

# KIC 007970484

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007970484-01	OBS	No	368.267564	234.456122	1120.2	27.745	9.7	11.0	0.82	5595	3.60	0.64

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007970484-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

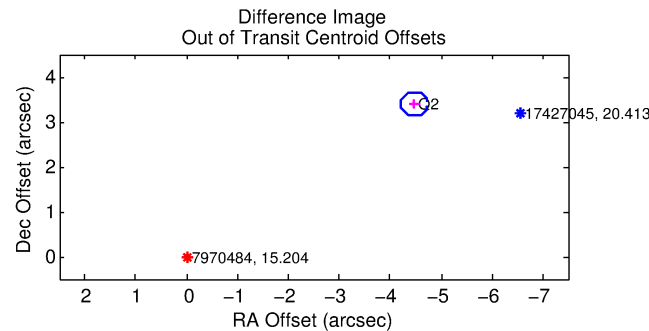
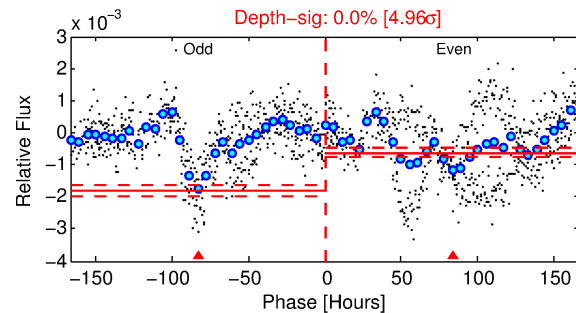
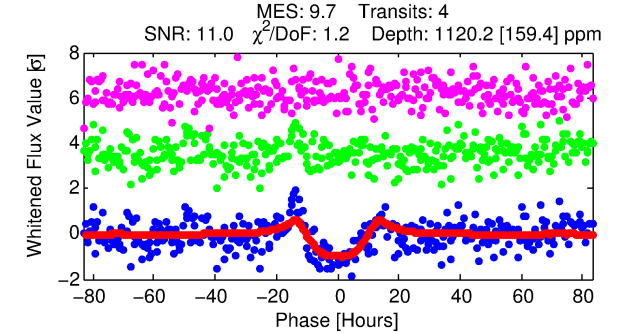
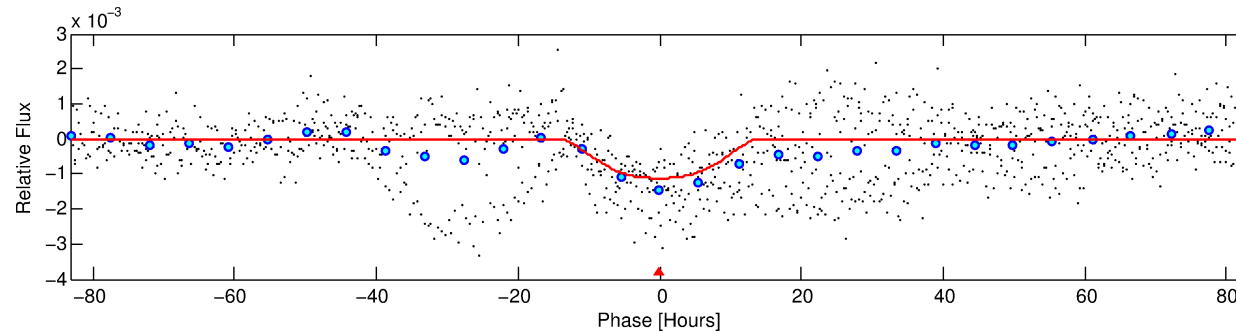
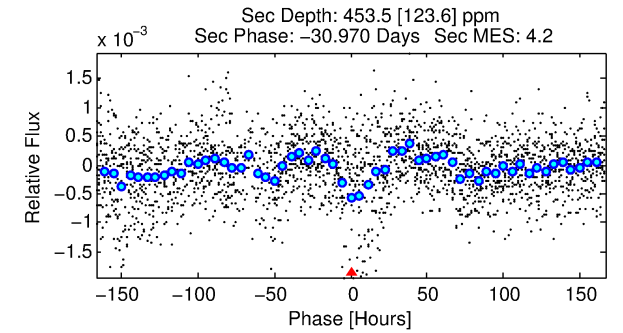
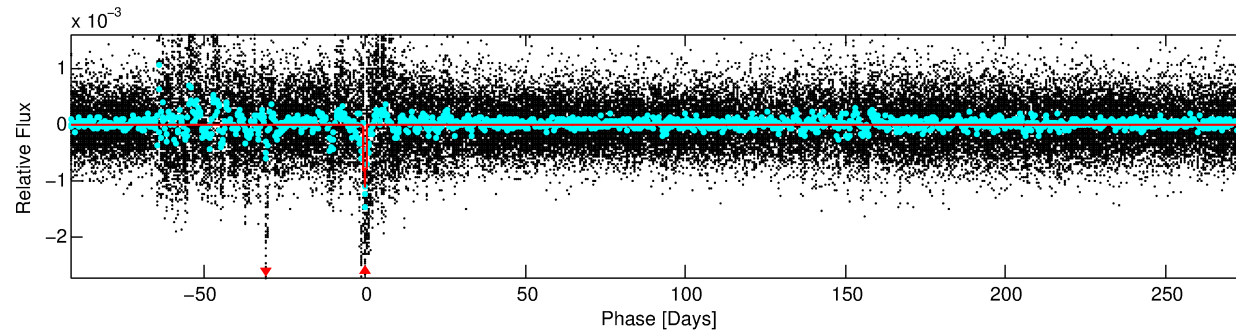
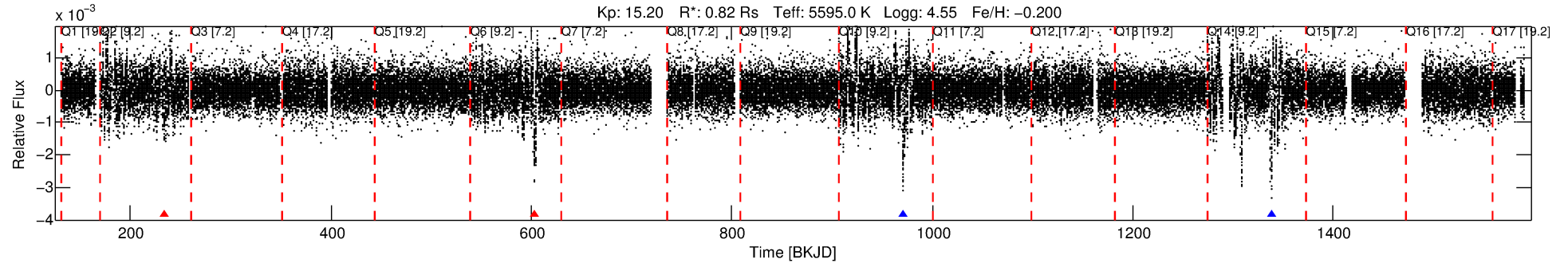
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007970484-01

No Significant Match Found

# DV One-Page Summary

KIC: 7970484 Candidate: 1 of 1 Period: 368.268 d



## DV Fit Results:

Period = 368.26756 [0.02211] d  
Epoch = 234.4561 [0.0376] BKJD  
Rp/R\* = 0.0402 [0.0039]  
a/R\* = 40.80 [4.43]  
b = 0.96 [0.01]  
Seff = 0.64 [0.20]  
Teq = 228 [18] K  
Rp = 3.60 [0.93] Re  
a = 0.9632 [0.1927] AU  
Ag = 17840.56 [7882.03] [2.26σ]  
Teff = 4072 [360] K [10.6σ]

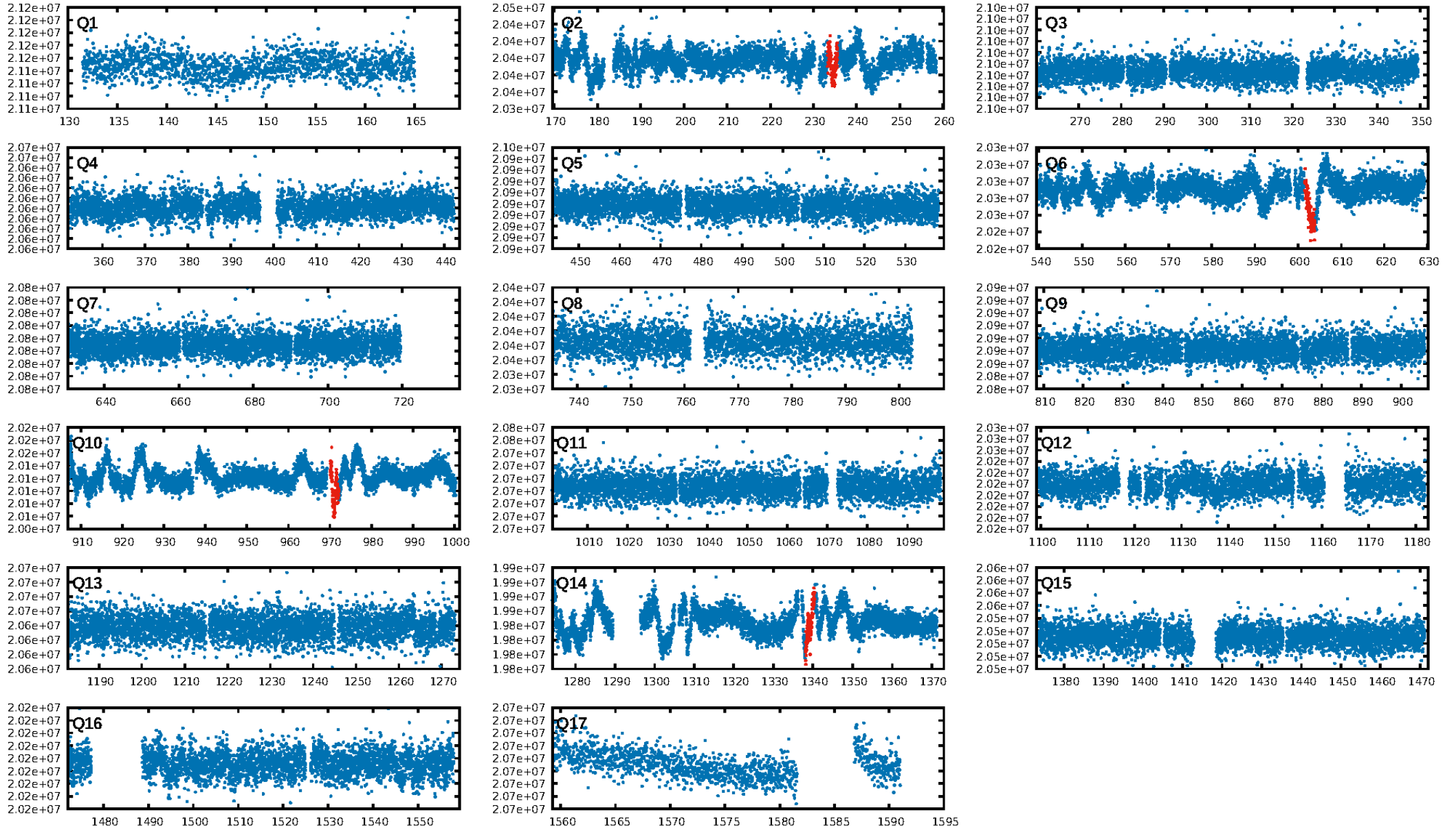
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 95.8%  
Bootstrap-pfa: 4.32e-12  
RollingBand-fgt: 0.50 [2/4]  
GhostDiagnostic-chr: 0.01225  
Centroid-sig: 2.1%  
Centroid-so: 3.122 arcsec [2.25σ]  
OotOffset-rm: 5.618 arcsec [62.52σ]  
KicOffset-rm: 5.856 arcsec [65.24σ]  
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]

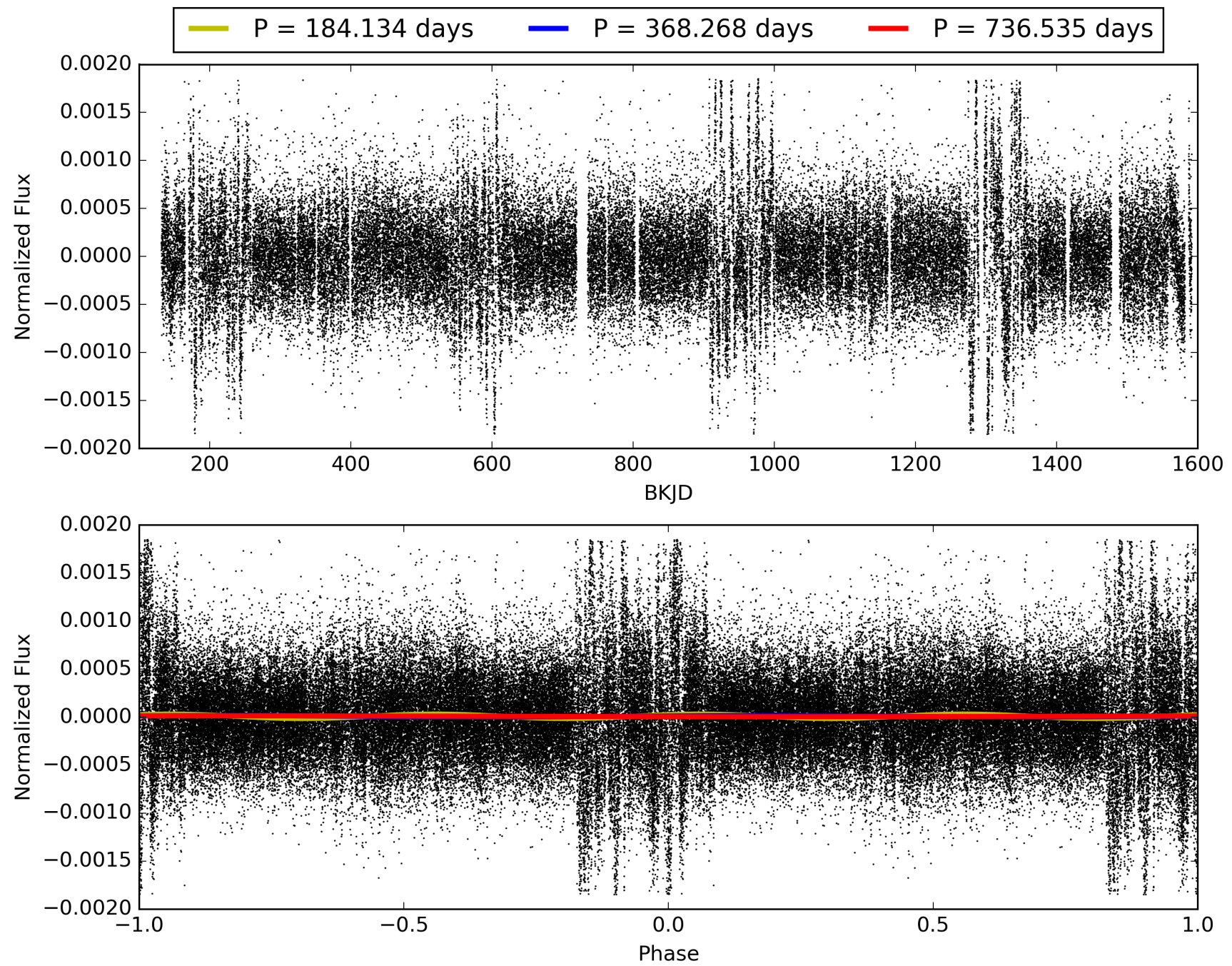
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:45:55 Z

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

# TCE 007970484-01, PDC Light Curves

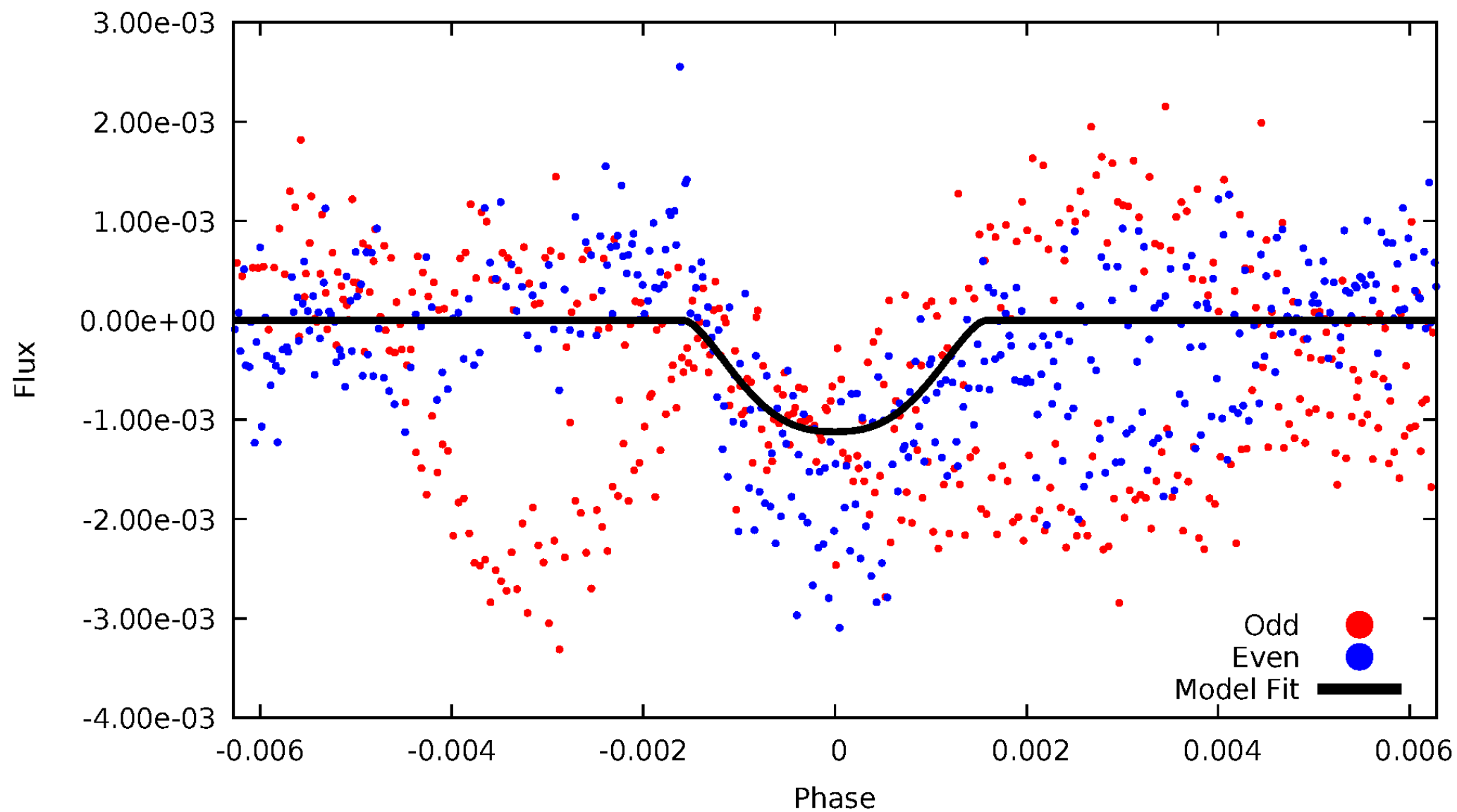


TCE 007970484-01



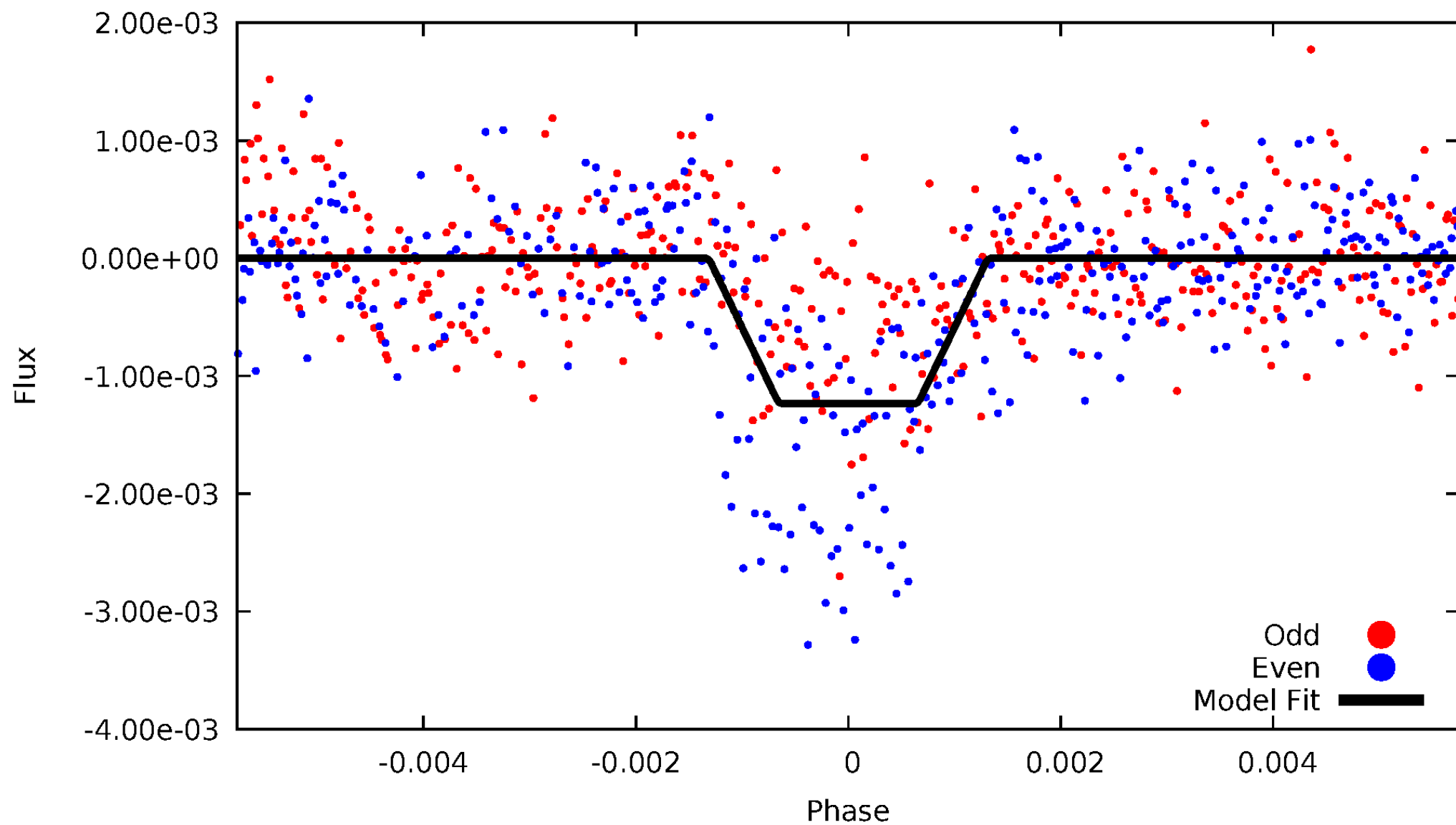
# DV Odd/Even

TCE 007970484-01



# ALT Odd/Even

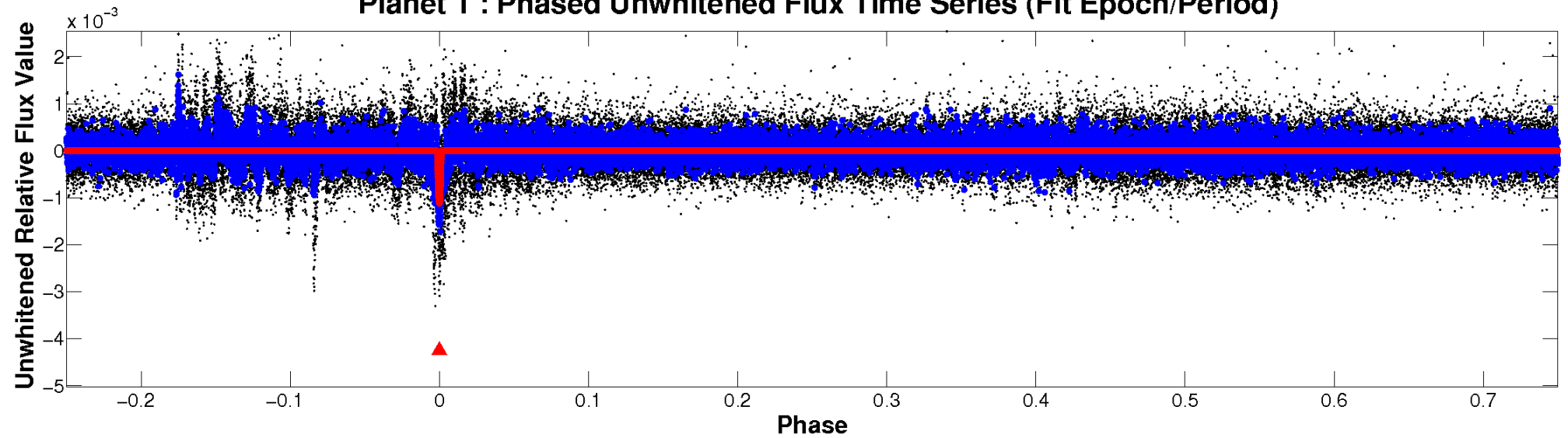
TCE 007970484-01



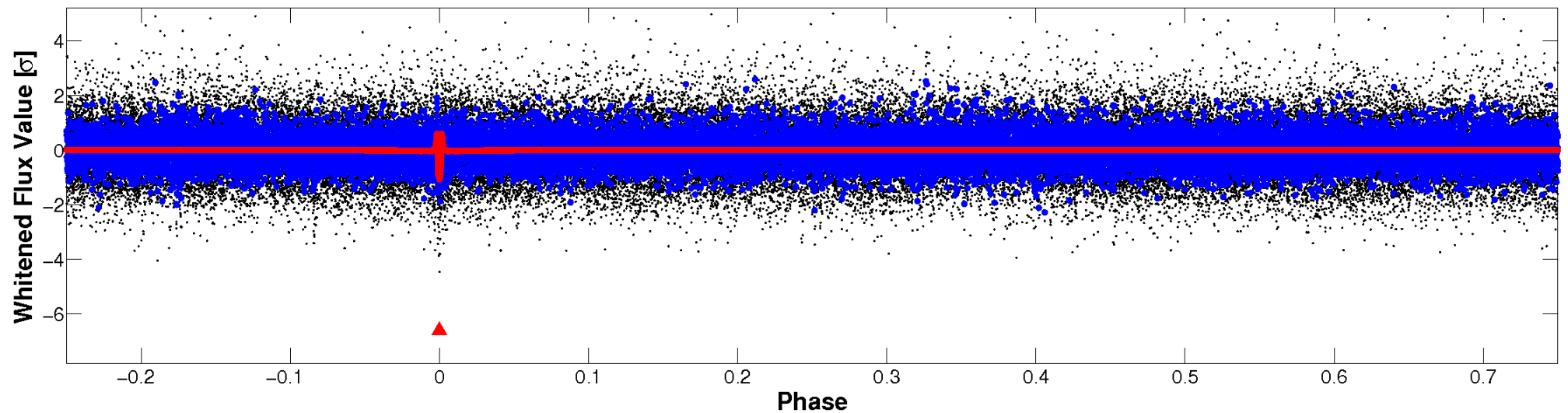


# Non-Whitened Vs. Whitened Light Curve

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

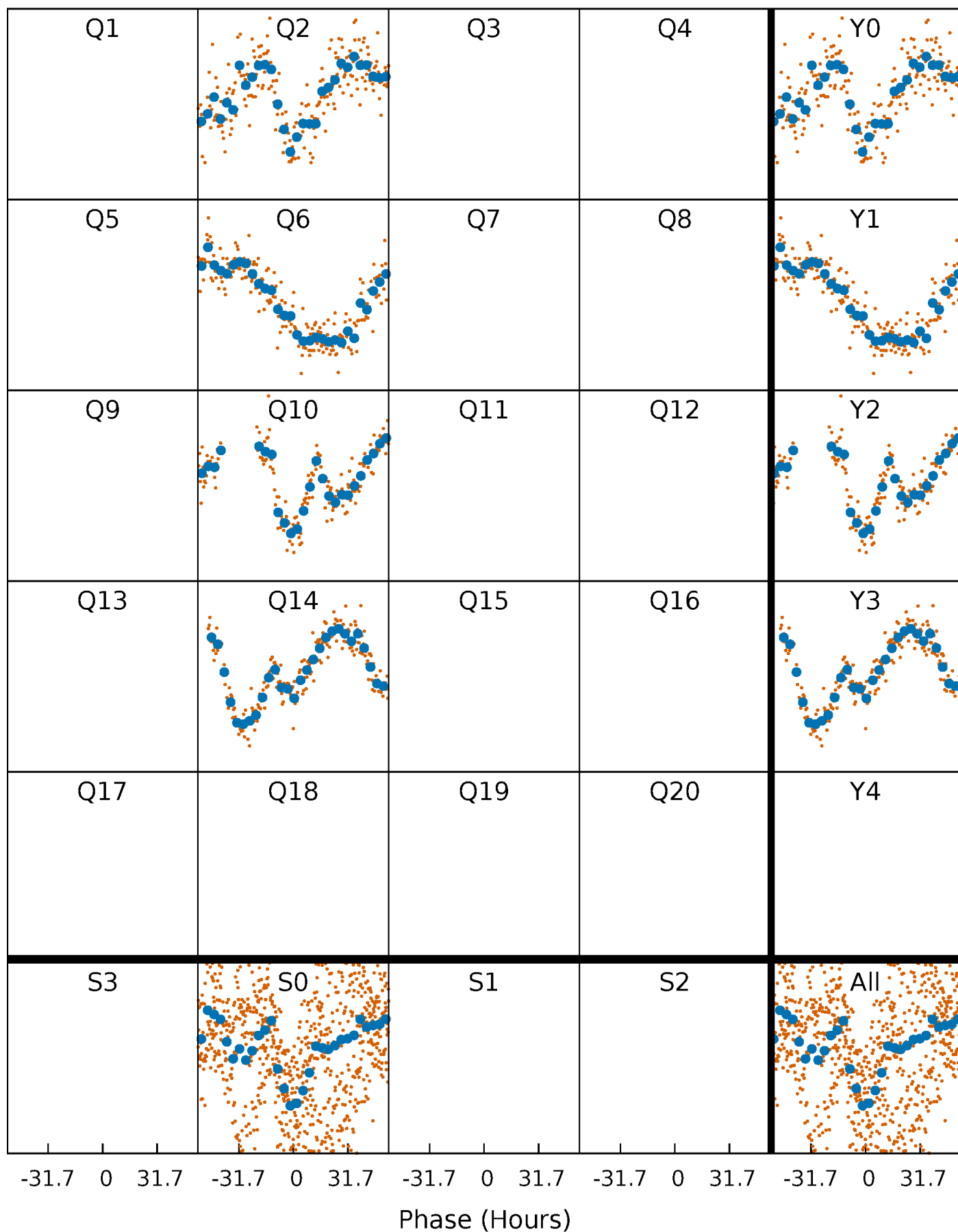


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

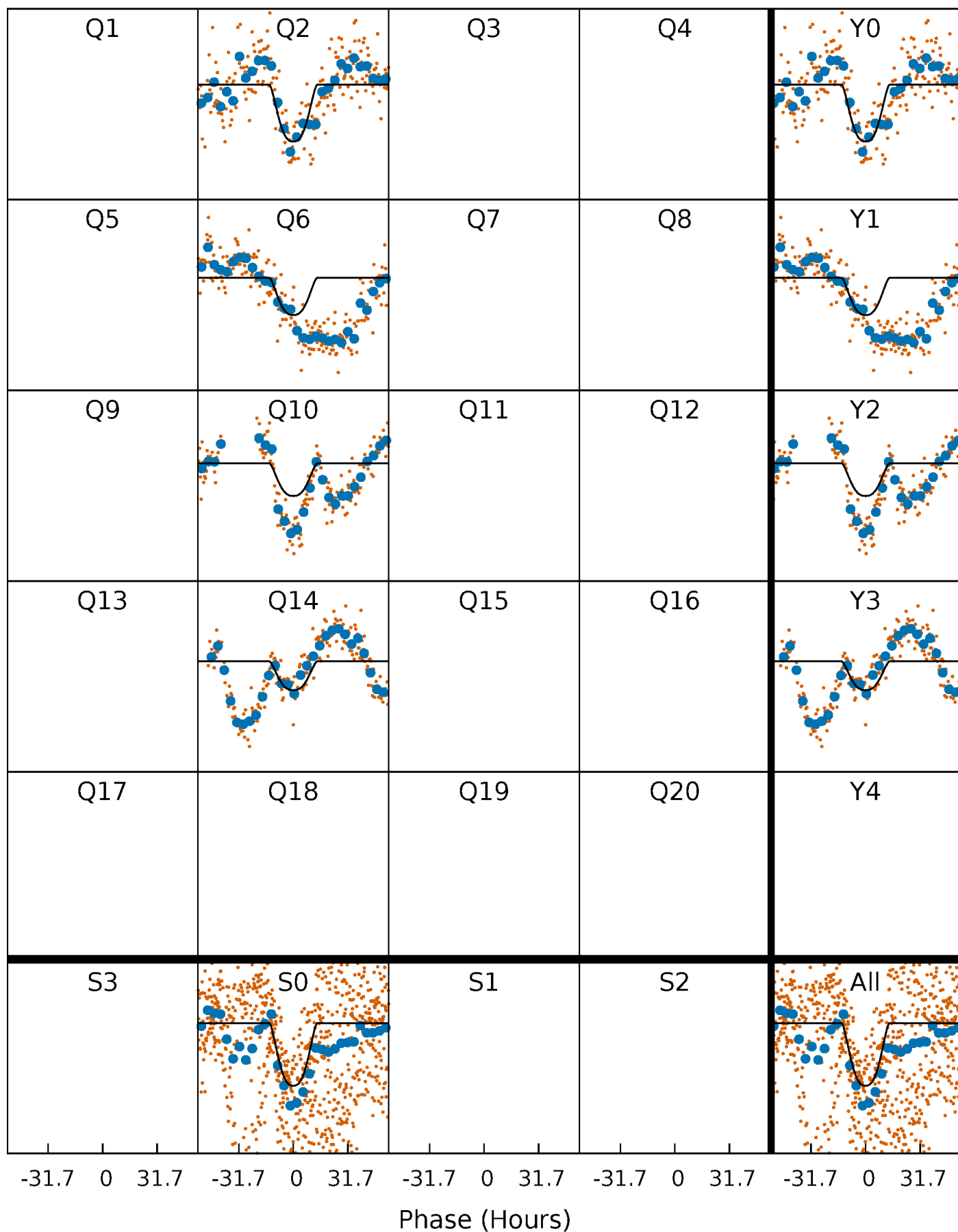
TCE 007970484-01 P=368.267564 Days  $T_0=234.456122$  (BKJD)





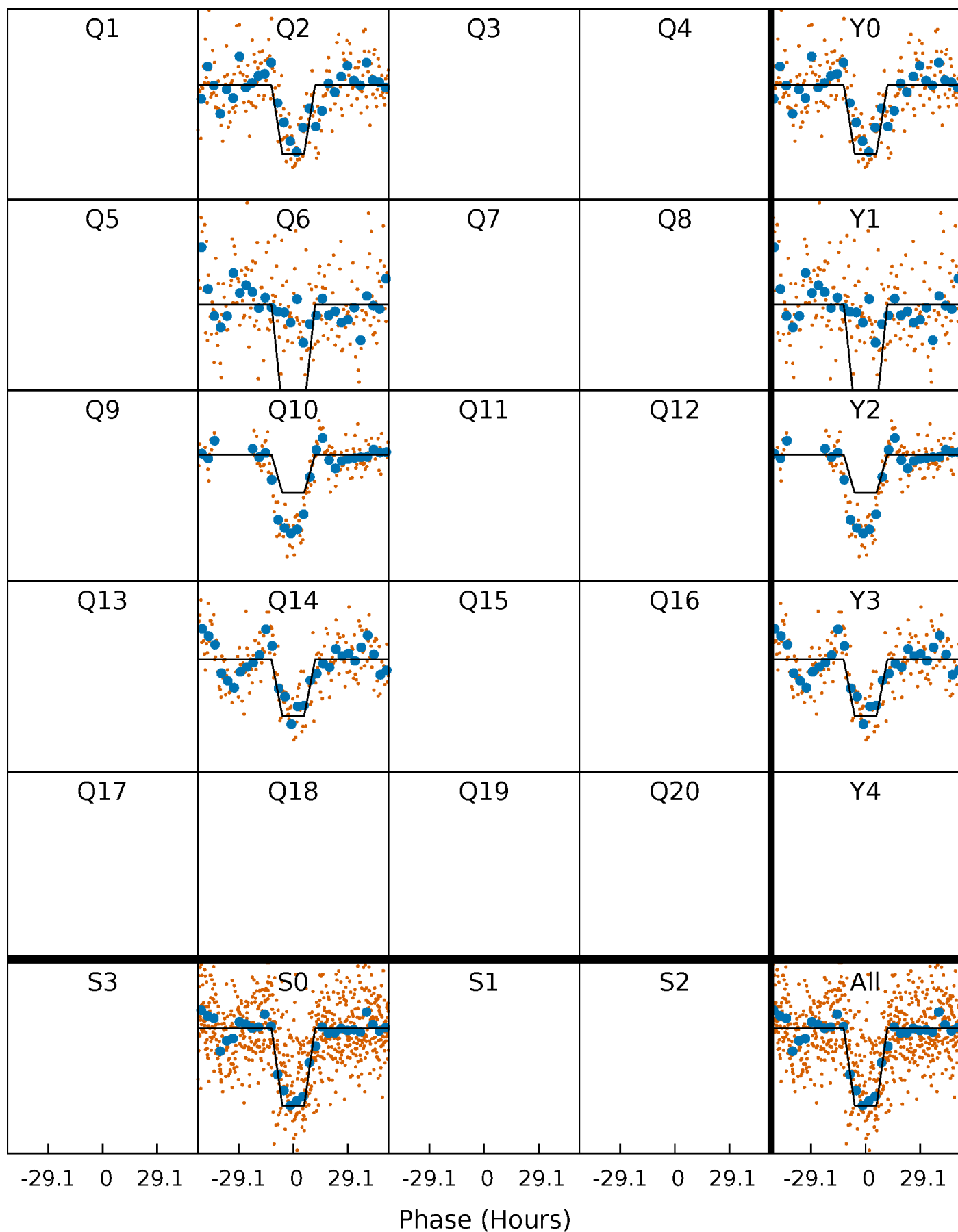
# DV Quarter-Phased Transit Curves

TCE 007970484-01 P=368.267564 Days  $T_0=234.456122$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

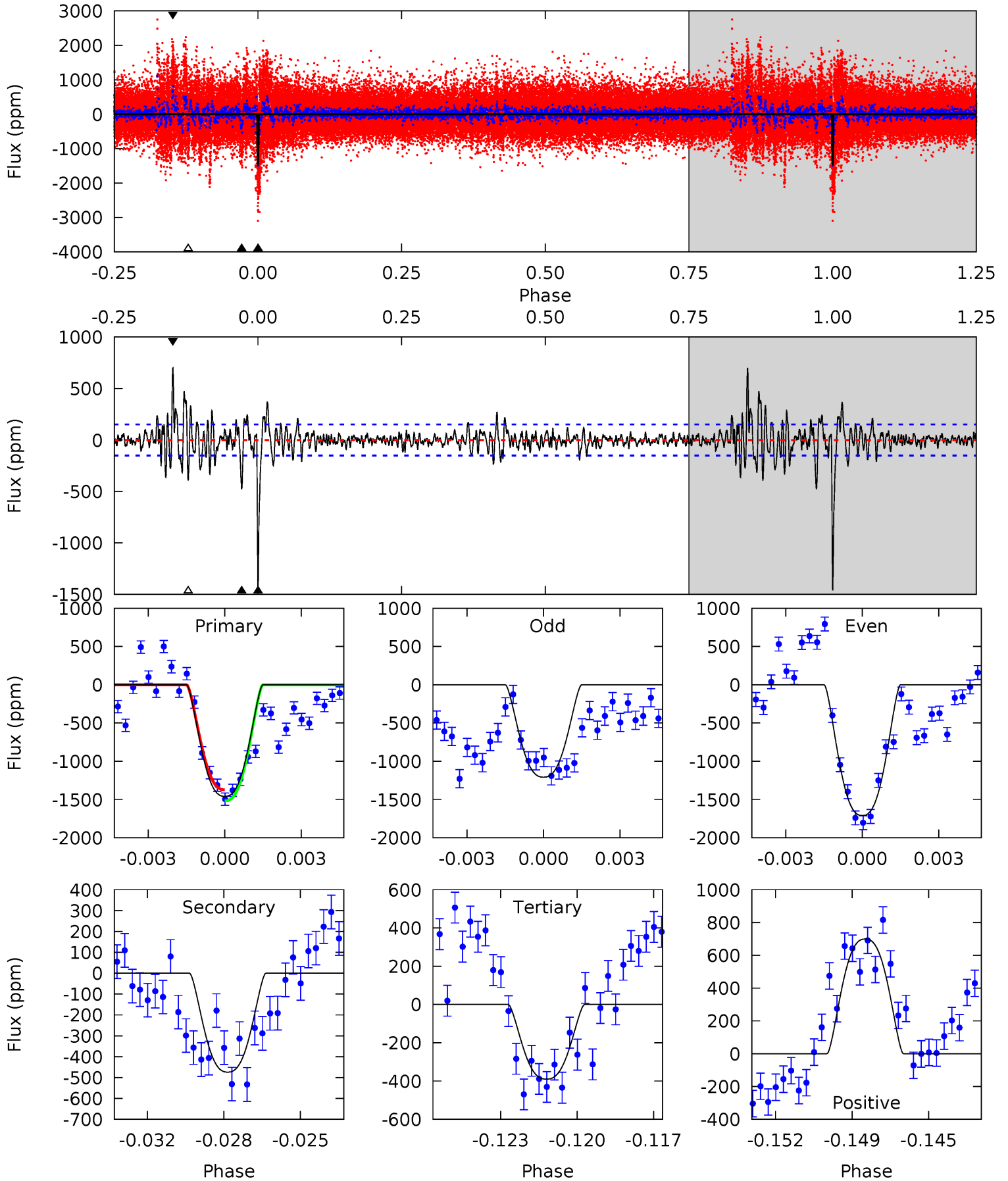
TCE 007970484-01 P=368.308108 Days  $T_0=234.368503$  (BKJD)



# DV Model-Shift Uniqueness Test

007970484-01, P = 368.267564 Days, E = 234.456122 Days

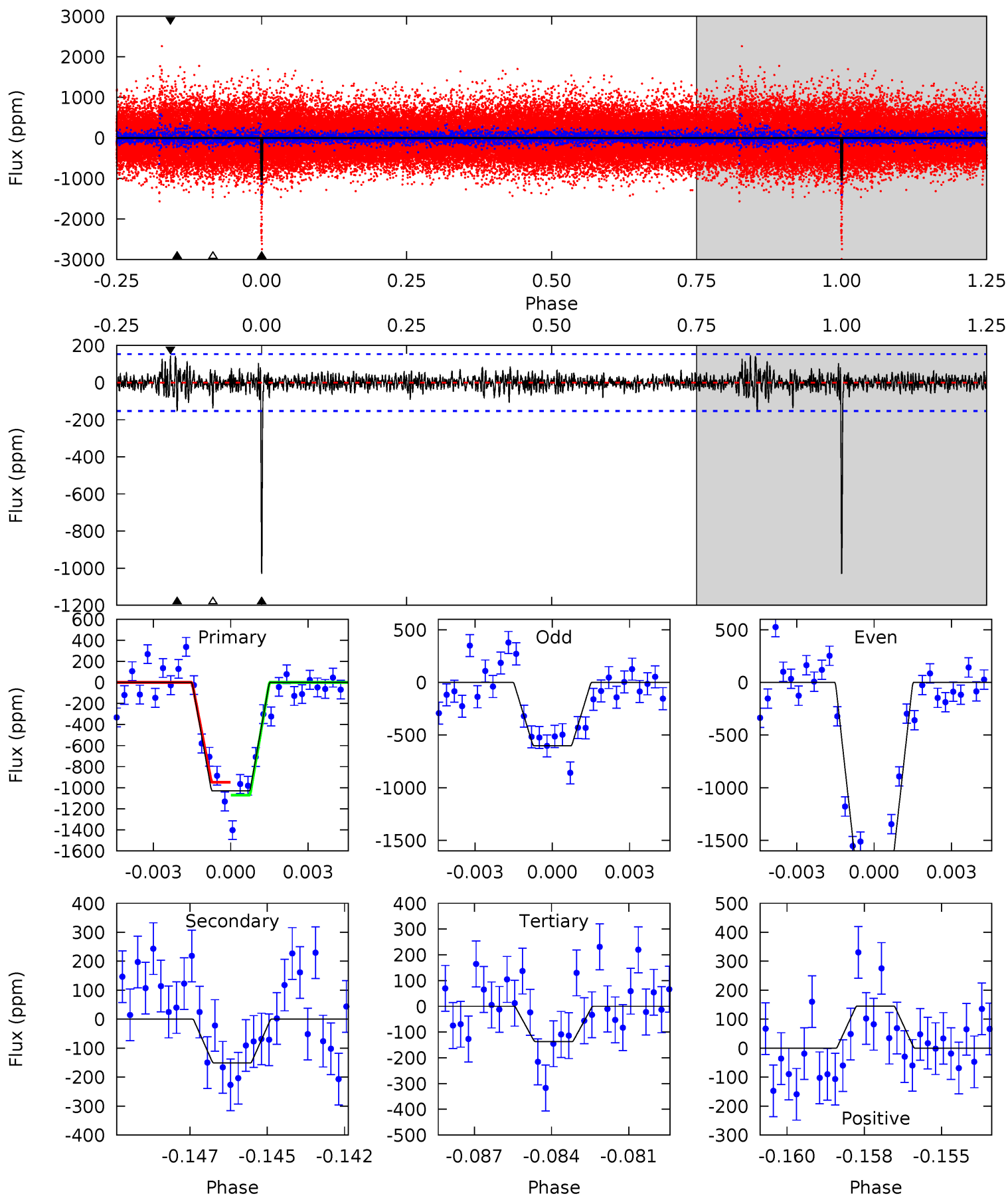
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
50.5	16.4	13.5	24.2	5.24	2.95	3.37	37.0	26.3	2.91	-7.81	8.65	1.10	0.32	2.51



# Alt Model-Shift Uniqueness Test

007970484-01, P = 368.308108 Days, E = 234.368503 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
35.4	5.18	4.70	4.98	5.28	3.01	0.98	30.7	30.4	0.48	0.20	18.8	1.16	0.12	2.08



### Stellar Parameters For KIC 007970484

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5595^{+167}_{-167}$	$4.553^{+0.042}_{-0.158}$	$-0.200^{+0.300}_{-0.300}$	$0.821^{+0.196}_{-0.070}$	$0.879^{+0.100}_{-0.091}$	$2.237^{+0.482}_{-0.989}$
	+3%/-3%	+1%/-3%	+150%/-150%	+24%/-9%	+11%/-10%	+22%/-44%
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 007970484-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-474 \pm 29$	$3.77^{+0.53}_{-0.49}$	$325^{+20}_{-15}$	$4323^{+215}_{-188}$	$16933^{+4839}_{-3809}$
Alt.	$-151 \pm 29$	$3.25^{+0.52}_{-0.40}$	$325^{+18}_{-14}$	$3706^{+208}_{-197}$	$6976^{+2803}_{-2069}$

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

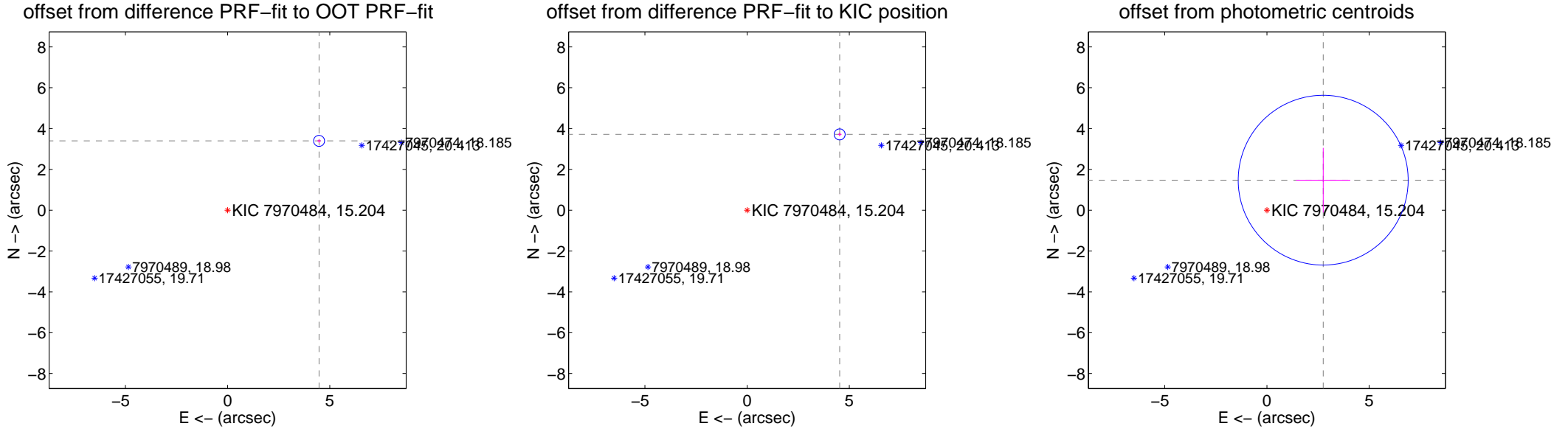
## DV Centroid Data

Supplemental centroid analysis for 007970484-01. Kepler magnitude: 15.20. Transit SNR 11.02

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

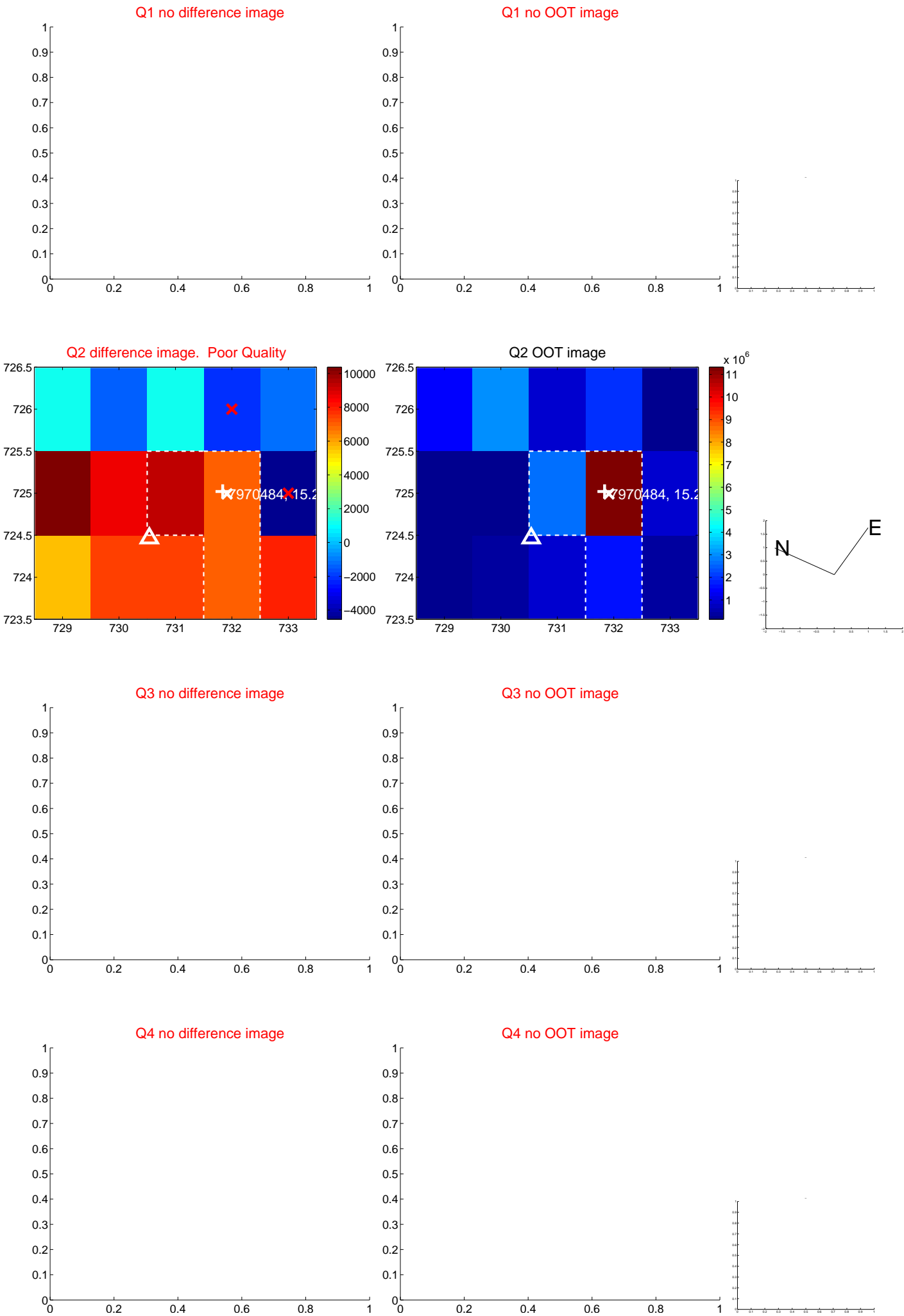
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	5.618 $\pm$ 0.090	62.52	-4.476 $\pm$ 0.091	3.396 $\pm$ 0.088
PRF-fit source offset from KIC position	5.856 $\pm$ 0.090	65.24	-4.528 $\pm$ 0.091	3.713 $\pm$ 0.088
photometric centroid source offset	3.12 $\pm$ 1.39	2.25	-2.75 $\pm$ 1.32	1.47 $\pm$ 1.58



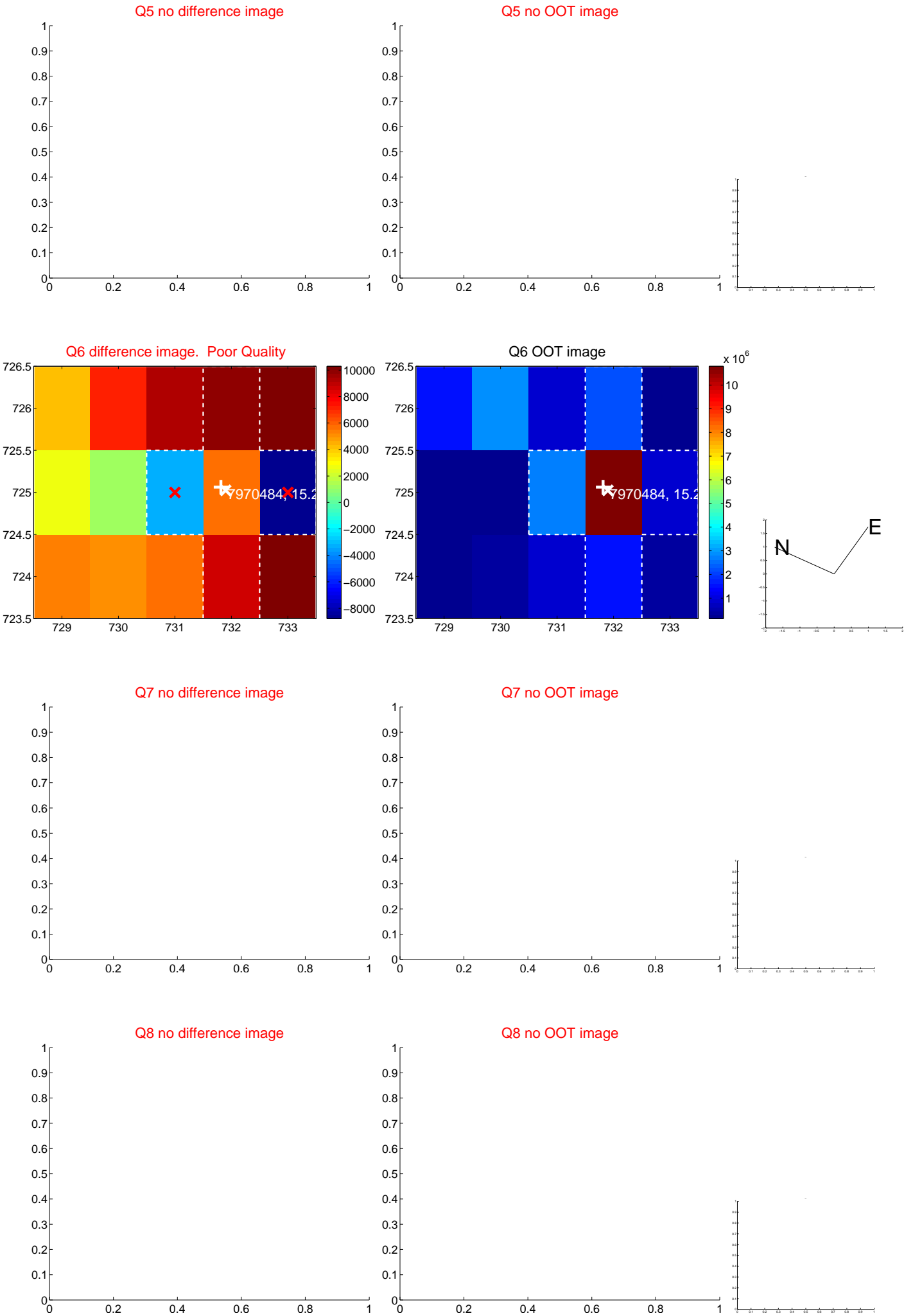
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



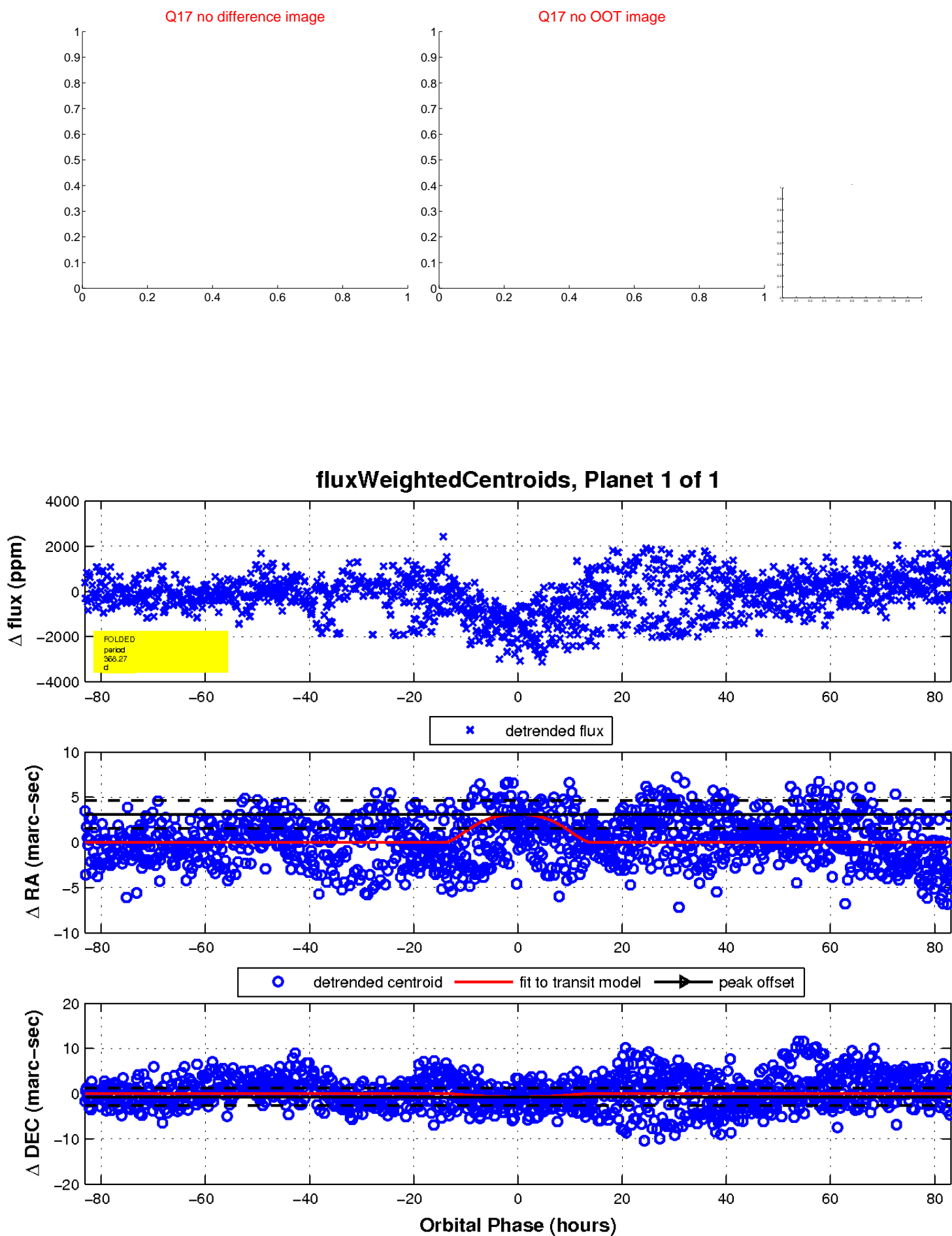
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

