

# KIC 005104259

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005104259-01	OBS	No	428.845964	208.347708	263.9	5.990	7.6	7.8	3.14	6737	5.71	11.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005104259-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_ALT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

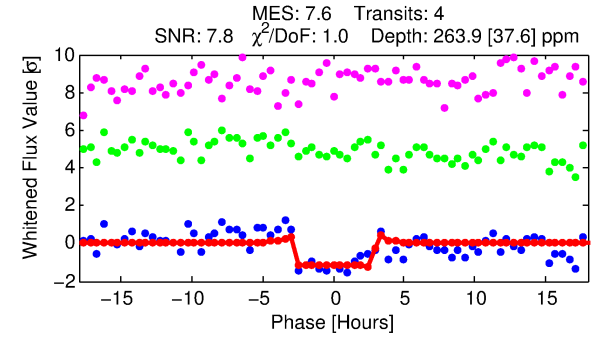
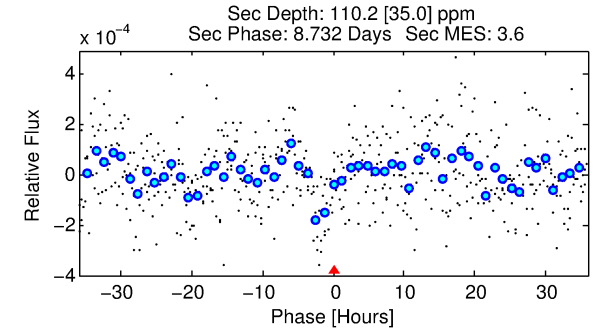
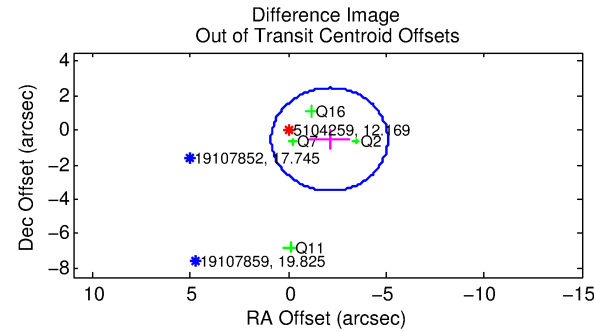
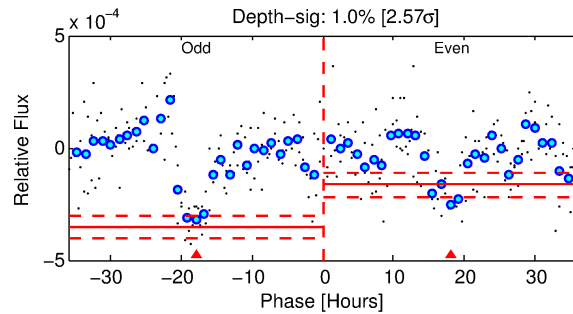
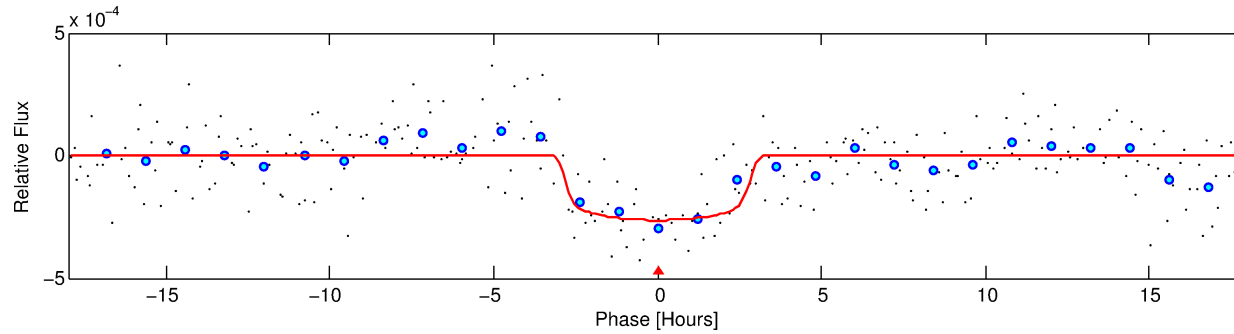
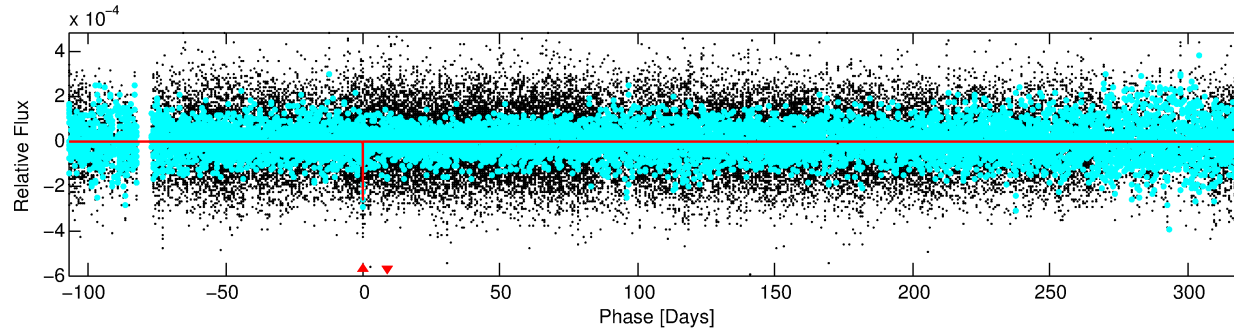
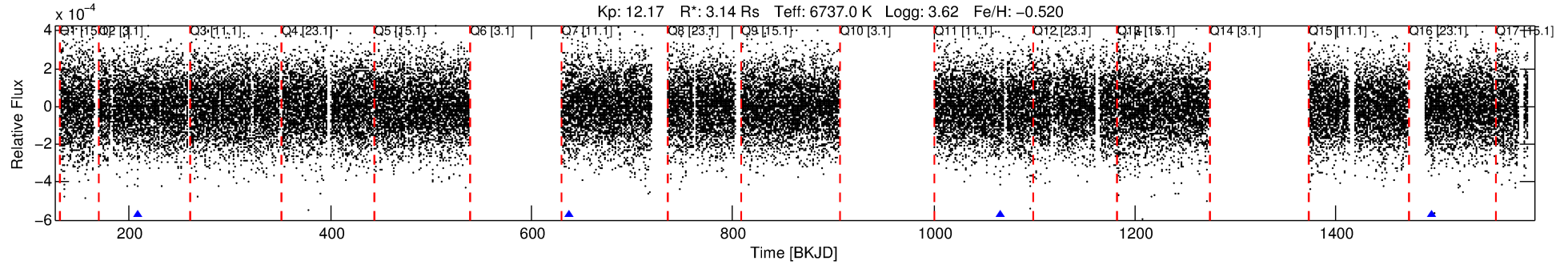
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005104259-01

No Significant Match Found

# DV One-Page Summary

KIC: 5104259 Candidate: 1 of 1 Period: 428.846 d



## DV Fit Results:

Period = 428.84596 [0.00449] d  
Epoch = 208.3477 [0.0079] BKJD  
Rp/R\* = 0.0166 [0.0048]  
a/R\* = 320.53 [514.67]  
b = 0.83 [0.60]  
Seff = 11.27 [7.08]  
Teff = 467 [73] K  
Rp = 5.71 [2.87] Re  
a = 1.2719 [0.4950] AU  
Ag = 3010.95 [2724.18] [1.10 $\sigma$ ]  
Teffp = 5351 [900] K [5.41 $\sigma$ ]

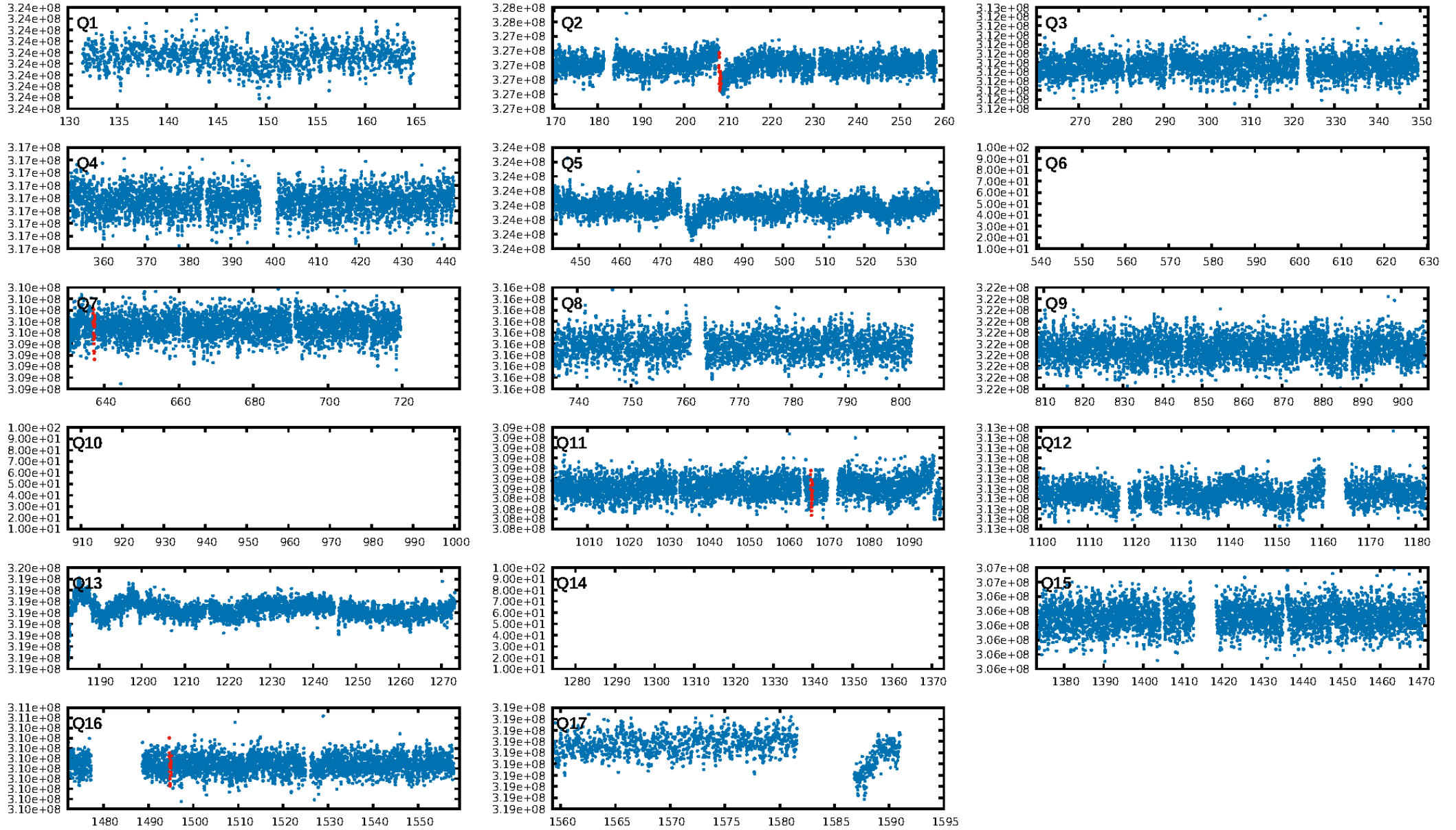
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.1%  
ModelChiSquareGof-sig: 97.7%  
**Bootstrap-pfa: 2.23e-12**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 3.608  
Centroid-sig: 23.4%  
Centroid-so: 0.822 arcsec [1.11 $\sigma$ ]  
OotOffset-rm: 2.168 arcsec [2.18 $\sigma$ ]  
KicOffset-rm: 2.190 arcsec [2.16 $\sigma$ ]  
OotOffset-st: 1/2/1/0 [4]  
KicOffset-st: 1/2/1/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

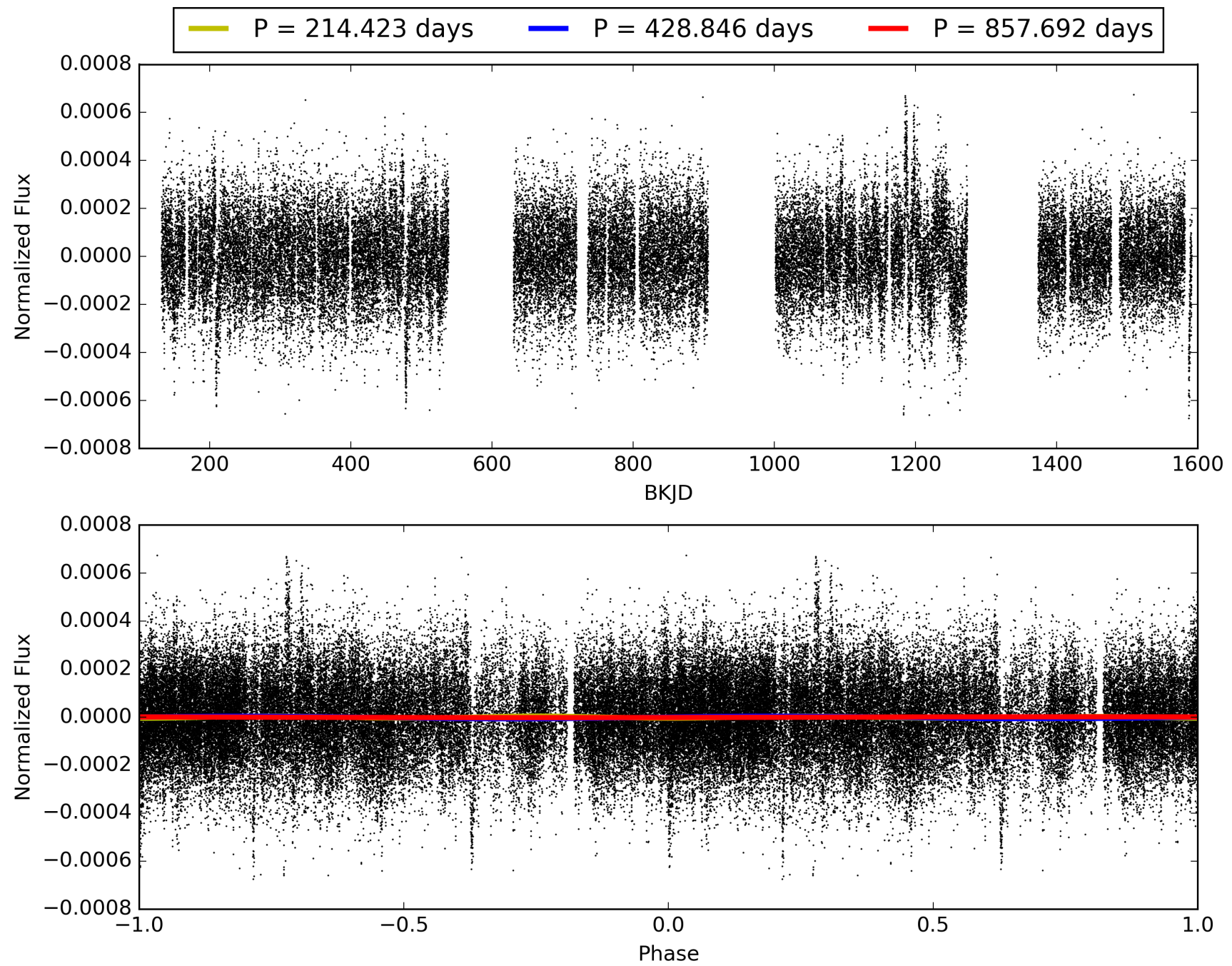
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:07:23 Z

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

# TCE 005104259-01, PDC Light Curves

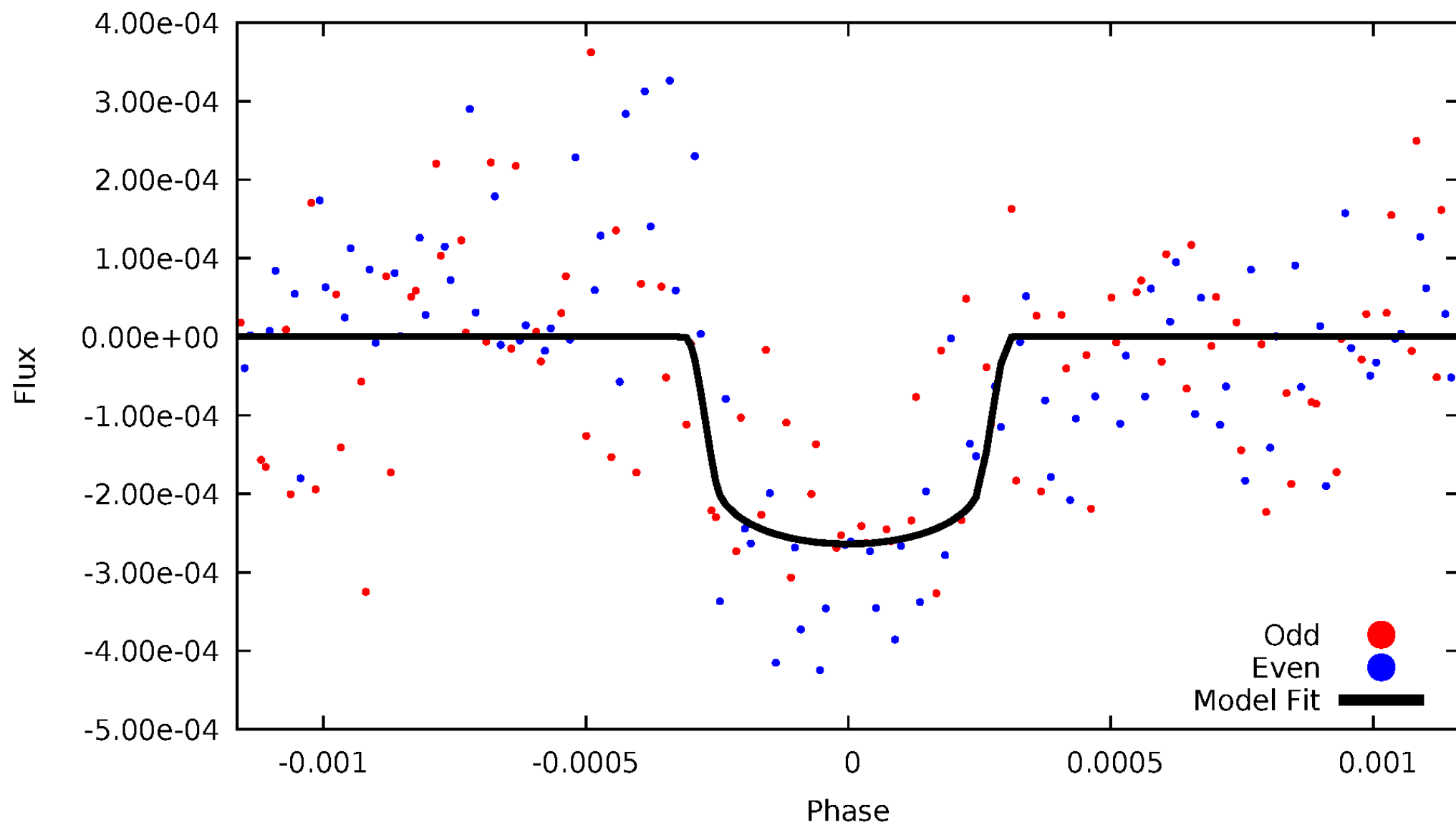


TCE 005104259-01



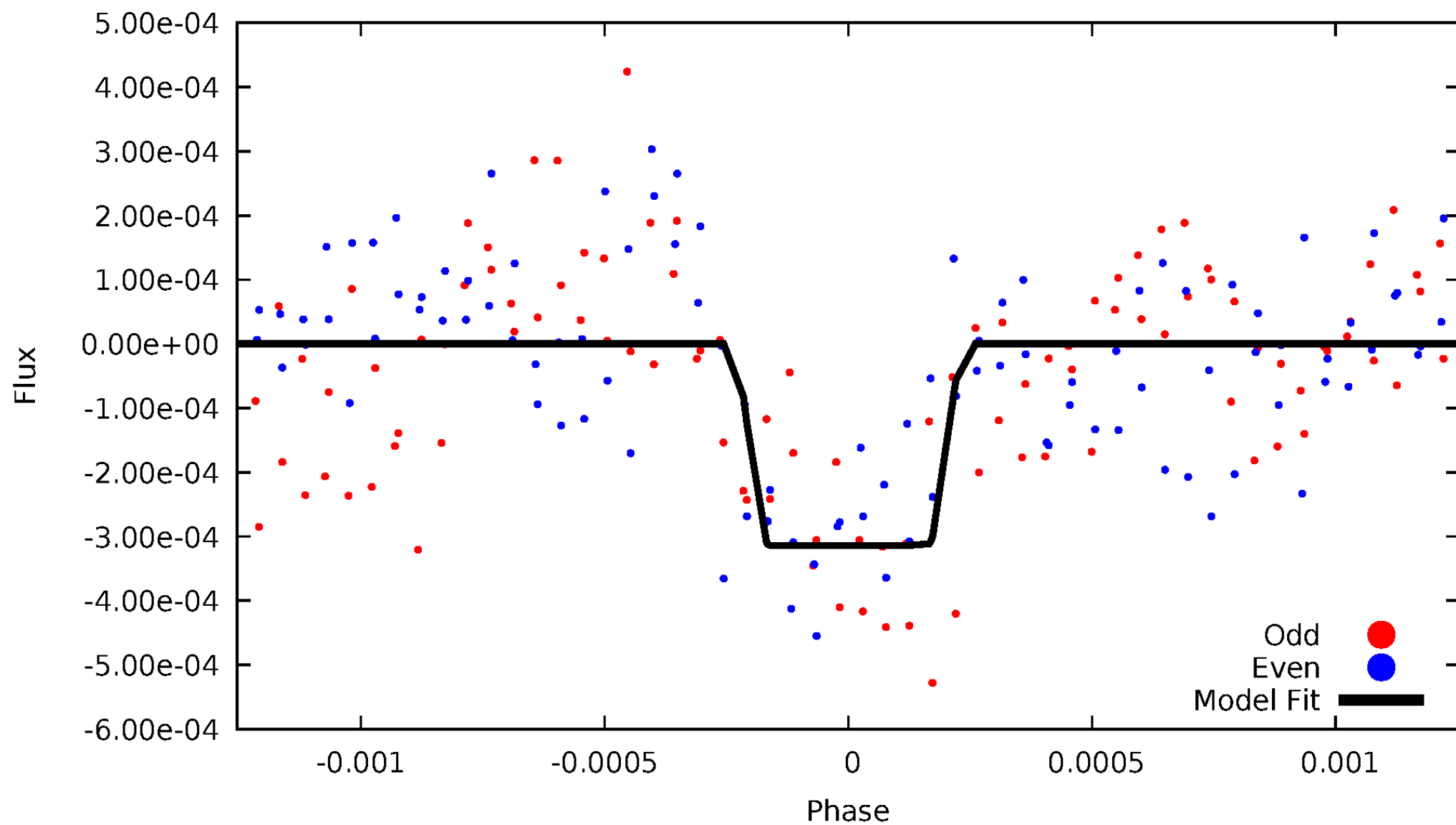
# DV Odd/Even

TCE 005104259-01



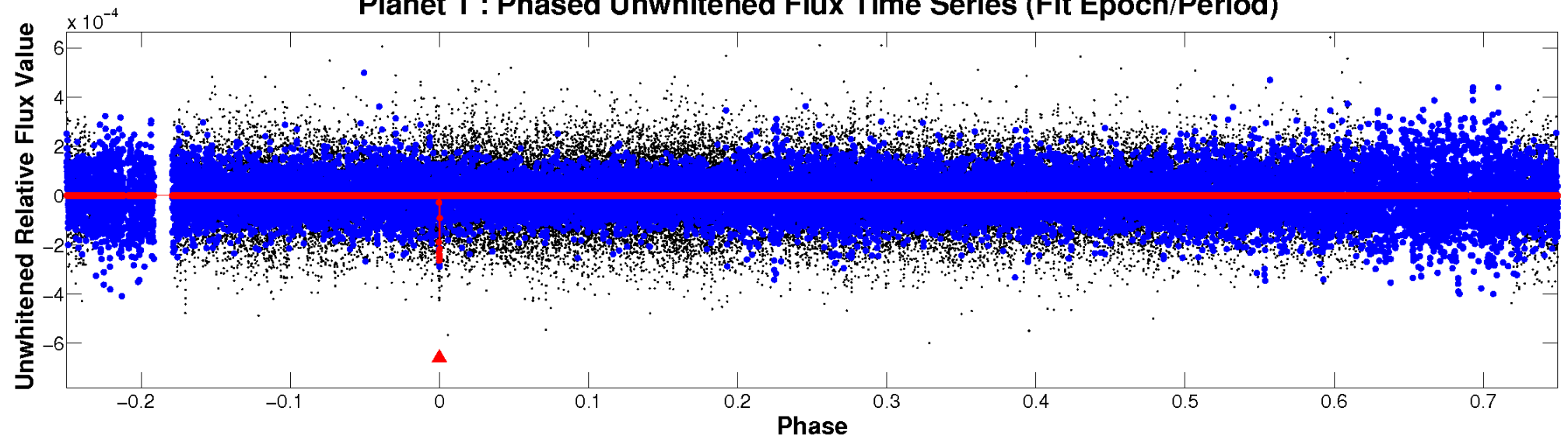
# ALT Odd/Even

TCE 005104259-01

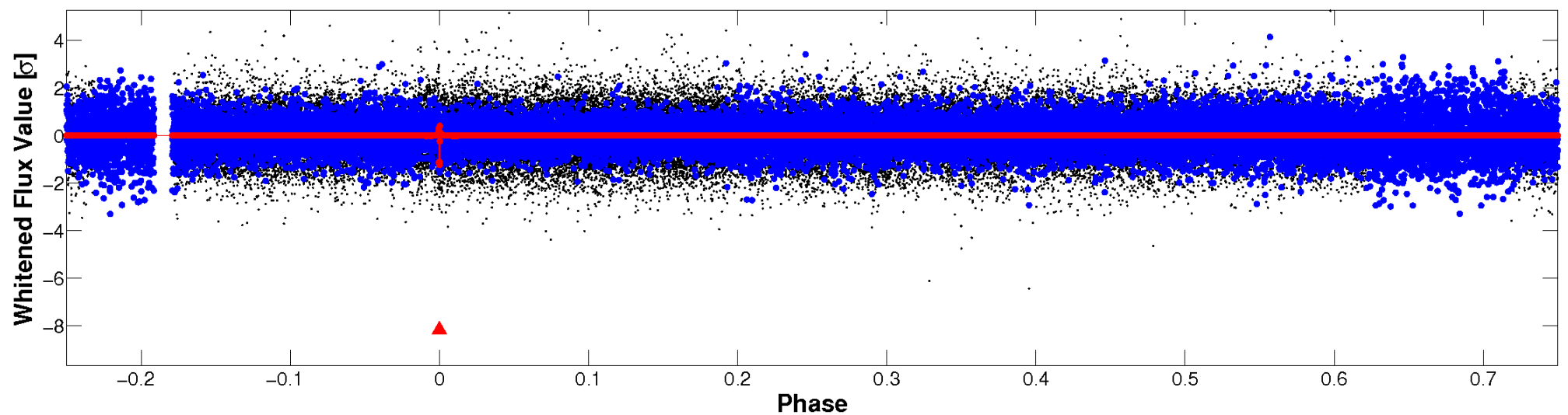


# Non-Whitened Vs. Whitened Light Curve

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



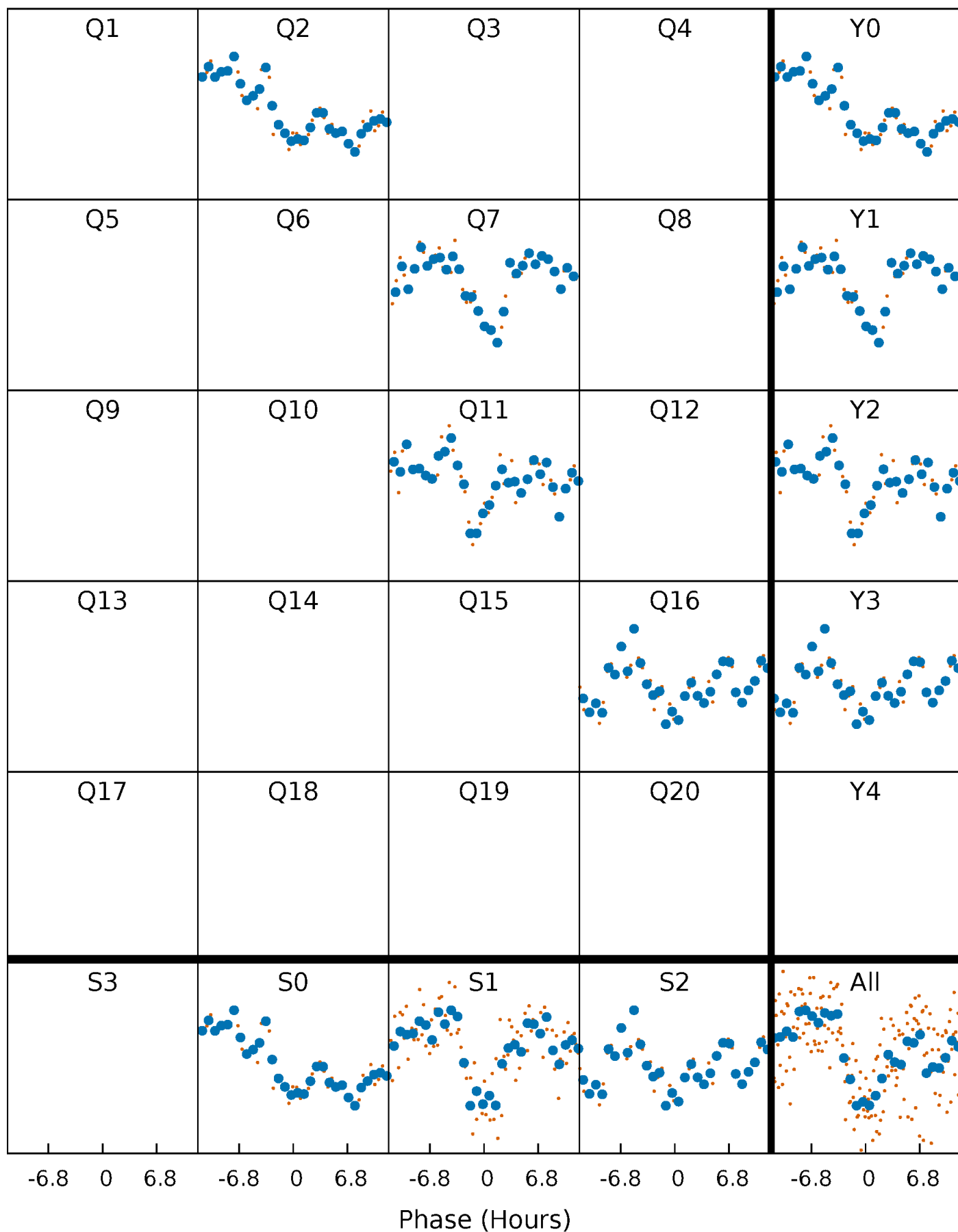
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

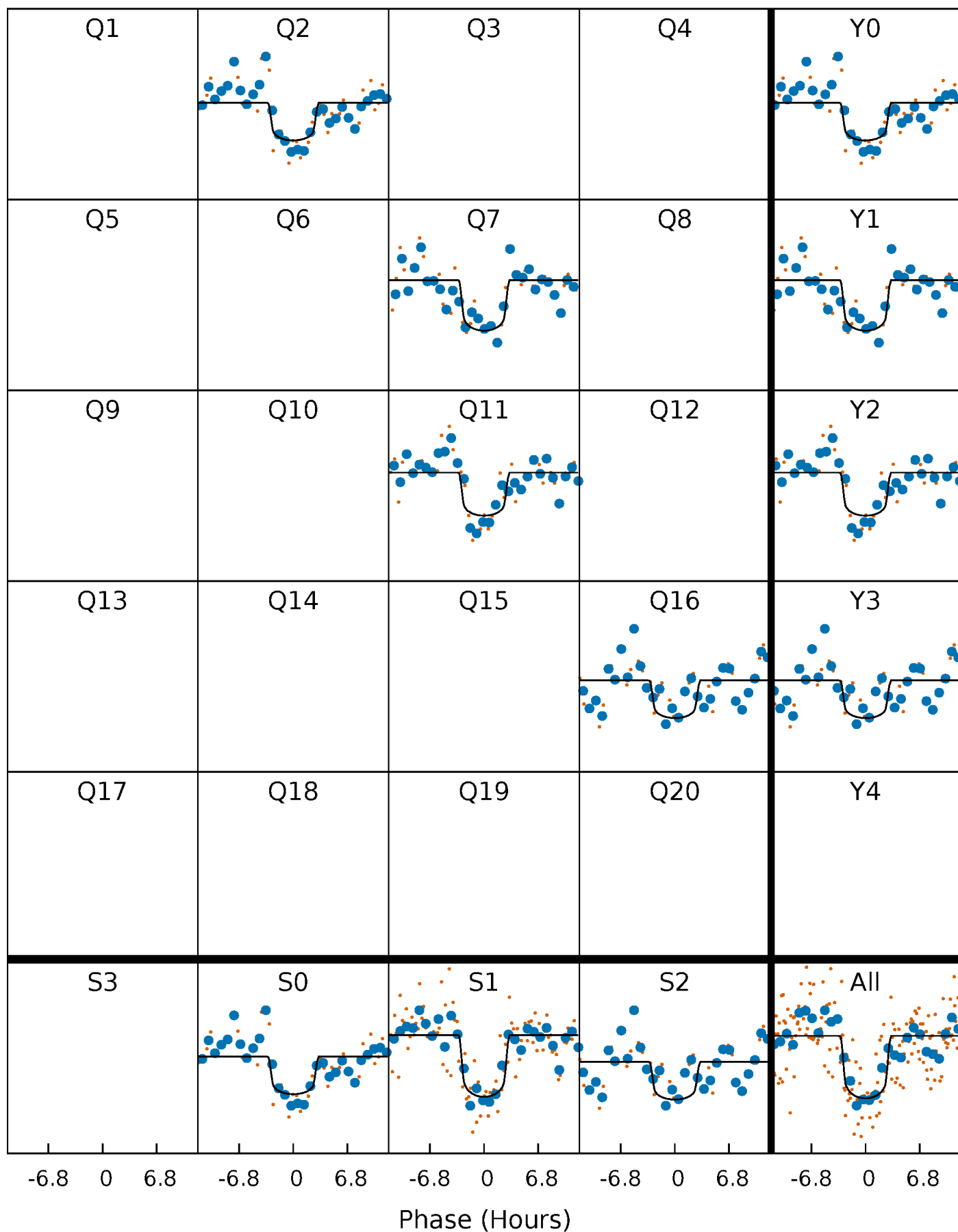
TCE 005104259-01 P=428.845964 Days  $T_0=208.347708$  (BKJD)





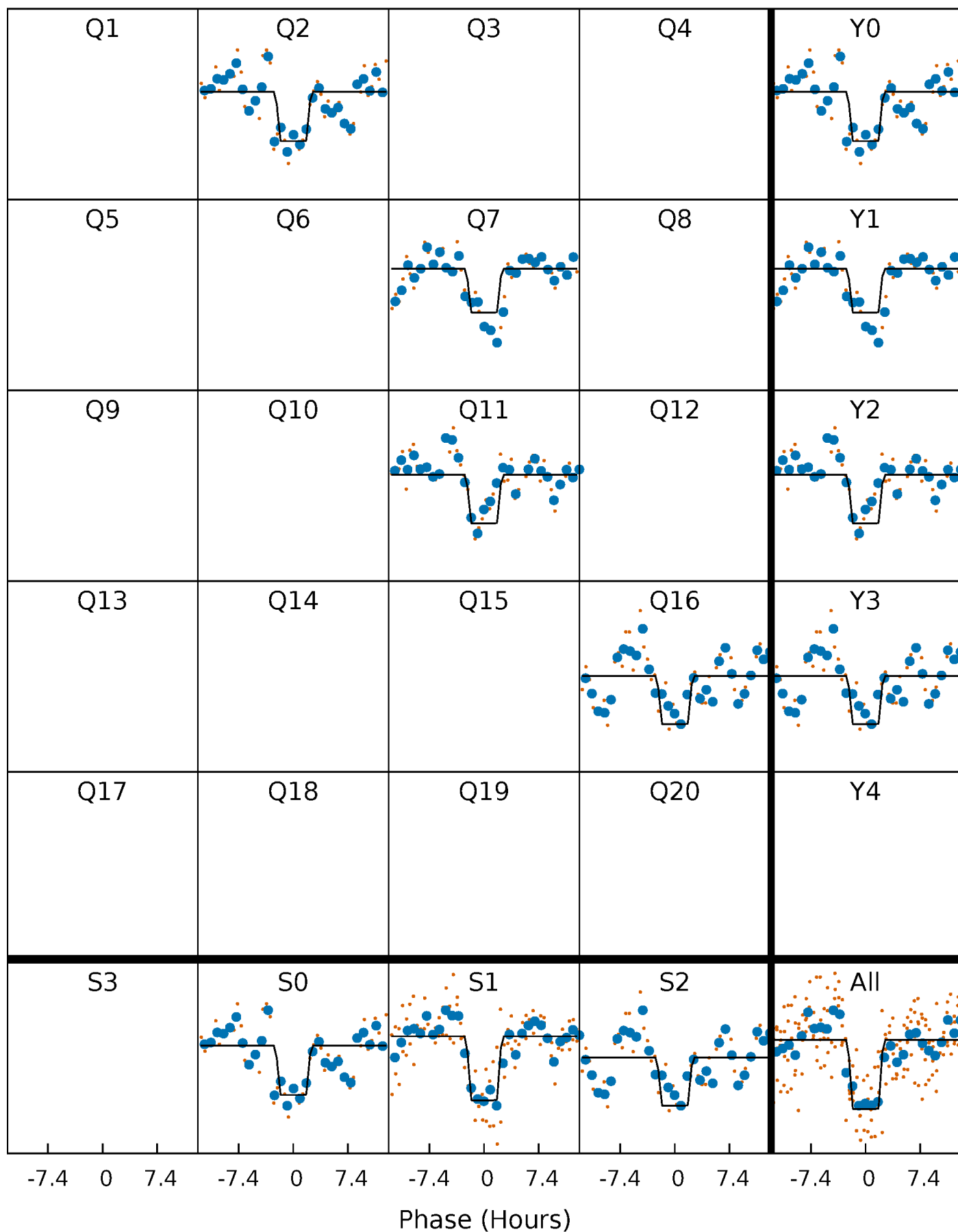
# DV Quarter-Phased Transit Curves

TCE 005104259-01 P=428.845964 Days  $T_0=208.347708$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

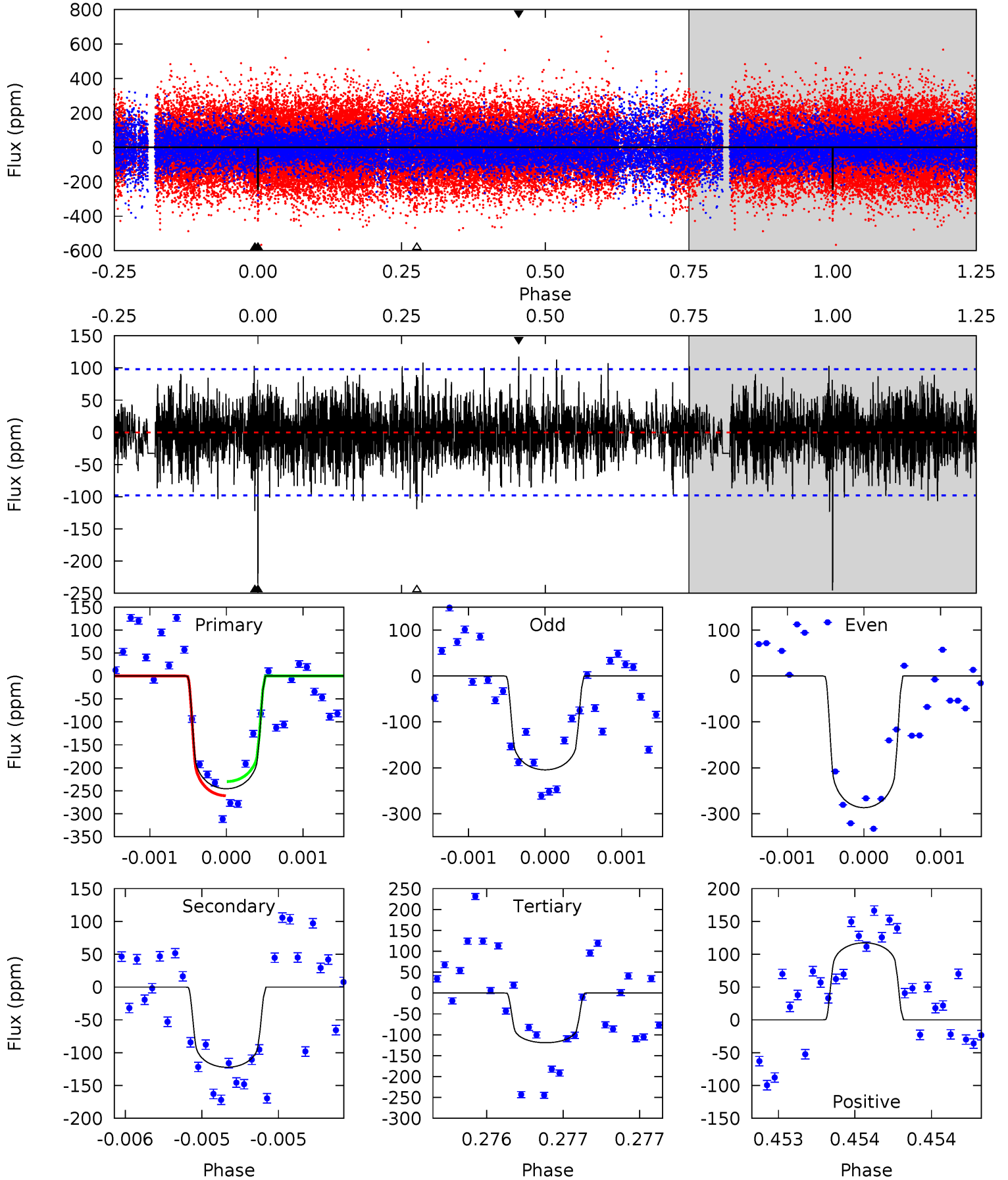
TCE 005104259-01 P=428.839124 Days  $T_0=208.352475$  (BKJD)



# DV Model-Shift Uniqueness Test

005104259-01, P = 428.845964 Days, E = 208.347708 Days

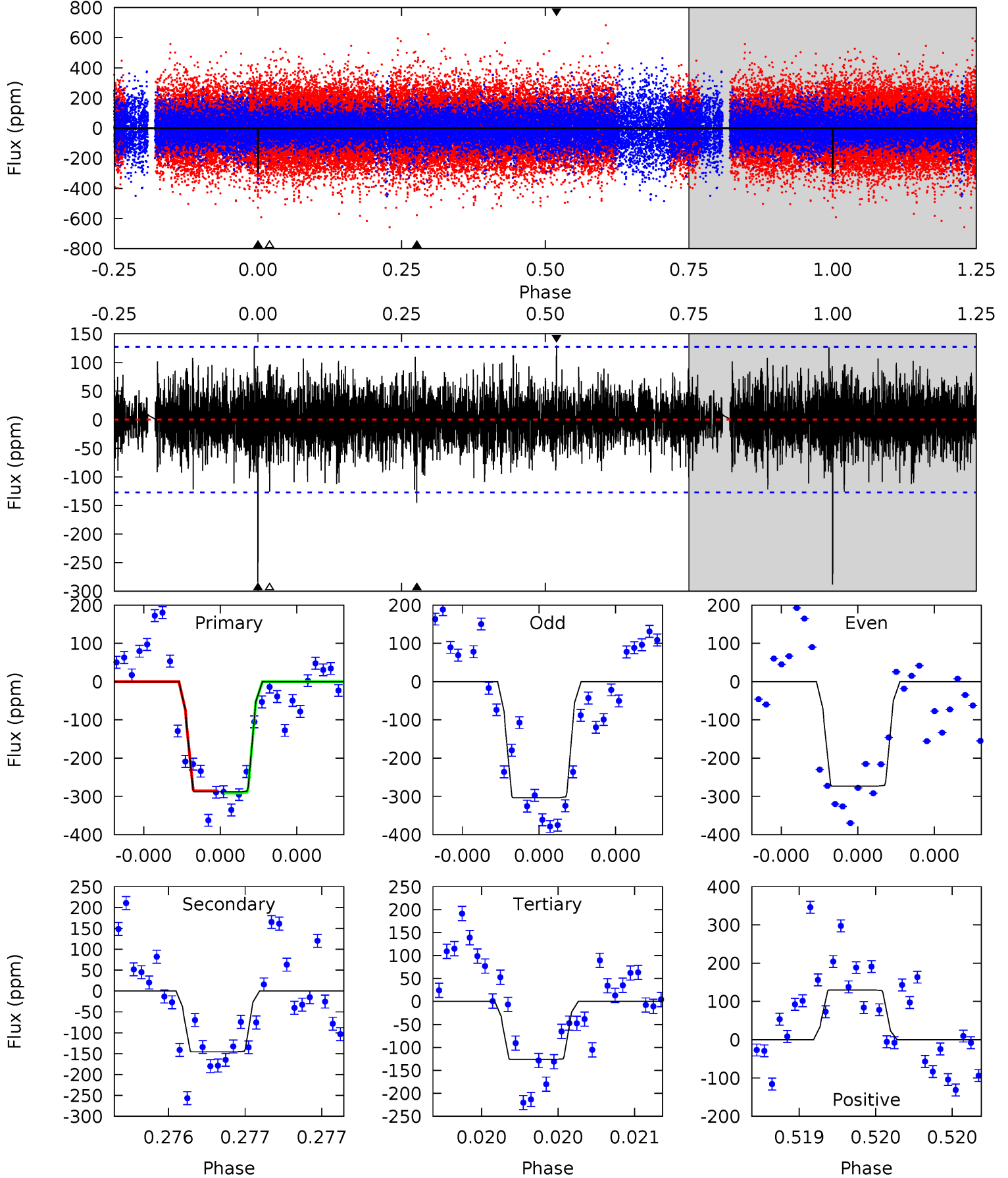
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	6.90	6.72	6.63	5.54	3.43	1.82	7.15	7.24	0.18	0.27	2.32	0.95	0.32	0.87



# Alt Model-Shift Uniqueness Test

005104259-01, P = 428.839124 Days, E = 208.352475 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
12.7	6.39	5.53	5.70	5.58	3.50	1.50	7.12	6.96	0.86	0.69	0.67	1.06	0.31	0.12



### Stellar Parameters For KIC 005104259

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6737^{+162}_{-203}$	$3.617^{+0.360}_{-0.090}$	$-0.520^{+0.350}_{-0.300}$	$3.143^{+0.431}_{-1.292}$	$1.492^{+0.228}_{-0.342}$	$0.068^{+0.191}_{-0.019}$
	+2%/-3%	+10%/-2%	+67%/-58%	+14%/-41%	+15%/-23%	+282%/-28%
Source	PHO1	FLK73	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 005104259-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-122 \pm 18$	$5.33^{+1.83}_{-1.87}$	$637^{+37}_{-63}$	$5484^{+972}_{-582}$	$3966^{+4625}_{-1782}$
Alt.	$-146 \pm 23$	$5.71^{+1.80}_{-1.86}$	$636^{+38}_{-60}$	$5525^{+961}_{-562}$	$3976^{+4888}_{-1615}$

$T_{max}$  = 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

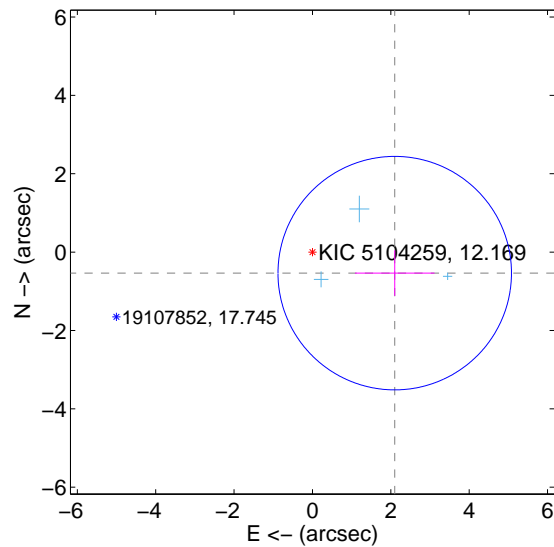
Supplemental centroid analysis for 005104259-01. Kepler magnitude: 12.17. Transit SNR 7.76

There are 3 quarters with good PRF difference image offsets

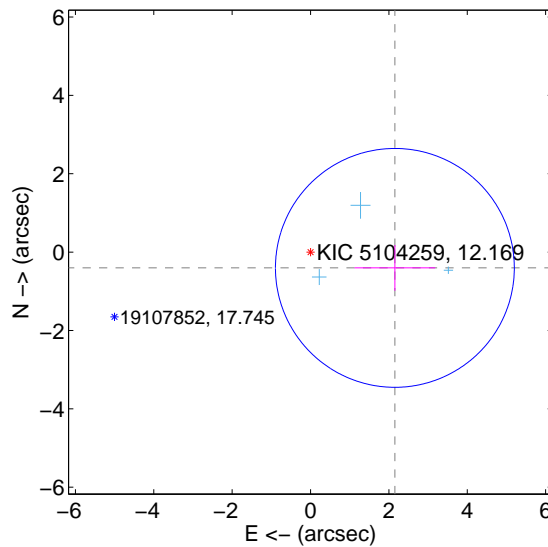
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.168 \pm 0.993$	2.18	$-2.100 \pm 1.014$	$-0.537 \pm 0.582$
PRF-fit source offset from KIC position	$2.190 \pm 1.016$	2.16	$-2.153 \pm 1.028$	$-0.403 \pm 0.583$
photometric centroid source offset	$0.82 \pm 0.74$	1.11	$0.34 \pm 0.76$	$0.75 \pm 0.74$

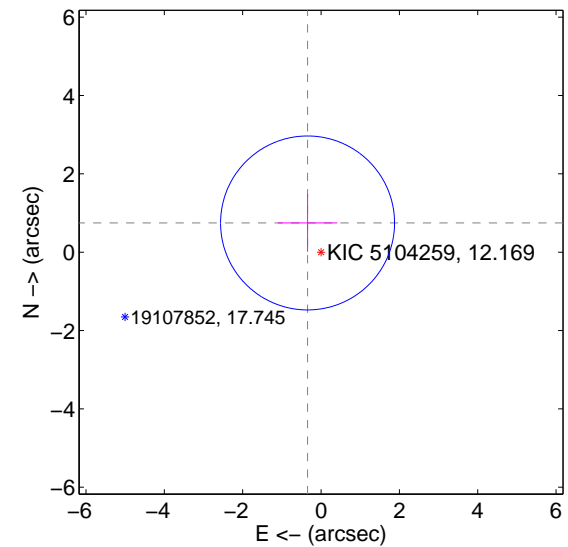
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

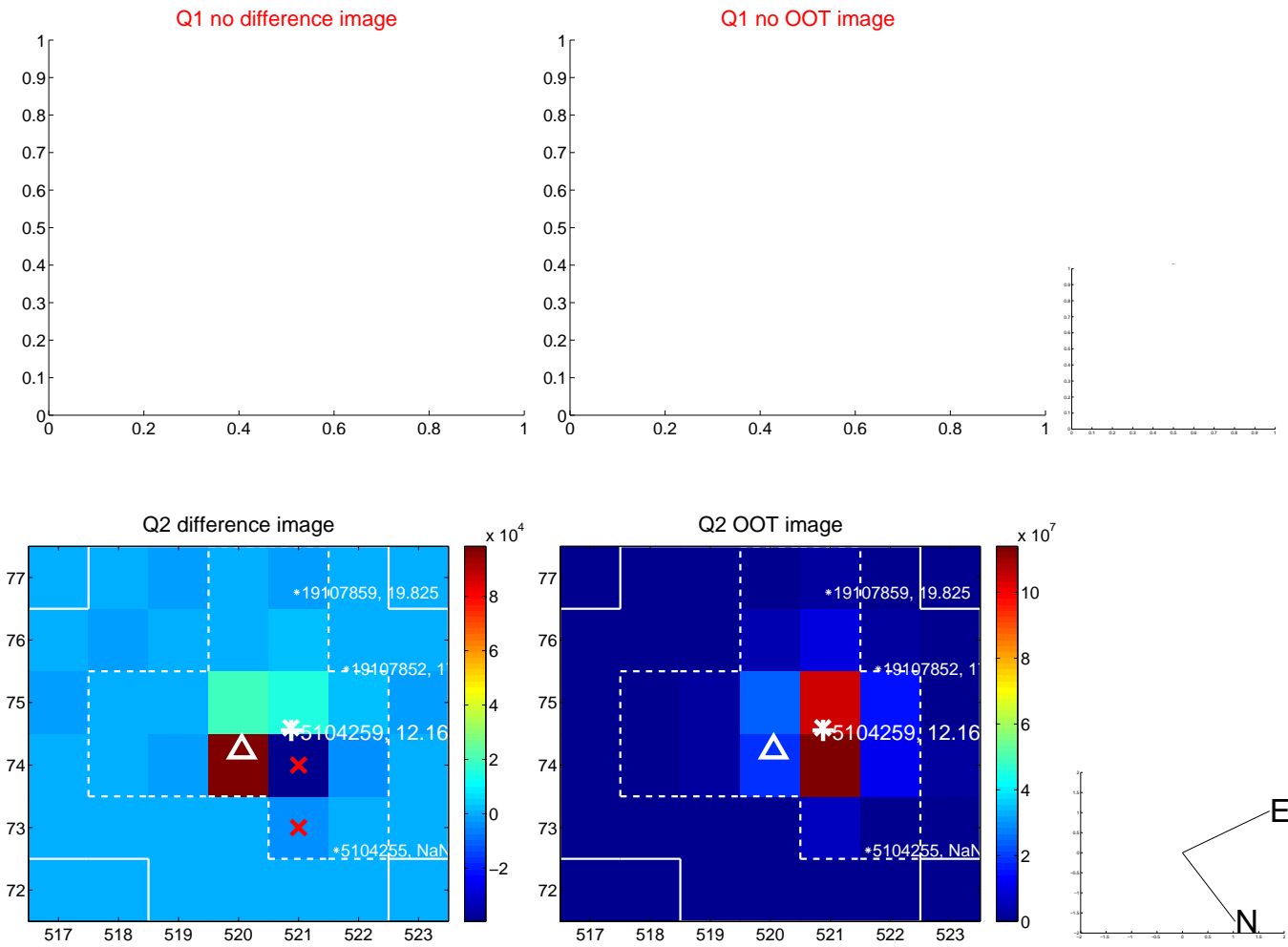


offset from photometric centroids



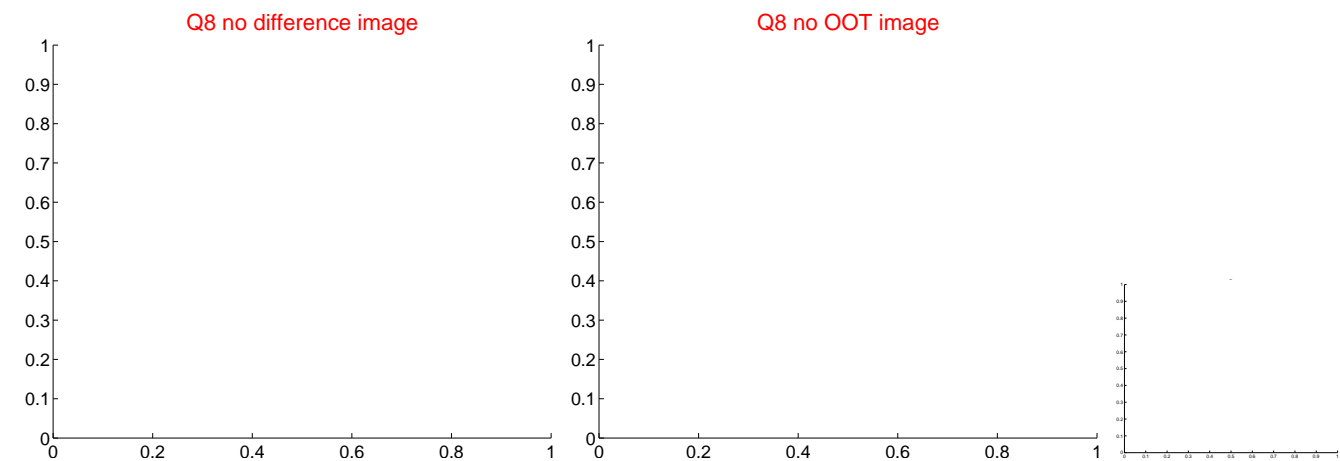
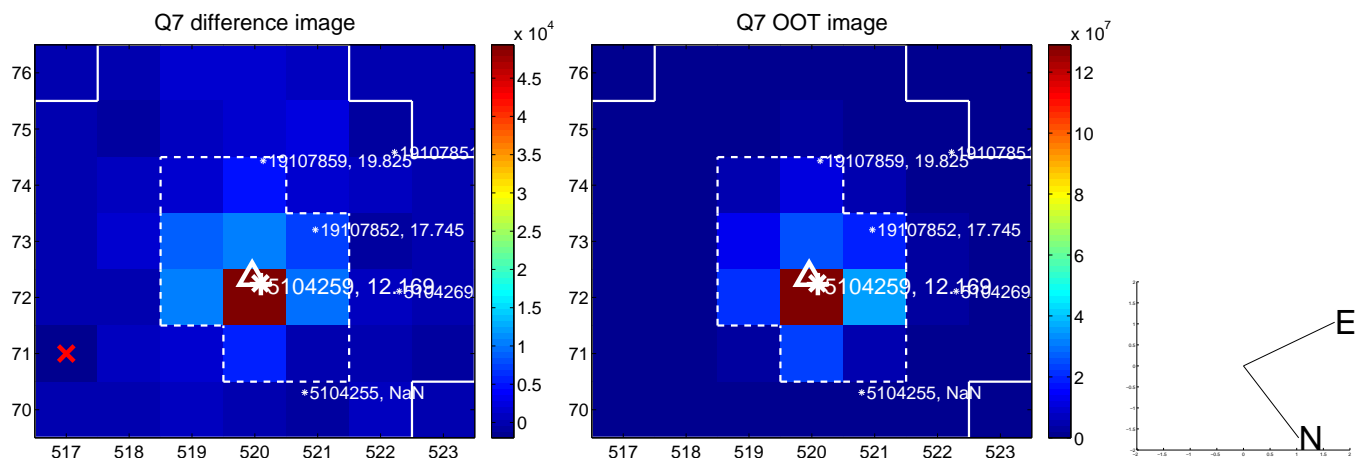
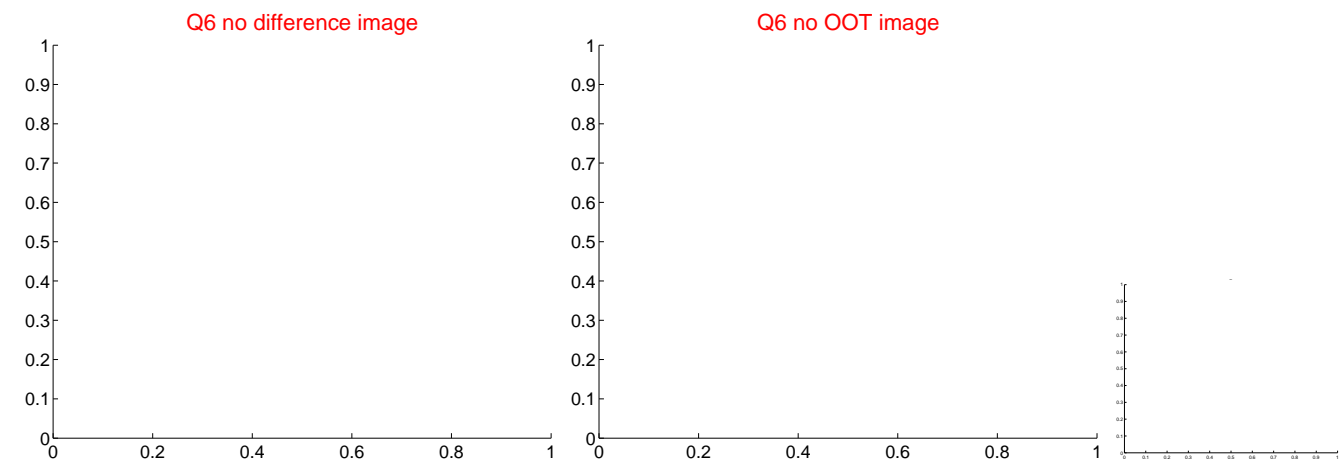
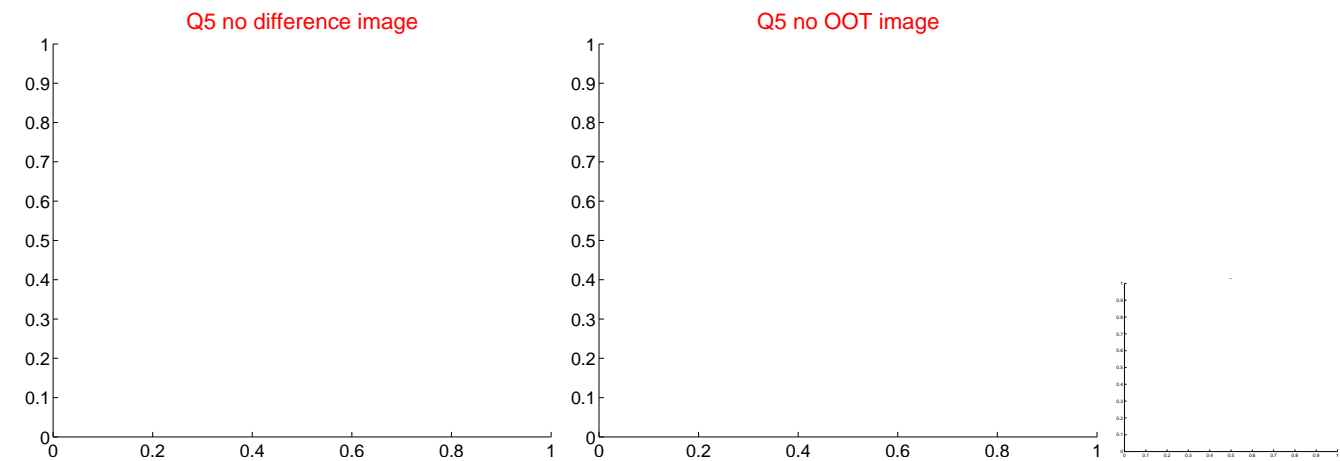
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

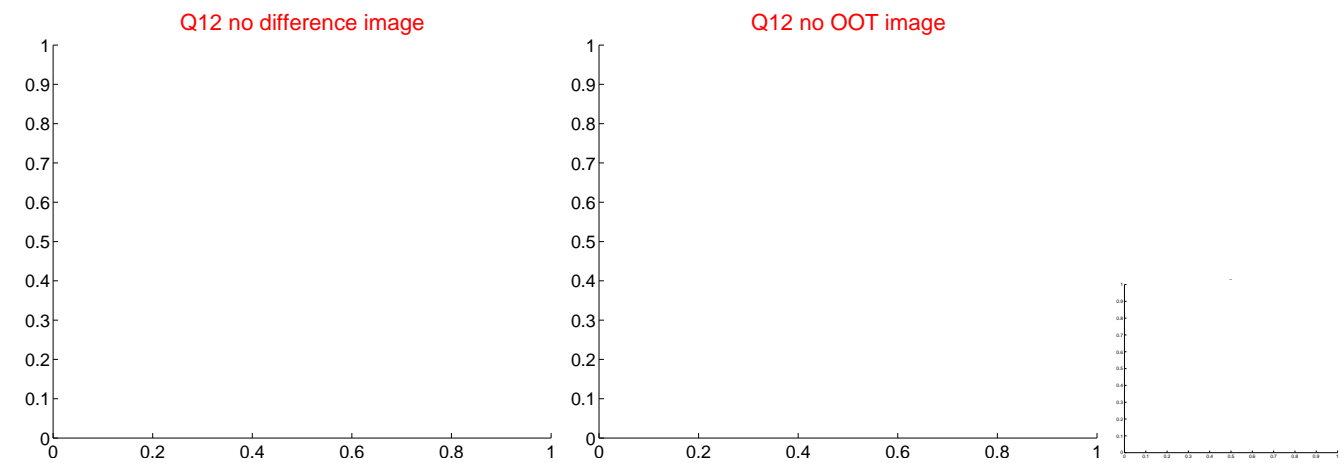
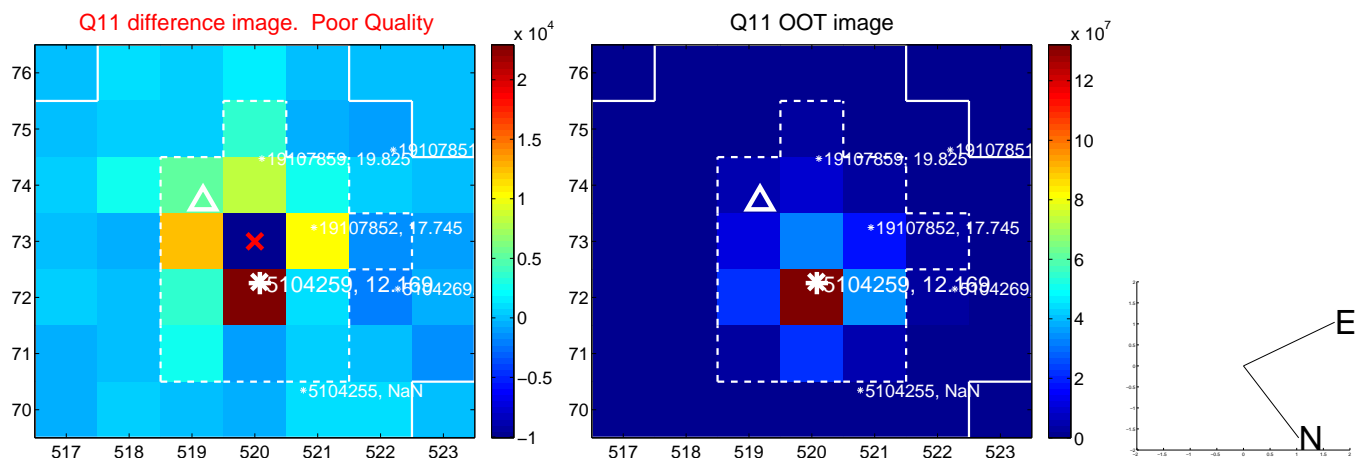
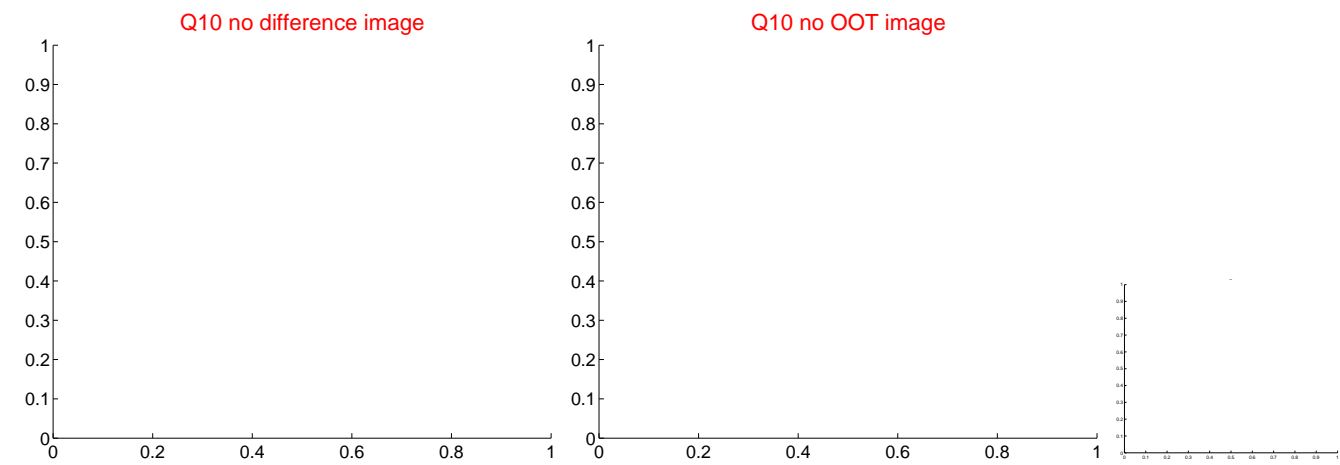
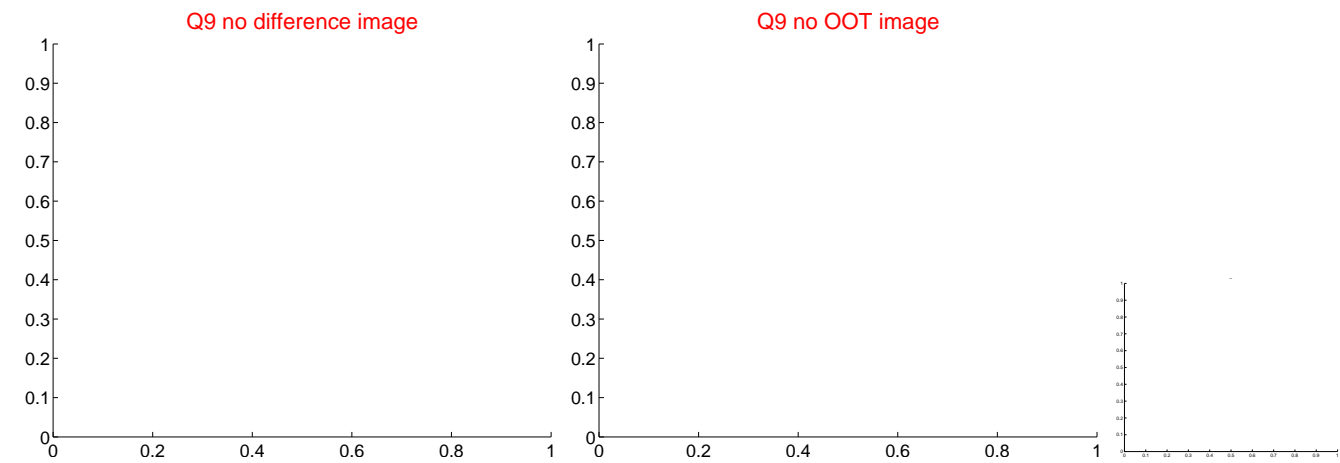




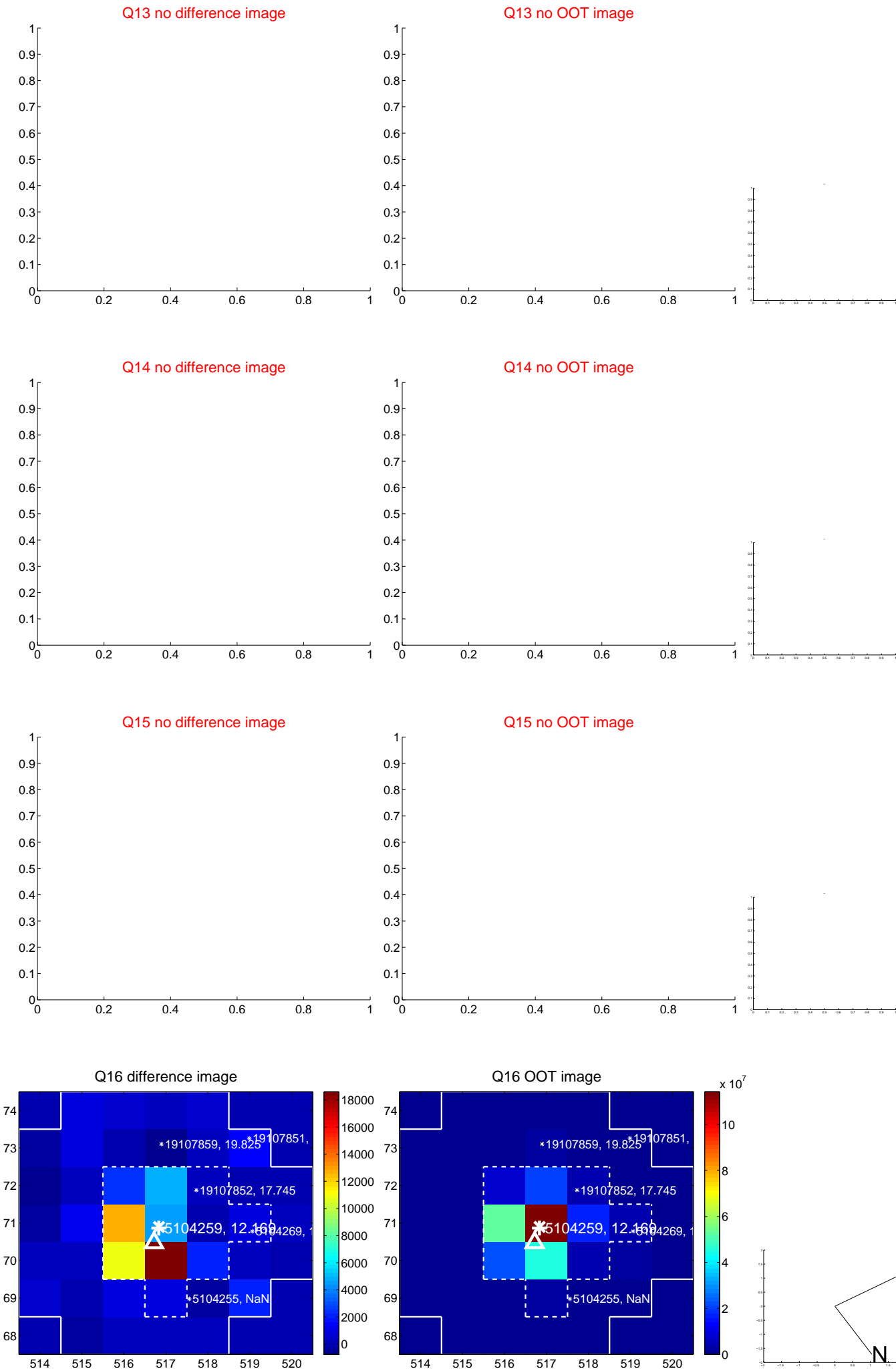
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



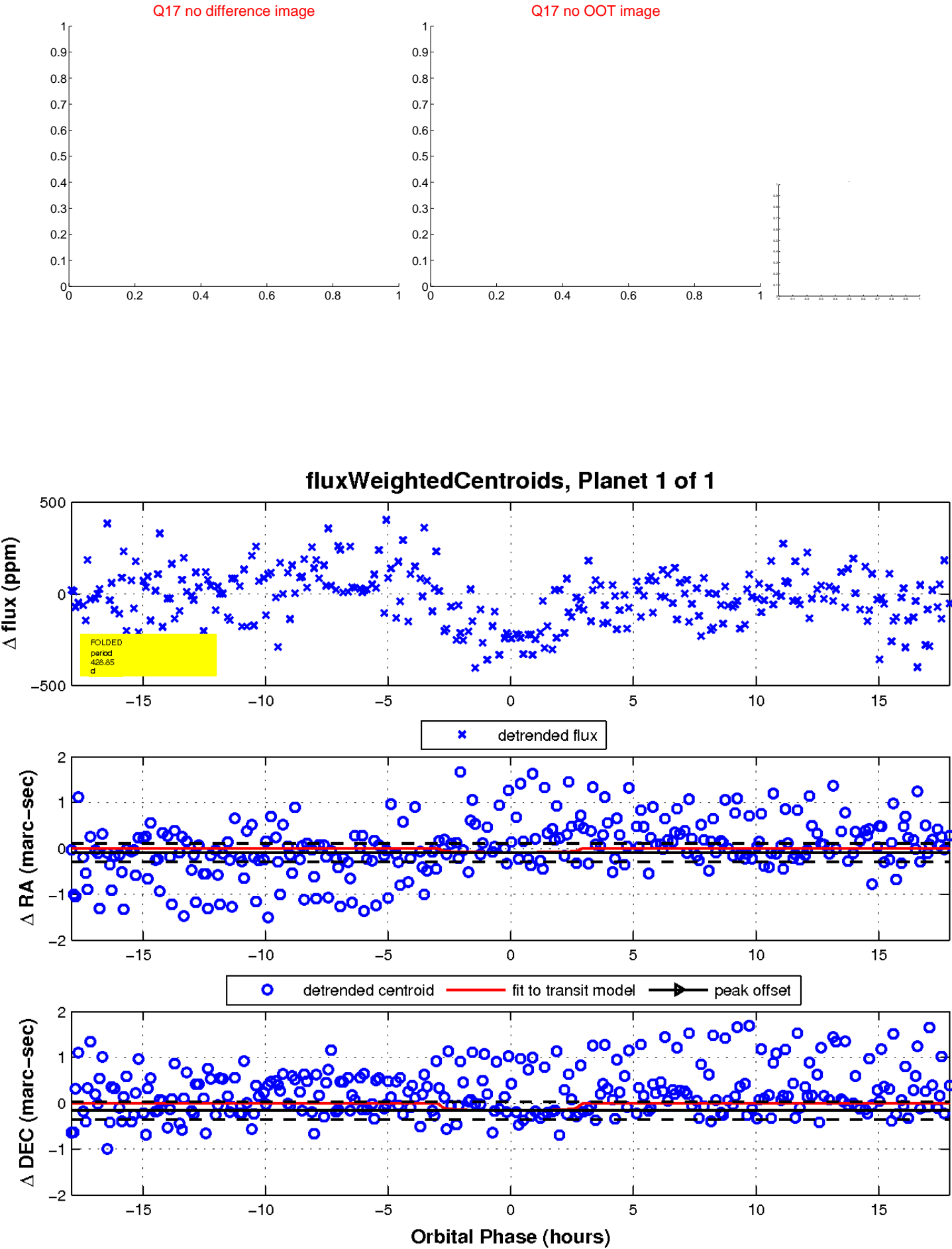
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

