

# KIC 007971912

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007971912-01	OBS	No	369.031614	232.969010	438.5	15.596	10.7	11.4	0.99	6217	2.26	1.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007971912-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—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.

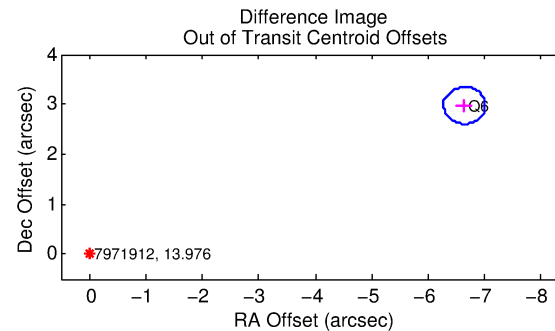
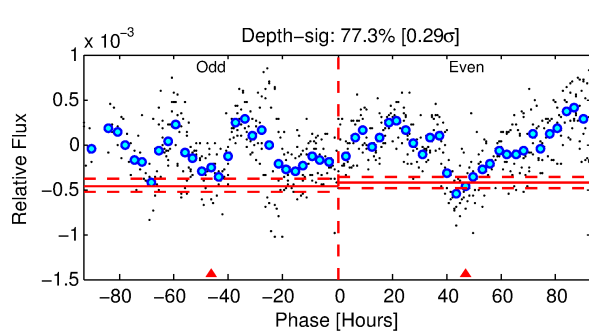
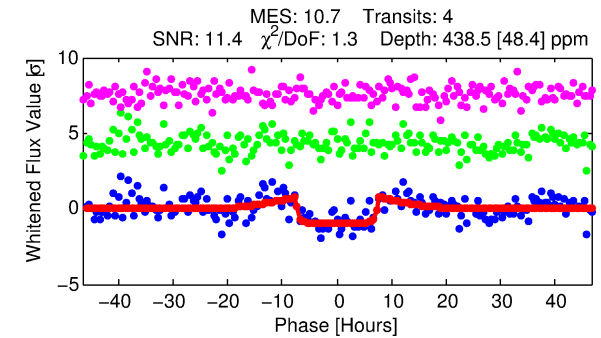
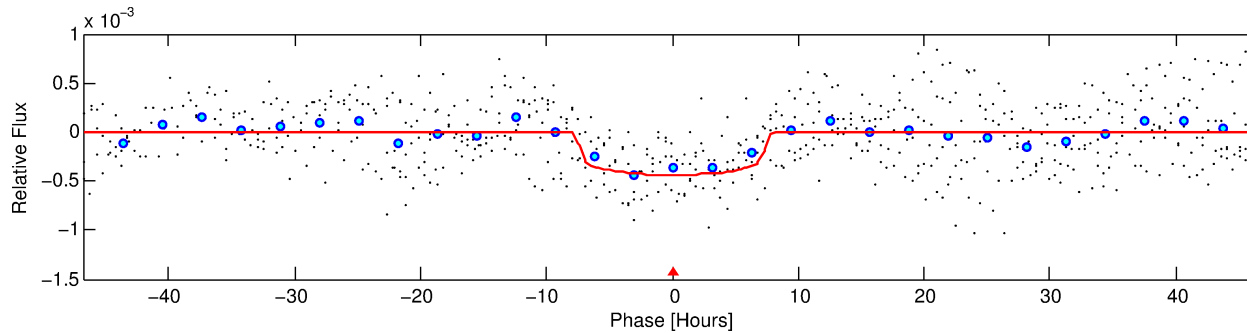
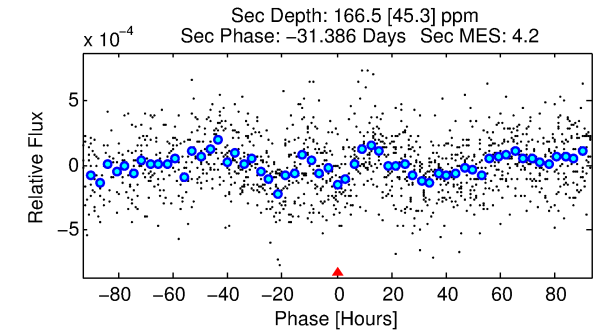
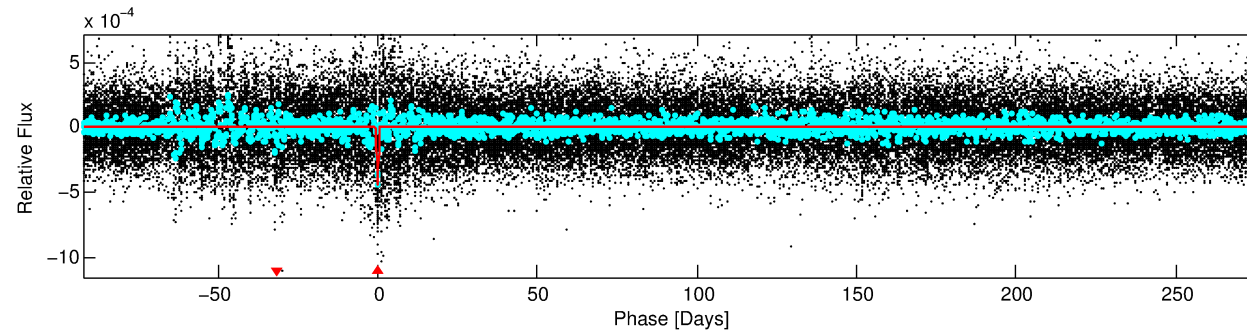
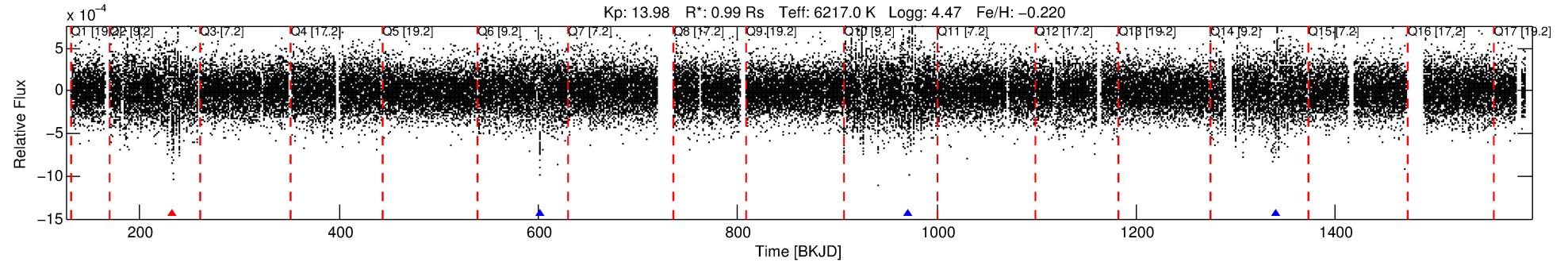
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007971912-01

No Significant Match Found

# DV One-Page Summary

KIC: 7971912 Candidate: 1 of 1 Period: 369.032 d



## DV Fit Results:

Period = 369.03161 [0.00726] d  
Epoch = 232.9690 [0.0134] BKJD  
Rp/R\* = 0.0210 [0.0034]  
a/R\* = 120.89 [92.51]  
b = 0.77 [0.40]  
Seff = 1.24 [0.50]  
Teq = 269 [27] K  
Rp = 2.26 [0.79] Re  
a = 1.0261 [0.2671] AU  
Ag = 18815.60 [10710.18] [1.76σ]  
Teffp = 4876 [542] K [8.50σ]

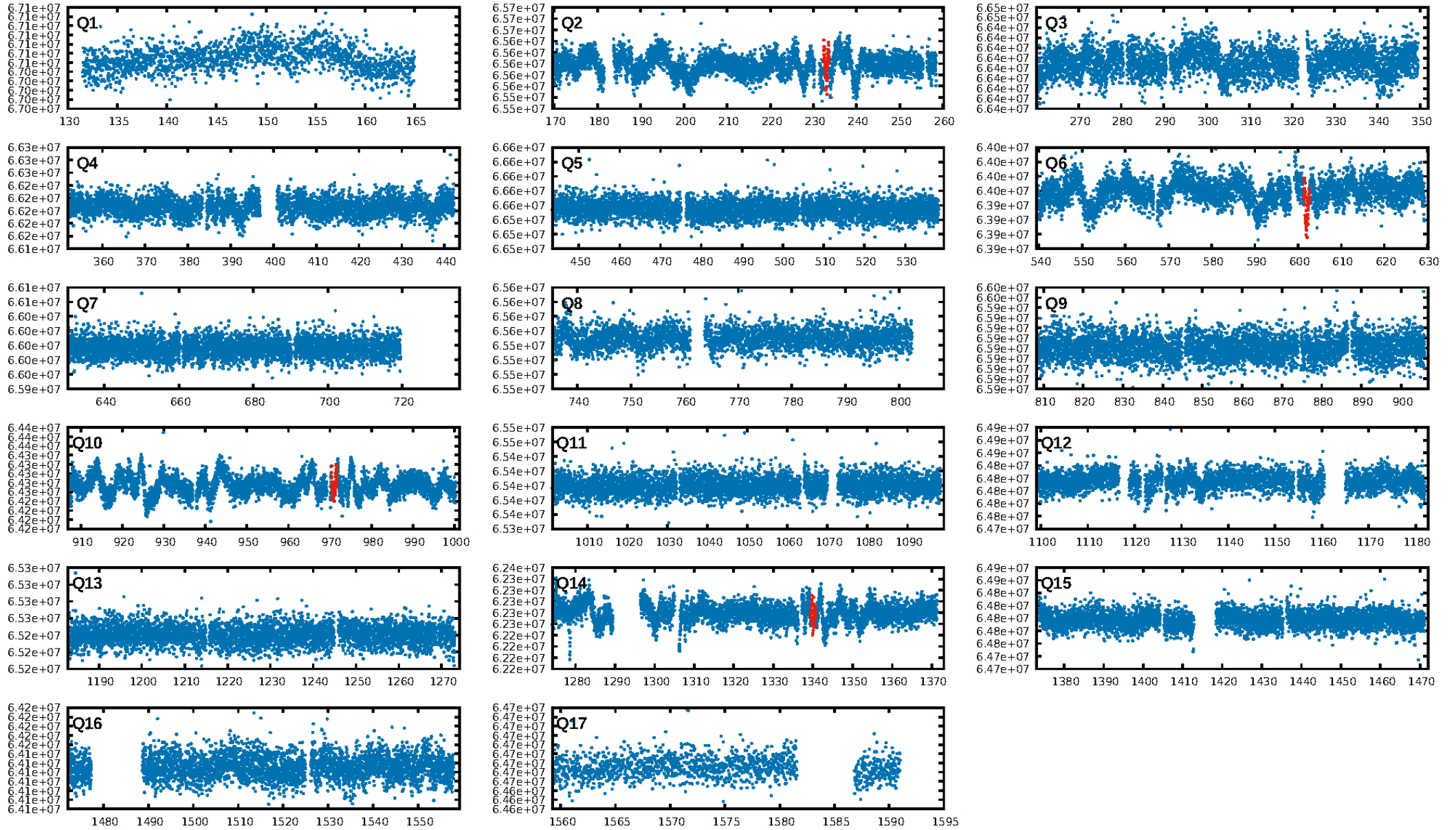
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 7.4%  
ModelChiSquareGof-sig: 94.8%  
Bootstrap-pfa: 4.06e-15  
RollingBand-fgt: 0.75 [3/4]  
GhostDiagnostic-chr: 1.159  
Centroid-sig: 0.0%  
Centroid-so: 6.363 arcsec [3.84σ]  
OotOffset-rm: 7.275 arcsec [59.25σ]  
KicOffset-rm: 7.347 arcsec [59.76σ]  
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]

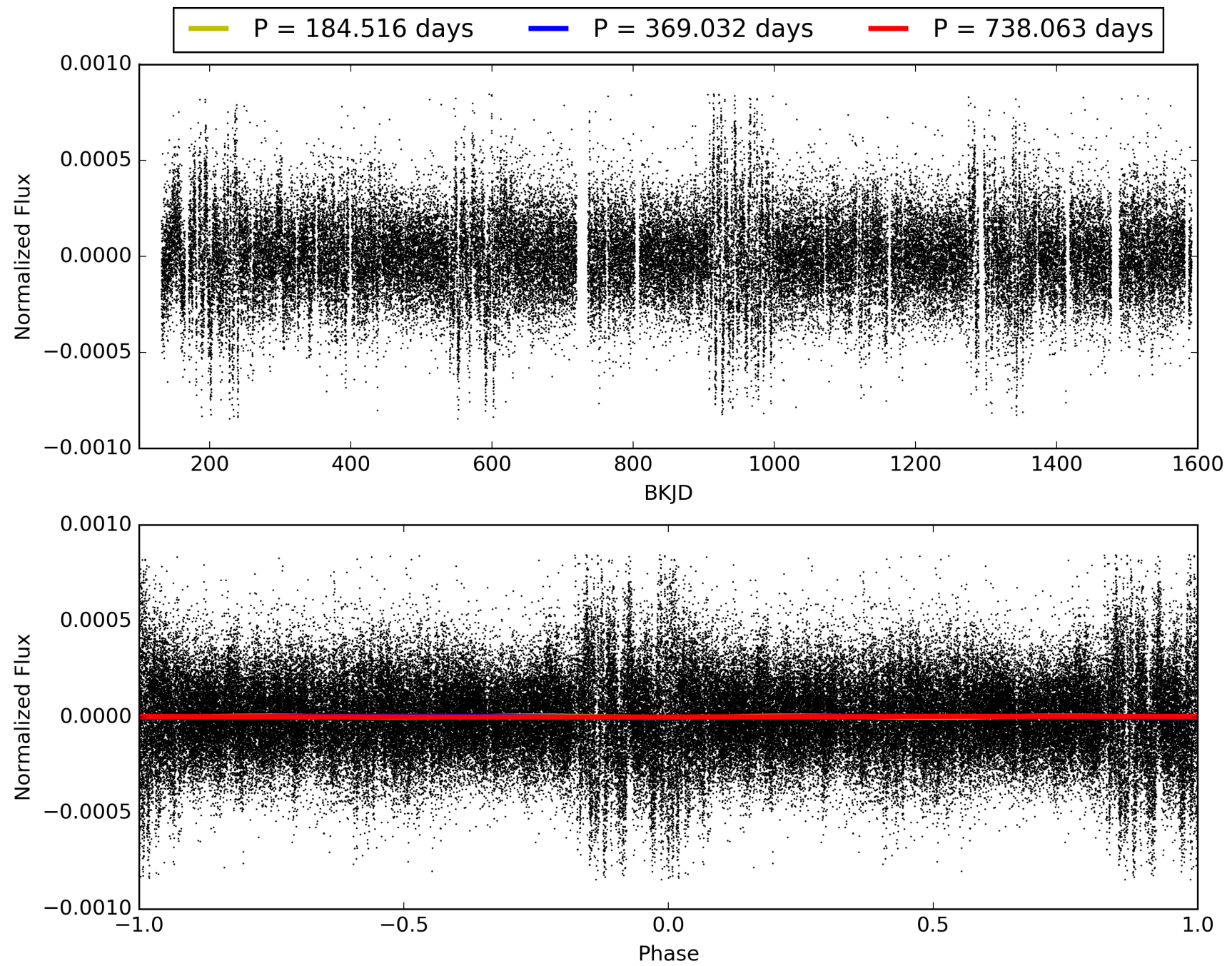
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:58:23 Z

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

# TCE 007971912-01, PDC Light Curves

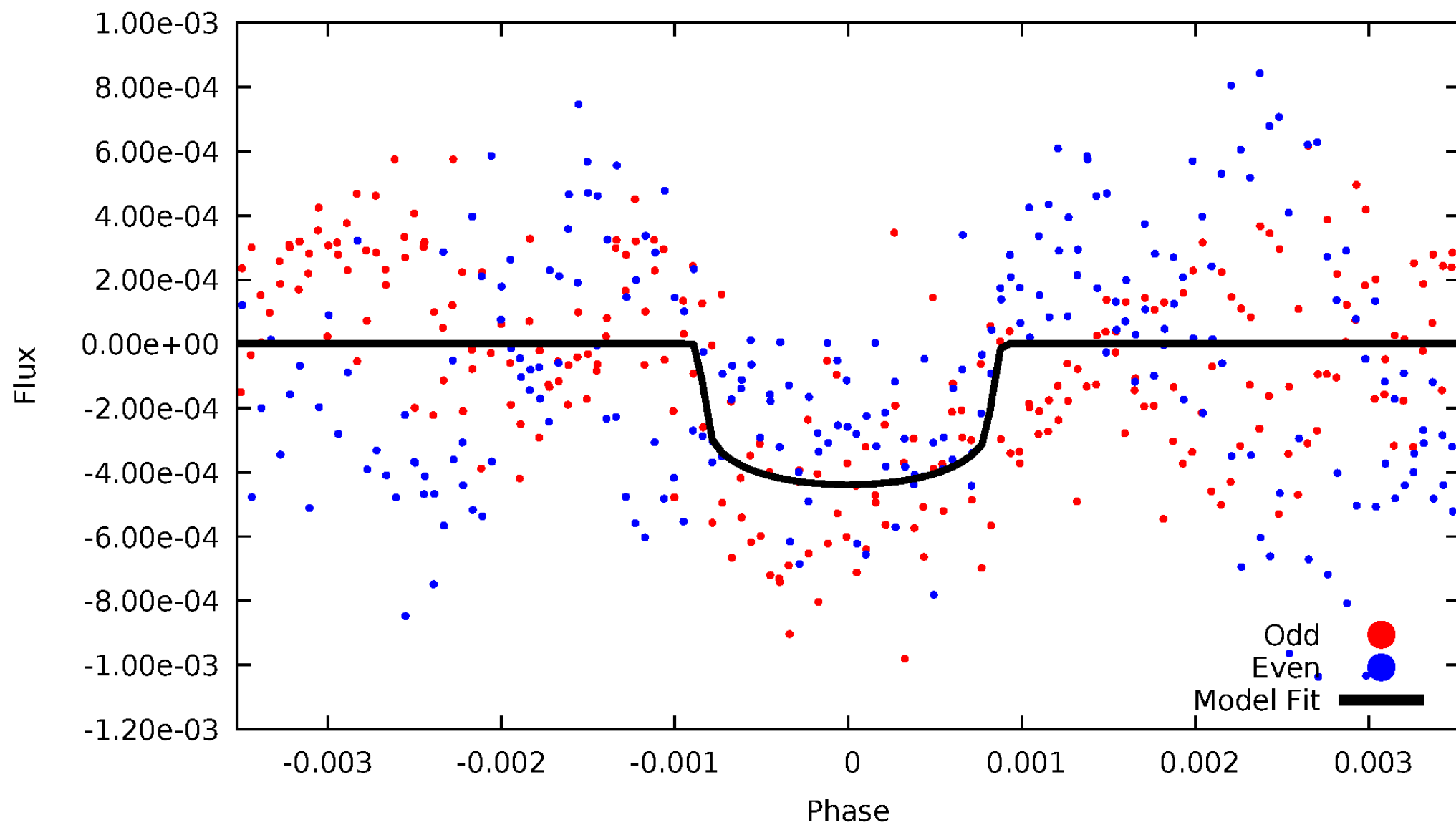


TCE 007971912-01



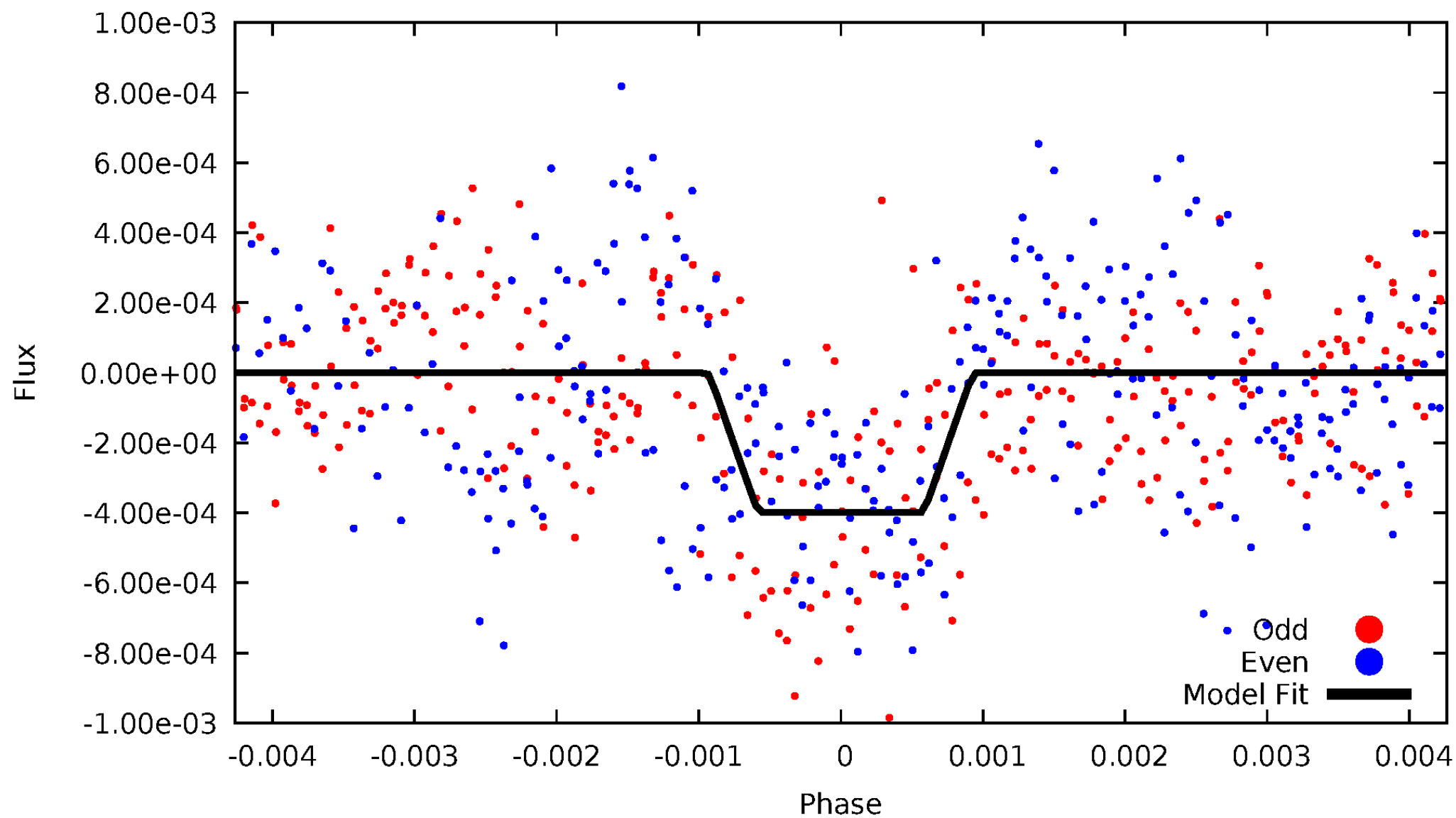
# DV Odd/Even

TCE 007971912-01



# ALT Odd/Even

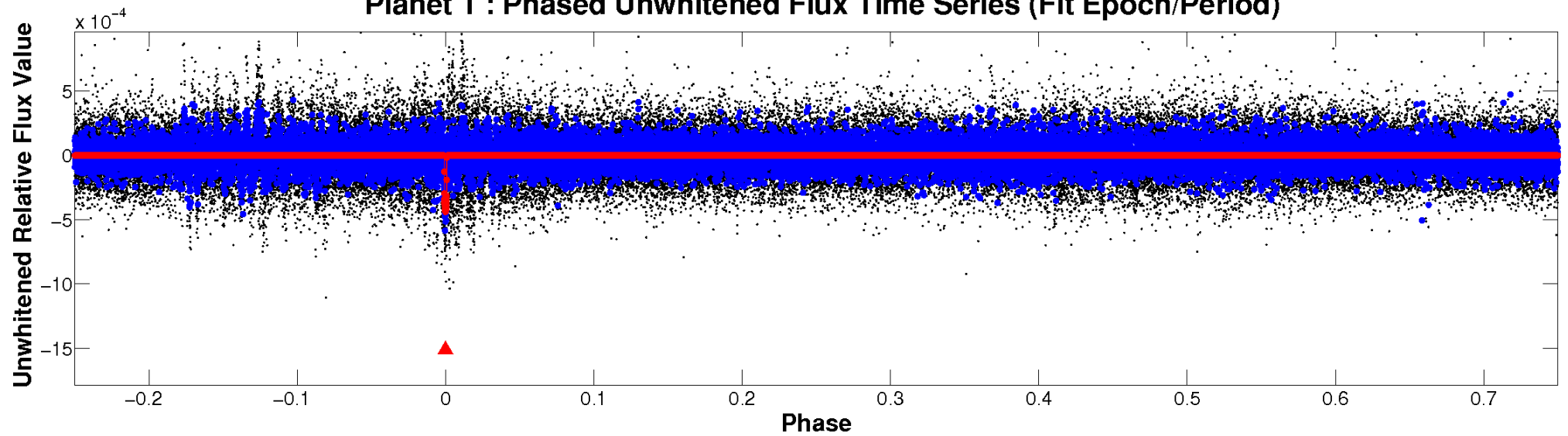
TCE 007971912-01



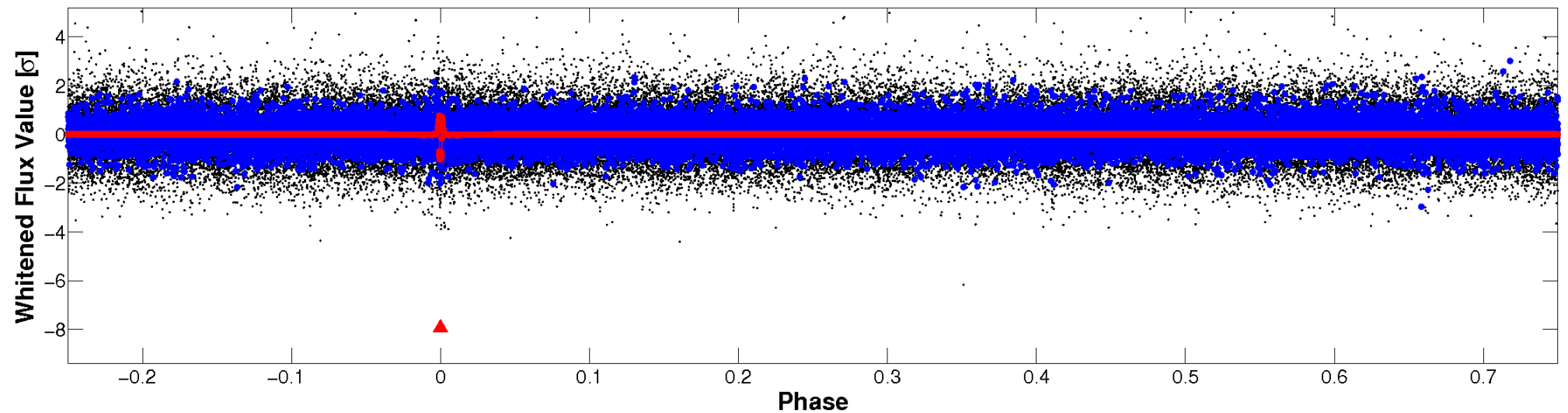


# Non-Whitened Vs. Whitened Light Curve

**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

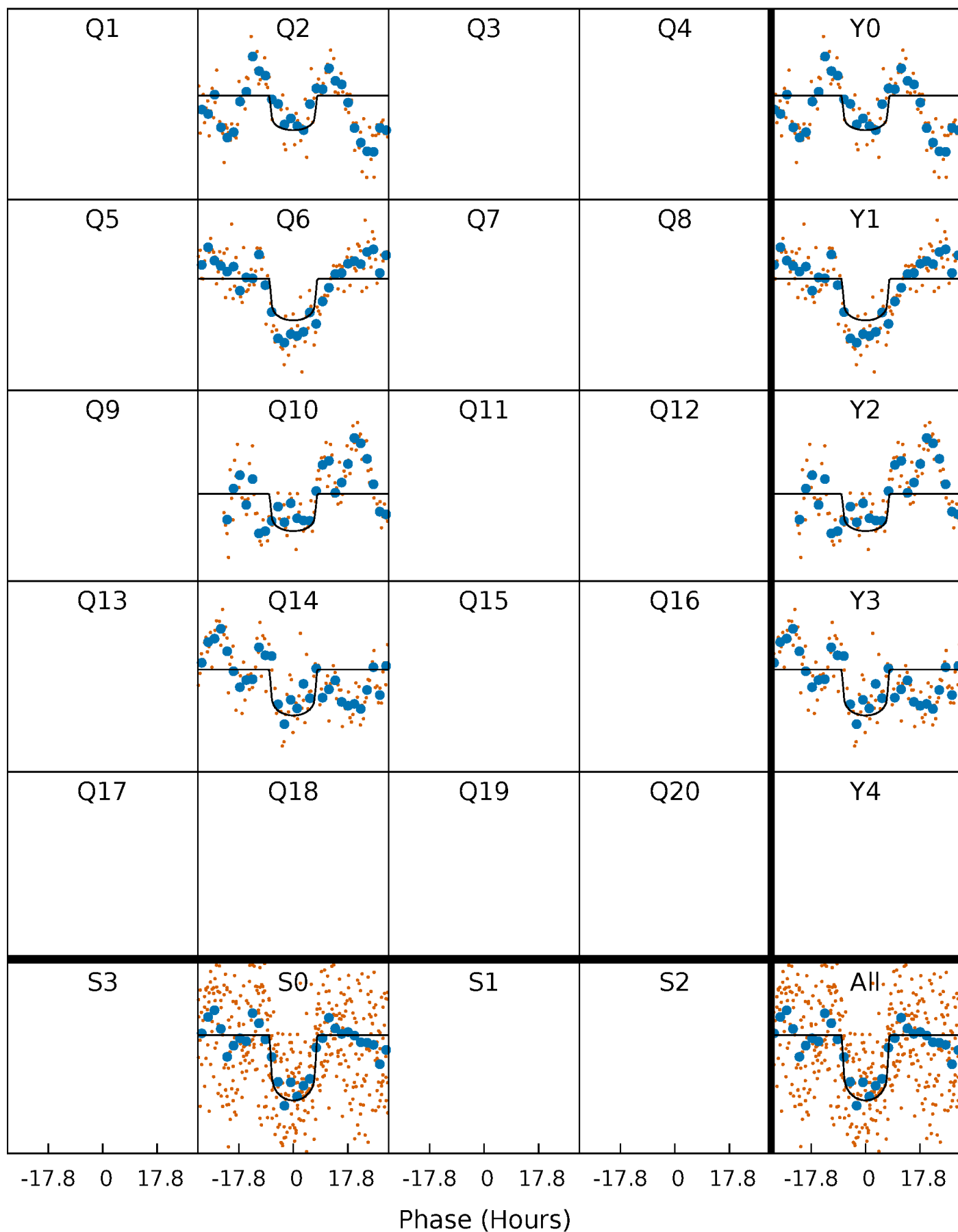
TCE 007971912-01 P=369.031614 Days  $T_0=232.969010$  (BKJD)





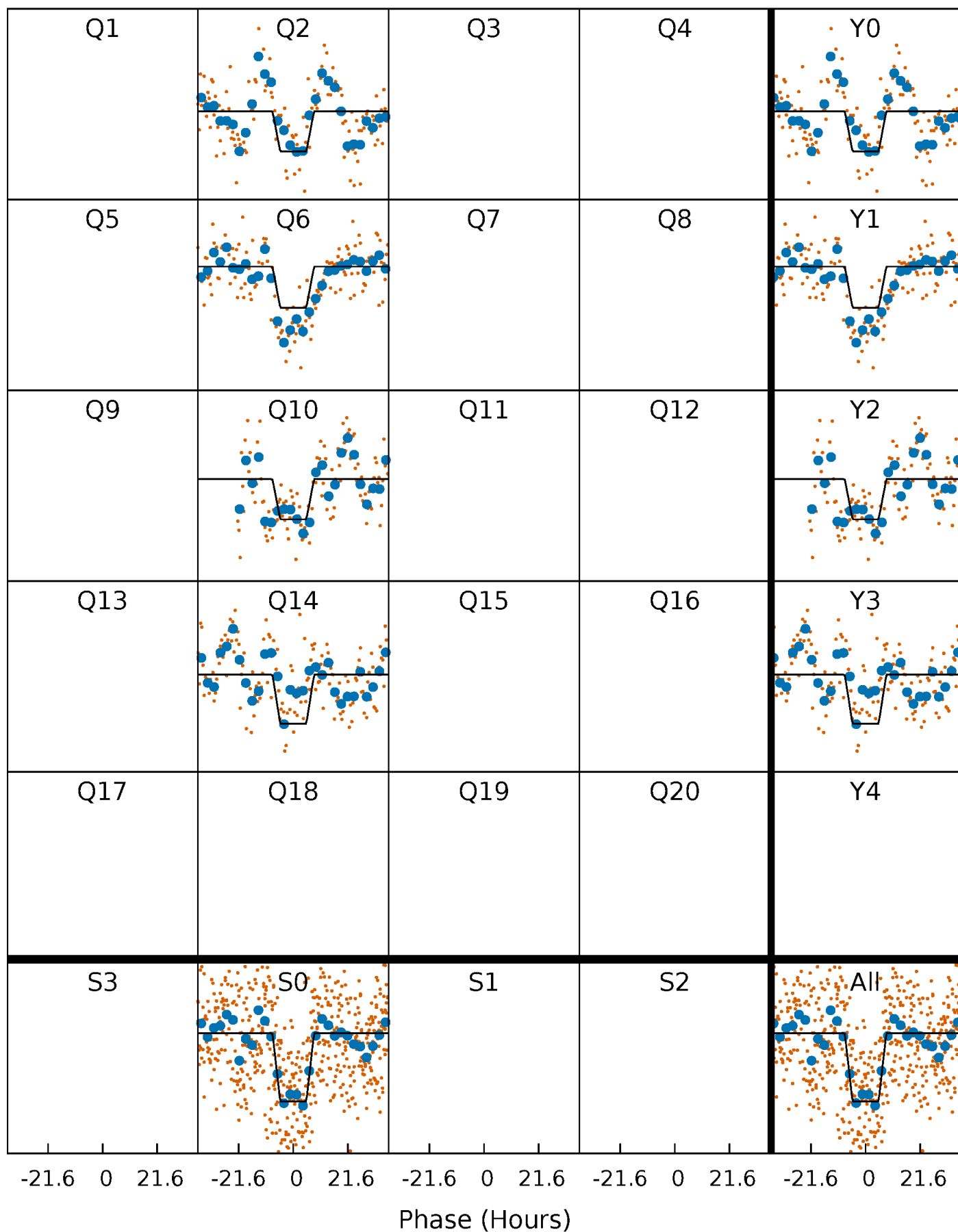
# DV Quarter-Phased Transit Curves

TCE 007971912-01 P=369.031614 Days  $T_0=232.969010$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

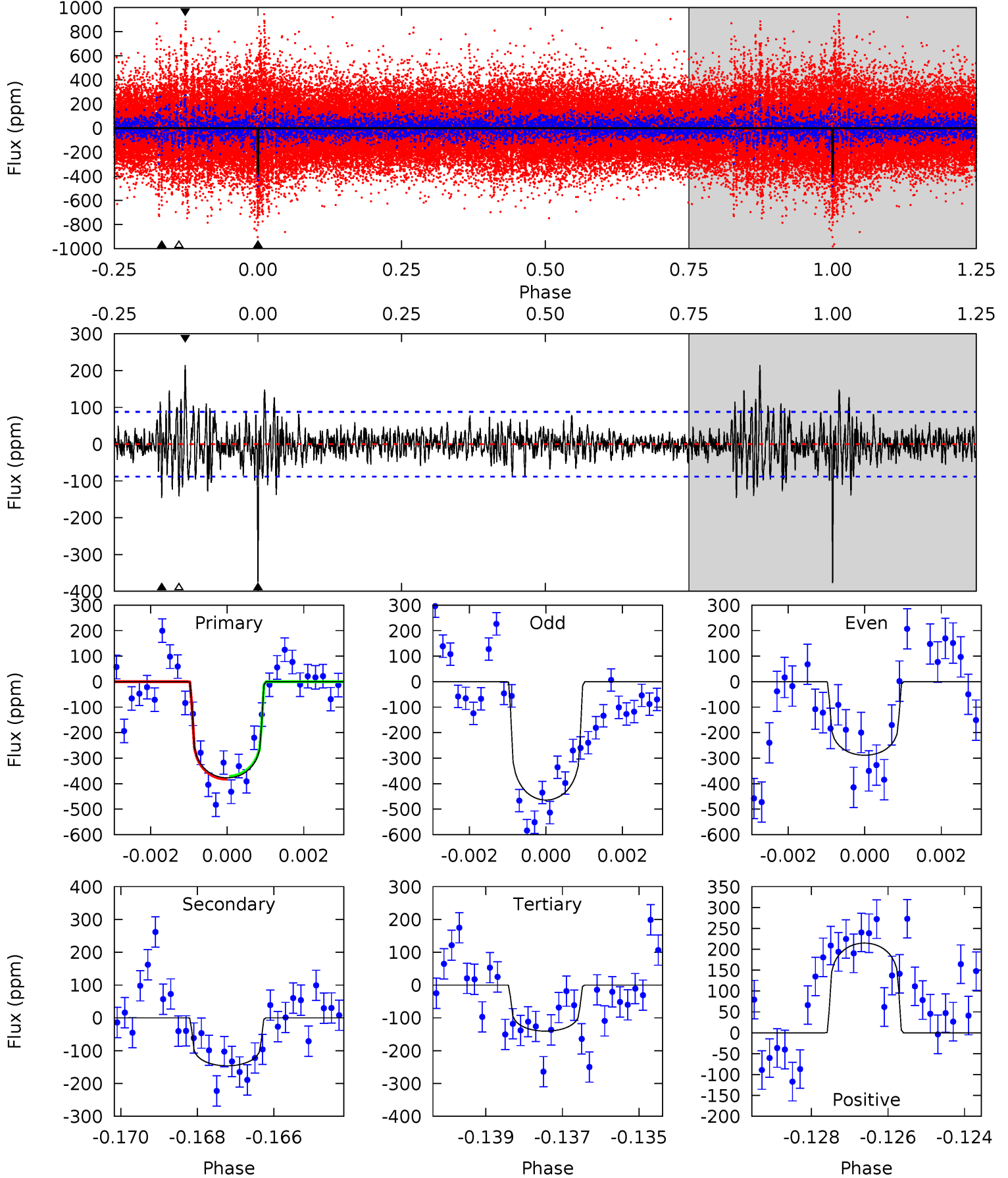
TCE 007971912-01 P=369.030094 Days  $T_0=232.965125$  (BKJD)



# DV Model-Shift Uniqueness Test

007971912-01, P = 369.031614 Days, E = 232.969010 Days

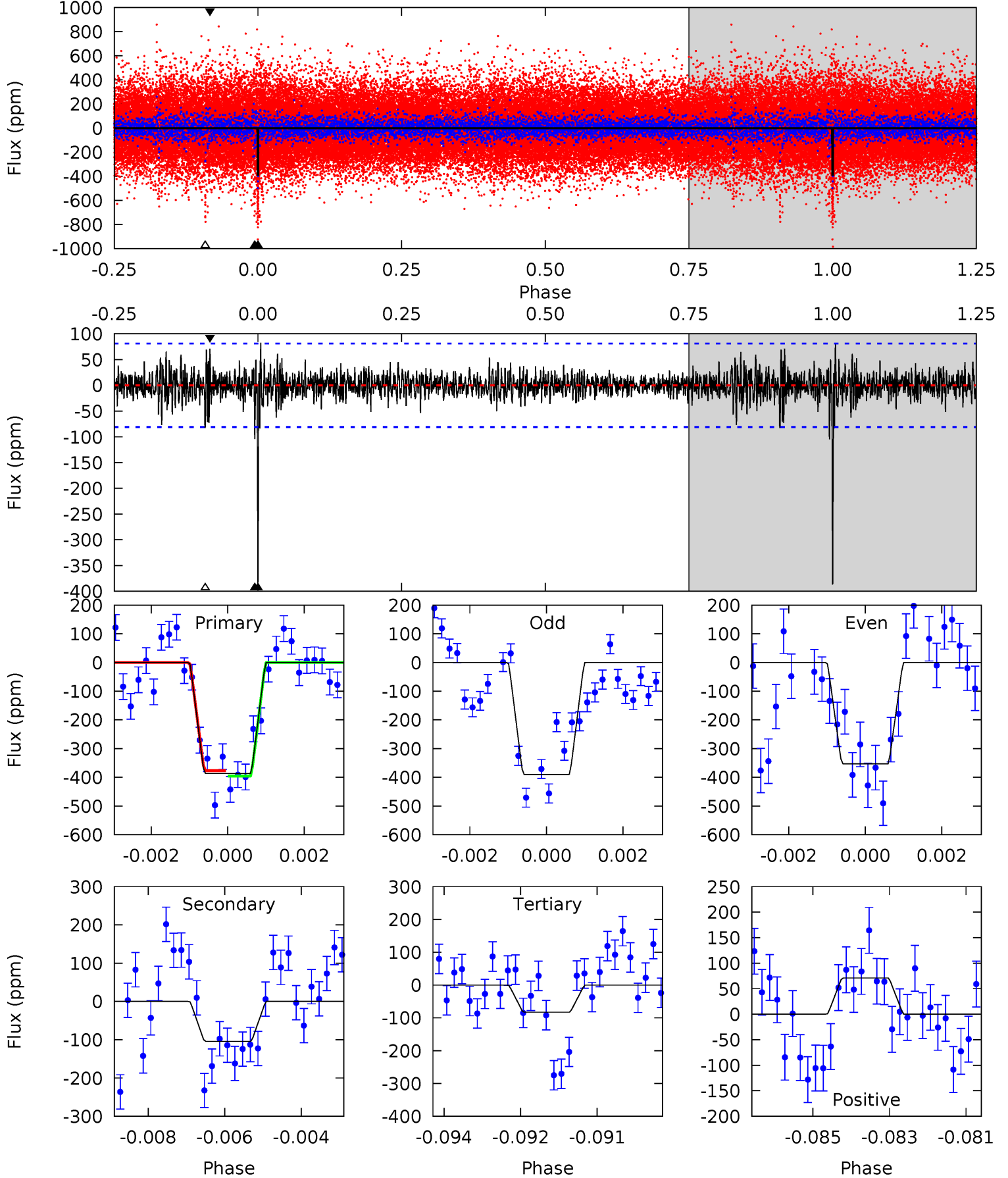
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	8.86	8.52	13.0	5.34	3.12	2.01	14.4	9.85	0.35	-4.16	5.33	1.25	0.36	0.35



# Alt Model-Shift Uniqueness Test

007971912-01, P = 369.030094 Days, E = 232.965125 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
25.5	6.87	5.45	4.67	5.34	3.11	1.16	20.0	20.8	1.42	2.20	1.22	1.07	0.18	0.62



### Stellar Parameters For KIC 007971912

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6217^{+169}_{-206}$	$4.472^{+0.052}_{-0.208}$	$-0.220^{+0.300}_{-0.300}$	$0.989^{+0.305}_{-0.102}$	$1.056^{+0.144}_{-0.129}$	$1.540^{+0.419}_{-0.790}$
	+3%/-3%	+1%/-5%	+136%/-136%	+31%/-10%	+14%/-12%	+27%/-51%
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 007971912-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-146 \pm 16$	$2.35^{+0.54}_{-0.41}$	$385^{+26}_{-19}$	$4846^{+407}_{-317}$	$15111^{+7401}_{-4998}$
Alt.	$-104 \pm 15$	$2.25^{+0.53}_{-0.46}$	$383^{+30}_{-18}$	$4606^{+409}_{-325}$	$11616^{+6714}_{-4028}$

$T_{\text{max}}$  = 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

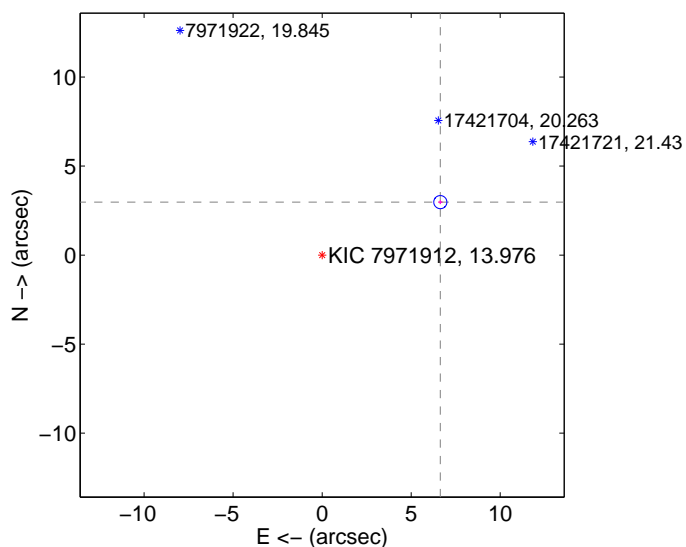
Supplemental centroid analysis for 007971912-01. Kepler magnitude: 13.98. Transit SNR 11.44

There are 0 quarters with good PRF difference image offsets

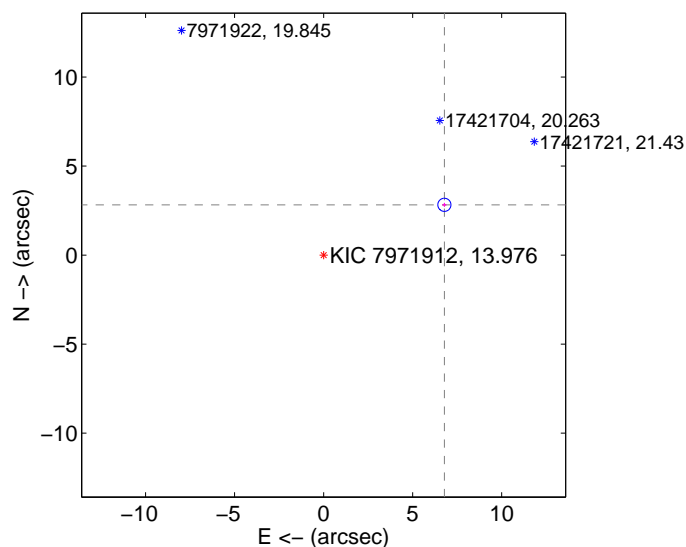
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.275 \pm 0.123$	59.25	$-6.638 \pm 0.124$	$2.976 \pm 0.115$
PRF-fit source offset from KIC position	$7.347 \pm 0.123$	59.76	$-6.783 \pm 0.124$	$2.824 \pm 0.115$
photometric centroid source offset	$6.36 \pm 1.66$	3.84	$-4.53 \pm 1.68$	$-4.47 \pm 1.63$

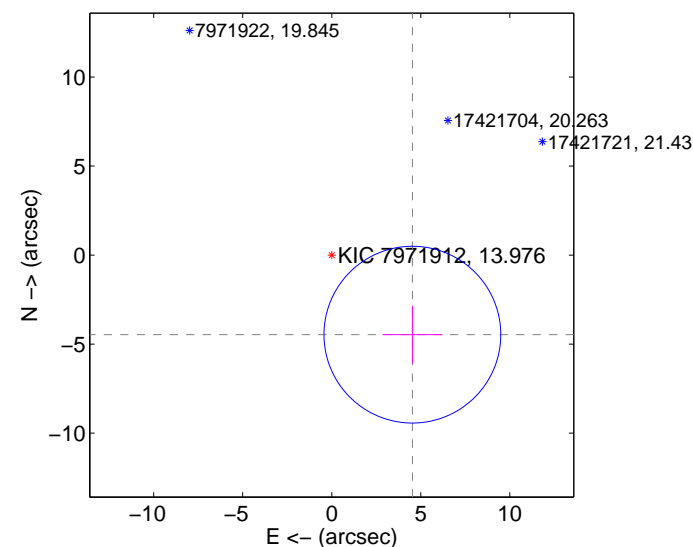
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



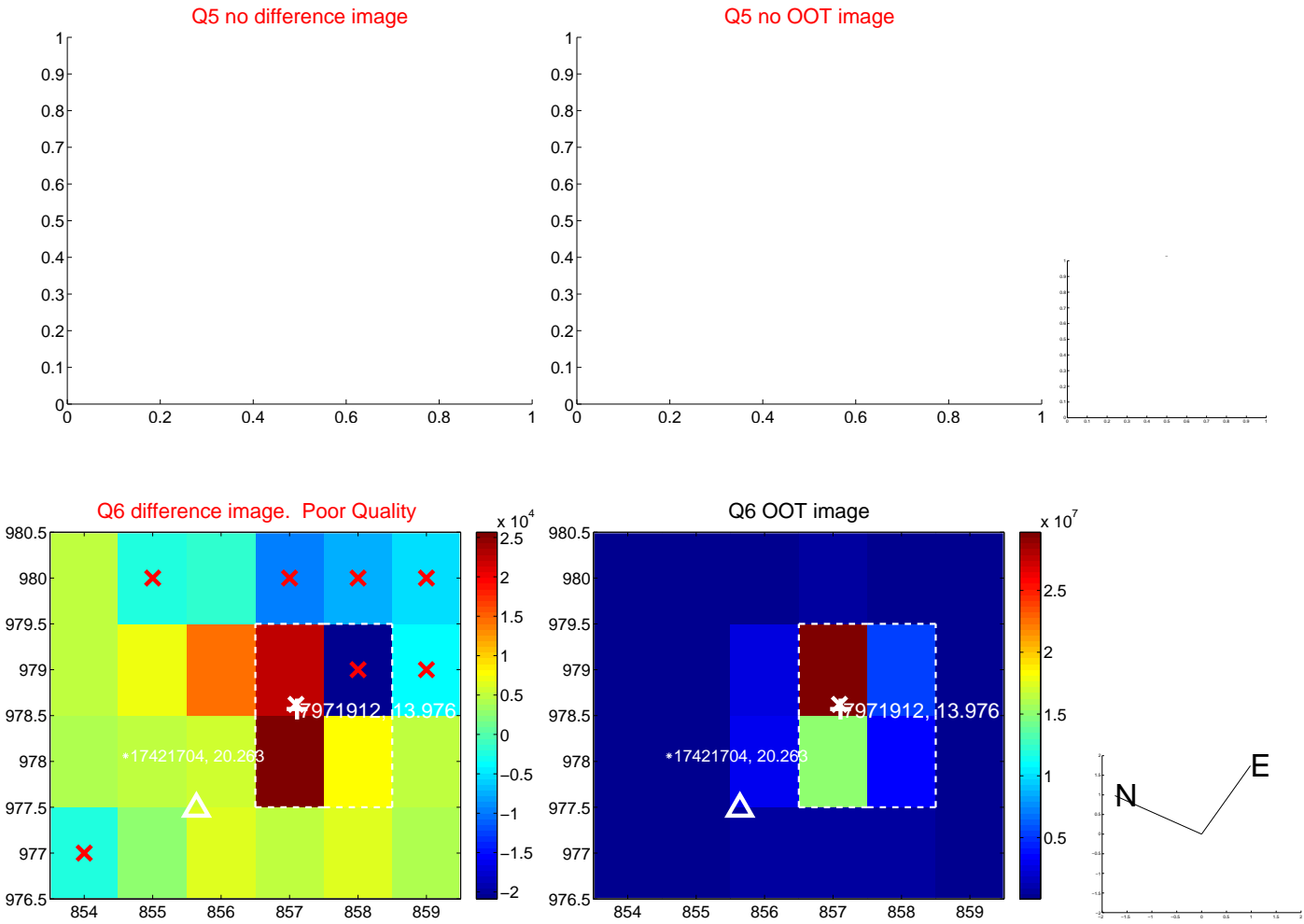
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



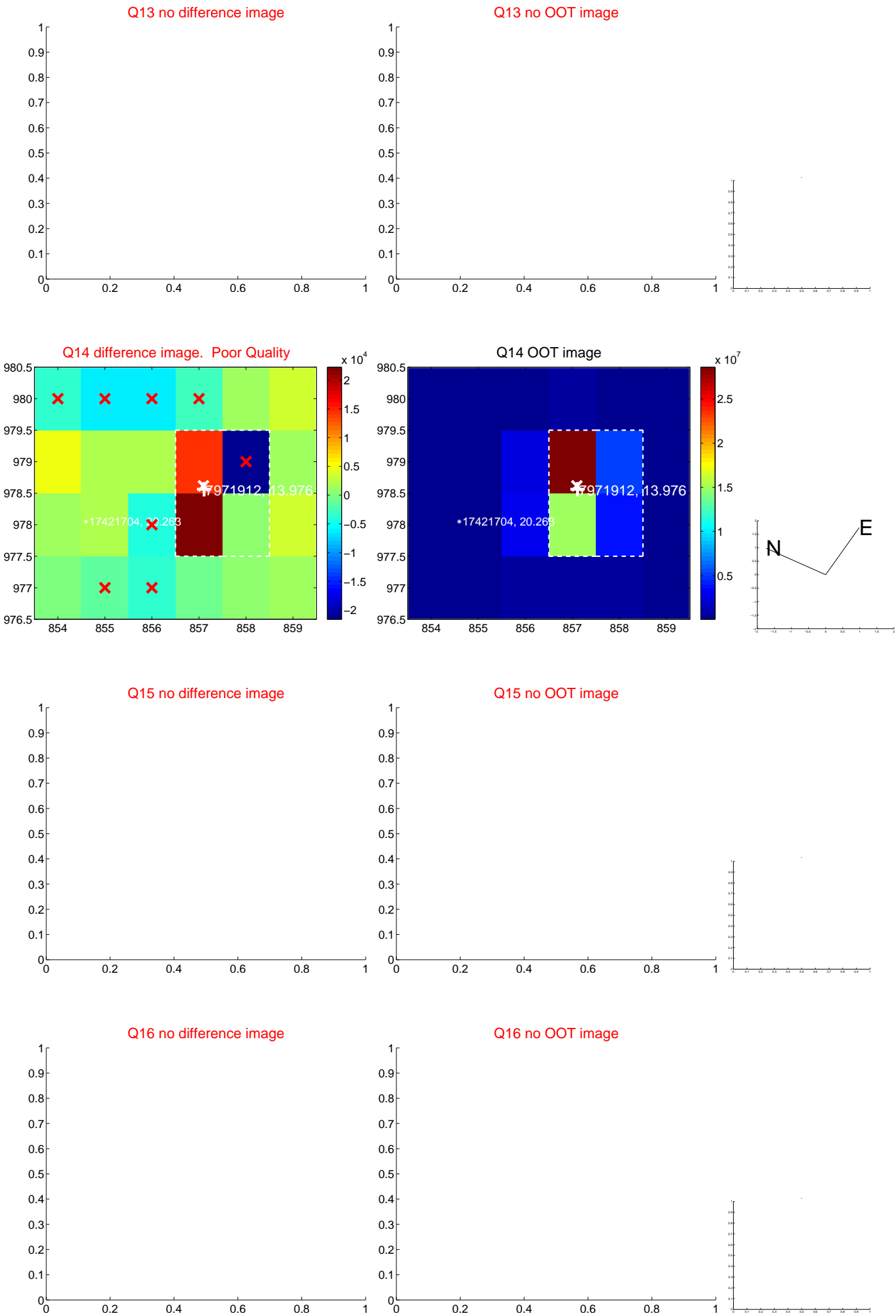
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



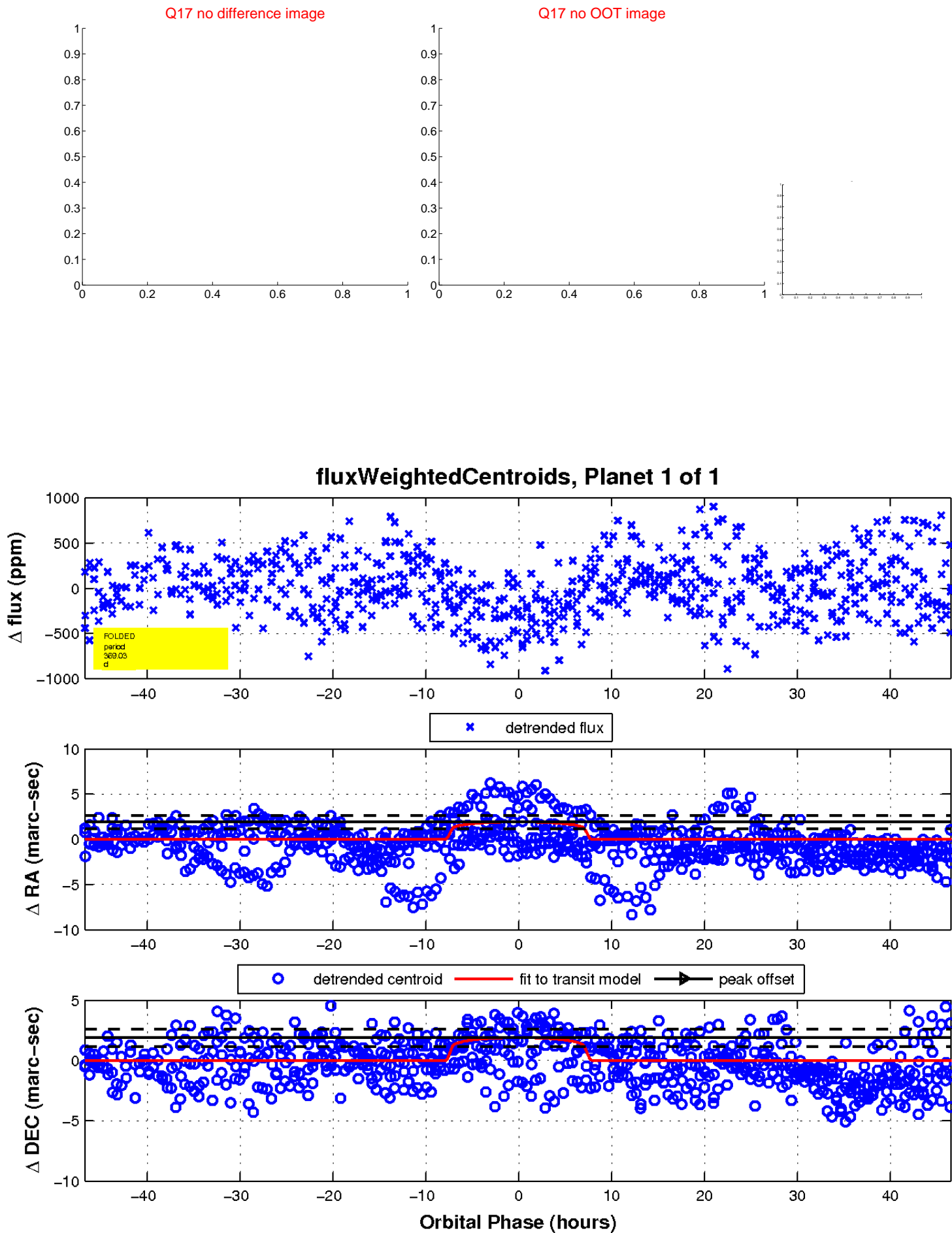
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

