

# KIC 008759570

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008759570-01	OBS	No	413.196219	426.098868	861.7	13.438	8.2	7.1	0.94	5604	2.83	0.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008759570-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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.

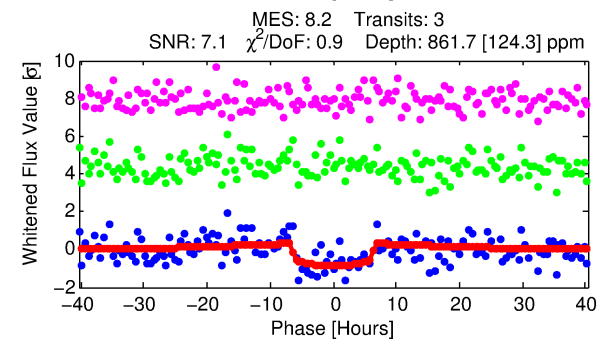
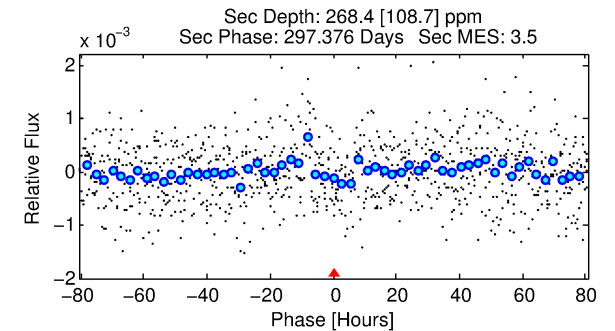
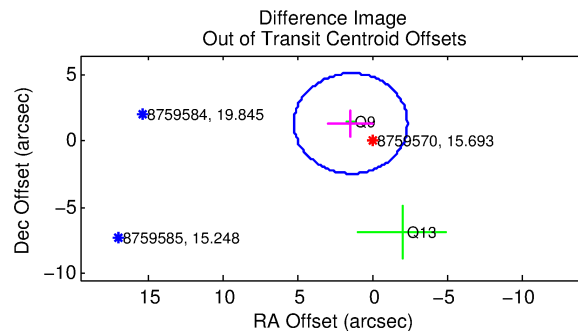
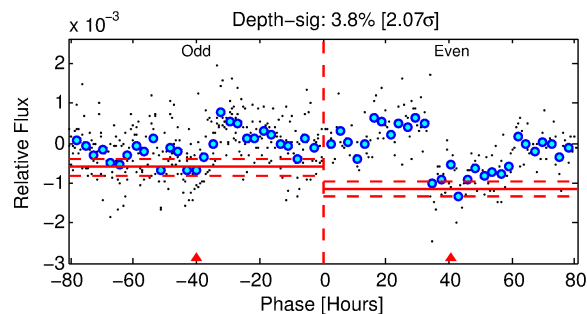
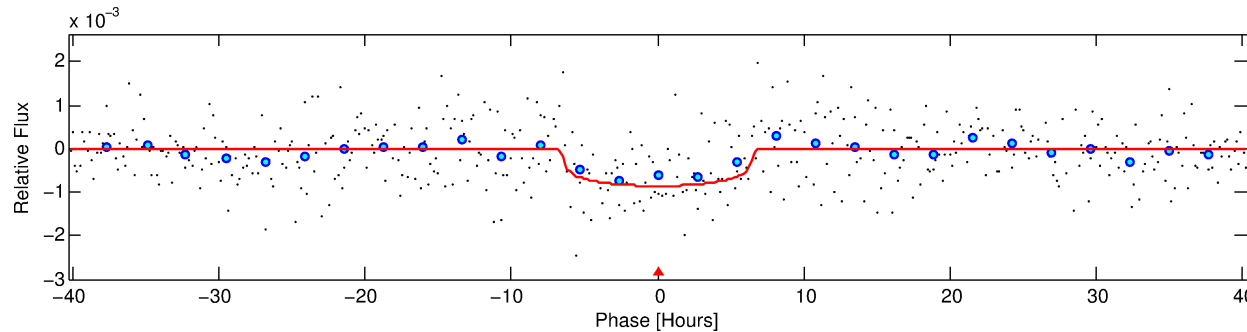
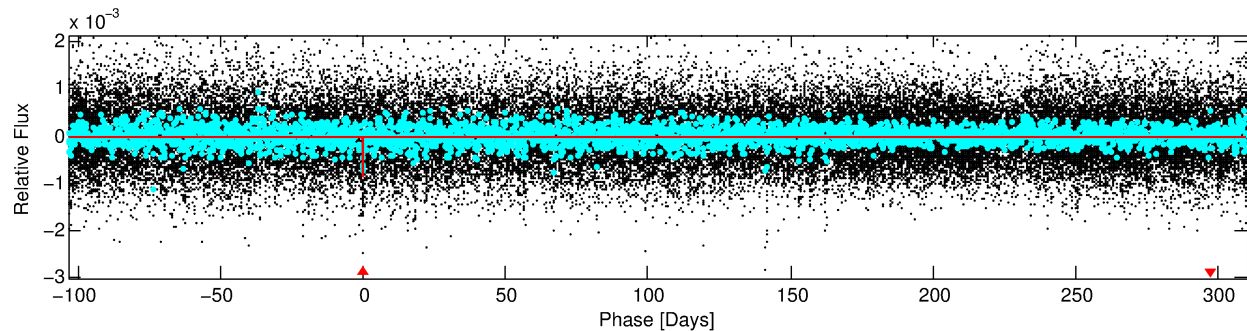
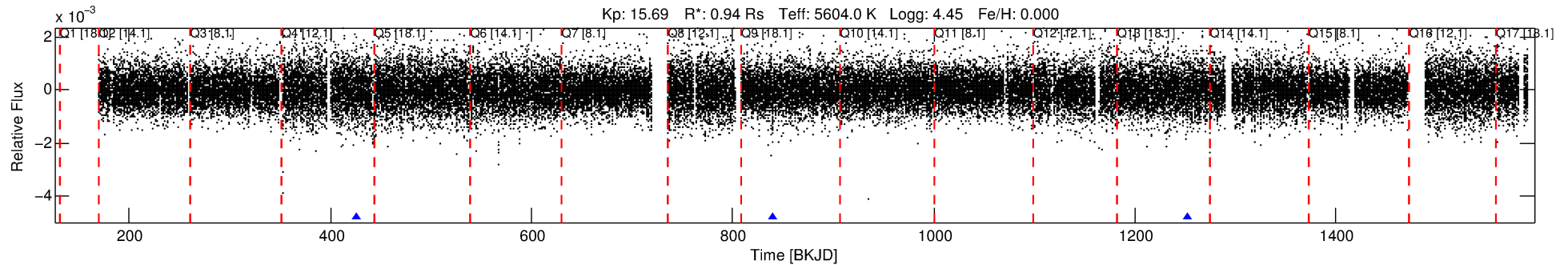
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008759570-01

No Significant Match Found

# DV One-Page Summary

KIC: 8759570 Candidate: 1 of 1 Period: 413.196 d



## DV Fit Results:

Period = 413.19622 [0.01579] d  
Epoch = 426.0989 [0.0194] BKJD  
Rp/R\* = 0.0275 [0.0160]  
a/R\* = 208.48 [494.20]  
b = 0.52 [3.38]  
Seff = 0.71 [0.24]  
Teq = 234 [20] K  
Rp = 2.83 [1.80] Re  
a = 1.0547 [0.2324] AU  
Ag = 20538.55 [26094.65] [0.79 $\sigma$ ]  
Teffp = 4327 [1336] K [3.06 $\sigma$ ]

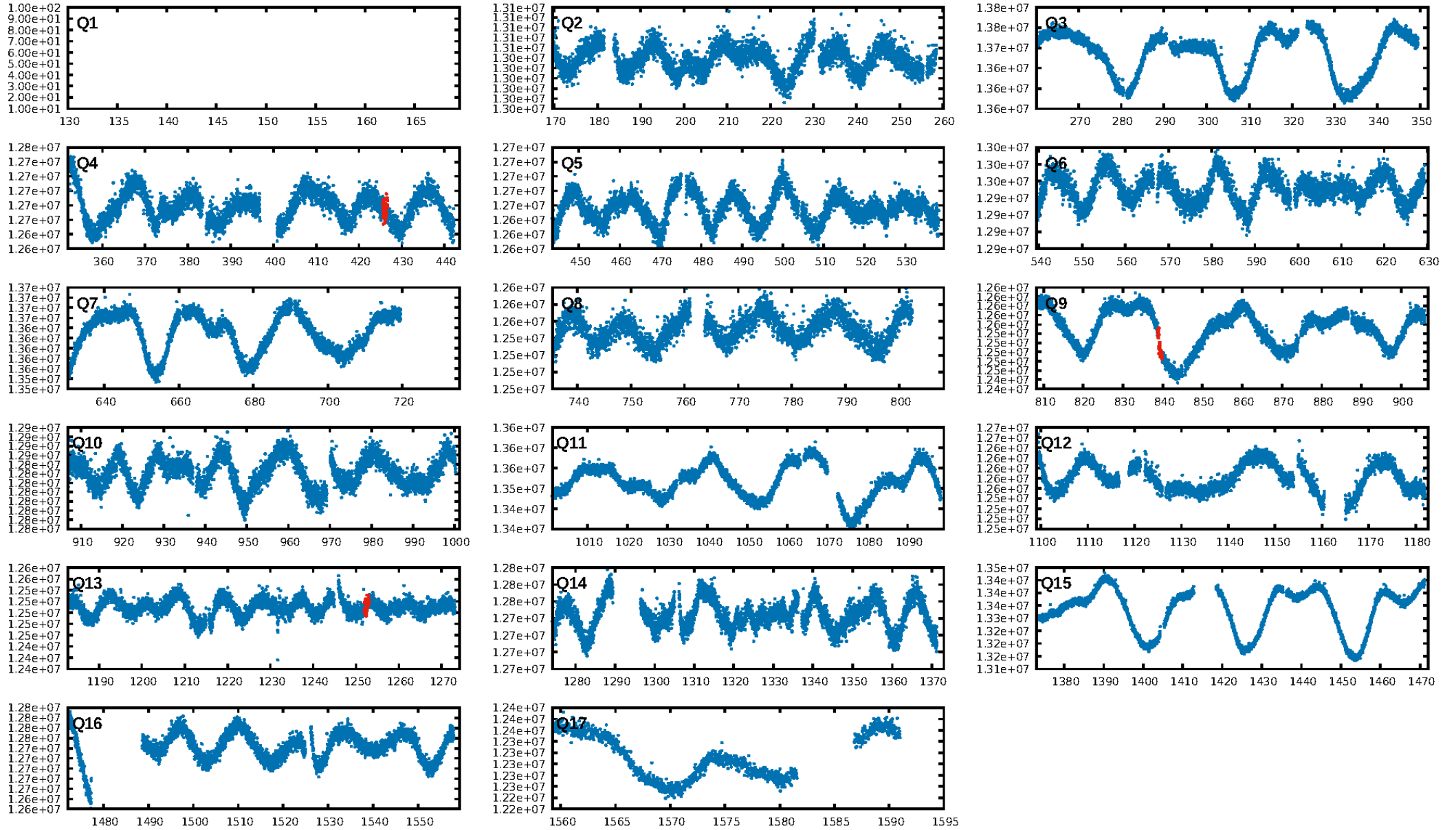
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 26.7%  
ModelChiSquareGof-sig: 99.6%  
**Bootstrap-pfa: 5.26e-12**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.4755**  
Centroid-sig: 4.2%  
Centroid-so: 2.050 arcsec [1.62 $\sigma$ ]  
OotOffset-rm: 1.945 arcsec [1.54 $\sigma$ ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-rm: 1.869 arcsec [0.47 $\sigma$ ]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

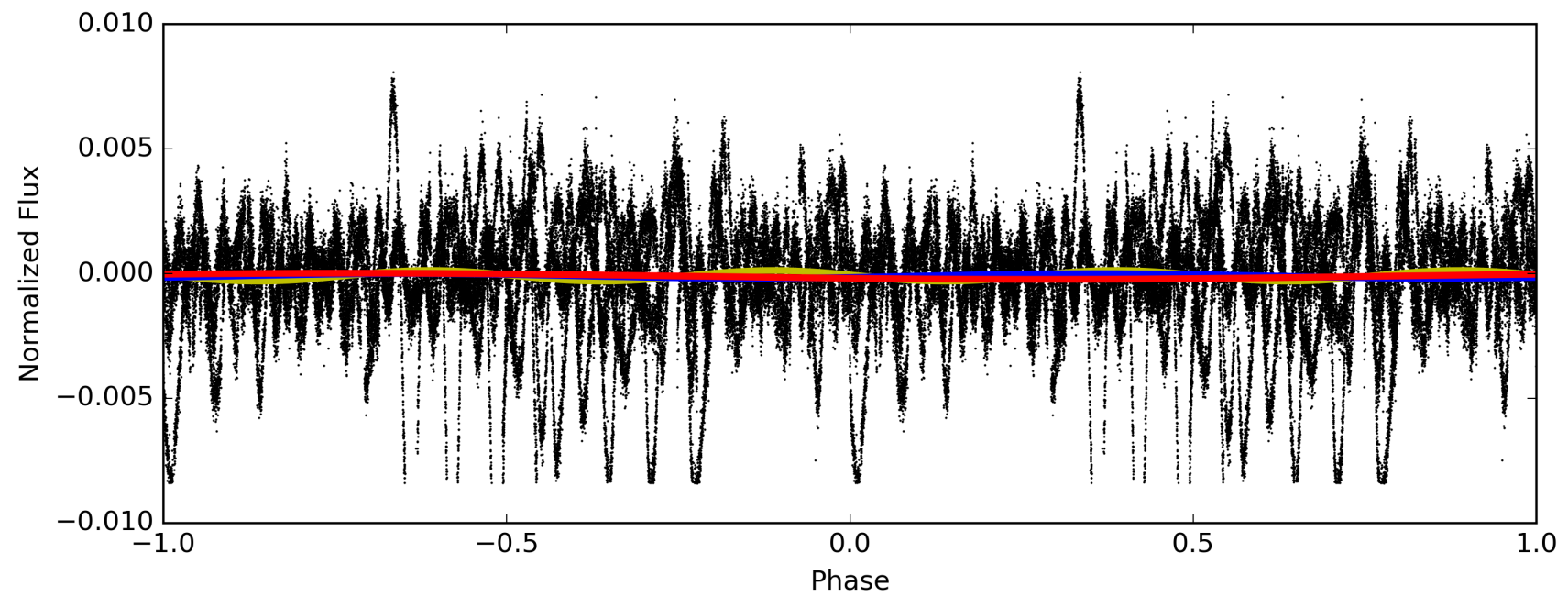
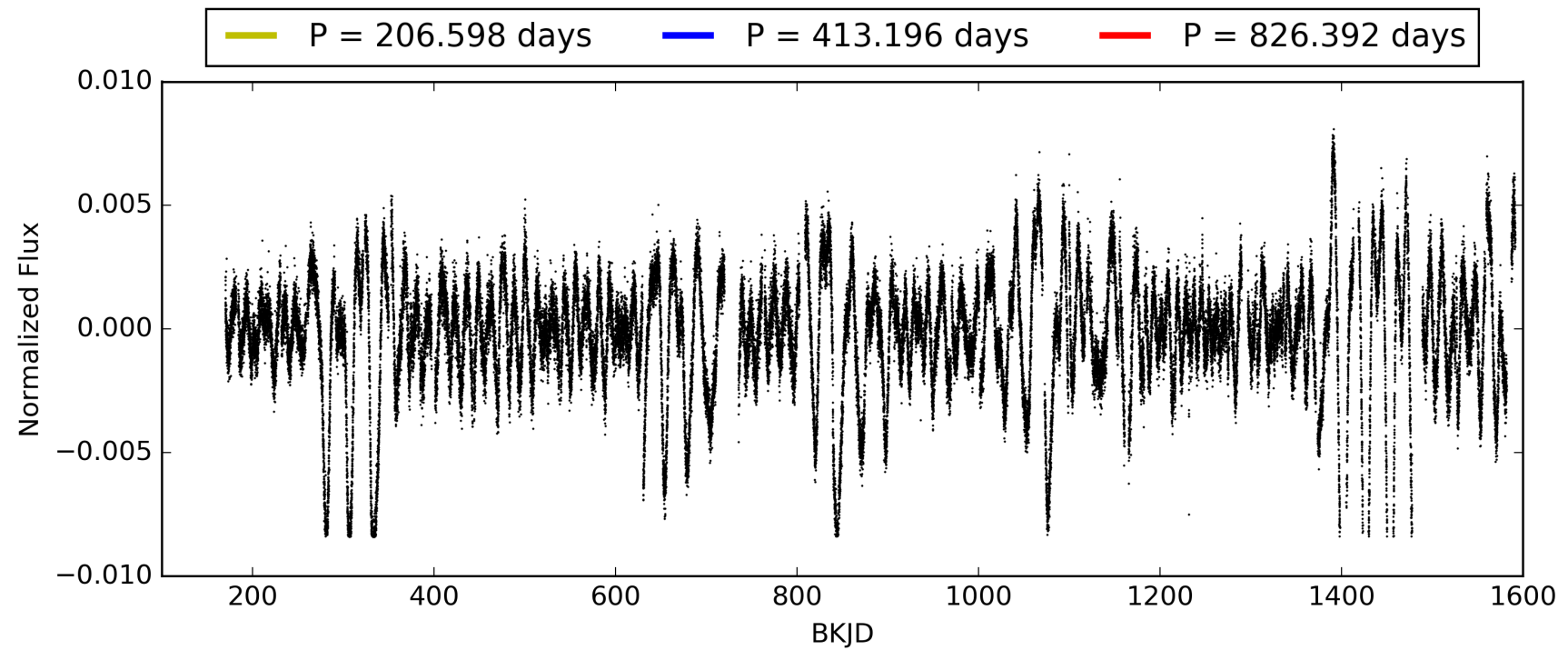
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:23:20 Z

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

# TCE 008759570-01, PDC Light Curves

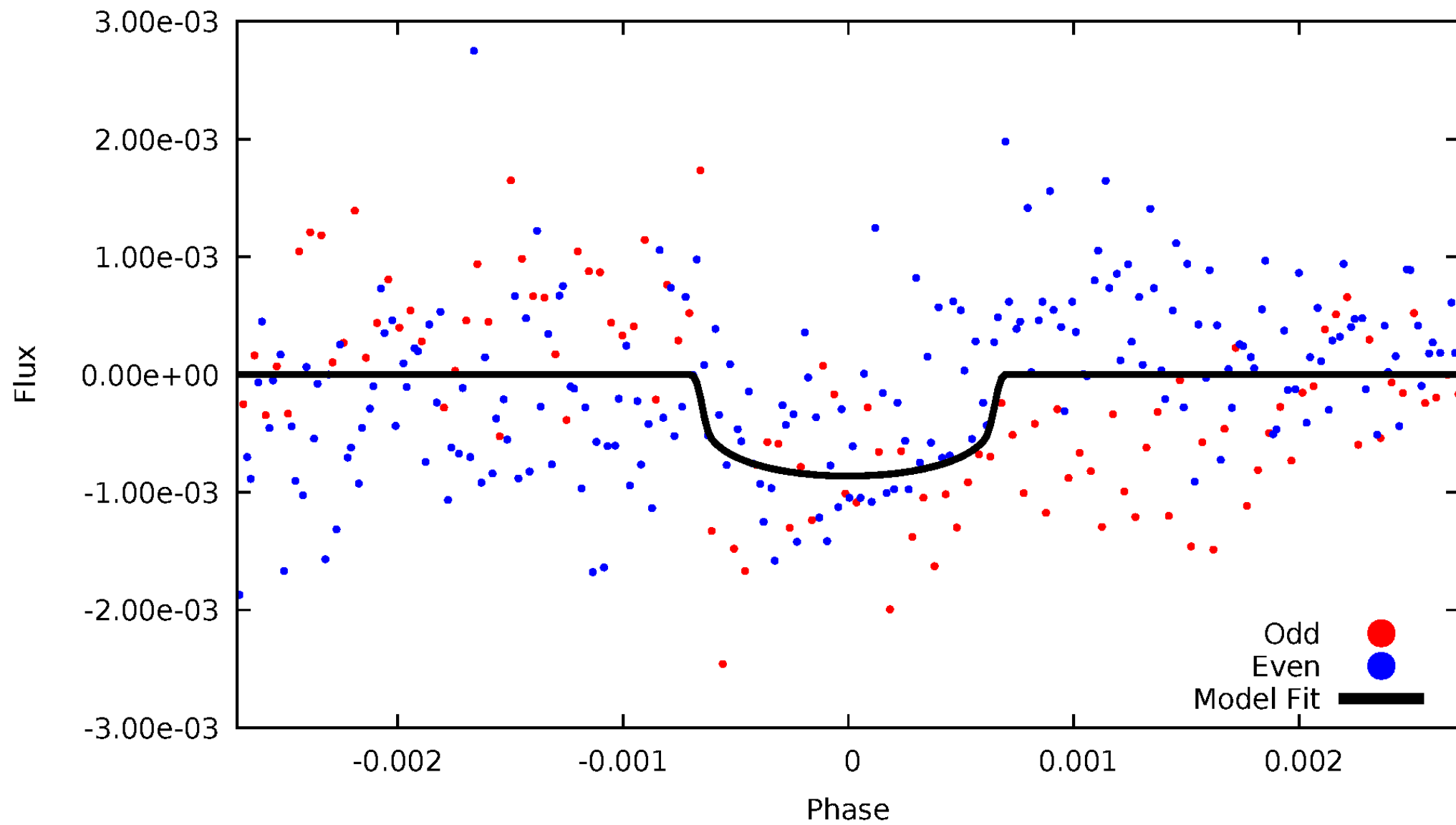


TCE 008759570-01



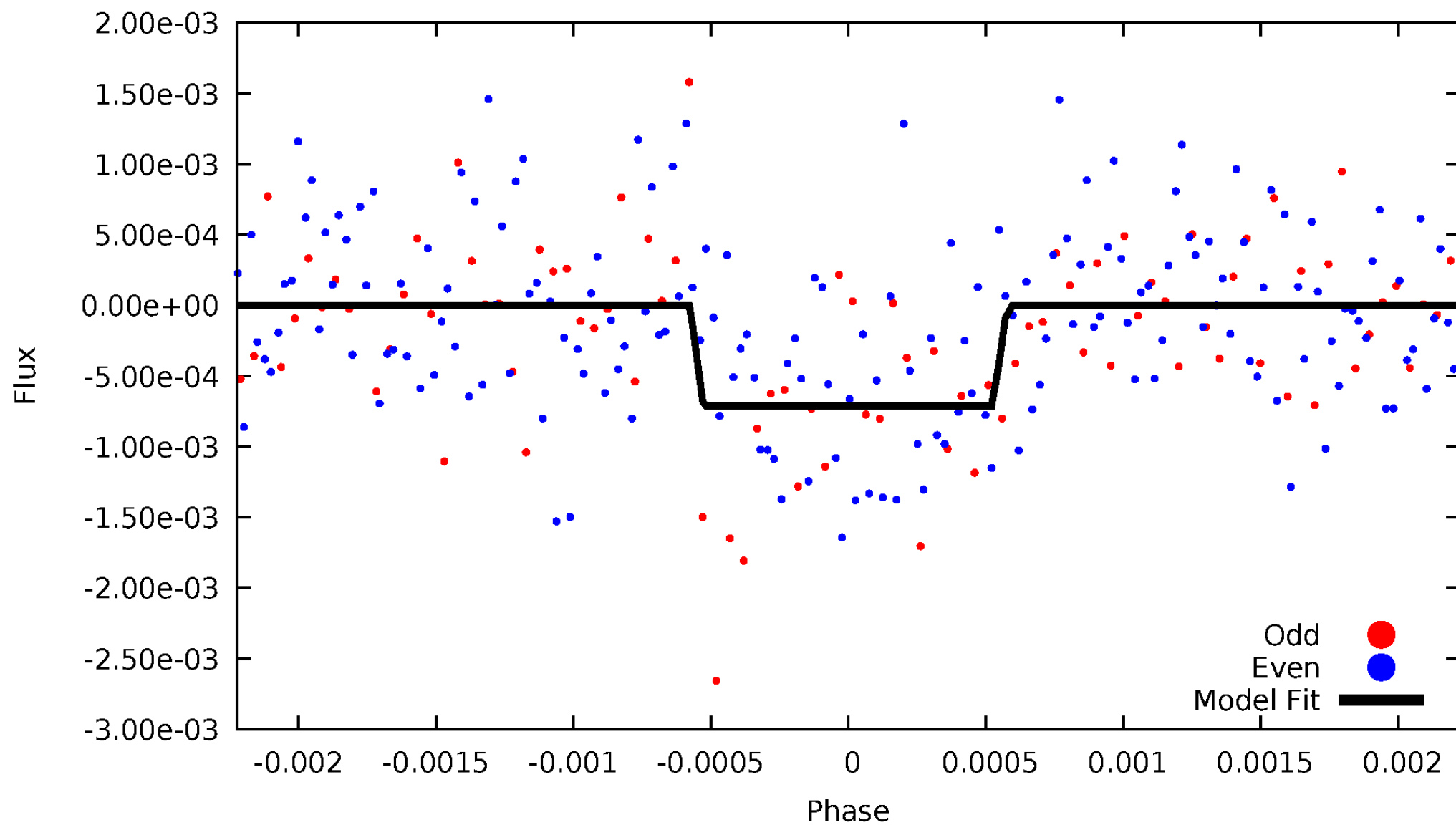
# DV Odd/Even

TCE 008759570-01



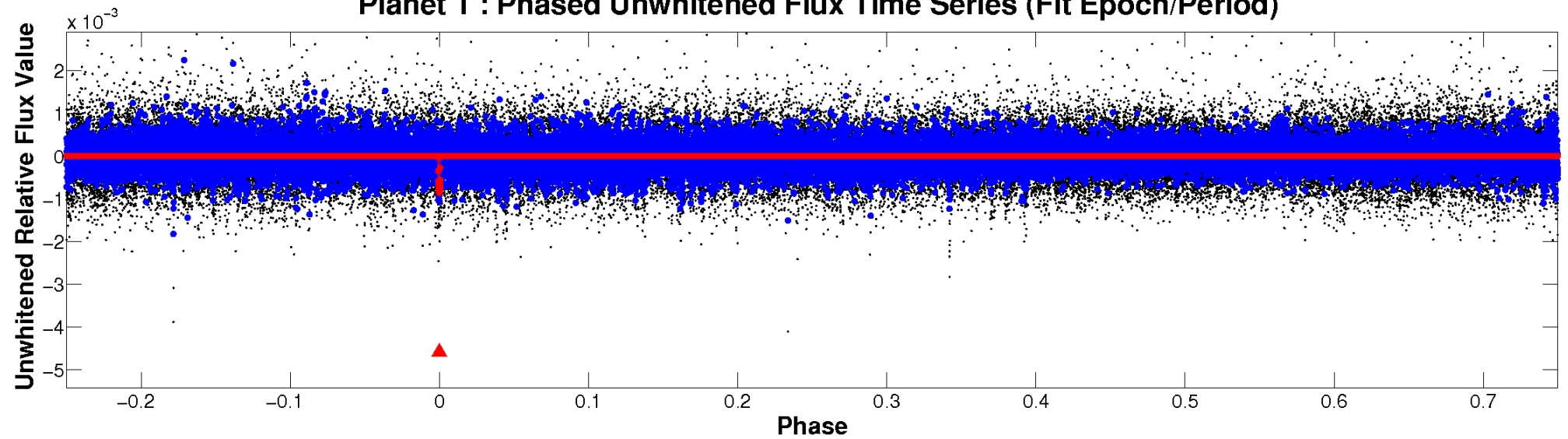
# ALT Odd/Even

TCE 008759570-01

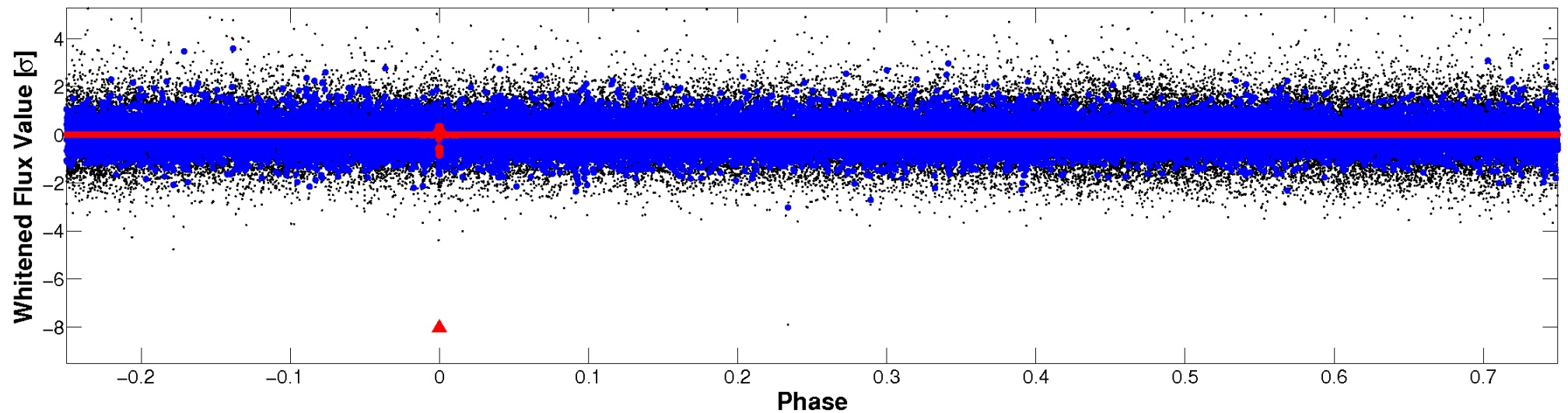


# Non-Whitened Vs. Whitened Light Curve

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

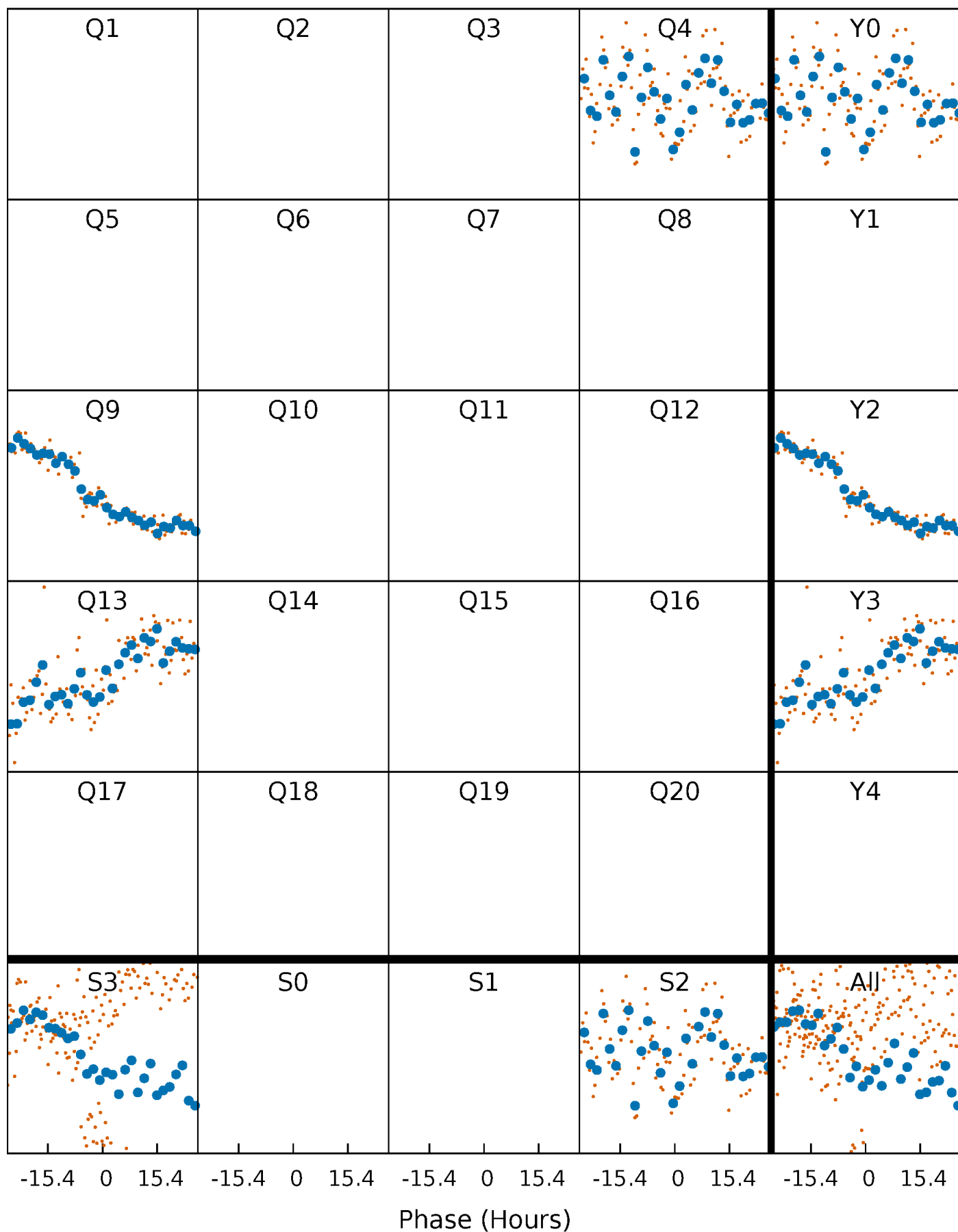


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

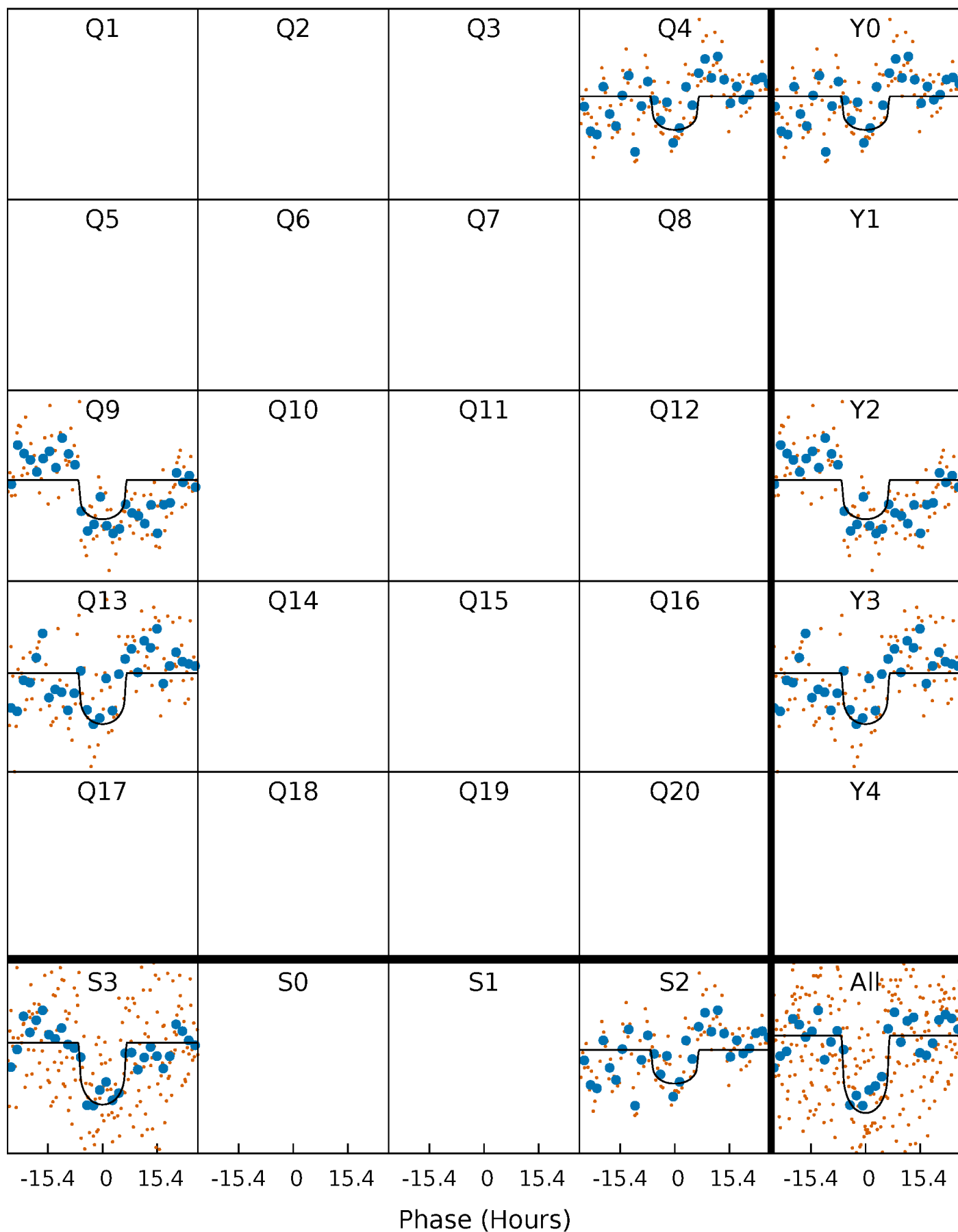
TCE 008759570-01 P=413.196219 Days  $T_0=426.098868$  (BKJD)





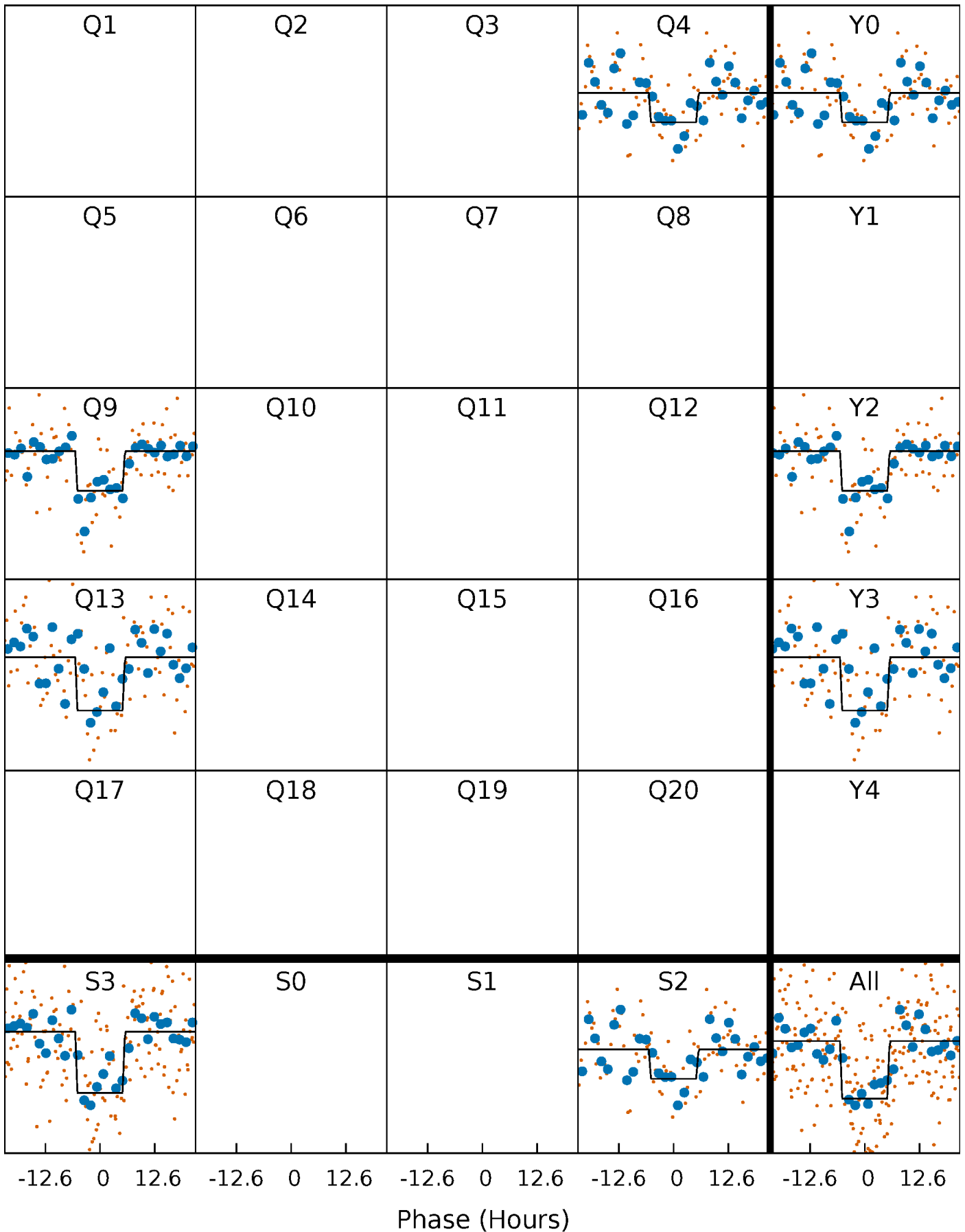
# DV Quarter-Phased Transit Curves

TCE 008759570-01 P=413.196219 Days  $T_0=426.098868$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

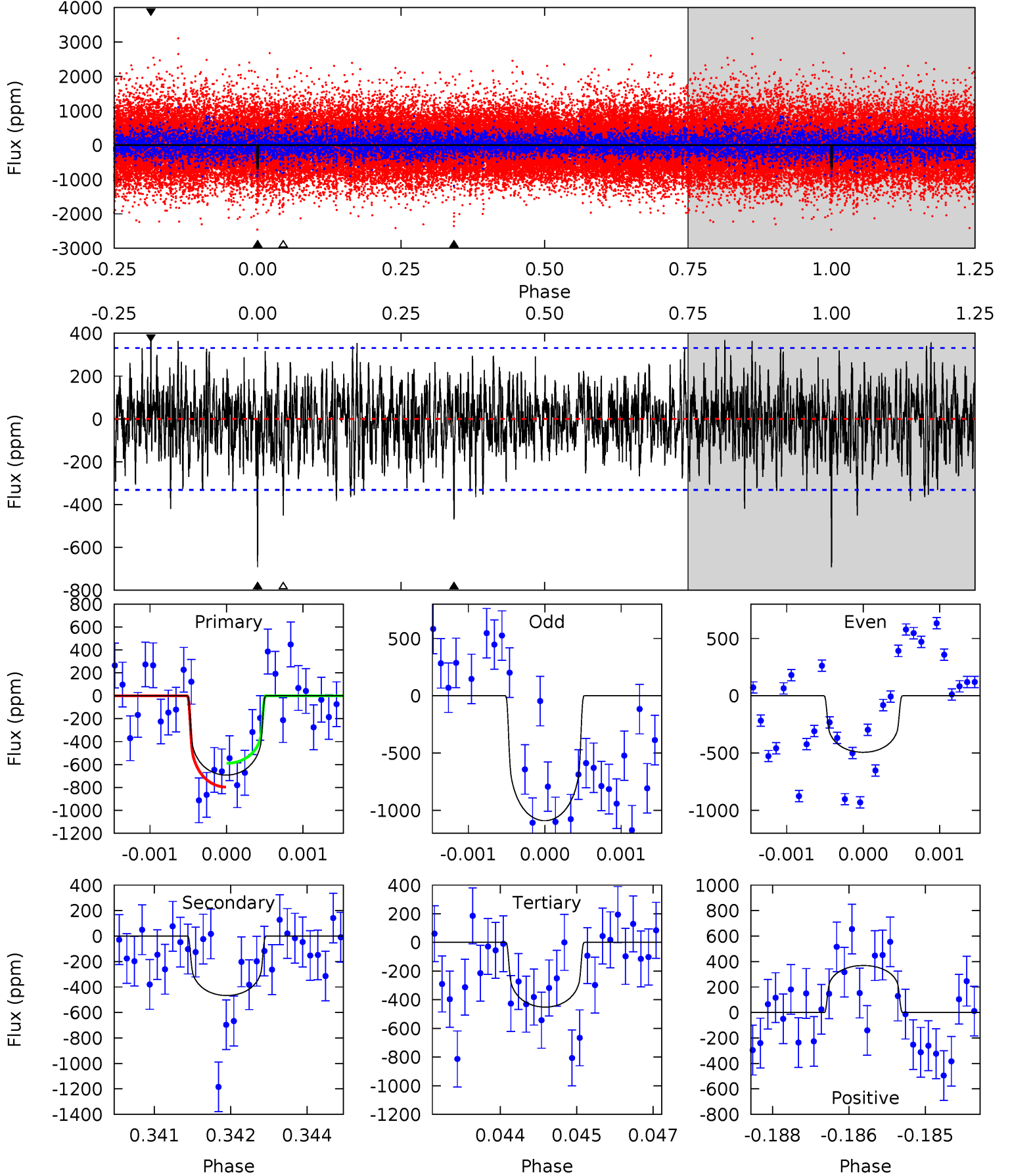
TCE 008759570-01 P=413.193828 Days  $T_0=426.069343$  (BKJD)



# DV Model-Shift Uniqueness Test

008759570-01,  $P = 413.196219$  Days,  $E = 12.902649$  Days

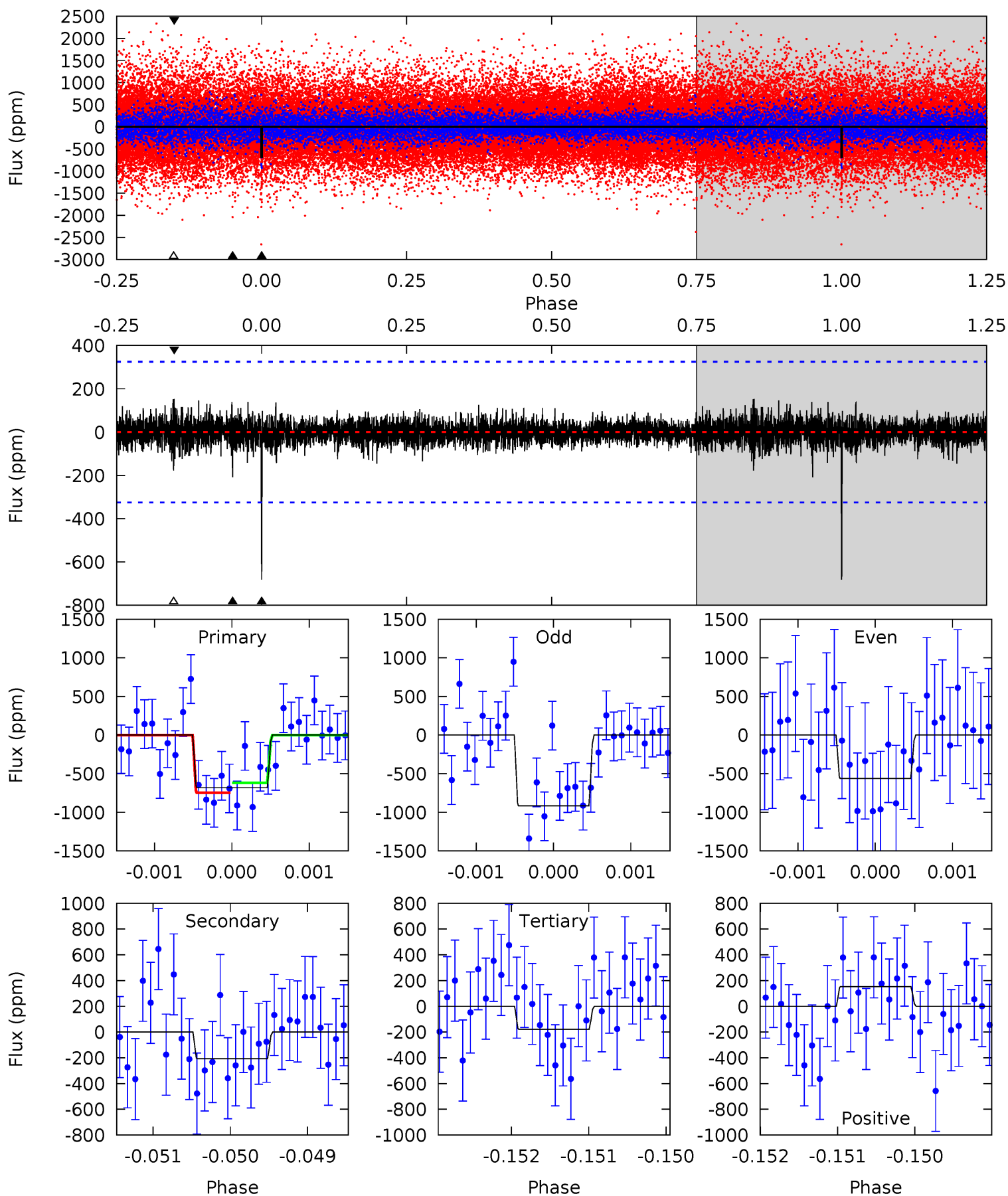
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	7.59	7.34	6.00	5.40	3.20	1.87	3.92	5.26	0.25	1.59	4.66	1.32	0.35	1.69



# Alt Model-Shift Uniqueness Test

008759570-01,  $P = 413.193828$  Days,  $E = 12.875515$  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
11.4	3.47	2.96	2.56	5.43	3.25	0.59	8.41	8.82	0.51	0.91	2.82	1.00	0.18	1.07



### Stellar Parameters For KIC 008759570

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5604^{+169}_{-169}$	$4.451^{+0.094}_{-0.175}$	$0.000^{+0.250}_{-0.300}$	$0.943^{+0.247}_{-0.114}$	$0.916^{+0.104}_{-0.085}$	$1.538^{+0.639}_{-0.733}$
	+3%/-3%	+2%/-4%	+inf%/-inf%	+26%/-12%	+11%/-9%	+42%/-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 008759570-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-467 \pm 61$	$3.03^{+1.76}_{-1.69}$	$330^{+22}_{-17}$	$4954^{+2411}_{-816}$	$31168^{+129874}_{-19239}$
Alt.	$-208 \pm 60$	$2.91^{+1.77}_{-1.51}$	$331^{+22}_{-18}$	$4288^{+1448}_{-692}$	$14293^{+46844}_{-8755}$

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

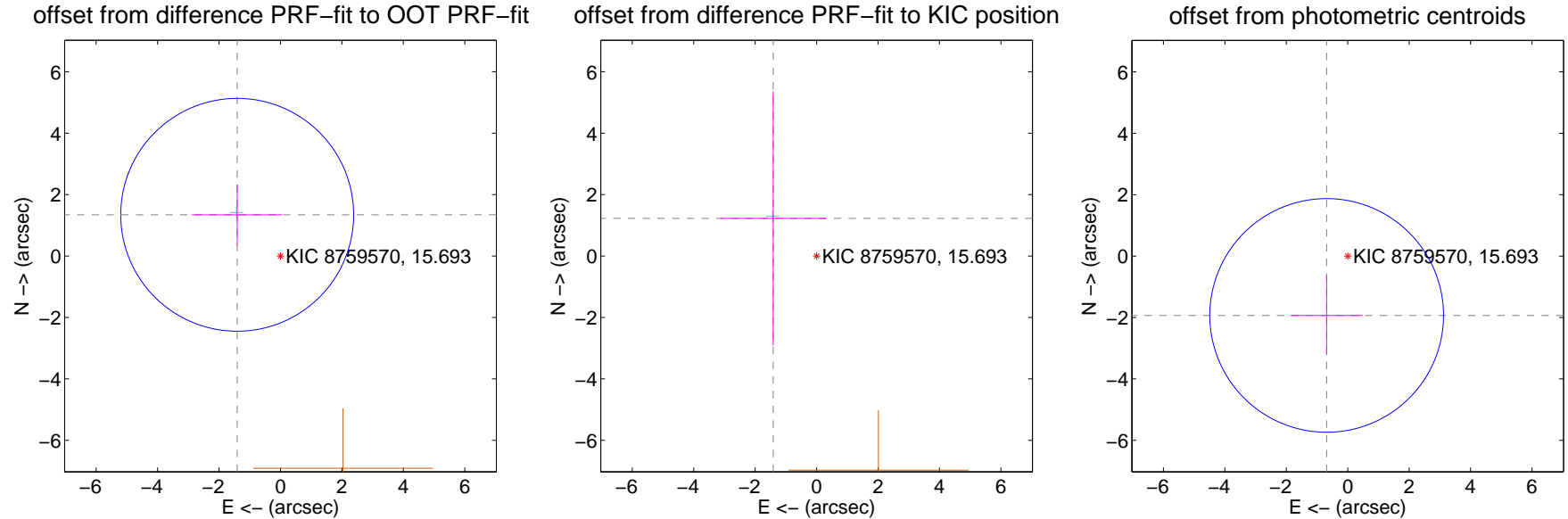
## DV Centroid Data

Supplemental centroid analysis for 008759570-01. Kepler magnitude: 15.69. Transit SNR 7.14

There are 1 quarters with good PRF difference image offsets

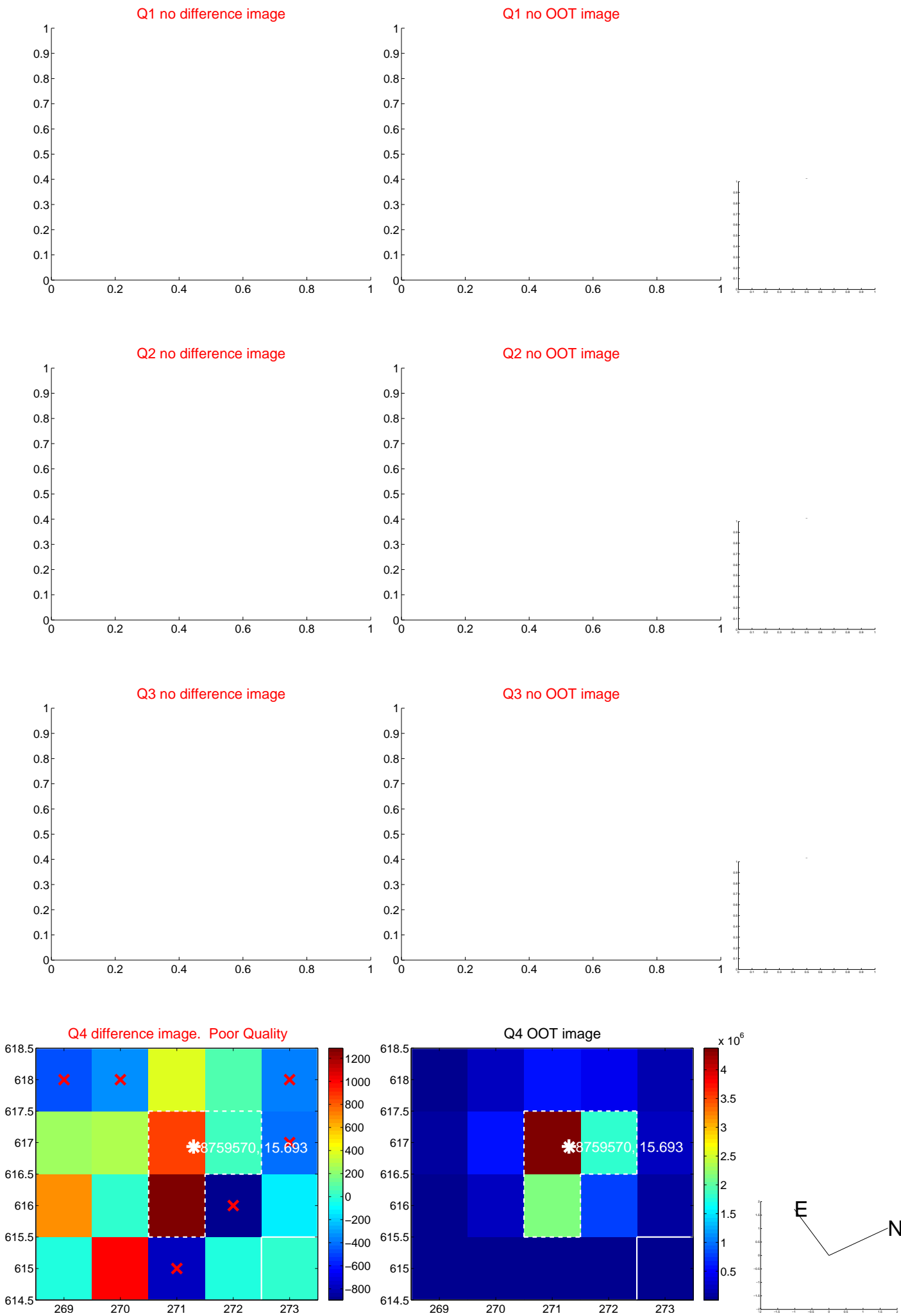
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.945 \pm 1.263$	1.54	$1.408 \pm 1.471$	$1.342 \pm 0.985$
PRF-fit source offset from KIC position	$1.869 \pm 4.010$	0.47	$1.412 \pm 1.723$	$1.225 \pm 4.135$
photometric centroid source offset	$2.05 \pm 1.27$	1.62	$0.69 \pm 1.17$	$-1.93 \pm 1.28$



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

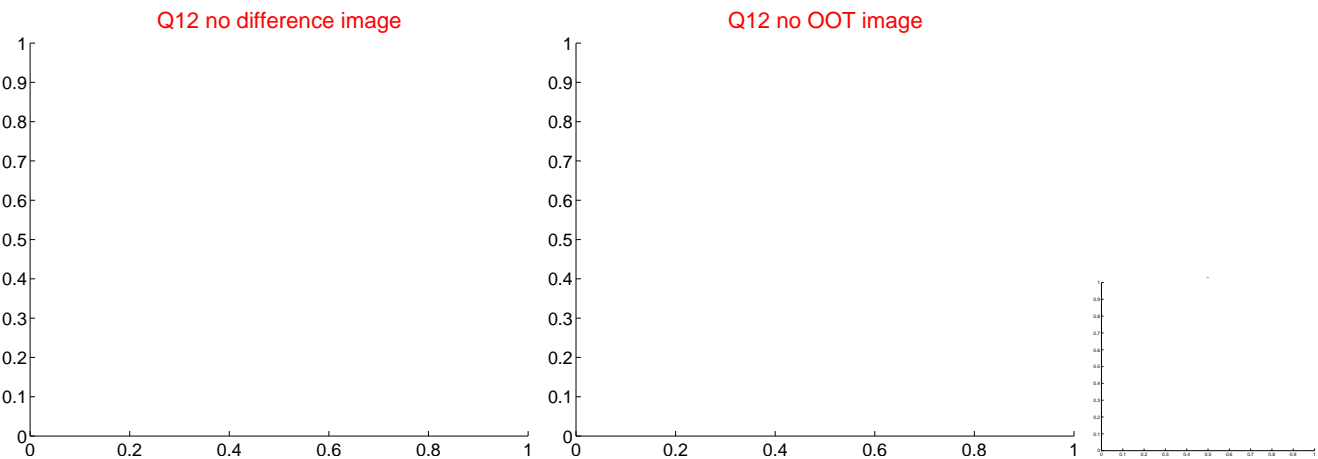
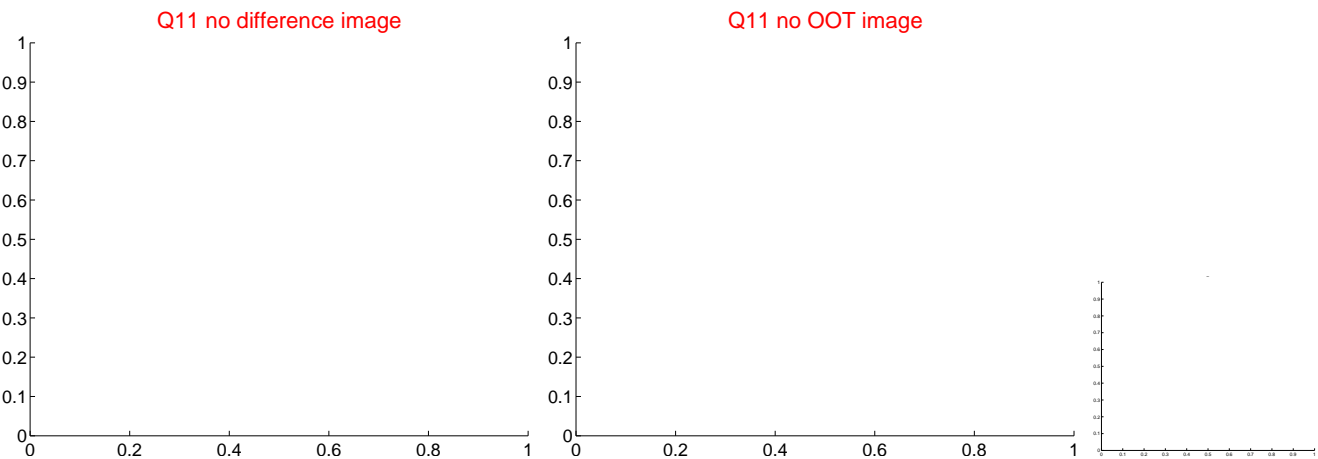
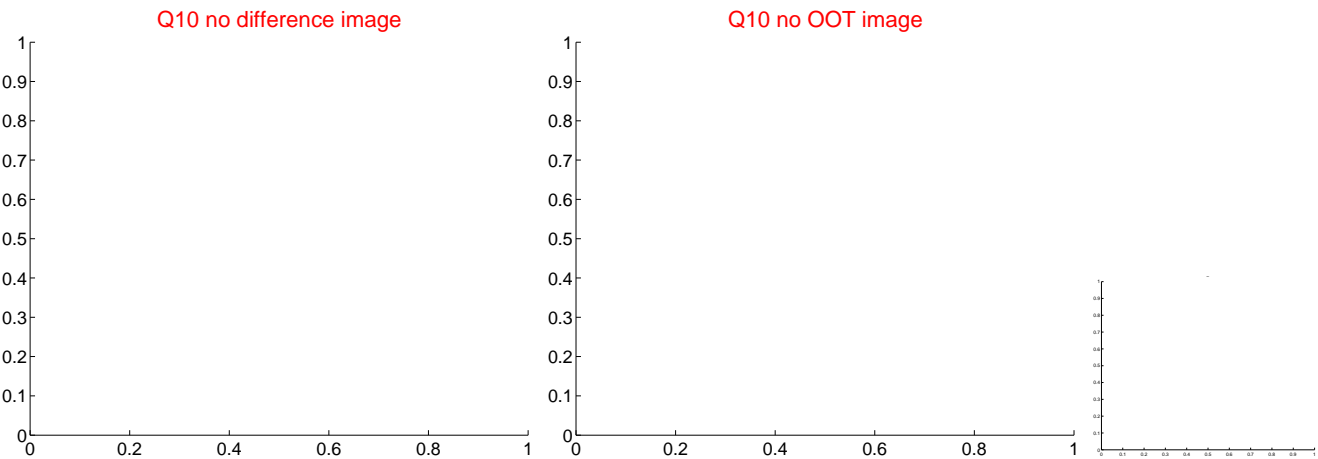
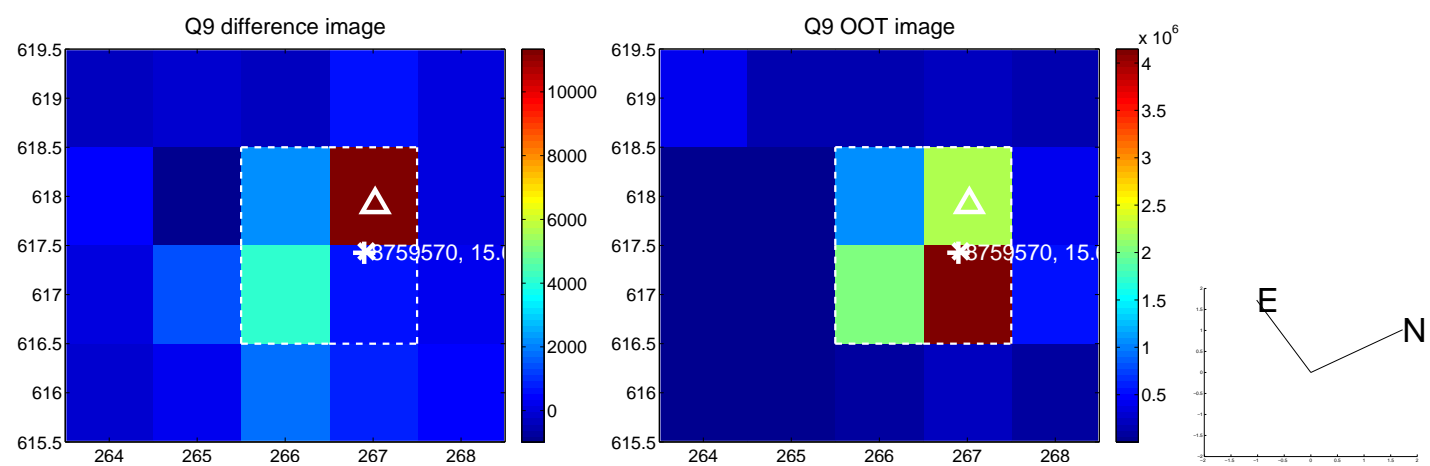


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

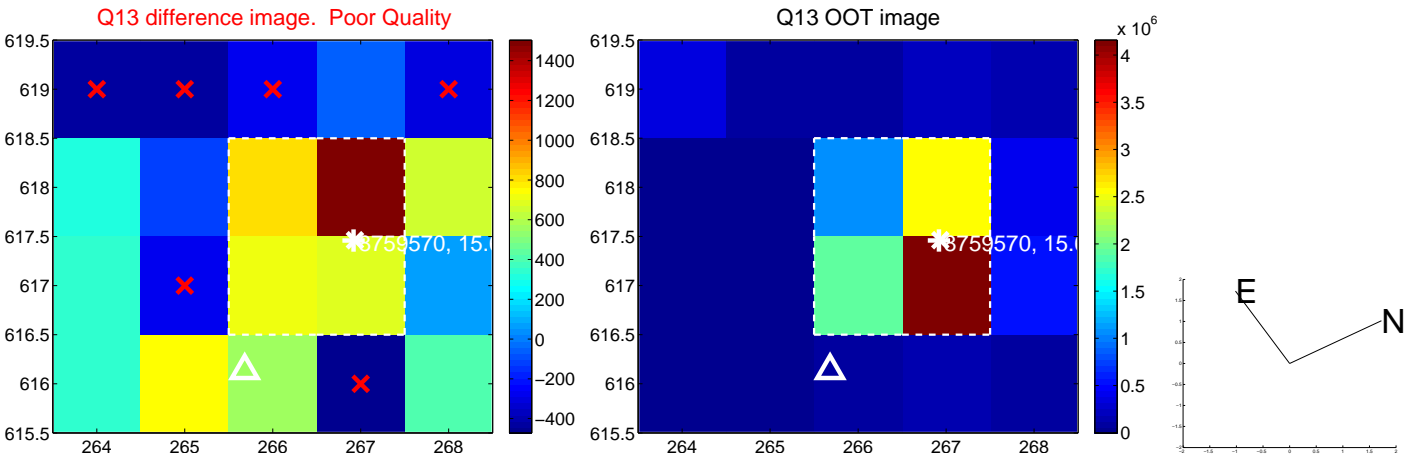




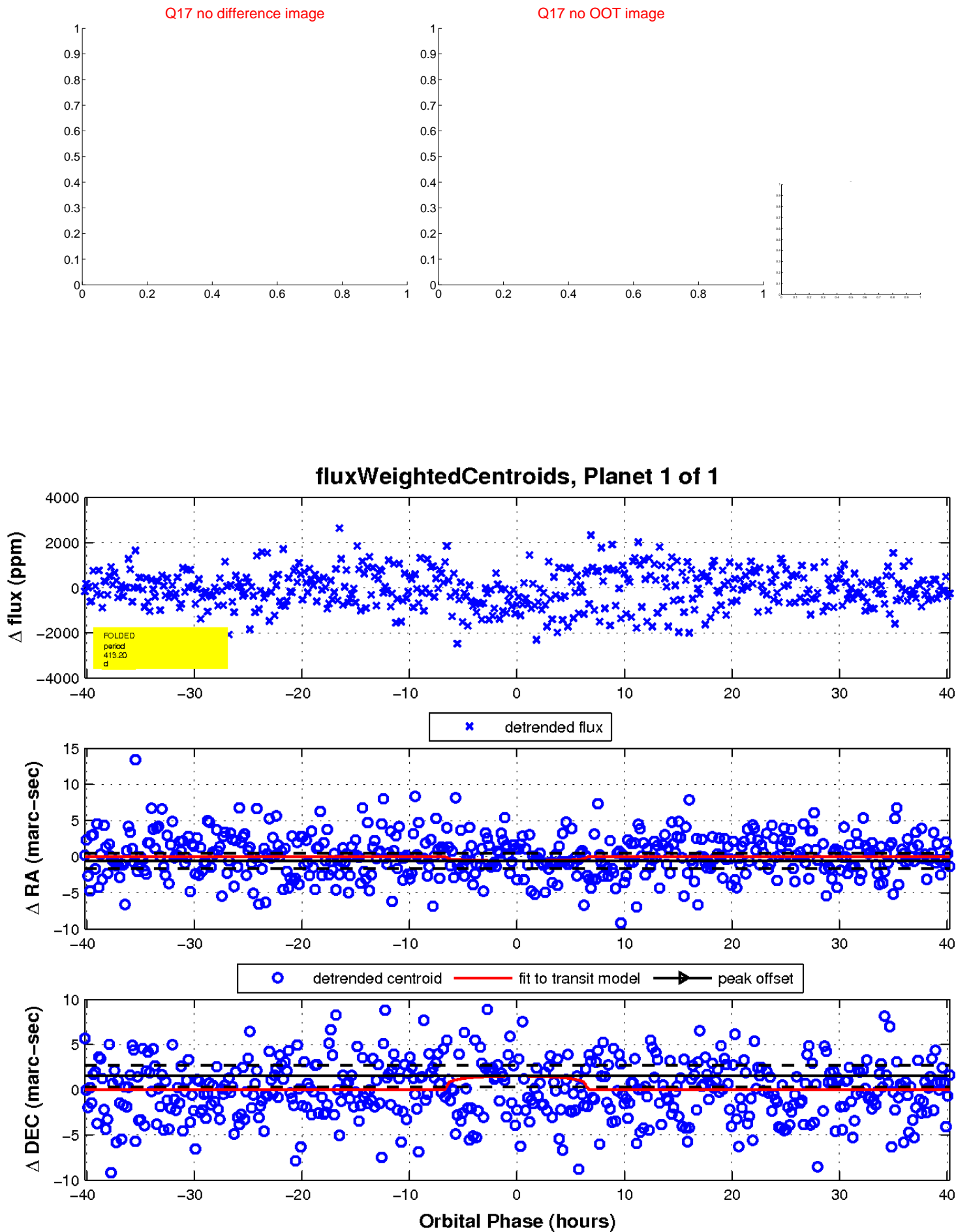
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



# UKIRT Image

Declination

