

# KIC 006059860

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006059860-01	OBS	No	6.631702	132.701076	20.8	25.270	7.4	3.9	3.76	6256	2.01	2880.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006059860-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED

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

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

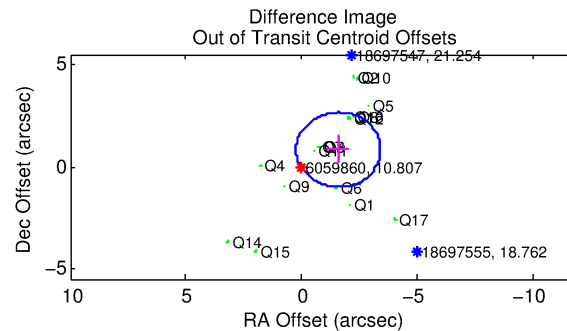
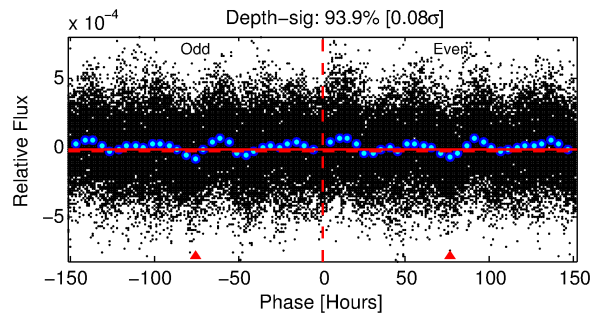
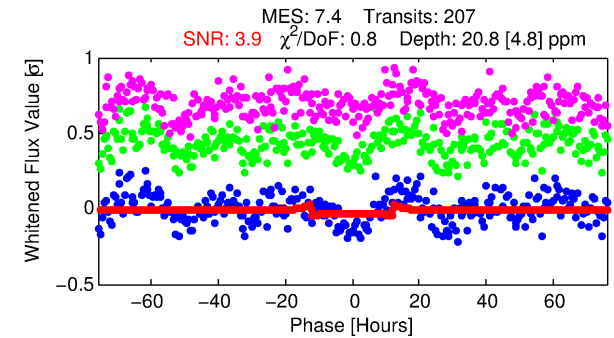
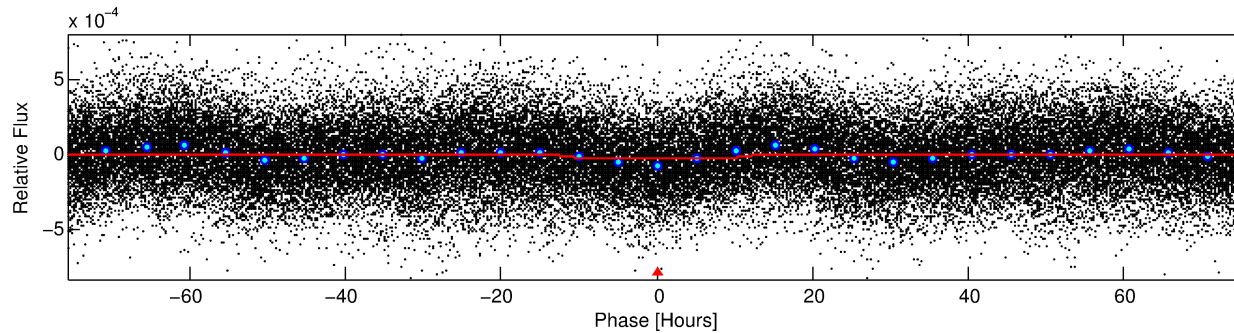
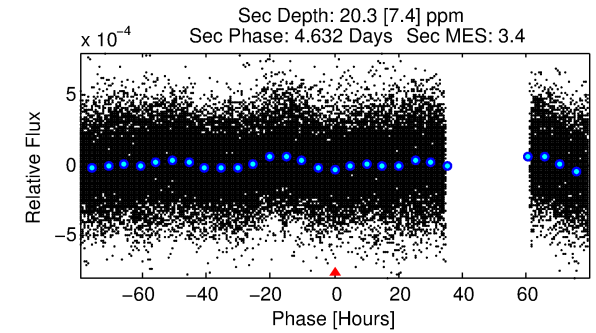
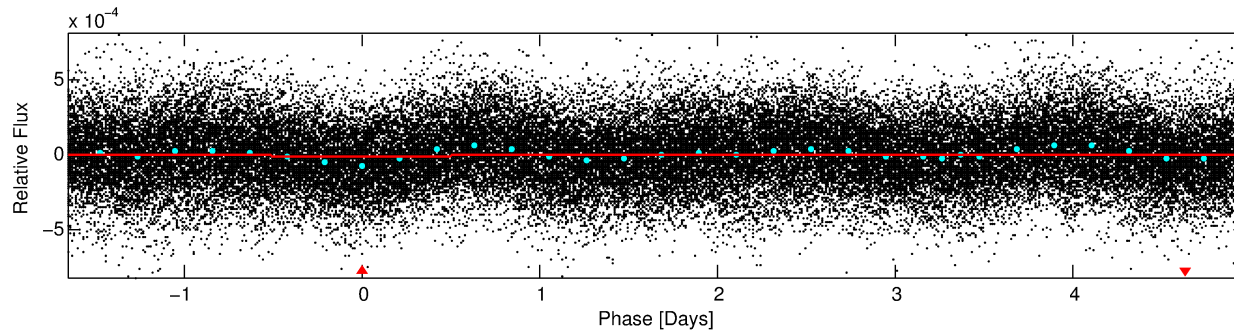
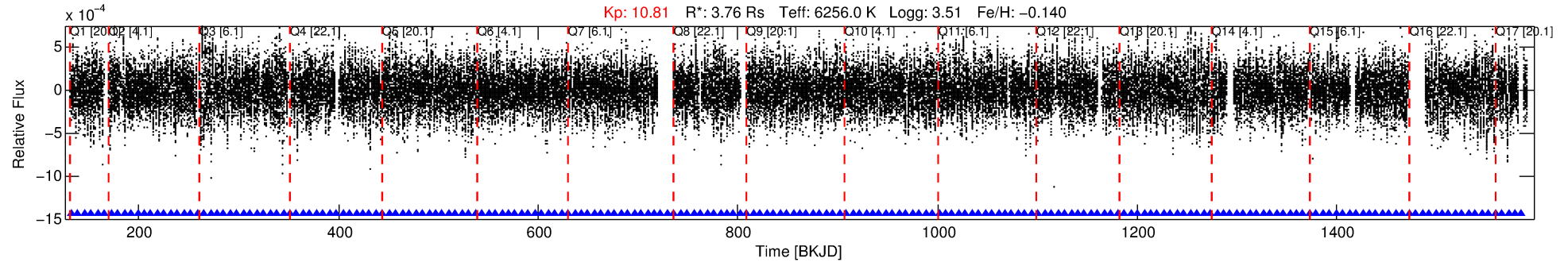
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006059860-01

No Significant Match Found

# DV One-Page Summary

KIC: 6059860 Candidate: 1 of 1 Period: 6.632 d



## DV Fit Results:

Period = 6.63170 [0.00021] d  
Epoch = 132.7011 [0.0222] BKJD  
Rp/R\* = 0.0049 [0.0007]  
a/R\* = 1.30 [0.27]  
b = 0.90 [0.11]  
Seff = 2880.38 [1784.02]  
Teq = 1868 [289] K  
Rp = 2.01 [0.91] Re  
a = 0.0821 [0.0323] AU  
Ag = 18.57 [14.39] [1.22σ]  
Teffp = 5996 [730] K [5.26σ]

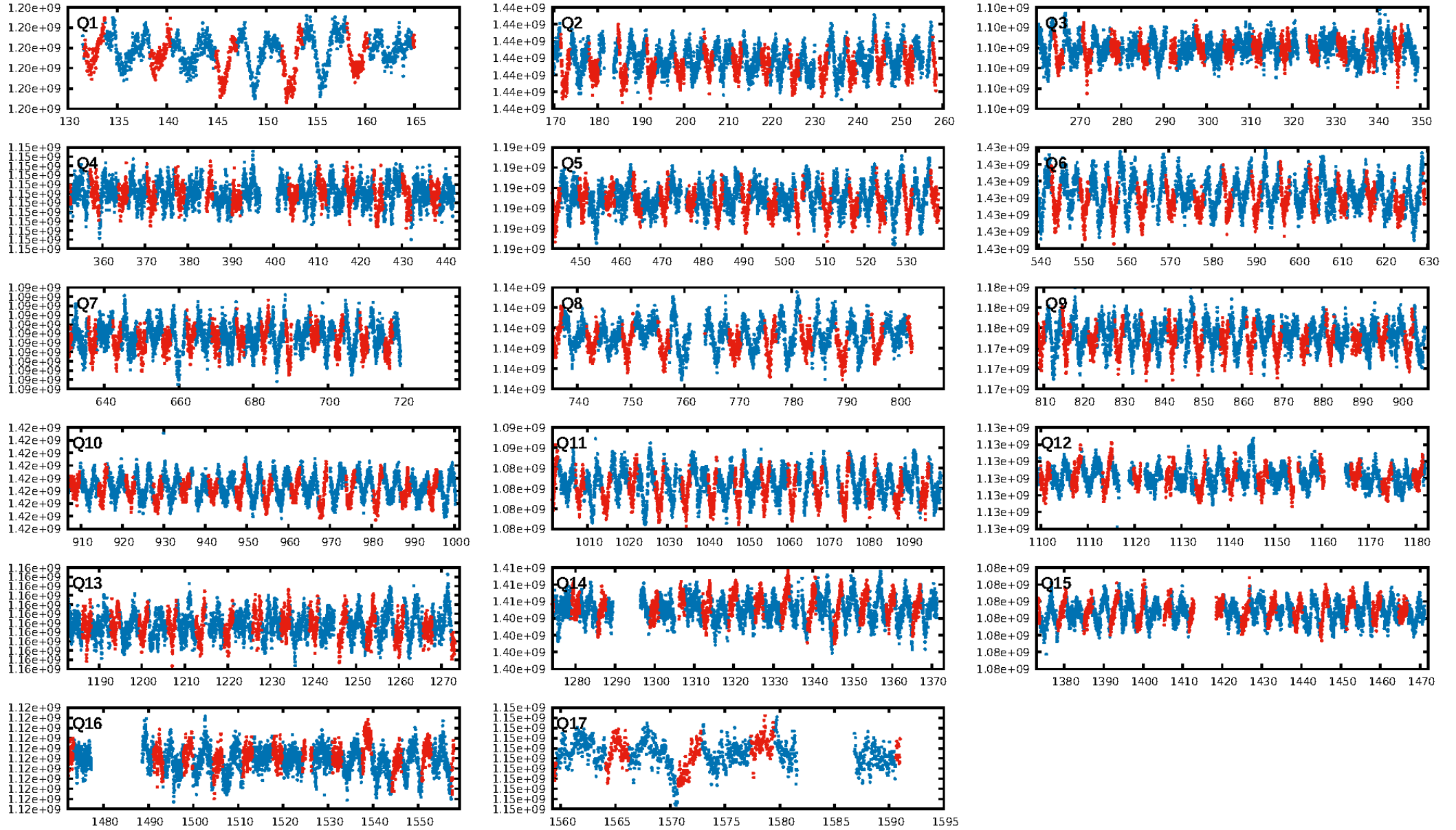
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.17e-12  
RollingBand-fgt: 1.00 [199/199]  
GhostDiagnostic-chr: 0.3402  
Centroid-sig: 34.9%  
Centroid-so: 0.587 arcsec [0.79σ]  
OotOffset-rm: 1.789 arcsec [2.93σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-rm: 2.126 arcsec [3.04σ]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.38 [6/16]  
DiffImageOverlap-fno: 1.00 [17/17]

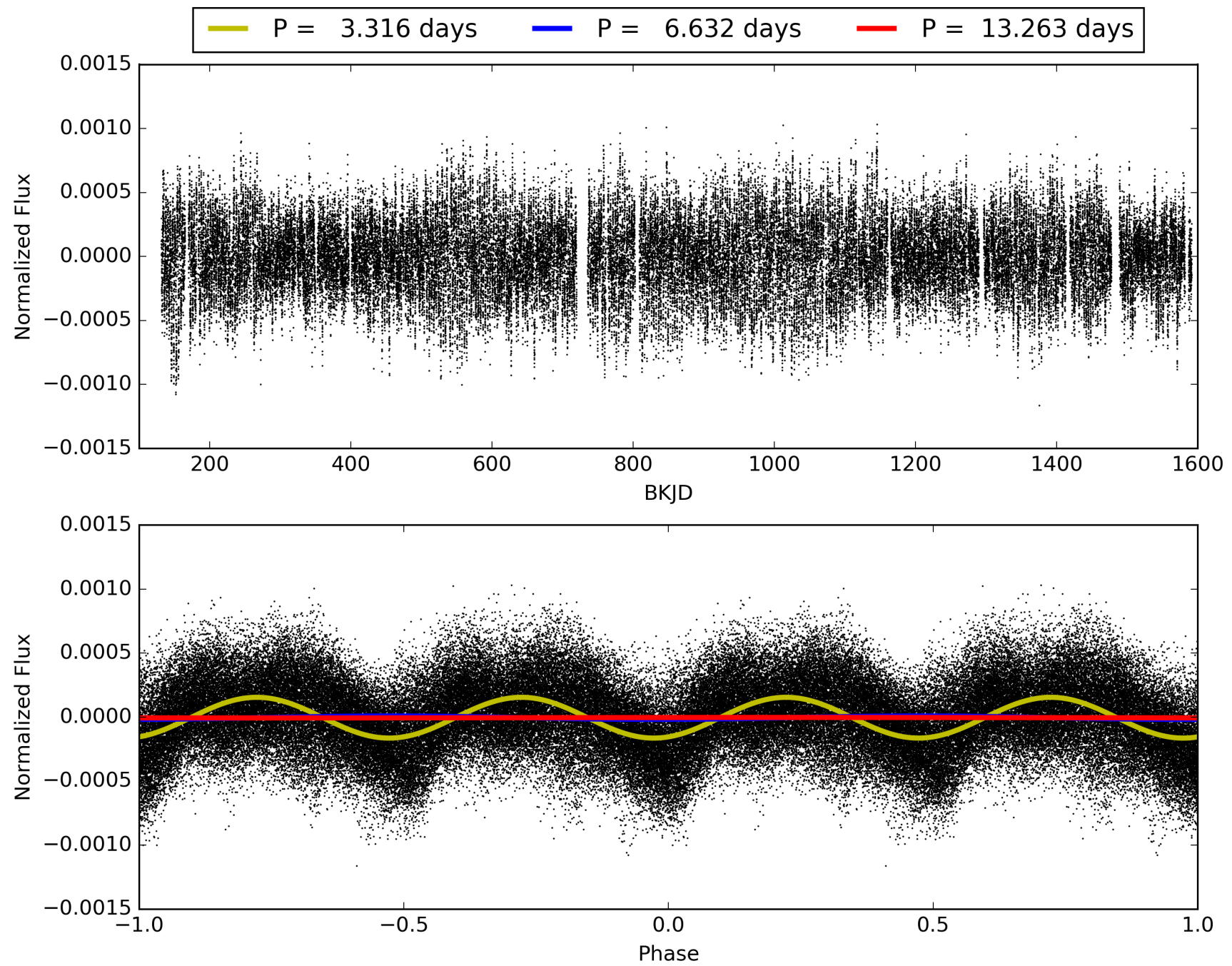
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:23:39 Z

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

# TCE 006059860-01, PDC Light Curves



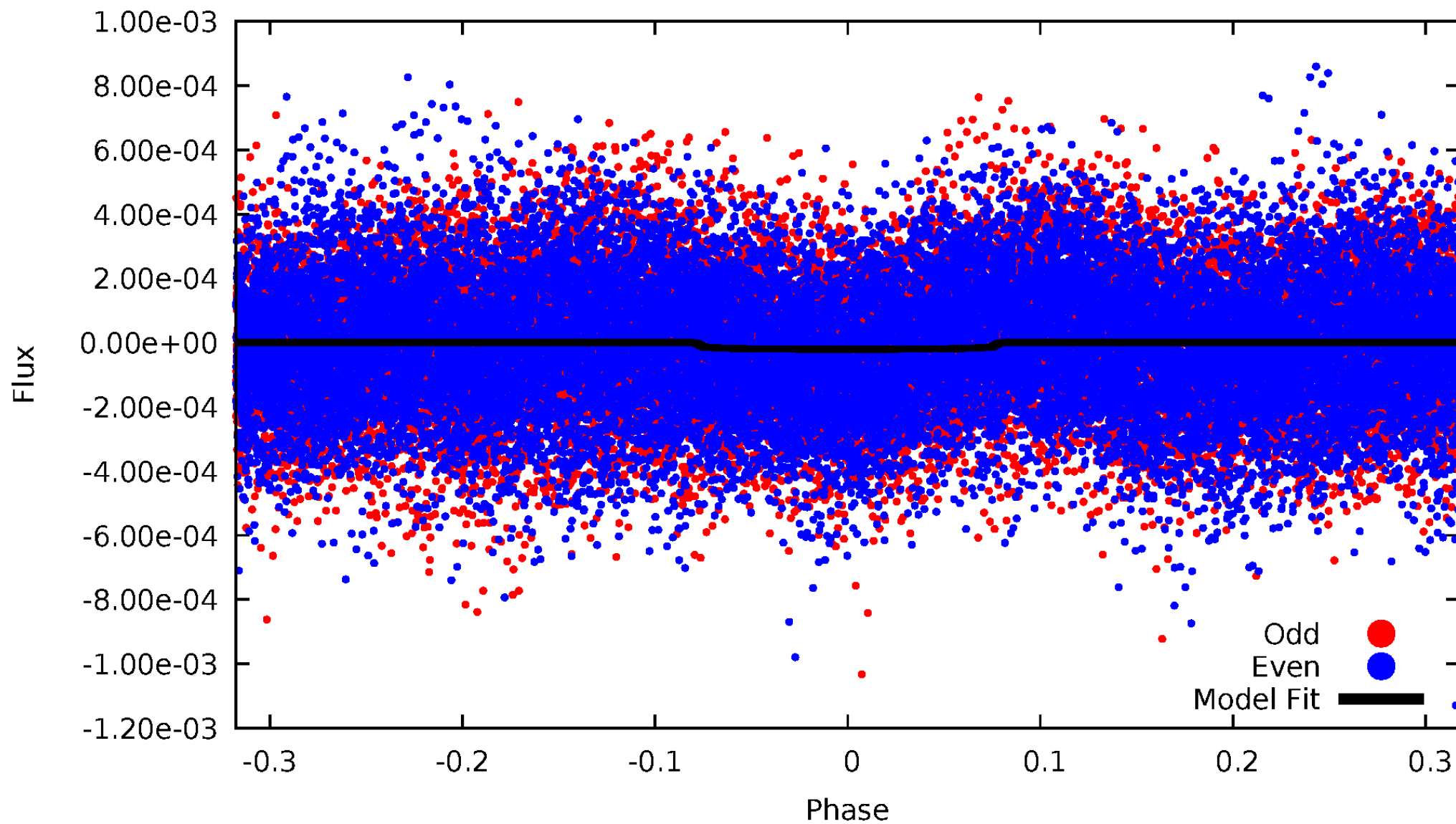
TCE 006059860-01





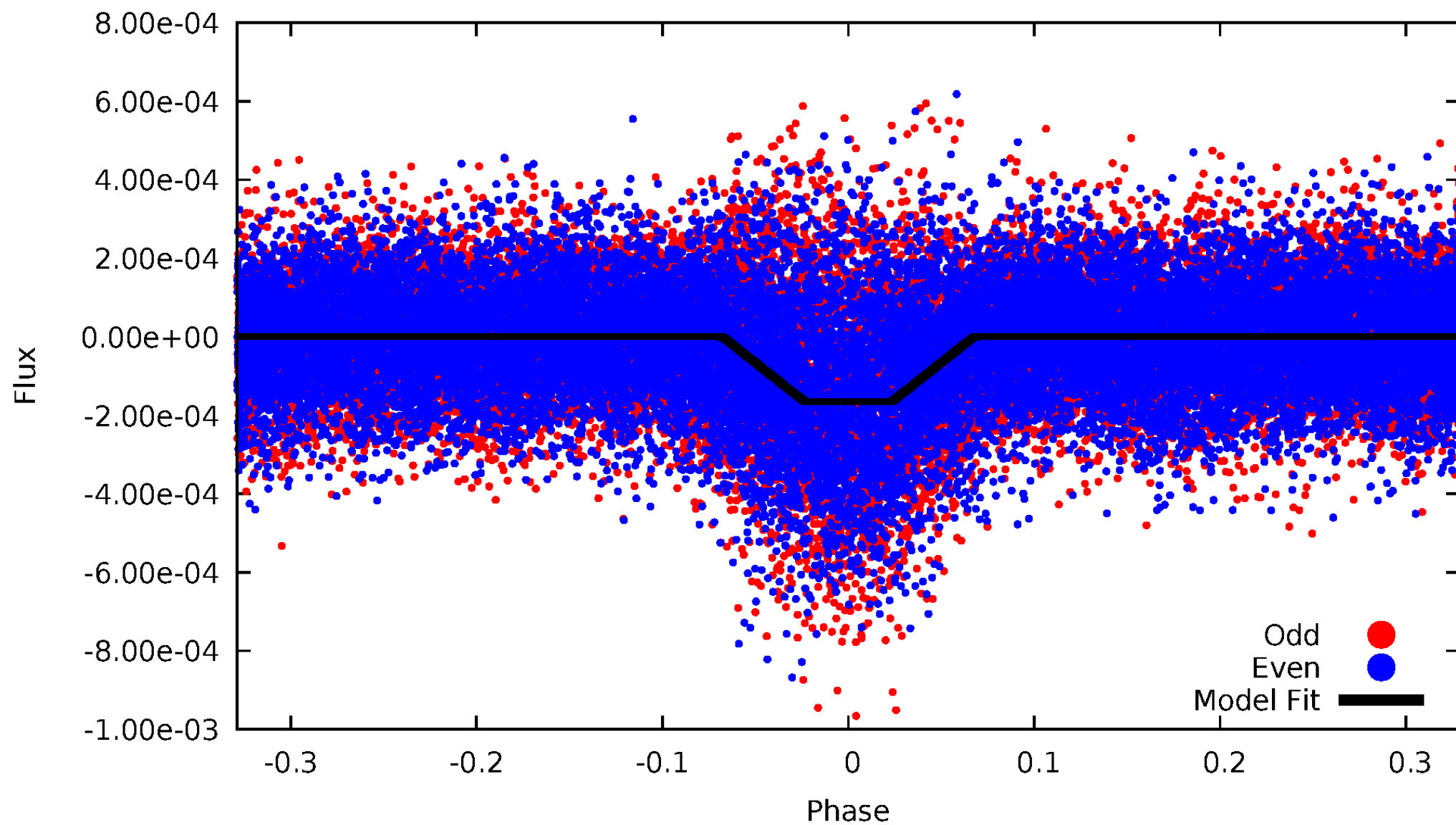
# DV Odd/Even

TCE 006059860-01



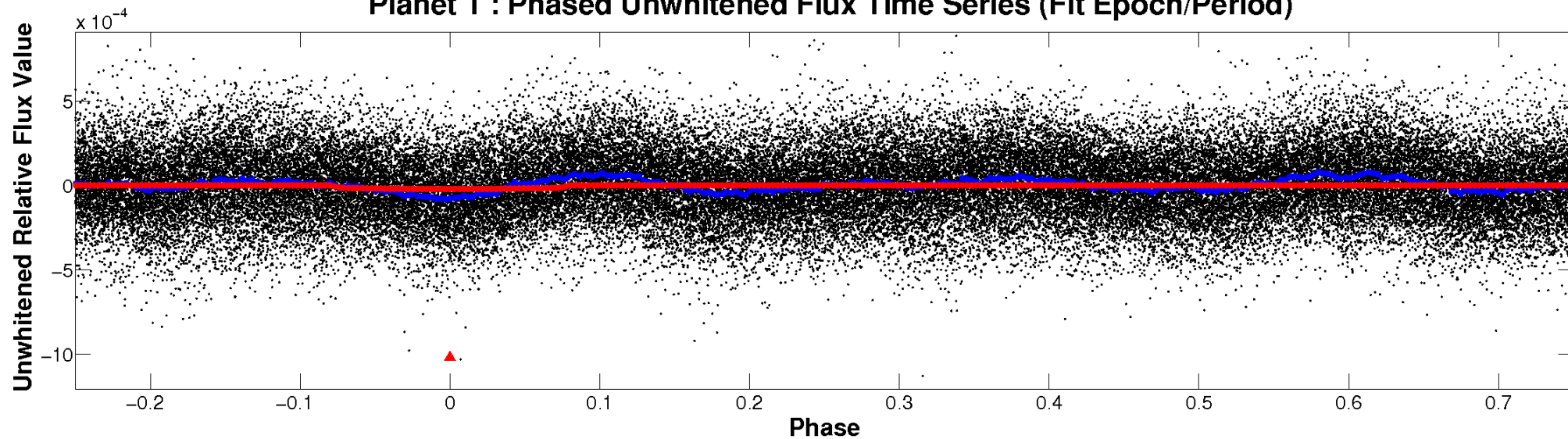
# ALT Odd/Even

TCE 006059860-01

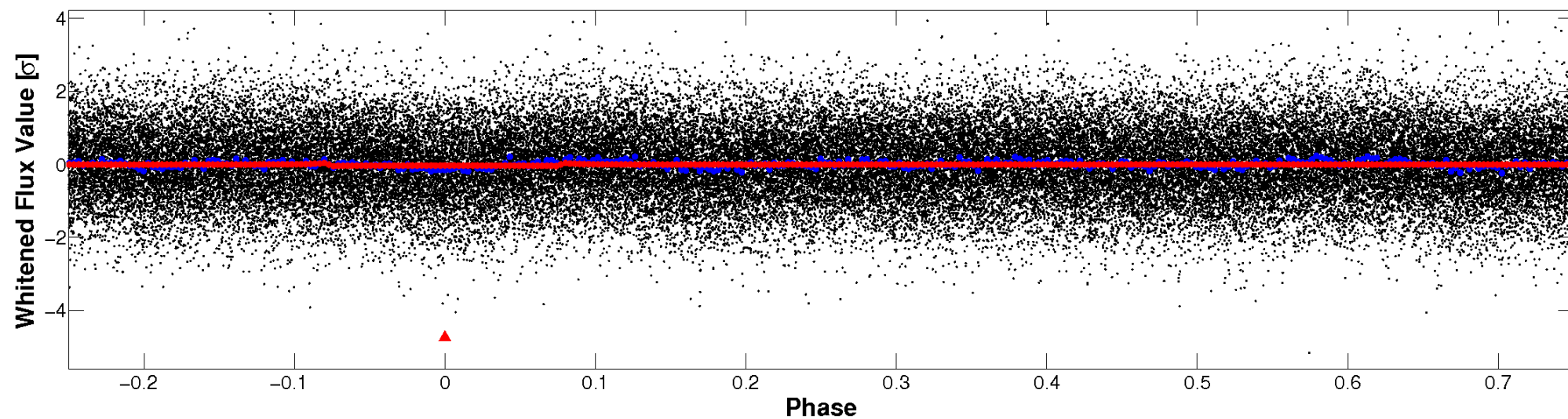


# Non-Whitened Vs. Whitened Light Curve

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

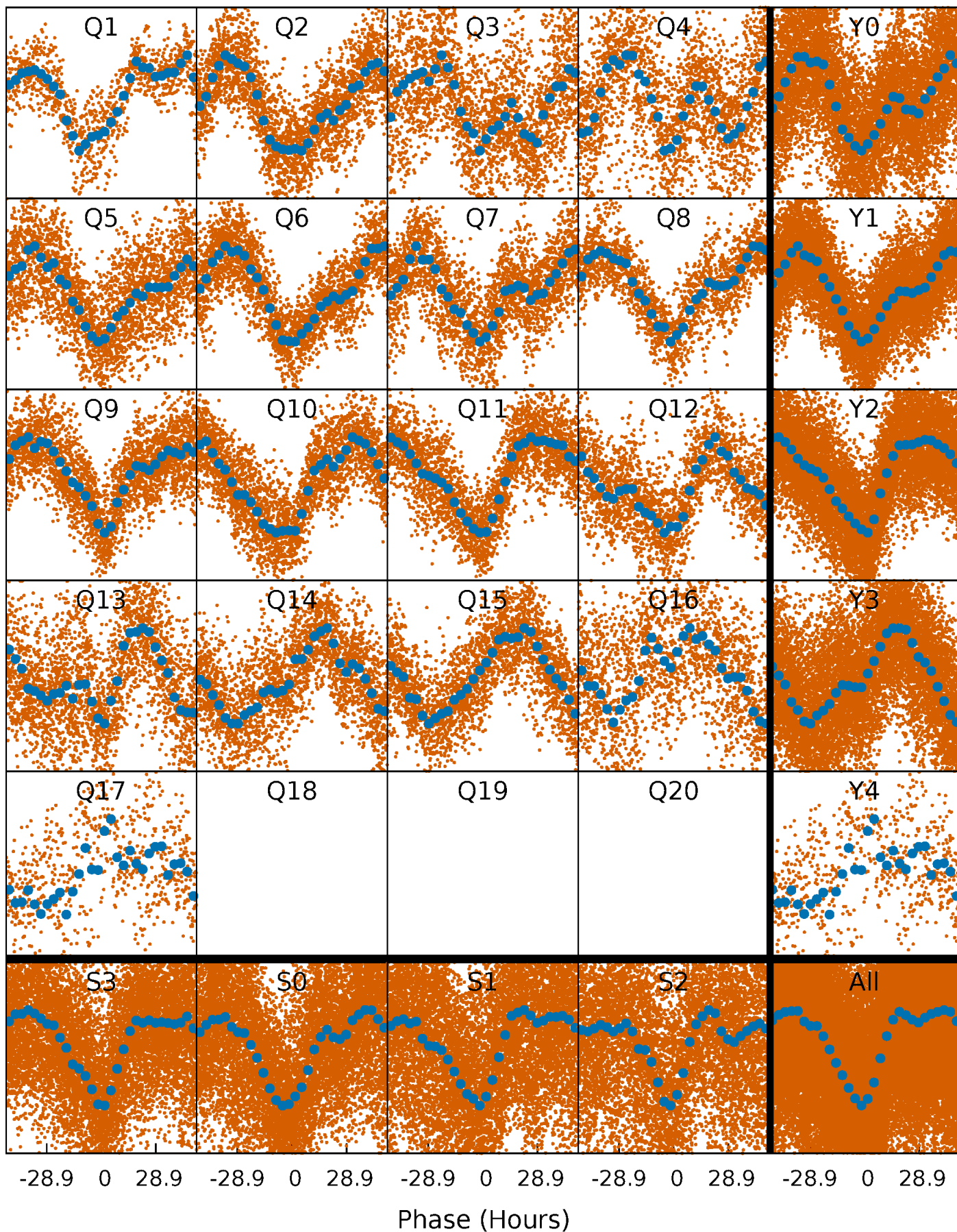


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

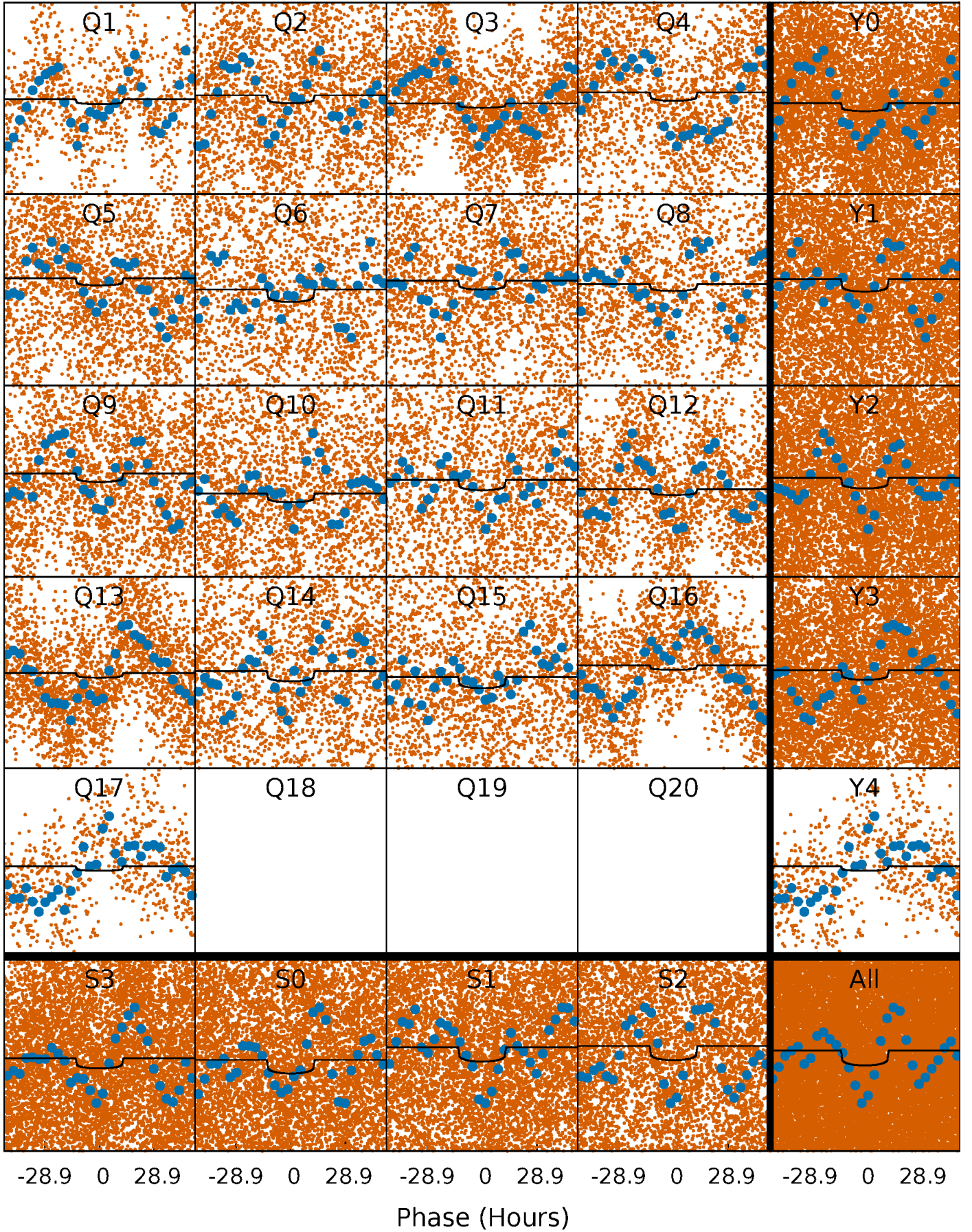
TCE 006059860-01 P= 6.631702 Days  $T_0=132.701076$  (BKJD)





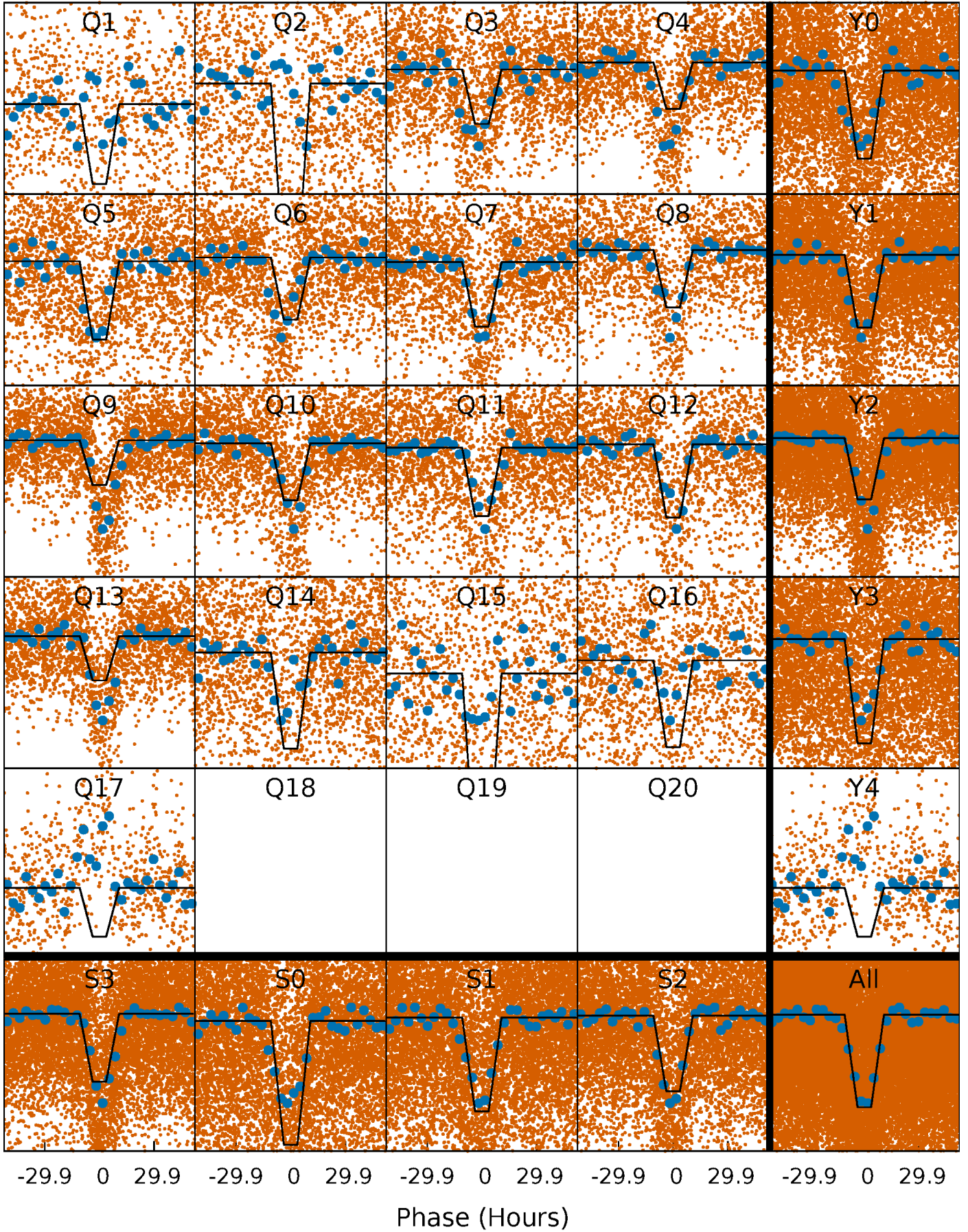
# DV Quarter-Phased Transit Curves

TCE 006059860-01 P= 6.631702 Days  $T_0=132.701076$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006059860-01 P= 6.631630 Days  $T_0=132.722914$  (BKJD)

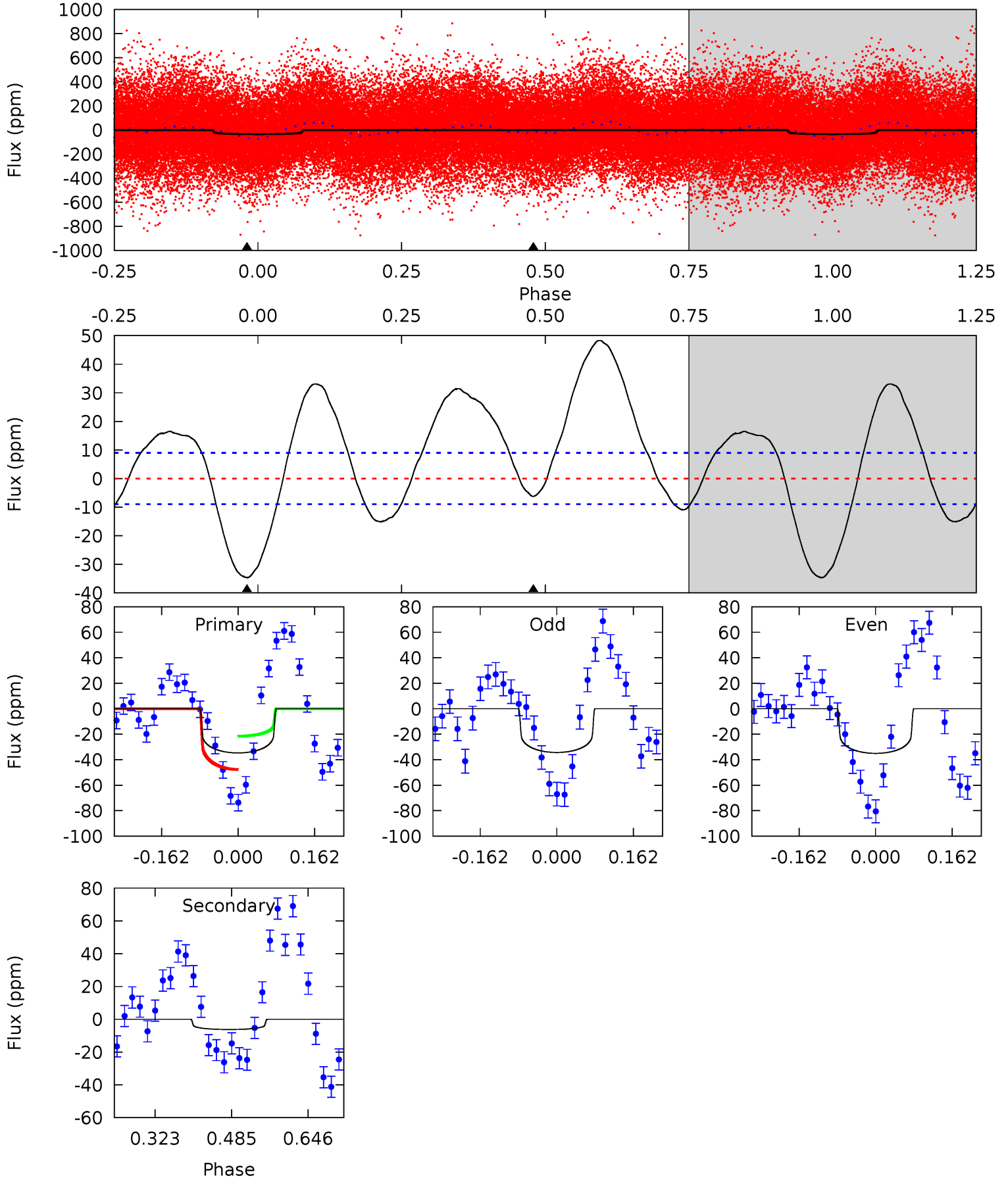




# DV Model-Shift Uniqueness Test

006059860-01, P = 6.631702 Days, E = 126.069374 Days

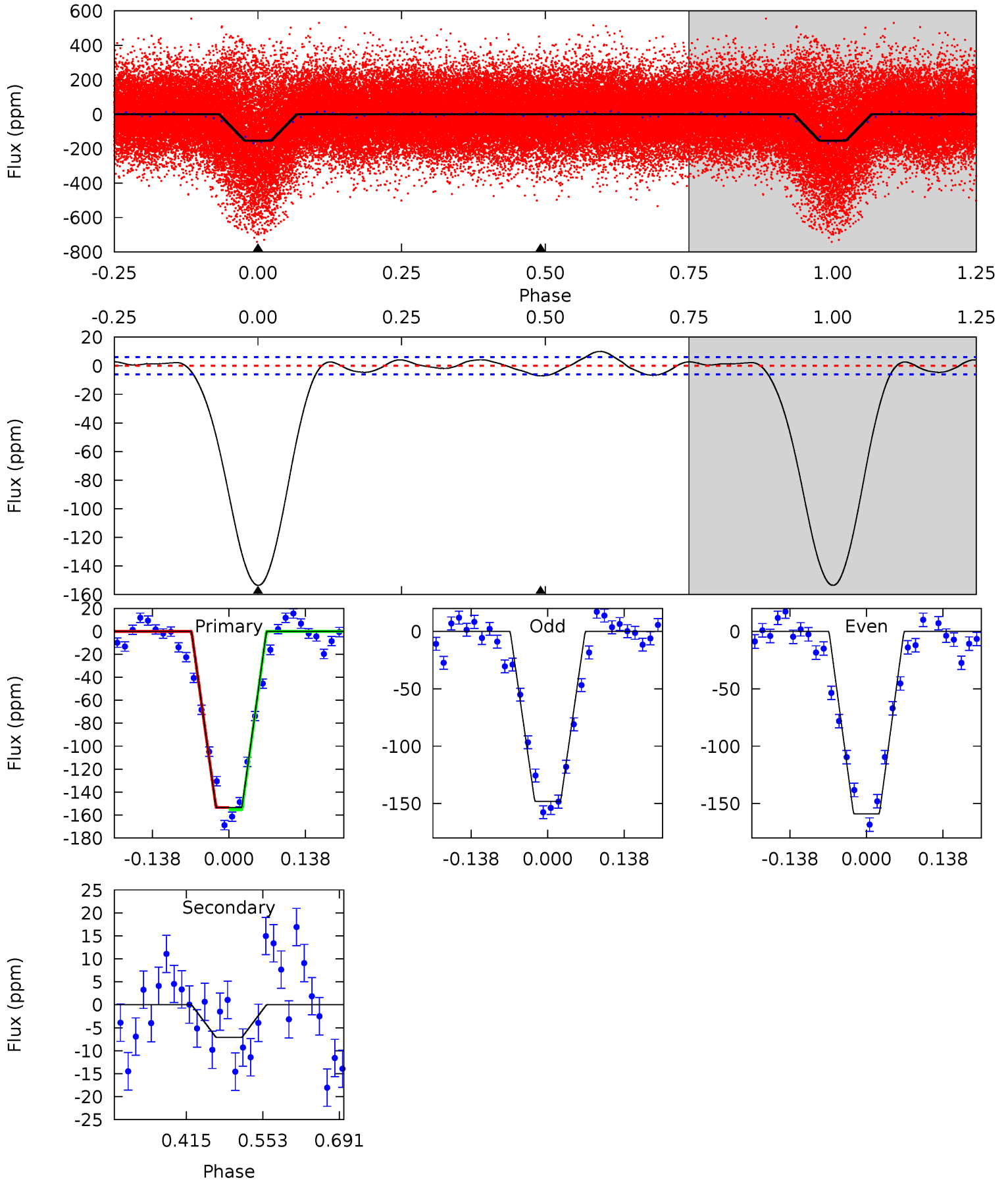
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	3.11	0	0	4.46	1.40	5.84	17.3	17.3	3.11	3.11	0.18	1.06	0.58	6.47



# Alt Model-Shift Uniqueness Test

006059860-01, P = 6.631630 Days, E = 126.091284 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
113.6	5.25	0	0	4.50	1.48	2.10	113.6	113.6	5.25	5.25	4.01	0.91	0.06	0.73





### Stellar Parameters For KIC 006059860

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6256^{+158}_{-158}$	$3.512^{+0.352}_{-0.117}$	$-0.140^{+0.350}_{-0.300}$	$3.761^{+0.644}_{-1.610}$	$1.679^{+0.193}_{-0.386}$	$0.044^{+0.120}_{-0.016}$
	+3%/-3%	+10%/-3%	+250%/-214%	+17%/-43%	+11%/-23%	+270%/-35%
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 006059860-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-6 \pm 2$	$1.91^{+0.41}_{-0.48}$	$2581^{+154}_{-250}$	$4581^{+452}_{-403}$	$6.263^{+4.864}_{-2.561}$
Alt.	$-7 \pm 1$	$5.15^{+0.71}_{-1.03}$	$2576^{+161}_{-240}$	$3198^{+164}_{-171}$	$0.998^{+0.522}_{-0.263}$

$T_{\text{max}}$  = 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

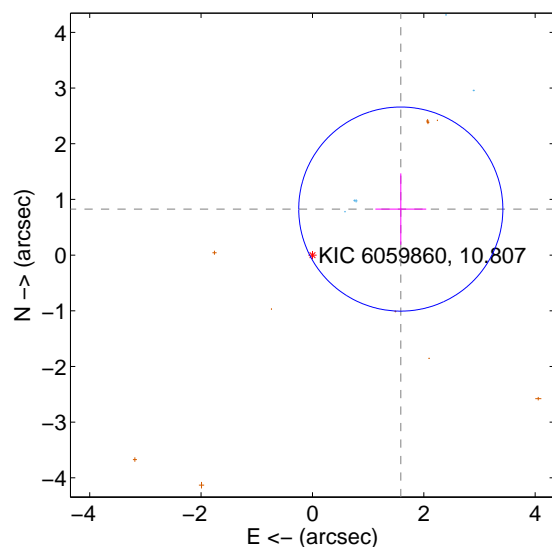
Supplemental centroid analysis for 006059860-01. **Kepler magnitude: 10.81.** Transit SNR 3.93

There are 6 quarters with good PRF difference image offsets

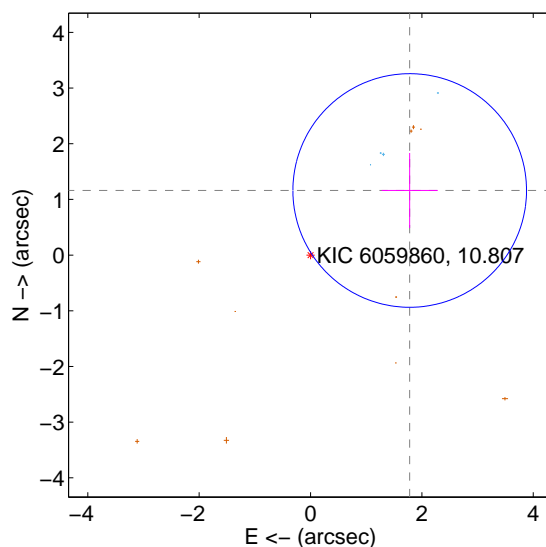
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.789 \pm 0.611$	2.93	$-1.587 \pm 0.457$	$0.827 \pm 0.641$
PRF-fit source offset from KIC position	<b><math>2.126 \pm 0.699</math></b>	<b>3.04</b>	$-1.781 \pm 0.502$	$1.160 \pm 0.673$
photometric centroid source offset	$0.59 \pm 0.74$	0.79	$-0.57 \pm 0.73$	$-0.12 \pm 0.91$

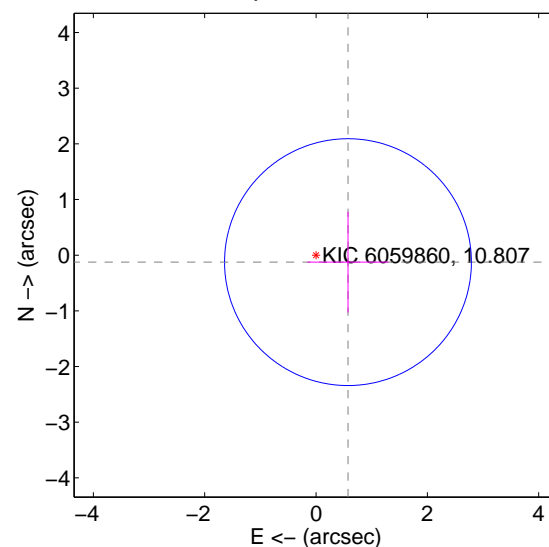
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

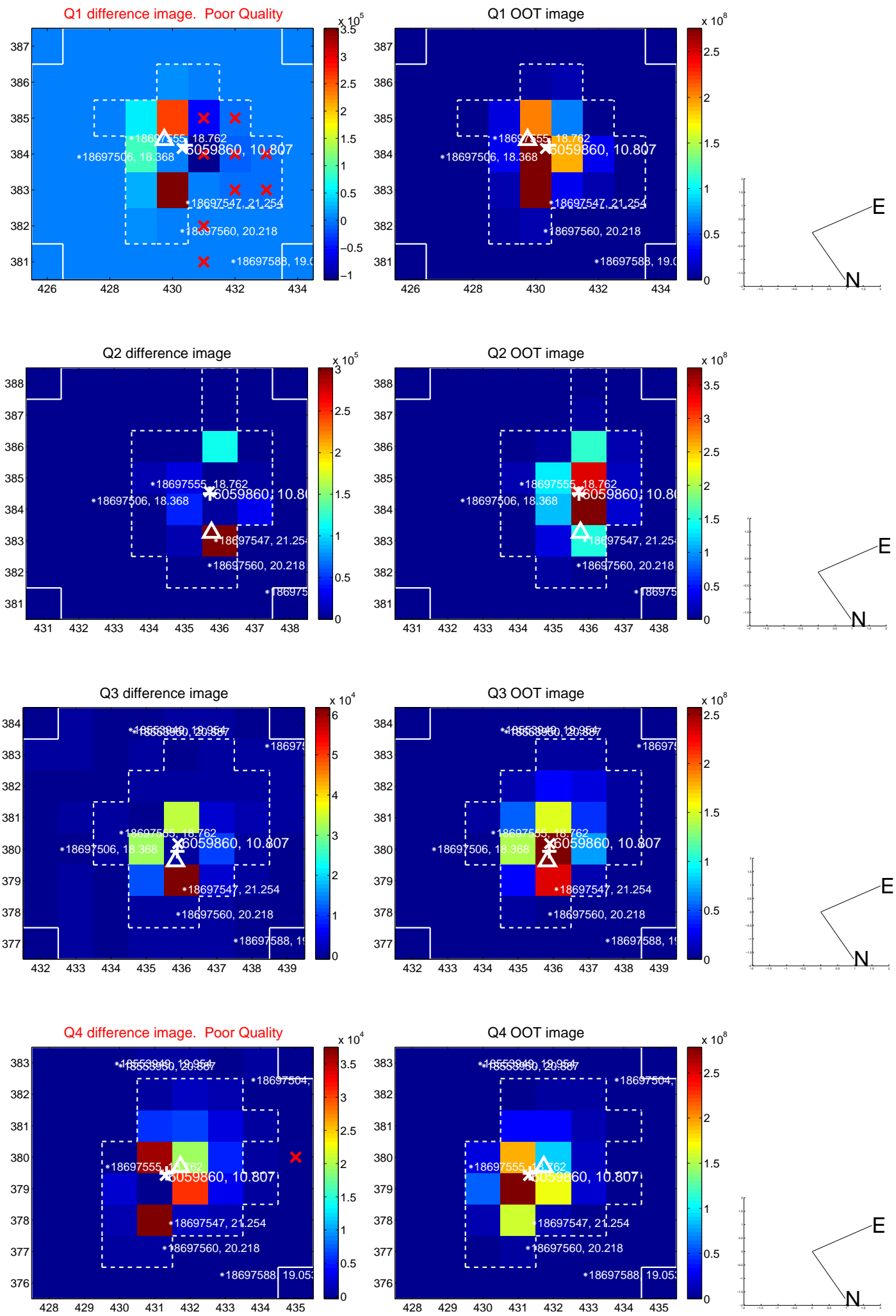


offset from photometric centroids

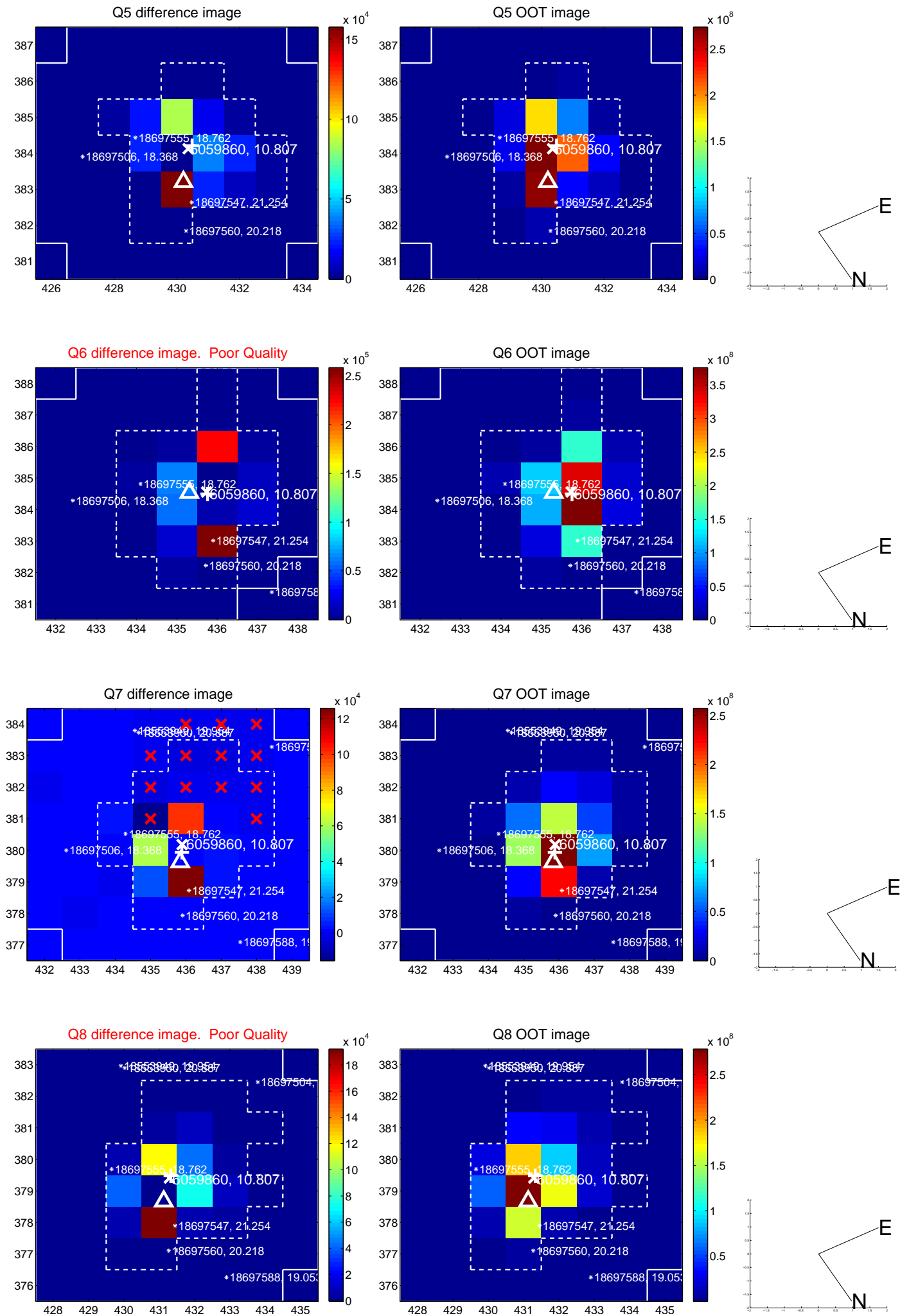


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

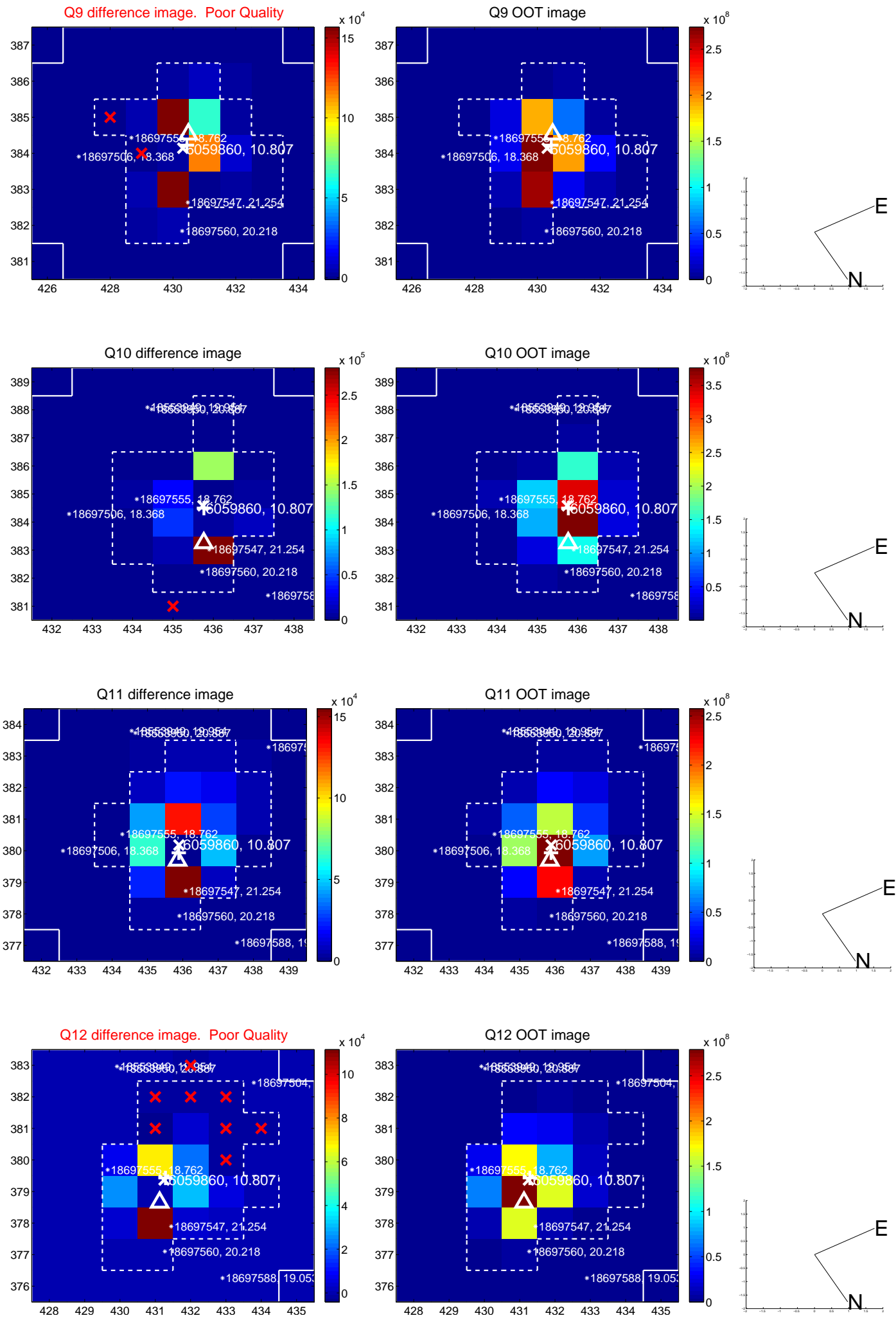


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

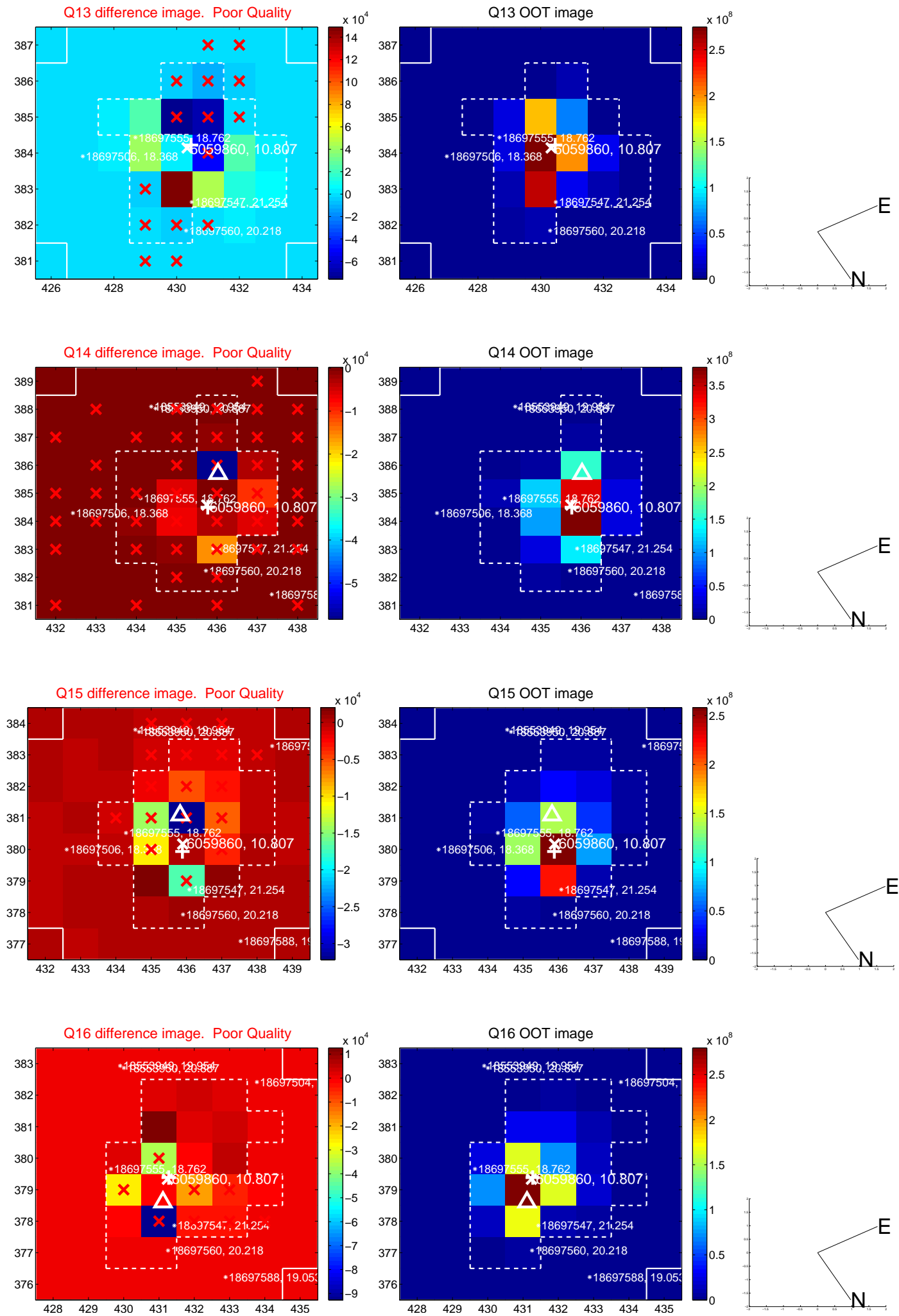




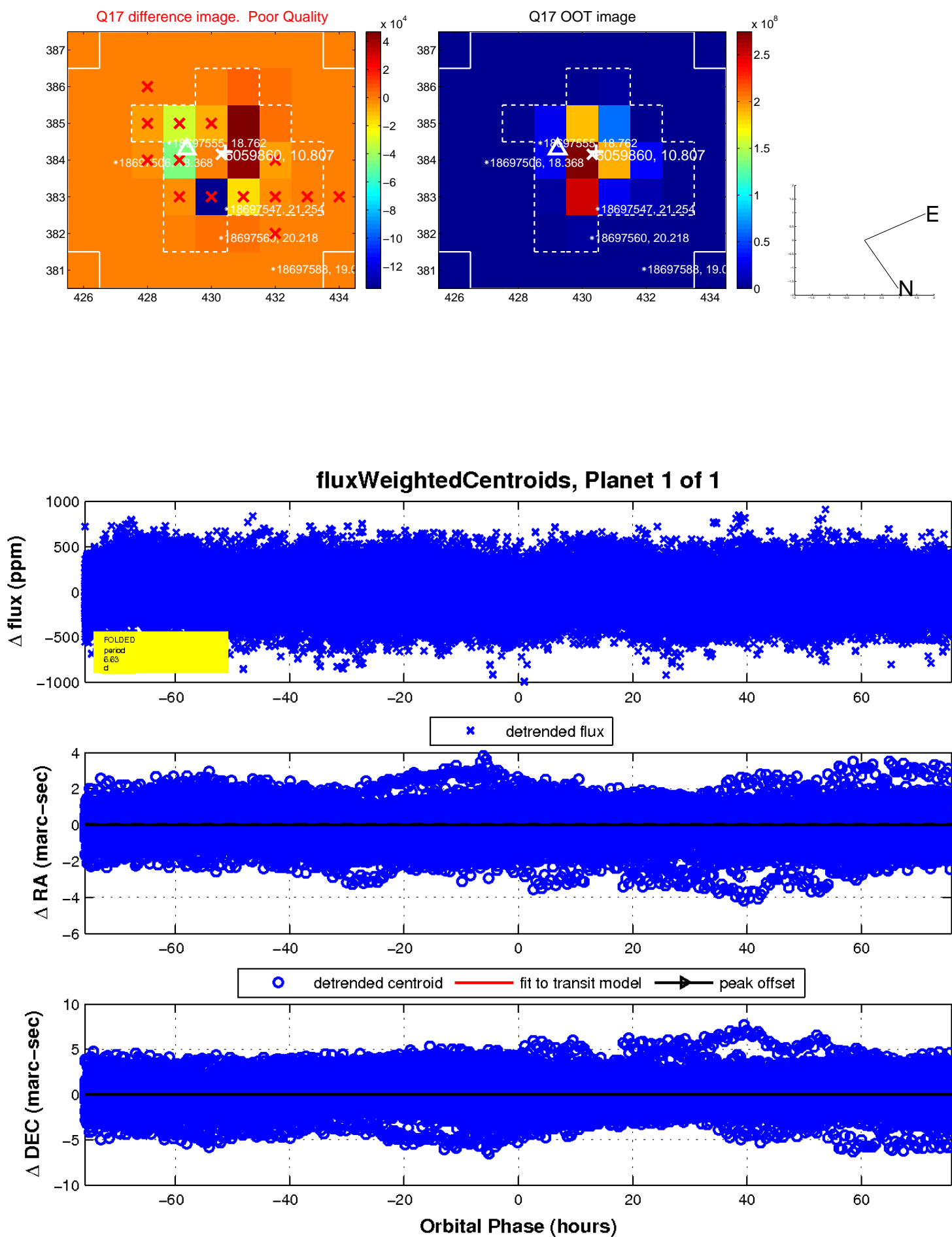
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

