

# KIC 009913481

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009913481-01	OBS	7253.01	3.504742	133.319537	100231.5	8.276	24773.3	18826.9	3.68	7624	180.85	12382.46

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009913481-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—CENT_SATURATED

**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.

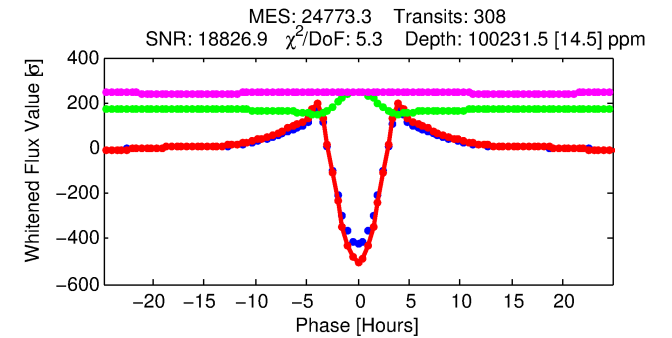
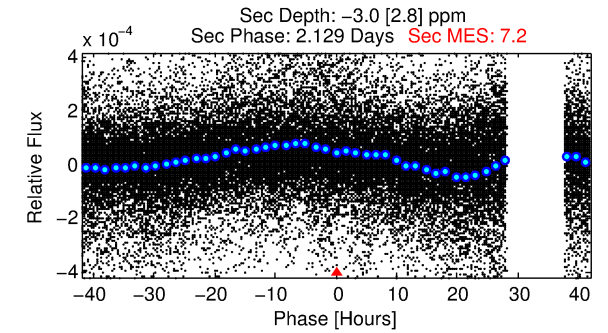
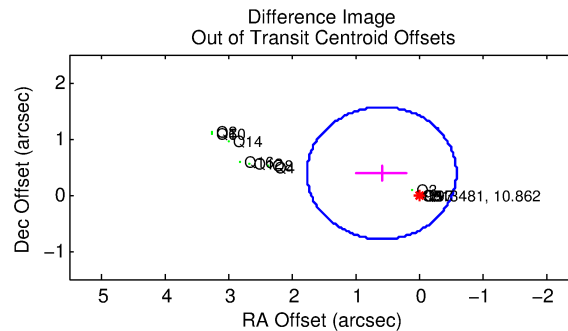
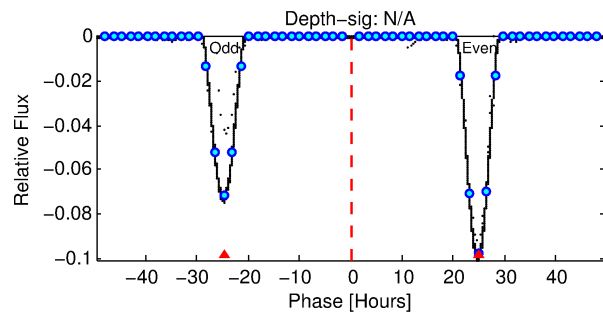
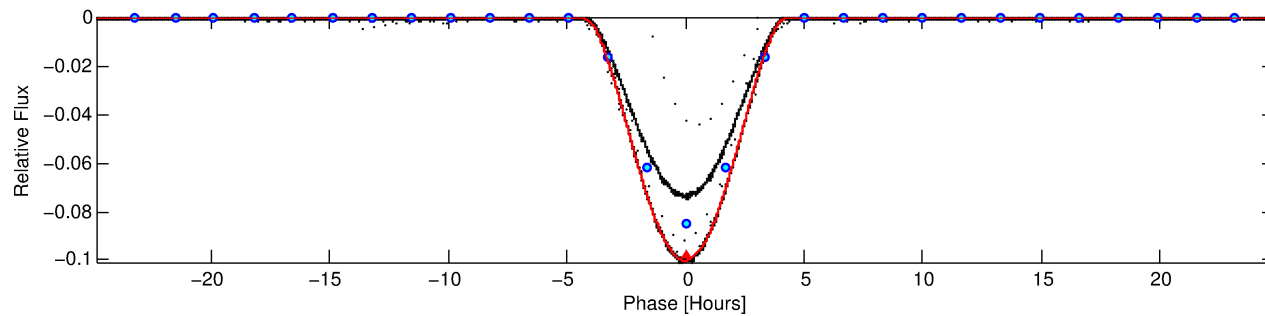
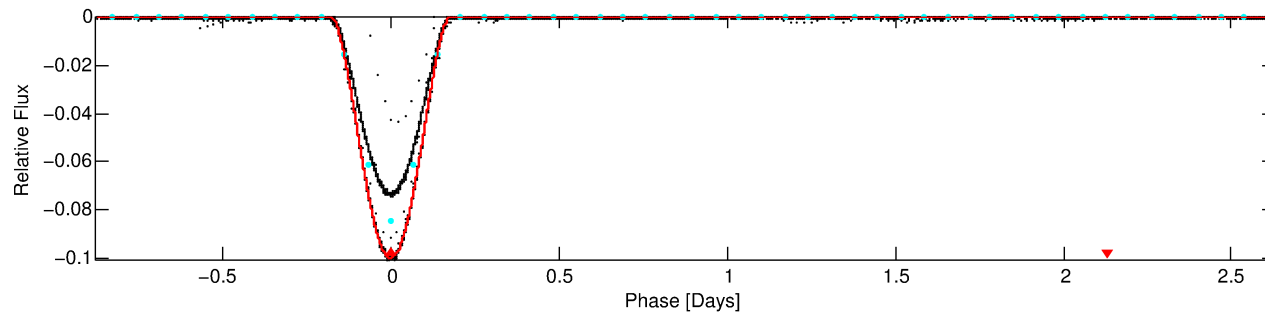
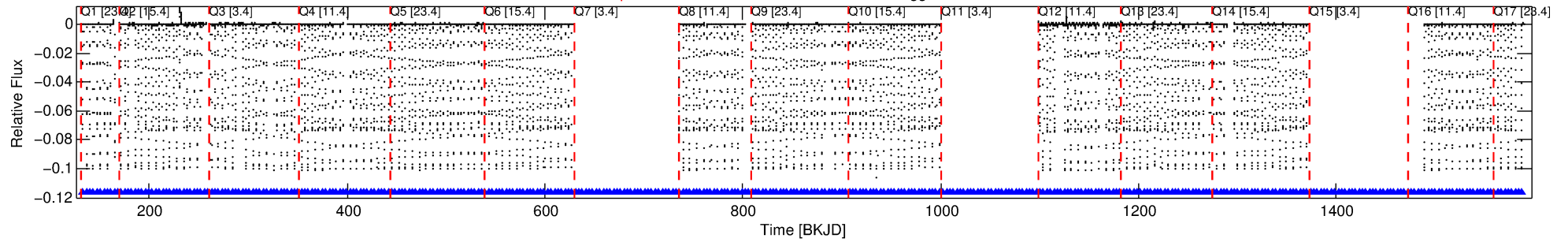
## Ephemeris Match Information For 009913481-01

No Significant Match Found

# DV One-Page Summary

KIC: 9913481 Candidate: 1 of 1 Period: 3.505 d  
KOI: K07253.01 Corr: 0.999

Kp: 10.86 R\*: 3.68 Rs Teff: 7624.0 K Logg: 3.62 Fe/H: -0.040



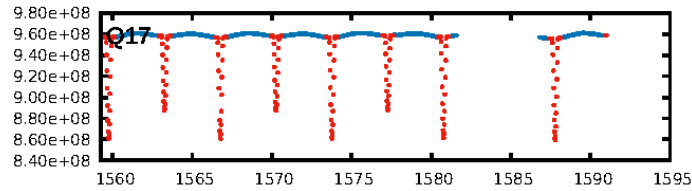
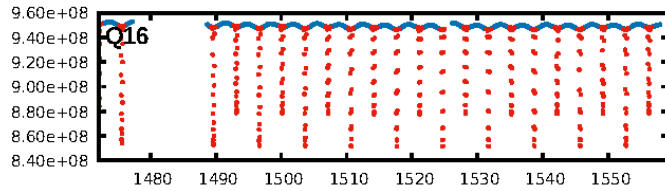
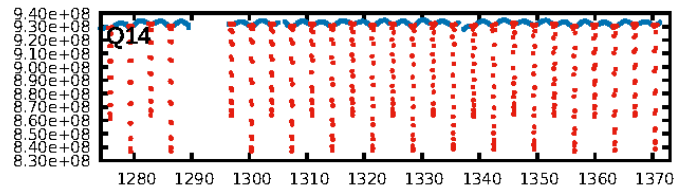
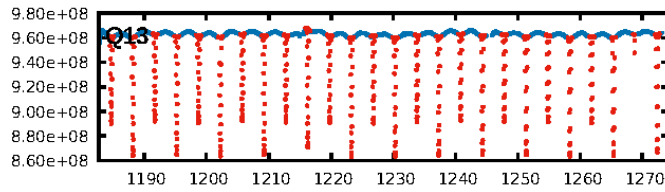
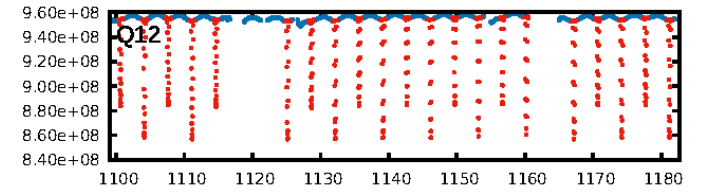
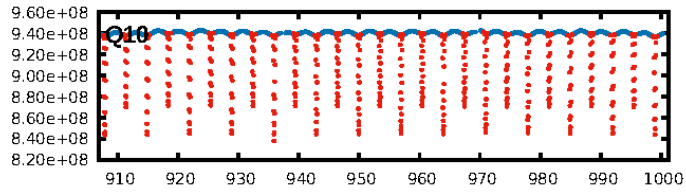
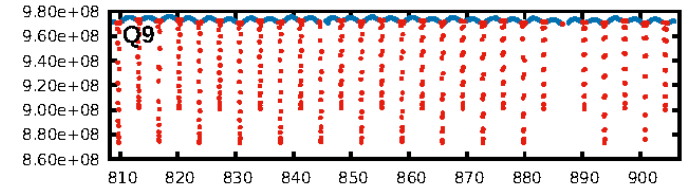
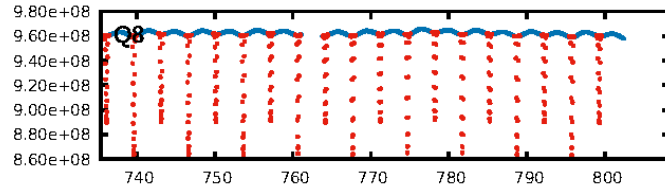
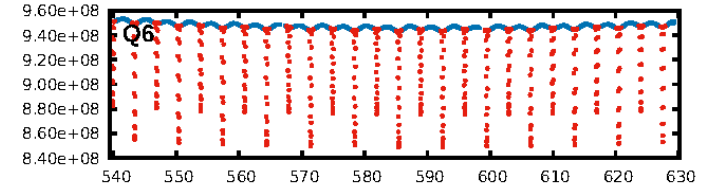
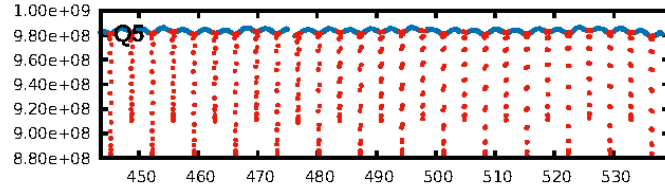
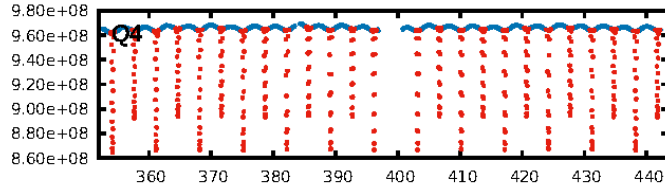
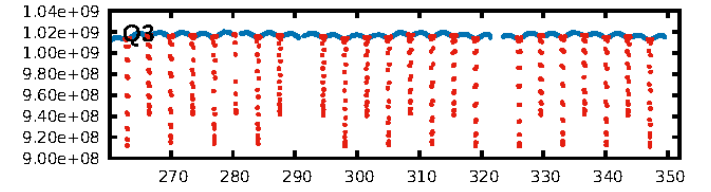
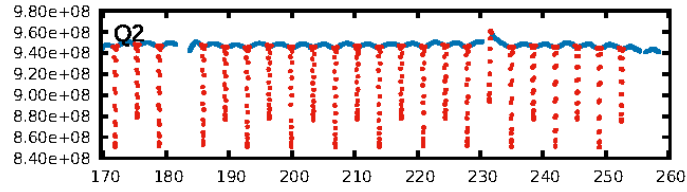
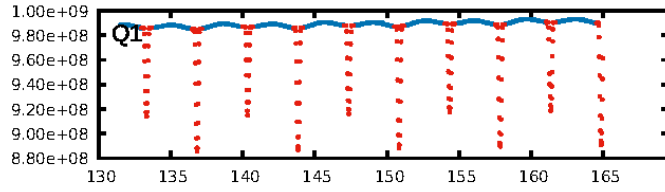
## DV Fit Results:

Period = 3.50474 [0.00000] d  
Epoch = 133.3195 [0.0000] BKJD  
Rp/R\* = 0.4501 [0.0040]  
a/R\* = 3.73 [0.00]  
b = 0.95 [0.01]  
Seff = 12382.46 [10256.85]  
Teff = 2690 [557] K  
Rp = 180.85 [95.69] Re  
a = 0.0576 [0.0292] AU  
Ag = N/A  
Teffp = N/A

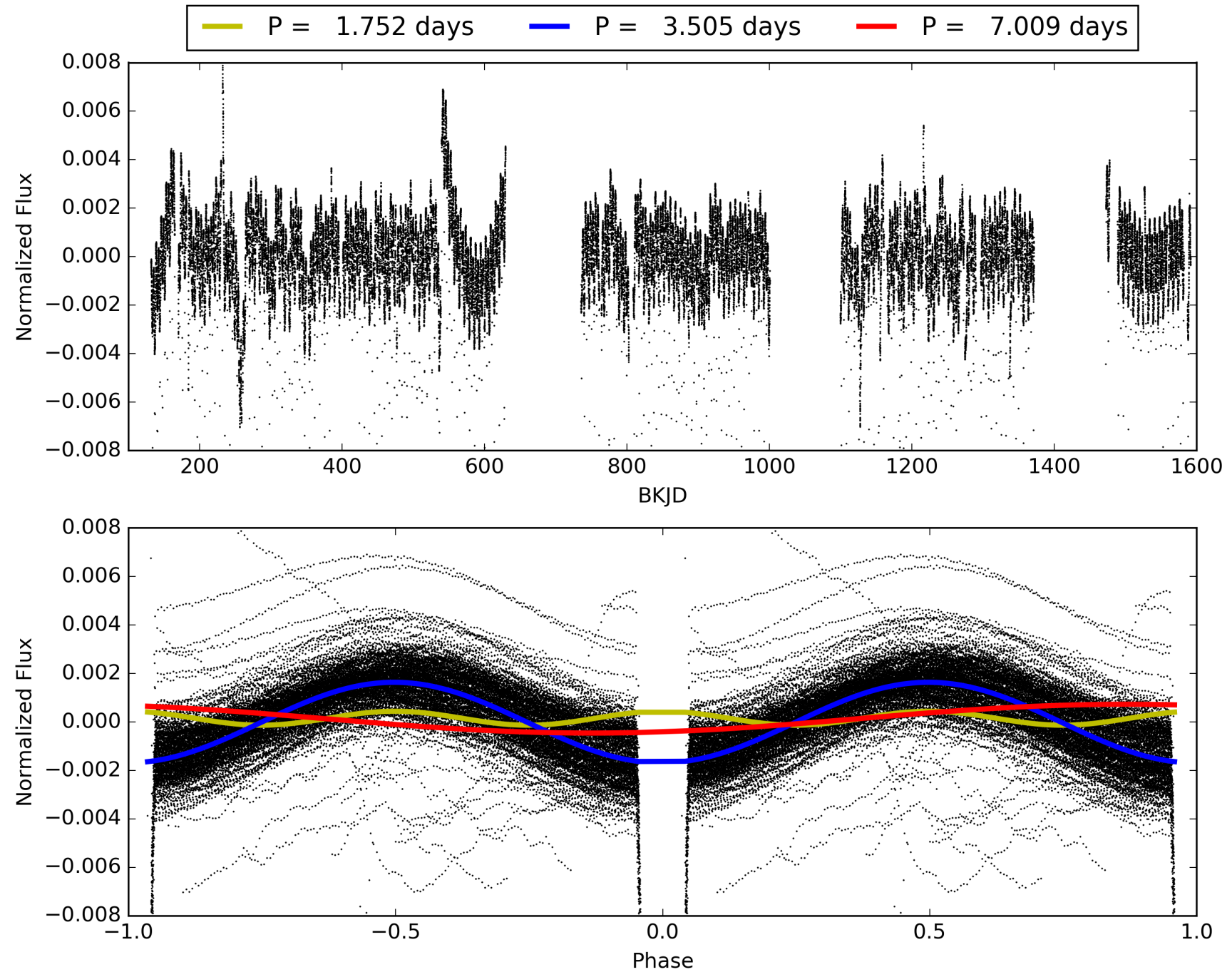
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [290/290]  
GhostDiagnostic-chr: 0.6738  
Centroid-sig: 0.0%  
Centroid-so: 0.192 arcsec [488.70σ]  
OotOffset-rm: 0.698 arcsec [1.78σ]  
KicOffset-rm: 1.335 arcsec [3.30σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 009913481-01, PDC Light Curves

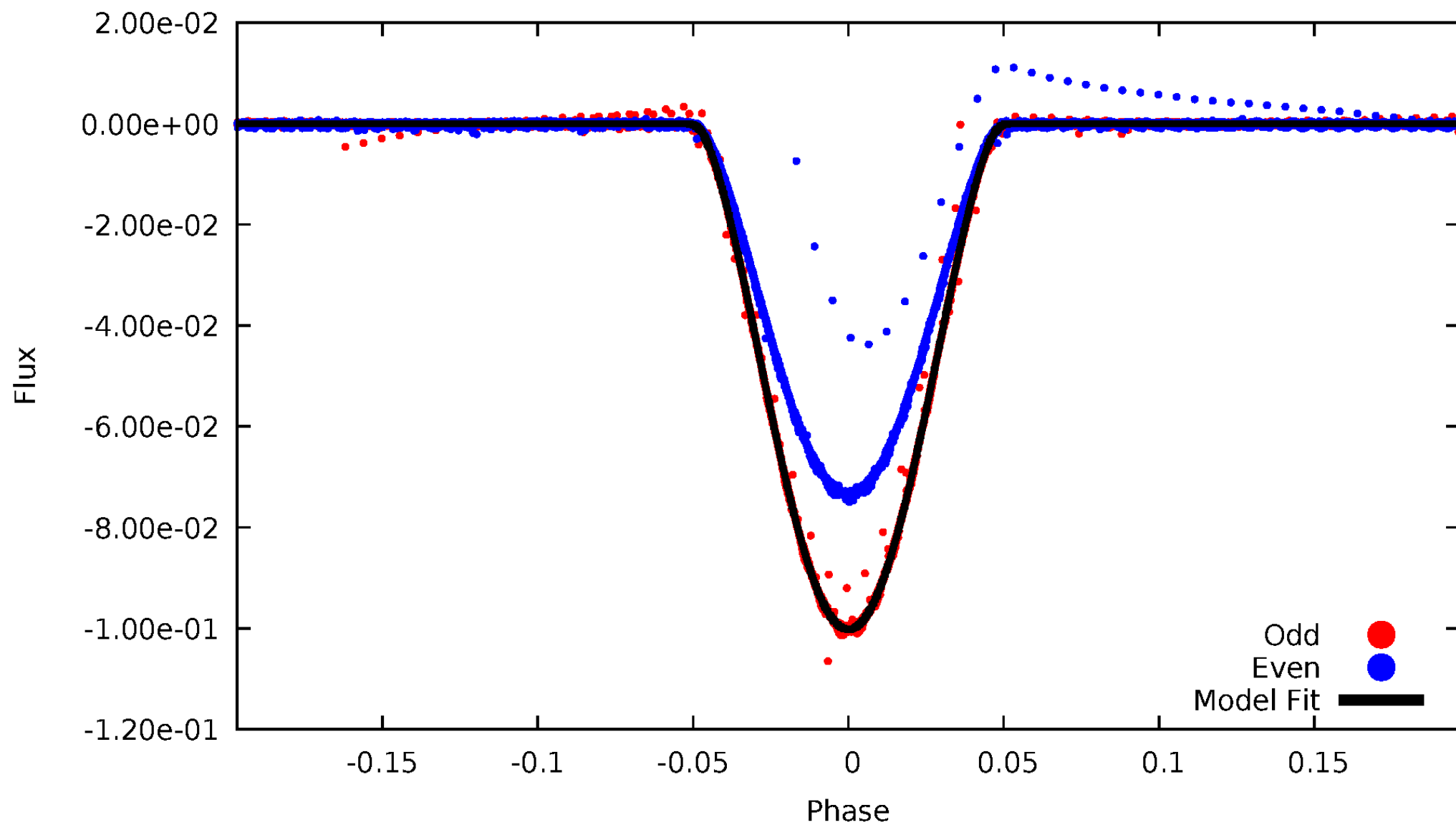


TCE 009913481-01



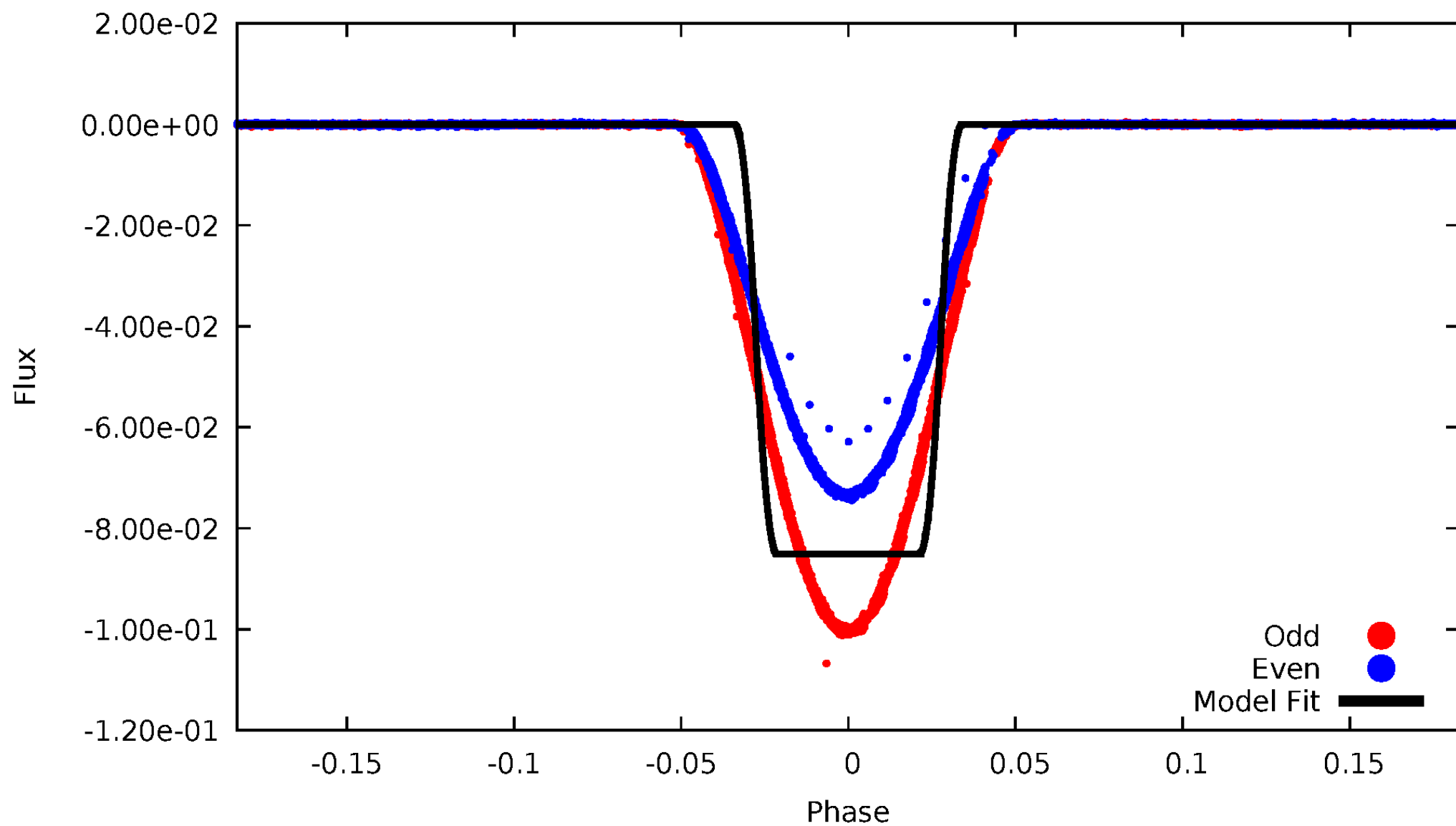
# DV Odd/Even

TCE 009913481-01



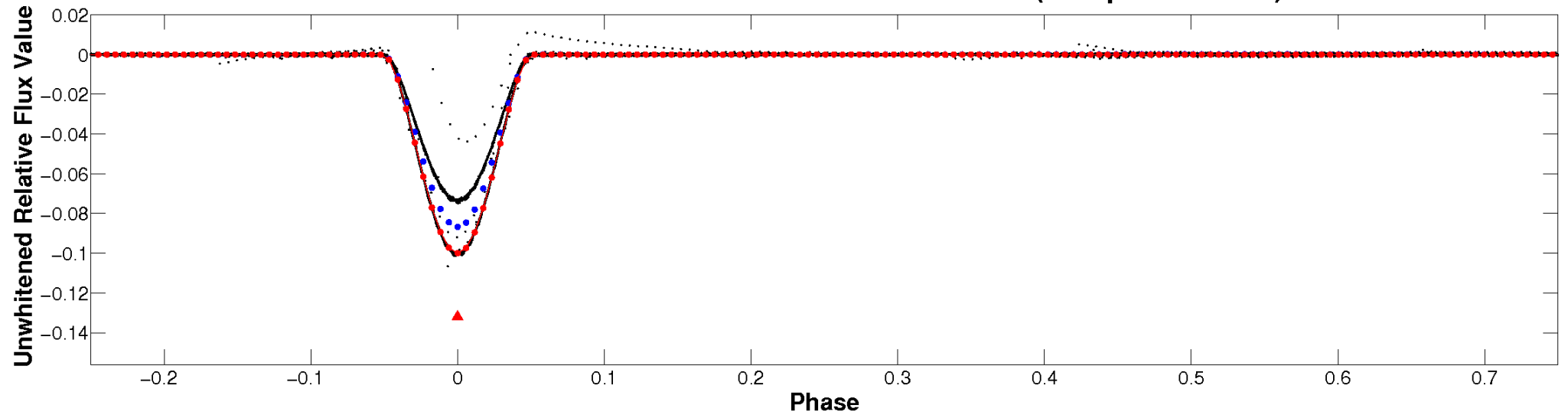
# ALT Odd/Even

TCE 009913481-01

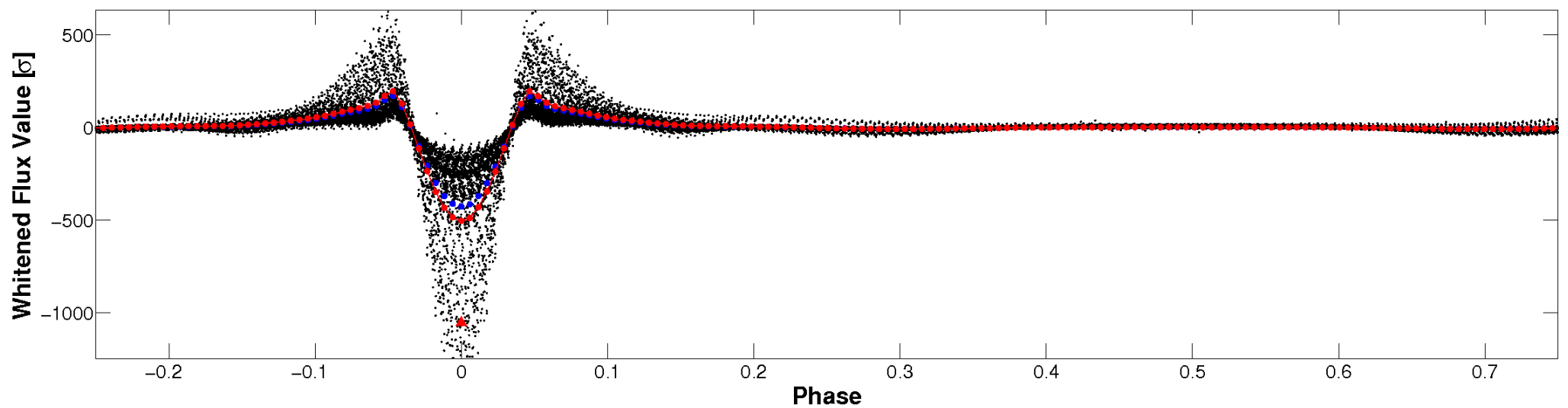


# Non-Whitened Vs. Whitened Light Curve

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

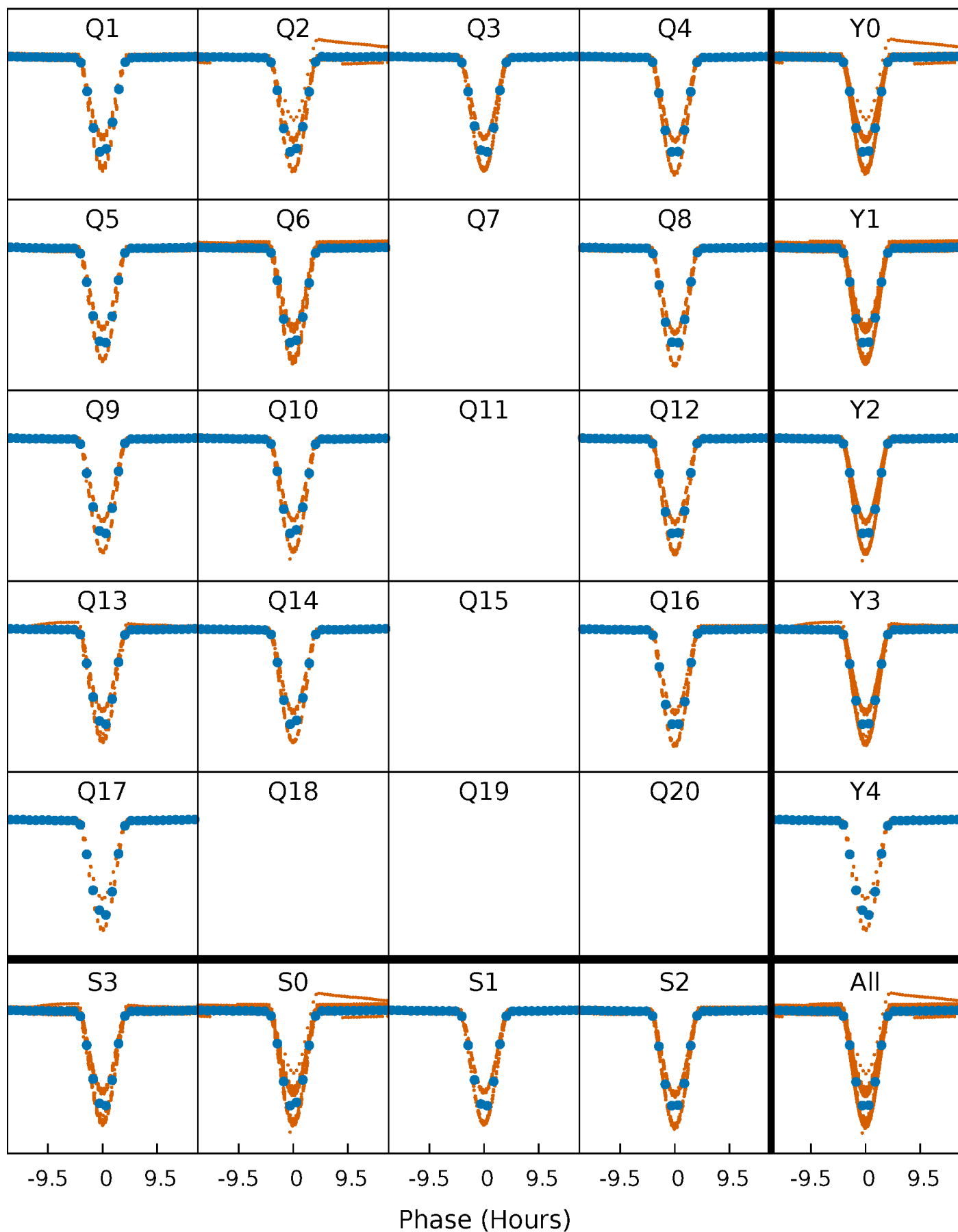


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

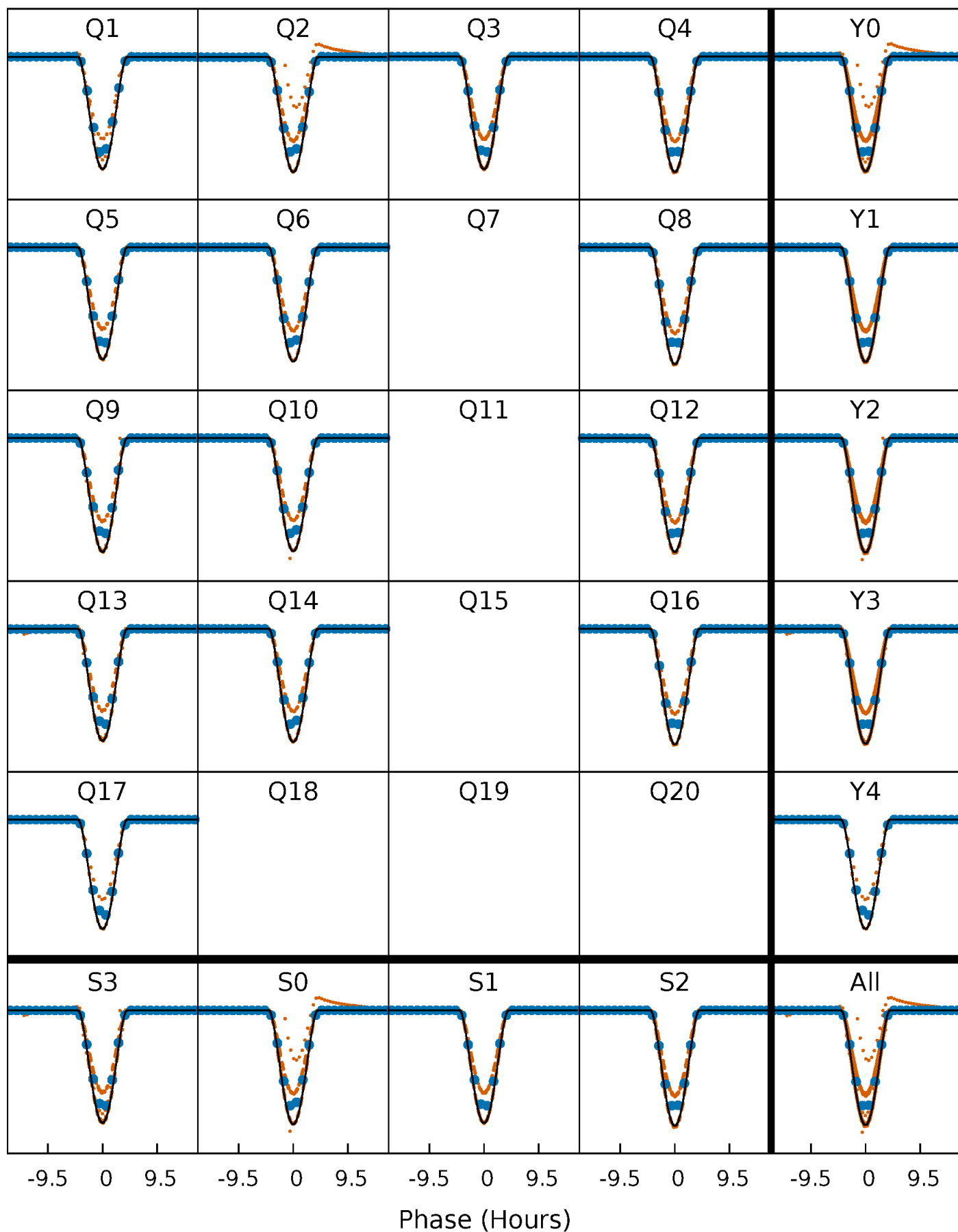
TCE 009913481-01 P= 3.504742 Days  $T_0=133.319537$  (BKJD)





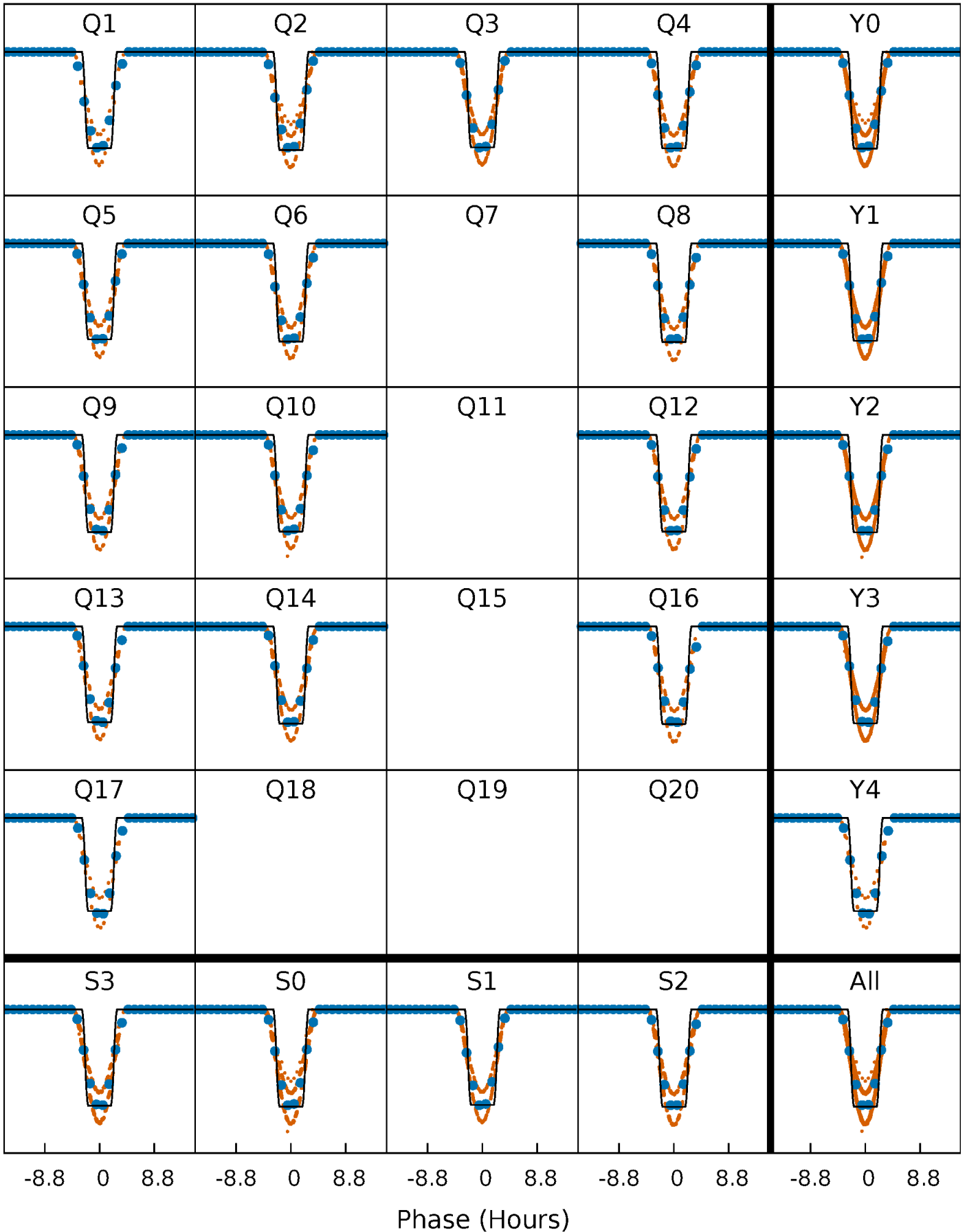
# DV Quarter-Phased Transit Curves

TCE 009913481-01 P= 3.504742 Days  $T_0=133.319537$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

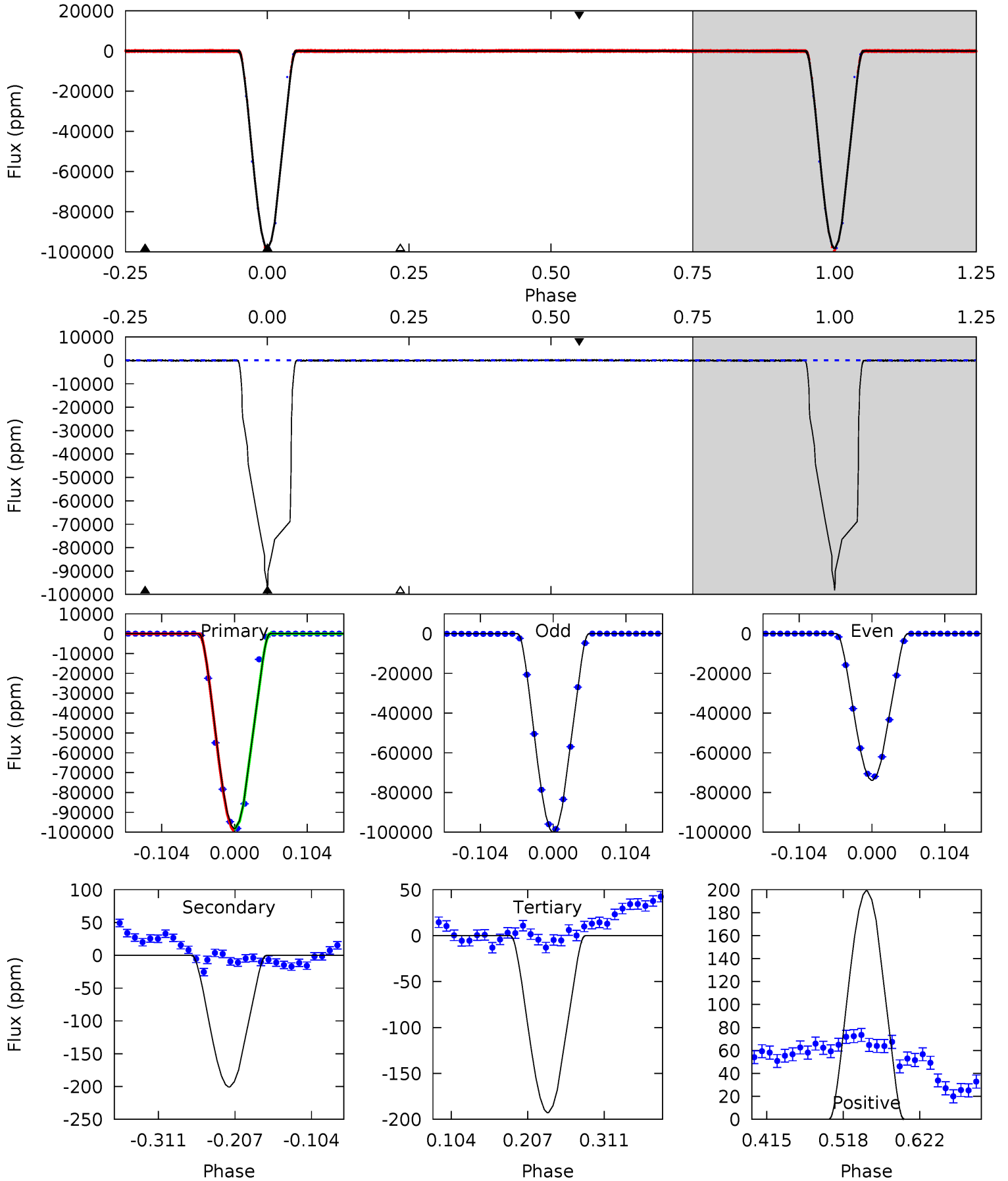
TCE 009913481-01 P= 3.504730 Days  $T_0=133.322318$  (BKJD)



# DV Model-Shift Uniqueness Test

009913481-01, P = 3.504742 Days, E = 129.814795 Days

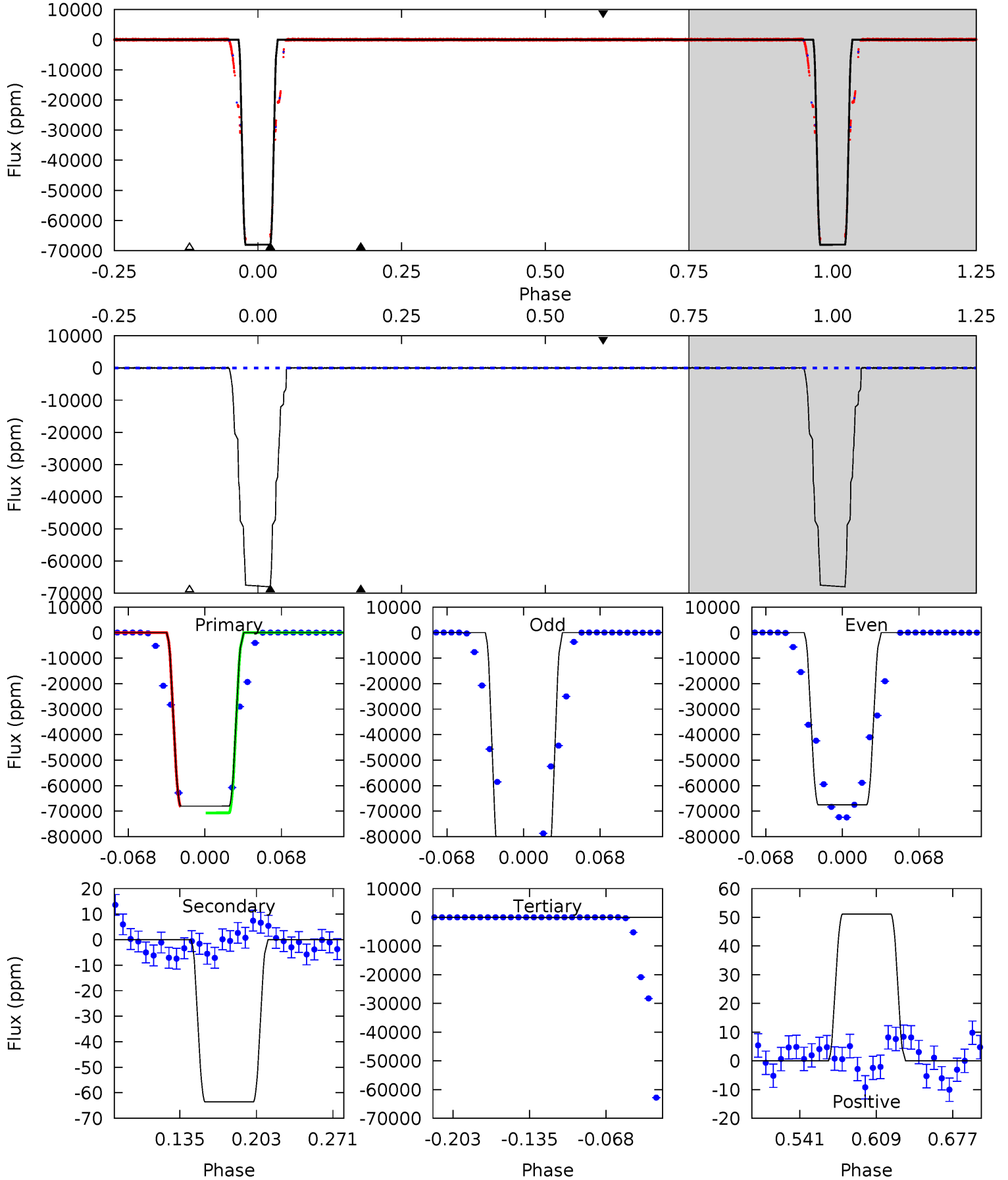
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18068	36.9	35.5	36.6	4.56	1.63	12.2	18033	18032	1.46	0.31	6446	0.88	0.00	0



# Alt Model-Shift Uniqueness Test

009913481-01, P = 3.504730 Days, E = 129.817588 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
4351	4.06	4.21	3.27	4.65	1.83	5.03	4346	4347	-0.14	0.79	4166	0.89	0.00	0



### Stellar Parameters For KIC 009913481

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7624^{+212}_{-318}$	$3.622^{+0.476}_{-0.084}$	$-0.040^{+0.200}_{-0.300}$	$3.682^{+0.609}_{-1.948}$	$2.068^{+0.292}_{-0.542}$	$0.058^{+0.299}_{-0.016}$
	+3%/-4%	+13%/-2%	+500%/-750%	+17%/-53%	+14%/-26%	+513%/-28%
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 009913481-01 / KOI 7253.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-201 \pm 5$	$169.63^{+25.41}_{-45.40}$	$3593^{+284}_{-429}$	$-3393^{+268}_{-162}$	$0.013^{+0.009}_{-0.003}$
Alt.	$-64 \pm 16$	$111.81^{+15.57}_{-30.51}$	$3606^{+277}_{-469}$	$-3406^{+287}_{-159}$	$0.010^{+0.007}_{-0.003}$

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

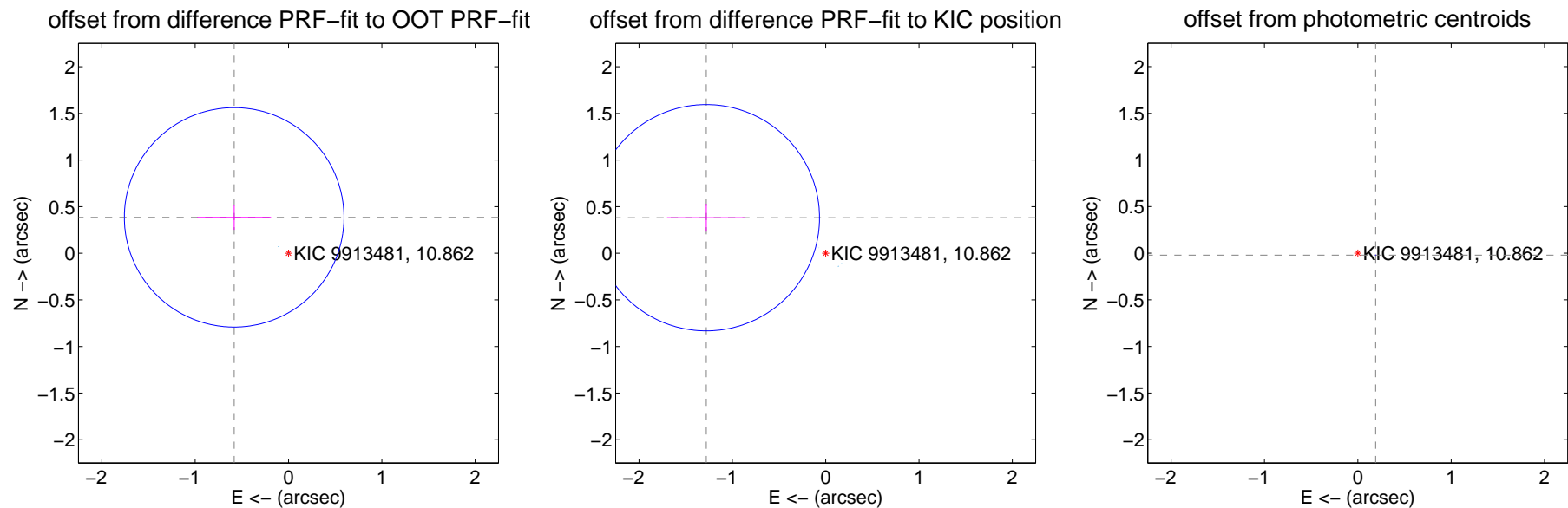
## DV Centroid Data

Supplemental centroid analysis for 009913481-01. **Kepler magnitude: 10.86.** Transit SNR 18826.86

There are 14 quarters with good PRF difference image offsets

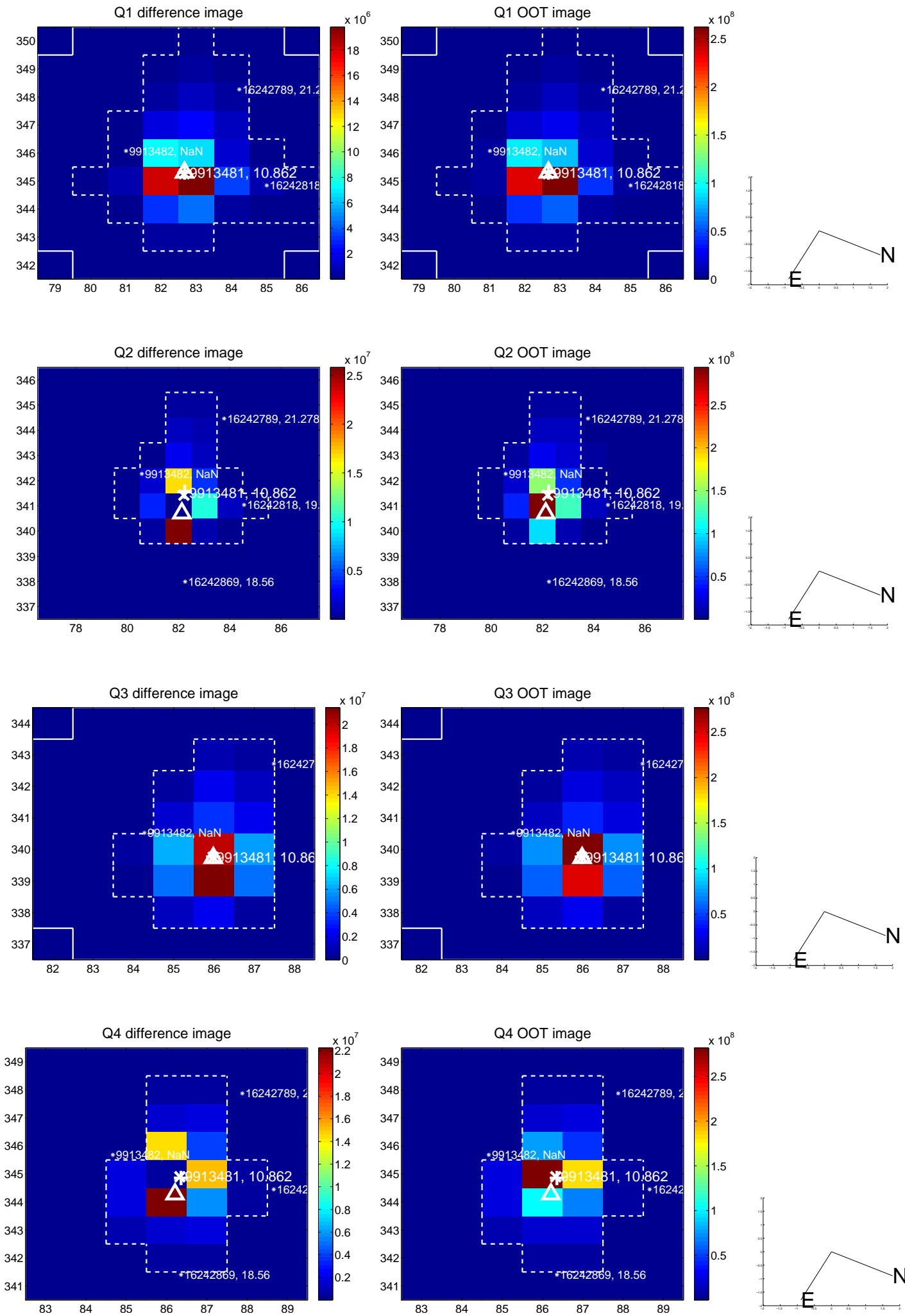
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.698 \pm 0.392$	1.78	$0.582 \pm 0.395$	$0.385 \pm 0.134$
PRF-fit source offset from KIC position	<b><math>1.335 \pm 0.405</math></b>	<b>3.30</b>	$1.280 \pm 0.420$	$0.381 \pm 0.148$
photometric centroid source offset	<b><math>0.19 \pm 0.00</math></b>	<b>488.70</b>	$-0.19 \pm 0.00$	$-0.02 \pm 0.00$

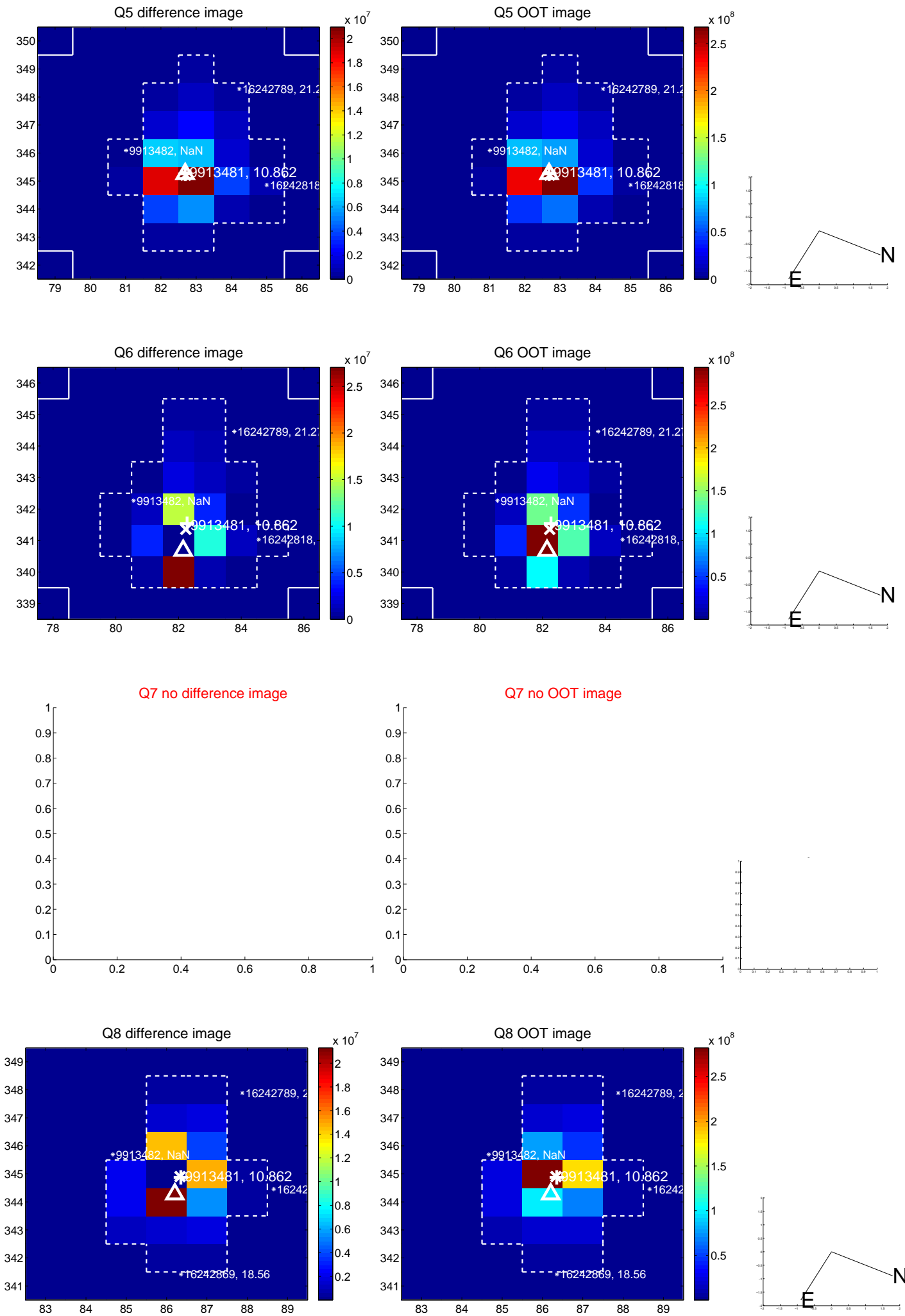


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

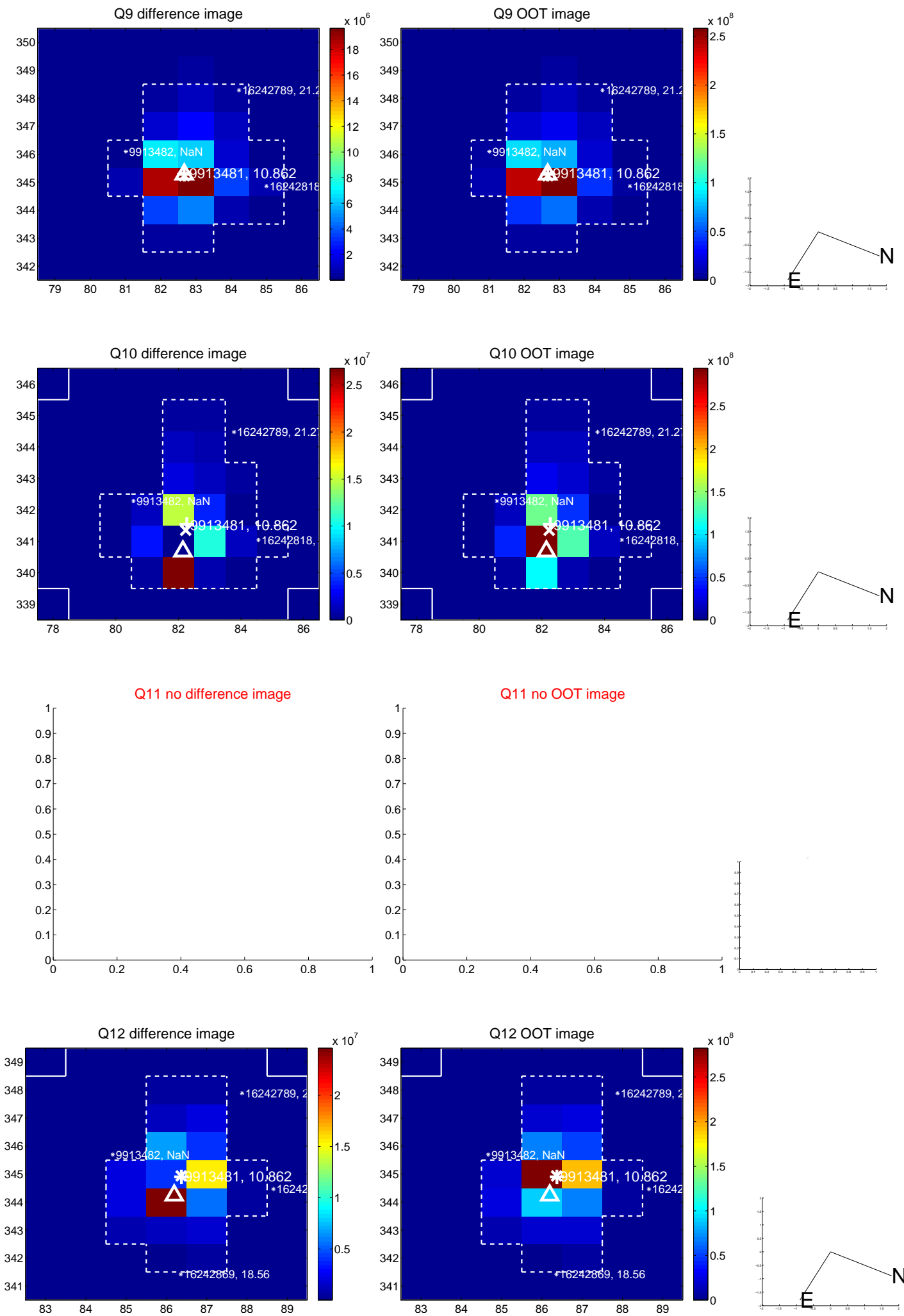


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

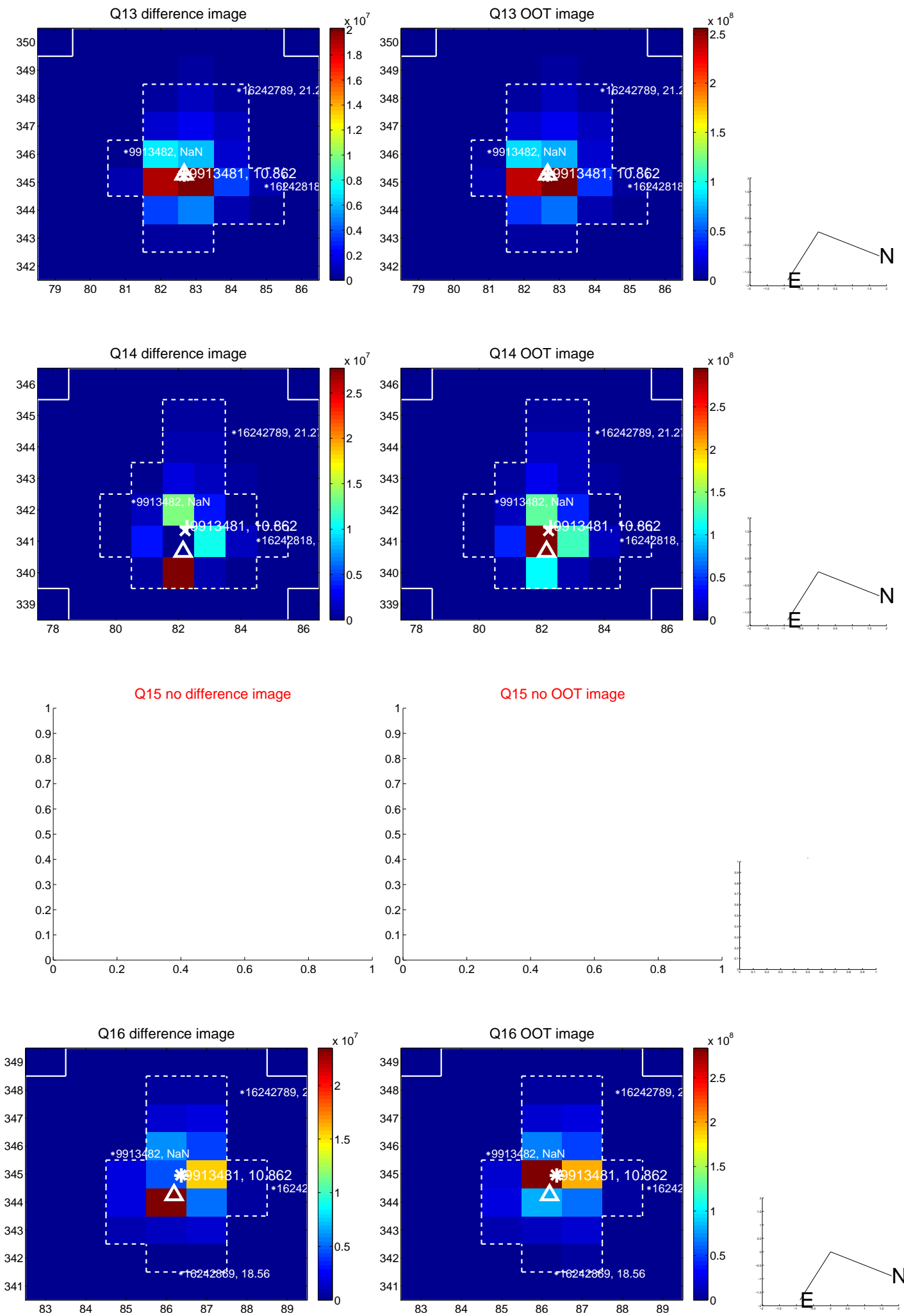




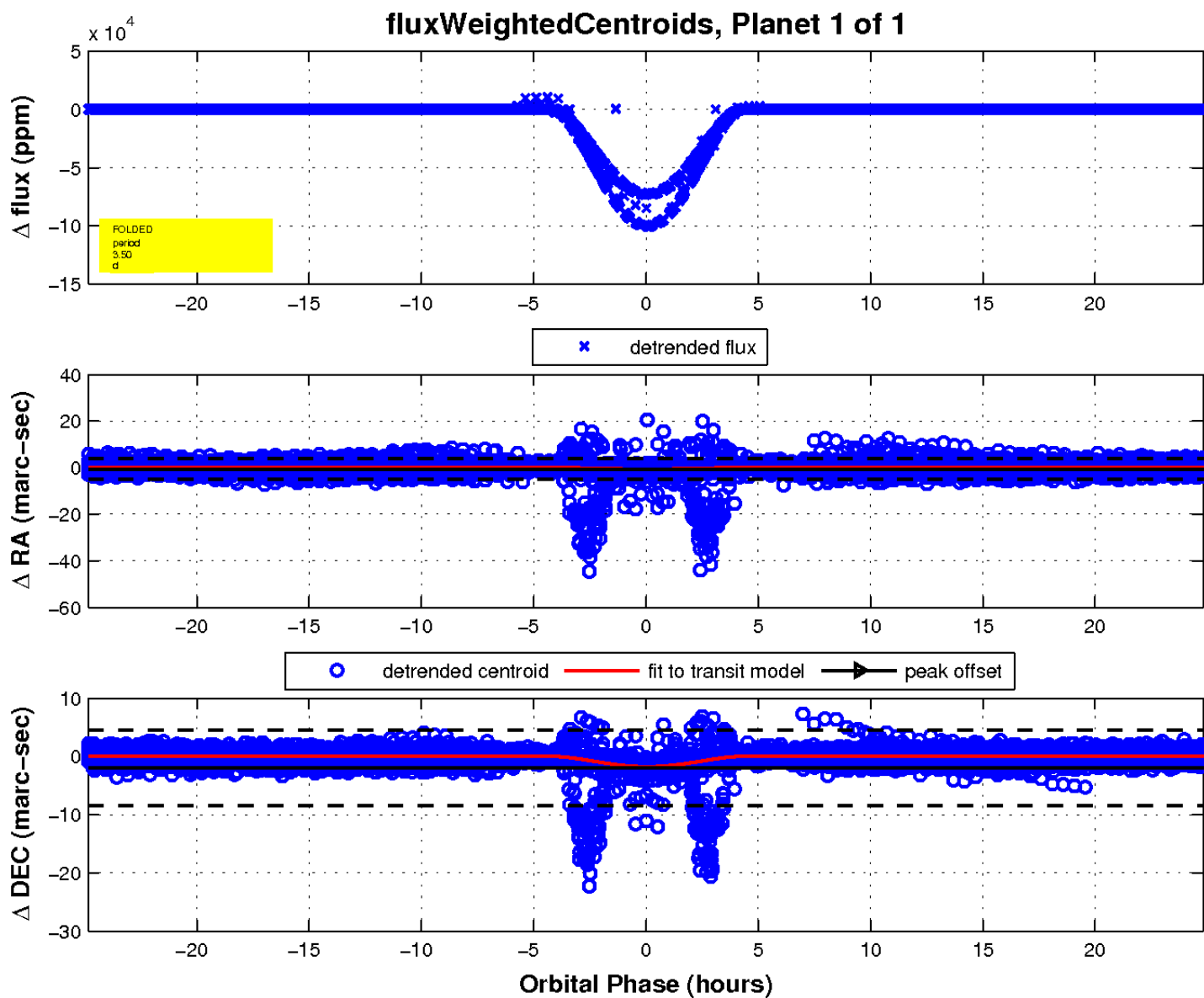
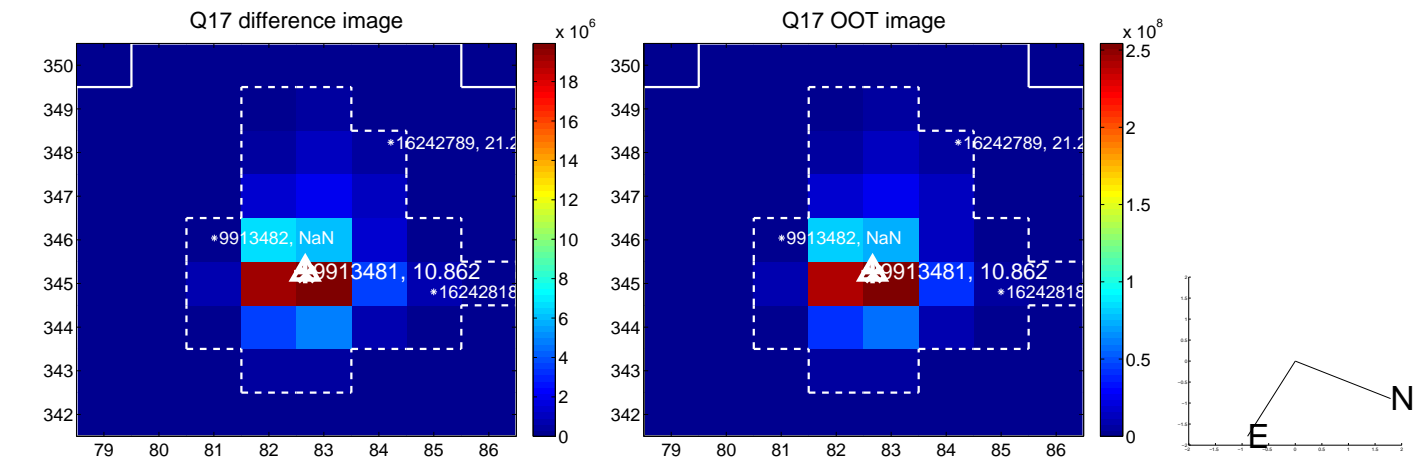
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

