

# KIC 009711420

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009711420-01	OBS	No	332.019299	343.465791	517.1	29.127	8.3	9.1	0.99	5993	2.31	1.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009711420-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

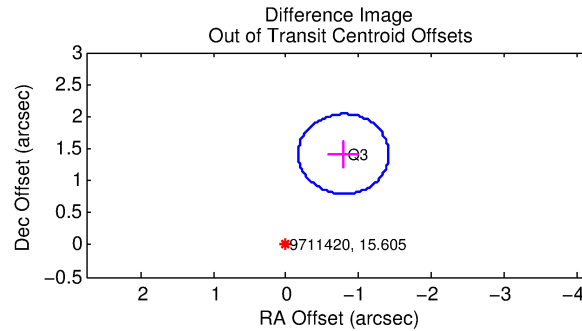
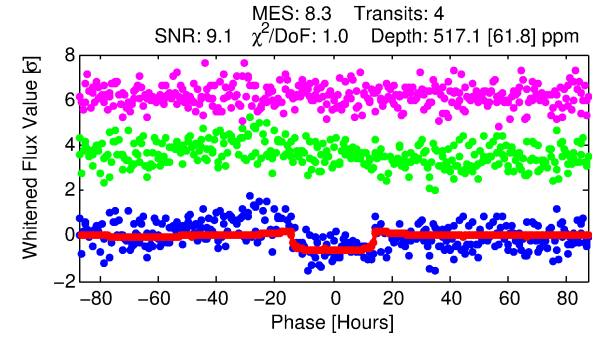
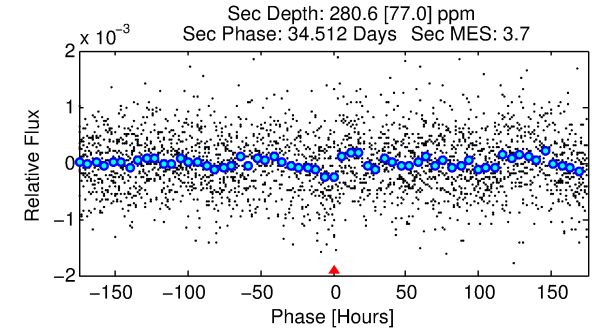
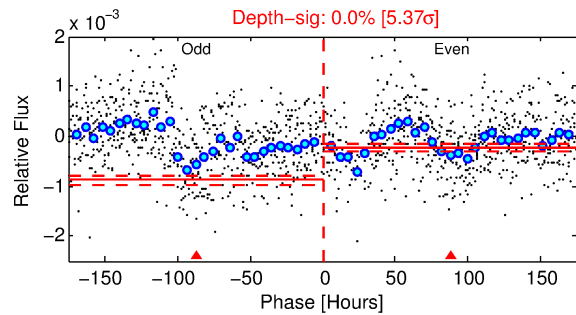
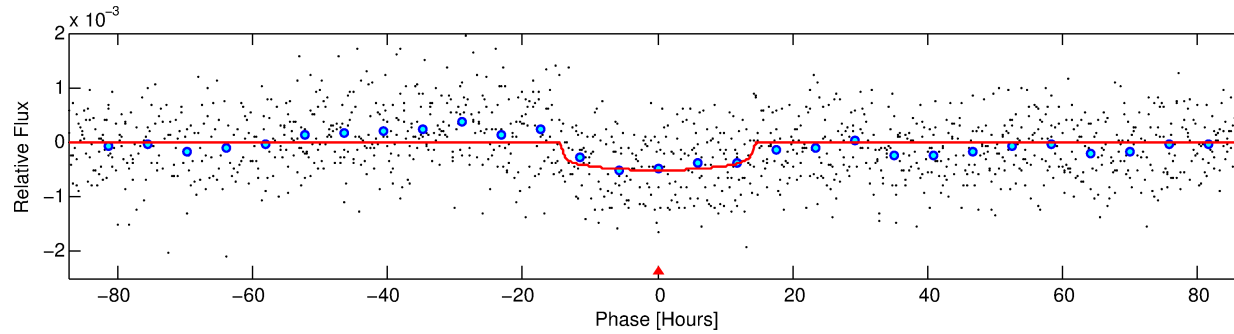
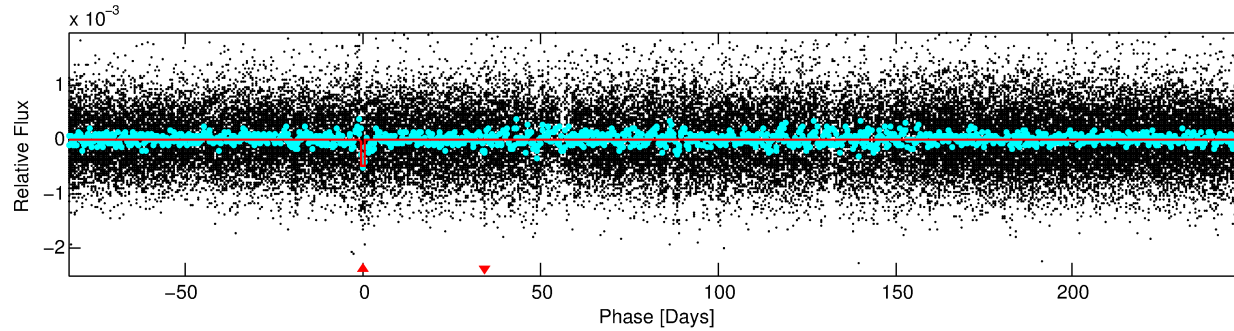
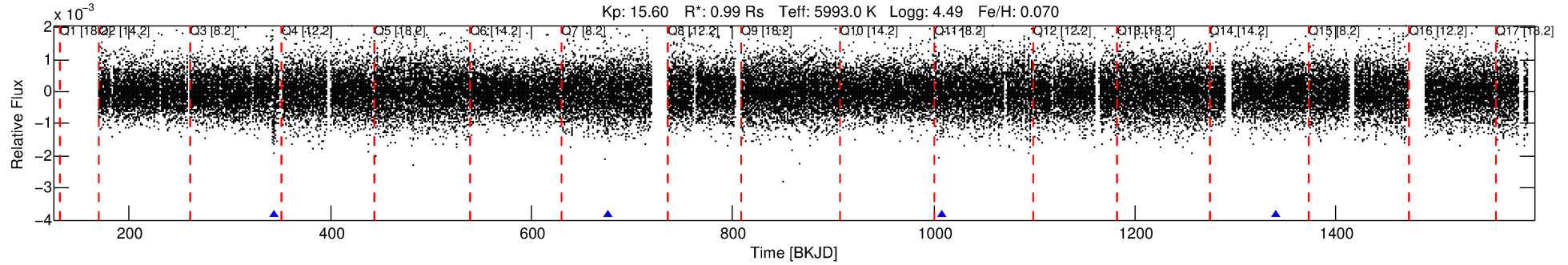
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009711420-01

No Significant Match Found

# DV One-Page Summary

KIC: 9711420 Candidate: 1 of 1 Period: 332.019 d



## DV Fit Results:

Period = 332.01930 [0.01526] d  
Epoch = 343.4658 [0.0300] BKJD  
Rp/R\* = 0.0214 [0.0067]  
a/R\* = 76.02 [106.75]  
b = 0.53 [1.92]  
Seff = 1.20 [0.53]  
Teq = 267 [29] K  
Rp = 2.31 [1.04] Re  
a = 0.9669 [0.2685] AU  
Ag = 27106.59 [21587.54] [1.26σ]  
Teffp = 5297 [925] K [5.43σ]

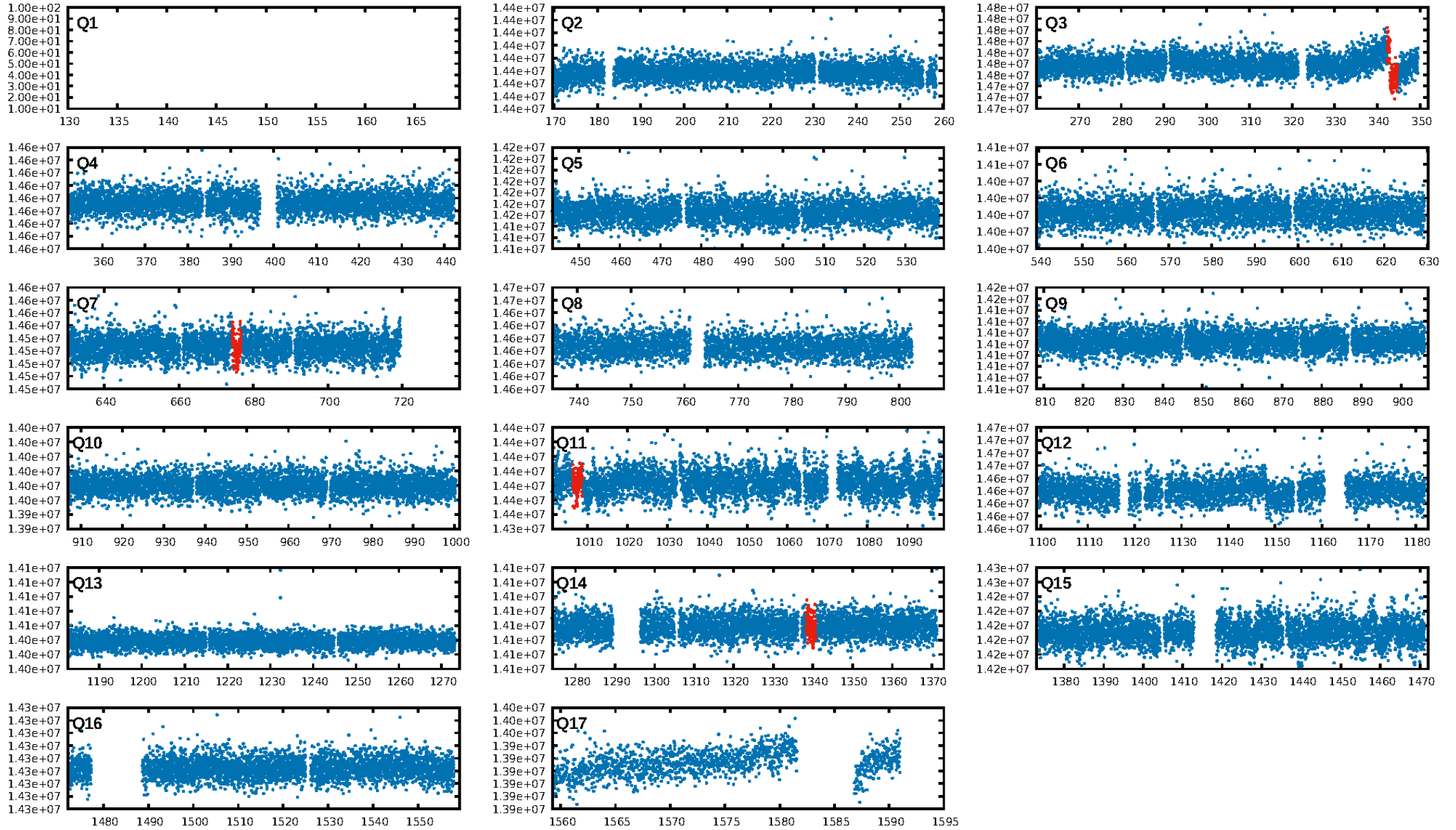
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.06e-16  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.4166  
Centroid-sig: 2.0%  
Centroid-so: 2.395 arcsec [2.07σ]  
OotOffset-rm: 1.622 arcsec [7.81σ]  
KicOffset-rm: 1.638 arcsec [7.87σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

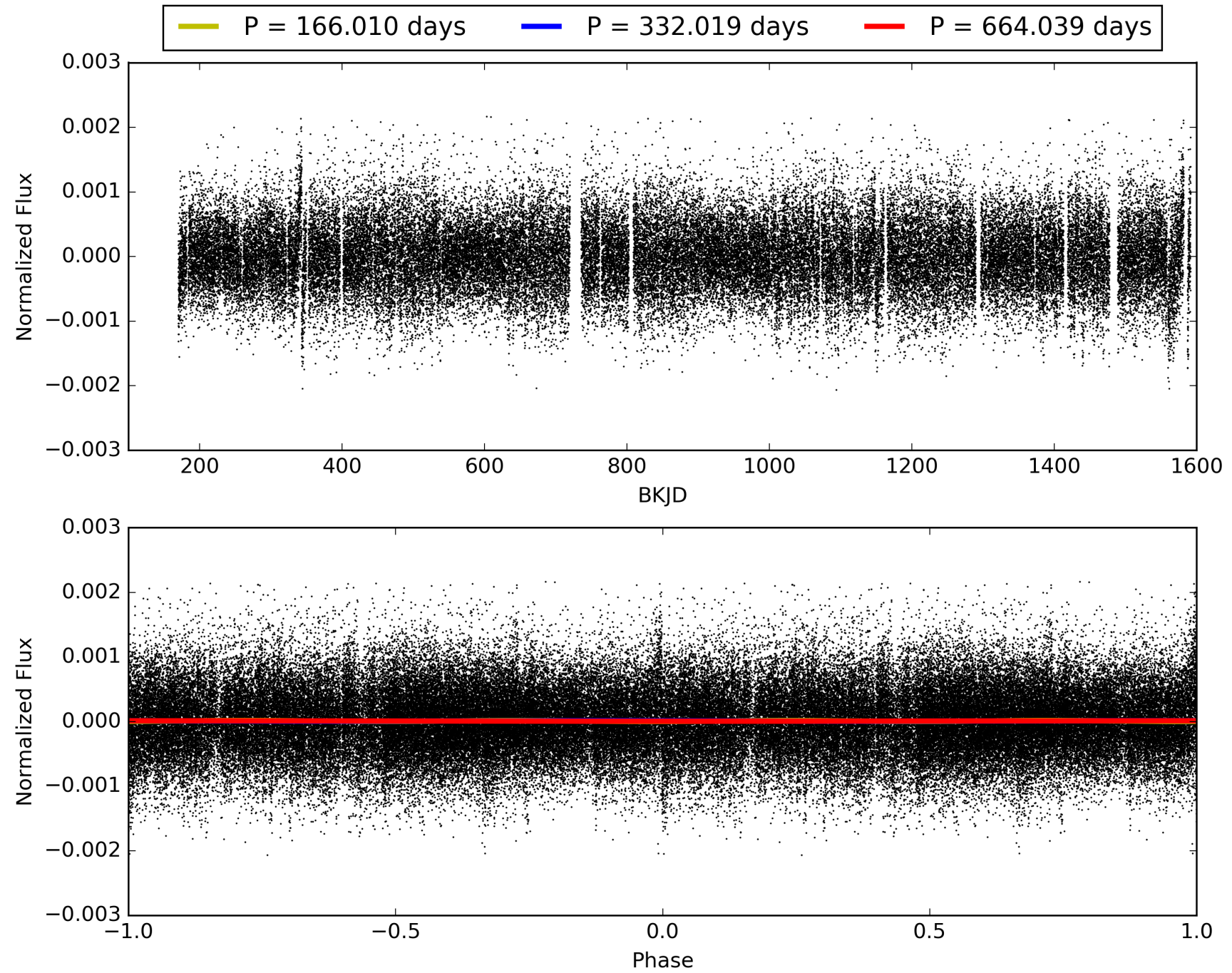
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:56:06 Z

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

# TCE 009711420-01, PDC Light Curves

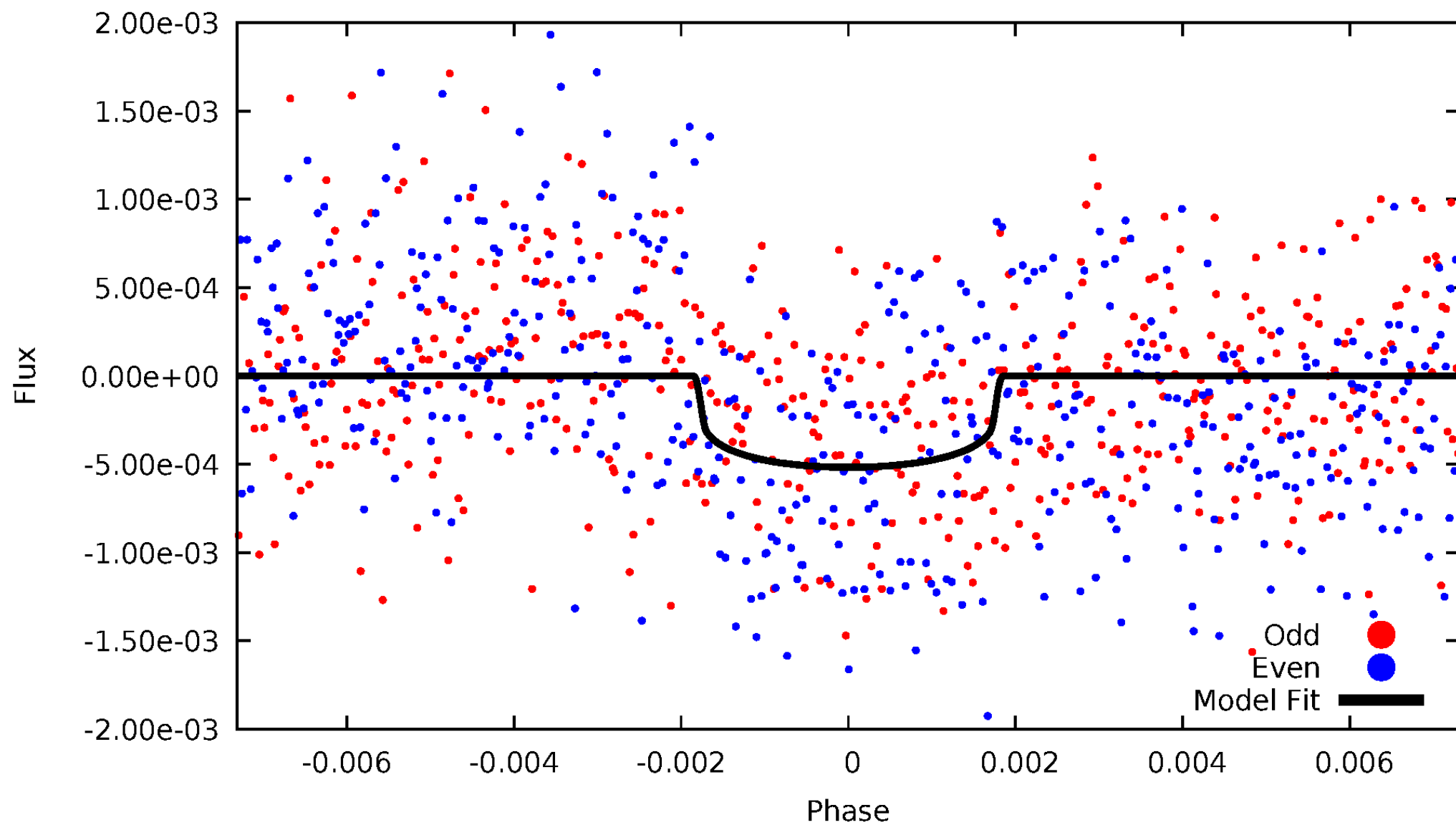


TCE 009711420-01



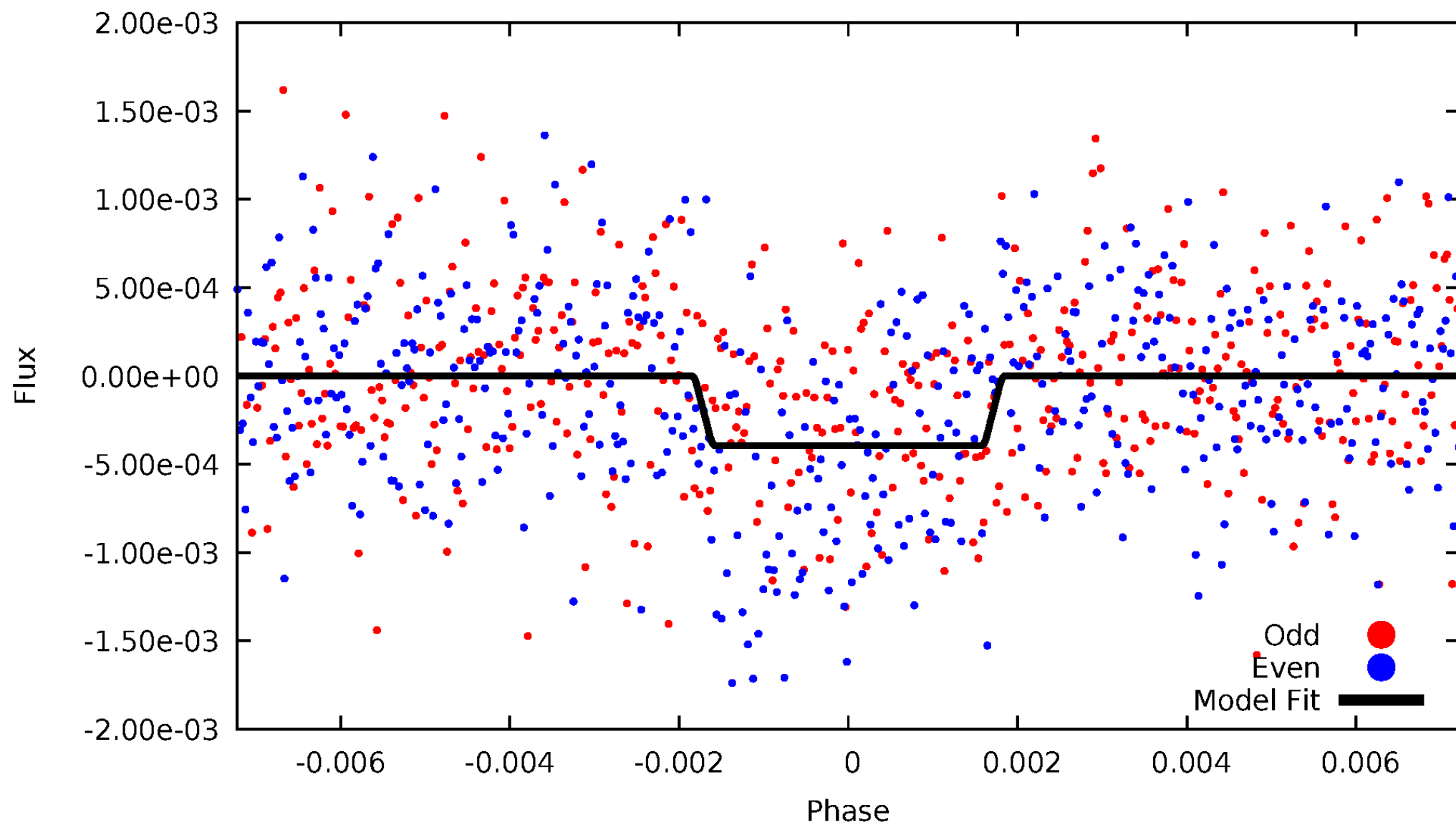
# DV Odd/Even

TCE 009711420-01



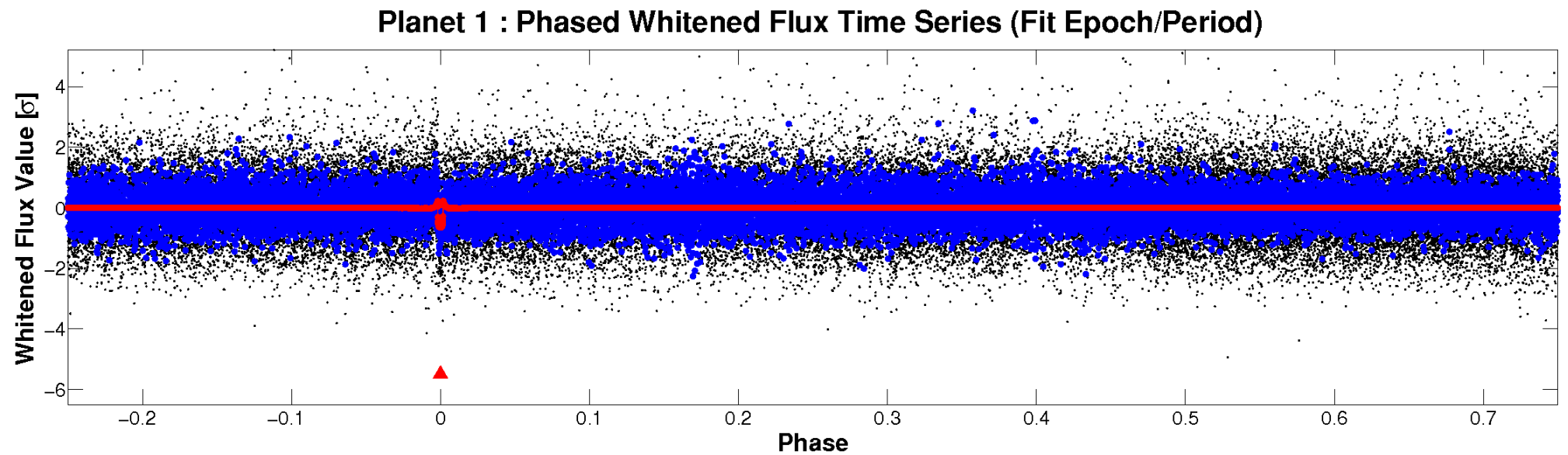
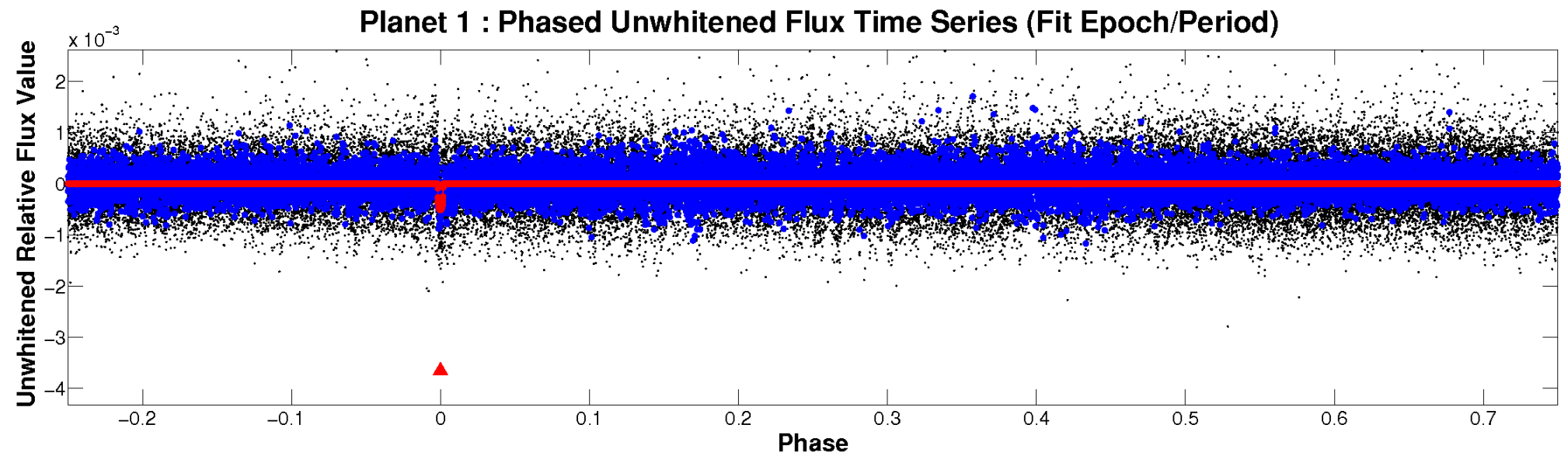
# ALT Odd/Even

TCE 009711420-01



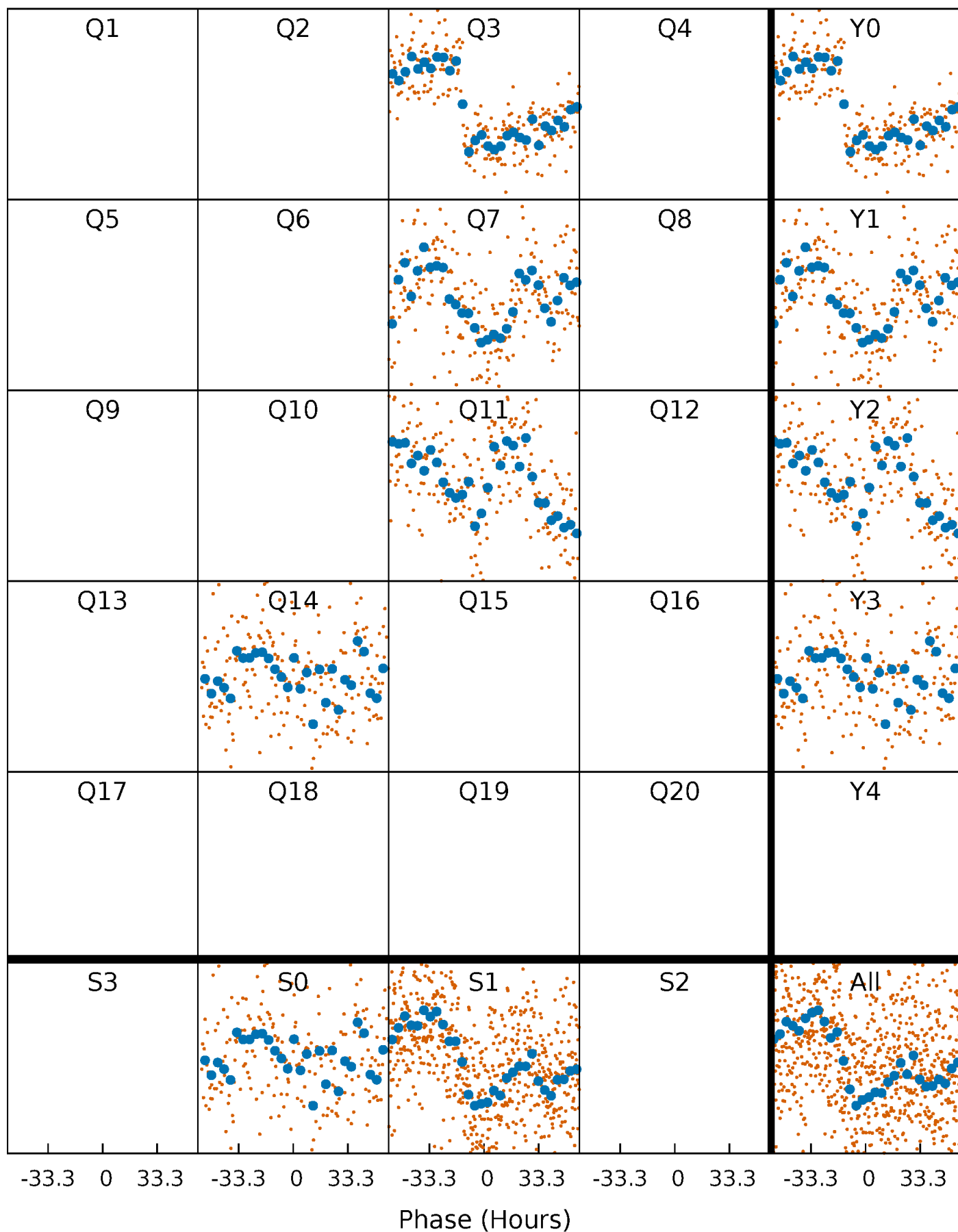


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

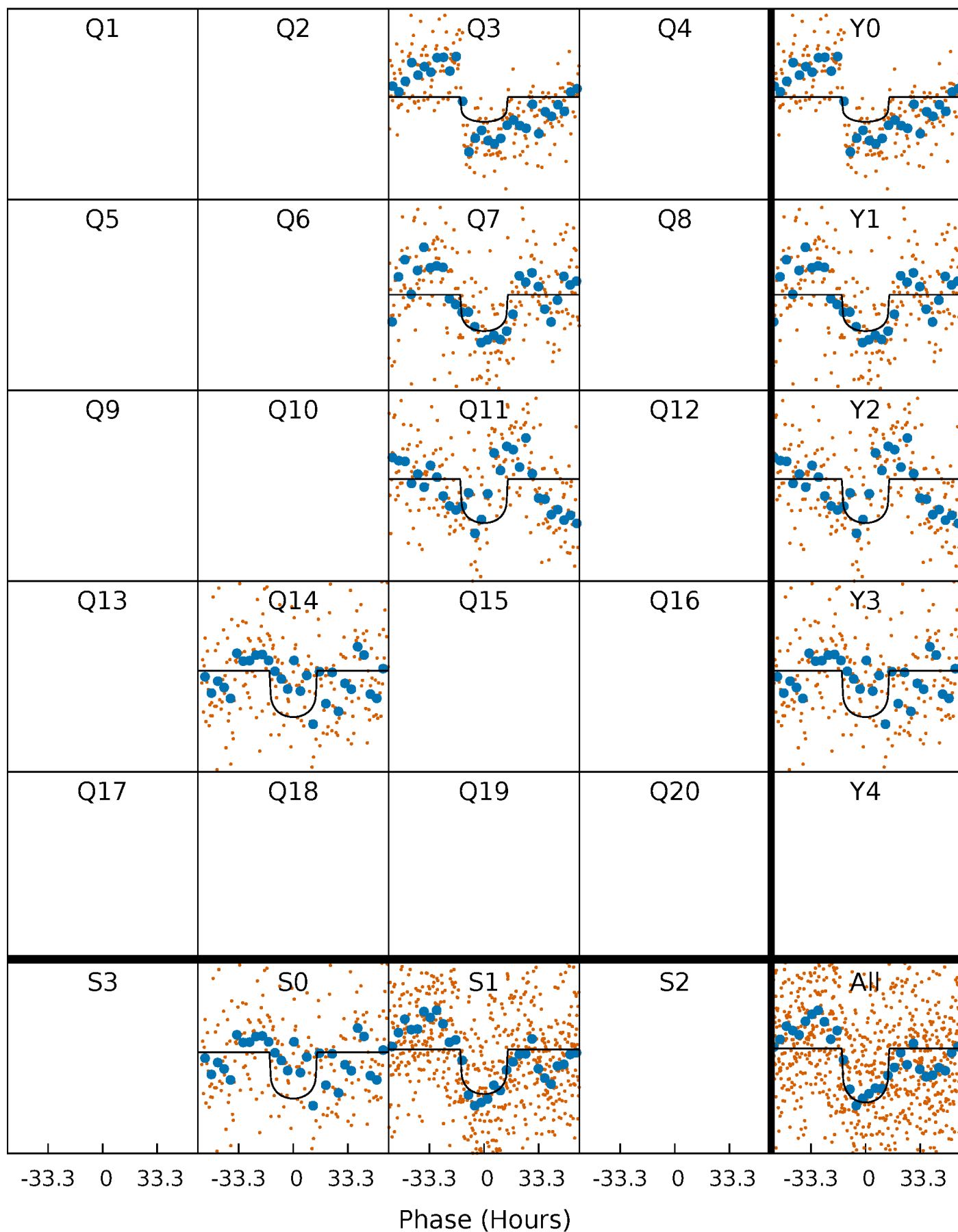
TCE 009711420-01 P=332.019299 Days  $T_0=343.465791$  (BKJD)





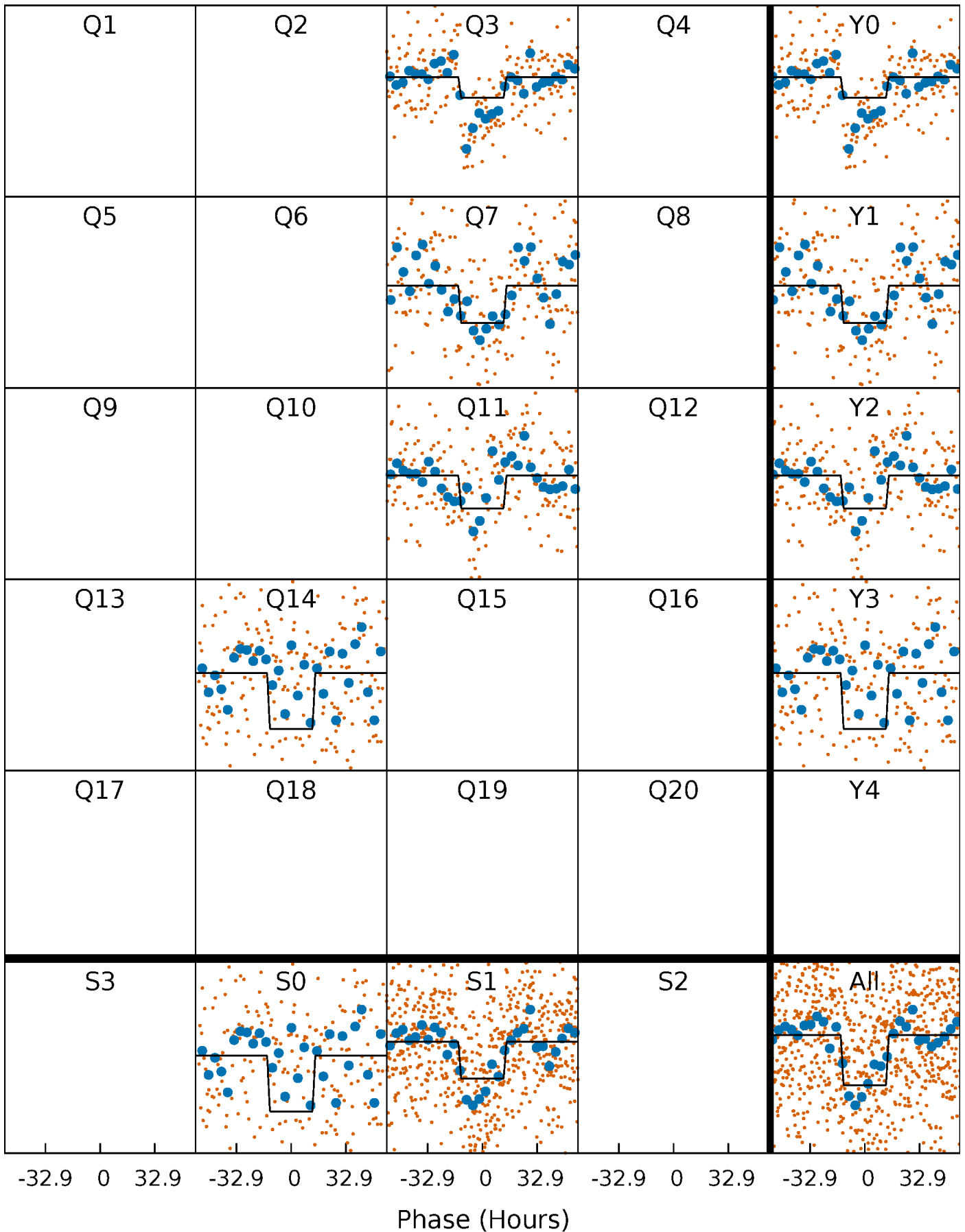
# DV Quarter-Phased Transit Curves

TCE 009711420-01 P=332.019299 Days  $T_0=343.465791$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

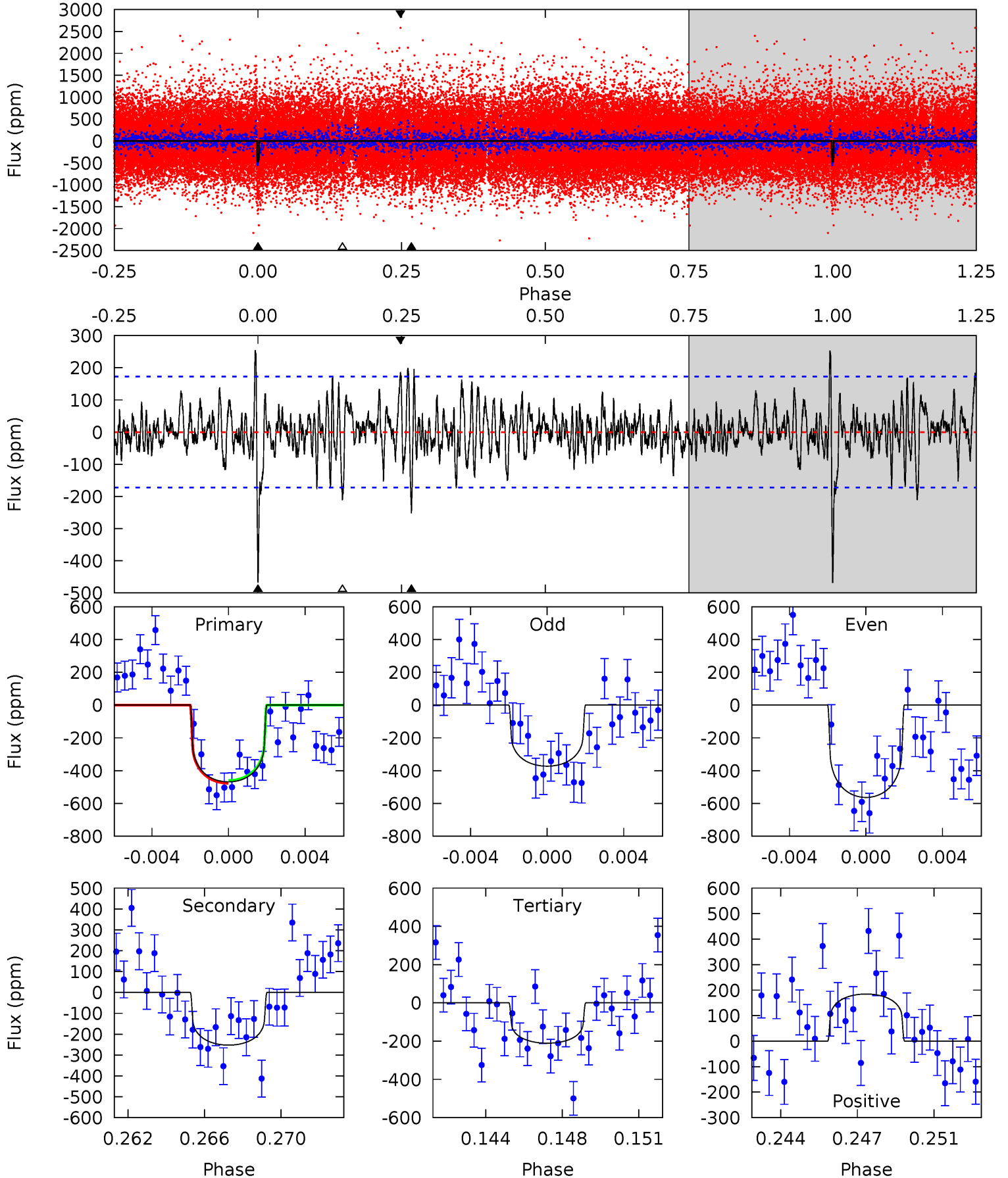
TCE 009711420-01 P=332.011294 Days  $T_0=343.474379$  (BKJD)



# DV Model-Shift Uniqueness Test

009711420-01,  $P = 332.019299$  Days,  $E = 11.446492$  Days

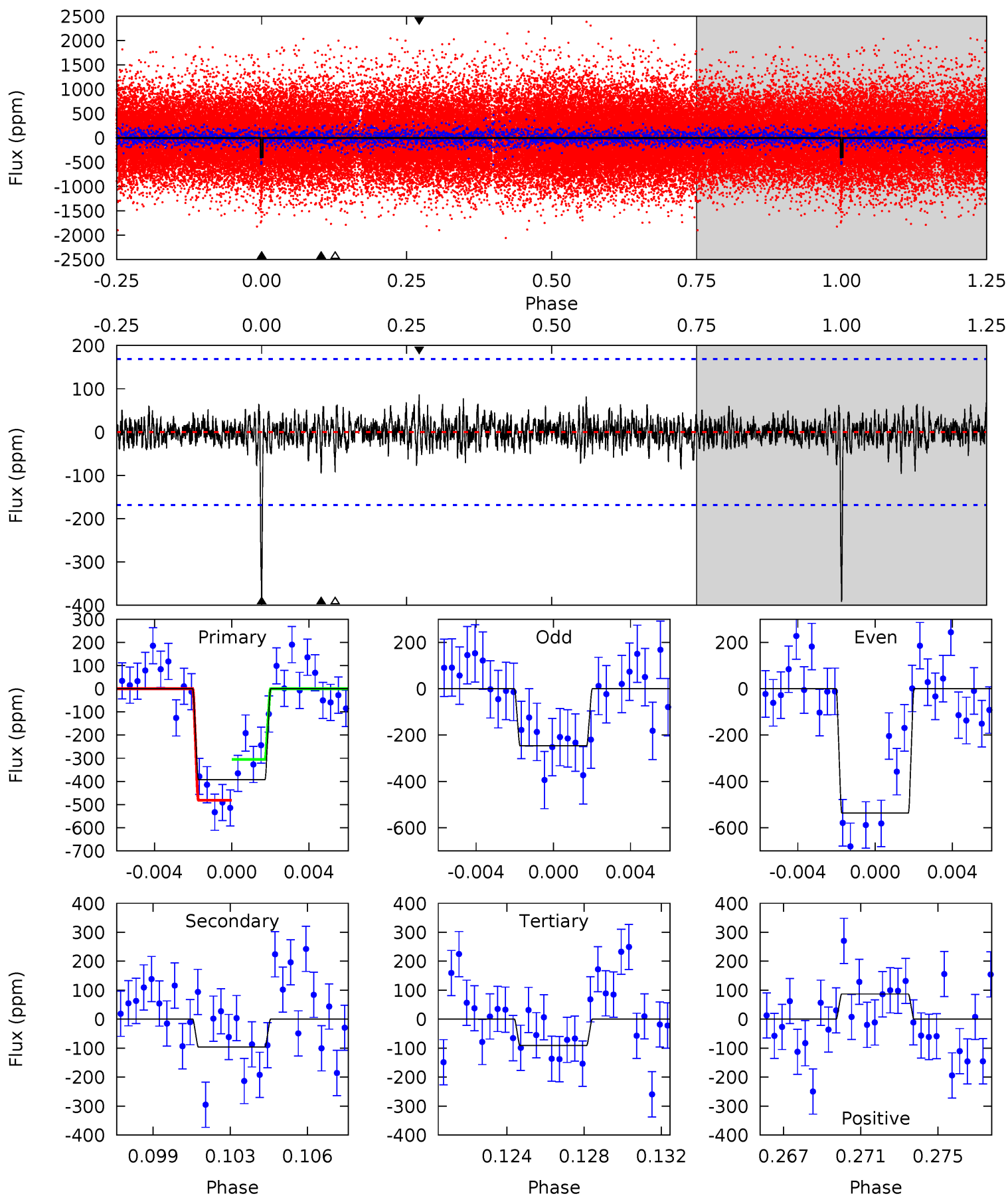
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	7.63	6.37	5.58	5.21	2.90	1.71	7.79	8.58	1.26	2.05	2.89	1.22	0.35	0.24



# Alt Model-Shift Uniqueness Test

009711420-01,  $P = 332.011294$  Days,  $E = 11.463085$  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
12.1	2.97	2.81	2.69	5.22	2.91	0.71	9.31	9.44	0.16	0.28	4.48	1.25	0.18	2.72



### Stellar Parameters For KIC 009711420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5993^{+190}_{-232}$	$4.489^{+0.040}_{-0.229}$	$0.070^{+0.200}_{-0.350}$	$0.986^{+0.318}_{-0.106}$	$1.093^{+0.130}_{-0.159}$	$1.607^{+0.358}_{-0.895}$
	+3%/-4%	+1%/-5%	+286%/-500%	+32%/-11%	+12%/-15%	+22%/-56%
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 009711420-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-252 \pm 33$	$2.44^{+0.80}_{-0.75}$	$384^{+29}_{-20}$	$5223^{+996}_{-615}$	$21034^{+21619}_{-9176}$
Alt.	$-96 \pm 32$	$2.29^{+0.83}_{-0.78}$	$384^{+30}_{-20}$	$4394^{+842}_{-537}$	$9218^{+11353}_{-4982}$

$T_{max}$  = 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

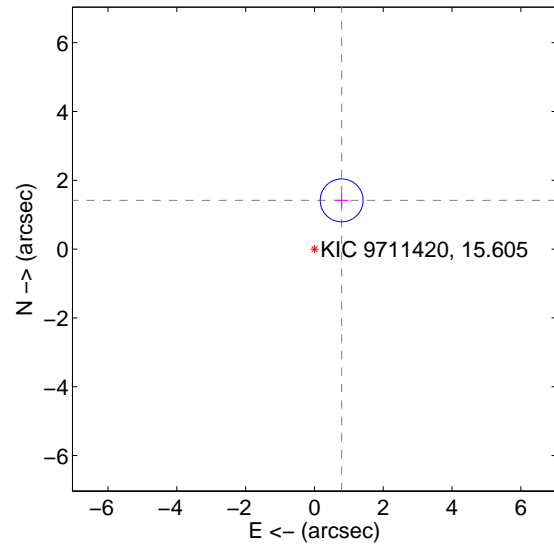
Supplemental centroid analysis for 009711420-01. Kepler magnitude: 15.61. Transit SNR 9.07

There are 1 quarters with good PRF difference image offsets

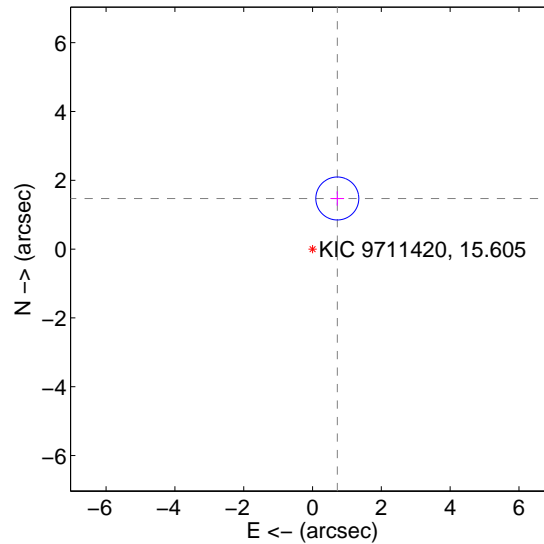
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.622 \pm 0.208$	7.81	$-0.791 \pm 0.198$	$1.416 \pm 0.211$
PRF-fit source offset from KIC position	$1.638 \pm 0.208$	7.87	$-0.720 \pm 0.198$	$1.471 \pm 0.211$
photometric centroid source offset	$2.40 \pm 1.15$	2.07	$-2.32 \pm 1.14$	$-0.60 \pm 1.38$

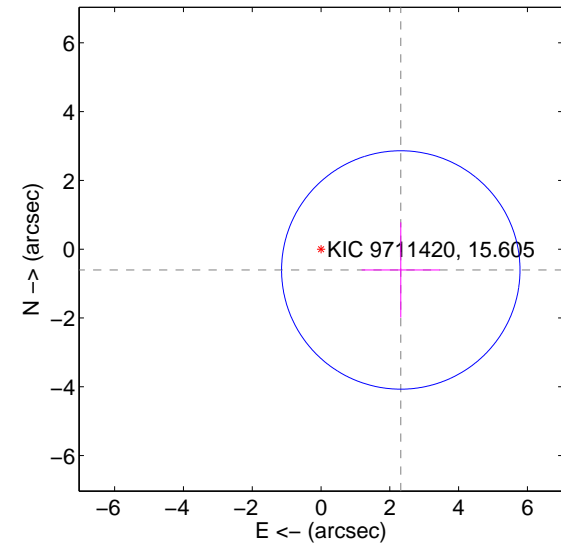
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



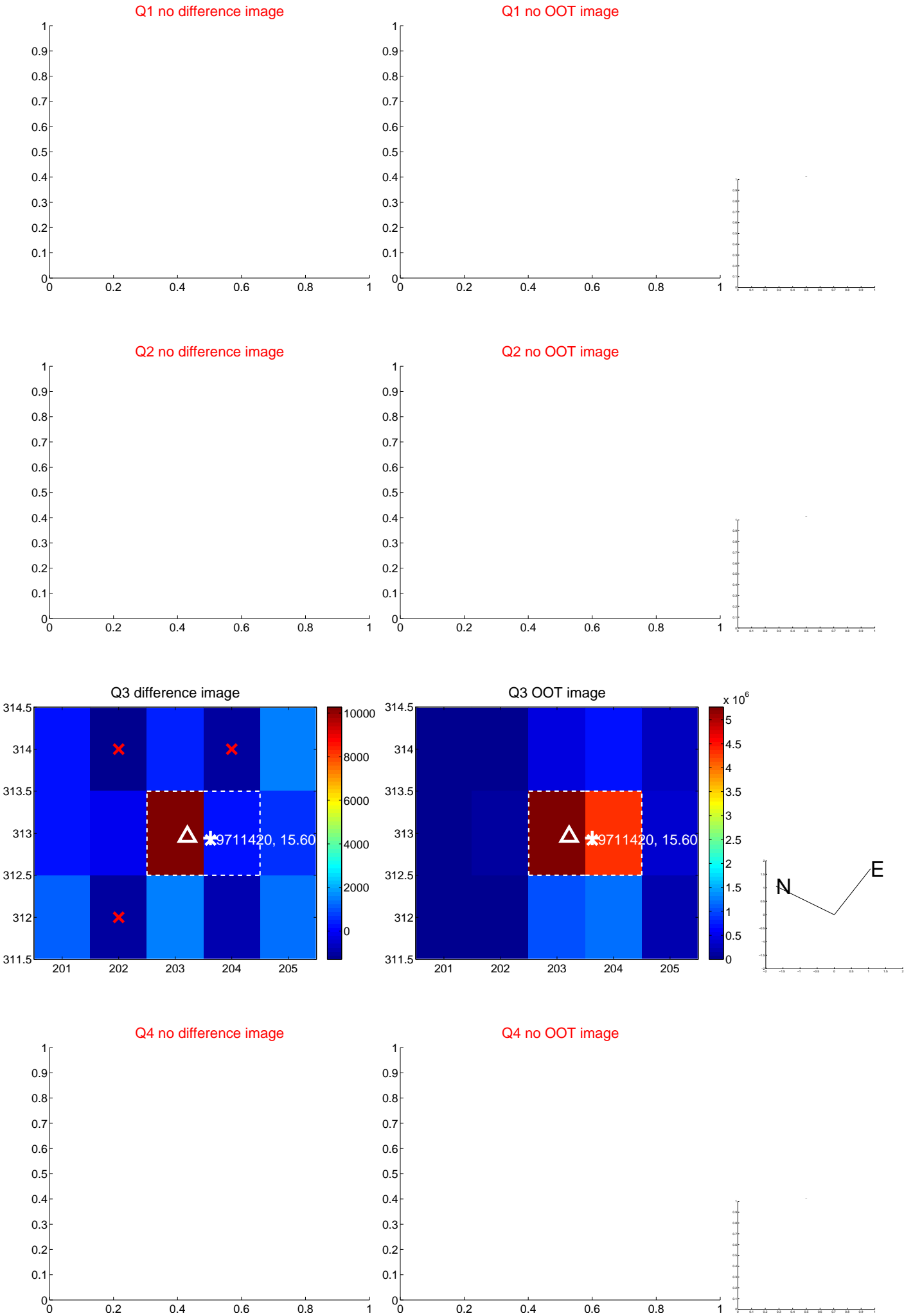
offset from photometric centroids



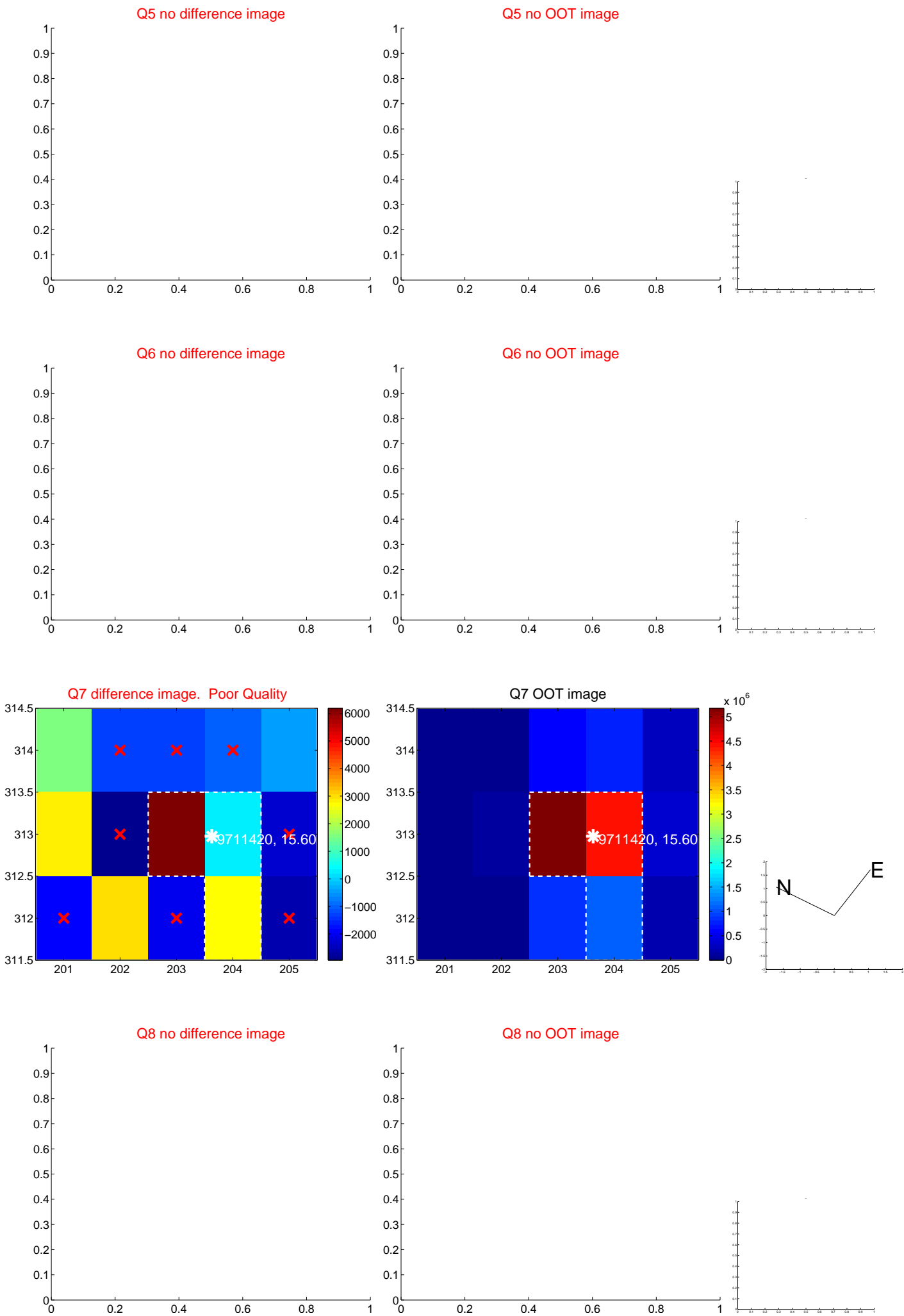
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



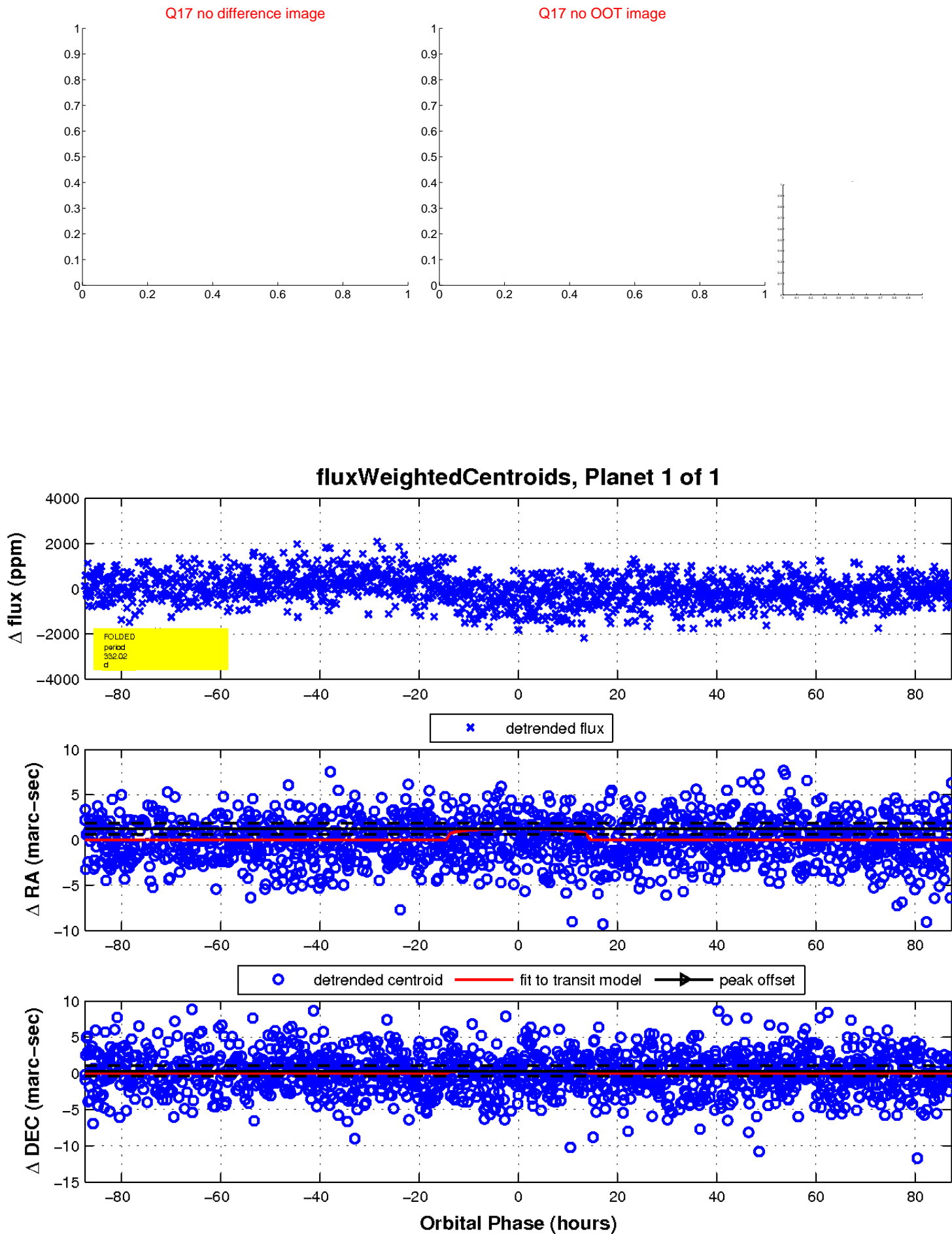
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

