

# KIC 009583881

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009583881-01	OBS	0467.01	18.009323	146.422324	3018.5	5.027	230.0	223.1	0.88	5815	5.09	44.37

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009583881-01	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.

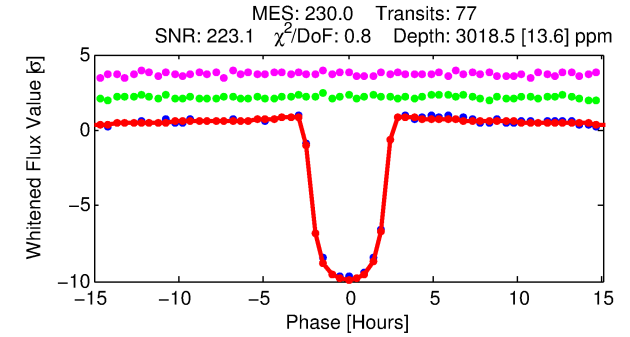
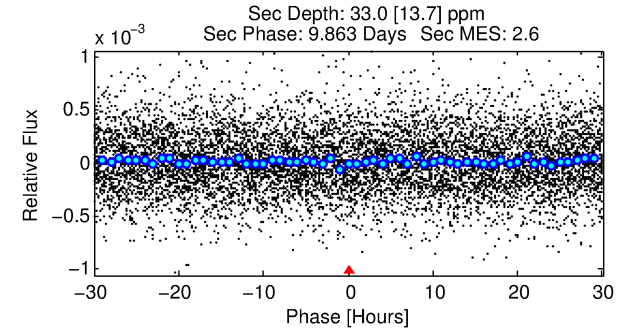
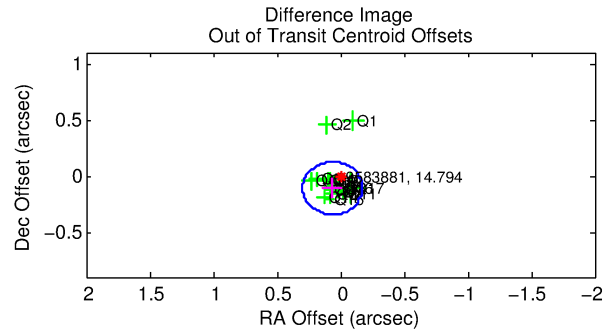
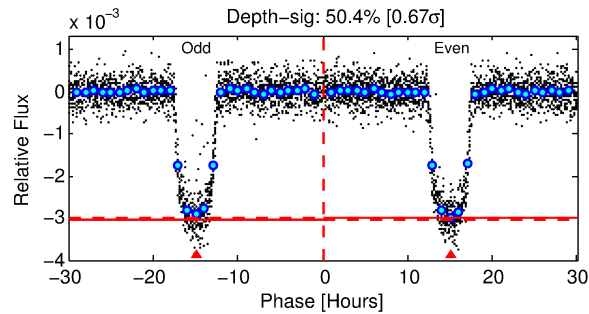
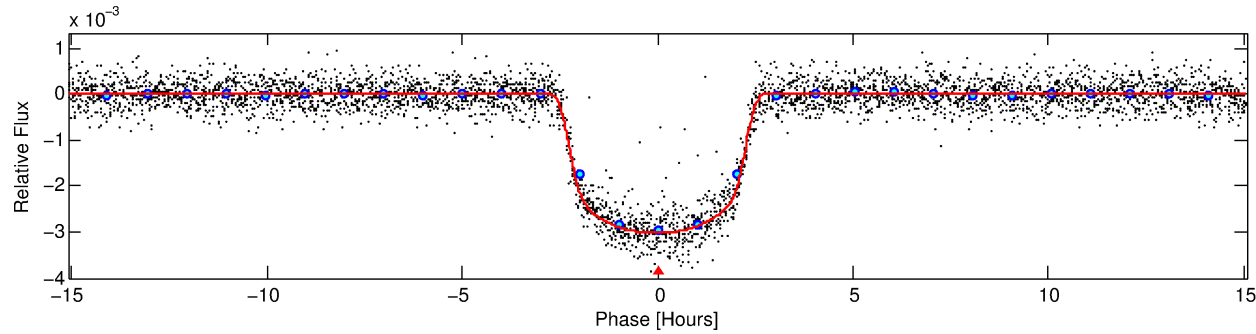
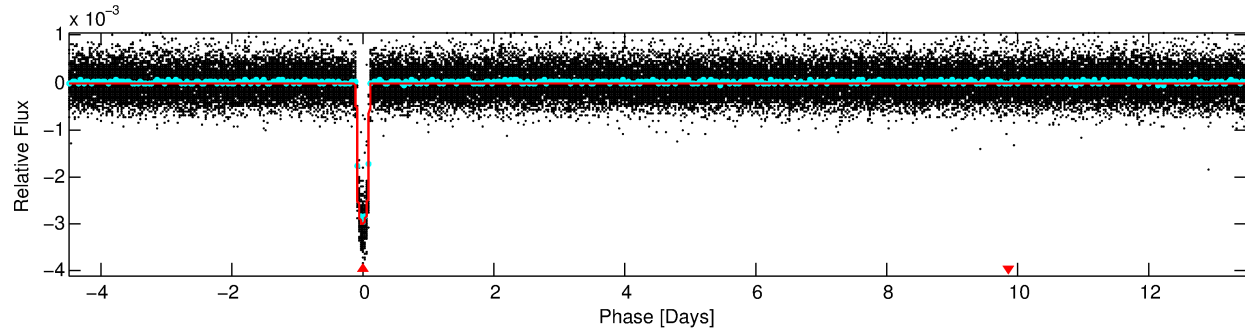
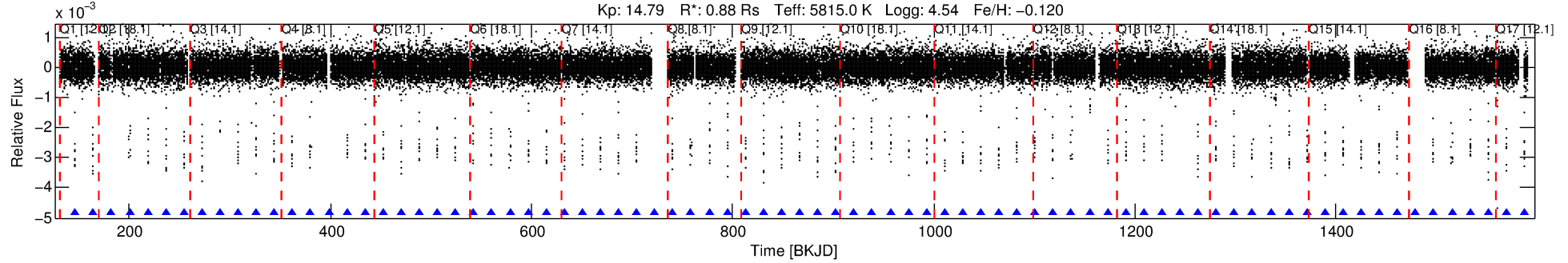
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009583881-01

No Significant Match Found

# DV One-Page Summary

KIC: 9583881 Candidate: 1 of 1 Period: 18.009 d  
KOI: K00467.01 Corr: 0.994



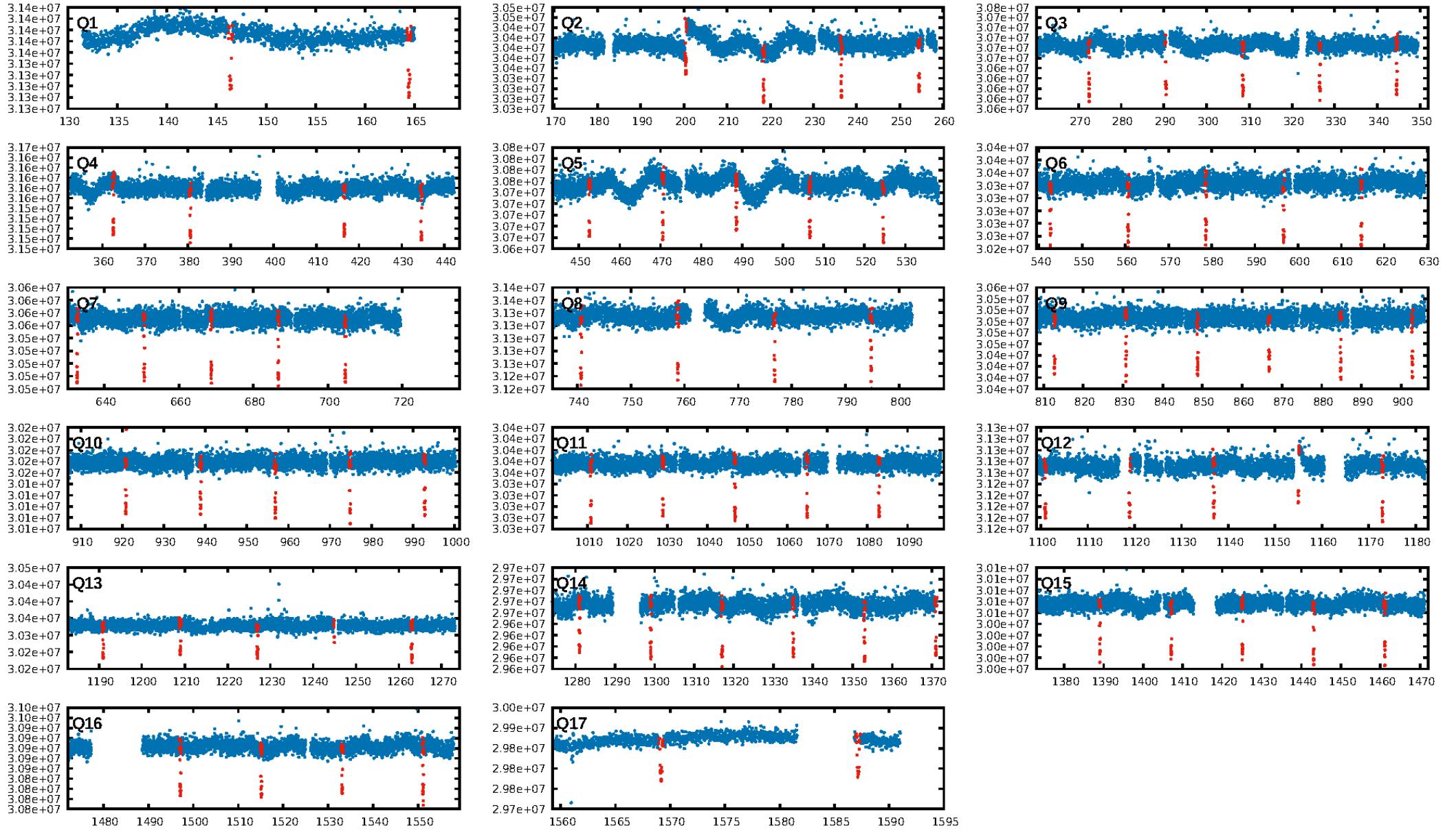
## DV Fit Results:

Period = 18.00932 [0.00001] d  
Epoch = 146.4223 [0.0005] BKJD  
Rp/R\* = 0.0532 [0.0008]  
a/R\* = 22.48 [1.50]  
b = 0.66 [0.06]  
Seff = 44.37 [17.95]  
Teq = 658 [67] K  
Rp = 5.09 [1.62] Re  
a = 0.1333 [0.0356] AU  
Ag = 12.44 [7.09] [1.61 $\sigma$ ]  
Teffp = 1911 [206] K [5.79 $\sigma$ ]

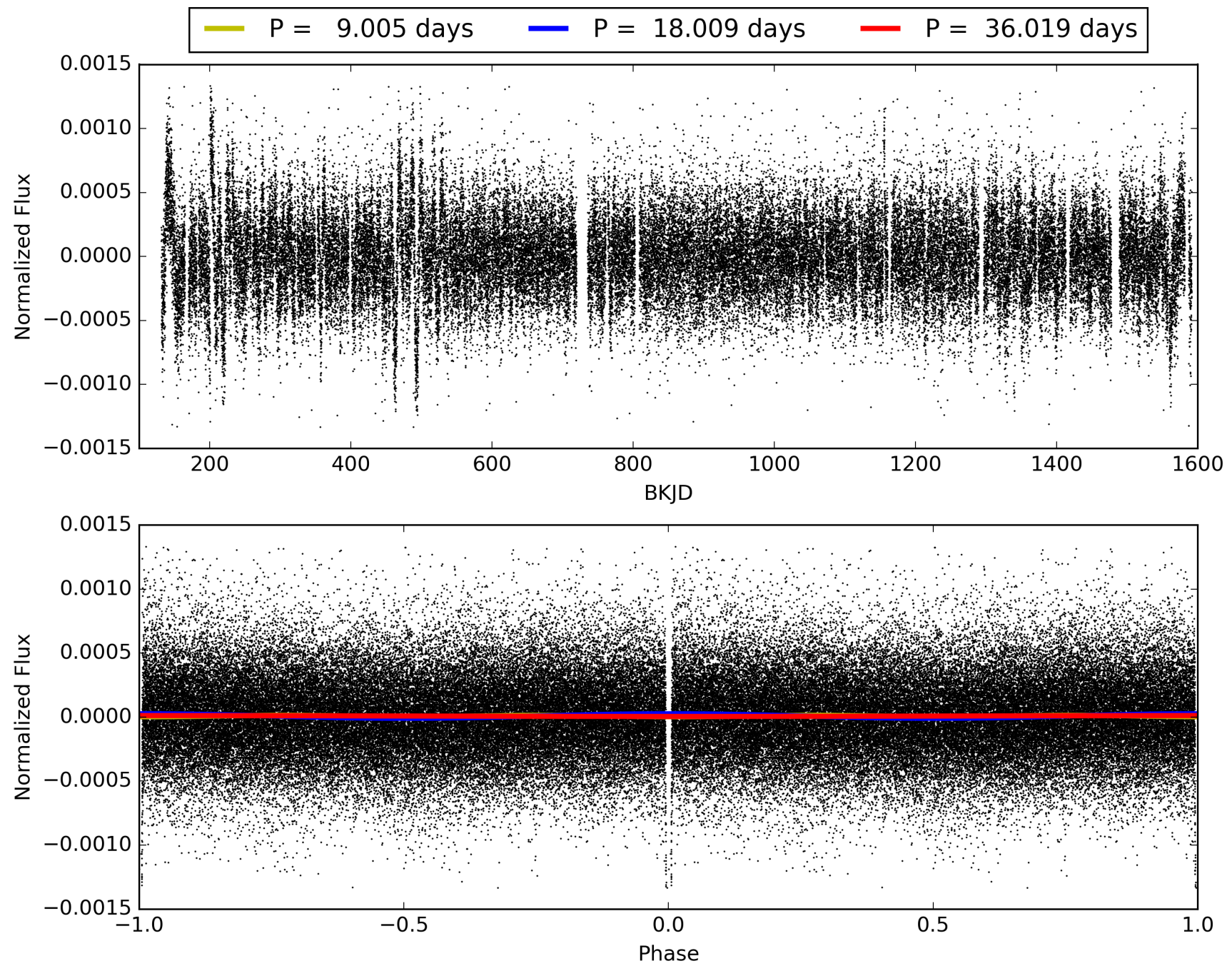
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 73.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [73/73]  
GhostDiagnostic-chr: 5.552  
Centroid-sig: 0.0%  
Centroid-so: 0.148 arcsec [2.60 $\sigma$ ]  
OotOffset-rm: 0.127 arcsec [1.62 $\sigma$ ]  
KicOffset-rm: 0.190 arcsec [2.37 $\sigma$ ]  
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]

# TCE 009583881-01, PDC Light Curves

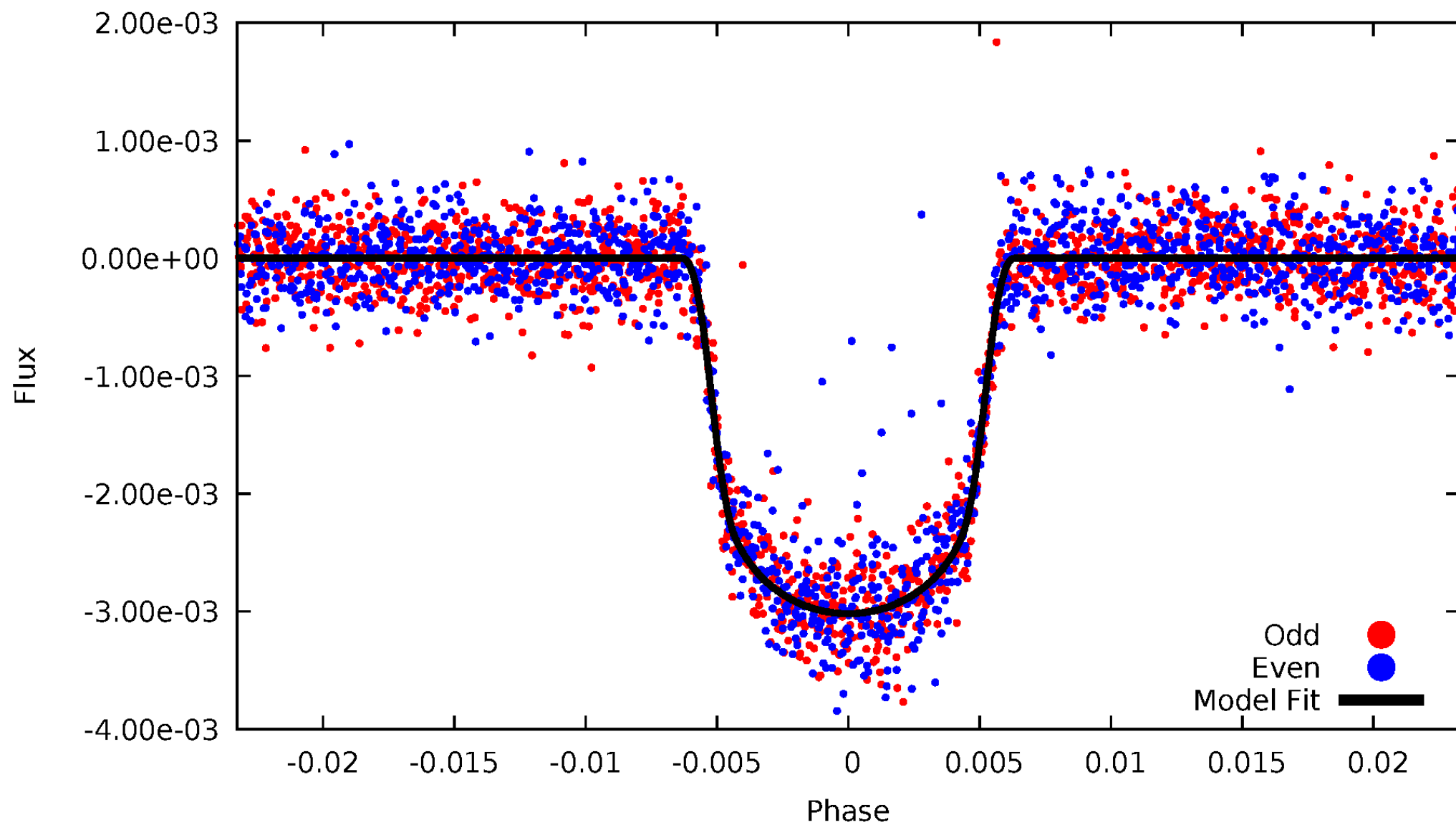


TCE 009583881-01



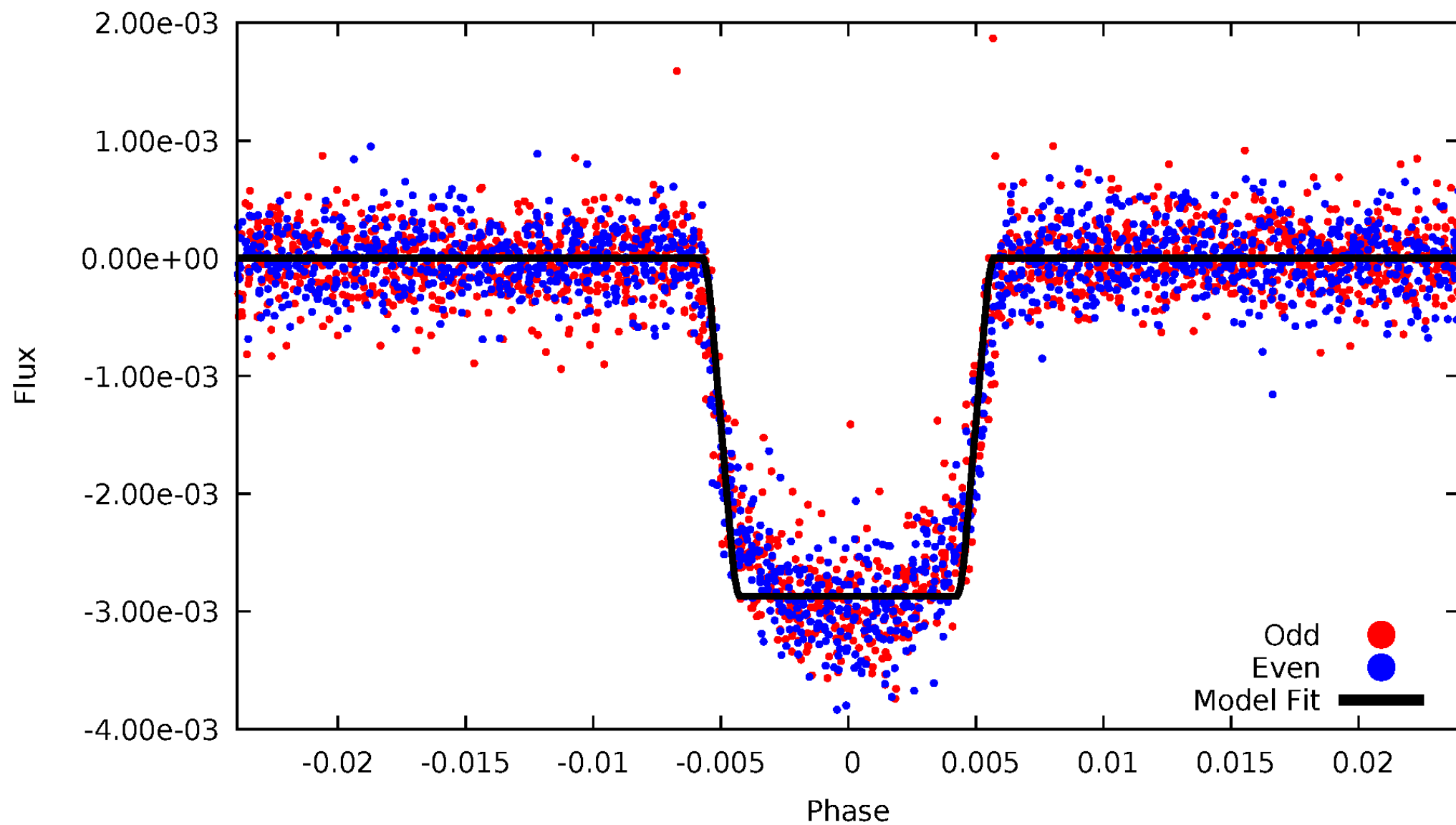
# DV Odd/Even

TCE 009583881-01



# ALT Odd/Even

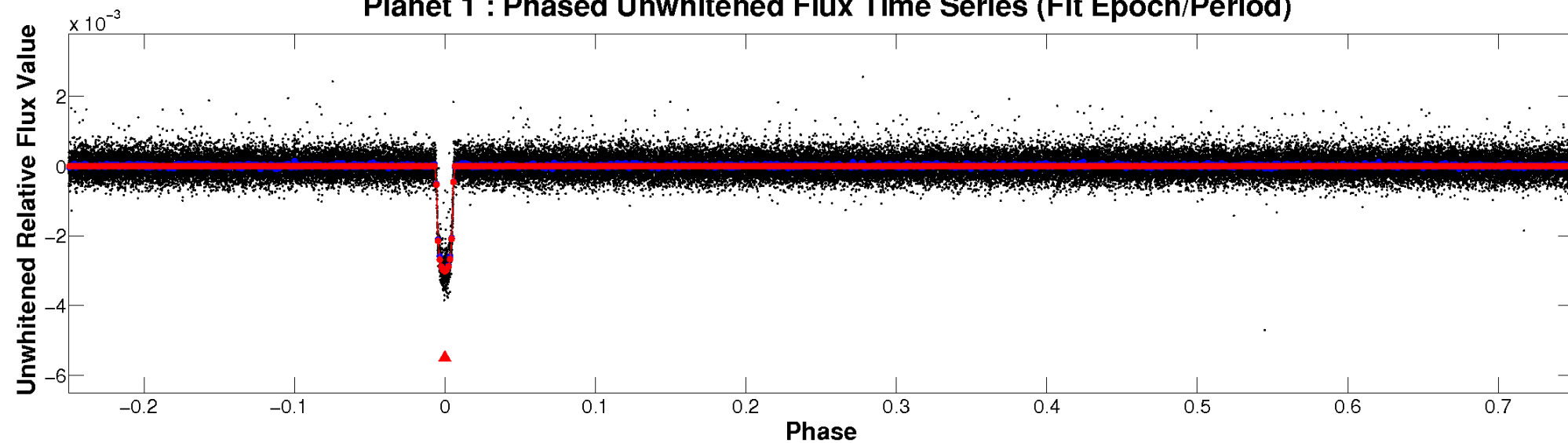
TCE 009583881-01



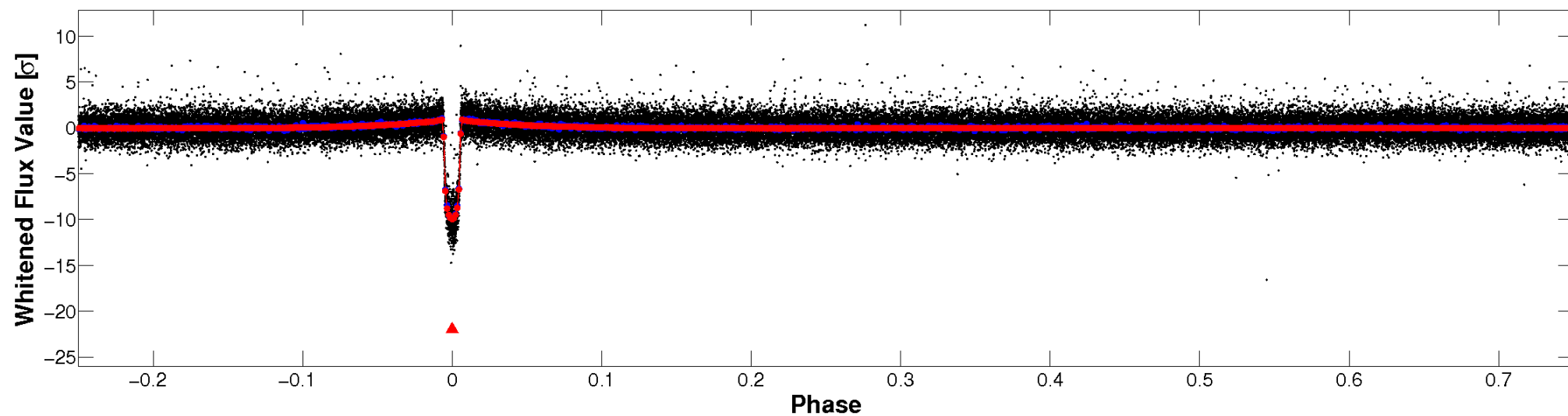


# Non-Whitened Vs. Whitened Light Curve

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

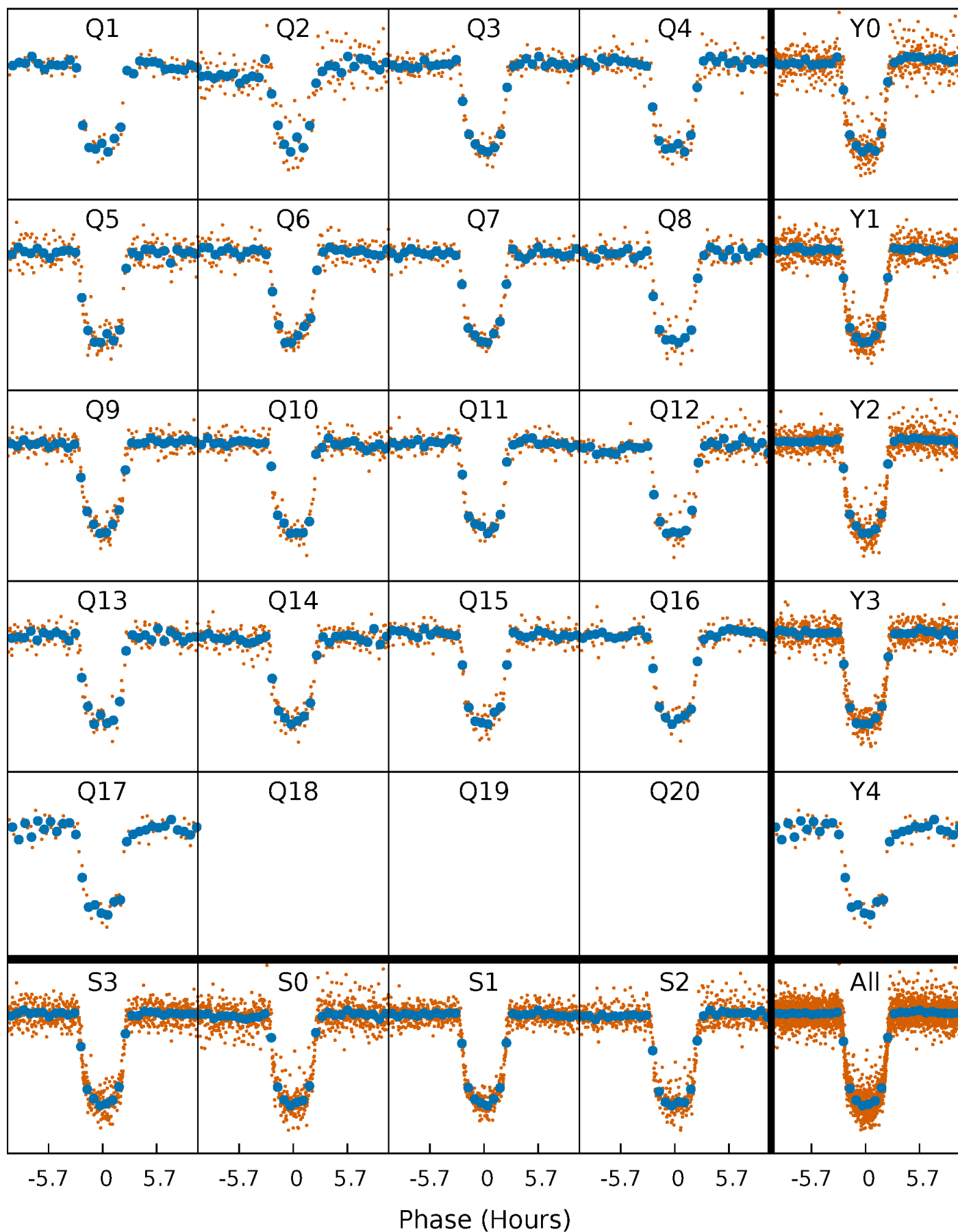


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

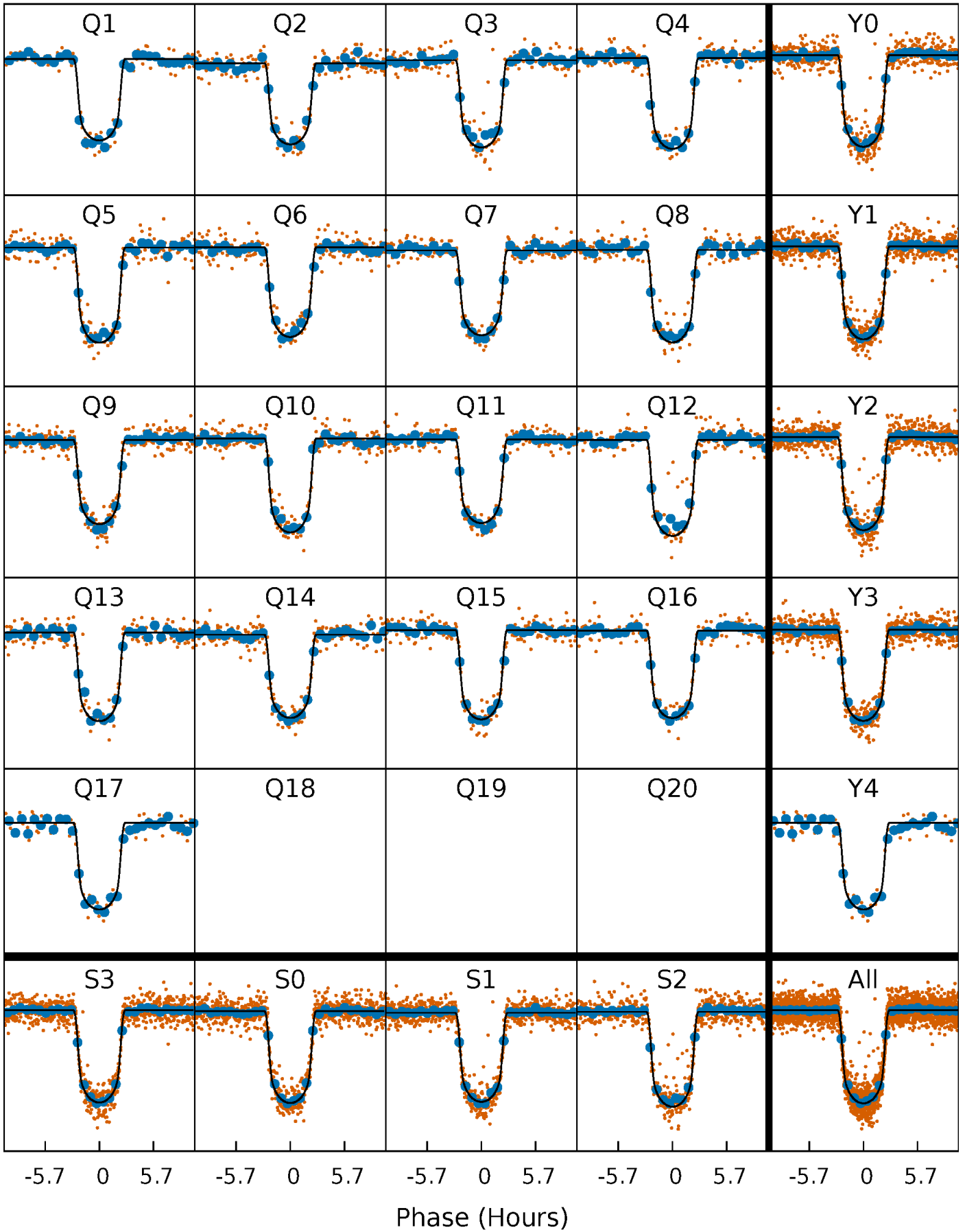
TCE 009583881-01 P= 18.009323 Days  $T_0=146.422324$  (BKJD)





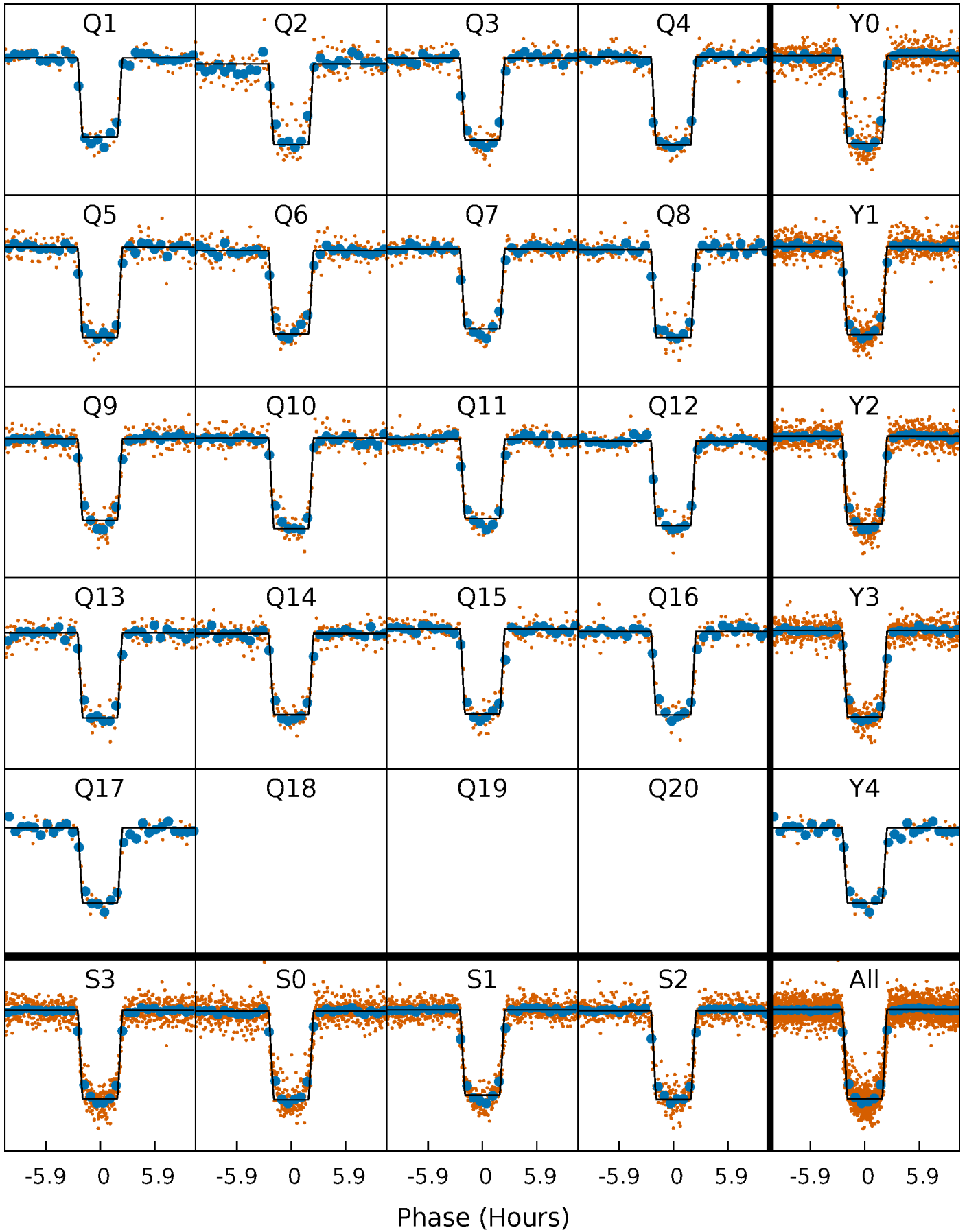
# DV Quarter-Phased Transit Curves

TCE 009583881-01   P= 18.009323 Days    $T_0=146.422324$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

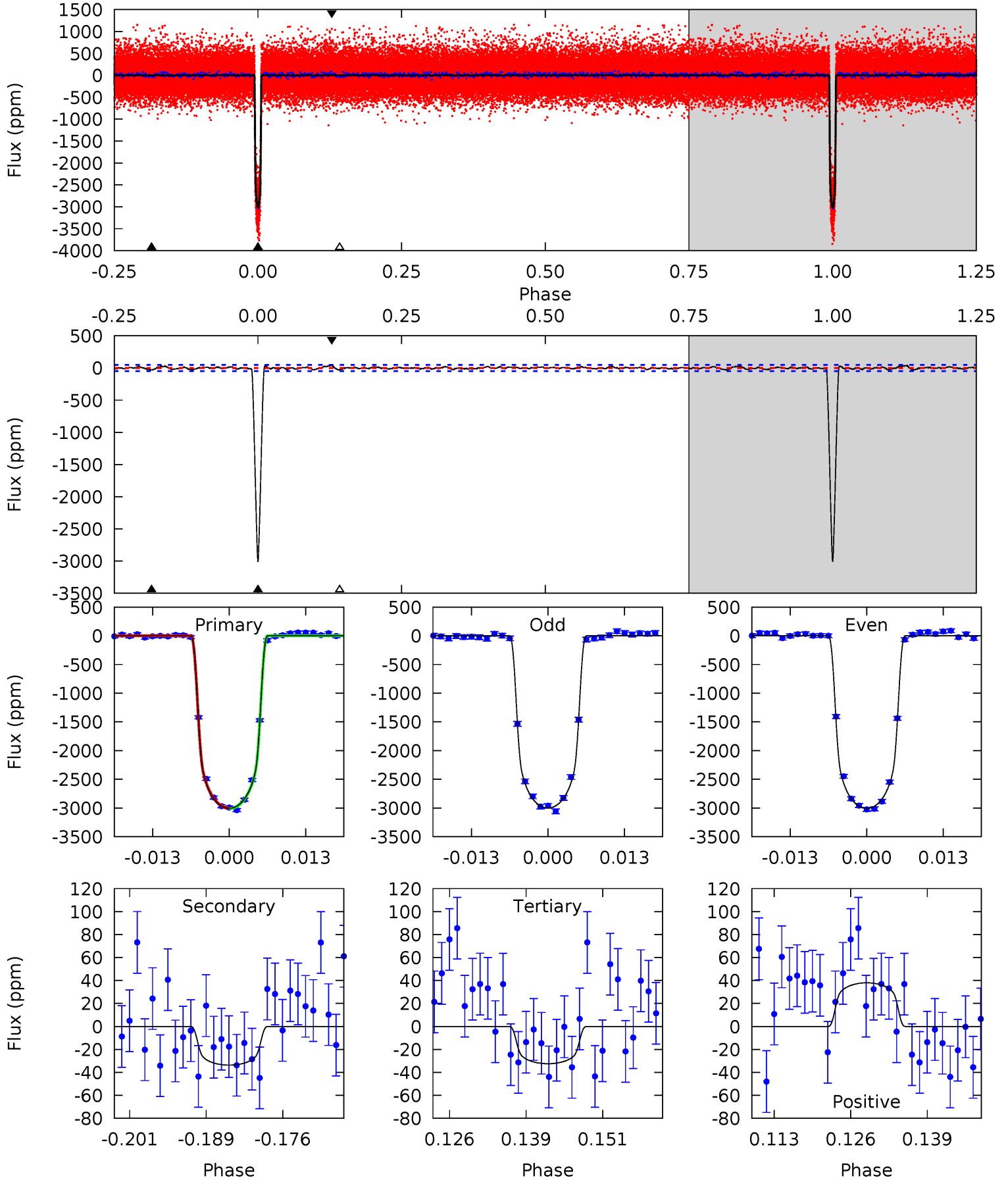
TCE 009583881-01 P= 18.009186 Days  $T_0=146.427861$  (BKJD)



# DV Model-Shift Uniqueness Test

009583881-01,  $P = 18.009323$  Days,  $E = 128.413001$  Days

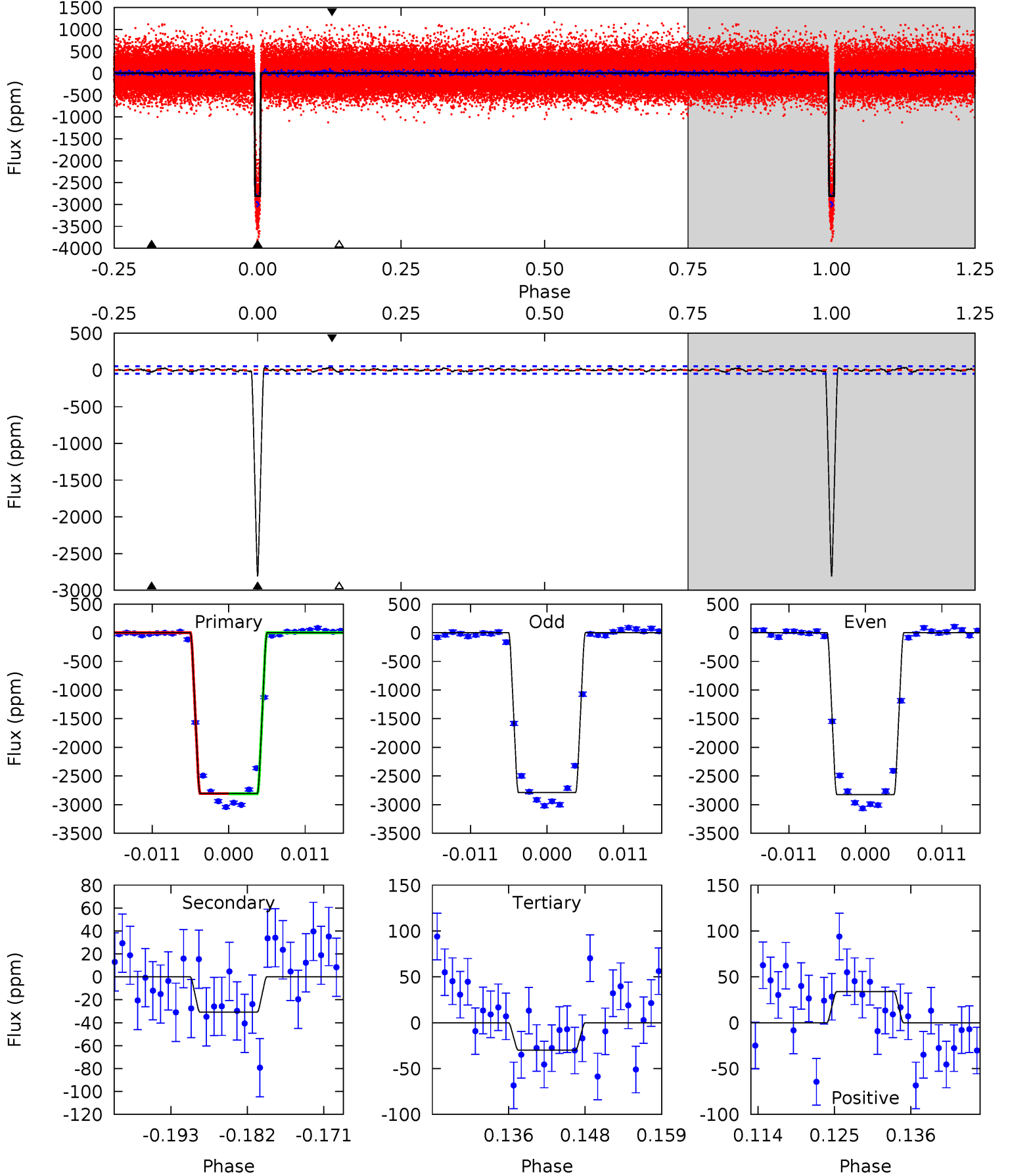
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
311.8	3.50	3.37	3.94	4.98	2.50	1.16	308.4	307.9	0.13	-0.44	0.30	0.98	0.01	0.50



# Alt Model-Shift Uniqueness Test

009583881-01, P = 18.009186 Days, E = 128.418675 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
279.2	3.07	2.97	3.36	5.00	2.53	1.02	276.2	275.8	0.09	-0.30	1.79	0.99	0.01	0.23



### Stellar Parameters For KIC 009583881

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5815^{+146}_{-160}$	$4.540^{+0.037}_{-0.213}$	$-0.120^{+0.300}_{-0.300}$	$0.877^{+0.278}_{-0.069}$	$0.973^{+0.116}_{-0.116}$	$2.032^{+0.423}_{-1.080}$
	+3%/-3%	+1%/-5%	+250%/-250%	+32%/-8%	+12%/-12%	+21%/-53%
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 009583881-01 / KOI 0467.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-34 \pm 10$	$5.25^{+0.91}_{-0.39}$	$945^{+65}_{-42}$	$2684^{+104}_{-105}$	$11^{+4}_{-4}$
Alt.	$-31 \pm 10$	$5.31^{+1.05}_{-0.40}$	$945^{+75}_{-42}$	$2656^{+116}_{-145}$	$9.827^{+4.337}_{-3.747}$

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

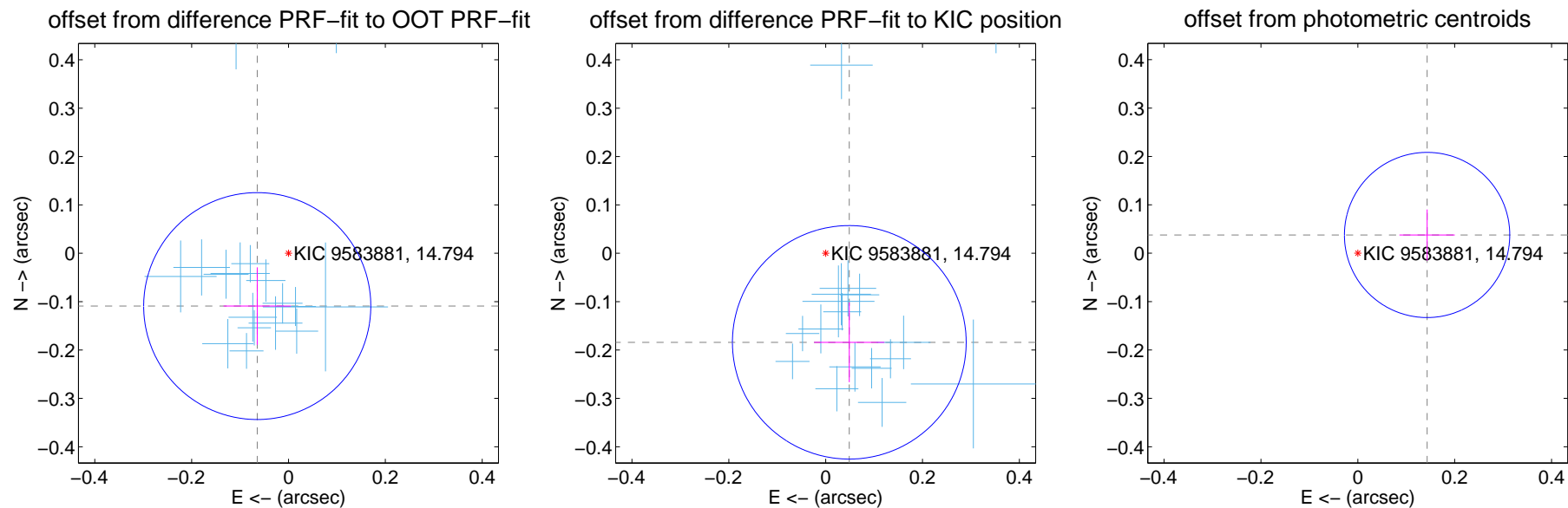
## DV Centroid Data

Supplemental centroid analysis for 009583881-01. Kepler magnitude: 14.79. Transit SNR 223.05

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

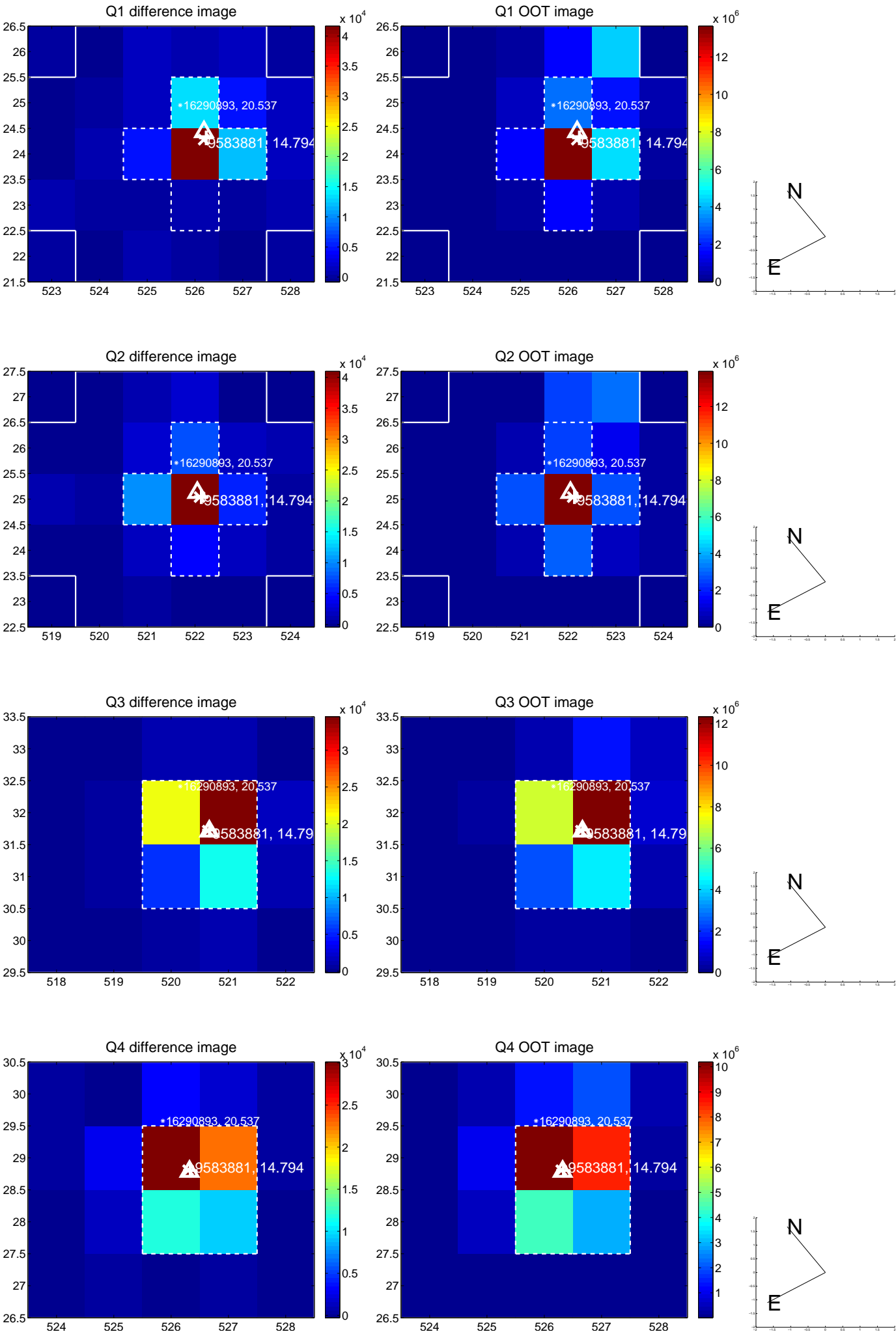
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.127 \pm 0.078$	1.62	$0.065 \pm 0.069$	$-0.109 \pm 0.080$
PRF-fit source offset from KIC position	$0.190 \pm 0.080$	2.37	$-0.049 \pm 0.073$	$-0.184 \pm 0.082$
photometric centroid source offset	$0.15 \pm 0.06$	2.60	$-0.14 \pm 0.06$	$0.04 \pm 0.05$



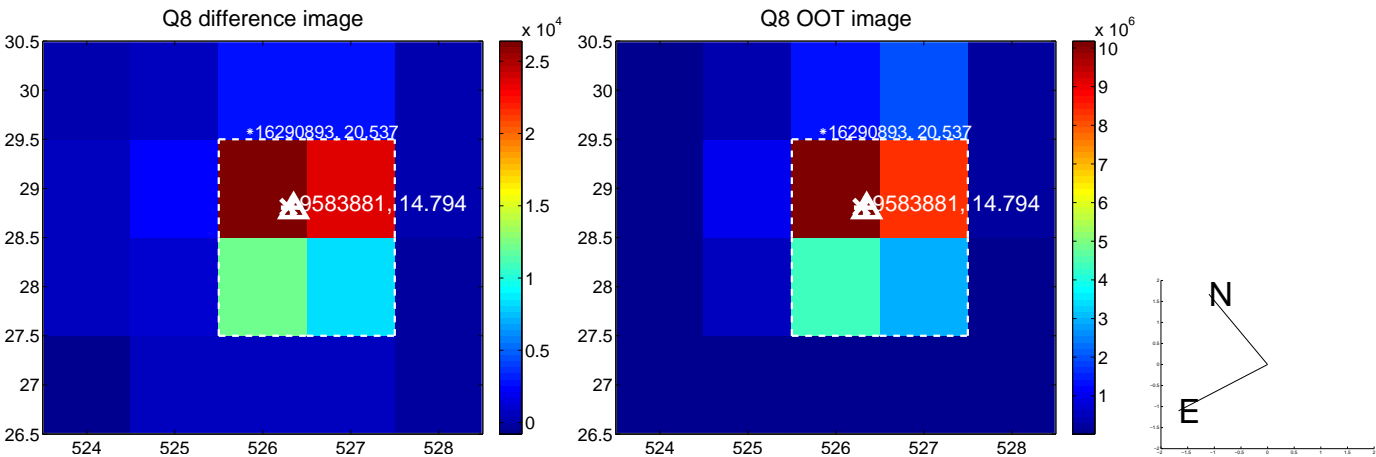
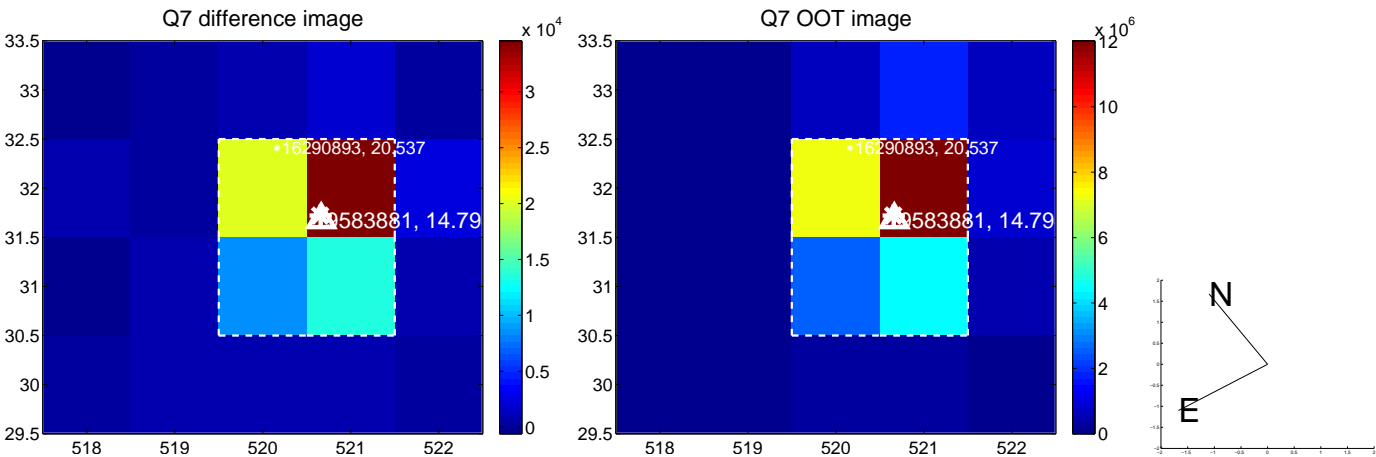
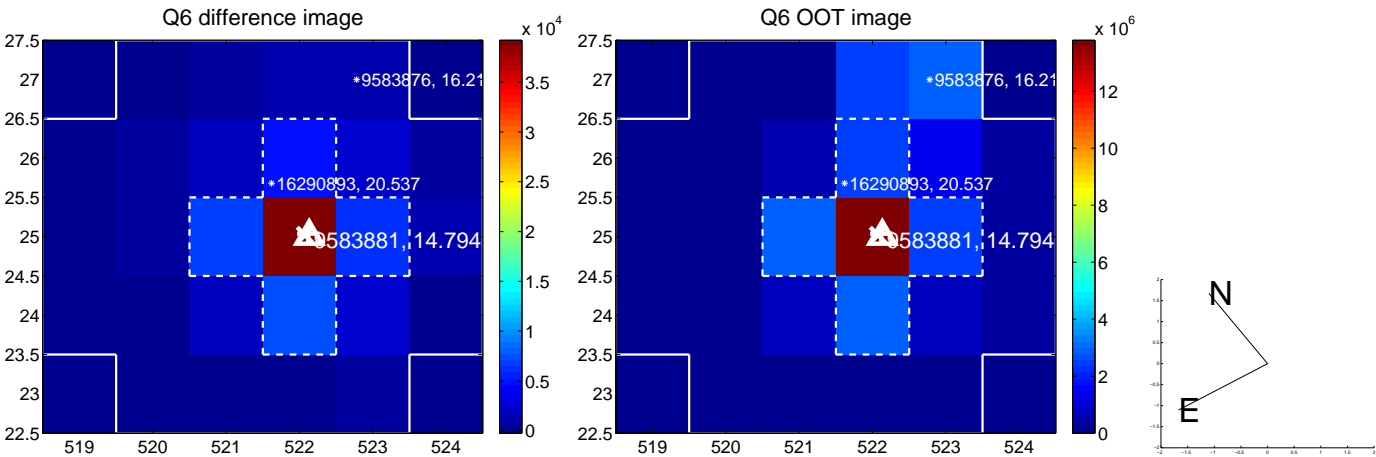
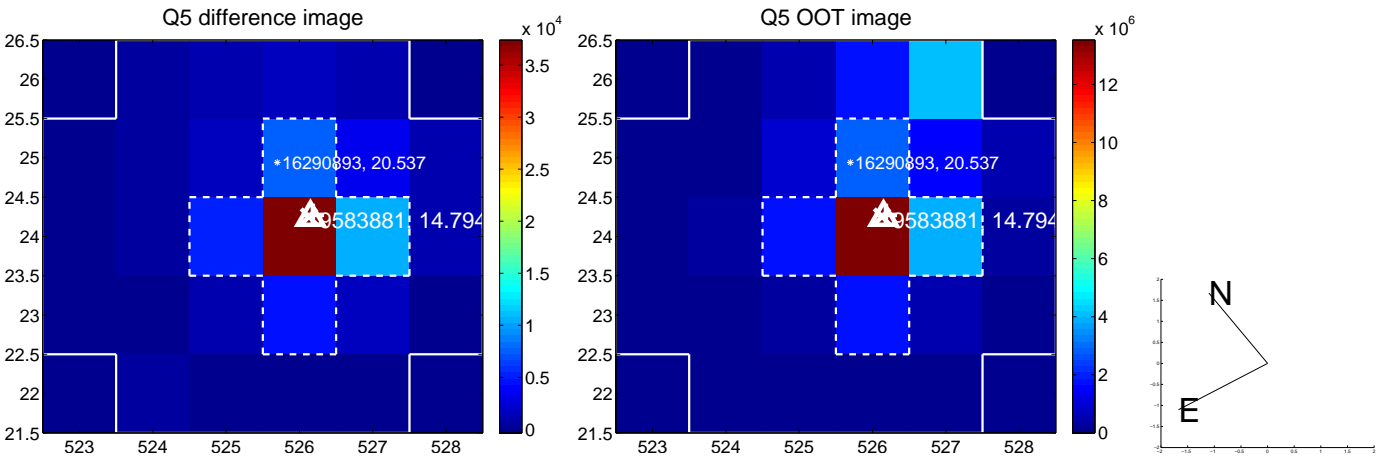
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



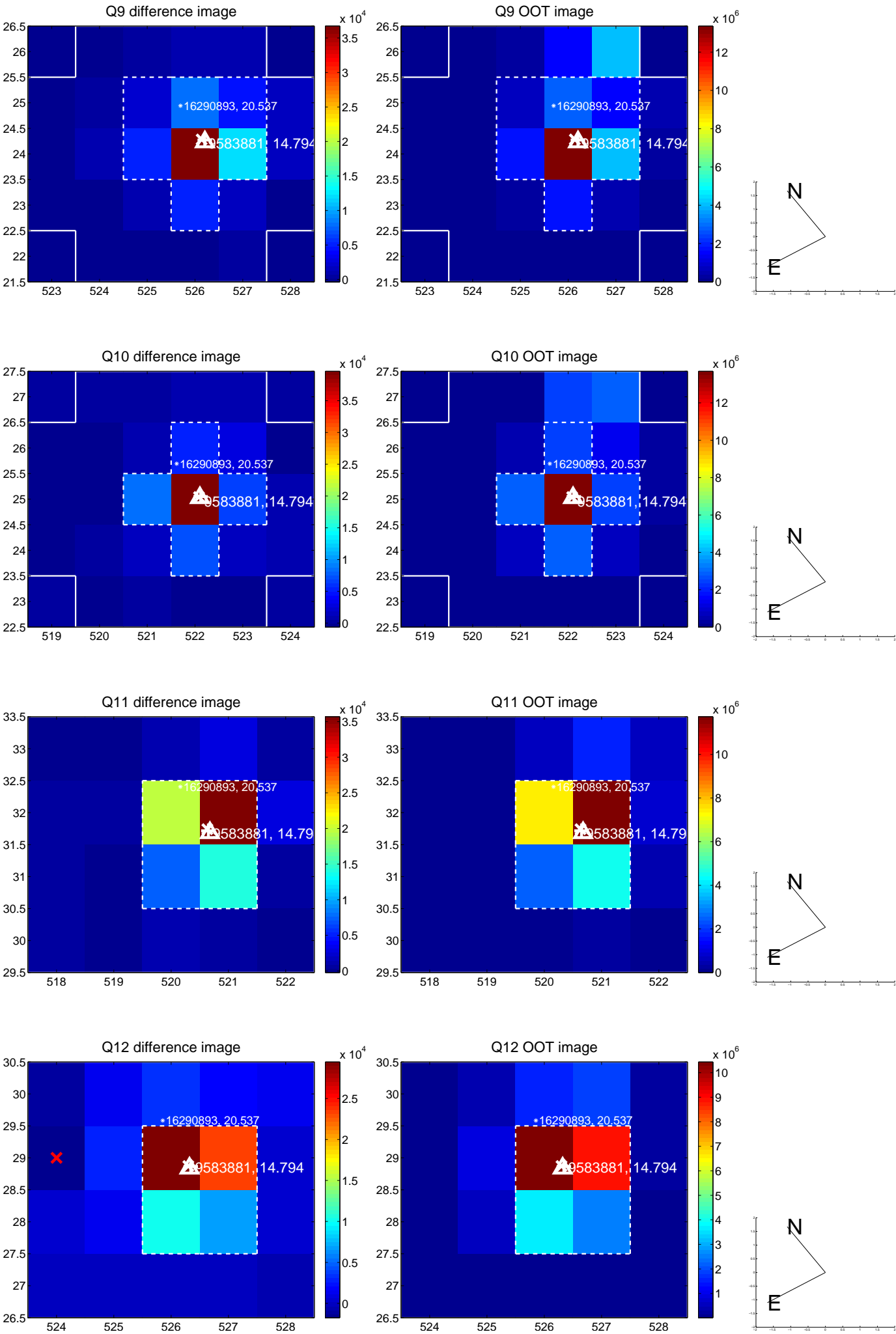
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



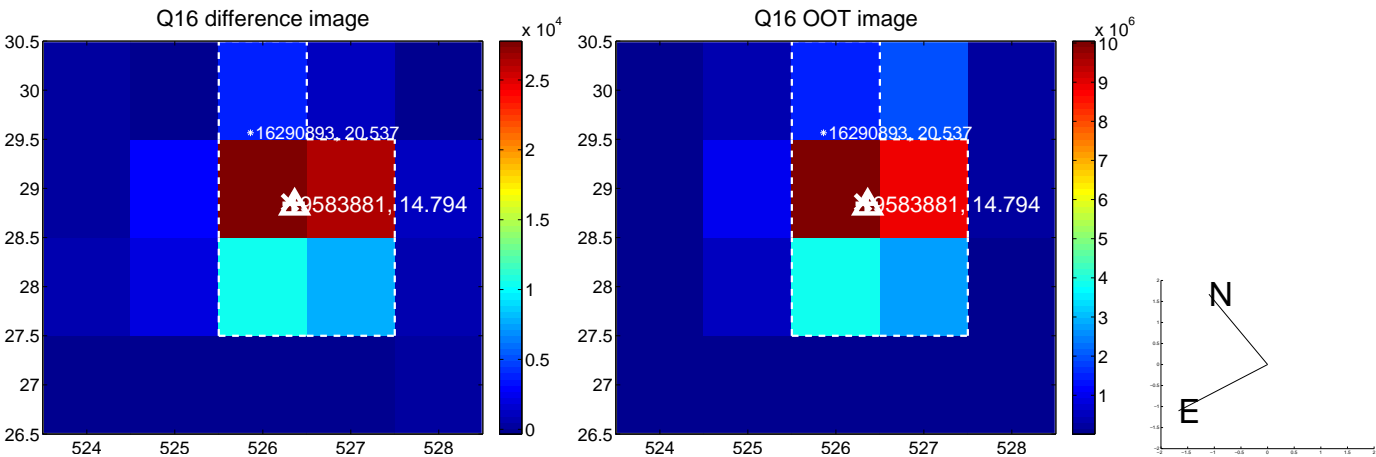
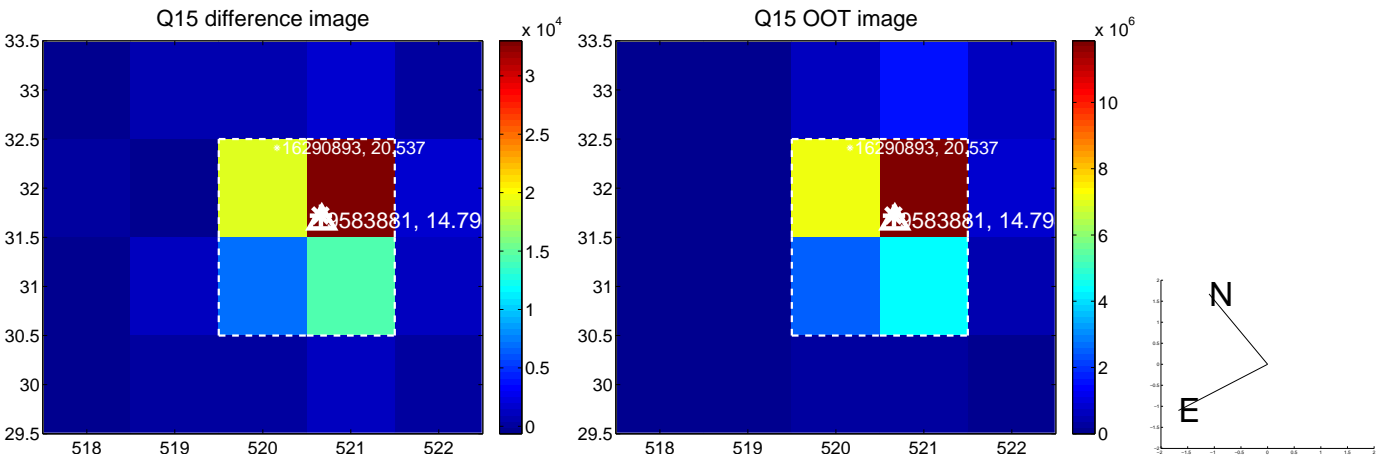
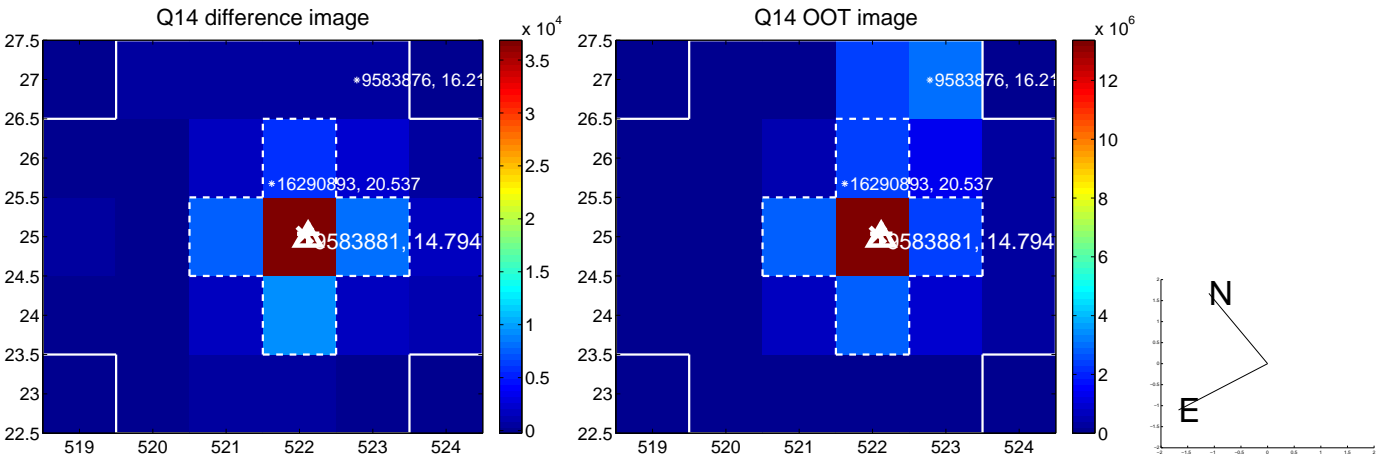
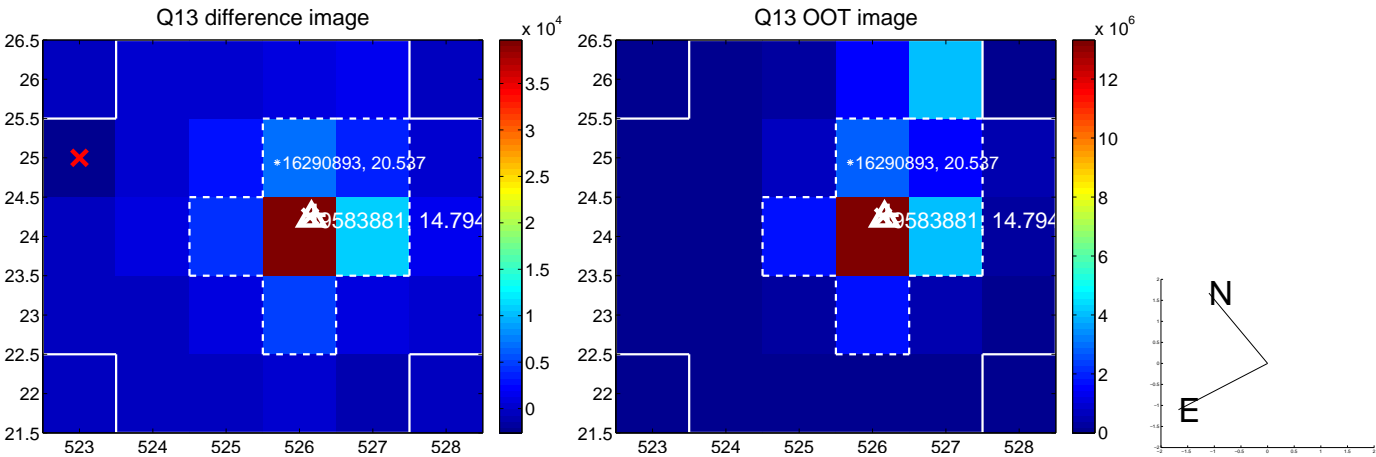
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



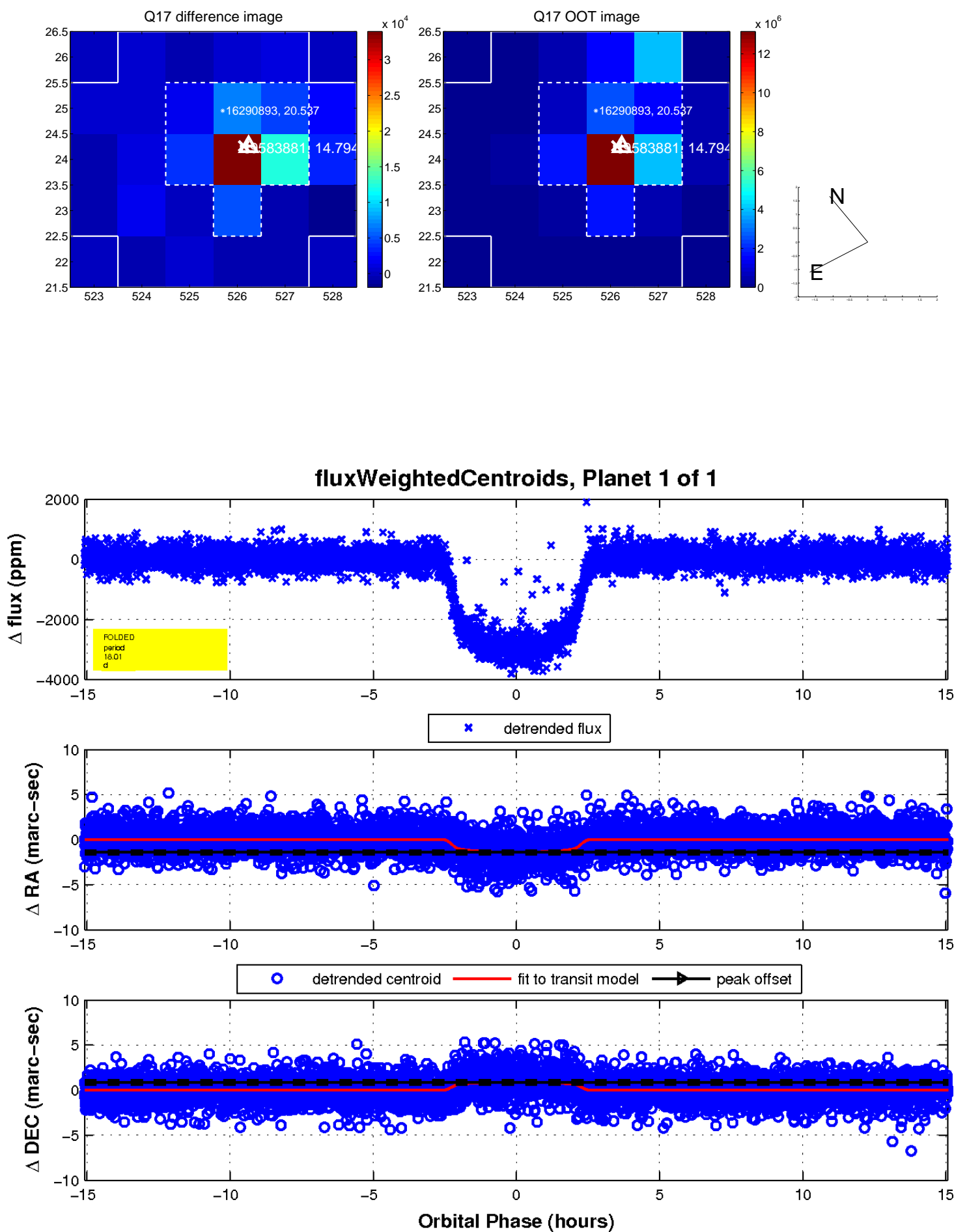
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

