

# KIC 002996015

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002996015-01	OBS	No	386.207507	254.782460	147.9	0.757	19.1	7.3	67.67	3688	98.60	615.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002996015-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_SATURATED

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

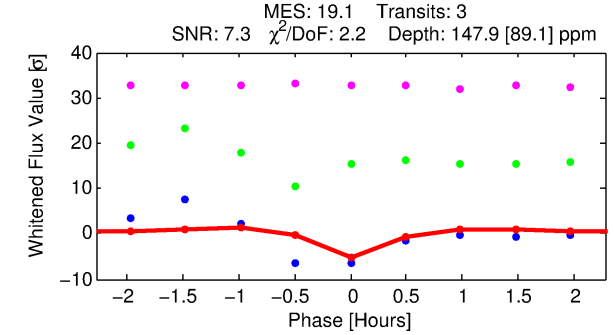
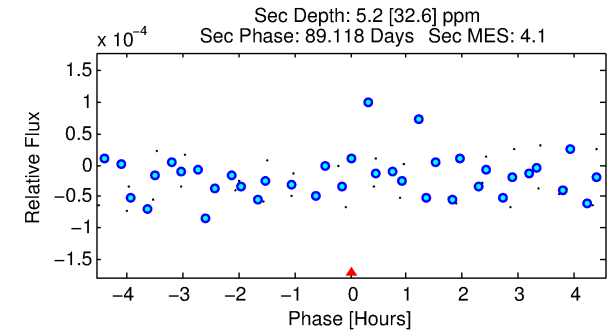
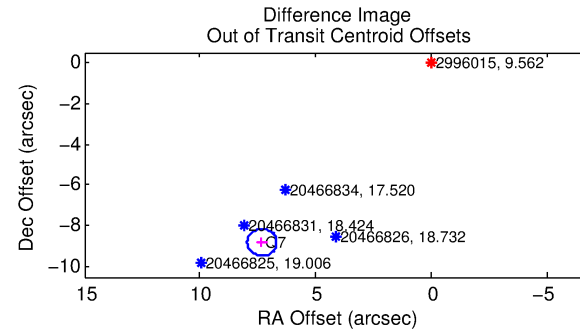
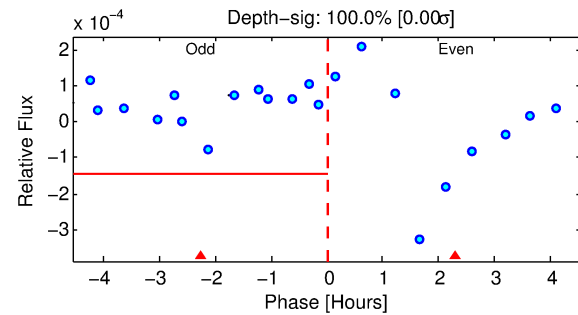
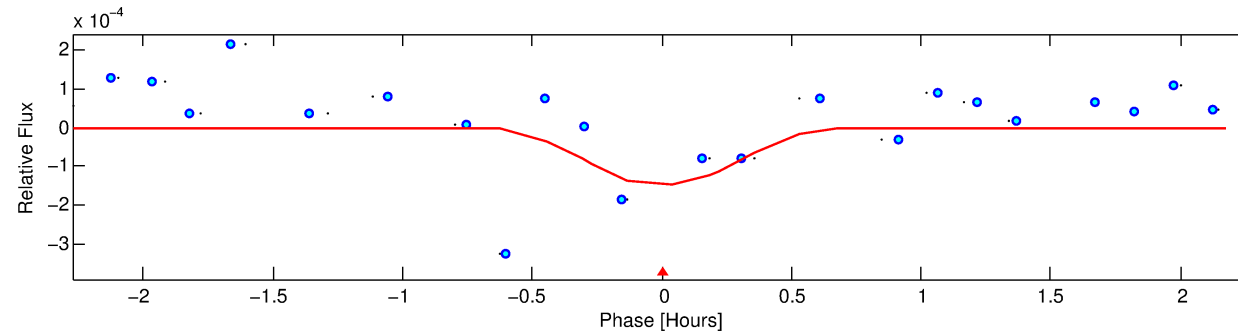
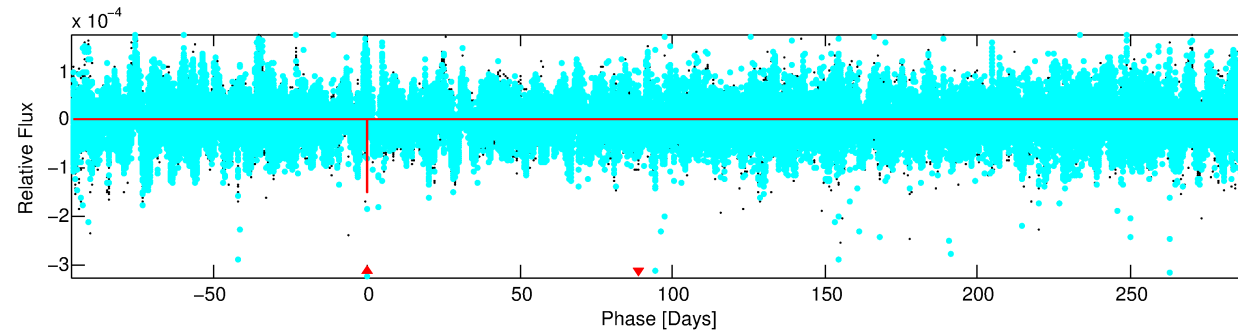
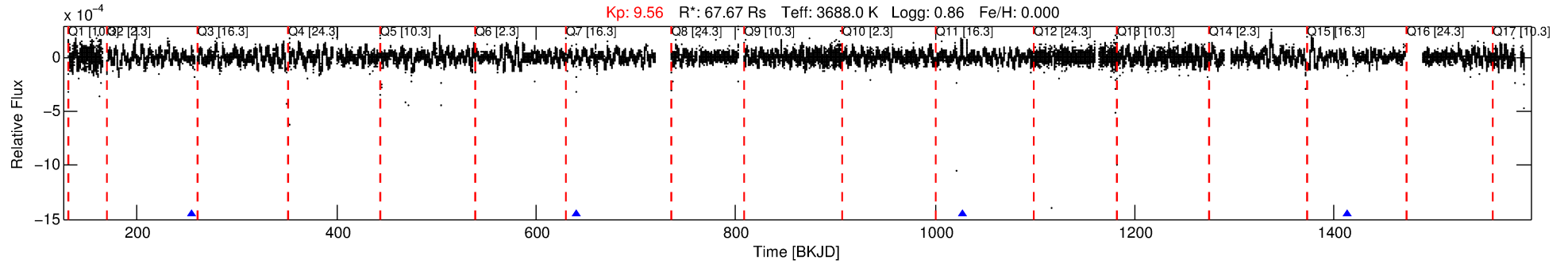
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002996015-01

No Significant Match Found

# DV One-Page Summary

KIC: 2996015 Candidate: 1 of 1 Period: 386.208 d



## DV Fit Results:

Period = 386.20751 [0.00423] d  
Epoch = 254.7825 [0.0076] BKJD  
Rp/R\* = 0.0134 [0.0829]  
a/R\* = 2339.76 [40527.39]  
b = 0.82 [7.16]  
Seff = 615.51 [265.12]  
Teq = 1270 [137] K  
Rp = 98.60 [612.90] Re  
a = 1.1105 [0.2934] AU  
Ag = 0.36 [5.07] [-0.13 $\sigma$ ]  
Teff = 1526 [5302] K [0.05 $\sigma$ ]

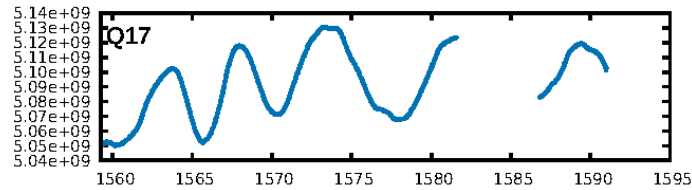
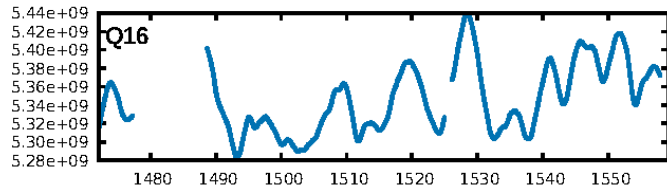
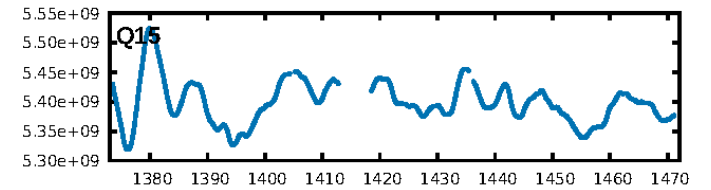
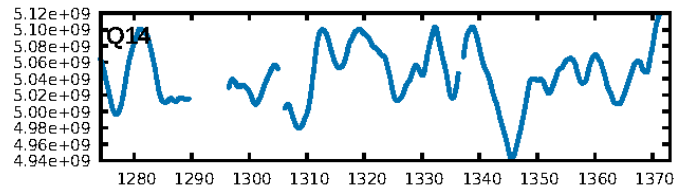
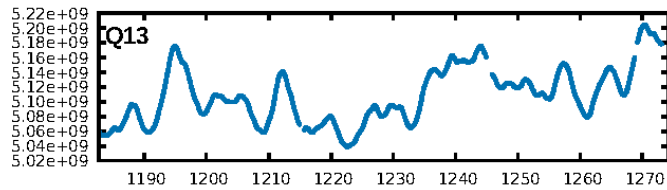
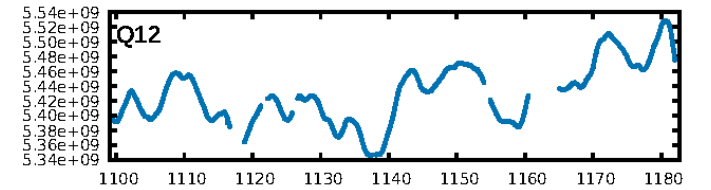
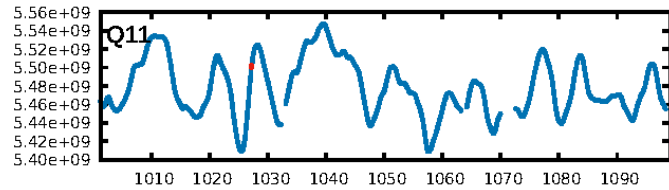
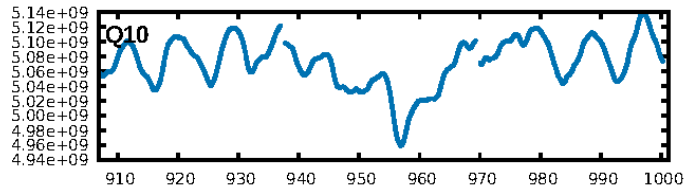
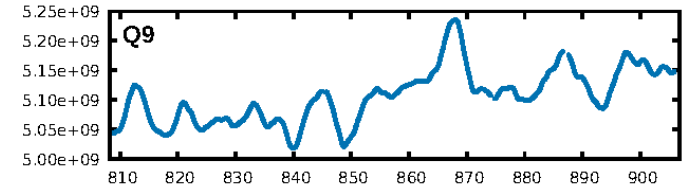
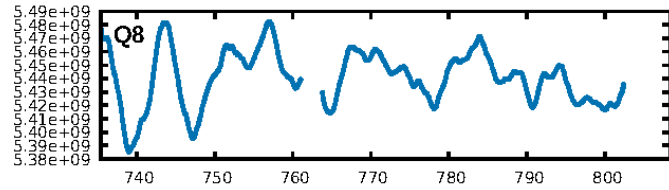
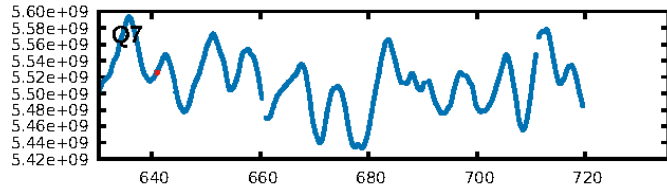
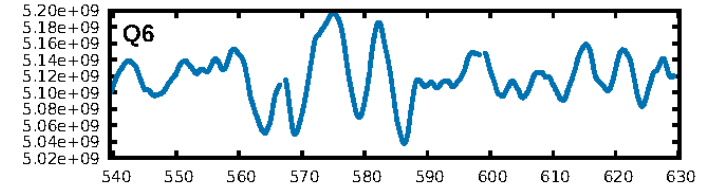
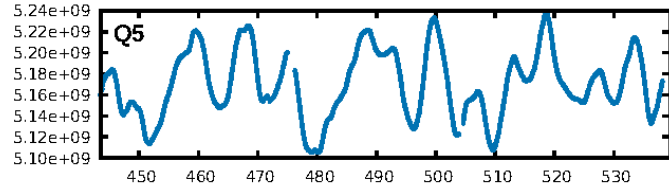
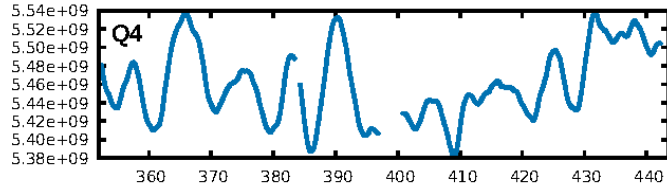
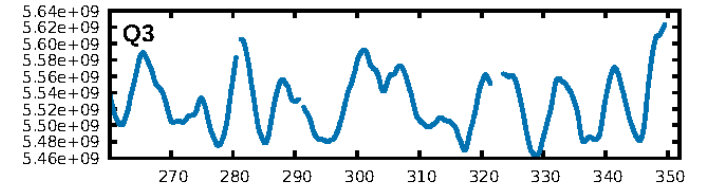
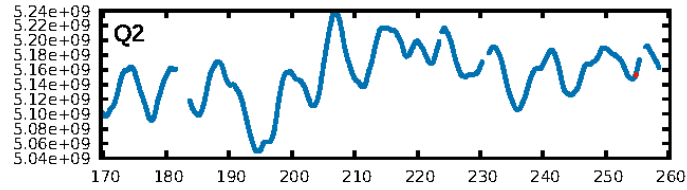
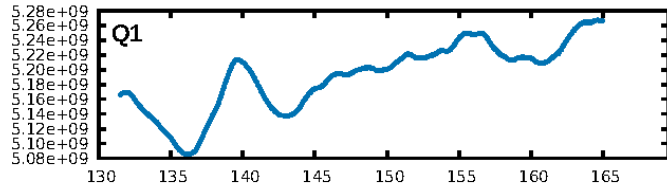
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 38.3%  
ModelChiSquareGof-sig: 93.6%  
Bootstrap-pfa: 8.79e-09  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 91.9%  
Centroid-so: 3.267 arcsec [0.69 $\sigma$ ]  
OotOffset-rm: 11.455 arcsec [53.11 $\sigma$ ]  
KicOffset-rm: 11.606 arcsec [53.70 $\sigma$ ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

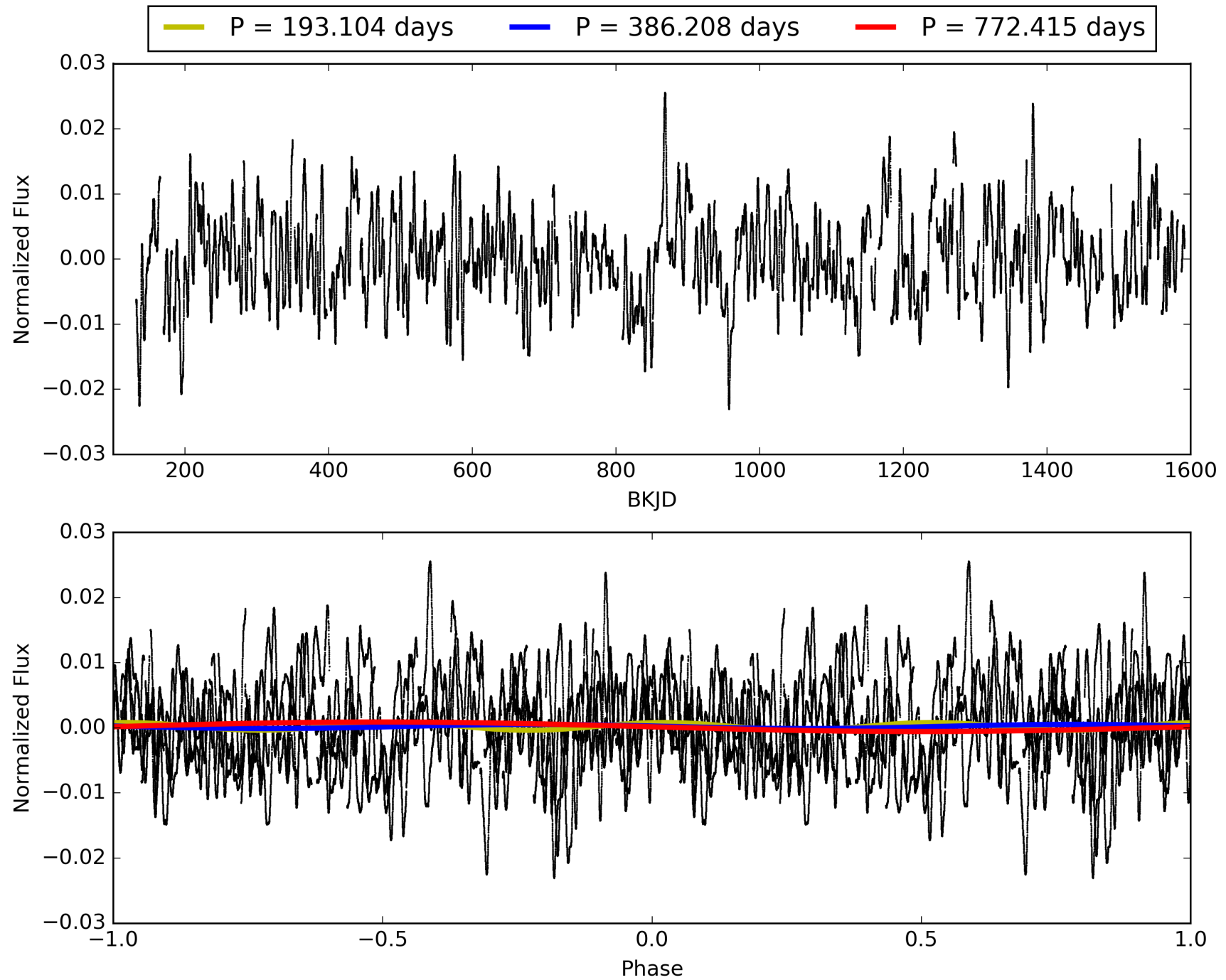
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:59:57 Z

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

# TCE 002996015-01, PDC Light Curves

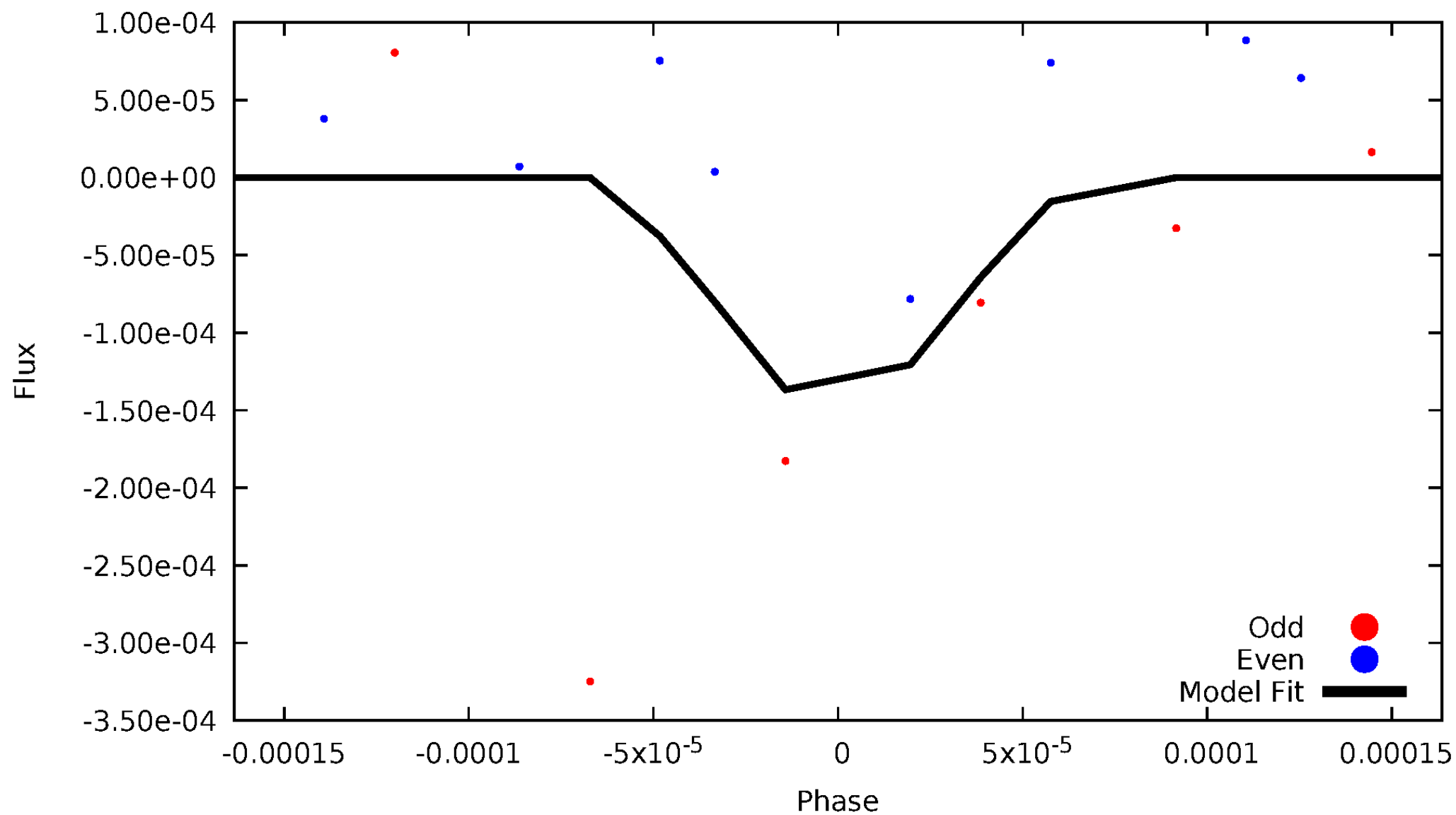


# TCE 002996015-01



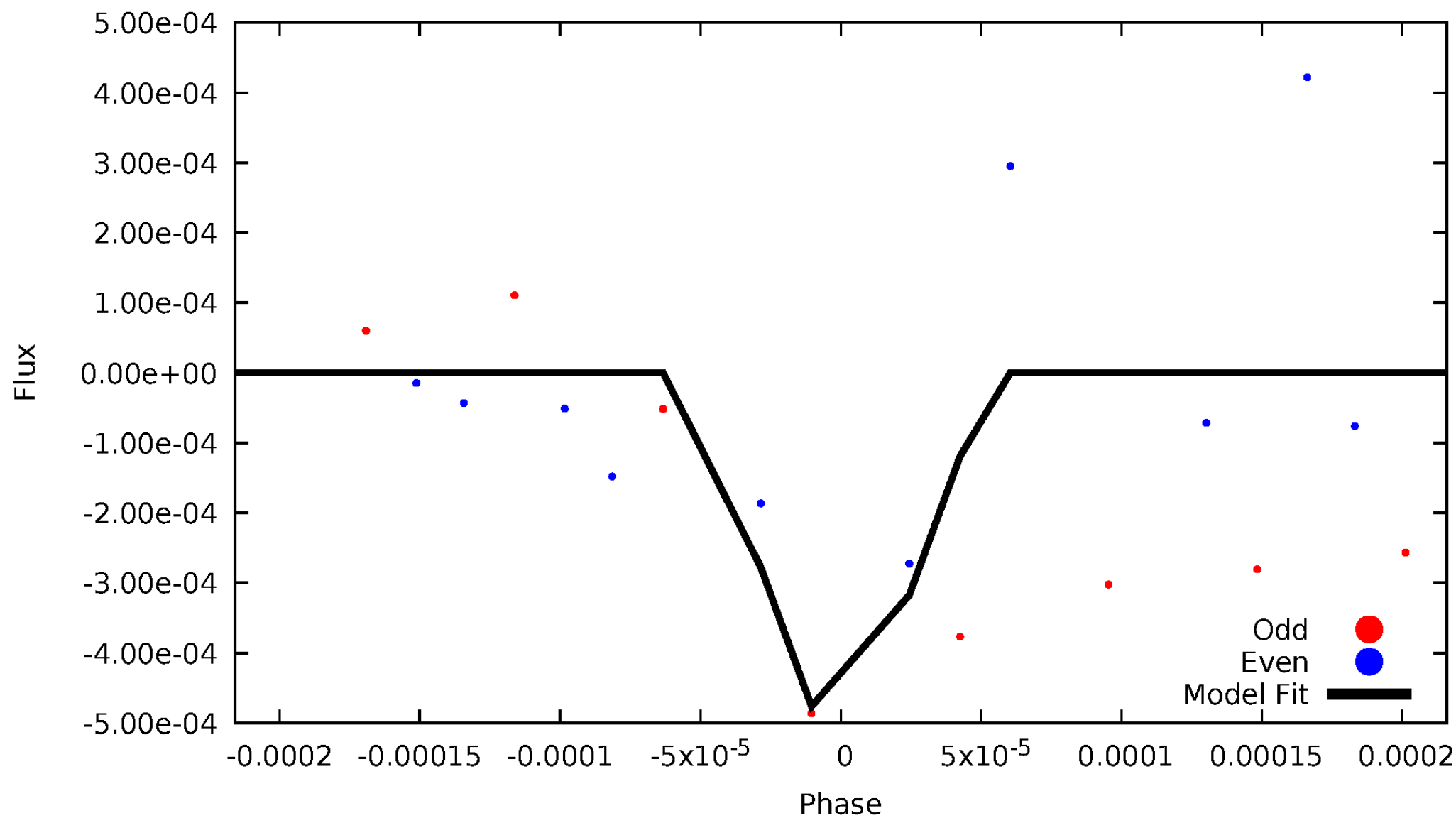
# DV Odd/Even

TCE 002996015-01

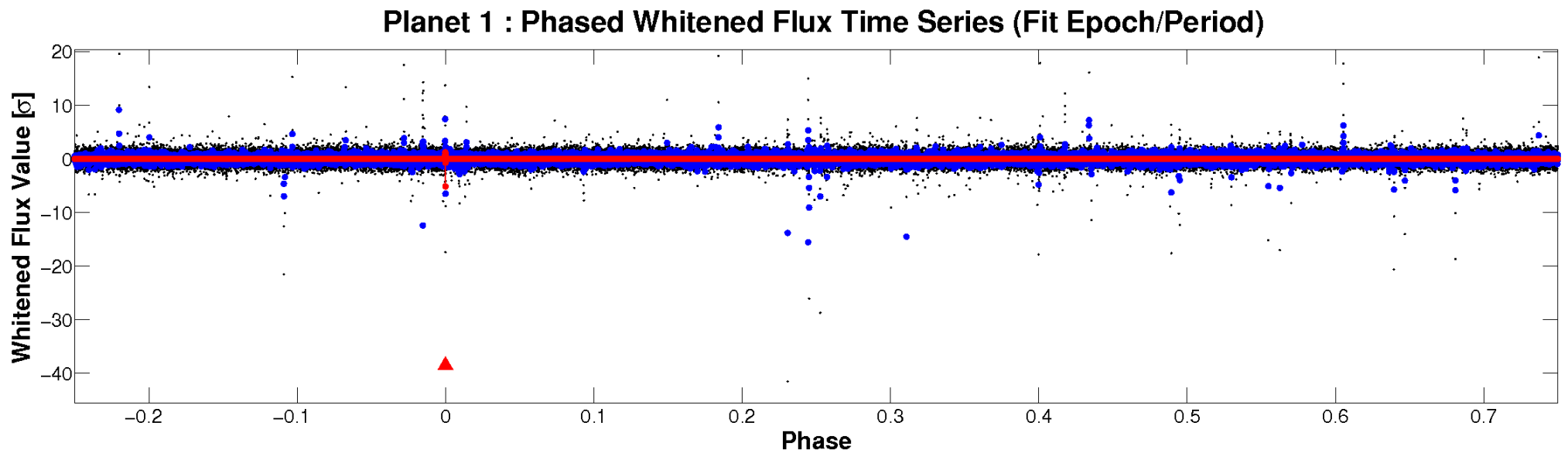
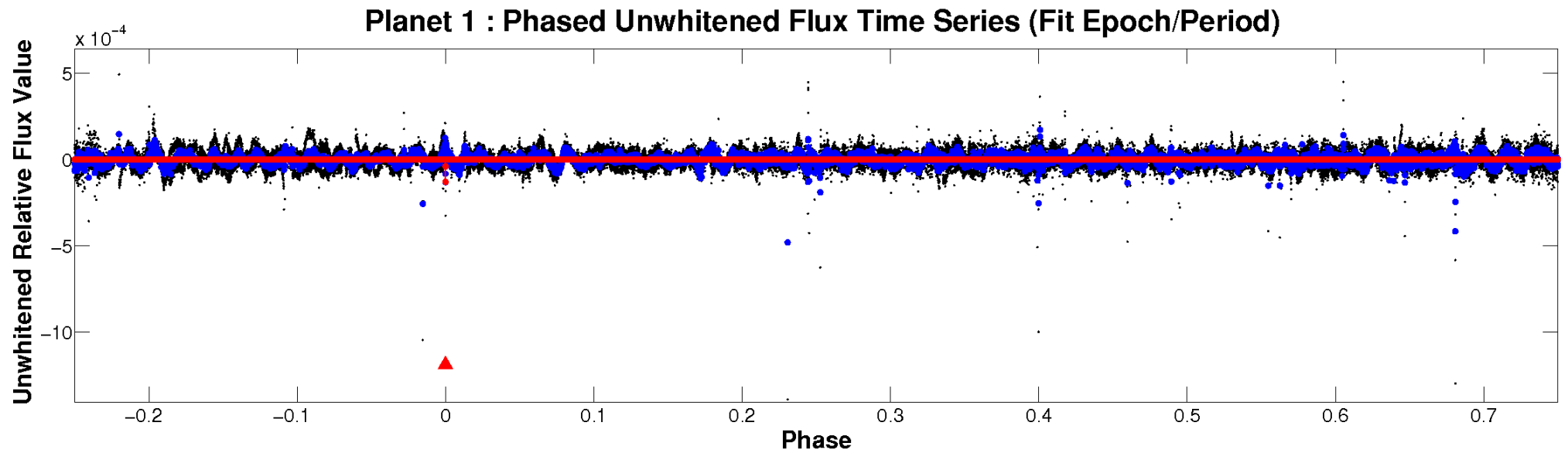


# ALT Odd/Even

TCE 002996015-01

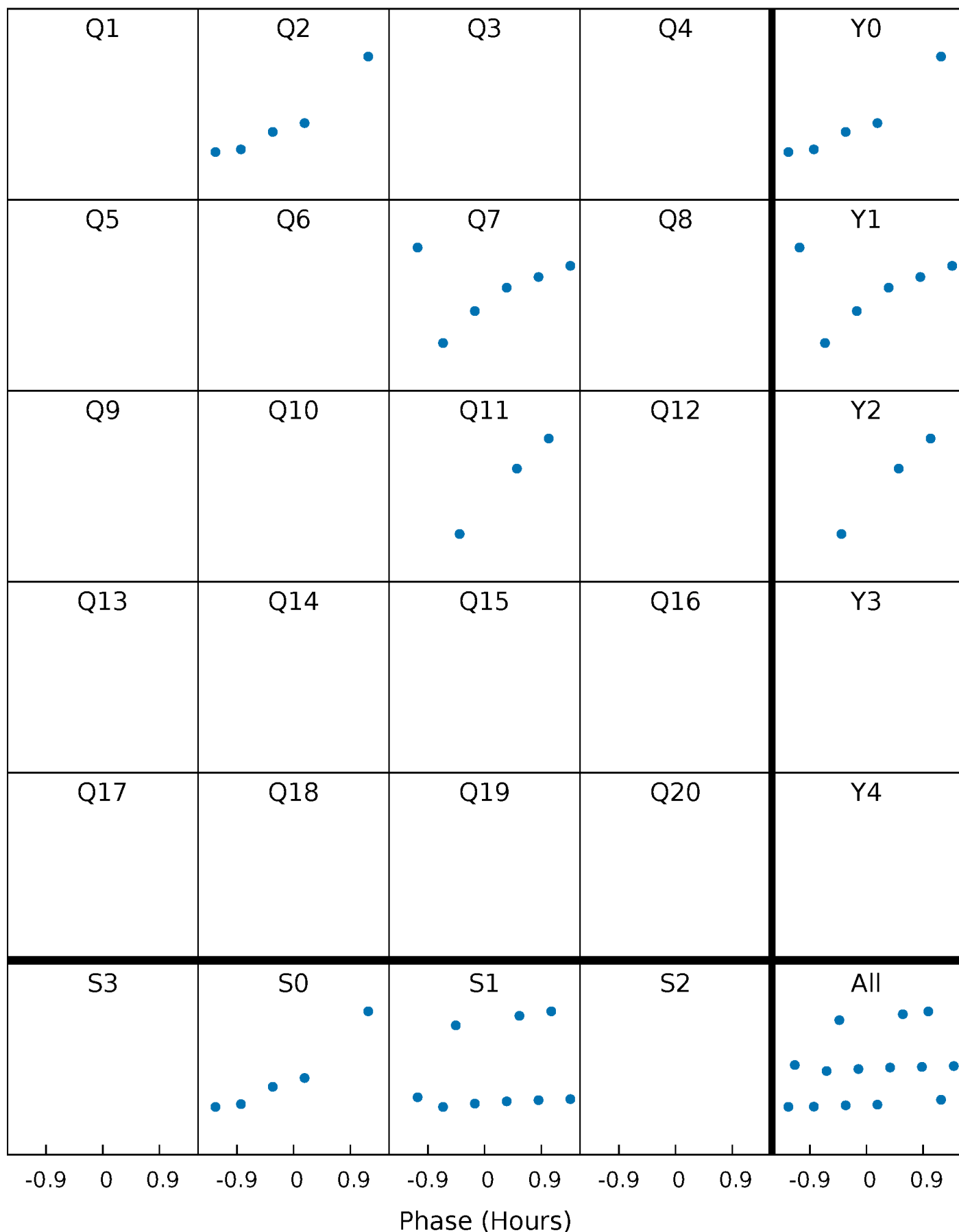


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

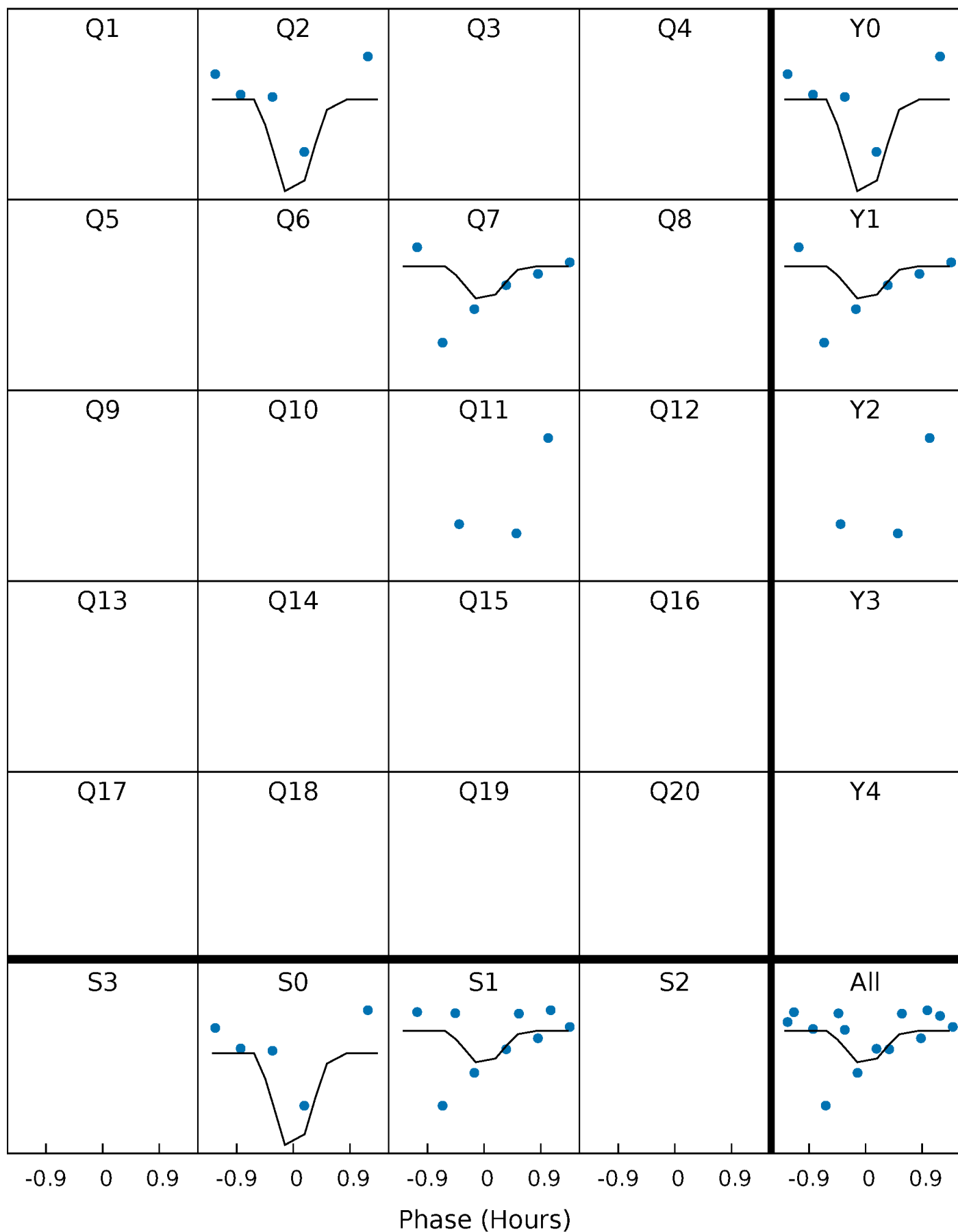
TCE 002996015-01 P=386.207507 Days  $T_0=254.782460$  (BKJD)





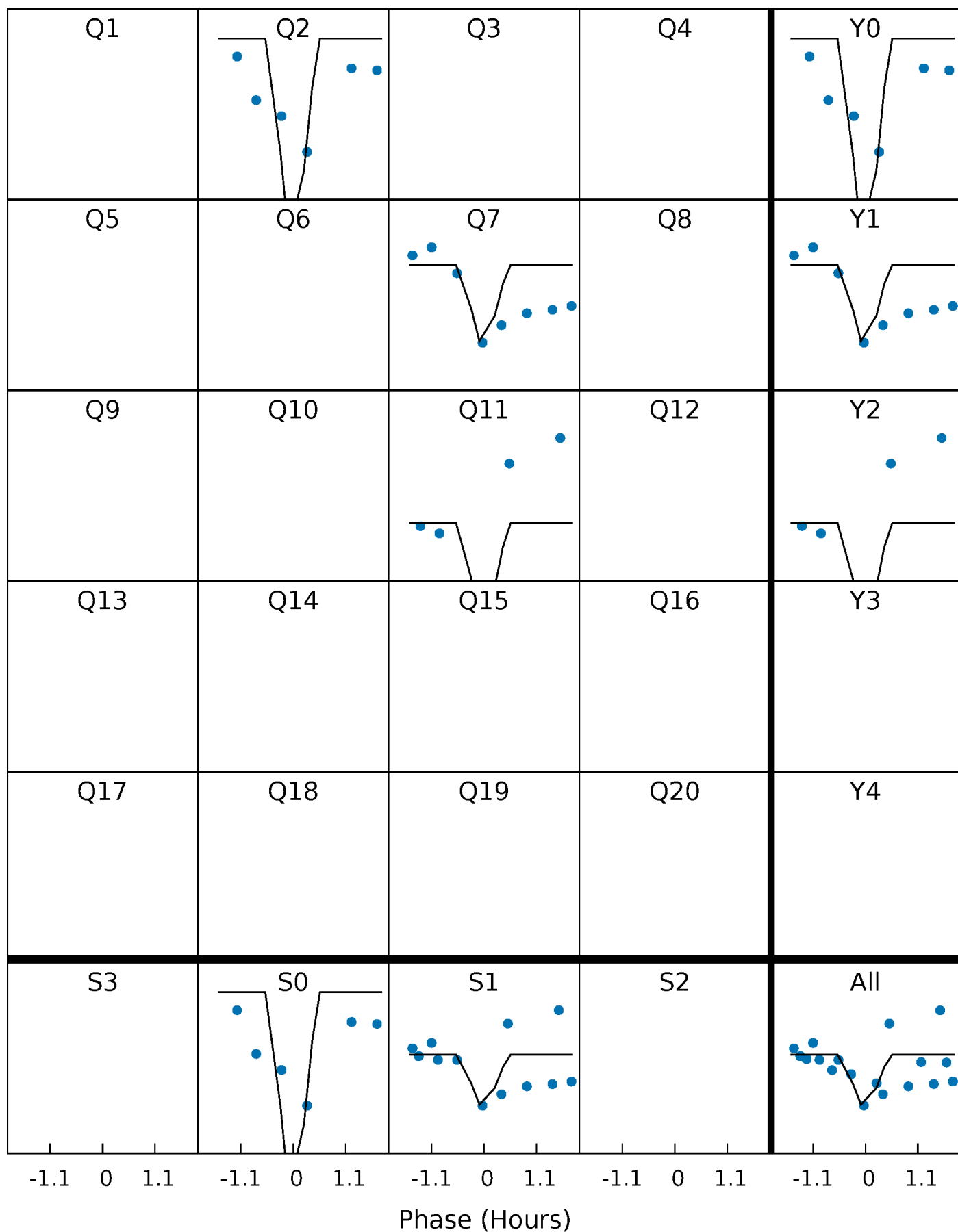
# DV Quarter-Phased Transit Curves

TCE 002996015-01 P=386.207507 Days  $T_0=254.782460$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

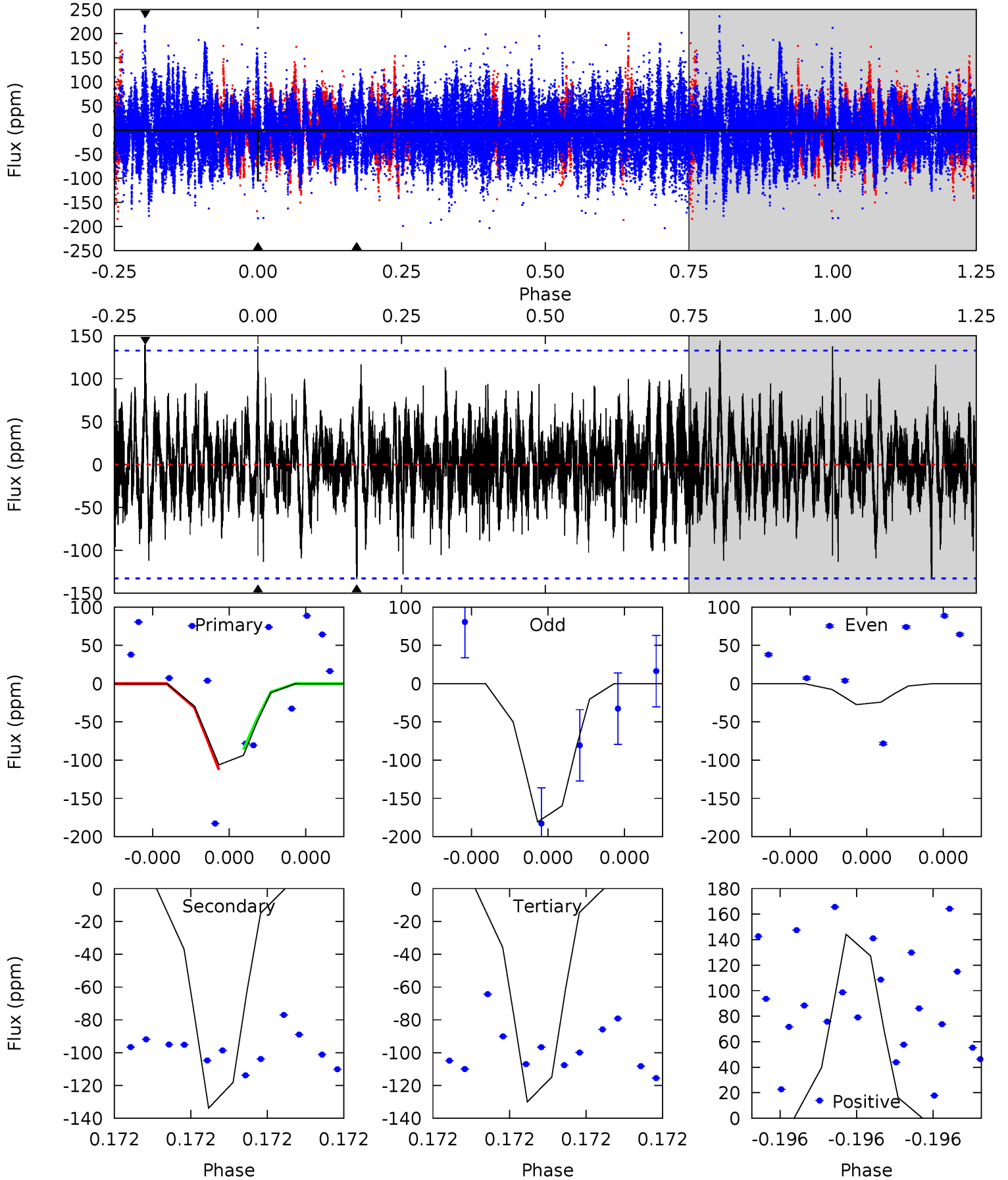
TCE 002996015-01 P=386.187473 Days  $T_0=254.780595$  (BKJD)



# DV Model-Shift Uniqueness Test

002996015-01, P = 386.207507 Days, E = 254.782460 Days

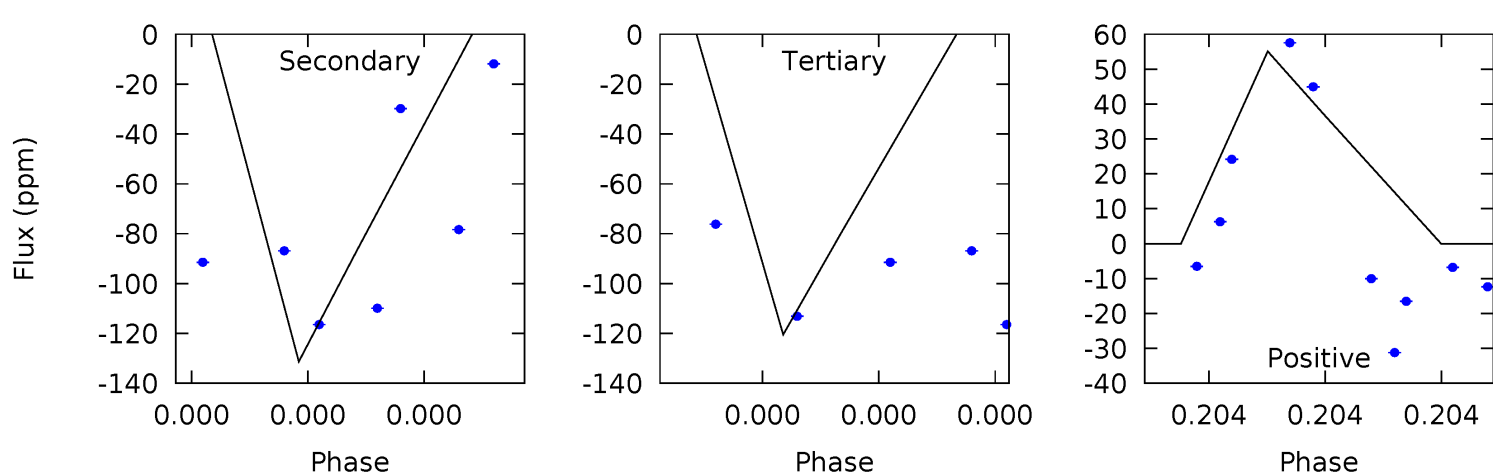
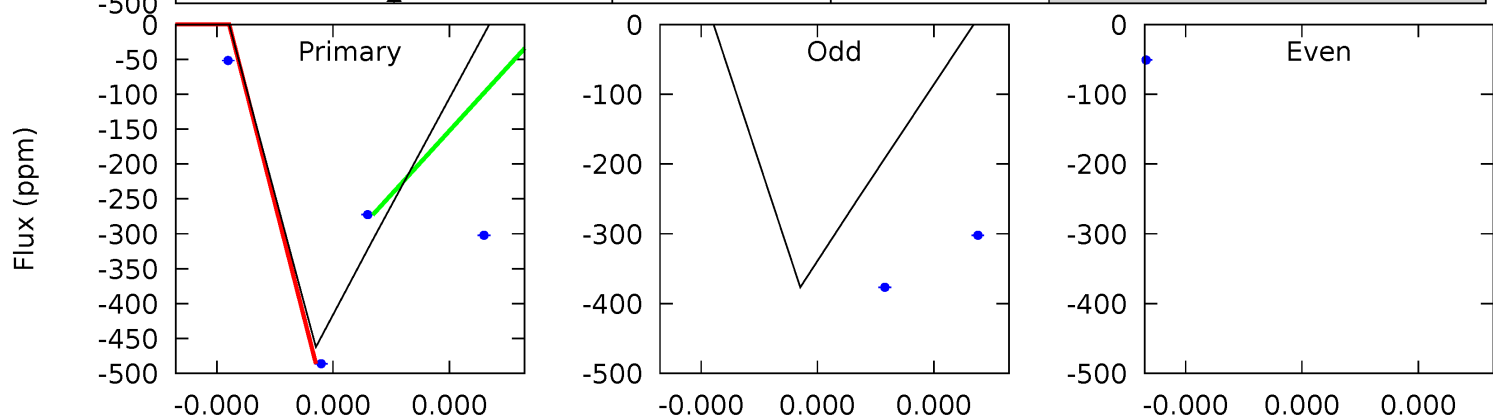
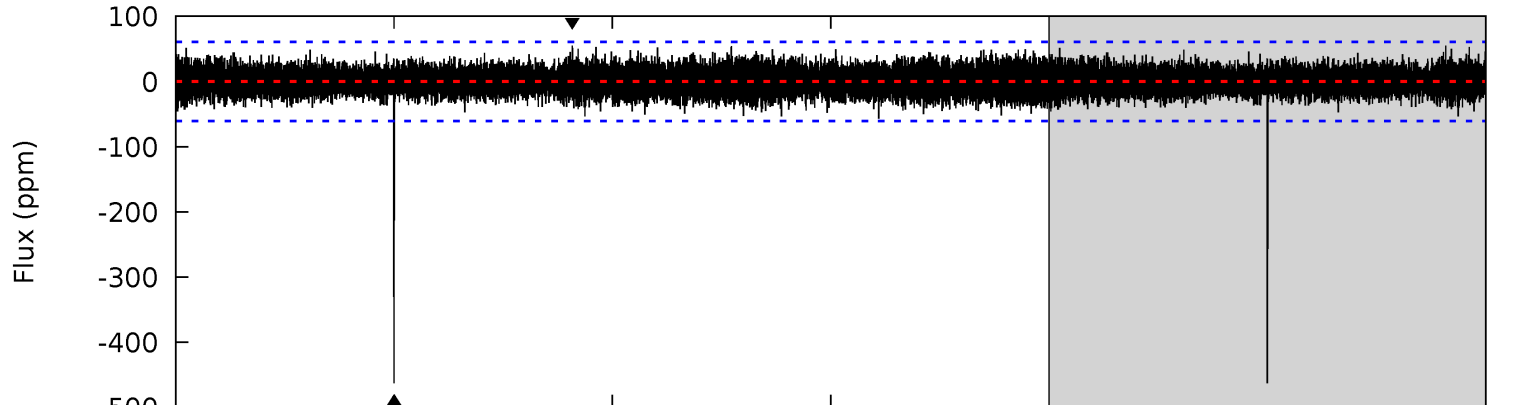
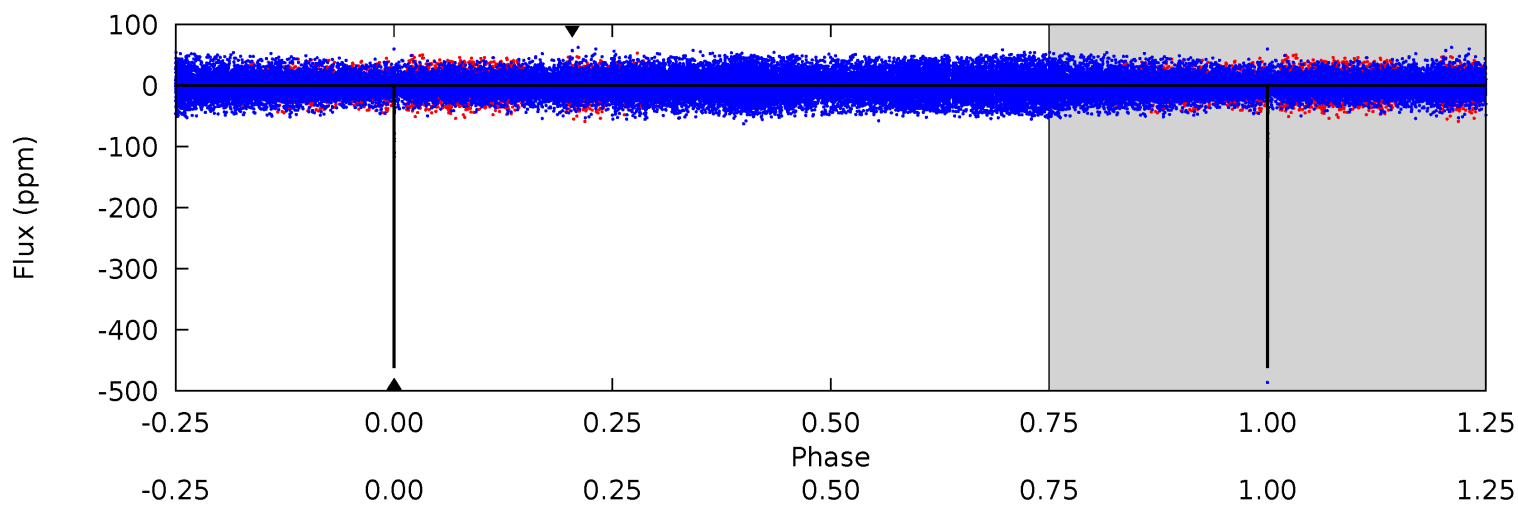
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.67	5.88	5.72	6.34	5.84	3.88	1.38	-1.05	-1.67	0.17	-0.46	3.35	-0.49	0.52	0.58



# Alt Model-Shift Uniqueness Test

002996015-01, P = 386.187473 Days, E = 254.780595 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
45.0	12.8	11.7	5.36	5.90	3.97	1.18	33.2	39.6	1.05	7.41	0	1.00	0.11	10.6



### Stellar Parameters For KIC 002996015

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+82}_{-74}$	$0.865^{+0.247}_{-0.202}$	$0.000^{+0.250}_{-0.250}$	$67.671^{+18.680}_{-16.981}$	$1.225^{+0.336}_{-0.224}$	$0.000^{+0.000}_{-0.000}$
	+2%/-2%	+29%/-23%	+inf%/-inf%	+28%/-25%	+27%/-18%	+132%/-51%
Source	SPE14	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 002996015-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-134±23	$452.11^{+460.81}_{-316.88}$	$1767^{+154}_{-140}$	$2046^{+1087}_{-4167}$	$0.437^{+4.784}_{-0.328}$
Alt.	-131±10	$476.14^{+467.33}_{-328.26}$	$1772^{+138}_{-127}$	$1959^{+1065}_{-4107}$	$0.388^{+3.682}_{-0.291}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

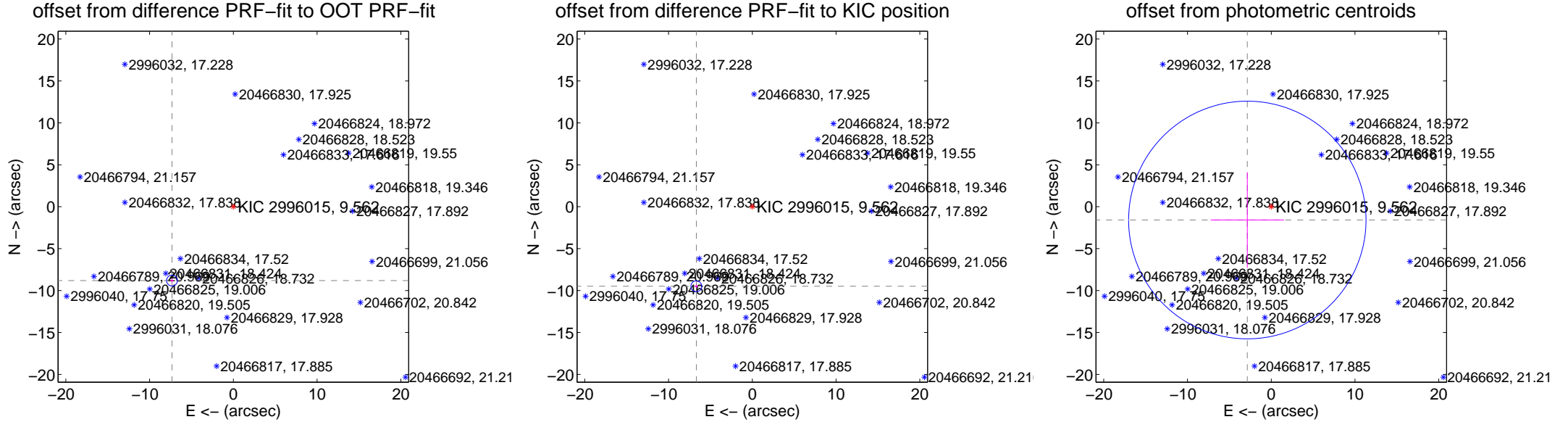
## DV Centroid Data

Supplemental centroid analysis for 002996015-01. **Kepler magnitude: 9.56.** Transit SNR 7.29

**There are 0 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 0.93 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.455 <math>\pm</math> 0.216</b>	<b>53.11</b>	7.324 $\pm$ 0.212	-8.808 $\pm$ 0.218
PRF-fit source offset from KIC position	<b>11.606 <math>\pm</math> 0.216</b>	<b>53.70</b>	6.685 $\pm$ 0.212	-9.487 $\pm$ 0.218
photometric centroid source offset	3.27 $\pm$ 4.72	0.69	2.86 $\pm$ 4.38	-1.58 $\pm$ 5.69



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.

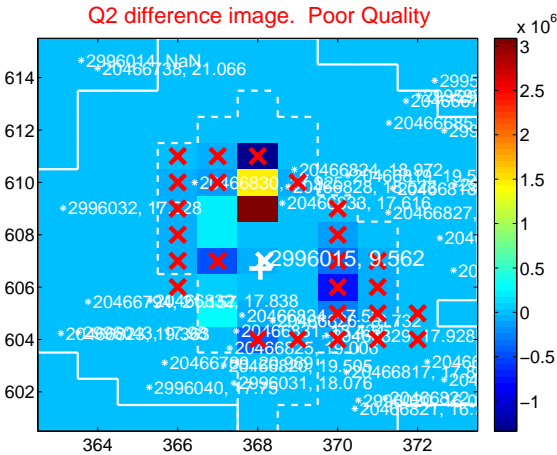
Q1 no difference image



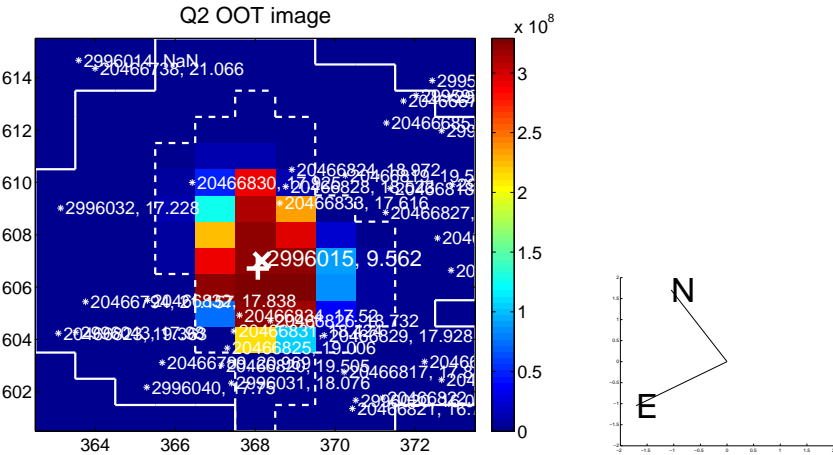
Q1 no OOT image



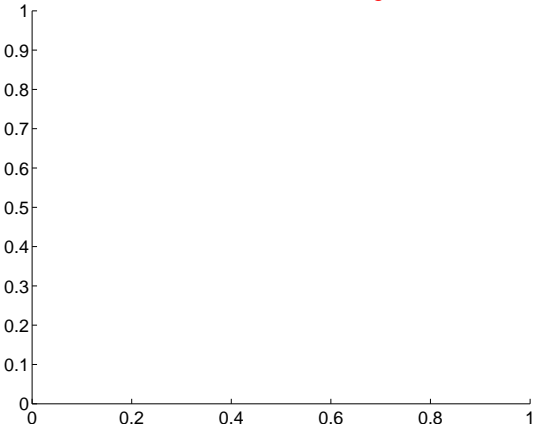
Q2 difference image. Poor Quality



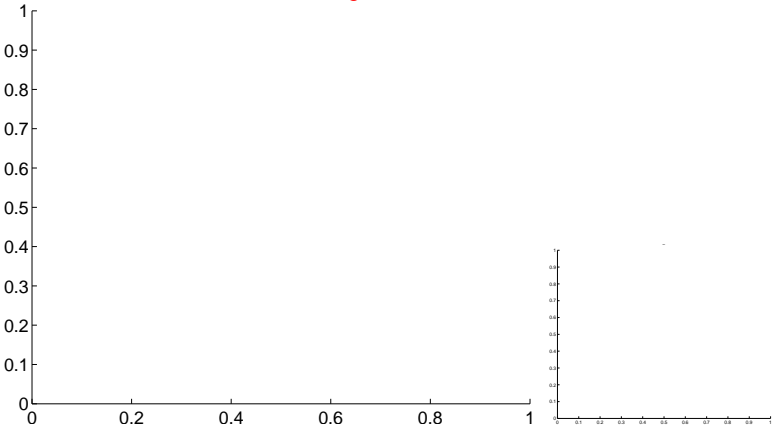
Q2 OOT image



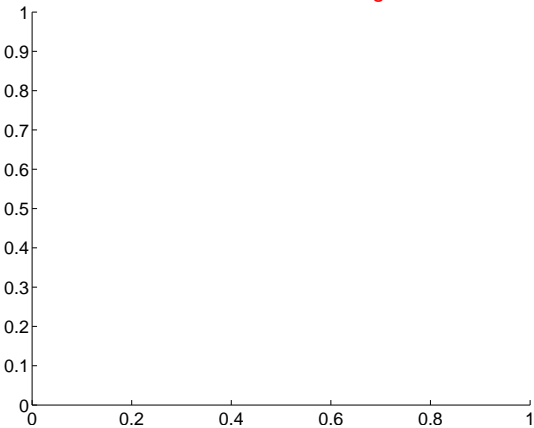
Q3 no difference image



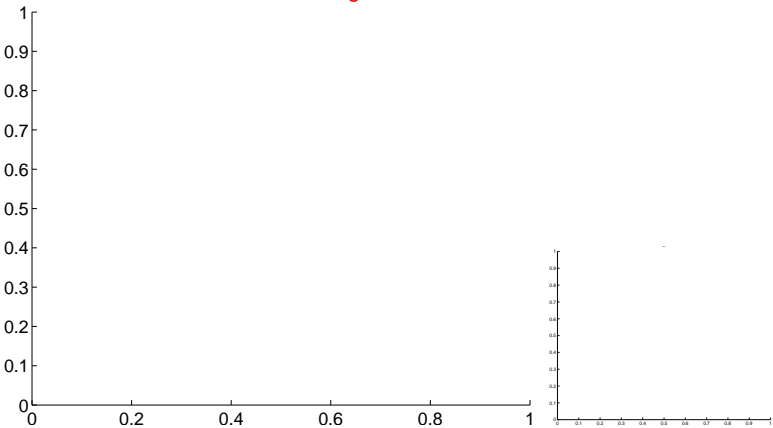
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



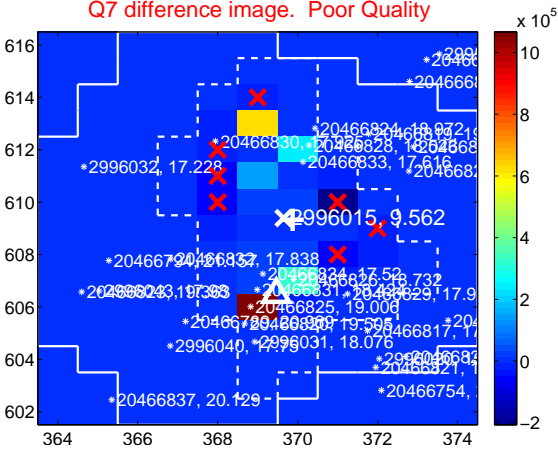
Q6 no difference image



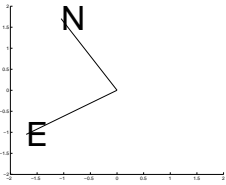
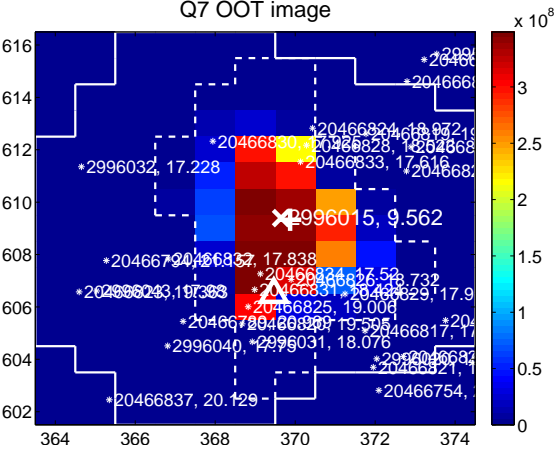
Q6 no OOT image



Q7 difference image. Poor Quality



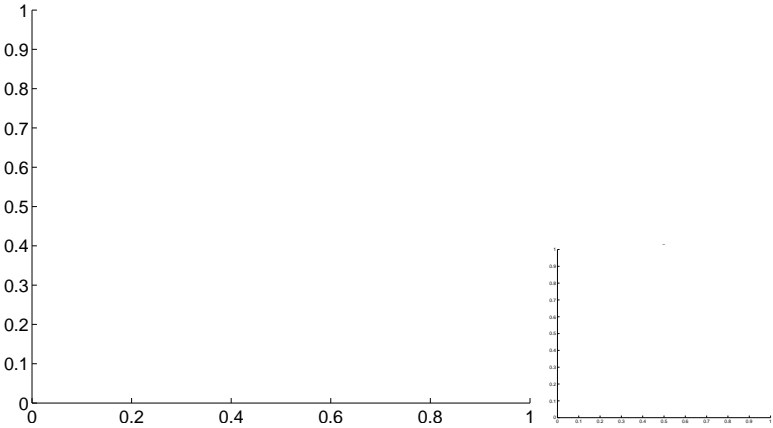
Q7 OOT image



Q8 no difference image



Q8 no OOT image





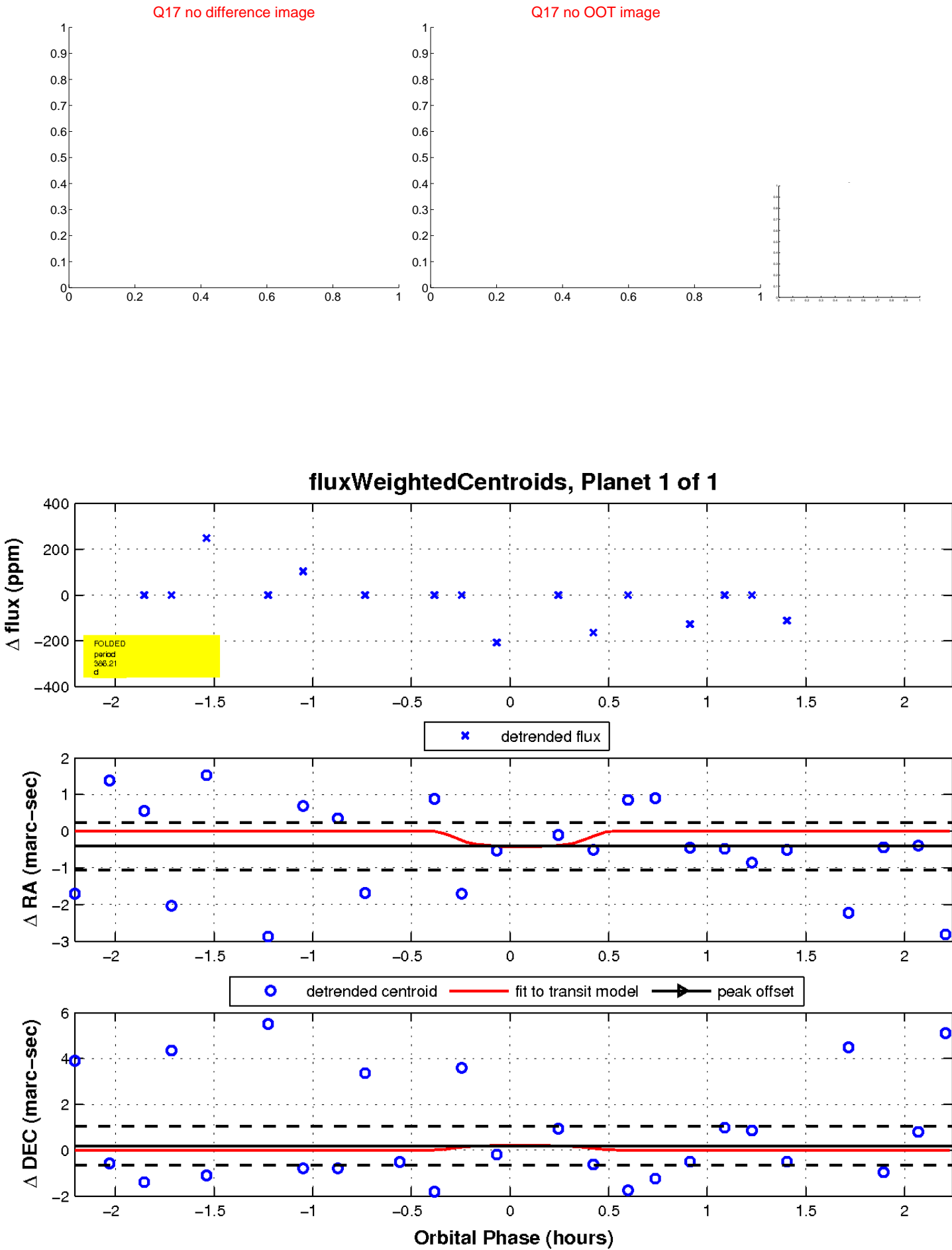
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

