

# KIC 009595827

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009595827-01	OBS	0217.01	3.905082	133.414956	21572.6	2.857	1576.4	1413.4	0.89	5543	12.84	283.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009595827-01	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.

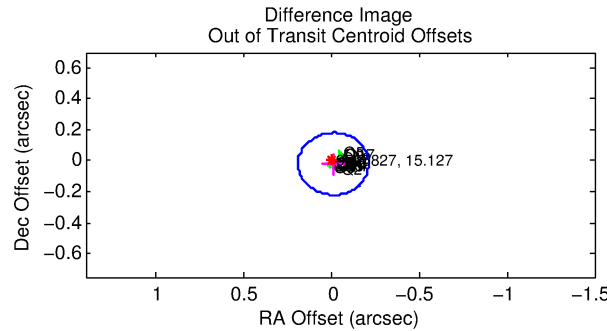
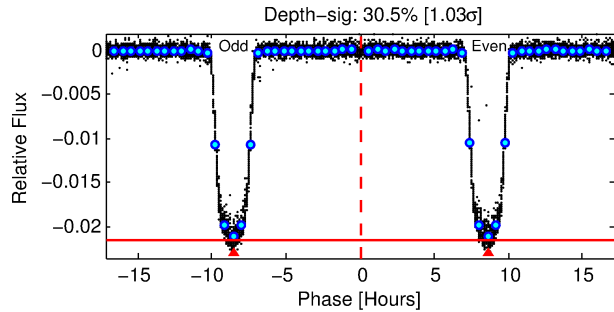
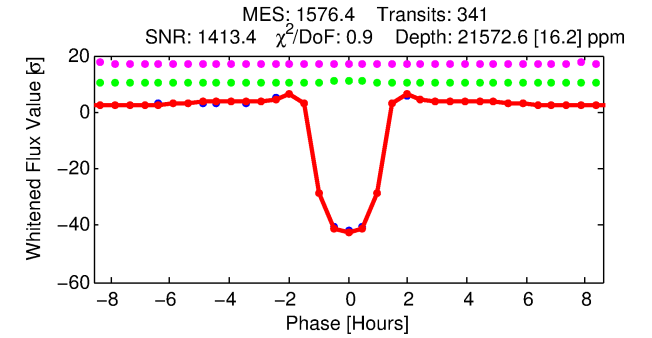
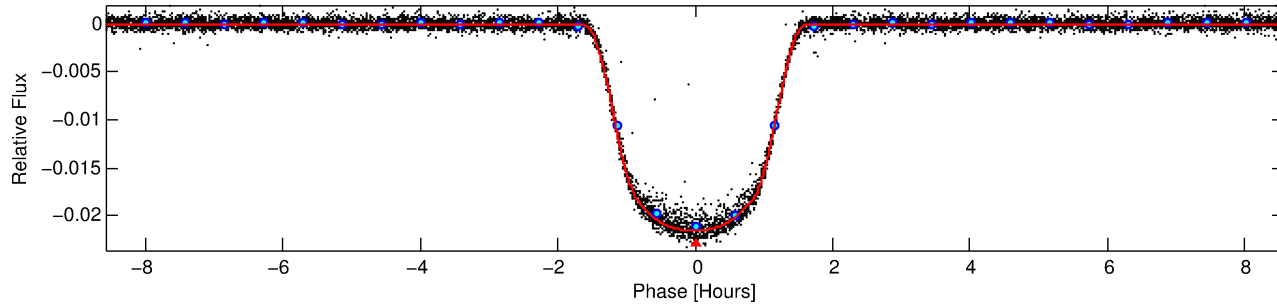
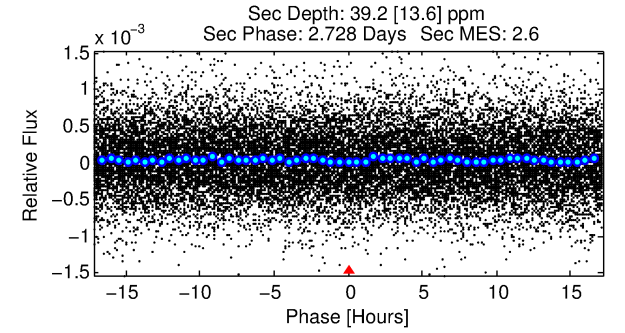
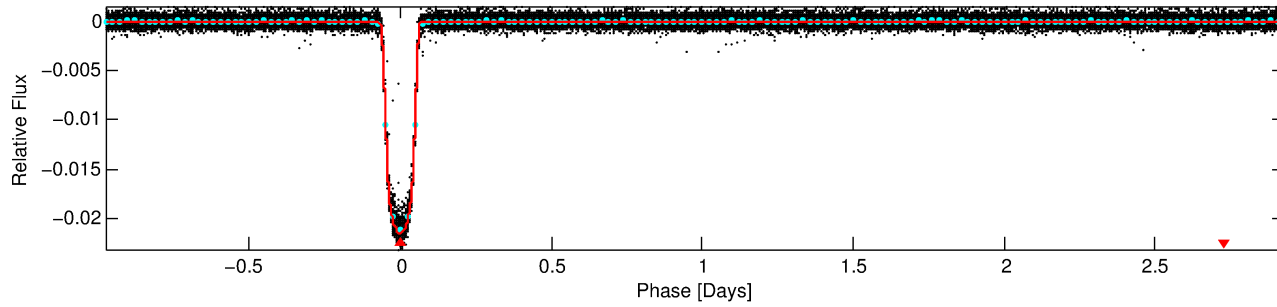
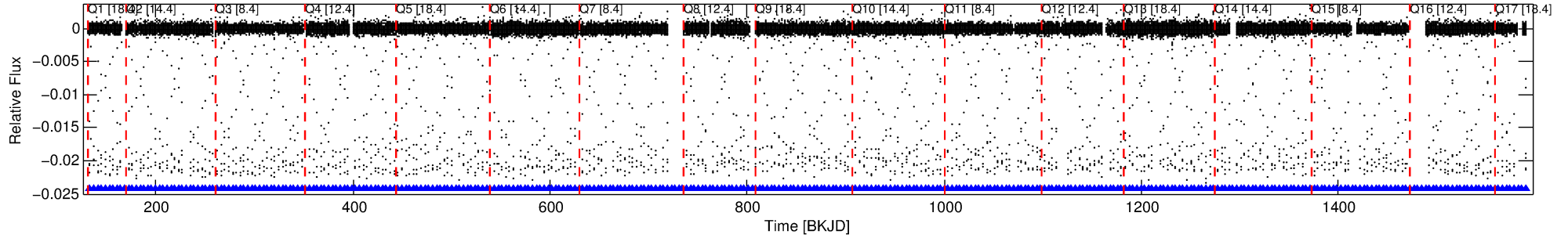
## Ephemeris Match Information For 009595827-01

No Significant Match Found

# DV One-Page Summary

KIC: 9595827 Candidate: 1 of 1 Period: 3.905 d  
KOI: K00217.01 Name: Kepler-71b Corr: 1.000

Kp: 15.13 R\*: 0.89 Rs Teff: 5543.0 K Logg: 4.54 Fe/H: 0.210



## DV Fit Results:

Period = 3.90508 [0.00000] d  
Epoch = 133.4150 [0.0000] BKJD  
Rp/R\* = 0.1327 [0.0003]  
a/R\* = 11.72 [0.11]  
b = 0.16 [0.06]  
Seff = 283.35 [35.80]  
Teq = 1046 [33] K  
Rp = 12.84 [0.85] Re  
a = 0.0485 [0.0029] AU  
Ag = 0.31 [0.11] [-6.30σ]  
Teffp = 1204 [108] K [1.40σ]

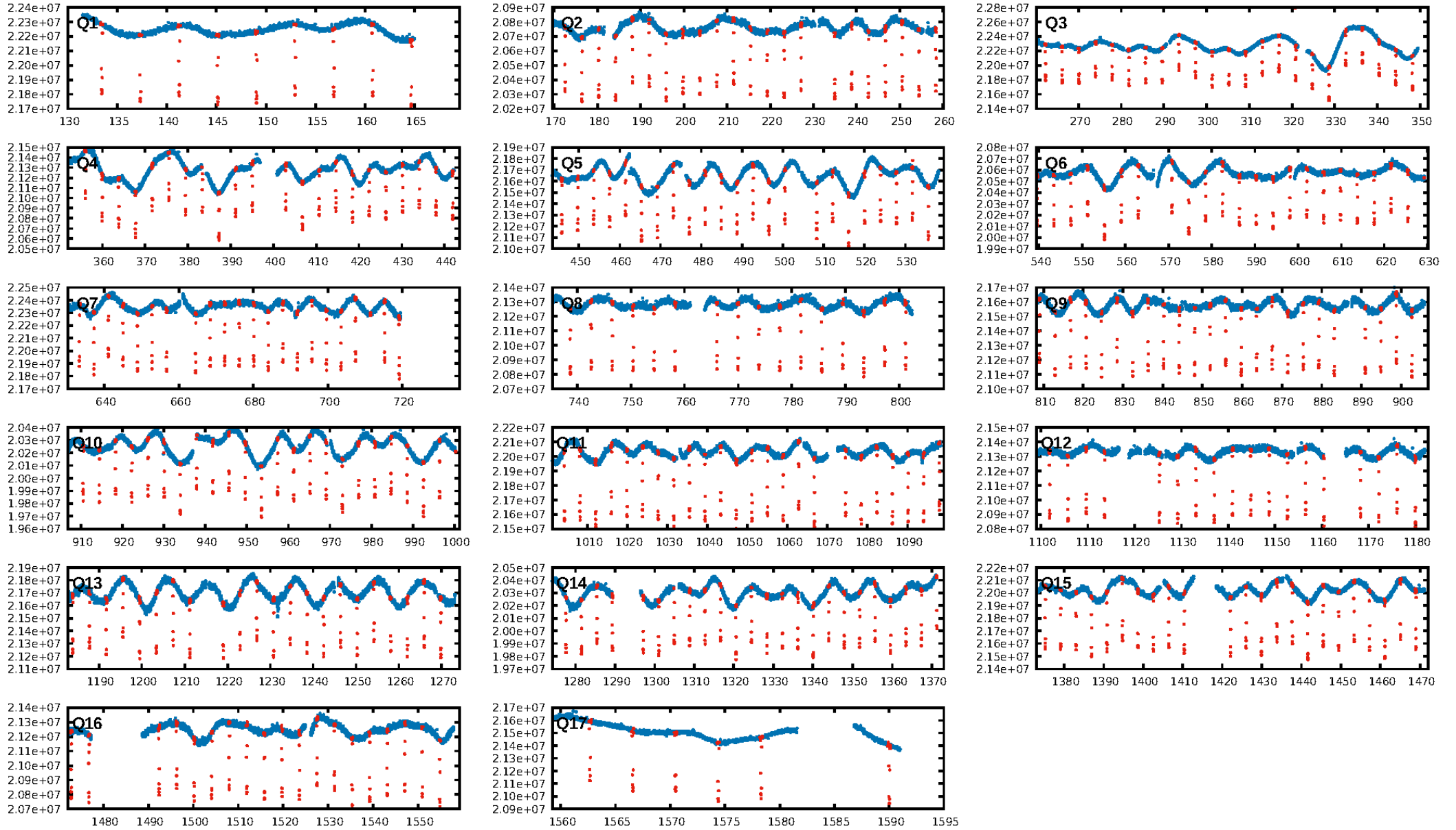
## DV Diagnostic Results:

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 [326/326]  
GhostDiagnostic-chr: 4.618  
Centroid-sig: 0.0%  
Centroid-so: 0.219 arcsec [29.45σ]  
OotOffset-rm: 0.023 arcsec [0.34σ]  
KicOffset-rm: 0.152 arcsec [2.22σ]  
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]

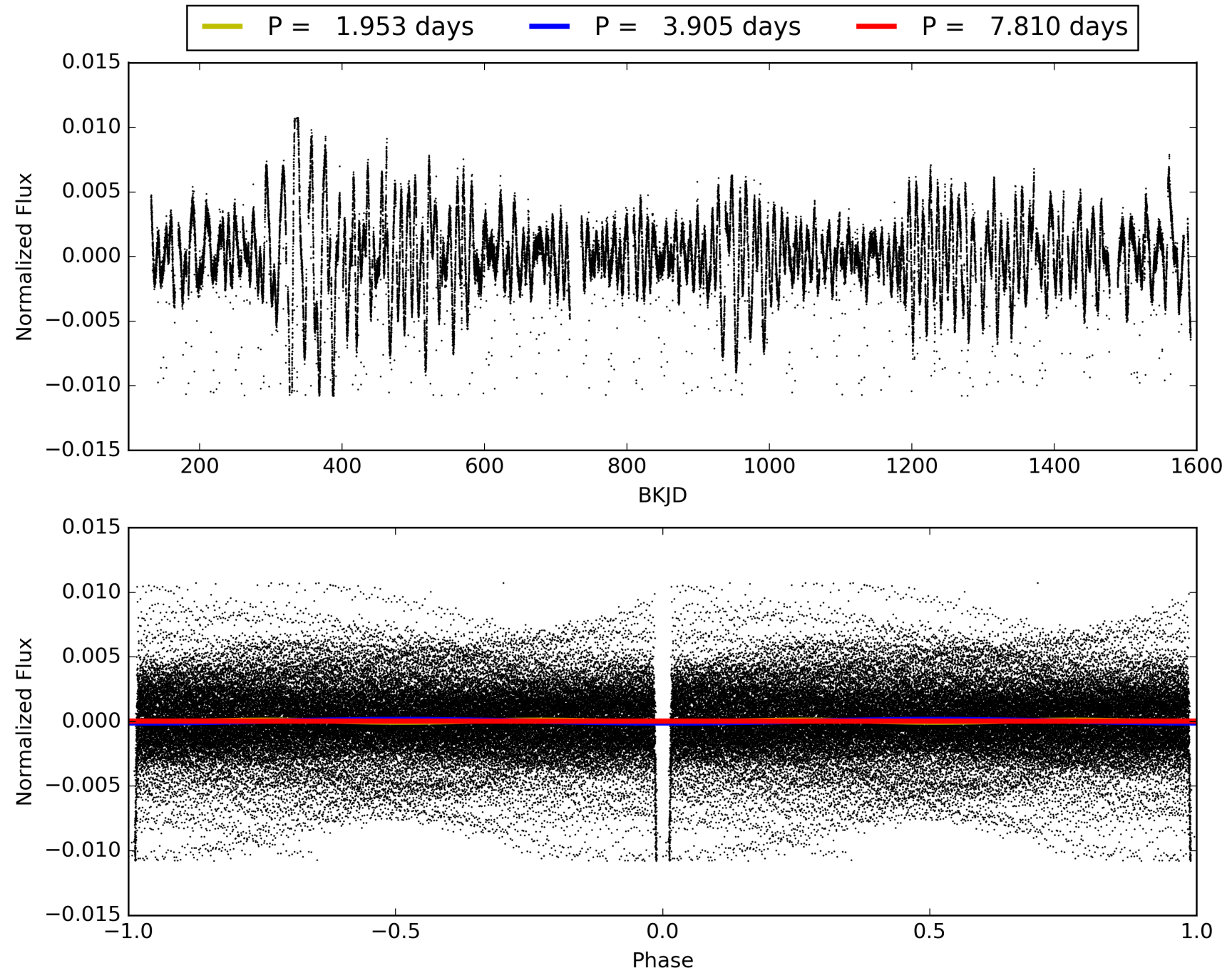
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:28:50 Z

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

# TCE 009595827-01, PDC Light Curves

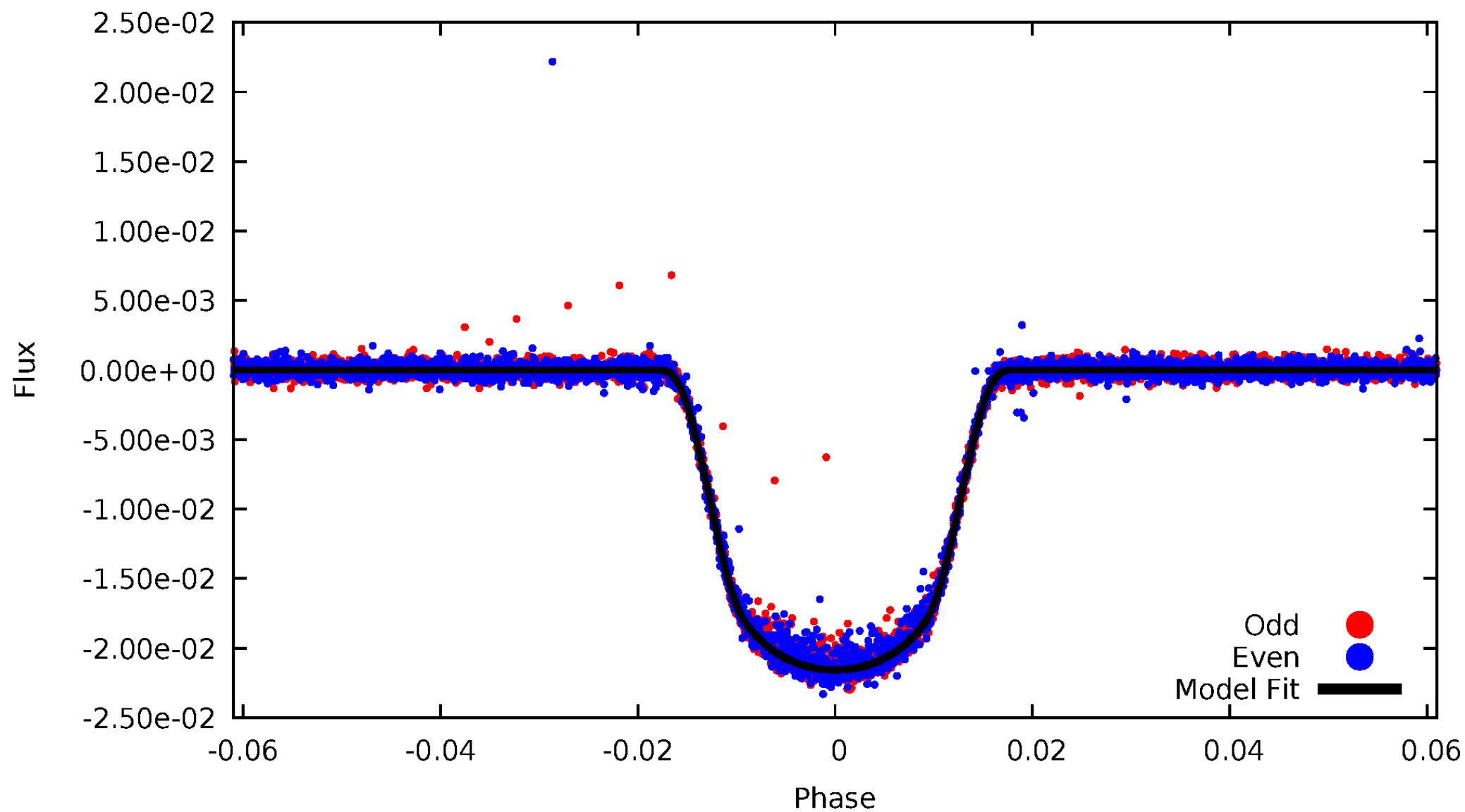


TCE 009595827-01



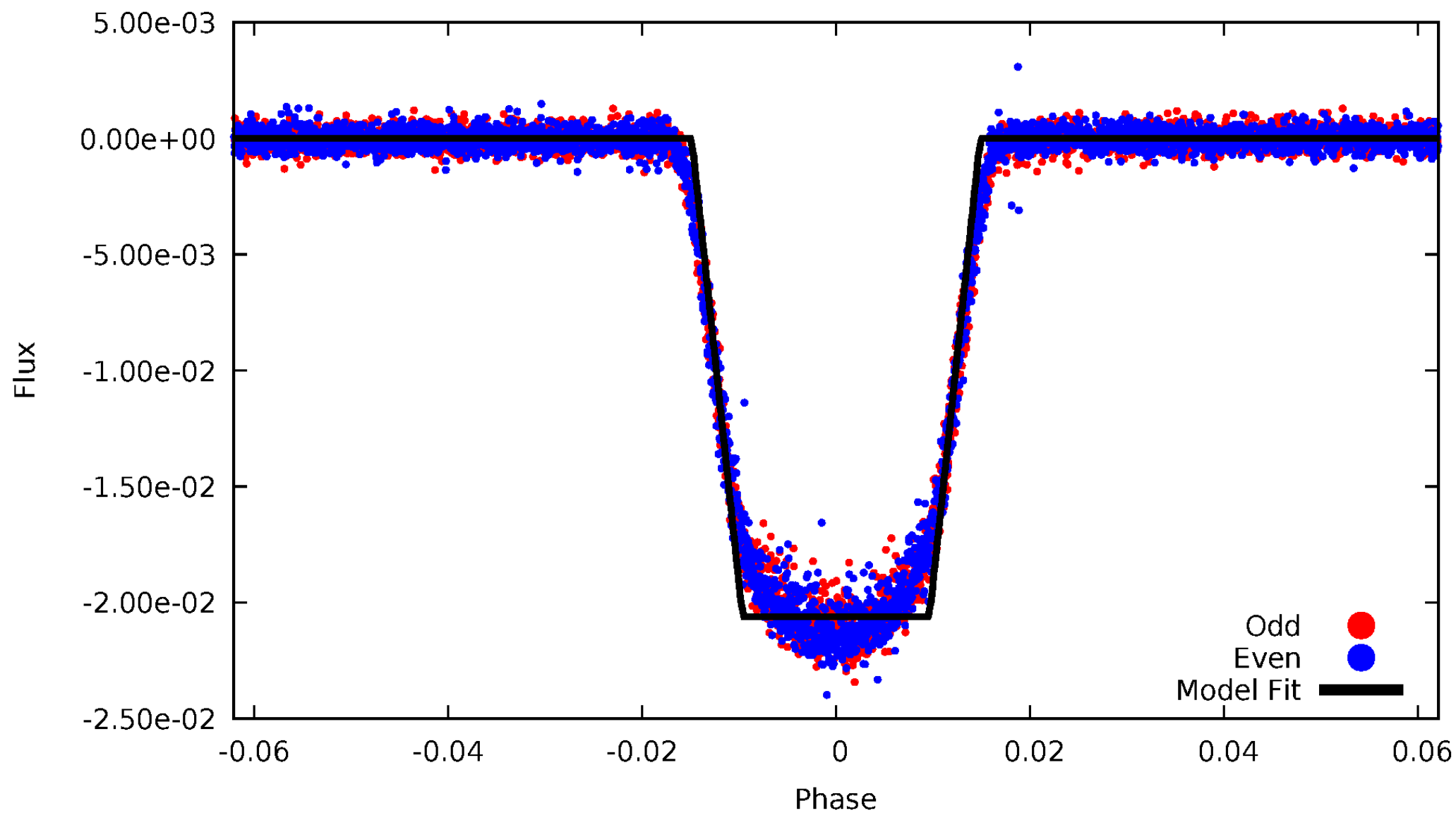
# DV Odd/Even

TCE 009595827-01



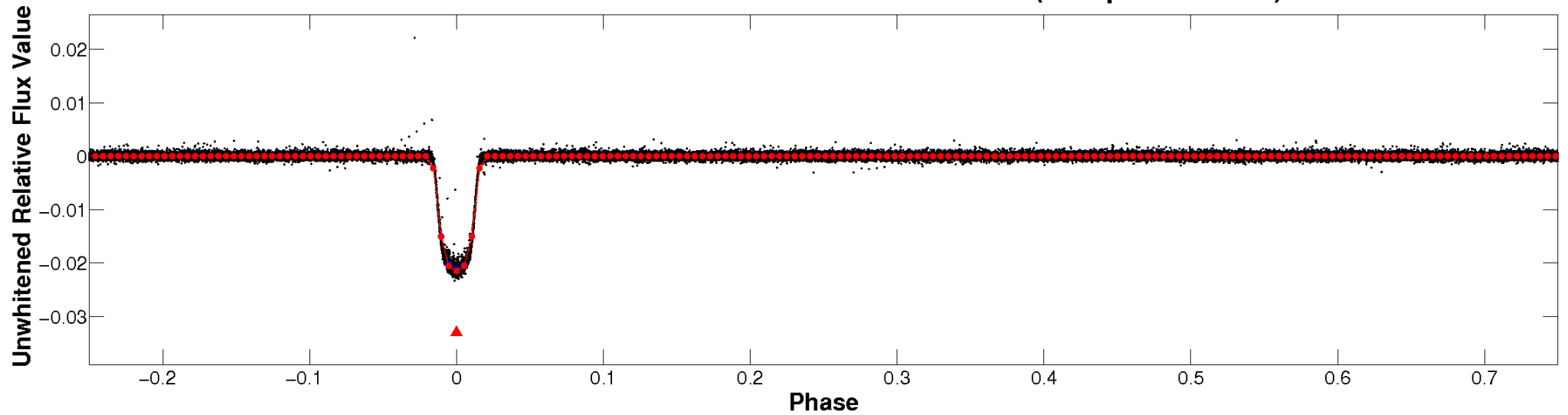
# ALT Odd/Even

TCE 009595827-01

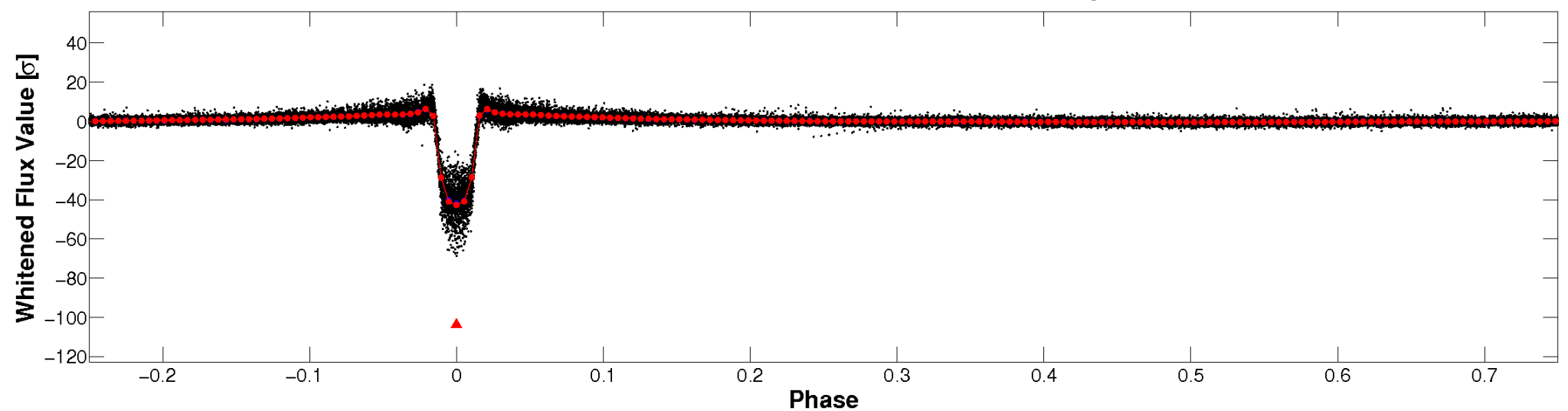


# Non-Whitened Vs. Whitened Light Curve

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

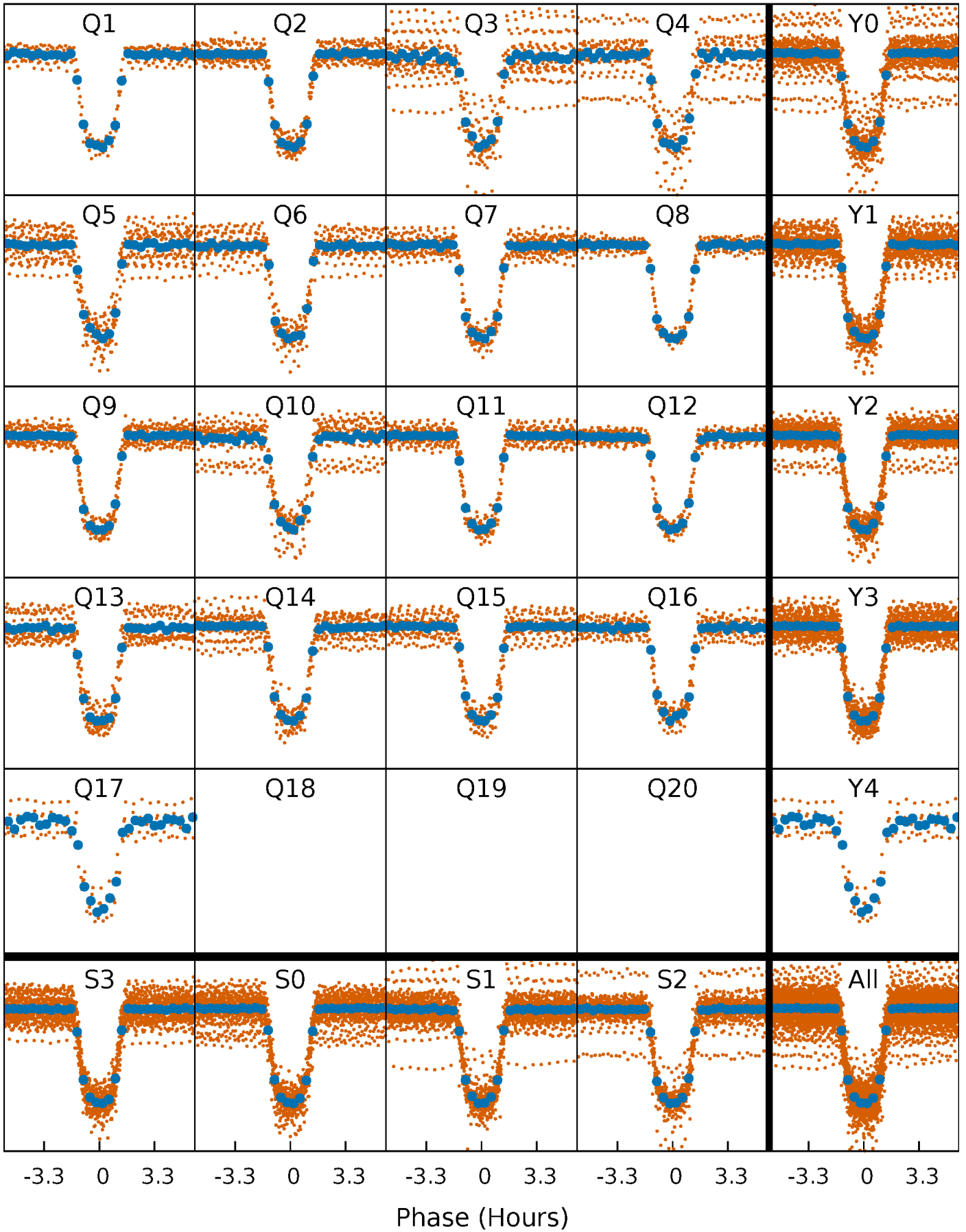


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

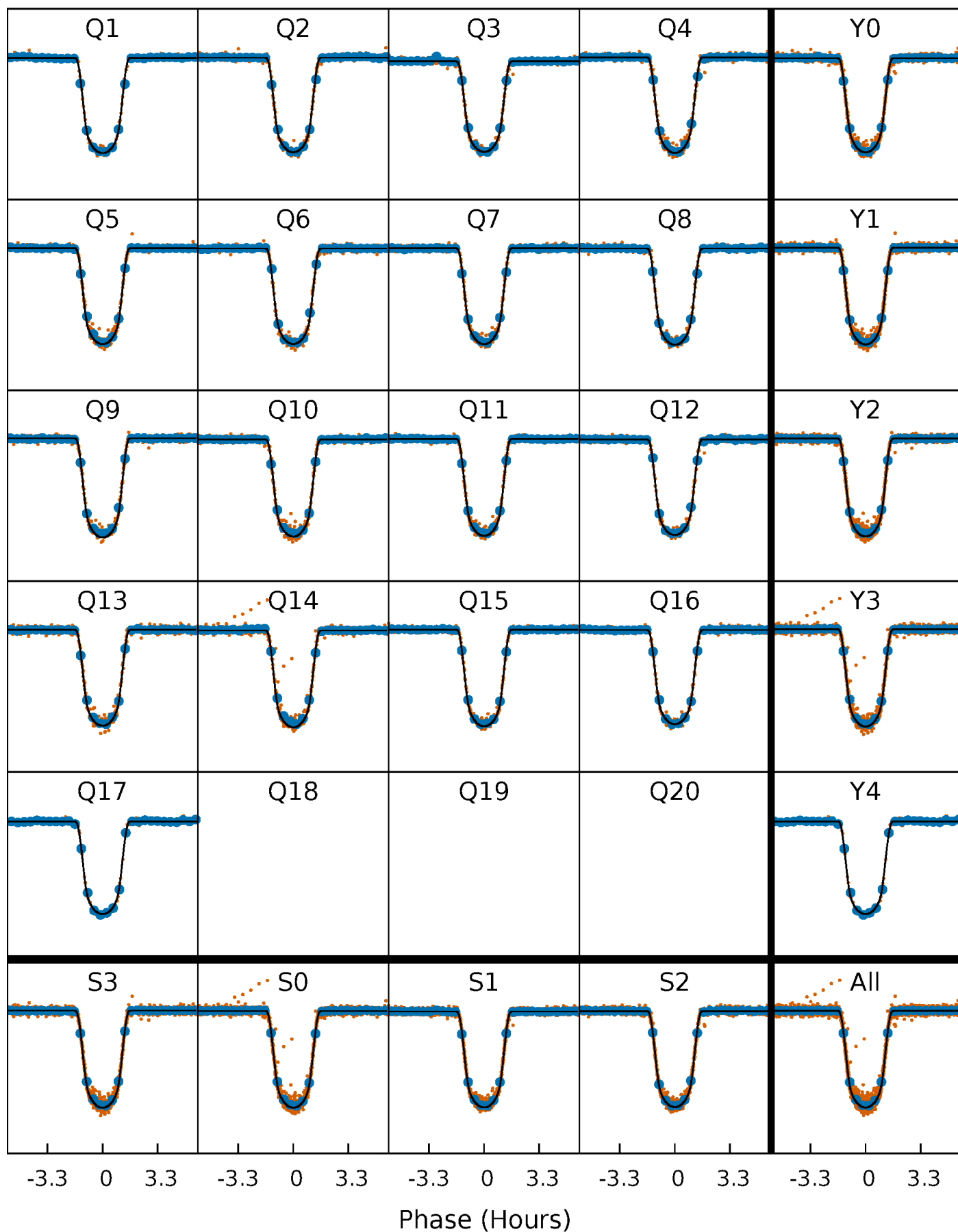
TCE 009595827-01 P= 3.905082 Days  $T_0=133.414955$  (BKJD)





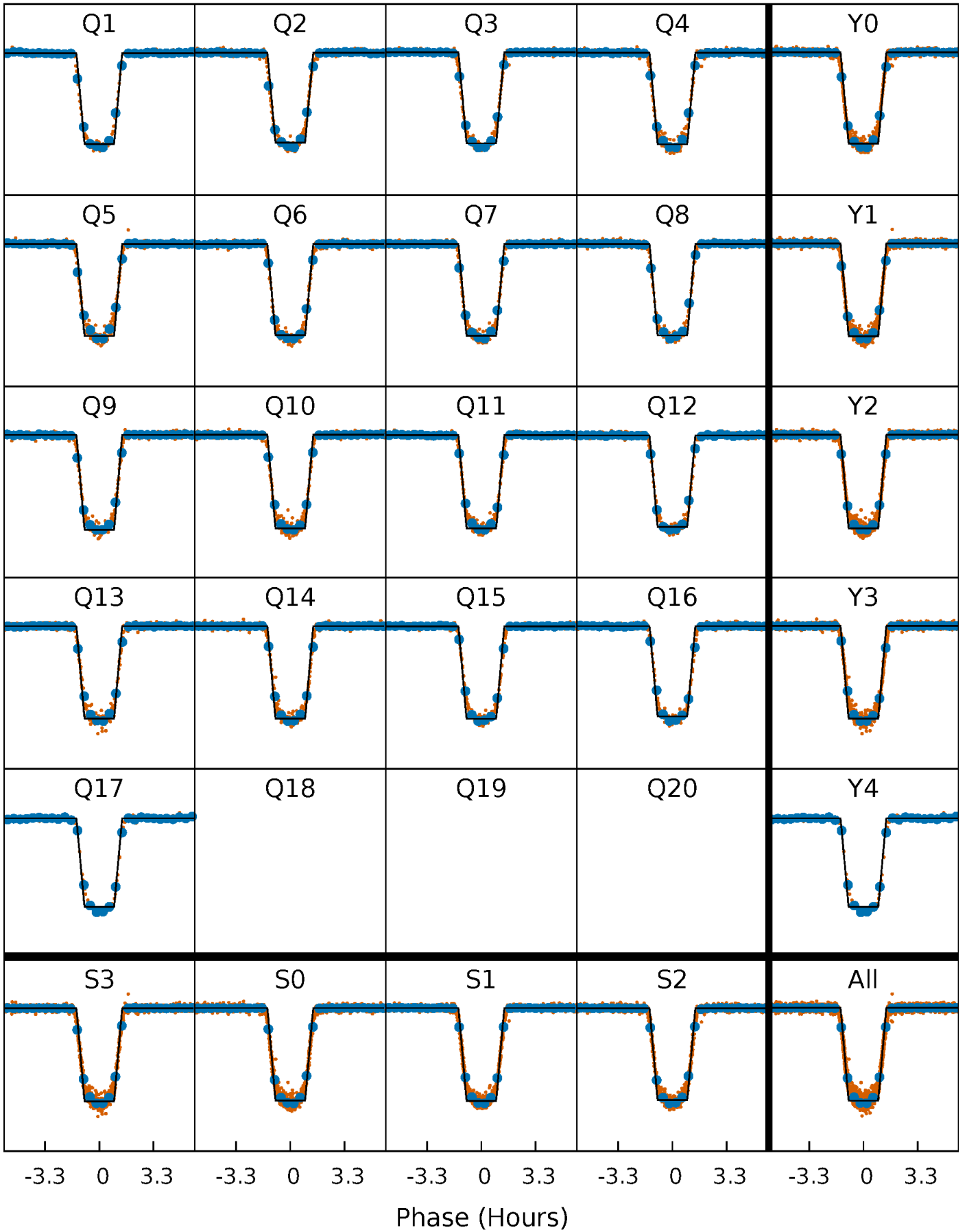
# DV Quarter-Phased Transit Curves

TCE 009595827-01   P= 3.905082 Days    $T_0=133.414955$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

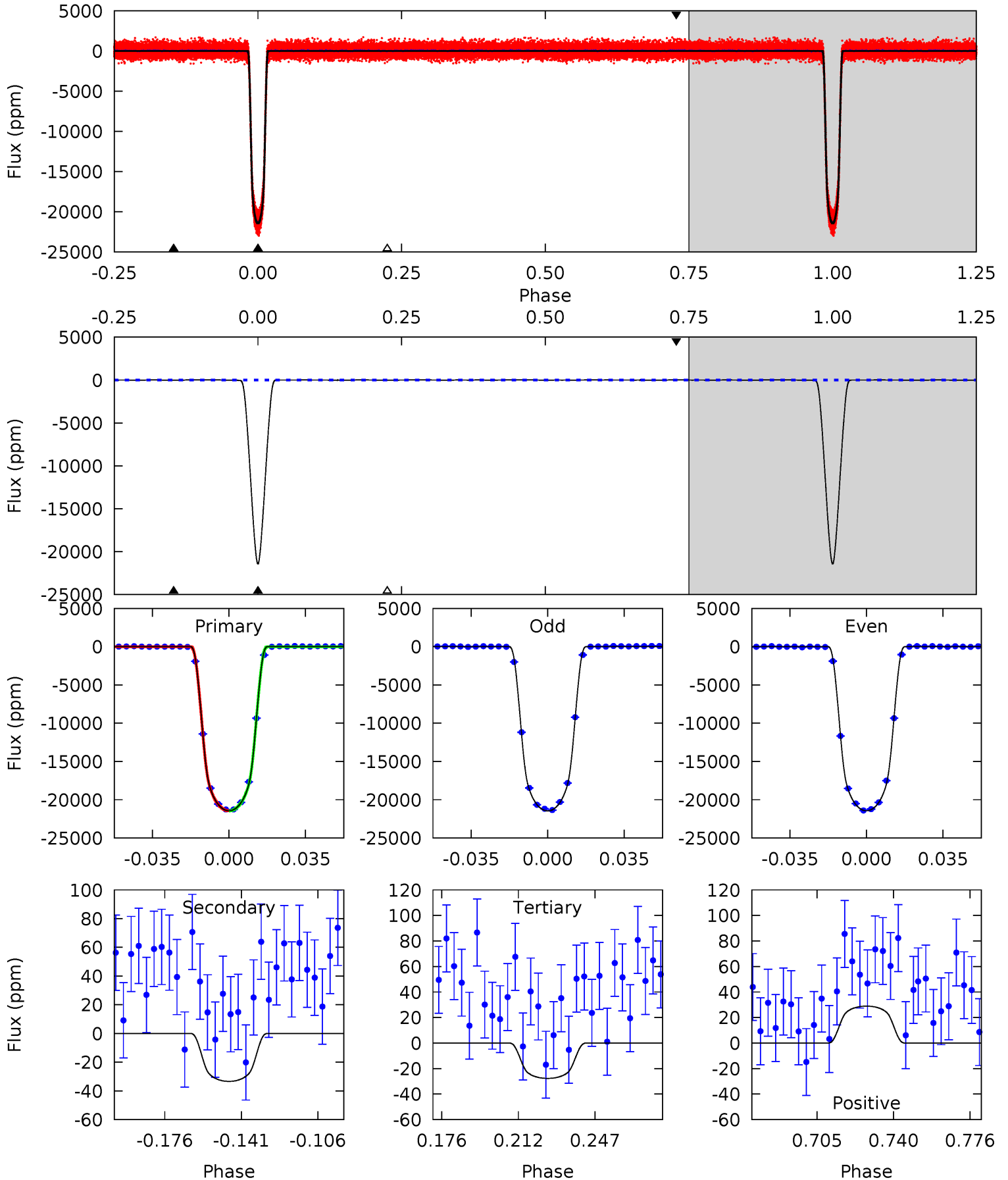
TCE 009595827-01   P= 3.905072 Days    $T_0=133.416676$  (BKJD)



# DV Model-Shift Uniqueness Test

009595827-01, P = 3.905082 Days, E = 129.509873 Days

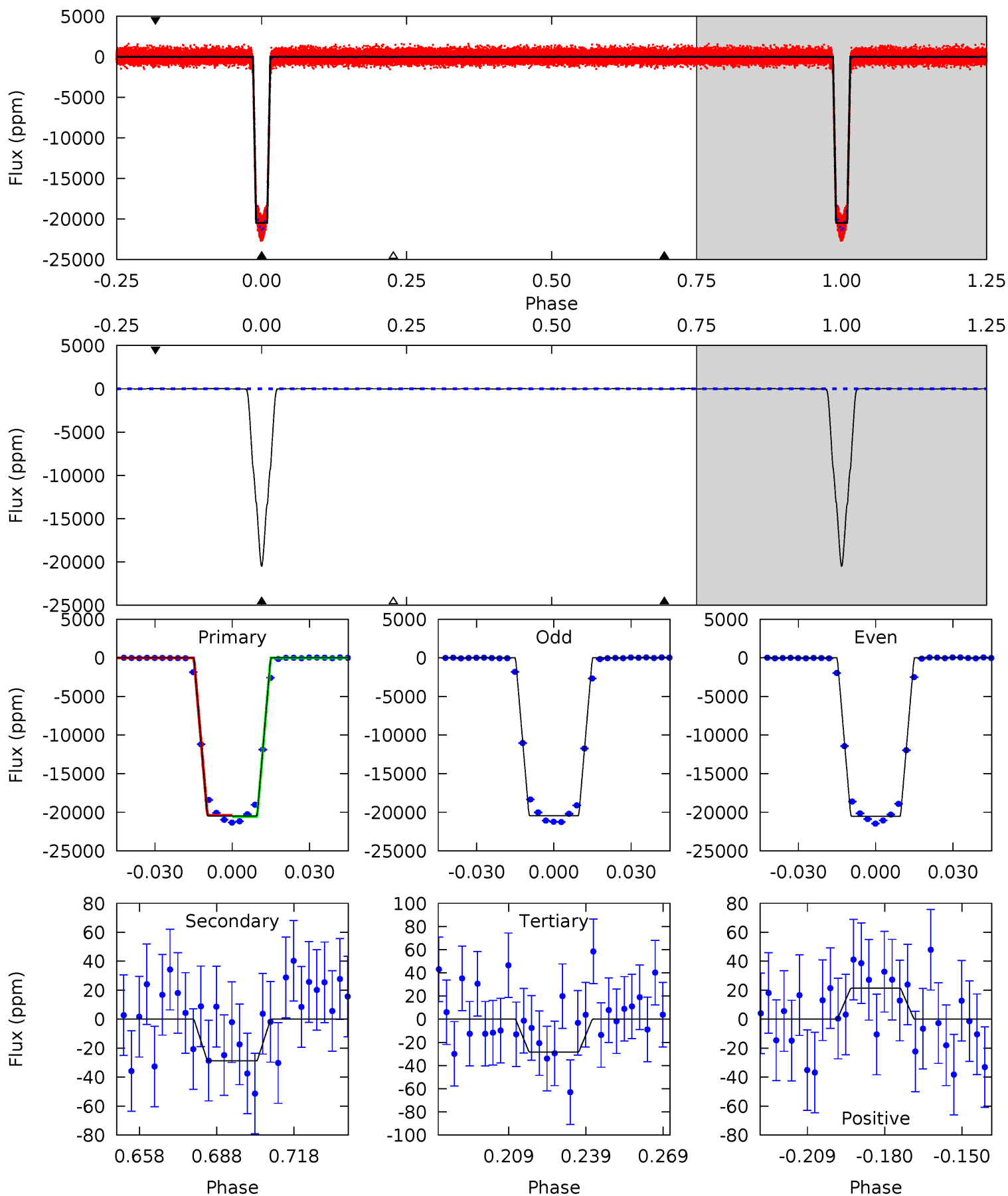
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2469	3.85	3.19	3.34	4.78	2.11	1.45	2466	2466	0.65	0.51	0.87	1.00	0.00	0.93



# Alt Model-Shift Uniqueness Test

009595827-01, P = 3.905072 Days, E = 129.511604 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
2097	2.95	2.90	2.19	4.81	2.17	1.00	2094	2095	0.05	0.76	3.26	1.00	0.00	9.03



### Stellar Parameters For KIC 009595827

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5543^{+88}_{-121}$	$4.540^{+0.017}_{-0.052}$	$0.210^{+0.150}_{-0.150}$	$0.887^{+0.059}_{-0.036}$	$0.997^{+0.030}_{-0.072}$	$2.008^{+0.158}_{-0.325}$
	+2%/-2%	+0%/-1%	+71%/-71%	+7%/-4%	+3%/-7%	+8%/-16%
Source	SPE50	TRA50	SPE50	DSEP		

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

### Secondary Eclipse Parameters for KIC 009595827-01 / KOI 0217.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-33 \pm 9$	$12.92^{+0.47}_{-0.36}$	$1470^{+32}_{-37}$	$-1788^{+3498}_{-170}$	$0.253^{+0.075}_{-0.066}$
Alt.	$-29 \pm 10$	$13.98^{+0.51}_{-0.36}$	$1470^{+31}_{-35}$	$-1942^{+147}_{-103}$	$0.192^{+0.058}_{-0.066}$

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

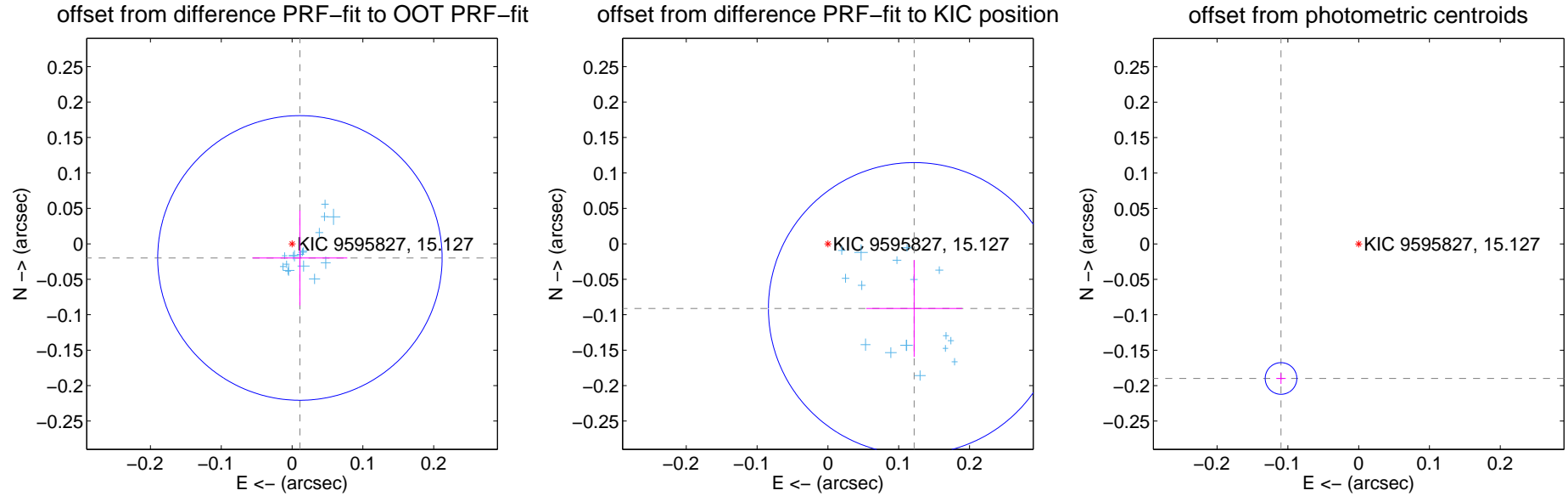
## DV Centroid Data

Supplemental centroid analysis for 009595827-01. Kepler magnitude: 15.13. Transit SNR 1413.35

There are 17 quarters with good PRF difference image offsets

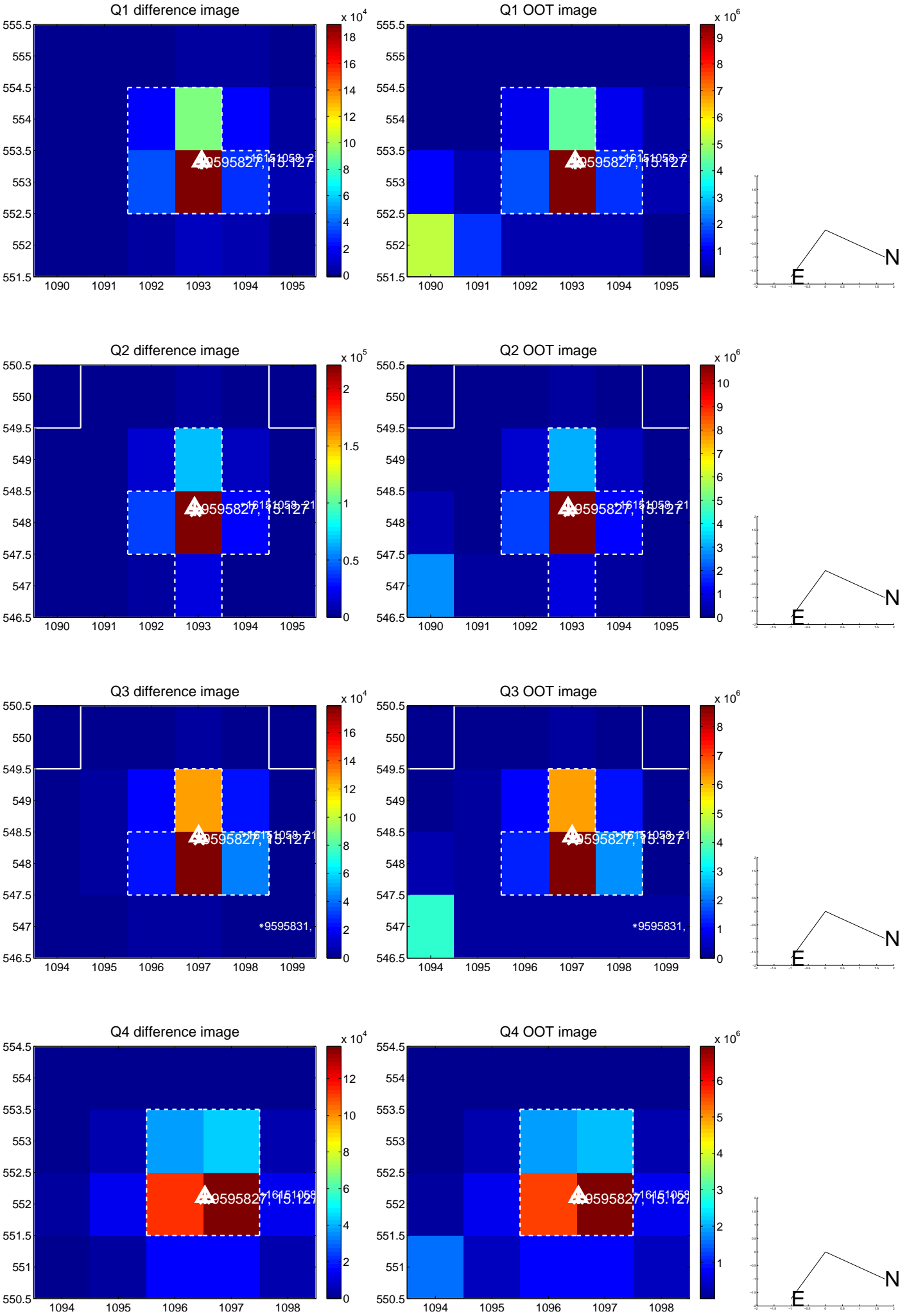
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.023 \pm 0.067$	0.34	$-0.011 \pm 0.067$	$-0.020 \pm 0.067$
PRF-fit source offset from KIC position	$0.152 \pm 0.069$	2.22	$-0.122 \pm 0.068$	$-0.091 \pm 0.068$
photometric centroid source offset	$0.22 \pm 0.01$	29.45	$0.11 \pm 0.01$	$-0.19 \pm 0.01$

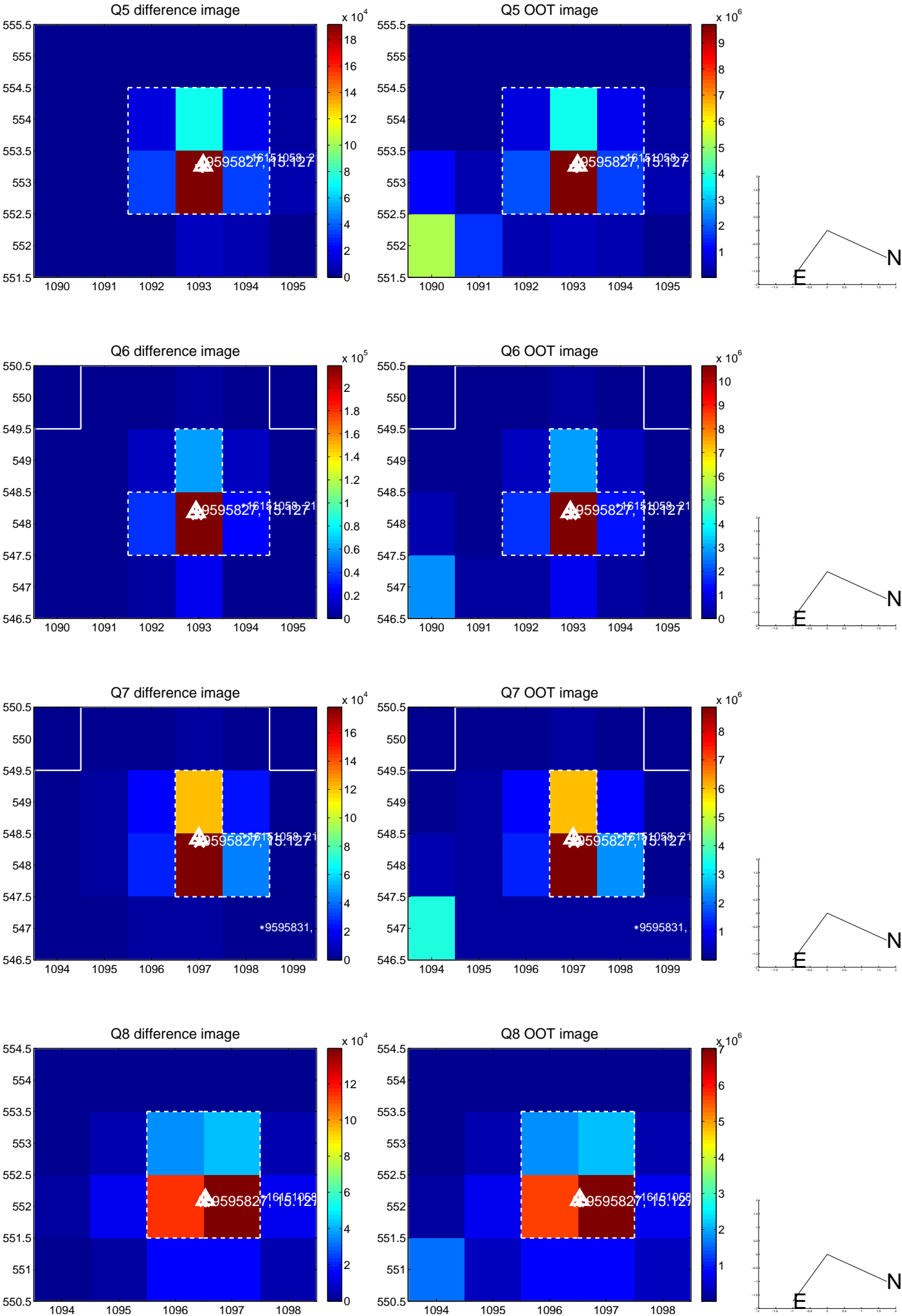


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

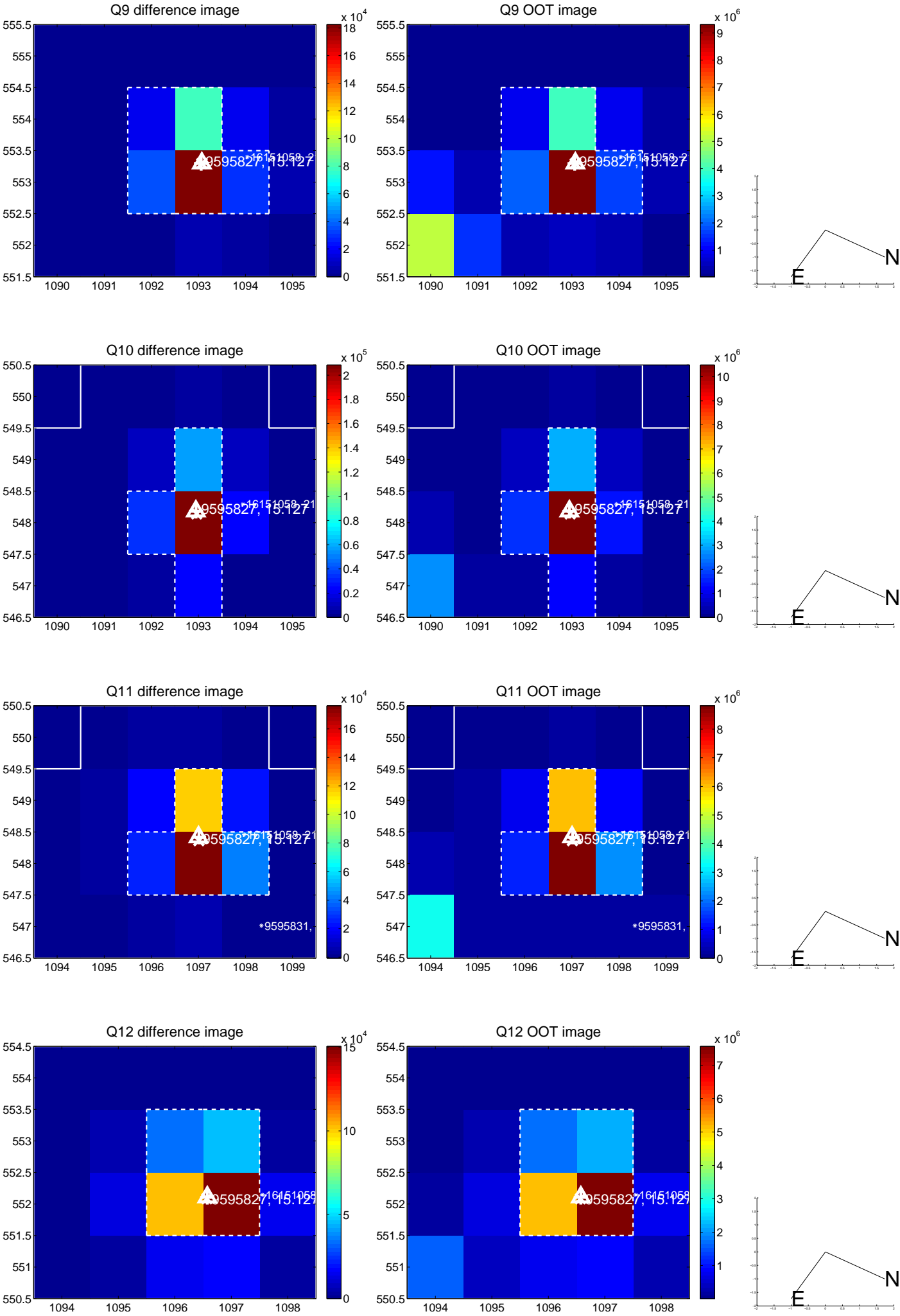


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

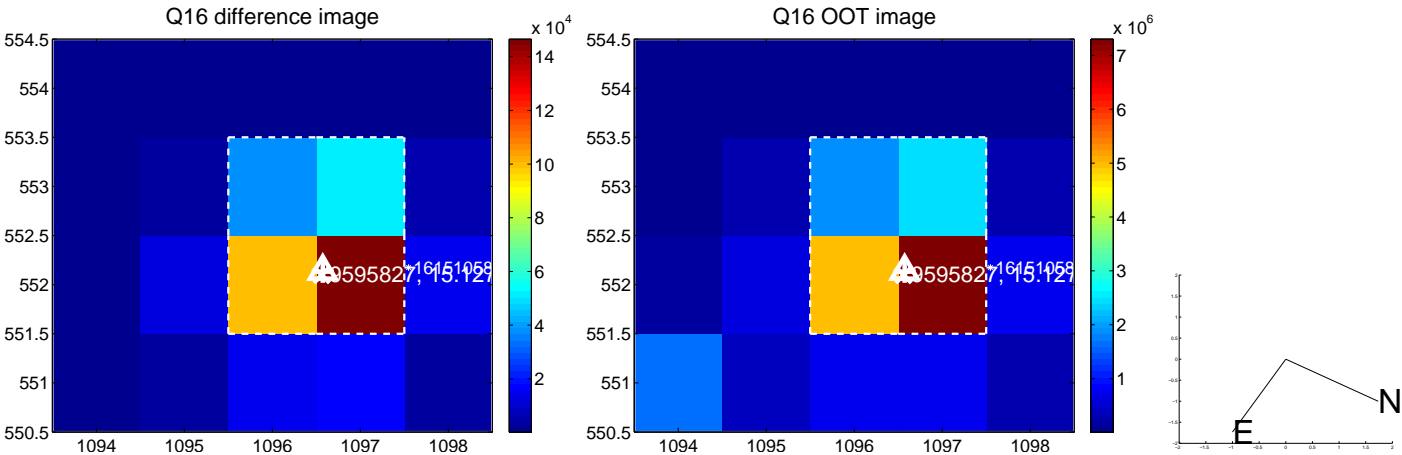
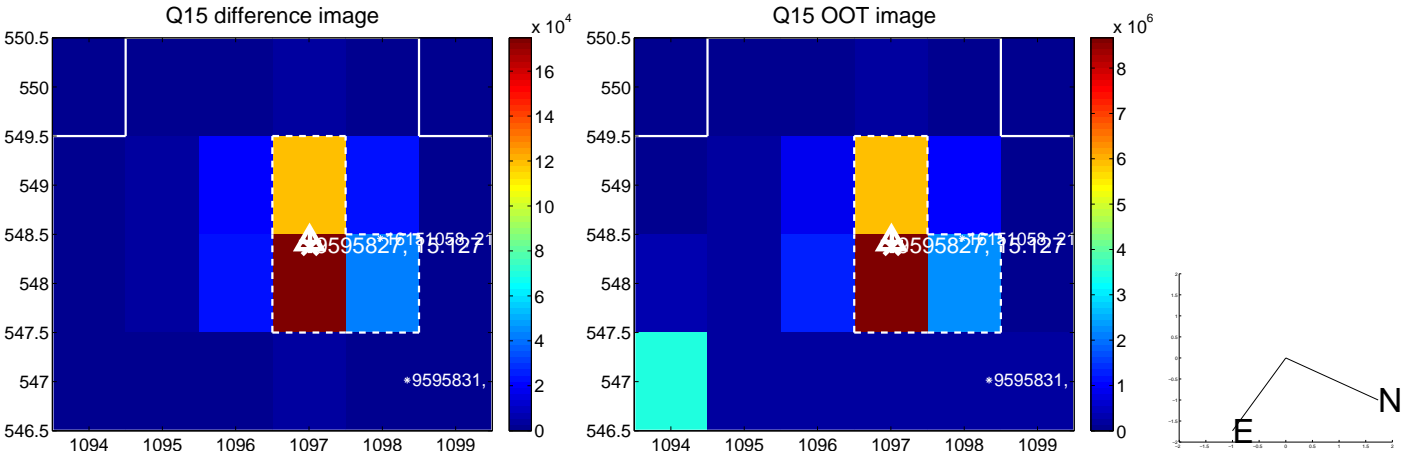
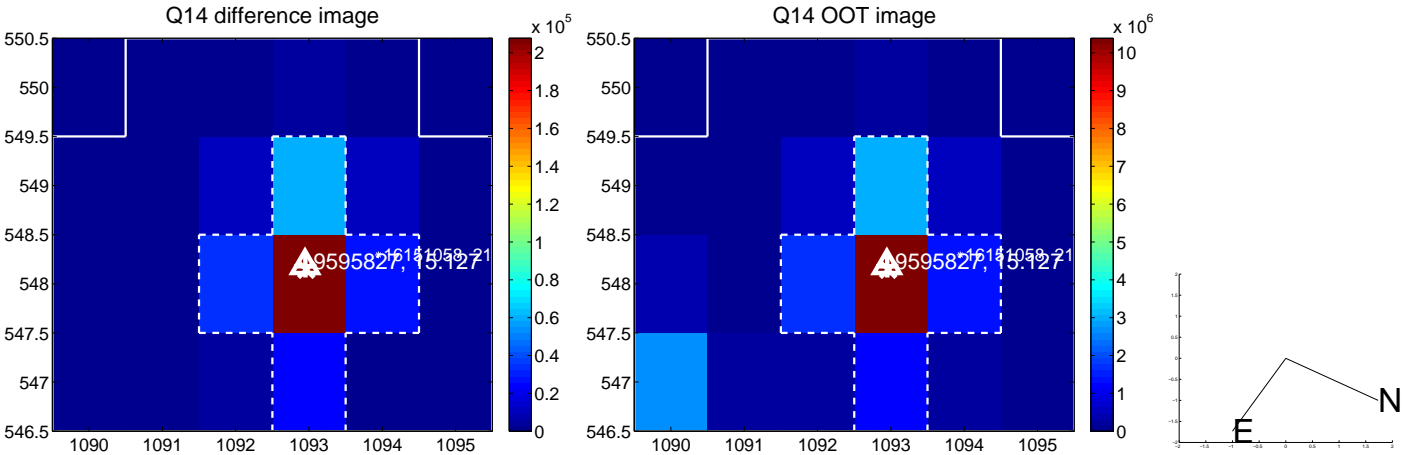
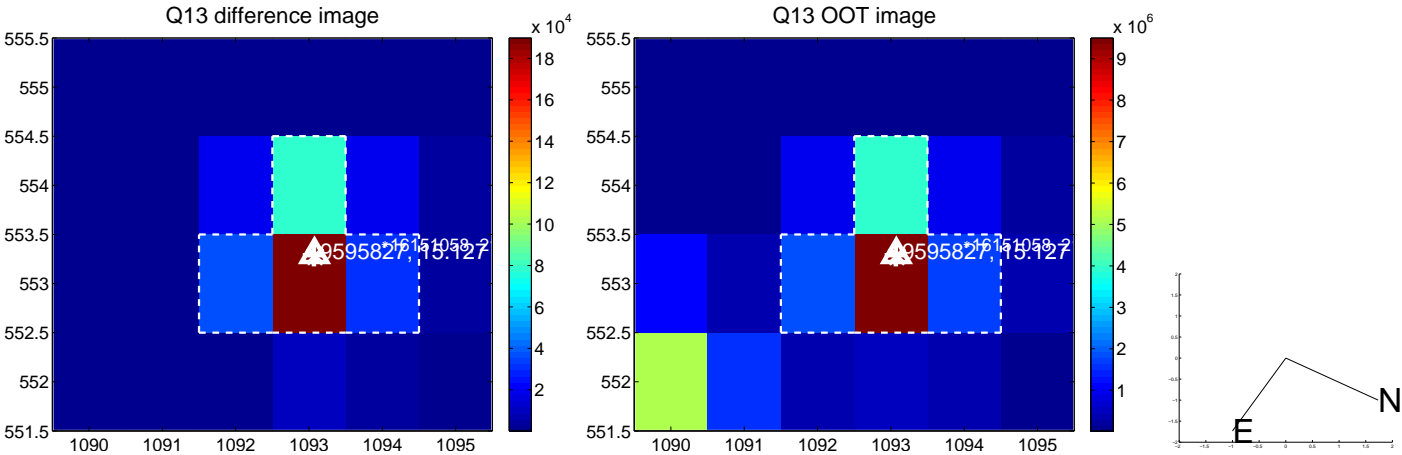




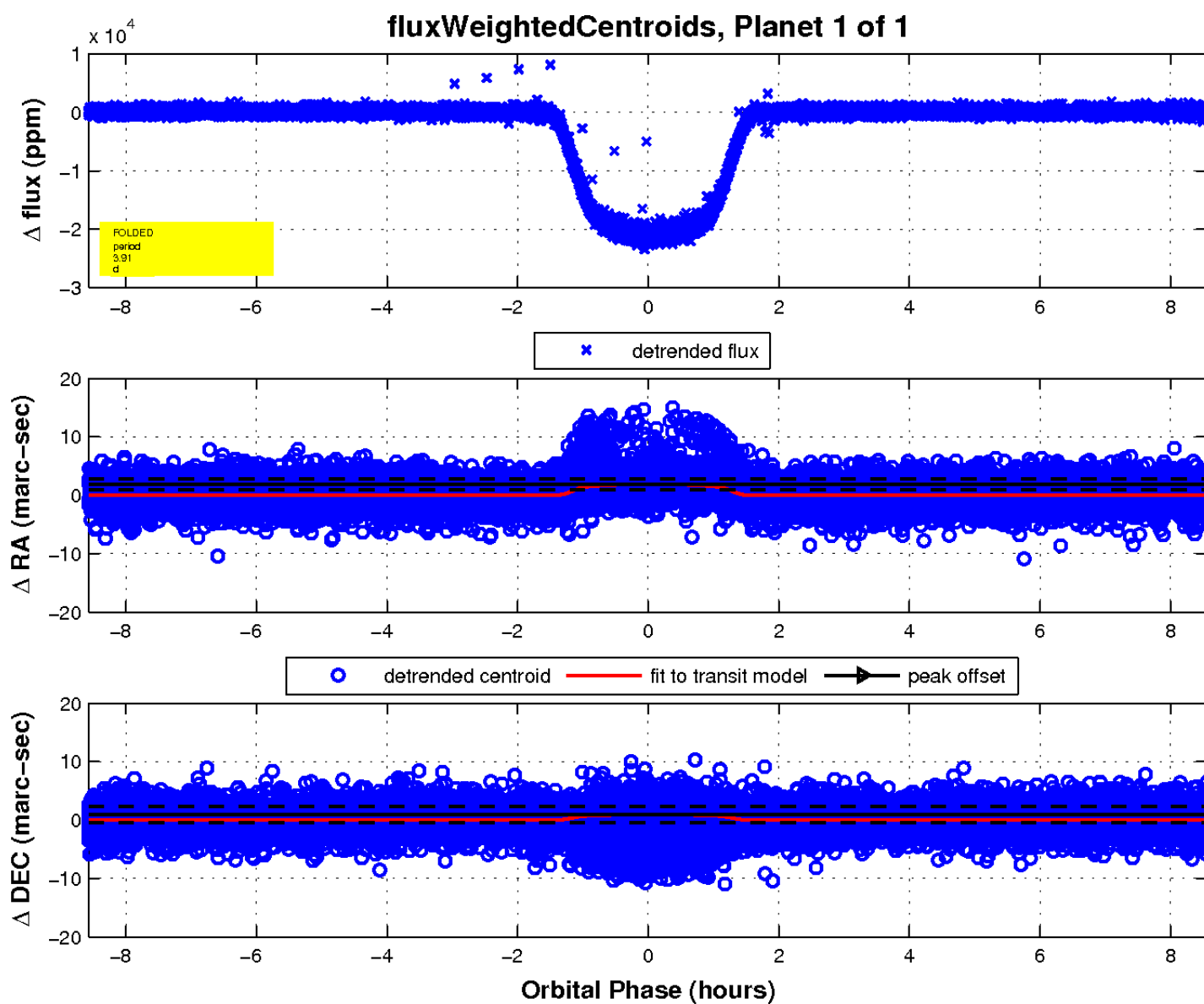
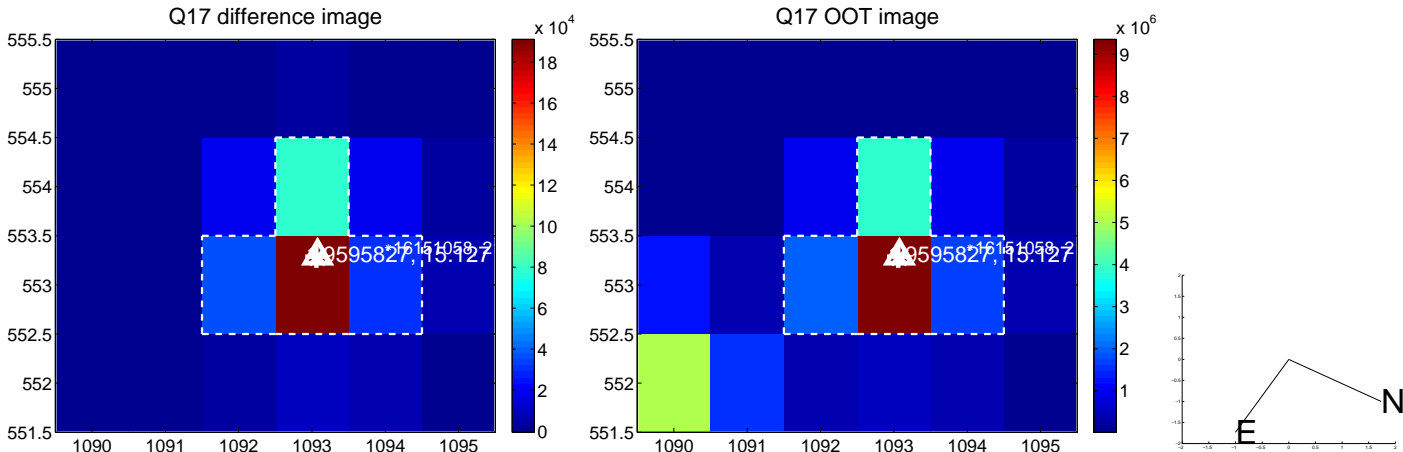
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

