

# KIC 008307889

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008307889-02	OBS	No	365.406921	243.688031	2239.4	18.585	10.0	9.3	0.97	5768	7.38	0.97

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008307889-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—MOD_NONUNIQ_DV—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.

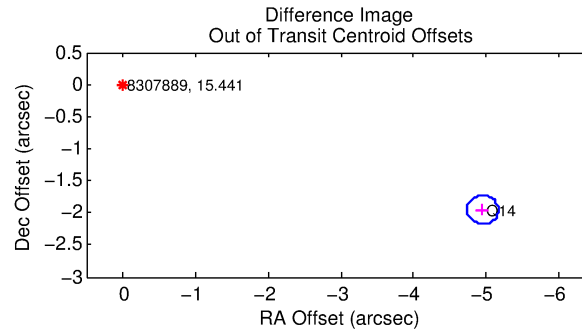
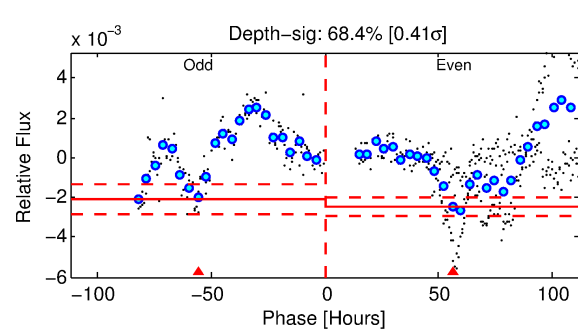
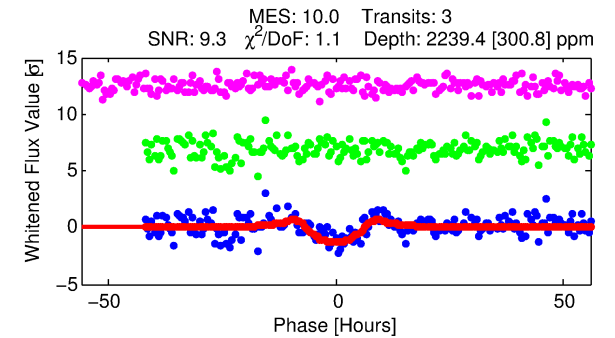
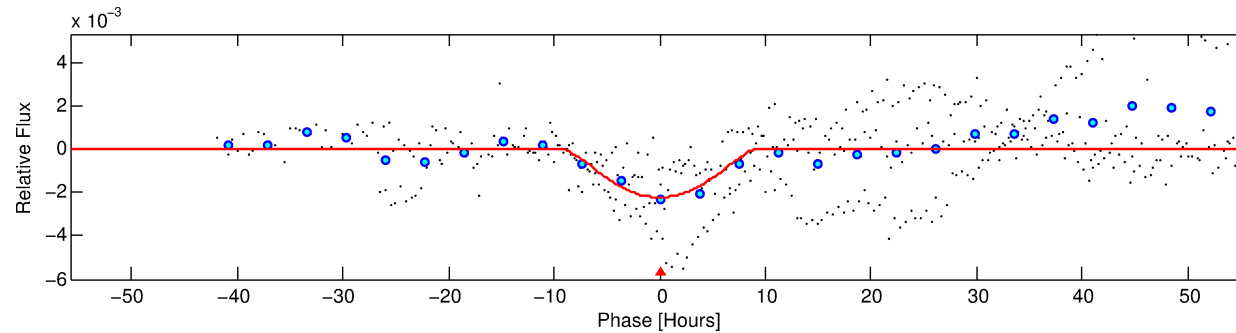
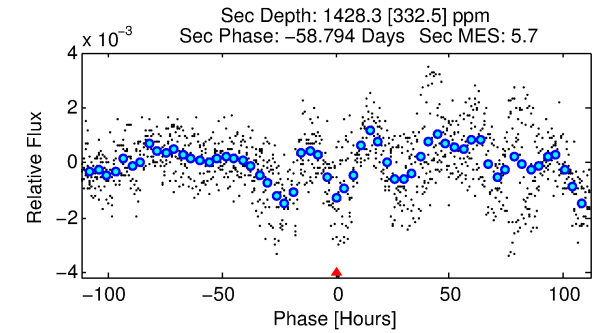
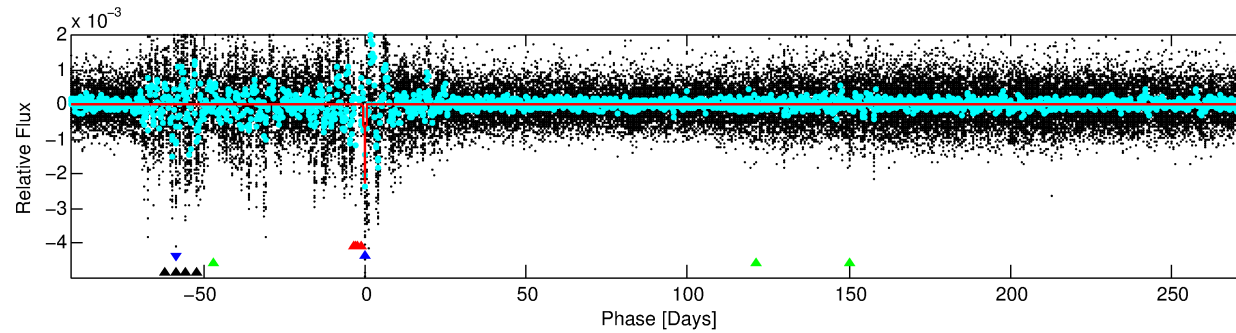
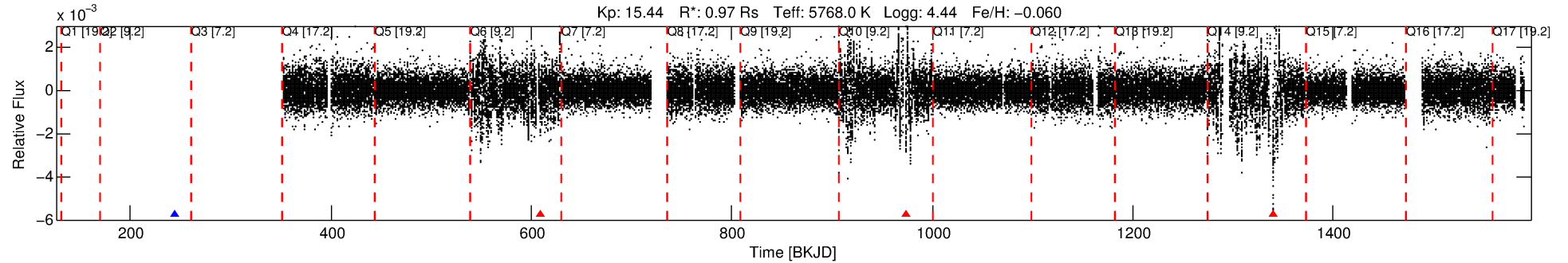
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008307889-02

No Significant Match Found

# DV One-Page Summary

KIC: 8307889 Candidate: 2 of 4 Period: 365.407 d



## DV Fit Results:

Period = 365.40692 [0.02341] d  
Epoch = 243.6880 [0.0528] BKJD  
Rp/R\* = 0.0695 [0.0851]  
a/R\* = 64.35 [23.02]  
b = 0.98 [0.14]  
Seff = 0.97 [0.37]  
Teq = 253 [24] K  
Rp = 7.38 [9.27] Re  
a = 0.9832 [0.2365] AU  
Ag = 13948.10 [34657.14] [0.40σ]  
Teff = 4253 [2619] K [1.53σ]

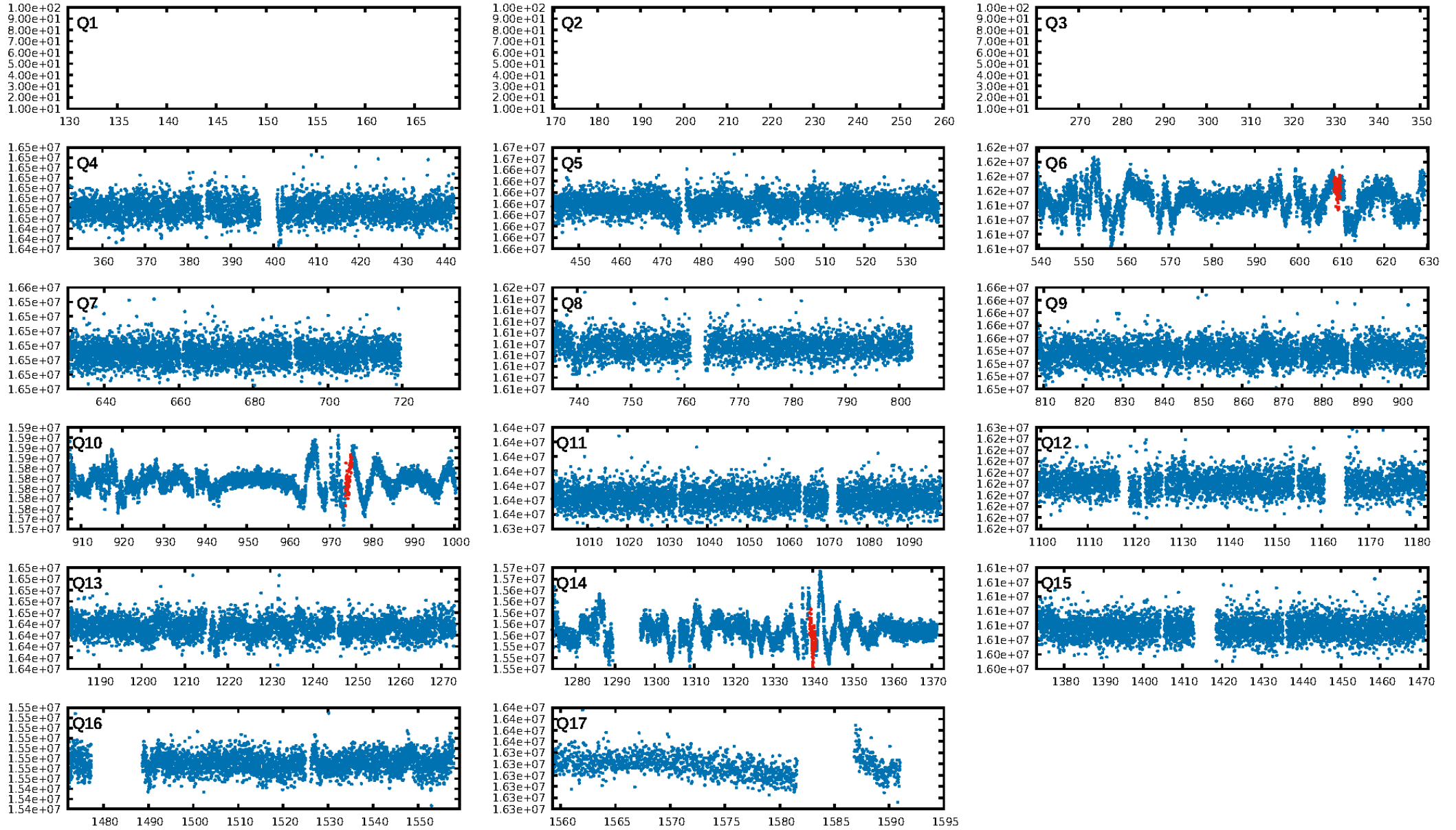
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 47.7% [0.64σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 91.9%  
Bootstrap-pfa: 5.27e-12  
RollingBand-fgt: 0.00 [0/3]  
GhostDiagnostic-chr: 8.018  
Centroid-sig: 24.6%  
Centroid-so: 3.230 arcsec [1.28σ]  
OotOffset-rm: 5.319 arcsec [72.20σ]  
KicOffset-rm: 5.277 arcsec [71.63σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.67 [2/3]

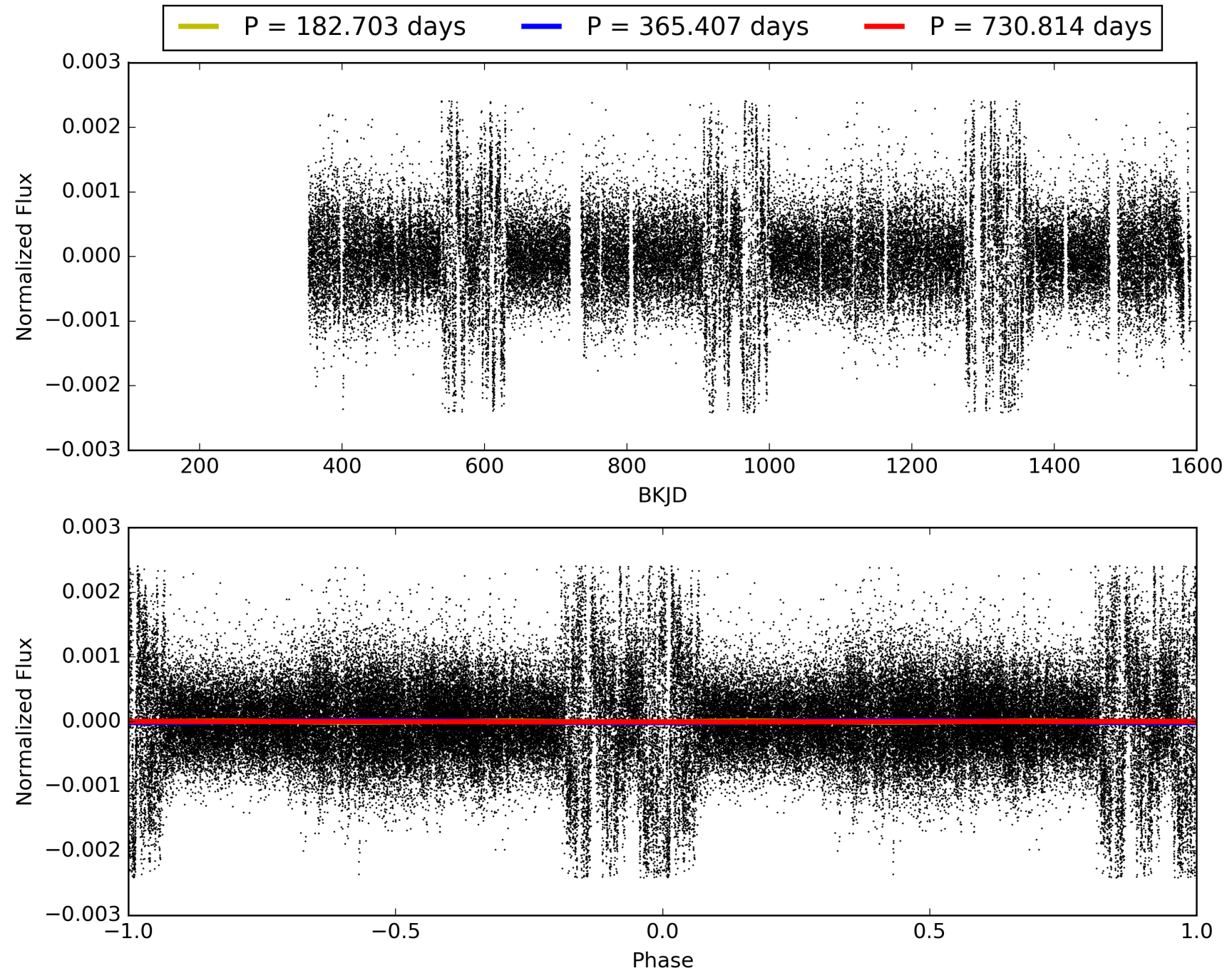
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:59:59 Z

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

# TCE 008307889-02, PDC Light Curves

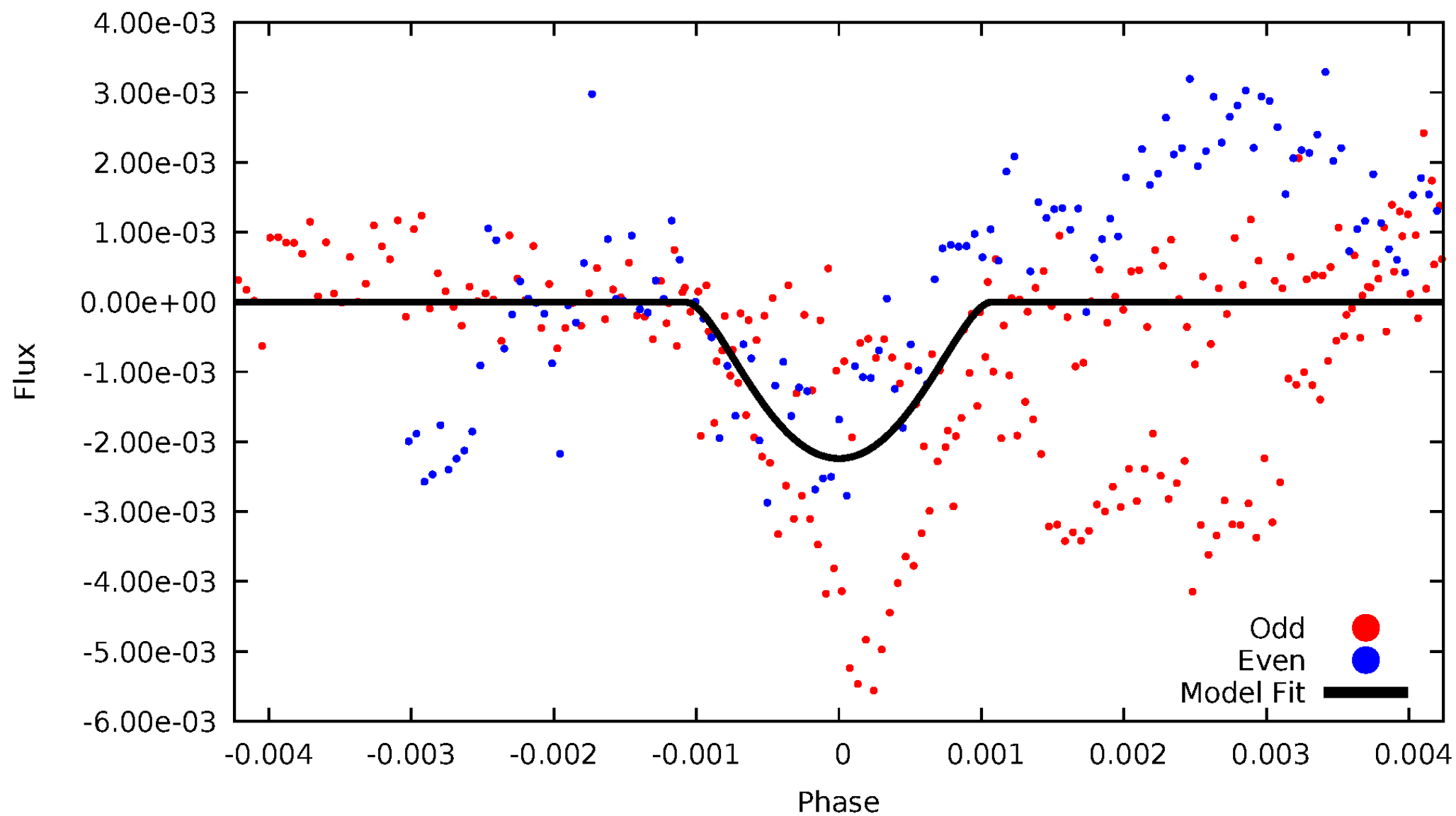


TCE 008307889-02



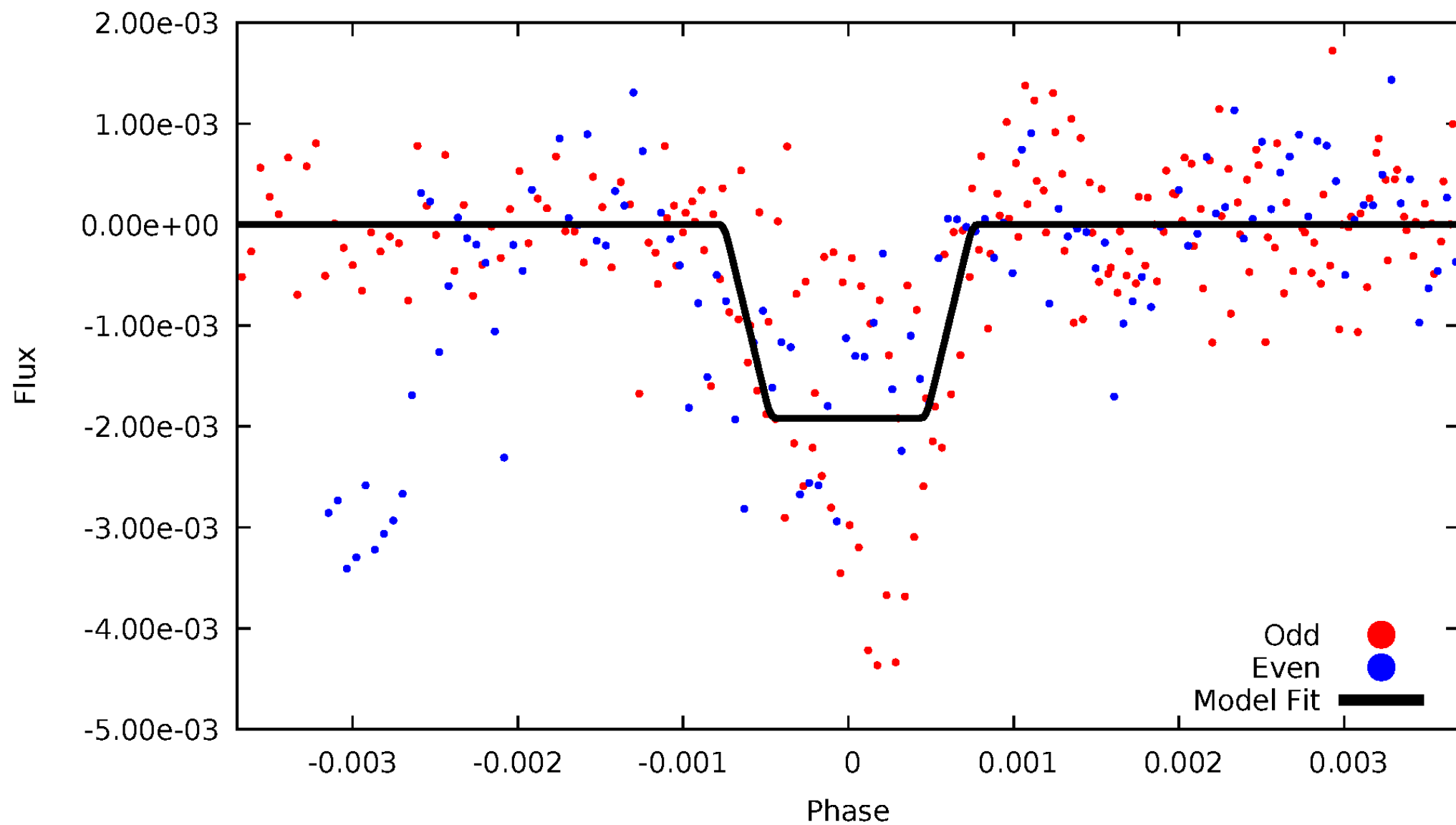
# DV Odd/Even

TCE 008307889-02



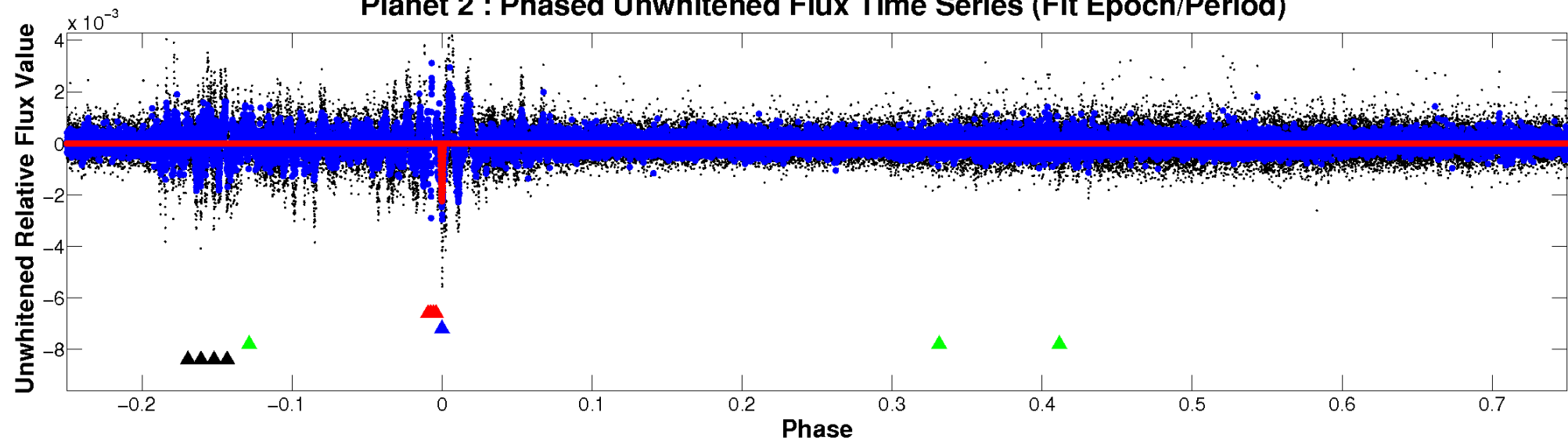
# ALT Odd/Even

TCE 008307889-02

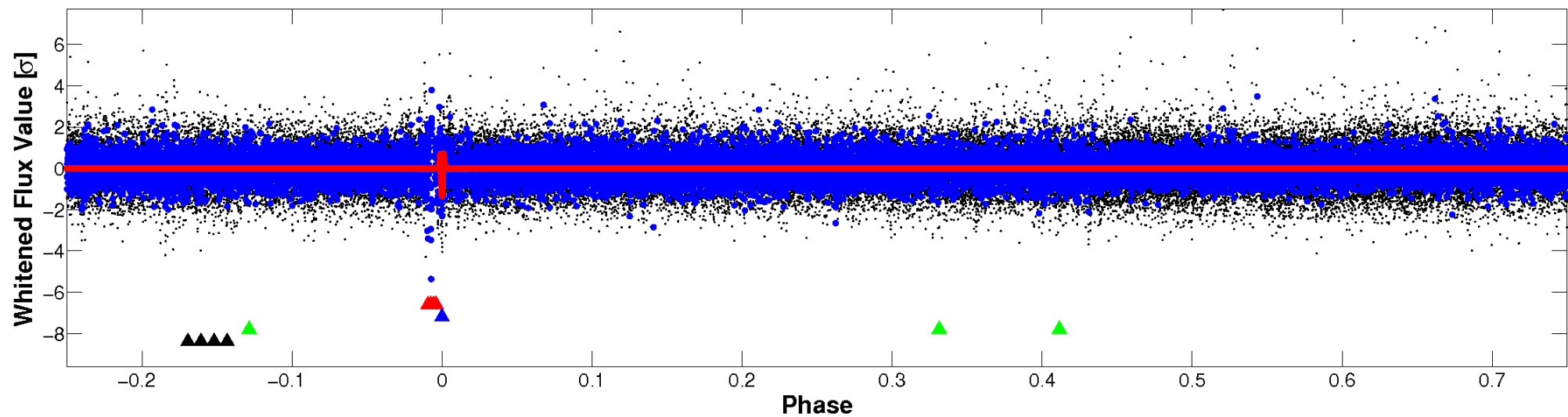


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



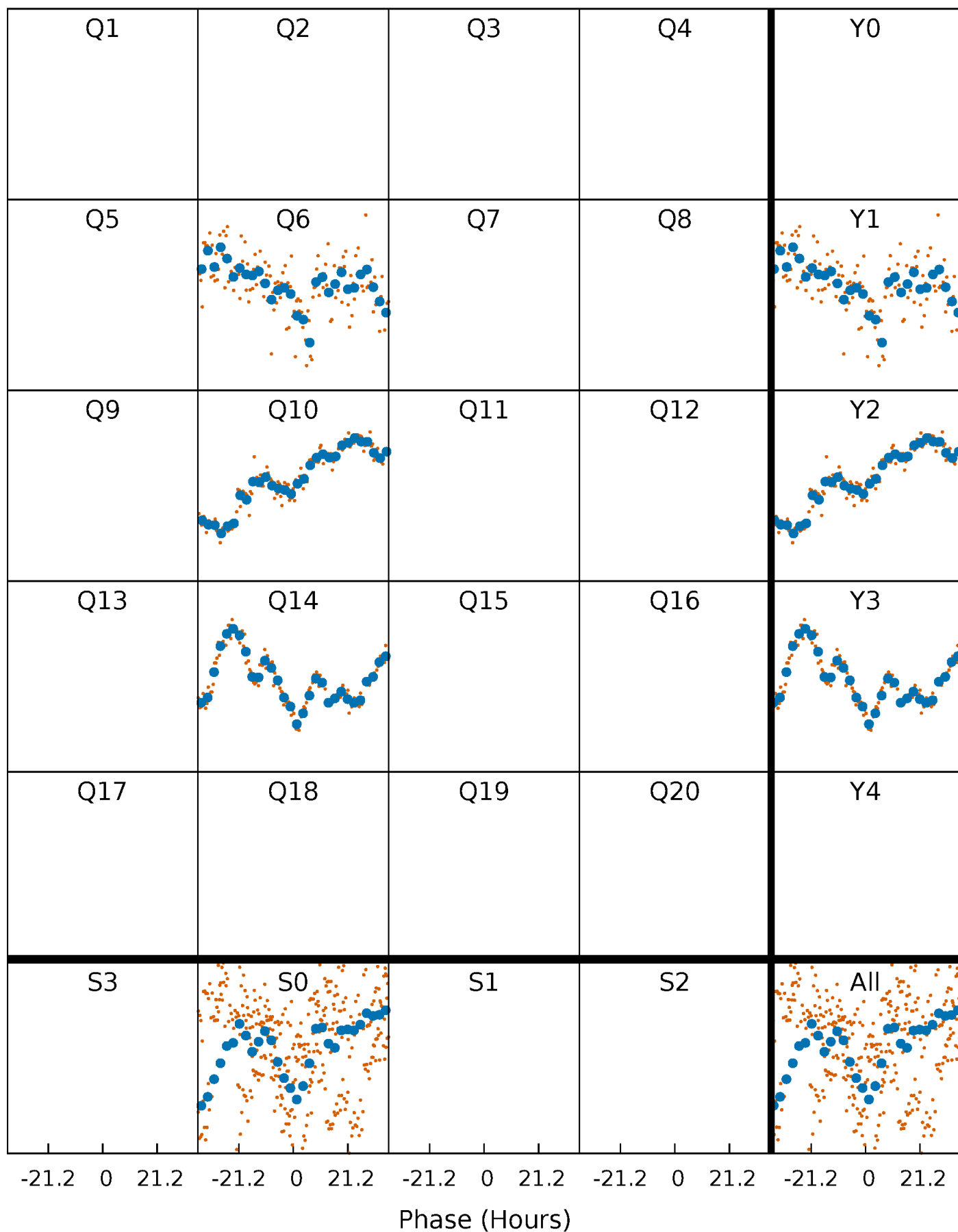
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

TCE 008307889-02     $P=365.406921$  Days     $T_0=243.688031$  (BKJD)





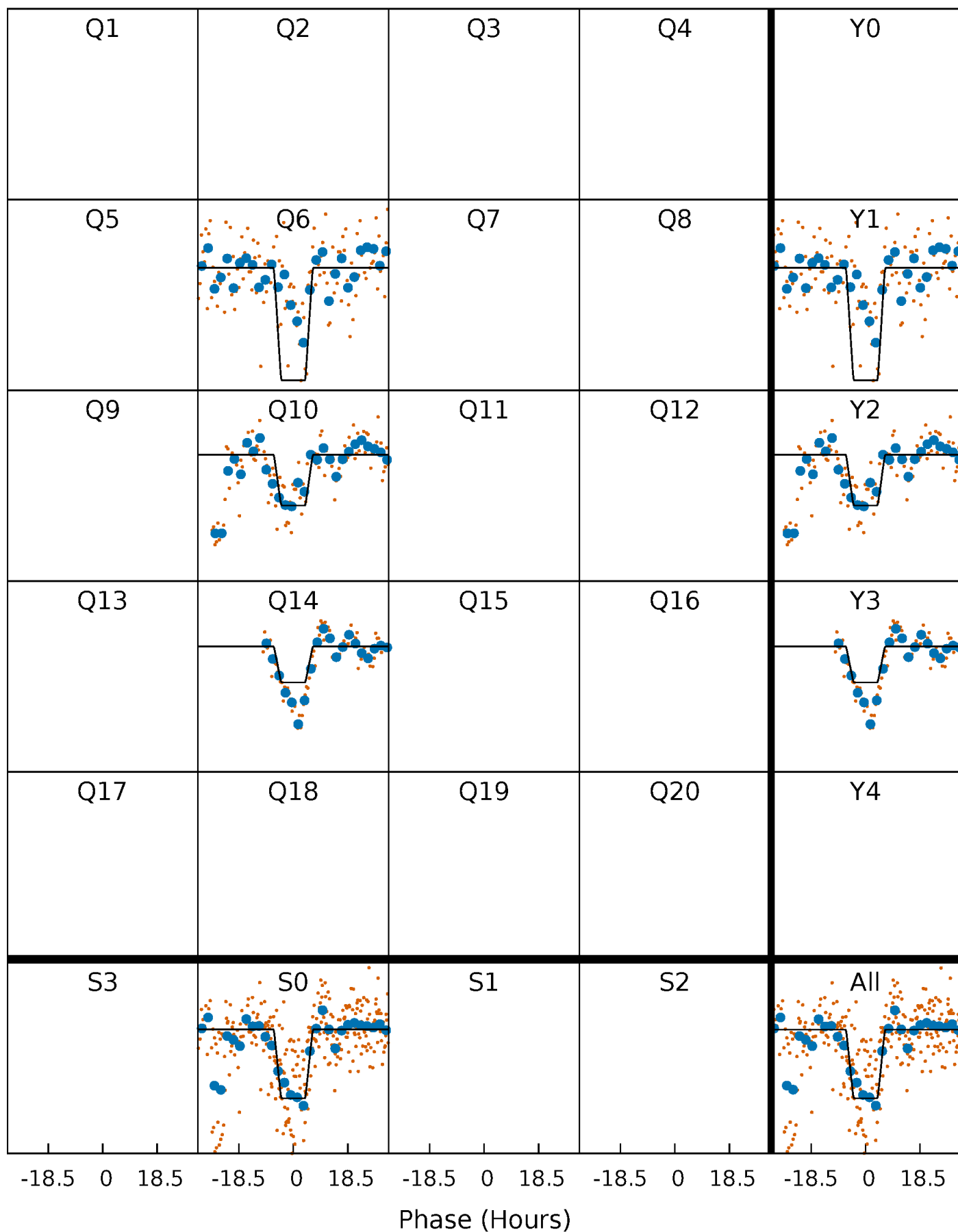
# DV Quarter-Phased Transit Curves

TCE 008307889-02 P=365.406921 Days  $T_0=243.688031$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

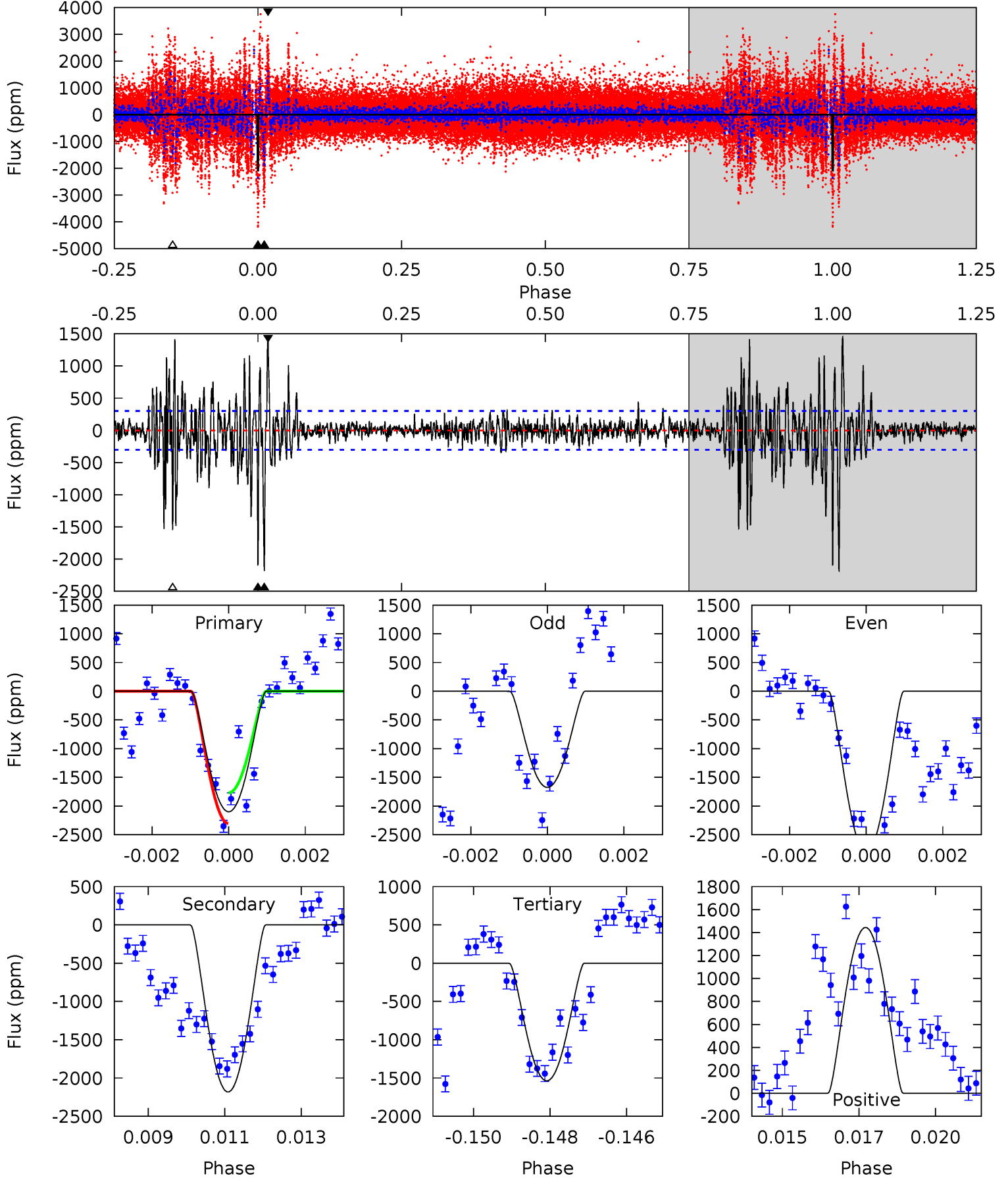
TCE 008307889-02 P=365.345242 Days  $T_0=243.857730$  (BKJD)



# DV Model-Shift Uniqueness Test

008307889-02, P = 365.406921 Days, E = 243.688031 Days

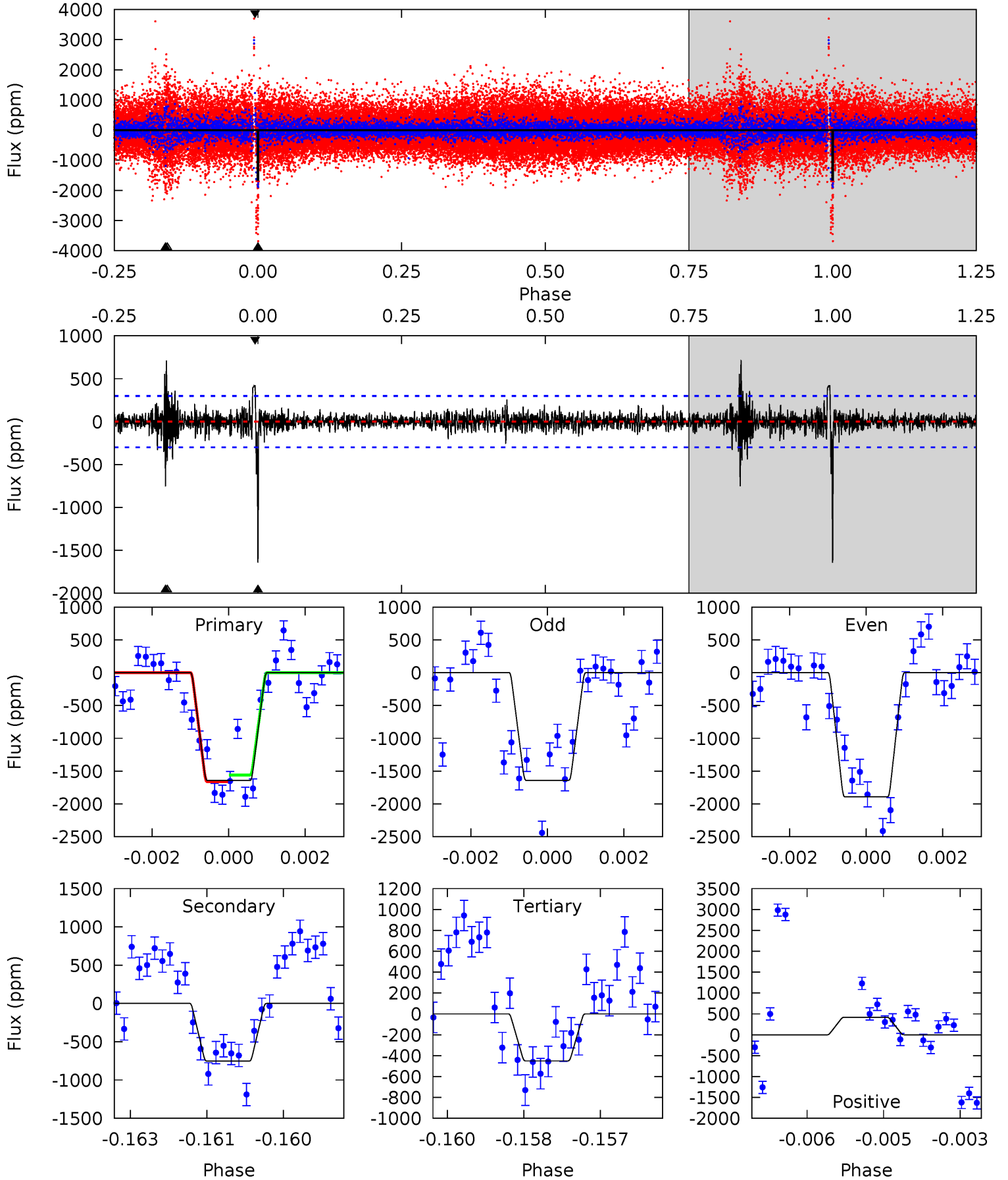
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.9	38.3	27.0	25.3	5.31	3.06	4.24	9.90	11.5	11.3	12.9	9.37	1.41	0.40	4.70



# Alt Model-Shift Uniqueness Test

008307889-02, P = 365.345242 Days, E = 243.857730 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
29.5	13.5	8.07	7.53	5.37	3.16	1.26	21.4	21.9	5.43	5.96	2.17	1.10	0.30	0.91



### Stellar Parameters For KIC 008307889

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5768^{+173}_{-190}$	$4.439^{+0.084}_{-0.196}$	$-0.060^{+0.300}_{-0.300}$	$0.973^{+0.274}_{-0.126}$	$0.949^{+0.125}_{-0.102}$	$1.449^{+0.627}_{-0.703}$
	+3%/-3%	+2%/-4%	+500%/-500%	+28%/-13%	+13%/-11%	+43%/-48%
Source	KIC0	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 008307889-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2183 \pm 57$	$10.78^{+8.01}_{-6.70}$	$359^{+26}_{-19}$	$4228^{+2365}_{-717}$	$9996^{+60661}_{-6735}$
Alt.	$-753 \pm 56$	$8.42^{+7.90}_{-5.55}$	$359^{+24}_{-21}$	$3825^{+2082}_{-714}$	$5621^{+43380}_{-4145}$

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

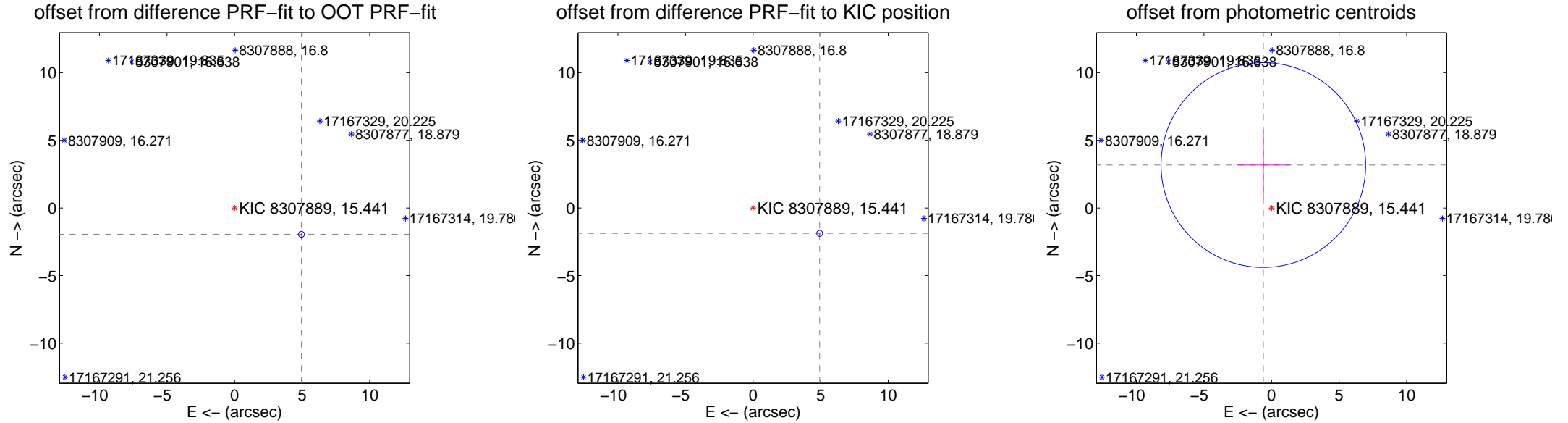
## DV Centroid Data

Supplemental centroid analysis for 008307889-02. Kepler magnitude: 15.44. Transit SNR 9.30

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.319 \pm 0.074$	72.20	$-4.949 \pm 0.074$	$-1.951 \pm 0.074$
PRF-fit source offset from KIC position	$5.277 \pm 0.074$	71.63	$-4.931 \pm 0.074$	$-1.878 \pm 0.074$
photometric centroid source offset	$3.23 \pm 2.52$	1.28	$0.60 \pm 1.98$	$3.17 \pm 2.54$



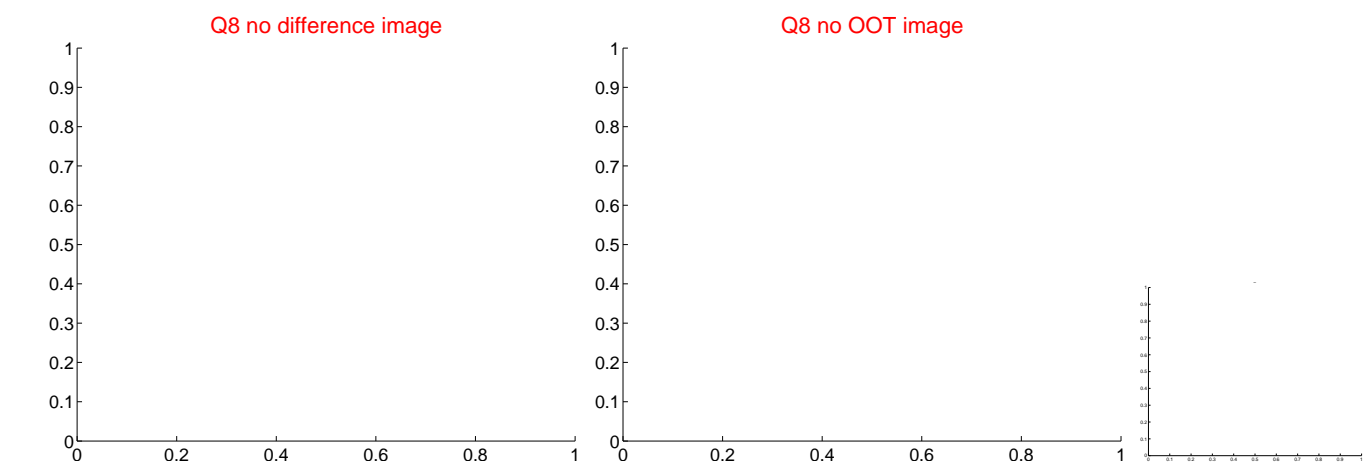
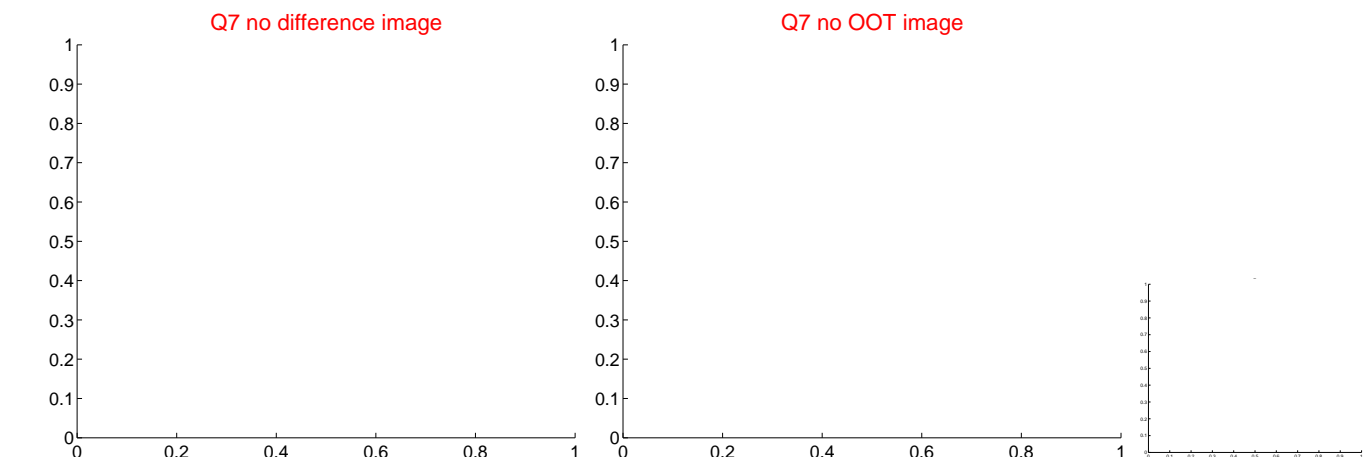
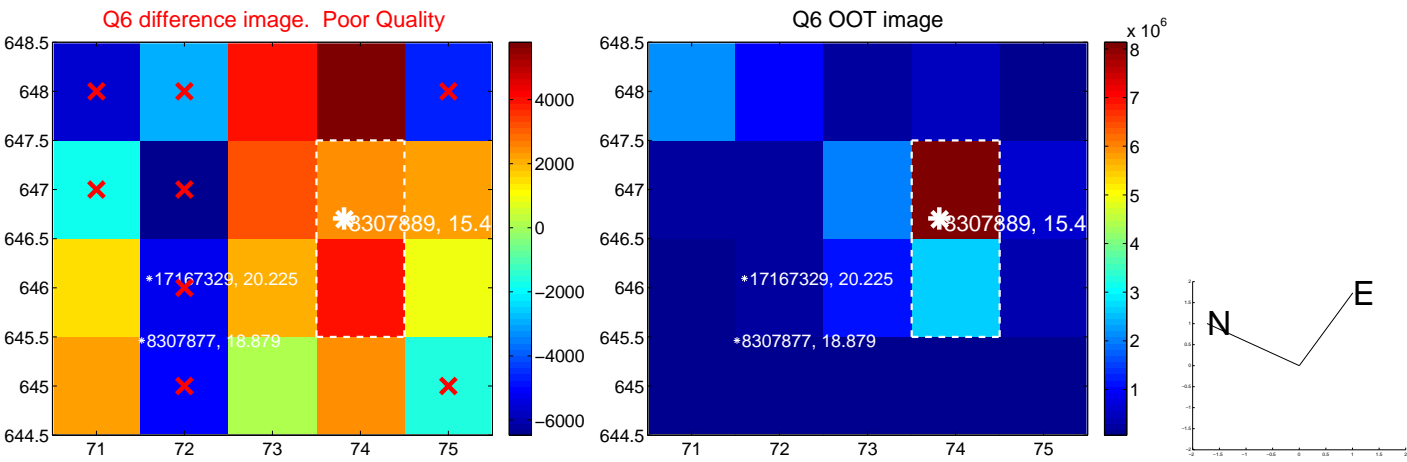
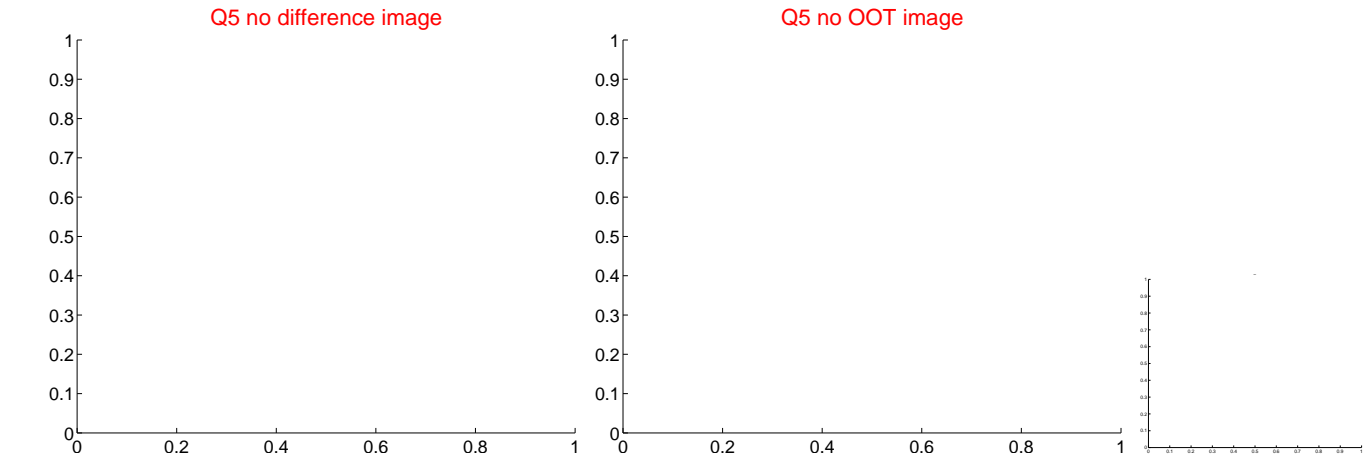
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

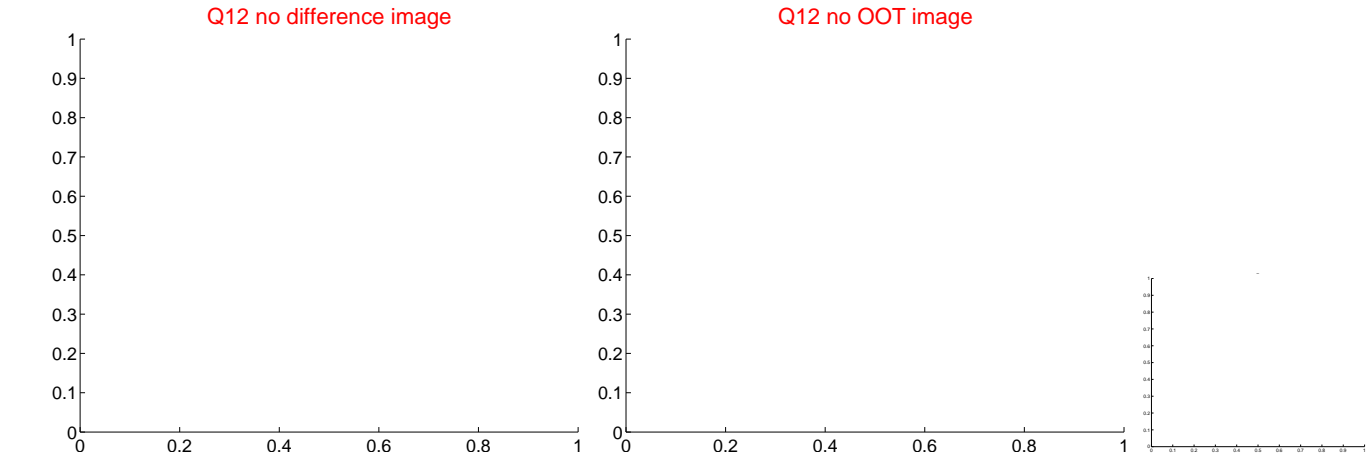
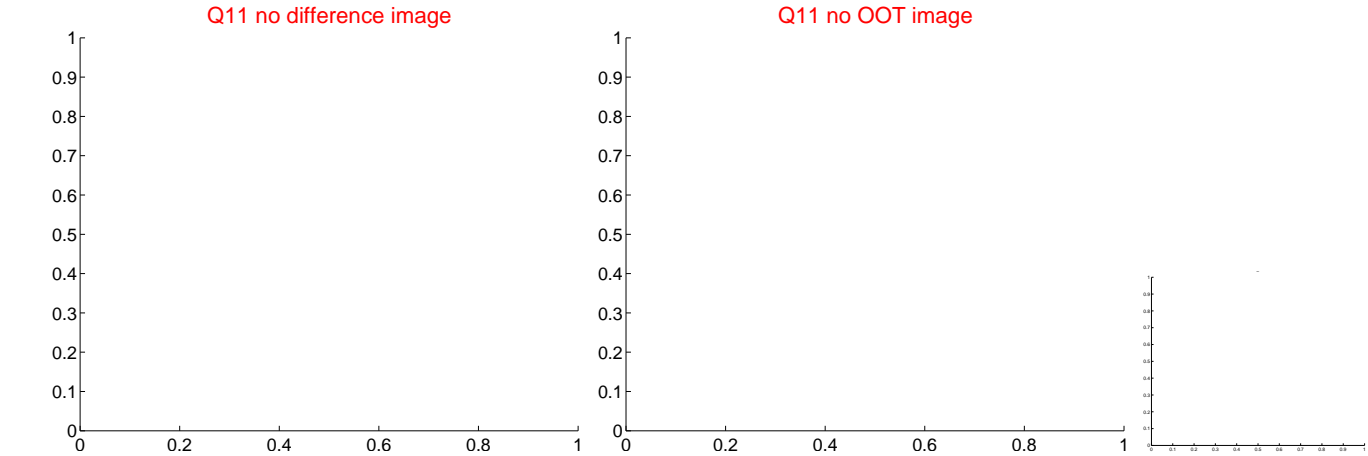
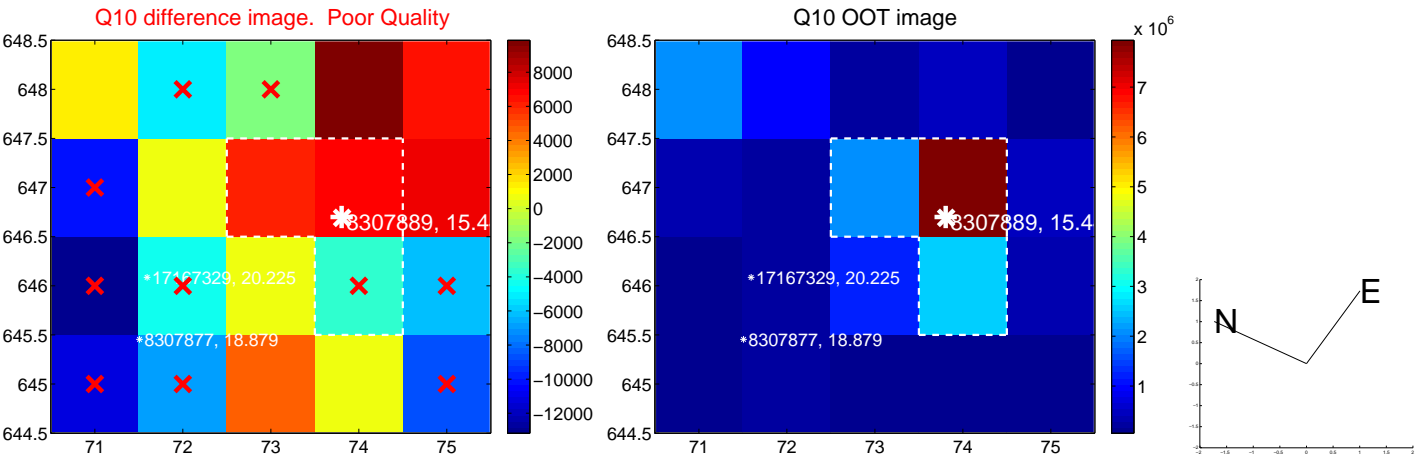
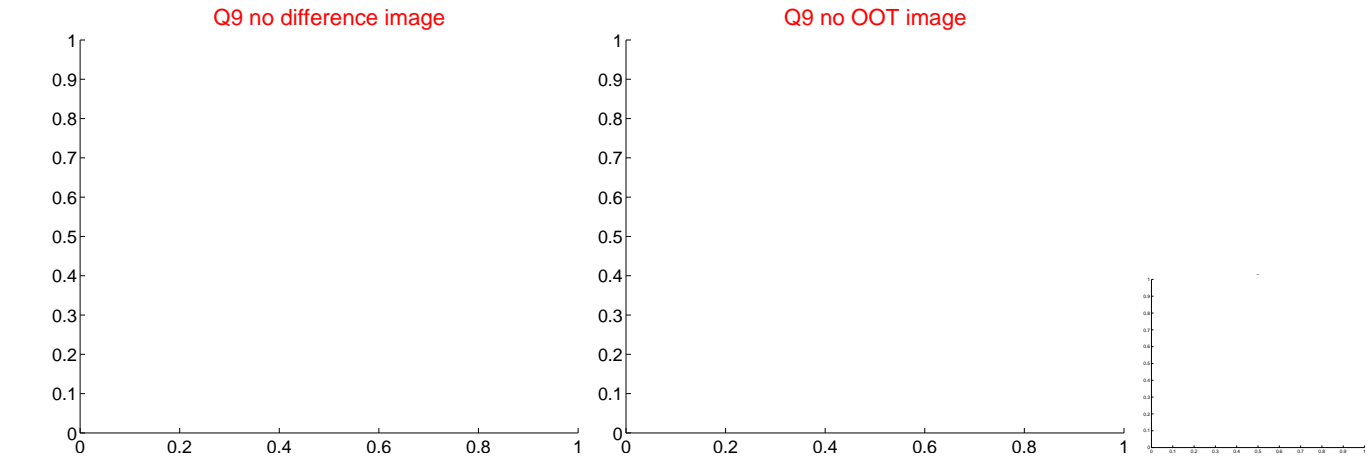




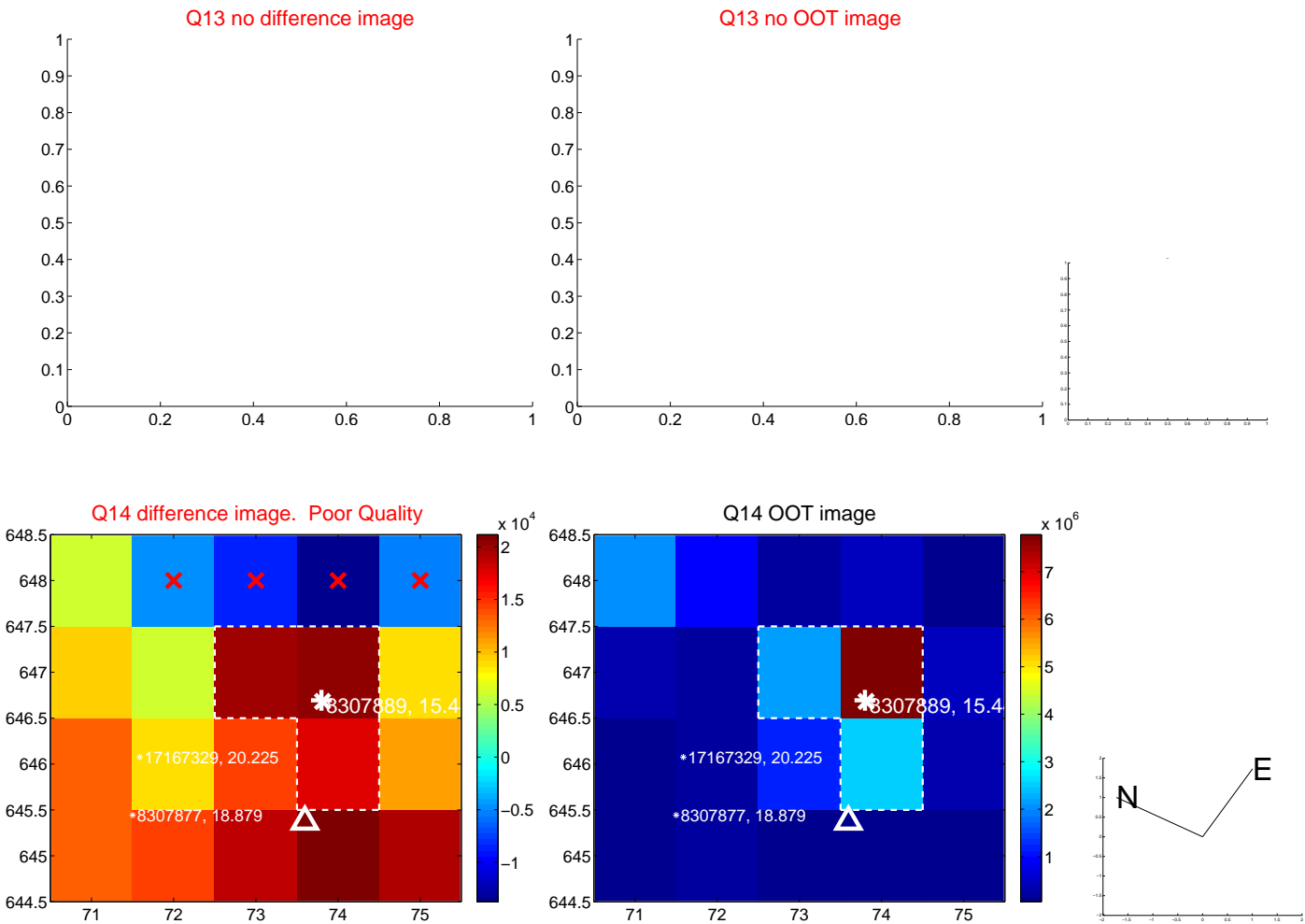
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



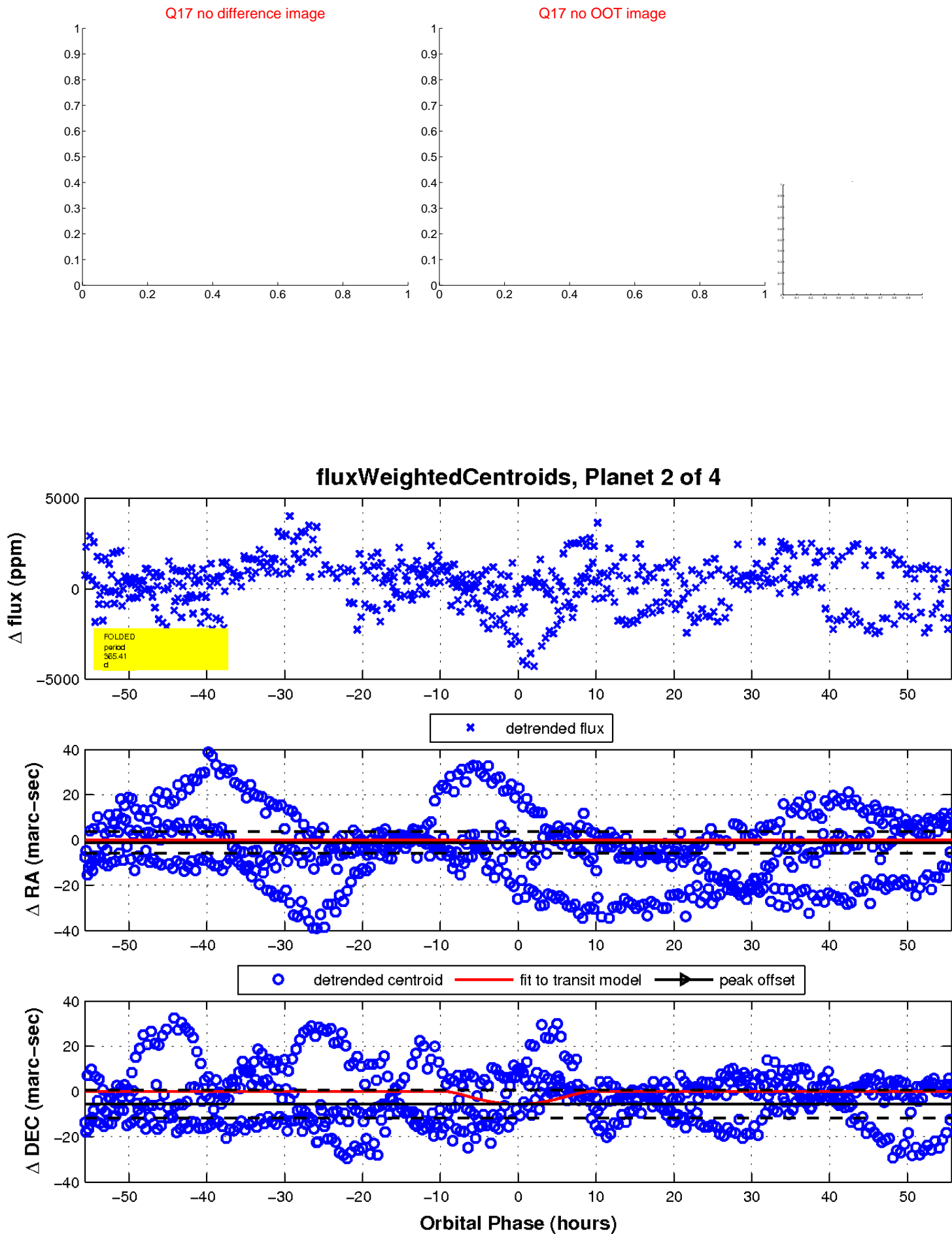
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

