

# KIC 009761882

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009761882-01	OBS	0948.01	24.587092	149.120736	920.6	4.105	30.5	34.3	0.75	5474	2.57	18.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009761882-01	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.

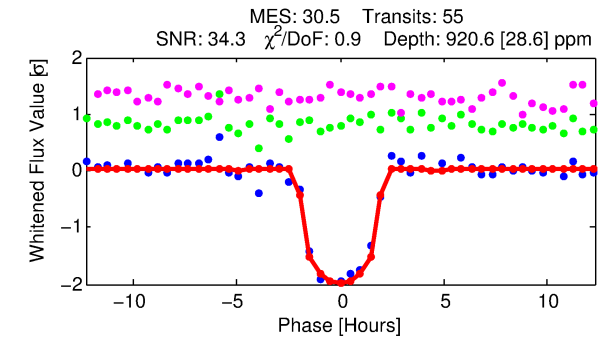
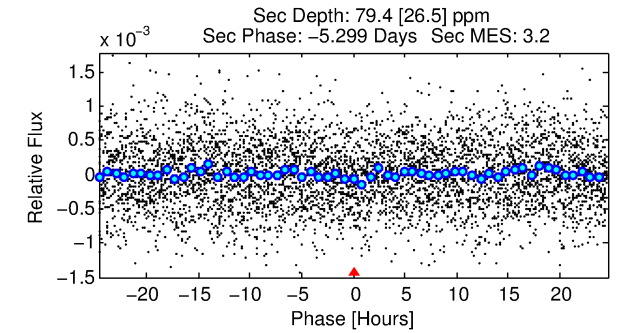
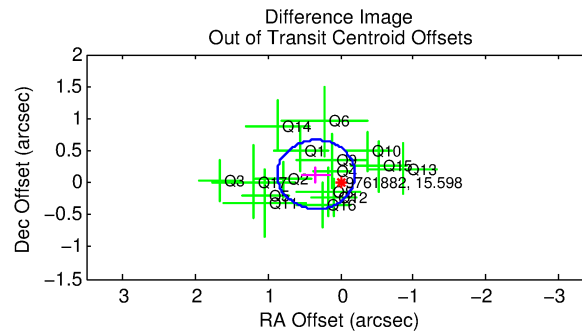
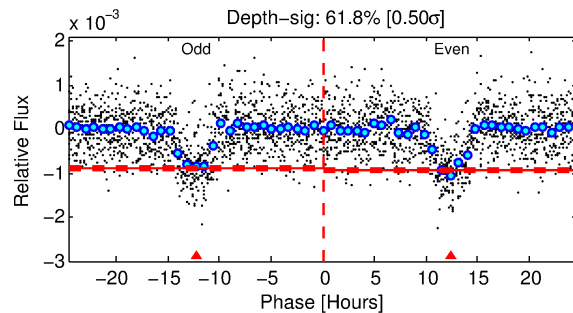
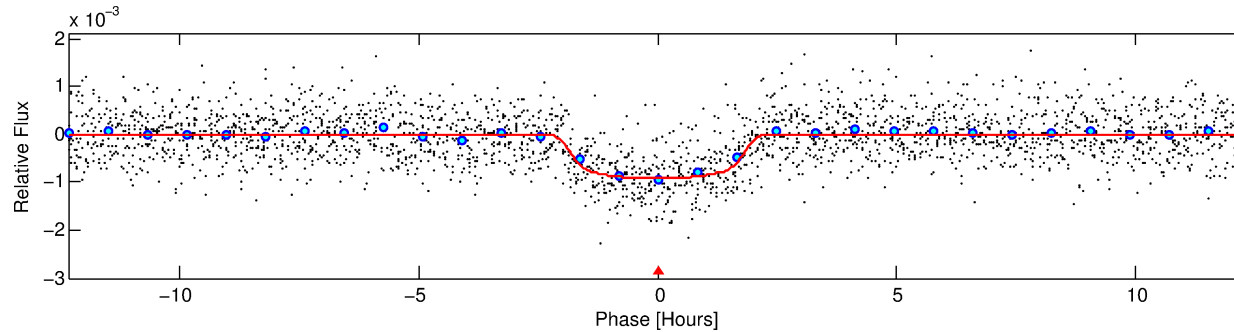
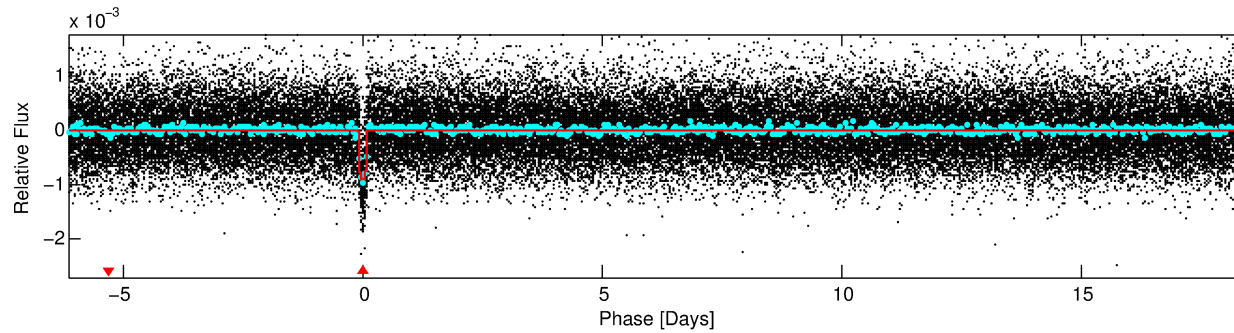
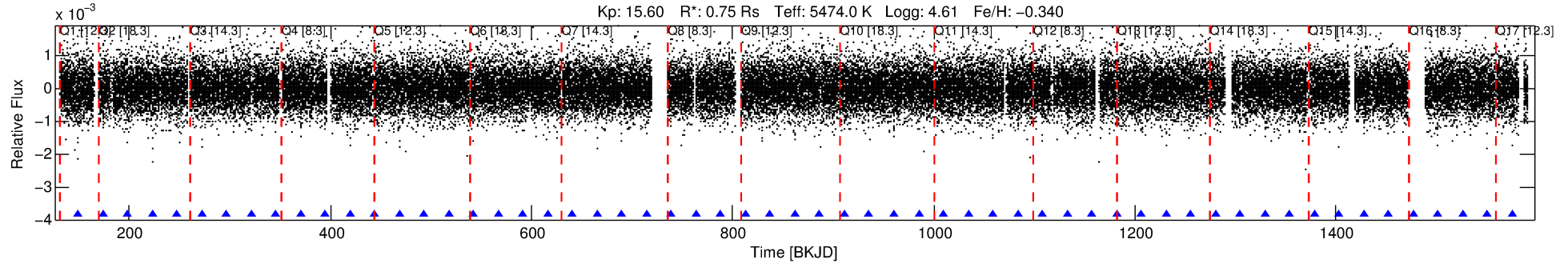
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009761882-01

No Significant Match Found

# DV One-Page Summary

KIC: 9761882 Candidate: 1 of 1 Period: 24.587 d  
KOI: K00948.01 Corr: 0.970



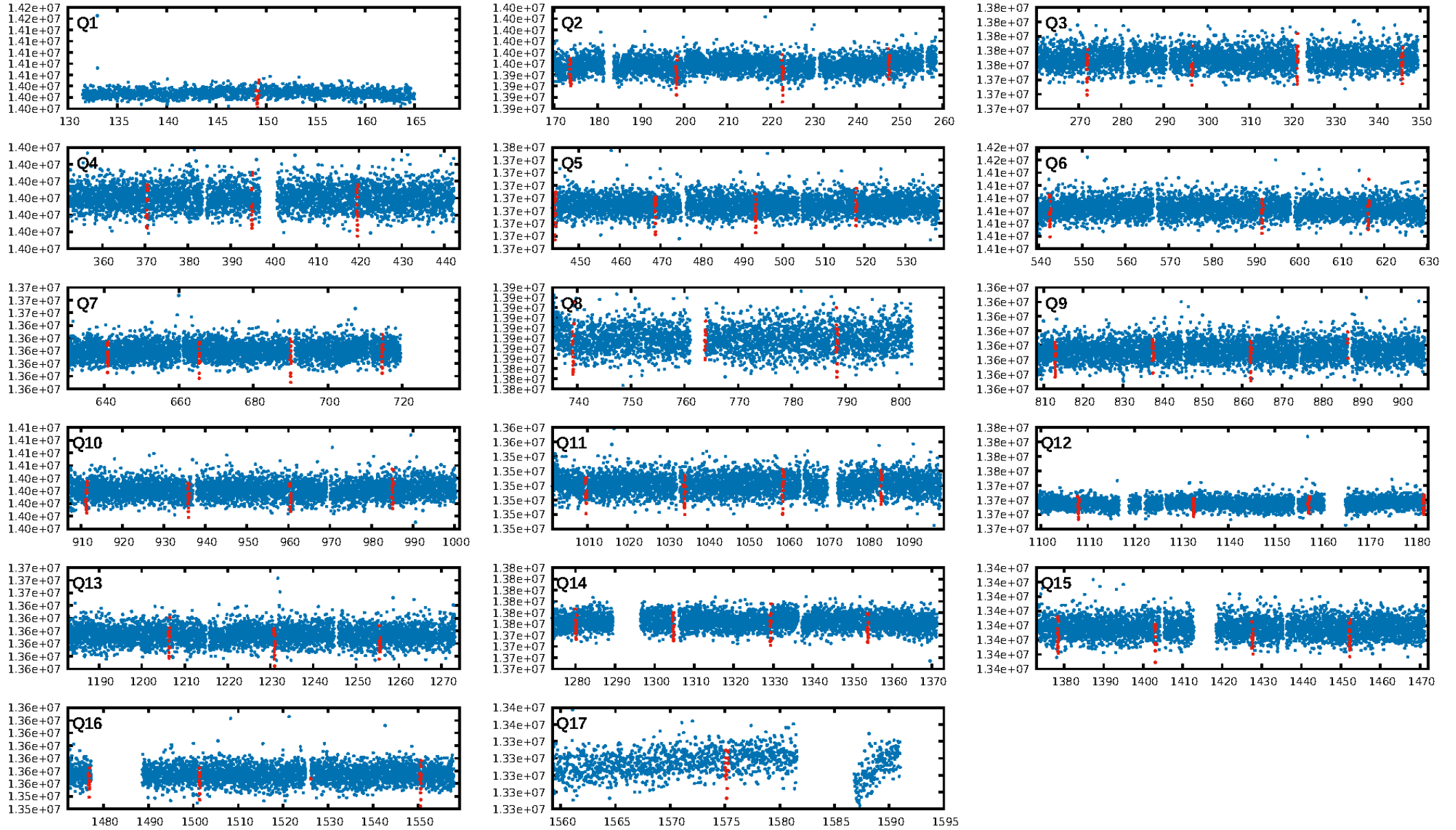
## DV Fit Results:

Period = 24.58709 [0.00009] d  
Epoch = 149.1207 [0.0029] BKJD  
Rp/R\* = 0.0315 [0.0038]  
a/R\* = 27.95 [14.38]  
b = 0.83 [0.20]  
Seff = 18.74 [4.34]  
Teq = 531 [31] K  
Rp = 2.57 [0.55] Re  
a = 0.1552 [0.0219] AU  
Ag = 159.11 [72.85] [2.17 $\sigma$ ]  
Teffp = 2913 [313] K [7.58 $\sigma$ ]

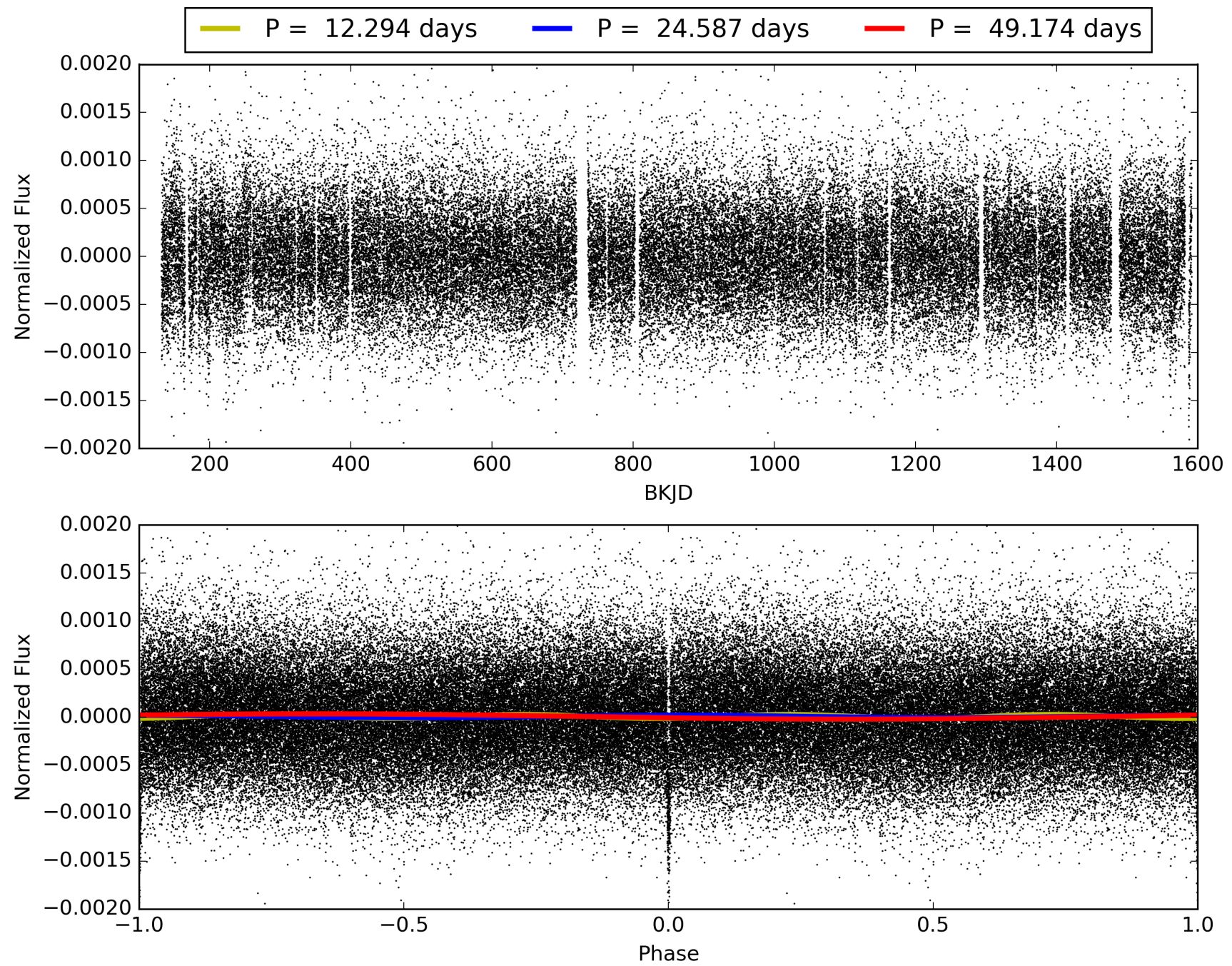
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 97.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.42e-200  
RollingBand-fgt: 1.00 [53/53]  
GhostDiagnostic-chr: 4.531  
Centroid-sig: 0.0%  
Centroid-so: 1.164 arcsec [2.69 $\sigma$ ]  
OotOffset-rm: 0.360 arcsec [2.01 $\sigma$ ]  
KicOffset-rm: 0.393 arcsec [2.44 $\sigma$ ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 009761882-01, PDC Light Curves

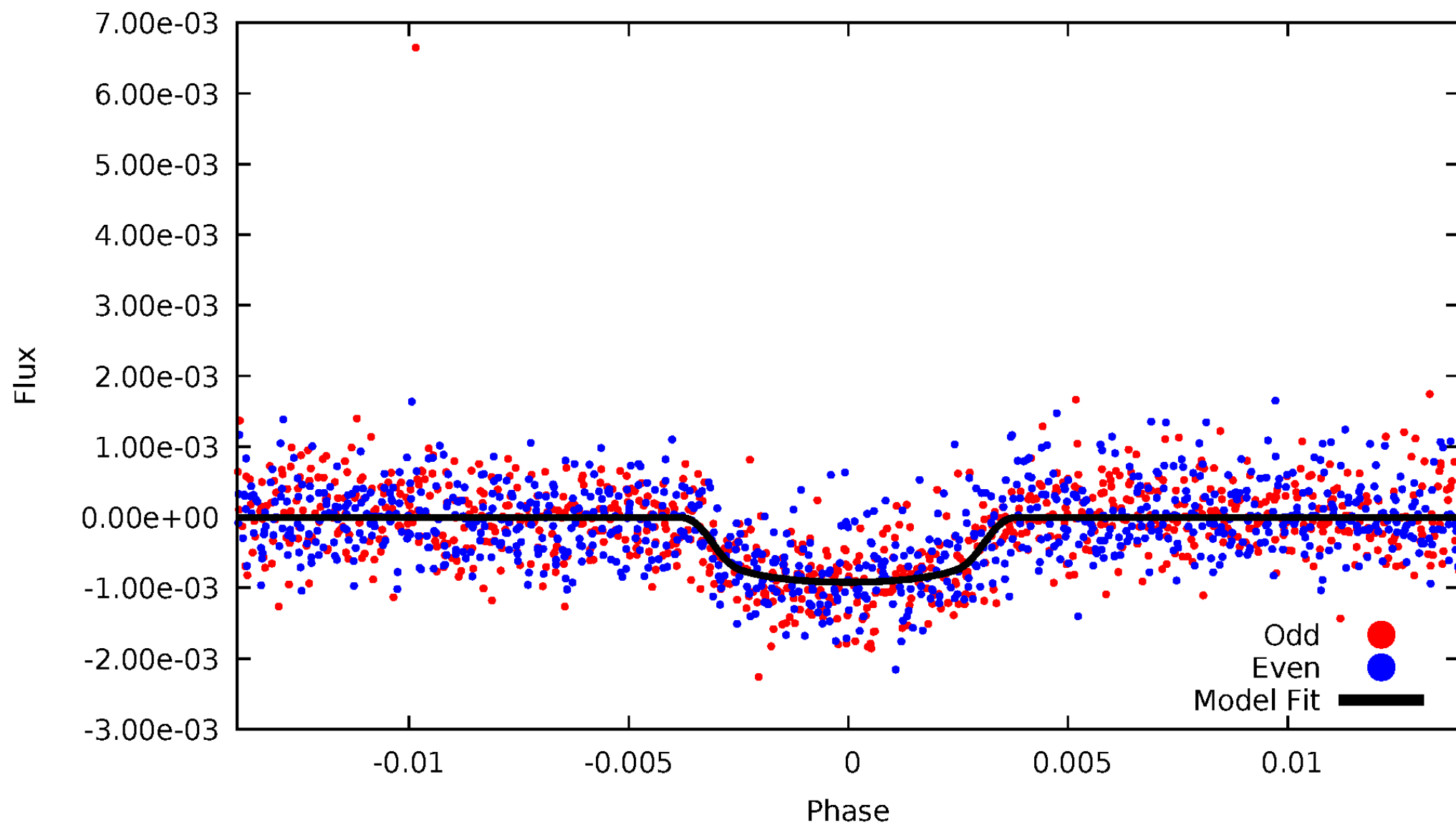


TCE 009761882-01



# DV Odd/Even

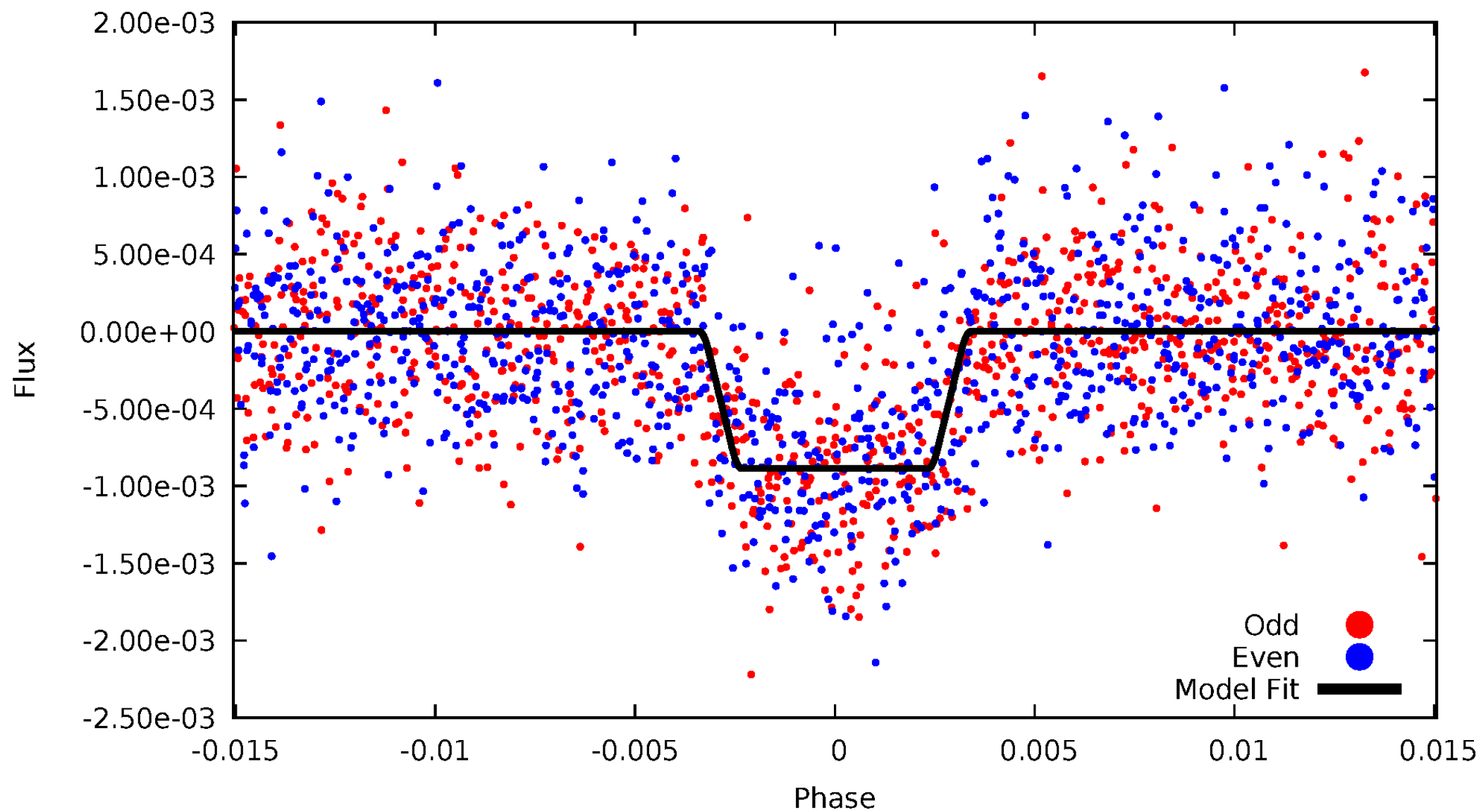
TCE 009761882-01





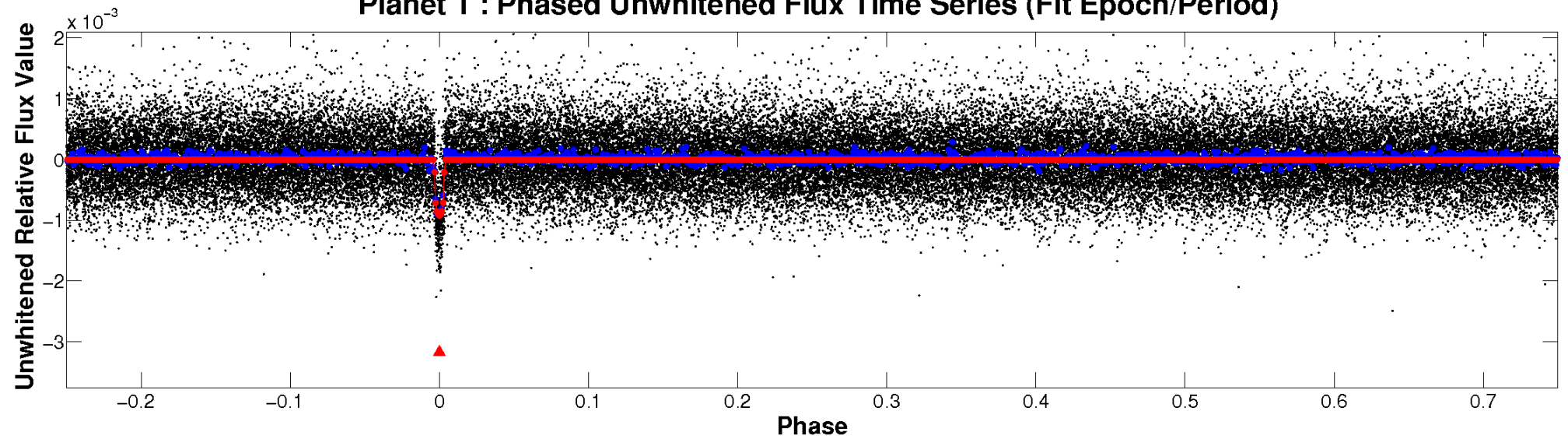
# ALT Odd/Even

TCE 009761882-01

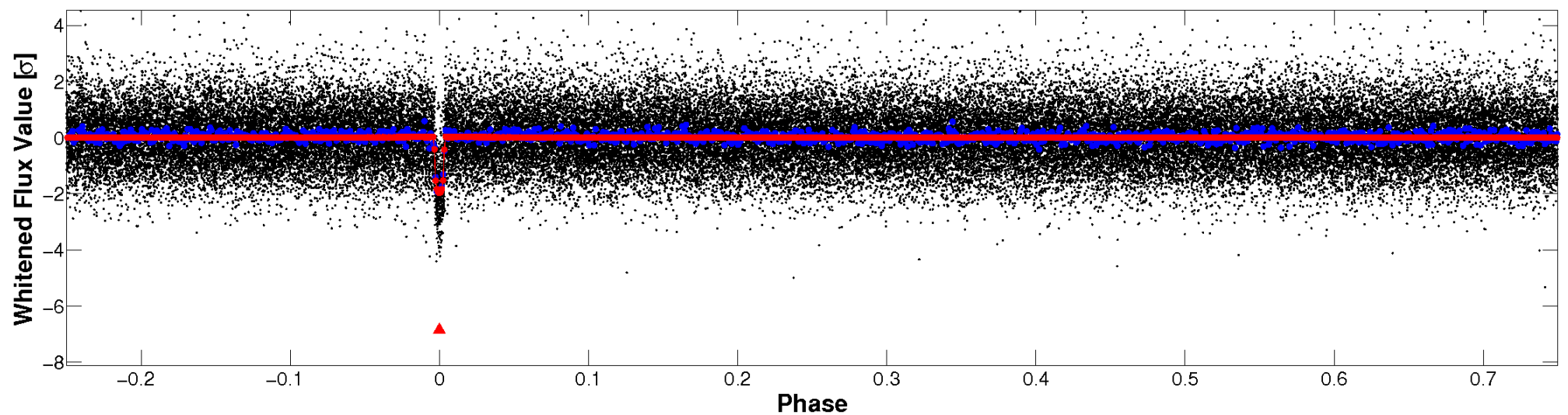


# Non-Whitened Vs. Whitened Light Curve

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

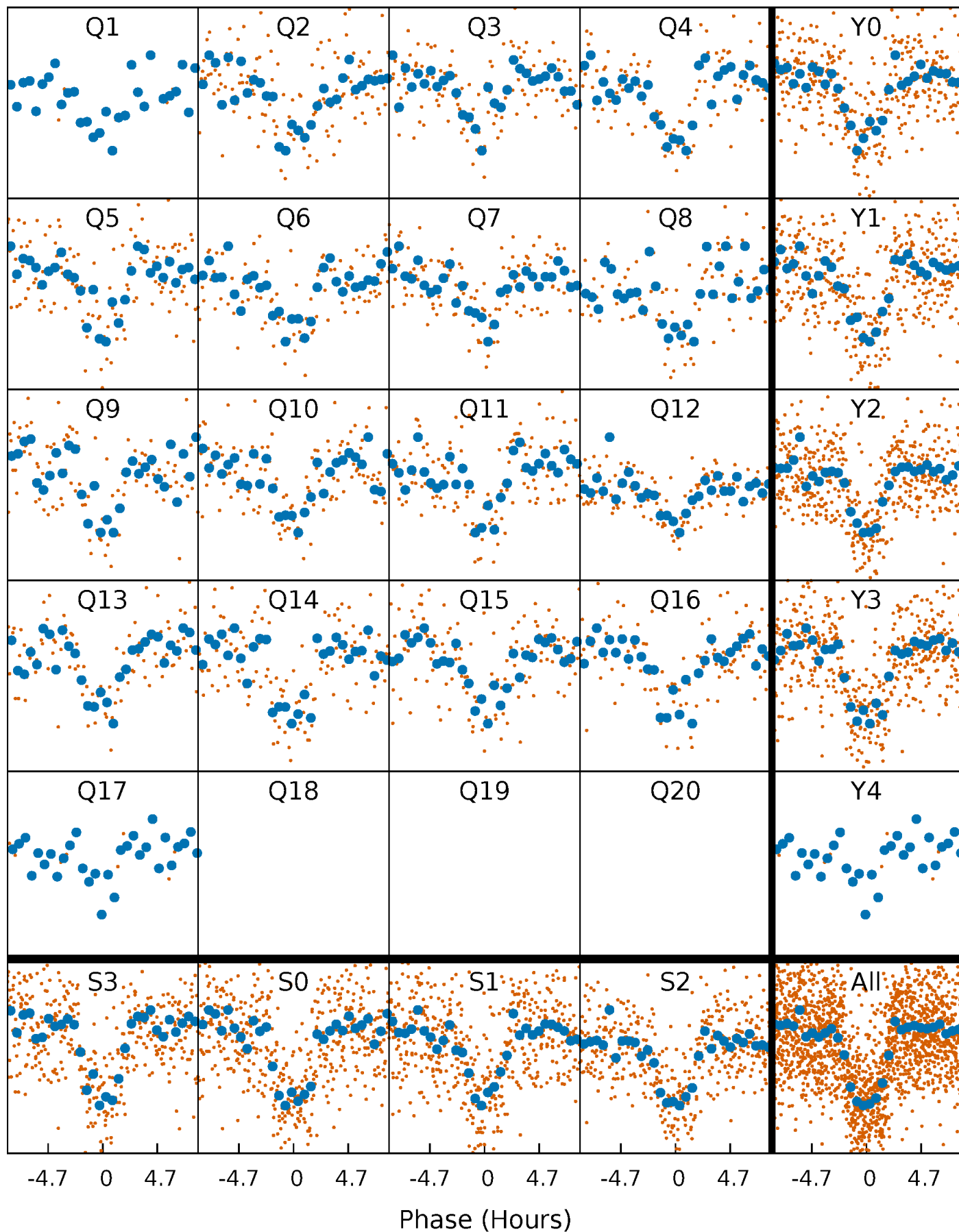


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

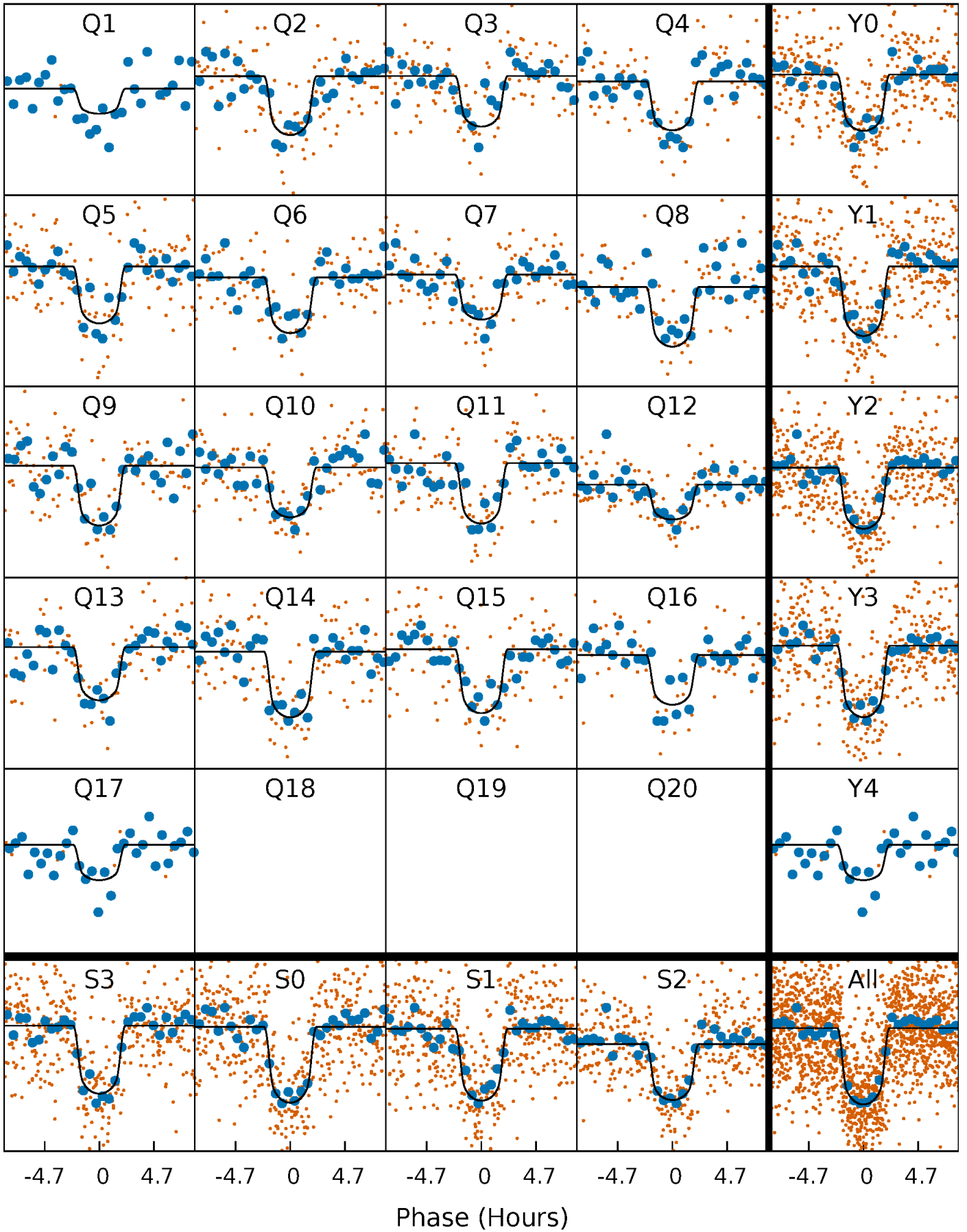
TCE 009761882-01 P= 24.587092 Days  $T_0=149.120736$  (BKJD)





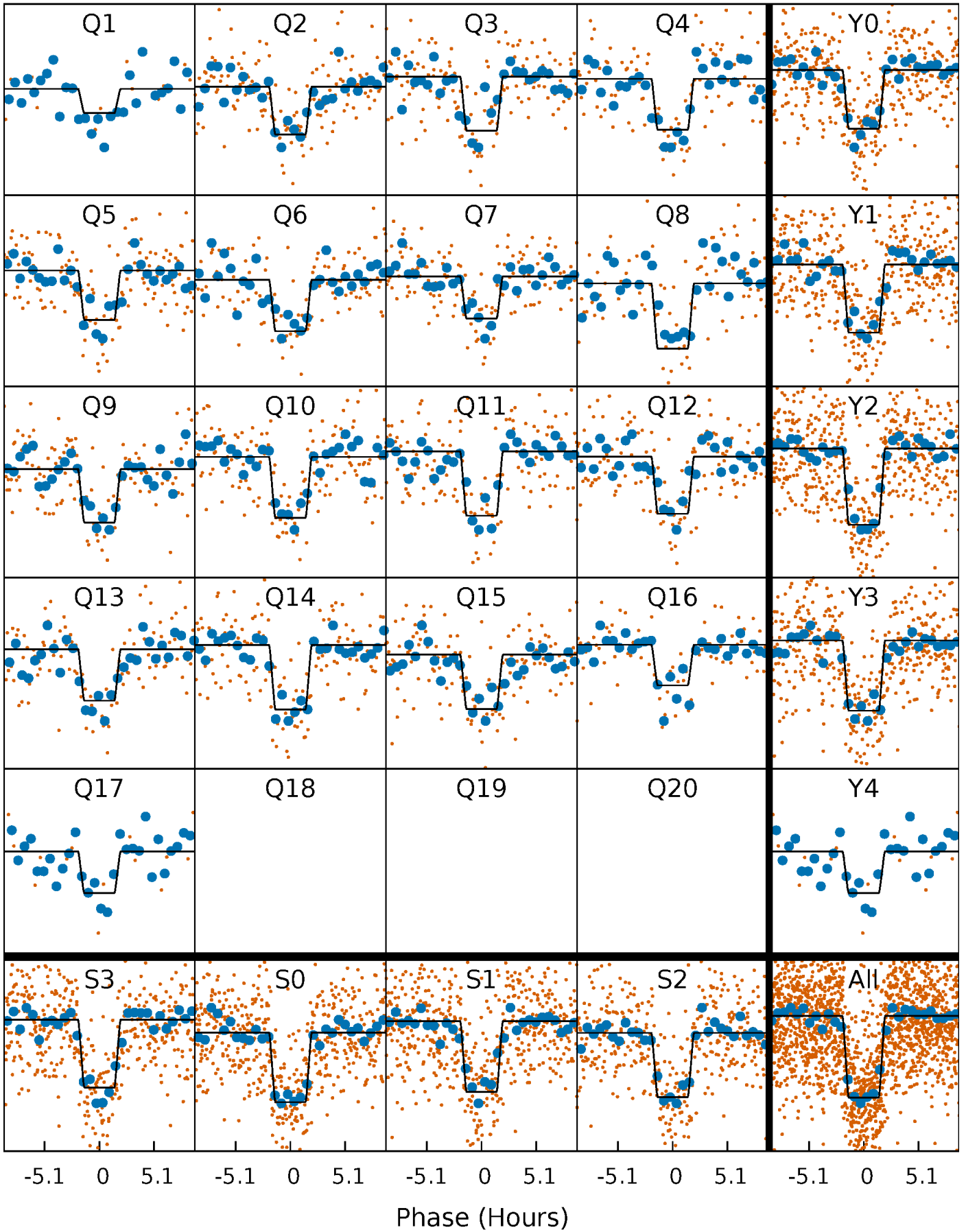
# DV Quarter-Phased Transit Curves

TCE 009761882-01 P= 24.587092 Days  $T_0=149.120736$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

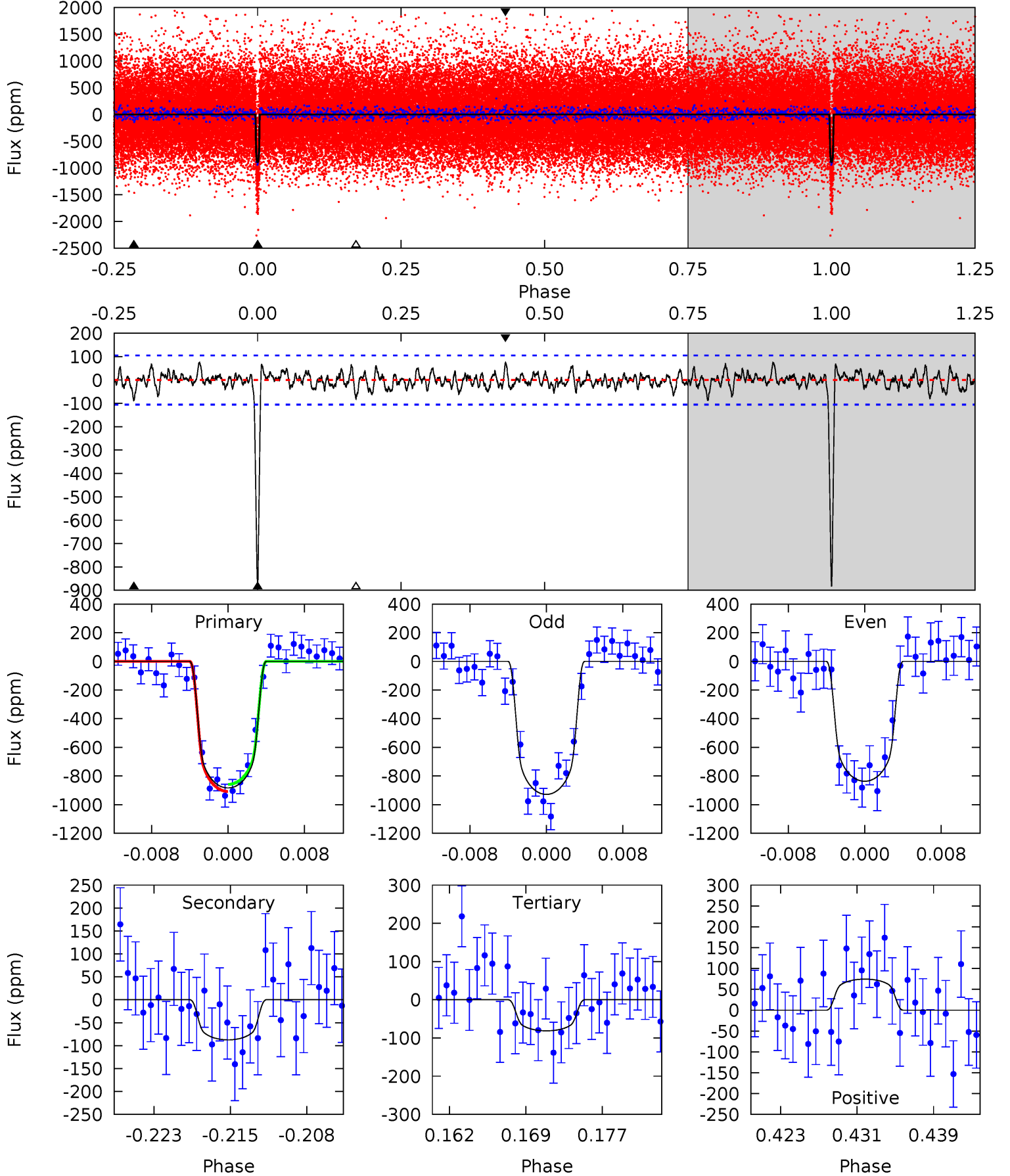
TCE 009761882-01 P= 24.587015 Days  $T_0=149.122197$  (BKJD)



# DV Model-Shift Uniqueness Test

009761882-01,  $P = 24.587092$  Days,  $E = 124.533644$  Days

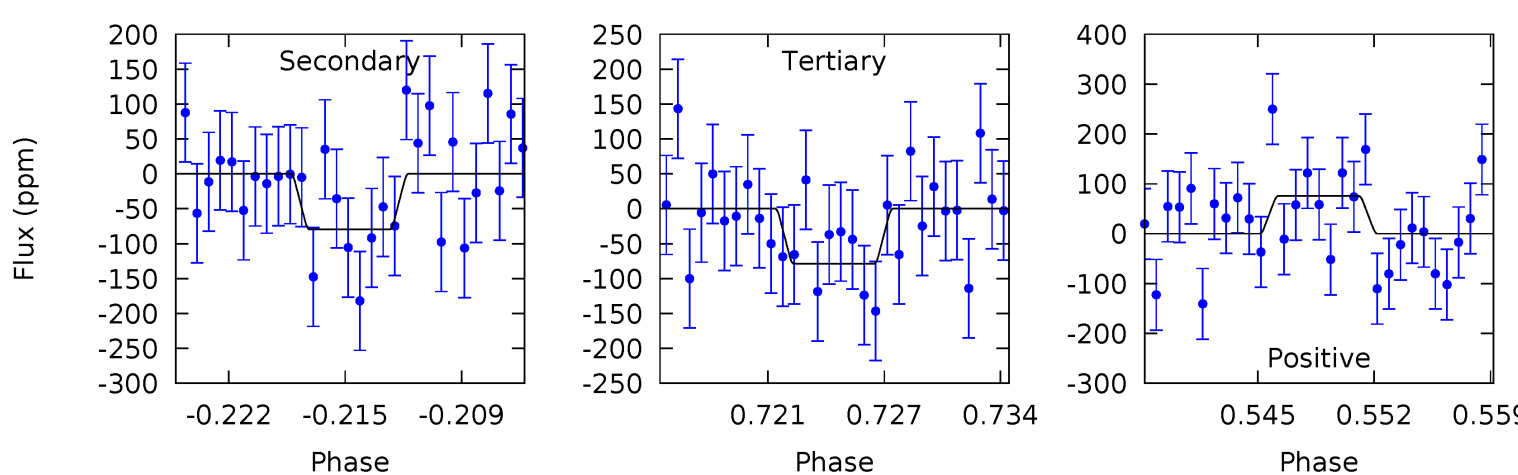
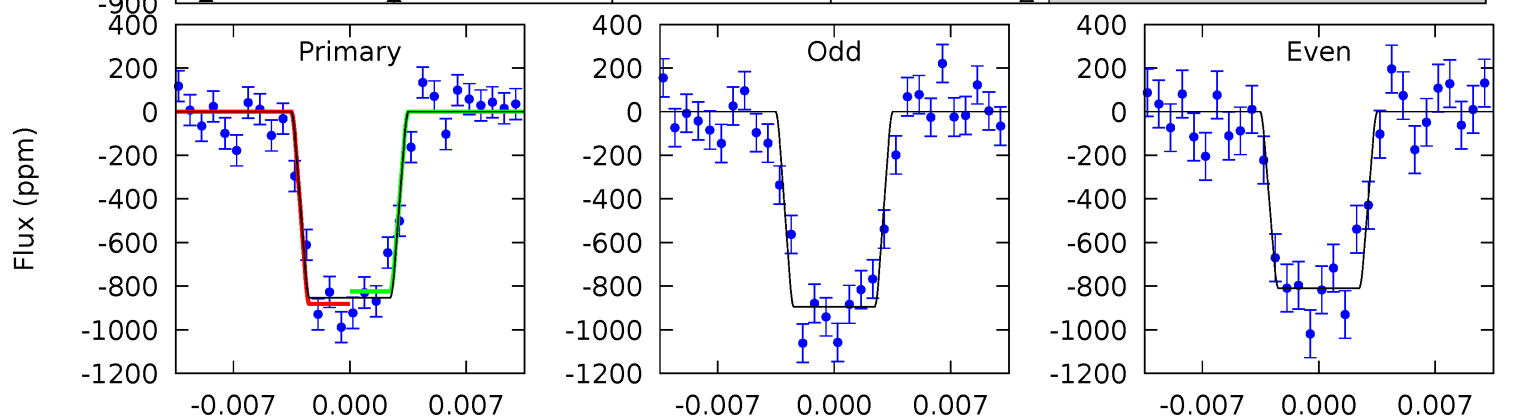
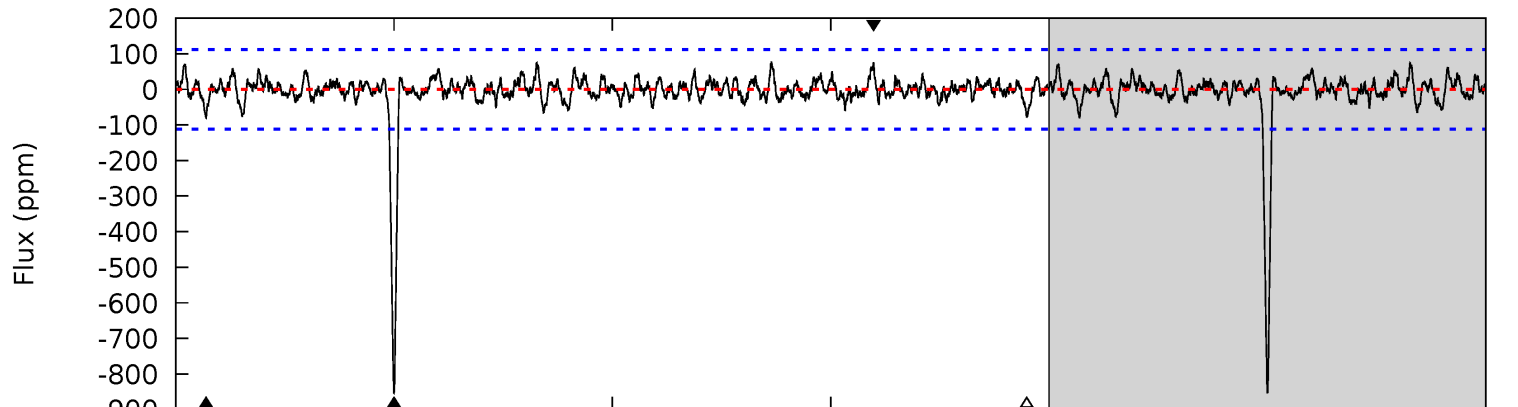
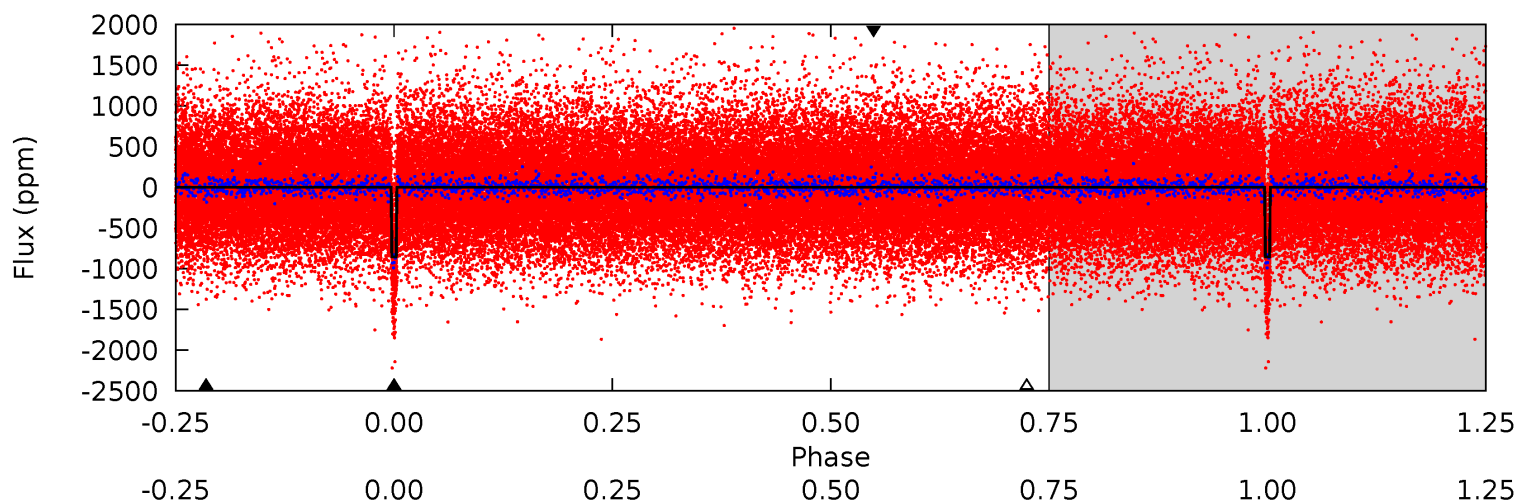
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.7	4.23	3.93	3.60	5.08	2.67	1.18	38.8	39.1	0.30	0.62	2.22	1.01	0.08	1.19



# Alt Model-Shift Uniqueness Test

009761882-01, P = 24.587015 Days, E = 124.535182 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
39.0	3.63	3.60	3.45	5.10	2.71	1.05	35.4	35.6	0.03	0.19	1.96	1.01	0.08	1.32



### Stellar Parameters For KIC 009761882

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5474^{+147}_{-163}$	$4.605^{+0.037}_{-0.105}$	$-0.340^{+0.300}_{-0.300}$	$0.749^{+0.130}_{-0.065}$	$0.831^{+0.080}_{-0.089}$	$2.791^{+0.526}_{-0.926}$
	+3%/-3%	+1%/-2%	+88%/-88%	+17%/-9%	+10%/-11%	+19%/-33%
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 009761882-01 / KOI 0948.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-87 \pm 21$	$2.64^{+0.39}_{-0.37}$	$750^{+34}_{-29}$	$3461^{+207}_{-199}$	$162^{+74}_{-51}$
Alt.	$-80 \pm 22$	$2.49^{+0.39}_{-0.34}$	$751^{+32}_{-27}$	$3477^{+206}_{-214}$	$168^{+76}_{-58}$

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



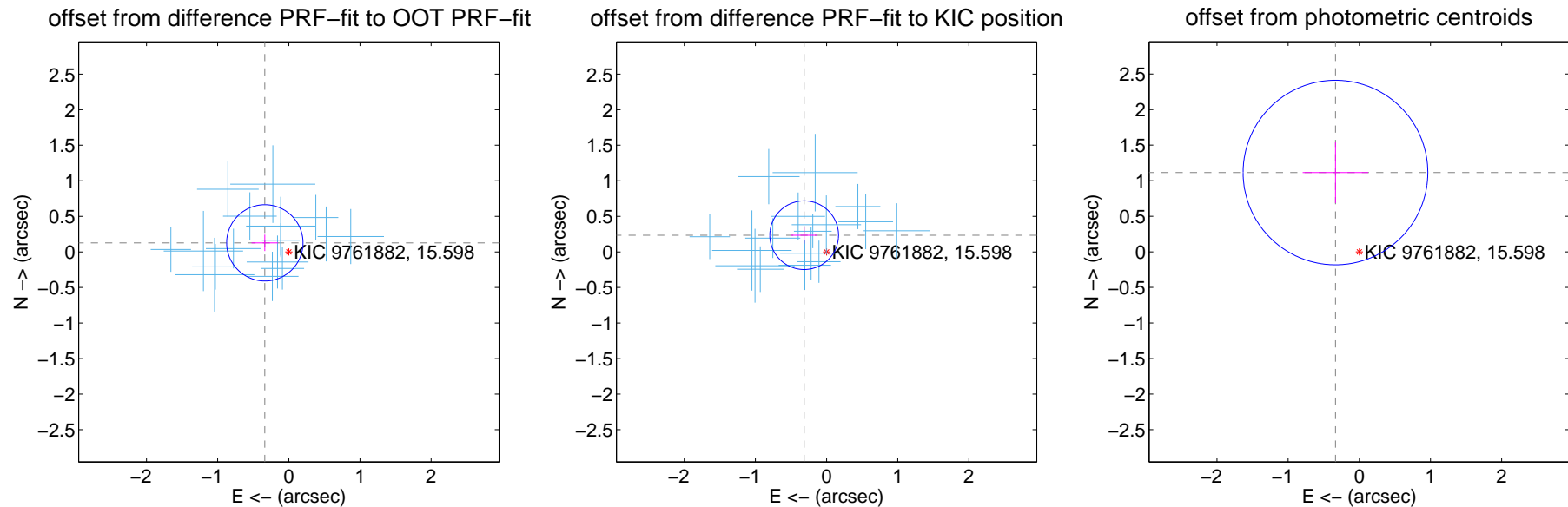
## DV Centroid Data

Supplemental centroid analysis for 009761882-01. Kepler magnitude: 15.60. Transit SNR 34.26

There are 16 quarters with good PRF difference image offsets

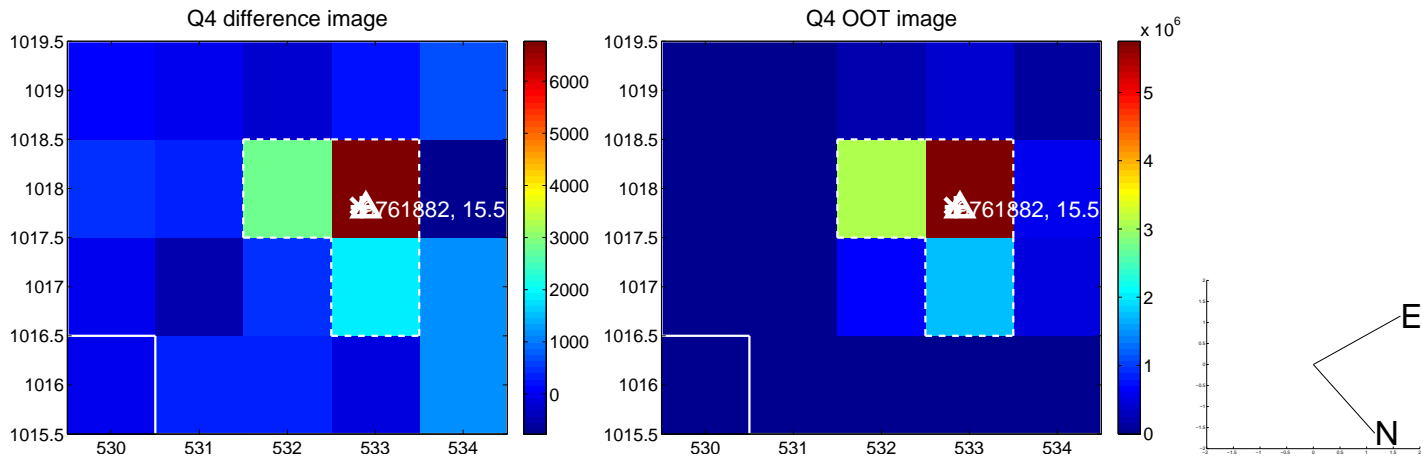
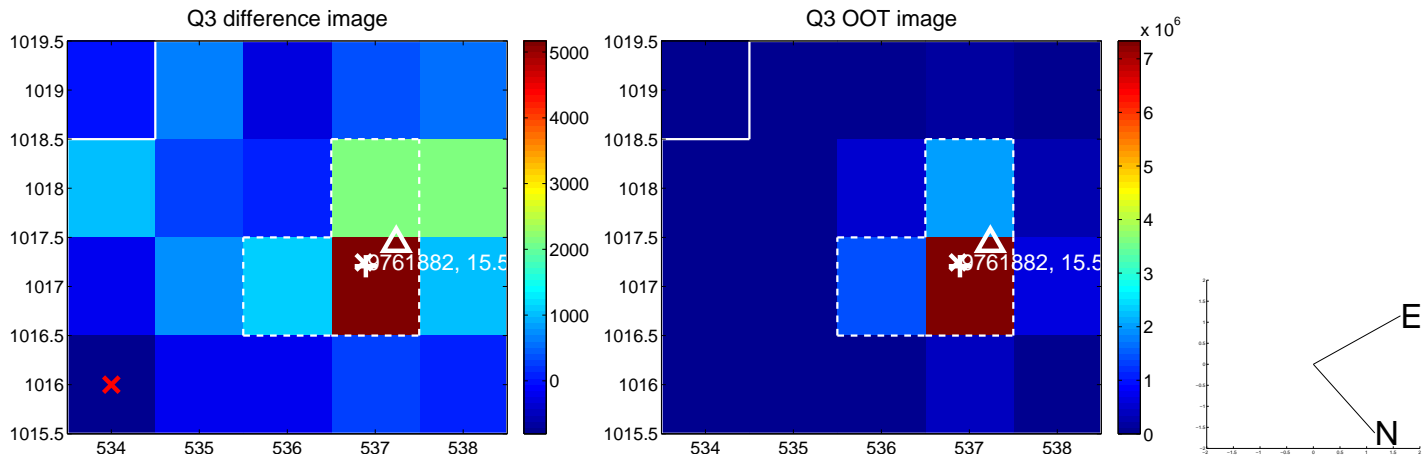
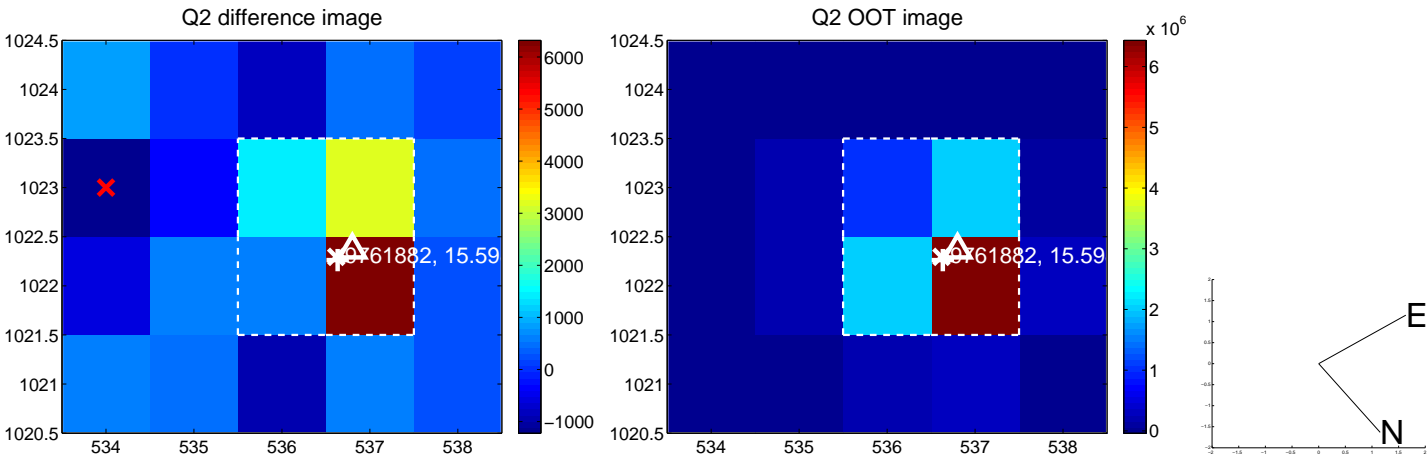
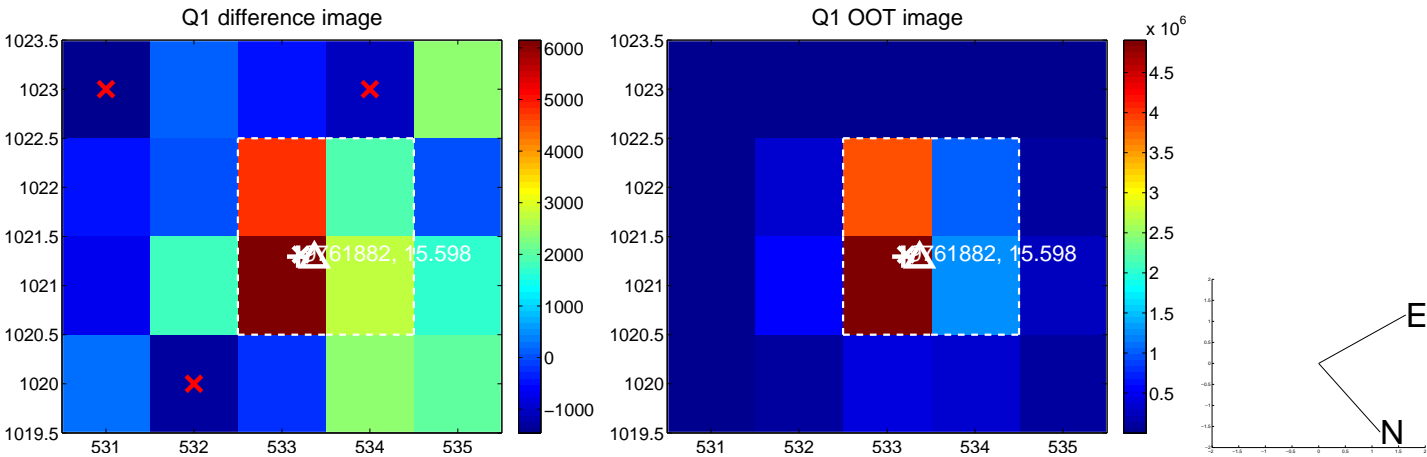
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.360 \pm 0.179$	2.01	$0.337 \pm 0.186$	$0.127 \pm 0.115$
PRF-fit source offset from KIC position	$0.393 \pm 0.161$	2.44	$0.315 \pm 0.180$	$0.235 \pm 0.118$
photometric centroid source offset	$1.16 \pm 0.43$	2.69	$0.34 \pm 0.46$	$1.11 \pm 0.43$

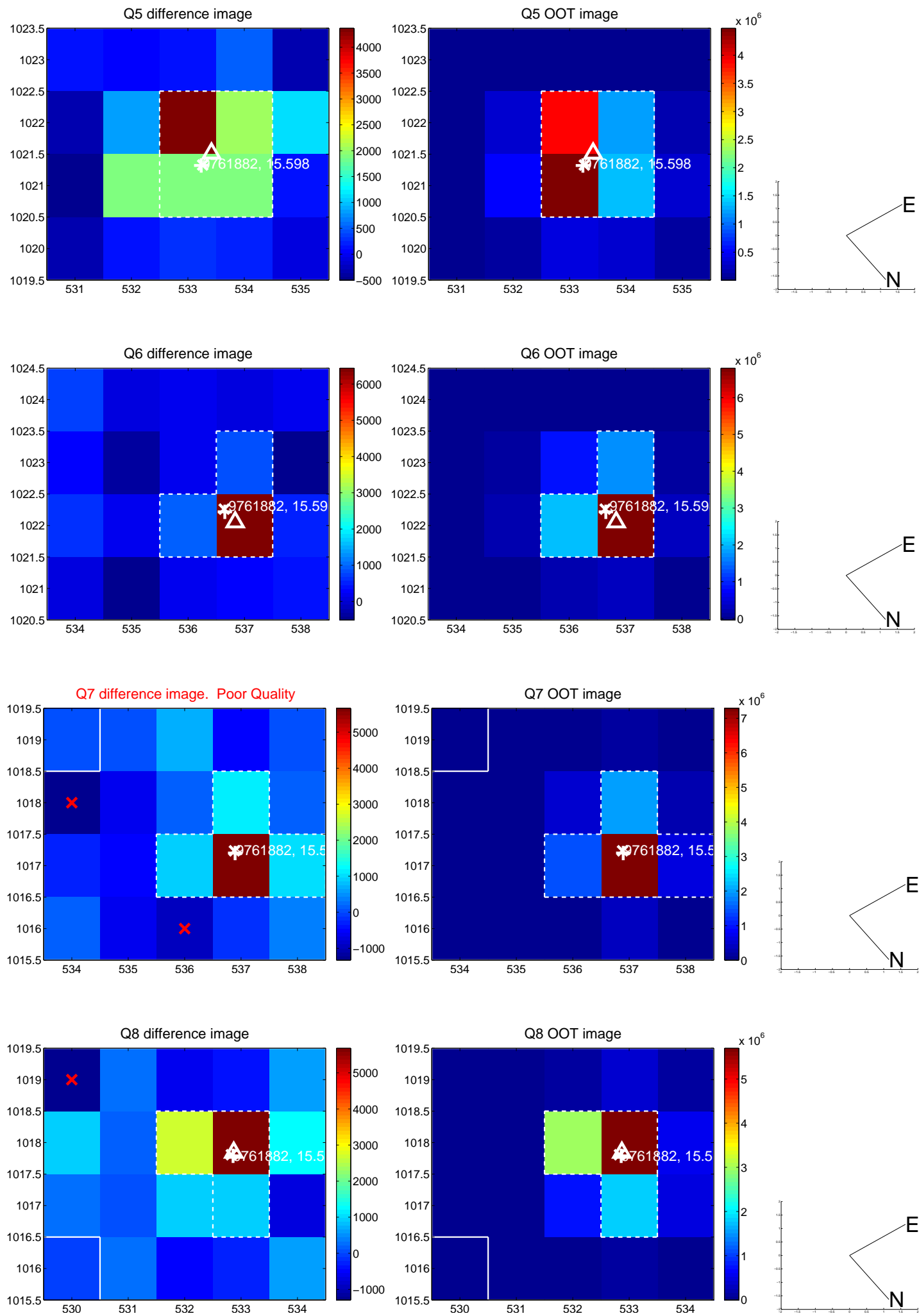


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

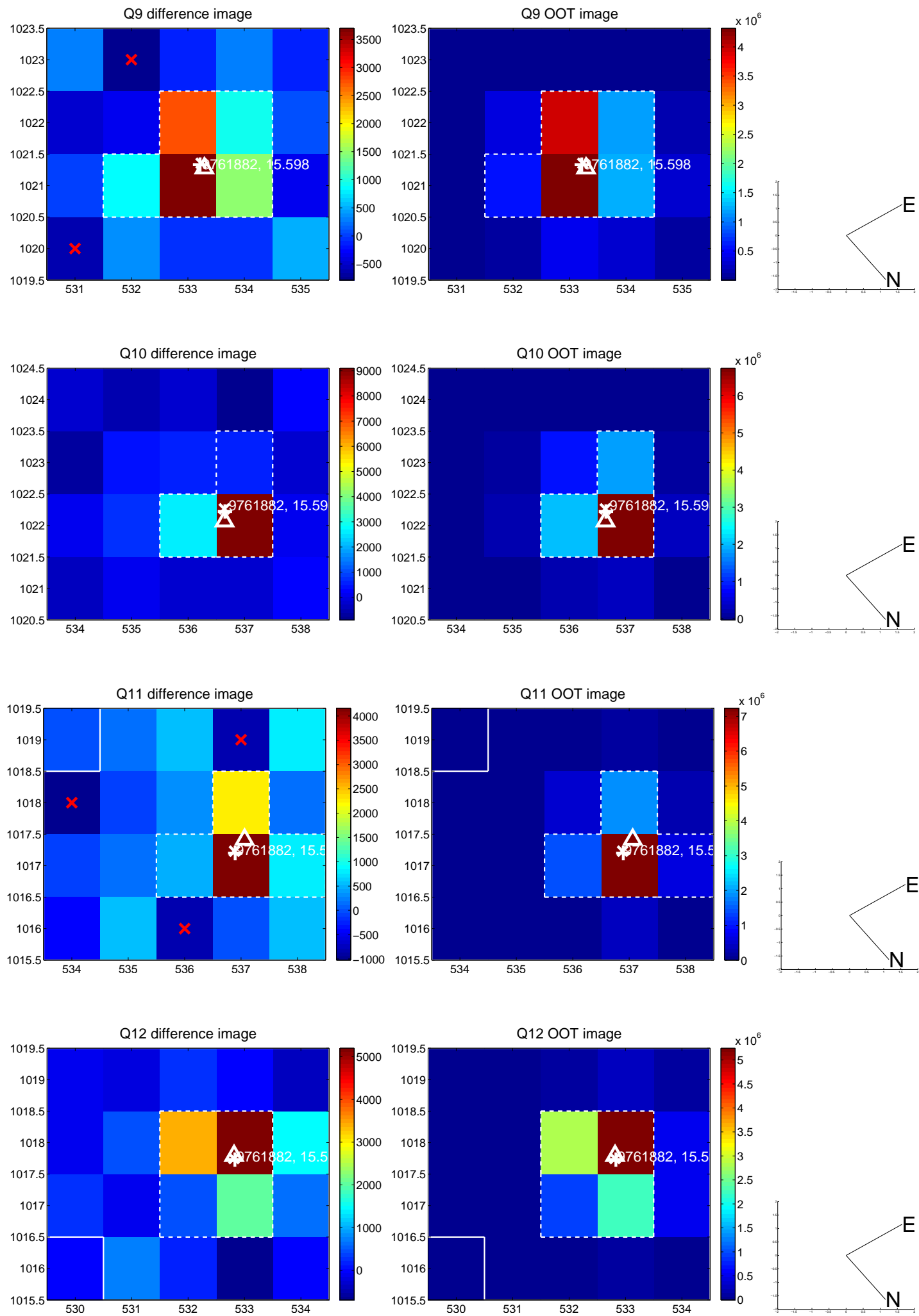
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



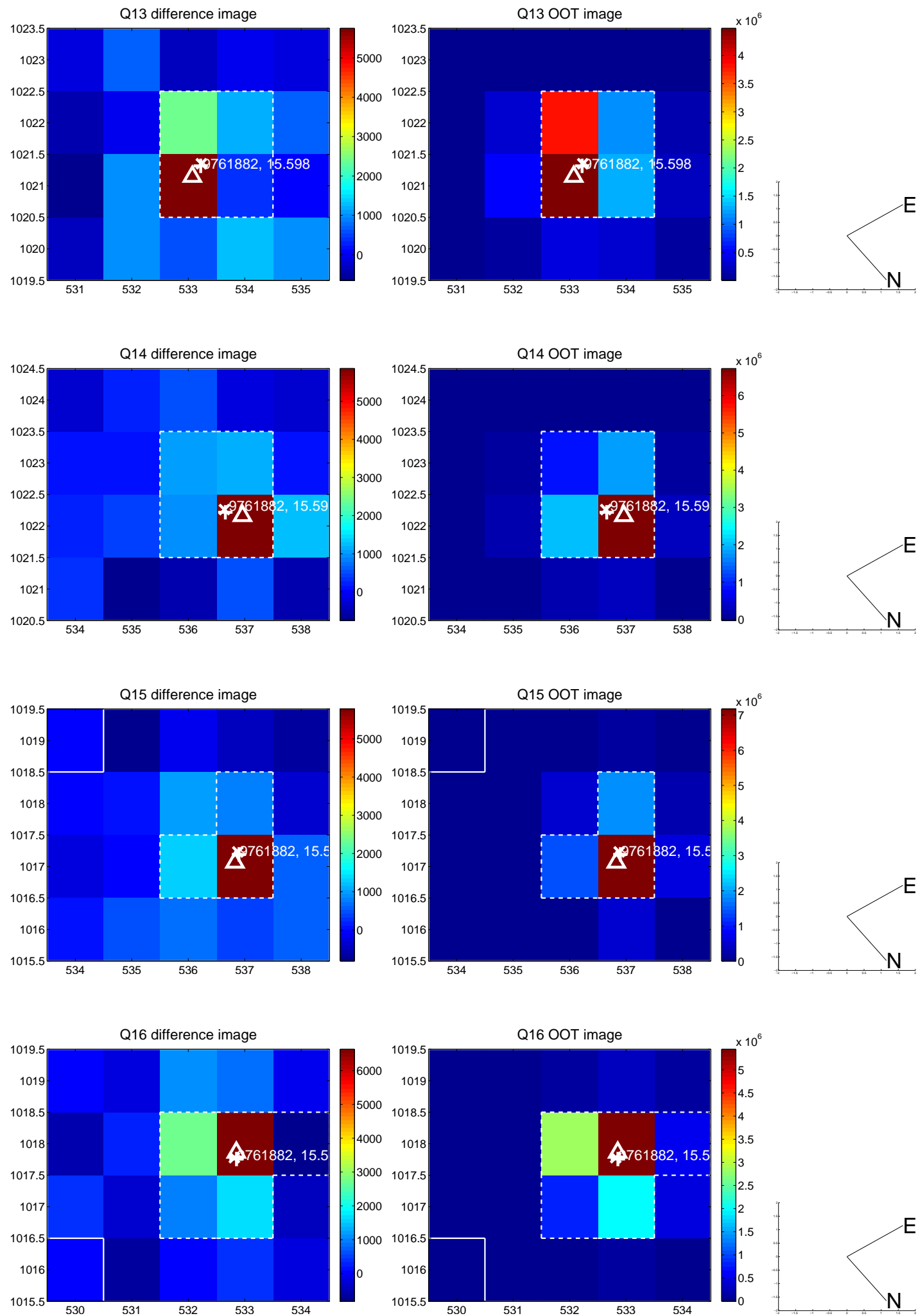
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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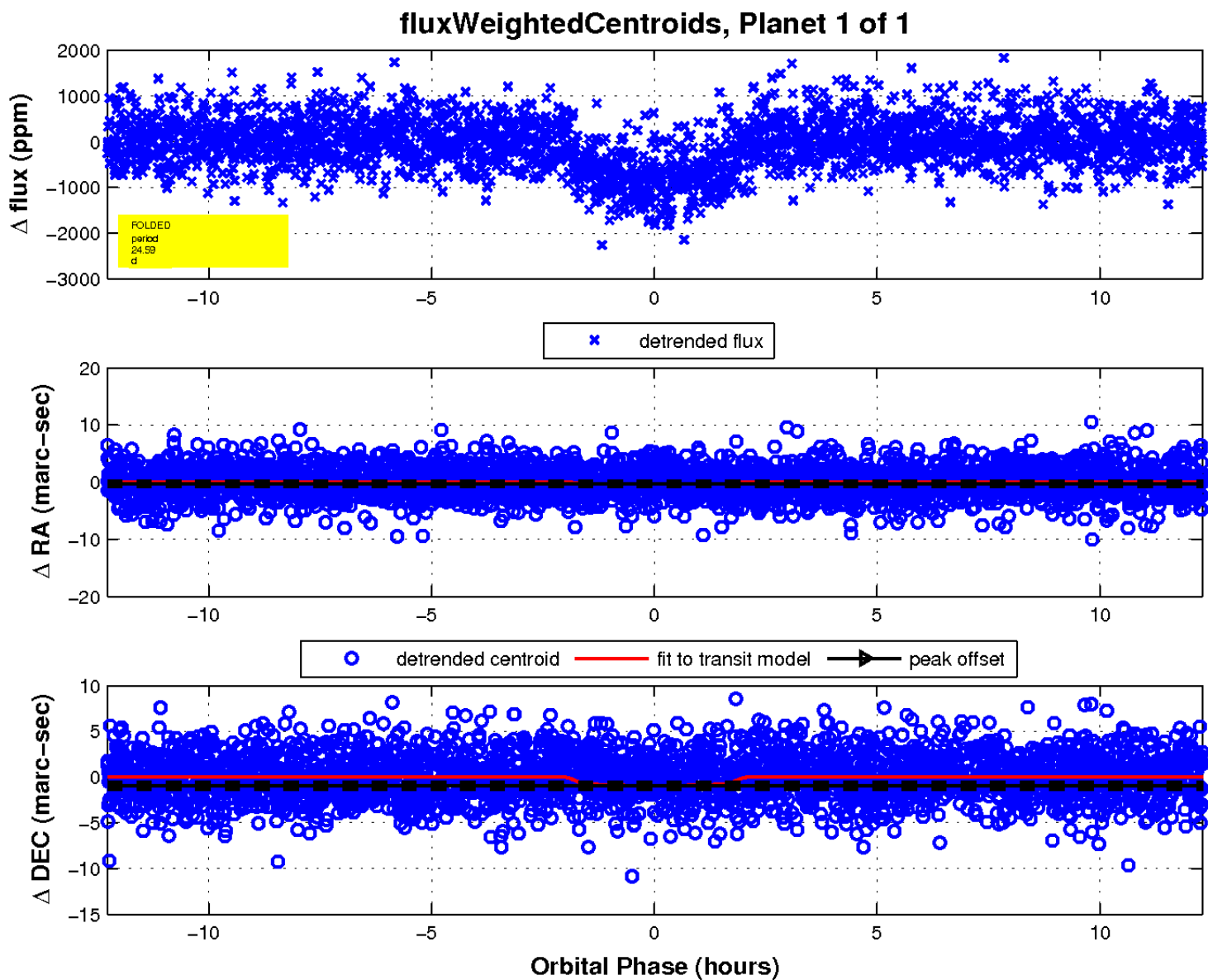
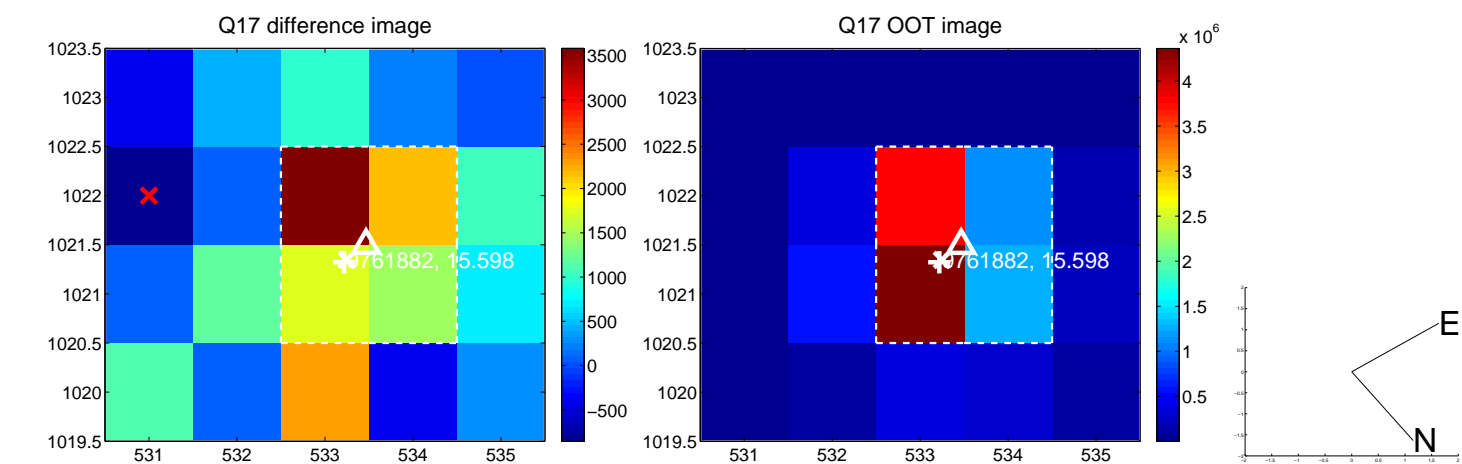


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

