

# KIC 008951761

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008951761-01	OBS	No	476.279346	301.854878	629.2	13.303	7.9	7.6	1.12	6321	3.04	1.12

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008951761-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

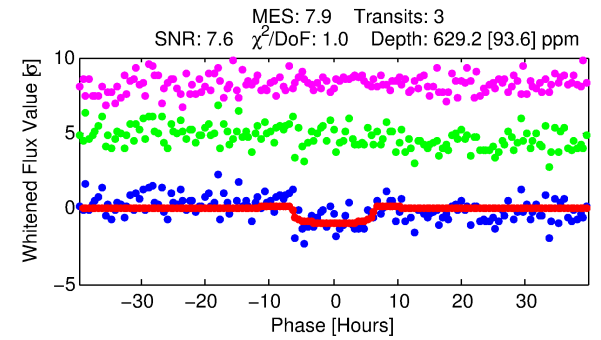
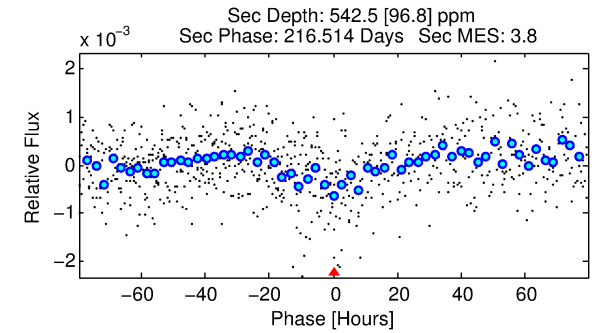
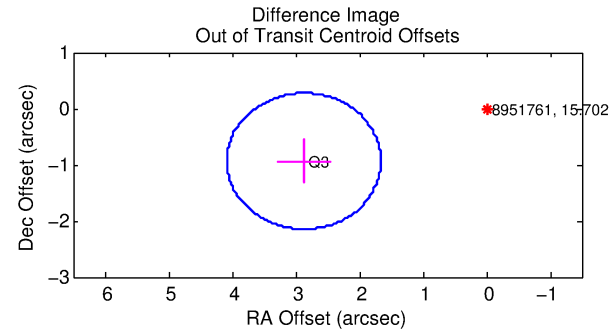
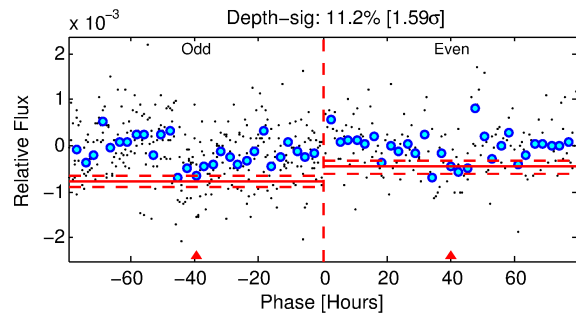
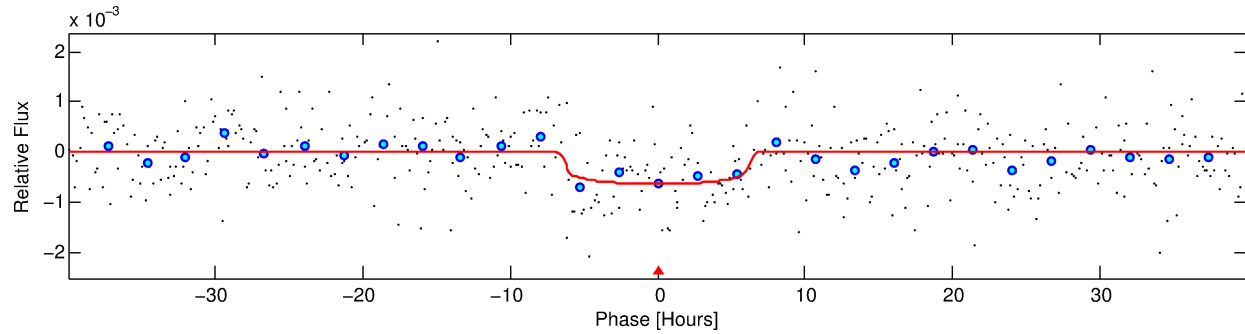
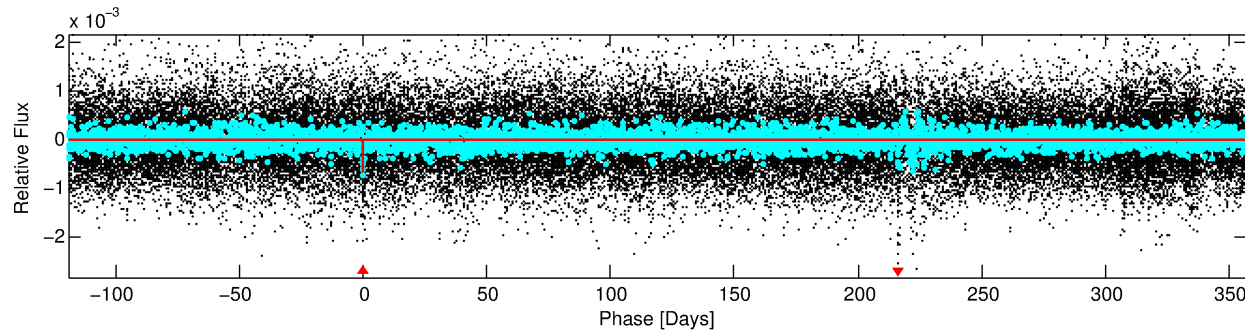
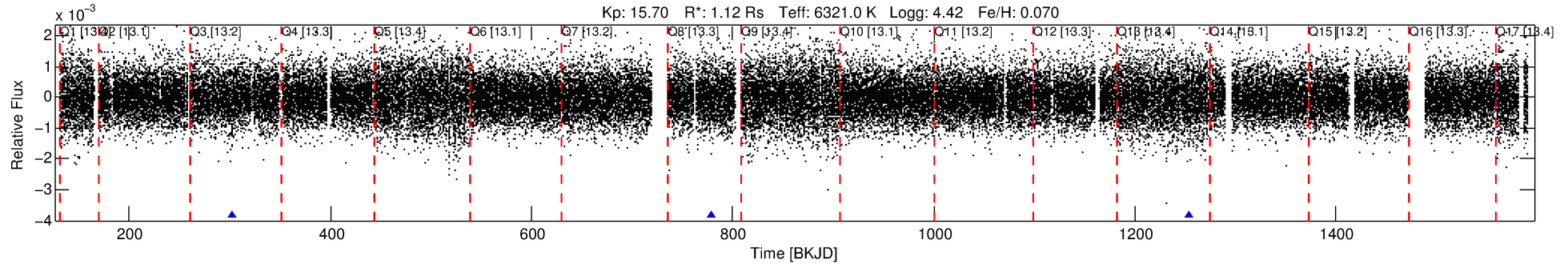
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008951761-01

No Significant Match Found

# DV One-Page Summary

KIC: 8951761 Candidate: 1 of 1 Period: 476.279 d



## DV Fit Results:

Period = 476.27935 [0.02022] d  
Epoch = 301.8549 [0.0255] BKJD  
Rp/R\* = 0.0248 [0.0098]  
a/R\* = 196.25 [392.87]  
b = 0.73 [1.27]  
Seff = 1.12 [0.41]  
Teq = 262 [24] K  
Rp = 3.04 [1.47] Re  
a = 1.2707 [0.2986] AU  
Ag = 51990.61 [45750.49] [1.14σ]  
Teffp = 6126 [1259] K [4.66σ]

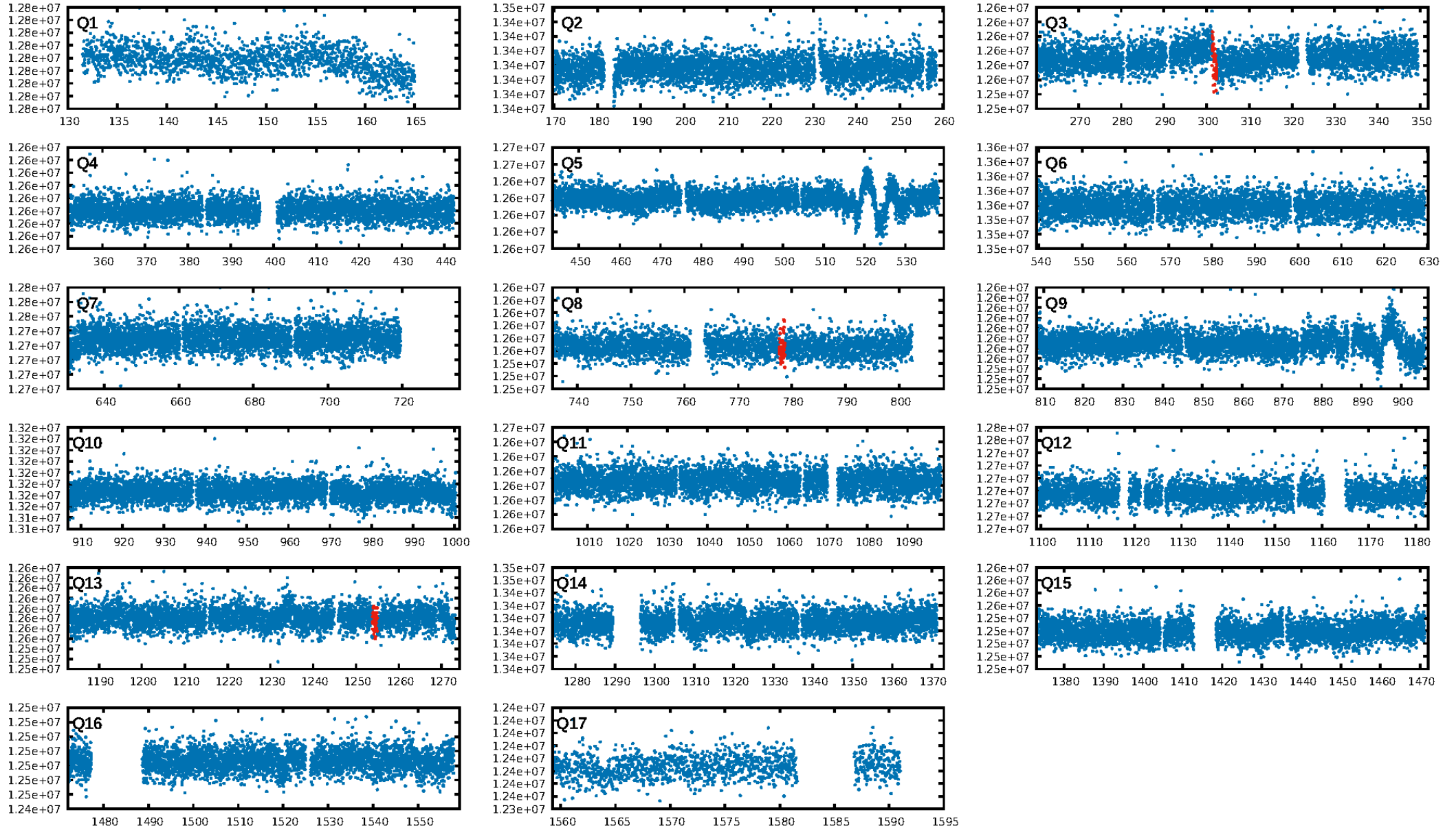
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 12.8%  
ModelChiSquareGof-sig: 99.7%  
**Bootstrap-pfa: 2.87e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.9212**  
Centroid-sig: 32.7%  
Centroid-so: 1.278 arcsec [0.78σ]  
**OotOffset-rm: 3.022 arcsec [7.49σ]**  
**KicOffset-rm: 2.985 arcsec [7.40σ]**  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

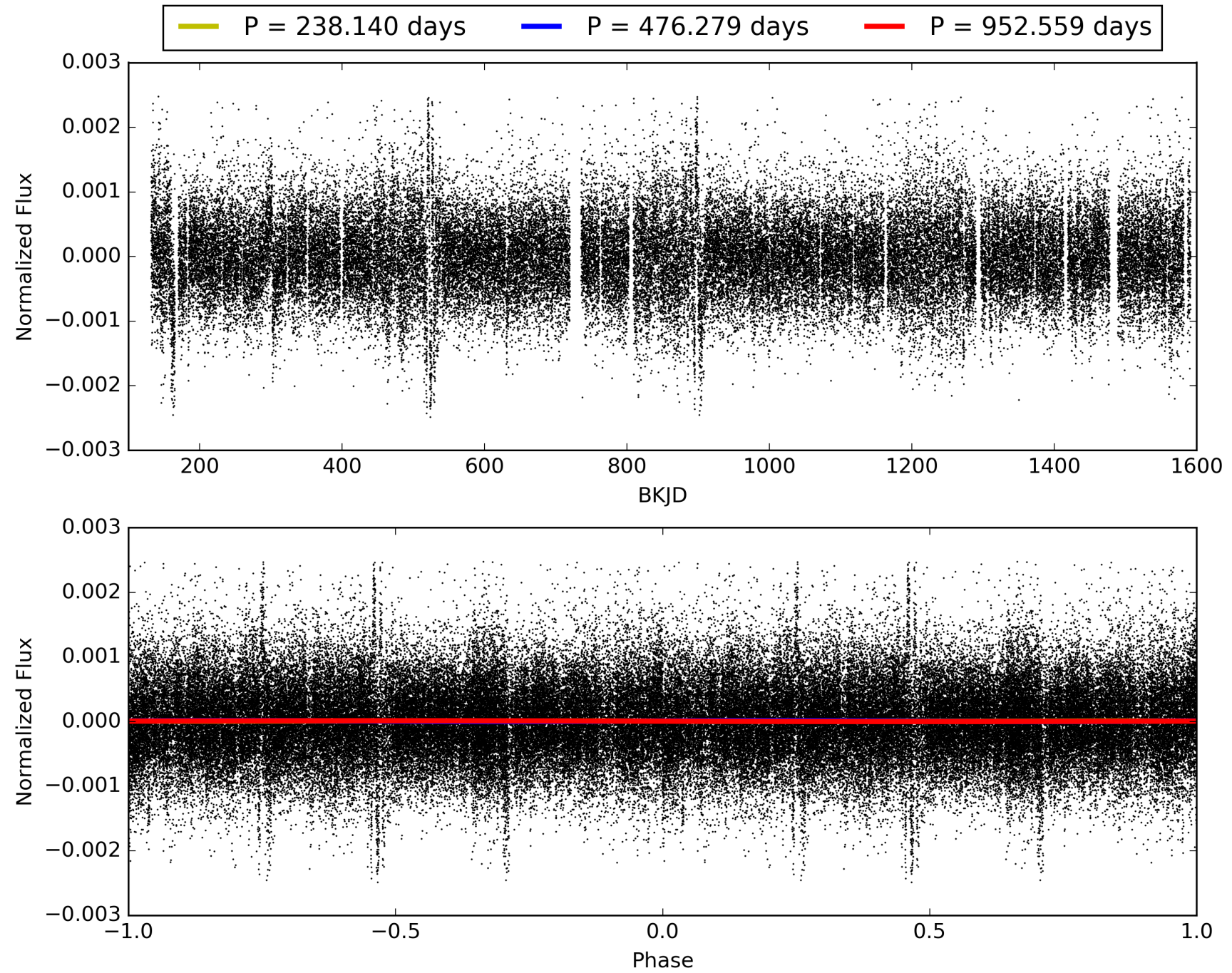
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:17:38 Z

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

# TCE 008951761-01, PDC Light Curves

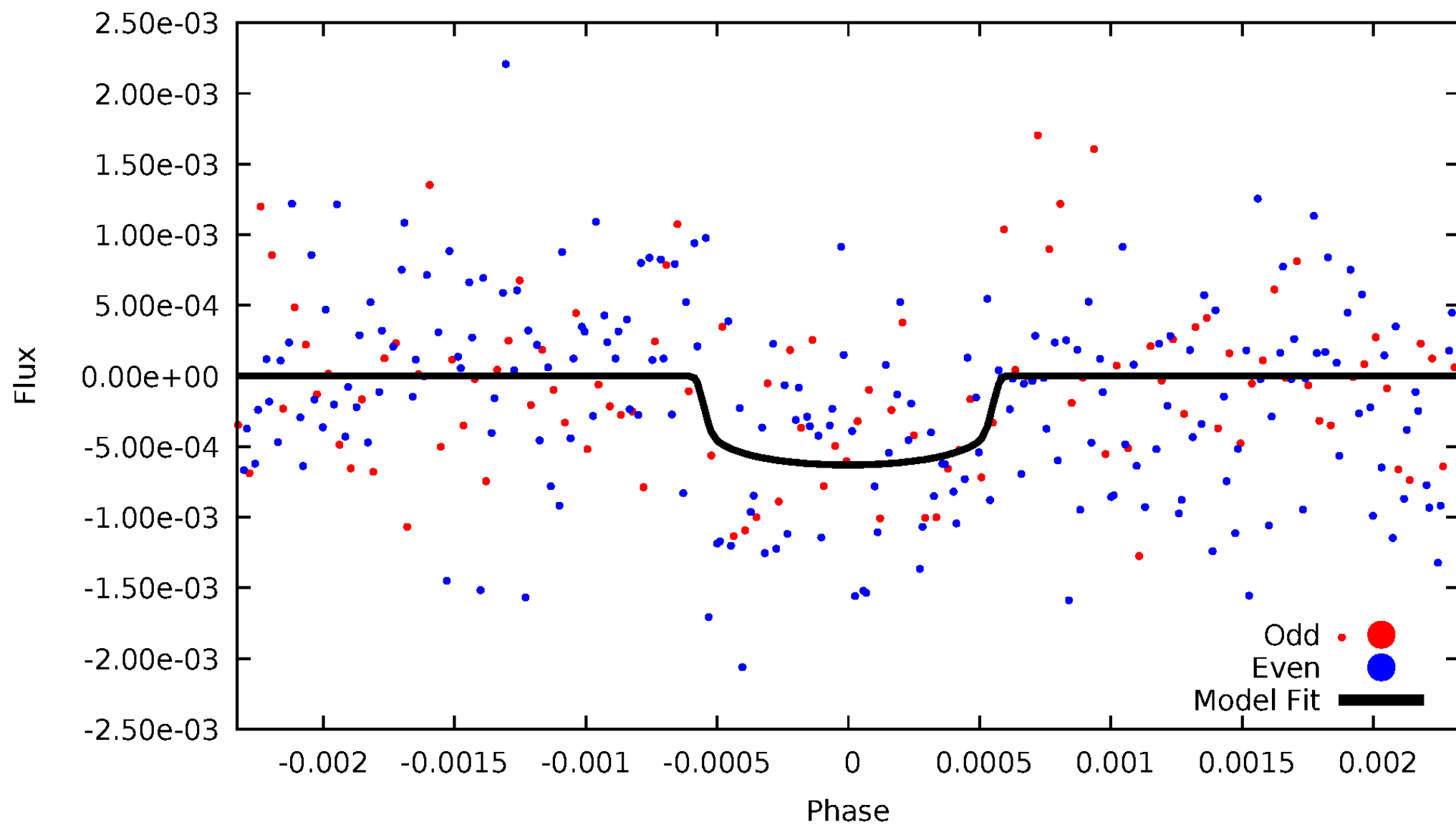


TCE 008951761-01



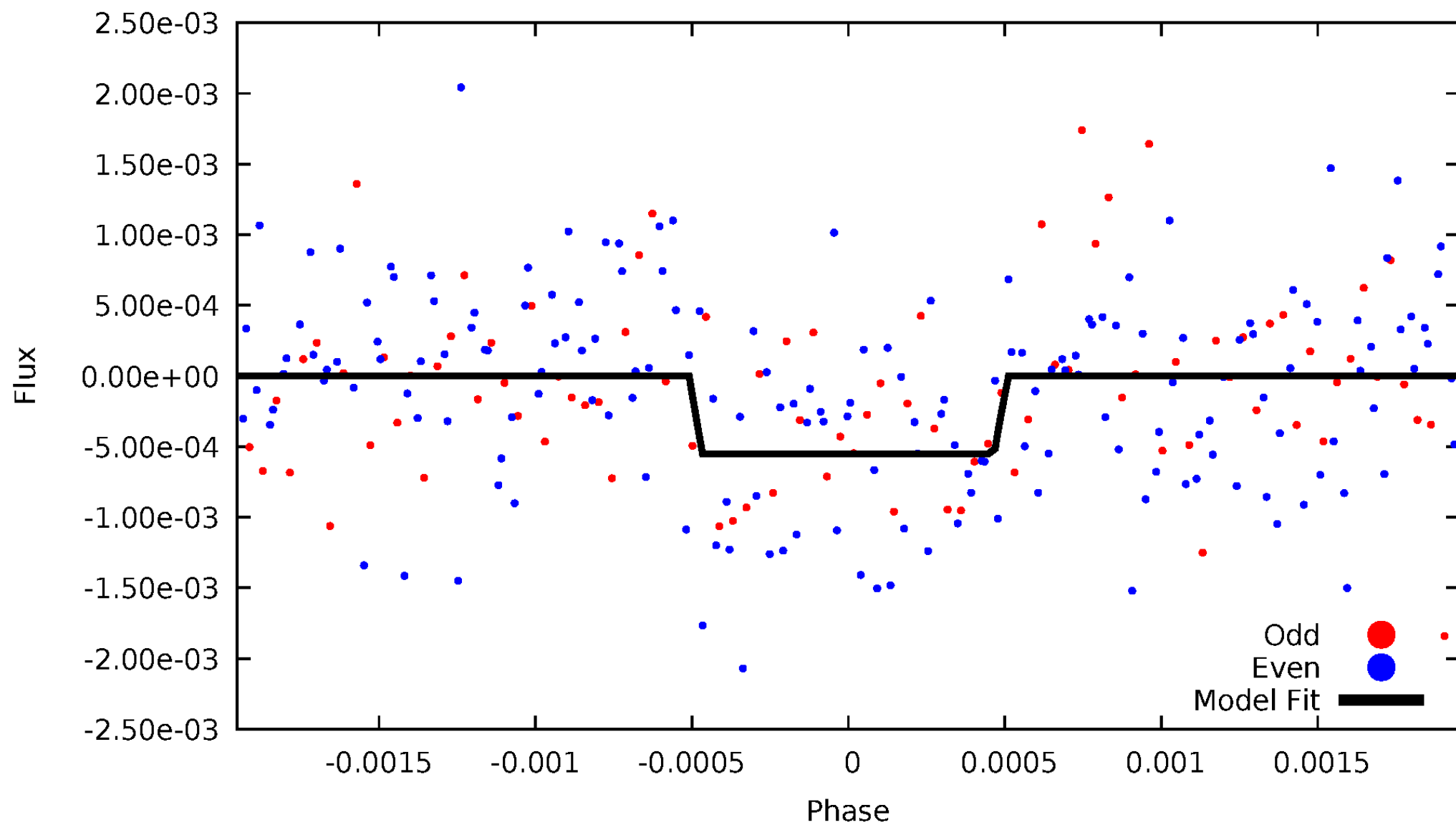
# DV Odd/Even

TCE 008951761-01



# ALT Odd/Even

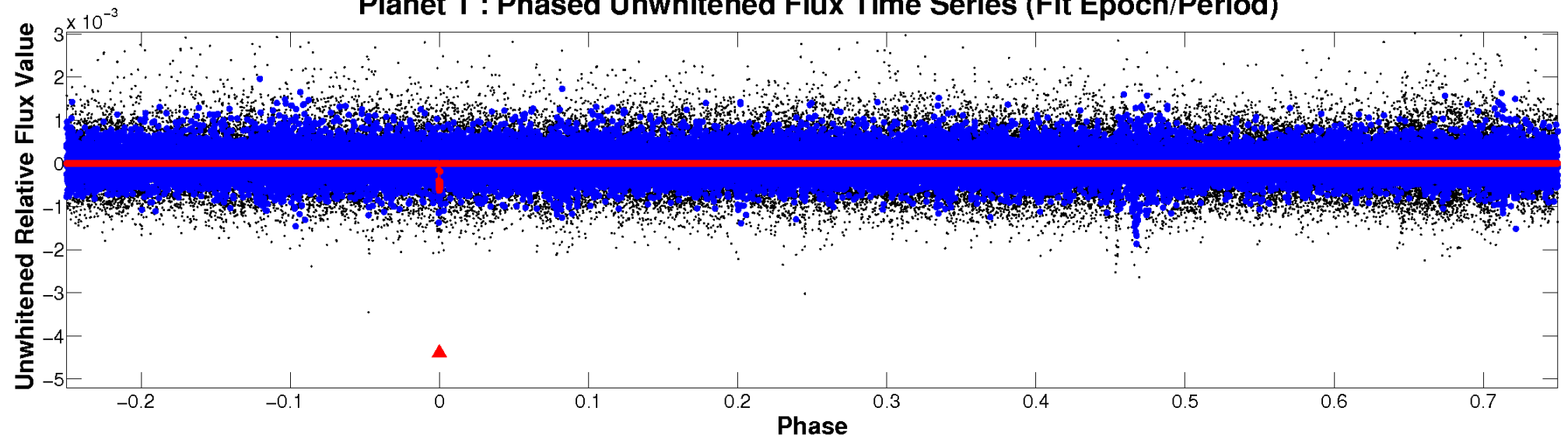
TCE 008951761-01



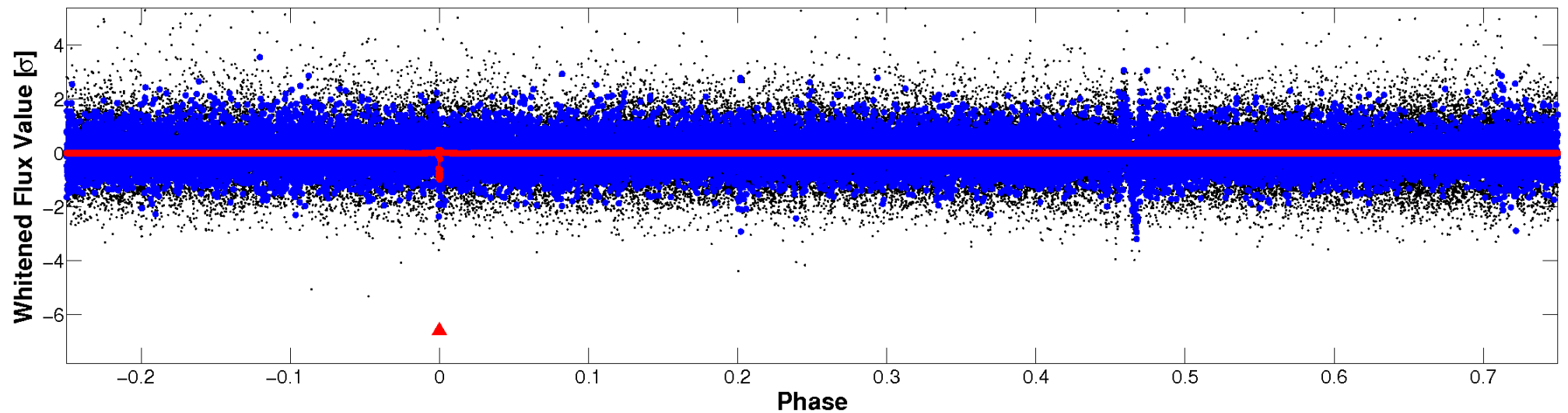


# Non-Whitened Vs. Whitened Light Curve

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

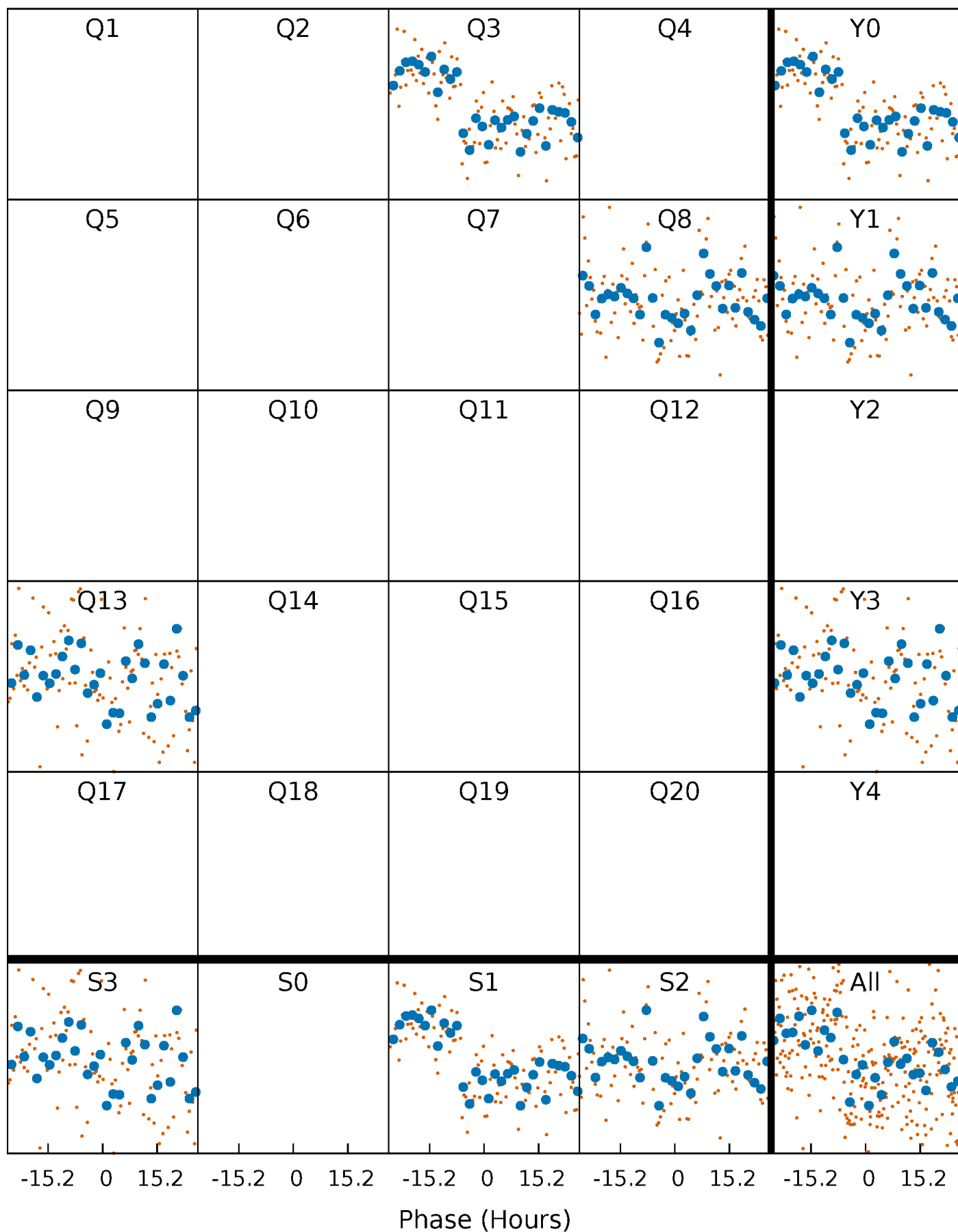


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

TCE 008951761-01 P=476.279346 Days  $T_0=301.854877$  (BKJD)





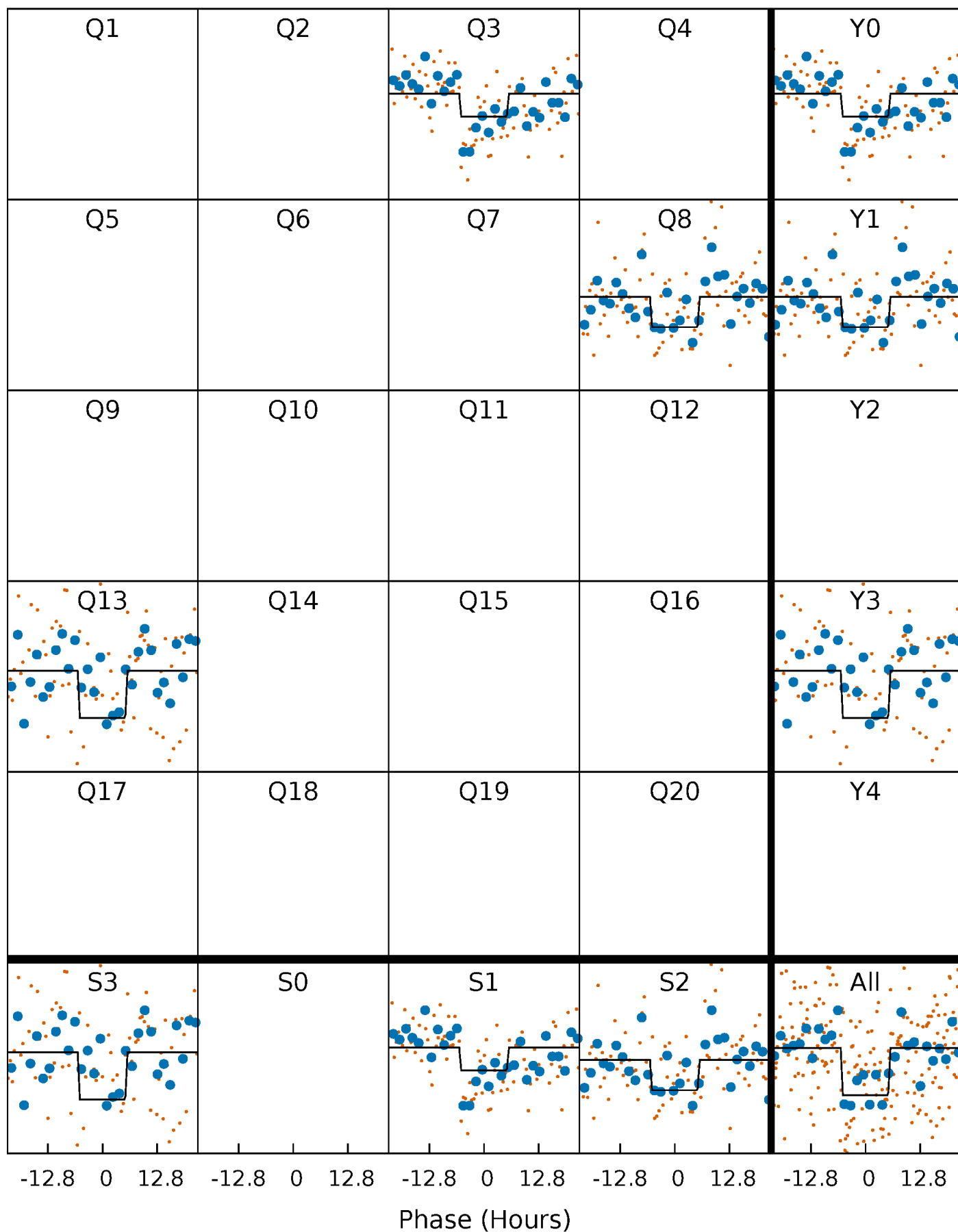
# DV Quarter-Phased Transit Curves

TCE 008951761-01 P=476.279346 Days  $T_0=301.854877$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

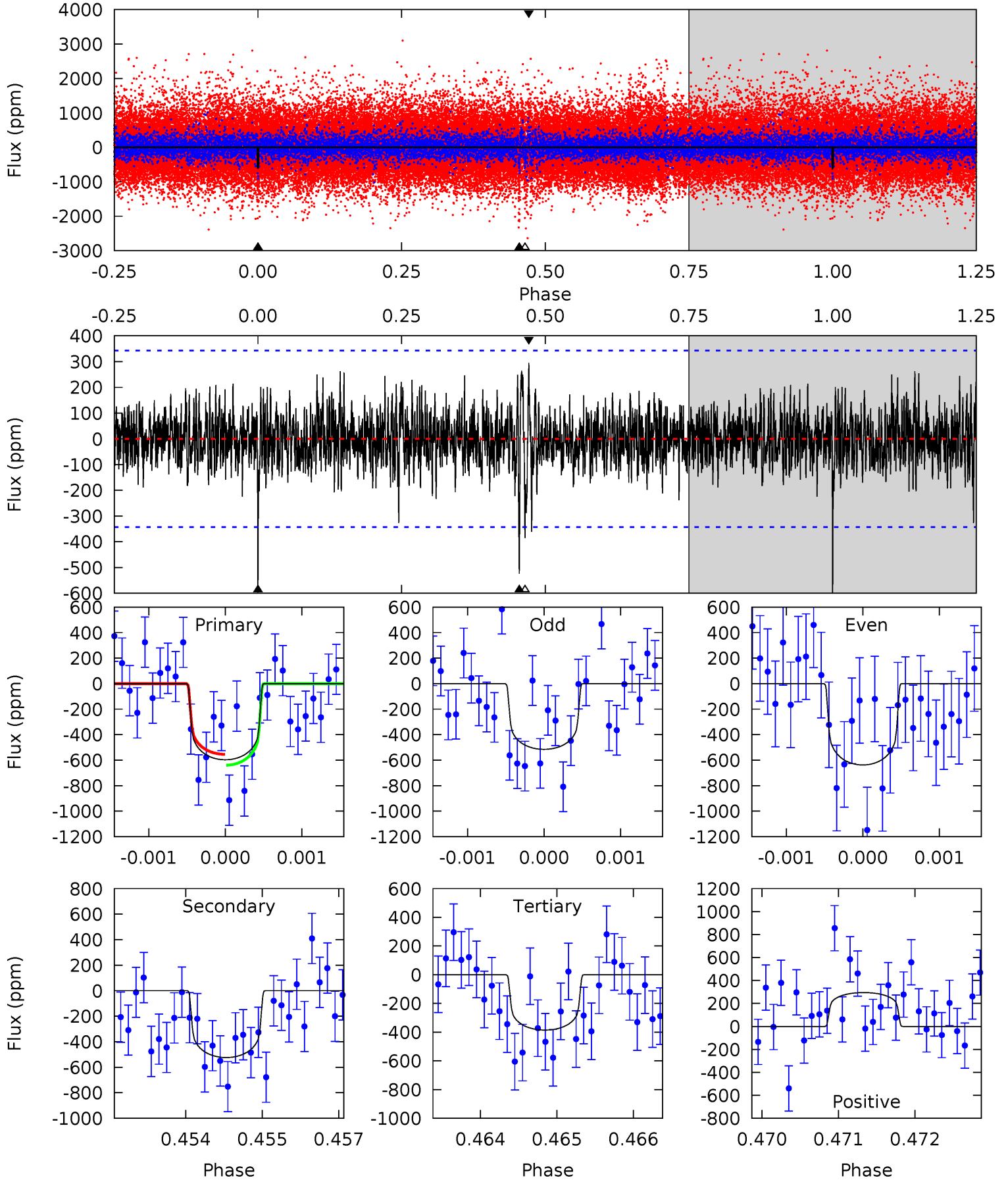
TCE 008951761-01 P=476.299472 Days  $T_0=301.823042$  (BKJD)



# DV Model-Shift Uniqueness Test

008951761-01, P = 476.279346 Days, E = 301.854877 Days

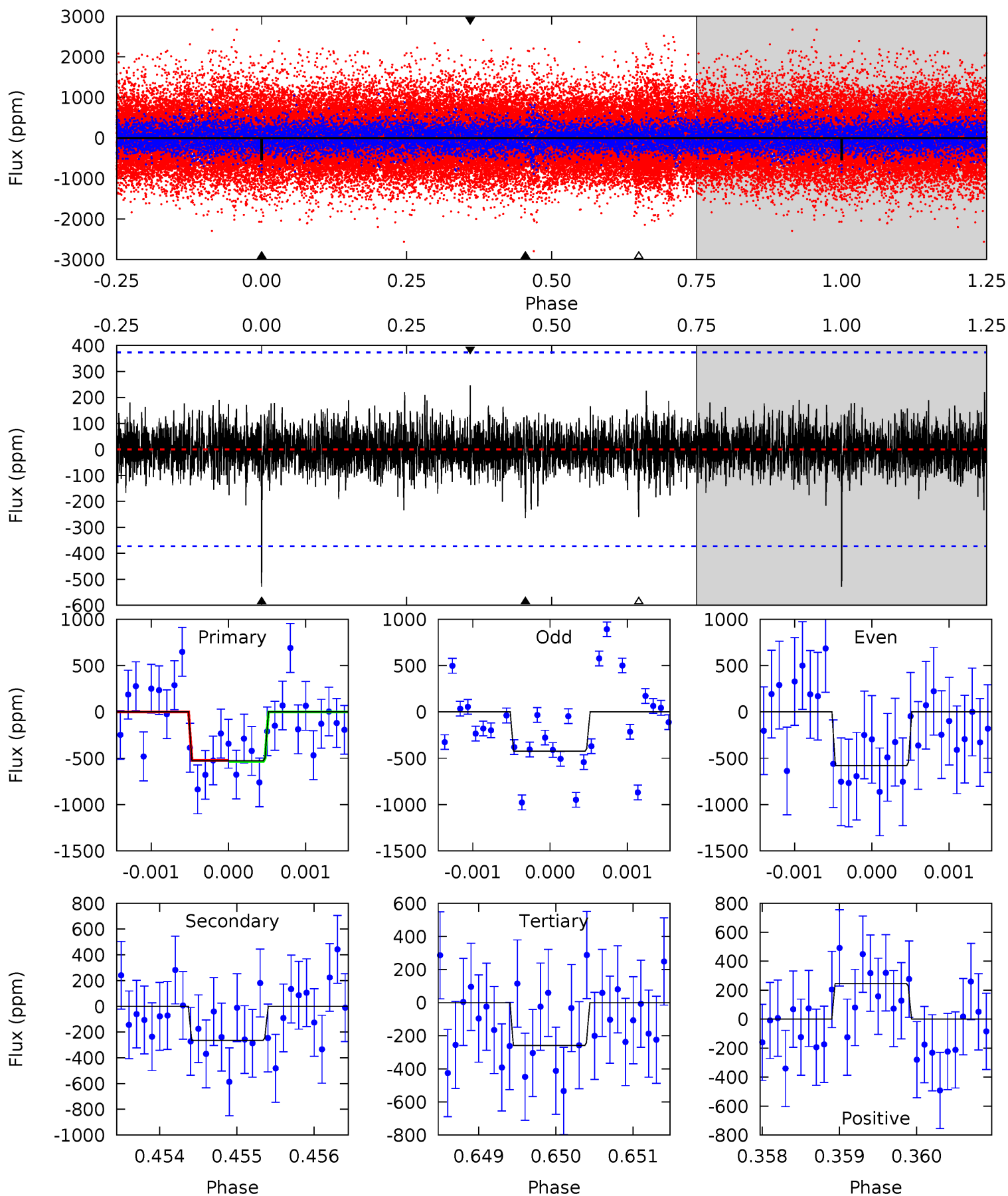
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.43	8.28	6.09	4.66	5.42	3.24	1.25	3.34	4.77	2.19	3.62	0.91	1.16	0.33	0.68



# Alt Model-Shift Uniqueness Test

008951761-01, P = 476.299472 Days, E = 301.823042 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
7.73	3.86	3.79	3.60	5.45	3.29	0.84	3.93	4.13	0.07	0.26	1.08	1.25	0.32	0.10



### Stellar Parameters For KIC 008951761

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6321^{+174}_{-217}$	$4.417^{+0.062}_{-0.188}$	$0.070^{+0.200}_{-0.350}$	$1.125^{+0.313}_{-0.134}$	$1.207^{+0.135}_{-0.186}$	$1.195^{+0.372}_{-0.555}$
	+3%/-3%	+1%/-4%	+286%/-500%	+28%/-12%	+11%/-15%	+31%/-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 008951761-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-524 \pm 63$	$3.15^{+1.42}_{-1.21}$	$372^{+26}_{-18}$	$6075^{+1920}_{-938}$	$45890^{+76661}_{-23761}$
Alt.	$-264 \pm 68$	$3.00^{+1.33}_{-1.21}$	$373^{+25}_{-18}$	$5309^{+1460}_{-834}$	$26203^{+43423}_{-14333}$

$T_{\text{max}}$  = 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

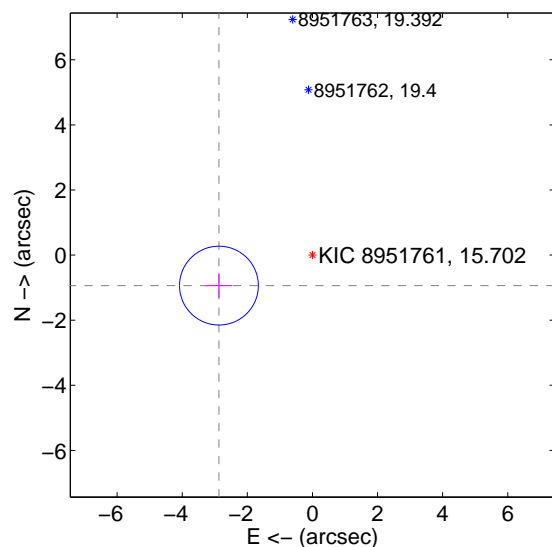
Supplemental centroid analysis for 008951761-01. Kepler magnitude: 15.70. Transit SNR 7.55

There are 1 quarters with good PRF difference image offsets

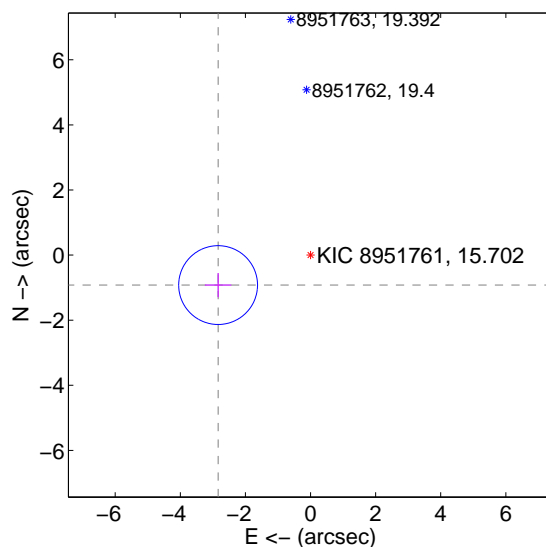
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.022 \pm 0.404$	7.49	$2.872 \pm 0.407$	$-0.937 \pm 0.372$
PRF-fit source offset from KIC position	$2.985 \pm 0.404$	7.40	$2.840 \pm 0.407$	$-0.921 \pm 0.372$
photometric centroid source offset	$1.28 \pm 1.64$	0.78	$0.85 \pm 1.64$	$-0.96 \pm 1.64$

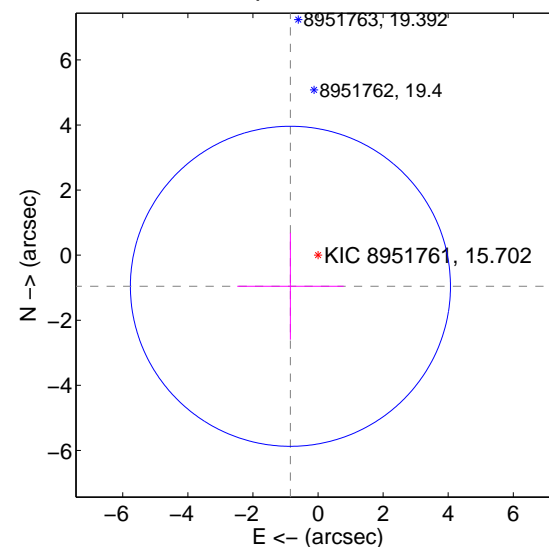
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

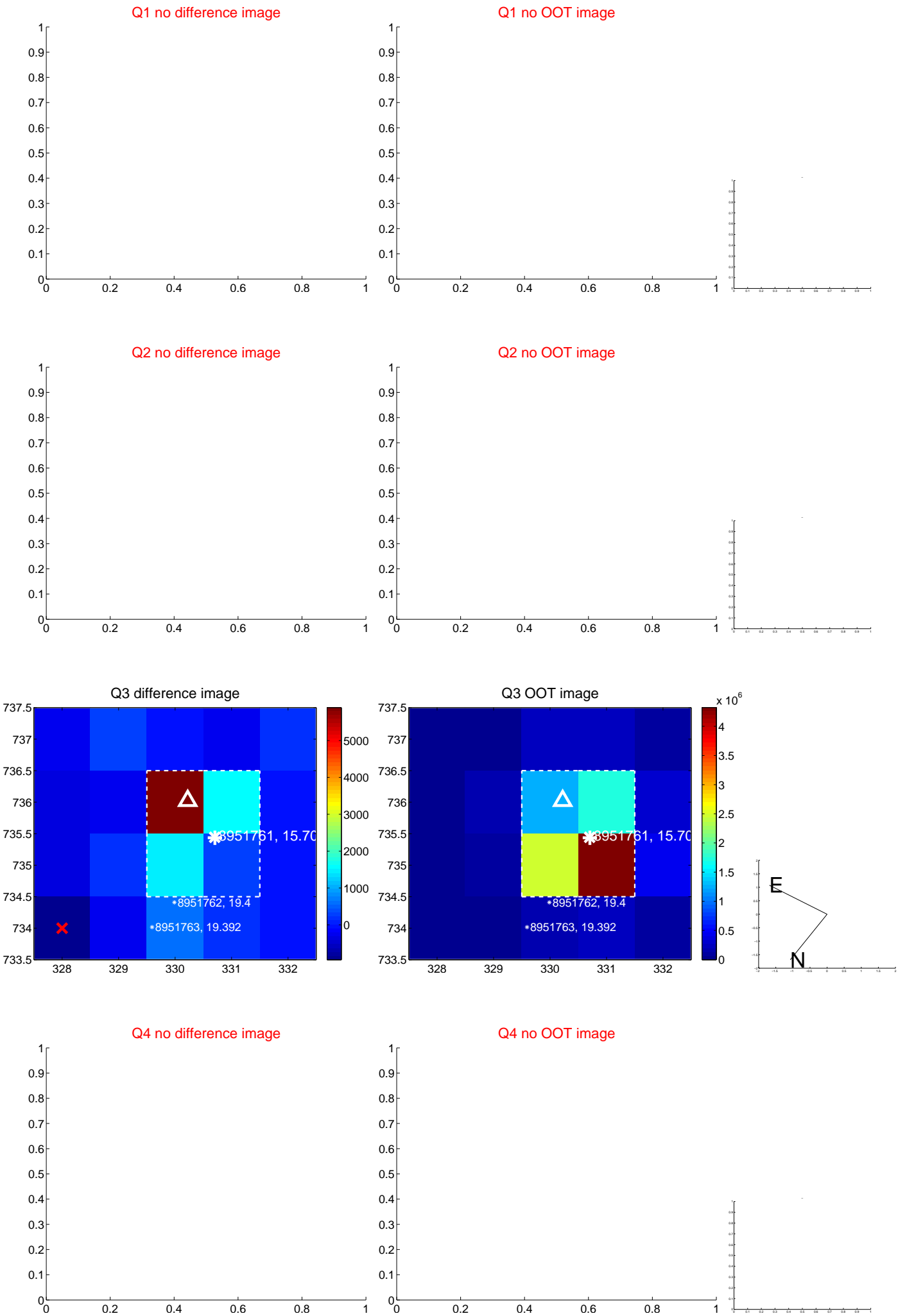


offset from photometric centroids



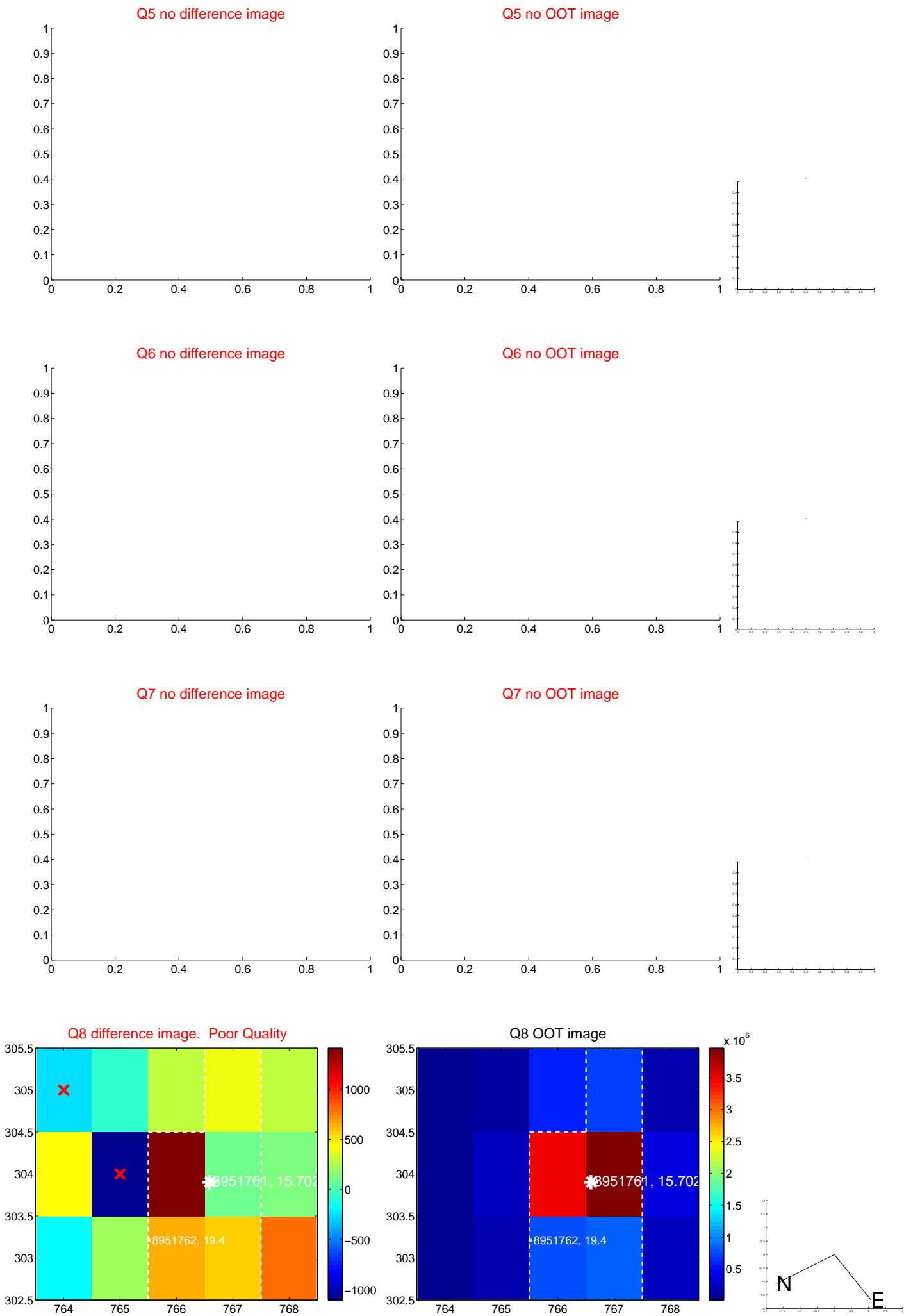
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

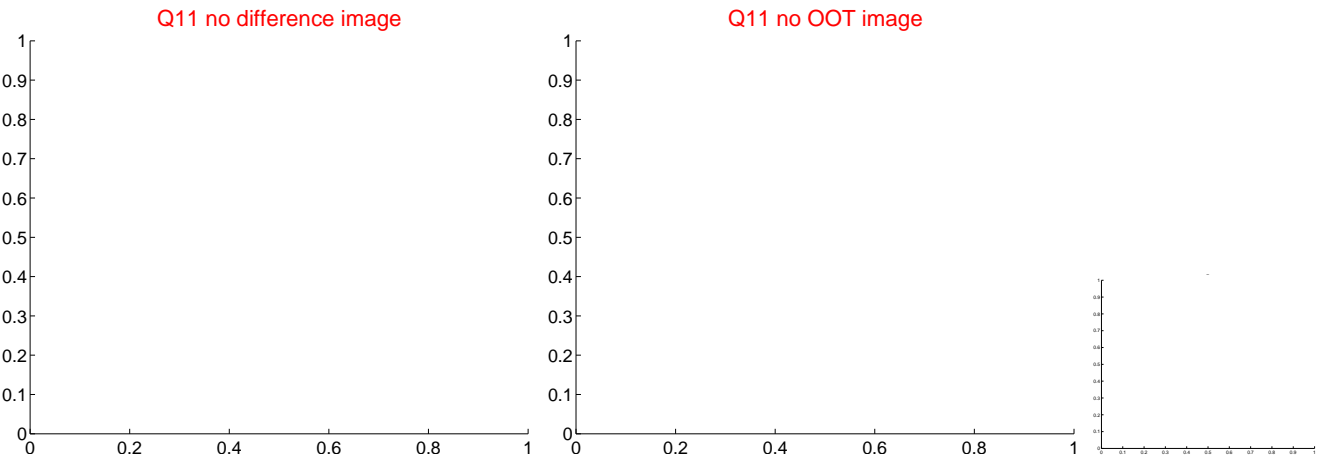




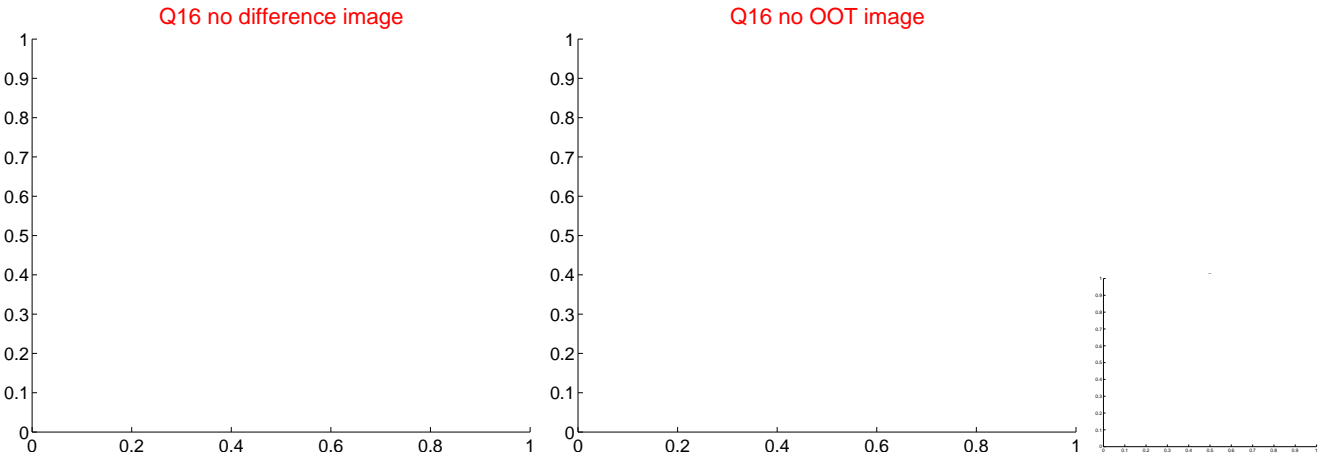
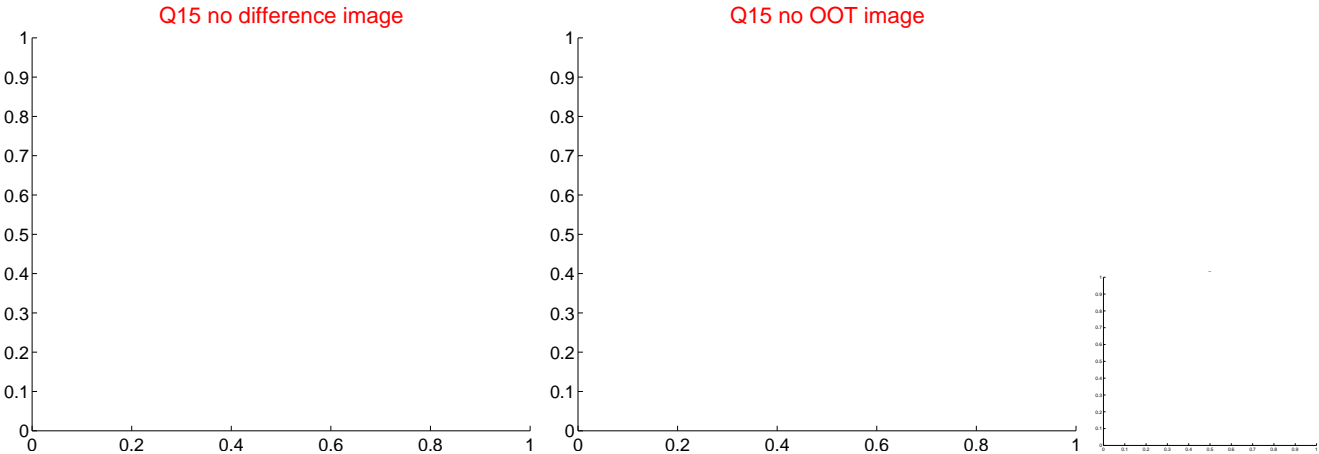
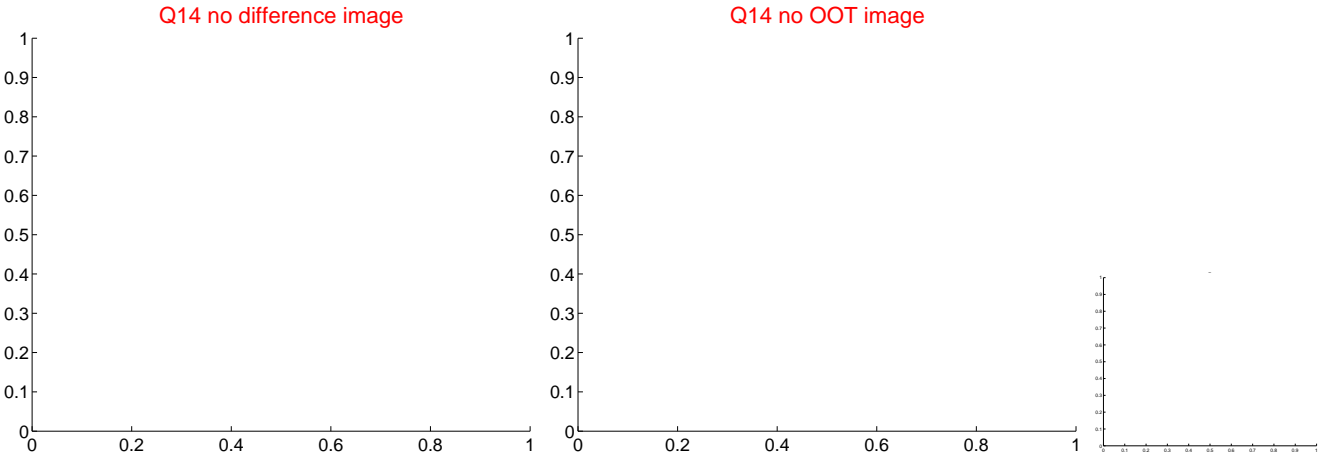
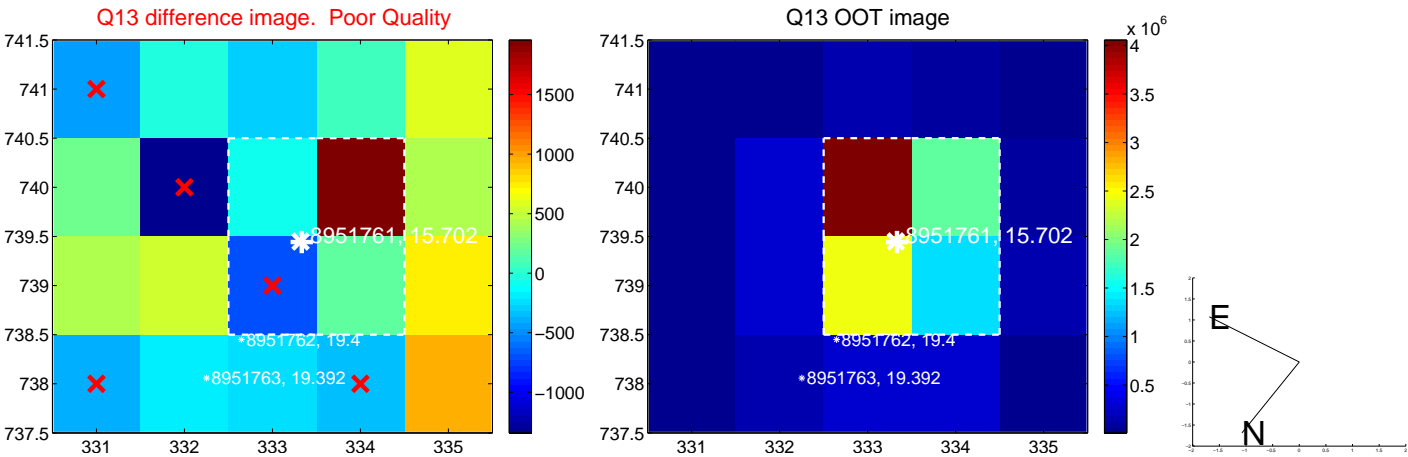
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



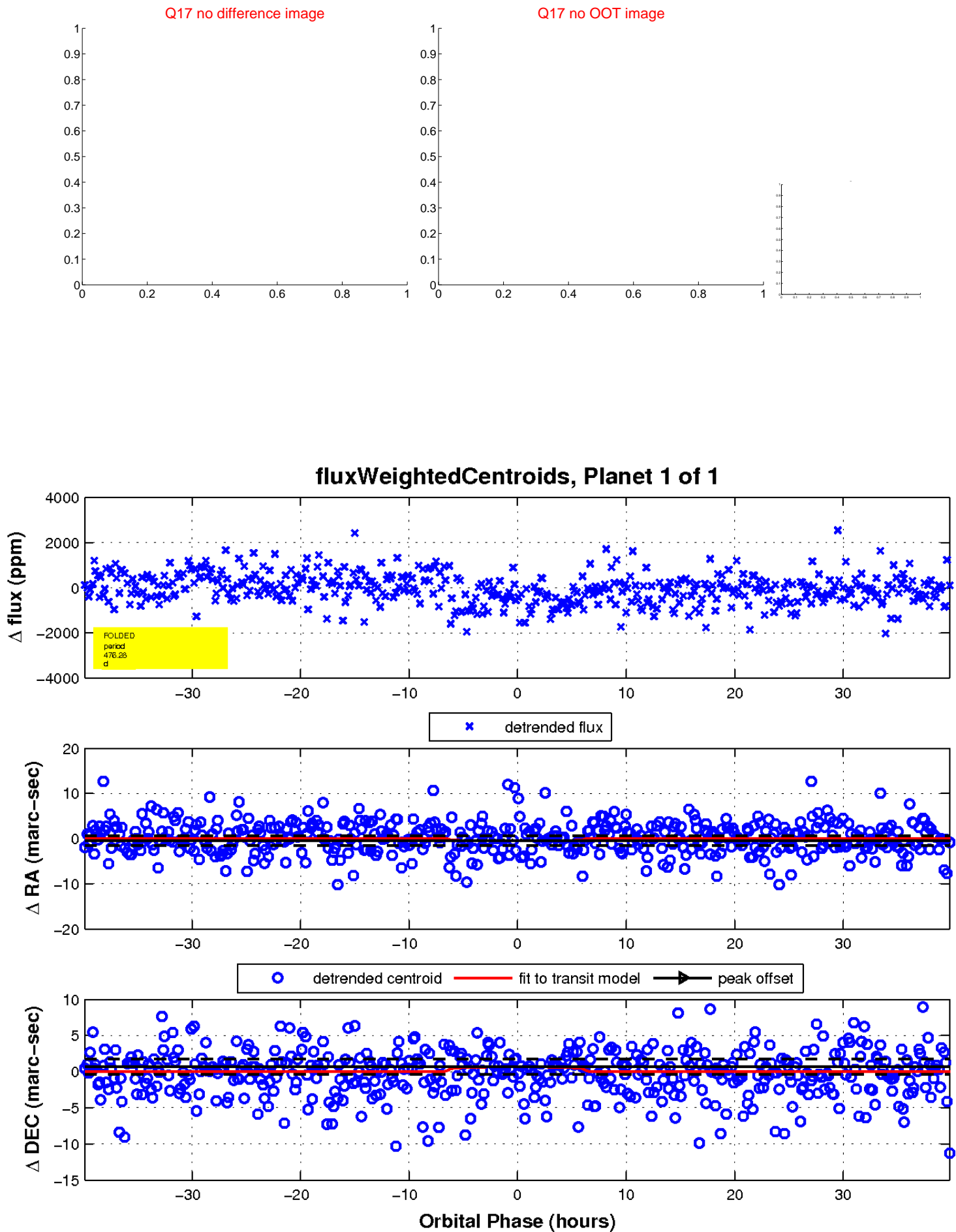
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

