

# KIC 005872874

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005872874-01	OBS	No	358.731711	163.763543	235.4	16.308	7.2	7.6	1.56	6375	2.91	3.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005872874-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_MEAS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

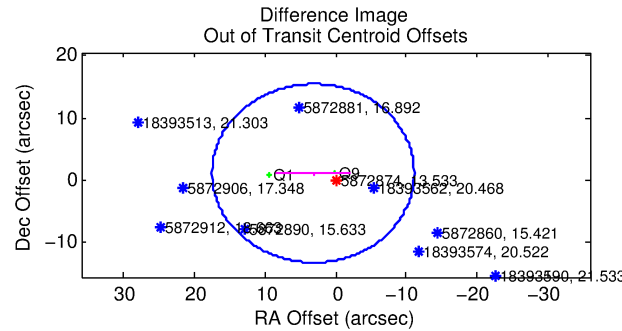
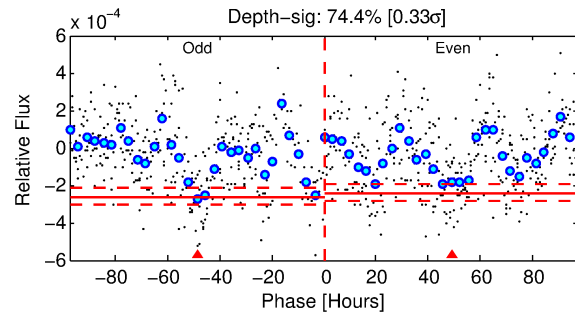
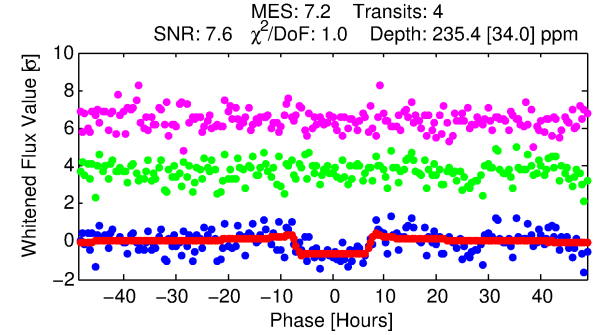
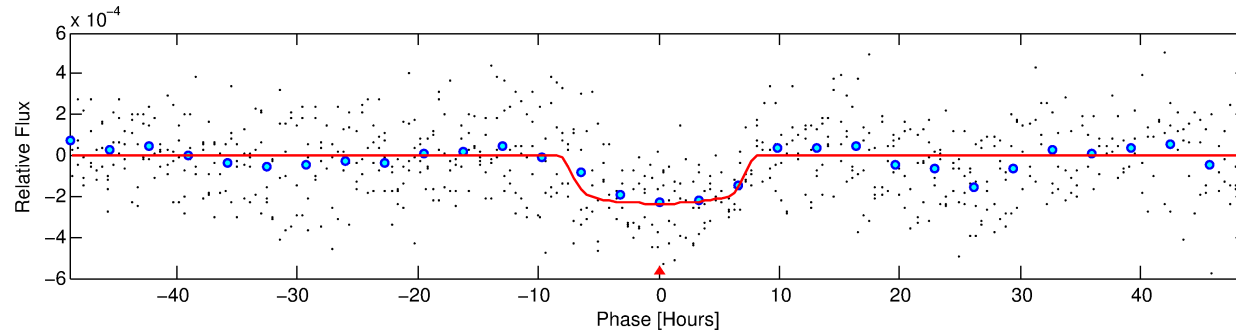
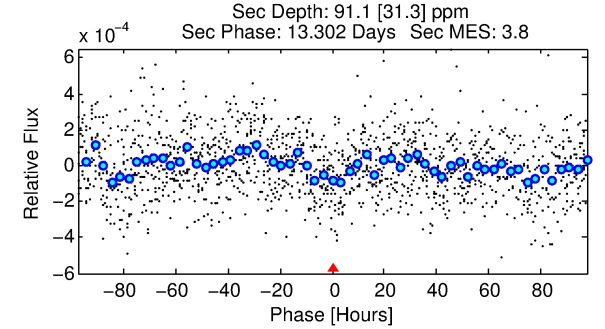
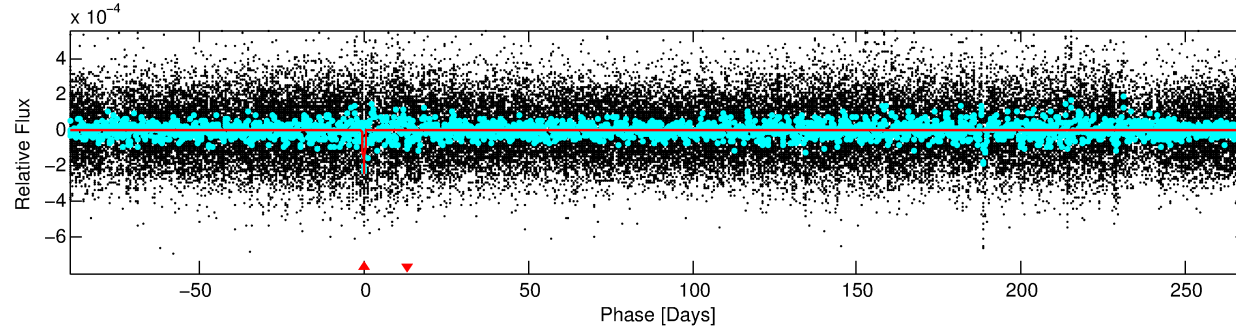
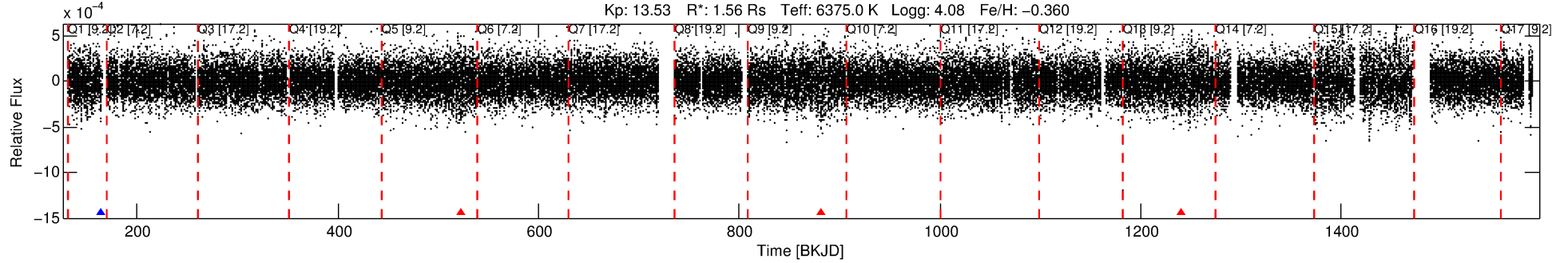
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005872874-01

No Significant Match Found

# DV One-Page Summary

KIC: 5872874 Candidate: 1 of 1 Period: 358.732 d



## DV Fit Results:

Period = 358.73171 [0.01260] d  
Epoch = 163.7635 [0.0228] BKJD  
Rp/R\* = 0.0171 [0.0017]  
a/R\* = 66.68 [22.95]  
b = 0.94 [0.05]  
Seff = 3.53 [1.90]  
Teq = 350 [47] K  
Rp = 2.91 [0.93] Re  
a = 1.0129 [0.3193] AU  
Ag = 6060.38 [3983.60] [1.52σ]  
Teffp = 4769 [495] K [8.89σ]

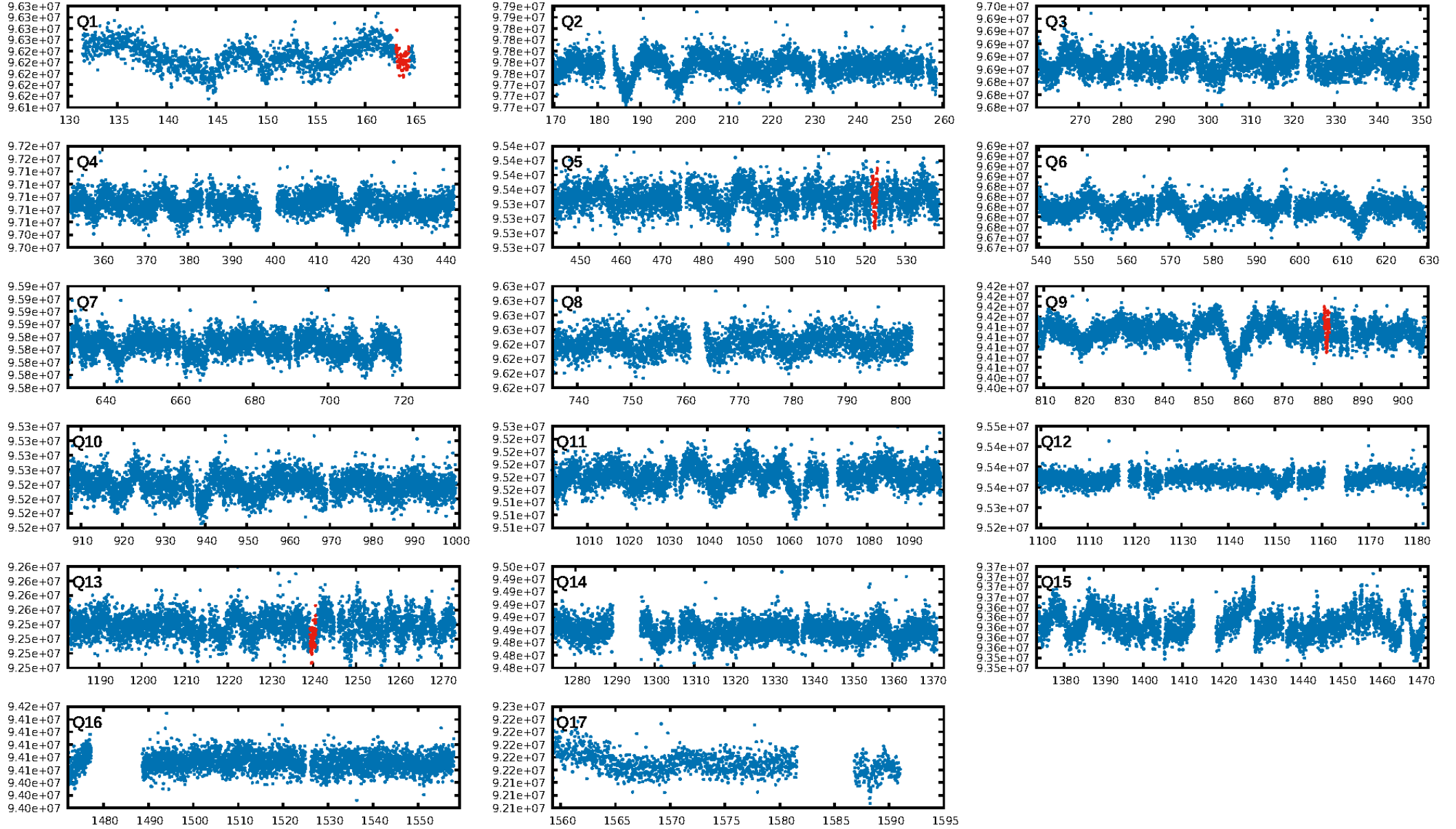
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 15.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.20e-09  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: 3.304  
Centroid-sig: 1.8%  
Centroid-so: 3.532 arcsec [1.91σ]  
OotOffset-rm: 3.363 arcsec [0.70σ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-rm: 3.224 arcsec [0.67σ]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [4/4]

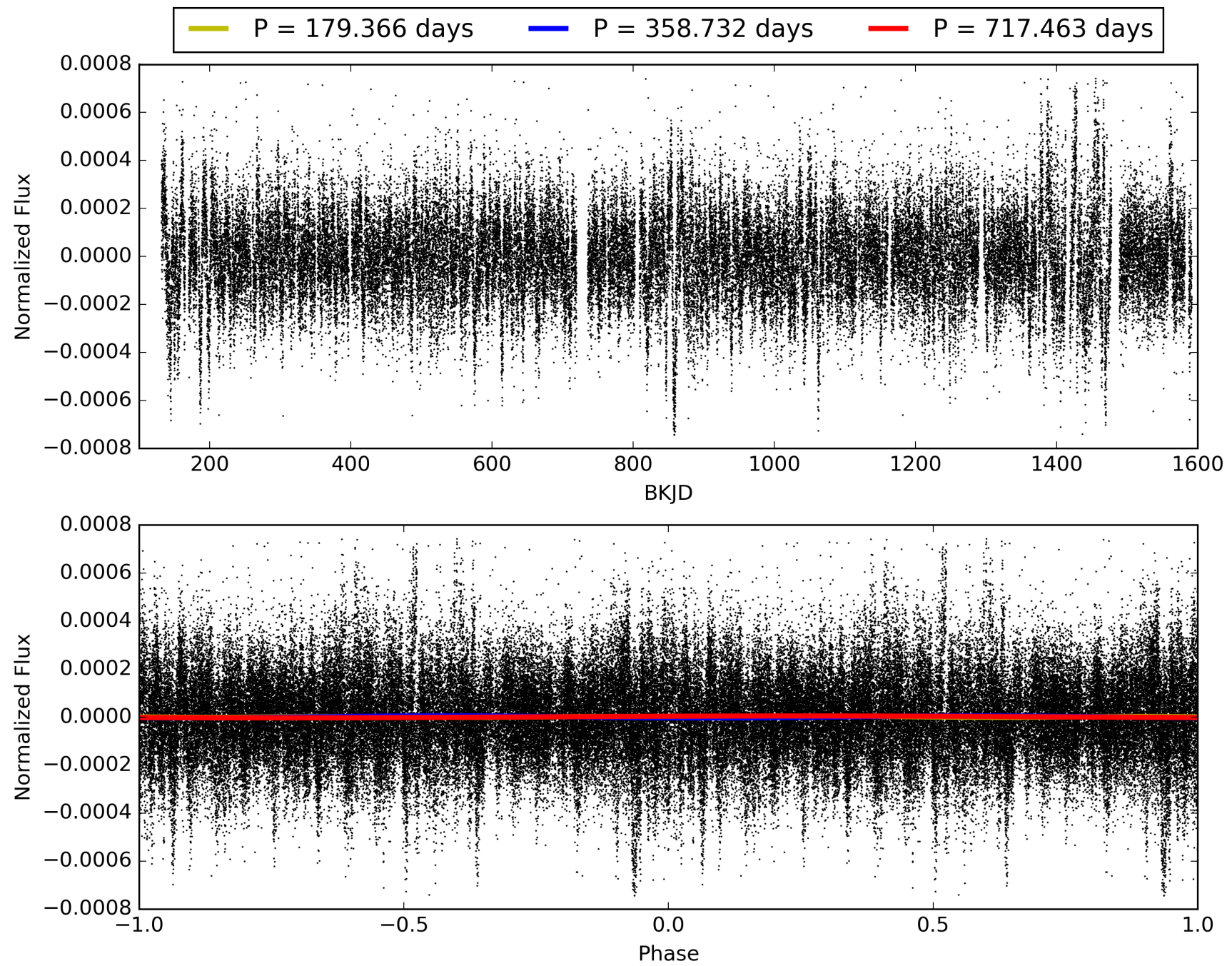
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:46:54 Z

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

# TCE 005872874-01, PDC Light Curves

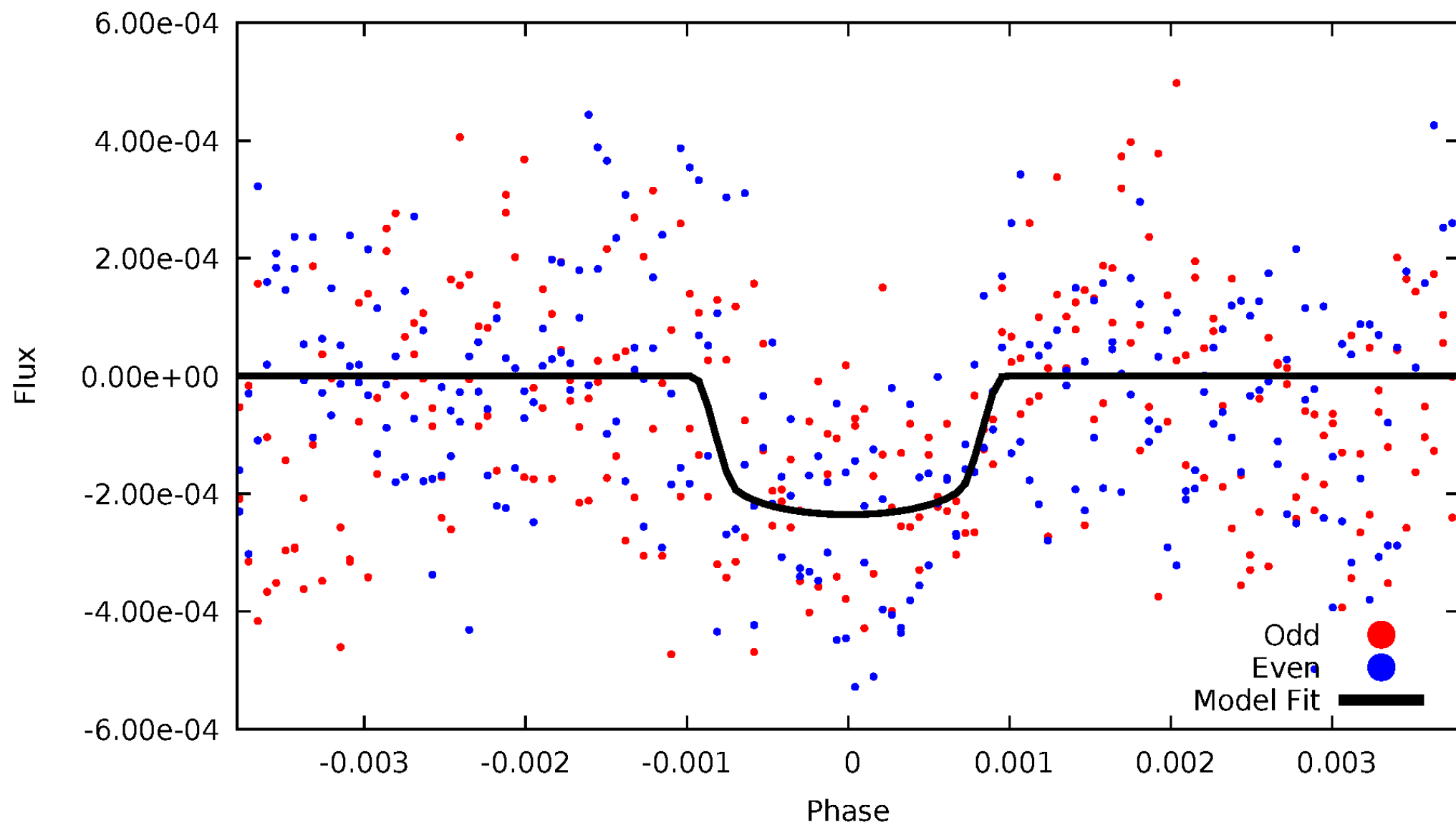


# TCE 005872874-01



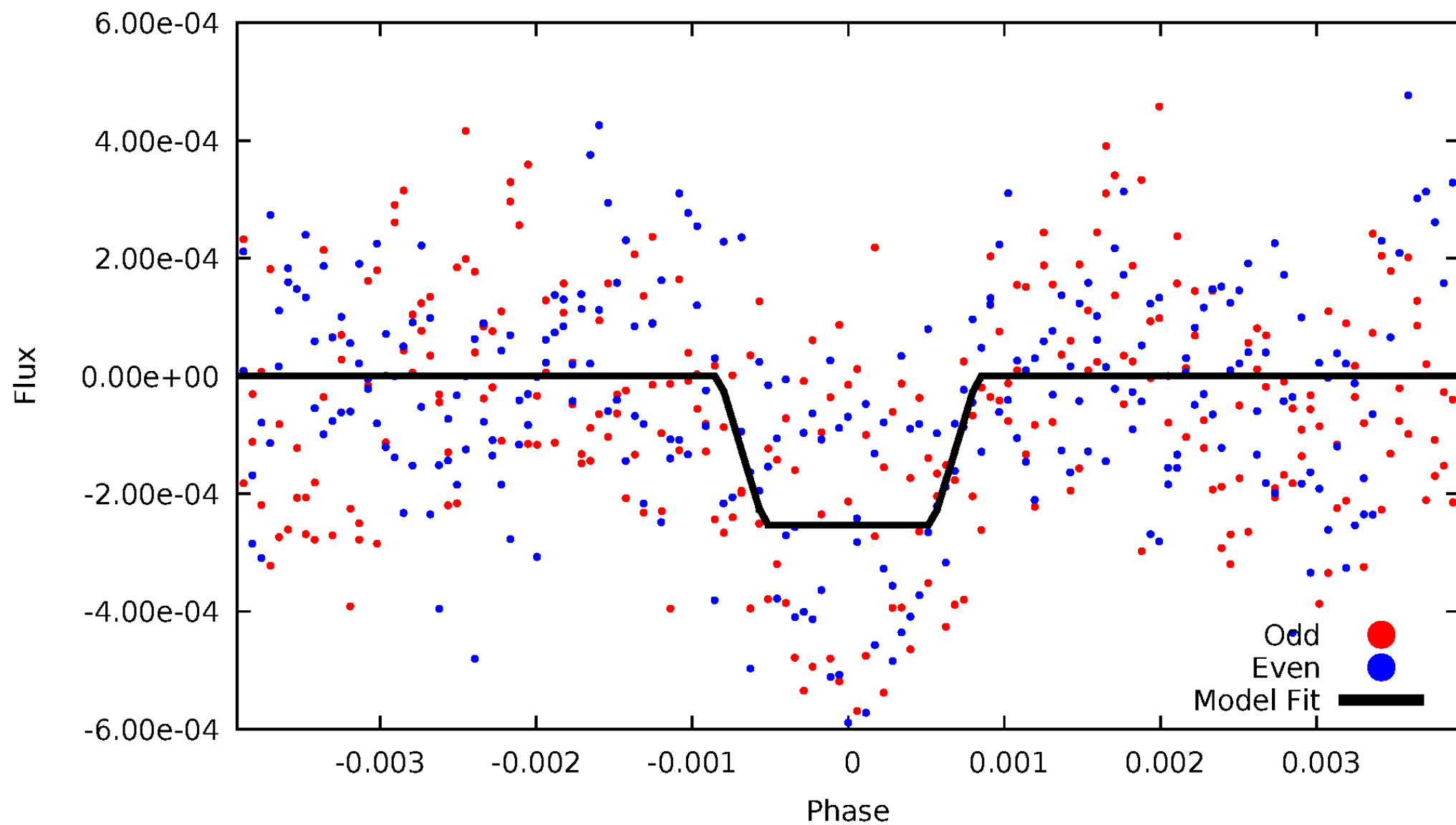
# DV Odd/Even

TCE 005872874-01



# ALT Odd/Even

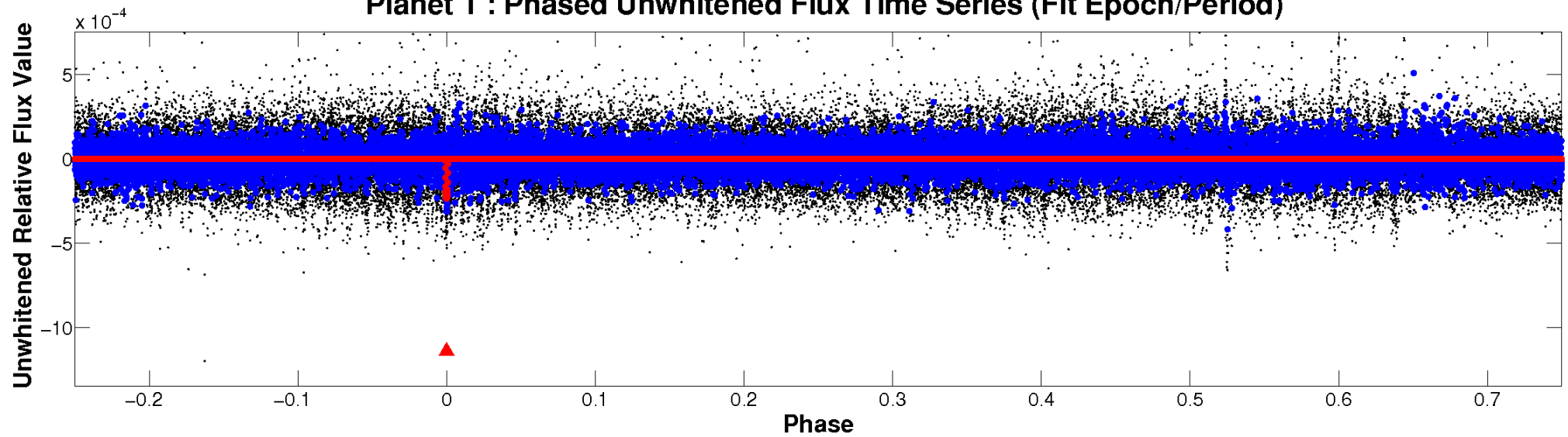
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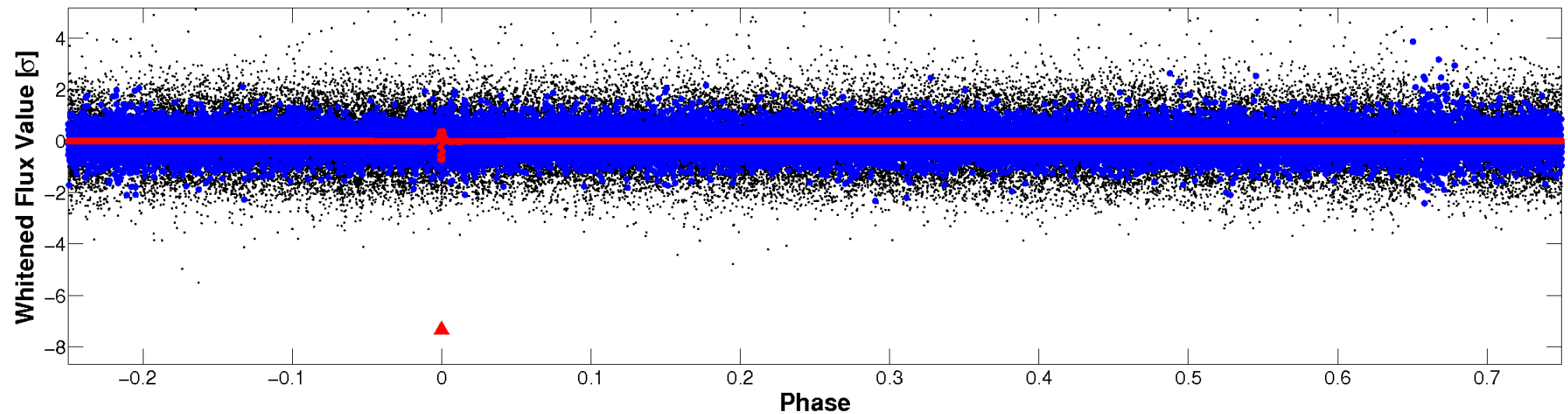


# Non-Whitened Vs. Whitened Light Curve

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

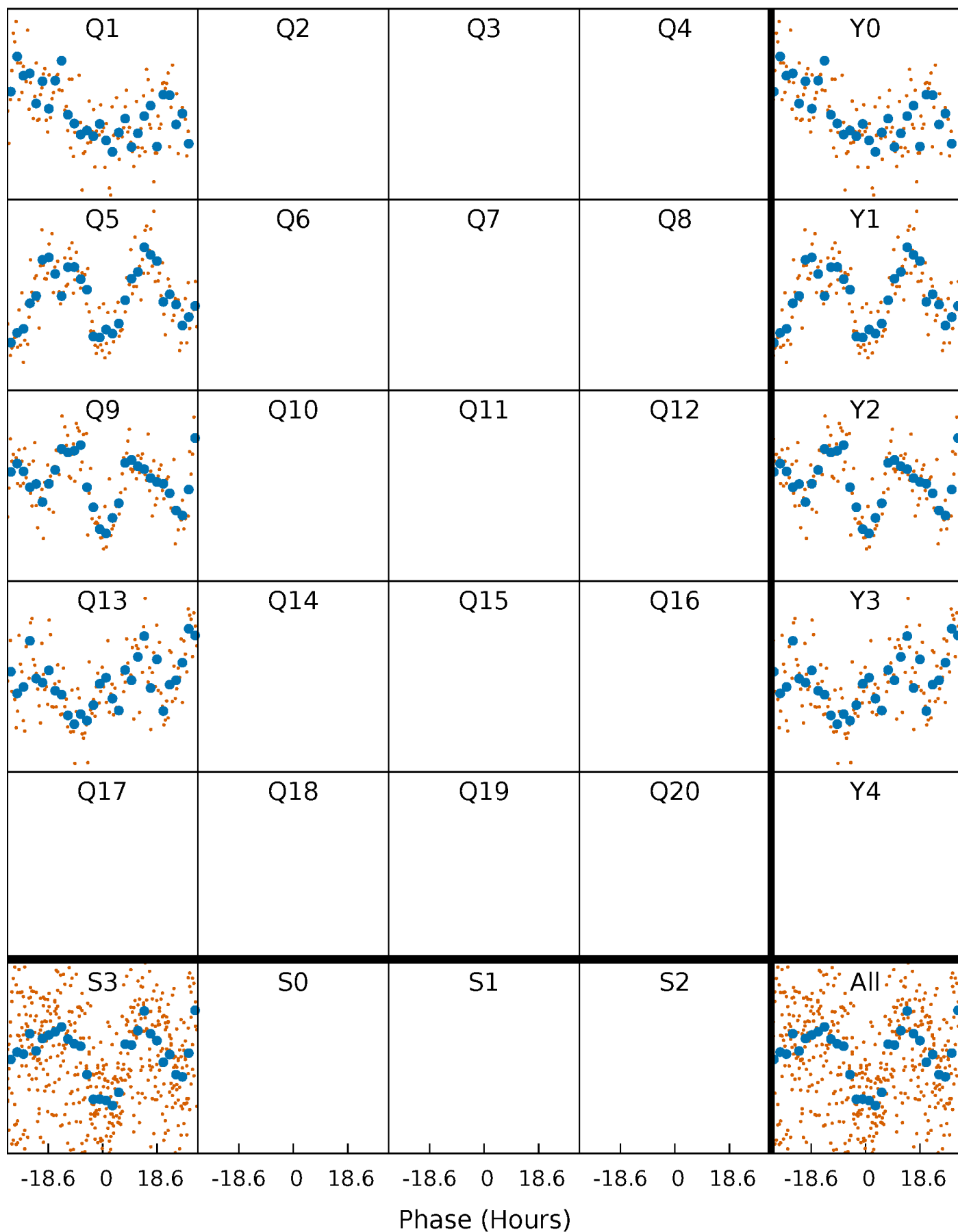


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

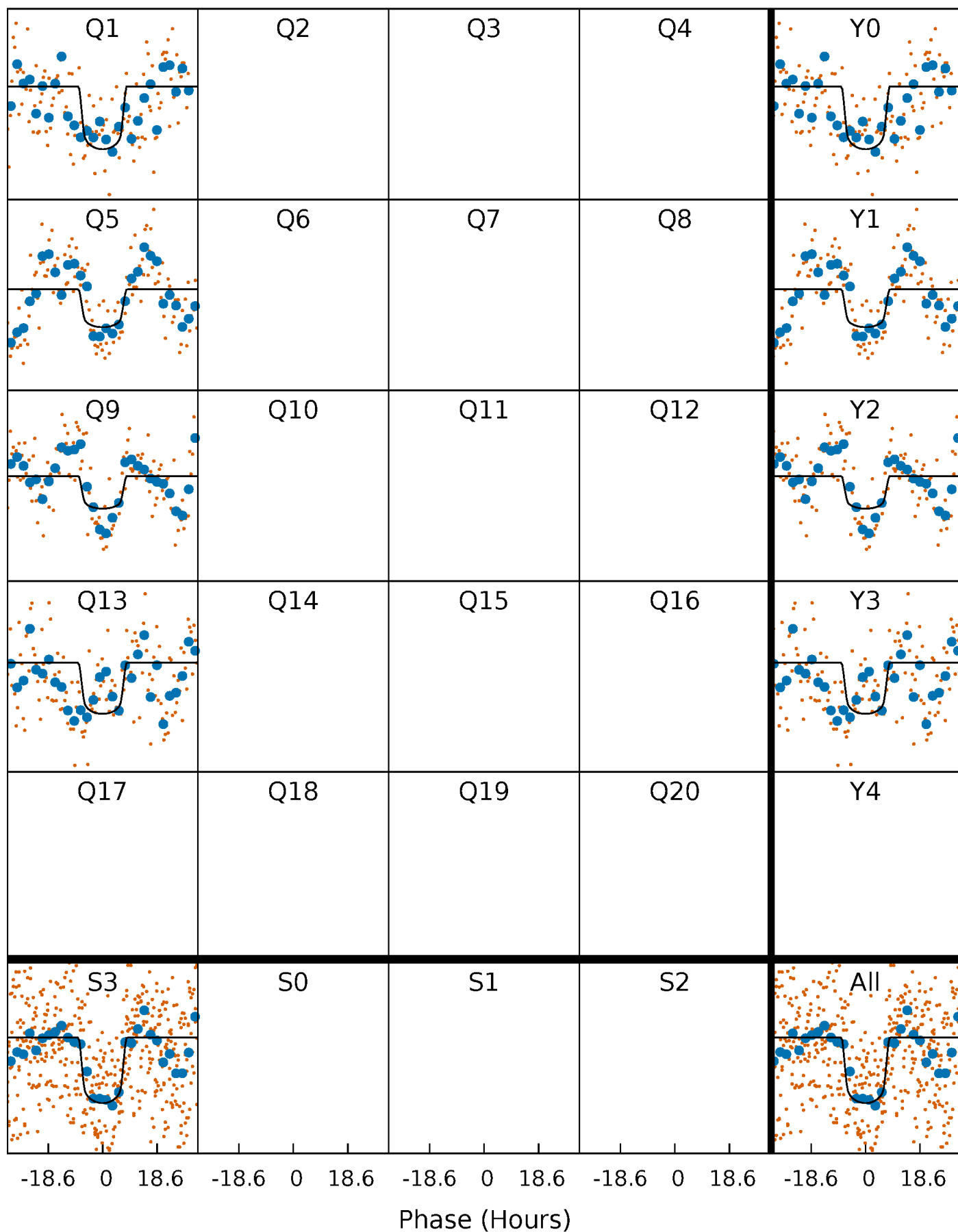
TCE 005872874-01 P=358.731711 Days  $T_0=163.763543$  (BKJD)





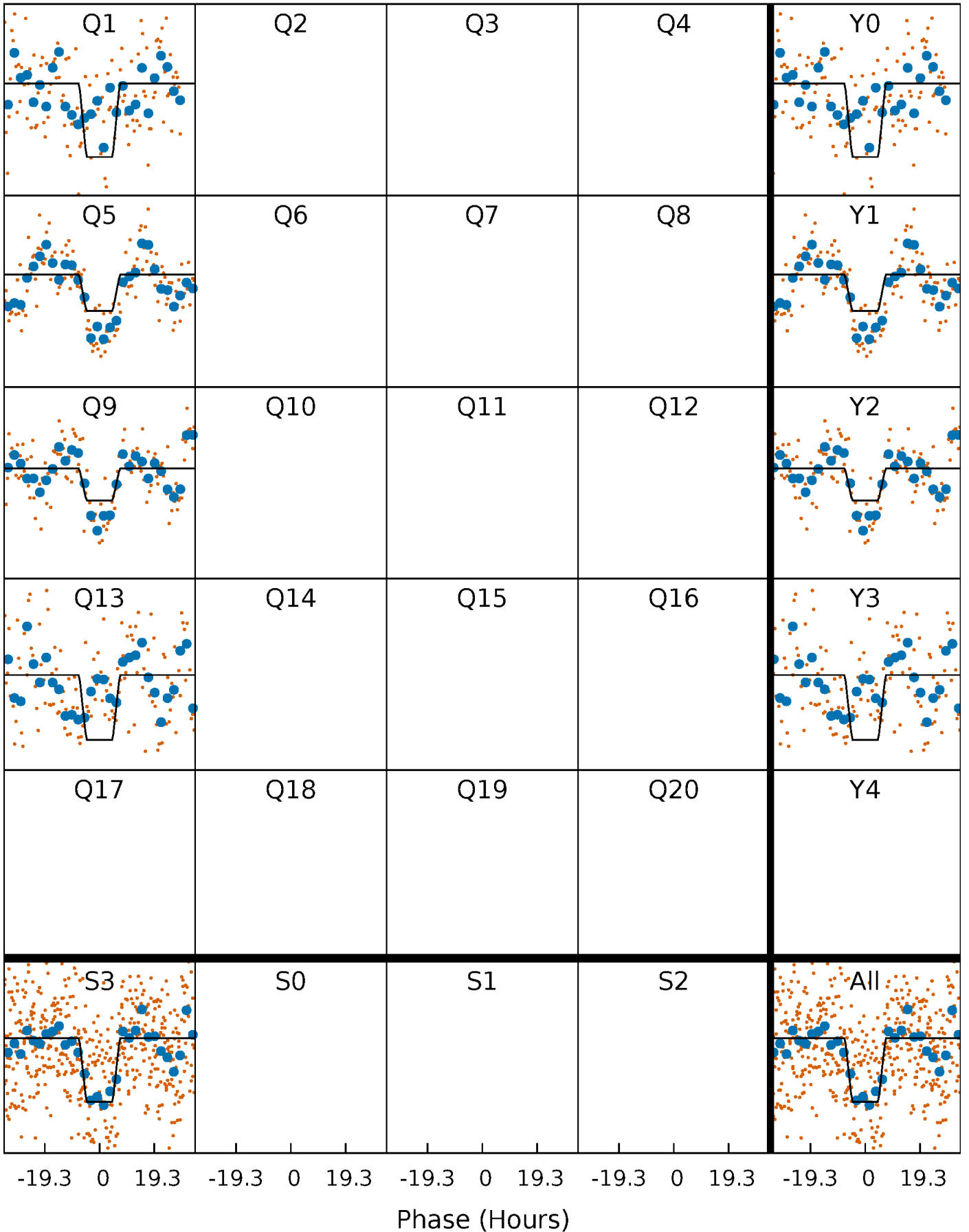
# DV Quarter-Phased Transit Curves

TCE 005872874-01 P=358.731711 Days  $T_0=163.763543$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

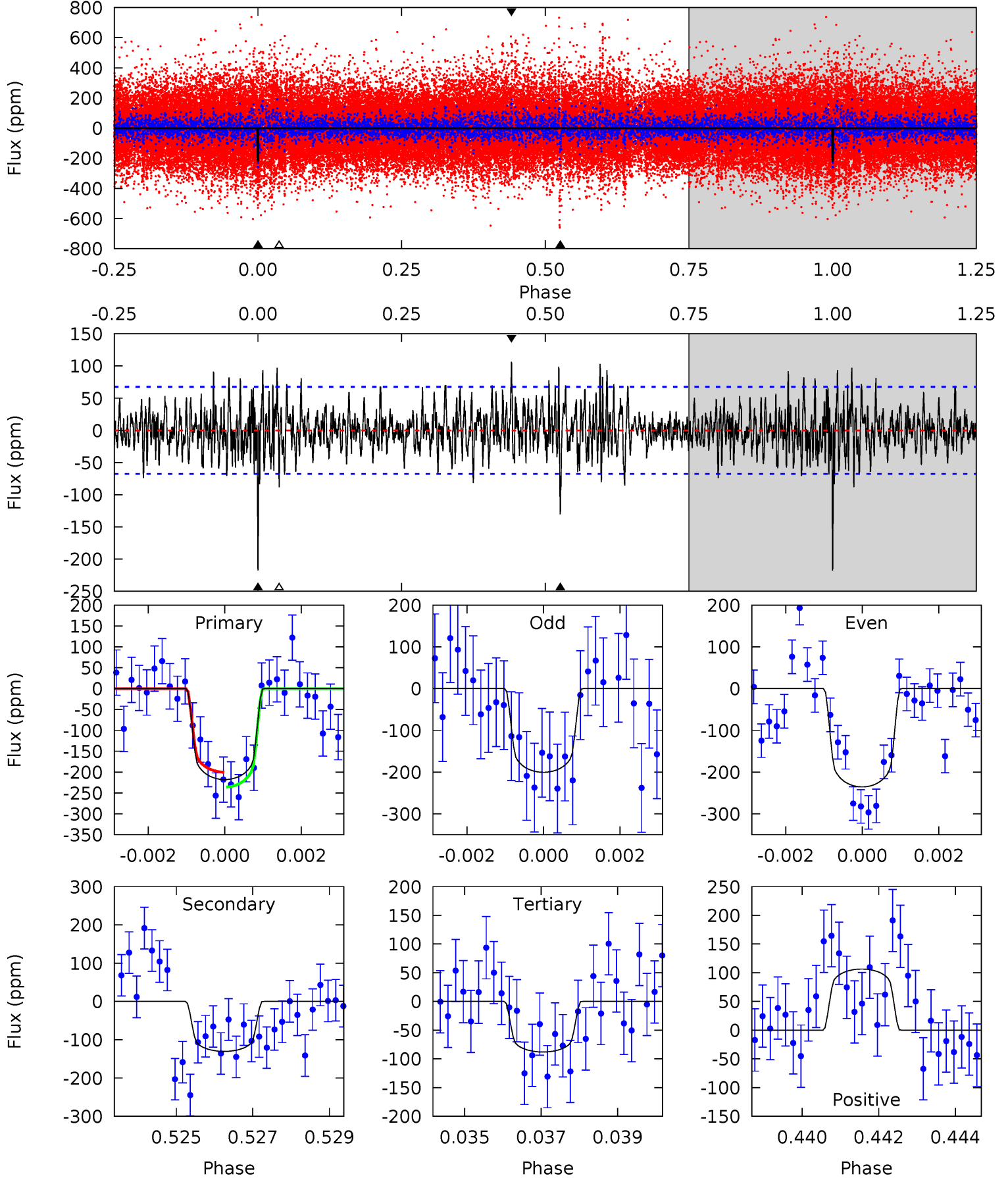
TCE 005872874-01 P=358.731579 Days  $T_0=163.779220$  (BKJD)



# DV Model-Shift Uniqueness Test

005872874-01, P = 358.731711 Days, E = 163.763543 Days

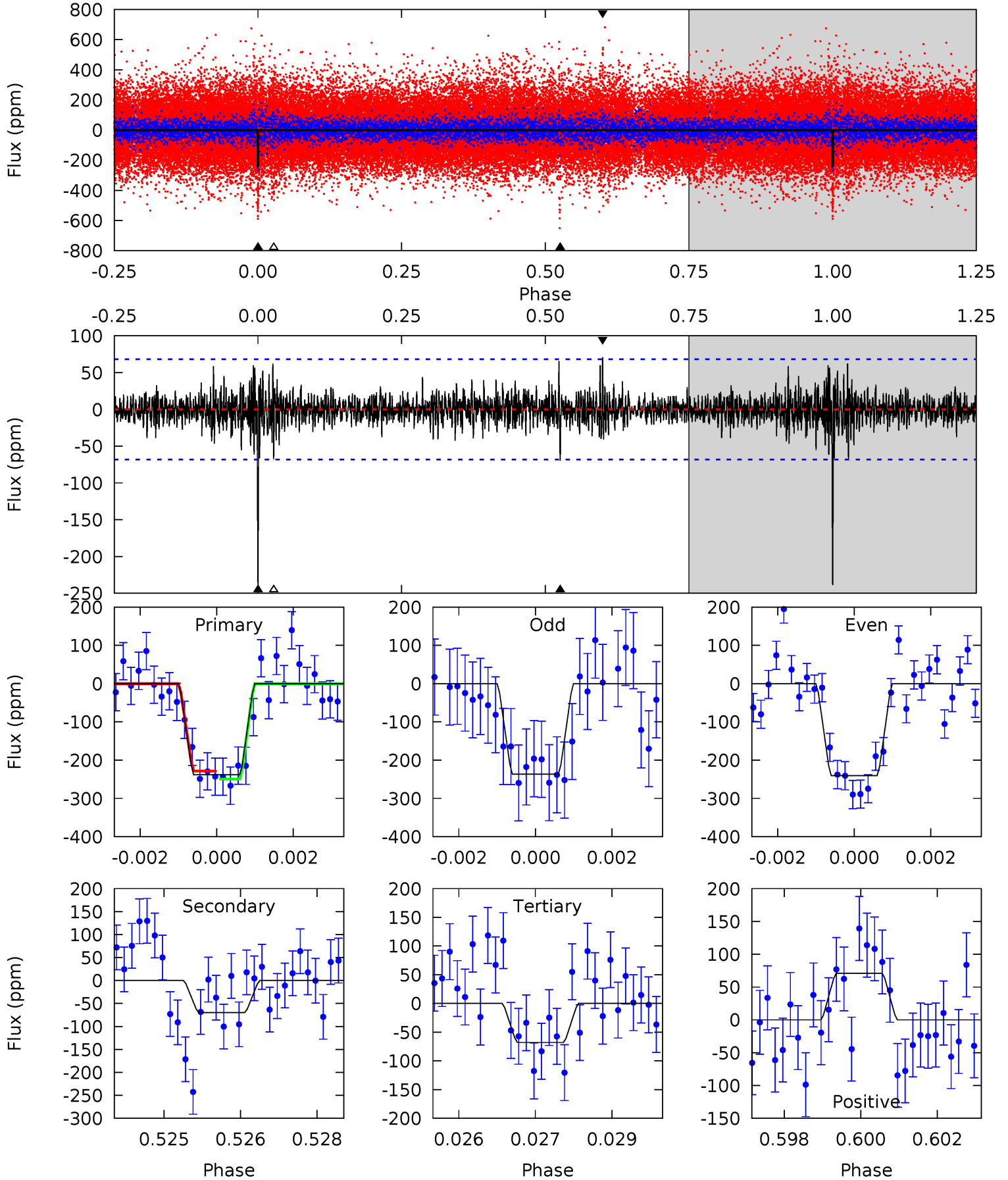
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	10.3	6.95	8.41	5.33	3.10	2.17	10.3	8.80	3.35	1.89	1.38	0.99	0.33	1.41



# Alt Model-Shift Uniqueness Test

005872874-01, P = 358.731579 Days, E = 163.779220 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
18.7	5.47	5.34	5.57	5.36	3.14	1.14	13.4	13.2	0.14	-0.10	0.15	0.99	0.23	0.84



### Stellar Parameters For KIC 005872874

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6375^{+175}_{-194}$	$4.081^{+0.315}_{-0.158}$	$-0.360^{+0.300}_{-0.300}$	$1.565^{+0.428}_{-0.475}$	$1.077^{+0.177}_{-0.145}$	$0.395^{+0.775}_{-0.176}$
	+3%/-3%	+8%/-4%	+83%/-83%	+27%/-30%	+16%/-13%	+196%/-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 005872874-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-130 \pm 13$	$2.83^{+0.57}_{-0.52}$	$481^{+40}_{-42}$	$5258^{+311}_{-271}$	$9239^{+4445}_{-2865}$
Alt.	$-70 \pm 13$	$2.63^{+0.58}_{-0.55}$	$482^{+39}_{-47}$	$4743^{+298}_{-263}$	$5723^{+3463}_{-1975}$

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

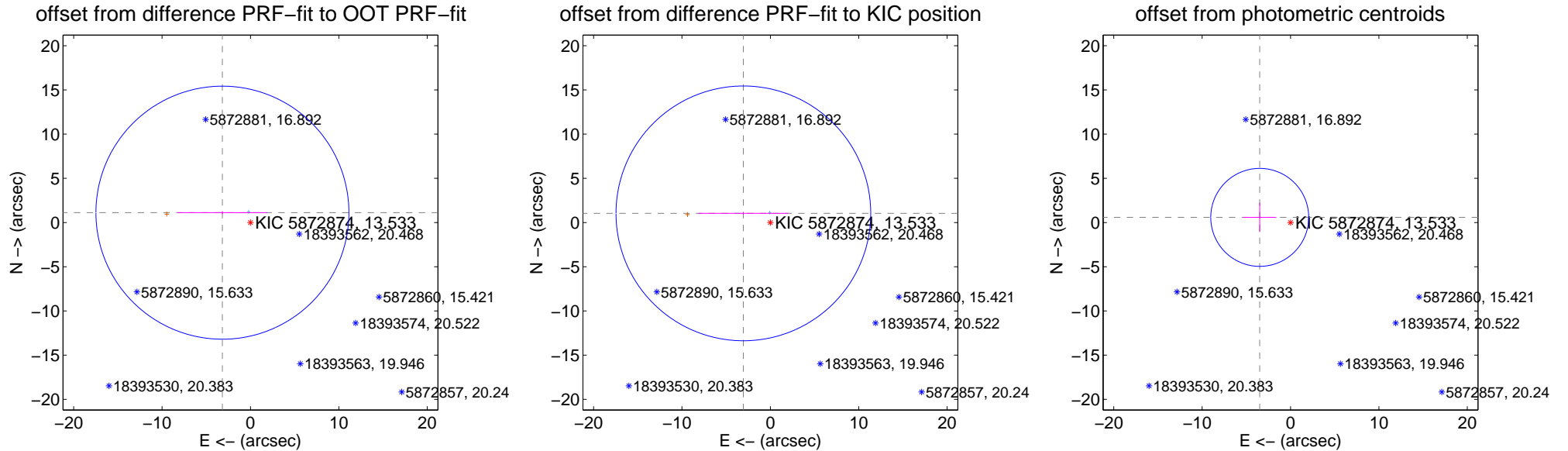
## DV Centroid Data

Supplemental centroid analysis for 005872874-01. Kepler magnitude: 13.53. Transit SNR 7.57

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

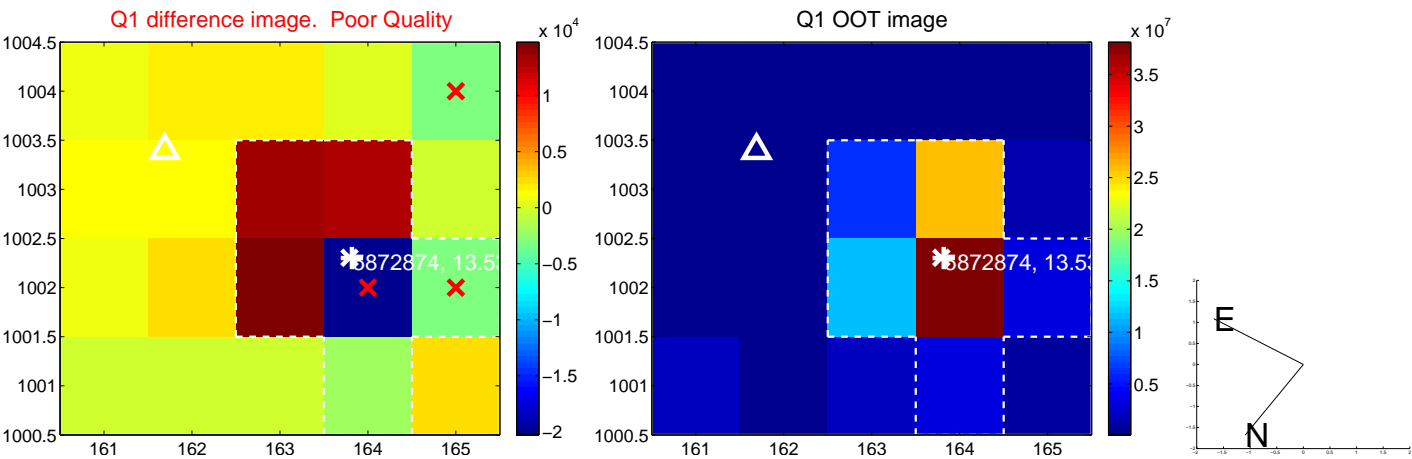
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.363 \pm 4.771$	0.70	$3.173 \pm 5.057$	$1.114 \pm 0.163$
PRF-fit source offset from KIC position	$3.224 \pm 4.804$	0.67	$3.053 \pm 5.073$	$1.036 \pm 0.140$
photometric centroid source offset	$3.53 \pm 1.85$	1.91	$3.48 \pm 1.85$	$0.58 \pm 1.65$



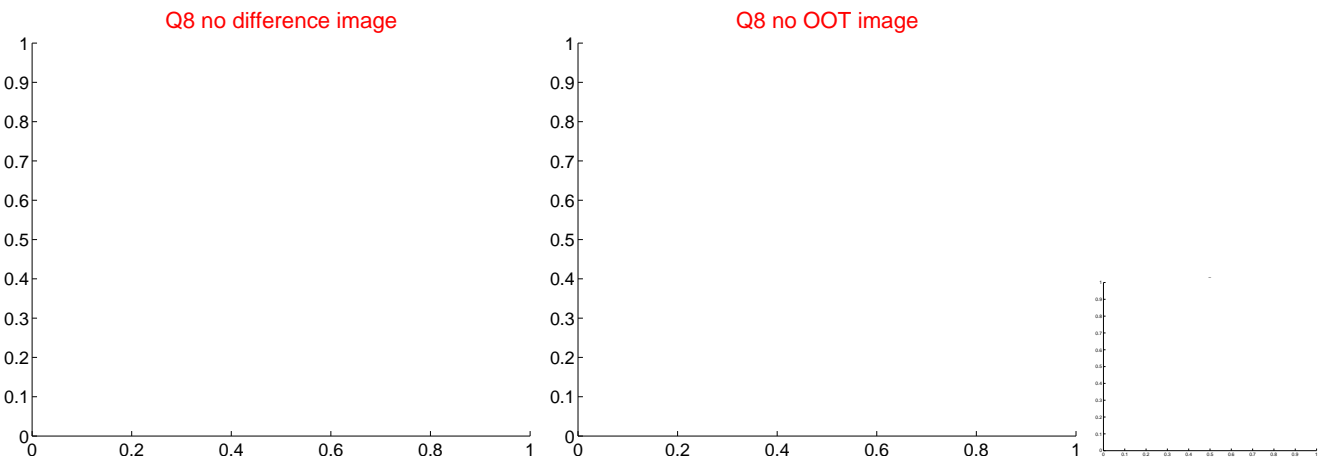
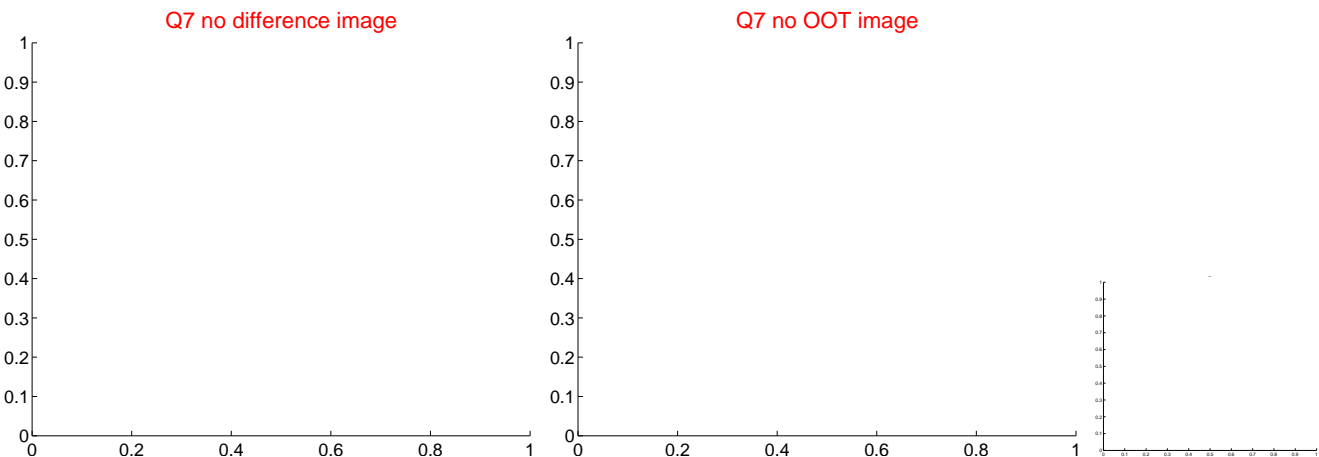
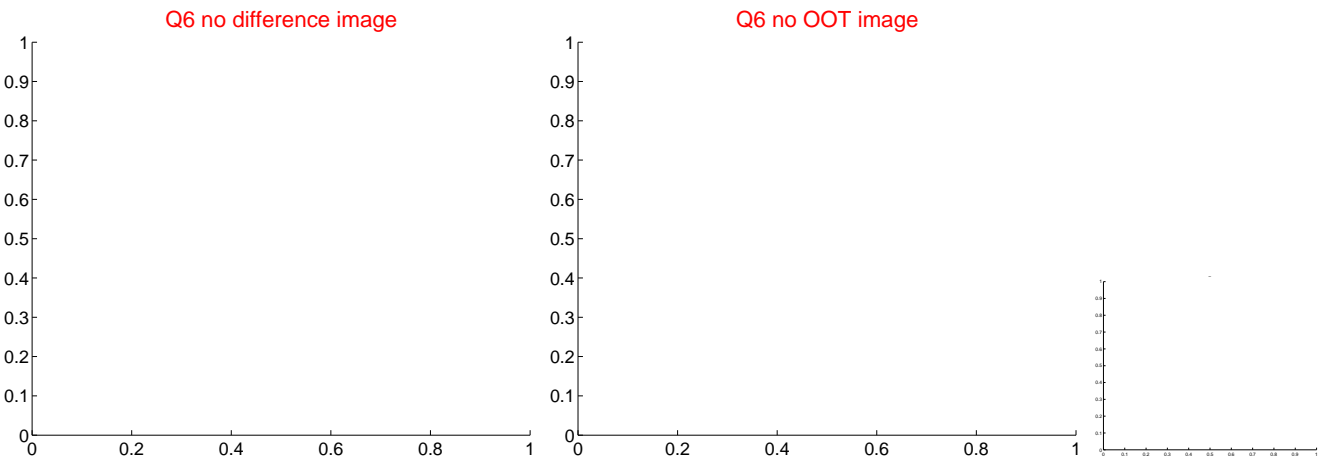
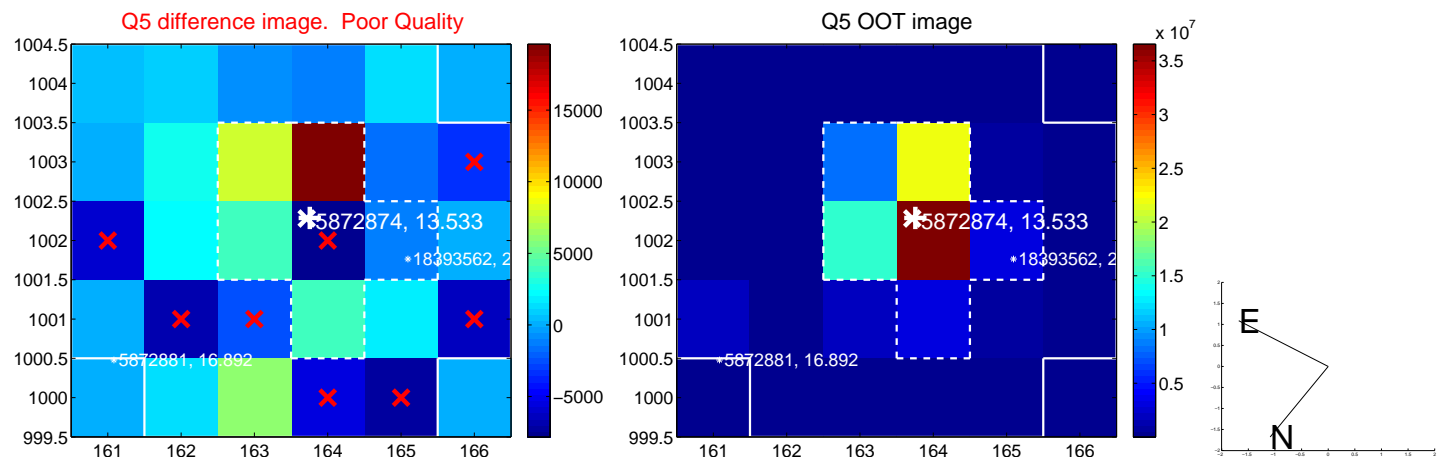
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



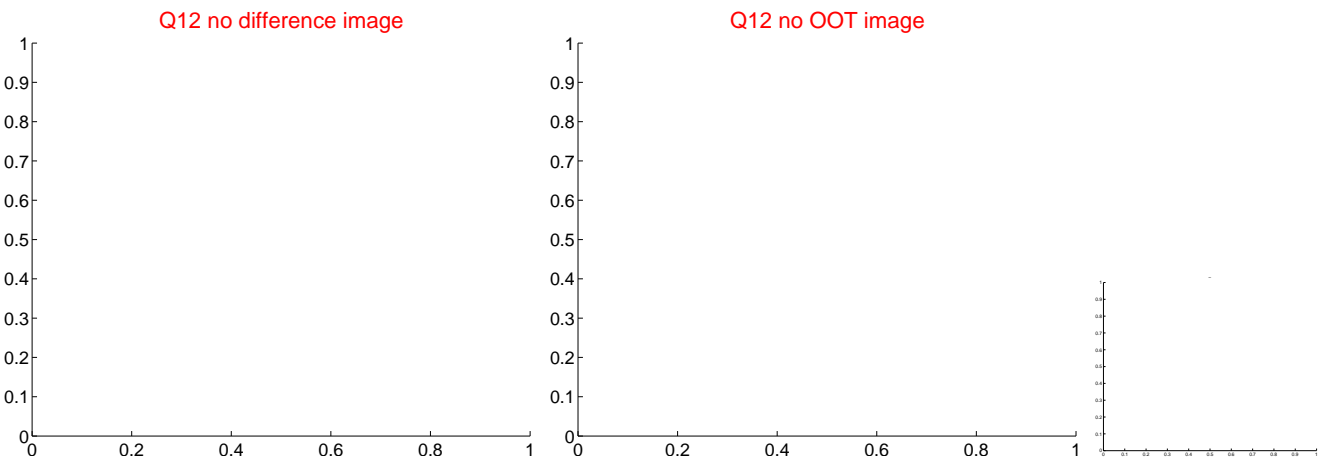
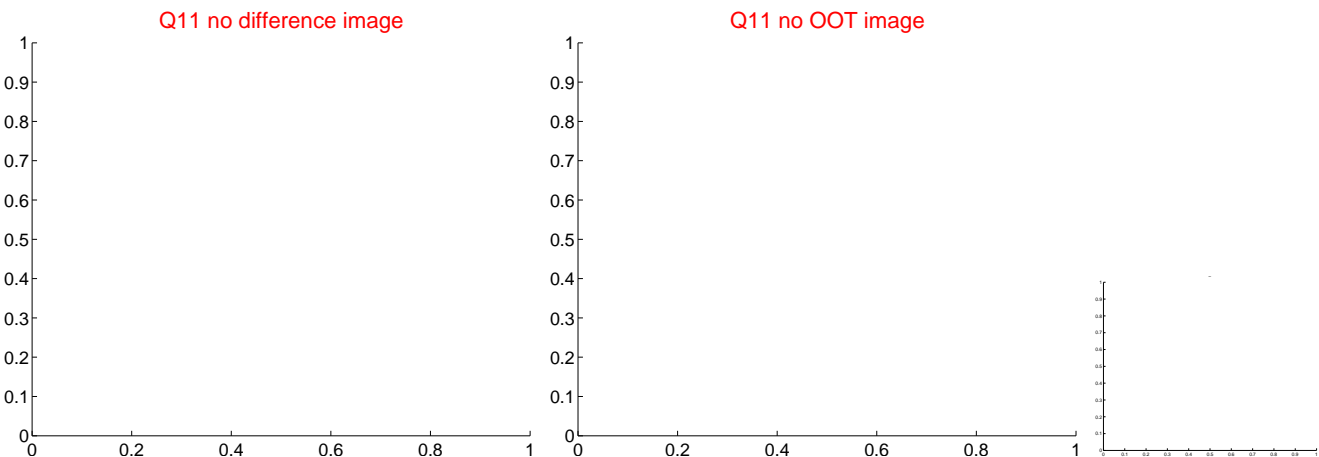
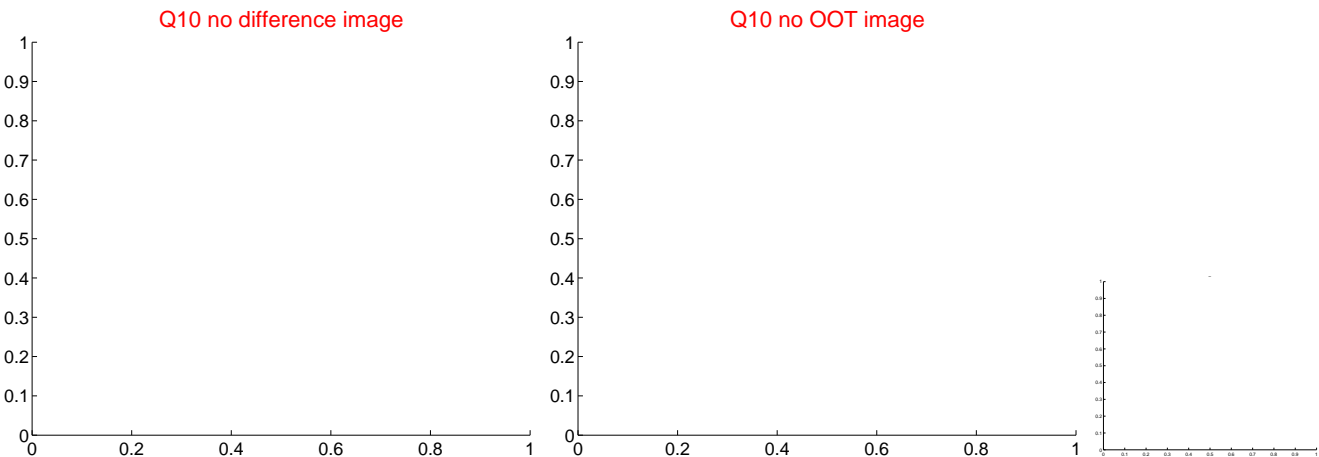
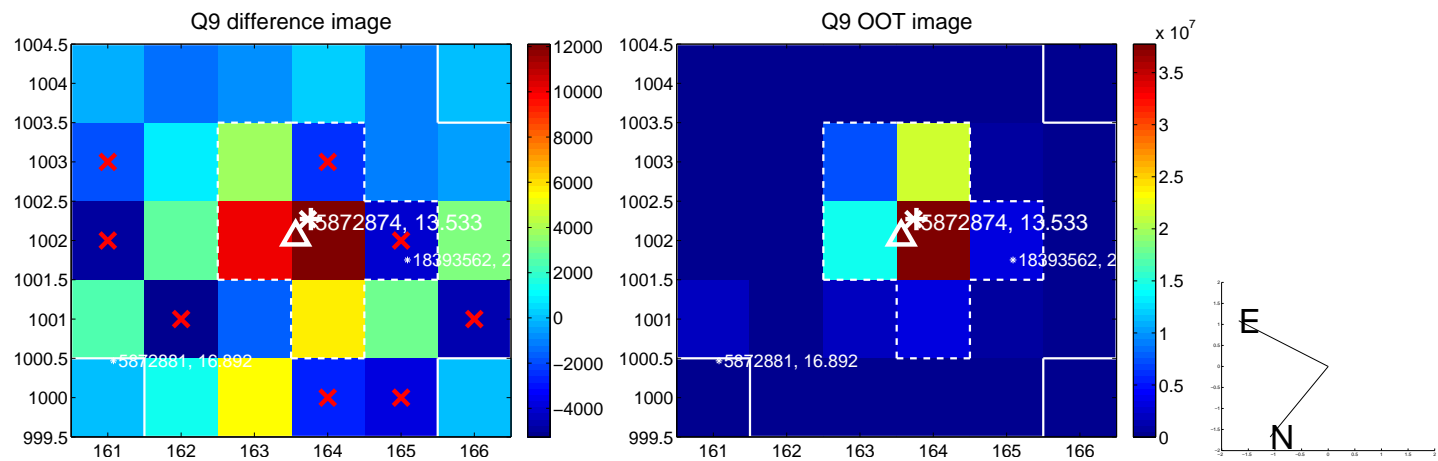
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



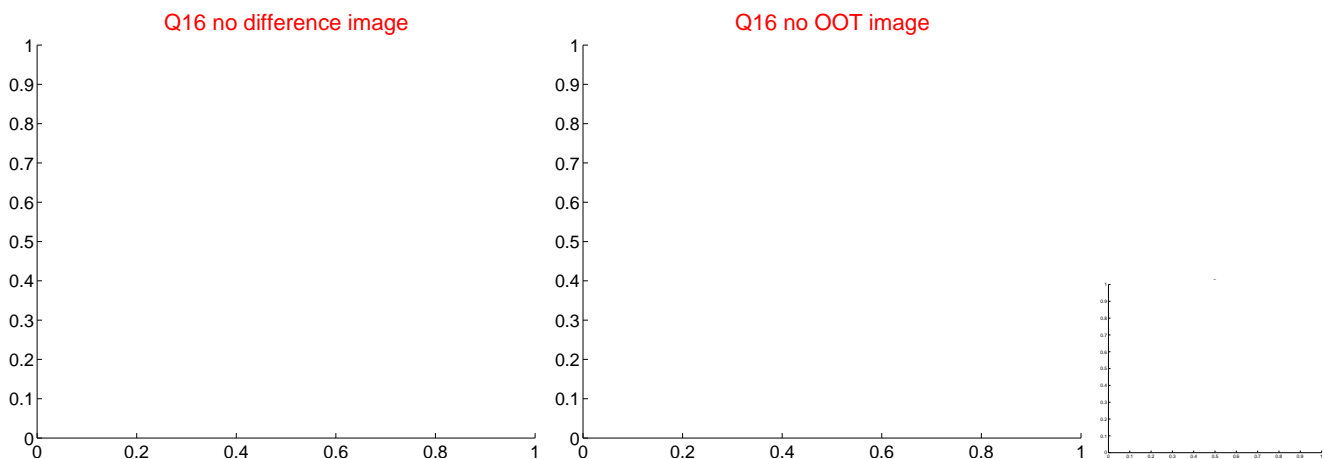
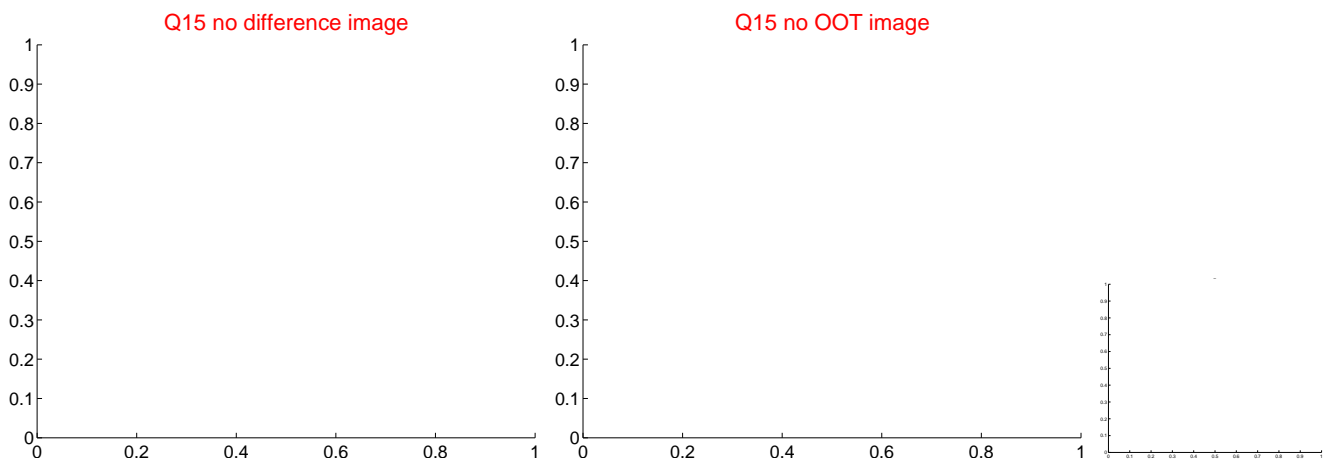
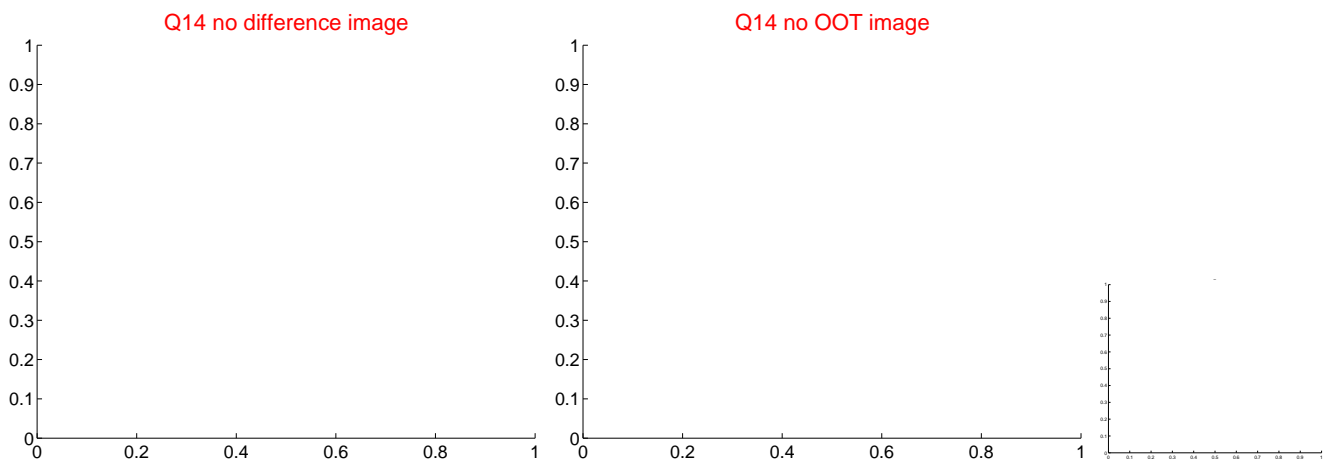
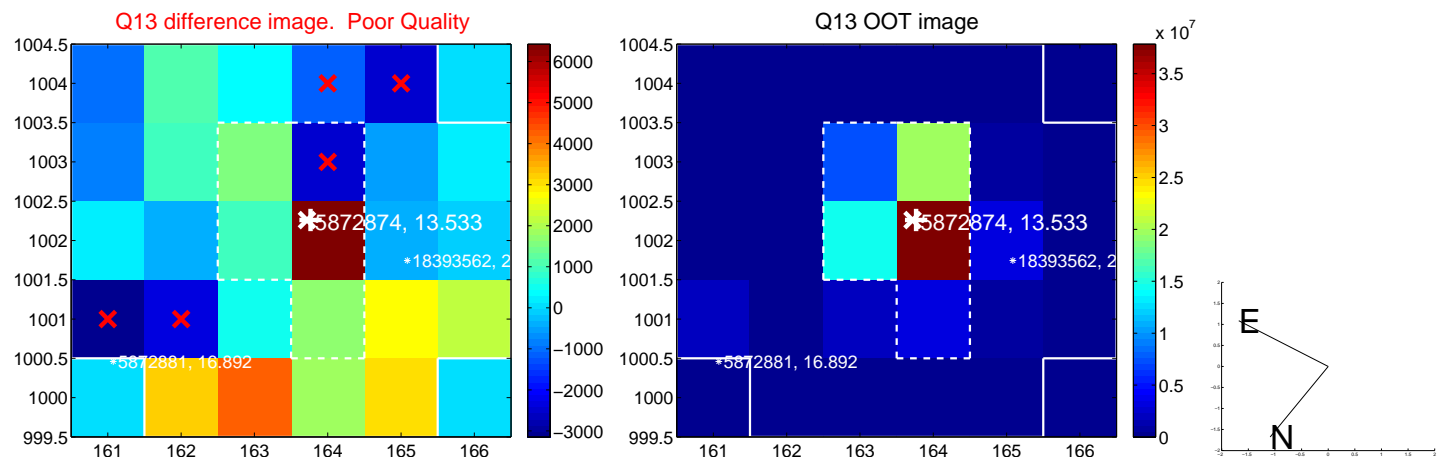
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



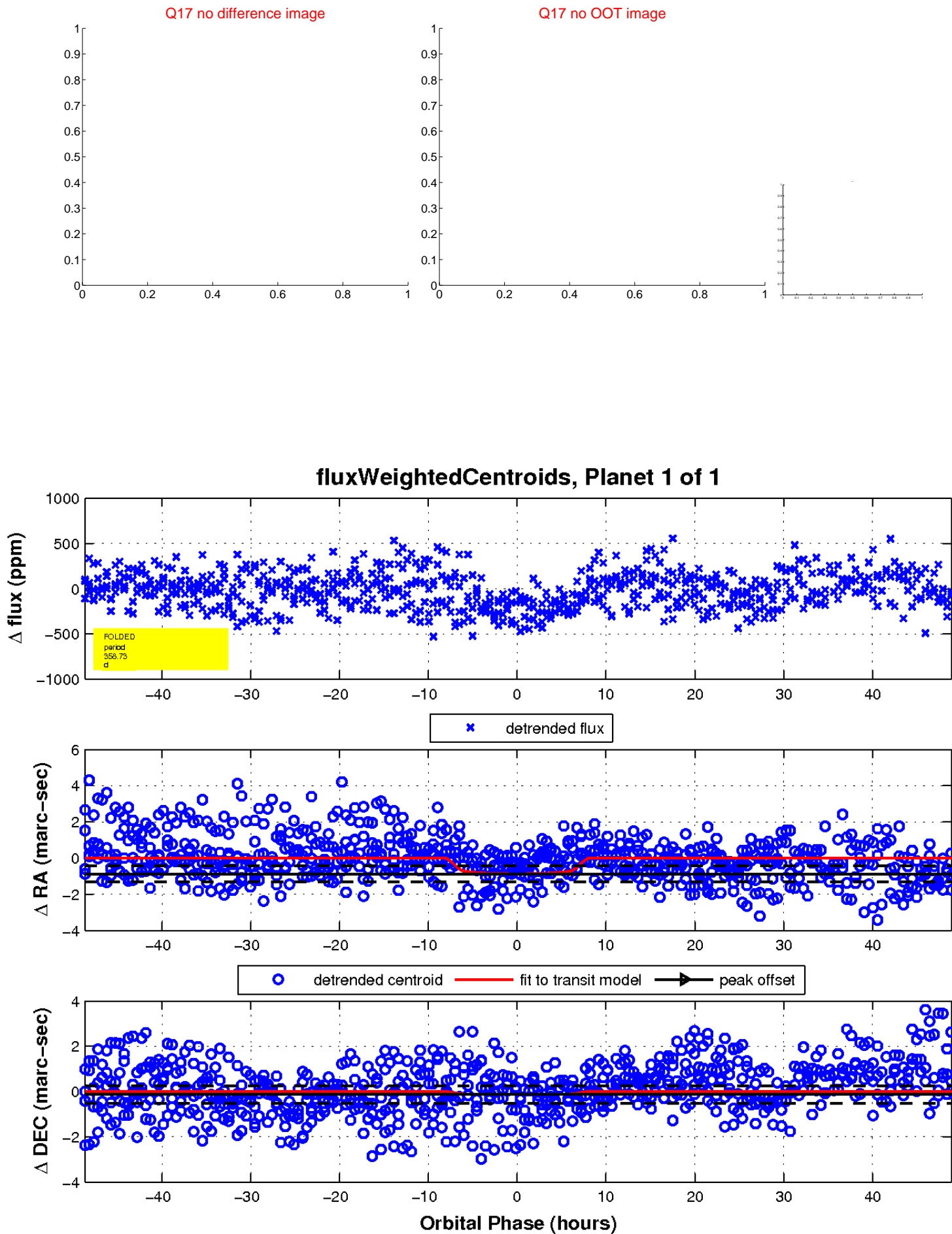
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: 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

