

# KIC 008570333

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008570333-01	OBS	2436.01	84.573447	150.148248	857.0	6.084	15.9	17.0	0.89	5418	3.04	4.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008570333-01	OBS	PC	0.98	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 008570333-01

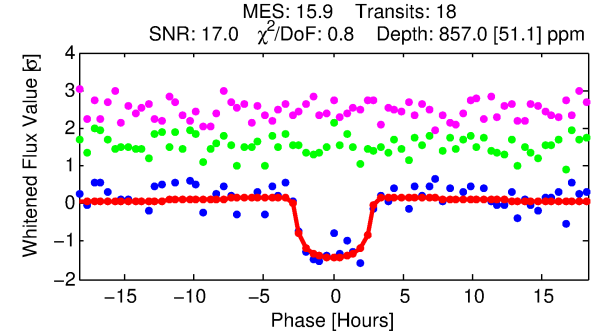
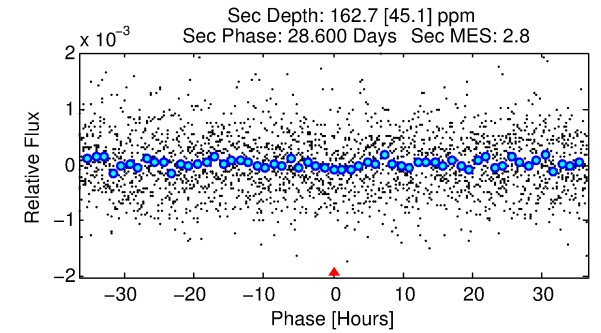
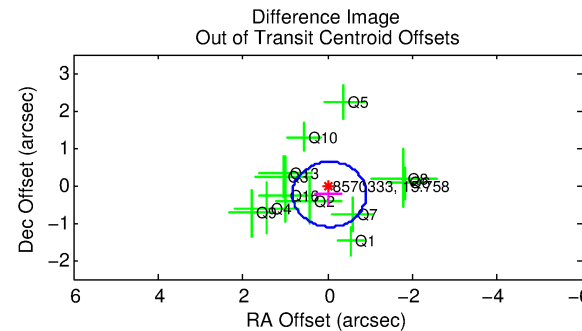
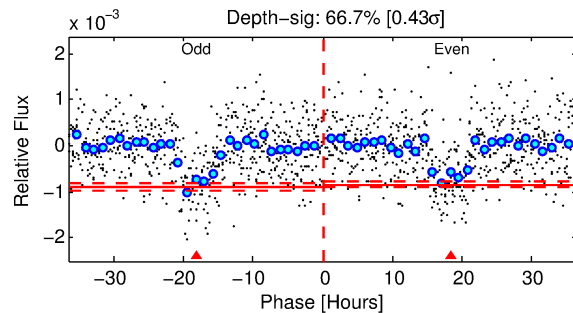
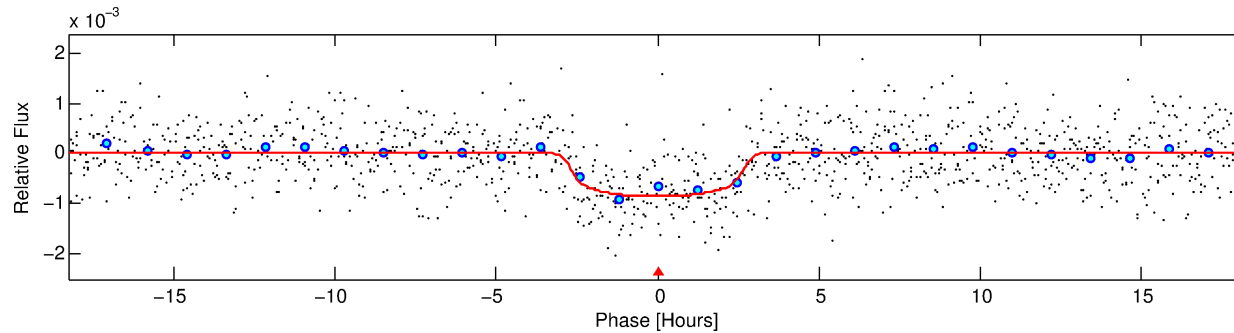
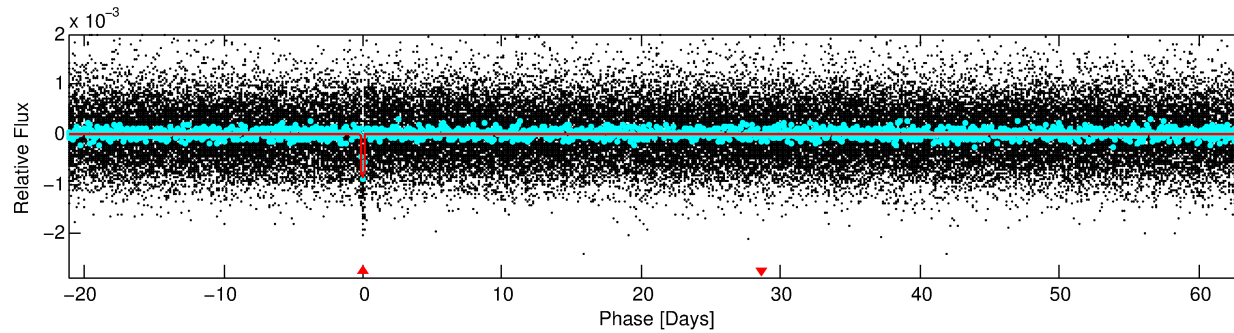
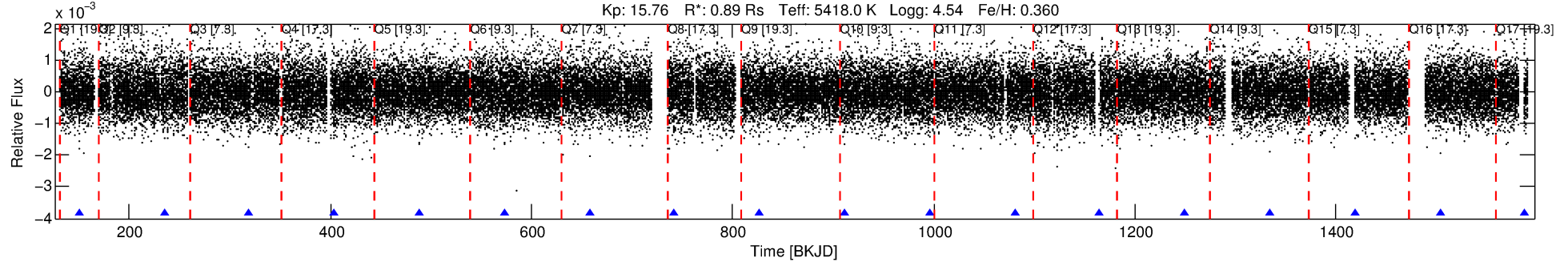
No Significant Match Found

# DV One-Page Summary

KIC: 8570333 Candidate: 1 of 1 Period: 84.573 d

KOI: K02436.01 Corr: 0.969

Kp: 15.76 R\*: 0.89 Rs Teff: 5418.0 K Logg: 4.54 Fe/H: 0.360



## DV Fit Results:

Period = 84.57345 [0.00070] d  
Epoch = 150.1482 [0.0070] BKJD  
Rp/R\* = 0.0313 [0.0039]  
a/R\* = 59.67 [27.98]  
b = 0.86 [0.14]  
Seff = 4.27 [1.40]  
Teq = 367 [30] K  
Rp = 3.03 [0.77] Re  
a = 0.3777 [0.0747] AU  
Ag = 1385.93 [662.41] [2.09σ]  
Teffp = 3457 [341] K [9.02σ]

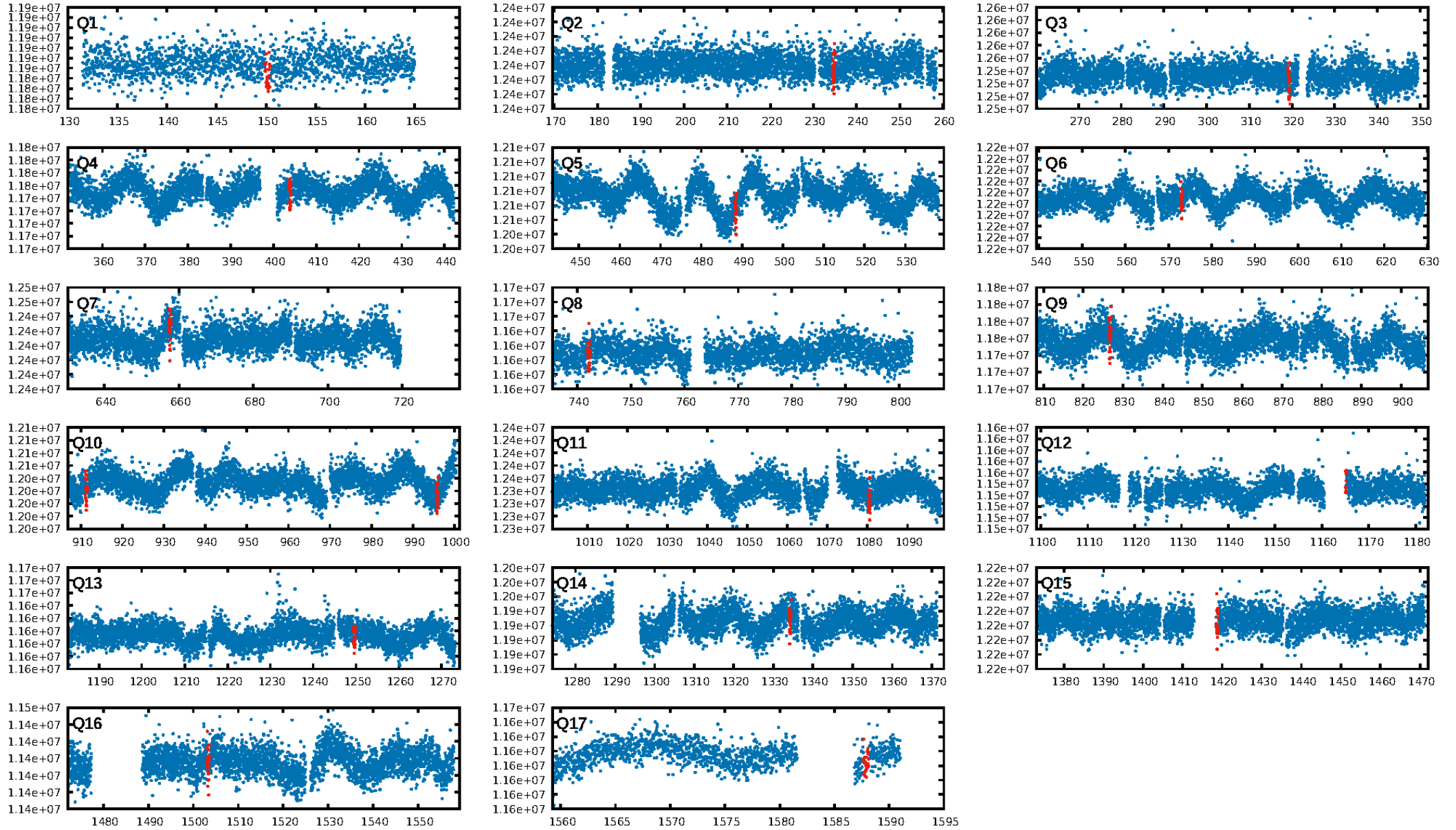
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 9.05e-52  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: 2.039  
Centroid-sig: 11.9%  
Centroid-so: 0.865 arcsec [1.15σ]  
OotOffset-rm: 0.244 arcsec [0.84σ]  
KicOffset-rm: 0.360 arcsec [1.32σ]  
OotOffset-st: 3/2/3/4 [12]  
KicOffset-st: 3/2/3/4 [12]  
DiffImageQuality-fgm: 1.00 [12/12]  
DiffImageOverlap-fno: 1.00 [14/14]

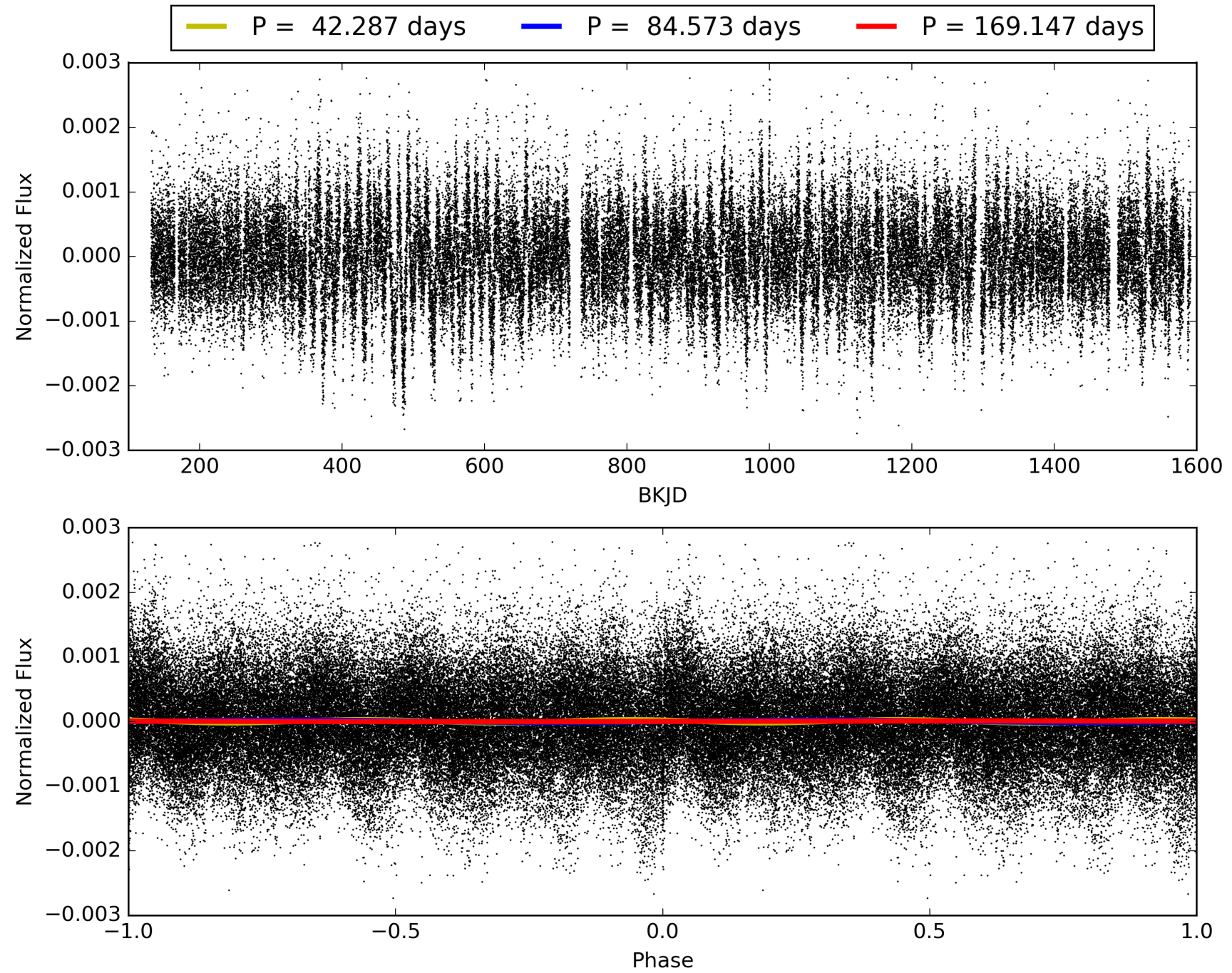
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:38:33 Z

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

# TCE 008570333-01, PDC Light Curves

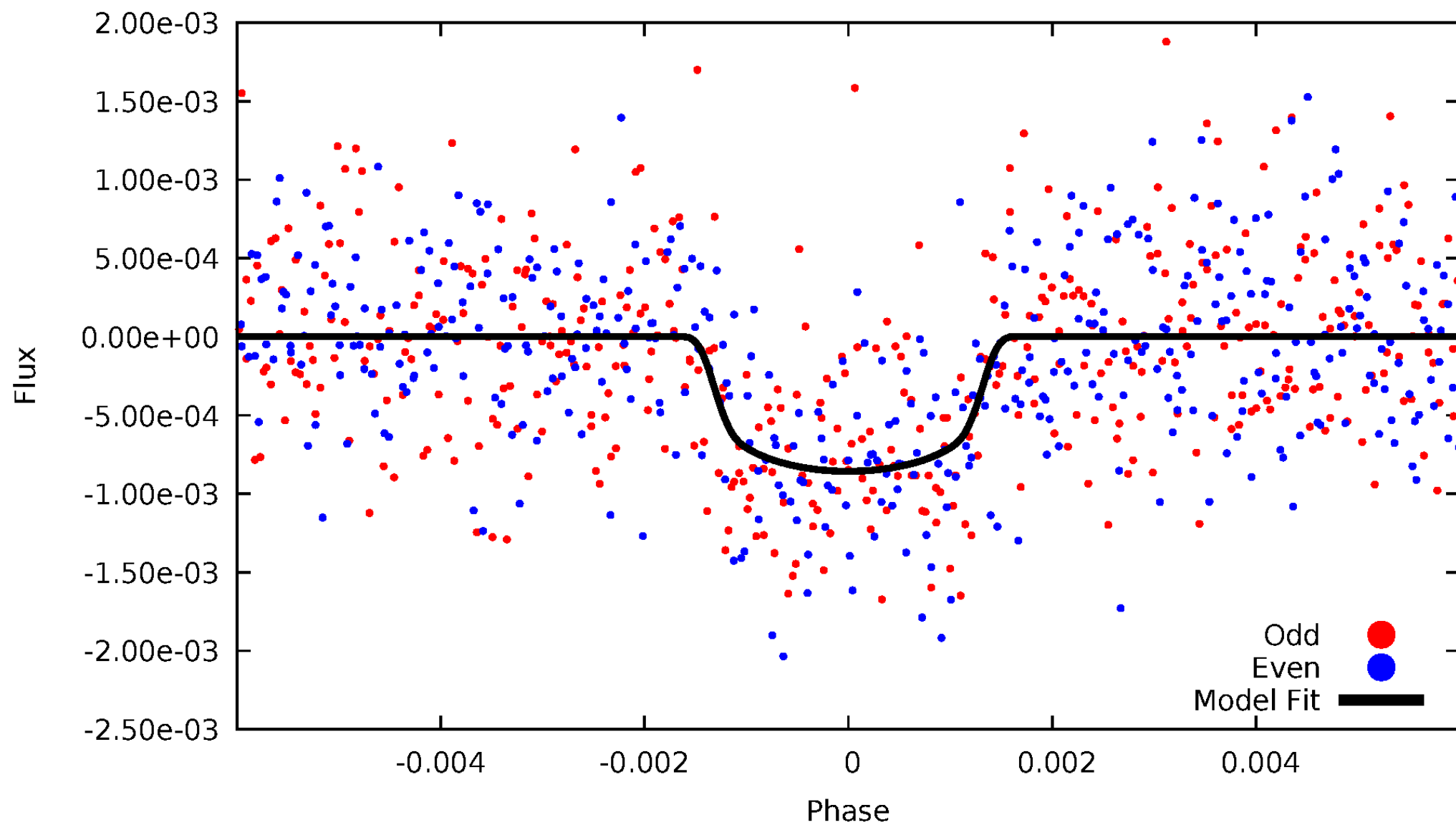


TCE 008570333-01



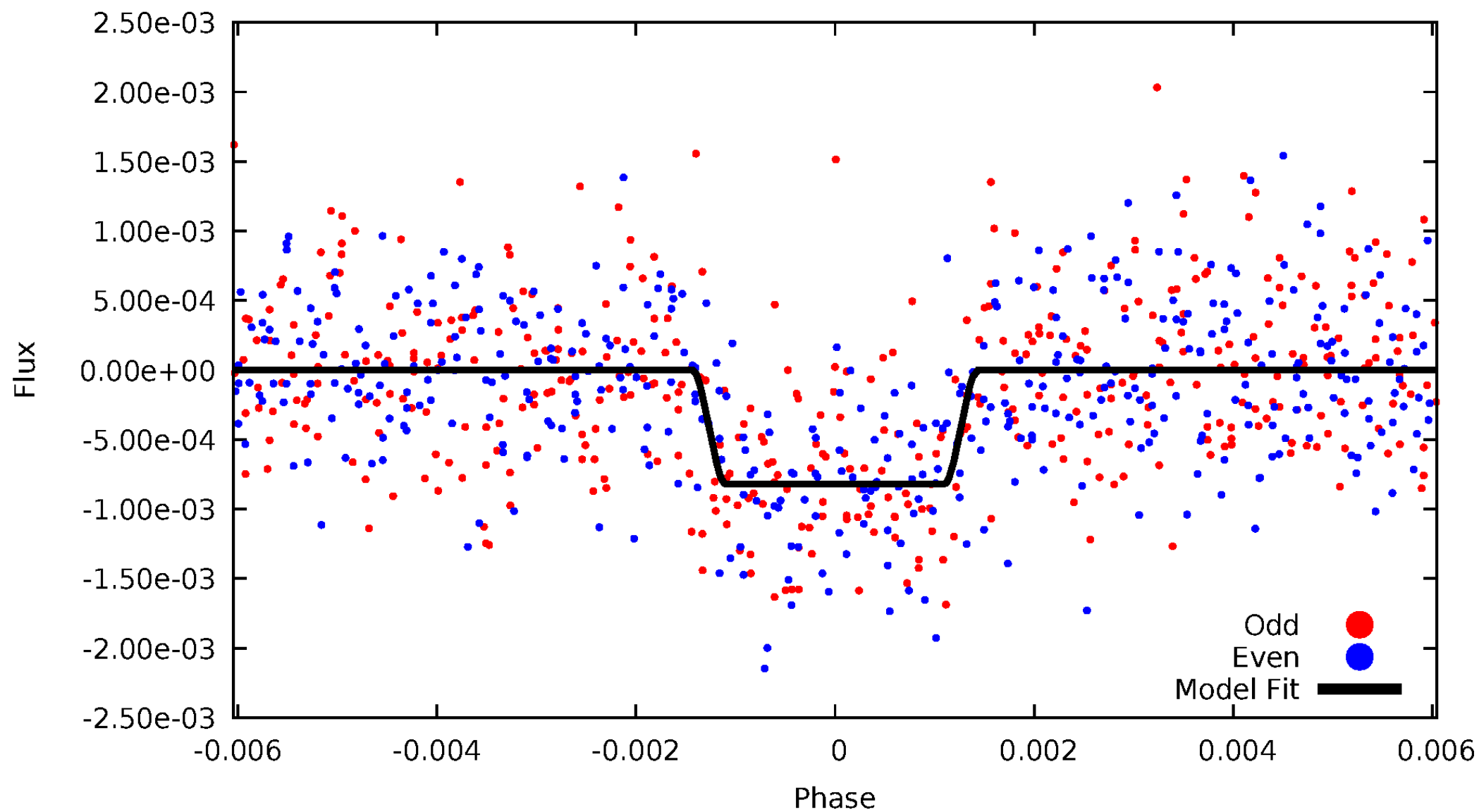
# DV Odd/Even

TCE 008570333-01



# ALT Odd/Even

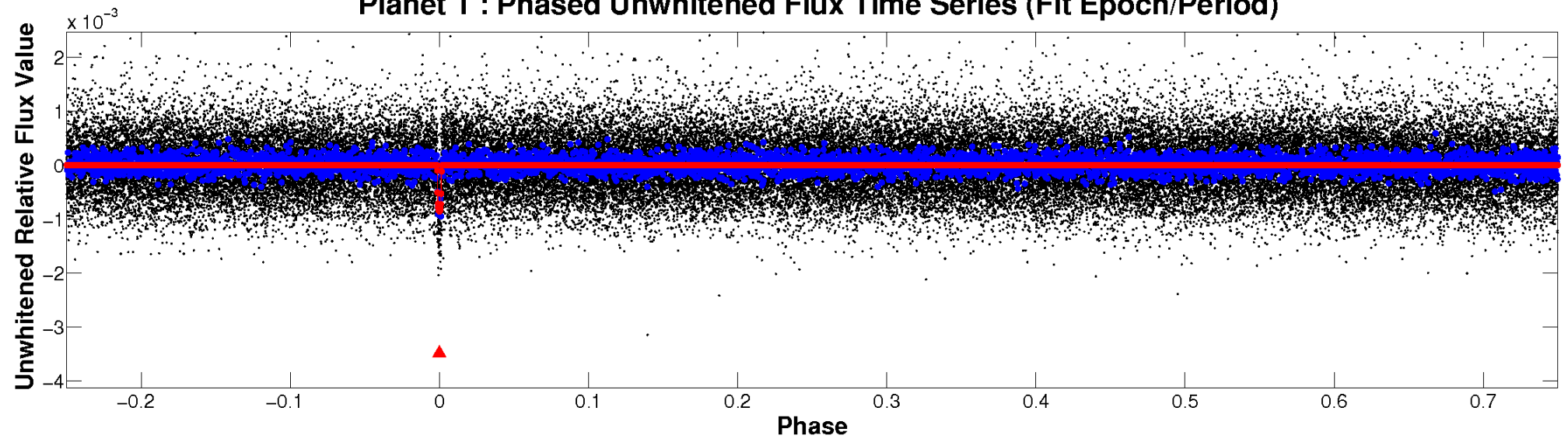
TCE 008570333-01



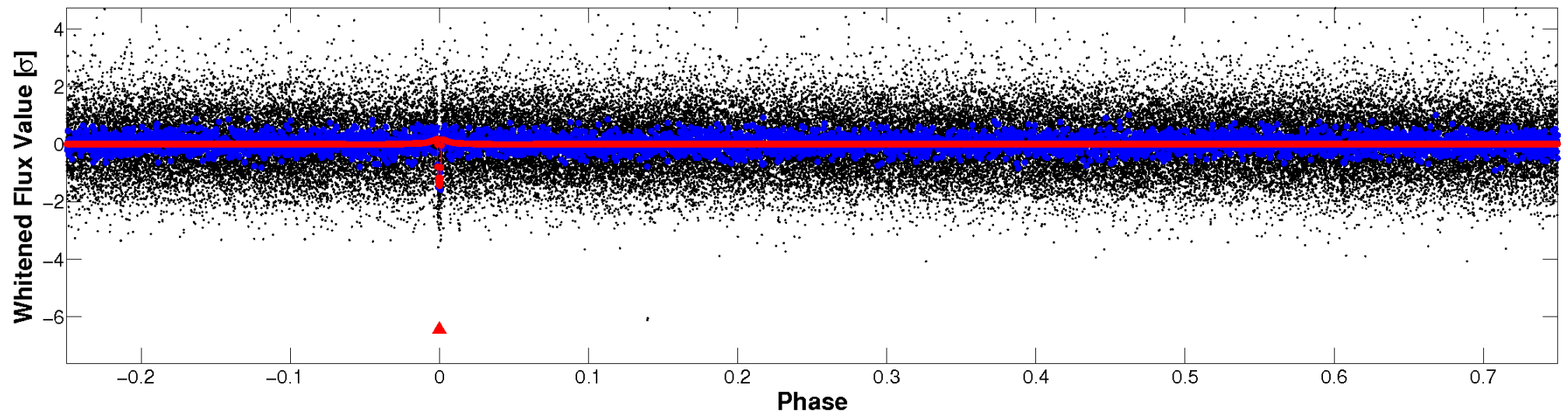


# Non-Whitened Vs. Whitened Light Curve

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

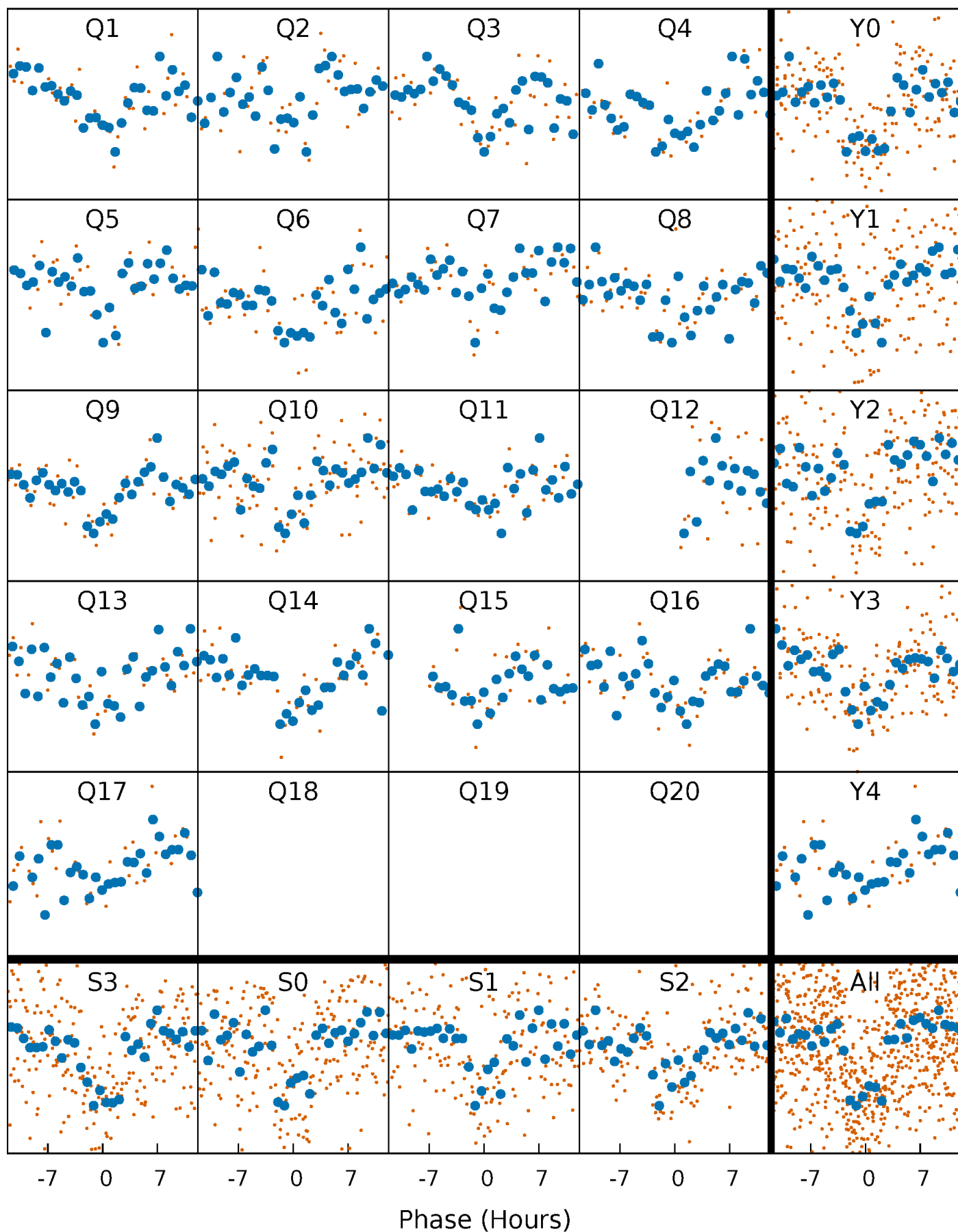


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

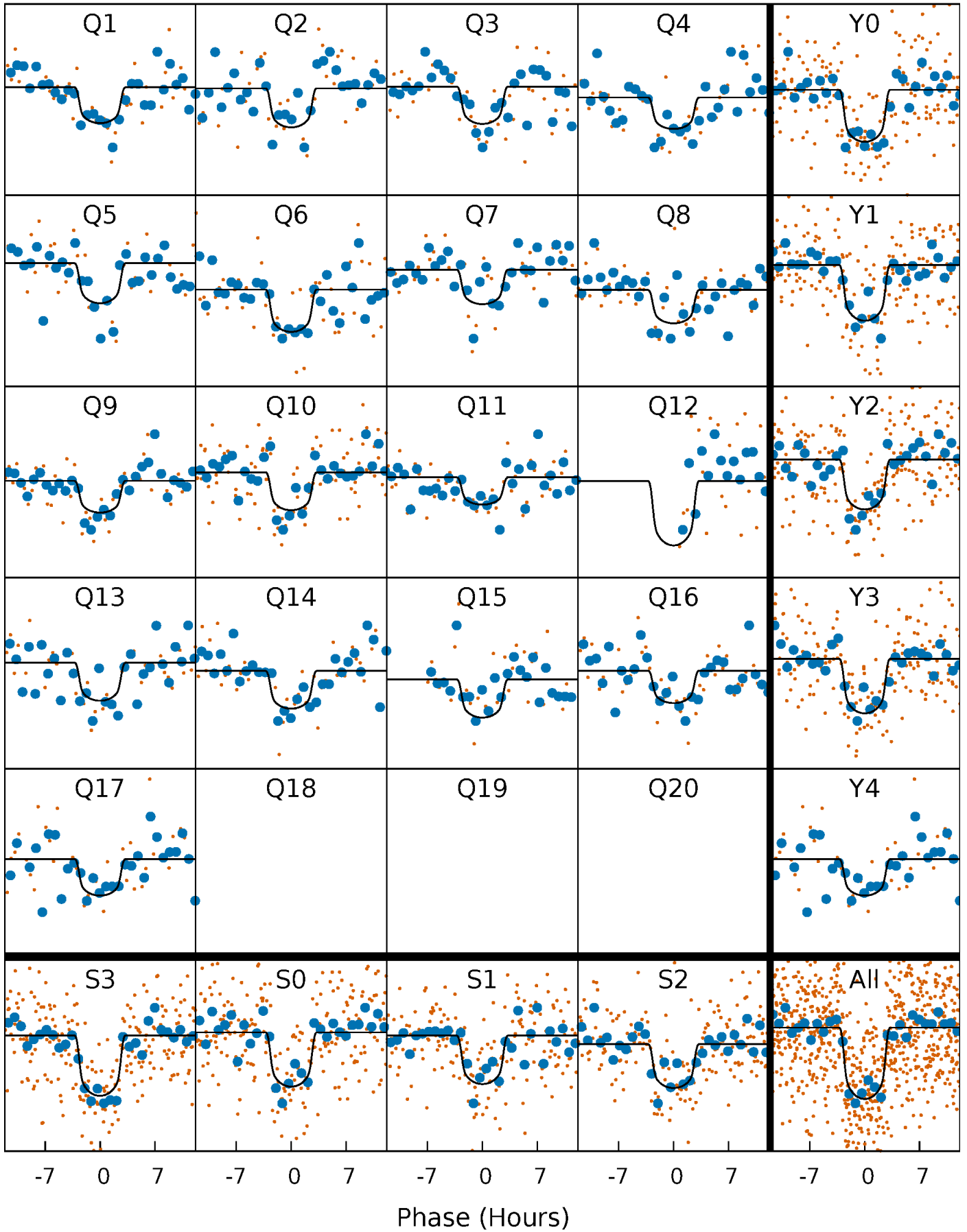
TCE 008570333-01   P= 84.573447 Days    $T_0=150.148248$  (BKJD)





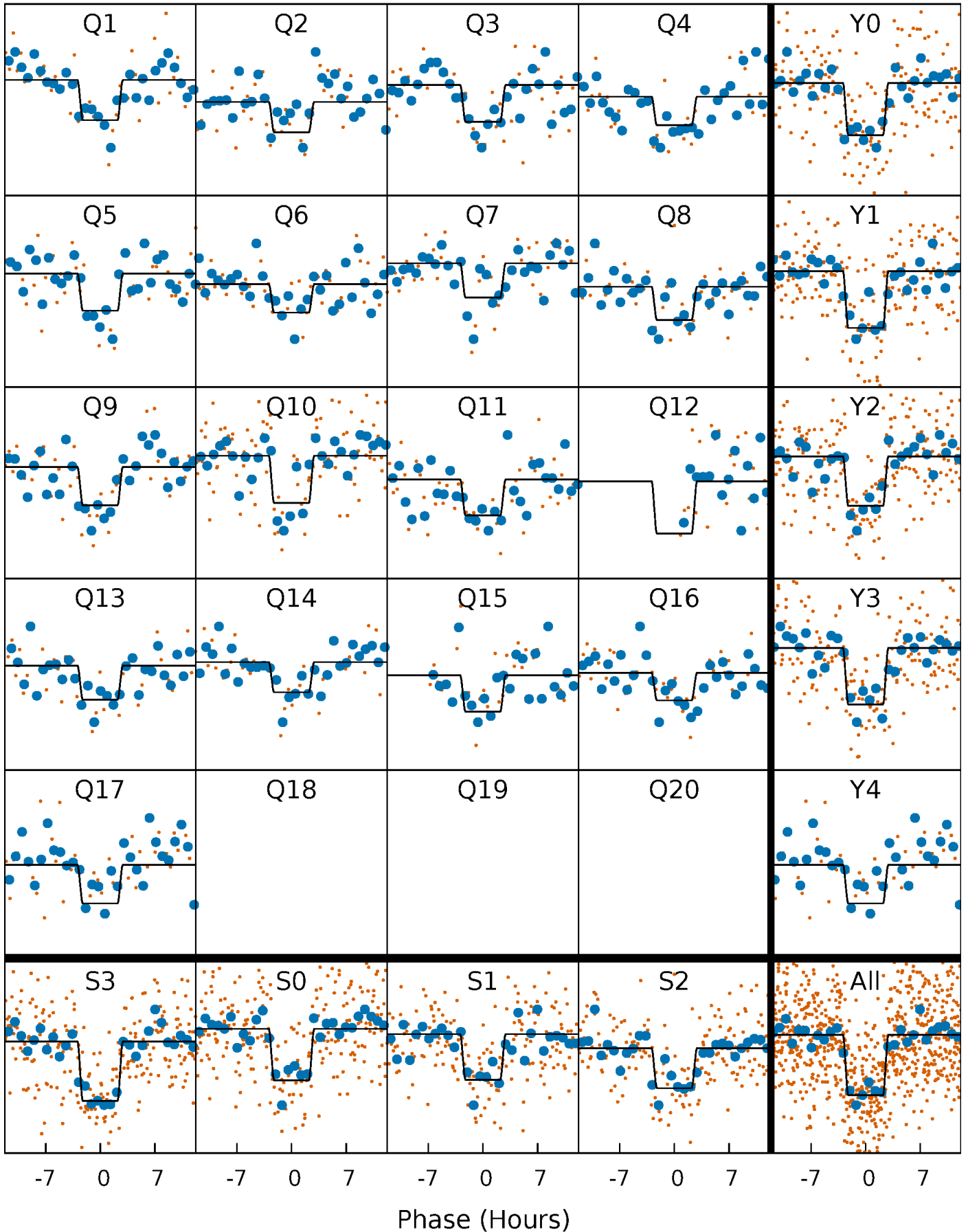
# DV Quarter-Phased Transit Curves

TCE 008570333-01   P= 84.573447 Days    $T_0=150.148248$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

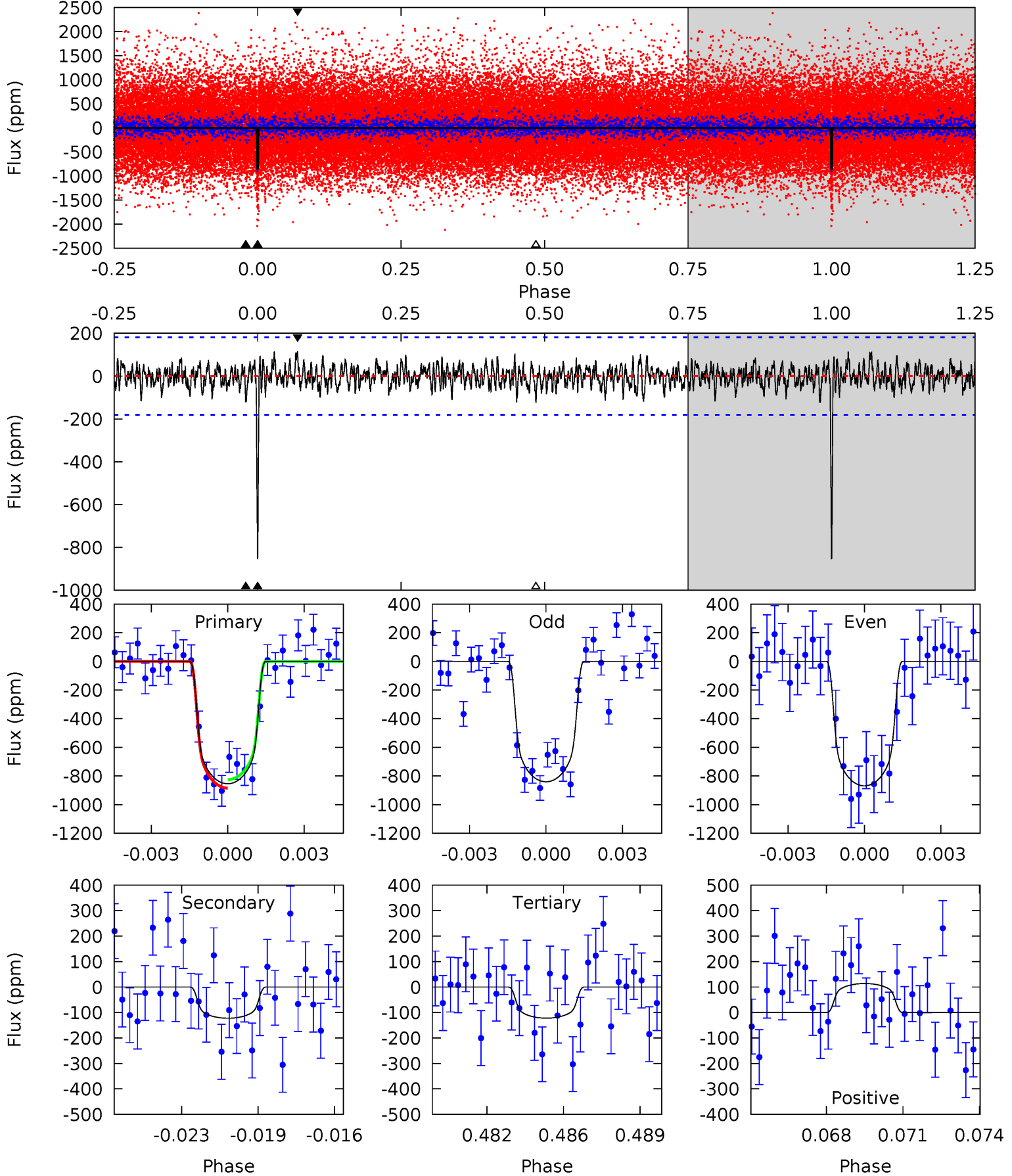
TCE 008570333-01 P= 84.571992 Days  $T_0=150.163016$  (BKJD)



# DV Model-Shift Uniqueness Test

008570333-01, P = 84.573447 Days, E = 65.574801 Days

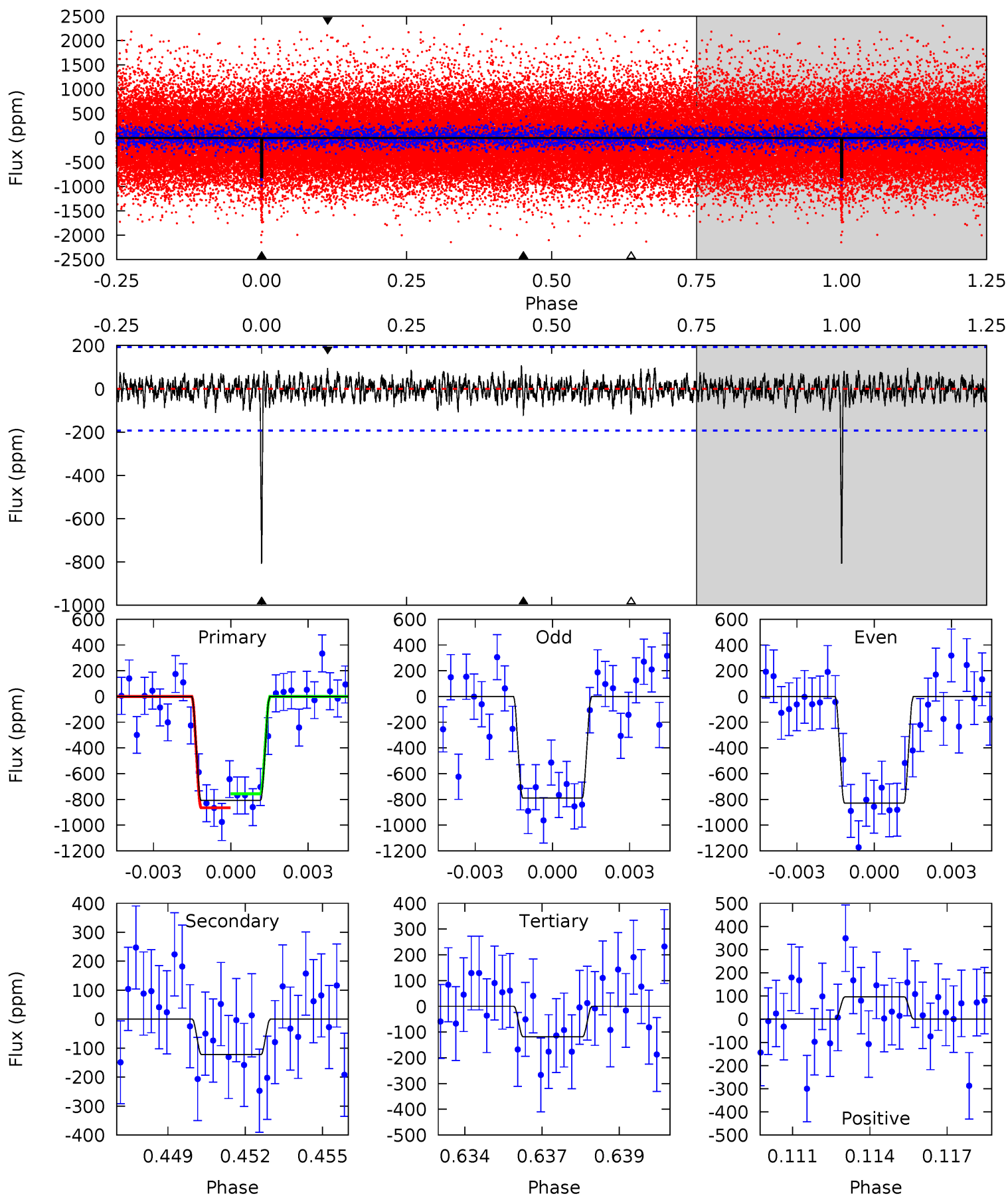
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.7	3.54	3.54	3.29	5.24	2.94	1.16	21.2	21.4	0.01	0.26	0.41	0.93	0.12	0.86



# Alt Model-Shift Uniqueness Test

008570333-01, P = 84.571992 Days, E = 65.591024 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
22.1	3.34	3.23	2.63	5.26	2.98	0.94	18.8	19.4	0.11	0.71	0.53	0.90	0.12	1.47



### Stellar Parameters For KIC 008570333

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5418^{+164}_{-180}$	$4.543^{+0.030}_{-0.170}$	$0.360^{+0.100}_{-0.300}$	$0.888^{+0.198}_{-0.074}$	$1.005^{+0.064}_{-0.110}$	$2.021^{+0.325}_{-0.911}$
	+3%/-3%	+1%/-4%	+28%/-83%	+22%/-8%	+6%/-11%	+16%/-45%
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 008570333-01 / KOI 2436.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-123 \pm 35$	$3.18^{+0.51}_{-0.46}$	$525^{+28}_{-23}$	$3632^{+238}_{-238}$	$914^{+444}_{-315}$
Alt.	$-122 \pm 37$	$2.88^{+0.47}_{-0.45}$	$525^{+28}_{-25}$	$3731^{+301}_{-266}$	$1106^{+643}_{-418}$

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

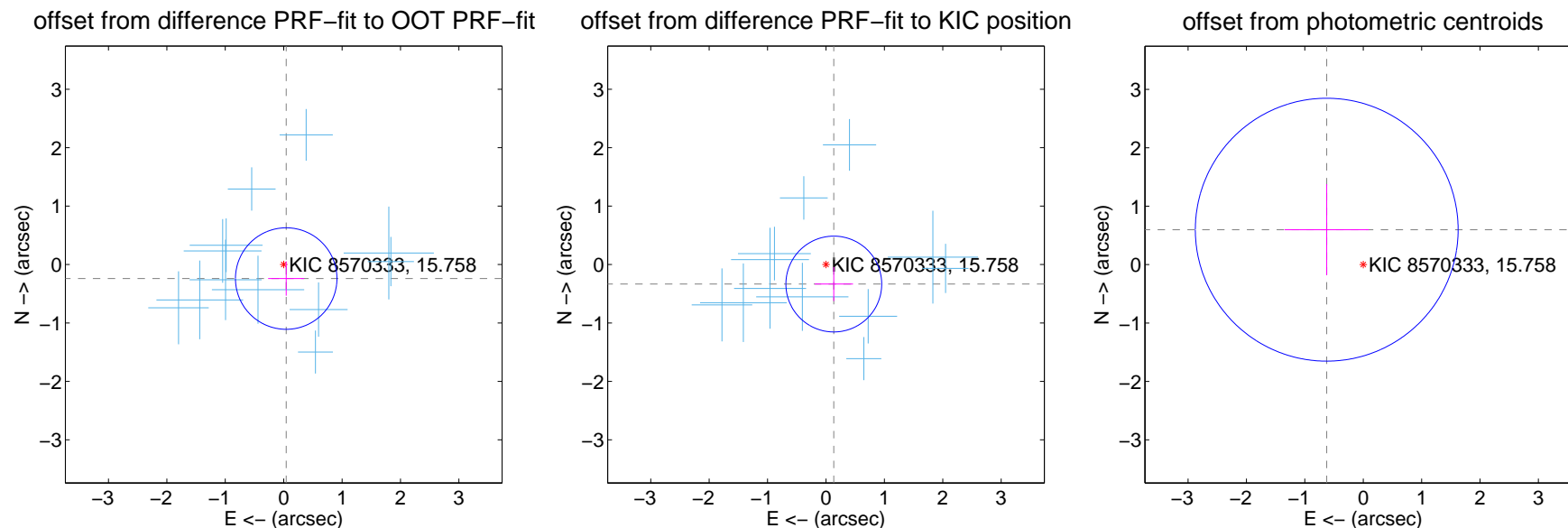
## DV Centroid Data

Supplemental centroid analysis for 008570333-01. Kepler magnitude: 15.76. Transit SNR 17.01

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

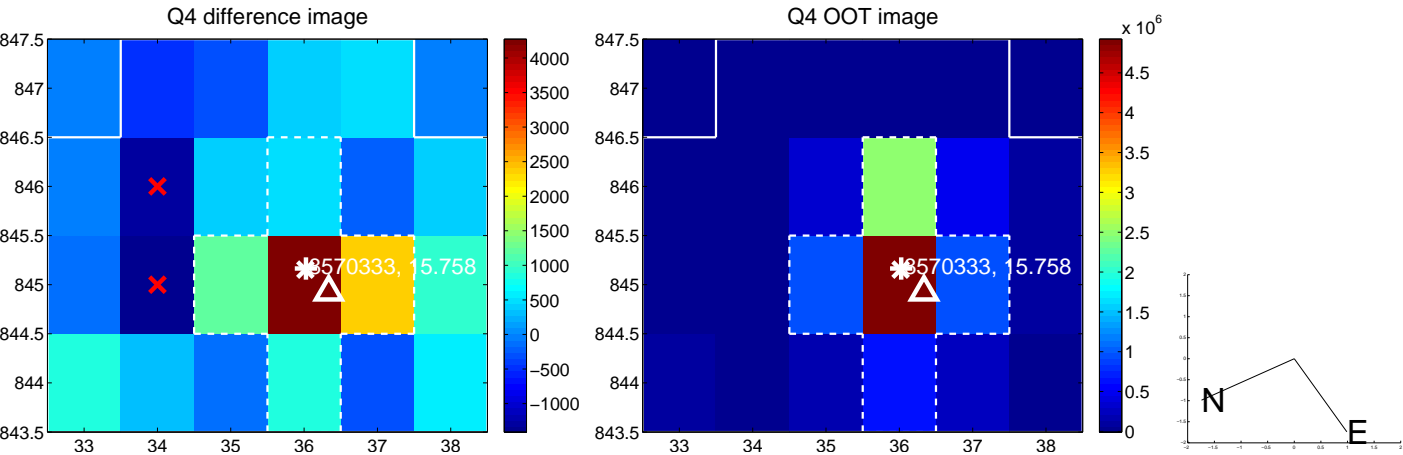
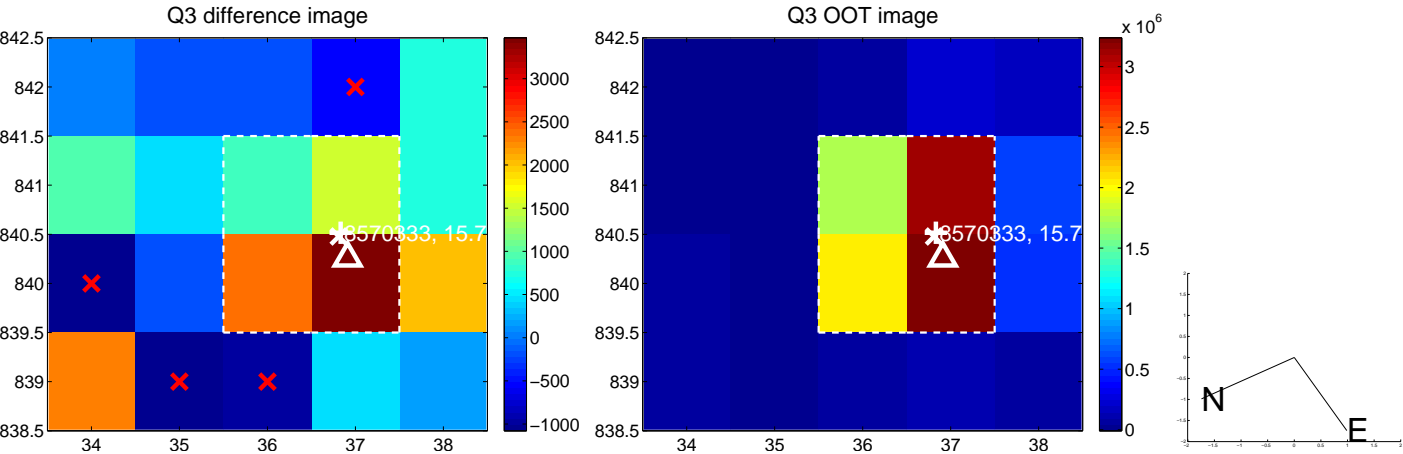
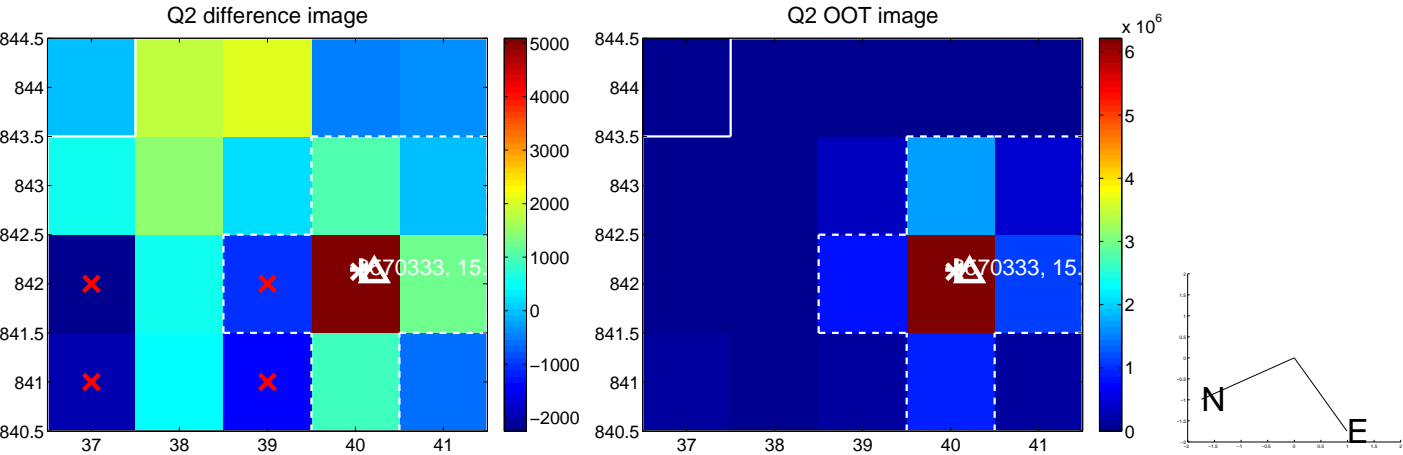
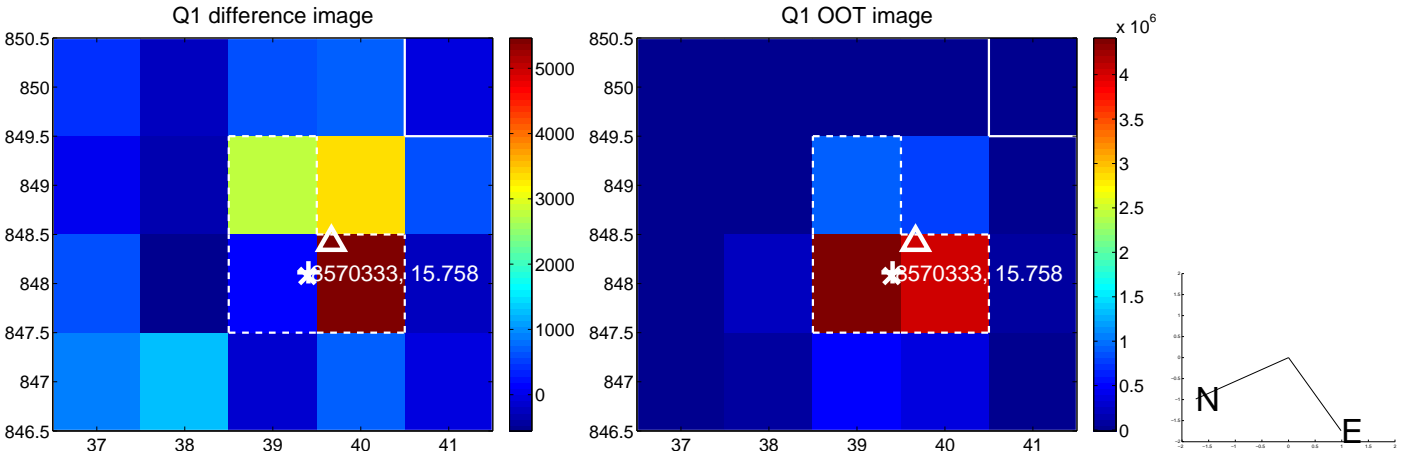
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.244 \pm 0.290$	0.84	$-0.043 \pm 0.309$	$-0.240 \pm 0.294$
PRF-fit source offset from KIC position	$0.360 \pm 0.273$	1.32	$-0.134 \pm 0.328$	$-0.334 \pm 0.293$
photometric centroid source offset	$0.86 \pm 0.75$	1.15	$0.62 \pm 0.72$	$0.60 \pm 0.78$



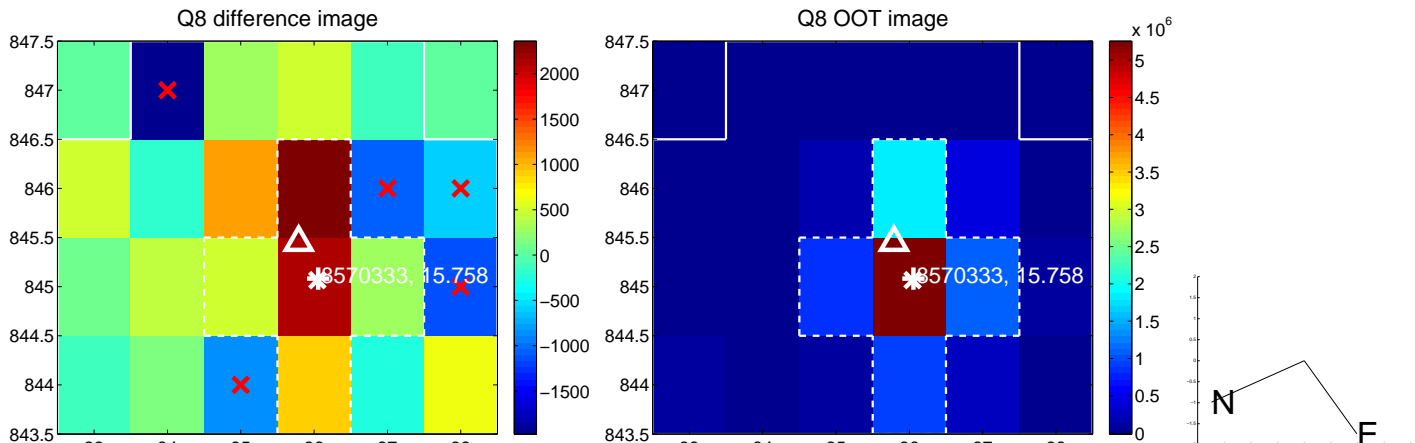
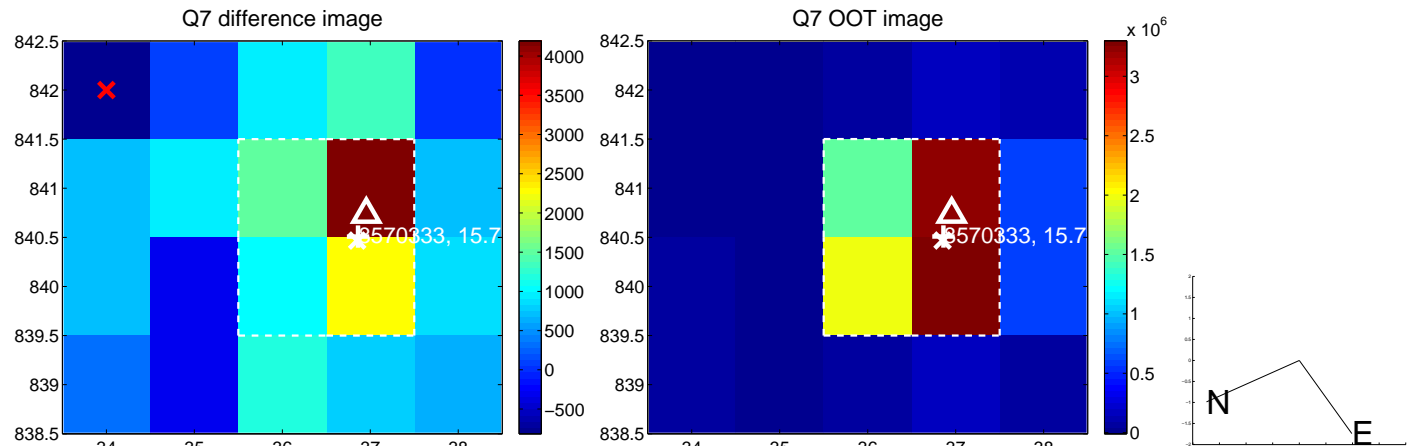
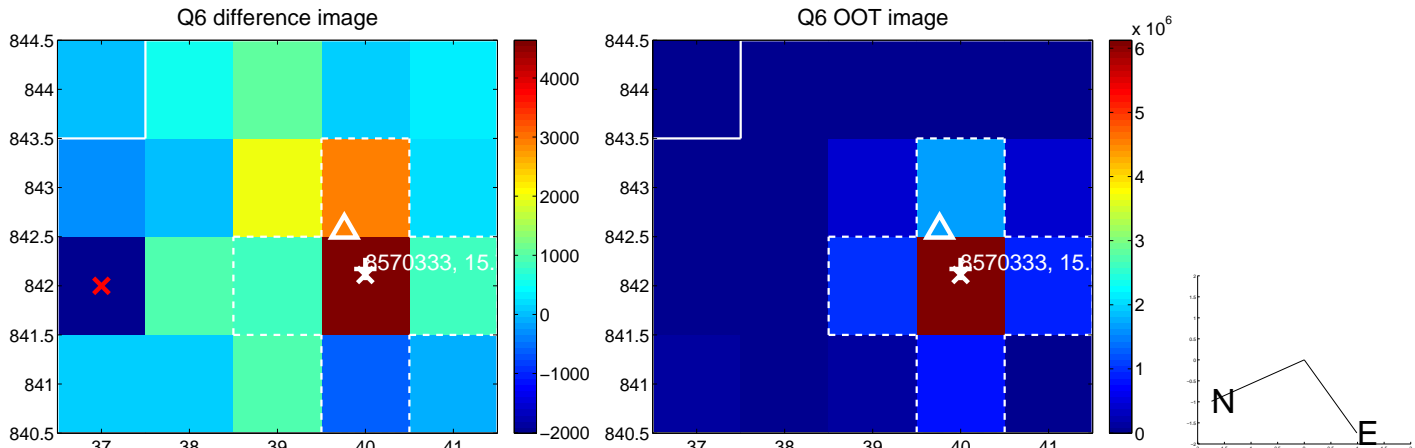
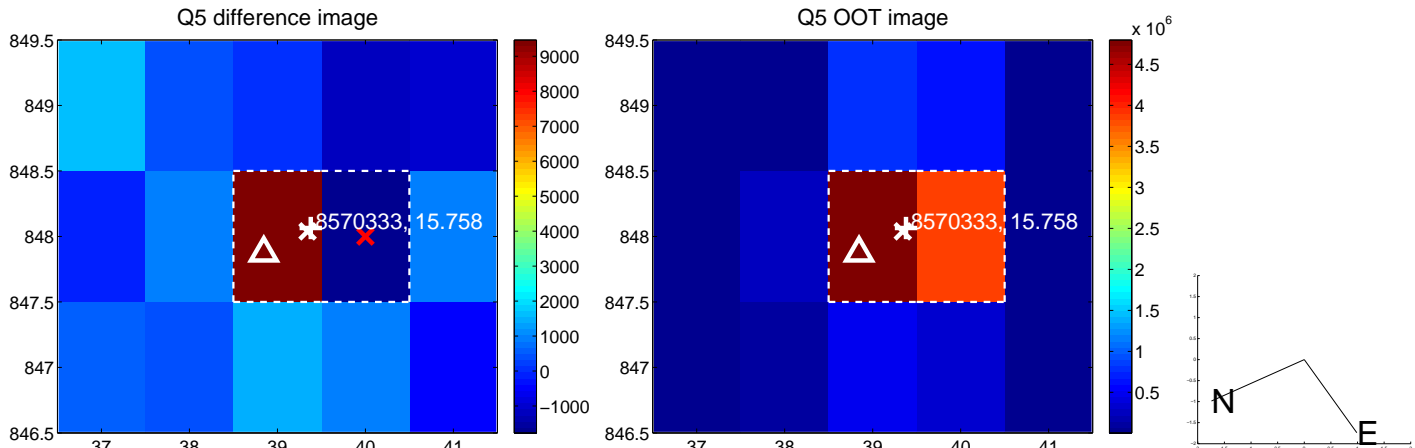
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



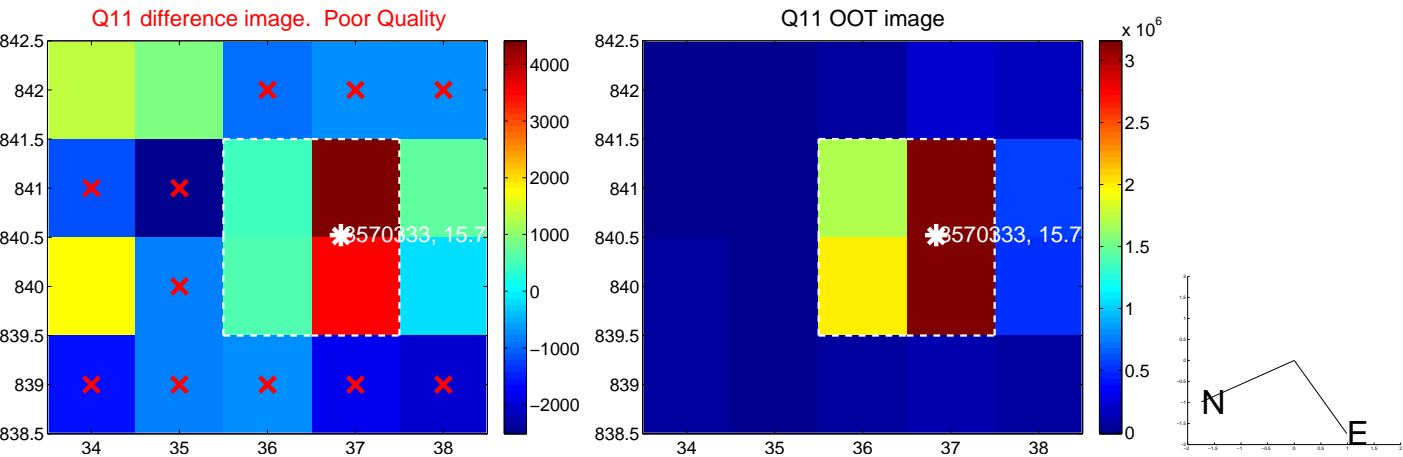
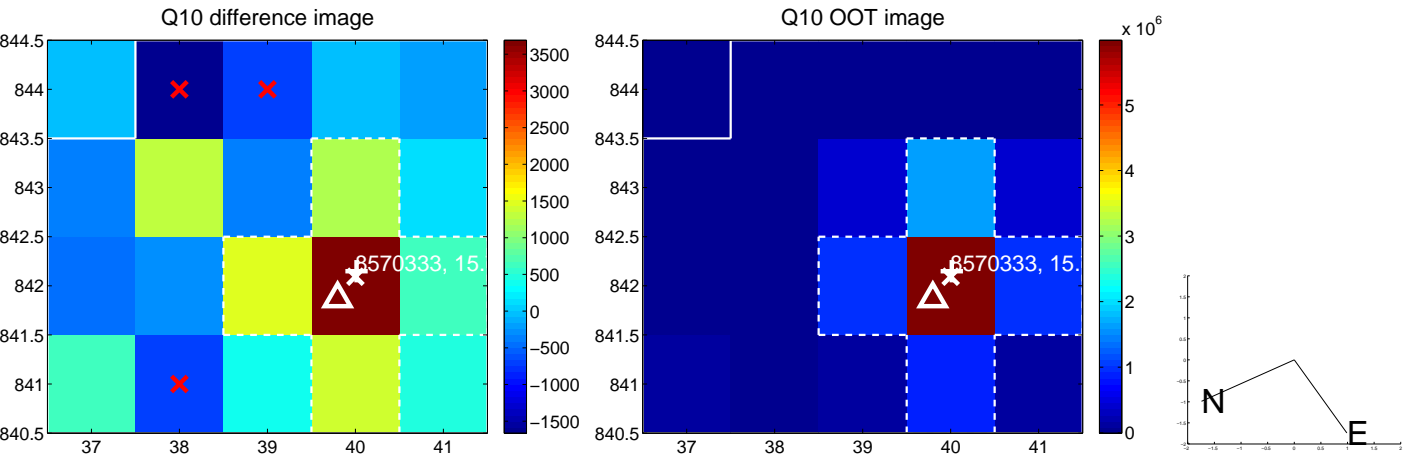
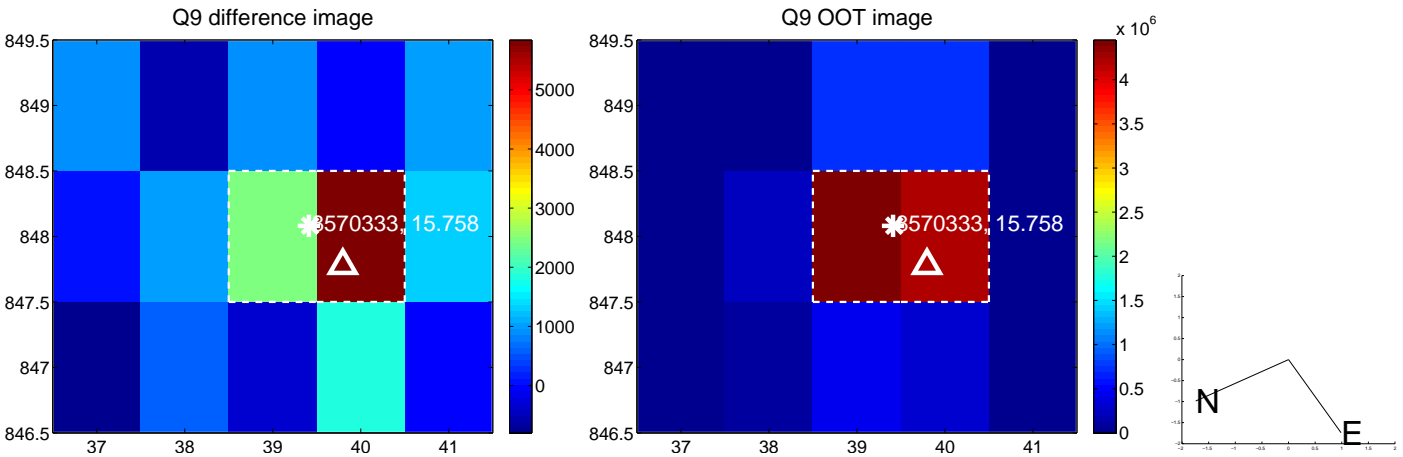
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



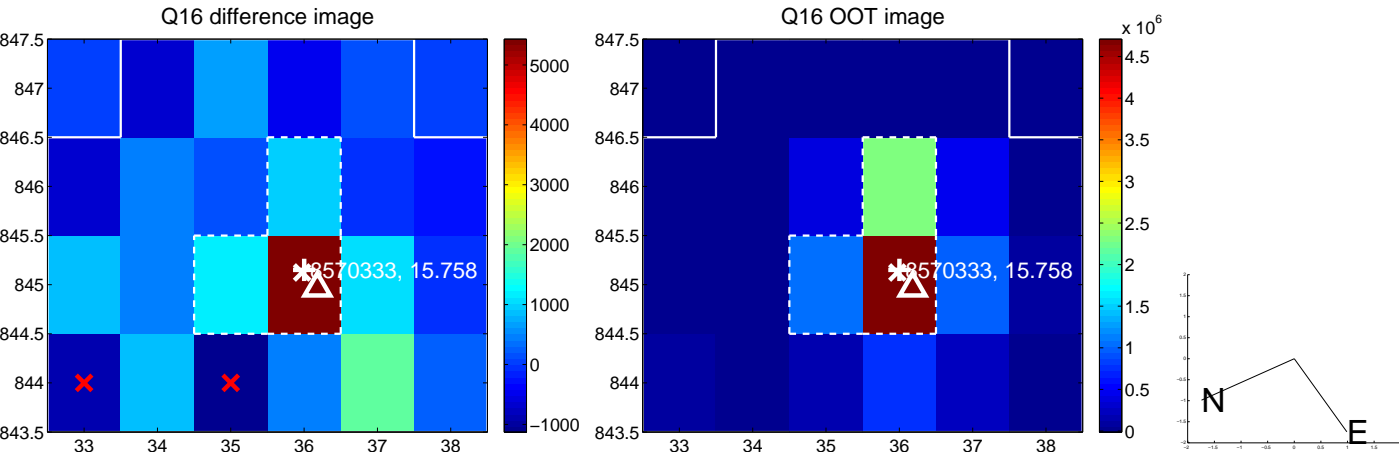
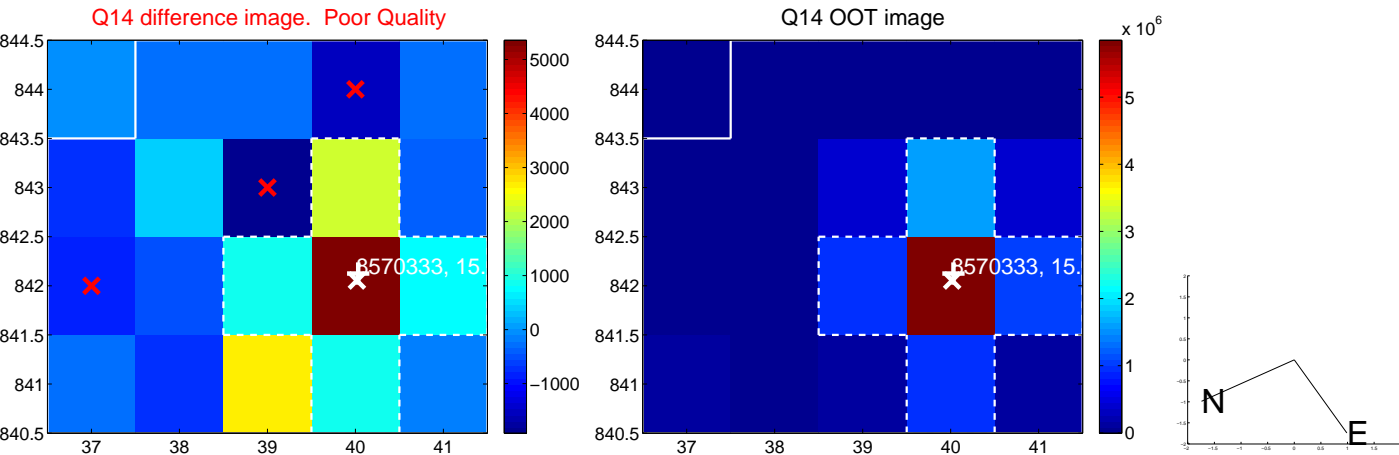
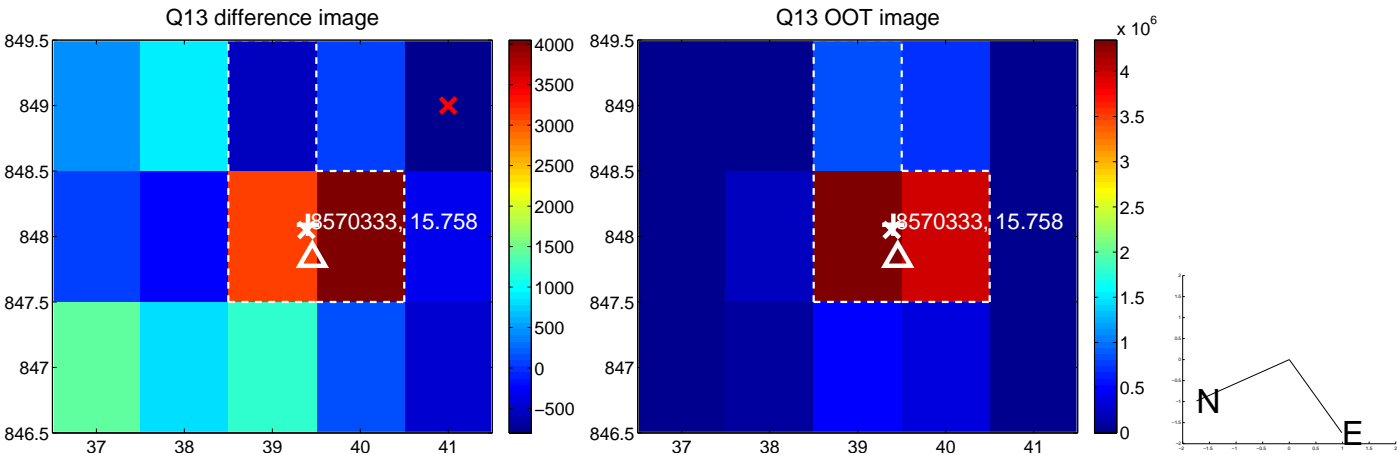
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



white  $\times$ : 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.

