

# KIC 010140122

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010140122-01	OBS	4545.01	0.849372	132.133226	113.0	1.293	10.1	11.3	0.79	4973	1.03	1191.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010140122-01	OBS	PC	0.62	0	0	0	0	CENT_FEW_DIFFS

**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 010140122-01

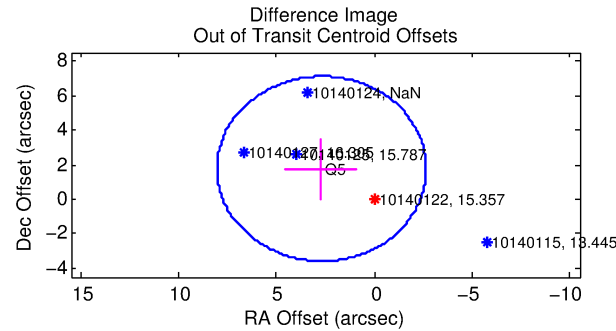
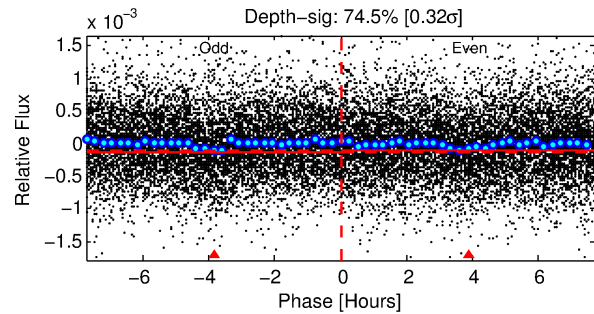
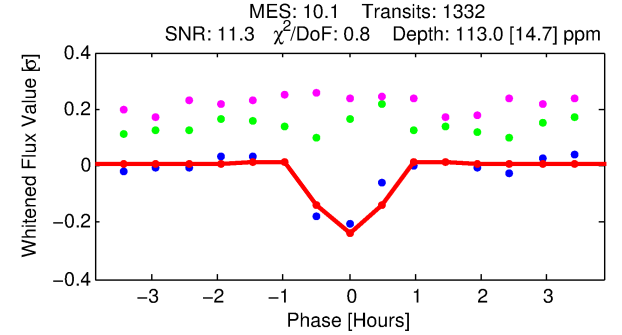
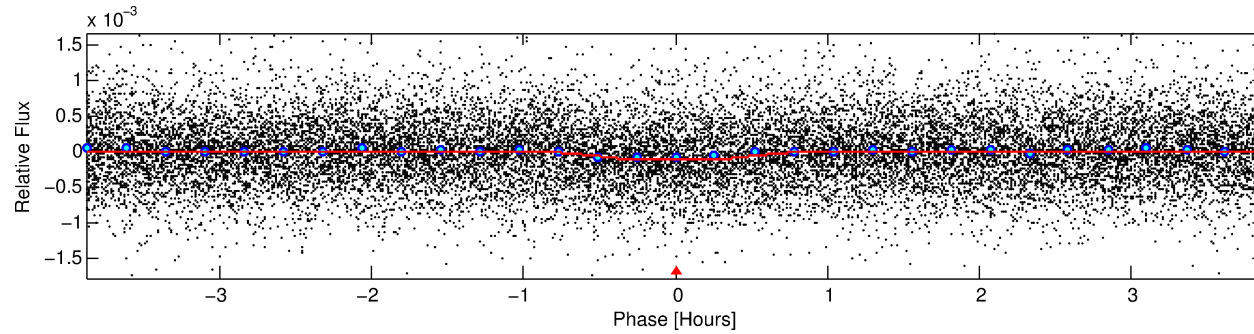
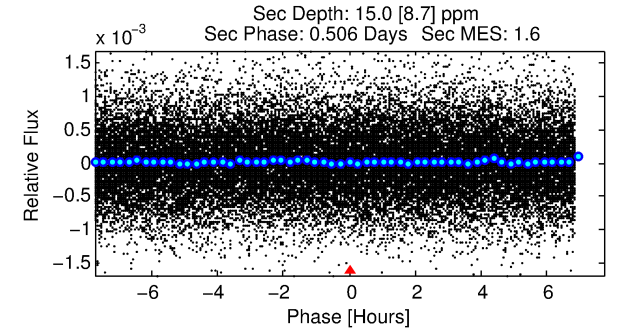
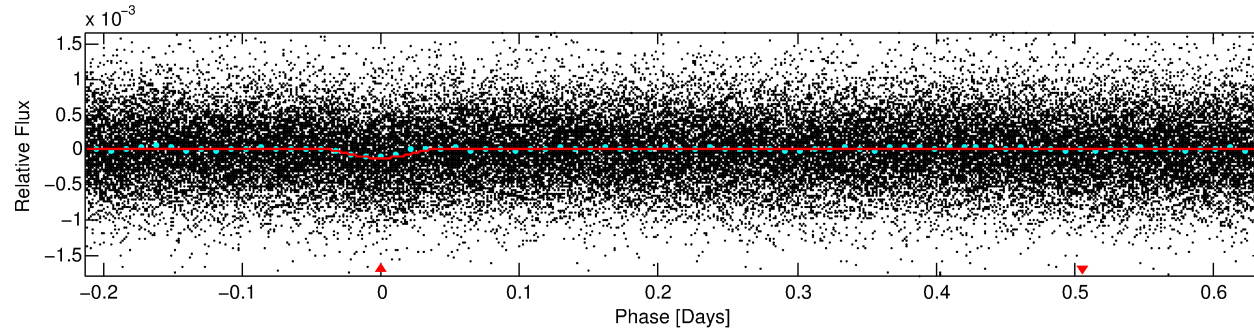
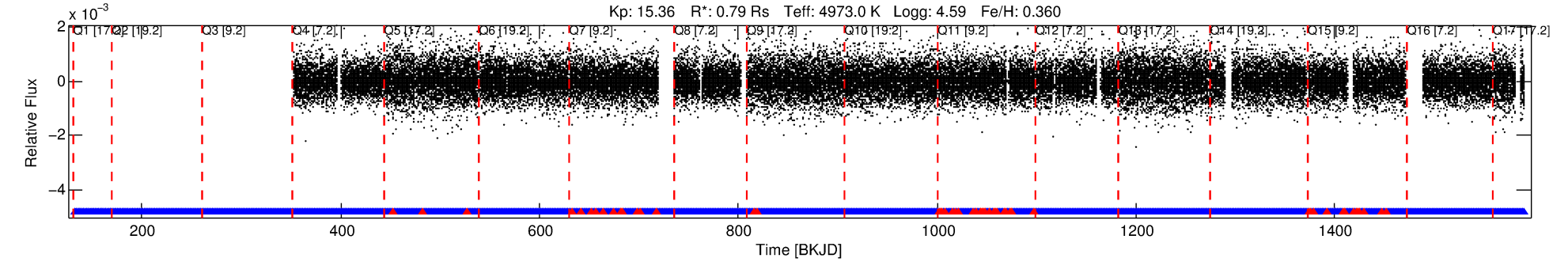
No Significant Match Found

# DV One-Page Summary

KIC: 10140122 Candidate: 1 of 1 Period: 0.849 d

KOI: K04545.01 Corr: 0.902

Kp: 15.36 R\*: 0.79 Rs Teff: 4973.0 K Logg: 4.59 Fe/H: 0.360



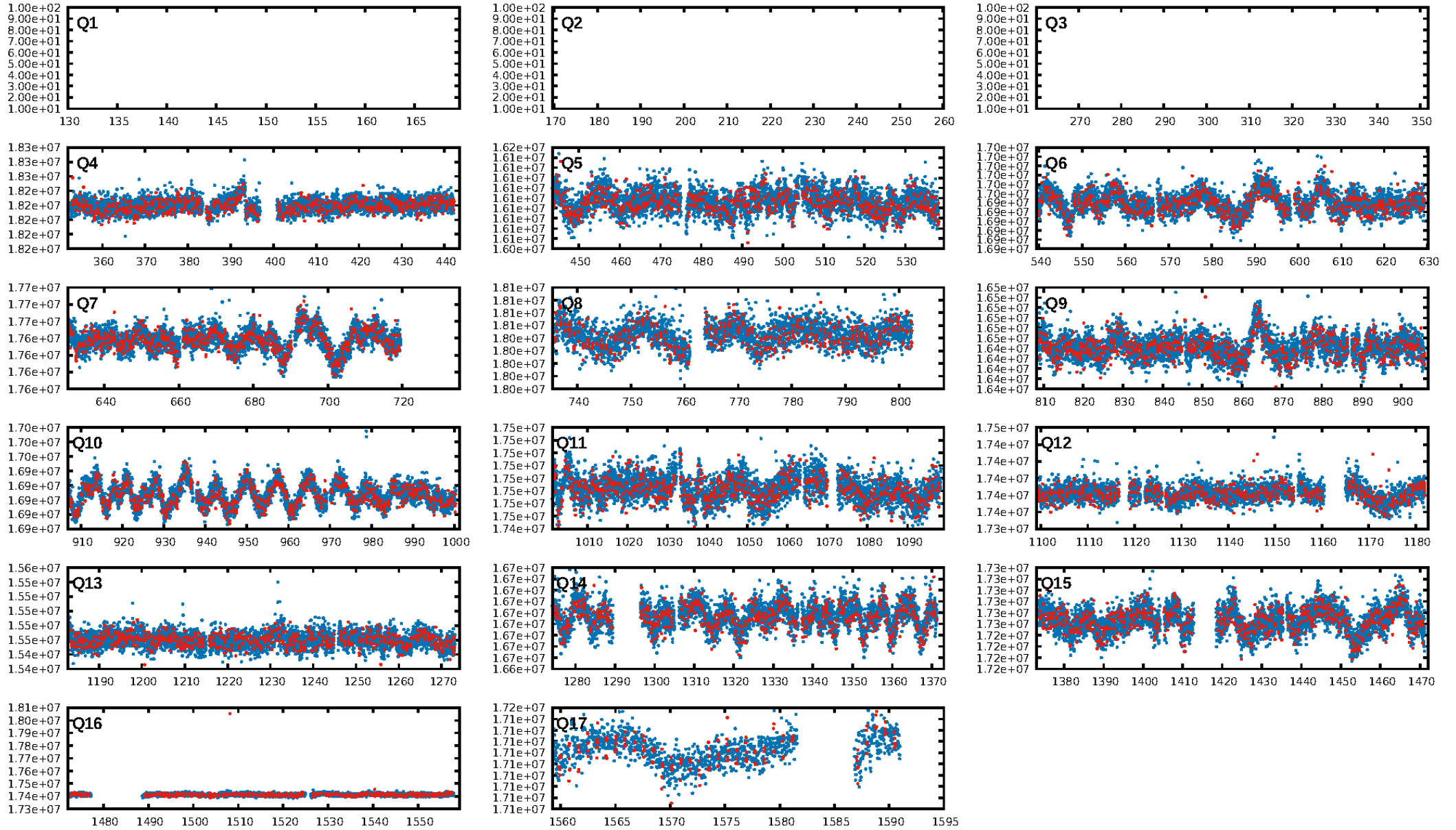
## DV Fit Results:

Period = 0.84937 [0.00001] d  
Epoch = 132.1332 [0.0017] BKJD  
Rp/R\* = 0.0120 [0.0107]  
a/R\* = 2.53 [7.38]  
b = 0.90 [0.78]  
Seff = 1191.94 [239.55]  
Teff = 1498 [75] K  
Rp = 1.03 [0.92] Re  
a = 0.0169 [0.0015] AU  
Ag = 2.22 [4.19] [0.29σ]  
Teffp = 2829 [1334] K [1.00σ]

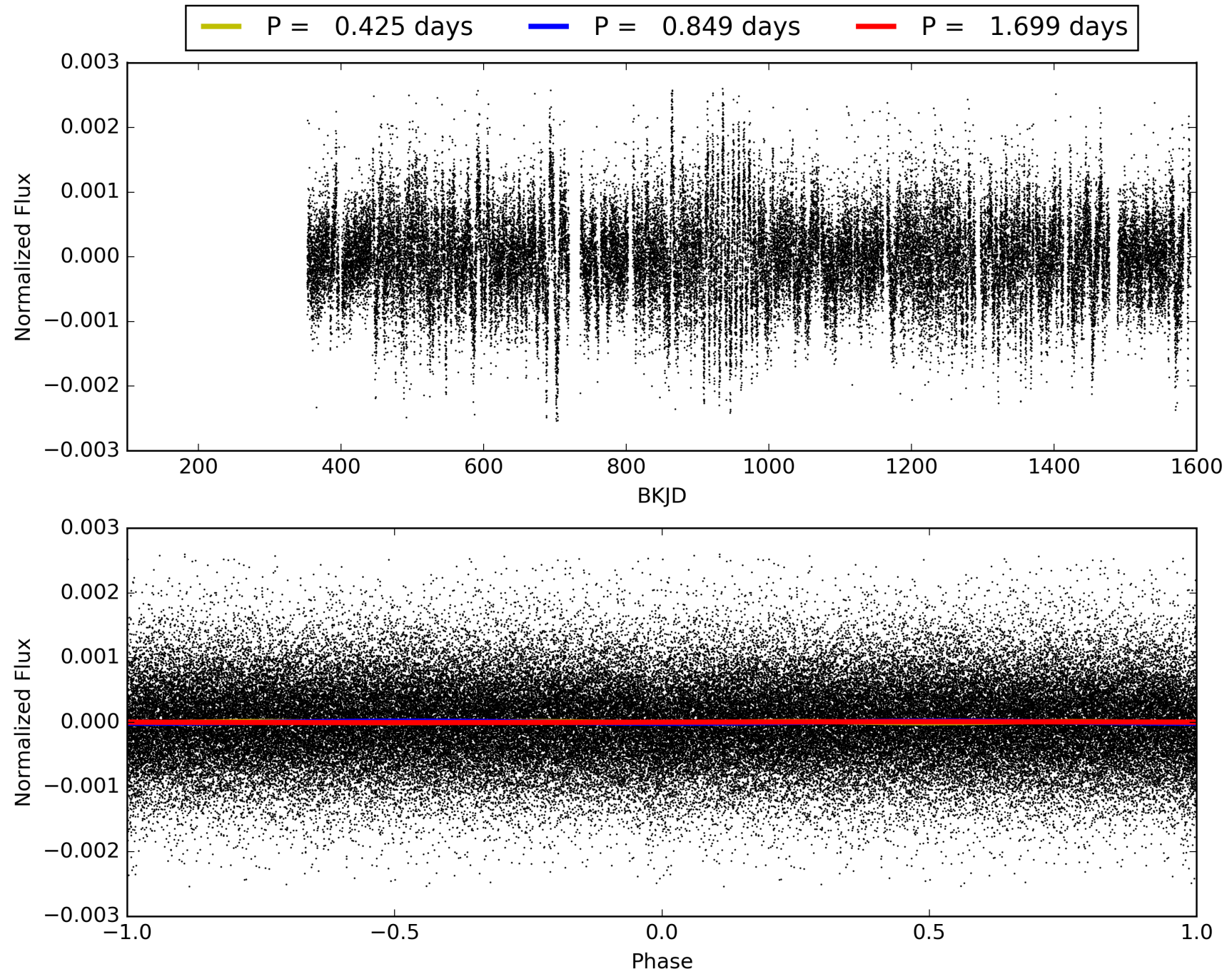
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.02e-23  
RollingBand-fgt: 0.96 [1244/1301]  
GhostDiagnostic-chr: 141.7  
Centroid-sig: 14.2%  
Centroid-so: 2.170 arcsec [3.23σ]  
OotOffset-rm: 3.217 arcsec [1.80σ]  
KicOffset-rm: 0.698 arcsec [1.05σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/3/2/1 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010140122-01, PDC Light Curves

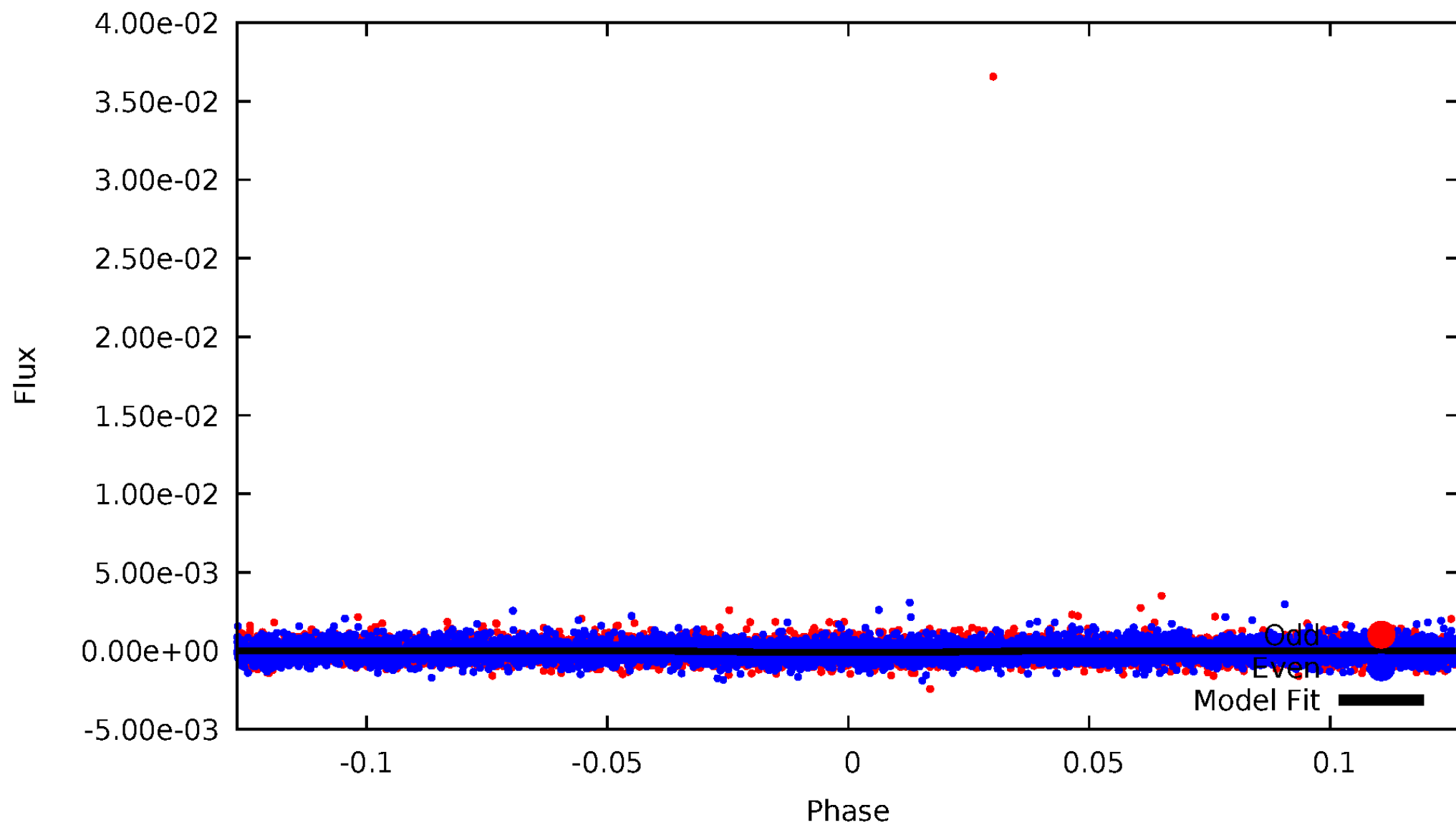


TCE 010140122-01



# DV Odd/Even

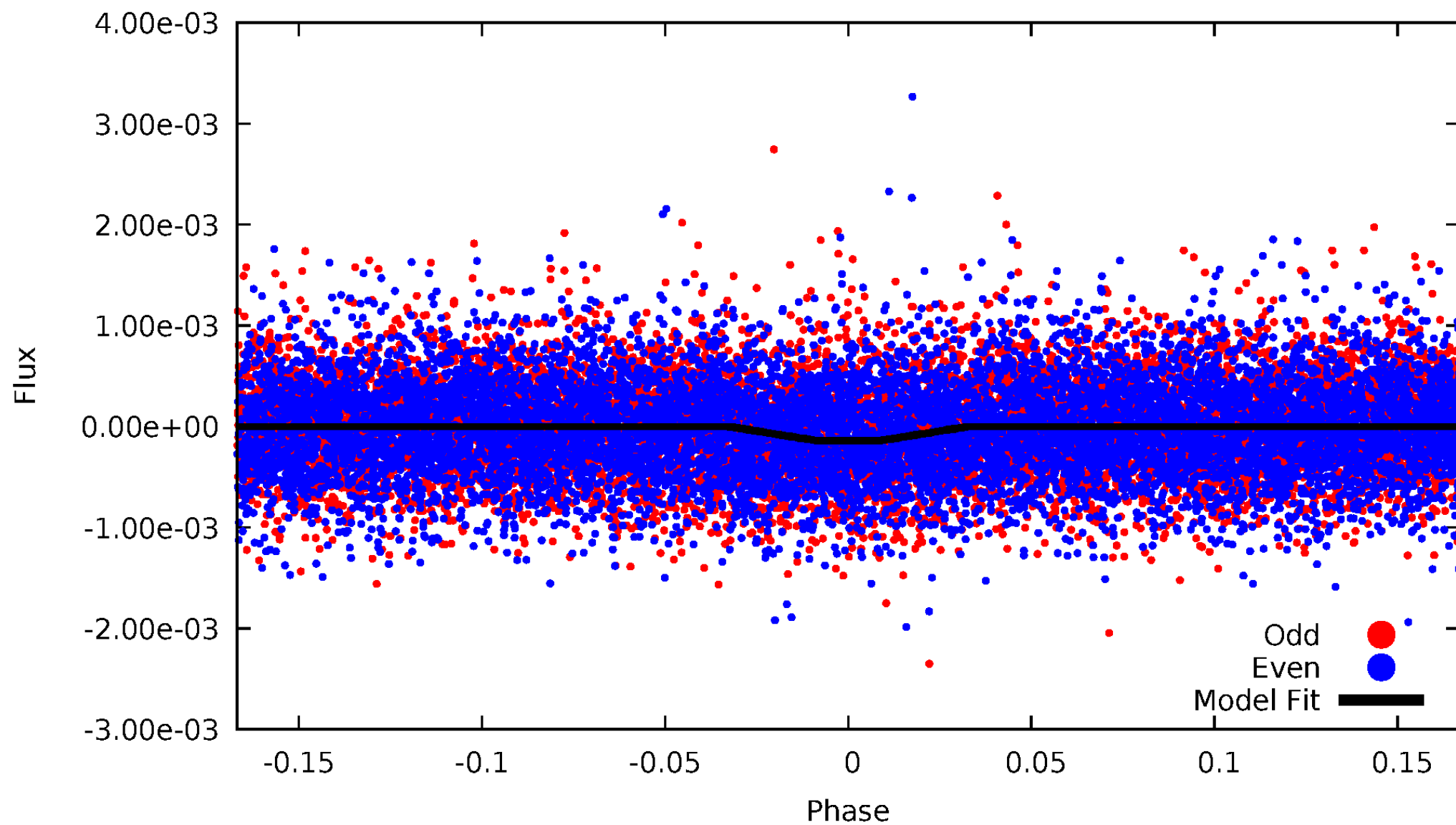
TCE 010140122-01



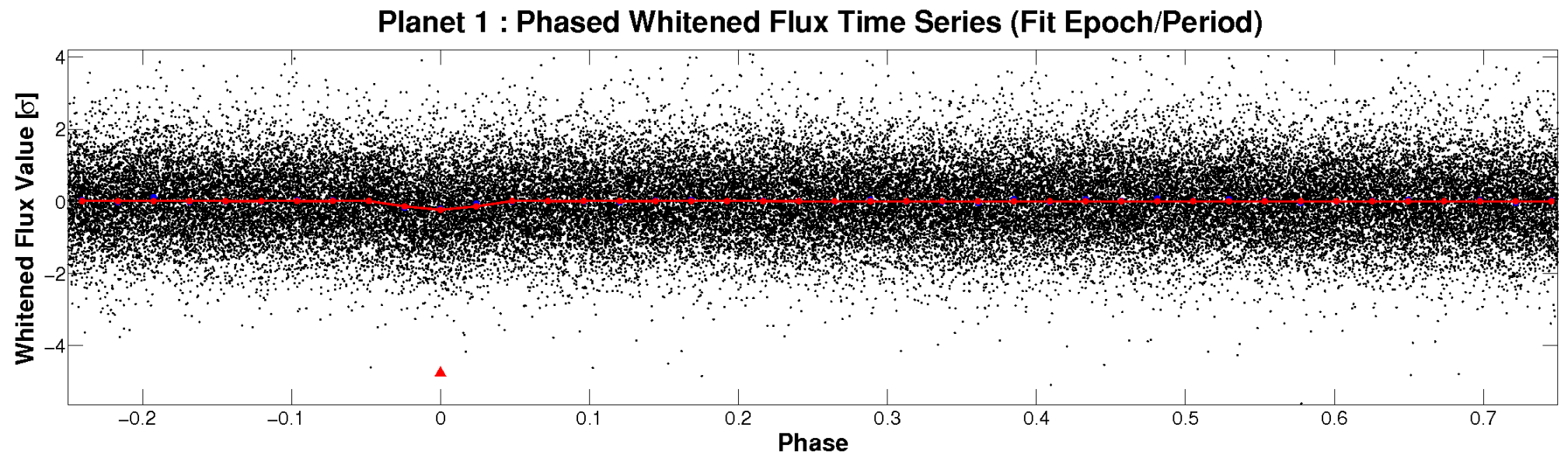
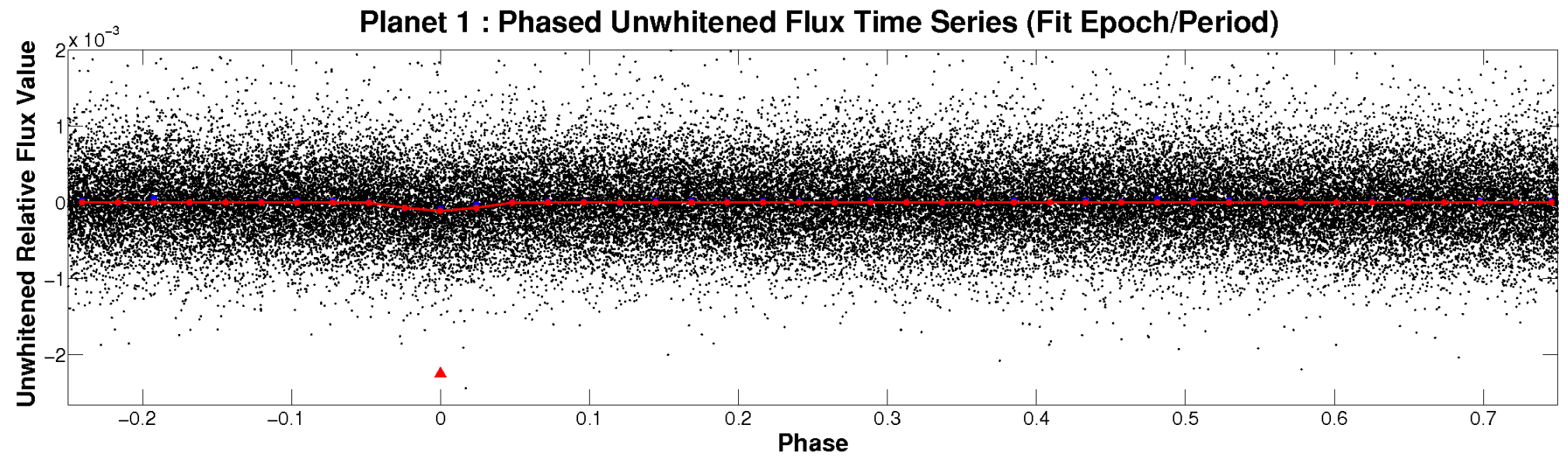


# ALT Odd/Even

TCE 010140122-01

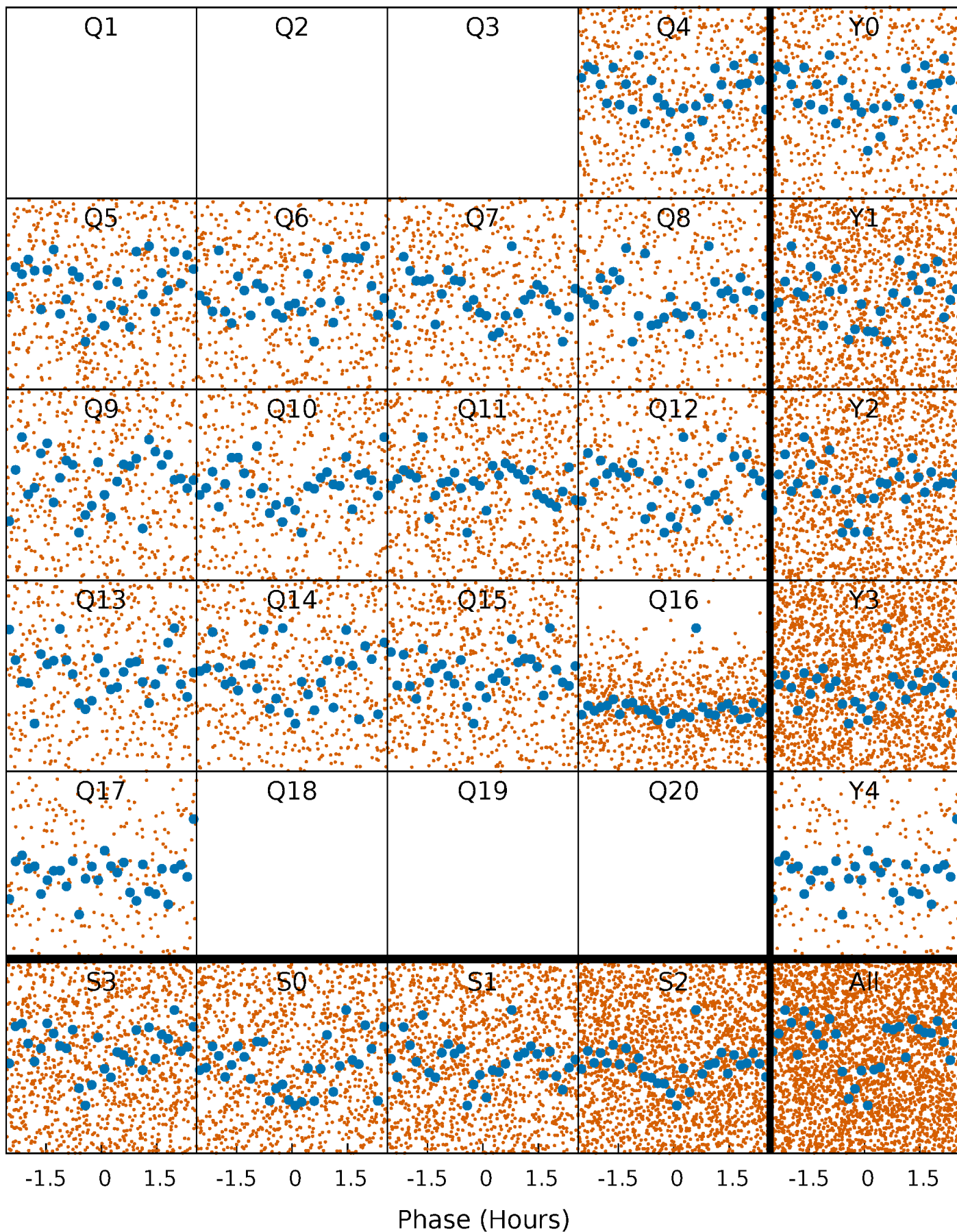


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

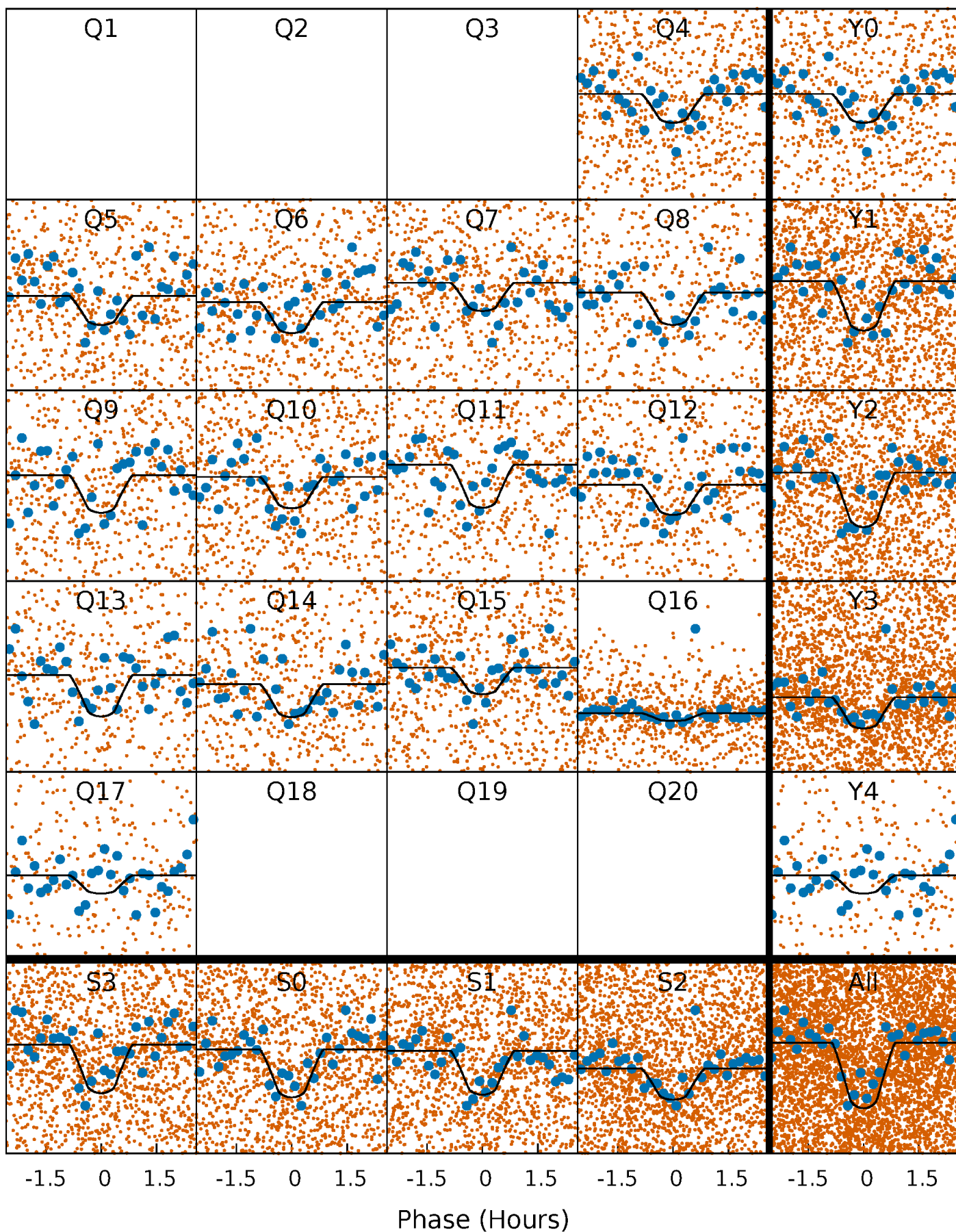
TCE 010140122-01 P= 0.849372 Days  $T_0=132.133226$  (BKJD)





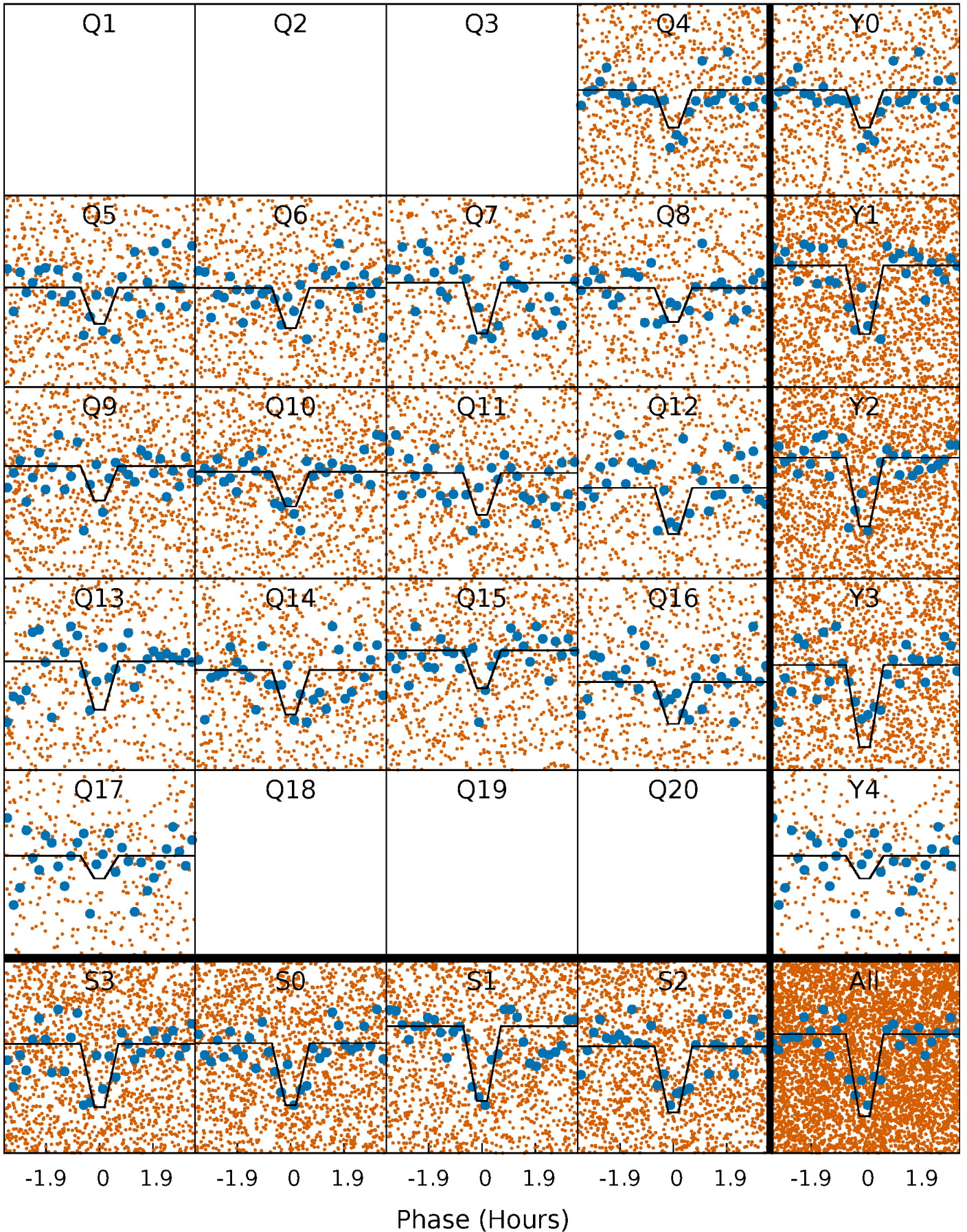
# DV Quarter-Phased Transit Curves

TCE 010140122-01 P= 0.849372 Days  $T_0=132.133226$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

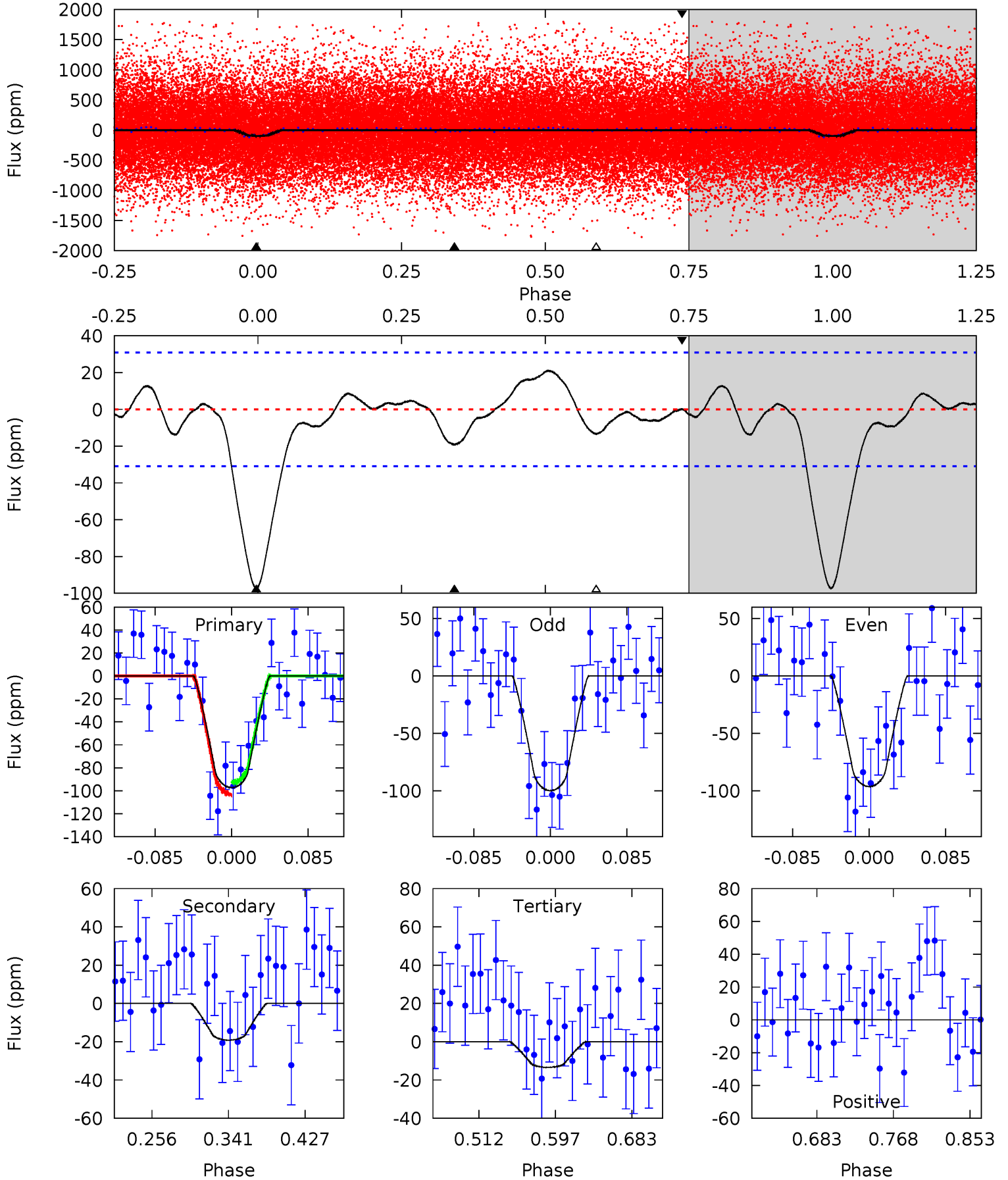
TCE 010140122-01 P= 0.849362 Days  $T_0=132.141840$  (BKJD)



# DV Model-Shift Uniqueness Test

010140122-01, P = 0.849372 Days, E = 132.133226 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
14.5	2.85	2.00	0.01	4.60	1.72	1.30	12.5	14.4	0.86	2.84	0.27	0.89	0.18	0.76

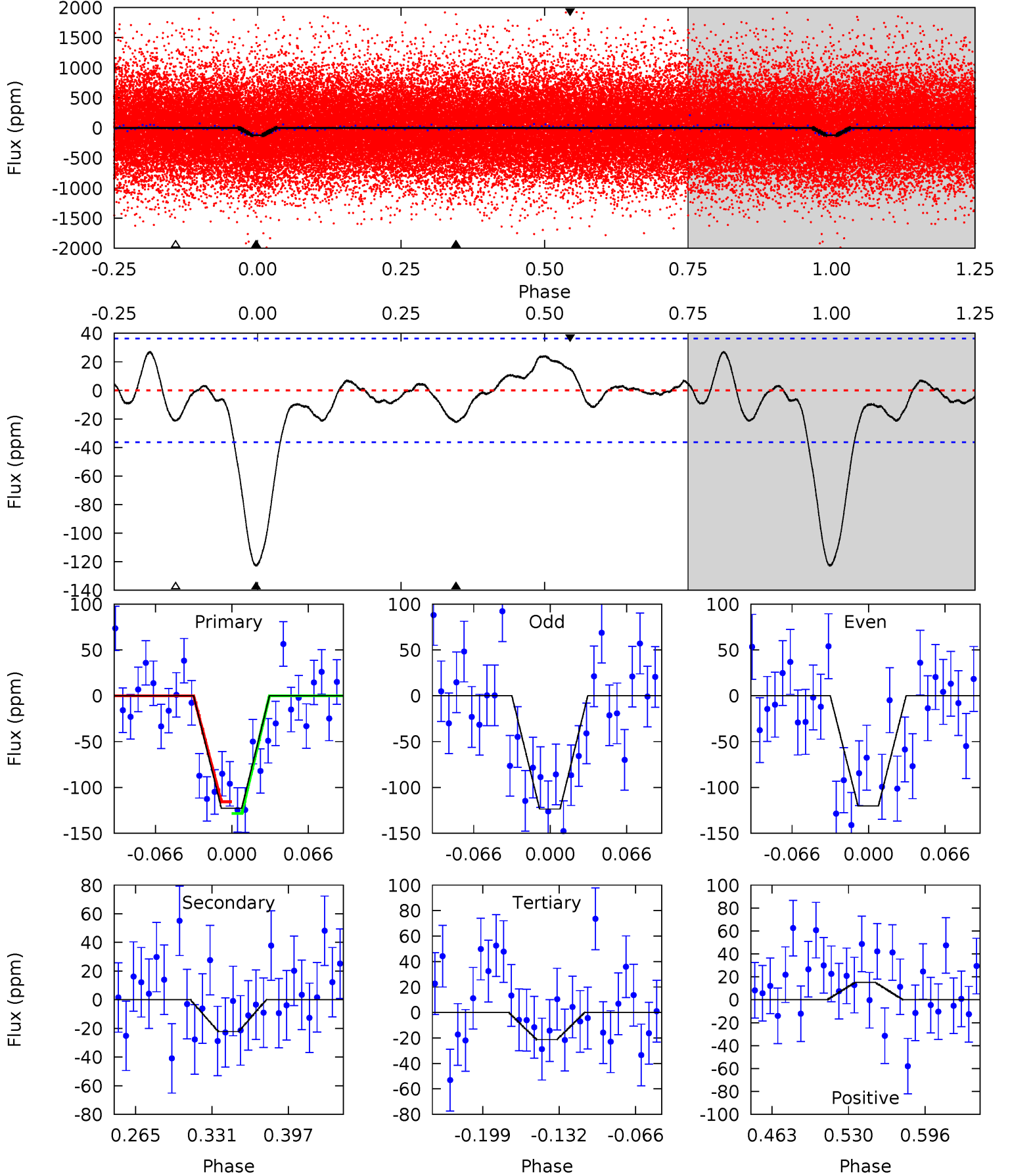




# Alt Model-Shift Uniqueness Test

010140122-01, P = 0.849362 Days, E = 132.141840 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	2.84	2.72	1.93	4.65	1.84	1.38	13.0	13.8	0.12	0.91	0.21	0.82	0.18	0.83





### Stellar Parameters For KIC 010140122

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4973^{+179}_{-179}$	$4.595^{+0.020}_{-0.080}$	$0.360^{+0.100}_{-0.300}$	$0.788^{+0.080}_{-0.053}$	$0.891^{+0.037}_{-0.086}$	$2.566^{+0.319}_{-0.613}$
	+4%/-4%	+0%/-2%	+28%/-83%	+10%/-7%	+4%/-10%	+12%/-24%
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 010140122-01 / KOI 4545.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-19 \pm 7$	$1.18^{+0.90}_{-0.73}$	$2113^{+89}_{-75}$	$3205^{+1433}_{-663}$	$1.966^{+11.573}_{-1.351}$
Alt.	$-22 \pm 8$	$1.25^{+0.87}_{-0.78}$	$2122^{+94}_{-87}$	$3248^{+1432}_{-628}$	$2.119^{+13.313}_{-1.440}$

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

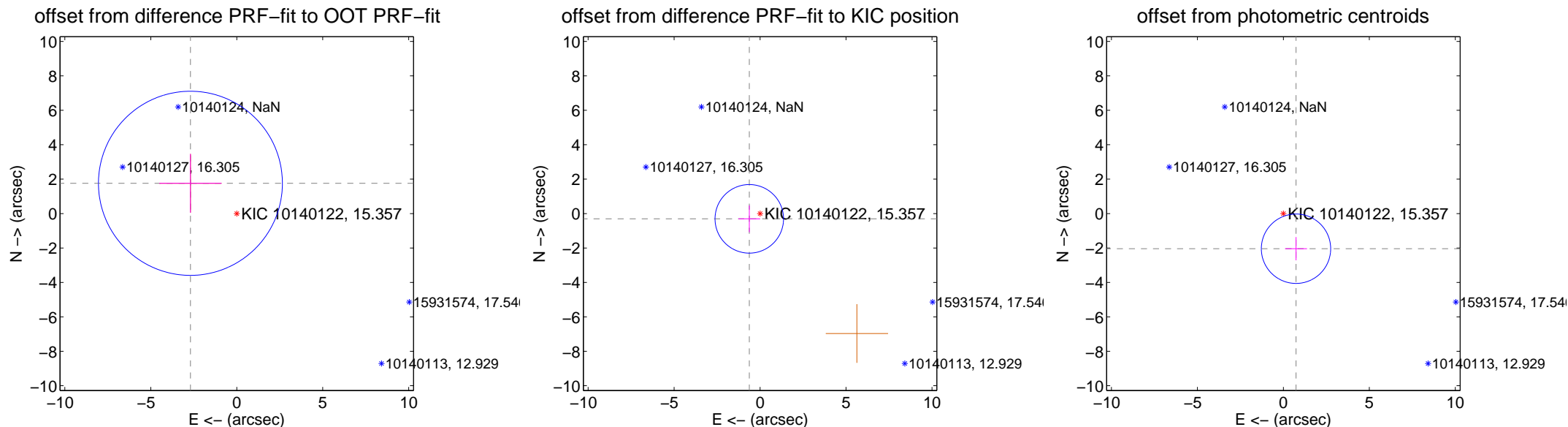
## DV Centroid Data

Supplemental centroid analysis for 010140122-01. Kepler magnitude: 15.36. Transit SNR 11.32

There are 0 quarters with good PRF difference image offsets

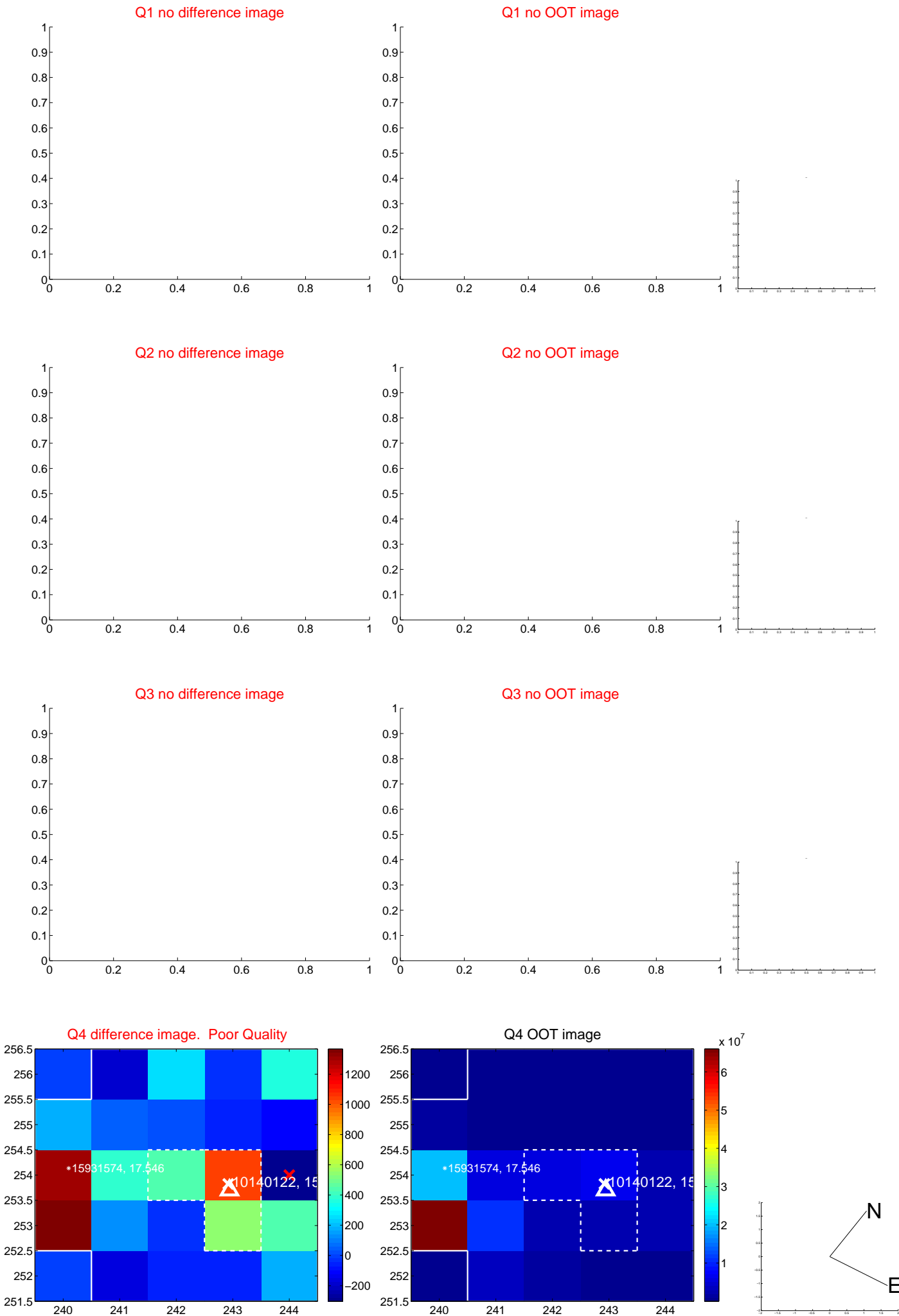
The OOT PRF centroid is offset from the target star catalog position by about 12.06 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.217 \pm 1.783$	1.80	$2.695 \pm 1.813$	$1.758 \pm 1.708$
PRF-fit source offset from KIC position	$0.698 \pm 0.664$	1.05	$0.627 \pm 0.634$	$-0.306 \pm 0.778$
photometric centroid source offset	$2.17 \pm 0.67$	3.23	$-0.73 \pm 0.64$	$-2.04 \pm 0.68$

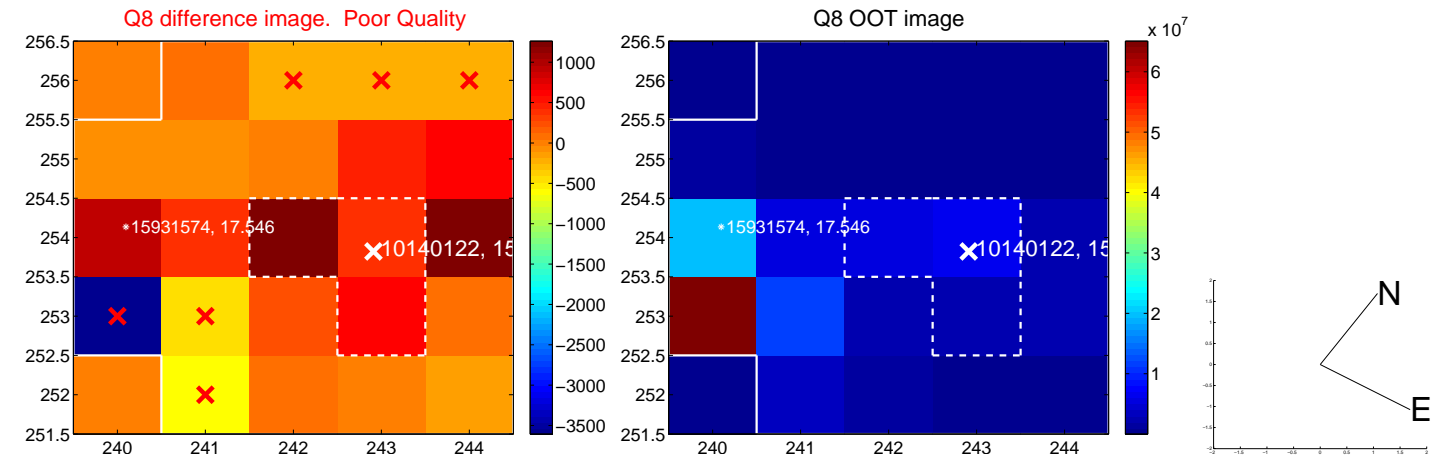
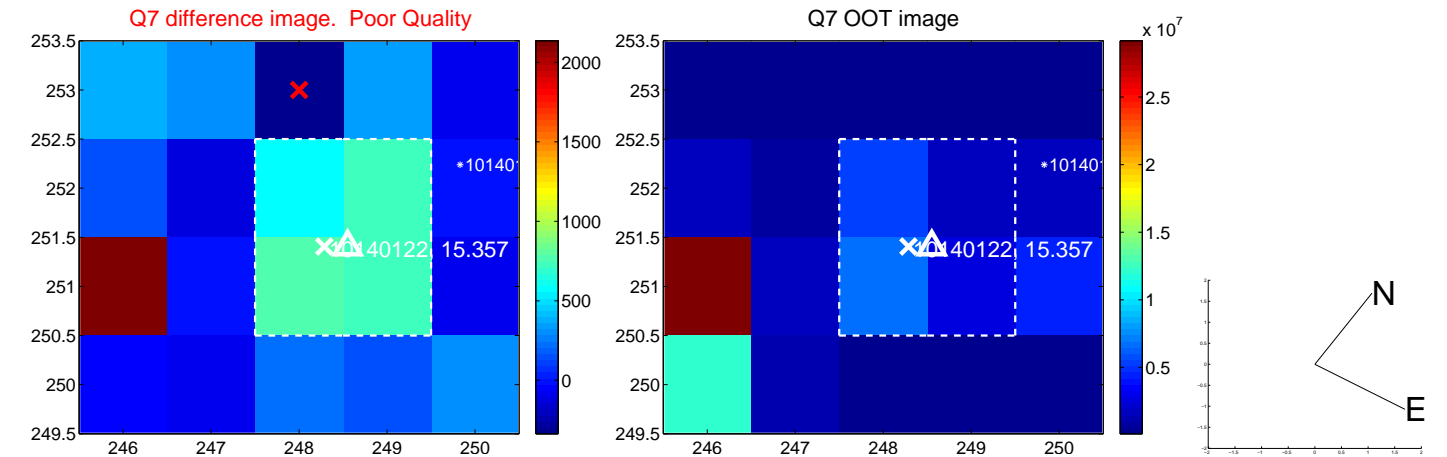
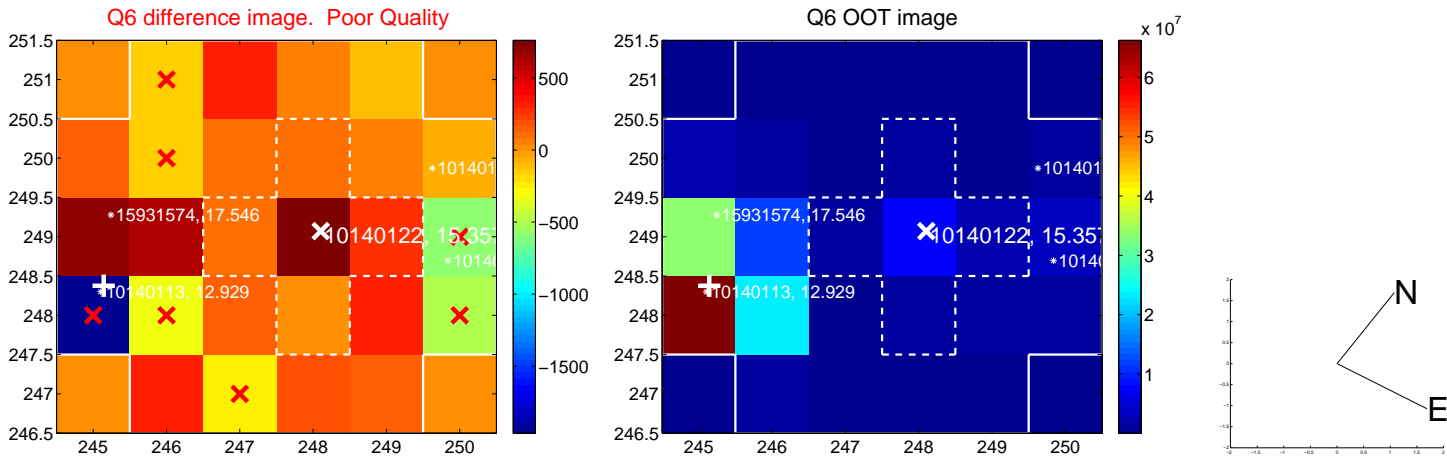
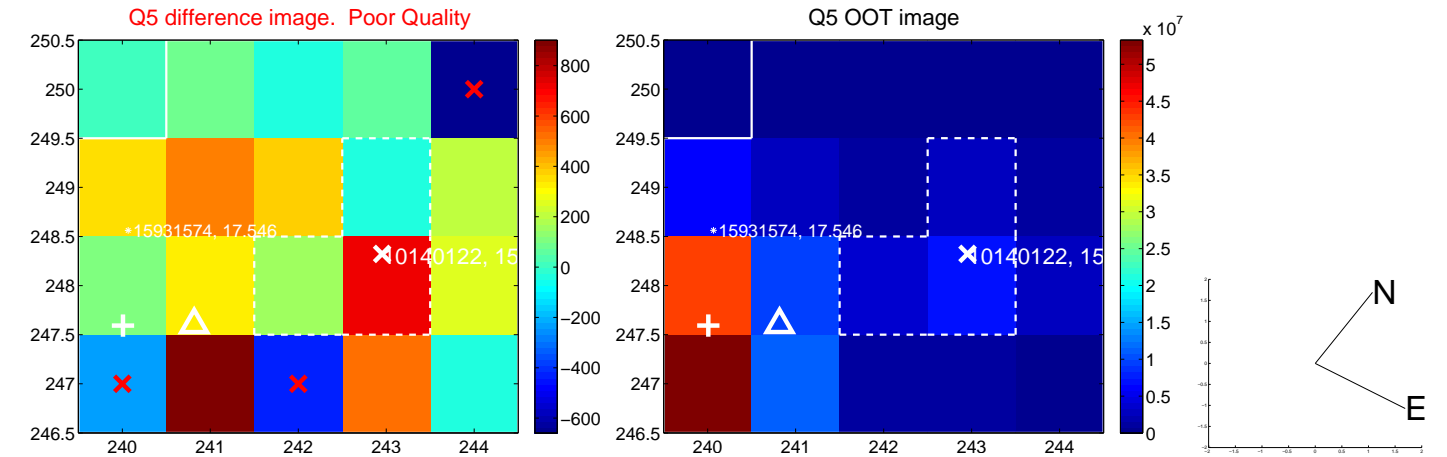


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

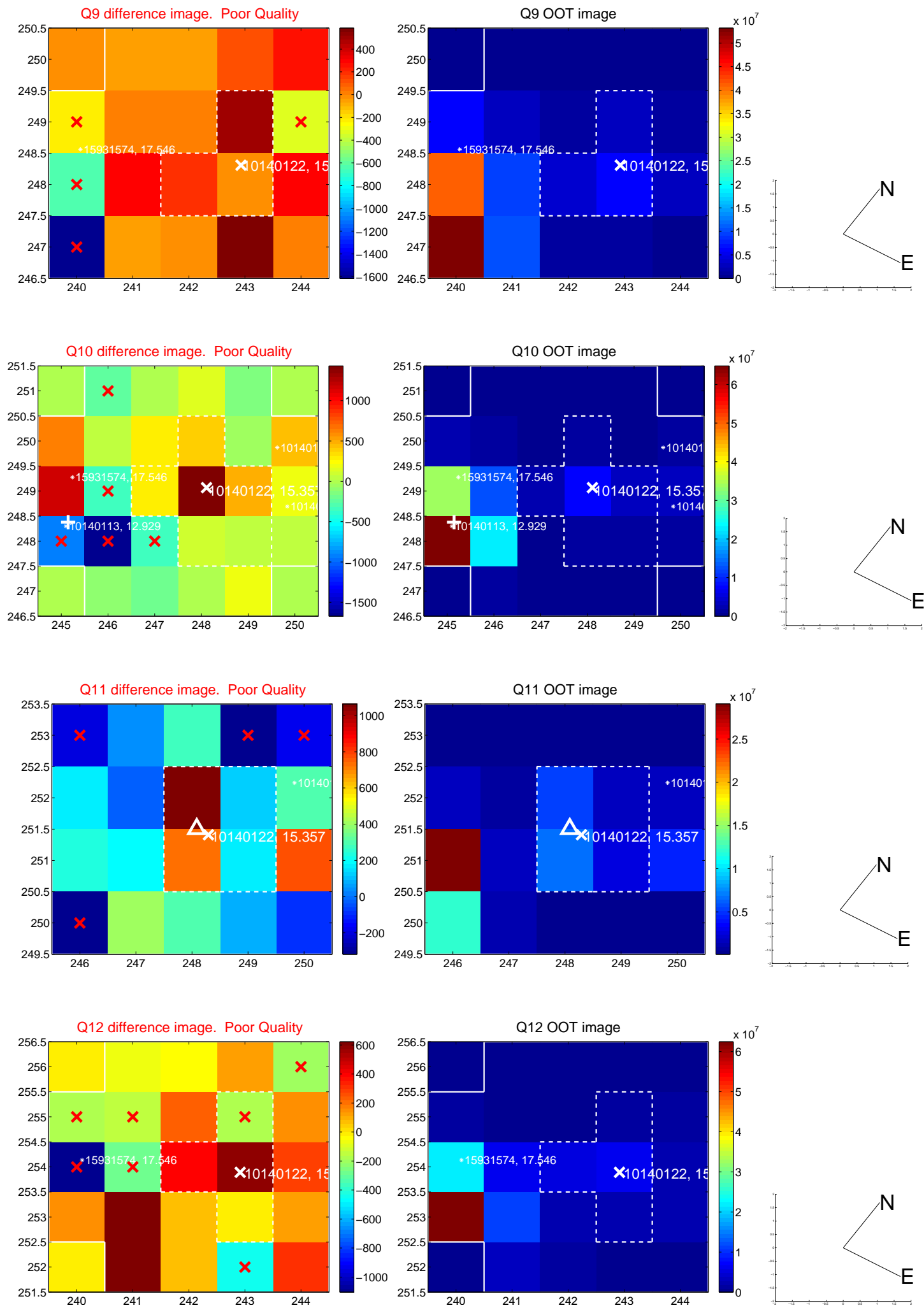


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

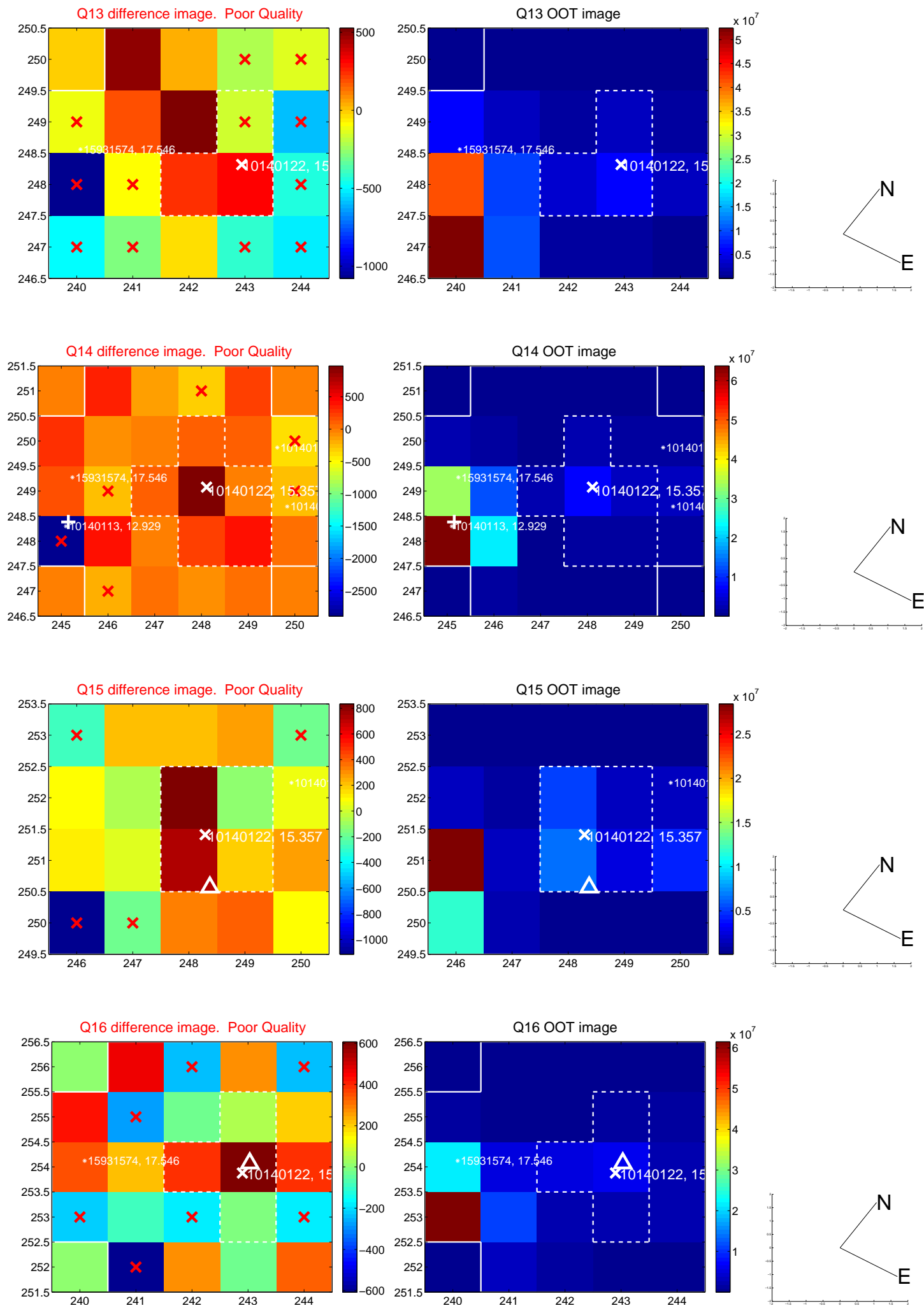




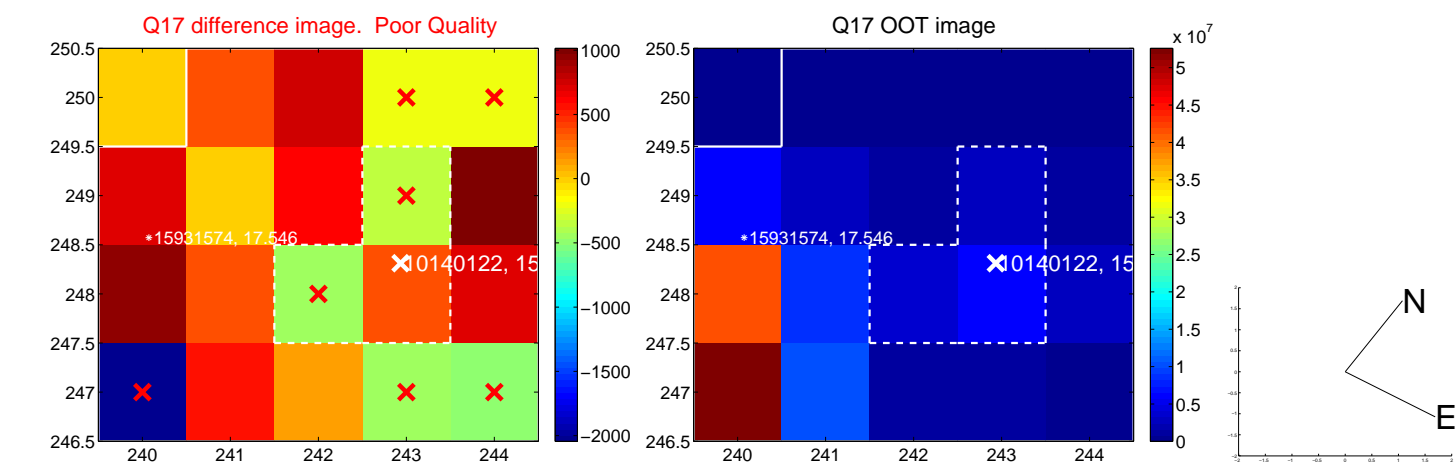
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



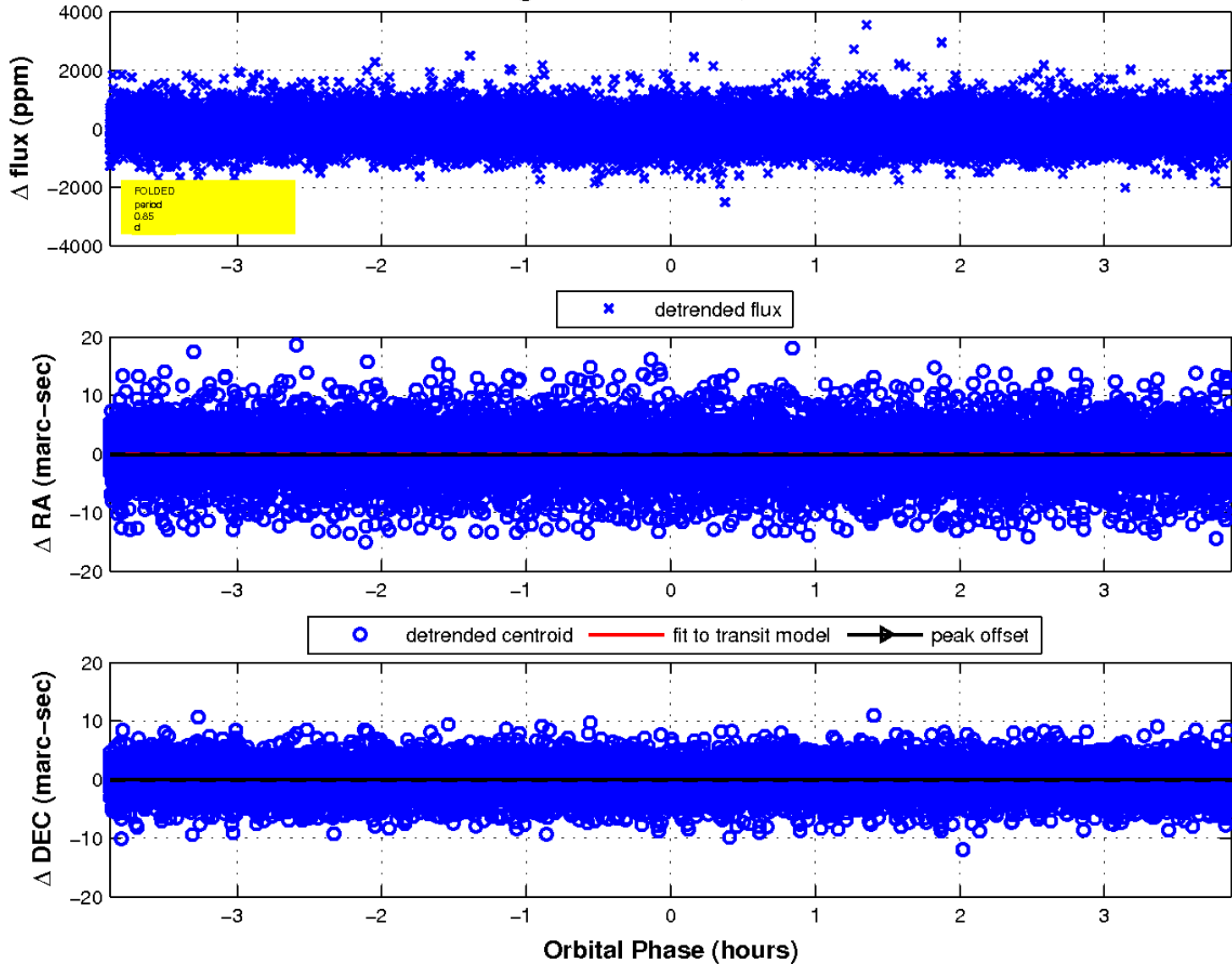
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

