

# KIC 010658177

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010658177-01	OBS	5817.01	113.085831	217.132654	135.3	9.602	9.3	9.7	1.40	5903	1.88	9.67

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010658177-01	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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

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

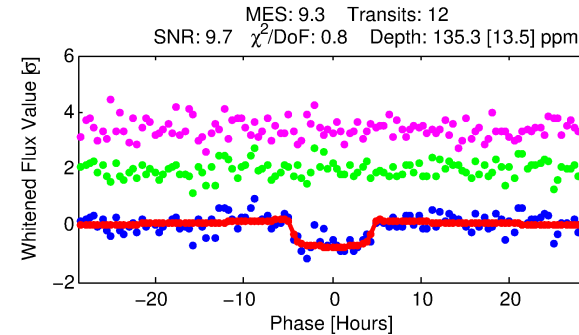
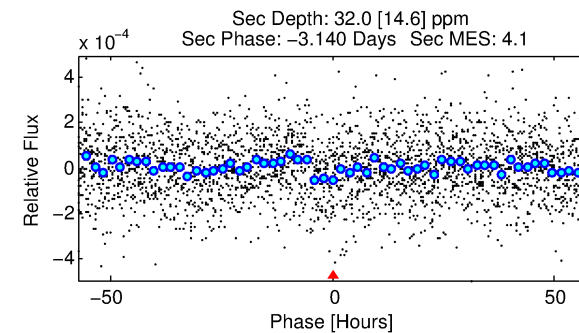
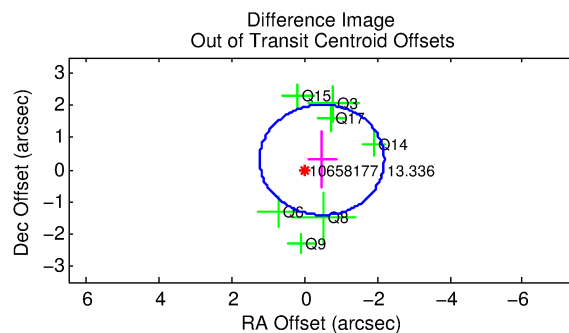
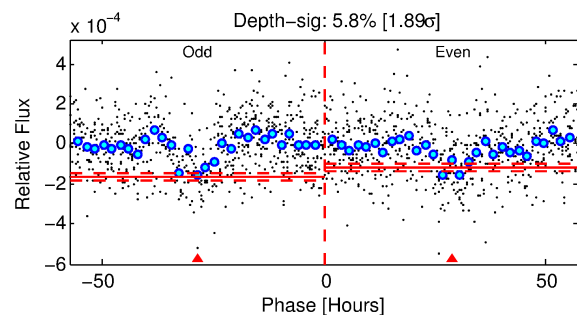
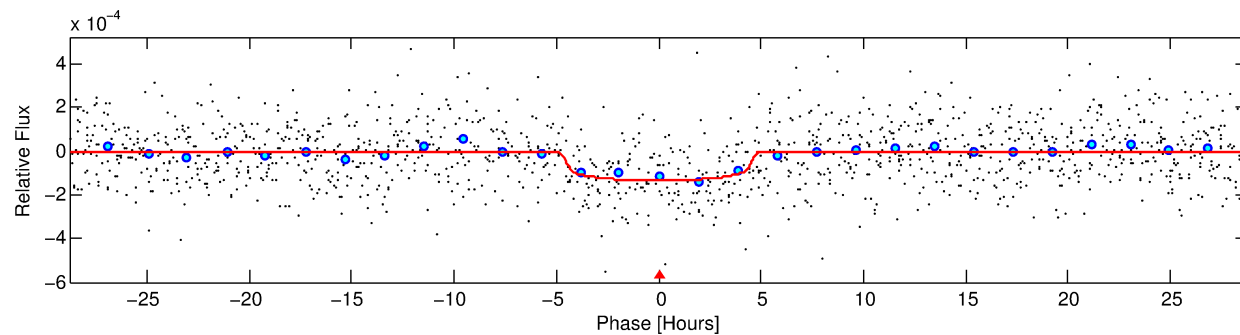
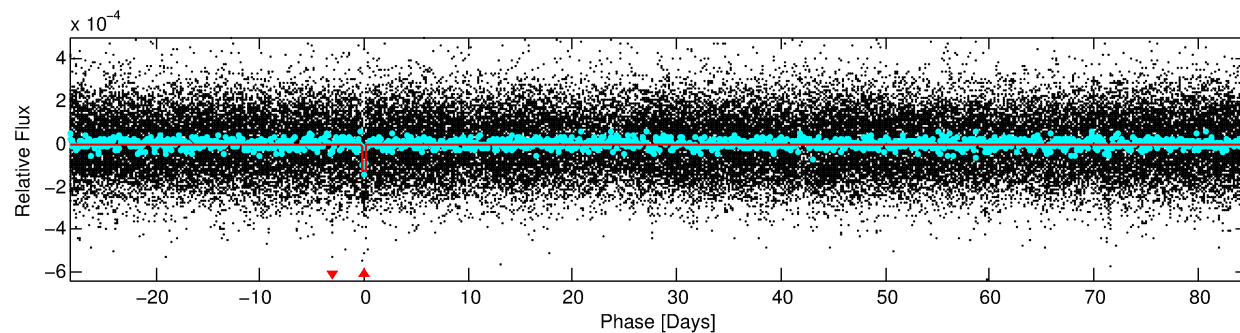
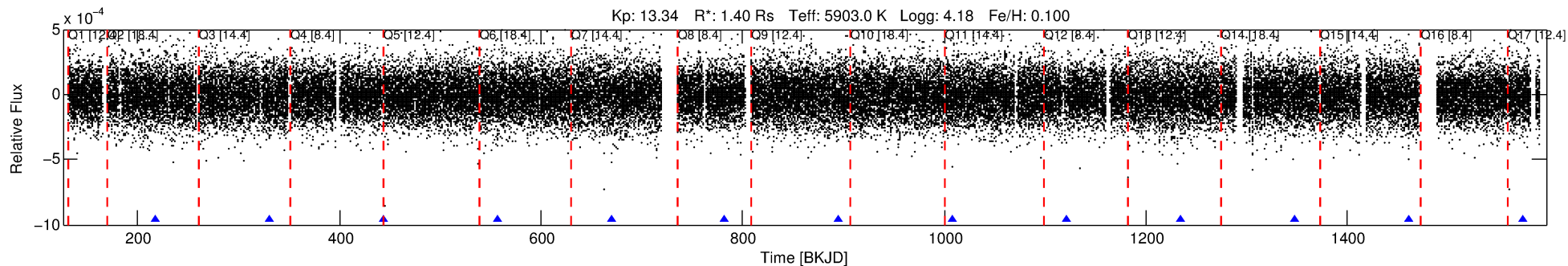
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010658177-01

No Significant Match Found

# DV One-Page Summary

KIC: 10658177 Candidate: 1 of 1 Period: 113.086 d  
KOI: K05817.01 Corr: 0.973



## DV Fit Results:

Period = 113.08583 [0.00180] d  
Epoch = 217.1327 [0.0133] BKJD  
Rp/R\* = 0.0123 [0.0030]  
a/R\* = 46.75 [54.03]  
b = 0.87 [0.33]  
Seff = 9.67 [2.94]  
Teff = 450 [34] K  
Rp = 1.88 [0.59] Re  
a = 0.4696 [0.0876] AU  
Ag = 1097.34 [804.78] [1.36 $\sigma$ ]  
Teffp = 4001 [672] K [5.28 $\sigma$ ]

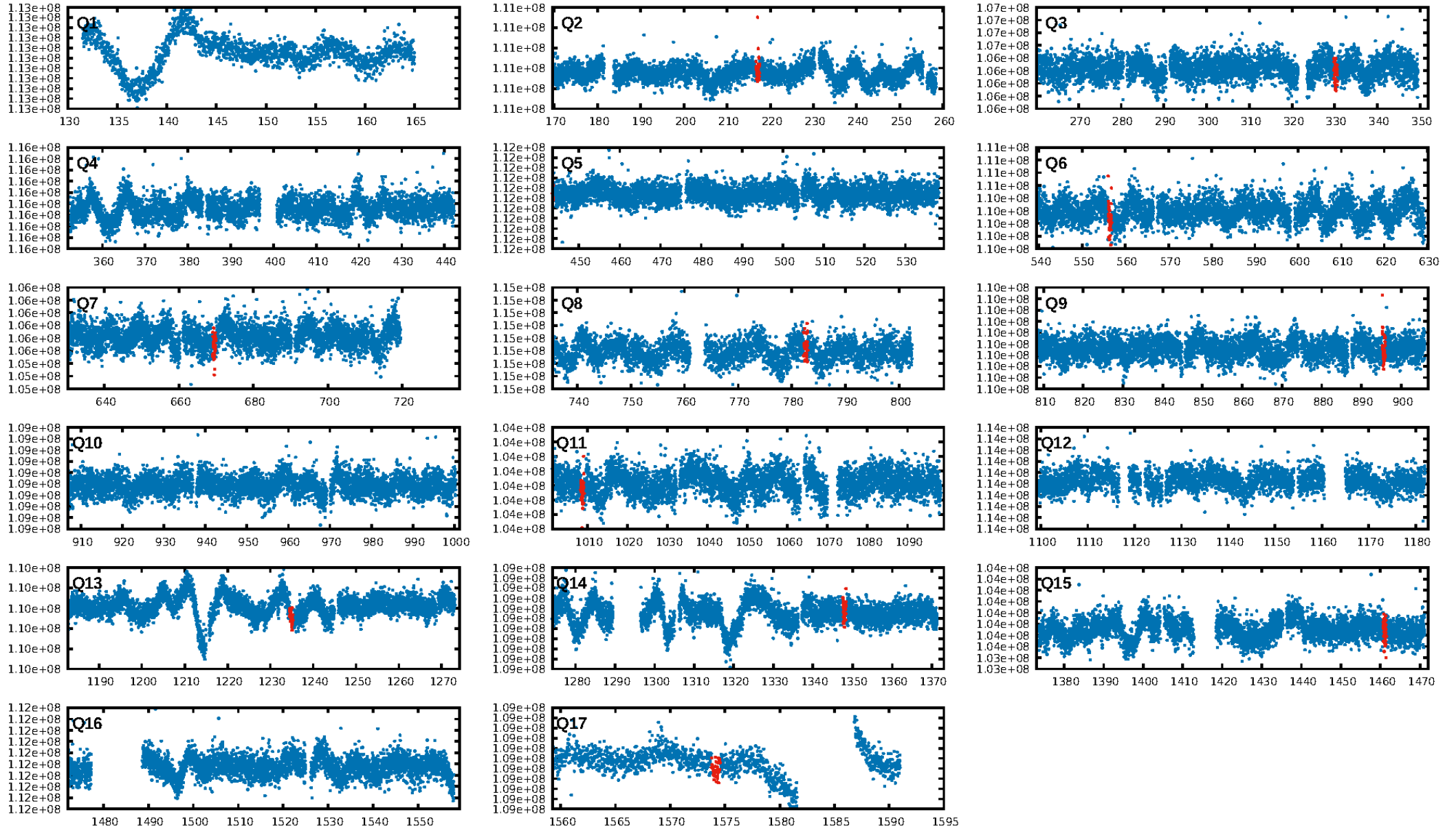
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 94.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.00e-18  
RollingBand-fgt: 1.00 [11/11]  
GhostDiagnostic-chr: 2.314  
Centroid-sig: 7.8%  
Centroid-so: 1.508 arcsec [1.39 $\sigma$ ]  
OotOffset-rm: 0.572 arcsec [1.00 $\sigma$ ]  
KicOffset-rm: 0.673 arcsec [1.28 $\sigma$ ]  
OotOffset-st: 2/2/1/2 [7]  
KicOffset-st: 2/2/1/2 [7]  
DiffImageQuality-fgm: 0.86 [6/7]  
DiffImageOverlap-fno: 1.00 [10/10]

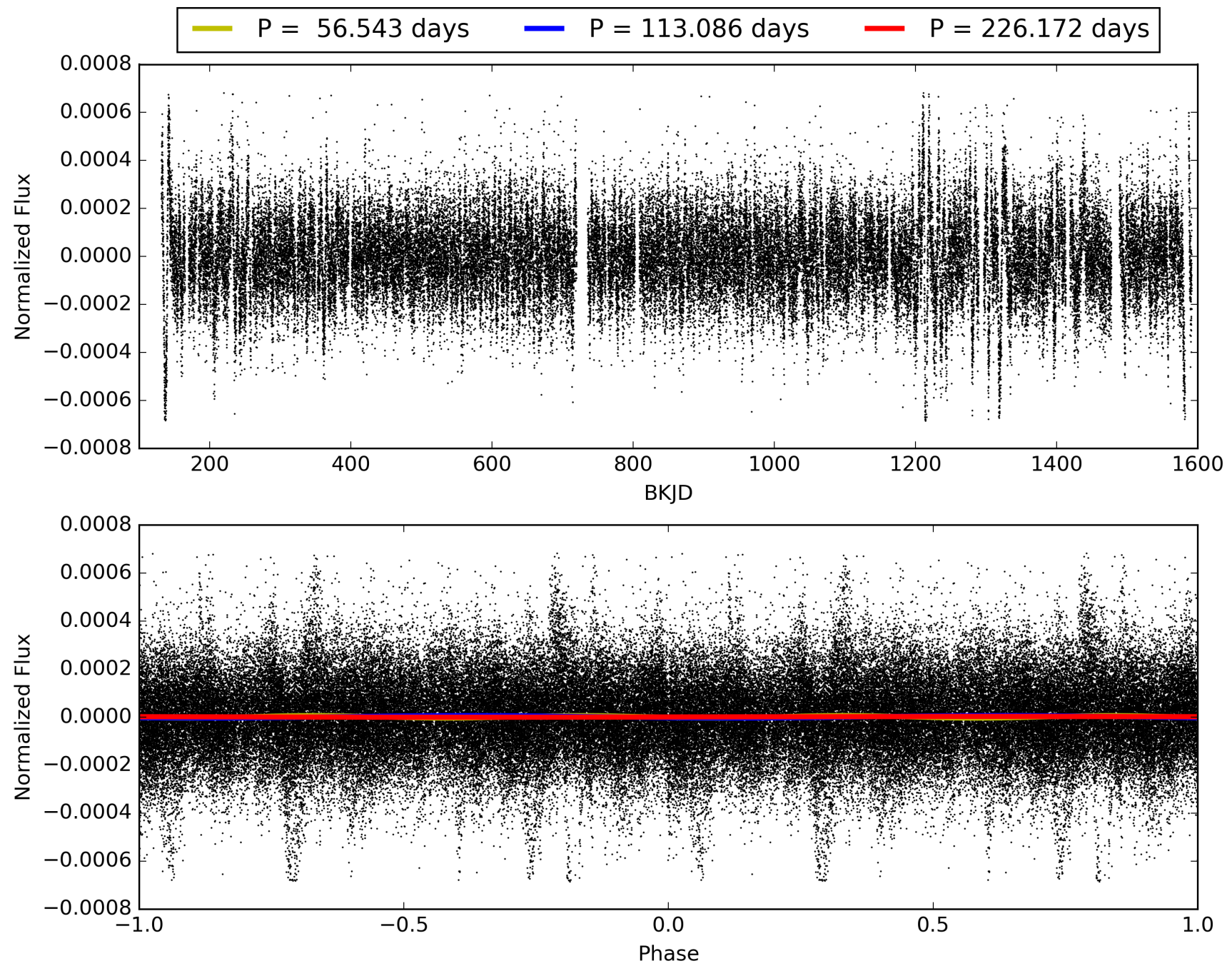
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:27:16 Z

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

# TCE 010658177-01, PDC Light Curves

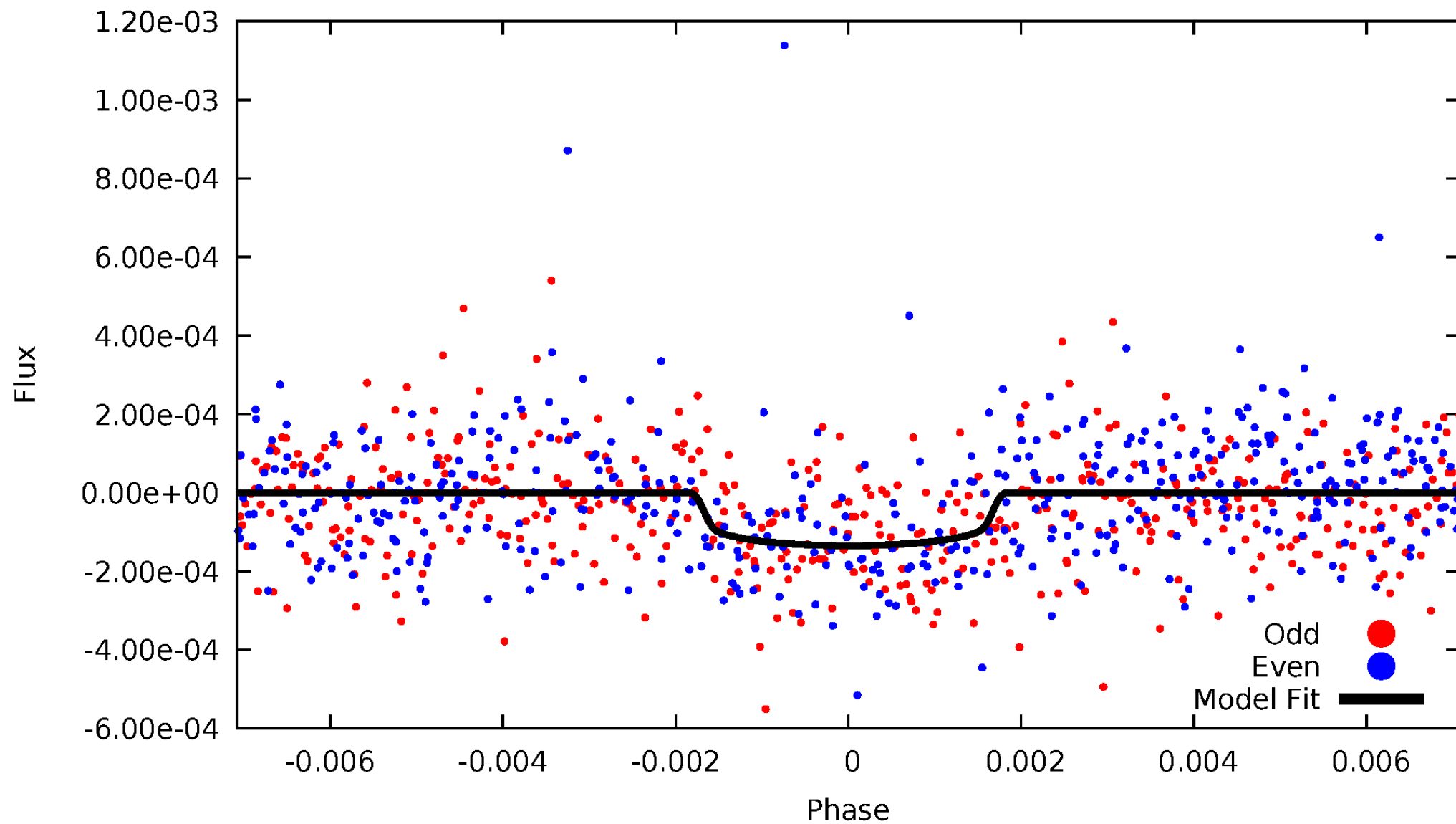


# TCE 010658177-01



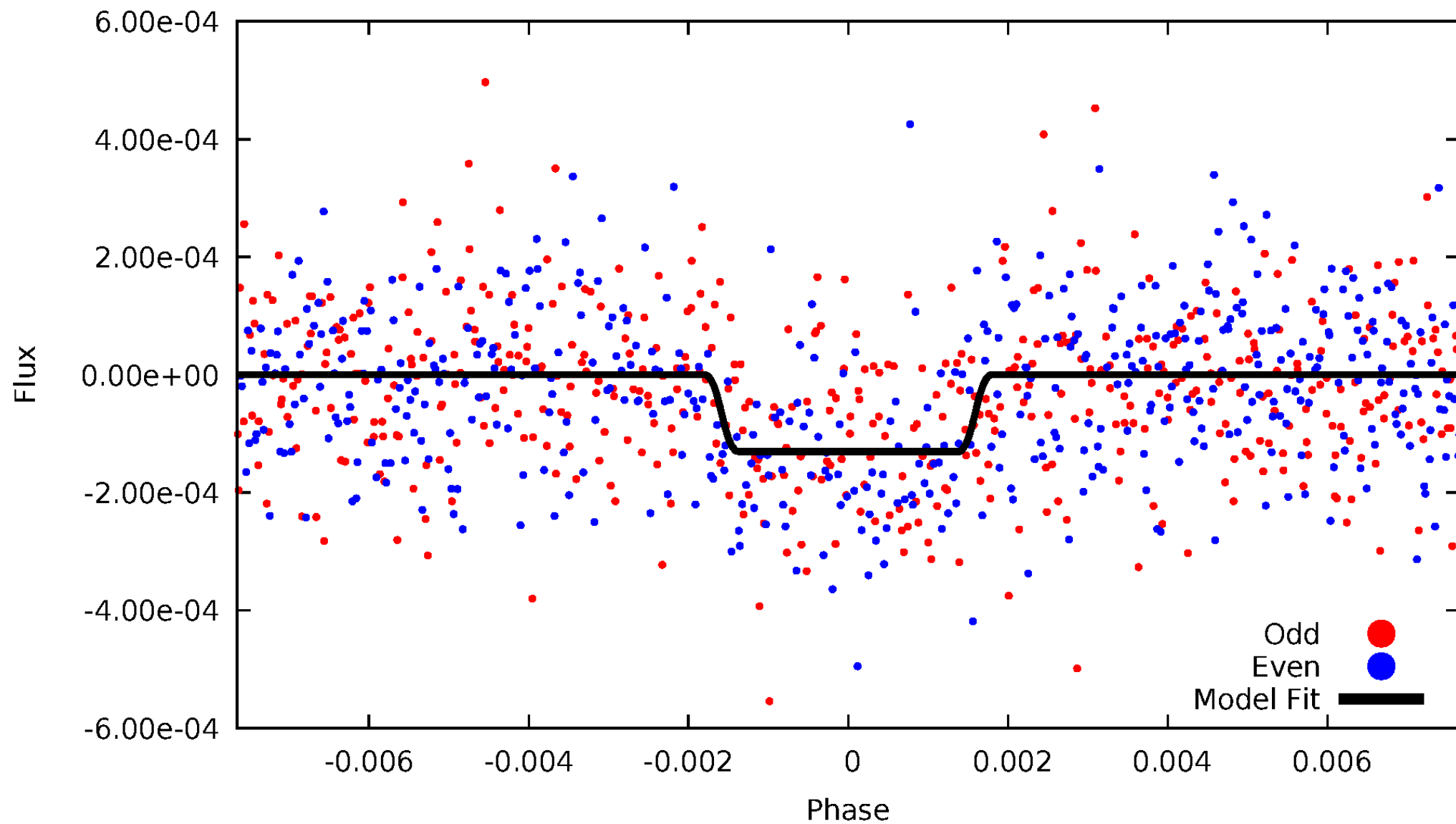
# DV Odd/Even

TCE 010658177-01



# ALT Odd/Even

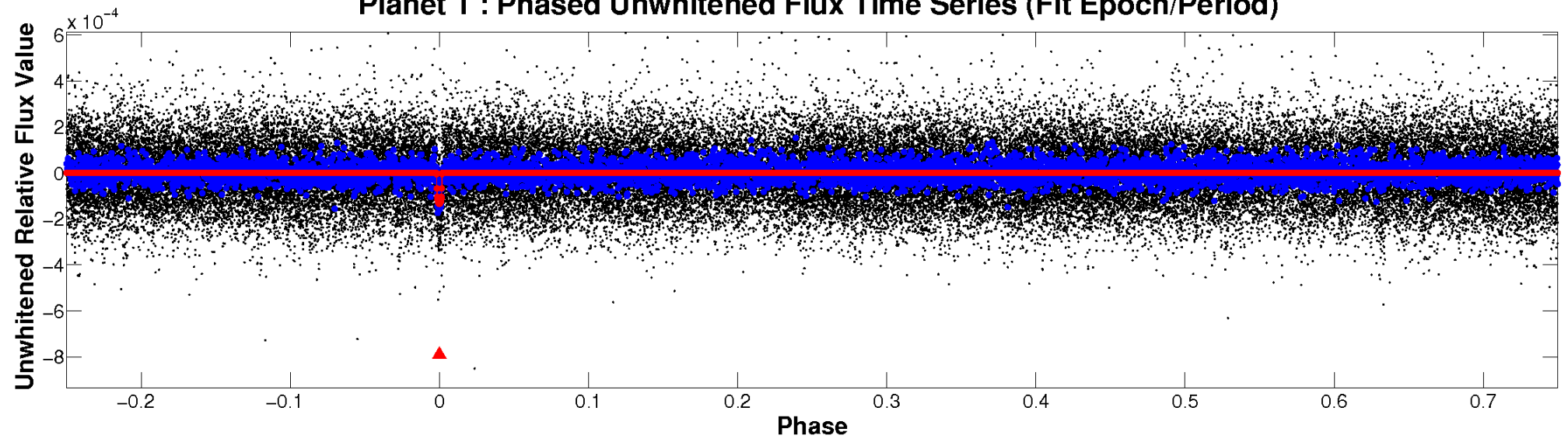
TCE 010658177-01



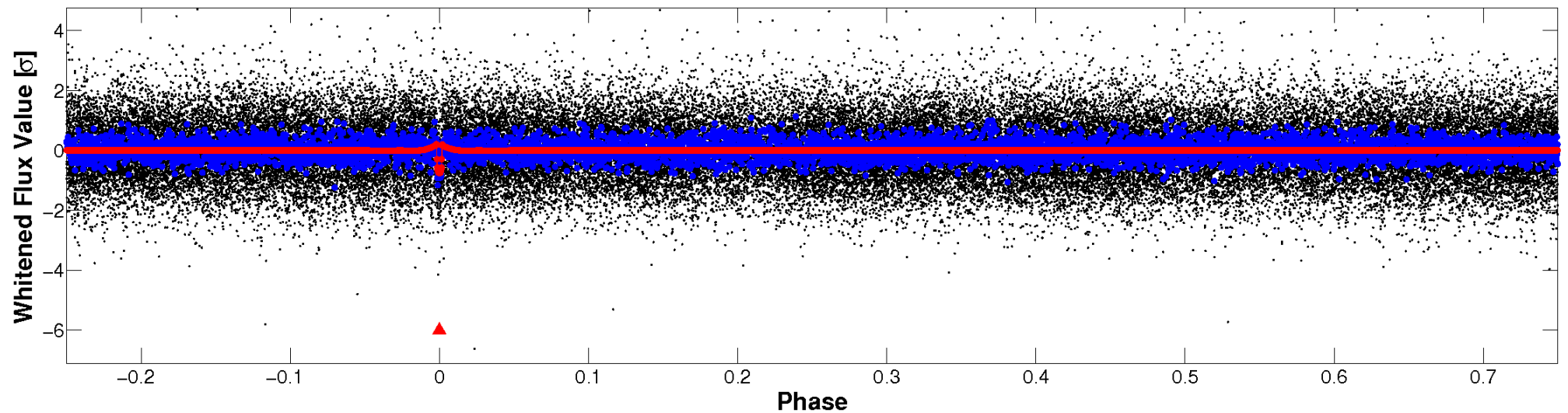


# Non-Whitened Vs. Whitened Light Curve

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

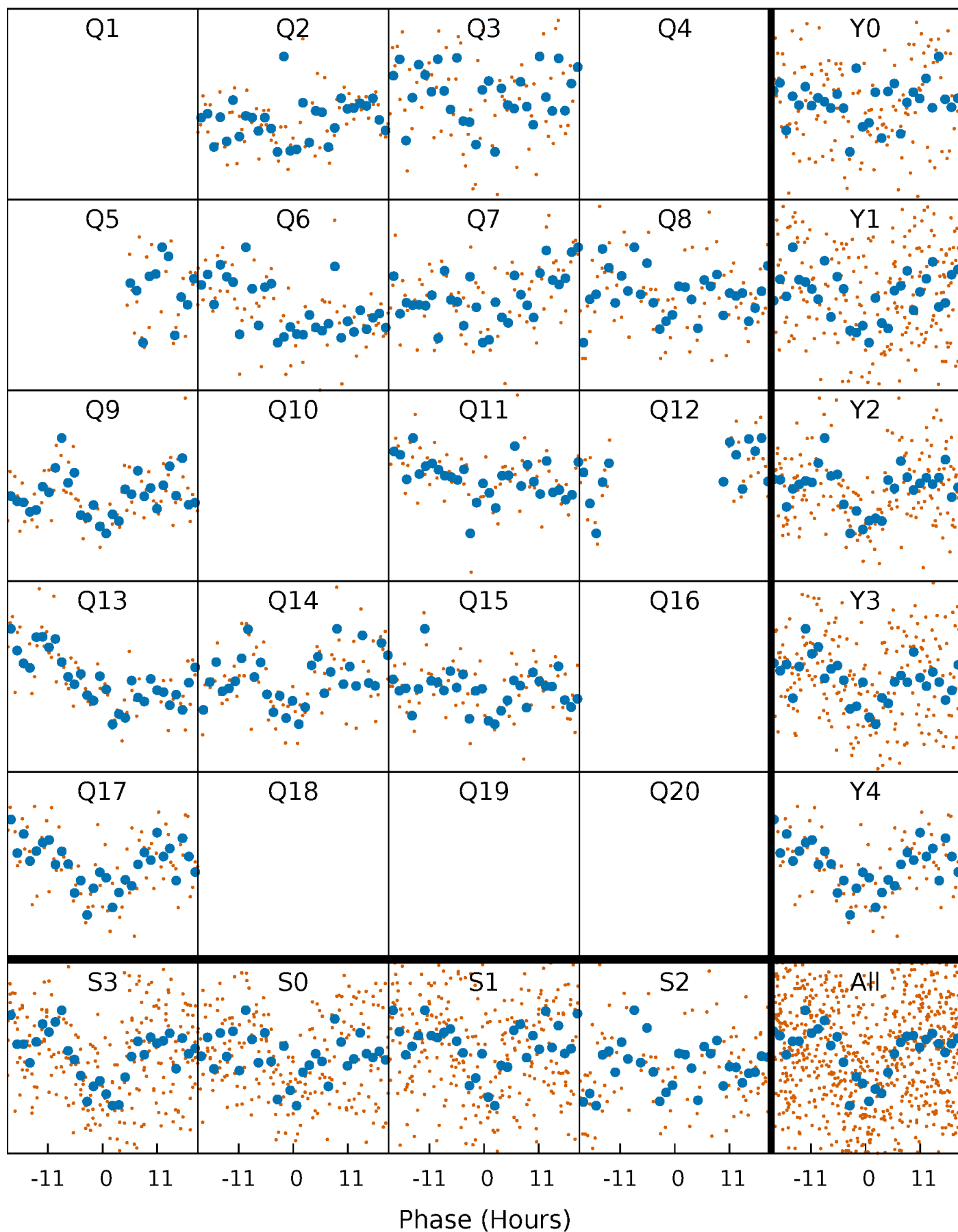


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

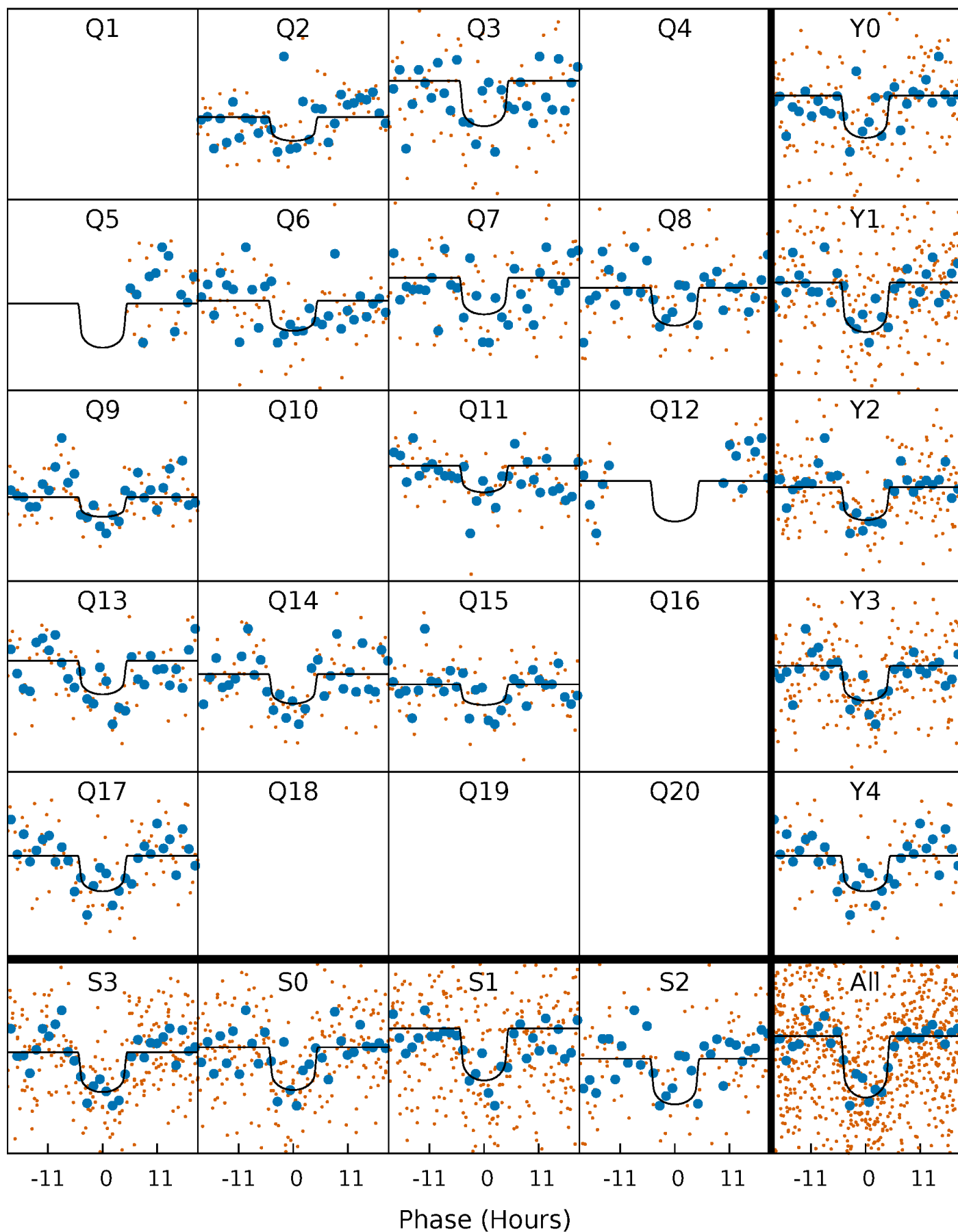
TCE 010658177-01 P=113.085831 Days  $T_0=217.132654$  (BKJD)





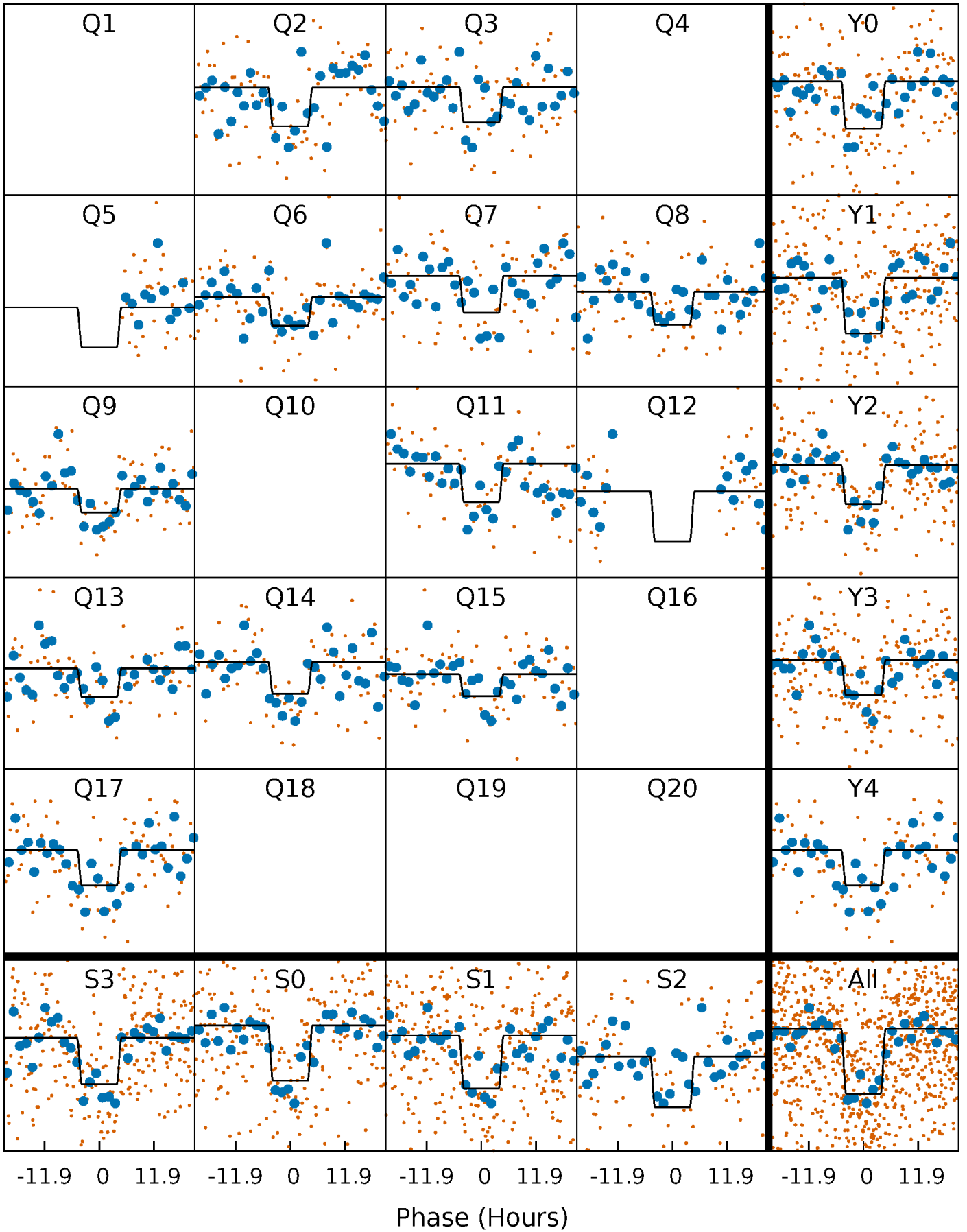
# DV Quarter-Phased Transit Curves

TCE 010658177-01 P=113.085831 Days  $T_0=217.132654$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

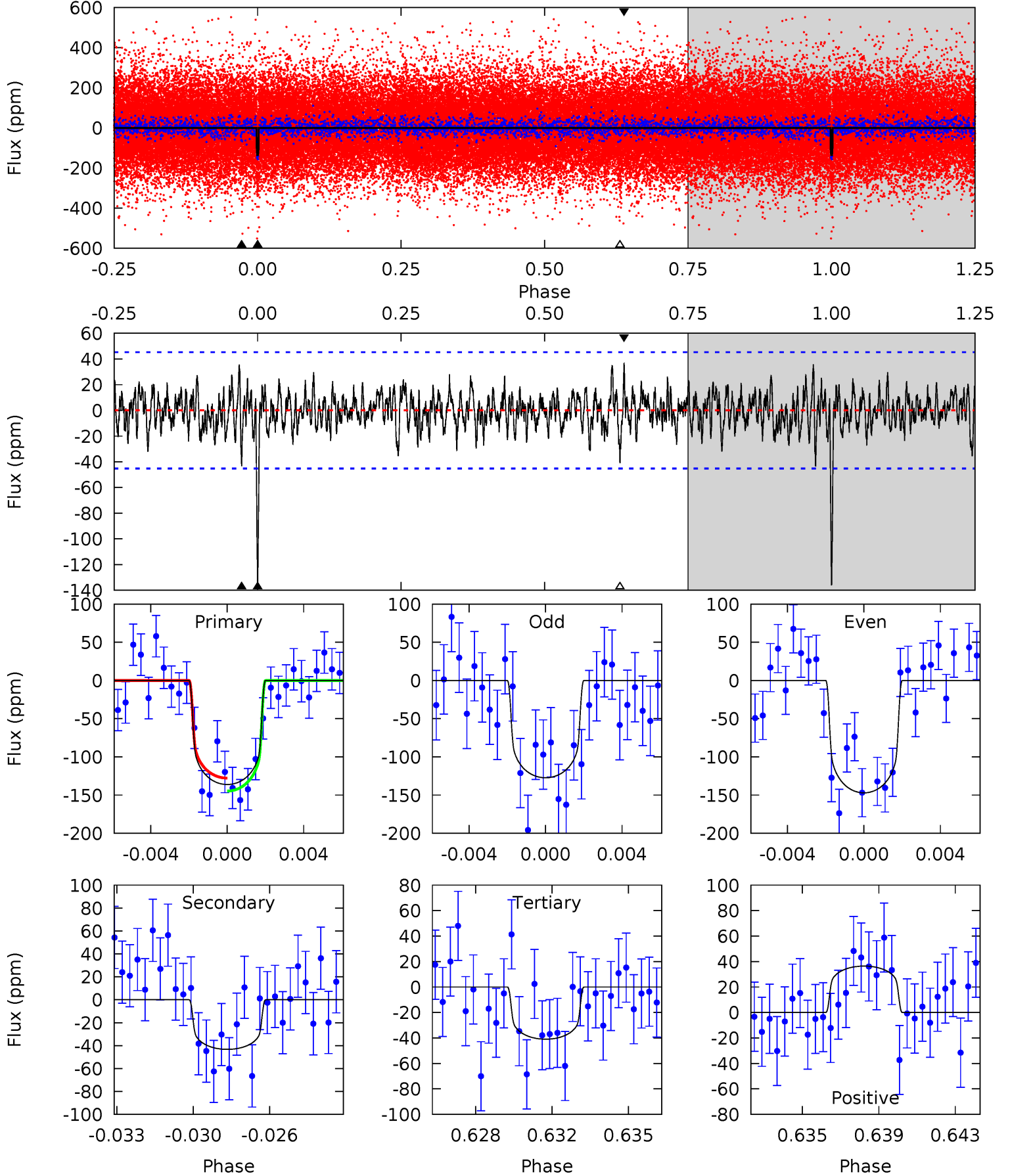
TCE 010658177-01 P=113.087455 Days  $T_0=217.124850$  (BKJD)



# DV Model-Shift Uniqueness Test

010658177-01, P = 113.085831 Days, E = 104.046823 Days

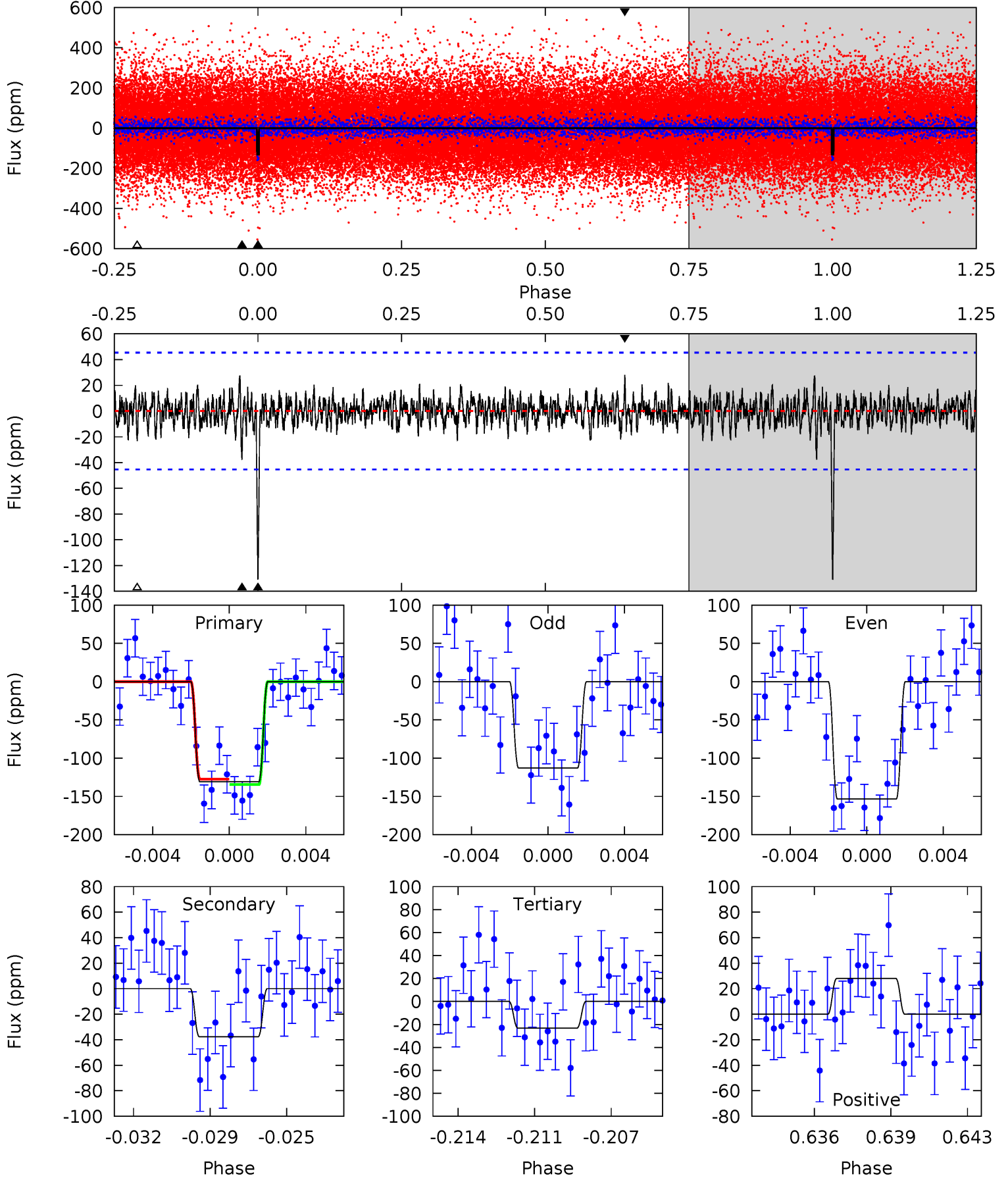
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	4.98	4.72	4.20	5.21	2.90	1.30	11.0	11.5	0.27	0.79	1.13	0.91	0.21	0.97



# Alt Model-Shift Uniqueness Test

010658177-01, P = 113.087455 Days, E = 104.037395 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
15.1	4.33	2.68	3.23	5.22	2.91	0.90	12.4	11.8	1.65	1.10	2.32	1.02	0.18	0.41



### Stellar Parameters For KIC 010658177

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5903^{+79}_{-70}$	$4.179^{+0.176}_{-0.108}$	$0.100^{+0.150}_{-0.150}$	$1.400^{+0.246}_{-0.270}$	$1.079^{+0.101}_{-0.078}$	$0.553^{+0.451}_{-0.182}$
	+1%/-1%	+4%/-3%	+150%/-150%	+18%/-19%	+9%/-7%	+82%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 010658177-01 / KOI 5817.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-43 \pm 9$	$1.85^{+0.49}_{-0.49}$	$622^{+32}_{-32}$	$4497^{+571}_{-412}$	$1535^{+1312}_{-634}$
Alt.	$-38 \pm 9$	$1.71^{+0.52}_{-0.46}$	$626^{+30}_{-33}$	$4492^{+596}_{-400}$	$1499^{+1419}_{-659}$

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

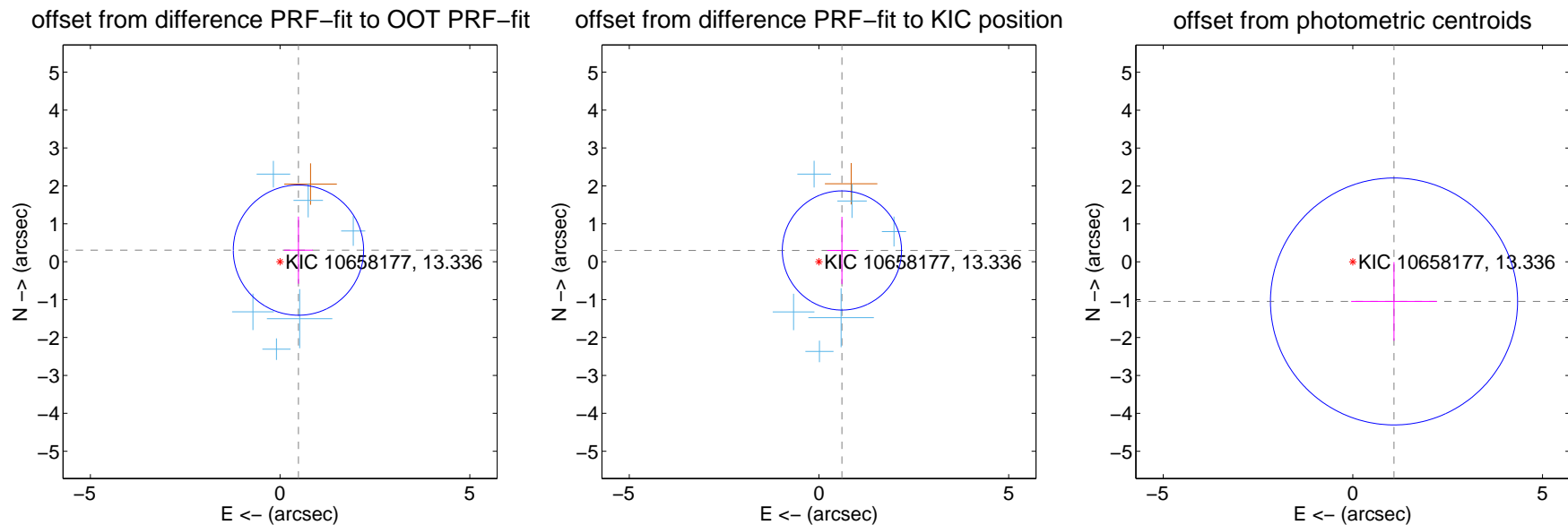
## DV Centroid Data

Supplemental centroid analysis for 010658177-01. Kepler magnitude: 13.34. Transit SNR 9.74

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

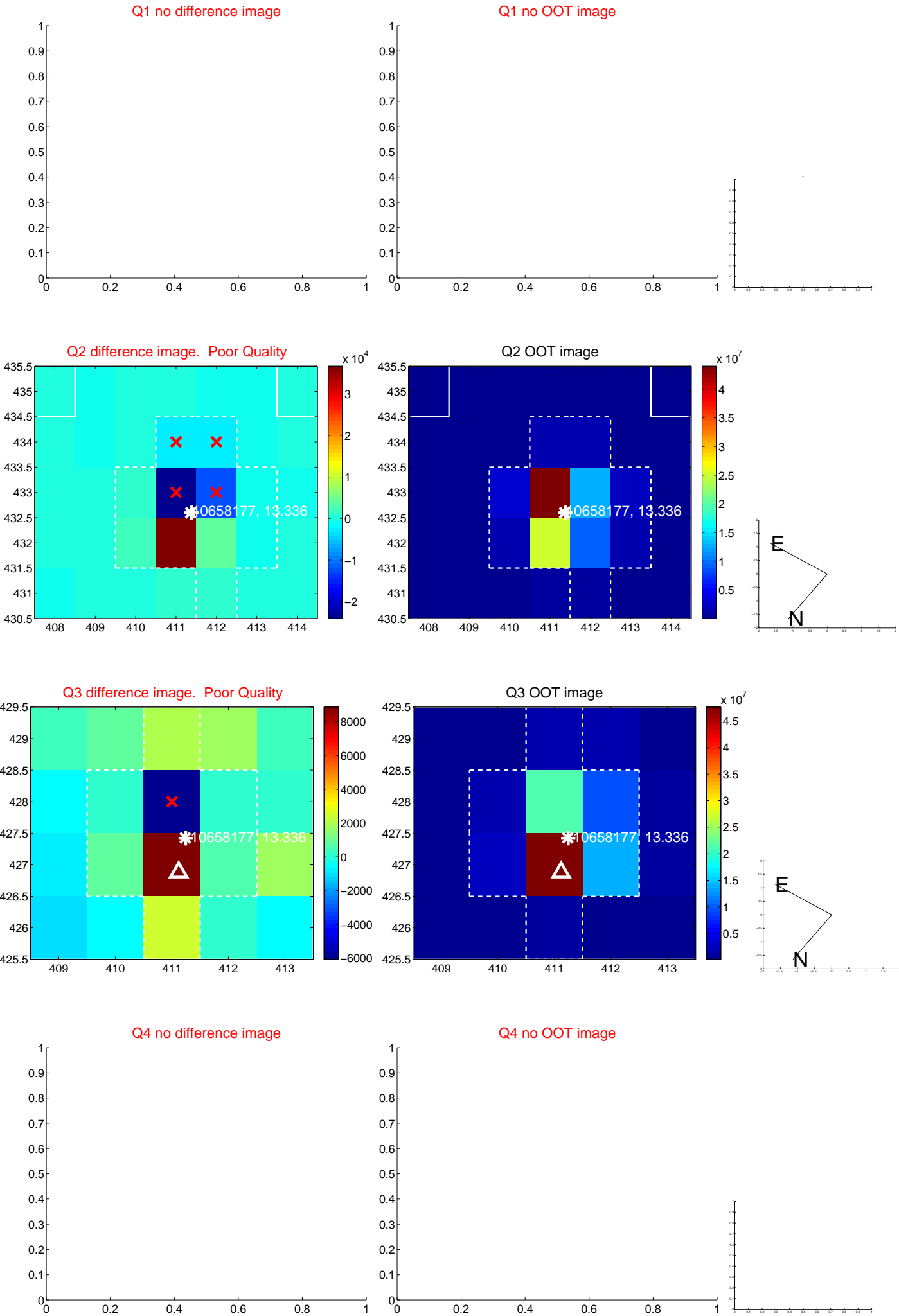
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.572 \pm 0.572$	1.00	$-0.483 \pm 0.383$	$0.305 \pm 0.885$
PRF-fit source offset from KIC position	$0.673 \pm 0.524$	1.28	$-0.604 \pm 0.388$	$0.296 \pm 0.888$
photometric centroid source offset	$1.51 \pm 1.09$	1.39	$-1.09 \pm 1.13$	$-1.05 \pm 1.04$



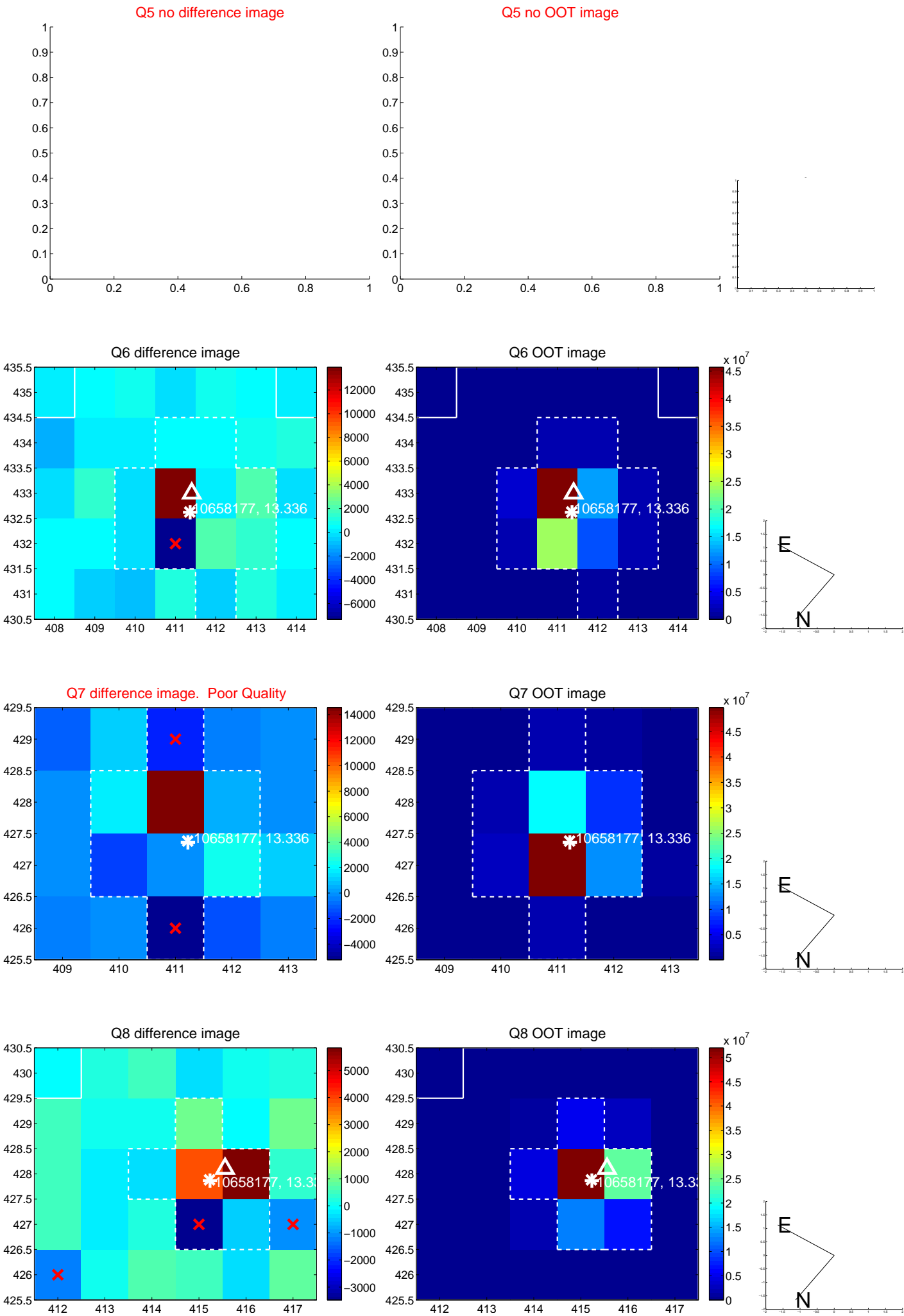
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



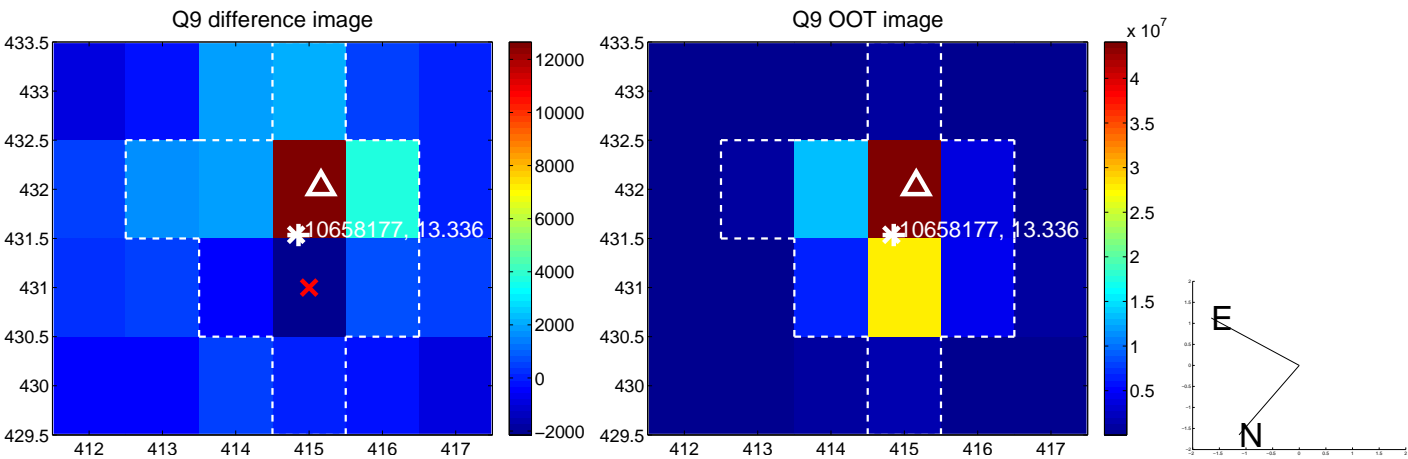
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



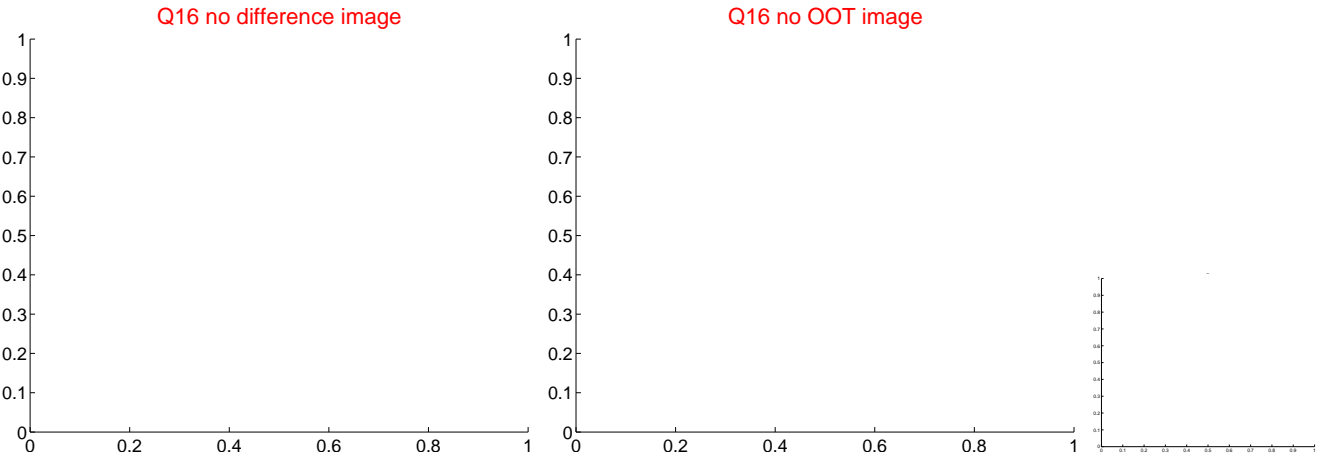
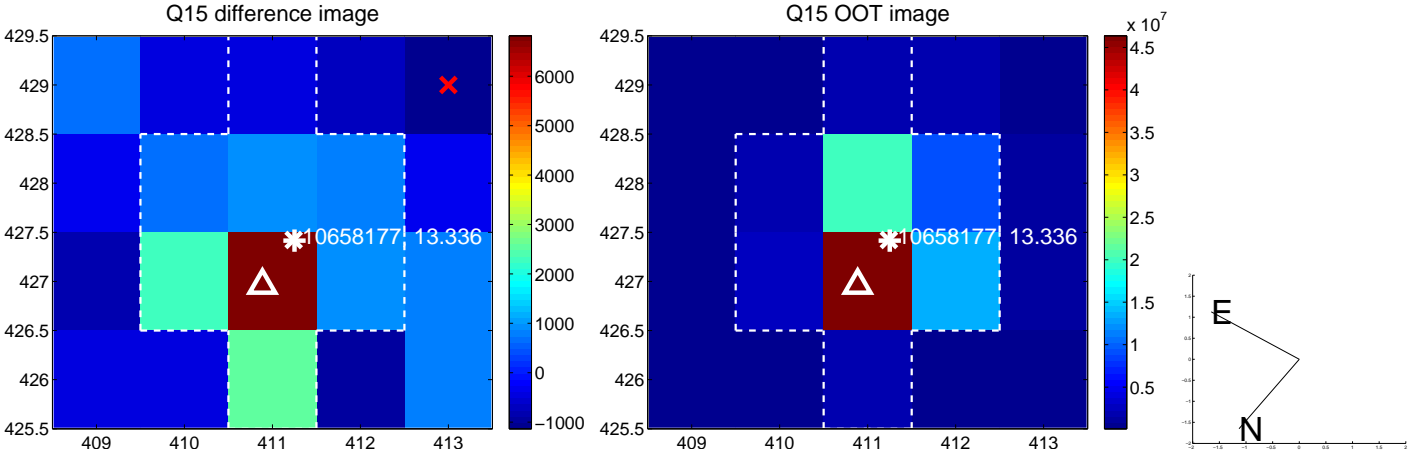
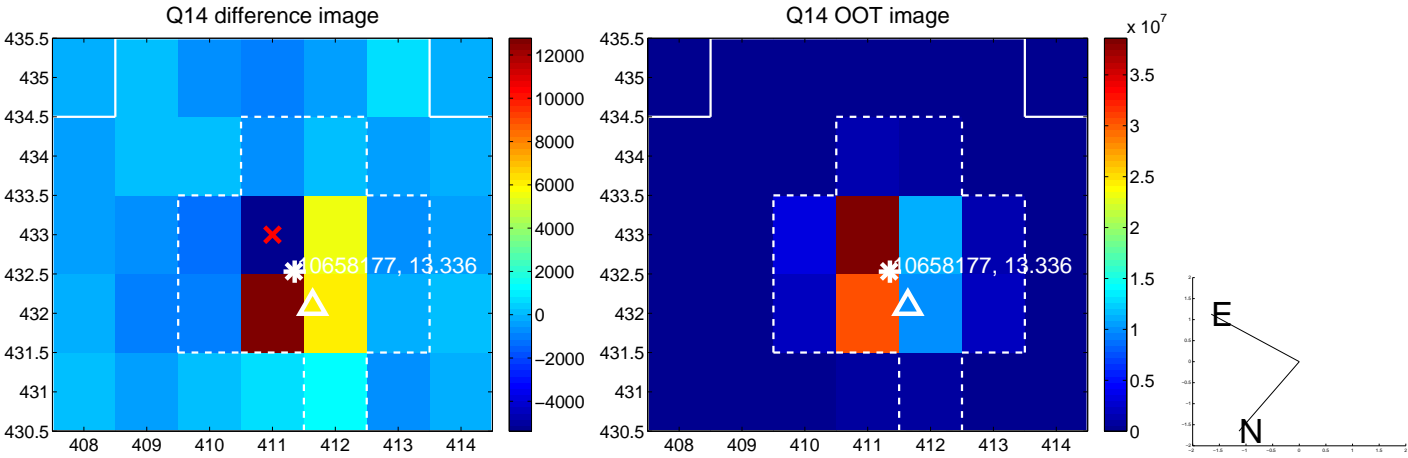
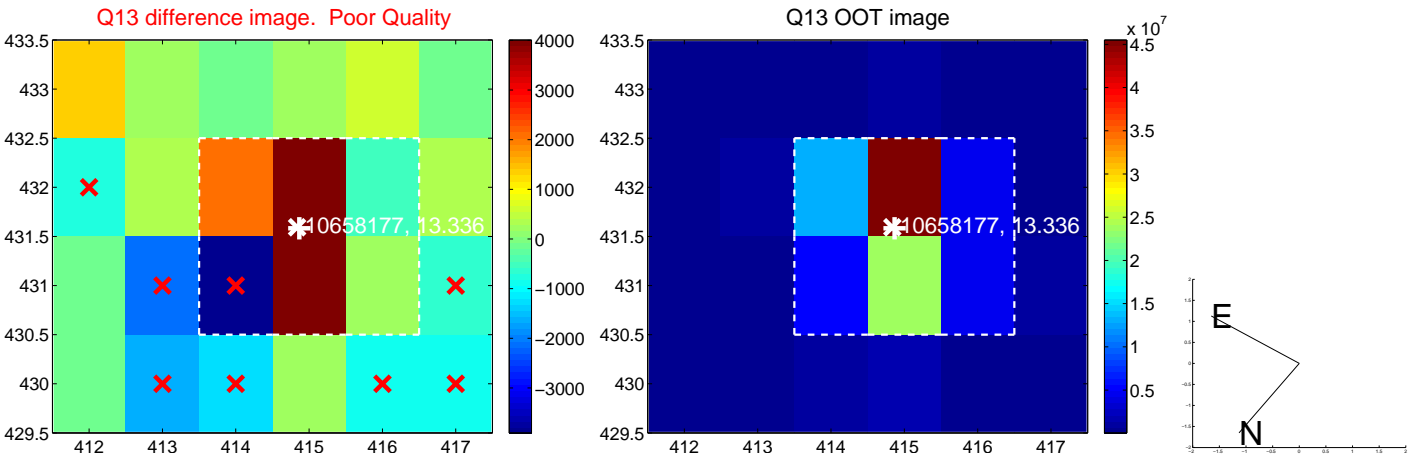
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



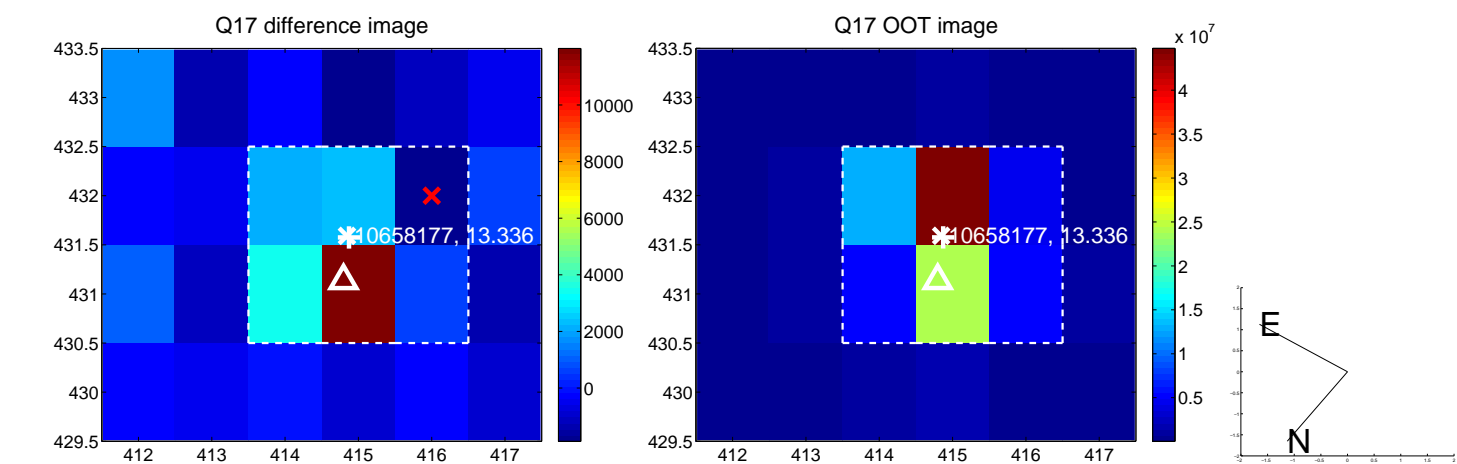
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



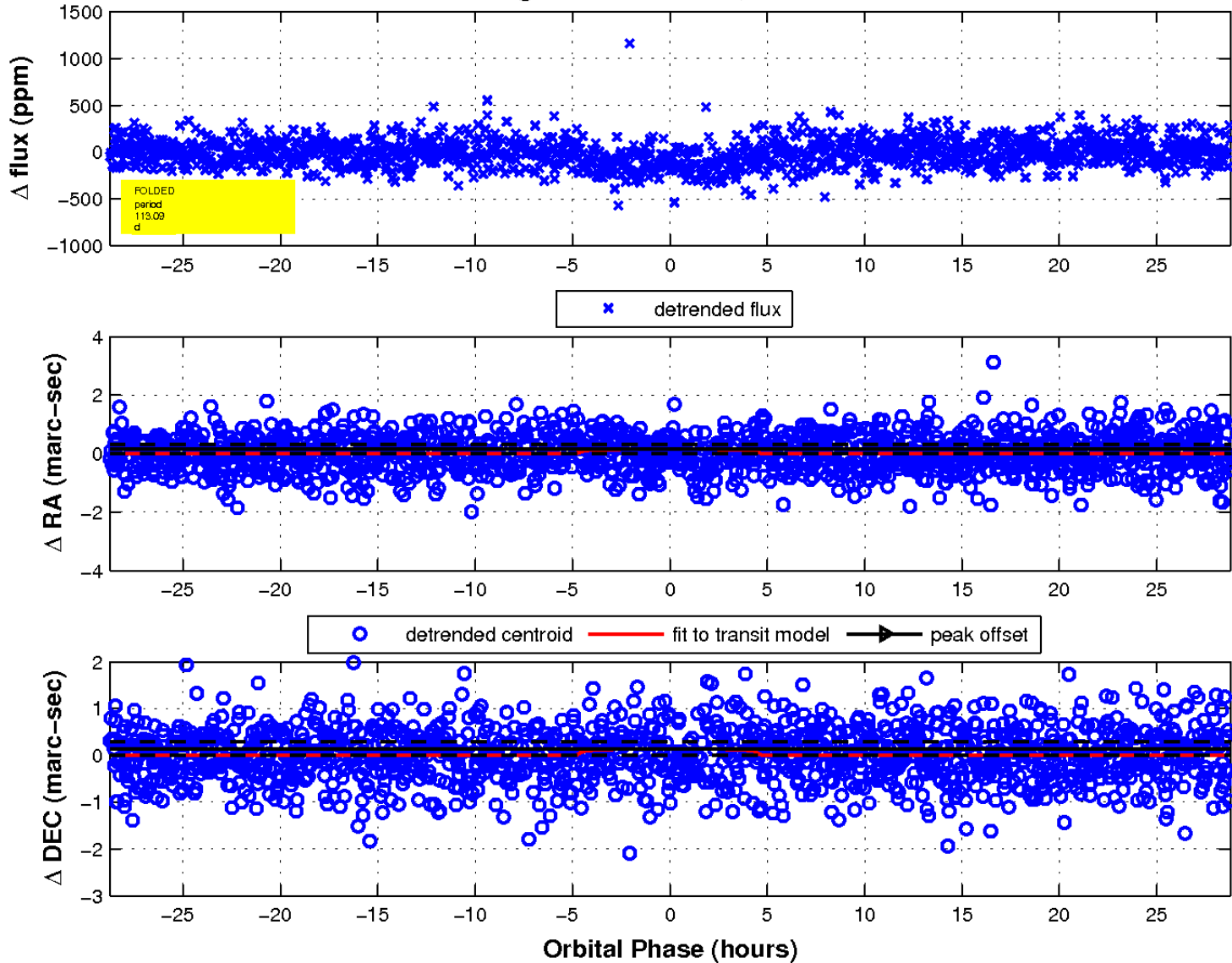
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

