

# KIC 008041216

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008041216-01	OBS	0237.01	8.508314	134.787094	648.6	3.772	76.5	81.3	1.03	5767	3.11	161.98

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008041216-01	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.

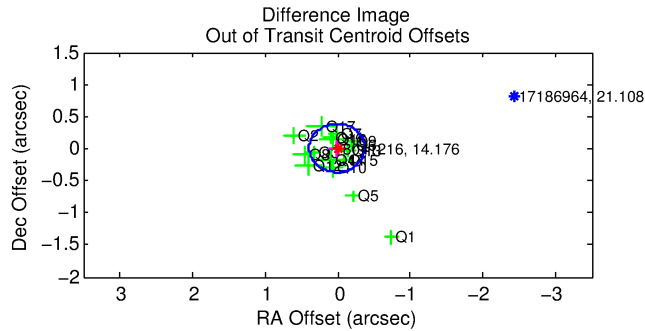
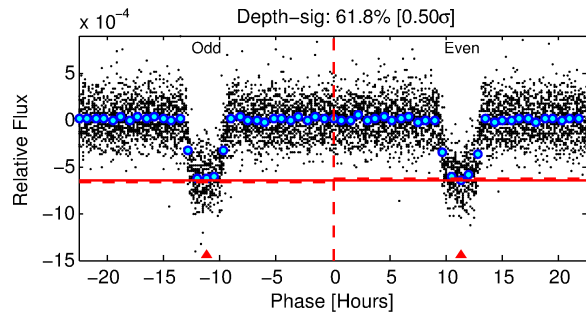
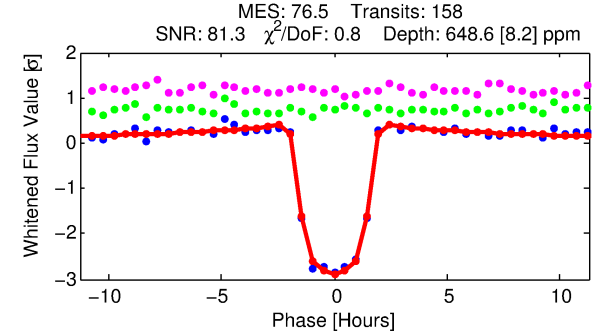
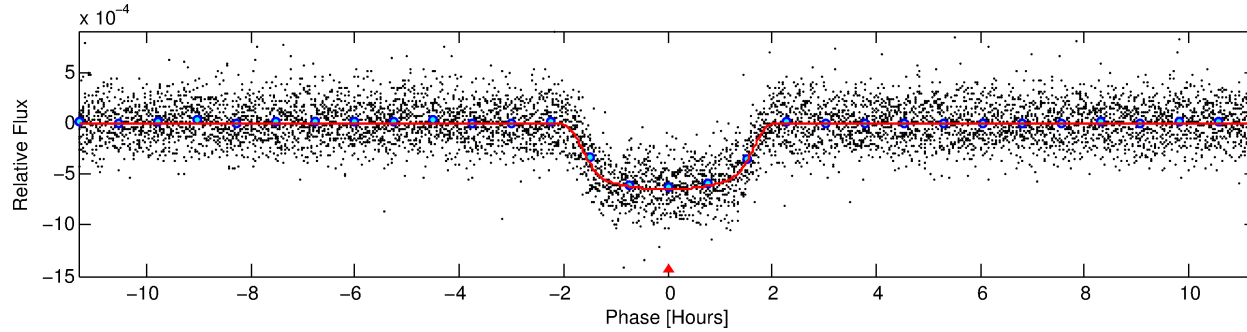
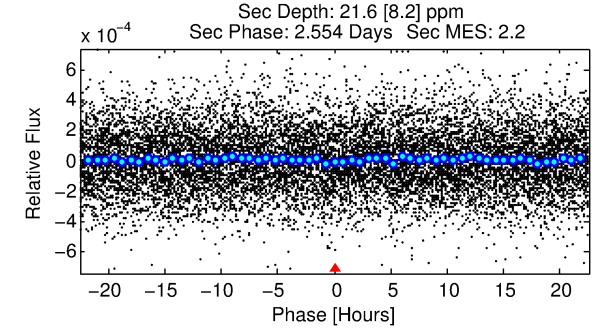
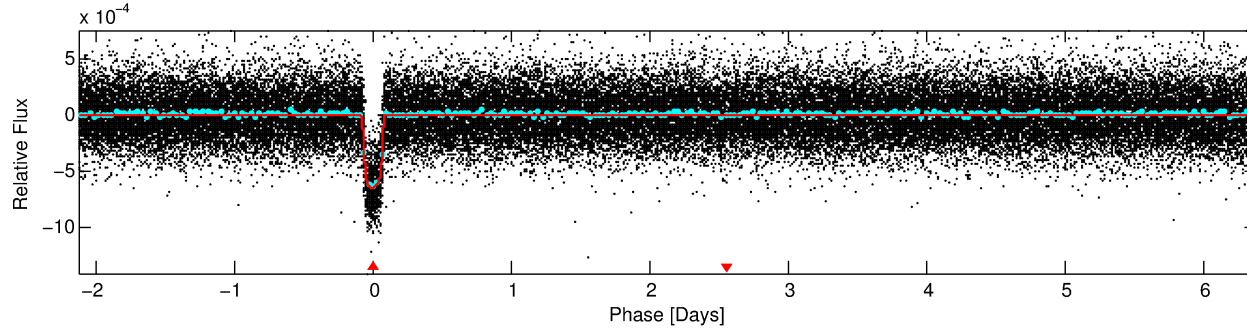
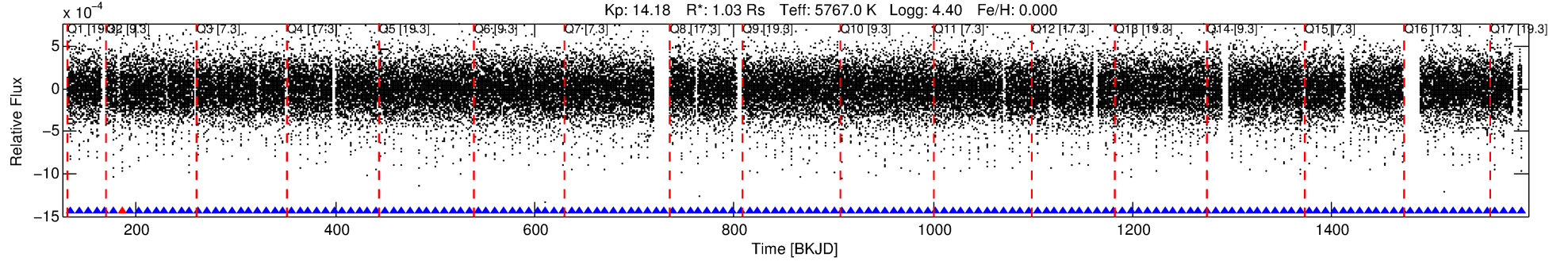
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008041216-01

No Significant Match Found

# DV One-Page Summary

KIC: 8041216 Candidate: 1 of 1 Period: 8.508 d  
KOI: K00237.01 Corr: 0.964



## DV Fit Results:

Period = 8.50831 [0.00001] d  
Epoch = 134.7871 [0.0009] BKJD  
Rp/R\* = 0.0277 [0.0008]  
a/R\* = 8.74 [1.07]  
b = 0.90 [0.03]  
Seff = 161.98 [34.04]  
Teff = 910 [48] K  
Rp = 3.11 [0.46] Re  
a = 0.0806 [0.0103] AU  
Ag = 7.97 [3.44] [2.03σ]  
Teffp = 2363 [233] K [6.12σ]

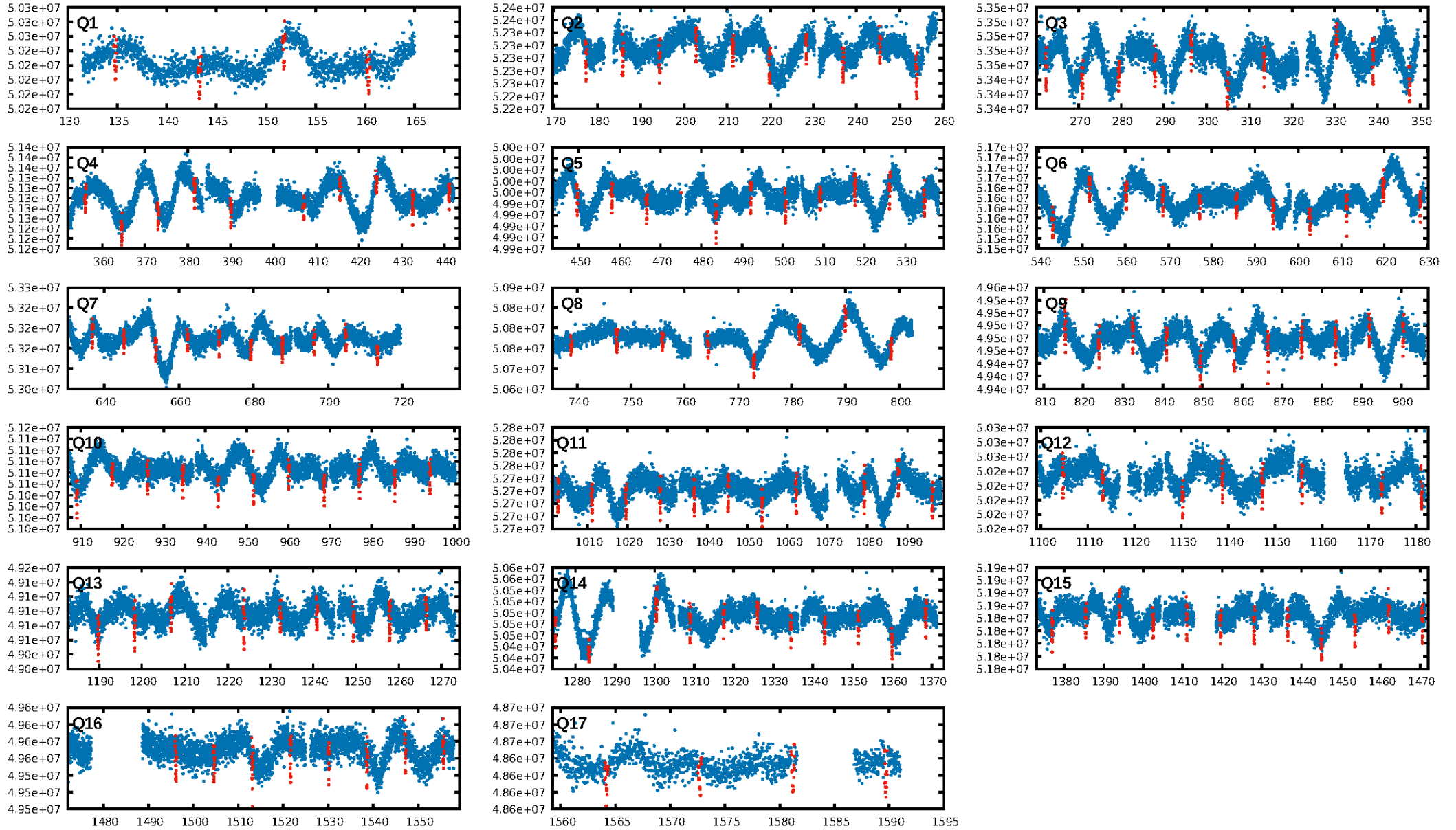
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [149/150]  
GhostDiagnostic-chr: 4.645  
Centroid-sig: 1.0%  
Centroid-so: 0.058 arcsec [0.47σ]  
OotOffset-rm: 0.016 arcsec [0.13σ]  
KicOffset-rm: 0.202 arcsec [1.57σ]  
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]

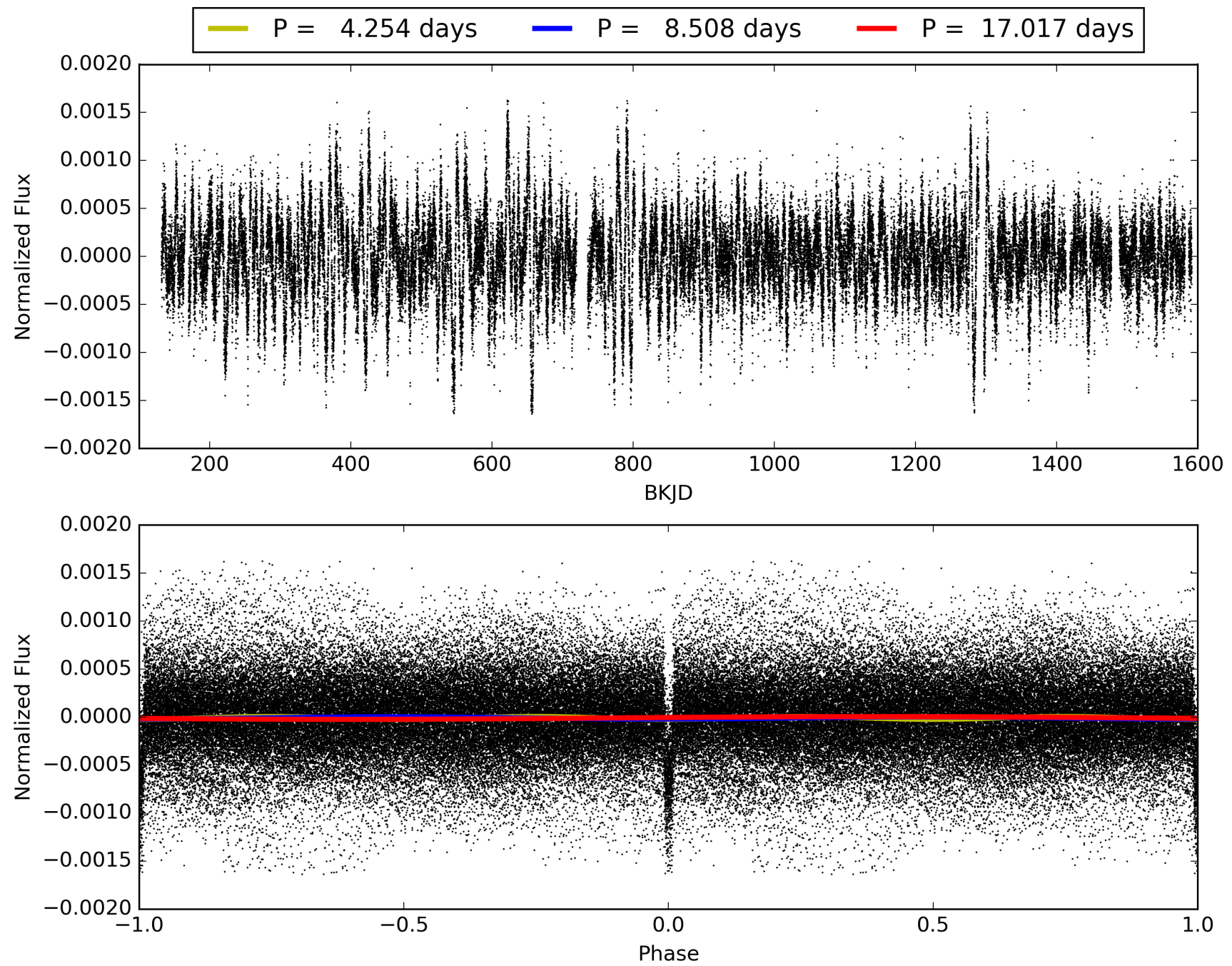
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:10:21 Z

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

# TCE 008041216-01, PDC Light Curves

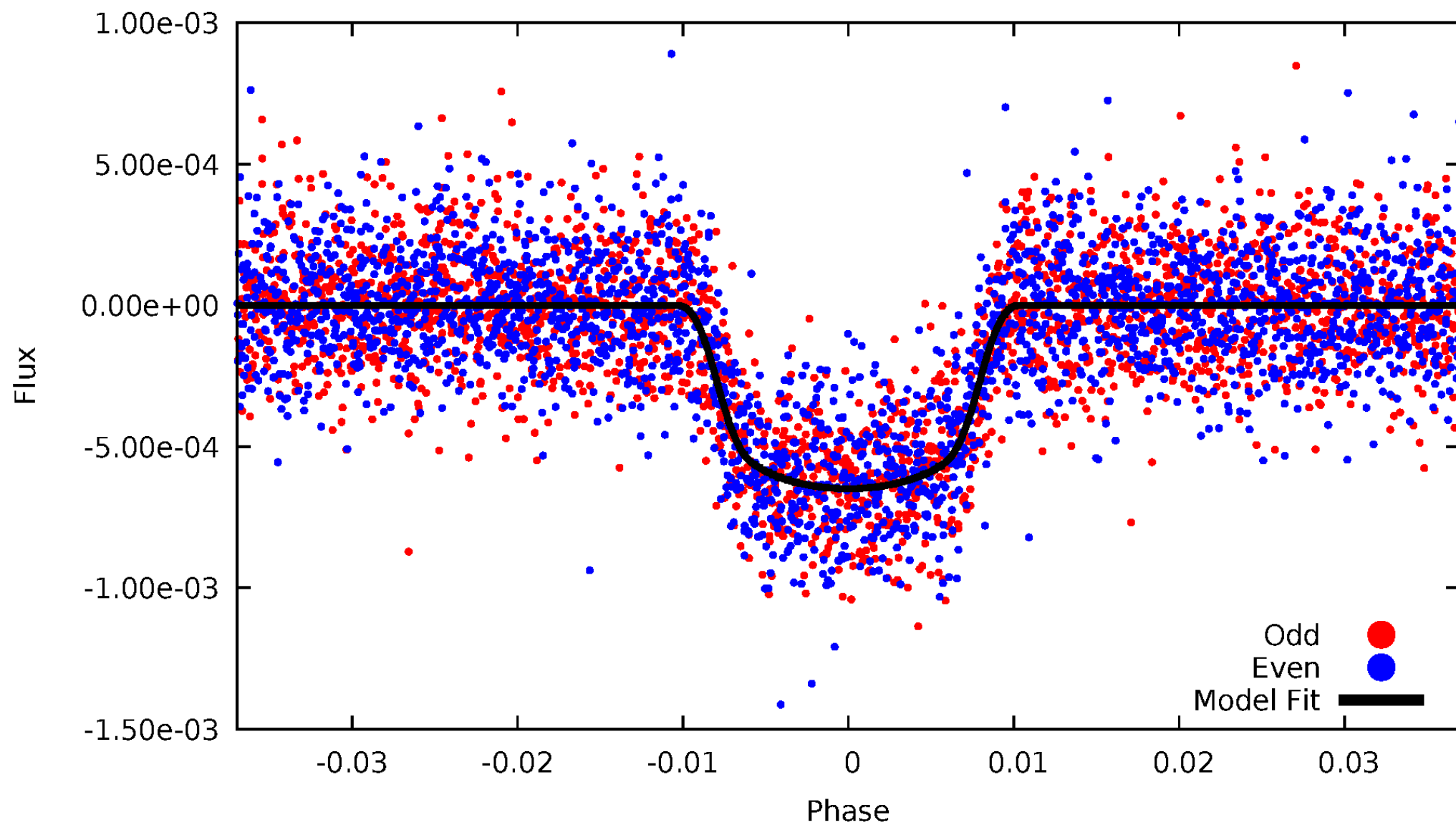


TCE 008041216-01



# DV Odd/Even

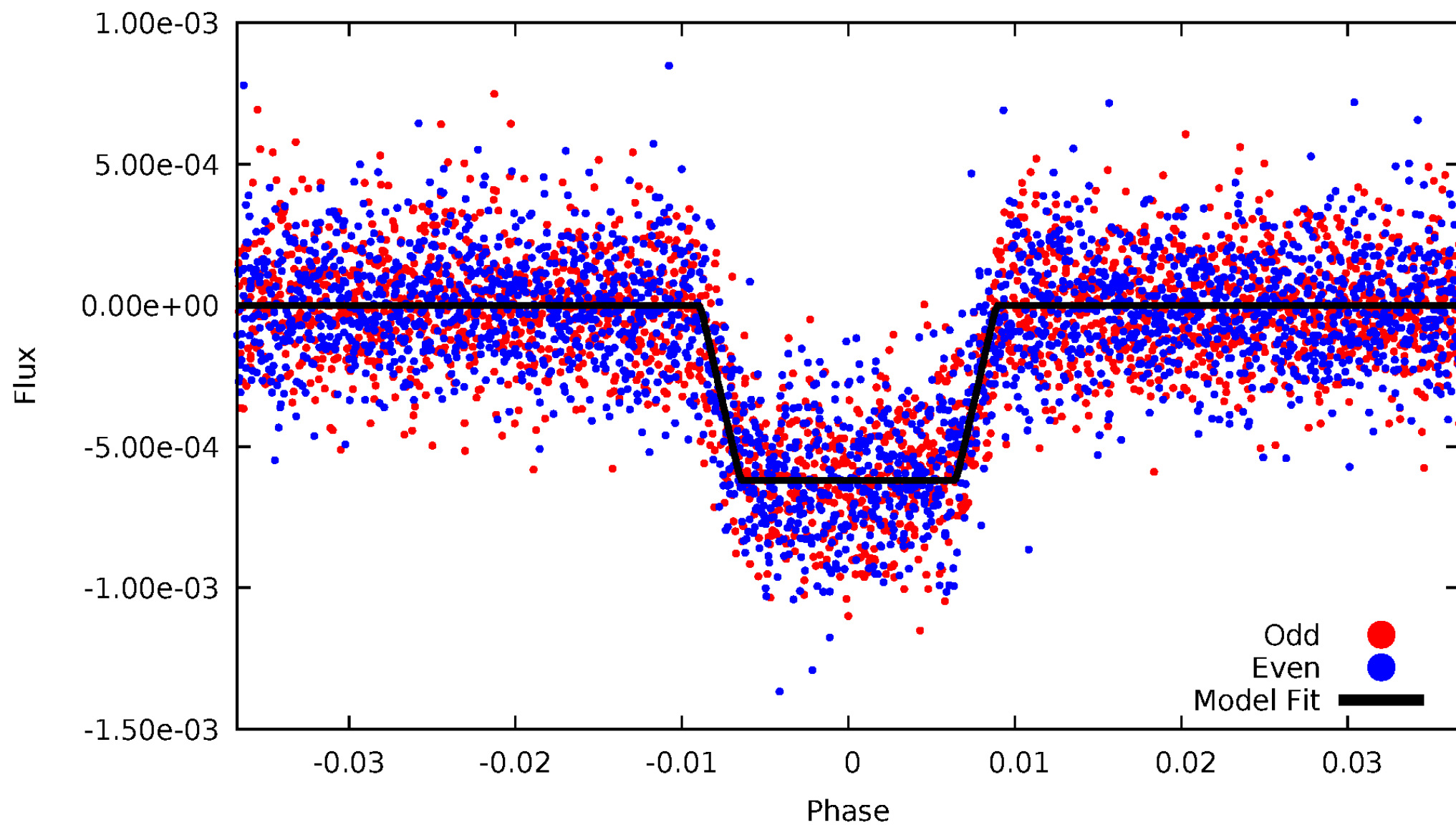
TCE 008041216-01



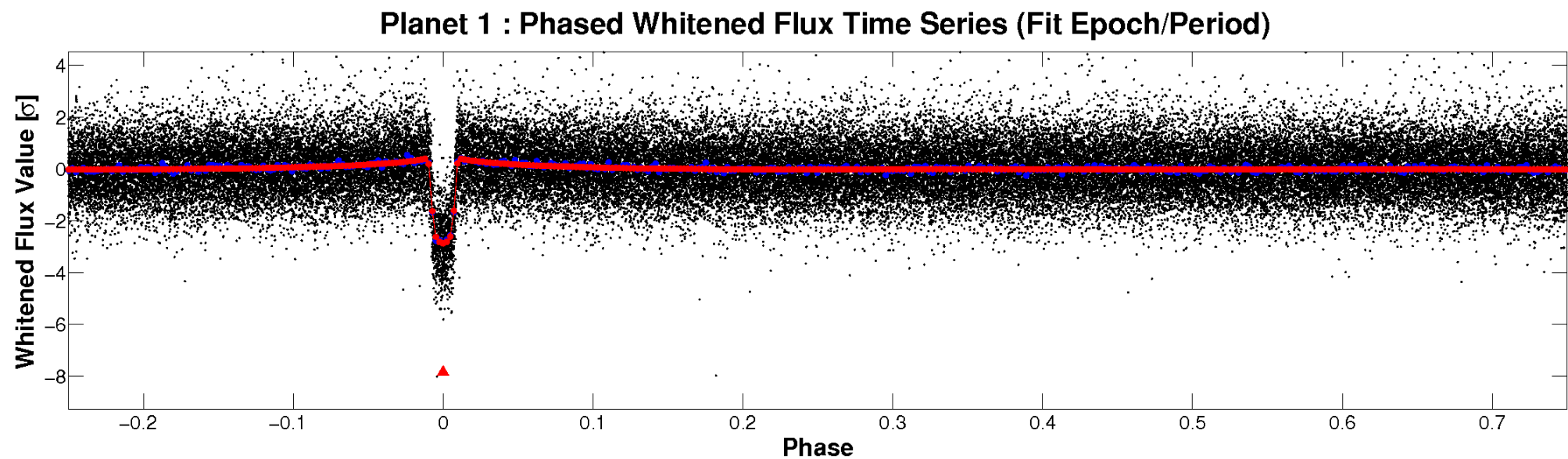
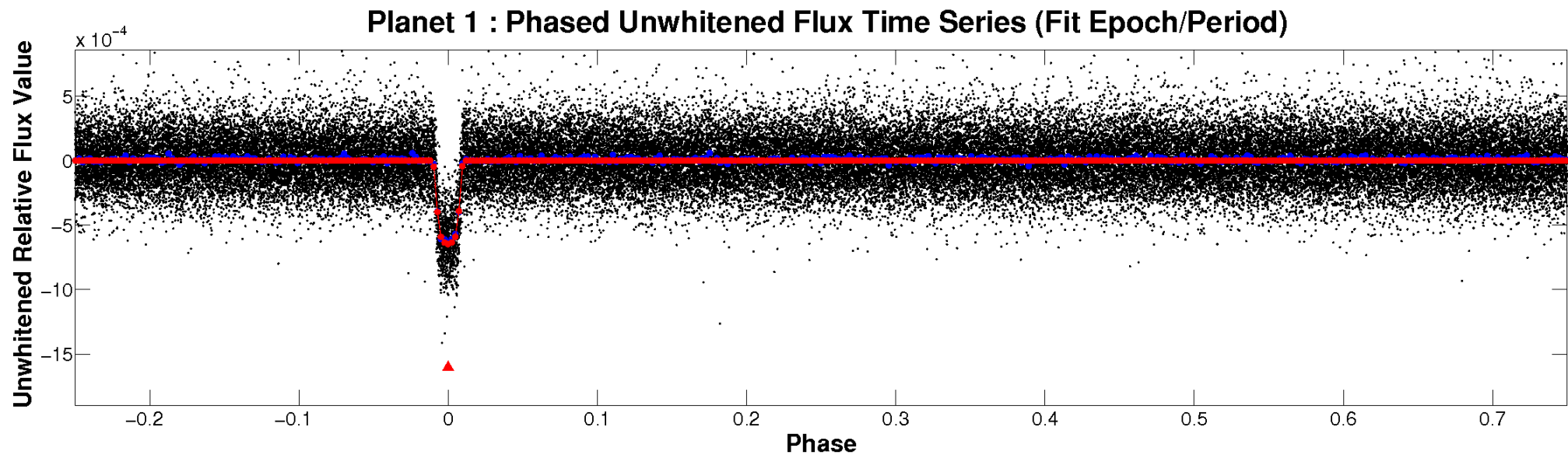


# ALT Odd/Even

TCE 008041216-01

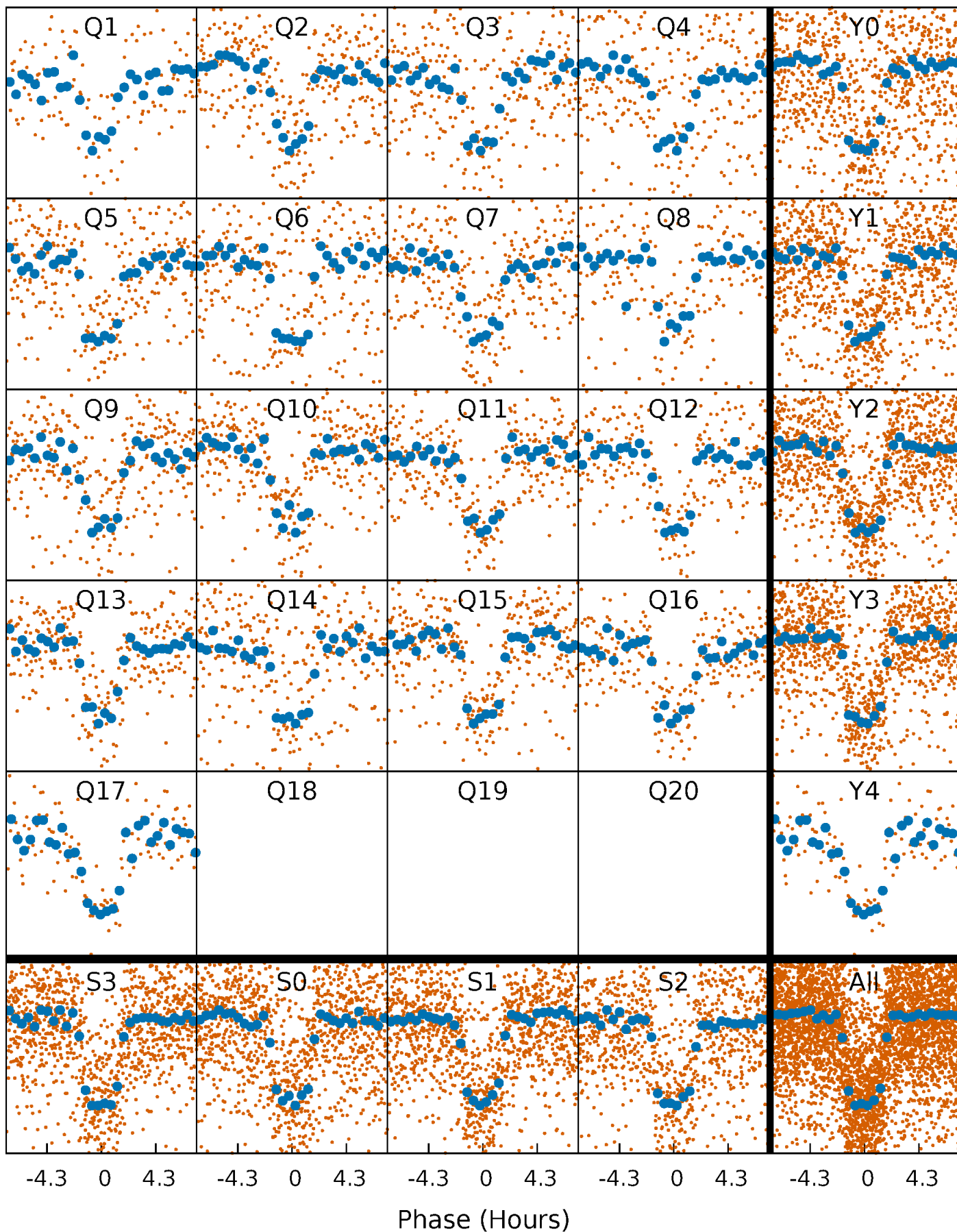


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

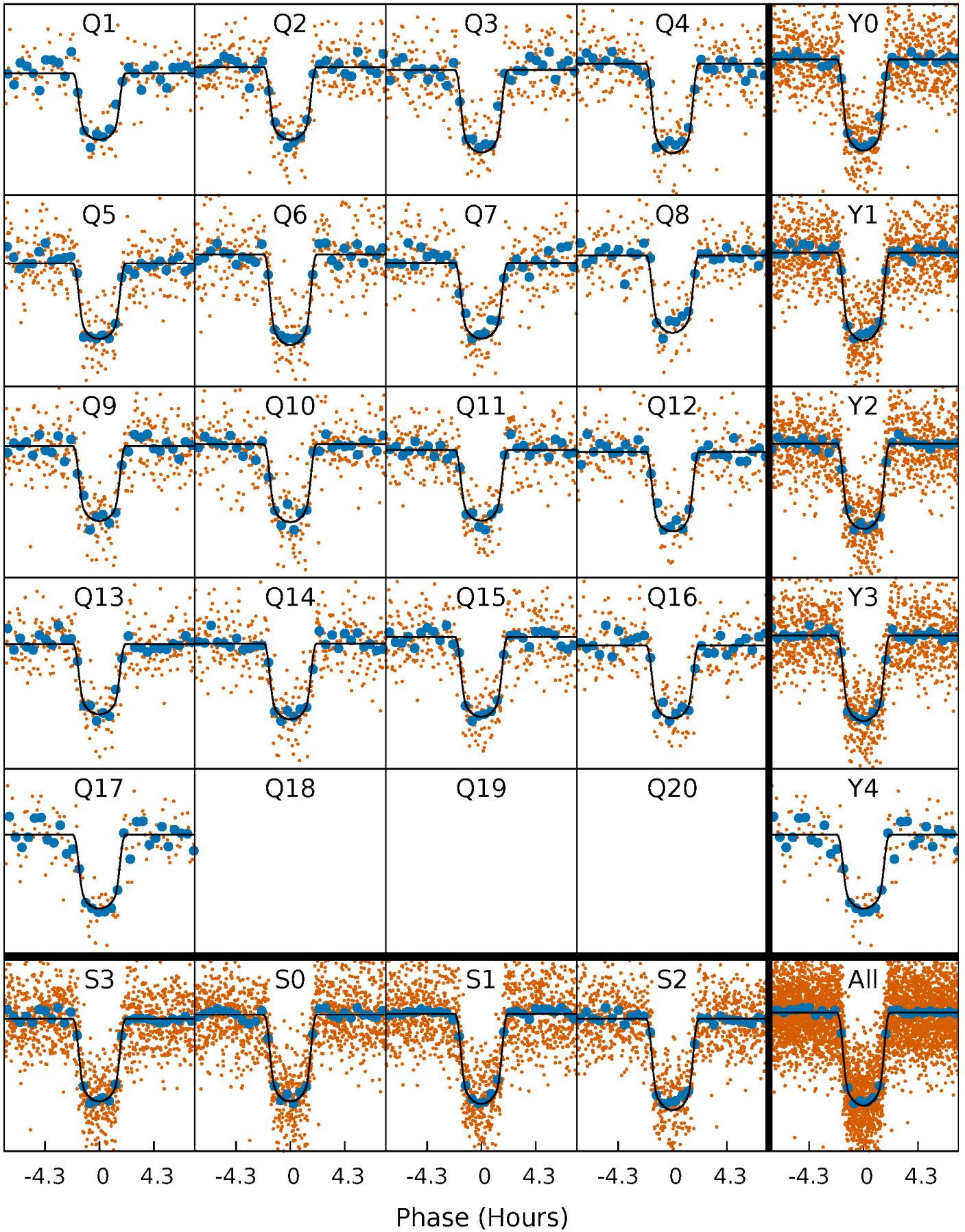
TCE 008041216-01 P= 8.508314 Days  $T_0=134.787094$  (BKJD)





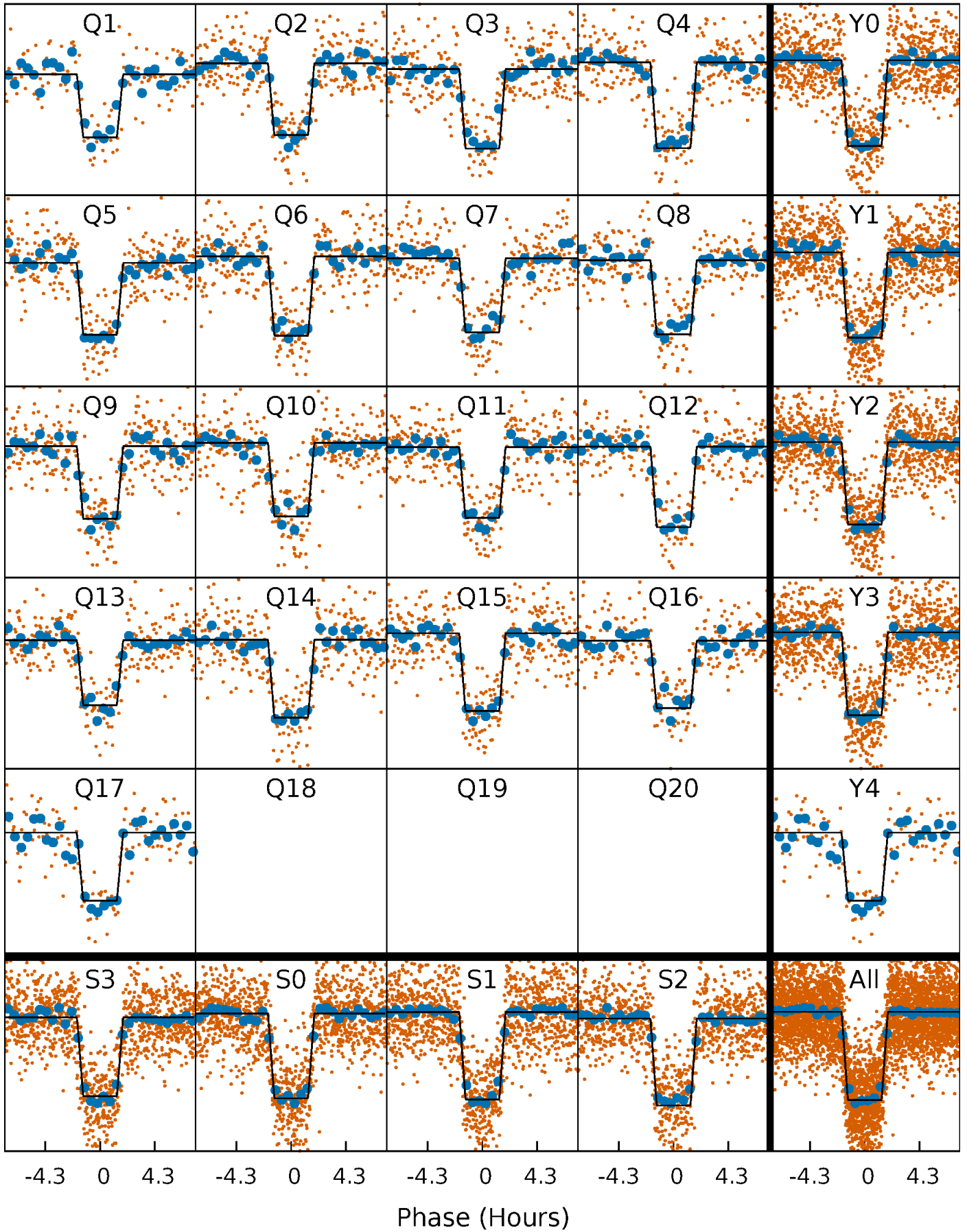
# DV Quarter-Phased Transit Curves

TCE 008041216-01 P= 8.508314 Days  $T_0=134.787094$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

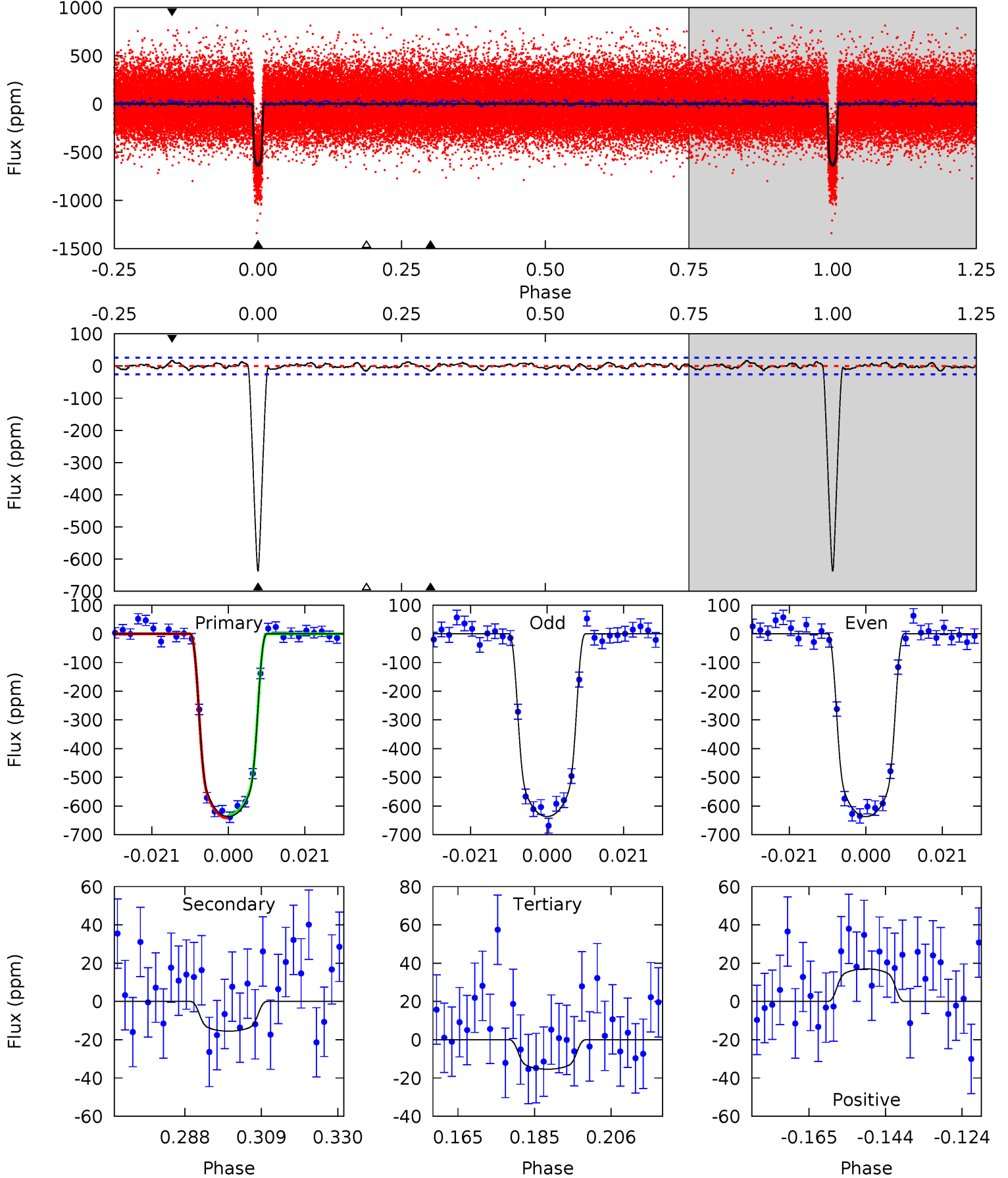
TCE 008041216-01 P= 8.508341 Days  $T_0=134.785186$  (BKJD)



# DV Model-Shift Uniqueness Test

008041216-01, P = 8.508314 Days, E = 126.278780 Days

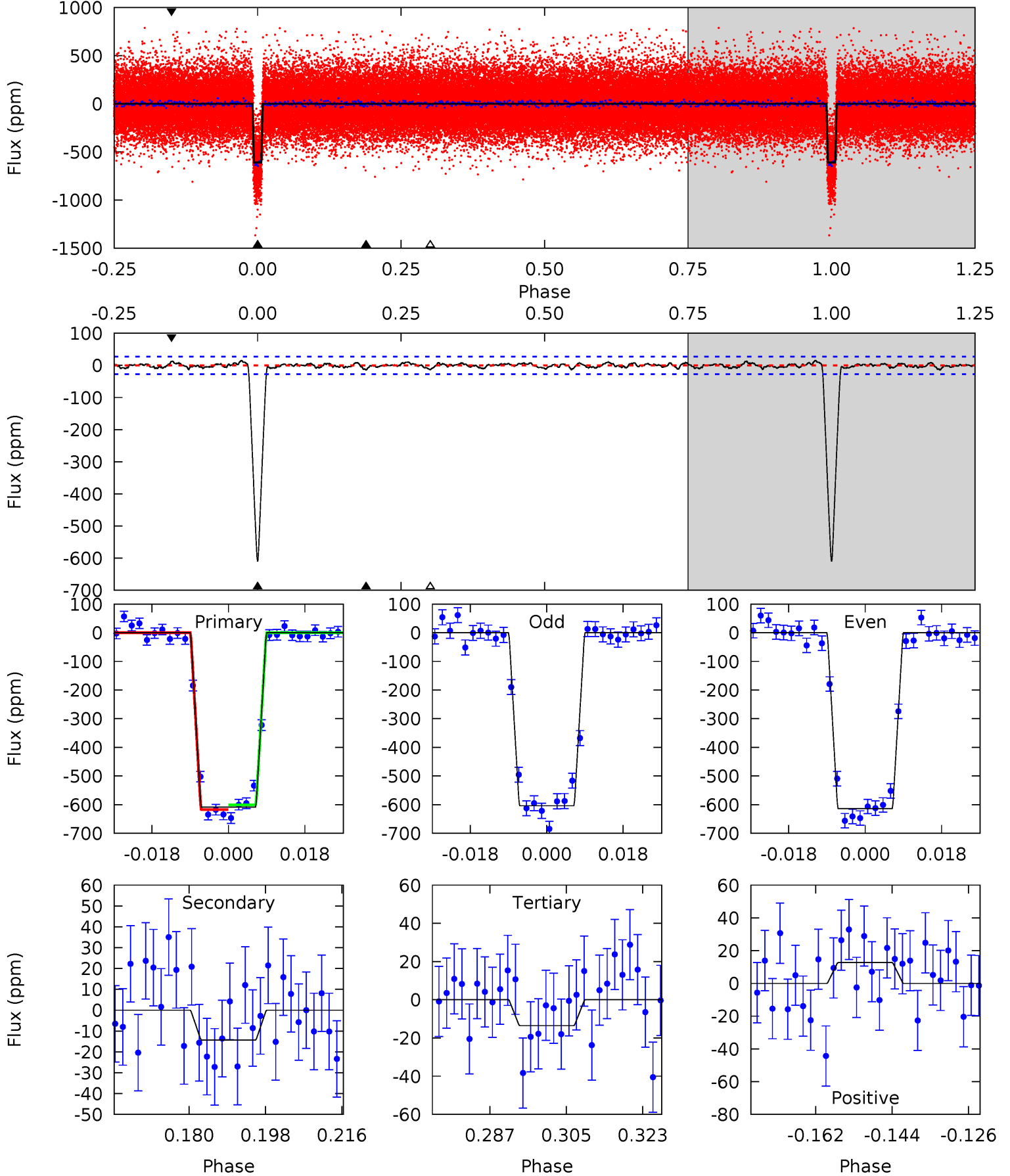
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
120.6	2.94	2.91	3.22	4.89	2.32	1.13	117.7	117.4	0.03	-0.28	0.01	1.00	0.03	0.94



# Alt Model-Shift Uniqueness Test

008041216-01, P = 8.508341 Days, E = 126.276845 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
110.3	2.59	2.46	2.29	4.91	2.37	0.92	107.8	108.0	0.13	0.29	0.91	1.01	0.02	1.52



### Stellar Parameters For KIC 008041216

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5767^{+104}_{-115}$	$4.396^{+0.090}_{-0.110}$	$0.000^{+0.150}_{-0.150}$	$1.030^{+0.149}_{-0.108}$	$0.963^{+0.072}_{-0.065}$	$1.243^{+0.477}_{-0.408}$
	+2%/-2%	+2%/-3%	+inf%/-inf%	+14%/-10%	+7%/-7%	+38%/-33%
Source	SPE57	SPE57	SPE57	DSEP		

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

### Secondary Eclipse Parameters for KIC 008041216-01 / KOI 0237.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-16 \pm 5$	$3.13^{+0.28}_{-0.20}$	$1276^{+53}_{-48}$	$2864^{+141}_{-176}$	$5.638^{+2.178}_{-2.139}$
Alt.	$-14 \pm 6$	$2.79^{+0.25}_{-0.19}$	$1270^{+54}_{-47}$	$2905^{+154}_{-201}$	$6.193^{+2.852}_{-2.365}$

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



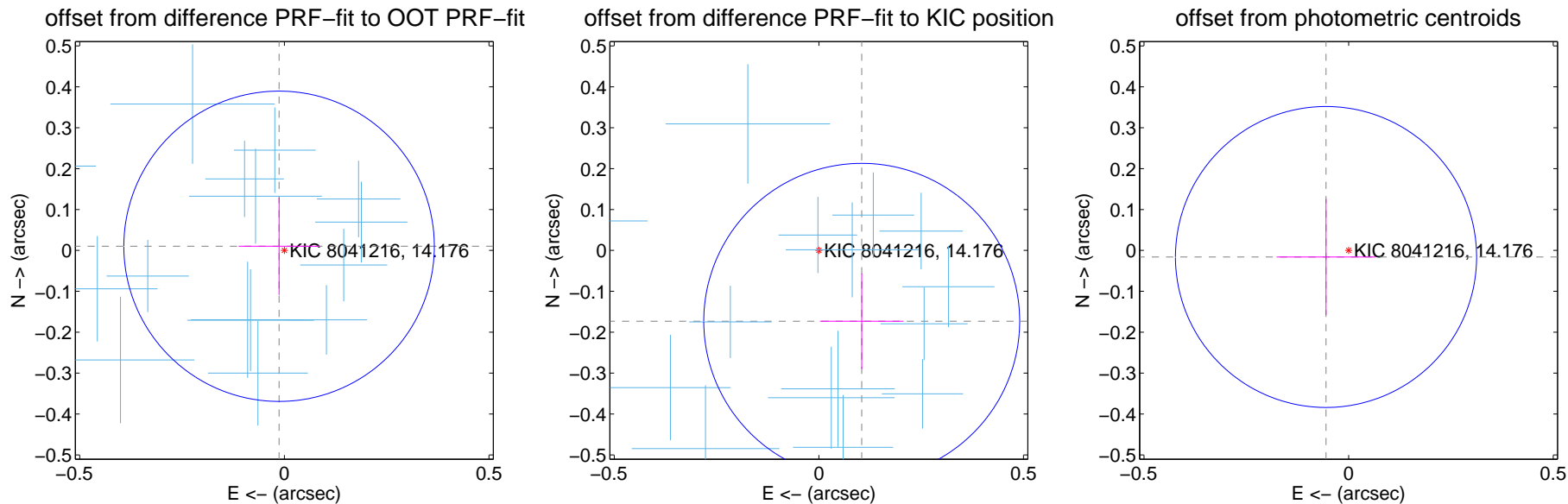
## DV Centroid Data

Supplemental centroid analysis for 008041216-01. Kepler magnitude: 14.18. Transit SNR 81.28

There are 17 quarters with good PRF difference image offsets

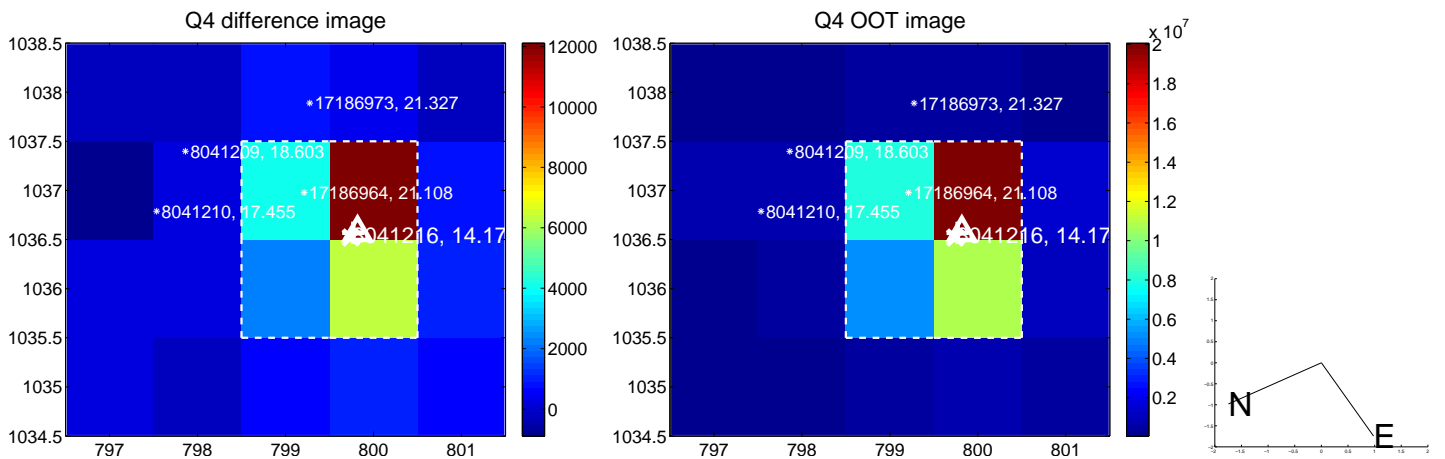
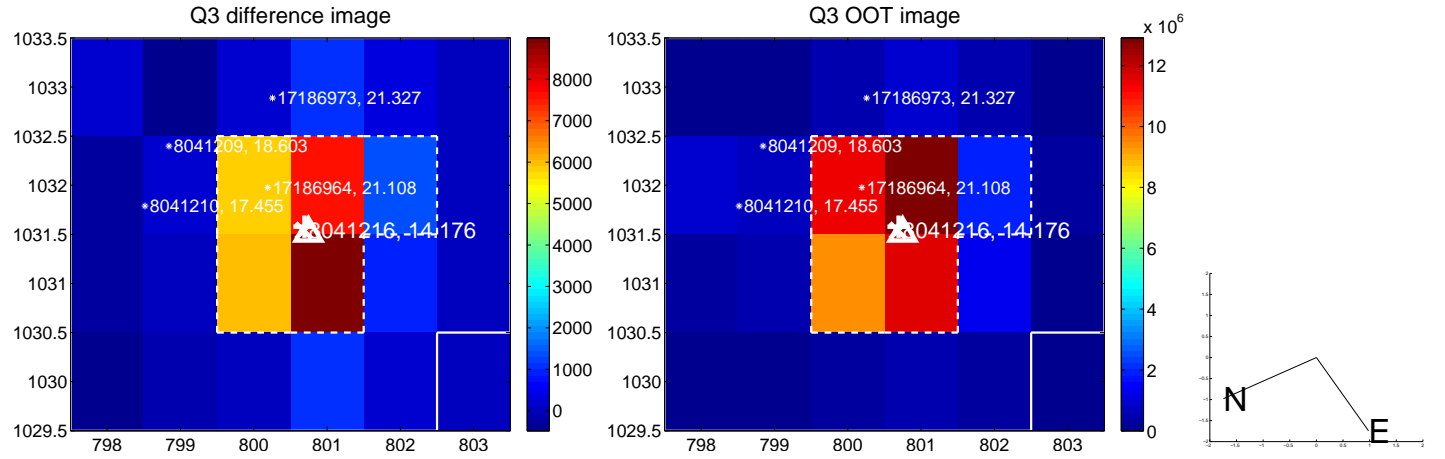
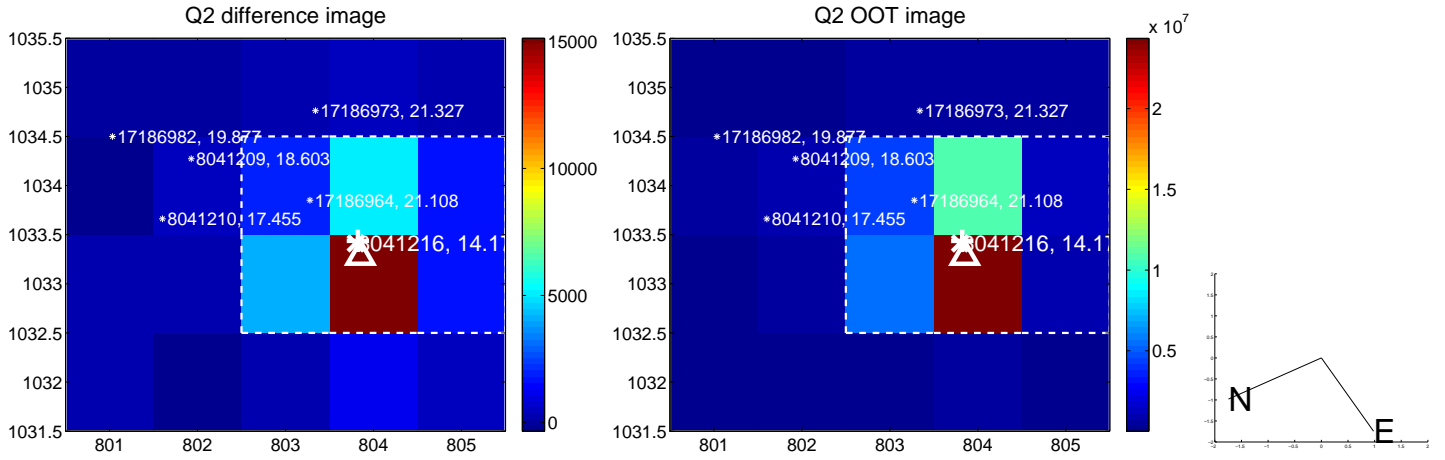
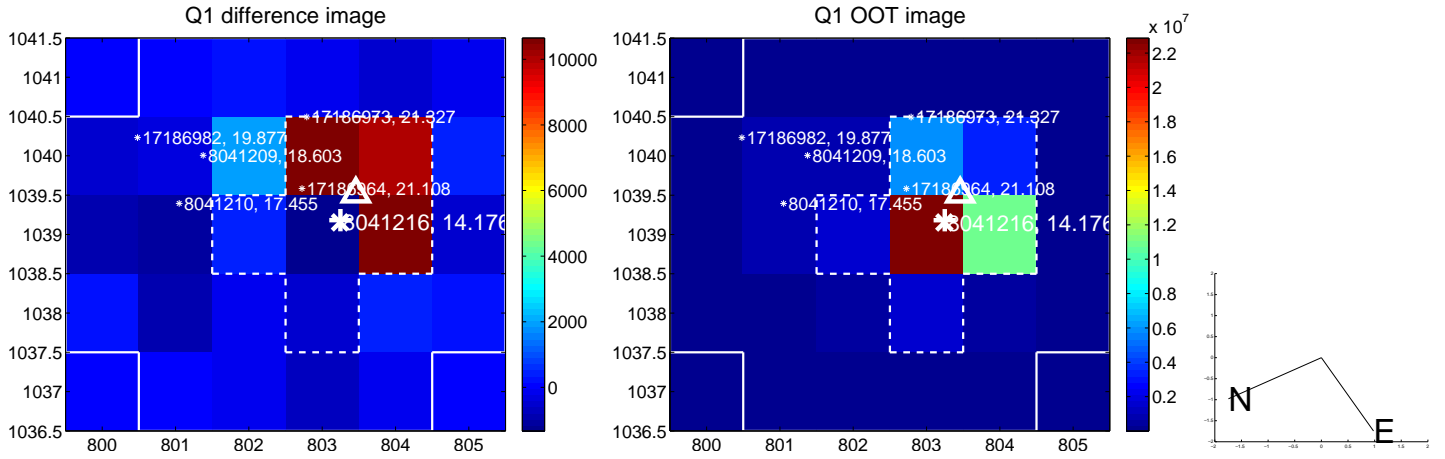
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.016 \pm 0.126$	0.13	$0.013 \pm 0.099$	$0.010 \pm 0.119$
PRF-fit source offset from KIC position	$0.202 \pm 0.129$	1.57	$-0.105 \pm 0.102$	$-0.173 \pm 0.117$
photometric centroid source offset	$0.06 \pm 0.12$	0.47	$0.06 \pm 0.12$	$-0.02 \pm 0.14$

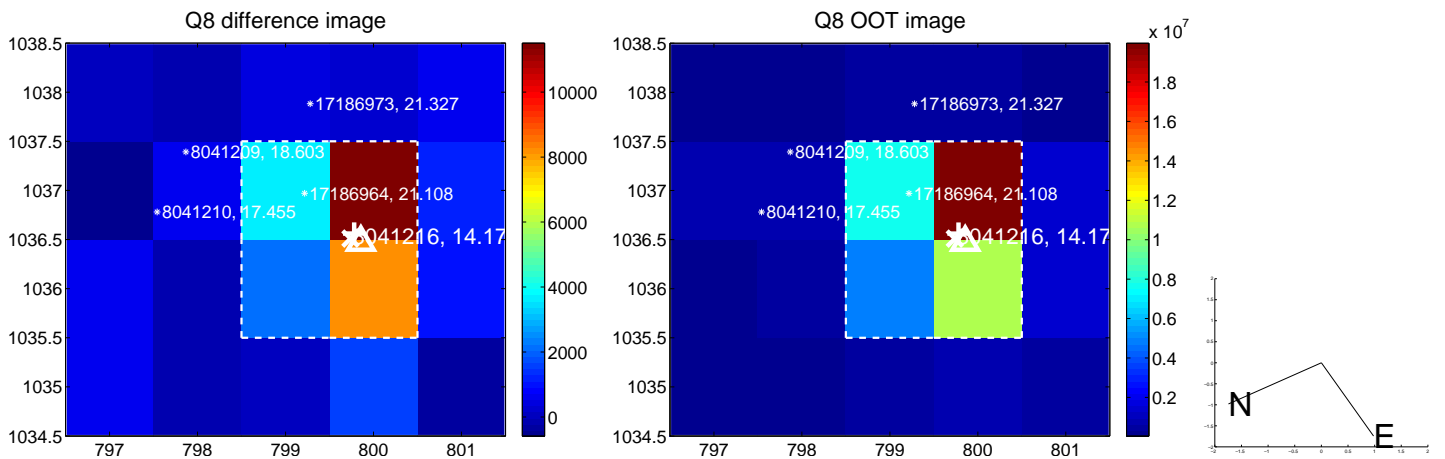
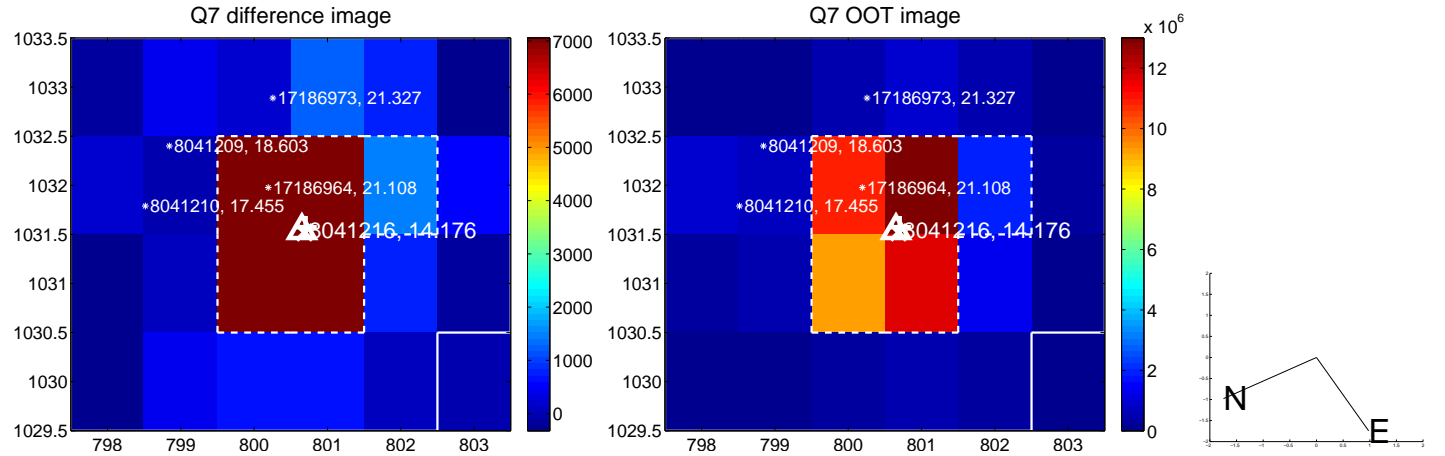
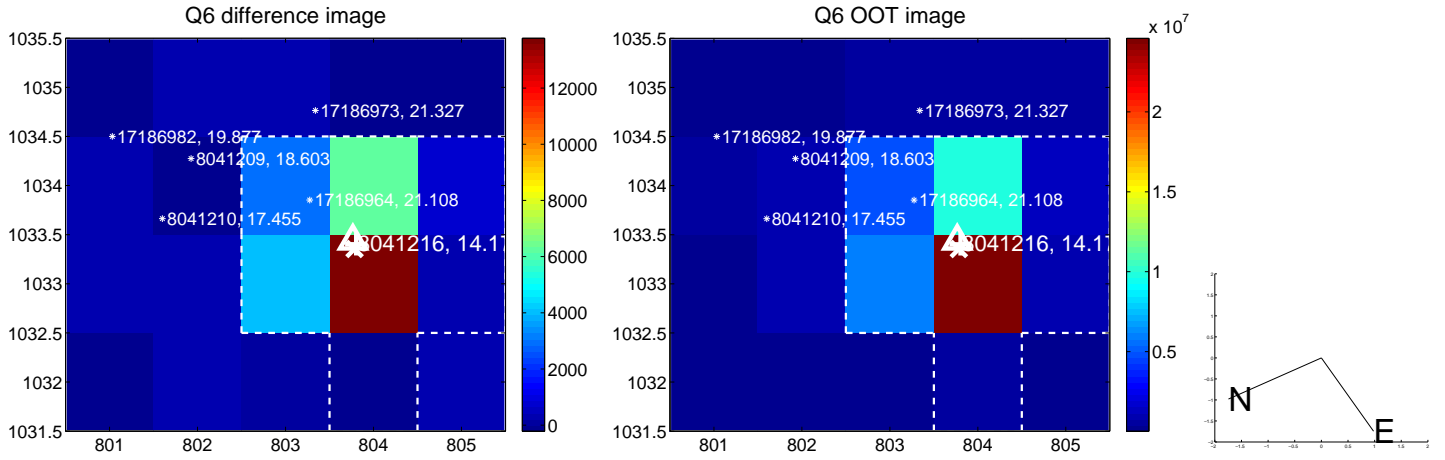
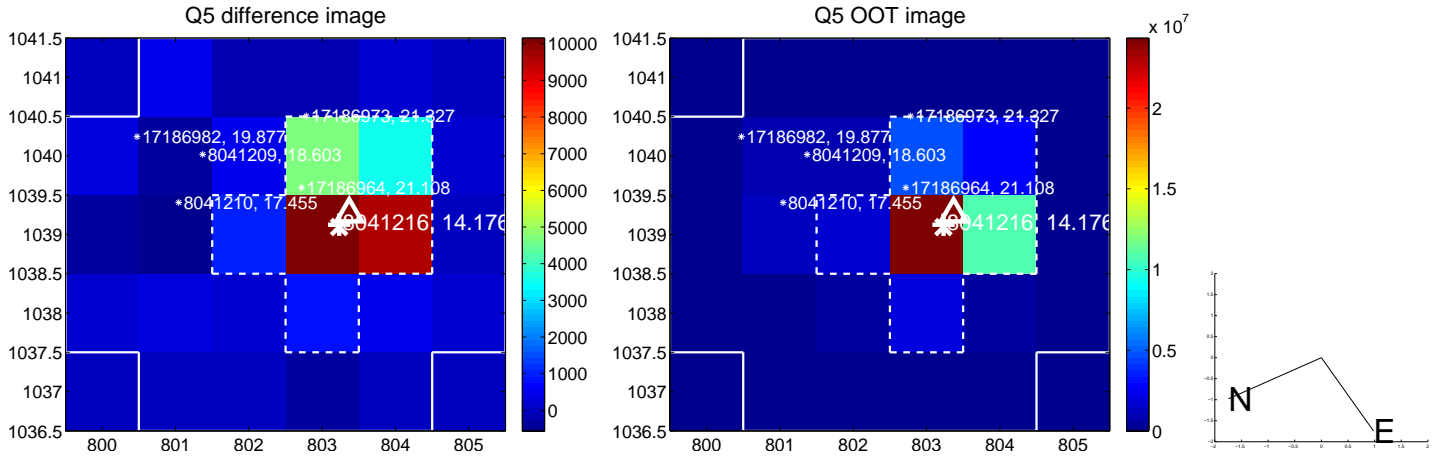


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

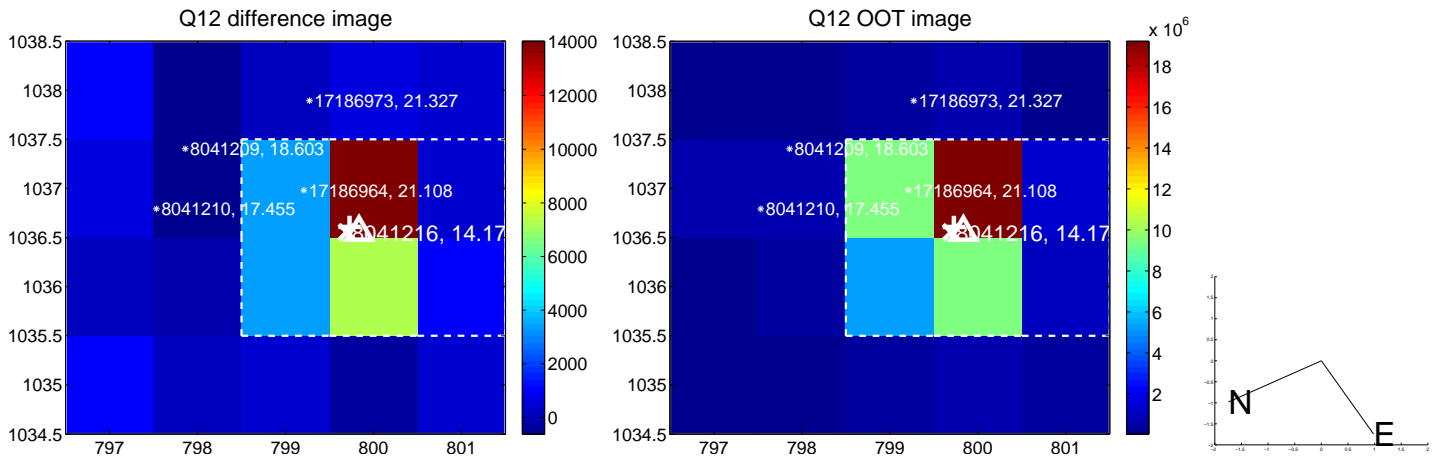
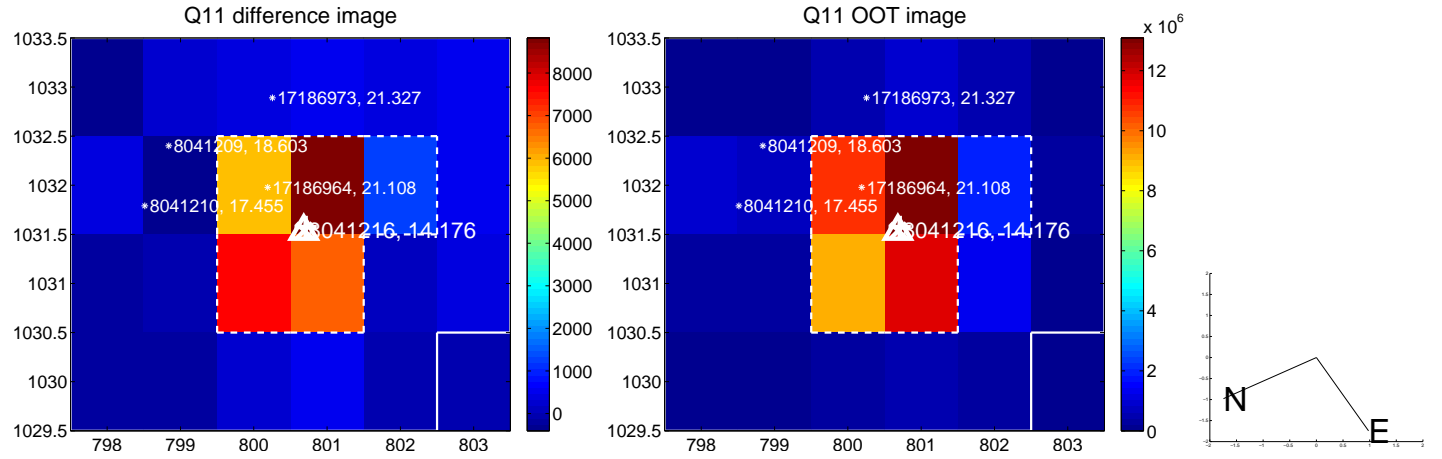
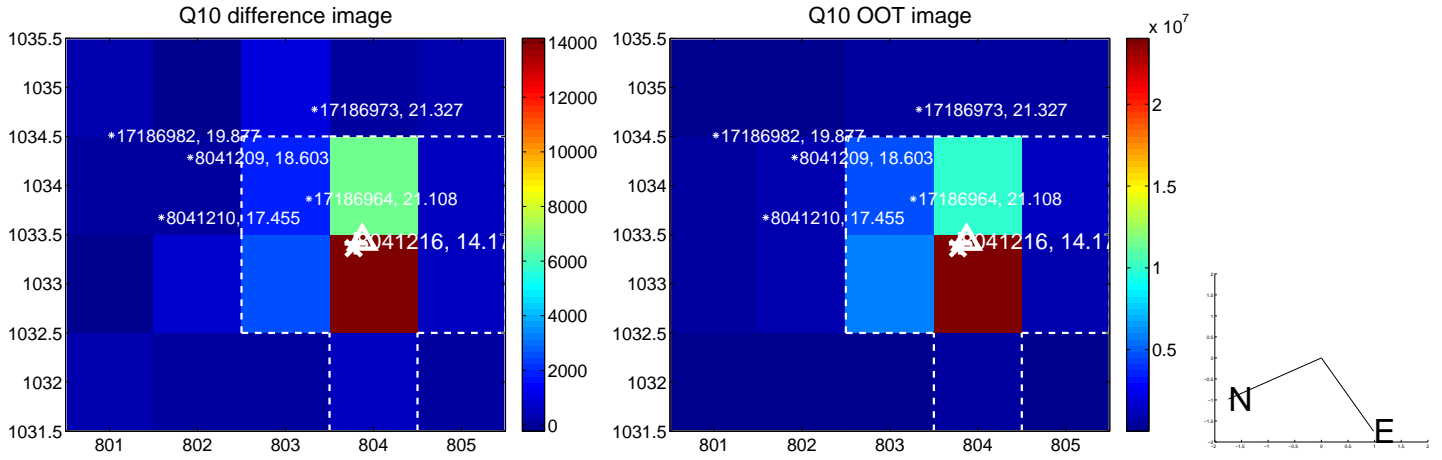
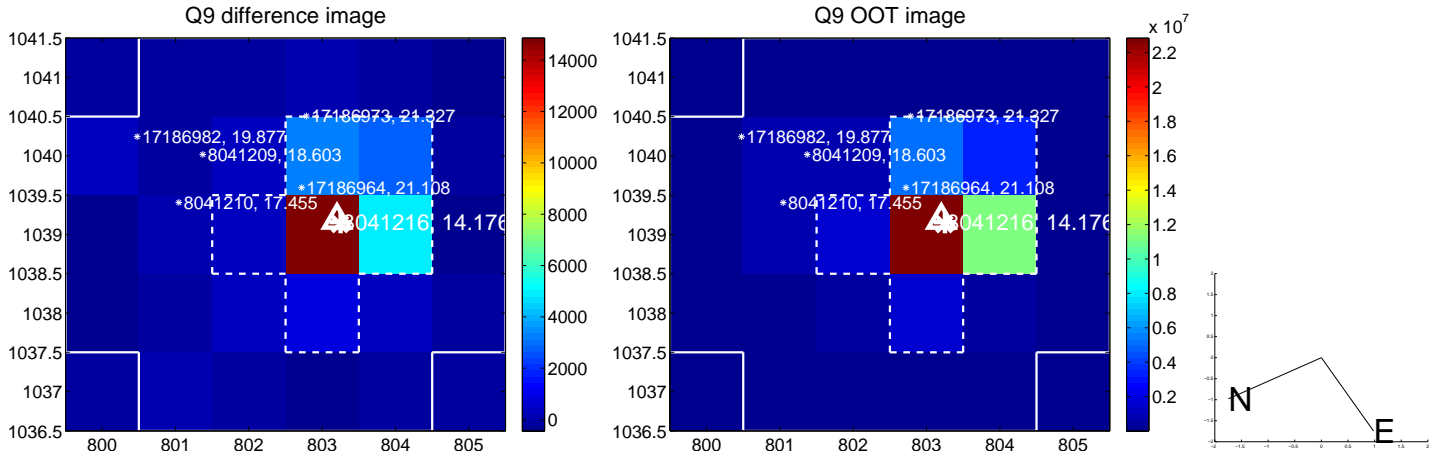
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



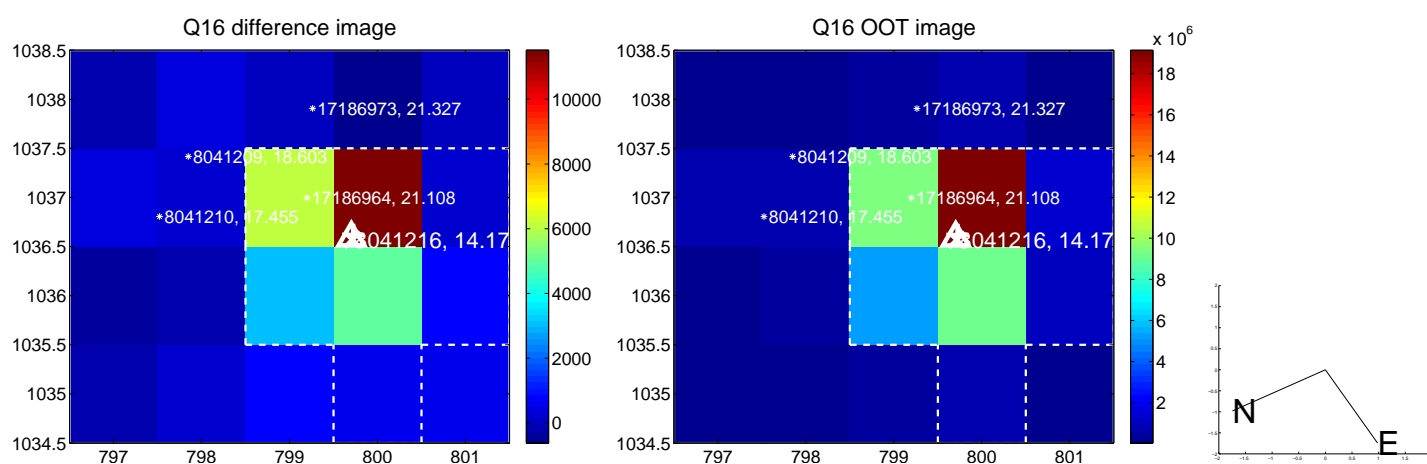
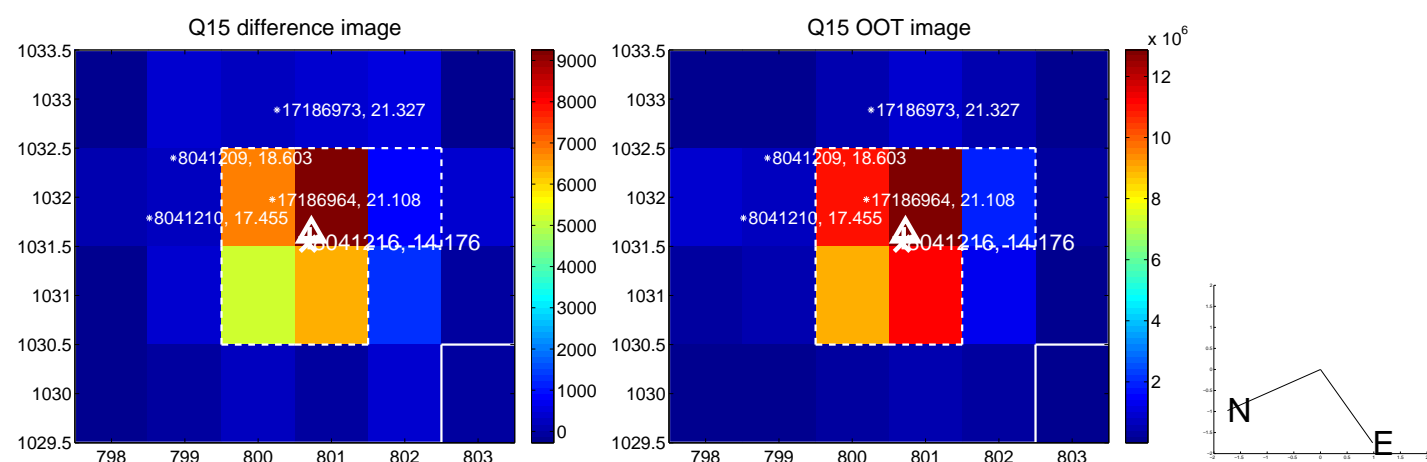
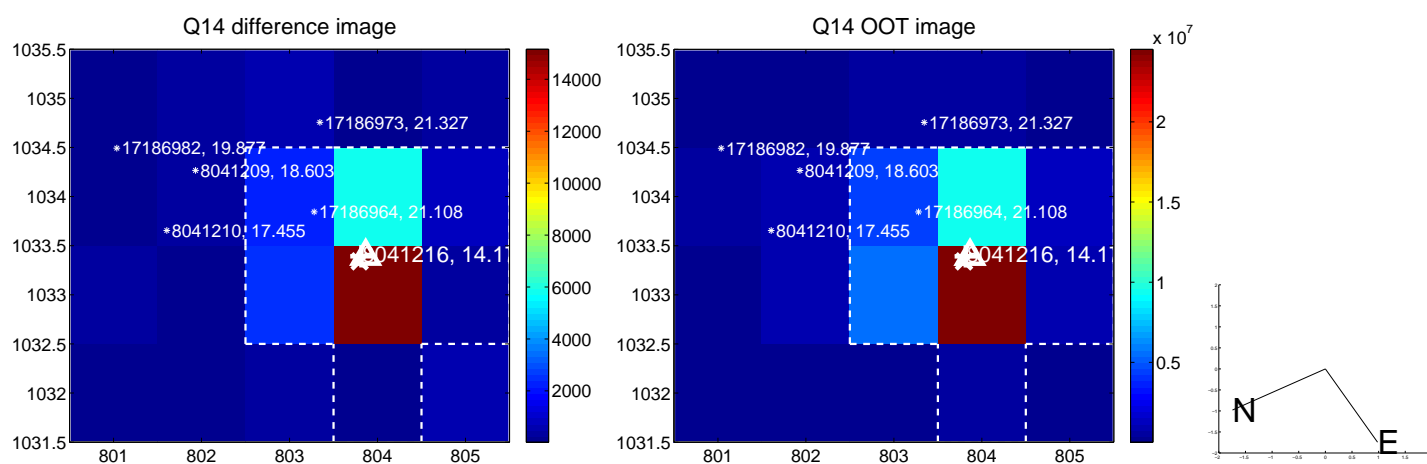
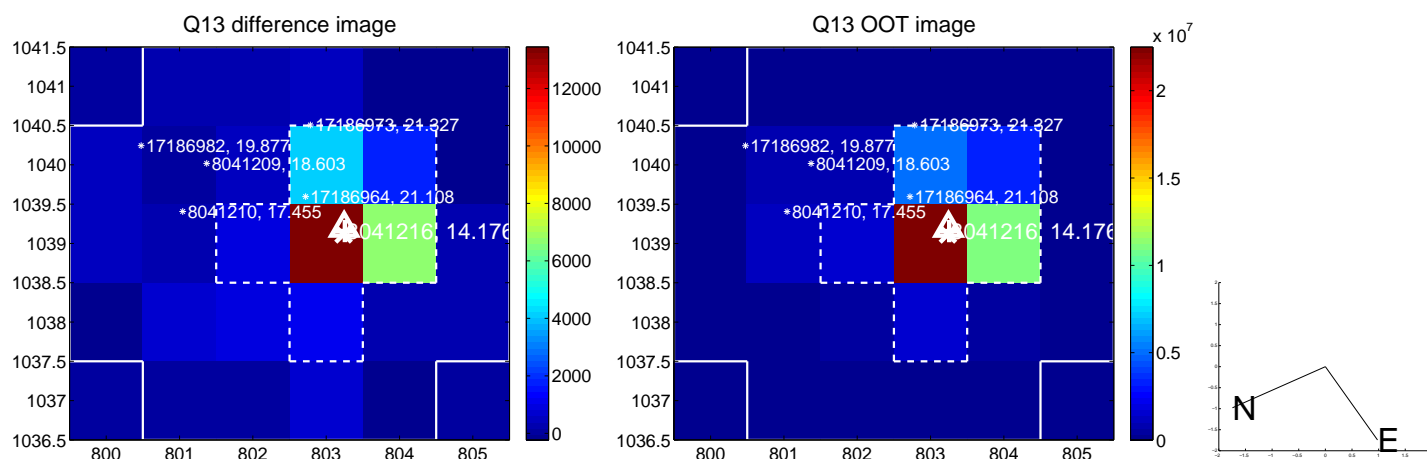
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

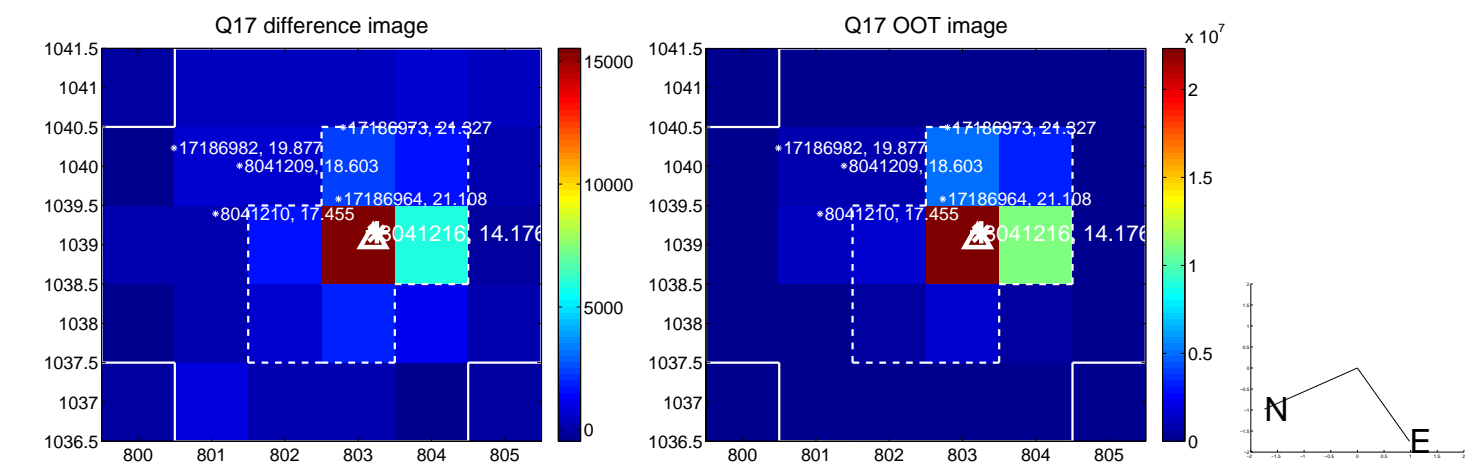


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

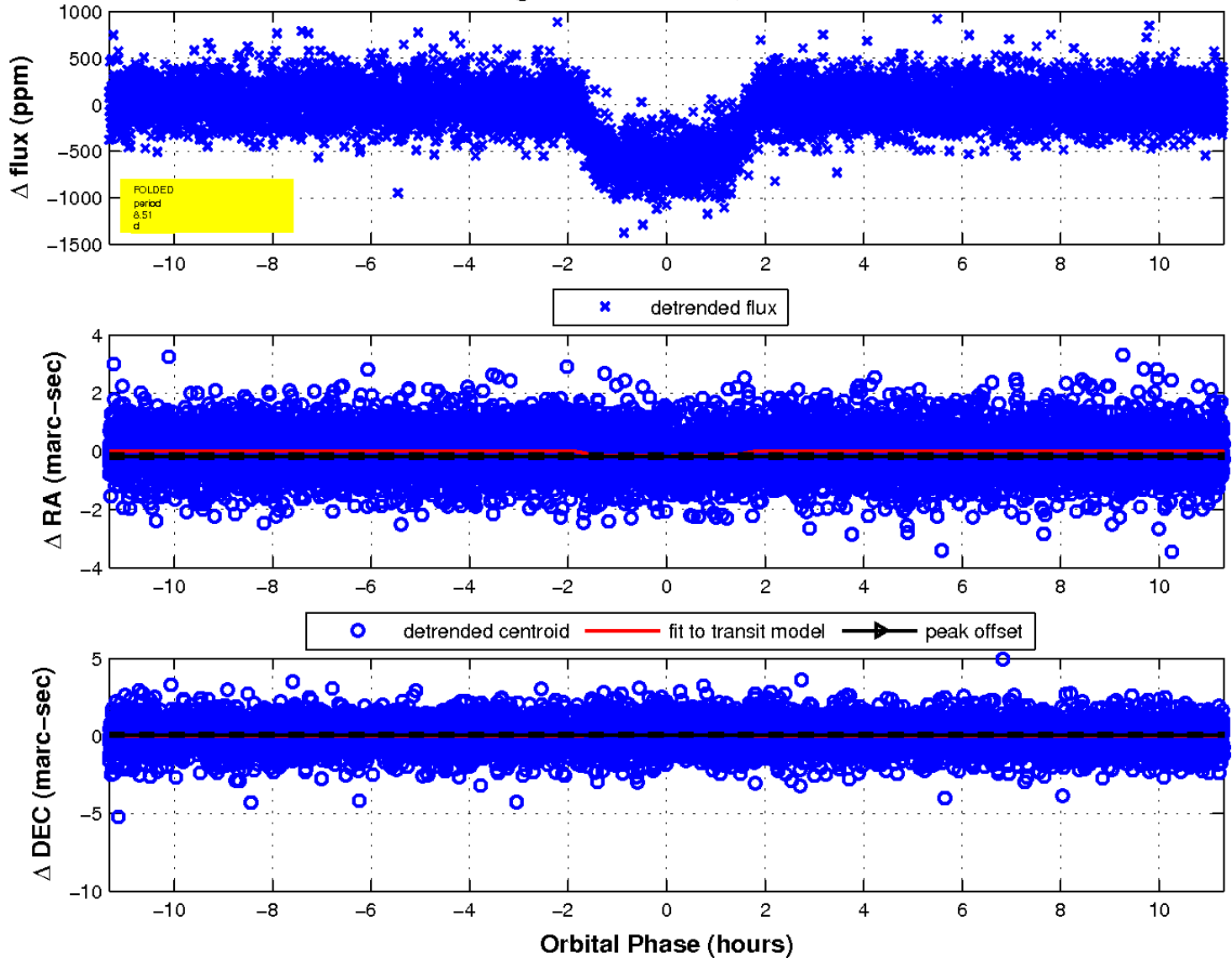




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

