

# KIC 010075468

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010075468-01	OBS	No	459.596376	489.467632	751.9	17.669	7.9	7.9	0.90	5997	2.51	0.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010075468-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

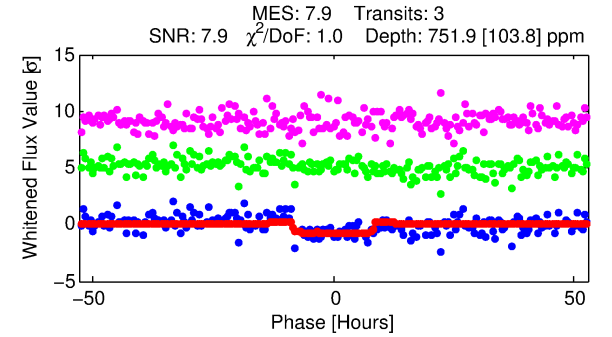
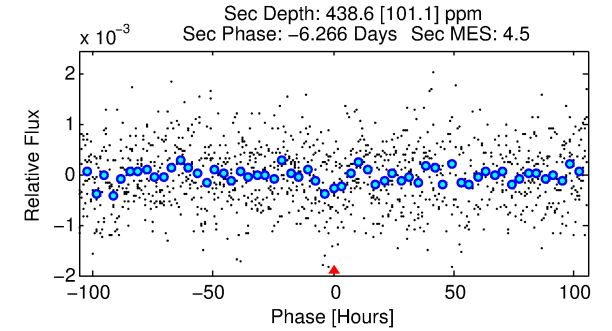
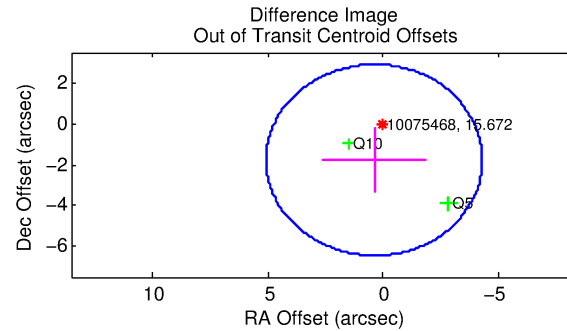
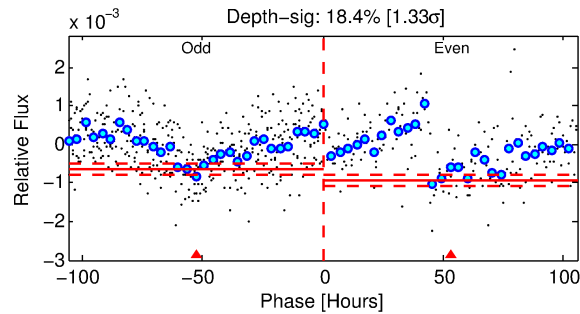
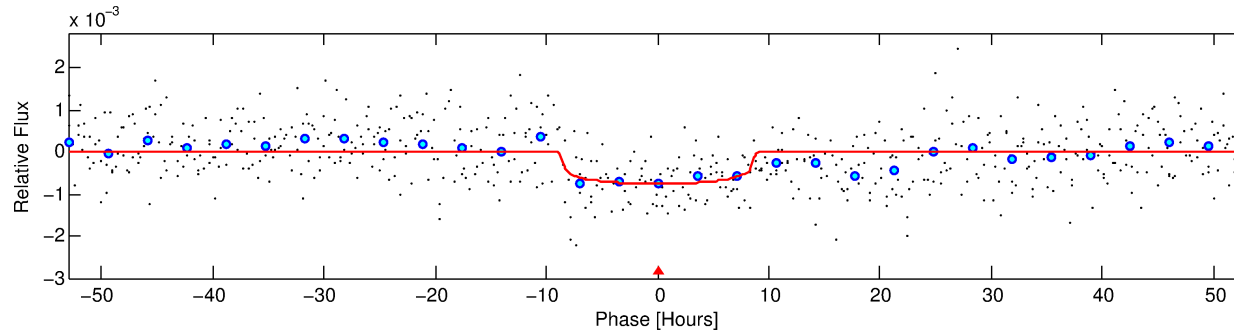
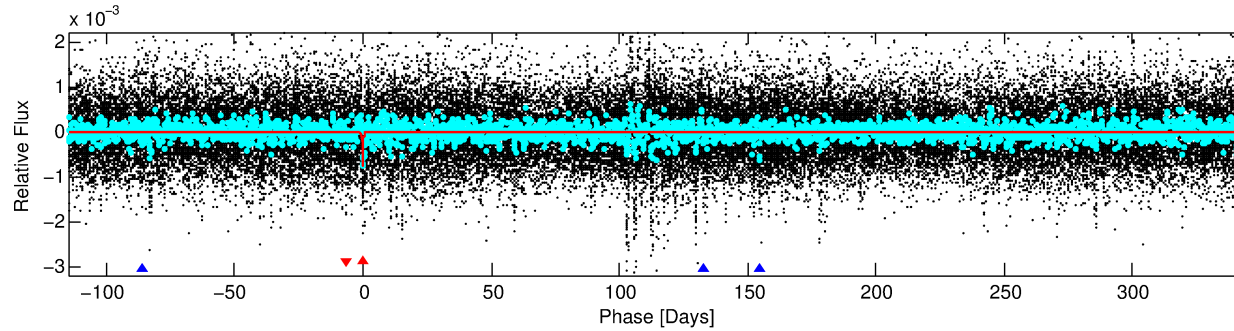
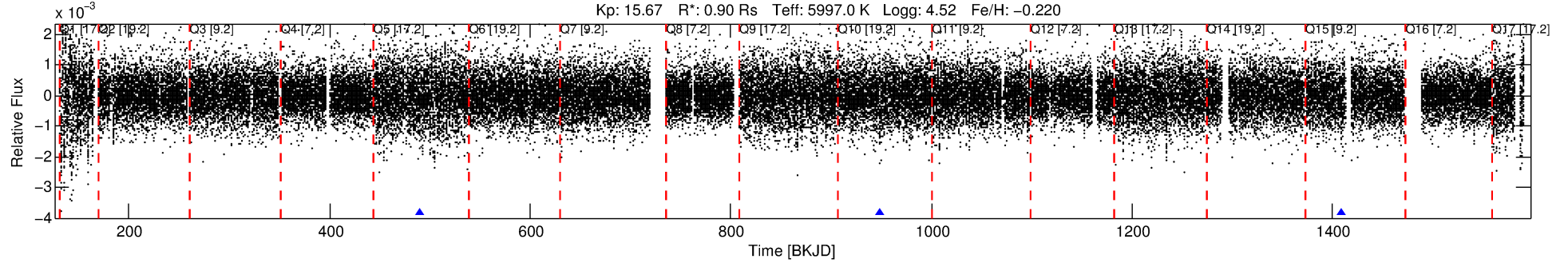
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010075468-01

No Significant Match Found

# DV One-Page Summary

KIC: 10075468 Candidate: 1 of 2 Period: 459.596 d



## DV Fit Results:

Period = 459.59638 [0.01903] d  
Epoch = 489.4676 [0.0285] BKJD  
Rp/R\* = 0.0254 [0.0146]  
a/R\* = 190.49 [523.48]  
b = 0.36 [6.57]  
Seff = 0.70 [0.29]  
Teq = 233 [24] K  
Rp = 2.51 [1.63] Re  
a = 1.1625 [0.3048] AU  
Ag = 51872.00 [64041.73] [0.81 $\sigma$ ]  
Teffp = 5444 [1606] K [3.24 $\sigma$ ]

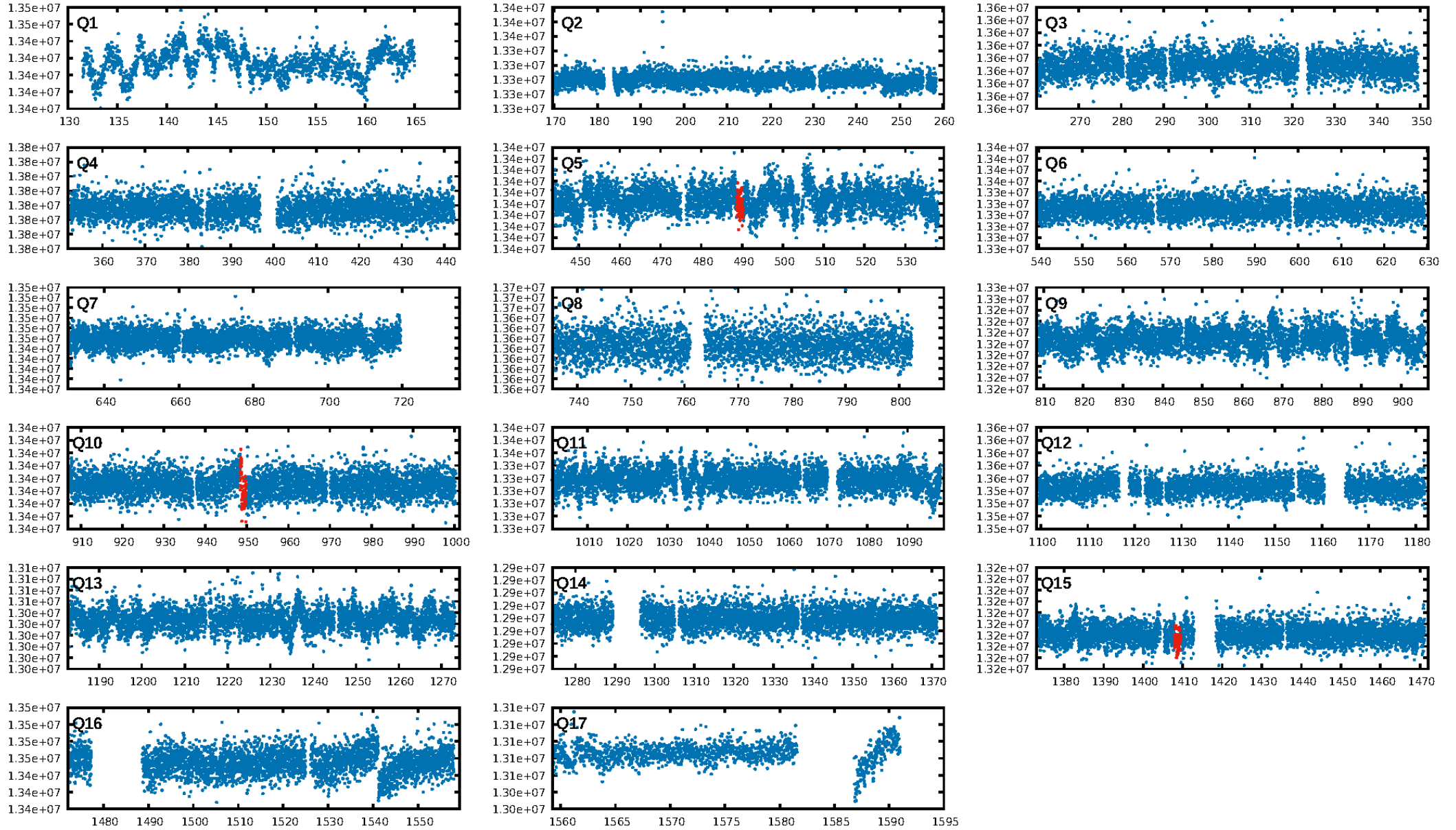
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [243.54 $\sigma$ ]  
ModelChiSquare2-sig: 35.8%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.84e-09**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -4.396  
Centroid-sig: 1.0%  
Centroid-so: 3.326 arcsec [1.75 $\sigma$ ]  
OotOffset-rm: 1.816 arcsec [1.16 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 2.072 arcsec [1.61 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

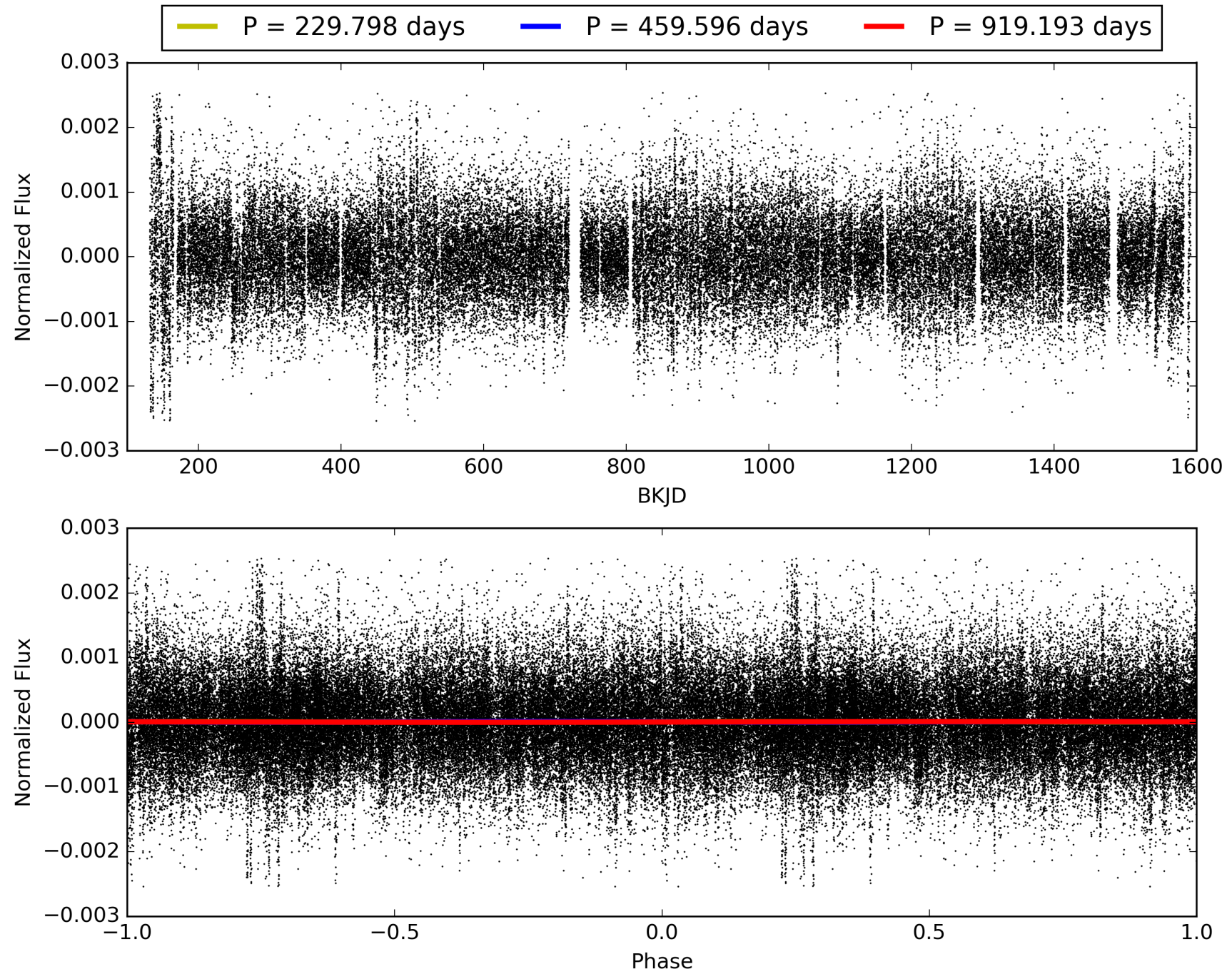
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:59:16 Z

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

# TCE 010075468-01, PDC Light Curves

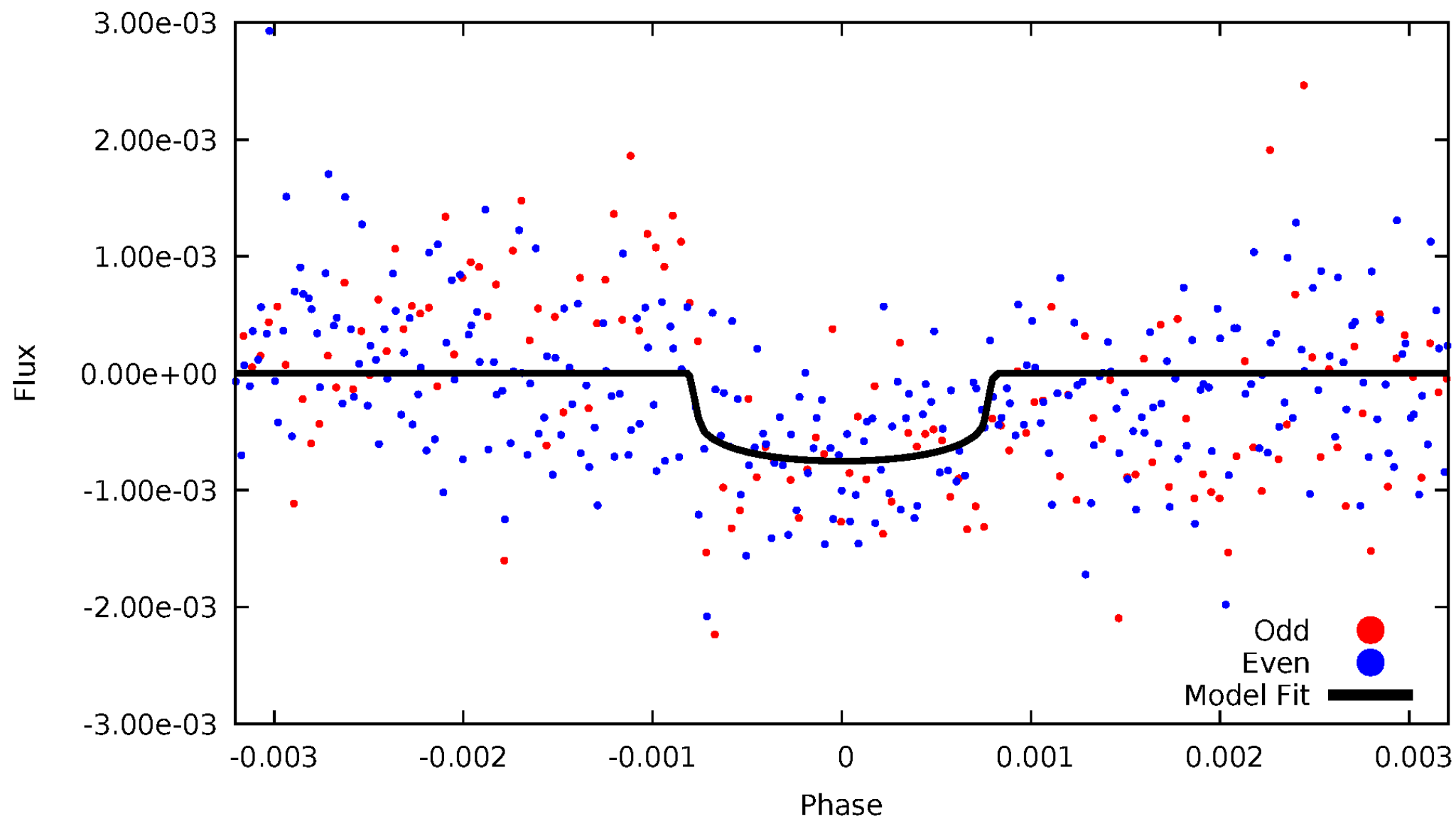


TCE 010075468-01



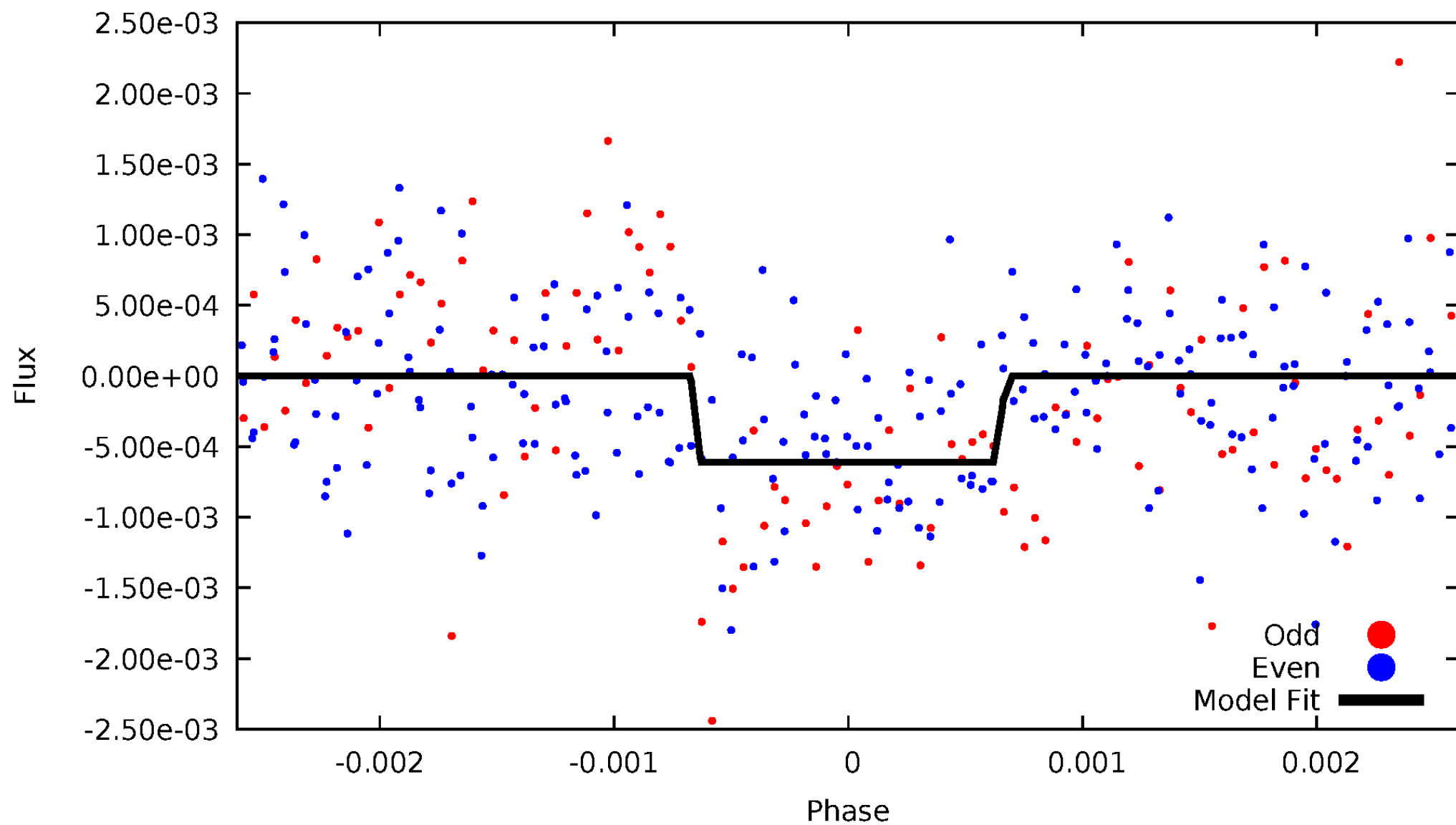
# DV Odd/Even

TCE 010075468-01



# ALT Odd/Even

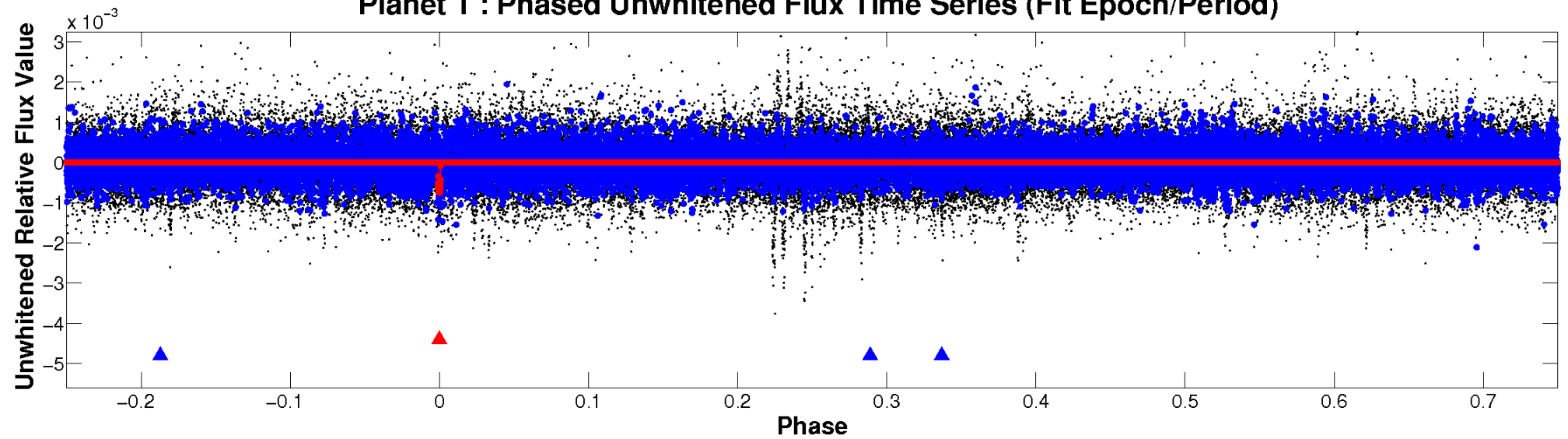
TCE 010075468-01



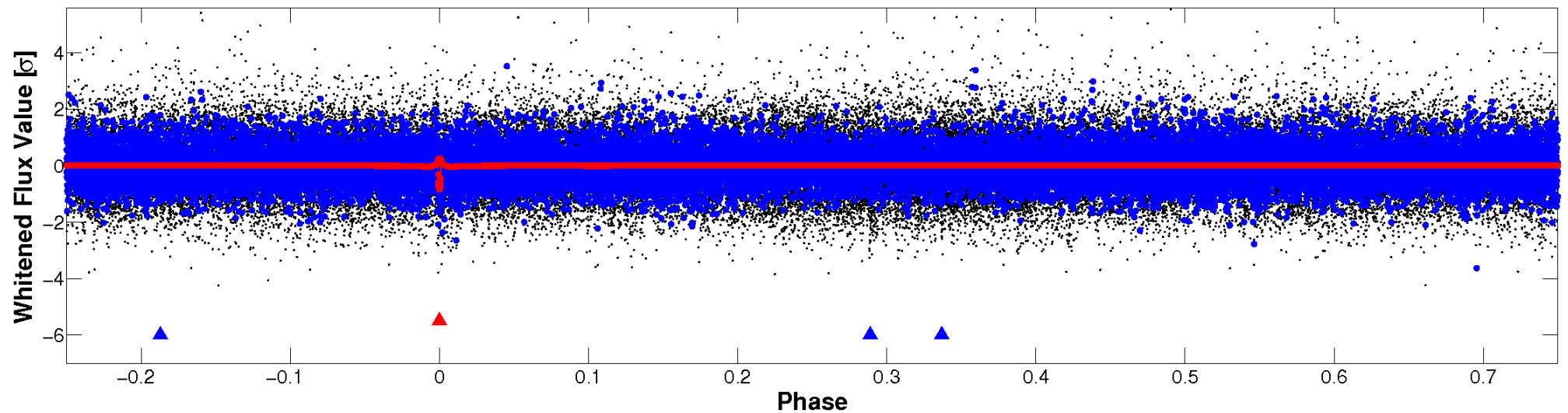


# Non-Whitened Vs. Whitened Light Curve

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

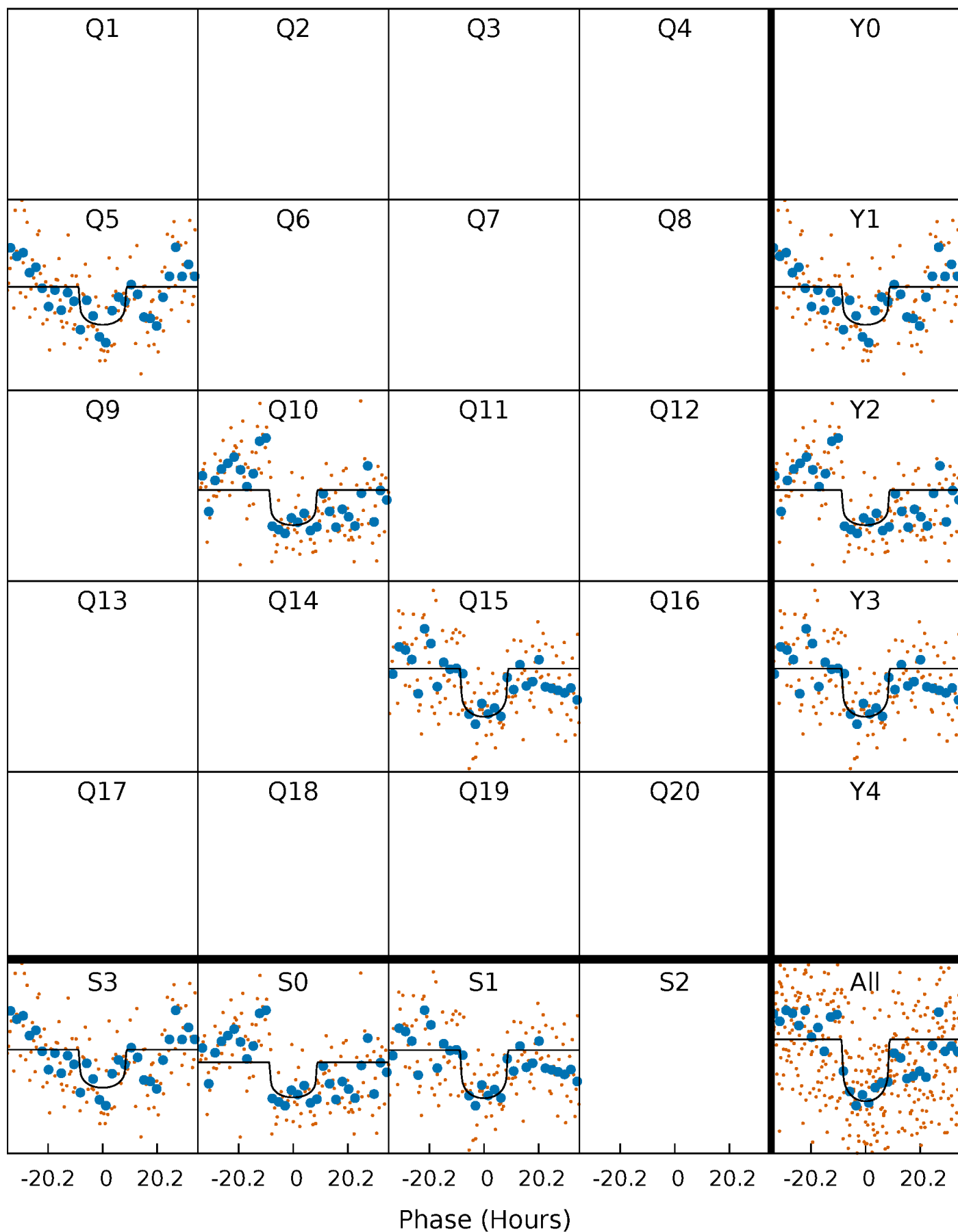
TCE 010075468-01 P=459.596376 Days  $T_0=489.467632$  (BKJD)





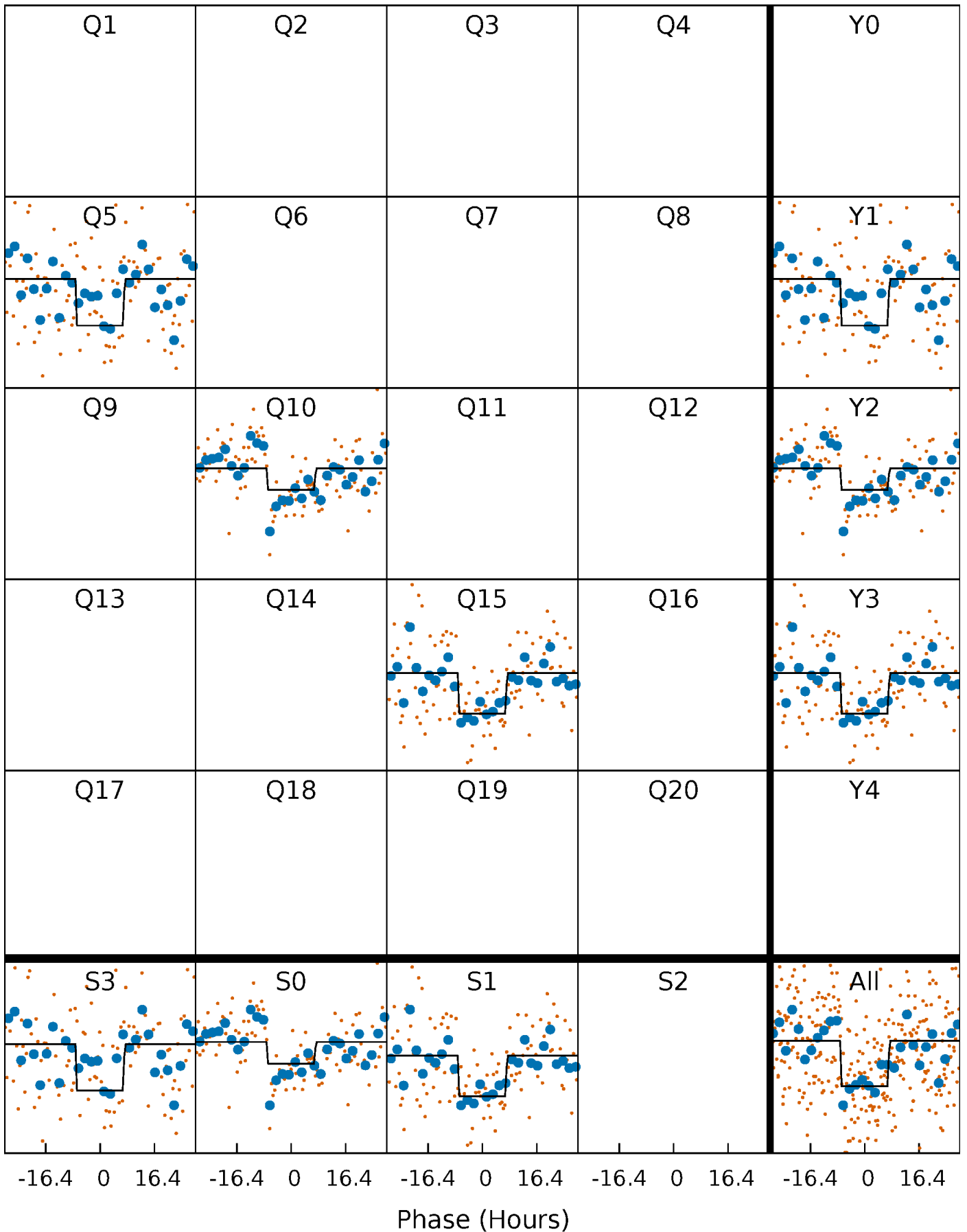
# DV Quarter-Phased Transit Curves

TCE 010075468-01 P=459.596376 Days  $T_0=489.467632$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

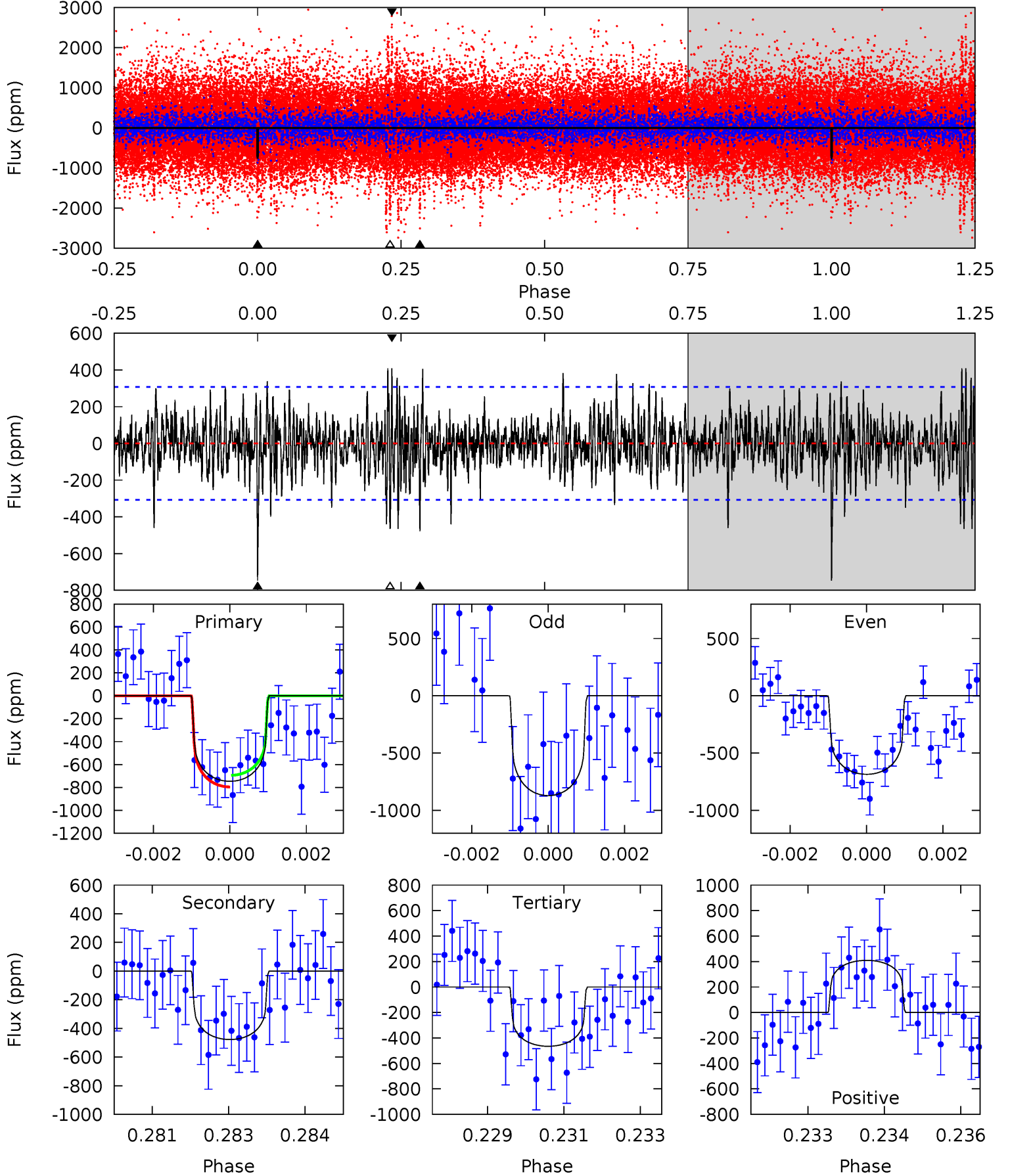
TCE 010075468-01 P=459.652932 Days  $T_0=489.370168$  (BKJD)



# DV Model-Shift Uniqueness Test

010075468-01,  $P = 459.596376$  Days,  $E = 29.871256$  Days

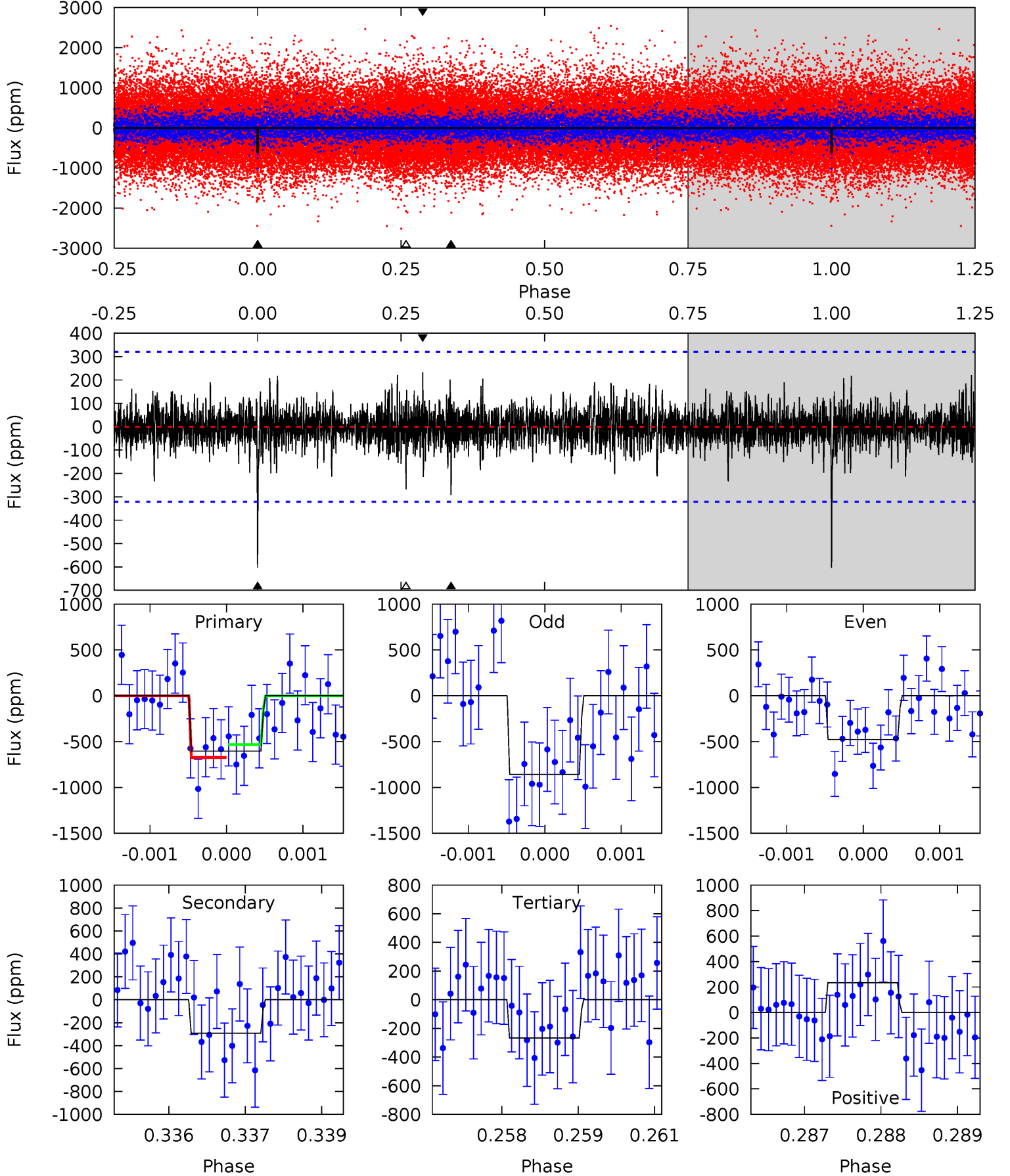
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	8.33	8.11	7.14	5.37	3.15	1.98	4.90	5.88	0.21	1.19	1.52	1.08	0.35	0.88



# Alt Model-Shift Uniqueness Test

010075468-01,  $P = 459.652932$  Days,  $E = 29.717236$  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
10.1	4.91	4.49	3.92	5.39	3.20	0.96	5.64	6.21	0.42	0.99	3.02	0.99	0.28	1.18



### Stellar Parameters For KIC 010075468

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5997^{+162}_{-198}$	$4.522^{+0.050}_{-0.213}$	$-0.220^{+0.300}_{-0.300}$	$0.904^{+0.278}_{-0.093}$	$0.991^{+0.121}_{-0.121}$	$1.890^{+0.391}_{-0.996}$
	+3%/-3%	+1%/-5%	+136%/-136%	+31%/-10%	+12%/-12%	+21%/-53%
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 010075468-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-478 \pm 57$	$2.72^{+1.62}_{-1.36}$	$334^{+25}_{-16}$	$5494^{+2513}_{-934}$	$47752^{+140784}_{-28812}$
Alt.	$-292 \pm 60$	$2.77^{+1.44}_{-1.43}$	$332^{+24}_{-15}$	$4926^{+1912}_{-795}$	$27676^{+87520}_{-16169}$

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

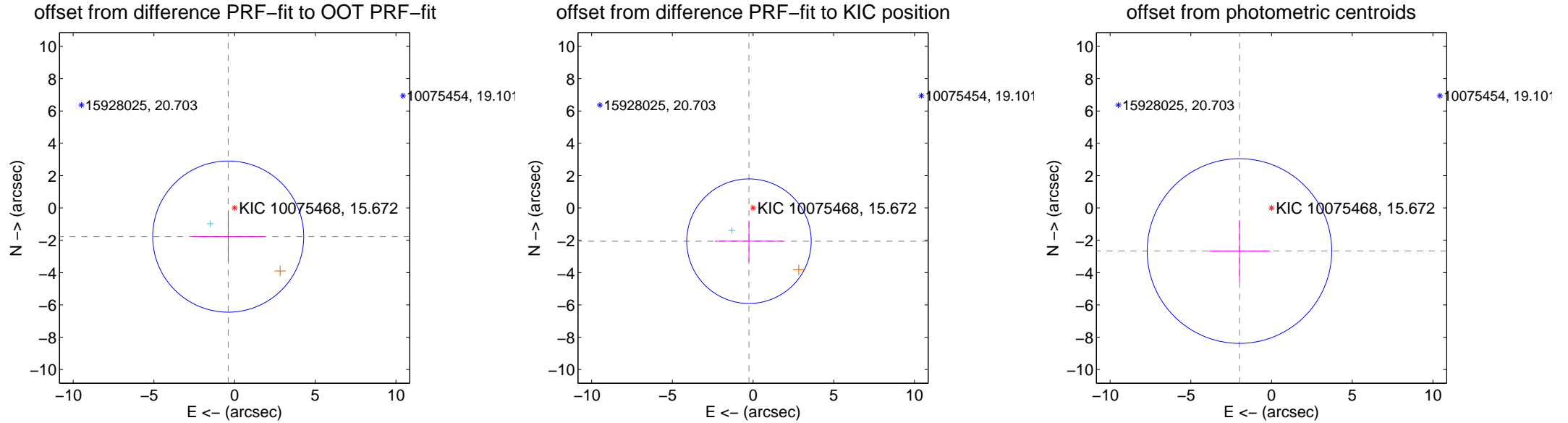
## DV Centroid Data

Supplemental centroid analysis for 010075468-01. Kepler magnitude: 15.67. Transit SNR 7.93

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.816 \pm 1.559$	1.16	$0.394 \pm 2.211$	$-1.773 \pm 1.520$
PRF-fit source offset from KIC position	$2.072 \pm 1.285$	1.61	$0.253 \pm 2.120$	$-2.057 \pm 1.268$
photometric centroid source offset	$3.33 \pm 1.91$	1.75	$1.99 \pm 1.90$	$-2.67 \pm 1.91$



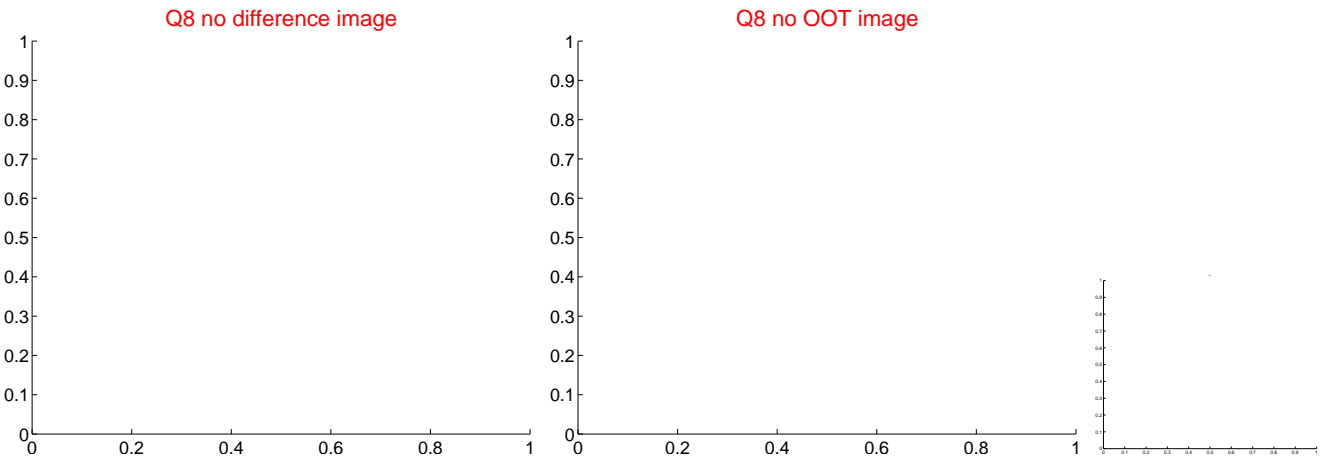
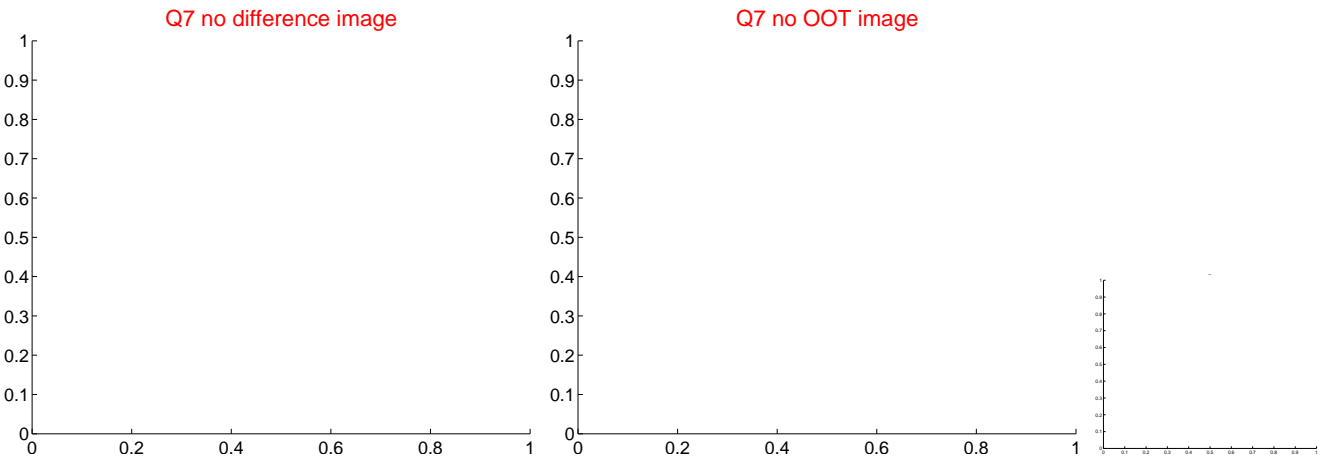
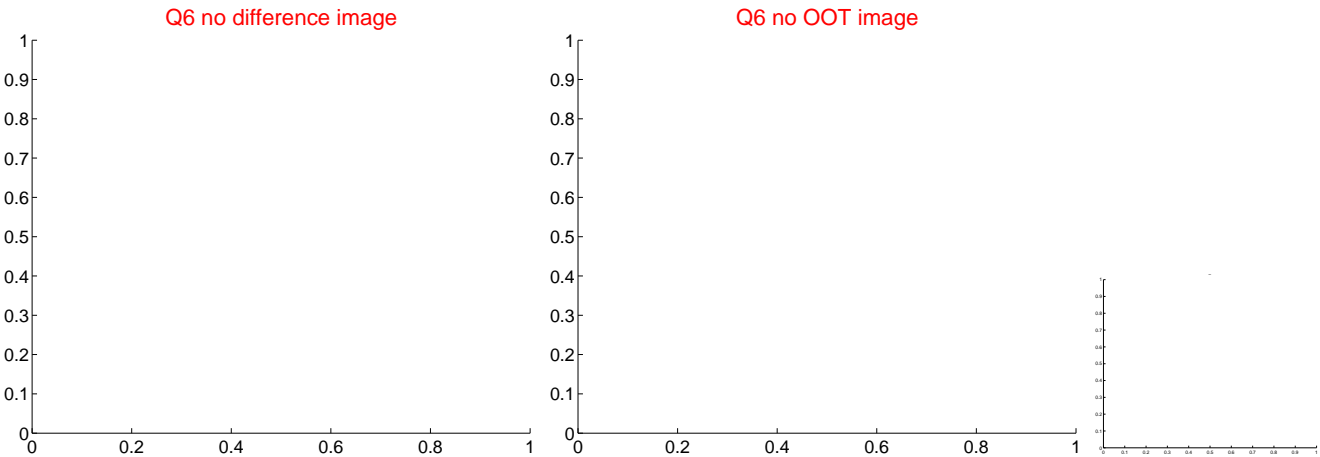
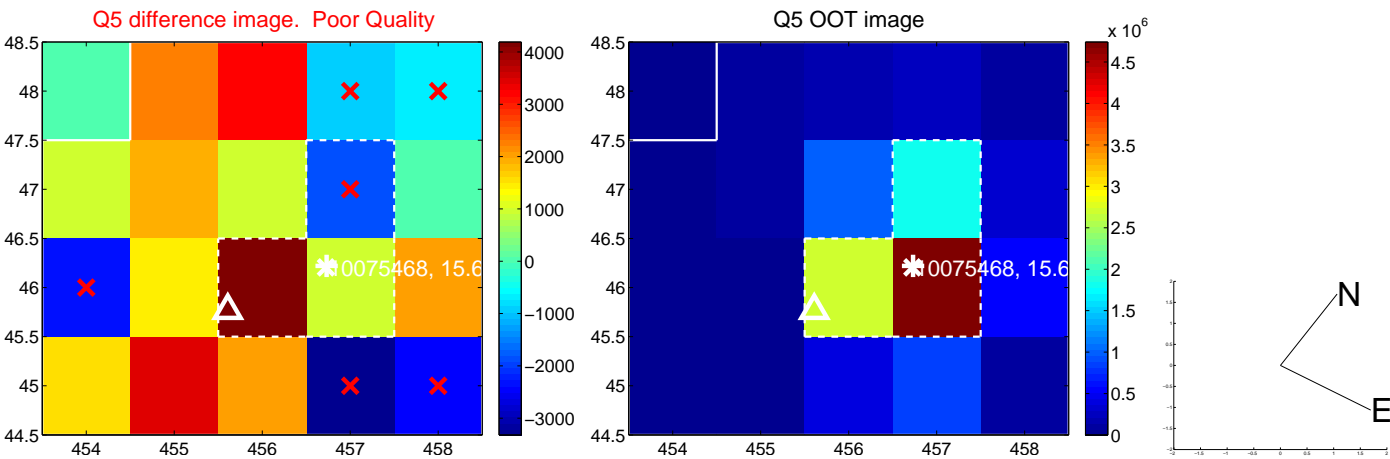
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

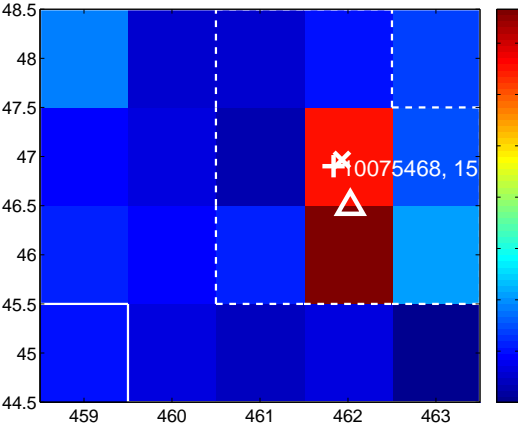
Q9 no difference image



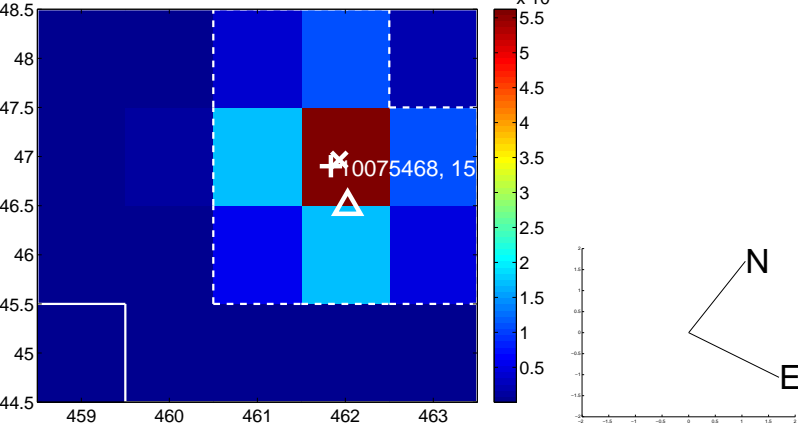
Q9 no OOT image



Q10 difference image



Q10 OOT image



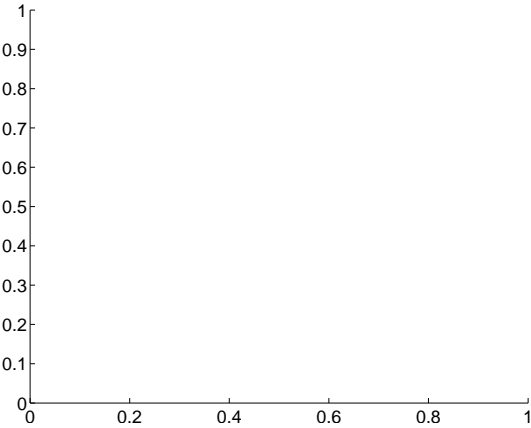
Q11 no difference image



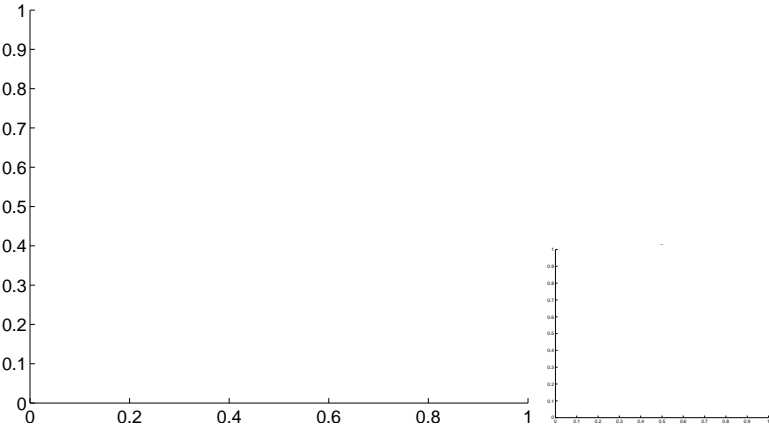
Q11 no OOT image



Q12 no difference image



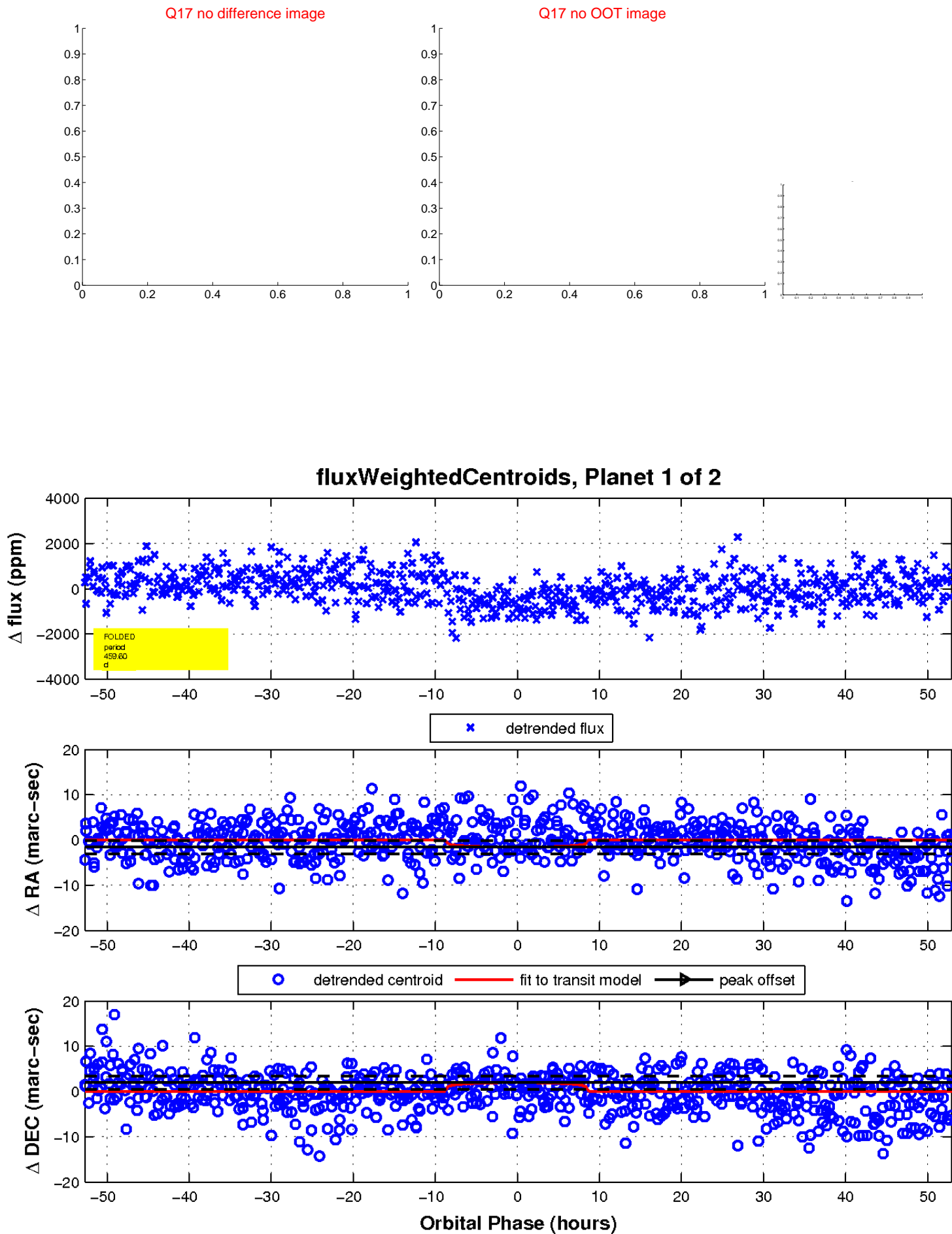
Q12 no OOT image



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

