

# KIC 008818193

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008818193-01	OBS	No	1.087922	132.451680	76.7	4.401	7.4	7.7	0.77	5103	0.80	1031.91

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008818193-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_ALT—EPHEM_MATCH

**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.

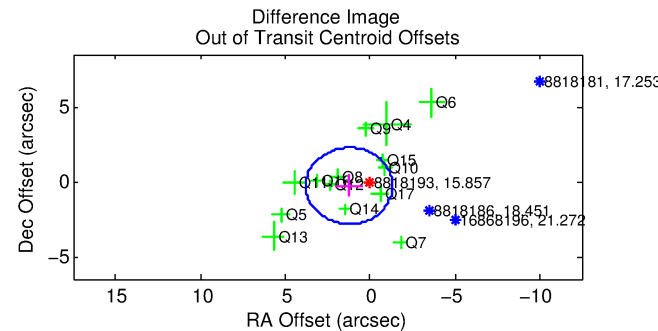
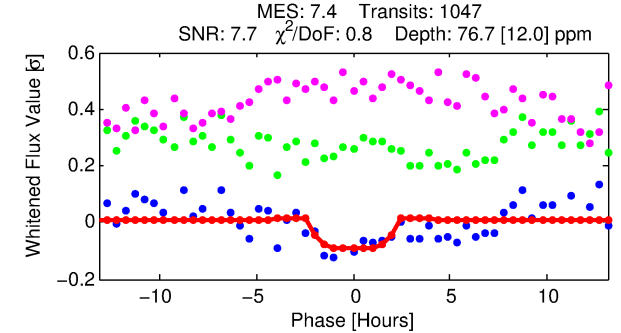
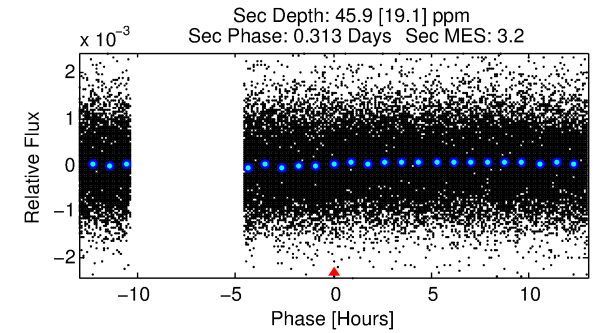
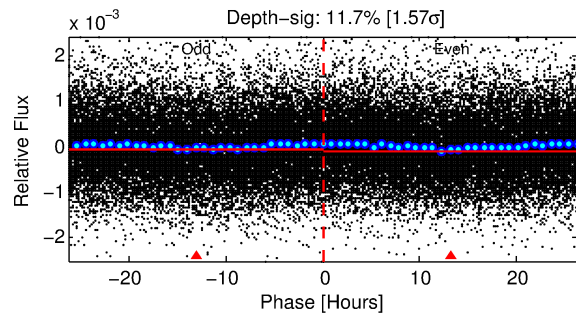
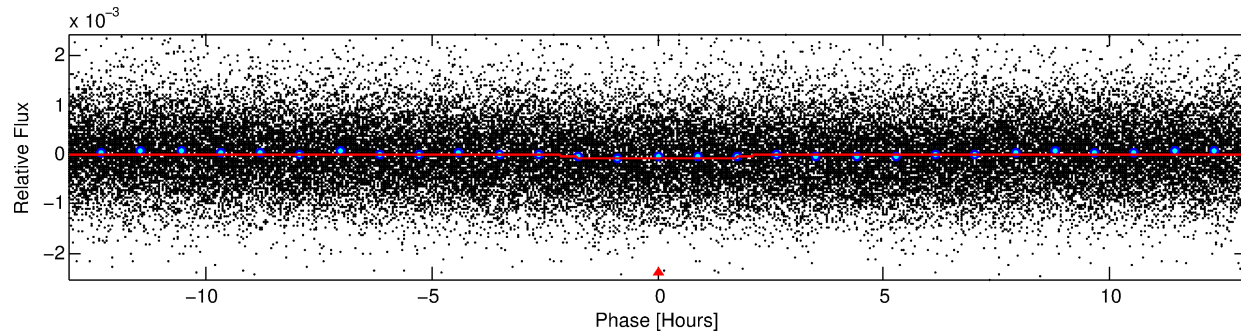
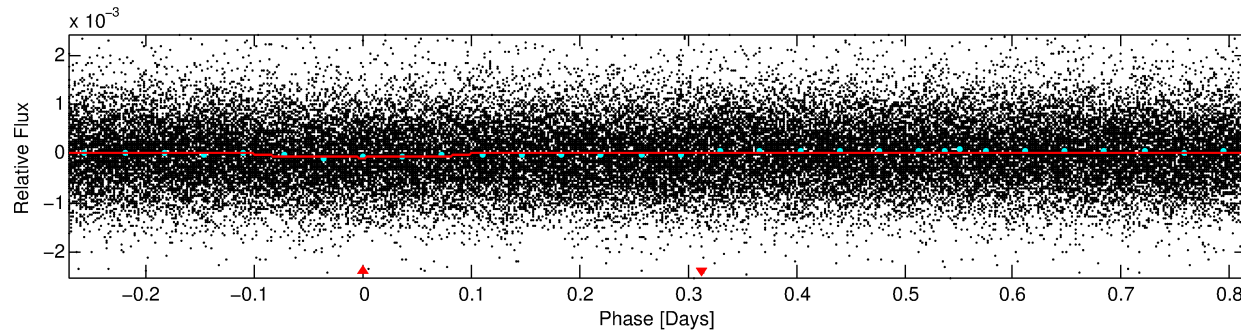
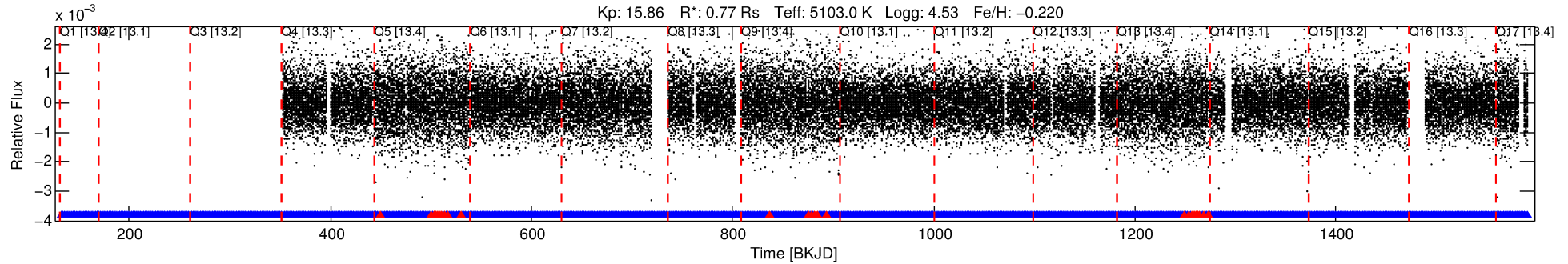
## Ephemeris Match Information For 008818193-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $\prime$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008818193-01	8818193	008818096-02	8818096	1:2	90.2	-22	3	15.98	15.86	1.13	Col-Anomaly	1	4.04	4.07

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 8818193 Candidate: 1 of 1 Period: 1.088 d



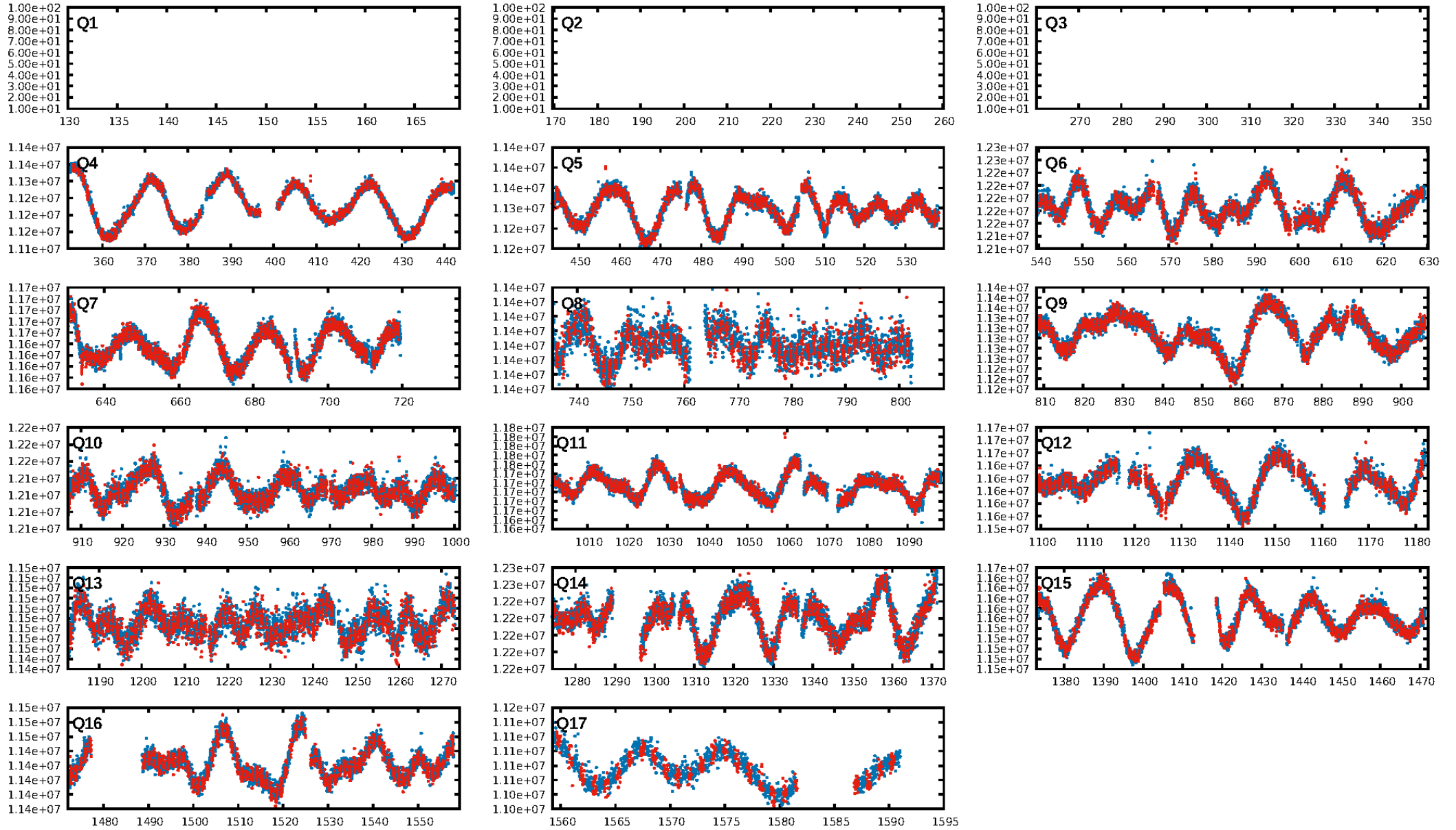
## DV Fit Results:

Period = 1.08792 [0.00002] d  
Epoch = 132.4517 [0.0058] BKJD  
Rp/R\* = 0.0095 [0.0075]  
a/R\* = 1.32 [1.82]  
b = 0.88 [0.87]  
Seff = 1031.91 [211.85]  
Teq = 1445 [74] K  
Rp = 0.80 [0.63] Re  
a = 0.0186 [0.0019] AU  
Ag = 13.87 [22.66] [0.57 $\sigma$ ]  
Teffp = 4312 [1760] K [1.63 $\sigma$ ]

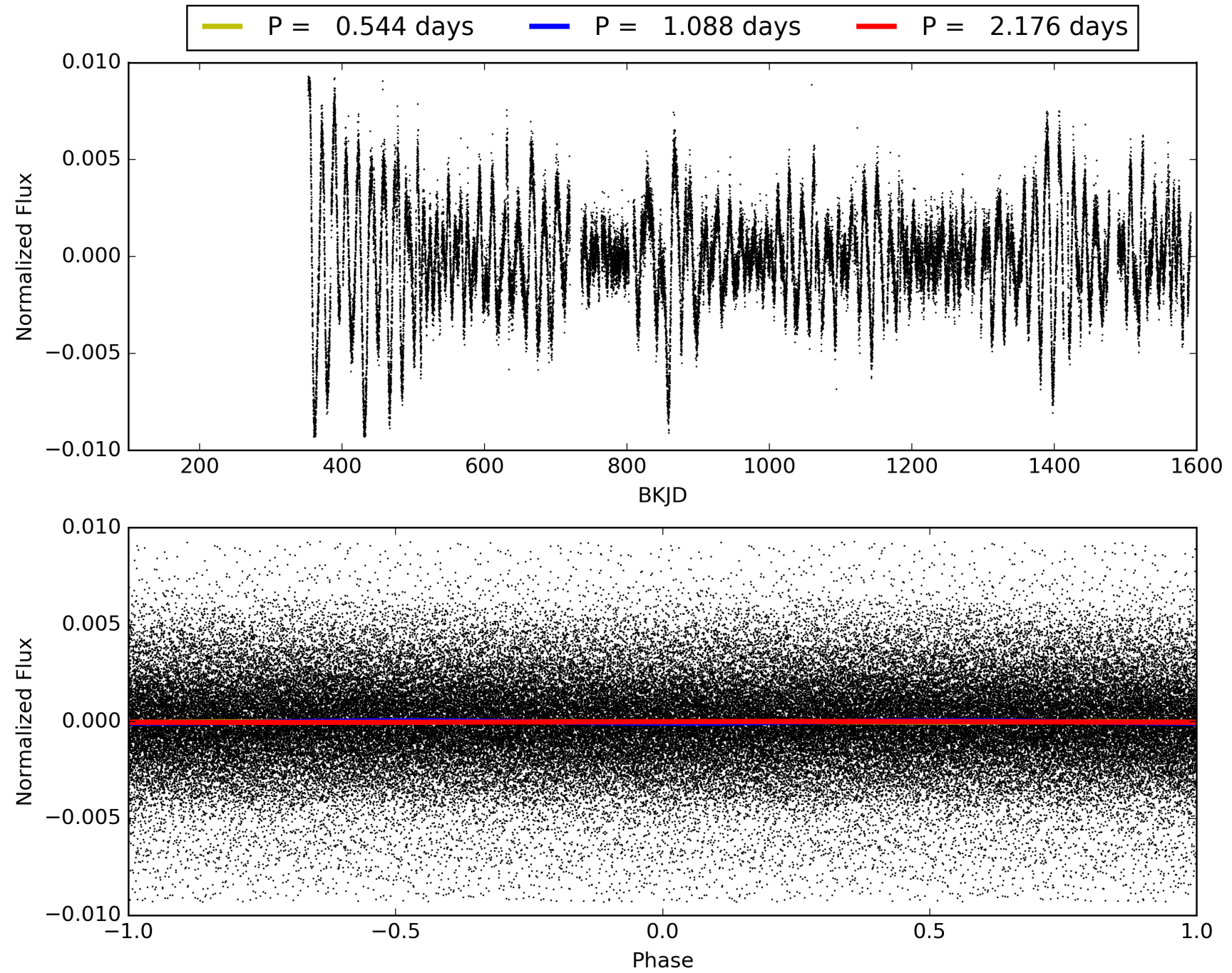
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.03e-13  
RollingBand-fgt: 0.97 [991/1022]  
**GhostDiagnostic-chr: 0.7416**  
Centroid-sig: 0.0%  
Centroid-so: 4.702 arcsec [3.50 $\sigma$ ]  
OotOffset-rm: 1.264 arcsec [1.48 $\sigma$ ]  
KicOffset-rm: 1.210 arcsec [1.53 $\sigma$ ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.07 [1/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 008818193-01, PDC Light Curves



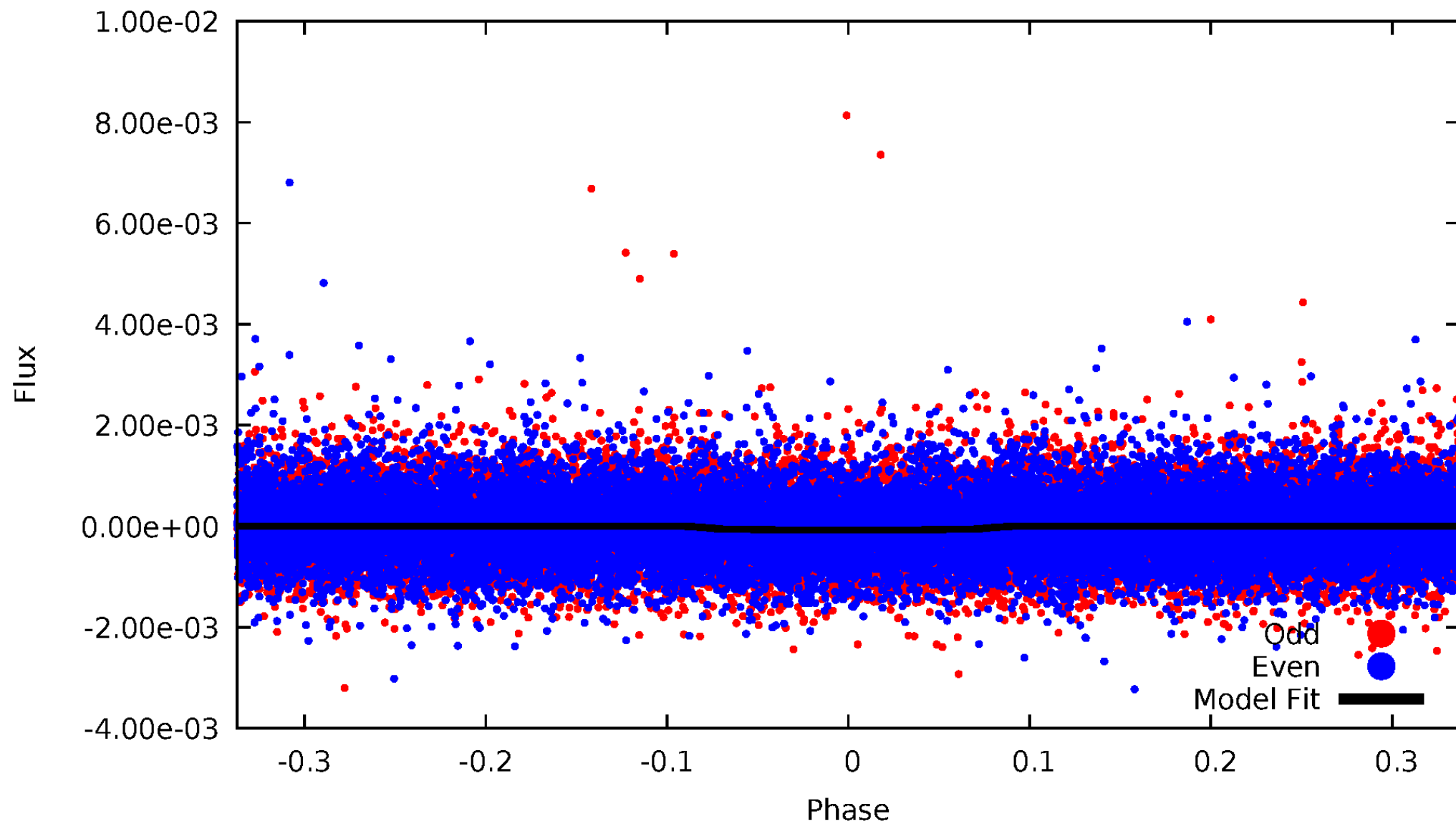
TCE 008818193-01





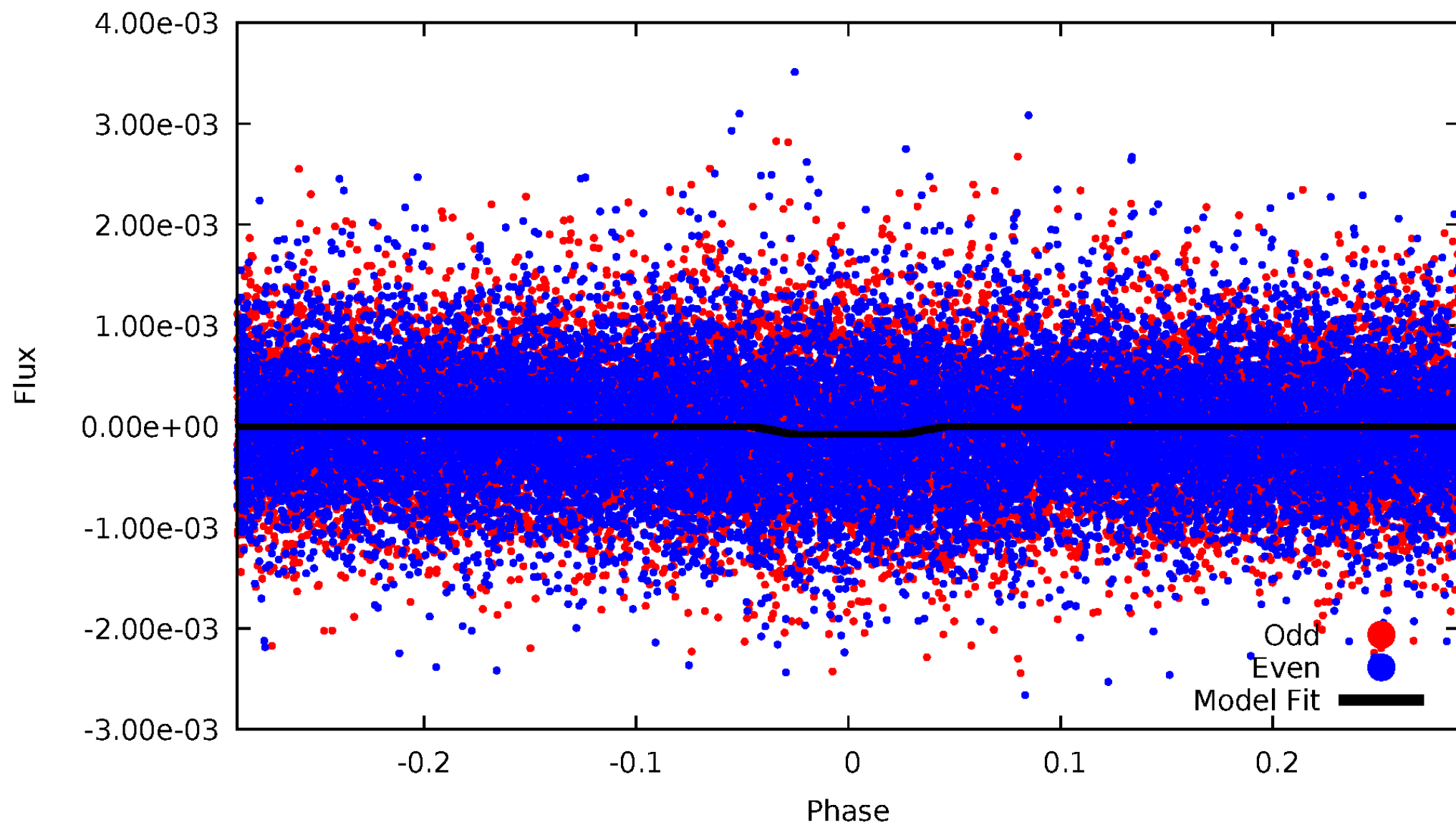
# DV Odd/Even

TCE 008818193-01



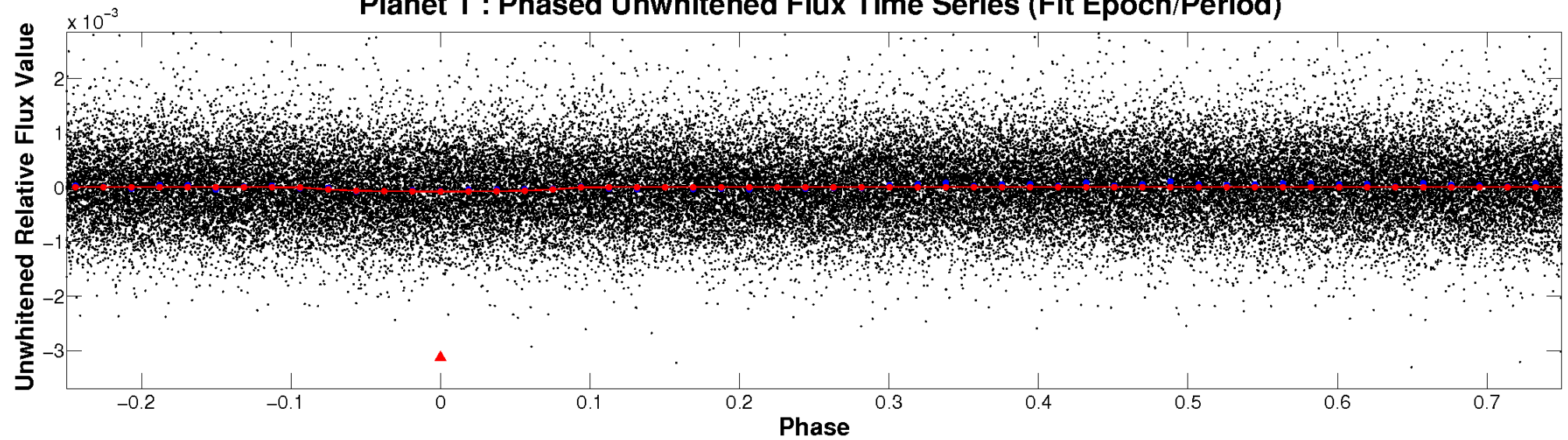
# ALT Odd/Even

TCE 008818193-01

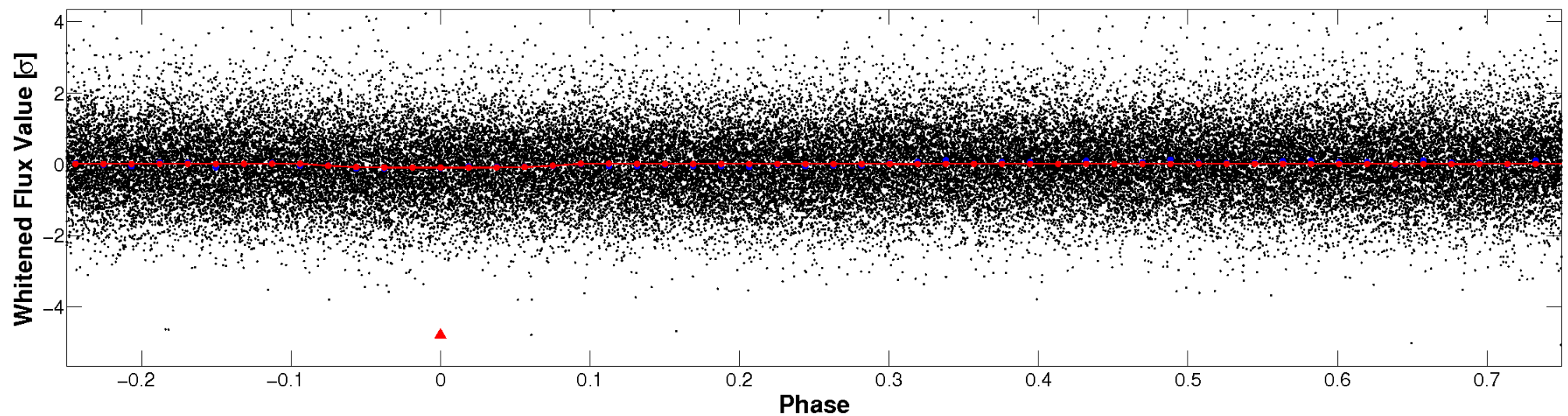


# Non-Whitened Vs. Whitened Light Curve

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

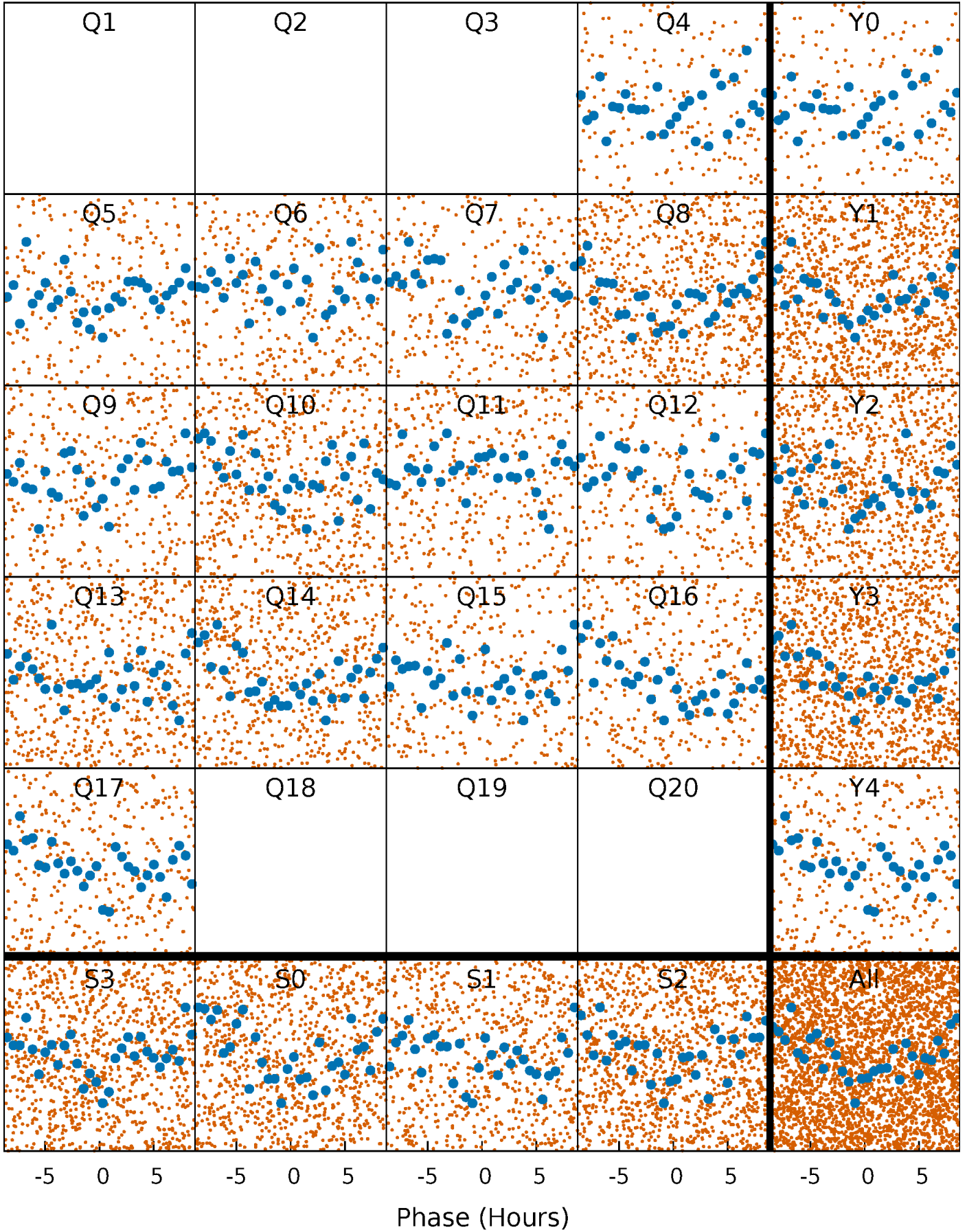


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

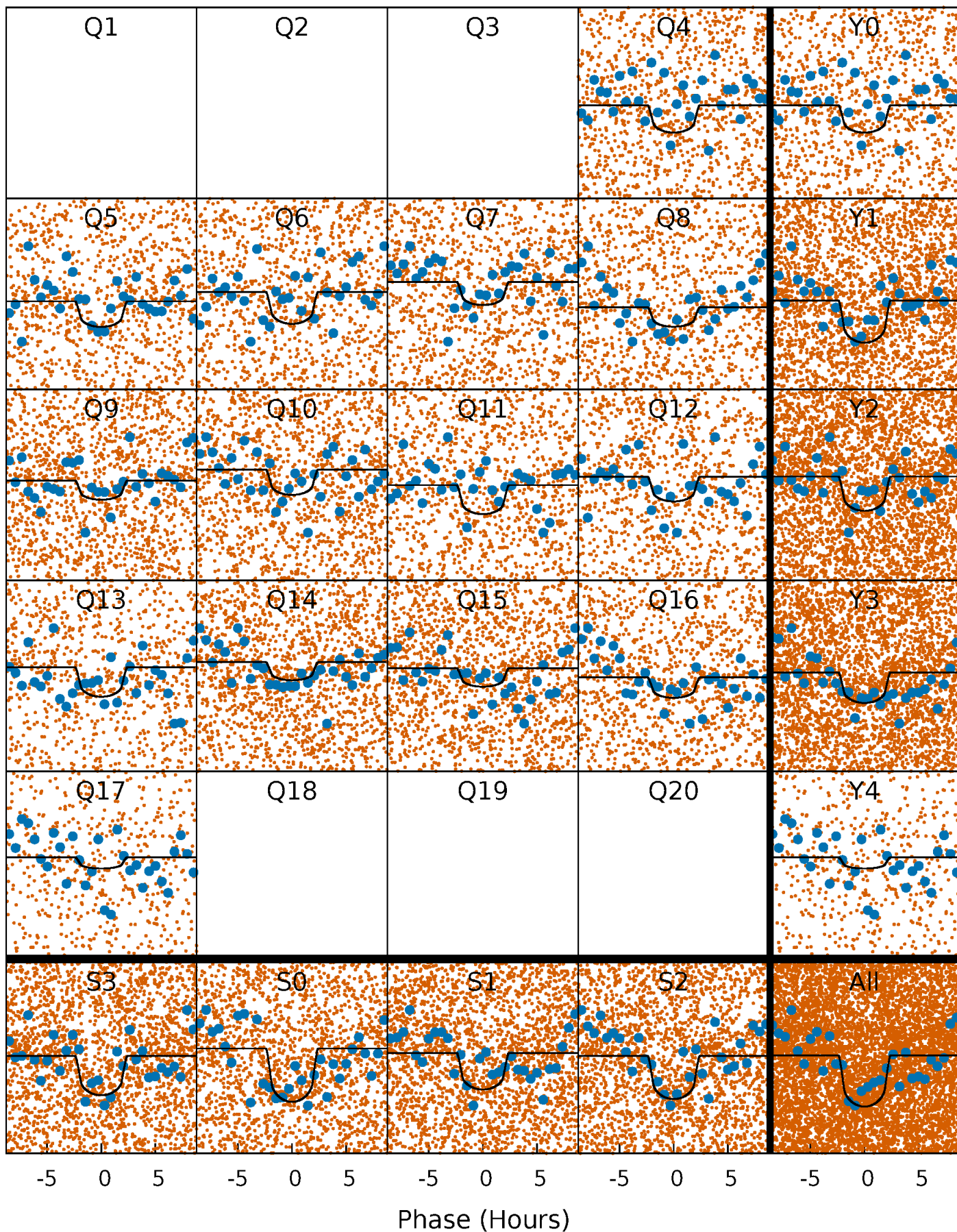
TCE 008818193-01 P= 1.087922 Days  $T_0=132.451680$  (BKJD)





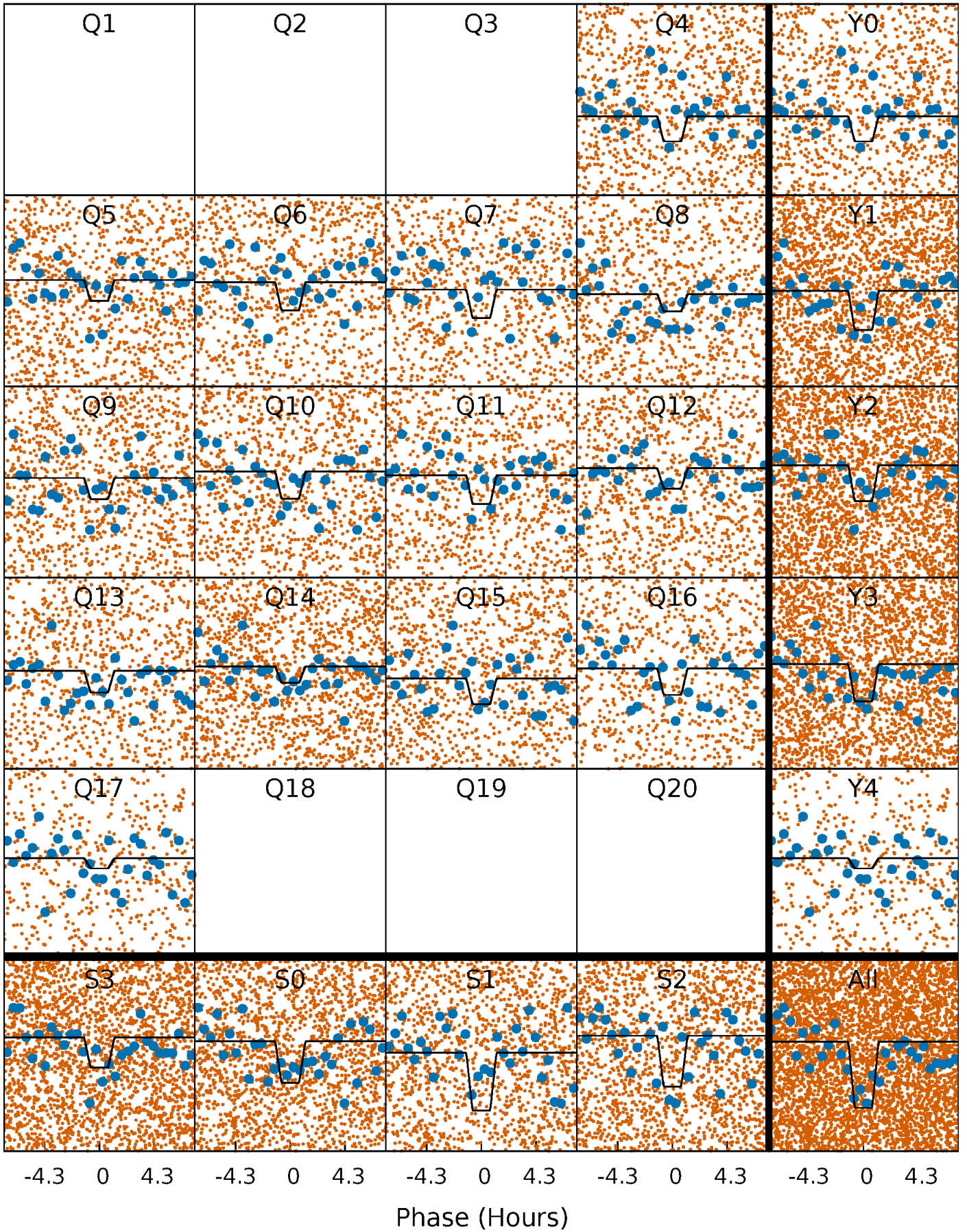
# DV Quarter-Phased Transit Curves

TCE 008818193-01 P= 1.087922 Days  $T_0=132.451680$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

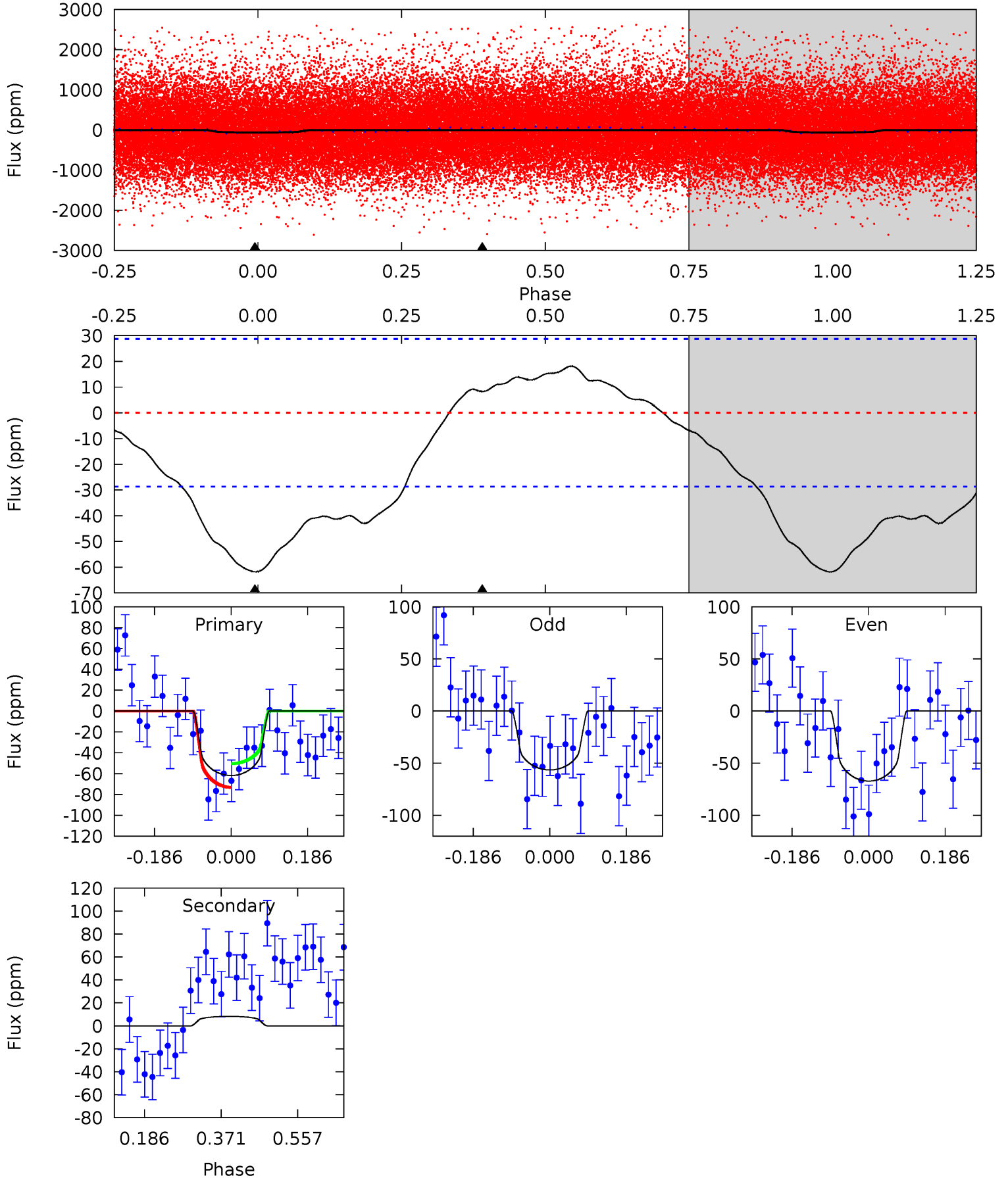
TCE 008818193-01 P= 1.087890 Days  $T_0=132.449884$  (BKJD)



# DV Model-Shift Uniqueness Test

008818193-01, P = 1.087922 Days, E = 132.451680 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
9.56	-1.28	0	0	4.43	1.32	2.32	9.56	9.56	-1.28	-1.28	0.83	1.02	0.23	1.77

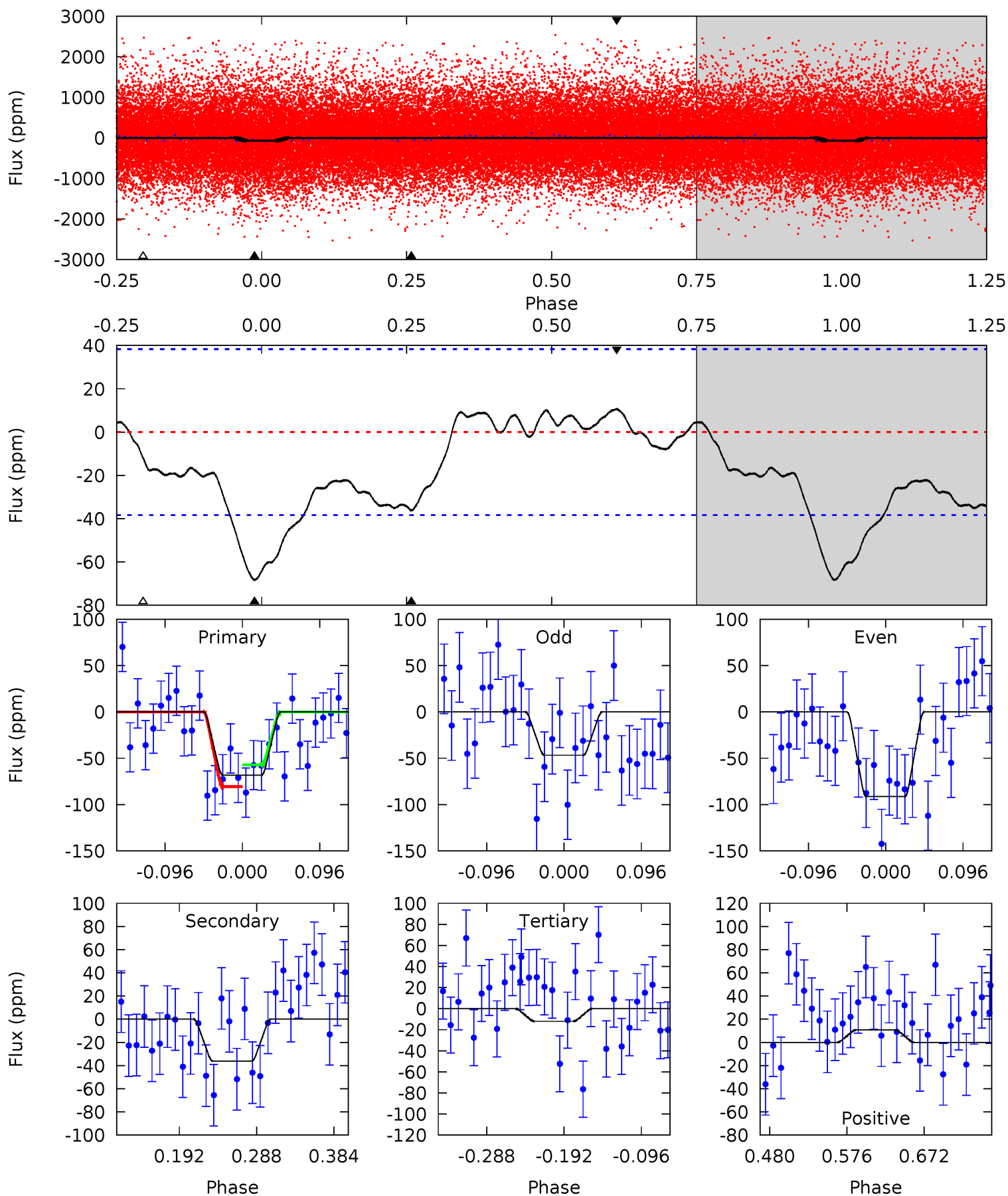




# Alt Model-Shift Uniqueness Test

008818193-01, P = 1.087890 Days, E = 132.449884 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
8.16	4.33	1.44	1.28	4.57	1.66	1.39	6.72	6.88	2.89	3.05	2.67	1.22	0.14	1.39





### Stellar Parameters For KIC 008818193

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$5103^{+179}_{-179}$	$4.530^{+0.084}_{-0.063}$	$-0.220^{+0.300}_{-0.300}$	$0.768^{+0.080}_{-0.088}$	$0.730^{+0.103}_{-0.051}$	$2.266^{+0.773}_{-0.485}$
	+4%/-4%	+2%/-1%	+136%/-136%	+10%/-11%	+14%/-7%	+34%/-21%
Source	KIC0	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 008818193-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$8 \pm 6$	$0.90^{+0.57}_{-0.53}$	$2010^{+93}_{-96}$	$-3194^{+514}_{-1049}$	$-1.714^{+1.472}_{-9.443}$
Alt.	$-36 \pm 8$	$0.85^{+0.55}_{-0.54}$	$2012^{+88}_{-82}$	$4132^{+2223}_{-720}$	$9.652^{+58.324}_{-6.200}$

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

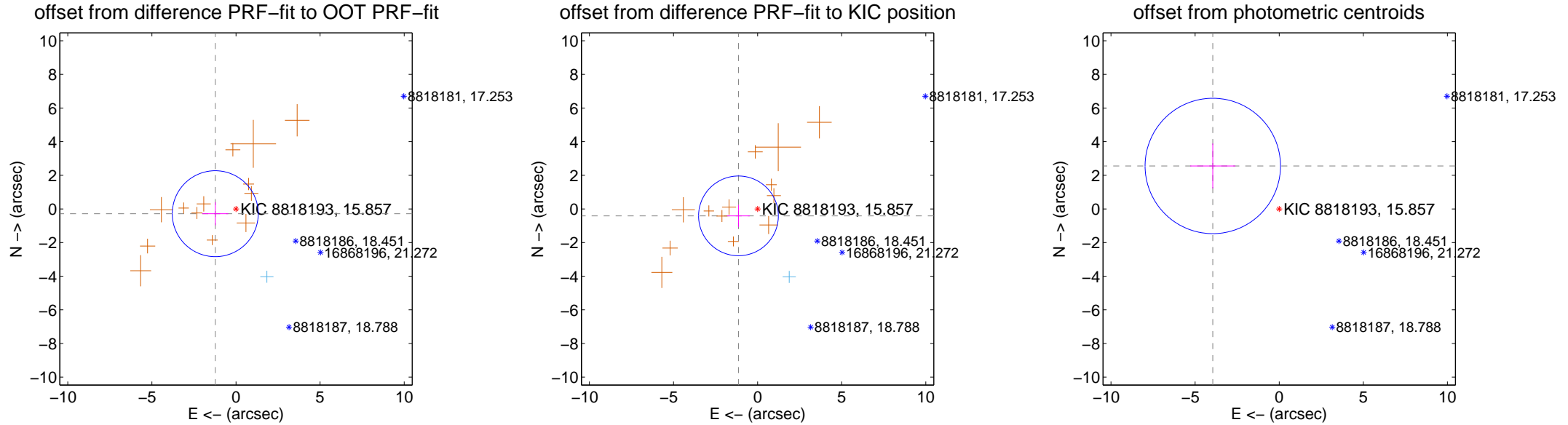
## DV Centroid Data

Supplemental centroid analysis for 008818193-01. Kepler magnitude: 15.86. Transit SNR 7.71

There are 1 quarters with good PRF difference image offsets

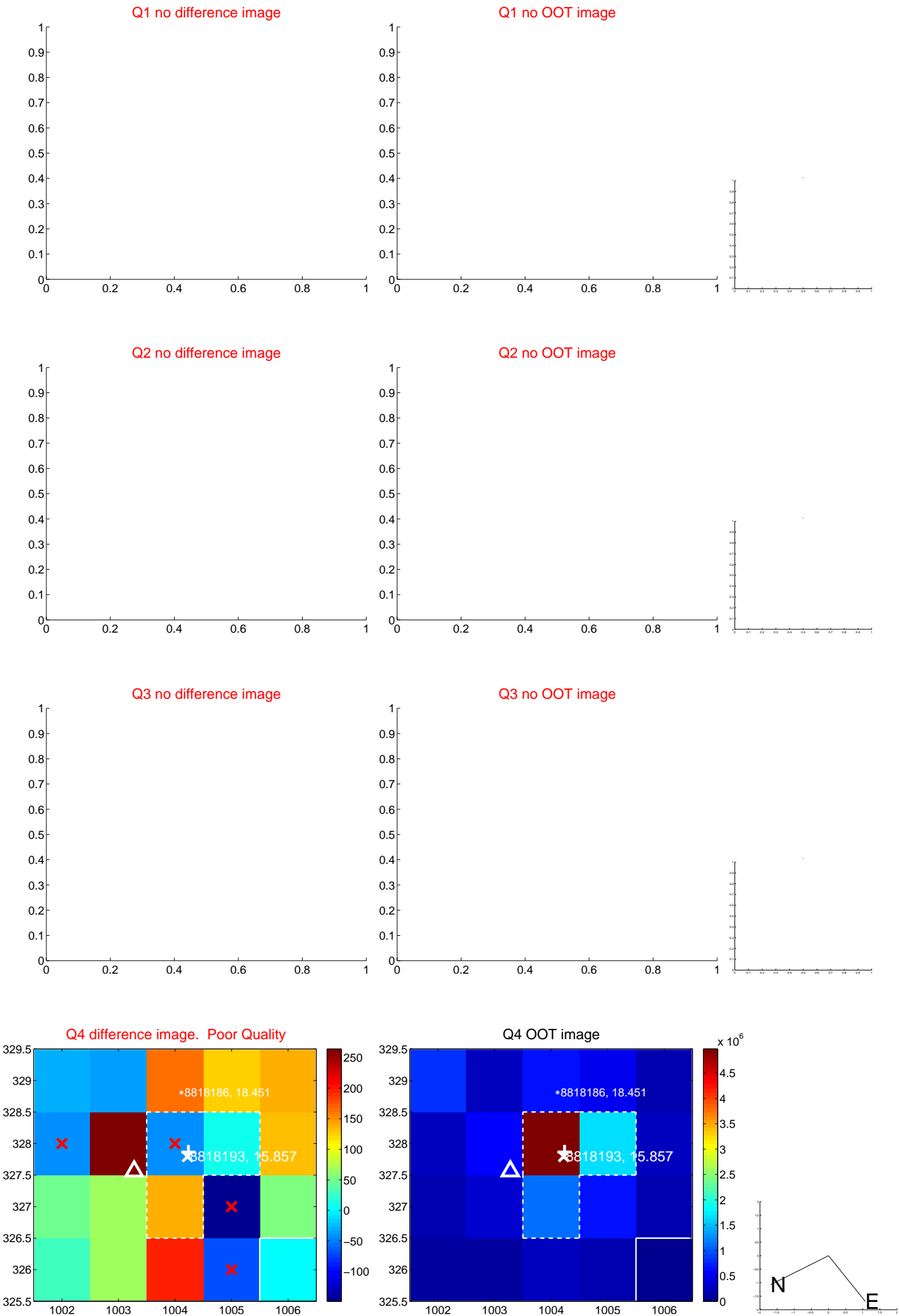
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.264 \pm 0.852$	1.48	$1.232 \pm 0.769$	$-0.283 \pm 0.687$
PRF-fit source offset from KIC position	$1.210 \pm 0.790$	1.53	$1.137 \pm 0.674$	$-0.412 \pm 0.656$
photometric centroid source offset	$4.70 \pm 1.34$	3.50	$3.95 \pm 1.34$	$2.56 \pm 1.34$

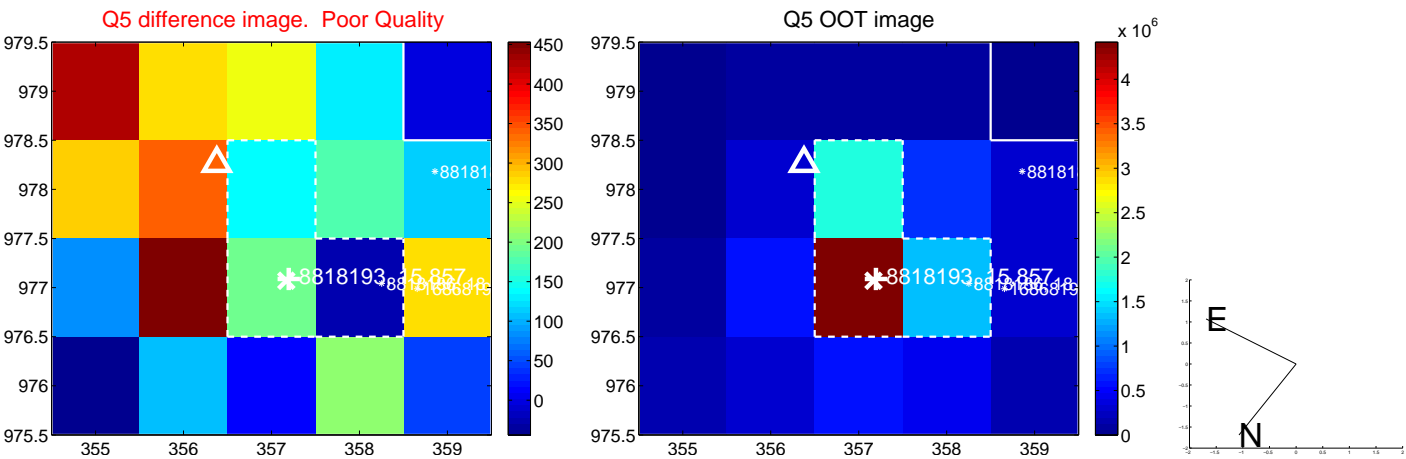


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

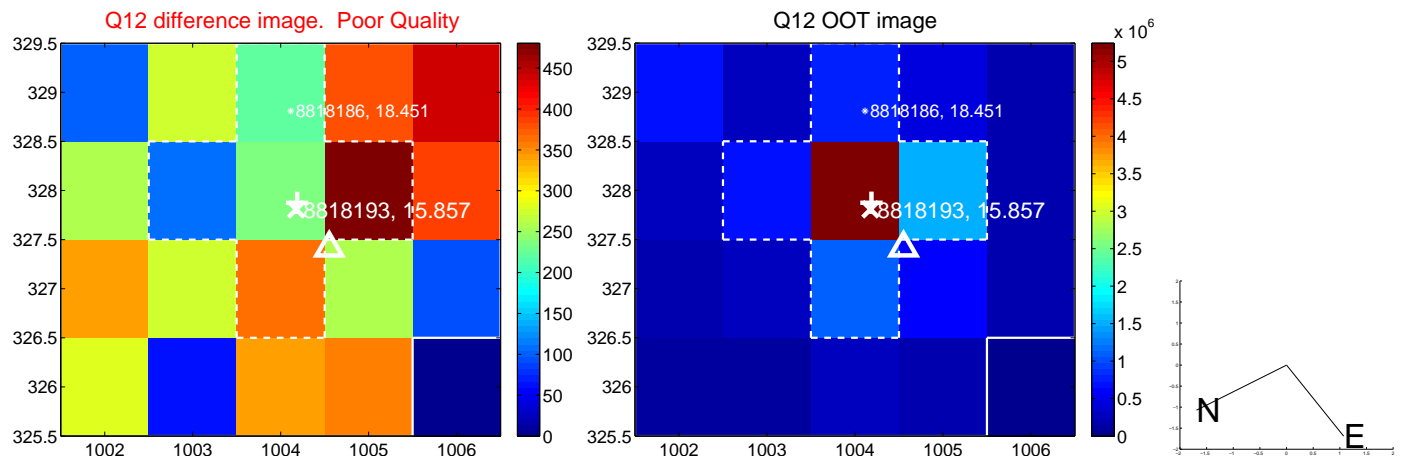
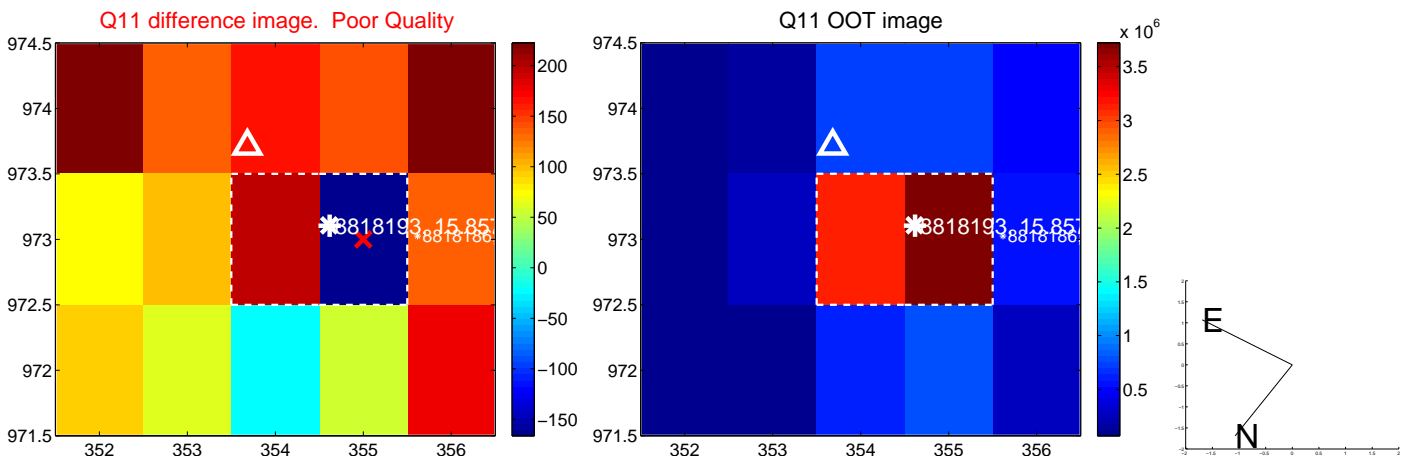
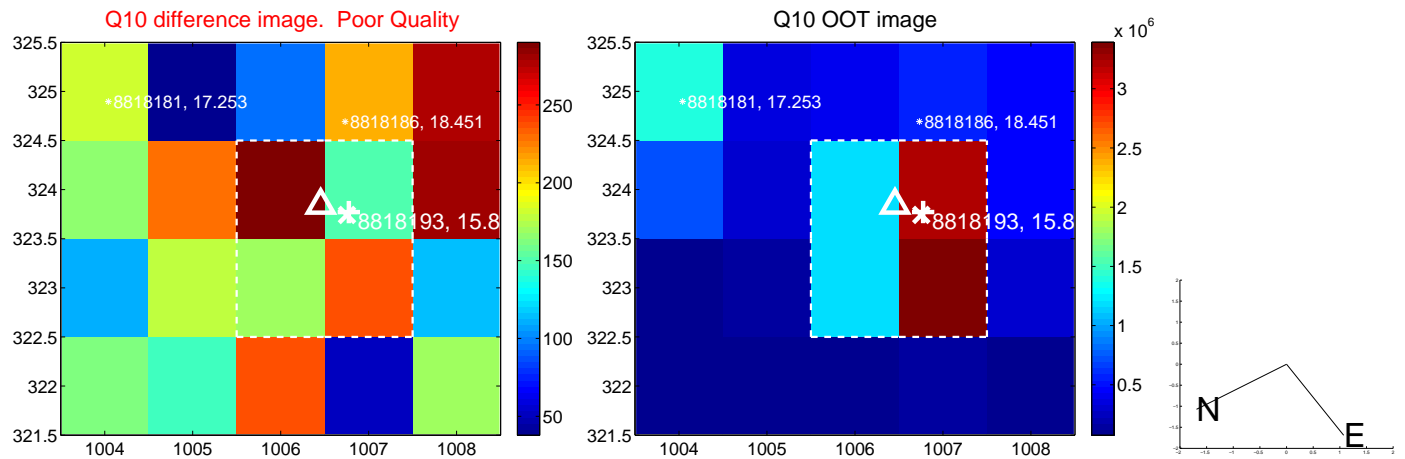
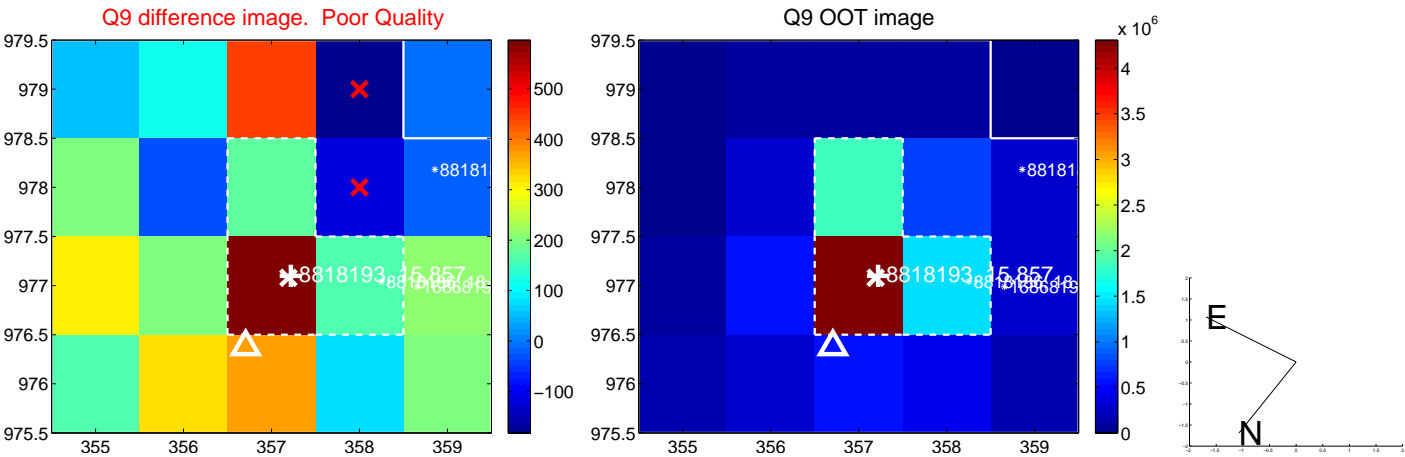


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

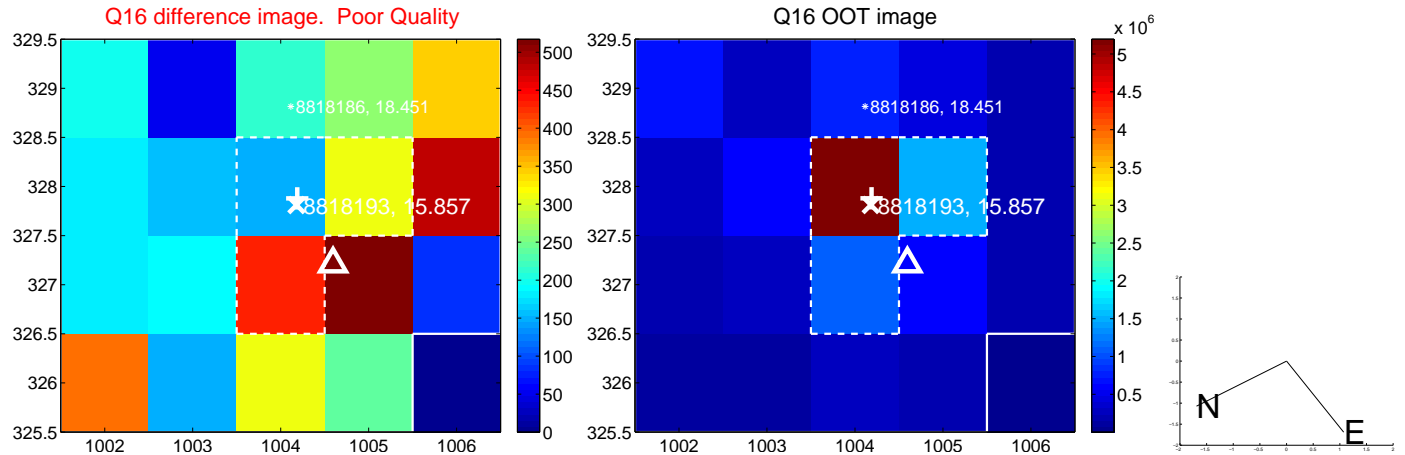
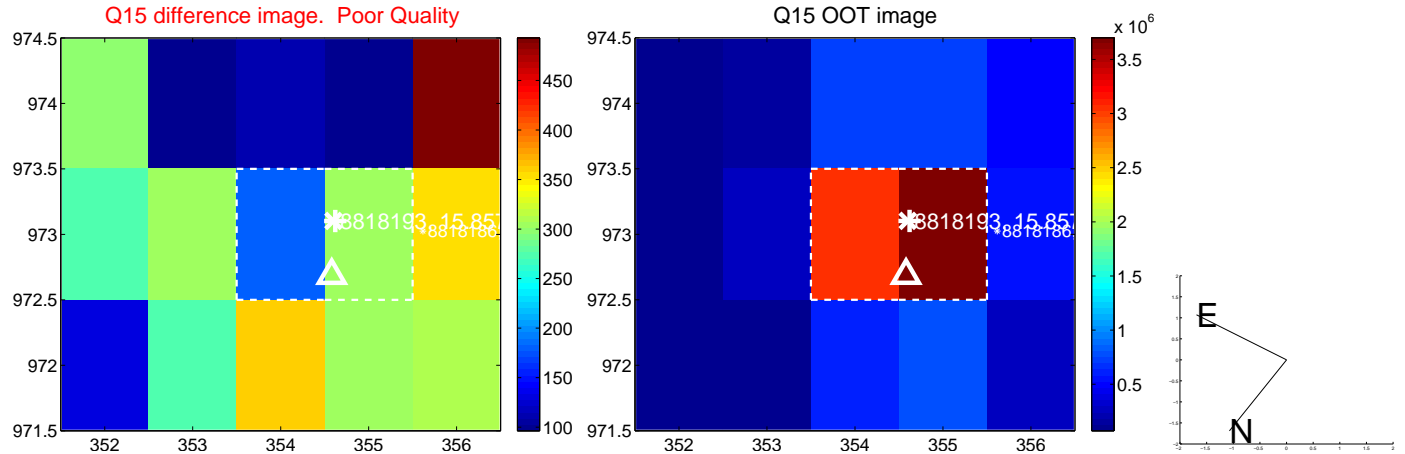
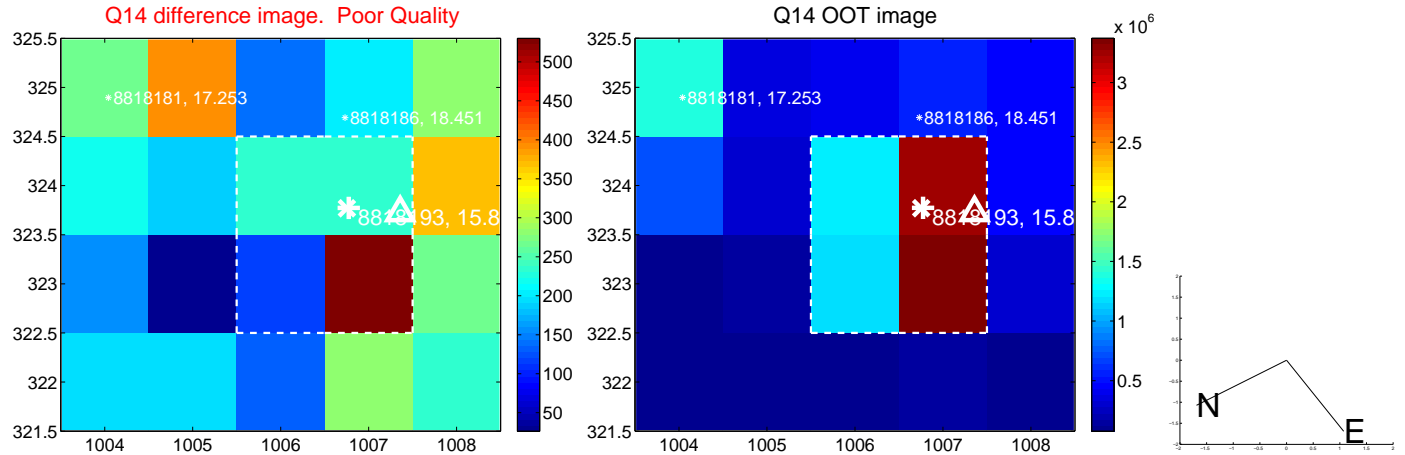
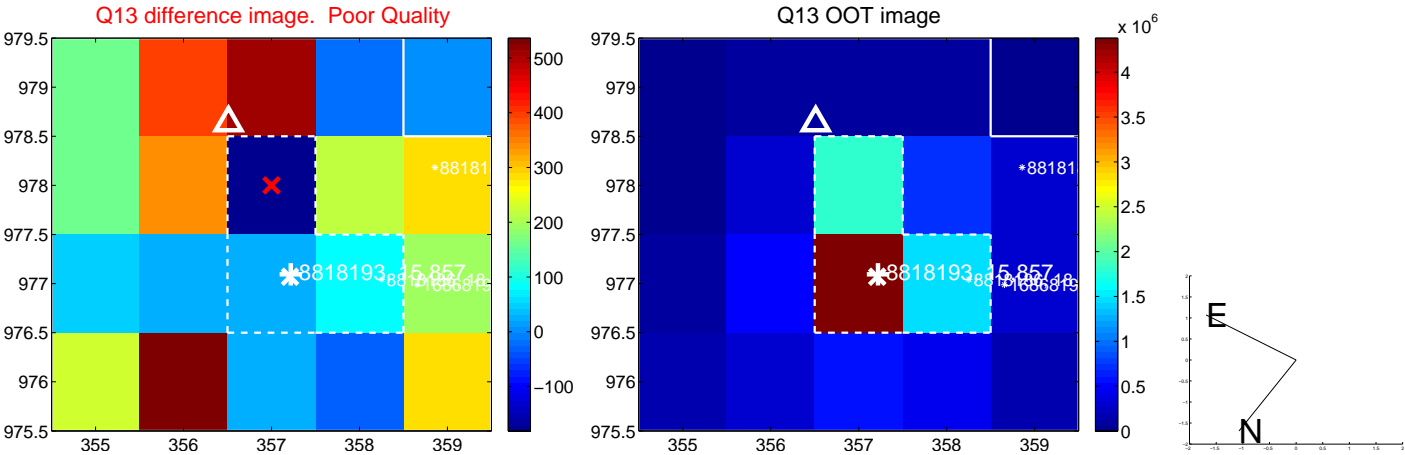




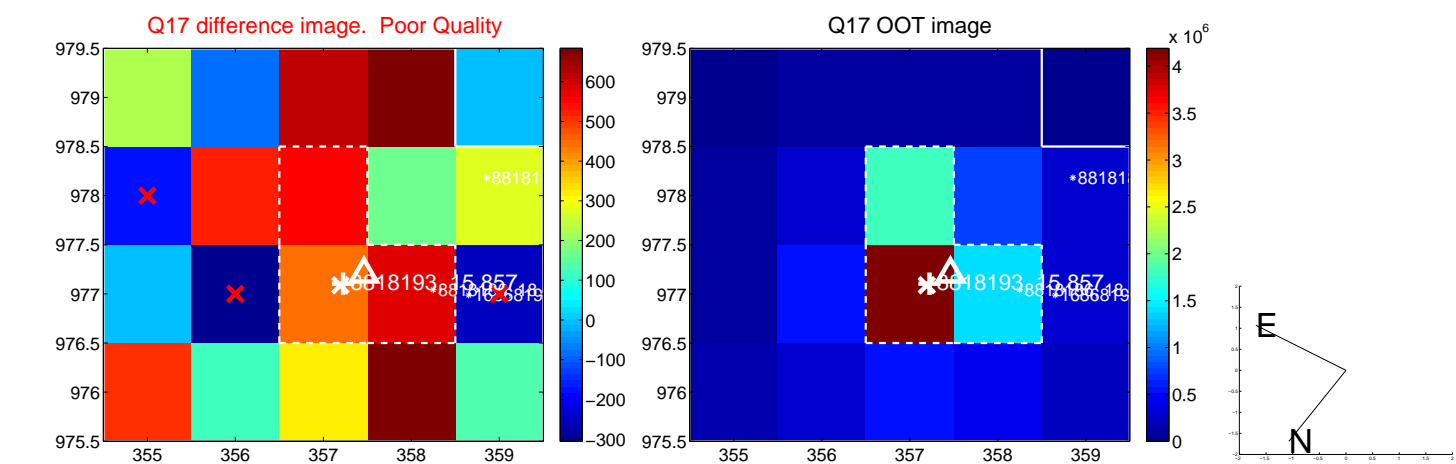
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



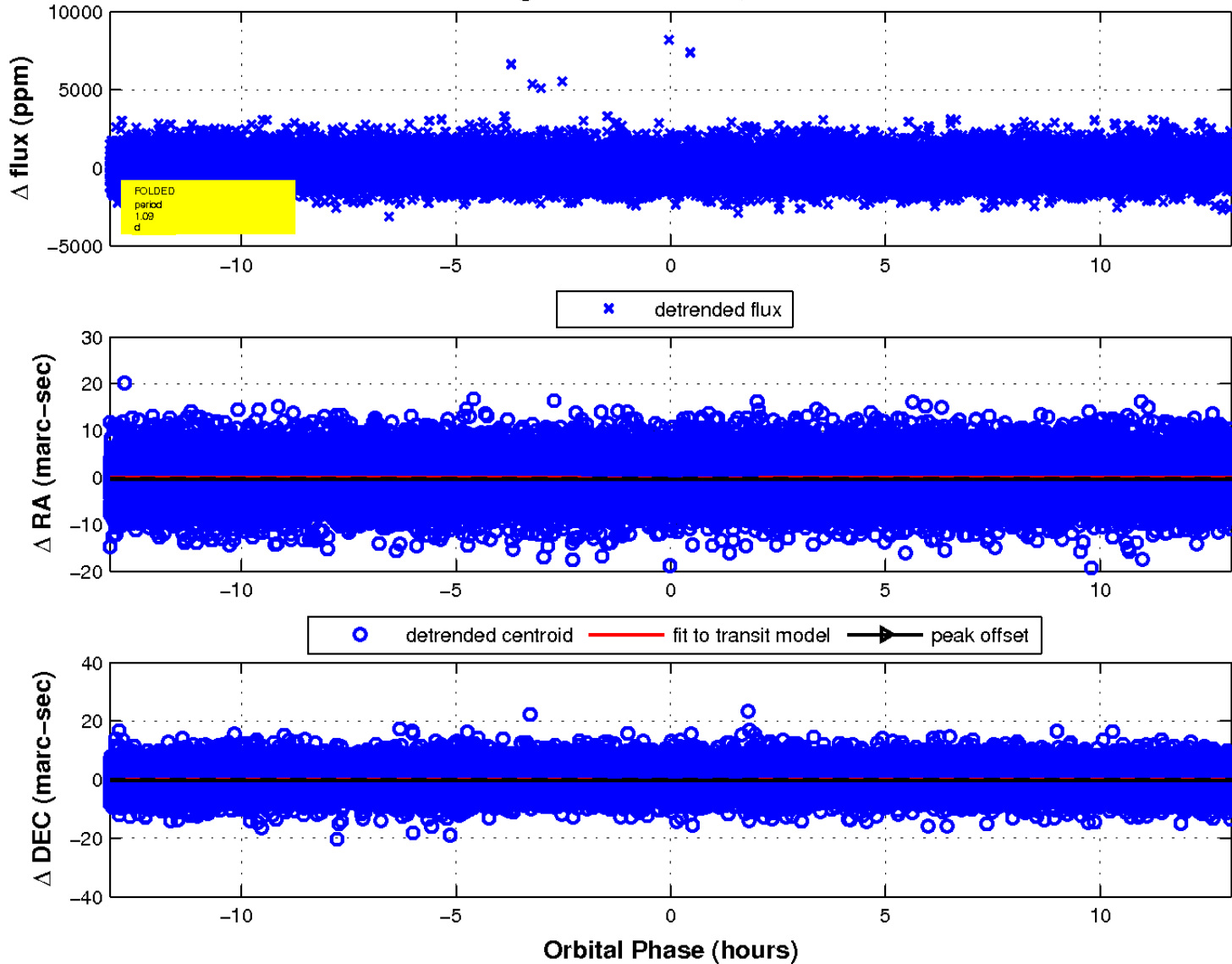
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

