

# KIC 007972140

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007972140-01	OBS	No	368.719395	233.096683	1589.2	15.959	8.6	11.0	0.82	4922	6.60	0.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007972140-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—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.

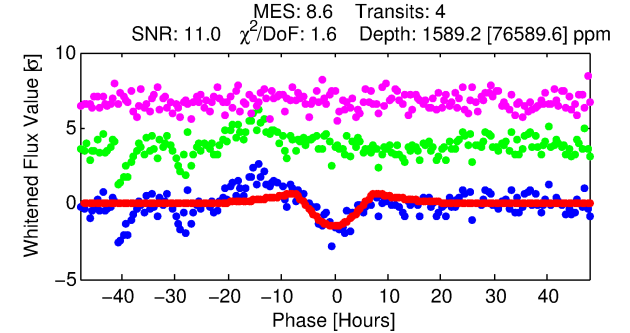
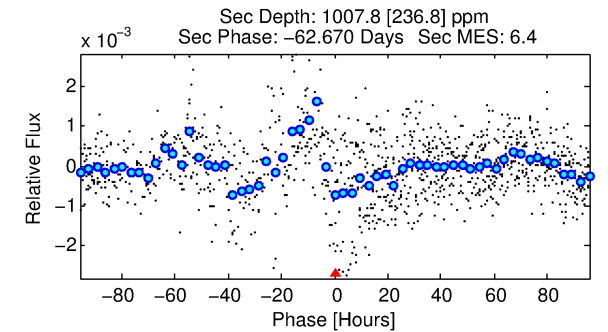
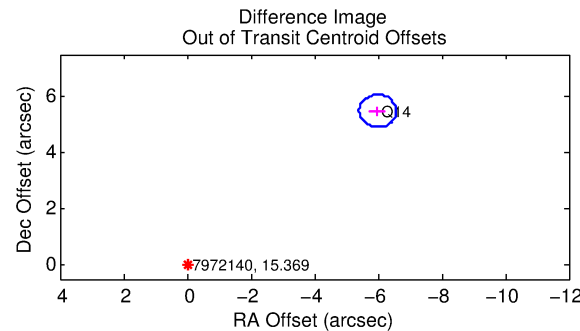
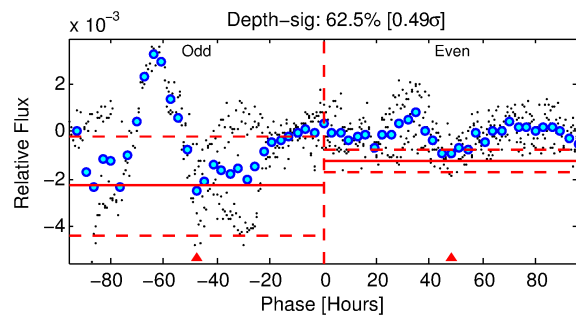
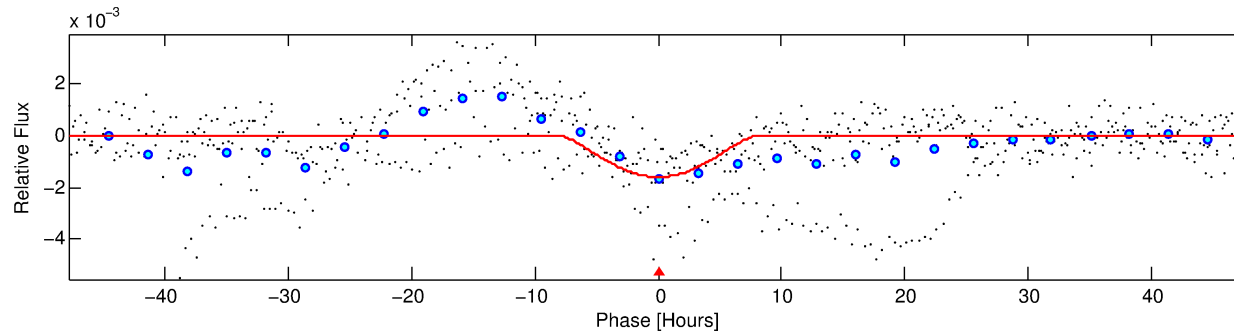
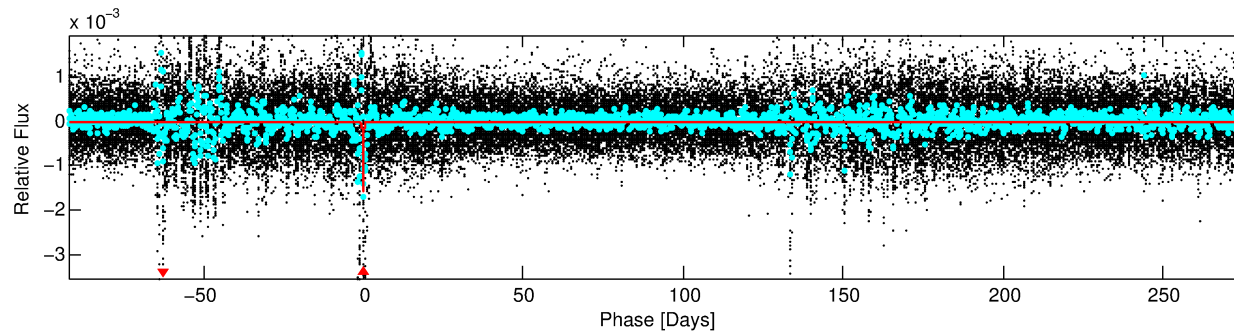
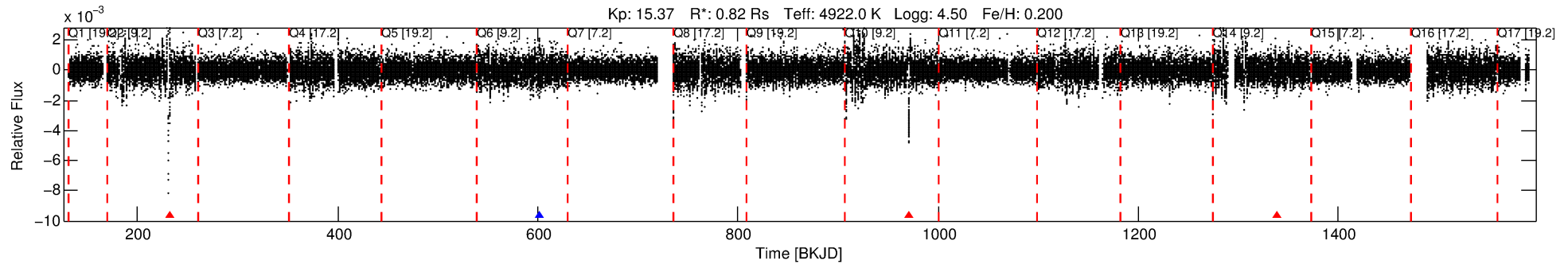
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007972140-01

No Significant Match Found

# DV One-Page Summary

KIC: 7972140 Candidate: 1 of 1 Period: 368.719 d



## DV Fit Results:

Period = 368.71939 [0.01479] d  
Epoch = 233.0967 [0.0286] BKJD  
Rp/R\* = 0.0735 [0.2252]  
a/R\* = 68.89 [44.90]  
b = 1.00 [2.00]  
Seff = 0.41 [0.08]  
Teq = 204 [9] K  
Rp = 6.60 [20.24] Re  
a = 0.9306 [0.0846] AU  
Ag = 11031.67 [67714.64] [0.16 $\sigma$ ]  
Teff = 3236 [4965] K [0.61 $\sigma$ ]

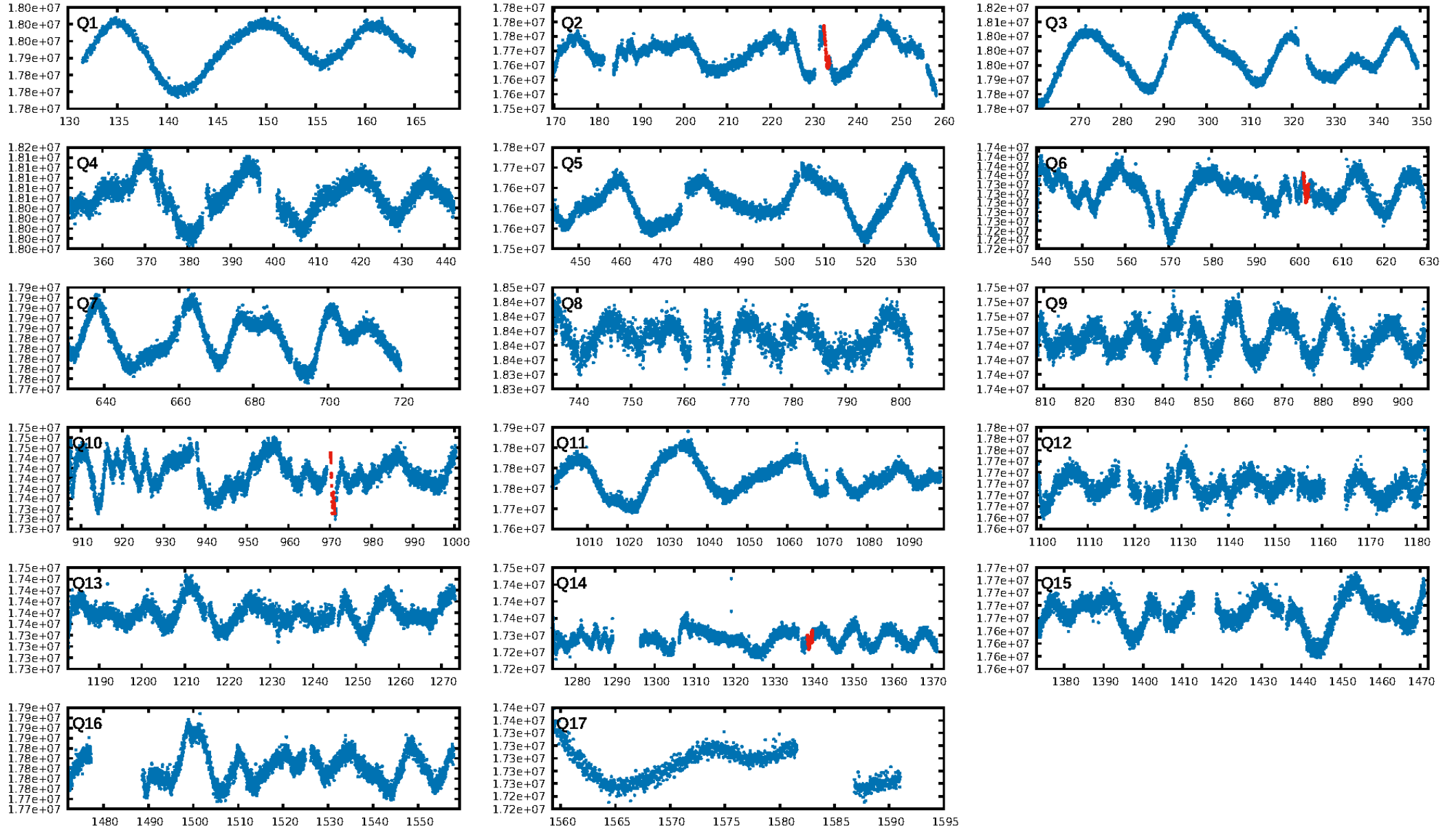
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 70.4%  
Bootstrap-pfa: 7.00e-10  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 5.5  
Centroid-sig: 2.6%  
Centroid-so: 3.028 arcsec [2.13 $\sigma$ ]  
OotOffset-rm: 8.118 arcsec [42.02 $\sigma$ ]  
KicOffset-rm: 8.115 arcsec [41.52 $\sigma$ ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

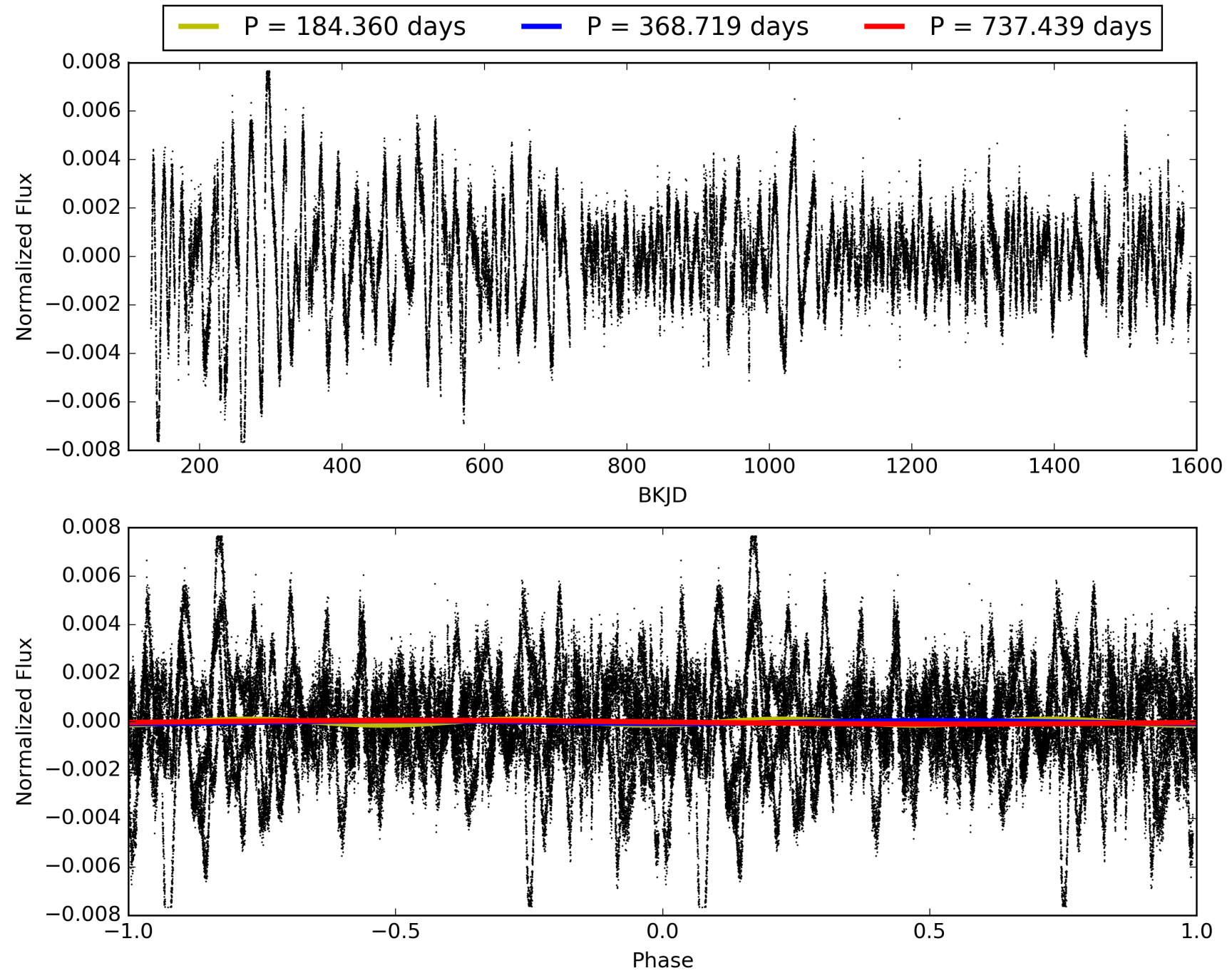
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:15:32 Z

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

# TCE 007972140-01, PDC Light Curves

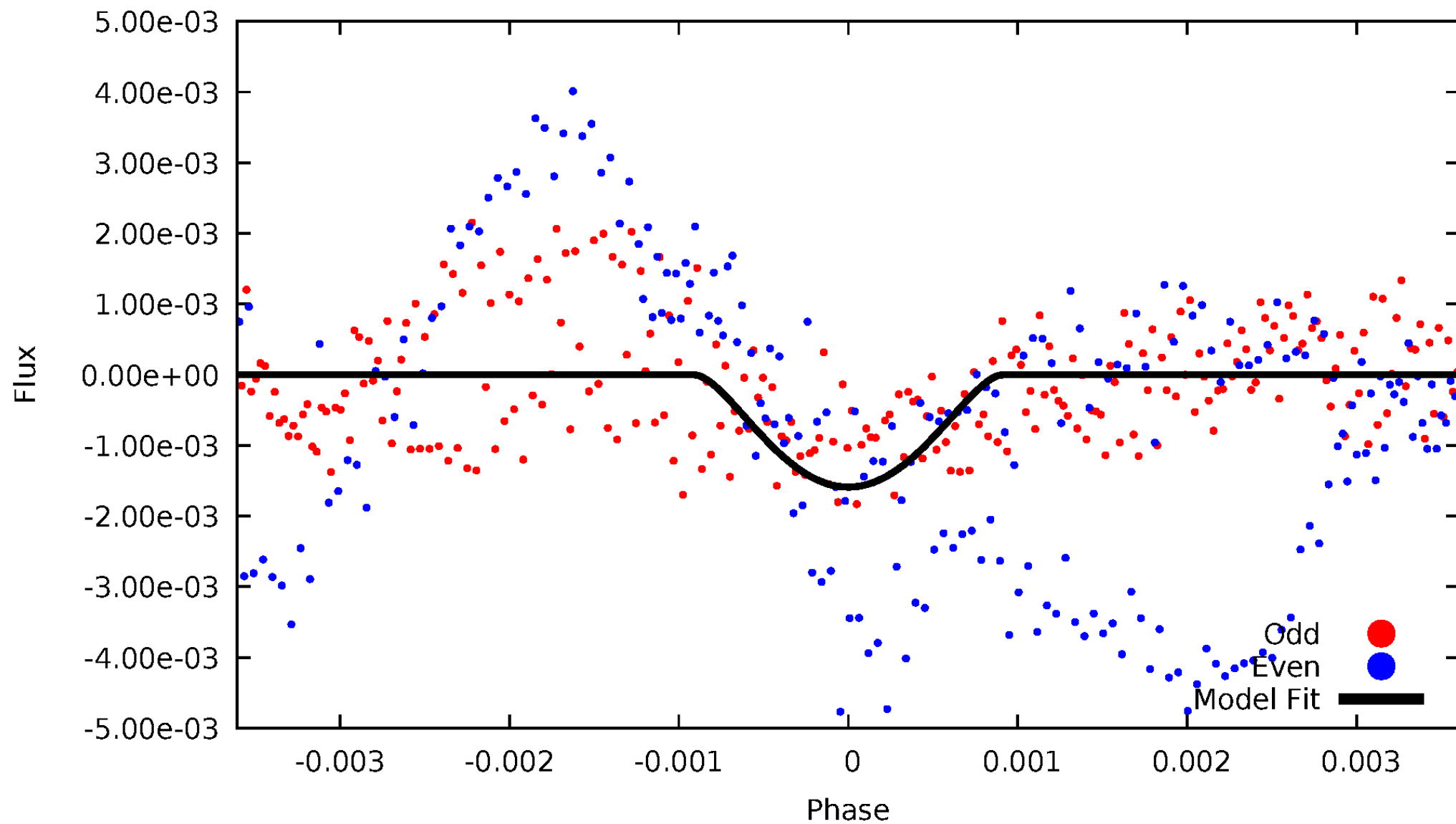


TCE 007972140-01



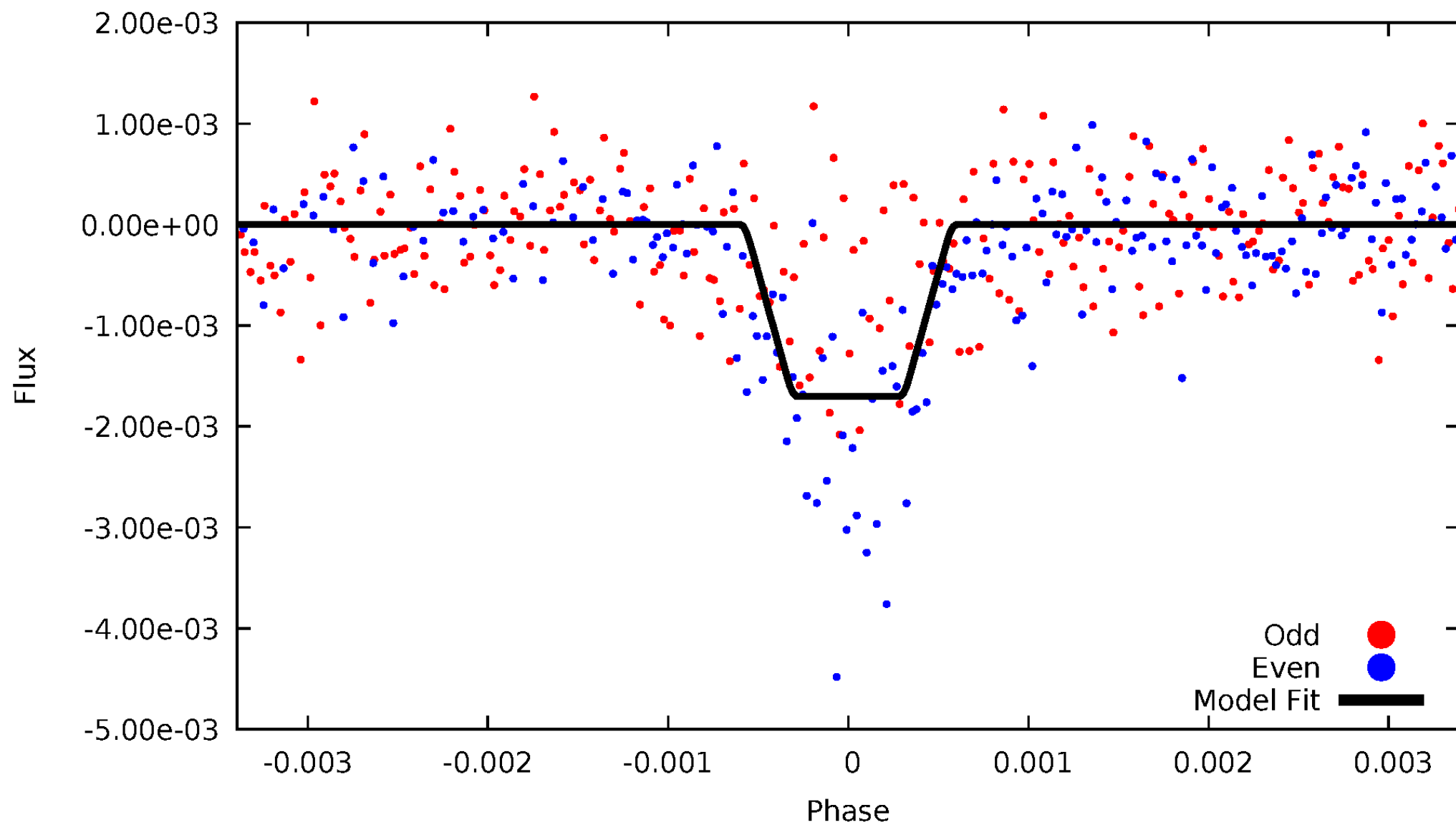
# DV Odd/Even

TCE 007972140-01



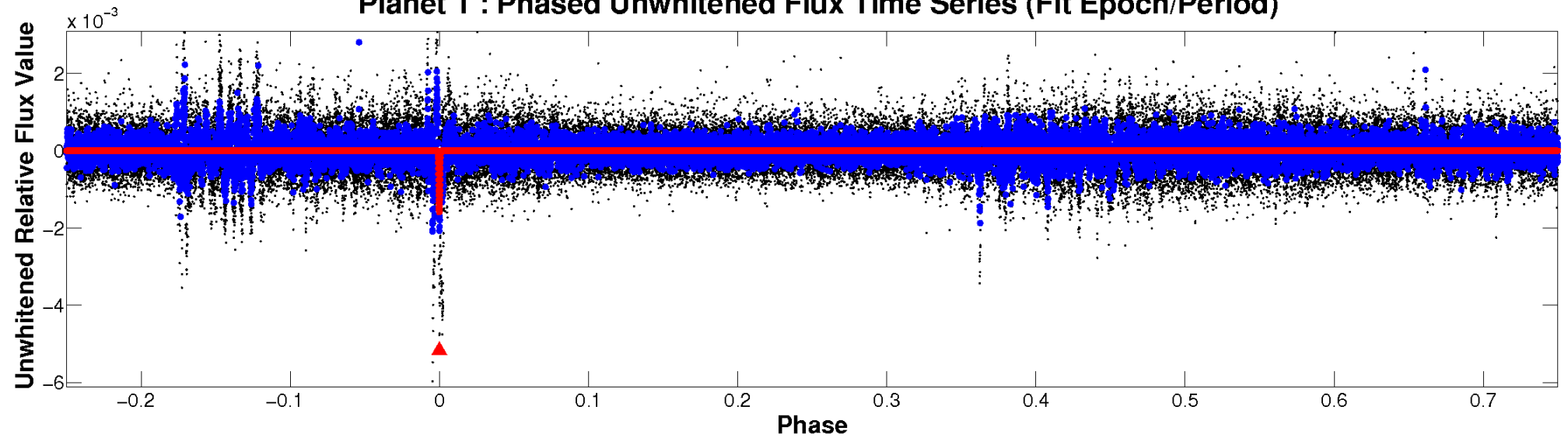
# ALT Odd/Even

TCE 007972140-01

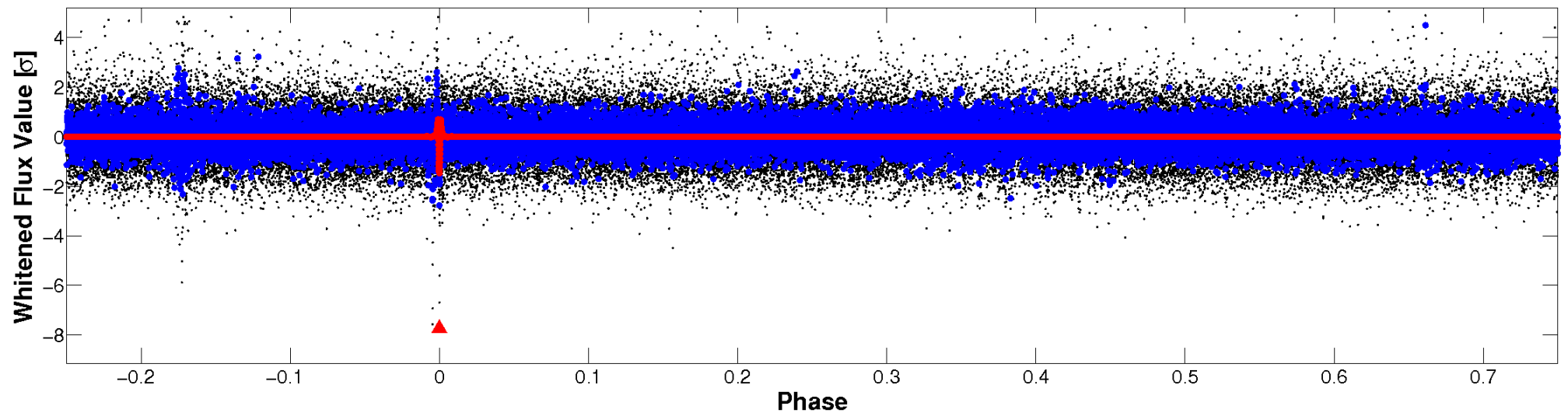


# Non-Whitened Vs. Whitened Light Curve

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

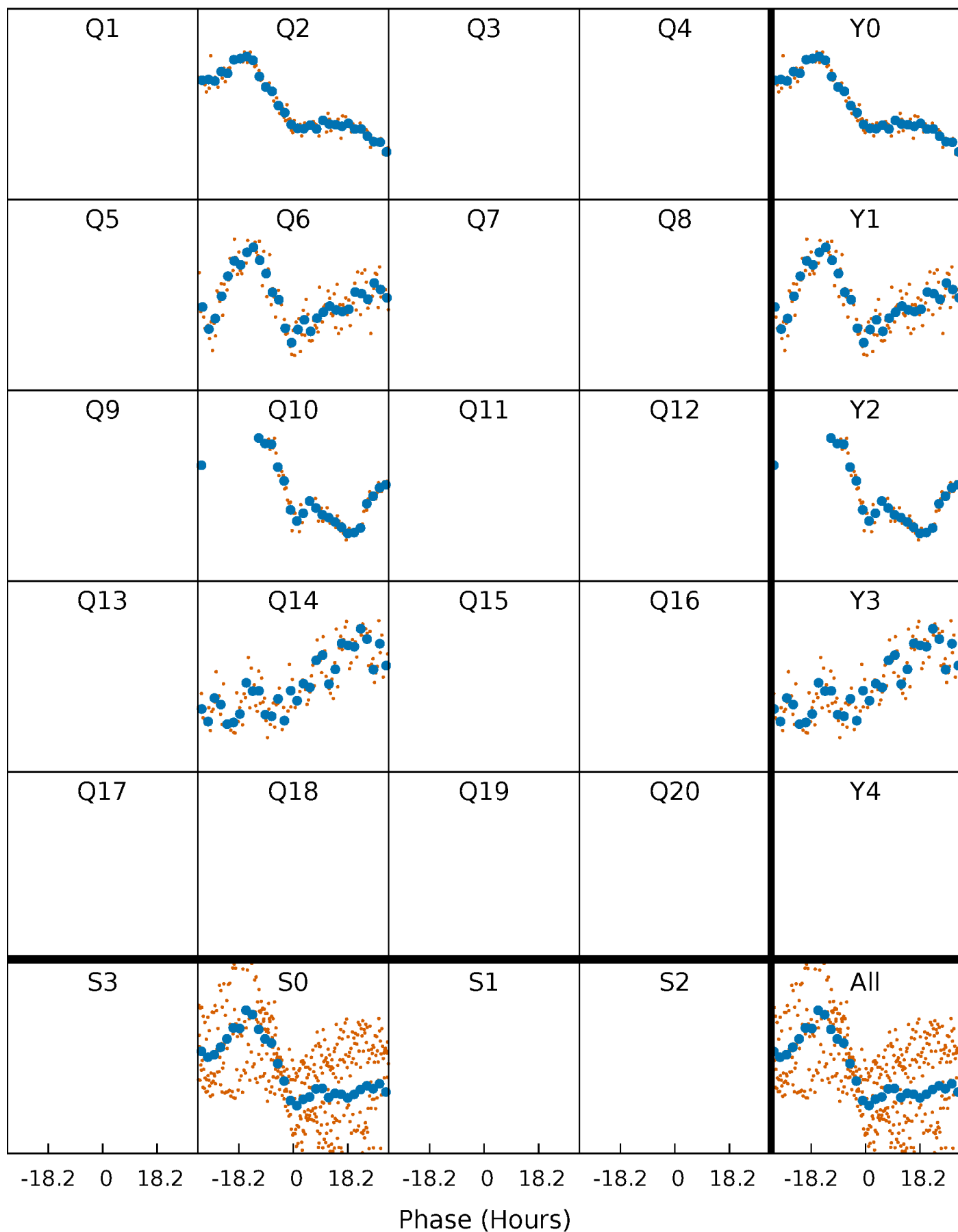


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

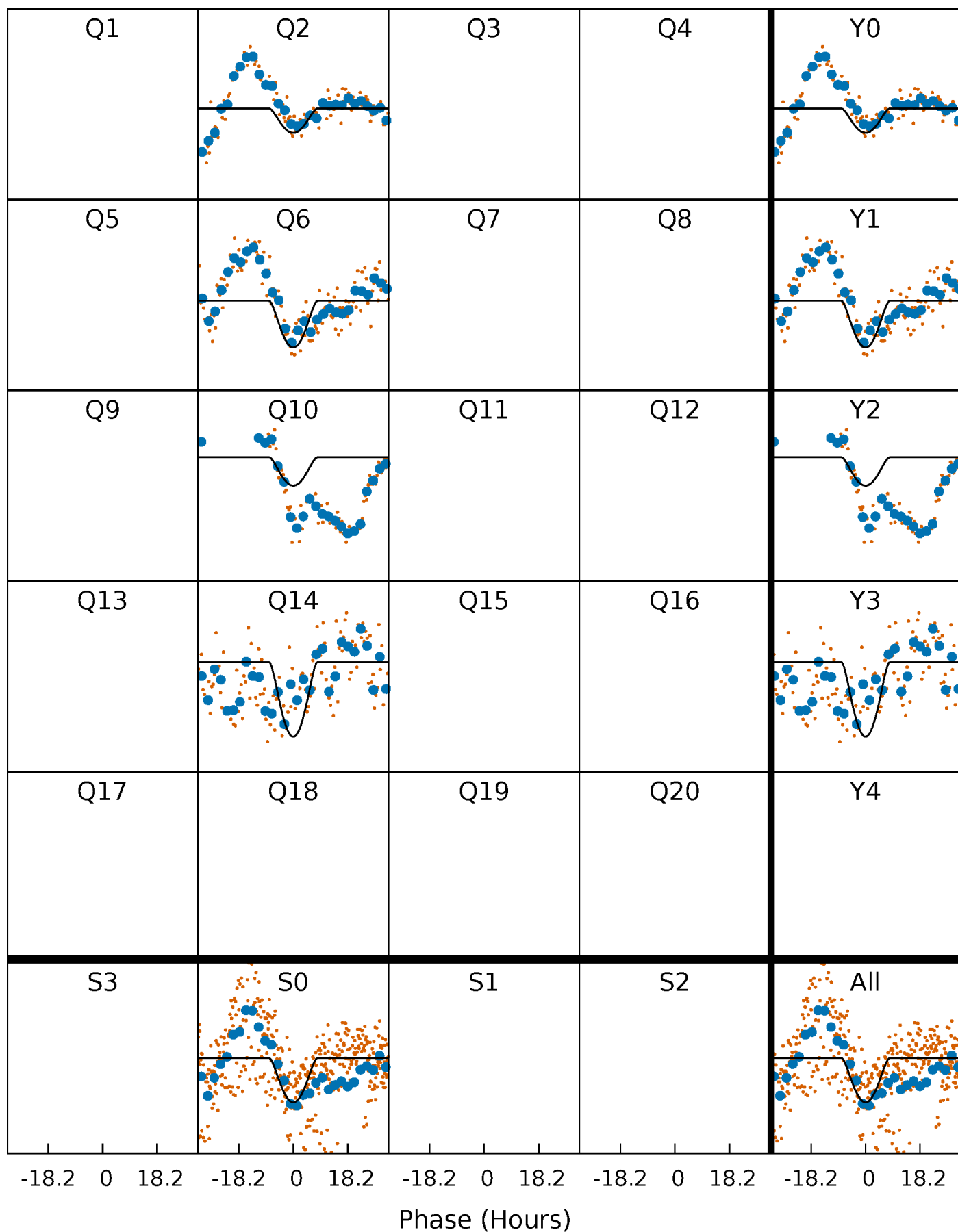
TCE 007972140-01 P=368.719395 Days  $T_0=233.096683$  (BKJD)





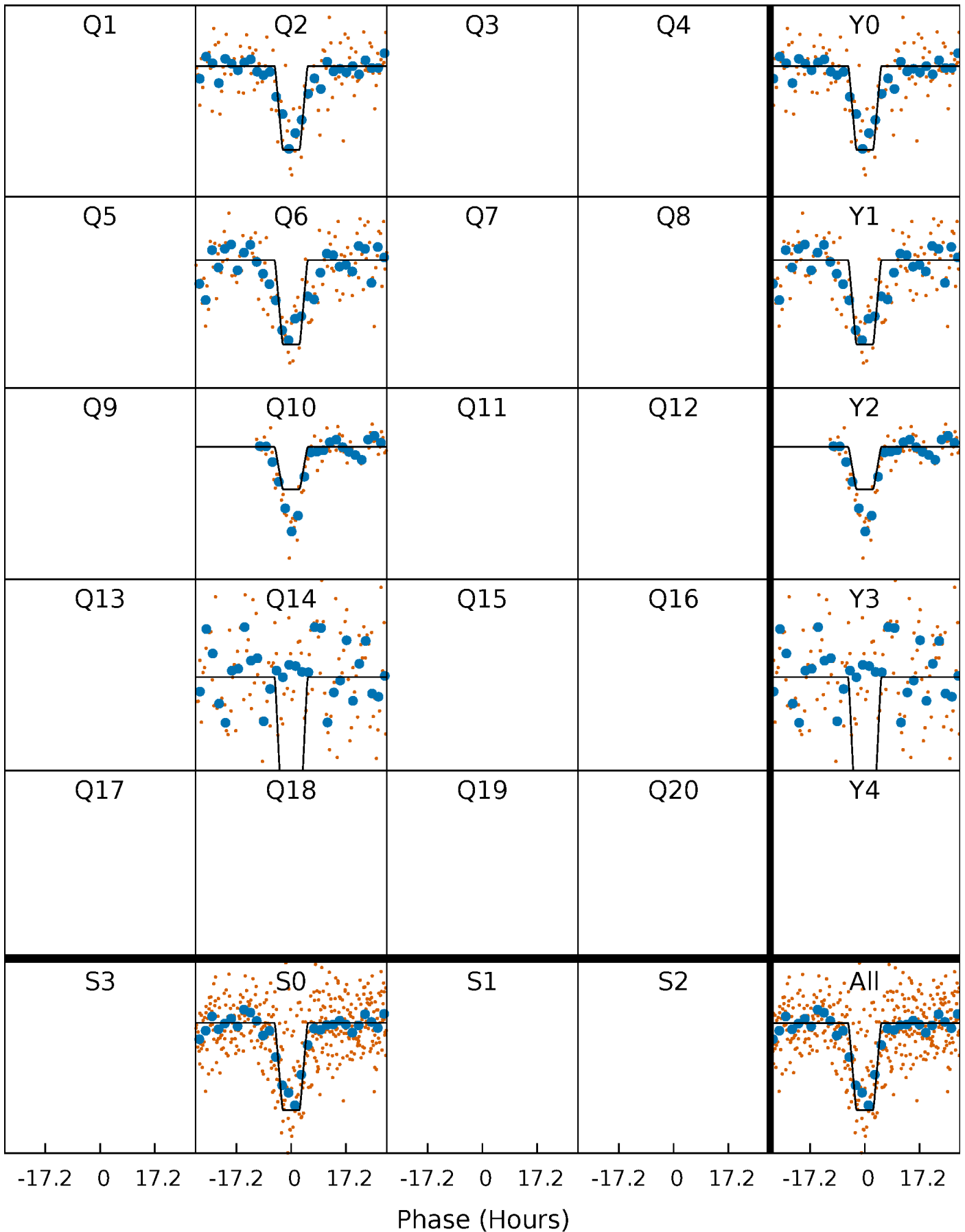
# DV Quarter-Phased Transit Curves

TCE 007972140-01 P=368.719395 Days  $T_0=233.096683$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

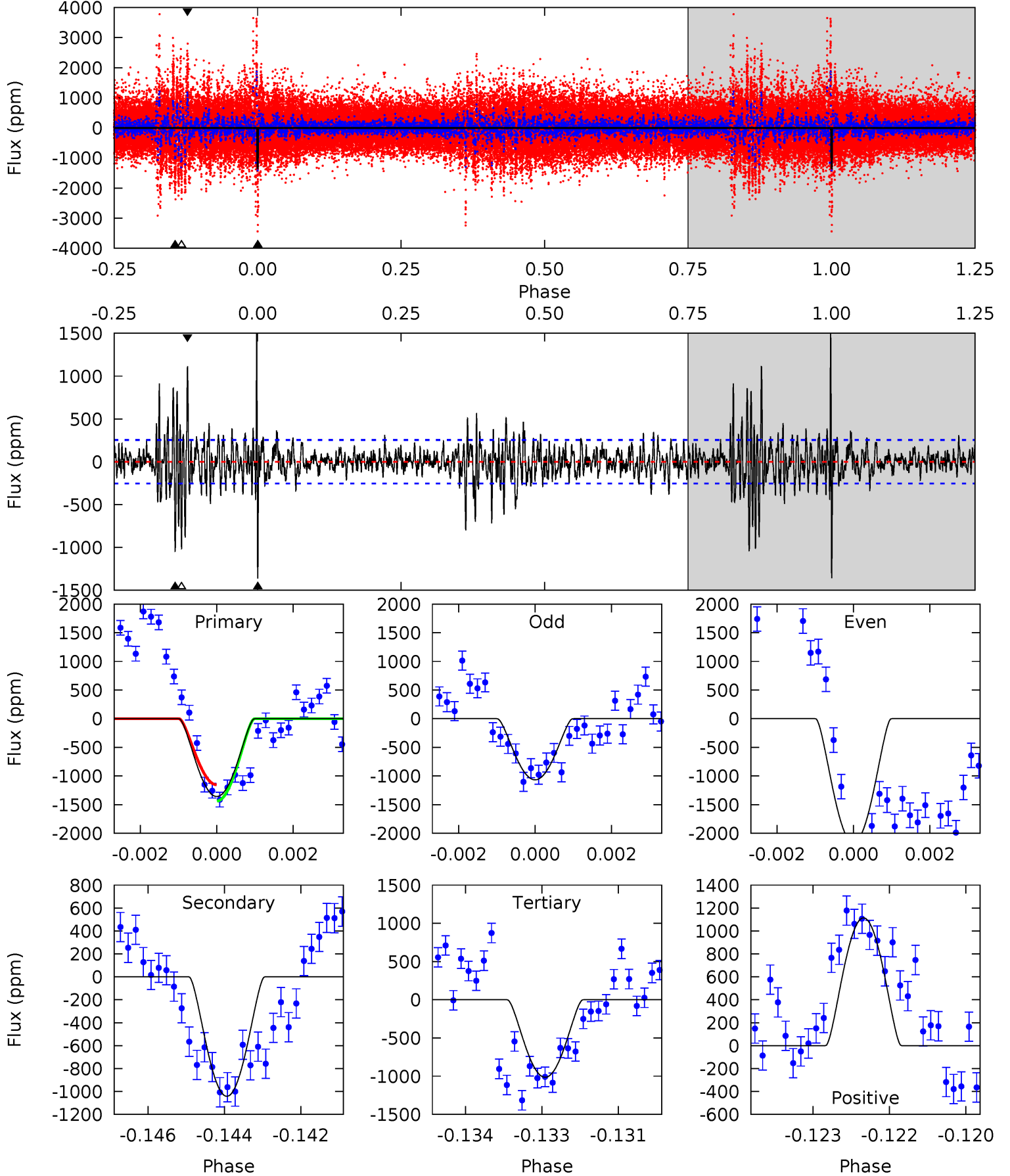
TCE 007972140-01 P=368.730401 Days  $T_0=233.081013$  (BKJD)



# DV Model-Shift Uniqueness Test

007972140-01, P = 368.719395 Days, E = 233.096683 Days

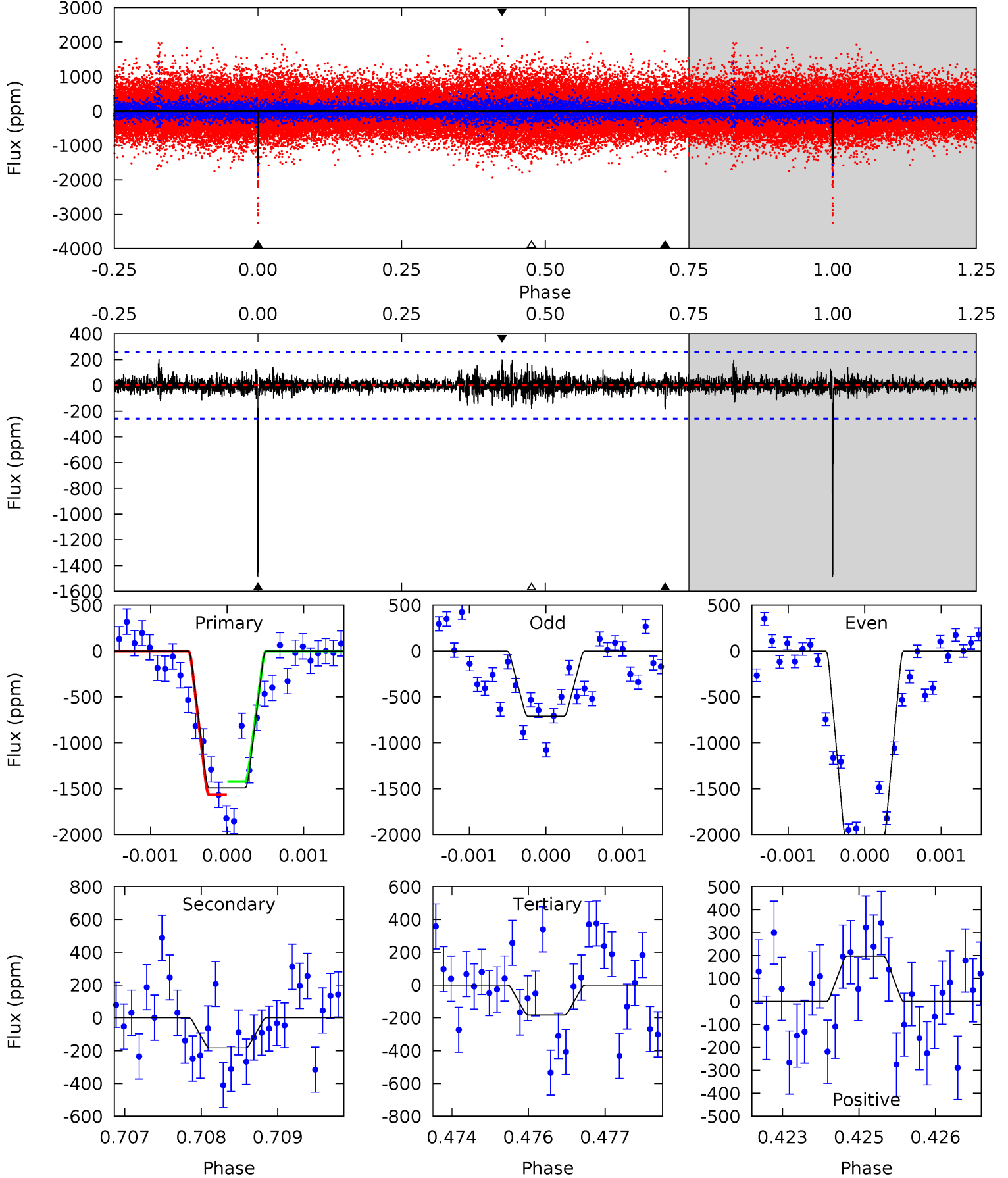
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.5	21.9	21.3	23.4	5.34	3.11	3.65	7.23	5.13	0.58	-1.52	11.7	1.52	0.52	2.97



# Alt Model-Shift Uniqueness Test

007972140-01, P = 368.730401 Days, E = 233.081013 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
31.1	3.83	3.82	4.13	5.42	3.24	0.78	27.3	27.0	0.01	-0.30	14.5	0.98	0.12	1.49



### Stellar Parameters For KIC 007972140

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4922^{+148}_{-133}$	$4.505^{+0.082}_{-0.075}$	$0.200^{+0.200}_{-0.300}$	$0.823^{+0.066}_{-0.081}$	$0.790^{+0.067}_{-0.055}$	$1.996^{+0.668}_{-0.460}$
	+3%/-3%	+2%/-2%	+100%/-150%	+8%/-10%	+8%/-7%	+33%/-23%
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 007972140-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1042 \pm 48$	$15.47^{+17.37}_{-11.29}$	$286^{+12}_{-12}$	$2832^{+1419}_{-496}$	$2117^{+25823}_{-1655}$
Alt.	$-183 \pm 48$	$14.97^{+15.44}_{-10.68}$	$285^{+12}_{-11}$	$2301^{+864}_{-339}$	$390^{+4330}_{-297}$

$T_{max}$  = 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

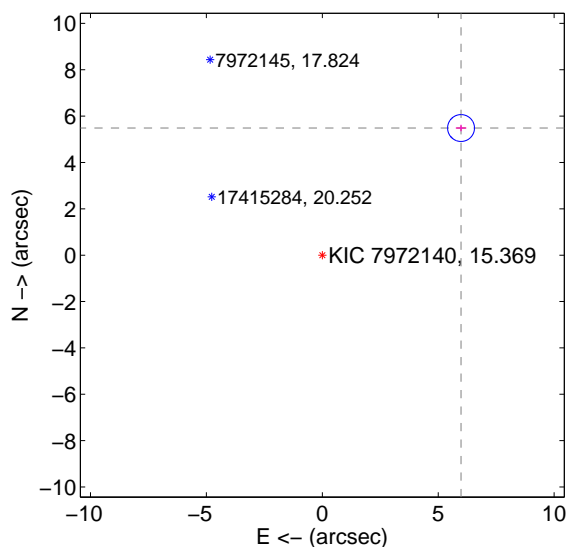
Supplemental centroid analysis for 007972140-01. Kepler magnitude: 15.37. Transit SNR 10.98

There are 0 quarters with good PRF difference image offsets

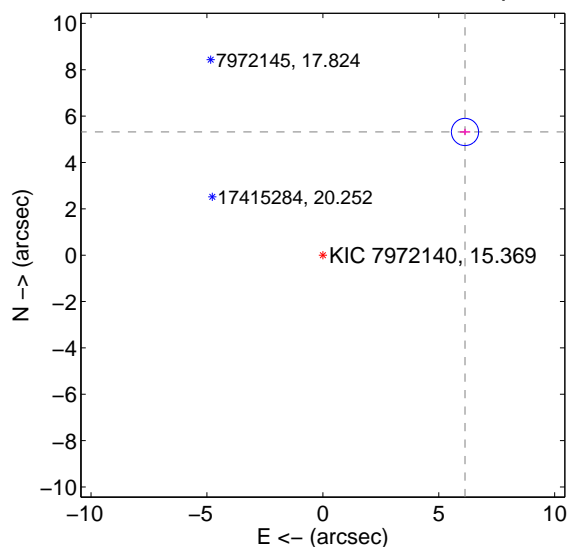
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.118 \pm 0.193$	42.02	$-5.984 \pm 0.227$	$5.485 \pm 0.142$
PRF-fit source offset from KIC position	$8.115 \pm 0.195$	41.52	$-6.132 \pm 0.227$	$5.315 \pm 0.142$
photometric centroid source offset	$3.03 \pm 1.42$	2.13	$2.62 \pm 1.40$	$1.53 \pm 1.48$

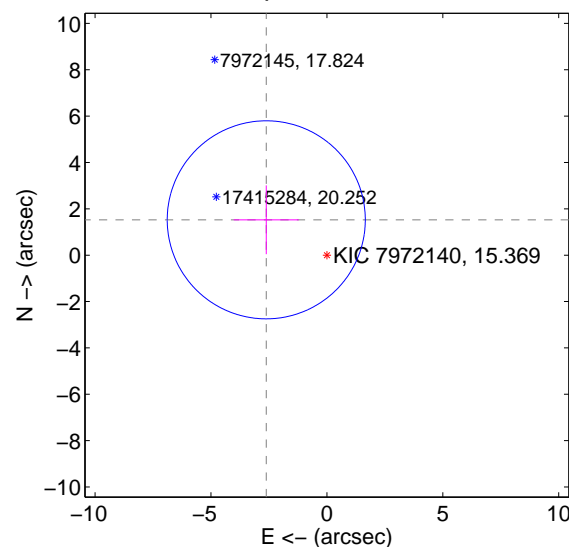
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

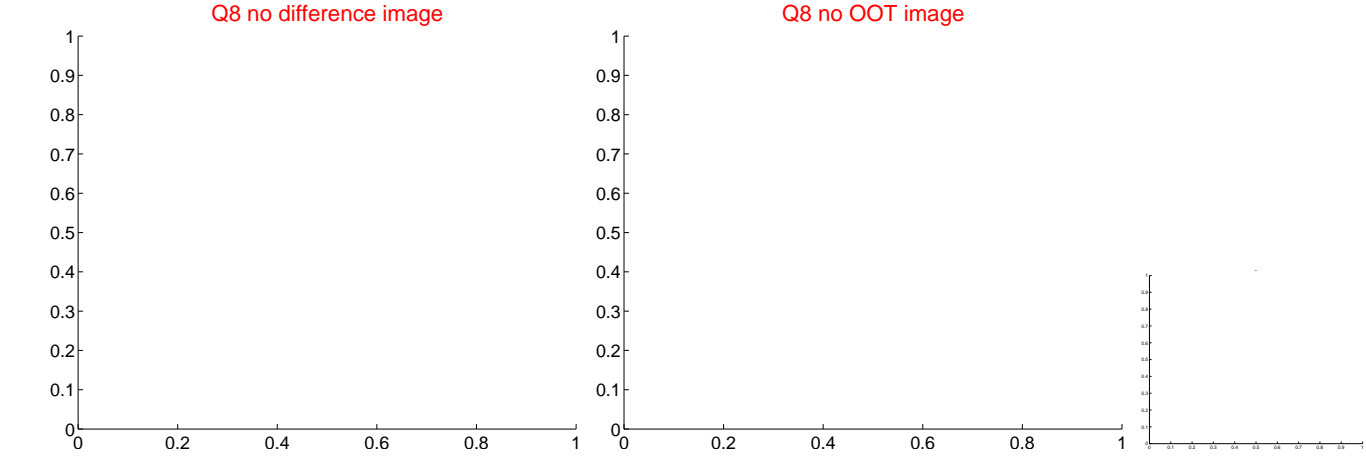
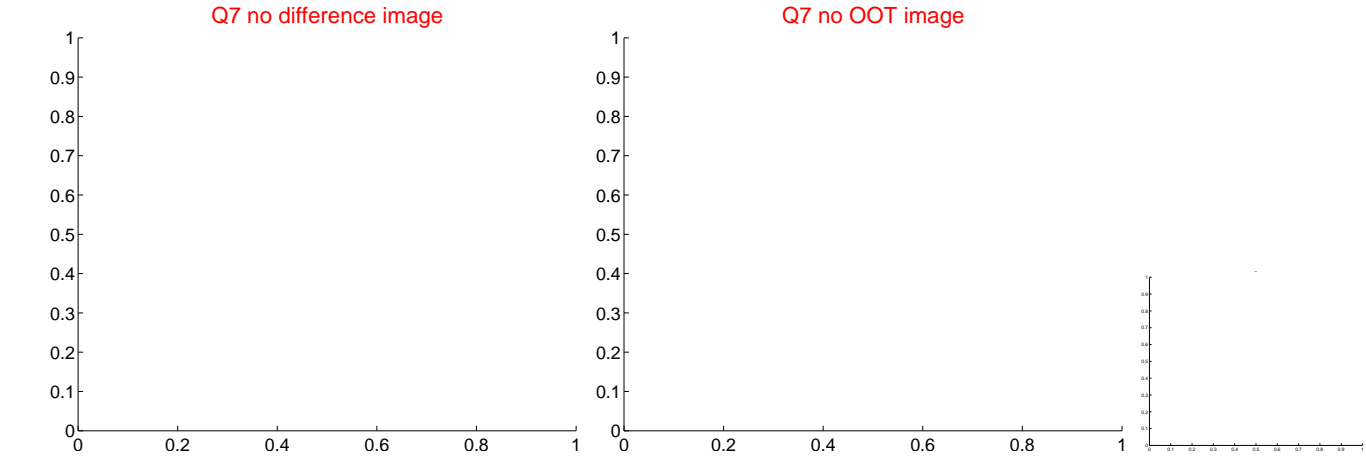
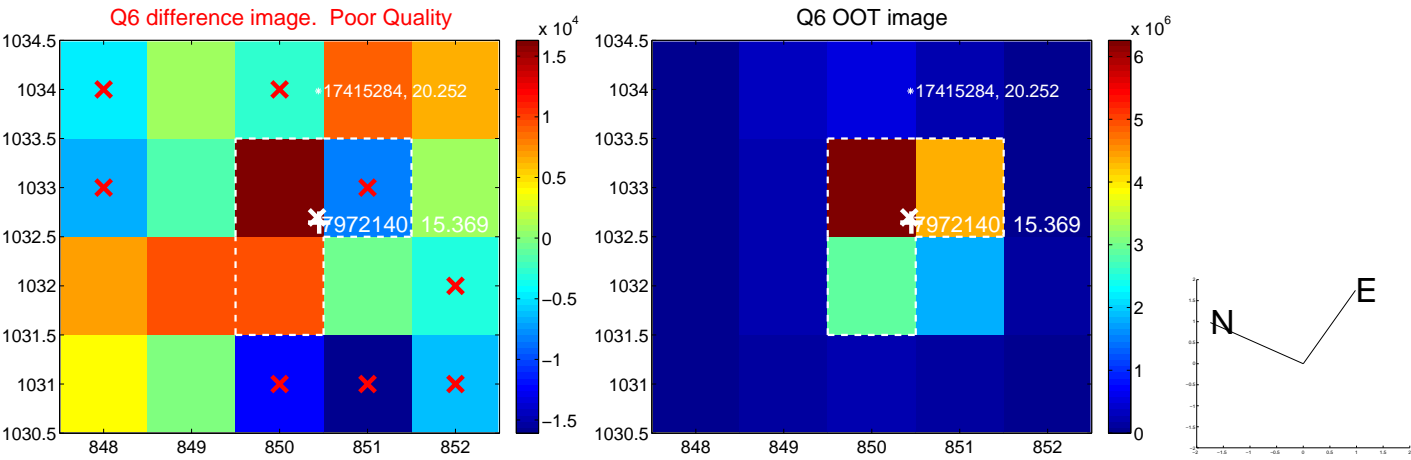
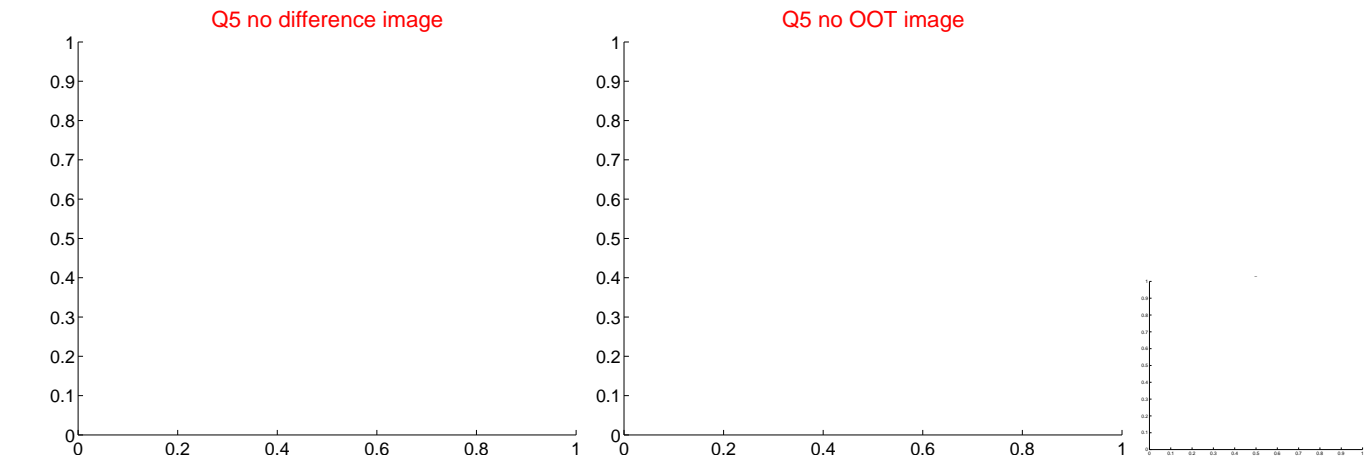


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



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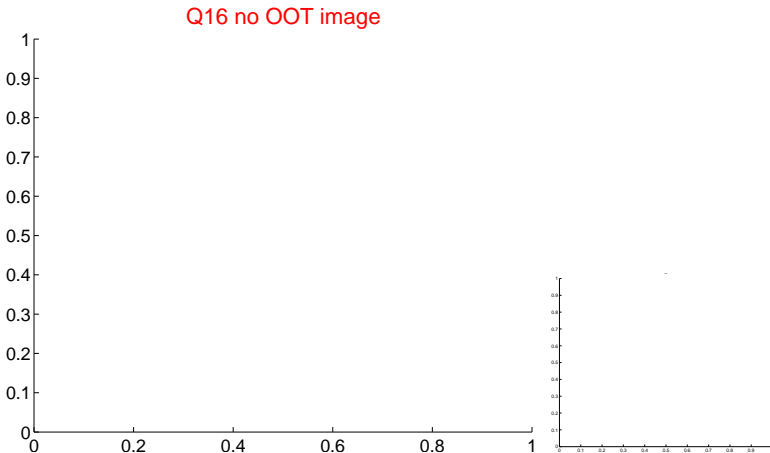
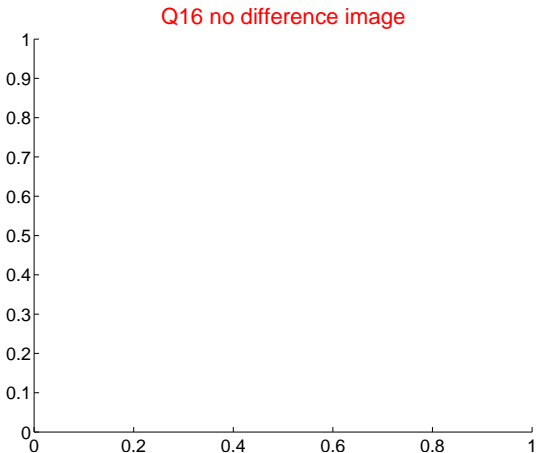
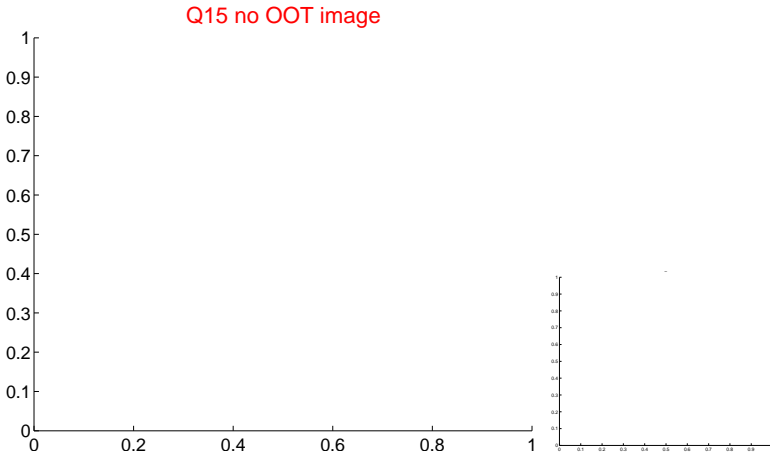
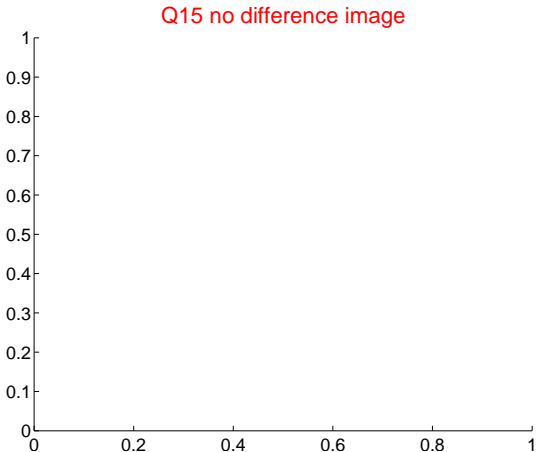
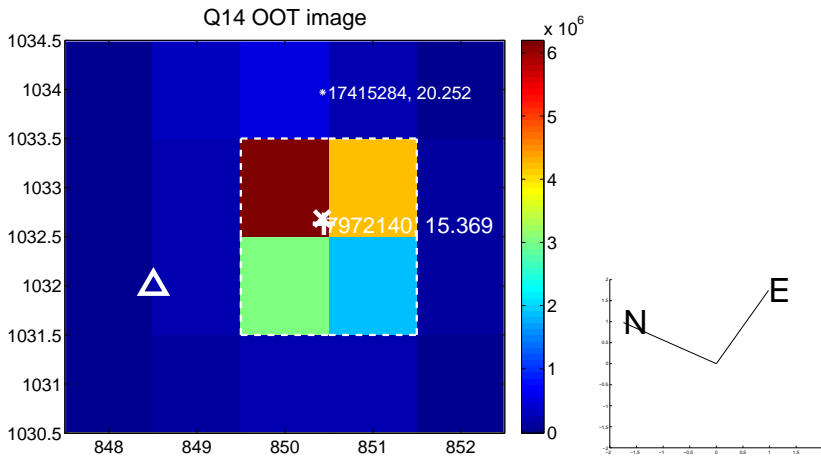
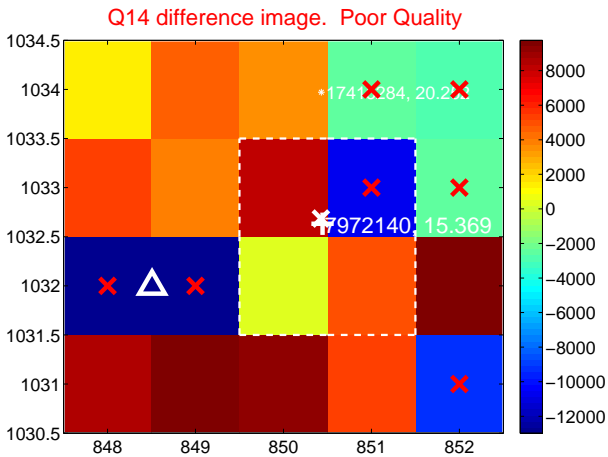
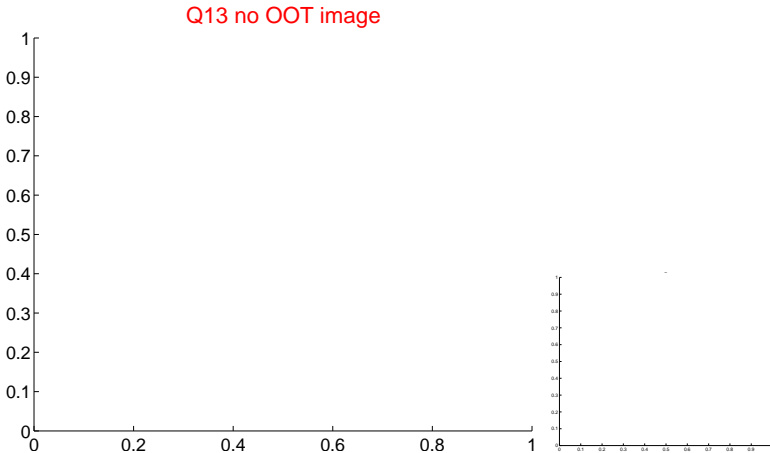
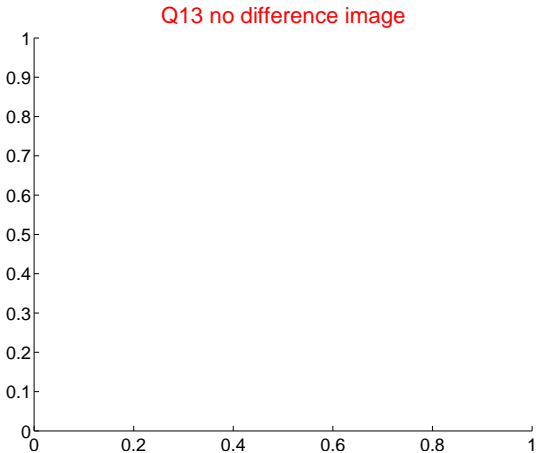




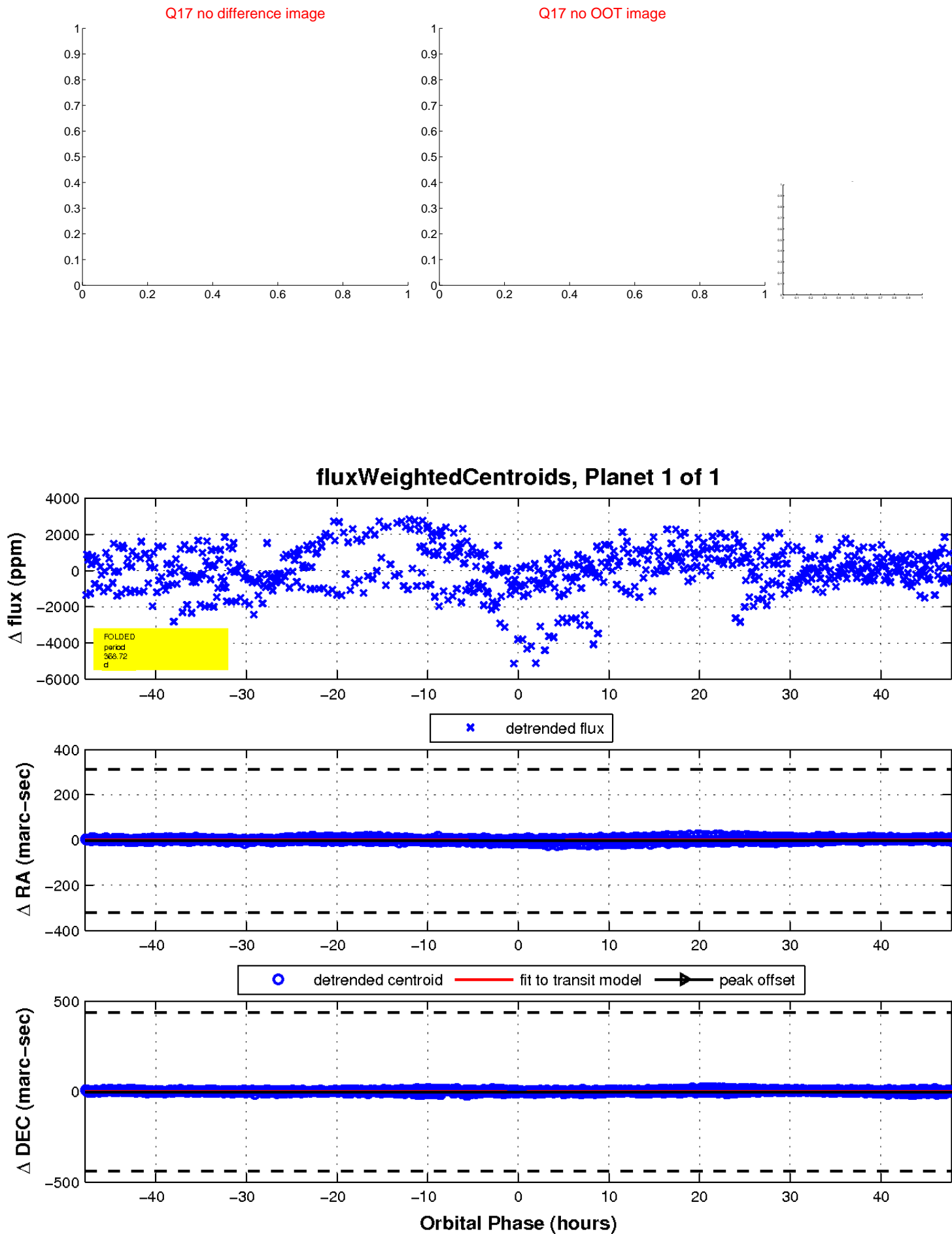
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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# UKIRT Image

Declination

