

# KIC 009872292

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009872292-01	OBS	1537.01	10.191575	136.692712	58.7	6.248	19.2	19.6	1.68	6212	1.45	405.25

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009872292-01	OBS	PC	0.92	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.

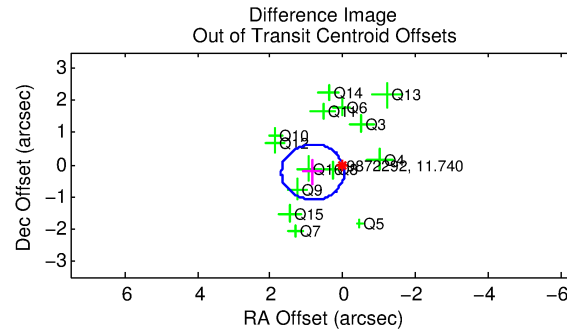
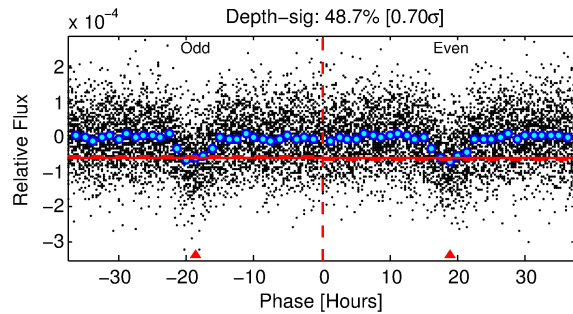
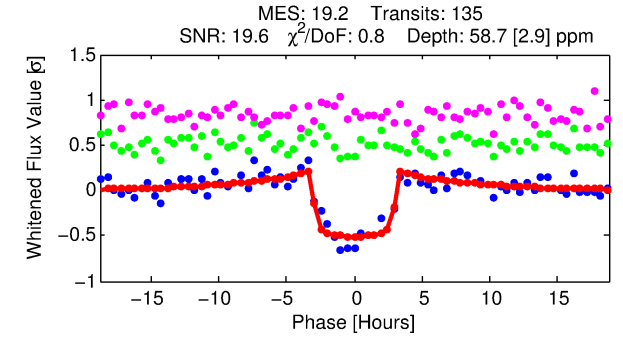
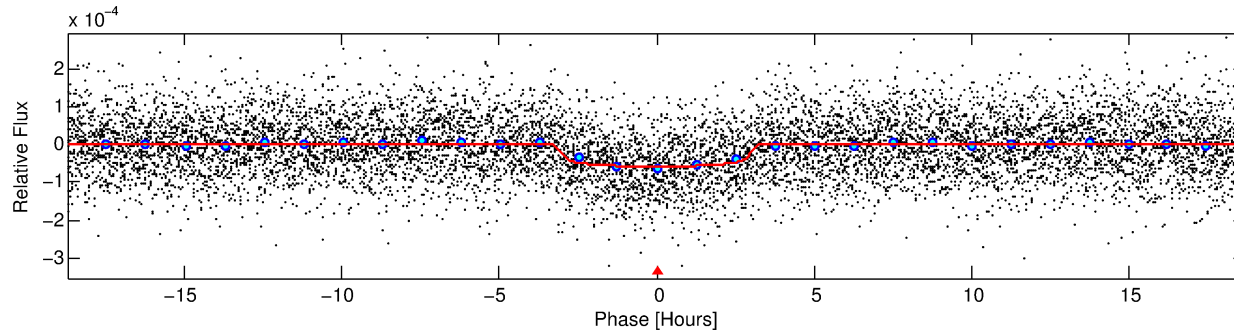
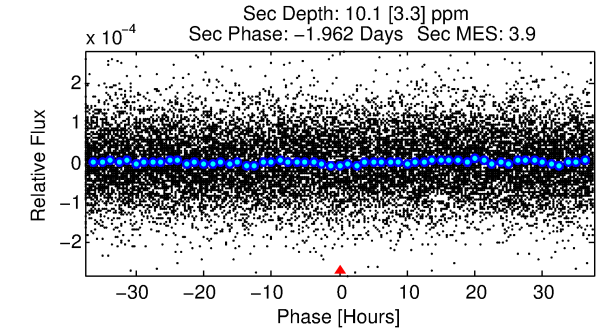
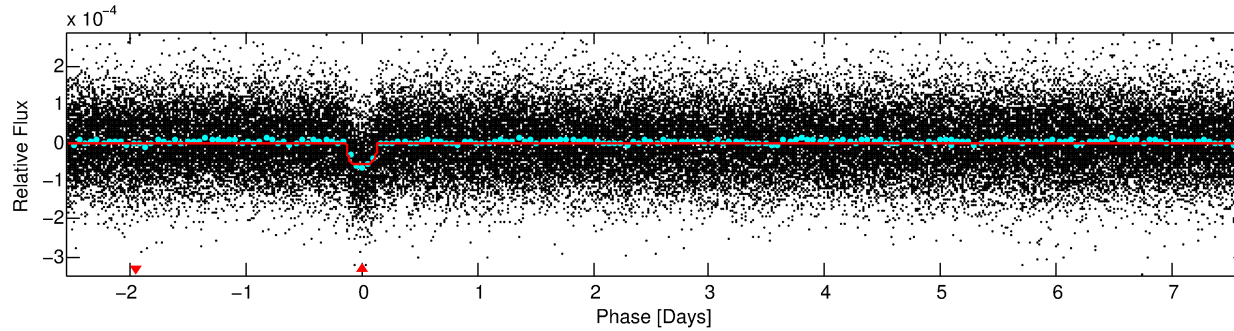
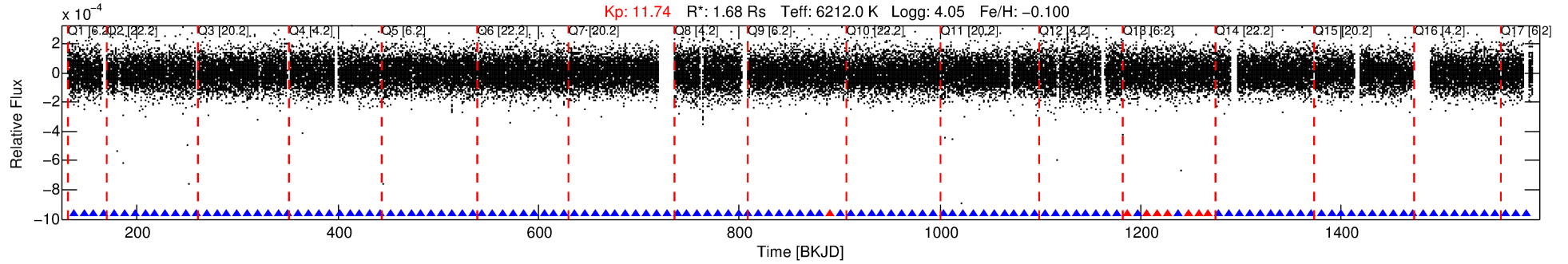
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009872292-01

No Significant Match Found

# DV One-Page Summary

KIC: 9872292 Candidate: 1 of 1 Period: 10.192 d  
KOI: K01537.01 Corr: 0.994



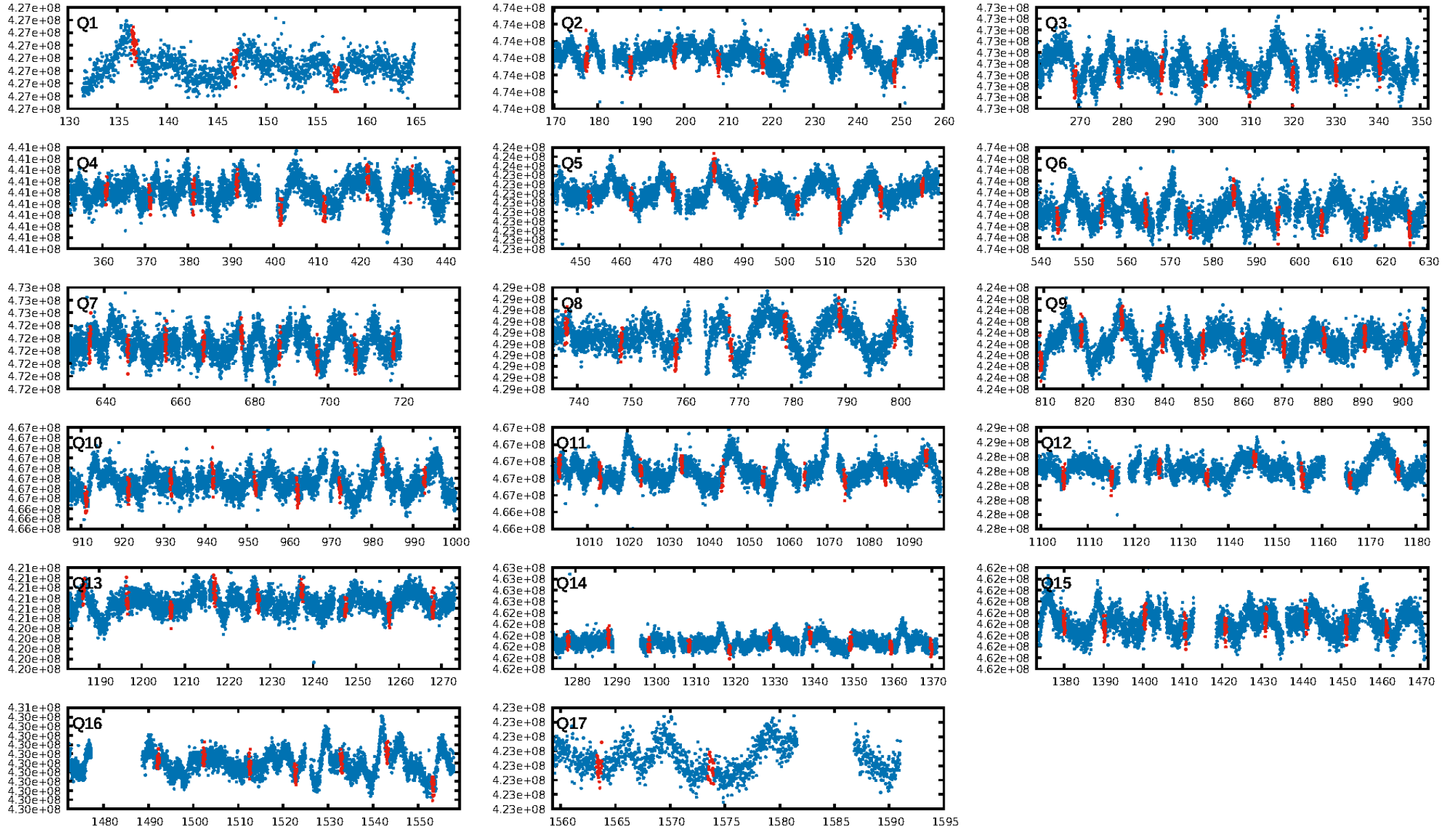
## DV Fit Results:

Period = 10.19158 [0.00005] d  
Epoch = 136.6927 [0.0040] BKJD  
Rp/R\* = 0.0079 [0.0013]  
a/R\* = 7.03 [6.13]  
b = 0.84 [0.32]  
Seff = 405.25 [28.59]  
Teq = 1144 [20] K  
Rp = 1.45 [0.26] Re  
a = 0.0966 [0.0042] AU  
Ag = 24.60 [11.68] [2.02σ]  
Teffp = 3940 [468] K [5.97σ]

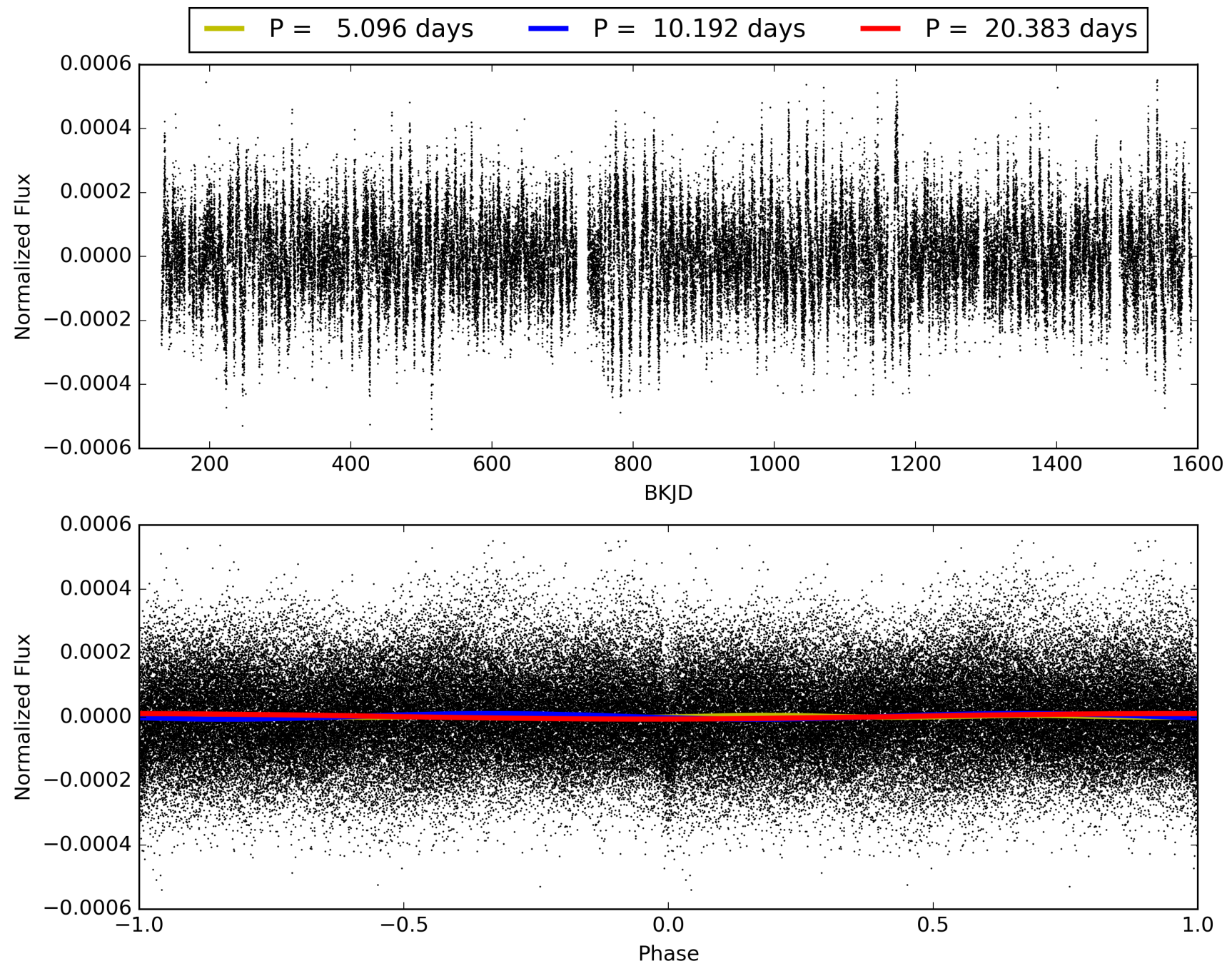
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.71e-77  
RollingBand-fgt: 0.94 [122/130]  
GhostDiagnostic-chr: 4.532  
Centroid-sig: 37.9%  
Centroid-so: 0.404 arcsec [0.89σ]  
OotOffset-rm: 0.859 arcsec [2.98σ]  
OotOffset-st: 3/4/4/3 [14]  
KicOffset-rm: 0.905 arcsec [3.23σ]  
KicOffset-st: 3/4/4/3 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009872292-01, PDC Light Curves



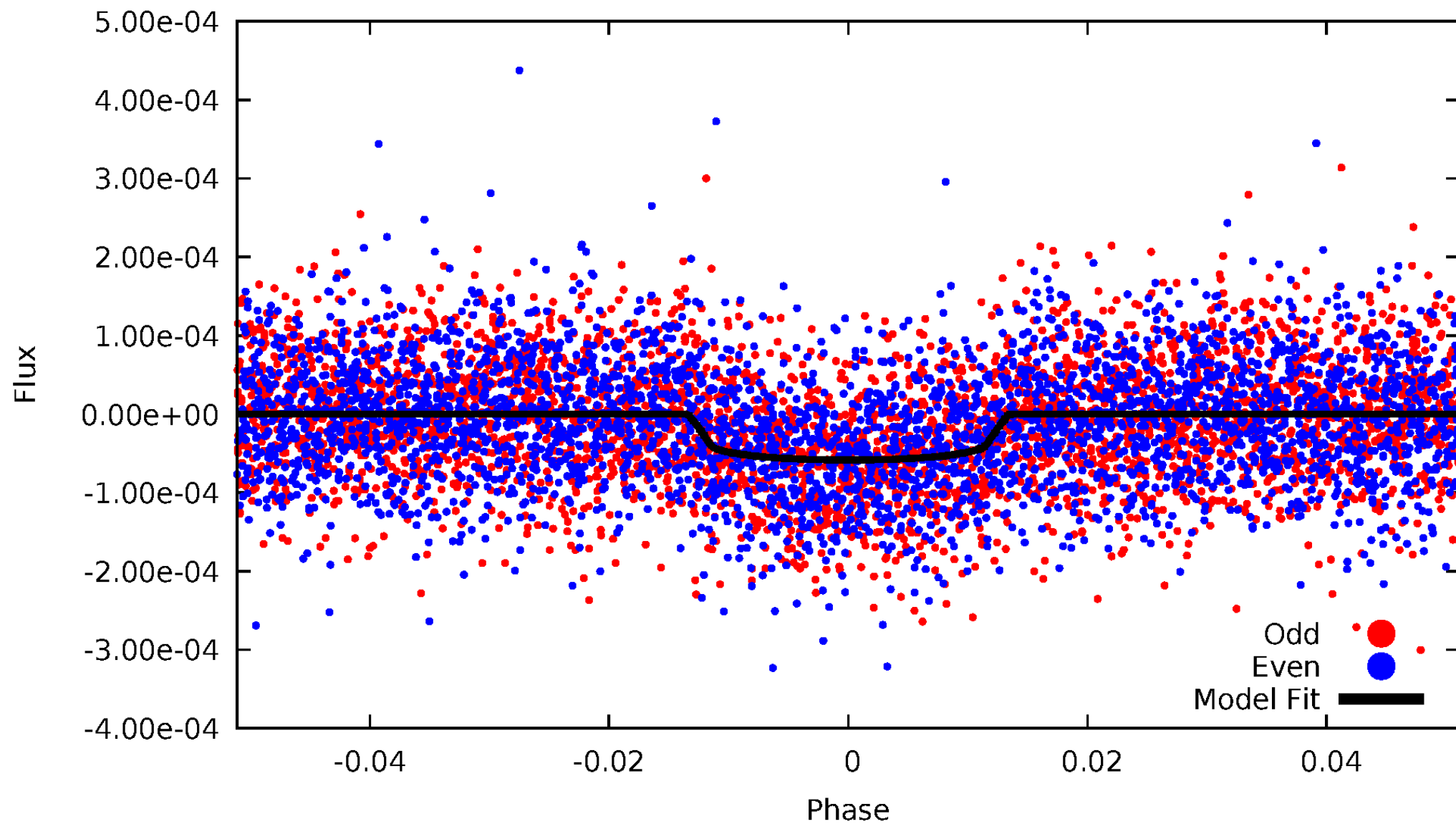
# TCE 009872292-01





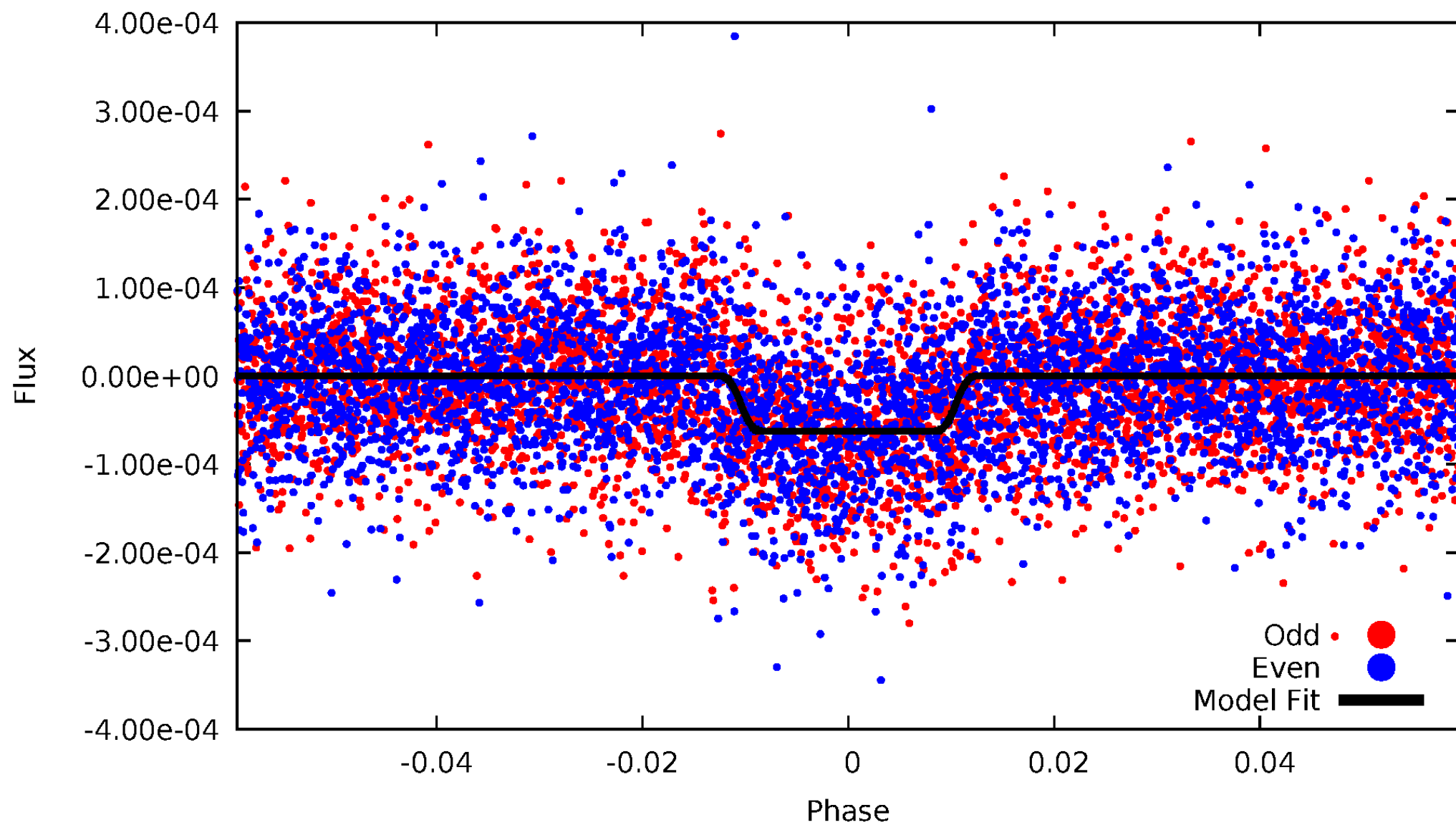
# DV Odd/Even

TCE 009872292-01

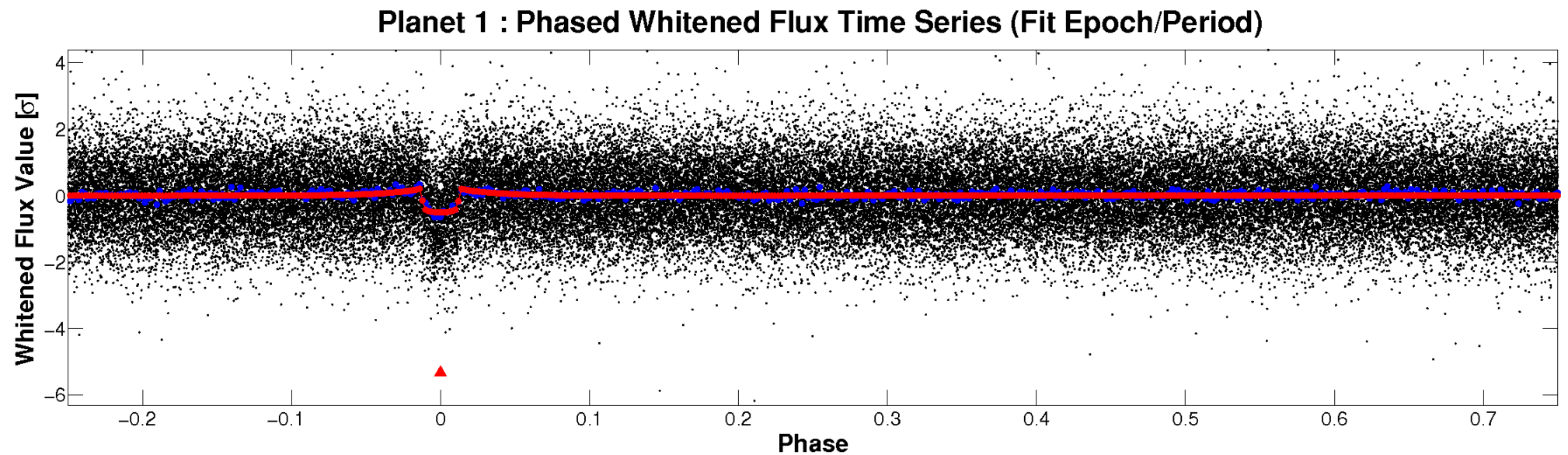
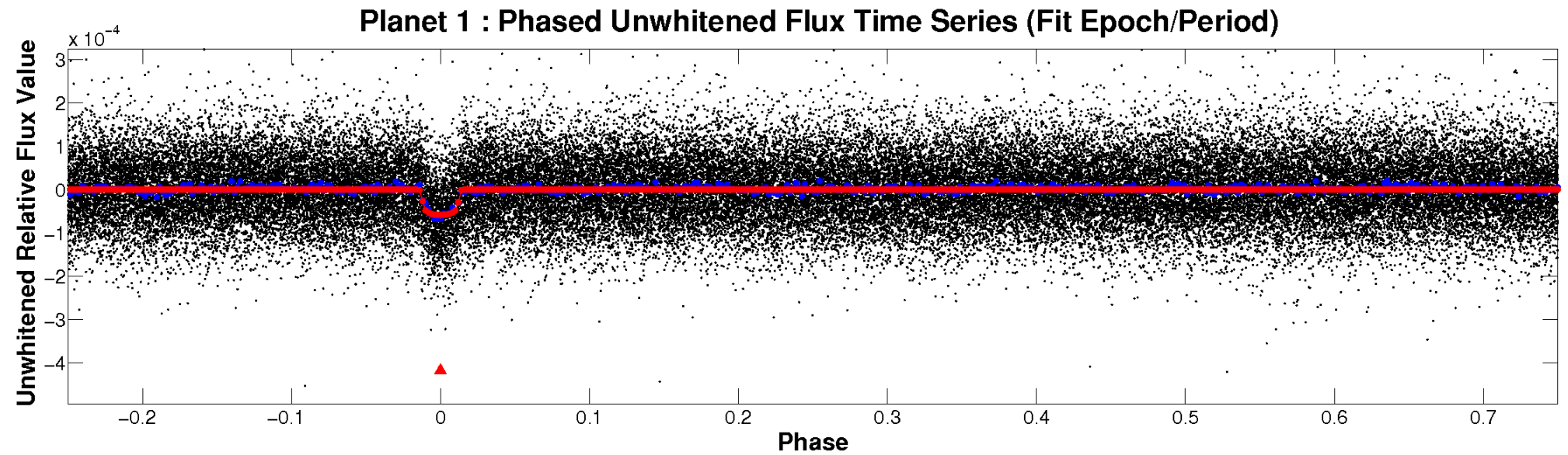


# ALT Odd/Even

TCE 009872292-01

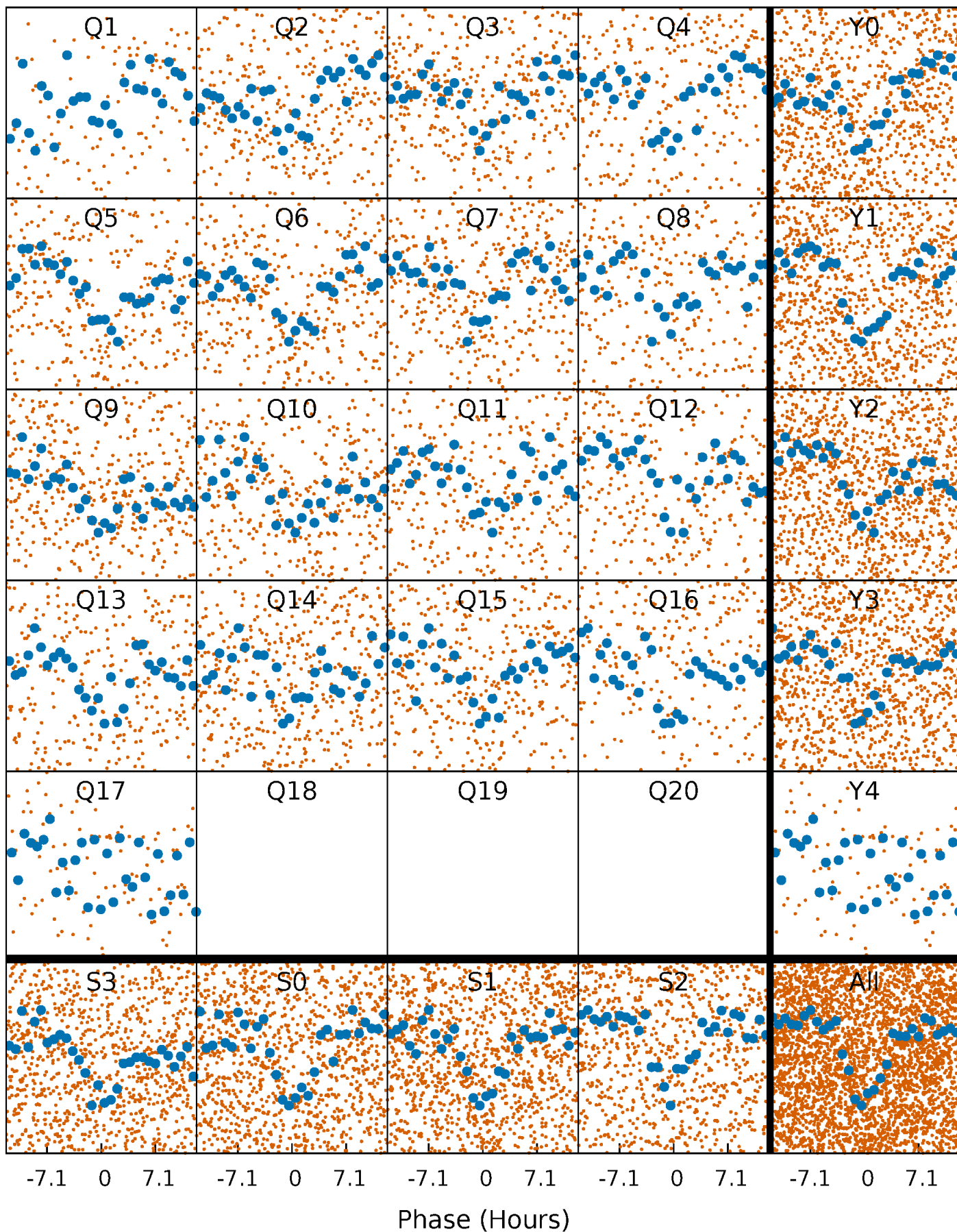


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

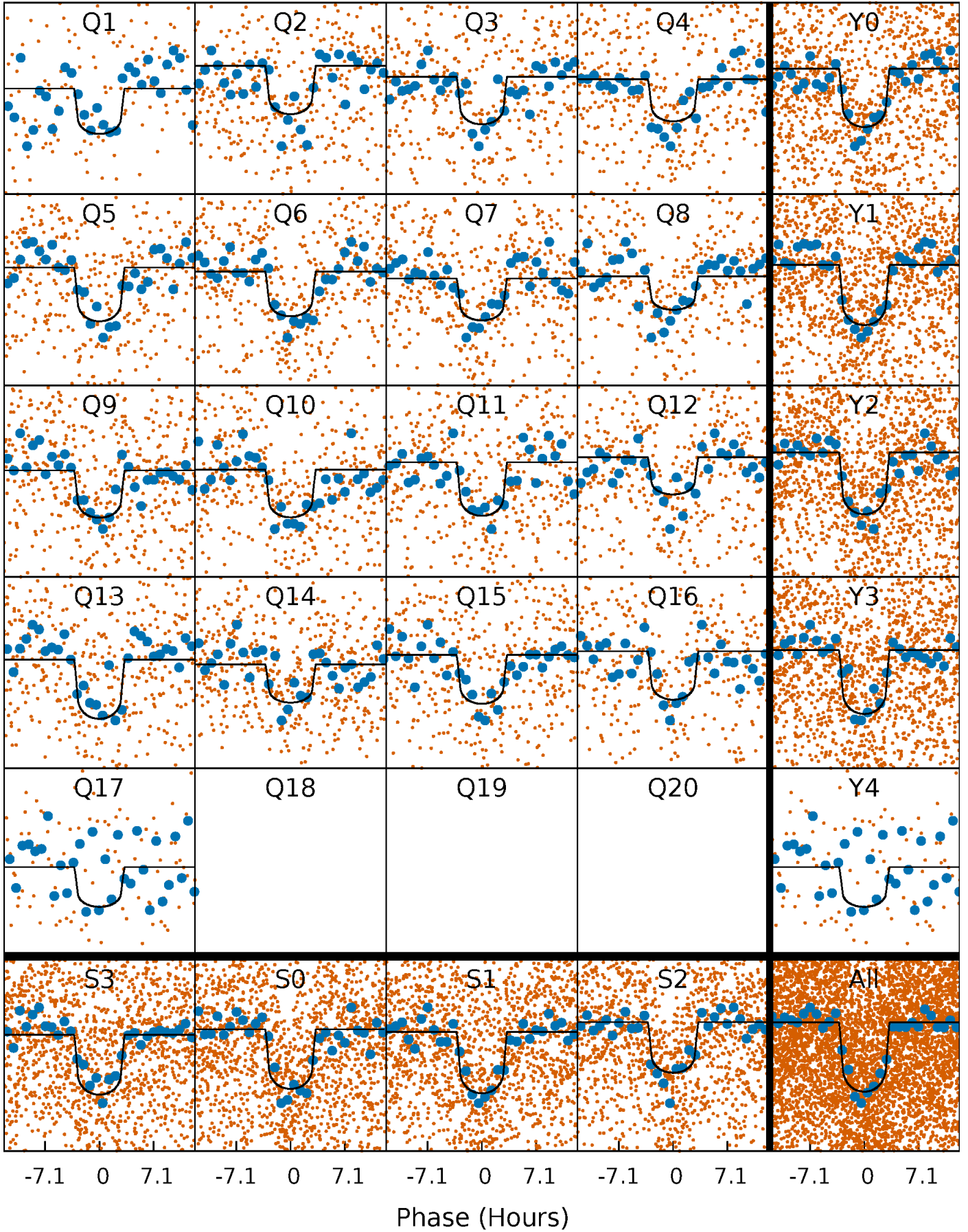
TCE 009872292-01 P= 10.191575 Days  $T_0=136.692712$  (BKJD)





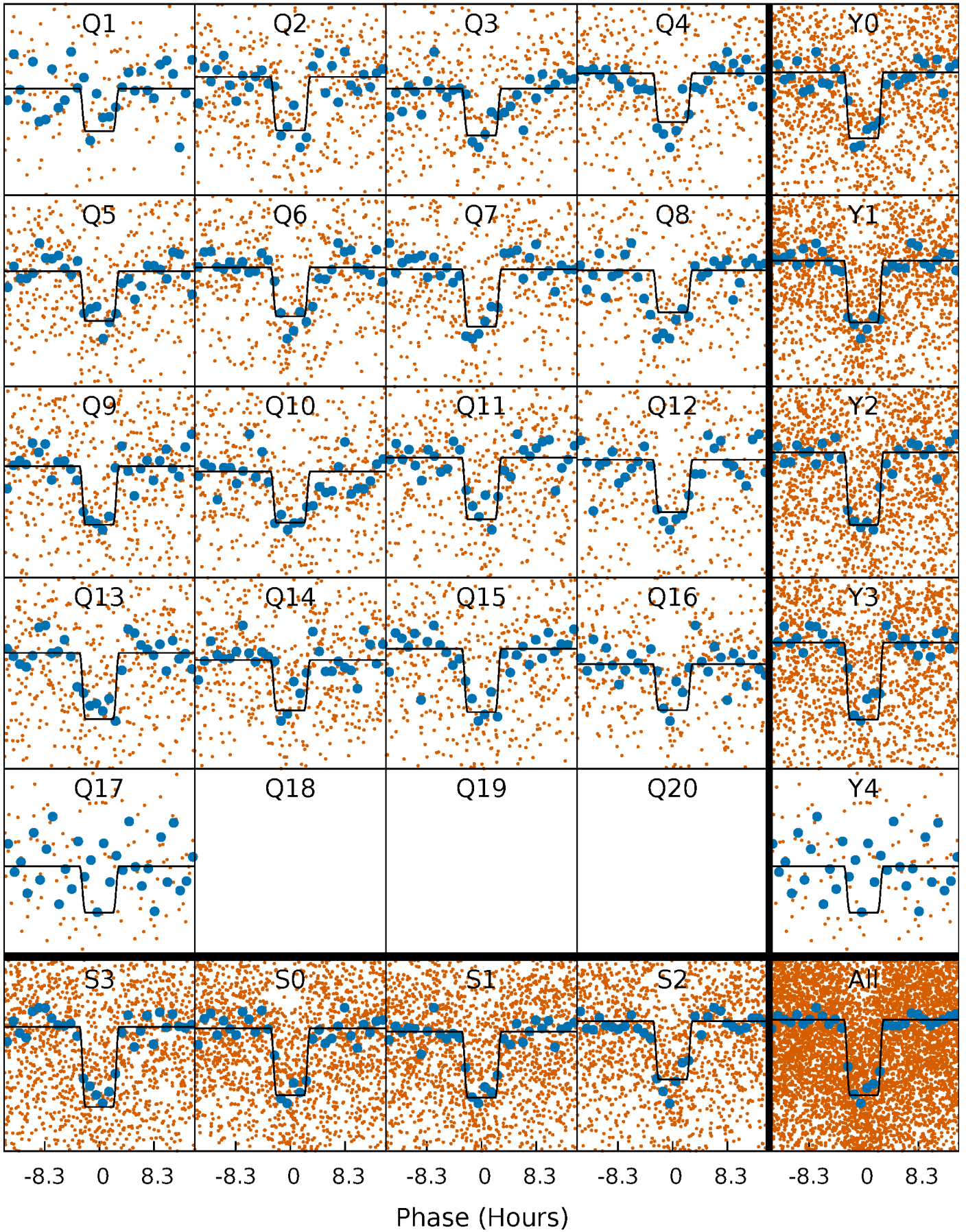
# DV Quarter-Phased Transit Curves

TCE 009872292-01 P= 10.191575 Days  $T_0=136.692712$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

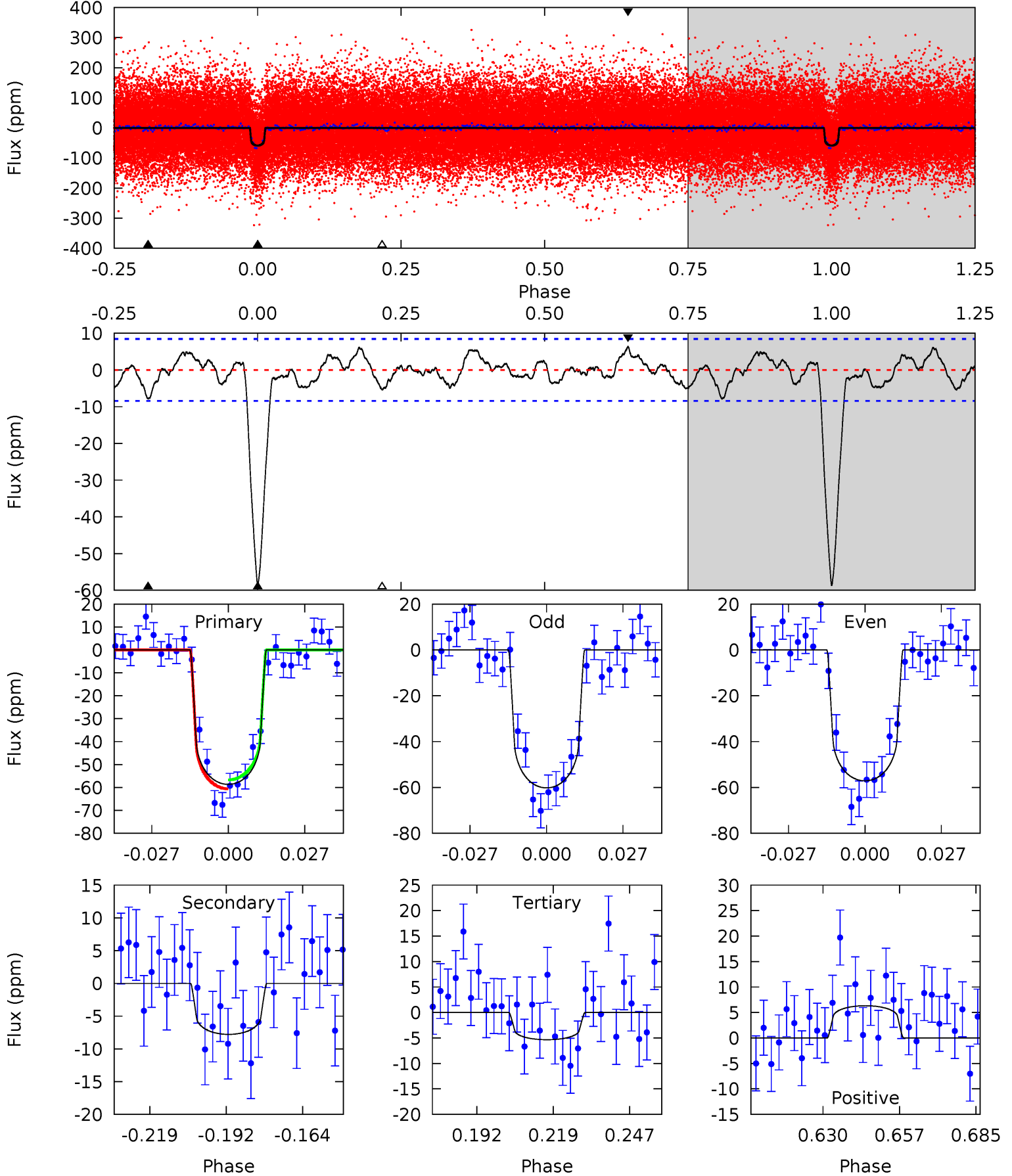
TCE 009872292-01 P= 10.191649 Days  $T_0=136.692184$  (BKJD)



# DV Model-Shift Uniqueness Test

009872292-01, P = 10.191575 Days, E = 126.501137 Days

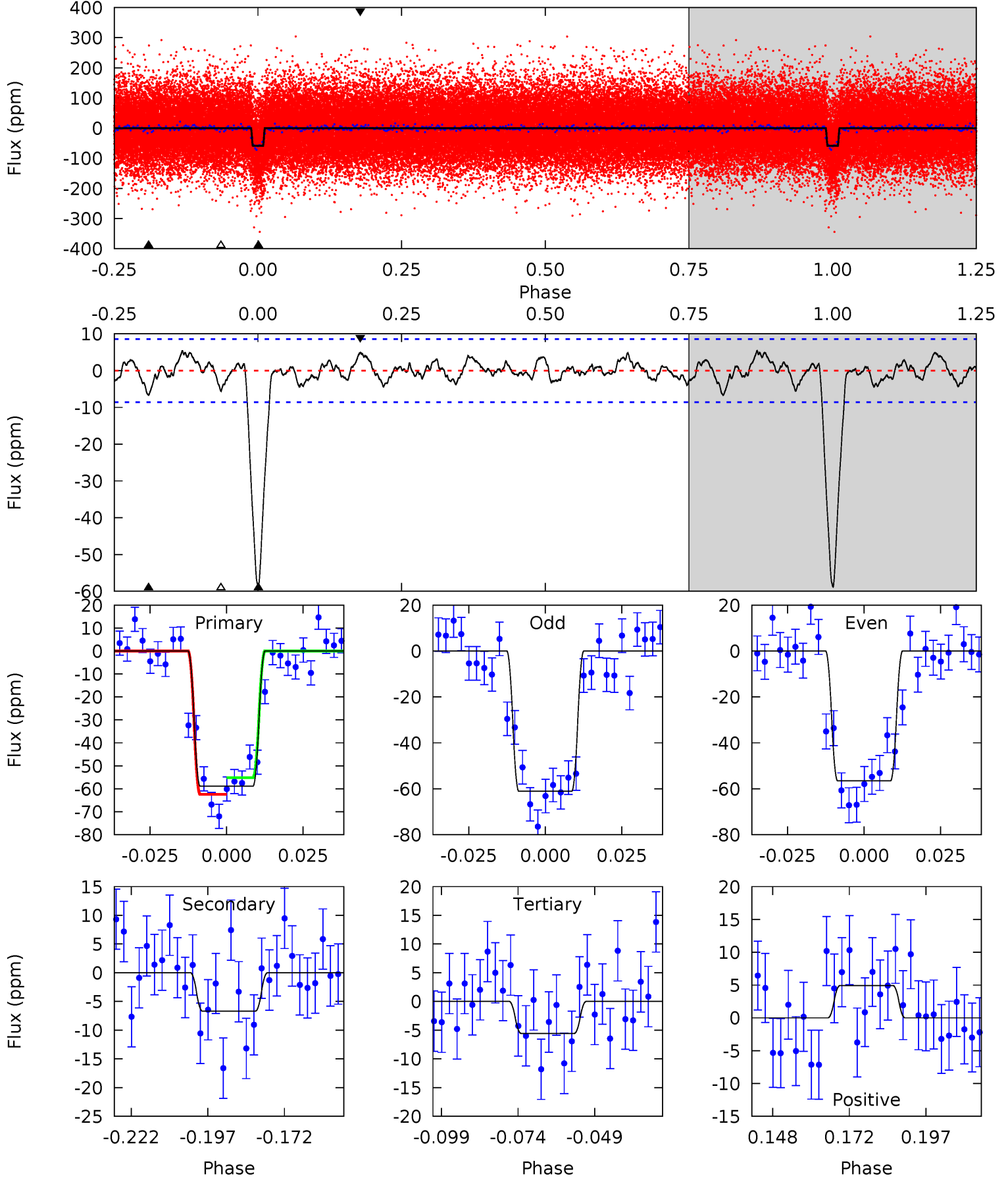
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.6	4.47	3.06	3.63	4.83	2.21	1.52	30.6	30.0	1.40	0.84	0.88	1.05	0.10	1.12



# Alt Model-Shift Uniqueness Test

009872292-01, P = 10.191649 Days, E = 126.500535 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
33.3	3.78	3.16	2.79	4.85	2.25	1.17	30.1	30.5	0.62	1.00	1.27	1.04	0.08	2.04





### Stellar Parameters For KIC 009872292

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$6212^{+80}_{-74}$	$4.049^{+0.013}_{-0.015}$	$-0.100^{+0.150}_{-0.150}$	$1.684^{+0.107}_{-0.063}$	$1.156^{+0.147}_{-0.073}$	$0.341^{+0.019}_{-0.025}$
	+1%/-1%	+0%/-0%	+150%/-150%	+6%/-4%	+13%/-6%	+6%/-7%
Source	SPE72	AST8	SPE72	DSEP		

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

### Secondary Eclipse Parameters for KIC 009872292-01 / KOI 1537.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-8 \pm 2$	$1.44^{+0.26}_{-0.24}$	$1600^{+23}_{-23}$	$3994^{+332}_{-266}$	$19^{+10}_{-6}$
Alt.	$-7 \pm 2$	$1.46^{+0.26}_{-0.26}$	$1600^{+24}_{-22}$	$3884^{+330}_{-282}$	$16^{+9}_{-6}$

$T_{max}$  = 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

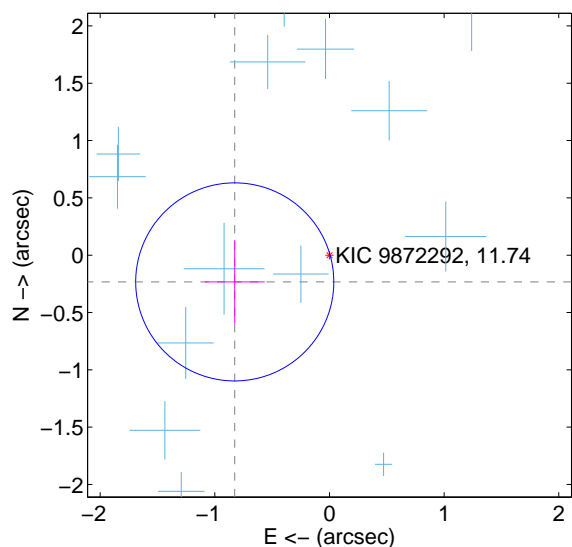
Supplemental centroid analysis for 009872292-01. **Kepler magnitude: 11.74.** Transit SNR 19.59

There are 14 quarters with good PRF difference image offsets

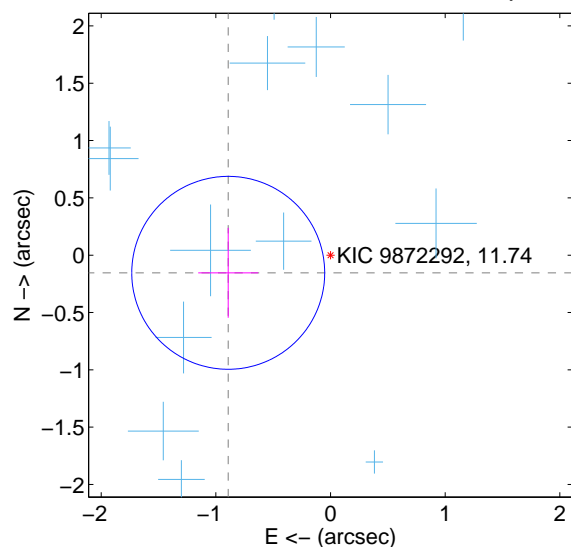
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.859 \pm 0.288$	2.98	$0.826 \pm 0.262$	$-0.233 \pm 0.364$
PRF-fit source offset from KIC position	<b><math>0.905 \pm 0.280</math></b>	<b>3.23</b>	$0.892 \pm 0.262$	$-0.154 \pm 0.392$
photometric centroid source offset	$0.40 \pm 0.45$	0.89	$0.03 \pm 0.53$	$0.40 \pm 0.45$

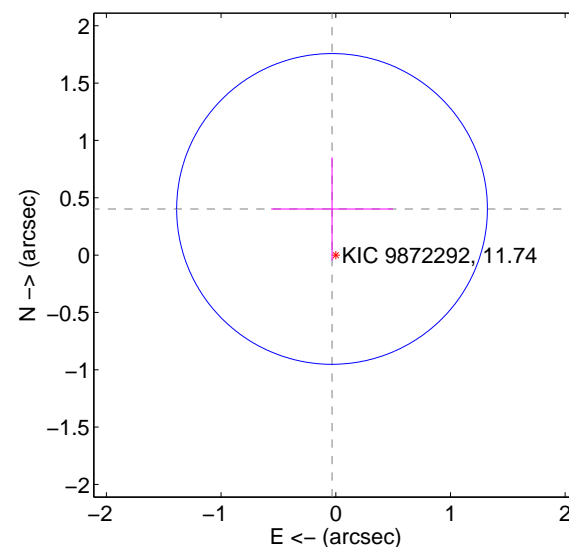
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

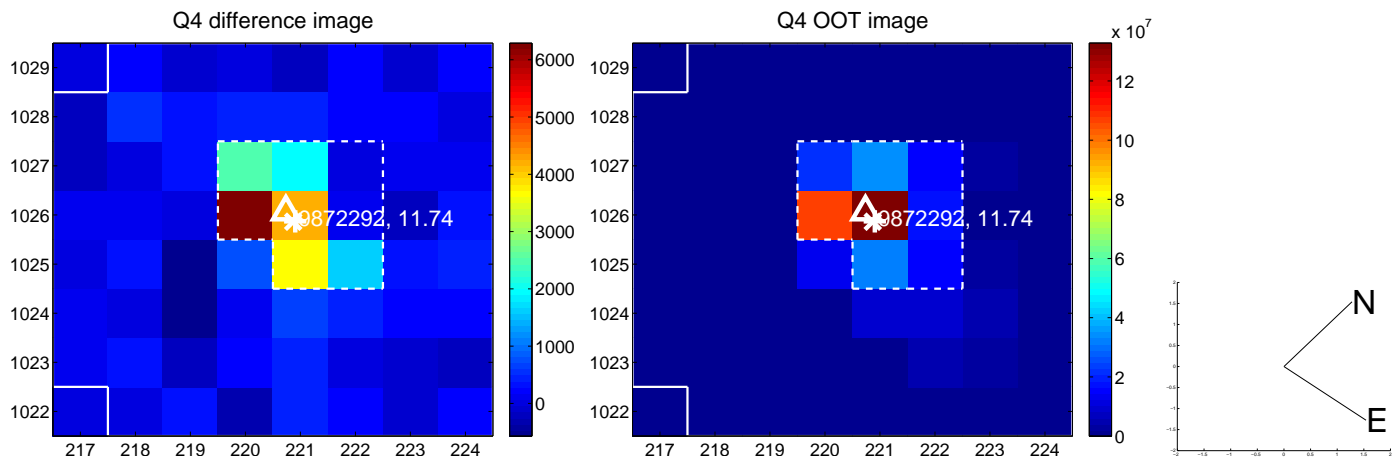
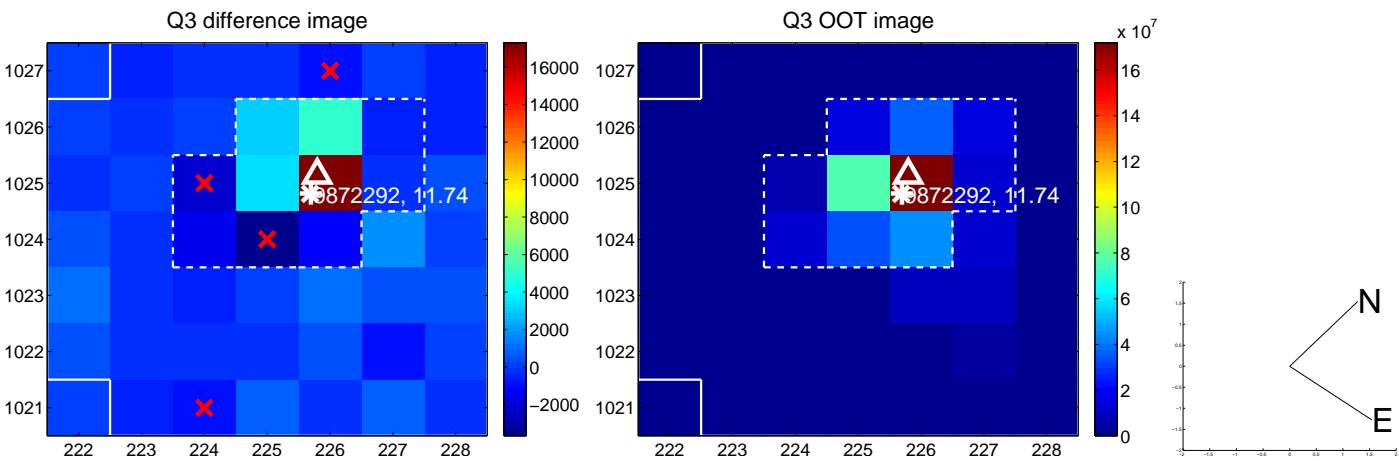
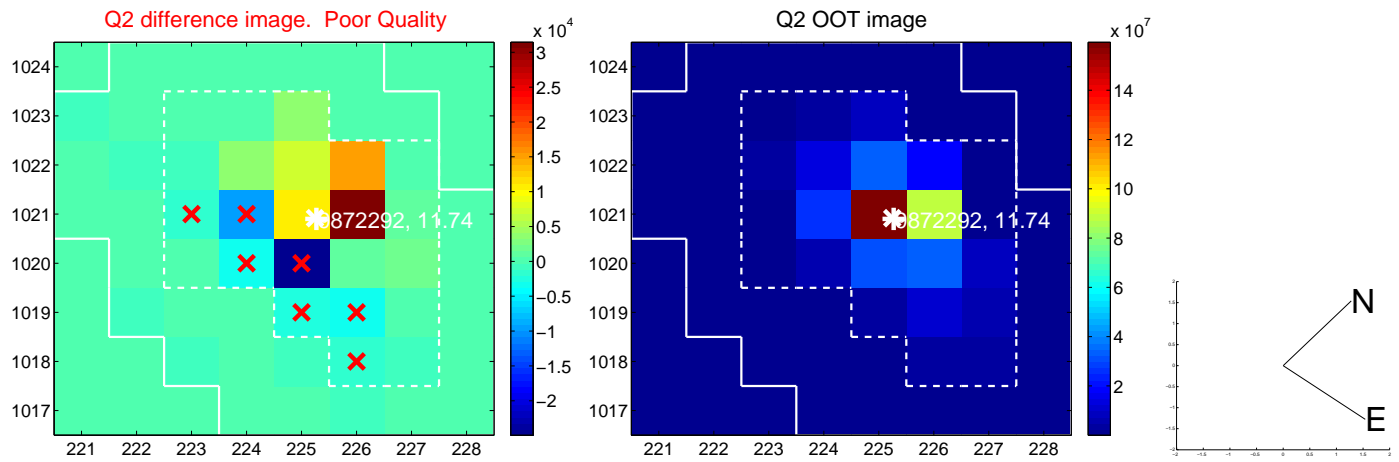
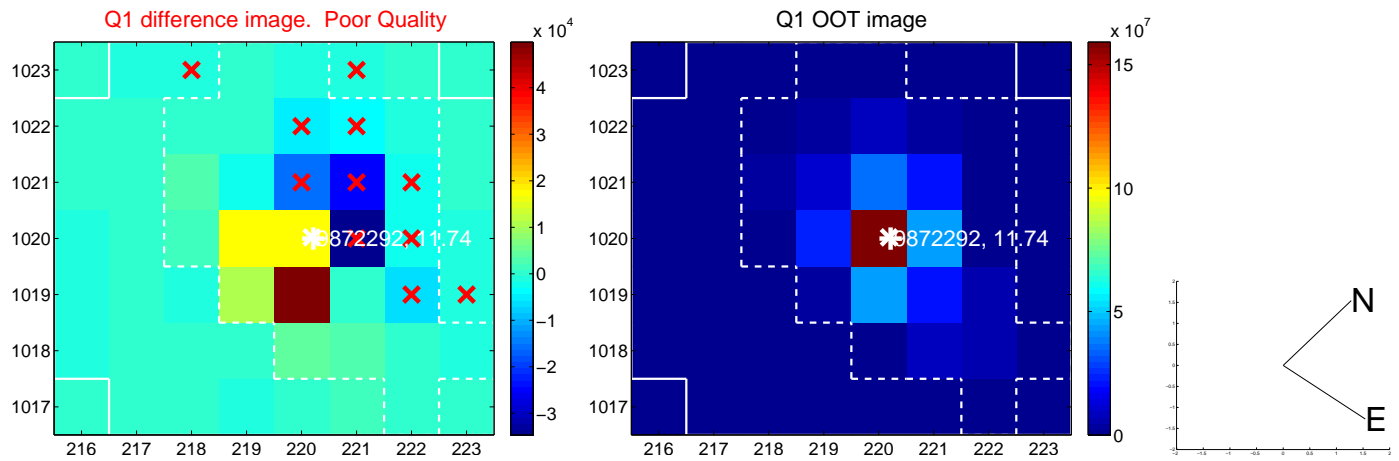


offset from photometric centroids

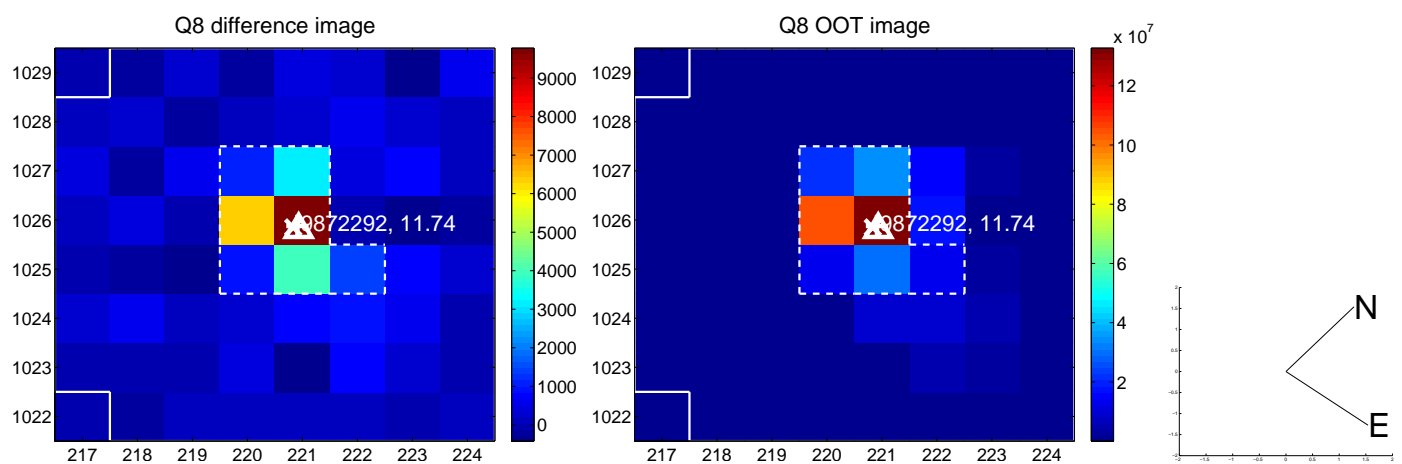
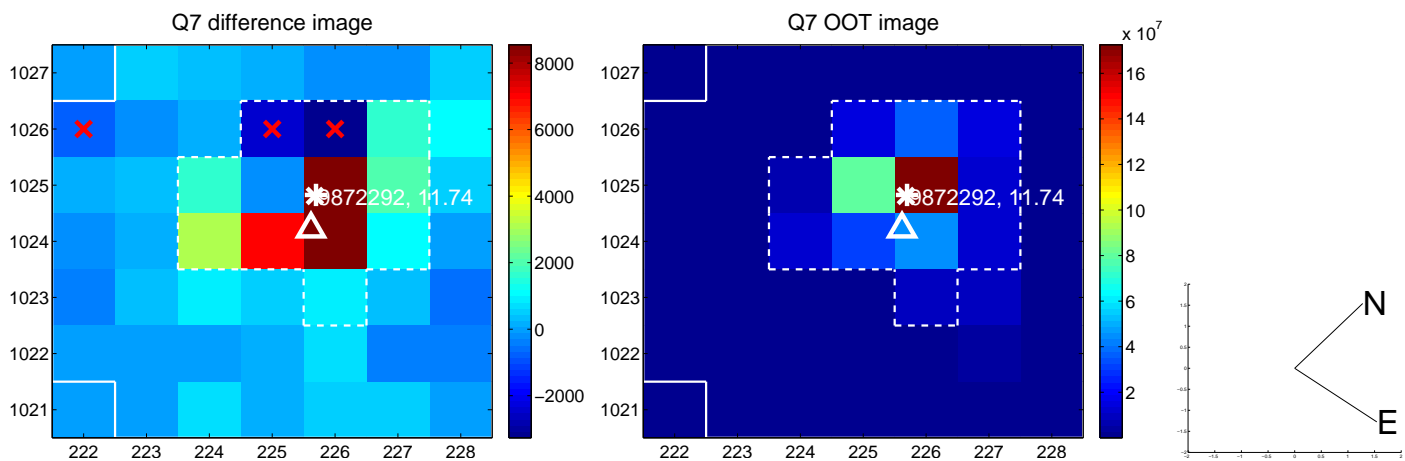
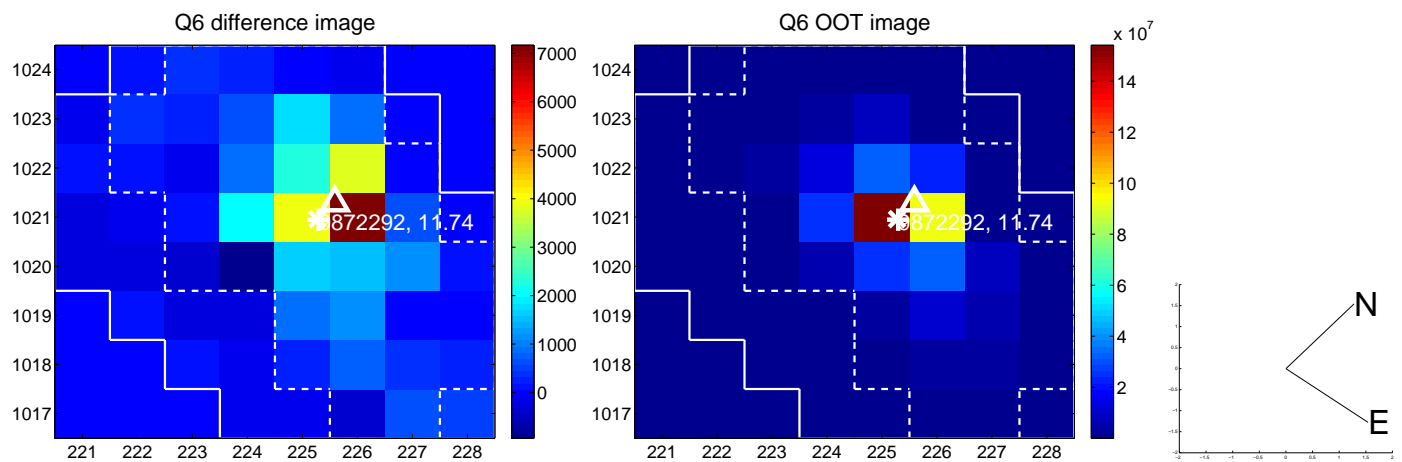
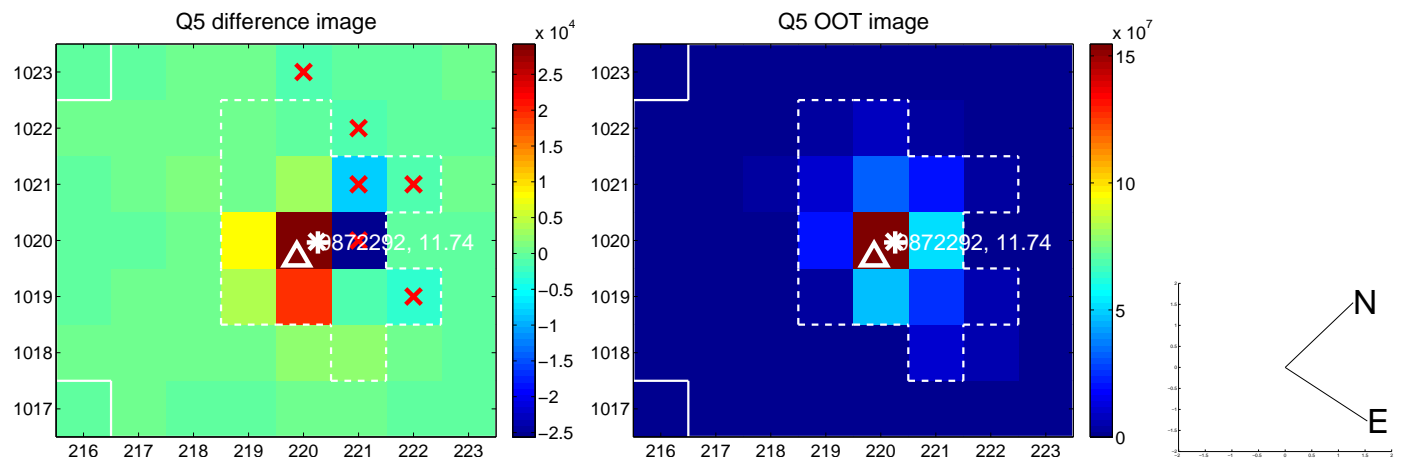


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

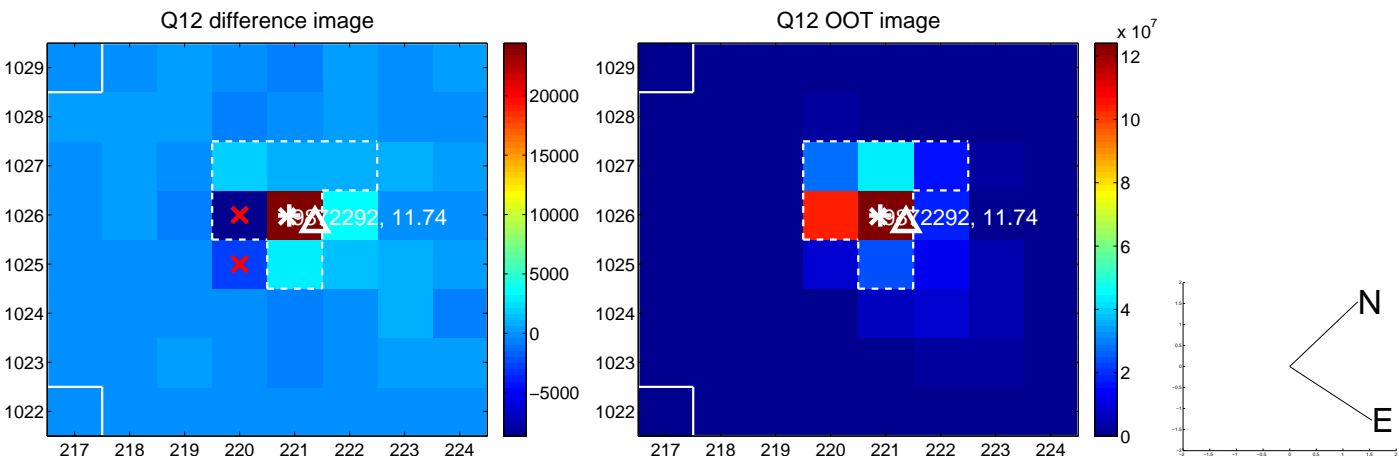
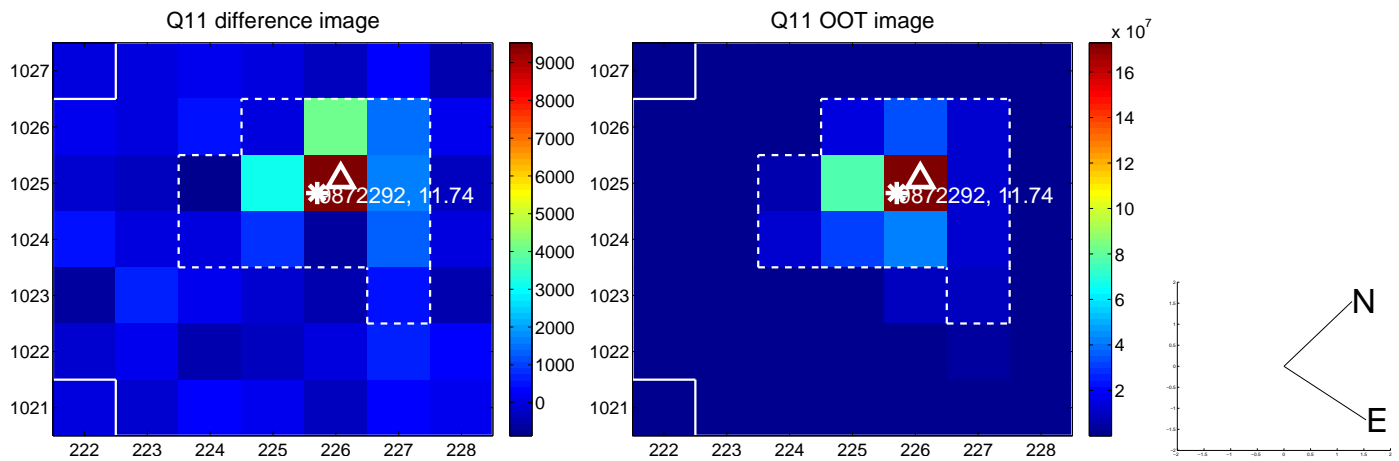
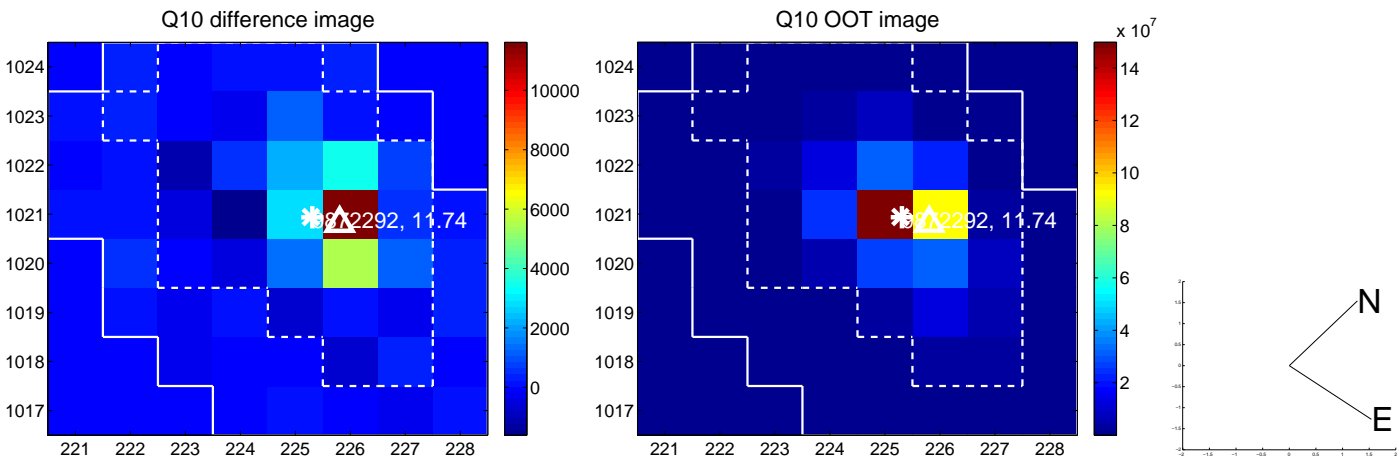
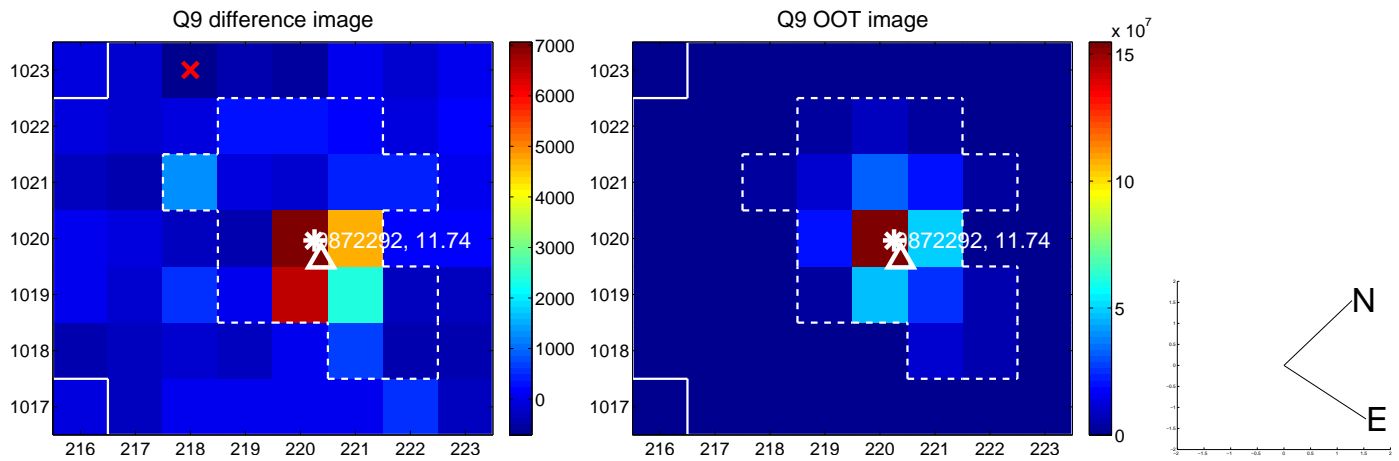


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

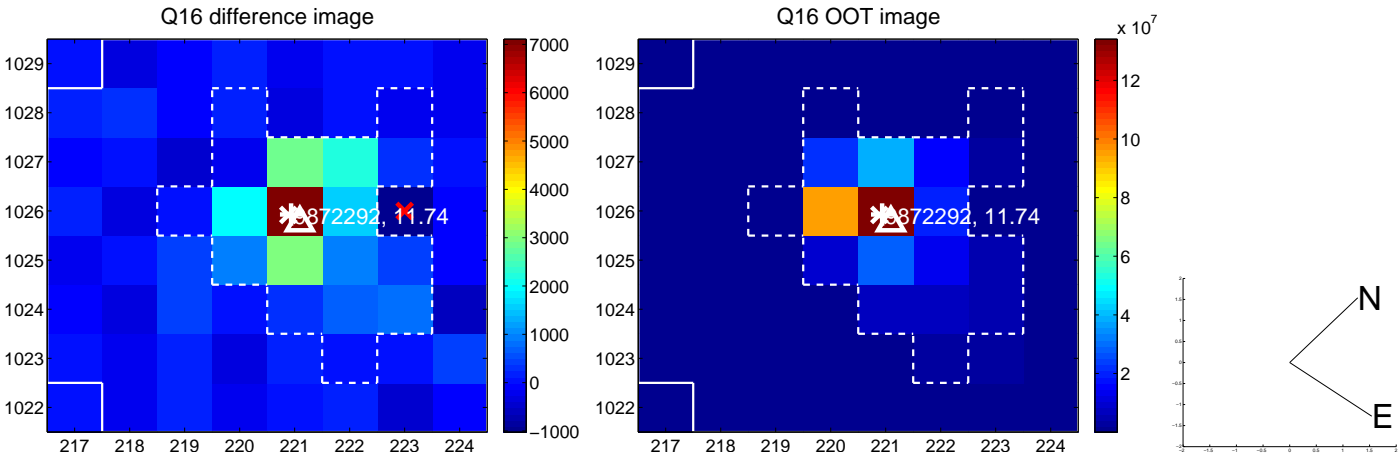
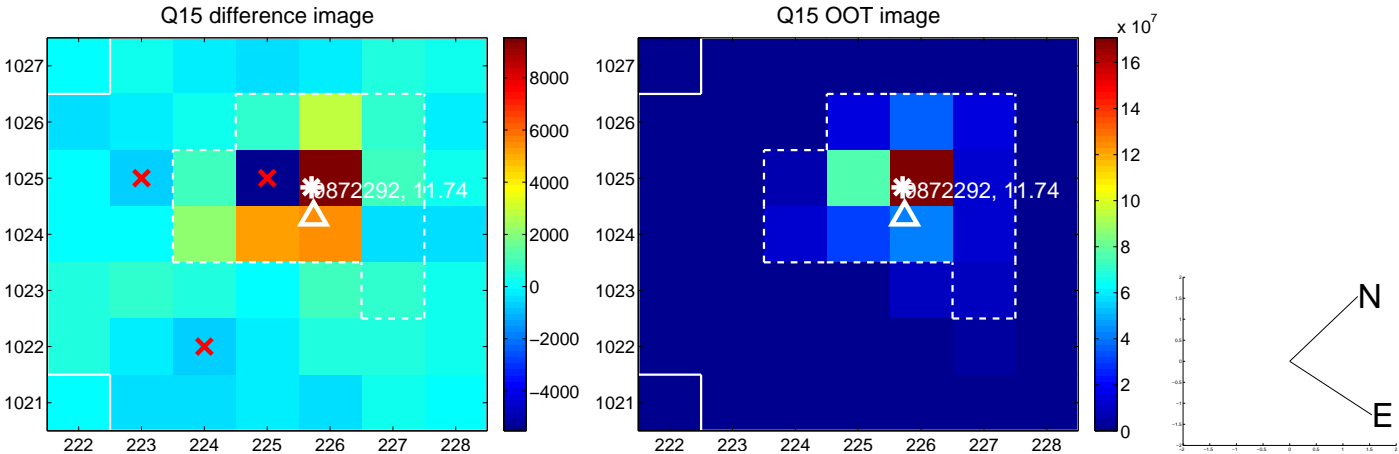
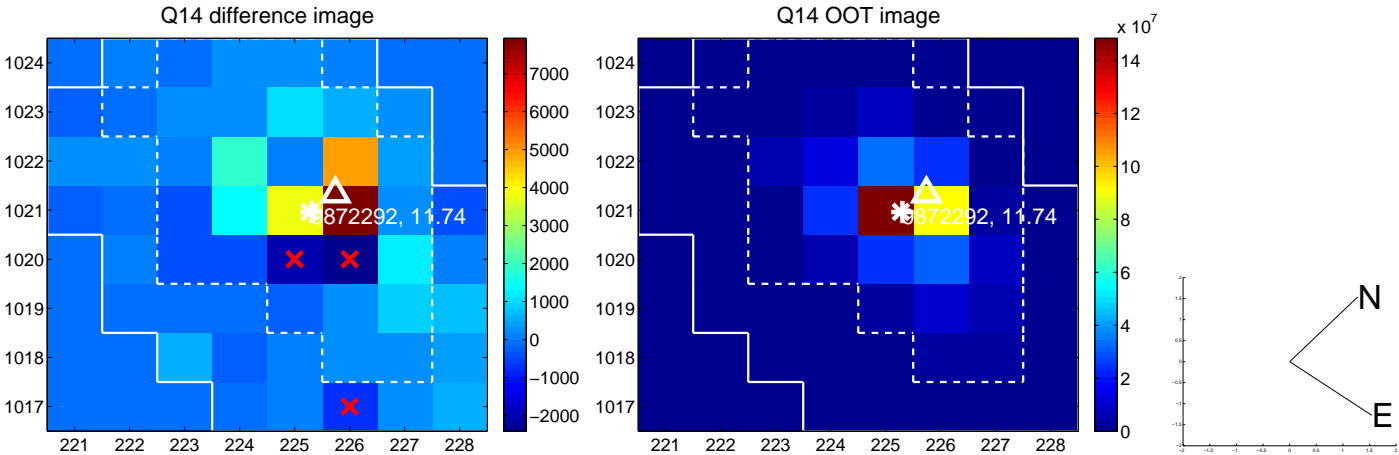
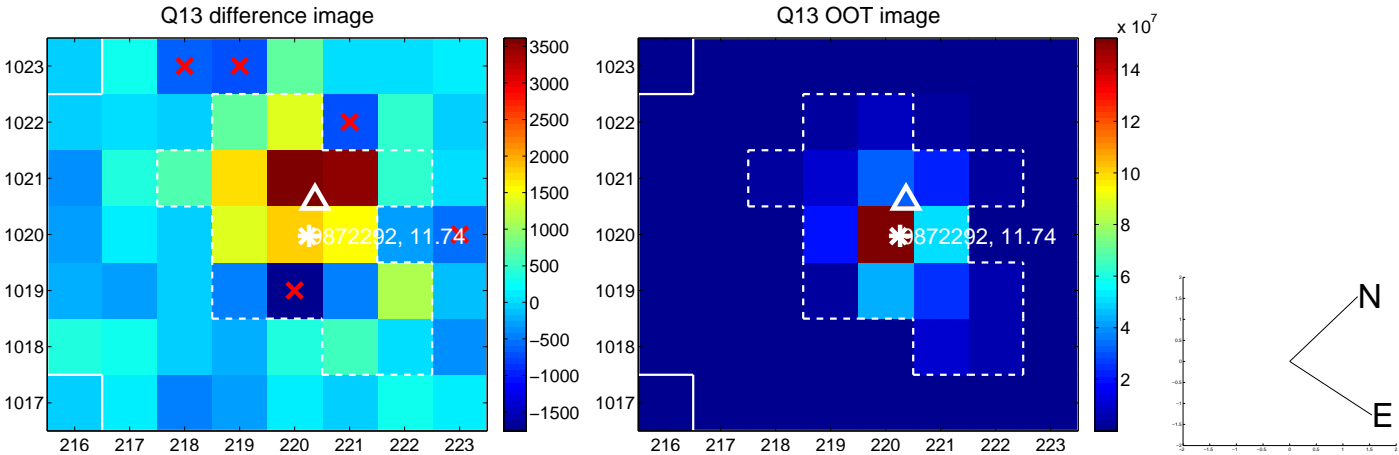




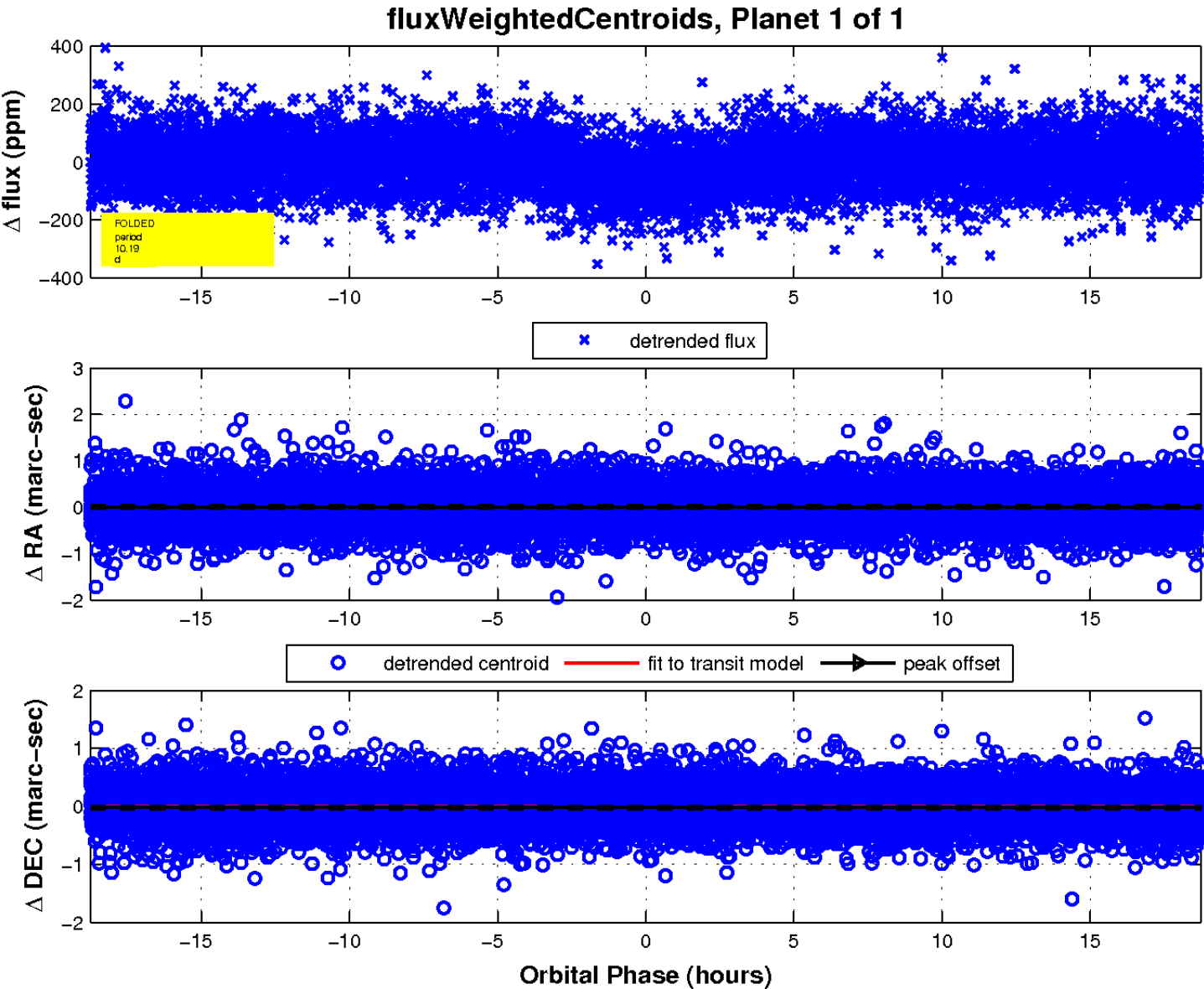
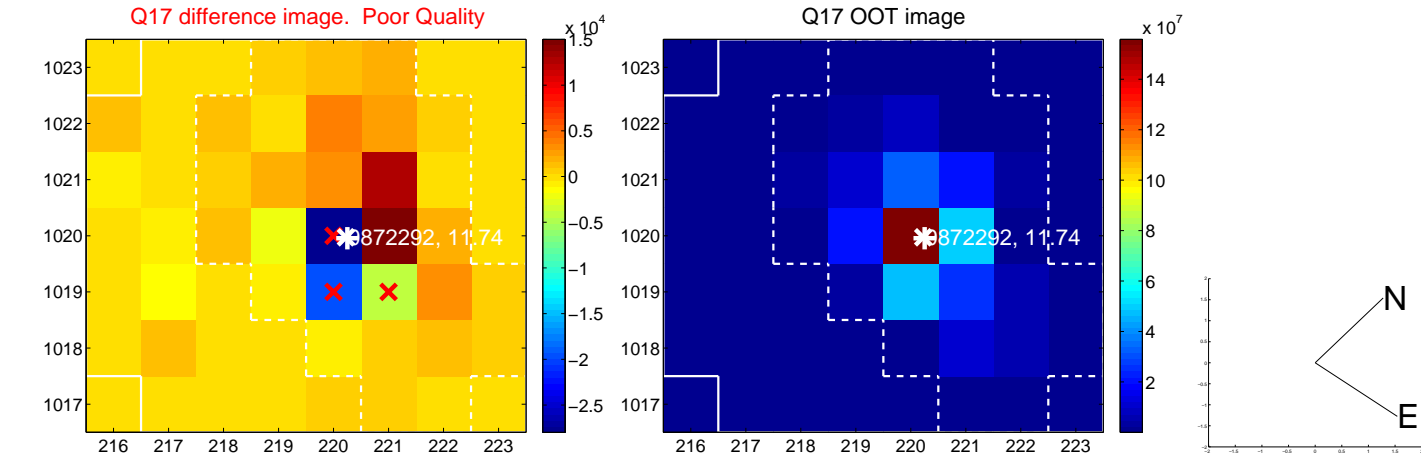
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

