

# KIC 007842610

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007842610-01	OBS	1453.01	0.971921	131.916682	2505.0	1.838	438.1	202.9	0.93	5592	5.84	2240.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007842610-01	OBS	FP	0.00	0	1	1	0	MOD_ODDEVEN_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST

**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.

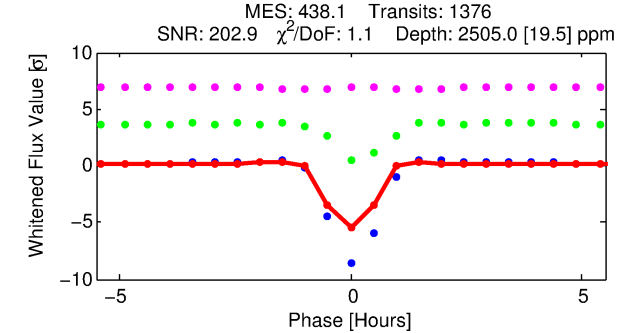
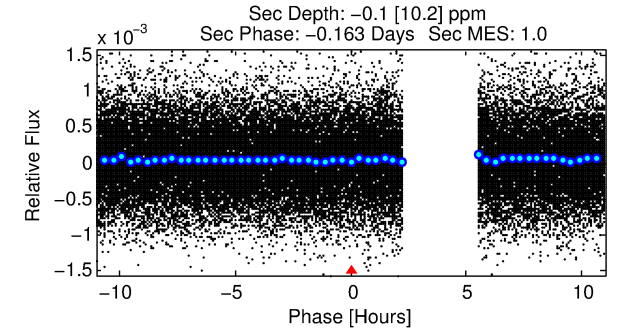
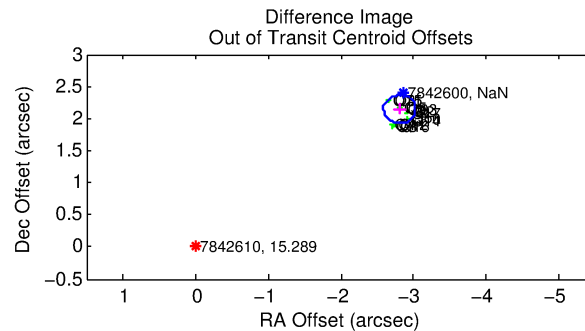
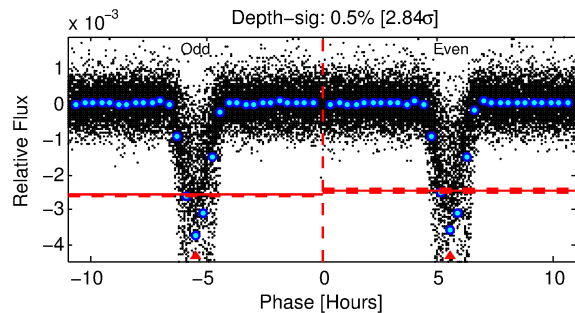
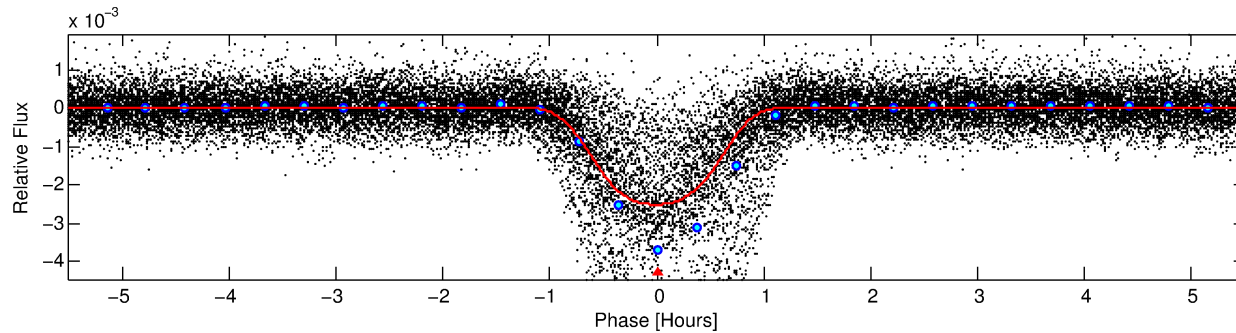
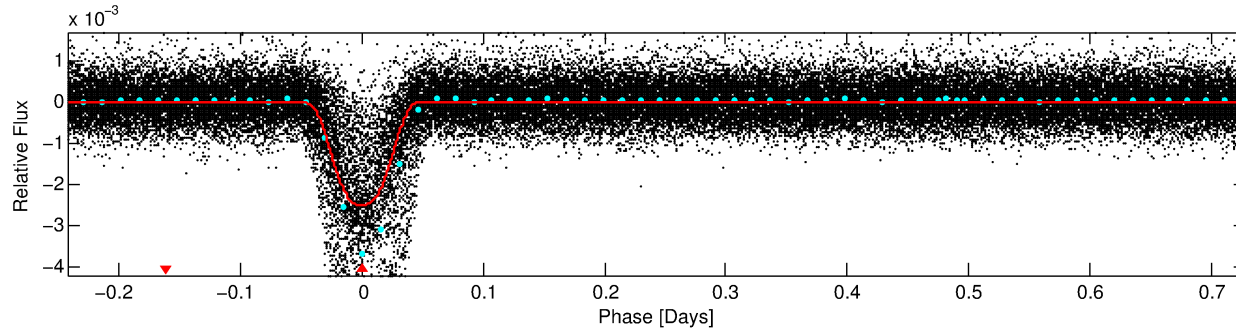
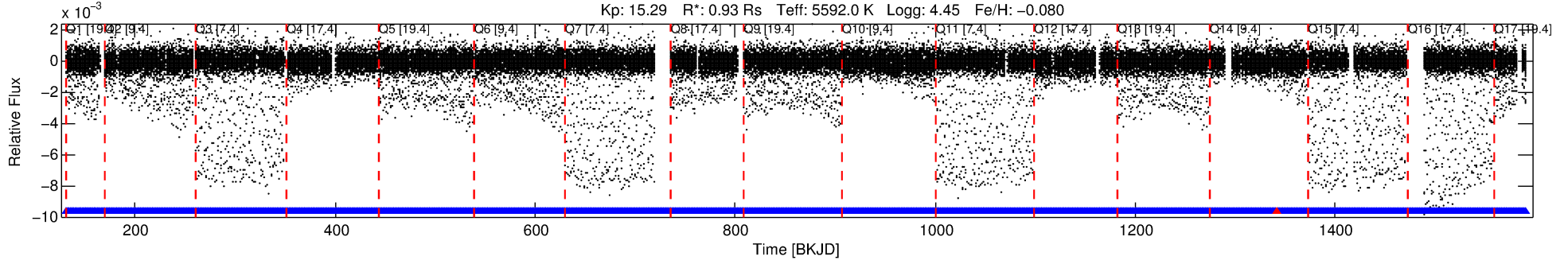
## Ephemeris Match Information For 007842610-01

No Significant Match Found

# DV One-Page Summary

KIC: 7842610 Candidate: 1 of 1 Period: 0.972 d  
KOI: K01453.01 Corr: 0.929

Kp: 15.29 R\*: 0.93 Rs Teff: 5592.0 K Logg: 4.45 Fe/H: -0.080



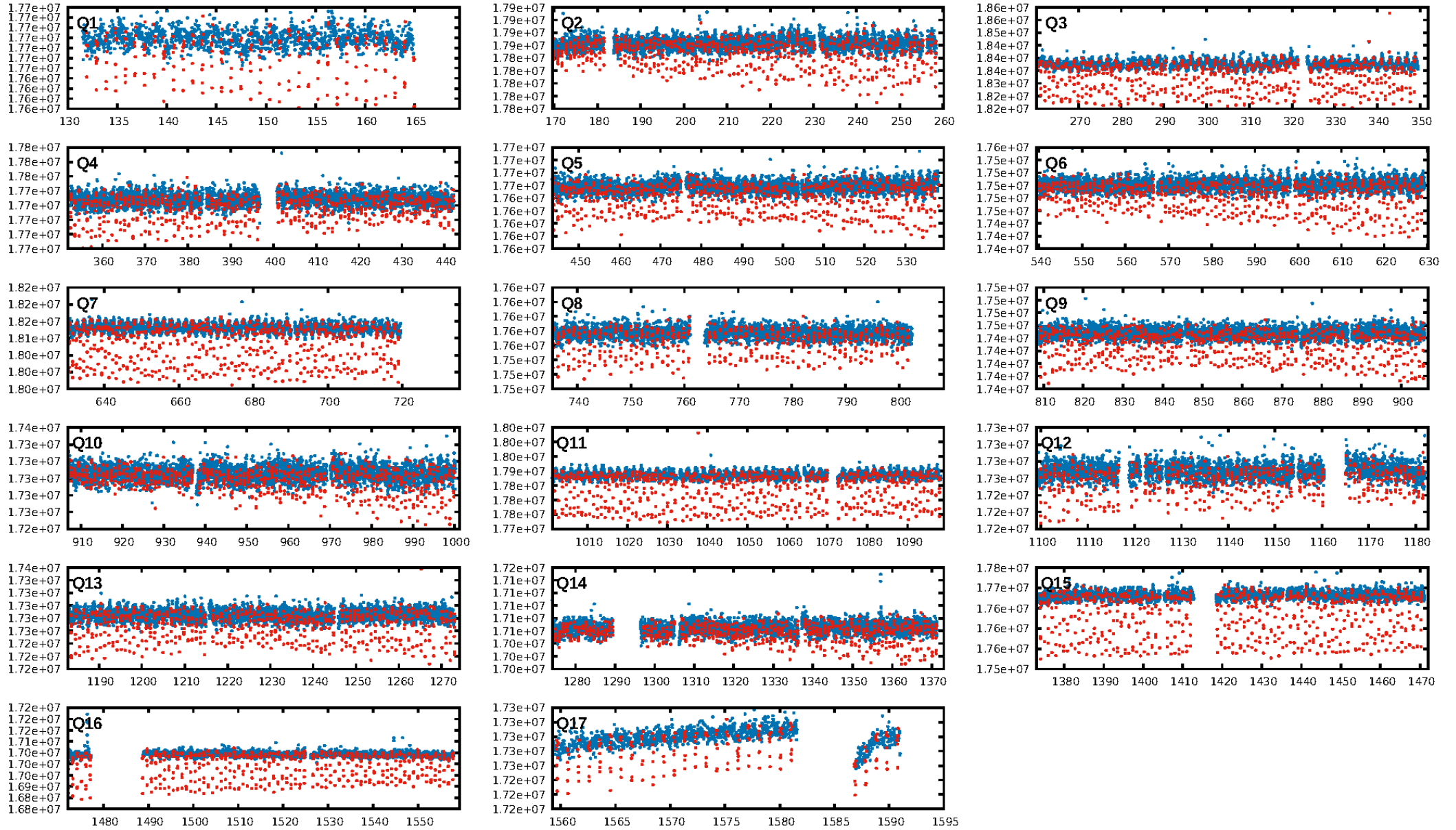
## DV Fit Results:

Period = 0.97192 [0.00000] d  
Epoch = 131.9167 [0.0001] BKJD  
Rp/R\* = 0.0575 [0.0004]  
a/R\* = 2.25 [0.03]  
b = 0.93 [0.00]  
Seff = 2240.21 [779.98]  
Teq = 1754 [153] K  
Rp = 5.84 [1.48] Re  
a = 0.0184 [0.0040] AU  
Ag = N/A  
Teffp = N/A

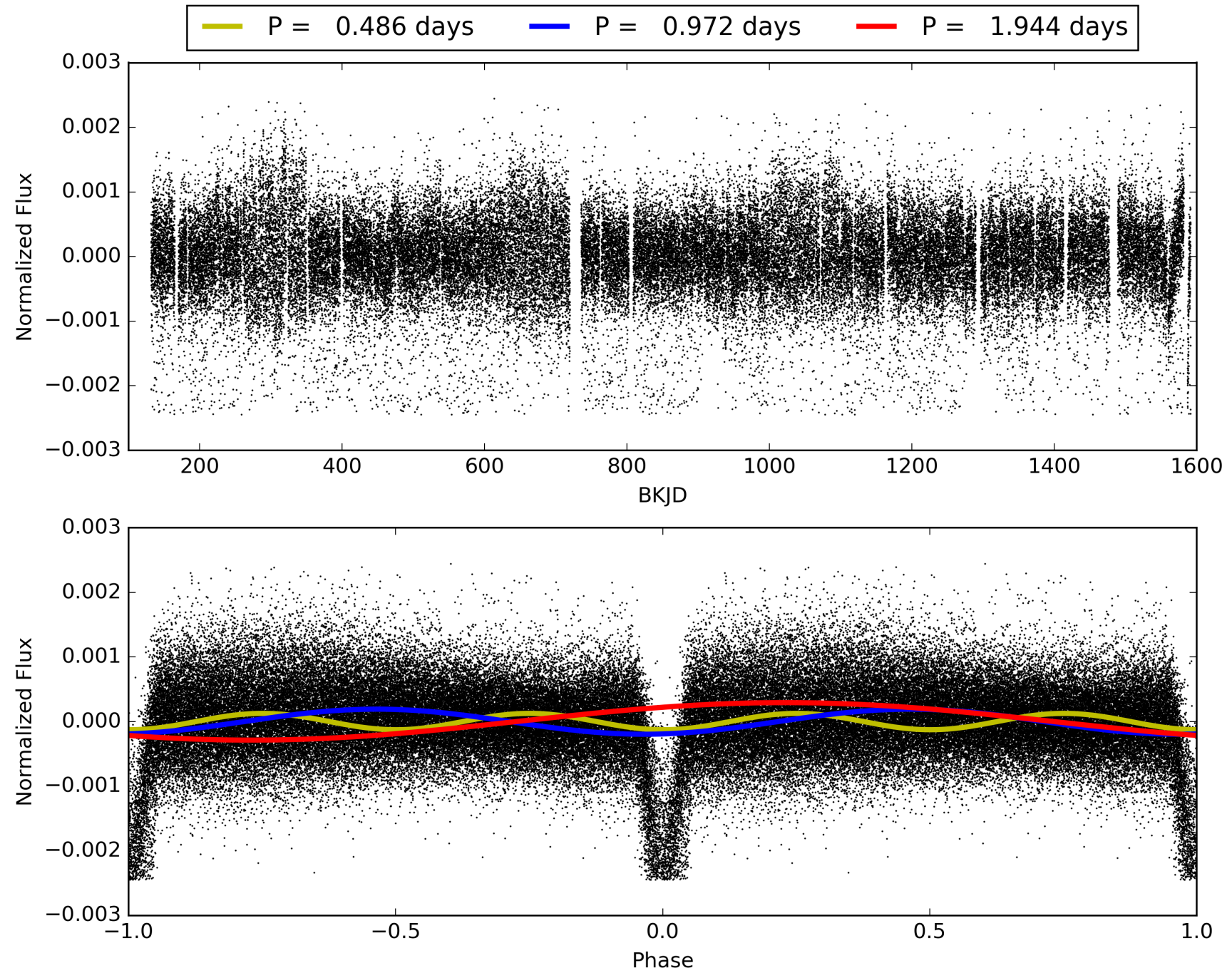
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [1312/1313]  
GhostDiagnostic-chr: 0.03295  
Centroid-sig: 0.0%  
Centroid-so: 12.679 arcsec [347.22σ]  
OotOffset-rm: 3.535 arcsec [48.49σ]  
KicOffset-rm: 3.526 arcsec [47.26σ]  
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]

# TCE 007842610-01, PDC Light Curves

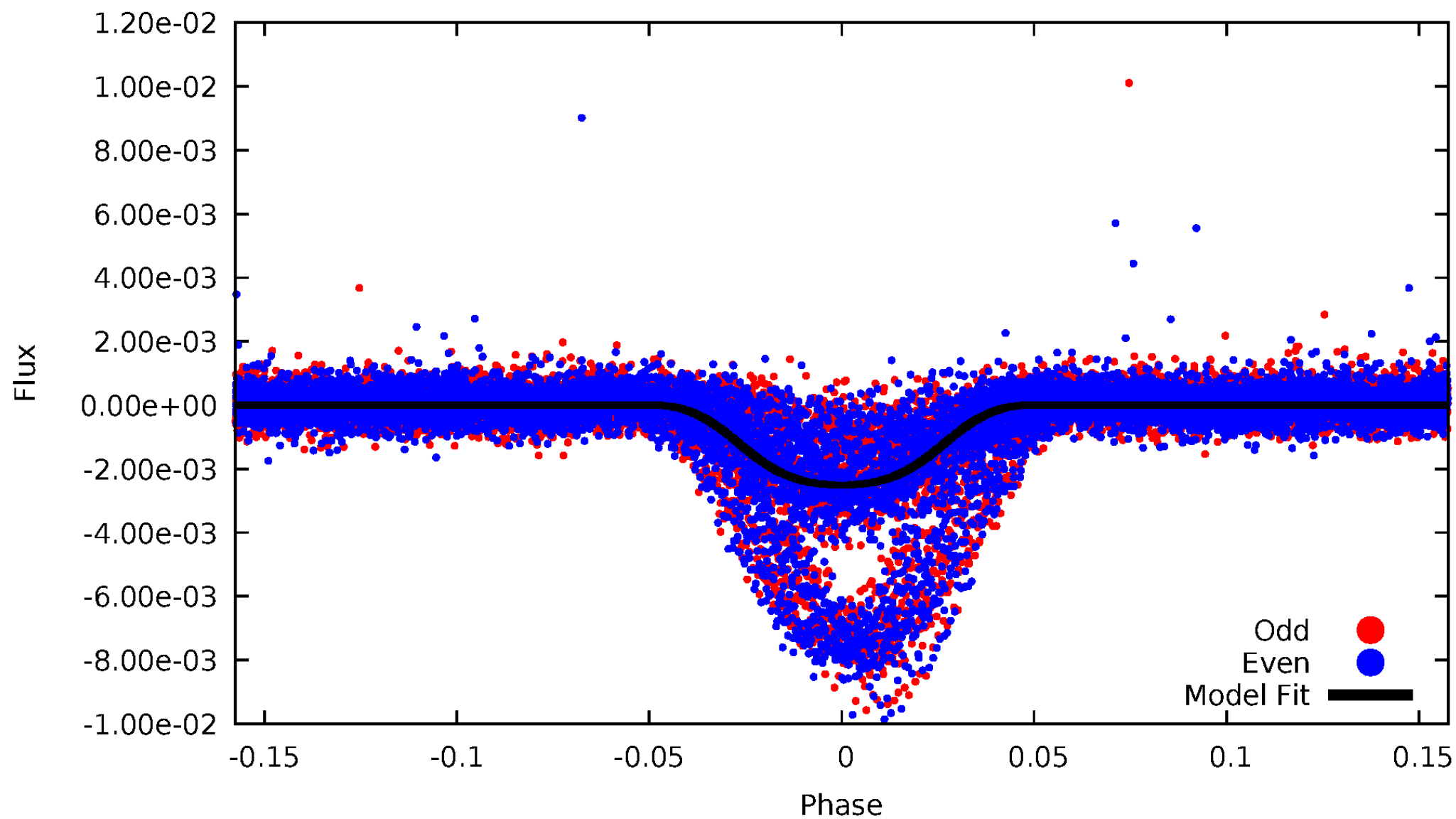


TCE 007842610-01



# DV Odd/Even

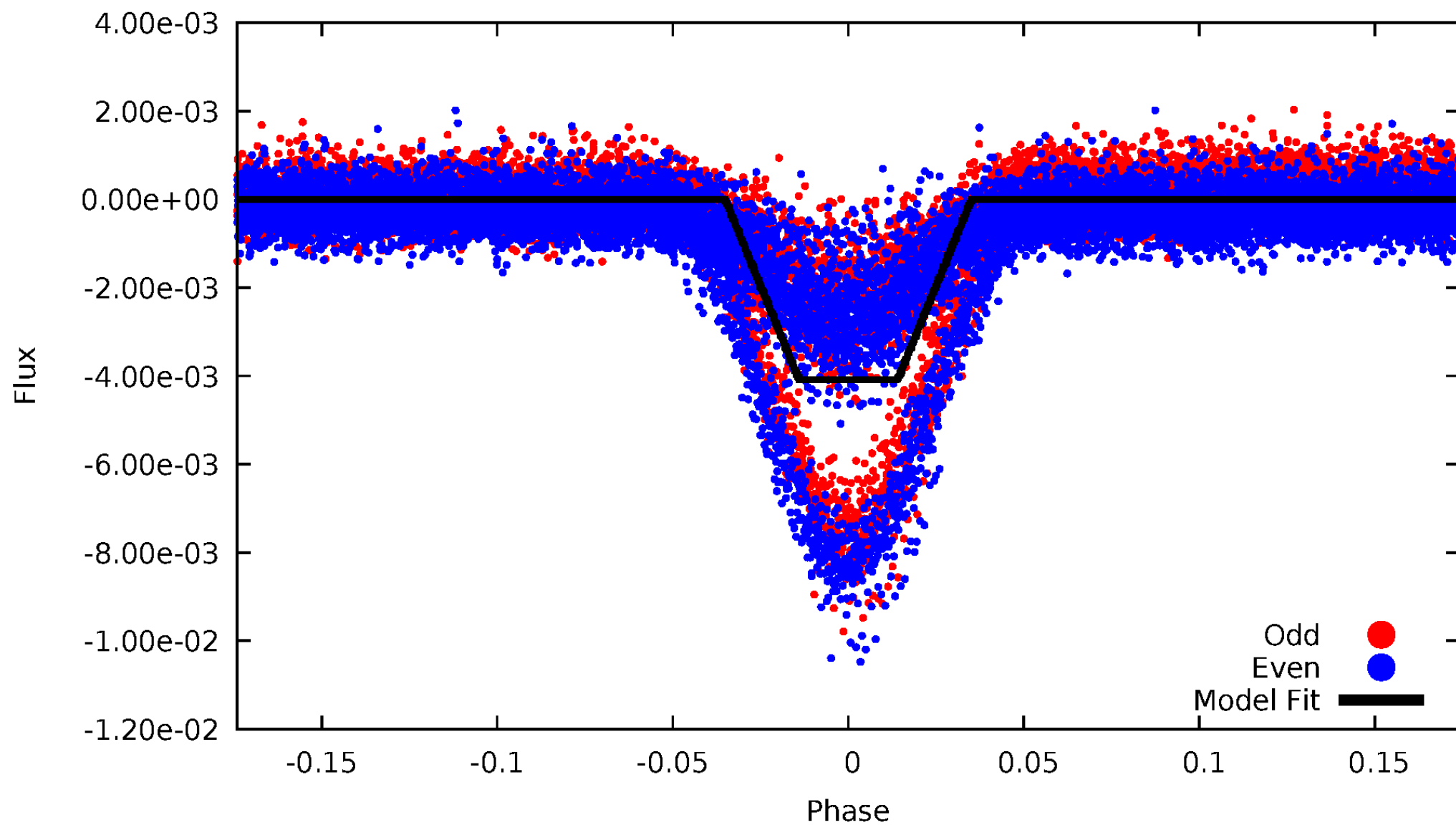
TCE 007842610-01





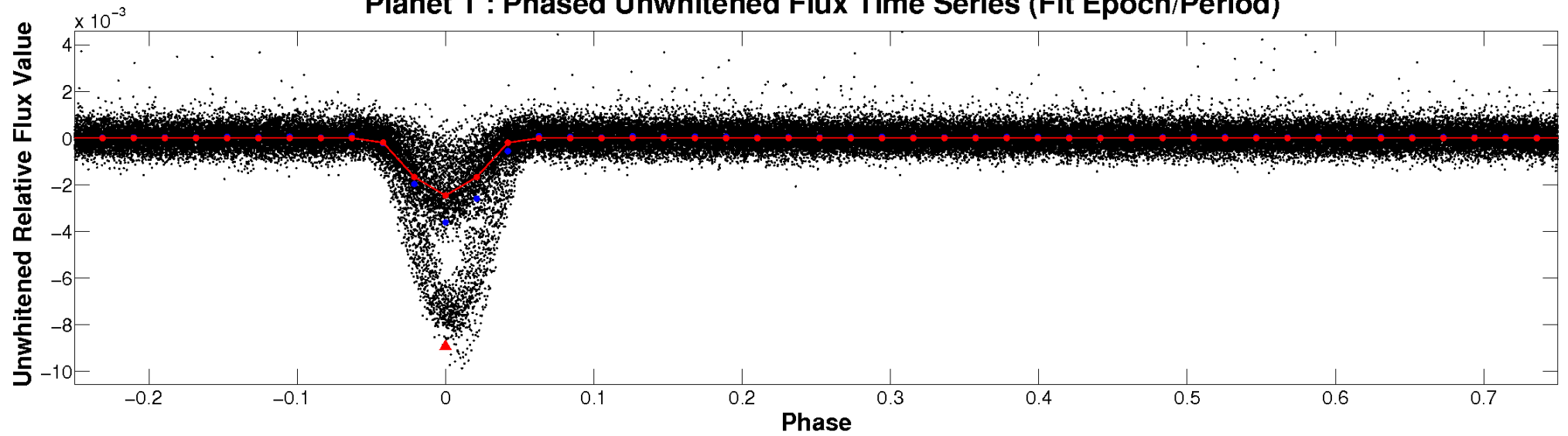
# ALT Odd/Even

TCE 007842610-01

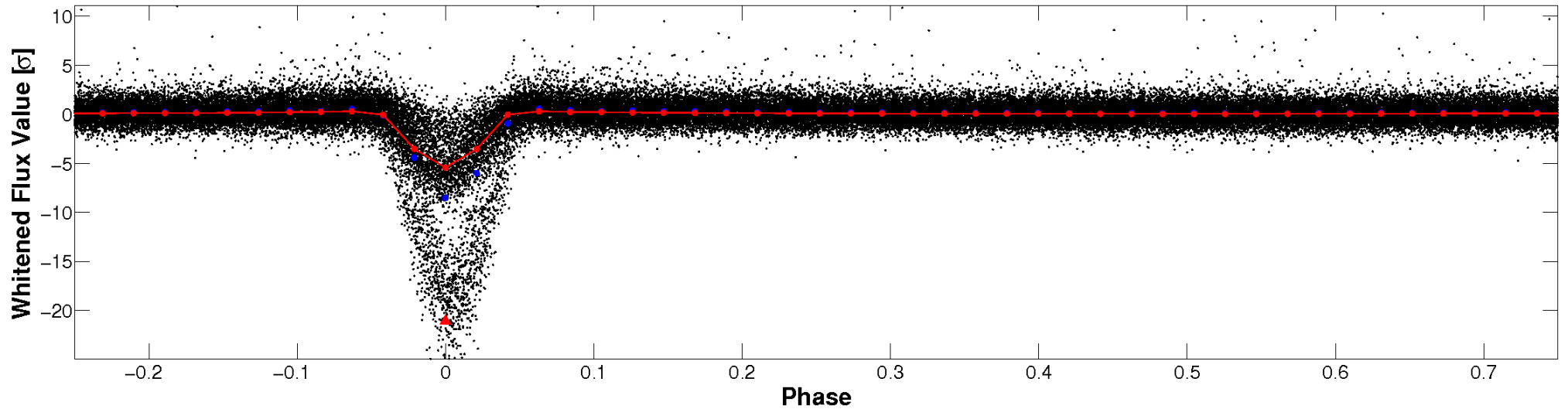


# Non-Whitened Vs. Whitened Light Curve

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

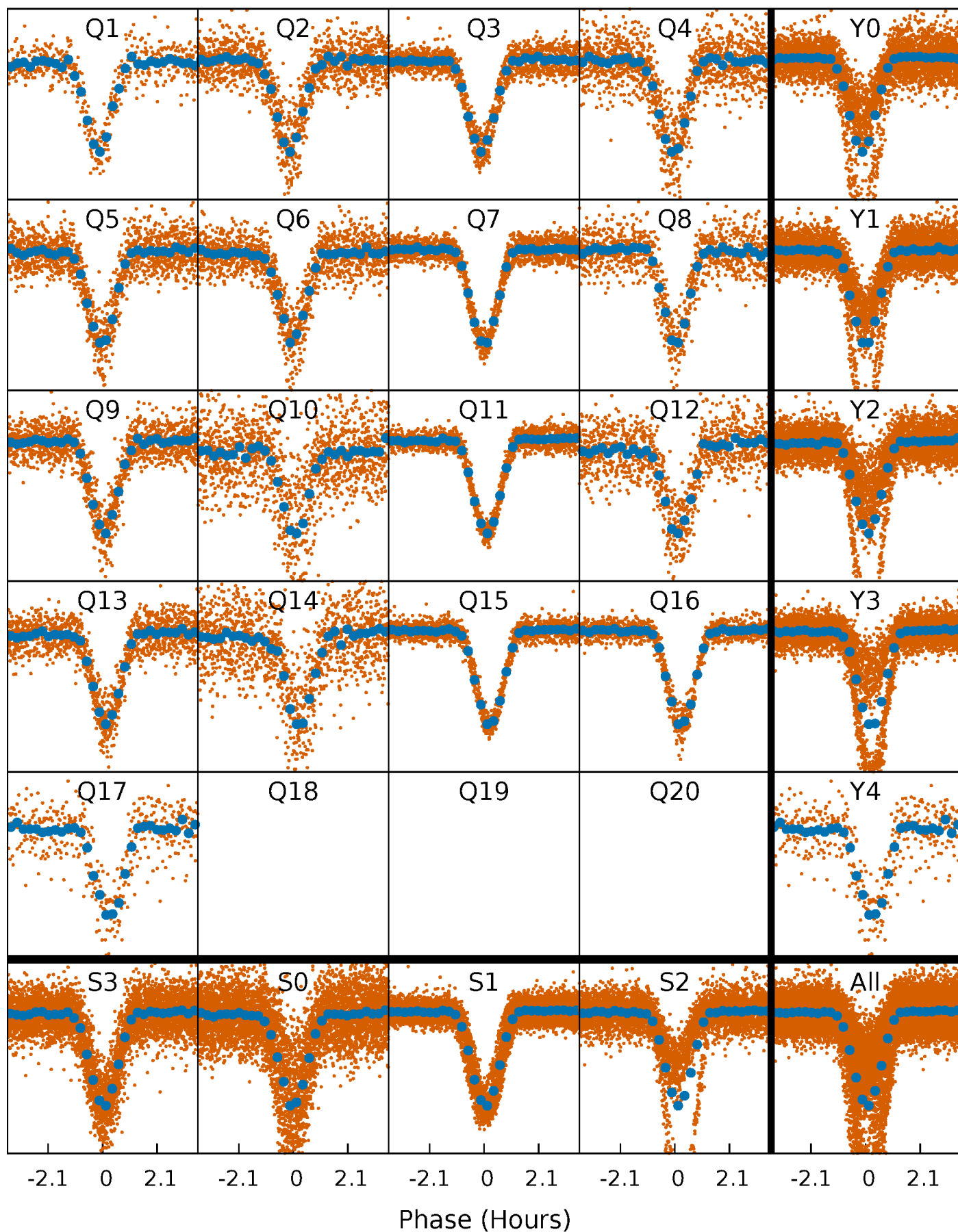


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

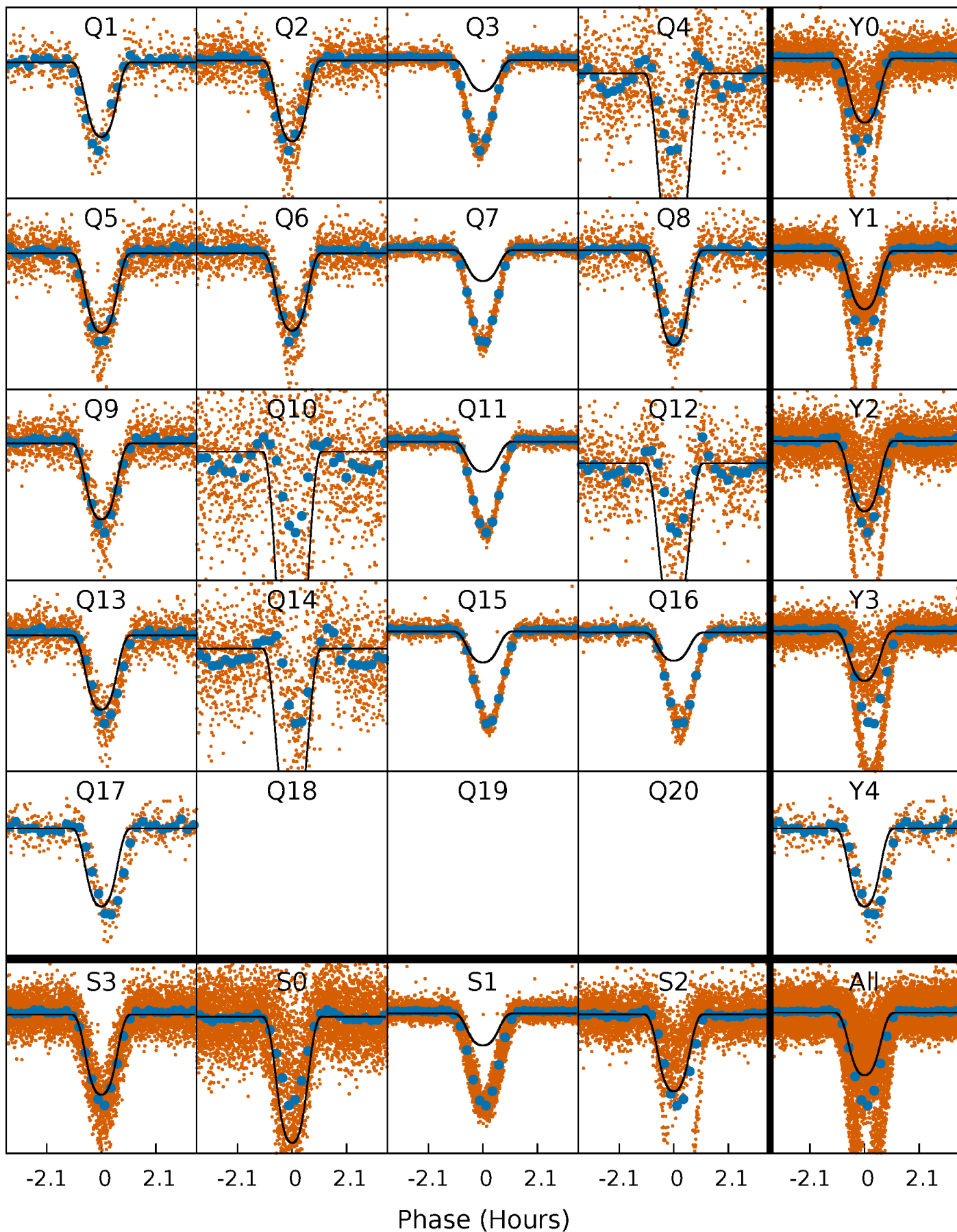
TCE 007842610-01 P= 0.971921 Days  $T_0=131.916682$  (BKJD)





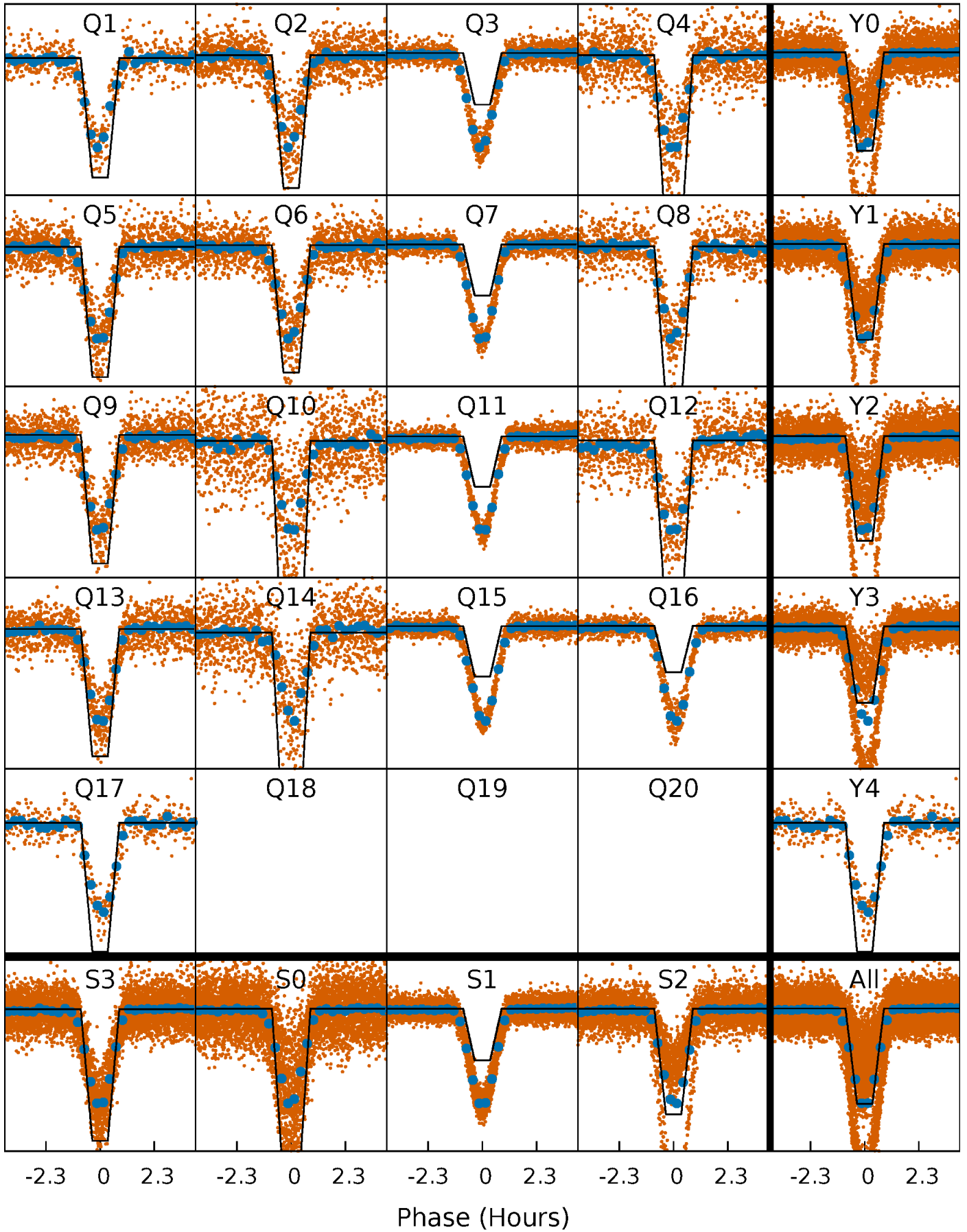
# DV Quarter-Phased Transit Curves

TCE 007842610-01 P= 0.971921 Days  $T_0=131.916682$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

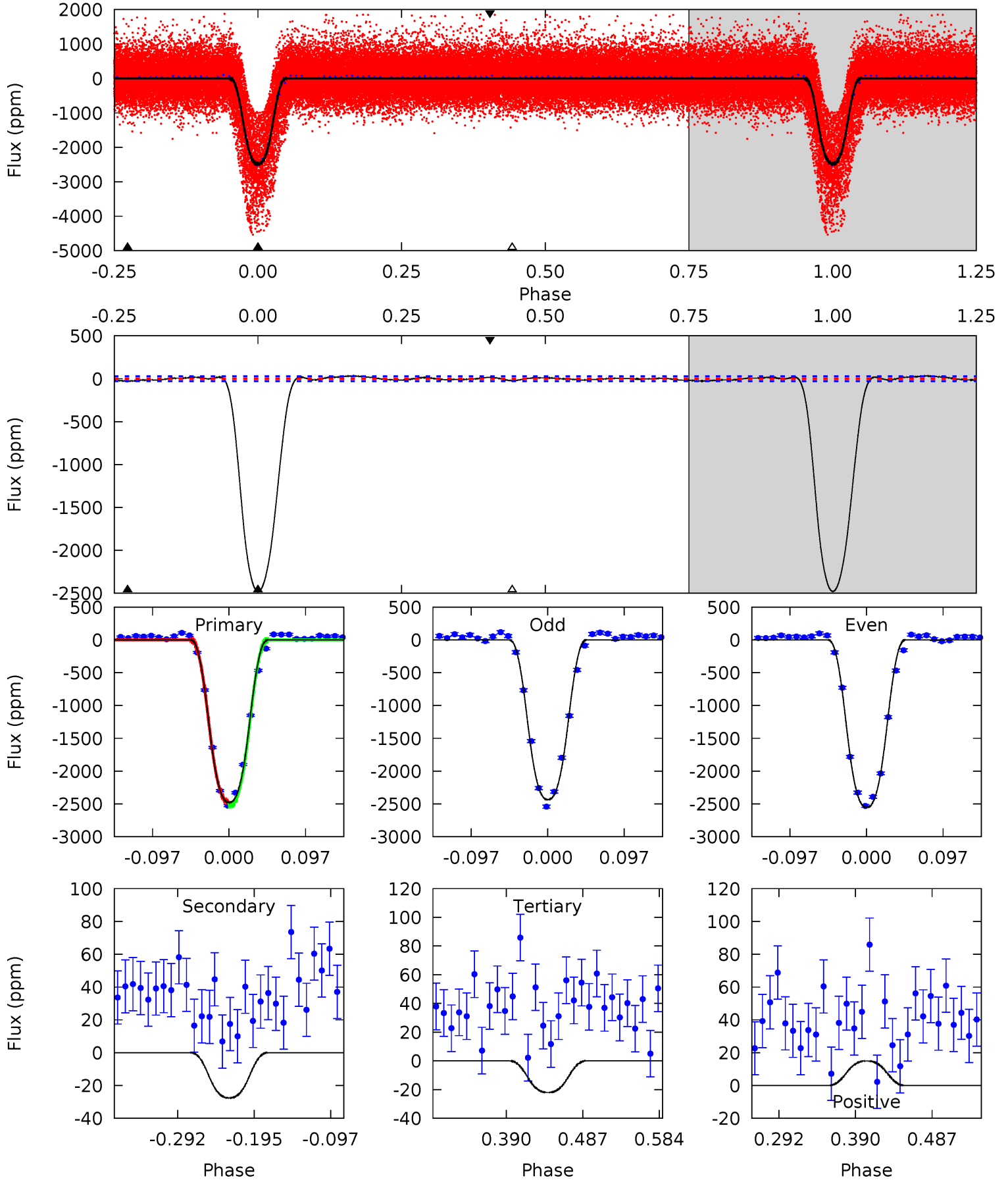
TCE 007842610-01 P= 0.971929 Days  $T_0=131.913546$  (BKJD)



# DV Model-Shift Uniqueness Test

007842610-01, P = 0.971921 Days, E = 130.944761 Days

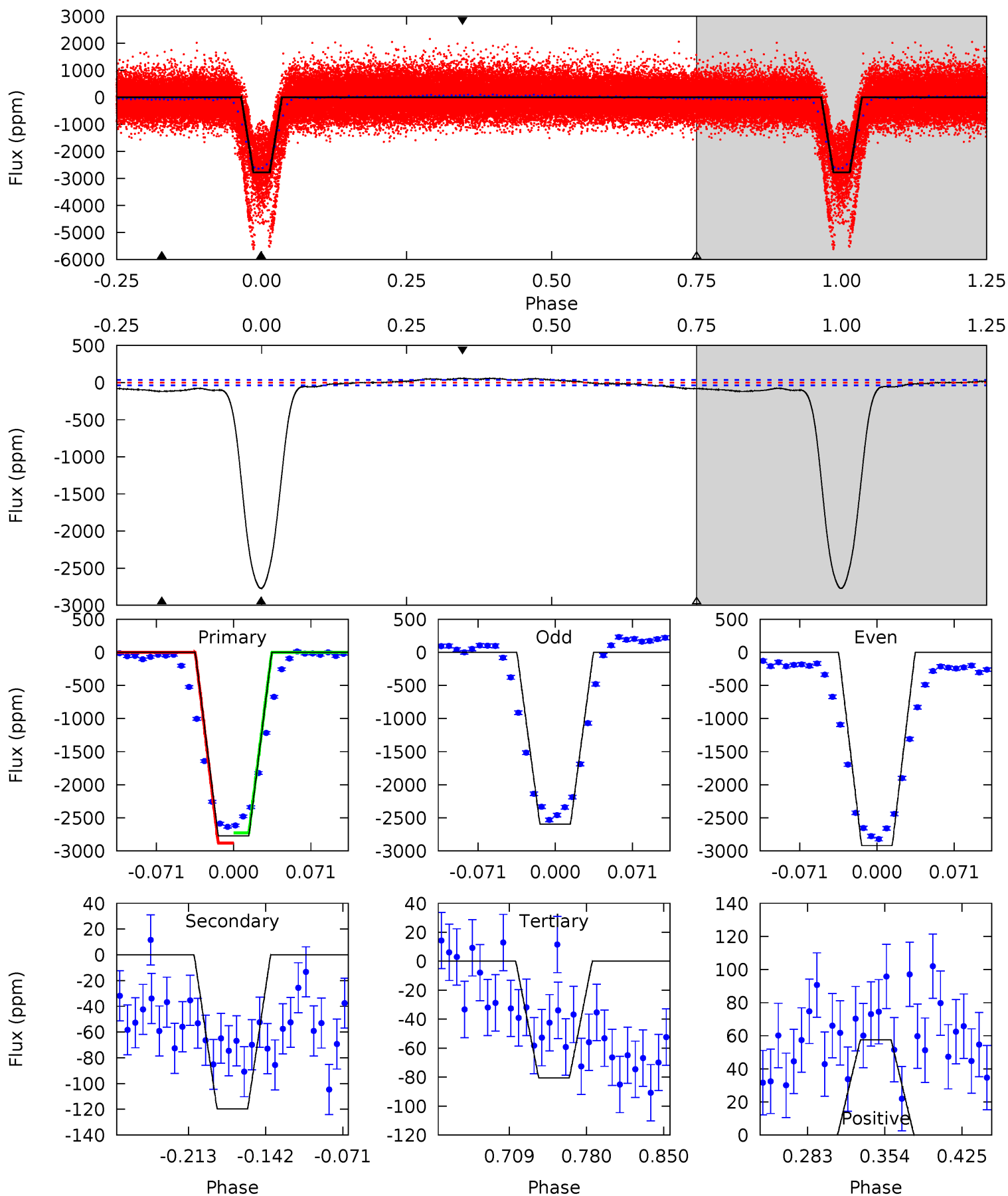
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
405.4	4.51	3.61	2.45	4.57	1.66	1.98	401.8	403.0	0.91	2.06	9.53	1.33	0.01	0



# Alt Model-Shift Uniqueness Test

007842610-01, P = 0.971929 Days, E = 130.941617 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
345.0	14.9	10.0	7.17	4.64	1.81	5.43	335.0	337.9	4.87	7.73	20.2	1.38	0.02	9.51



### Stellar Parameters For KIC 007842610

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5592^{+169}_{-169}$	$4.445^{+0.098}_{-0.182}$	$-0.080^{+0.300}_{-0.300}$	$0.931^{+0.236}_{-0.127}$	$0.883^{+0.114}_{-0.085}$	$1.539^{+0.657}_{-0.744}$
	+3%/-3%	+2%/-4%	+375%/-375%	+25%/-14%	+13%/-10%	+43%/-48%
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 007842610-01 / KOI 1453.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-28 \pm 6$	$5.89^{+0.80}_{-0.47}$	$2474^{+150}_{-119}$	$-2550^{+142}_{-137}$	$0.143^{+0.044}_{-0.041}$
Alt.	$-120 \pm 8$	$6.58^{+0.91}_{-0.57}$	$2483^{+169}_{-132}$	$2642^{+104}_{-182}$	$0.512^{+0.101}_{-0.119}$

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



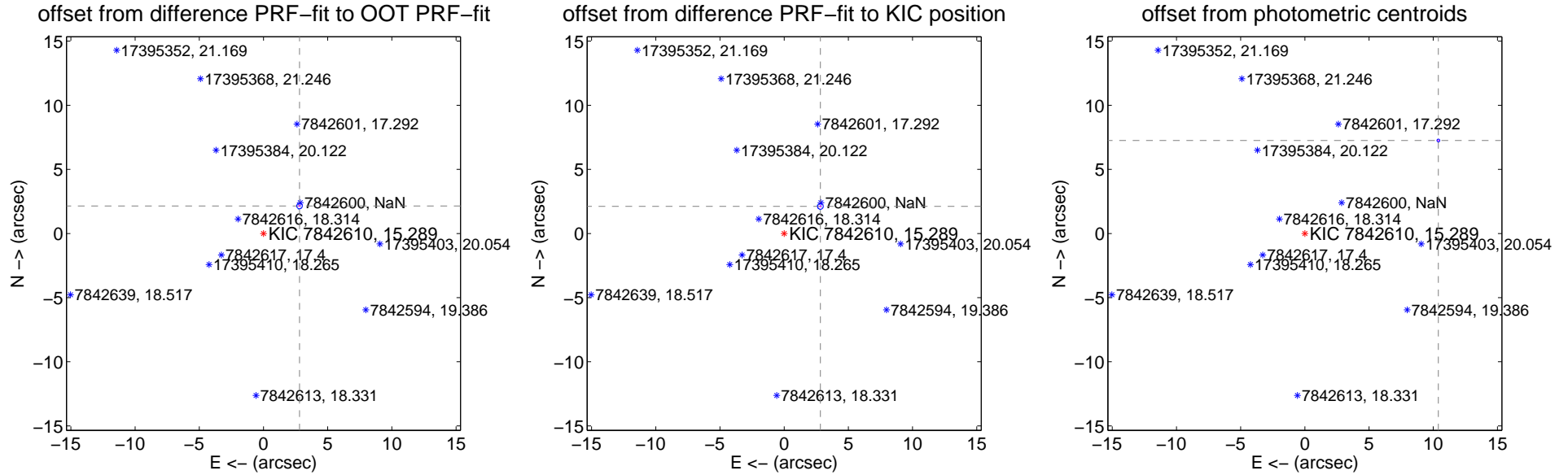
## DV Centroid Data

Supplemental centroid analysis for 007842610-01. Kepler magnitude: 15.29. Transit SNR 202.94

There are 17 quarters with good PRF difference image offsets

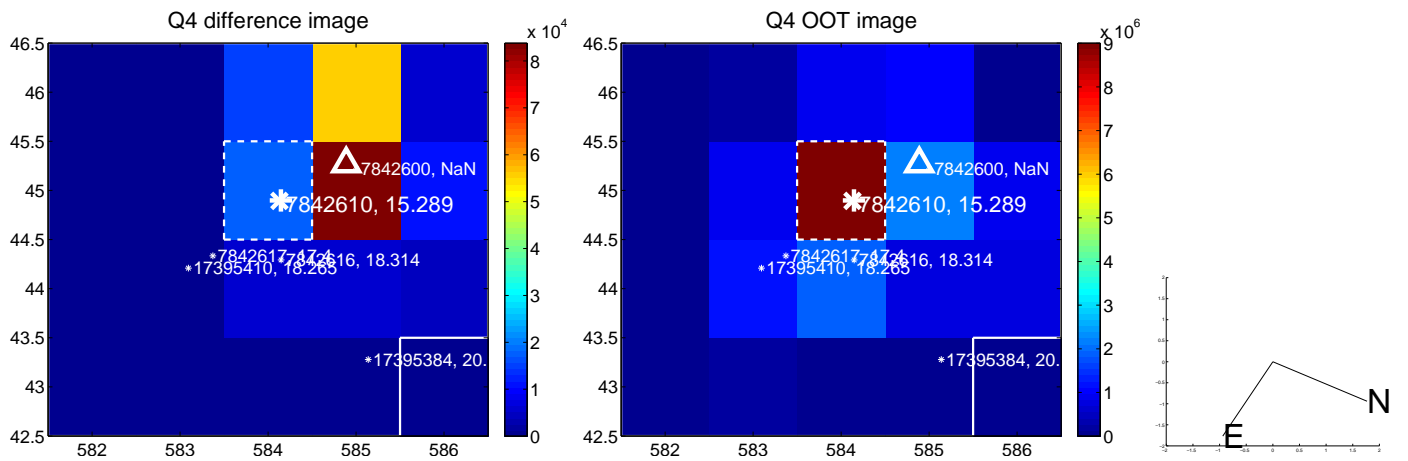
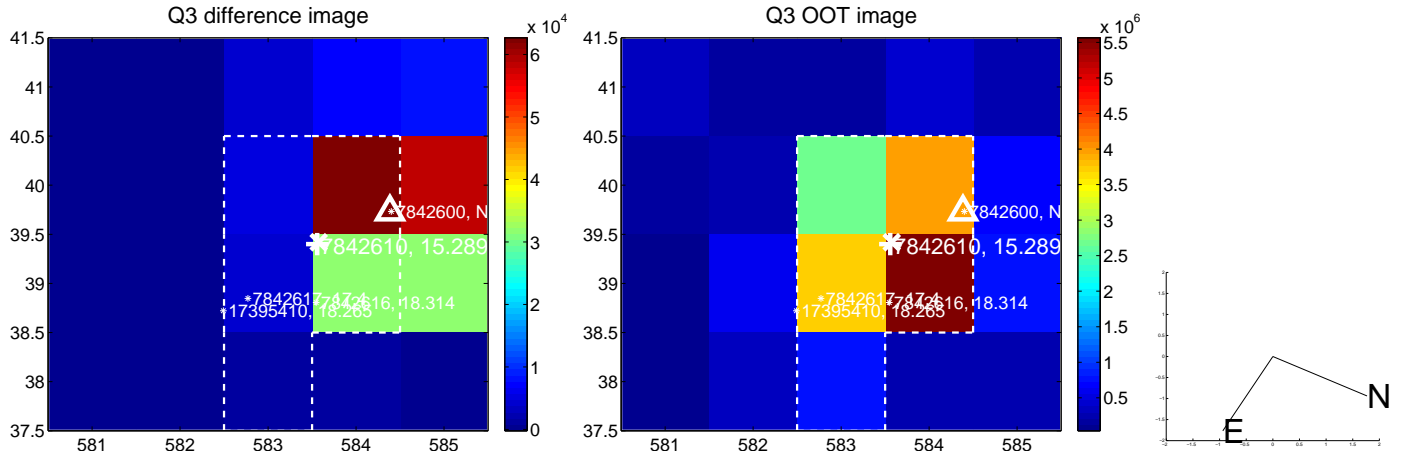
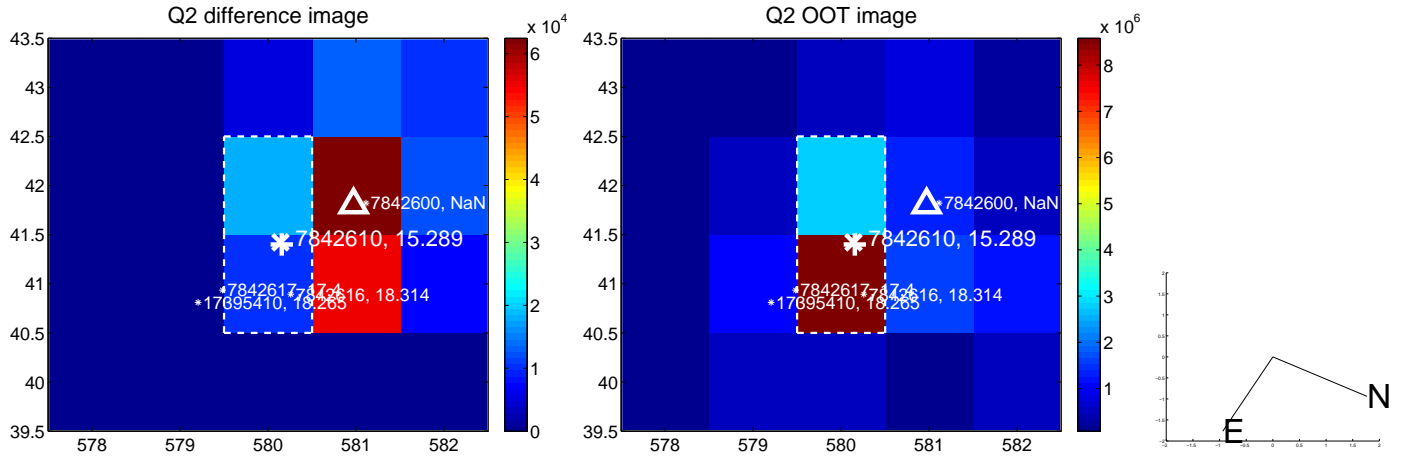
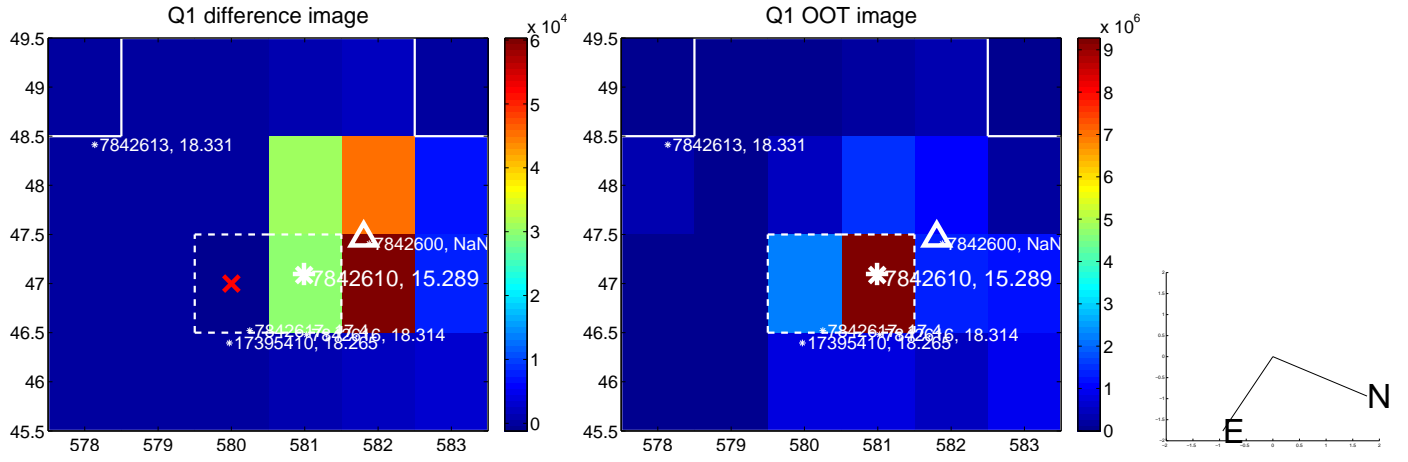
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>3.535 <math>\pm</math> 0.073</b>	<b>48.49</b>	-2.807 $\pm$ 0.072	2.147 $\pm$ 0.075
PRF-fit source offset from KIC position	<b>3.526 <math>\pm</math> 0.075</b>	<b>47.26</b>	-2.822 $\pm$ 0.076	2.114 $\pm$ 0.073
photometric centroid source offset	<b>12.68 <math>\pm</math> 0.04</b>	<b>347.22</b>	-10.40 $\pm$ 0.04	7.25 $\pm$ 0.04

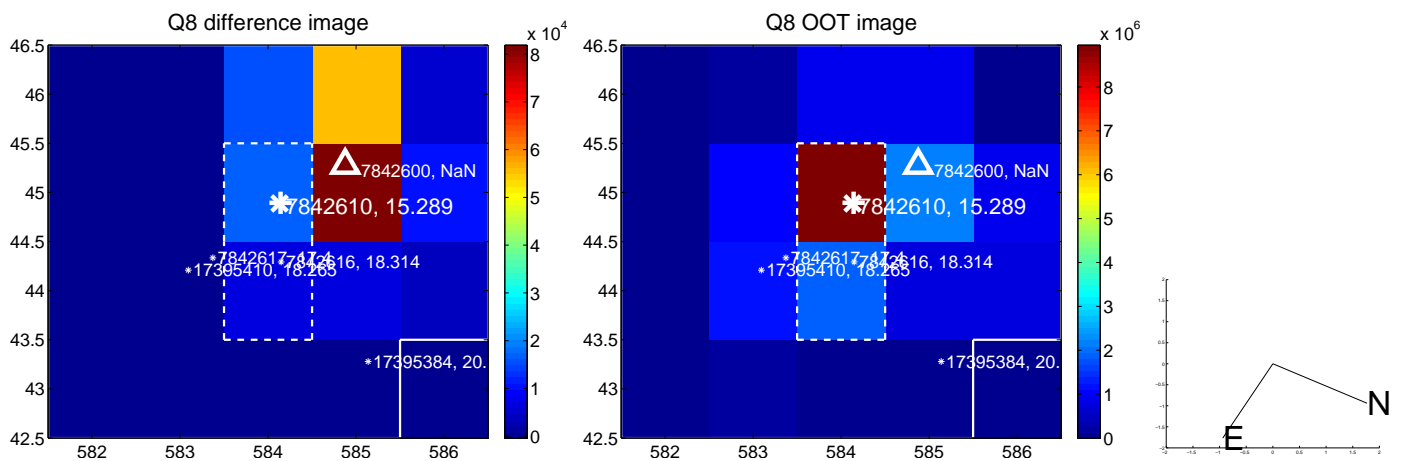
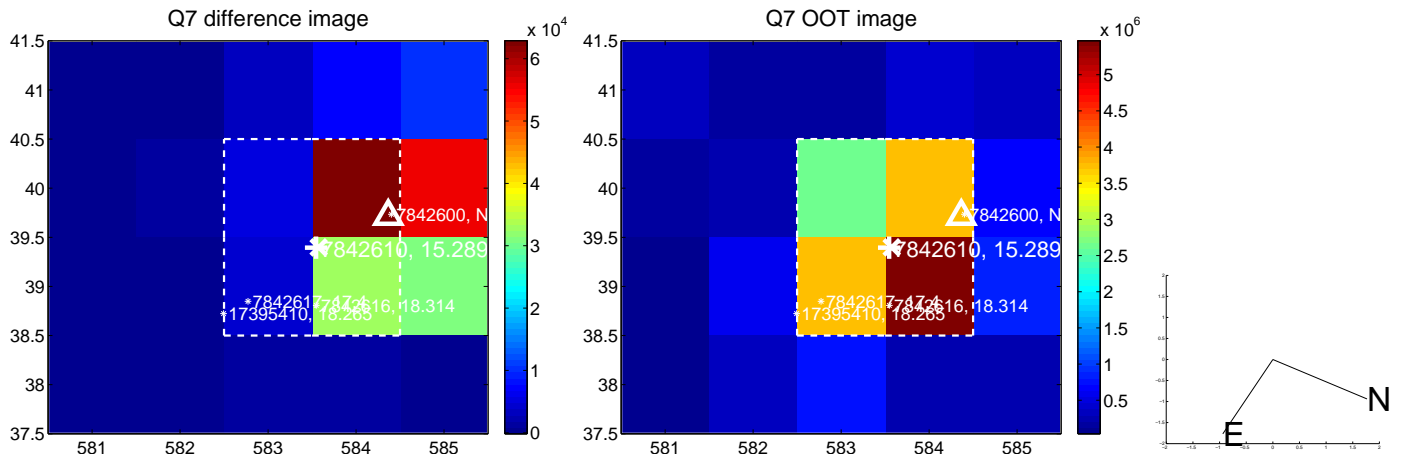
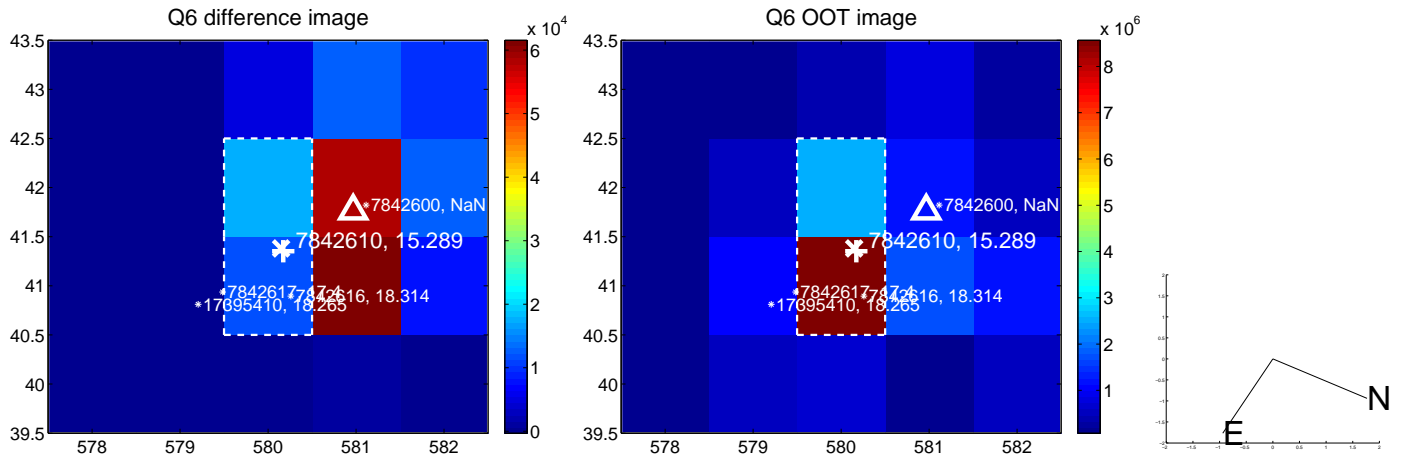
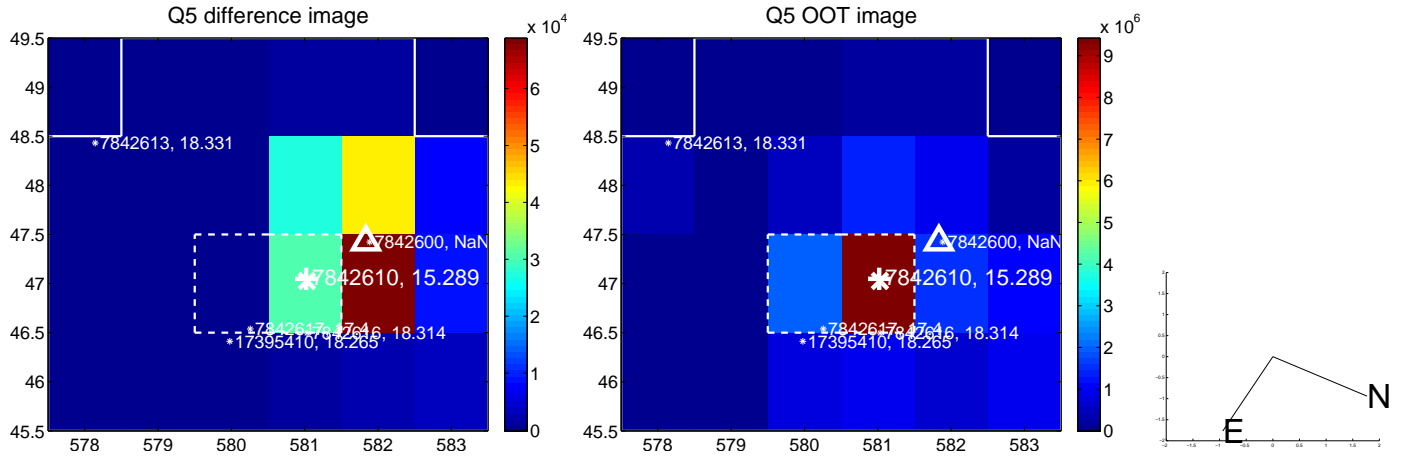


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

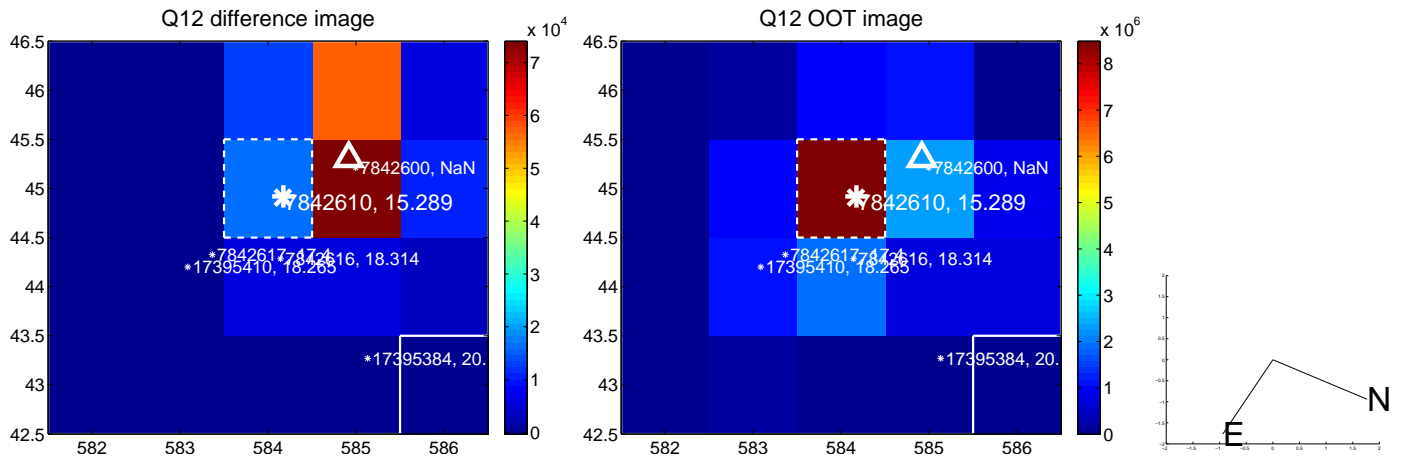
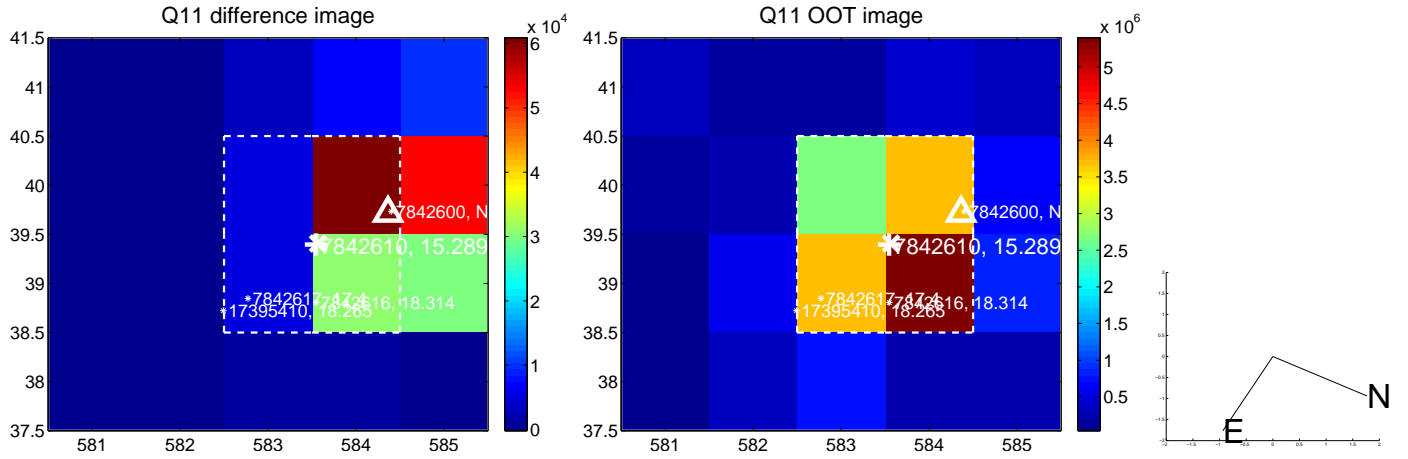
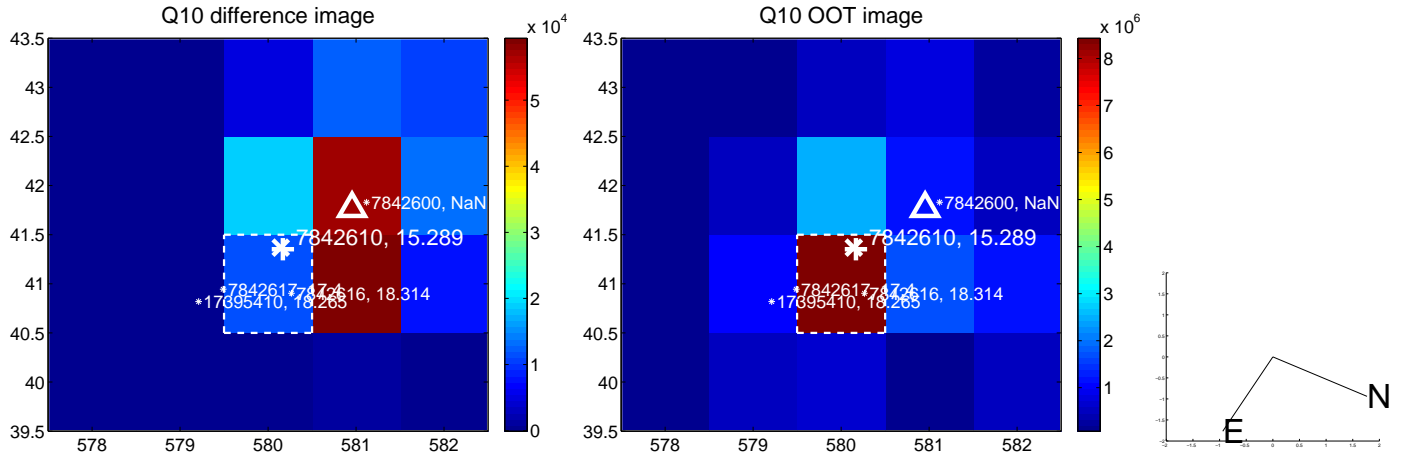
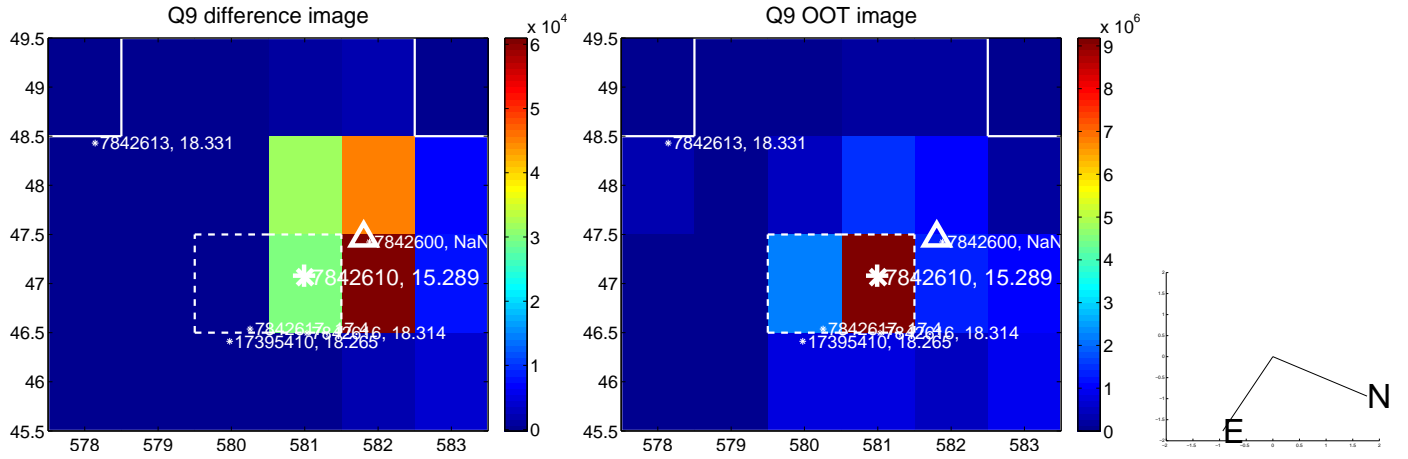
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



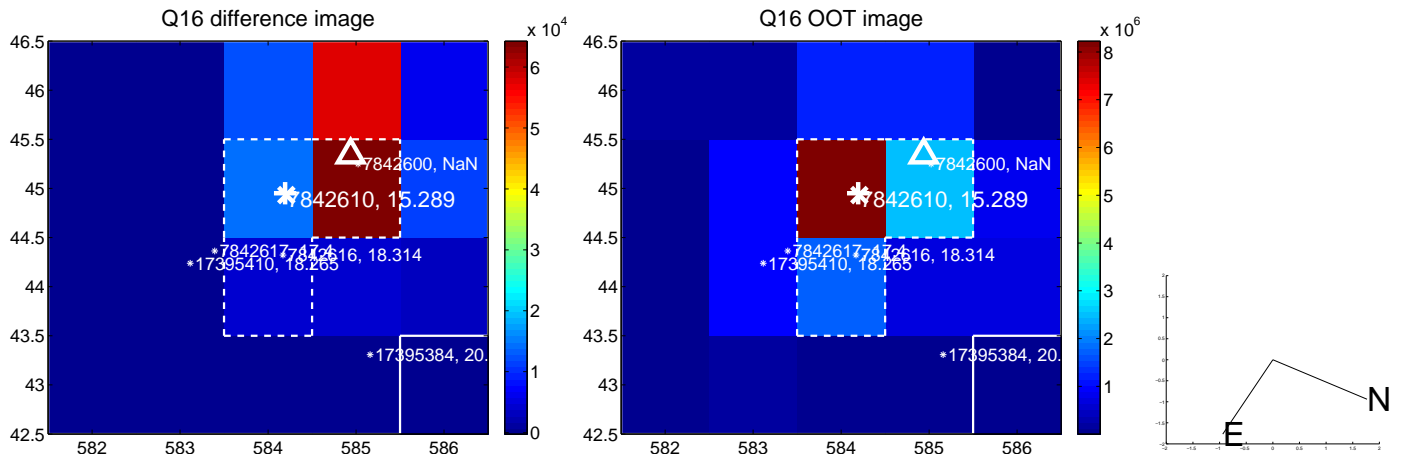
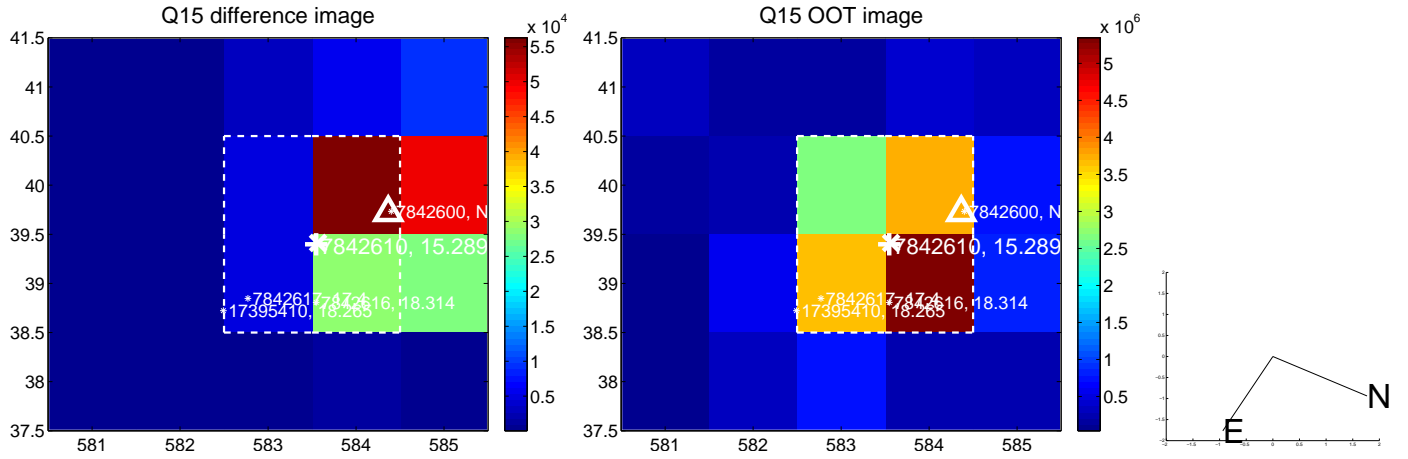
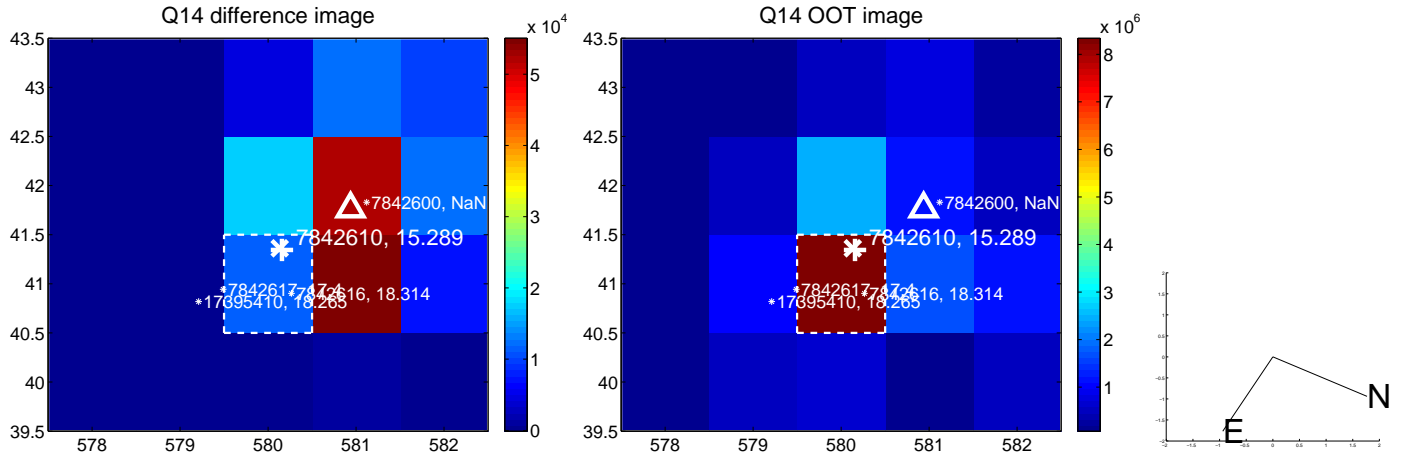
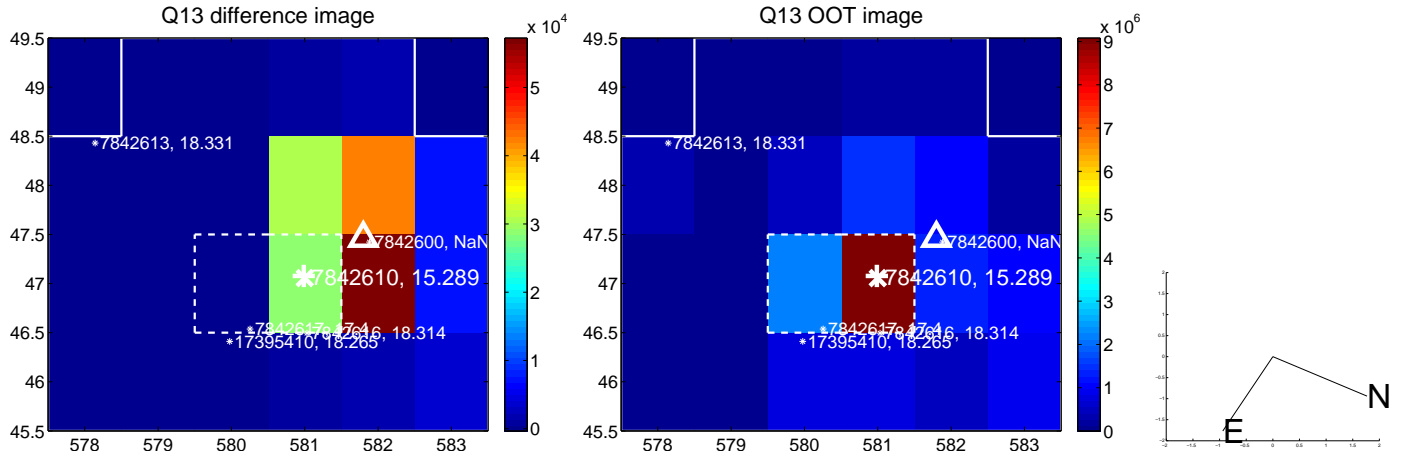
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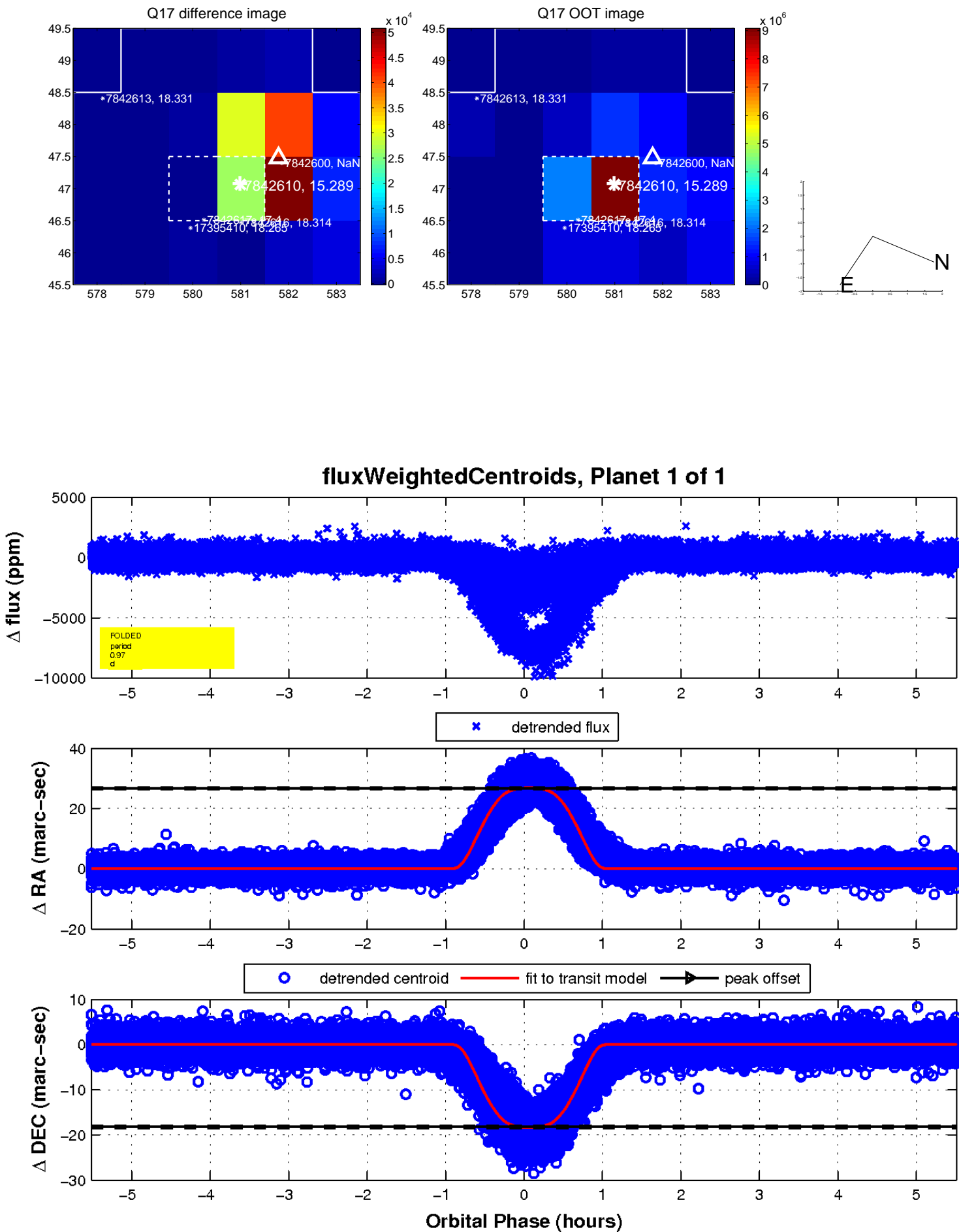


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



# UKIRT Image

Declination

