

# KIC 009077484

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009077484-01	OBS	No	313.683323	291.091503	368.8	24.112	8.6	5.6	0.76	5146	1.82	0.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009077484-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_ALT—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.

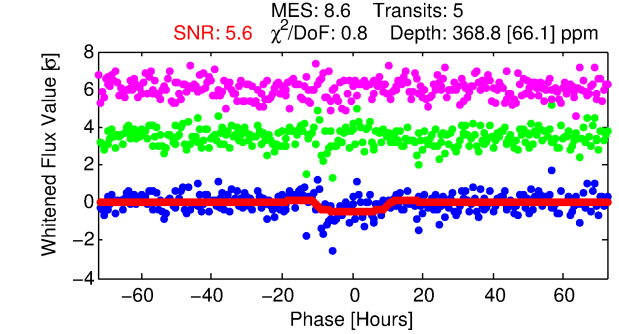
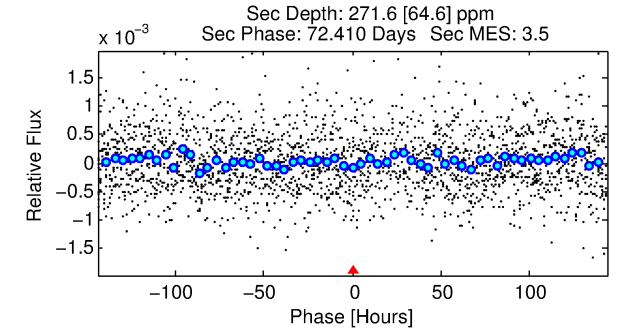
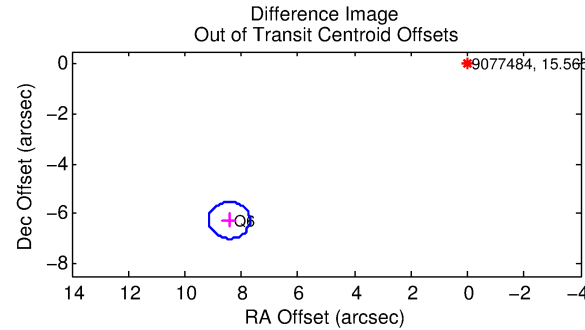
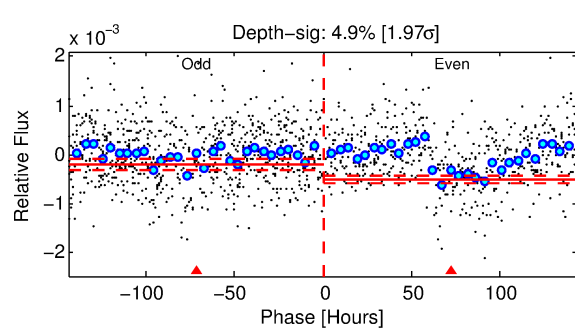
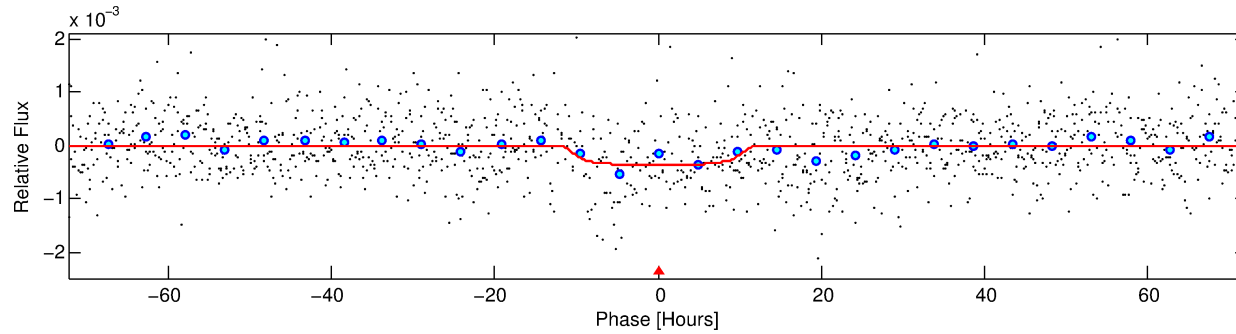
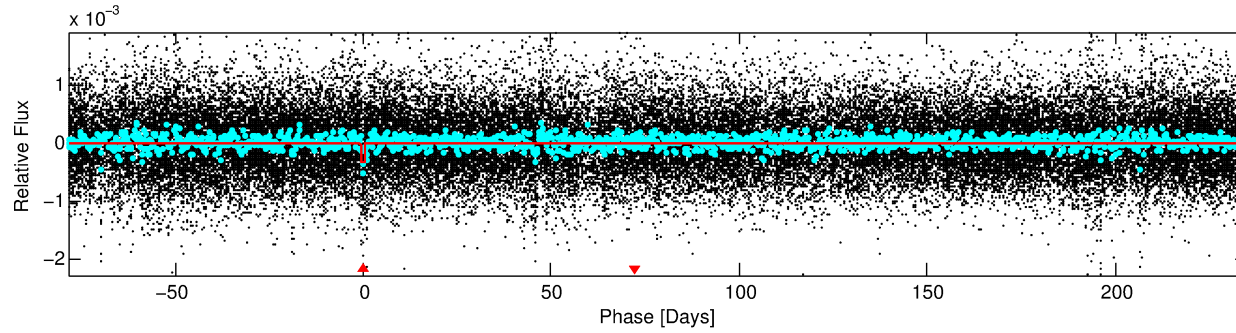
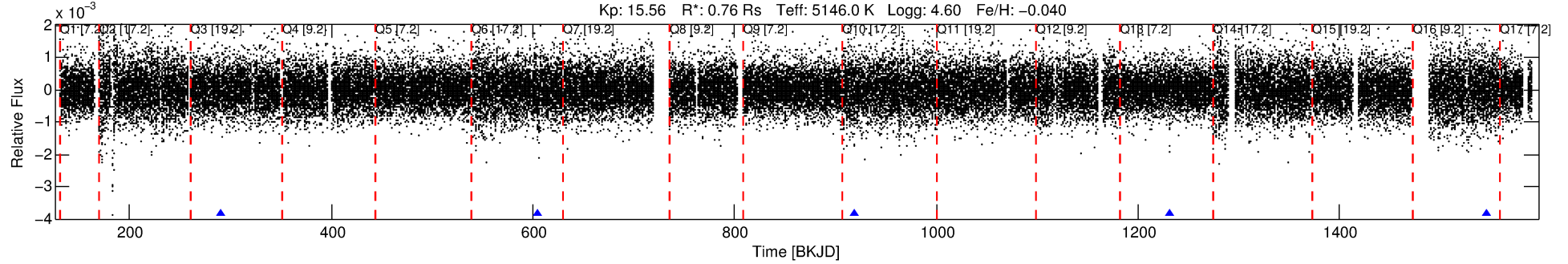
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009077484-01

No Significant Match Found

# DV One-Page Summary

KIC: 9077484 Candidate: 1 of 1 Period: 313.683 d



## DV Fit Results:

Period = 313.68332 [0.02672] d  
Epoch = 291.0915 [0.0685] BKJD  
Rp/R\* = 0.0221 [0.0038]  
a/R\* = 42.54 [24.89]  
b = 0.93 [0.09]  
Seff = 0.50 [0.10]  
Teq = 214 [11] K  
Rp = 1.82 [0.39] Re  
a = 0.8505 [0.0928] AU  
Ag = 32537.55 [14552.37] [2.24 $\sigma$ ]  
Teff = 4442 [486] K [8.70 $\sigma$ ]

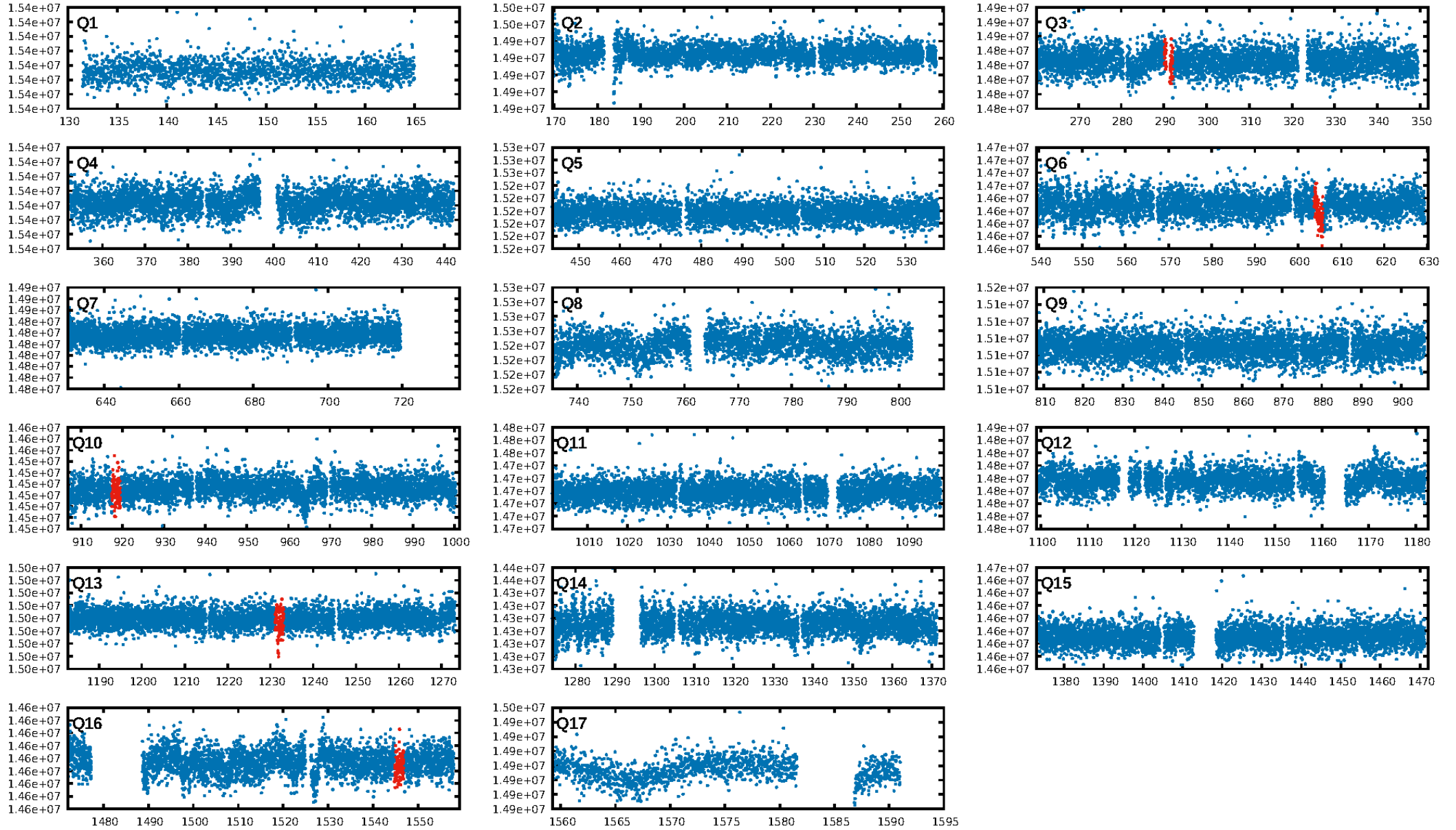
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 79.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.06e-12  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -0.7553  
Centroid-sig: 0.2%  
Centroid-so: 7.708 arcsec [2.71 $\sigma$ ]  
OotOffset-rm: 10.510 arcsec [43.05 $\sigma$ ]  
KicOffset-rm: 10.574 arcsec [43.29 $\sigma$ ]  
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]

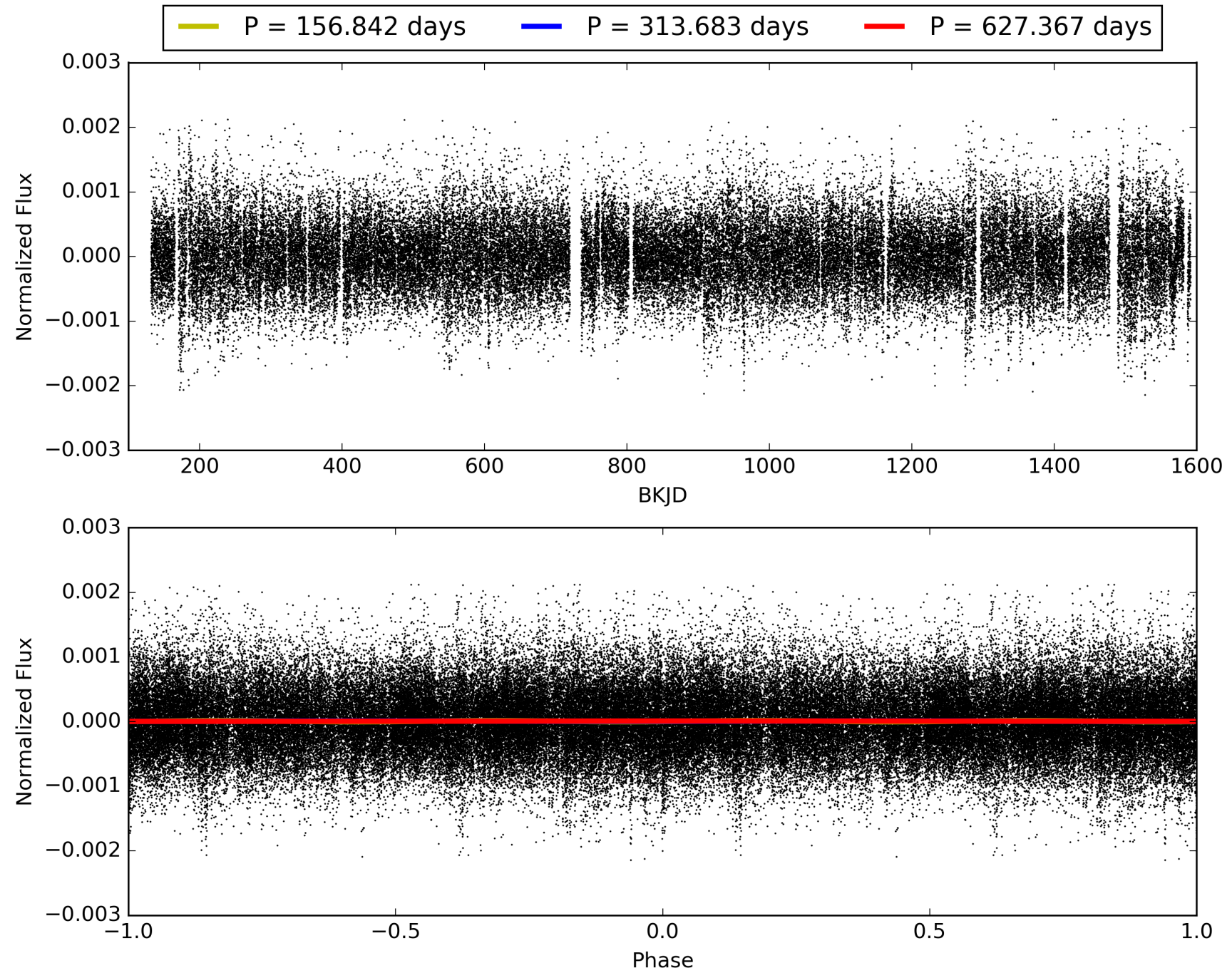
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:21:30 Z

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

# TCE 009077484-01, PDC Light Curves

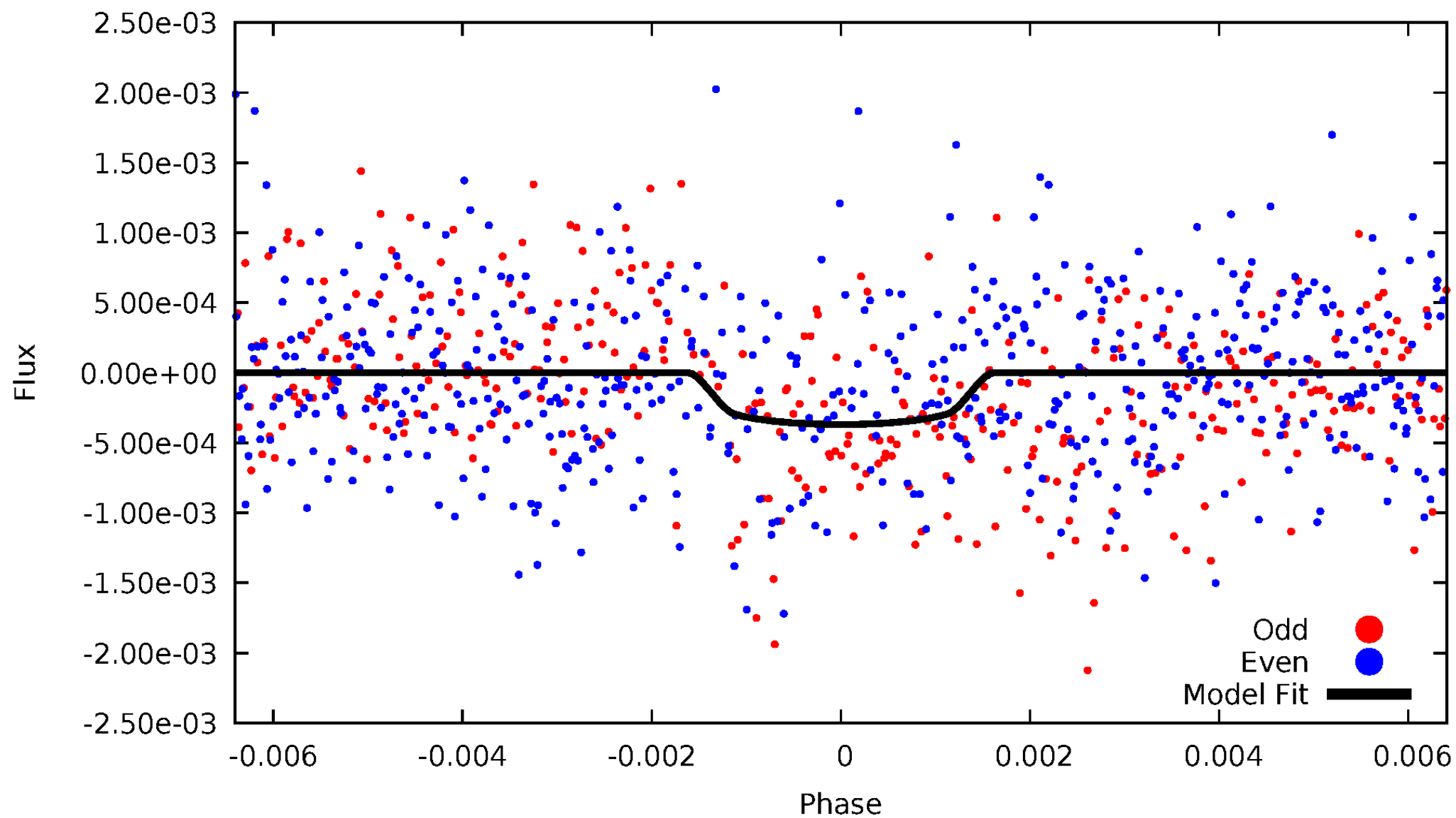


TCE 009077484-01



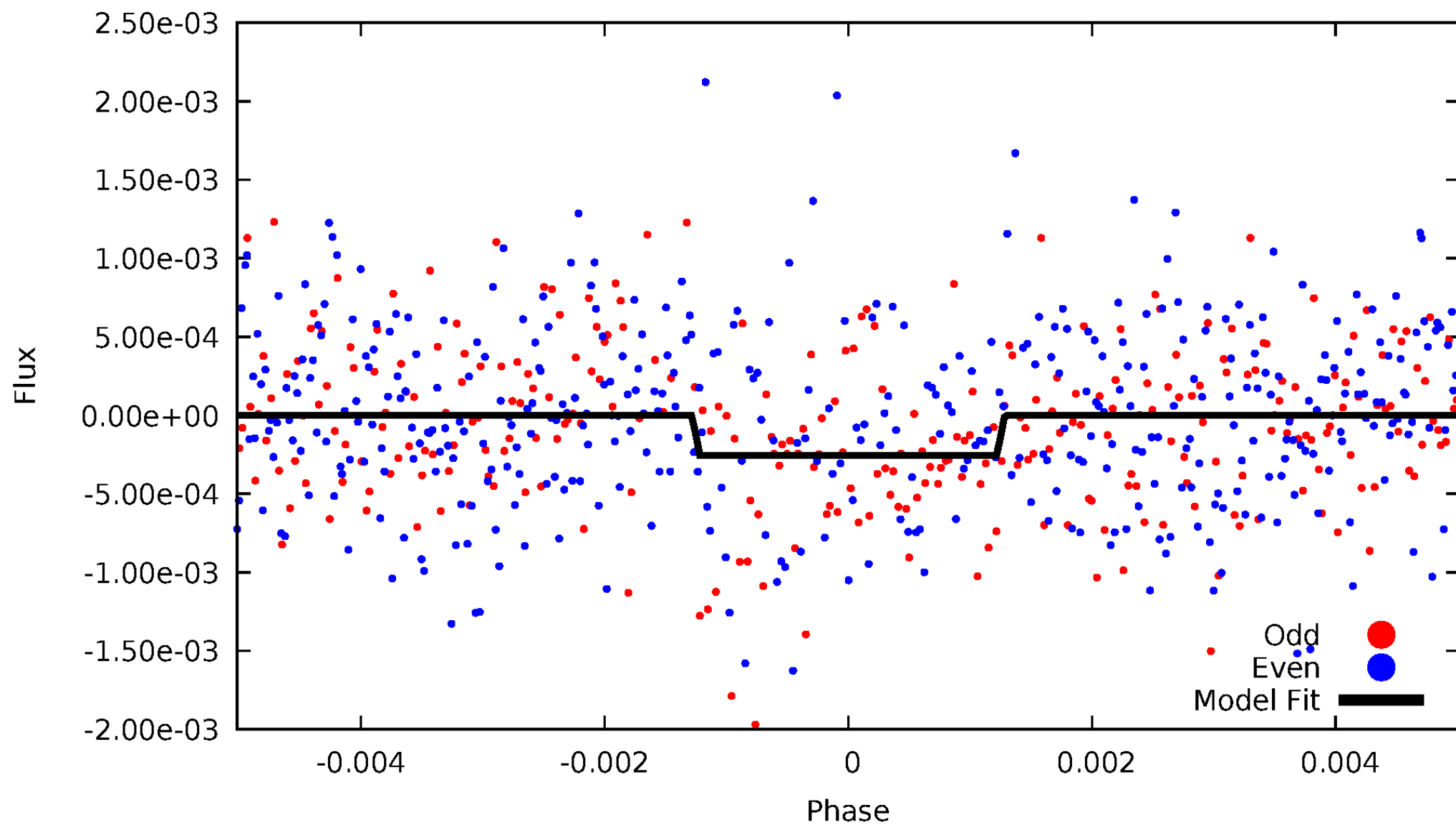
# DV Odd/Even

TCE 009077484-01



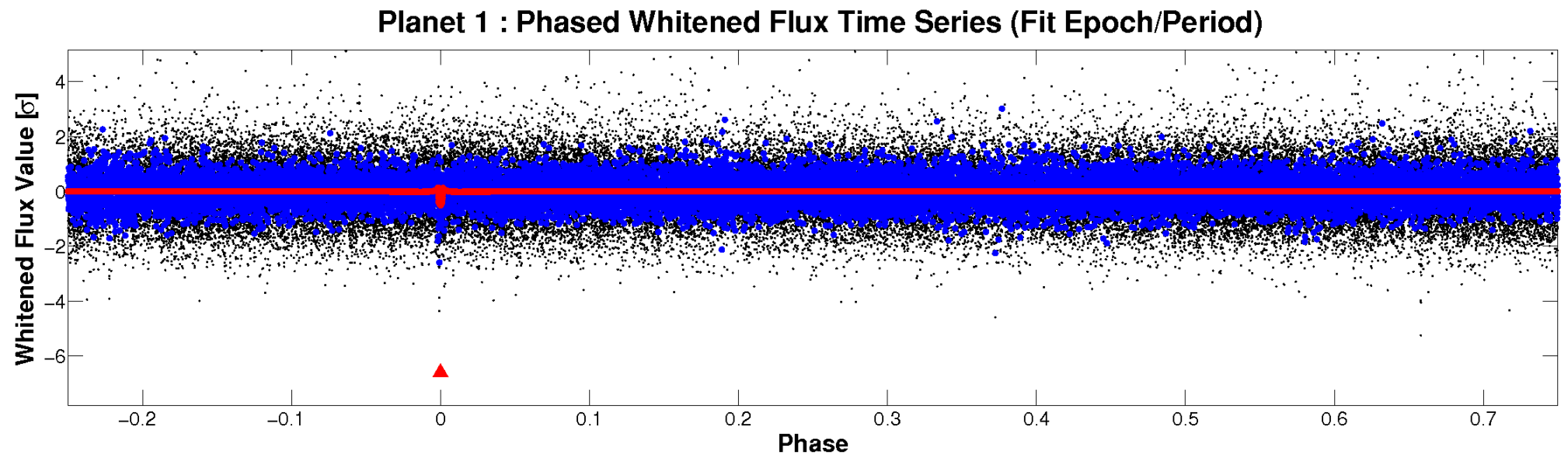
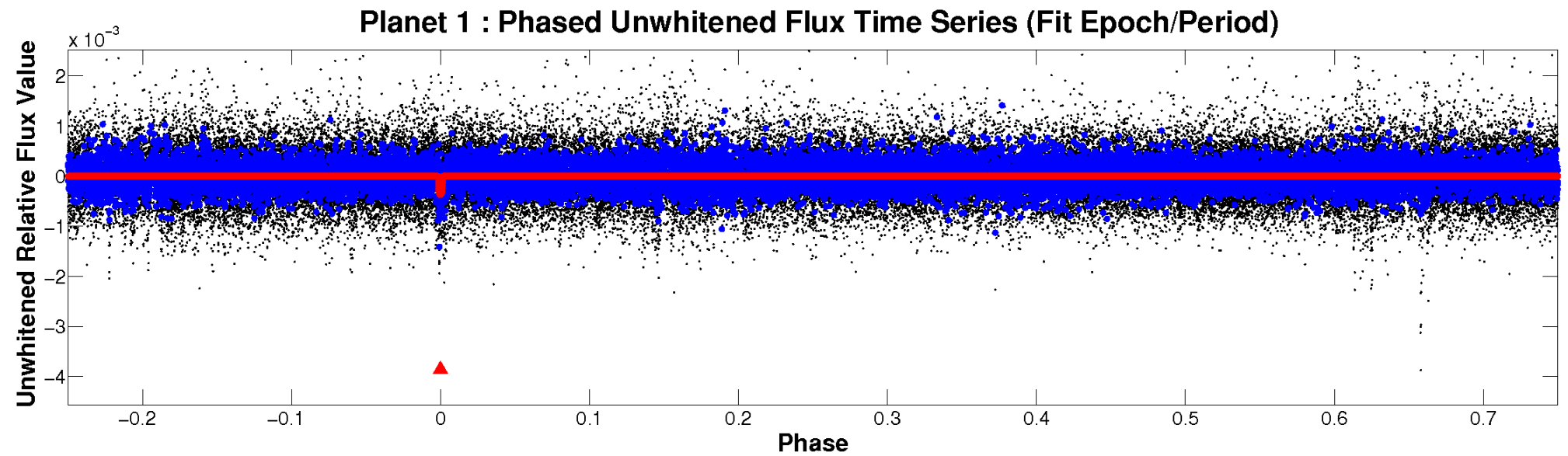
# ALT Odd/Even

TCE 009077484-01



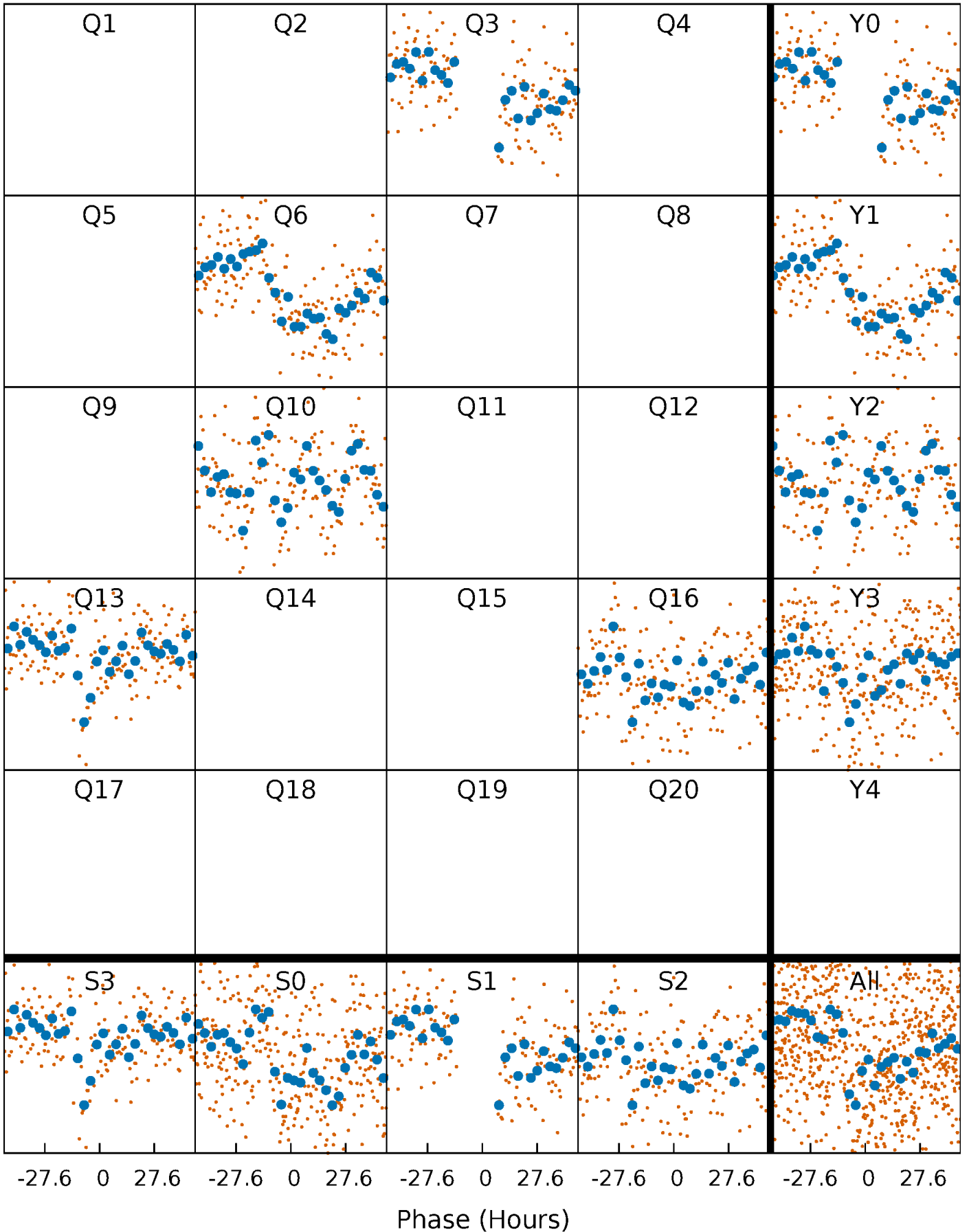


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

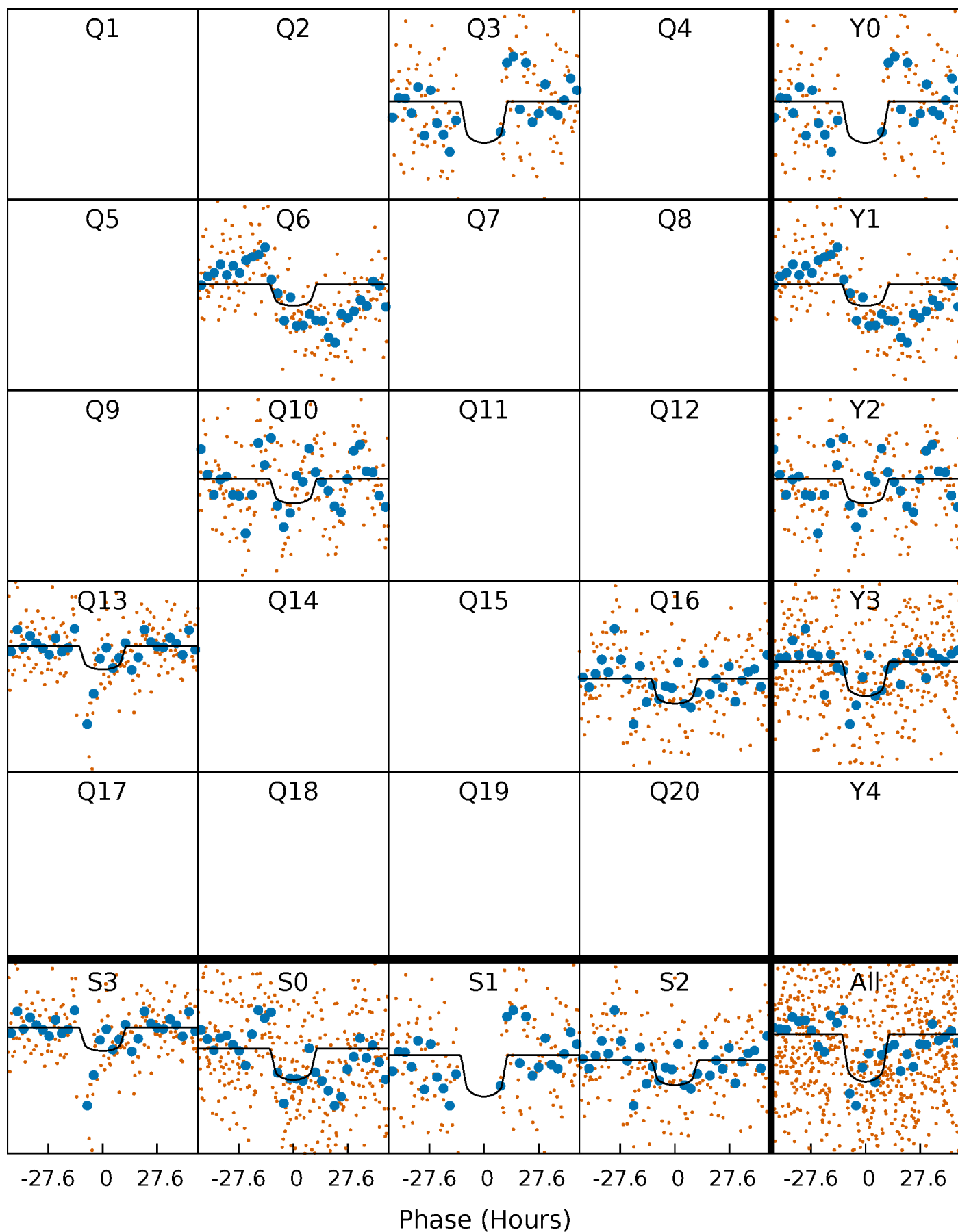
TCE 009077484-01 P=313.683323 Days  $T_0=291.091503$  (BKJD)





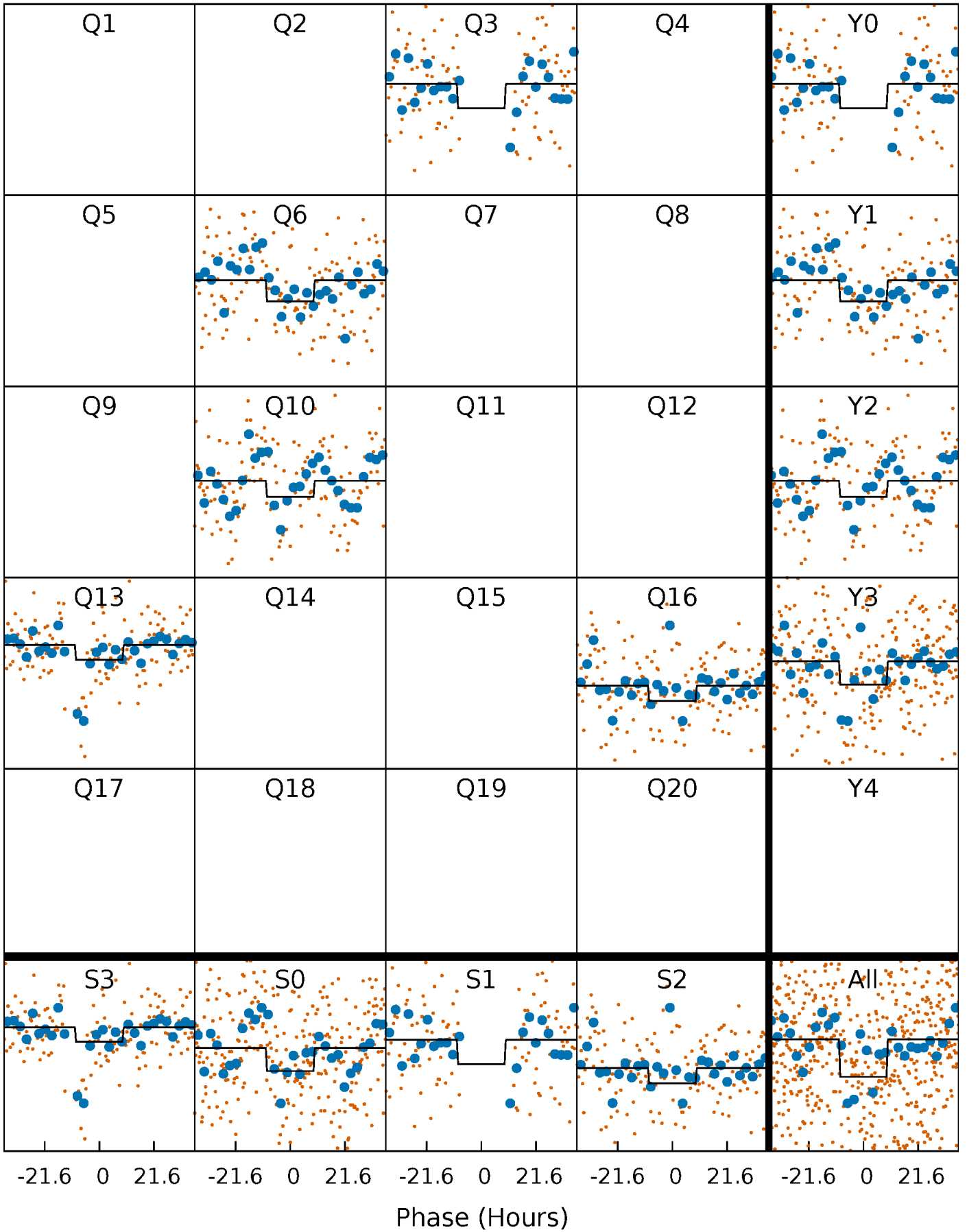
# DV Quarter-Phased Transit Curves

TCE 009077484-01     $P=313.683323$  Days     $T_0=291.091503$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

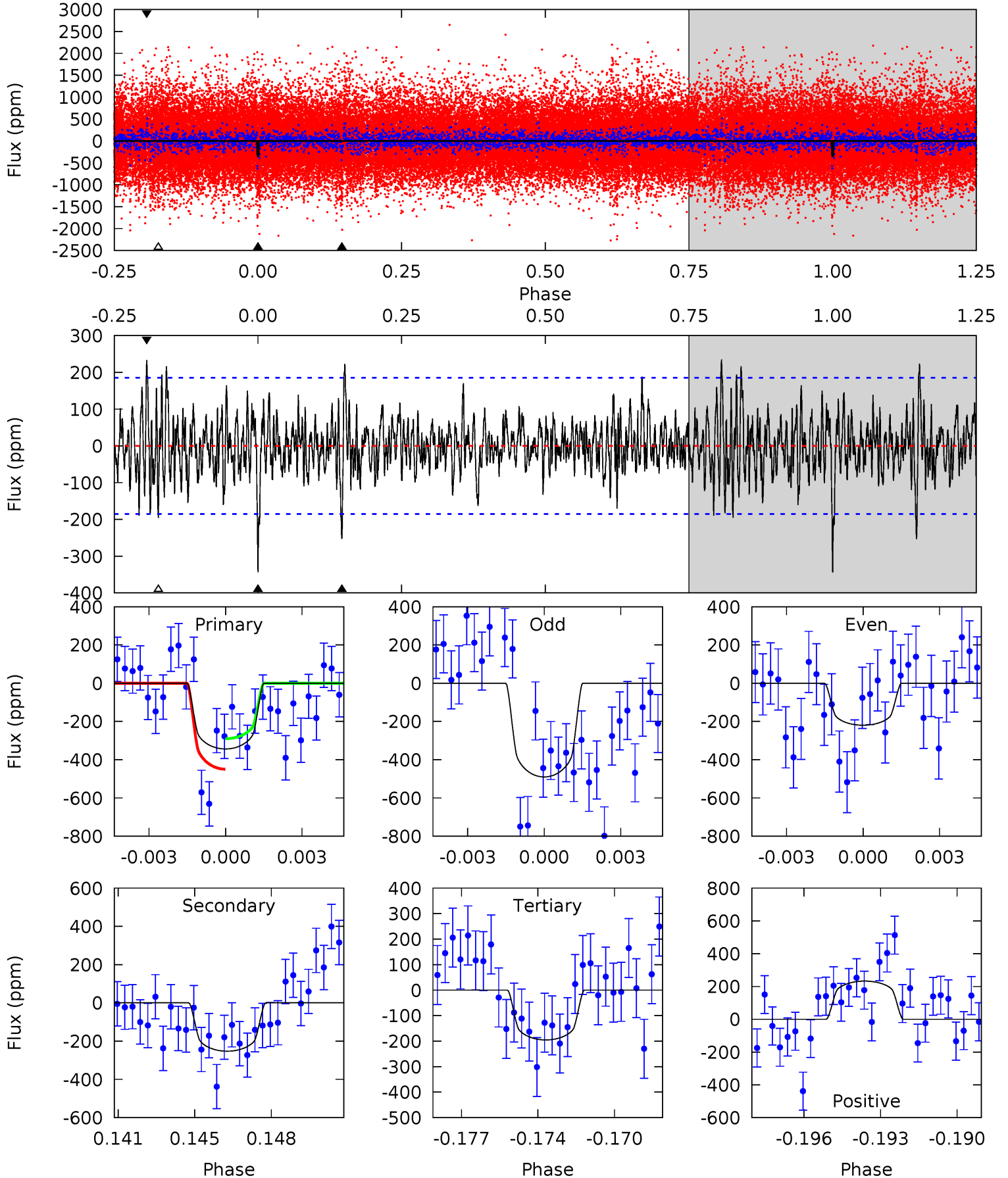
TCE 009077484-01 P=313.750503 Days  $T_0=290.910227$  (BKJD)



# DV Model-Shift Uniqueness Test

009077484-01, P = 313.683323 Days, E = 291.091503 Days

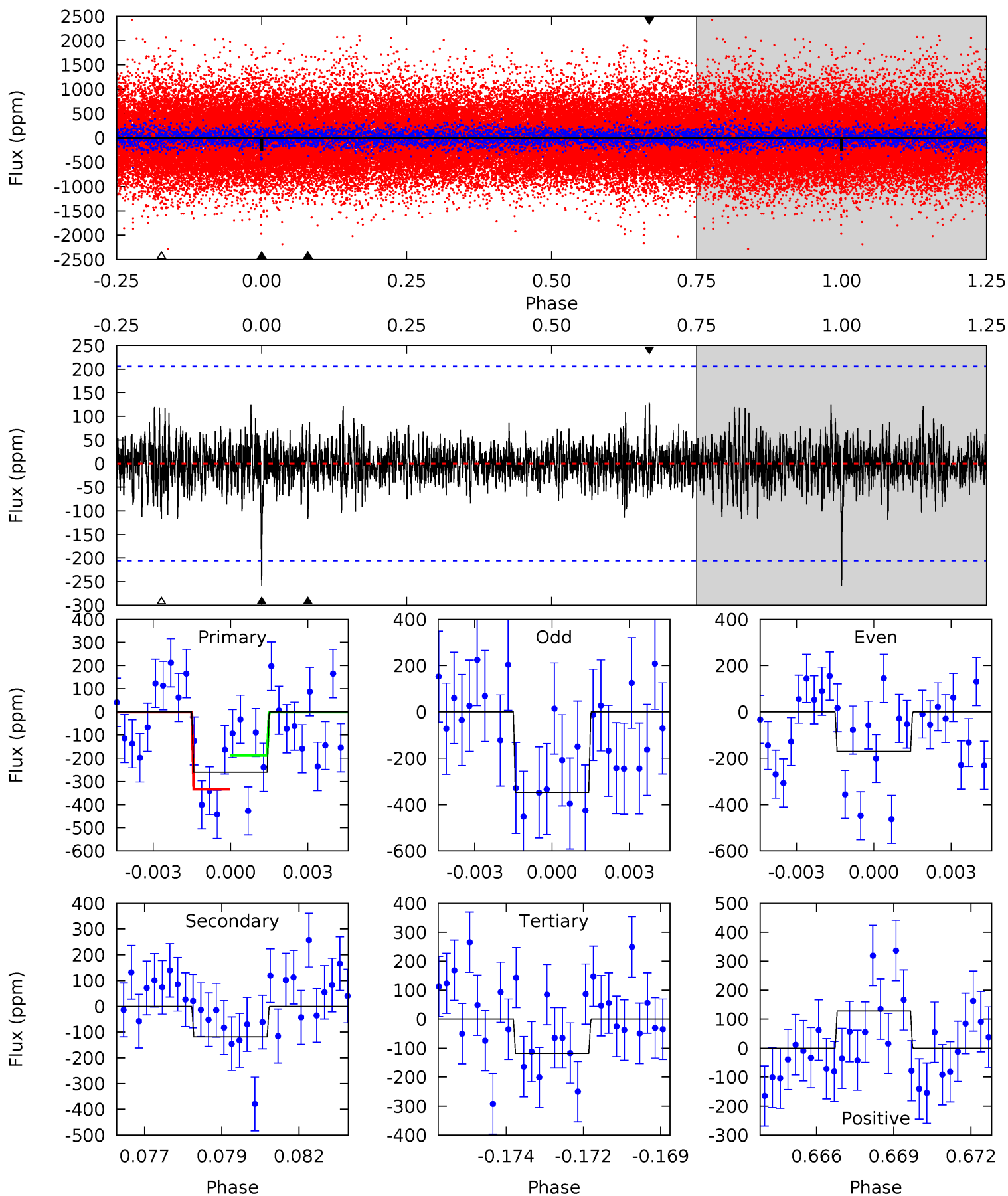
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.72	7.14	5.53	6.58	5.24	2.95	1.69	4.19	3.14	1.62	0.56	3.81	1.53	0.40	2.24



# Alt Model-Shift Uniqueness Test

009077484-01, P = 313.750503 Days, E = 290.910227 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
6.67	3.03	3.01	3.29	5.28	3.02	0.83	3.65	3.38	0.01	-0.26	2.27	1.01	0.33	1.86



### Stellar Parameters For KIC 009077484

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5146^{+168}_{-153}$	$4.603^{+0.028}_{-0.088}$	$-0.040^{+0.300}_{-0.300}$	$0.755^{+0.097}_{-0.057}$	$0.848^{+0.057}_{-0.098}$	$2.780^{+0.435}_{-0.800}$
	+3%/-3%	+1%/-2%	+750%/-750%	+13%/-8%	+7%/-12%	+16%/-29%
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 009077484-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-253 \pm 35$	$1.85^{+0.36}_{-0.33}$	$303^{+12}_{-11}$	$4501^{+420}_{-325}$	$28723^{+14745}_{-9046}$
Alt.	$-118 \pm 39$	$1.35^{+0.34}_{-0.31}$	$303^{+13}_{-11}$	$4388^{+567}_{-459}$	$24586^{+20030}_{-10601}$

$T_{\text{max}}$  = 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

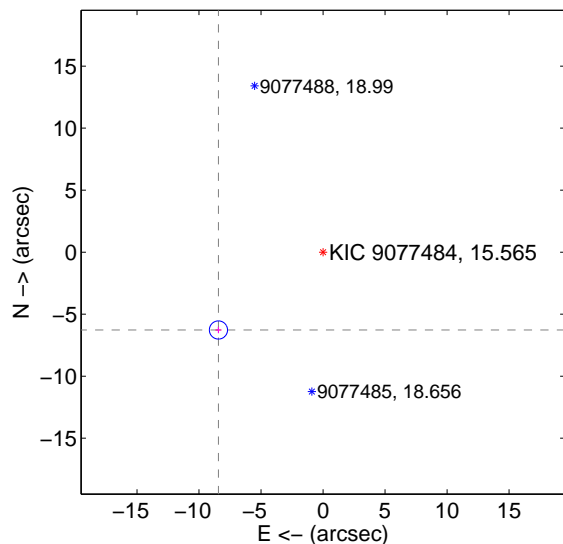
Supplemental centroid analysis for 009077484-01. Kepler magnitude: 15.56. Transit SNR 5.59

There are 0 quarters with good PRF difference image offsets

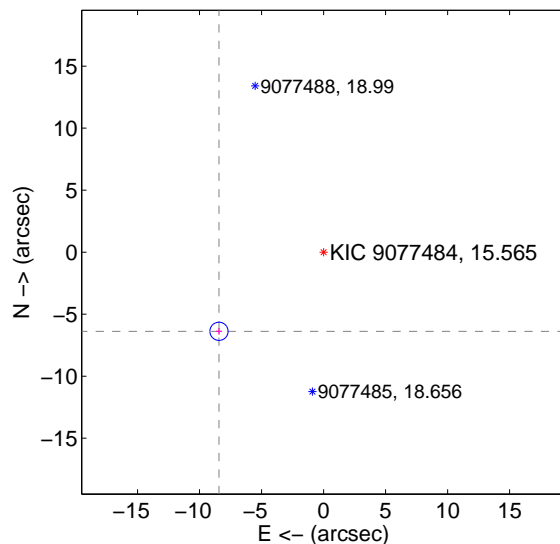
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	10.510 $\pm$ 0.244	43.05	8.432 $\pm$ 0.237	-6.273 $\pm$ 0.256
PRF-fit source offset from KIC position	10.574 $\pm$ 0.244	43.29	8.432 $\pm$ 0.237	-6.380 $\pm$ 0.256
photometric centroid source offset	7.71 $\pm$ 2.85	2.71	6.41 $\pm$ 2.76	-4.28 $\pm$ 3.04

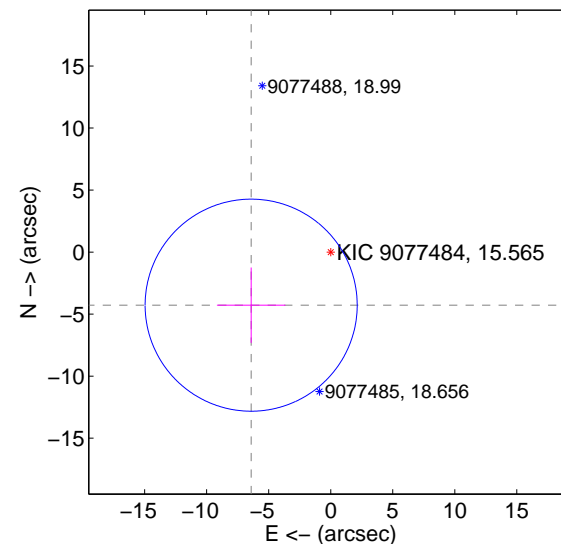
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



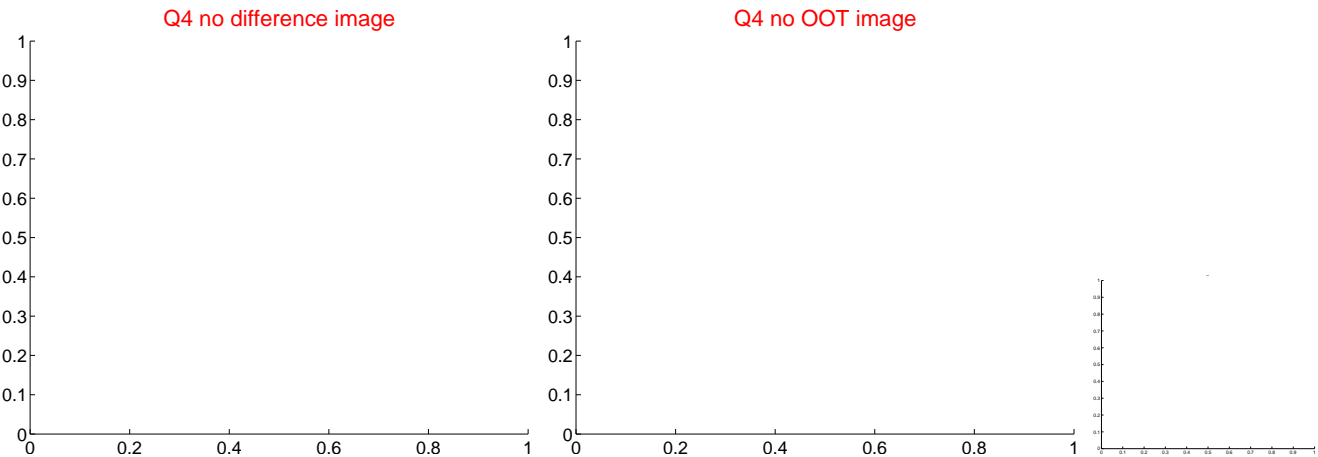
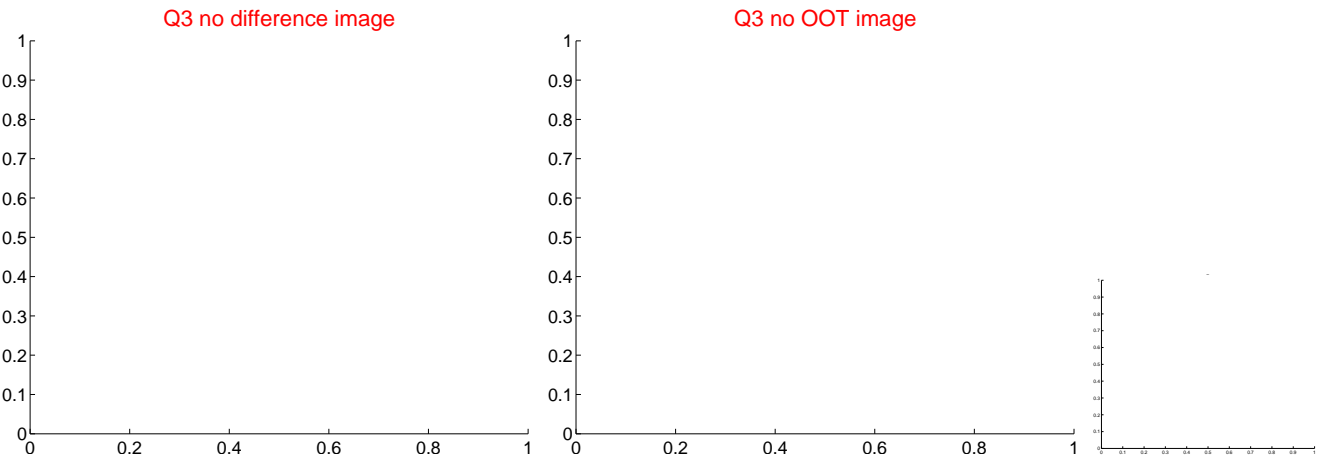
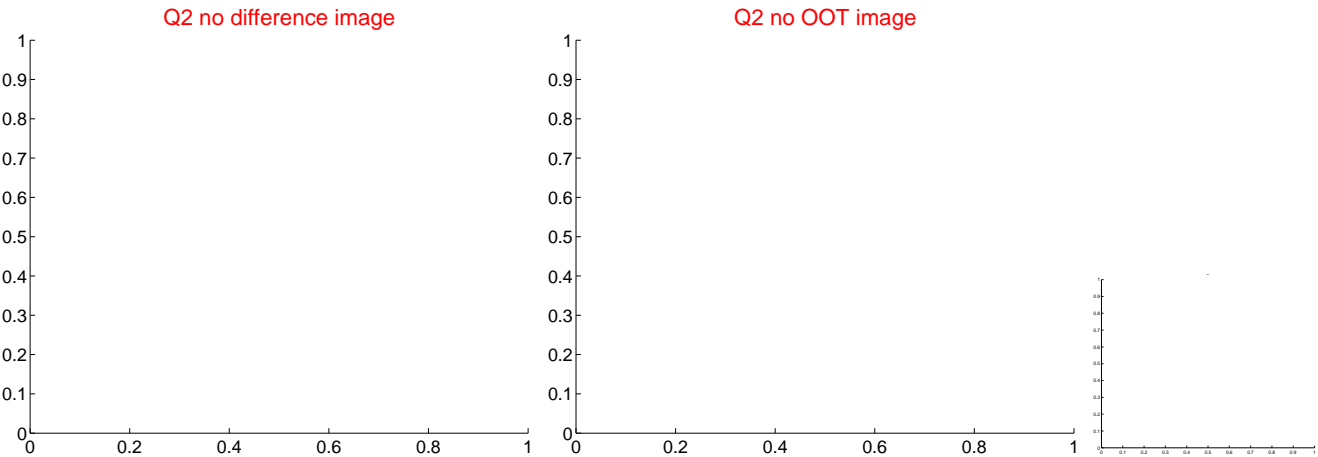
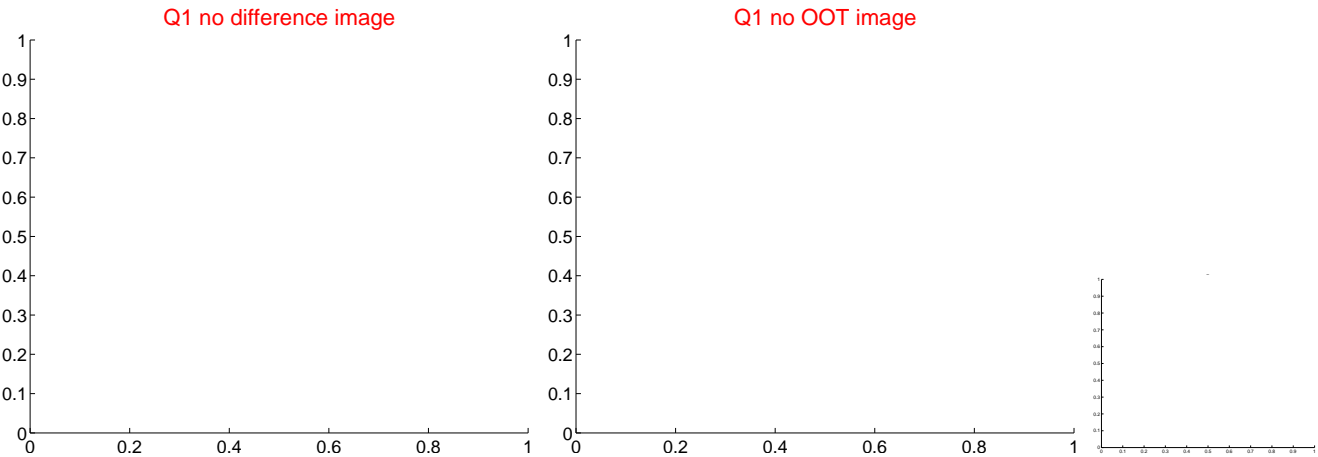
offset from photometric centroids



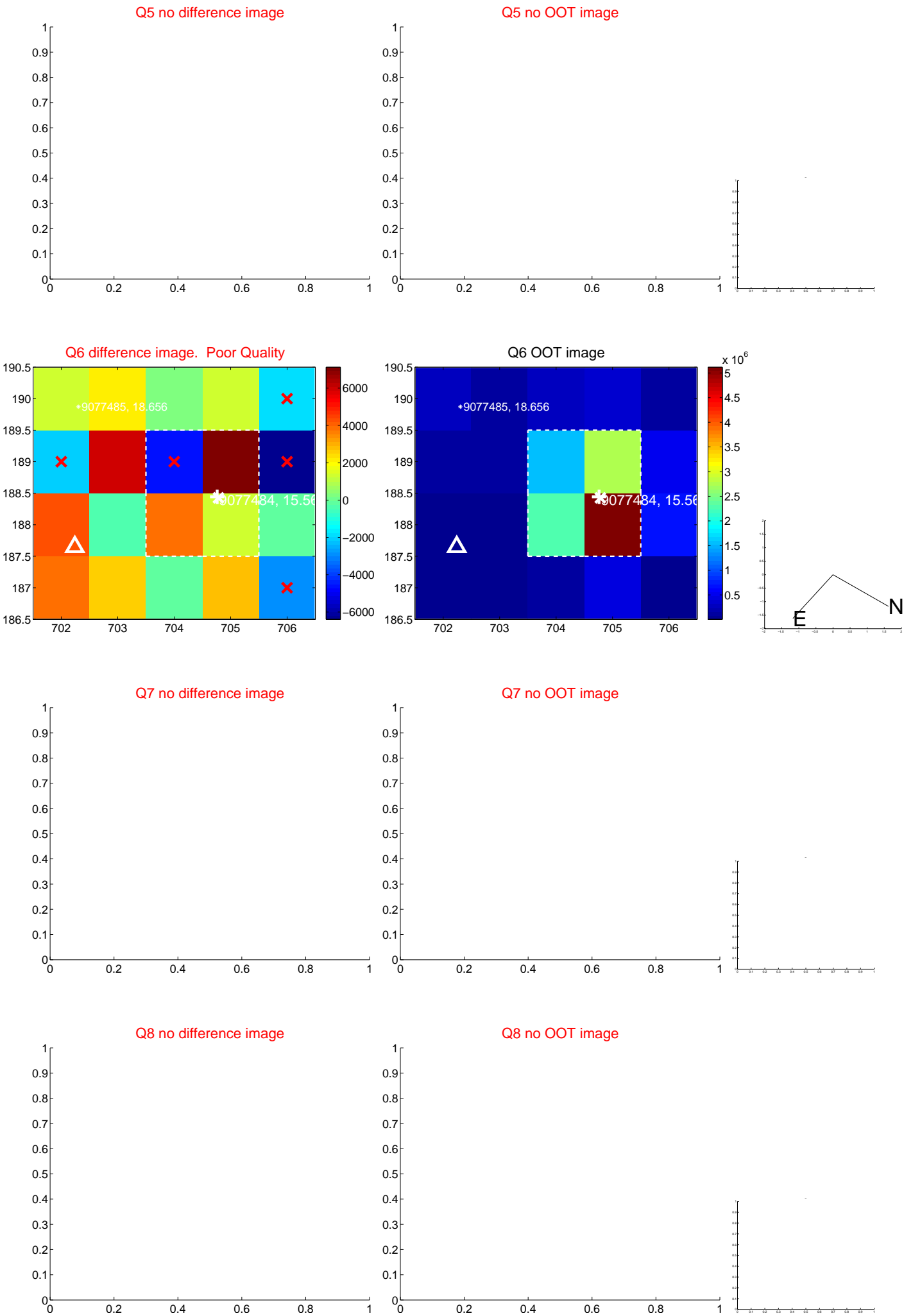
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



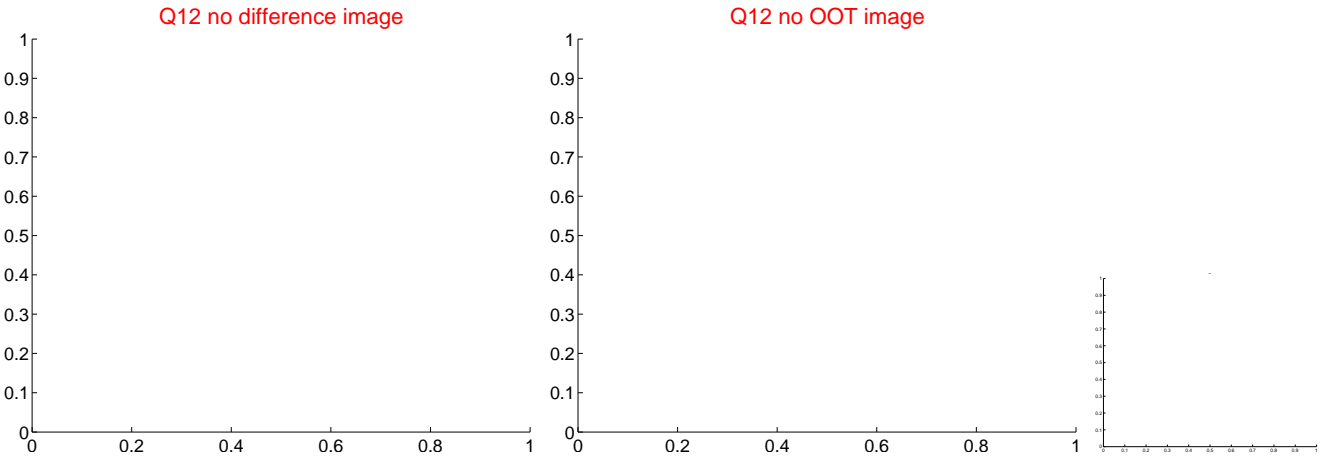
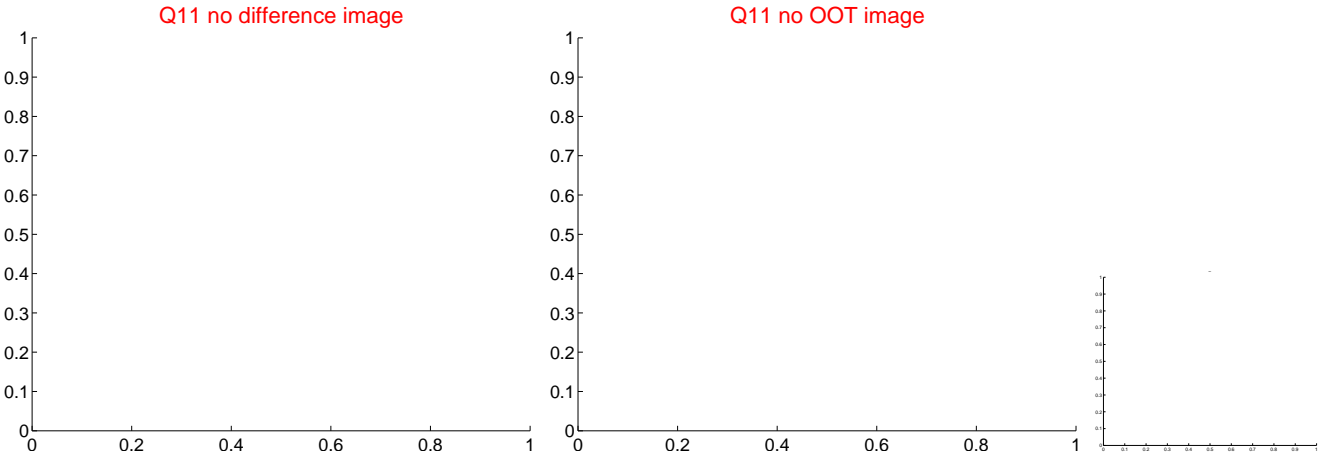
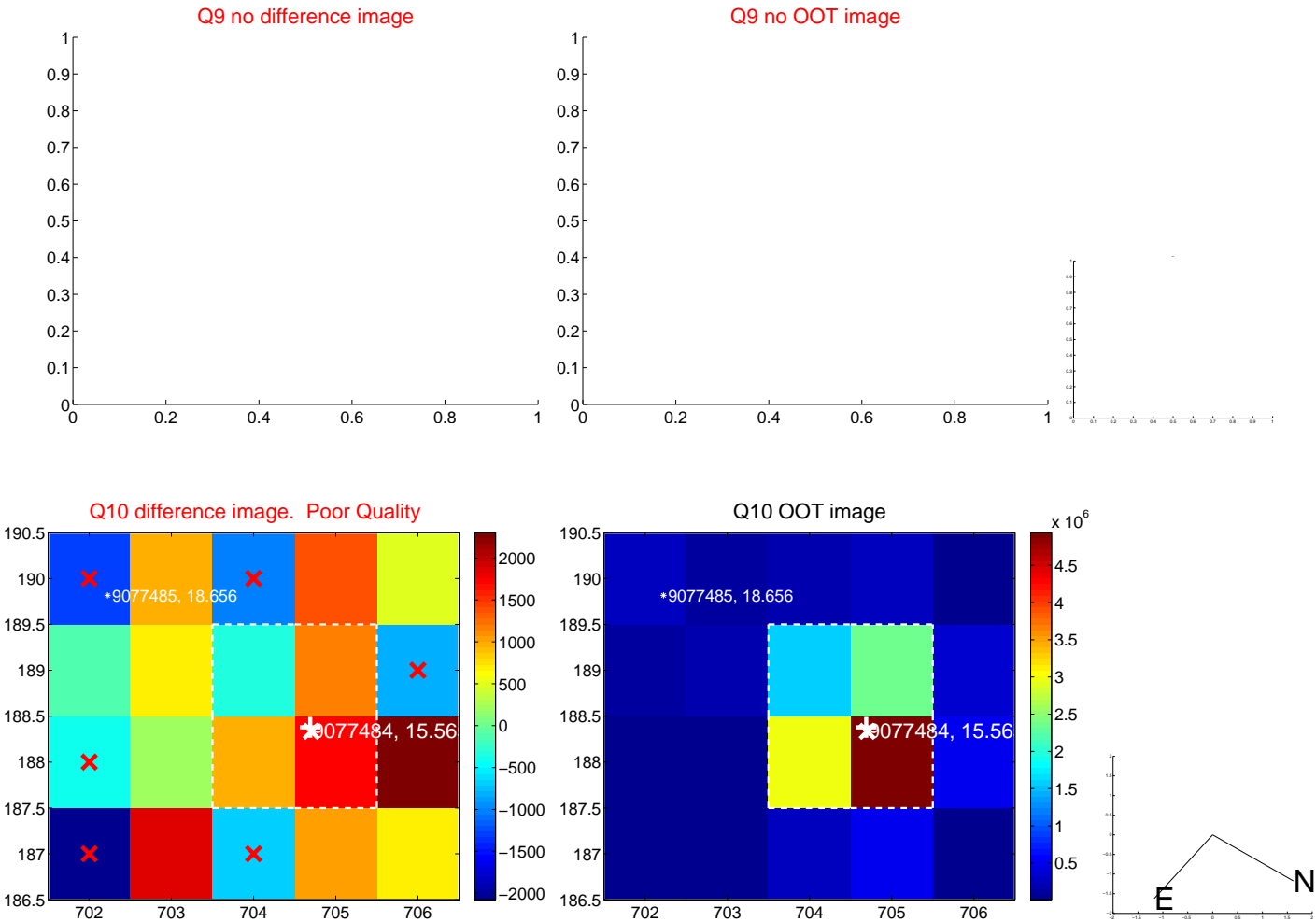
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



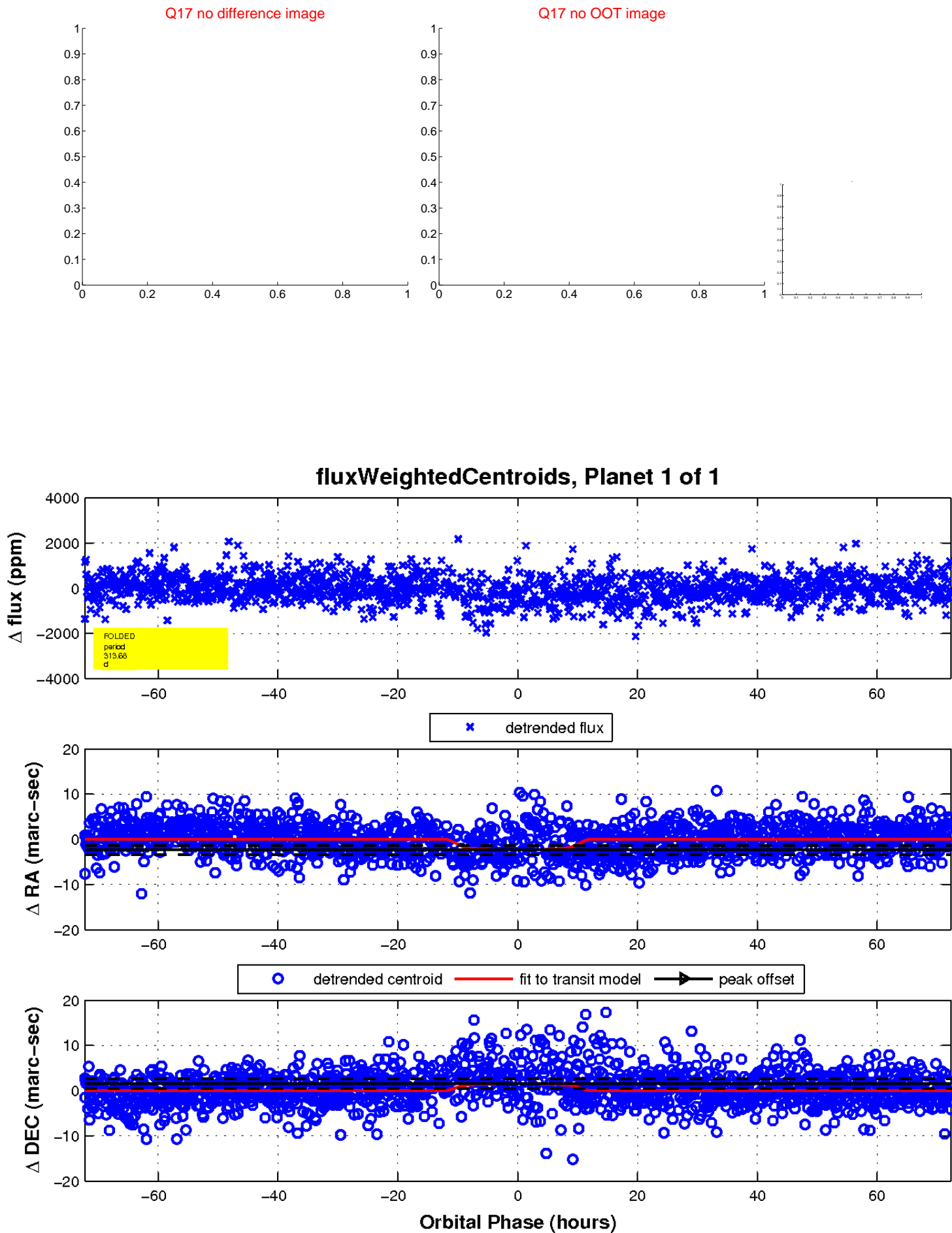
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

