

# KIC 009885417

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009885417-01	OBS	3246.01	0.689969	131.634270	99.9	1.169	41.3	50.8	0.73	4872	0.90	1330.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009885417-01	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.

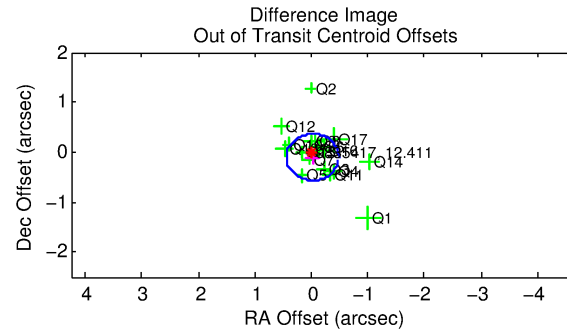
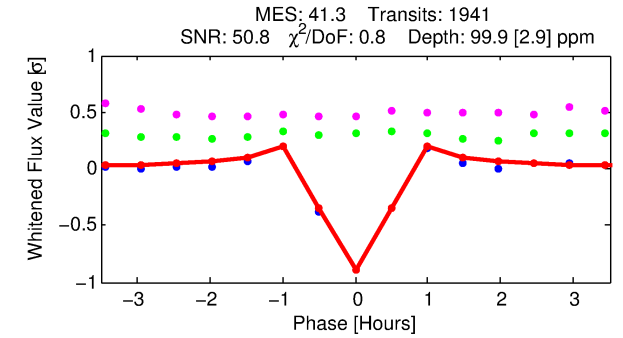
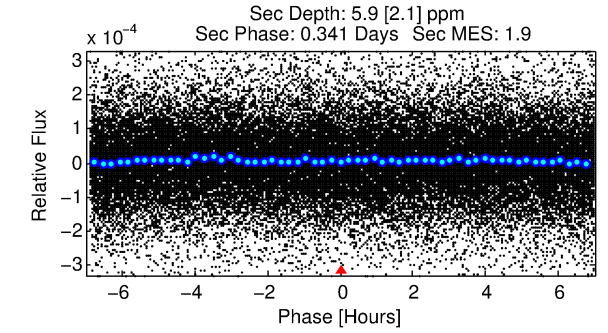
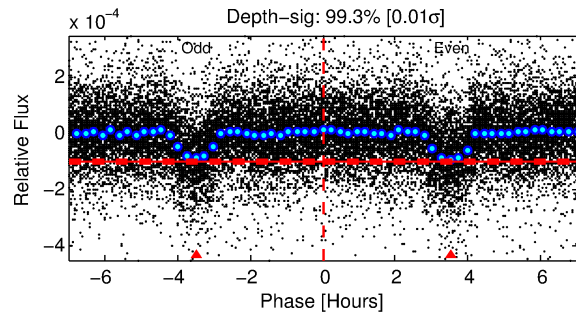
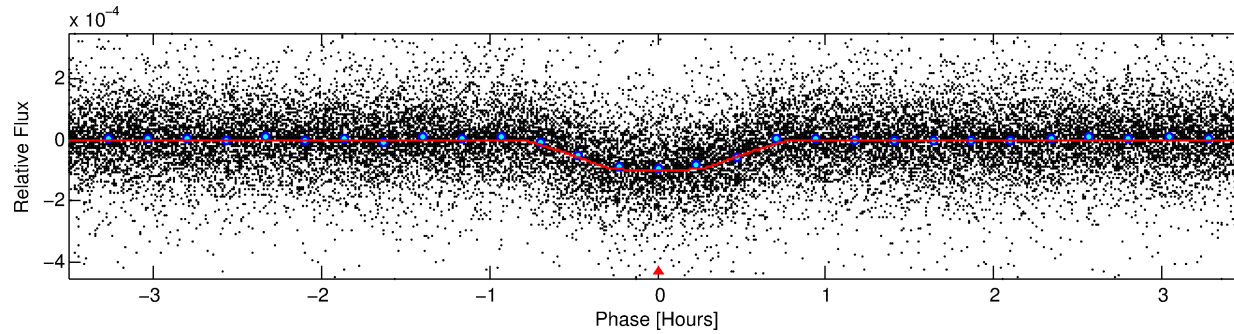
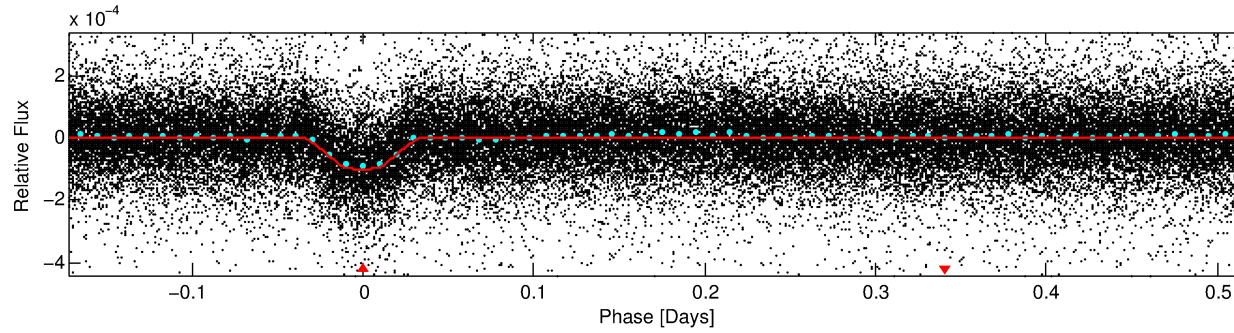
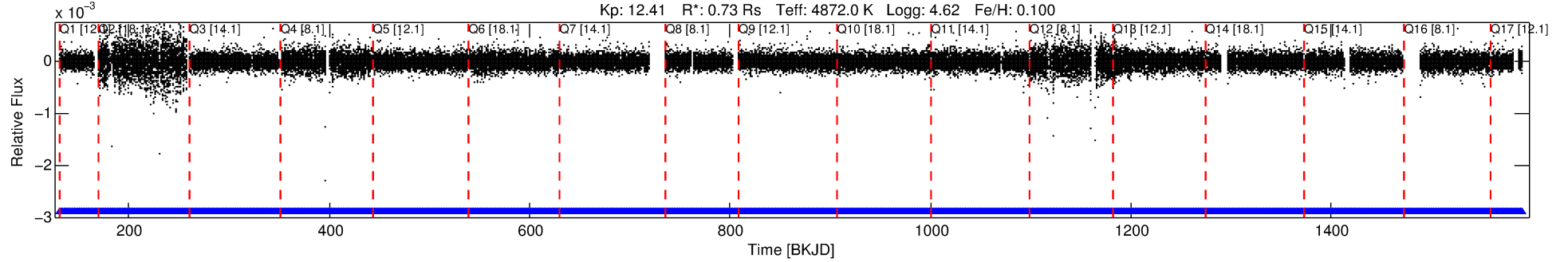
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009885417-01

No Significant Match Found

# DV One-Page Summary

KIC: 9885417 Candidate: 1 of 1 Period: 0.690 d  
KOI: K03246.01 Corr: 0.980



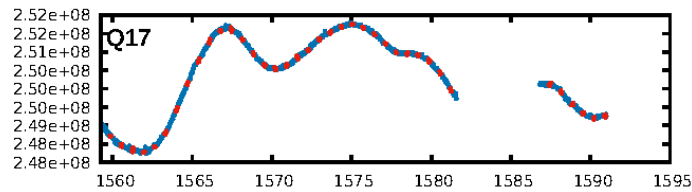
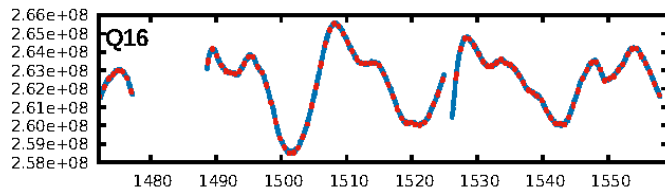
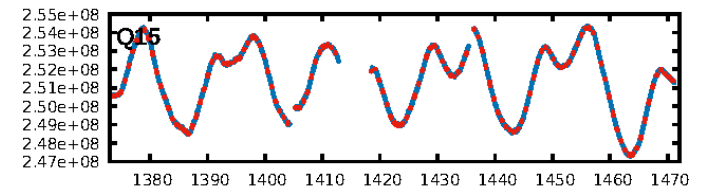
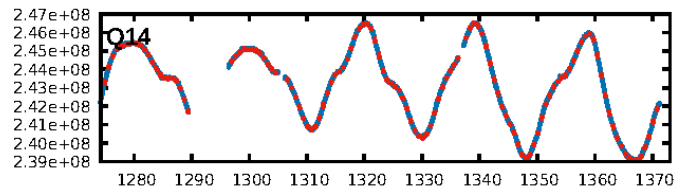
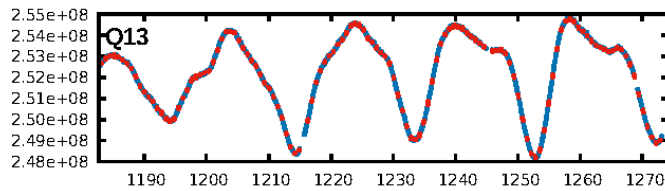
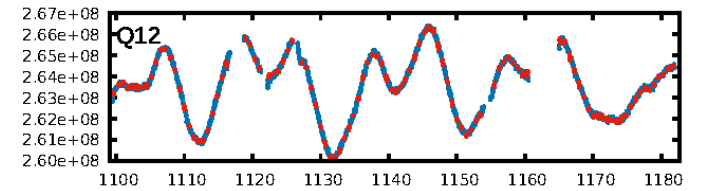
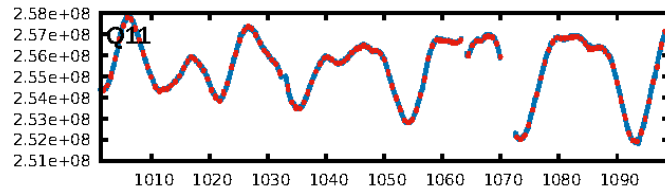
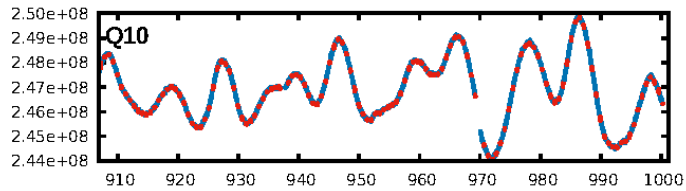
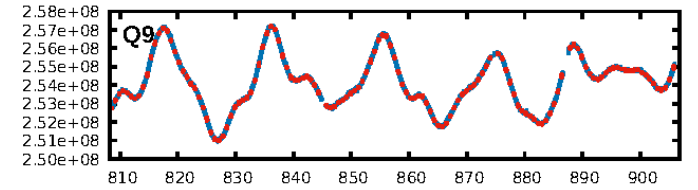
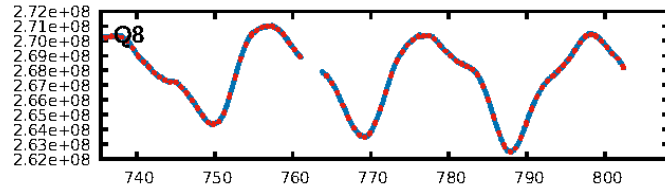
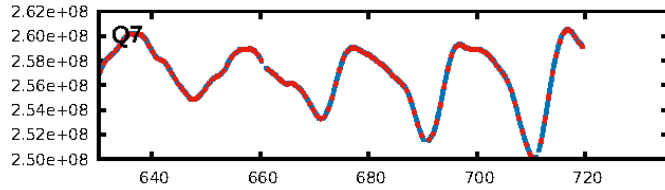
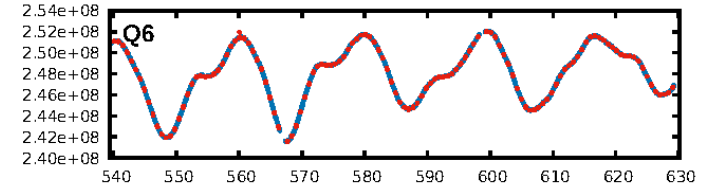
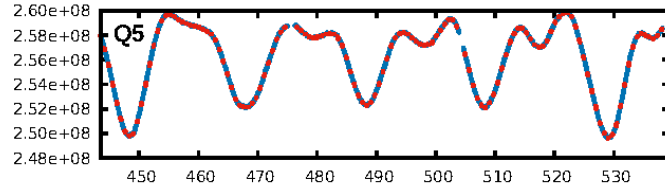
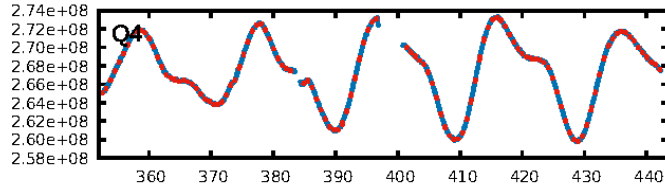
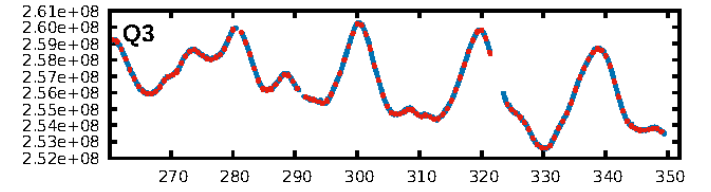
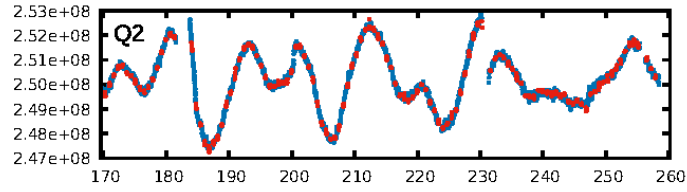
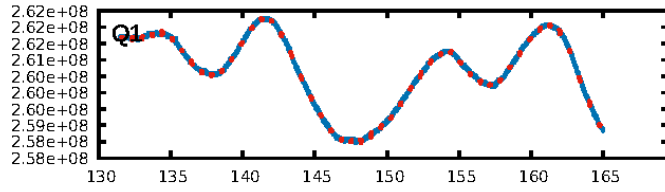
## DV Fit Results:

Period = 0.68997 [0.00000] d  
Epoch = 131.6343 [0.0003] BKJD  
Rp/R\* = 0.0113 [0.0020]  
a/R\* = 2.28 [1.30]  
b = 0.90 [0.15]  
Seff = 1330.17 [162.04]  
Teq = 1540 [47] K  
Rp = 0.90 [0.17] Re  
a = 0.0141 [0.0009] AU  
Ag = 0.80 [0.42] [-0.47σ]  
Teffp = 2255 [291] K [2.43σ]

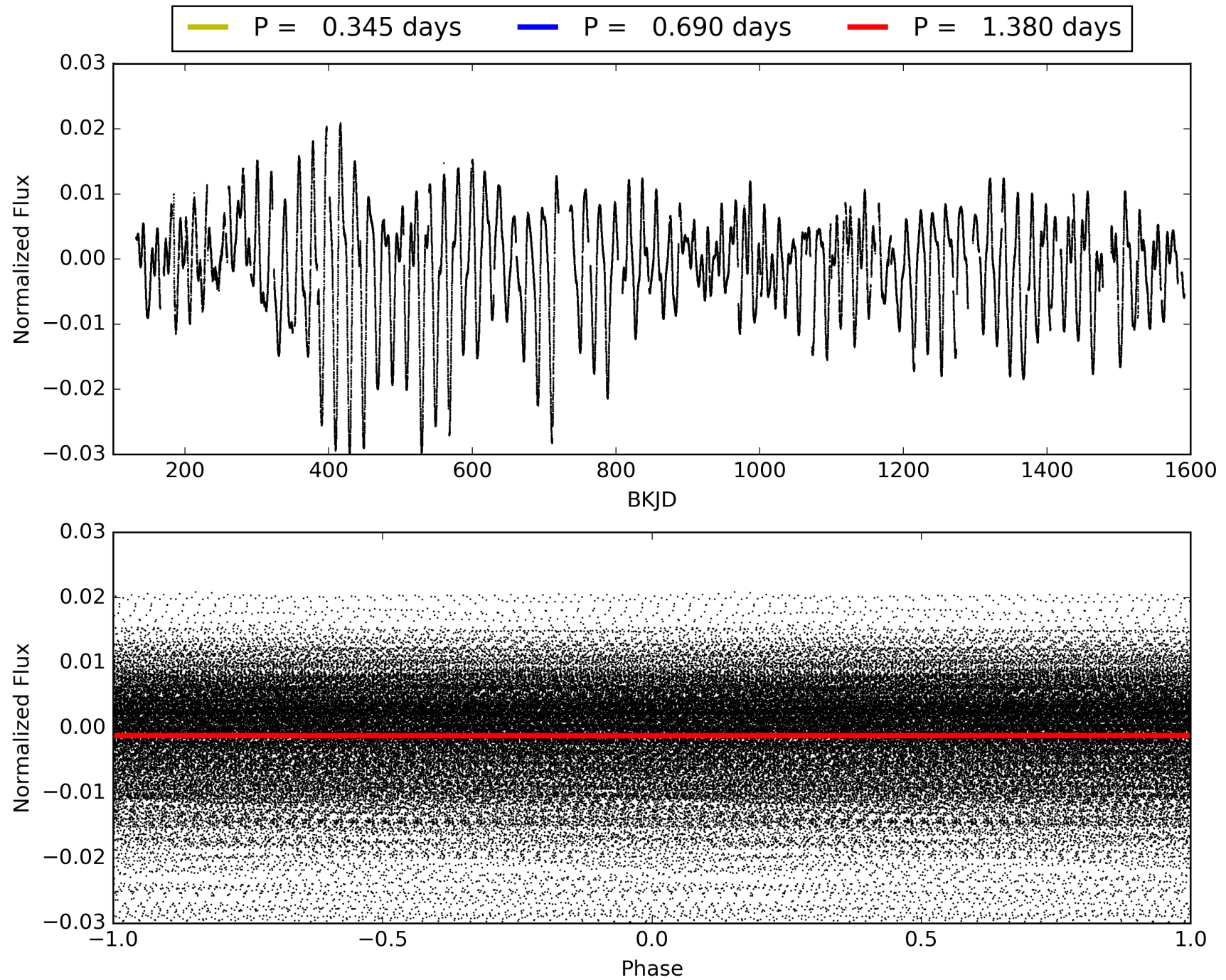
## DV Diagnostic Results:

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 [1854/1854]  
GhostDiagnostic-chr: 4.235  
Centroid-sig: 0.1%  
Centroid-so: 0.541 arcsec [3.23σ]  
OotOffset-rm: 0.105 arcsec [0.68σ]  
KicOffset-rm: 0.326 arcsec [2.84σ]  
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 009885417-01, PDC Light Curves

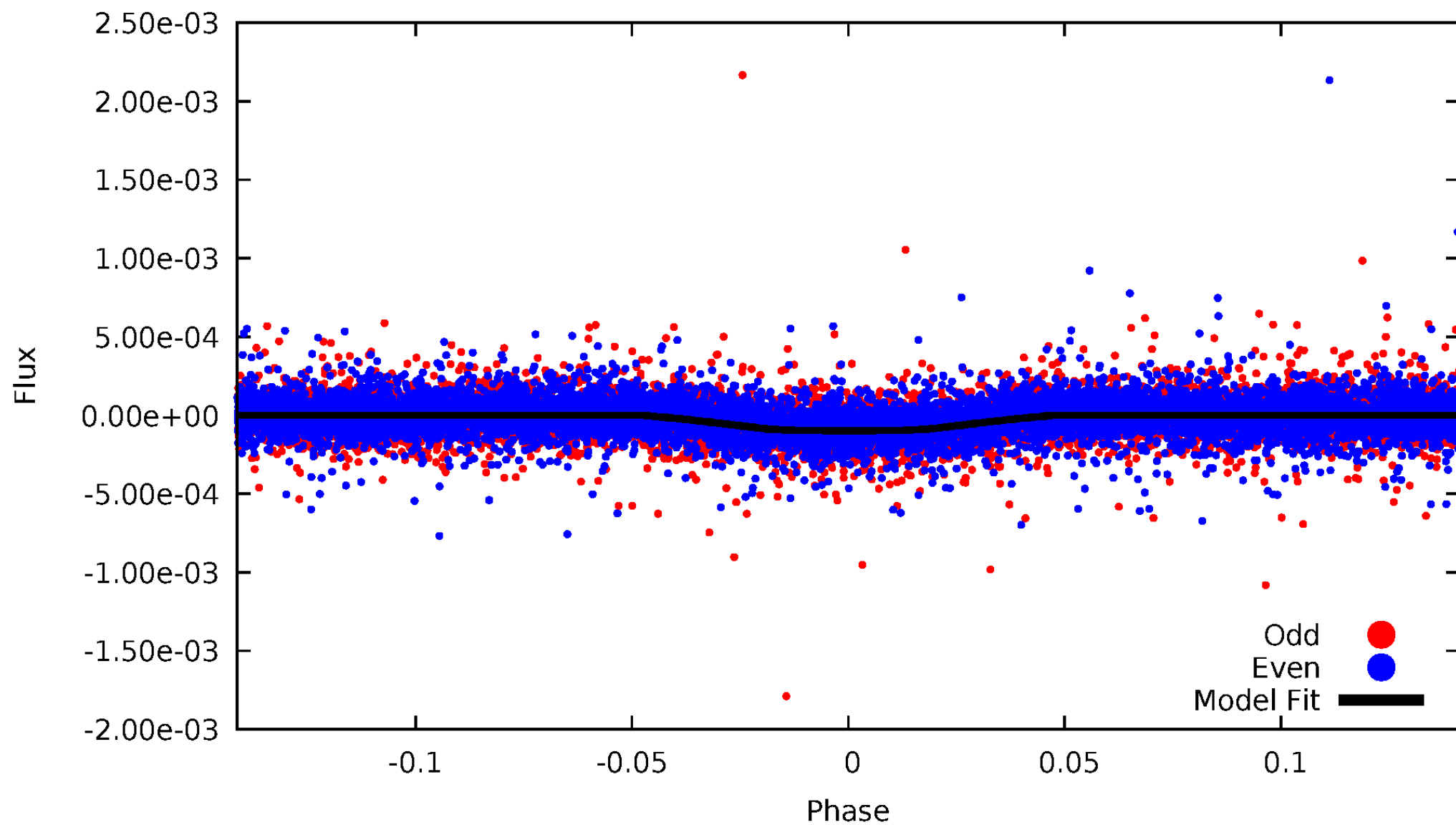


TCE 009885417-01



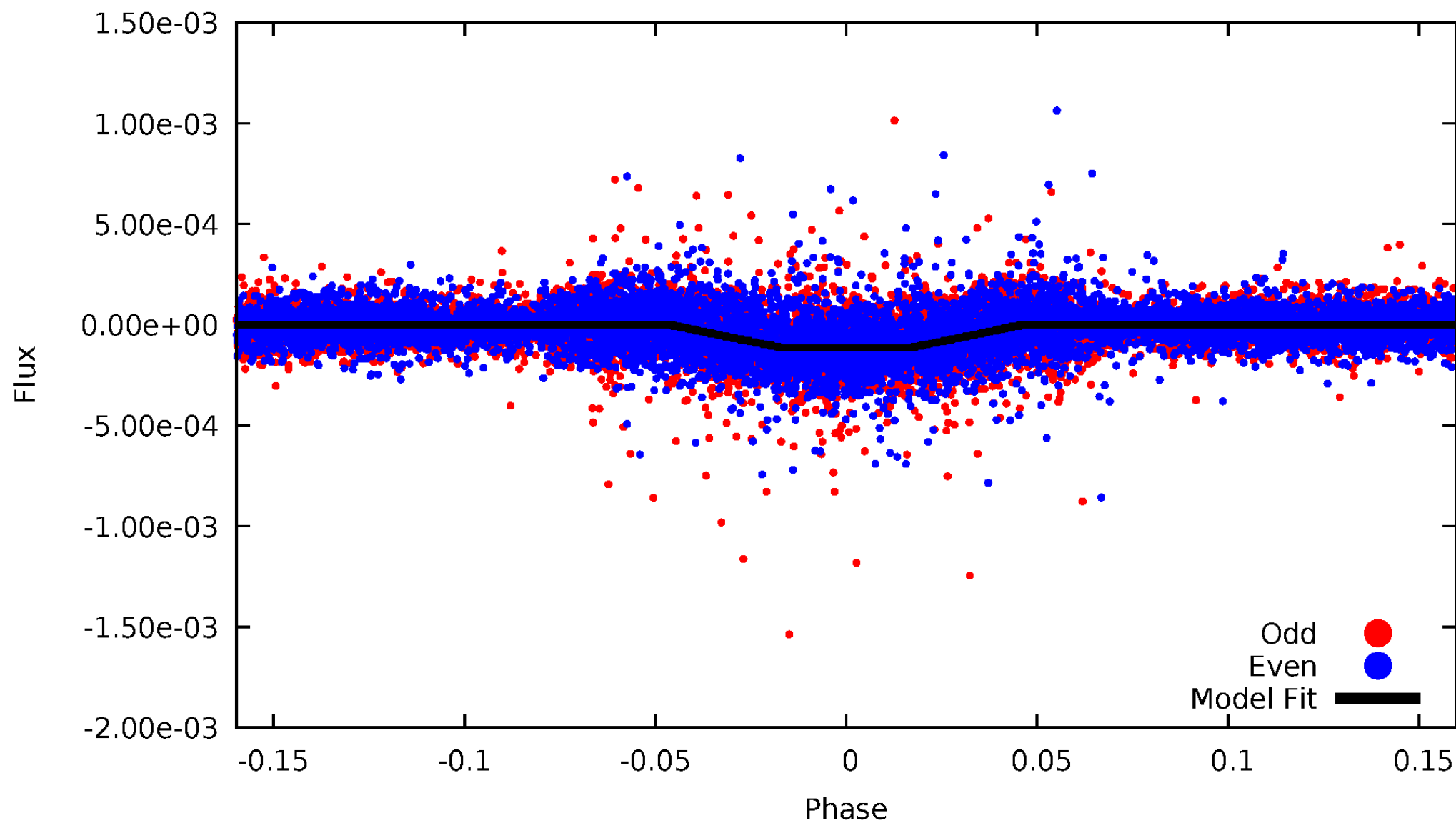
# DV Odd/Even

TCE 009885417-01



# ALT Odd/Even

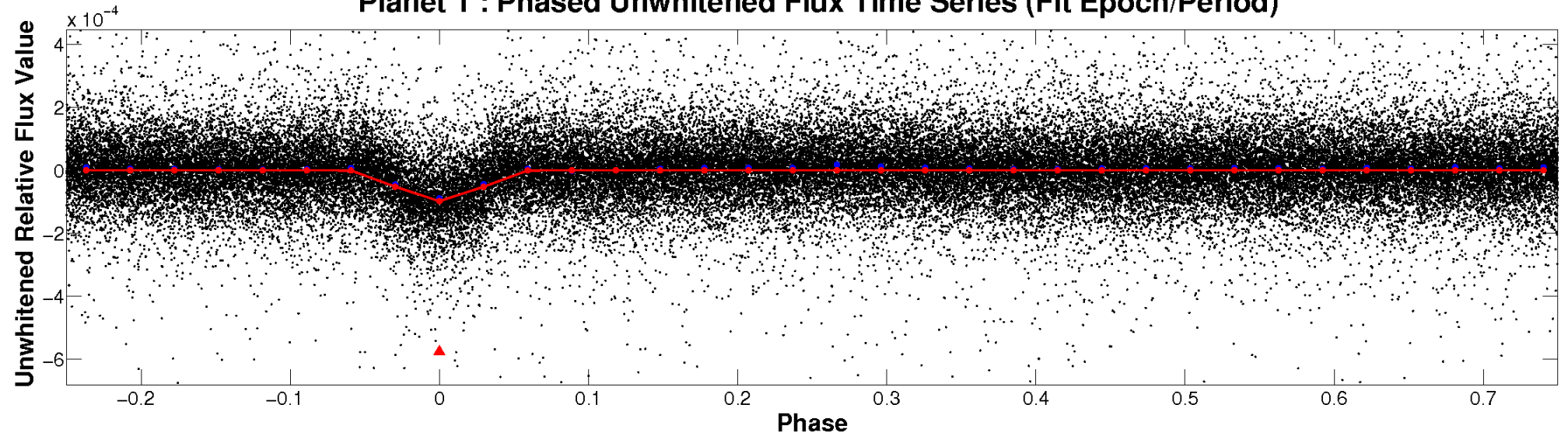
TCE 009885417-01



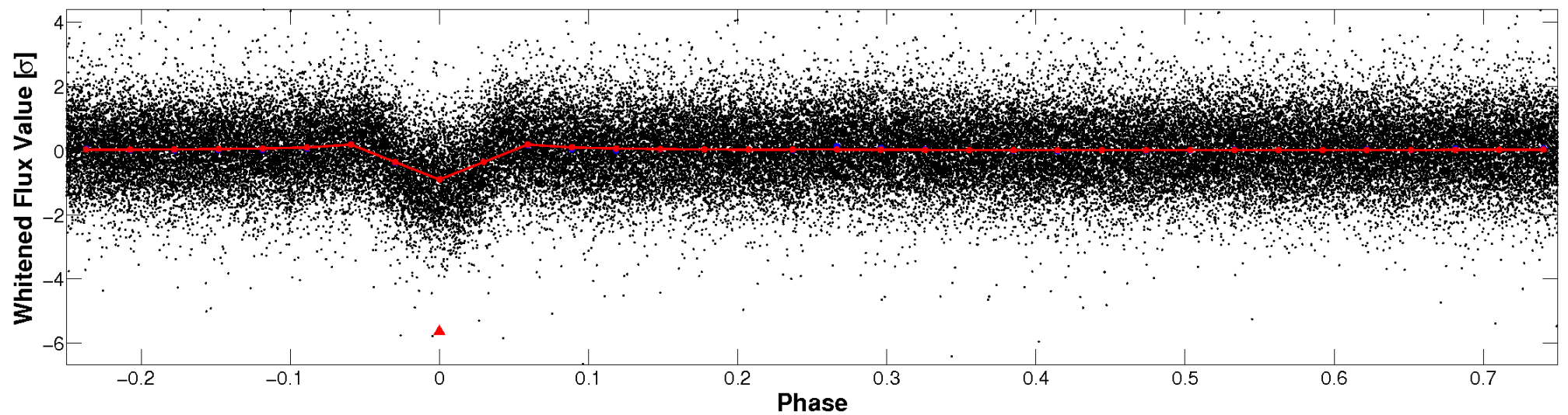


# Non-Whitened Vs. Whitened Light Curve

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

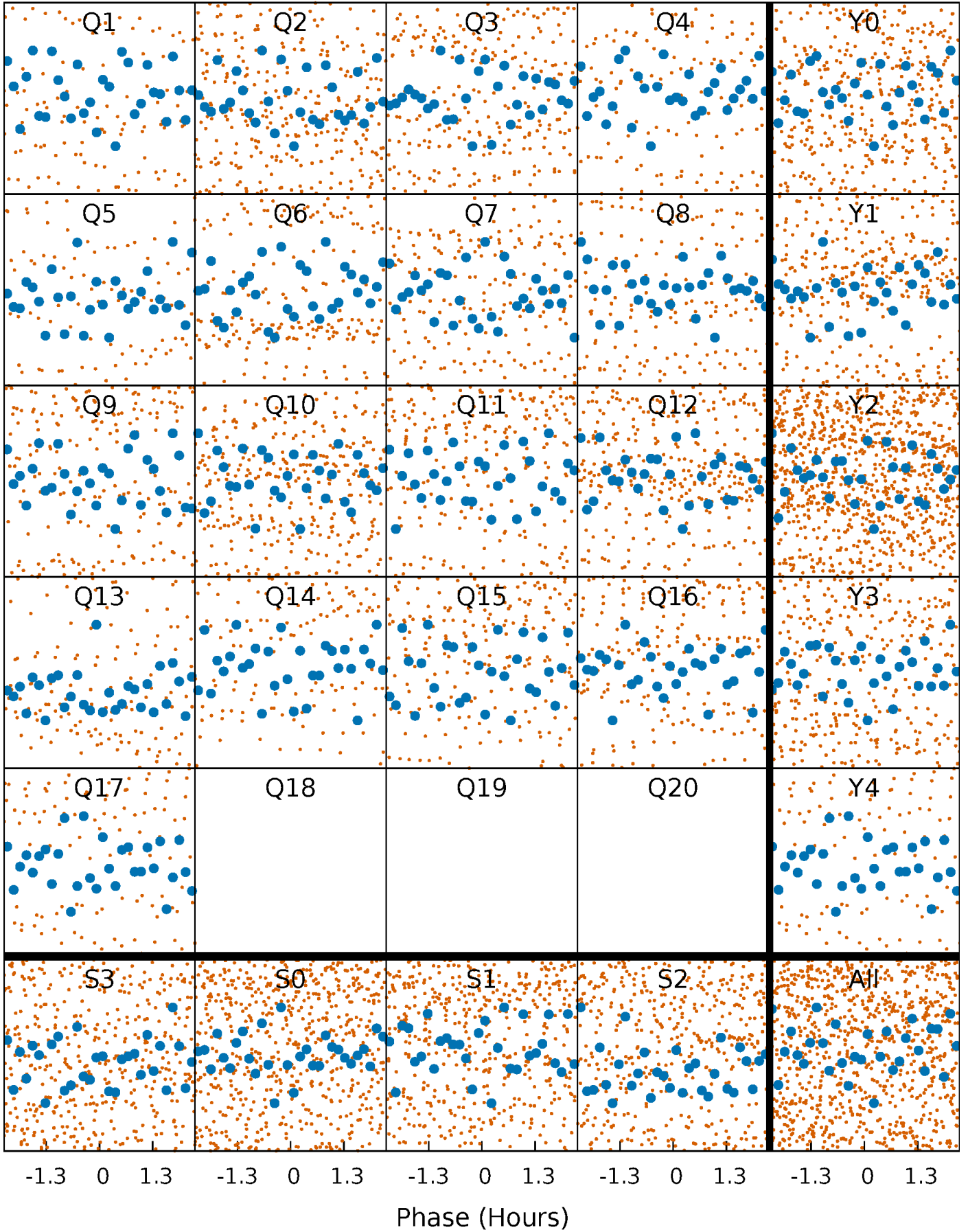


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

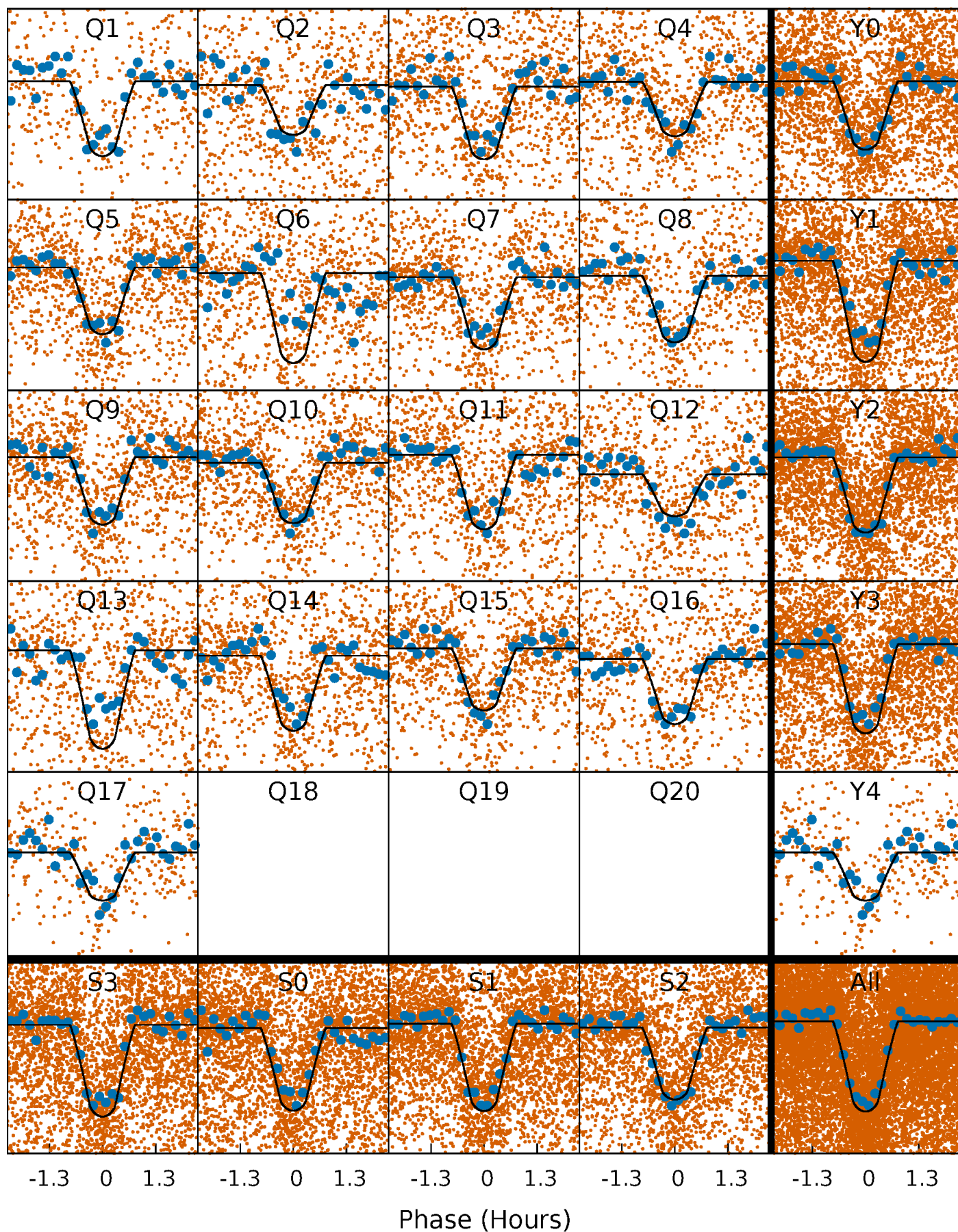
TCE 009885417-01   P= 0.689969 Days    $T_0=131.634270$  (BKJD)





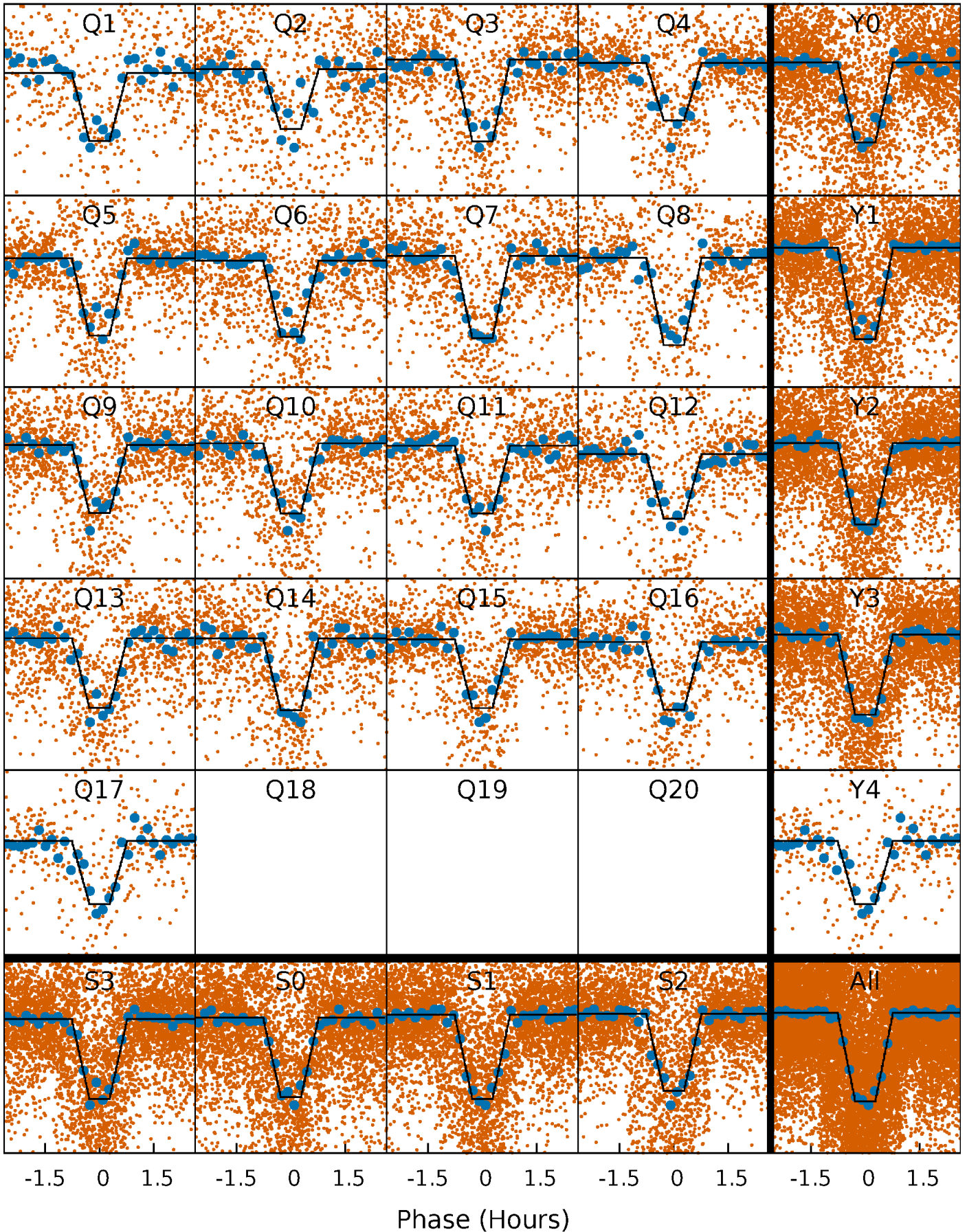
# DV Quarter-Phased Transit Curves

TCE 009885417-01   P= 0.689969 Days    $T_0=131.634270$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009885417-01 P= 0.689968 Days  $T_0=131.634811$  (BKJD)

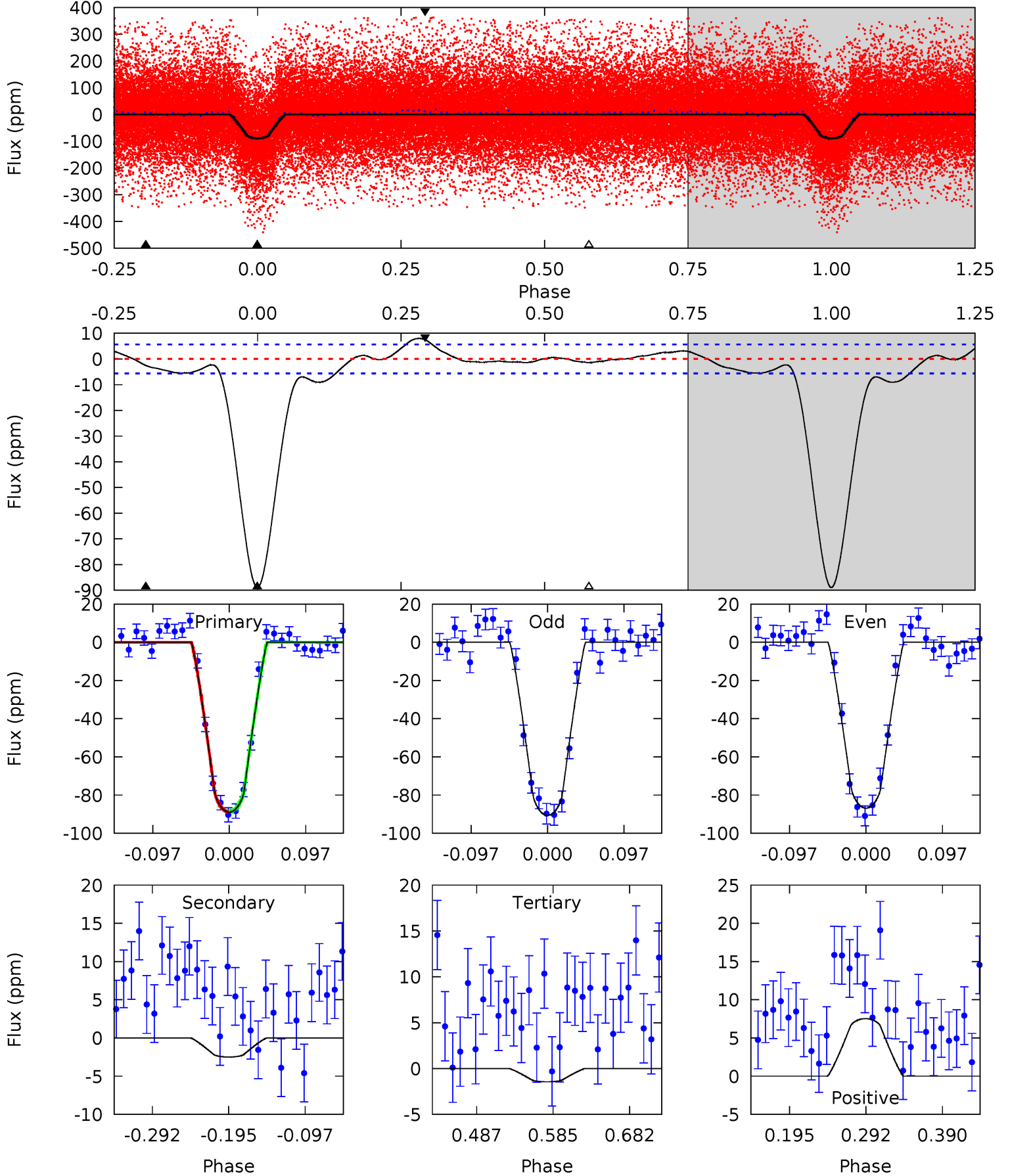




# DV Model-Shift Uniqueness Test

009885417-01, P = 0.689969 Days, E = 130.944301 Days

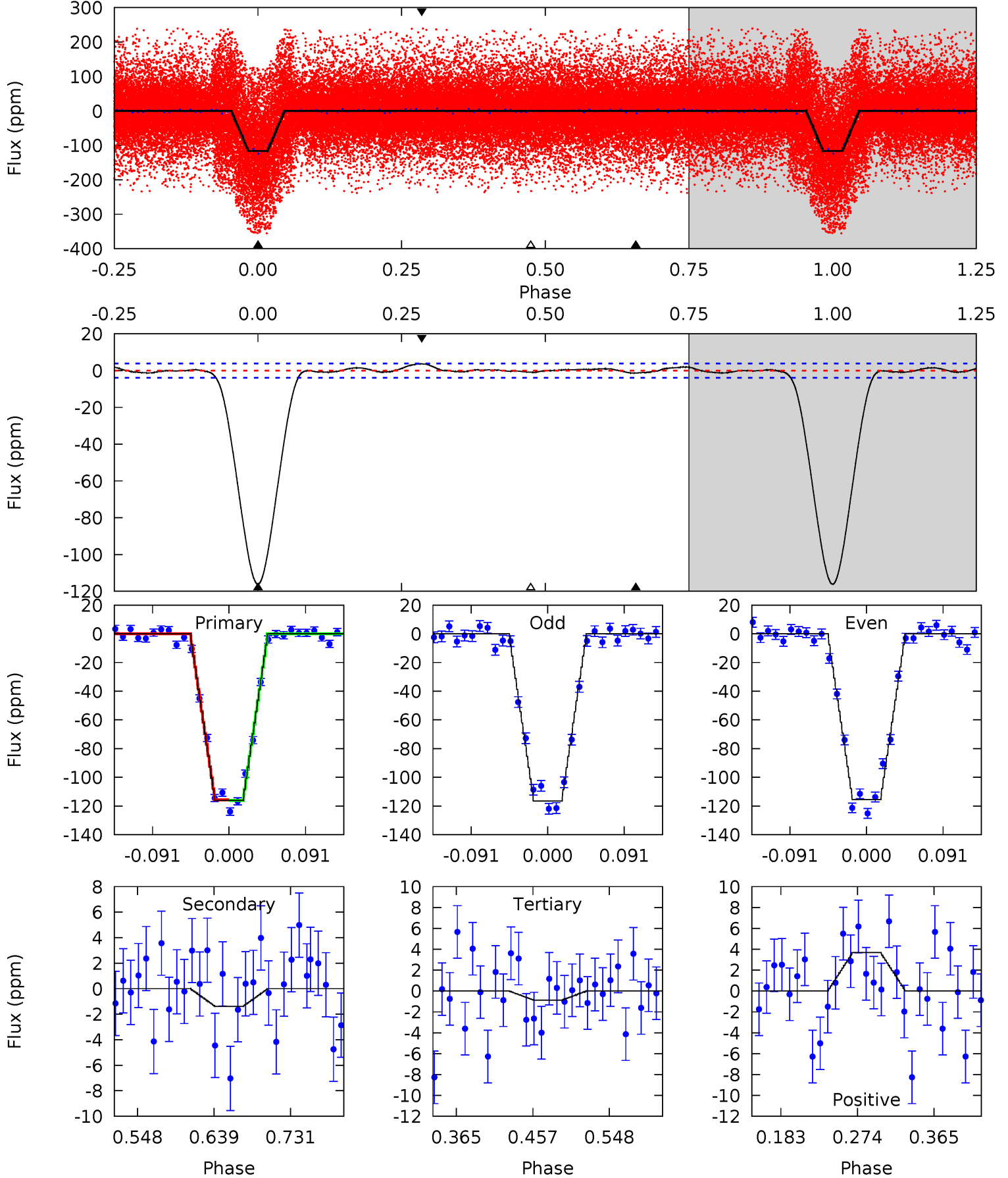
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.3	2.03	1.18	6.12	4.57	1.66	2.62	71.1	66.2	0.85	-4.09	1.57	1.02	0.08	0.12



# Alt Model-Shift Uniqueness Test

009885417-01, P = 0.689968 Days, E = 130.944843 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
138.2	1.64	1.04	4.38	4.58	1.69	1.27	137.1	133.8	0.60	-2.74	0.57	1.00	0.03	0.24



### Stellar Parameters For KIC 009885417

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4872_{-97}^{+97}$	$4.615_{-0.051}^{+0.012}$	$0.100_{-0.150}^{+0.150}$	$0.726_{-0.022}^{+0.053}$	$0.814_{-0.053}^{+0.029}$	$2.995_{-0.559}^{+0.170}$
	+2%/-2%	+0%/-1%	+150%/-150%	+7%/-3%	+4%/-7%	+6%/-19%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 009885417-01 / KOI 3246.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-2±1	$0.91_{-0.17}^{+0.16}$	$2171_{-54}^{+56}$	$1880_{-4238}^{+668}$	$0.318_{-0.170}^{+0.257}$
Alt.	-1±1	$0.87_{-0.18}^{+0.16}$	$2172_{-47}^{+50}$	$-2278_{-218}^{+4487}$	$0.191_{-0.123}^{+0.191}$

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



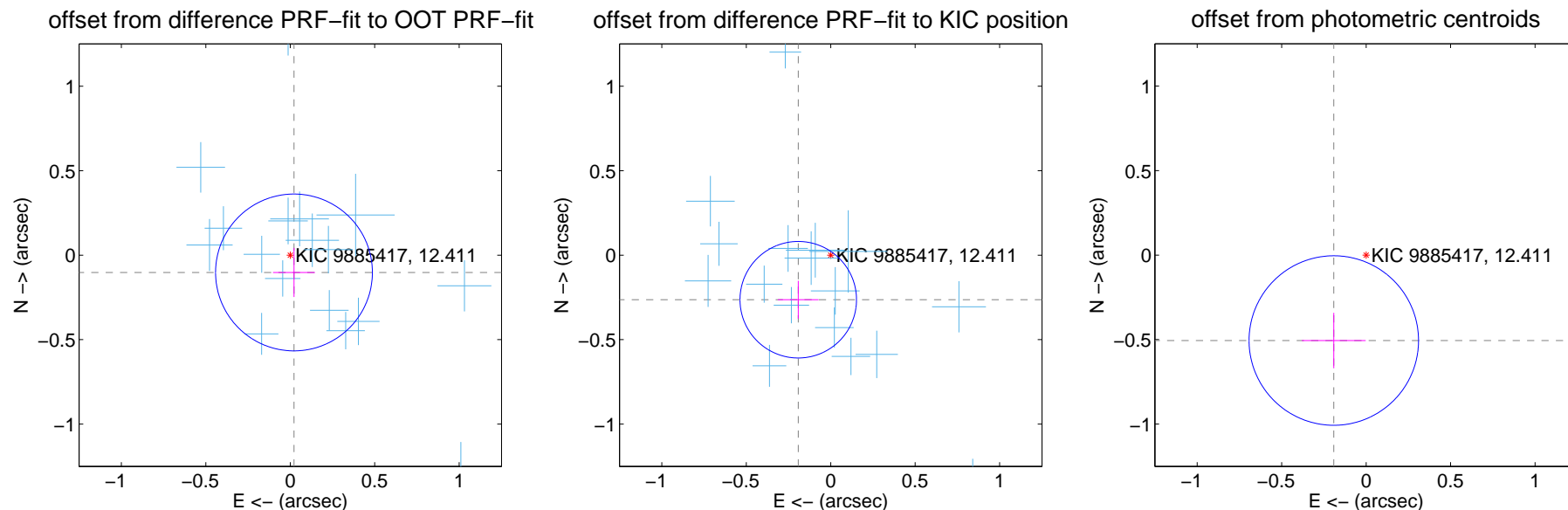
## DV Centroid Data

Supplemental centroid analysis for 009885417-01. Kepler magnitude: 12.41. Transit SNR 50.84

There are 17 quarters with good PRF difference image offsets

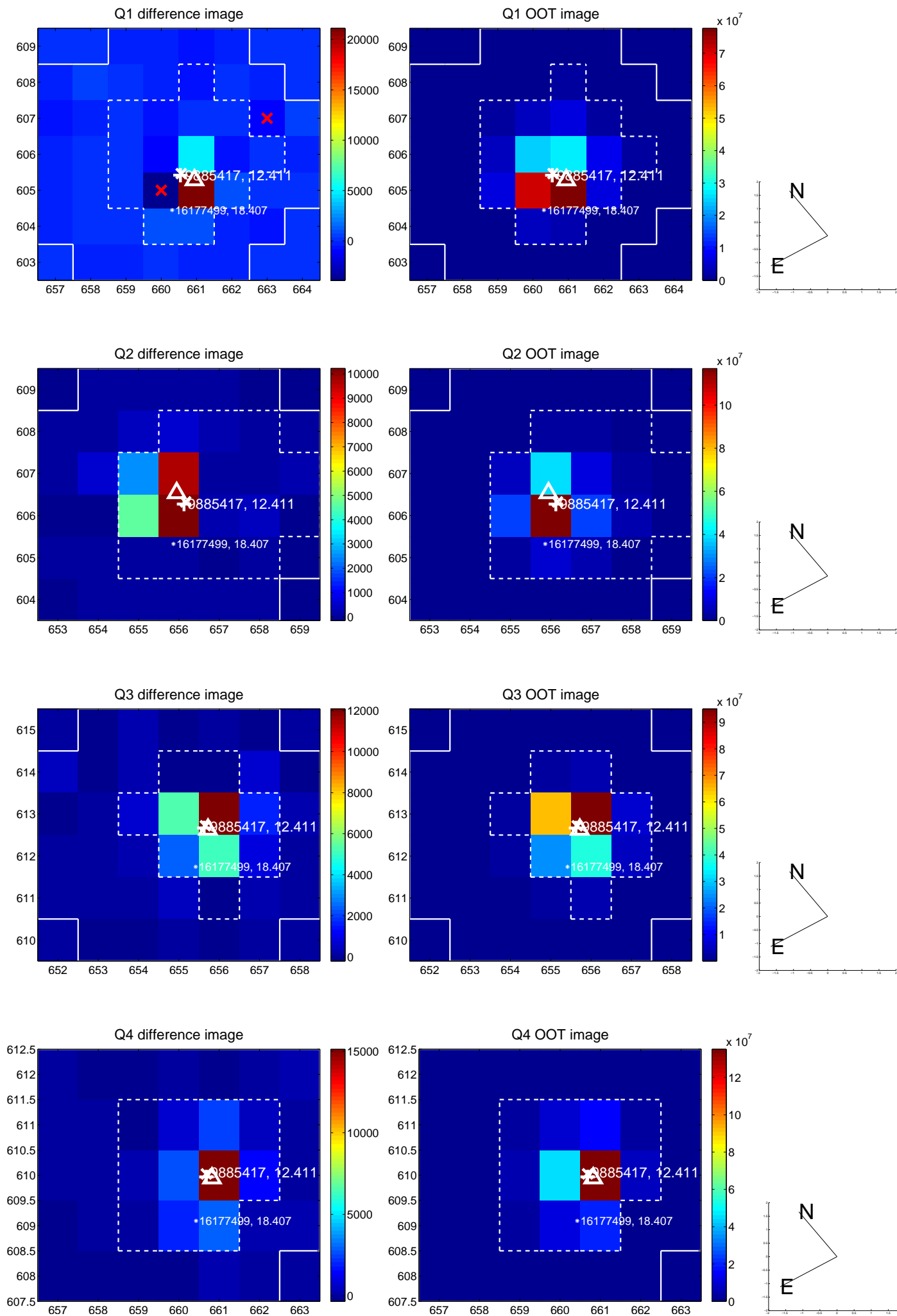
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.105 \pm 0.155$	0.68	$-0.022 \pm 0.124$	$-0.102 \pm 0.145$
PRF-fit source offset from KIC position	$0.326 \pm 0.115$	2.84	$0.192 \pm 0.121$	$-0.264 \pm 0.112$
photometric centroid source offset	$0.54 \pm 0.17$	3.23	$0.19 \pm 0.19$	$-0.51 \pm 0.16$

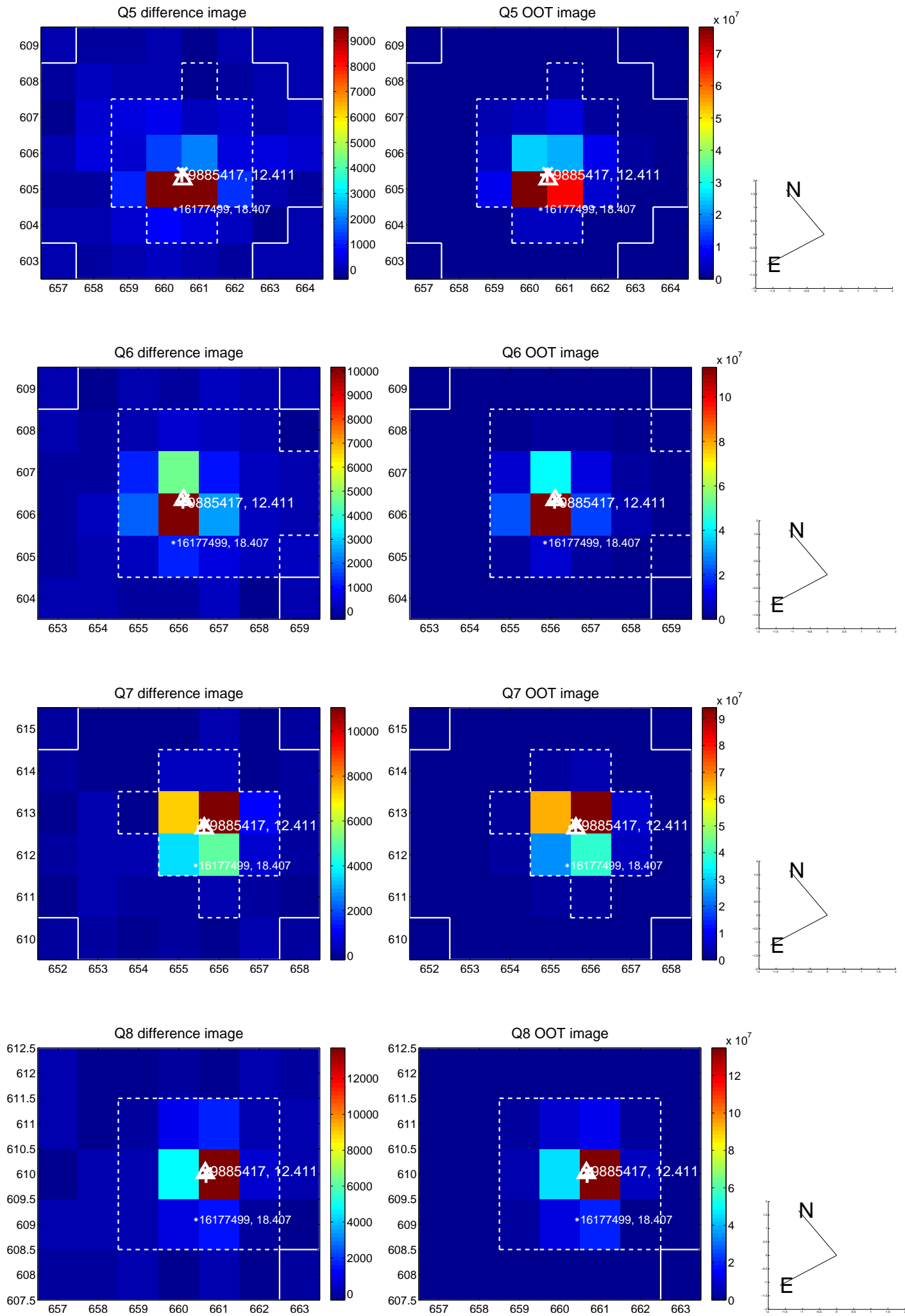


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

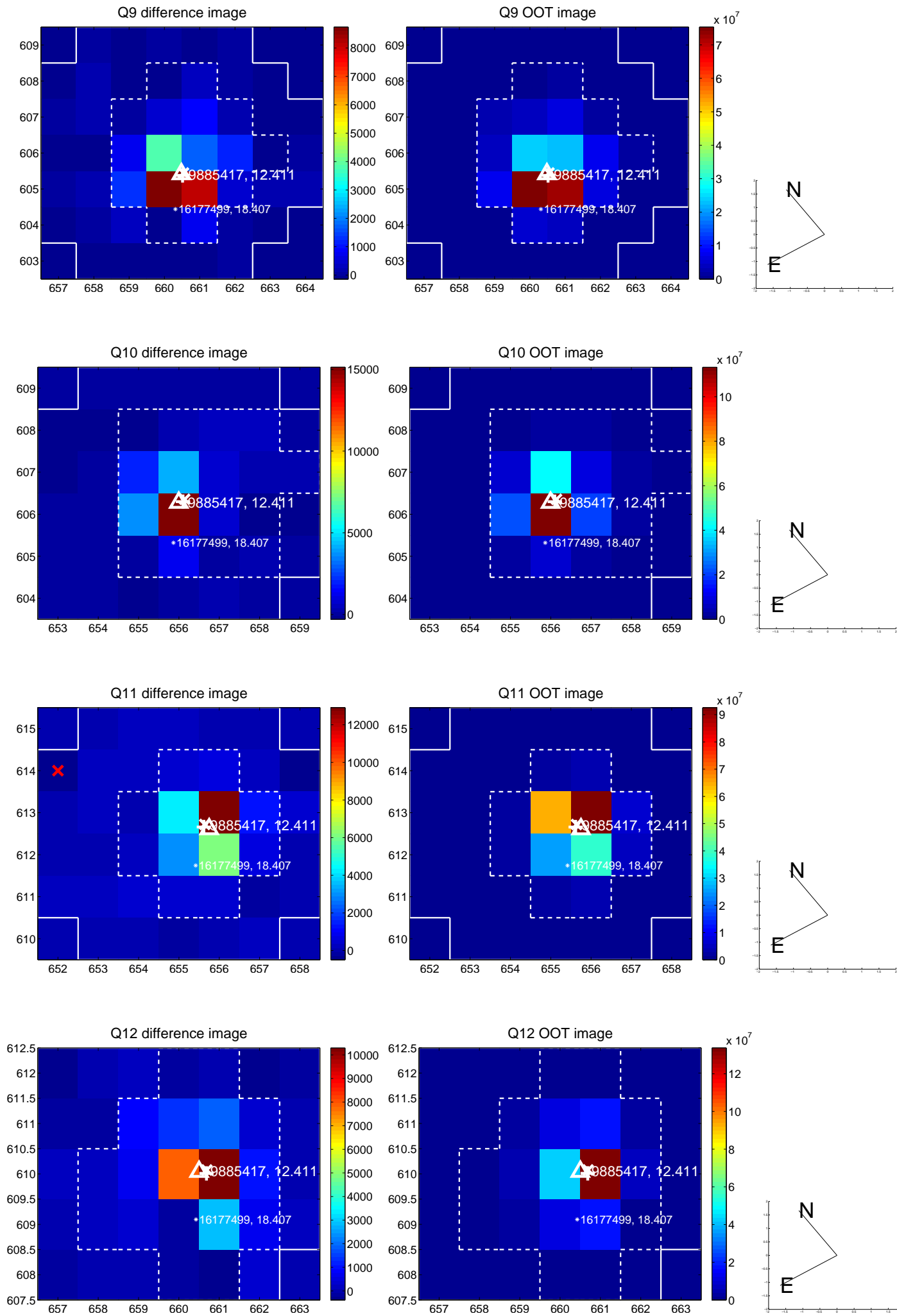
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



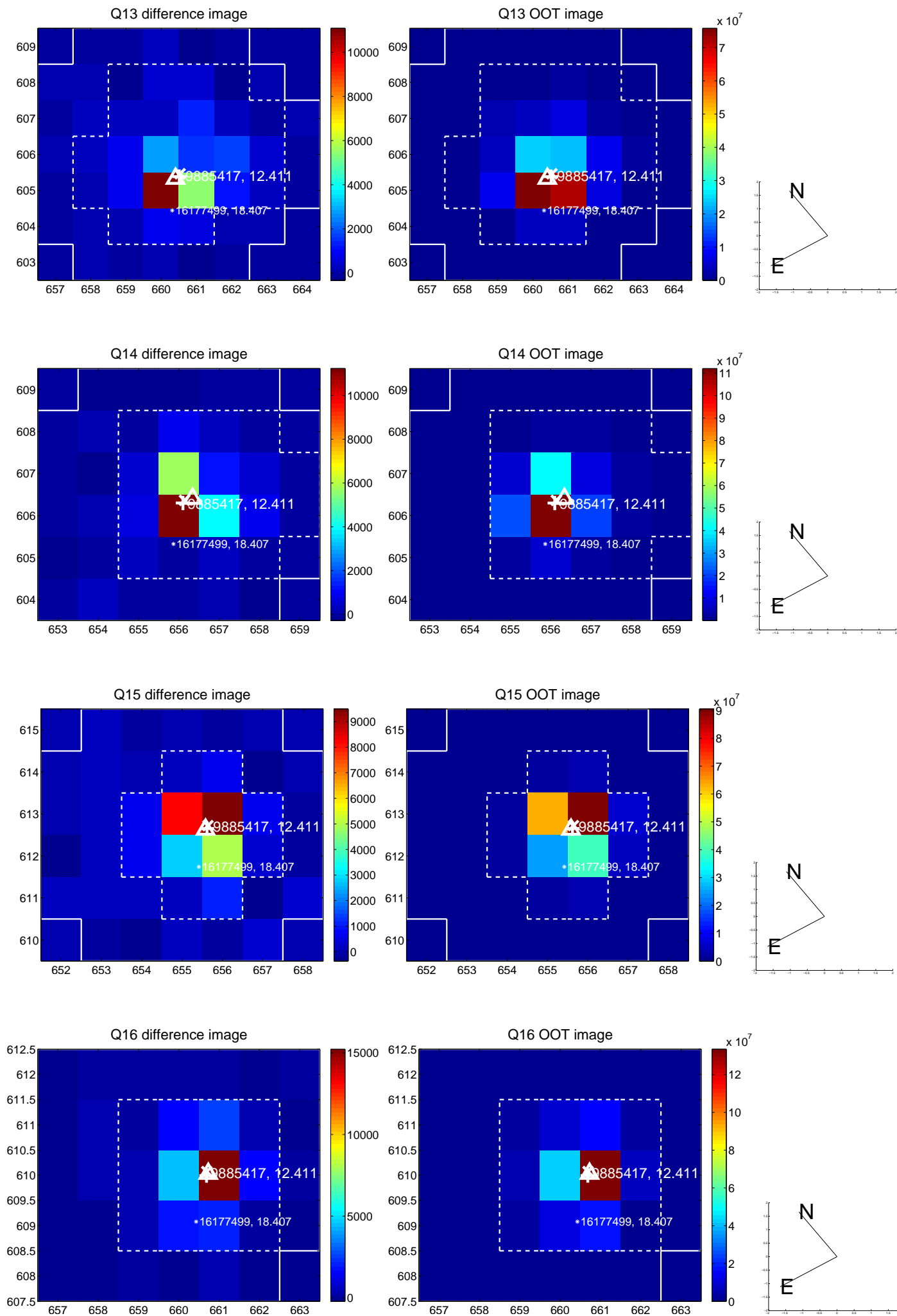
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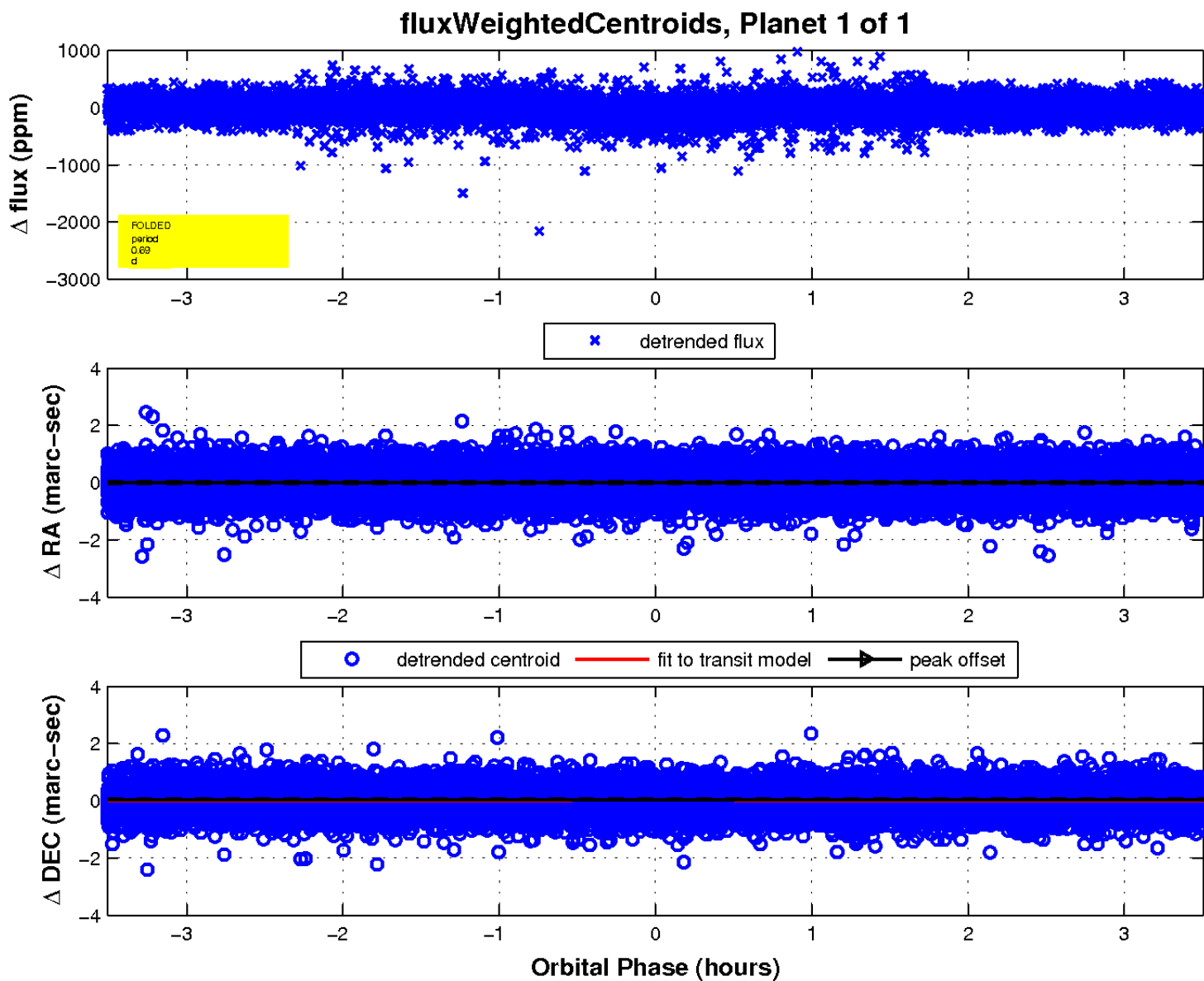
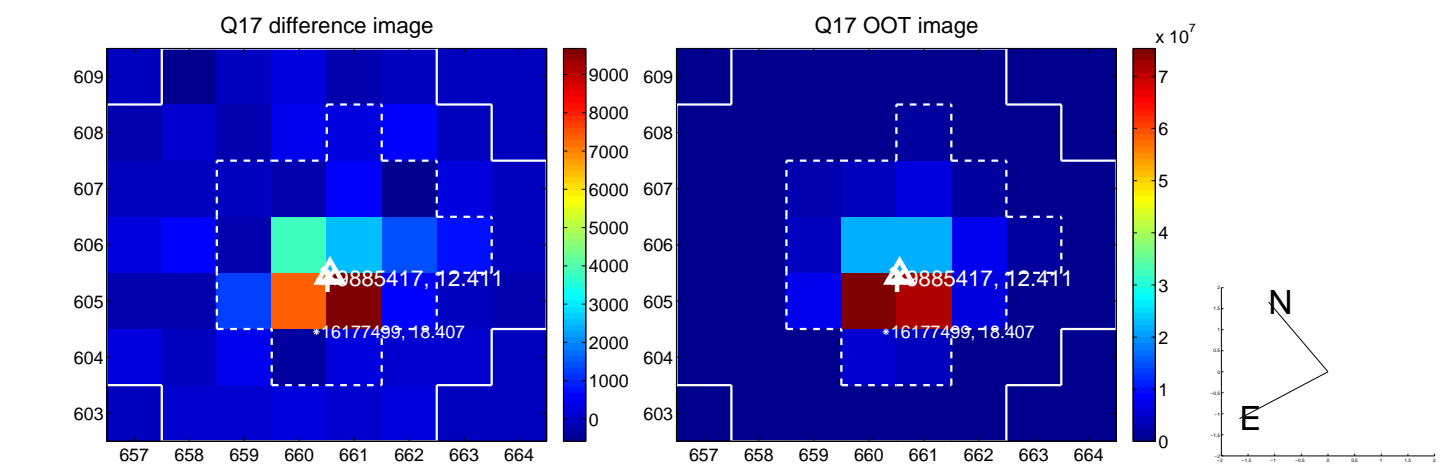


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

