

# KIC 007837302

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007837302-01	OBS	0048.01	23.836832	149.940005	29543.6	5.943	2575.5	1481.0	1.94	6095	51.48	168.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007837302-01	OBS	FP	0.00	0	1	0	0	MOD_ODDEVEN_ALT—DEEP_V_SHAPED

**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.

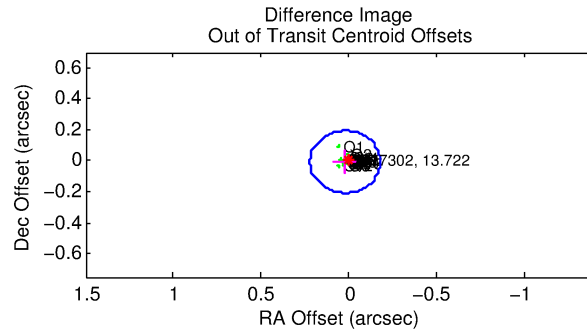
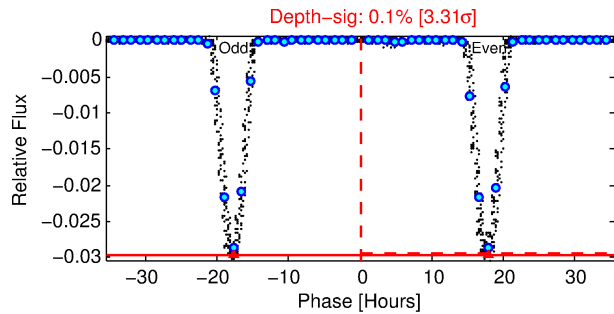
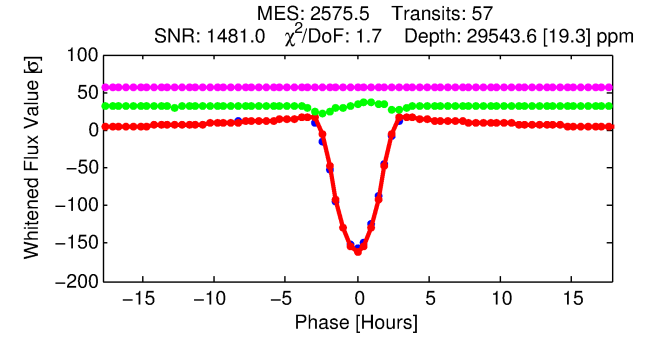
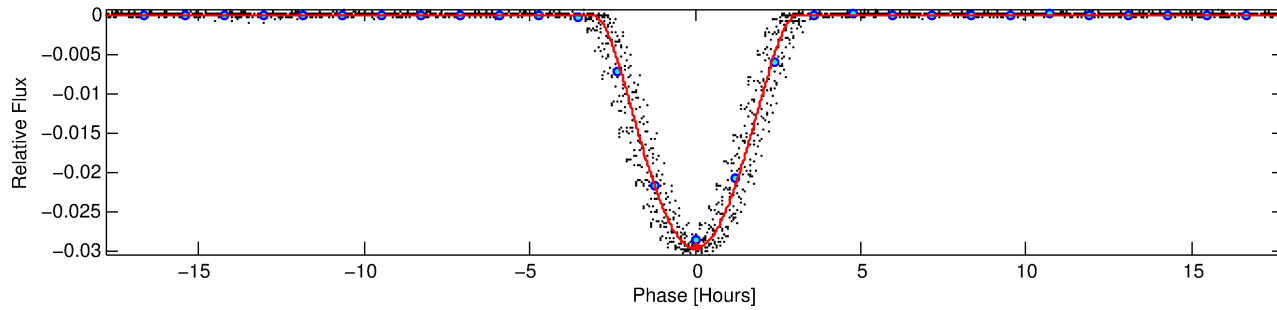
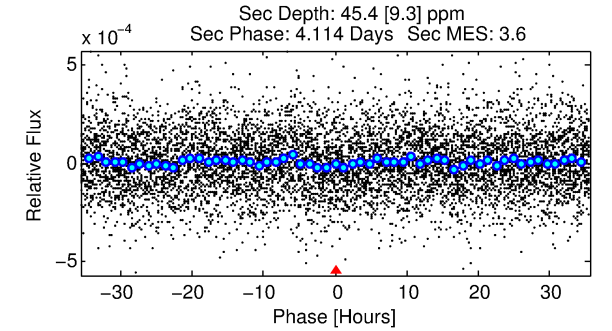
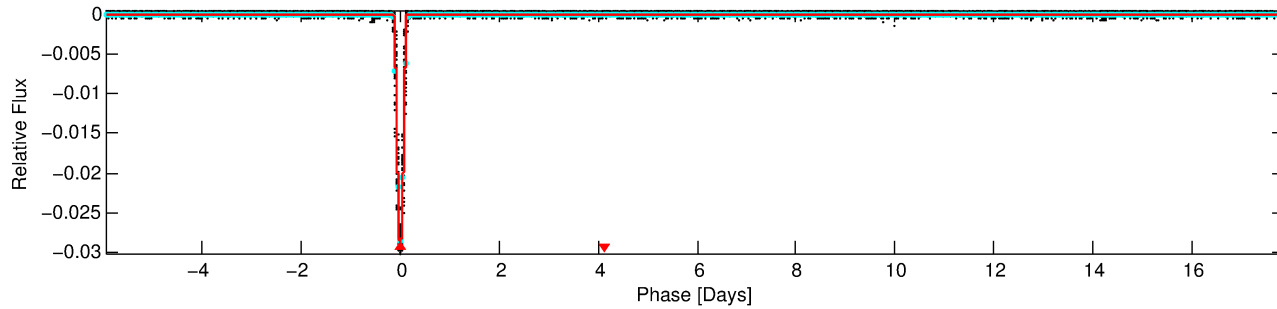
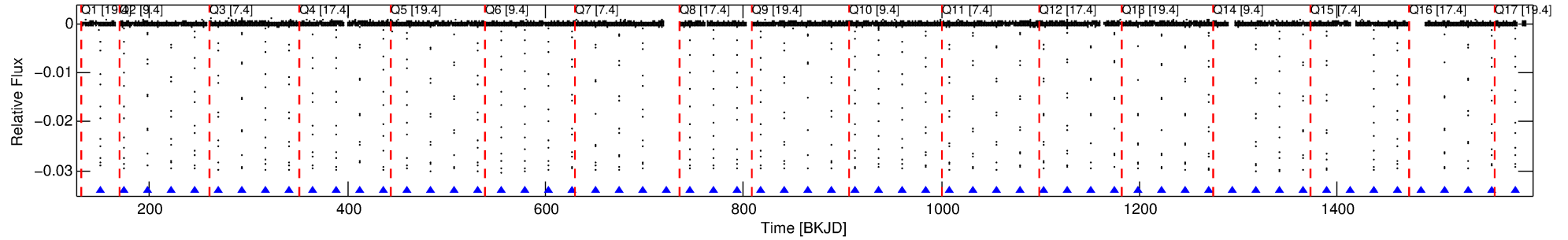
## Ephemeris Match Information For 007837302-01

No Significant Match Found

# DV One-Page Summary

KIC: 7837302 Candidate: 1 of 1 Period: 23.837 d  
KOI: K00048.01 Corr: 0.981

Kp: 13.72 R\*: 1.94 Rs Teff: 6095.0 K Logg: 3.89 Fe/H: -0.400



## DV Fit Results:

Period = 23.83683 [0.00000] d  
Epoch = 149.9400 [0.0001] BKJD  
Rp/R\* = 0.2432 [0.0055]  
a/R\* = 24.31 [0.06]  
b = 0.96 [0.01]  
Seff = 168.65 [144.57]  
Teq = 919 [197] K  
Rp = 51.48 [24.15] Re  
a = 0.1661 [0.0834] AU  
Ag = 0.26 [0.23] [-3.26σ]  
Teff = 1015 [64] K [0.46σ]

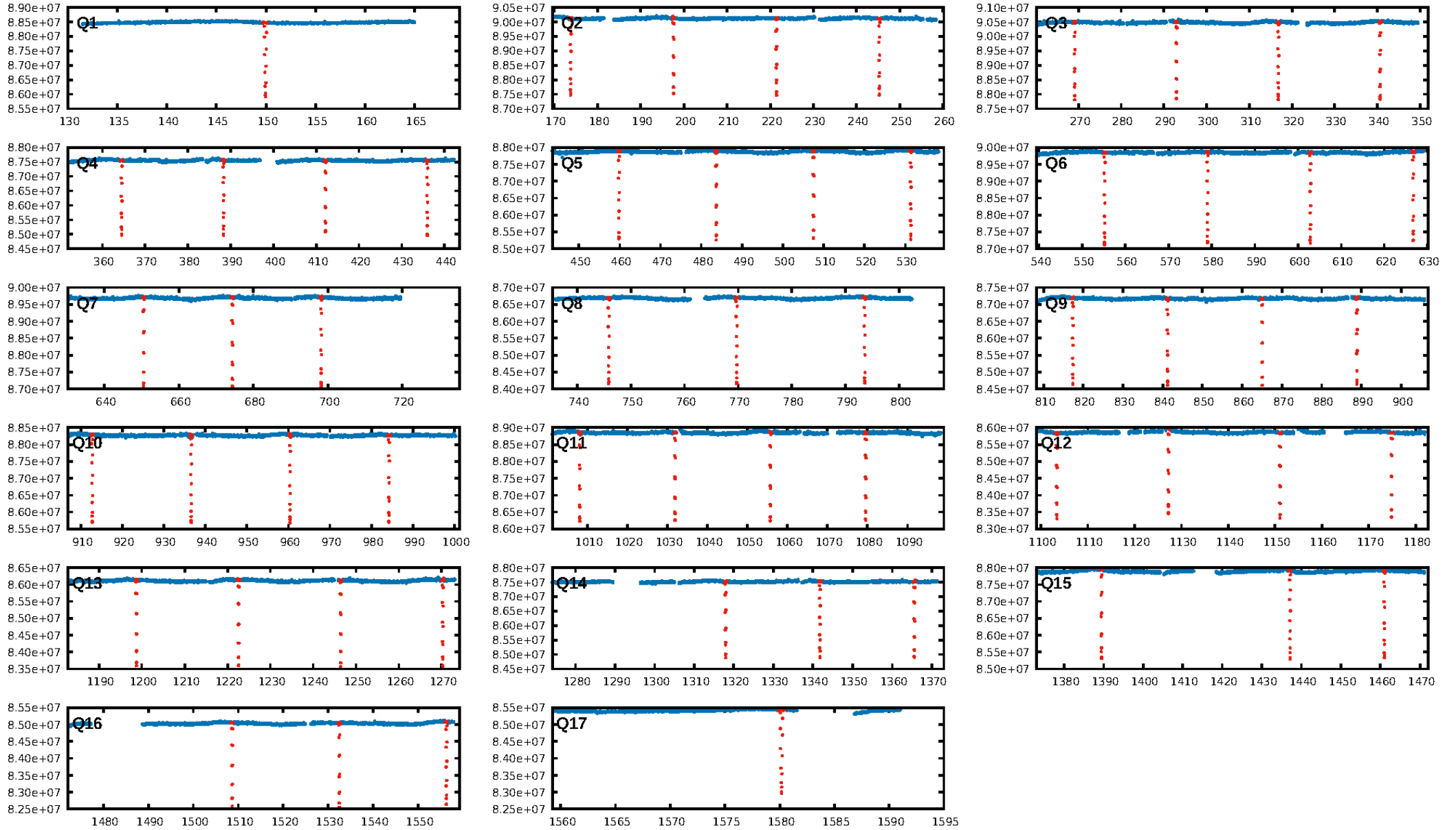
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [55/55]  
GhostDiagnostic-chr: 5.902  
Centroid-sig: 0.0%  
Centroid-so: 0.007 arcsec [1.72σ]  
OotOffset-rm: 0.023 arcsec [0.34σ]  
KicOffset-rm: 0.090 arcsec [1.33σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

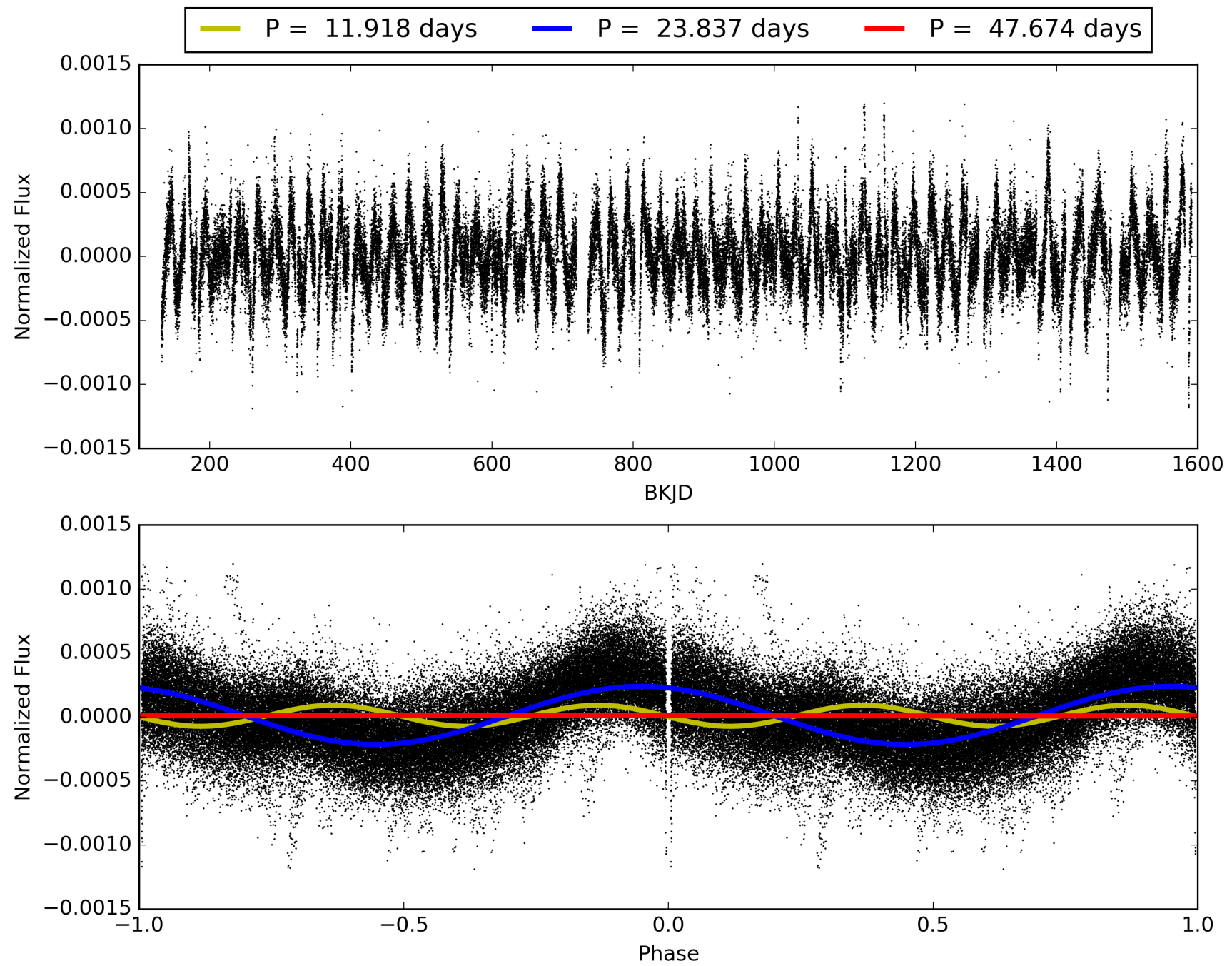
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:01:54 Z

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

# TCE 007837302-01, PDC Light Curves

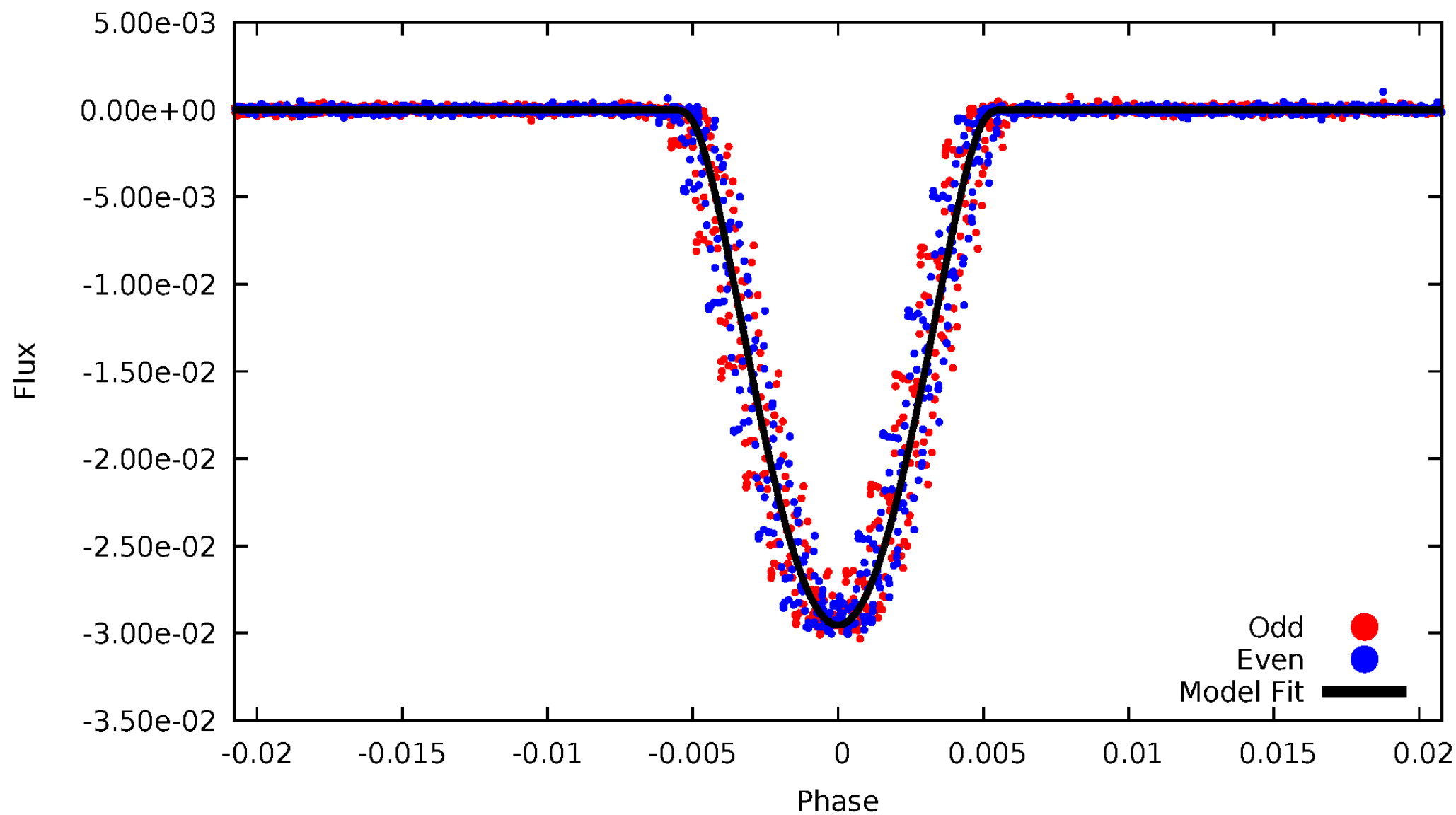


TCE 007837302-01



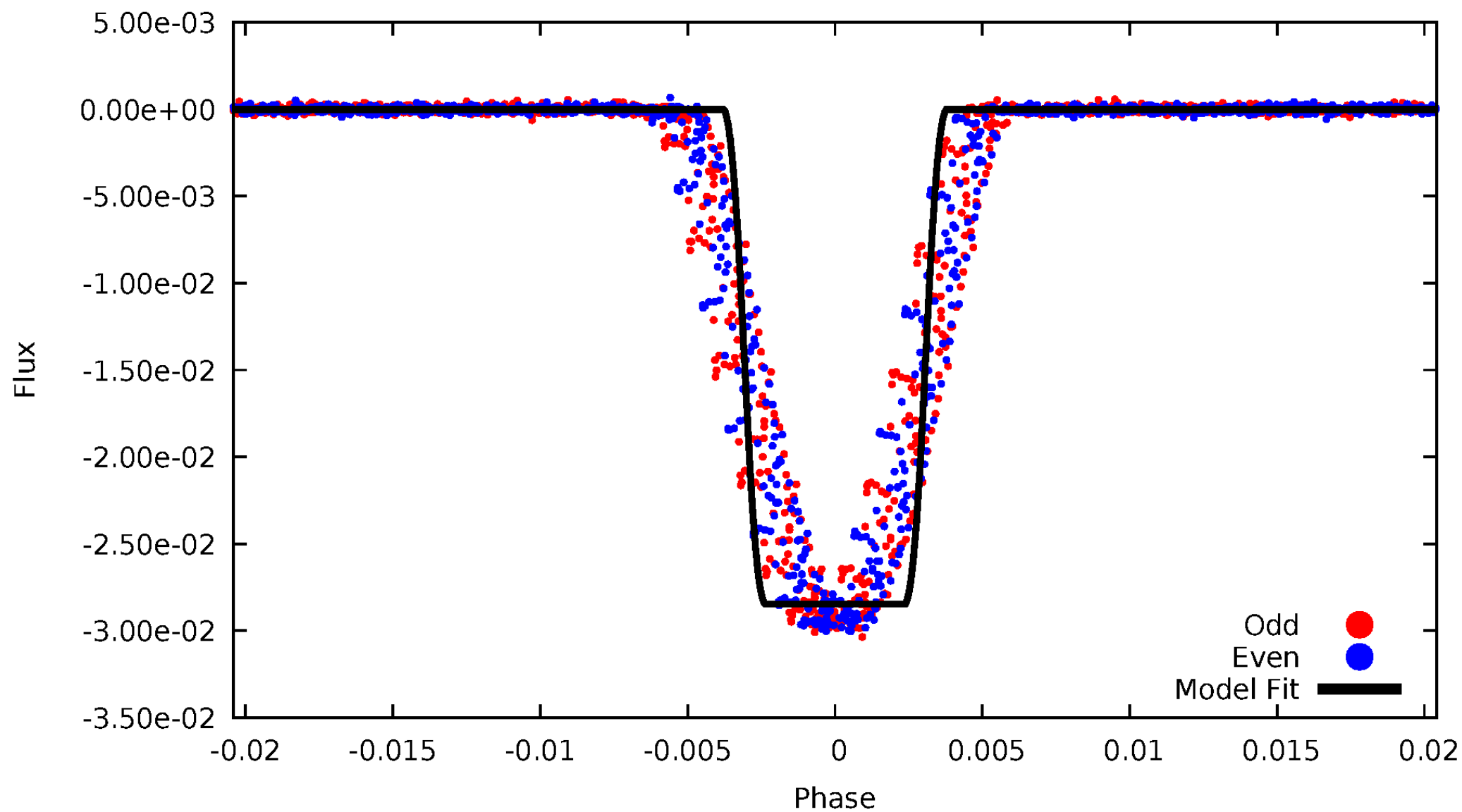
# DV Odd/Even

TCE 007837302-01



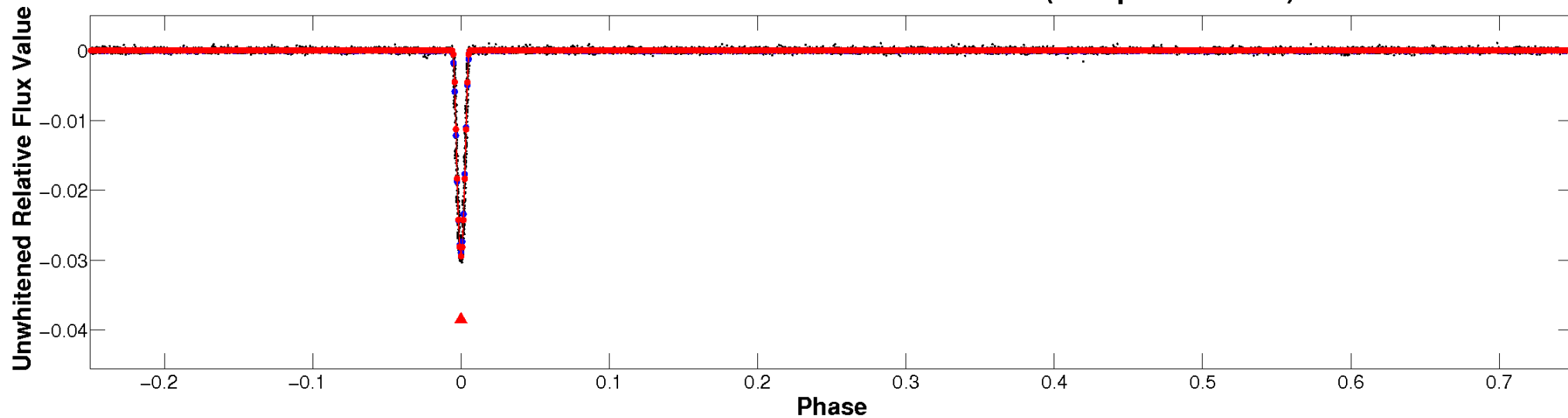
# ALT Odd/Even

TCE 007837302-01

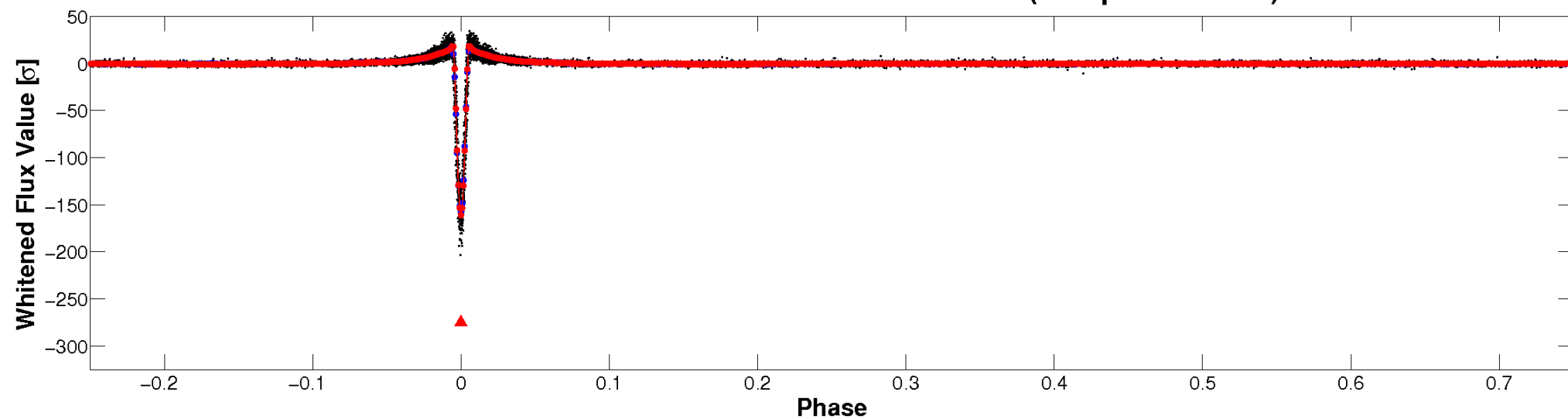


# Non-Whitened Vs. Whitened Light Curve

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

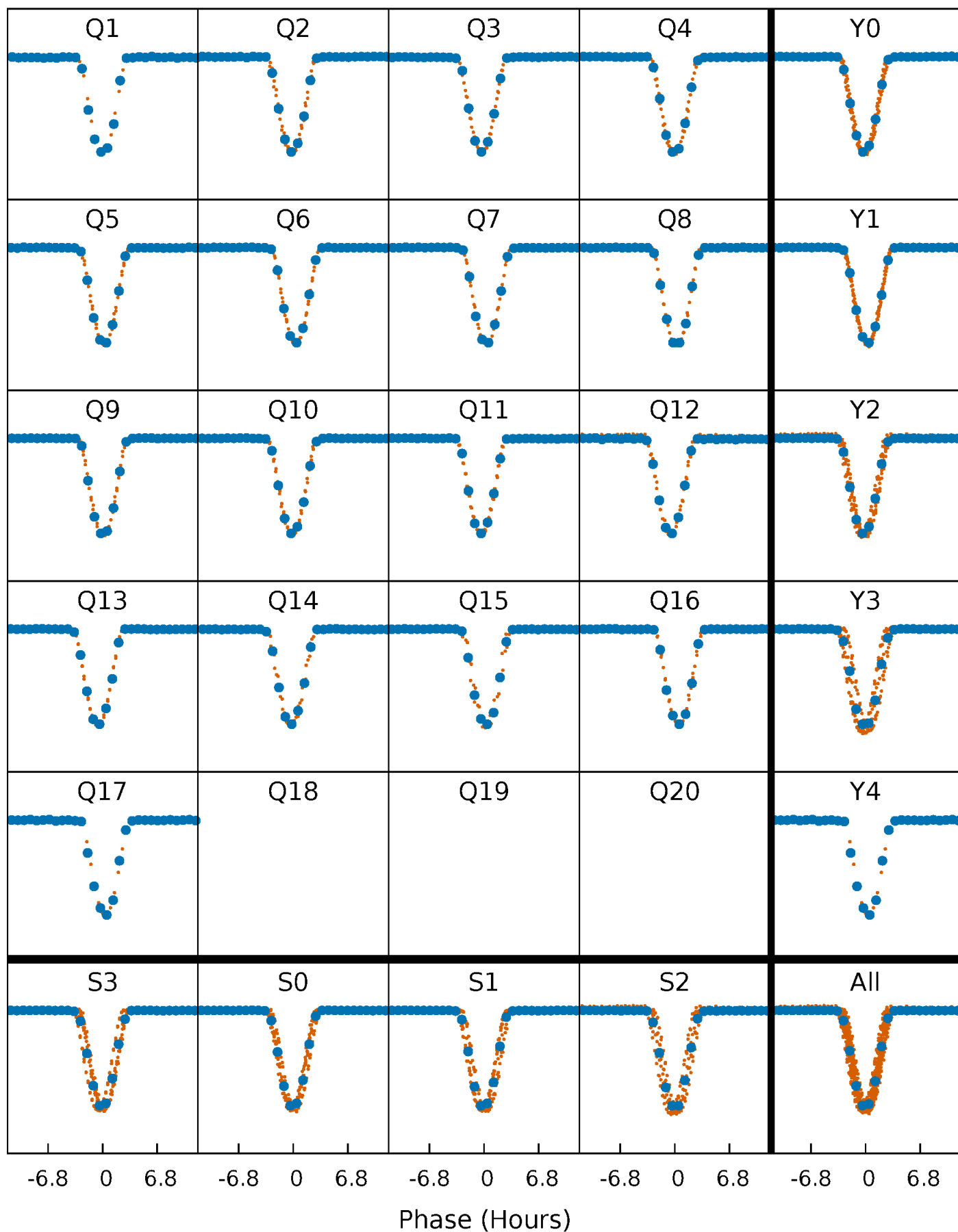


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

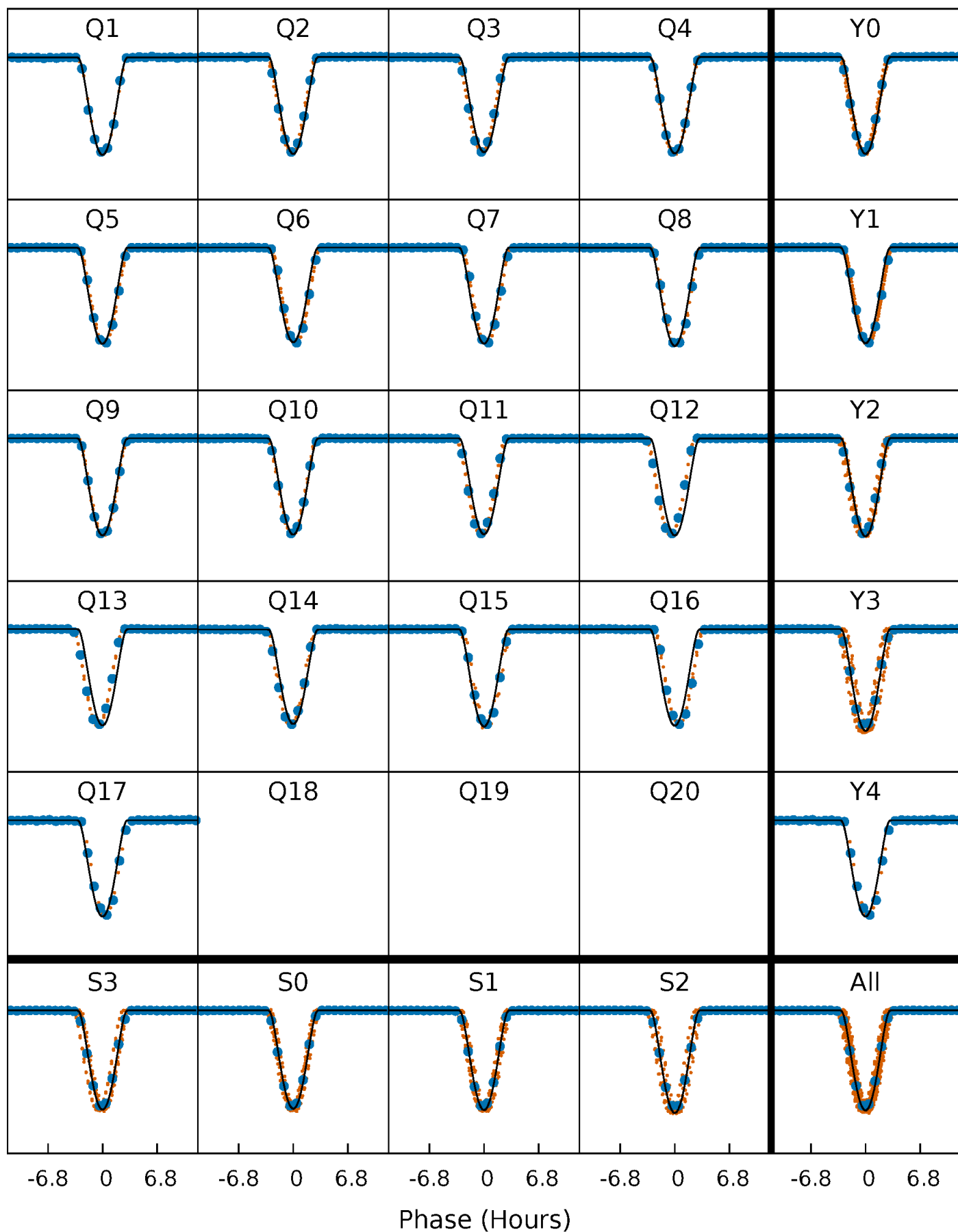
TCE 007837302-01 P= 23.836832 Days  $T_0=149.940005$  (BKJD)





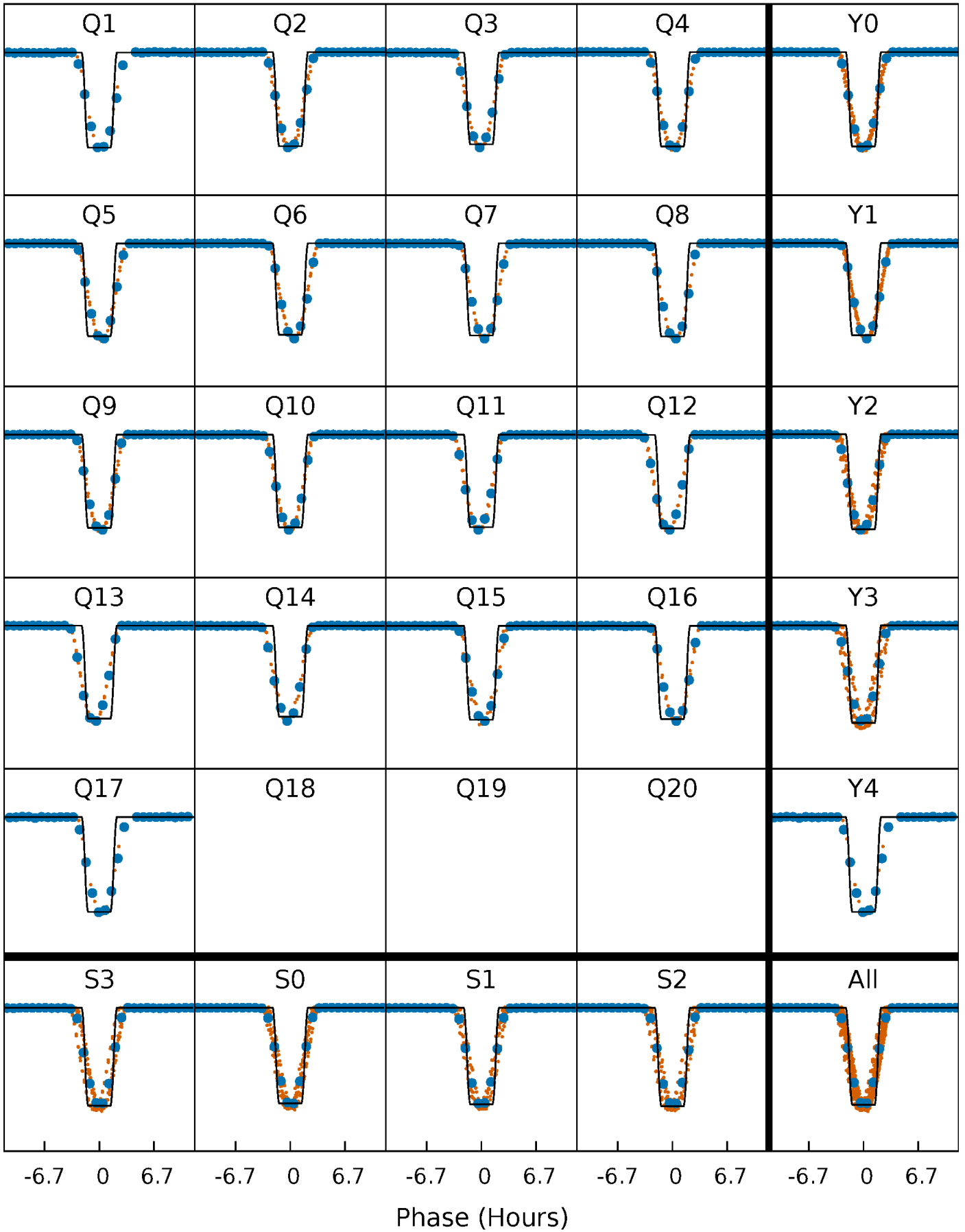
# DV Quarter-Phased Transit Curves

TCE 007837302-01 P= 23.836832 Days  $T_0=149.940005$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

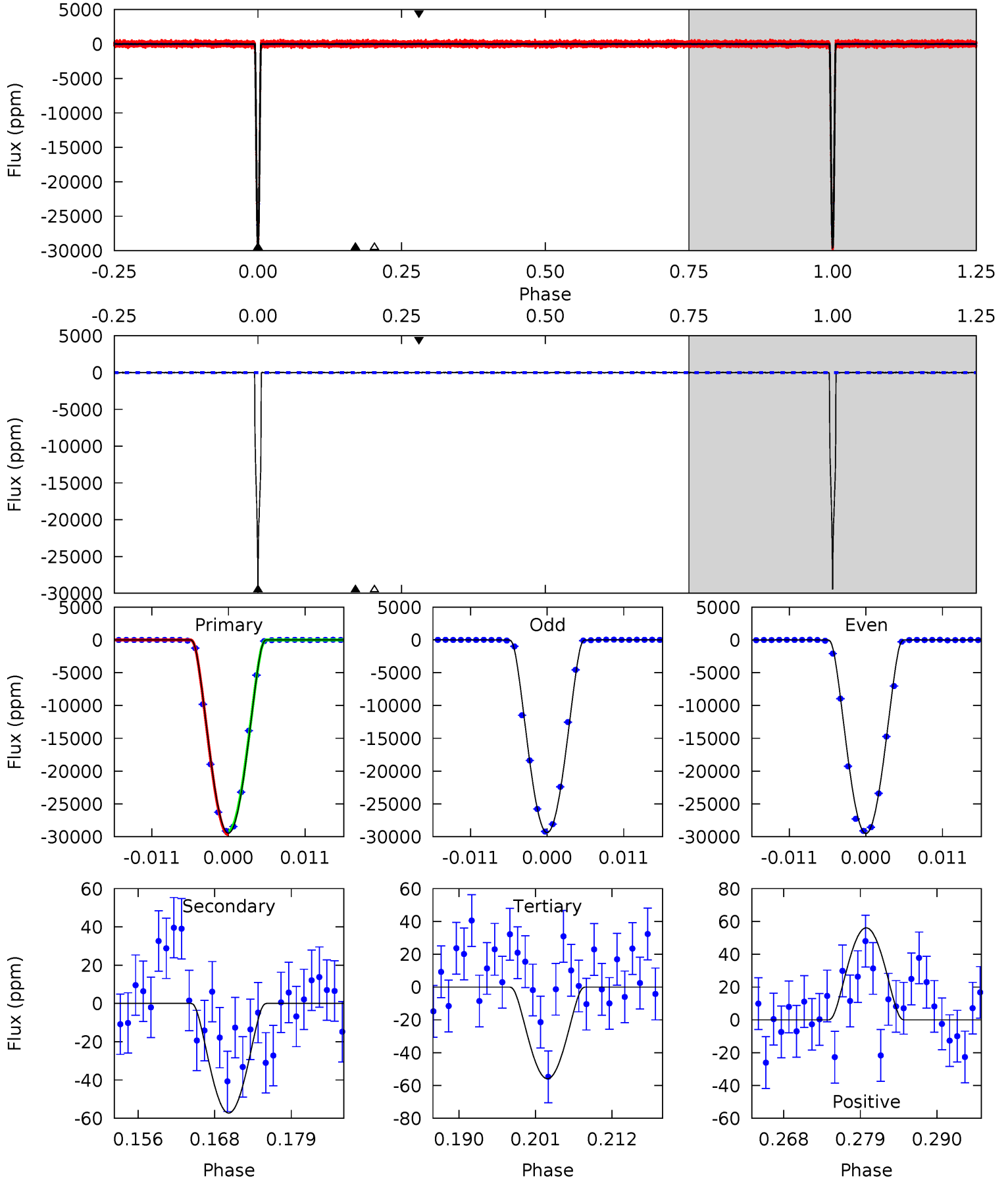
TCE 007837302-01 P= 23.837005 Days  $T_0=149.933090$  (BKJD)



# DV Model-Shift Uniqueness Test

007837302-01, P = 23.836832 Days, E = 126.103173 Days

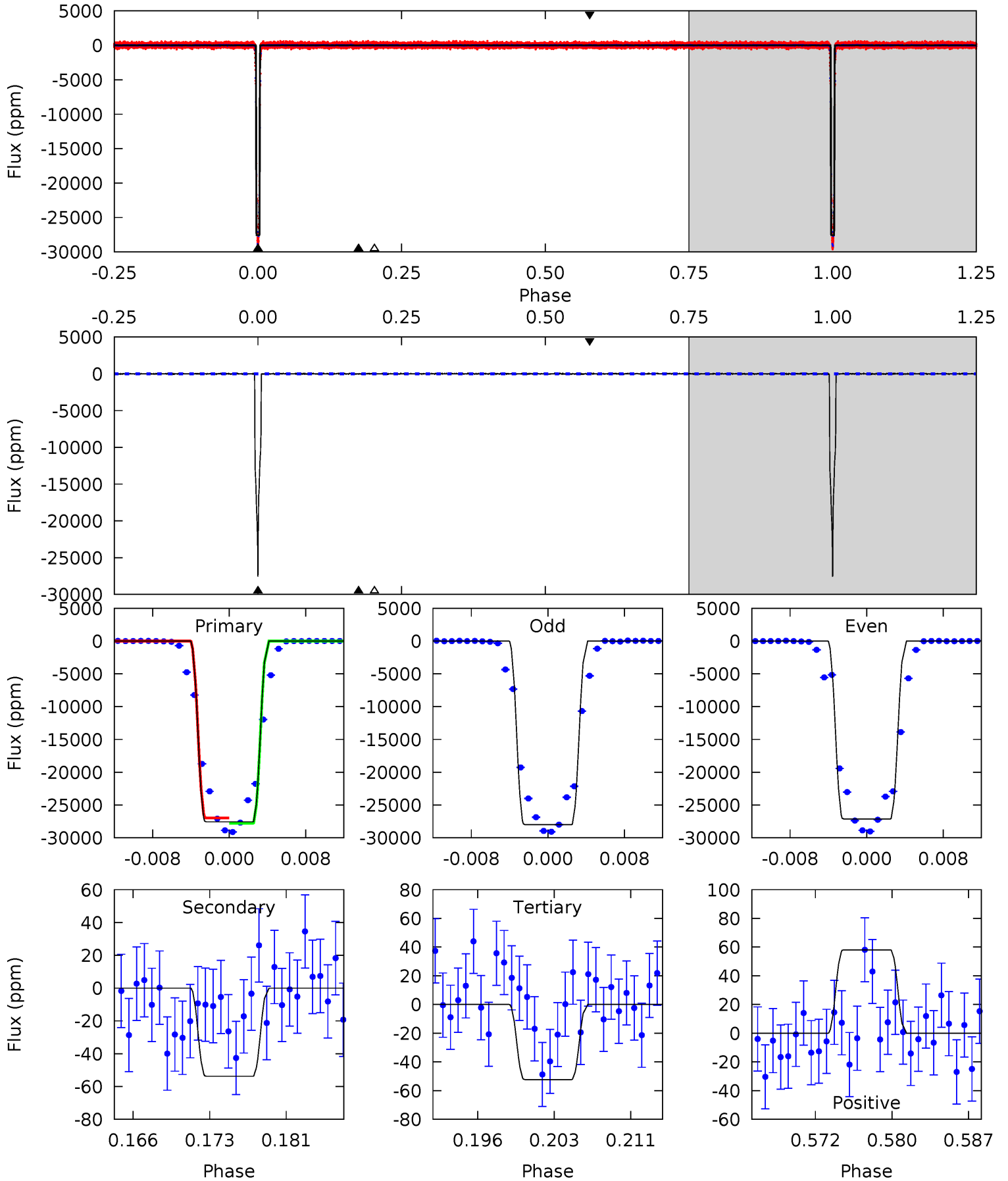
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2557	4.97	4.85	4.87	5.01	2.54	1.56	2553	2553	0.12	0.10	5.58	0.99	0.00	23.9



# Alt Model-Shift Uniqueness Test

007837302-01, P = 23.837005 Days, E = 126.096085 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
1844	3.59	3.50	3.88	5.08	2.67	1.12	1840	1840	0.10	-0.29	27.7	1.00	0.00	26.4



### Stellar Parameters For KIC 007837302

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6095^{+213}_{-213}$	$3.894^{+0.512}_{-0.128}$	$-0.400^{+0.300}_{-0.300}$	$1.940^{+0.490}_{-0.909}$	$1.076^{+0.168}_{-0.205}$	$0.207^{+1.048}_{-0.097}$
	+3%/-3%	+13%/-3%	+75%/-75%	+25%/-47%	+16%/-19%	+506%/-47%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007837302-01 / KOI 0048.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-57 \pm 12$	$48.66^{+8.43}_{-12.13}$	$1238^{+110}_{-154}$	$1733^{+211}_{-3452}$	$0.361^{+0.270}_{-0.108}$
Alt.	$-54 \pm 15$	$33.91^{+6.07}_{-8.45}$	$1240^{+116}_{-149}$	$2083^{+119}_{-172}$	$0.721^{+0.537}_{-0.279}$

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

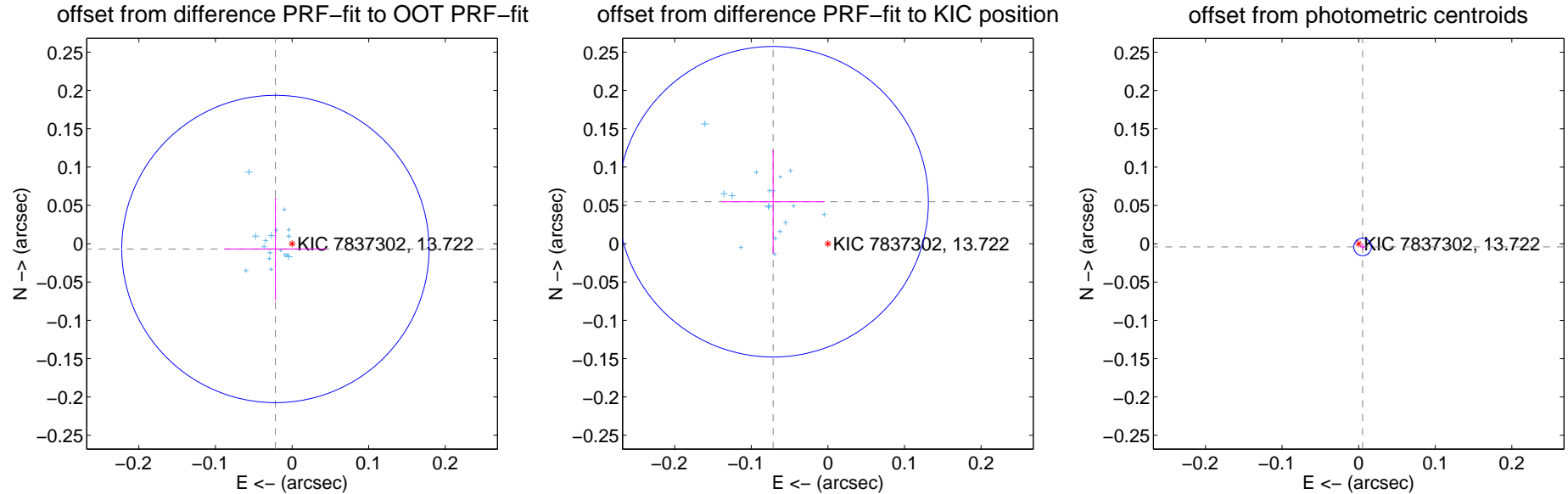
## DV Centroid Data

Supplemental centroid analysis for 007837302-01. Kepler magnitude: 13.72. Transit SNR 1480.99

There are 17 quarters with good PRF difference image offsets

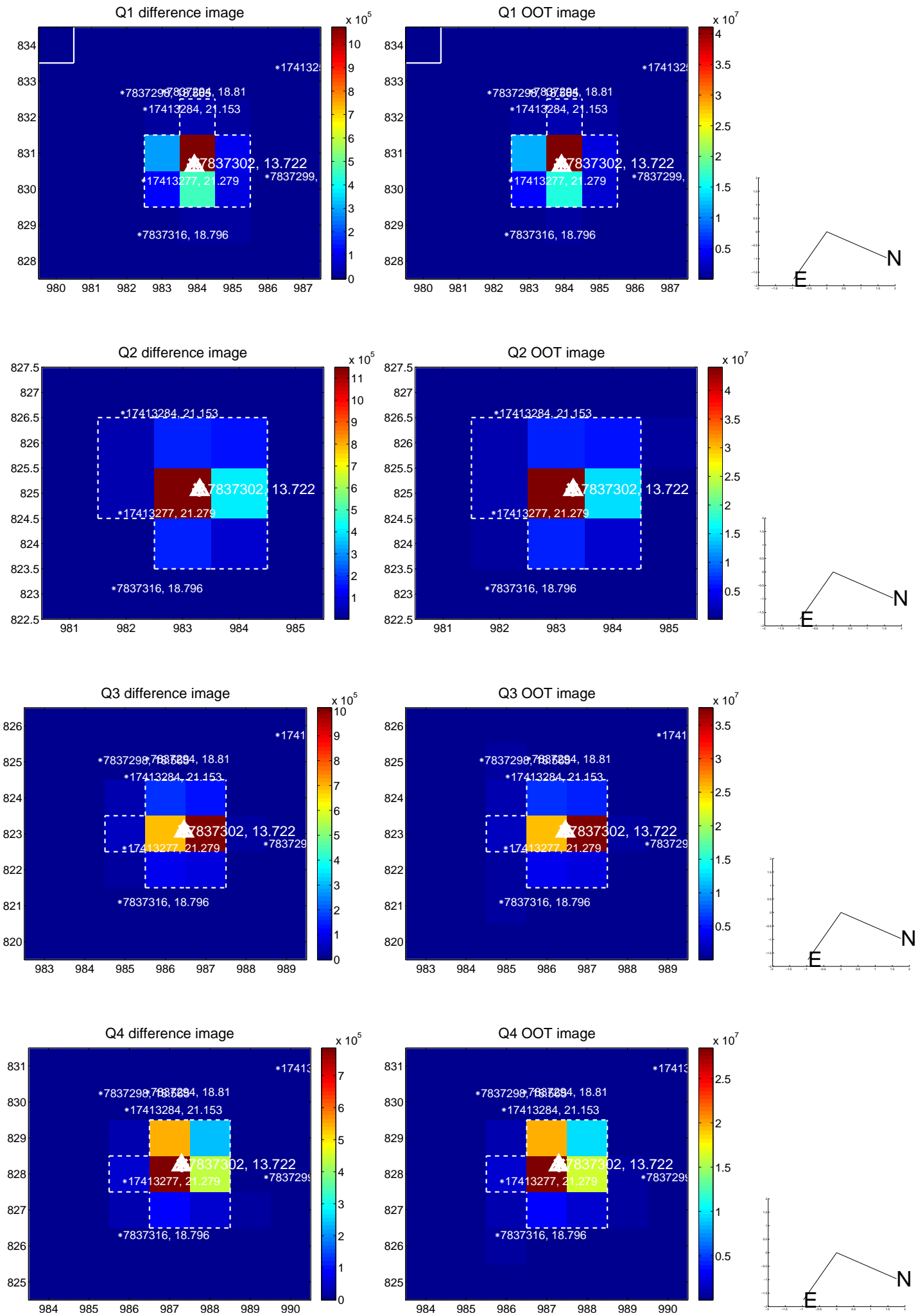
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.023 \pm 0.067$	0.34	$0.022 \pm 0.067$	$-0.007 \pm 0.067$
PRF-fit source offset from KIC position	$0.090 \pm 0.068$	1.33	$0.071 \pm 0.067$	$0.055 \pm 0.067$
photometric centroid source offset	$0.01 \pm 0.00$	1.72	$-0.01 \pm 0.00$	$-0.00 \pm 0.00$

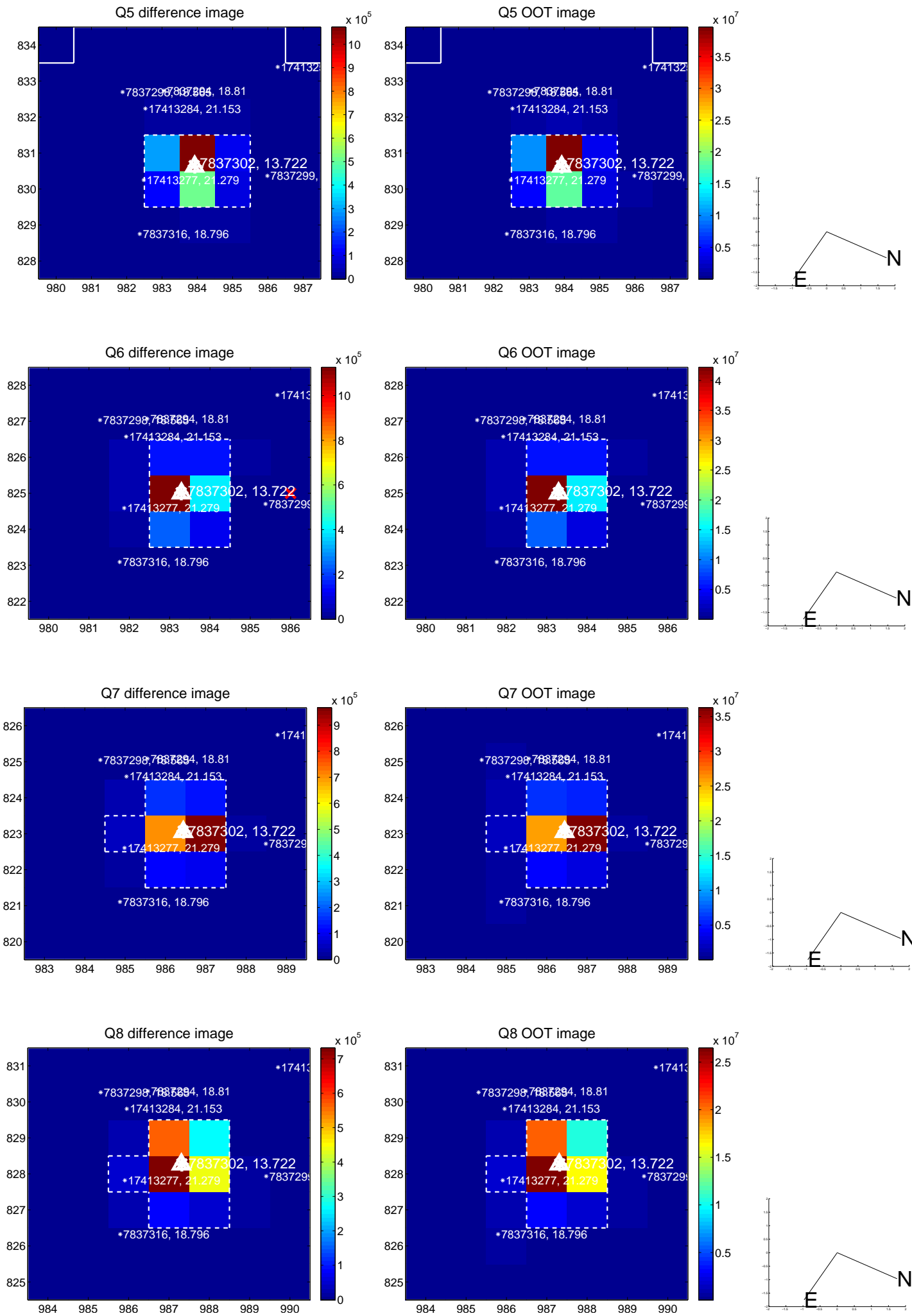


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

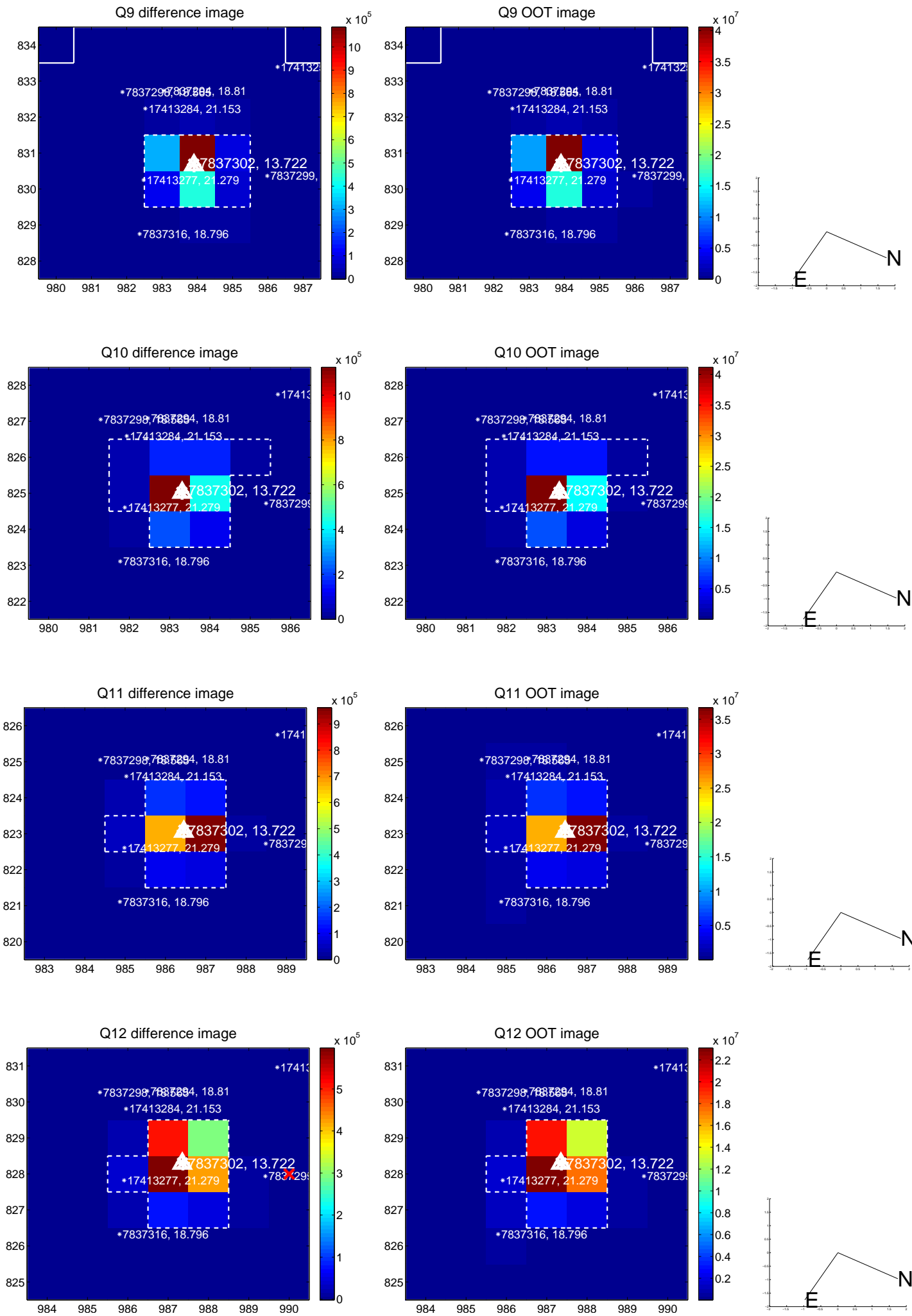


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

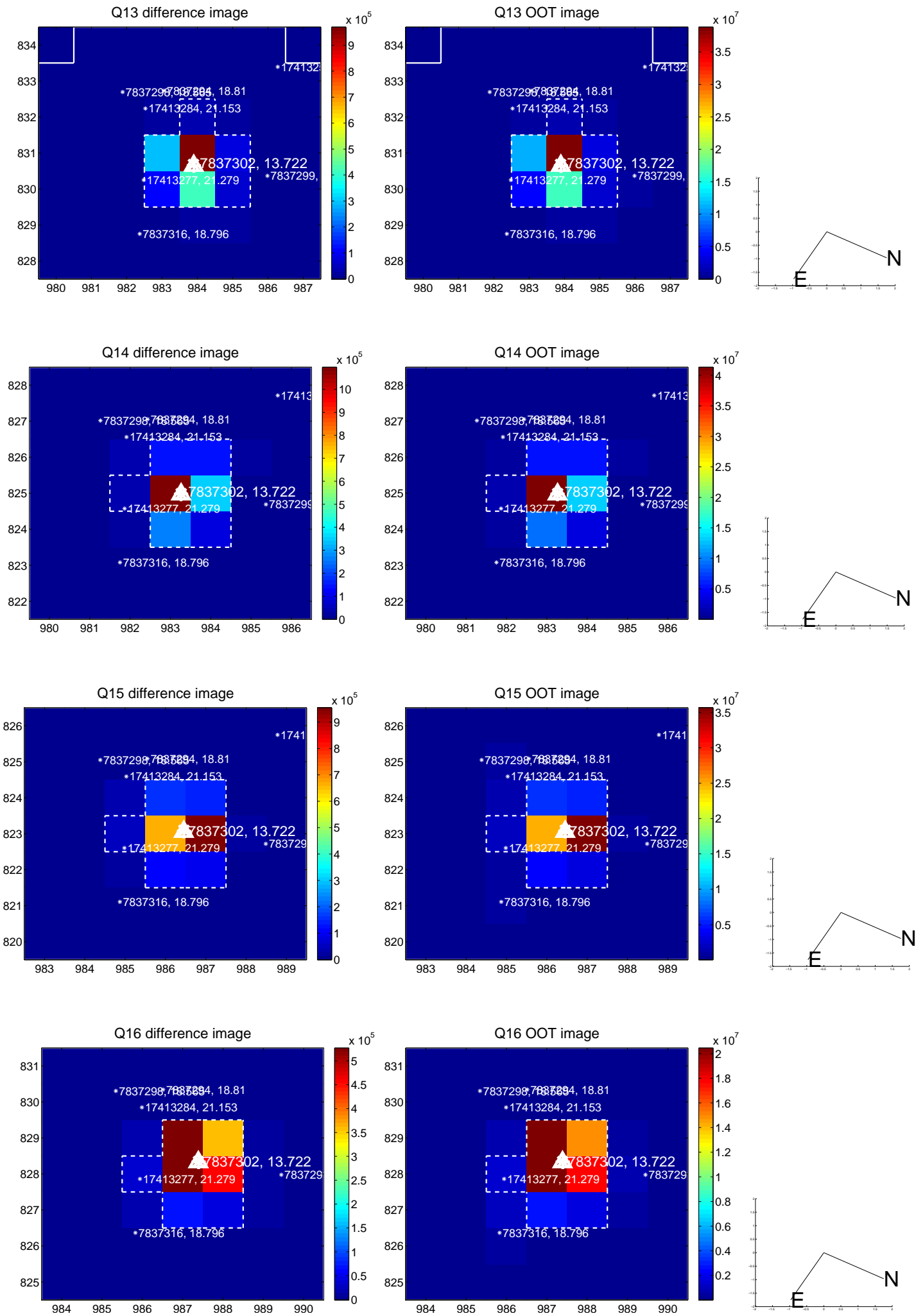




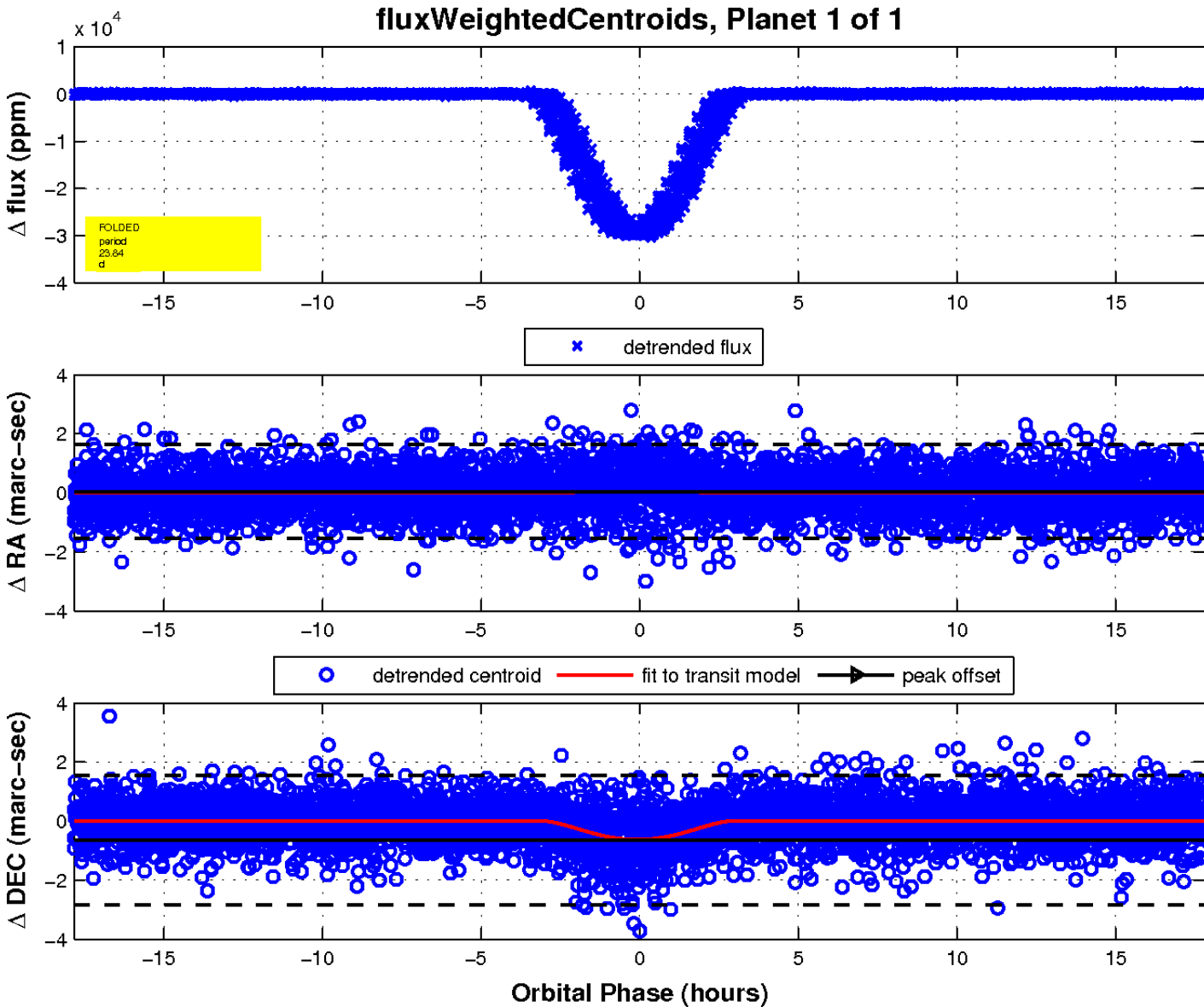
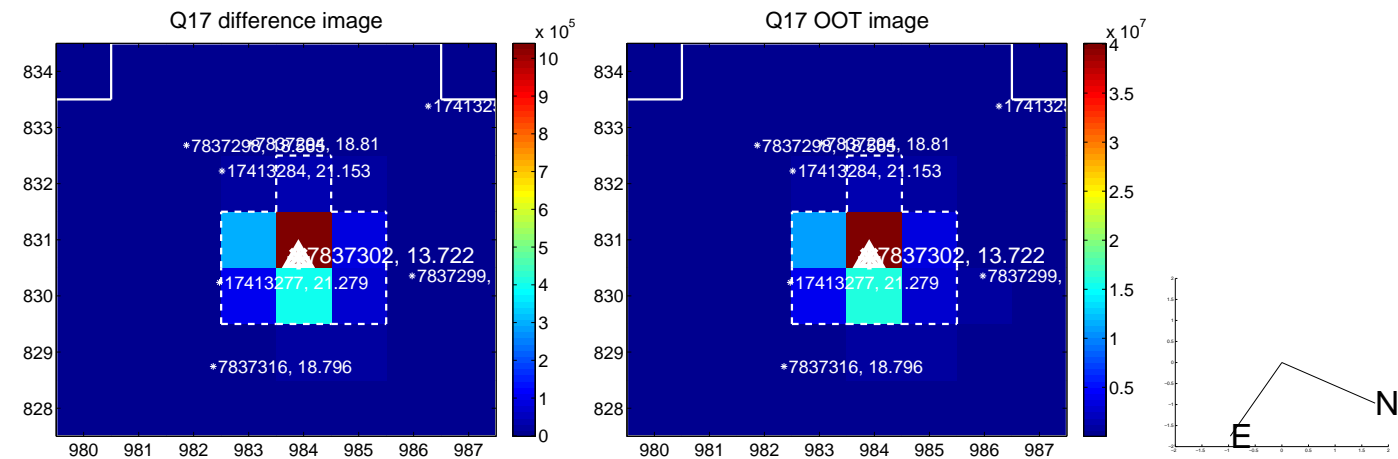
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

