

# KIC 006145939

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006145939-01	OBS	5243.01	17.745471	137.696735	77057.1	3.957	1348.3	722.3	2.22	6337	104.61	354.29

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006145939-01	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.

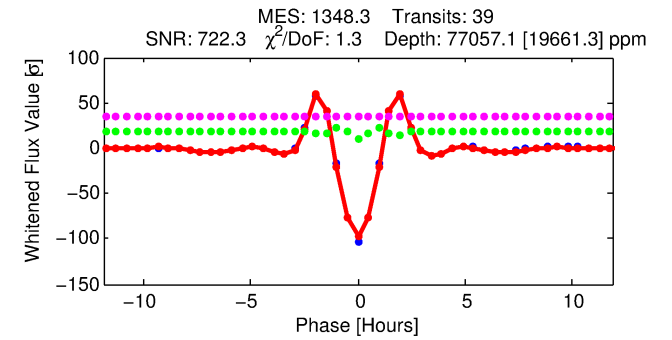
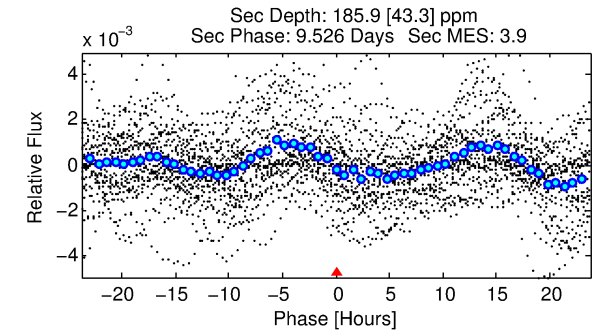
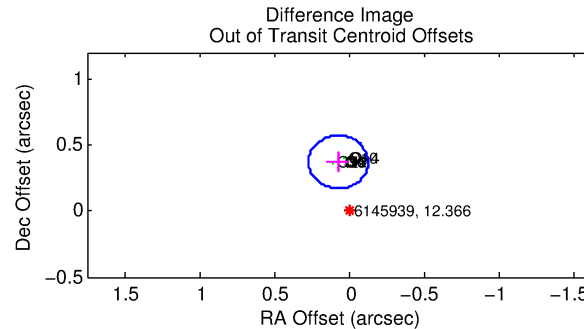
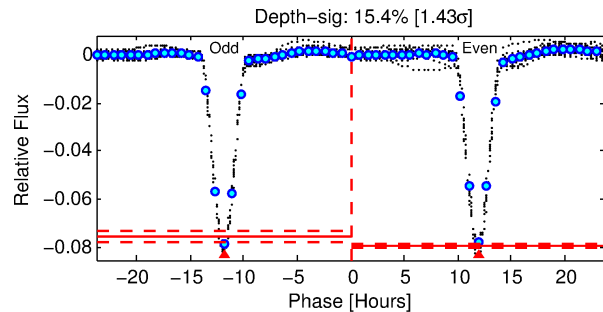
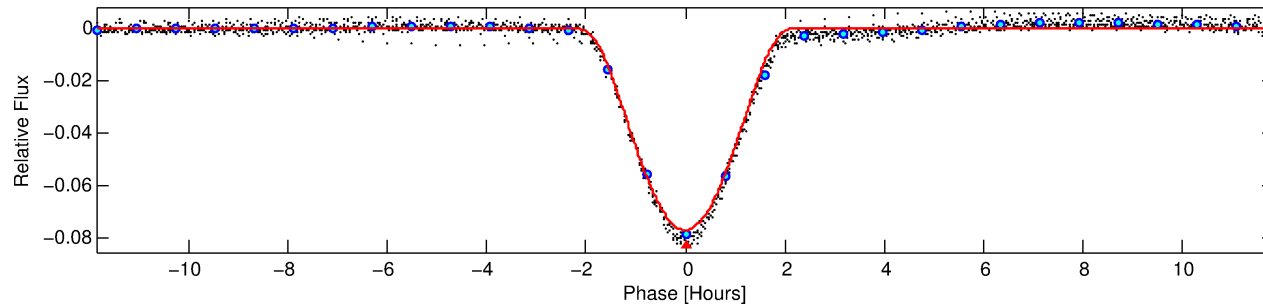
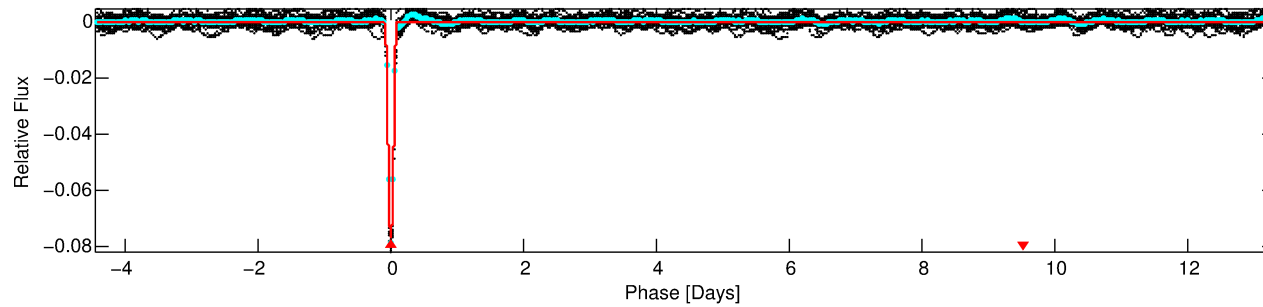
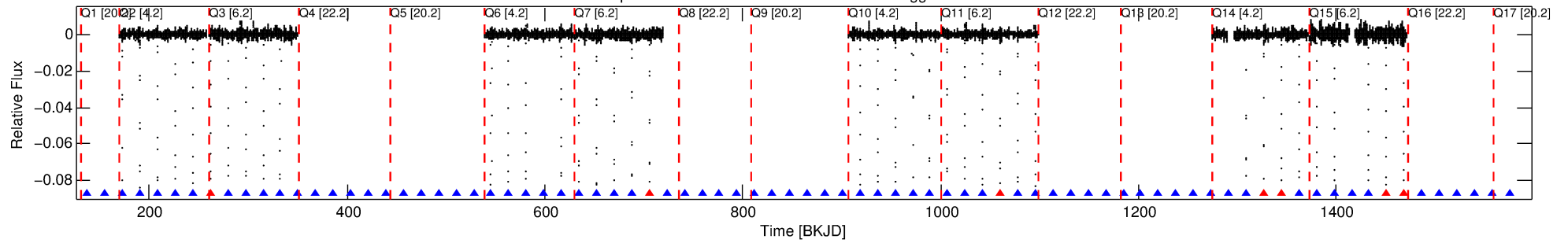
## Ephemeris Match Information For 006145939-01

No Significant Match Found

# DV One-Page Summary

KIC: 6145939 Candidate: 1 of 1 Period: 17.745 d  
KOI: K05243.01 Corr: 0.988

Kp: 12.37 R\*: 2.22 Rs Teff: 6337.0 K Logg: 3.83 Fe/H: -0.420



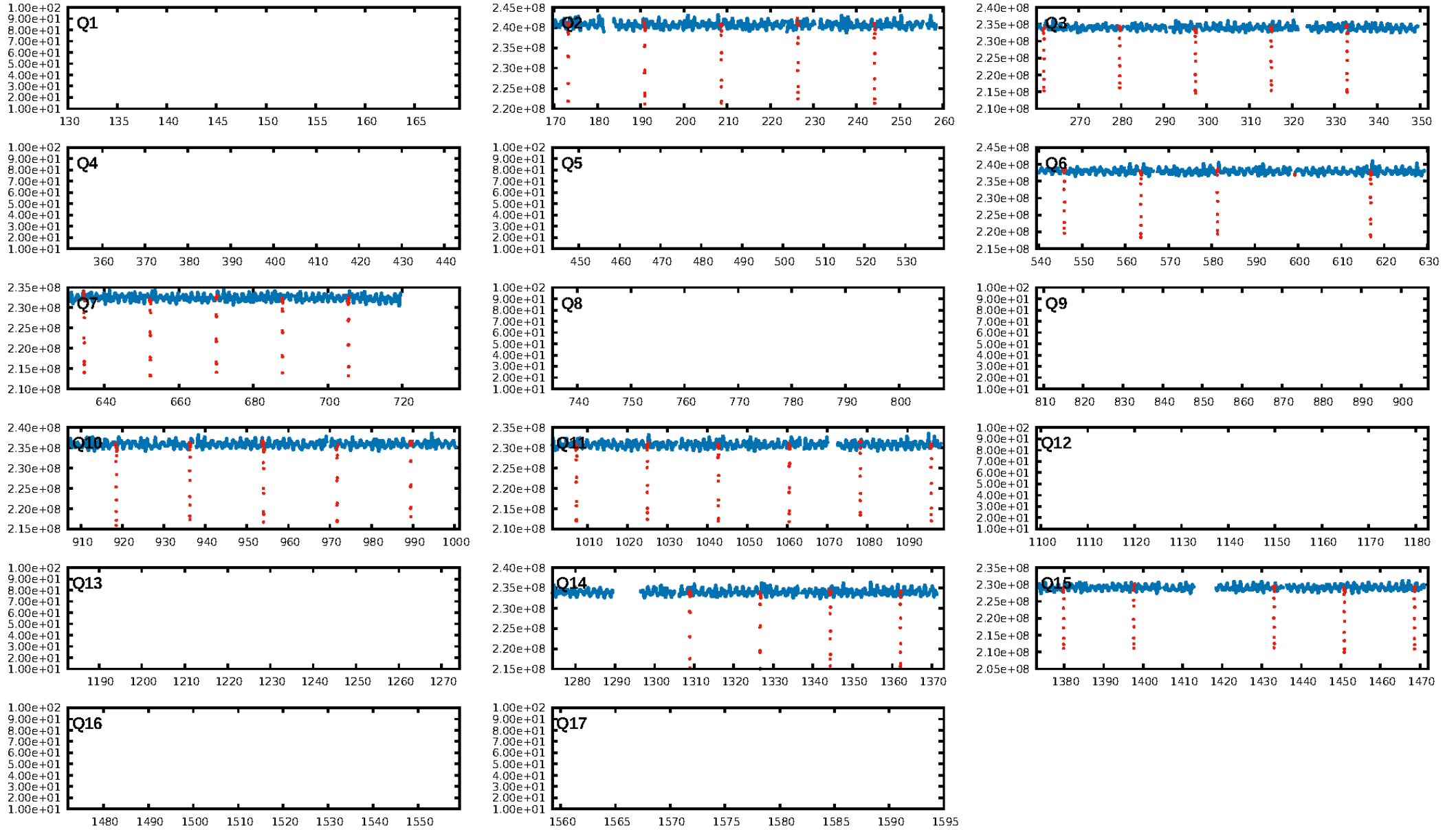
## DV Fit Results:

Period = 17.74547 [0.00000] d  
Epoch = 137.6967 [0.0001] BKJD  
Rp/R\* = 0.4326 [0.0359]  
a/R\* = 35.16 [0.11]  
b = 1.00 [0.02]  
Seff = 354.29 [302.46]  
Teq = 1106 [236] K  
Rp = 104.61 [52.70] Re  
a = 0.1415 [0.0721] AU  
Ag = 0.19 [0.17] [-4.89σ]  
Teffp = 1125 [90] K [0.07σ]

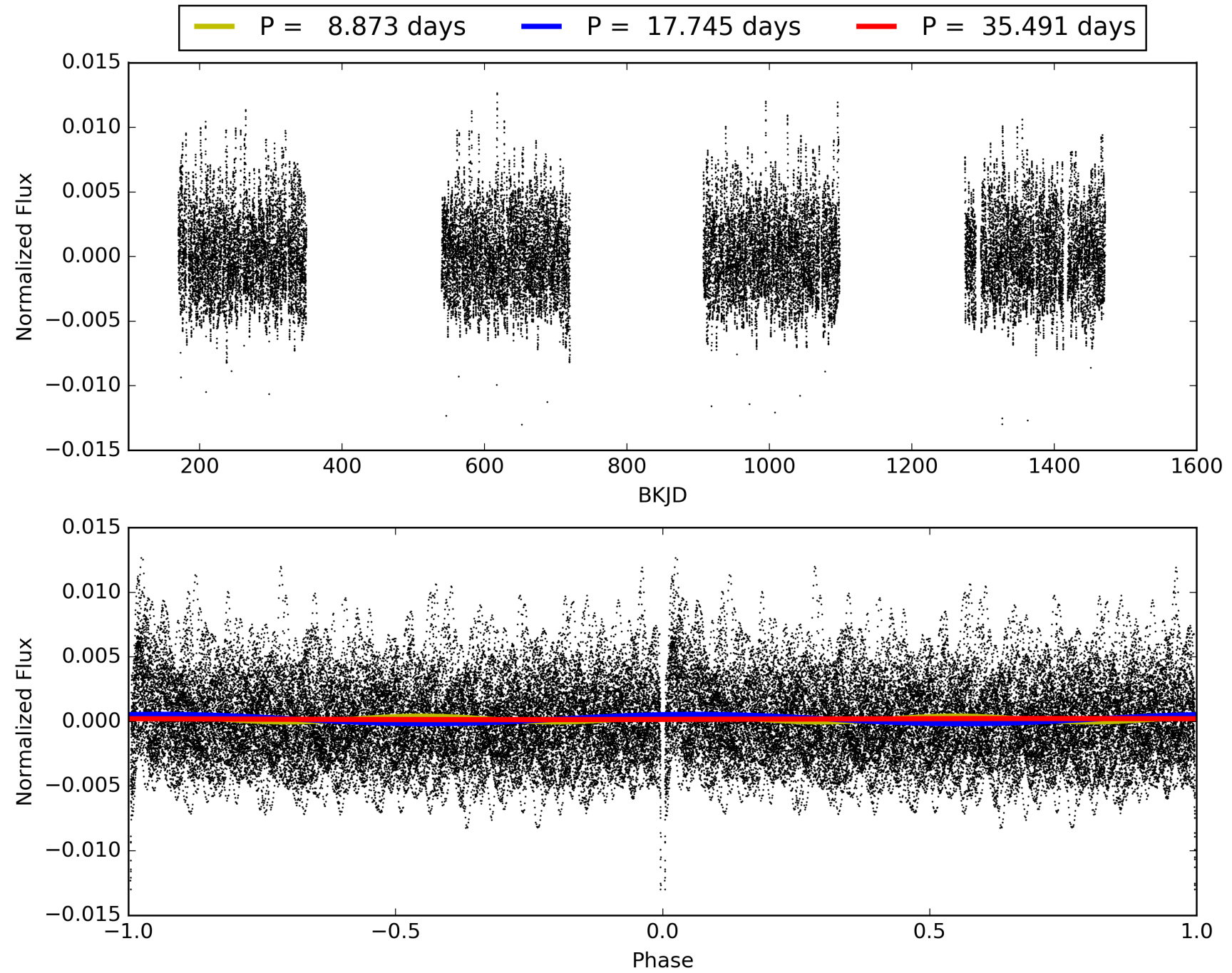
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.2%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.82 [32/39]  
GhostDiagnostic-chr: 1.352  
Centroid-sig: 0.0%  
Centroid-so: 0.386 arcsec [145.52σ]  
OotOffset-rm: 0.377 arcsec [5.64σ]  
KicOffset-rm: 0.352 arcsec [5.12σ]  
OotOffset-st: 4/4/0/0 [8]  
KicOffset-st: 4/4/0/0 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [8/8]

# TCE 006145939-01, PDC Light Curves

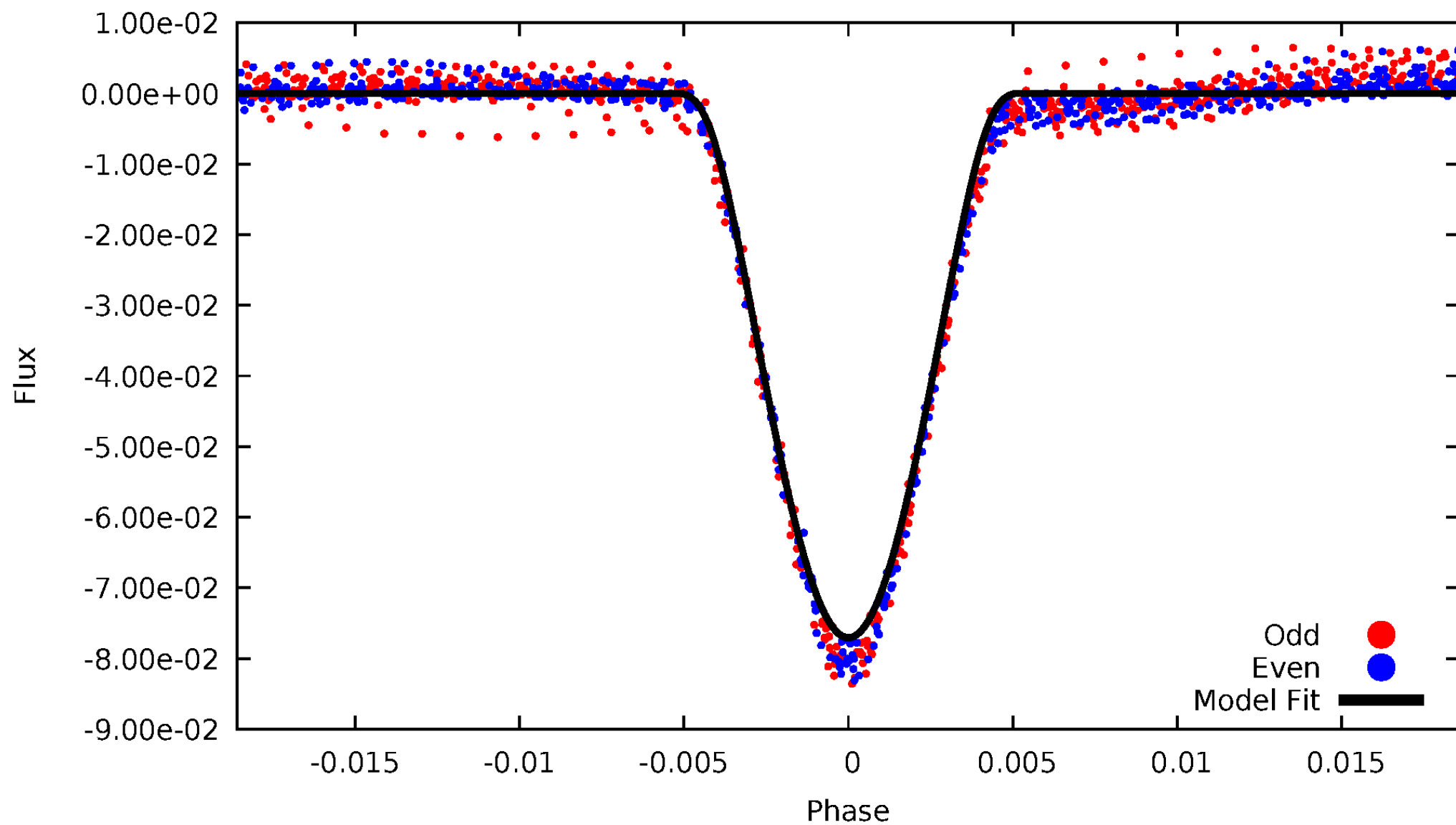


TCE 006145939-01



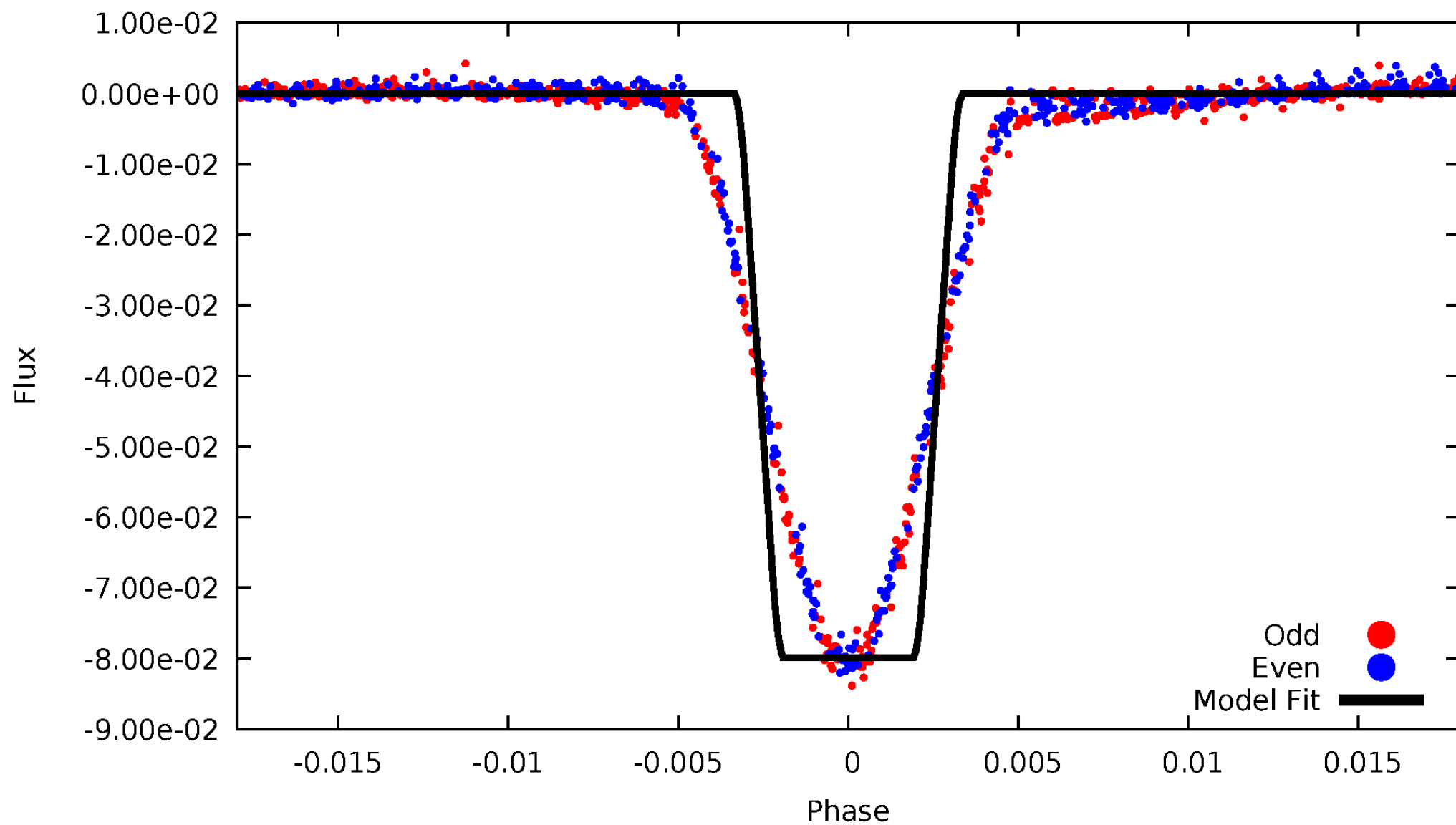
# DV Odd/Even

TCE 006145939-01



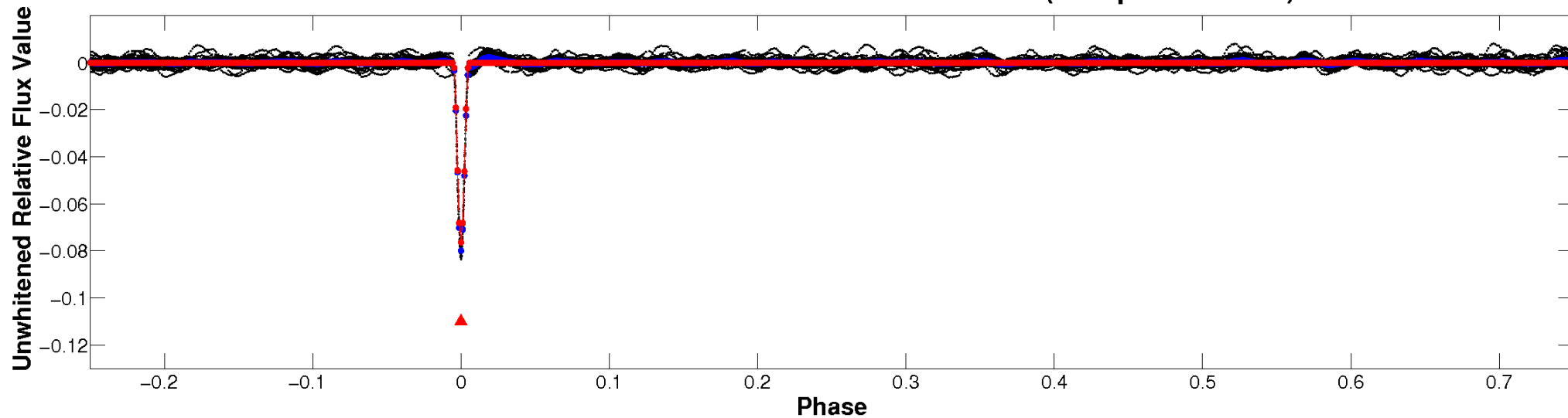
# ALT Odd/Even

TCE 006145939-01

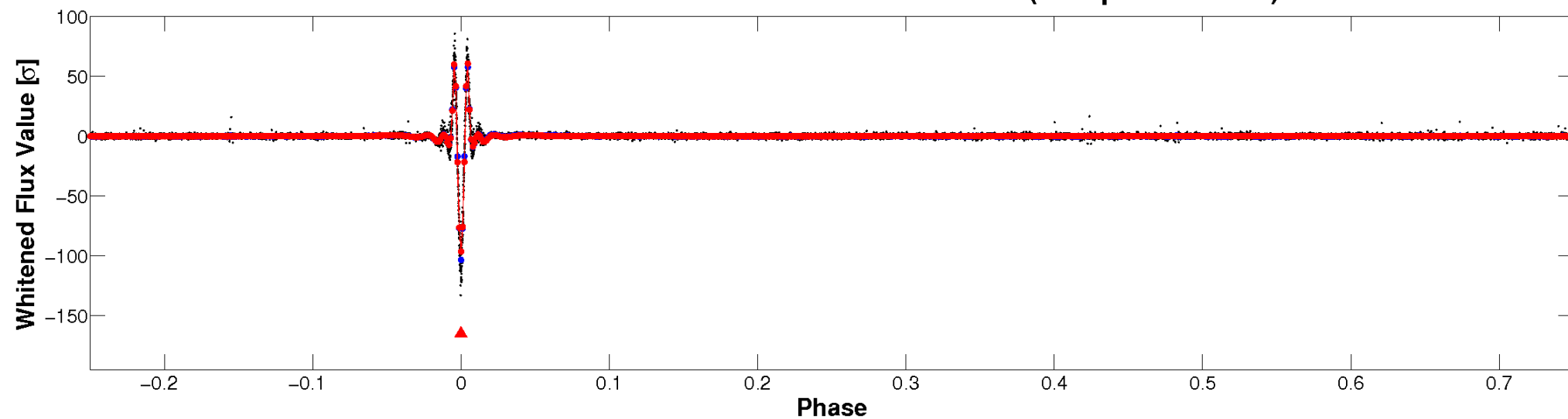


# Non-Whitened Vs. Whitened Light Curve

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

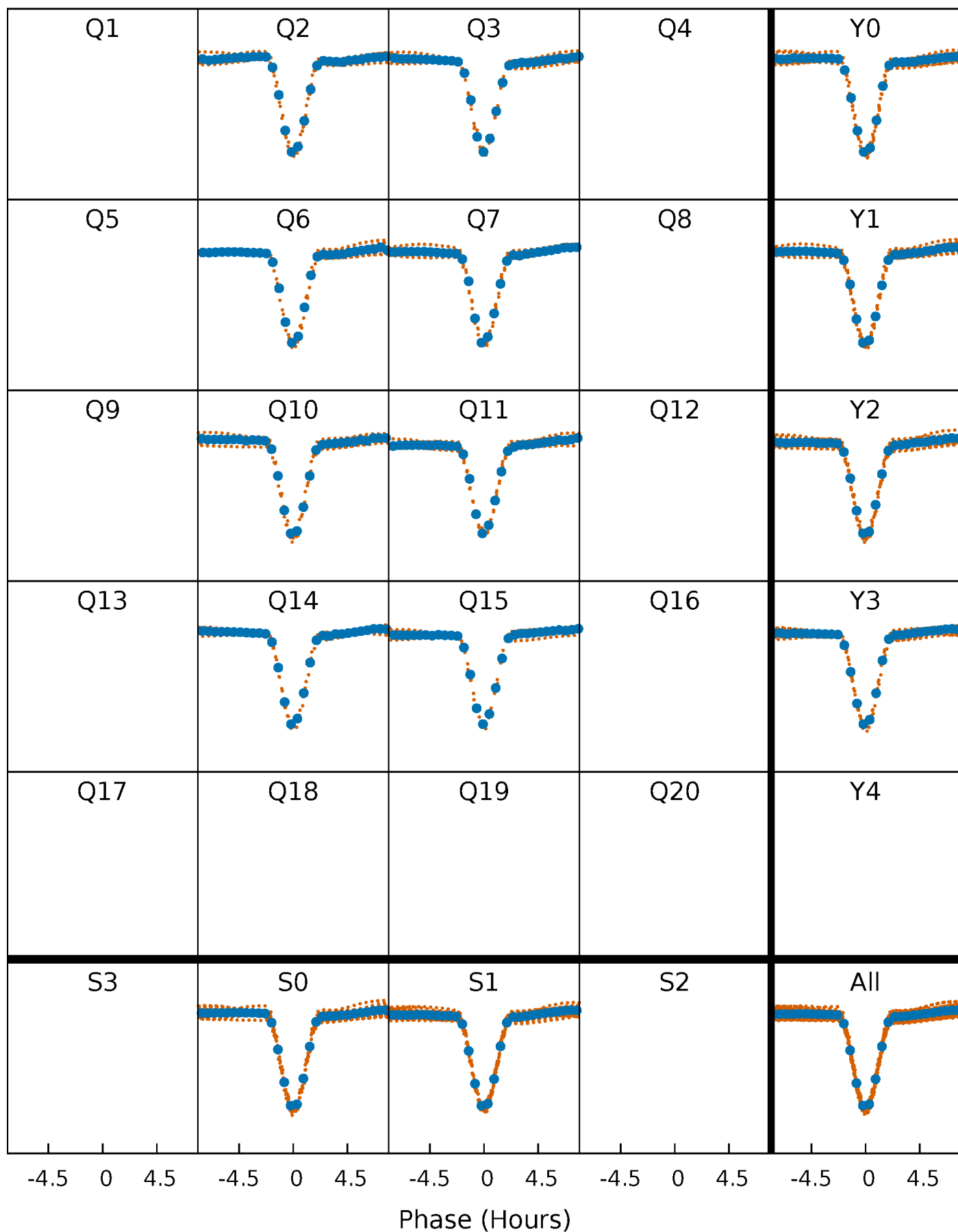


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

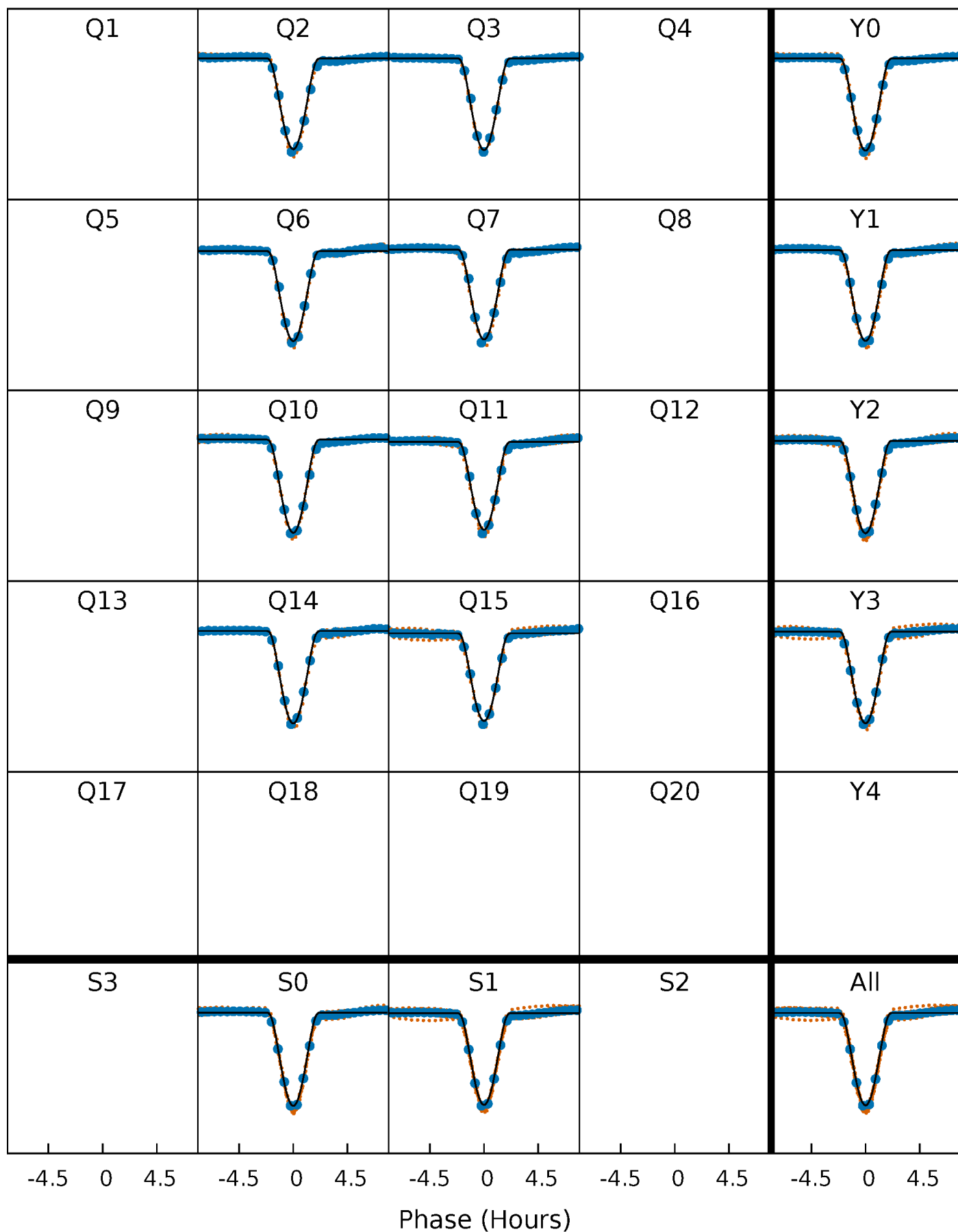
TCE 006145939-01 P= 17.745471 Days  $T_0=137.696735$  (BKJD)





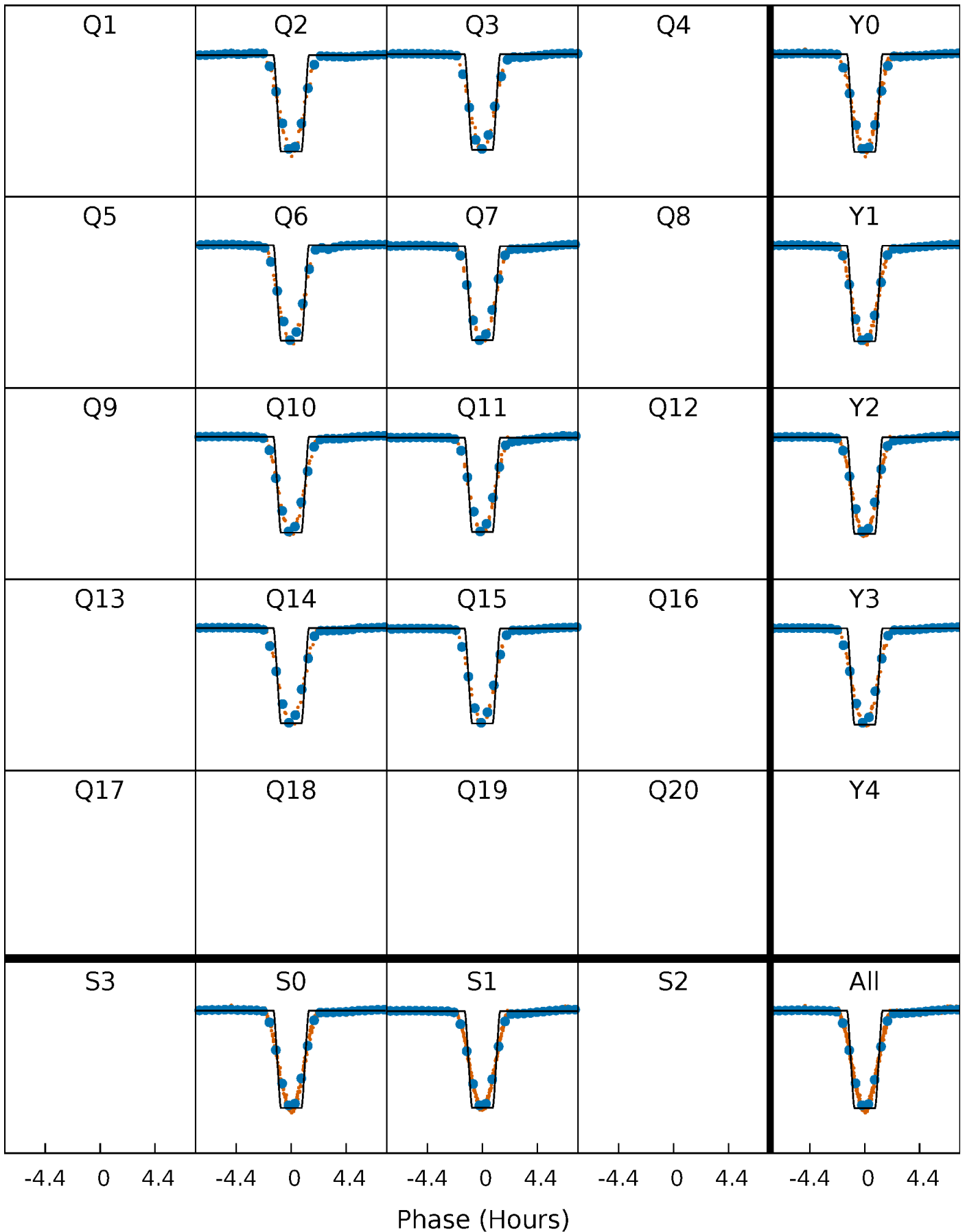
# DV Quarter-Phased Transit Curves

TCE 006145939-01 P= 17.745471 Days  $T_0=137.696735$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

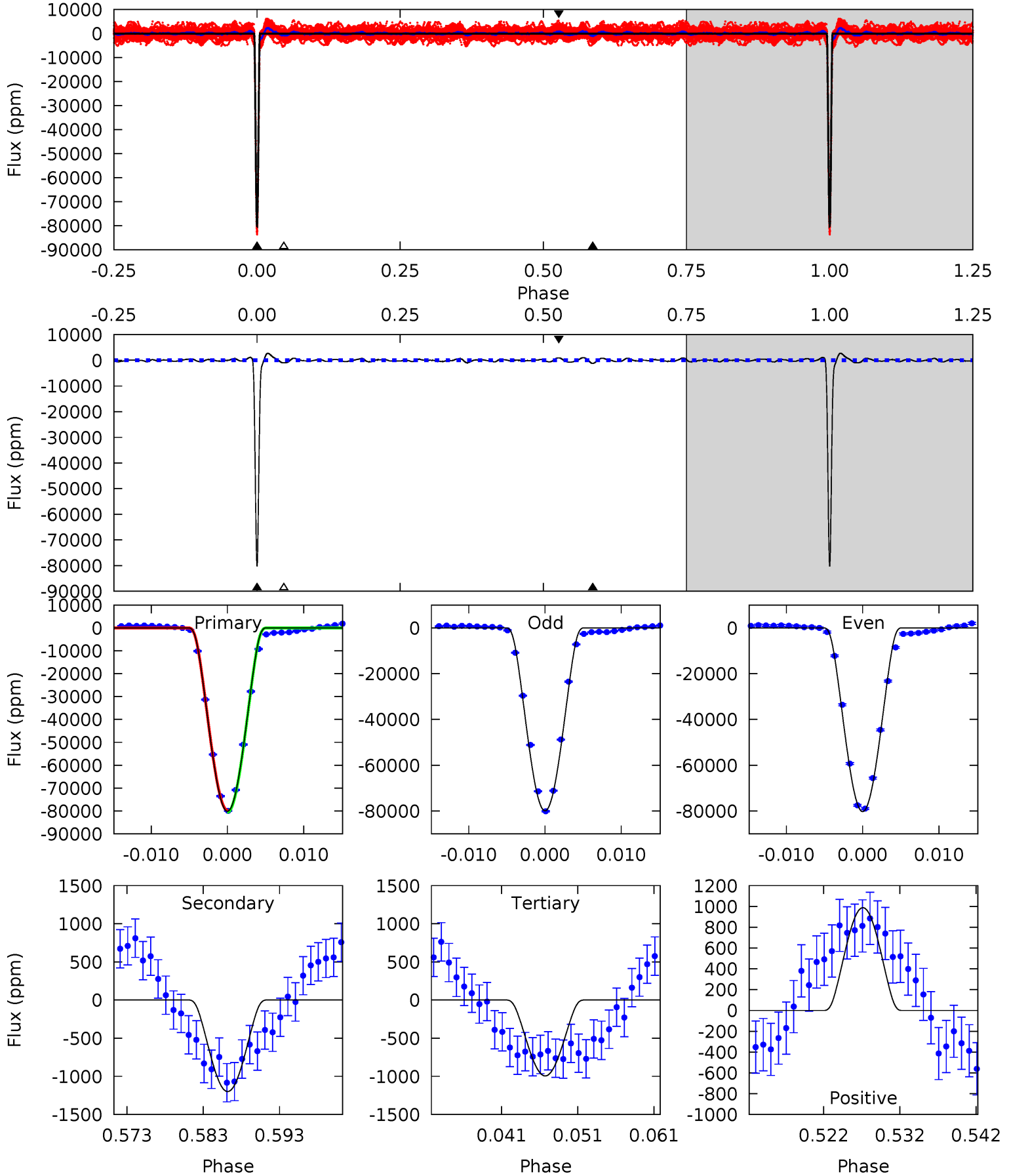
TCE 006145939-01 P= 17.745481 Days  $T_0=137.696827$  (BKJD)



# DV Model-Shift Uniqueness Test

006145939-01, P = 17.745471 Days, E = 137.696735 Days

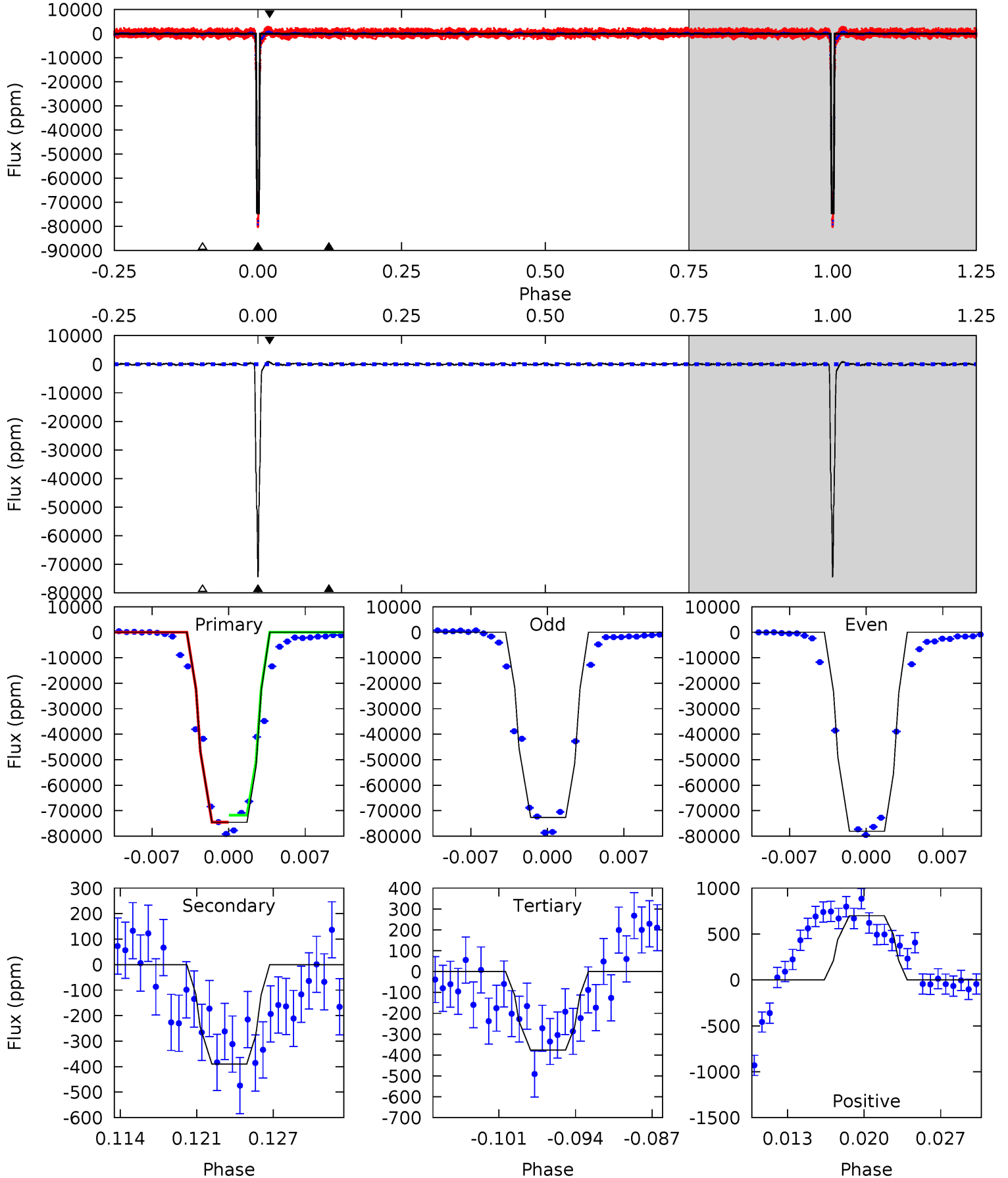
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1040	15.6	12.9	12.8	5.02	2.57	6.10	1027	1027	2.65	2.74	2.29	1.00	0.03	5.64



# Alt Model-Shift Uniqueness Test

006145939-01, P = 17.745481 Days, E = 137.696827 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
1171	6.12	5.91	11.0	5.10	2.71	2.86	1165	1160	0.20	-4.86	40.9	1.01	0.01	19.1



### Stellar Parameters For KIC 006145939

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6337^{+204}_{-227}$	$3.826^{+0.504}_{-0.126}$	$-0.420^{+0.300}_{-0.300}$	$2.216^{+0.472}_{-1.101}$	$1.200^{+0.182}_{-0.273}$	$0.155^{+0.821}_{-0.056}$
	+3%/-4%	+13%/-3%	+71%/-71%	+21%/-50%	+15%/-23%	+529%/-36%
Source	KIC0	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 006145939-01 / KOI 5243.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1199 \pm 77$	$100.97^{+17.34}_{-27.83}$	$1515^{+122}_{-197}$	$2532^{+89}_{-91}$	$1.319^{+1.031}_{-0.363}$
Alt.	$-389 \pm 64$	$64.25^{+15.52}_{-18.56}$	$1506^{+116}_{-190}$	$2423^{+132}_{-153}$	$1.051^{+0.921}_{-0.394}$

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

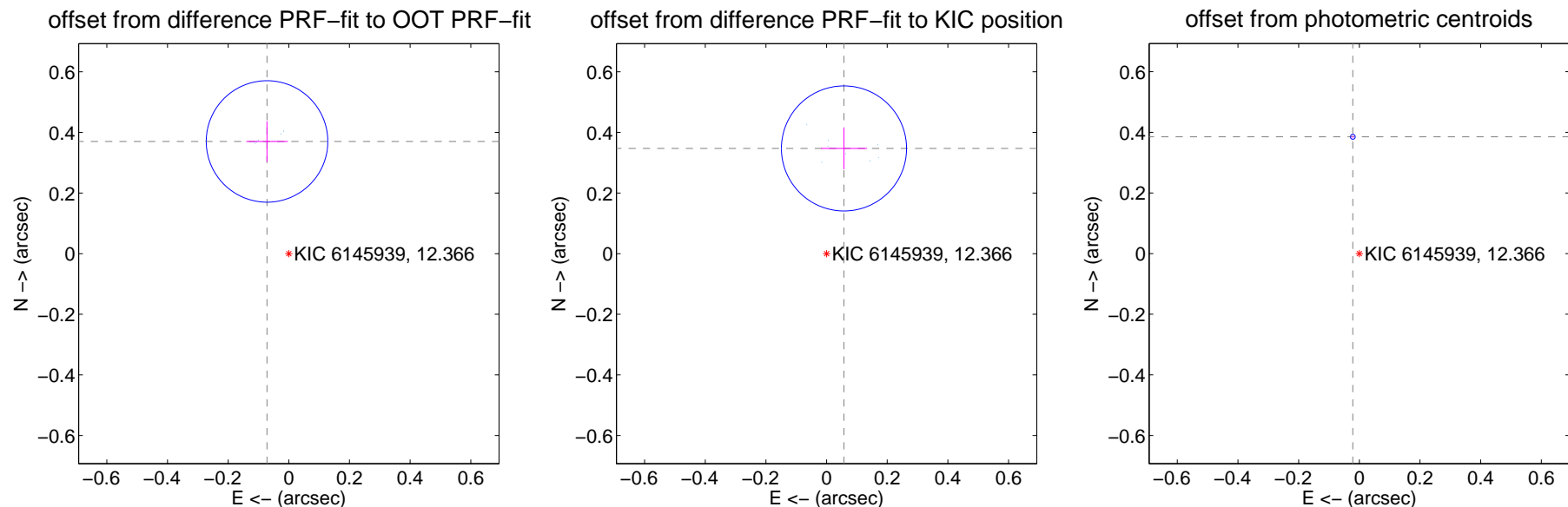
## DV Centroid Data

Supplemental centroid analysis for 006145939-01. Kepler magnitude: 12.37. Transit SNR 722.27

There are 8 quarters with good PRF difference image offsets

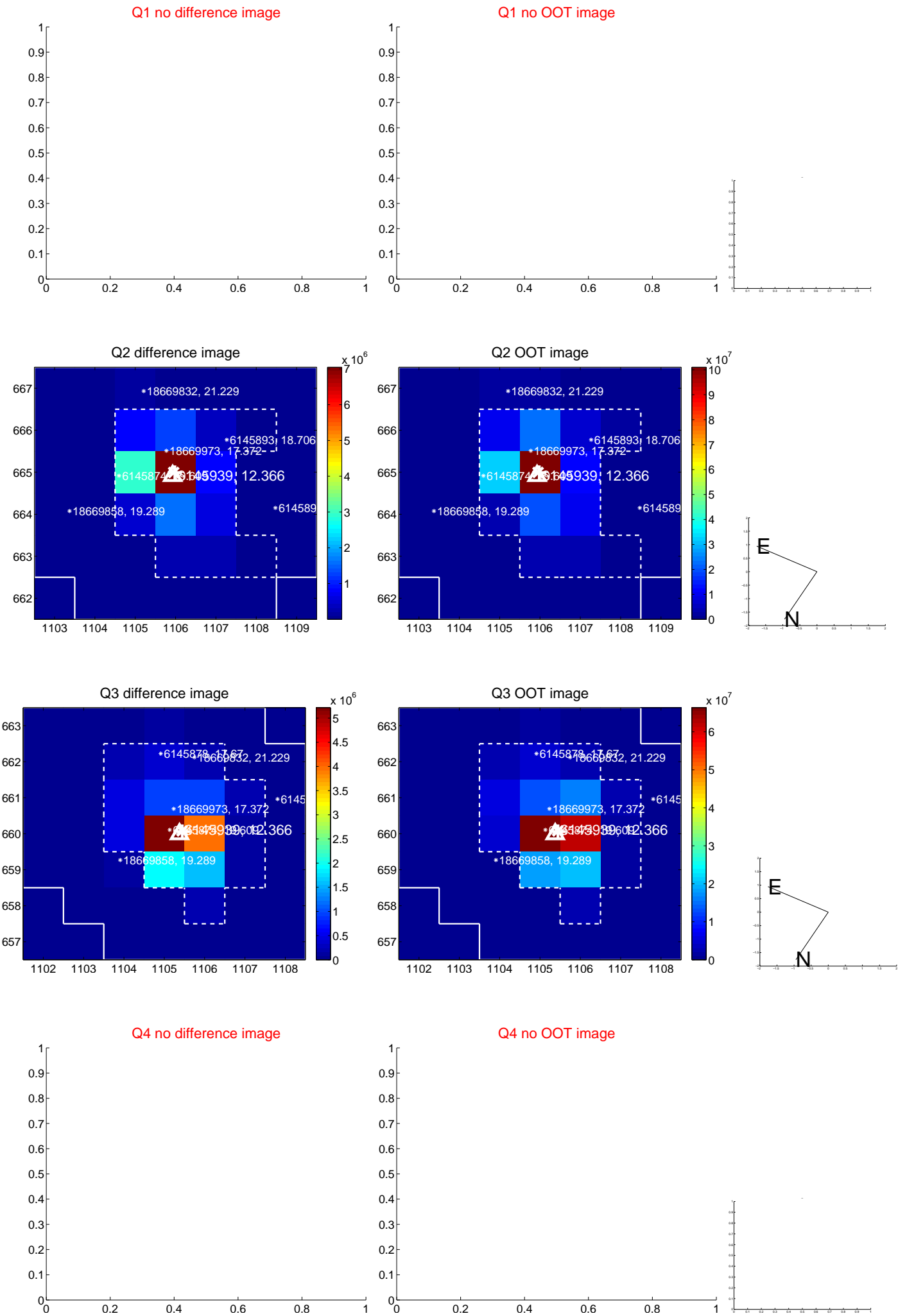
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.377 \pm 0.067$	5.64	$0.072 \pm 0.068$	$0.370 \pm 0.067$
PRF-fit source offset from KIC position	$0.352 \pm 0.069$	5.12	$-0.057 \pm 0.076$	$0.347 \pm 0.069$
photometric centroid source offset	$0.39 \pm 0.00$	145.52	$0.02 \pm 0.00$	$0.39 \pm 0.00$

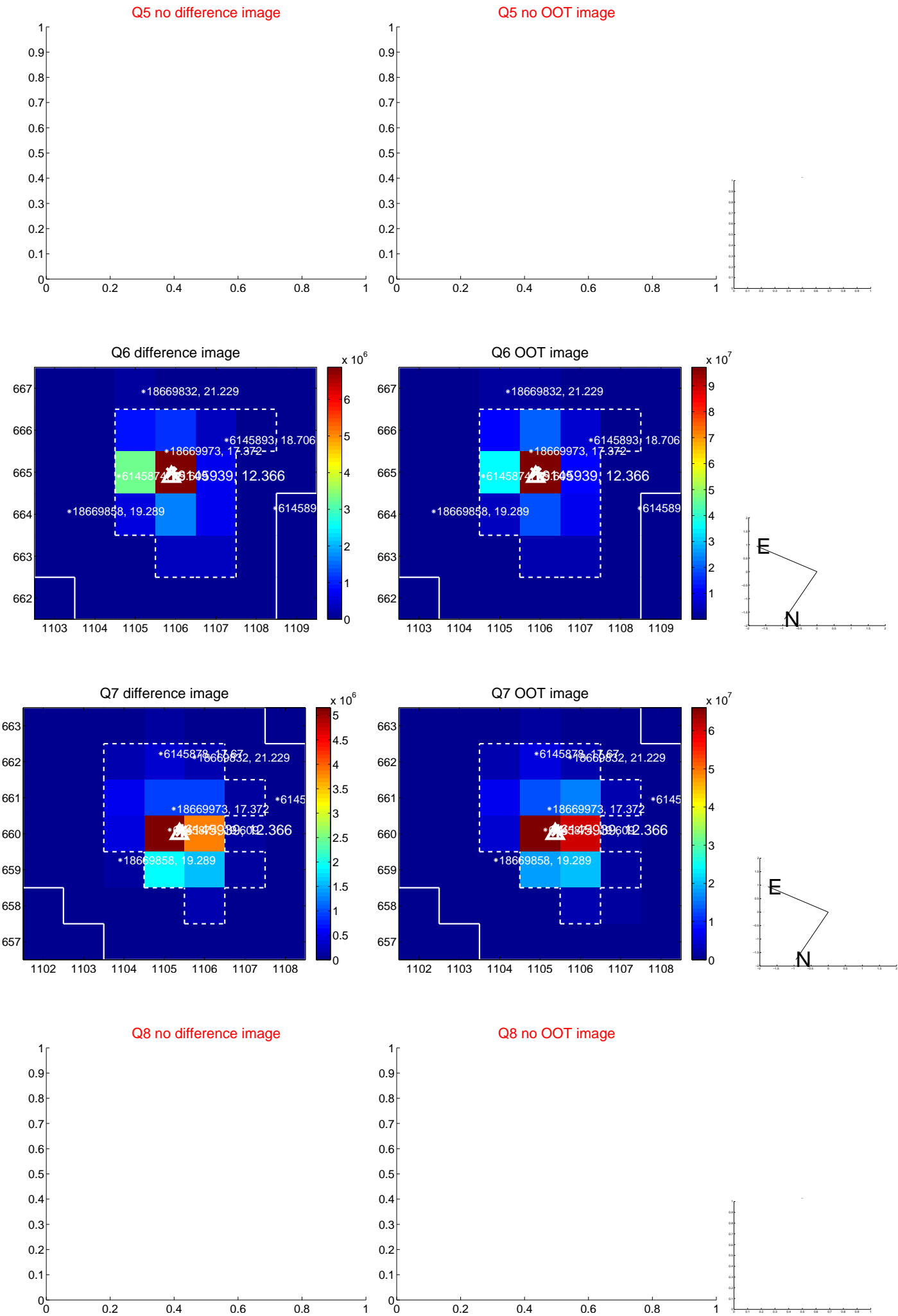


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



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

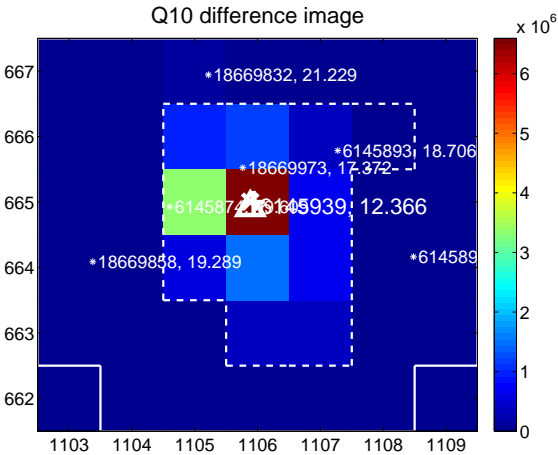
Q9 no difference image



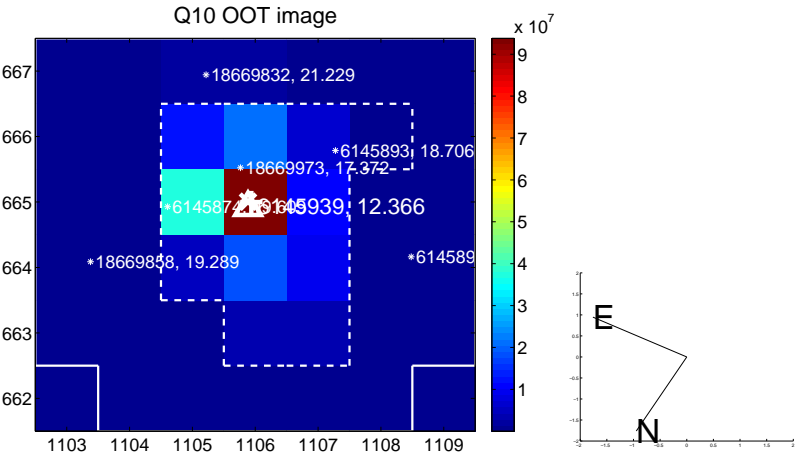
Q9 no OOT image



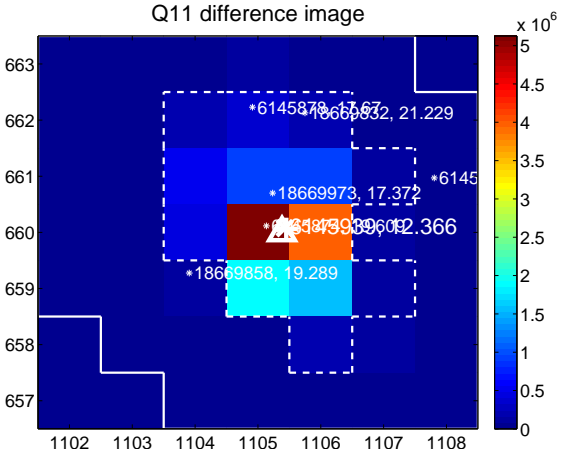
Q10 difference image



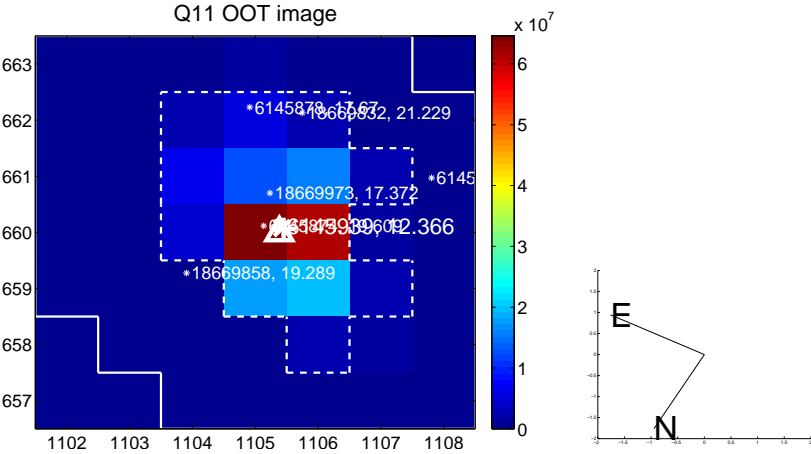
Q10 OOT image



Q11 difference image



Q11 OOT image



Q12 no difference image



Q12 no OOT image



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

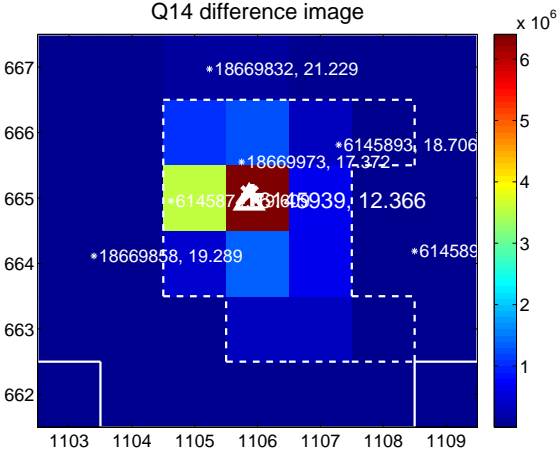
Q13 no difference image



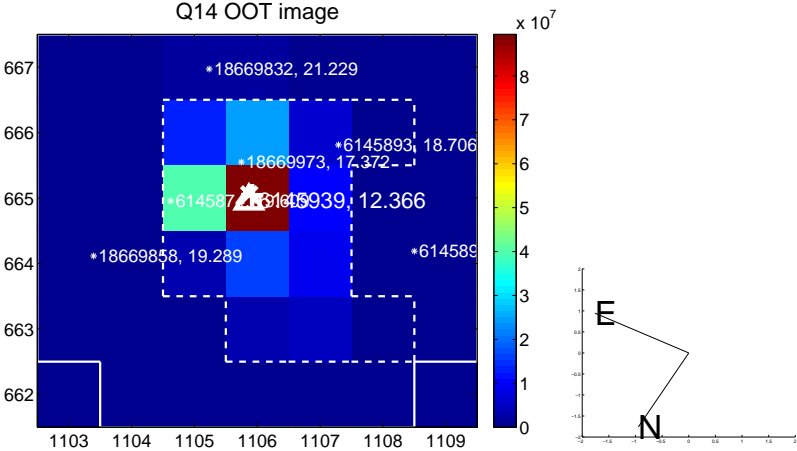
Q13 no OOT image



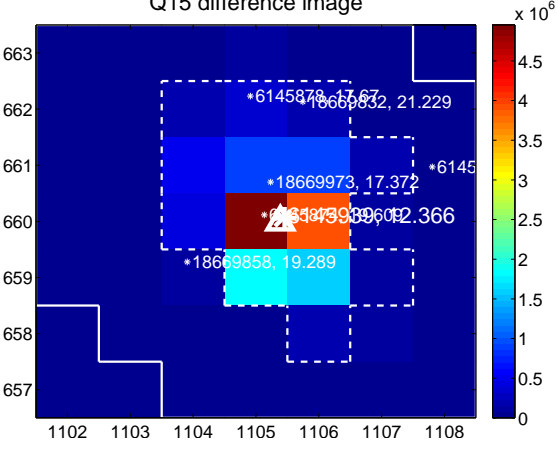
Q14 difference image



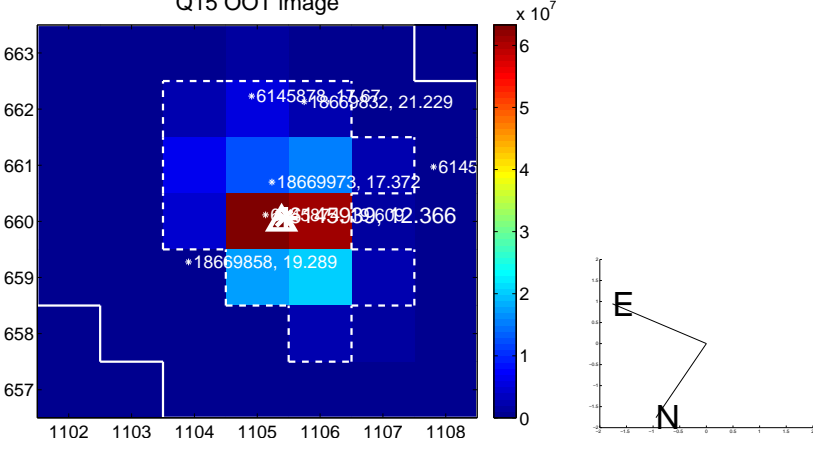
Q14 OOT image



Q15 difference image



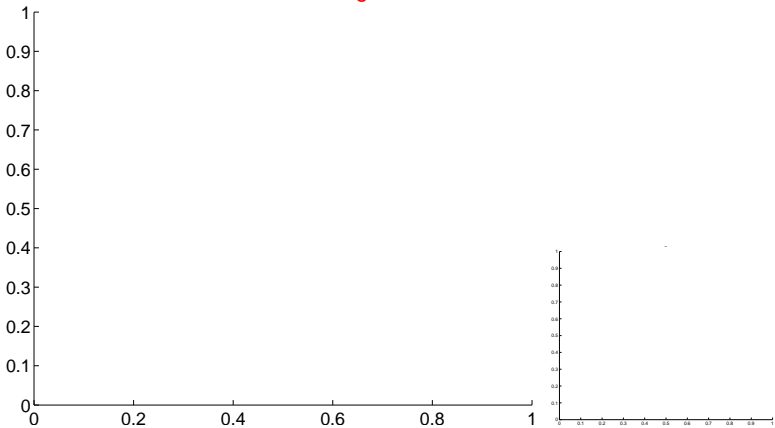
Q15 OOT image



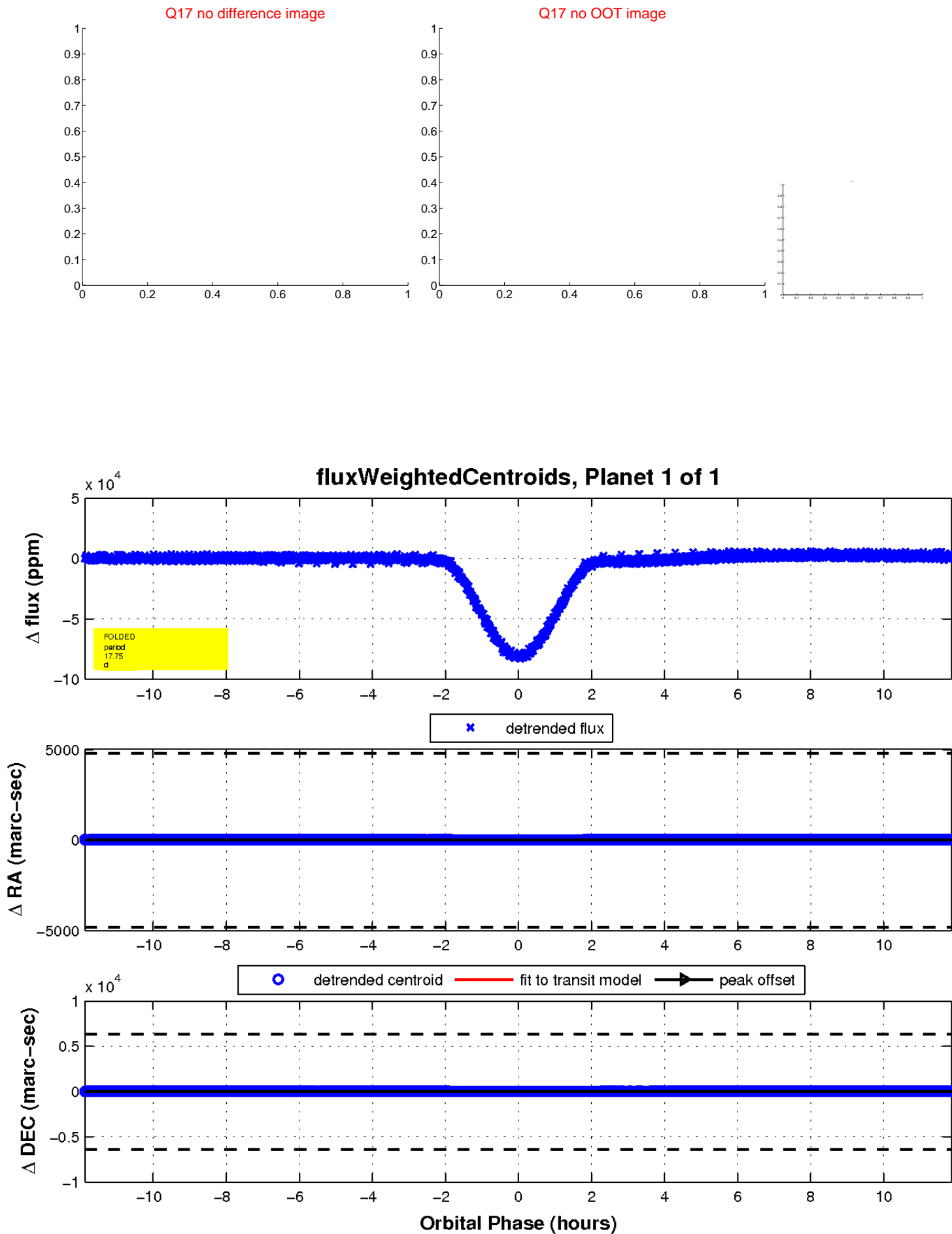
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

