

# KIC 008439296

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008439296-01	OBS	No	369.005681	235.510682	1385.4	12.512	9.7	8.8	0.76	5784	2.89	0.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008439296-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

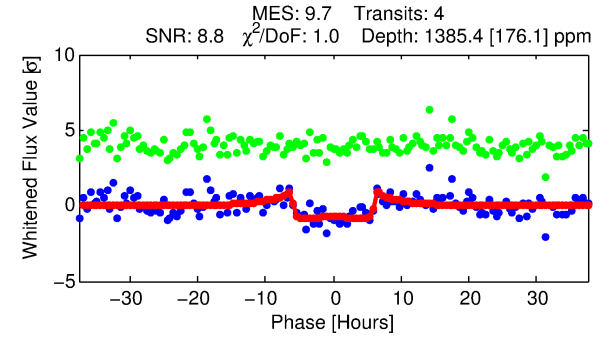
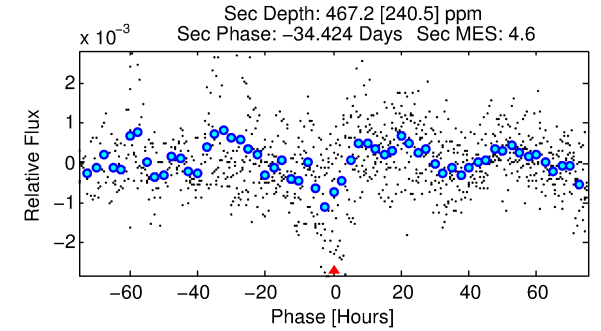
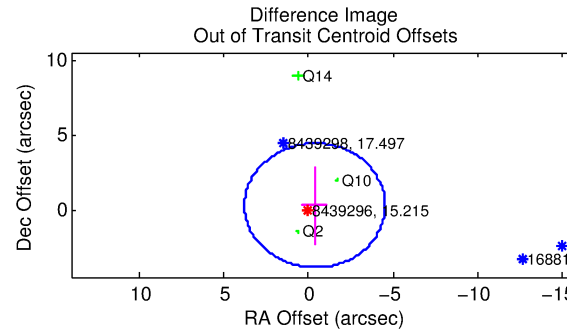
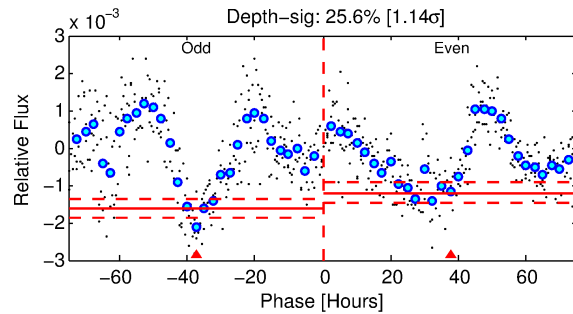
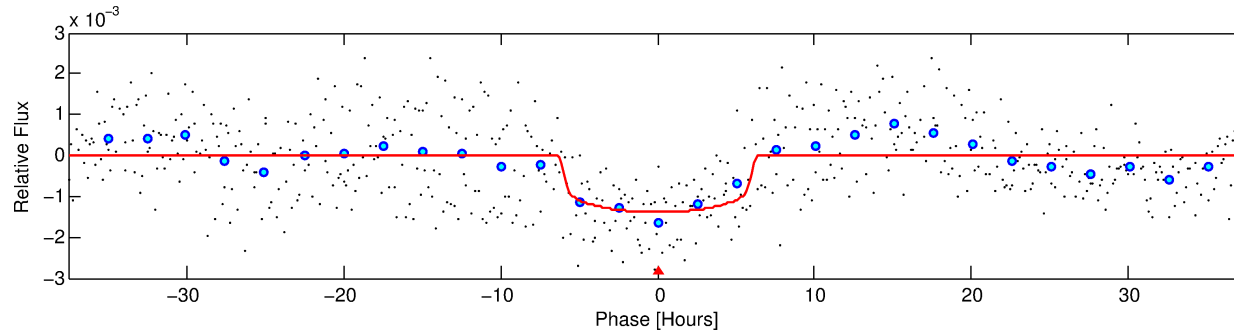
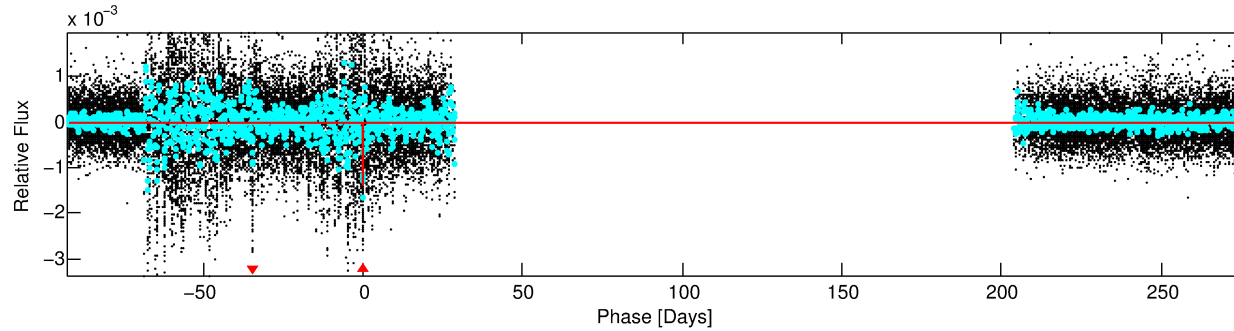
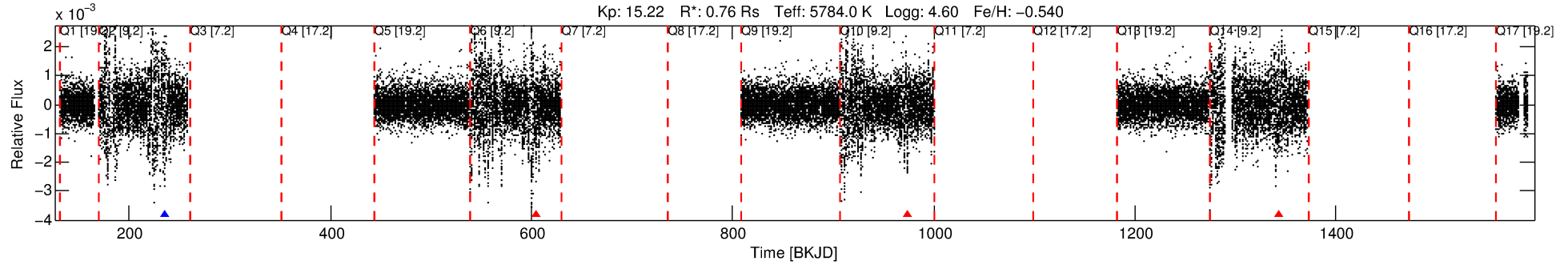
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008439296-01

No Significant Match Found

# DV One-Page Summary

KIC: 8439296 Candidate: 1 of 1 Period: 369.006 d



## DV Fit Results:

Period = 369.00568 [0.00663] d  
Epoch = 235.5107 [0.0136] BKJD  
Rp/R\* = 0.0347 [0.0092]  
a/R\* = 213.04 [252.48]  
b = 0.42 [2.33]  
Seff = 0.65 [0.21]  
Teq = 229 [18] K  
Rp = 2.89 [1.02] Re  
a = 0.9493 [0.1875] AU  
Ag = 27788.93 [22081.85] [1.26 $\sigma$ ]  
Teffp = 4567 [858] K [5.05 $\sigma$ ]

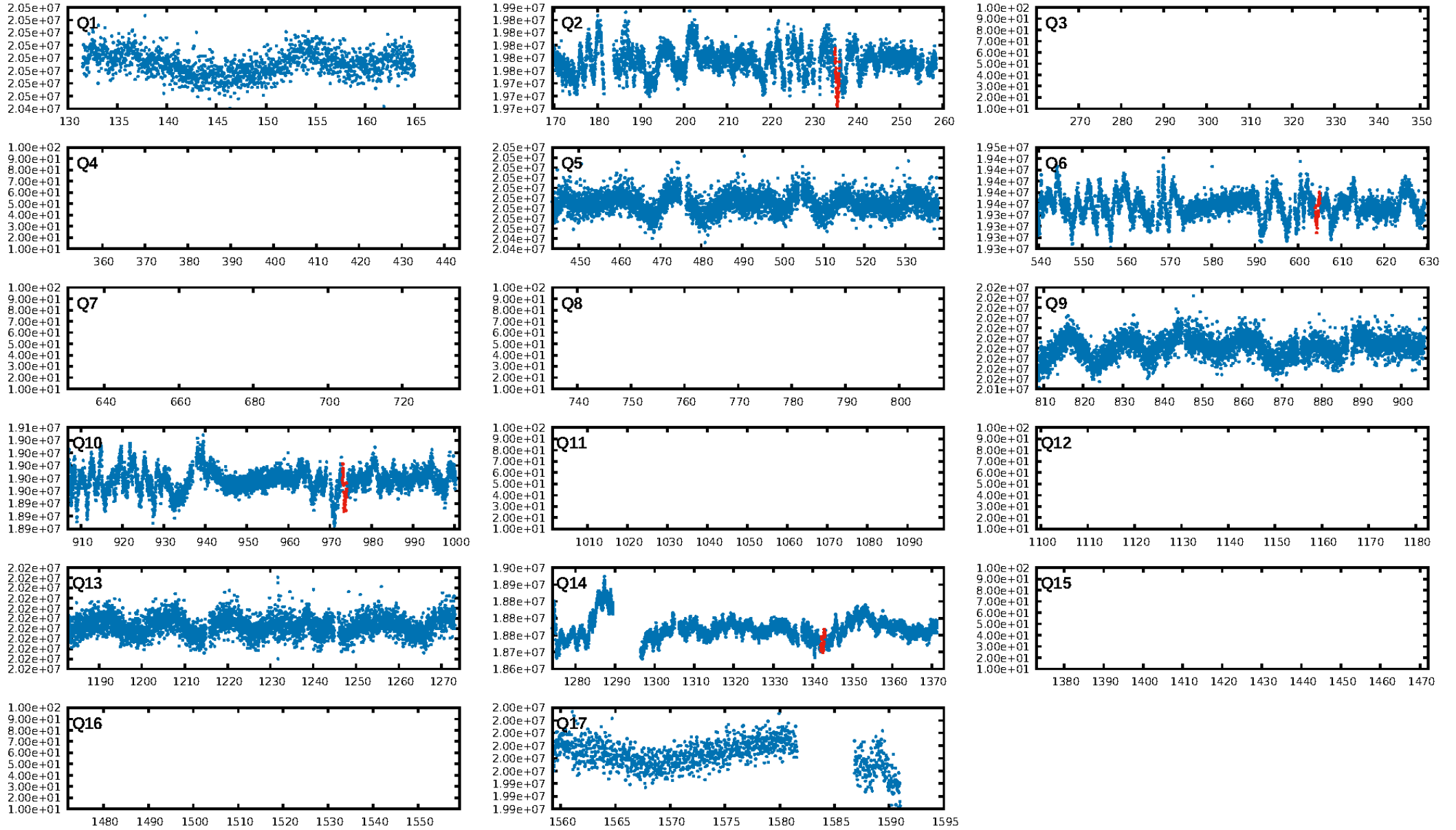
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 4.3%  
ModelChiSquareGof-sig: 99.2%  
Bootstrap-pfa: 1.99e-13  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 2.401  
Centroid-sig: 0.0%  
Centroid-so: 4.116 arcsec [3.22 $\sigma$ ]  
OotOffset-rm: 0.461 arcsec [0.33 $\sigma$ ]  
KicOffset-rm: 0.518 arcsec [0.28 $\sigma$ ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [4/4]

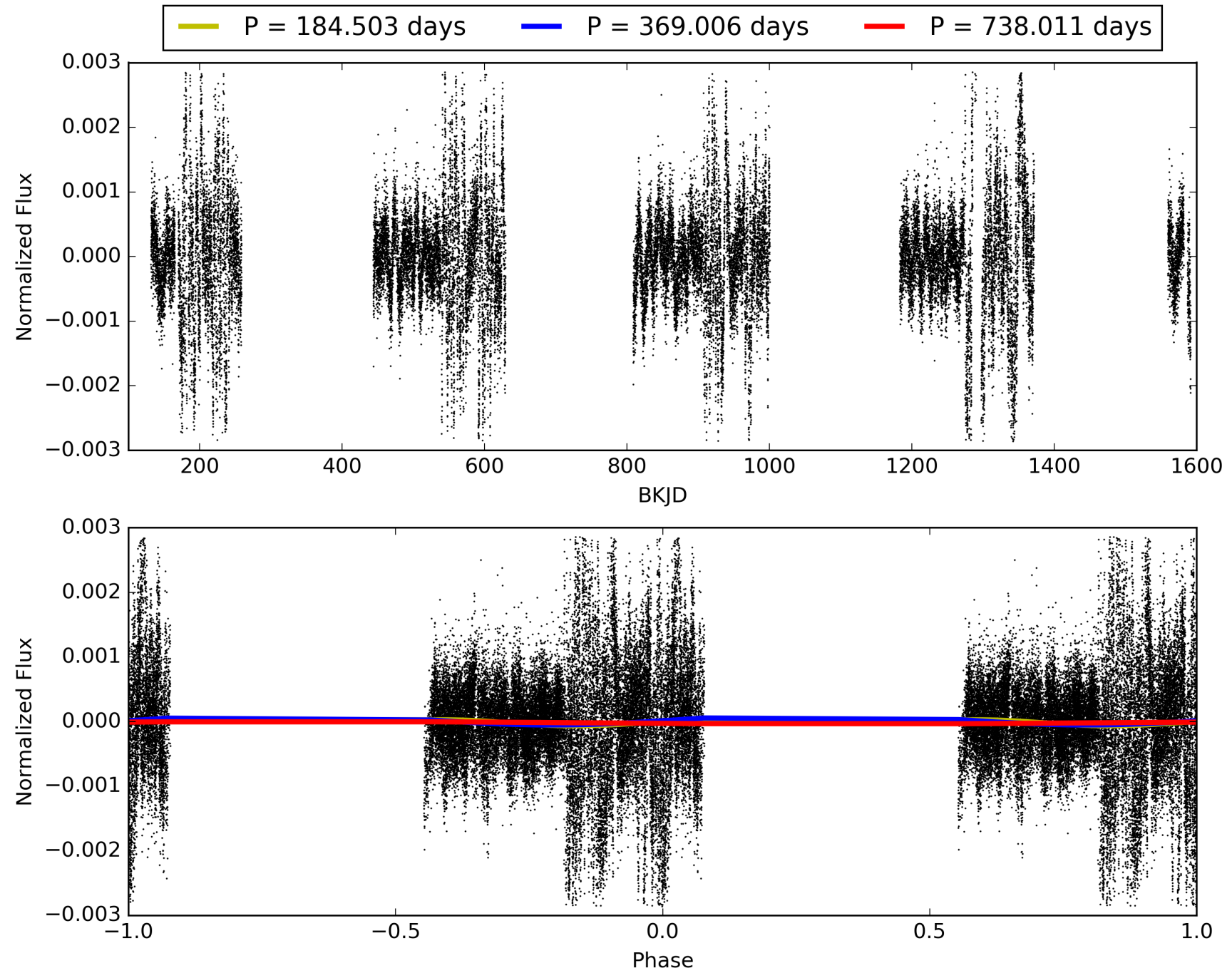
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:33:45 Z

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

# TCE 008439296-01, PDC Light Curves

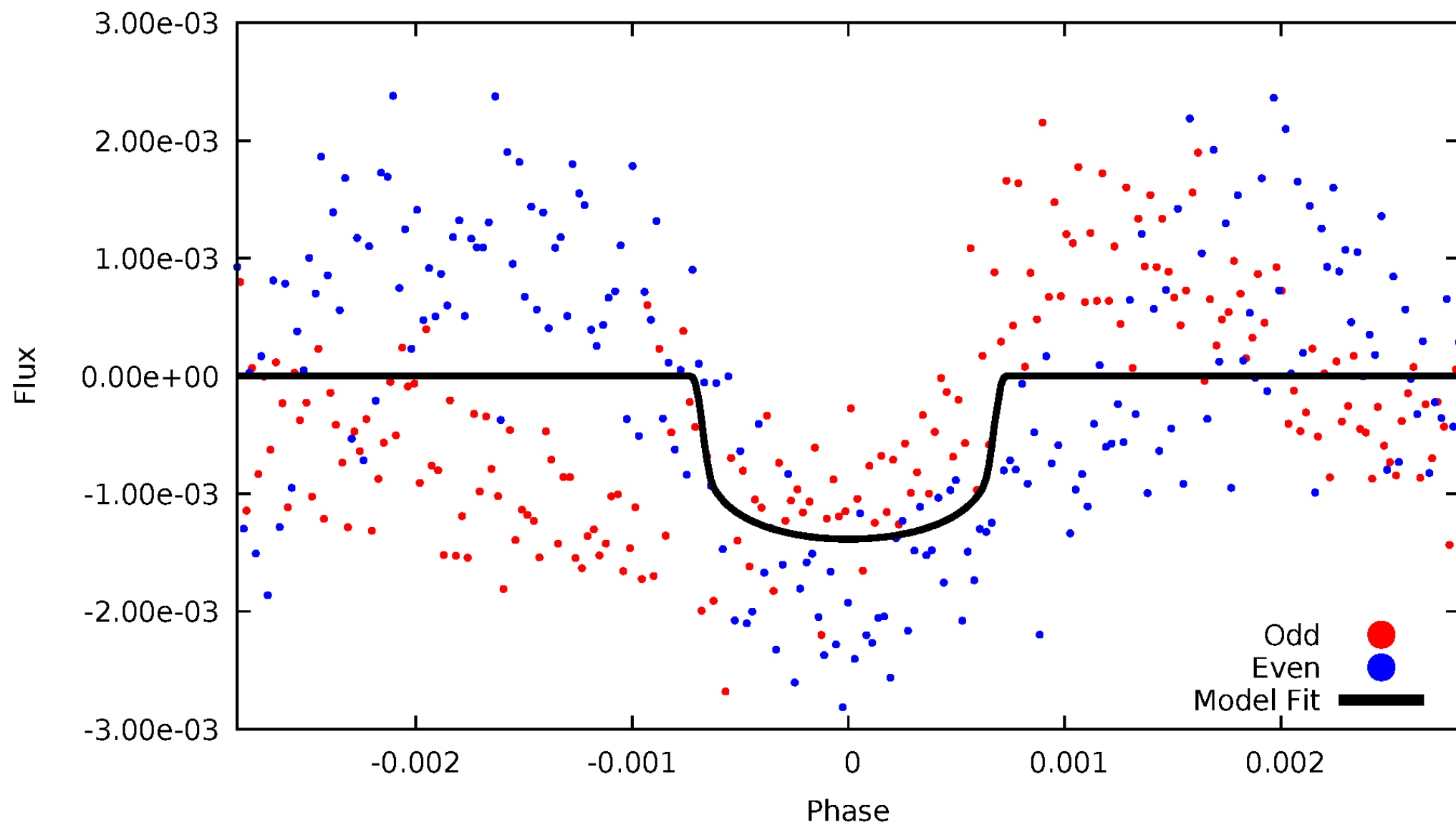


TCE 008439296-01



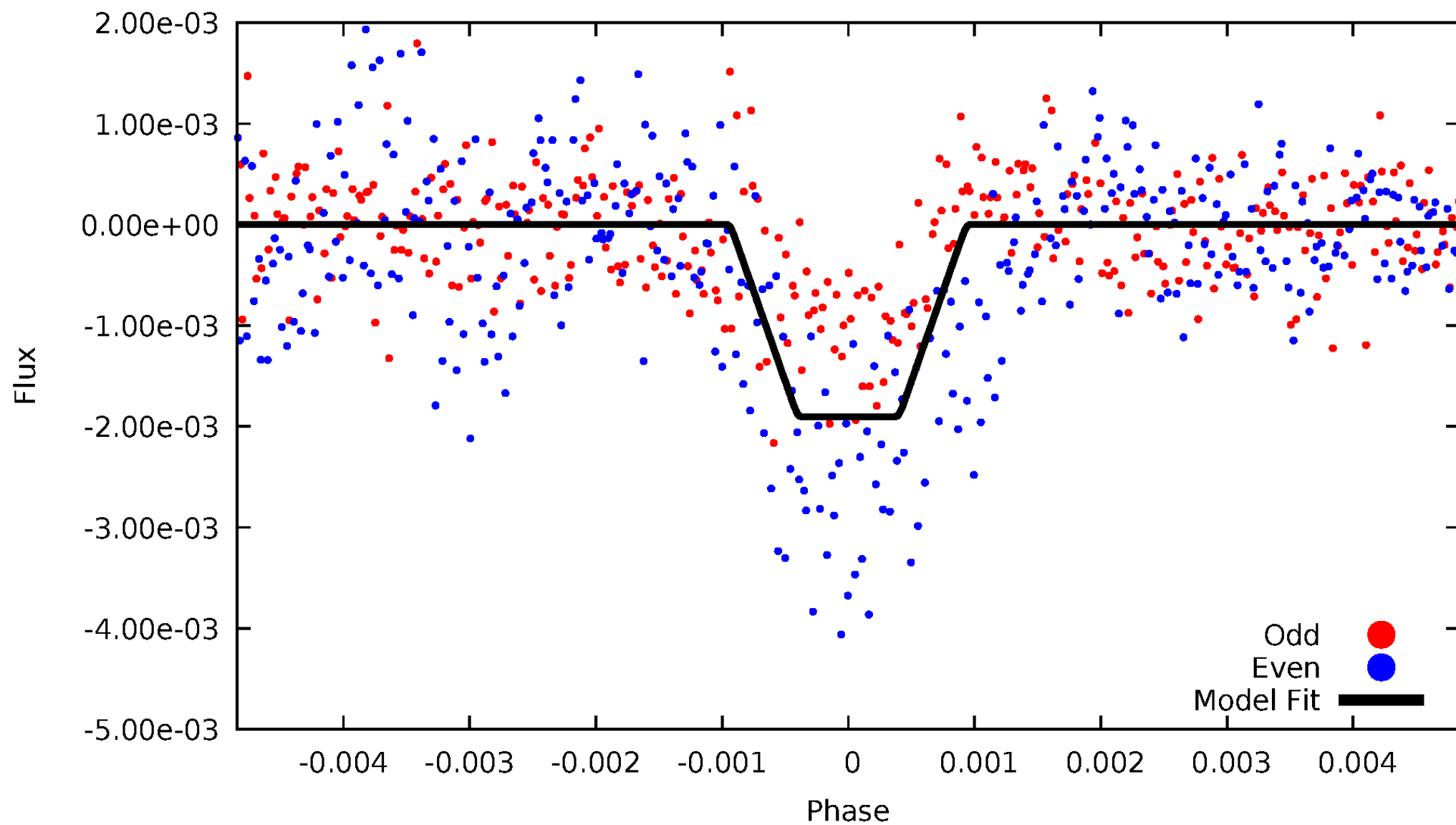
# DV Odd/Even

TCE 008439296-01



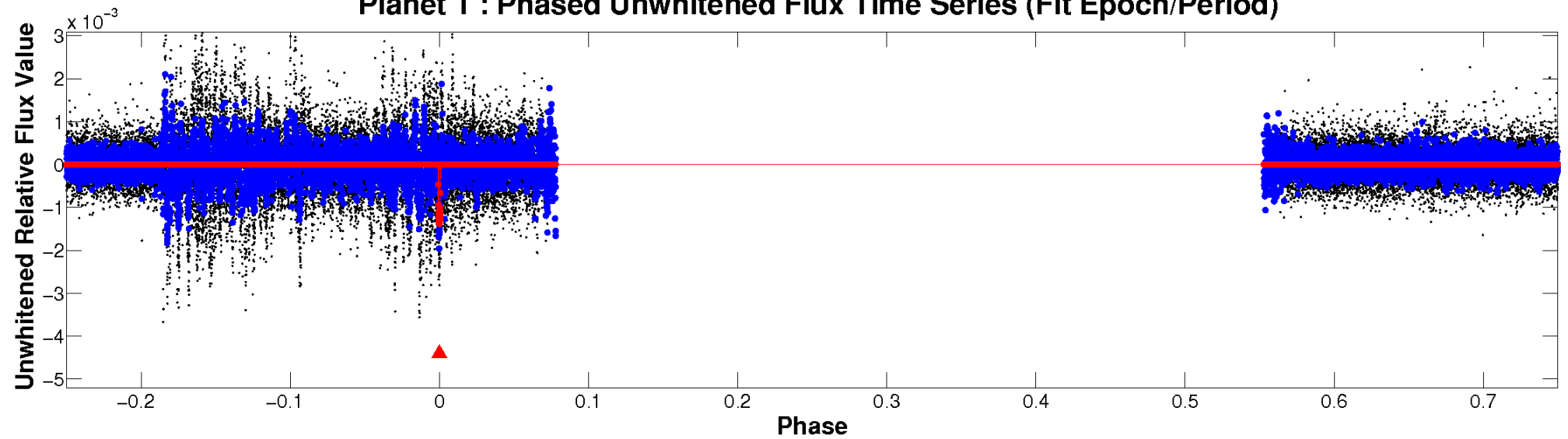
# ALT Odd/Even

TCE 008439296-01

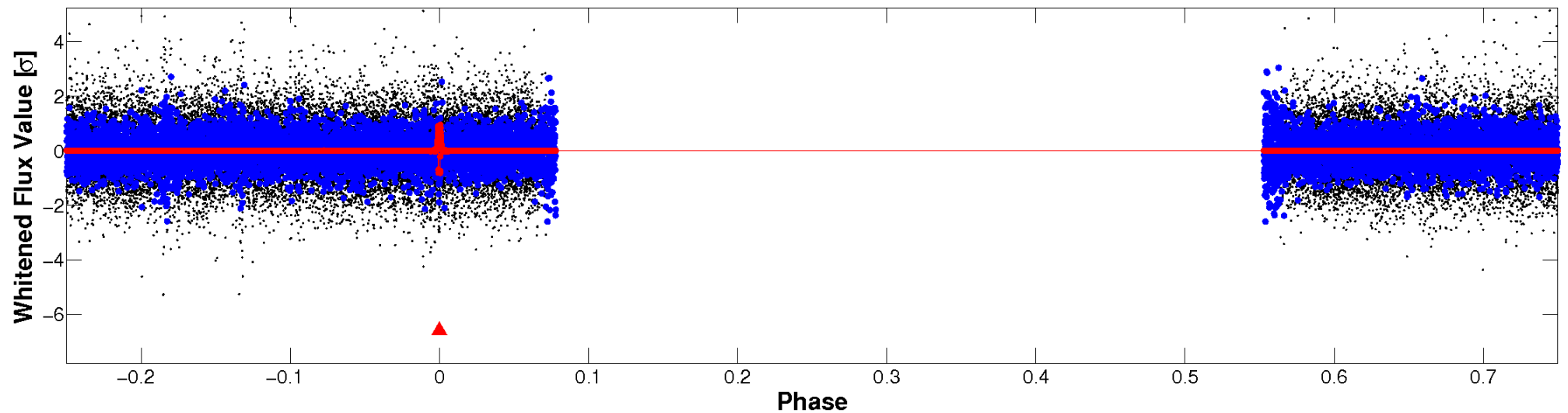


# Non-Whitened Vs. Whitened Light Curve

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

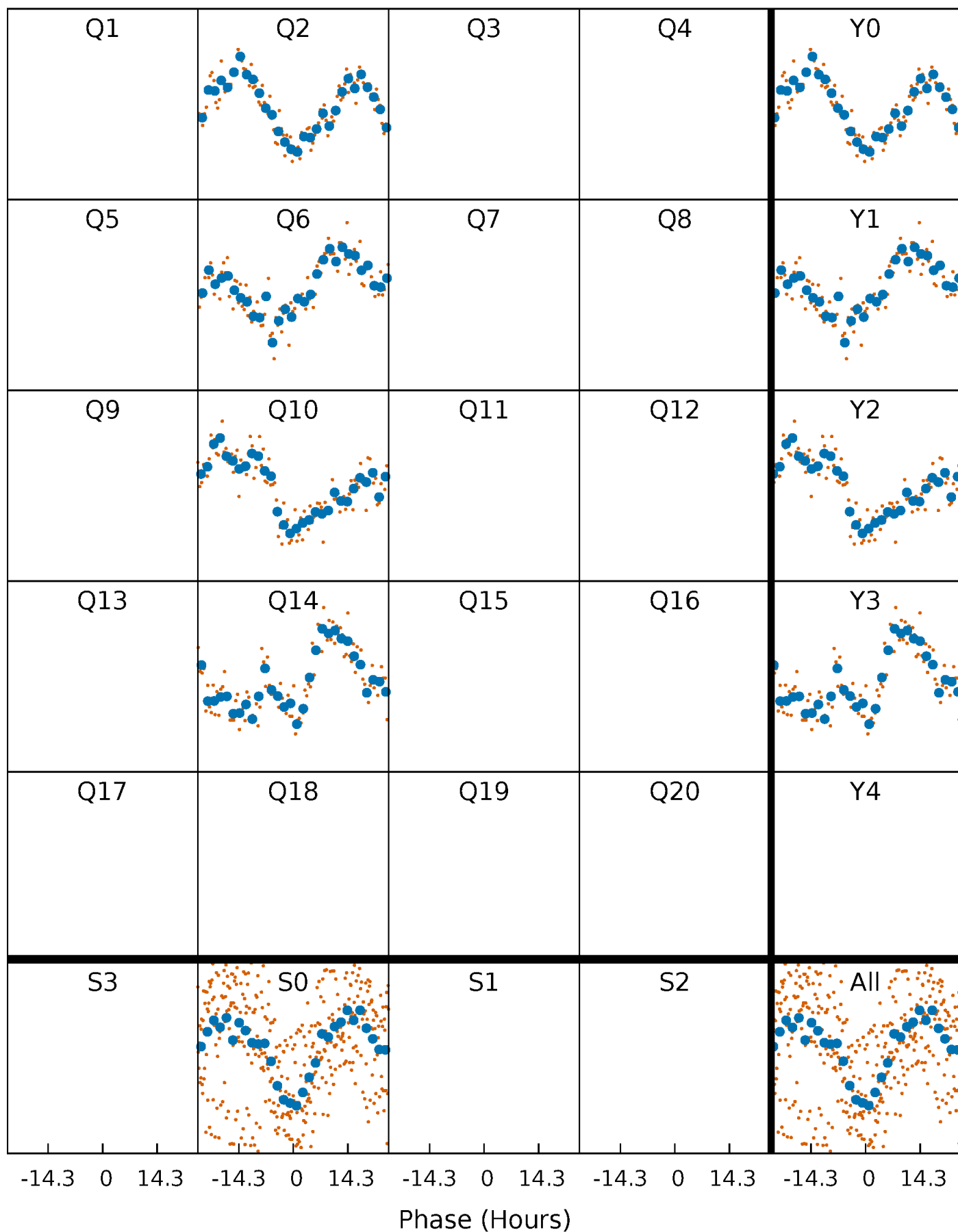


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

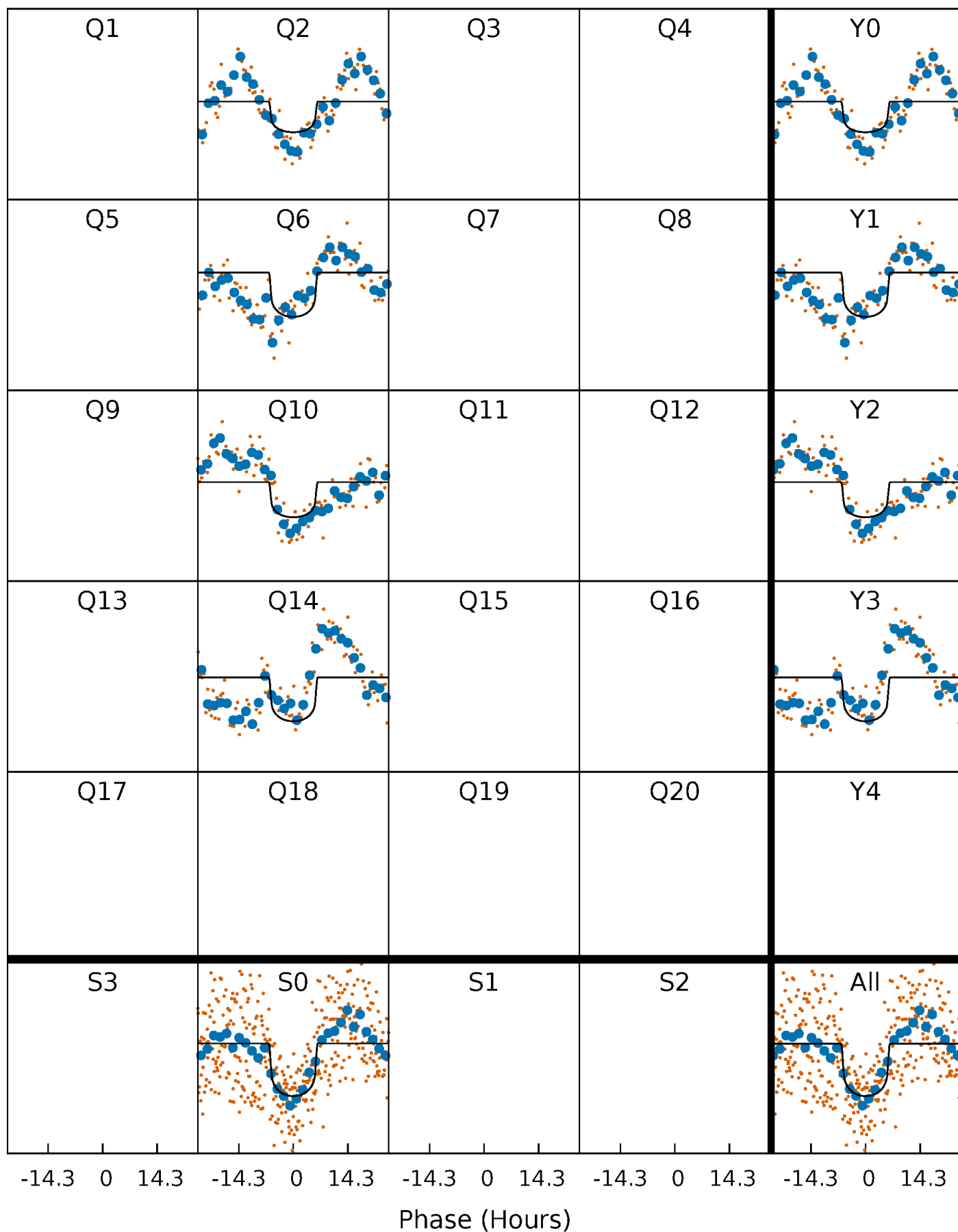
TCE 008439296-01   P=369.005681 Days    $T_0=235.510682$  (BKJD)





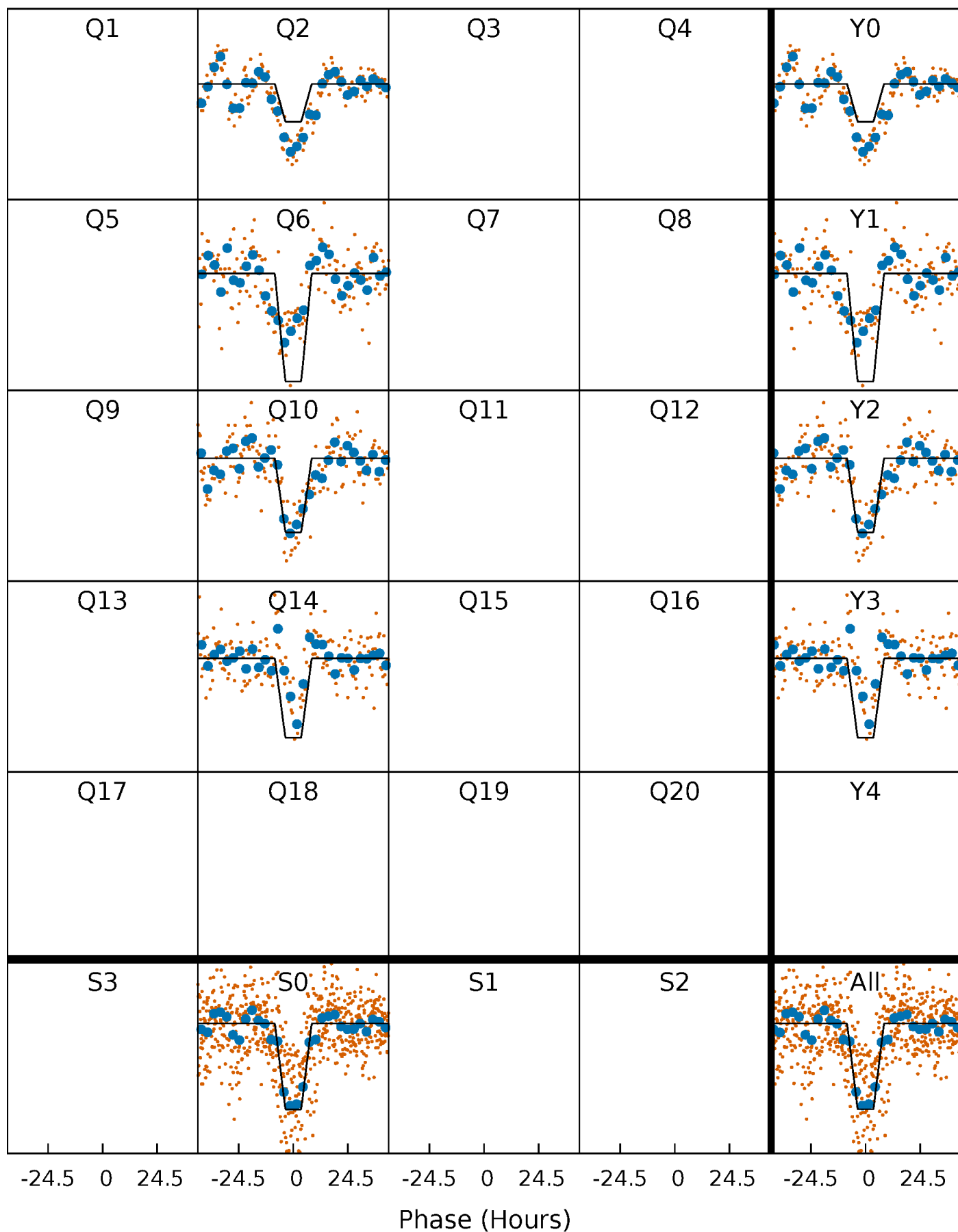
# DV Quarter-Phased Transit Curves

TCE 008439296-01   P=369.005681 Days    $T_0=235.510682$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

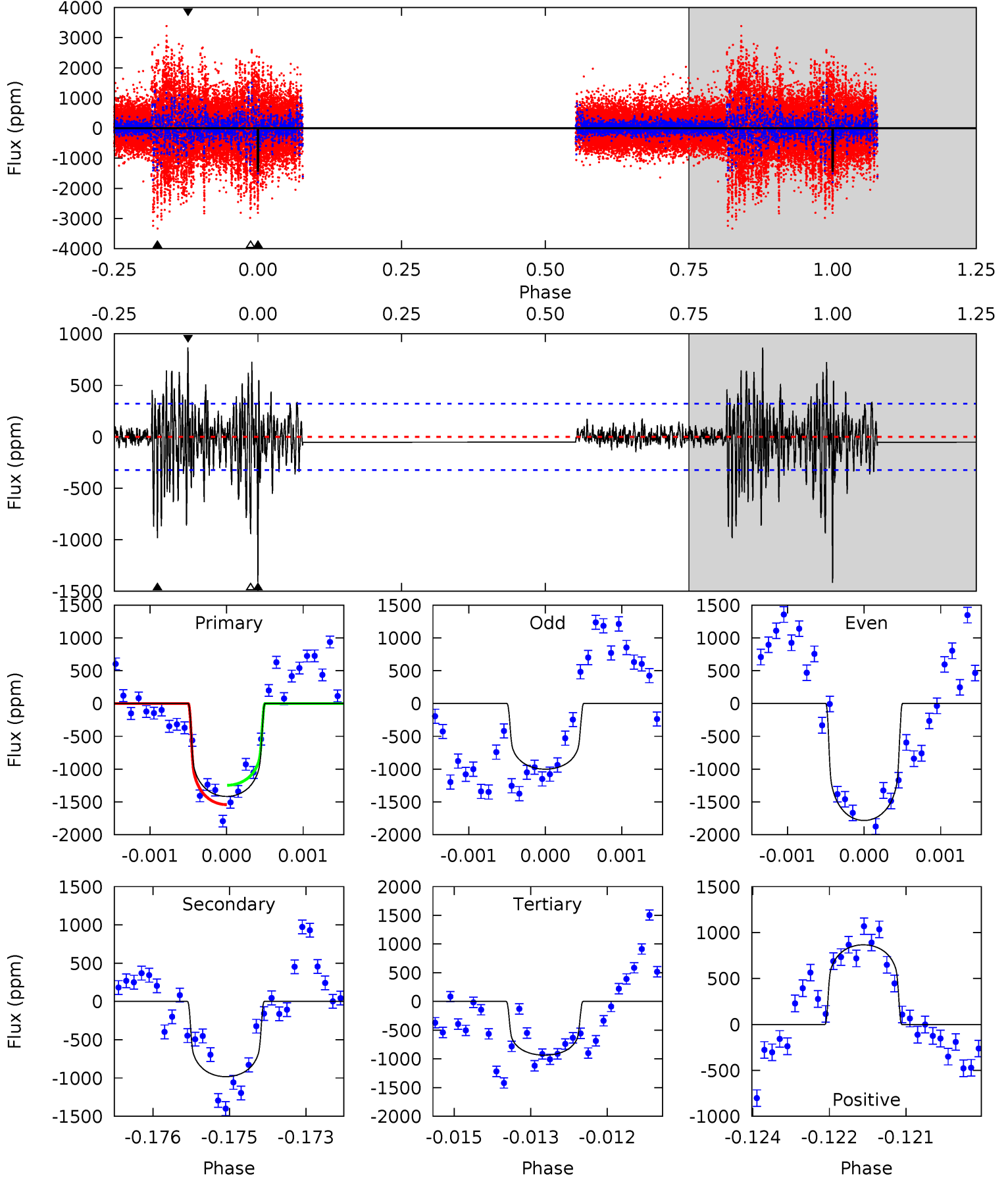
TCE 008439296-01 P=369.002849 Days  $T_0=235.522270$  (BKJD)



# DV Model-Shift Uniqueness Test

008439296-01, P = 369.005681 Days, E = 235.510682 Days

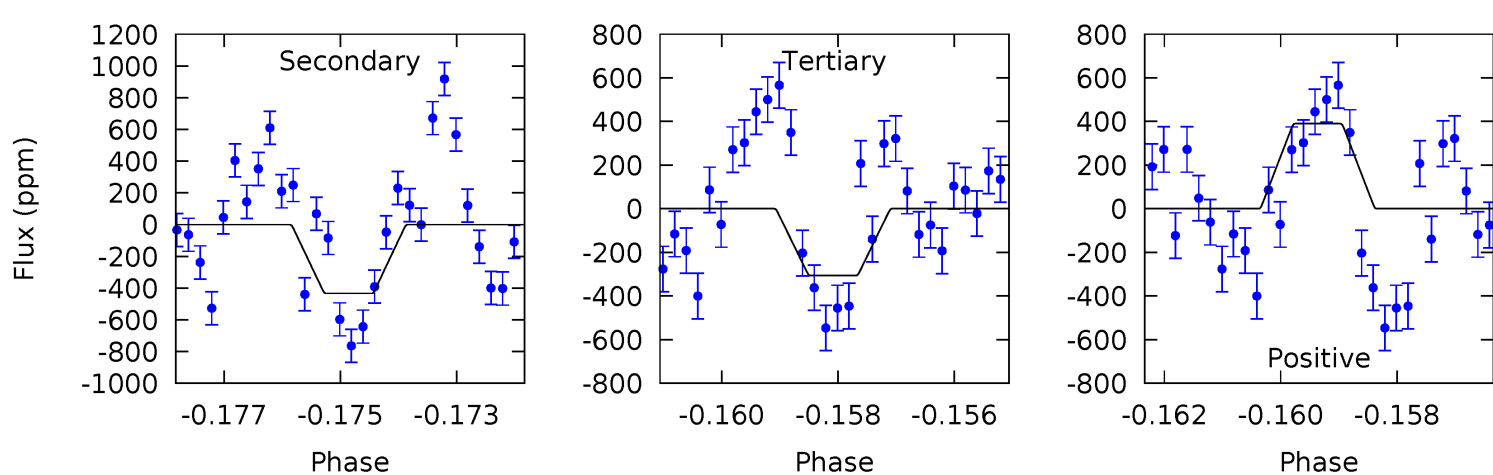
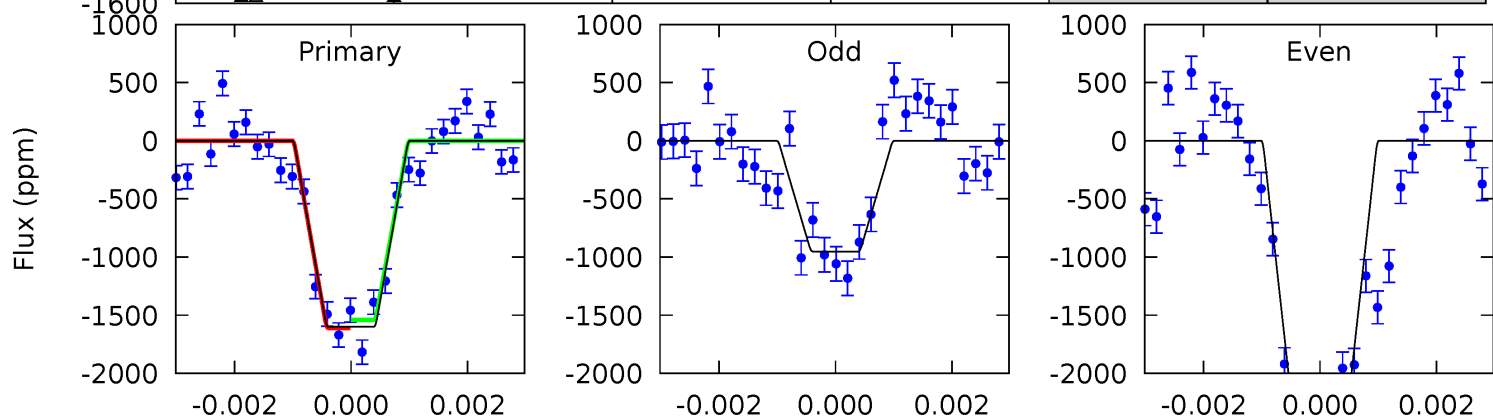
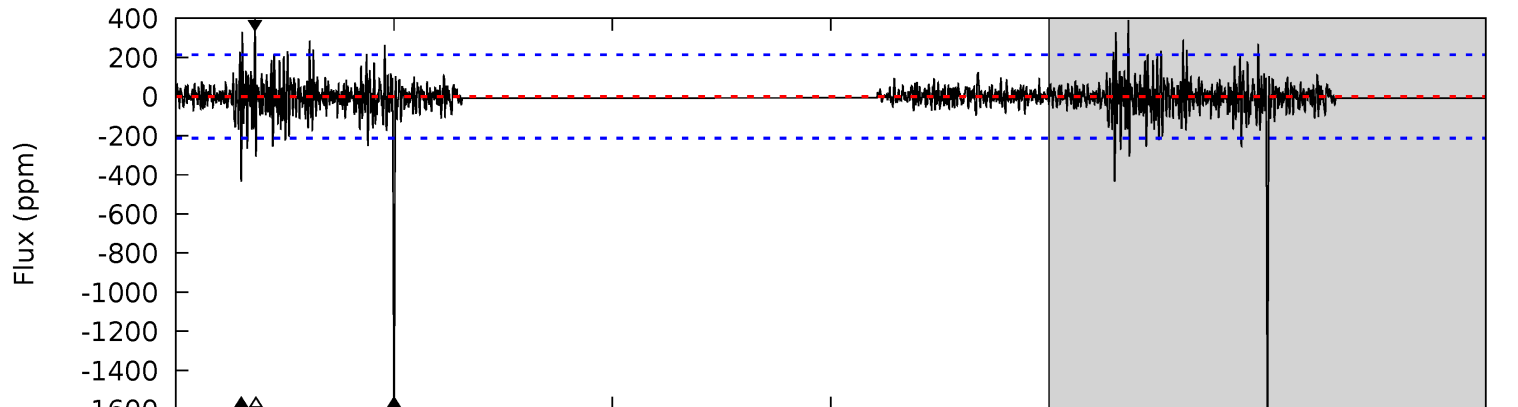
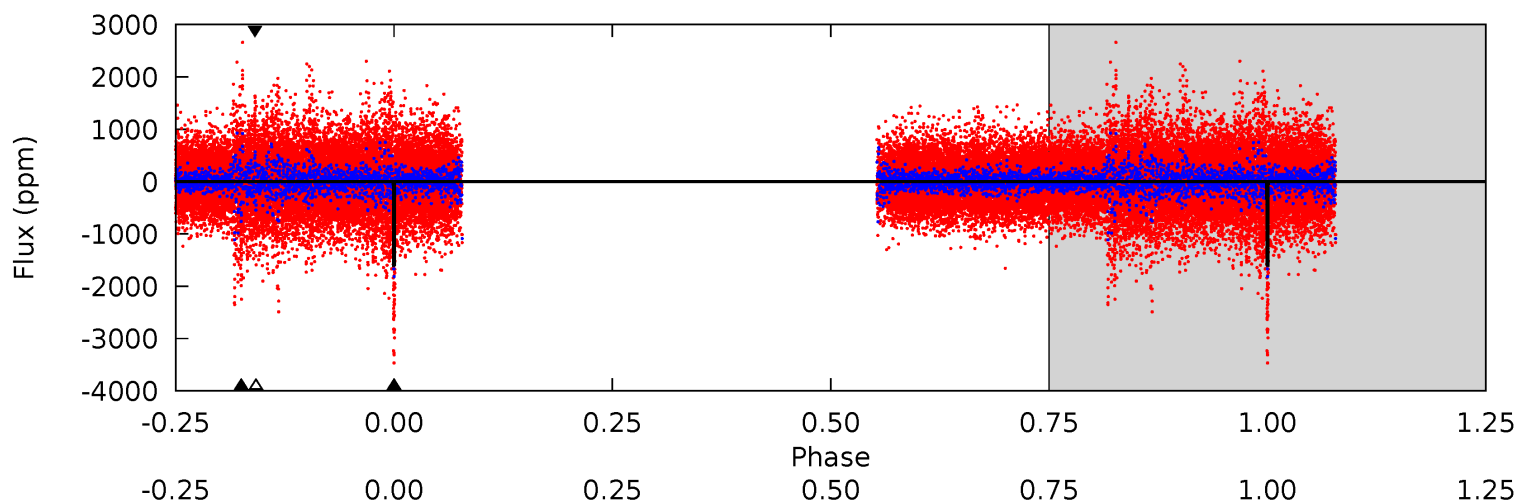
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	16.4	15.7	14.5	5.38	3.18	3.27	8.04	9.20	0.78	1.94	6.28	0.97	0.38	2.45



# Alt Model-Shift Uniqueness Test

008439296-01, P = 369.002849 Days, E = 235.522270 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
40.1	10.9	7.68	9.77	5.34	3.10	1.49	32.4	30.3	3.19	1.10	20.1	1.24	0.20	0



### Stellar Parameters For KIC 008439296

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5784^{+192}_{-192}$	$4.596^{+0.040}_{-0.160}$	$-0.540^{+0.300}_{-0.300}$	$0.763^{+0.177}_{-0.063}$	$0.852^{+0.086}_{-0.095}$	$2.697^{+0.431}_{-1.210}$
	+3%/-3%	+1%/-3%	+56%/-56%	+23%/-8%	+10%/-11%	+16%/-45%
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 008439296-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-982 \pm 60$	$3.03^{+0.89}_{-0.81}$	$326^{+19}_{-14}$	$5499^{+984}_{-579}$	$52654^{+48074}_{-20782}$
Alt.	$-434 \pm 40$	$3.77^{+0.85}_{-0.78}$	$325^{+19}_{-15}$	$4246^{+421}_{-311}$	$15034^{+9073}_{-5268}$

$T_{max}$  = 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

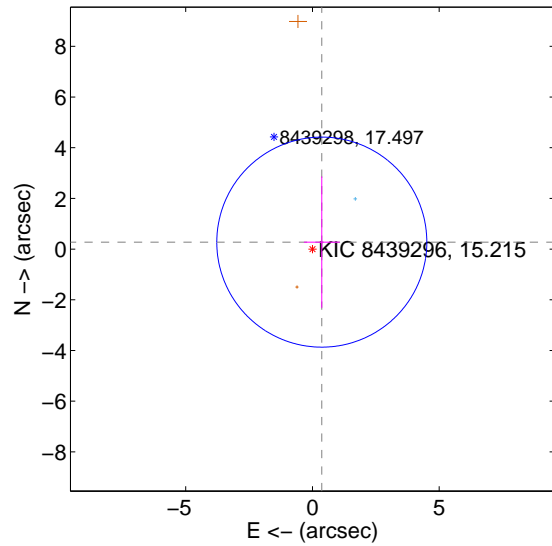
Supplemental centroid analysis for 008439296-01. Kepler magnitude: 15.21. Transit SNR 8.77

There are 1 quarters with good PRF difference image offsets

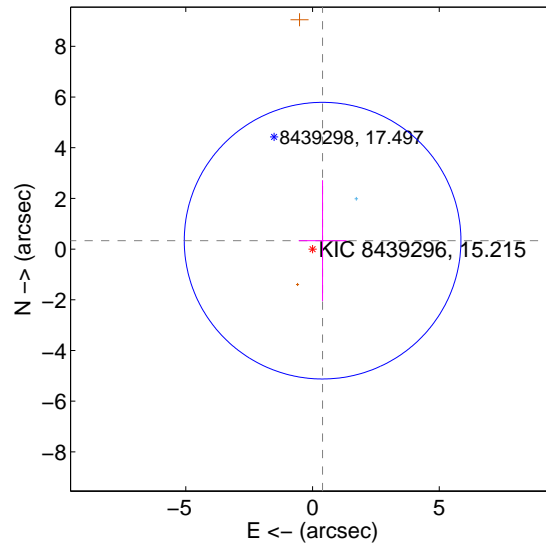
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.461 \pm 1.381$	0.33	$-0.370 \pm 0.706$	$0.275 \pm 2.592$
PRF-fit source offset from KIC position	$0.518 \pm 1.819$	0.28	$-0.397 \pm 0.942$	$0.333 \pm 2.385$
photometric centroid source offset	$4.12 \pm 1.28$	3.22	$-3.82 \pm 1.26$	$-1.54 \pm 1.38$

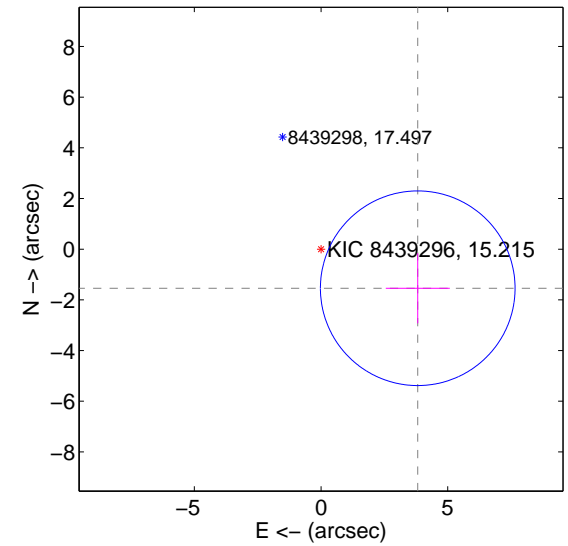
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

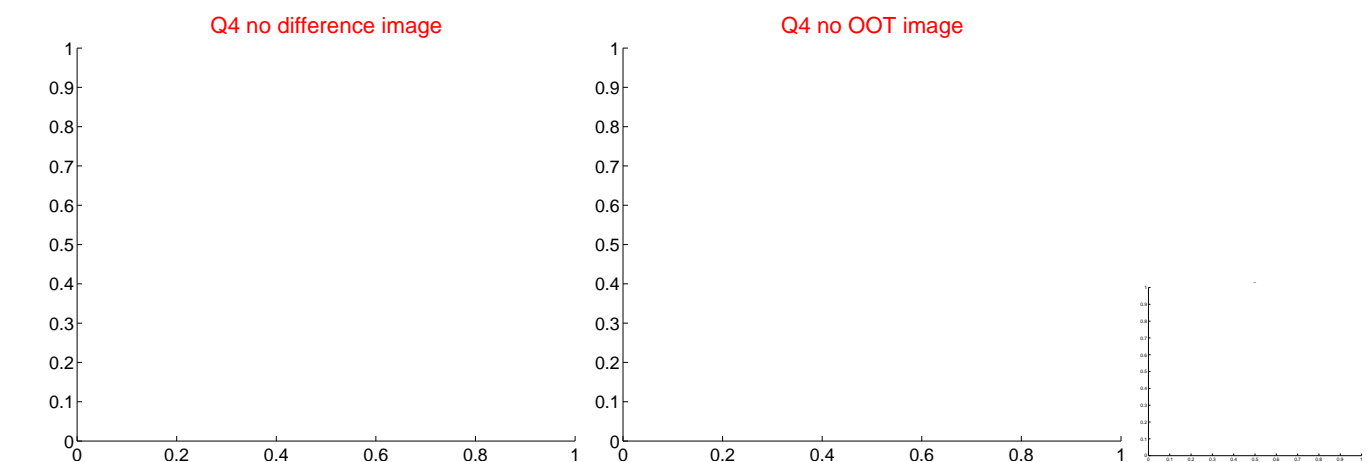
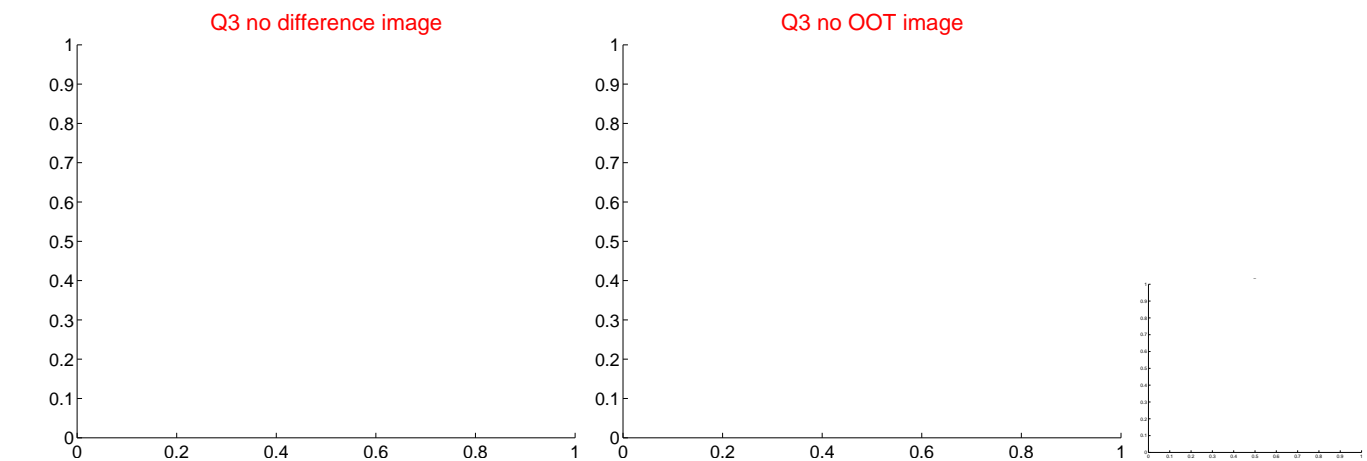
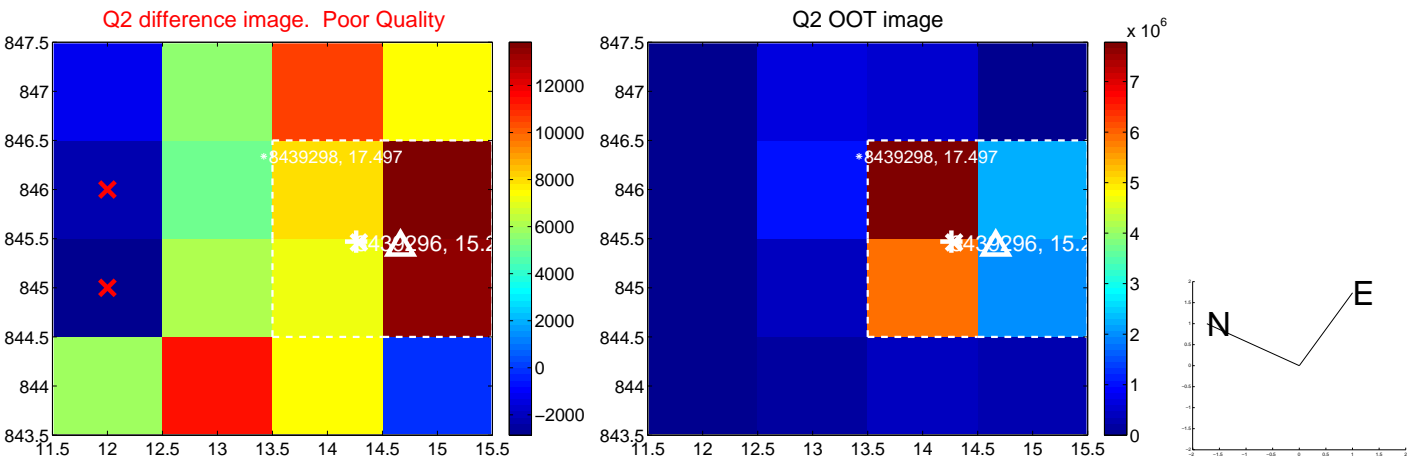
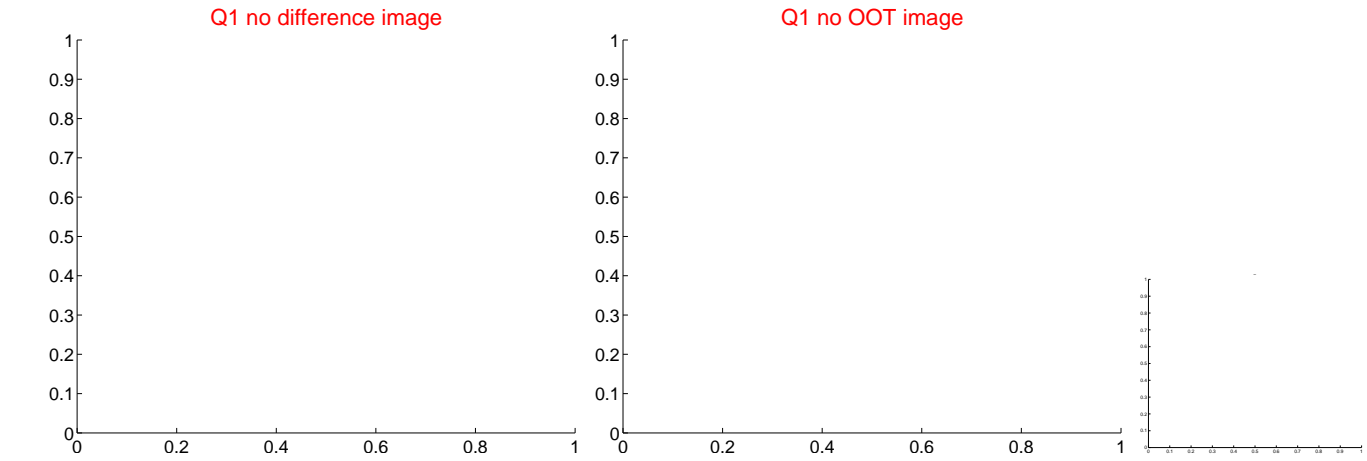


offset from photometric centroids

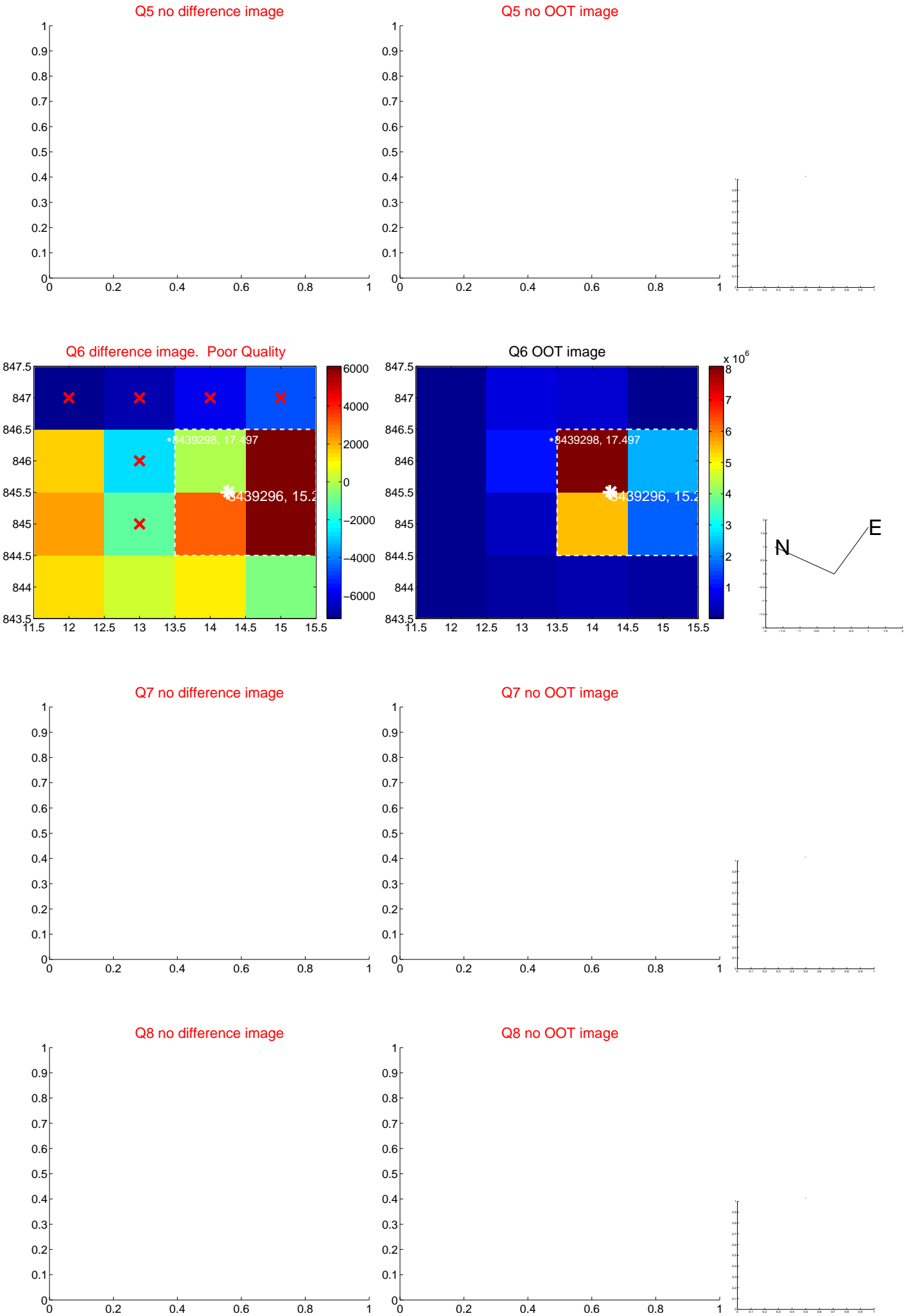


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

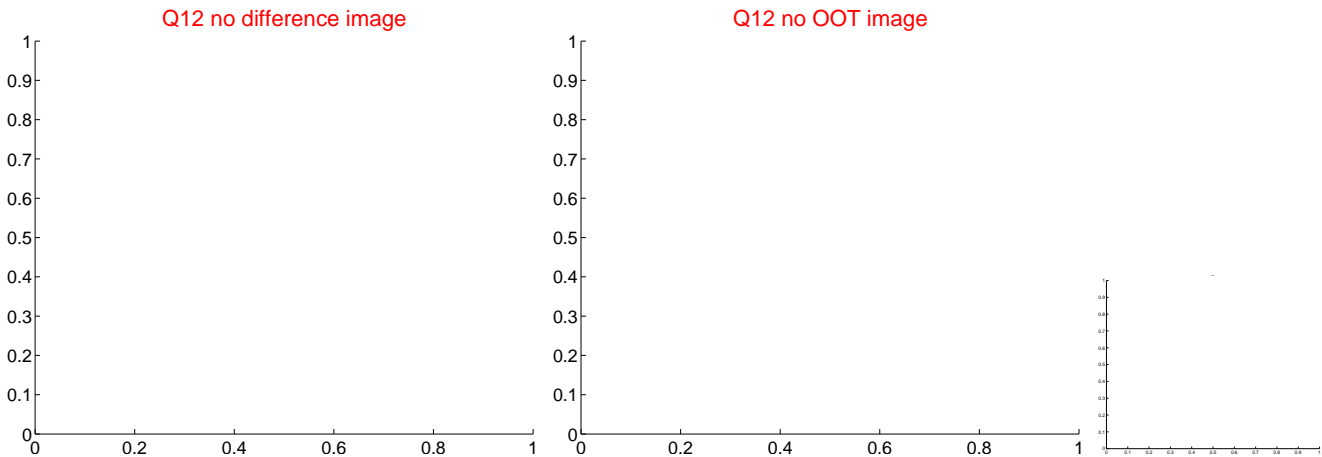
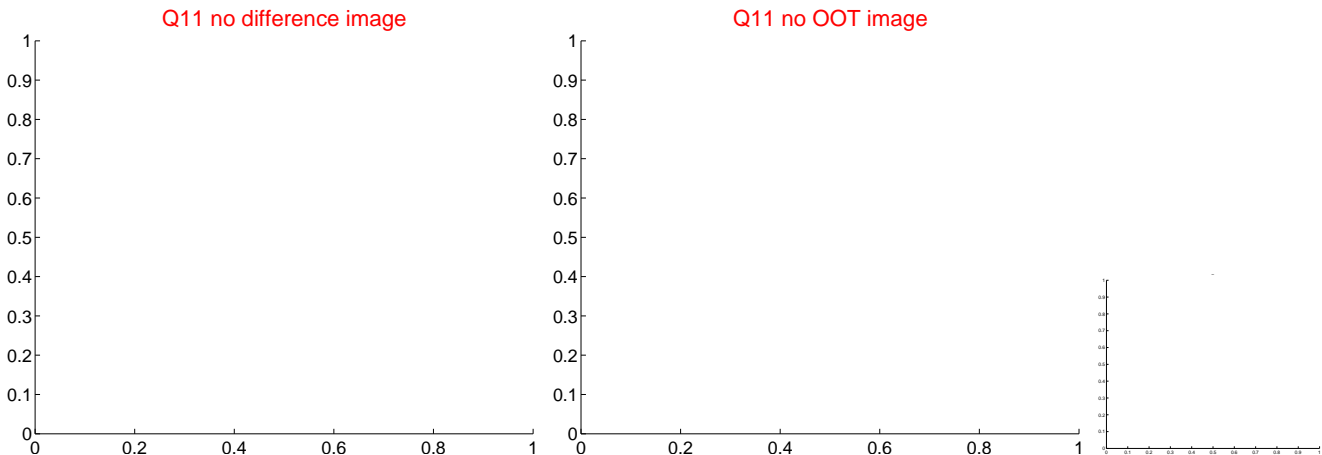
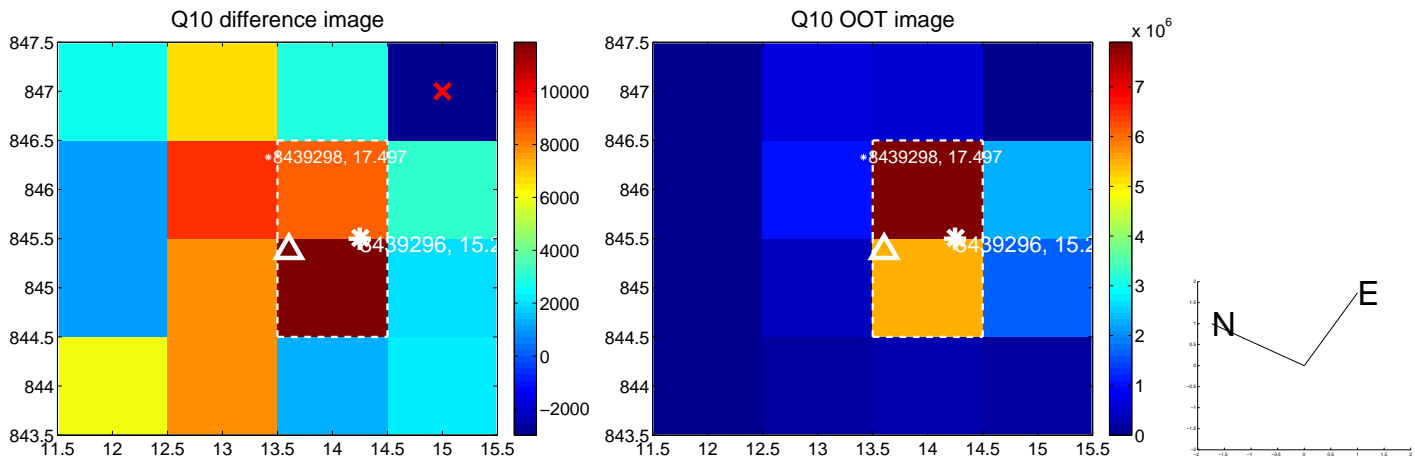
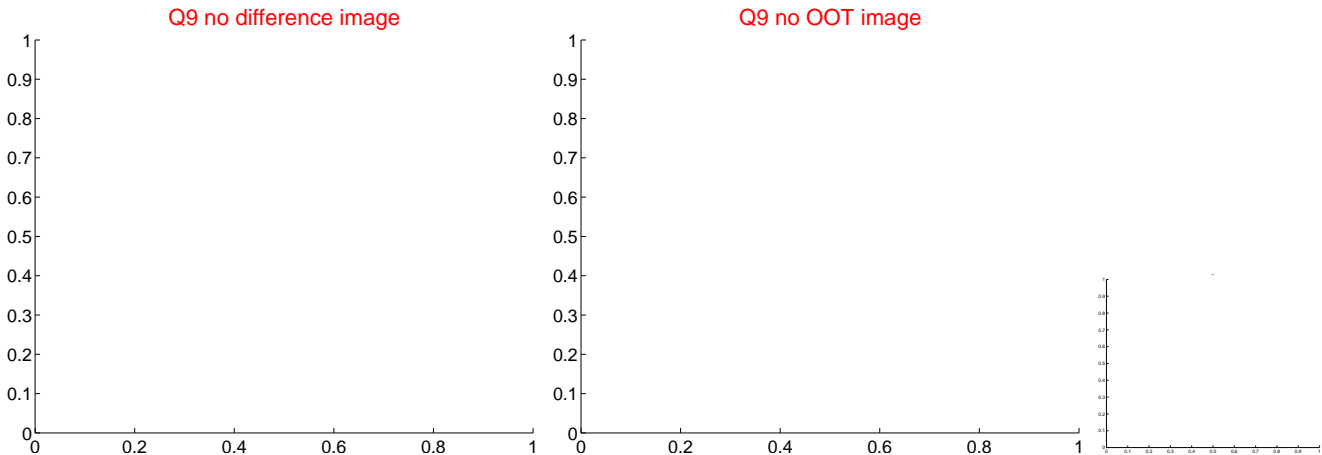


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

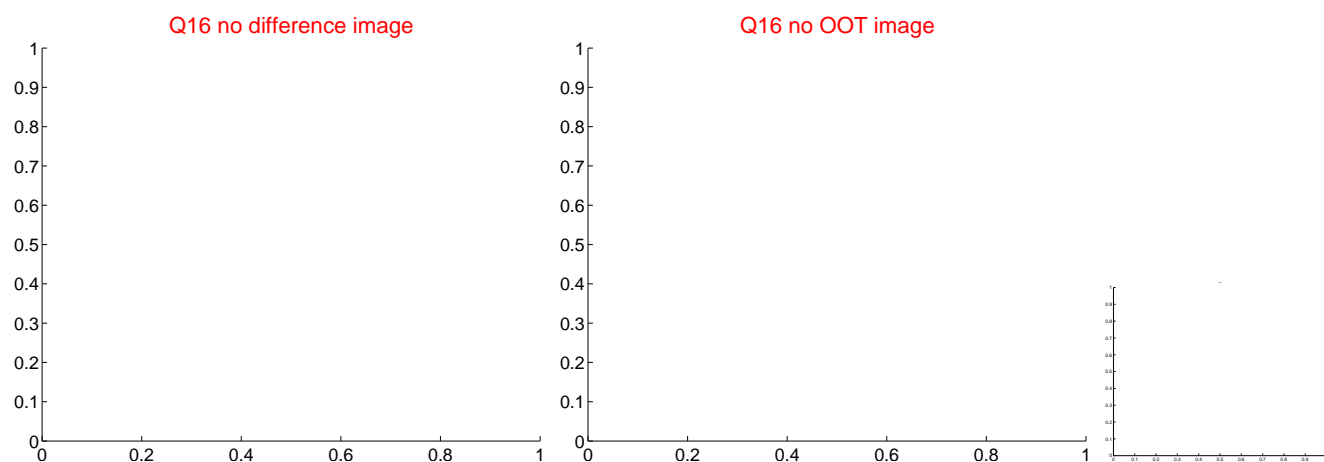
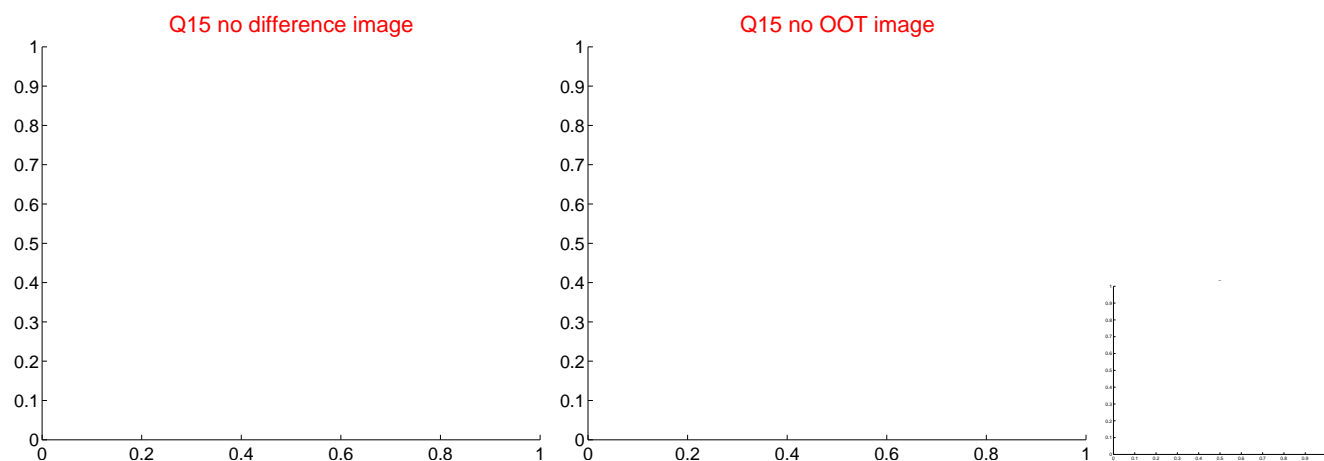
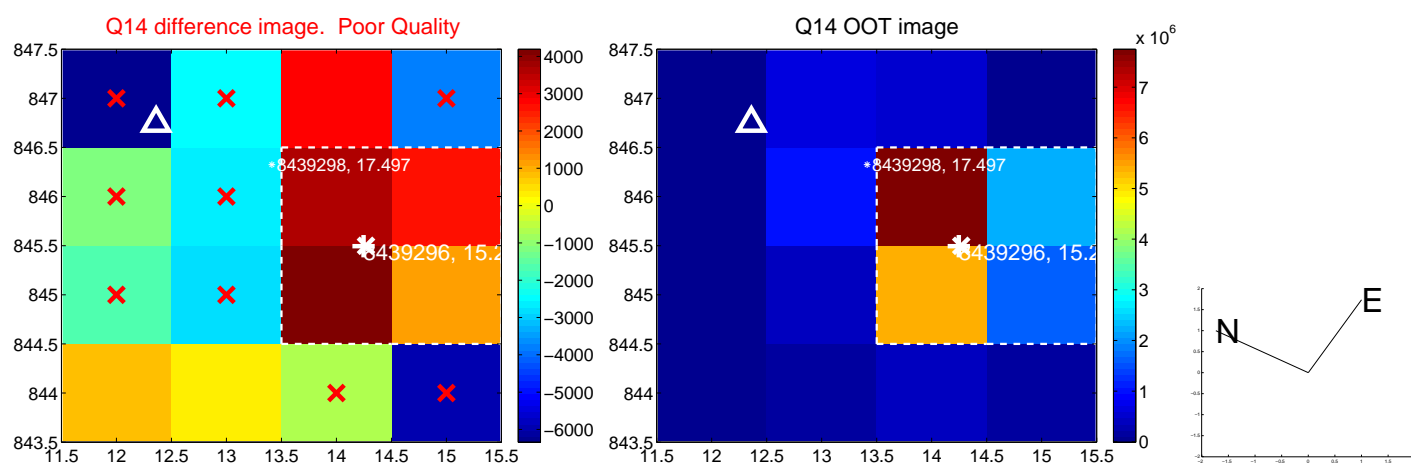
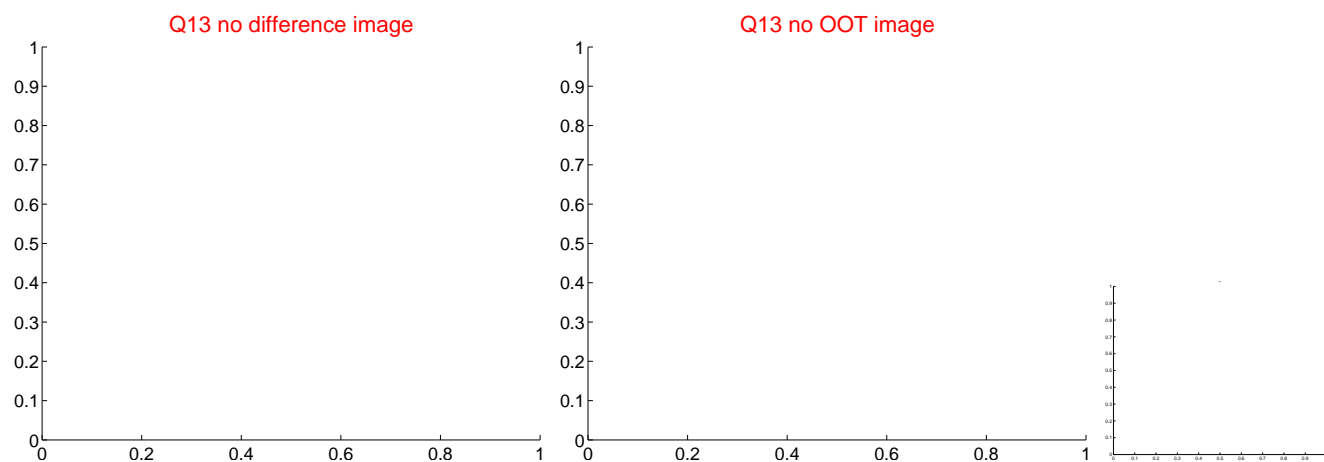




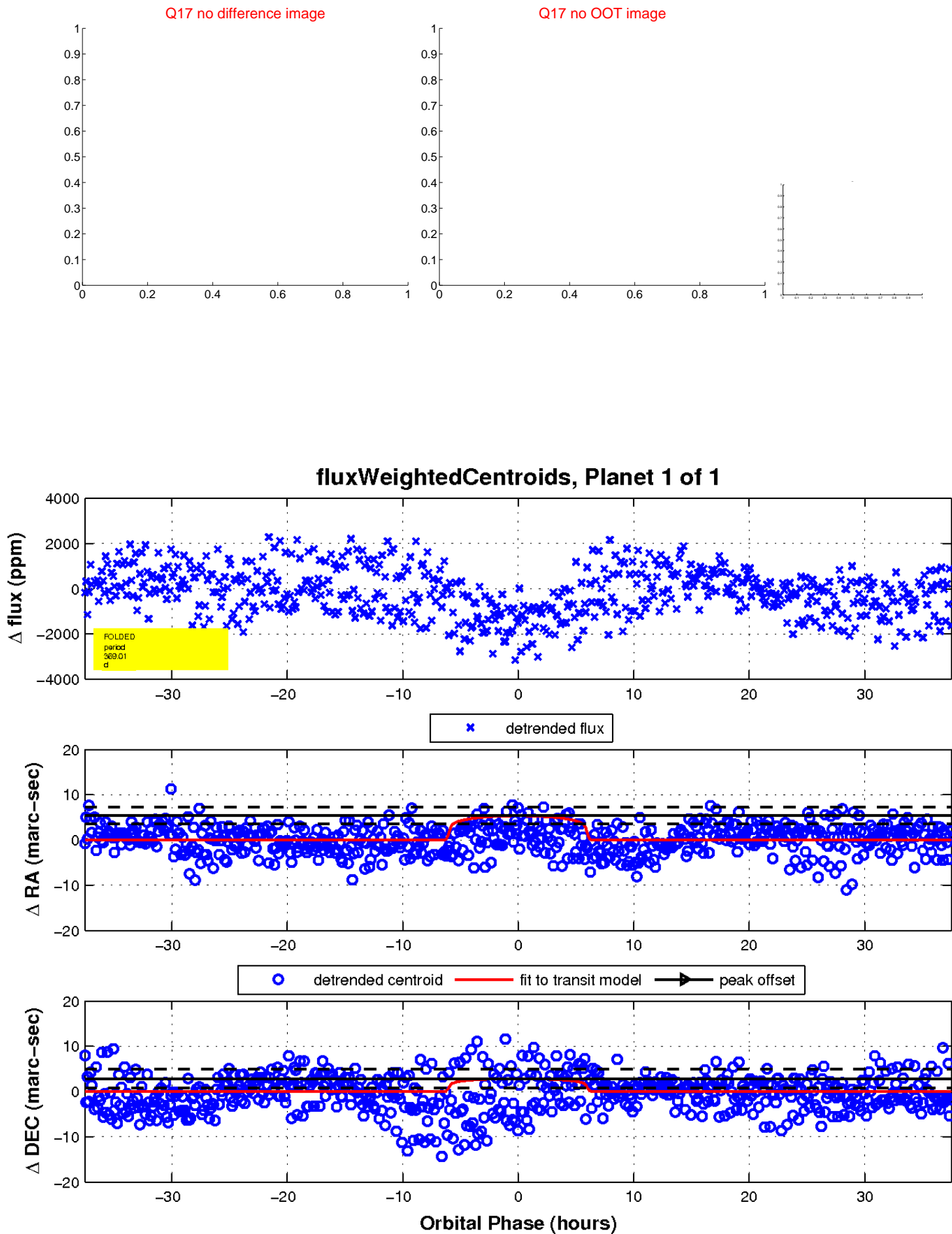
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



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



UKIRT Image

Declination

