

# KIC 004480013

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004480013-01	OBS	No	185.797086	201.553050	325.7	22.963	7.3	7.0	0.90	5680	3.27	2.02

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004480013-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—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.

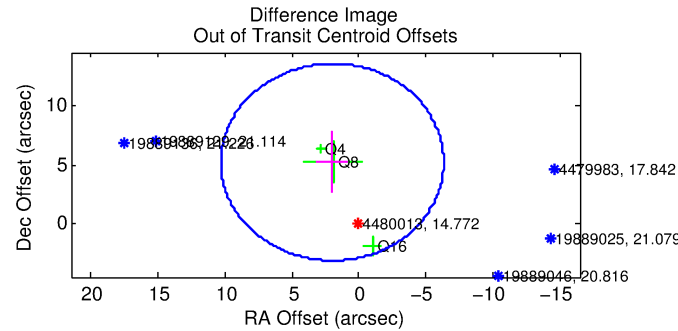
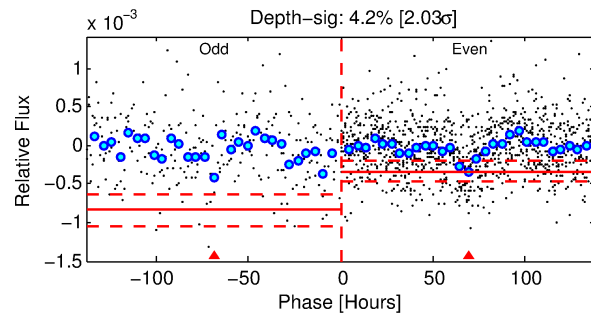
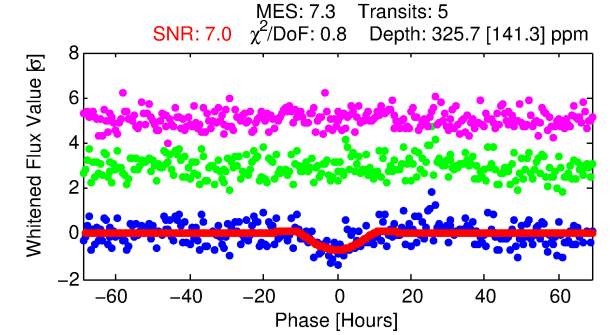
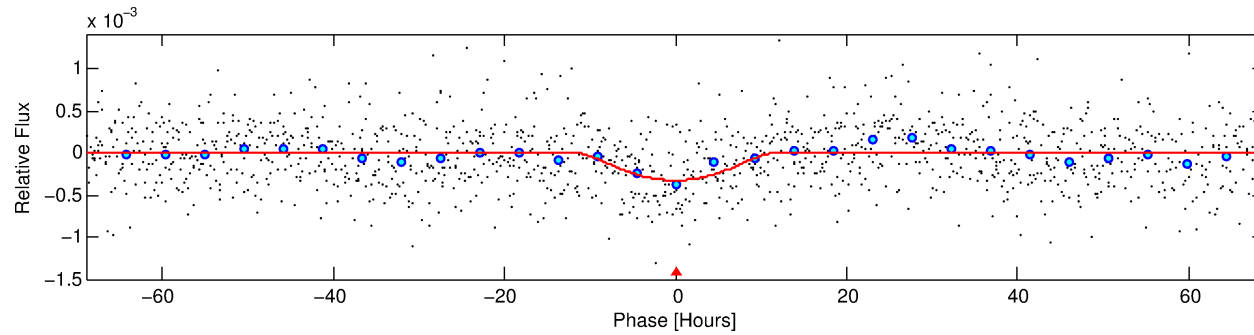
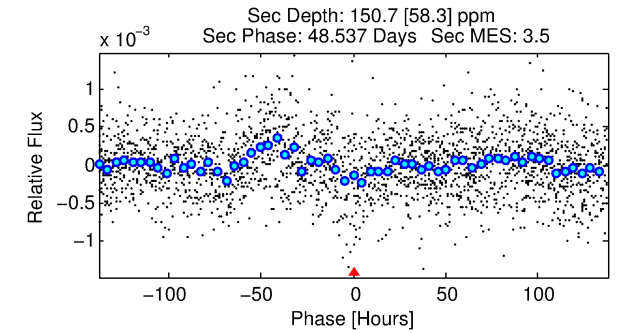
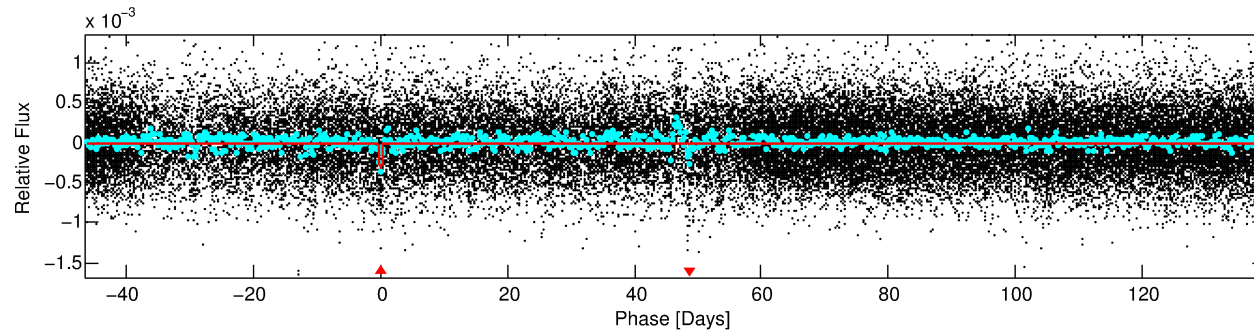
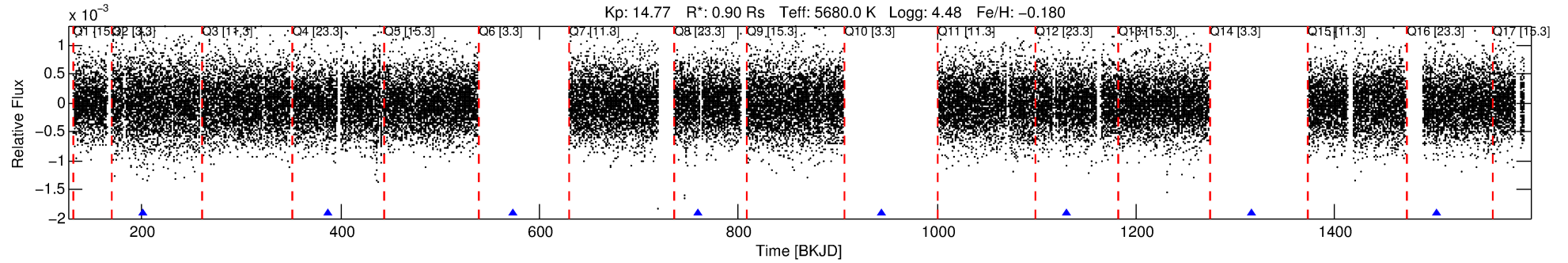
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004480013-01

No Significant Match Found

# DV One-Page Summary

KIC: 4480013 Candidate: 1 of 1 Period: 185.797 d



## DV Fit Results:

Period = 185.79709 [0.01390] d  
Epoch = 201.5531 [0.0589] BKJD  
Rp/R\* = 0.0333 [0.1395]  
a/R\* = 16.19 [17.57]  
b = 1.00 [0.21]  
Seff = 2.02 [0.67]  
Teq = 304 [25] K  
Rp = 3.27 [13.73] Re  
a = 0.6117 [0.1335] AU  
Ag = 2909.06 [24453.24] [0.12σ]  
Teffp = 3451 [7248] K [0.43σ]

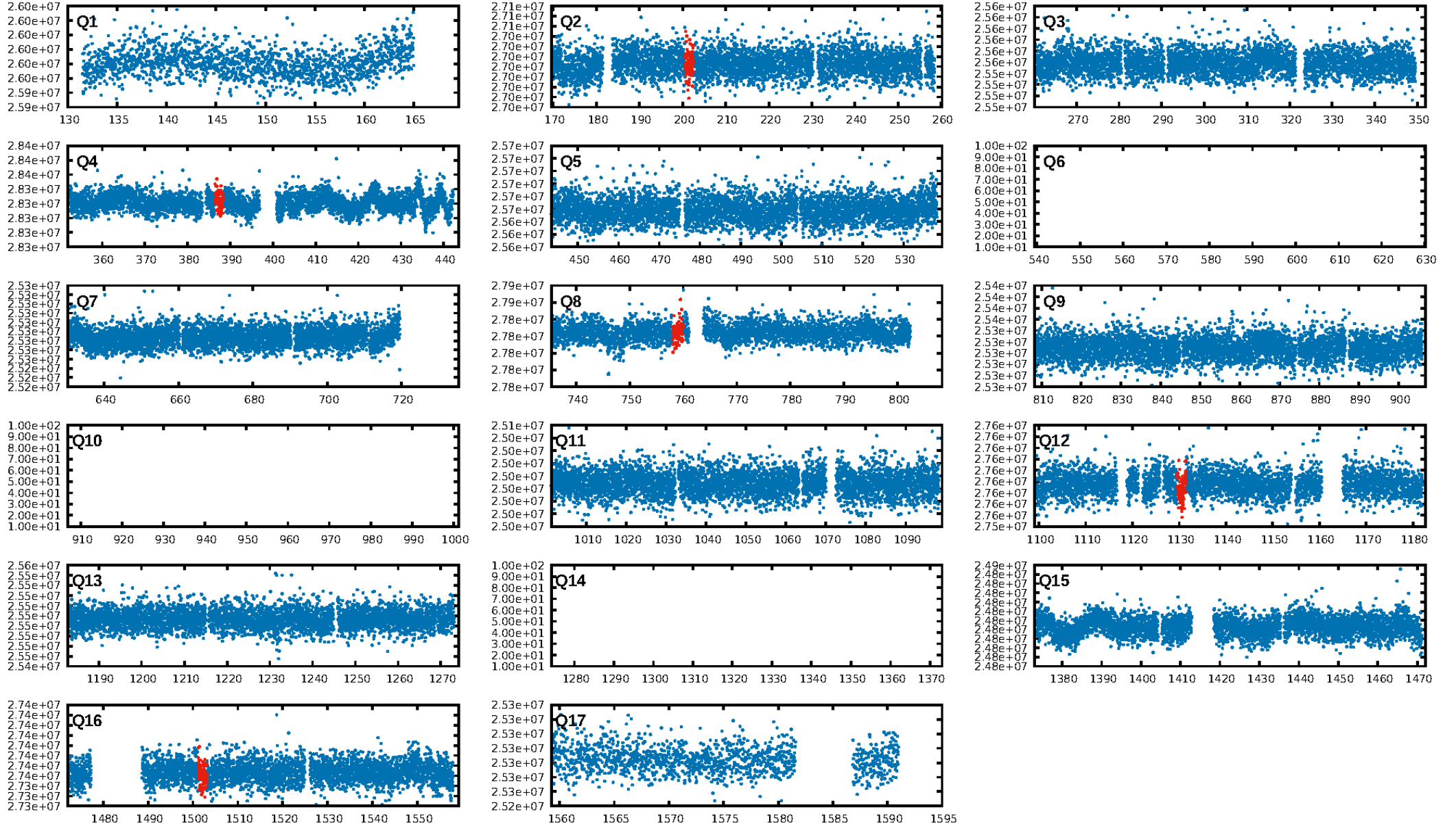
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 30.1%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 7.81e-12**  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: -0.2065**  
Centroid-sig: 31.8%  
Centroid-so: 2.154 arcsec [0.80σ]  
OotOffset-rm: 5.573 arcsec [2.01σ]  
KicOffset-rm: 5.599 arcsec [2.69σ]  
OotOffset-st: 0/0/3/0 [3]  
KicOffset-st: 0/0/3/0 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 1.00 [3/3]

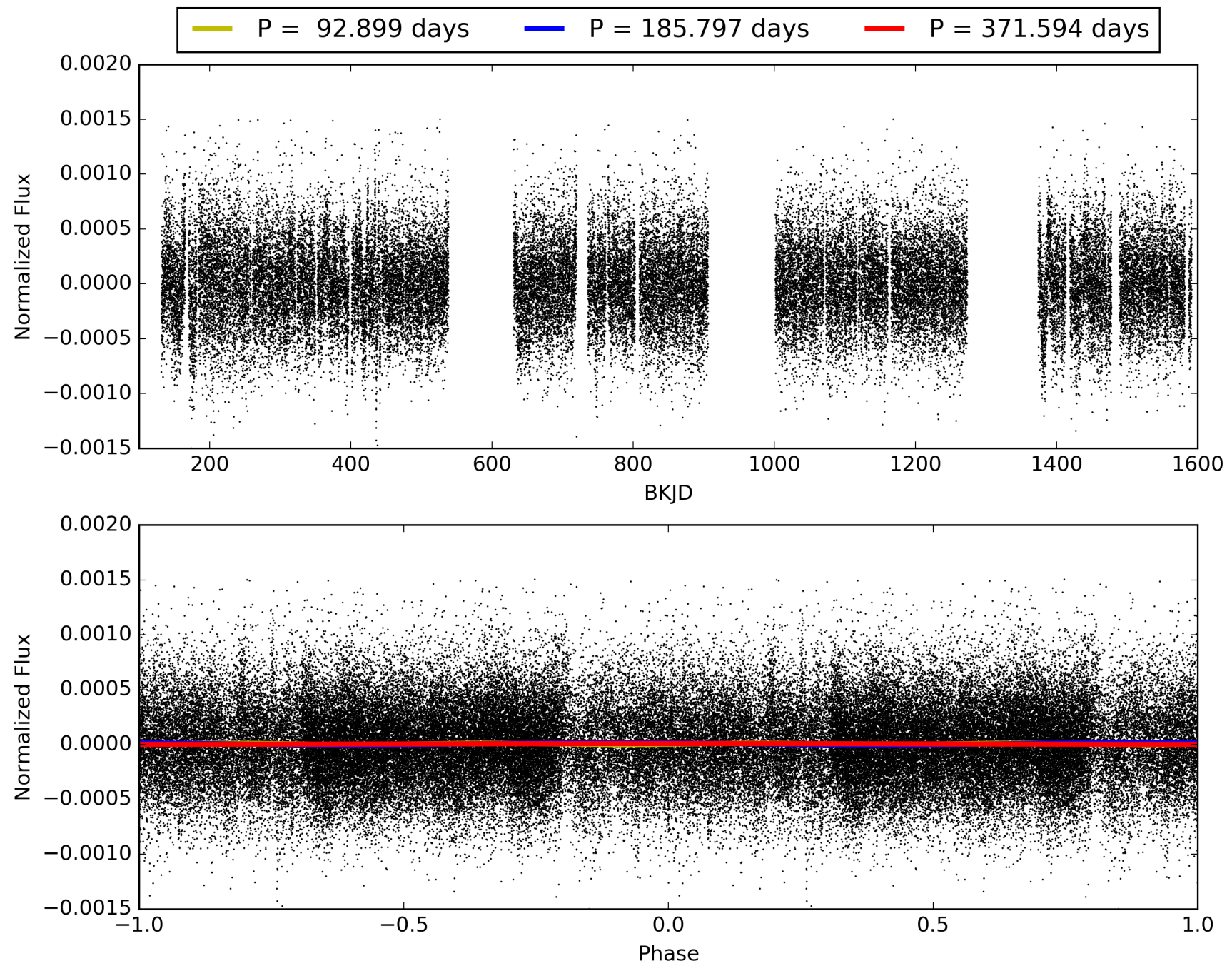
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:22:28 Z

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

# TCE 004480013-01, PDC Light Curves

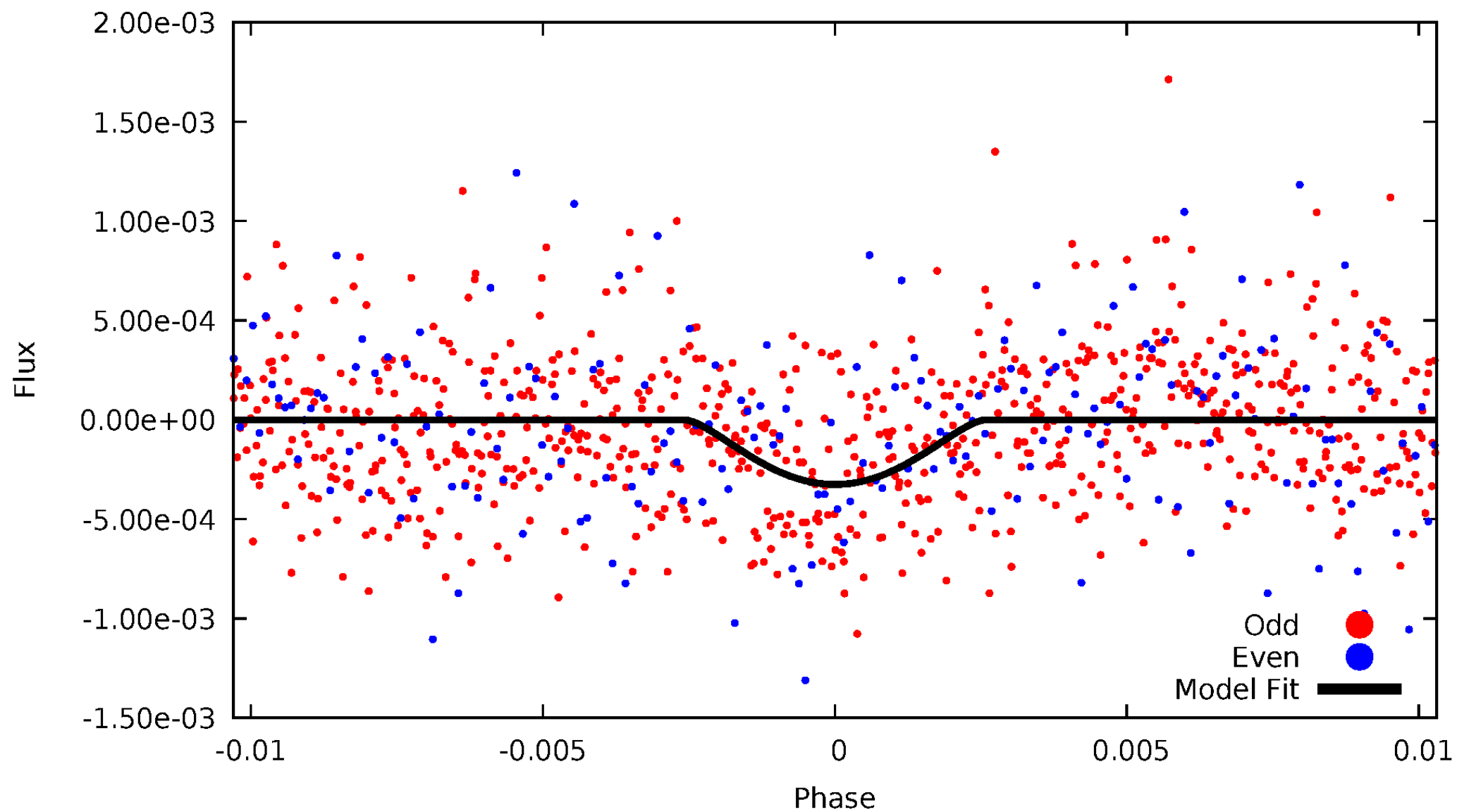


TCE 004480013-01



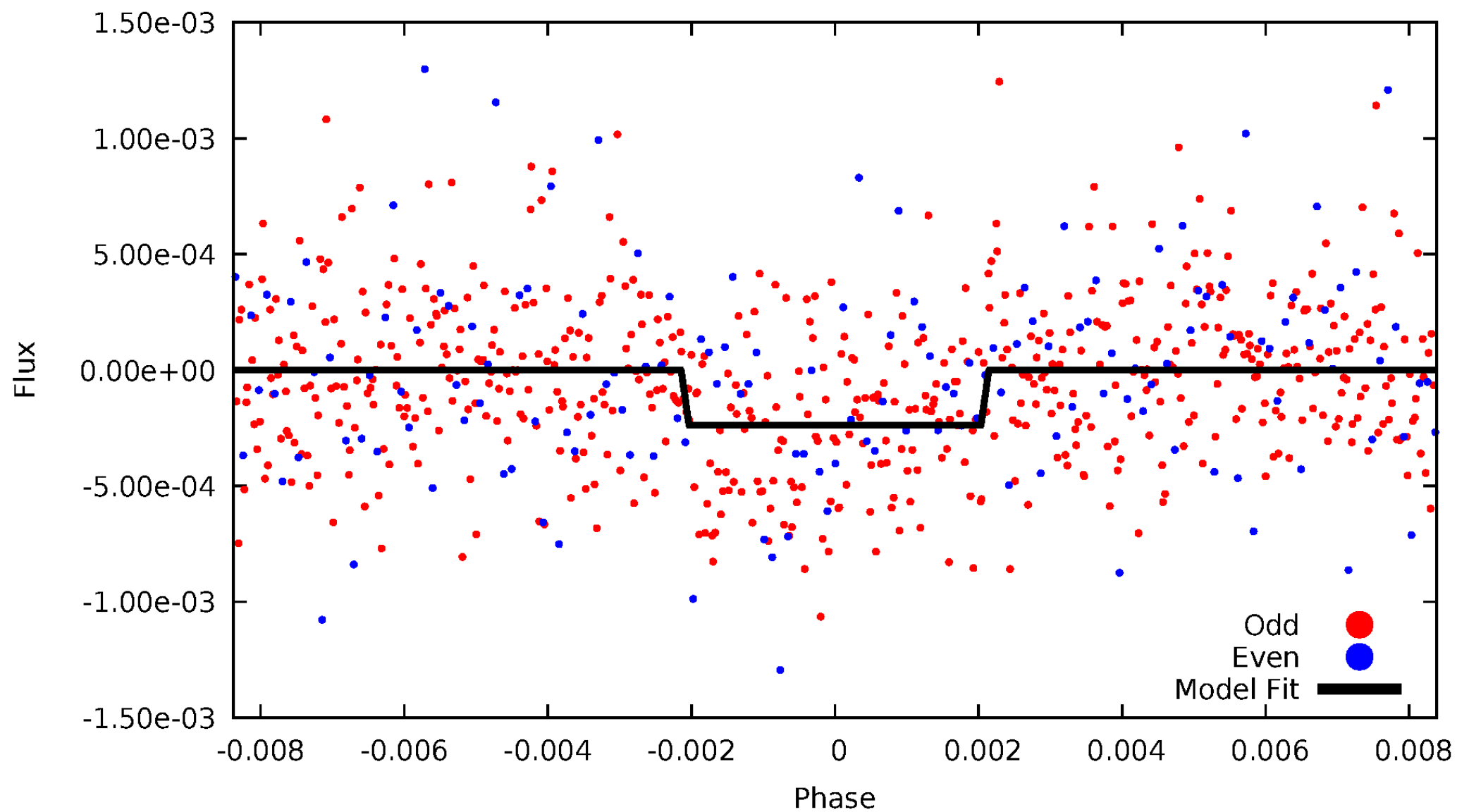
# DV Odd/Even

TCE 004480013-01



# ALT Odd/Even

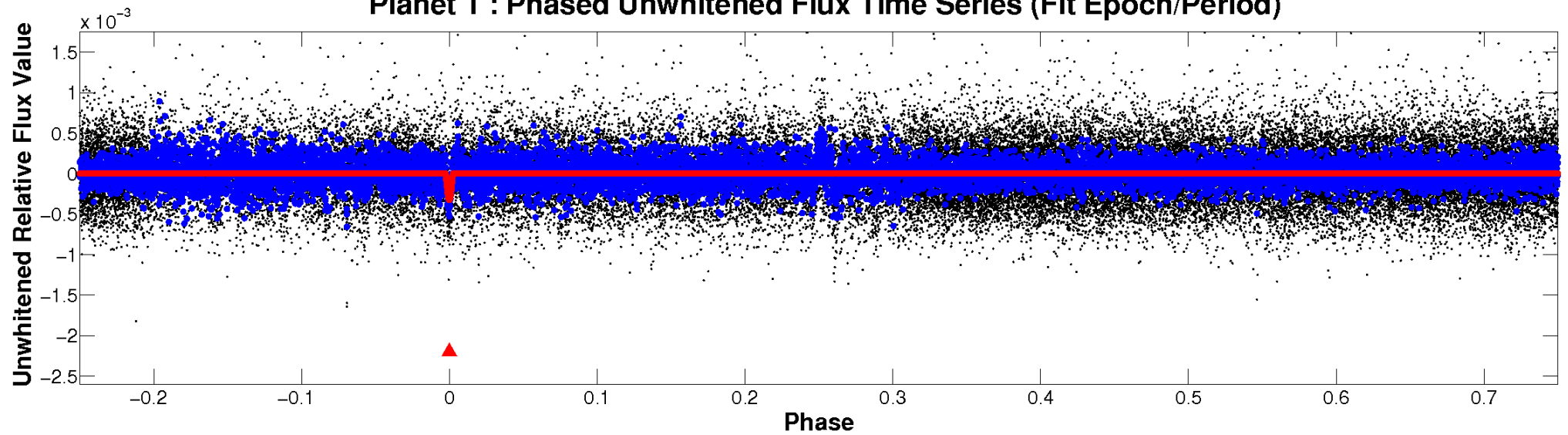
TCE 004480013-01



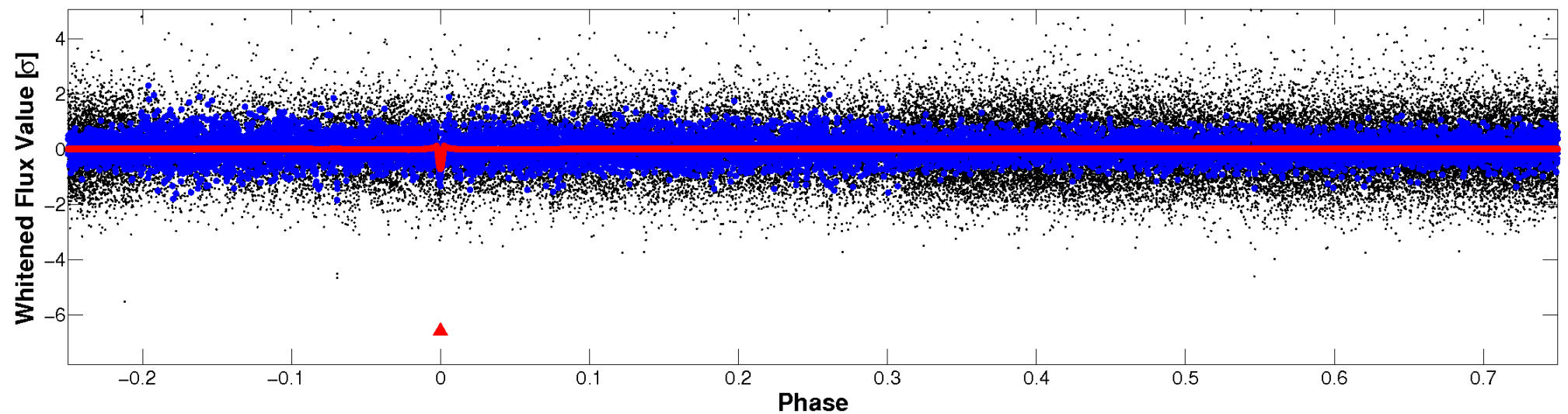


# Non-Whitened Vs. Whitened Light Curve

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

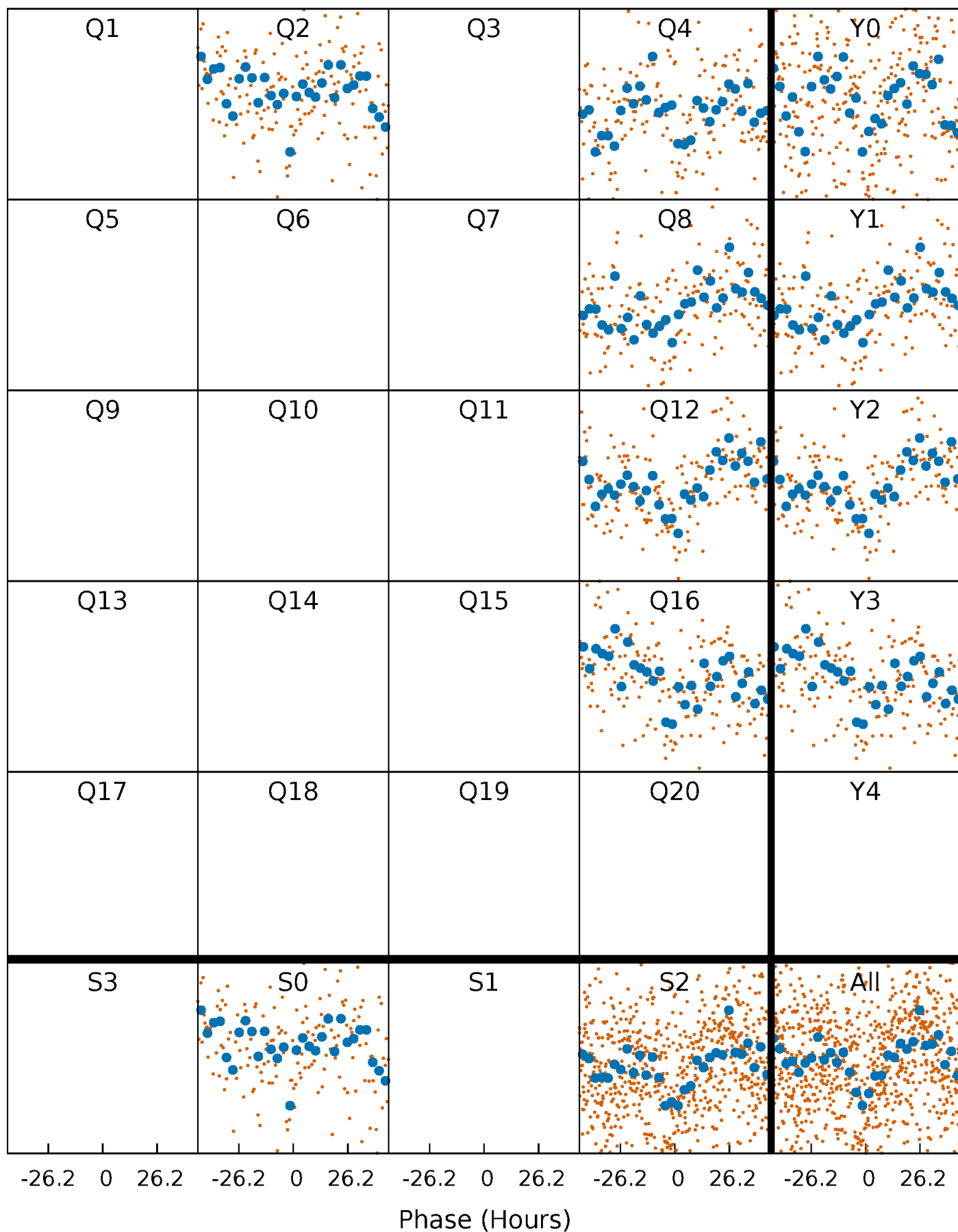


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 004480013-01 P=185.797086 Days  $T_0=201.553050$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 004480013-01 P=185.797086 Days  $T_0=201.553050$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

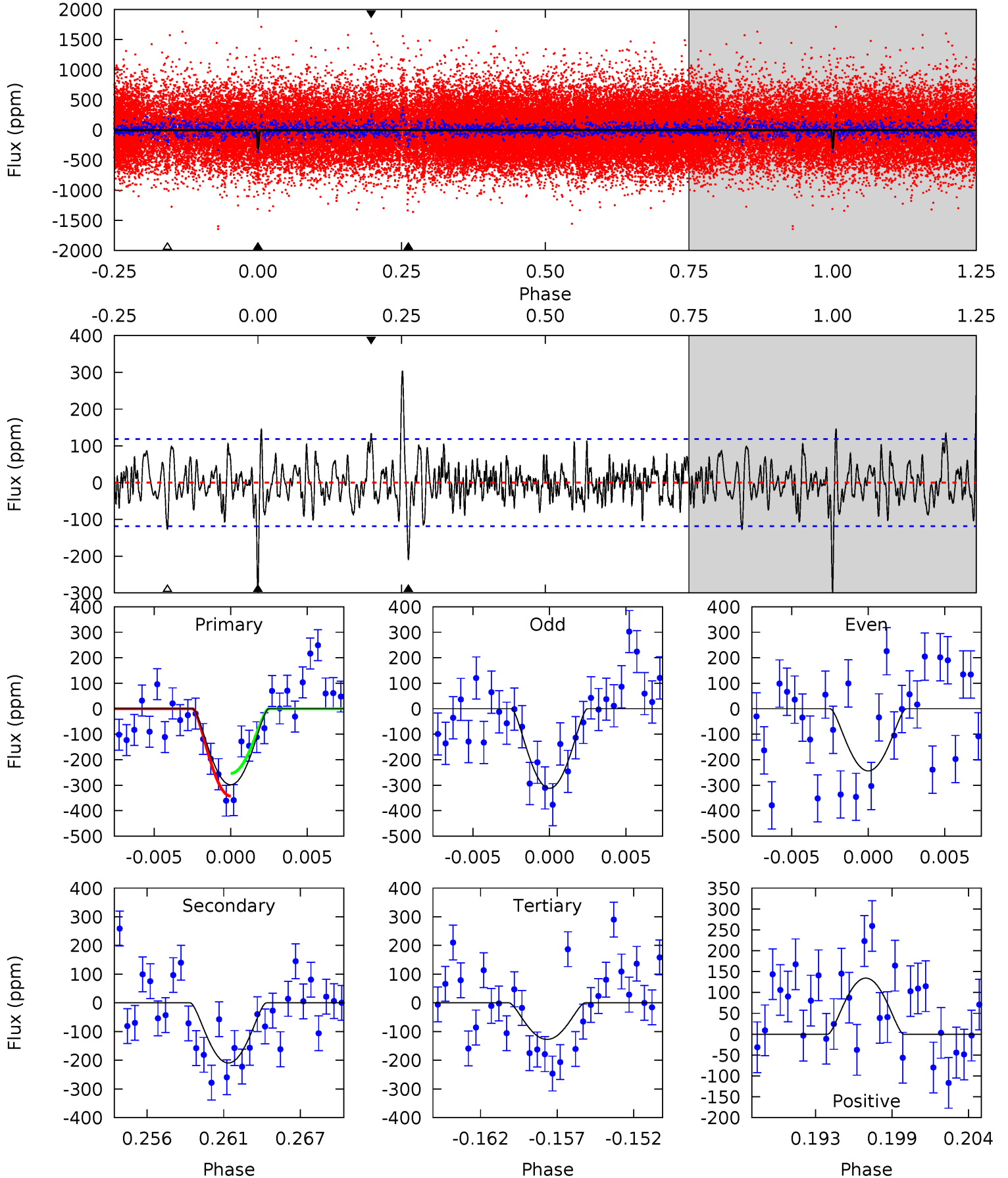
TCE 004480013-01 P=185.809172 Days  $T_0=201.600969$  (BKJD)



# DV Model-Shift Uniqueness Test

004480013-01, P = 185.797086 Days, E = 15.755964 Days

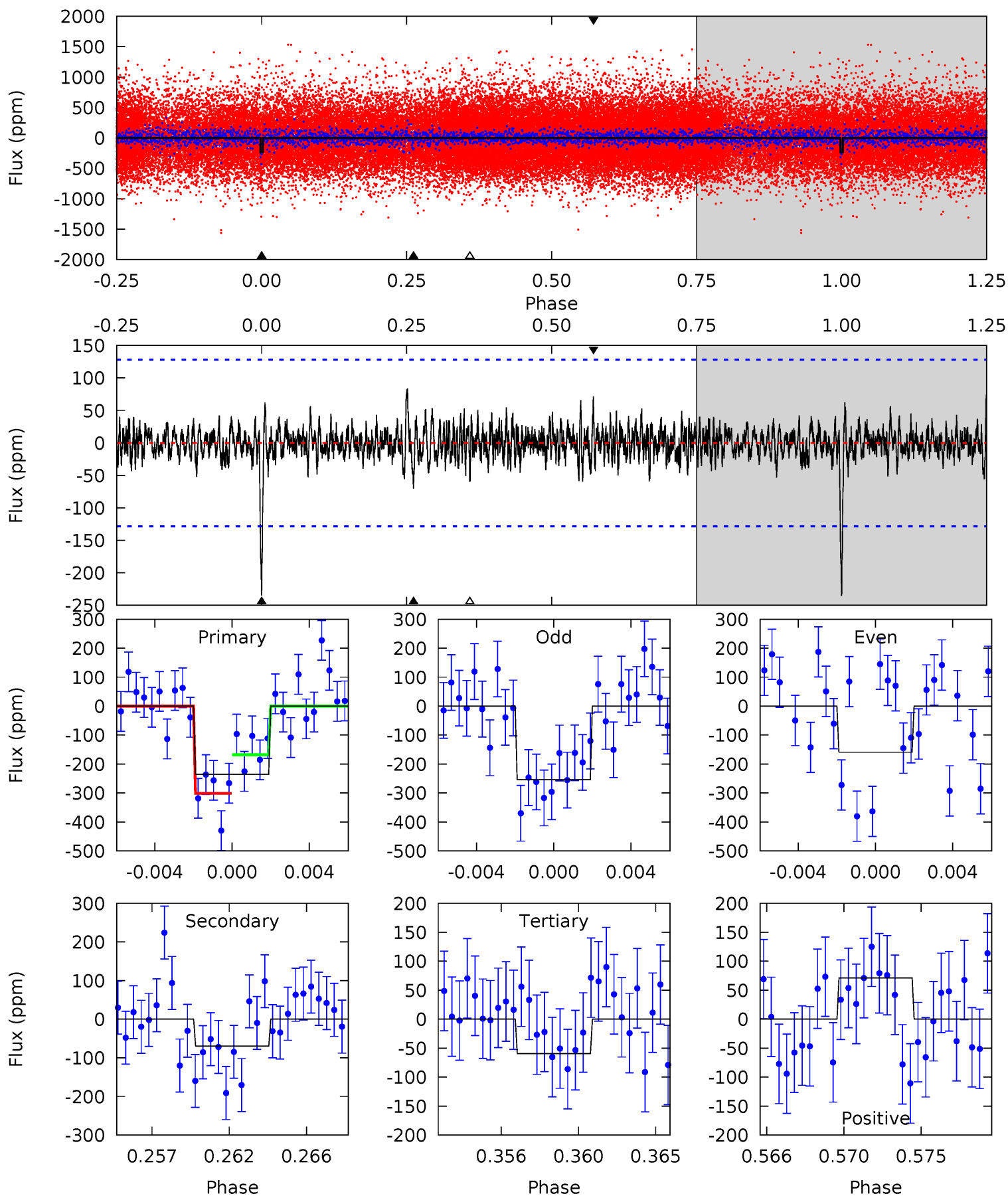
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	9.10	5.53	5.84	5.15	2.79	1.89	7.43	7.12	3.57	3.27	1.19	1.22	0.50	1.93



# Alt Model-Shift Uniqueness Test

004480013-01, P = 185.809172 Days, E = 15.791797 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
9.50	2.83	2.41	2.88	5.19	2.86	0.78	7.09	6.62	0.42	-0.05	1.52	1.04	0.26	2.70



### Stellar Parameters For KIC 004480013

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5680^{+152}_{-152}$	$4.476^{+0.078}_{-0.169}$	$-0.180^{+0.300}_{-0.300}$	$0.900^{+0.237}_{-0.102}$	$0.885^{+0.112}_{-0.082}$	$1.707^{+0.671}_{-0.786}$
	+3%/-3%	+2%/-4%	+167%/-167%	+26%/-11%	+13%/-9%	+39%/-46%
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 004480013-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-210 \pm 23$	$10.92^{+10.89}_{-7.54}$	$430^{+27}_{-22}$	$2817^{+1220}_{-443}$	$371^{+3310}_{-280}$
Alt.	$-70 \pm 25$	$10.87^{+10.91}_{-8.08}$	$429^{+26}_{-19}$	$2445^{+1083}_{-373}$	$117^{+1476}_{-90}$

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

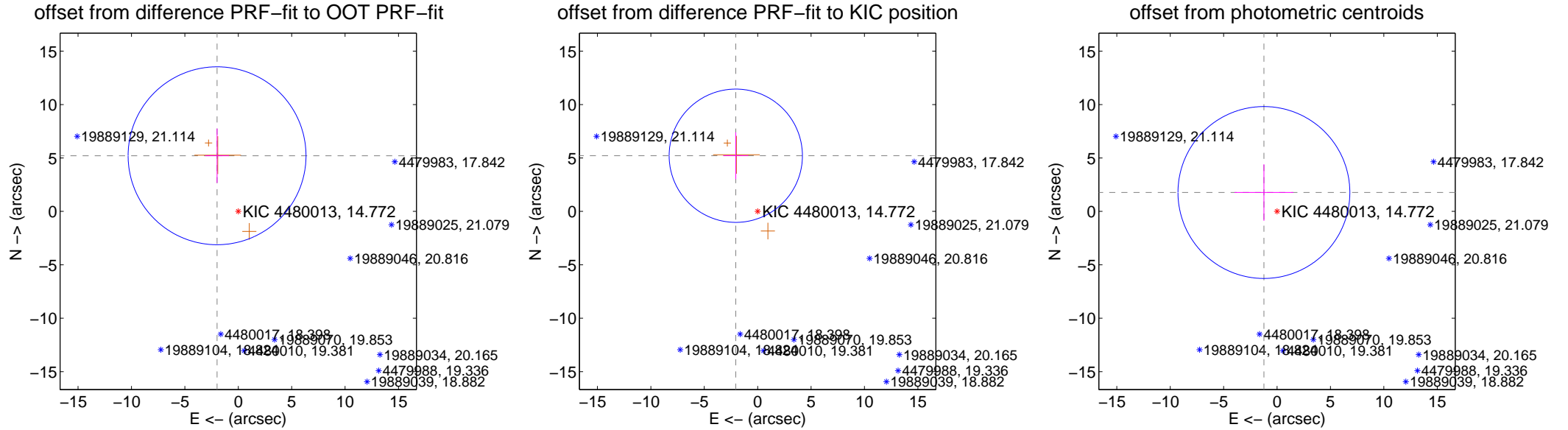
## DV Centroid Data

Supplemental centroid analysis for 004480013-01. Kepler magnitude: 14.77. Transit SNR 7.02

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

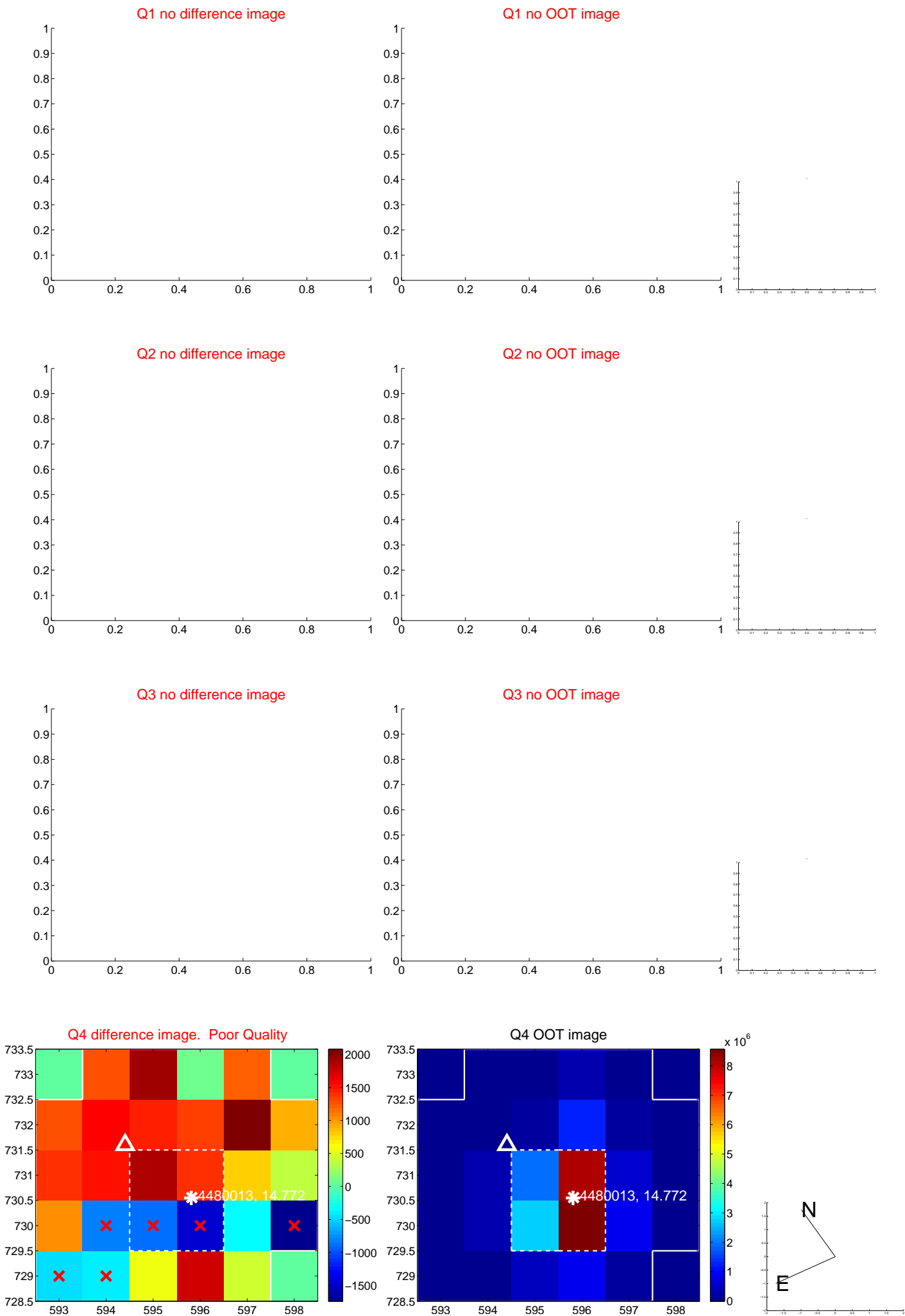
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.573 \pm 2.776$	2.01	$1.986 \pm 1.116$	$5.207 \pm 2.547$
PRF-fit source offset from KIC position	$5.599 \pm 2.080$	2.69	$2.049 \pm 1.165$	$5.211 \pm 2.187$
photometric centroid source offset	$2.15 \pm 2.68$	0.80	$1.23 \pm 2.76$	$1.77 \pm 2.65$



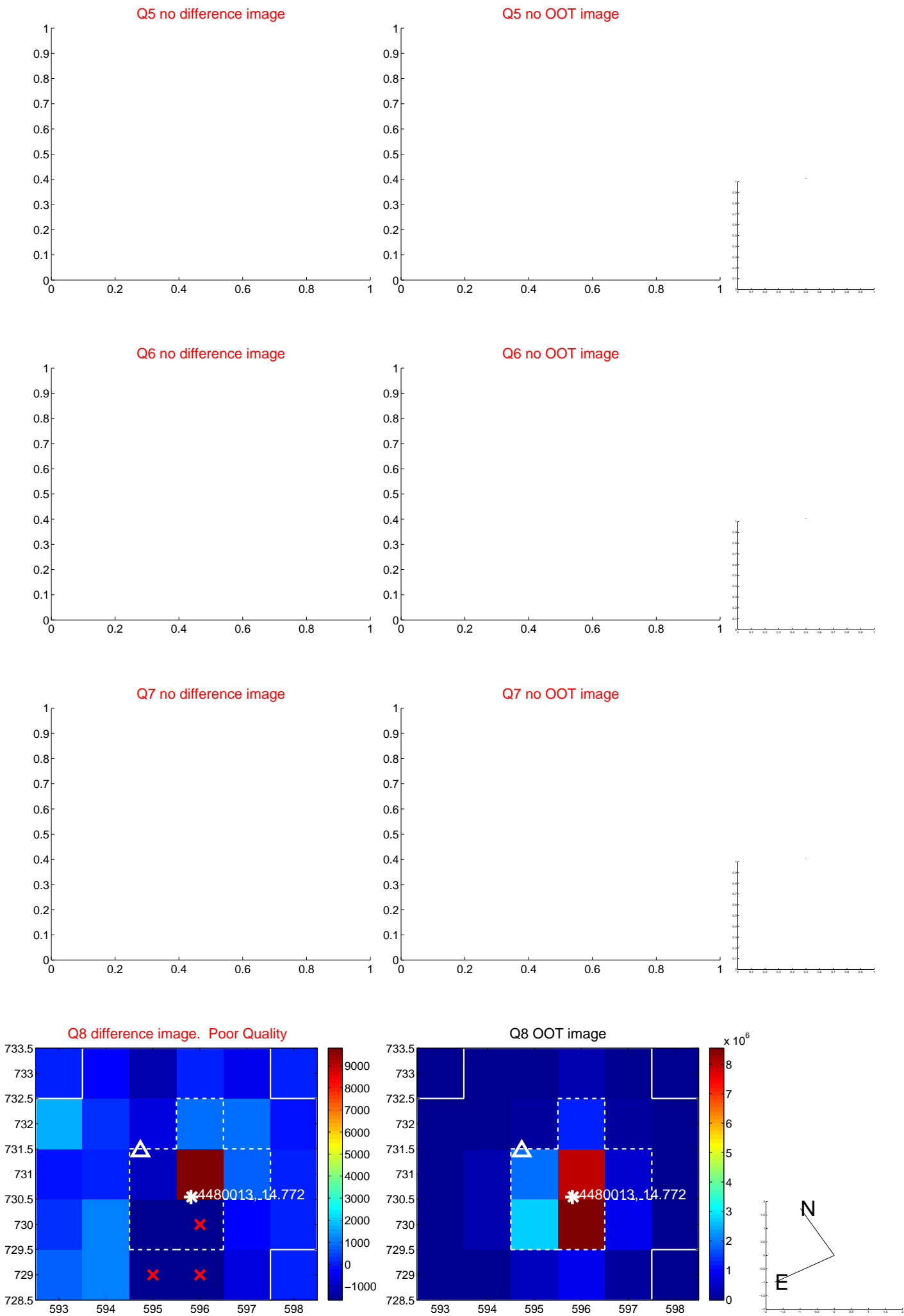
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



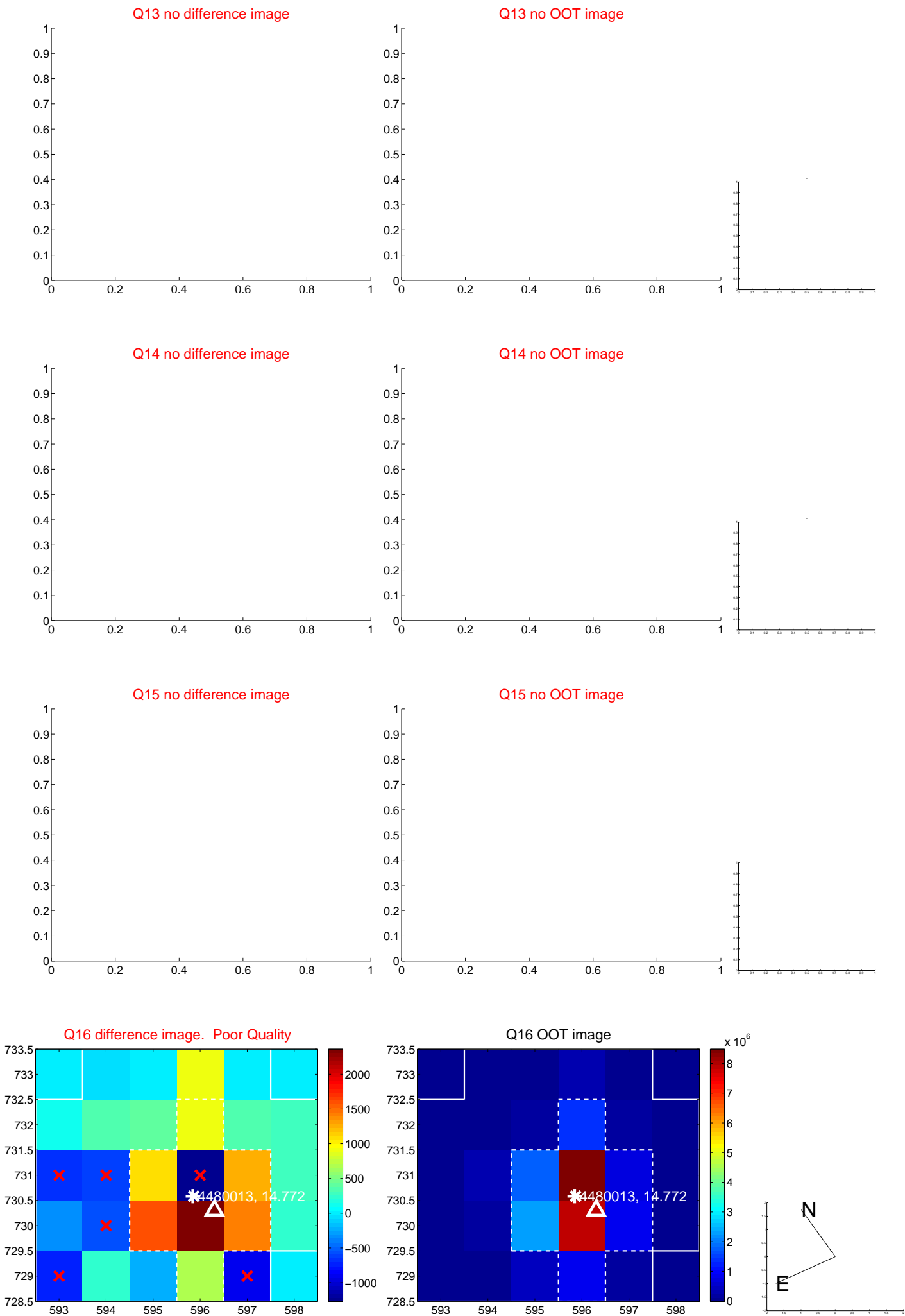
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



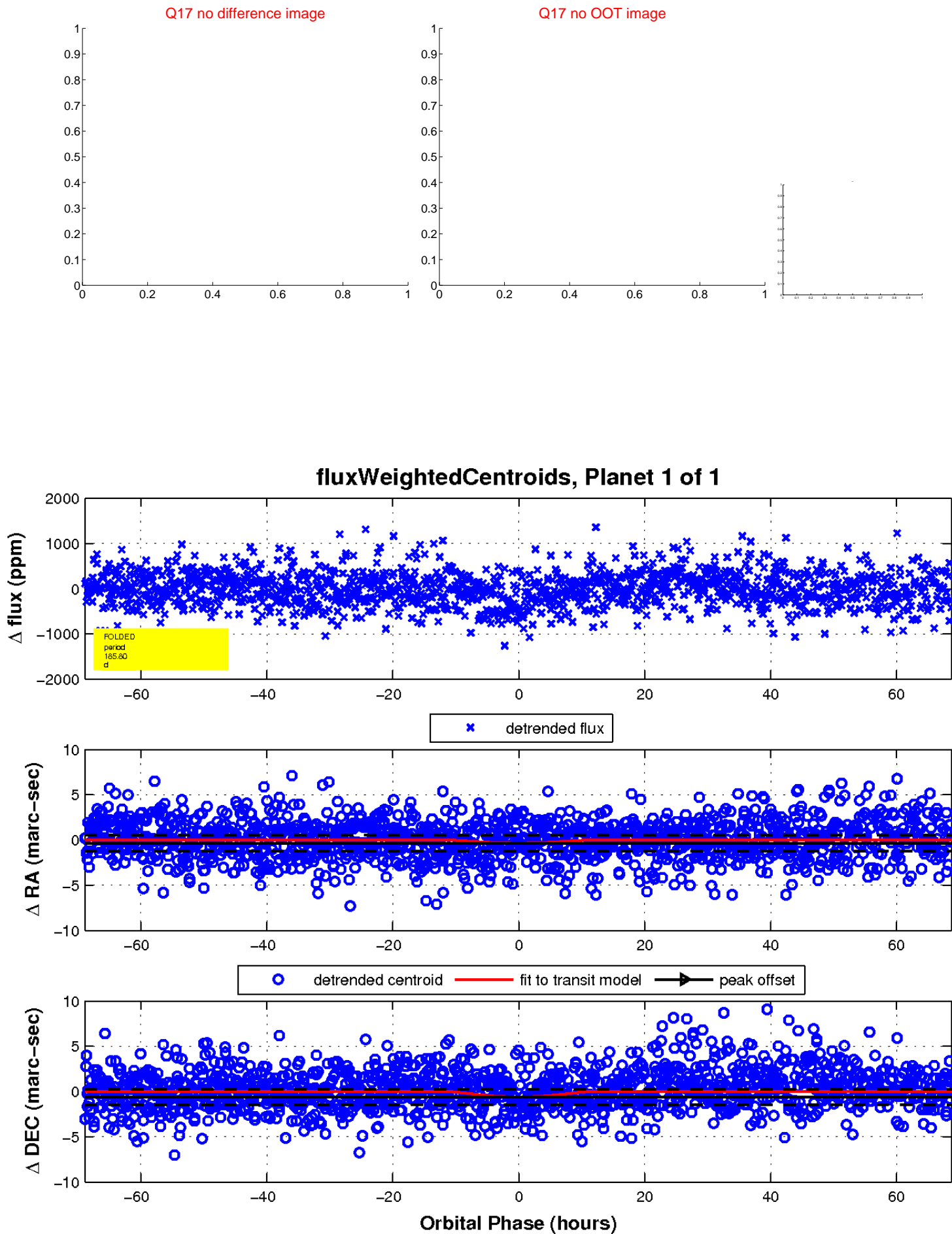
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

