

# KIC 005873027

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005873027-01	OBS	No	359.731027	158.382882	911.7	15.956	8.0	6.9	0.95	5776	2.86	0.88

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005873027-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

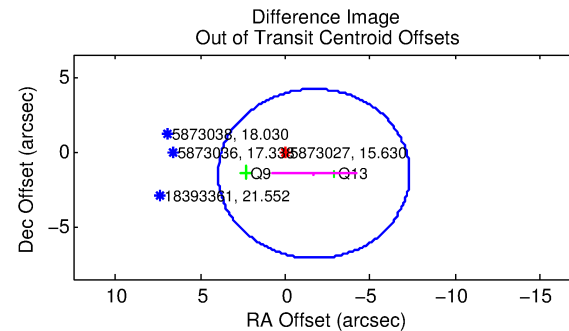
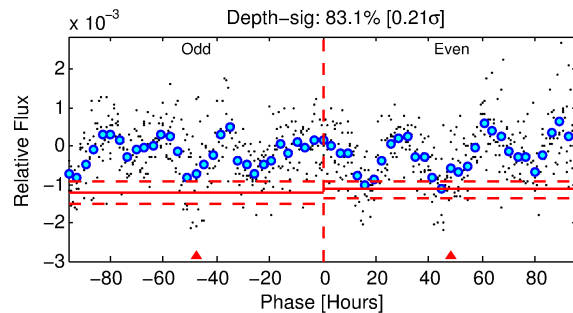
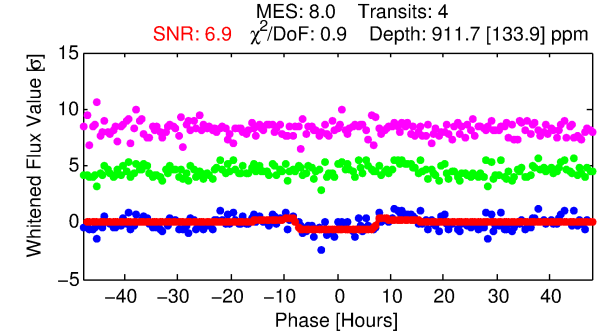
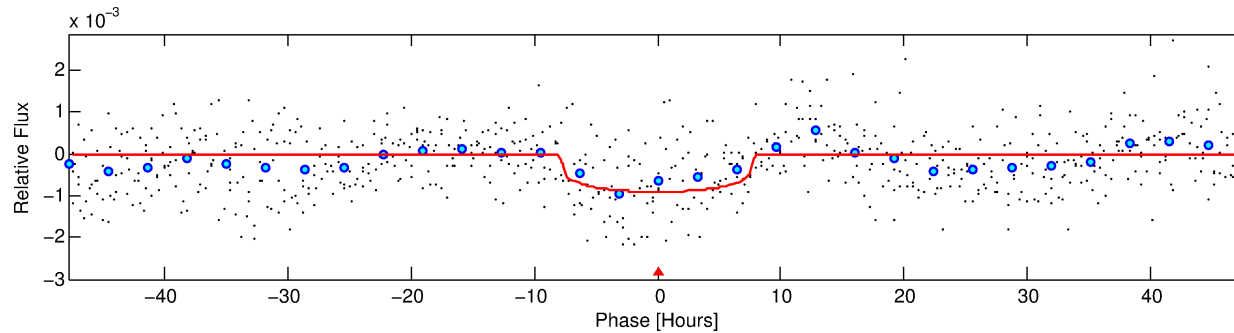
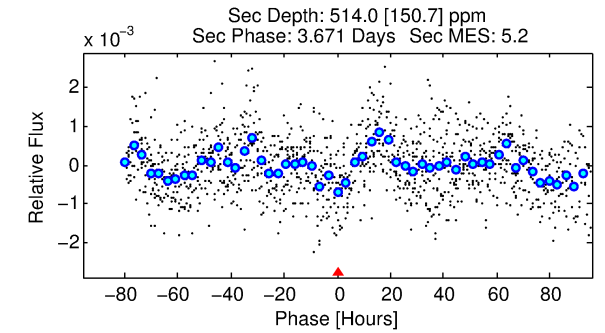
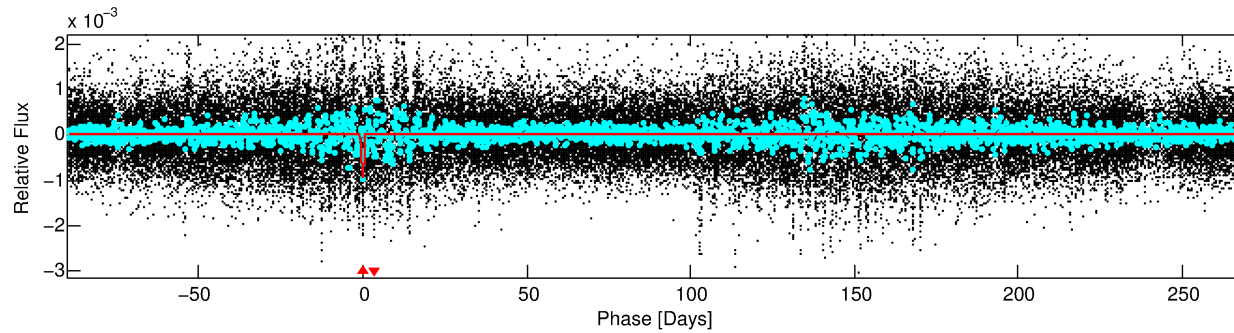
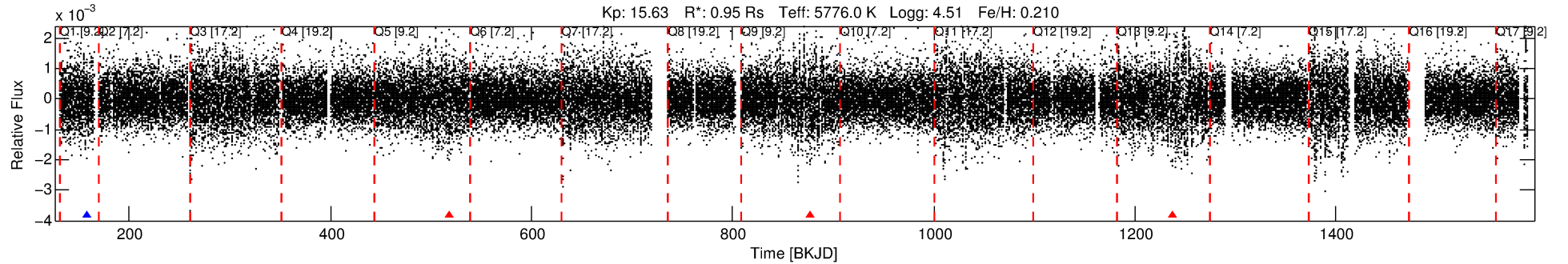
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005873027-01

No Significant Match Found

# DV One-Page Summary

KIC: 5873027 Candidate: 1 of 1 Period: 359.731 d



## DV Fit Results:

Period = 359.73103 [0.00897] d  
Epoch = 158.3829 [0.0181] BKJD  
Rp/R\* = 0.0276 [0.0154]  
a/R\* = 168.50 [392.15]  
b = 0.31 [6.71]  
Seff = 0.88 [0.31]  
Teq = 247 [22] K  
Rp = 2.86 [1.78] Re  
a = 1.0127 [0.2320] AU  
Ag = 35381.03 [42590.04] [0.83 $\sigma$ ]  
Teffp = 5233 [1521] K [3.28 $\sigma$ ]

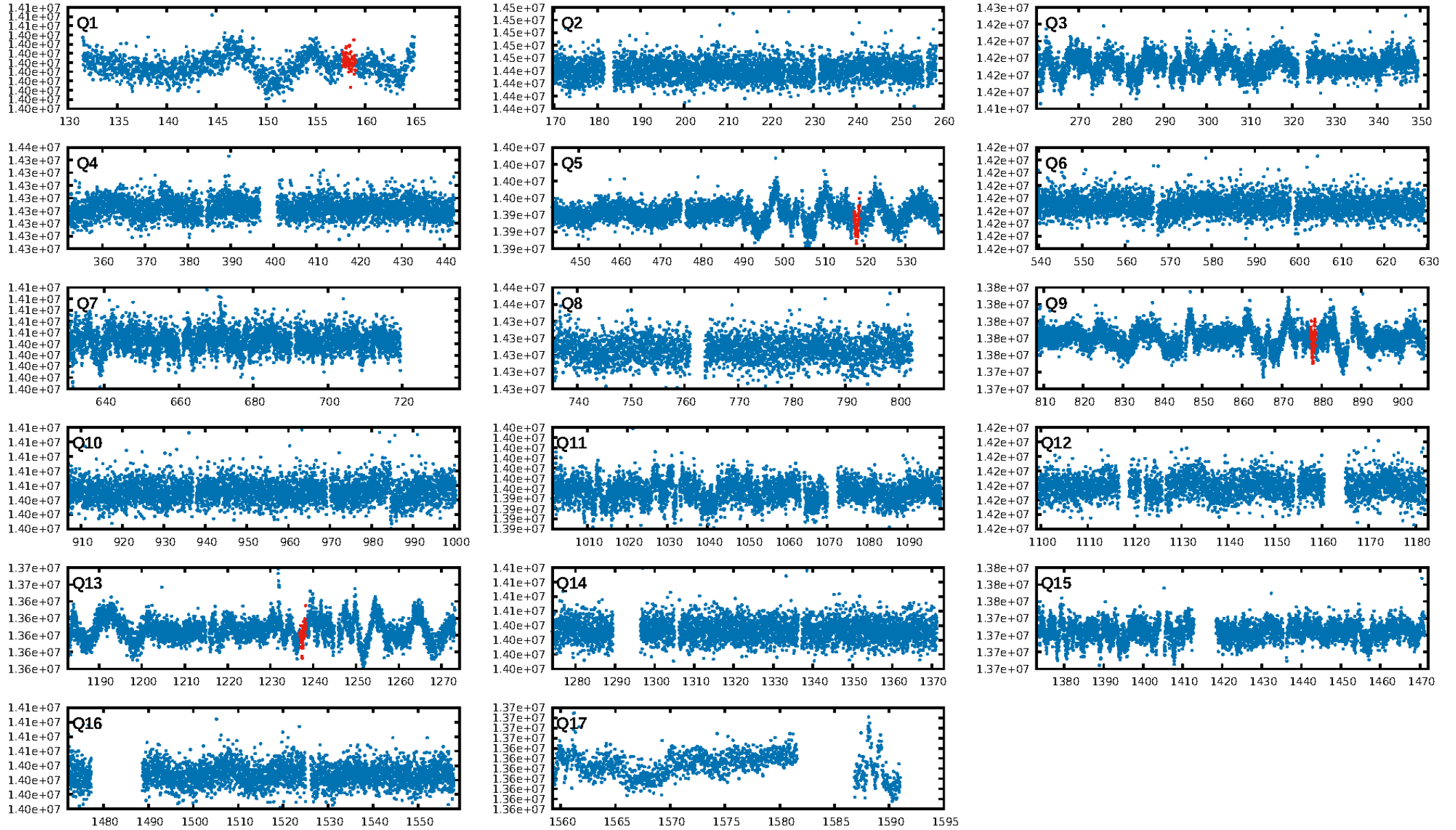
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 6.32e-09  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: -4.462  
Centroid-sig: 8.5%  
Centroid-so: 3.565 arcsec [1.39 $\sigma$ ]  
OotOffset-rm: 2.249 arcsec [1.19 $\sigma$ ]  
KicOffset-rm: 2.350 arcsec [1.27 $\sigma$ ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [4/4]

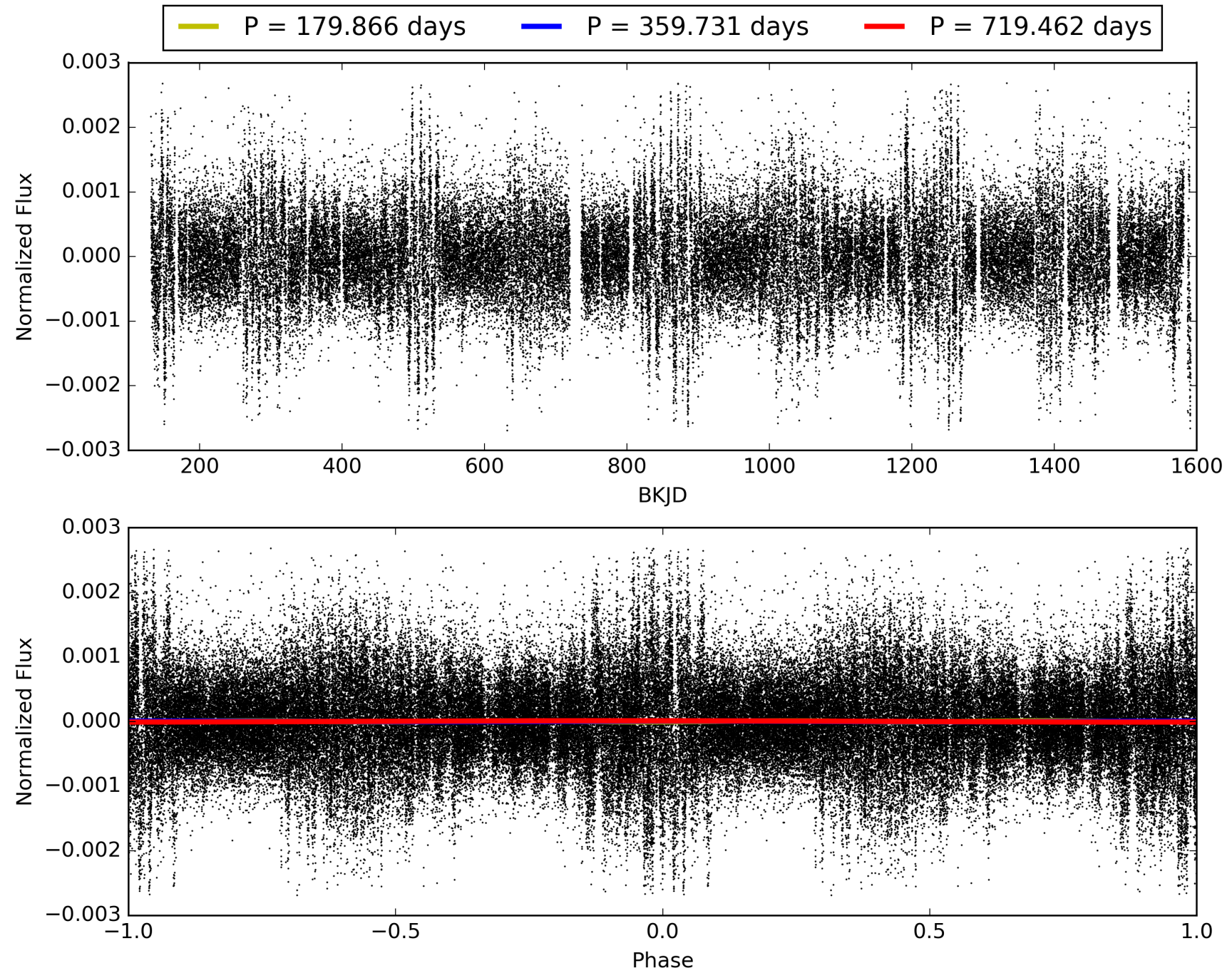
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:06:09 Z

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

# TCE 005873027-01, PDC Light Curves

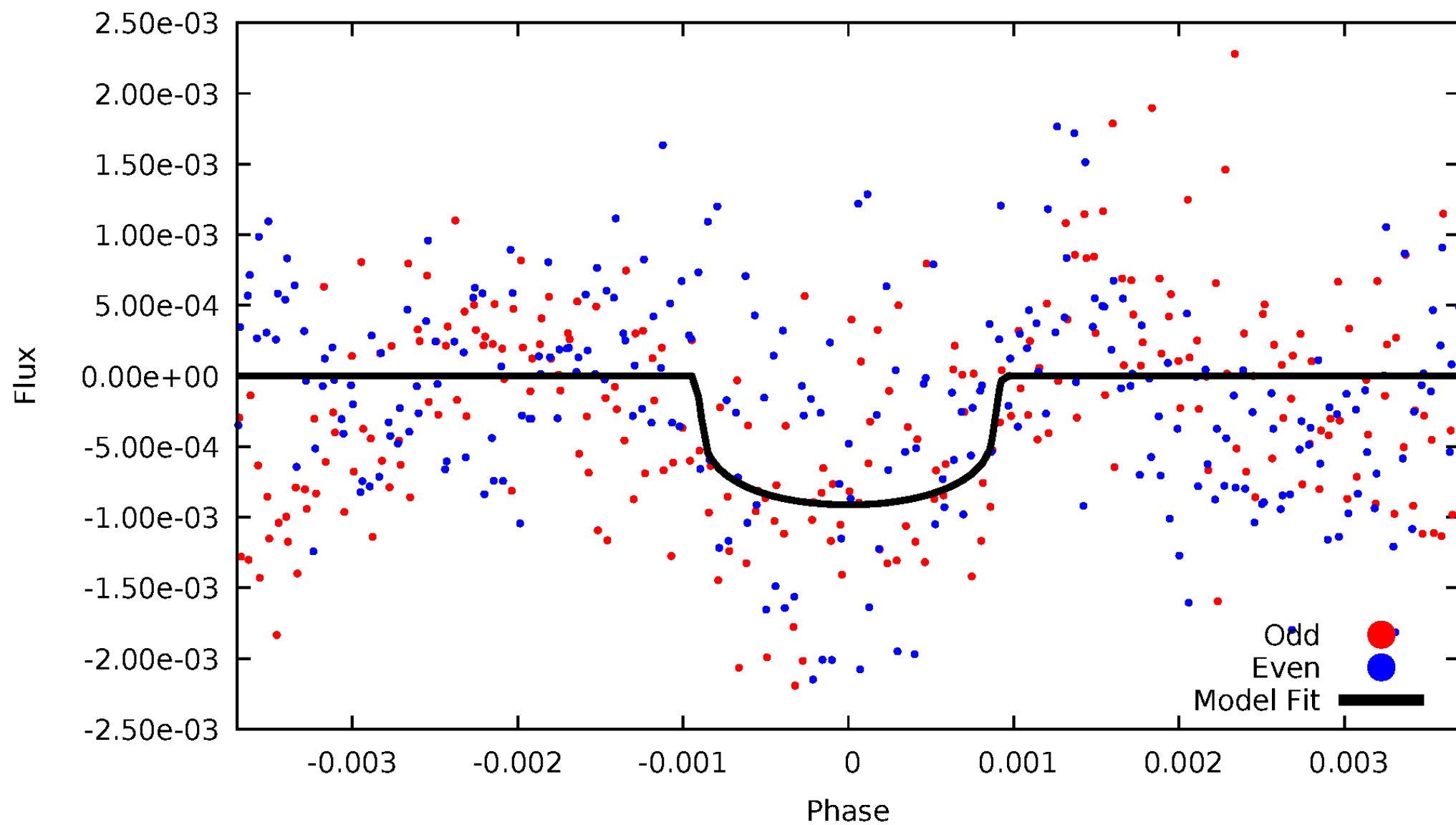


TCE 005873027-01



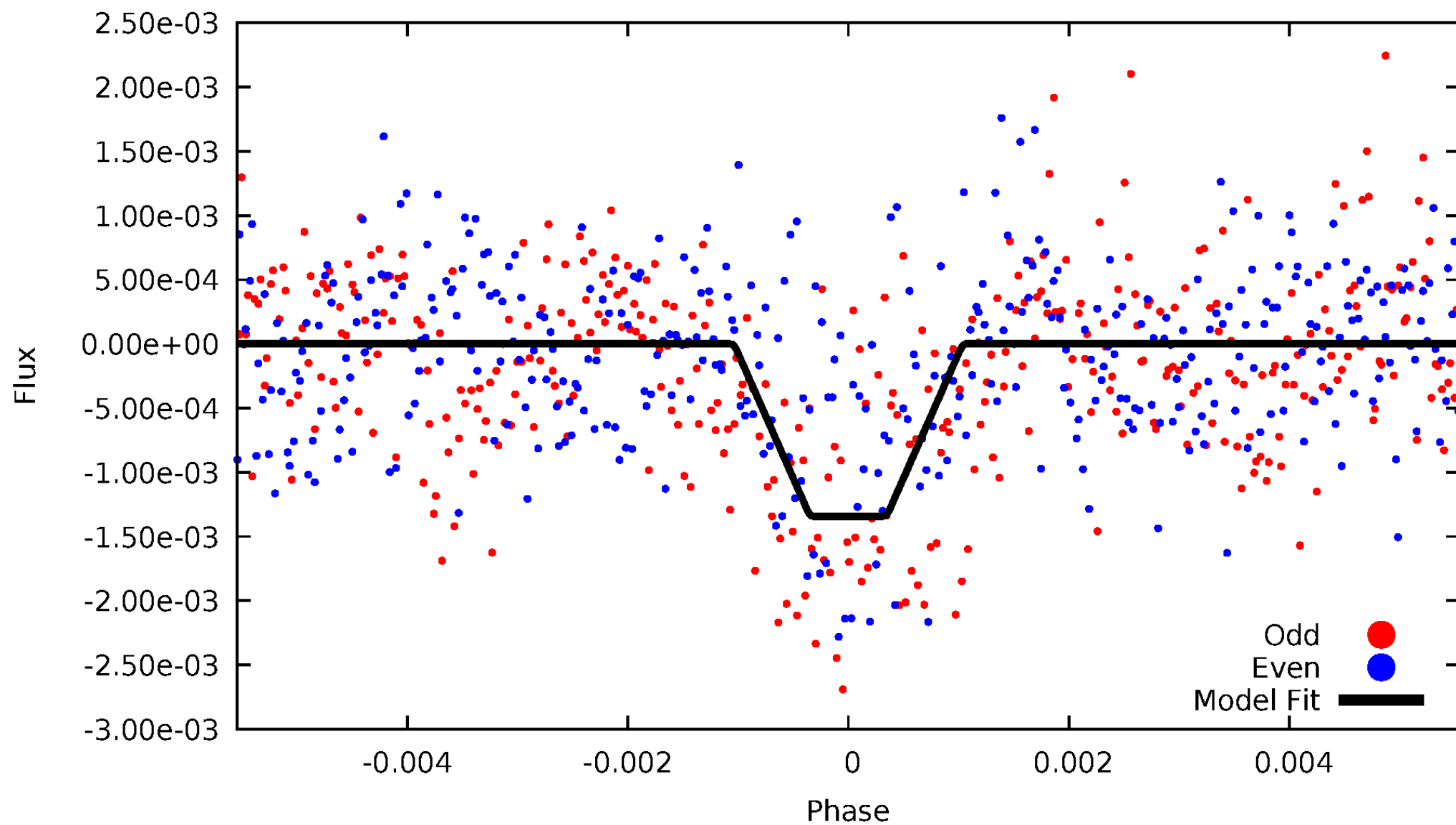
# DV Odd/Even

TCE 005873027-01



# ALT Odd/Even

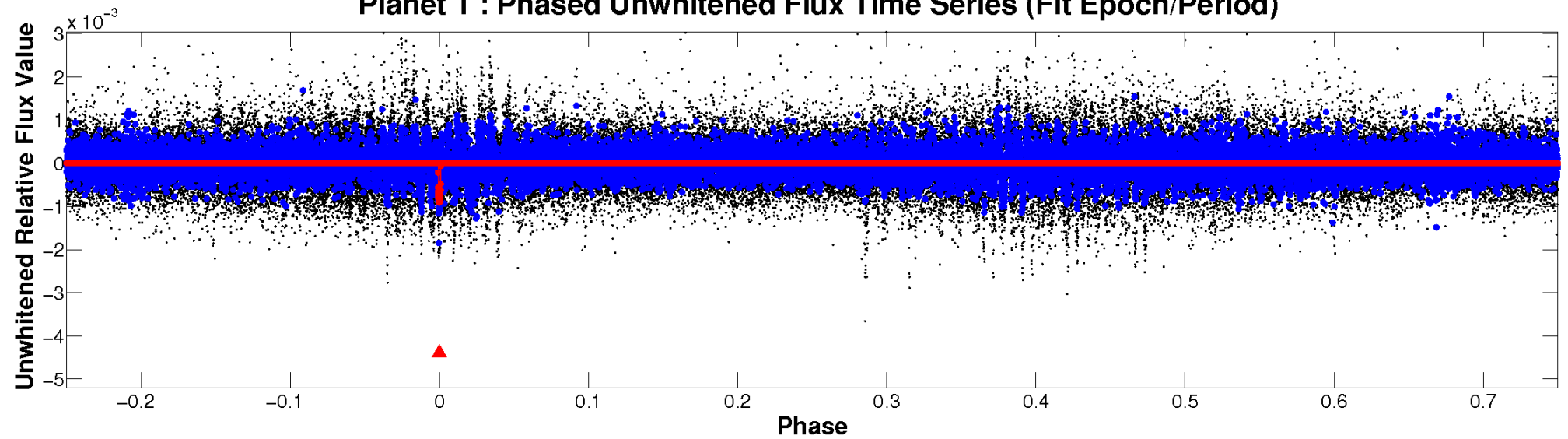
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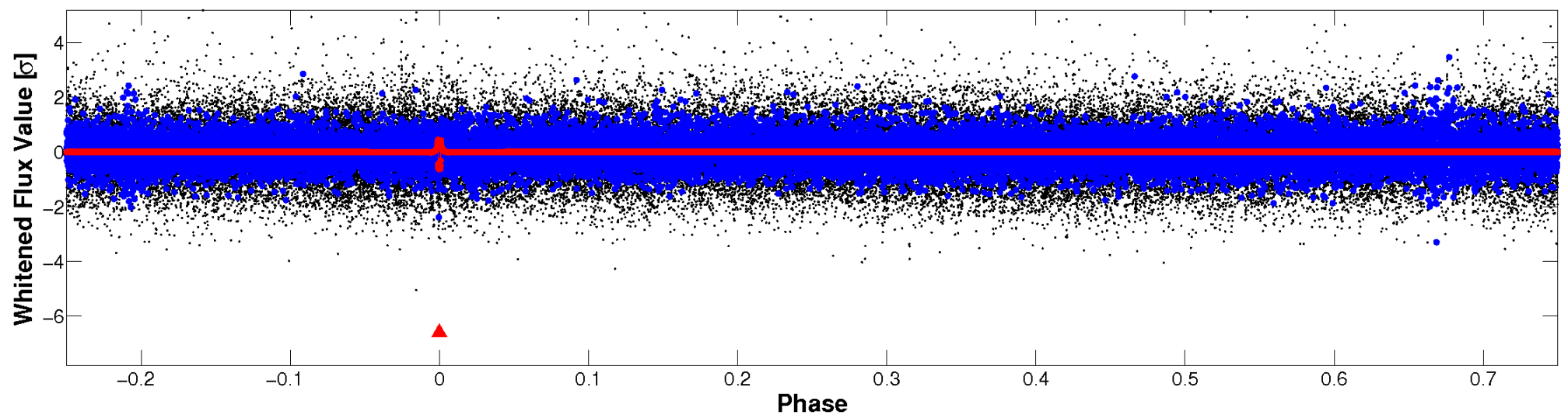


# Non-Whitened Vs. Whitened Light Curve

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

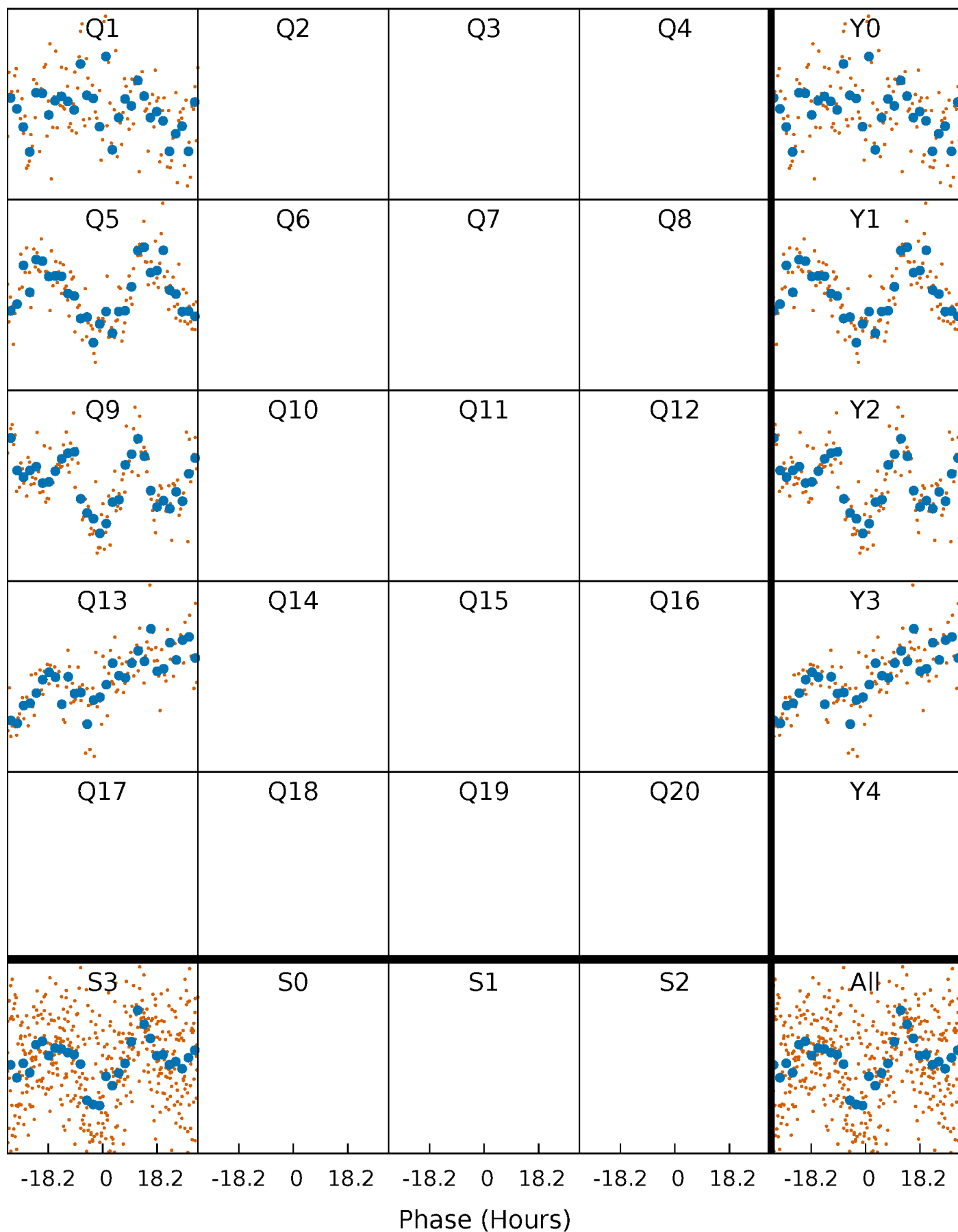


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

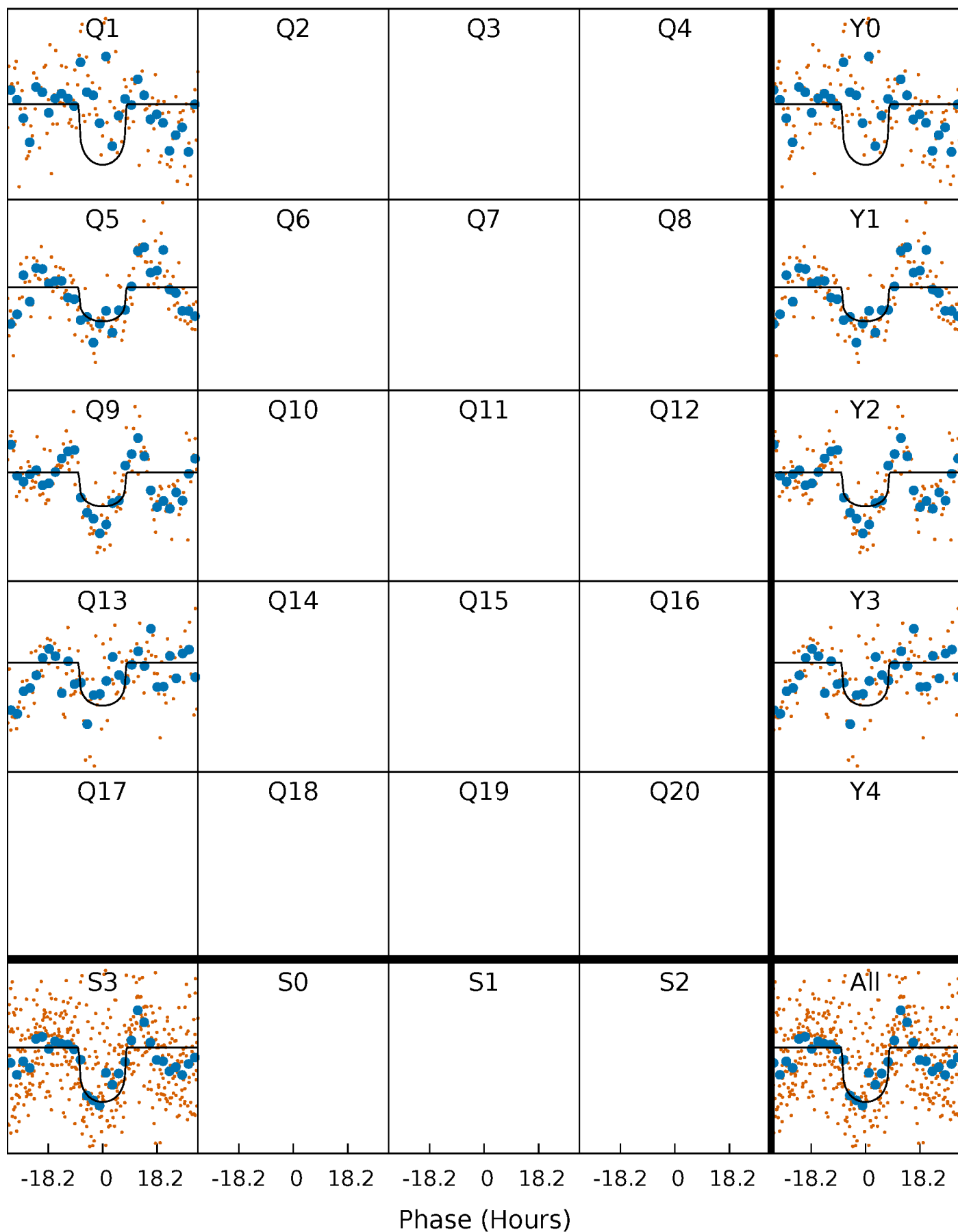
TCE 005873027-01 P=359.731027 Days  $T_0=158.382882$  (BKJD)





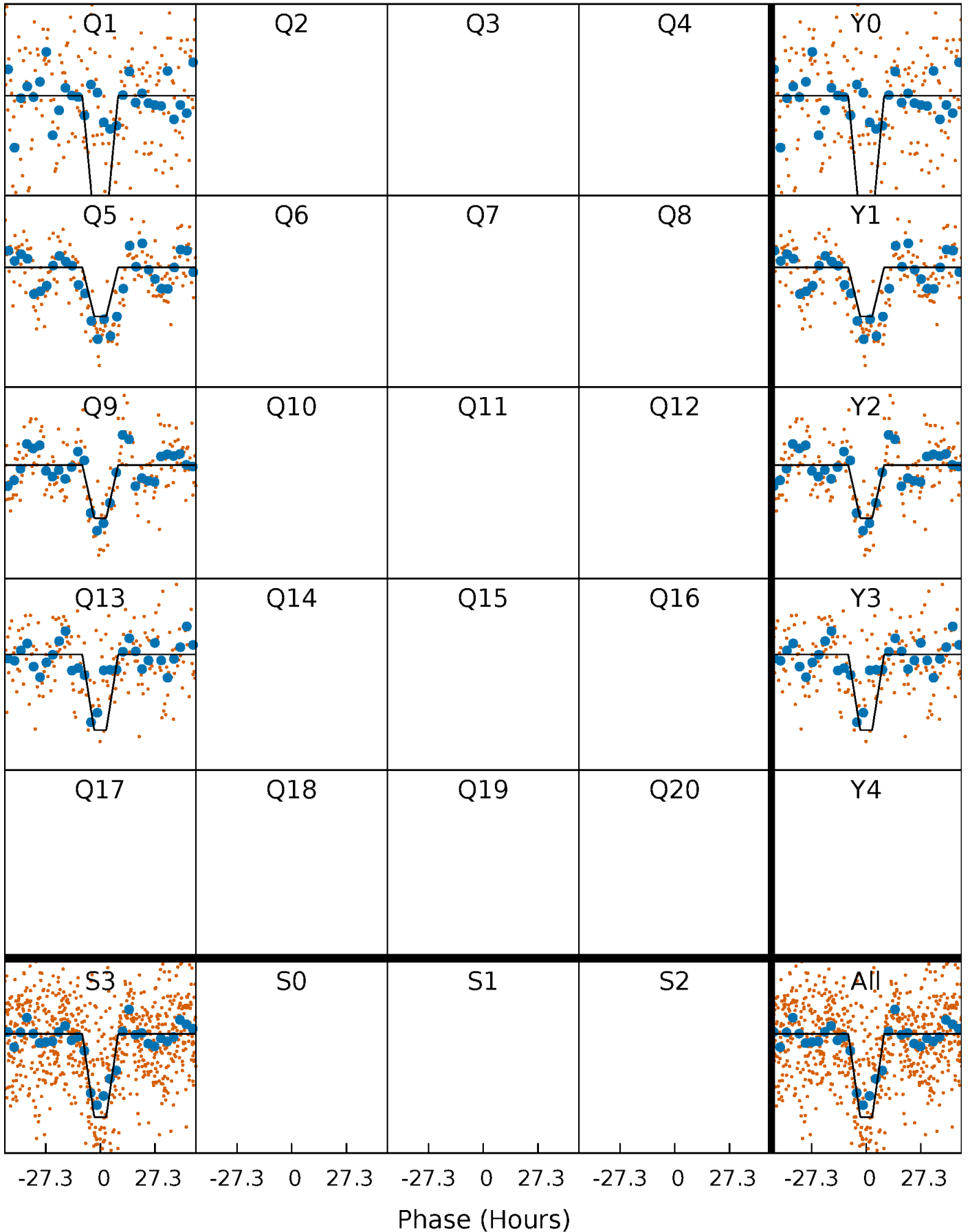
# DV Quarter-Phased Transit Curves

TCE 005873027-01 P=359.731027 Days  $T_0=158.382882$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

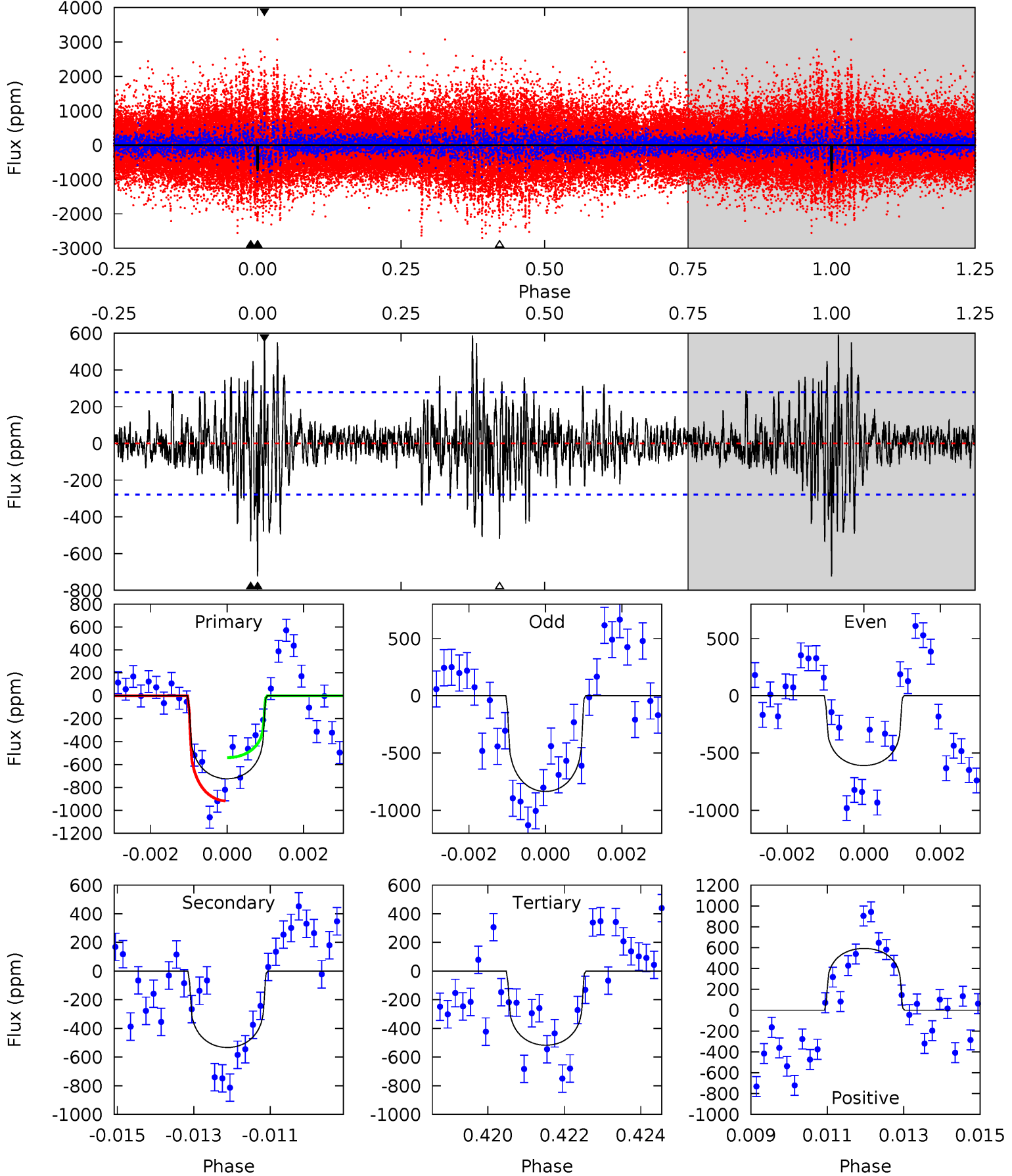
TCE 005873027-01 P=359.766880 Days  $T_0=158.265820$  (BKJD)



# DV Model-Shift Uniqueness Test

005873027-01, P = 359.731027 Days, E = 158.382882 Days

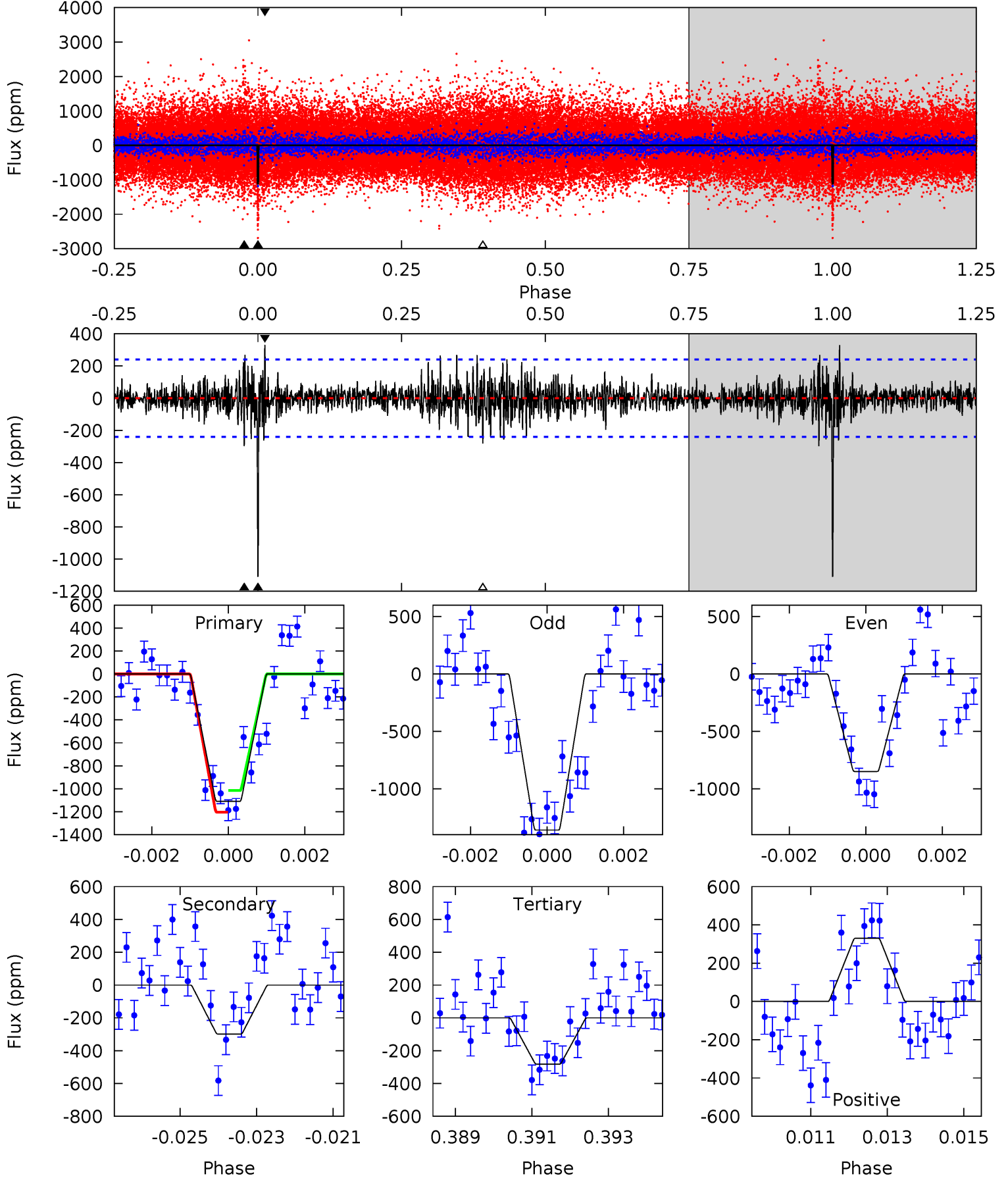
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	10.2	9.89	11.3	5.34	3.12	2.42	3.96	2.52	0.30	-1.14	2.15	0.86	0.45	3.63



# Alt Model-Shift Uniqueness Test

005873027-01, P = 359.766880 Days, E = 158.265820 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
24.6	6.61	6.24	7.32	5.32	3.08	1.45	18.3	17.3	0.37	-0.71	5.66	0.94	0.23	2.09



### Stellar Parameters For KIC 005873027

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5776^{+156}_{-174}$	$4.512^{+0.035}_{-0.184}$	$0.210^{+0.200}_{-0.300}$	$0.950^{+0.257}_{-0.086}$	$1.068^{+0.091}_{-0.125}$	$1.757^{+0.306}_{-0.830}$
	+3%/-3%	+1%/-4%	+95%/-143%	+27%/-9%	+9%/-12%	+17%/-47%
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 005873027-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-533 \pm 52$	$2.96^{+1.74}_{-1.56}$	$353^{+23}_{-15}$	$5340^{+2410}_{-901}$	$32188^{+113578}_{-18817}$
Alt.	$-298 \pm 45$	$3.85^{+1.96}_{-1.67}$	$352^{+22}_{-15}$	$4247^{+1079}_{-528}$	$10838^{+21735}_{-5962}$

$T_{max}$  = 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

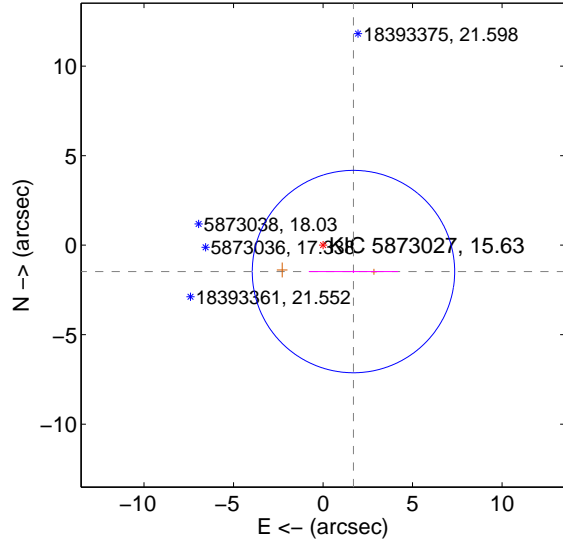
Supplemental centroid analysis for 005873027-01. Kepler magnitude: 15.63. Transit SNR 6.89

There are 0 quarters with good PRF difference image offsets

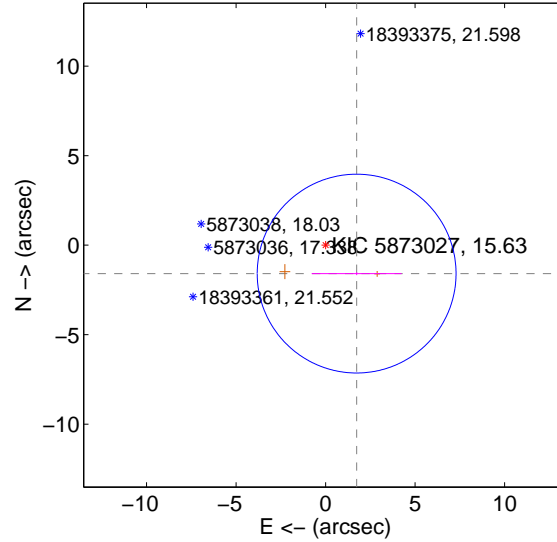
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.249 \pm 1.884$	1.19	$-1.699 \pm 2.493$	$-1.474 \pm 0.079$
PRF-fit source offset from KIC position	$2.350 \pm 1.850$	1.27	$-1.734 \pm 2.508$	$-1.587 \pm 0.083$
photometric centroid source offset	$3.57 \pm 2.56$	1.39	$2.71 \pm 2.74$	$-2.32 \pm 2.31$

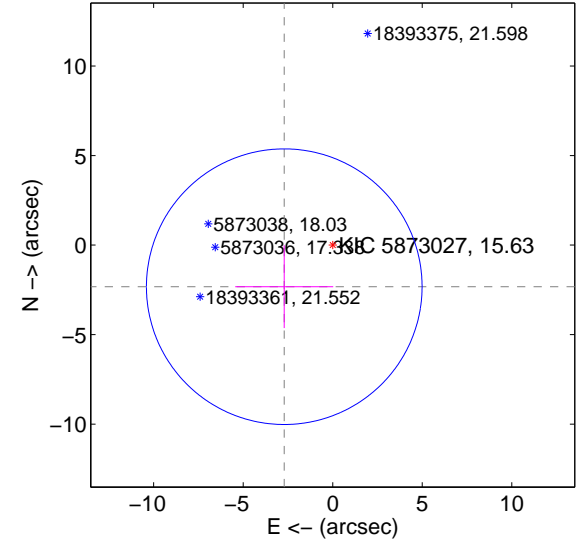
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



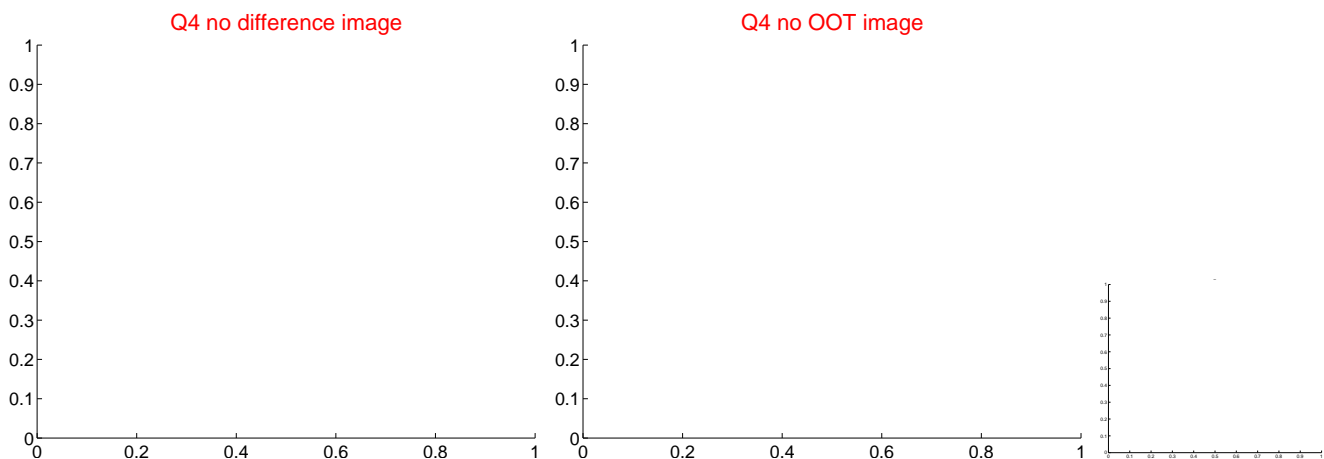
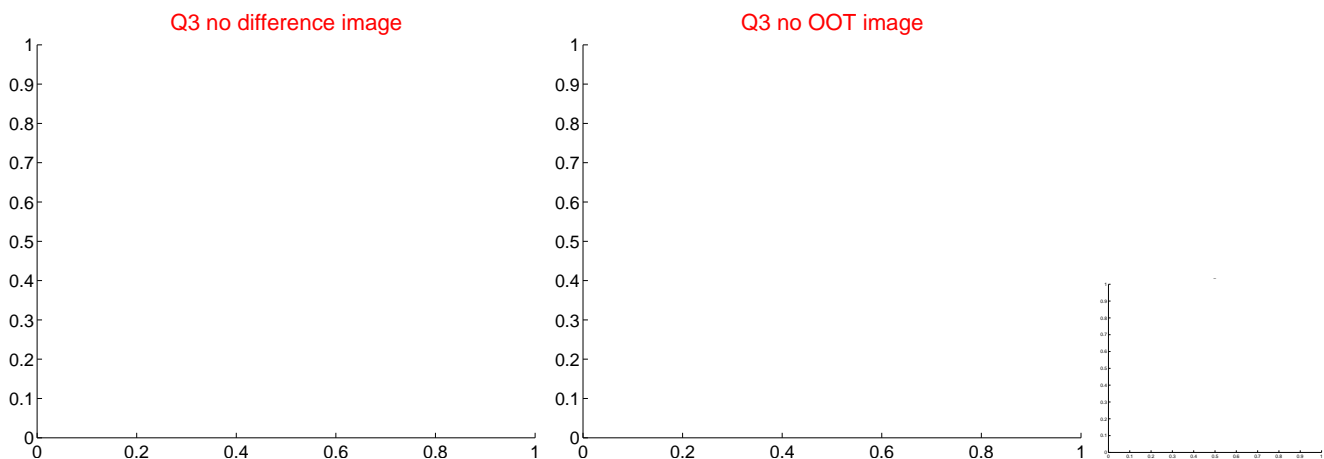
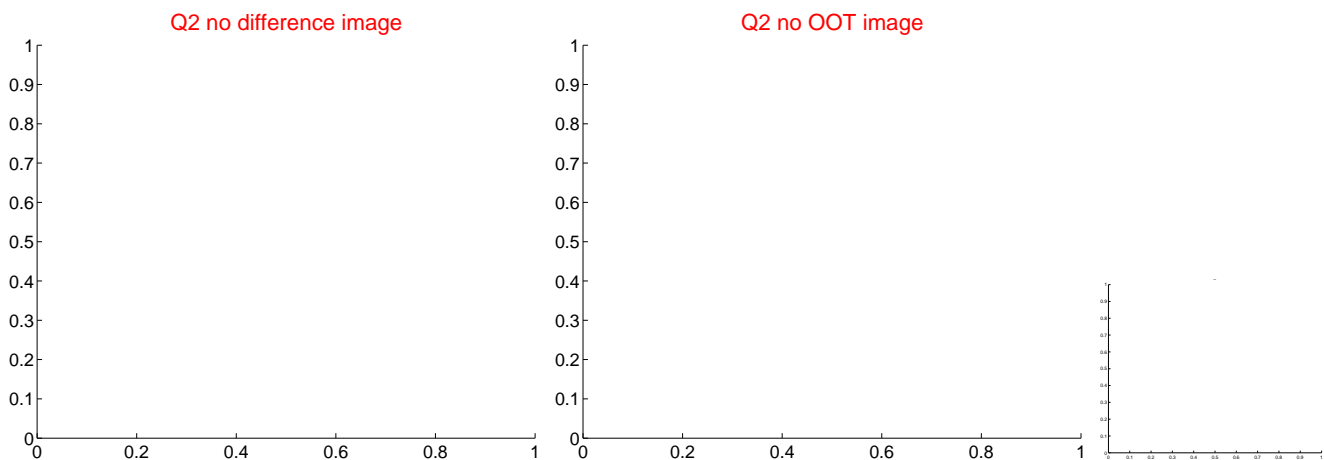
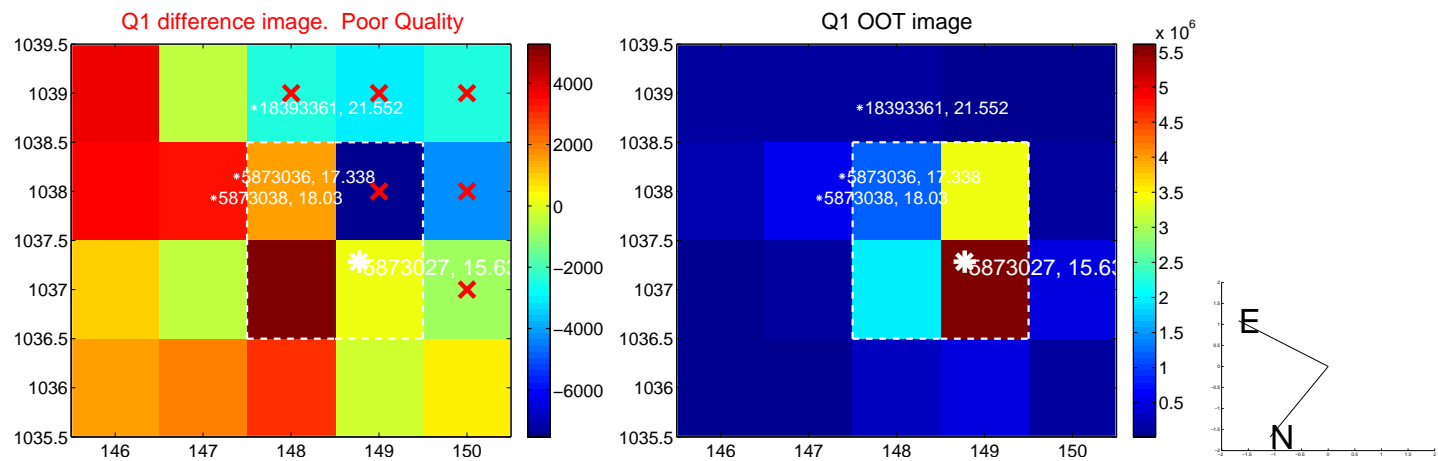
offset from photometric centroids



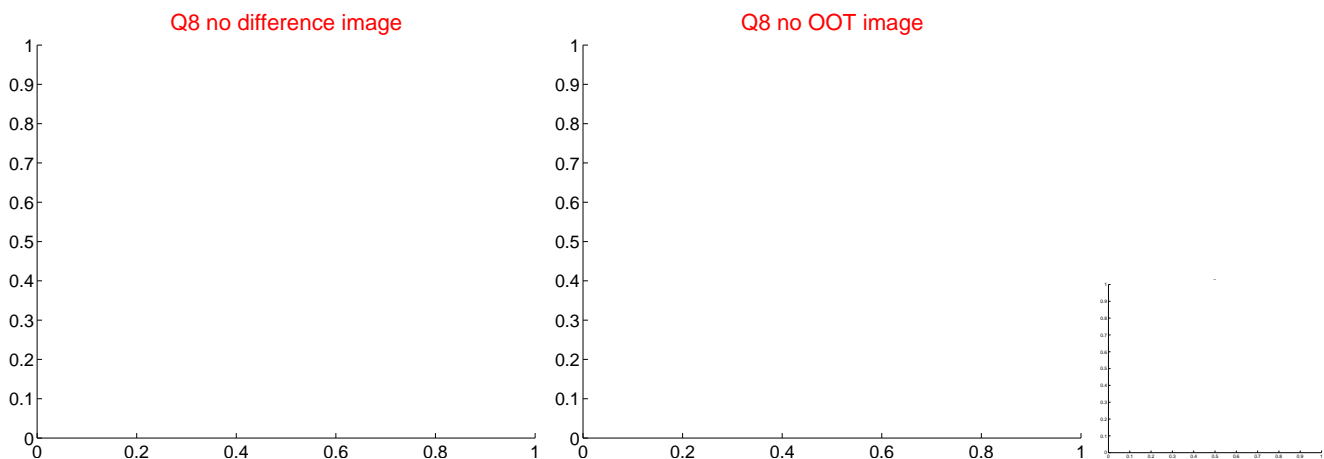
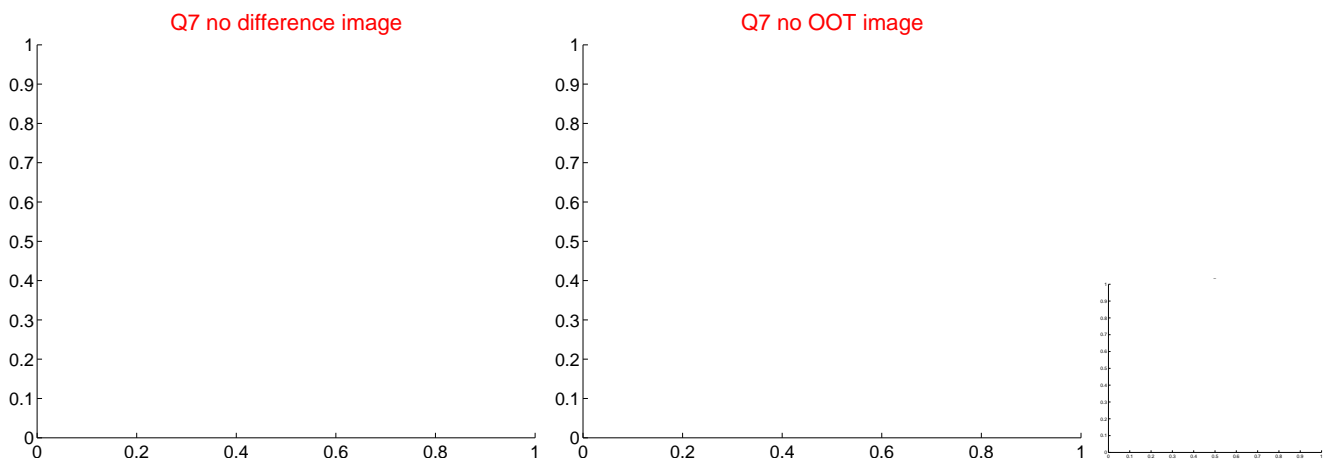
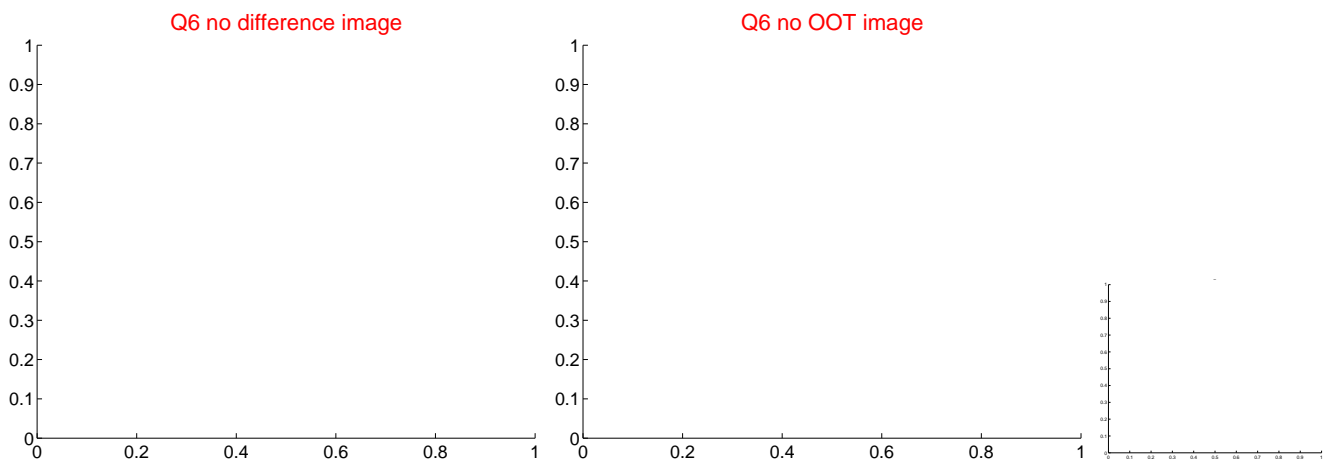
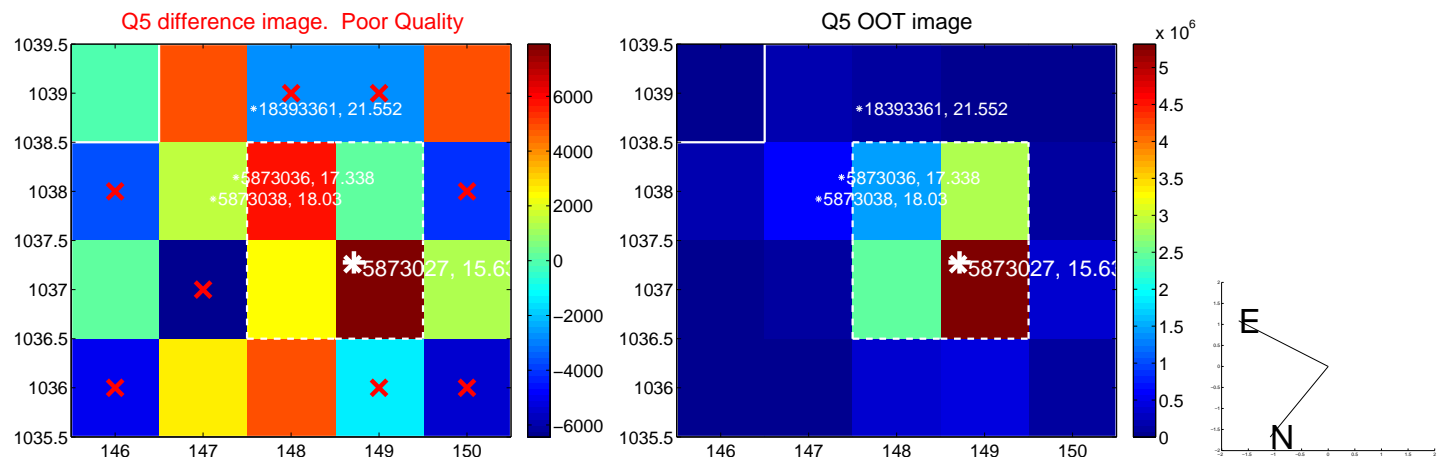
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



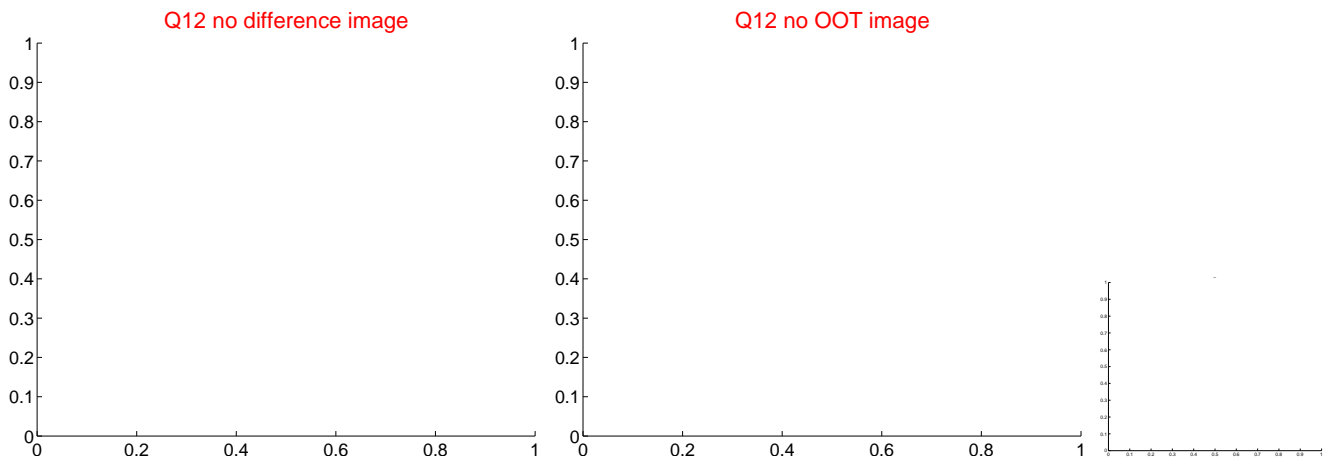
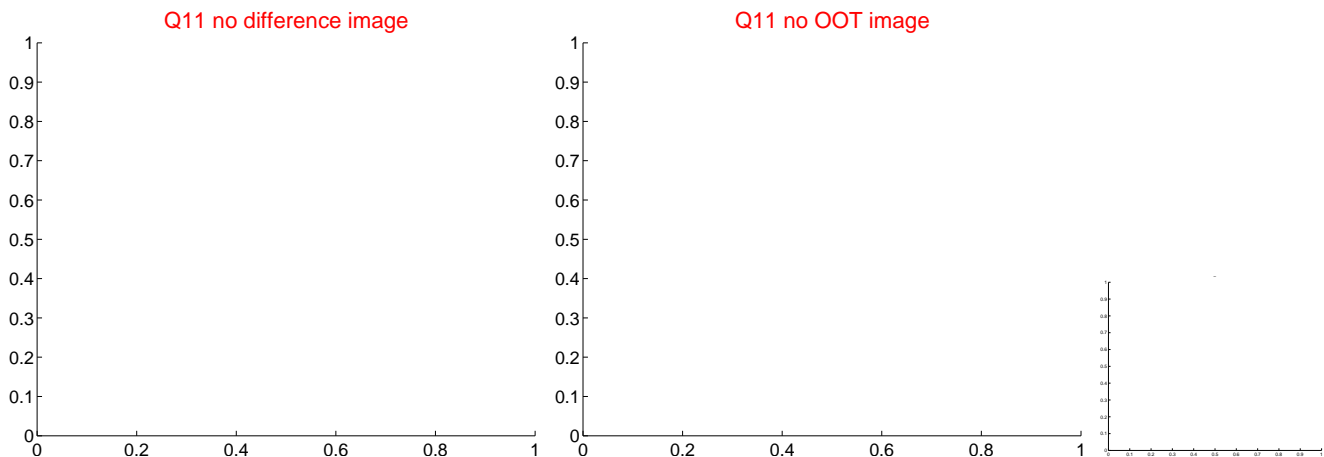
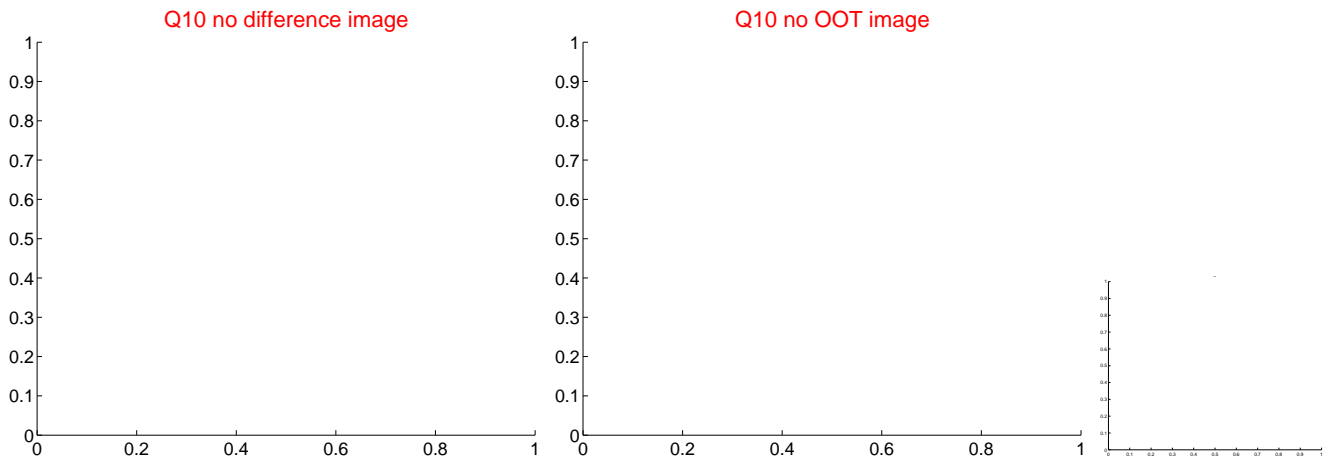
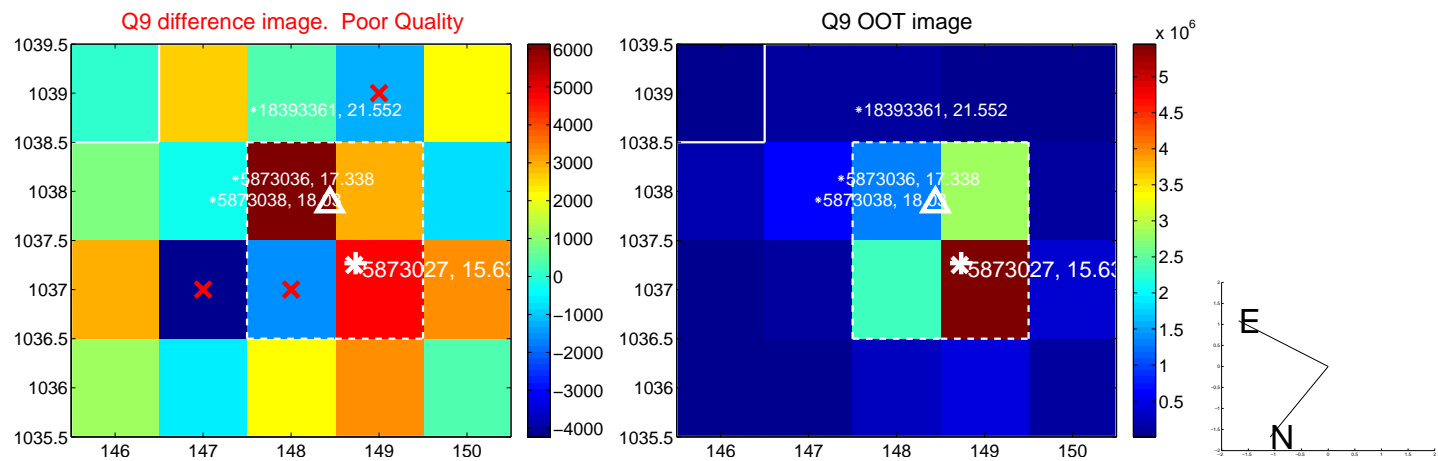
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



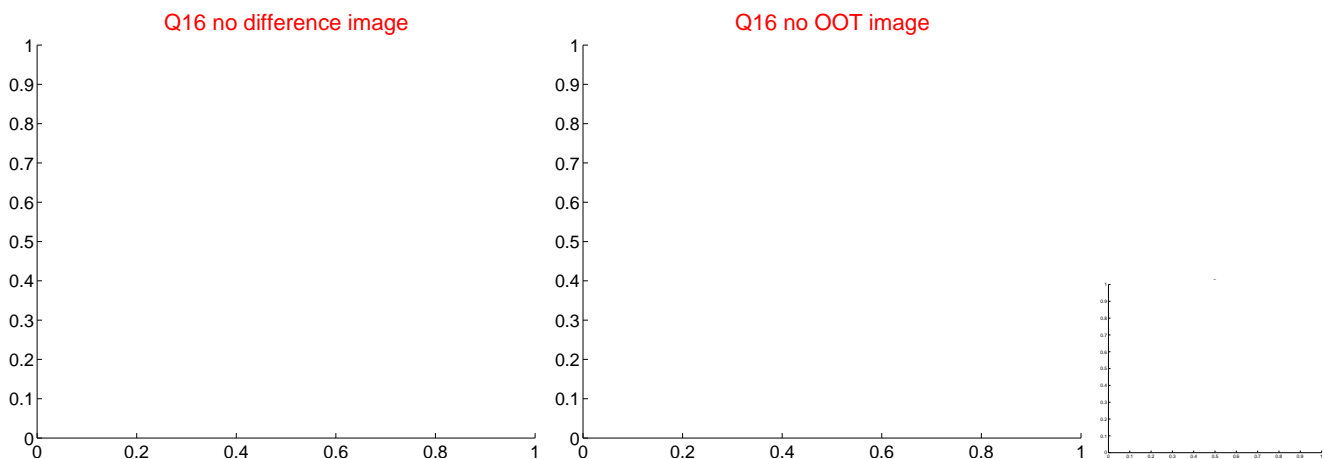
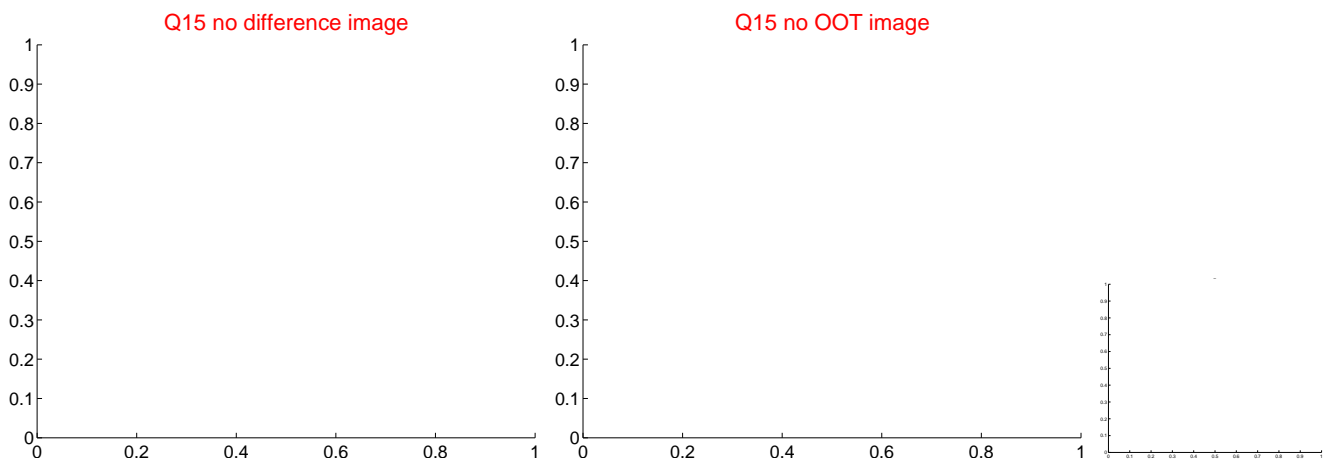
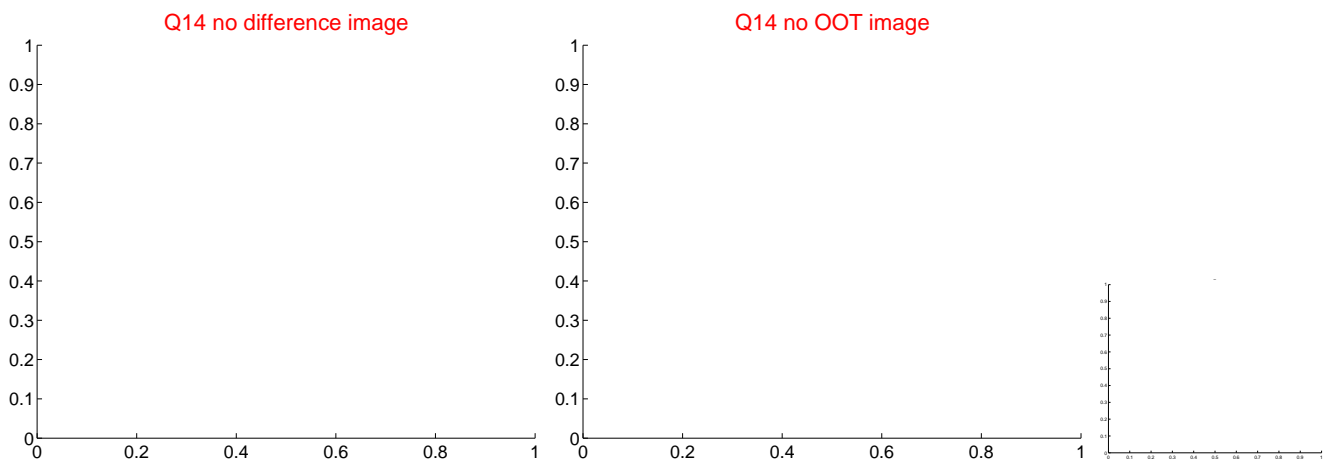
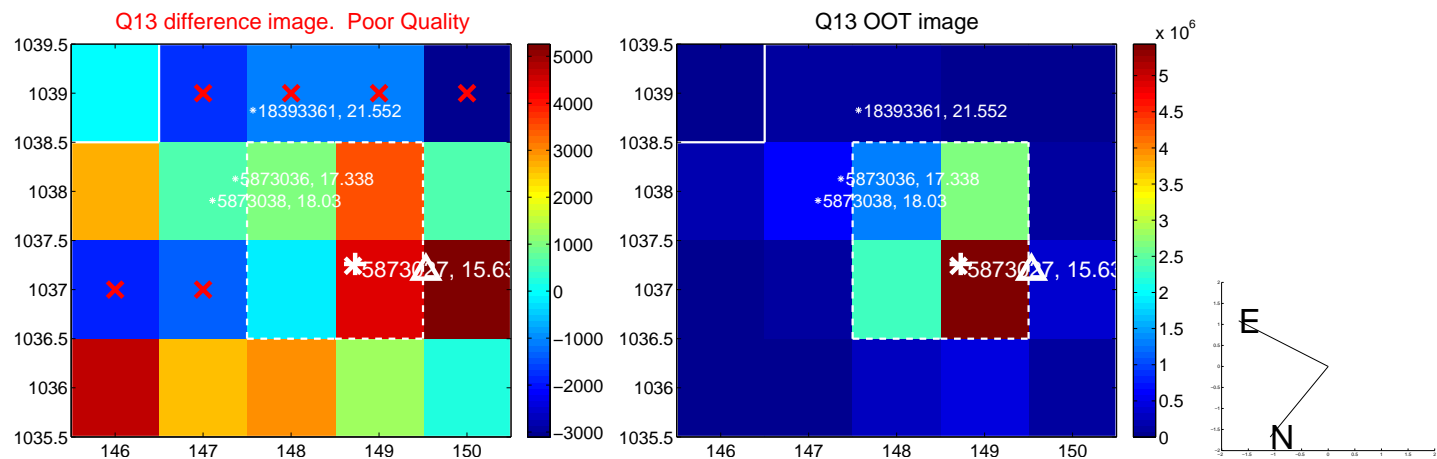
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



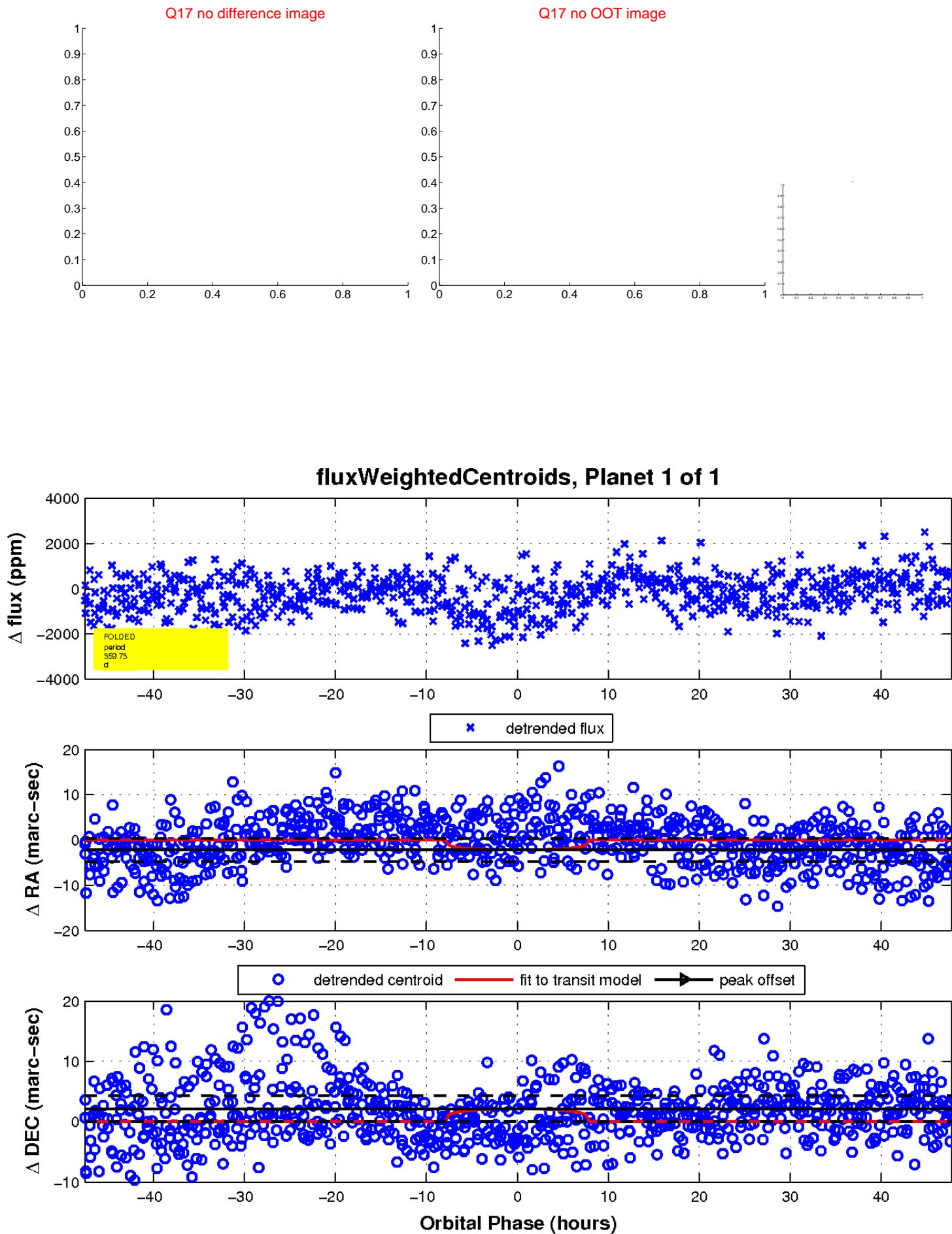
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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.



UKIRT Image

Declination

