

# KIC 008772391

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008772391-01	OBS	No	0.634734	131.526886	17.1	1.619	8.1	8.7	3.57	7530	1.72	108327.79

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008772391-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—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.

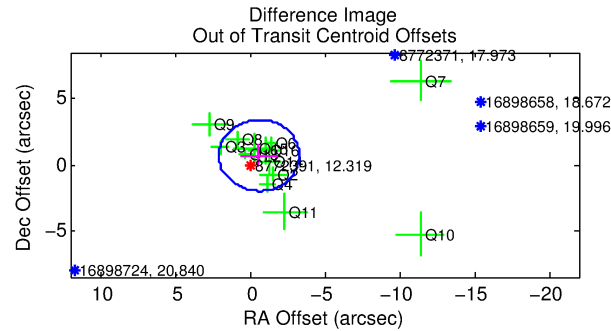
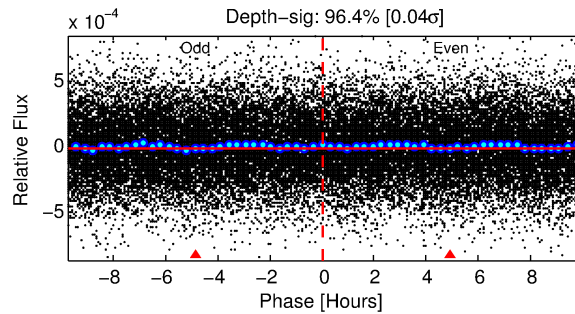
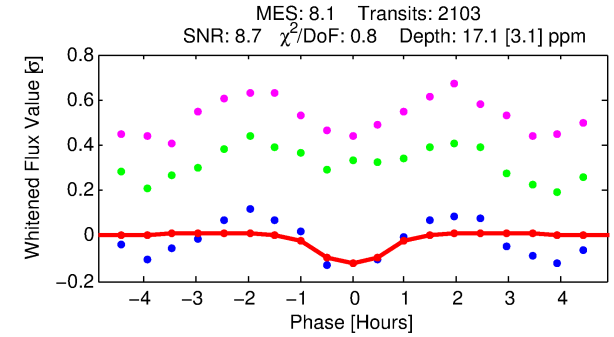
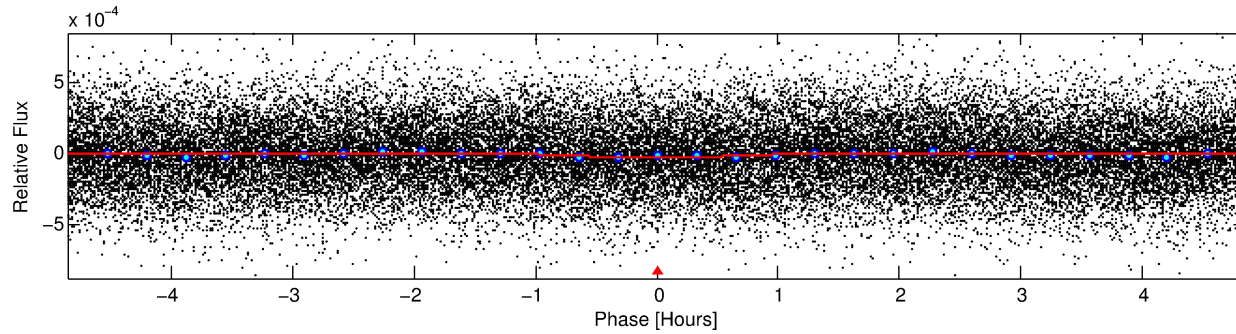
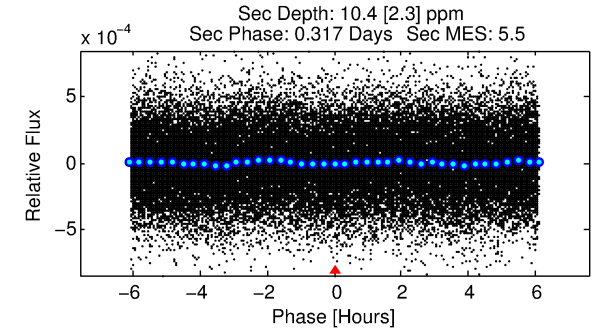
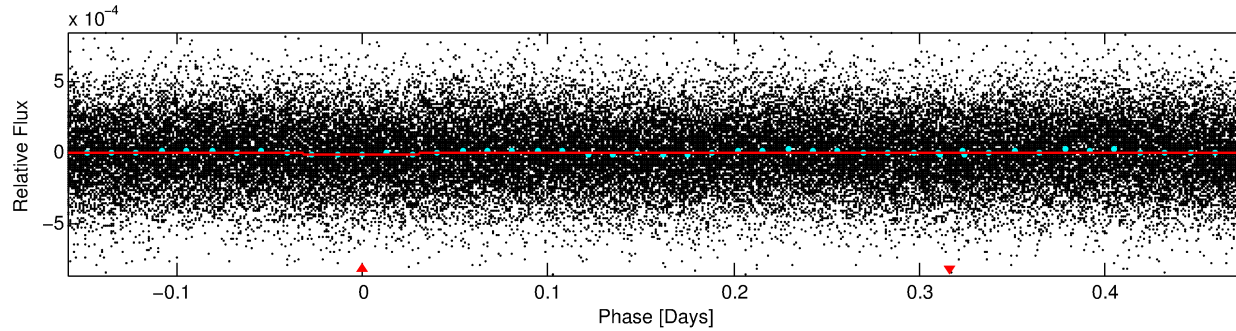
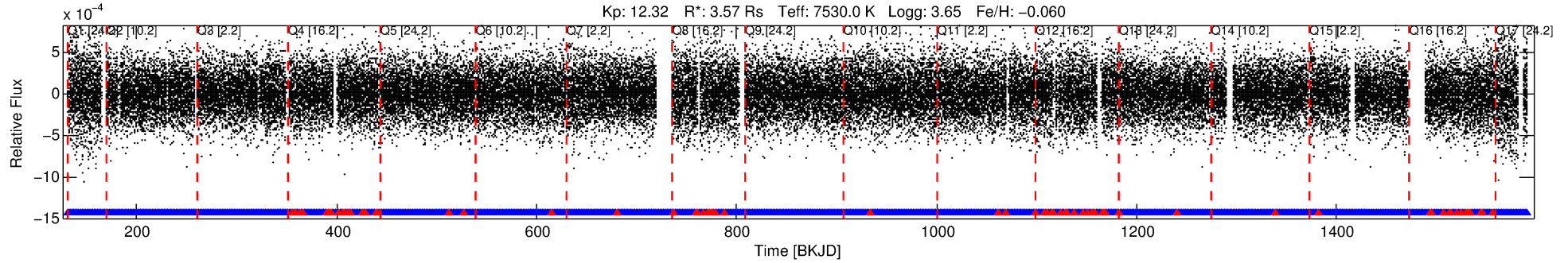
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008772391-01

No Significant Match Found

# DV One-Page Summary

KIC: 8772391 Candidate: 1 of 1 Period: 0.635 d



## DV Fit Results:

Period = 0.63473 [0.00001] d  
Epoch = 131.5269 [0.0034] BKJD  
Rp/R\* = 0.0044 [0.0013]  
a/R\* = 1.63 [1.84]  
b = 0.90 [0.39]  
Seff = 108327.79 [89804.29]  
Teq = 4626 [959] K  
Rp = 1.72 [0.97] Re  
a = 0.0184 [0.0090] AU  
Ag = 0.65 [0.67] [-0.51σ]  
Teffp = 6432 [1058] K [1.27σ]

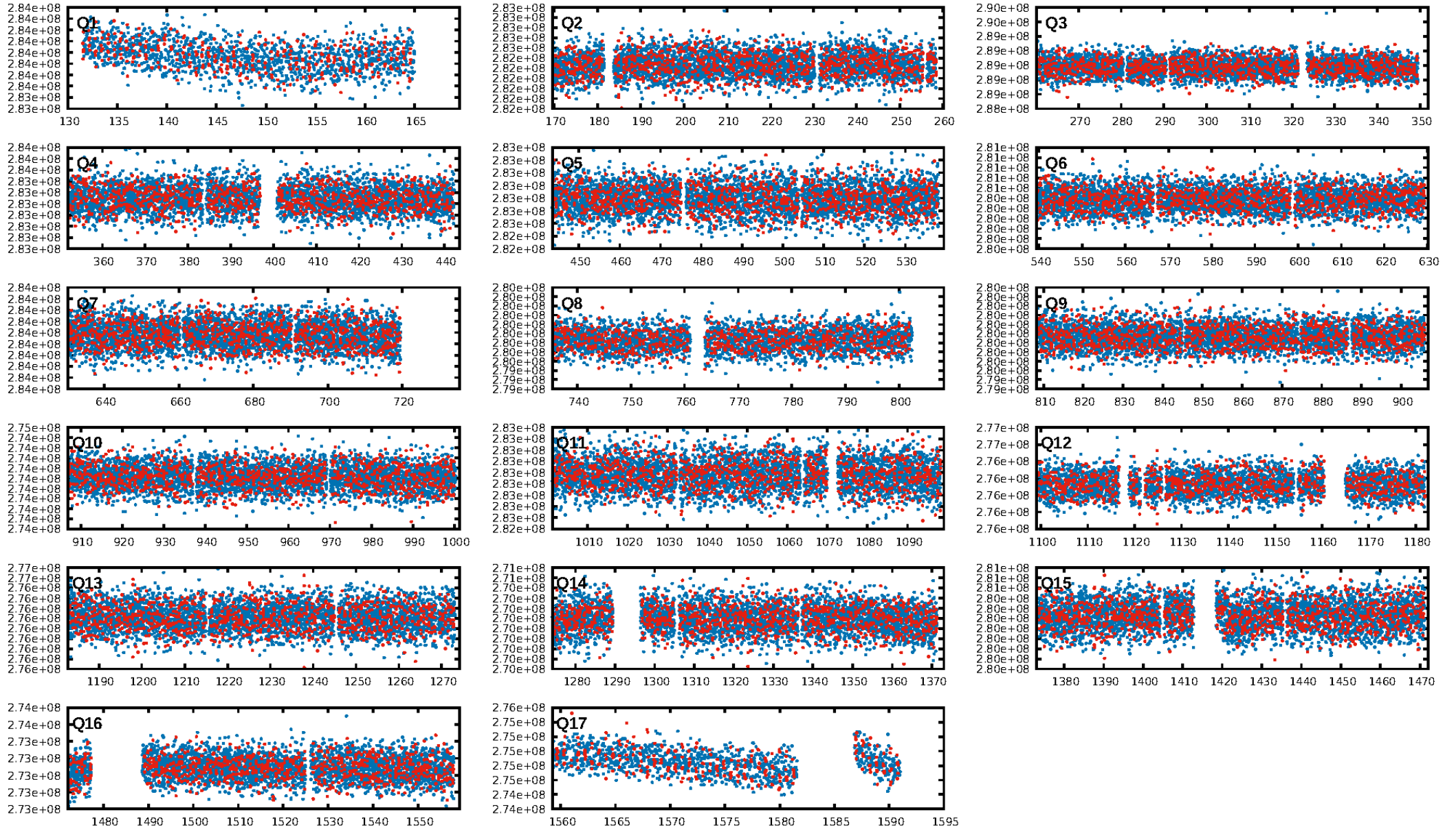
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGoF-sig: N/A  
Bootstrap-pfa: 3.45e-19  
RollingBand-fgt: 0.96 [1936/2008]  
**GhostDiagnostic-chr: 0.3661**  
Centroid-sig: 22.8%  
Centroid-so: 0.889 arcsec [1.10σ]  
OotOffset-rm: 0.924 arcsec [1.03σ]  
KicOffset-rm: 0.995 arcsec [1.00σ]  
OotOffset-st: 4/4/3/2 [13]  
KicOffset-st: 4/4/3/2 [13]  
DiffImageQuality-fgm: 0.46 [6/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:34:23 Z

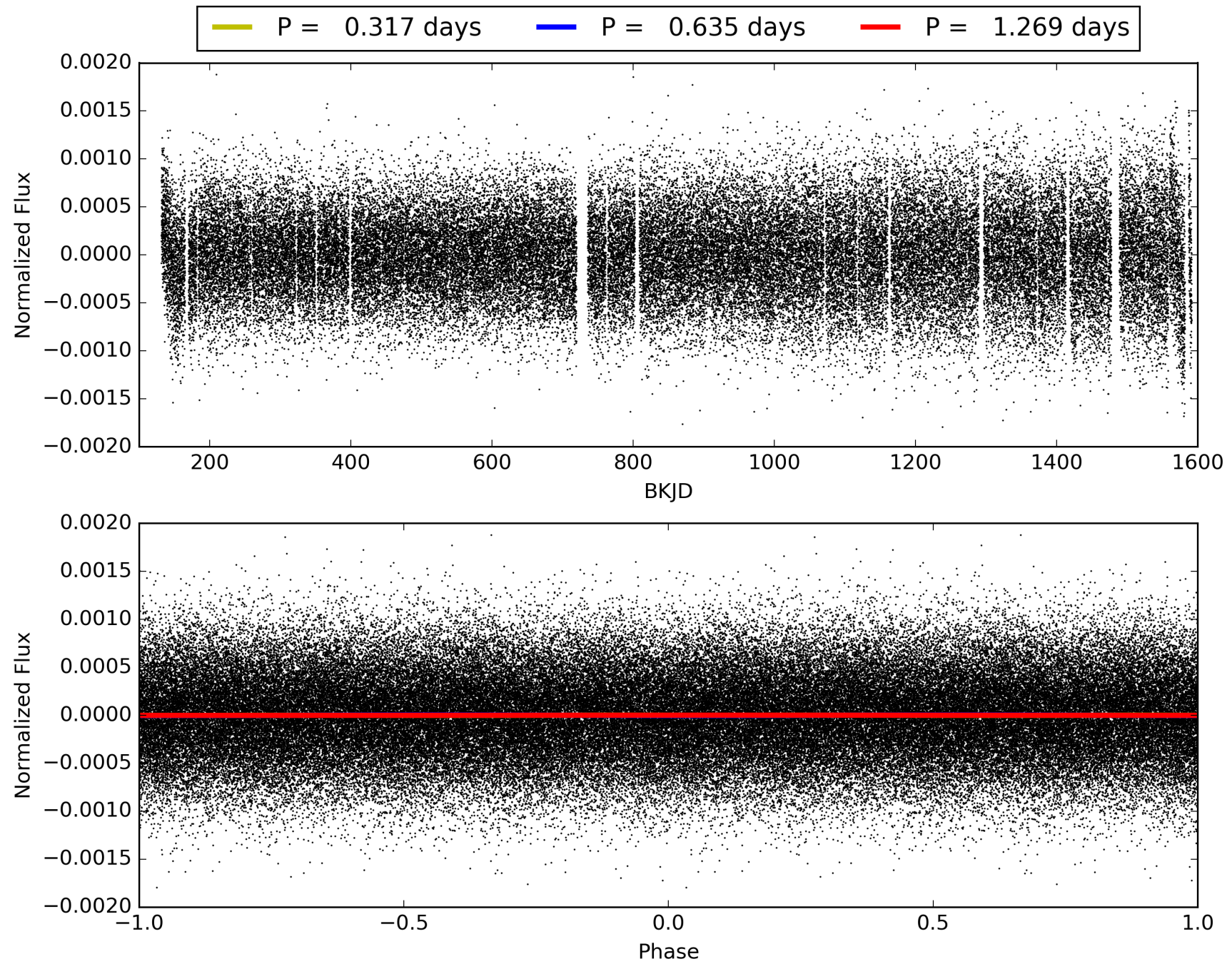
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008772391-01, PDC Light Curves



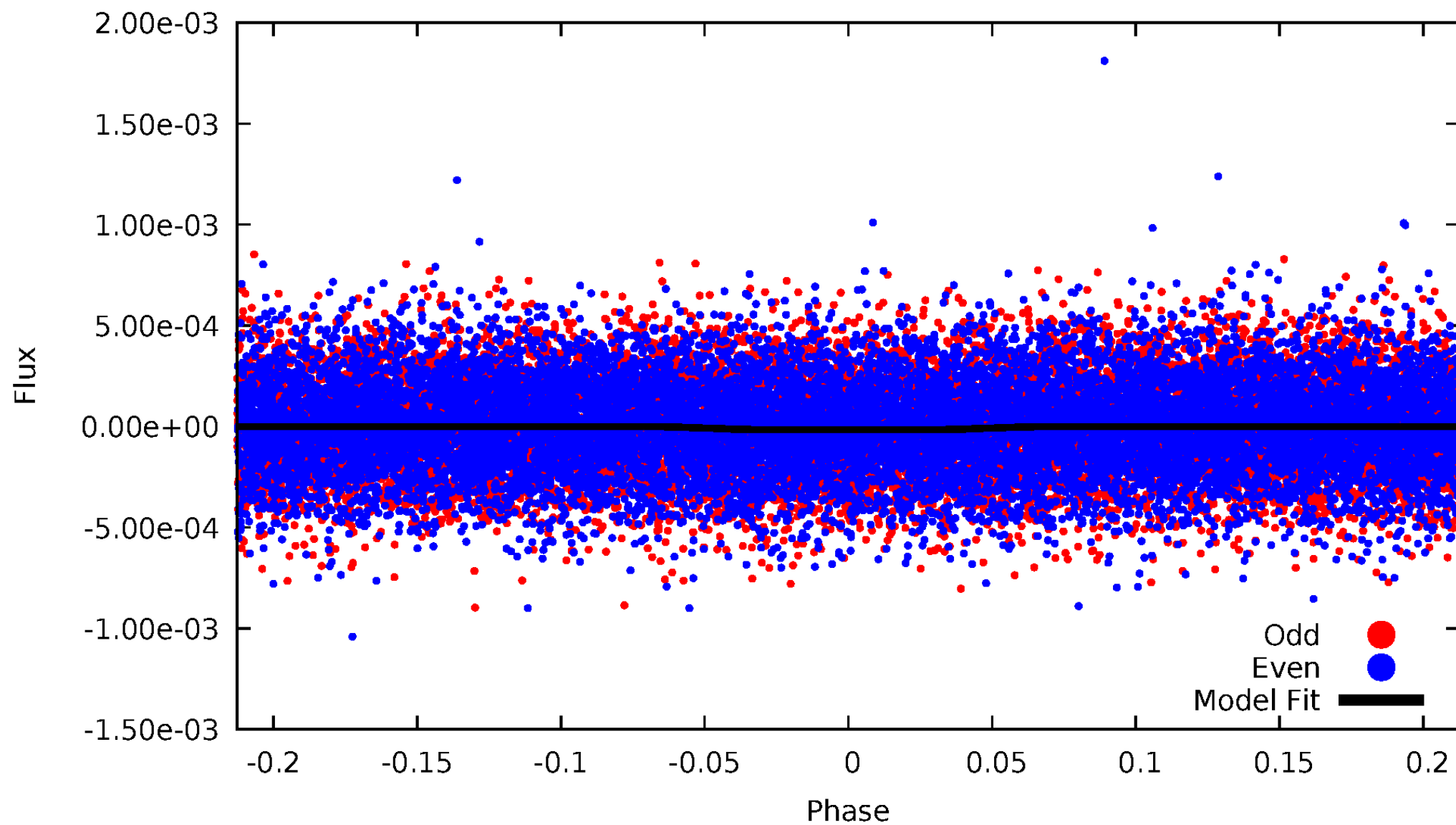


TCE 008772391-01



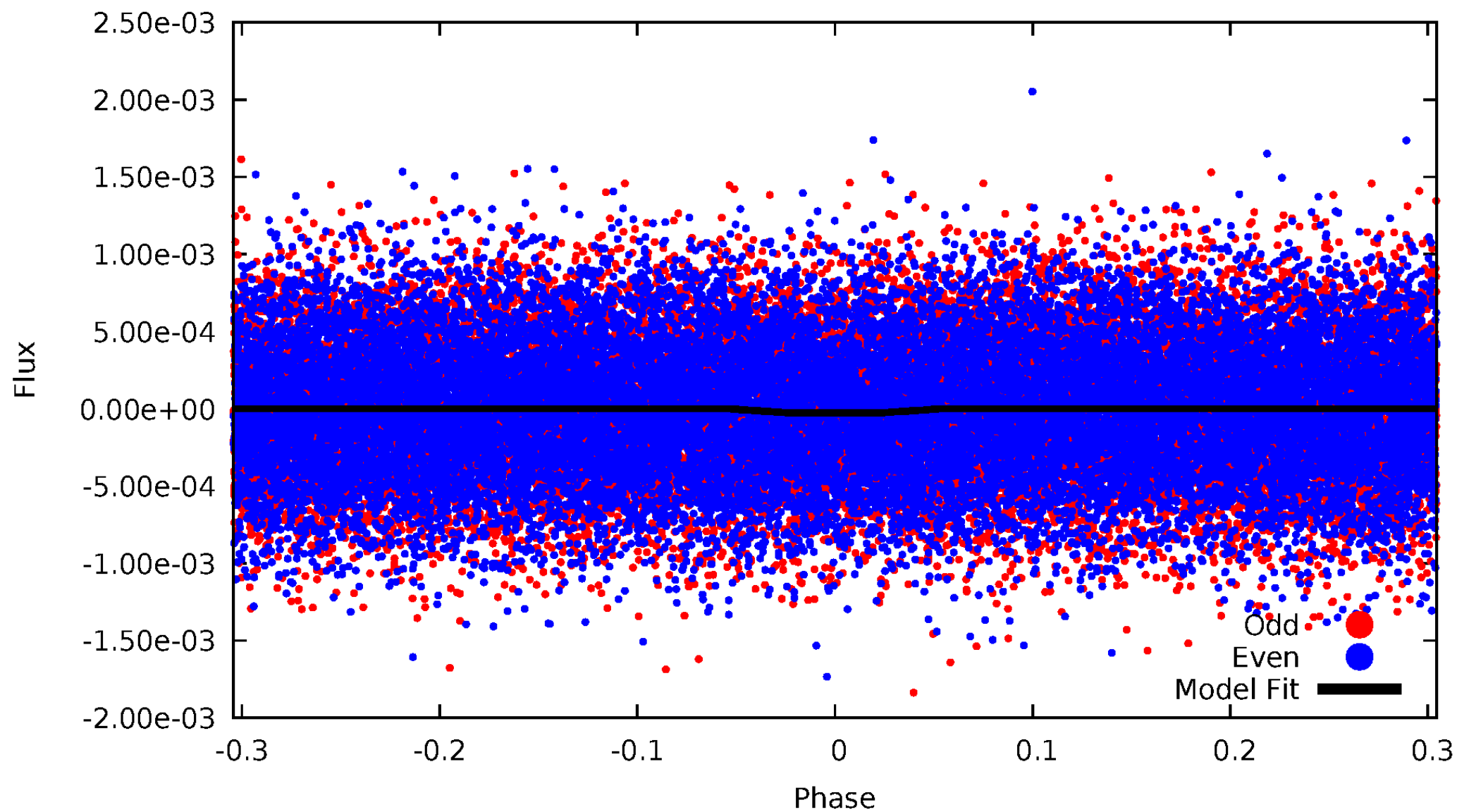
# DV Odd/Even

TCE 008772391-01



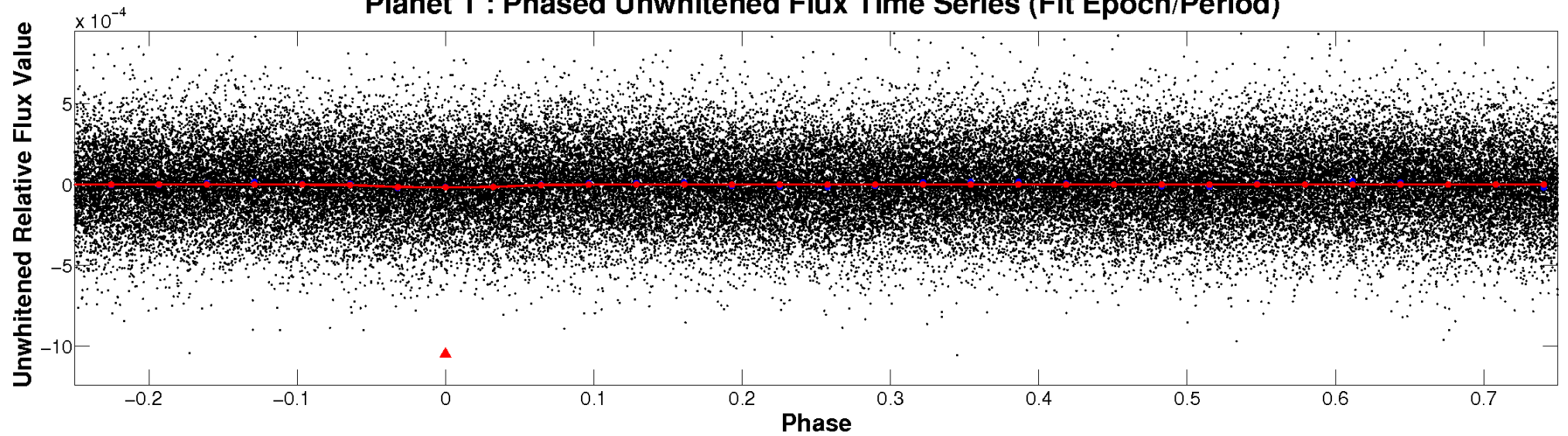
# ALT Odd/Even

TCE 008772391-01

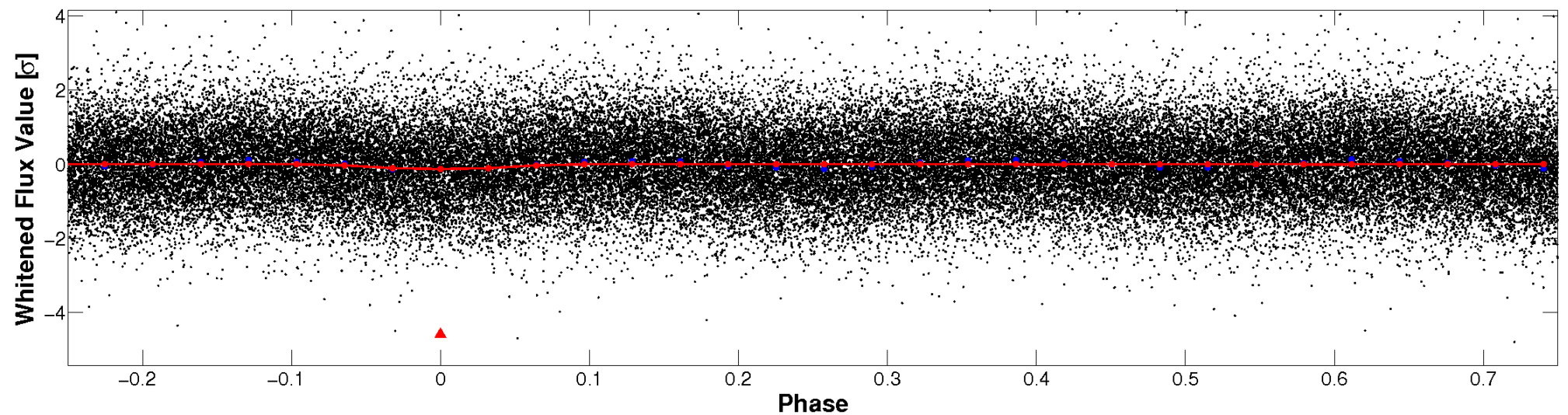


# Non-Whitened Vs. Whitened Light Curve

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



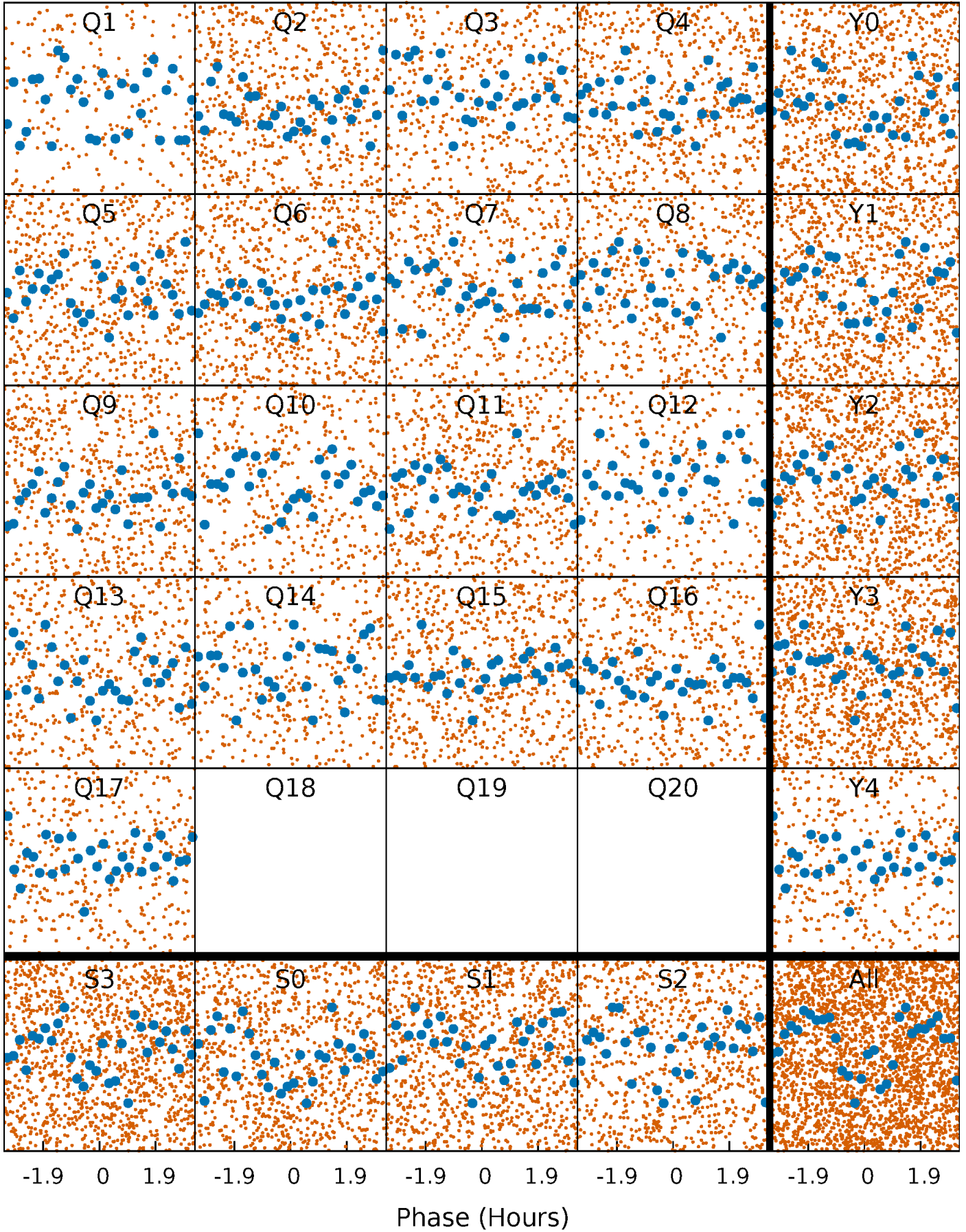
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

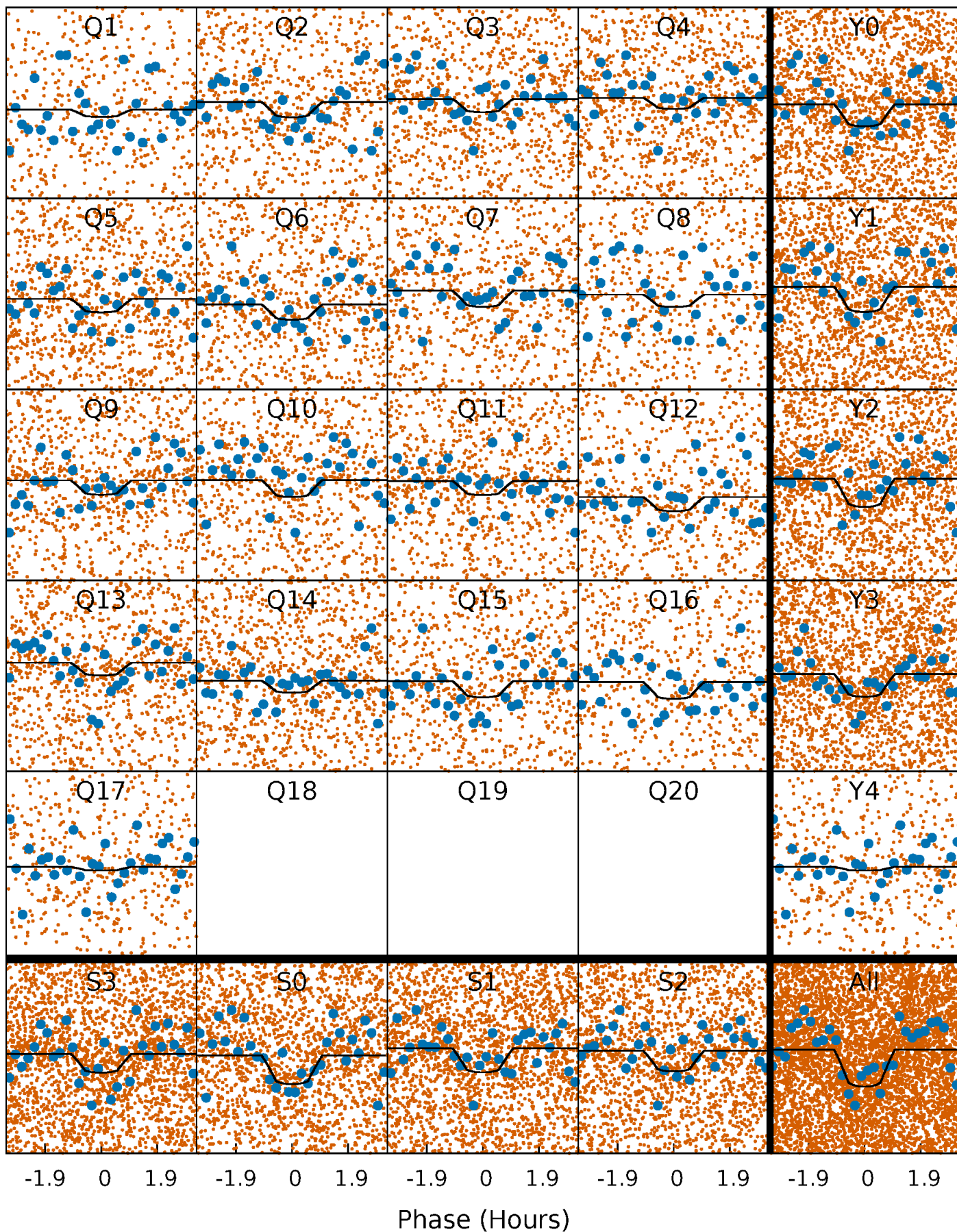
TCE 008772391-01   P= 0.634734 Days    $T_0=131.526886$  (BKJD)





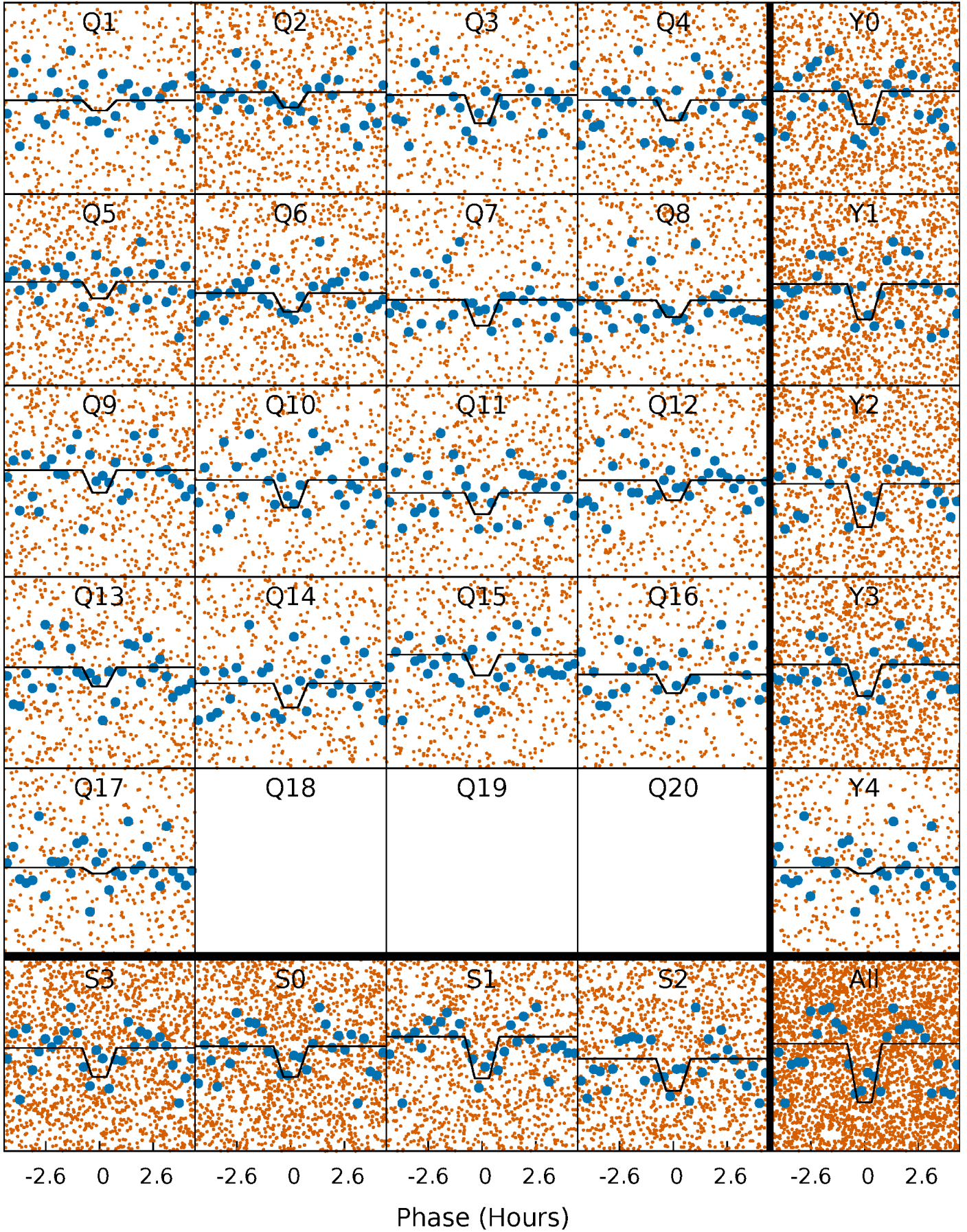
# DV Quarter-Phased Transit Curves

TCE 008772391-01 P= 0.634734 Days  $T_0=131.526886$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

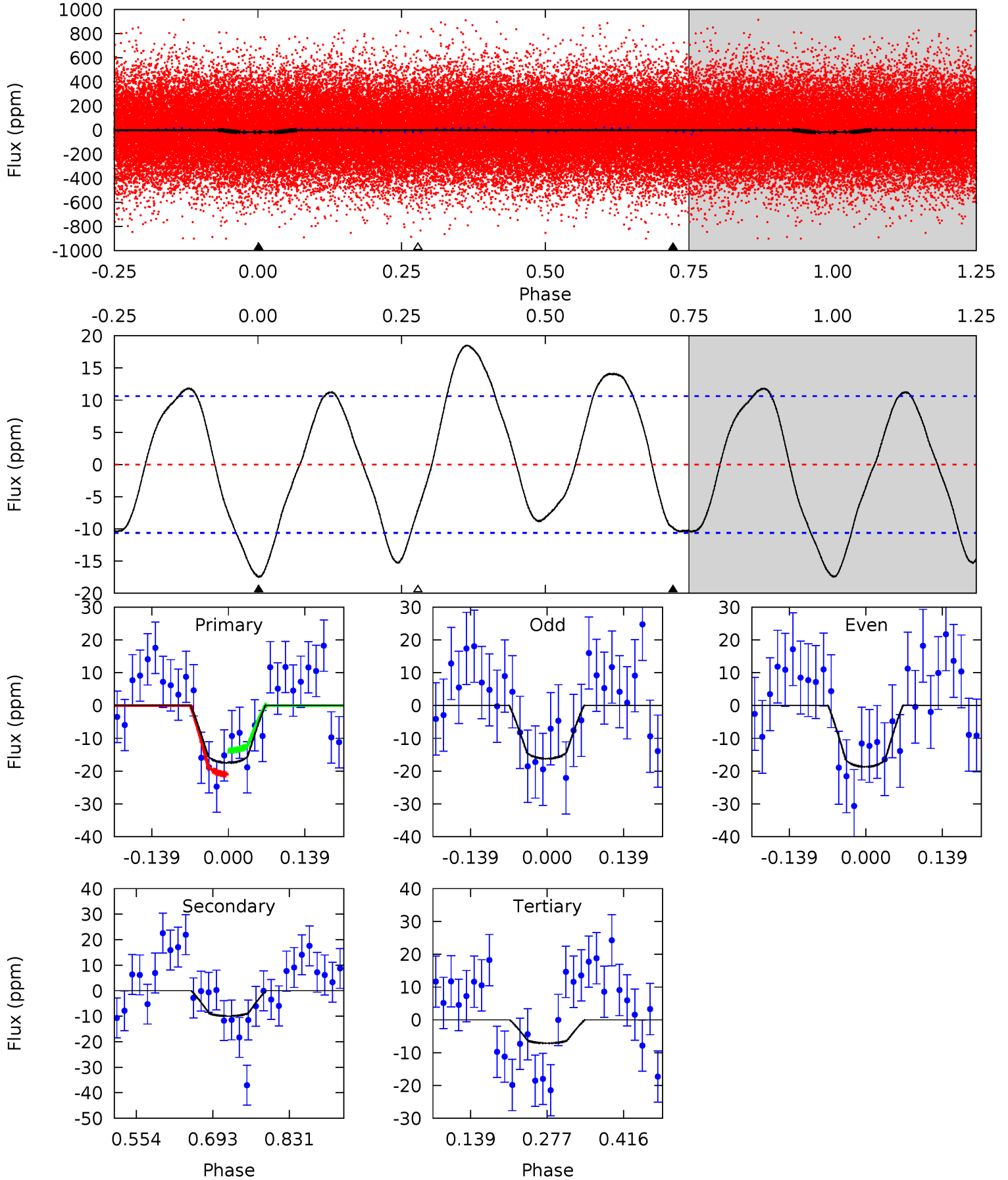
TCE 008772391-01 P= 0.634728 Days  $T_0=131.532665$  (BKJD)



# DV Model-Shift Uniqueness Test

008772391-01, P = 0.634734 Days, E = 130.892152 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
7.41	4.20	3.01	0	4.50	1.48	4.08	4.40	7.41	1.19	4.20	0.52	1.09	0.51	1.51

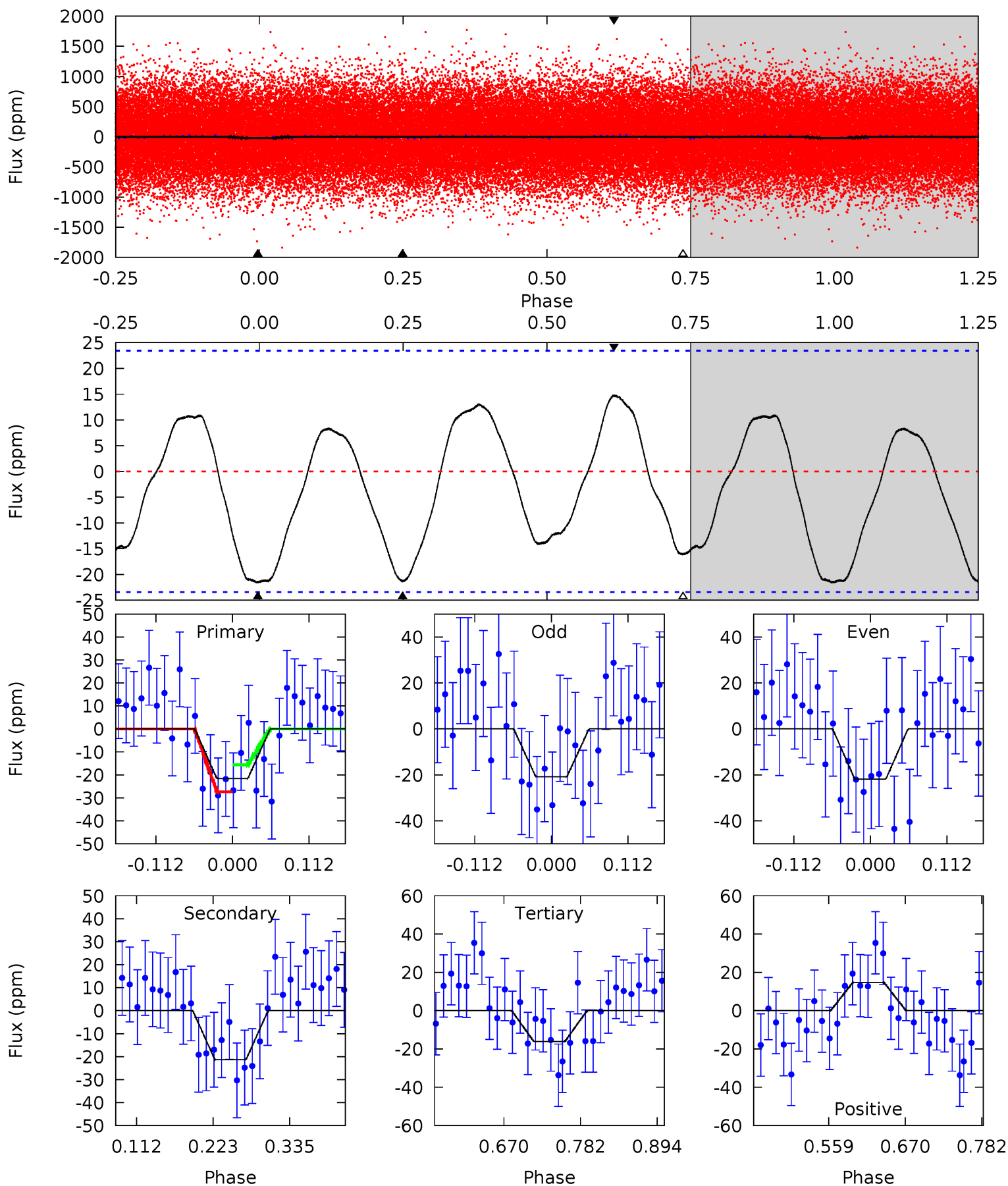




# Alt Model-Shift Uniqueness Test

008772391-01, P = 0.634728 Days, E = 130.897937 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
4.18	4.14	3.12	2.86	4.54	1.59	1.95	1.06	1.32	1.02	1.28	0.10	0.92	0.41	1.14





### Stellar Parameters For KIC 008772391

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7530^{+210}_{-315}$	$3.647^{+0.486}_{-0.081}$	$-0.060^{+0.200}_{-0.300}$	$3.566^{+0.457}_{-1.714}$	$2.059^{+0.241}_{-0.562}$	$0.064^{+0.305}_{-0.017}$
	+3%/-4%	+13%/-2%	+333%/-500%	+13%/-48%	+12%/-27%	+477%/-27%
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 008772391-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-10 \pm 2$	$1.56^{+0.61}_{-0.57}$	$6287^{+390}_{-824}$	$5465^{+1551}_{-1671}$	$0.769^{+1.022}_{-0.410}$
Alt.	$-21 \pm 5$	$1.84^{+0.66}_{-0.59}$	$6259^{+425}_{-767}$	$6421^{+1692}_{-1129}$	$1.158^{+1.328}_{-0.539}$

$T_{\text{max}}$  = 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

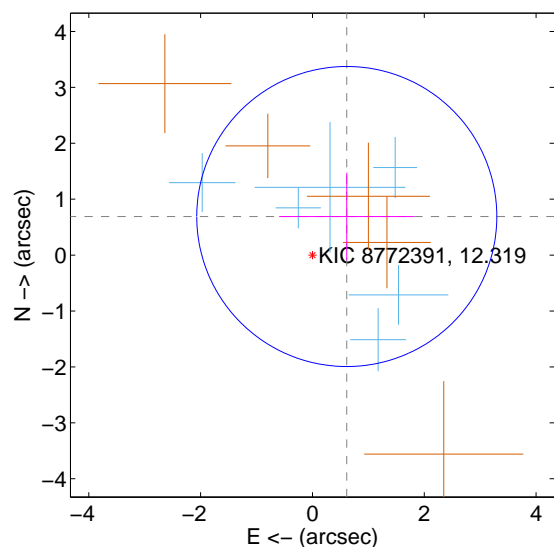
Supplemental centroid analysis for 008772391-01. Kepler magnitude: 12.32. Transit SNR 8.66

There are 6 quarters with good PRF difference image offsets

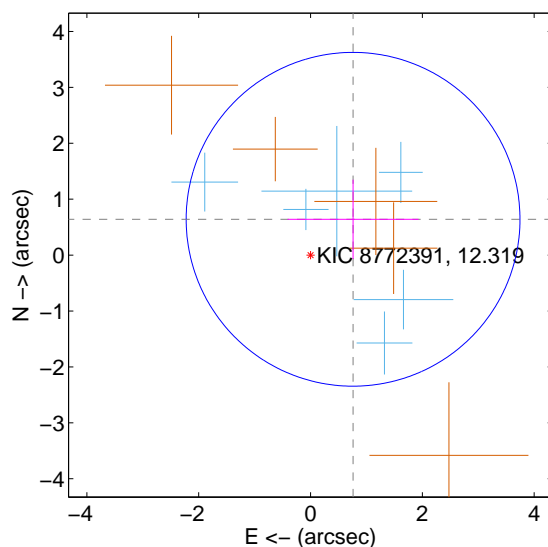
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.924 \pm 0.895$	1.03	$-0.614 \pm 1.209$	$0.690 \pm 0.784$
PRF-fit source offset from KIC position	$0.995 \pm 0.995$	1.00	$-0.761 \pm 1.171$	$0.641 \pm 0.709$
photometric centroid source offset	$0.89 \pm 0.81$	1.10	$0.50 \pm 0.86$	$-0.73 \pm 0.79$

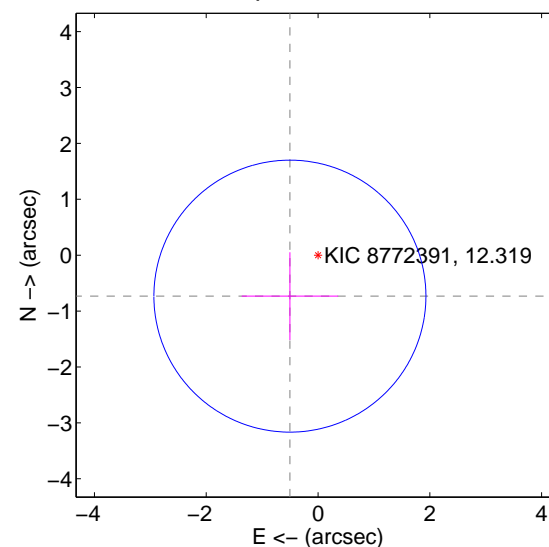
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

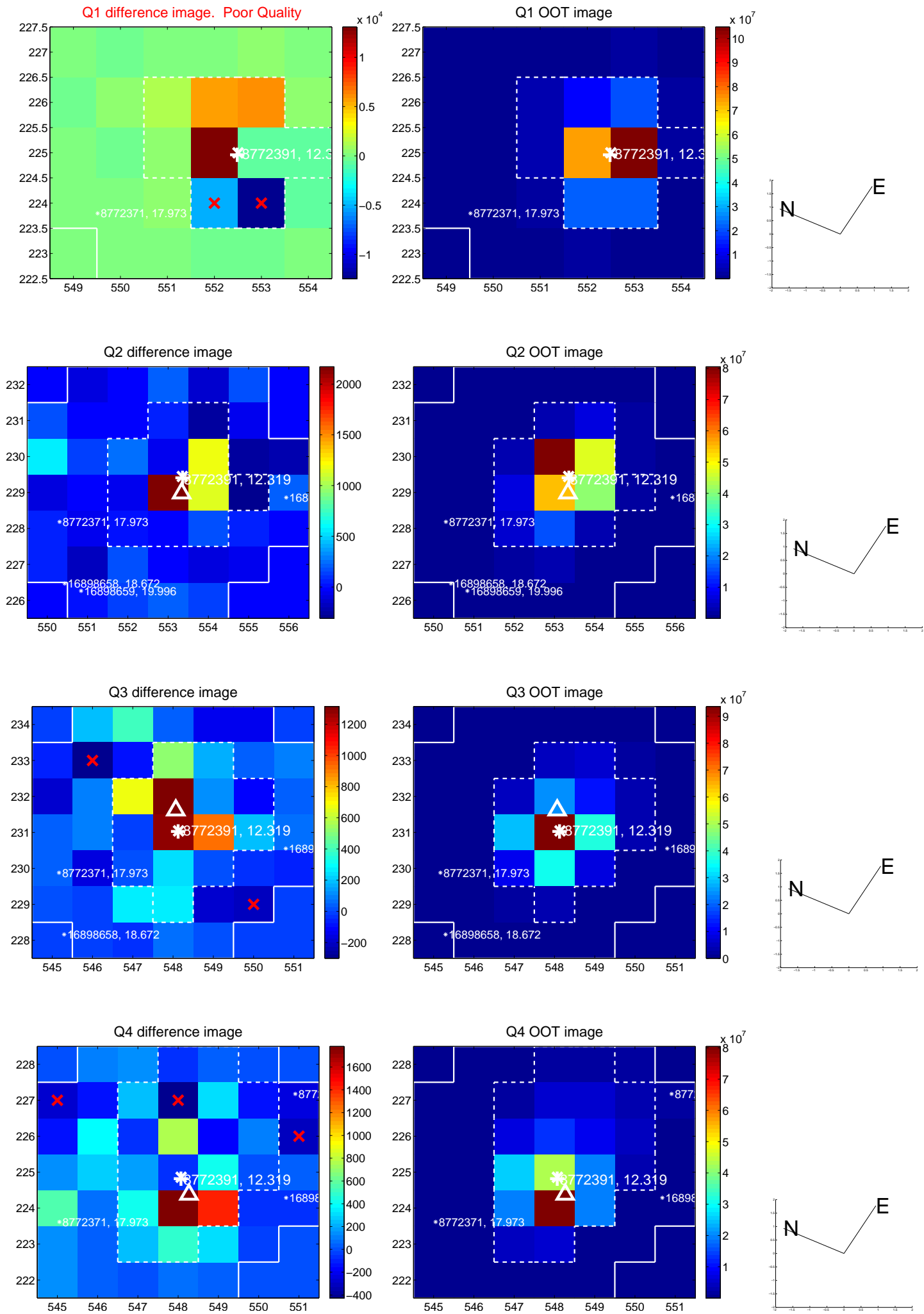


offset from photometric centroids

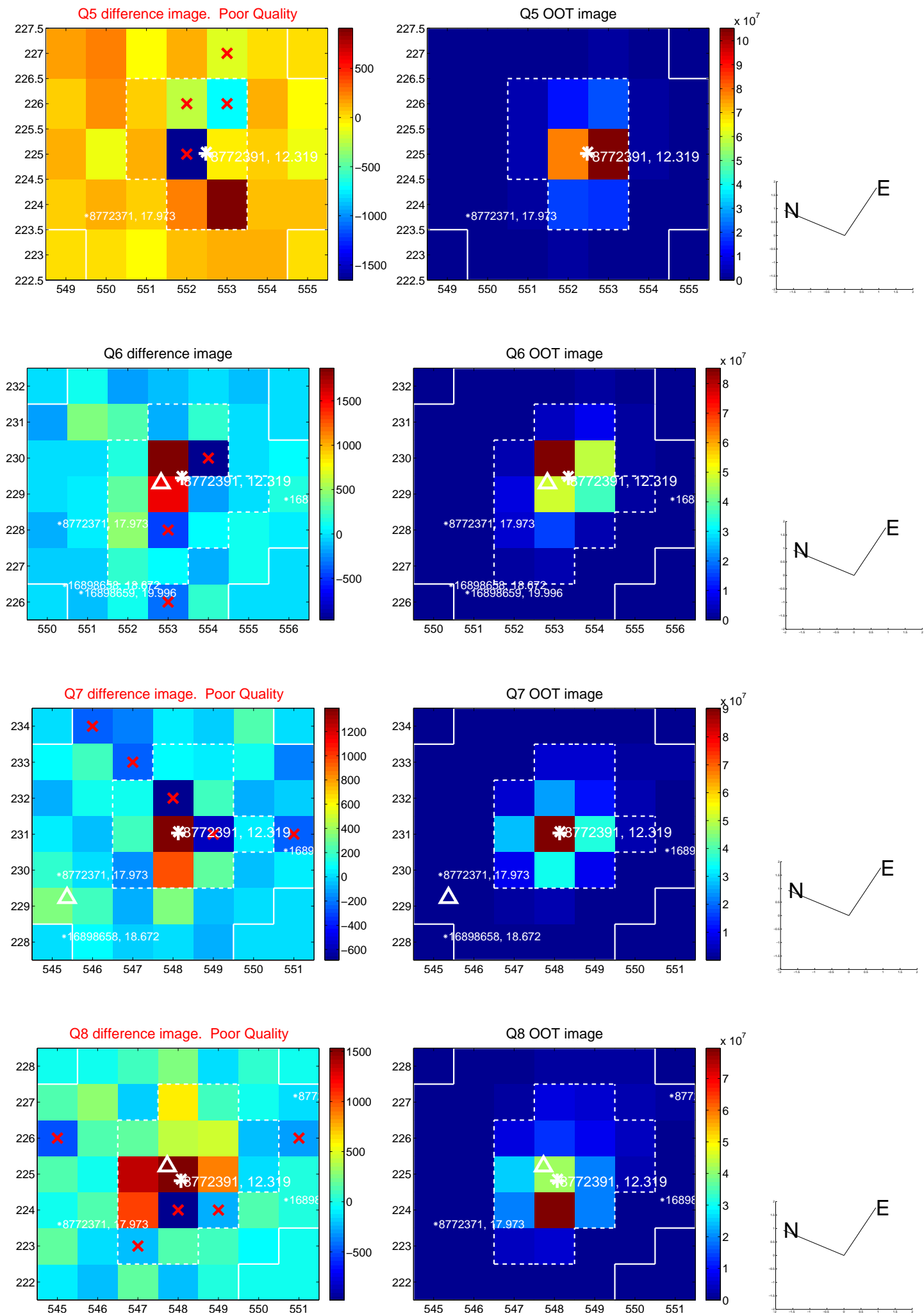


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

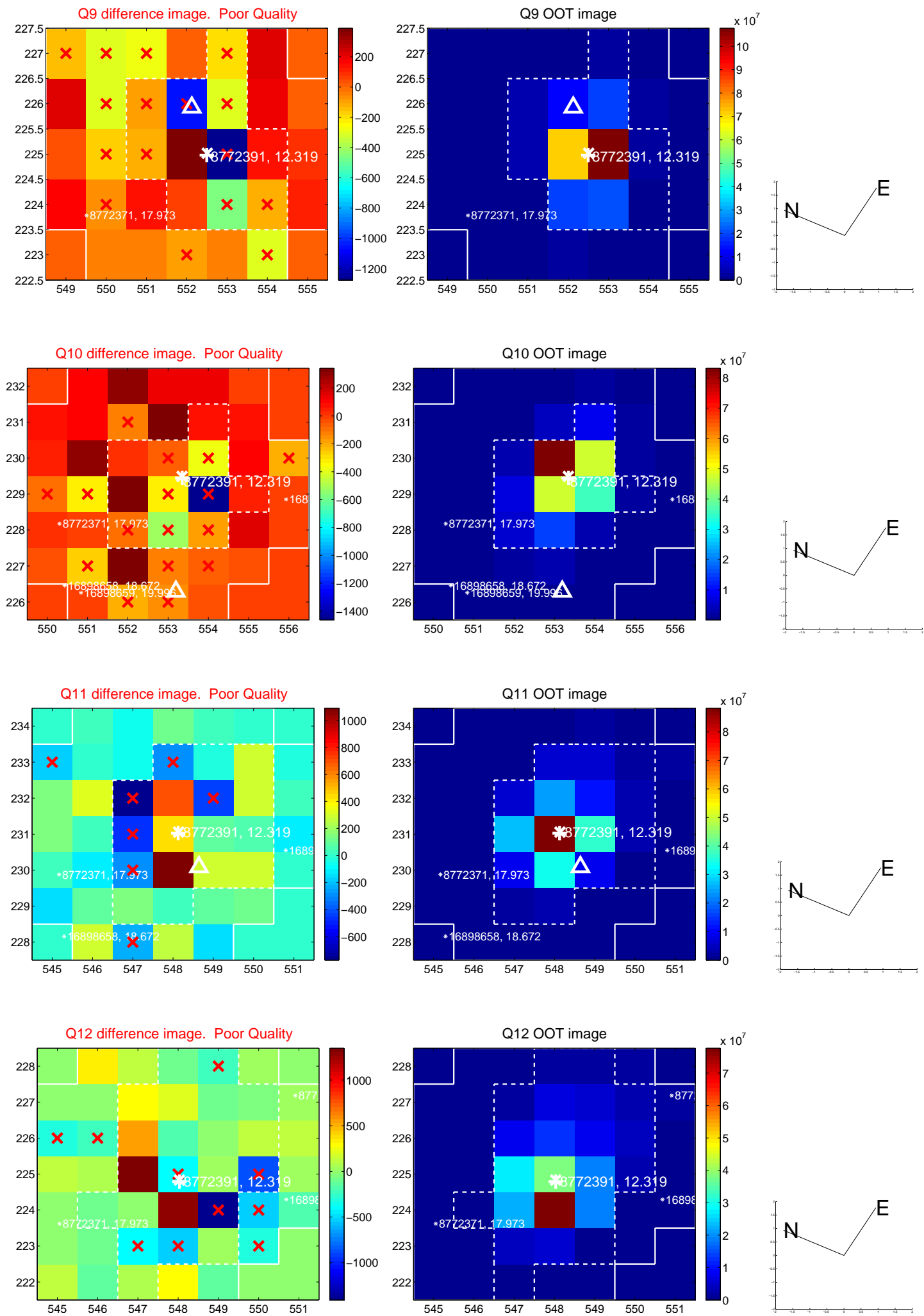


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

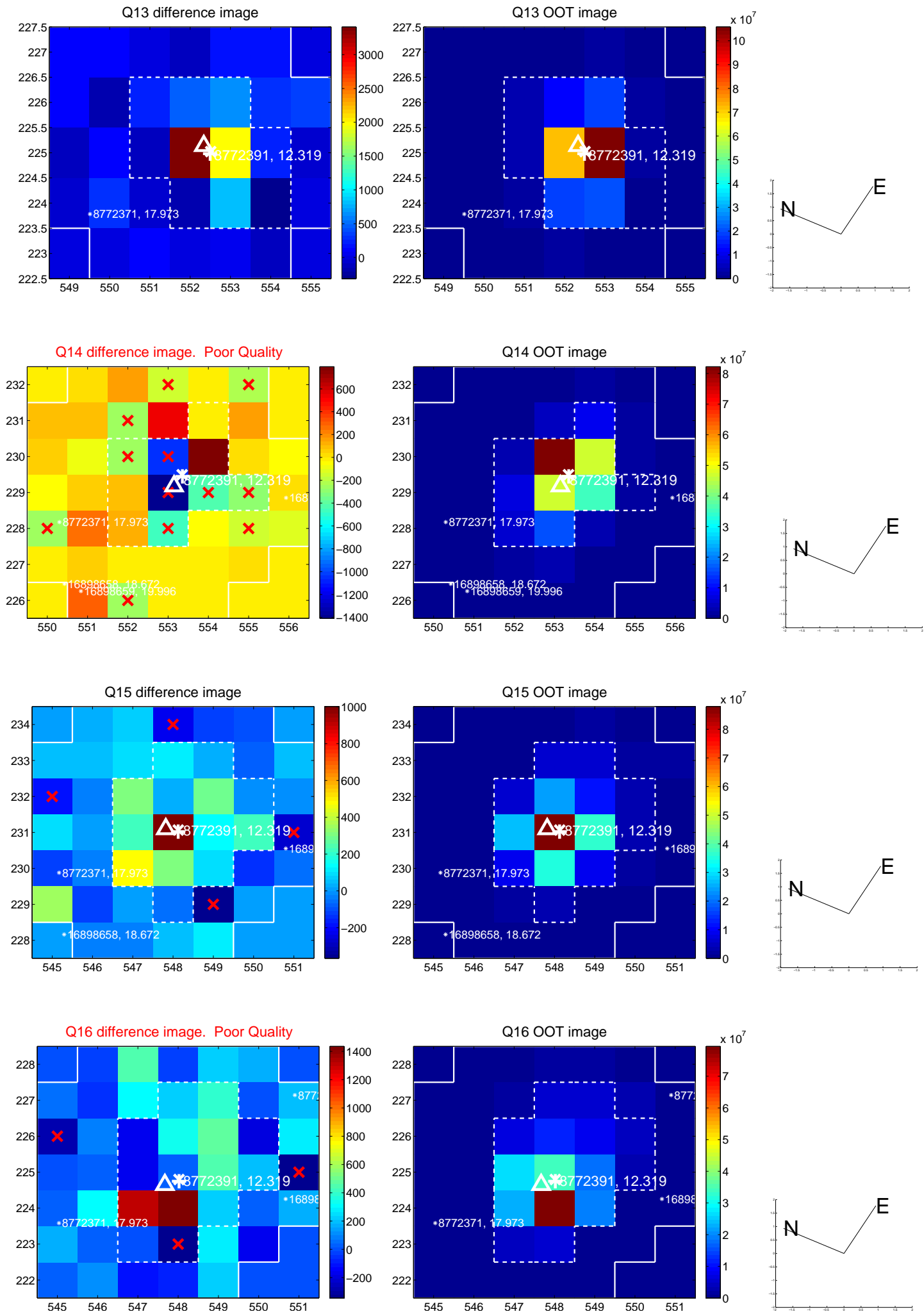




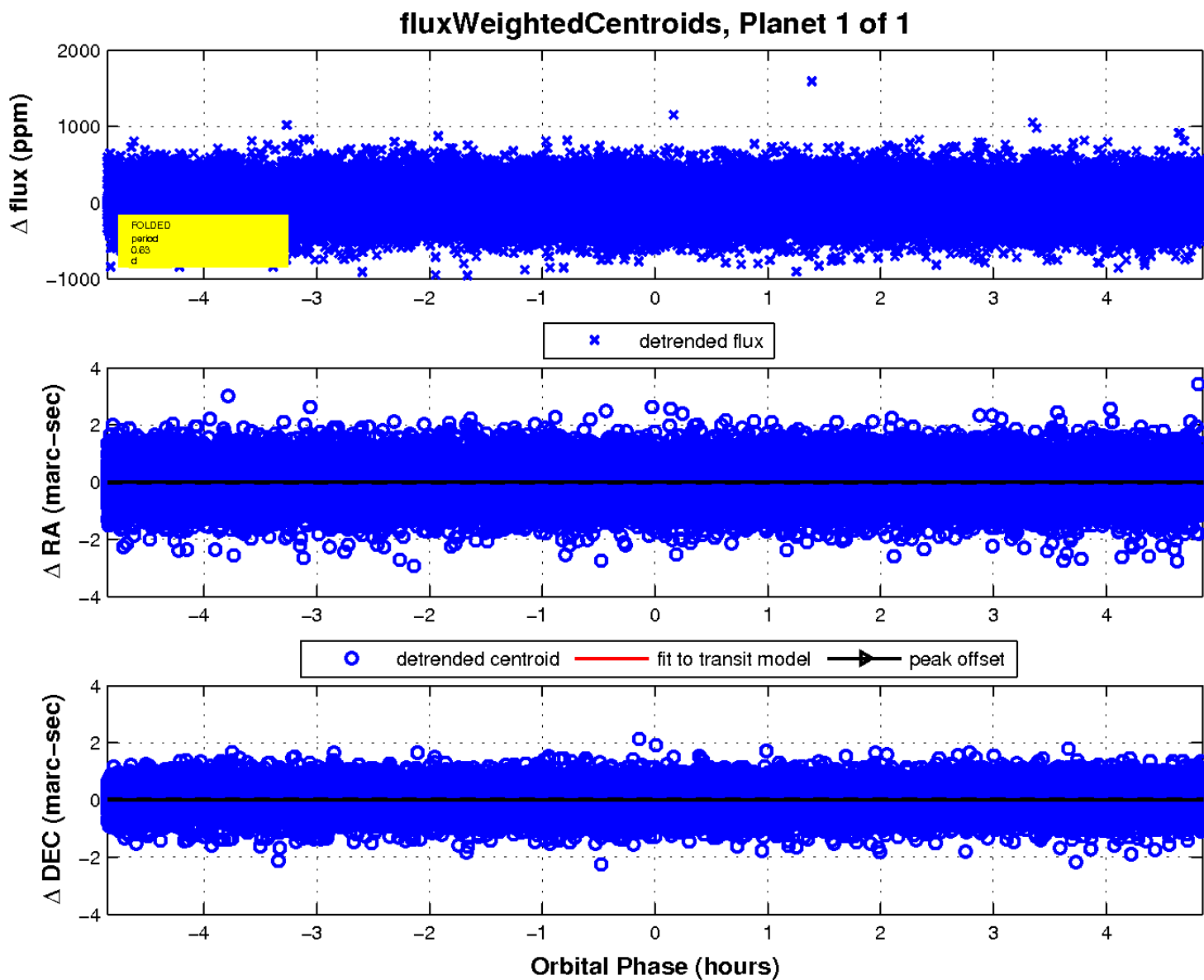
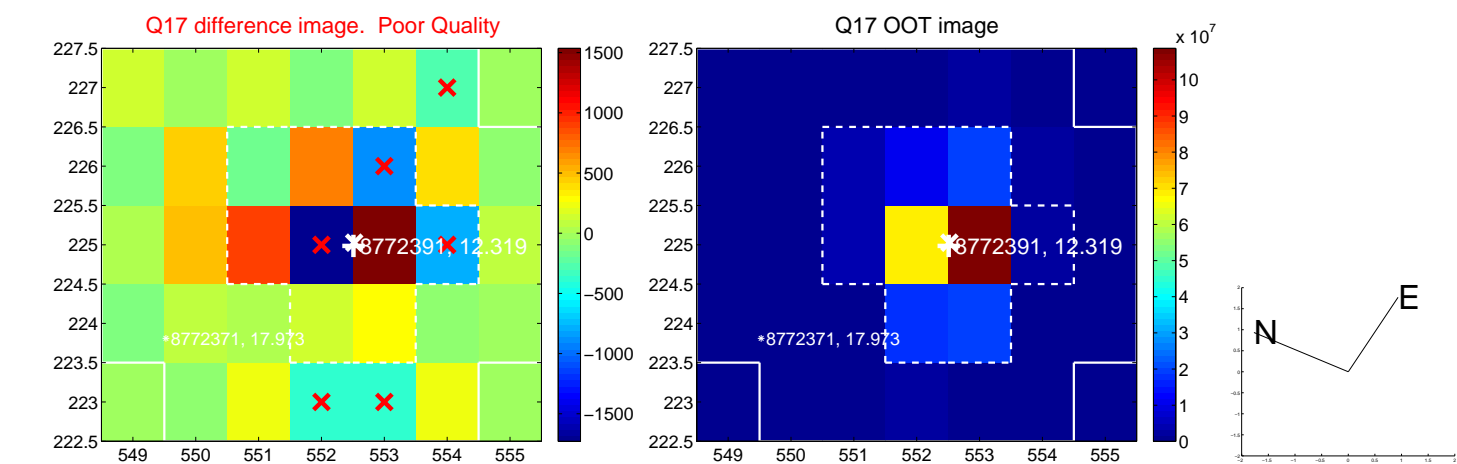
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

