

# KIC 005876359

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005876359-01	OBS	No	481.229147	337.261886	209.3	14.059	9.4	6.2	1.48	5366	2.66	1.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005876359-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_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.

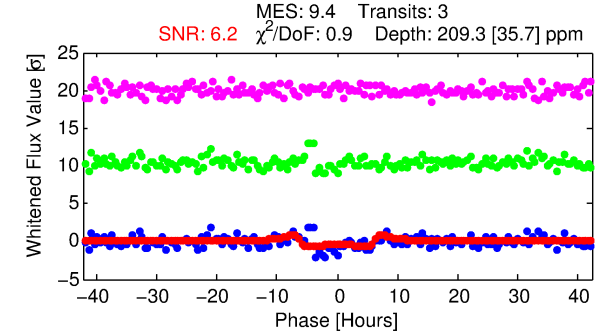
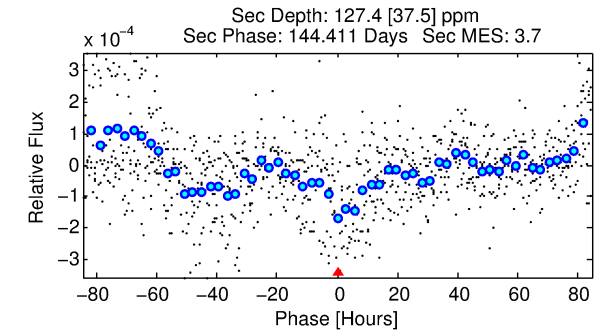
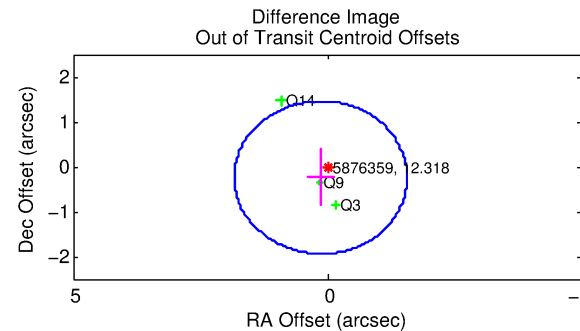
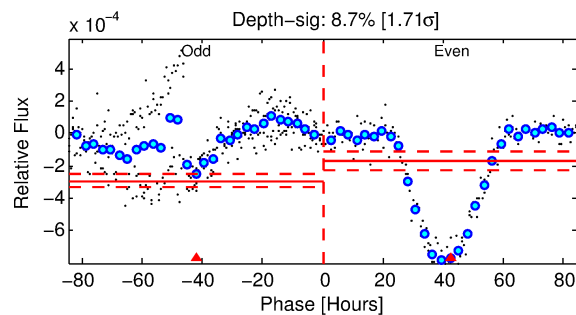
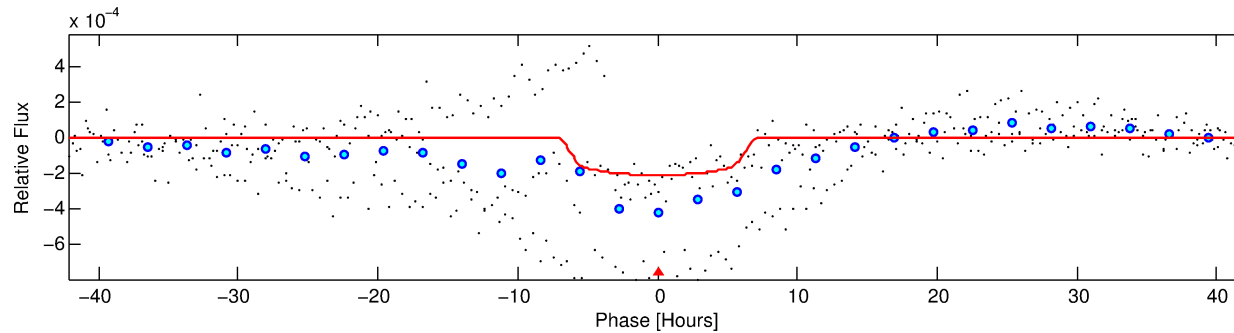
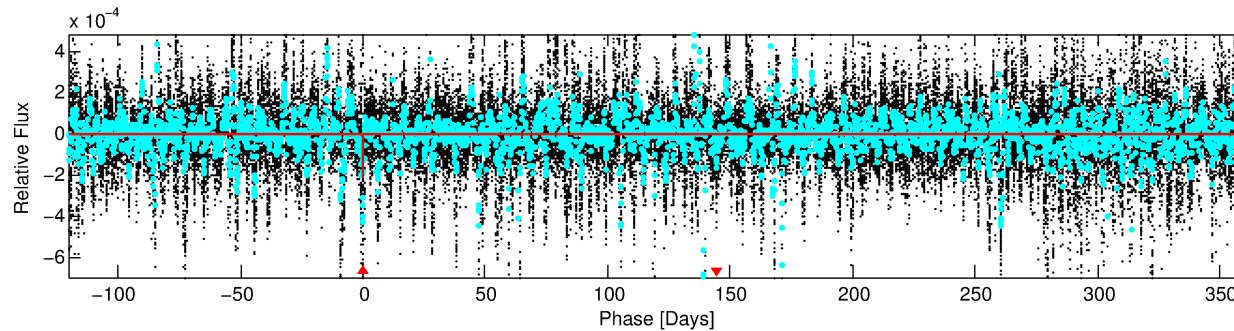
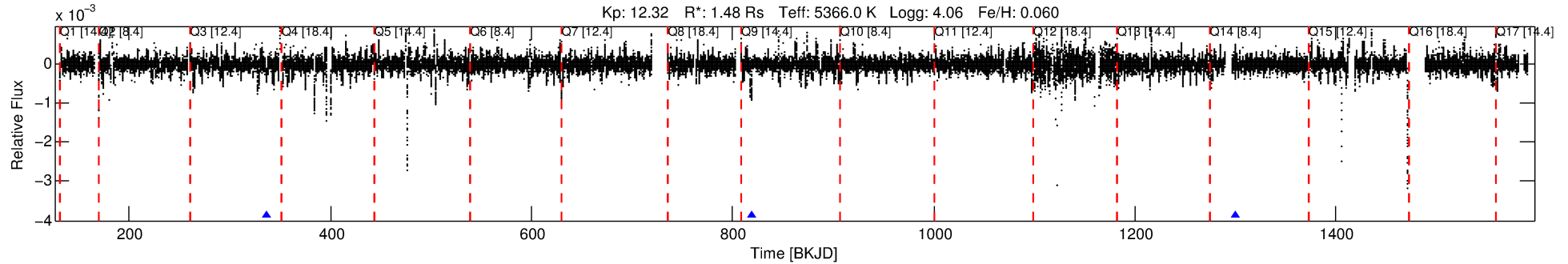
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005876359-01

No Significant Match Found

# DV One-Page Summary

KIC: 5876359 Candidate: 1 of 1 Period: 481.229 d



## DV Fit Results:

Period = 481.22915 [0.01097] d  
Epoch = 337.2619 [0.0154] BKJD  
Rp/R\* = 0.0164 [0.0019]  
a/R\* = 110.29 [31.42]  
b = 0.92 [0.05]  
Seff = 1.19 [0.88]  
Teq = 267 [49] K  
Rp = 2.66 [1.16] Re  
a = 1.1671 [0.5087] AU  
Ag = 13534.60 [11019.97] [1.23 $\sigma$ ]  
Teffp = 4446 [434] K [9.57 $\sigma$ ]

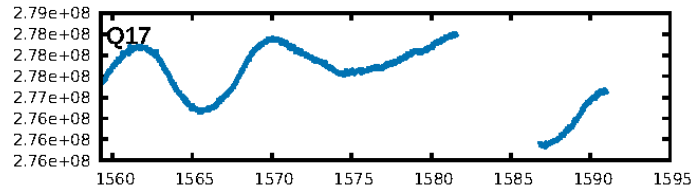
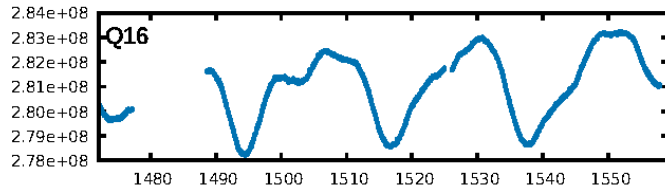
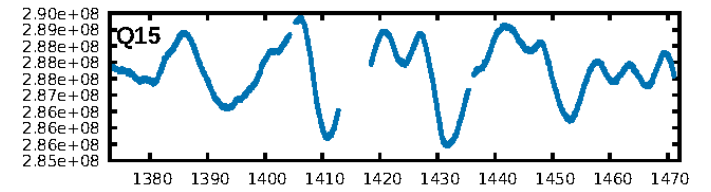
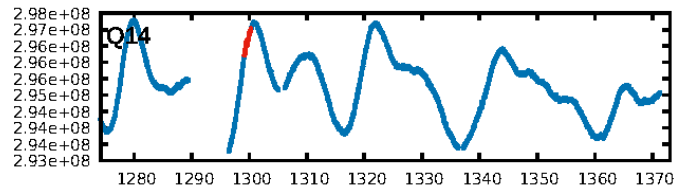
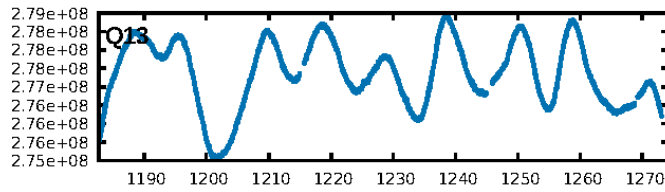
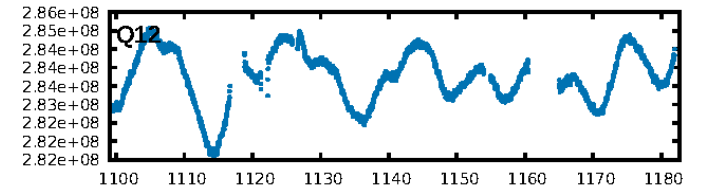
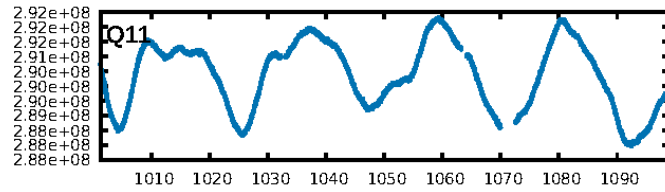
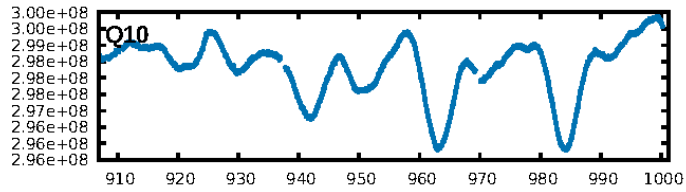
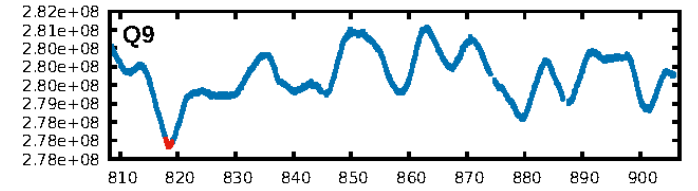
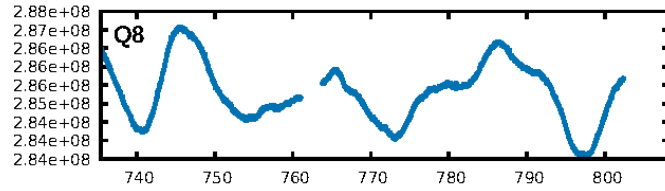
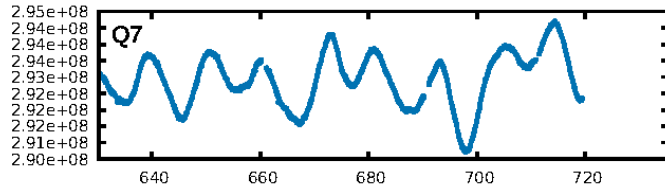
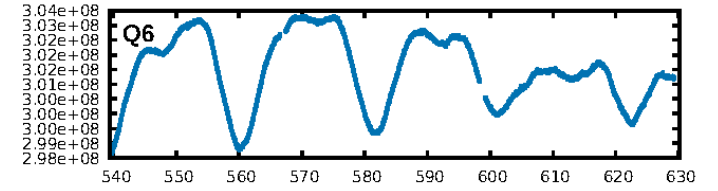
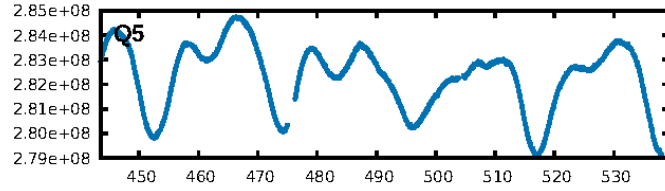
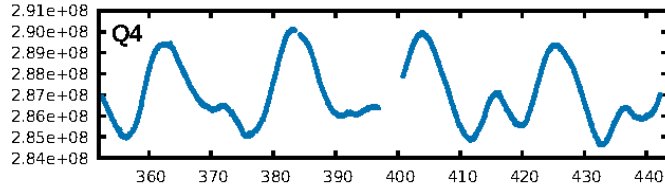
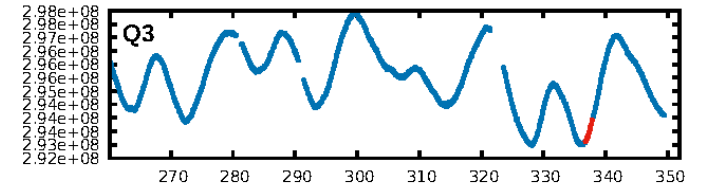
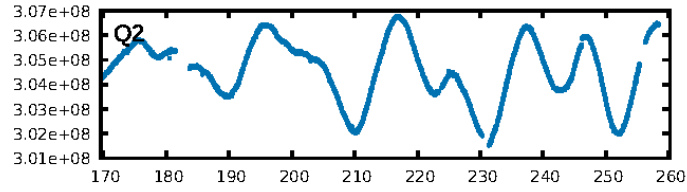
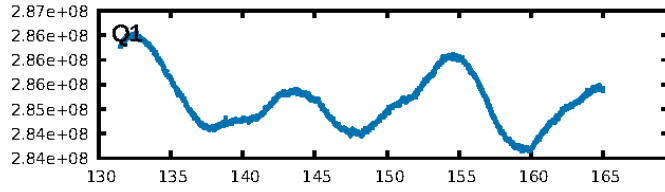
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 15.3%  
ModelChiSquareGof-sig: 96.4%  
**Bootstrap-pfa: 2.74e-10**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.528  
Centroid-sig: 43.3%  
Centroid-so: 0.814 arcsec [1.08 $\sigma$ ]  
OotOffset-rm: 0.276 arcsec [0.49 $\sigma$ ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-rm: 0.449 arcsec [0.79 $\sigma$ ]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

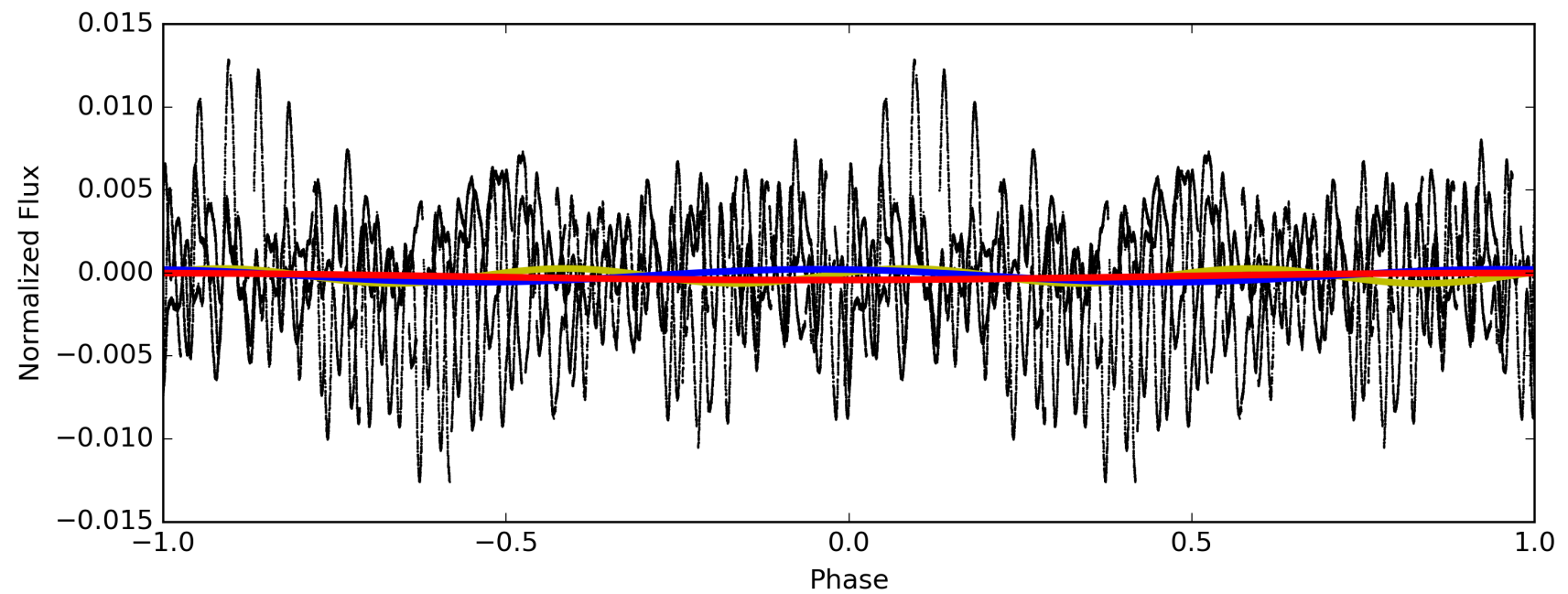
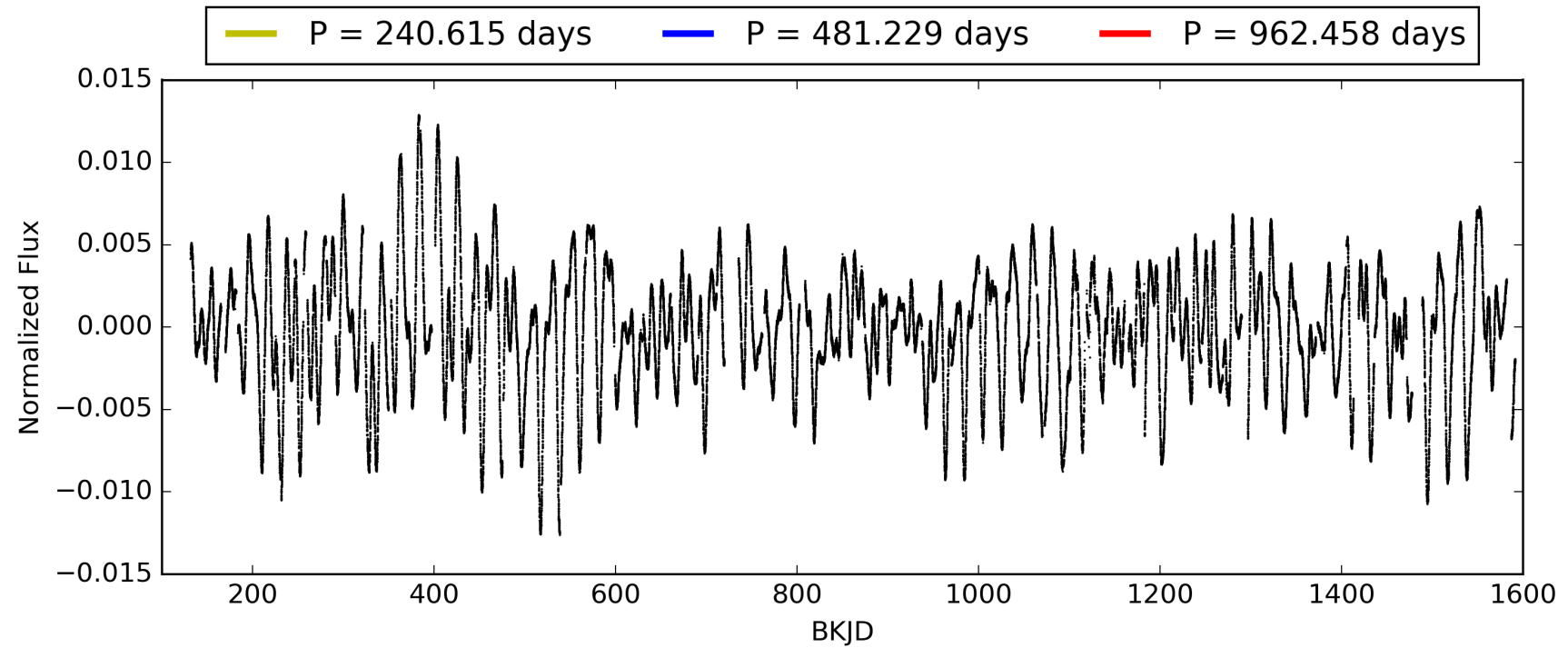
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:10:01 Z

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

# TCE 005876359-01, PDC Light Curves

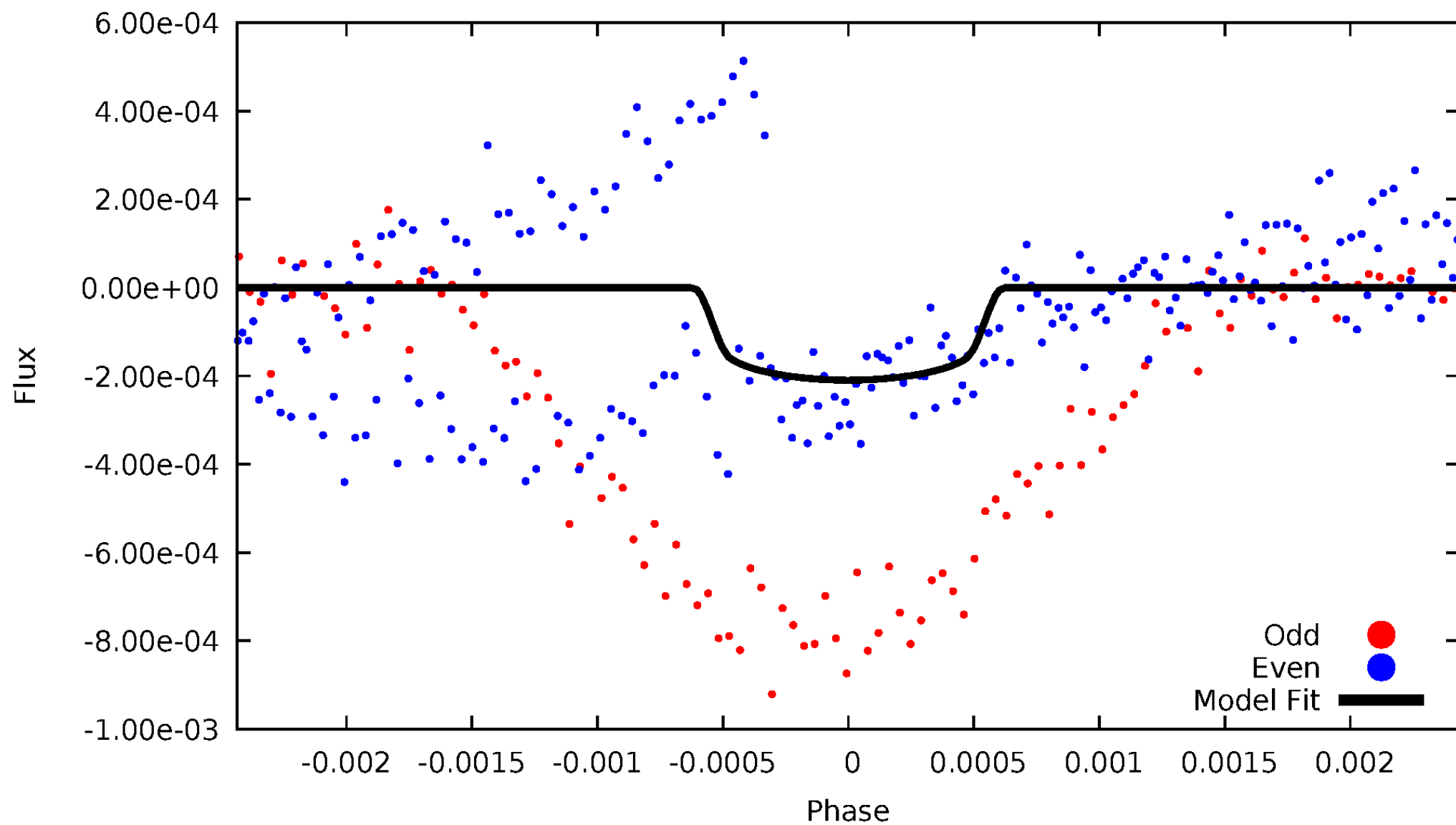


TCE 005876359-01



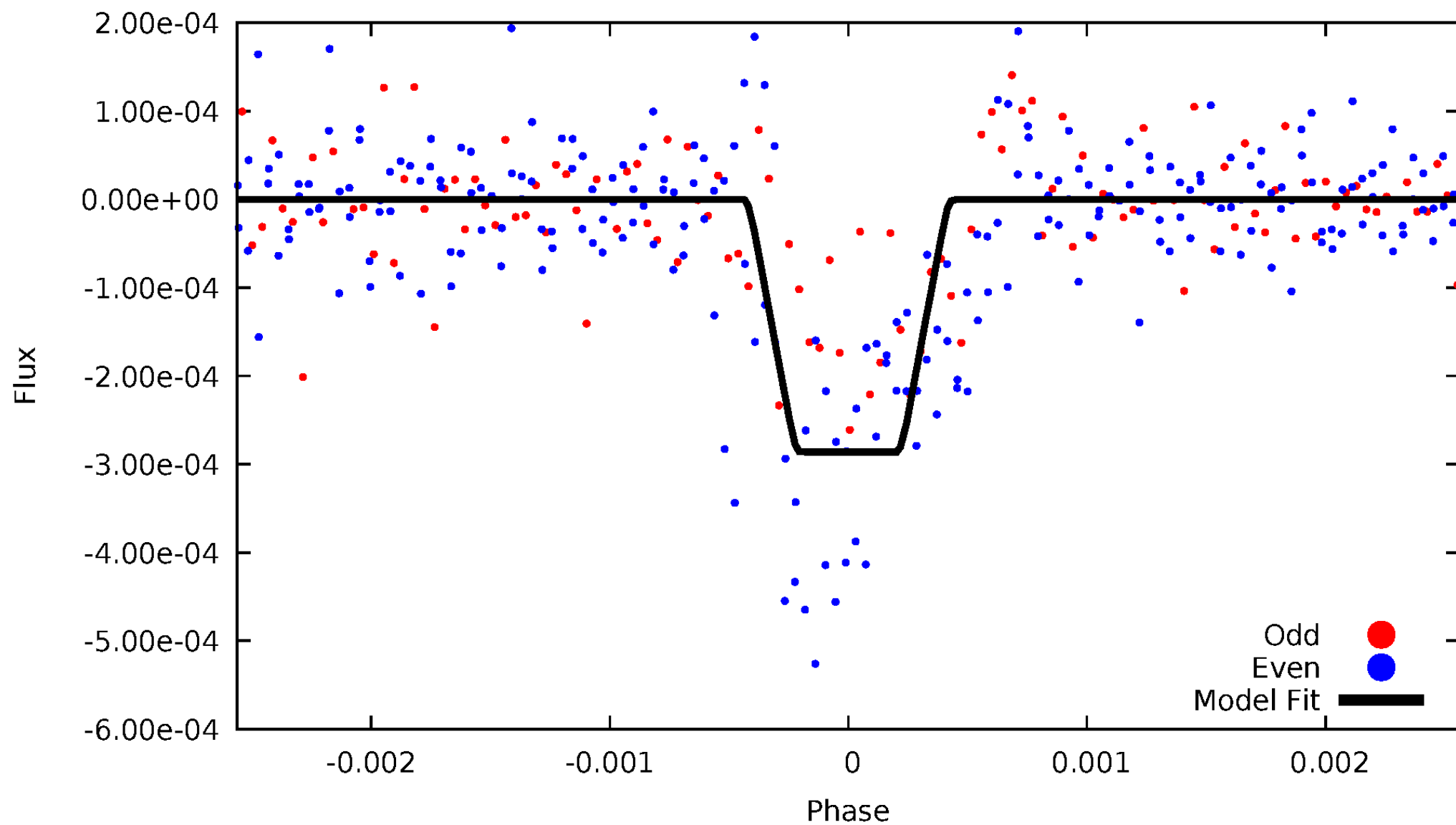
# DV Odd/Even

TCE 005876359-01



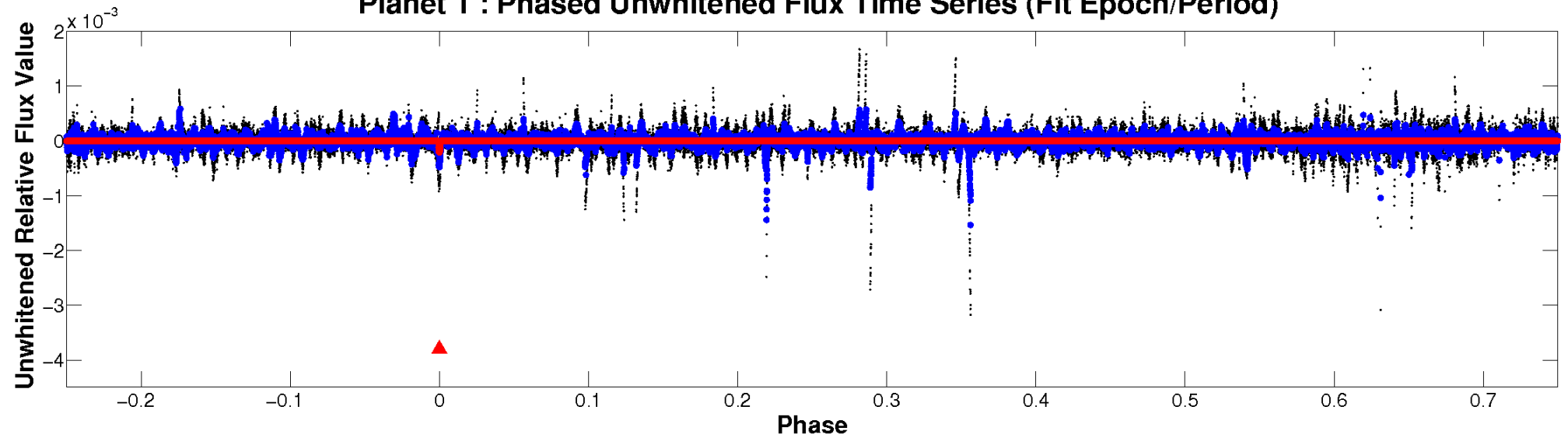
# ALT Odd/Even

TCE 005876359-01

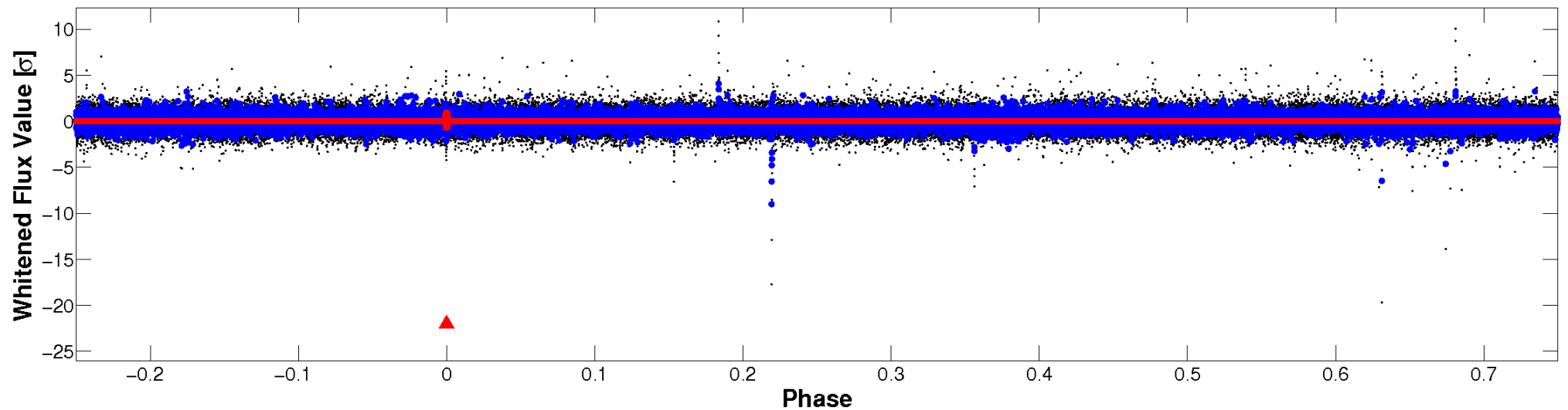


# Non-Whitened Vs. Whitened Light Curve

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

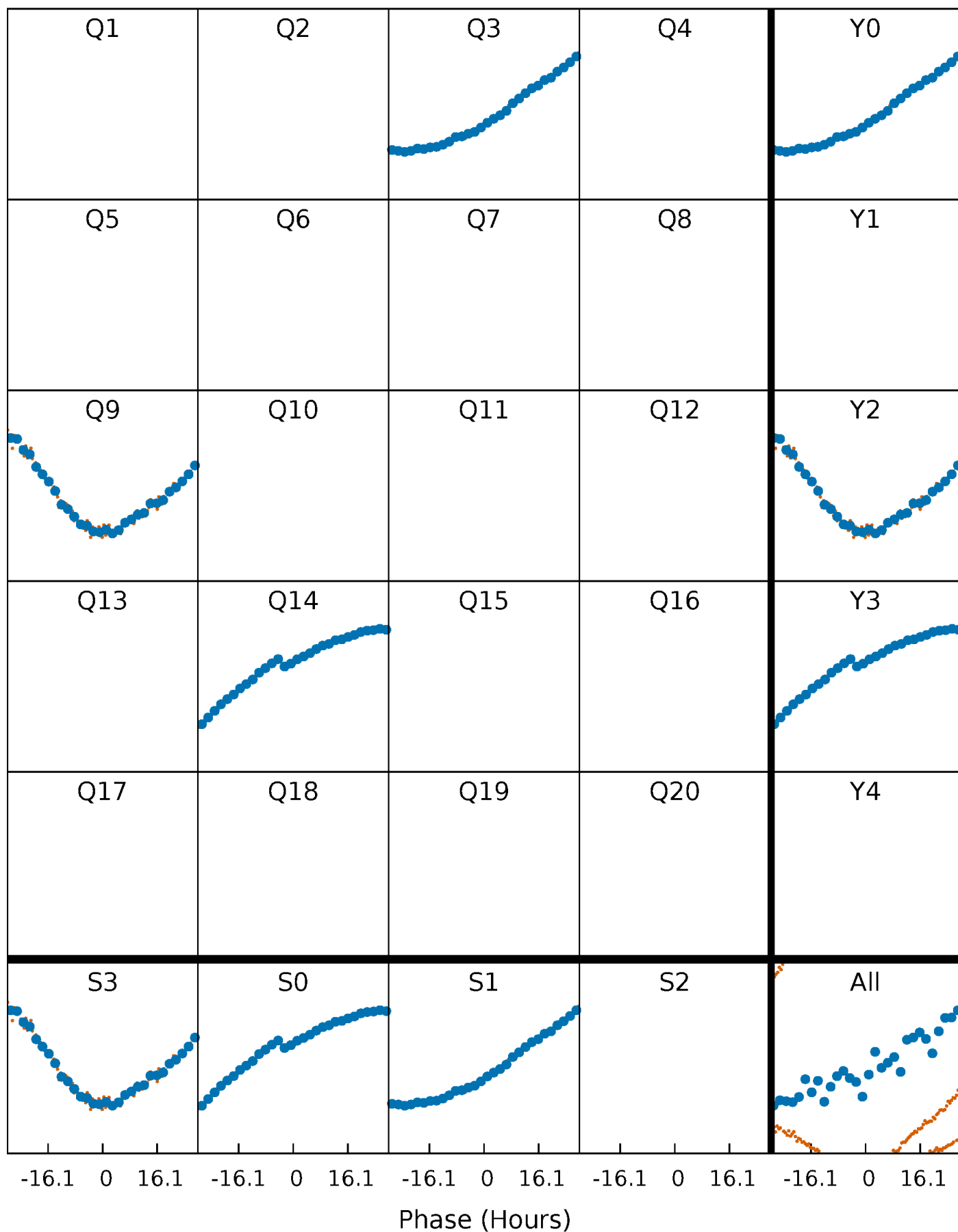


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

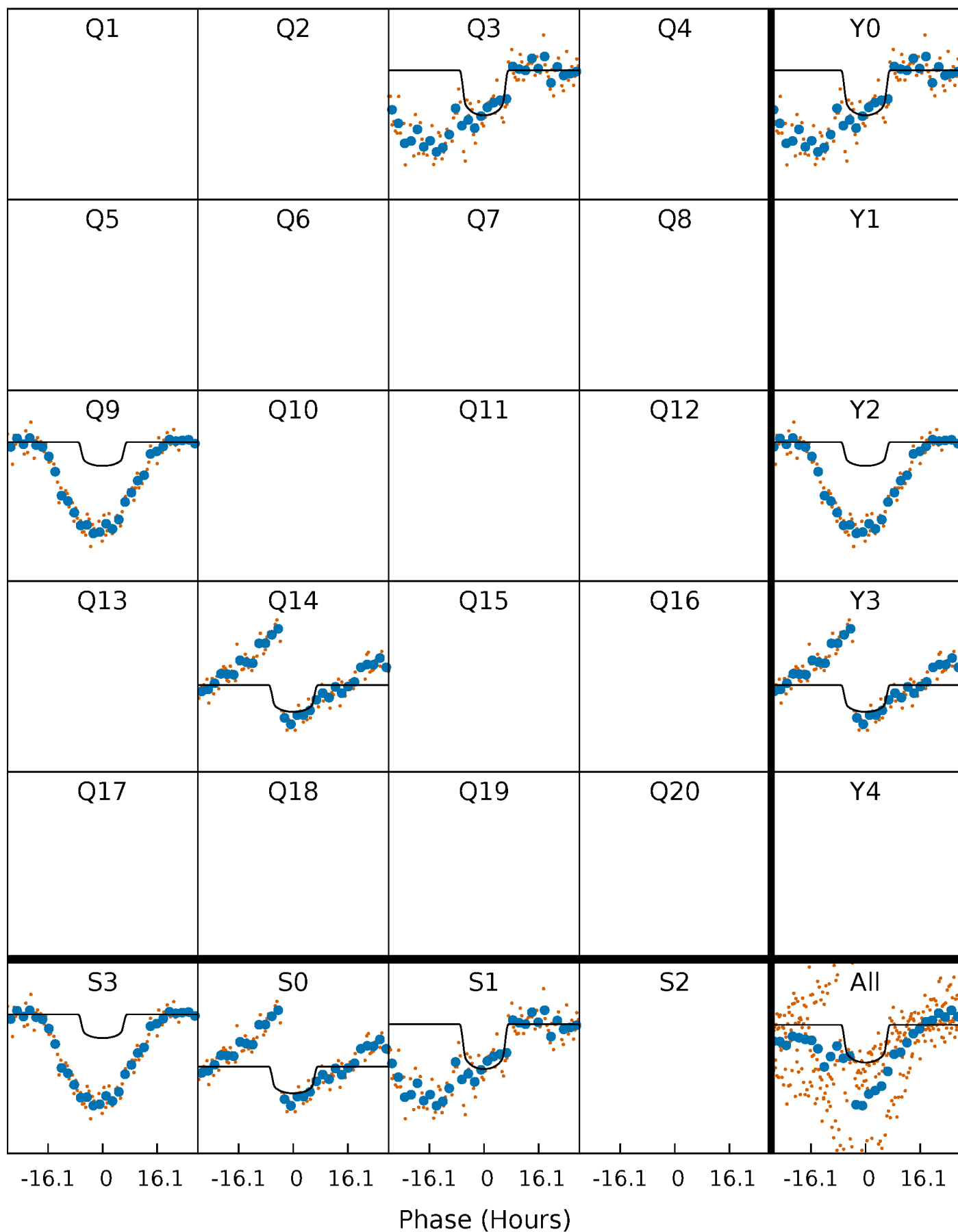
TCE 005876359-01 P=481.229147 Days  $T_0=337.261886$  (BKJD)





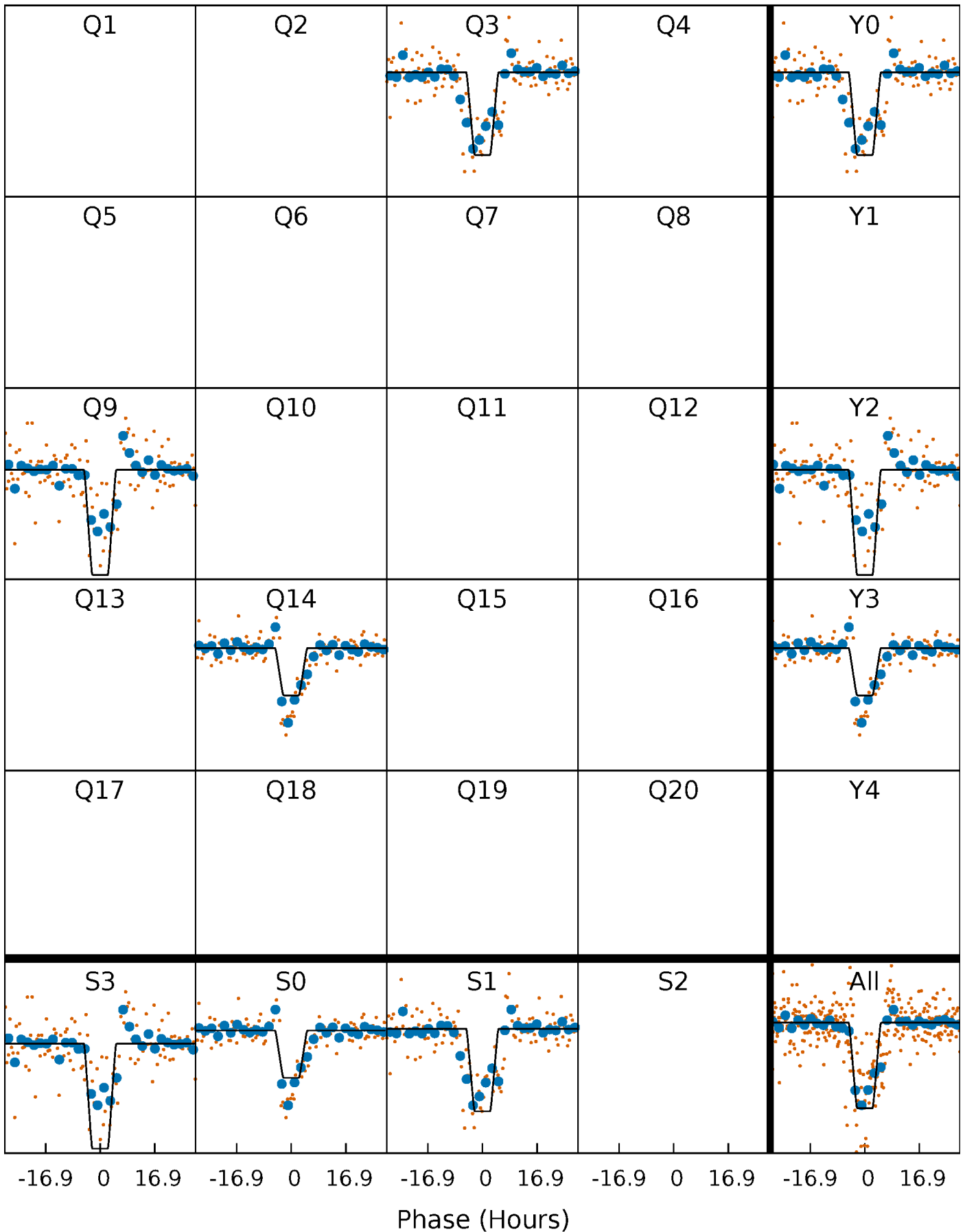
# DV Quarter-Phased Transit Curves

TCE 005876359-01 P=481.229147 Days  $T_0=337.261886$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

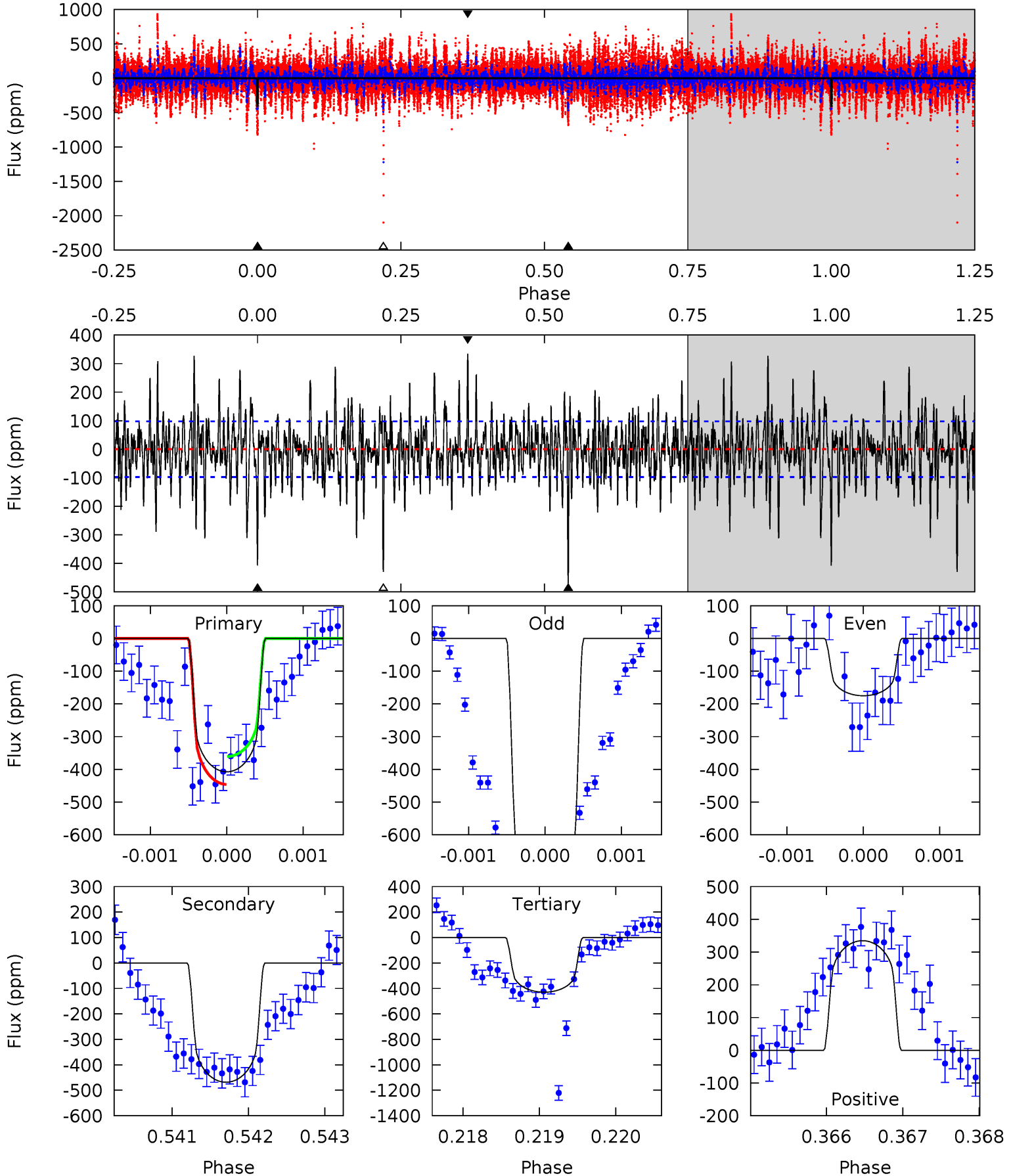
TCE 005876359-01 P=481.223960 Days  $T_0=337.260643$  (BKJD)



# DV Model-Shift Uniqueness Test

005876359-01, P = 481.229147 Days, E = 337.261886 Days

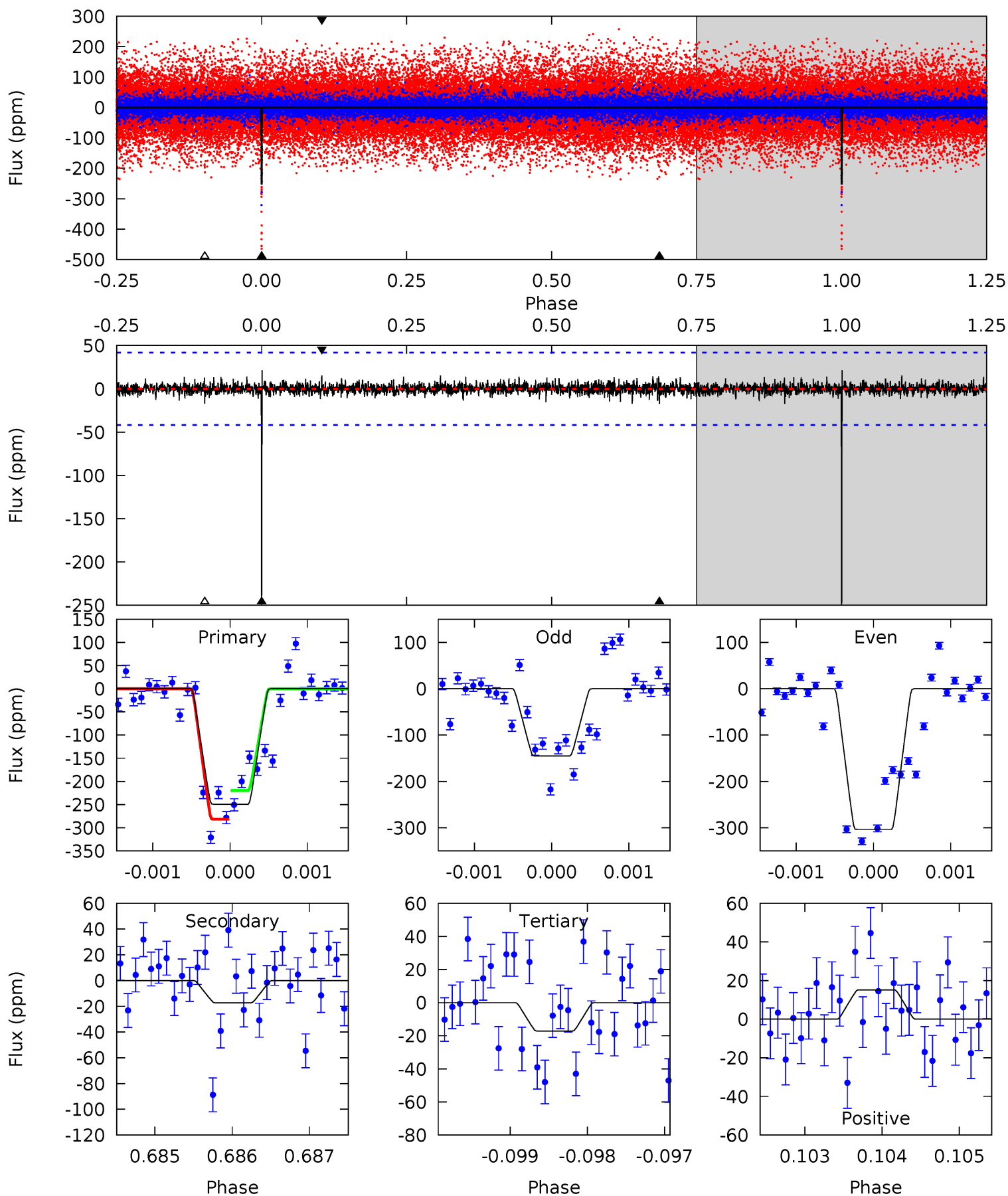
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	26.0	23.9	18.6	5.41	3.23	4.69	-1.22	4.05	2.16	7.42	17.5	1.75	0.42	2.35



# Alt Model-Shift Uniqueness Test

005876359-01, P = 481.223960 Days, E = 337.260643 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
32.8	2.27	2.25	2.00	5.48	3.33	0.49	30.5	30.8	0.02	0.27	10.1	1.08	0.08	4.07



### Stellar Parameters For KIC 005876359

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5366^{+159}_{-143}$	$4.059^{+0.435}_{-0.201}$	$0.060^{+0.250}_{-0.250}$	$1.480^{+0.509}_{-0.622}$	$0.916^{+0.082}_{-0.091}$	$0.398^{+1.599}_{-0.194}$
	+3%/-3%	+11%/-5%	+417%/-417%	+34%/-42%	+9%/-10%	+402%/-49%
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 005876359-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-468 \pm 18$	$2.60^{+0.59}_{-0.59}$	$371^{+34}_{-43}$	$6124^{+430}_{-374}$	$52219^{+33566}_{-17384}$
Alt.	$-17 \pm 8$	$2.61^{+0.65}_{-0.66}$	$364^{+37}_{-42}$	$3225^{+225}_{-281}$	$1896^{+1828}_{-1040}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

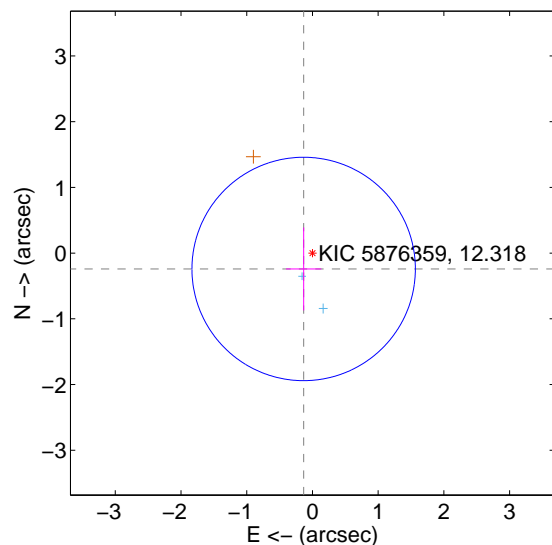
Supplemental centroid analysis for 005876359-01. Kepler magnitude: 12.32. Transit SNR 6.15

There are 2 quarters with good PRF difference image offsets

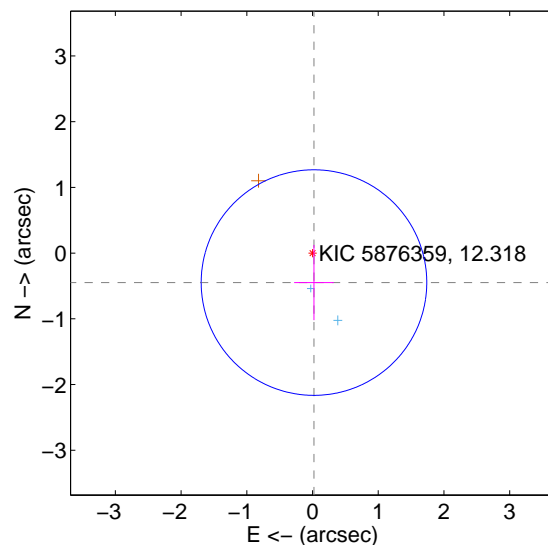
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.276 \pm 0.567$	0.49	$0.134 \pm 0.268$	$-0.241 \pm 0.630$
PRF-fit source offset from KIC position	$0.449 \pm 0.572$	0.79	$-0.022 \pm 0.302$	$-0.449 \pm 0.573$
photometric centroid source offset	$0.81 \pm 0.75$	1.08	$-0.19 \pm 0.69$	$-0.79 \pm 0.76$

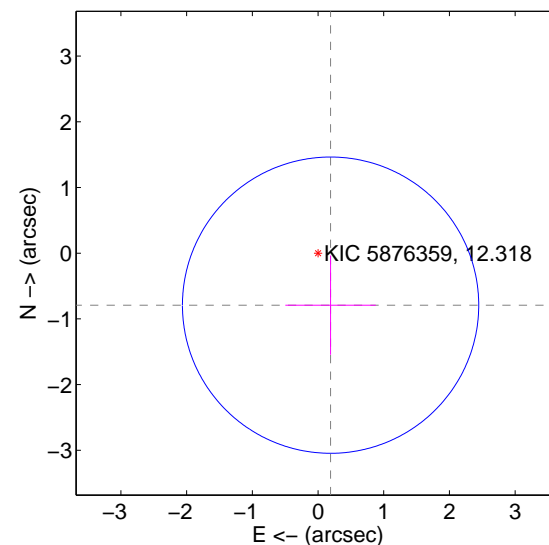
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

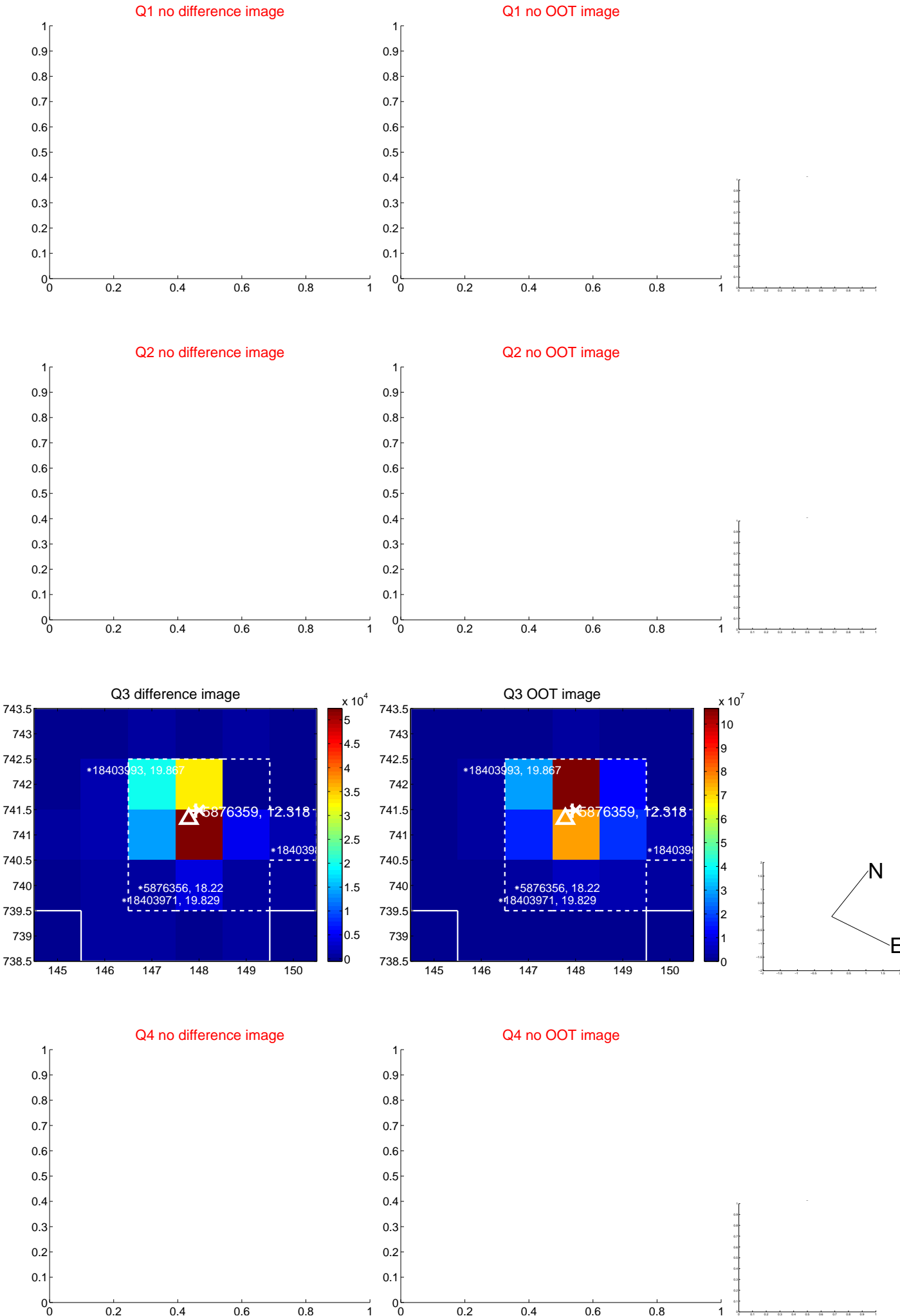


offset from photometric centroids



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.

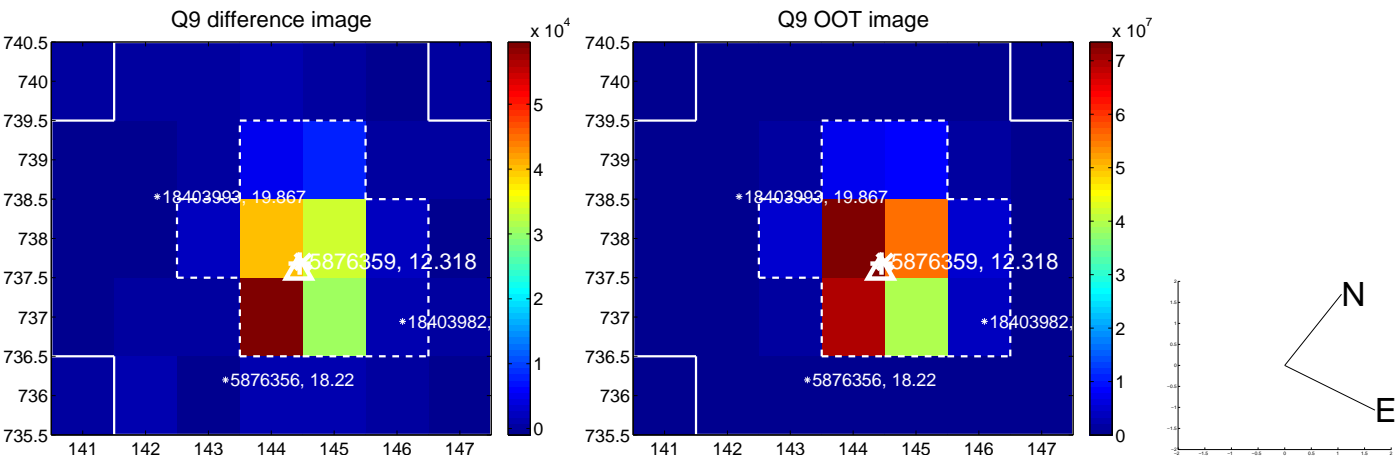


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

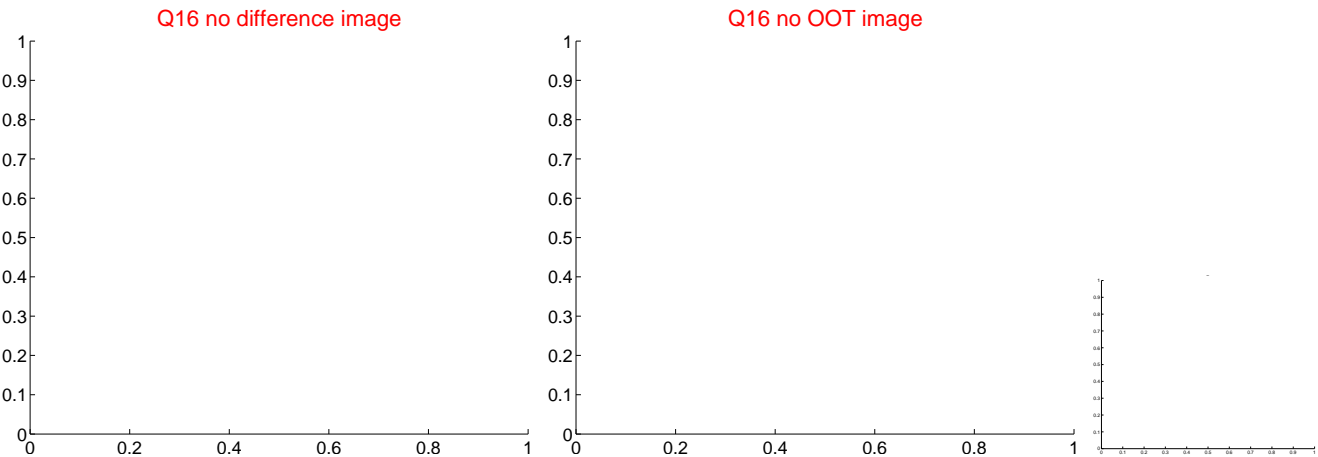
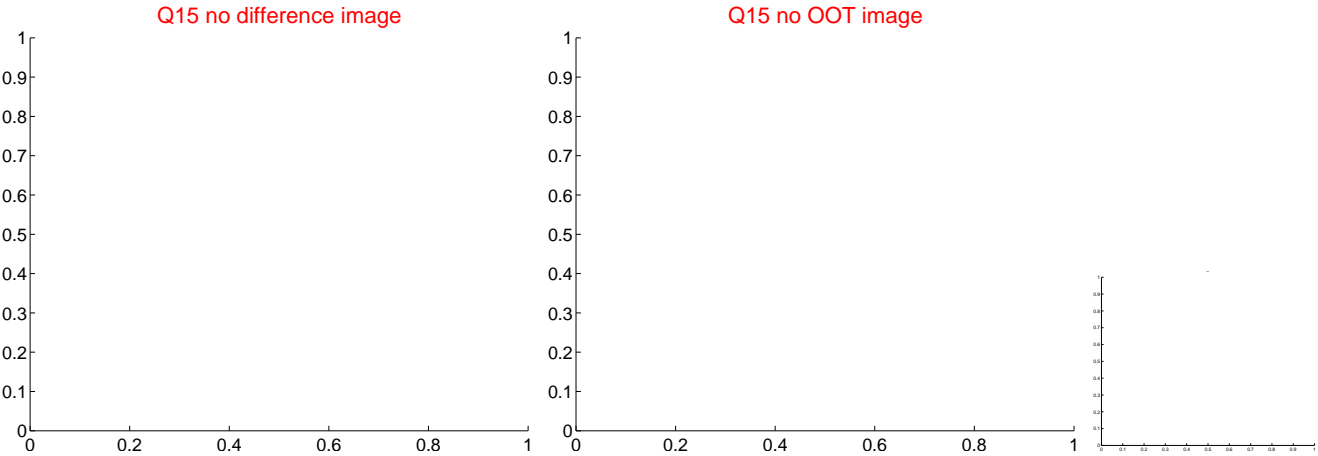
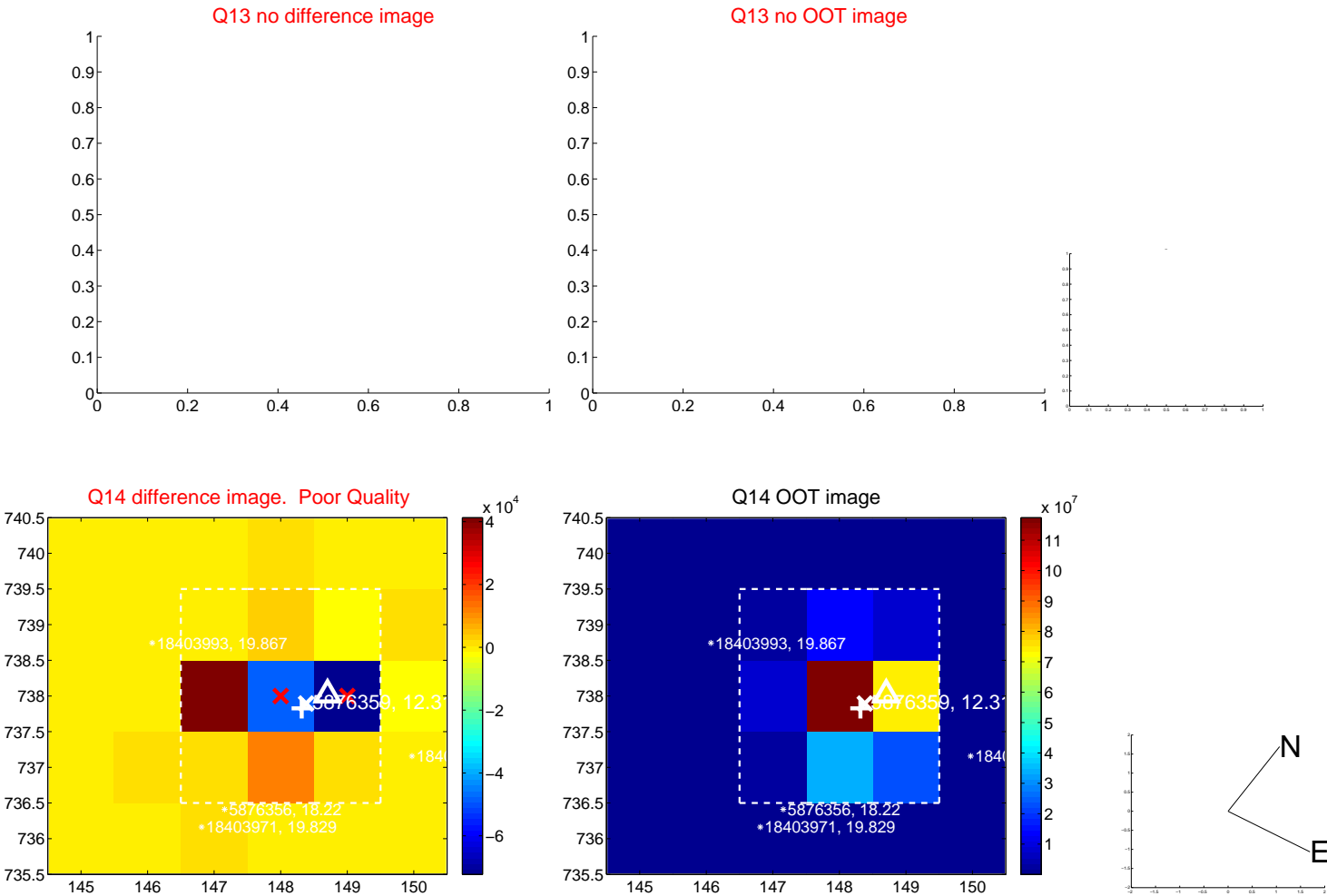




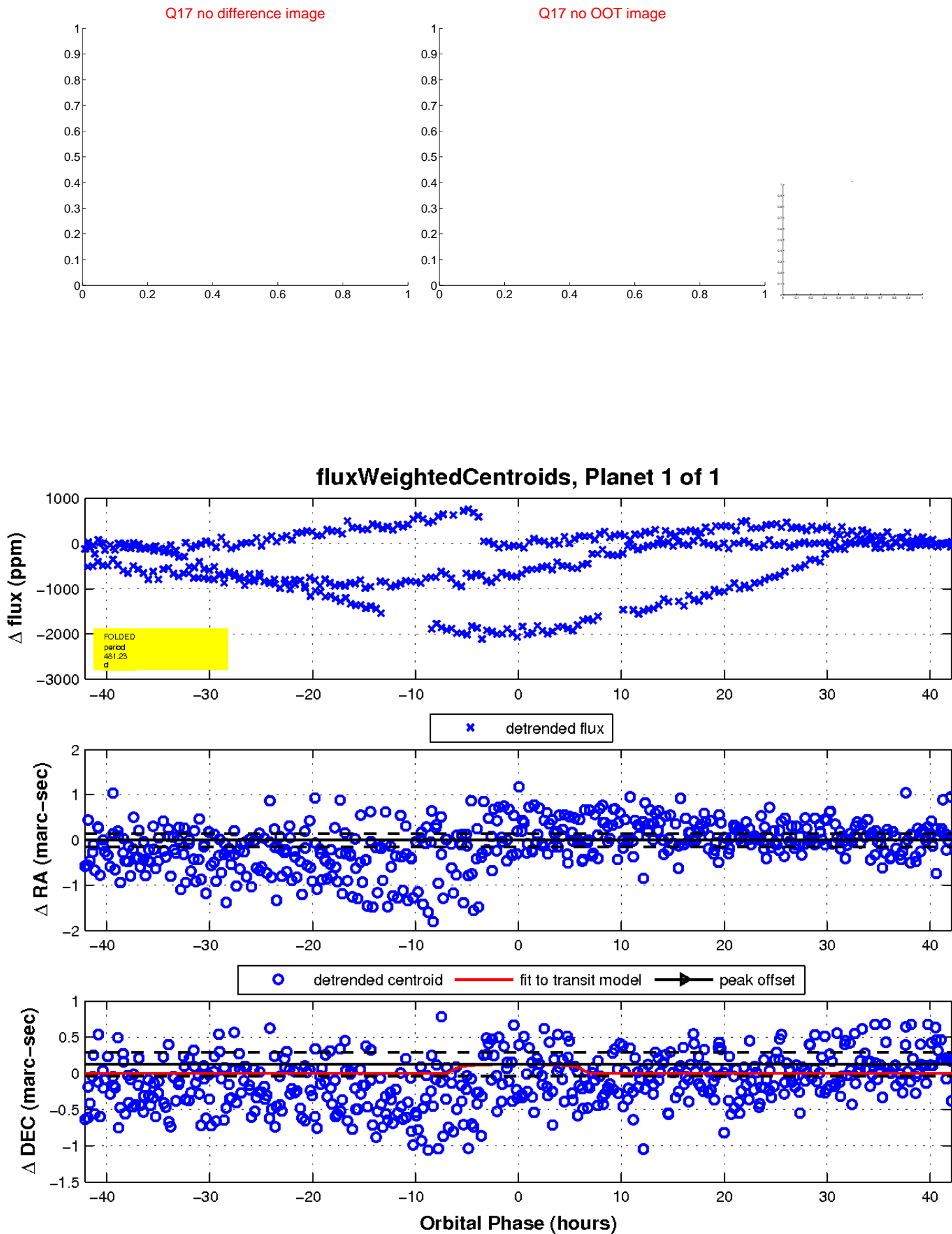
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

