

# KIC 010004519

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010004519-01	OBS	1572.01	9.803216	138.512883	791.1	4.542	46.1	51.2	0.99	6170	3.05	152.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010004519-01	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.

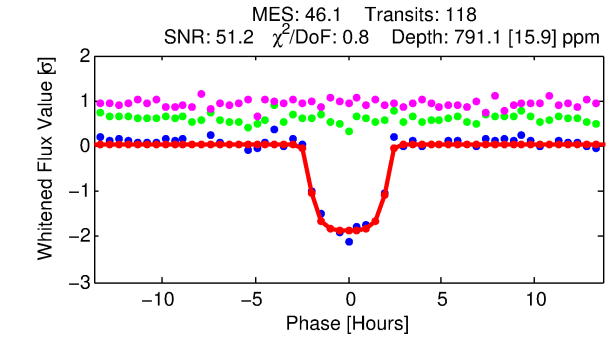
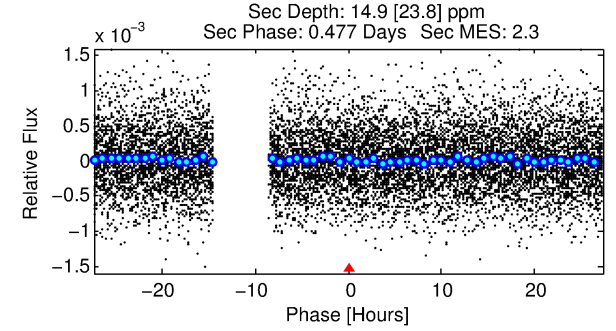
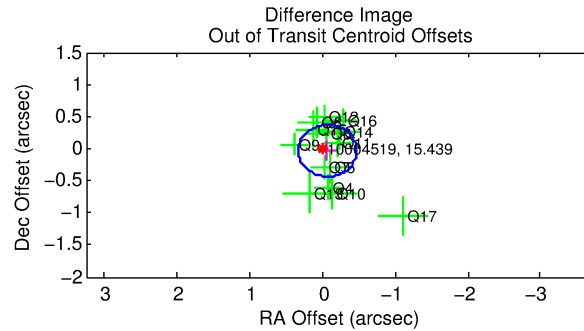
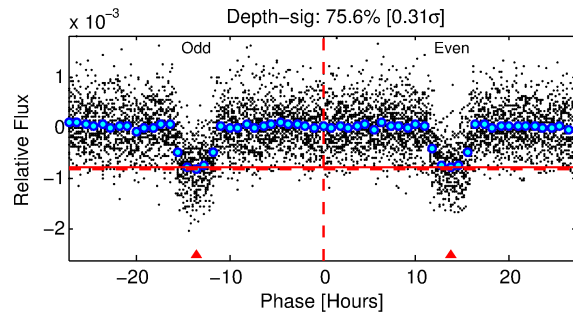
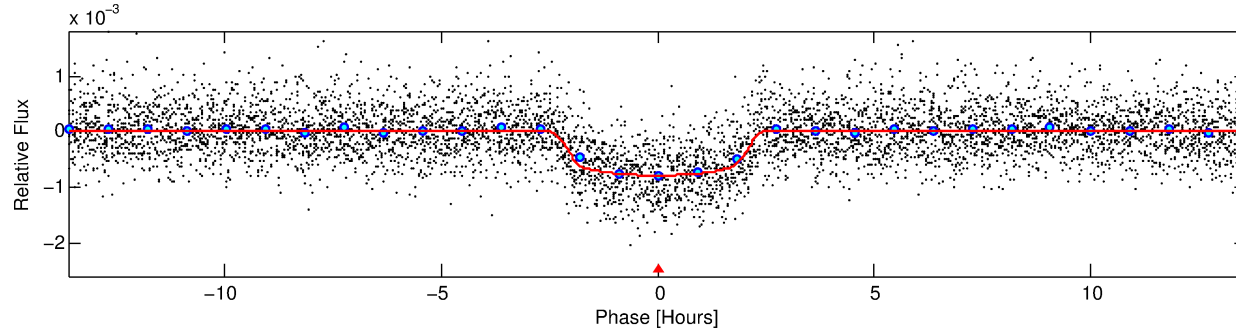
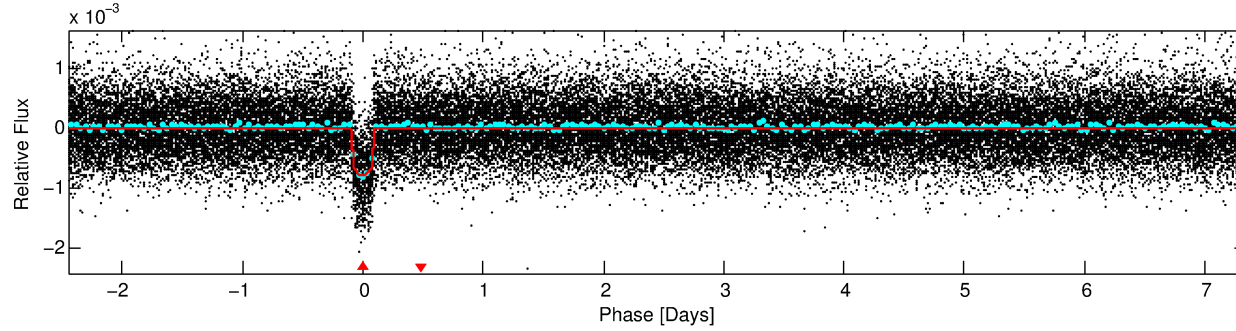
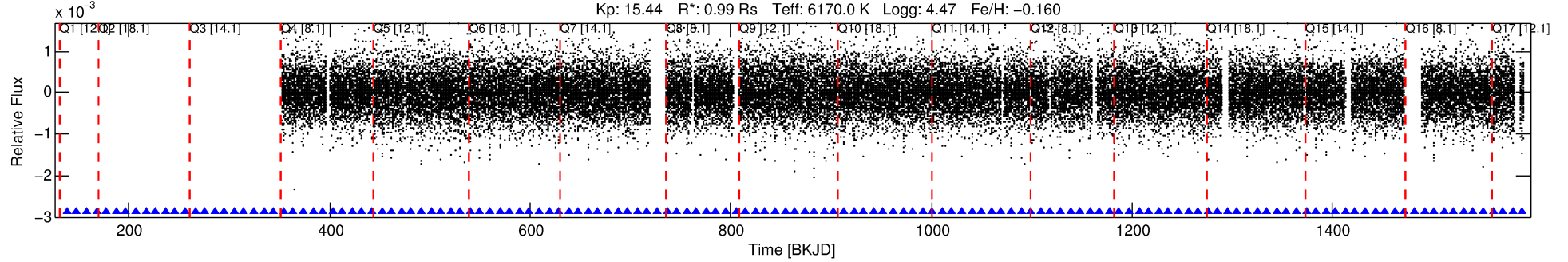
## Ephemeris Match Information For 010004519-01

No Significant Match Found

# DV One-Page Summary

KIC: 10004519 Candidate: 1 of 1 Period: 9.803 d  
KOI: K01572.01 Corr: 0.995

Kp: 15.44 R\*: 0.99 Rs Teff: 6170.0 K Logg: 4.47 Fe/H: -0.160



## DV Fit Results:

Period = 9.80322 [0.00003] d  
Epoch = 138.5129 [0.0022] BKJD  
Rp/R\* = 0.0282 [0.0030]  
a/R\* = 11.26 [5.91]  
b = 0.77 [0.28]  
Seff = 152.48 [65.13]  
Teq = 896 [96] K  
Rp = 3.05 [1.06] Re  
a = 0.0915 [0.0252] AU  
Ag = 7.38 [12.24] [0.52σ]  
Teffp = 2283 [924] K [1.49σ]

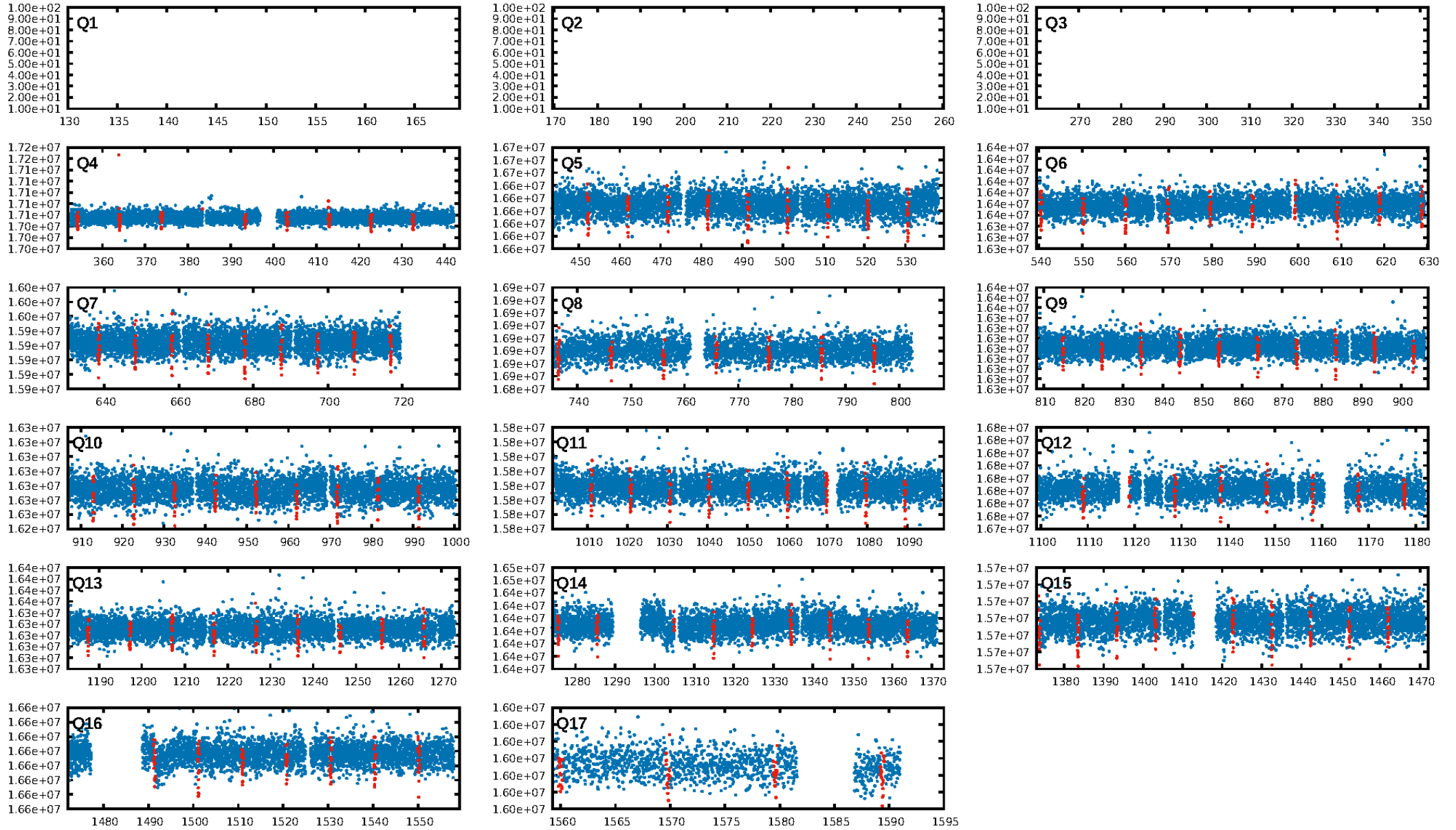
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [114/114]  
GhostDiagnostic-chr: 4.808  
Centroid-sig: 1.2%  
Centroid-so: 0.614 arcsec [2.11σ]  
OotOffset-rm: 0.075 arcsec [0.56σ]  
KicOffset-rm: 0.115 arcsec [0.94σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

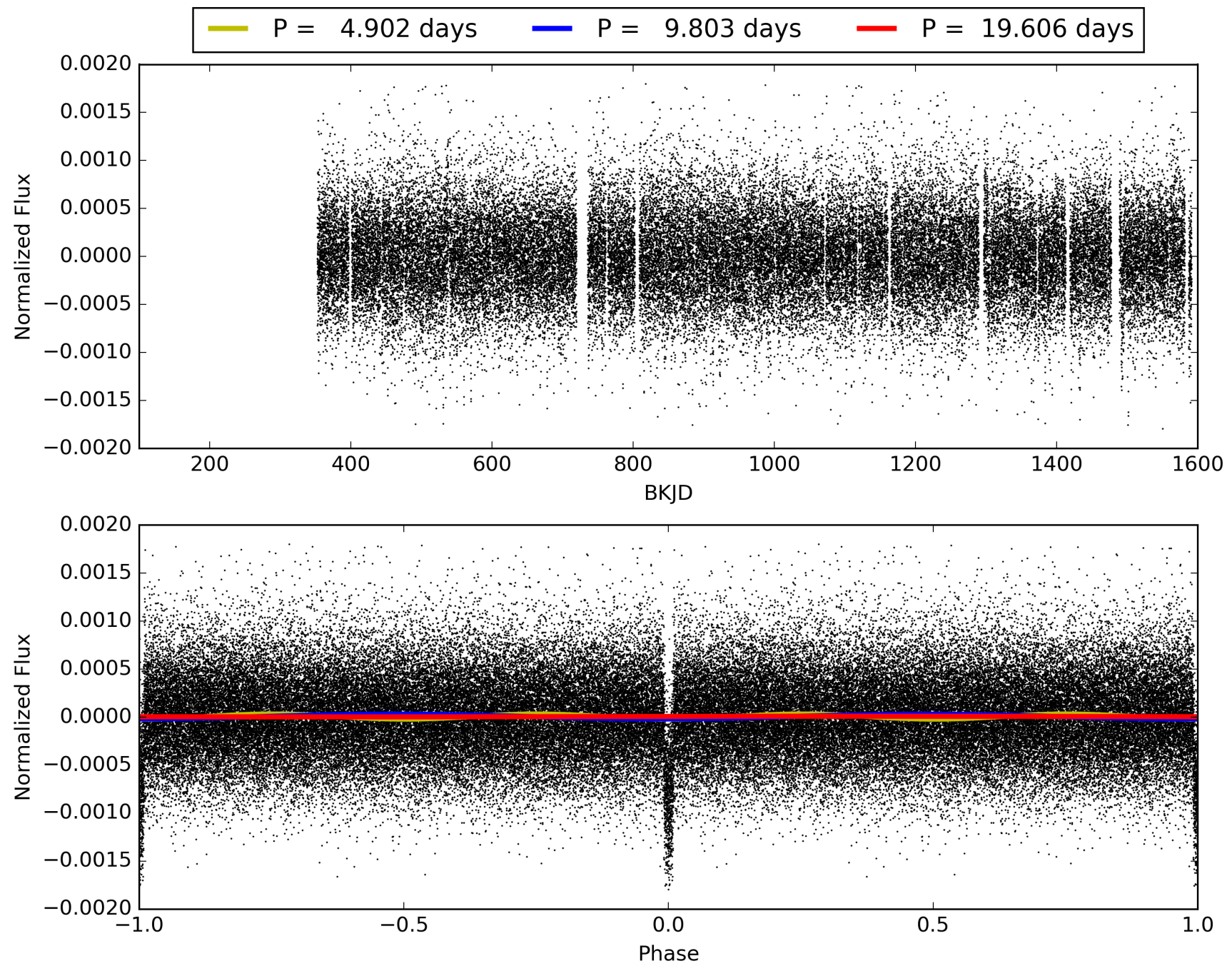
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:25:04 Z

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

# TCE 010004519-01, PDC Light Curves

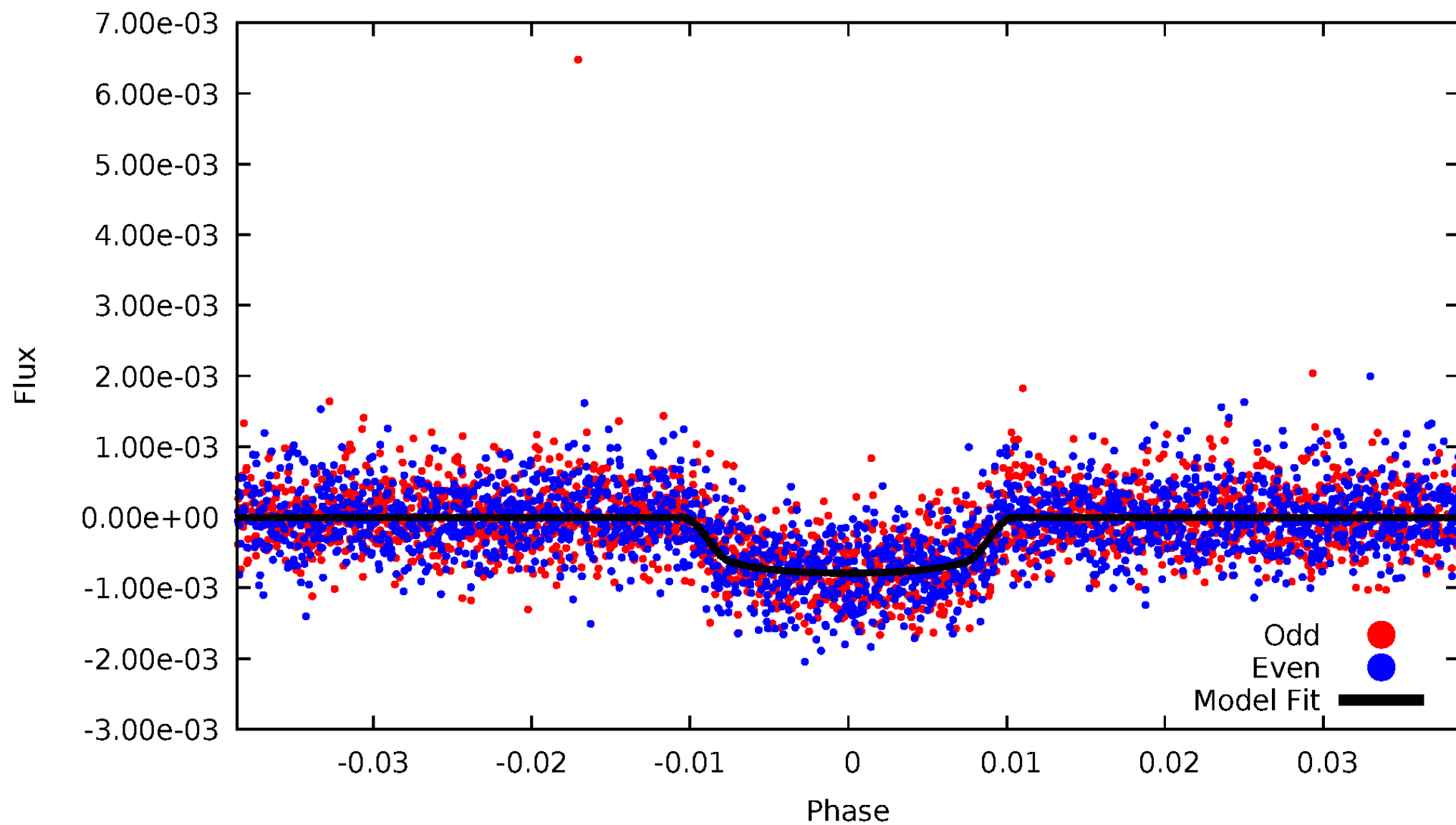


TCE 010004519-01



# DV Odd/Even

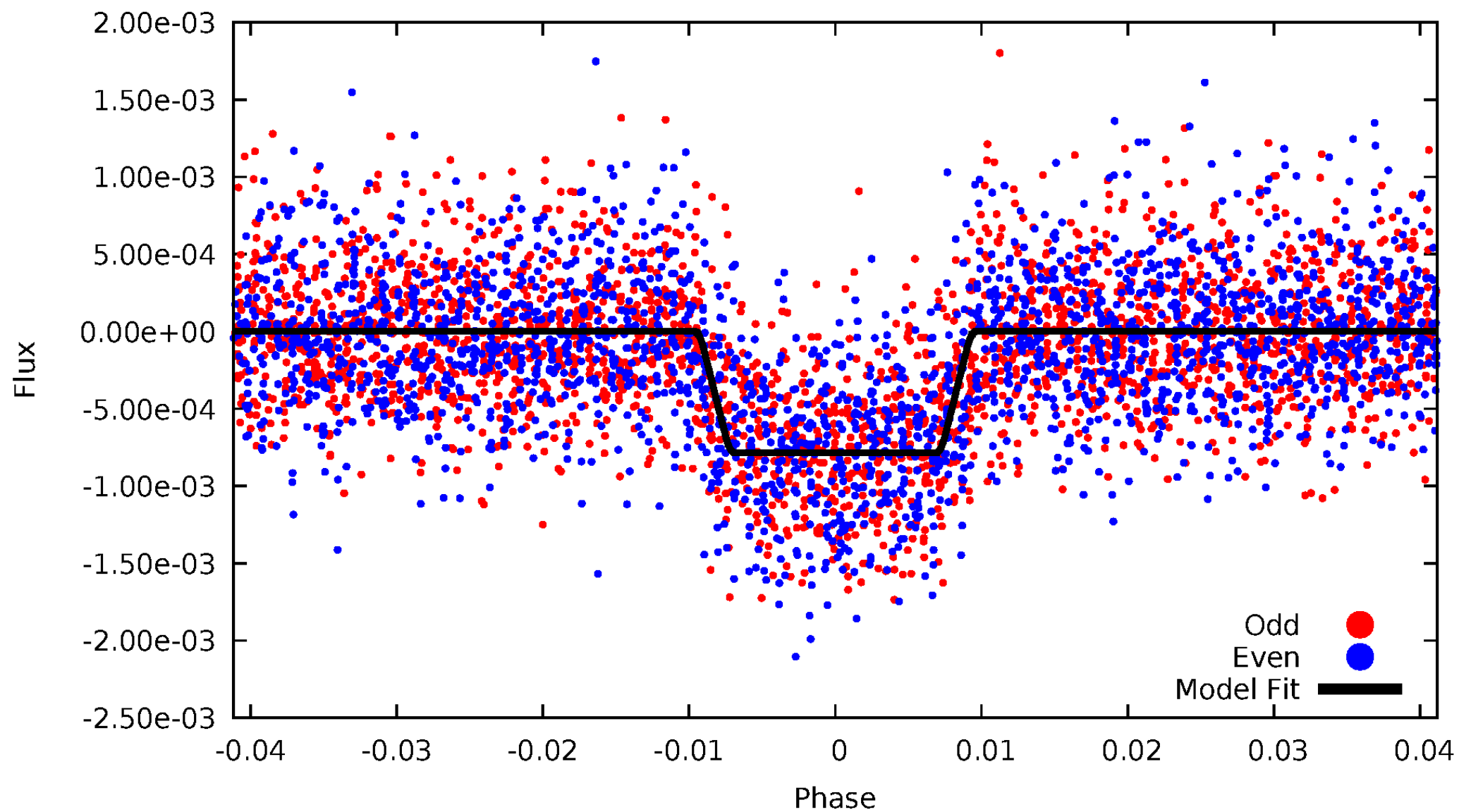
TCE 010004519-01





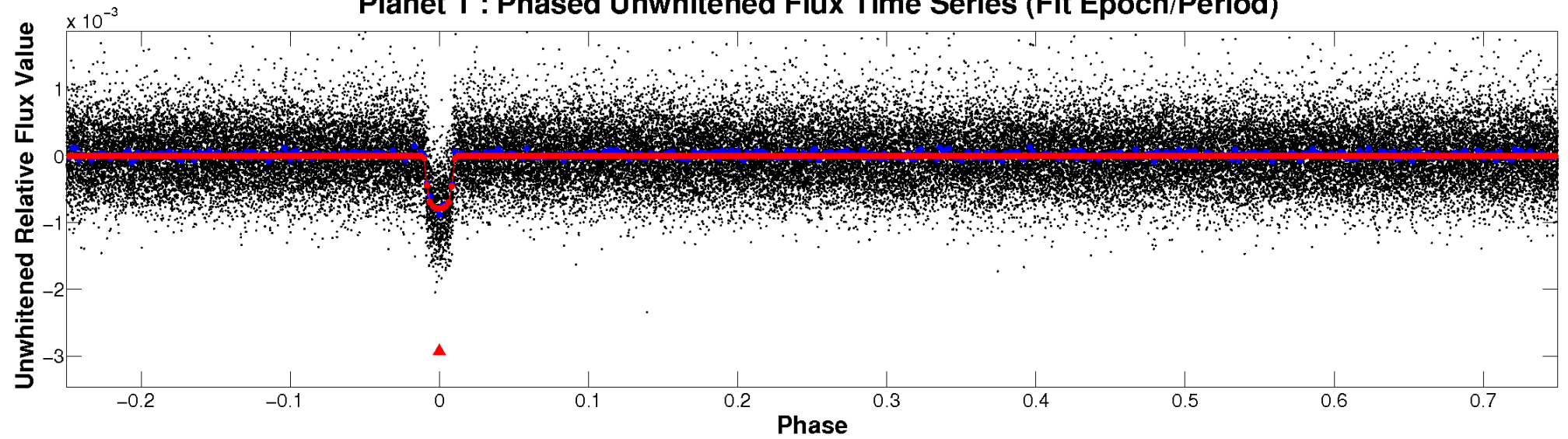
# ALT Odd/Even

TCE 010004519-01

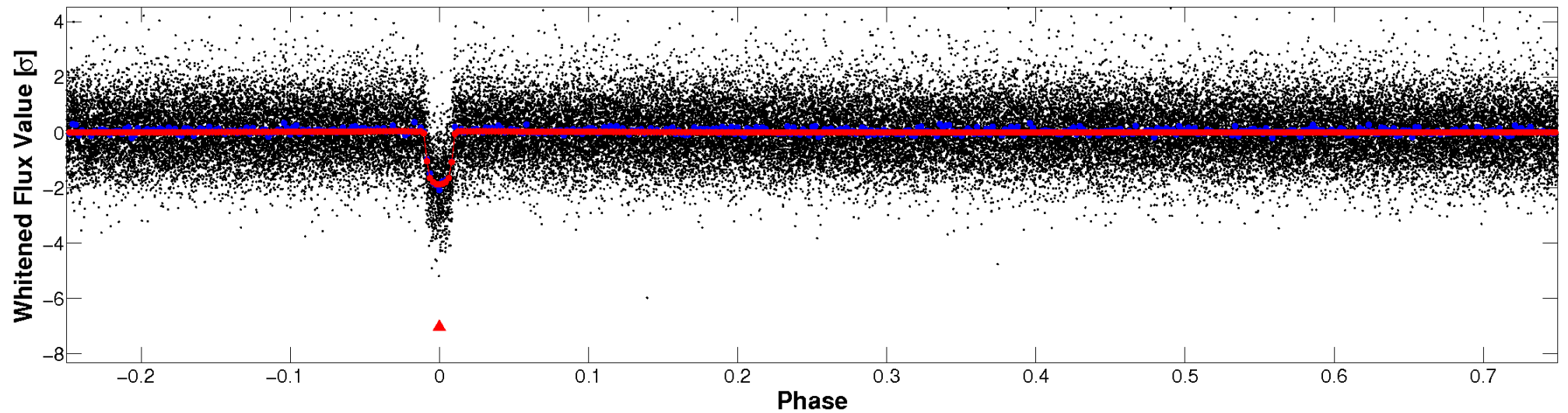


# Non-Whitened Vs. Whitened Light Curve

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

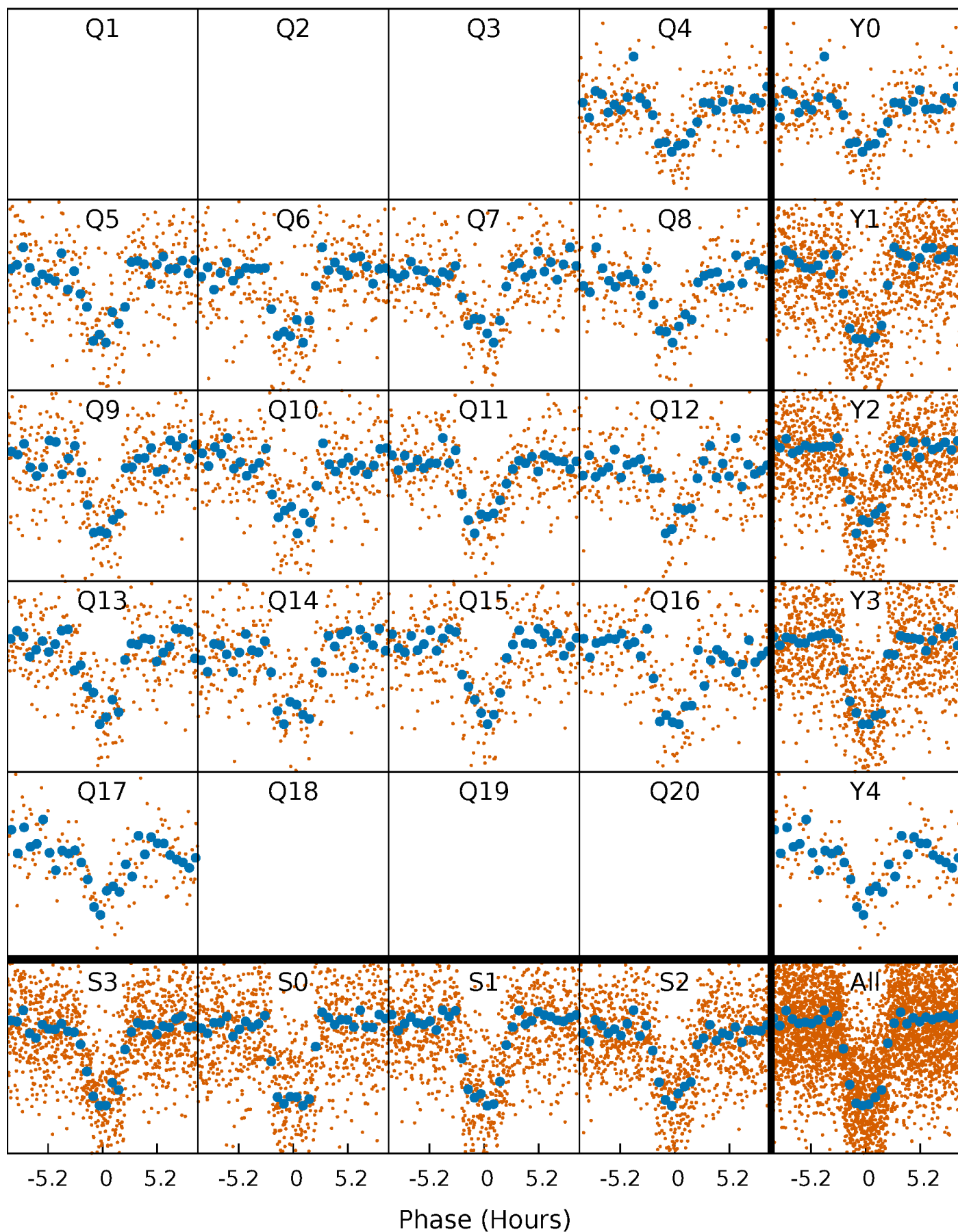


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

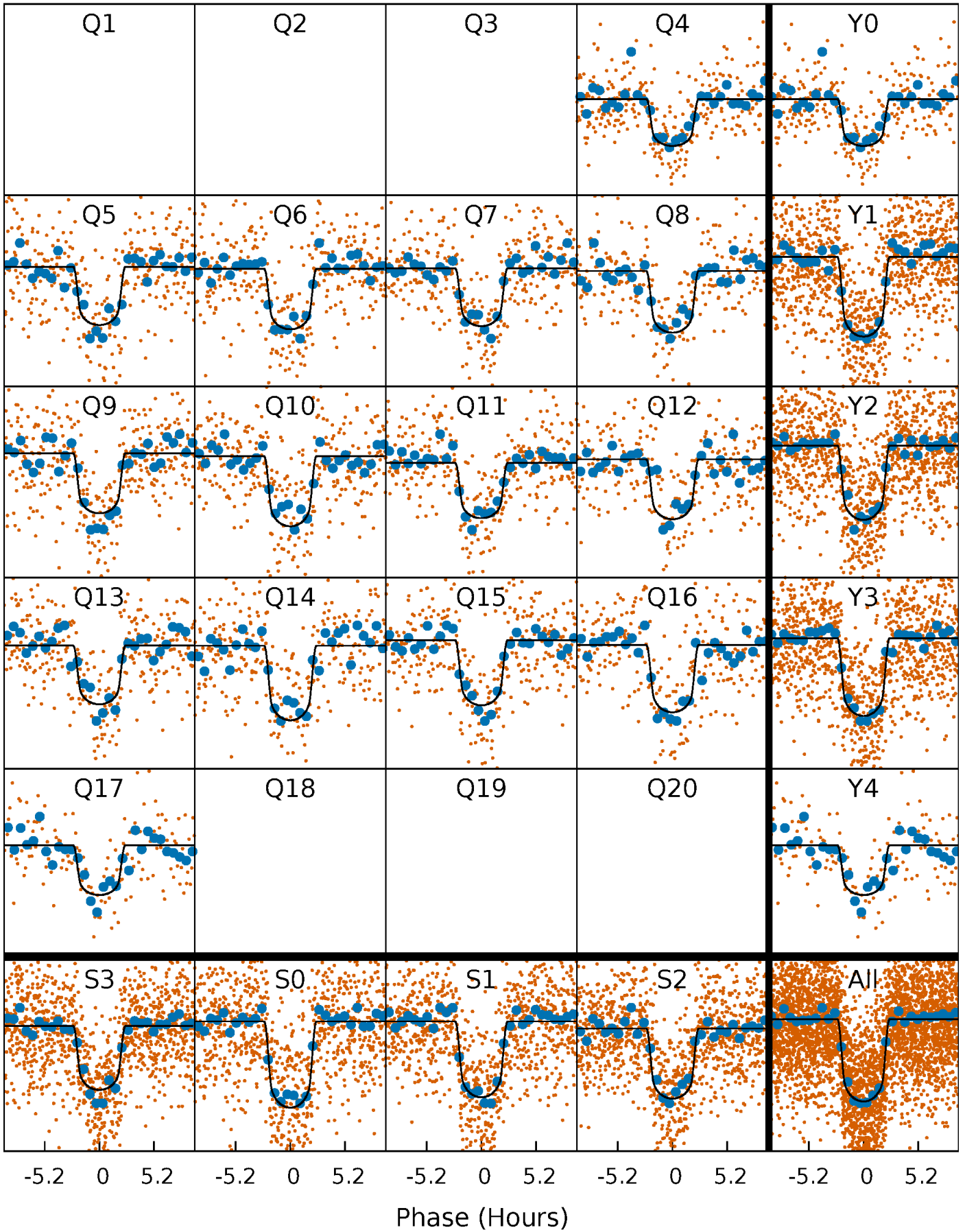
TCE 010004519-01 P= 9.803216 Days  $T_0=138.512883$  (BKJD)





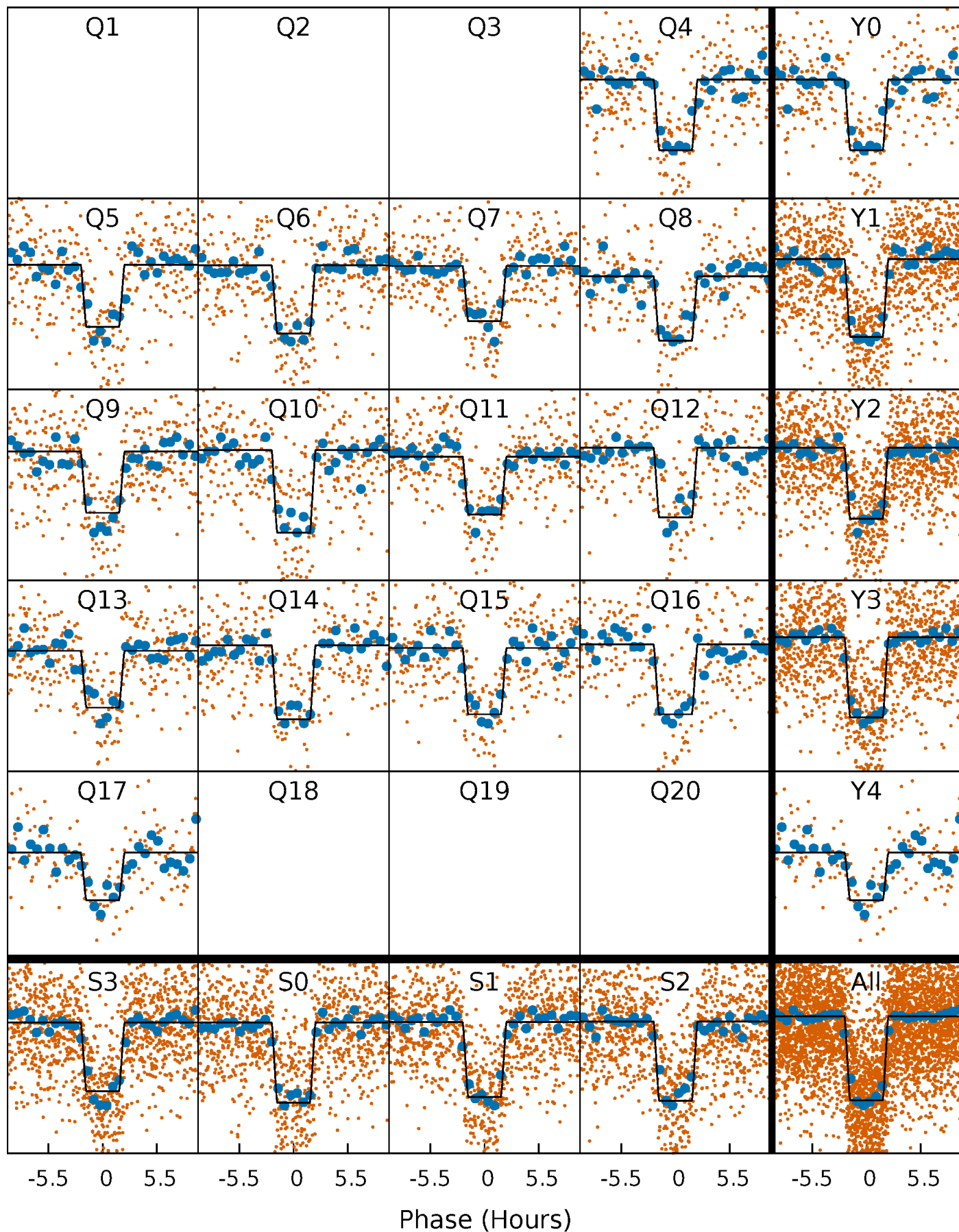
# DV Quarter-Phased Transit Curves

TCE 010004519-01 P= 9.803216 Days  $T_0=138.512883$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

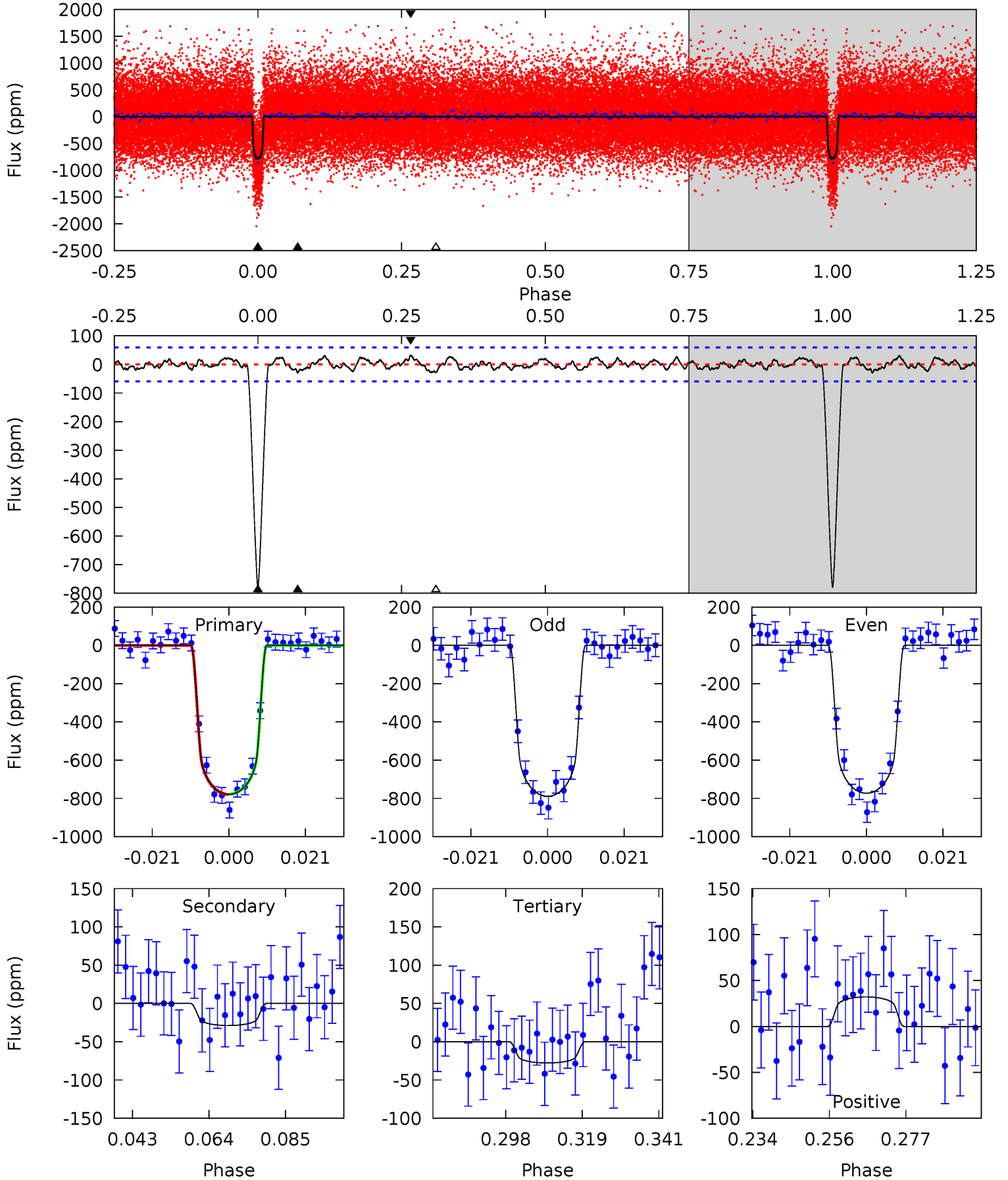
TCE 010004519-01 P= 9.803267 Days  $T_0=138.508671$  (BKJD)



# DV Model-Shift Uniqueness Test

010004519-01, P = 9.803216 Days, E = 138.512883 Days

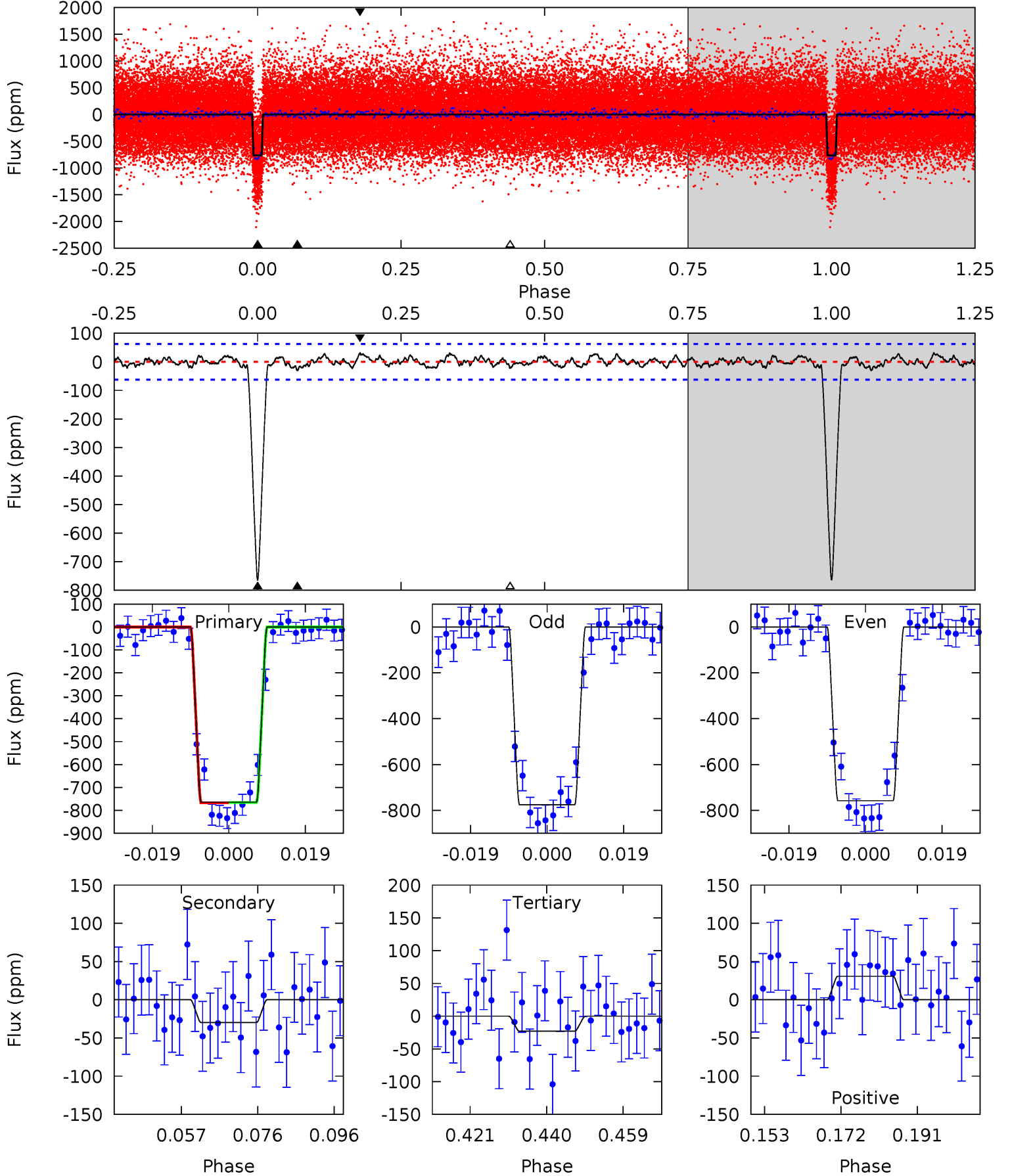
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.0	2.37	2.28	2.64	4.88	2.30	1.02	61.7	61.3	0.09	-0.27	0.66	1.00	0.04	0.08



# Alt Model-Shift Uniqueness Test

010004519-01, P = 9.803267 Days, E = 138.508671 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
60.0	2.34	1.80	2.40	4.90	2.34	0.93	58.1	57.5	0.54	-0.06	0.68	0.98	0.04	0.05



### Stellar Parameters For KIC 010004519

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6170^{+196}_{-240}$	$4.472^{+0.054}_{-0.216}$	$-0.160^{+0.300}_{-0.300}$	$0.992^{+0.327}_{-0.102}$	$1.063^{+0.144}_{-0.144}$	$1.535^{+0.443}_{-0.817}$
	+3%/-4%	+1%/-5%	+188%/-188%	+33%/-10%	+14%/-14%	+29%/-53%
Source	KIC0	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 010004519-01 / KOI 1572.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-29 \pm 12$	$3.19^{+0.58}_{-0.45}$	$1283^{+90}_{-75}$	$3250^{+246}_{-295}$	$13^{+8}_{-6}$
Alt.	$-30 \pm 13$	$3.16^{+0.54}_{-0.46}$	$1279^{+87}_{-66}$	$3265^{+236}_{-287}$	$13^{+8}_{-6}$

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



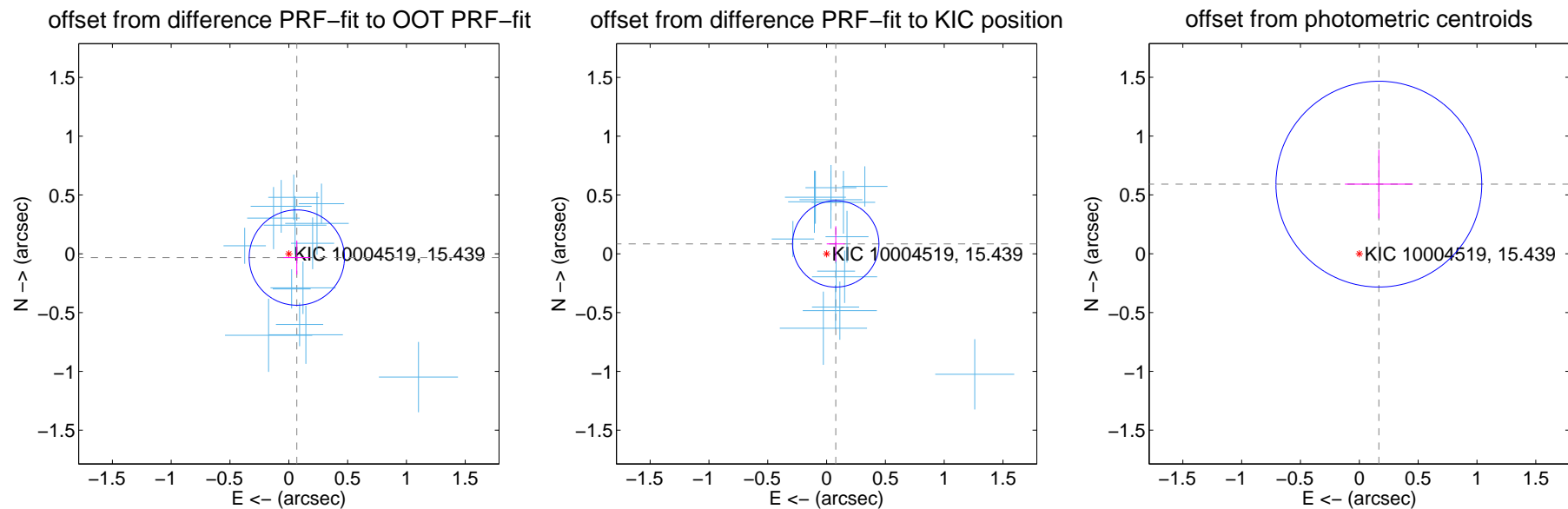
## DV Centroid Data

Supplemental centroid analysis for 010004519-01. Kepler magnitude: 15.44. Transit SNR 51.15

There are 14 quarters with good PRF difference image offsets

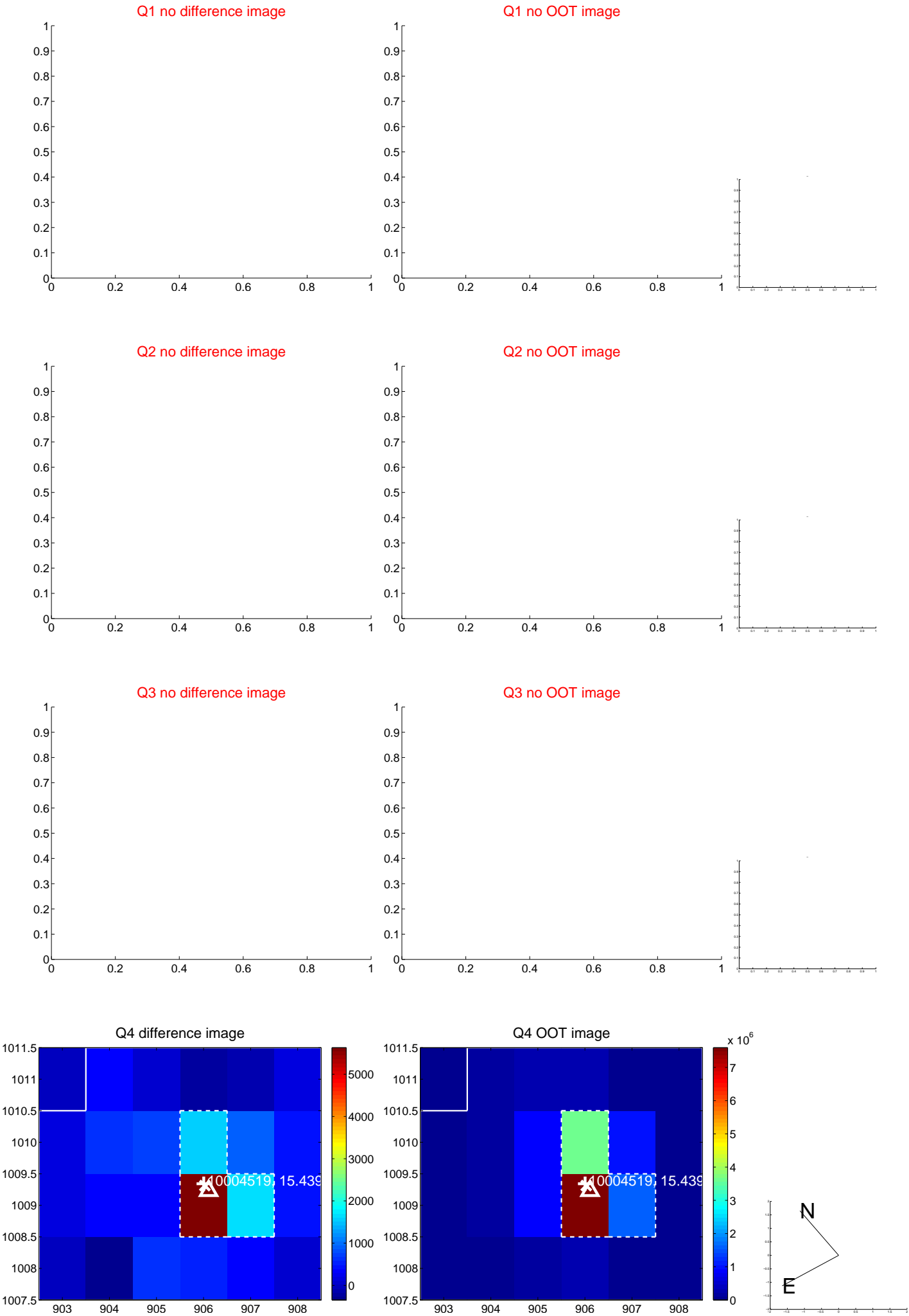
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.075 \pm 0.135$	0.56	$-0.068 \pm 0.113$	$-0.032 \pm 0.145$
PRF-fit source offset from KIC position	$0.115 \pm 0.122$	0.94	$-0.078 \pm 0.077$	$0.084 \pm 0.151$
photometric centroid source offset	$0.61 \pm 0.29$	2.11	$-0.17 \pm 0.29$	$0.59 \pm 0.29$

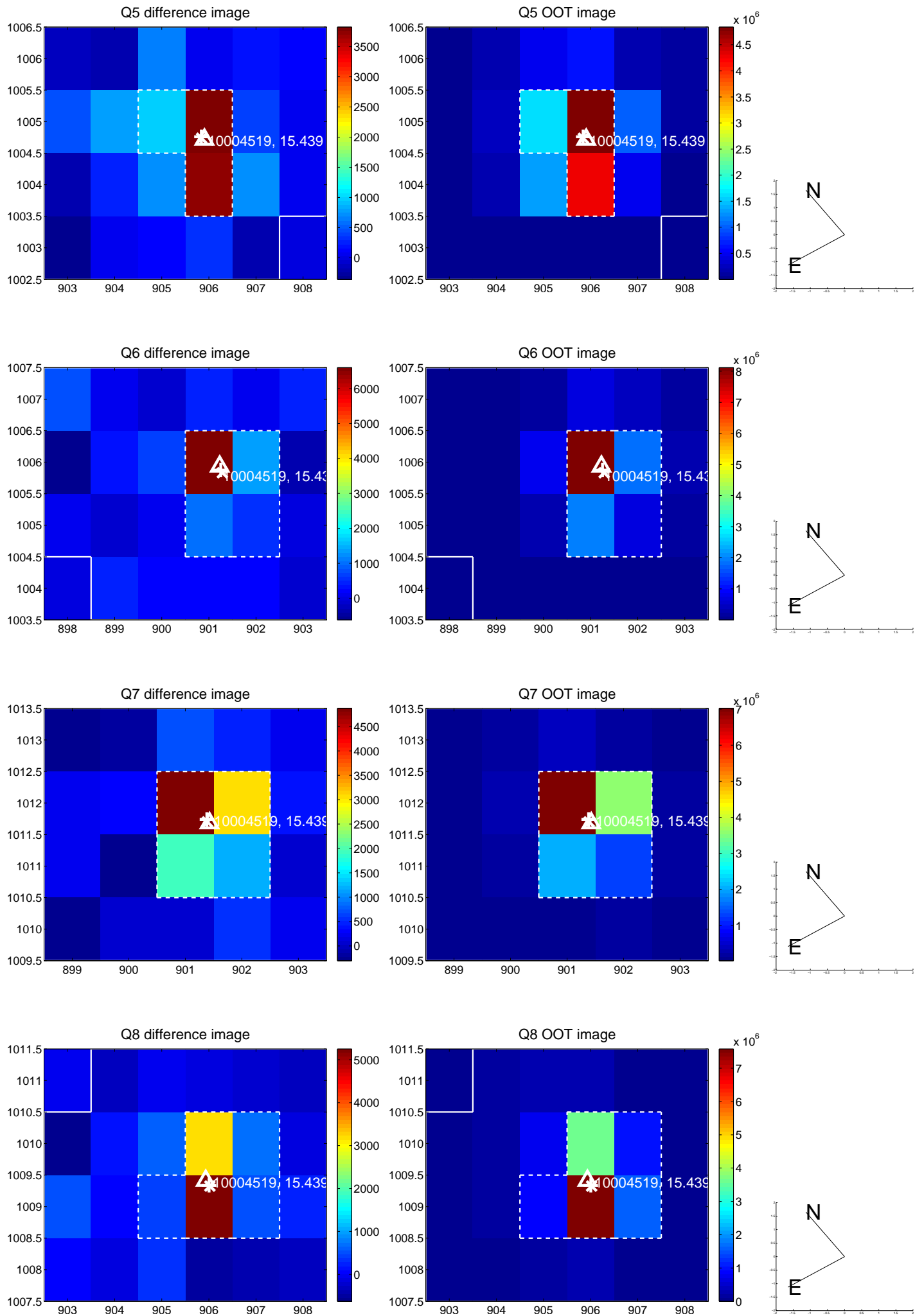


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

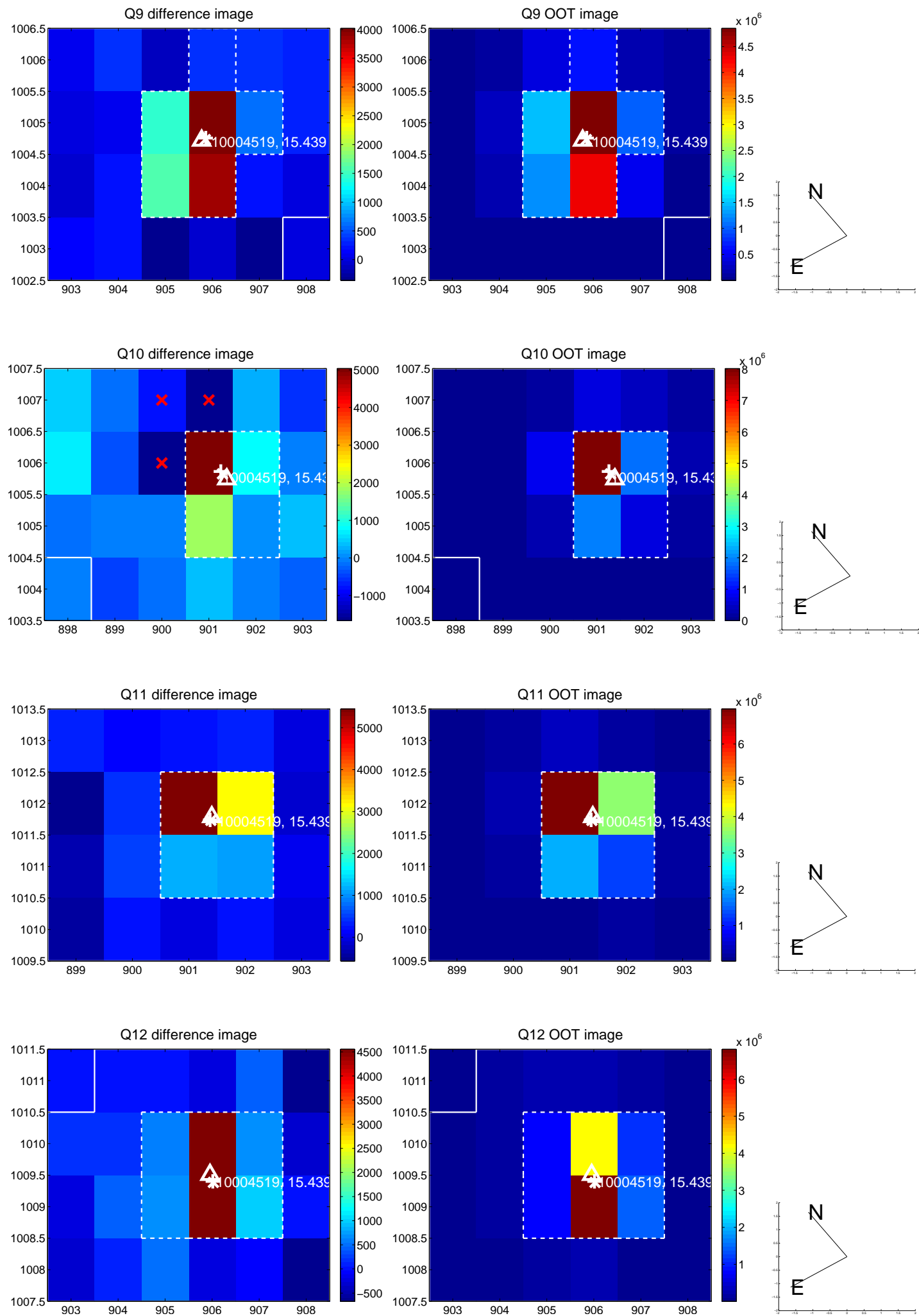
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



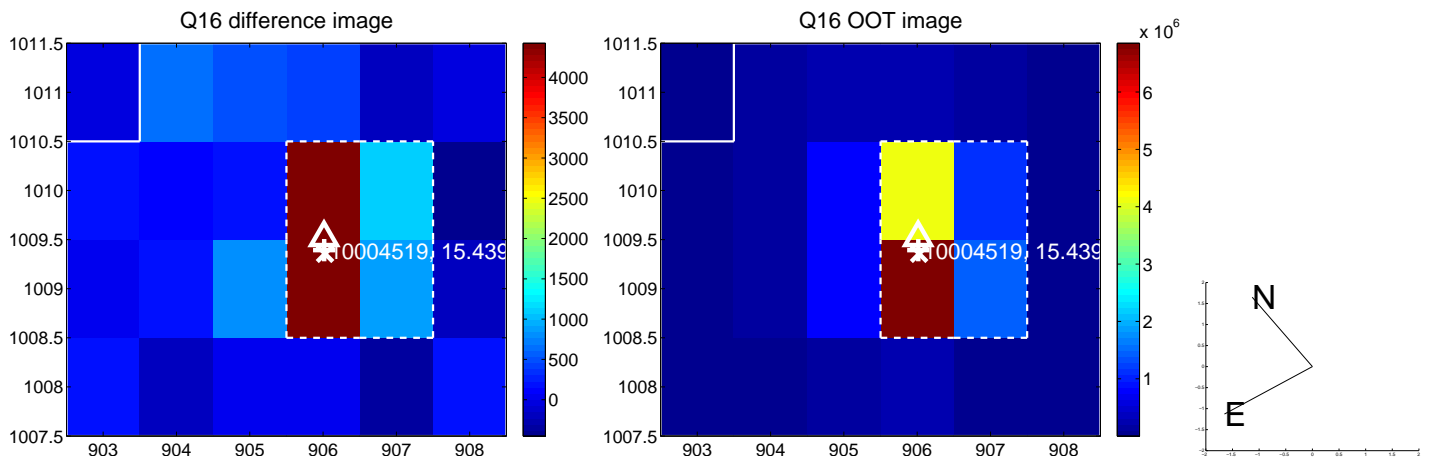
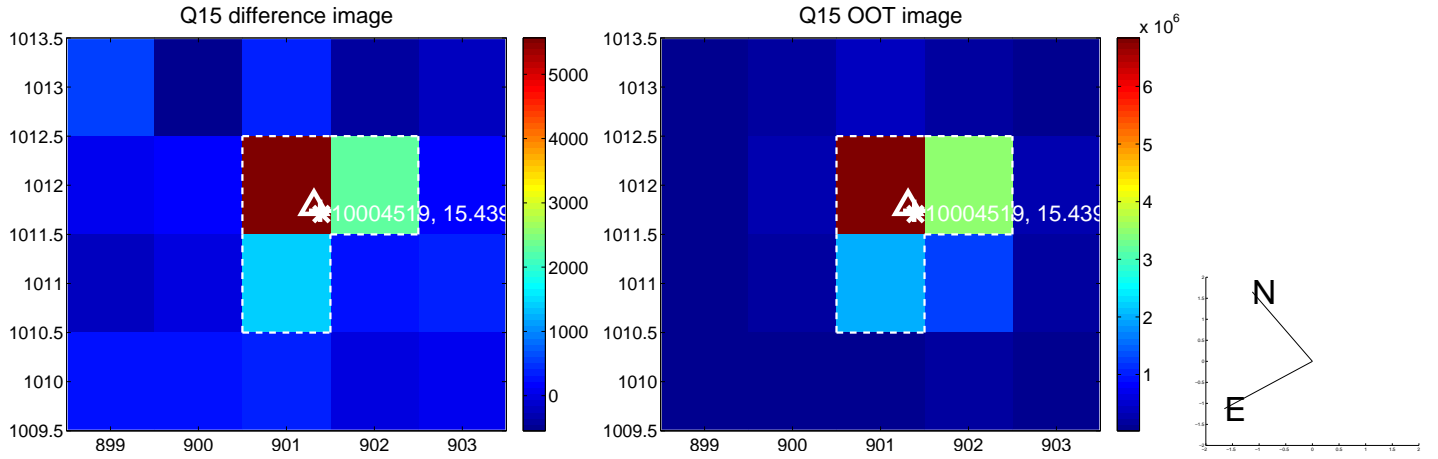
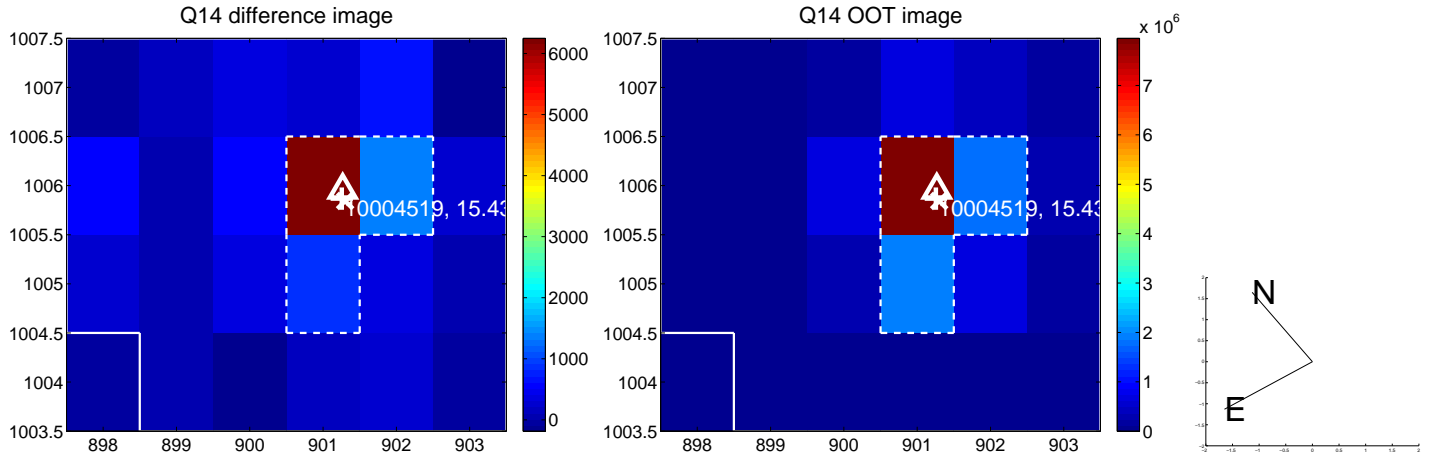
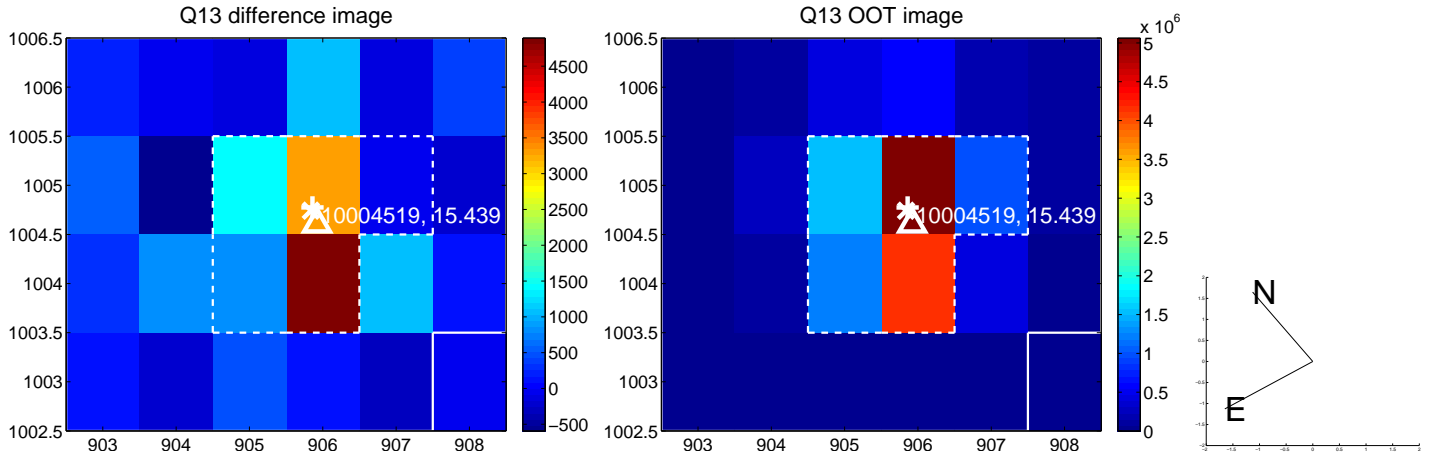
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

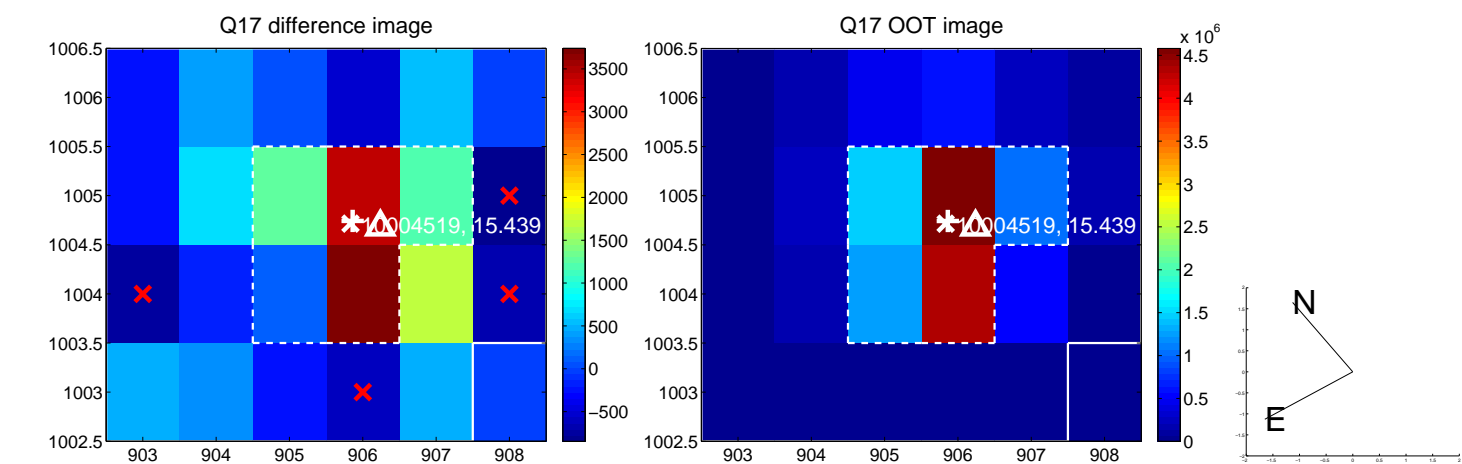


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

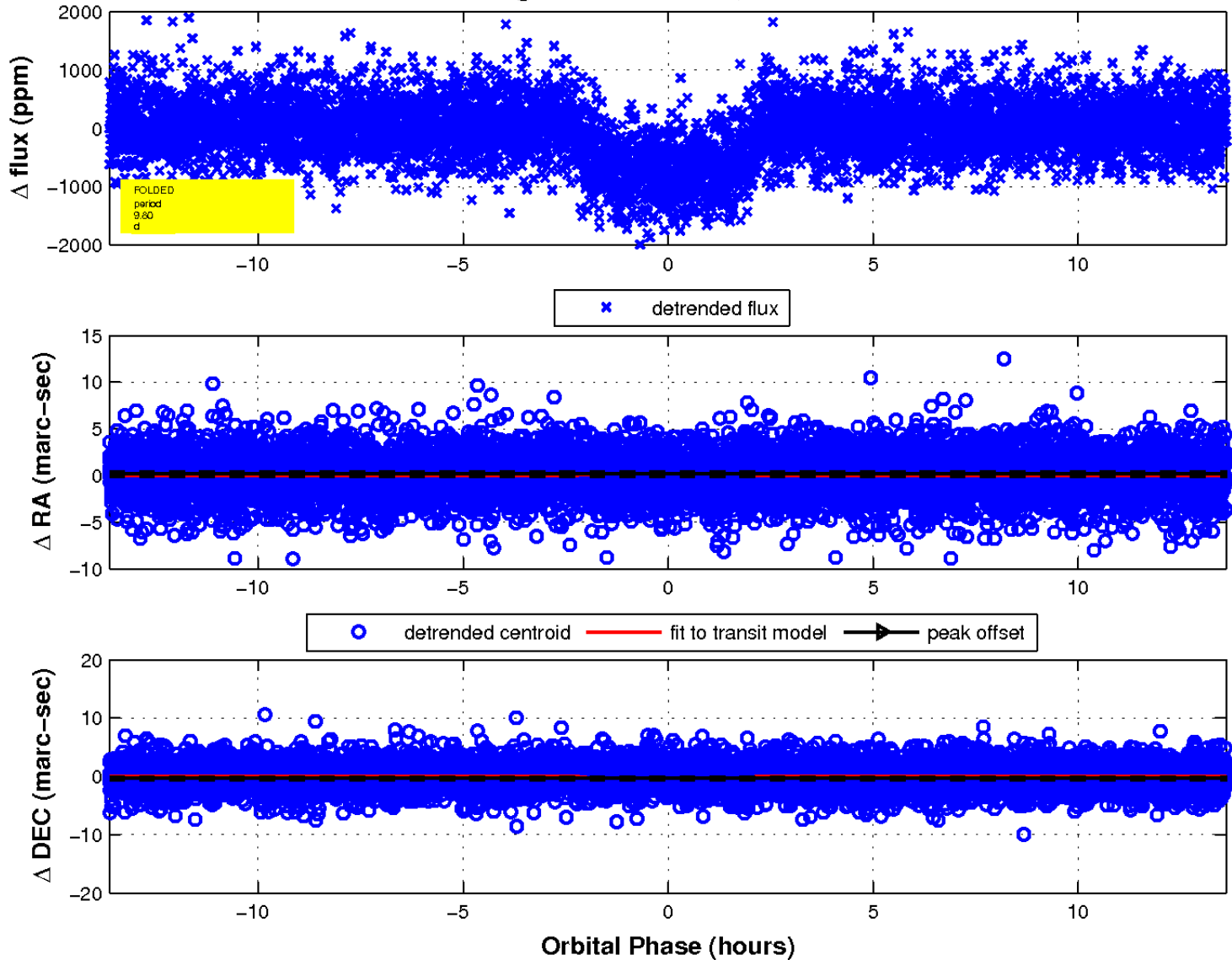




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

