

# KIC 005636405

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005636405-01	OBS	No	446.952806	296.236058	197.3	9.515	7.2	6.6	1.00	5473	1.58	0.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005636405-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_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.

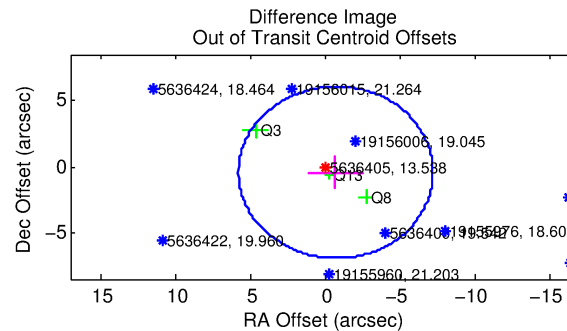
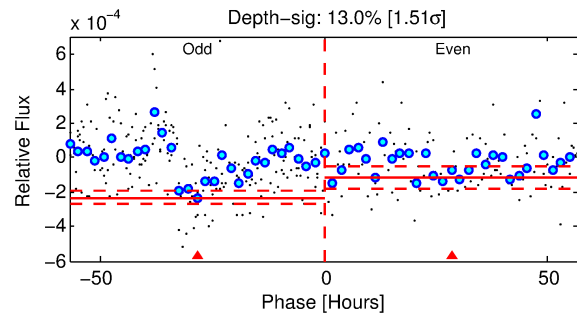
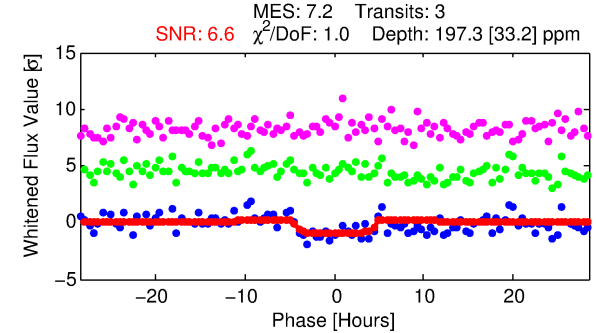
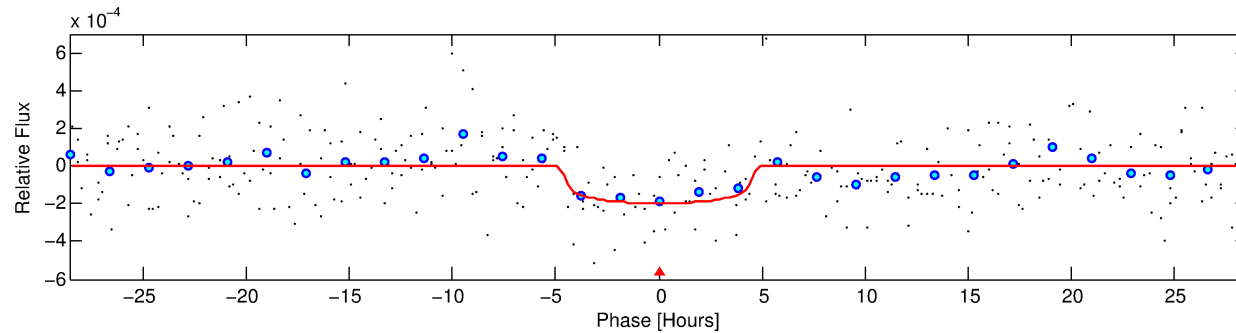
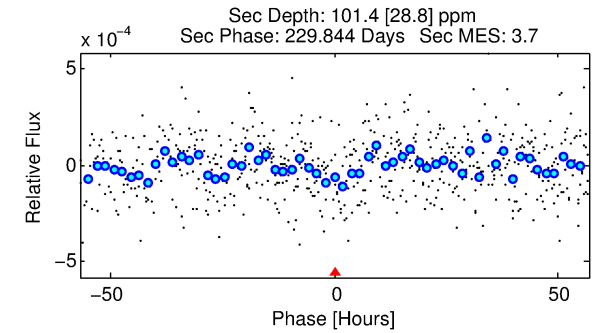
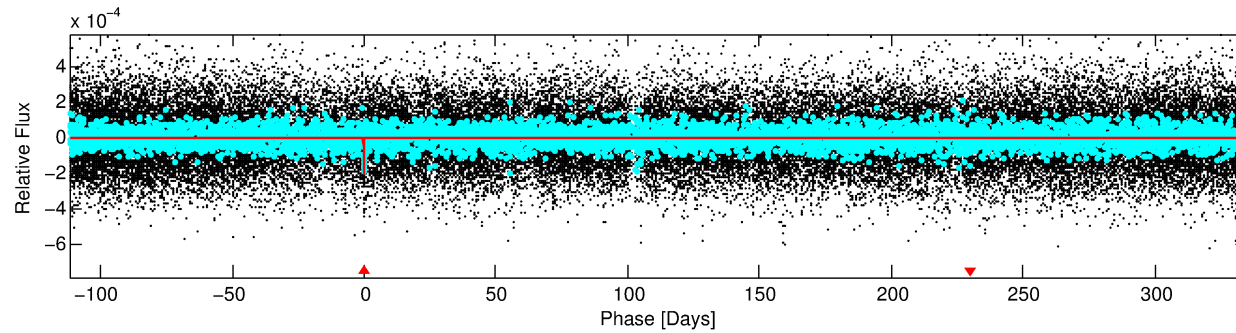
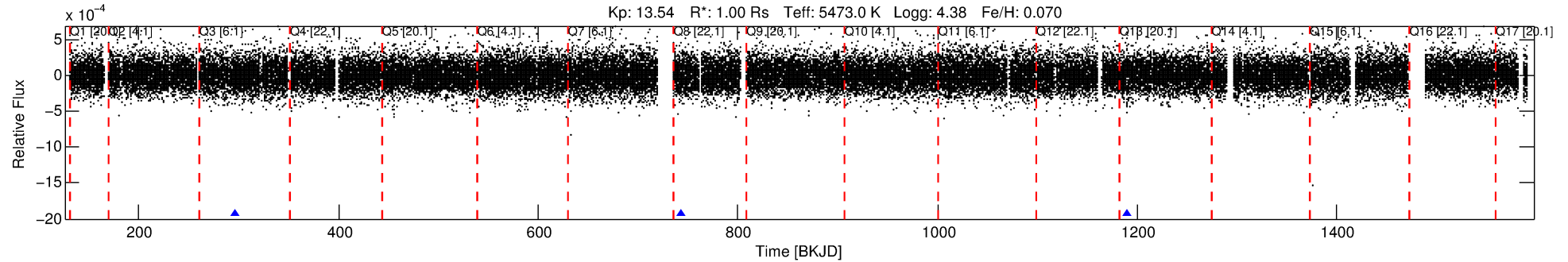
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005636405-01

No Significant Match Found

# DV One-Page Summary

KIC: 5636405 Candidate: 1 of 1 Period: 446.953 d



## DV Fit Results:

Period = 446.95281 [0.01748] d  
Epoch = 296.2361 [0.0246] BKJD  
Rp/R\* = 0.0144 [0.0131]  
a/R\* = 221.56 [835.82]  
b = 0.80 [1.67]  
Seff = 0.67 [0.14]  
Teq = 231 [12] K  
Rp = 1.58 [1.44] Re  
a = 1.0981 [0.1330] AU  
Ag = 27073.89 [50060.50] [0.54σ]  
Teffp = 4581 [2107] K [2.06σ]

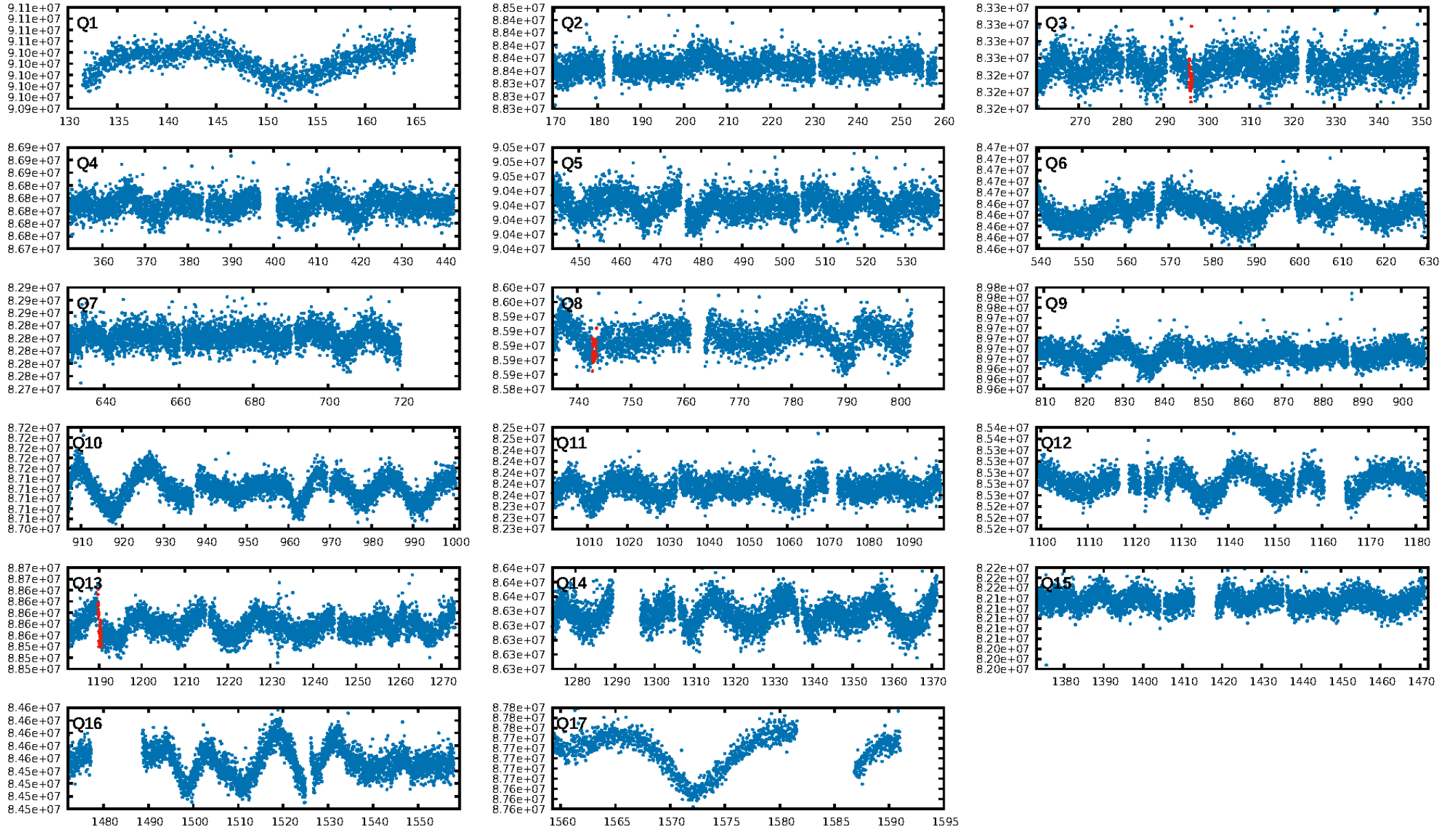
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 30.1%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 3.12e-13  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.219  
Centroid-sig: 5.8%  
Centroid-so: 2.755 arcsec [1.66σ]  
OotOffset-rm: 0.865 arcsec [0.40σ]  
KicOffset-rm: 0.833 arcsec [0.34σ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

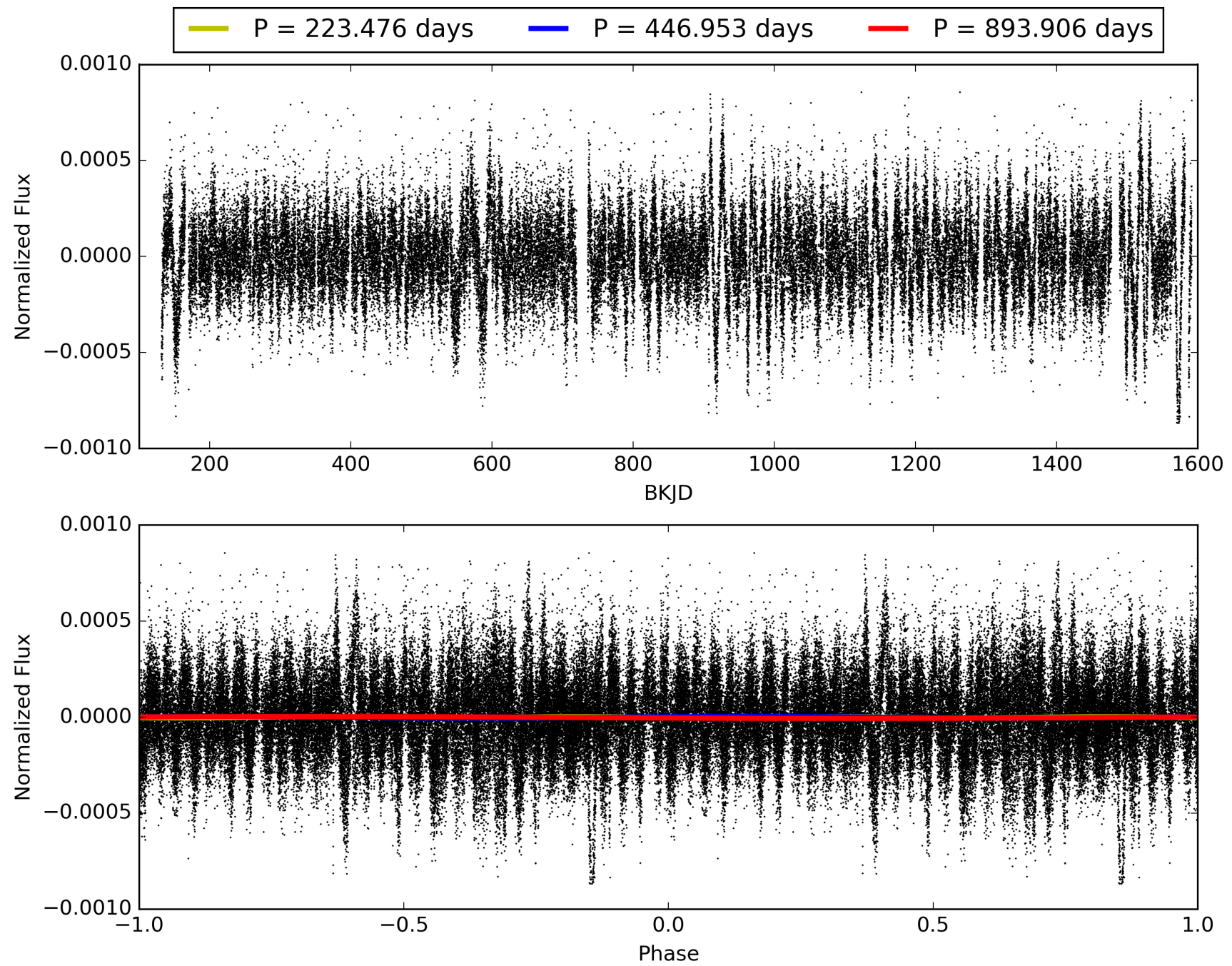
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:29:11 Z

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

# TCE 005636405-01, PDC Light Curves

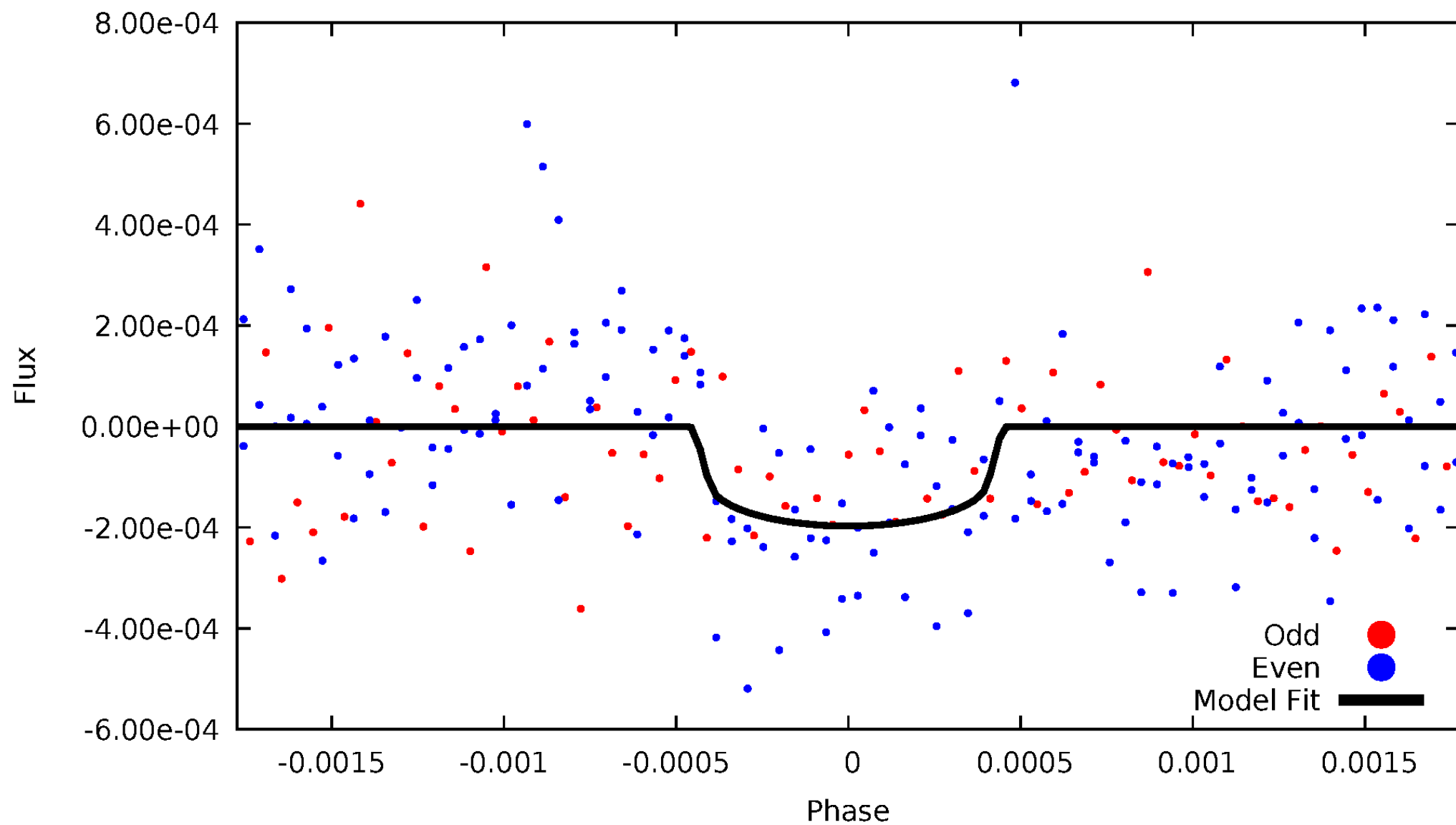


TCE 005636405-01



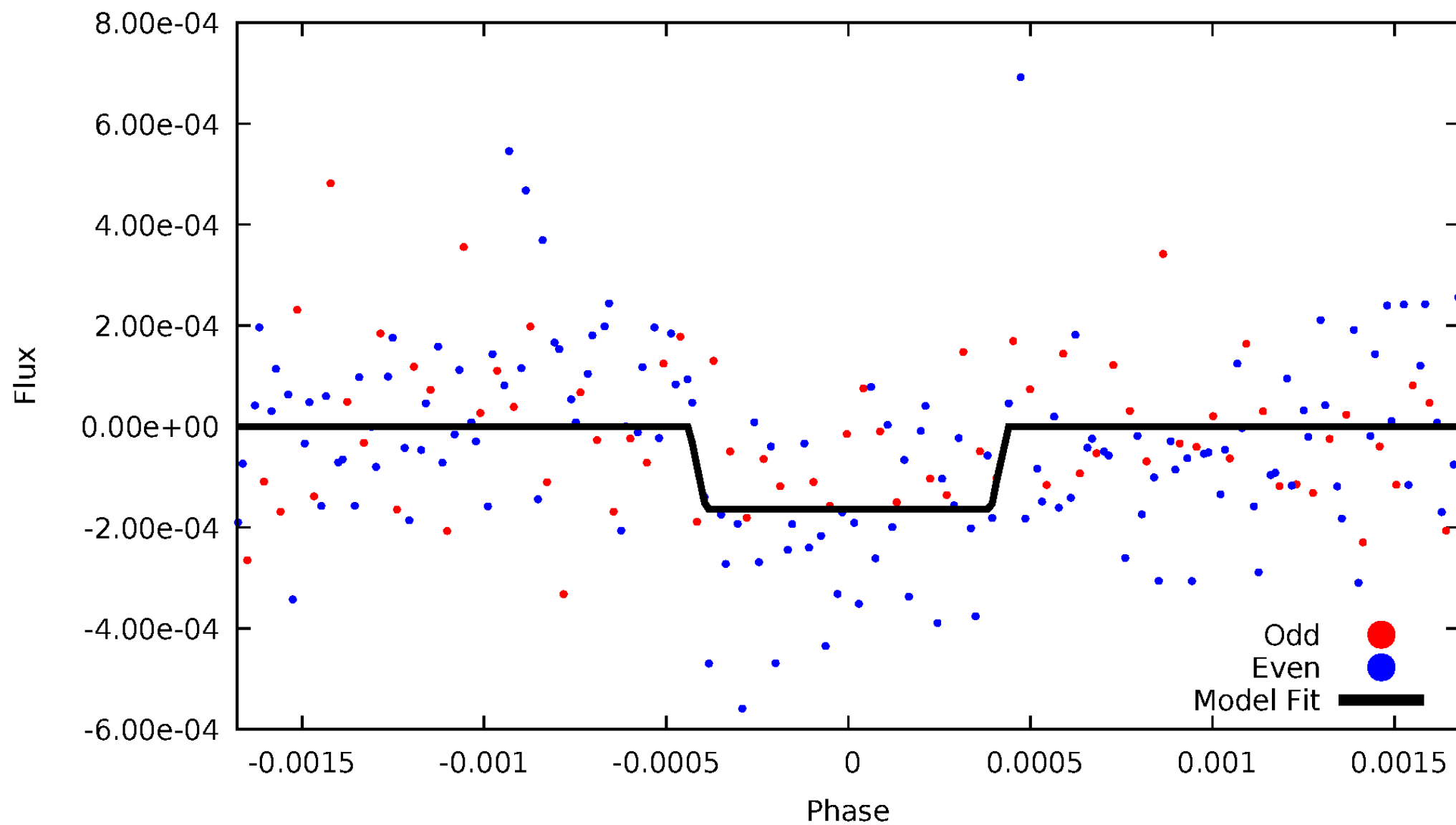
# DV Odd/Even

TCE 005636405-01

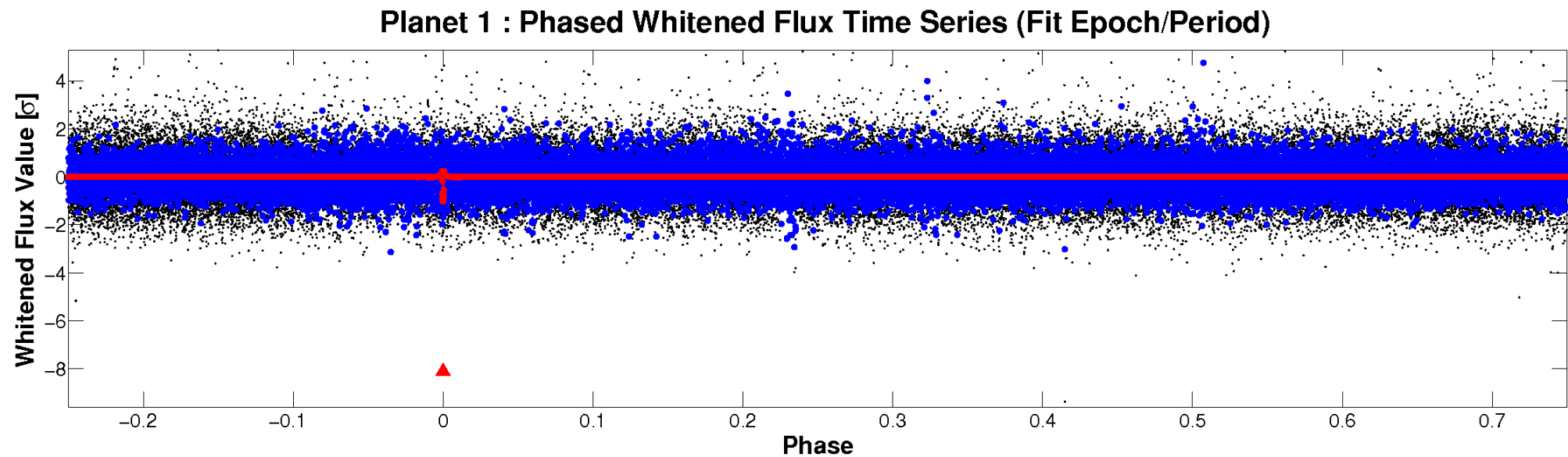
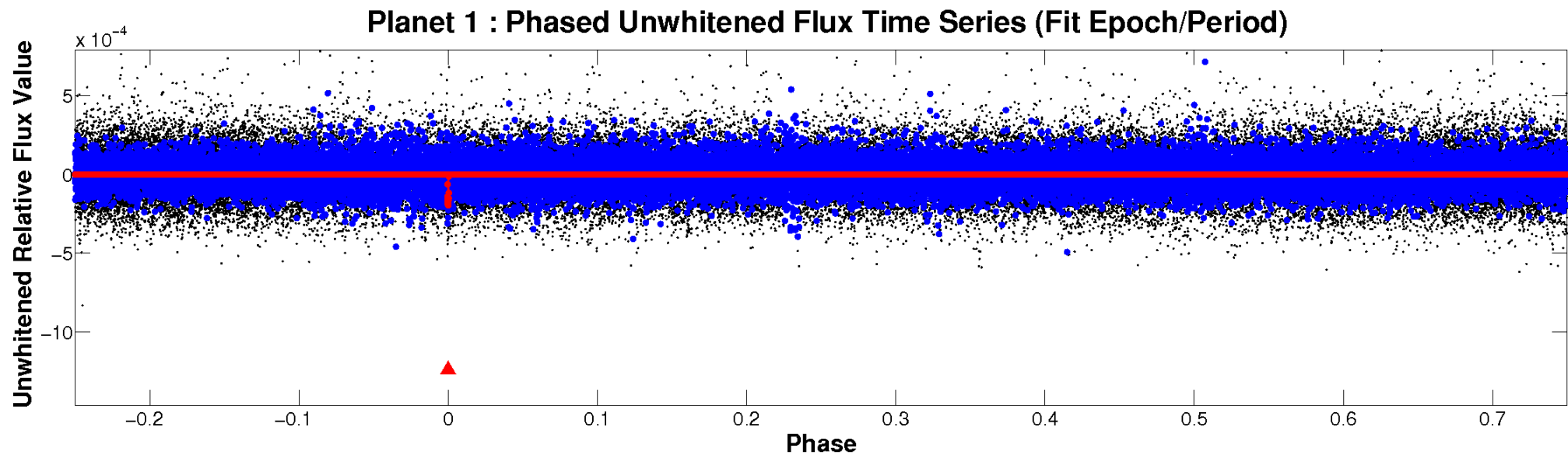


# ALT Odd/Even

TCE 005636405-01



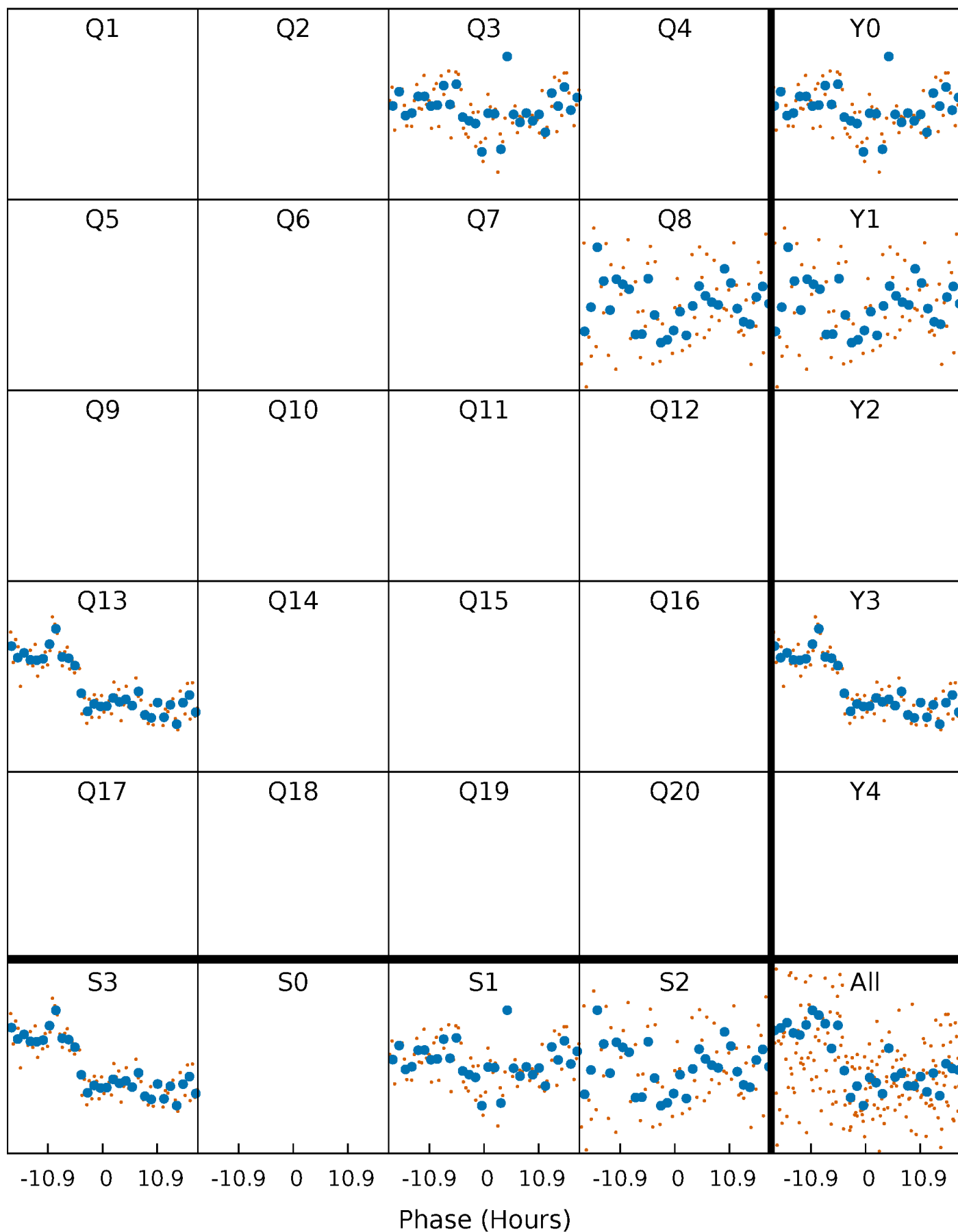
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

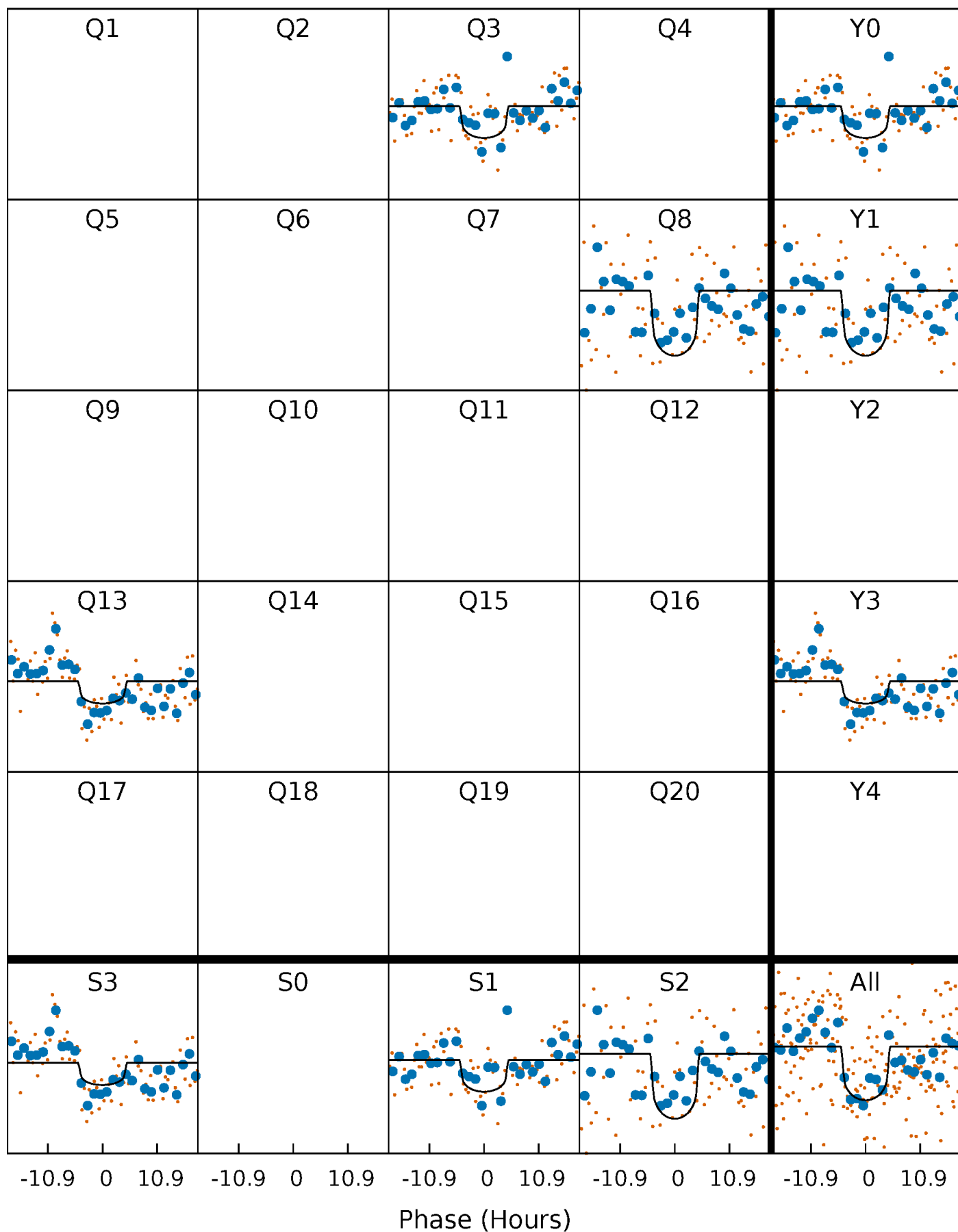
TCE 005636405-01 P=446.952806 Days  $T_0=296.236059$  (BKJD)





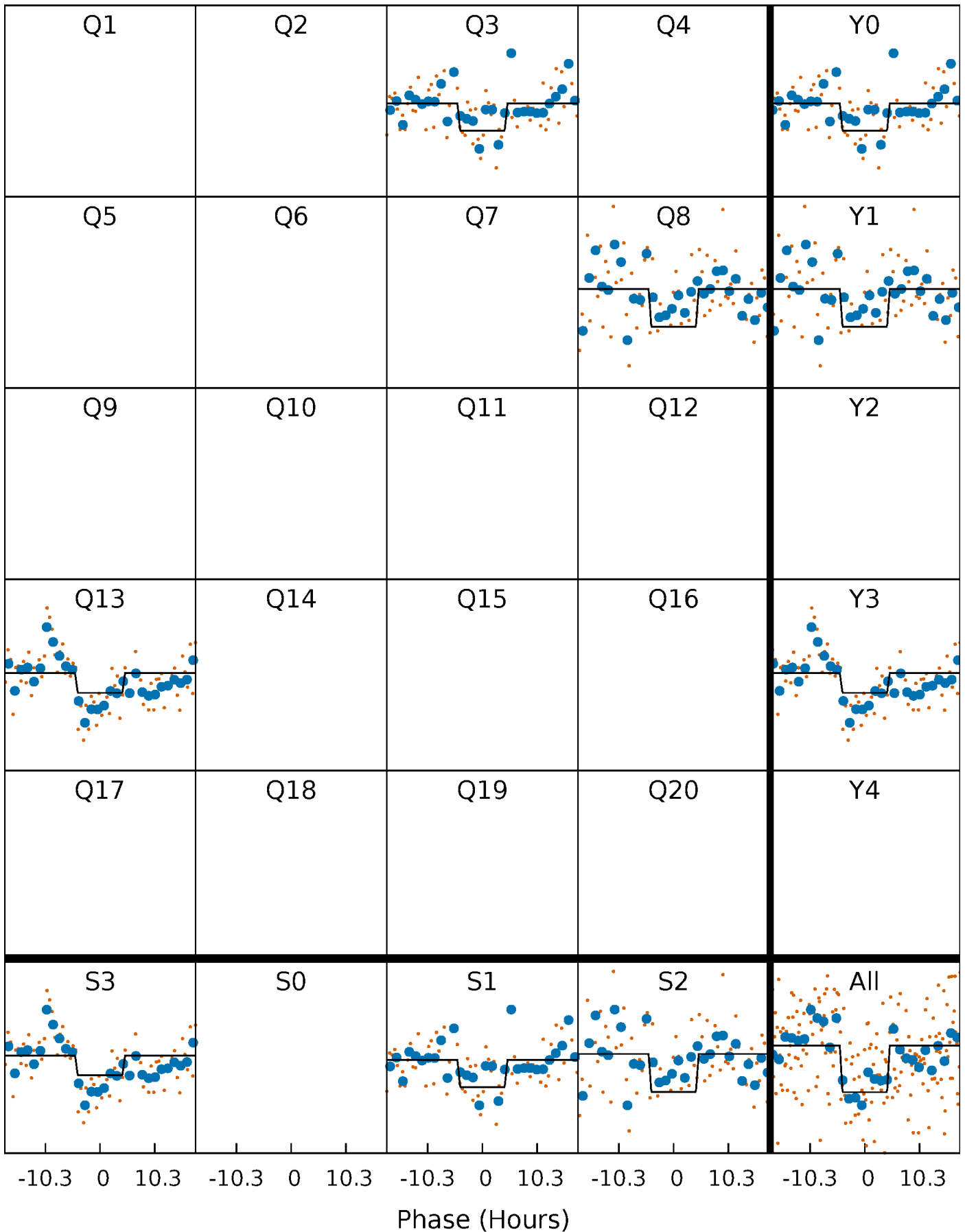
# DV Quarter-Phased Transit Curves

TCE 005636405-01 P=446.952806 Days  $T_0=296.236059$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

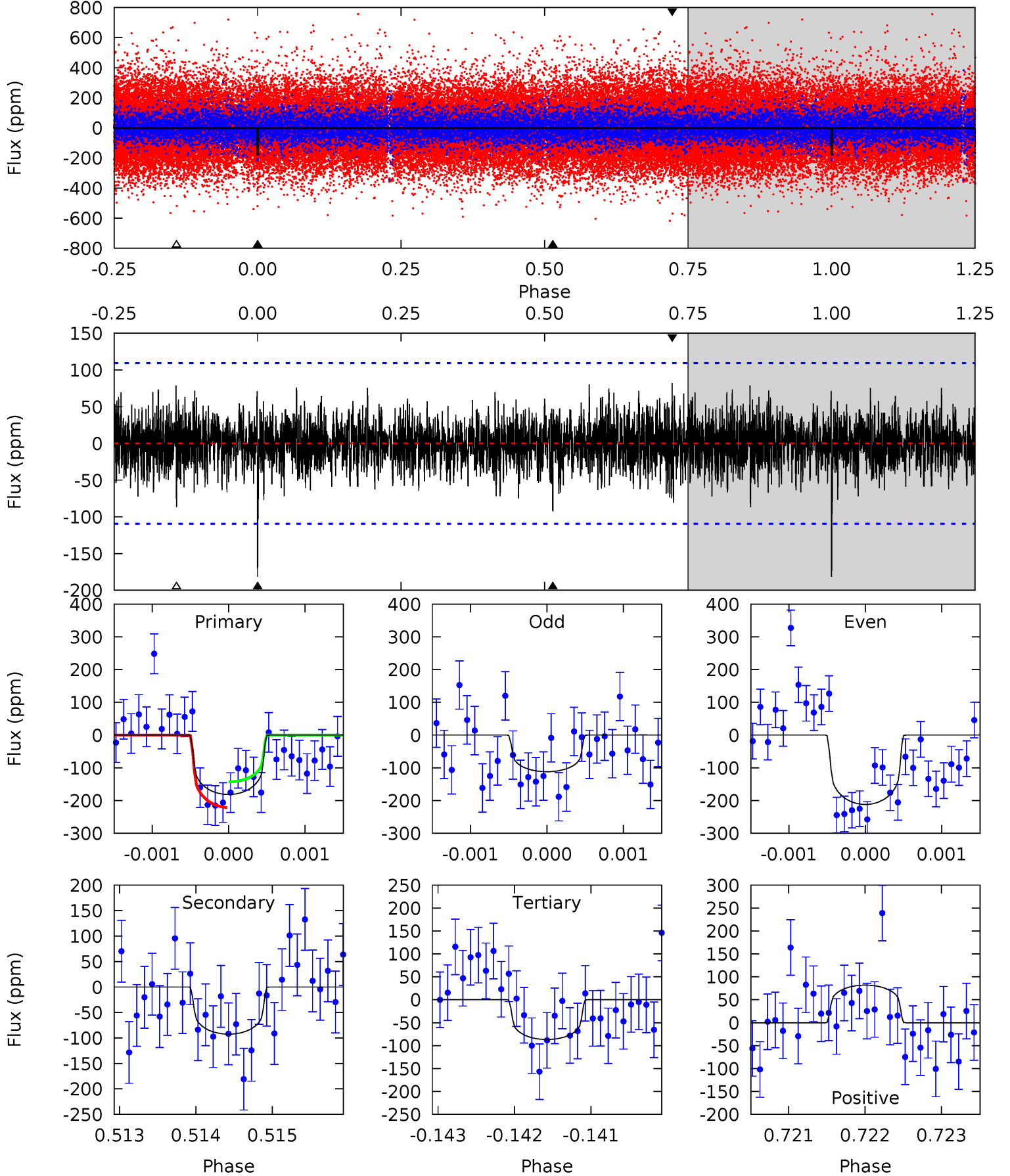
TCE 005636405-01 P=446.950069 Days  $T_0=296.240908$  (BKJD)



# DV Model-Shift Uniqueness Test

005636405-01, P = 446.952806 Days, E = 296.236059 Days

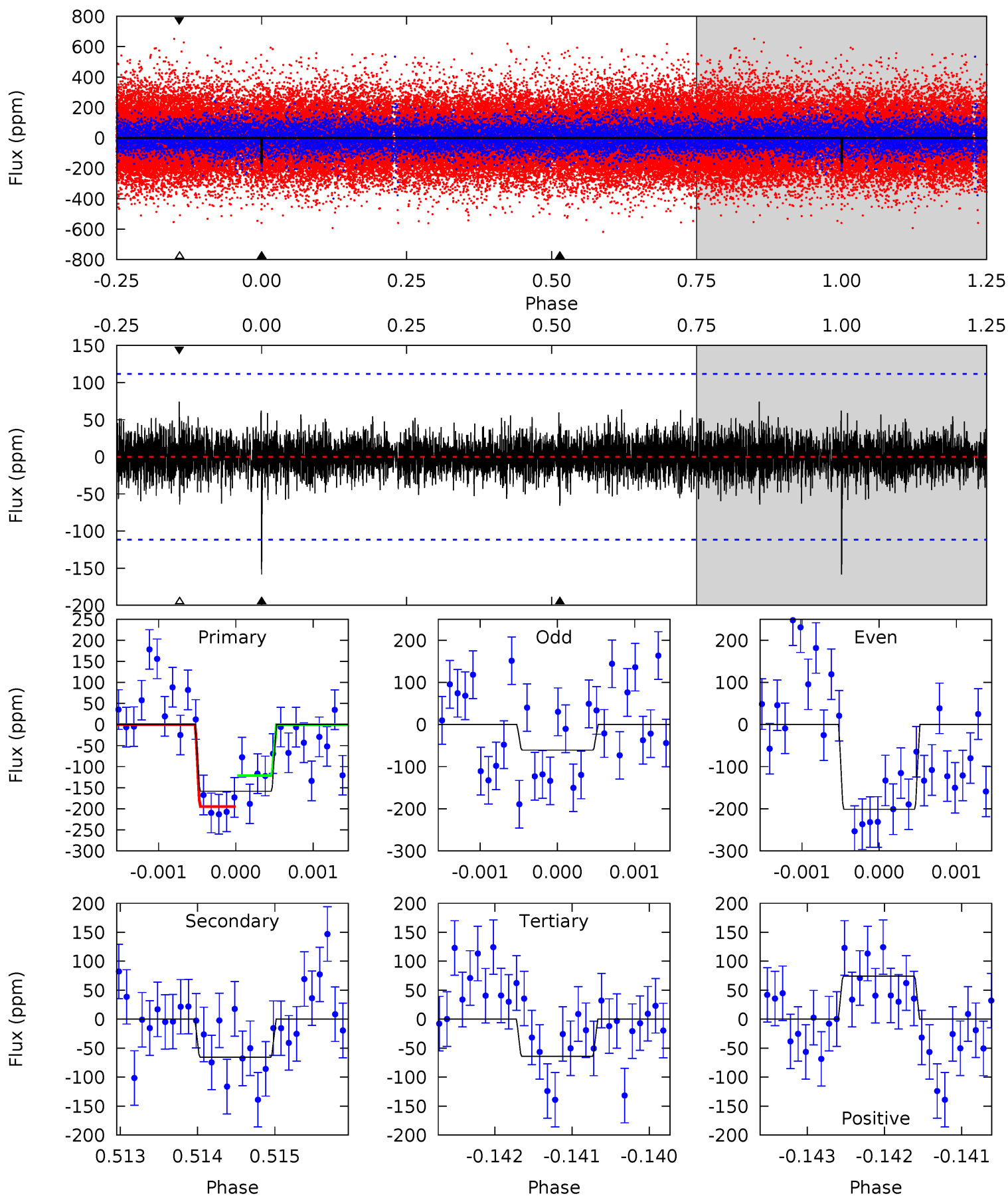
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.07	4.62	4.33	4.09	5.47	3.32	1.21	4.74	4.98	0.29	0.53	2.28	1.18	0.31	1.96



# Alt Model-Shift Uniqueness Test

005636405-01, P = 446.950069 Days, E = 296.240908 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
7.78	3.22	3.14	3.65	5.48	3.34	0.86	4.64	4.13	0.08	-0.43	3.18	1.17	0.32	1.81



### Stellar Parameters For KIC 005636405

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5473^{+82}_{-73}$	$4.380^{+0.115}_{-0.094}$	$0.070^{+0.150}_{-0.150}$	$1.005^{+0.125}_{-0.125}$	$0.883^{+0.066}_{-0.039}$	$1.225^{+0.631}_{-0.352}$
	+1%/-1%	+3%/-2%	+214%/-214%	+12%/-12%	+7%/-4%	+52%/-29%
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 005636405-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-93 \pm 20$	$1.79^{+1.31}_{-1.14}$	$322^{+12}_{-13}$	$4367^{+2558}_{-767}$	$19316^{+128777}_{-13237}$
Alt.	$-66 \pm 20$	$1.68^{+1.27}_{-1.05}$	$322^{+12}_{-12}$	$4157^{+2451}_{-749}$	$14798^{+98903}_{-10194}$

$T_{max}$  = 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

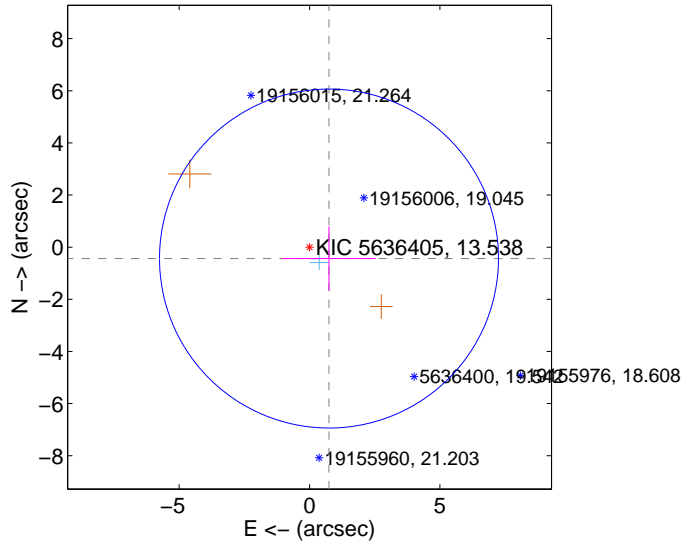
Supplemental centroid analysis for 005636405-01. Kepler magnitude: 13.54. Transit SNR 6.63

There are 1 quarters with good PRF difference image offsets

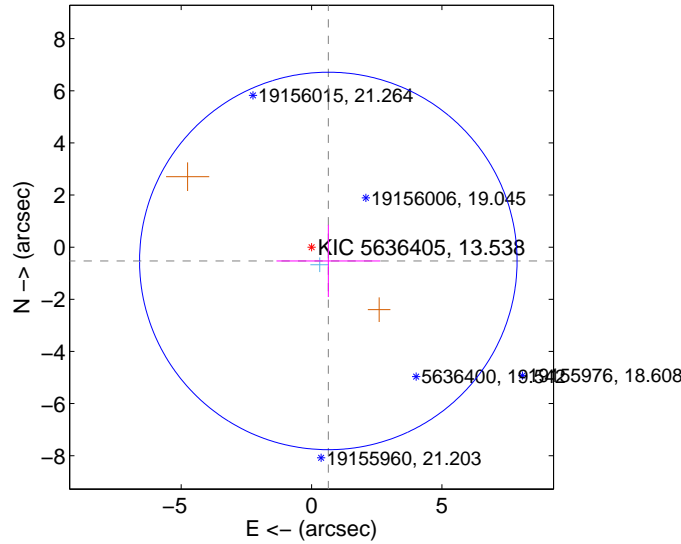
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.865 \pm 2.167$	0.40	$-0.746 \pm 1.790$	$-0.437 \pm 1.235$
PRF-fit source offset from KIC position	$0.833 \pm 2.413$	0.34	$-0.643 \pm 1.988$	$-0.529 \pm 1.384$
photometric centroid source offset	$2.75 \pm 1.66$	1.66	$1.71 \pm 1.73$	$-2.16 \pm 1.61$

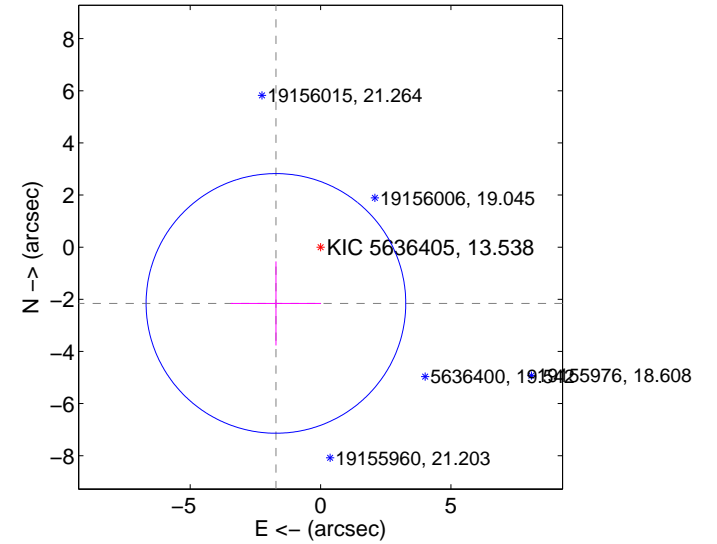
offset from difference PRF-fit to OOT PRF-fit



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

Q1 no difference image



Q1 no OOT image



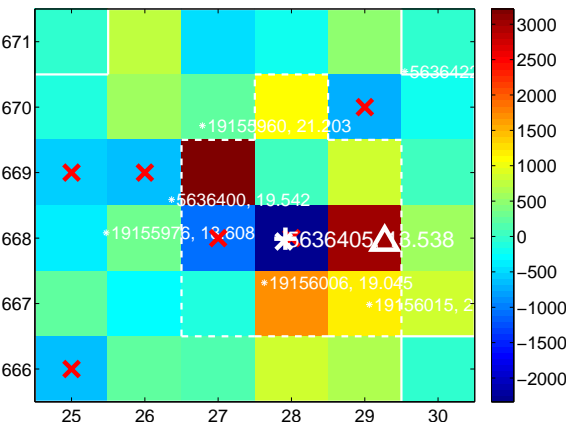
Q2 no difference image



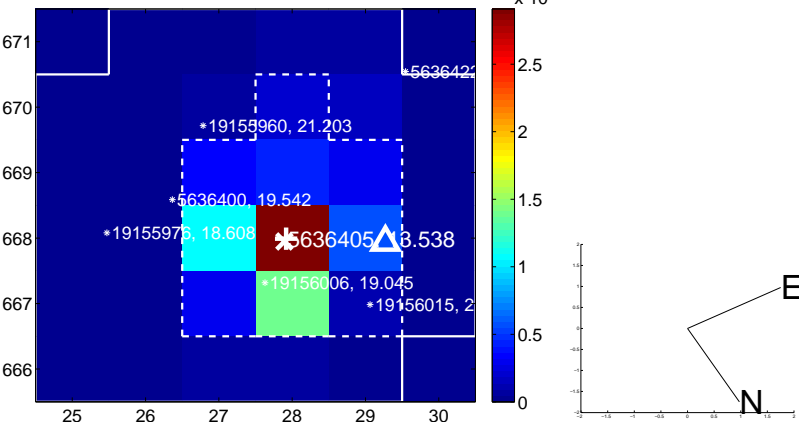
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image

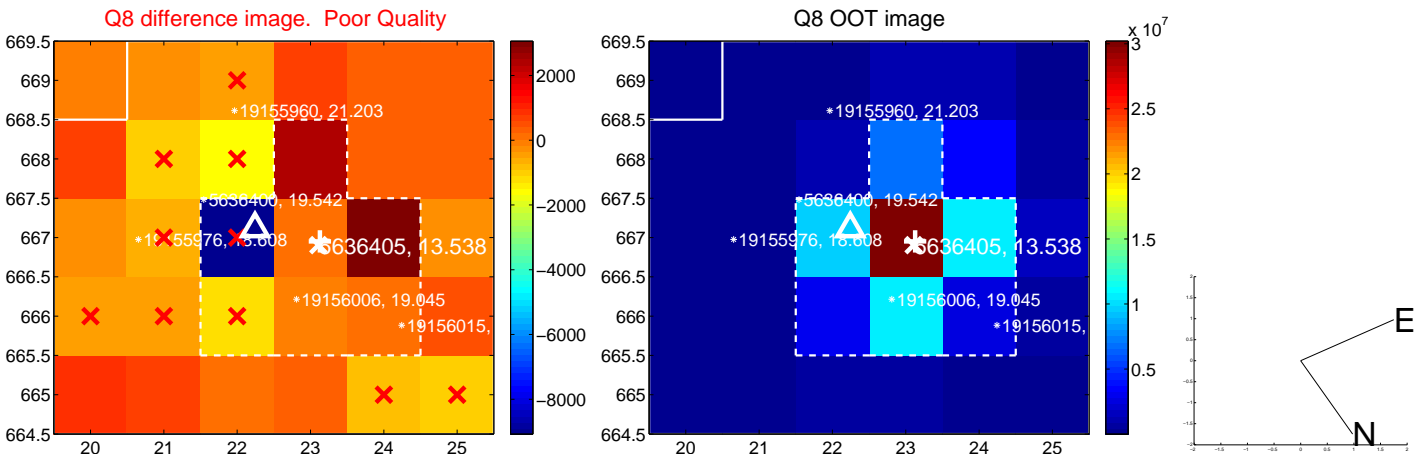


Q4 no OOT image





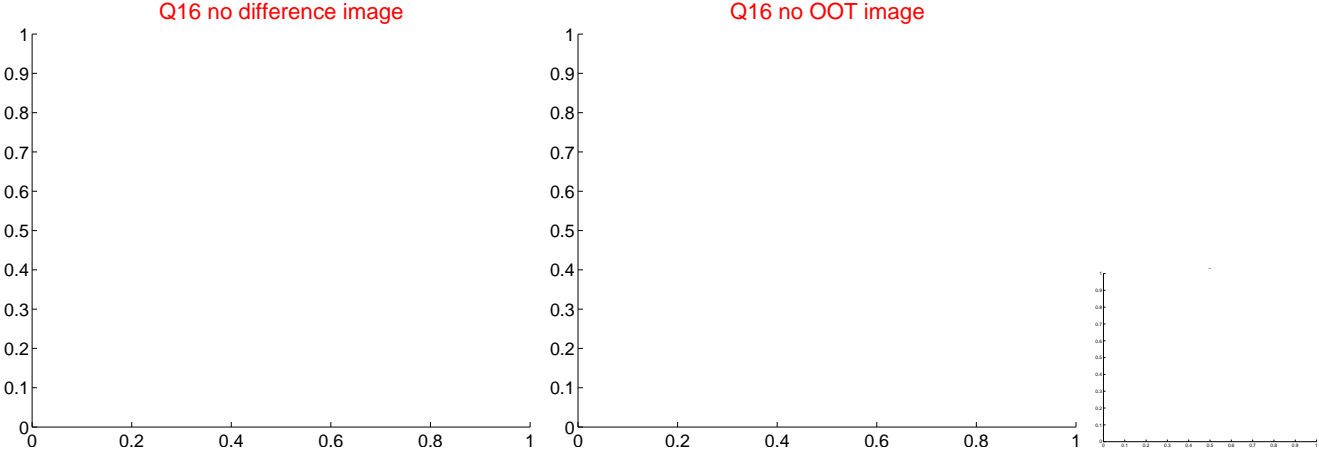
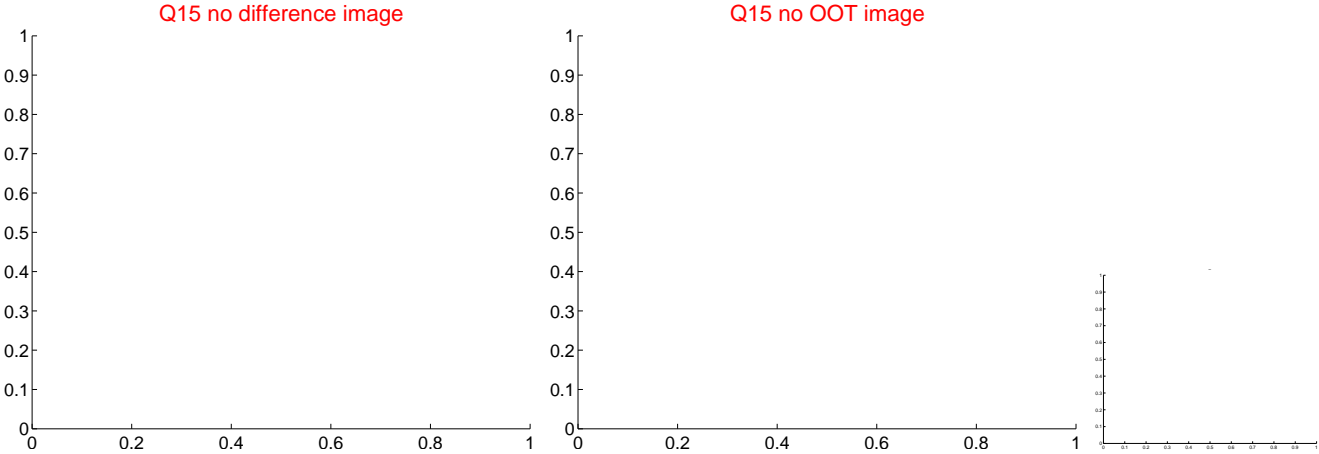
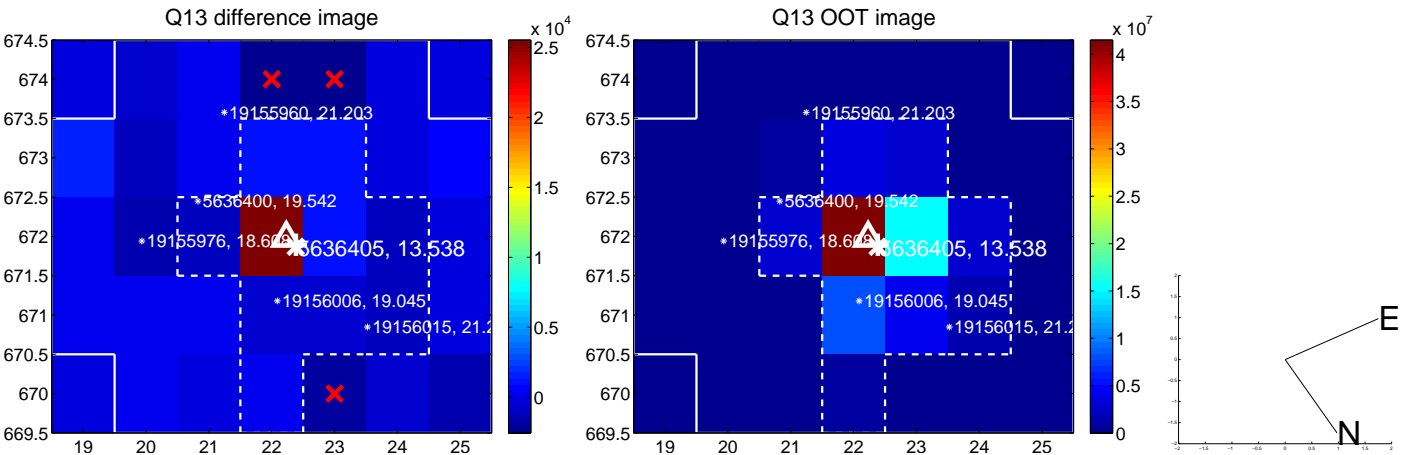
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



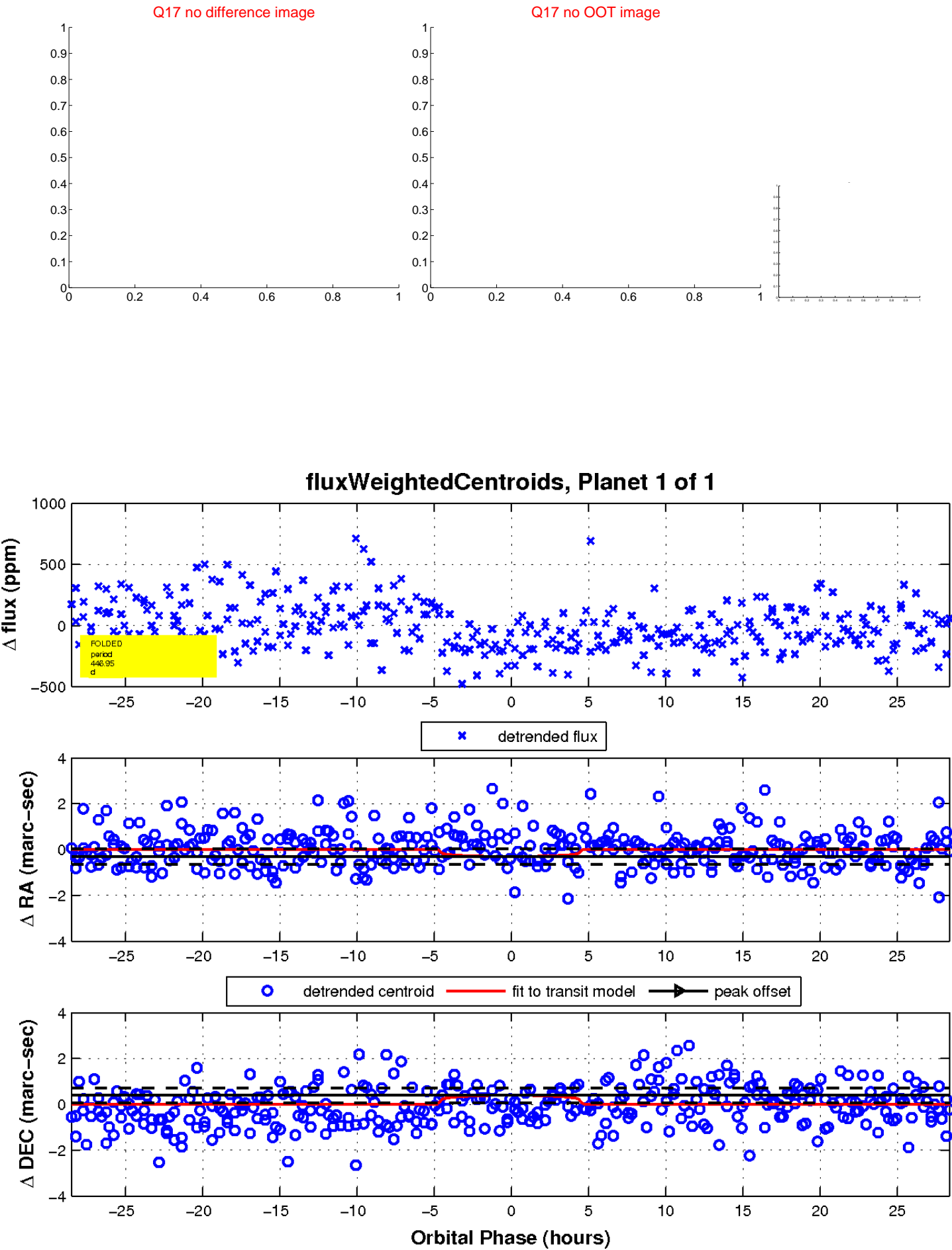
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

