

# KIC 002444412

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002444412-01	OBS	0103.01	14.911096	141.329480	864.1	3.939	108.0	108.3	0.90	5650	3.28	54.99

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002444412-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

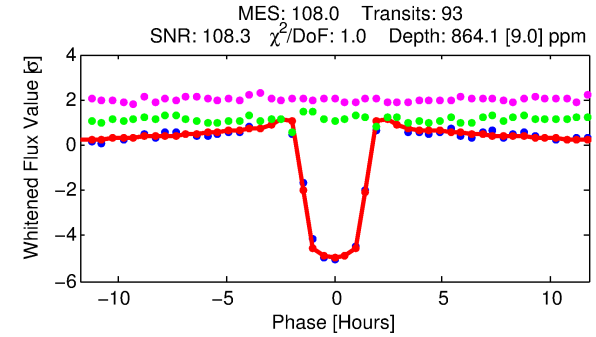
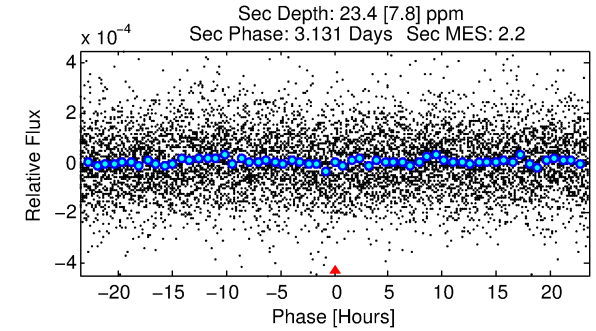
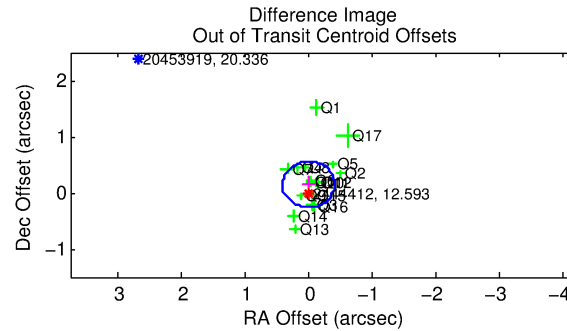
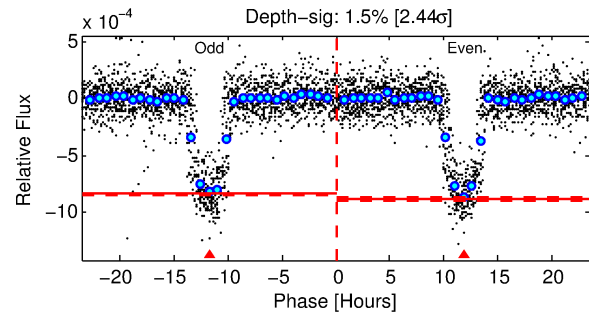
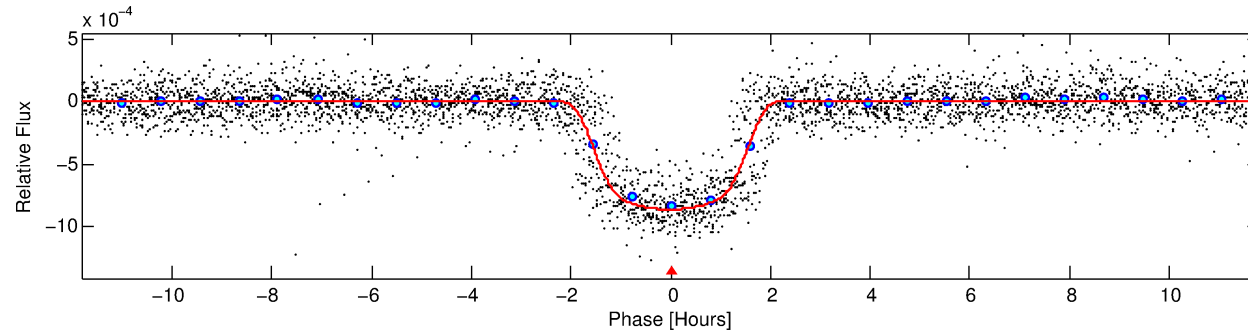
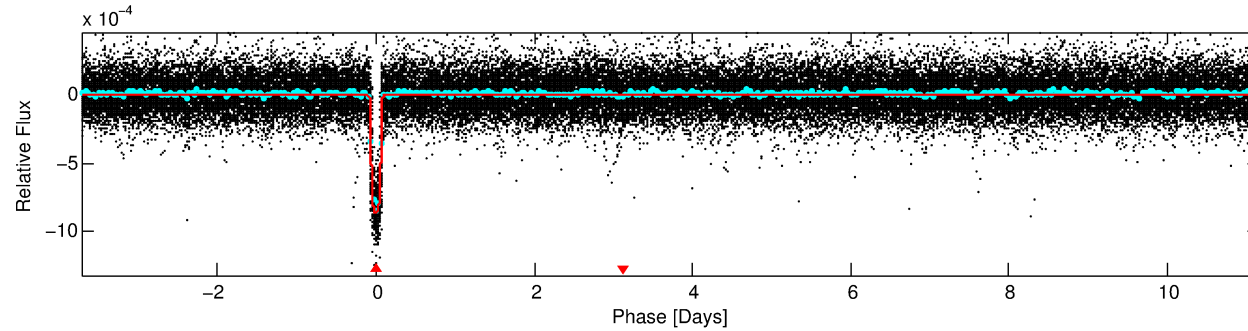
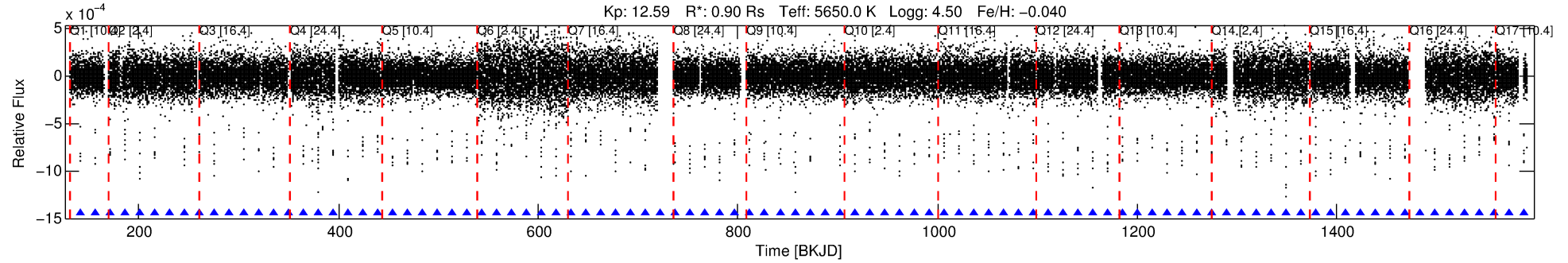
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002444412-01

No Significant Match Found

# DV One-Page Summary

KIC: 2444412 Candidate: 1 of 1 Period: 14.911 d  
KOI: K00103.01 Corr: 0.920



## DV Fit Results:

Period = 14.91110 [0.00001] d  
Epoch = 141.3295 [0.0007] BKJD  
Rp/R\* = 0.0335 [0.0003]  
a/R\* = 12.92 [0.39]  
b = 0.93 [0.00]  
Seff = 54.99 [10.92]  
Teq = 694 [34] K  
Rp = 3.28 [0.42] Re  
a = 0.1158 [0.0135] AU  
Ag = 16.03 [6.10] [2.47 $\sigma$ ]  
Teffp = 2148 [184] K [7.75 $\sigma$ ]

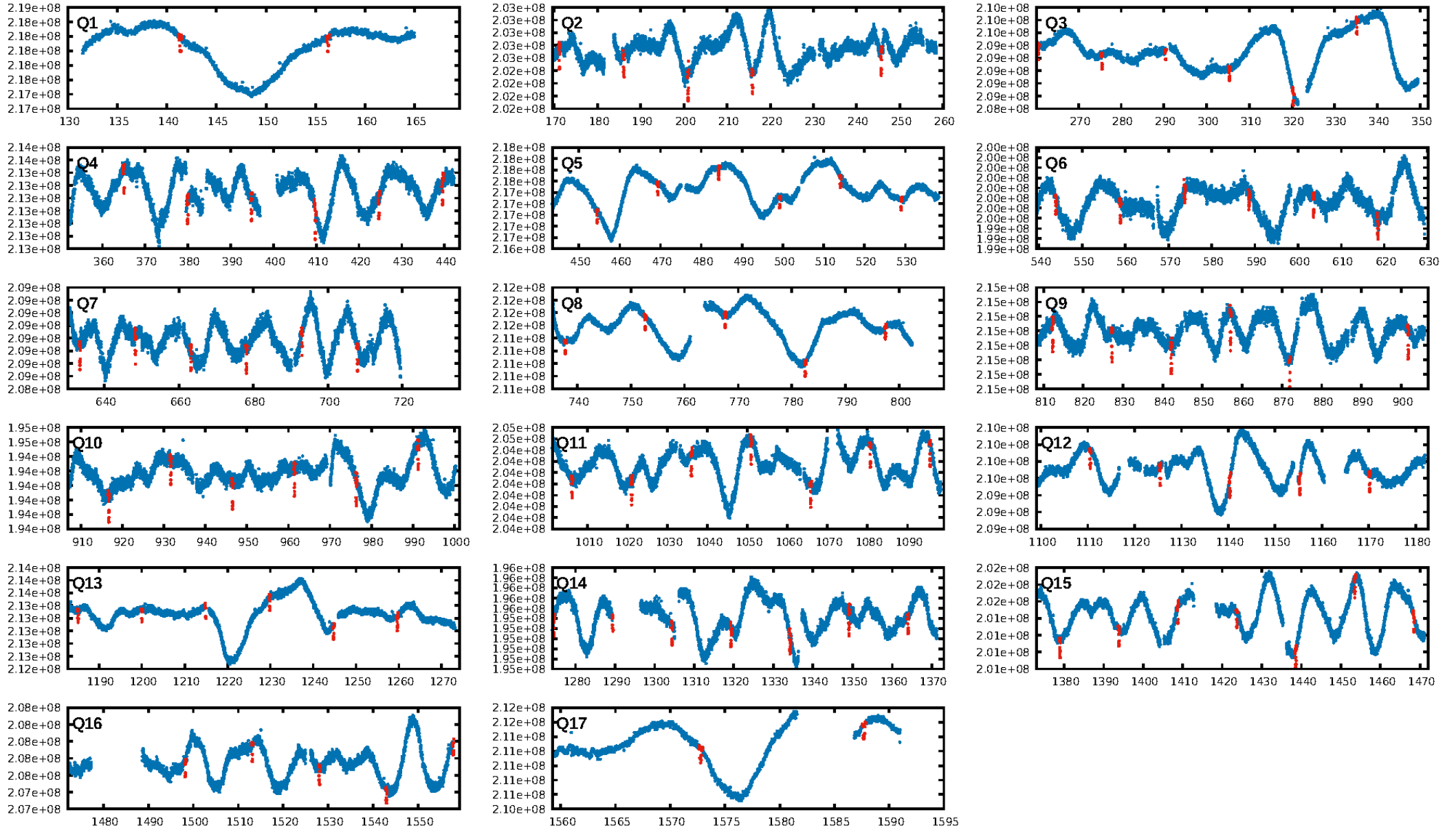
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 11.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [89/89]  
GhostDiagnostic-chr: 3.434  
Centroid-sig: 1.7%  
Centroid-so: 0.425 arcsec [4.16 $\sigma$ ]  
OotOffset-rm: 0.146 arcsec [1.07 $\sigma$ ]  
KicOffset-rm: 0.198 arcsec [2.04 $\sigma$ ]  
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]

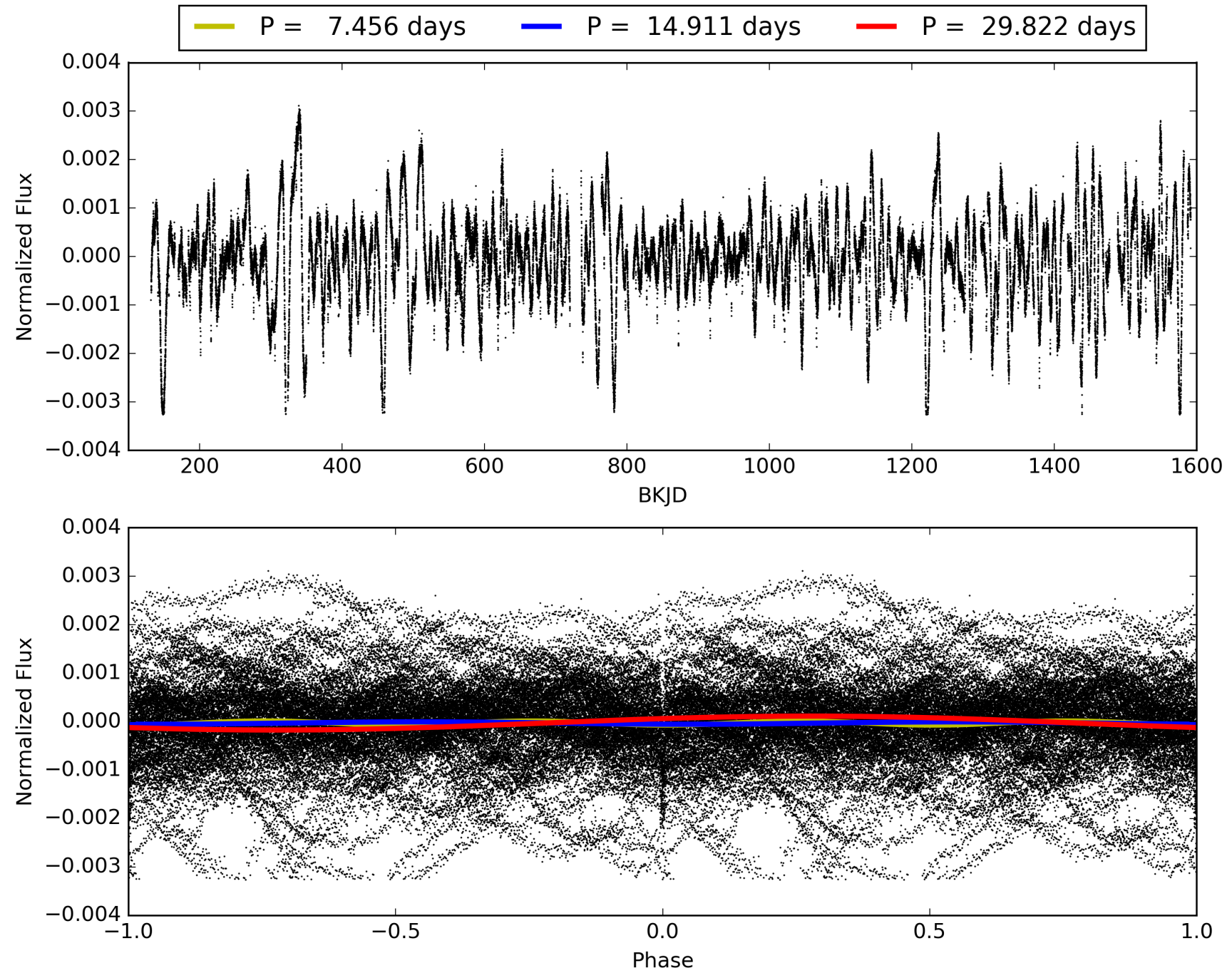
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:39:57 Z

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

# TCE 00244412-01, PDC Light Curves

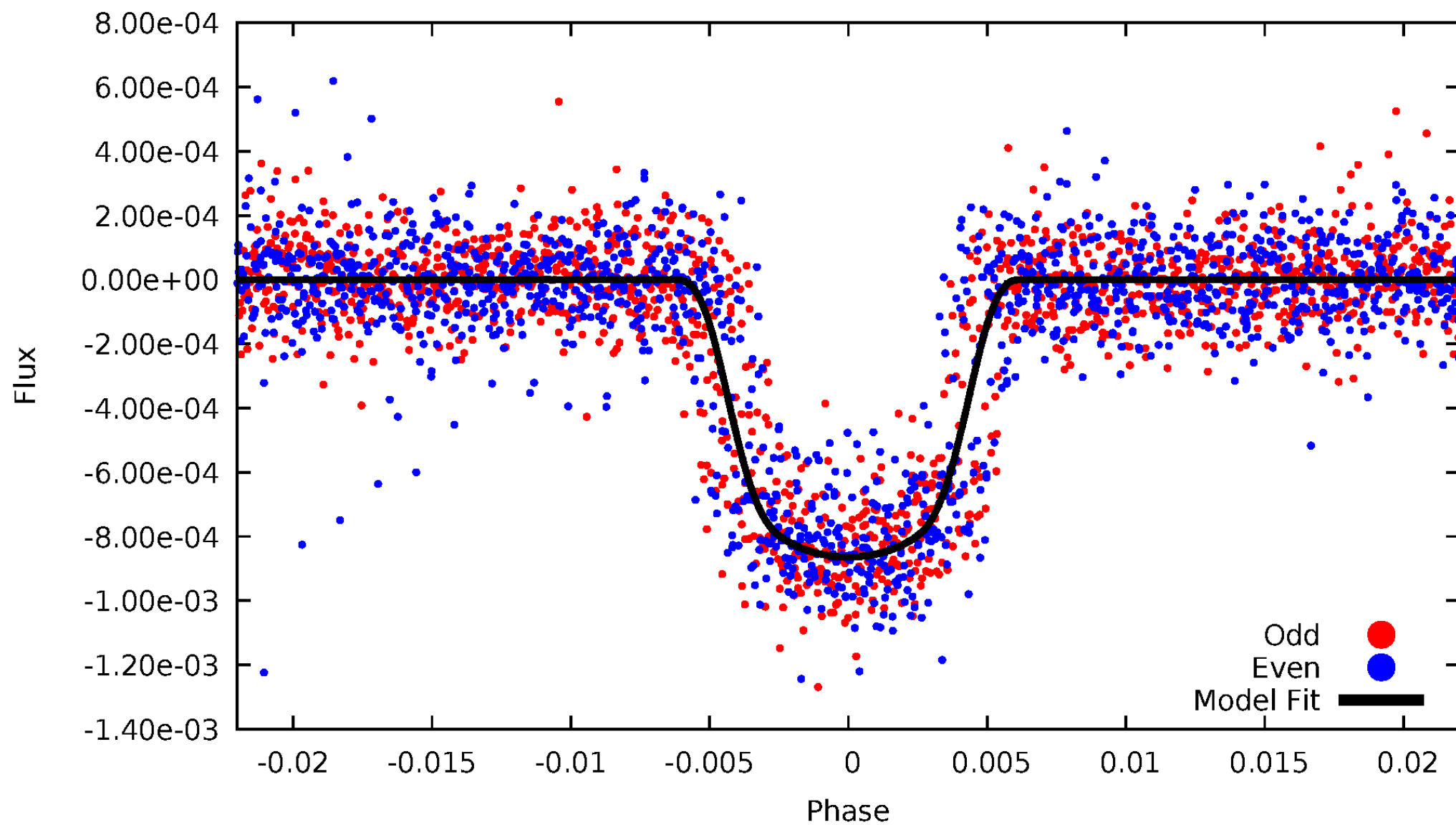


TCE 002444412-01



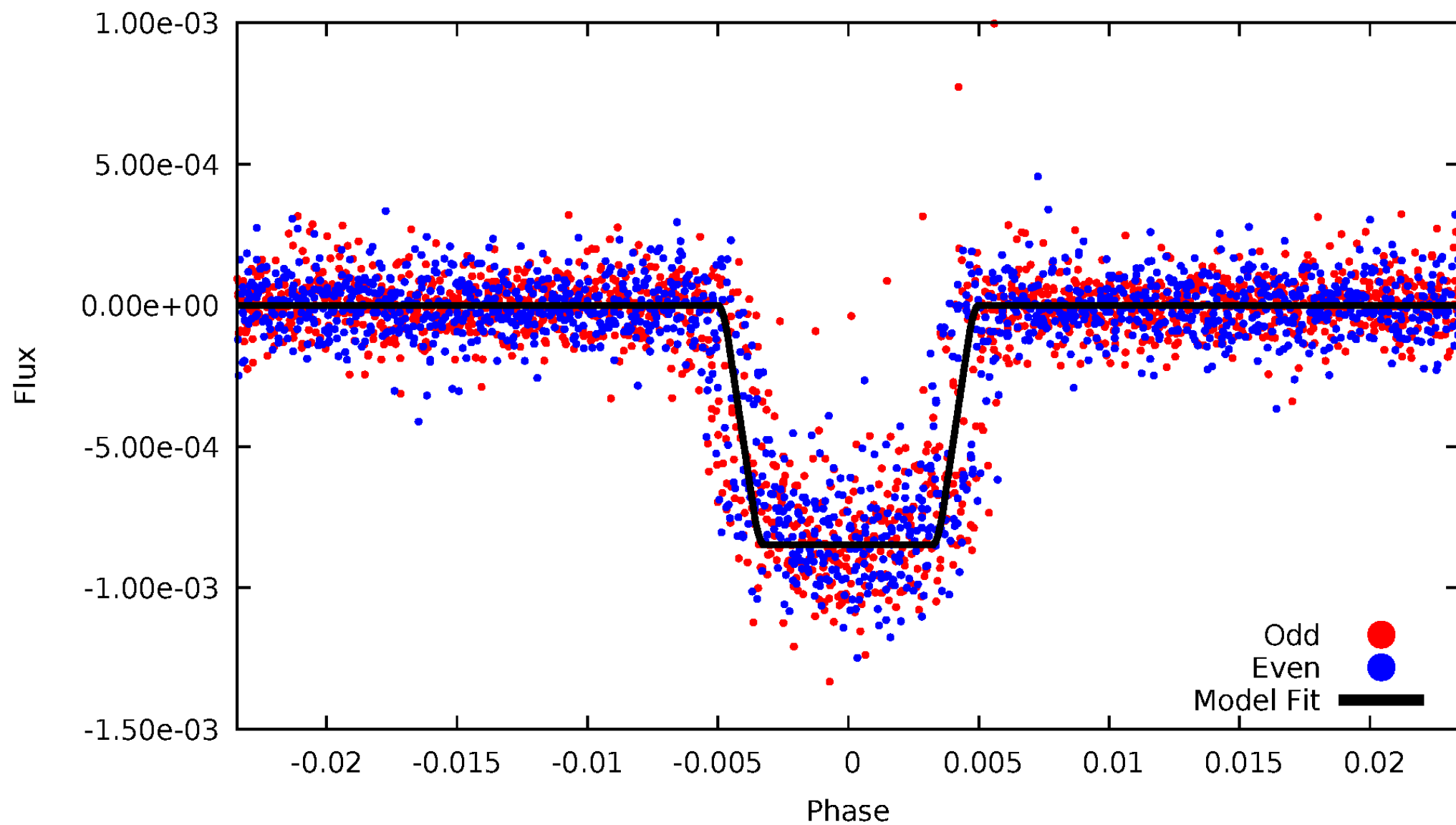
# DV Odd/Even

TCE 002444412-01



# ALT Odd/Even

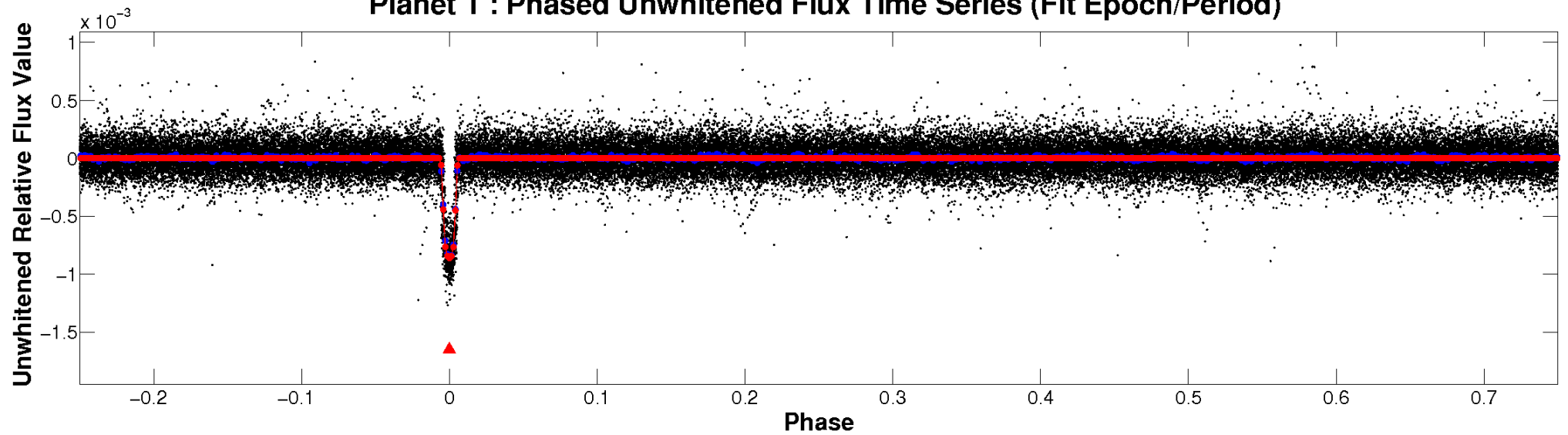
TCE 002444412-01



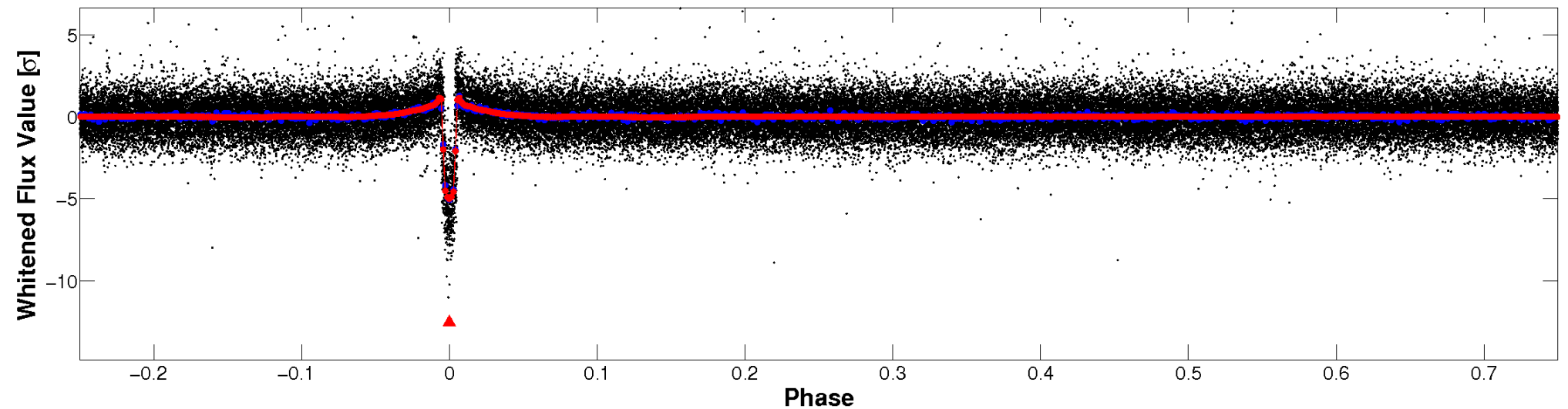


# Non-Whitened Vs. Whitened Light Curve

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

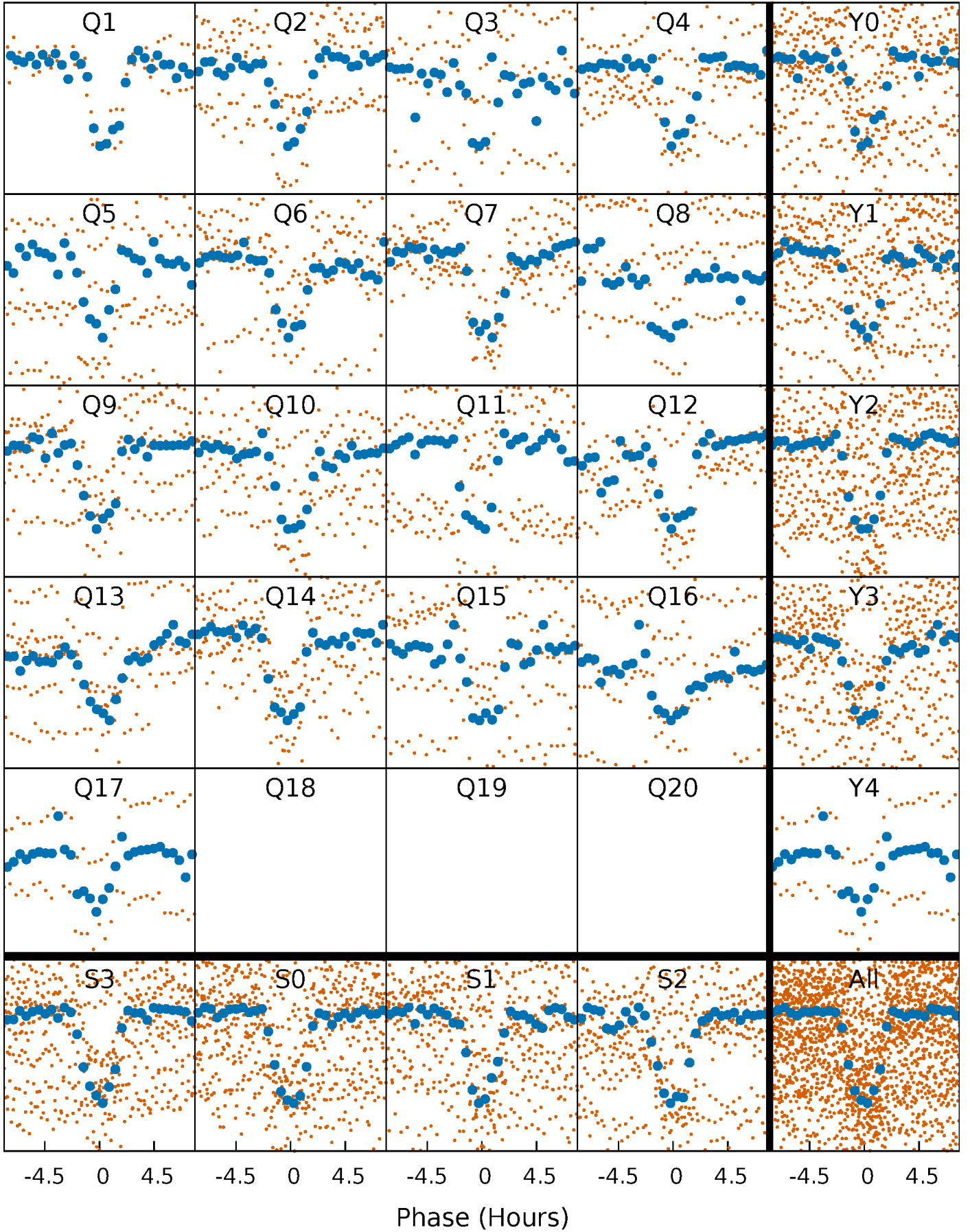


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

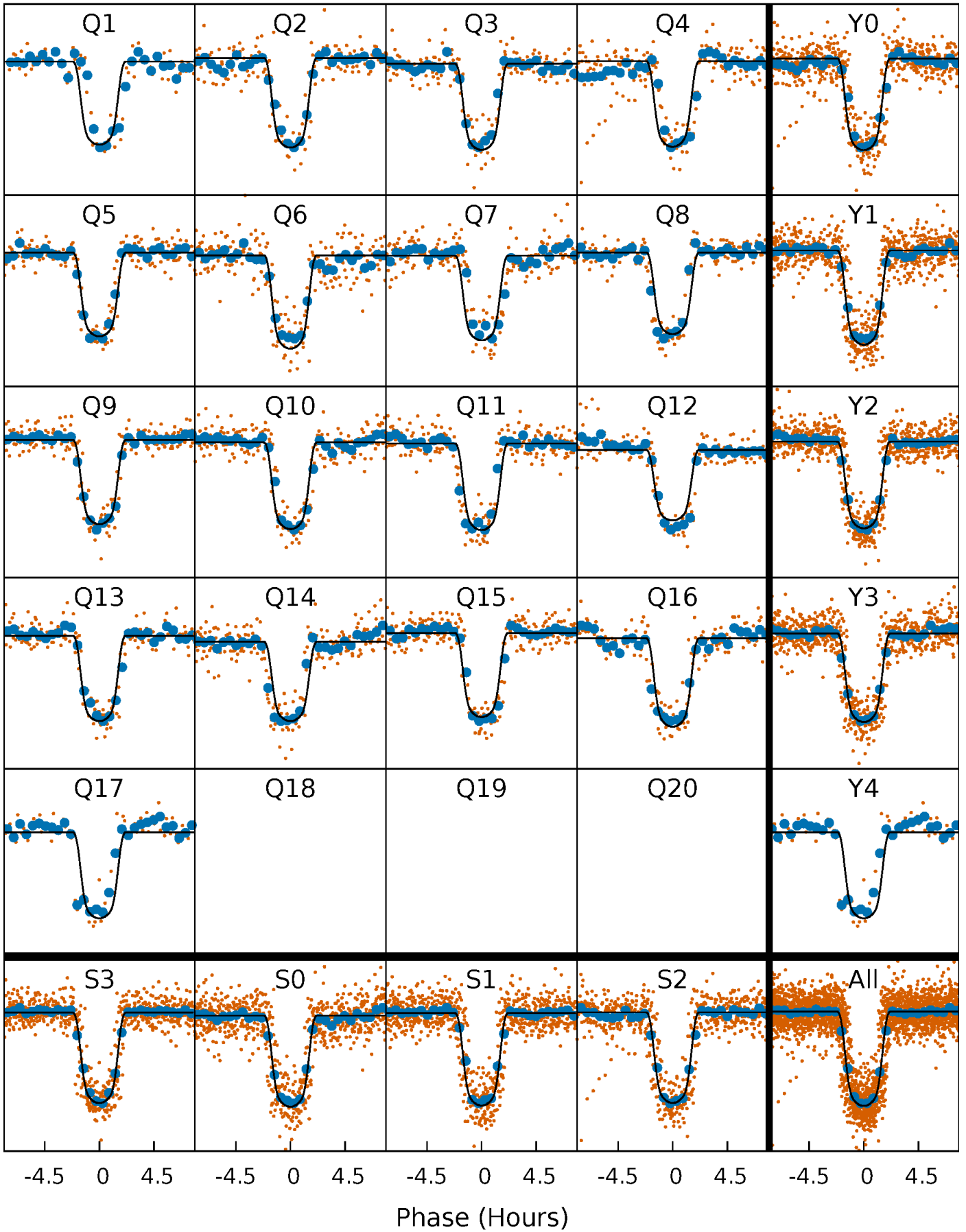
TCE 002444412-01   P= 14.911096 Days    $T_0=141.329480$  (BKJD)





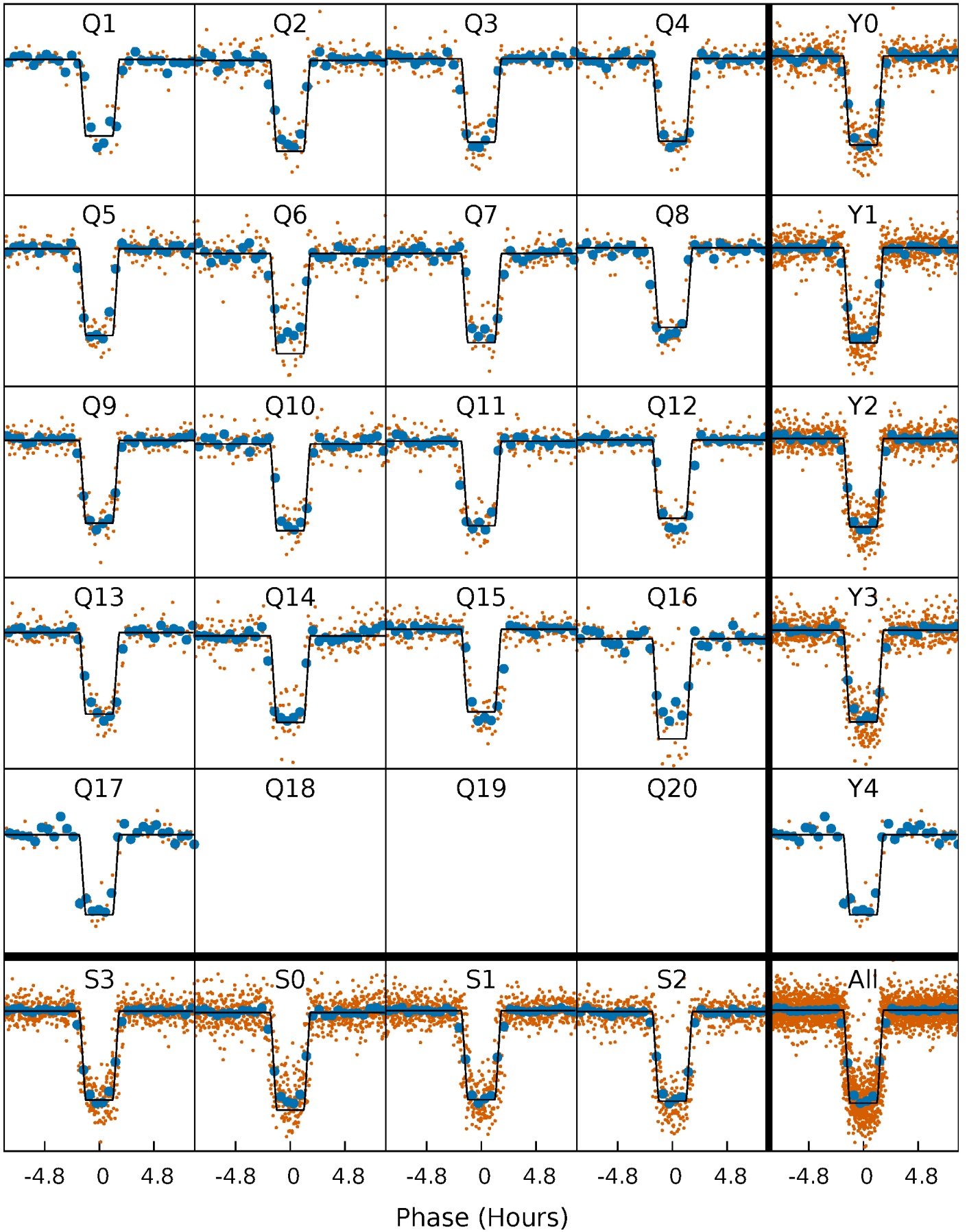
# DV Quarter-Phased Transit Curves

TCE 002444412-01 P= 14.911096 Days  $T_0=141.329480$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

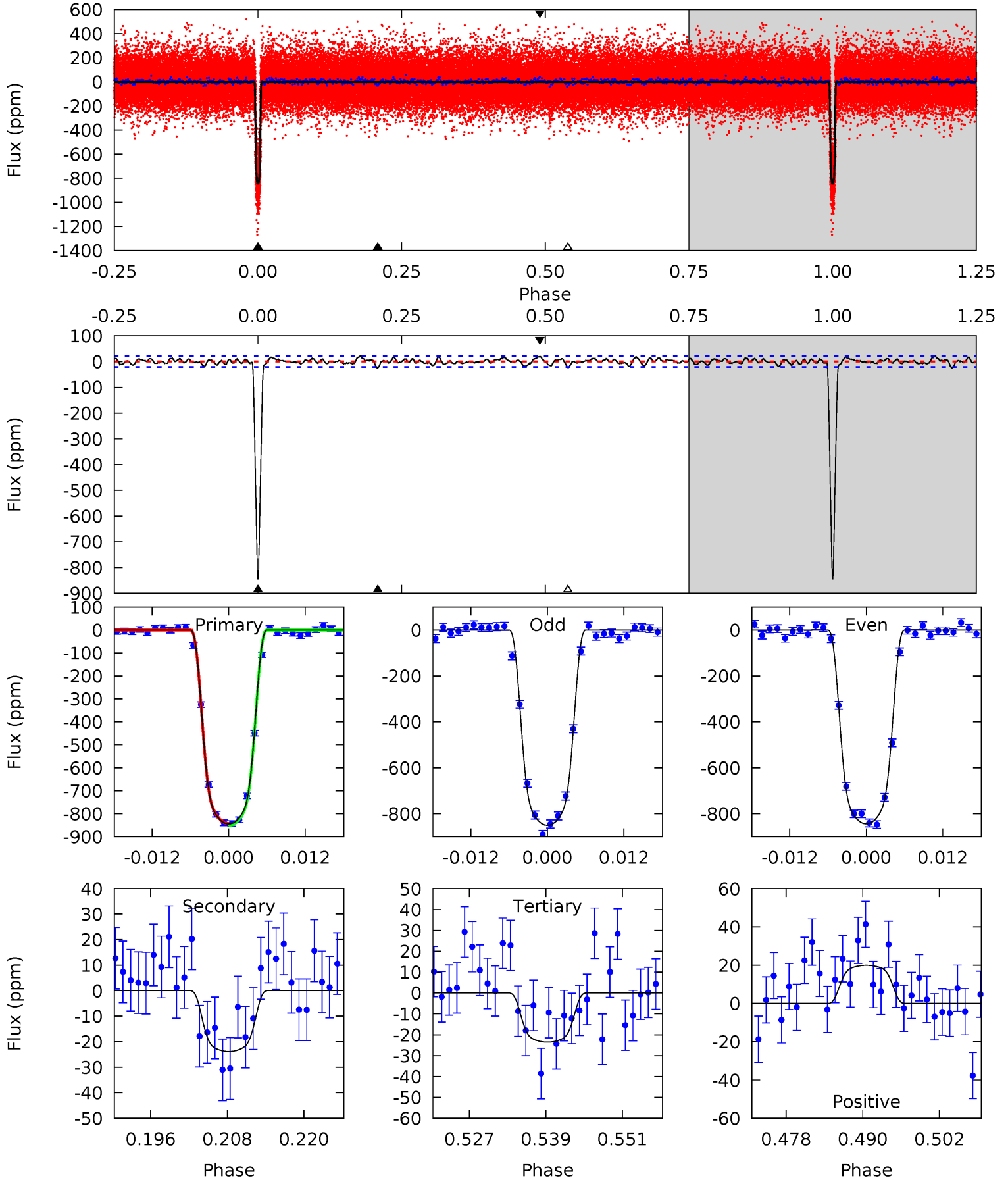
TCE 002444412-01 P= 14.910906 Days  $T_0=141.339330$  (BKJD)



# DV Model-Shift Uniqueness Test

002444412-01, P = 14.911096 Days, E = 126.418384 Days

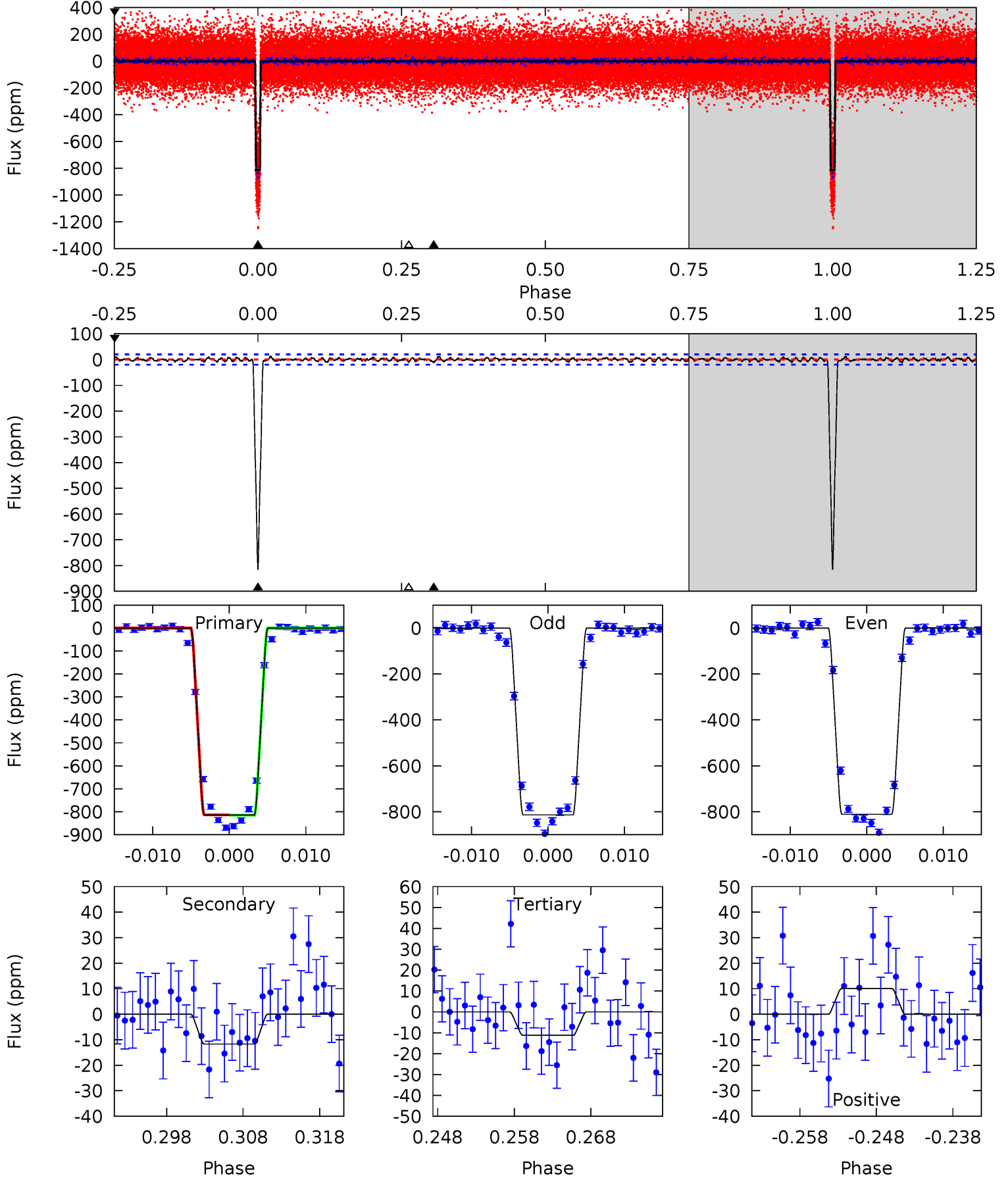
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
199.3	5.62	5.55	4.70	4.99	2.50	1.84	193.8	194.6	0.08	0.93	0.75	0.99	0.03	0.95



# Alt Model-Shift Uniqueness Test

002444412-01, P = 14.910906 Days, E = 126.428424 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
202.3	2.91	2.79	2.51	5.03	2.58	0.97	199.5	199.8	0.12	0.40	0.33	0.99	0.01	0.09



### Stellar Parameters For KIC 002444412

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} \text{ (g}\cdot\text{cm}^{-3}\text{)}$
	$5650^{+101}_{-112}$	$4.500^{+0.045}_{-0.105}$	$-0.040^{+0.150}_{-0.150}$	$0.899^{+0.114}_{-0.057}$	$0.932^{+0.051}_{-0.068}$	$1.808^{+0.312}_{-0.561}$
	+2%/-2%	+1%/-2%	+375%/-375%	+13%/-6%	+5%/-7%	+17%/-31%
Source	SPE59	SPE59	SPE59	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002444412-01 / KOI 0103.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-24 \pm 4$	$3.31^{+0.23}_{-0.14}$	$976^{+33}_{-30}$	$2860^{+71}_{-84}$	$16^{+3}_{-4}$
Alt.	$-12 \pm 4$	$2.88^{+0.21}_{-0.13}$	$977^{+35}_{-28}$	$2706^{+106}_{-158}$	$10^{+4}_{-4}$

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

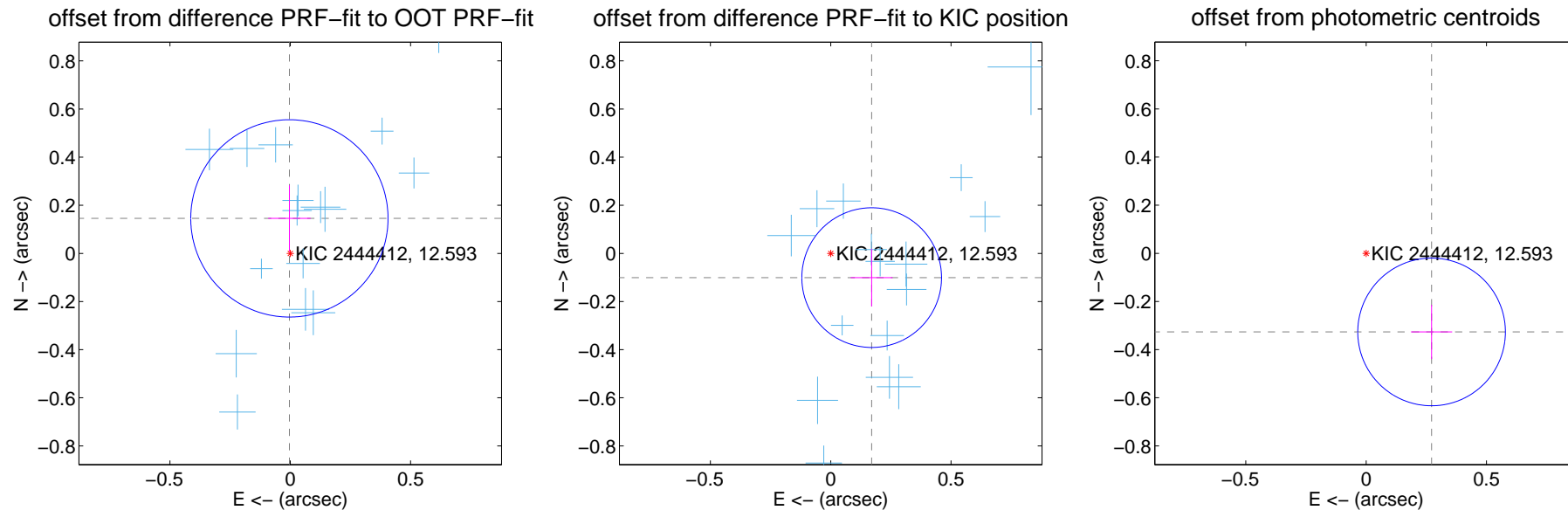
## DV Centroid Data

Supplemental centroid analysis for 002444412-01. Kepler magnitude: 12.59. Transit SNR 108.27

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

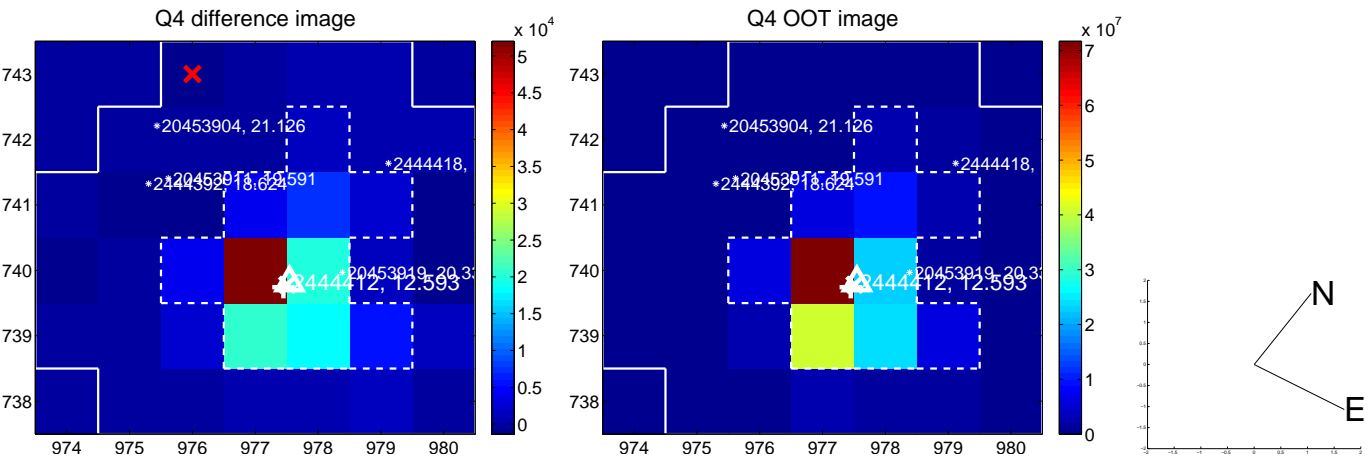
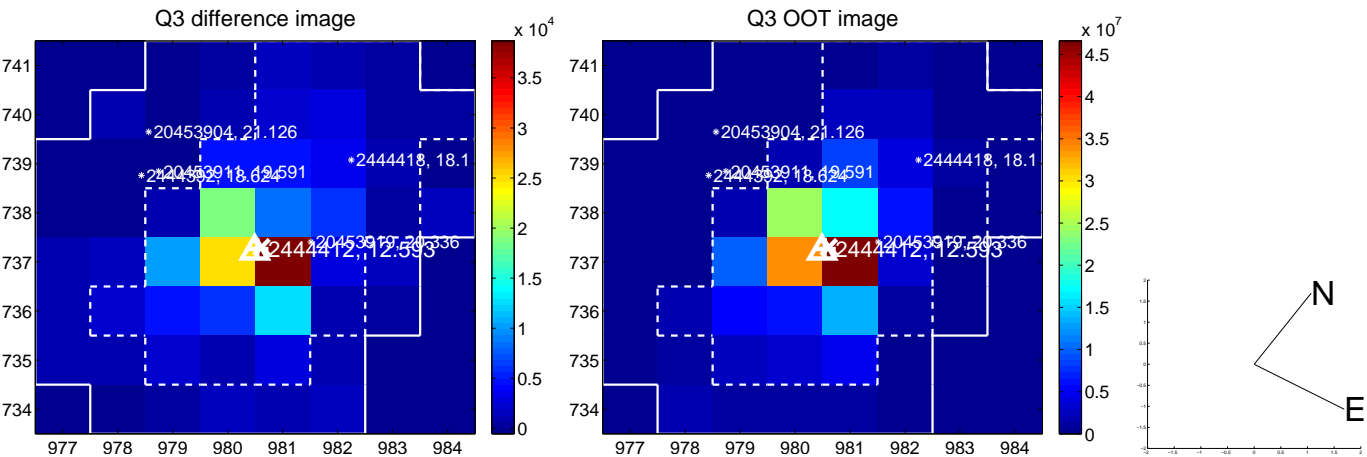
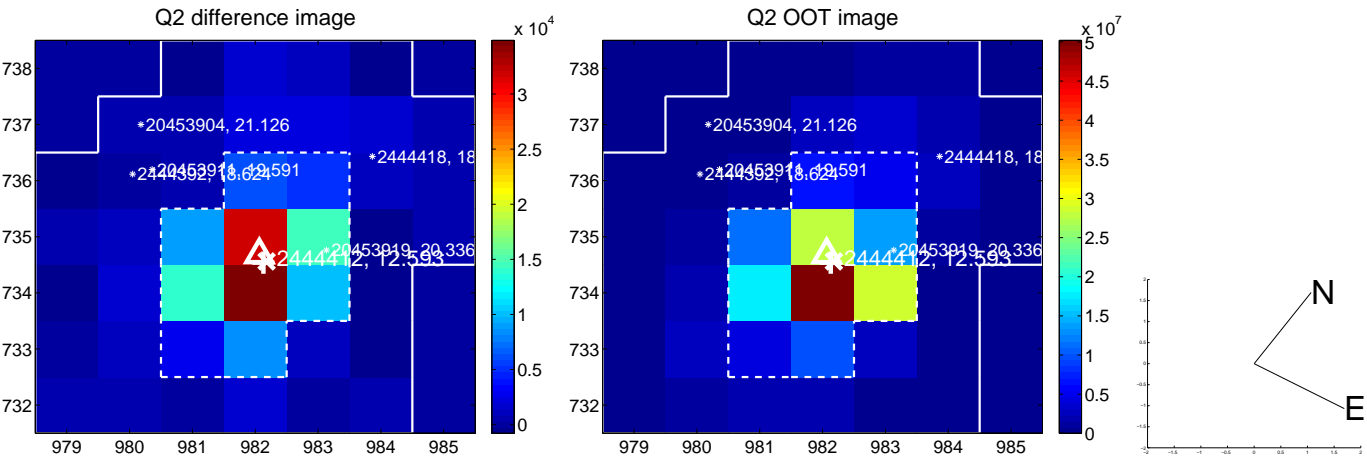
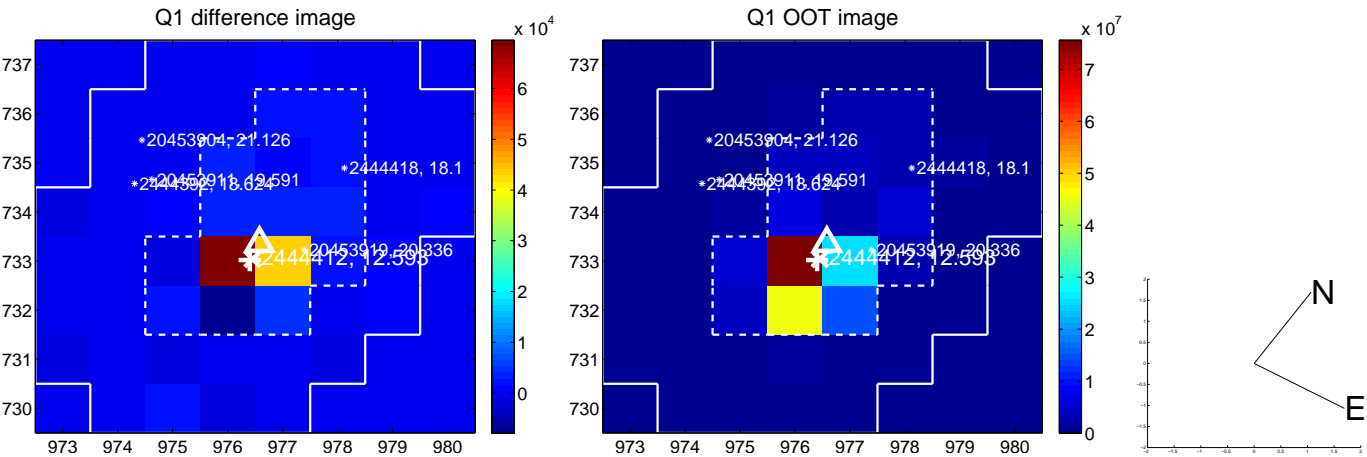
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.146 \pm 0.137$	1.07	$0.004 \pm 0.088$	$0.146 \pm 0.137$
PRF-fit source offset from KIC position	$0.198 \pm 0.097$	2.04	$-0.170 \pm 0.087$	$-0.101 \pm 0.120$
photometric centroid source offset	$0.43 \pm 0.10$	4.16	$-0.27 \pm 0.09$	$-0.33 \pm 0.11$



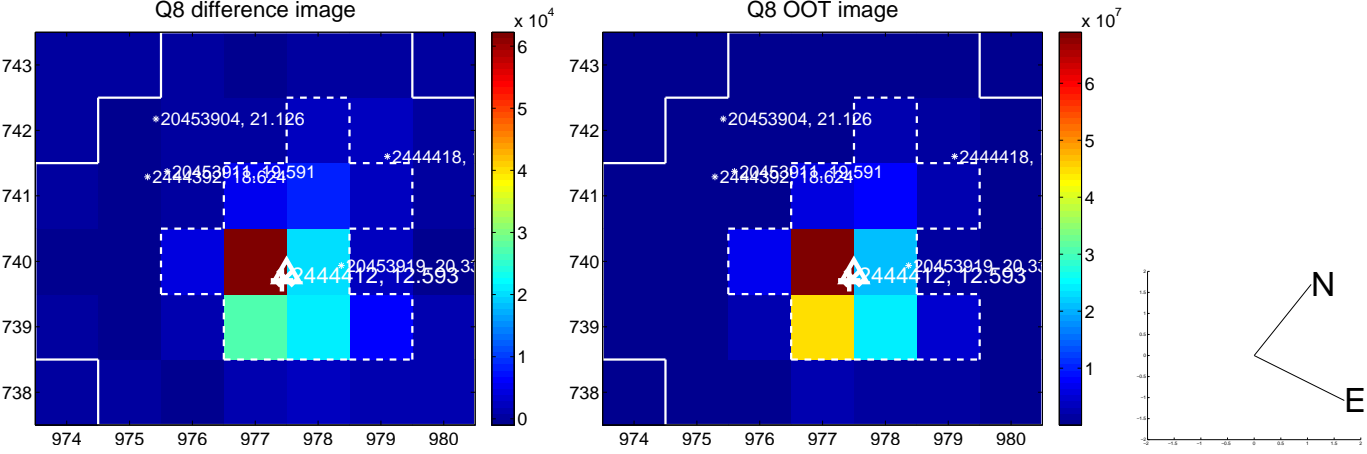
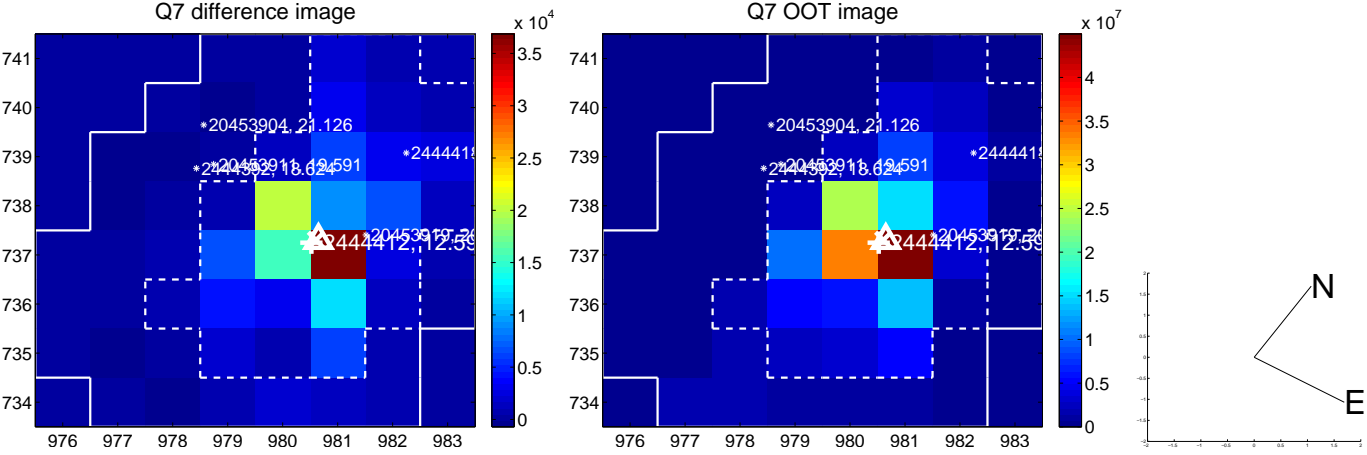
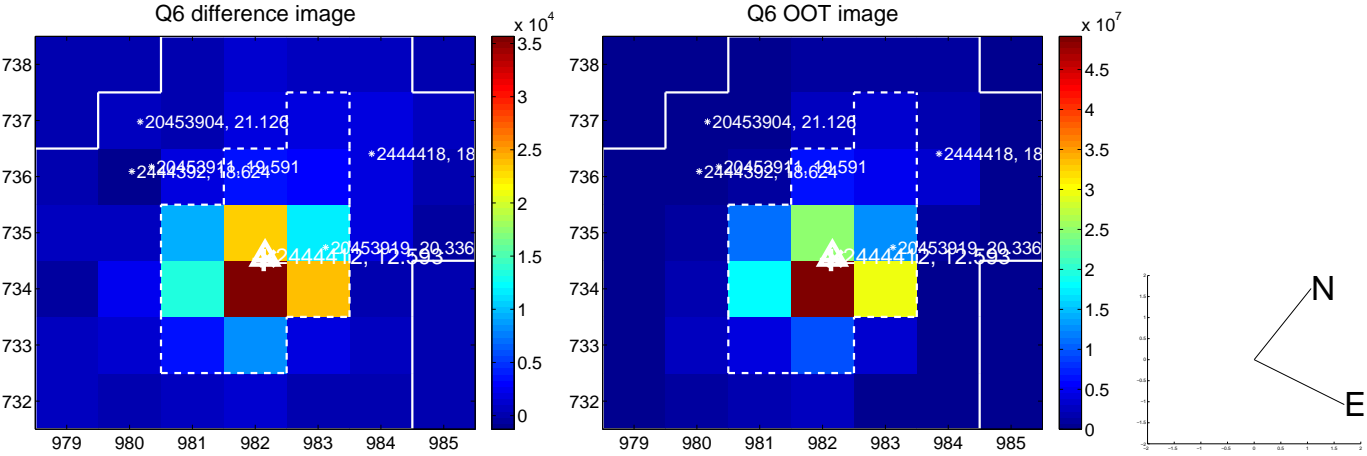
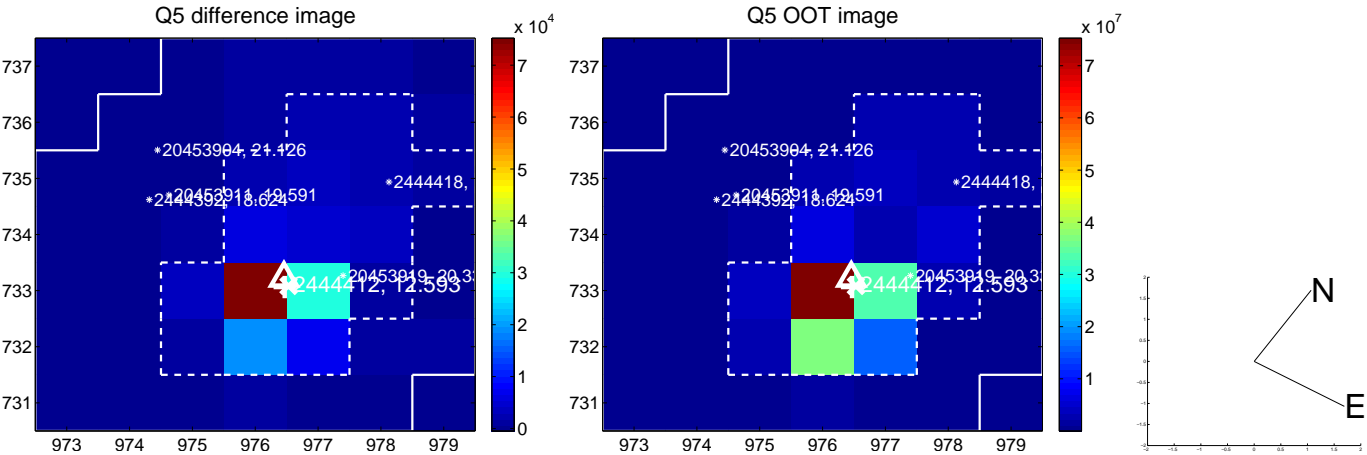
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



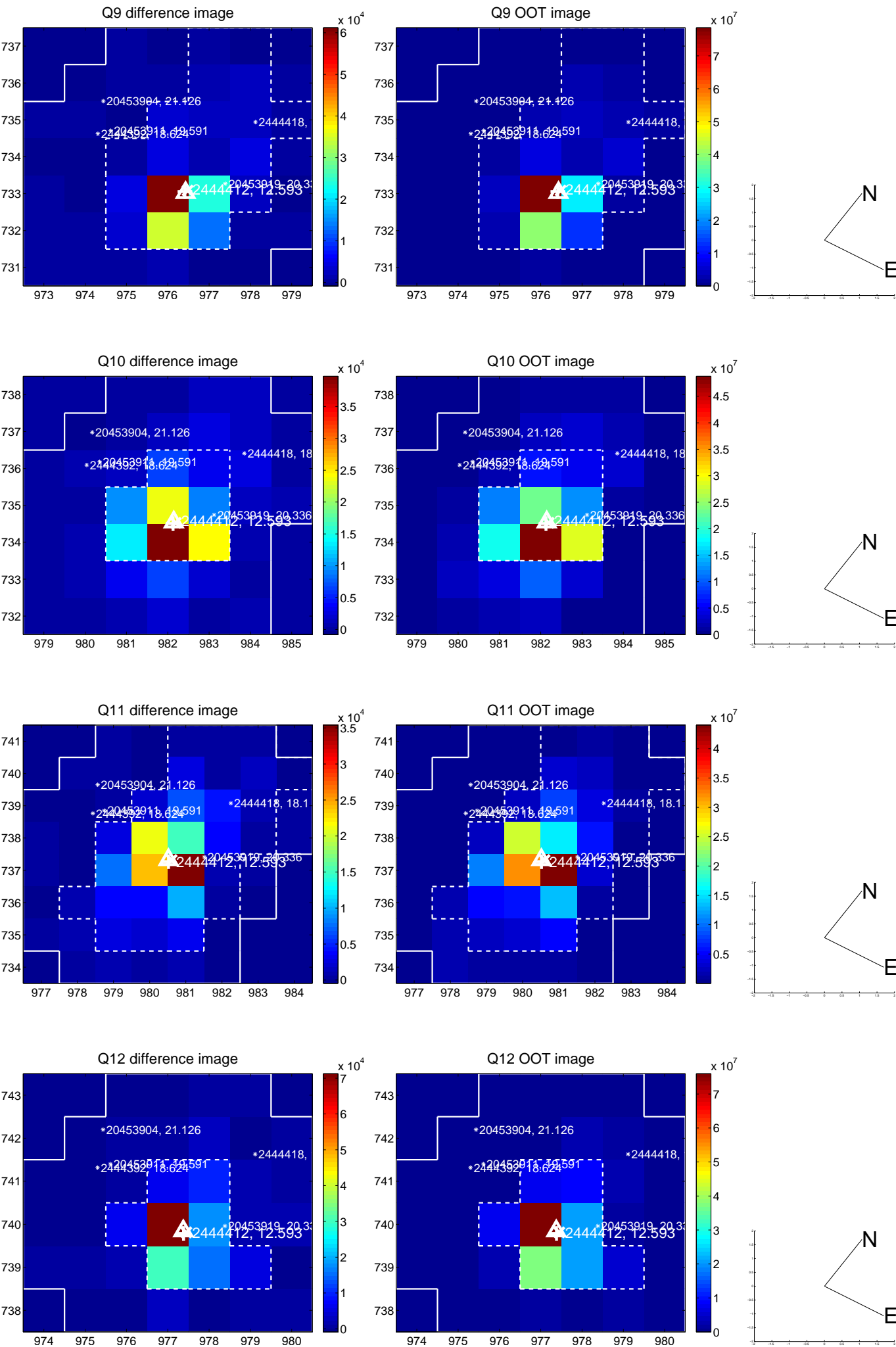
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



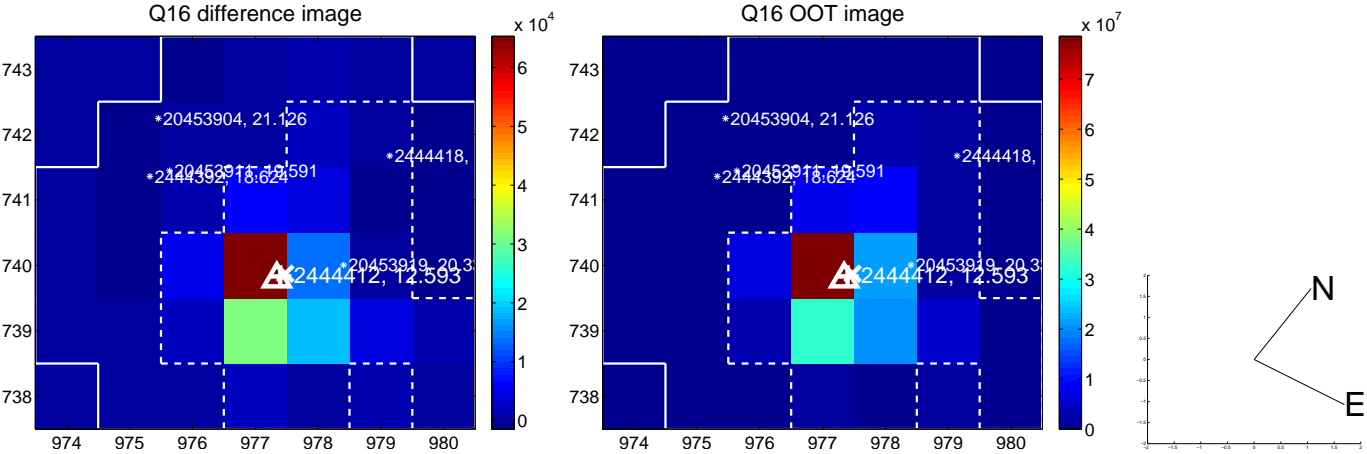
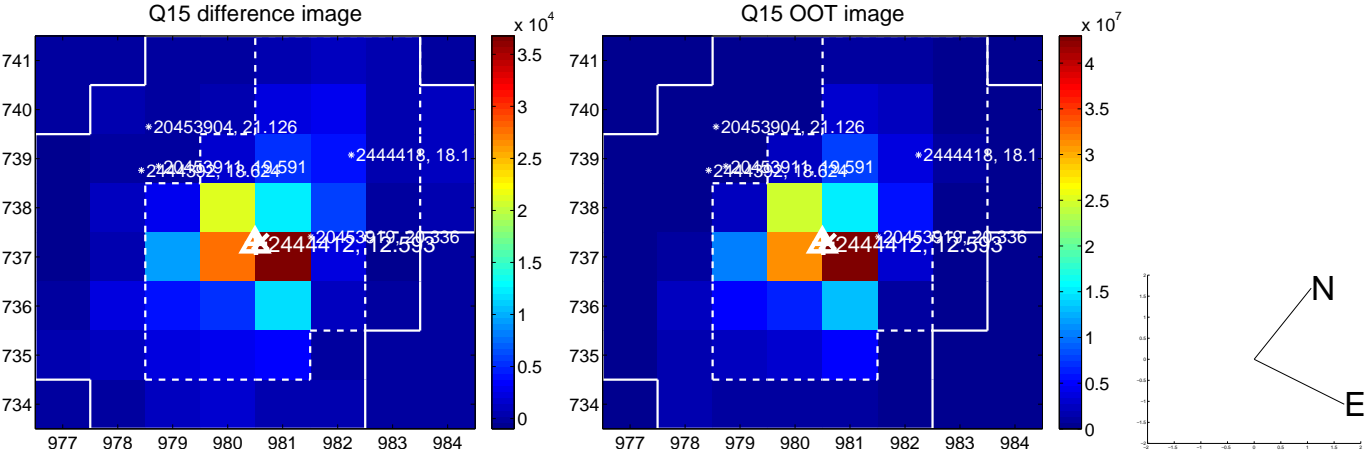
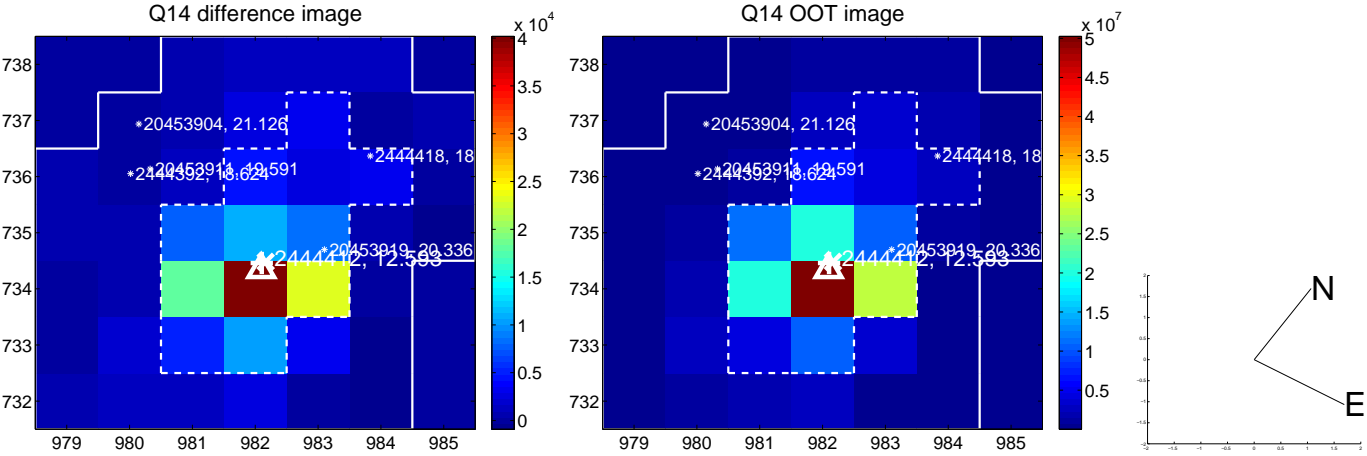
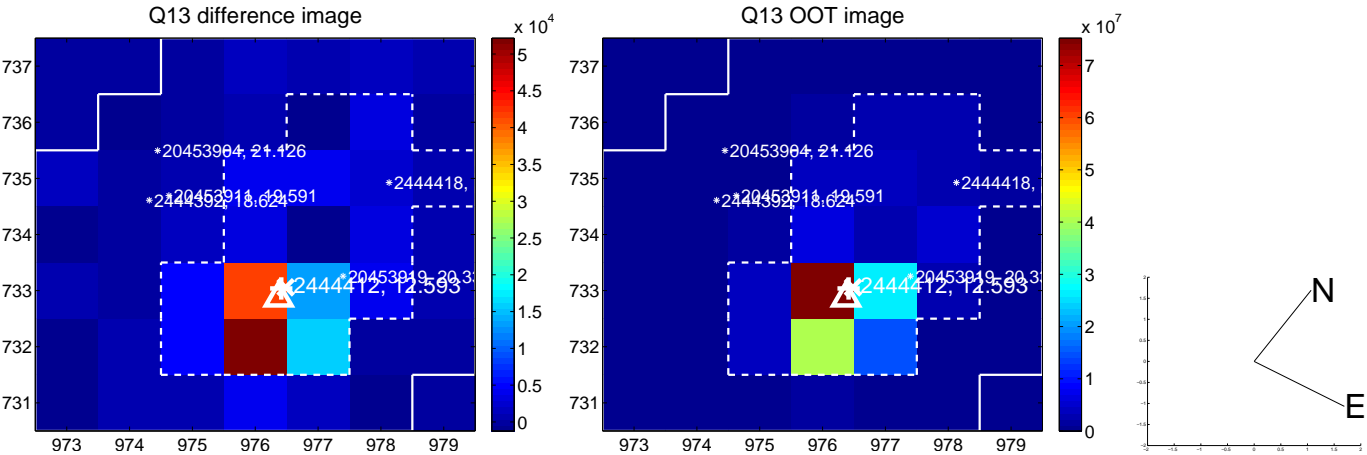
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



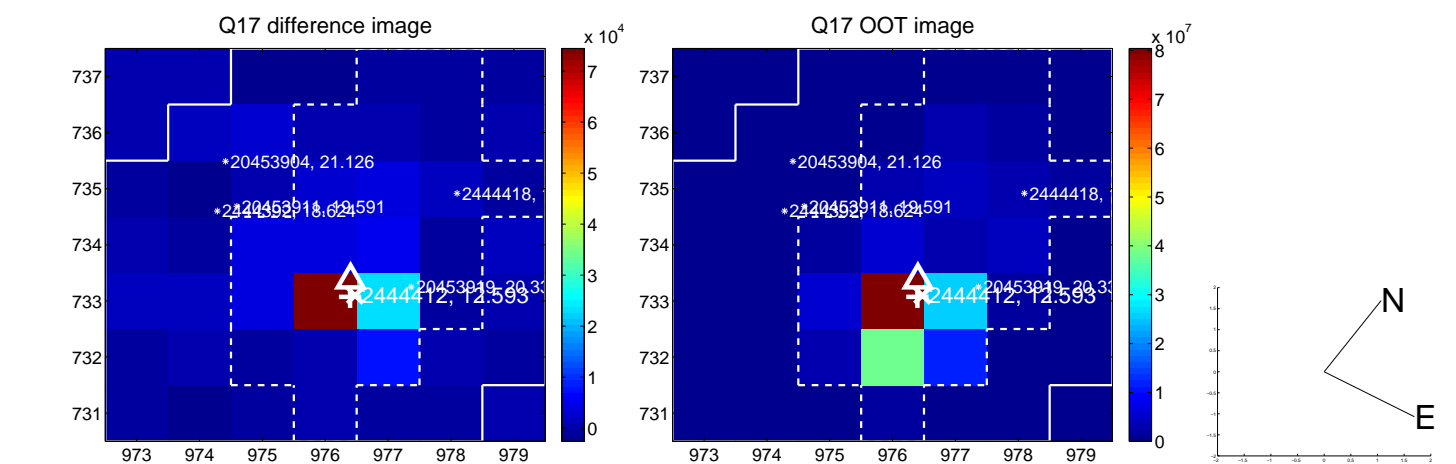
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



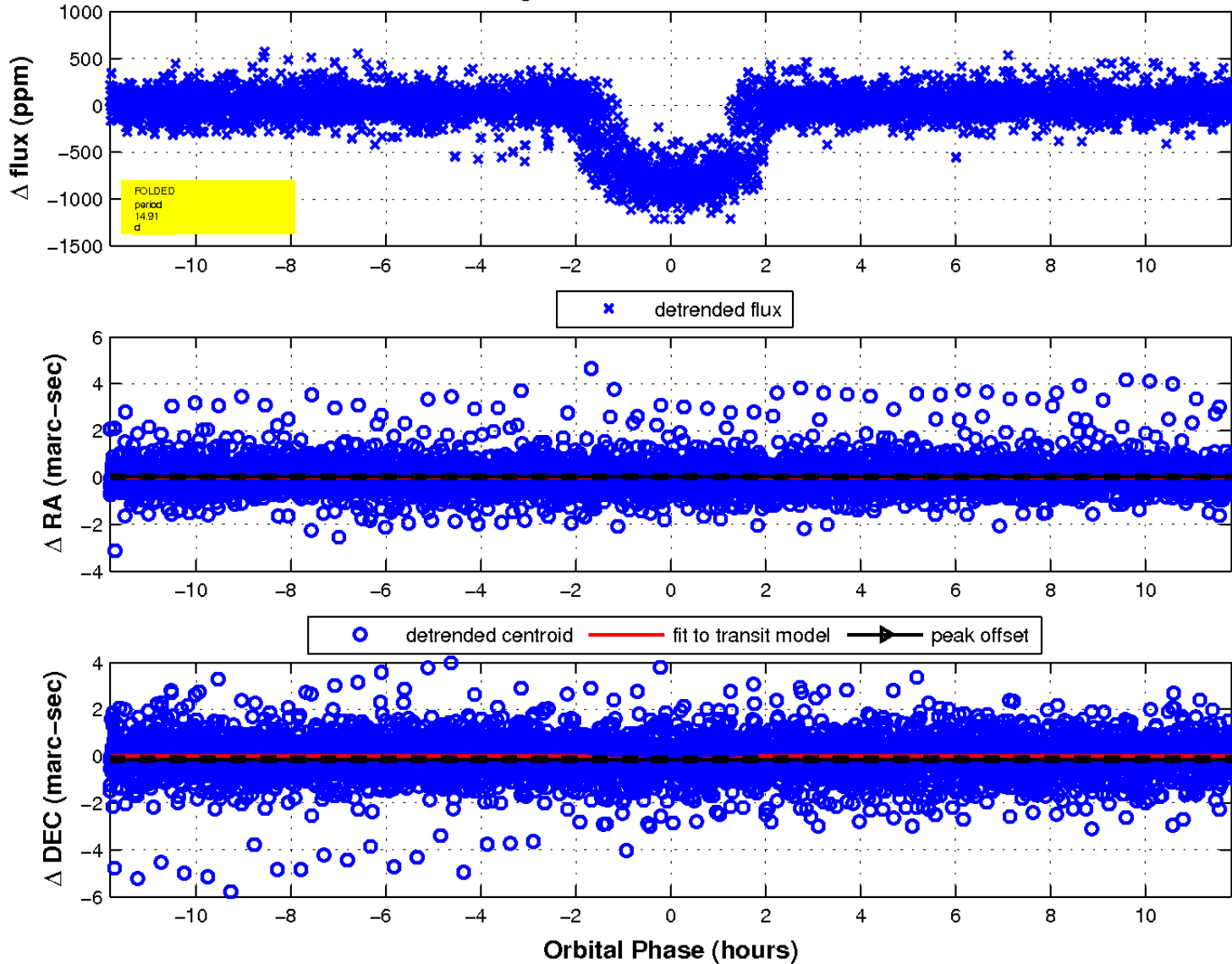
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

