

# KIC 003733628

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003733628-01	OBS	0387.01	13.899635	141.165122	1125.7	3.606	116.7	114.6	0.66	4538	2.52	17.41

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003733628-01	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.

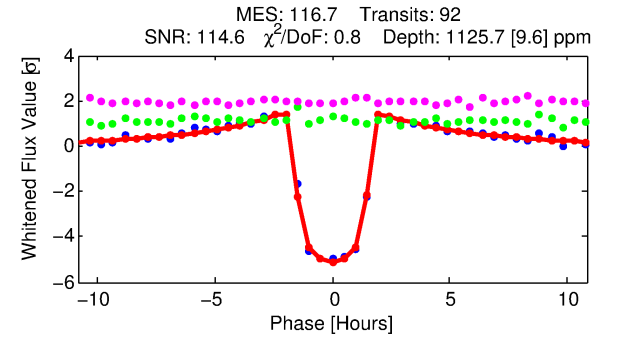
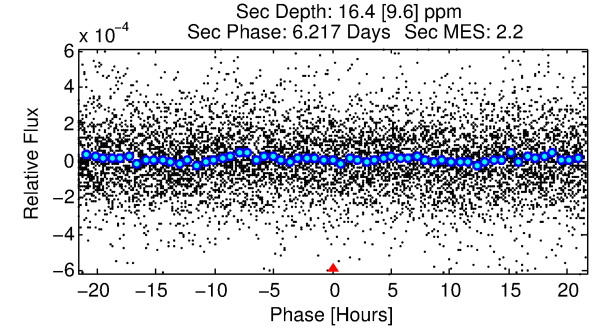
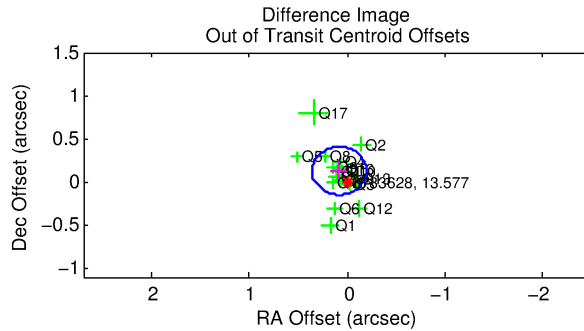
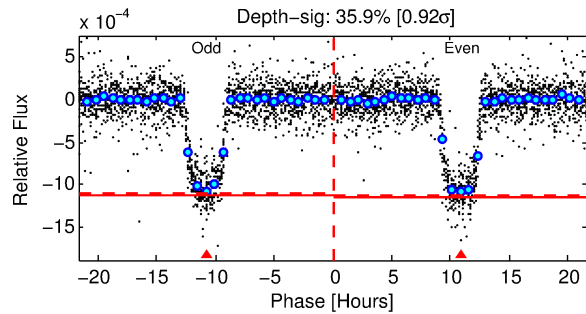
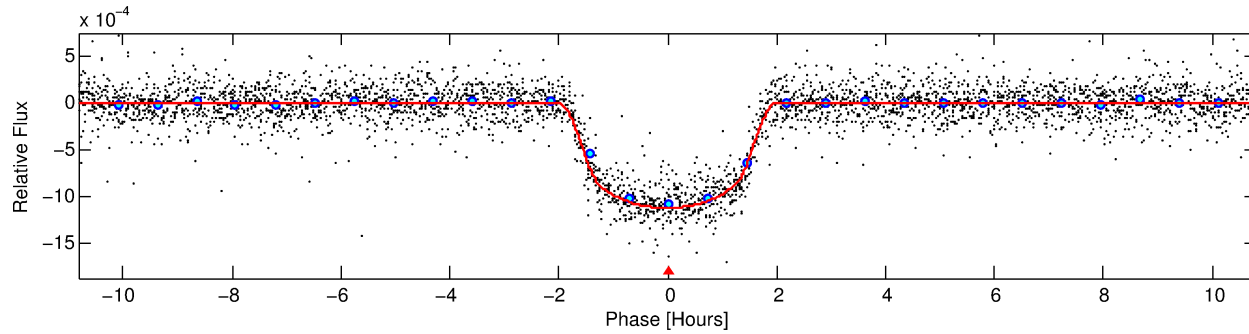
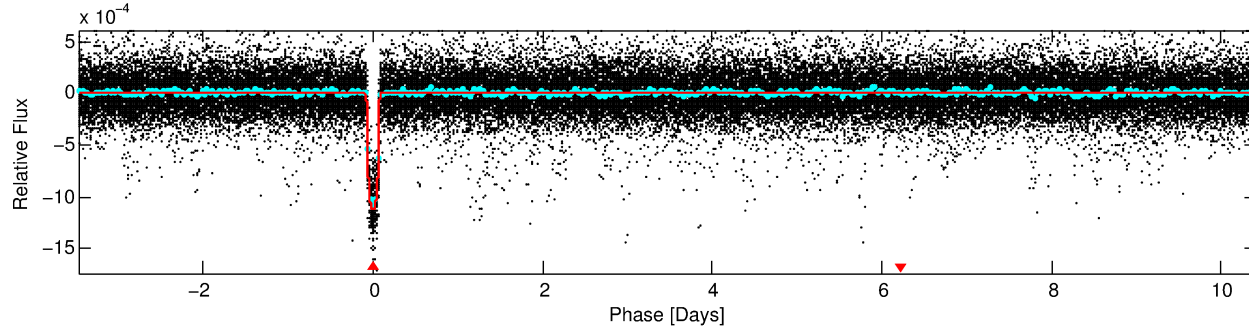
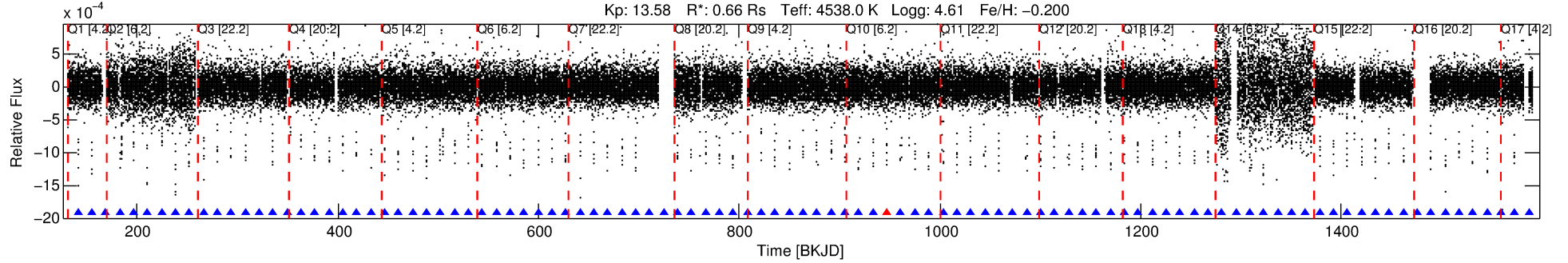
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003733628-01

No Significant Match Found

# DV One-Page Summary

KIC: 3733628 Candidate: 1 of 1 Period: 13.900 d  
KOI: K00387.01 Corr: 0.994



## DV Fit Results:

Period = 13.89964 [0.00001] d  
Epoch = 141.1651 [0.0006] BKJD  
Rp/R\* = 0.0348 [0.0016]  
a/R\* = 19.05 [2.82]  
b = 0.81 [0.07]  
Seff = 17.41 [1.84]  
Teq = 521 [14] K  
Rp = 2.52 [0.18] Re  
a = 0.0980 [0.0046] AU  
Ag = 13.63 [8.12] [1.56 $\sigma$ ]  
Teffp = 1547 [231] K [4.44 $\sigma$ ]

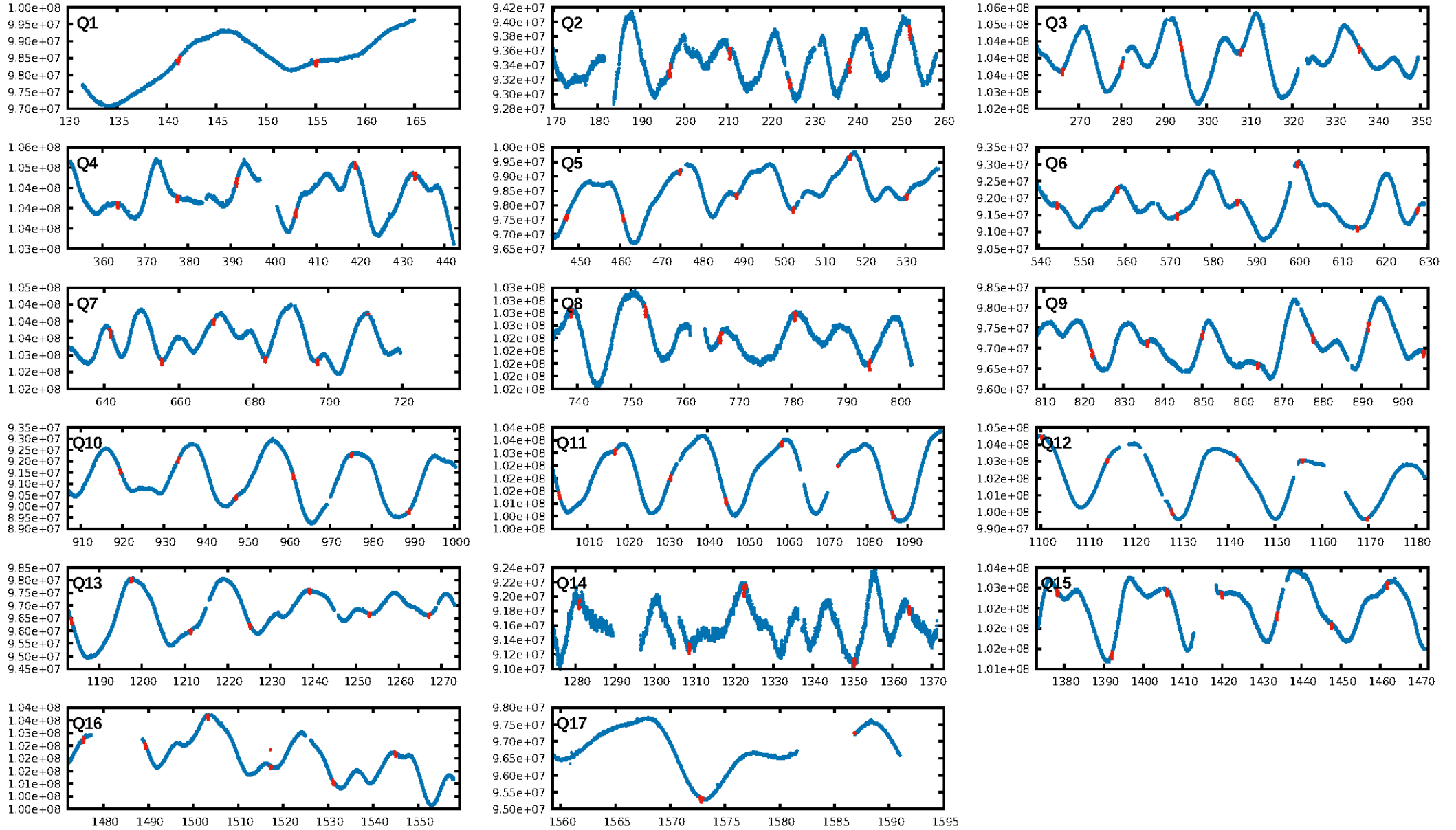
## DV Diagnostic Results:

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 [88/89]  
GhostDiagnostic-chr: 2.387  
Centroid-sig: 11.9%  
Centroid-so: 0.098 arcsec [0.95 $\sigma$ ]  
OotOffset-rm: 0.154 arcsec [1.66 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.217 arcsec [2.28 $\sigma$ ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

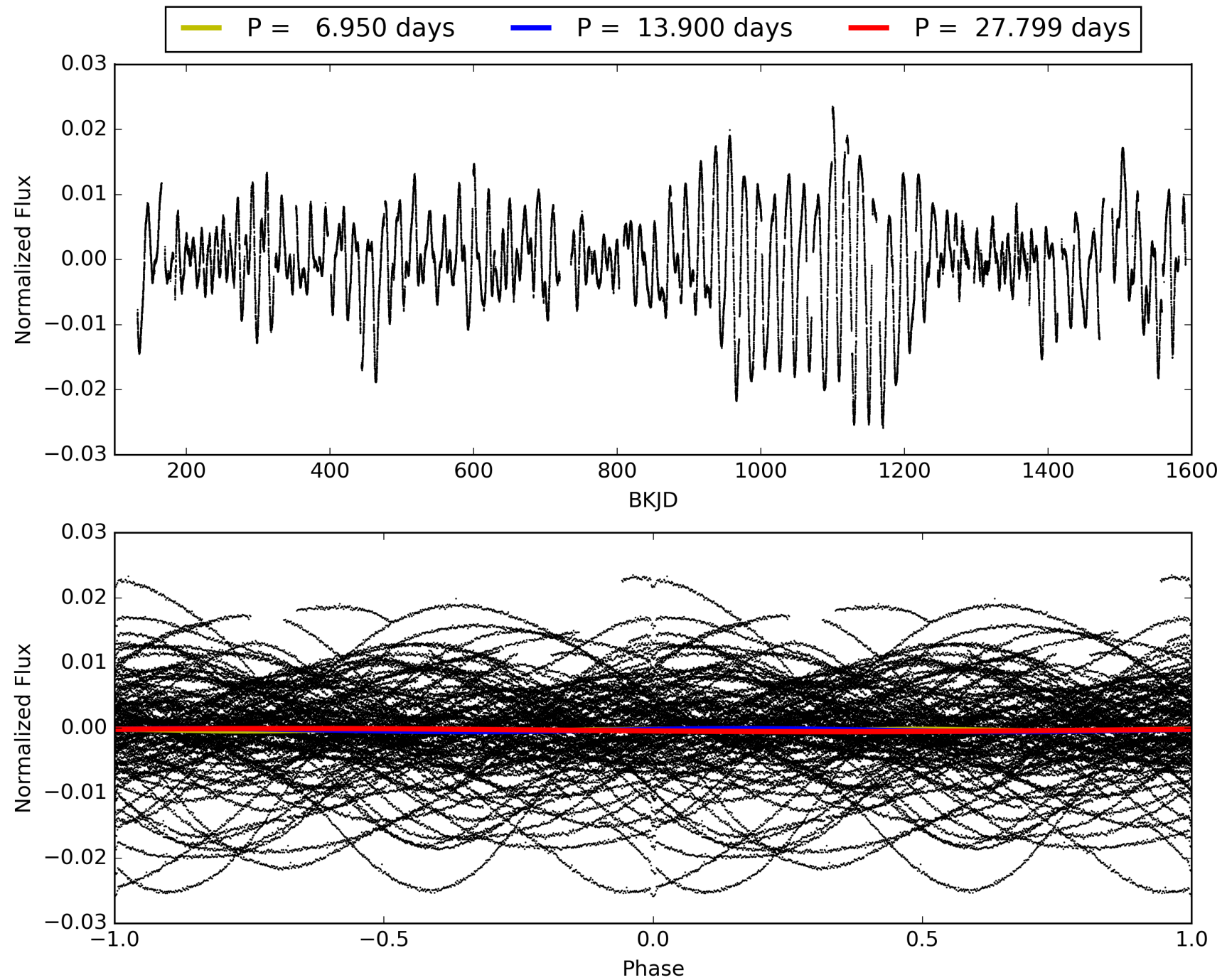
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 16:36:19 Z

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

# TCE 003733628-01, PDC Light Curves

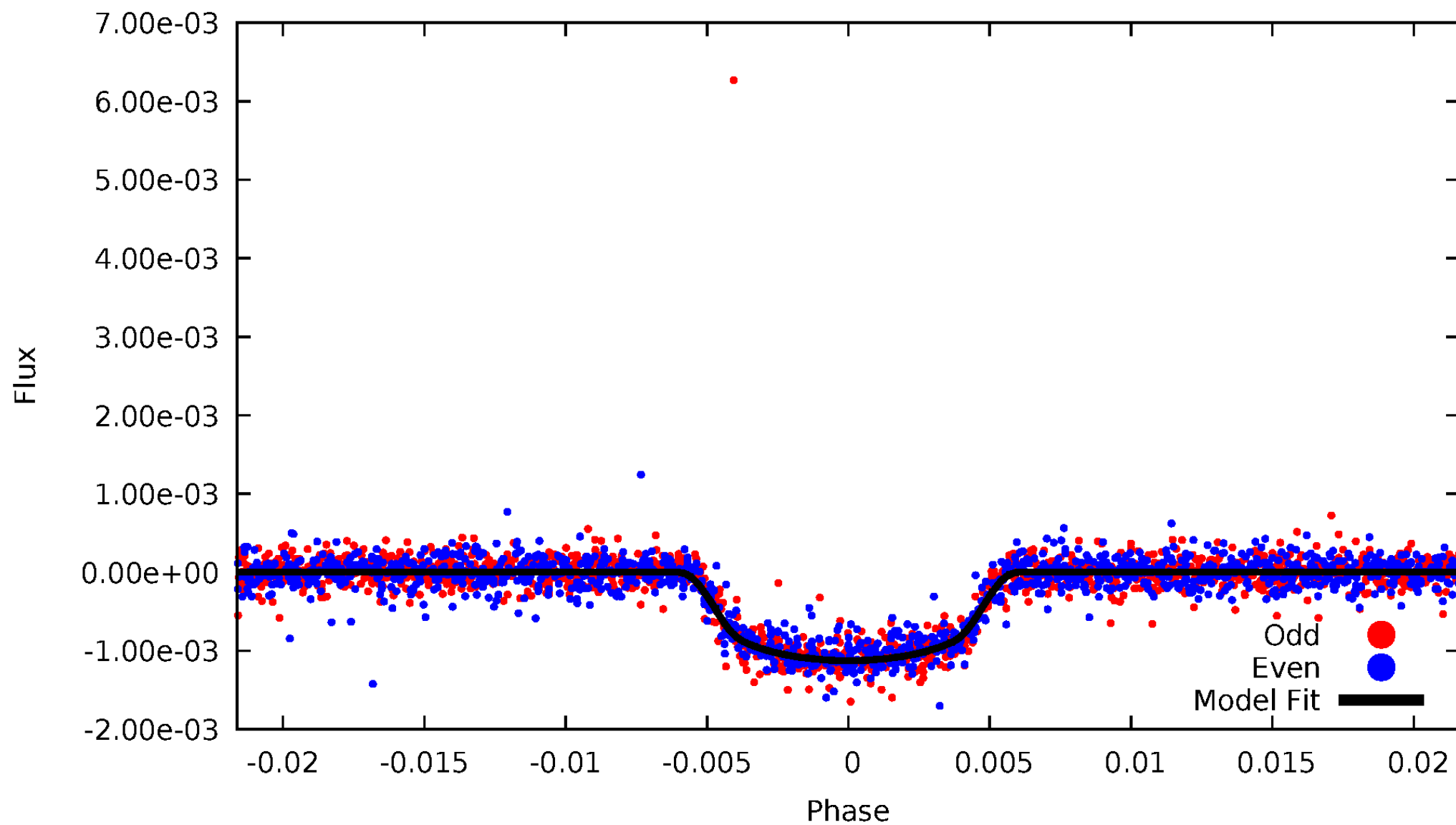


# TCE 003733628-01



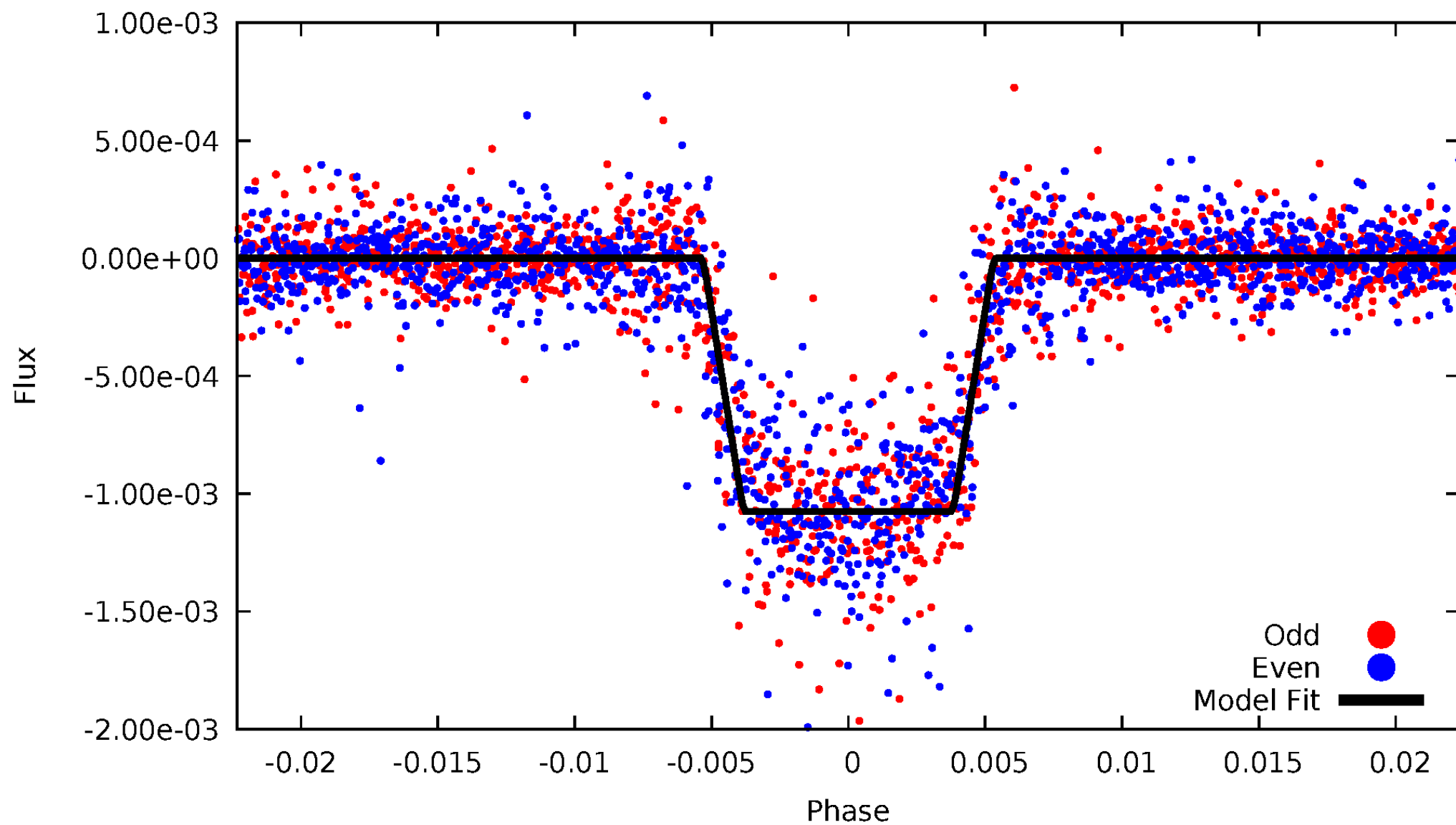
# DV Odd/Even

TCE 003733628-01



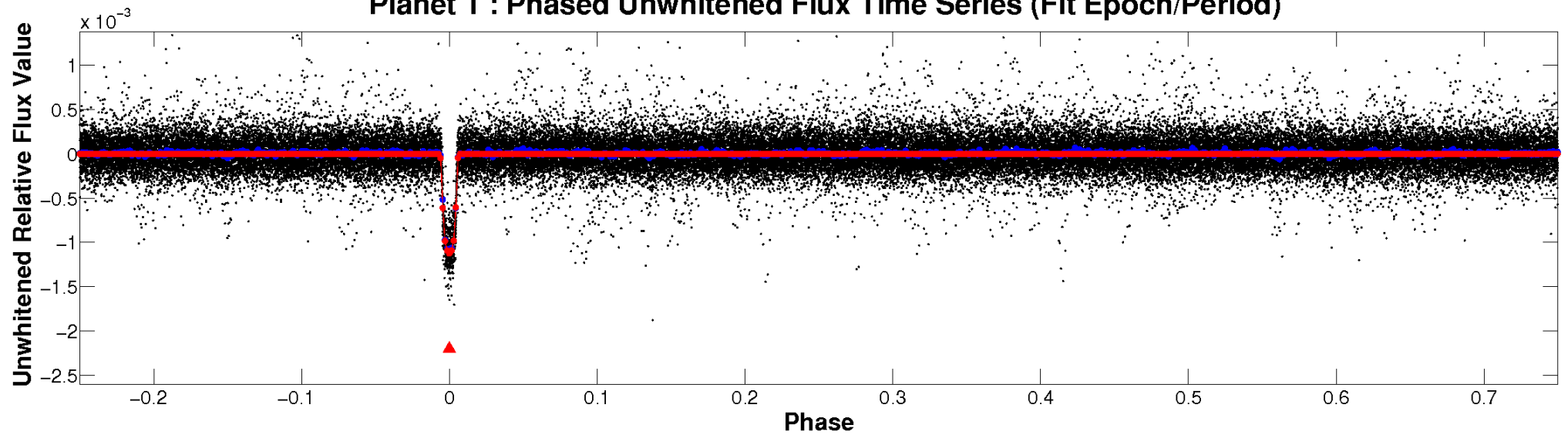
# ALT Odd/Even

TCE 003733628-01

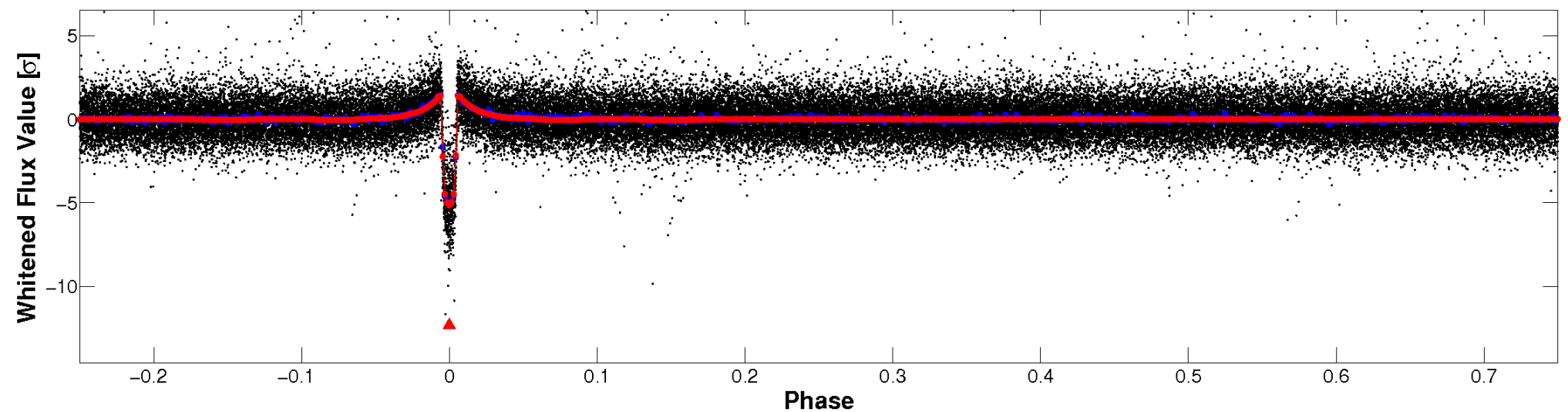


# Non-Whitened Vs. Whitened Light Curve

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



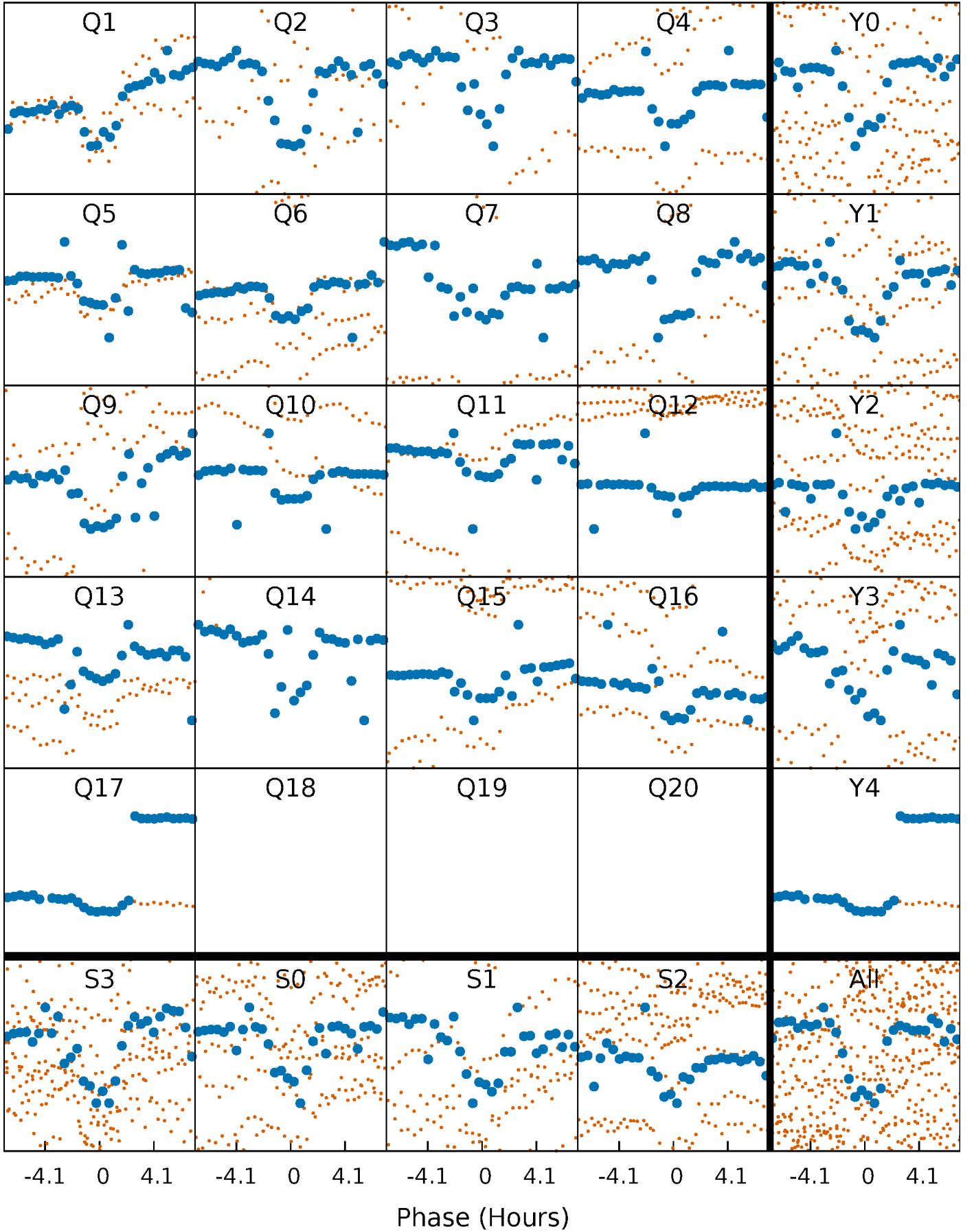
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

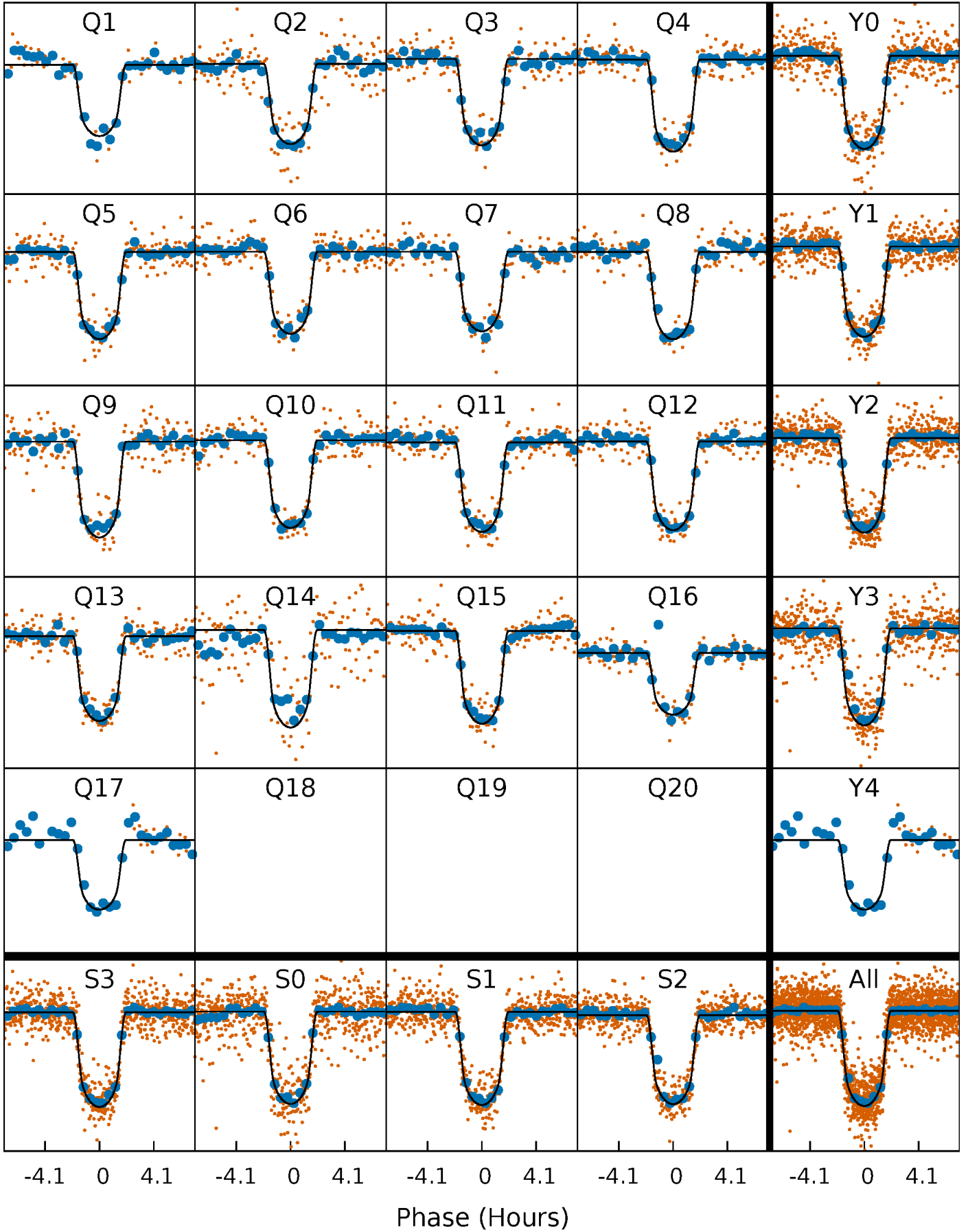
TCE 003733628-01 P= 13.899635 Days  $T_0=141.165122$  (BKJD)





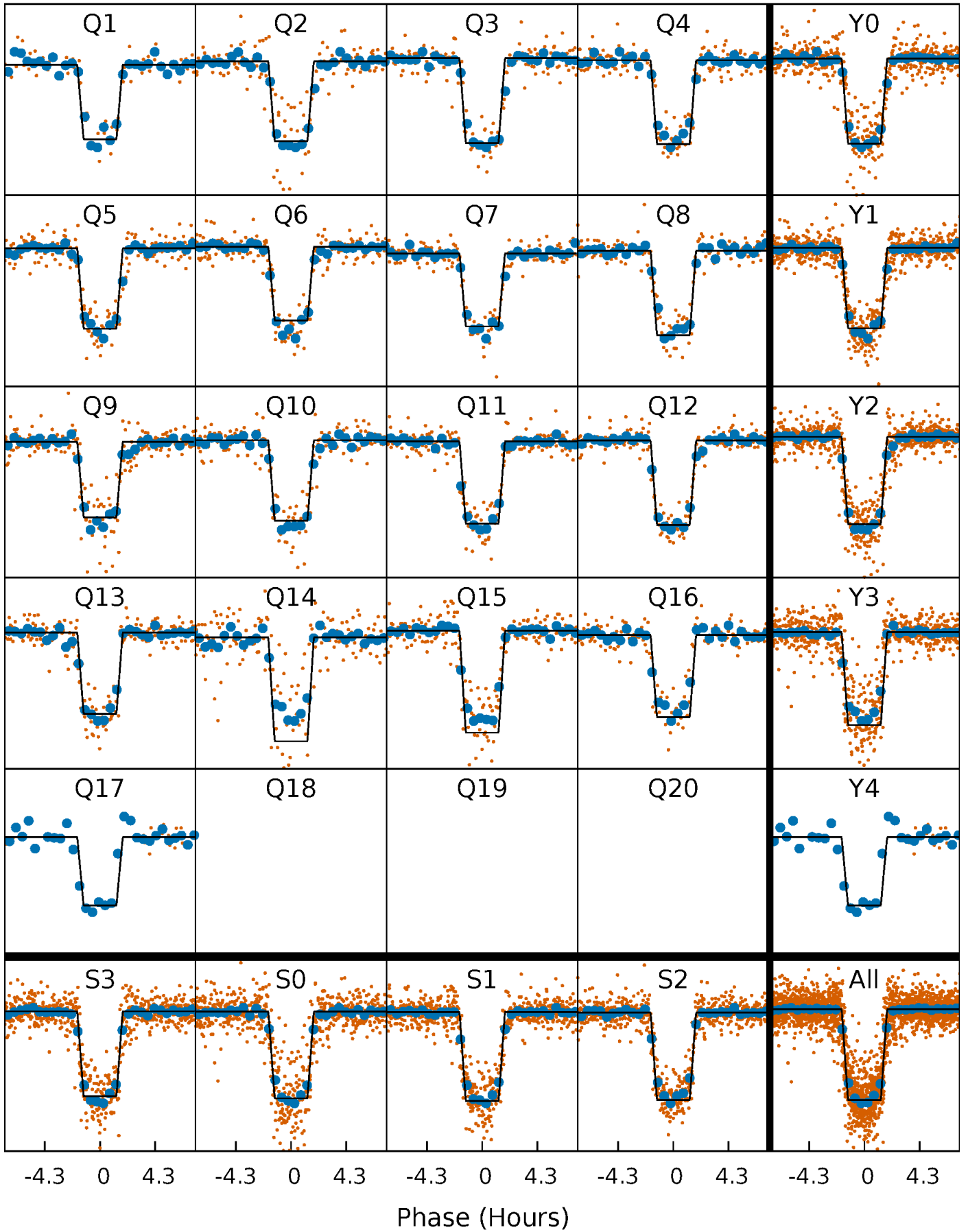
# DV Quarter-Phased Transit Curves

TCE 003733628-01 P= 13.899635 Days  $T_0=141.165122$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

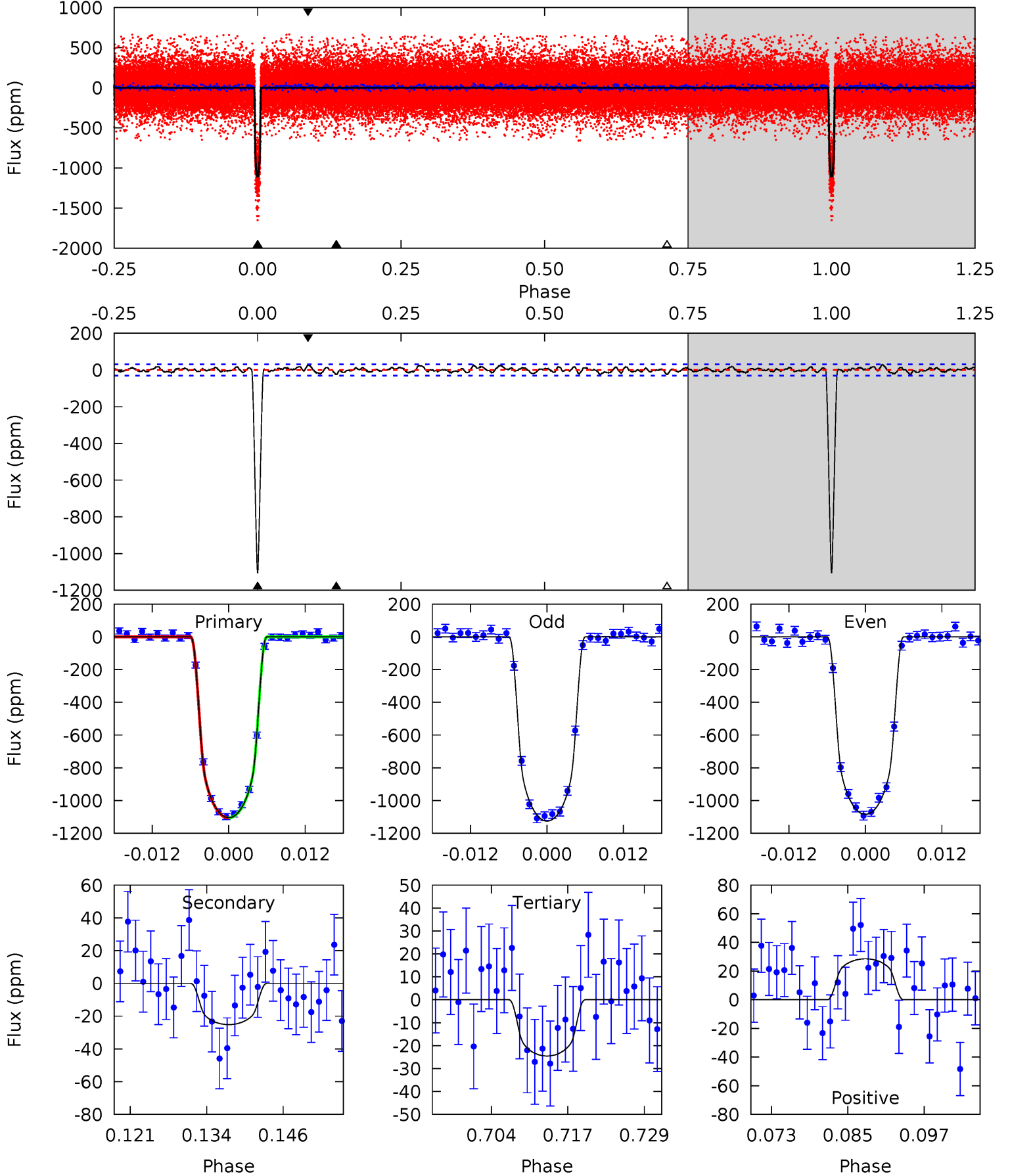
TCE 003733628-01 P= 13.899740 Days  $T_0=141.159888$  (BKJD)



# DV Model-Shift Uniqueness Test

003733628-01,  $P = 13.899635$  Days,  $E = 127.265487$  Days

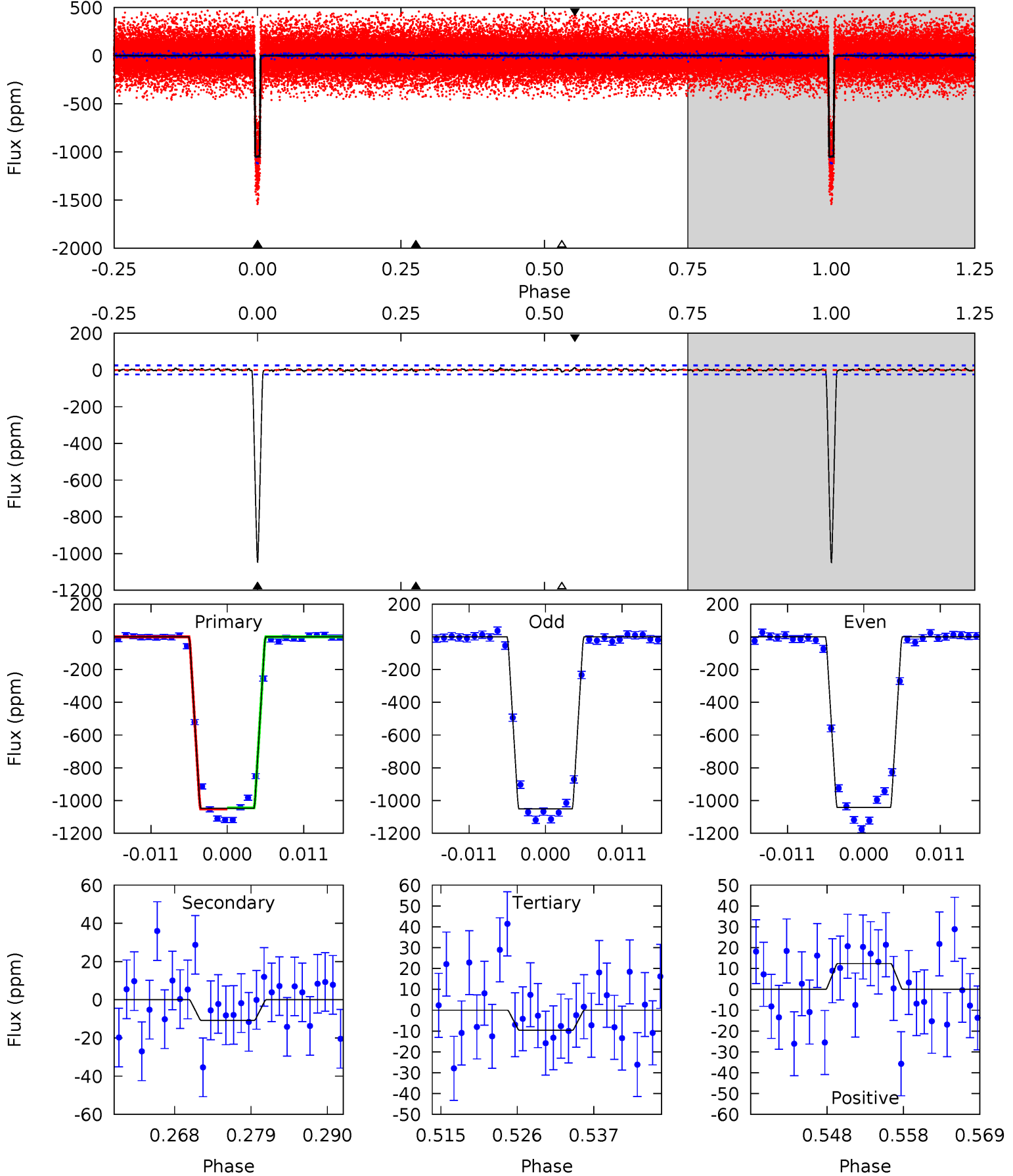
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
179.2	4.08	3.98	4.63	4.99	2.51	1.55	175.3	174.6	0.10	-0.55	3.39	0.99	0.03	0.10



# Alt Model-Shift Uniqueness Test

003733628-01, P = 13.899740 Days, E = 127.260148 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
212.0	2.18	1.95	2.50	5.01	2.55	0.69	210.0	209.5	0.23	-0.32	0.92	1.00	0.01	0



### Stellar Parameters For KIC 003733628

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4538^{+90}_{-90}$	$4.607^{+0.039}_{-0.015}$	$-0.200^{+0.150}_{-0.150}$	$0.663^{+0.027}_{-0.036}$	$0.650^{+0.042}_{-0.026}$	$3.136^{+0.490}_{-0.220}$
	+2%/-2%	+1%/-0%	+75%/-75%	+4%/-5%	+6%/-4%	+16%/-7%
Source	SPE18	SPE18	SPE18	DSEP		

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

### Secondary Eclipse Parameters for KIC 003733628-01 / KOI 0387.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-25 \pm 6$	$2.51^{+0.14}_{-0.14}$	$723^{+16}_{-17}$	$2504^{+82}_{-96}$	$22^{+6}_{-6}$
Alt.	$-11 \pm 5$	$2.36^{+0.14}_{-0.14}$	$724^{+15}_{-17}$	$2290^{+117}_{-147}$	$10^{+5}_{-4}$

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

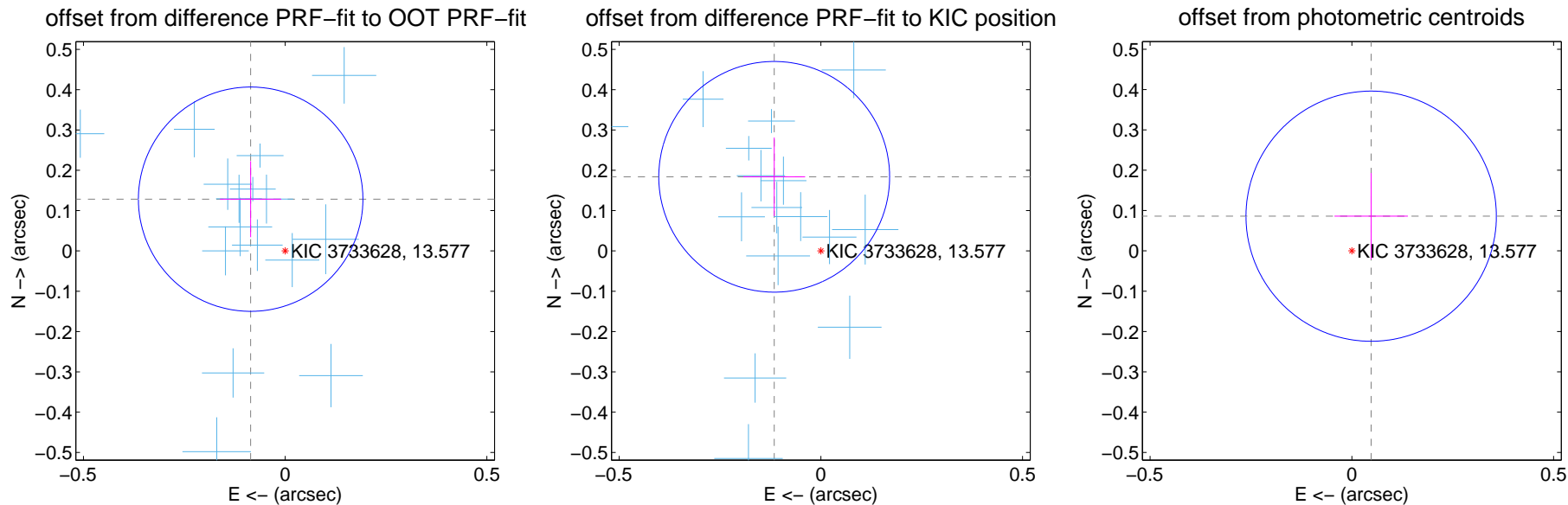
## DV Centroid Data

Supplemental centroid analysis for 003733628-01. Kepler magnitude: 13.58. Transit SNR 114.59

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.154 \pm 0.093$	1.66	$0.086 \pm 0.076$	$0.128 \pm 0.094$
PRF-fit source offset from KIC position	$0.217 \pm 0.095$	2.28	$0.116 \pm 0.077$	$0.184 \pm 0.097$
photometric centroid source offset	$0.10 \pm 0.10$	0.95	$-0.05 \pm 0.09$	$0.09 \pm 0.11$

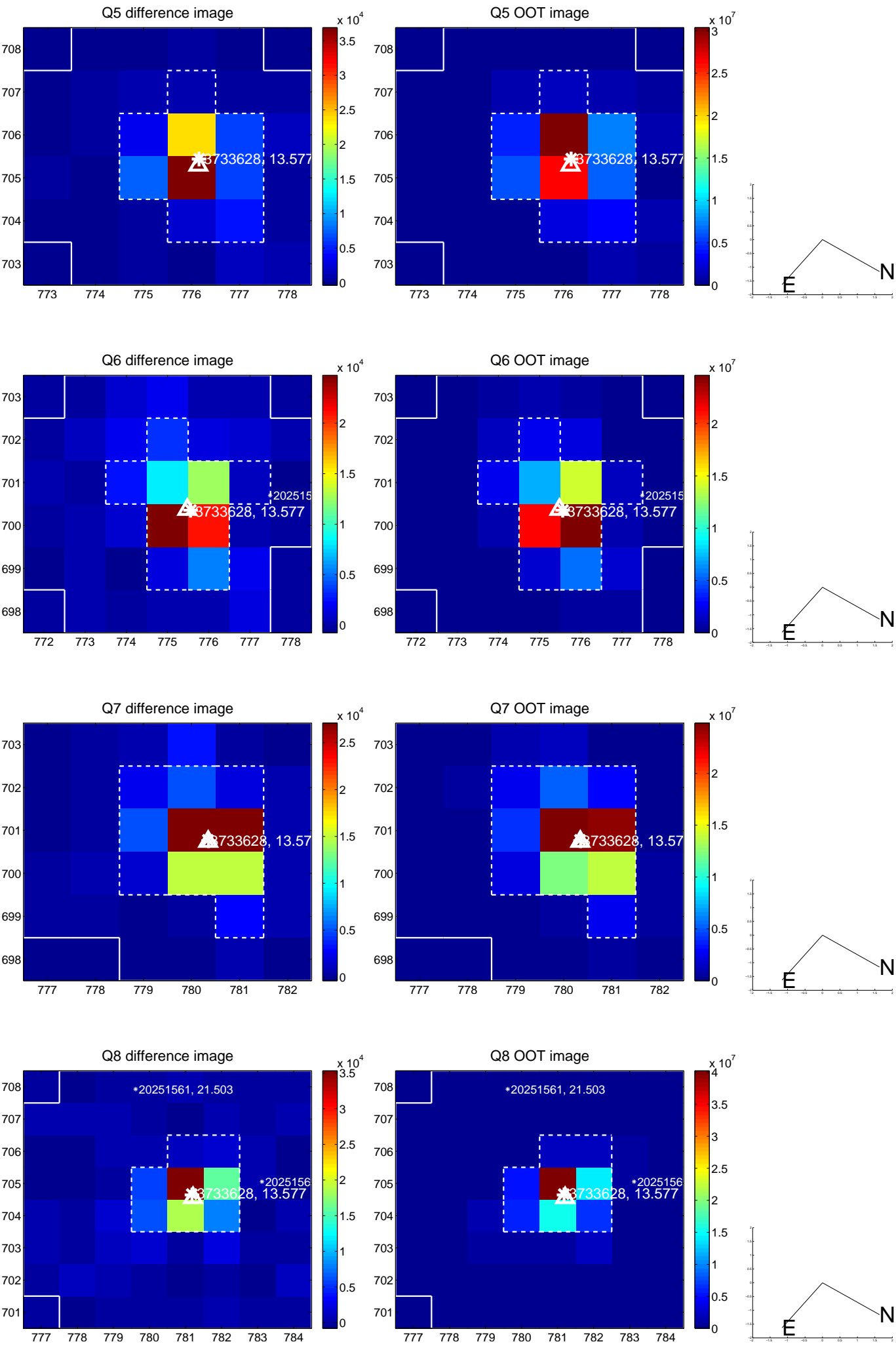


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

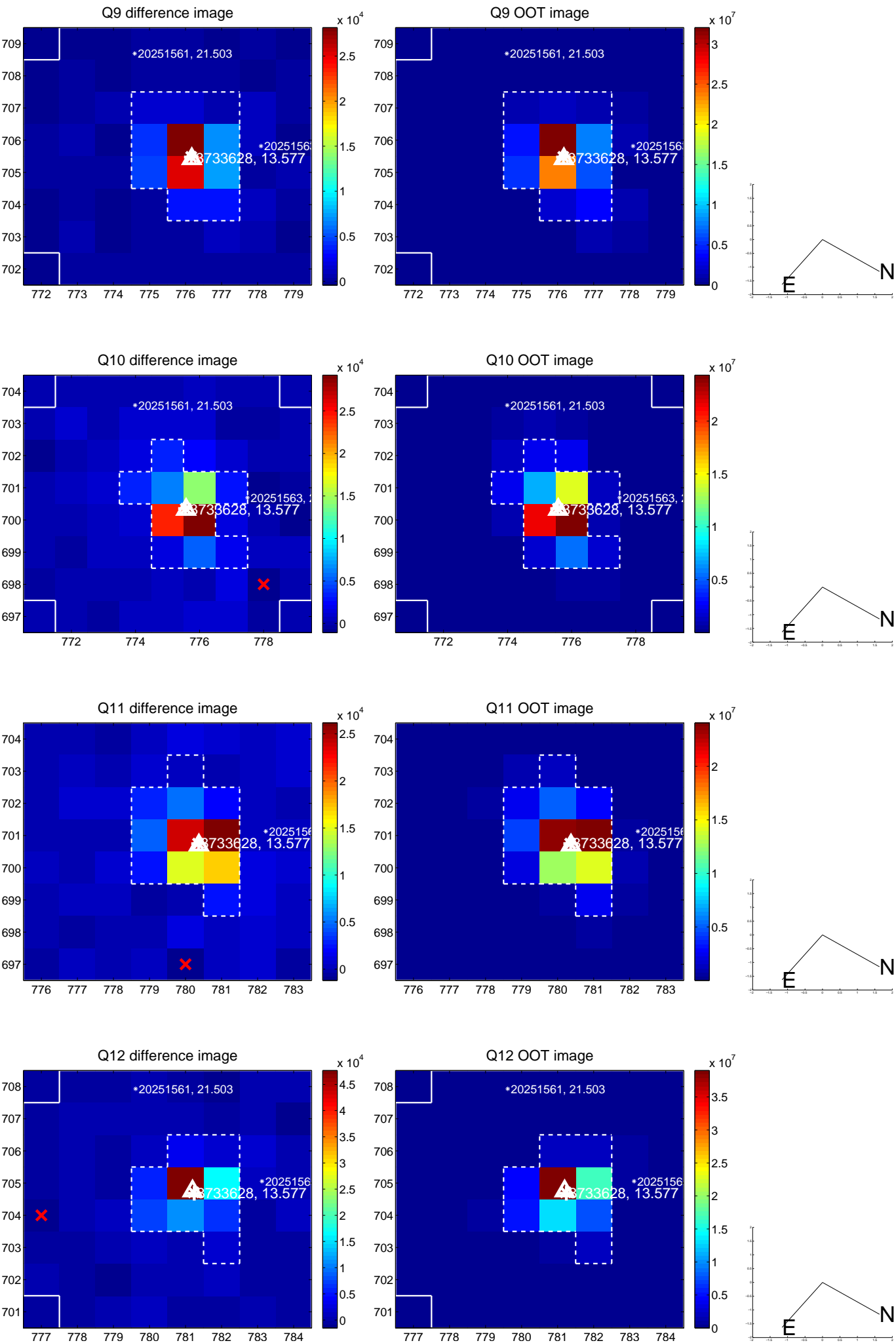




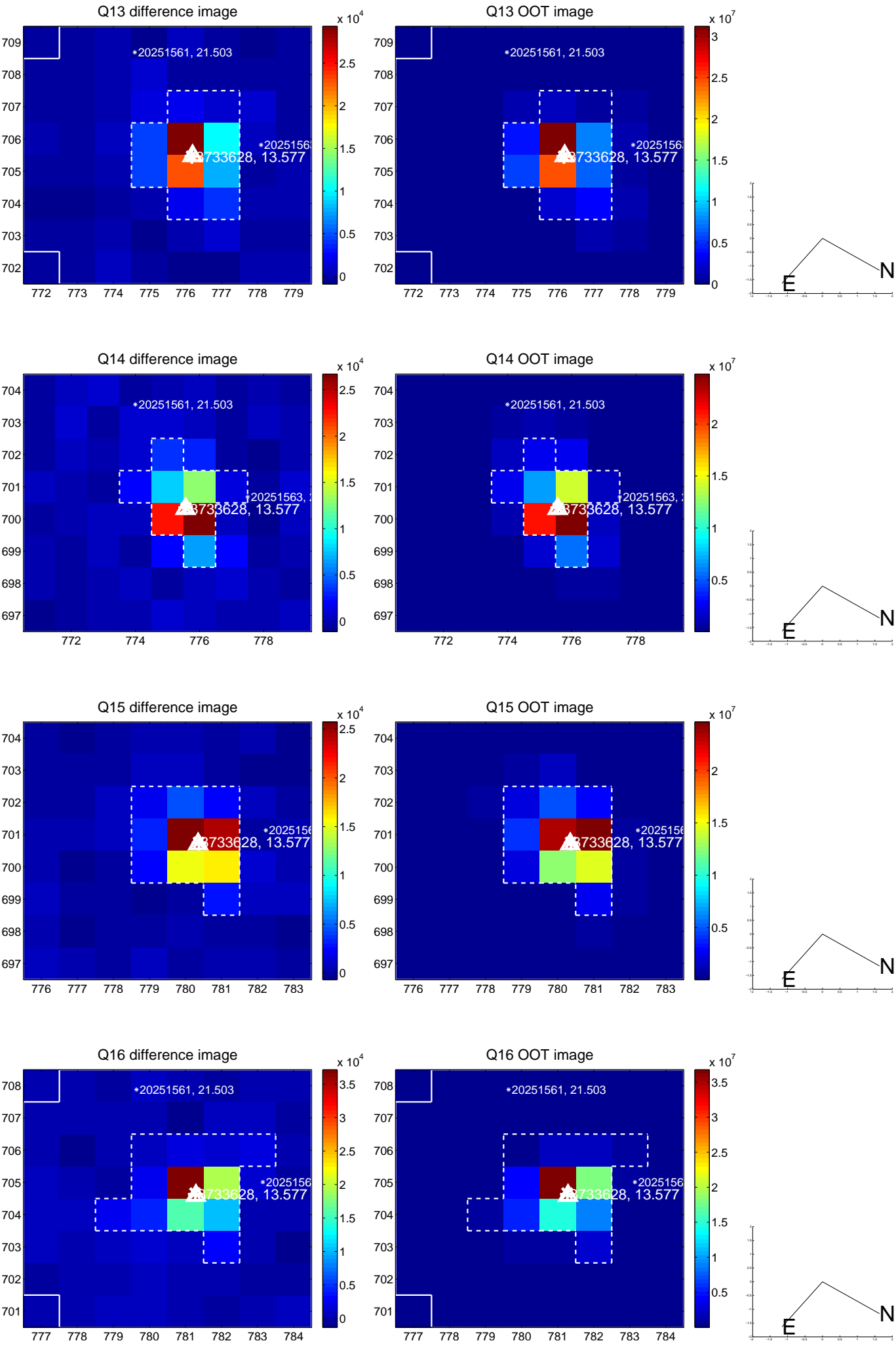
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



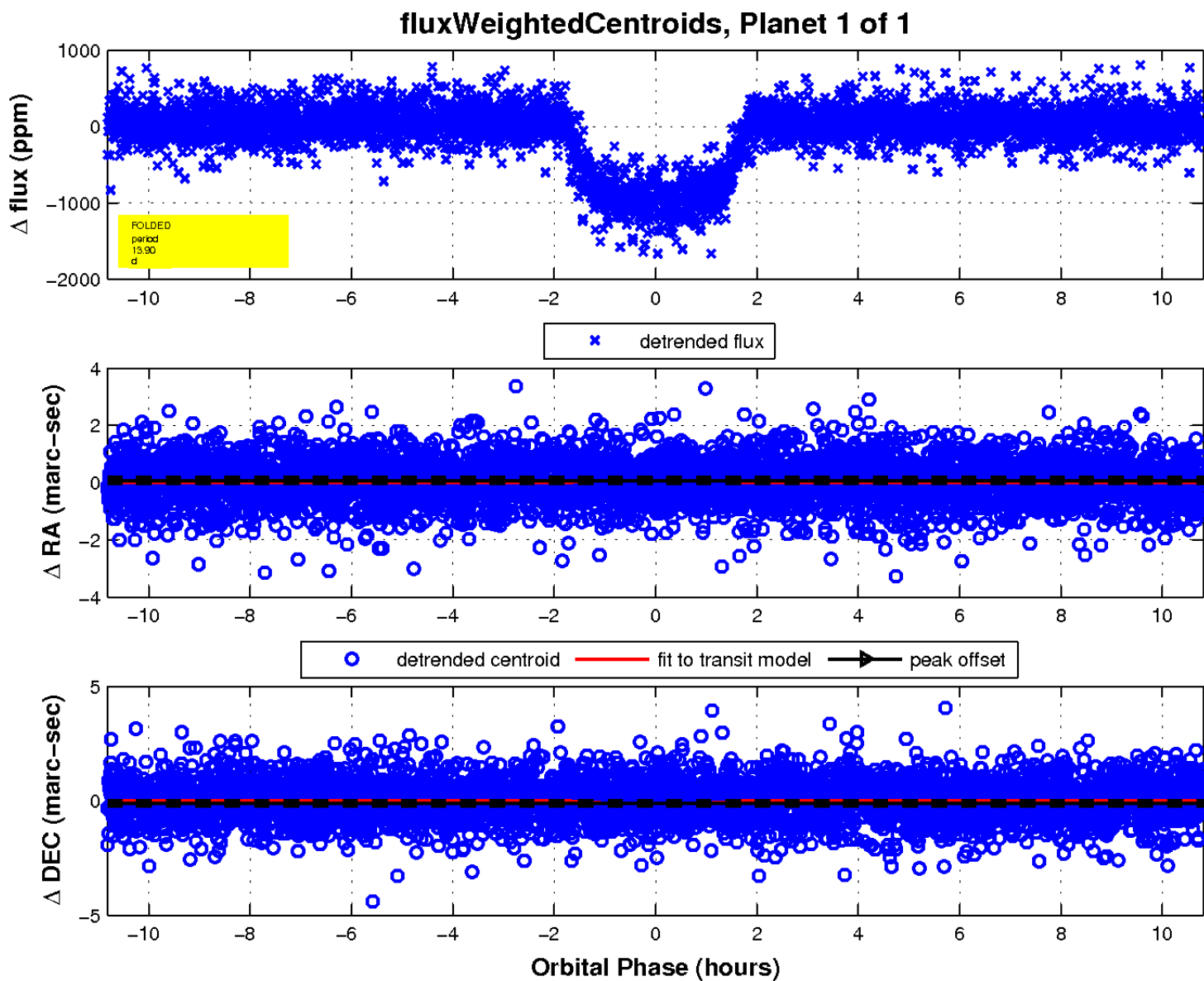
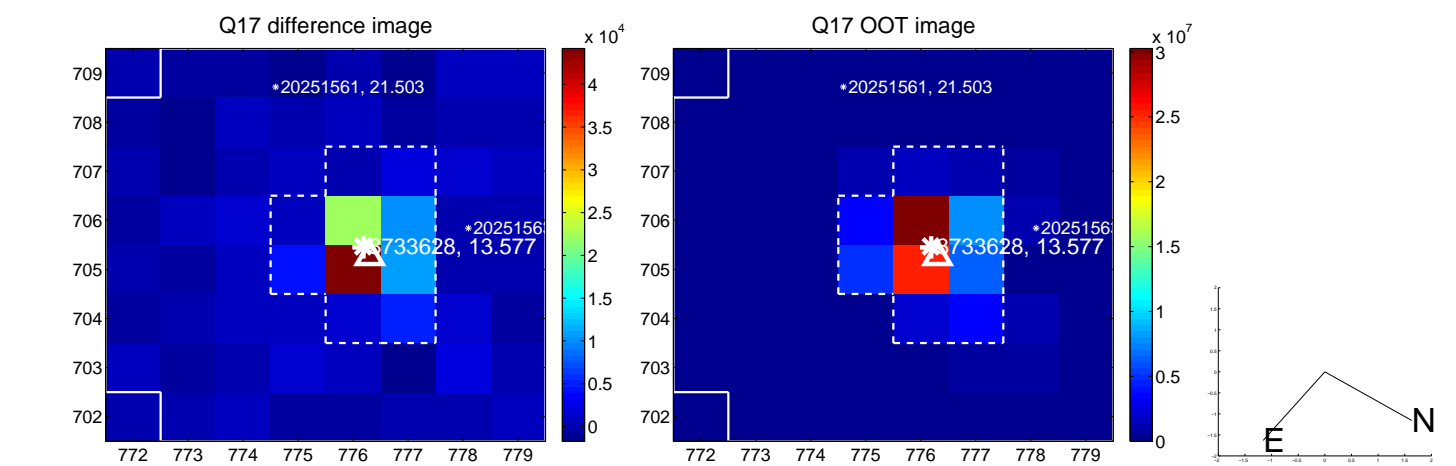
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

