

# KIC 010318874

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010318874-01	OBS	0104.01	2.508062	132.491212	1476.2	1.232	284.5	306.0	0.76	4780	3.64	233.93

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010318874-01	OBS	PC	1.00	0	0	0	0	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.

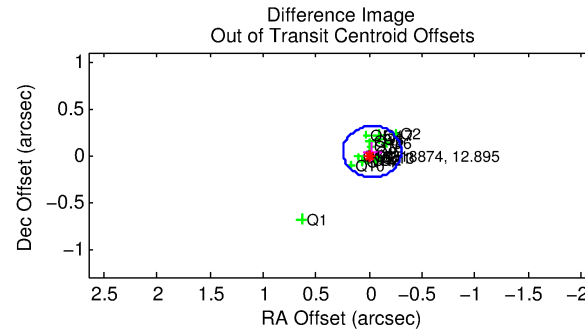
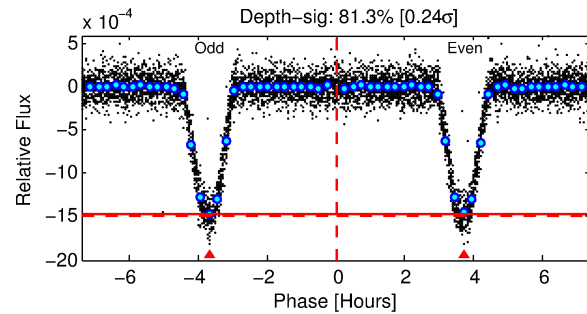
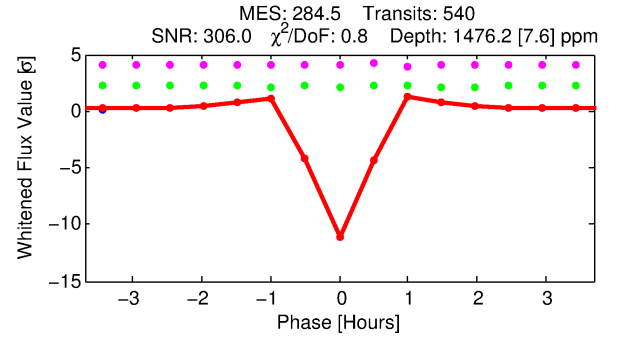
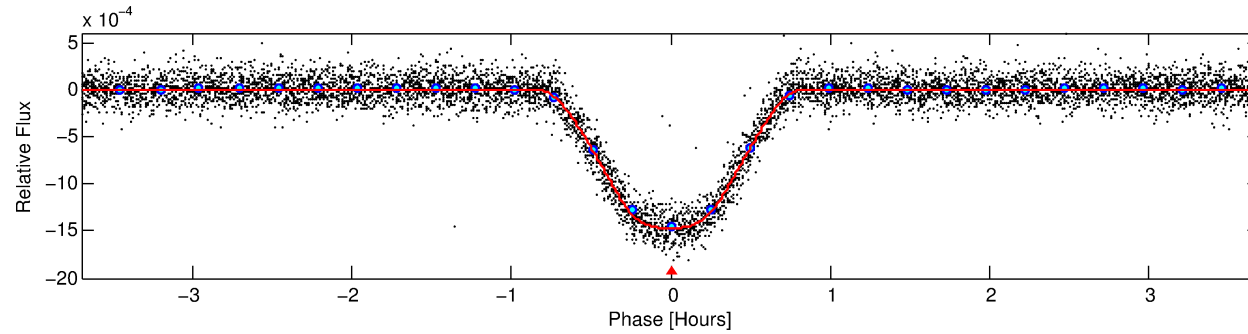
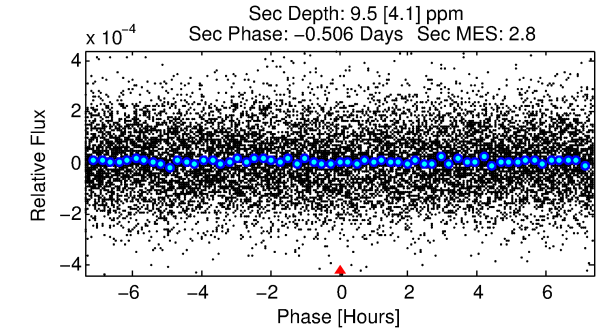
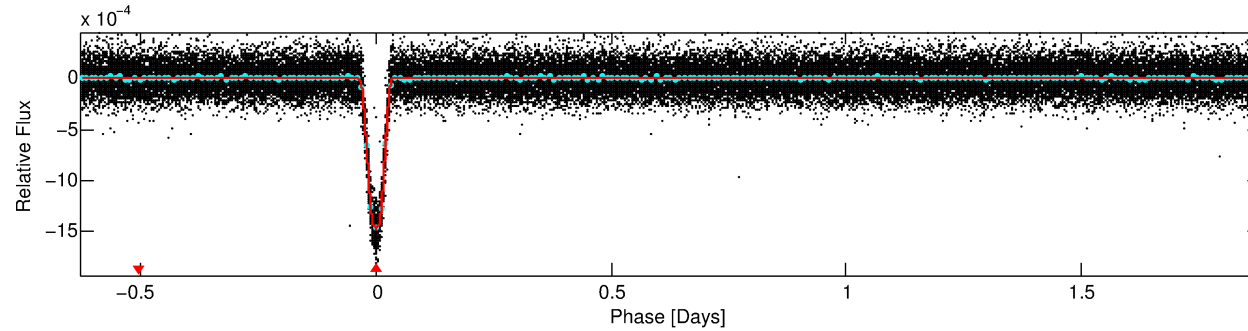
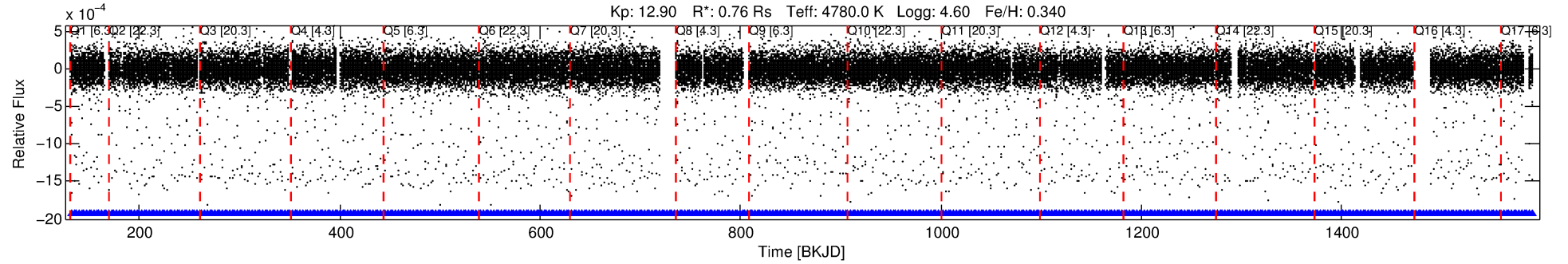
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010318874-01

No Significant Match Found

# DV One-Page Summary

KIC: 10318874 Candidate: 1 of 1 Period: 2.508 d  
KOI: K00104.01 Name: Kepler-94b Corr: 0.933



## DV Fit Results:

Period = 2.50806 [0.00000] d  
Epoch = 132.4912 [0.0001] BKJD  
Rp/R\* = 0.0438 [0.0007]  
a/R\* = 8.28 [0.42]  
b = 0.90 [0.01]  
Seff = 233.93 [27.24]  
Teff = 997 [29] K  
Rp = 3.64 [0.19] Re  
a = 0.0340 [0.0017] AU  
Ag = 0.46 [0.20] [-2.69 $\sigma$ ]  
Teffp = 1268 [139] K [1.91 $\sigma$ ]

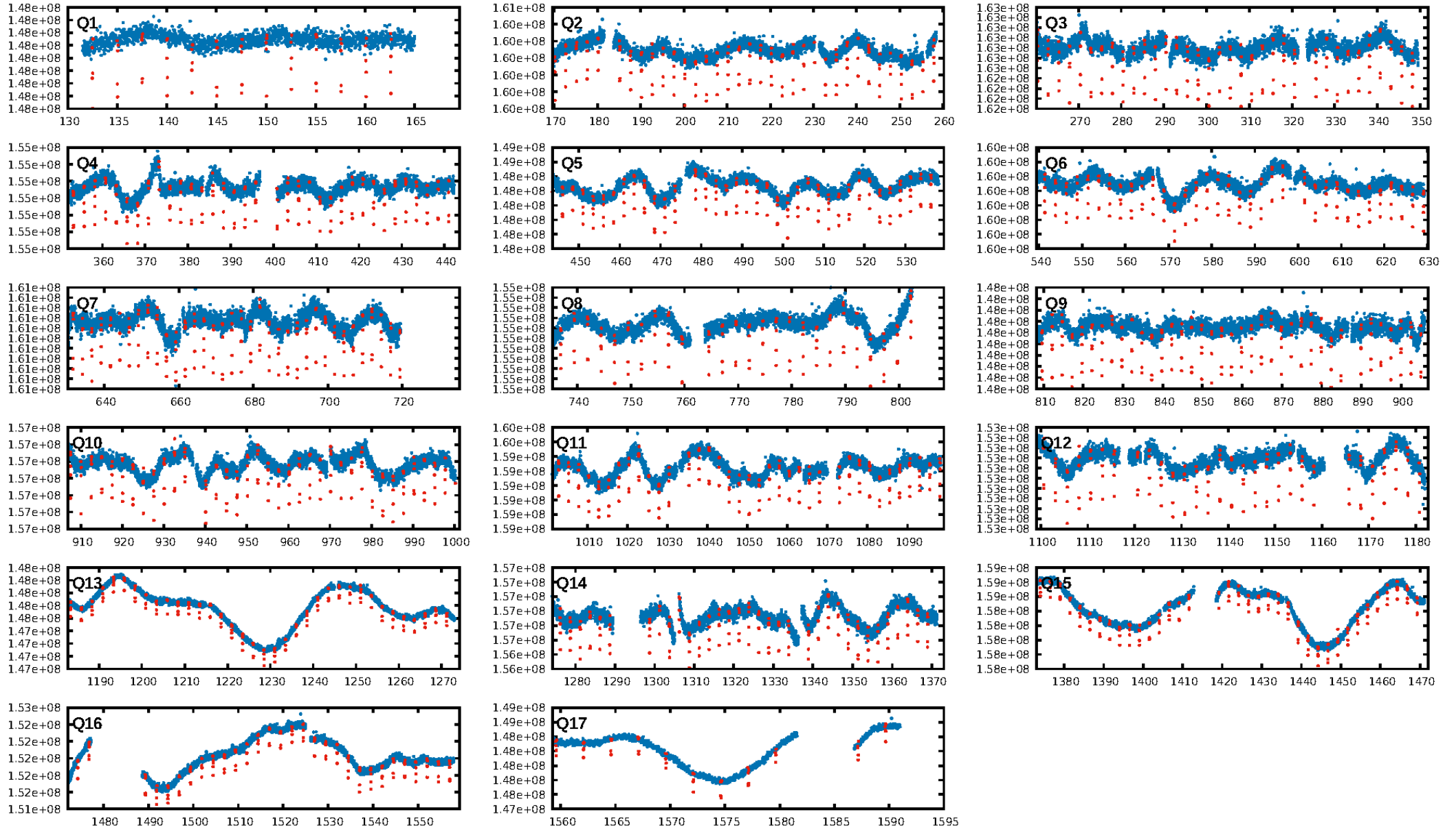
## DV Diagnostic Results:

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 [516/516]  
GhostDiagnostic-chr: 7.475  
Centroid-sig: 1.8%  
Centroid-so: 0.385 arcsec [8.20 $\sigma$ ]  
OotOffset-rm: 0.047 arcsec [0.51 $\sigma$ ]  
KicOffset-rm: 0.423 arcsec [4.66 $\sigma$ ]  
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]

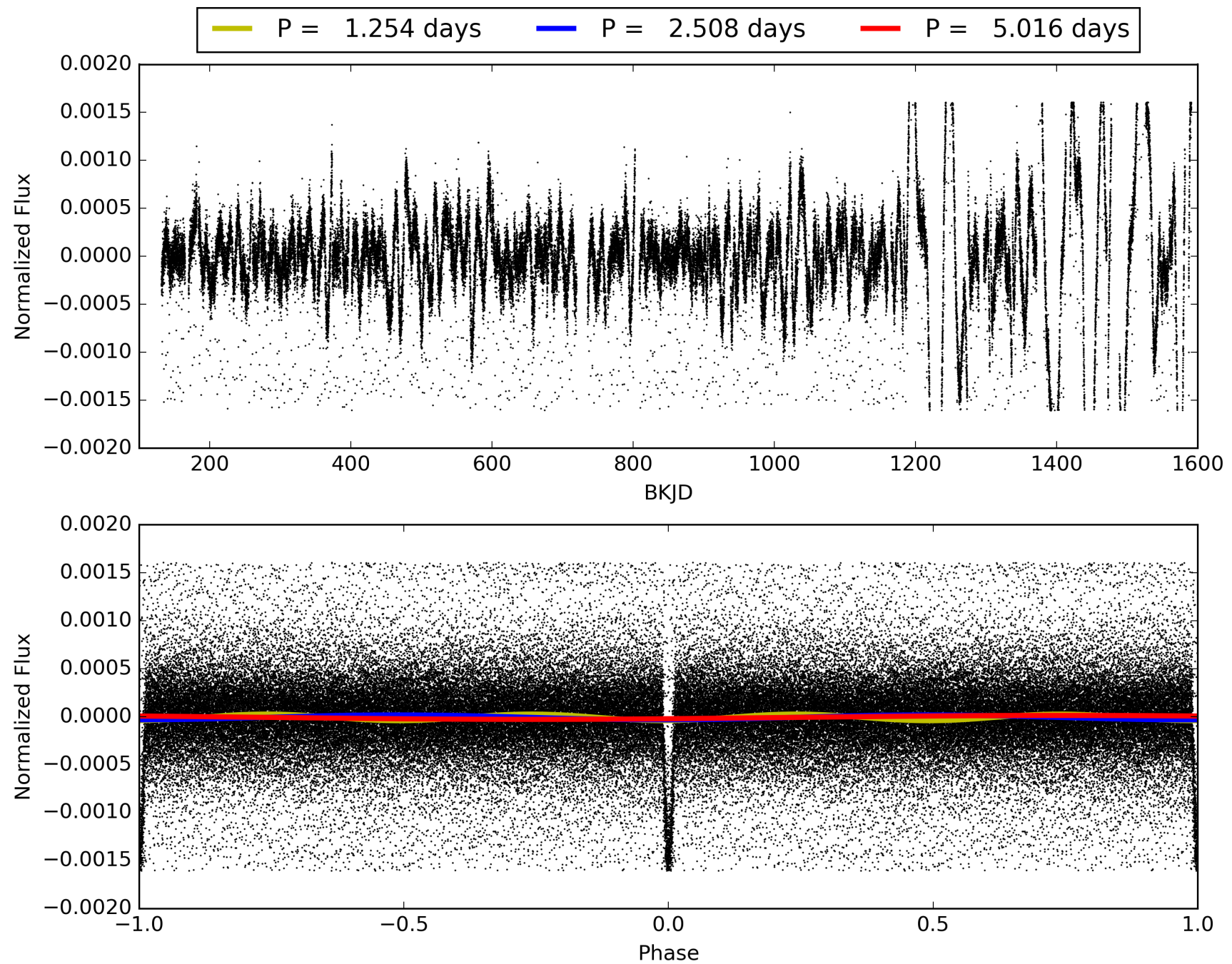
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:11:16 Z

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

# TCE 010318874-01, PDC Light Curves

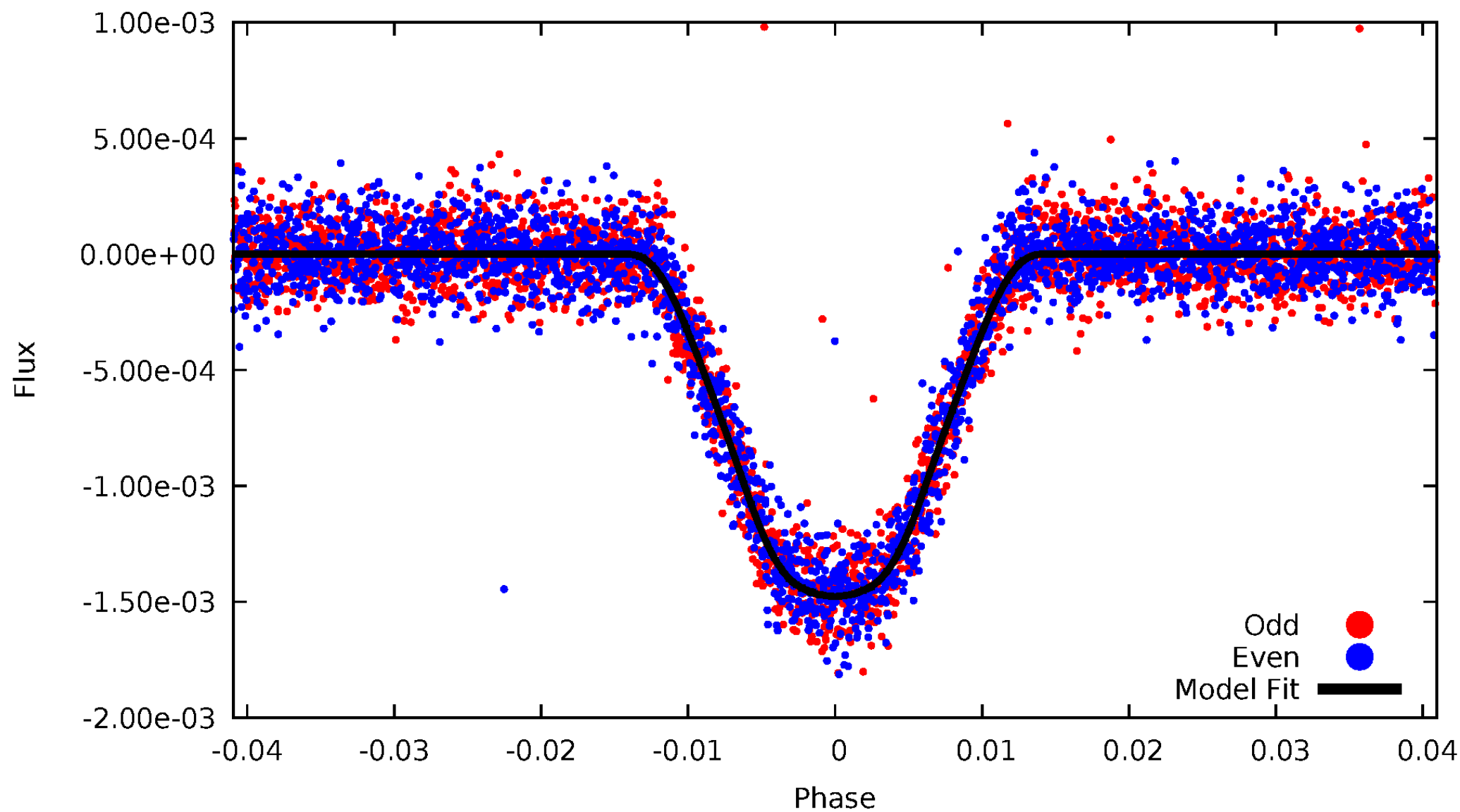


# TCE 010318874-01



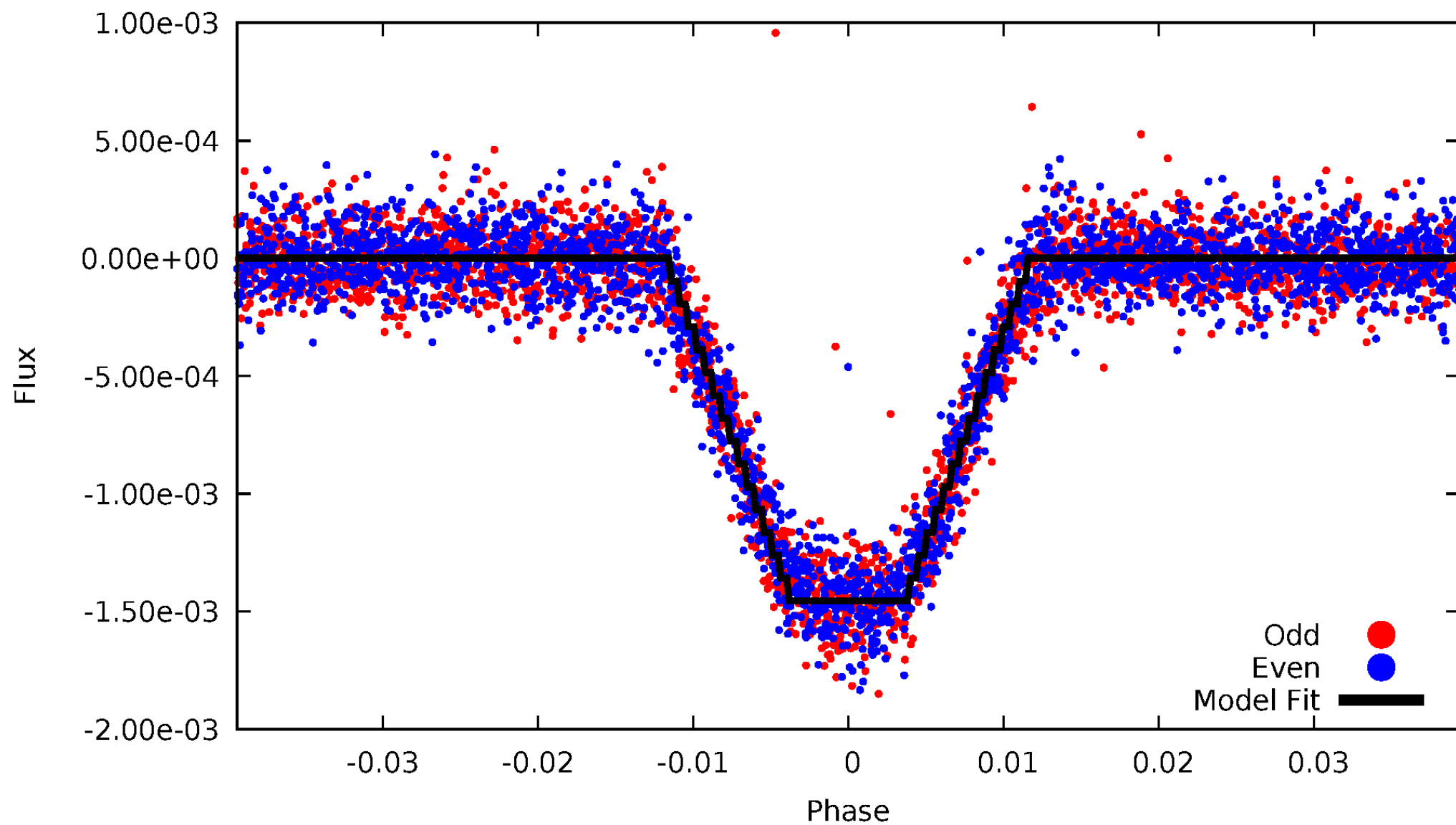
# DV Odd/Even

TCE 010318874-01



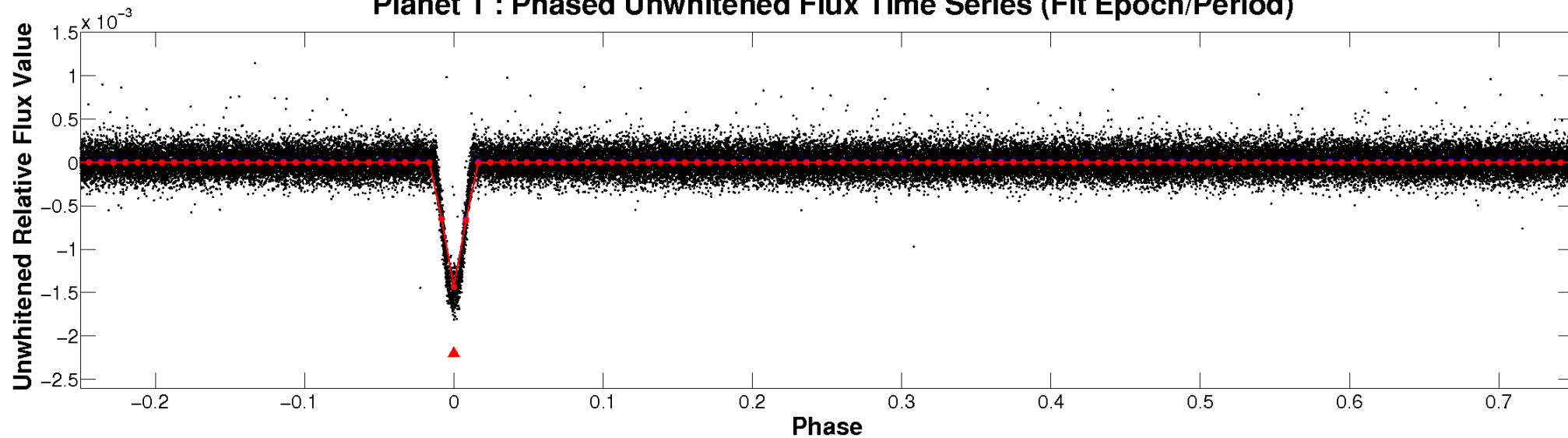
# ALT Odd/Even

TCE 010318874-01

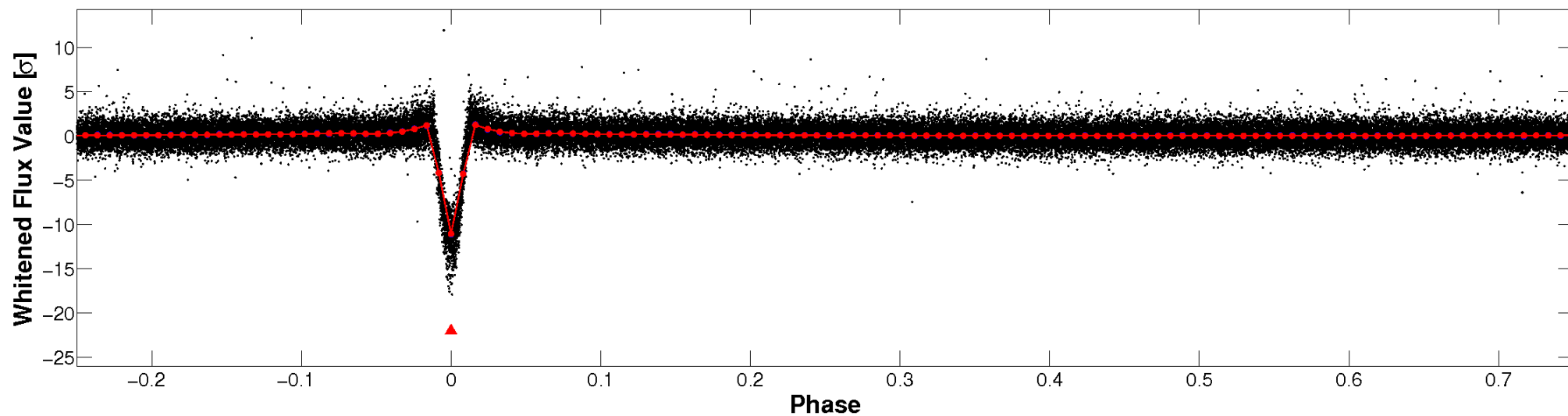


# Non-Whitened Vs. Whitened Light Curve

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



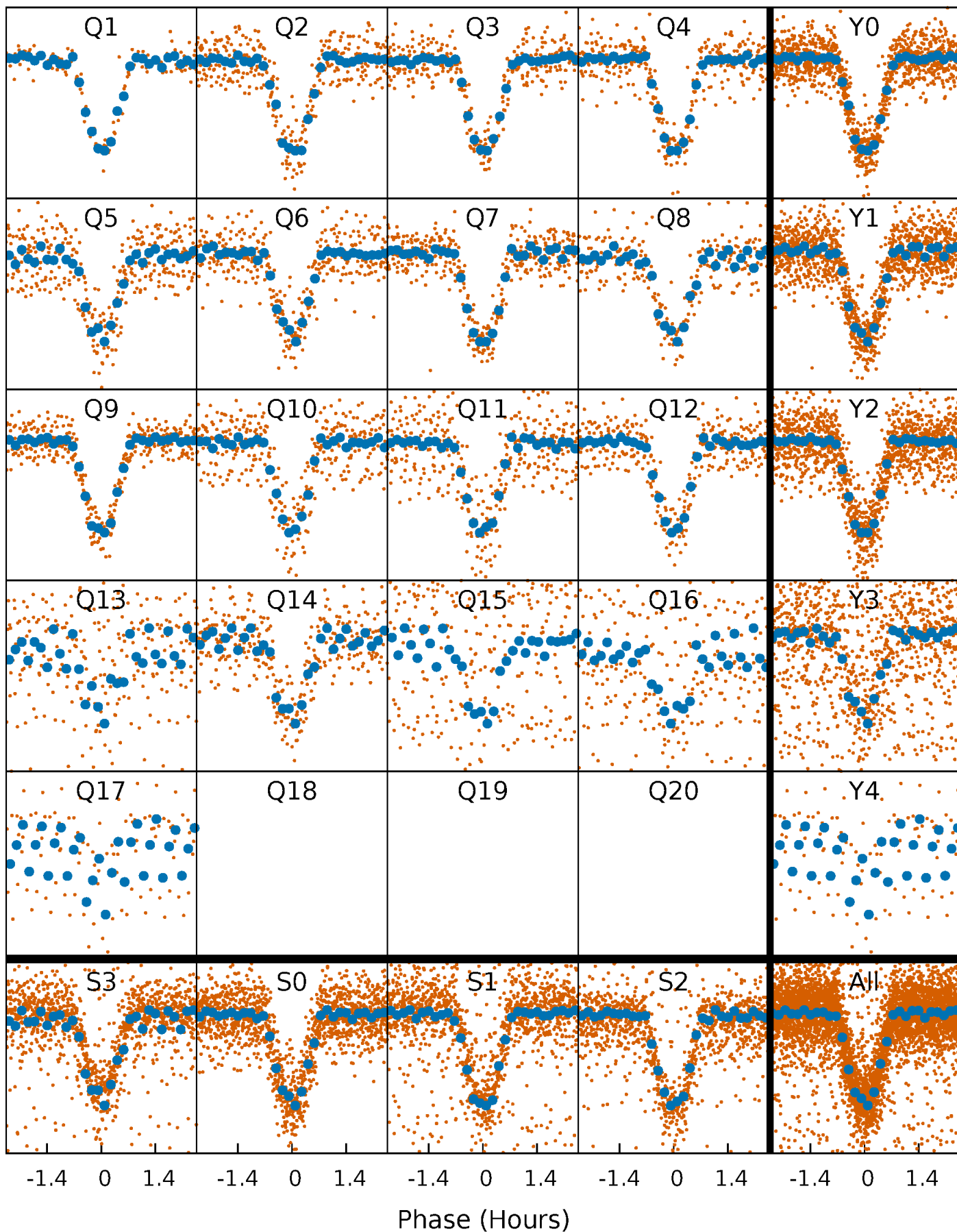
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

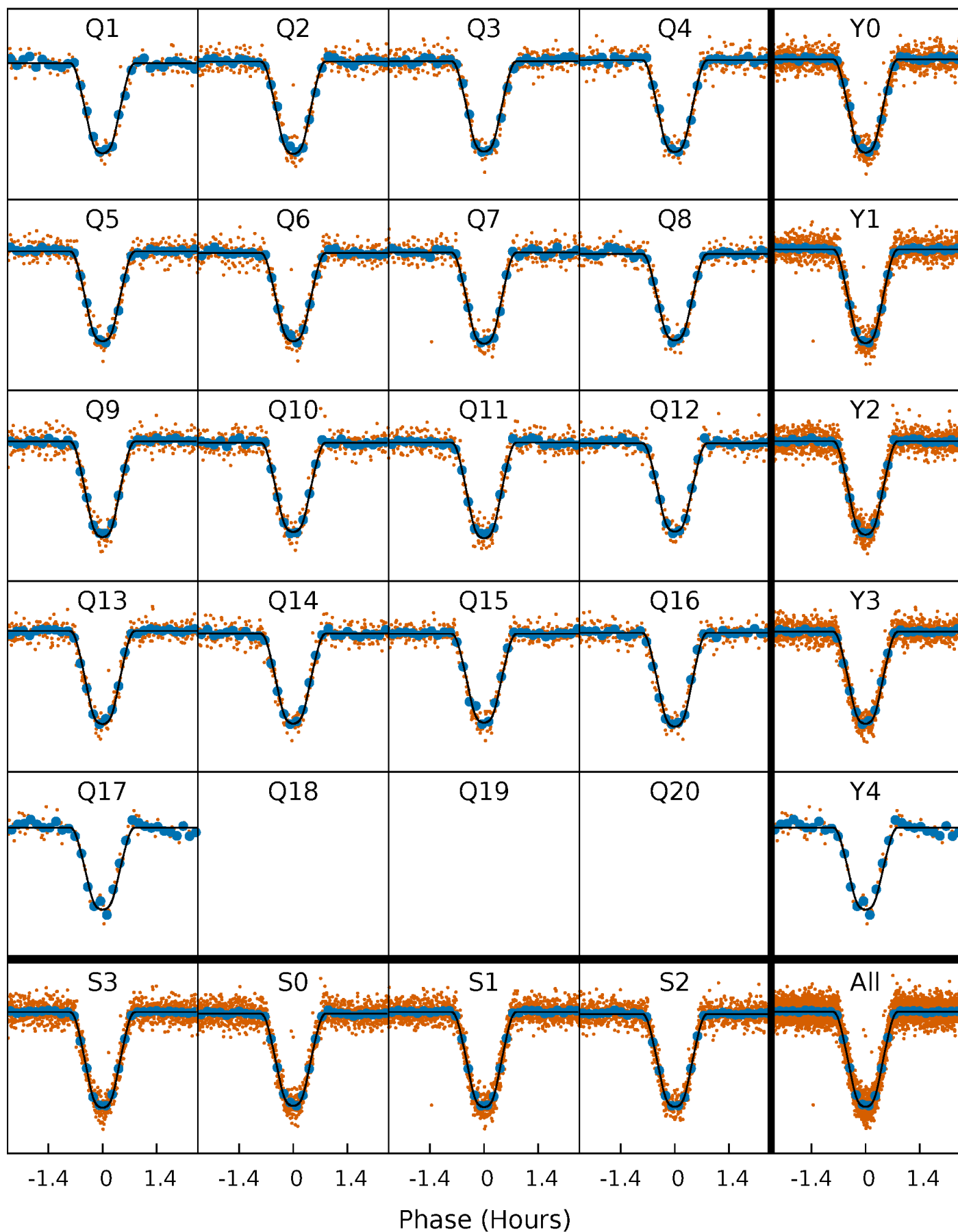
TCE 010318874-01 P= 2.508062 Days  $T_0=132.491212$  (BKJD)





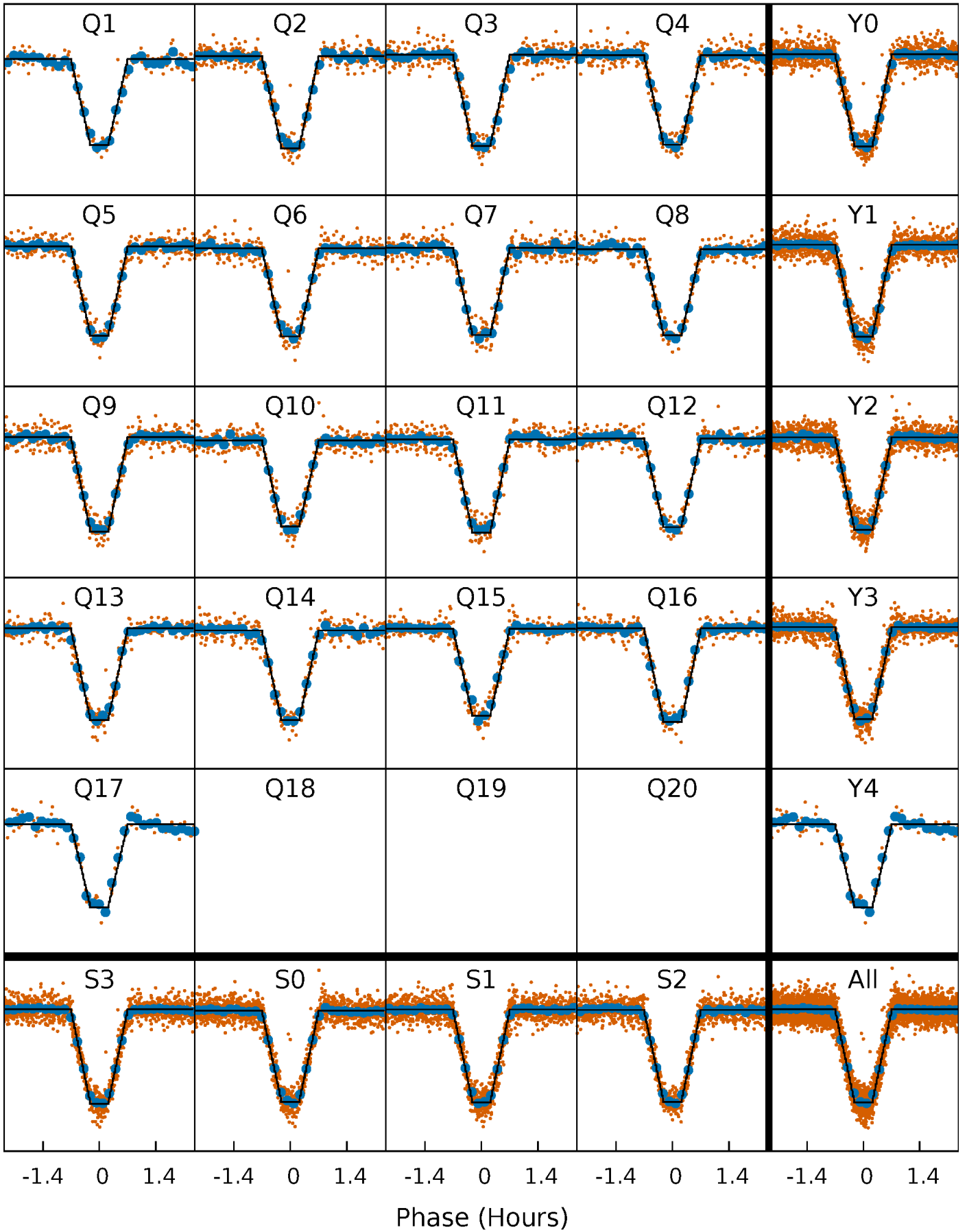
# DV Quarter-Phased Transit Curves

TCE 010318874-01 P= 2.508062 Days  $T_0=132.491212$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

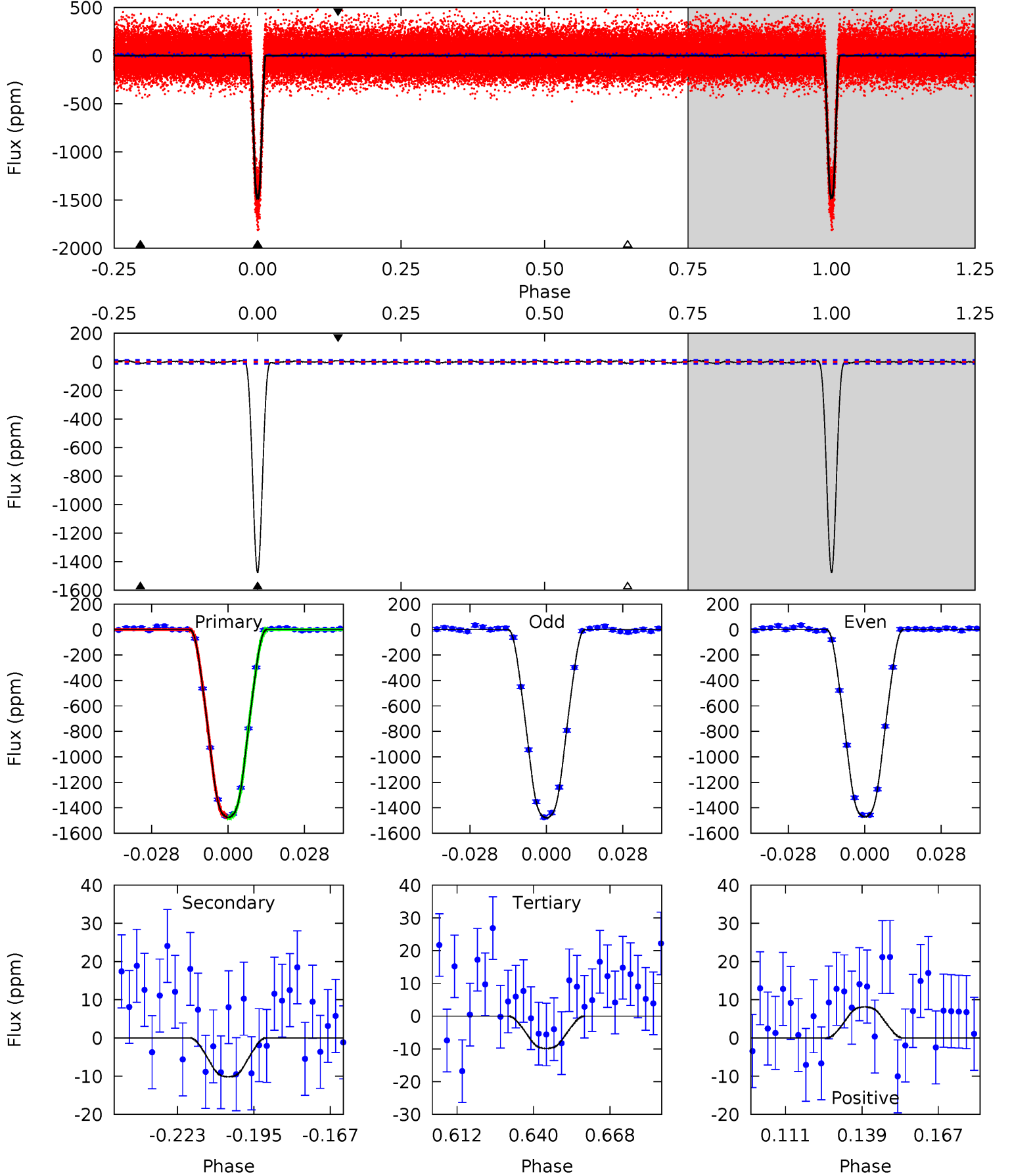
TCE 010318874-01 P= 2.508062 Days  $T_0=132.491249$  (BKJD)



# DV Model-Shift Uniqueness Test

010318874-01, P = 2.508062 Days, E = 129.983150 Days

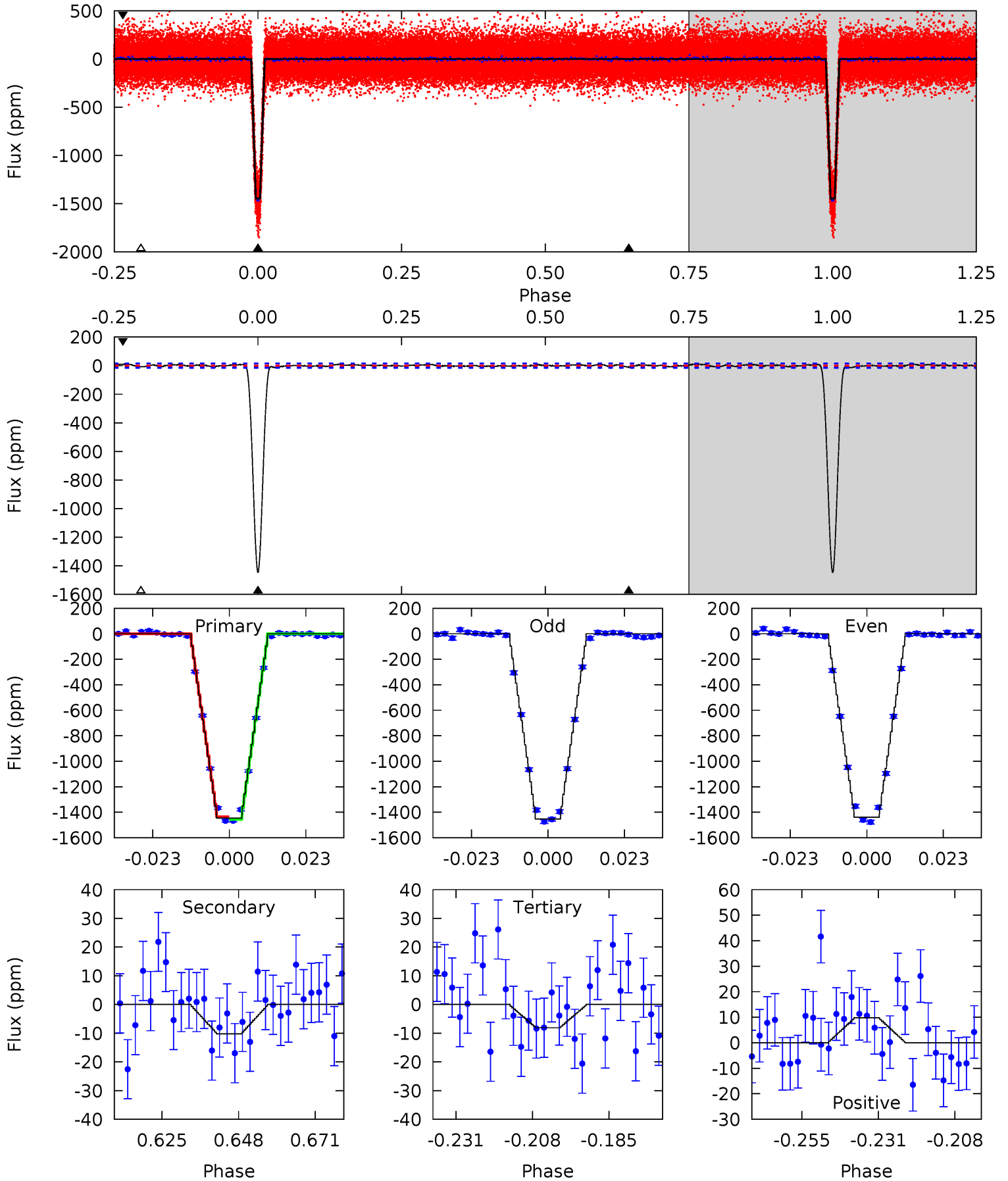
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
523.1	3.60	3.50	2.88	4.83	2.20	1.31	519.6	520.3	0.10	0.72	1.31	1.00	0.01	0



# Alt Model-Shift Uniqueness Test

010318874-01, P = 2.508062 Days, E = 129.983187 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
469.1	3.33	2.63	3.18	4.86	2.27	1.35	466.4	465.9	0.70	0.15	2.13	1.00	0.01	0



### Stellar Parameters For KIC 010318874

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4780^{+95}_{-95}$	$4.597^{+0.015}_{-0.051}$	$0.340^{+0.100}_{-0.150}$	$0.761^{+0.038}_{-0.027}$	$0.835^{+0.020}_{-0.047}$	$2.670^{+0.191}_{-0.397}$
	+2%/-2%	+0%/-1%	+29%/-44%	+5%/-4%	+2%/-6%	+7%/-15%
Source	SPE61	SPE61	SPE61	DSEP		

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

### Secondary Eclipse Parameters for KIC 010318874-01 / KOI 0104.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-10 \pm 3$	$3.67^{+0.13}_{-0.11}$	$1404^{+33}_{-32}$	$1992^{+112}_{-270}$	$0.480^{+0.127}_{-0.138}$
Alt.	$-10 \pm 3$	$3.19^{+0.11}_{-0.10}$	$1403^{+33}_{-35}$	$2130^{+117}_{-179}$	$0.648^{+0.205}_{-0.202}$

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

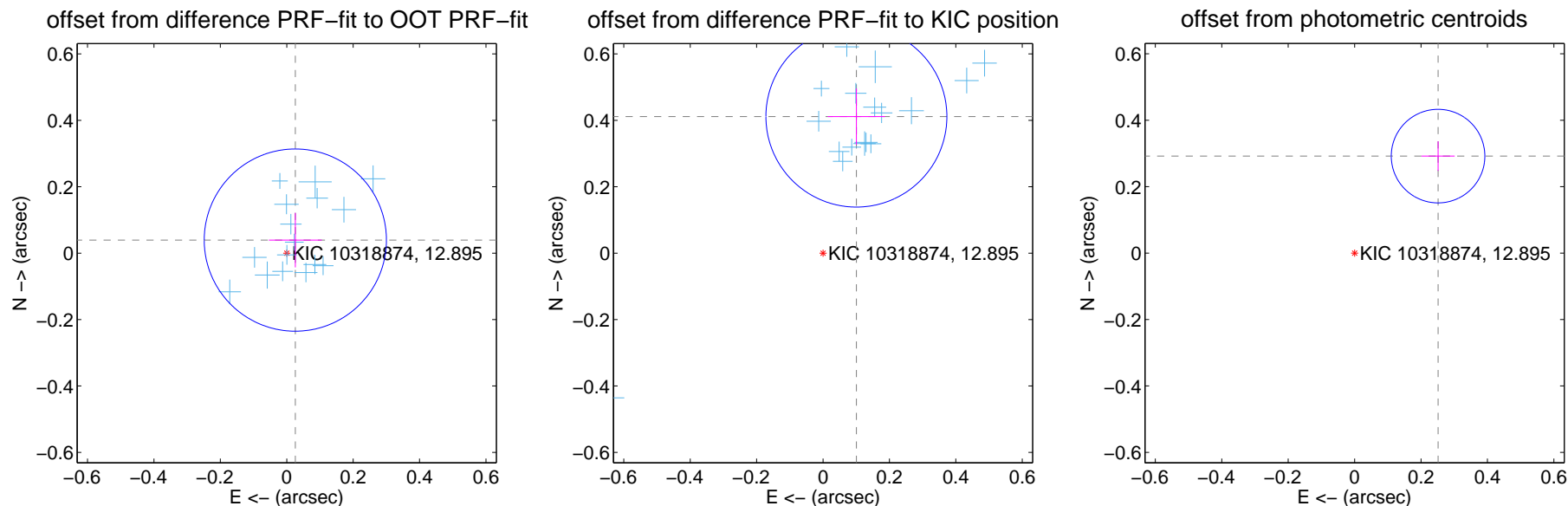
## DV Centroid Data

Supplemental centroid analysis for 010318874-01. Kepler magnitude: 12.89. Transit SNR 306.03

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

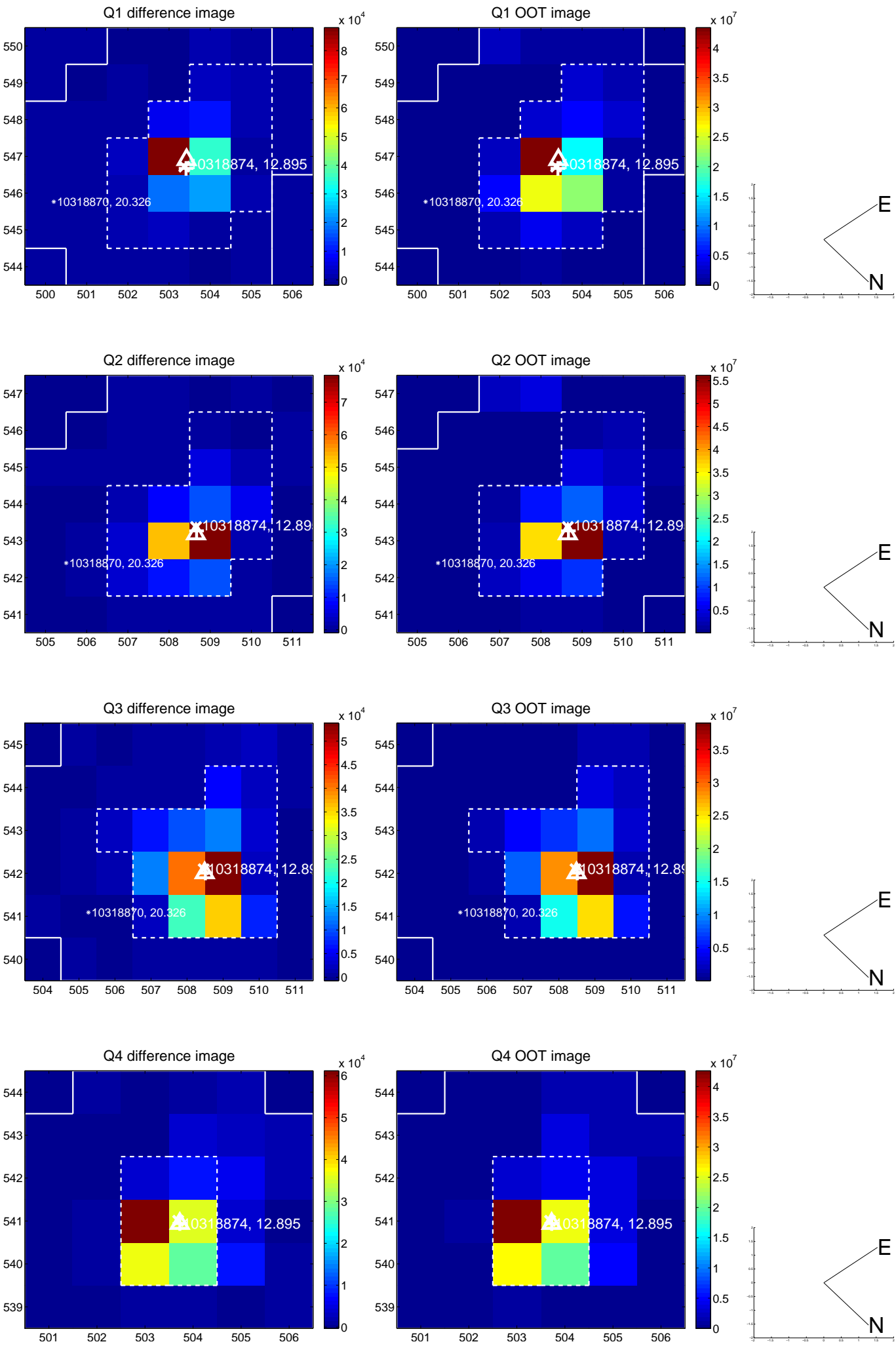
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.047 \pm 0.091$	0.51	$-0.026 \pm 0.080$	$0.039 \pm 0.082$
PRF-fit source offset from KIC position	$0.423 \pm 0.091$	4.66	$-0.100 \pm 0.086$	$0.411 \pm 0.085$
photometric centroid source offset	$0.39 \pm 0.05$	8.20	$-0.25 \pm 0.05$	$0.29 \pm 0.04$



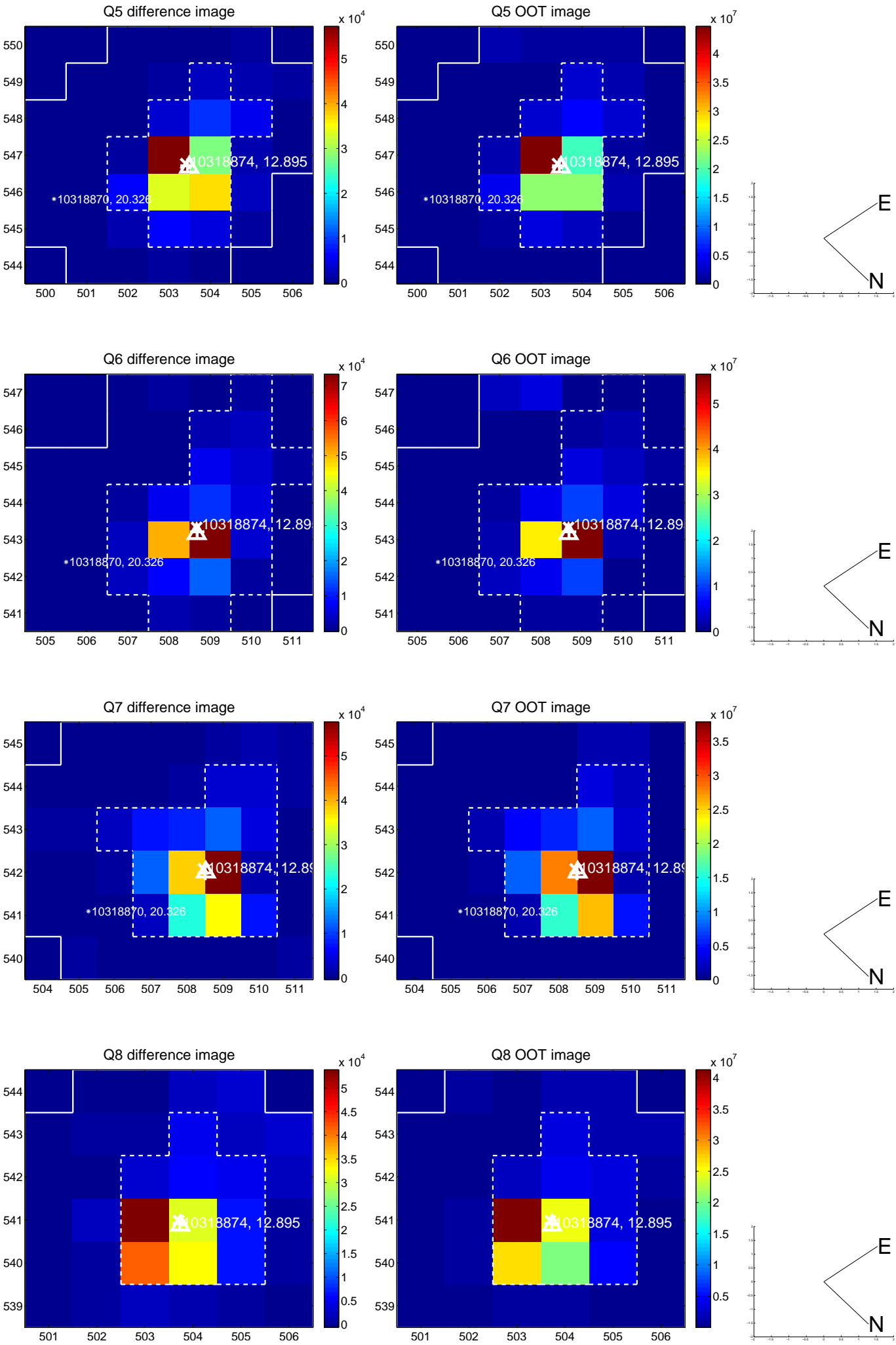
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



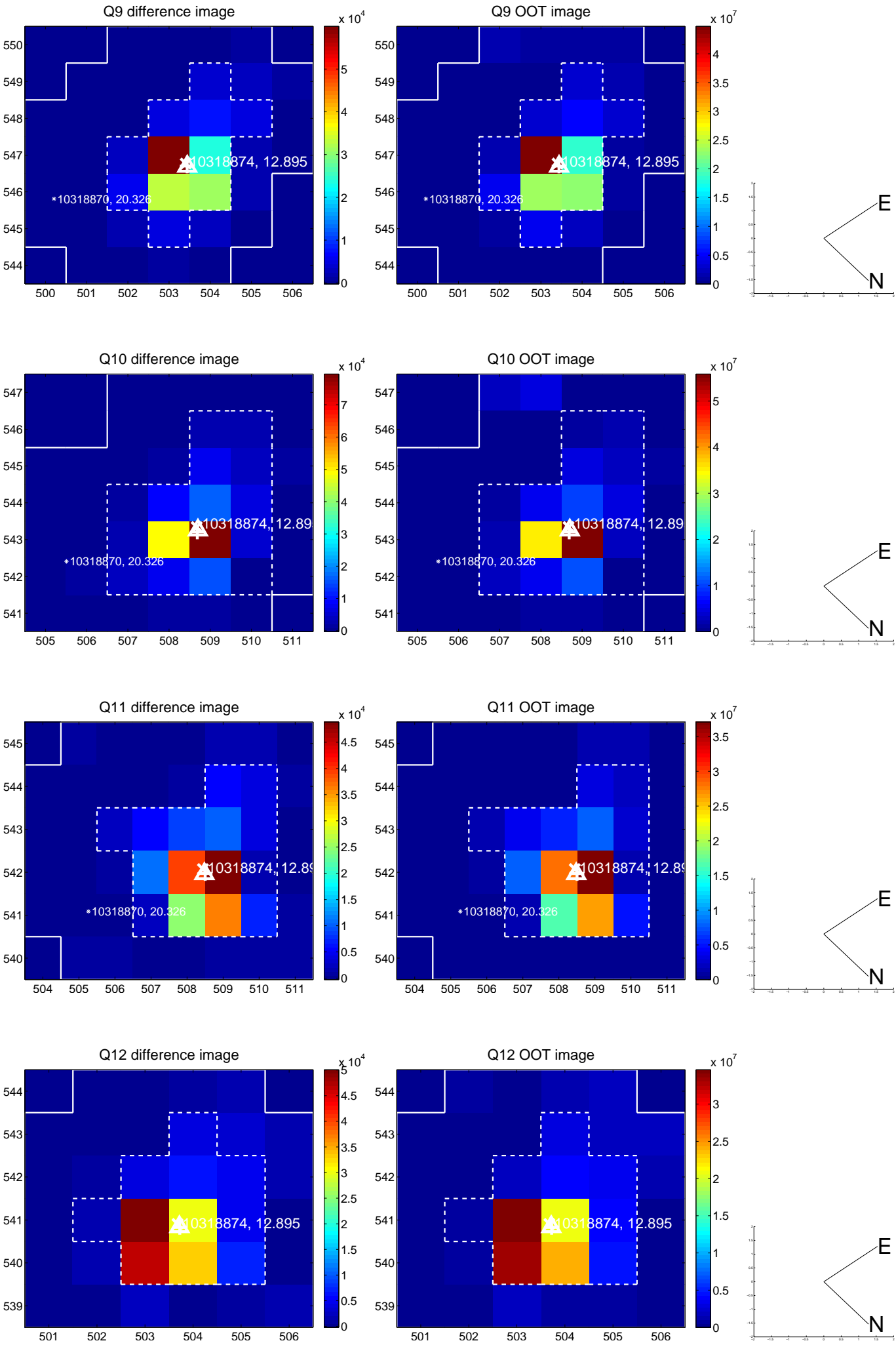
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



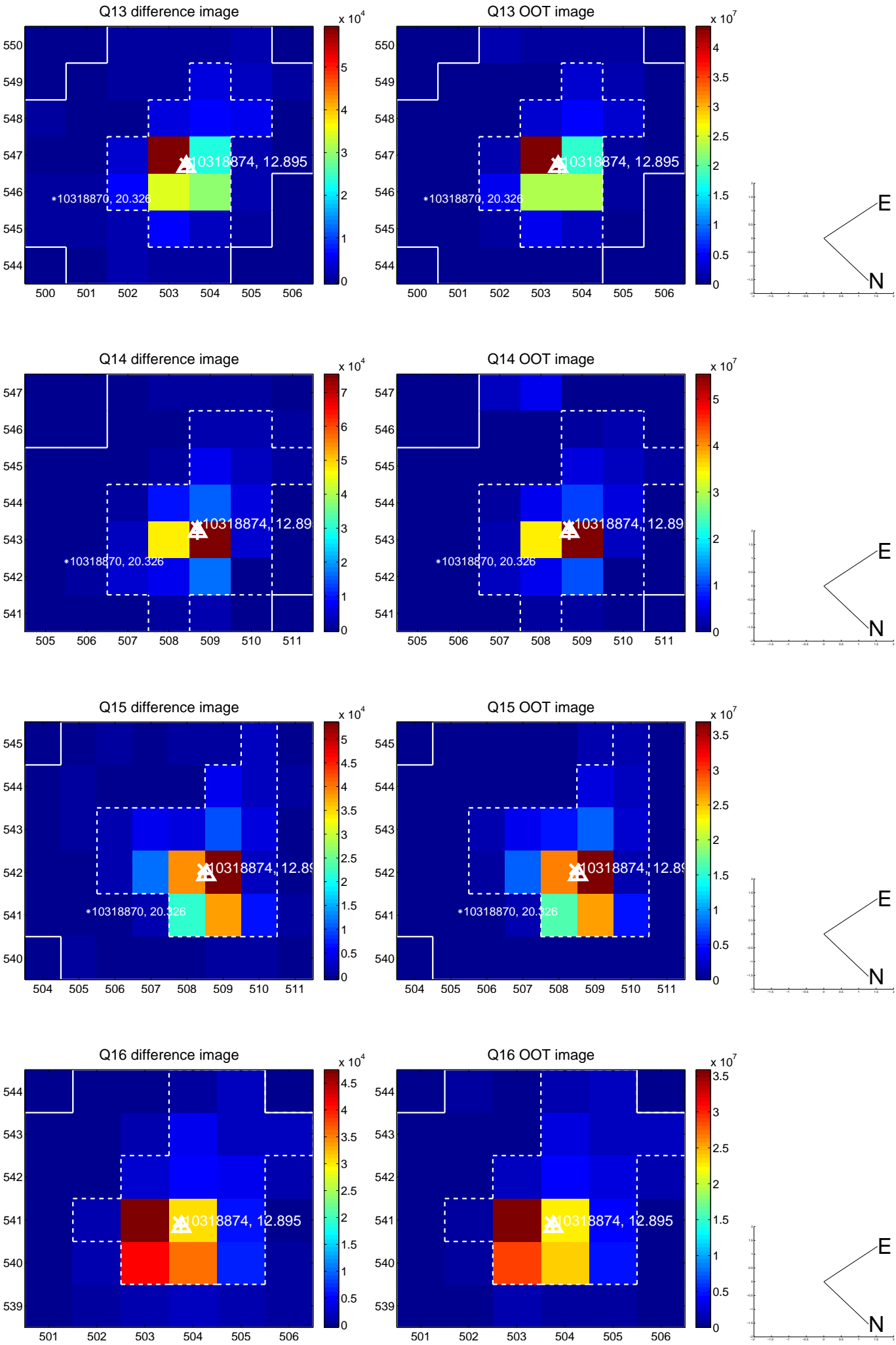
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



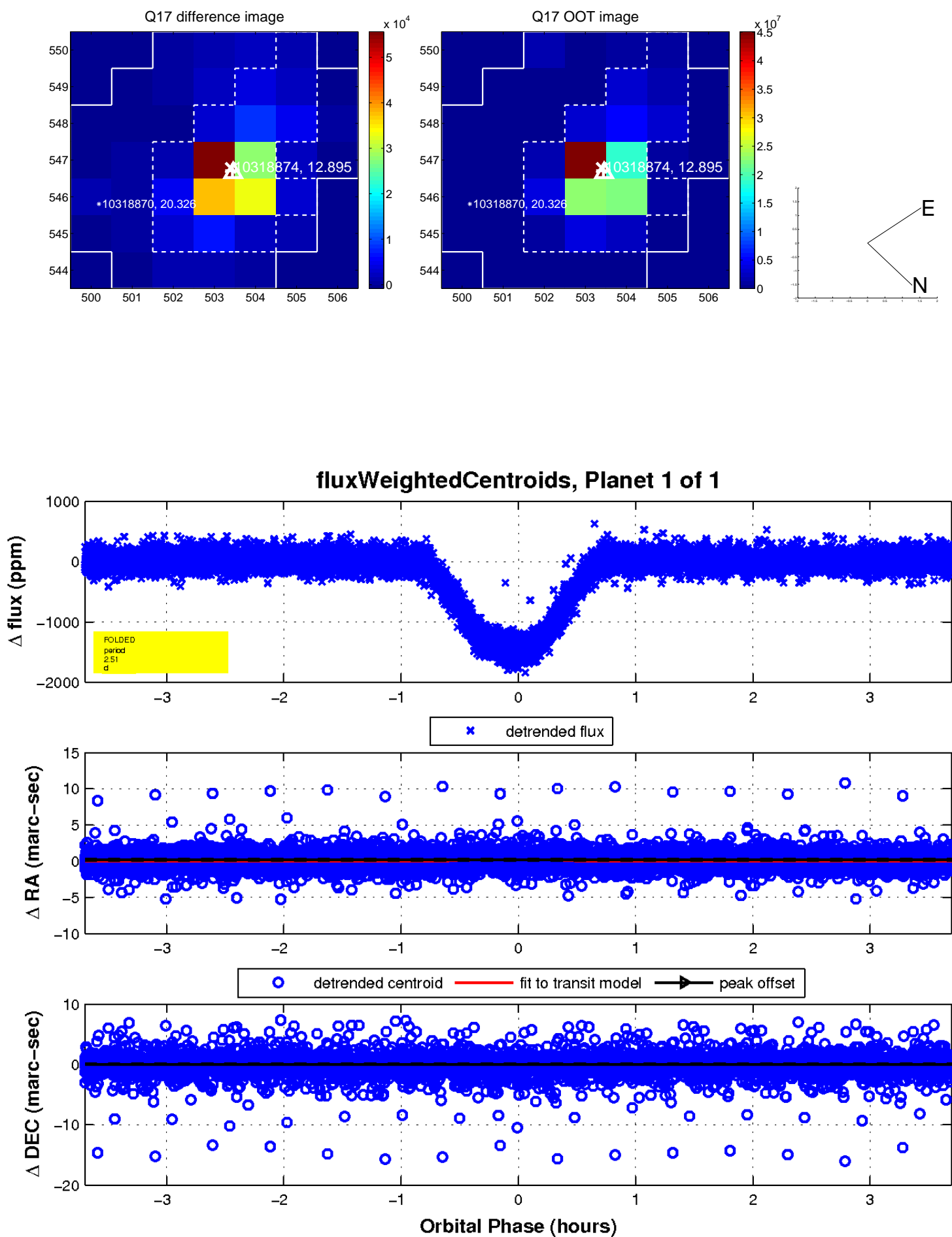
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

