

# KIC 009774400

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009774400-01	OBS	6212.01	10.818236	137.172077	11066.5	18.151	1621.3	888.5	0.89	5955	10.57	112.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009774400-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—CENT_KIC_POS

**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 009774400-01

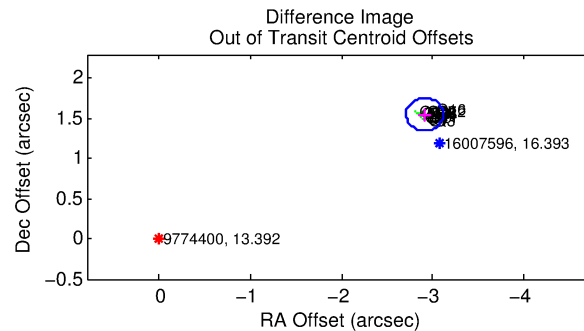
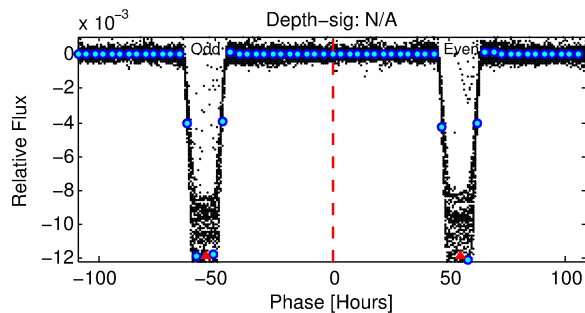
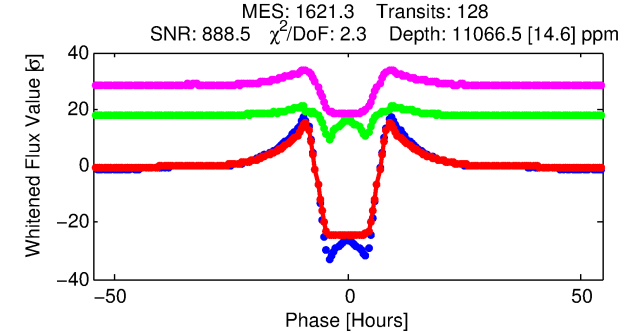
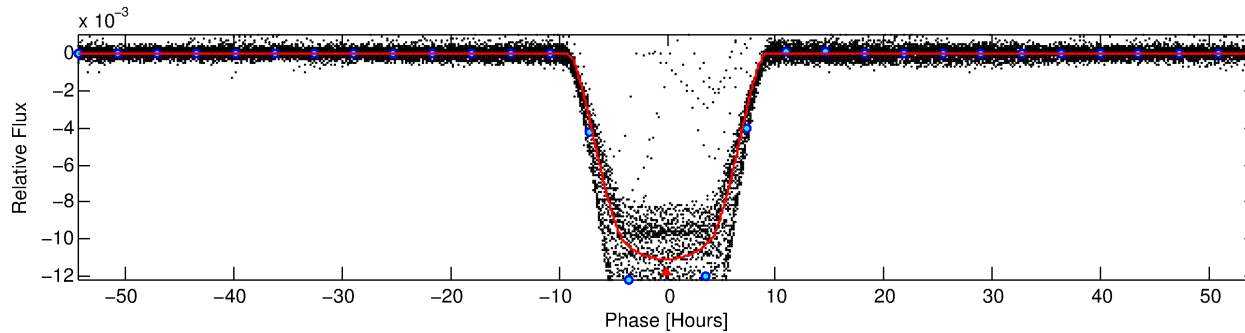
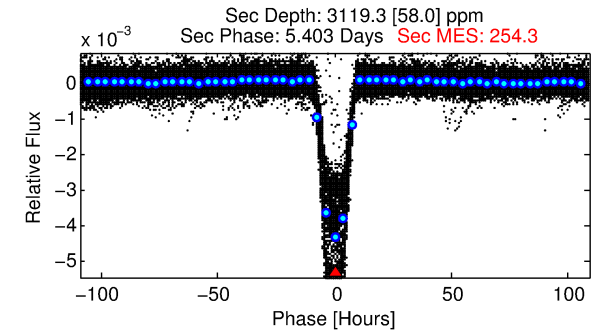
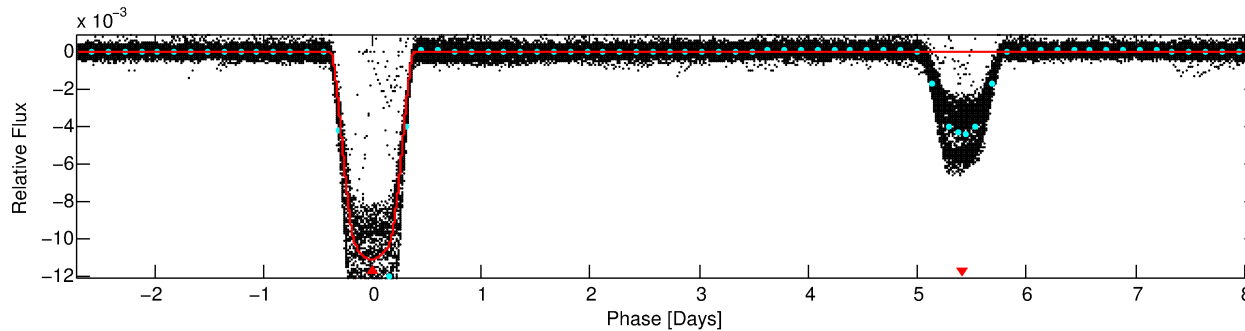
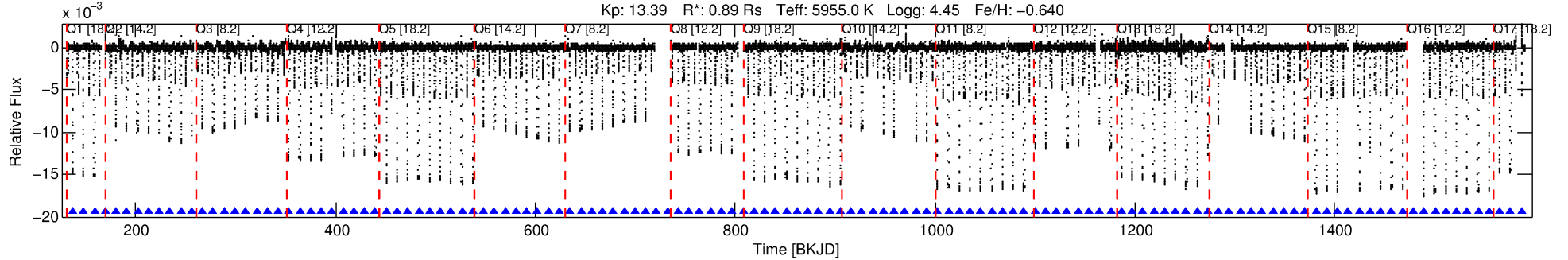
No Significant Match Found

# DV One-Page Summary

KIC: 9774400 Candidate: 1 of 1 Period: 10.818 d

KOI: K06212.01 Corr: 0.984

Kp: 13.39 R\*: 0.89 Rs Teff: 5955.0 K Logg: 4.45 Fe/H: -0.640



## DV Fit Results:

Period = 10.81824 [0.00000] d  
Epoch = 137.1721 [0.0003] BKJD  
Rp/R\* = 0.1084 [0.0001]  
a/R\* = 3.49 [0.01]  
b = 0.83 [0.00]  
Seff = 112.66 [37.35]  
Teq = 831 [69] K  
Rp = 10.57 [2.61] Re  
a = 0.0894 [0.0190] AU  
Ag = 122.72 [38.58] [3.15σ]  
Teffp = 4275 [116] K [25.55σ]

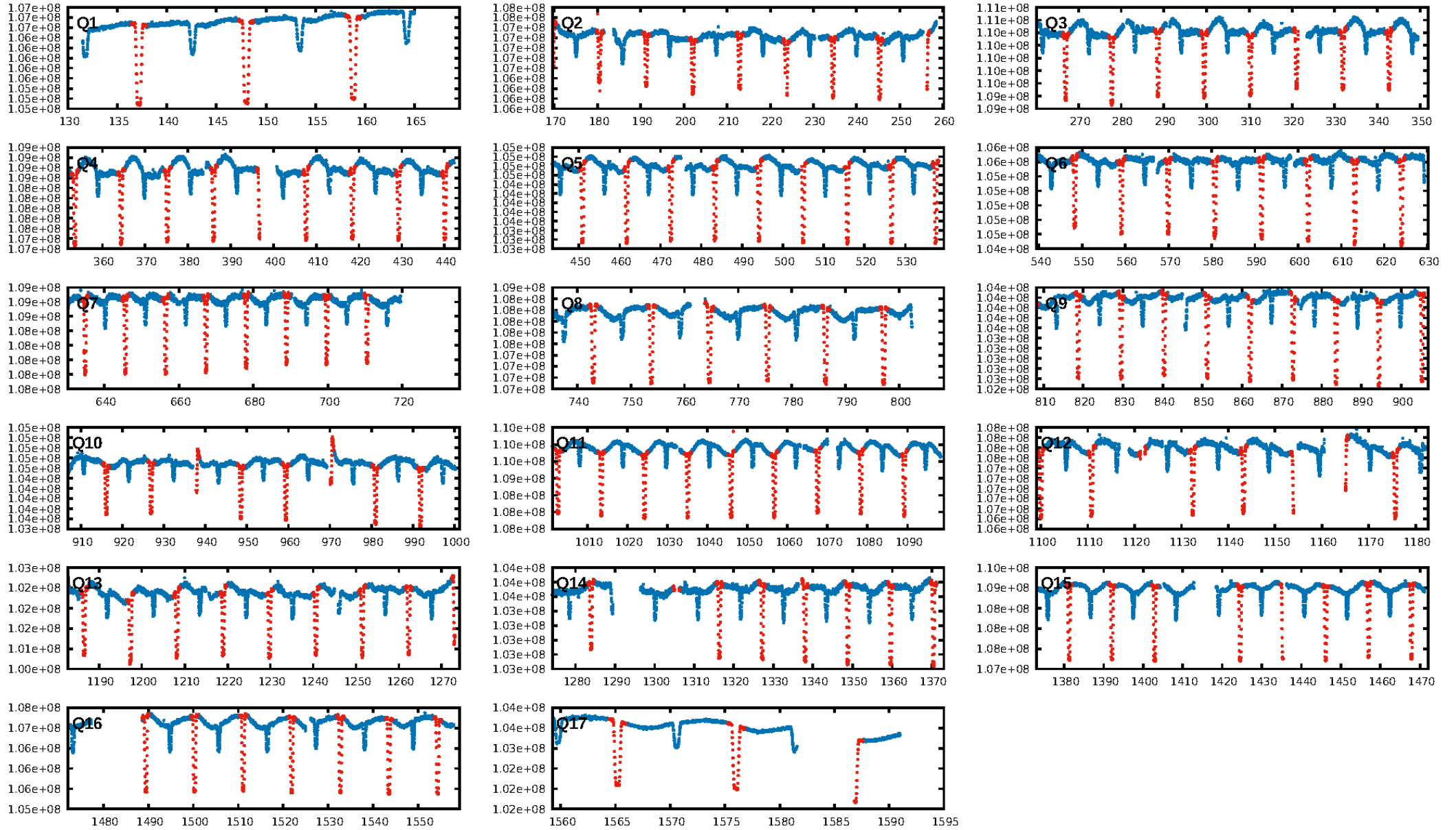
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [122/122]  
GhostDiagnostic-chr: 0.9879  
Centroid-sig: 0.0%  
Centroid-so: 5.399 arcsec [418.57σ]  
OotOffset-rm: 3.301 arcsec [48.47σ]  
KicOffset-rm: 3.282 arcsec [48.80σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

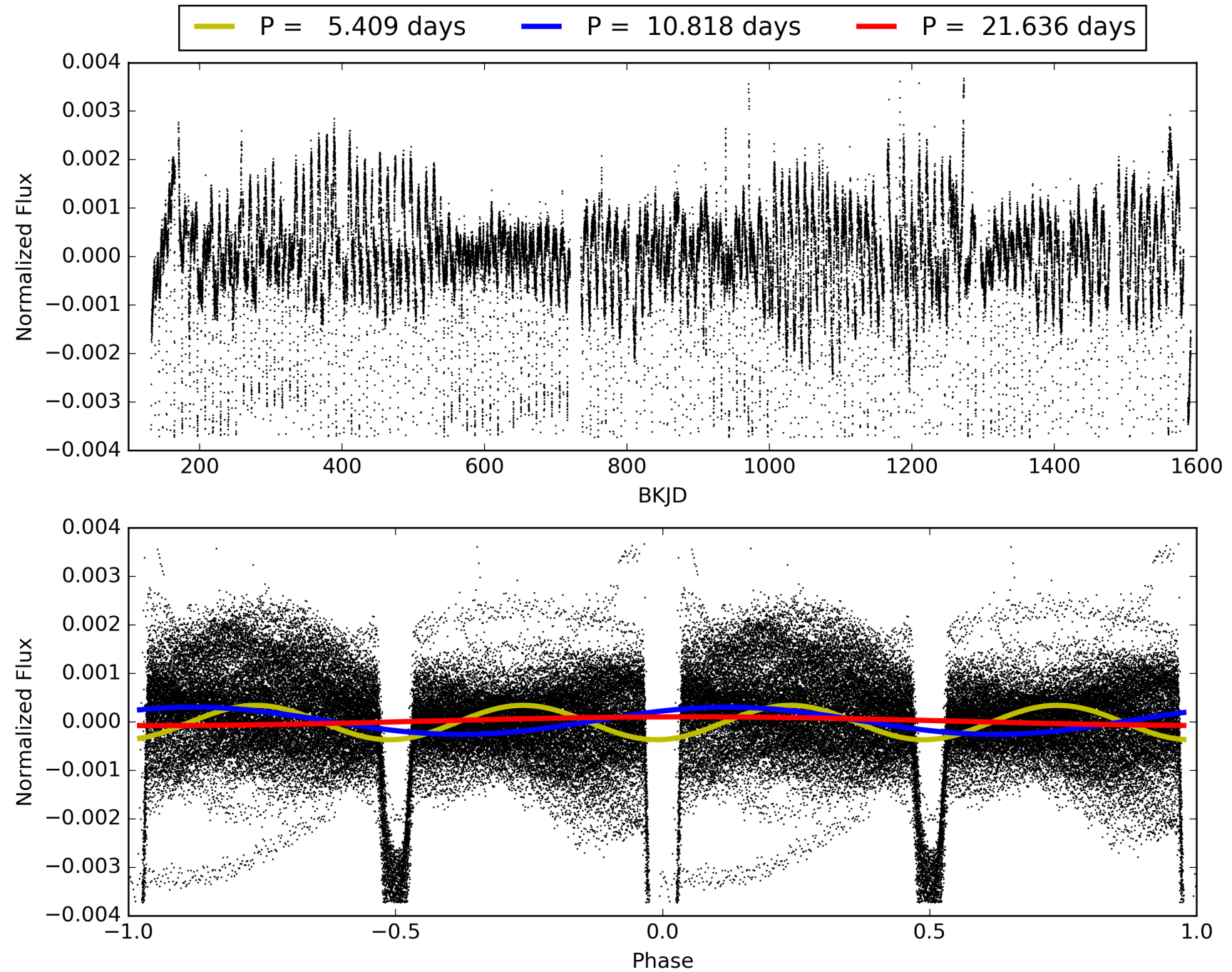
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:58:16 Z

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

# TCE 009774400-01, PDC Light Curves

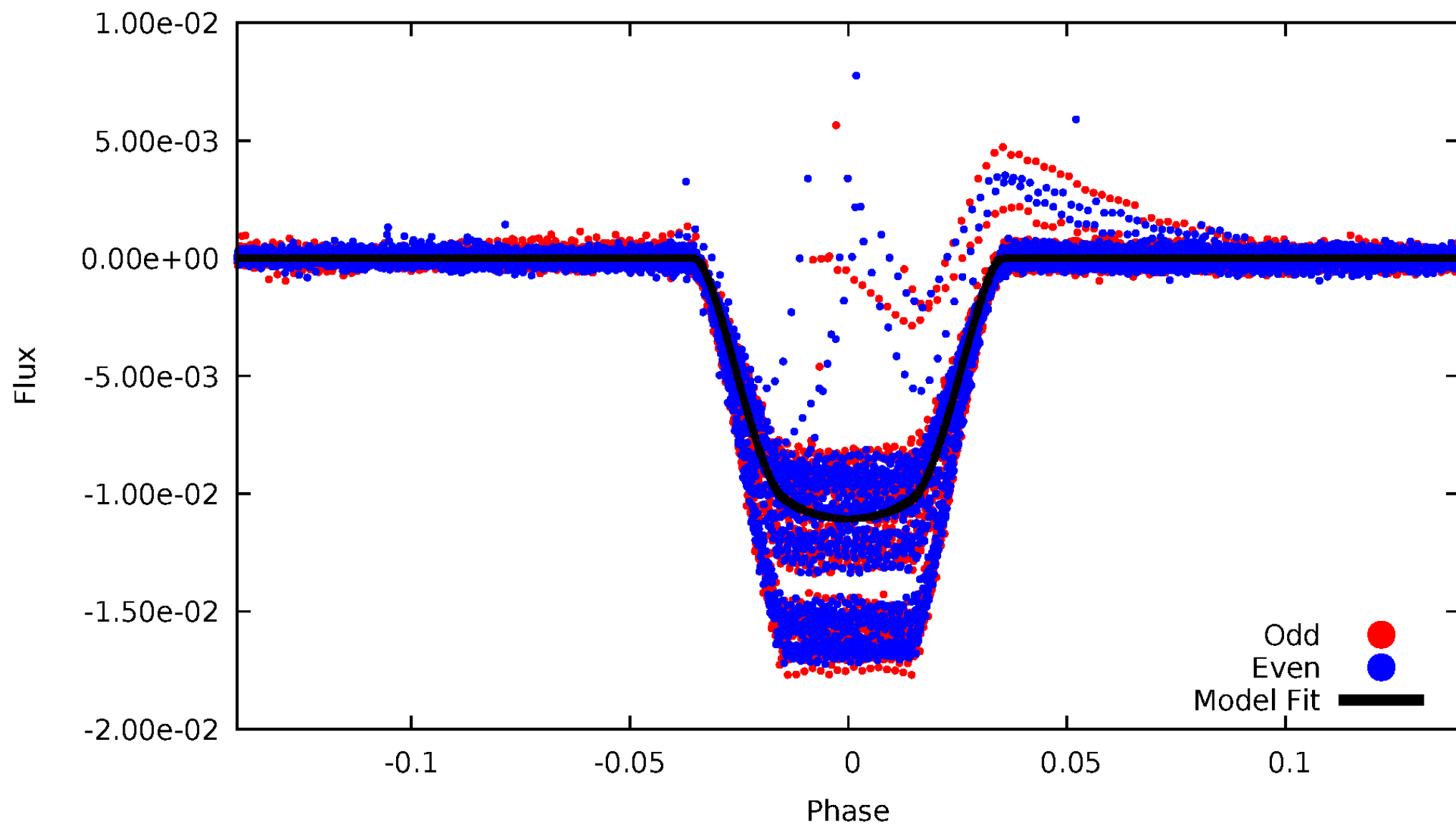


TCE 009774400-01



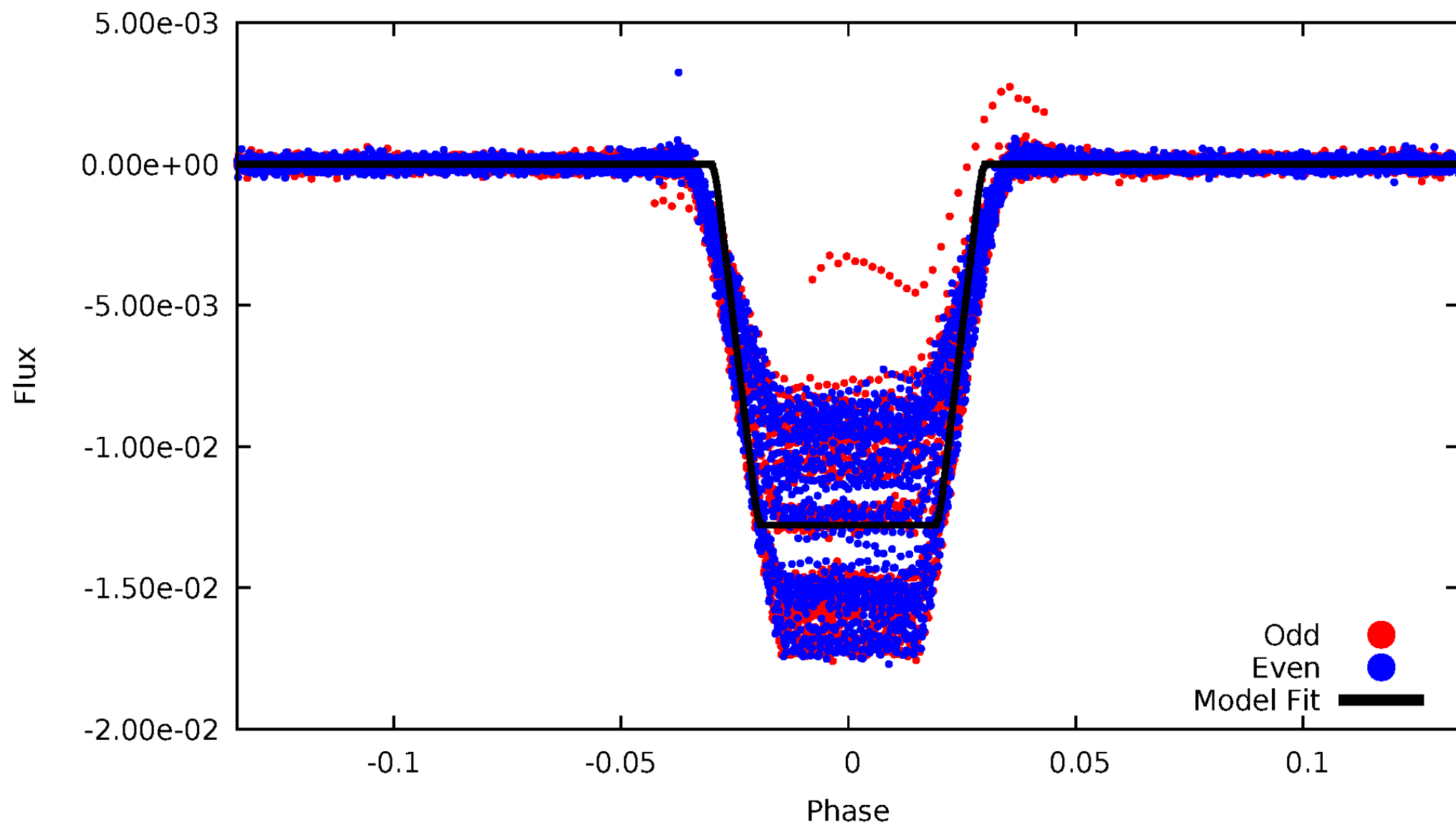
# DV Odd/Even

TCE 009774400-01



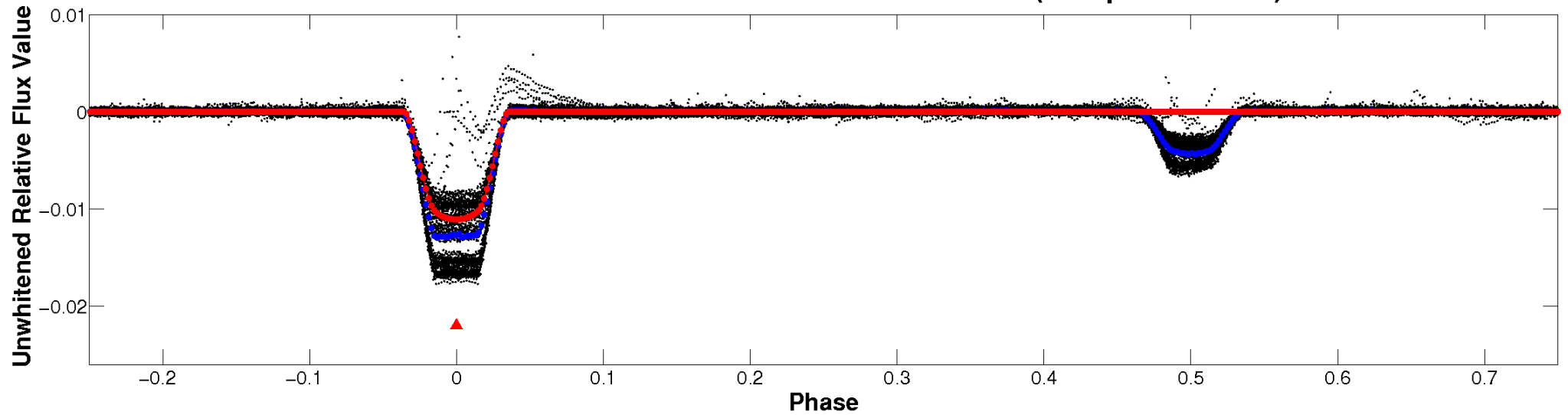
# ALT Odd/Even

TCE 009774400-01

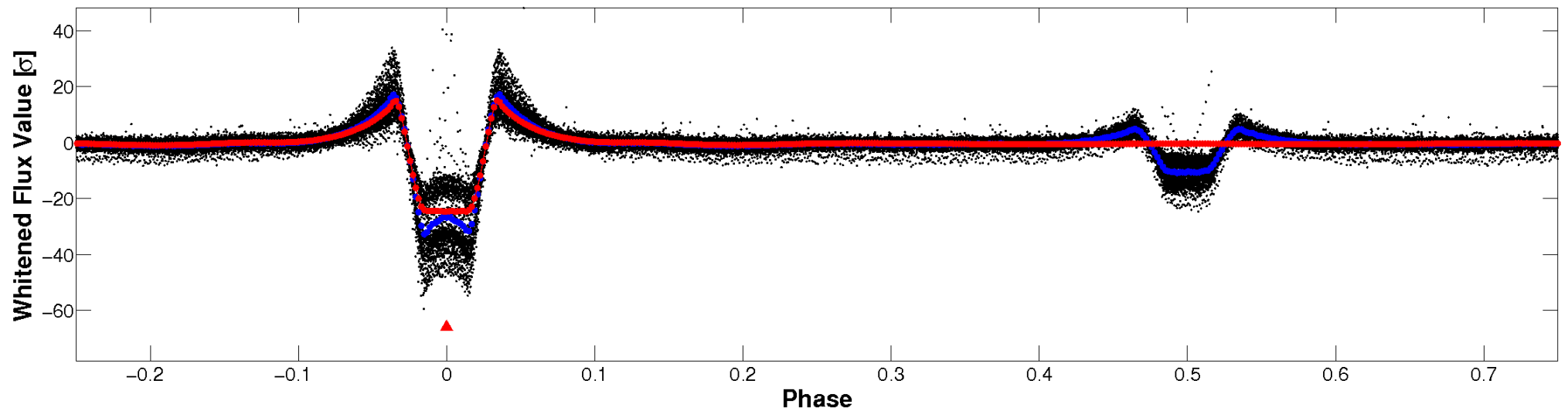


# Non-Whitened Vs. Whitened Light Curve

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

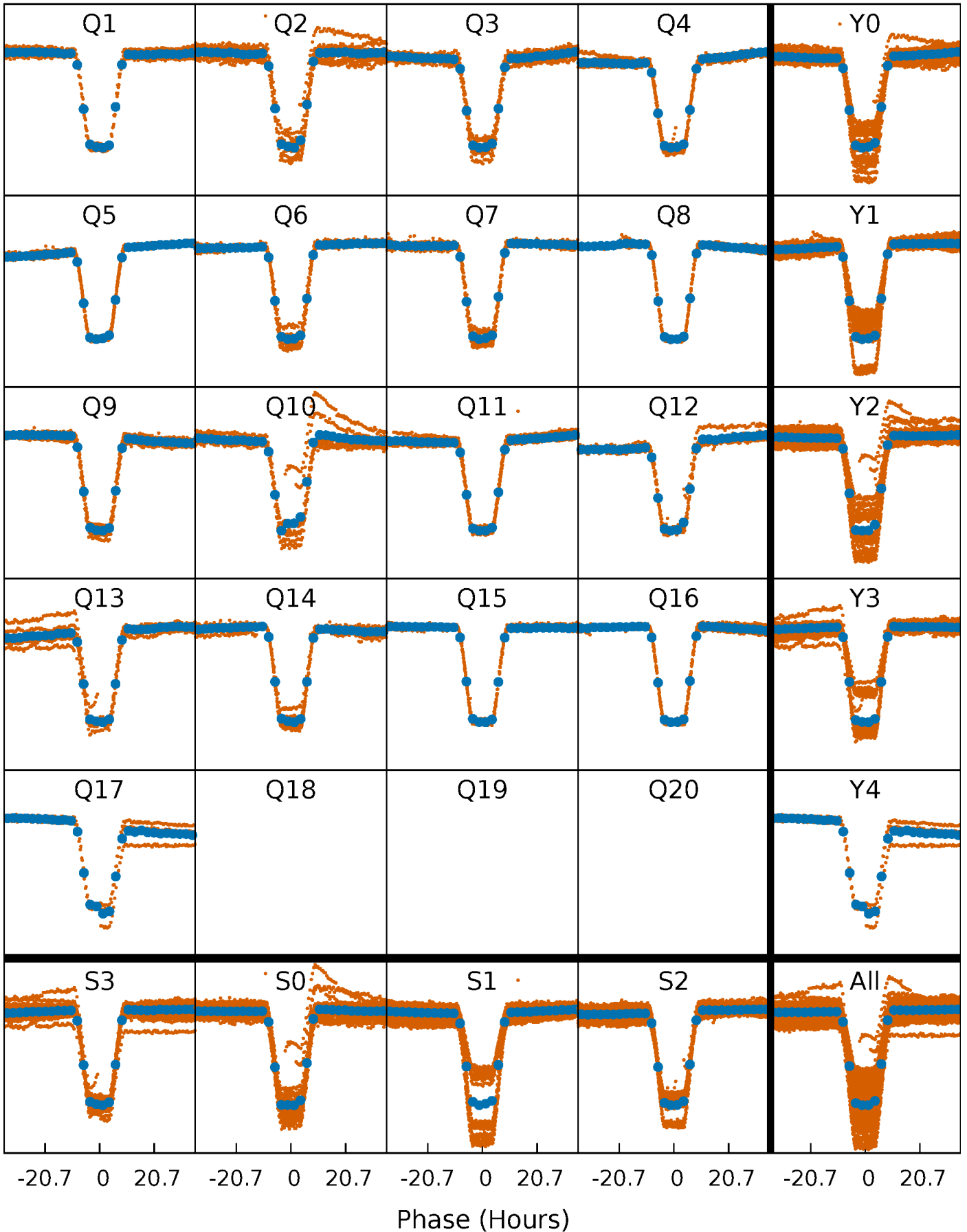


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

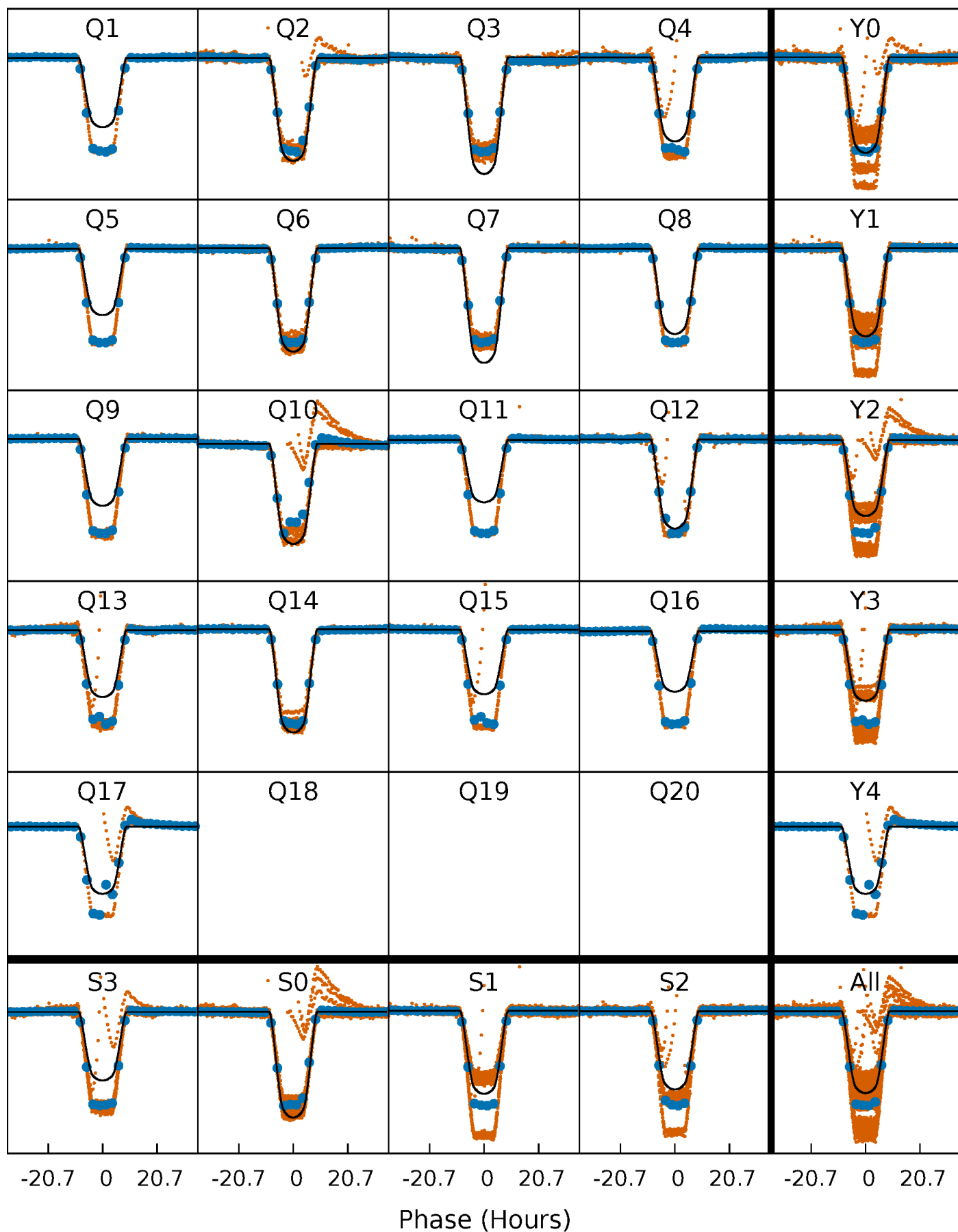
TCE 009774400-01 P= 10.818236 Days  $T_0=137.172077$  (BKJD)





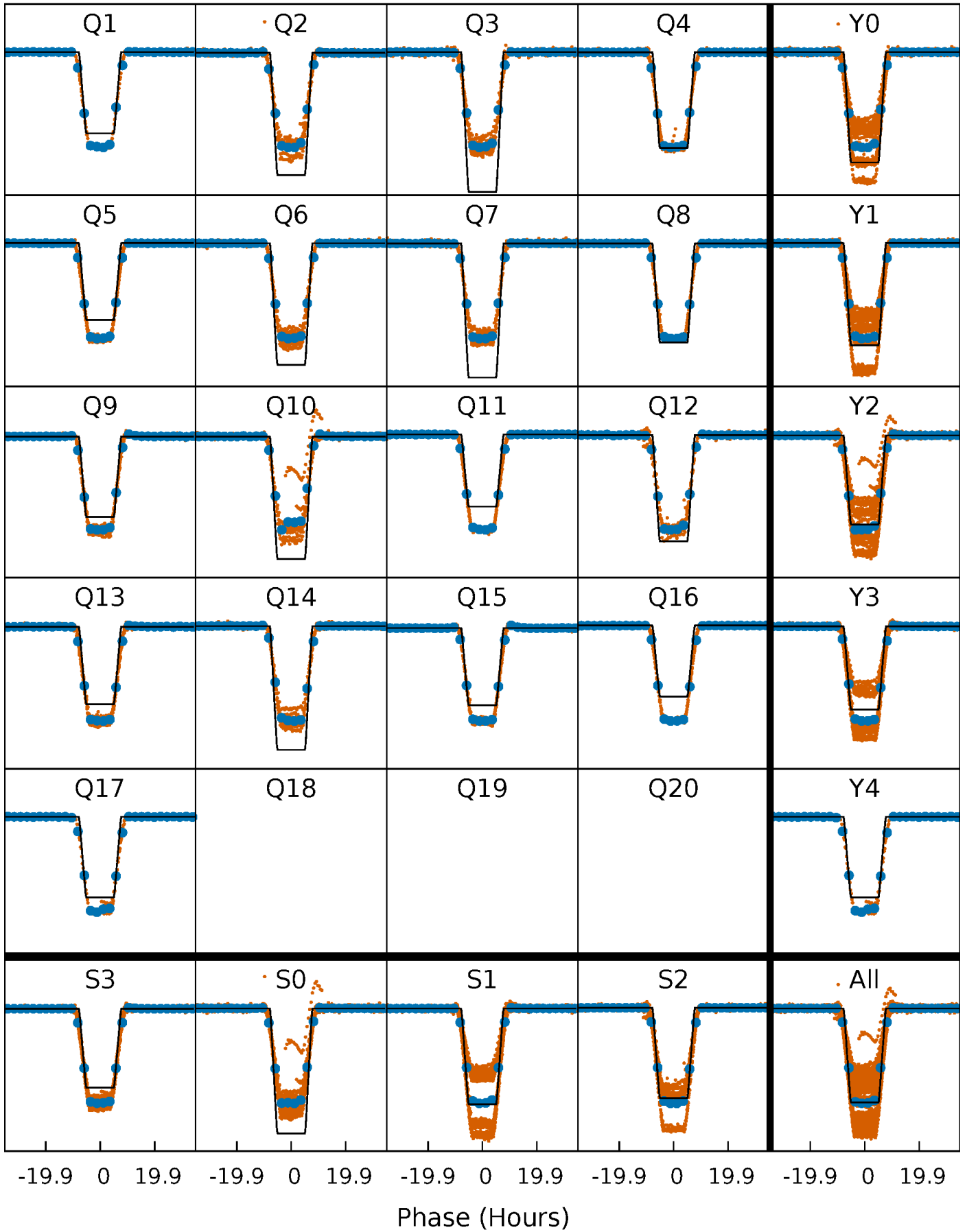
# DV Quarter-Phased Transit Curves

TCE 009774400-01 P= 10.818236 Days  $T_0=137.172077$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

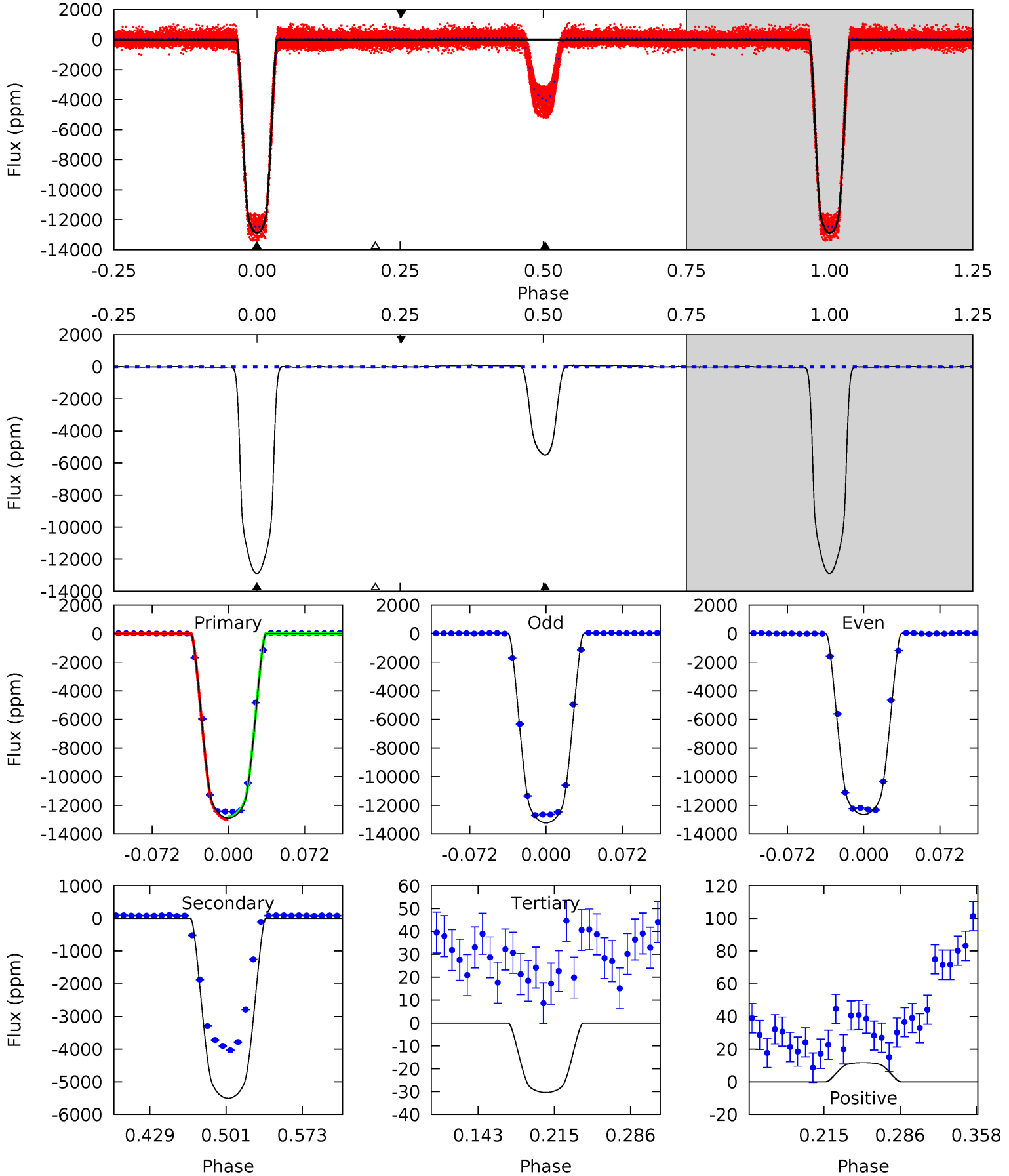
TCE 009774400-01 P= 10.818177 Days  $T_0=137.174464$  (BKJD)



# DV Model-Shift Uniqueness Test

009774400-01, P = 10.818236 Days, E = 126.353841 Days

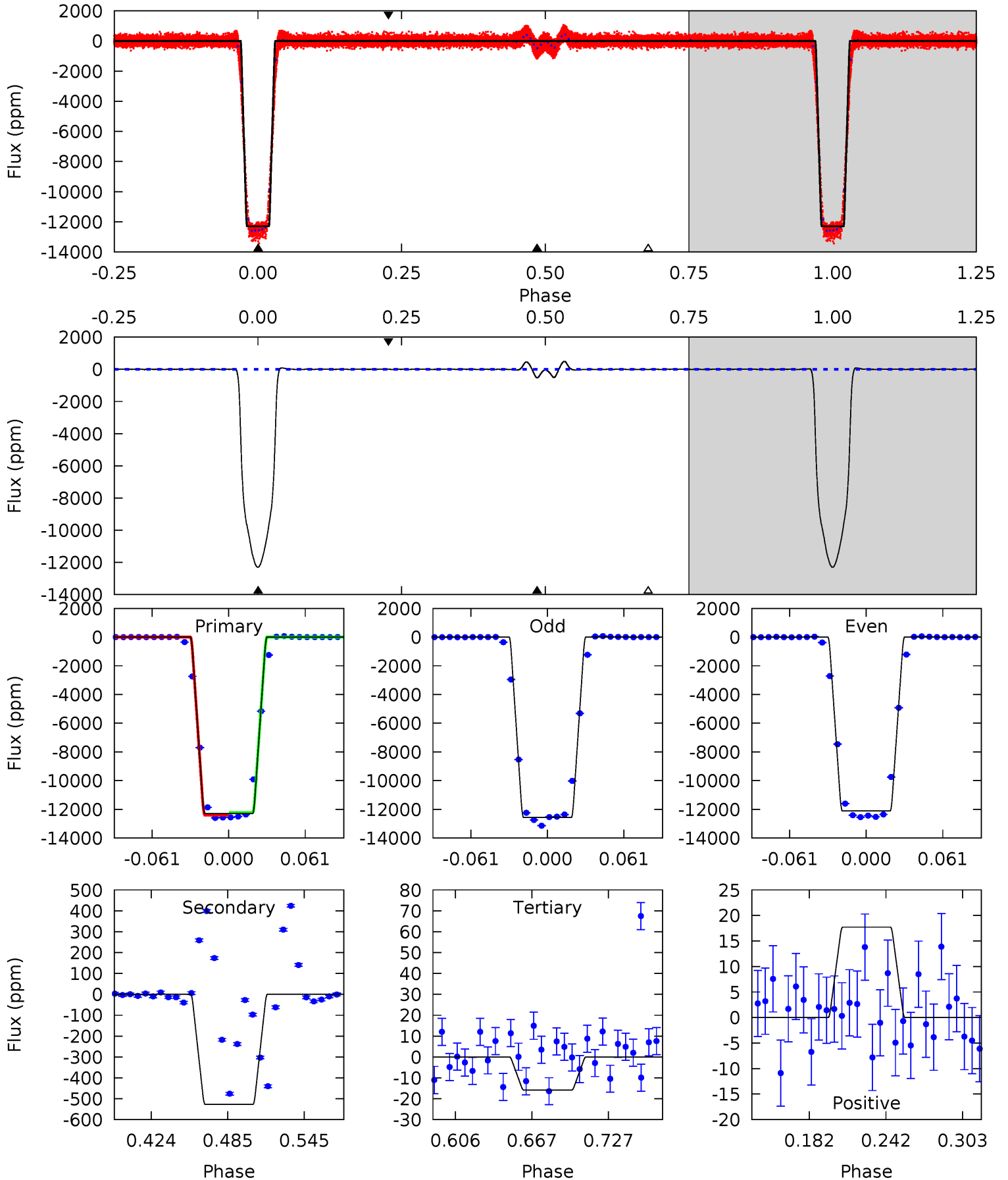
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2400	1024	5.66	2.18	4.63	1.80	6.68	2394	2397	1019	1022	53.9	1.01	0.01	0



# Alt Model-Shift Uniqueness Test

009774400-01, P = 10.818177 Days, E = 126.356287 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
2324	99.6	2.99	3.35	4.67	1.88	1.42	2321	2321	96.6	96.3	43.0	1.01	0.04	0



### Stellar Parameters For KIC 009774400

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5955^{+159}_{-159}$	$4.446^{+0.116}_{-0.174}$	$-0.640^{+0.300}_{-0.300}$	$0.894^{+0.221}_{-0.119}$	$0.814^{+0.095}_{-0.063}$	$1.603^{+0.909}_{-0.717}$
	+3%/-3%	+3%/-4%	+47%/-47%	+25%/-13%	+12%/-8%	+57%/-45%
Source	PHO1	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 009774400-01 / KOI 6212.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-5503 \pm 5$	$10.55^{+1.48}_{-0.82}$	$1161^{+74}_{-58}$	$5007^{+123}_{-111}$	$217^{+38}_{-45}$
Alt.	$-527 \pm 5$	$11.08^{+1.59}_{-0.93}$	$1167^{+76}_{-58}$	$3250^{+52}_{-52}$	$19^{+4}_{-4}$

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

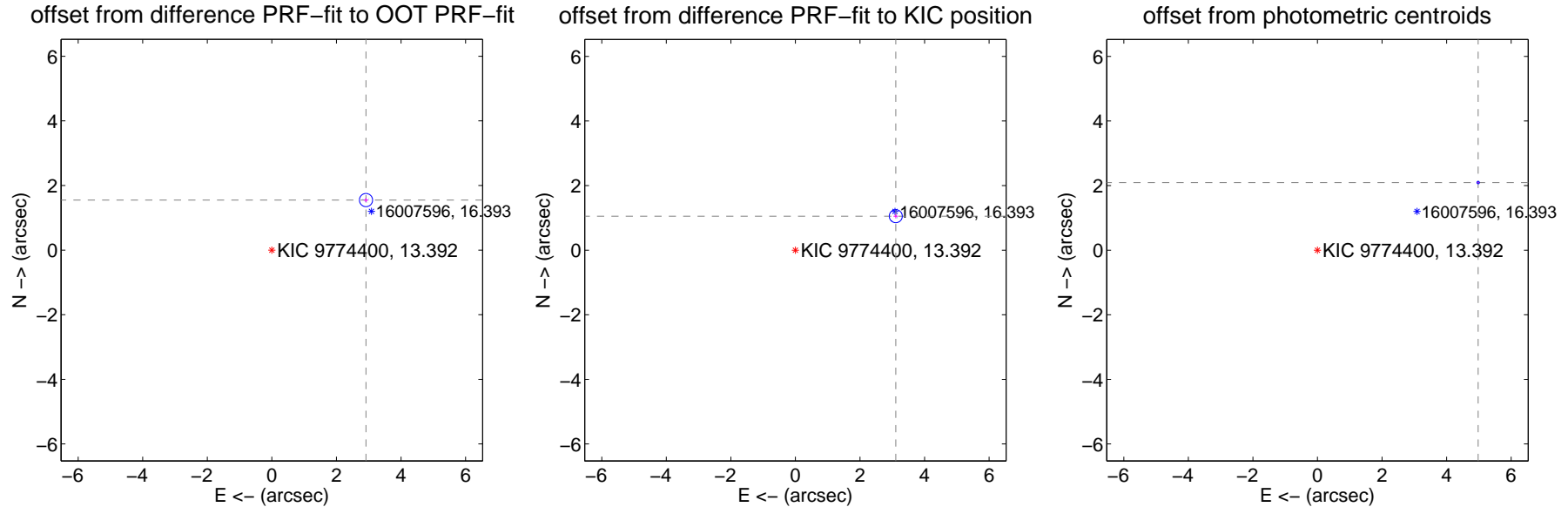
## DV Centroid Data

Supplemental centroid analysis for 009774400-01. Kepler magnitude: 13.39. Transit SNR 888.51

There are 17 quarters with good PRF difference image offsets

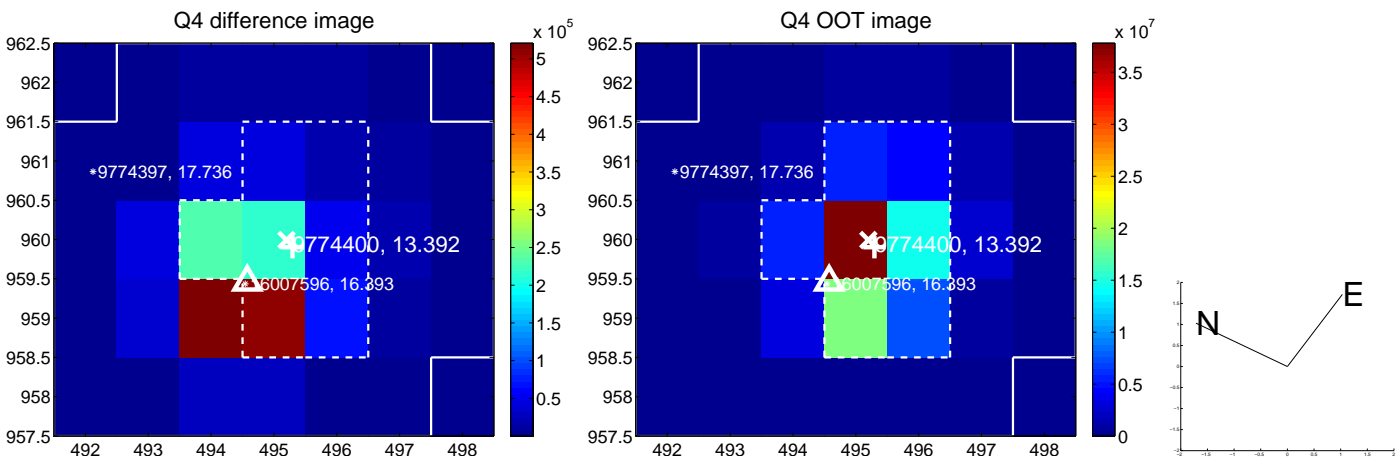
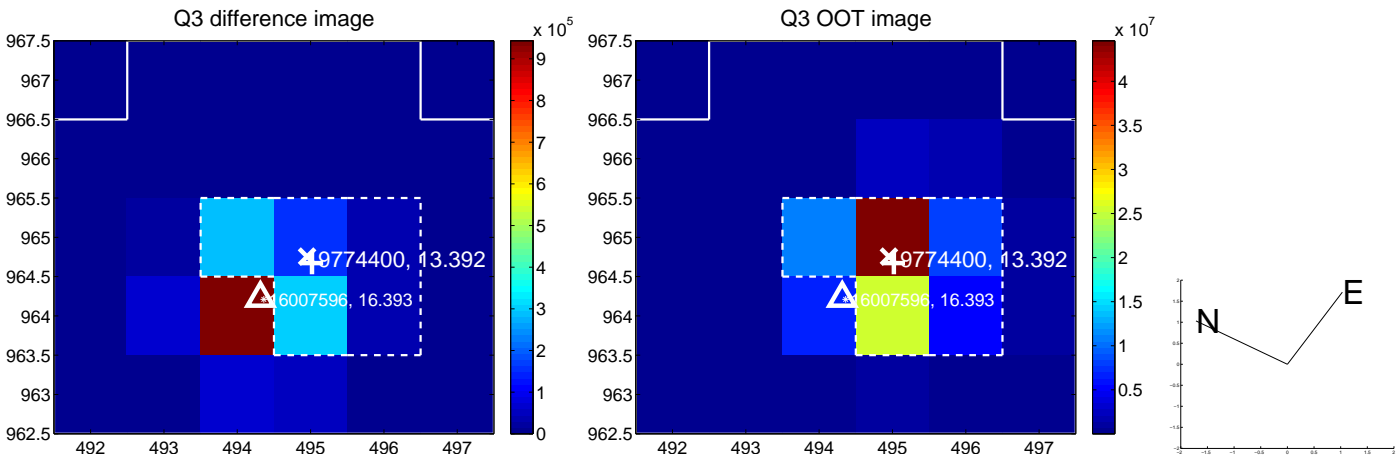
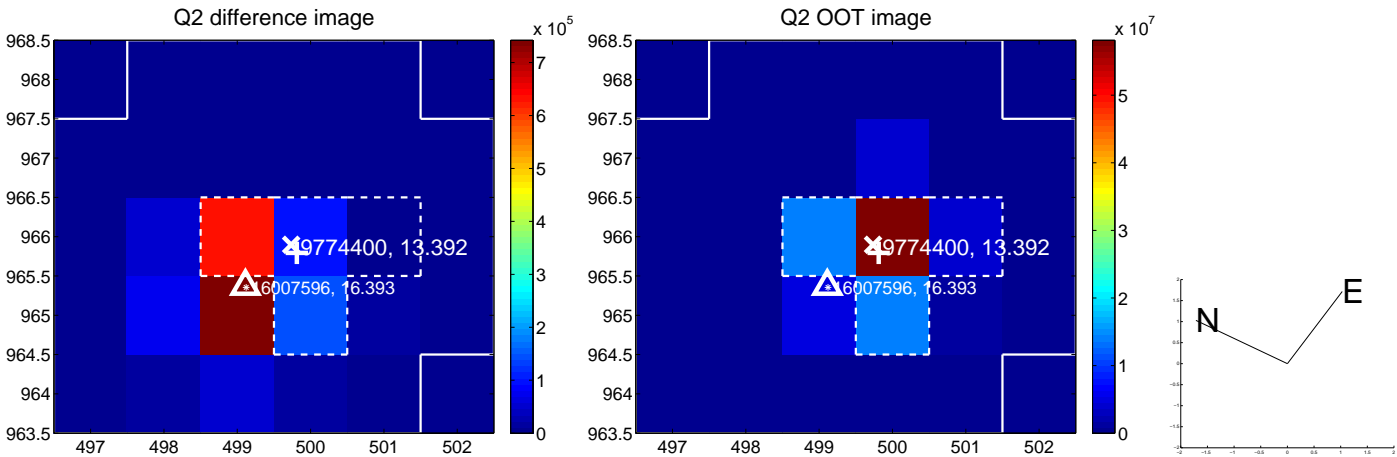
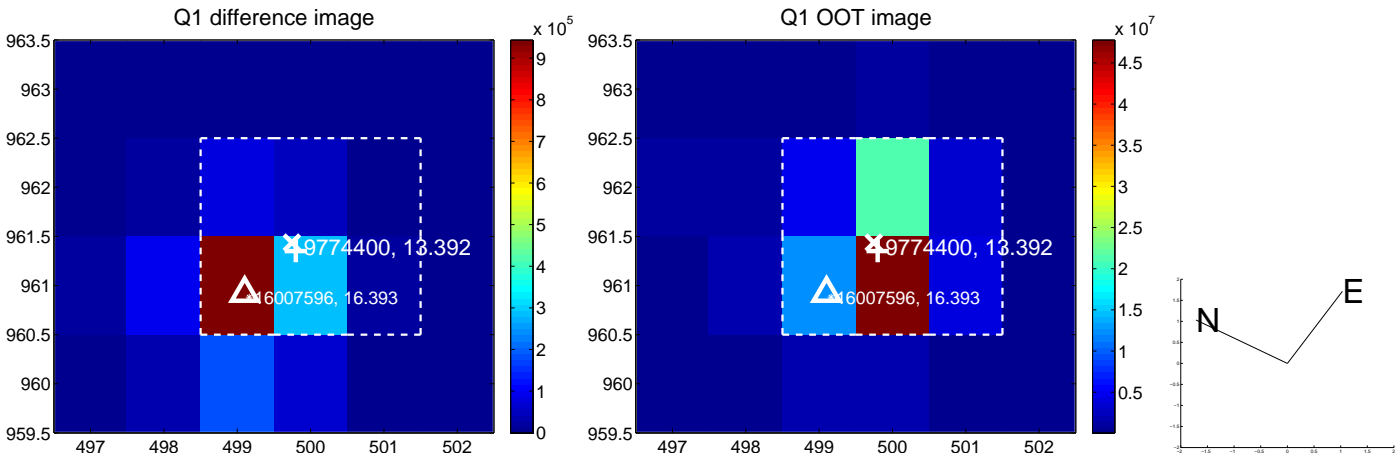
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.301 \pm 0.068$	48.47	$-2.915 \pm 0.068$	$1.548 \pm 0.067$
PRF-fit source offset from KIC position	$3.282 \pm 0.067$	48.80	$-3.108 \pm 0.067$	$1.053 \pm 0.068$
photometric centroid source offset	$5.40 \pm 0.01$	418.57	$-4.98 \pm 0.01$	$2.09 \pm 0.01$

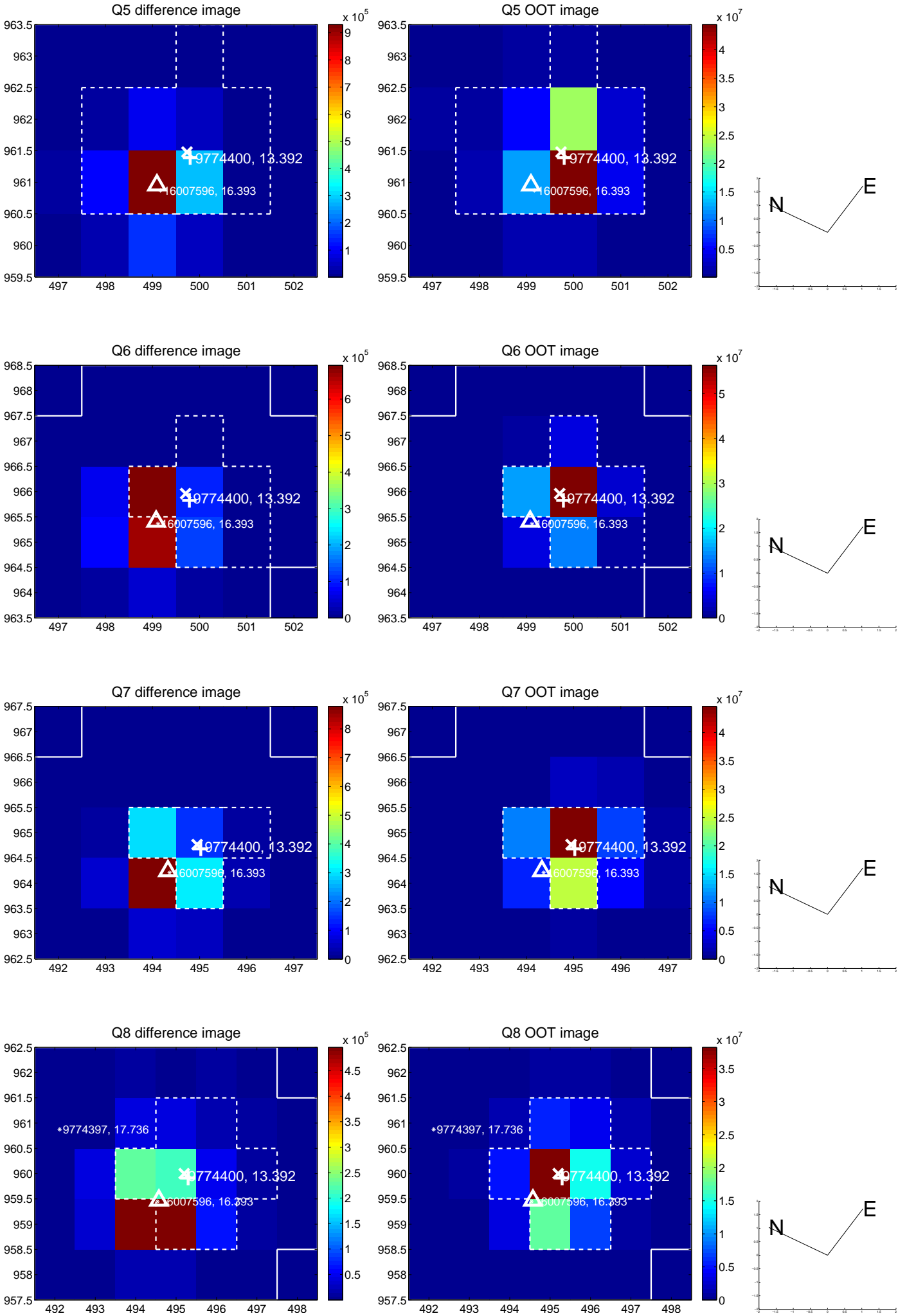


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

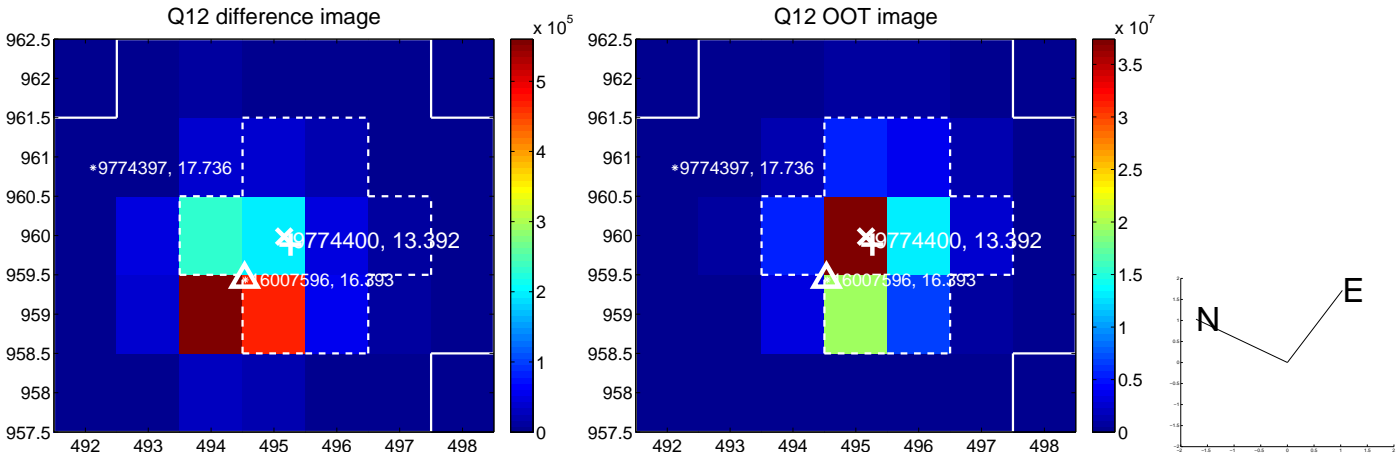
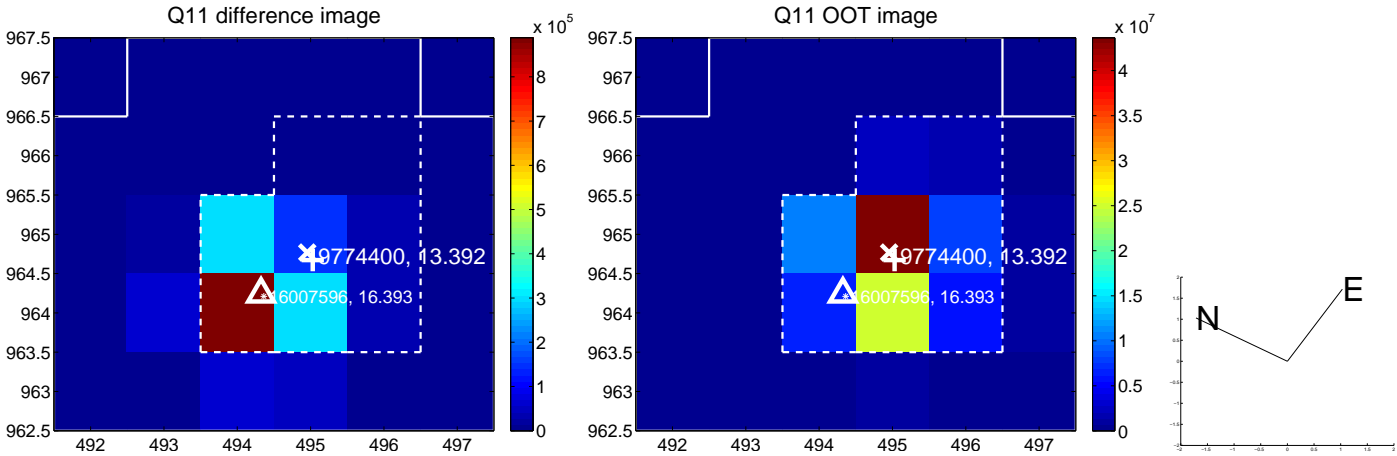
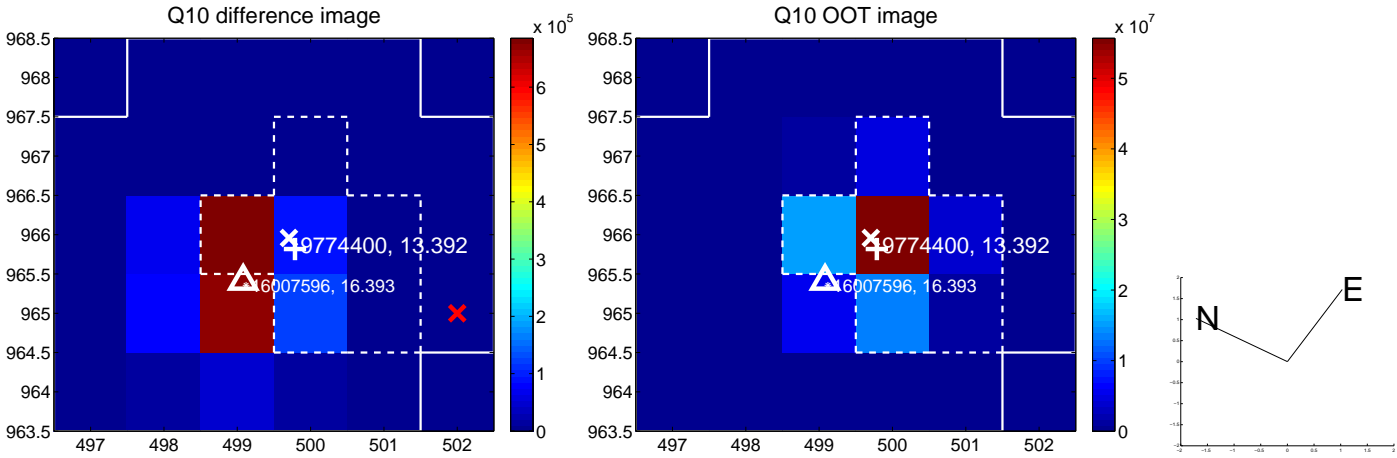
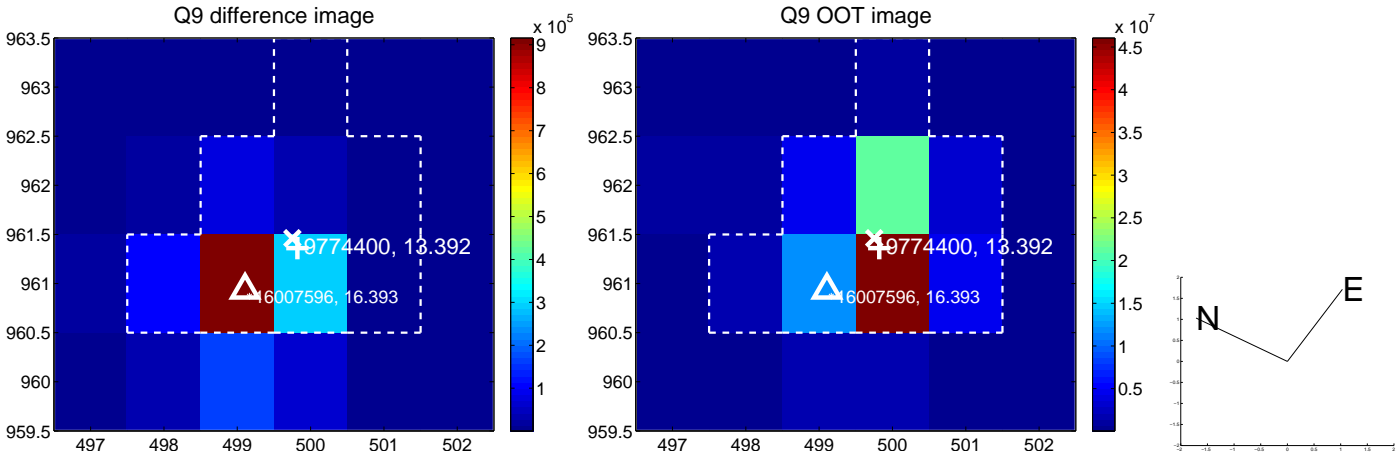


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

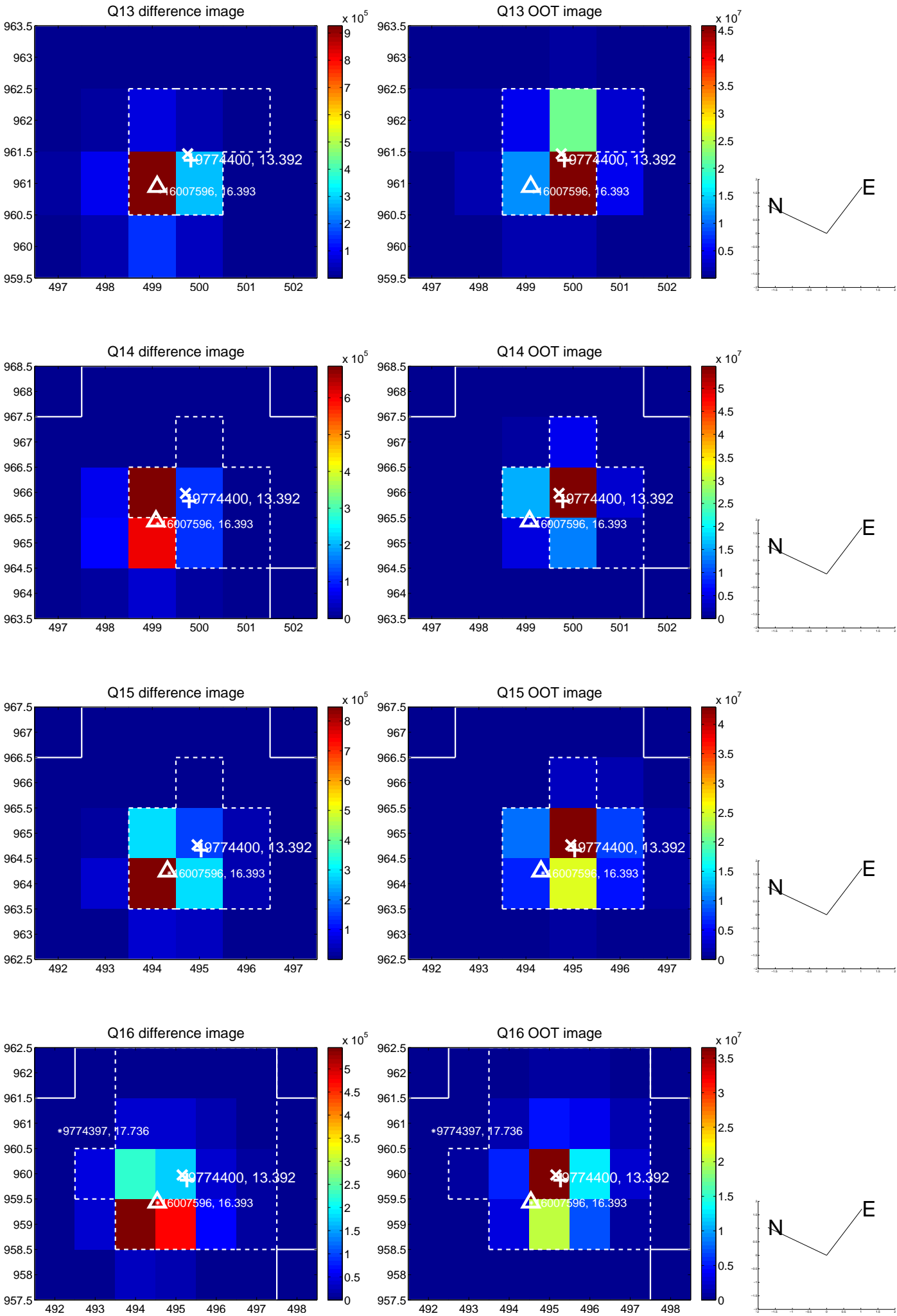




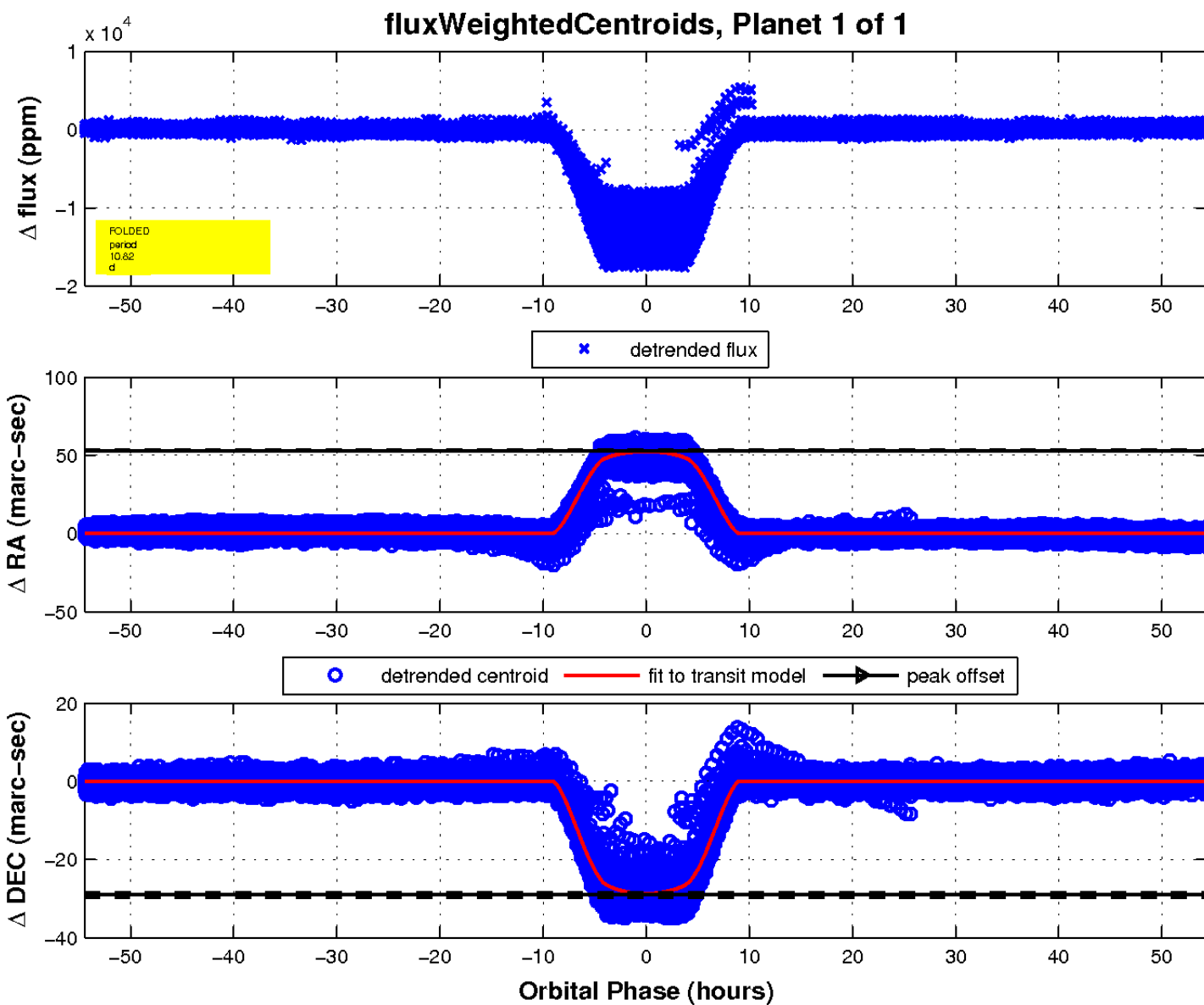
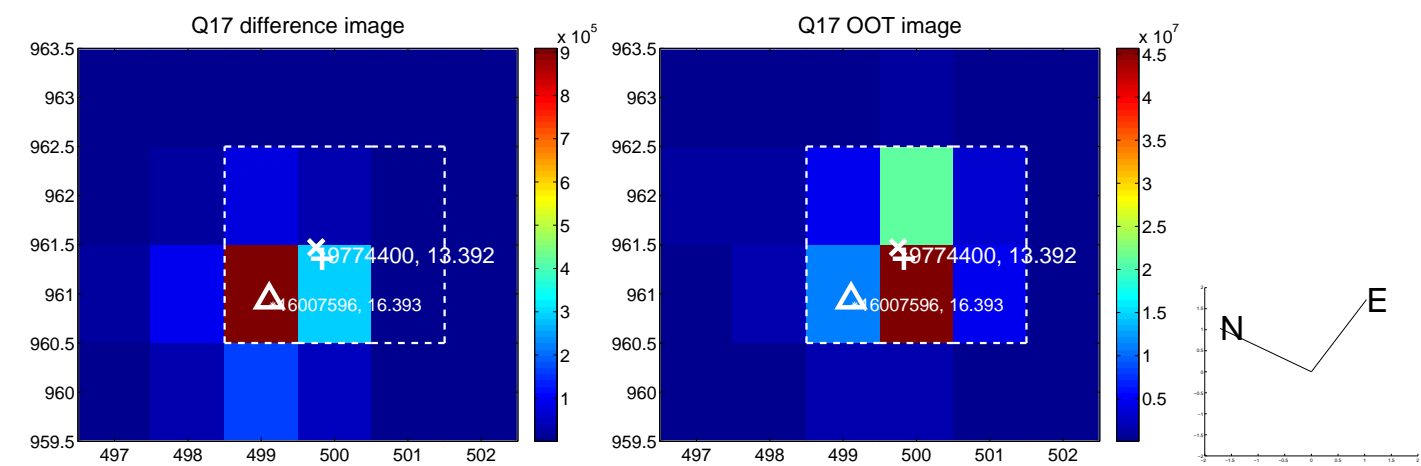
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

