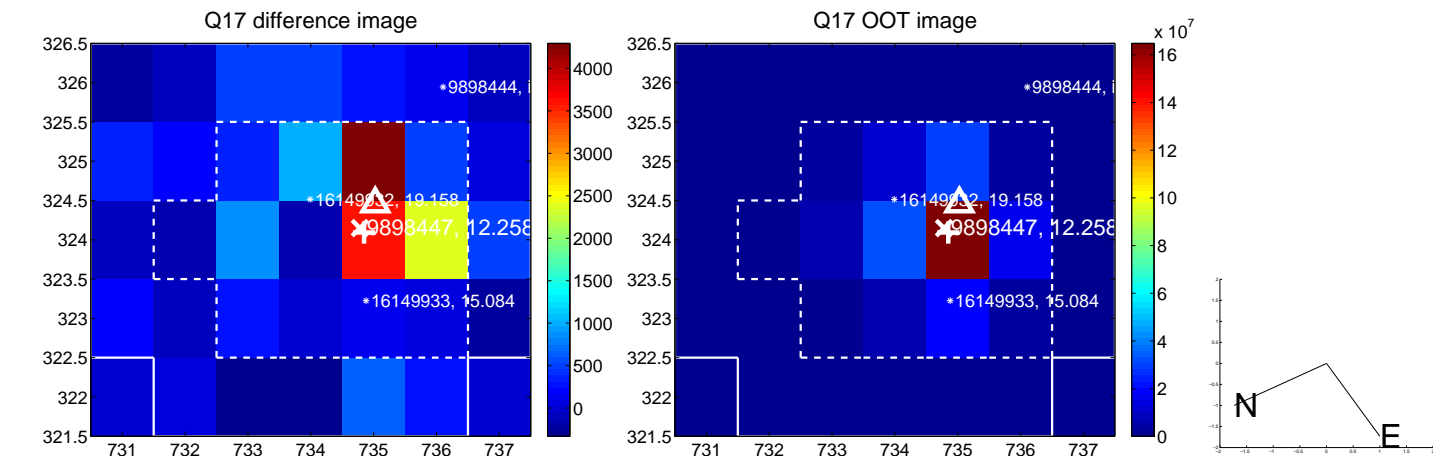
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



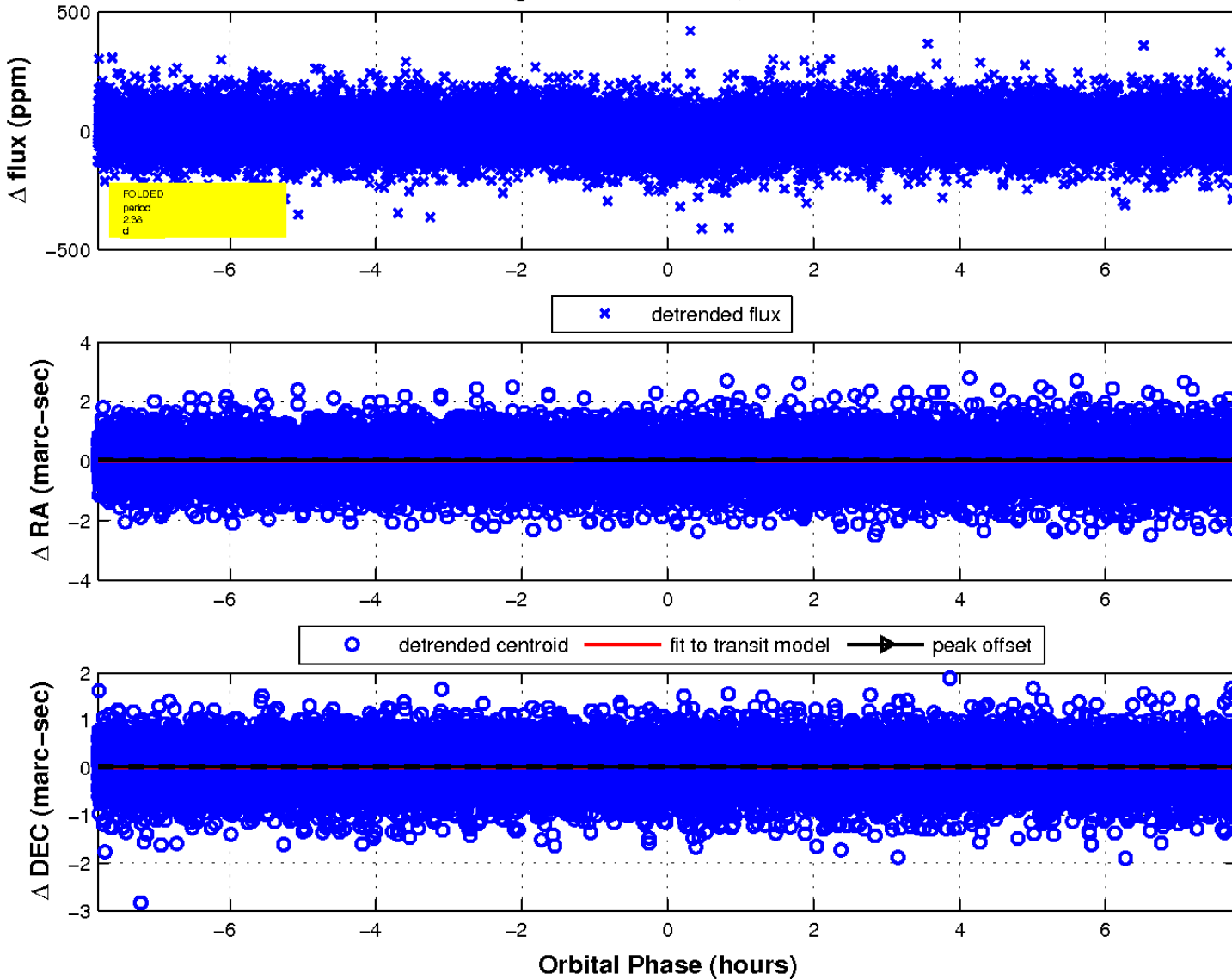
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

