

# KIC 007778437

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007778437-01	OBS	0131.01	5.014232	133.174683	6561.0	4.622	782.2	764.2	1.31	6490	10.69	692.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007778437-01	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.

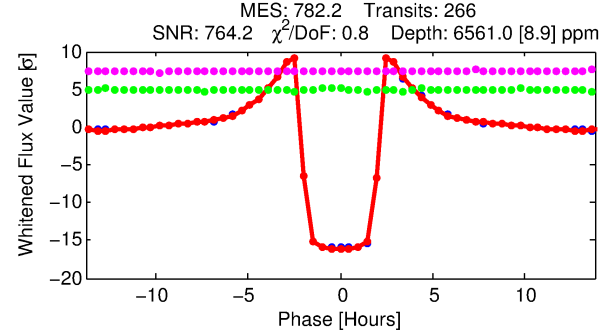
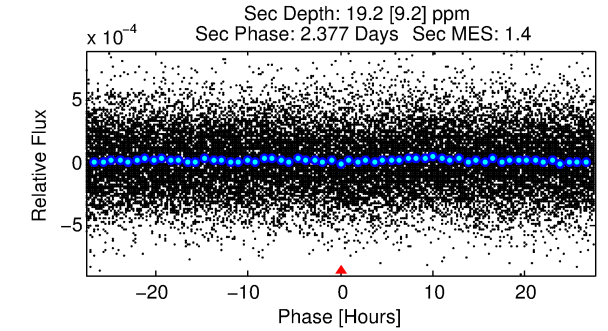
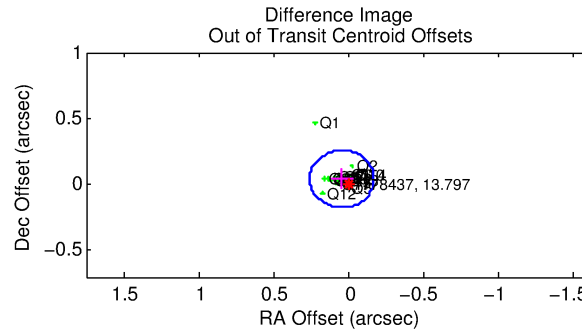
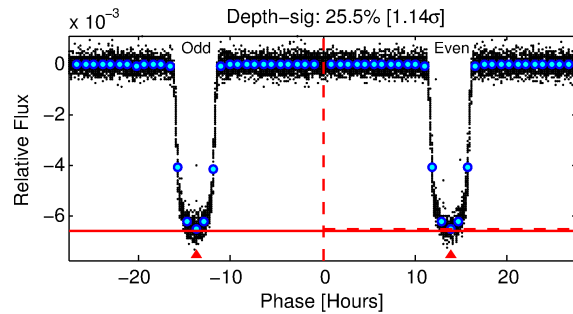
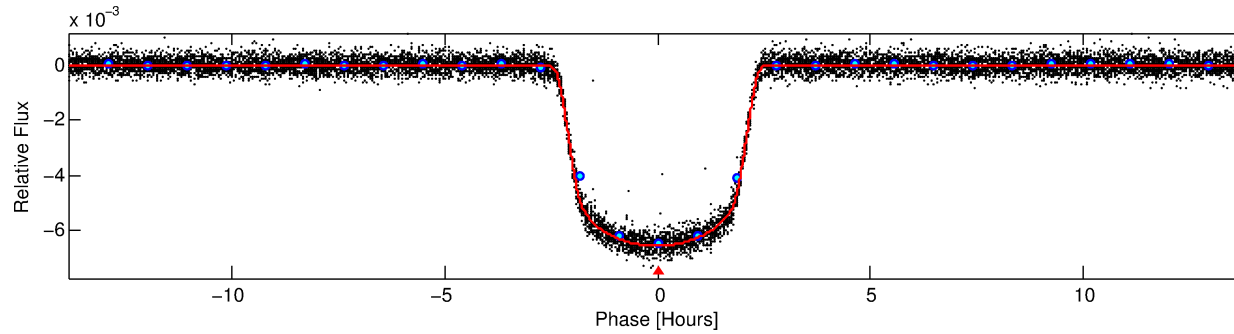
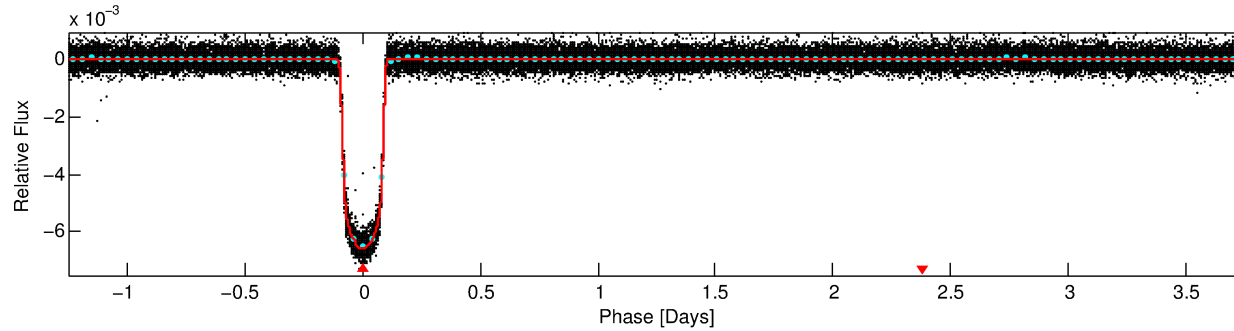
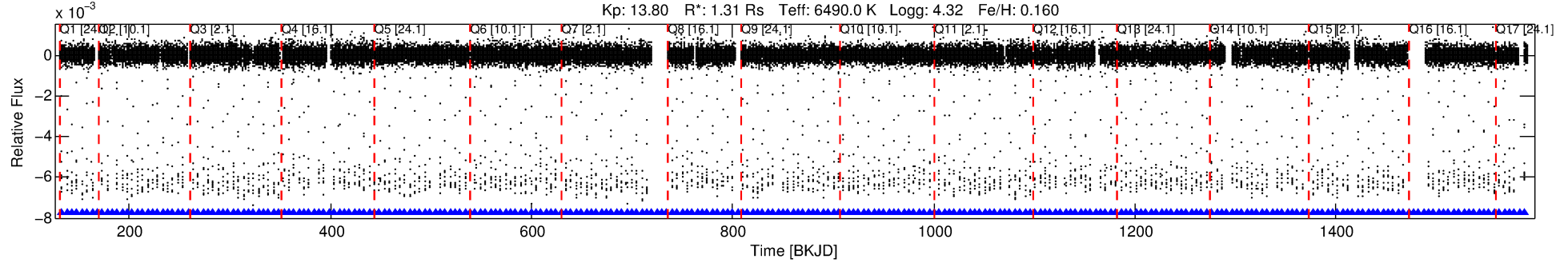
## Ephemeris Match Information For 007778437-01

No Significant Match Found

# DV One-Page Summary

KIC: 7778437 Candidate: 1 of 1 Period: 5.014 d  
KOI: K00131.01 Corr: 0.999

Kp: 13.80 R\*: 1.31 Rs Teff: 6490.0 K Logg: 4.32 Fe/H: 0.160



## DV Fit Results:

Period = 5.01423 [0.00000] d  
Epoch = 133.1747 [0.0001] BKJD  
Rp/R\* = 0.0750 [0.0003]  
a/R\* = 8.66 [0.15]  
b = 0.26 [0.06]  
Seff = 692.55 [282.79]  
Teq = 1308 [134] K  
Rp = 10.69 [3.59] Re  
a = 0.0626 [0.0171] AU  
Ag = 0.36 [0.22] [-2.87σ]  
Teffp = 1570 [196] K [1.10σ]

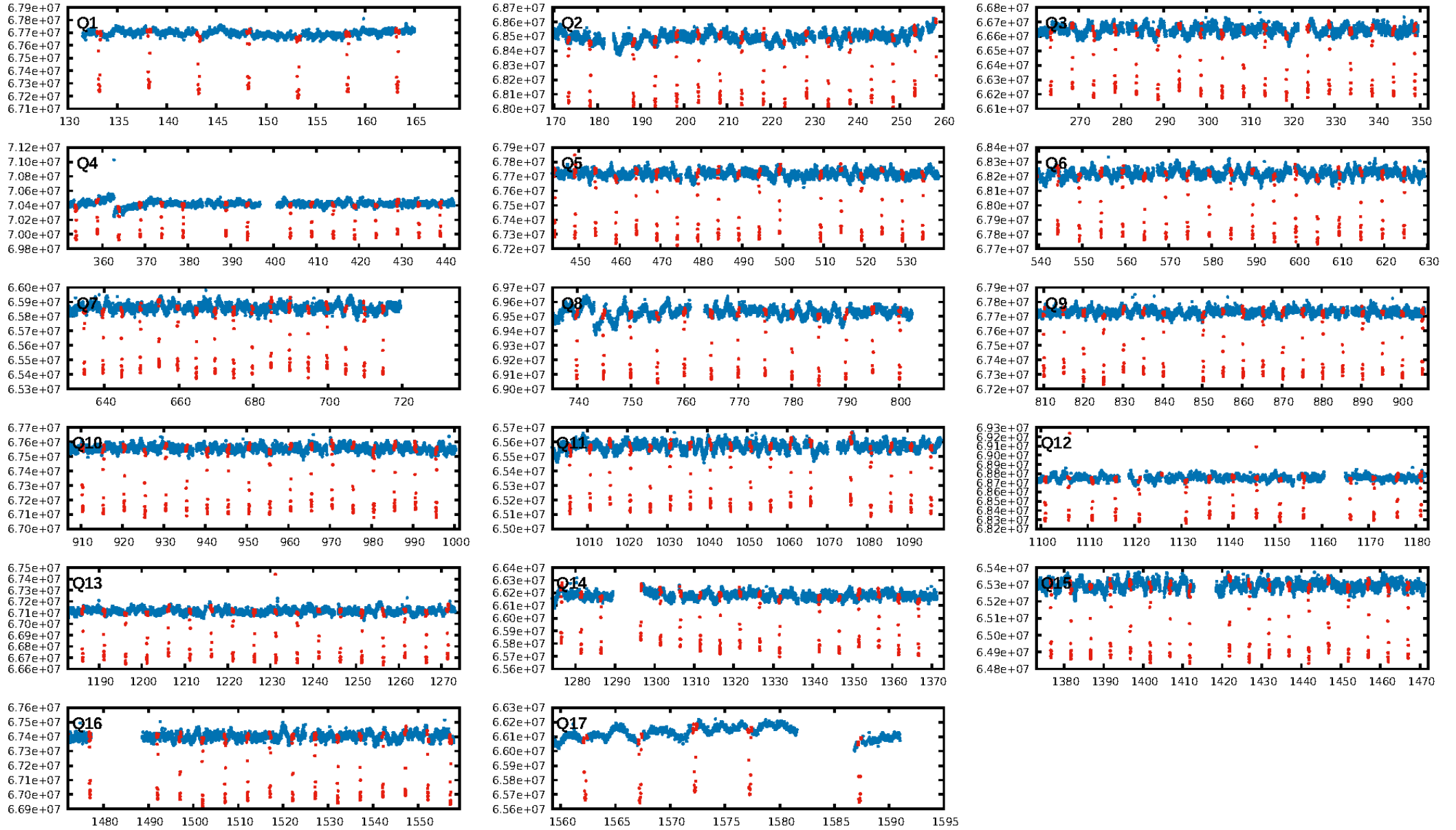
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [254/254]  
GhostDiagnostic-chr: 4.344  
Centroid-sig: 0.0%  
Centroid-so: 0.064 arcsec [5.88σ]  
OotOffset-rm: 0.059 arcsec [0.82σ]  
KicOffset-rm: 0.059 arcsec [0.80σ]  
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]

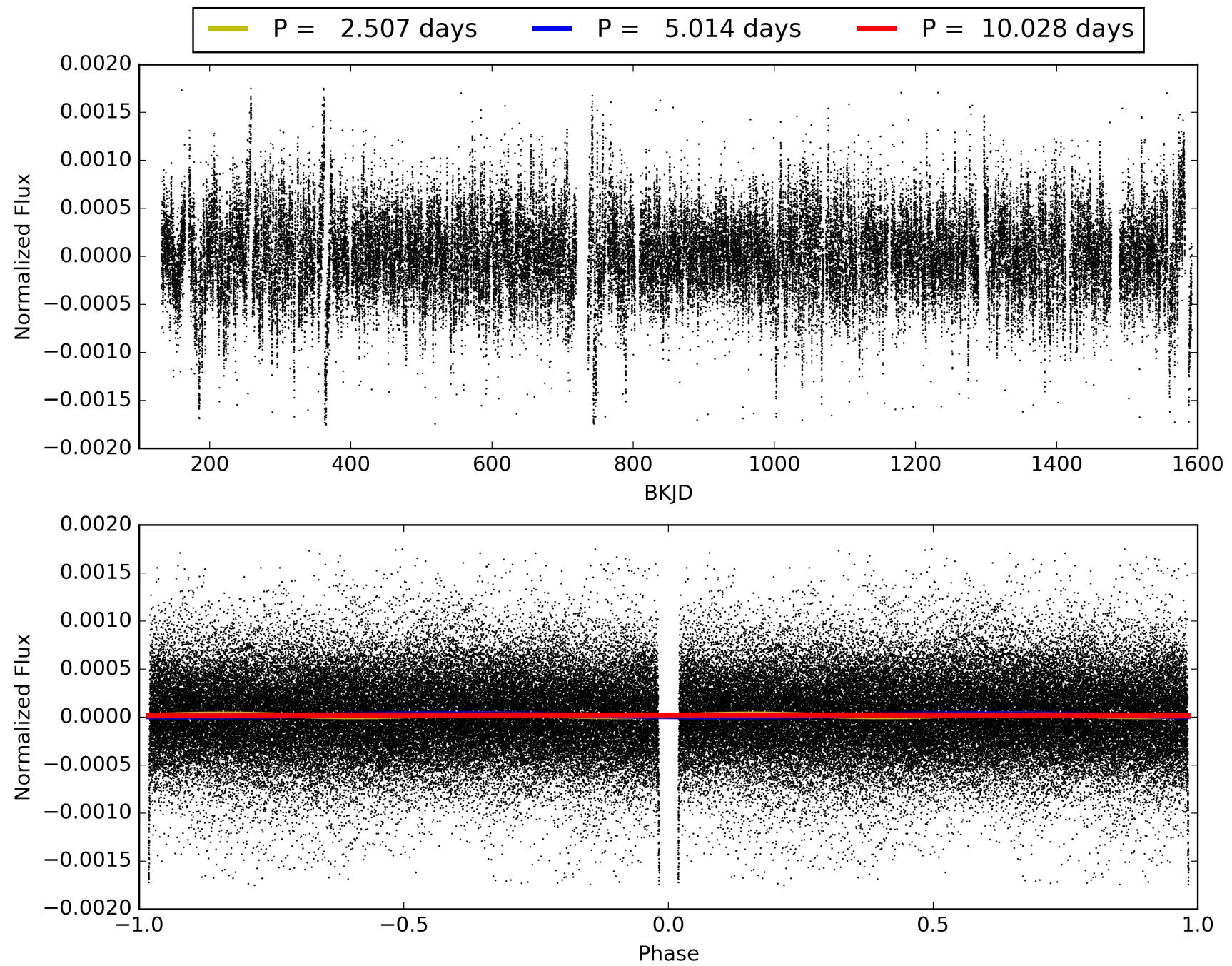
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:52:18 Z

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

# TCE 007778437-01, PDC Light Curves

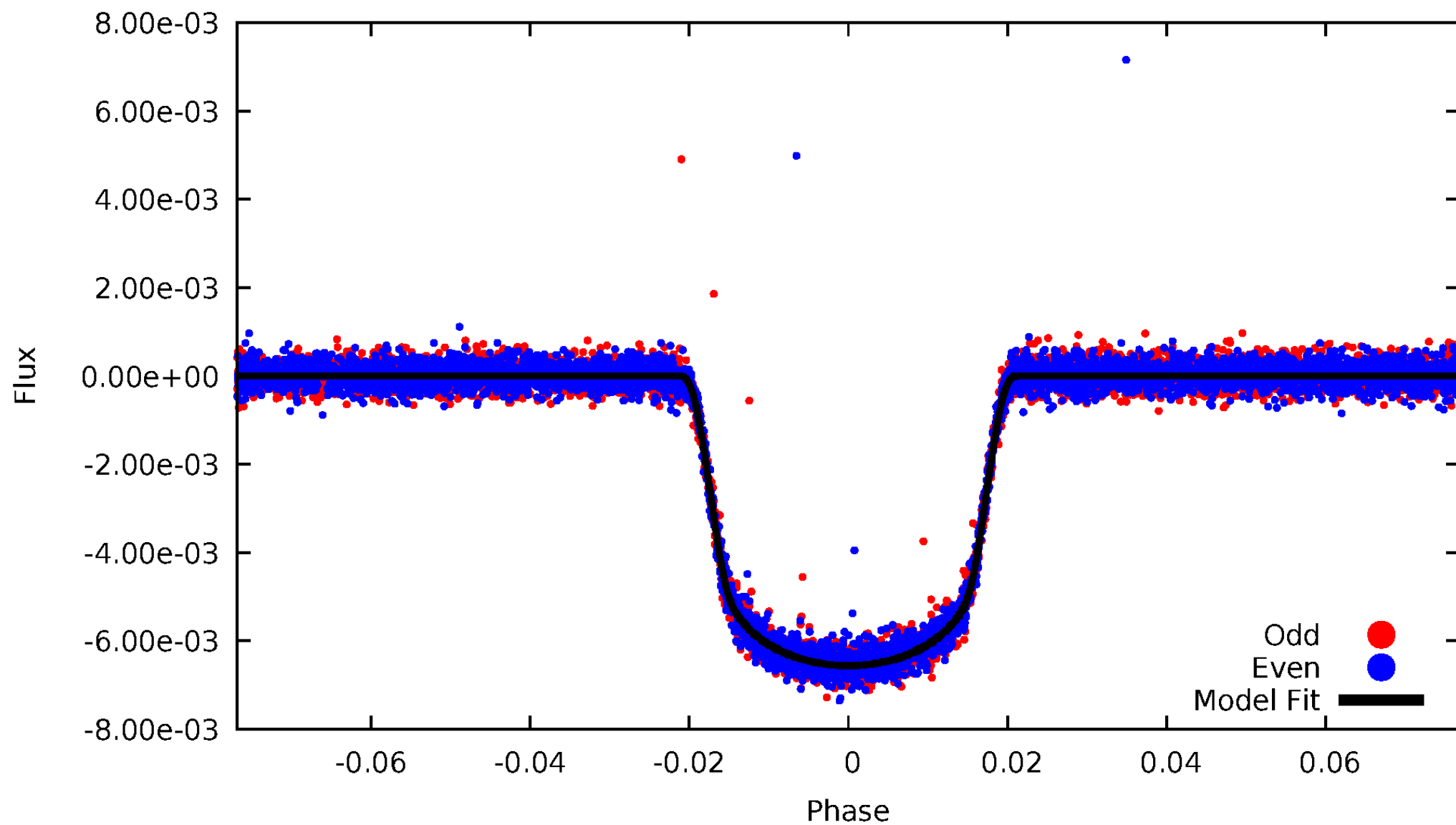


TCE 007778437-01



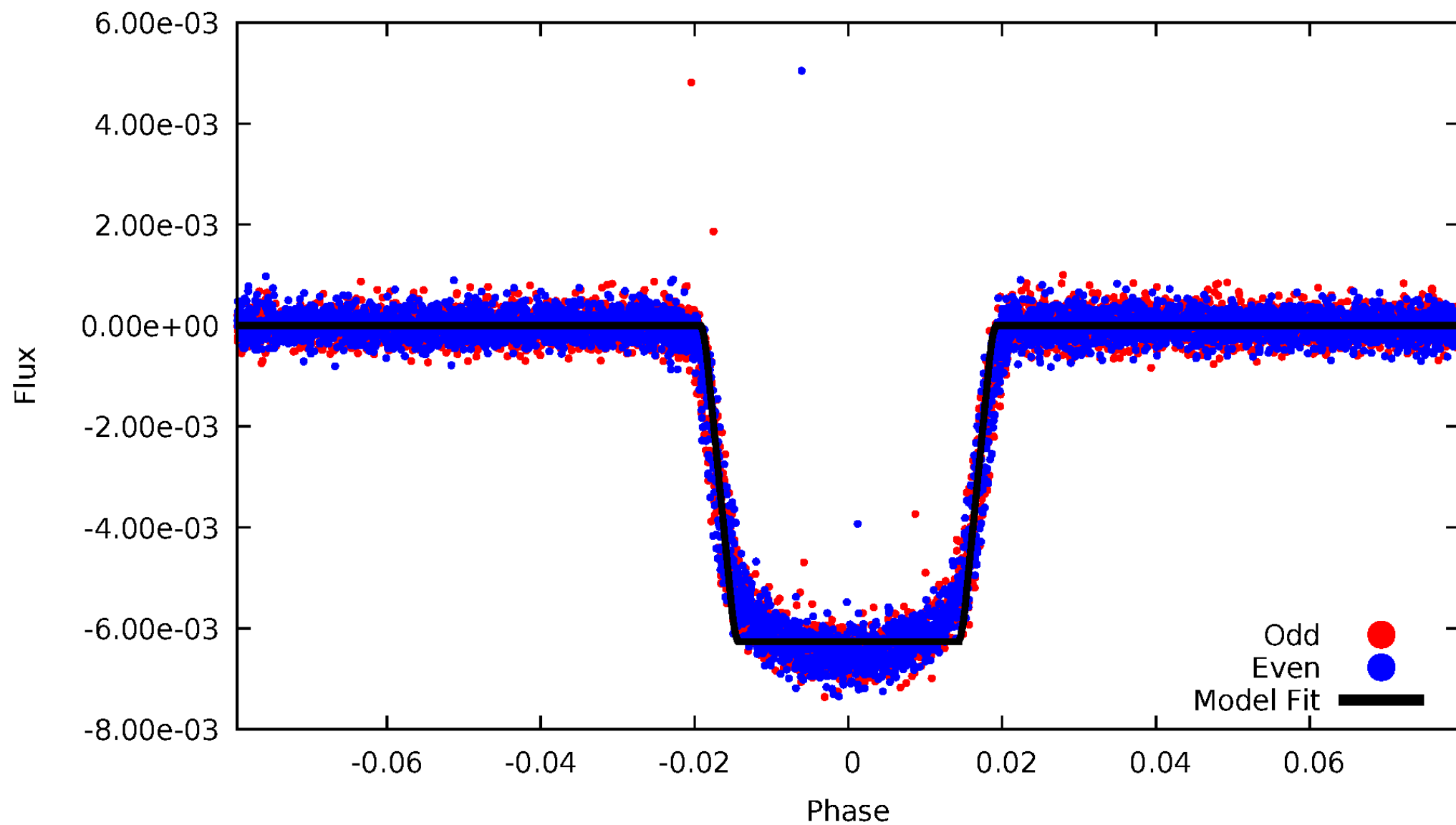
# DV Odd/Even

TCE 007778437-01



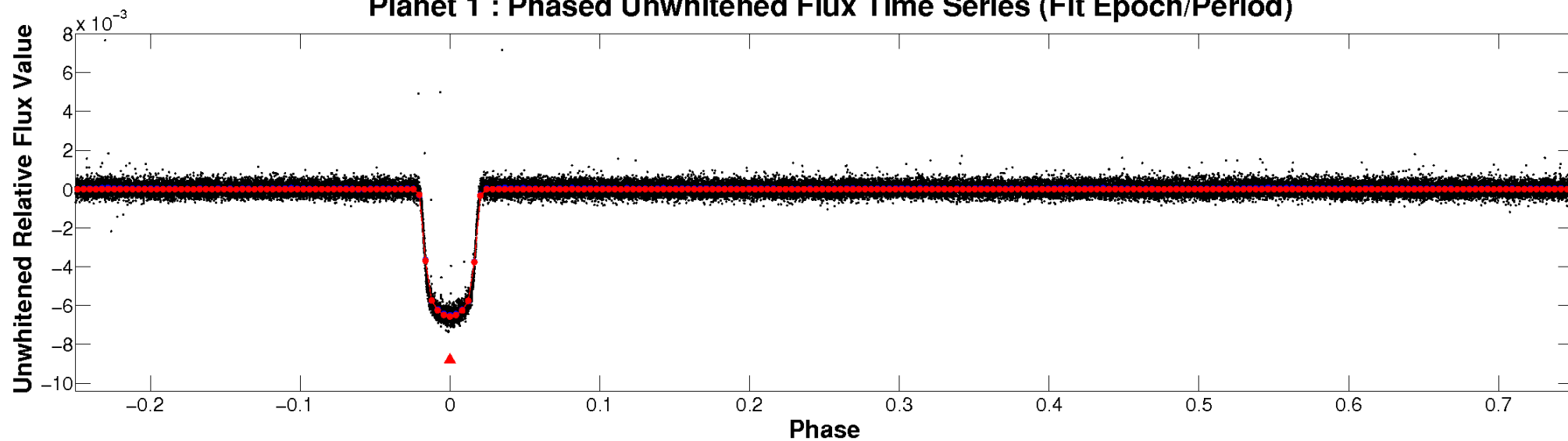
# ALT Odd/Even

TCE 007778437-01

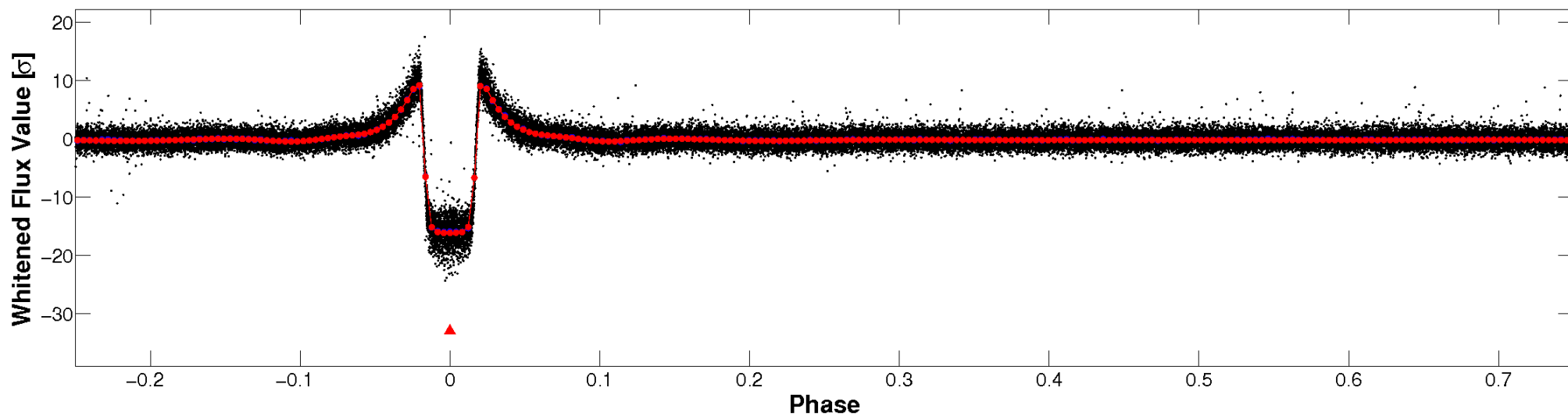


# Non-Whitened Vs. Whitened Light Curve

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

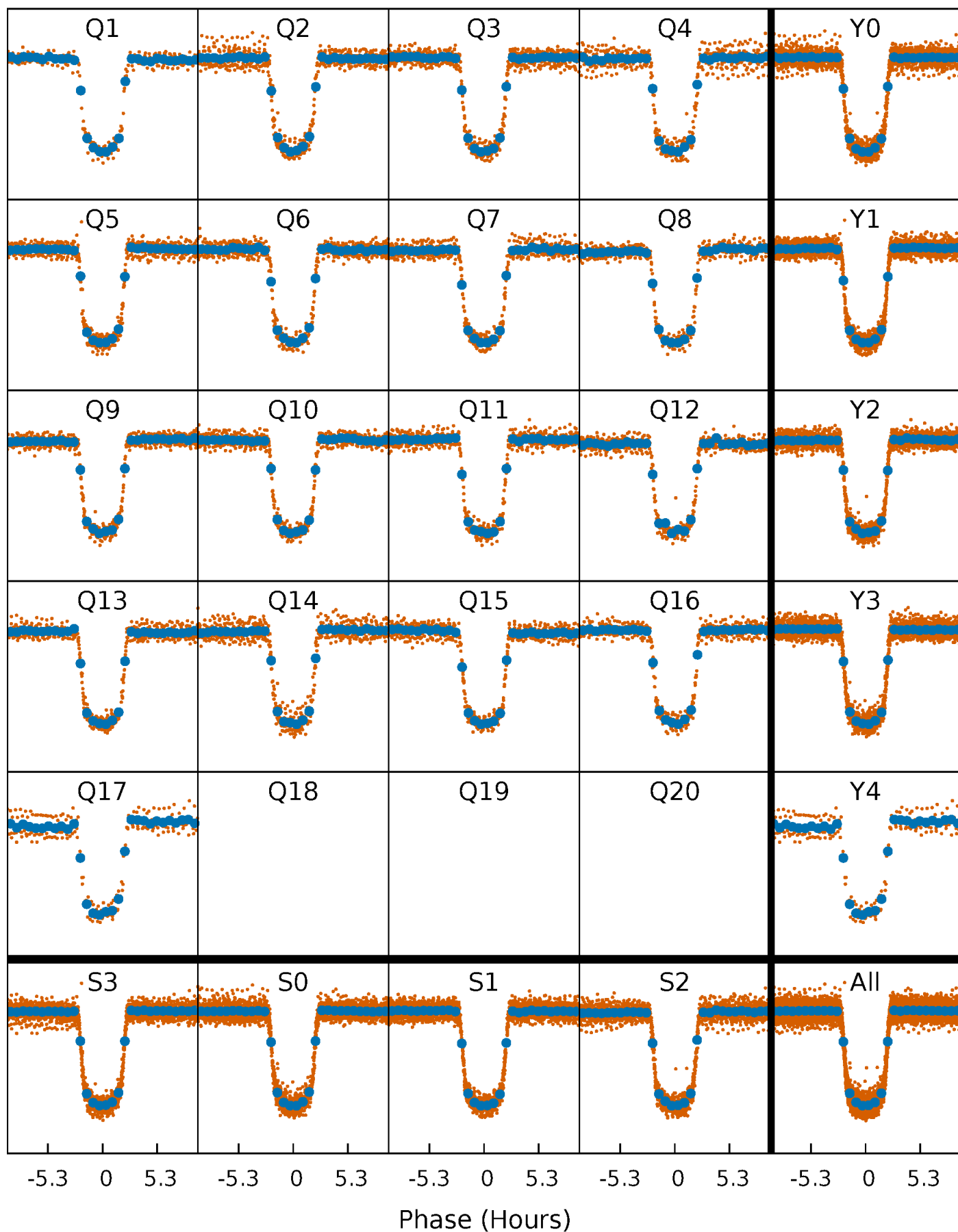


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



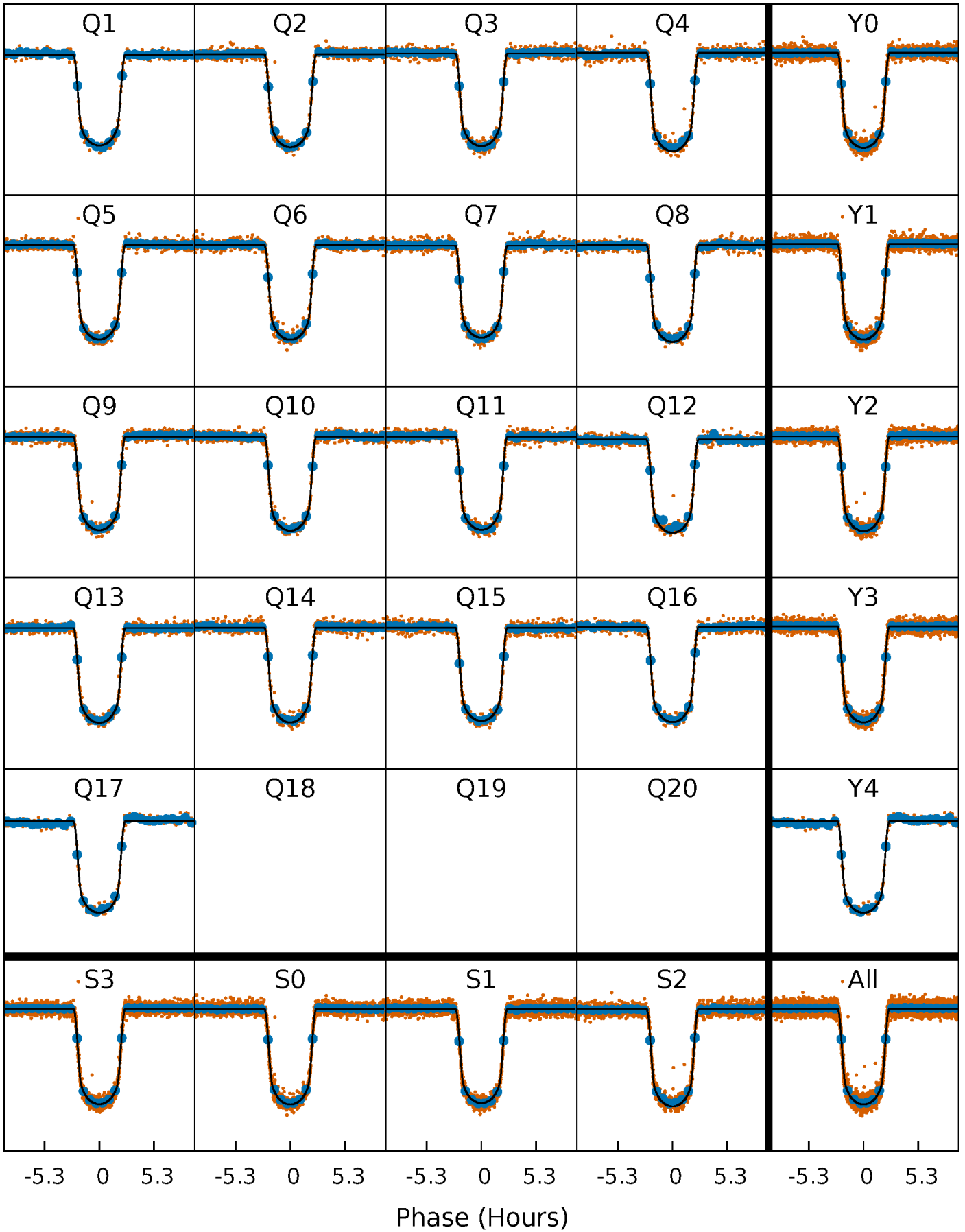
# PDC Quarter-Phased Transit Curves

TCE 007778437-01 P= 5.014232 Days  $T_0=133.174683$  (BKJD)



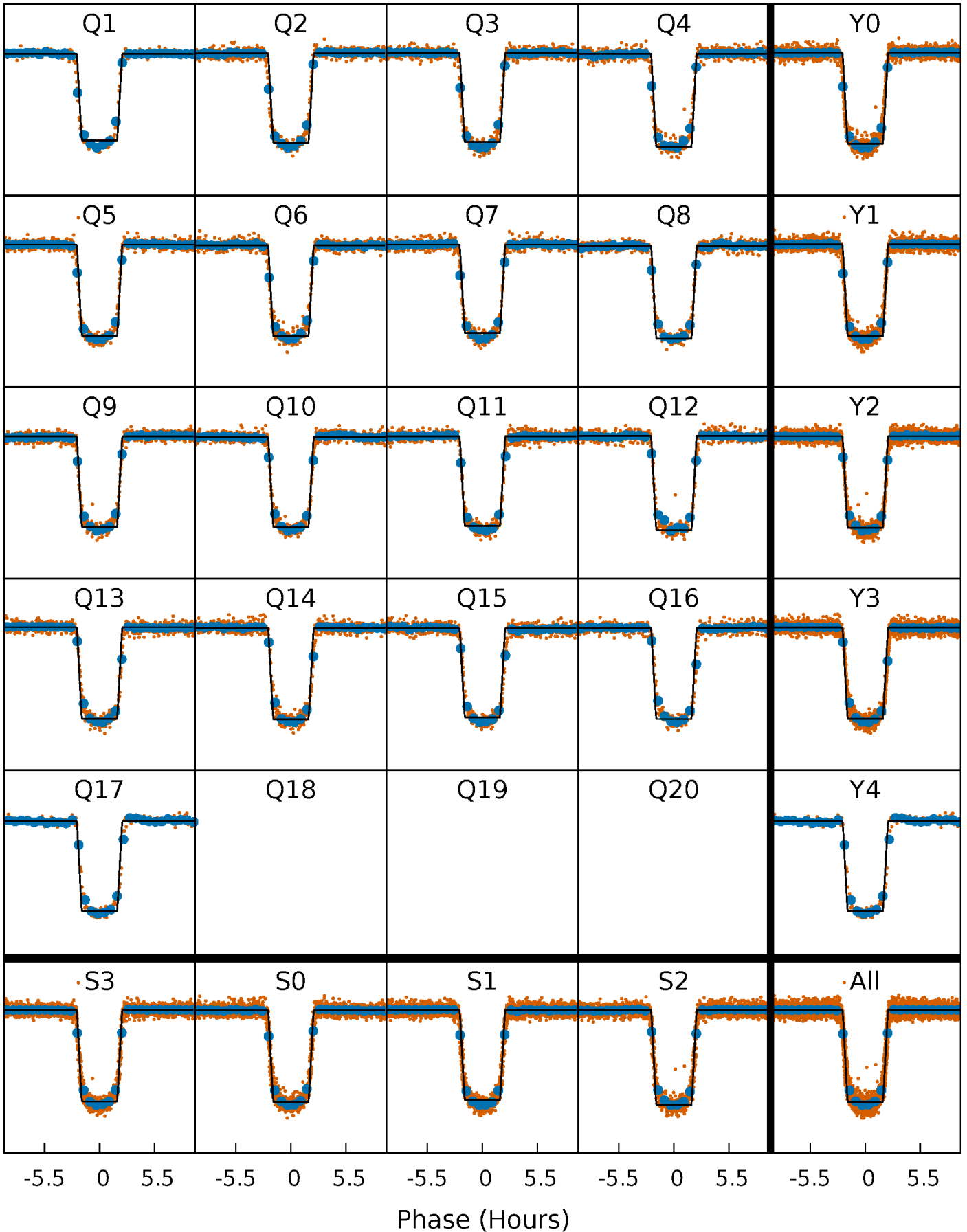
# DV Quarter-Phased Transit Curves

TCE 007778437-01 P= 5.014232 Days  $T_0=133.174683$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

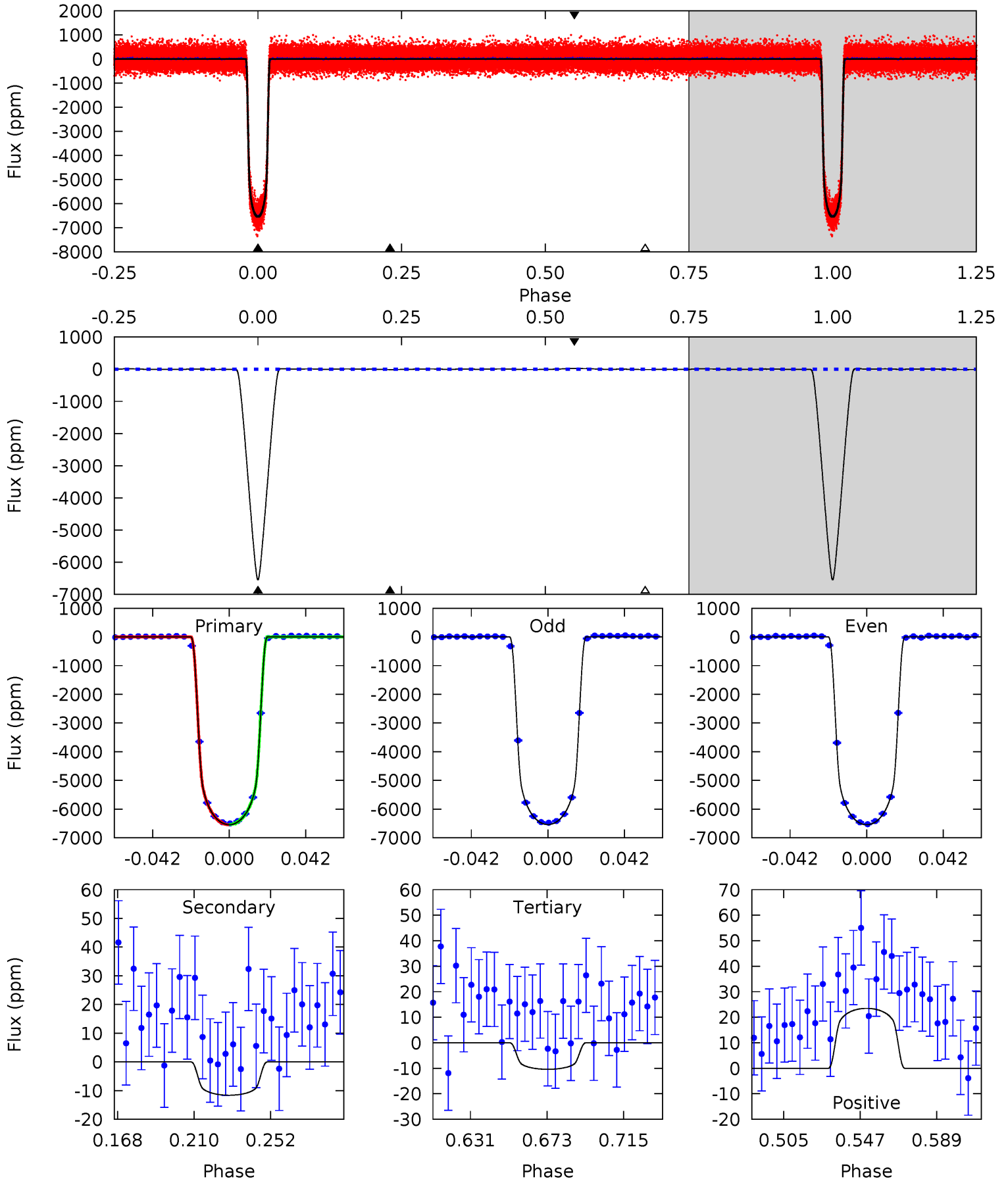
TCE 007778437-01     $P = 5.014193$  Days     $T_0 = 133.180310$  (BKJD)



# DV Model-Shift Uniqueness Test

007778437-01, P = 5.014232 Days, E = 128.160451 Days

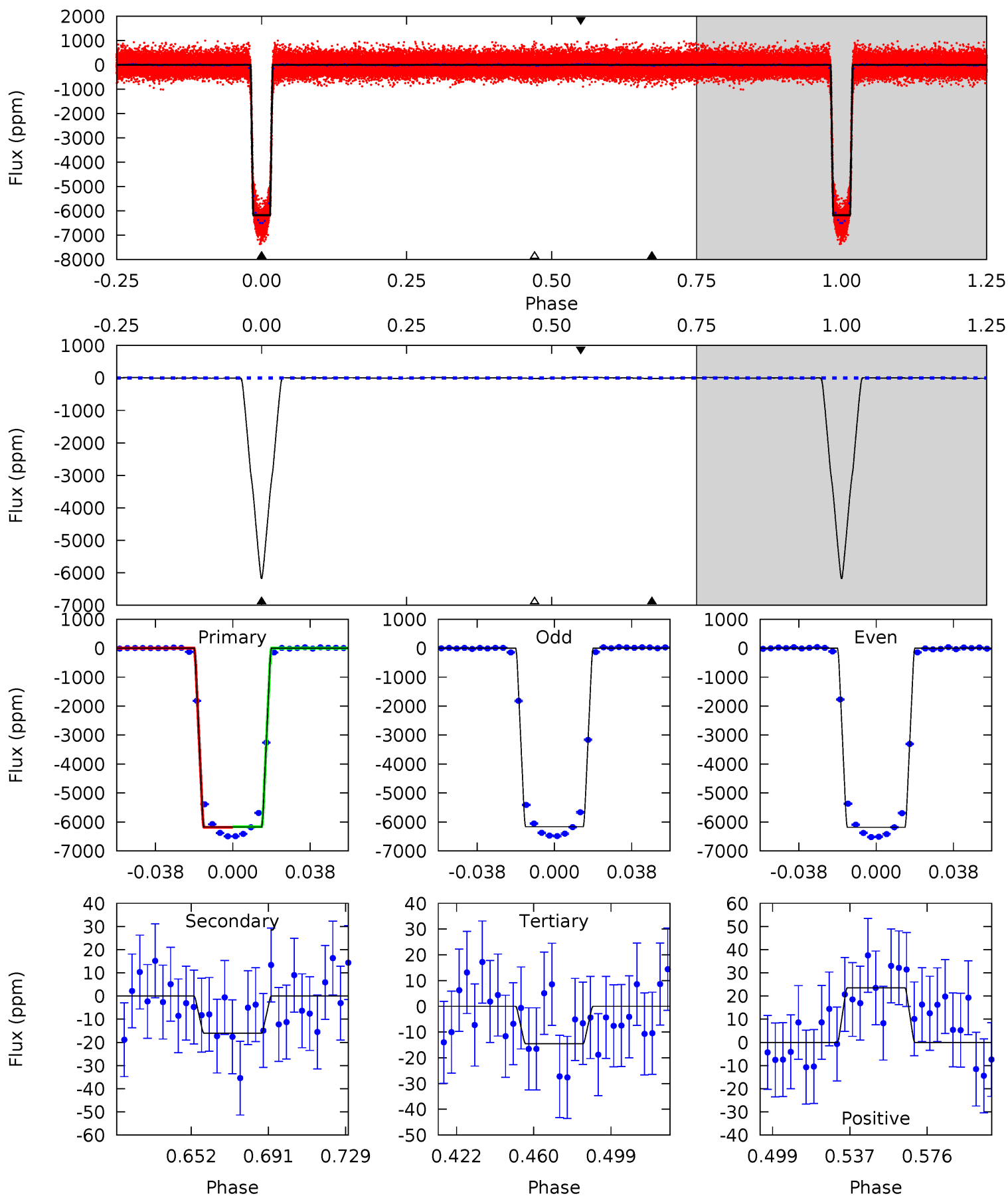
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1436	2.55	2.28	5.15	4.74	2.03	1.56	1434	1431	0.27	-2.61	0.76	1.00	0.00	1.19



# Alt Model-Shift Uniqueness Test

007778437-01, P = 5.014193 Days, E = 128.166117 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
1236	3.20	2.90	4.72	4.76	2.07	1.53	1233	1231	0.30	-1.51	1.91	1.00	0.00	1.30



### Stellar Parameters For KIC 007778437

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6490^{+155}_{-232}$	$4.320^{+0.067}_{-0.202}$	$0.160^{+0.200}_{-0.350}$	$1.307^{+0.439}_{-0.188}$	$1.304^{+0.169}_{-0.187}$	$0.822^{+0.323}_{-0.447}$
	+2%/-4%	+2%/-5%	+125%/-219%	+34%/-14%	+13%/-14%	+39%/-54%
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 007778437-01 / KOI 0131.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-12 \pm 5$	$10.87^{+1.70}_{-0.86}$	$1854^{+127}_{-94}$	$-2143^{+422}_{-182}$	$0.193^{+0.095}_{-0.088}$
Alt.	$-16 \pm 5$	$11.68^{+1.95}_{-1.13}$	$1864^{+137}_{-100}$	$-2045^{+3952}_{-230}$	$0.231^{+0.111}_{-0.082}$

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

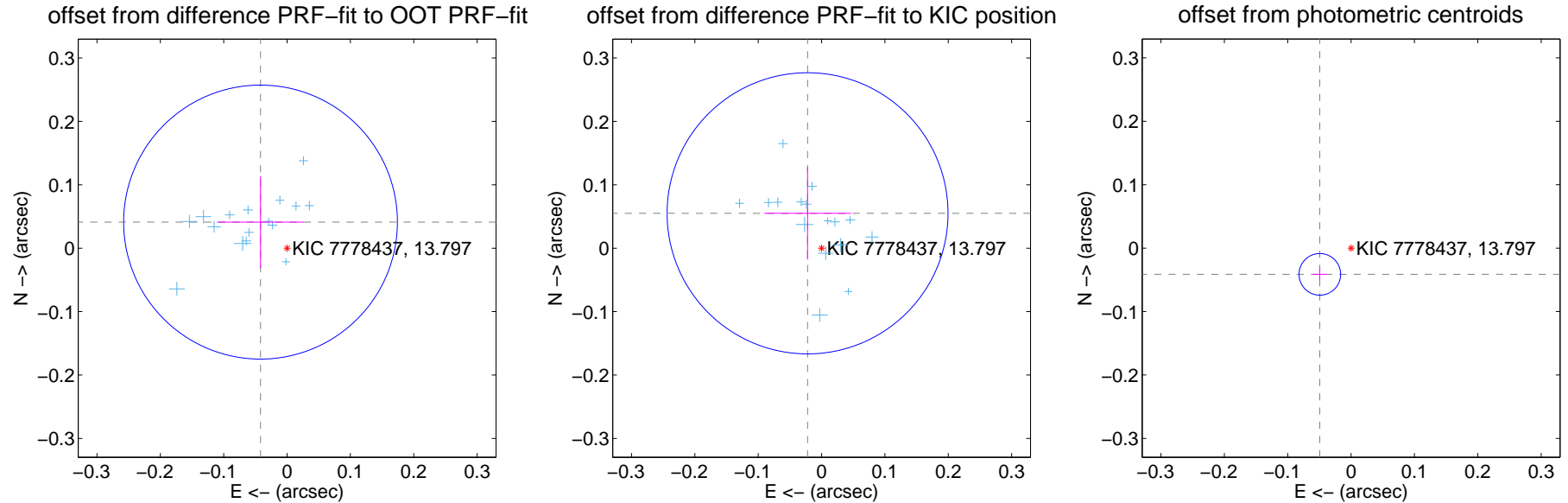
## DV Centroid Data

Supplemental centroid analysis for 007778437-01. Kepler magnitude: 13.80. Transit SNR 764.20

There are 17 quarters with good PRF difference image offsets

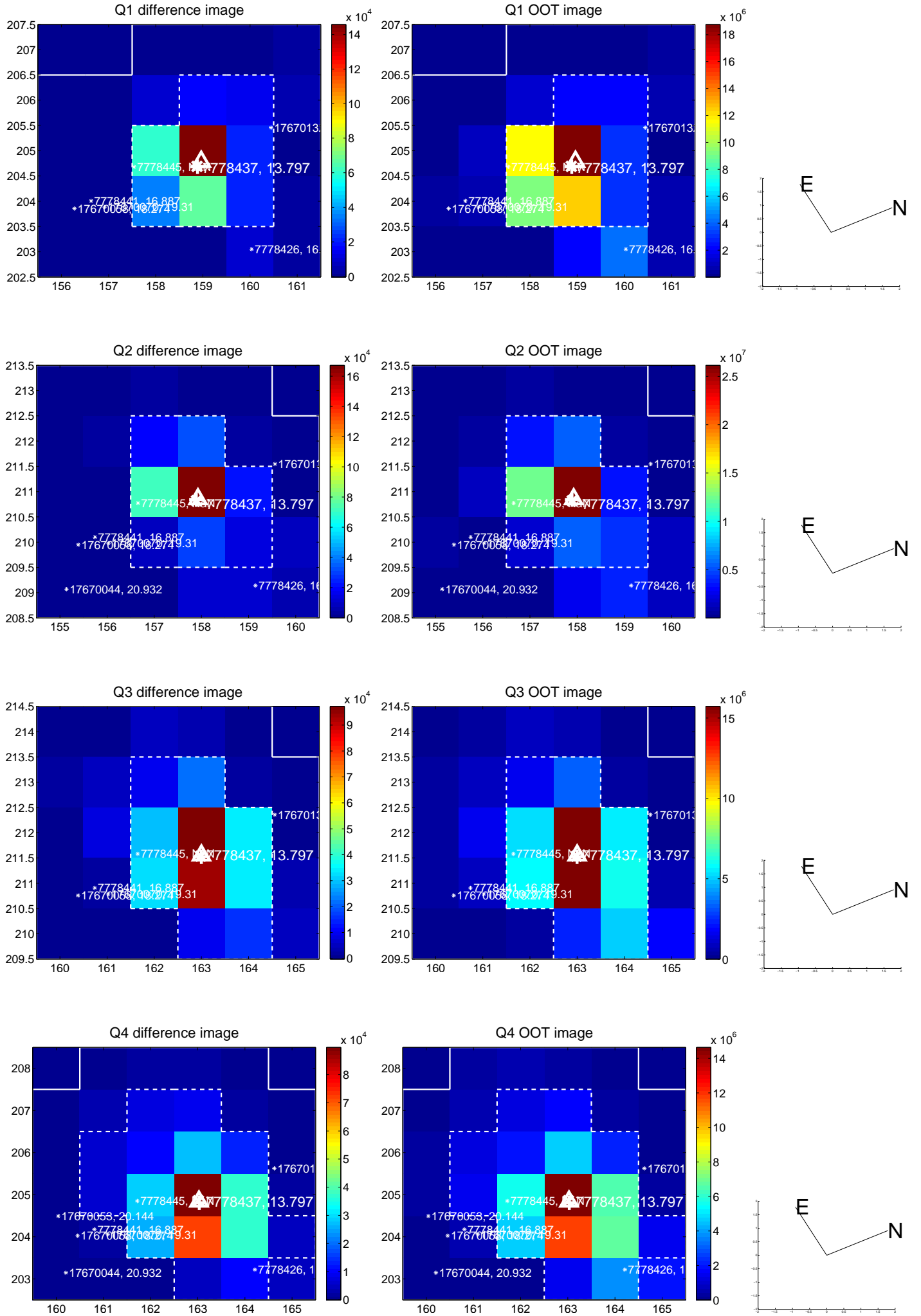
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.059 \pm 0.072$	0.82	$0.042 \pm 0.069$	$0.041 \pm 0.073$
PRF-fit source offset from KIC position	$0.059 \pm 0.074$	0.80	$0.022 \pm 0.069$	$0.055 \pm 0.073$
photometric centroid source offset	$0.06 \pm 0.01$	5.88	$0.05 \pm 0.01$	$-0.04 \pm 0.01$

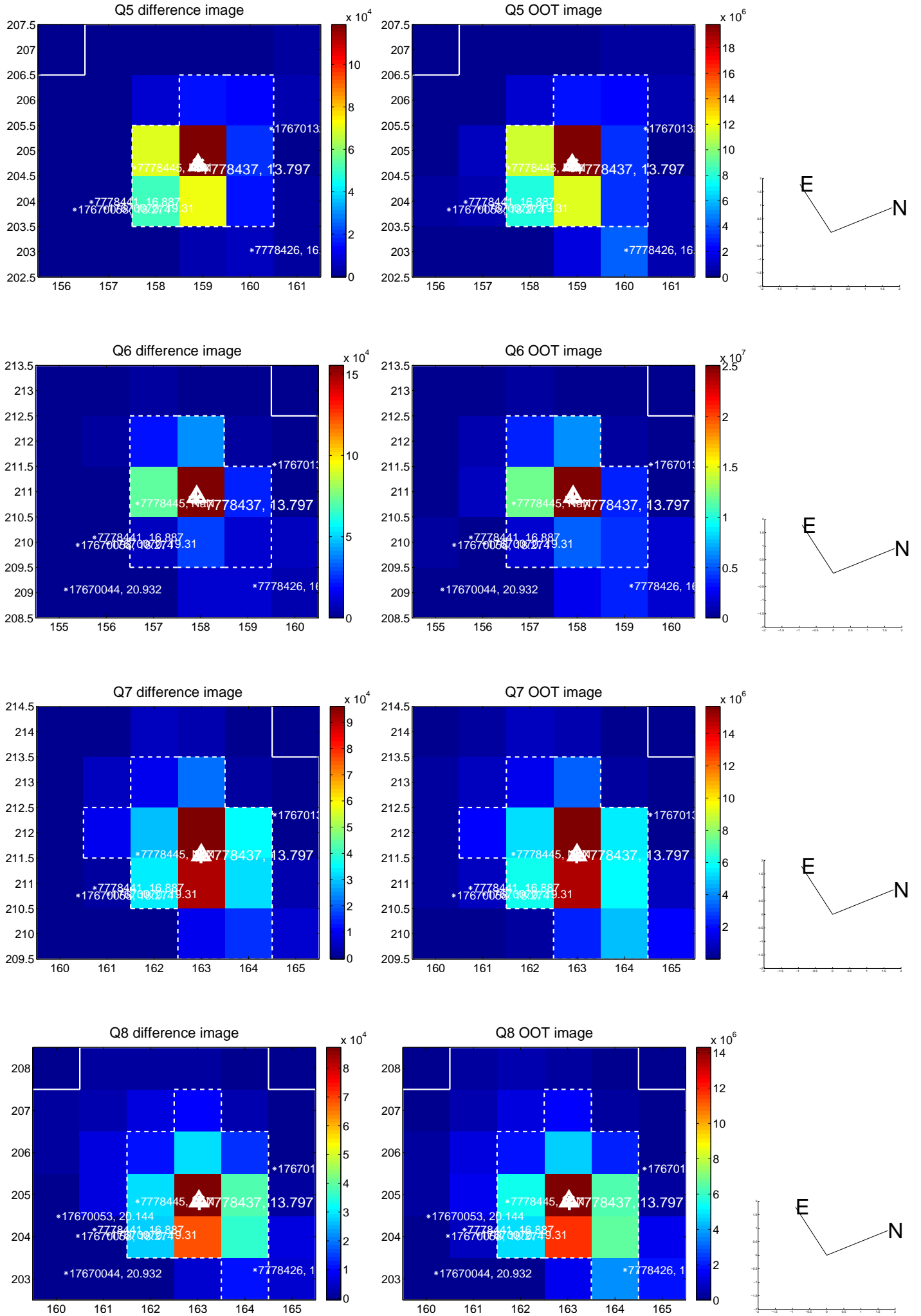


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

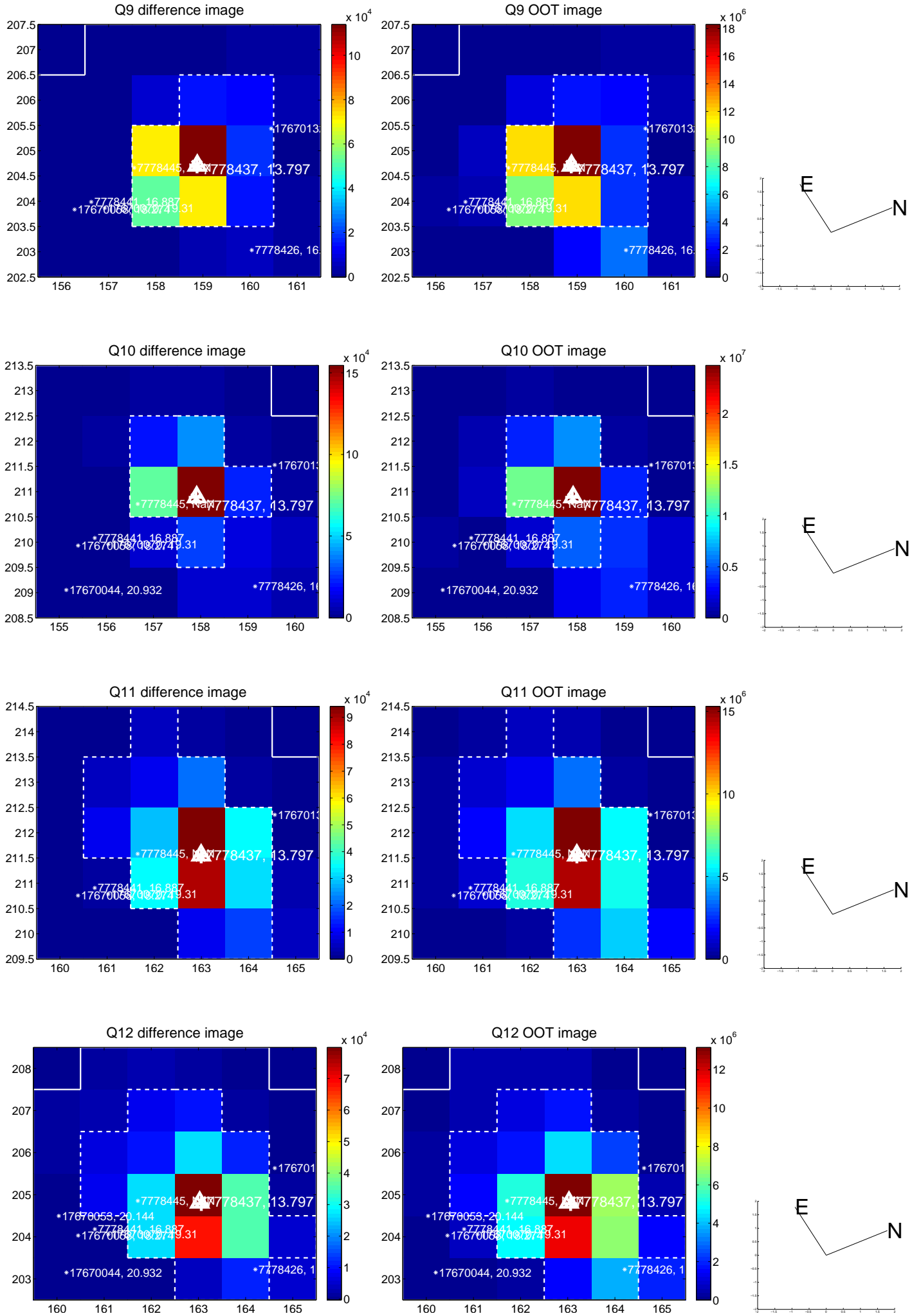
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



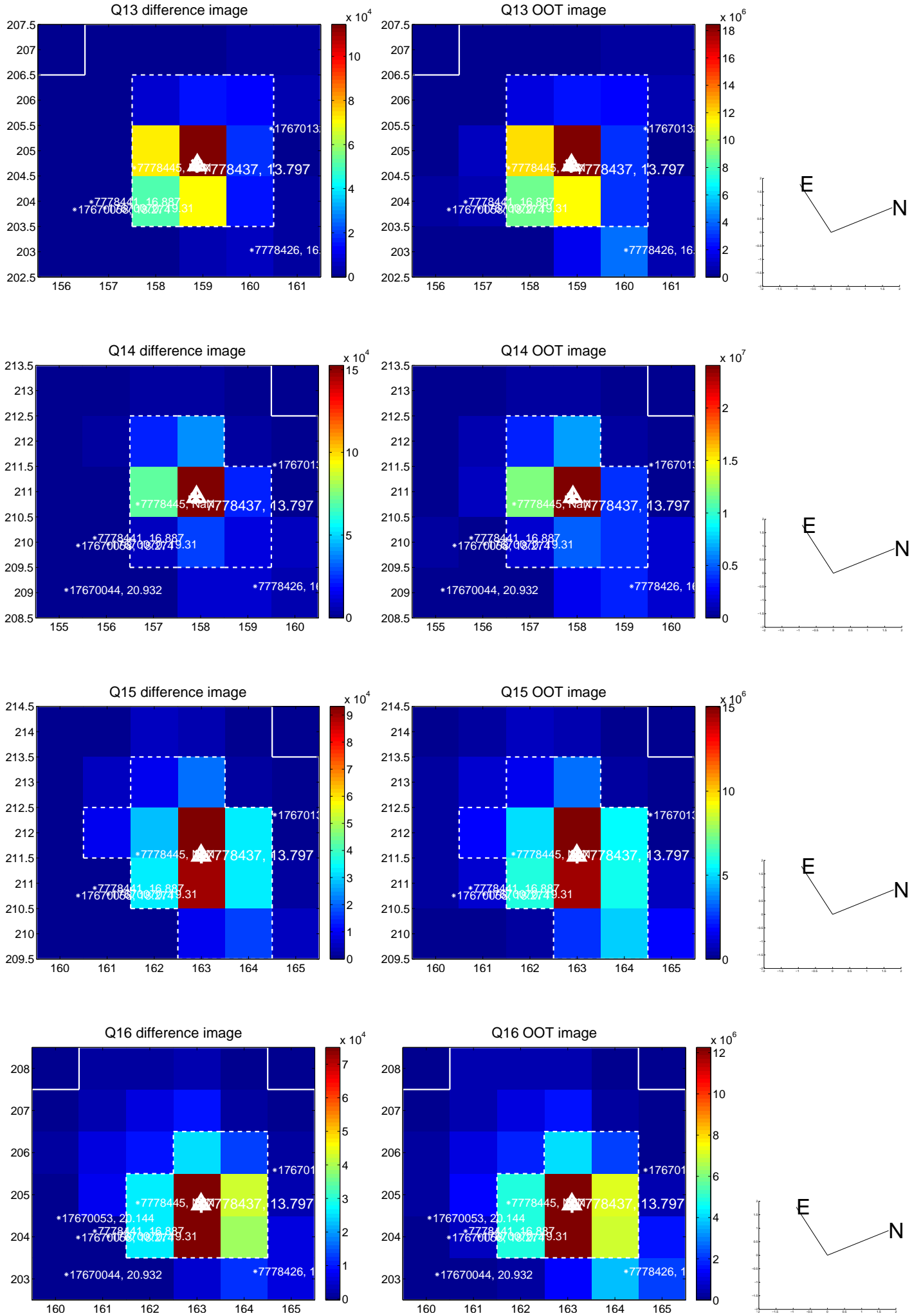
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



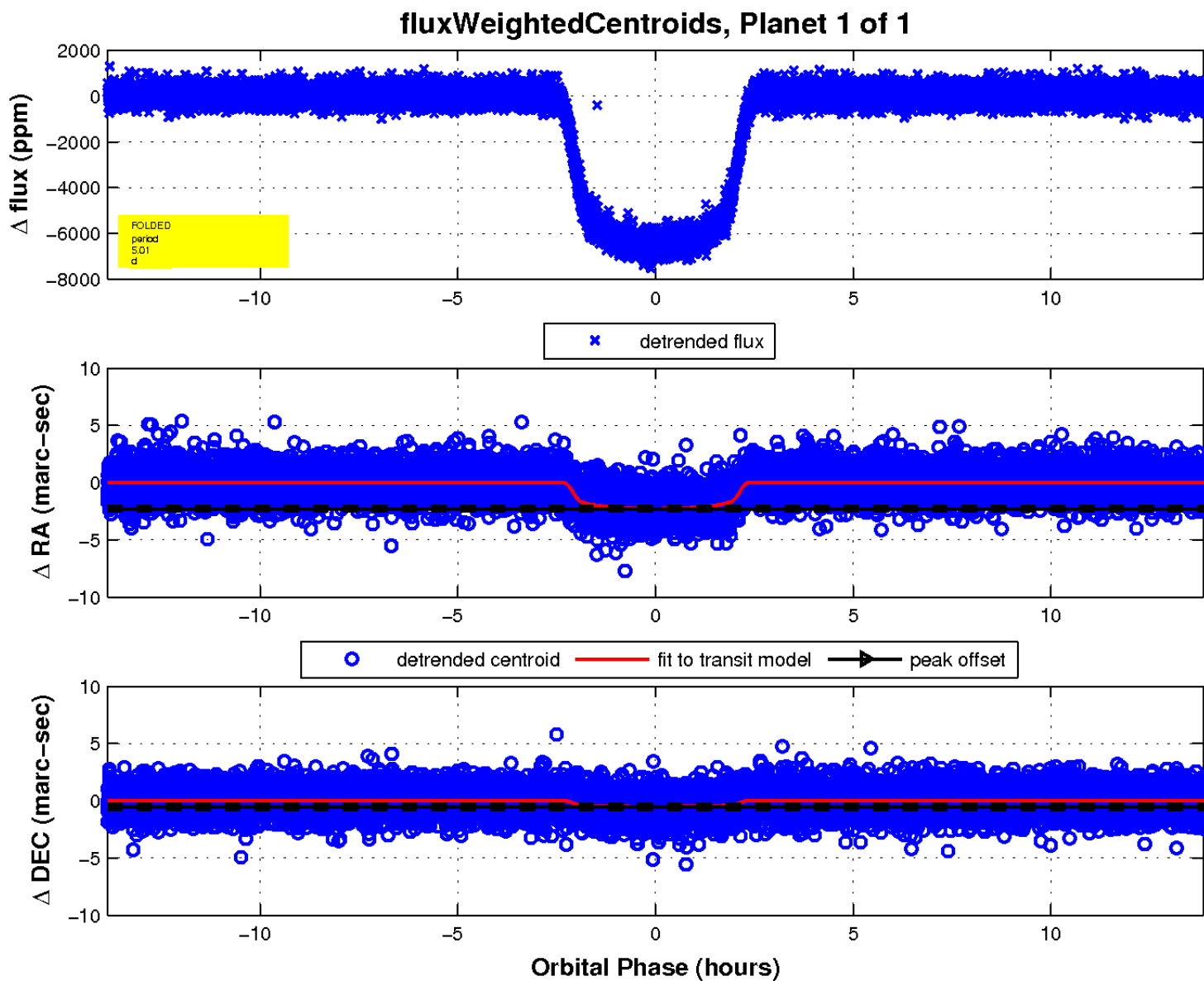
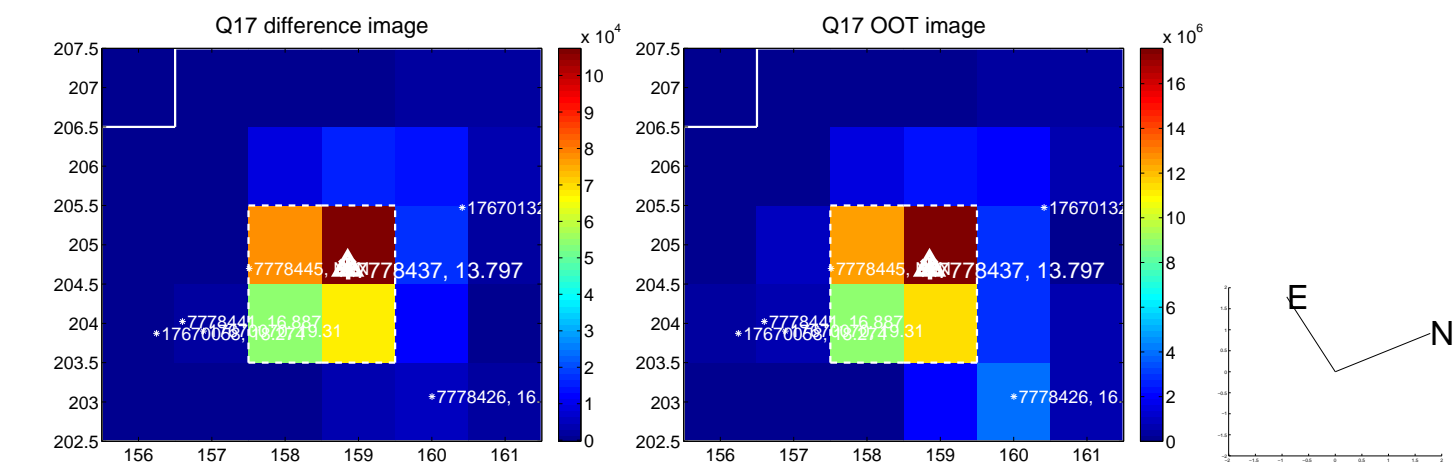
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

