

# KIC 009934274

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
009934274-01	OBS	5735.01	4.994677	136.189843	50.4	3.814	11.3	12.2	2.83	6409	2.71	2843.83

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009934274-01	OBS	FP	0.00	0	0	0	1	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.

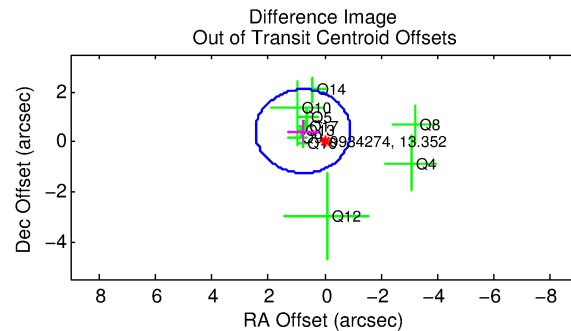
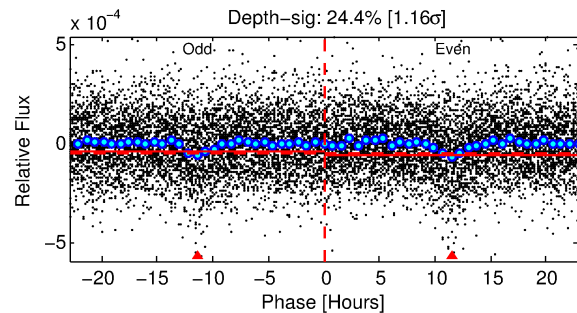
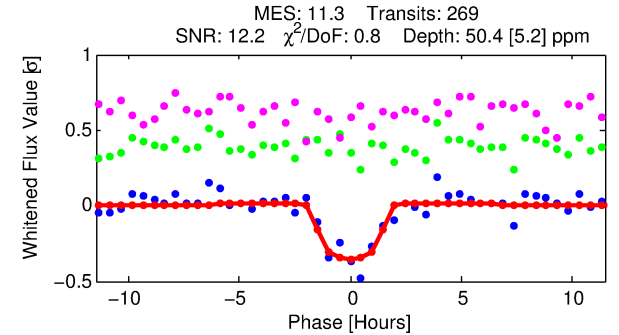
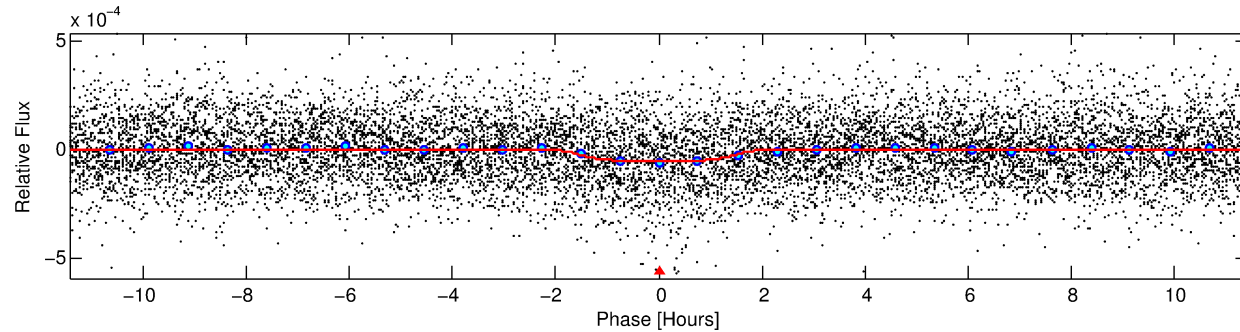
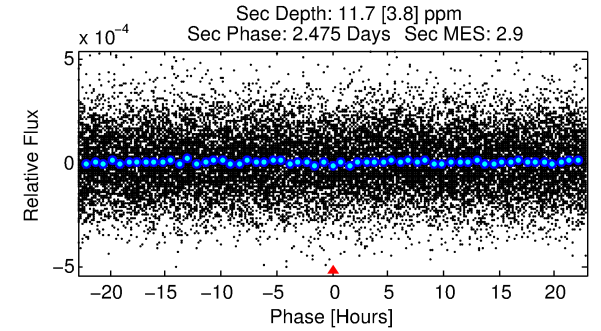
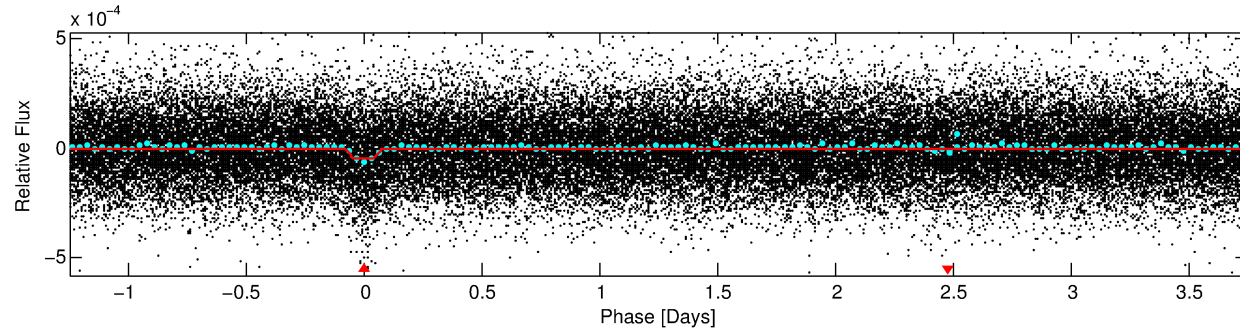
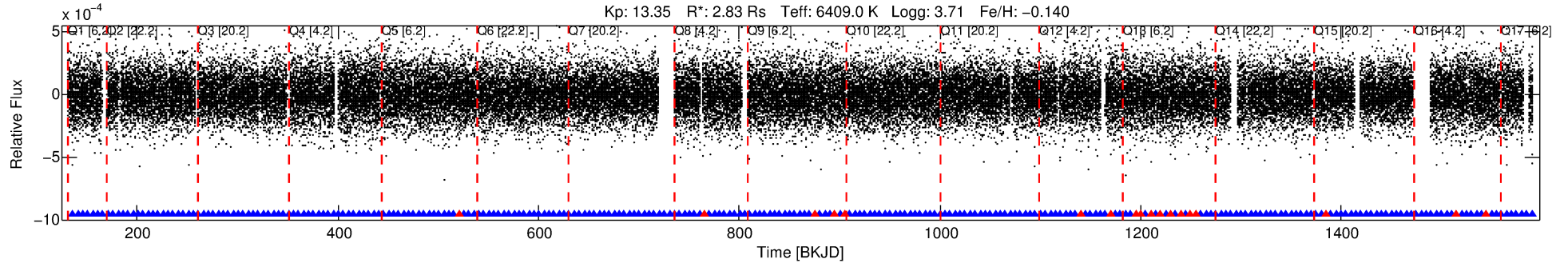
## Ephemeris Match Information For 009934274-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
009934274-01	9934274	7241.01	9873869	1:1	458.1	116	-1	13.04	13.35	5218.40	Col-Anomaly	0	0.97	0.62

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 9934274 Candidate: 1 of 1 Period: 4.995 d  
KOI: K05735.01 Corr: 0.903



## DV Fit Results:

Period = 4.99468 [0.00004] d  
Epoch = 136.1898 [0.0065] BKJD  
Rp/R\* = 0.0088 [0.0007]  
a/R\* = 2.43 [0.70]  
b = 0.98 [0.01]  
Seff = 2843.83 [1606.83]  
Teff = 1862 [263] K  
Rp = 2.71 [1.05] Re  
a = 0.0652 [0.0229] AU  
Ag = 3.70 [2.45] [1.10σ]  
Teffp = 3994 [385] K [4.57σ]

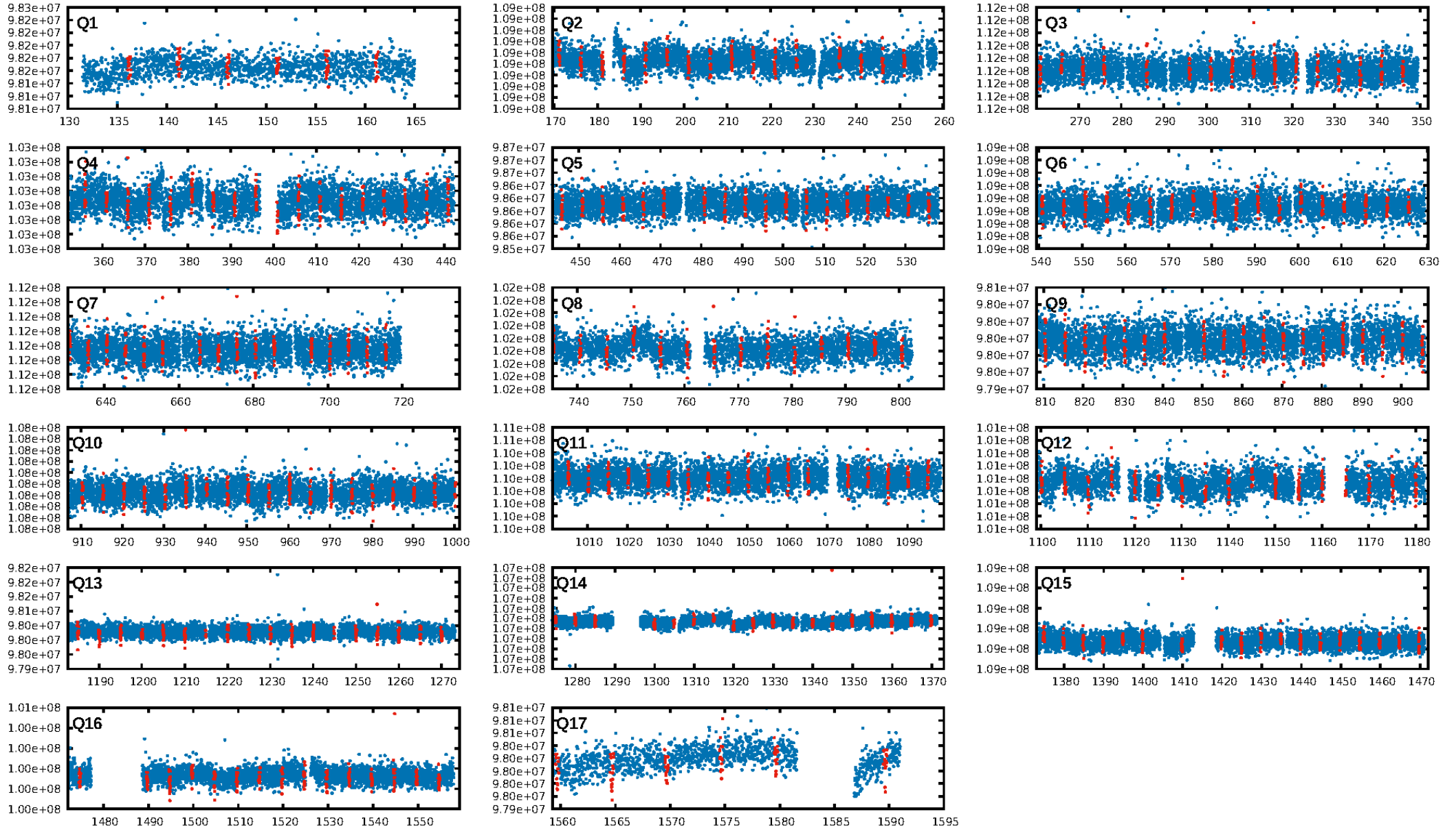
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.48e-28  
RollingBand-fgt: 0.93 [239/257]  
GhostDiagnostic-chr: 3.278  
Centroid-sig: 0.4%  
Centroid-so: 3.403 arcsec [2.75σ]  
OotOffset-rm: 0.871 arcsec [1.56σ]  
OotOffset-st: 2/0/4/4 [10]  
KicOffset-rm: 1.067 arcsec [2.20σ]  
KicOffset-st: 2/0/4/4 [10]  
DiffImageQuality-fgm: 0.60 [6/10]  
DiffImageOverlap-fno: 1.00 [17/17]

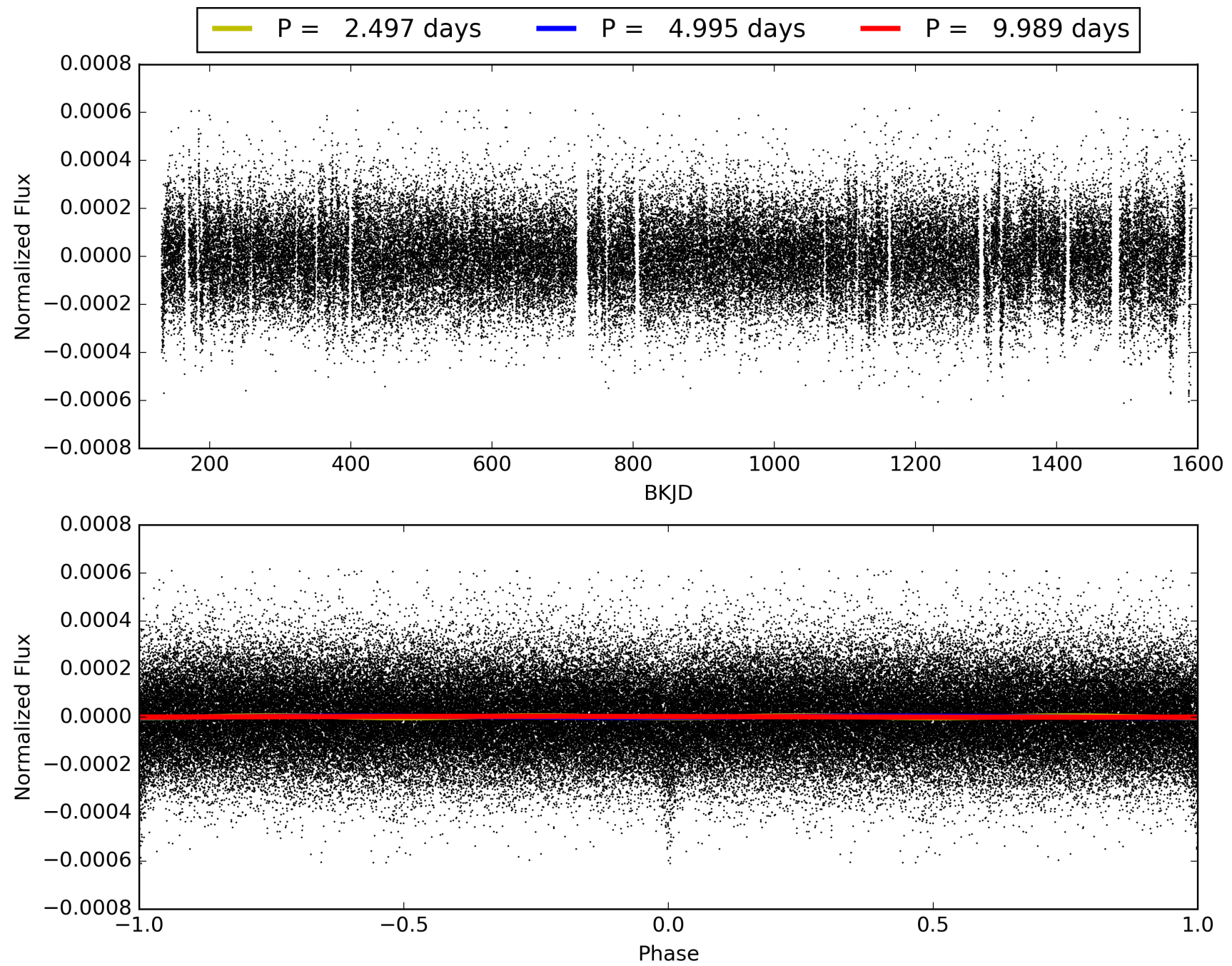
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:38:06 Z

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

# TCE 009934274-01, PDC Light Curves



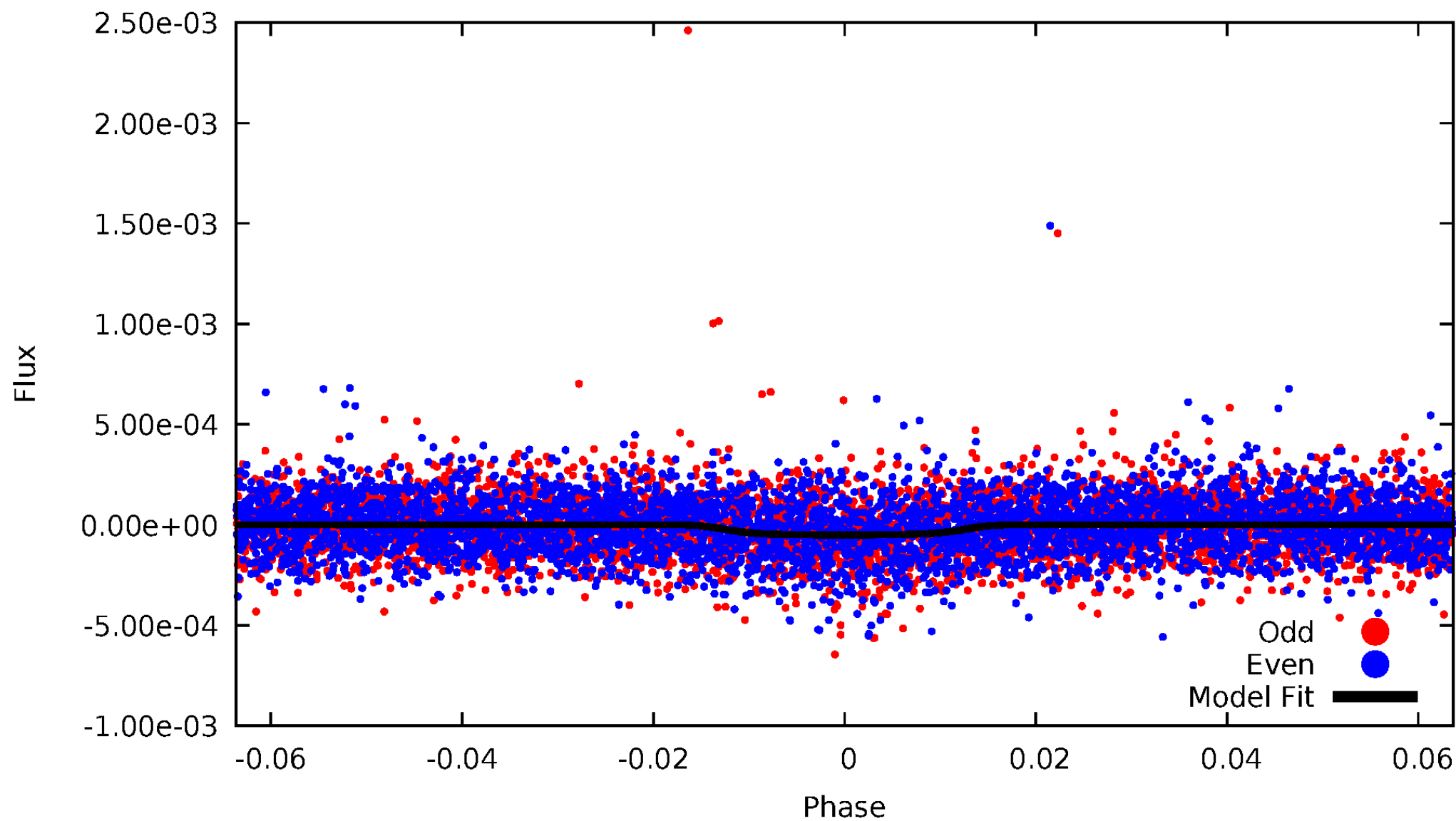
TCE 009934274-01





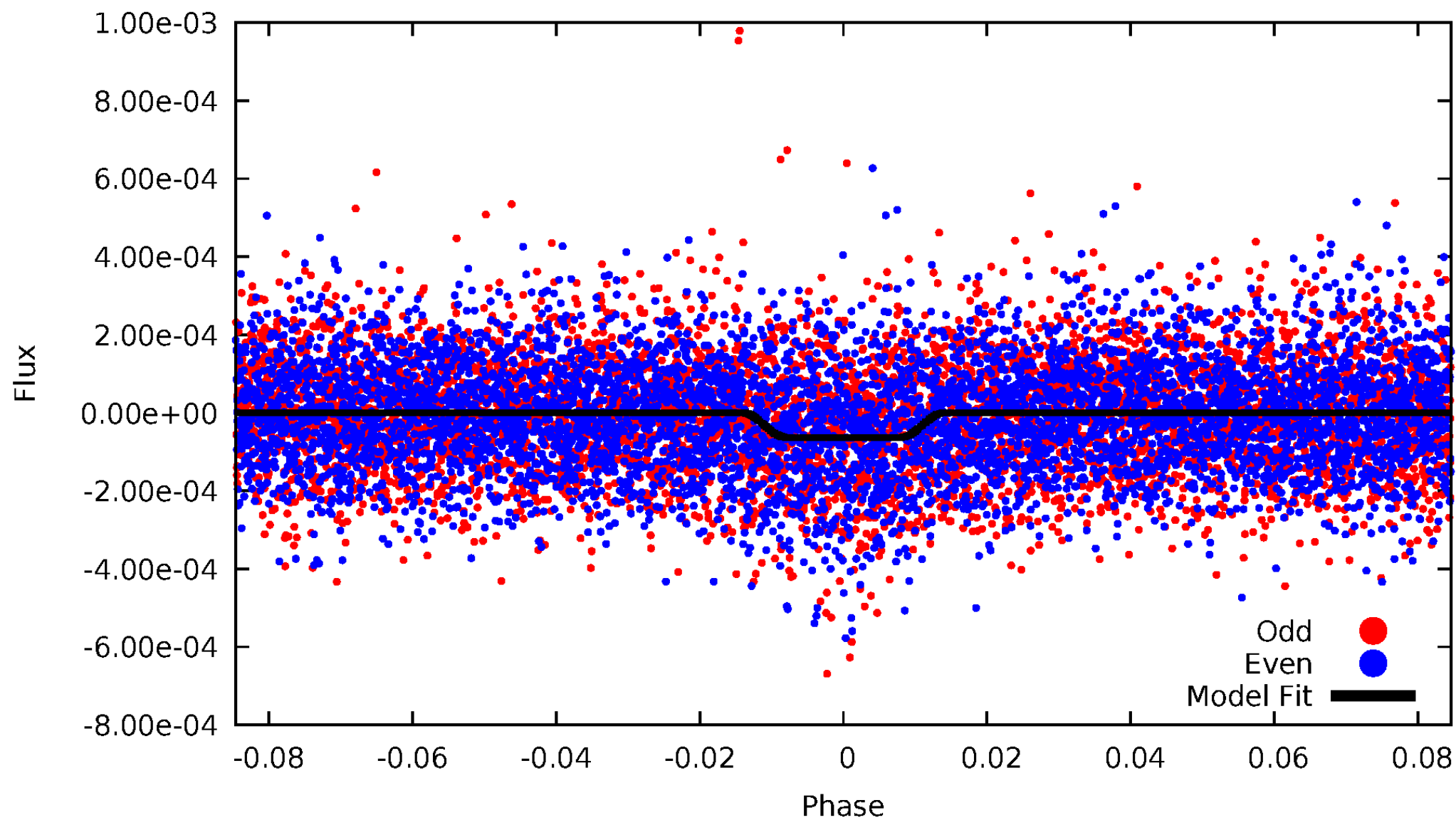
# DV Odd/Even

TCE 009934274-01



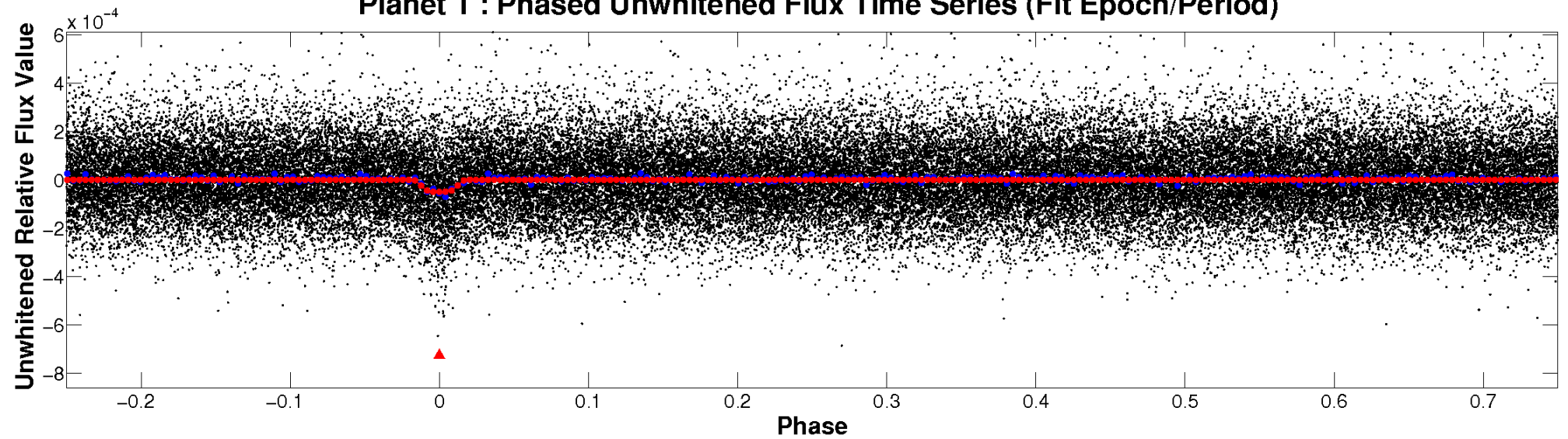
# ALT Odd/Even

TCE 009934274-01

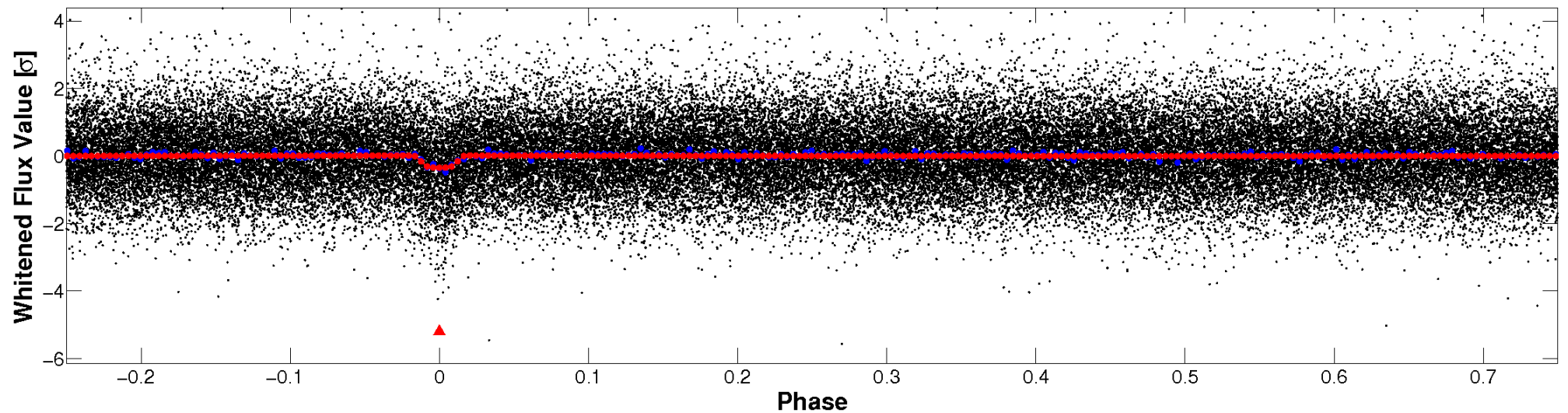


# Non-Whitened Vs. Whitened Light Curve

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

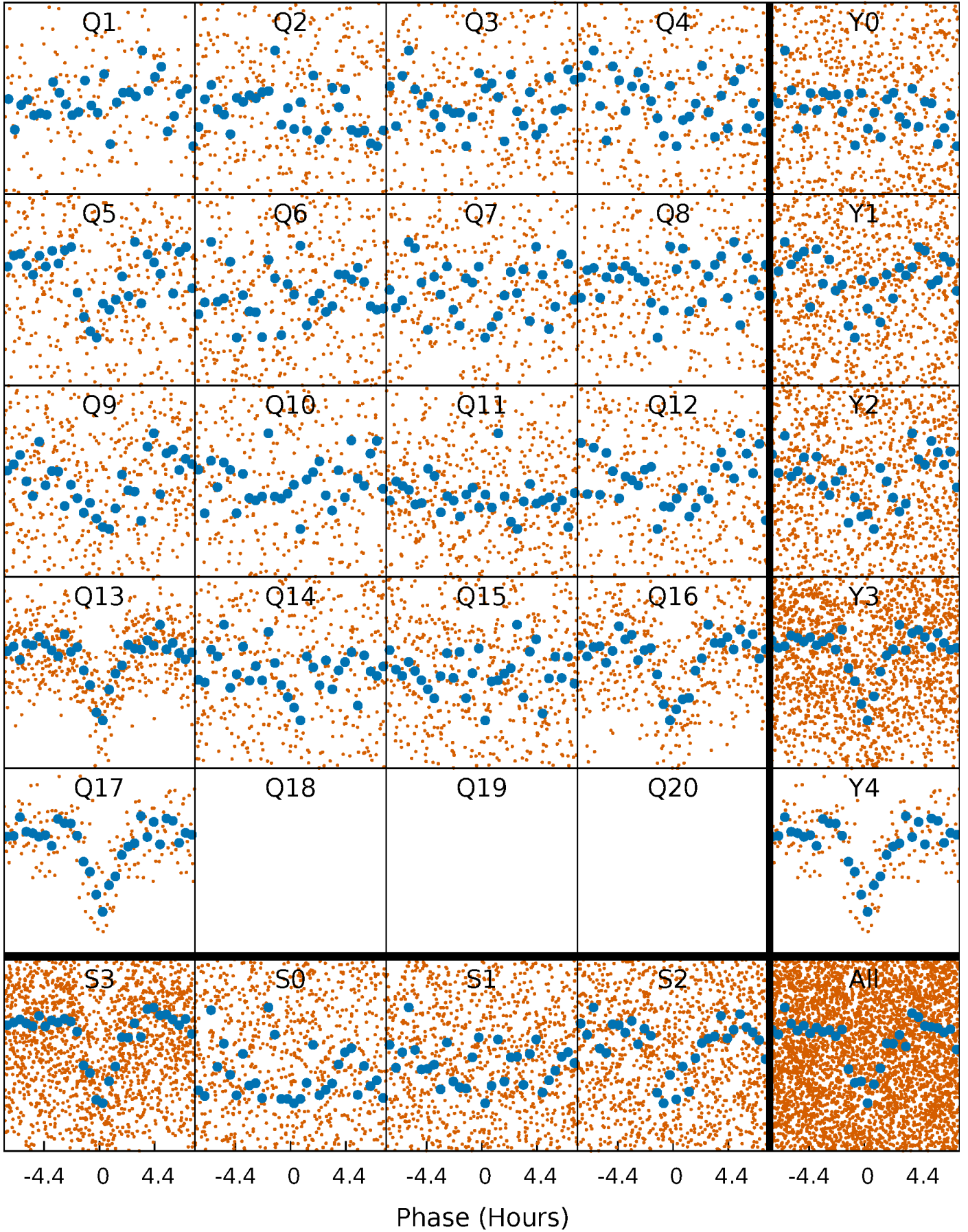


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

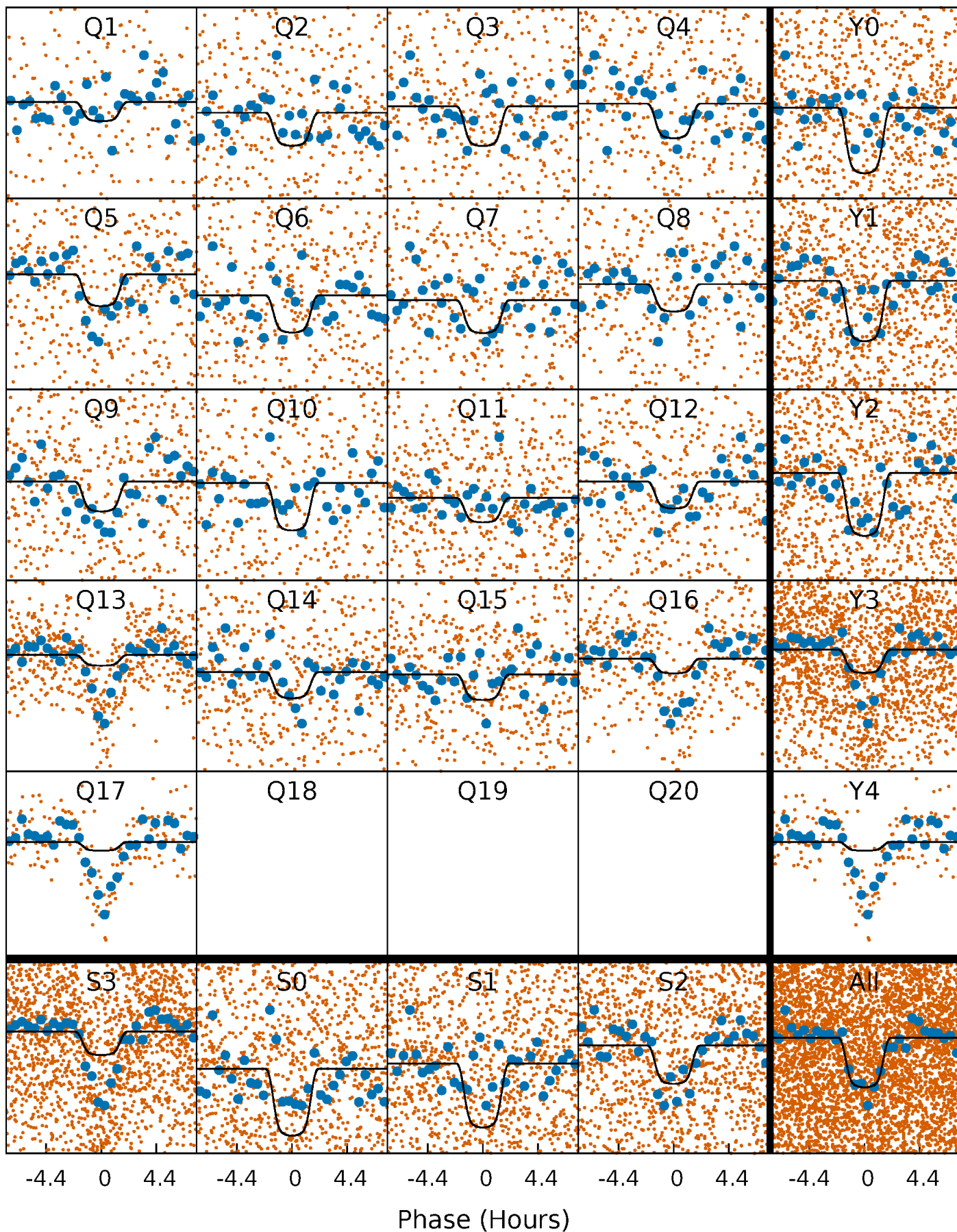
TCE 009934274-01   P= 4.994677 Days    $T_0=136.189843$  (BKJD)





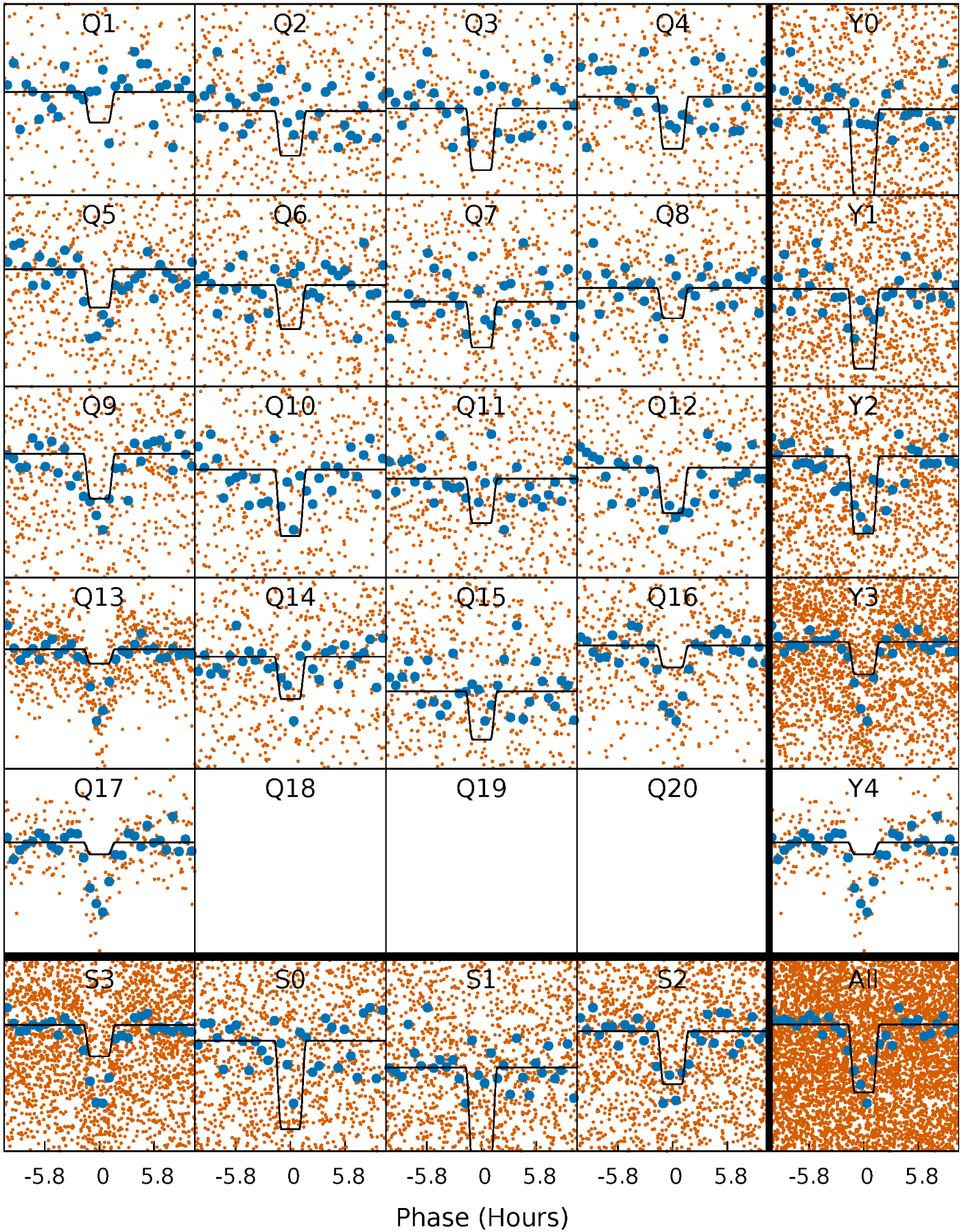
# DV Quarter-Phased Transit Curves

TCE 009934274-01 P= 4.994677 Days  $T_0=136.189843$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

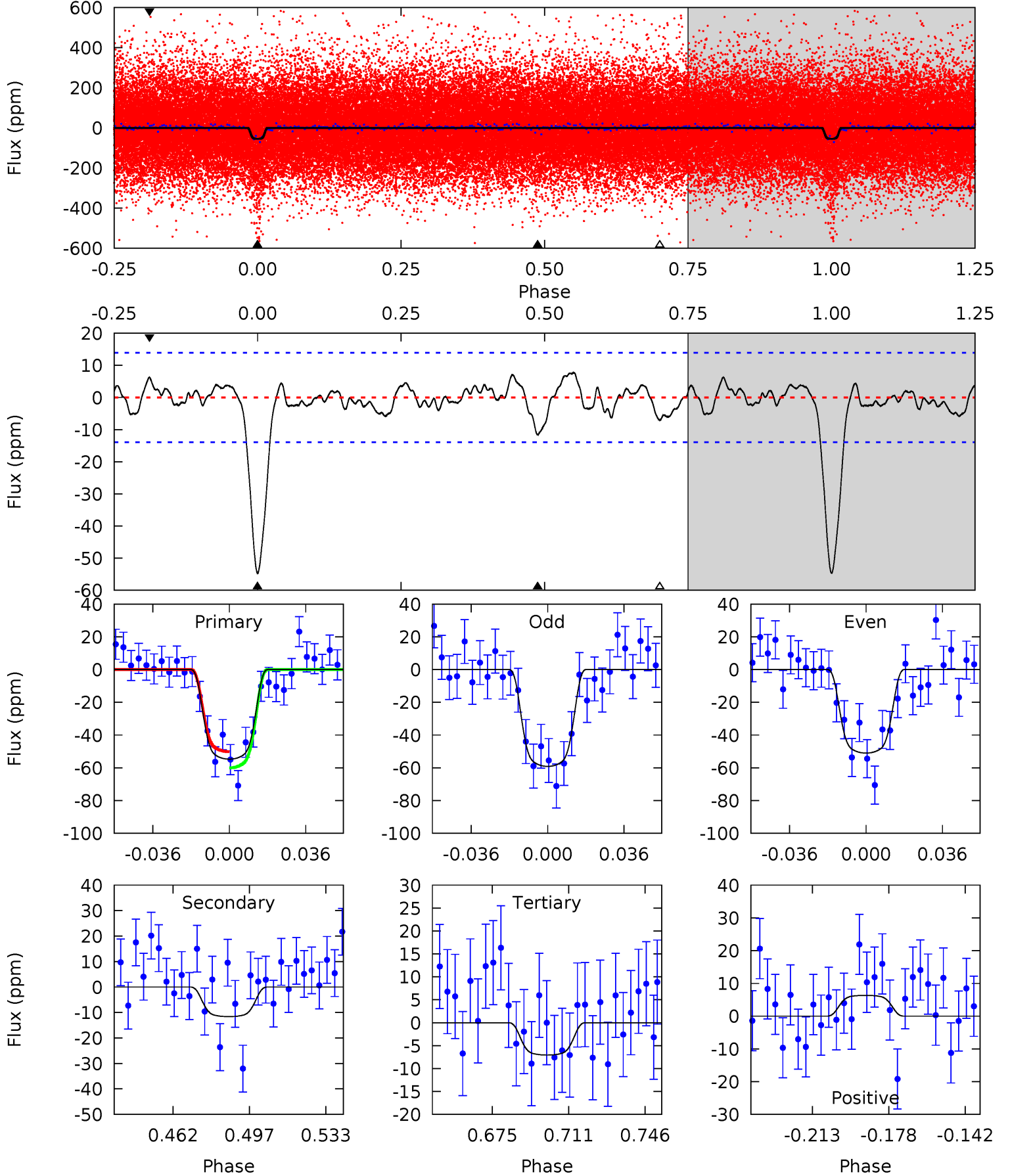
TCE 009934274-01 P= 4.994733 Days  $T_0=136.184360$  (BKJD)



# DV Model-Shift Uniqueness Test

009934274-01, P = 4.994677 Days, E = 131.195166 Days

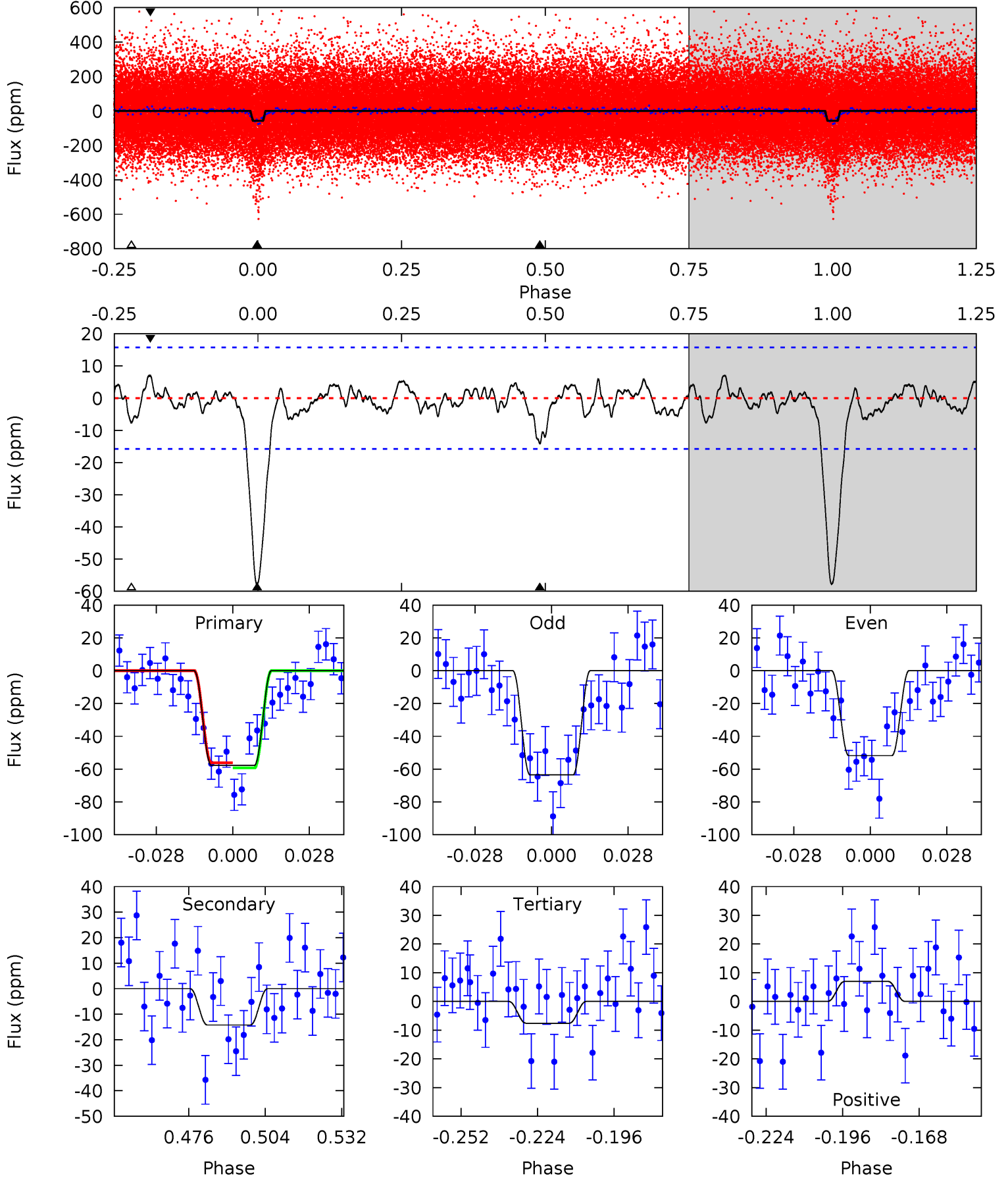
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	3.99	2.42	2.18	4.78	2.10	1.08	16.4	16.6	1.57	1.81	1.40	1.48	0.12	1.70



# Alt Model-Shift Uniqueness Test

009934274-01, P = 4.994733 Days, E = 131.189627 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
17.7	4.36	2.32	2.14	4.83	2.20	0.91	15.3	15.5	2.03	2.21	1.80	1.49	0.11	0.47





### Stellar Parameters For KIC 009934274

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6409^{+174}_{-194}$	$3.706^{+0.320}_{-0.080}$	$-0.140^{+0.300}_{-0.250}$	$2.830^{+0.458}_{-1.068}$	$1.485^{+0.211}_{-0.317}$	$0.092^{+0.217}_{-0.024}$
	+3%/-3%	+9%/-2%	+214%/-179%	+16%/-38%	+14%/-21%	+236%/-26%
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 009934274-01 / KOI 5735.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-12 \pm 3$	$2.54^{+0.43}_{-0.51}$	$2527^{+157}_{-242}$	$4191^{+261}_{-261}$	$4.326^{+2.393}_{-1.483}$
Alt.	$-14 \pm 3$	$2.32^{+0.40}_{-0.46}$	$2540^{+147}_{-228}$	$4527^{+302}_{-289}$	$6.231^{+3.451}_{-1.933}$

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

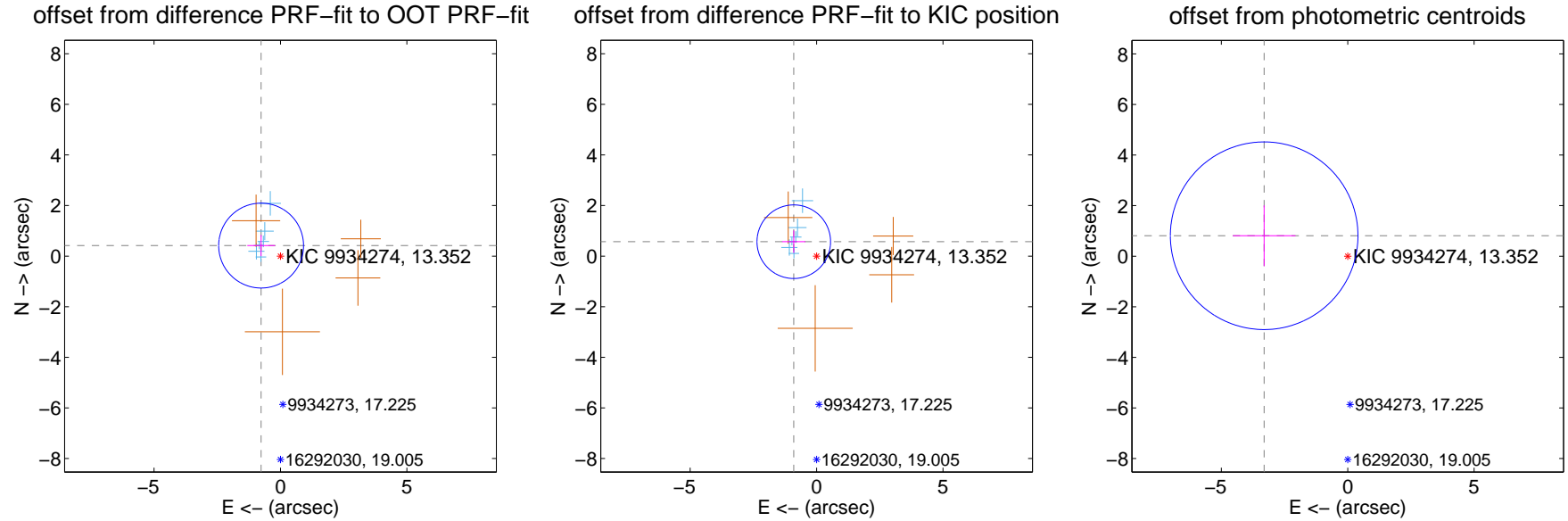
## DV Centroid Data

Supplemental centroid analysis for 009934274-01. Kepler magnitude: 13.35. Transit SNR 12.16

There are 6 quarters with good PRF difference image offsets

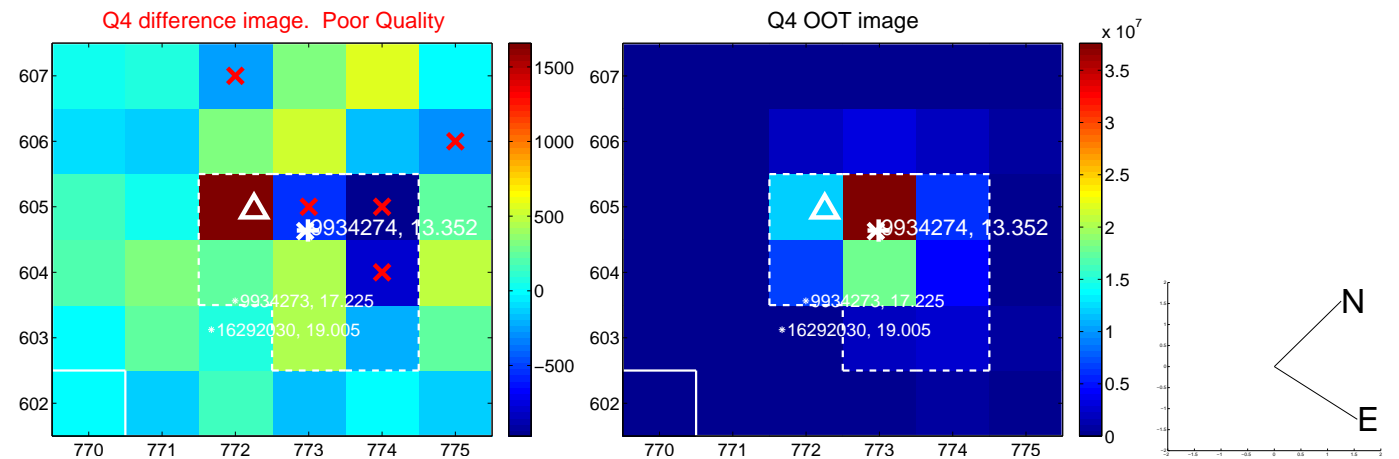
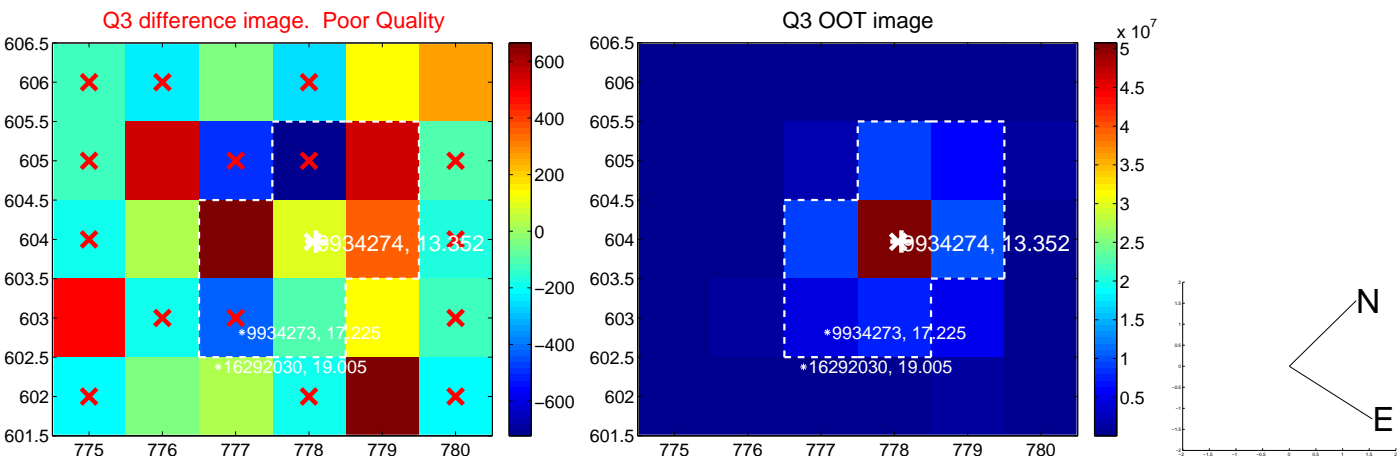
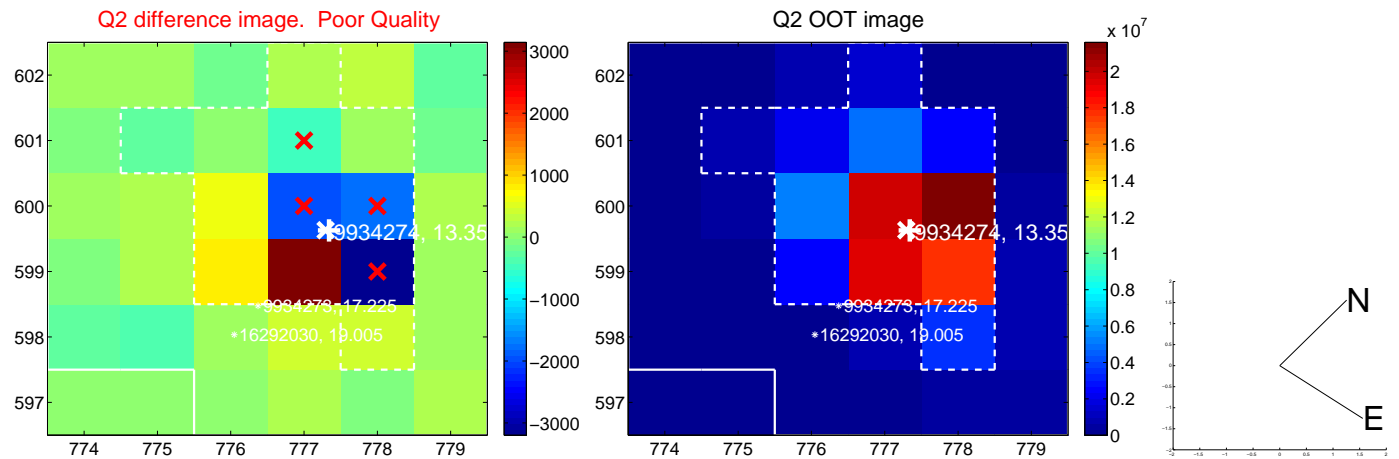
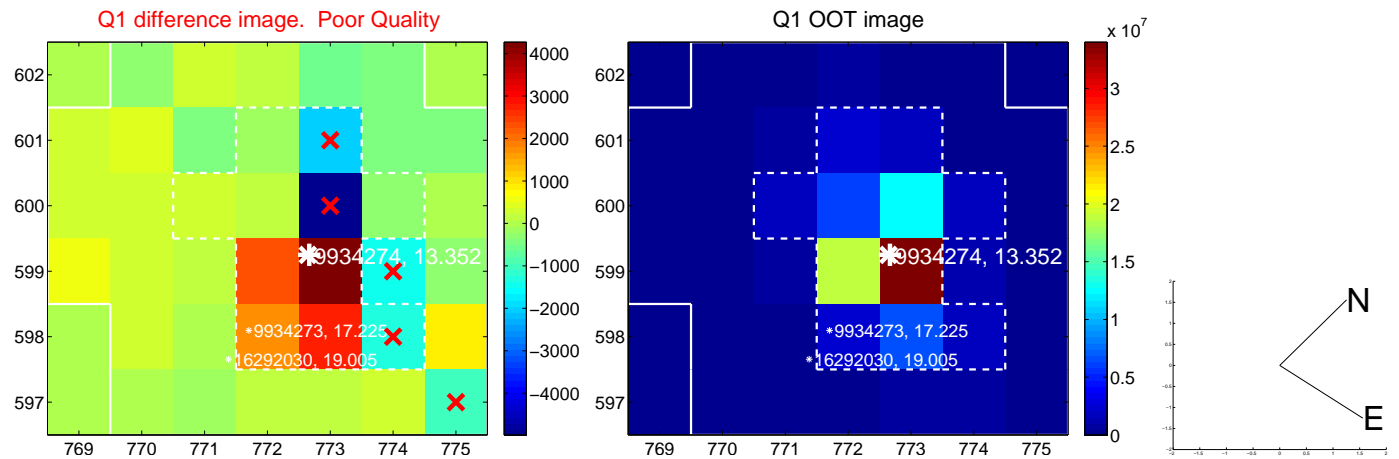
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.871 \pm 0.559$	1.56	$0.765 \pm 0.547$	$0.417 \pm 0.418$
PRF-fit source offset from KIC position	$1.067 \pm 0.485$	2.20	$0.901 \pm 0.461$	$0.570 \pm 0.441$
photometric centroid source offset	$3.40 \pm 1.24$	2.75	$3.31 \pm 1.24$	$0.81 \pm 1.20$

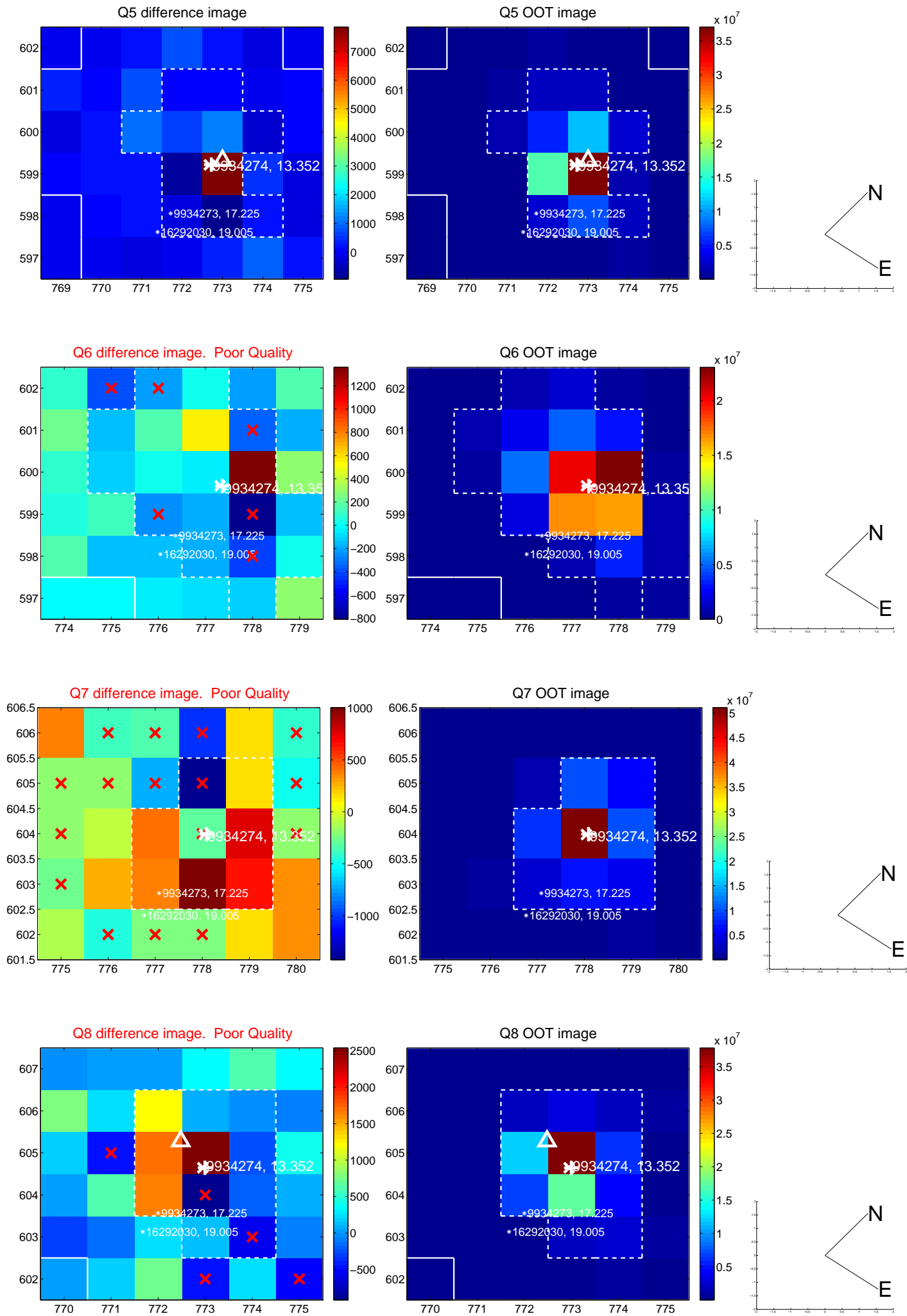


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

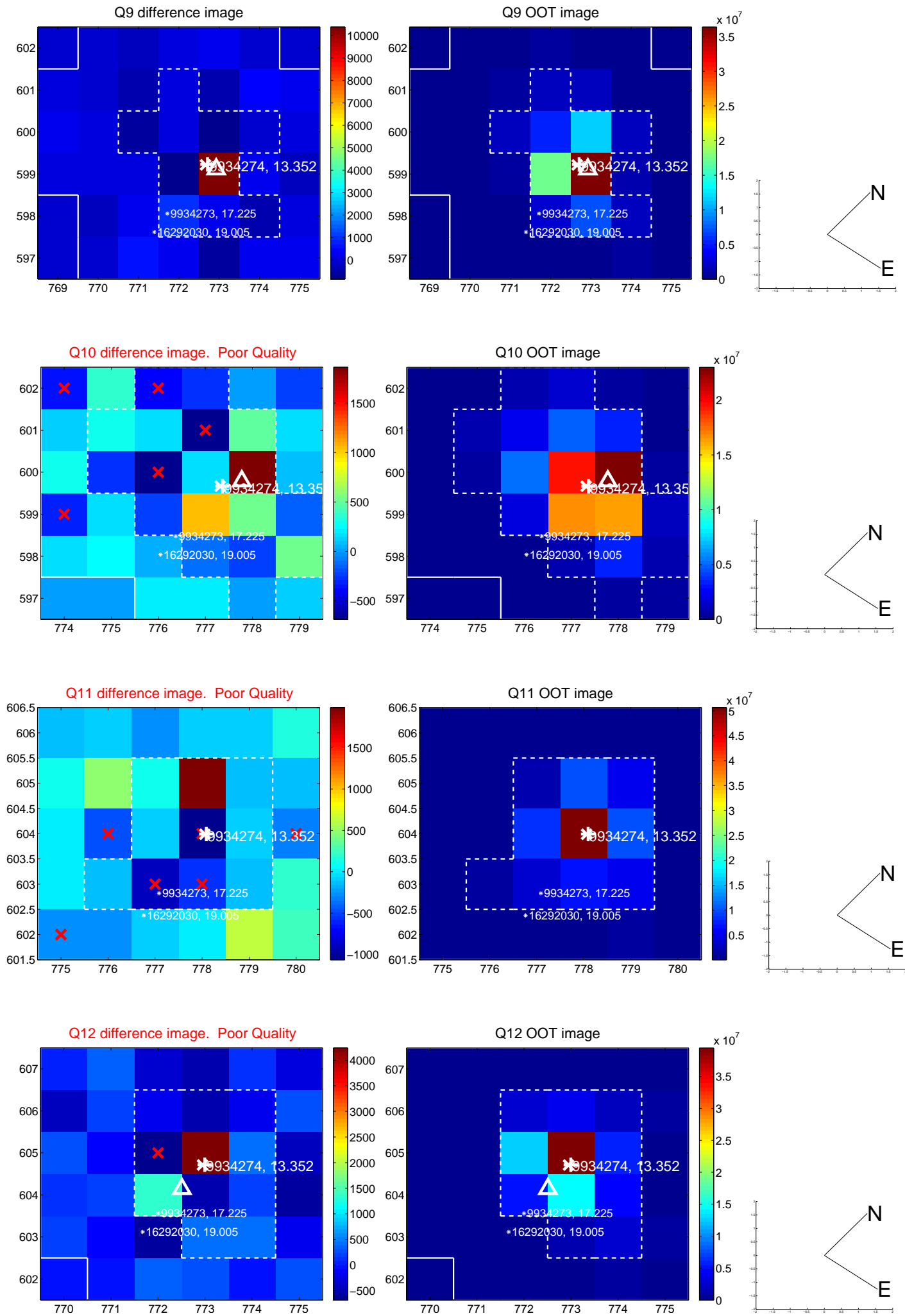


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

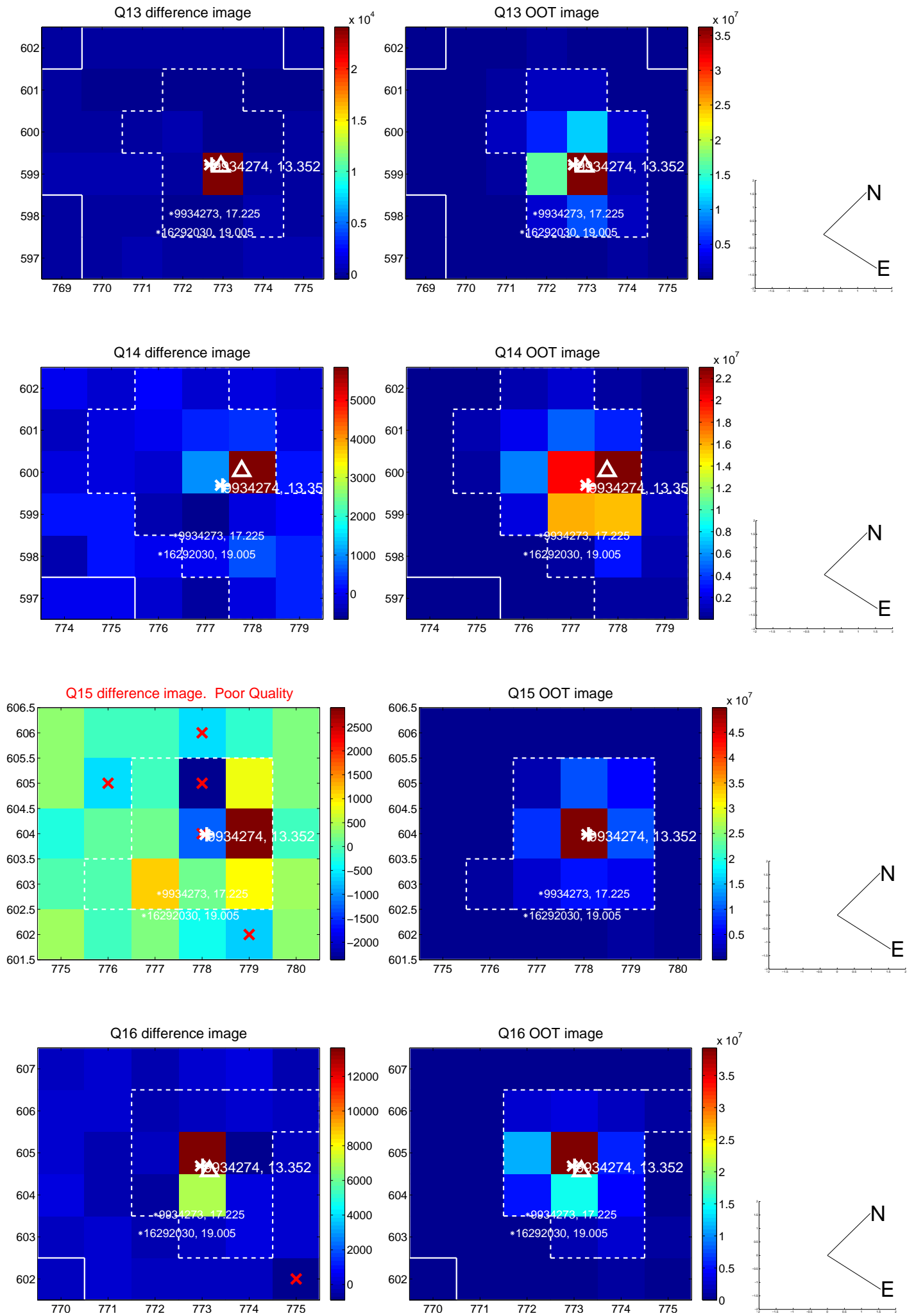




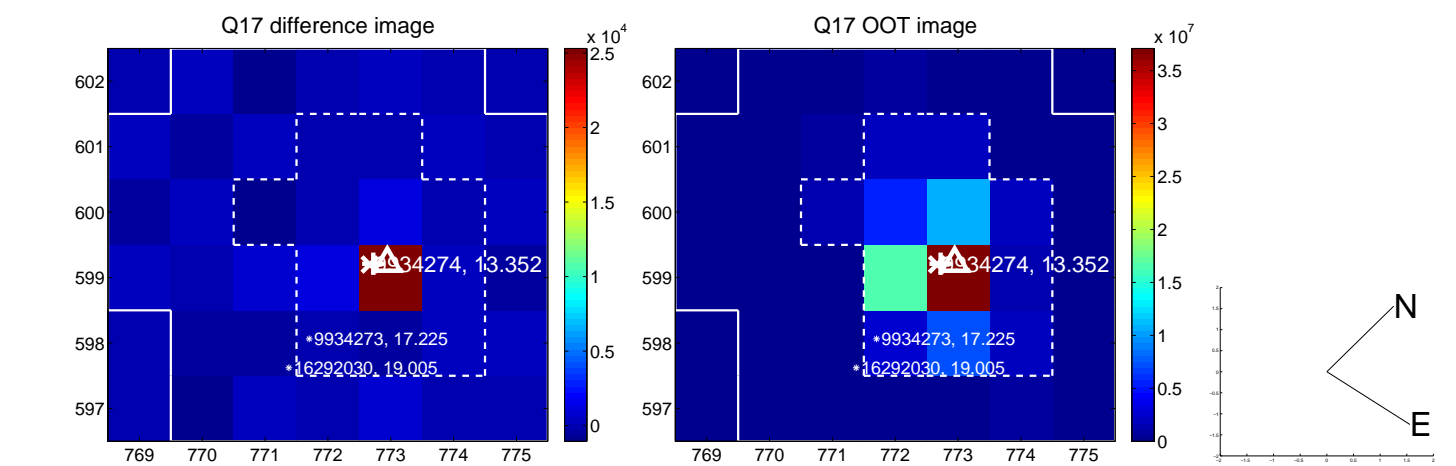
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



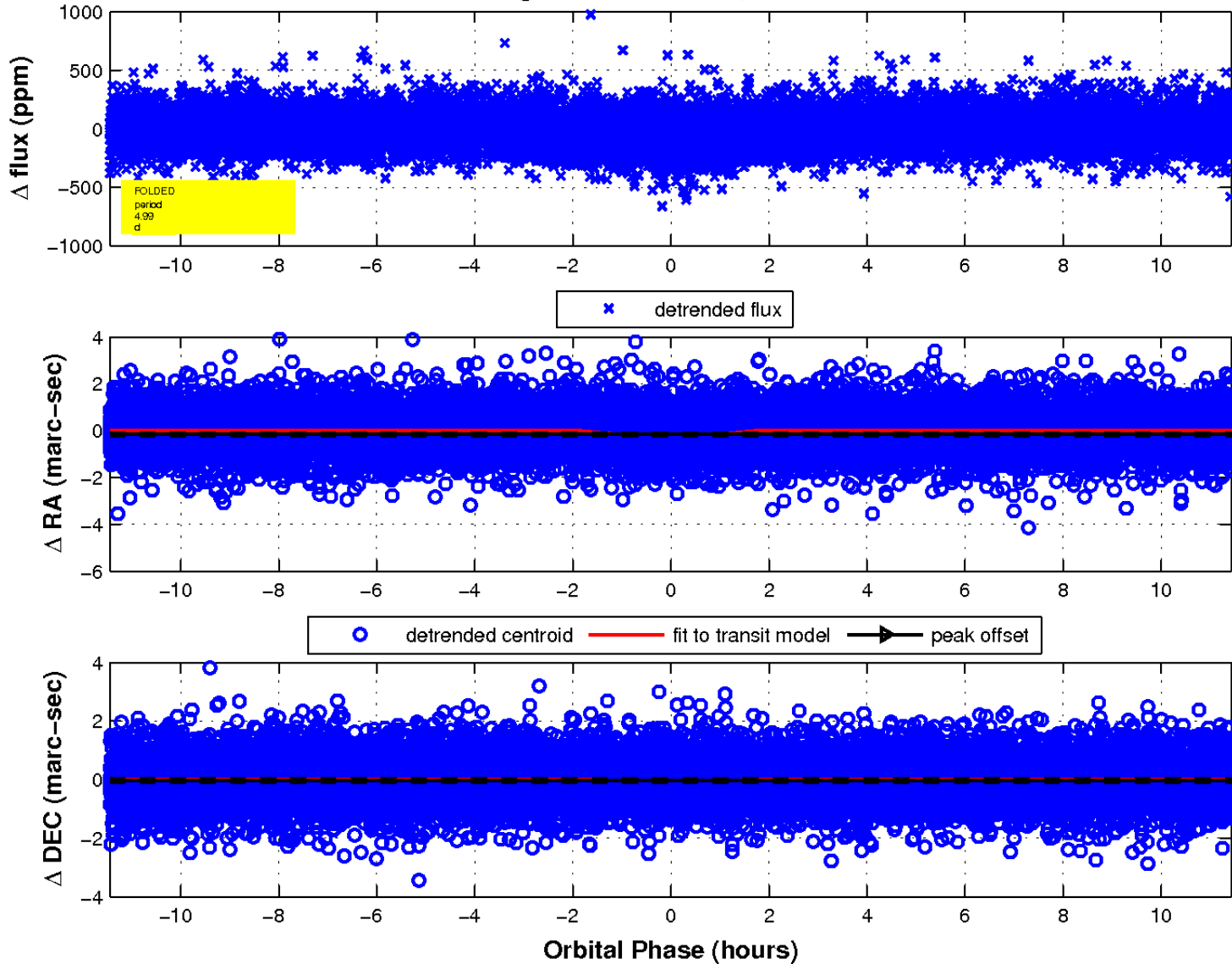
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

