

# KIC 009846348

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009846348-01	OBS	0716.01	26.893155	153.059317	2161.8	2.316	121.6	118.1	0.91	6096	5.92	33.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009846348-01	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.

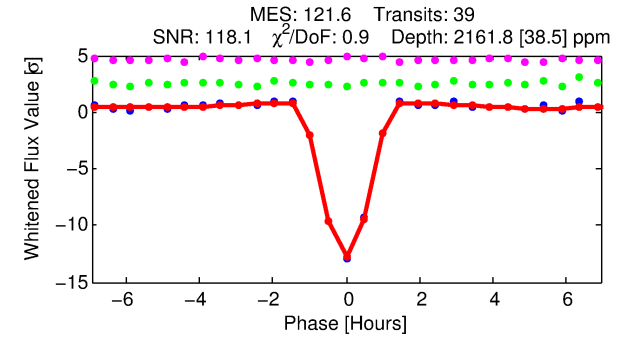
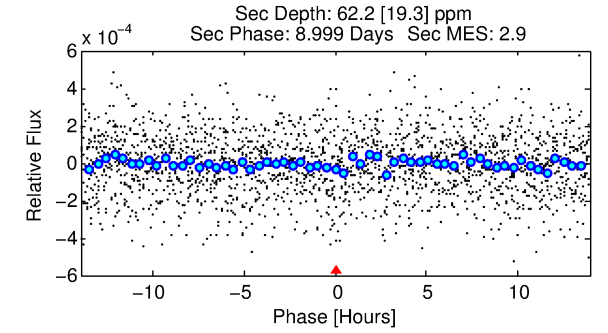
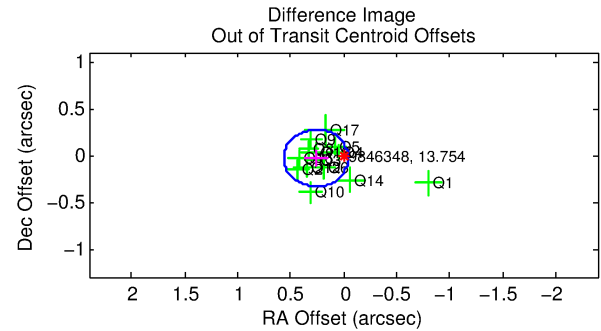
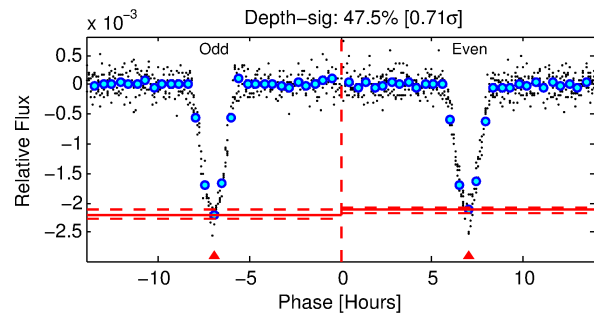
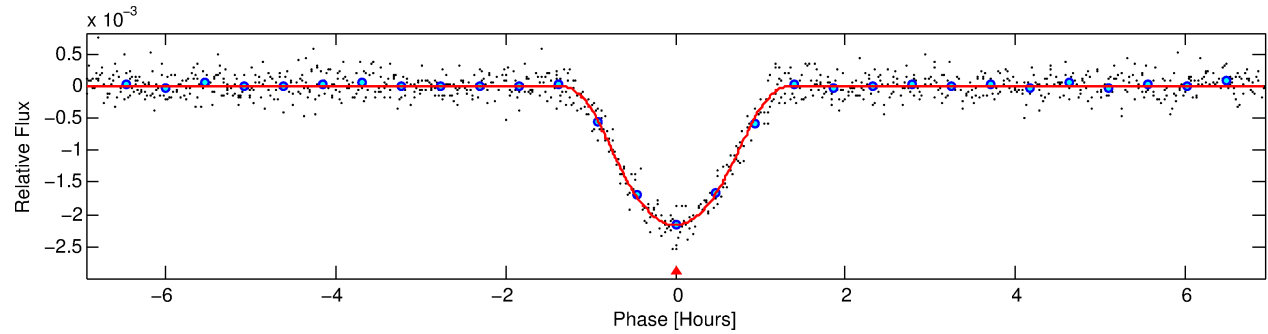
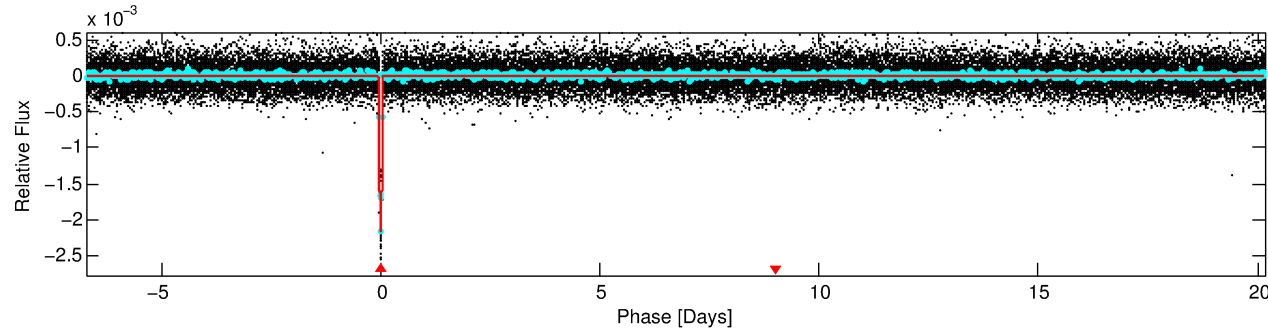
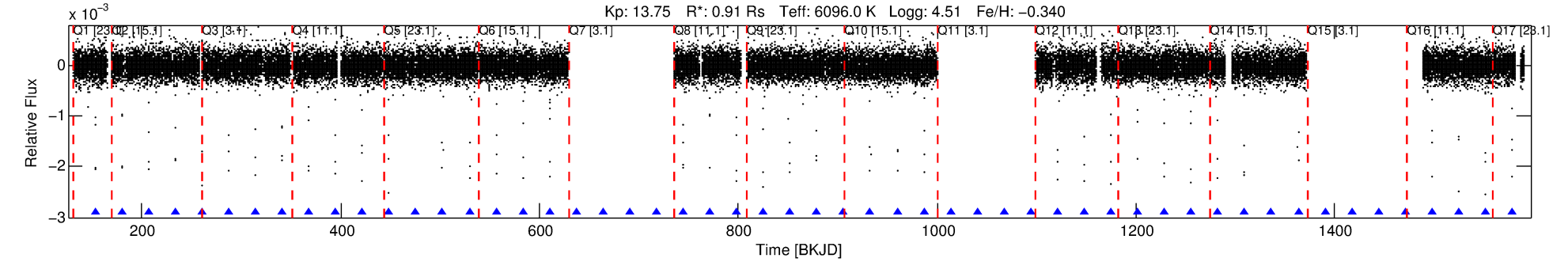
## Ephemeris Match Information For 009846348-01

No Significant Match Found

# DV One-Page Summary

KIC: 9846348 Candidate: 1 of 1 Period: 26.893 d

KOI: K00716.01 Corr: 0.997



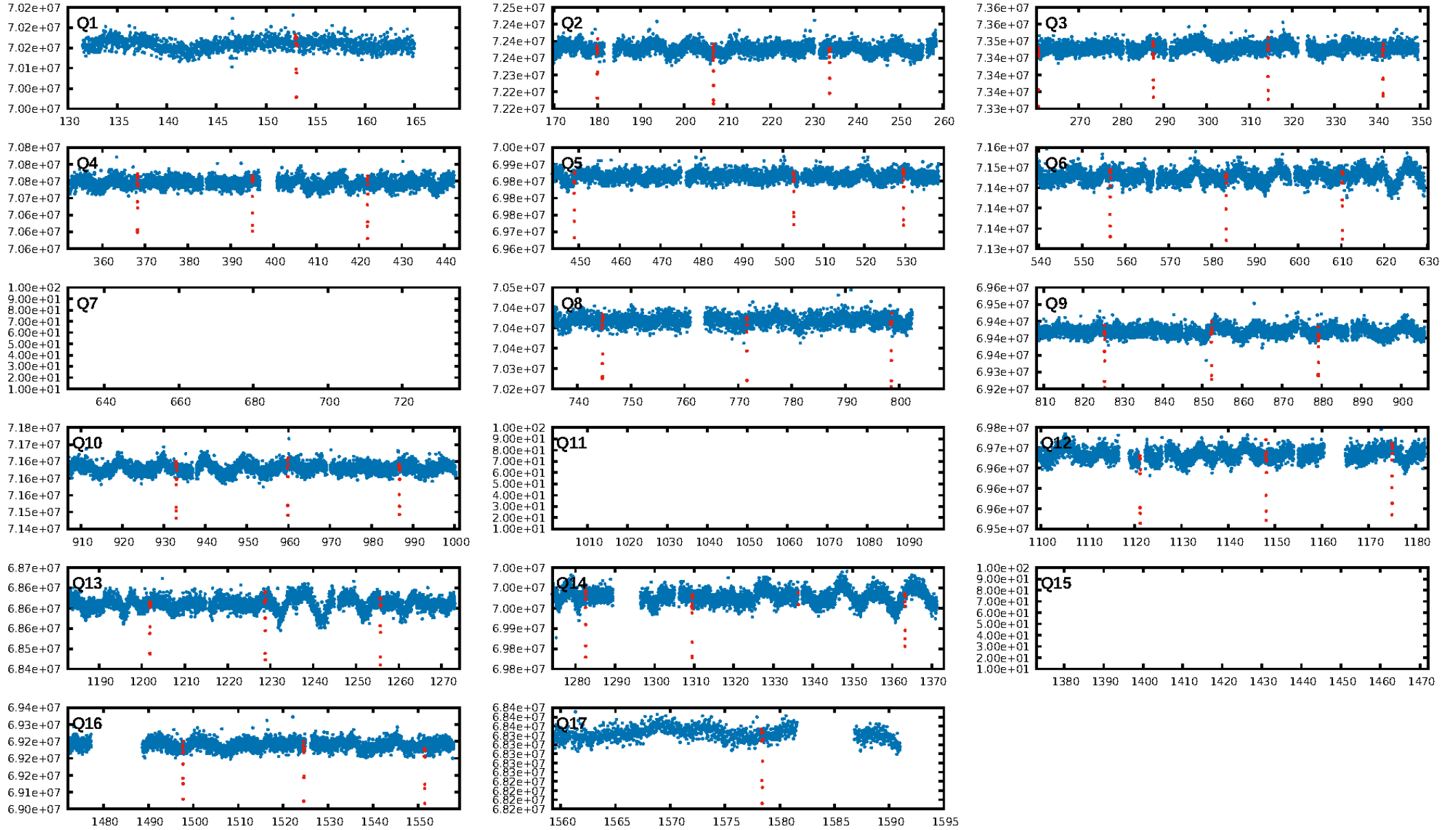
## DV Fit Results:

Period = 26.89316 [0.00001] d  
Epoch = 153.0593 [0.0004] BKJD  
Rp/R\* = 0.0597 [0.0071]  
a/R\* = 38.88 [2.15]  
b = 0.96 [0.02]  
Seff = 33.60 [13.80]  
Teq = 614 [63] K  
Rp = 5.92 [2.00] Re  
a = 0.1743 [0.0467] AU  
Ag = 29.66 [16.44] [1.74 $\sigma$ ]  
Teffp = 2215 [227] K [6.81 $\sigma$ ]

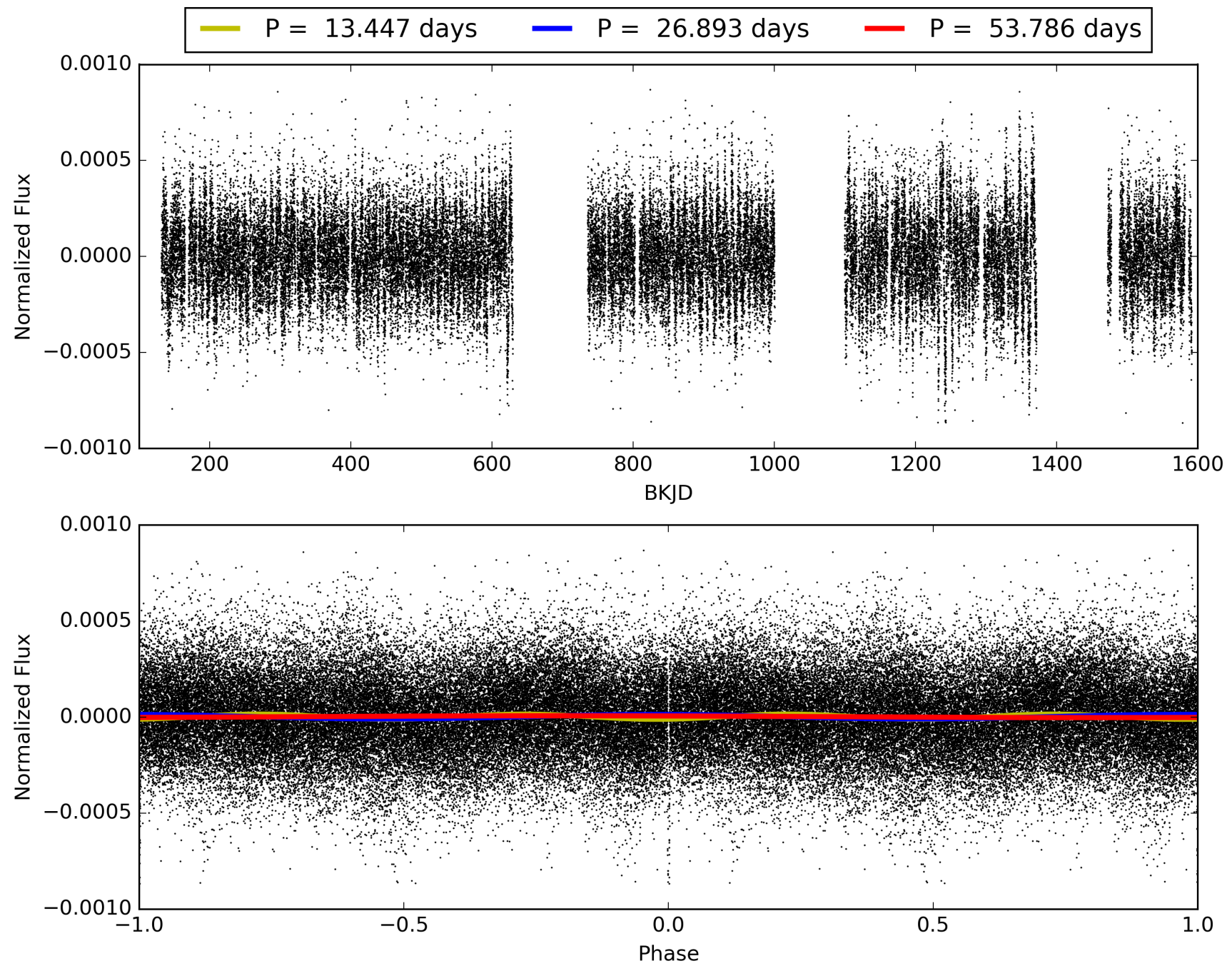
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 69.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [37/37]  
GhostDiagnostic-chr: 6.187  
Centroid-sig: 12.2%  
Centroid-so: 0.014 arcsec [0.12 $\sigma$ ]  
OotOffset-rm: 0.261 arcsec [2.58 $\sigma$ ]  
KicOffset-rm: 0.158 arcsec [1.52 $\sigma$ ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 009846348-01, PDC Light Curves

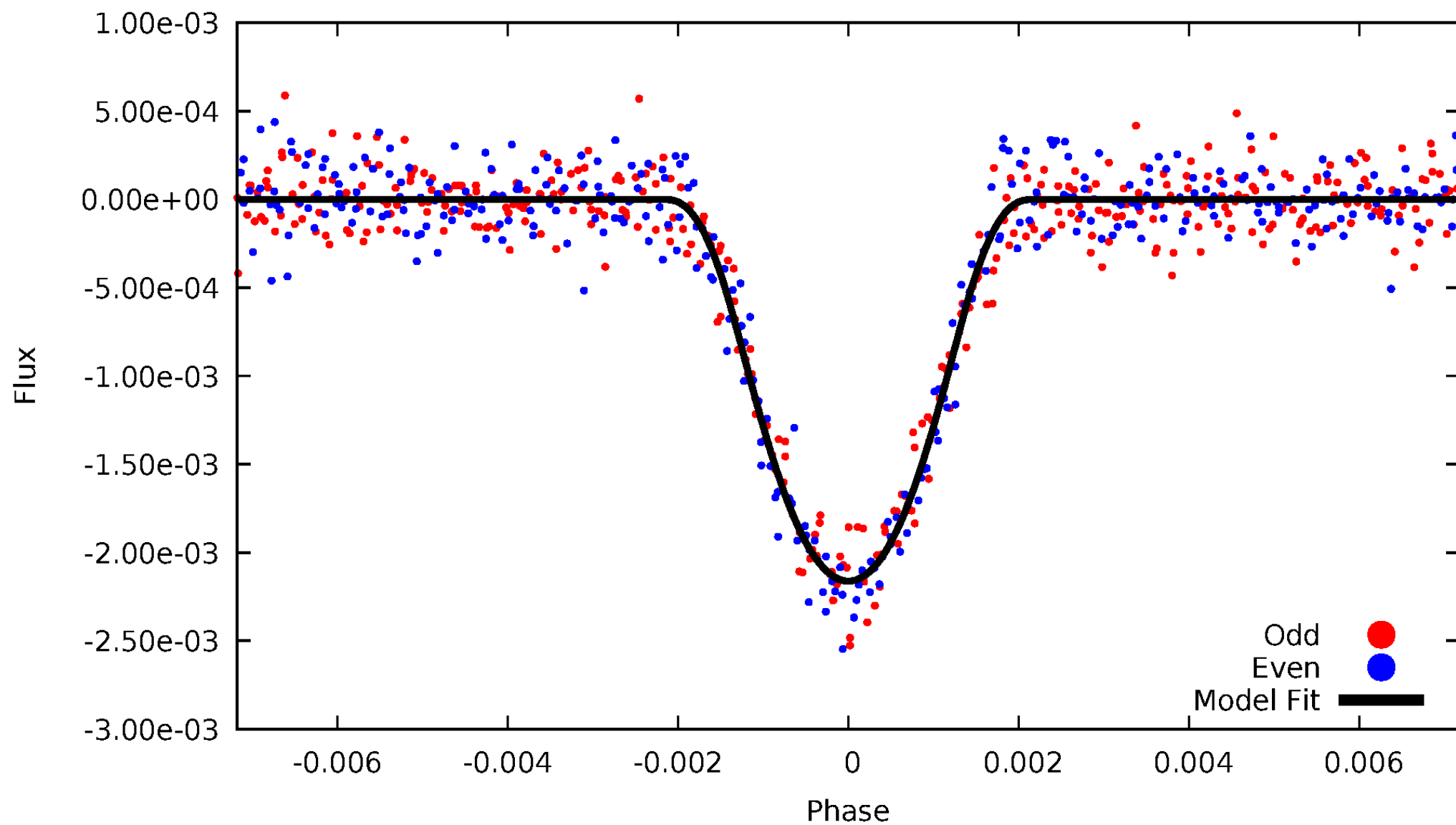


TCE 009846348-01



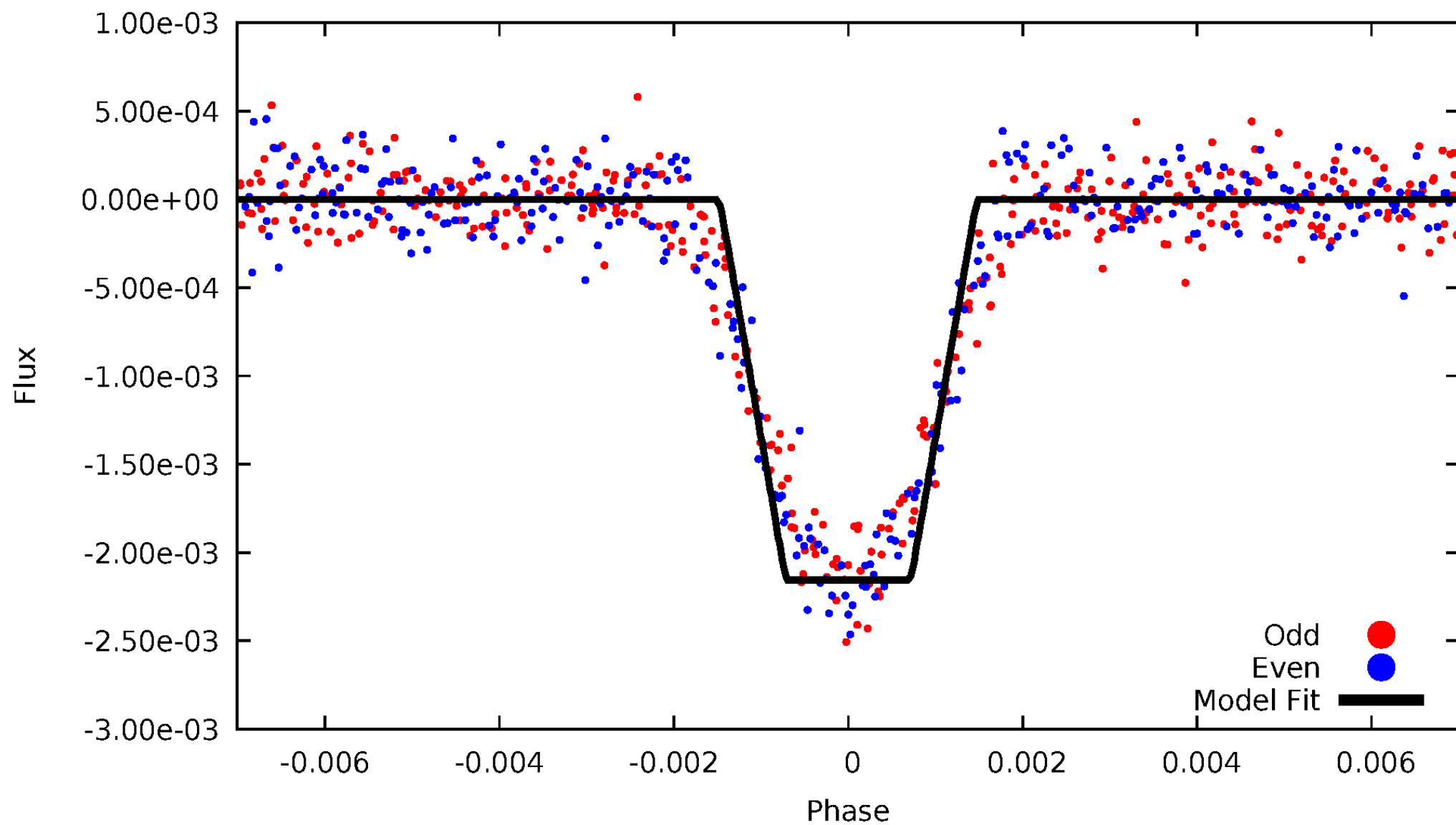
# DV Odd/Even

TCE 009846348-01



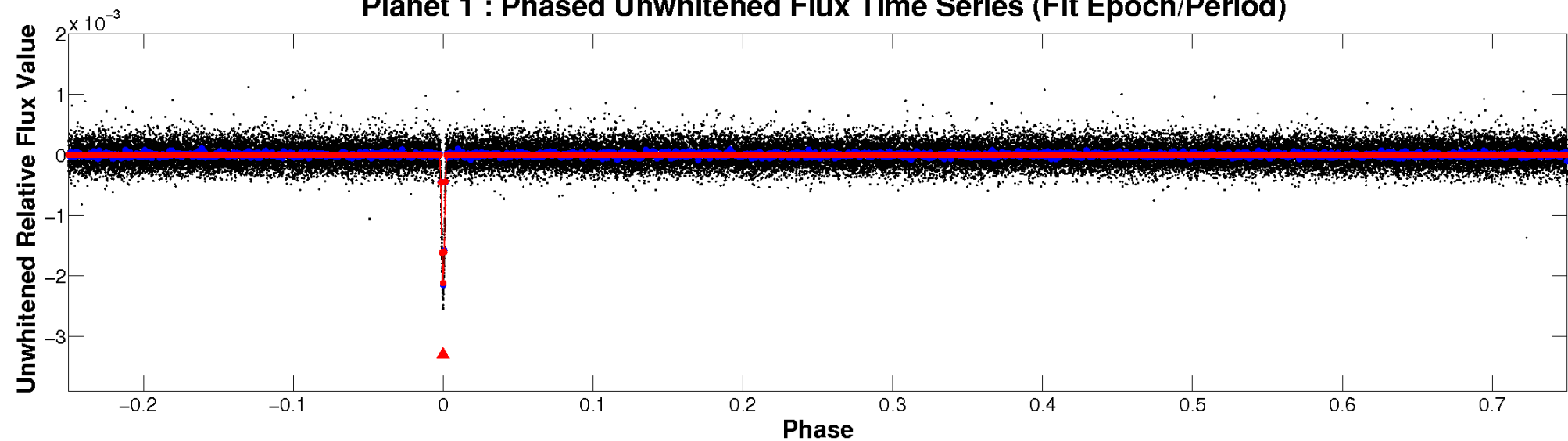
# ALT Odd/Even

TCE 009846348-01

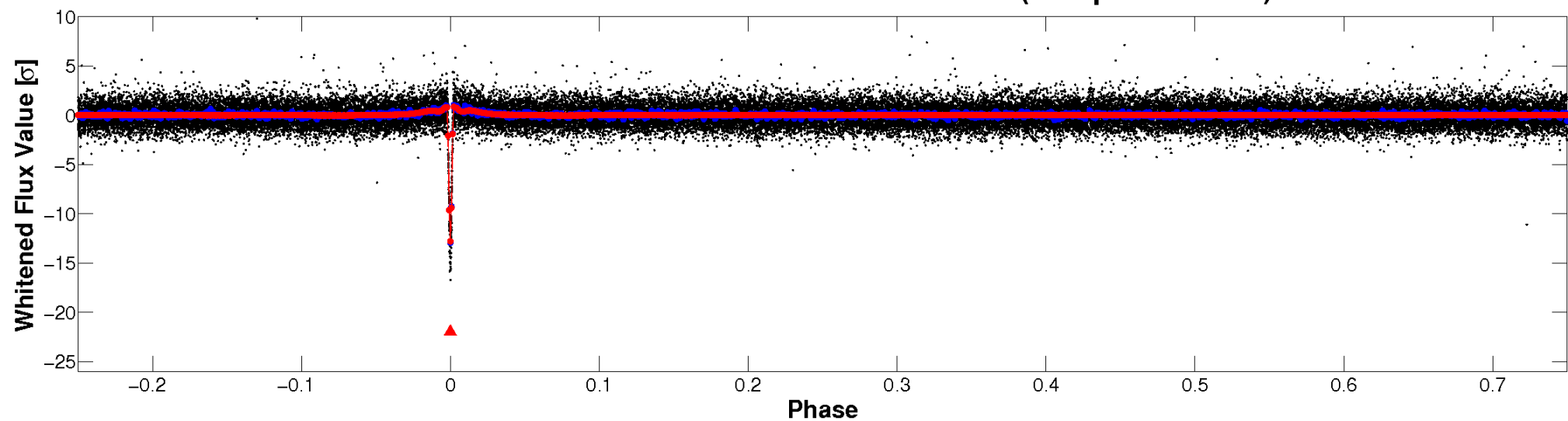


# Non-Whitened Vs. Whitened Light Curve

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

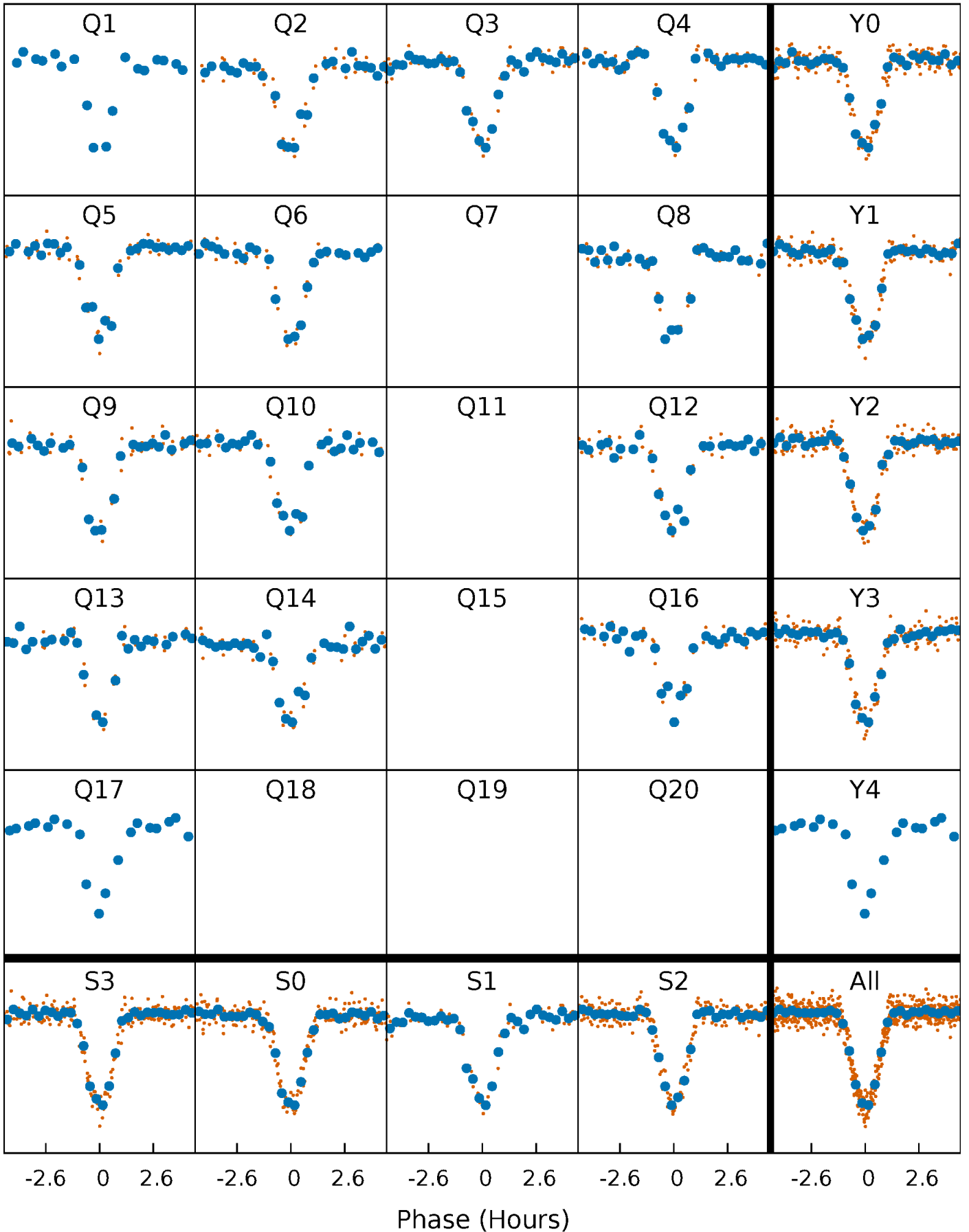


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

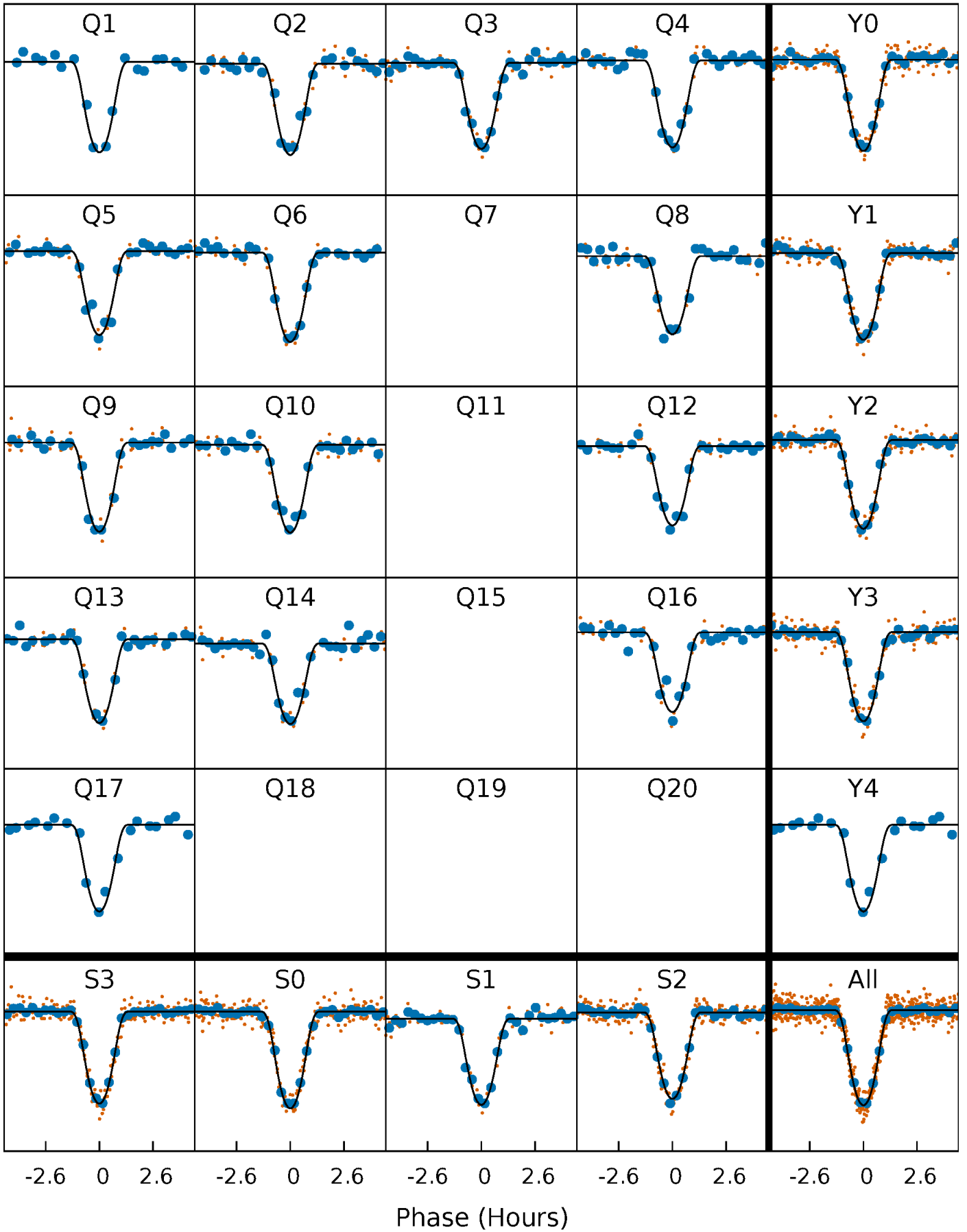
TCE 009846348-01 P= 26.893155 Days  $T_0=153.059317$  (BKJD)





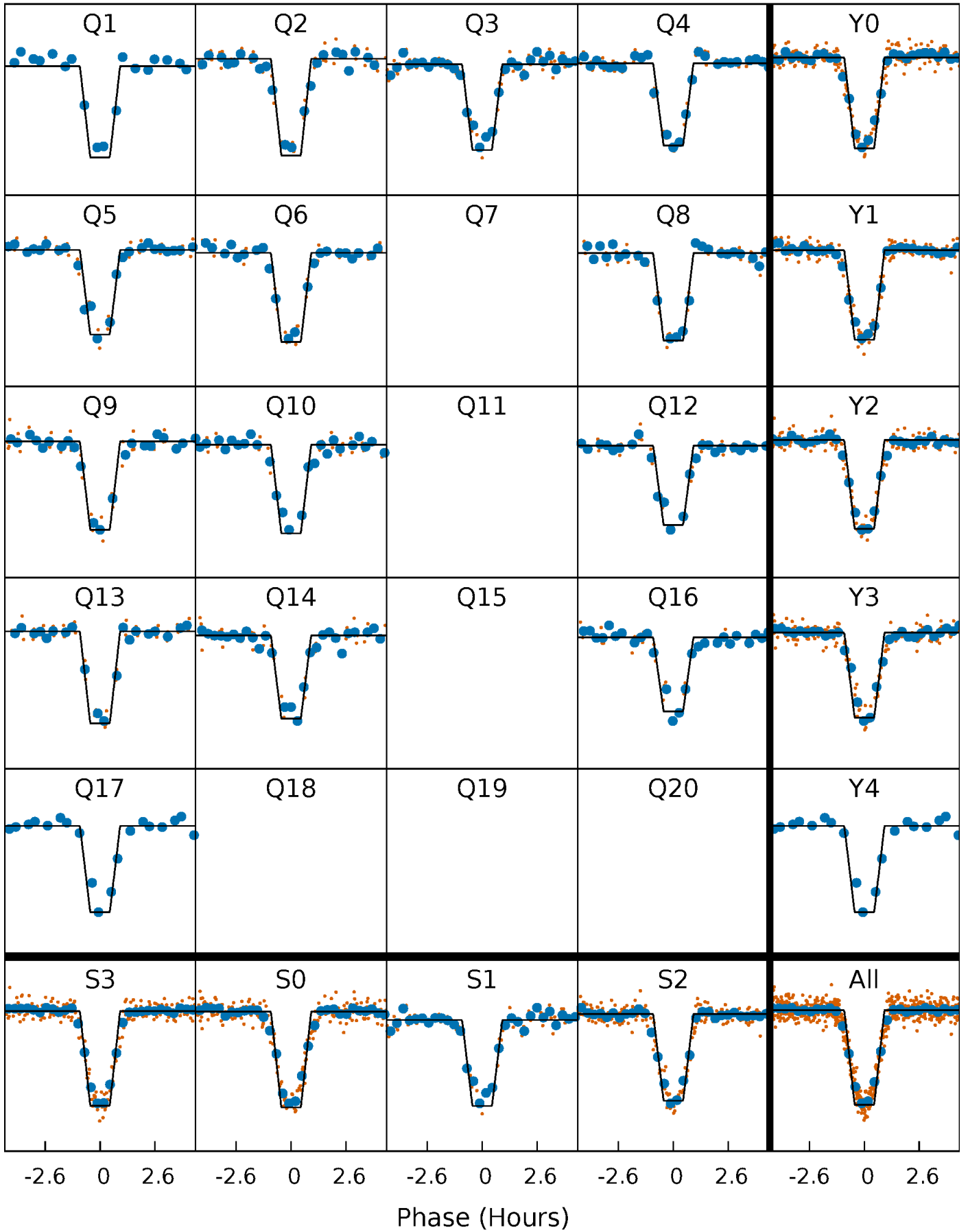
# DV Quarter-Phased Transit Curves

TCE 009846348-01 P= 26.893155 Days  $T_0=153.059317$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

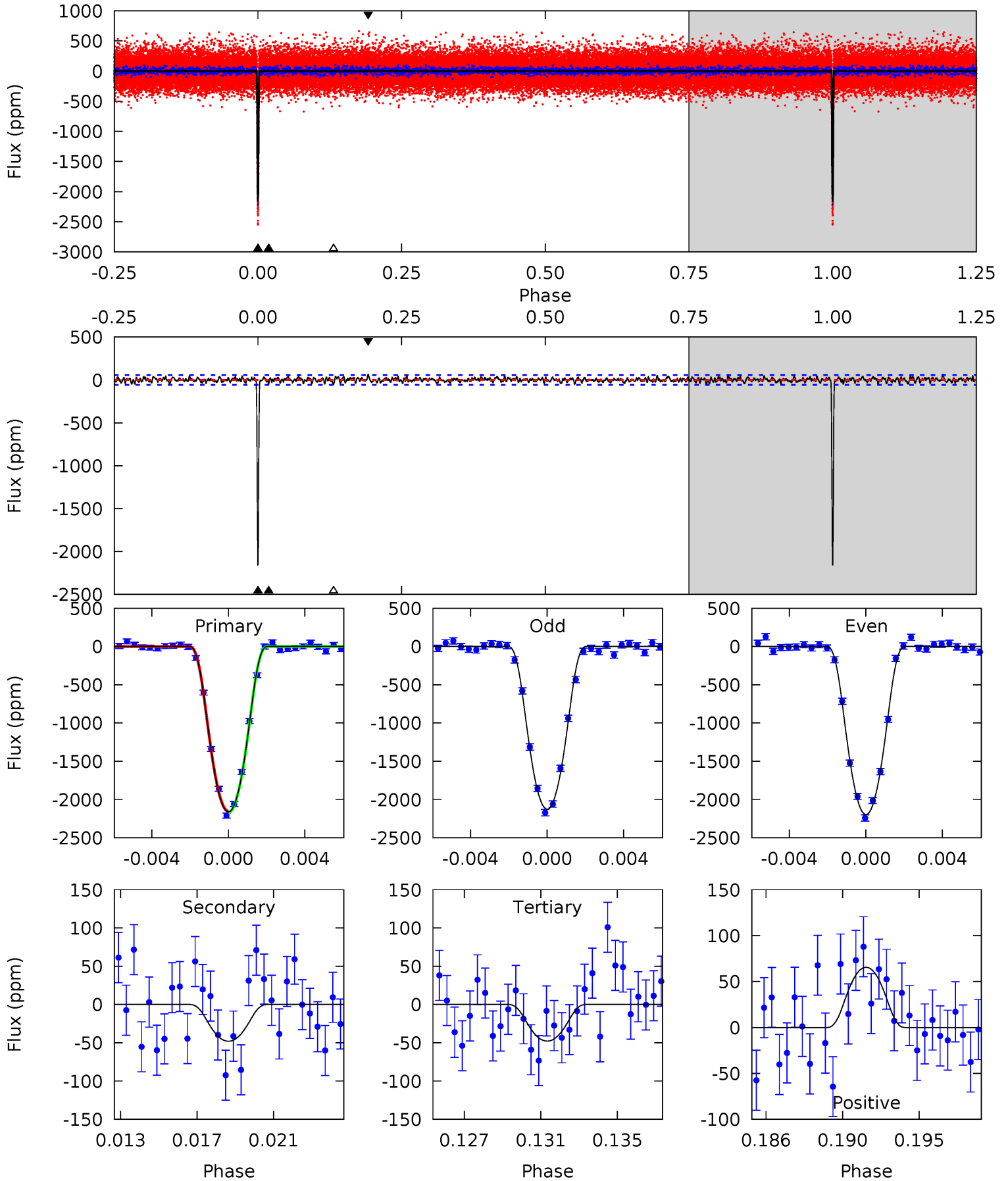
TCE 009846348-01 P= 26.893071 Days  $T_0=153.061421$  (BKJD)



# DV Model-Shift Uniqueness Test

009846348-01, P = 26.893155 Days, E = 126.166162 Days

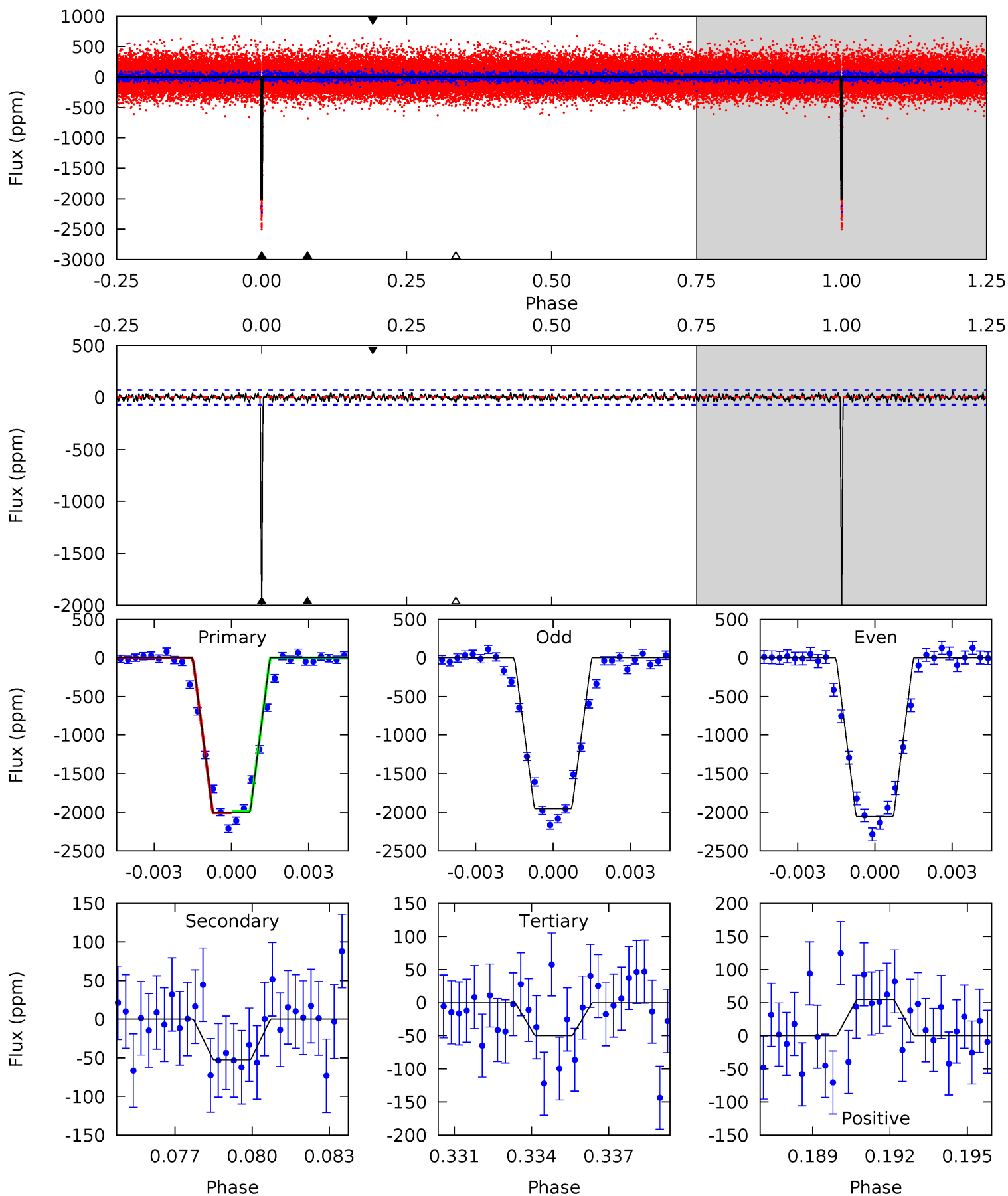
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
198.8	4.41	4.40	6.03	5.19	2.86	1.63	194.4	192.8	0.01	-1.62	3.25	1.01	0.03	0.62



# Alt Model-Shift Uniqueness Test

009846348-01, P = 26.893071 Days, E = 126.168350 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
151.6	3.98	3.78	4.14	5.26	2.97	1.25	147.8	147.5	0.20	-0.16	3.92	1.01	0.03	0.66



### Stellar Parameters For KIC 009846348

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6096^{+164}_{-183}$	$4.511^{+0.054}_{-0.216}$	$-0.340^{+0.300}_{-0.300}$	$0.908^{+0.287}_{-0.096}$	$0.975^{+0.118}_{-0.130}$	$1.832^{+0.490}_{-0.965}$
	+3%/-3%	+1%/-5%	+88%/-88%	+32%/-11%	+12%/-13%	+27%/-53%
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 009846348-01 / KOI 0716.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-48 \pm 11$	$6.20^{+1.26}_{-0.98}$	$881^{+68}_{-44}$	$2813^{+141}_{-140}$	$20^{+10}_{-7}$
Alt.	$-52 \pm 13$	$4.80^{+1.17}_{-0.84}$	$879^{+69}_{-42}$	$3052^{+199}_{-195}$	$36^{+22}_{-14}$

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

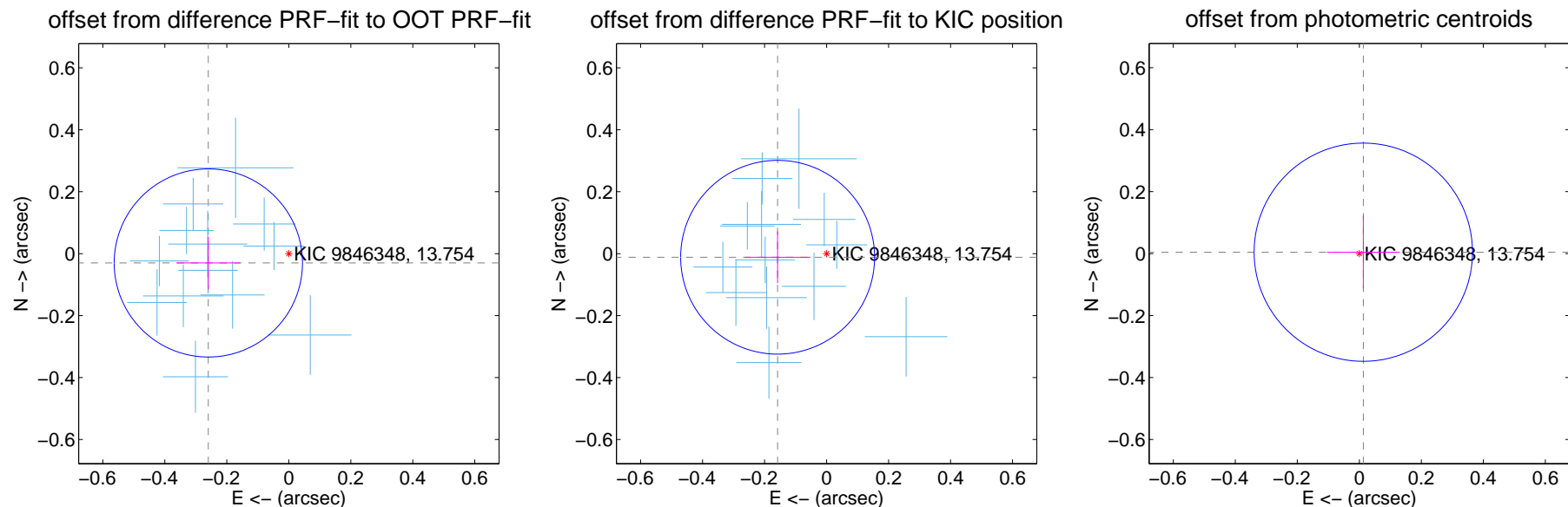
## DV Centroid Data

Supplemental centroid analysis for 009846348-01. Kepler magnitude: 13.75. Transit SNR 118.12

There are 14 quarters with good PRF difference image offsets

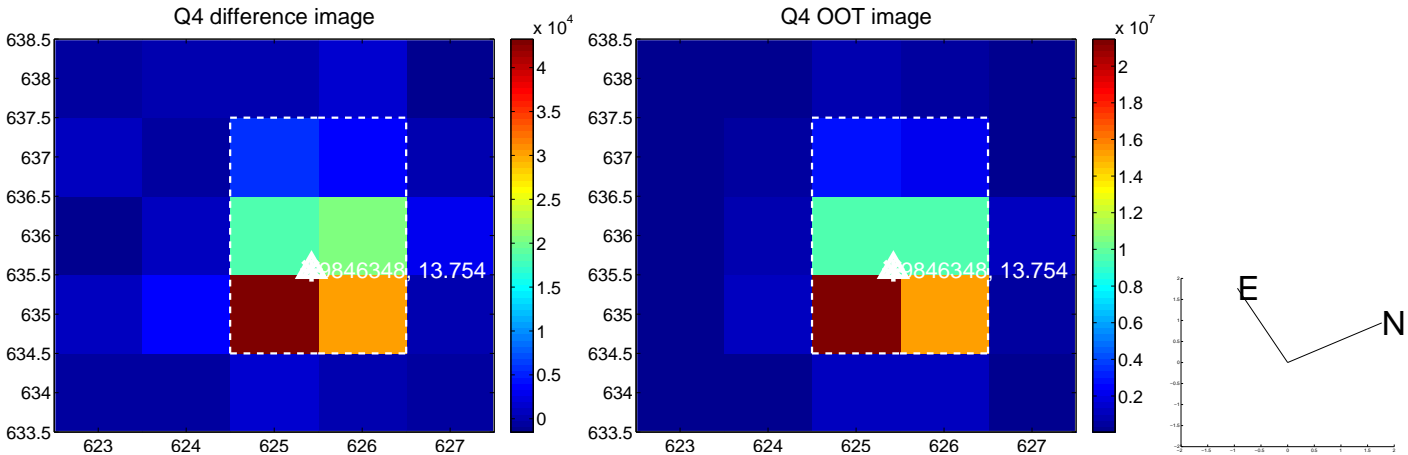
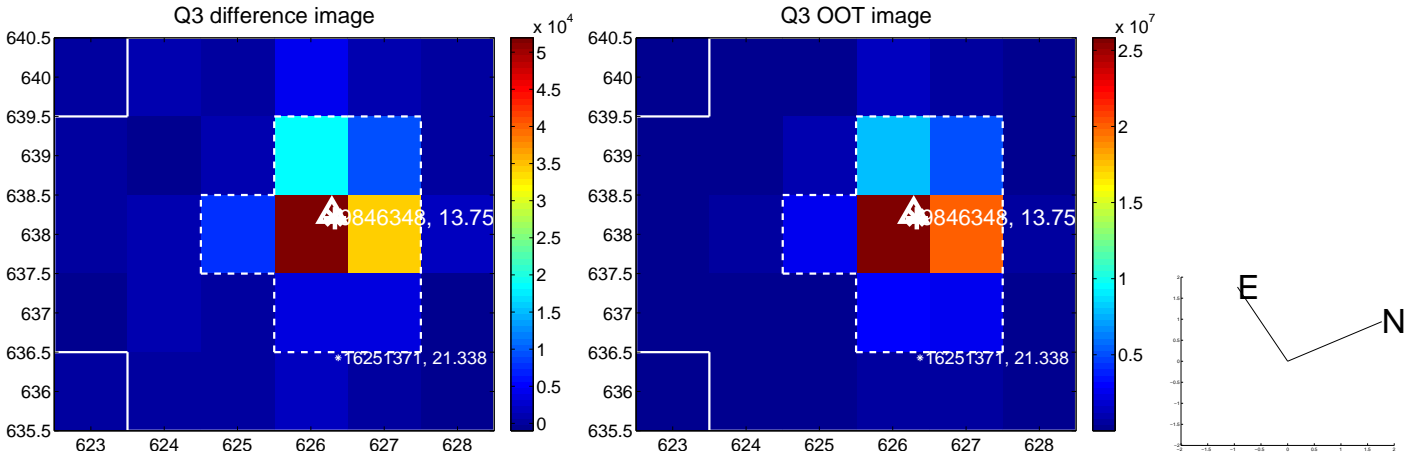
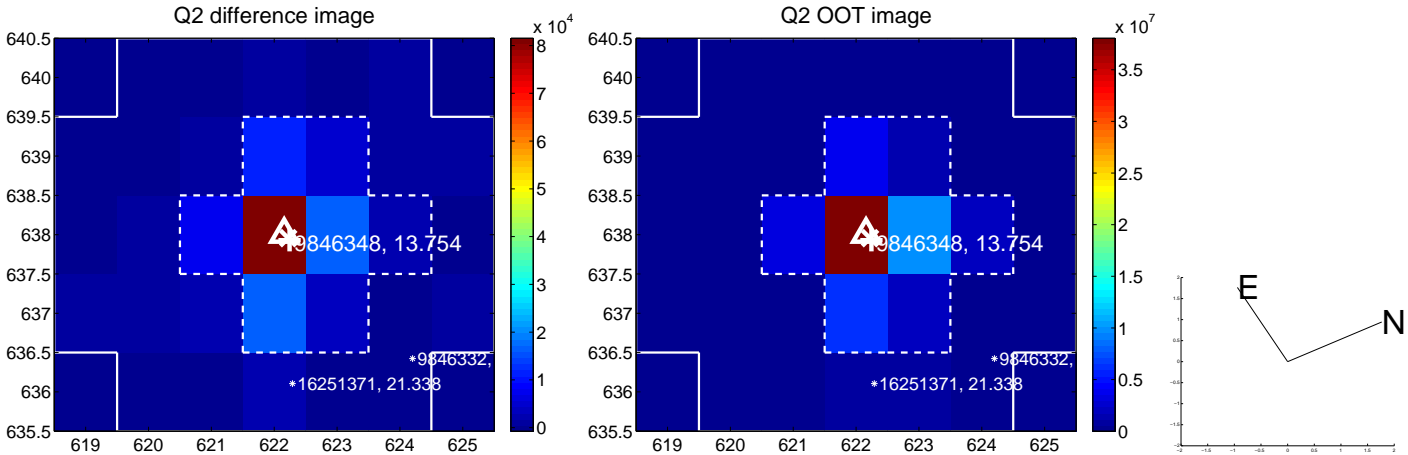
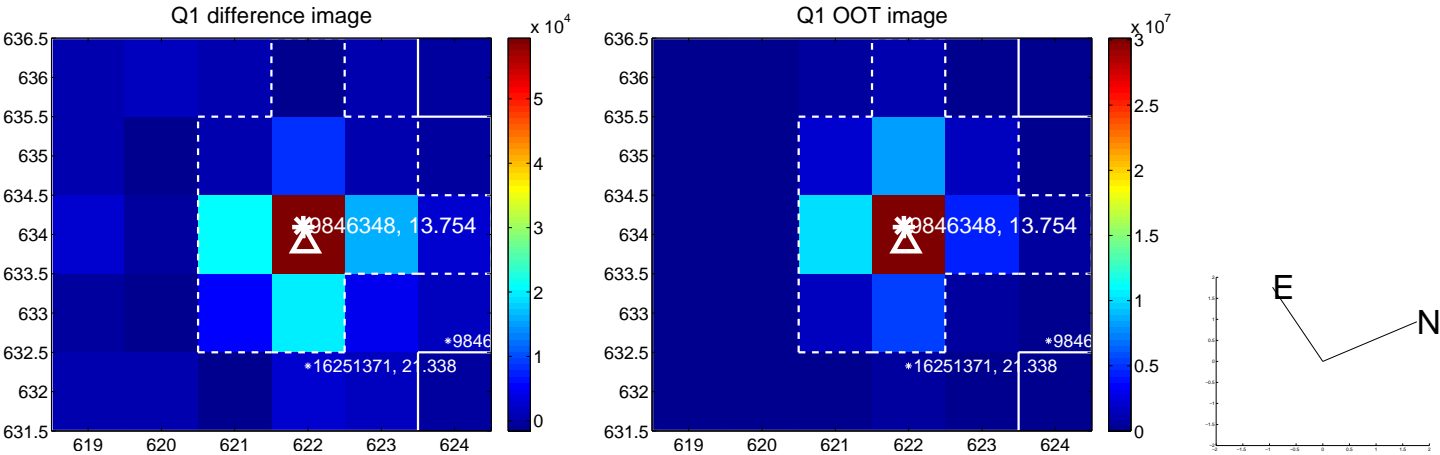
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.261 \pm 0.101$	2.58	$0.260 \pm 0.103$	$-0.030 \pm 0.085$
PRF-fit source offset from KIC position	$0.158 \pm 0.104$	1.52	$0.158 \pm 0.105$	$-0.012 \pm 0.084$
photometric centroid source offset	$0.01 \pm 0.12$	0.12	$-0.01 \pm 0.12$	$0.00 \pm 0.12$

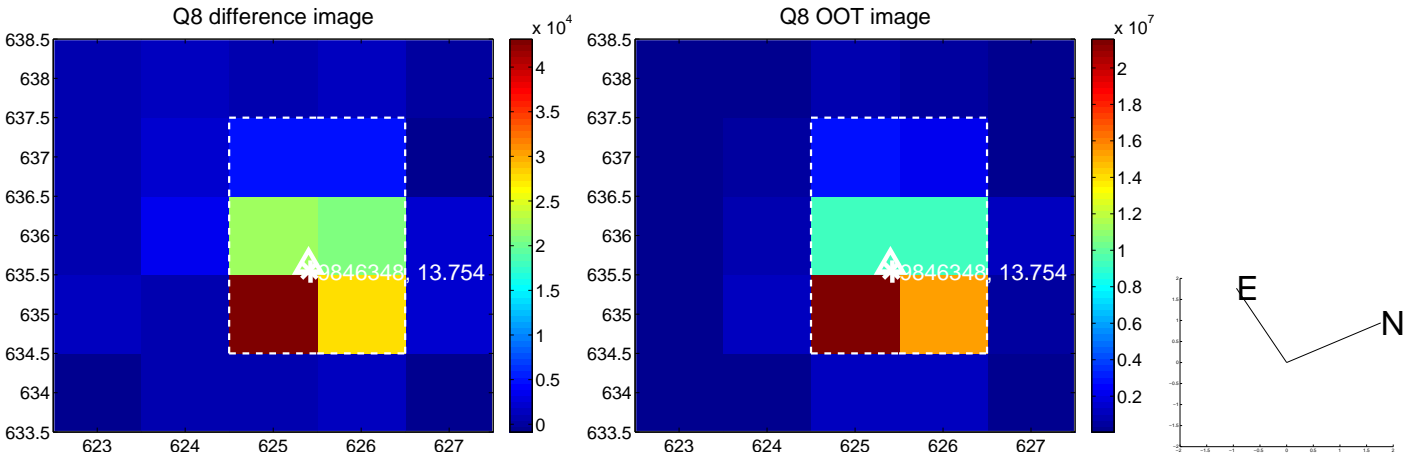
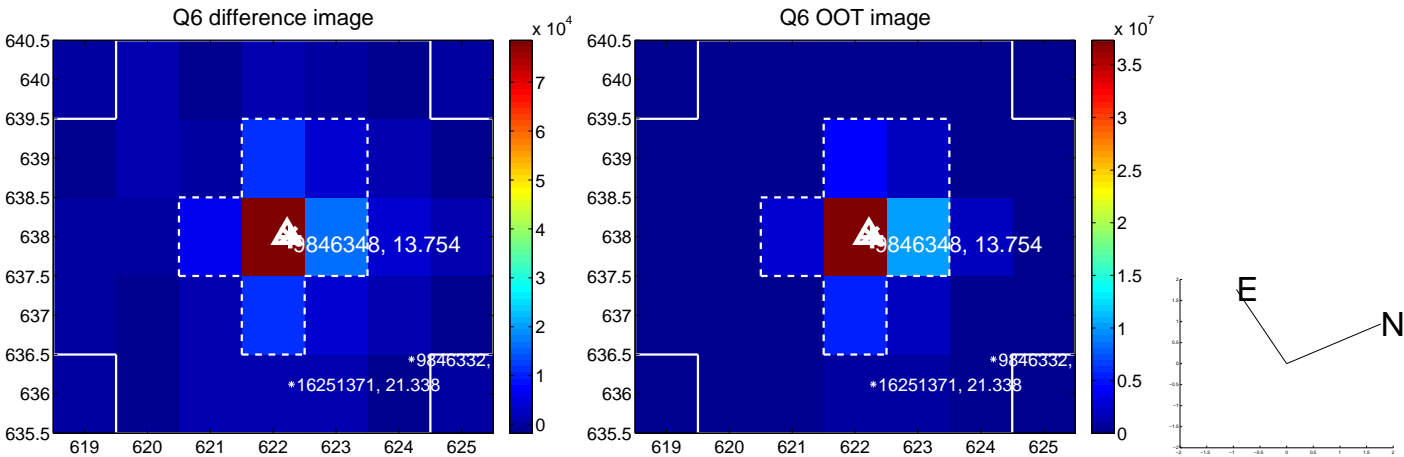
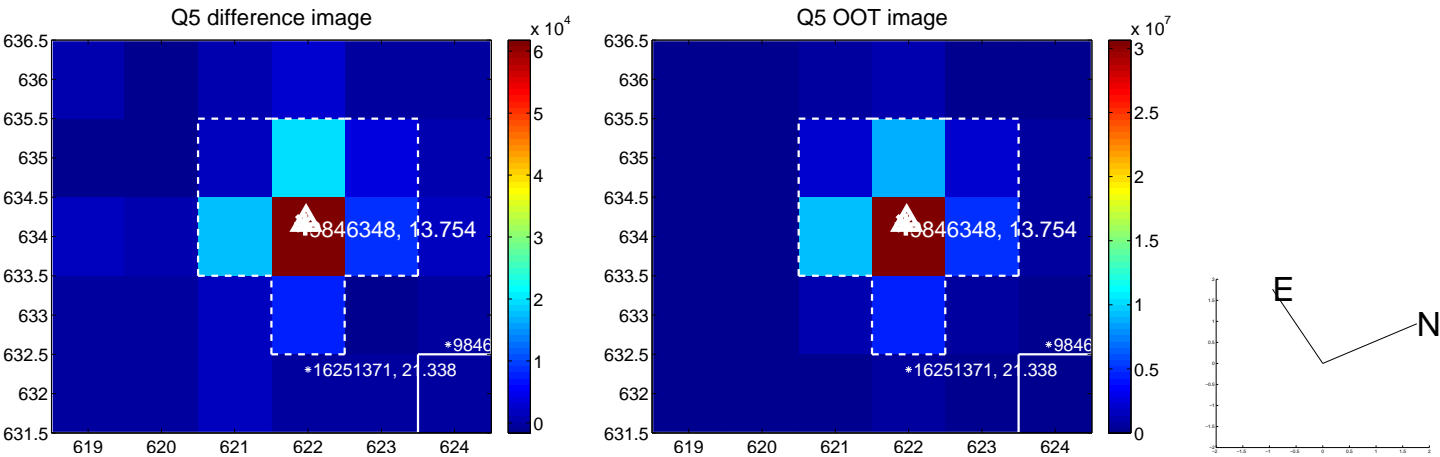


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

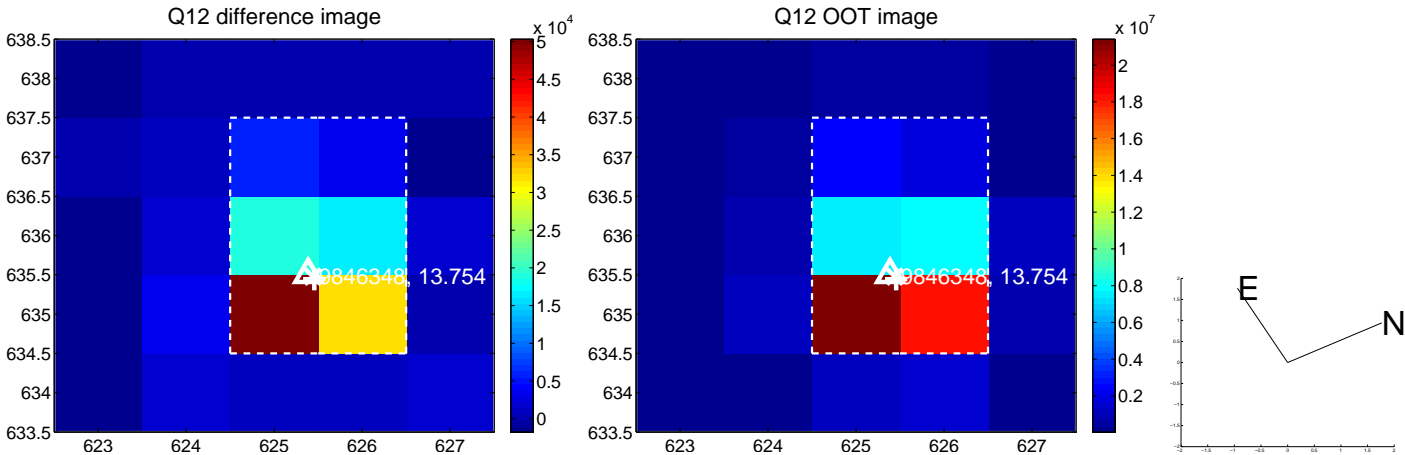
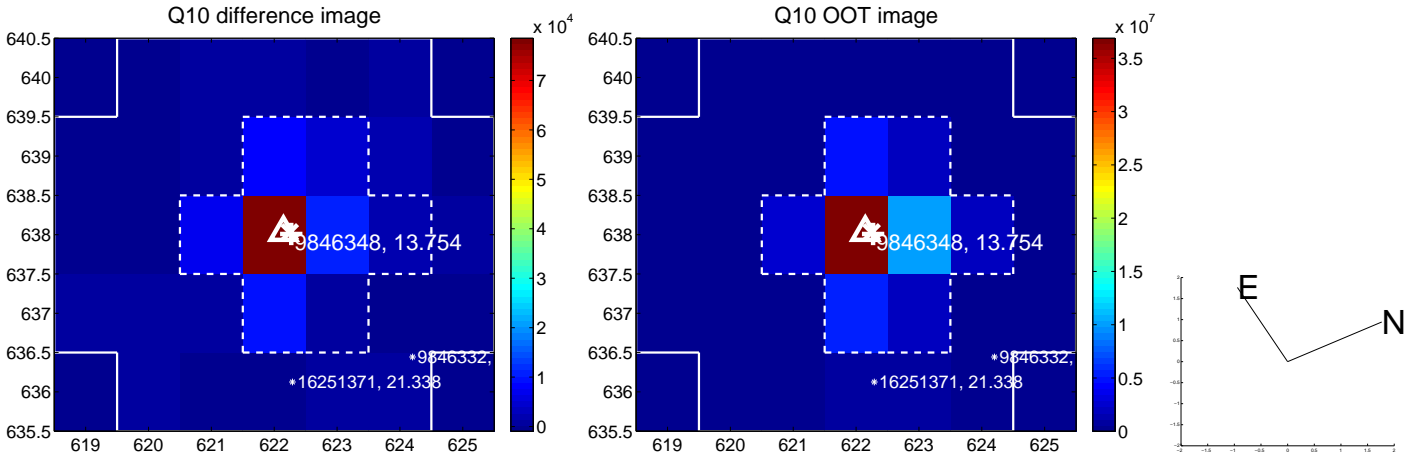
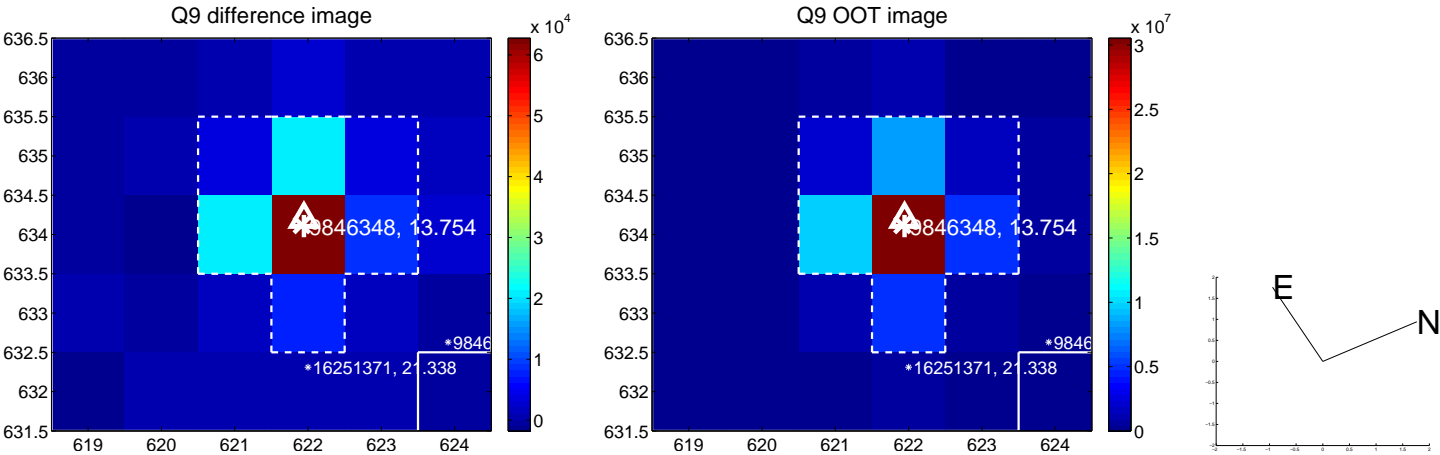


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

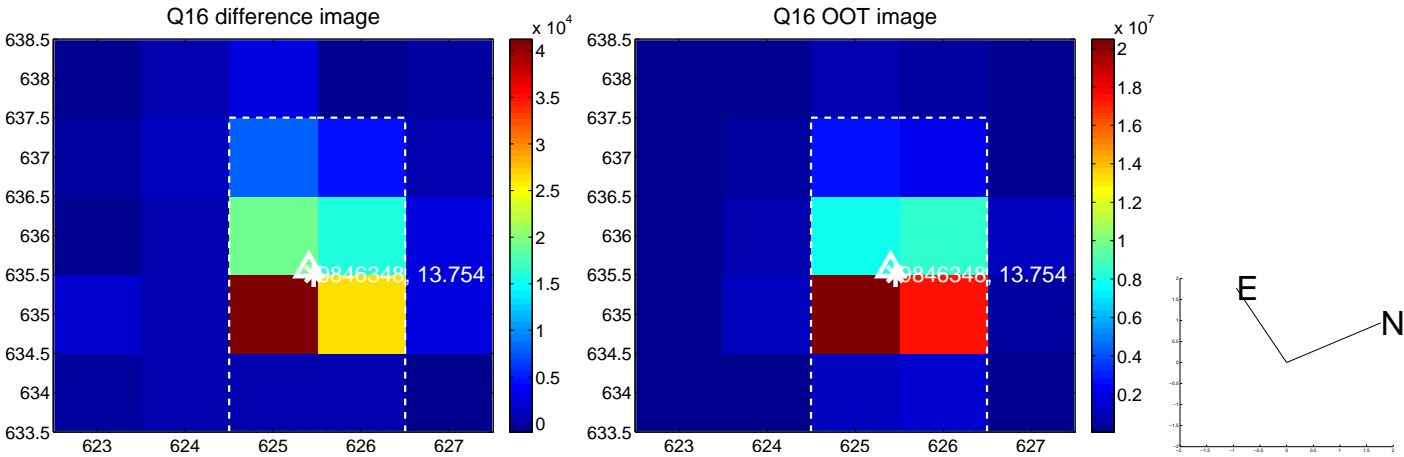
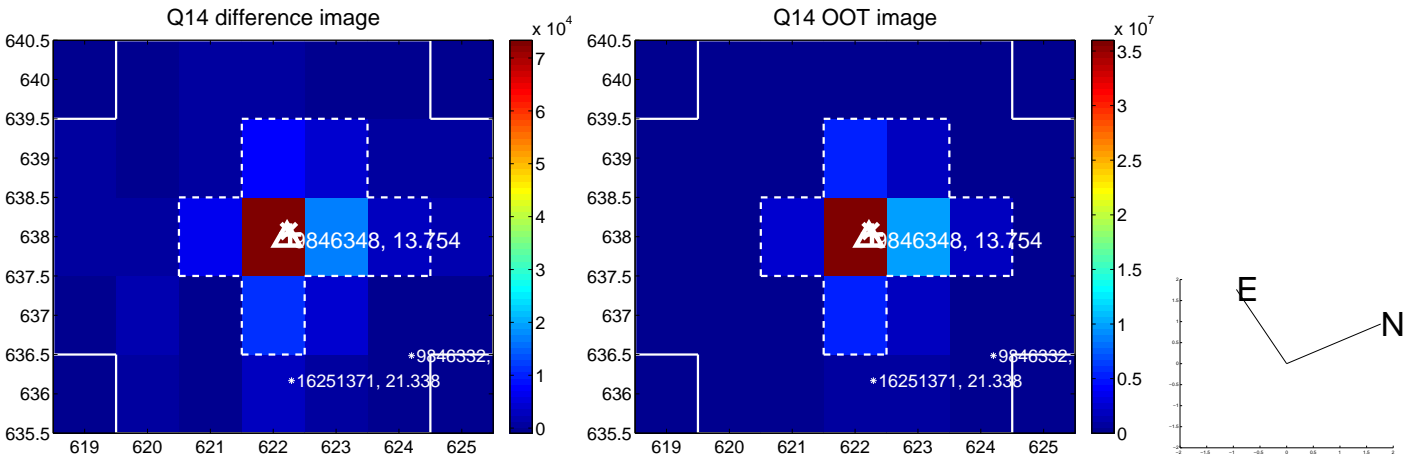
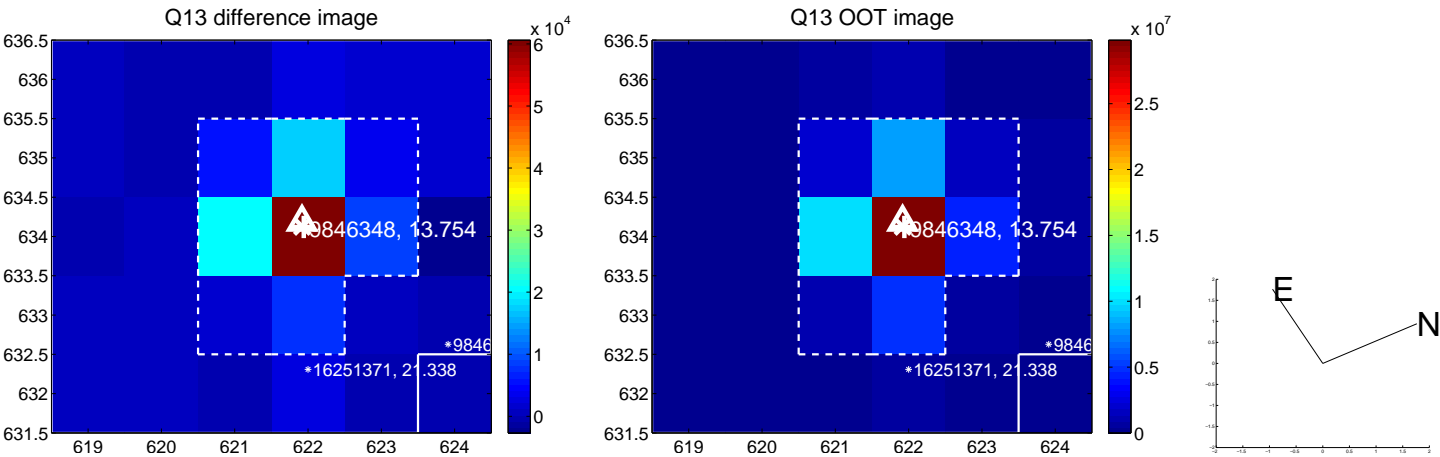




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UKIRT Image

Declination

