

# KIC 005953596

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005953596-01	OBS	No	361.651281	271.529546	291.3	2.698	9.2	4.6	0.84	5508	1.61	0.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005953596-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

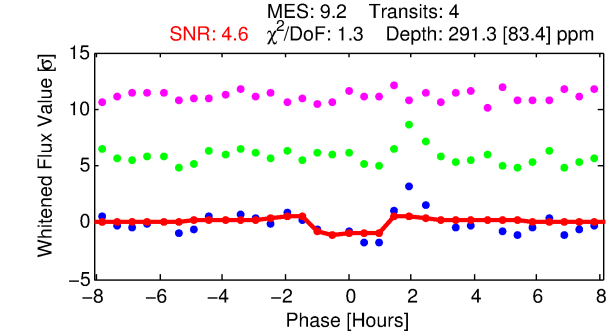
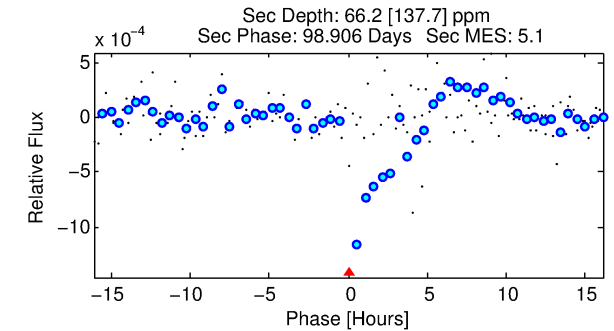
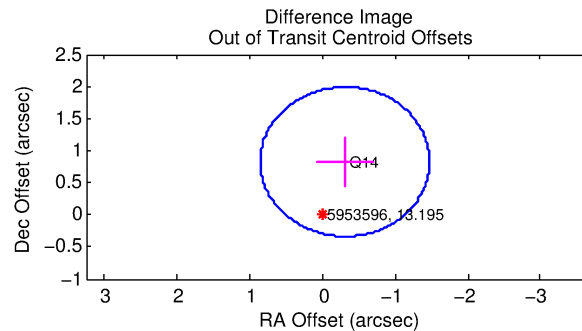
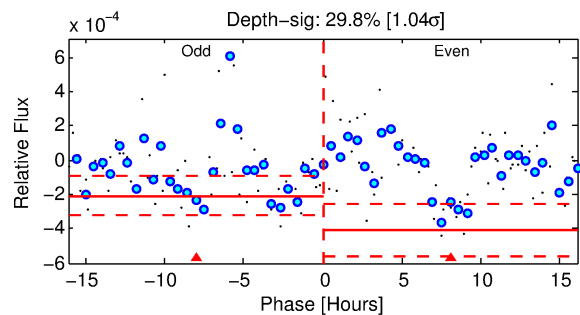
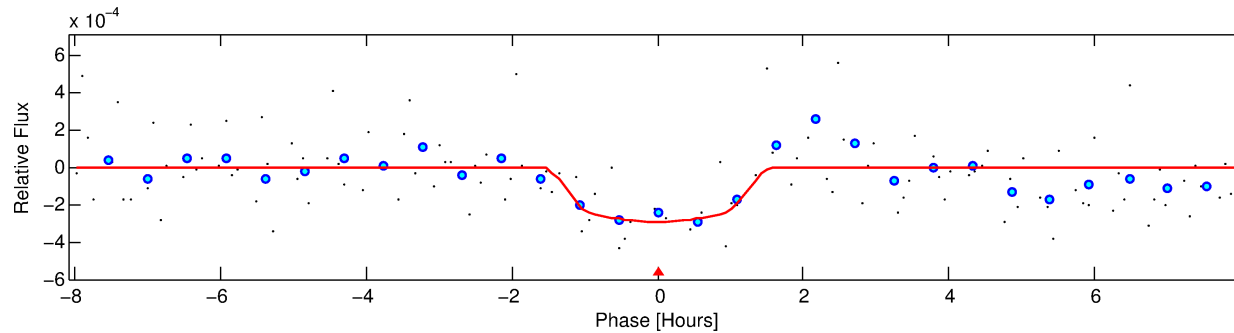
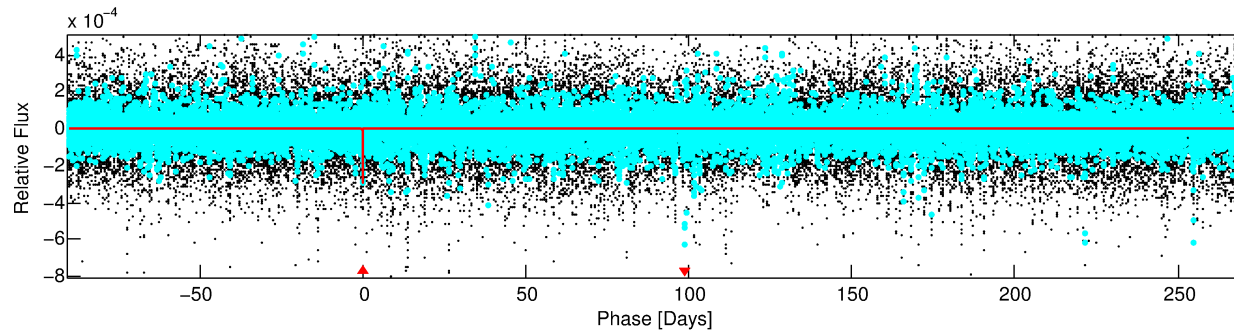
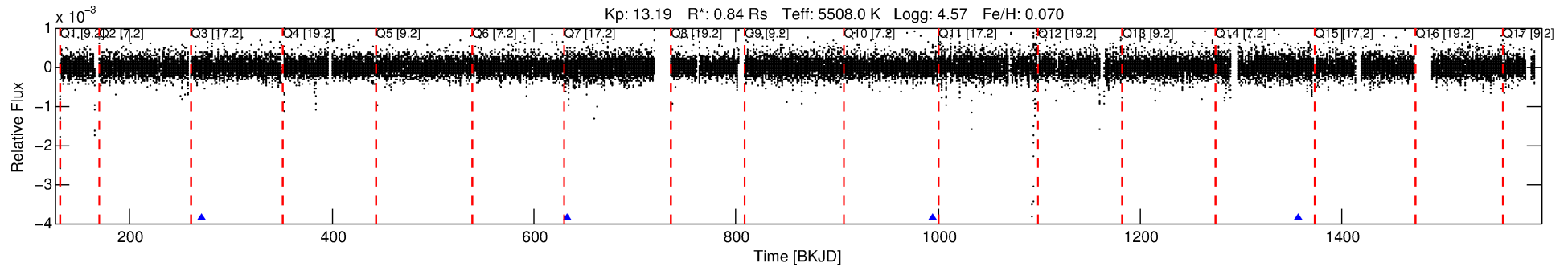
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005953596-01

No Significant Match Found

# DV One-Page Summary

KIC: 5953596 Candidate: 1 of 1 Period: 361.651 d



## DV Fit Results:

Period = 361.65128 [0.00410] d  
Epoch = 271.5295 [0.0089] BKJD  
Rp/R\* = 0.0175 [0.0290]  
a/R\* = 630.11 [4326.66]  
b = 0.81 [2.97]  
Seff = 0.61 [0.09]  
Teq = 225 [9] K  
Rp = 1.61 [2.66] Re  
a = 0.9782 [0.0880] AU  
Ag = 13495.57 [52783.23] [0.26σ]  
Teffp = 3752 [3667] K [0.96σ]

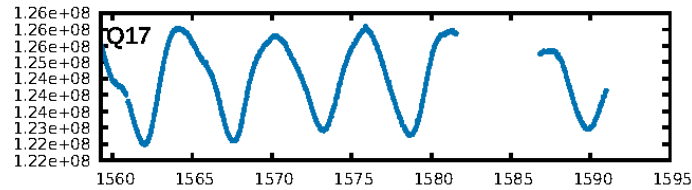
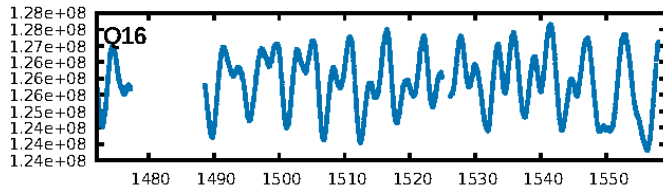
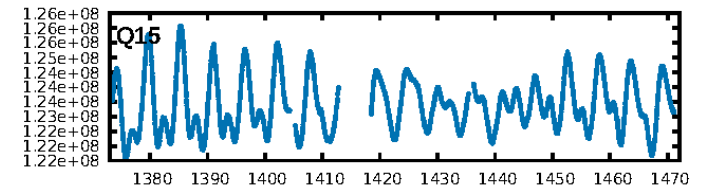
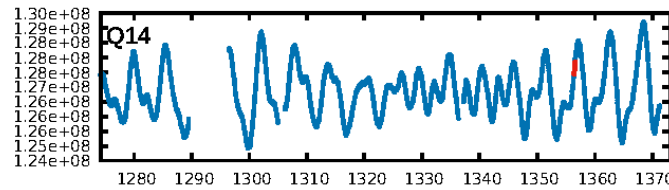
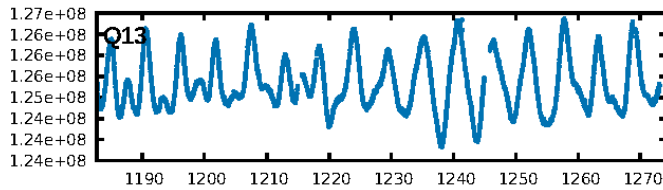
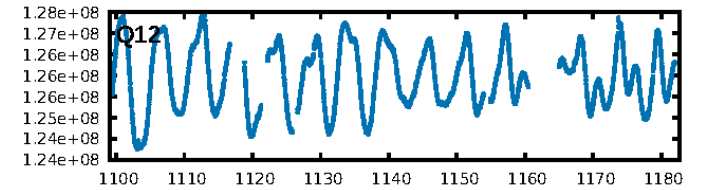
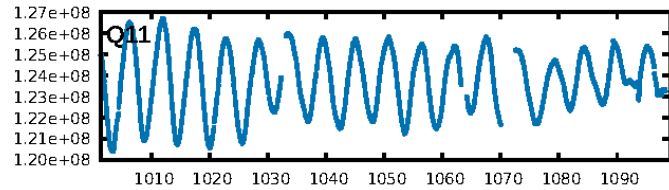
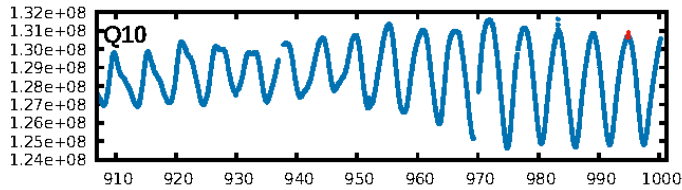
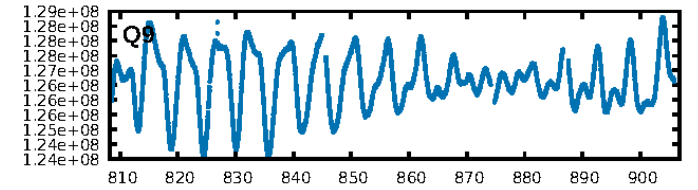
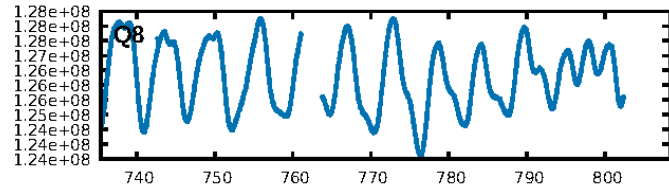
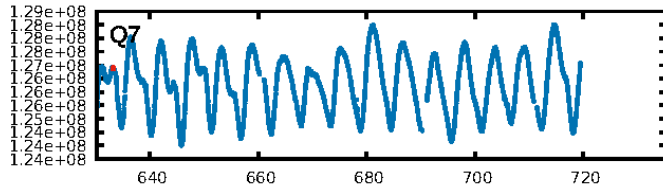
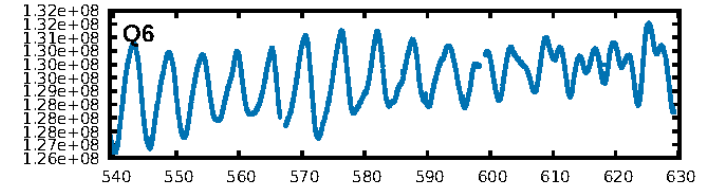
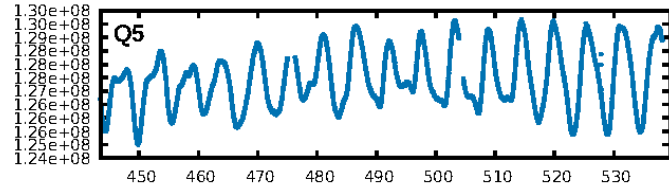
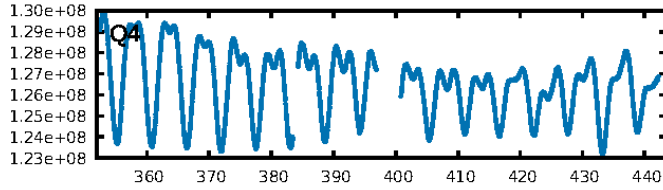
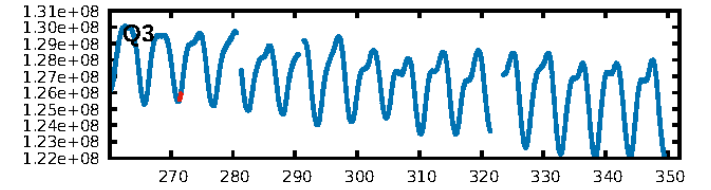
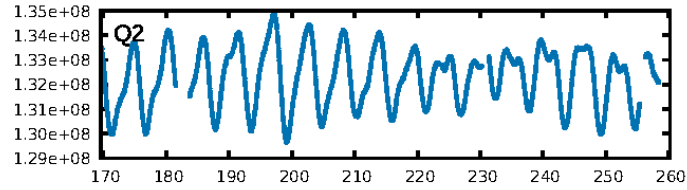
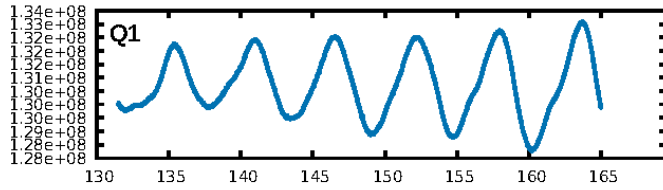
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.5%  
ModelChiSquareGof-sig: 54.3%  
Bootstrap-pfa: 5.83e-09  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 3.238  
Centroid-sig: 85.2%  
Centroid-so: 0.551 arcsec [0.33σ]  
OotOffset-rm: 0.882 arcsec [2.27σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-rm: 1.001 arcsec [2.58σ]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

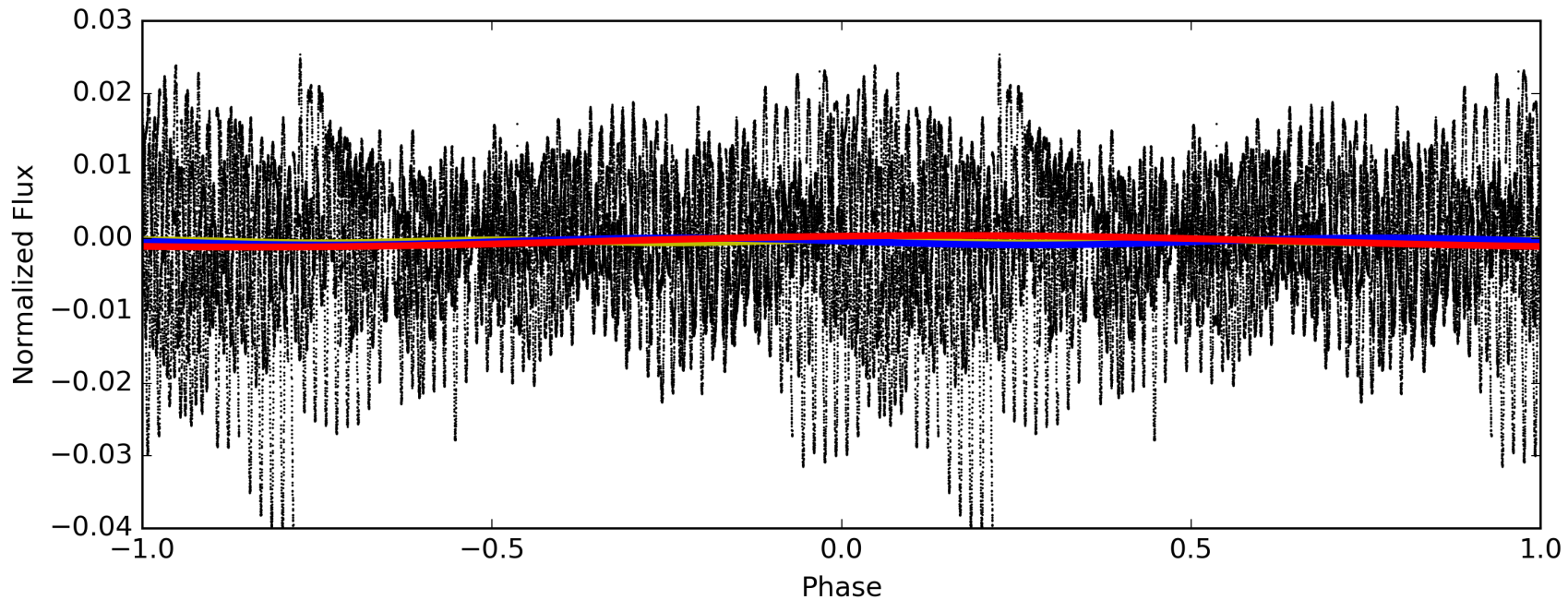
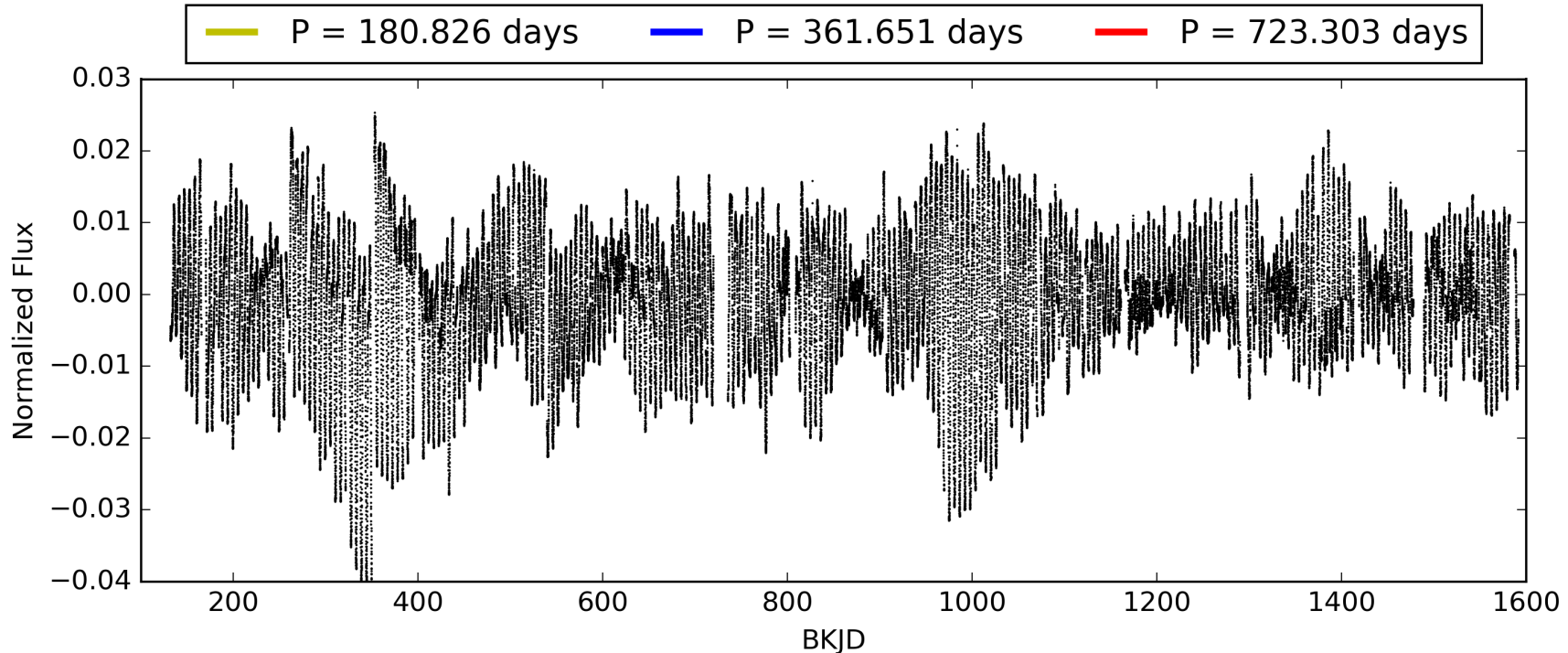
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:26:46 Z

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

# TCE 005953596-01, PDC Light Curves

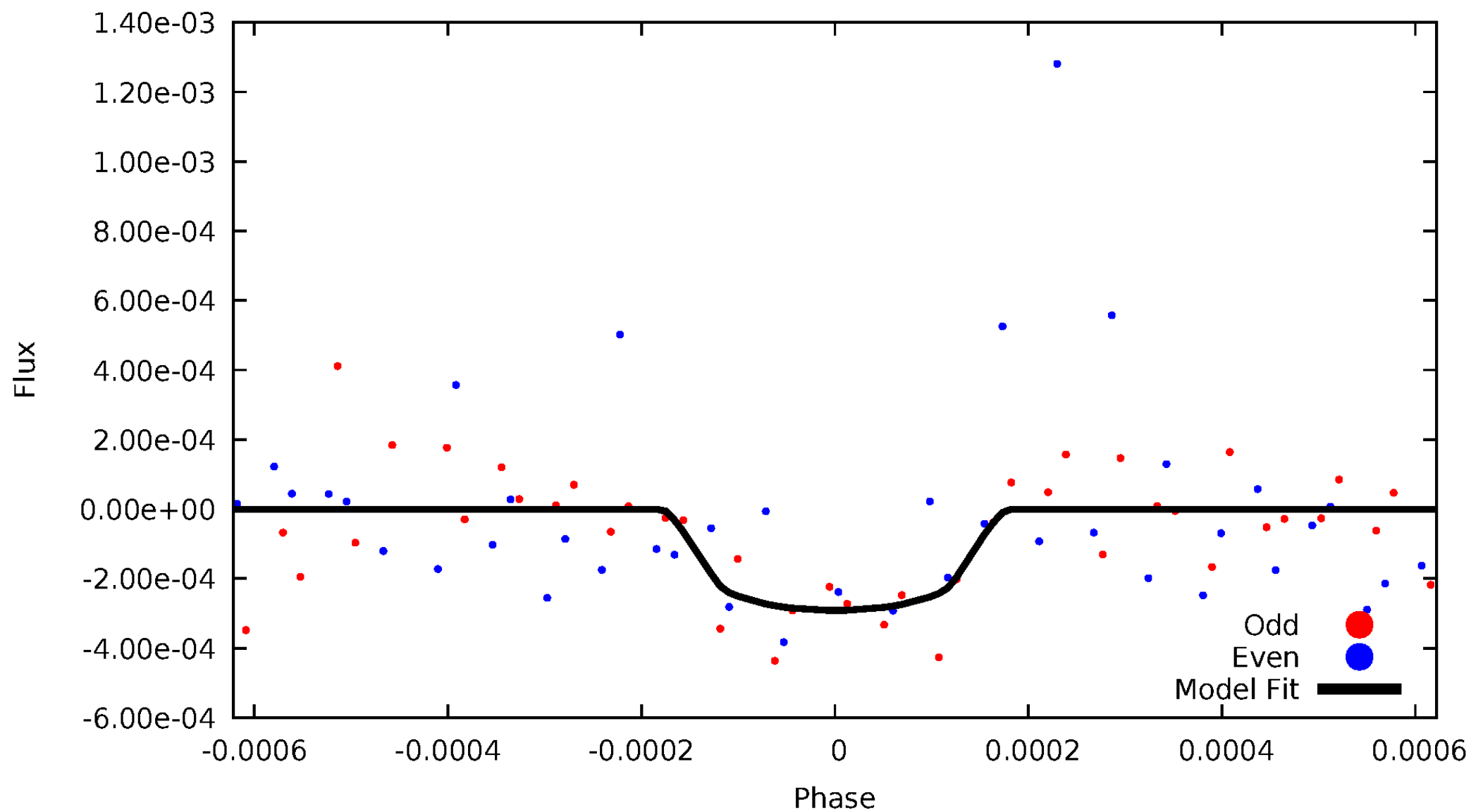


TCE 005953596-01



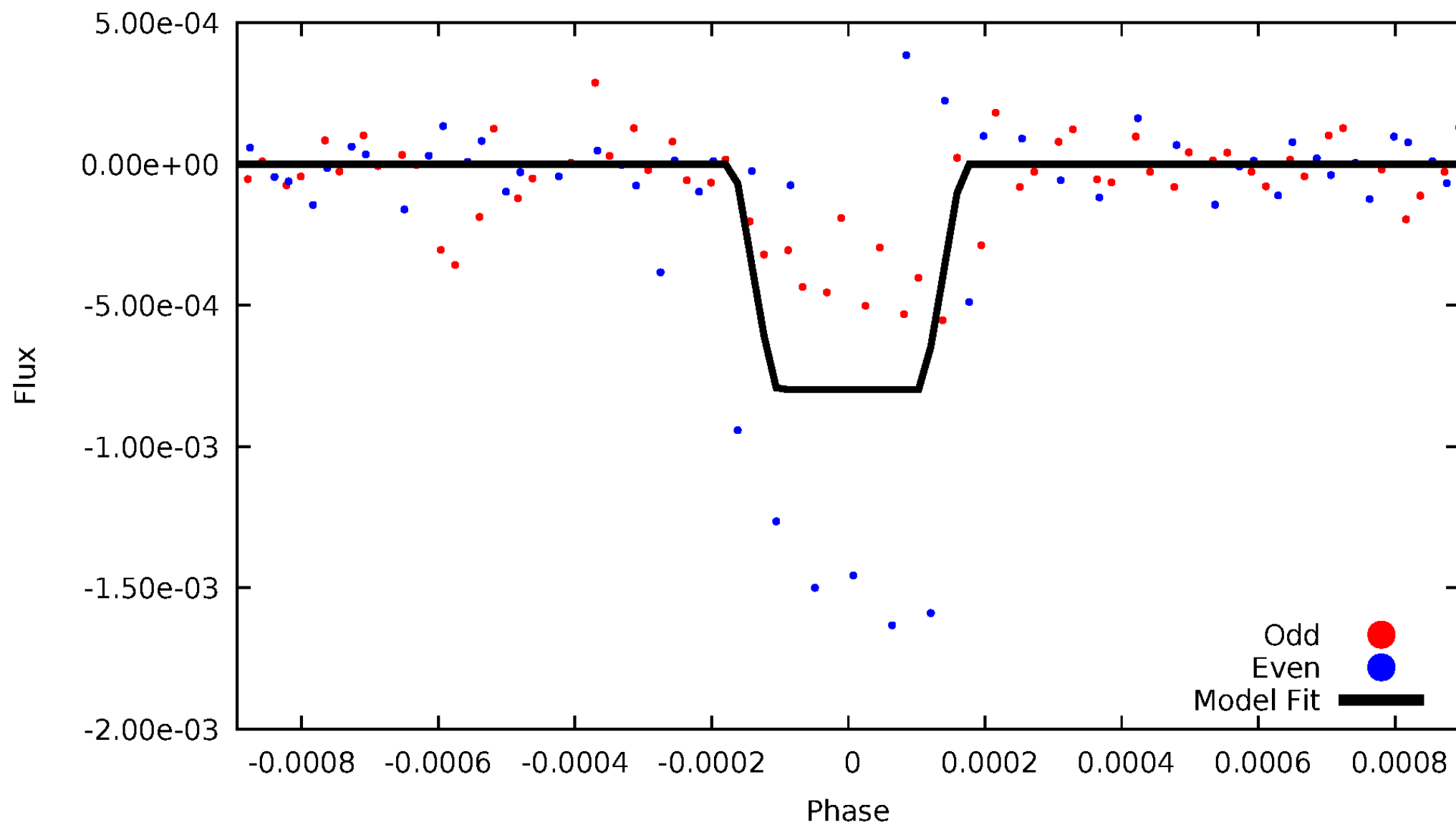
# DV Odd/Even

TCE 005953596-01



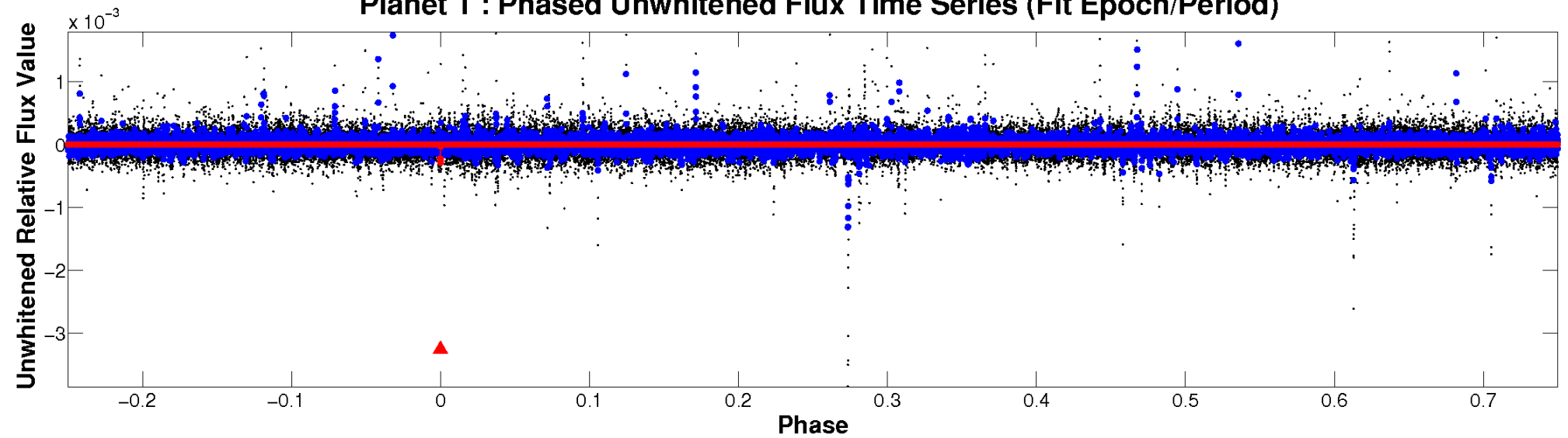
# ALT Odd/Even

TCE 005953596-01

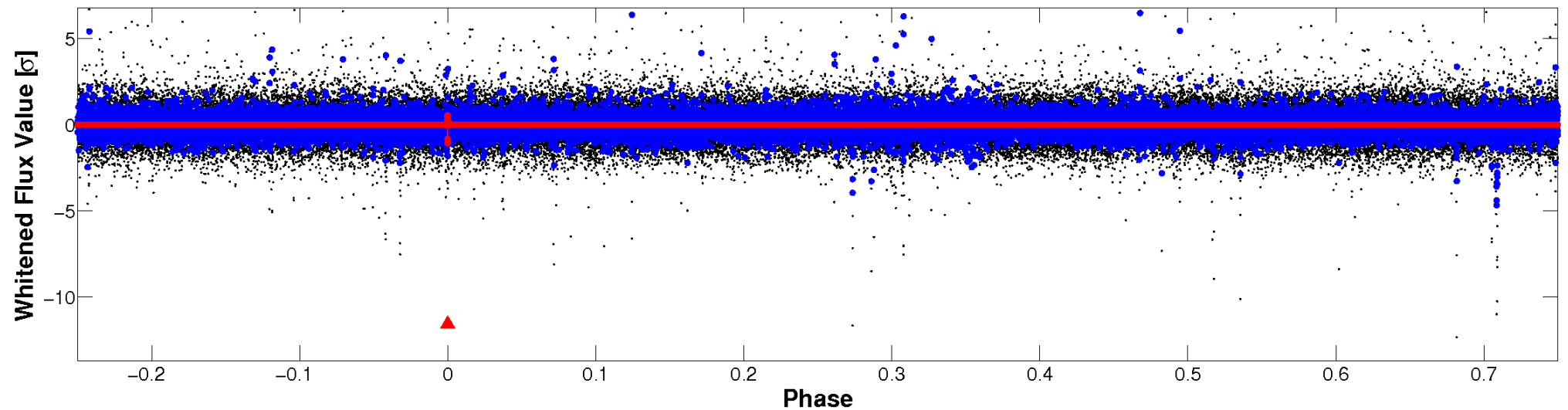


# Non-Whitened Vs. Whitened Light Curve

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

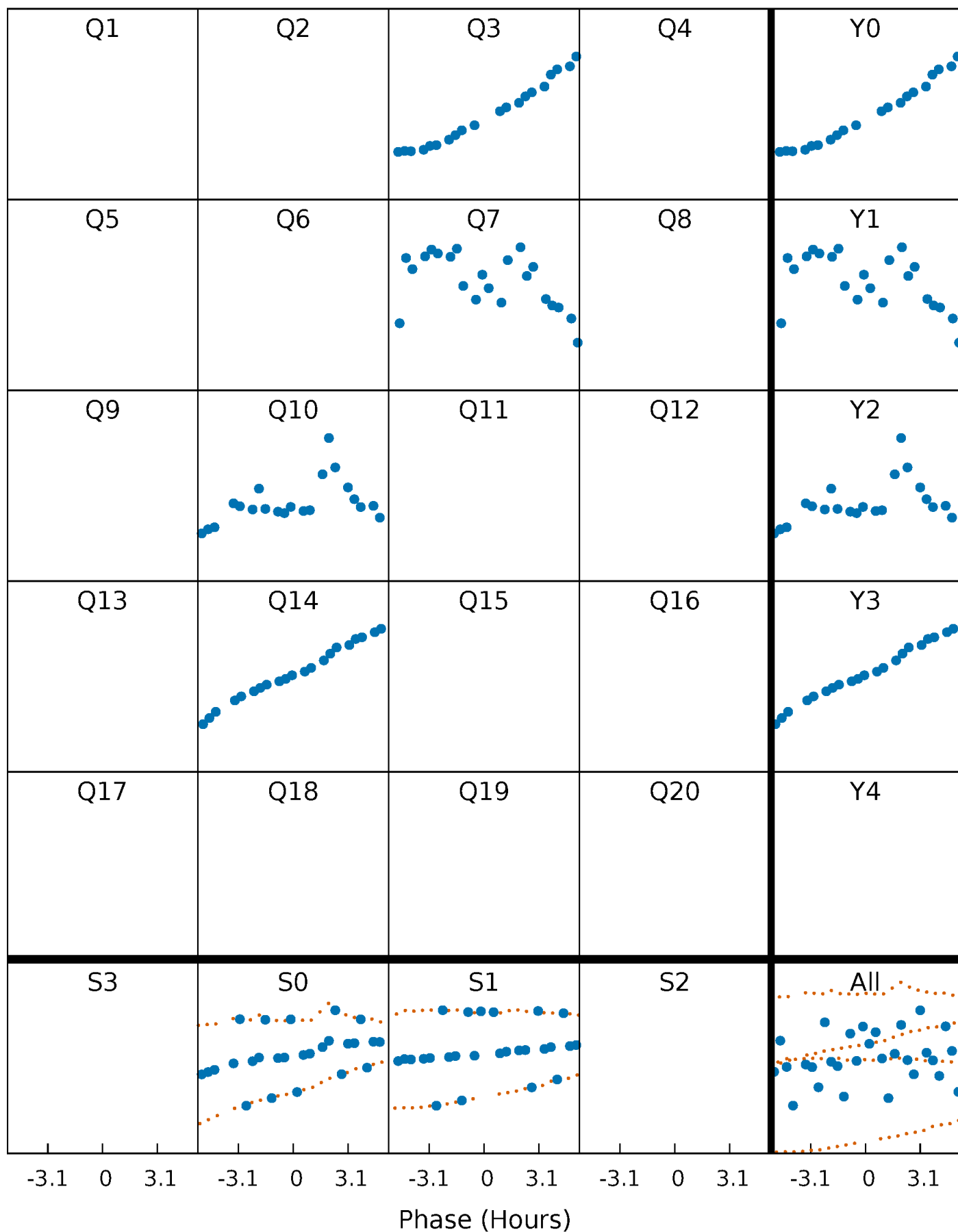


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

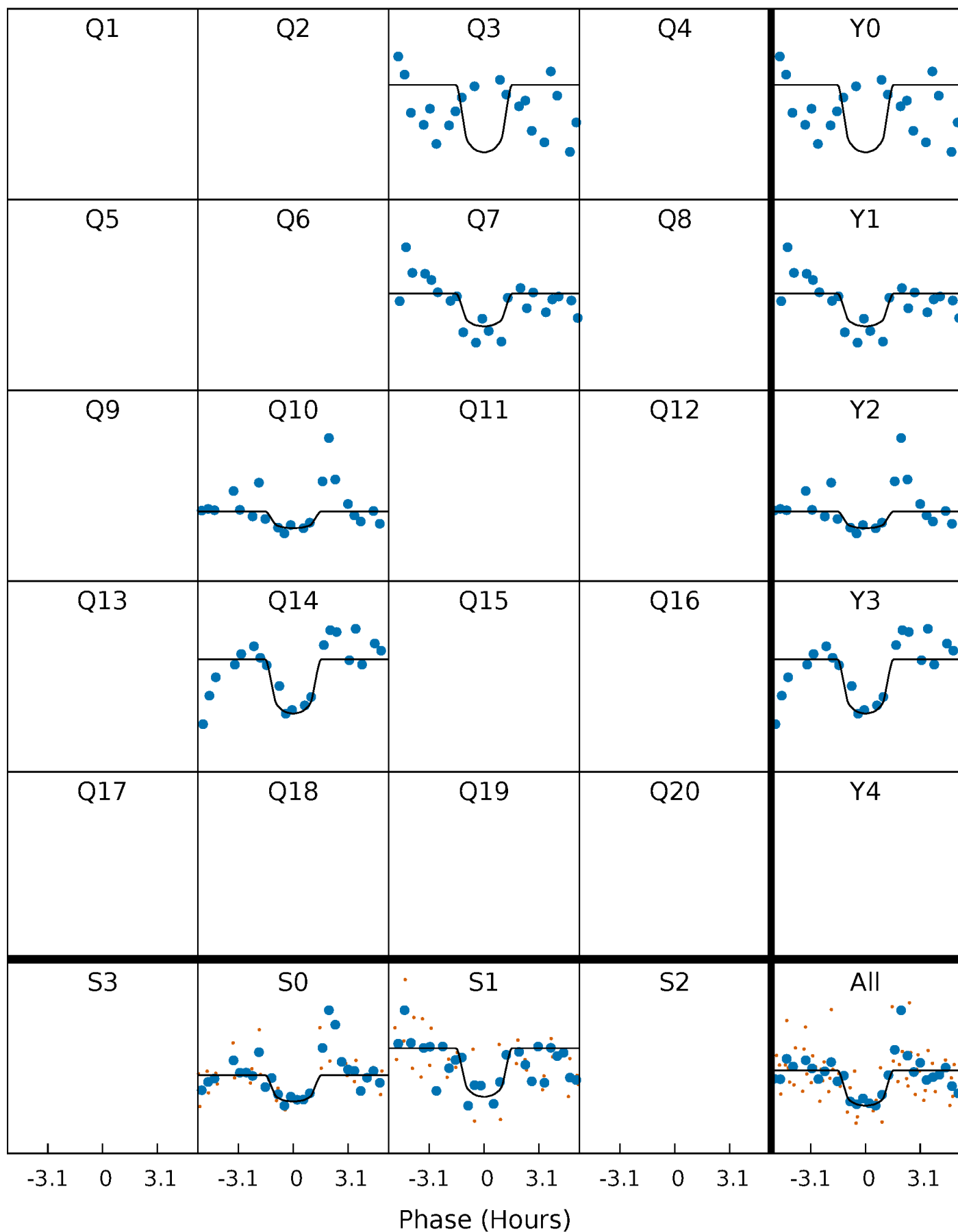
TCE 005953596-01 P=361.651281 Days  $T_0=271.529546$  (BKJD)





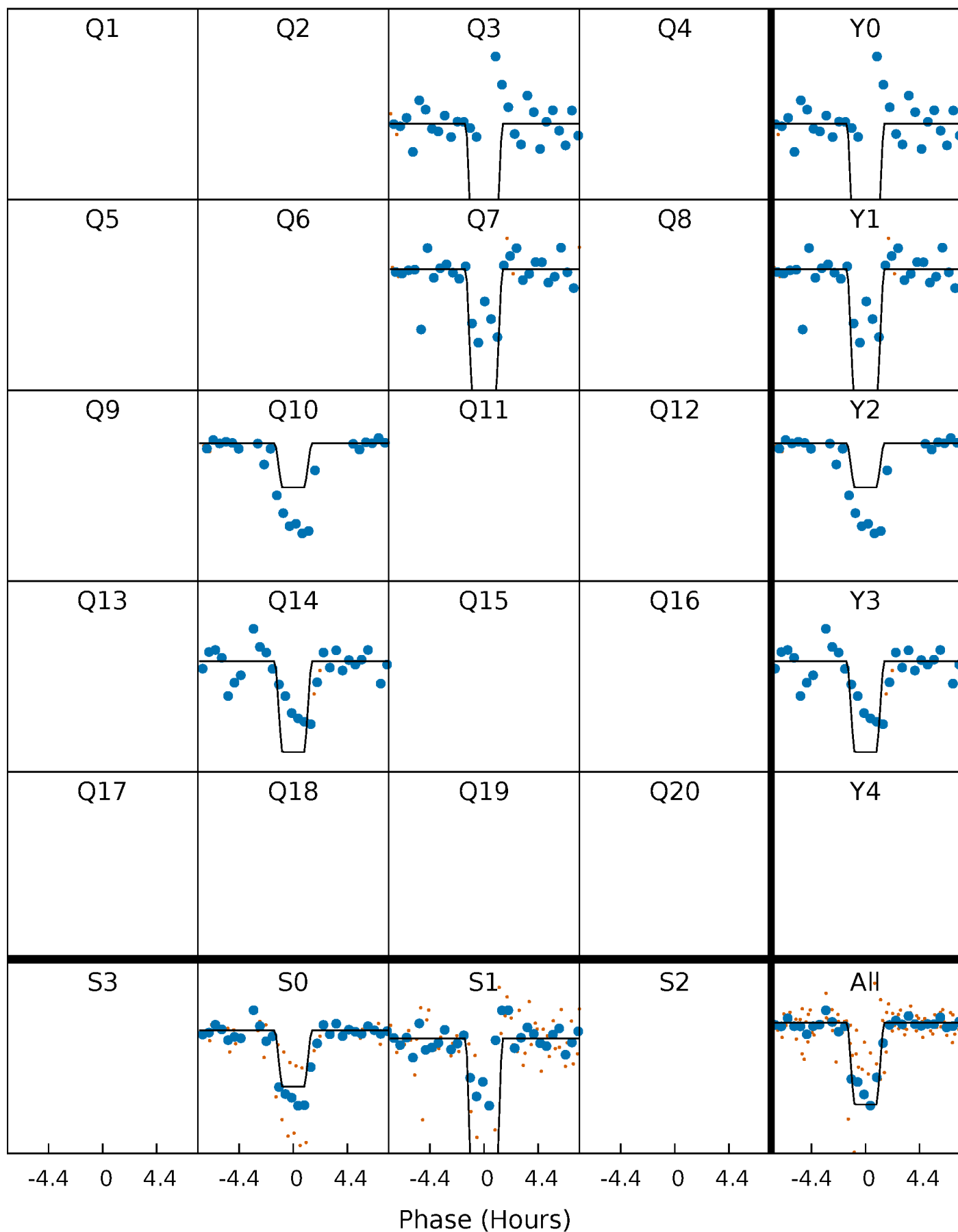
# DV Quarter-Phased Transit Curves

TCE 005953596-01 P=361.651281 Days  $T_0=271.529546$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

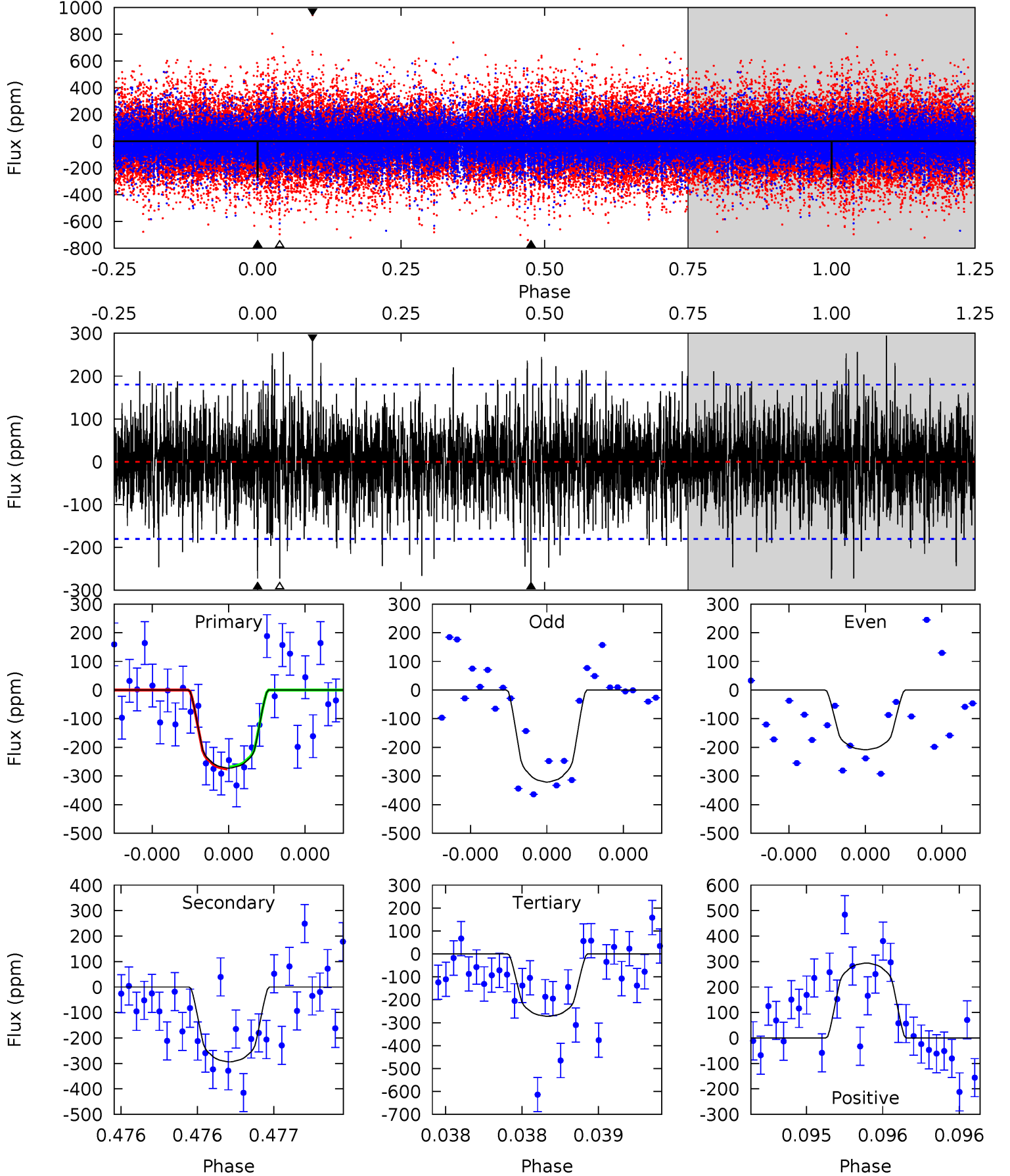
TCE 005953596-01 P=361.648186 Days  $T_0=271.534349$  (BKJD)



# DV Model-Shift Uniqueness Test

005953596-01, P = 361.651281 Days, E = 271.529546 Days

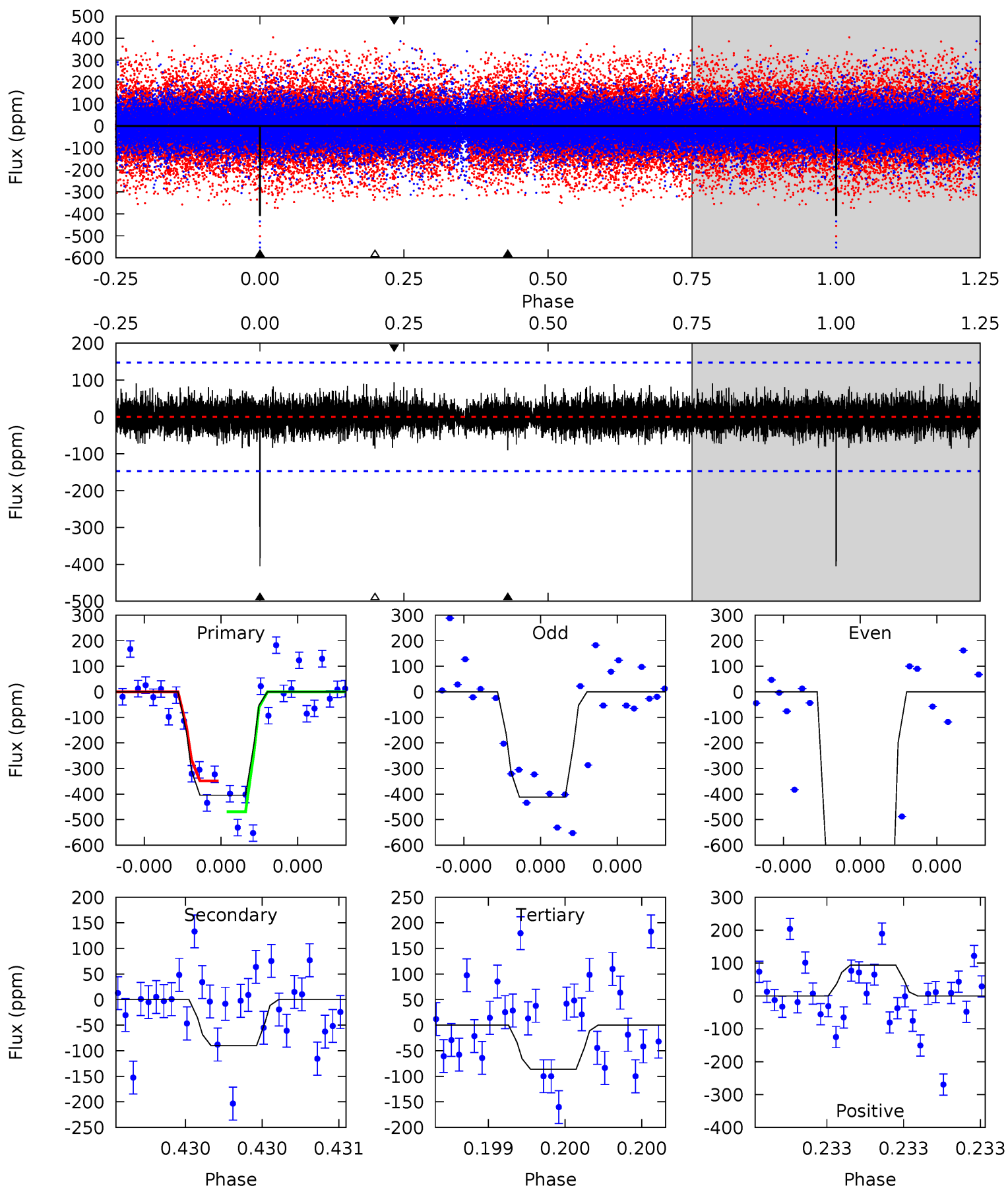
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	9.19	8.52	9.21	5.64	3.58	1.93	0.01	-0.68	0.68	-0.01	1.66	0.85	0.50	0.12



# Alt Model-Shift Uniqueness Test

005953596-01, P = 361.648186 Days, E = 271.534349 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
15.5	3.45	3.30	3.59	5.65	3.60	0.81	12.2	11.9	0.14	-0.14	23.3	1.34	0.19	2.30



### Stellar Parameters For KIC 005953596

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5508^{+74}_{-82}$	$4.569^{+0.014}_{-0.081}$	$0.070^{+0.150}_{-0.150}$	$0.840^{+0.082}_{-0.035}$	$0.955^{+0.034}_{-0.073}$	$2.266^{+0.163}_{-0.551}$
	+1%/-1%	+0%/-2%	+214%/-214%	+10%/-4%	+4%/-8%	+7%/-24%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005953596-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-294 \pm 32$	$2.58^{+2.41}_{-1.62}$	$318^{+8}_{-6}$	$4498^{+2594}_{-911}$	$22936^{+143864}_{-16806}$
Alt.	$-90 \pm 26$	$3.22^{+2.62}_{-2.10}$	$317^{+8}_{-6}$	$3391^{+1460}_{-546}$	$4478^{+28673}_{-3191}$

$T_{max}$  = 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

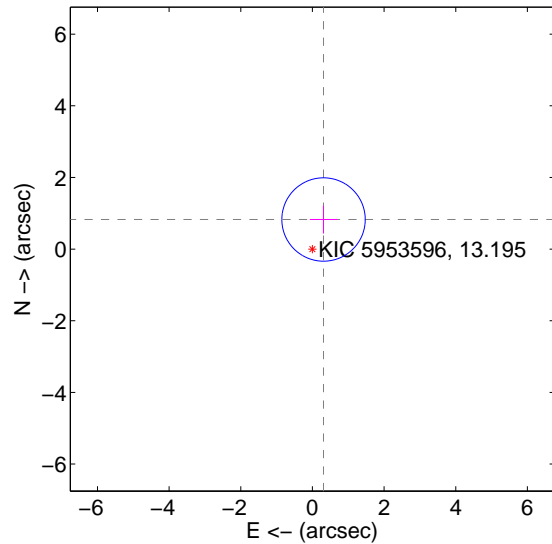
Supplemental centroid analysis for 005953596-01. Kepler magnitude: 13.20. Transit SNR 4.56

There are 1 quarters with good PRF difference image offsets

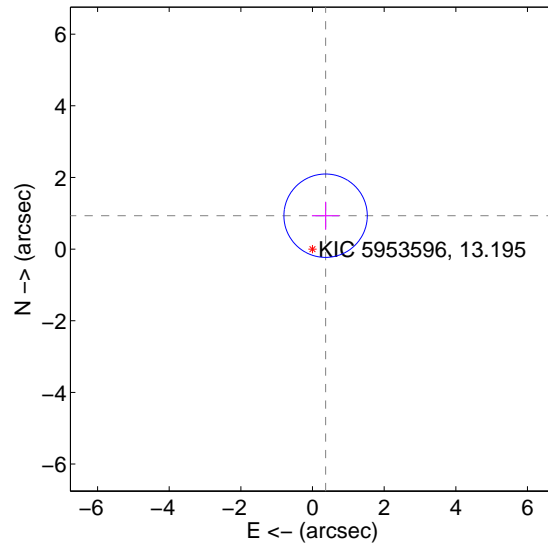
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.882 \pm 0.388$	2.27	$-0.310 \pm 0.381$	$0.826 \pm 0.389$
PRF-fit source offset from KIC position	$1.001 \pm 0.388$	2.58	$-0.365 \pm 0.381$	$0.932 \pm 0.389$
photometric centroid source offset	$0.55 \pm 1.69$	0.33	$-0.49 \pm 1.69$	$-0.25 \pm 1.69$

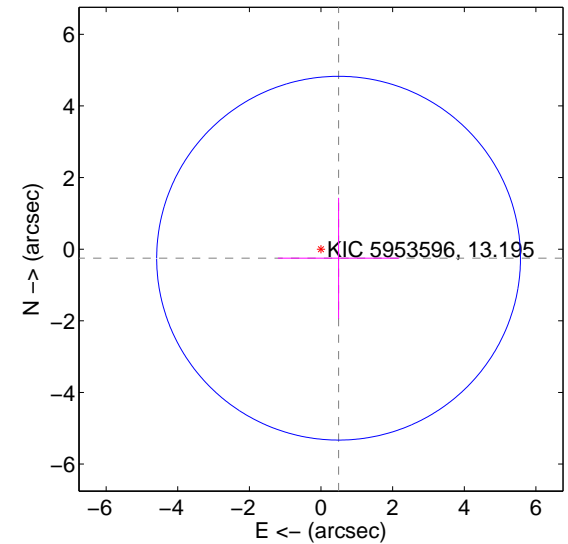
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

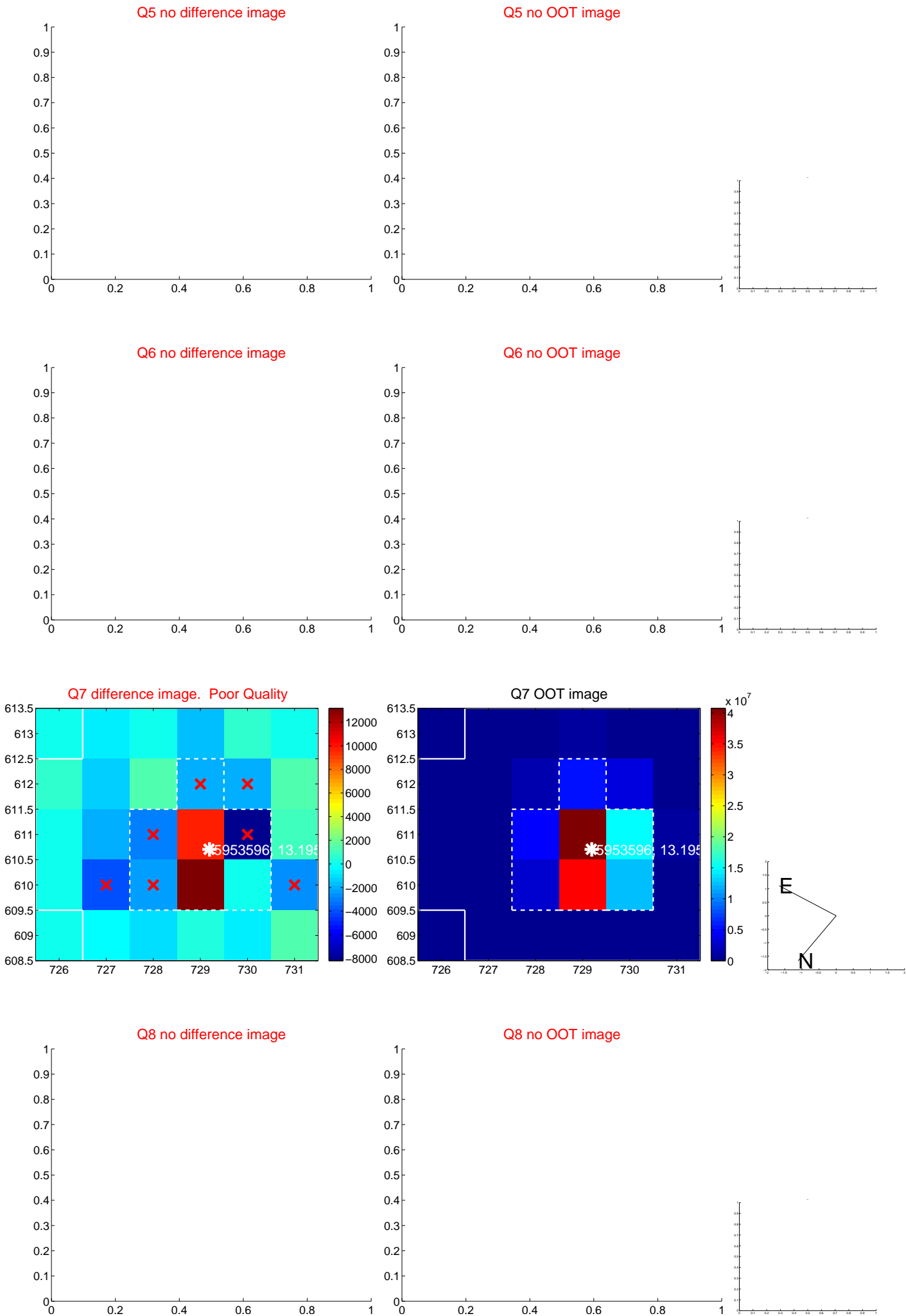


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

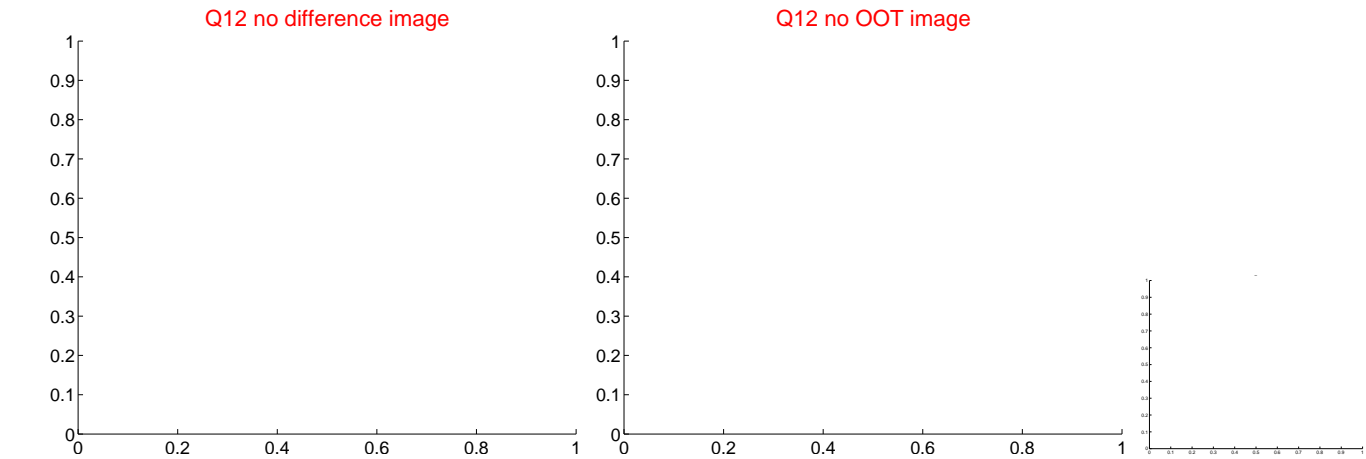
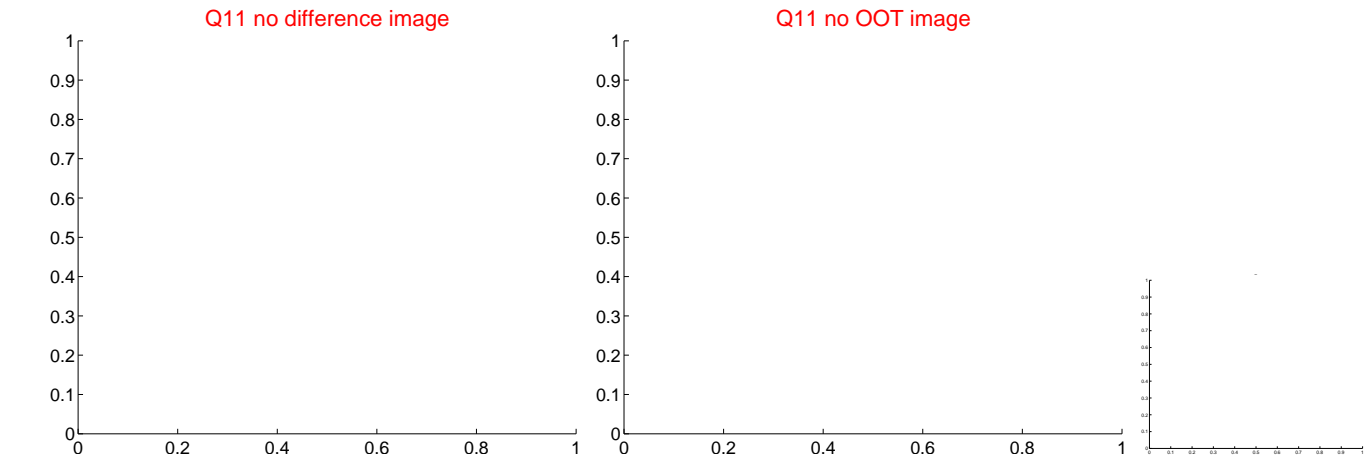
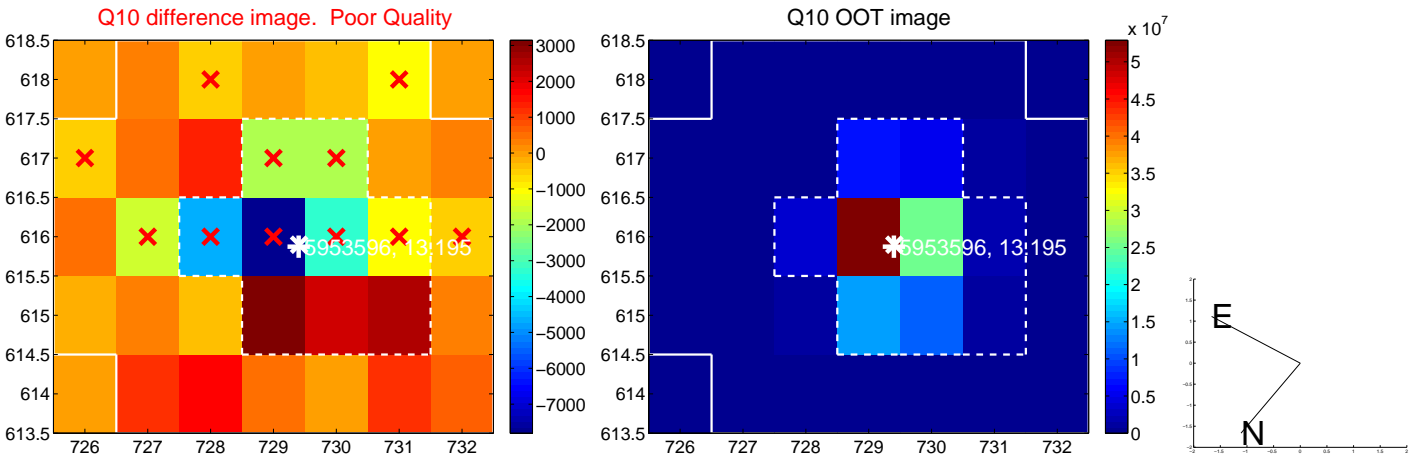
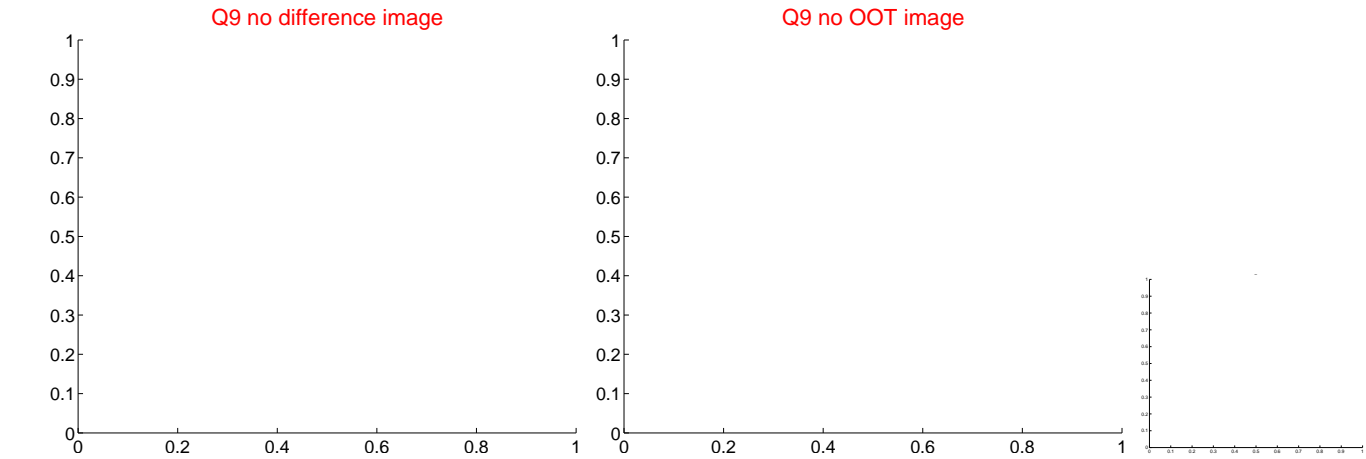


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

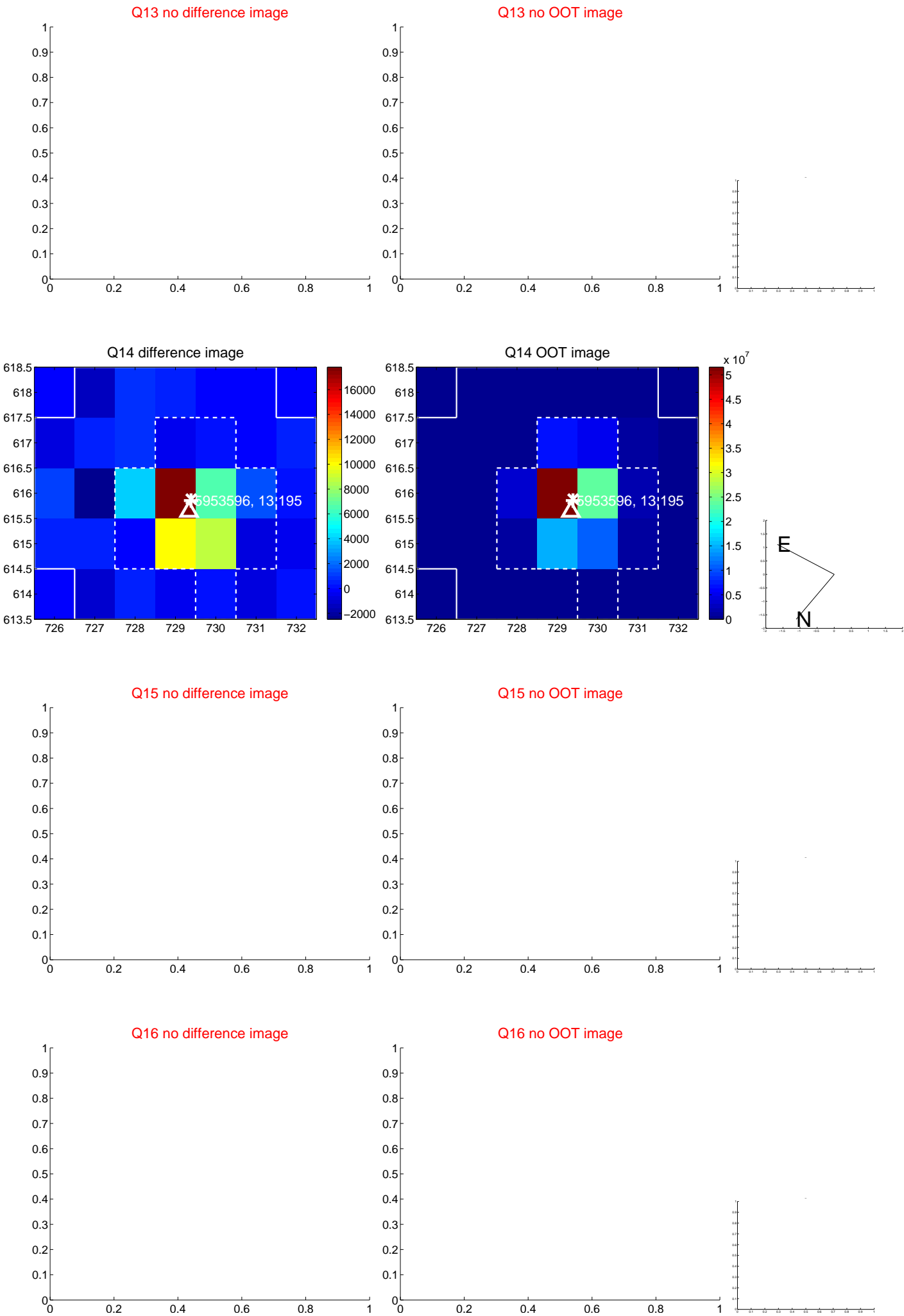




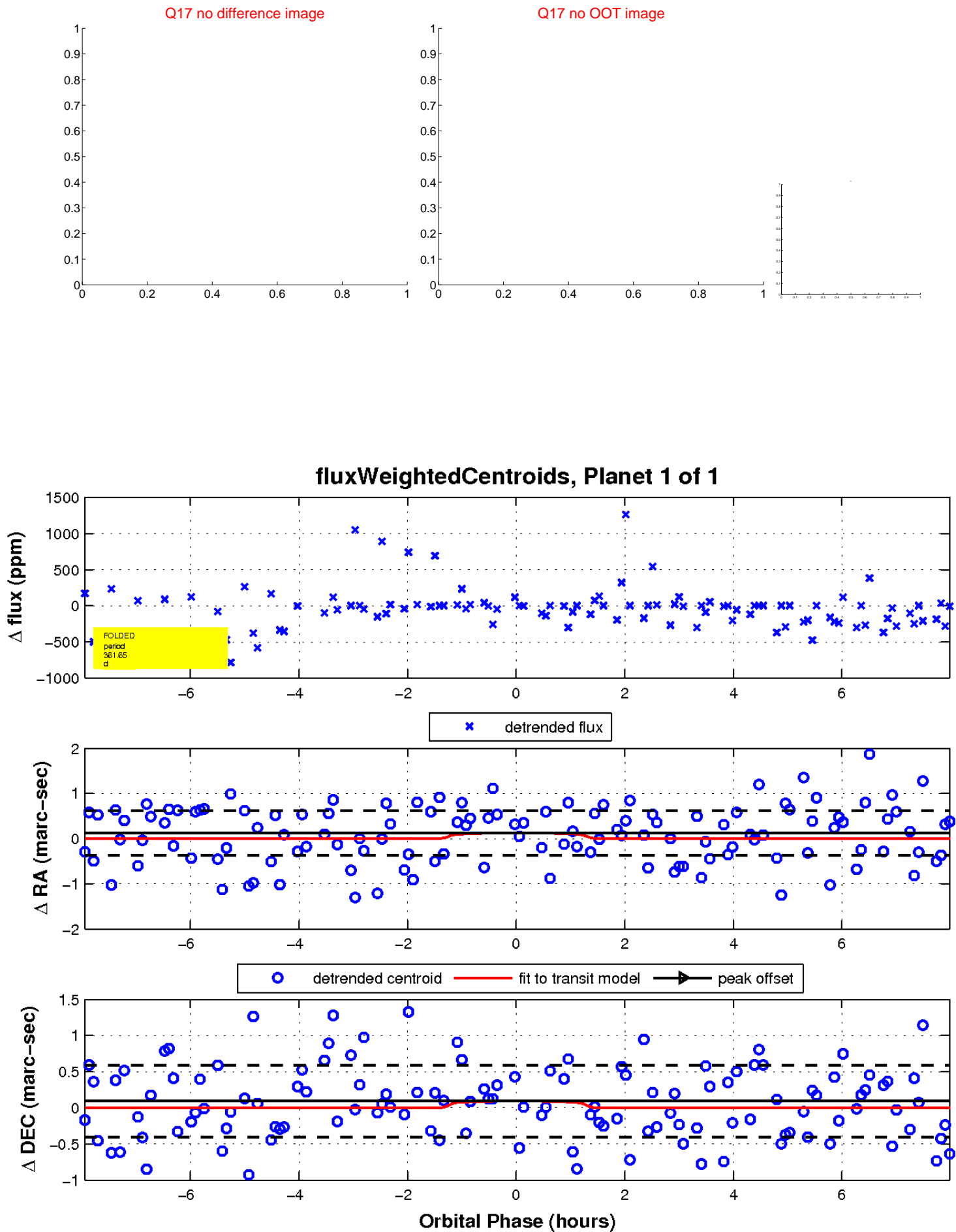
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

