

# KIC 010674871

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010674871-01	OBS	2068.01	41.889771	172.000209	1296.6	1.292	19.9	21.8	0.91	5952	4.94	16.69

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010674871-01	OBS	PC	0.89	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.

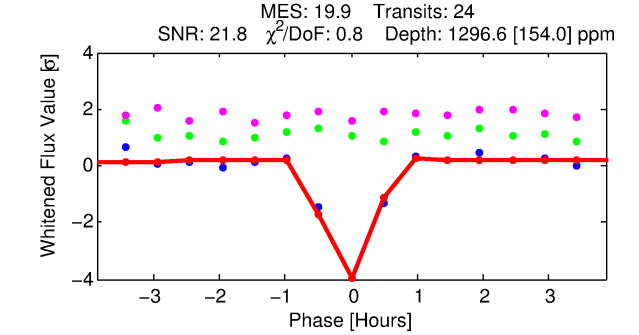
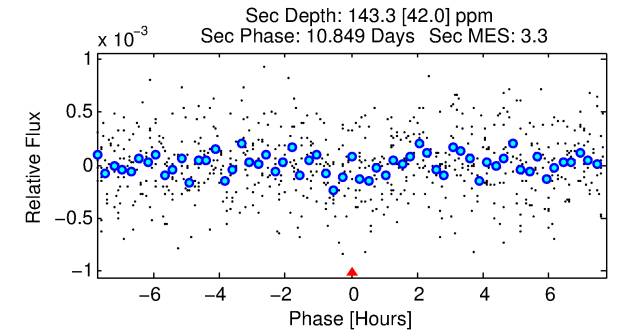
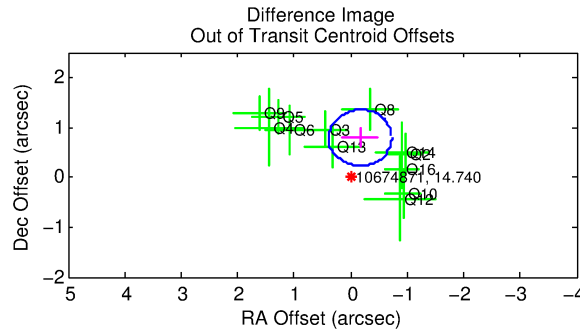
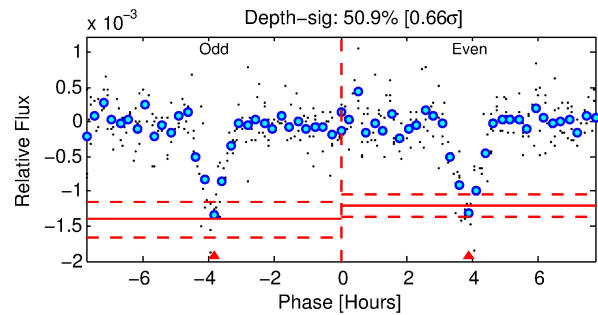
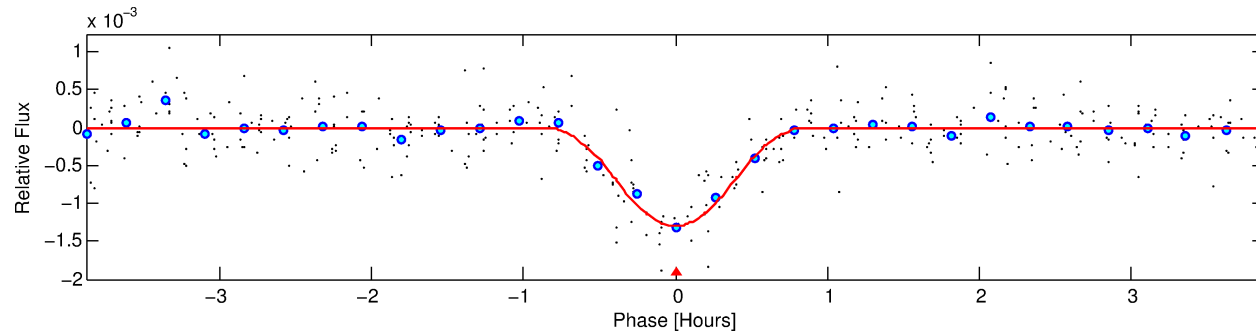
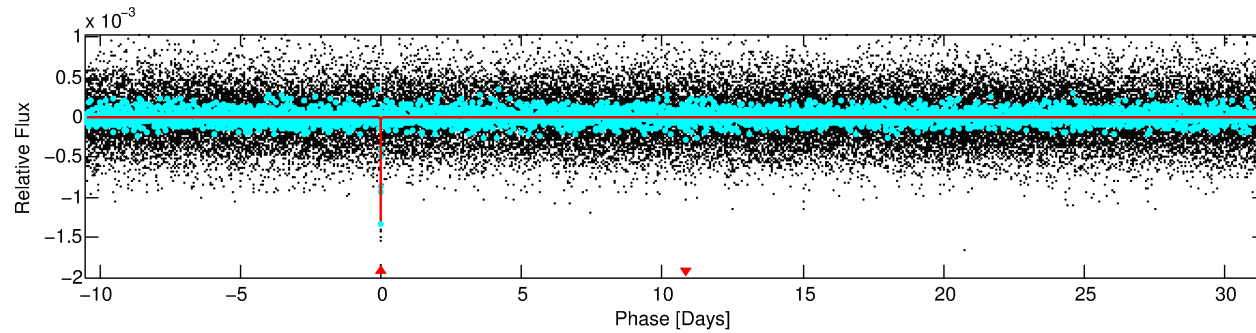
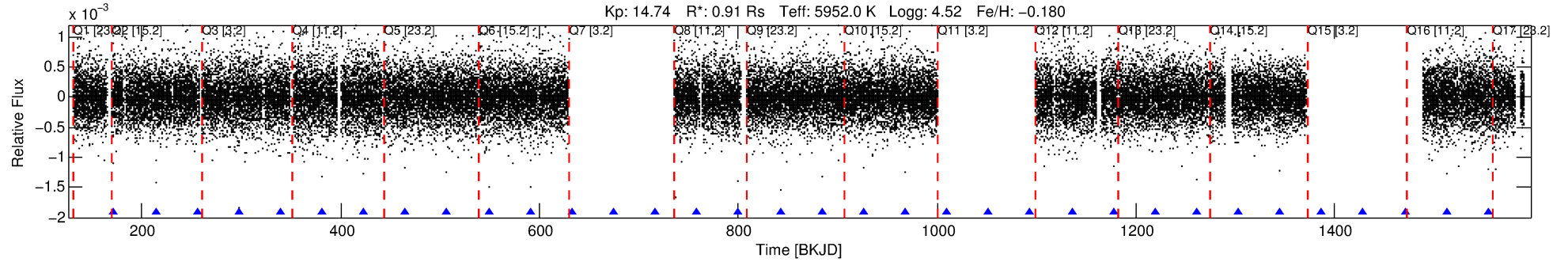
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010674871-01

No Significant Match Found

# DV One-Page Summary

KIC: 10674871 Candidate: 1 of 1 Period: 41.890 d  
KOI: K02068.01 Corr: 0.951



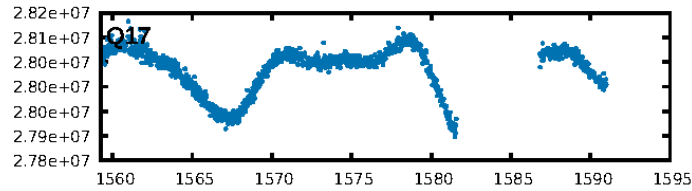
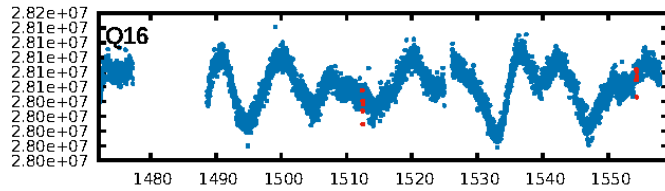
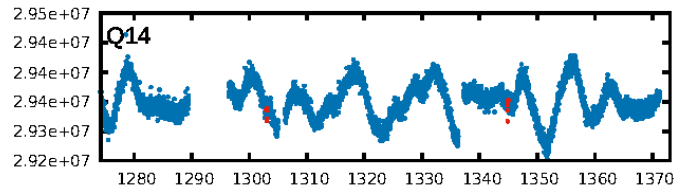
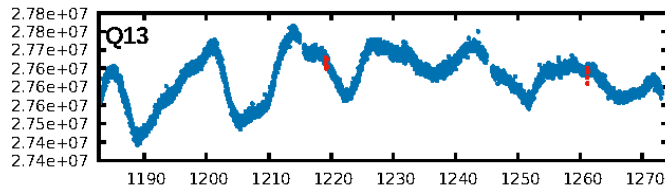
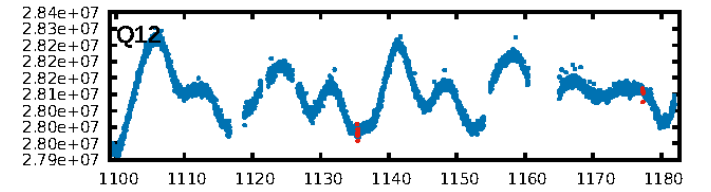
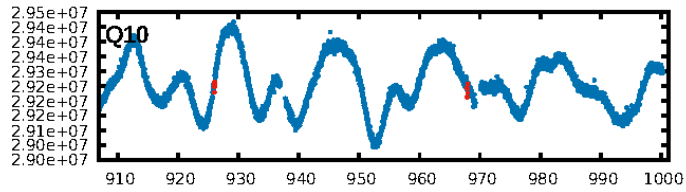
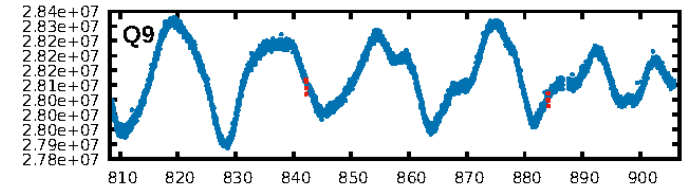
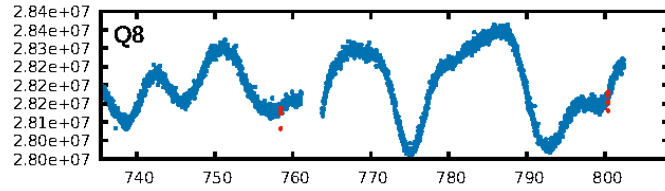
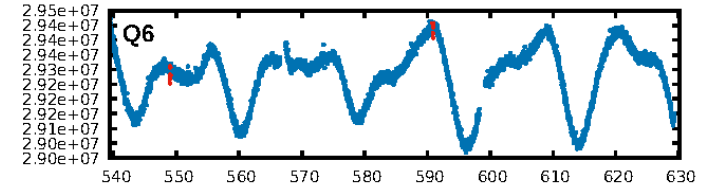
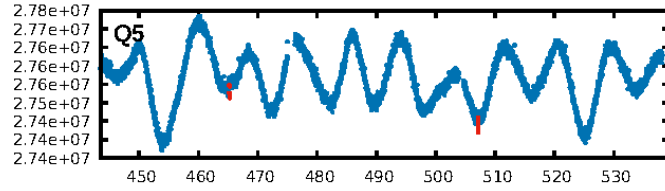
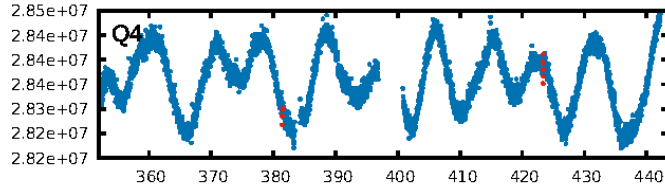
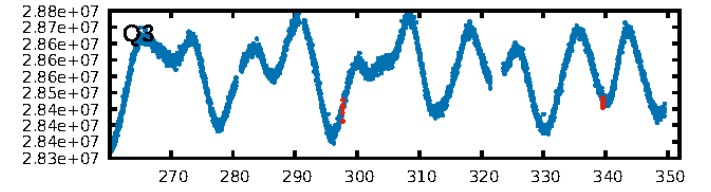
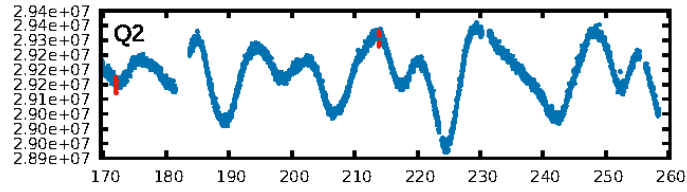
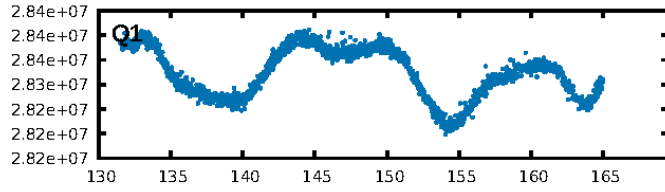
## DV Fit Results:

Period = 41.88977 [0.00008] d  
Epoch = 172.0002 [0.0015] BKJD  
Rp/R\* = 0.0499 [0.0818]  
a/R\* = 96.77 [65.72]  
b = 0.97 [0.17]  
Seff = 16.69 [6.75]  
Teff = 515 [52] K  
Rp = 4.94 [8.23] Re  
a = 0.2354 [0.0608] AU  
Ag = 179.08 [593.35] [0.30 $\sigma$ ]  
Teffp = 2915 [2400] K [1.00 $\sigma$ ]

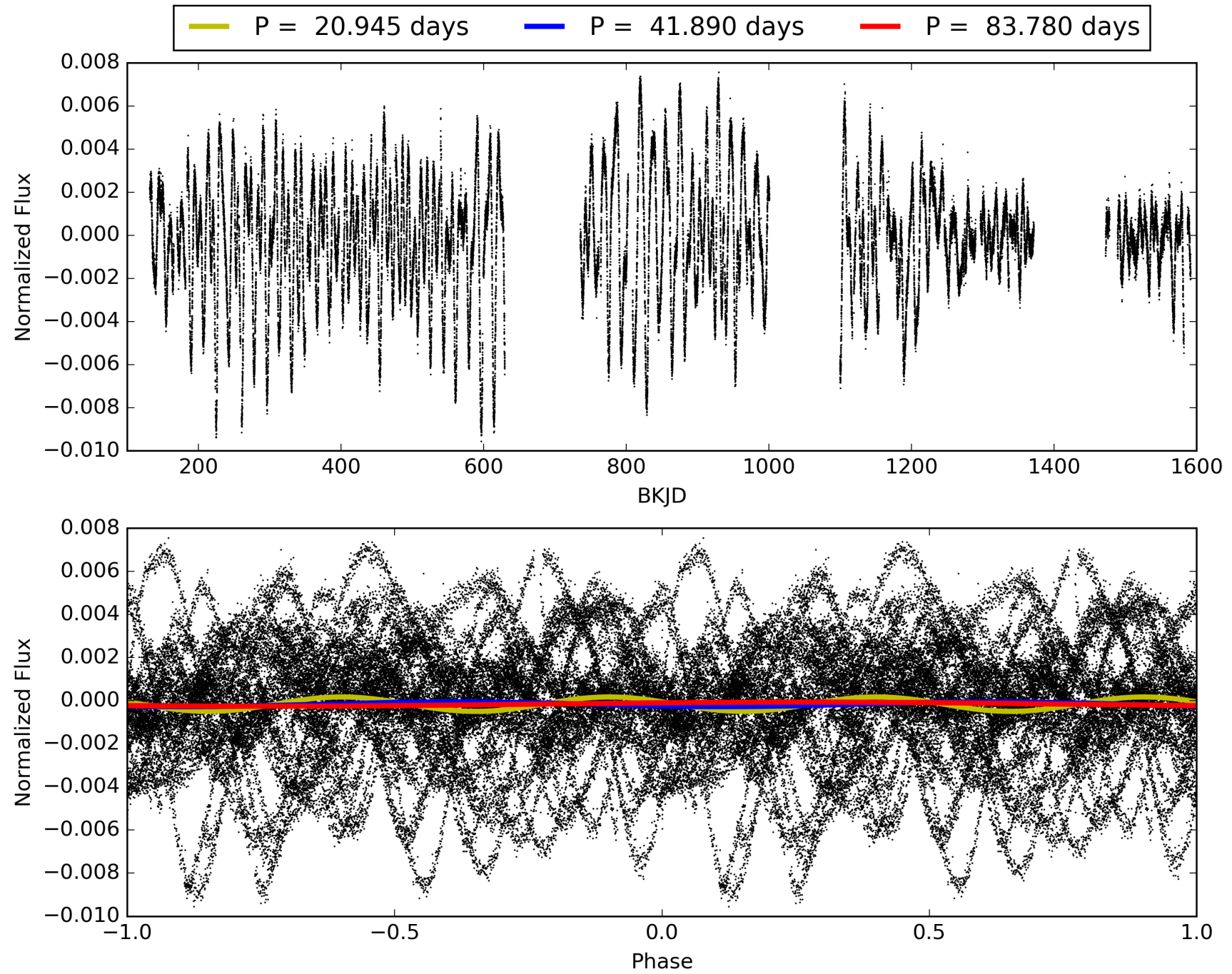
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 70.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.39e-79  
RollingBand-fgt: 1.00 [24/24]  
GhostDiagnostic-chr: 5.945  
Centroid-sig: 69.5%  
Centroid-so: 0.226 arcsec [0.41 $\sigma$ ]  
OotOffset-rm: 0.806 arcsec [4.32 $\sigma$ ]  
KicOffset-rm: 0.910 arcsec [4.19 $\sigma$ ]  
OotOffset-st: 4/1/4/3 [12]  
KicOffset-st: 4/1/4/3 [12]  
DiffImageQuality-fgm: 1.00 [12/12]  
DiffImageOverlap-fno: 1.00 [12/12]

# TCE 010674871-01, PDC Light Curves

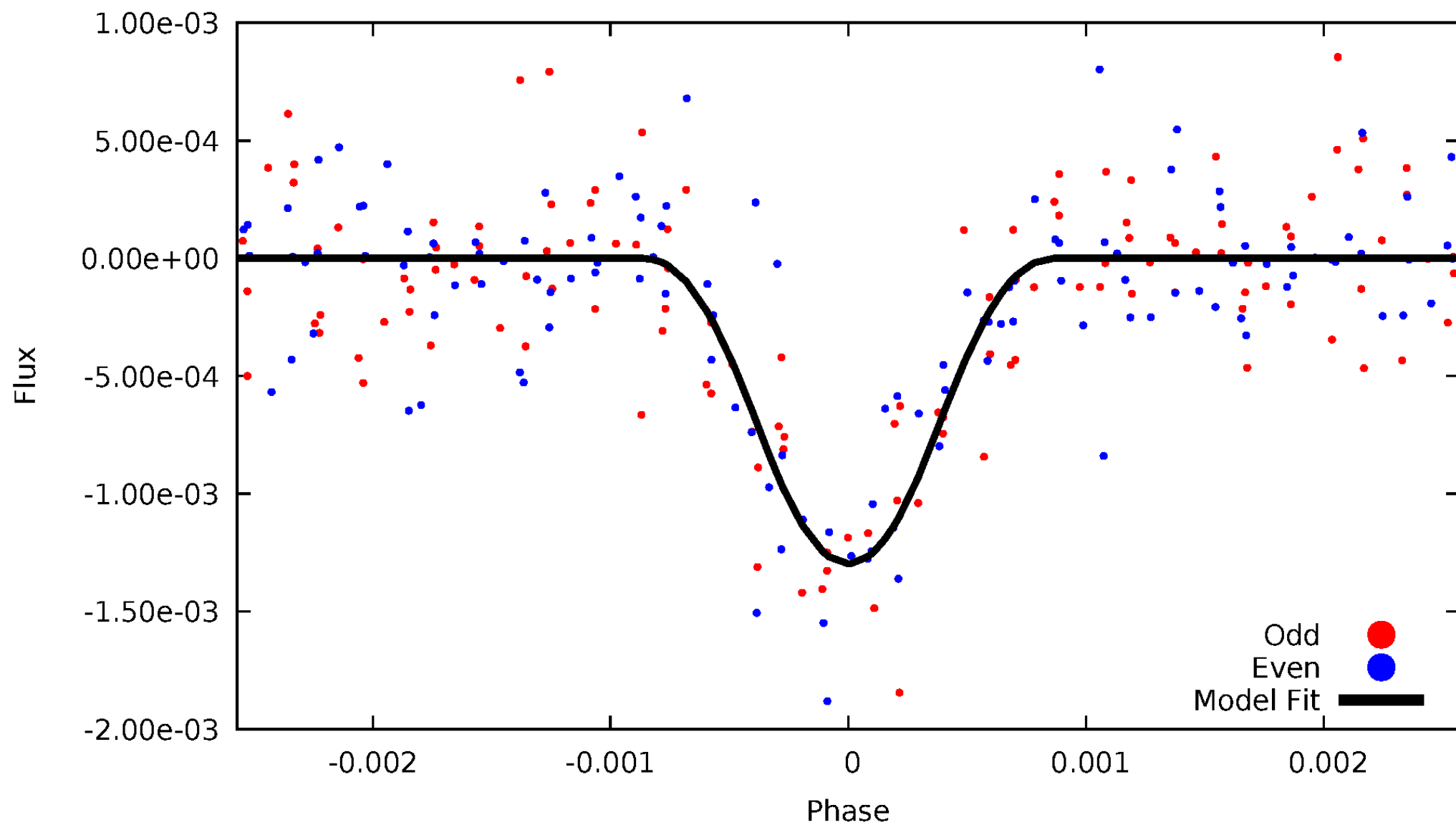


TCE 010674871-01



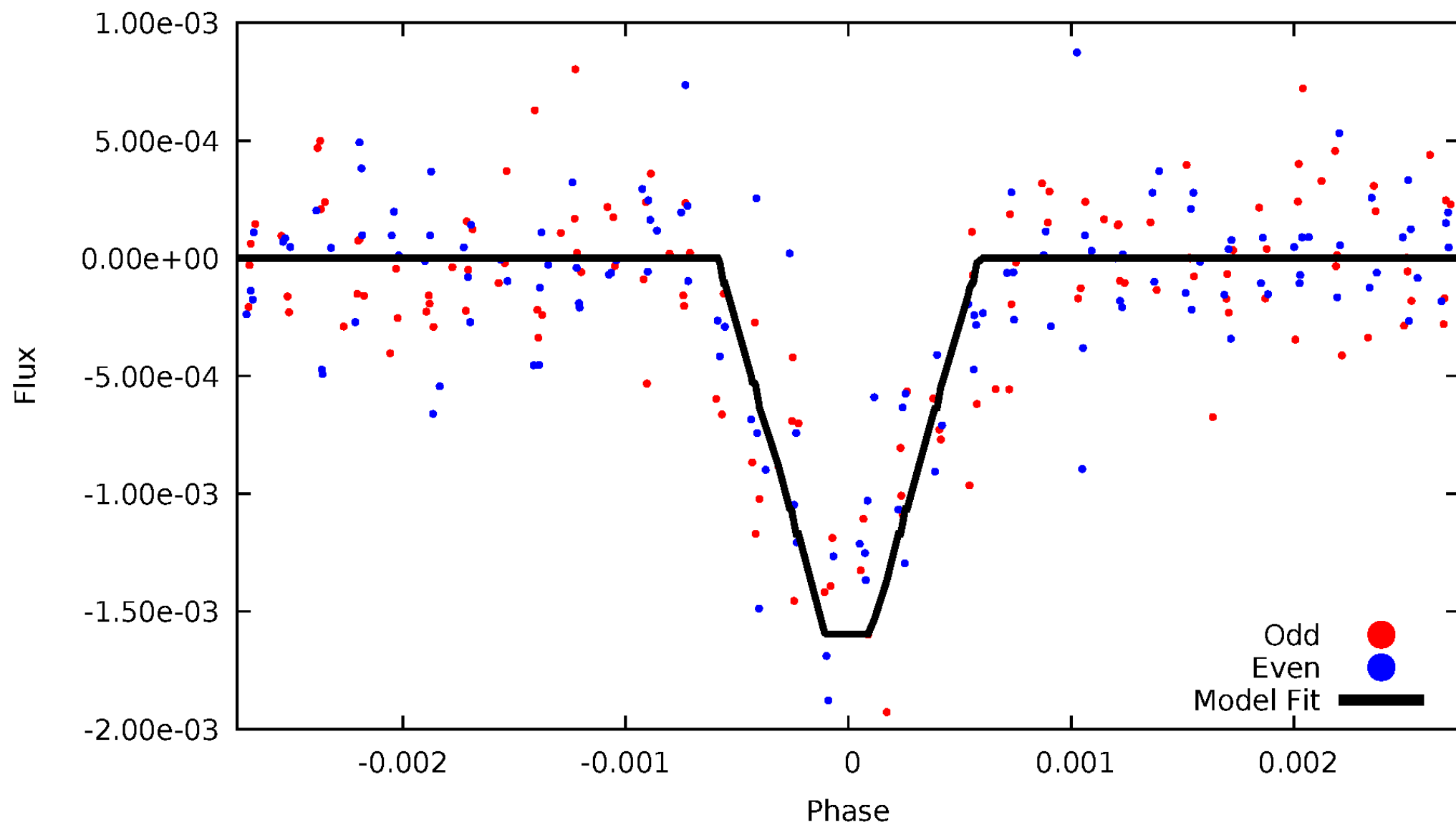
# DV Odd/Even

TCE 010674871-01



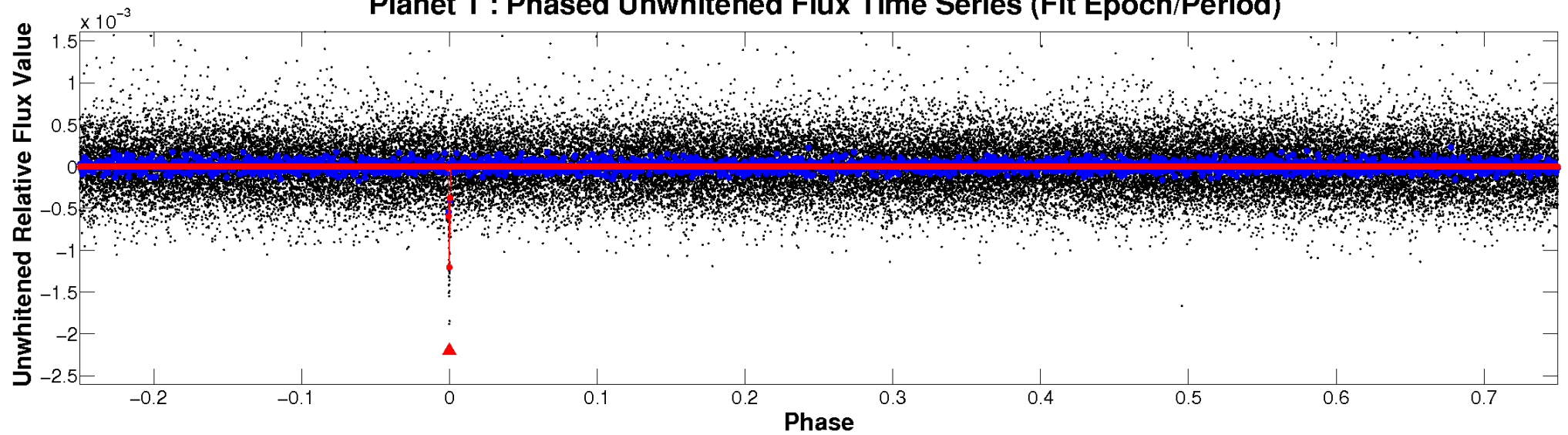
# ALT Odd/Even

TCE 010674871-01

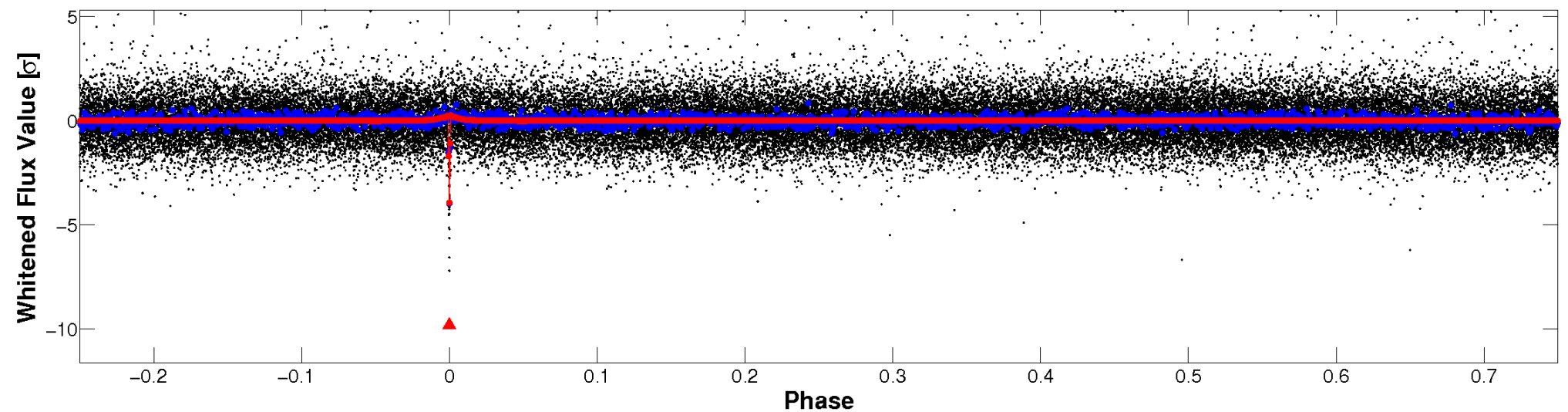


# Non-Whitened Vs. Whitened Light Curve

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



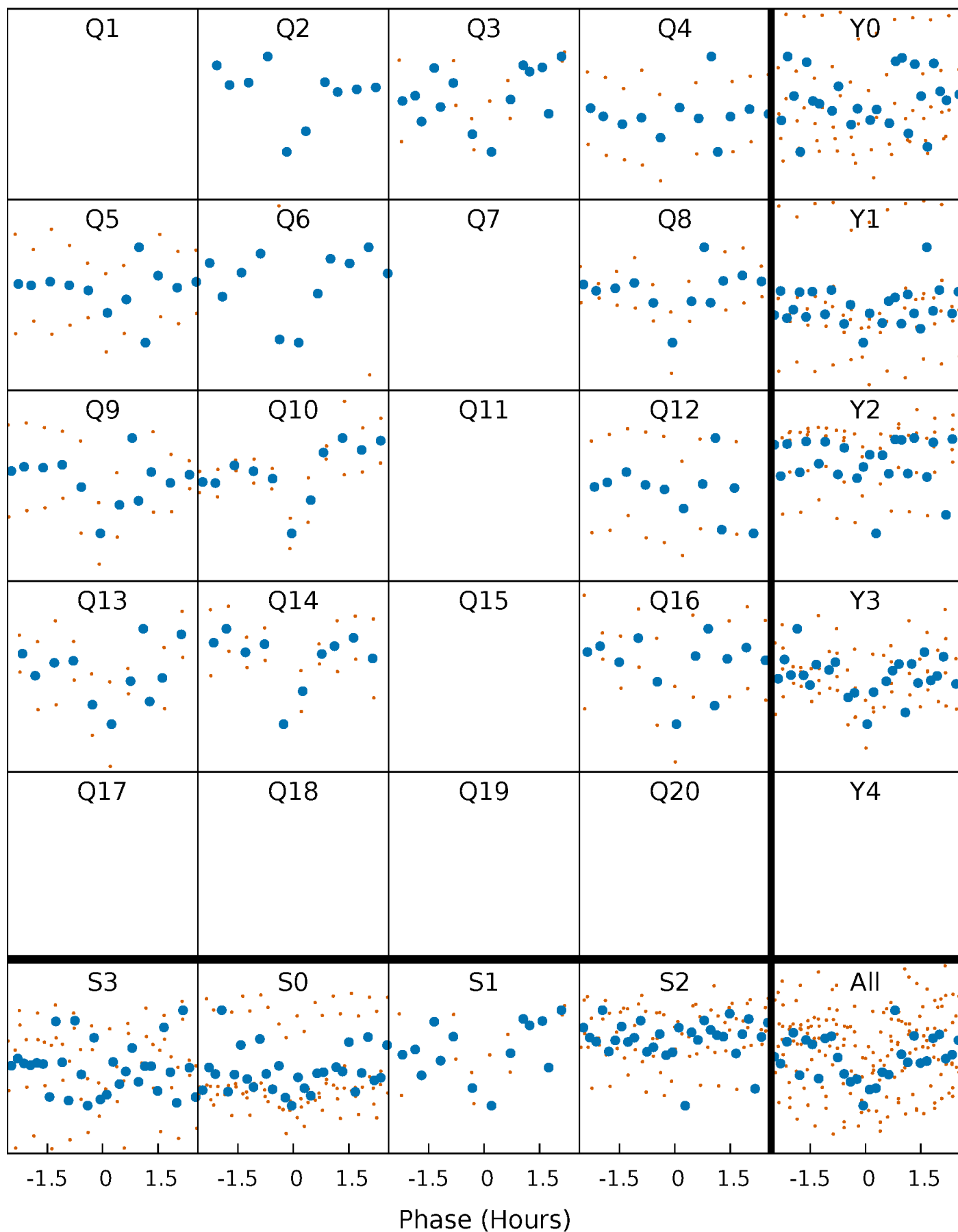
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

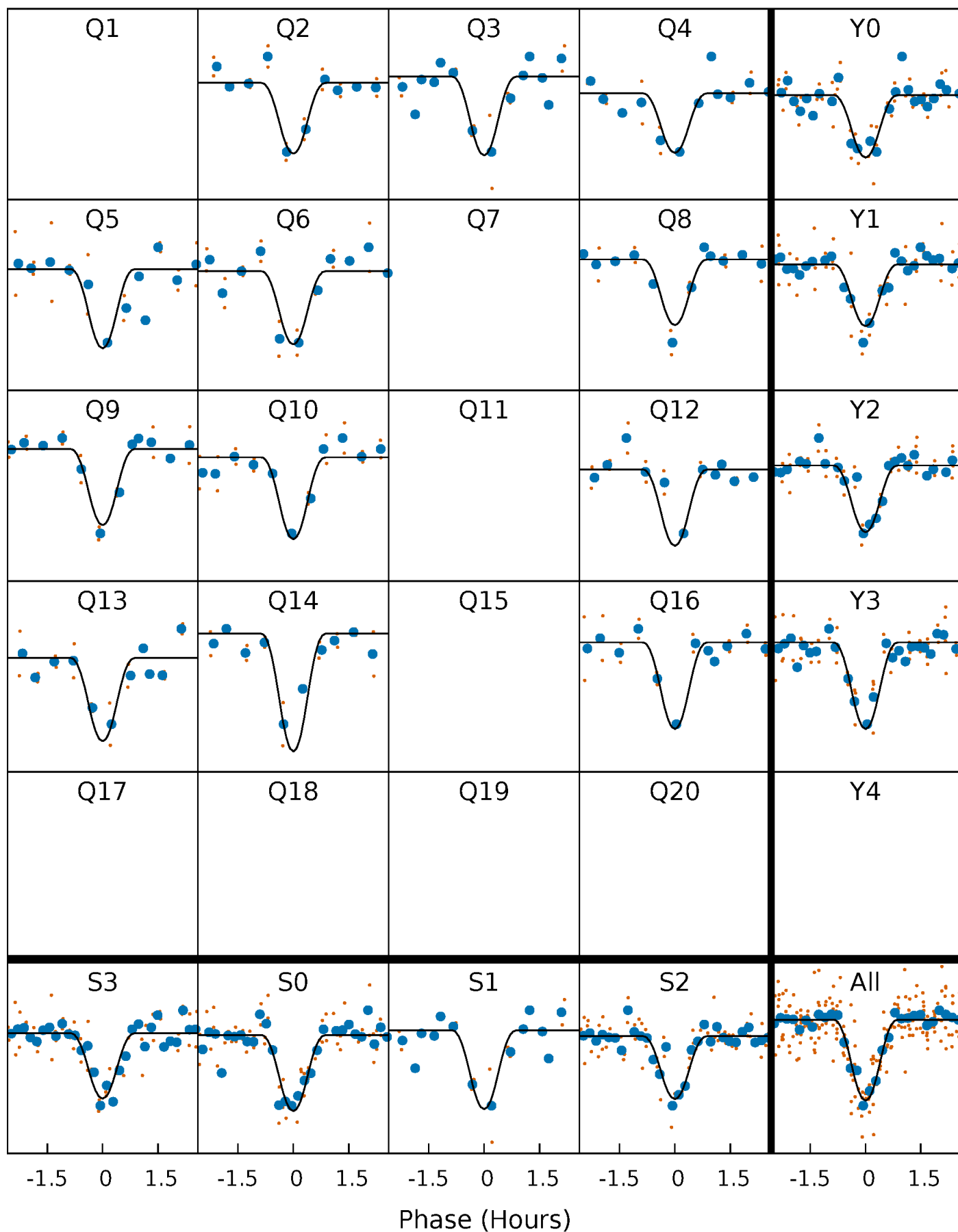
TCE 010674871-01 P= 41.889771 Days  $T_0=172.000209$  (BKJD)





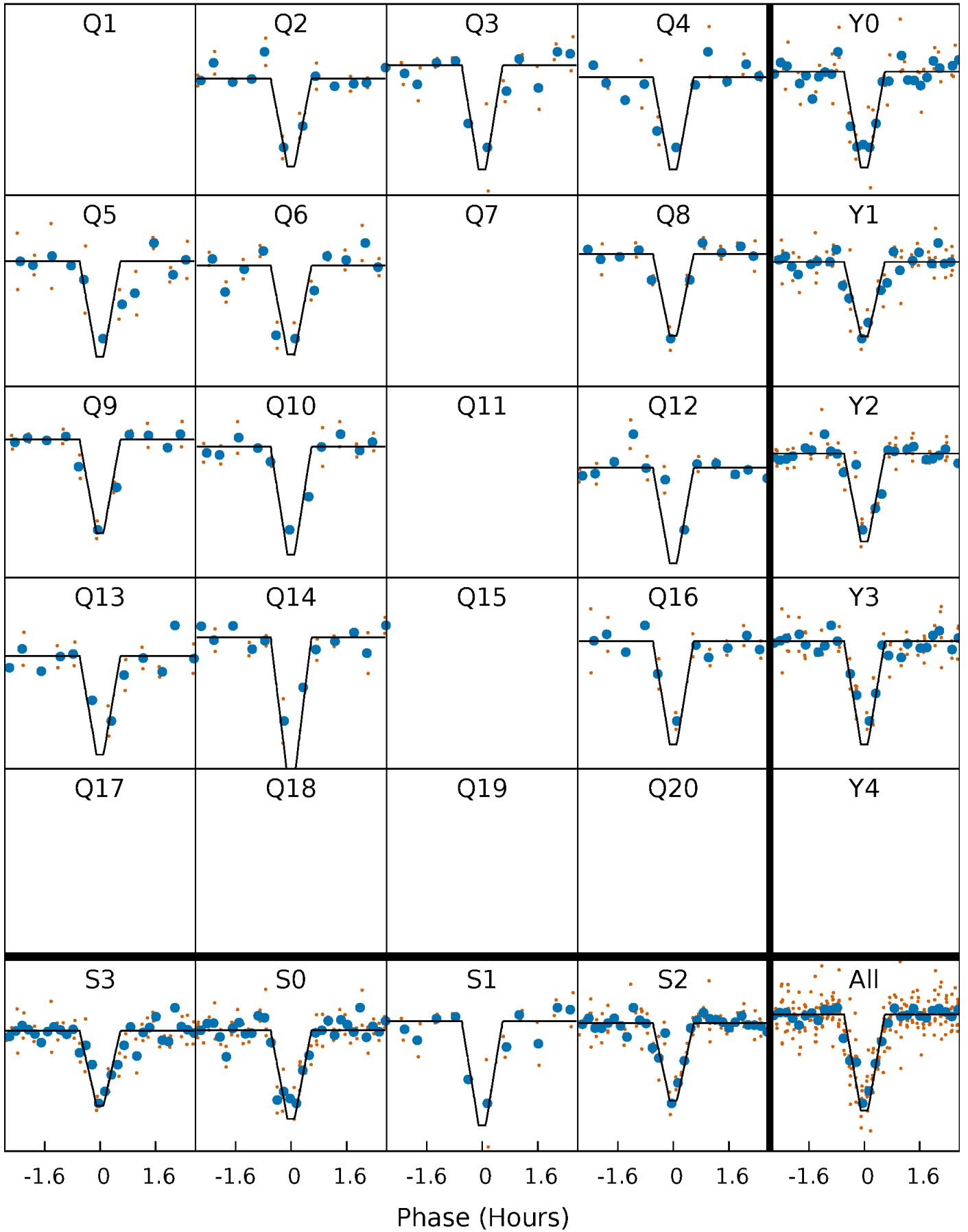
# DV Quarter-Phased Transit Curves

TCE 010674871-01 P= 41.889771 Days  $T_0=172.000209$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

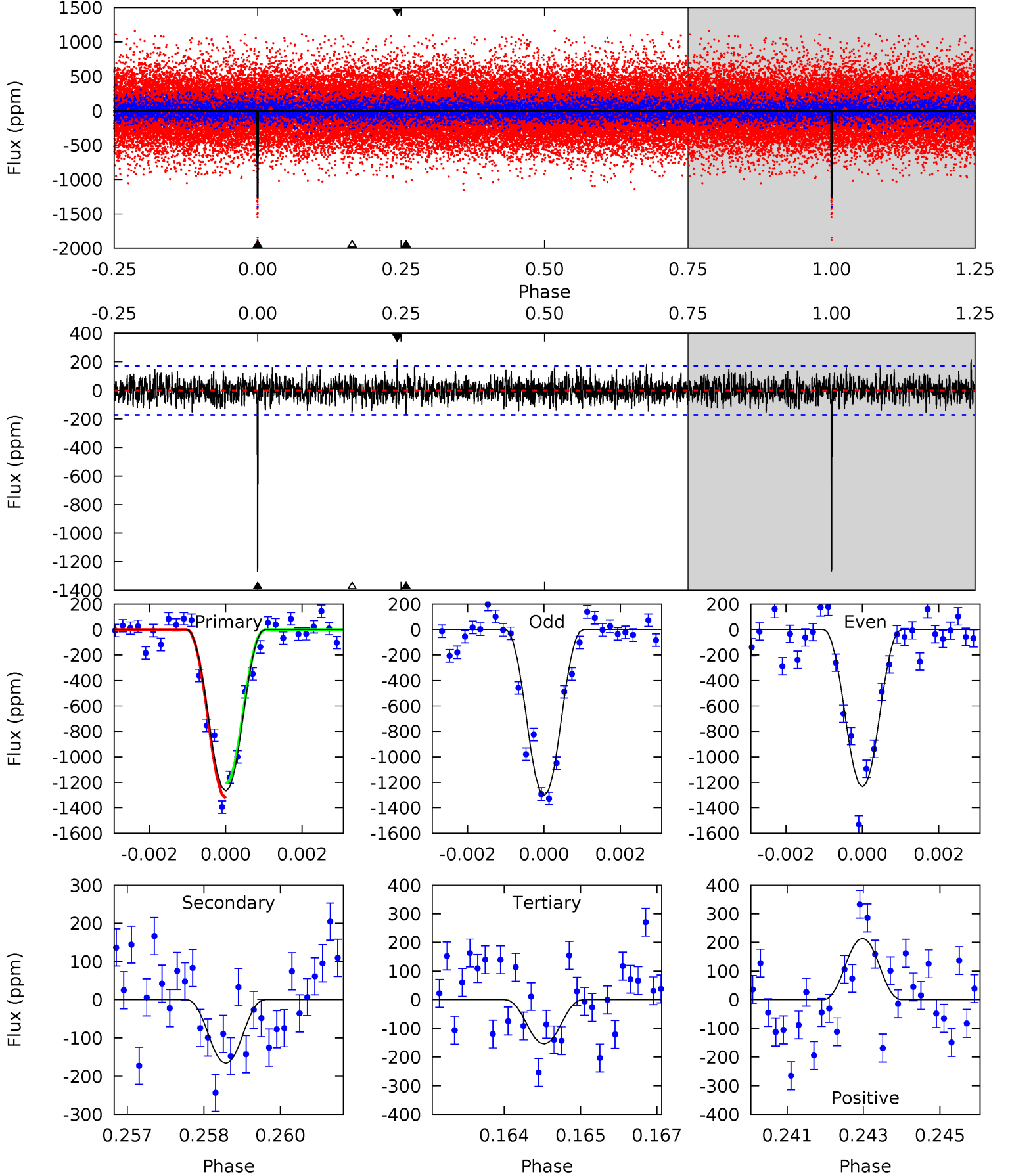
TCE 010674871-01 P= 41.889617 Days  $T_0=172.002415$  (BKJD)



# DV Model-Shift Uniqueness Test

010674871-01,  $P = 41.889771$  Days,  $E = 130.110438$  Days

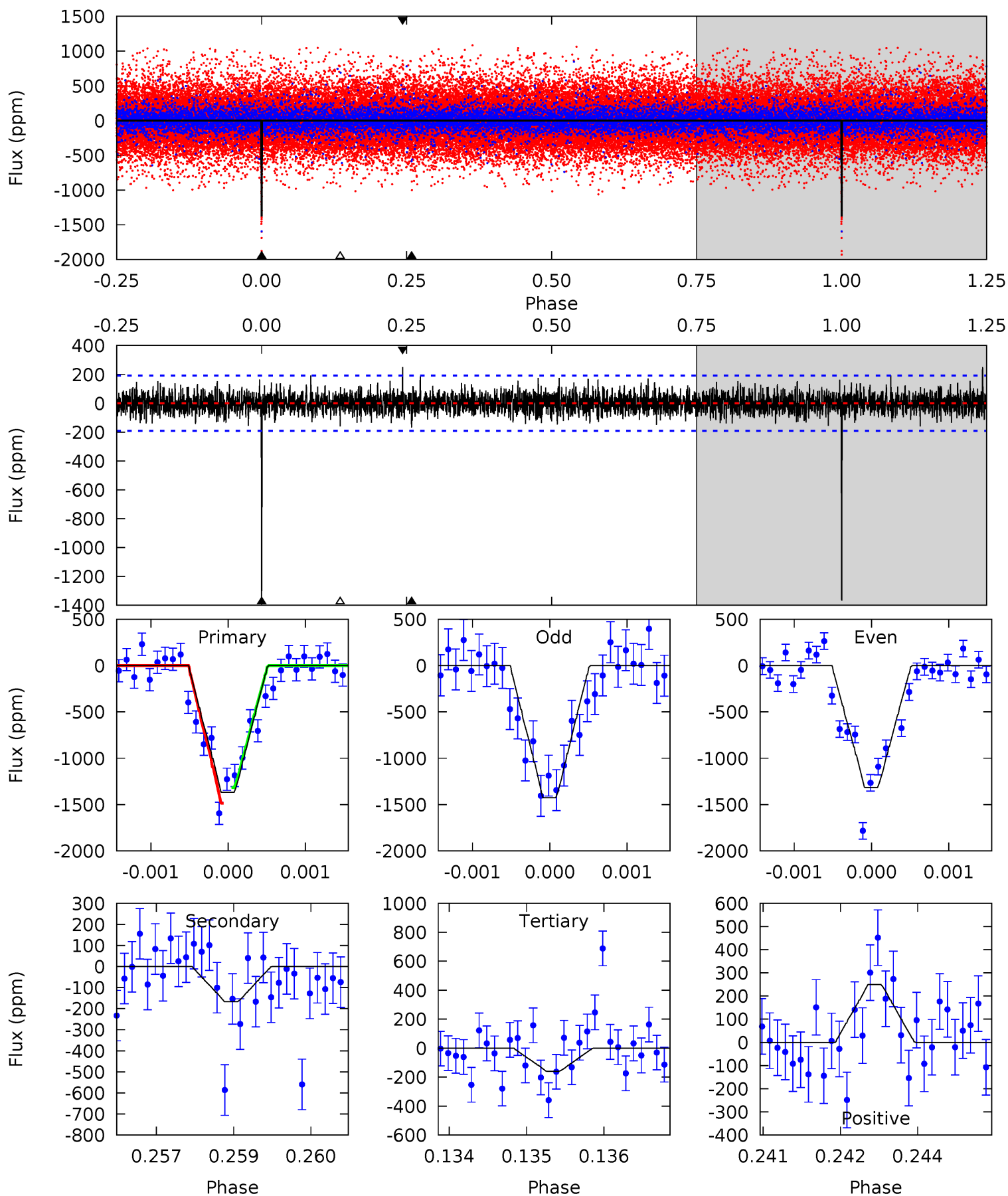
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.5	5.17	4.79	6.67	5.36	3.14	1.58	34.7	32.8	0.38	-1.50	1.07	0.97	0.14	1.76



# Alt Model-Shift Uniqueness Test

010674871-01, P = 41.889617 Days, E = 130.112798 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
38.7	4.73	4.52	7.06	5.43	3.25	1.41	34.2	31.7	0.21	-2.34	1.57	1.04	0.15	2.36



### Stellar Parameters For KIC 010674871

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5952^{+160}_{-195}$	$4.519^{+0.050}_{-0.212}$	$-0.180^{+0.300}_{-0.300}$	$0.907^{+0.273}_{-0.091}$	$0.989^{+0.116}_{-0.129}$	$1.870^{+0.394}_{-1.004}$
	+3%/-3%	+1%/-5%	+167%/-167%	+30%/-10%	+12%/-13%	+21%/-54%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 010674871-01 / KOI 2068.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-166 \pm 32$	$8.22^{+6.97}_{-5.67}$	$734^{+54}_{-34}$	$3067^{+1387}_{-481}$	$76^{+675}_{-54}$
Alt.	$-167 \pm 35$	$7.65^{+7.00}_{-5.32}$	$736^{+53}_{-34}$	$3106^{+1507}_{-504}$	$80^{+784}_{-58}$

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

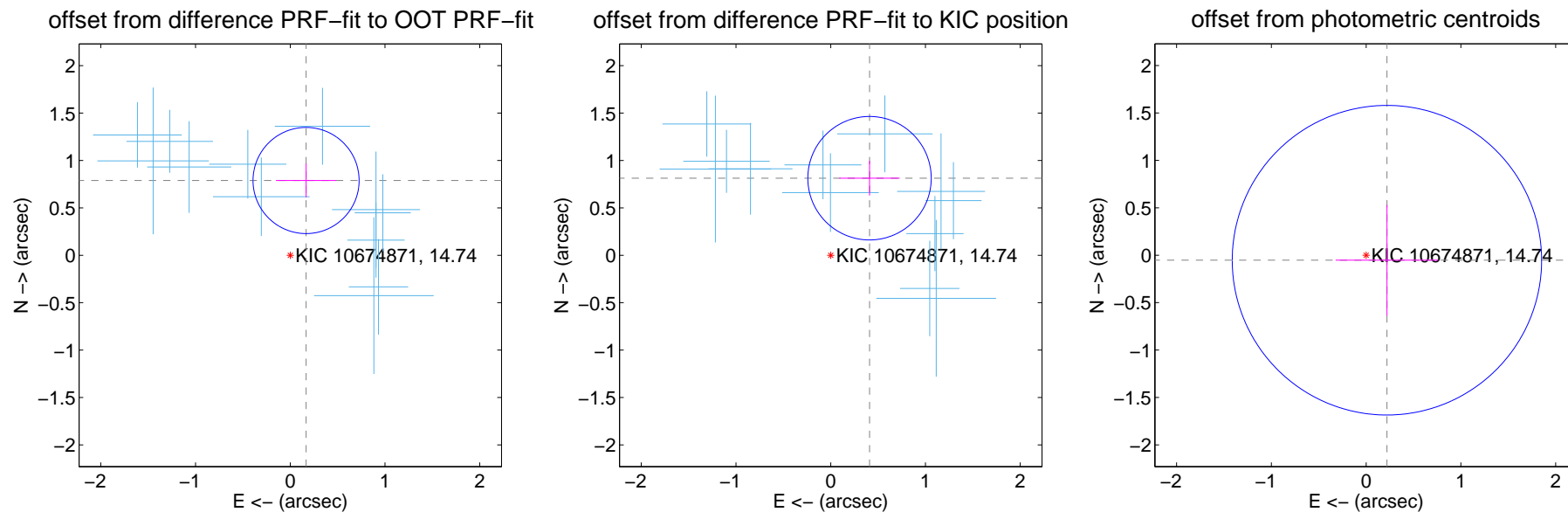
## DV Centroid Data

Supplemental centroid analysis for 010674871-01. Kepler magnitude: 14.74. Transit SNR 21.84

There are 12 quarters with good PRF difference image offsets

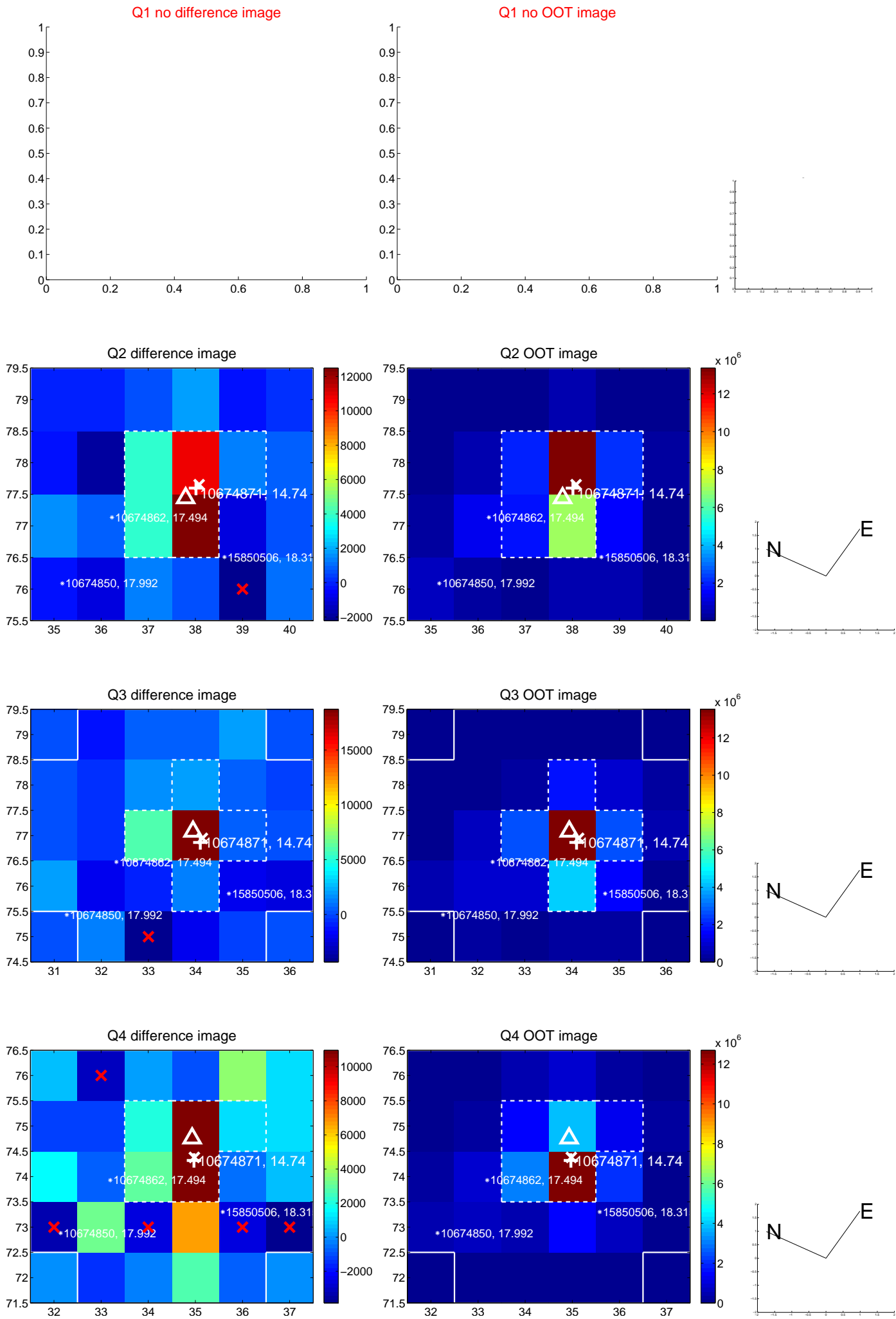
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.806 \pm 0.187$	4.32	$-0.167 \pm 0.318$	$0.789 \pm 0.178$
PRF-fit source offset from KIC position	$0.910 \pm 0.217$	4.19	$-0.410 \pm 0.318$	$0.813 \pm 0.183$
photometric centroid source offset	$0.23 \pm 0.54$	0.41	$-0.22 \pm 0.54$	$-0.05 \pm 0.58$



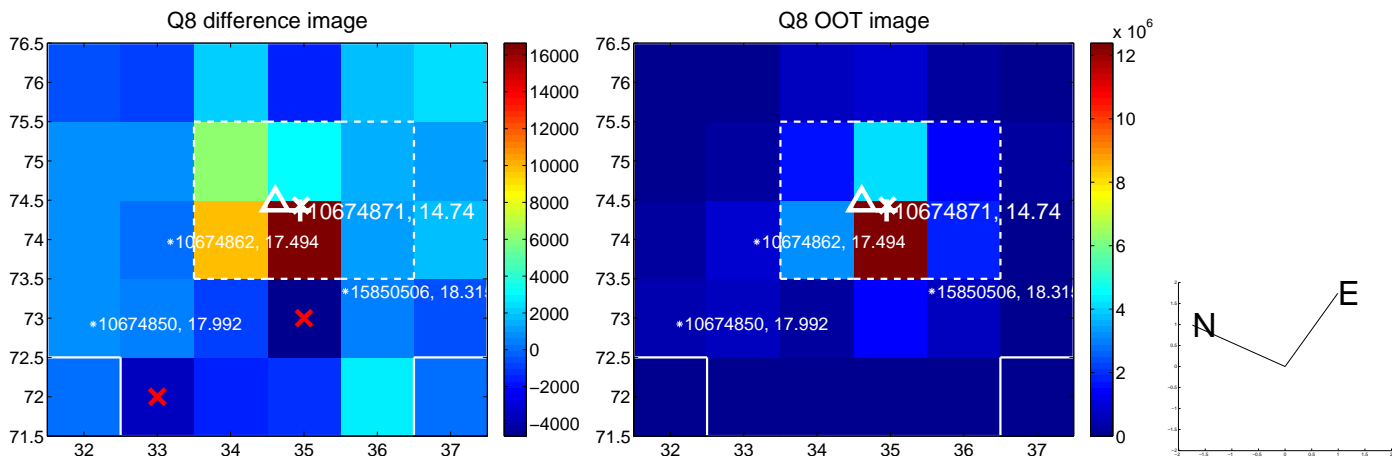
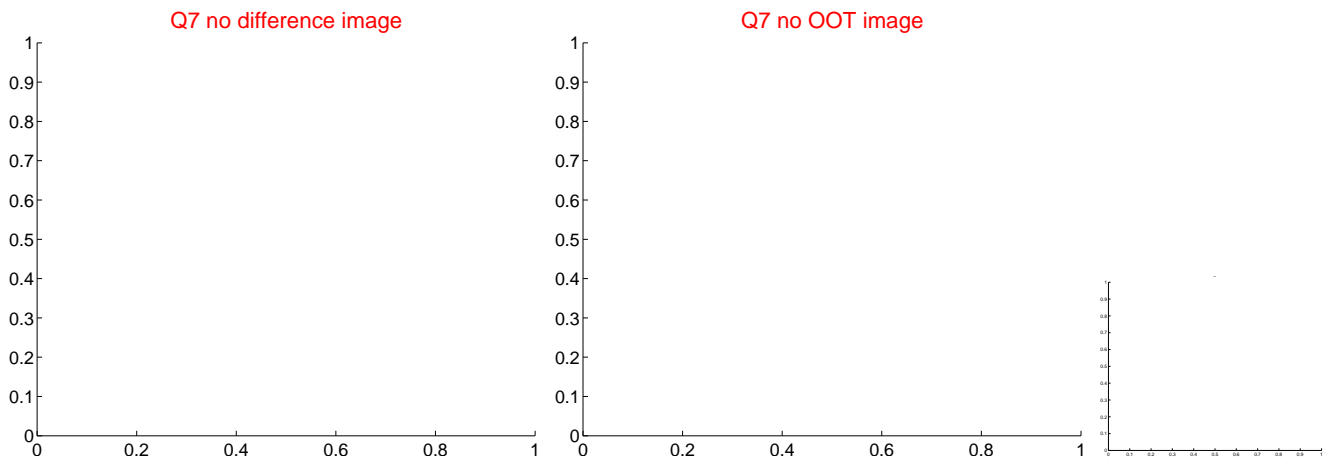
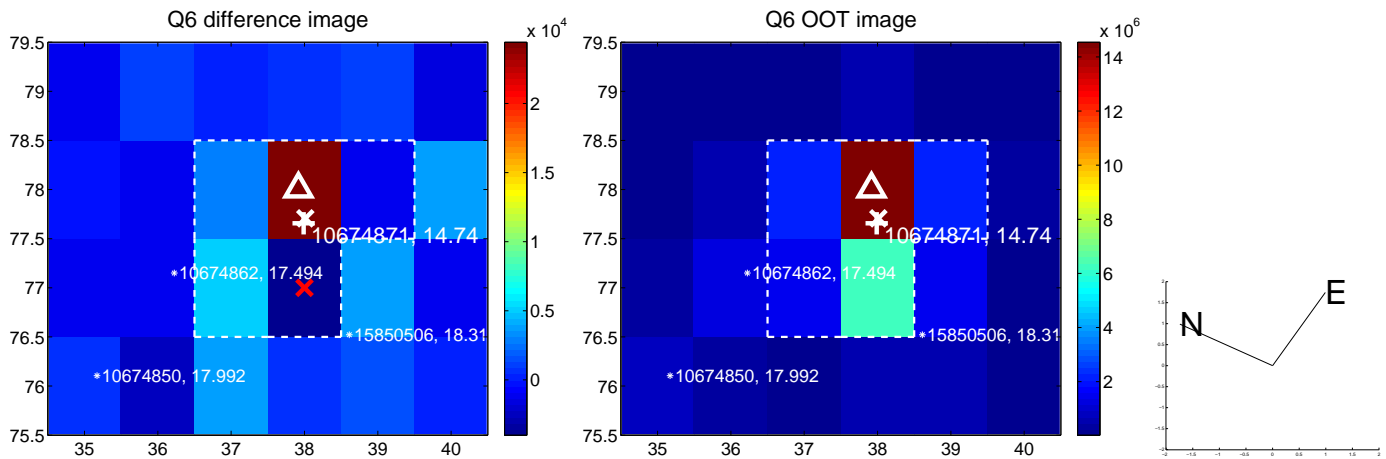
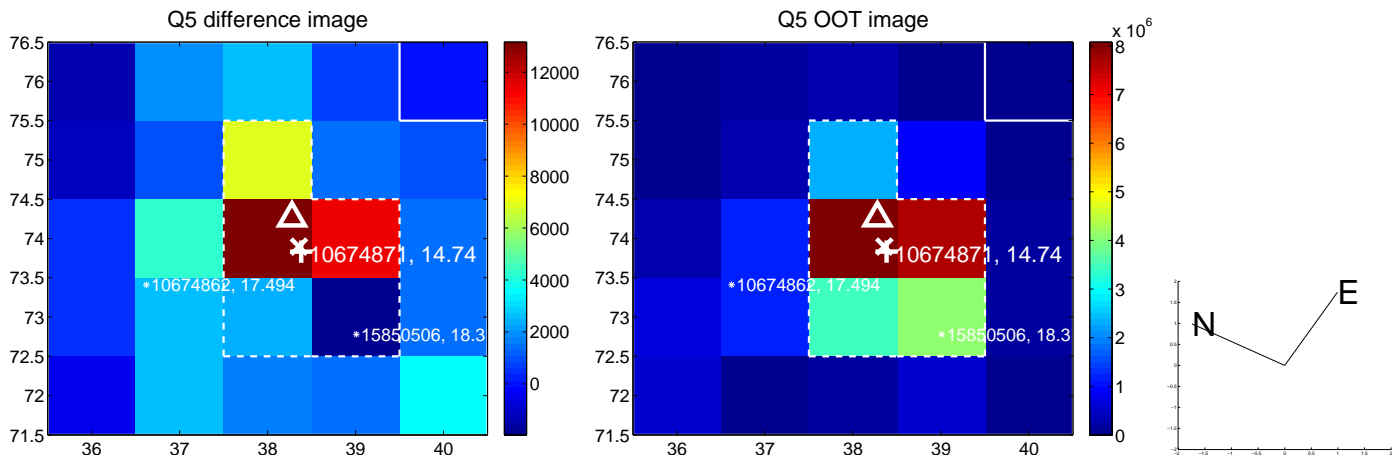
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

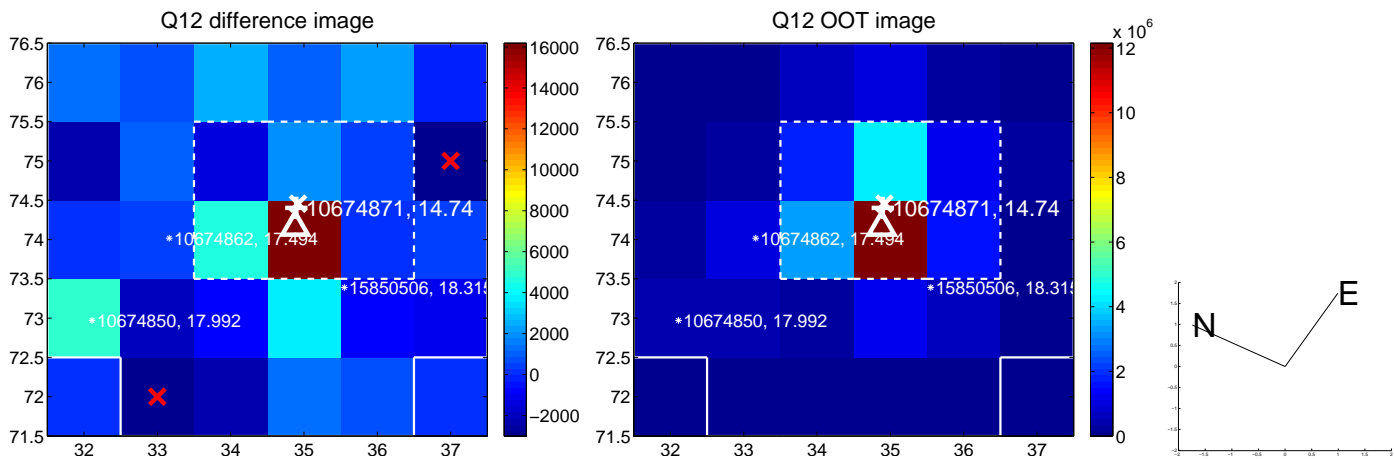
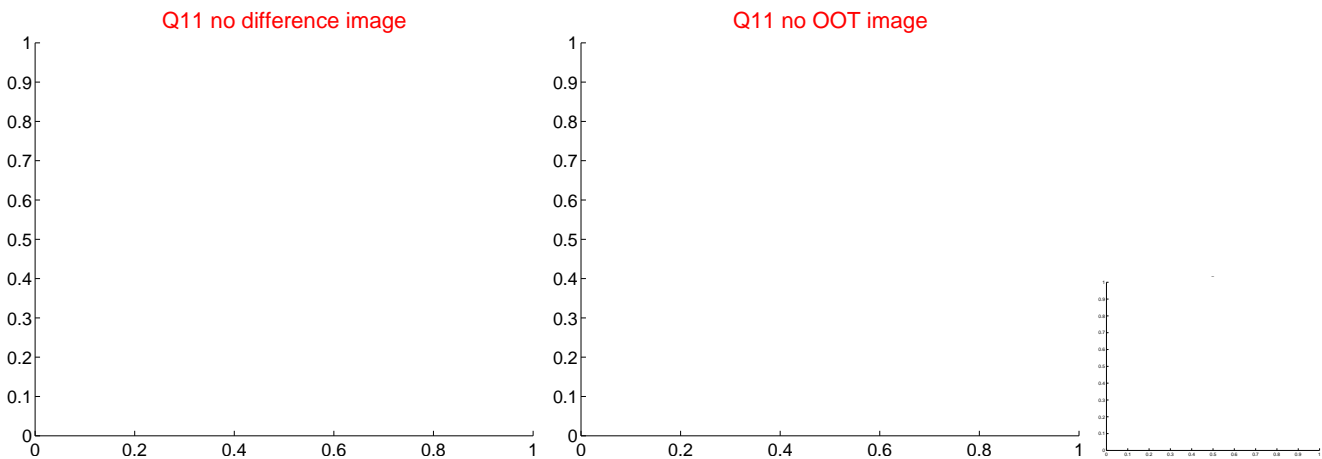
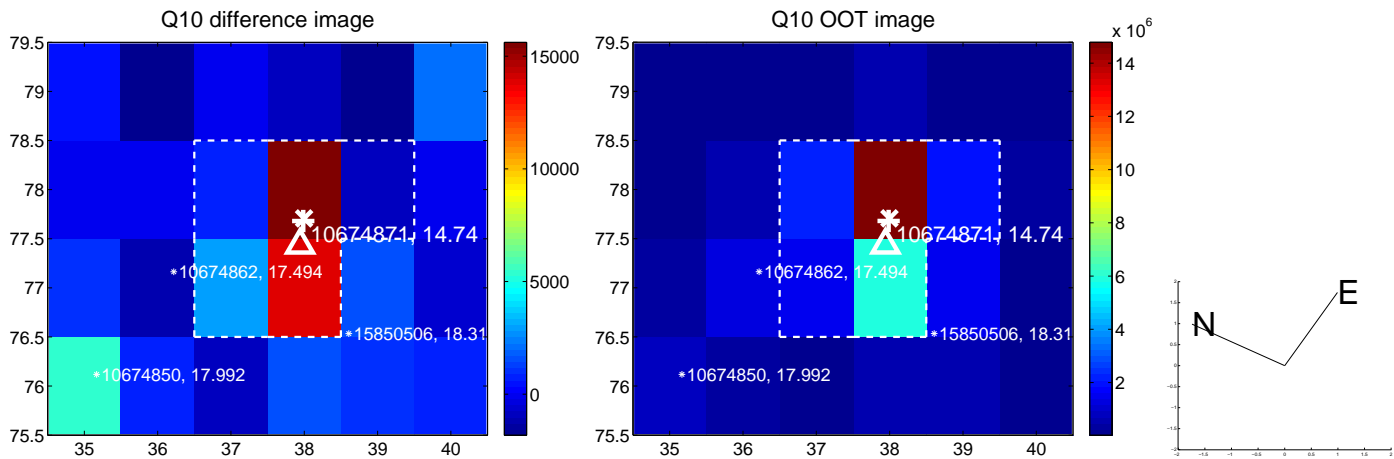
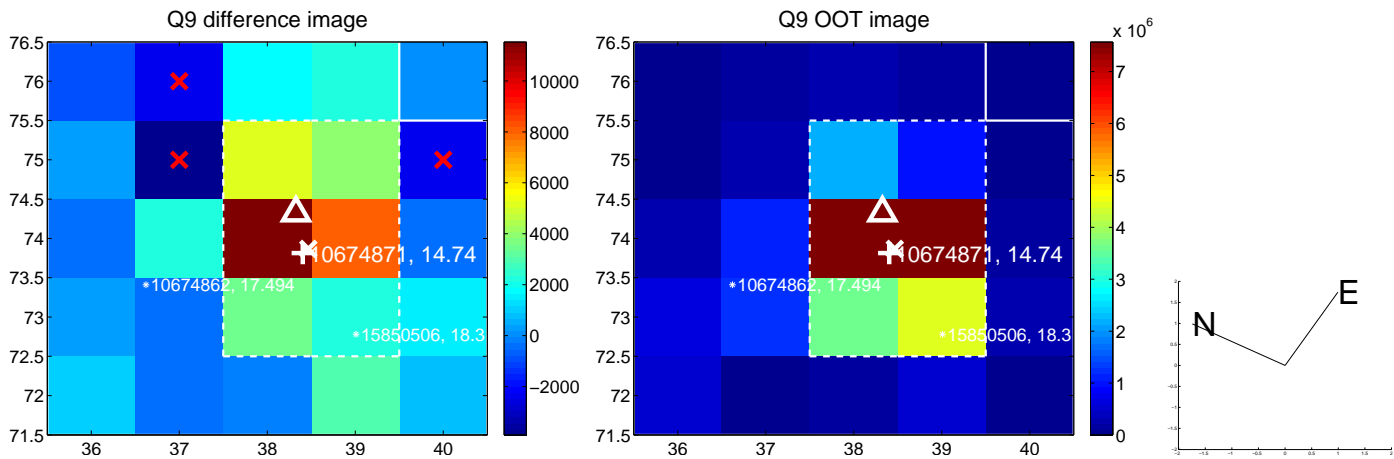




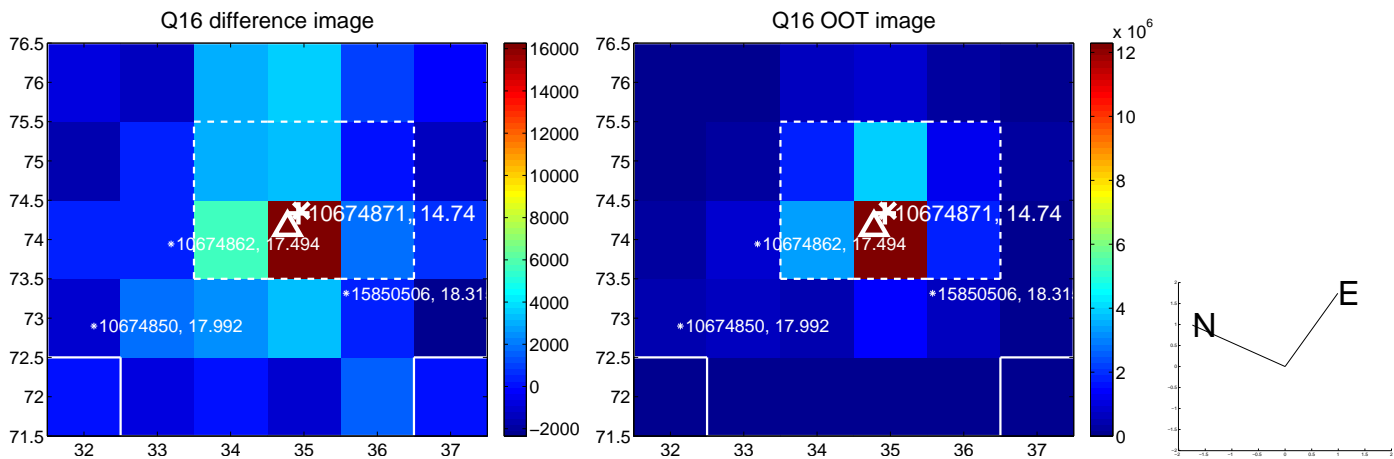
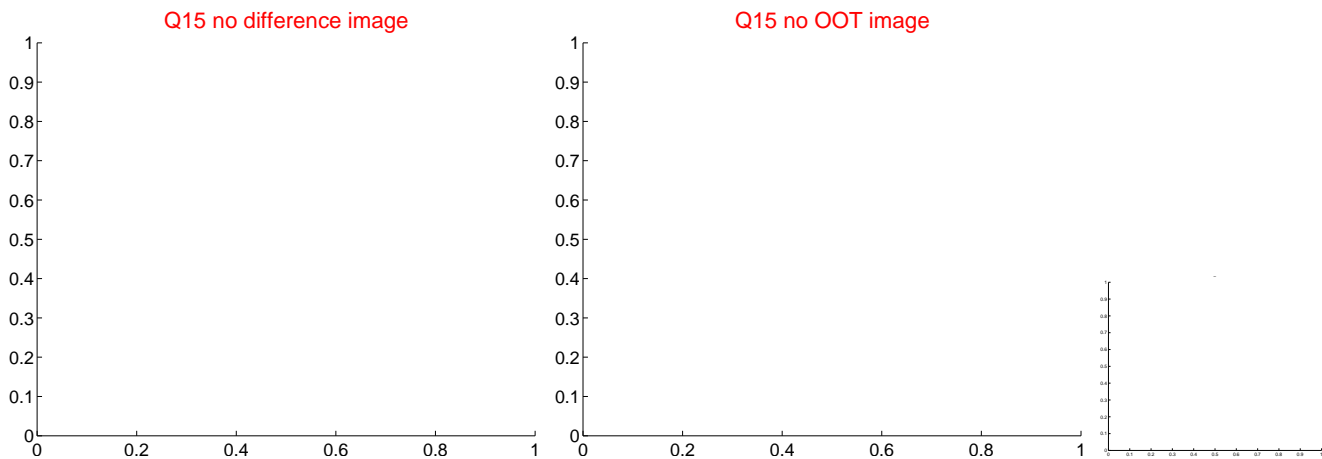
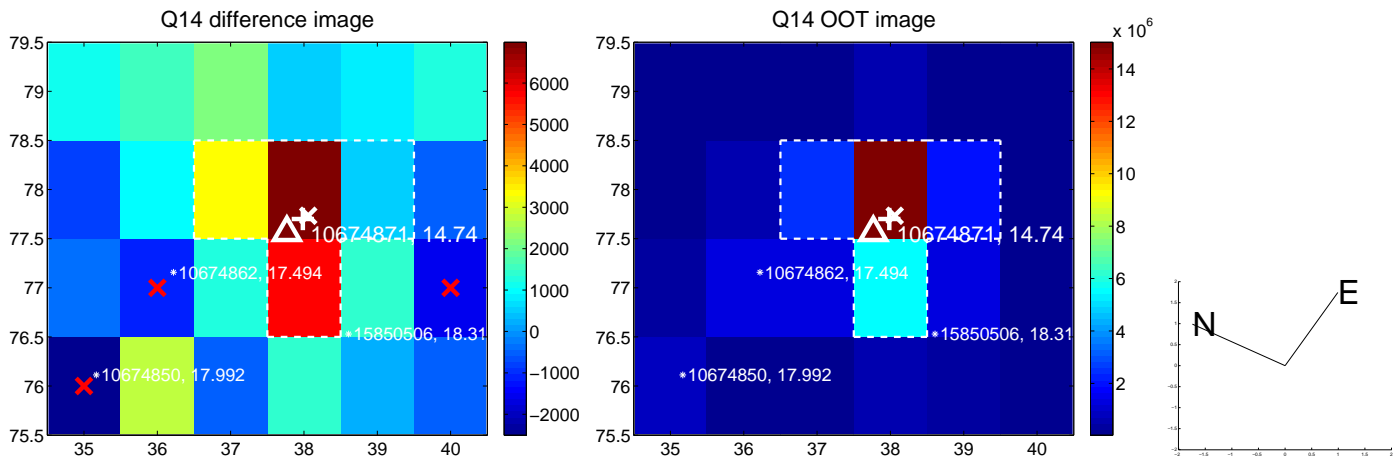
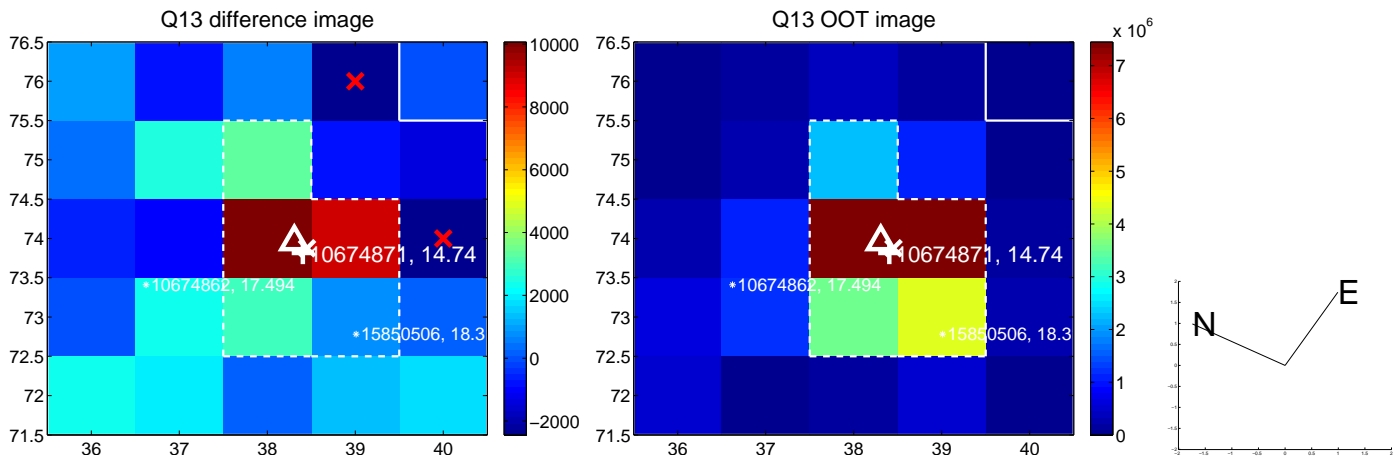
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



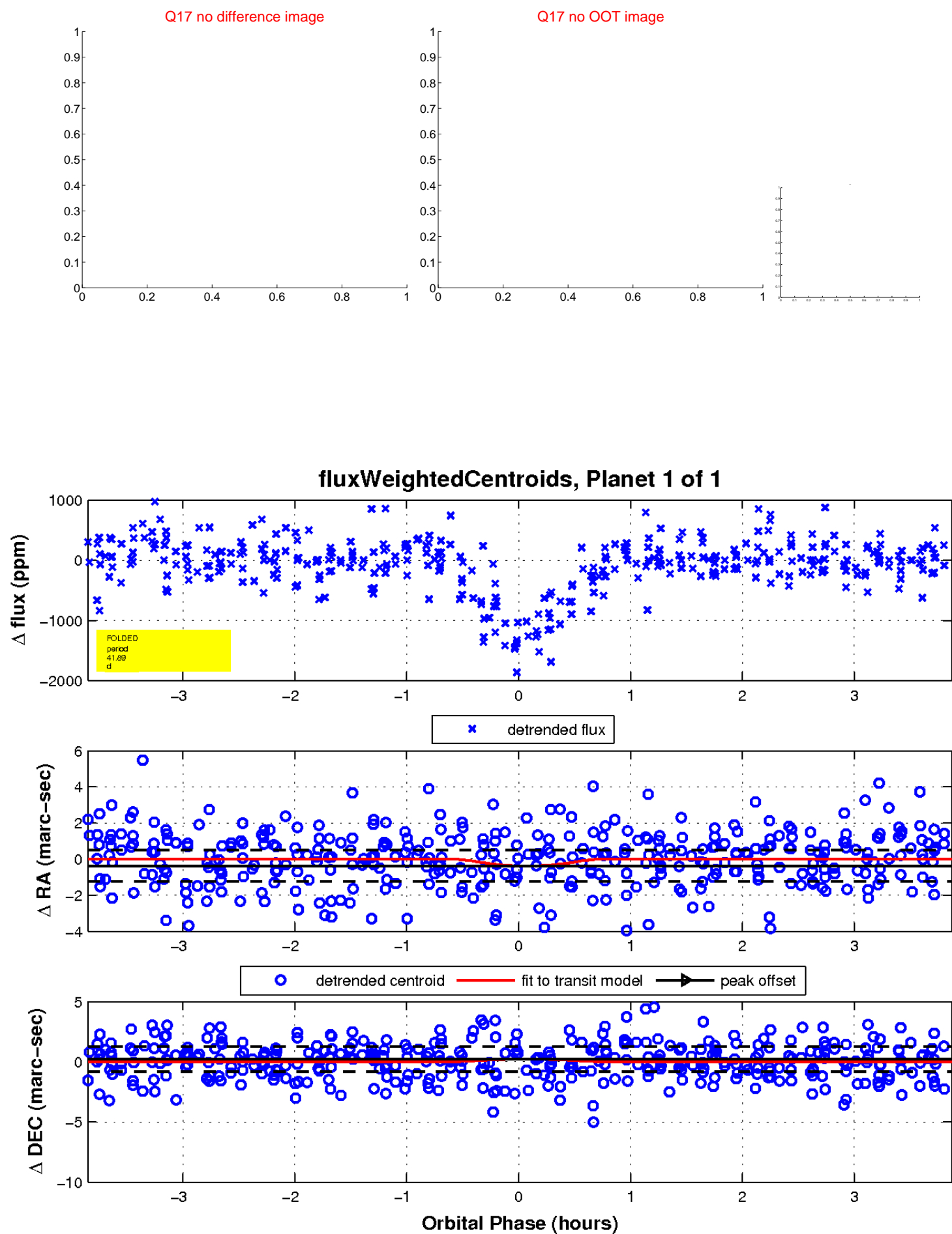
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

