

# KIC 008439618

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008439618-01	OBS	5518.01	558.513813	419.675018	1340.3	5.844	10.2	8.9	0.79	5679	3.05	0.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008439618-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS

**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 008439618-01

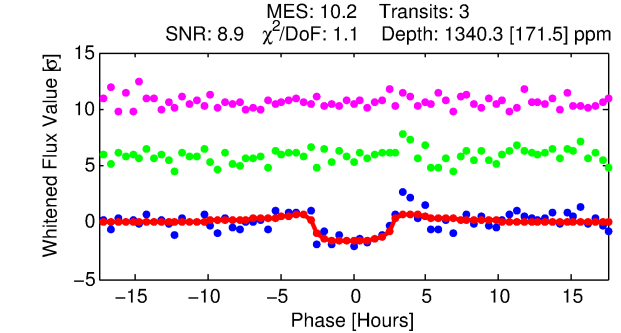
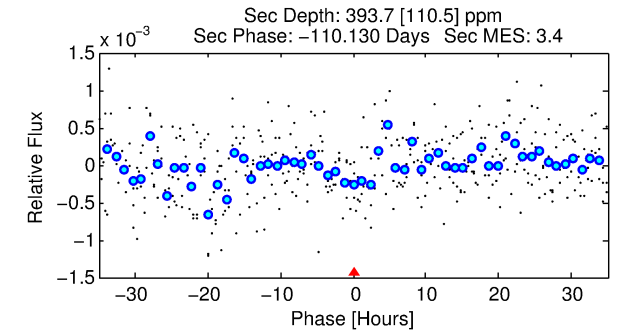
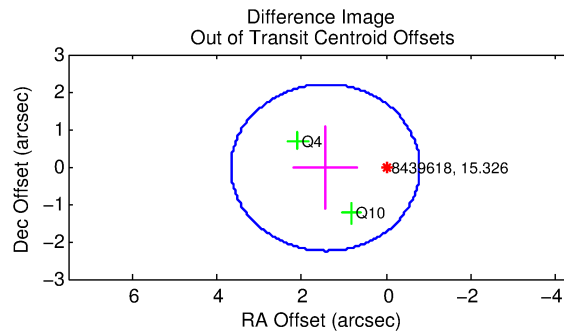
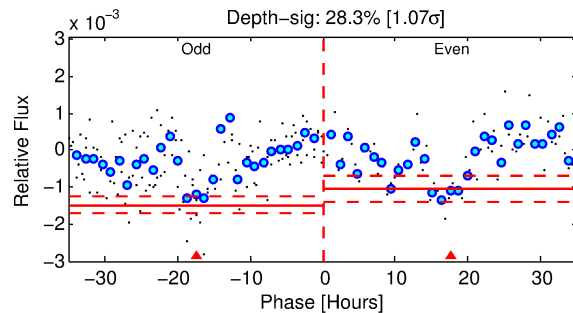
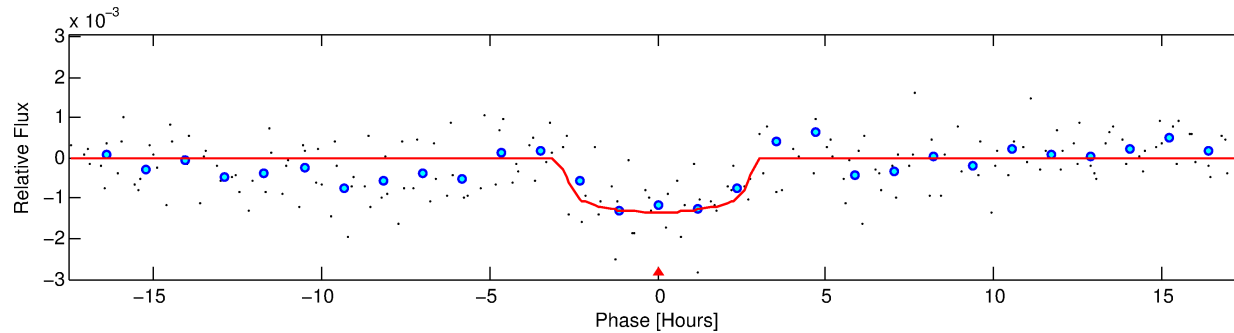
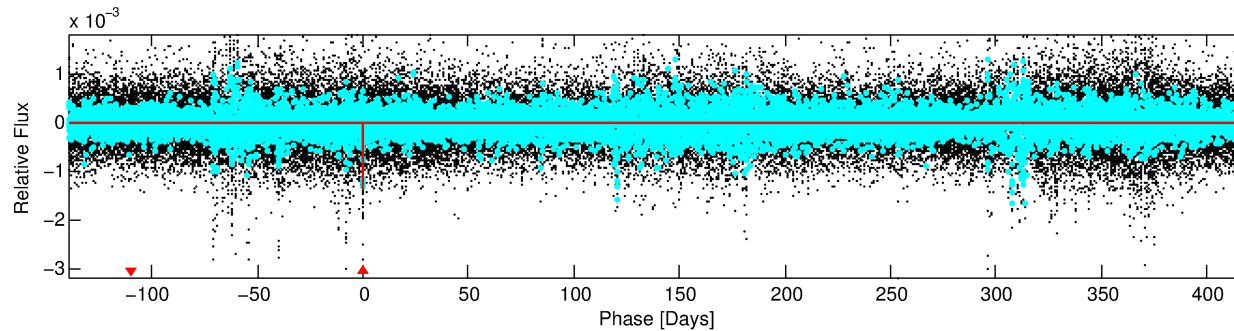
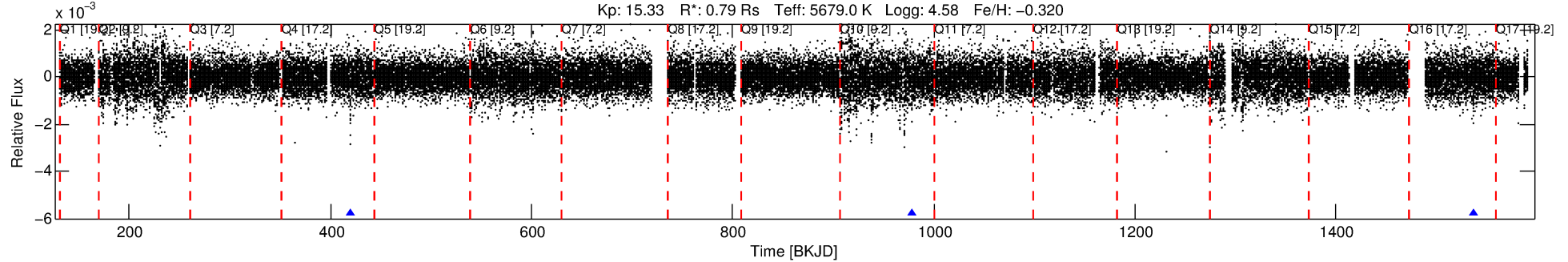
No Significant Match Found

# DV One-Page Summary

KIC: 8439618 Candidate: 1 of 1 Period: 558.514 d

KOI: K05518 Corr: No Ephemeris Match

Kp: 15.33 R\*: 0.79 Rs Teff: 5679.0 K Logg: 4.58 Fe/H: -0.320



## DV Fit Results:

Period = 558.51381 [0.00732] d  
Epoch = 419.6750 [0.0093] BKJD  
Rp/R\* = 0.0352 [0.0400]  
a/R\* = 596.11 [3013.10]  
b = 0.64 [4.77]  
Seff = 0.36 [0.10]  
Teq = 198 [14] K  
Rp = 3.05 [3.53] Re  
a = 1.2704 [0.2285] AU  
Ag = 37524.66 [86453.24] [0.43σ]  
Teffp = 4262 [2442] K [1.66σ]

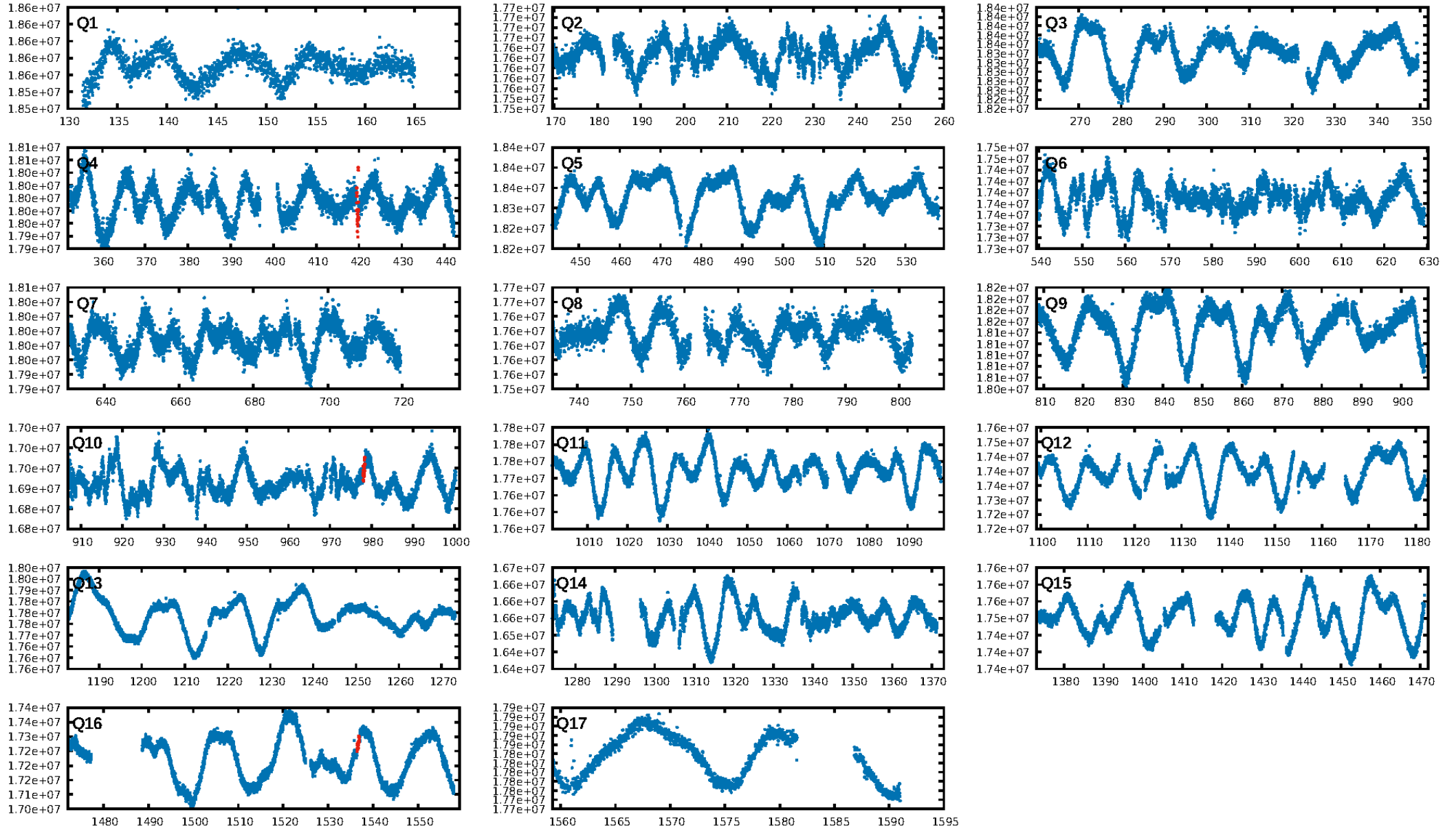
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGof-sig: 80.4%  
**Bootstrap-pfa: 7.36e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.964  
Centroid-sig: 17.8%  
Centroid-so: 2.279 arcsec [1.30σ]  
OotOffset-rm: 1.431 arcsec [1.93σ]  
OotOffset-st: 1/0/1/0 [2]  
KicOffset-rm: 1.282 arcsec [1.90σ]  
KicOffset-st: 1/0/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

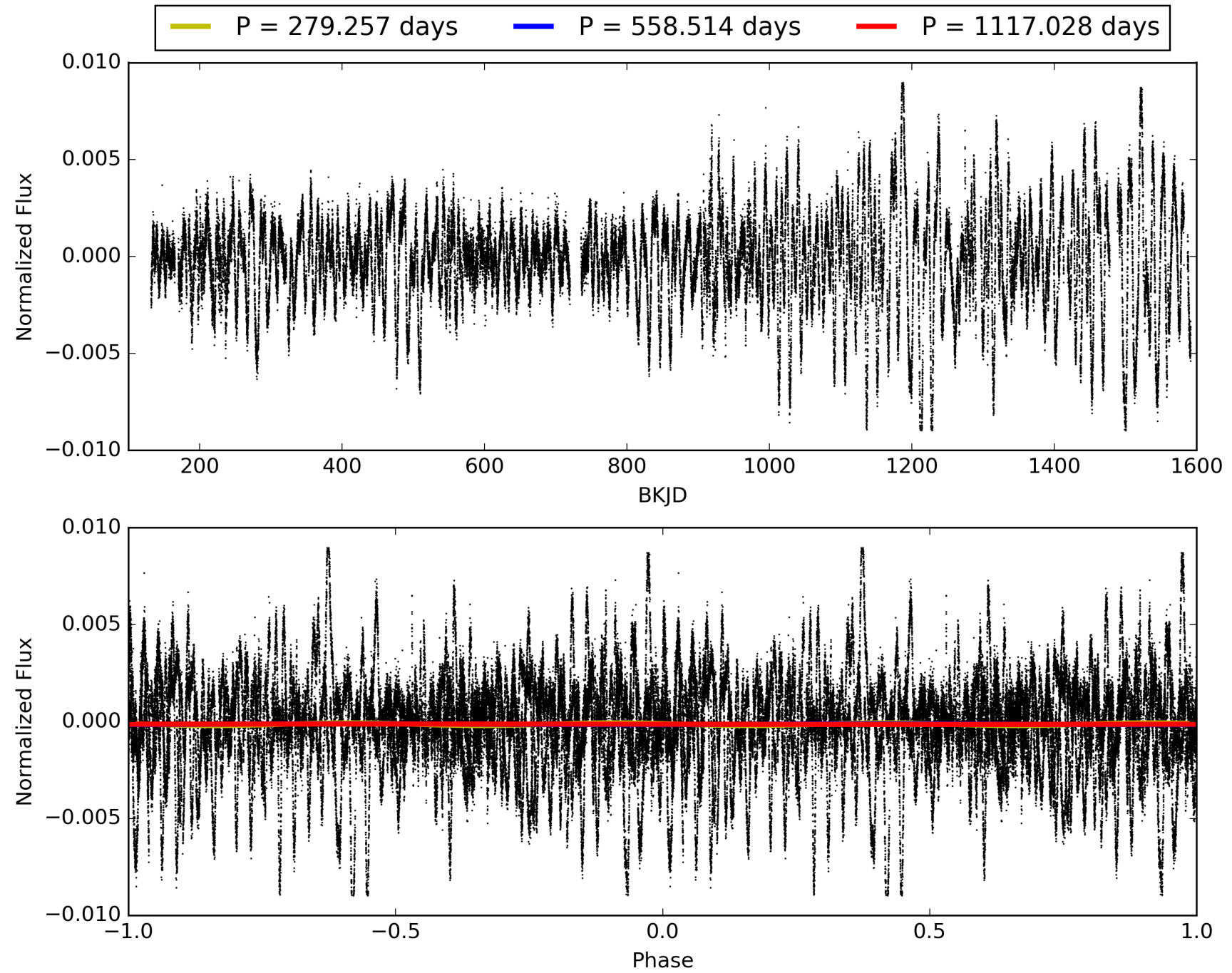
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:56:53 Z

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

# TCE 008439618-01, PDC Light Curves

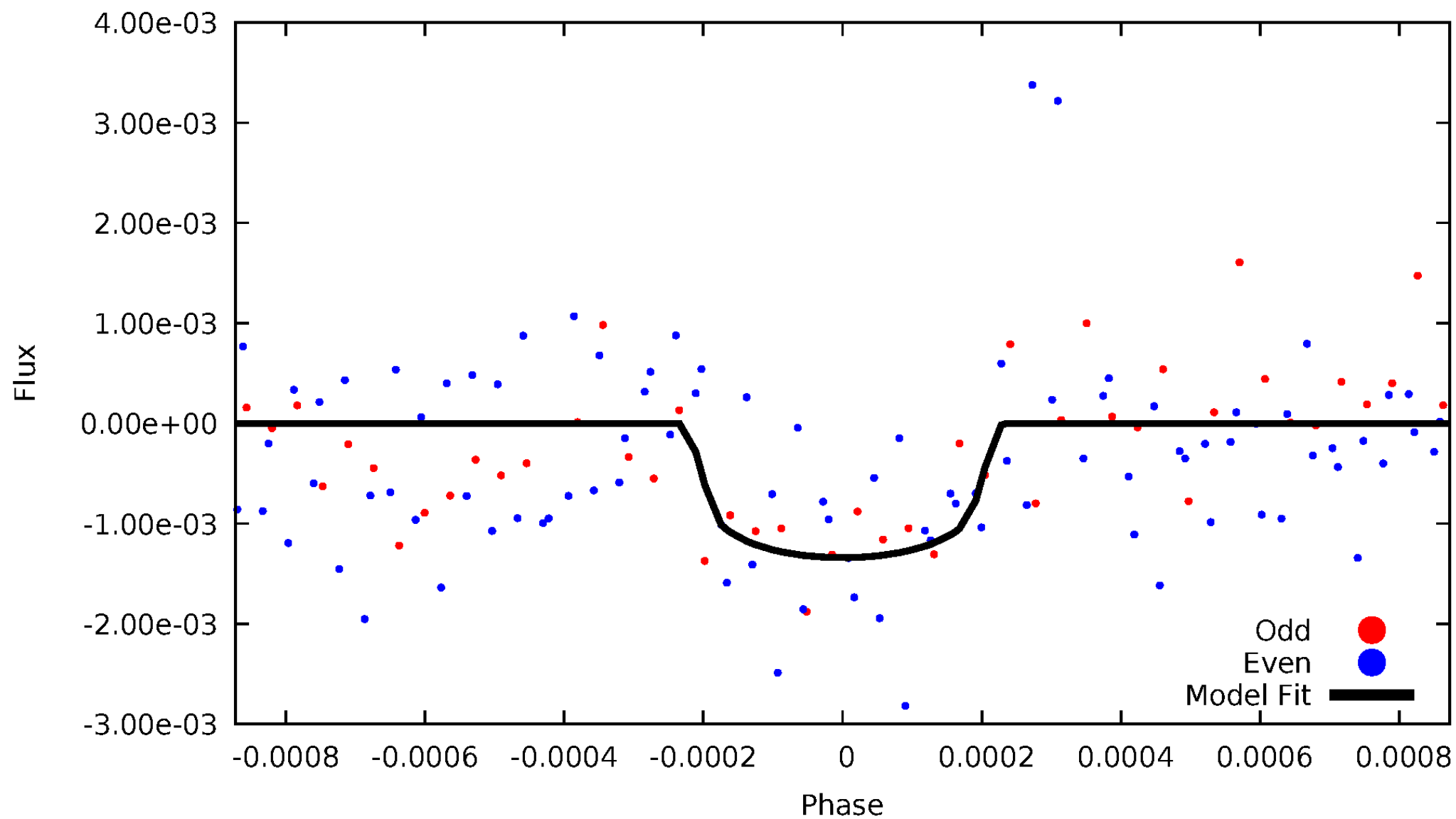


TCE 008439618-01



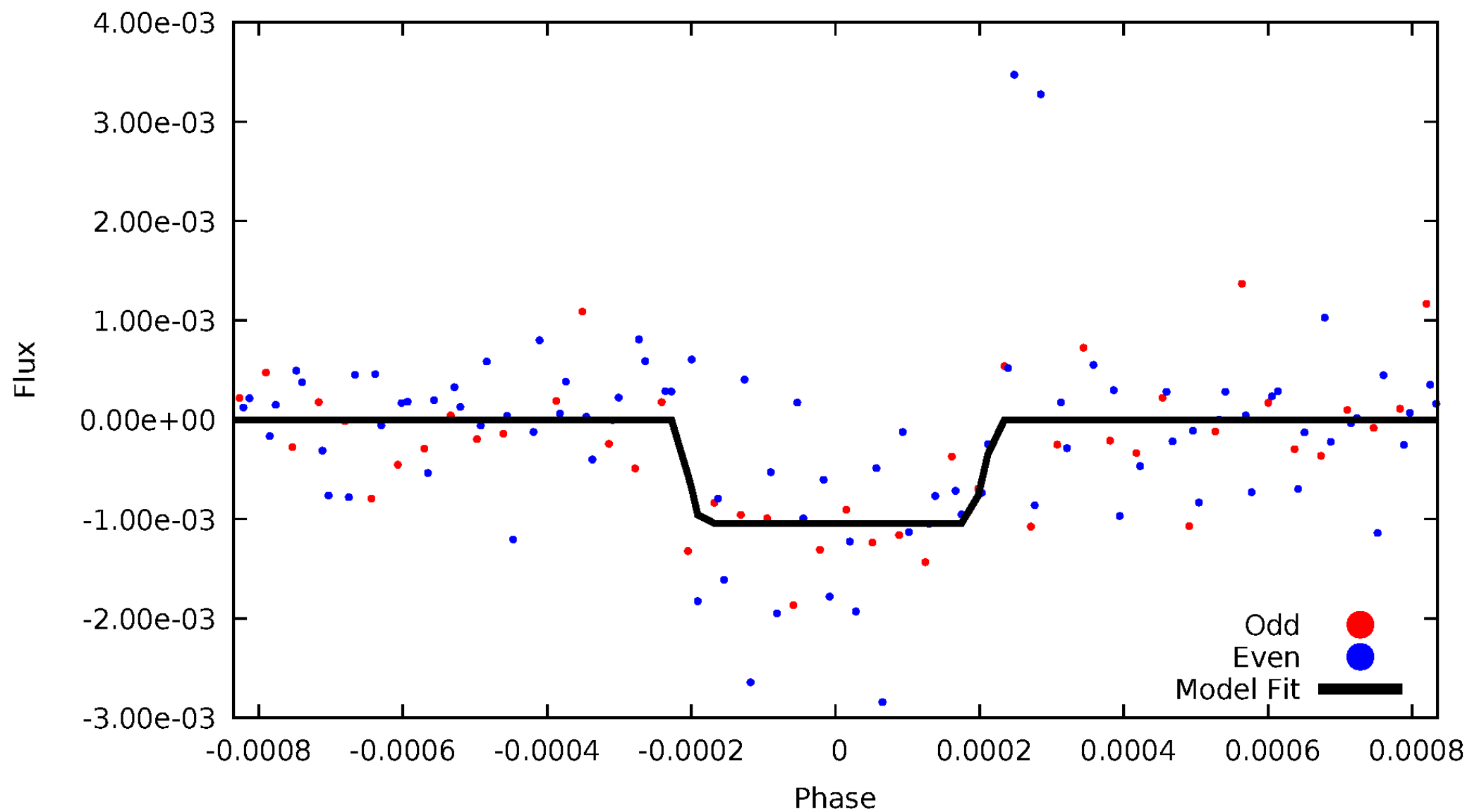
# DV Odd/Even

TCE 008439618-01



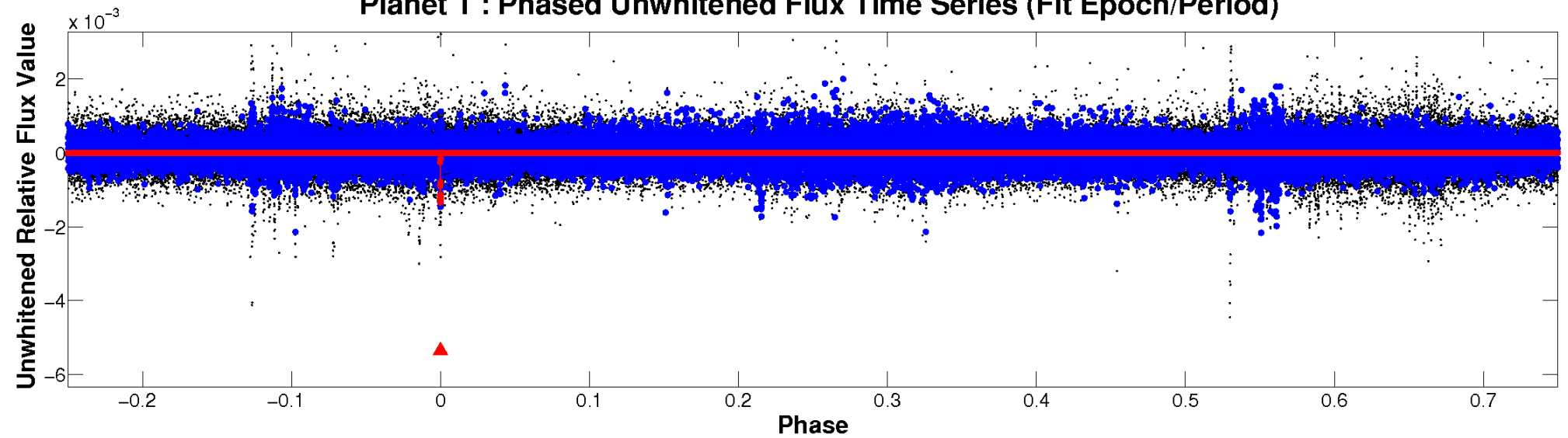
# ALT Odd/Even

TCE 008439618-01

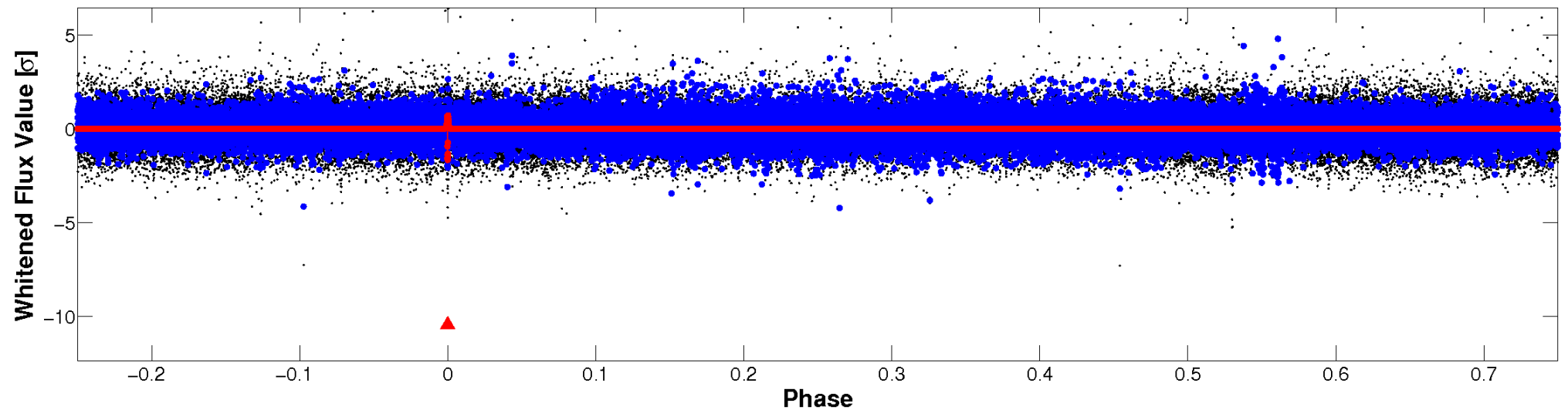


# Non-Whitened Vs. Whitened Light Curve

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

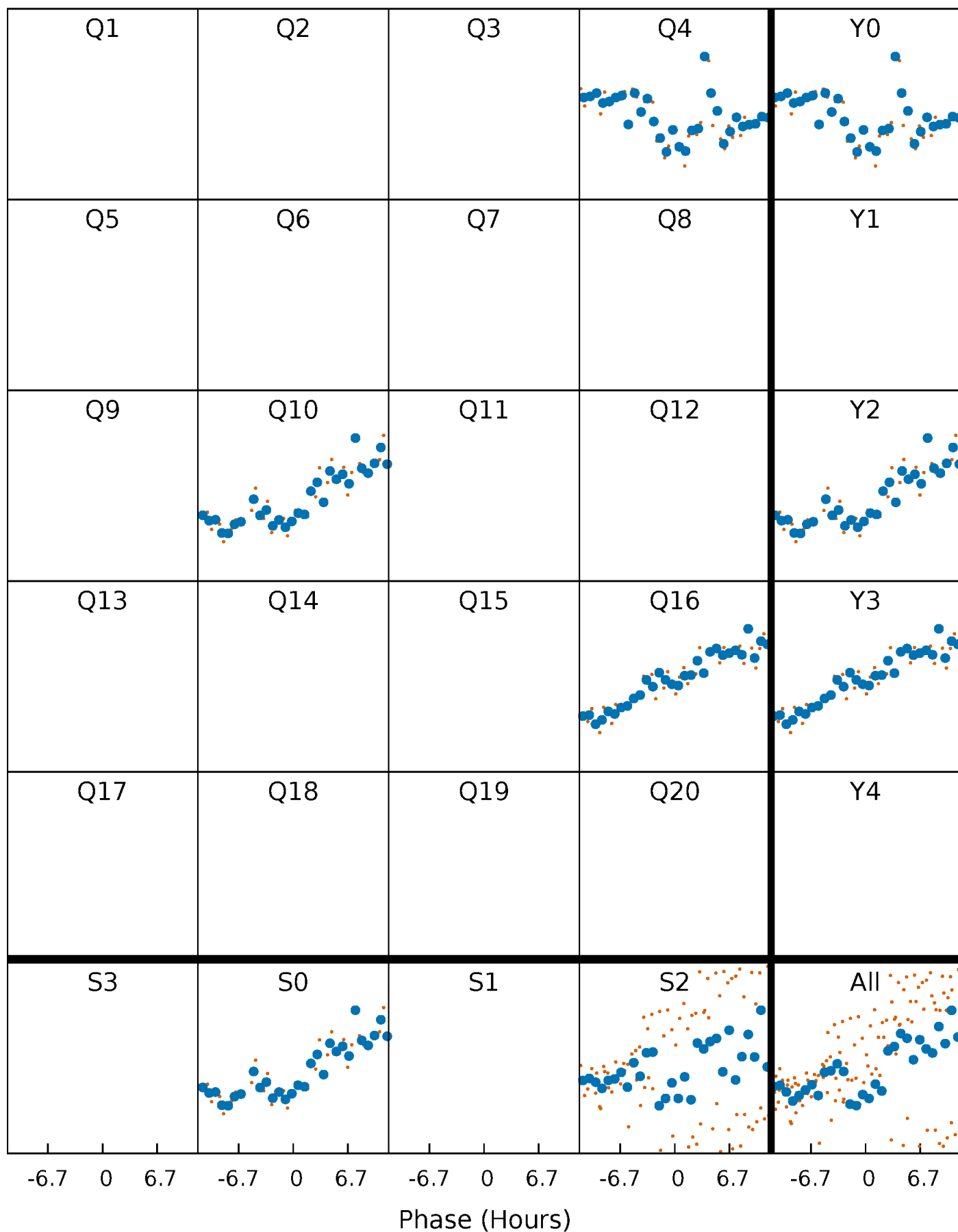


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

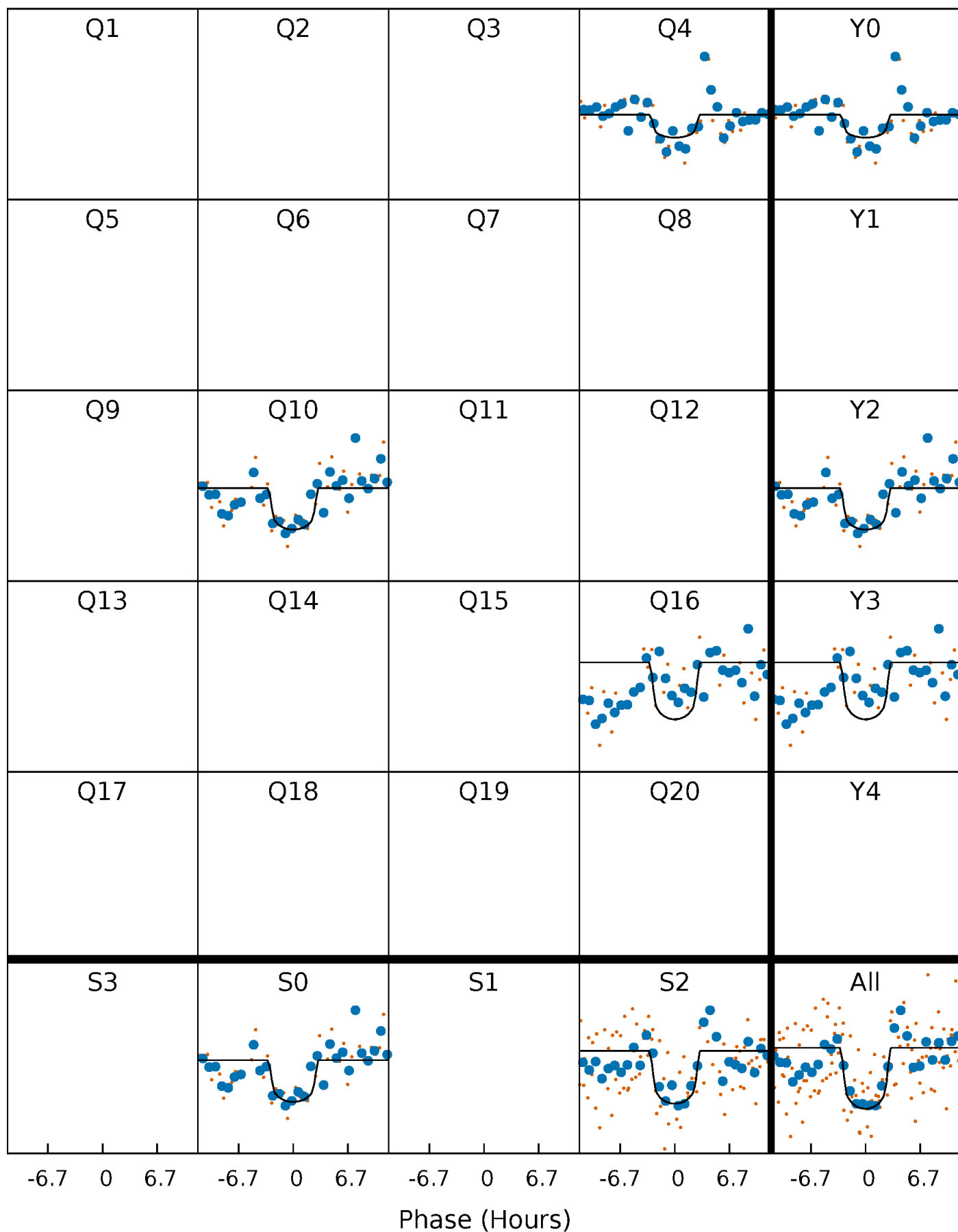
TCE 008439618-01 P=558.513813 Days  $T_0=419.675018$  (BKJD)





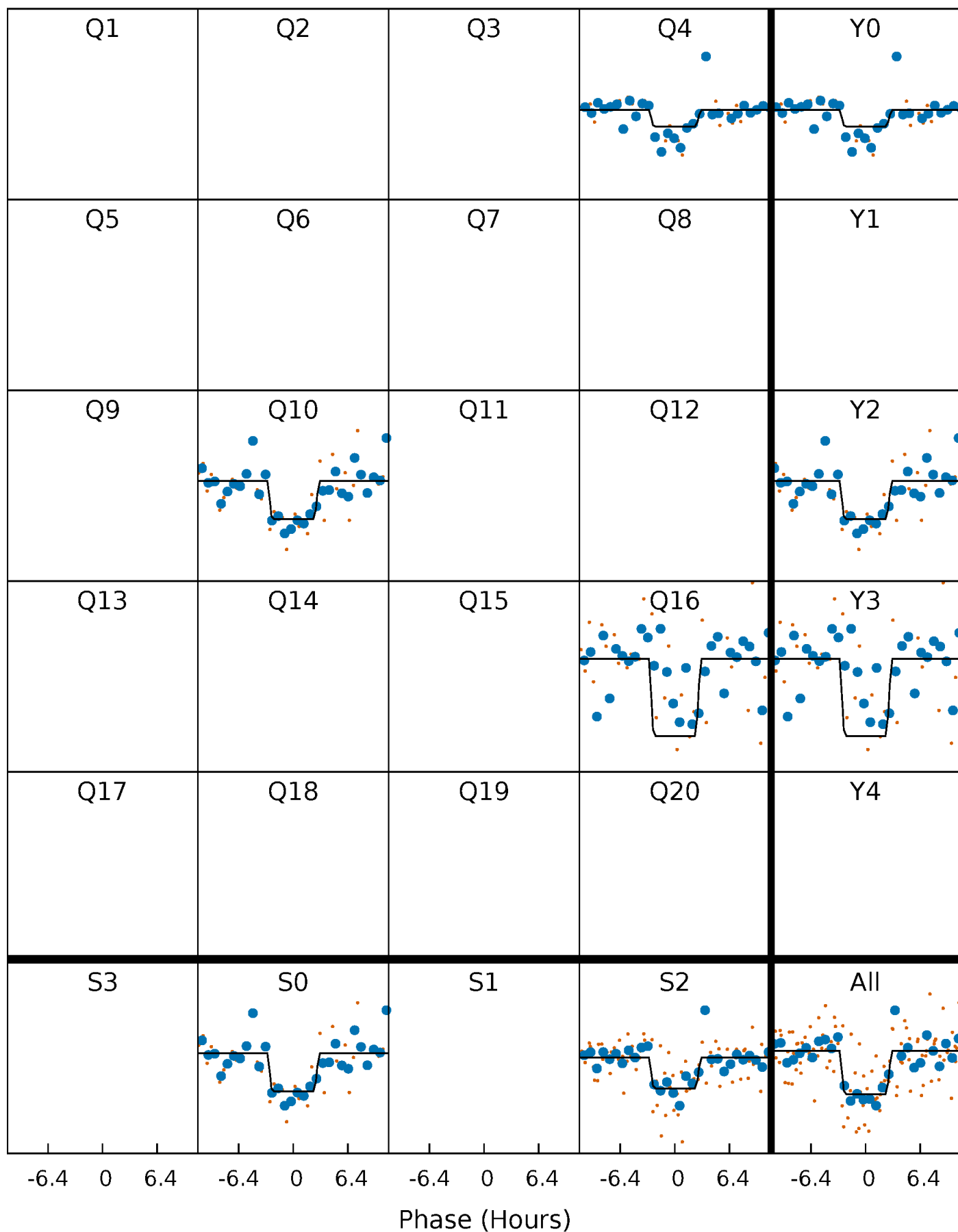
# DV Quarter-Phased Transit Curves

TCE 008439618-01 P=558.513813 Days  $T_0=419.675018$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

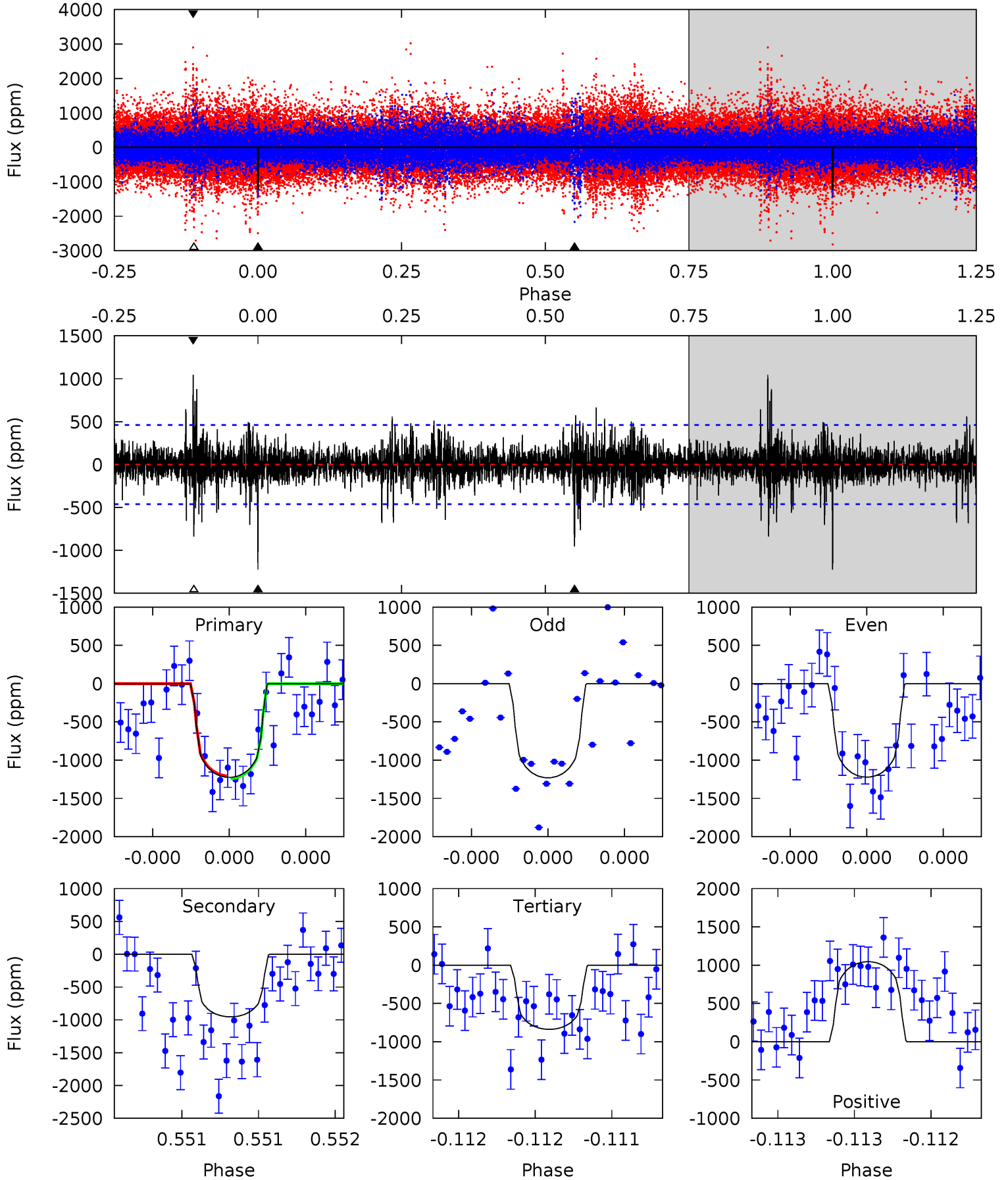
TCE 008439618-01 P=558.503684 Days  $T_0=419.688837$  (BKJD)



# DV Model-Shift Uniqueness Test

008439618-01, P = 558.513813 Days, E = 419.675018 Days

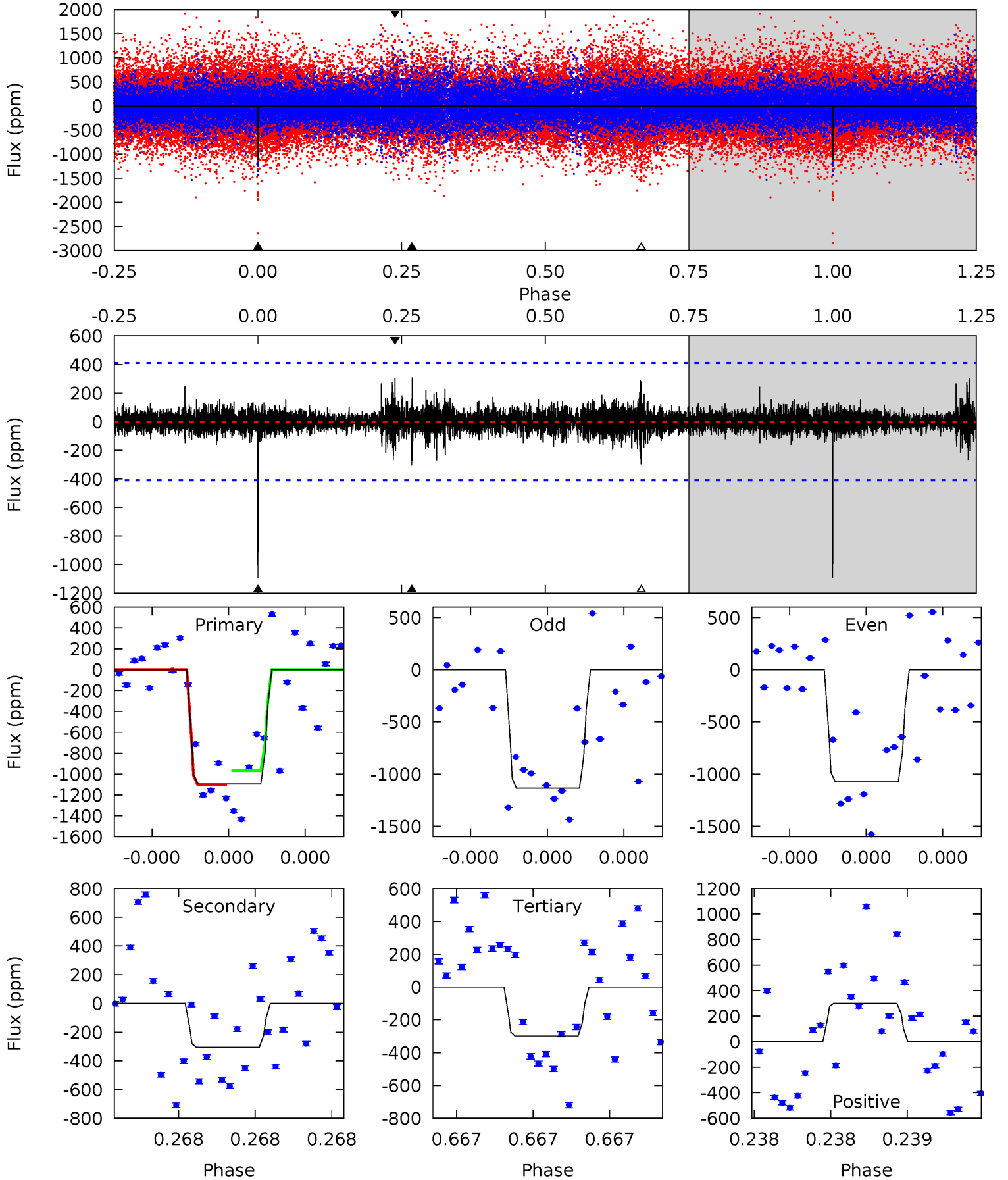
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	11.6	10.2	12.7	5.59	3.50	1.72	4.68	2.18	1.40	-1.10	0.05	1.00	0.46	0.22



# Alt Model-Shift Uniqueness Test

008439618-01, P = 558.503684 Days, E = 419.688837 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
15.0	4.18	4.08	4.13	5.61	3.53	0.68	10.9	10.8	0.10	0.05	0.40	0.96	0.22	0.90



### Stellar Parameters For KIC 008439618

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5679^{+152}_{-152}$	$4.581^{+0.036}_{-0.144}$	$-0.320^{+0.300}_{-0.300}$	$0.794^{+0.169}_{-0.061}$	$0.886^{+0.088}_{-0.097}$	$2.497^{+0.478}_{-1.026}$
	+3%/-3%	+1%/-3%	+94%/-94%	+21%/-8%	+10%/-11%	+19%/-41%
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 008439618-01 / KOI 5518.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-954 \pm 83$	$4.06^{+3.45}_{-2.58}$	$282^{+14}_{-11}$	$4774^{+3227}_{-922}$	$50546^{+340885}_{-35553}$
Alt.	$-305 \pm 73$	$3.84^{+3.46}_{-2.40}$	$282^{+14}_{-11}$	$3956^{+1945}_{-741}$	$18140^{+113535}_{-13228}$

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

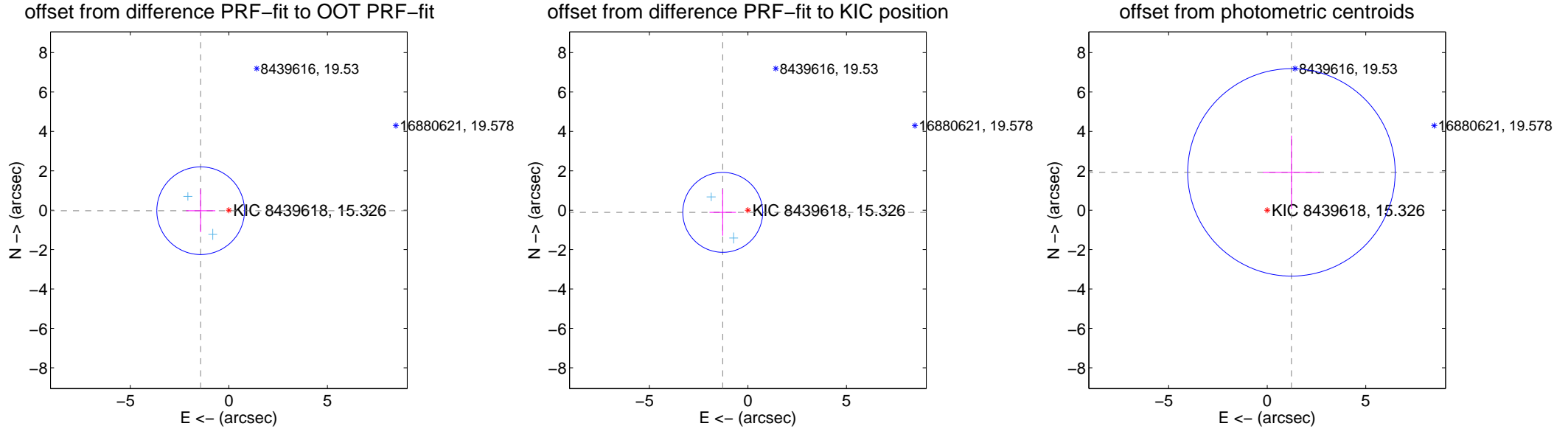
## DV Centroid Data

Supplemental centroid analysis for 008439618-01. Kepler magnitude: 15.33. Transit SNR 8.87

There are 2 quarters with good PRF difference image offsets

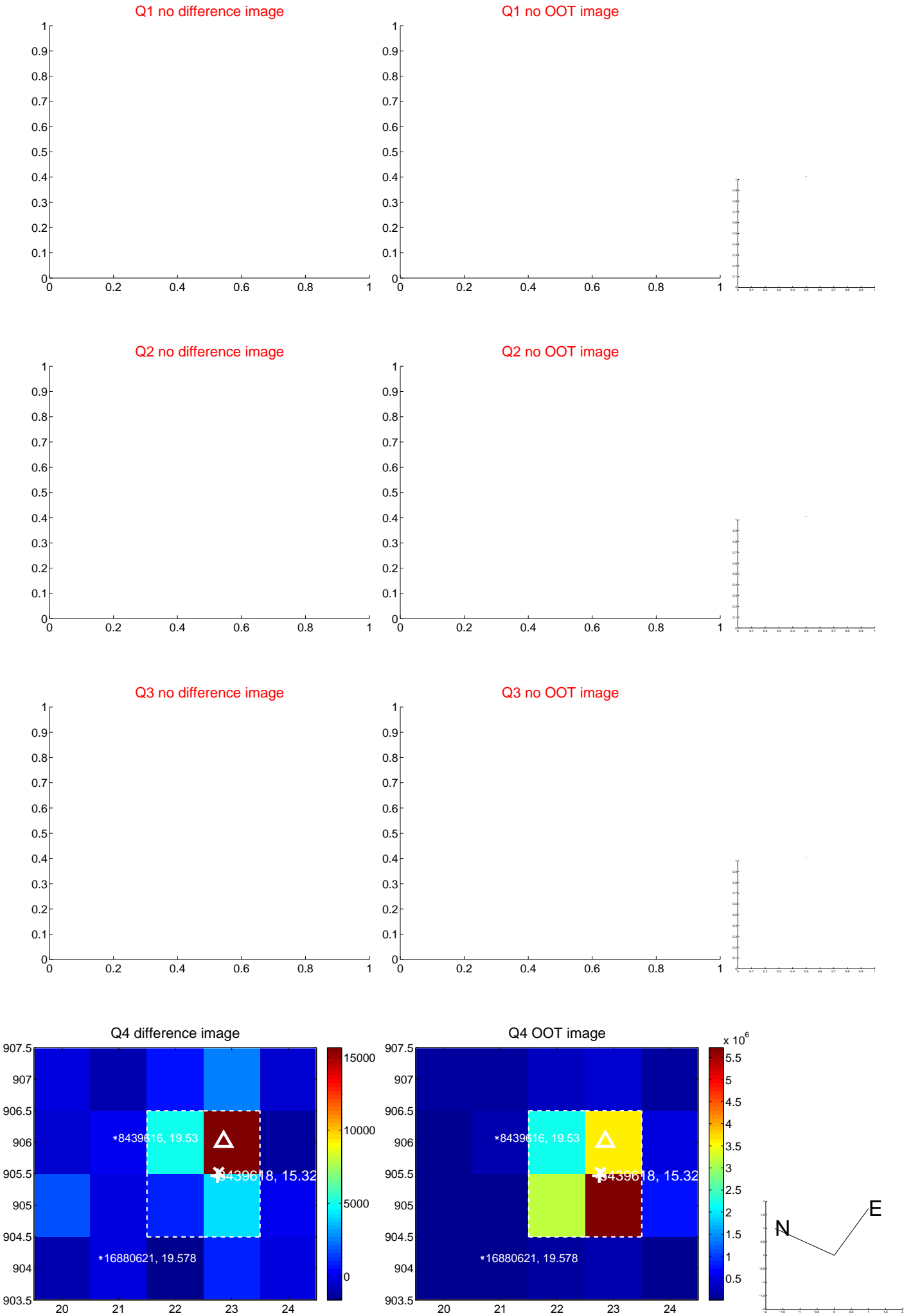
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.431 \pm 0.742$	1.93	$1.431 \pm 0.742$	$-0.026 \pm 1.091$
PRF-fit source offset from KIC position	$1.282 \pm 0.676$	1.90	$1.277 \pm 0.671$	$-0.110 \pm 1.181$
photometric centroid source offset	$2.28 \pm 1.75$	1.30	$-1.23 \pm 1.45$	$1.92 \pm 1.87$



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.

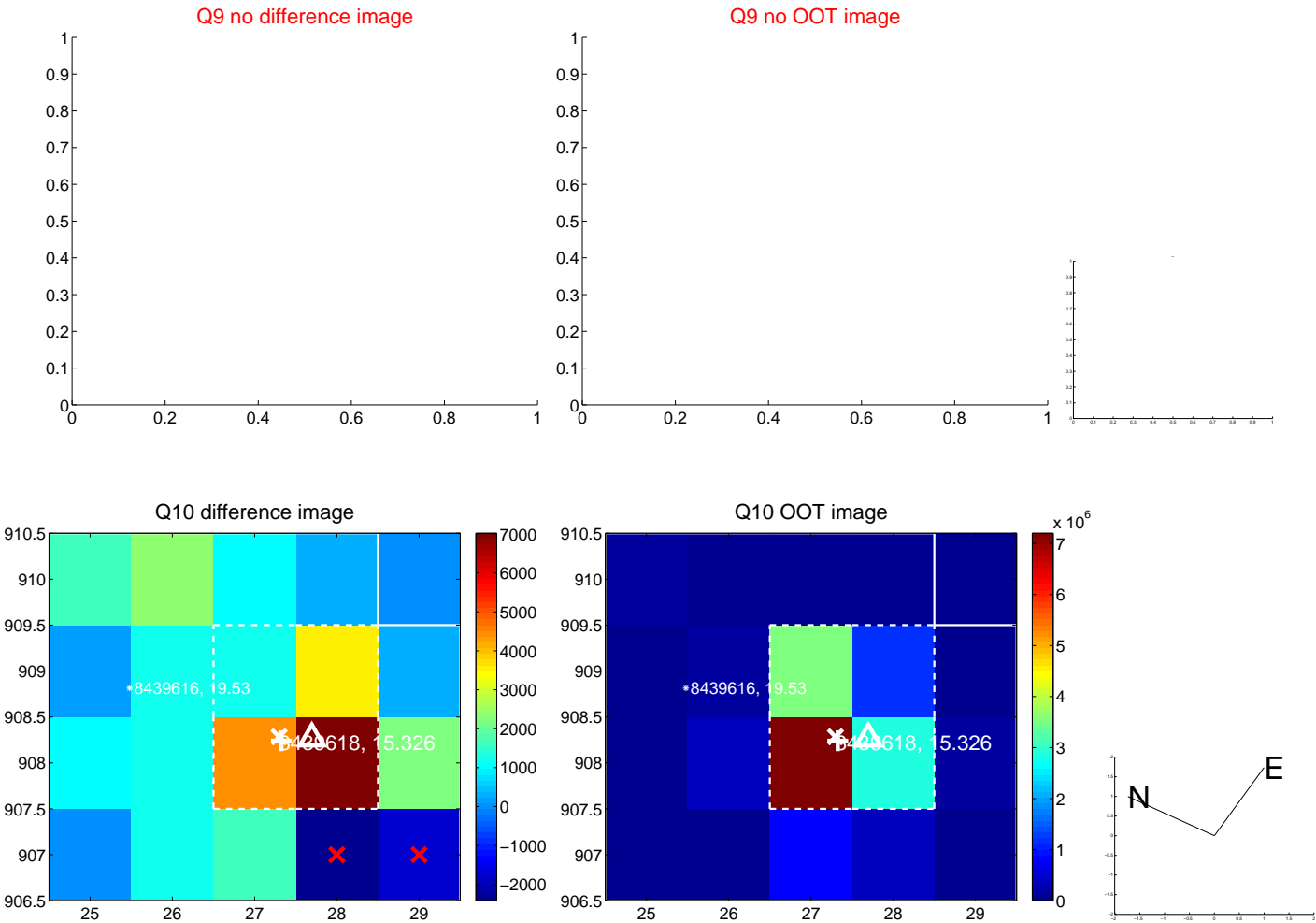


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

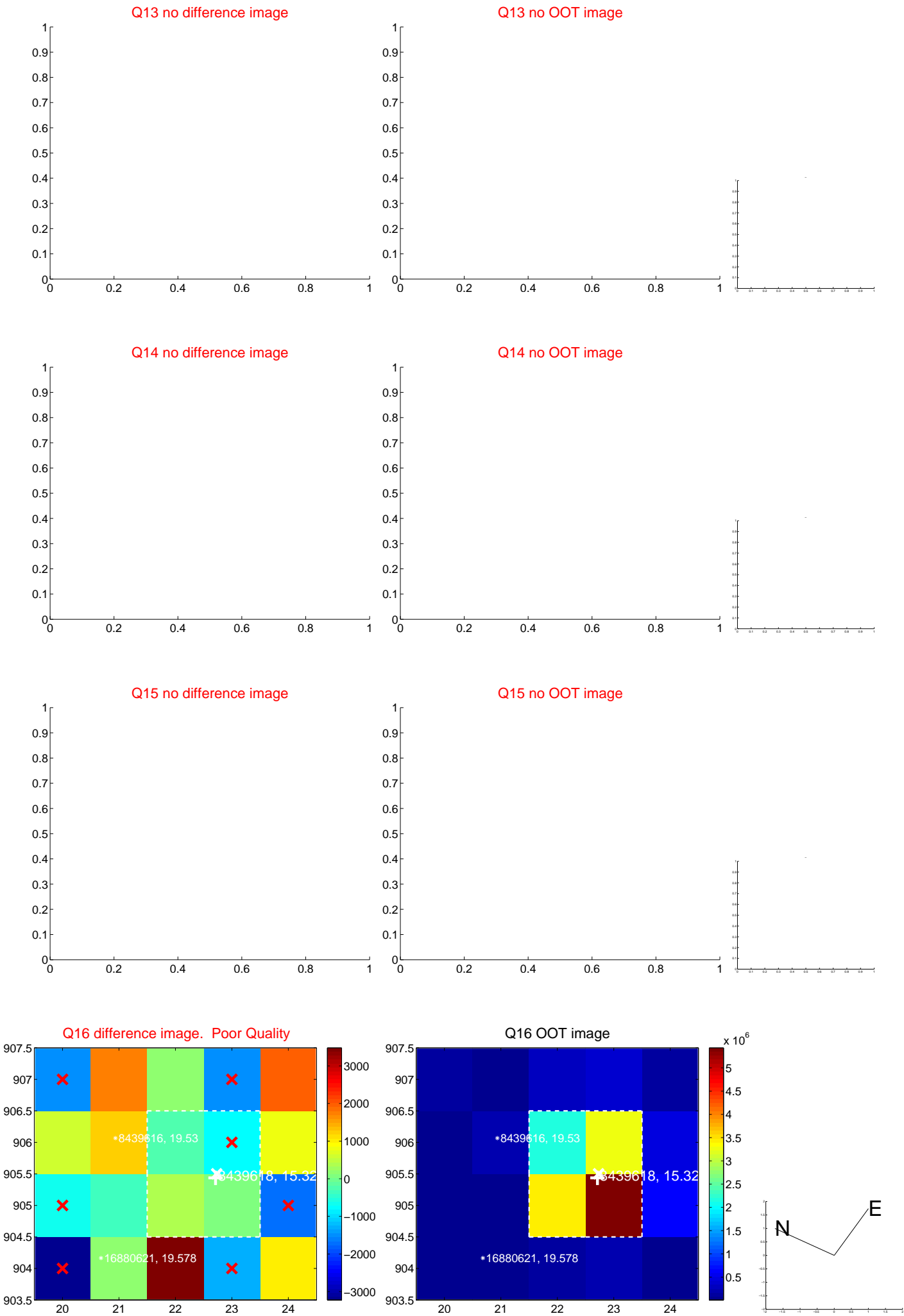




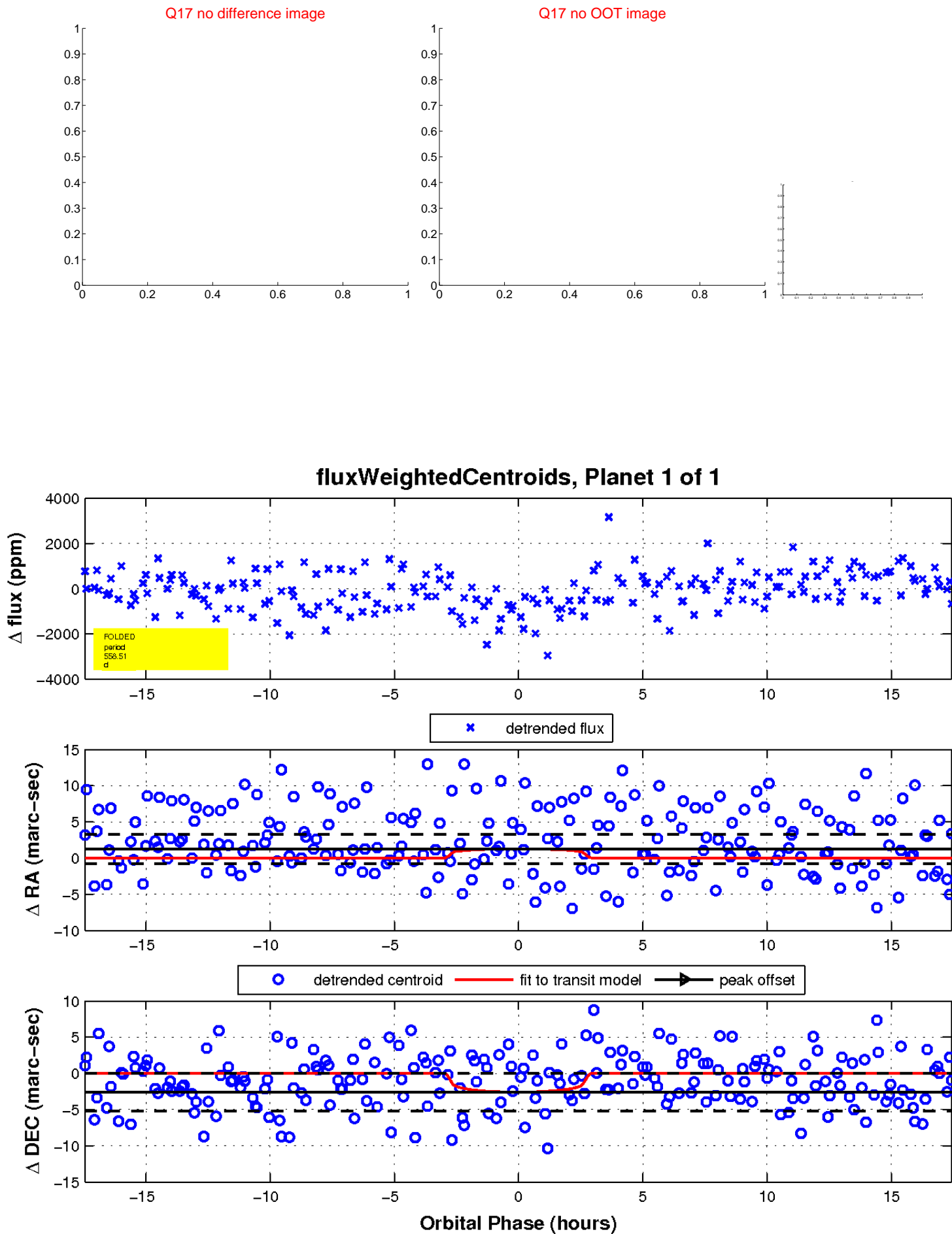
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

