

# KIC 008362974

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008362974-01	OBS	7023.01	2.717746	133.937119	69.5	3.713	8.1	9.1	0.87	5135	0.84	376.52

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008362974-01	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.

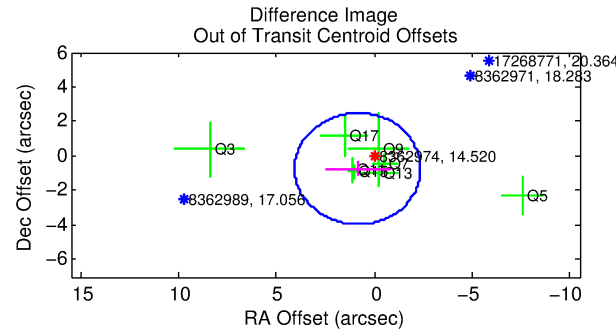
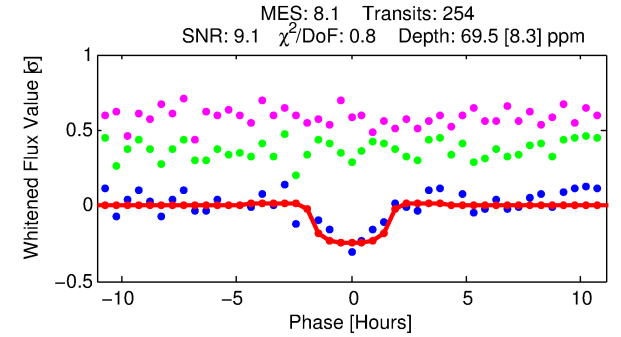
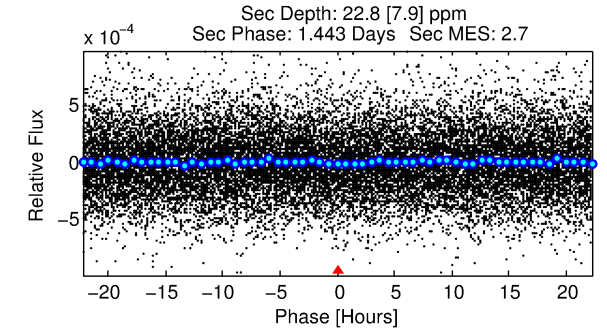
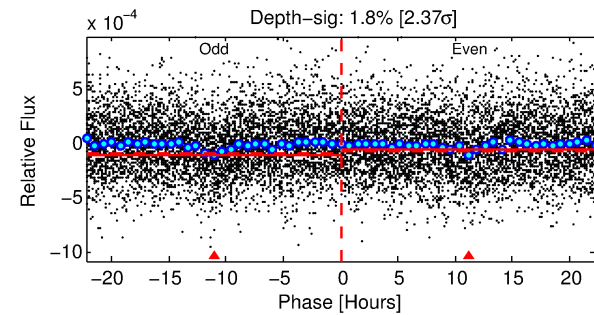
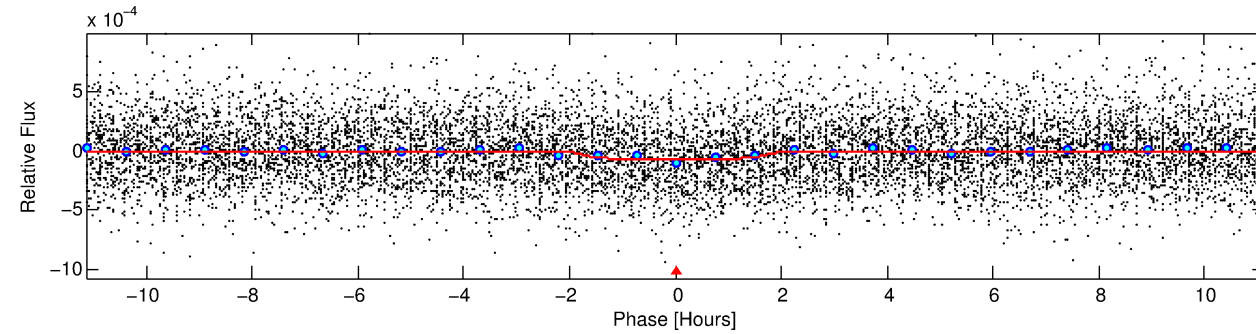
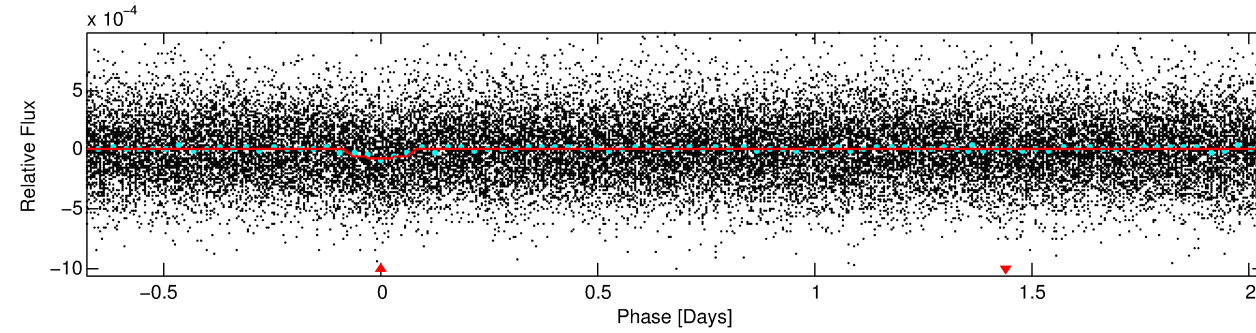
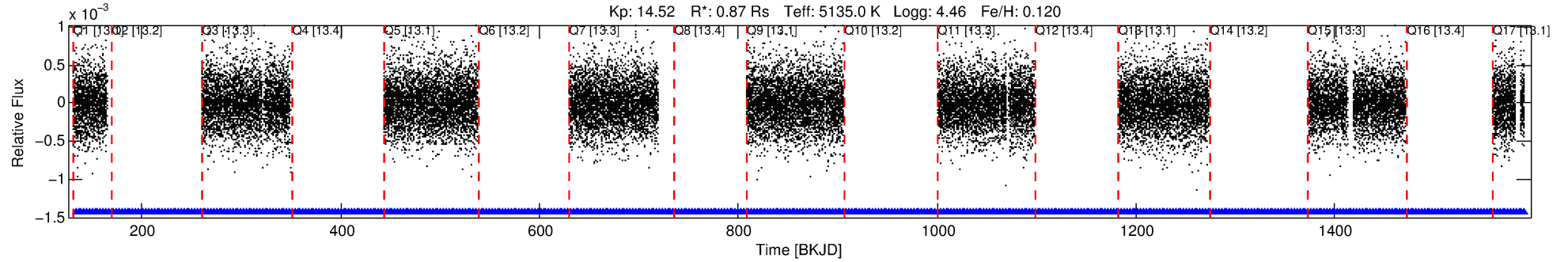
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008362974-01

No Significant Match Found

# DV One-Page Summary

KIC: 8362974 Candidate: 1 of 1 Period: 2.718 d  
KOI: K07023.01 Corr: 0.927



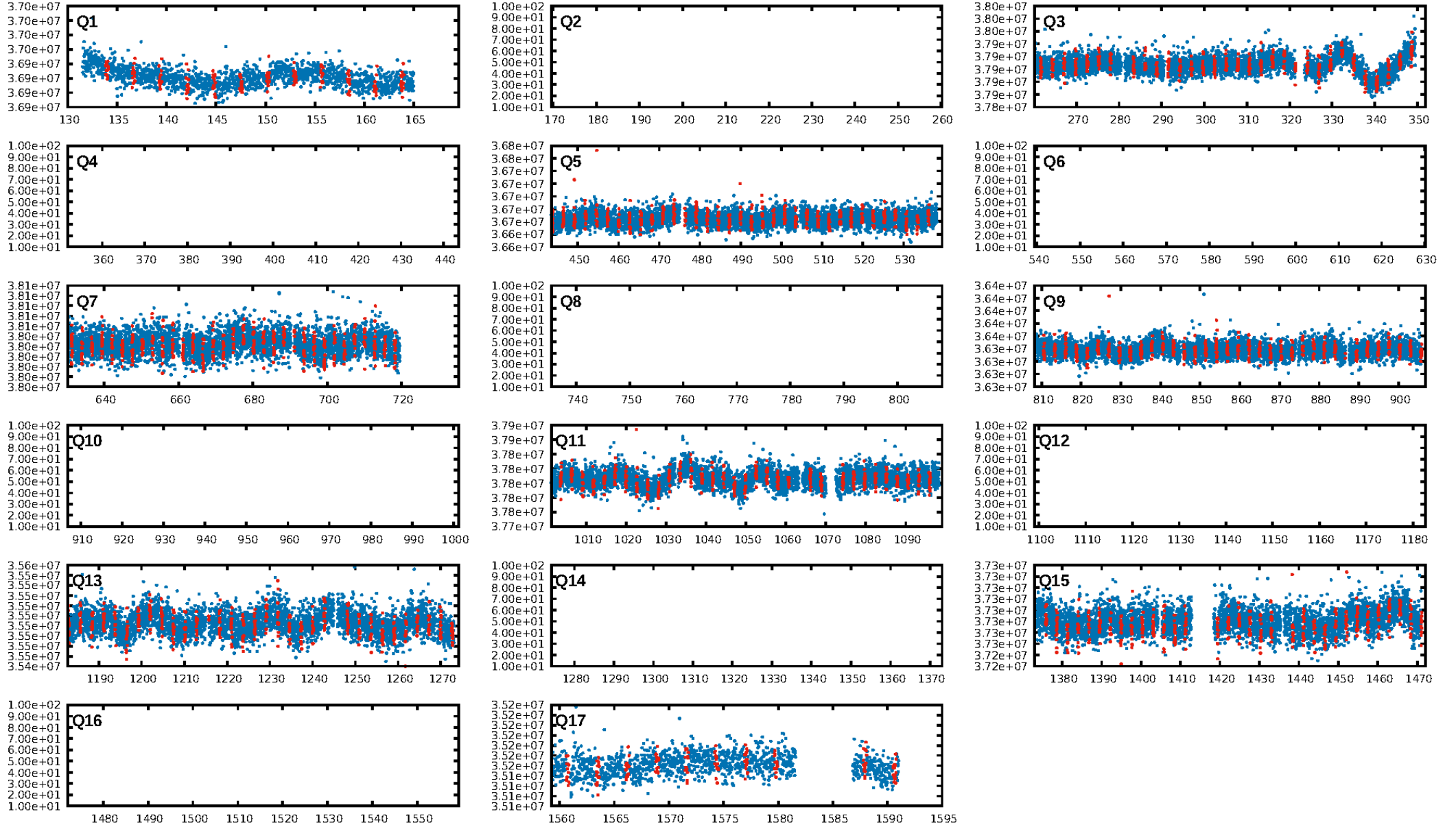
## DV Fit Results:

Period = 2.71775 [0.00003] d  
Epoch = 133.9371 [0.0059] BKJD  
Rp/R\* = 0.0088 [0.0071]  
a/R\* = 3.21 [9.04]  
b = 0.84 [1.08]  
Seff = 376.52 [61.56]  
Teff = 1123 [46] K  
Rp = 0.84 [0.68] Re  
a = 0.0356 [0.0032] AU  
Ag = 22.44 [37.08] [0.58σ]  
Teffp = 3780 [1556] K [1.71σ]

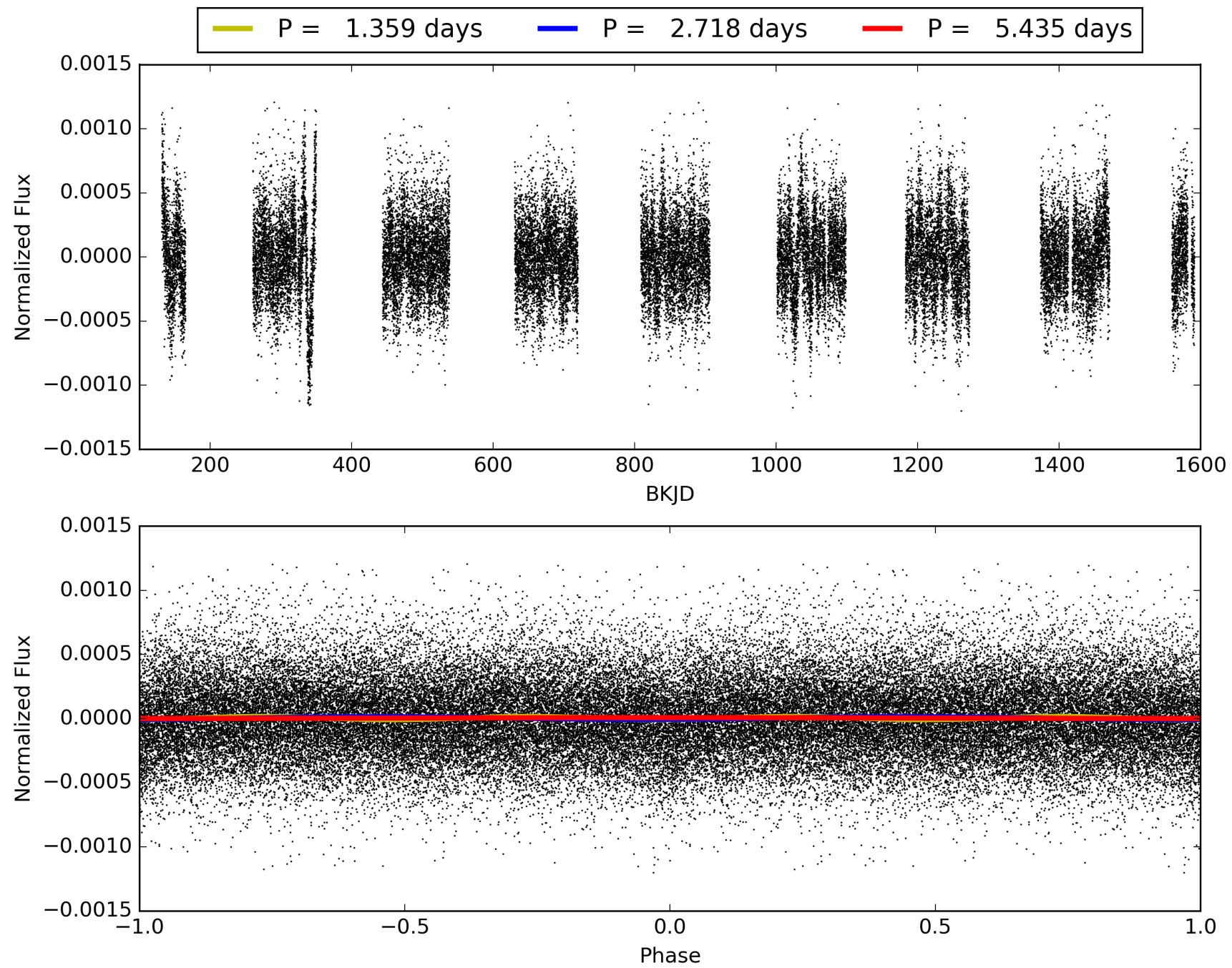
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.19e-16  
RollingBand-fgt: 1.00 [232/232]  
GhostDiagnostic-chr: -34.28  
Centroid-sig: 99.7%  
Centroid-so: 0.348 arcsec [0.23σ]  
OotOffset-rm: 1.129 arcsec [1.05σ]  
KicOffset-rm: 1.083 arcsec [1.20σ]  
OotOffset-st: 0/4/0/4 [8]  
KicOffset-st: 0/4/0/4 [8]  
DiffImageQuality-fgm: 0.75 [6/8]  
DiffImageOverlap-fno: 1.00 [9/9]

# TCE 008362974-01, PDC Light Curves

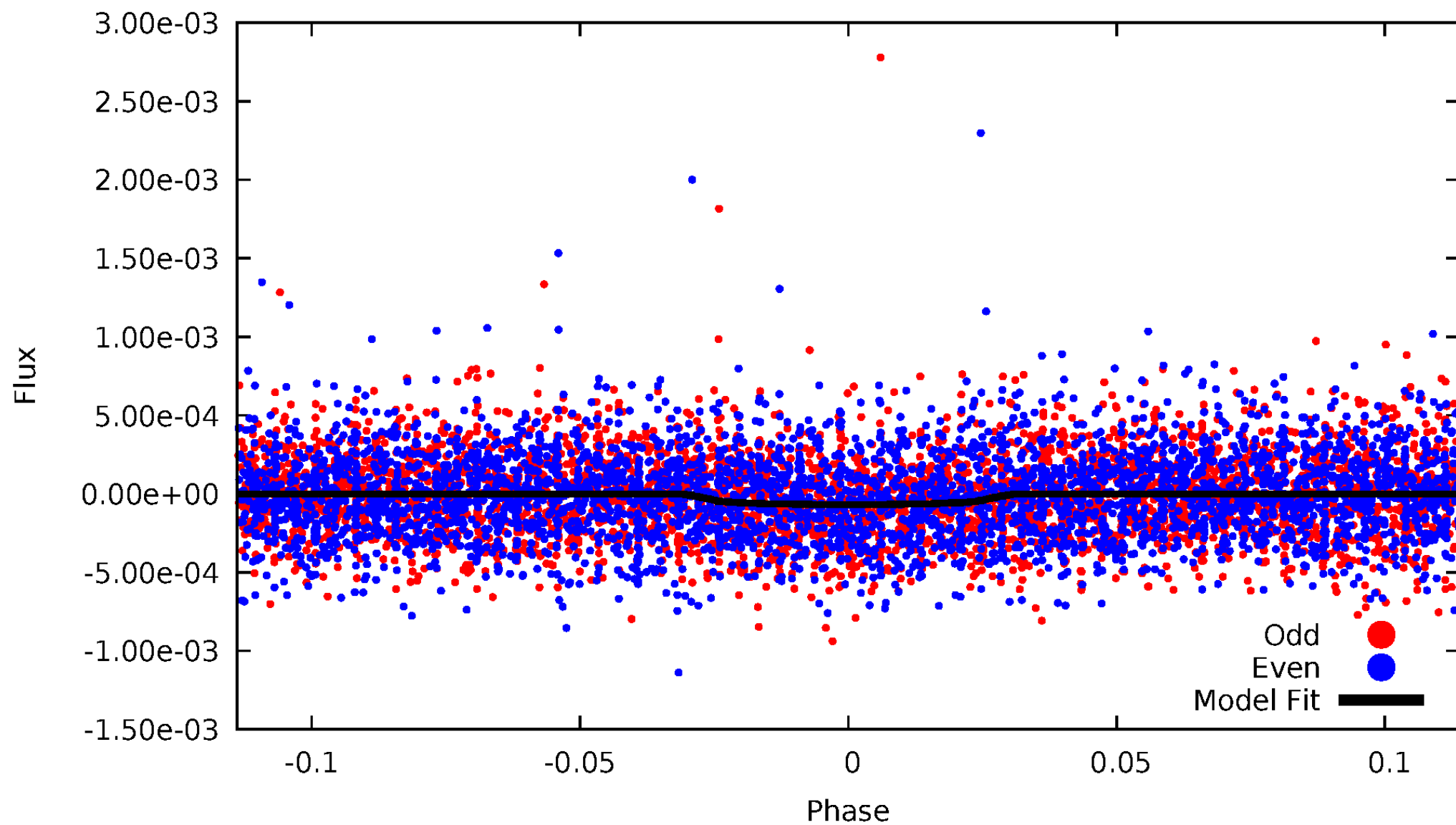


TCE 008362974-01



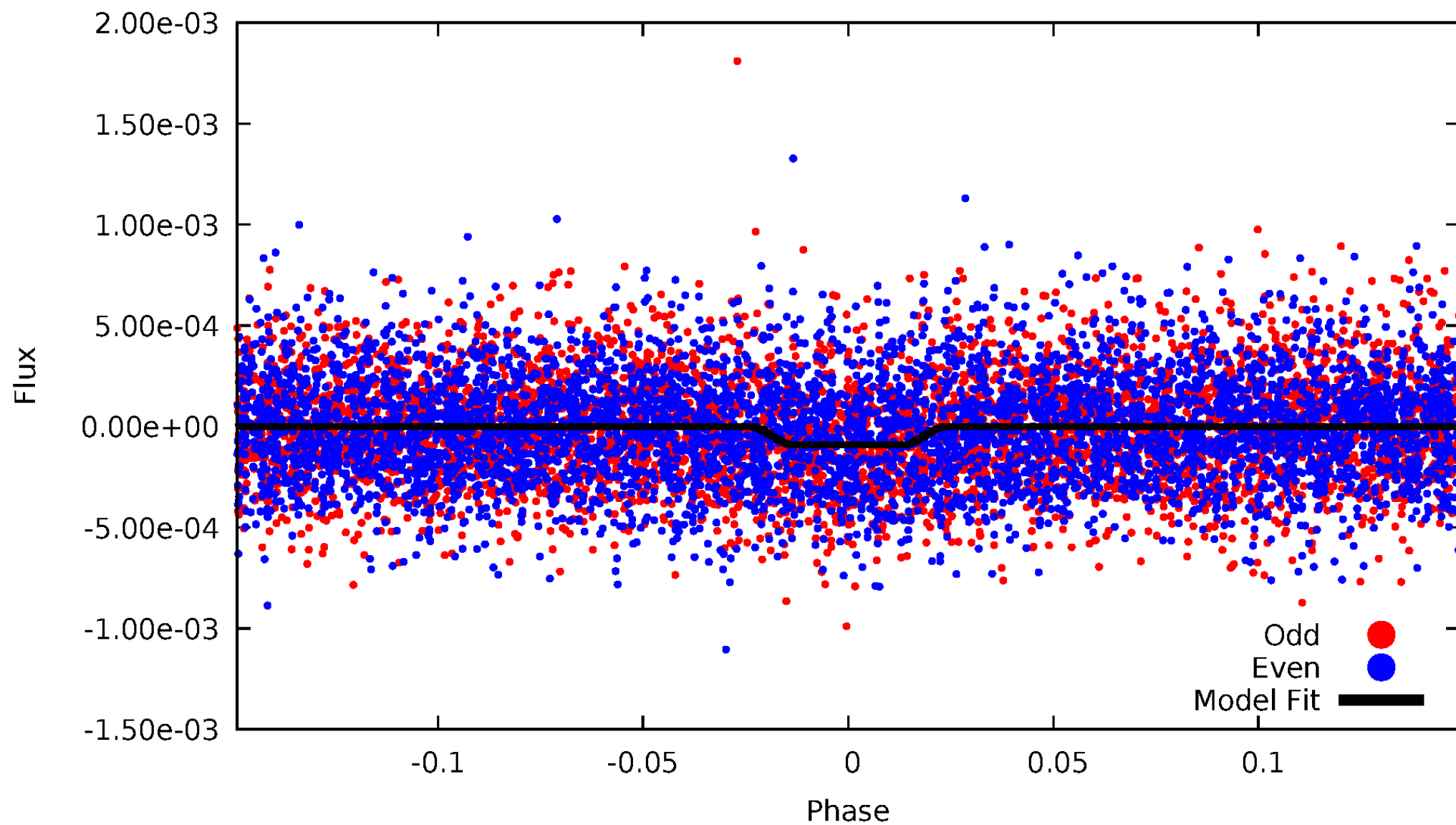
# DV Odd/Even

TCE 008362974-01



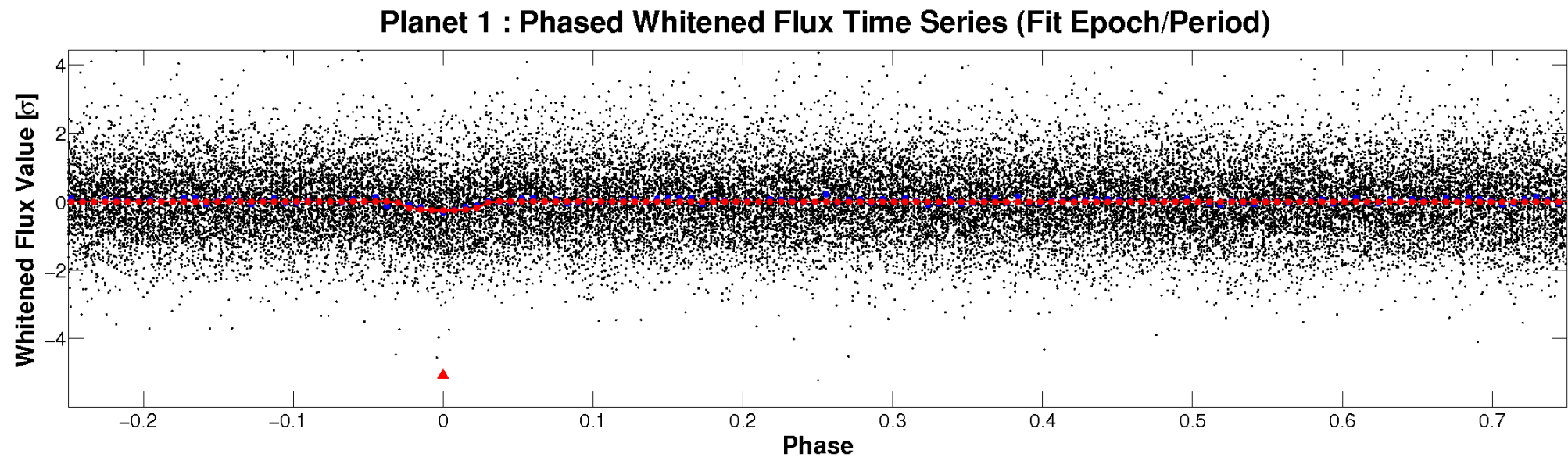
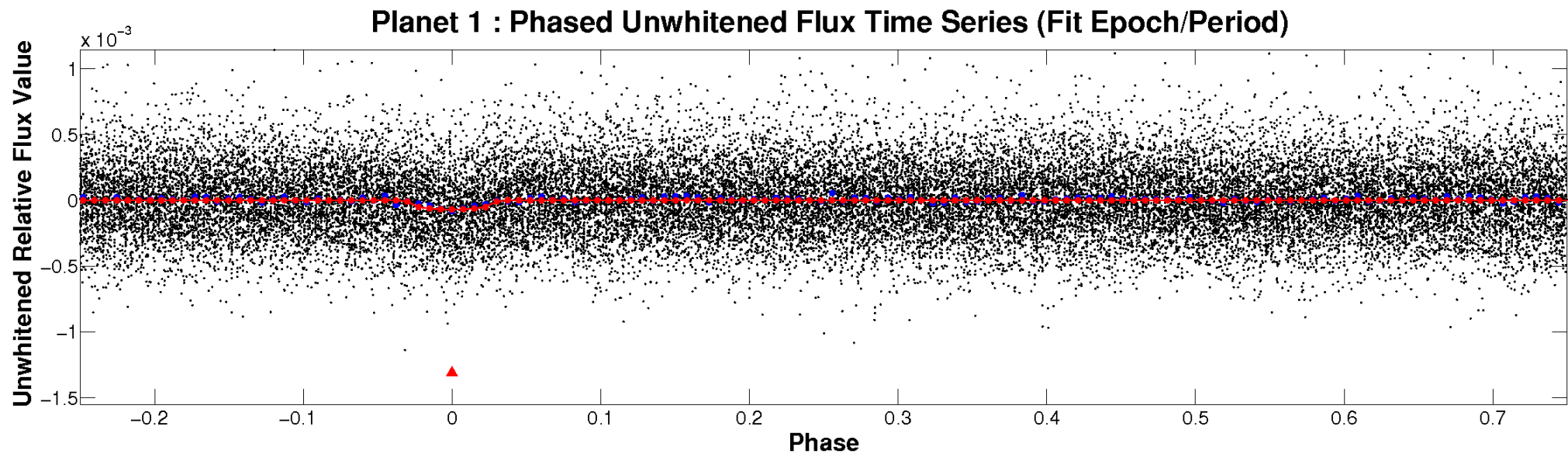
# ALT Odd/Even

TCE 008362974-01



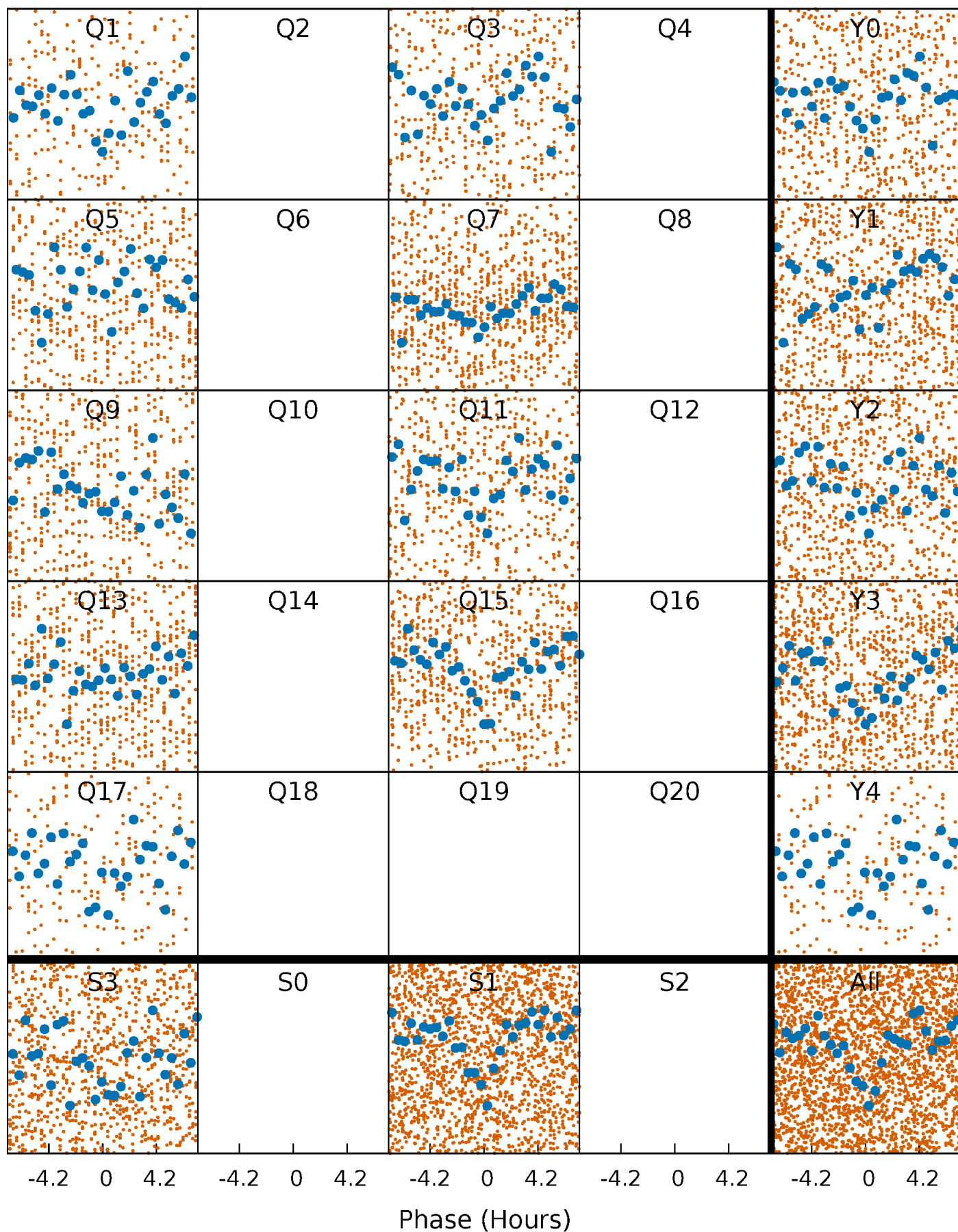


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

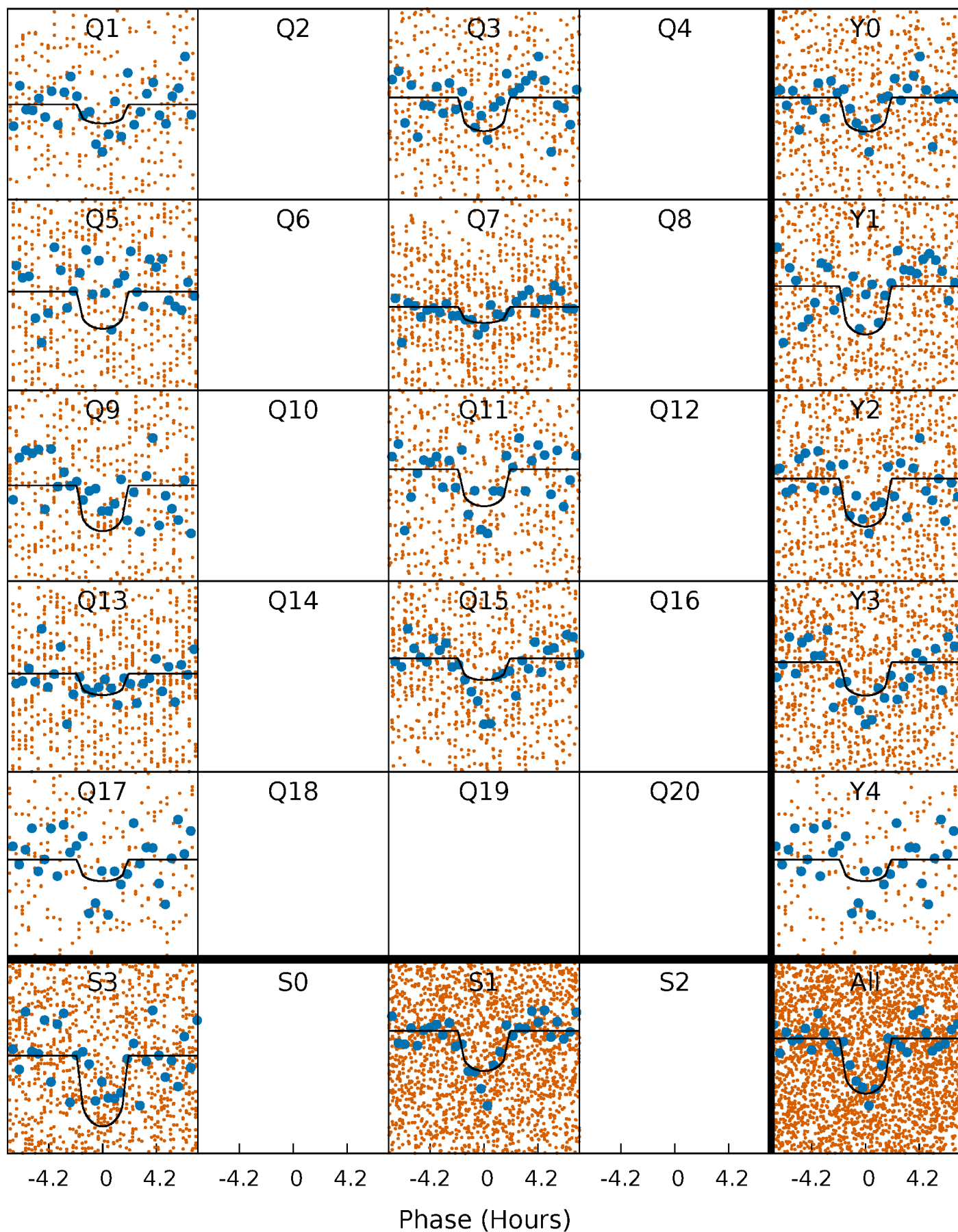
TCE 008362974-01 P= 2.717746 Days  $T_0=133.937119$  (BKJD)





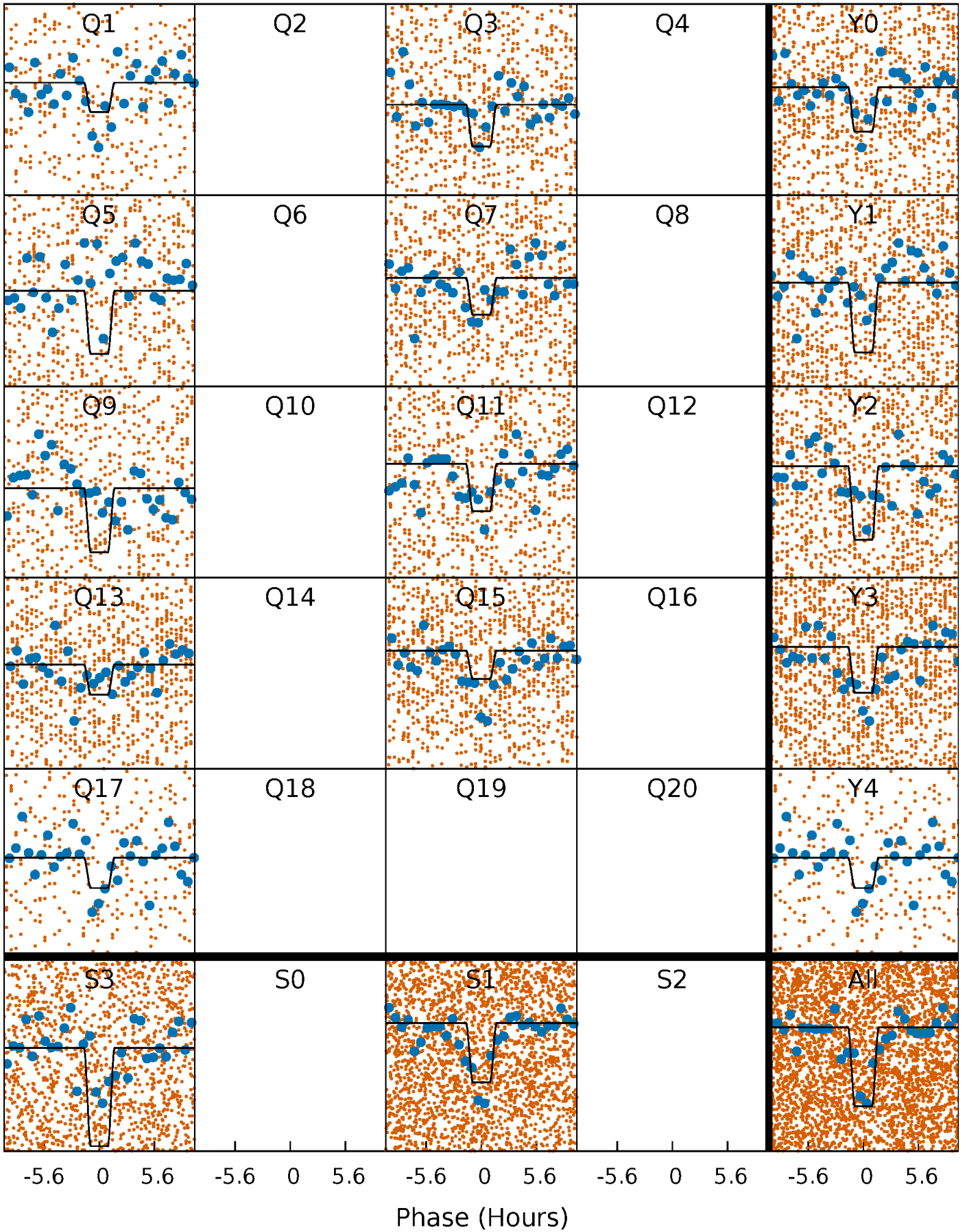
# DV Quarter-Phased Transit Curves

TCE 008362974-01   P= 2.717746 Days    $T_0=133.937119$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

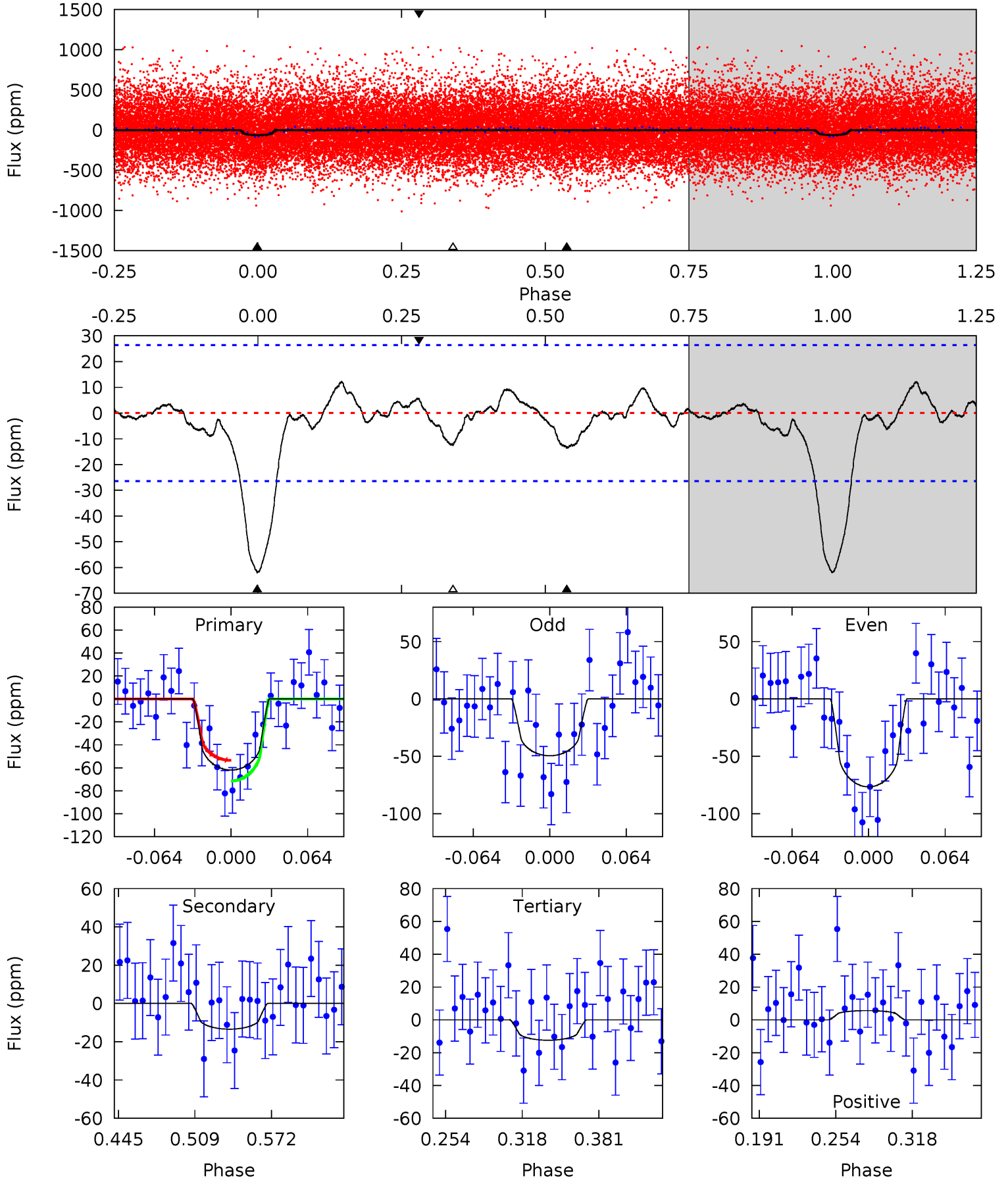
TCE 008362974-01 P= 2.717703 Days  $T_0=133.950164$  (BKJD)



# DV Model-Shift Uniqueness Test

008362974-01, P = 2.717746 Days, E = 131.219373 Days

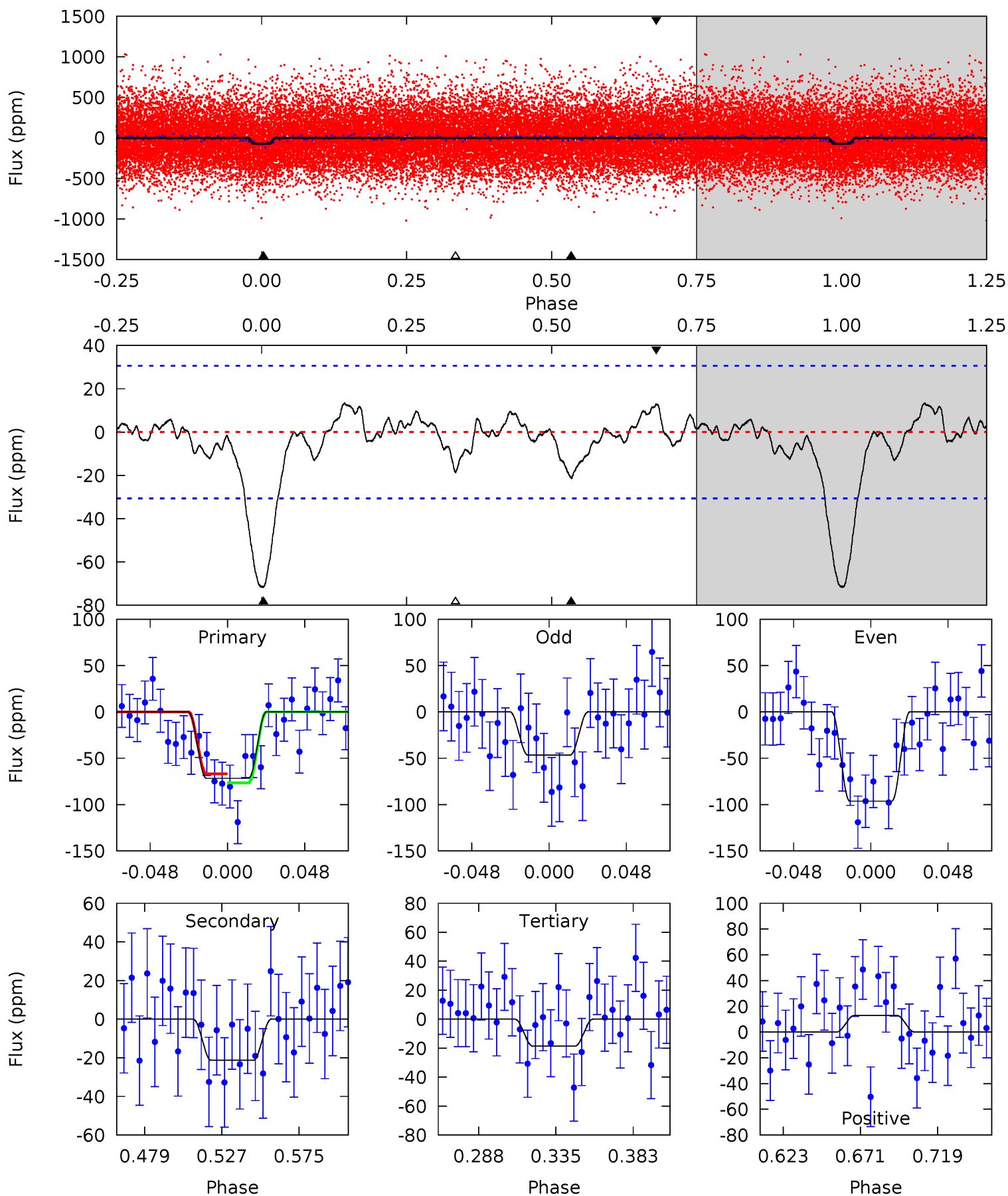
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	2.37	2.19	0.99	4.66	1.86	0.84	8.74	9.93	0.18	1.38	2.39	0.79	0.16	1.59



# Alt Model-Shift Uniqueness Test

008362974-01, P = 2.717703 Days, E = 131.232461 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
11.0	3.28	2.87	1.99	4.72	1.98	0.95	8.18	9.05	0.41	1.29	3.82	0.92	0.16	0.75



### Stellar Parameters For KIC 008362974

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5135^{+84}_{-77}$	$4.464^{+0.090}_{-0.036}$	$0.120^{+0.150}_{-0.150}$	$0.874^{+0.044}_{-0.076}$	$0.812^{+0.061}_{-0.026}$	$1.712^{+0.607}_{-0.208}$
	+2%/-1%	+2%/-1%	+125%/-125%	+5%/-9%	+8%/-3%	+35%/-12%
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 008362974-01 / KOI 7023.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-13 \pm 6$	$0.92^{+0.65}_{-0.54}$	$1562^{+38}_{-43}$	$3531^{+1298}_{-575}$	$11^{+49}_{-7}$
Alt.	$-21 \pm 6$	$0.96^{+0.66}_{-0.56}$	$1562^{+36}_{-47}$	$3777^{+1652}_{-630}$	$16^{+85}_{-11}$

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



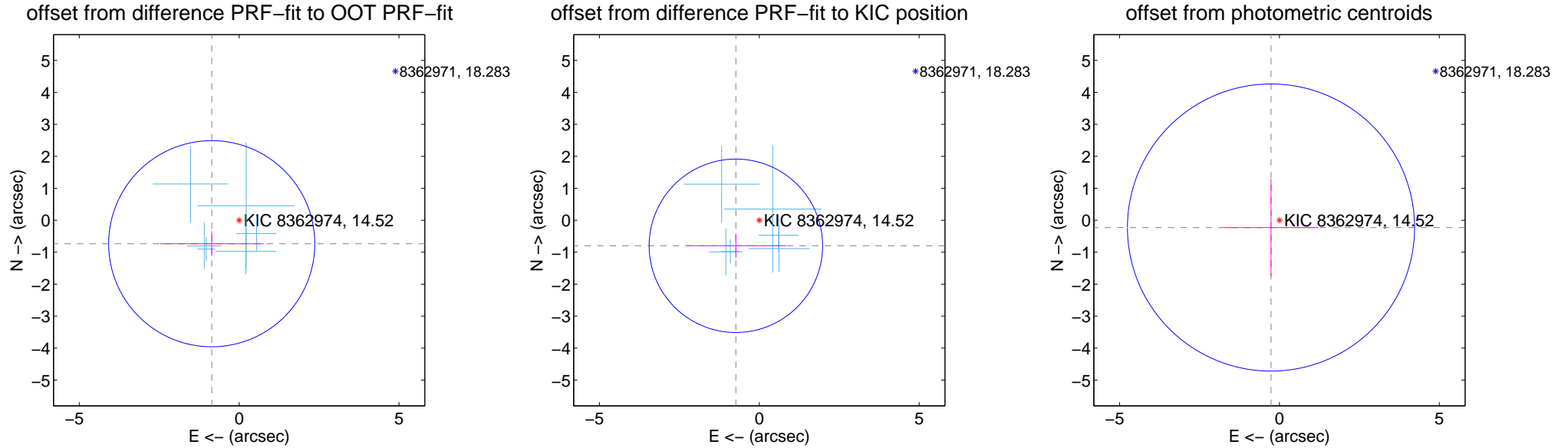
## DV Centroid Data

Supplemental centroid analysis for 008362974-01. Kepler magnitude: 14.52. Transit SNR 9.11

There are 6 quarters with good PRF difference image offsets

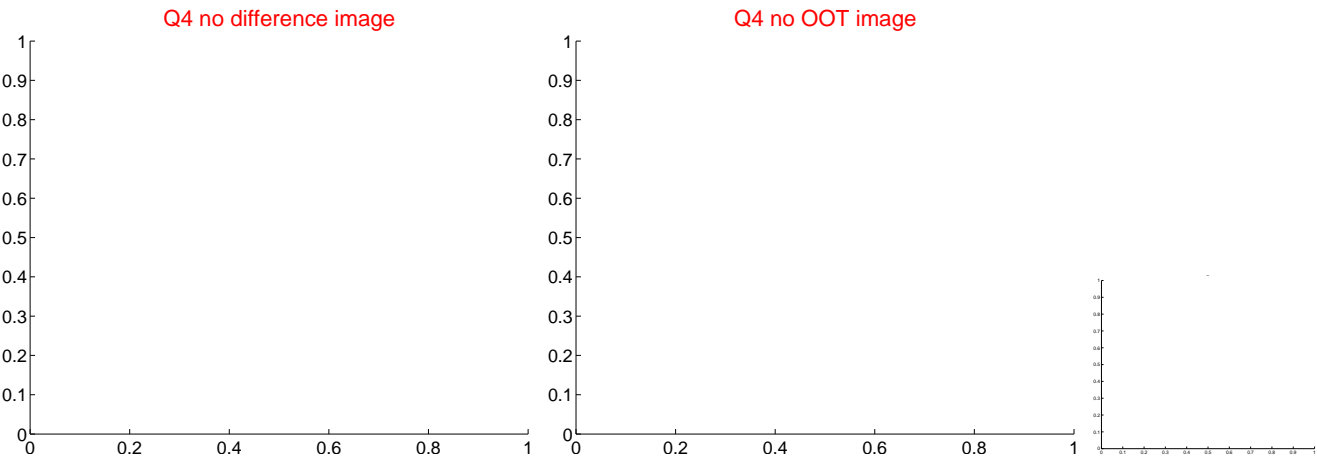
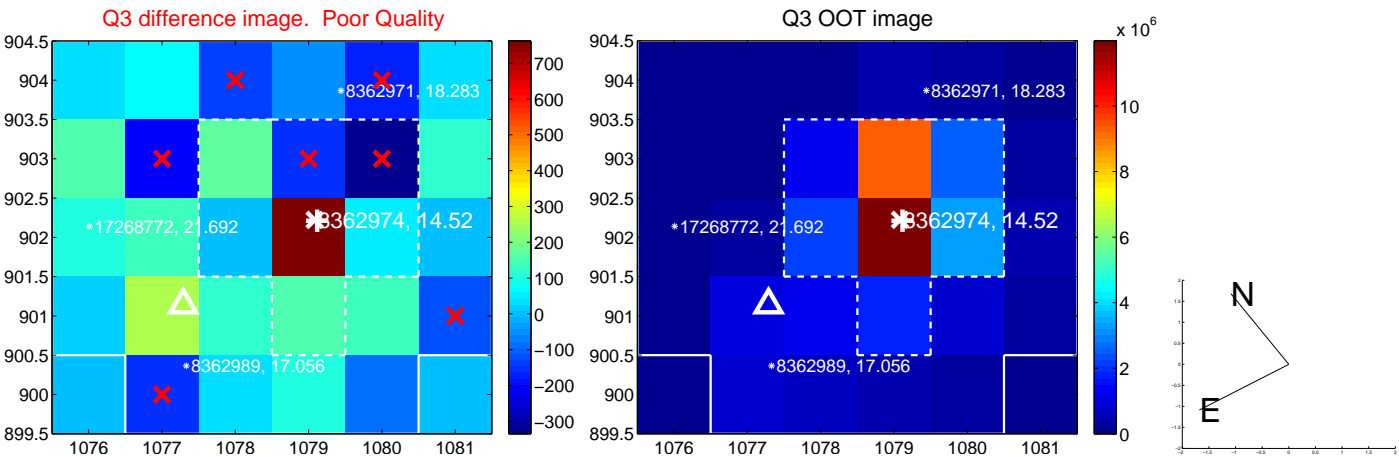
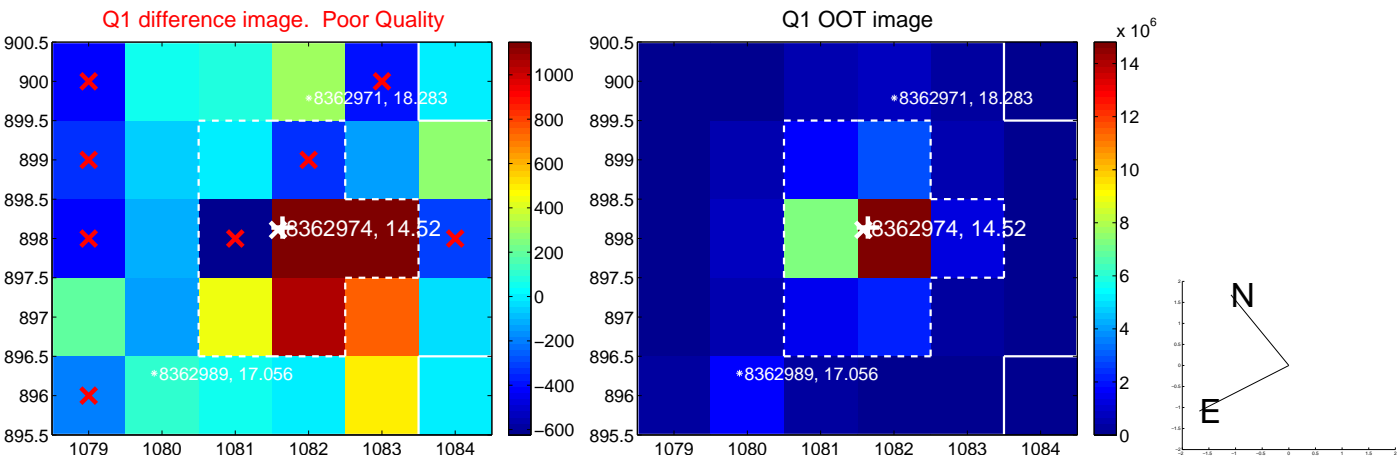
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.129 \pm 1.074$	1.05	$0.857 \pm 1.628$	$-0.734 \pm 0.386$
PRF-fit source offset from KIC position	$1.083 \pm 0.904$	1.20	$0.732 \pm 1.577$	$-0.799 \pm 0.380$
photometric centroid source offset	$0.35 \pm 1.50$	0.23	$0.26 \pm 1.48$	$-0.23 \pm 1.52$

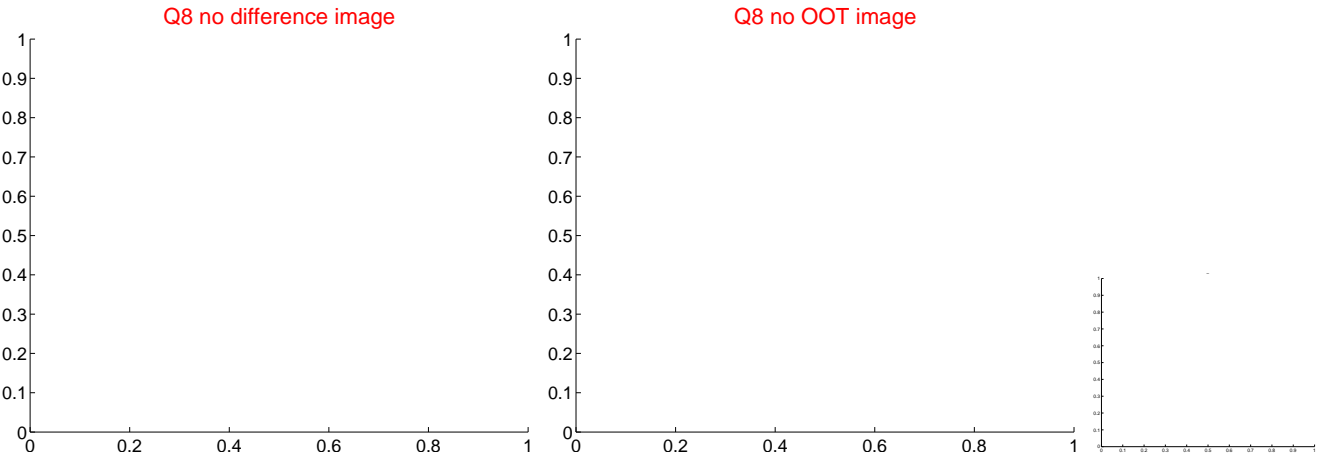
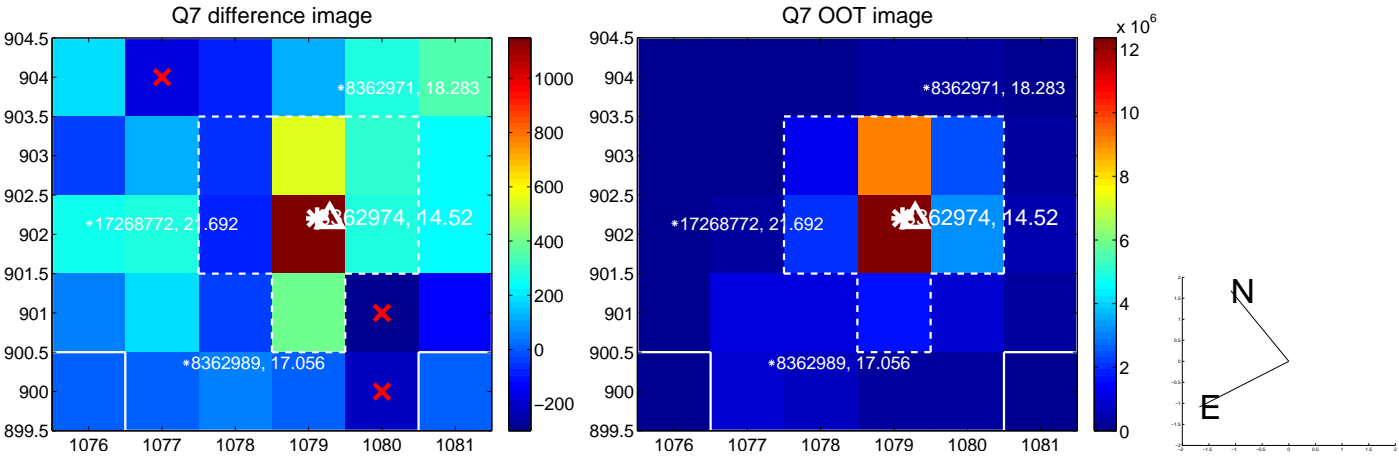
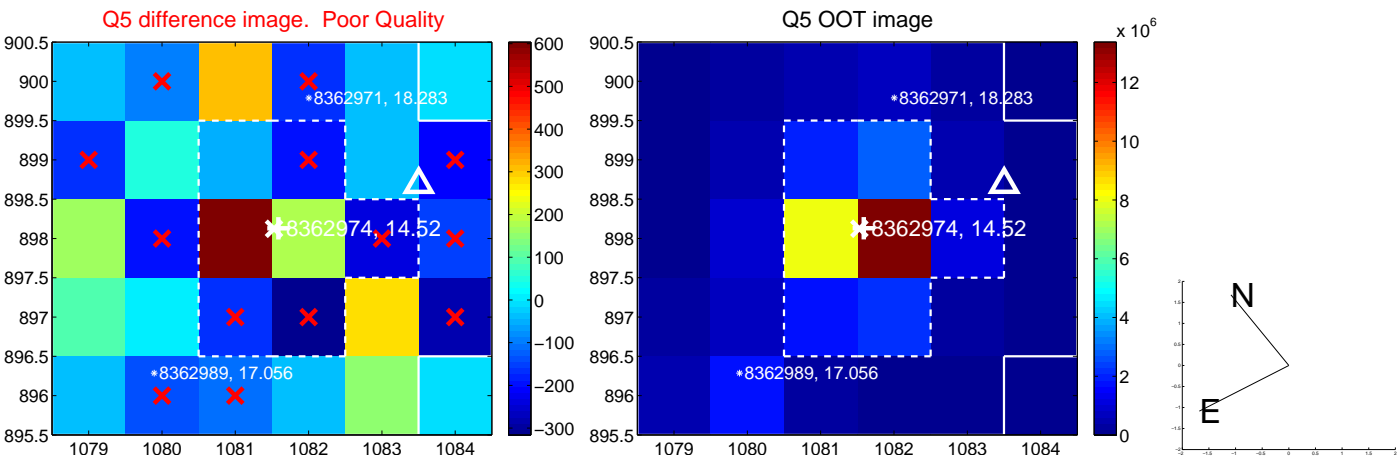


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

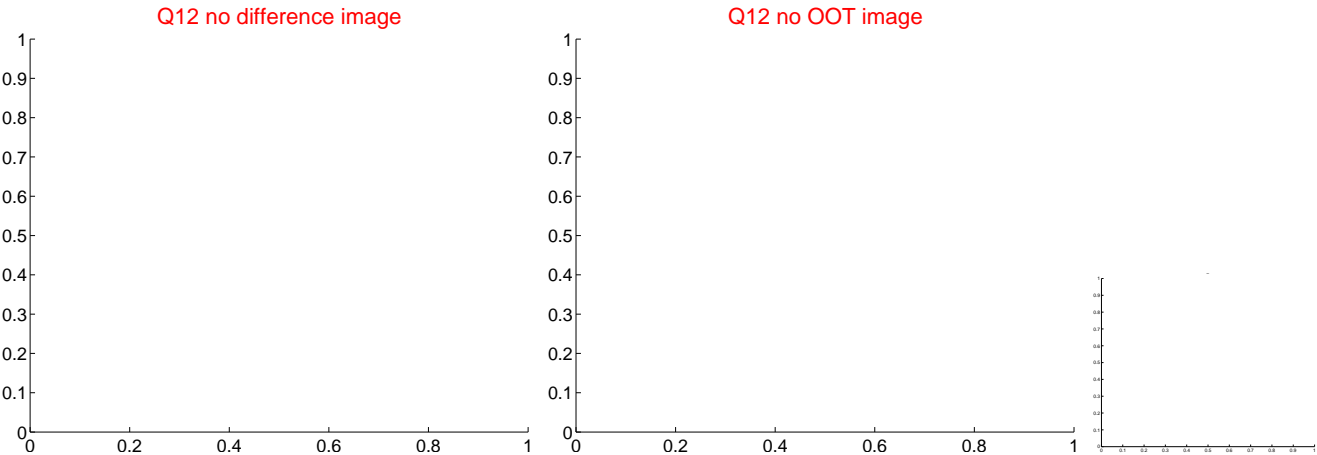
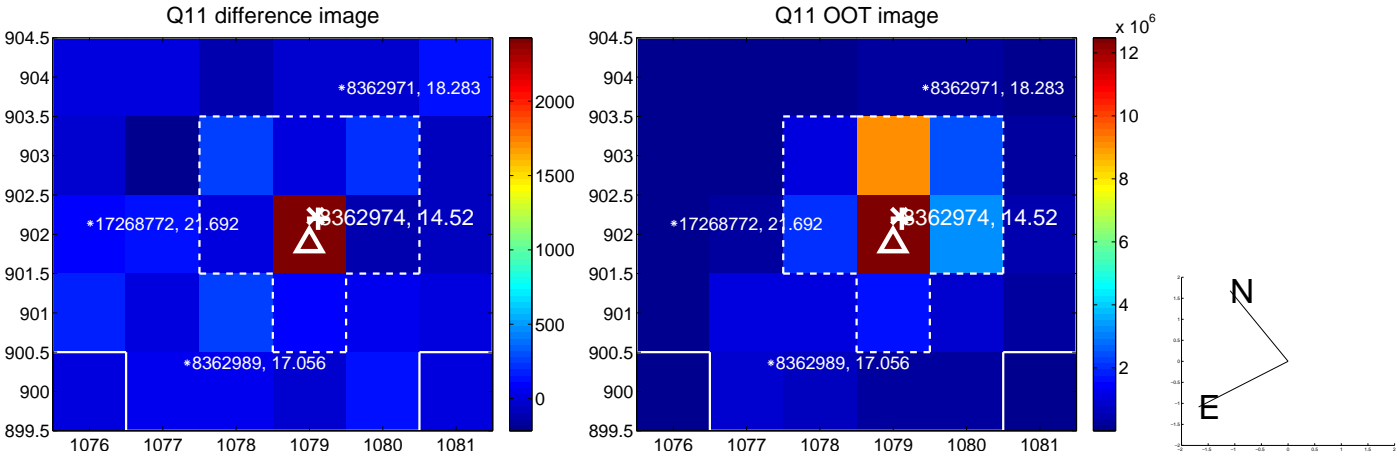
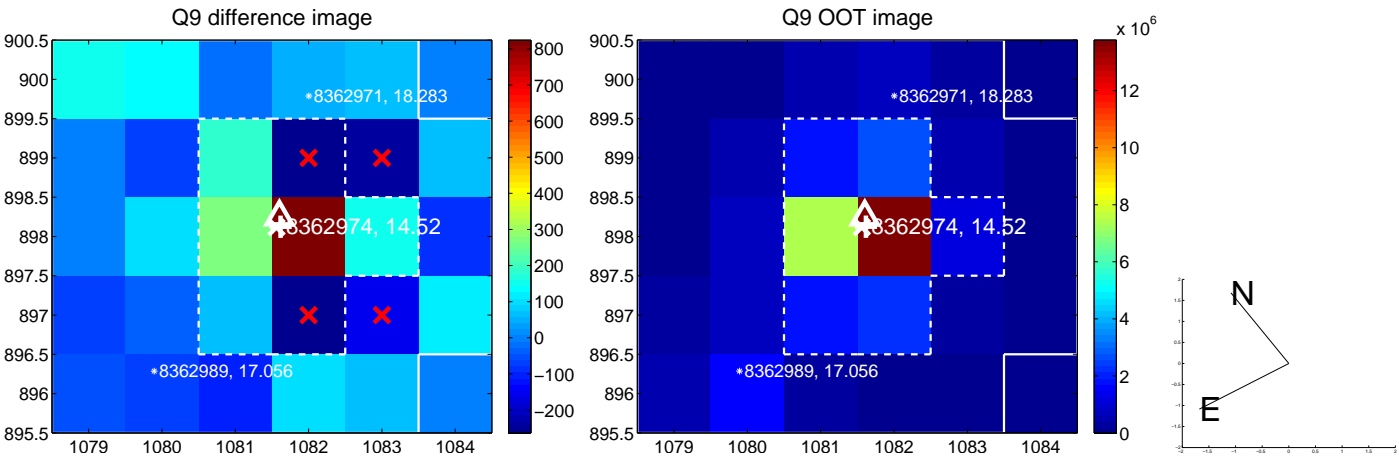
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



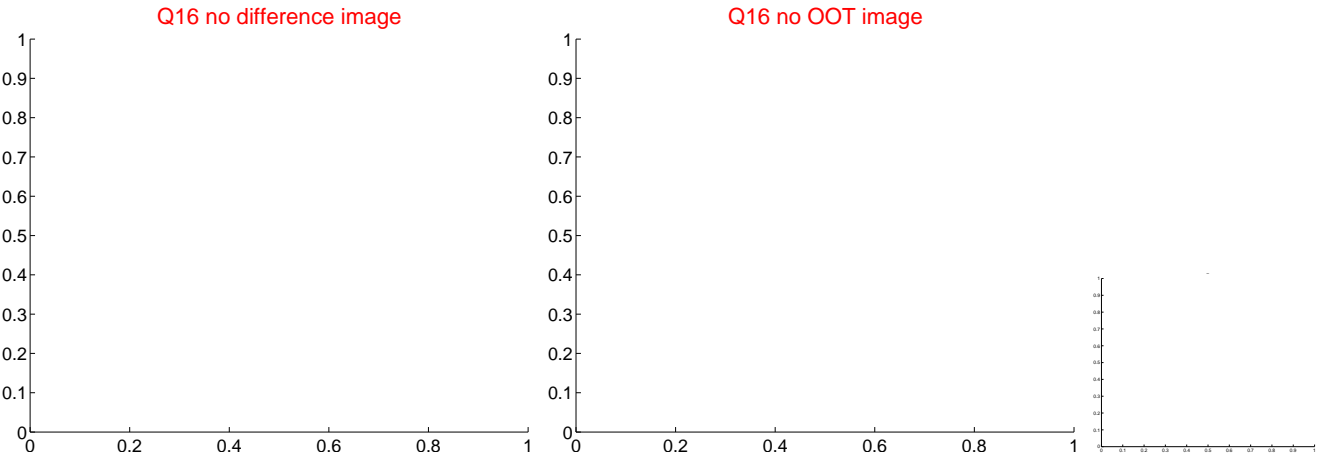
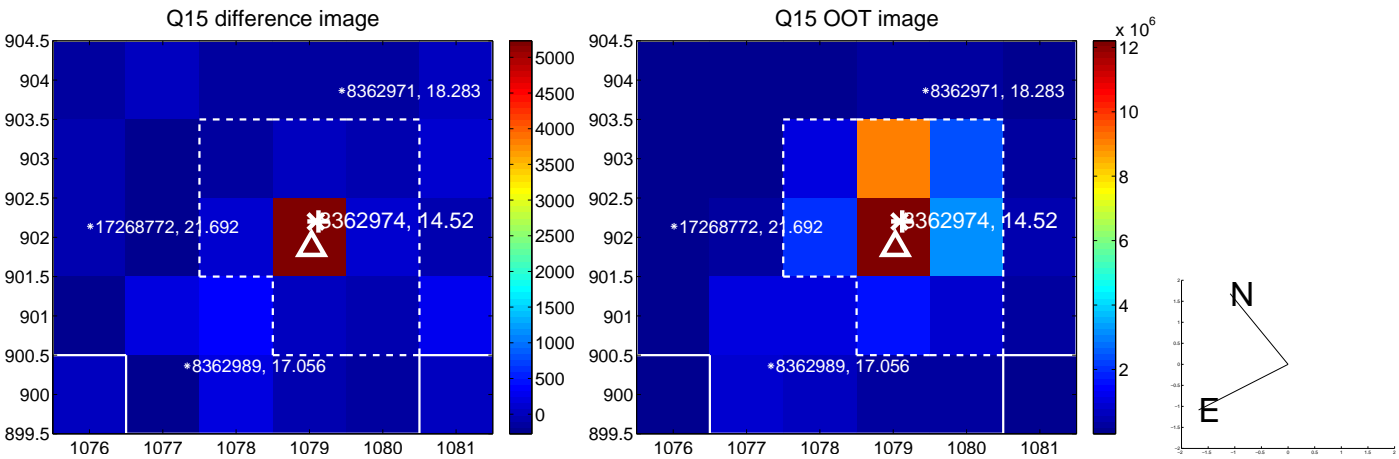
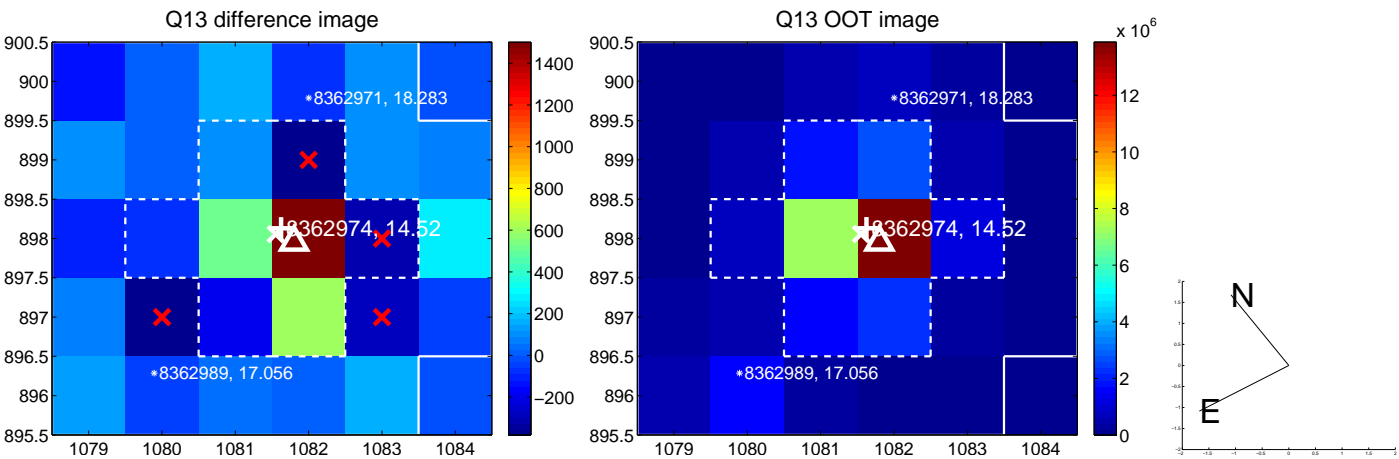
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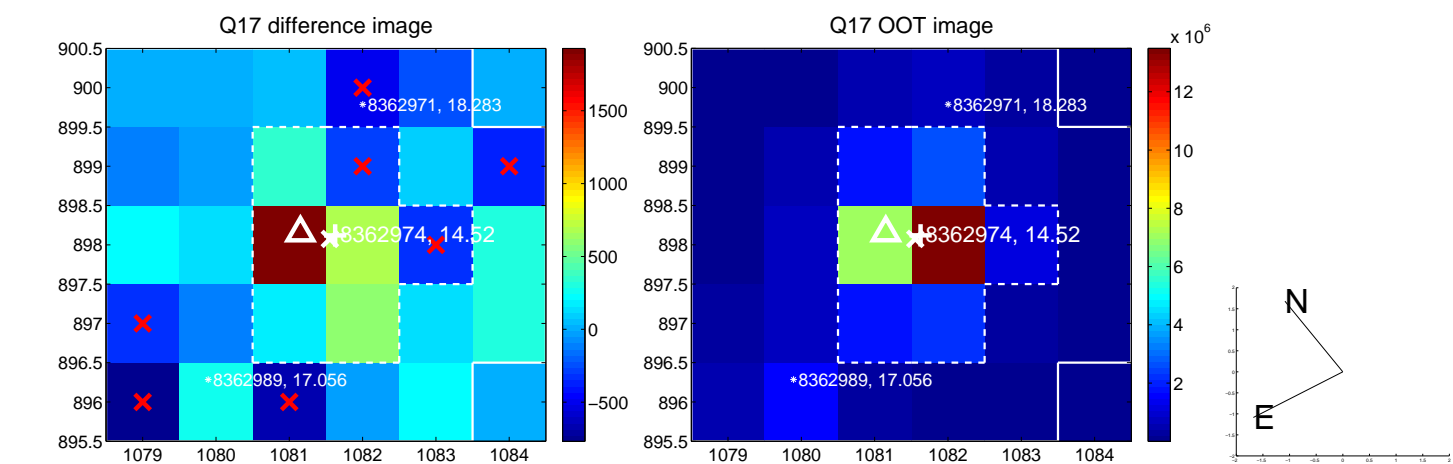


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

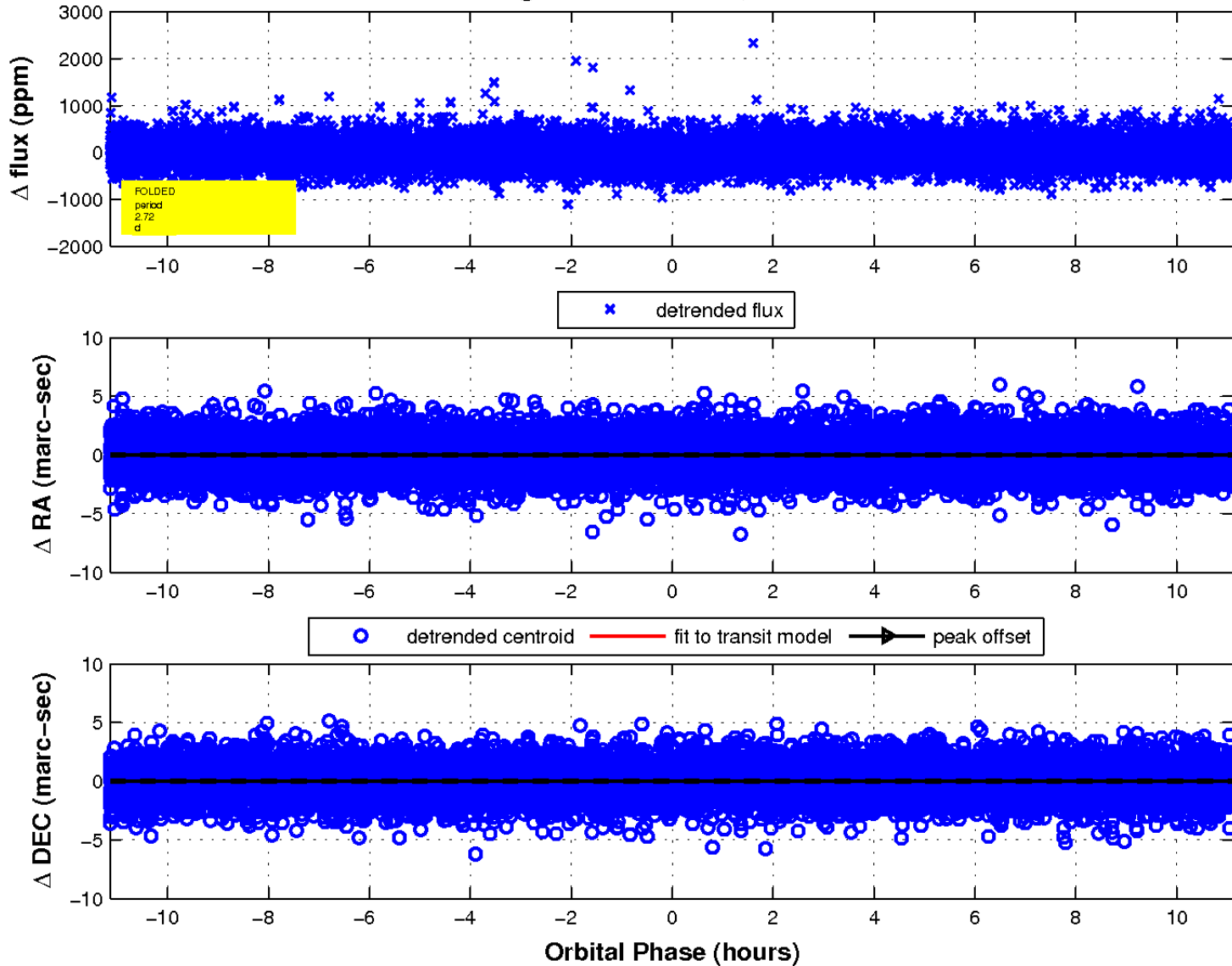




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

