

# KIC 007972048

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007972048-01	OBS	No	369.300031	232.823077	722.6	25.120	8.2	10.6	0.91	5942	2.94	0.97

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007972048-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—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.

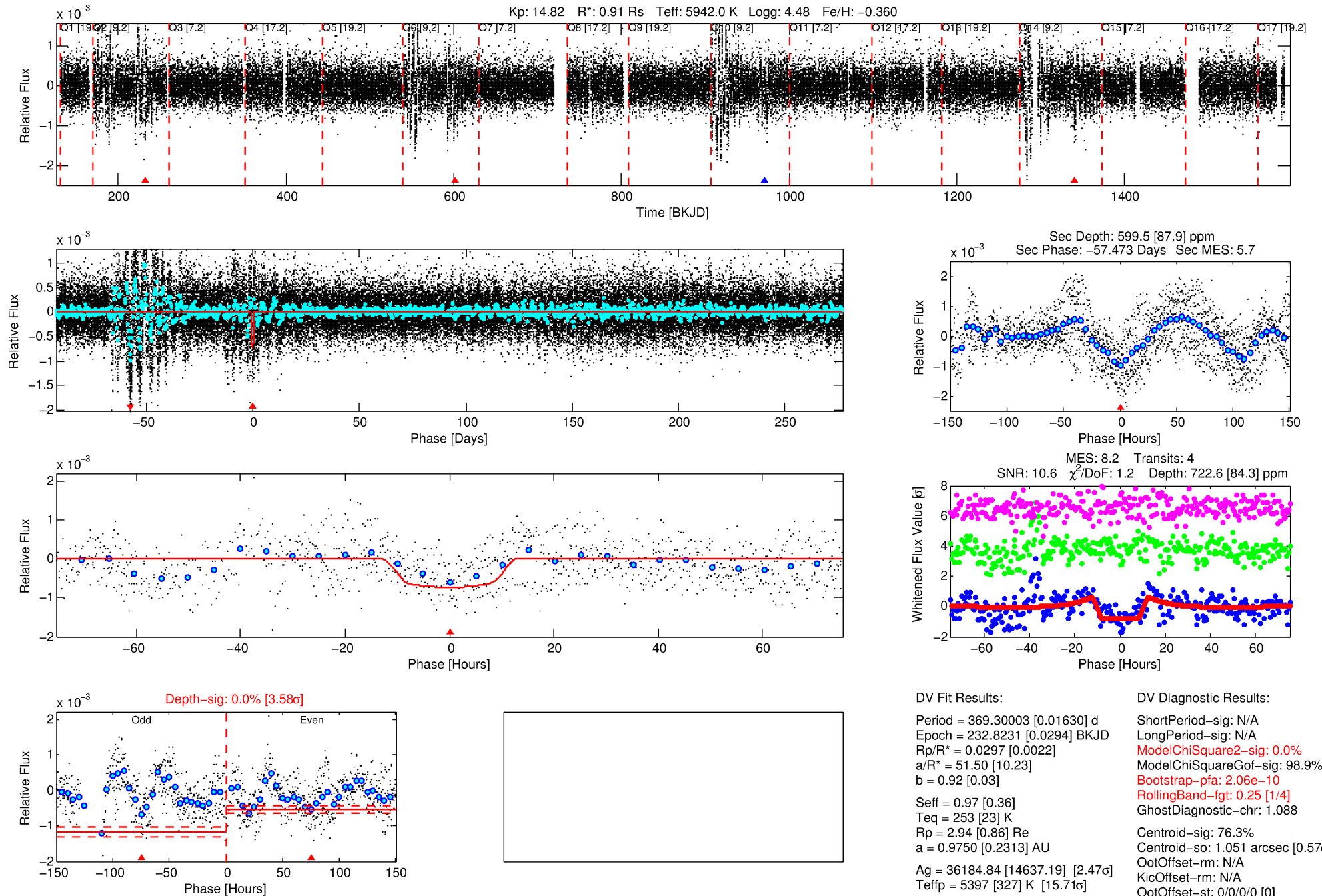
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007972048-01

No Significant Match Found

# DV One-Page Summary

KIC: 7972048 Candidate: 1 of 1 Period: 369.300 d



## DV Fit Results:

Period = 369.30003 [0.01630] d  
Epoch = 232.8231 [0.0294] BKJD  
Rp/R\* = 0.0297 [0.0022]  
a/R\* = 51.50 [10.23]  
b = 0.92 [0.03]  
Seff = 0.97 [0.36]  
Teq = 253 [23] K  
Rp = 2.94 [0.86] Re  
a = 0.9750 [0.2313] AU  
Ag = 36184.84 [14637.19] [2.47 $\sigma$ ]  
Teffp = 5397 [327] K [15.71 $\sigma$ ]

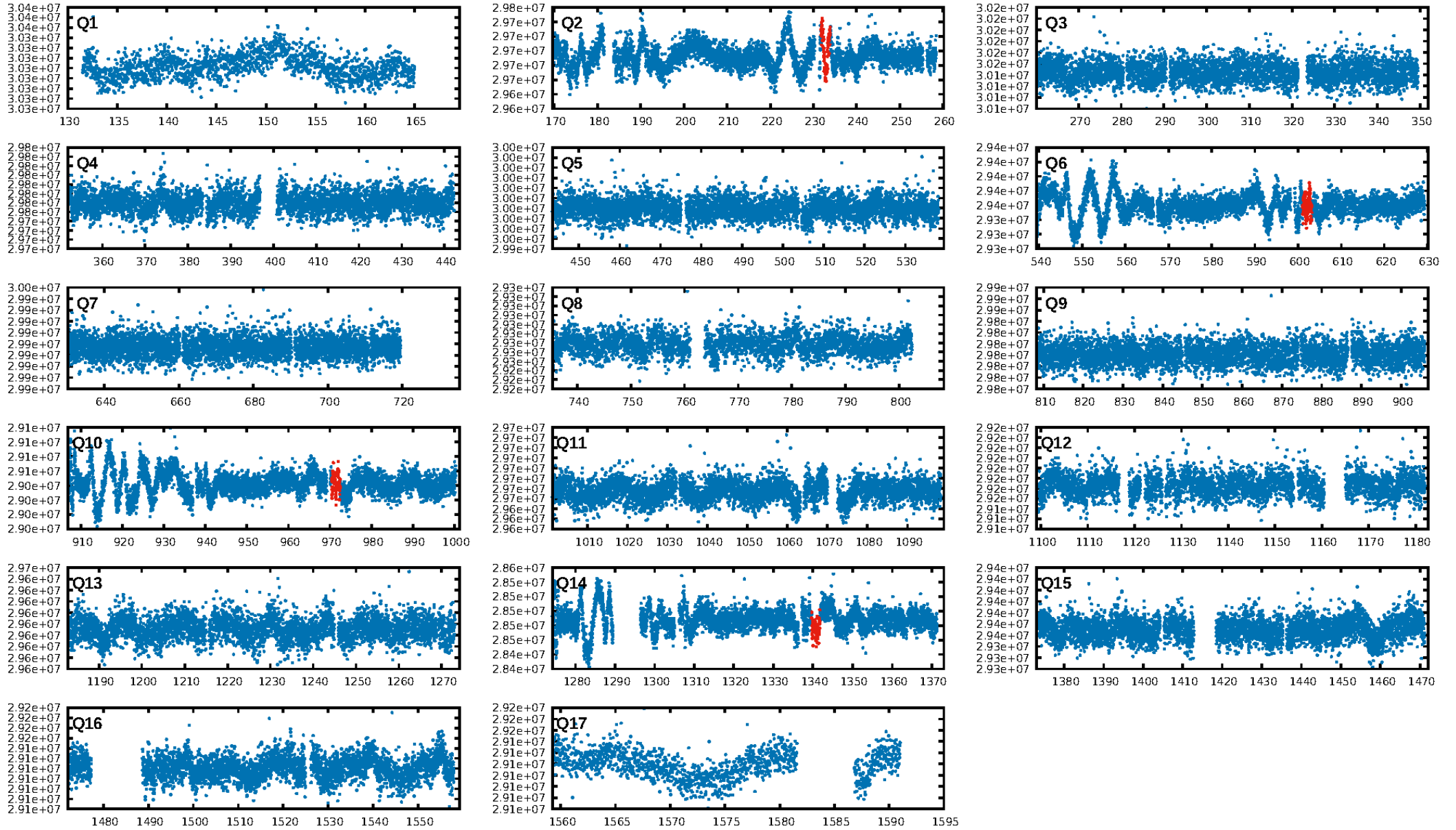
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 98.9%  
Bootstrap-pfa: 2.06e-10  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 1.088  
Centroid-sig: 76.3%  
Centroid-so: 1.051 arcsec [0.57 $\sigma$ ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

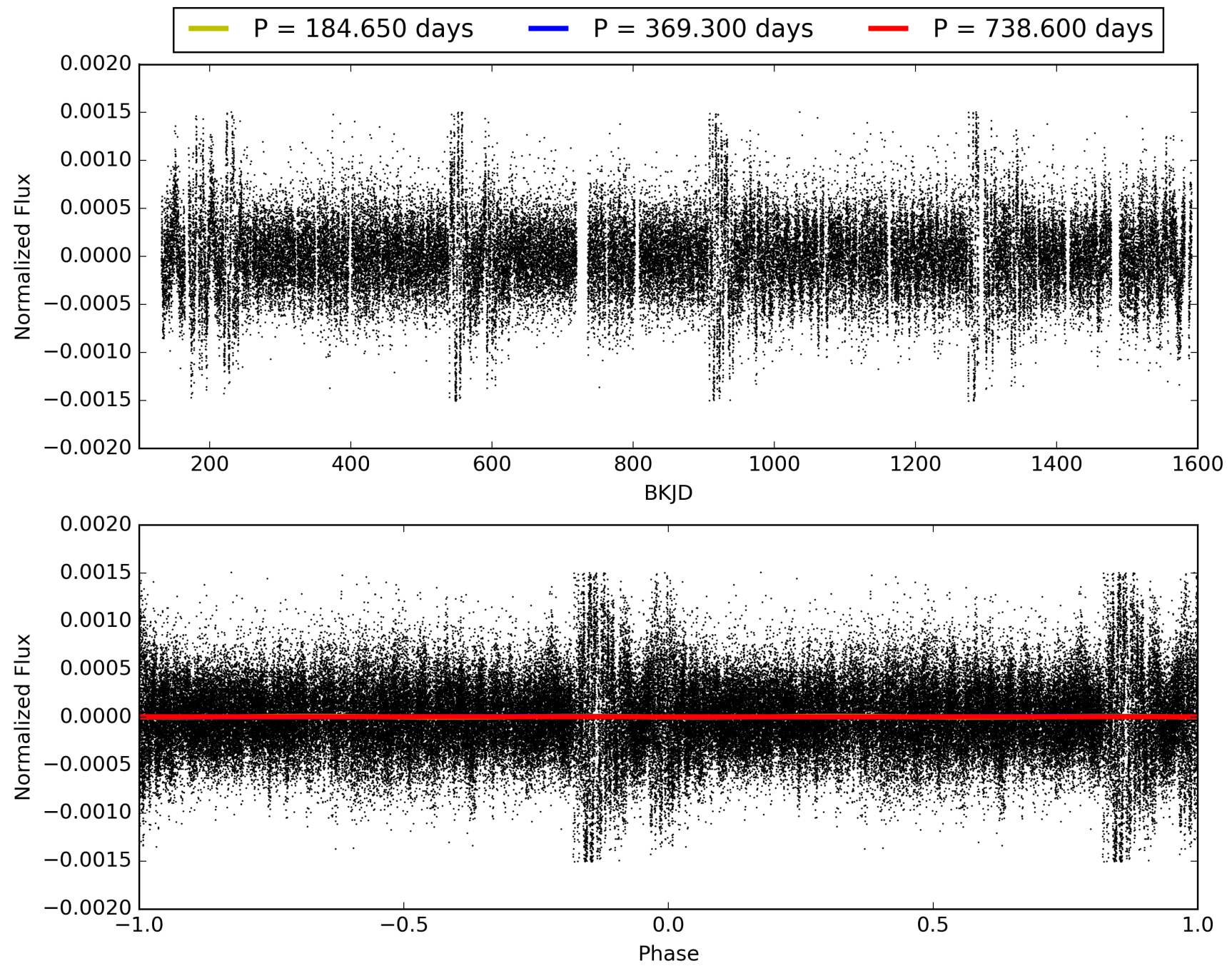
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:57:42 Z

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

# TCE 007972048-01, PDC Light Curves

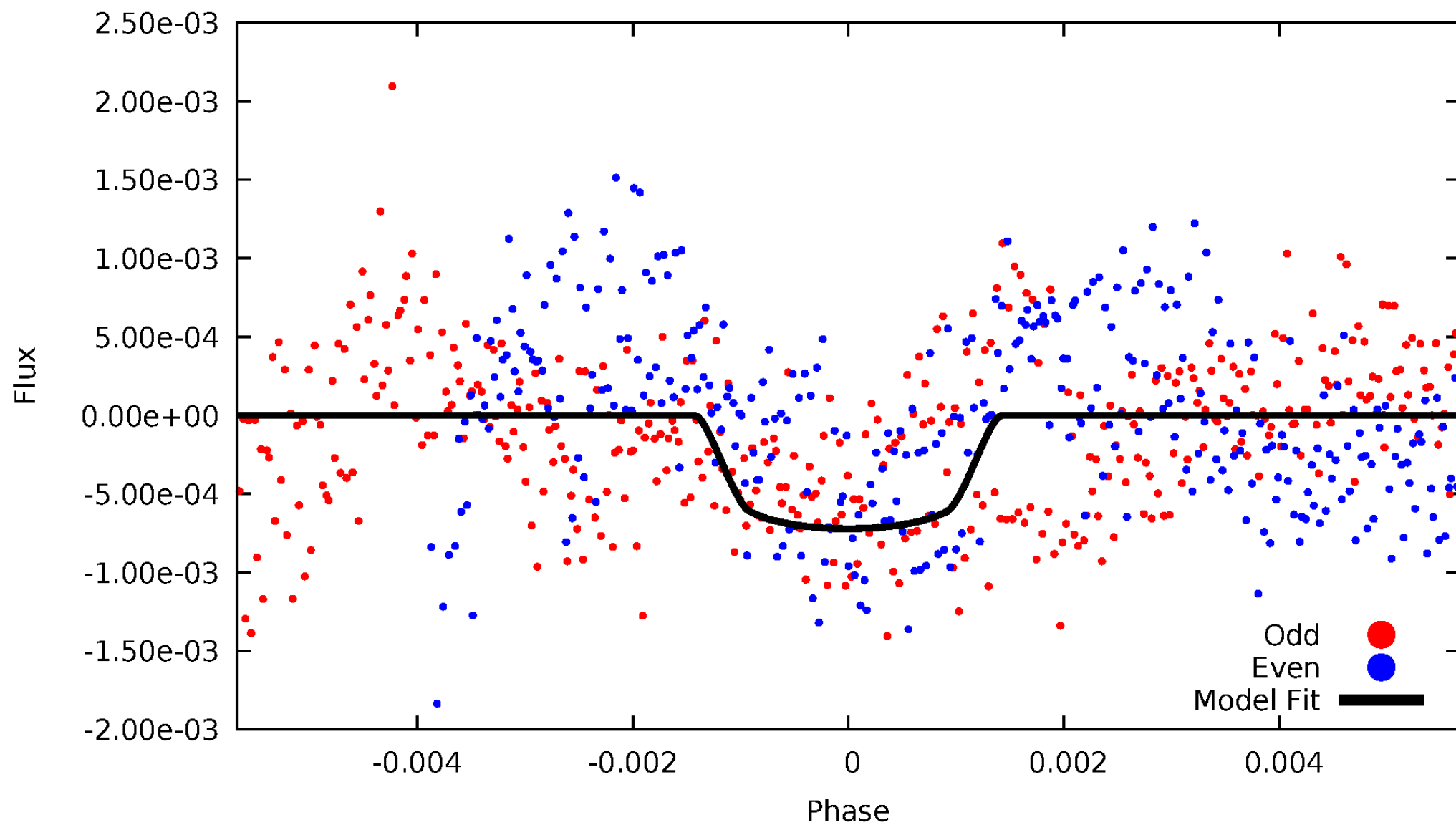


TCE 007972048-01



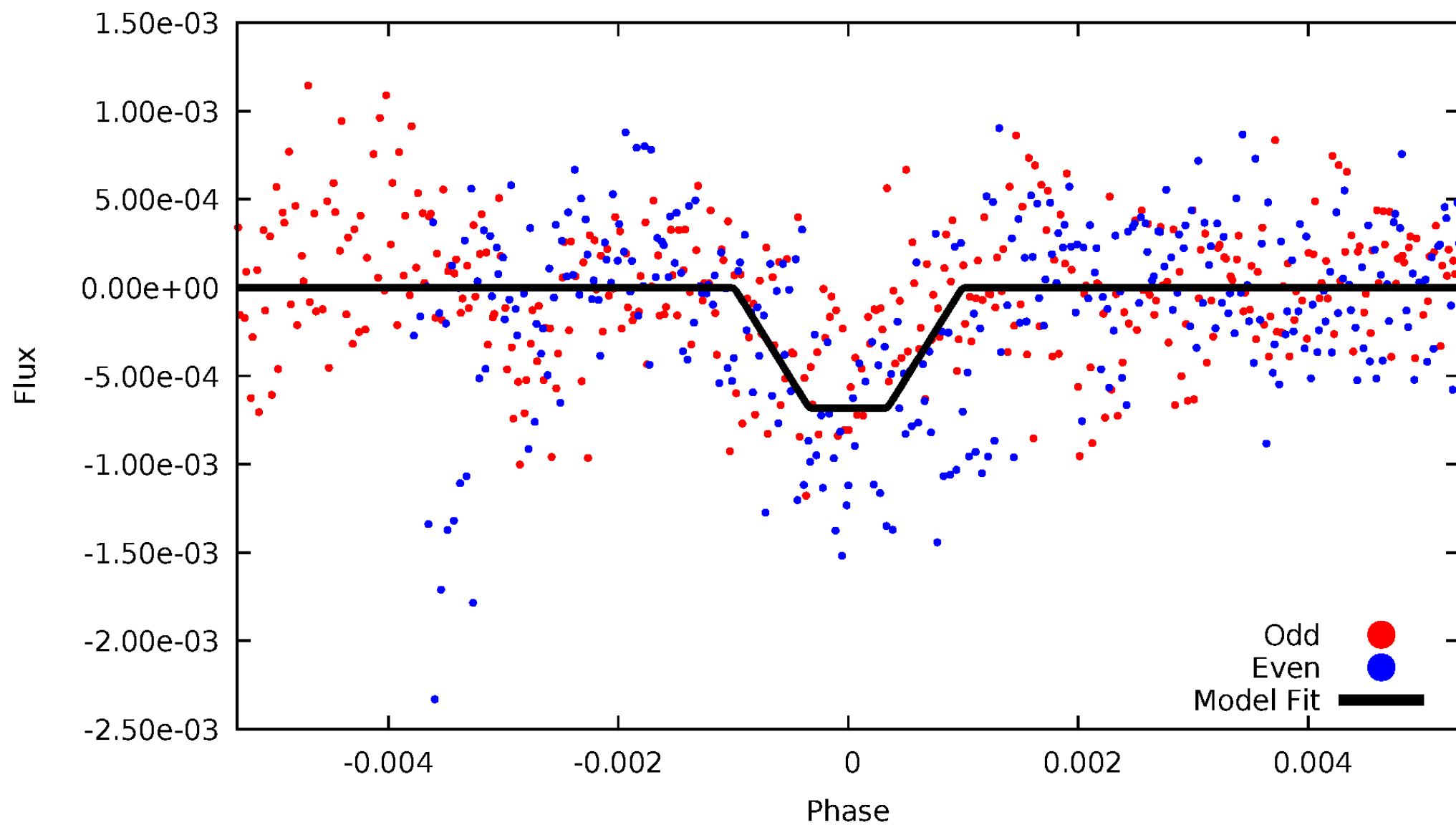
# DV Odd/Even

TCE 007972048-01



# ALT Odd/Even

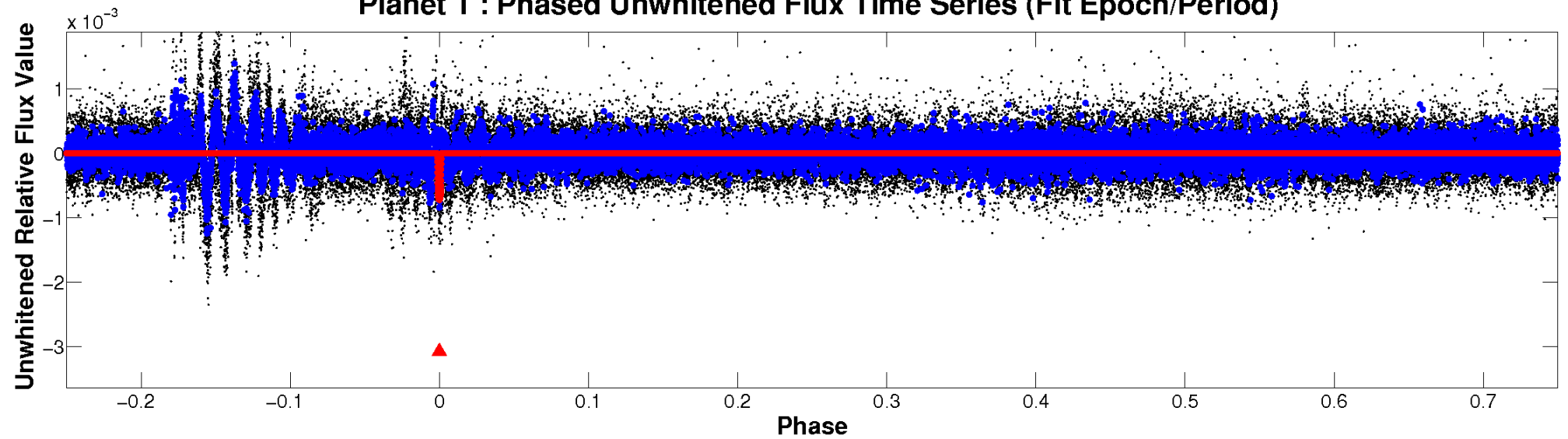
TCE 007972048-01



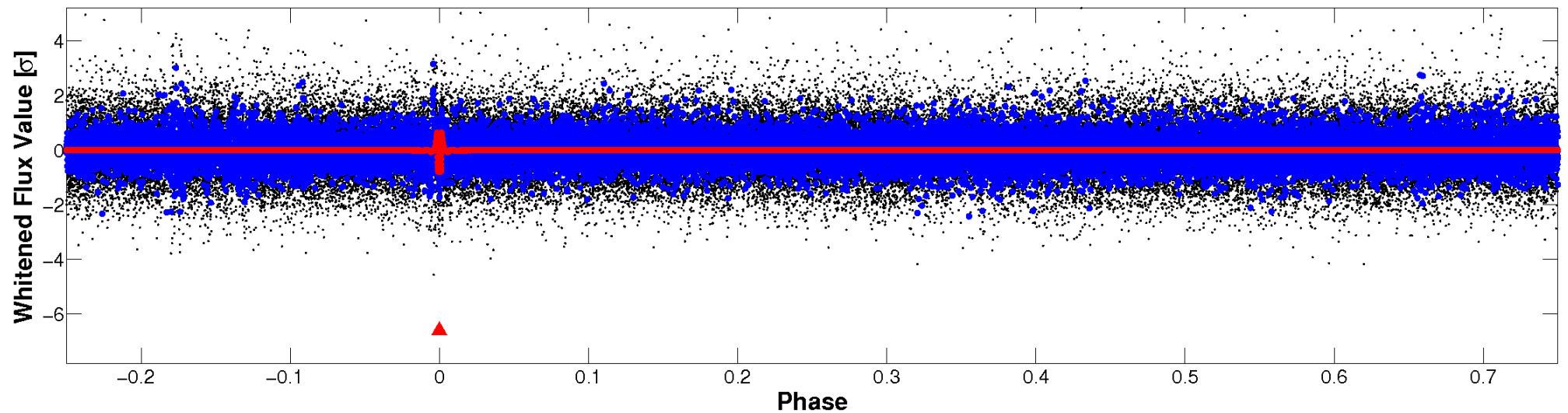


# Non-Whitened Vs. Whitened Light Curve

**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

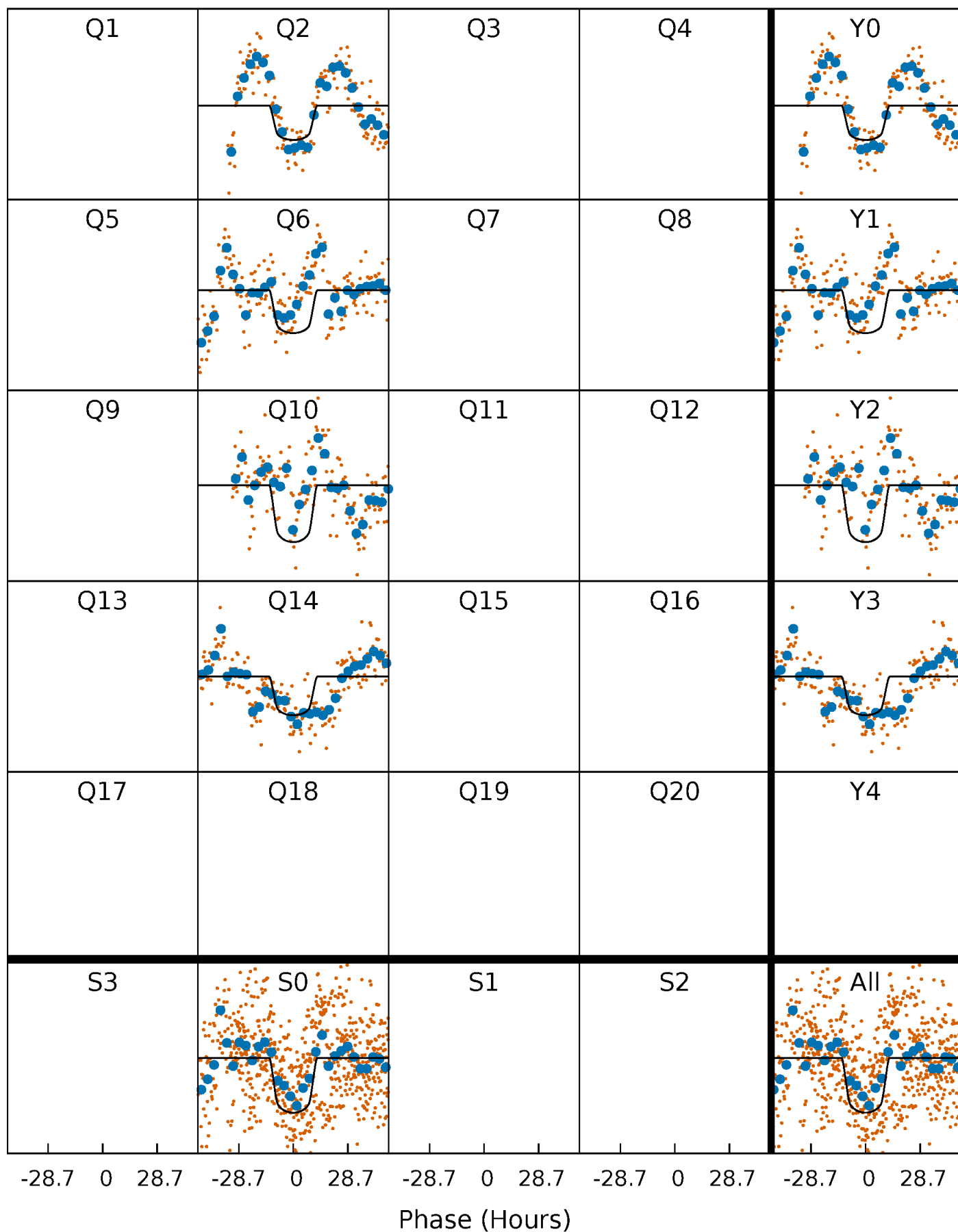
TCE 007972048-01 P=369.300030 Days  $T_0=232.823077$  (BKJD)





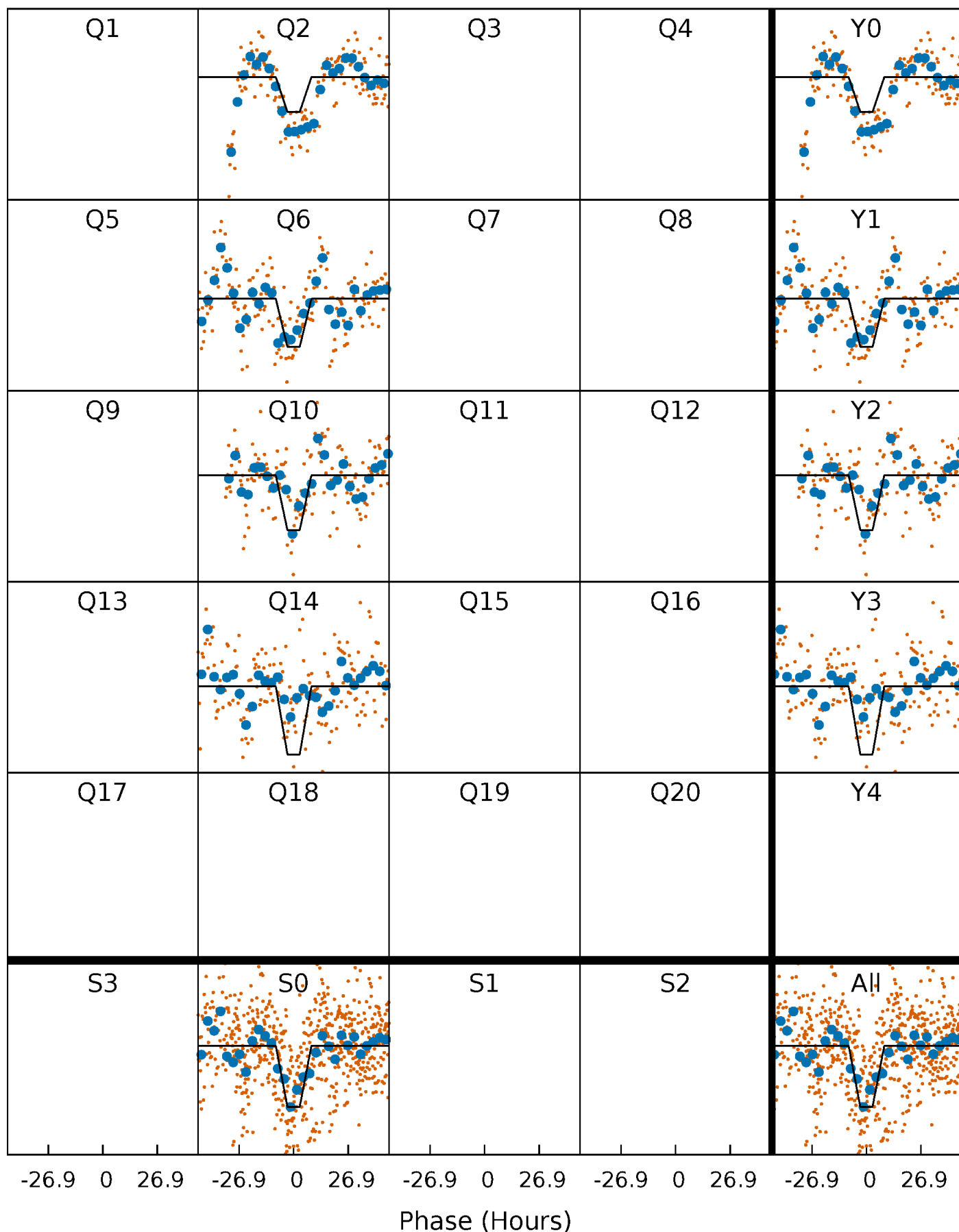
# DV Quarter-Phased Transit Curves

TCE 007972048-01 P=369.300030 Days  $T_0=232.823077$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

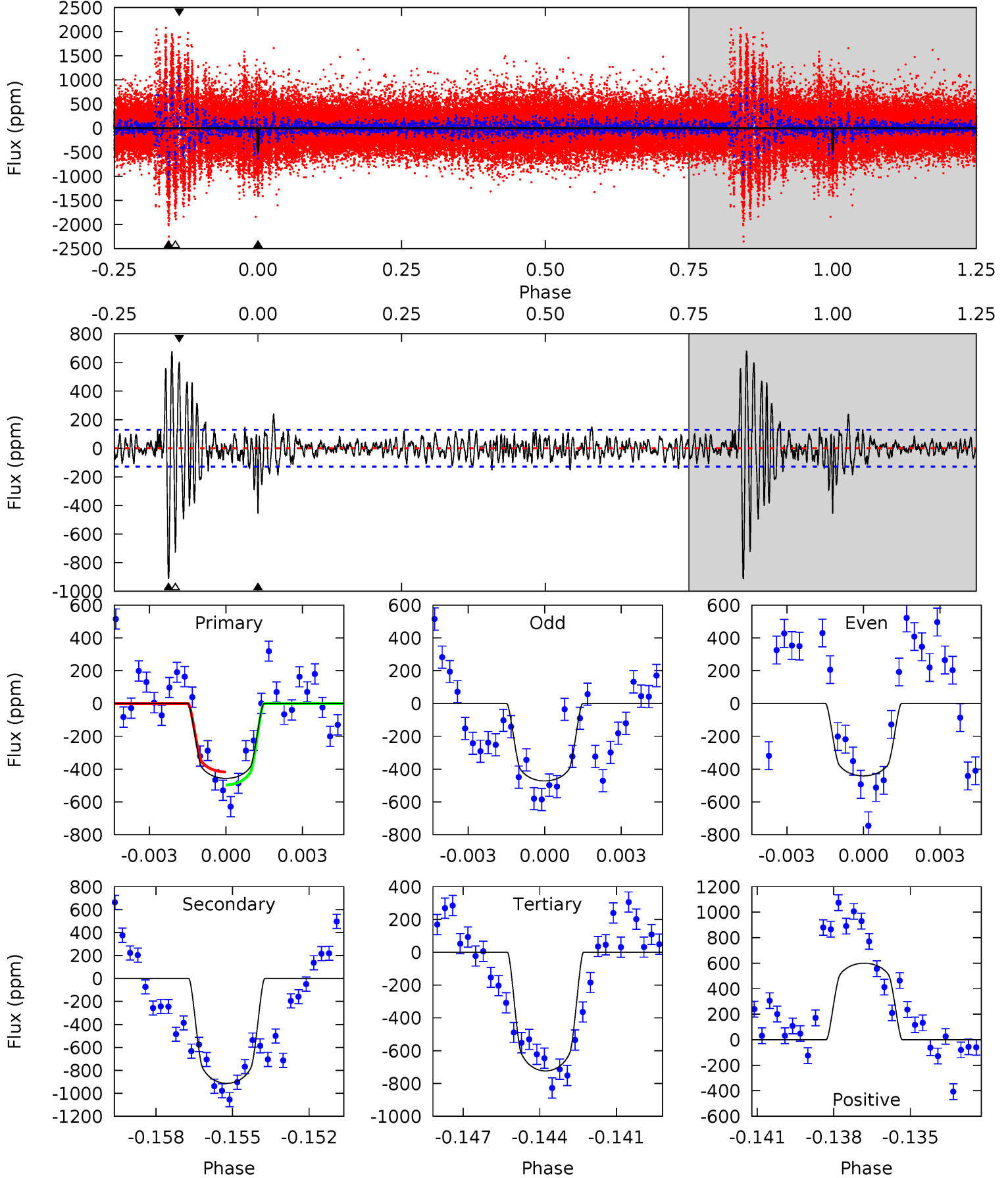
TCE 007972048-01 P=369.370653 Days  $T_0=232.742681$  (BKJD)



# DV Model-Shift Uniqueness Test

007972048-01, P = 369.300030 Days, E = 232.823077 Days

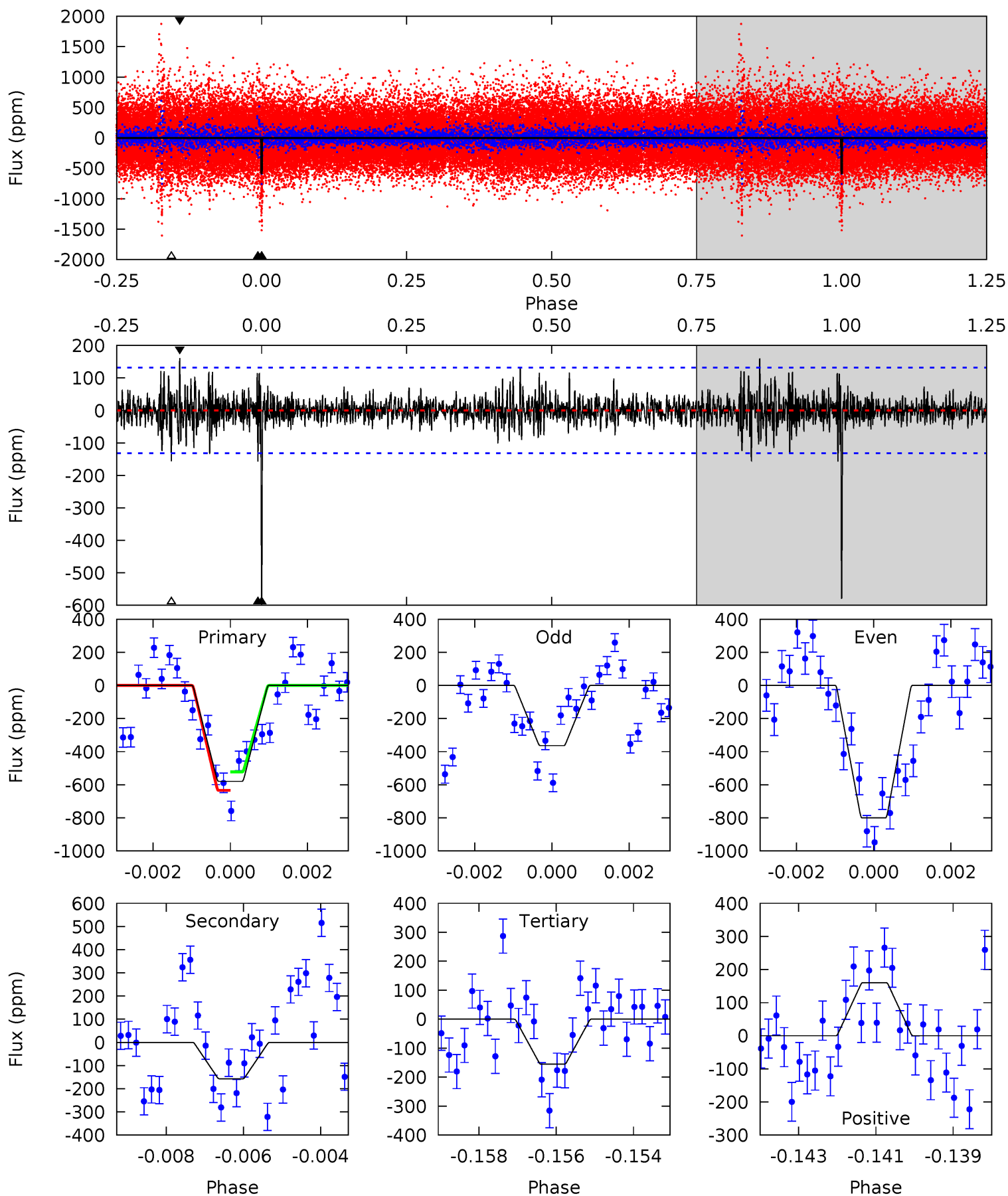
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	37.3	29.5	24.5	5.26	2.98	4.09	-10.9	-5.83	7.74	12.8	0.62	0.97	0.43	1.61



# Alt Model-Shift Uniqueness Test

007972048-01, P = 369.370653 Days, E = 232.742681 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
23.4	6.34	6.27	6.48	5.32	3.08	1.27	17.1	16.9	0.07	-0.14	8.78	1.17	0.22	2.27



### Stellar Parameters For KIC 007972048

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5942^{+160}_{-178}$	$4.478^{+0.067}_{-0.189}$	$-0.360^{+0.300}_{-0.300}$	$0.909^{+0.256}_{-0.110}$	$0.908^{+0.120}_{-0.098}$	$1.701^{+0.564}_{-0.823}$
	+3%/-3%	+1%/-4%	+83%/-83%	+28%/-12%	+13%/-11%	+33%/-48%
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 007972048-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-913 \pm 25$	$3.06^{+0.51}_{-0.40}$	$360^{+26}_{-17}$	$5995^{+328}_{-296}$	$50893^{+14017}_{-12891}$
Alt.	$-157 \pm 25$	$2.67^{+0.42}_{-0.33}$	$359^{+25}_{-19}$	$4340^{+219}_{-216}$	$11484^{+4097}_{-3503}$

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

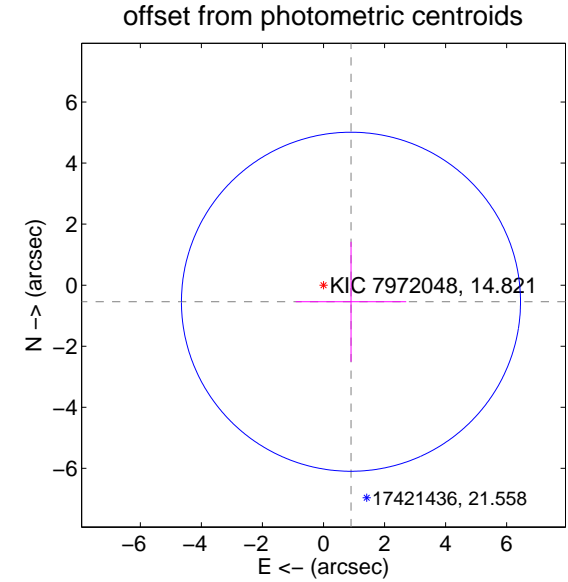
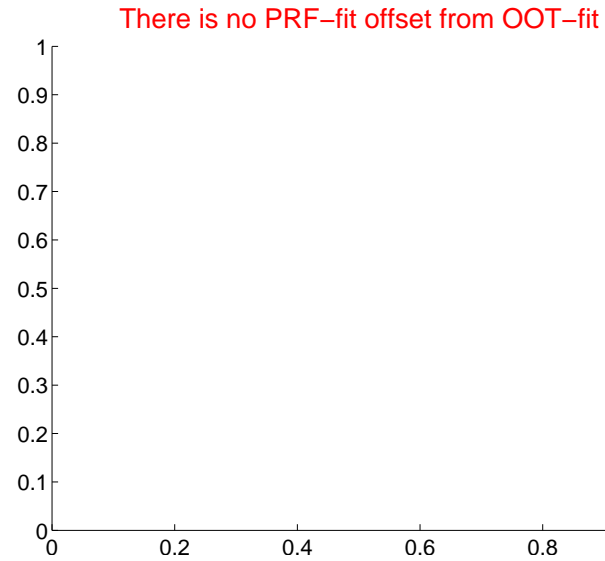
## DV Centroid Data

Supplemental centroid analysis for 007972048-01. Kepler magnitude: 14.82. Transit SNR 10.61

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$1.05 \pm 1.85$	0.57	$-0.90 \pm 1.81$	$-0.54 \pm 1.96$



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.

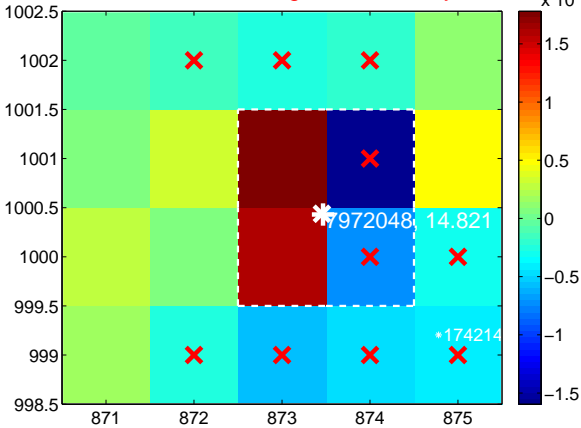
Q5 no difference image



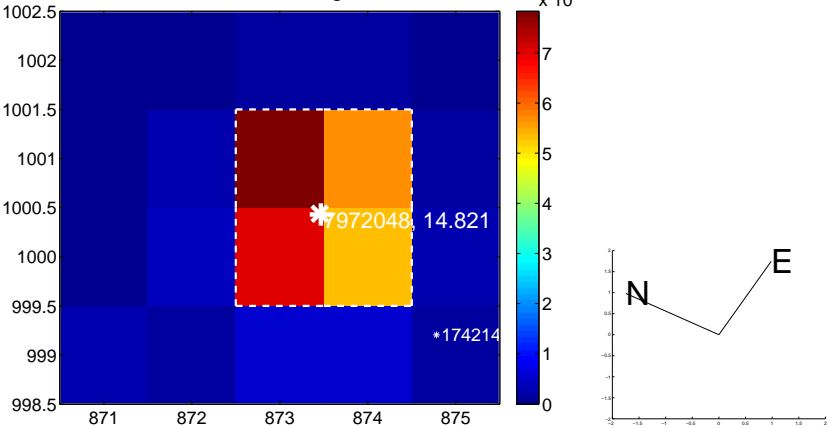
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



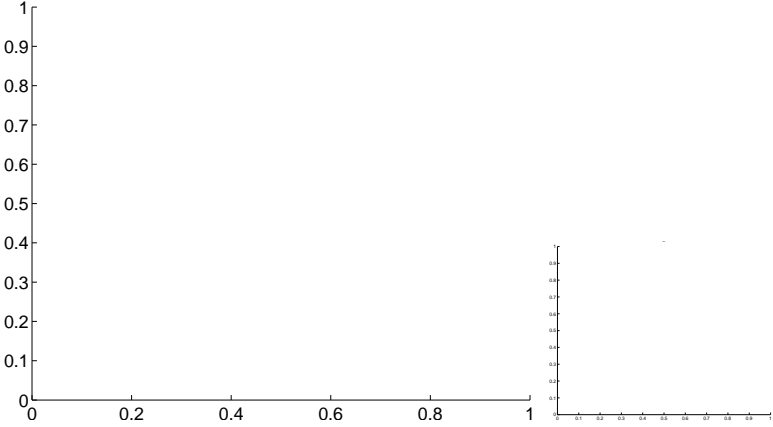
Q7 no OOT image



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

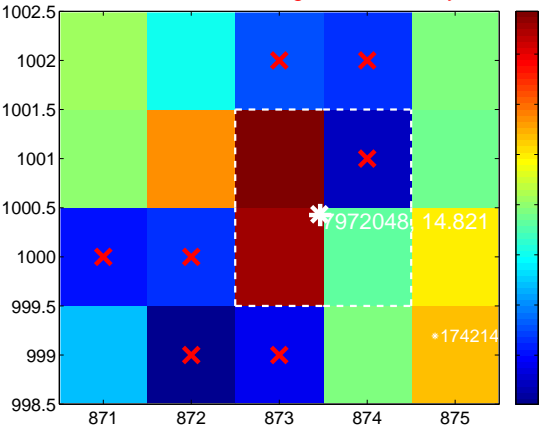
Q13 no difference image



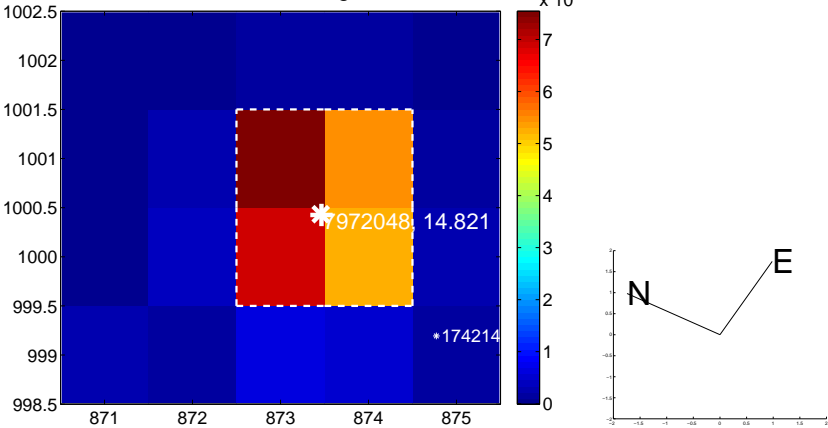
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



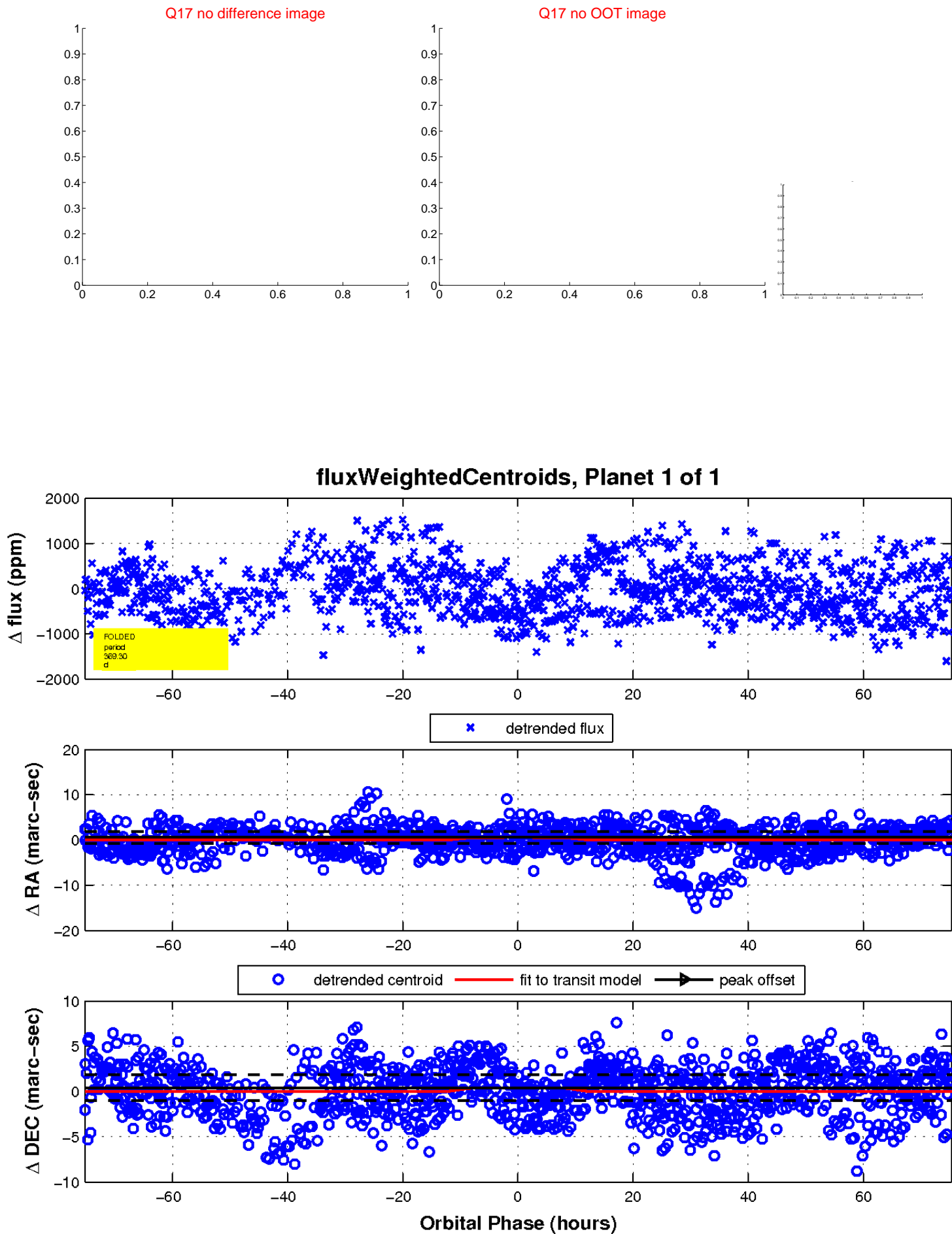
Q16 no difference image



Q16 no OOT image



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



# UKIRT Image

Declination

