

# KIC 010407270

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010407270-01	OBS	No	368.468284	179.155326	196.1	7.433	11.8	3.9	51.95	3961	69.79	389.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407270-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

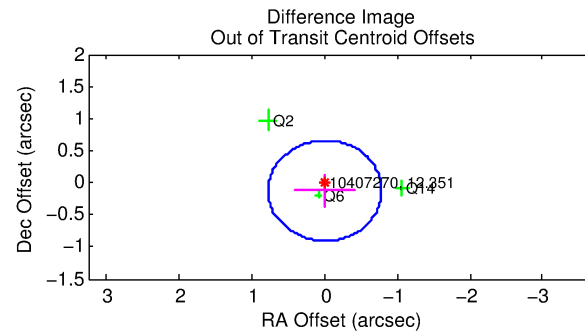
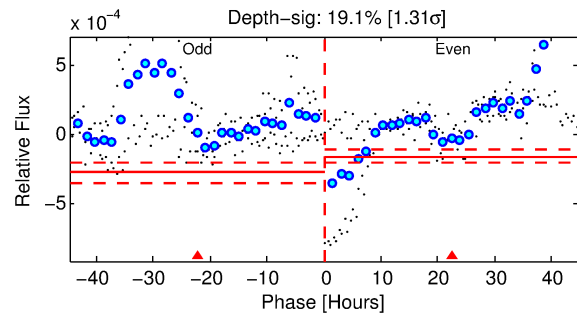
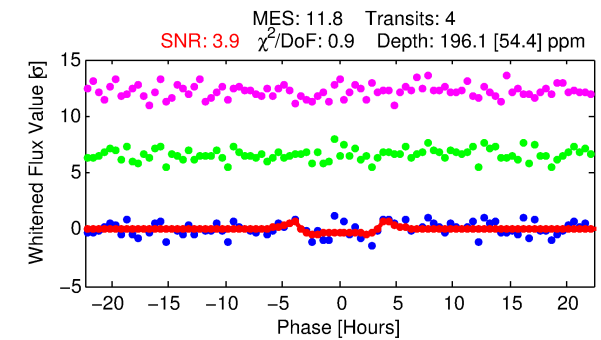
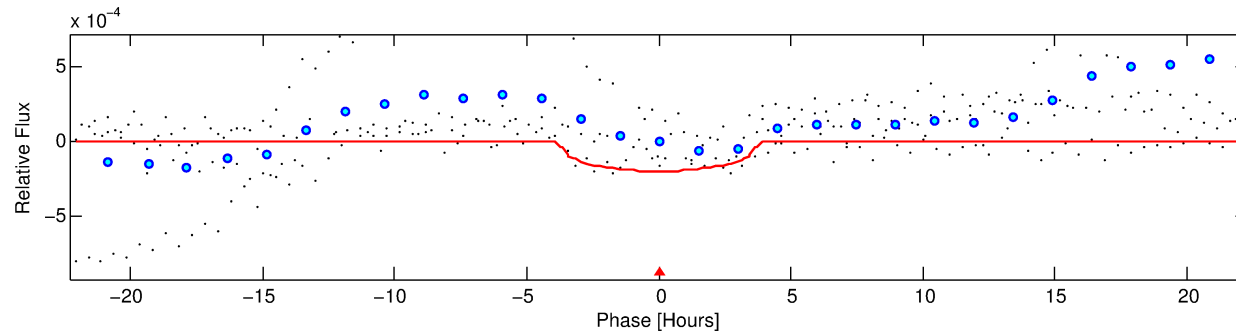
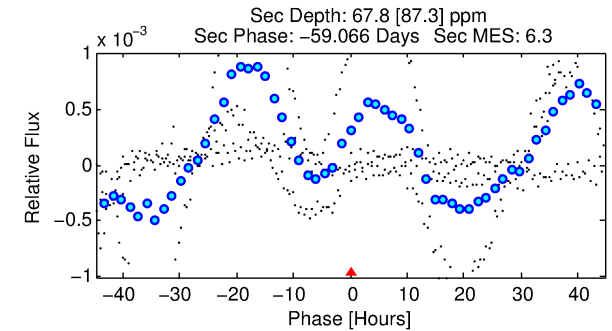
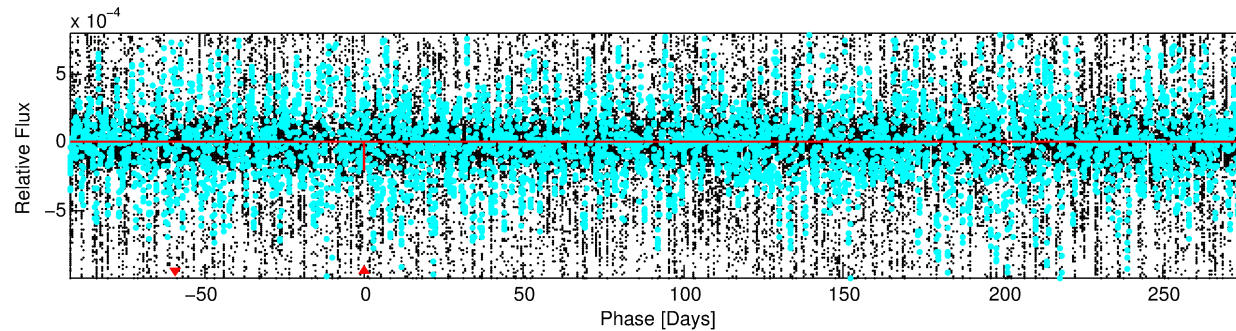
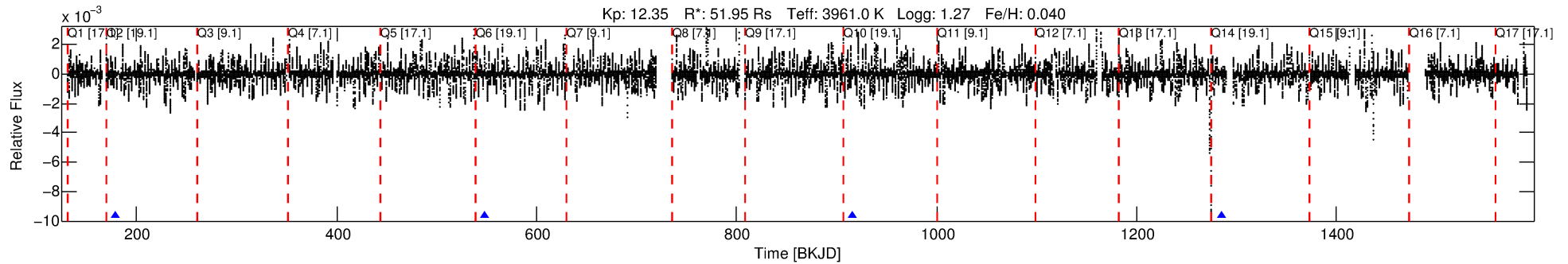
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010407270-01

No Significant Match Found

# DV One-Page Summary

KIC: 10407270 Candidate: 1 of 1 Period: 368.468 d



## DV Fit Results:

Period = 368.46828 [0.00770] d  
Epoch = 179.1553 [0.0107] BKJD  
Rp/R\* = 0.0123 [0.0090]  
a/R\* = 358.33 [656.91]  
b = 0.36 [4.56]  
Seff = 389.60 [119.38]  
Teq = 1133 [87] K  
Rp = 69.79 [54.71] Re  
a = 1.2359 [0.2736] AU  
Ag = 11.71 [23.06] [0.46σ]  
Teffp = 3240 [1578] K [1.33σ]

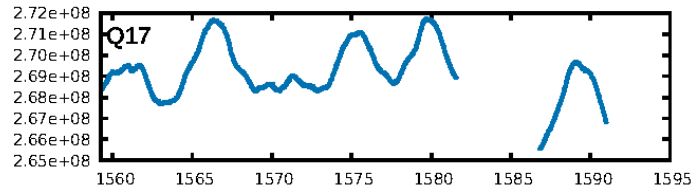
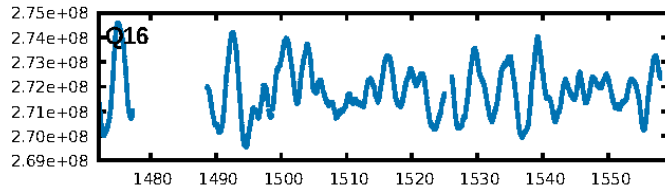
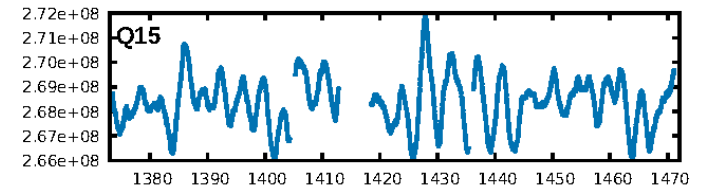
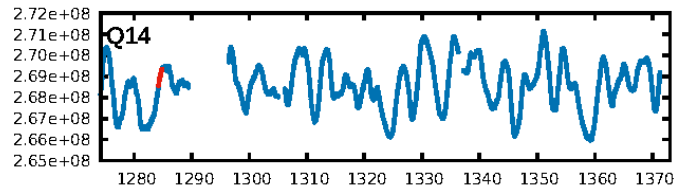
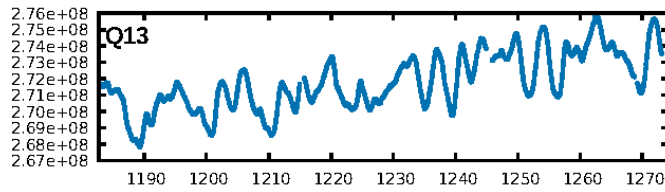
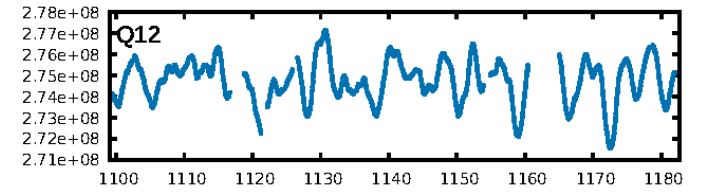
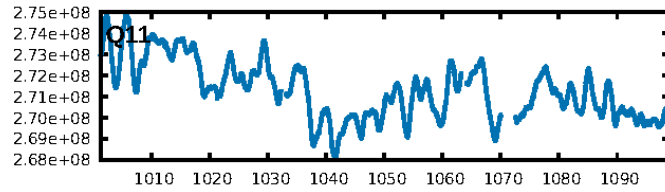
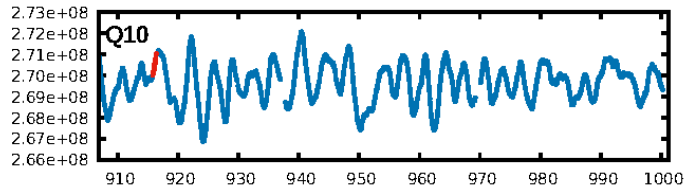
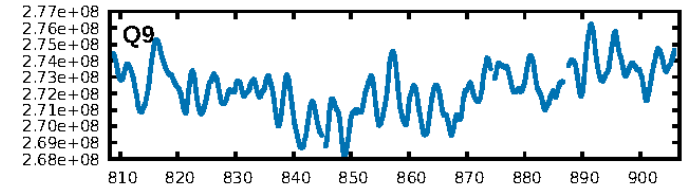
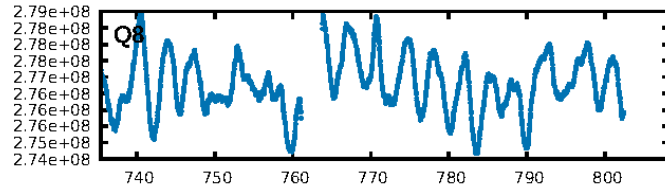
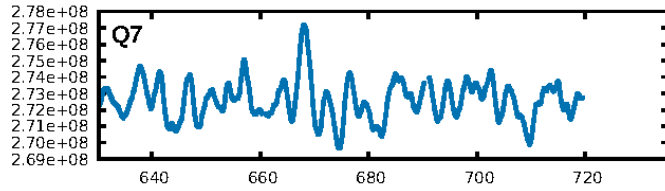
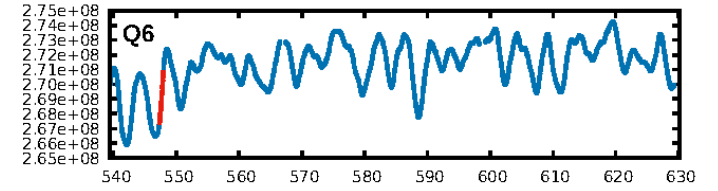
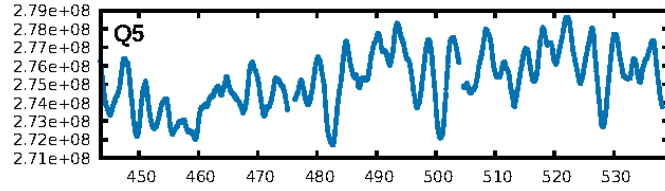
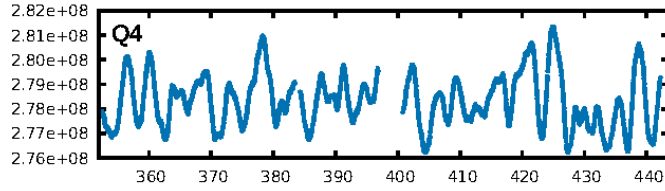
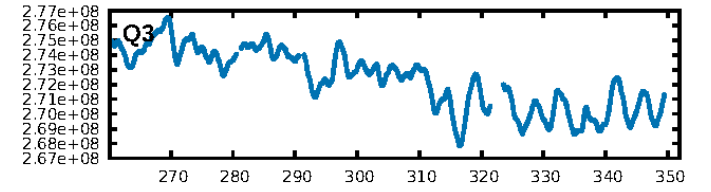
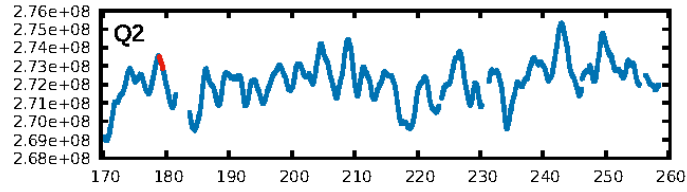
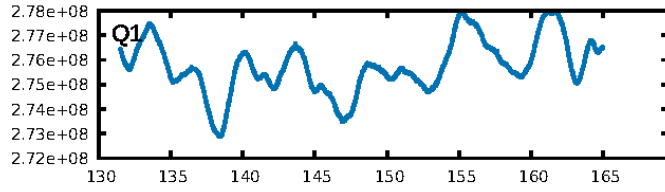
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 59.9%  
ModelChiSquareGof-sig: 98.5%  
Bootstrap-pfa: 1.81e-09  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 12.55  
Centroid-sig: 0.0%  
Centroid-so: 6.741 arcsec [2.45σ]  
OotOffset-rm: 0.125 arcsec [0.48σ]  
KicOffset-rm: 0.362 arcsec [1.37σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [4/4]

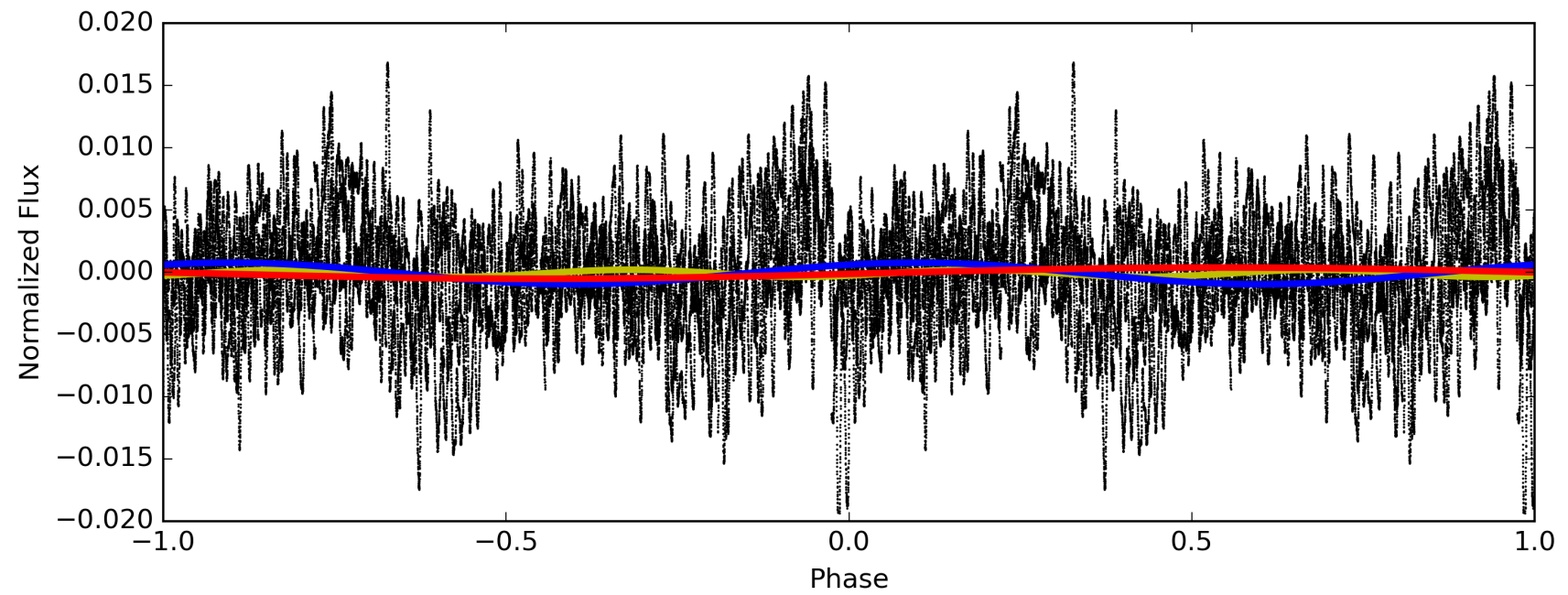
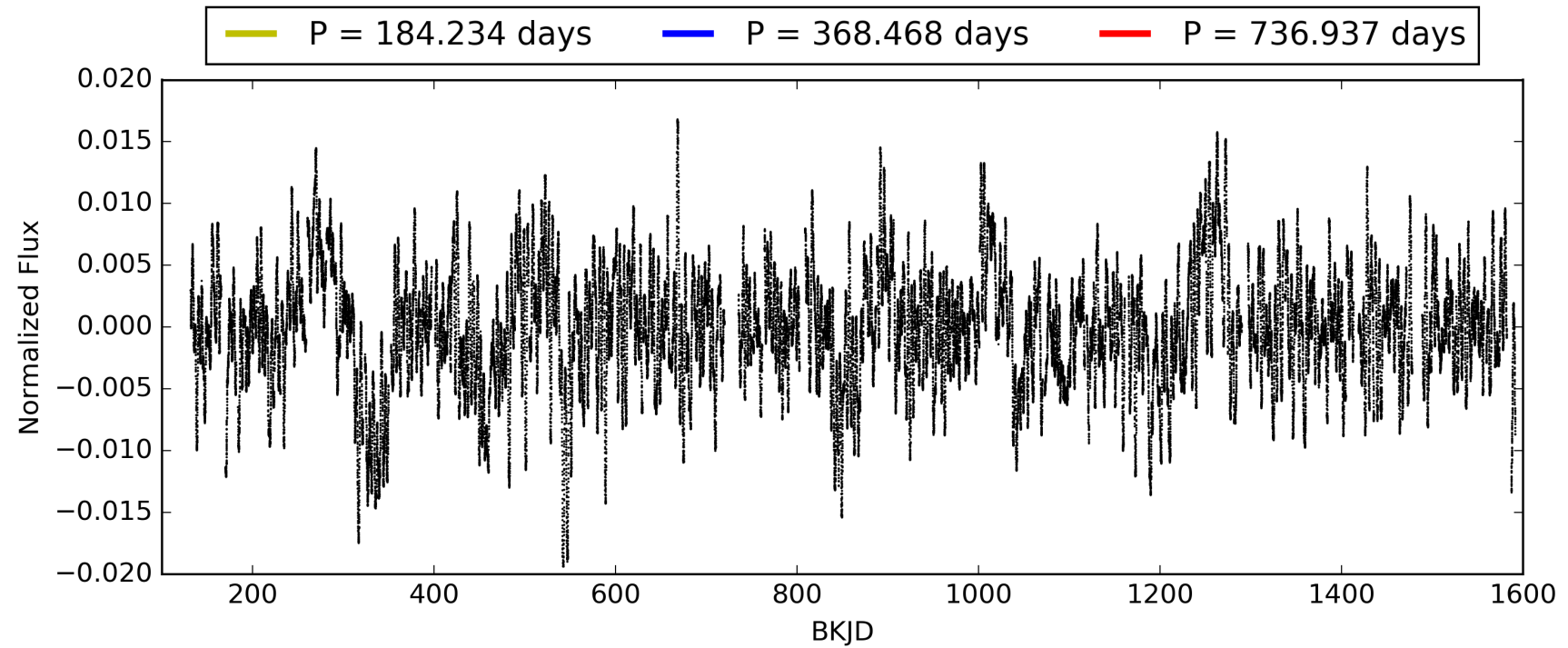
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:58:14 Z

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

# TCE 010407270-01, PDC Light Curves

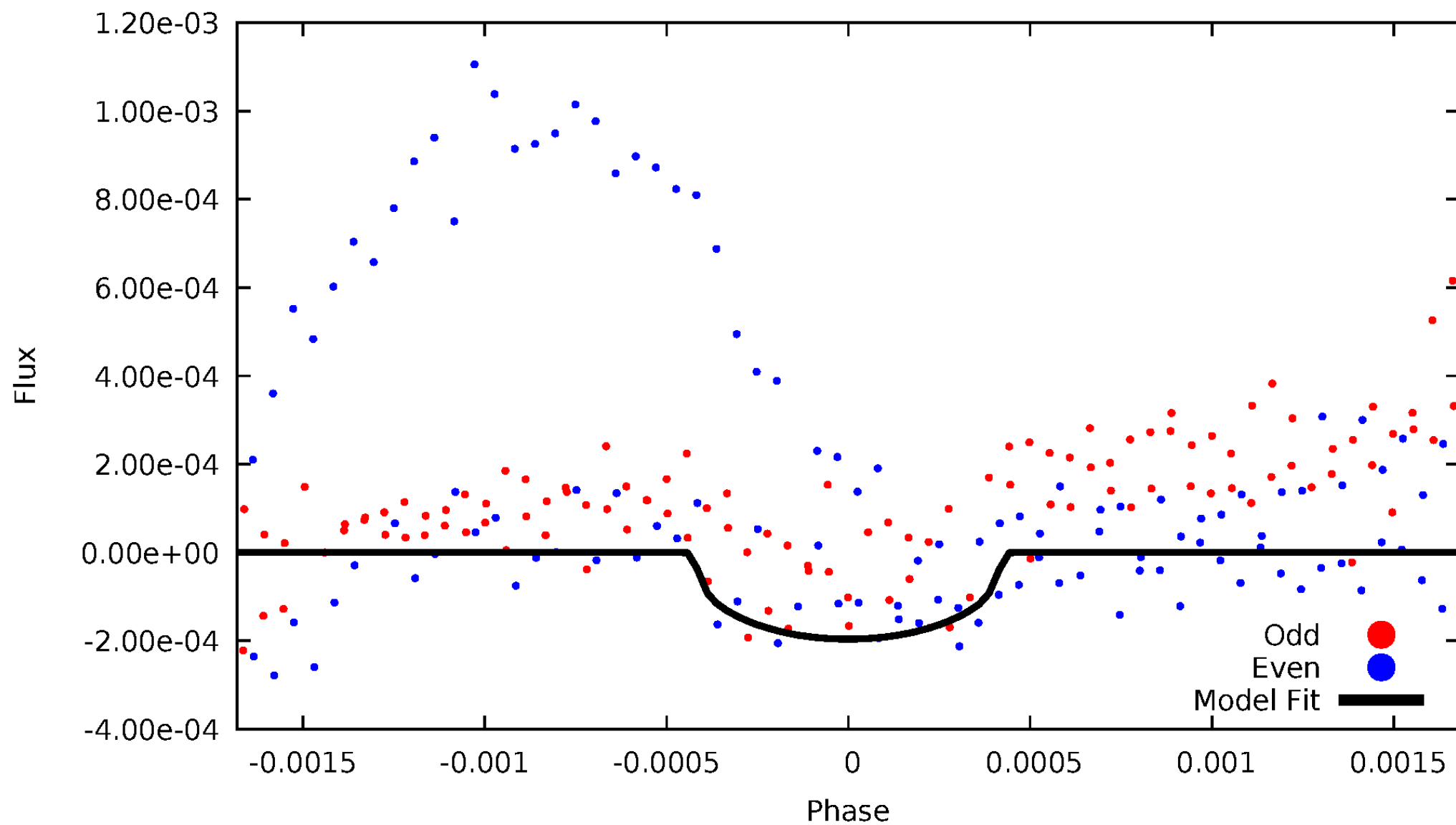


TCE 010407270-01



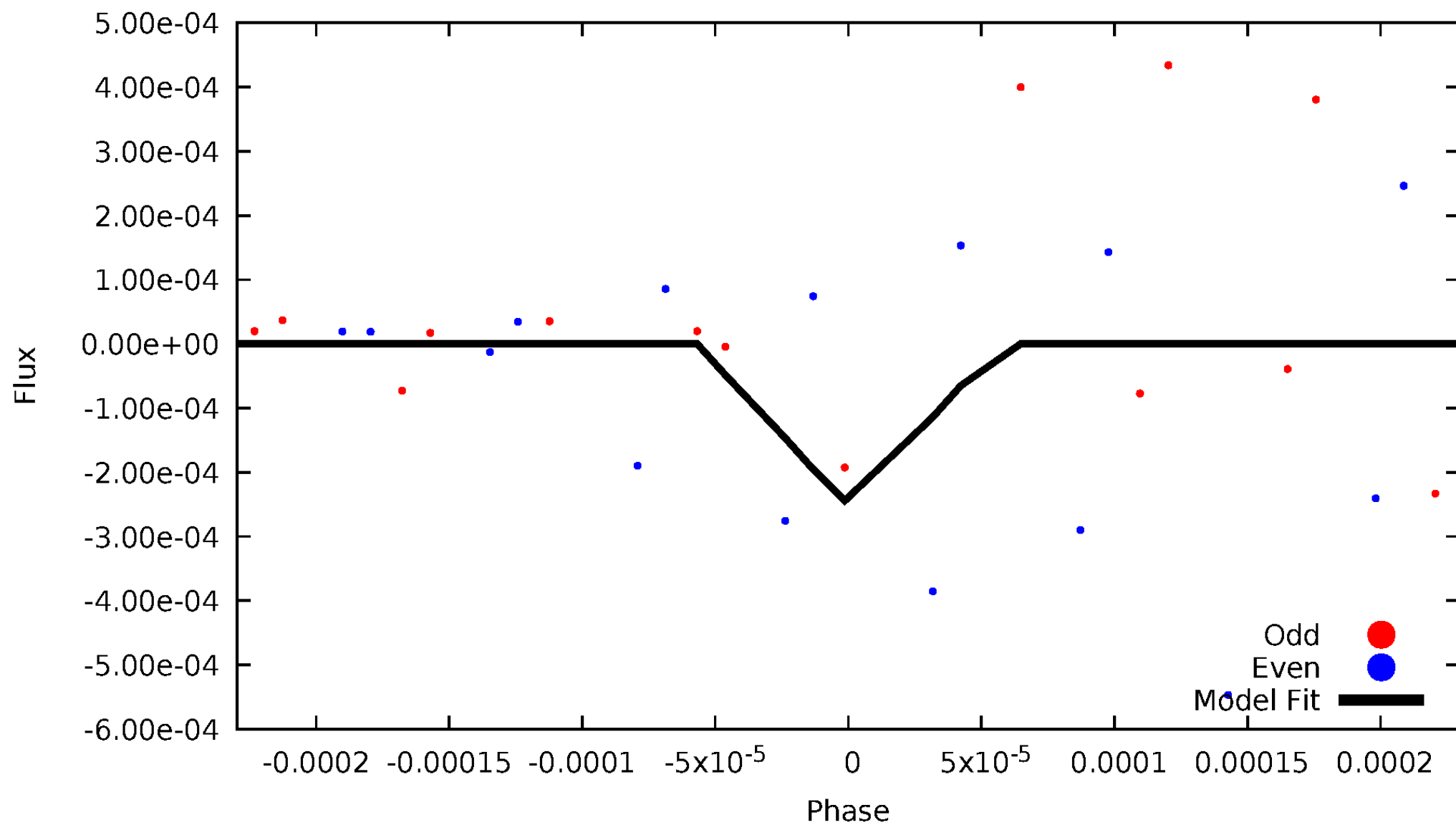
# DV Odd/Even

TCE 010407270-01



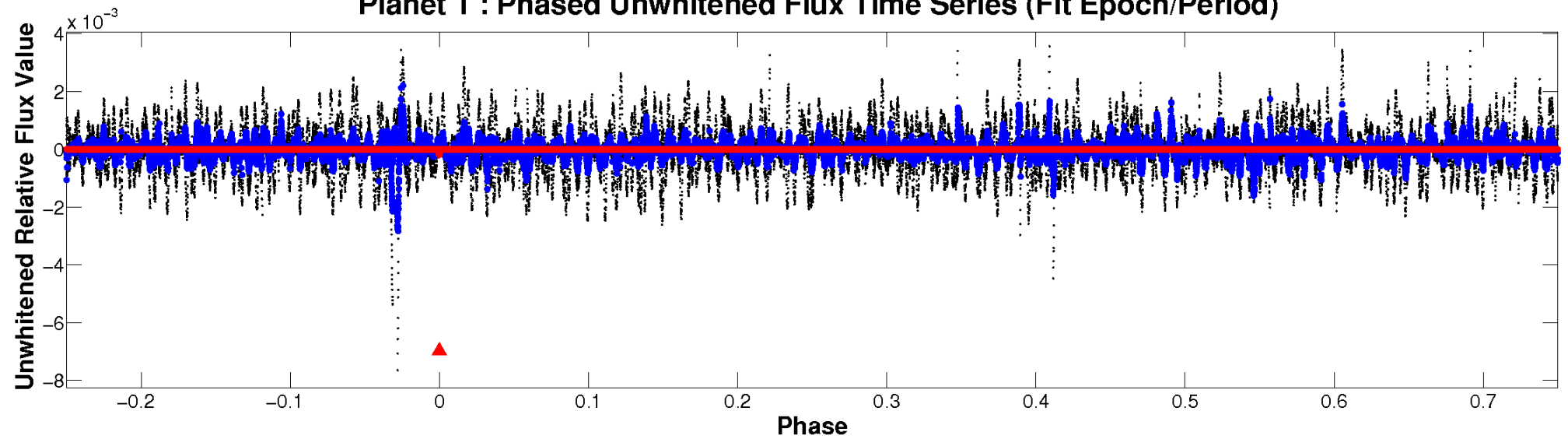
# ALT Odd/Even

TCE 010407270-01

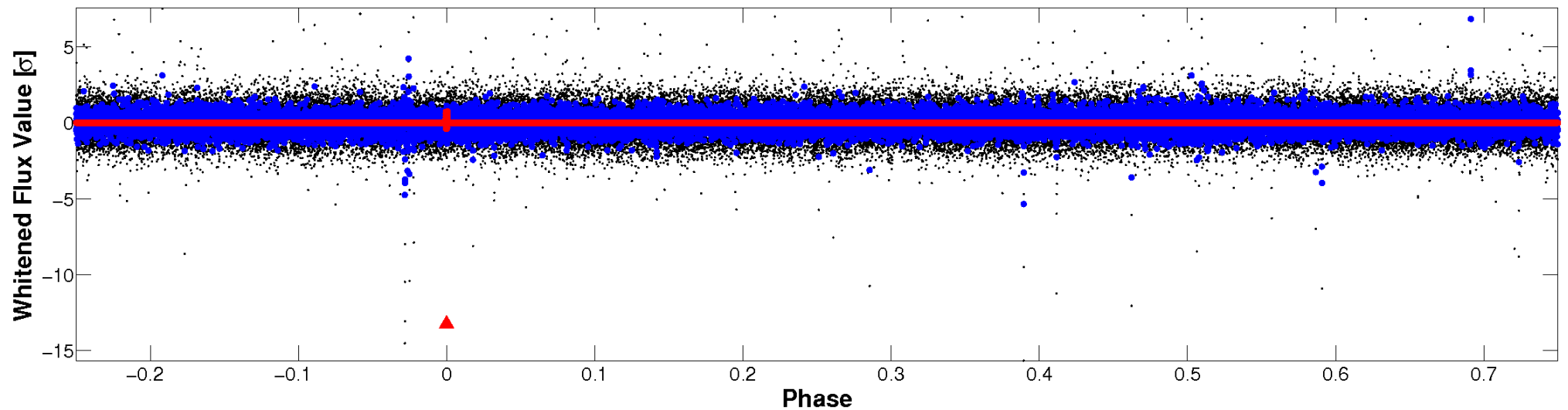


# Non-Whitened Vs. Whitened Light Curve

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

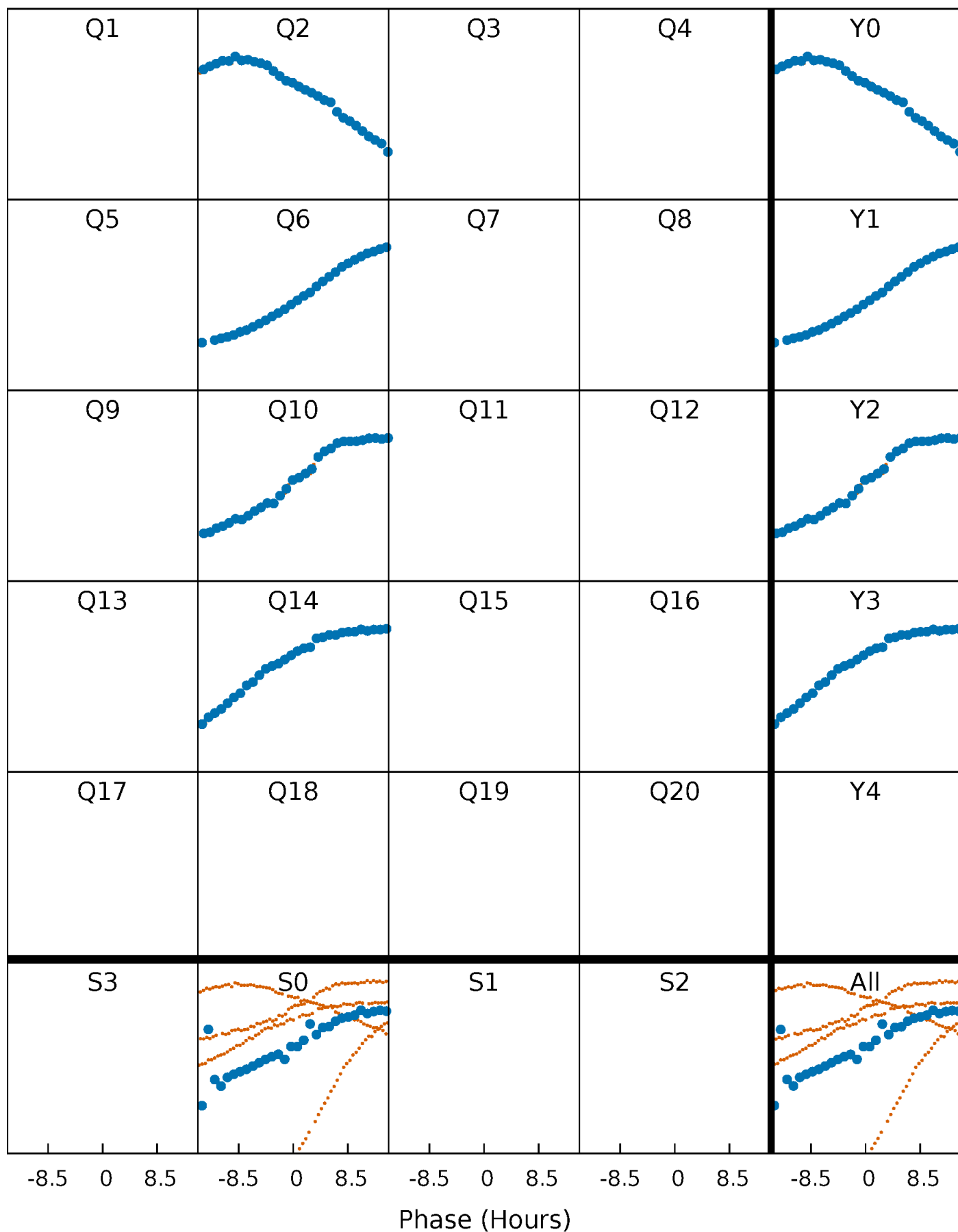


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

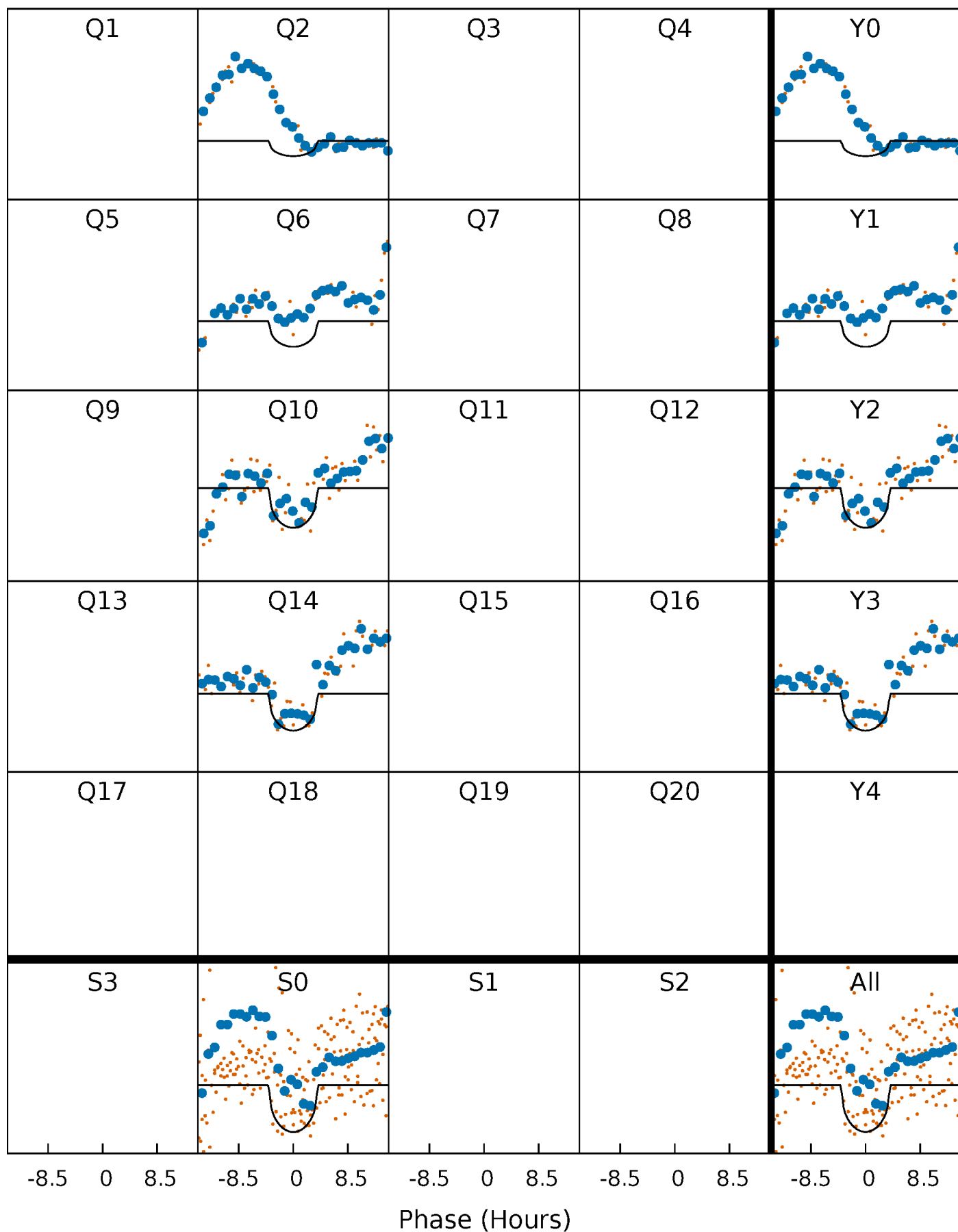
TCE 010407270-01 P=368.468284 Days  $T_0=179.155326$  (BKJD)





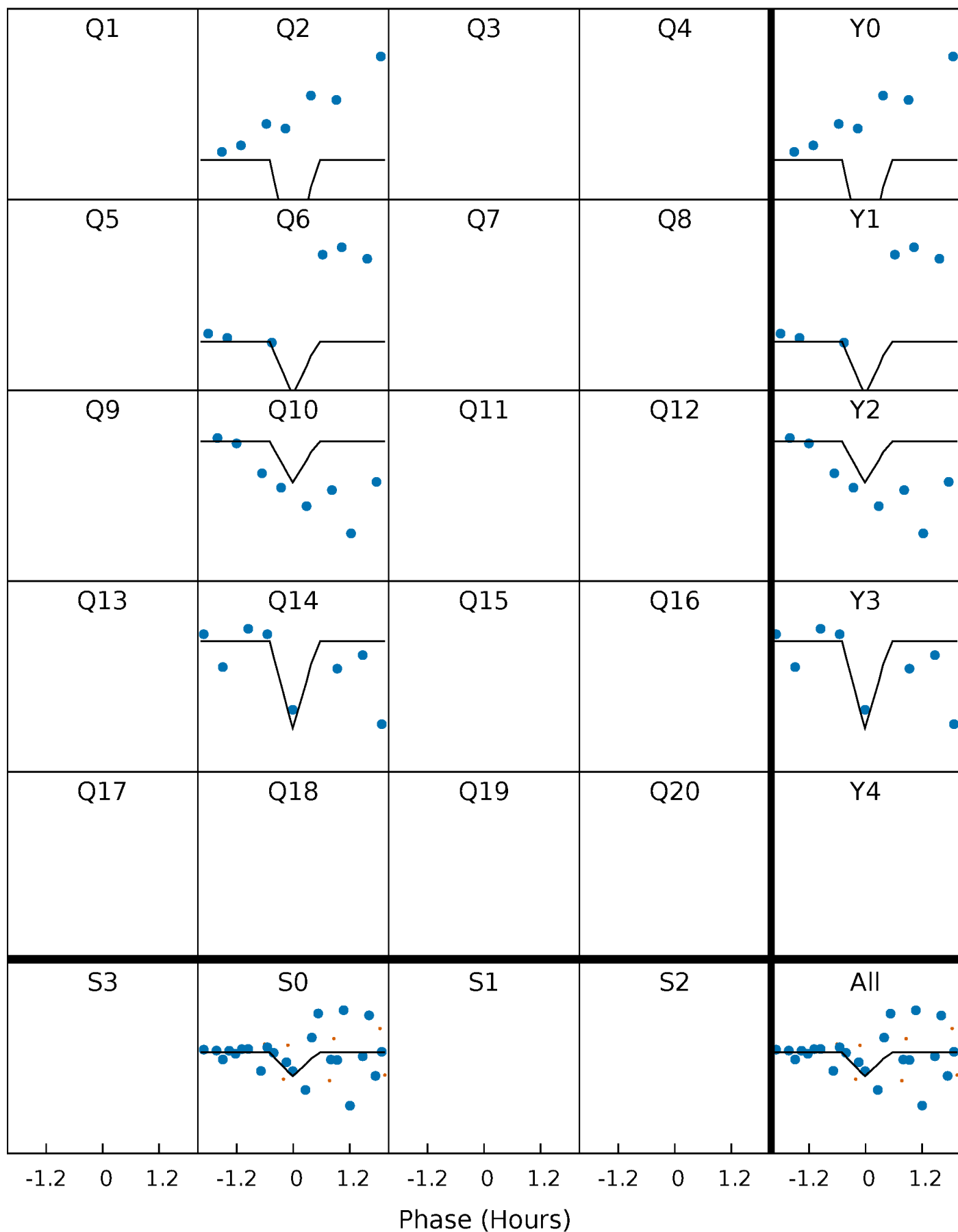
# DV Quarter-Phased Transit Curves

TCE 010407270-01 P=368.468284 Days  $T_0=179.155326$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

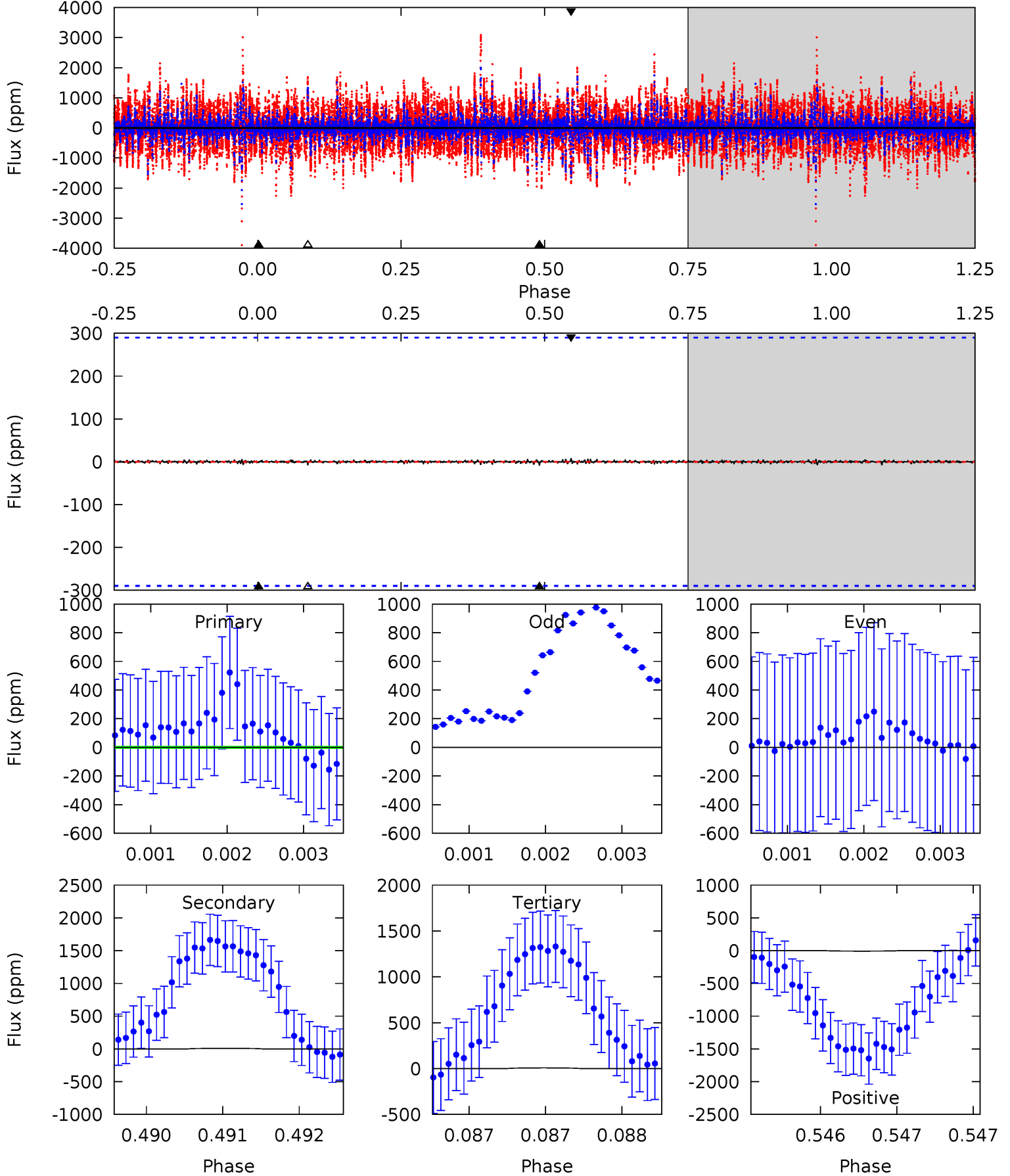
TCE 010407270-01 P=368.409438 Days  $T_0=179.332984$  (BKJD)



# DV Model-Shift Uniqueness Test

010407270-01, P = 368.468284 Days, E = 179.155326 Days

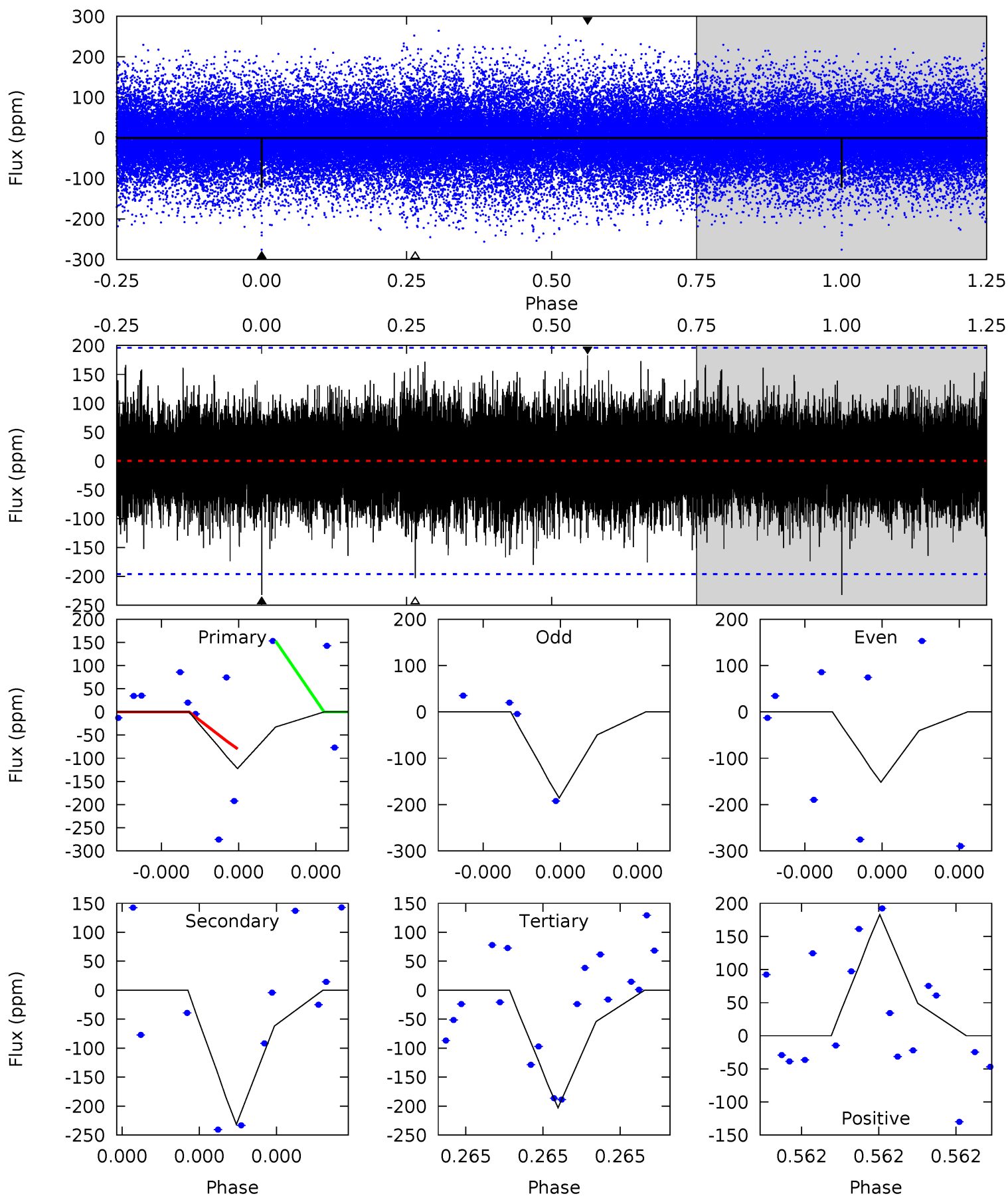
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.03	0.15	0.13	0.14	5.47	3.32	0.03	-0.10	-0.11	0.02	0.01	0.02	-0.10	0.48	0.01



# Alt Model-Shift Uniqueness Test

010407270-01, P = 368.409438 Days, E = 179.332984 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
3.66	6.94	6.07	5.47	5.87	3.92	1.18	-2.41	-1.81	0.86	1.46	0.51	1.00	0.44	1.28



### Stellar Parameters For KIC 010407270

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3961^{+55}_{-71}$	$1.275^{+0.150}_{-0.100}$	$0.040^{+0.150}_{-0.150}$	$51.946^{+6.313}_{-14.730}$	$1.852^{+0.035}_{-0.666}$	$0.000^{+0.000}_{-0.000}$
	+1%/-2%	+12%/-8%	+375%/-375%	+12%/-28%	+2%/-36%	+87%/-29%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010407270-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-8 \pm 53$	$70.28^{+49.50}_{-39.46}$	$1582^{+65}_{-97}$	$1912^{+1527}_{-5317}$	$0.380^{+11.585}_{-11.290}$
Alt.	$-232 \pm 33$	$85.29^{+51.44}_{-39.78}$	$1580^{+64}_{-103}$	$3900^{+1052}_{-547}$	$26^{+60}_{-16}$

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

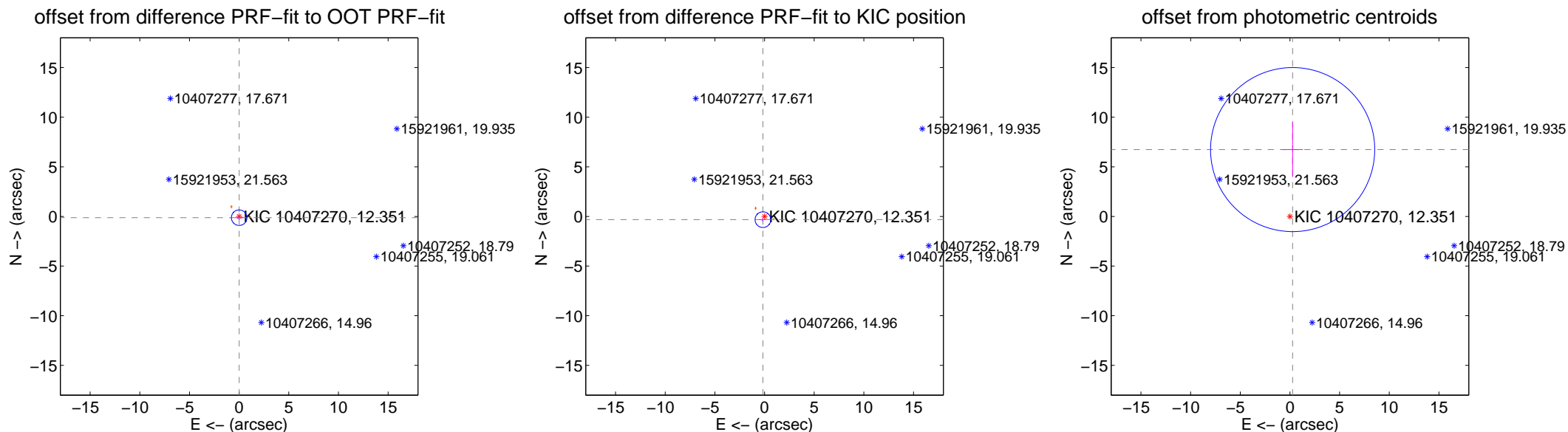
## DV Centroid Data

Supplemental centroid analysis for 010407270-01. Kepler magnitude: 12.35. Transit SNR 3.91

There are 1 quarters with good PRF difference image offsets

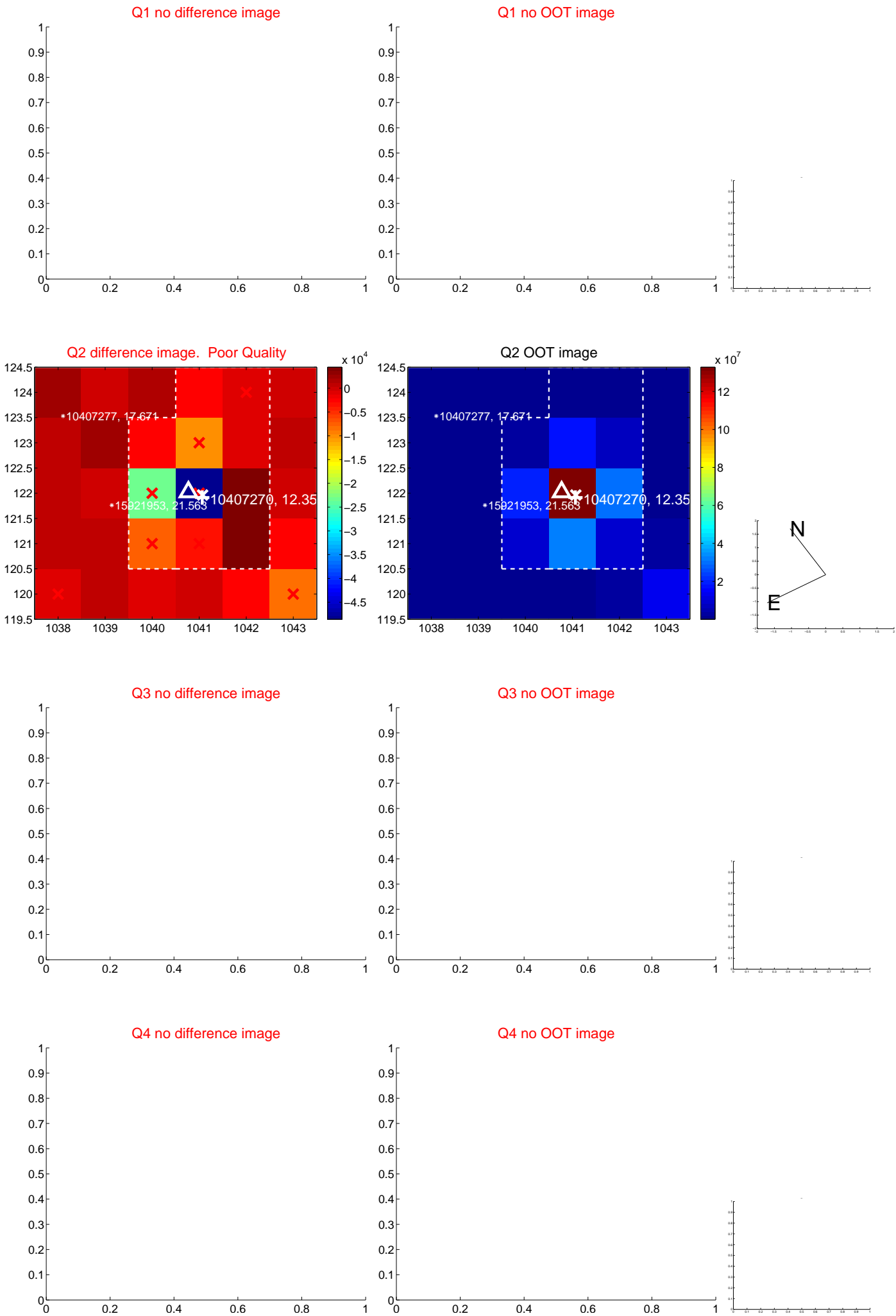
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.125 \pm 0.261$	0.48	$-0.005 \pm 0.419$	$-0.125 \pm 0.247$
PRF-fit source offset from KIC position	$0.362 \pm 0.264$	1.37	$0.163 \pm 0.389$	$-0.324 \pm 0.221$
photometric centroid source offset	$6.74 \pm 2.75$	2.45	$-0.27 \pm 1.04$	$6.74 \pm 2.76$



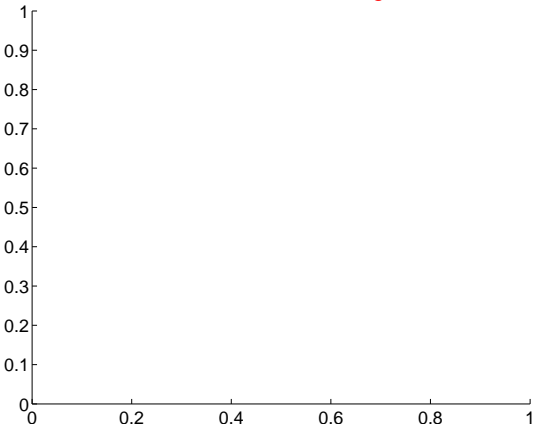
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

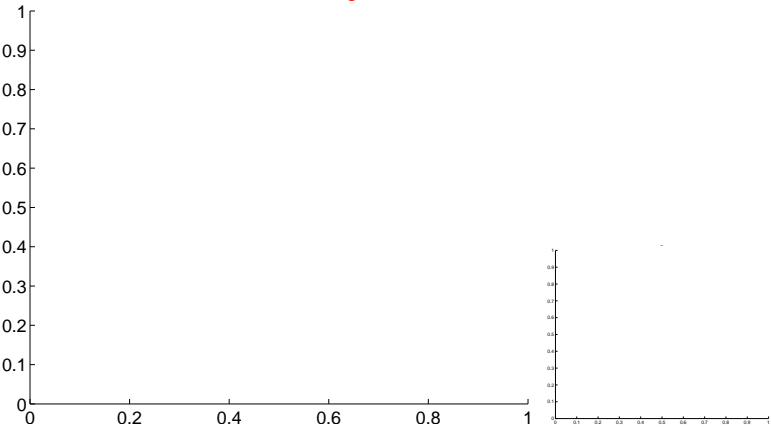


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

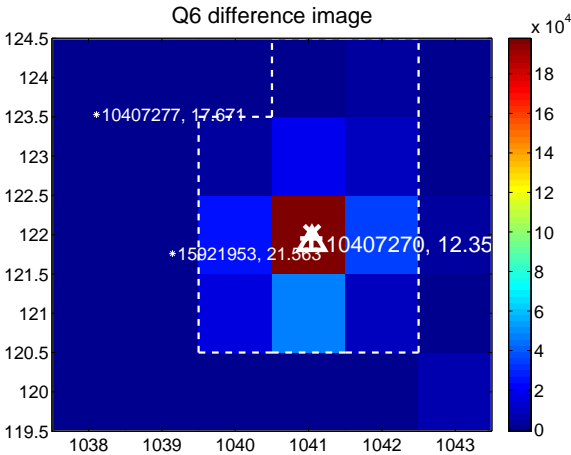
Q5 no difference image



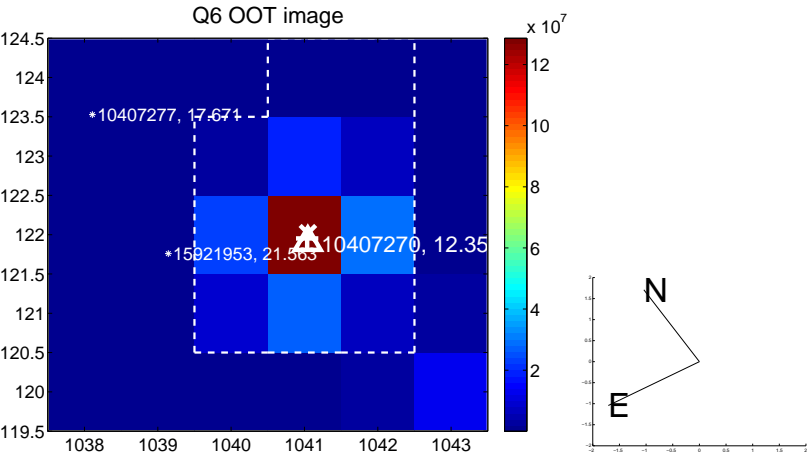
Q5 no OOT image



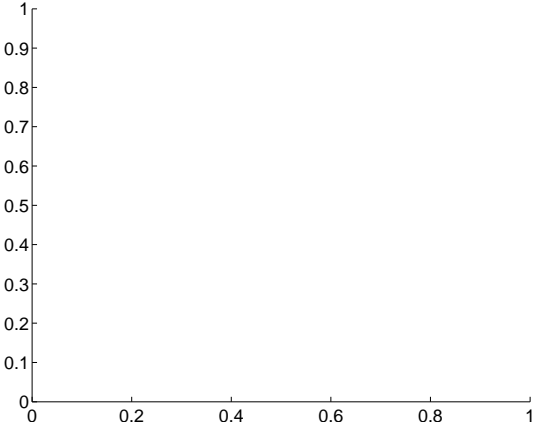
Q6 difference image



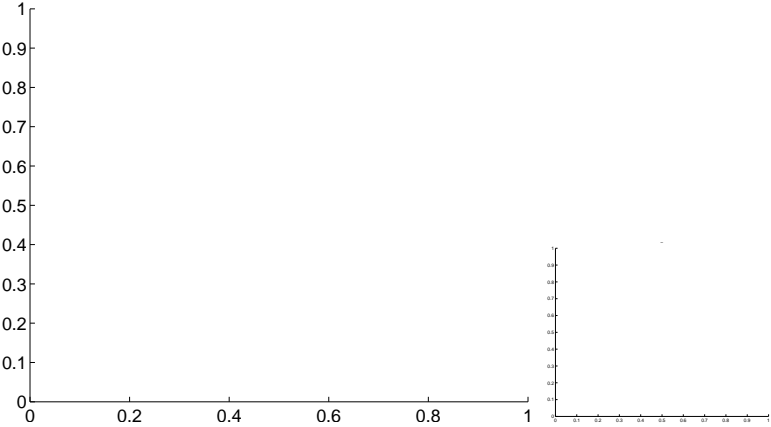
Q6 OOT image



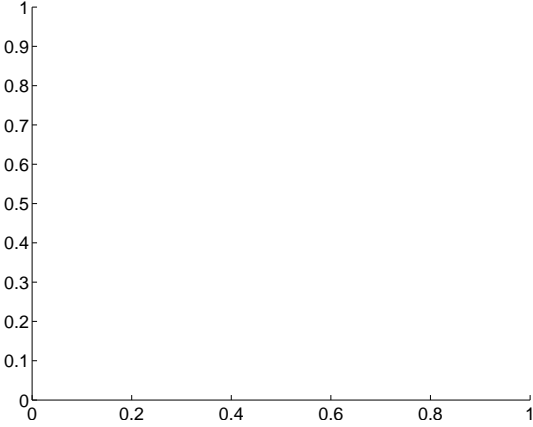
Q7 no difference image



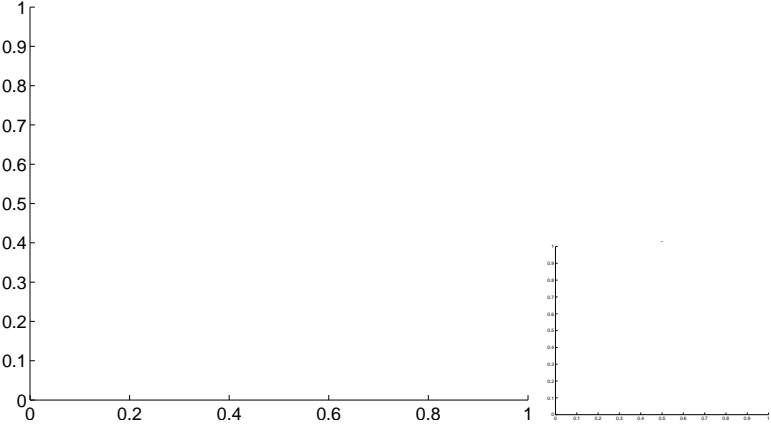
Q7 no OOT image



Q8 no difference image

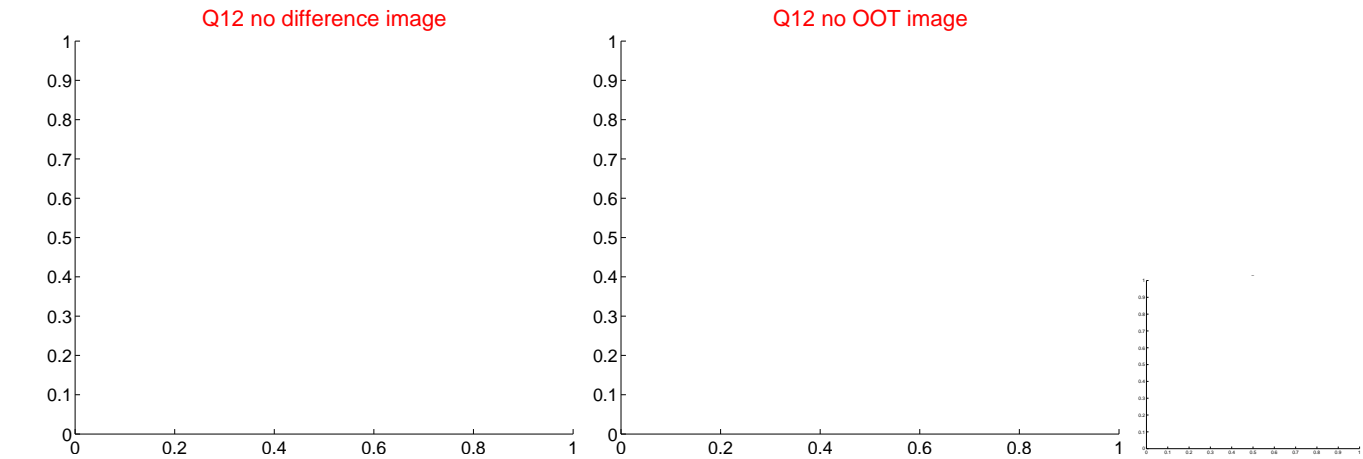
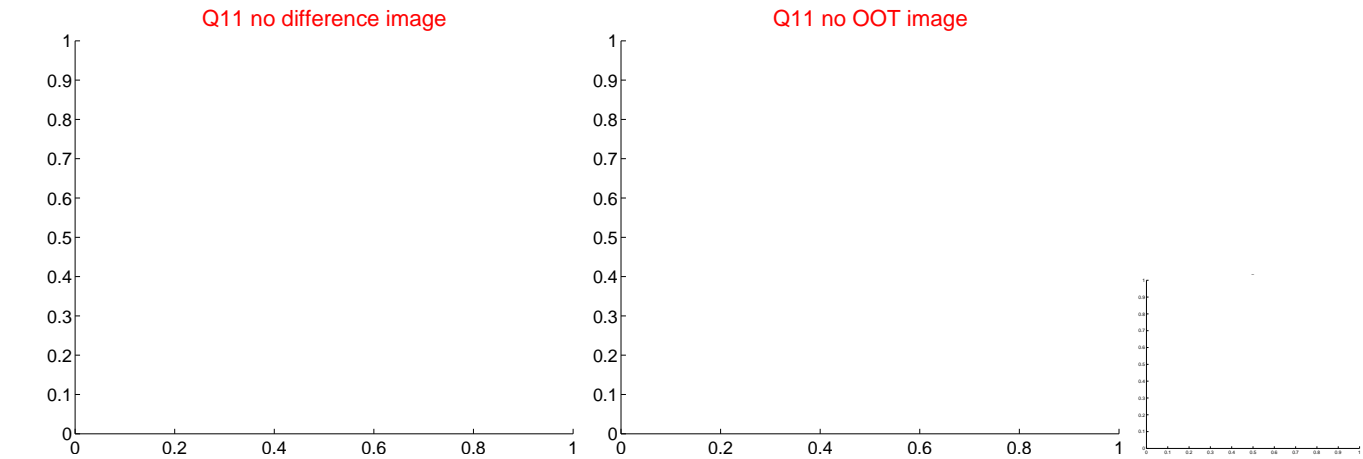
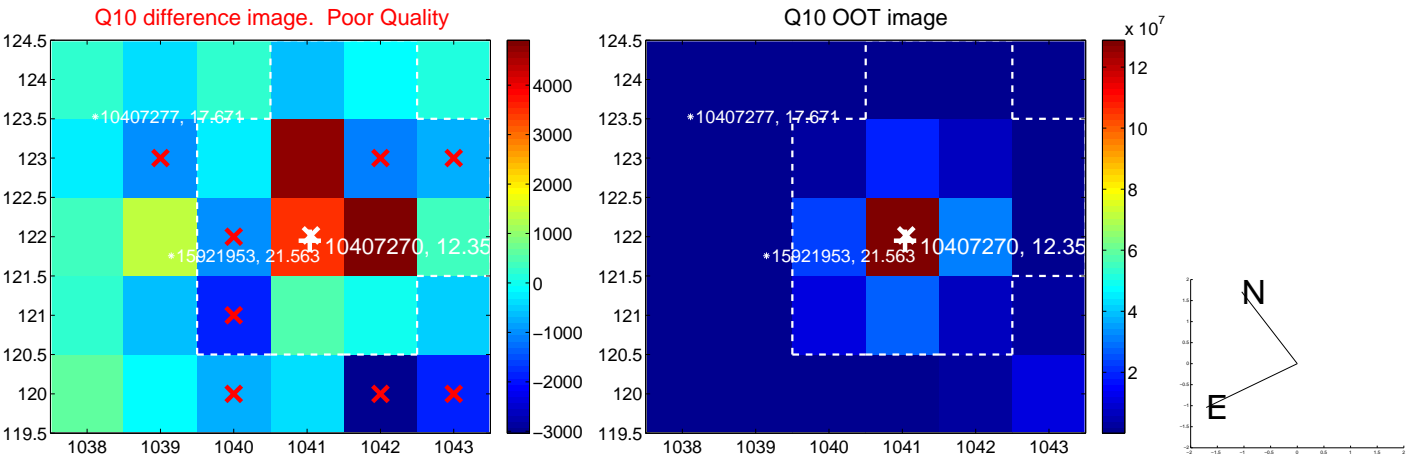
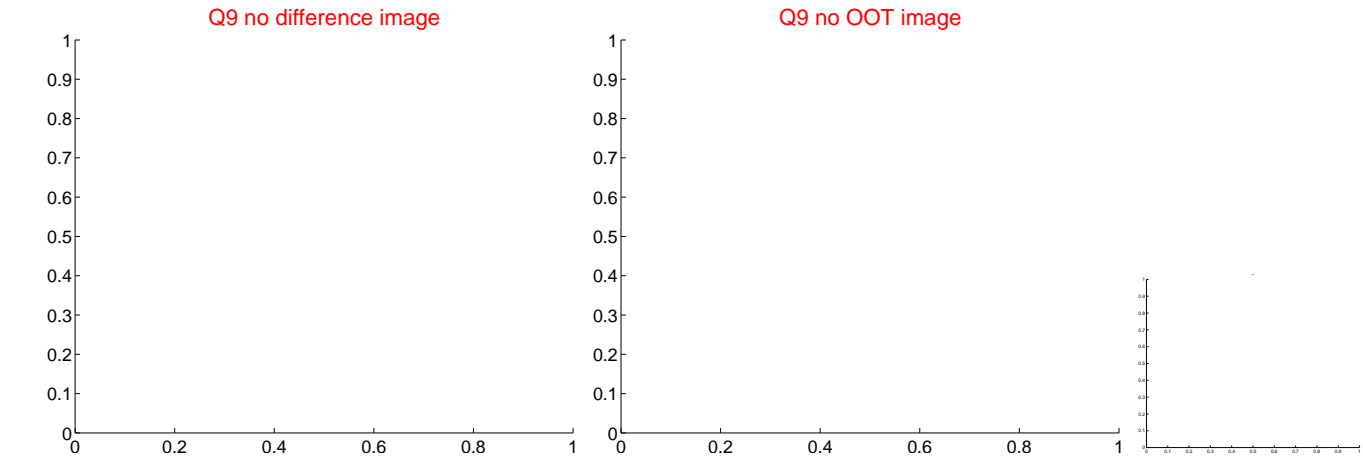


Q8 no OOT image

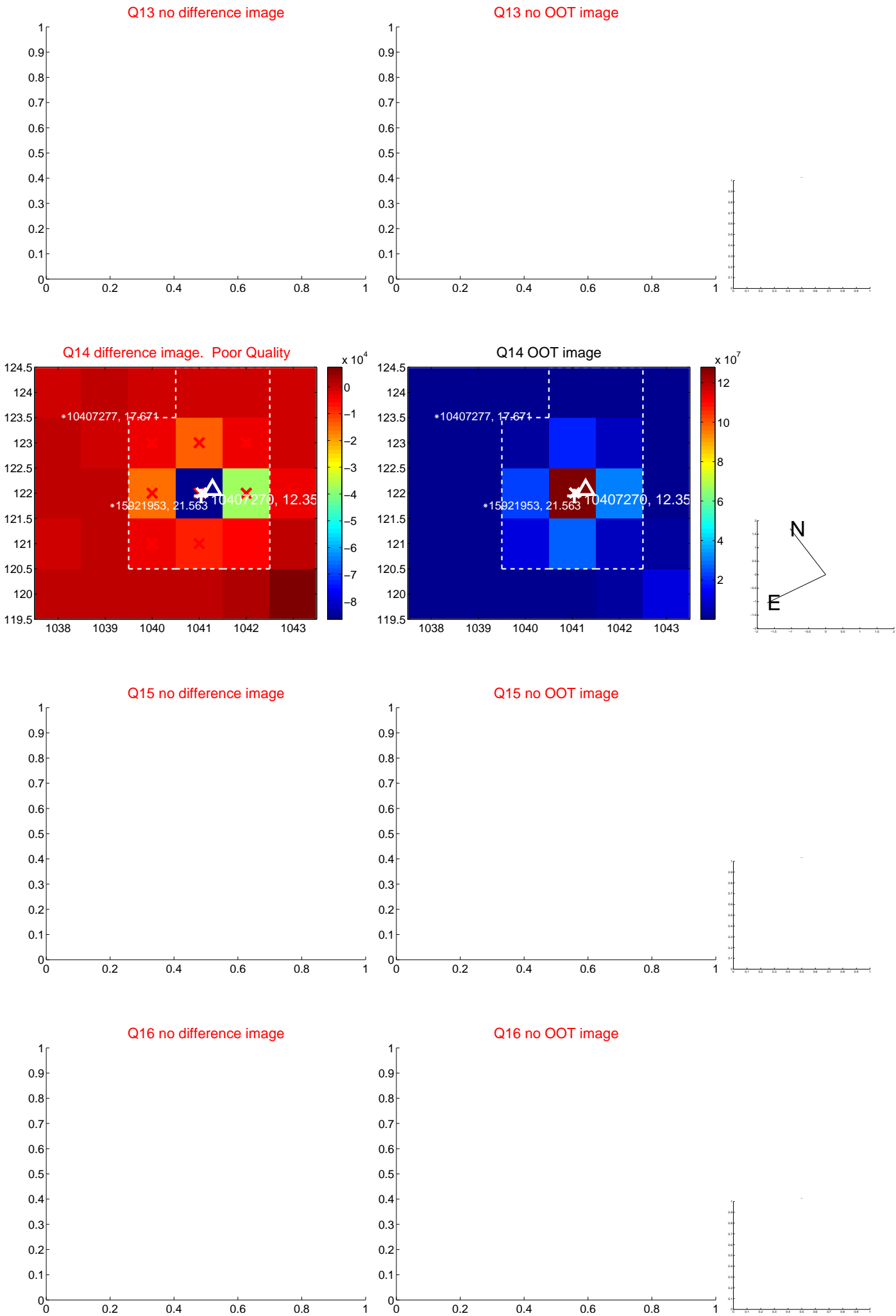




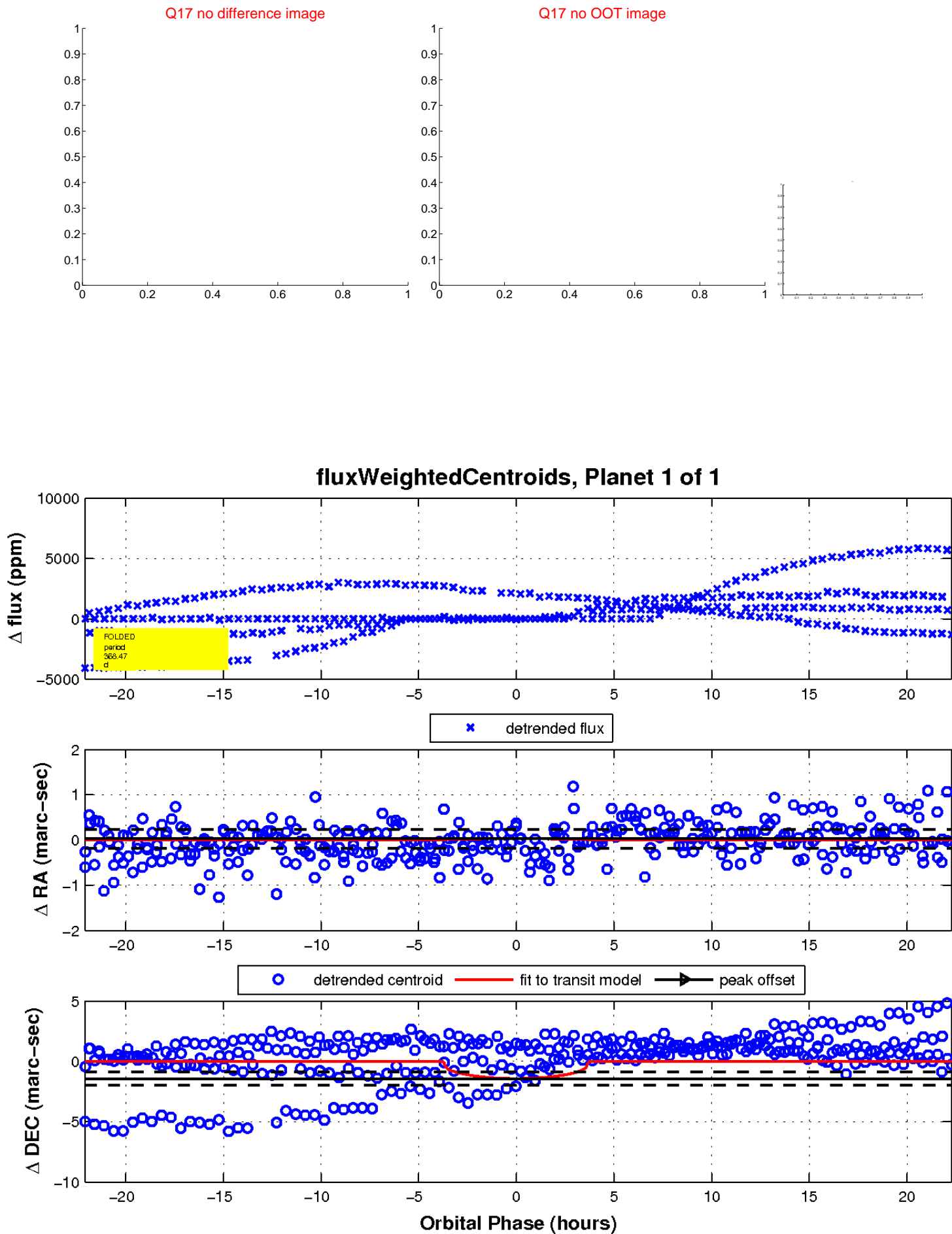
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

