

# KIC 004357967

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004357967-01	OBS	No	1.201637	131.946525	22.9	2.976	9.5	8.9	3.77	7050	1.97	42582.51

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004357967-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

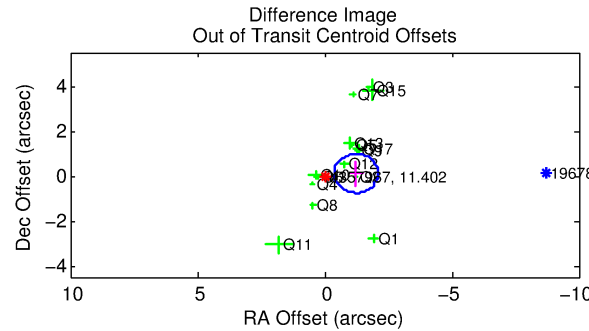
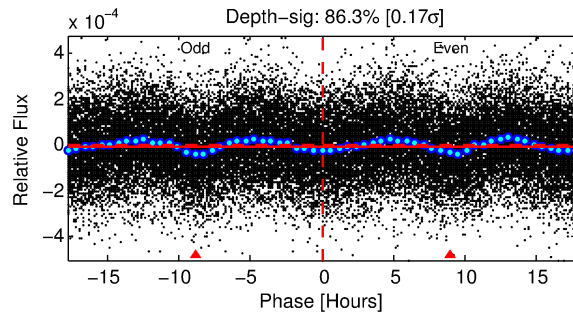
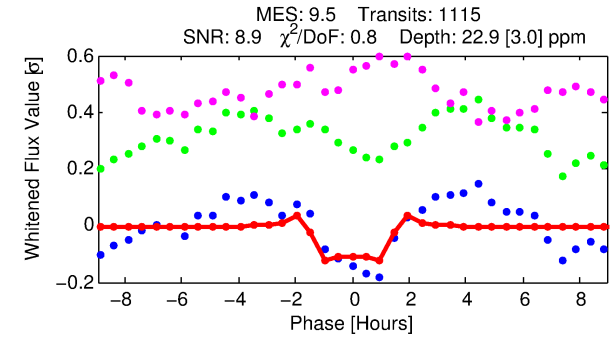
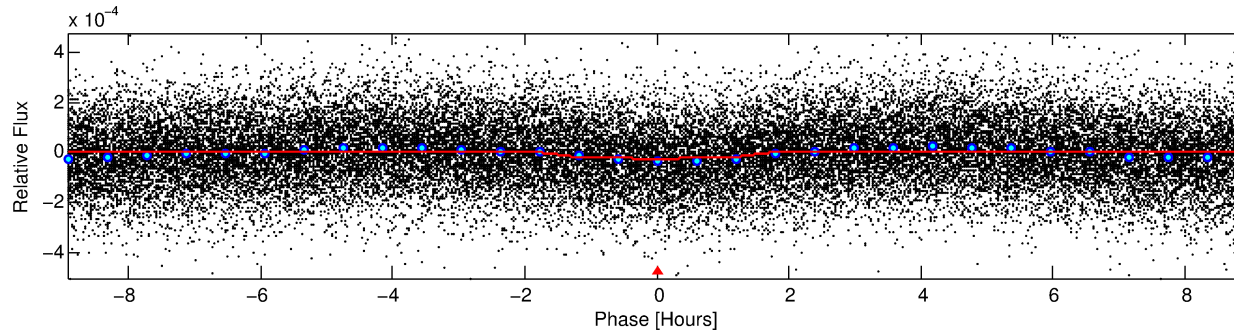
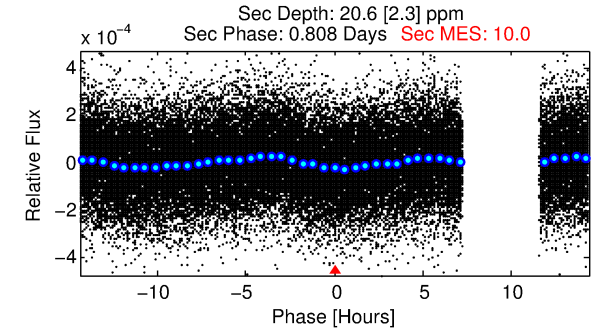
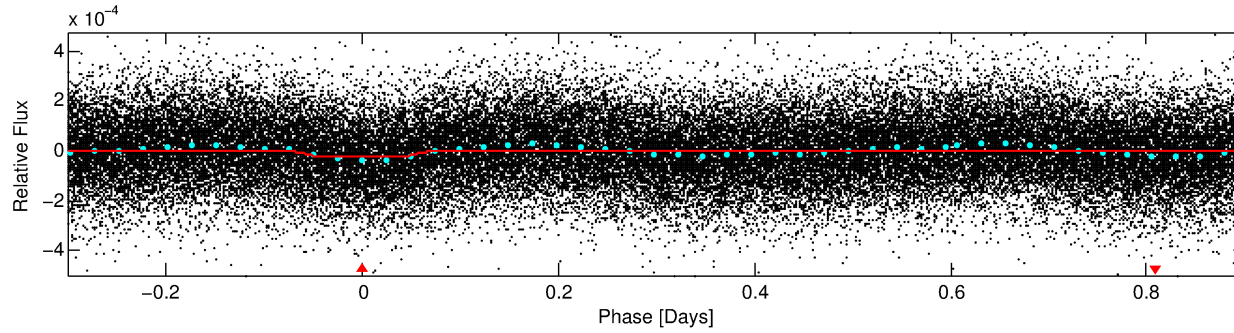
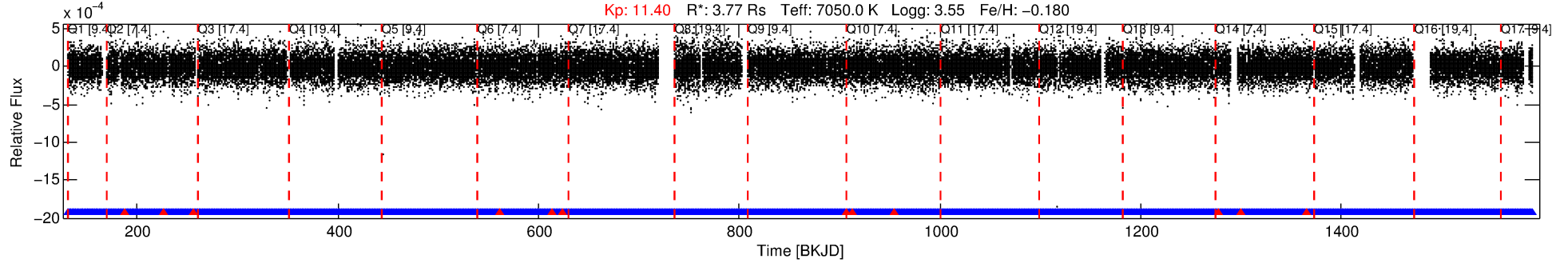
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004357967-01

No Significant Match Found

# DV One-Page Summary

KIC: 4357967 Candidate: 1 of 1 Period: 1.202 d



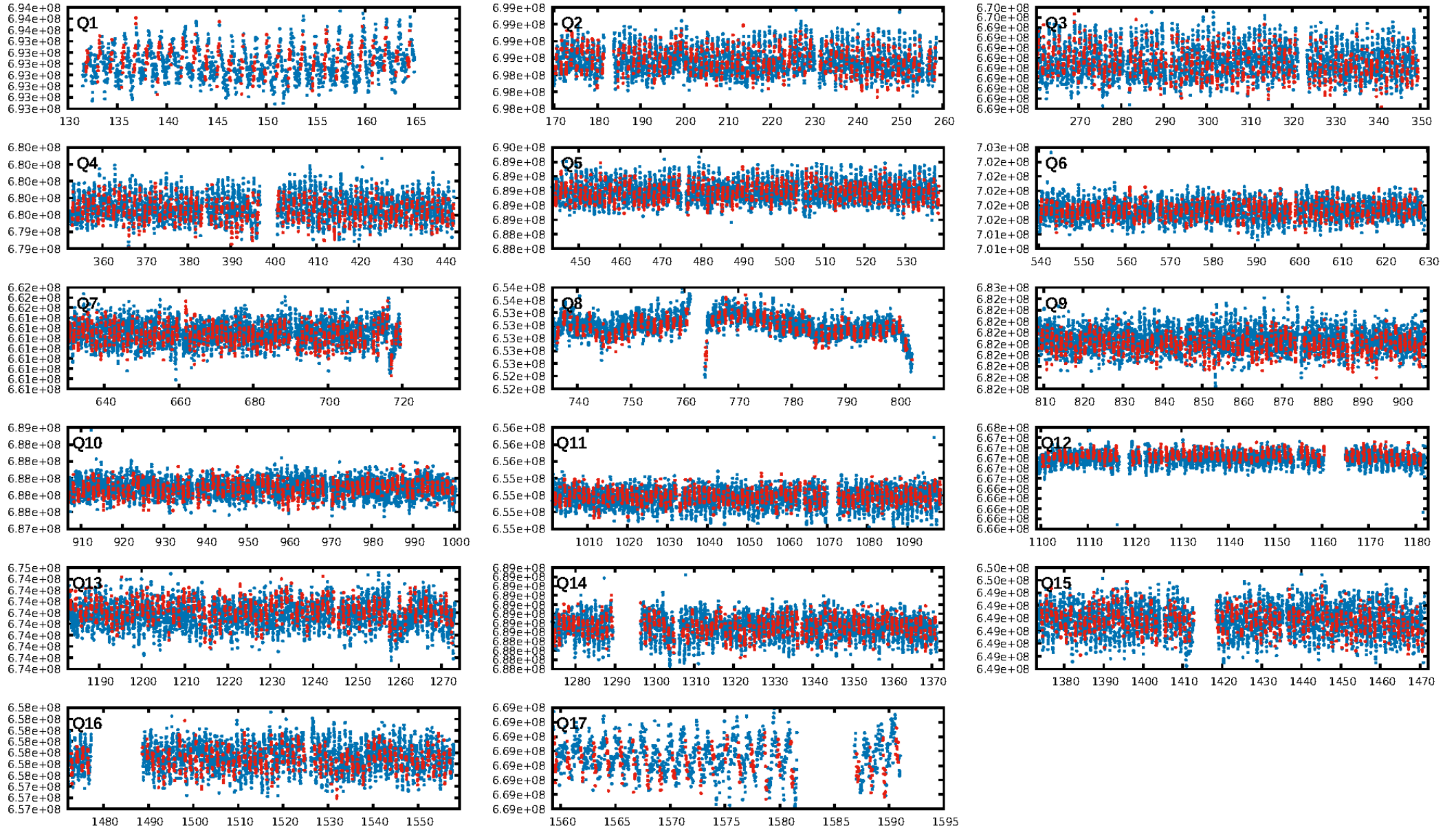
## DV Fit Results:

Period = 1.20164 [0.00001] d  
Epoch = 131.9465 [0.0025] BKJD  
Rp/R\* = 0.0048 [0.0006]  
a/R\* = 2.21 [1.20]  
b = 0.76 [0.39]  
Seff = 42582.51 [25379.37]  
Teq = 3663 [546] K  
Rp = 1.97 [0.83] Re  
a = 0.0272 [0.0101] AU  
Ag = 2.18 [1.41] [0.83σ]  
Teffp = 6879 [549] K [4.15σ]

## DV Diagnostic Results:

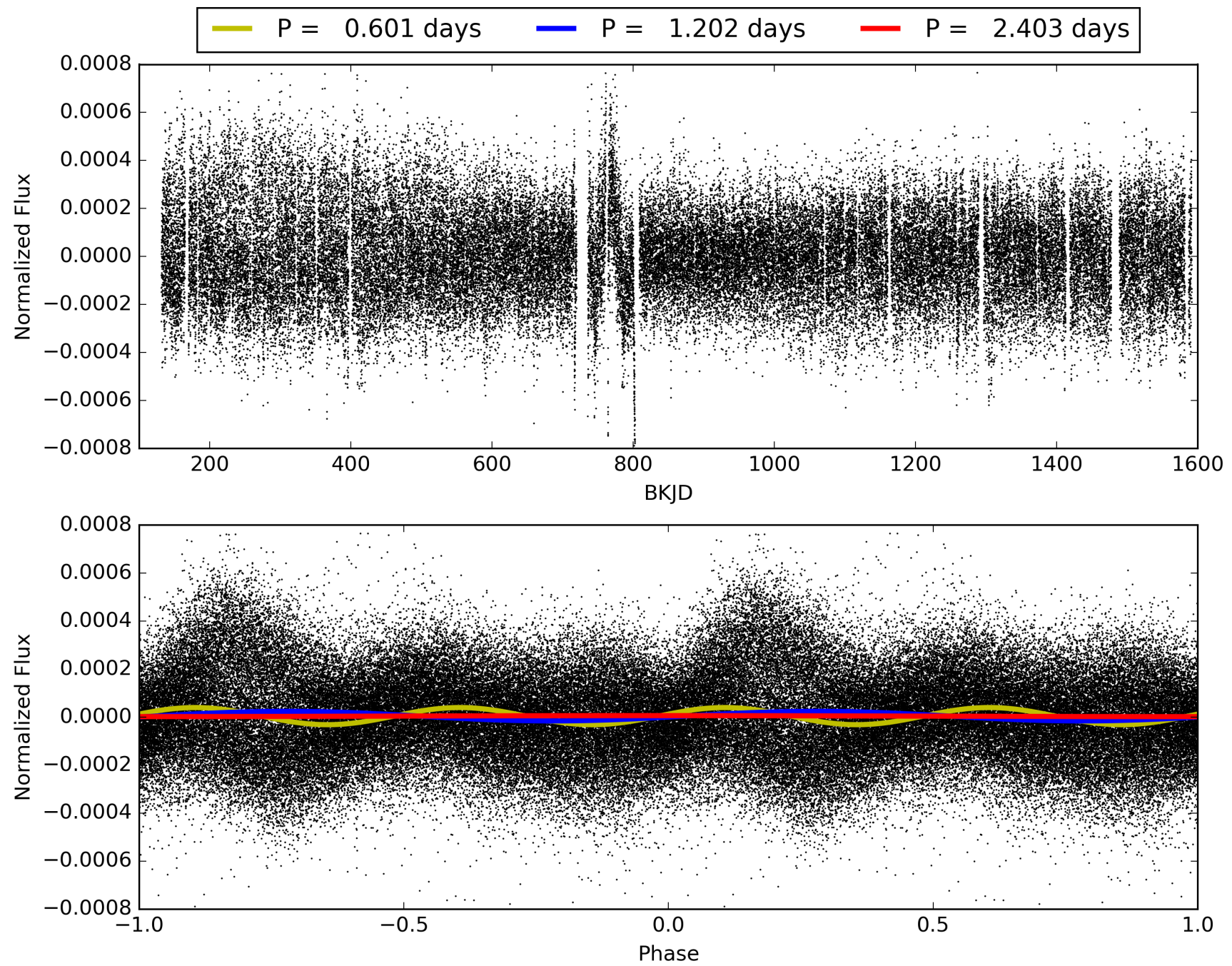
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.79e-15  
RollingBand-fgt: 0.99 [1052/1064]  
GhostDiagnostic-chr: 1.768  
Centroid-sig: N/A  
Centroid-so: 0.223 arcsec [0.49σ]  
OotOffset-rm: 1.238 arcsec [4.30σ]  
KicOffset-rm: 1.261 arcsec [3.19σ]  
OotOffset-st: 3/4/3/5 [15]  
KicOffset-st: 3/4/3/5 [15]  
DiffImageQuality-fgm: 0.67 [10/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 004357967-01, PDC Light Curves



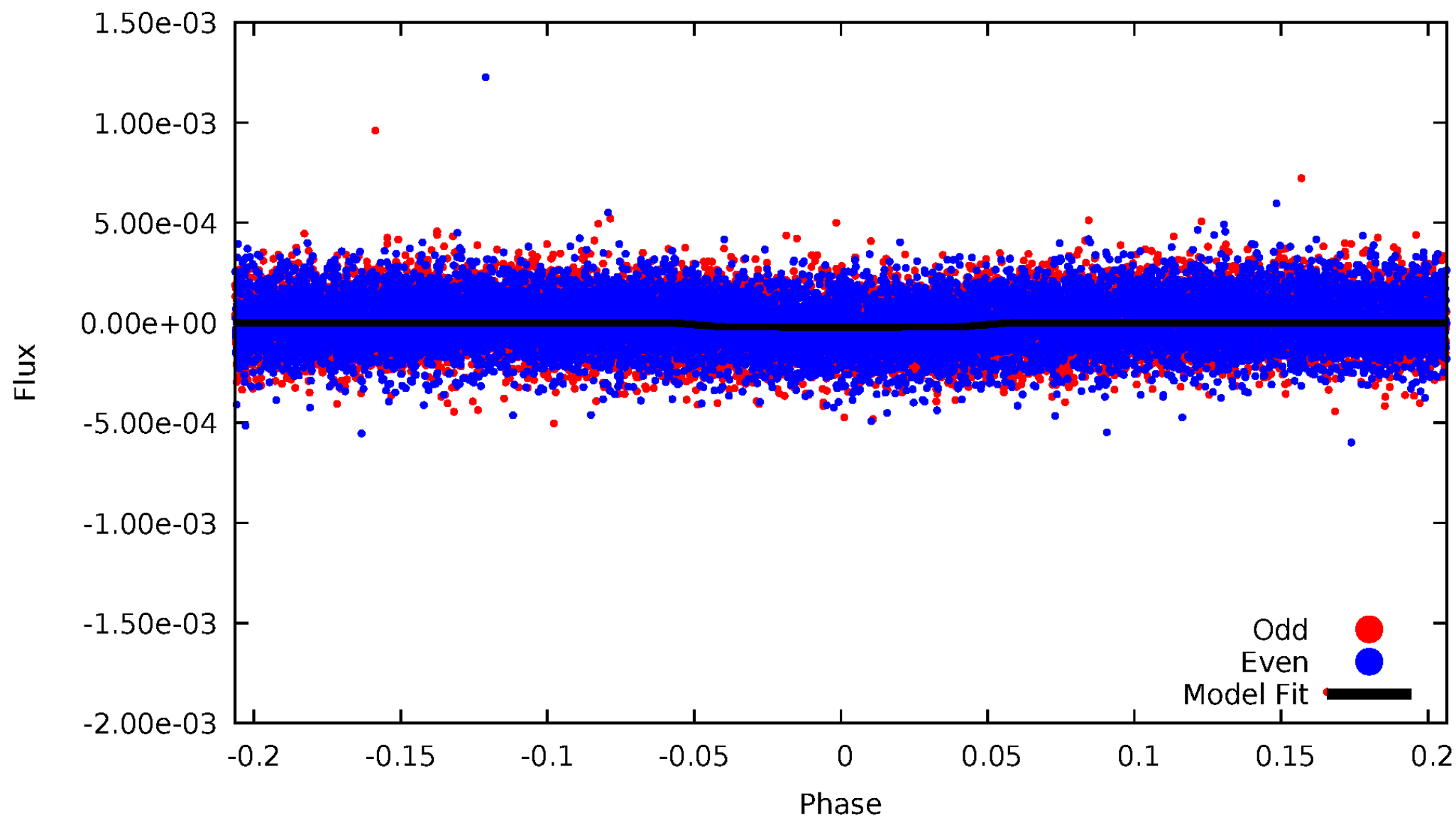


TCE 004357967-01



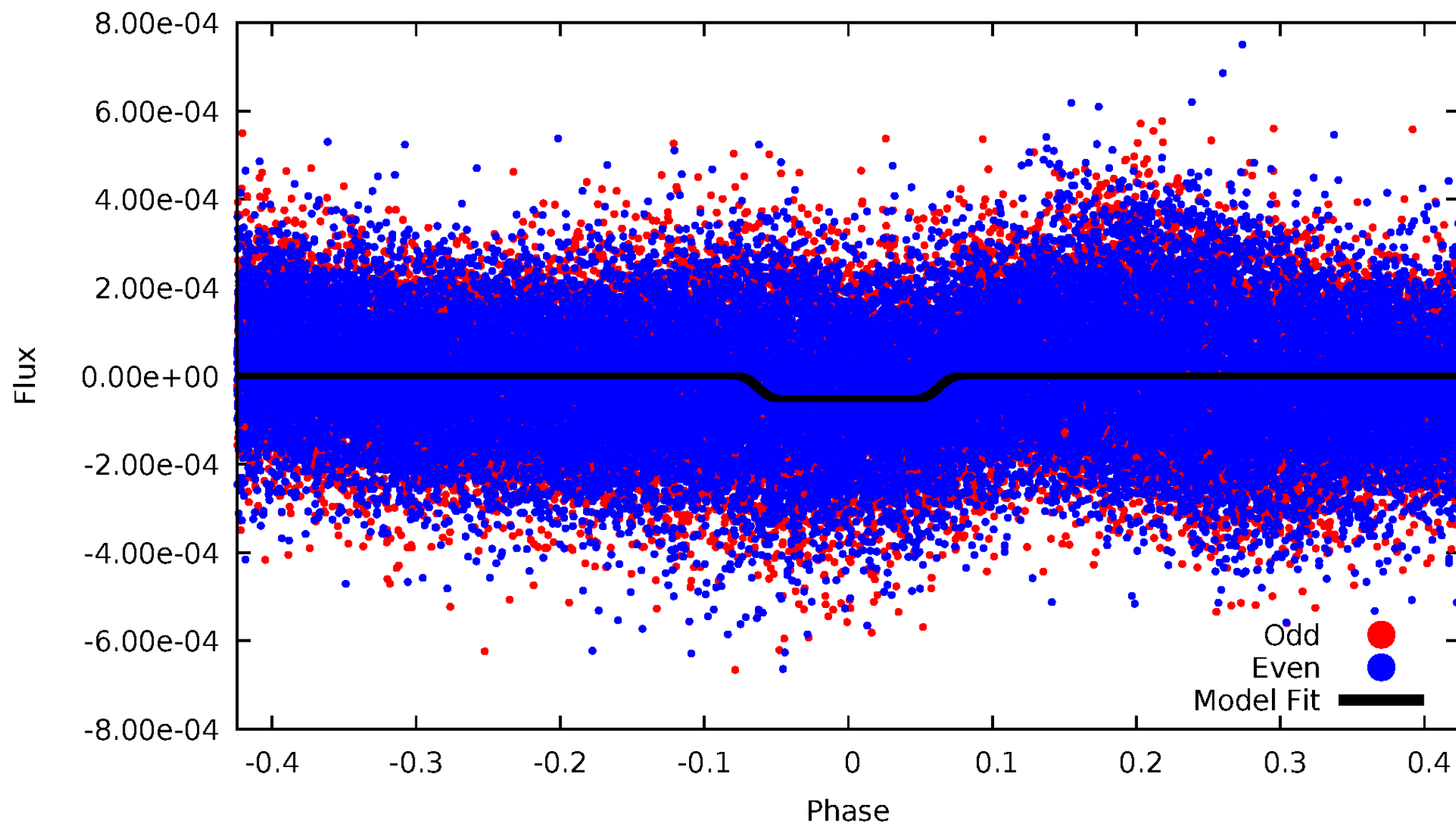
# DV Odd/Even

TCE 004357967-01



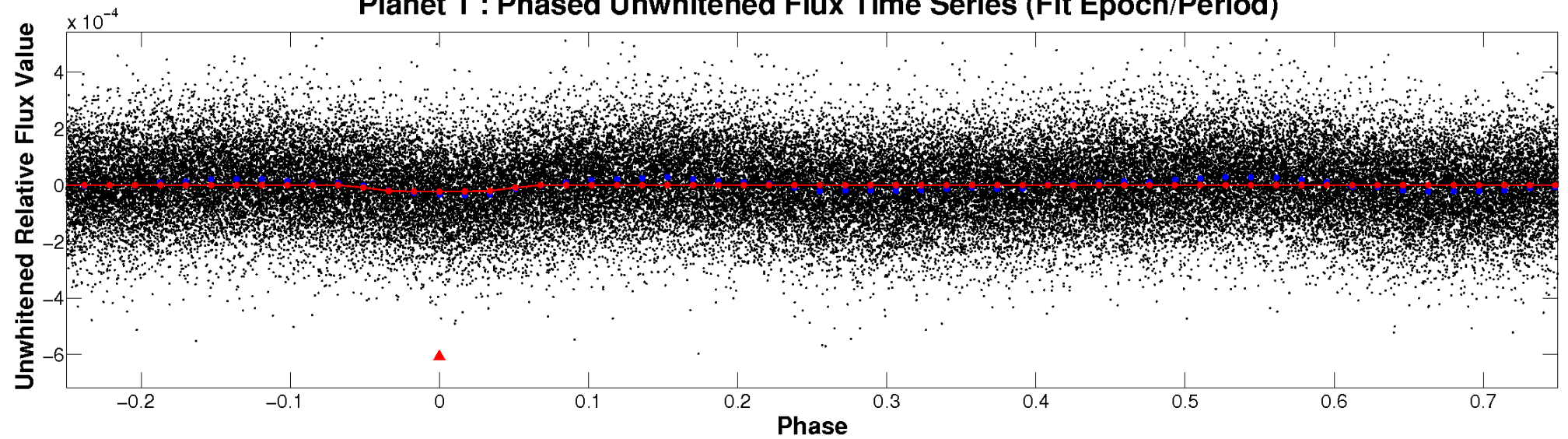
# ALT Odd/Even

TCE 004357967-01

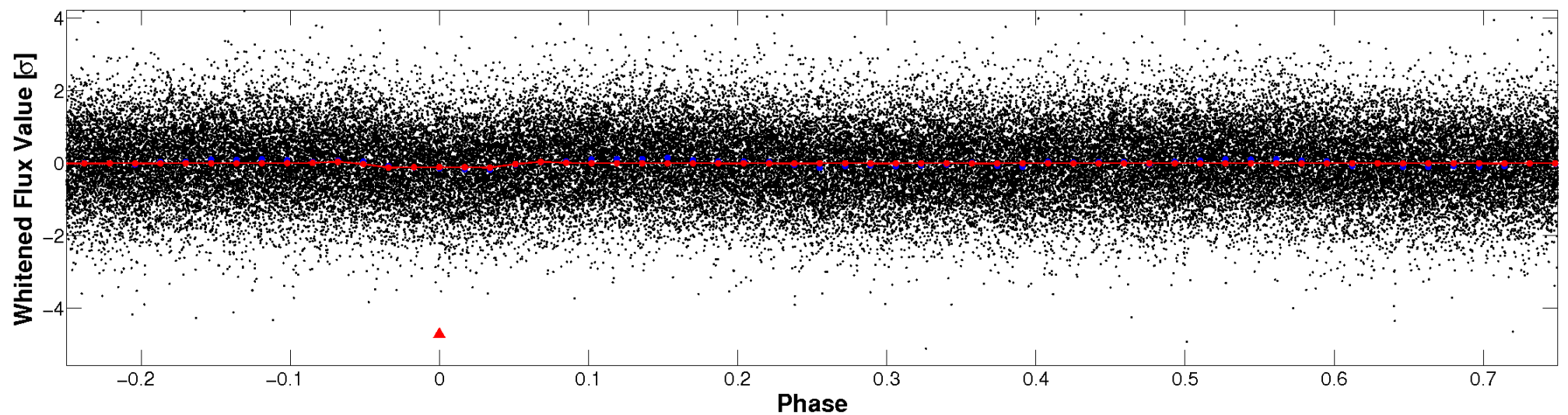


# Non-Whitened Vs. Whitened Light Curve

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



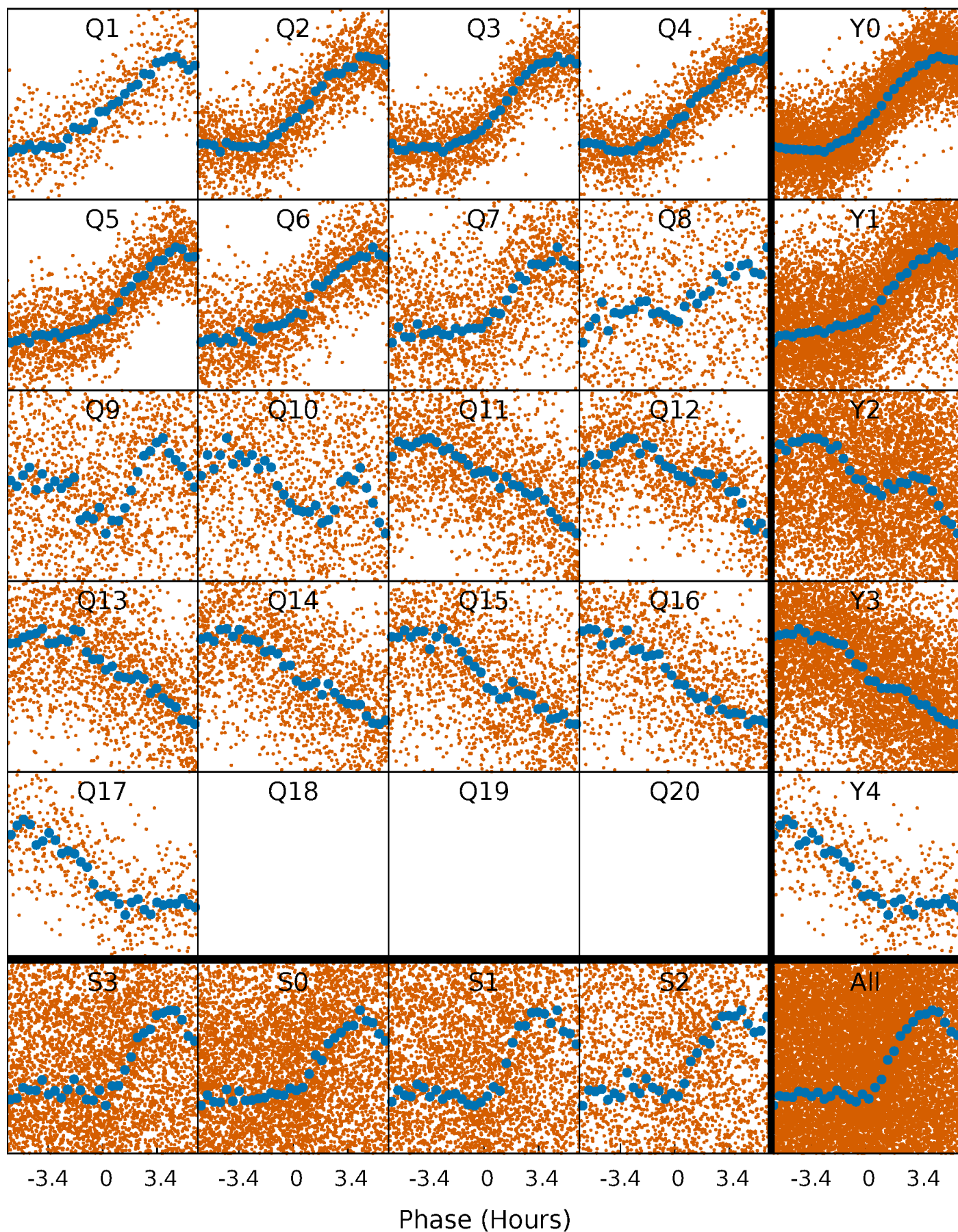
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

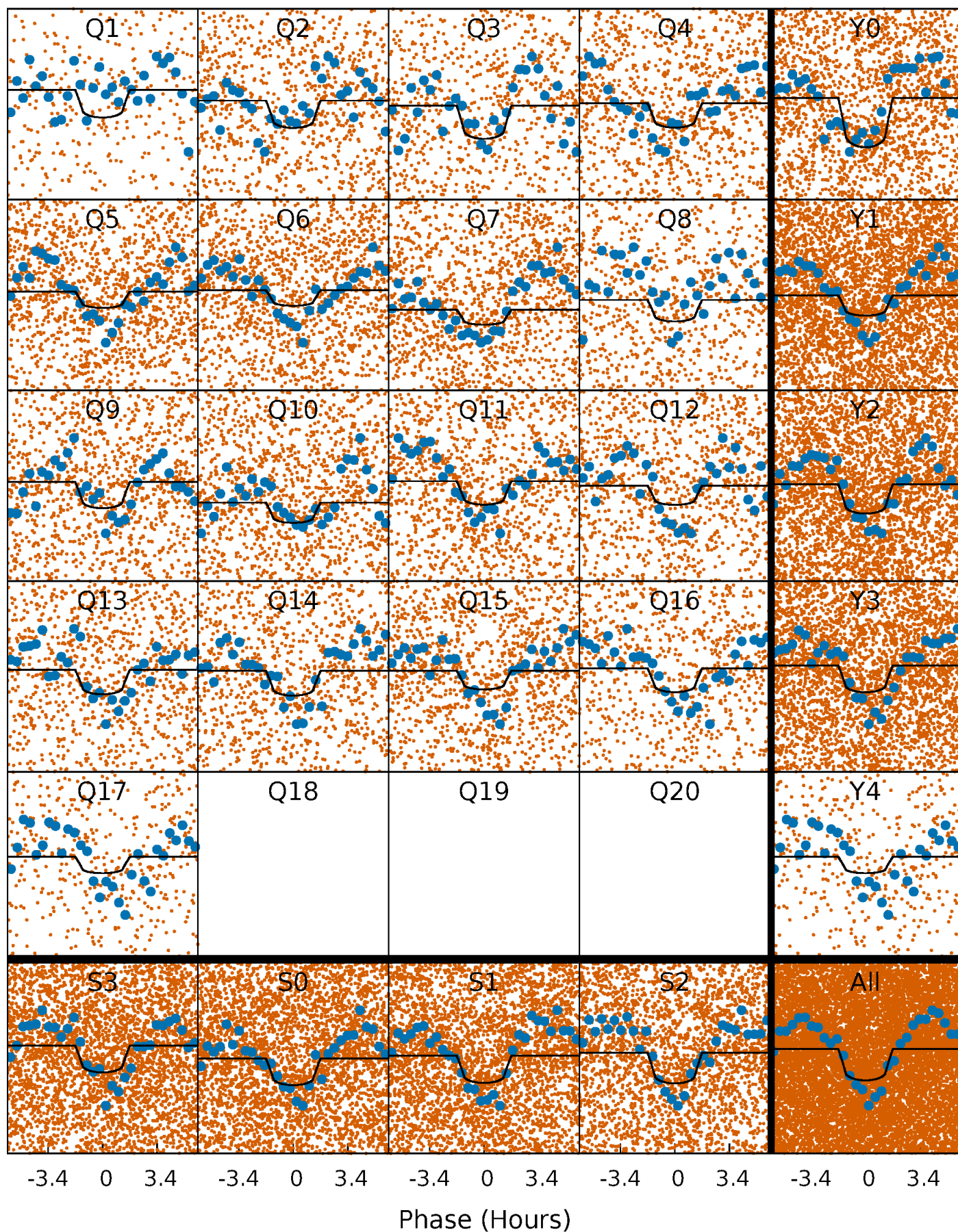
TCE 004357967-01 P= 1.201637 Days  $T_0=131.946525$  (BKJD)





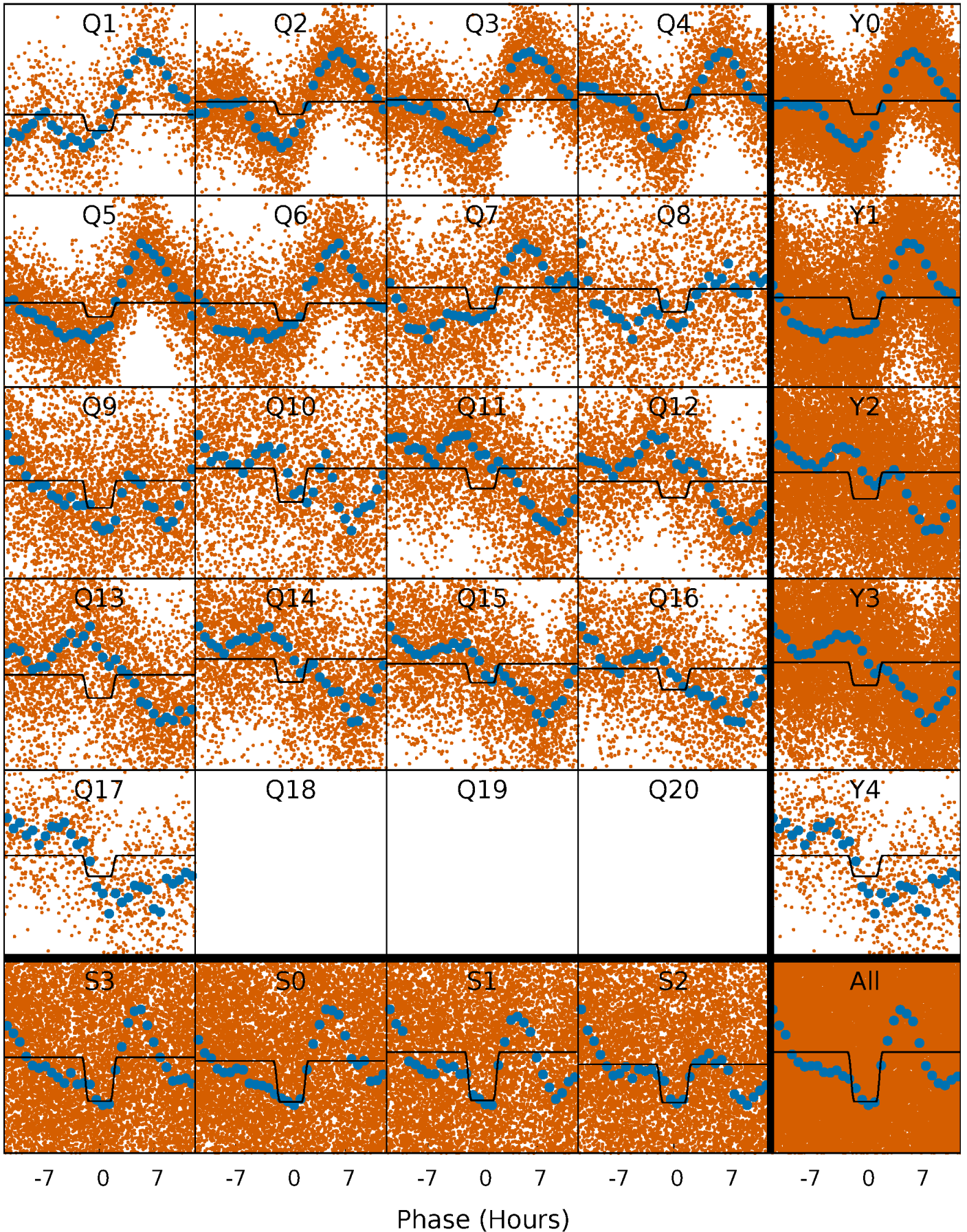
# DV Quarter-Phased Transit Curves

TCE 004357967-01 P= 1.201637 Days  $T_0=131.946525$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004357967-01 P= 1.201679 Days  $T_0=131.894772$  (BKJD)

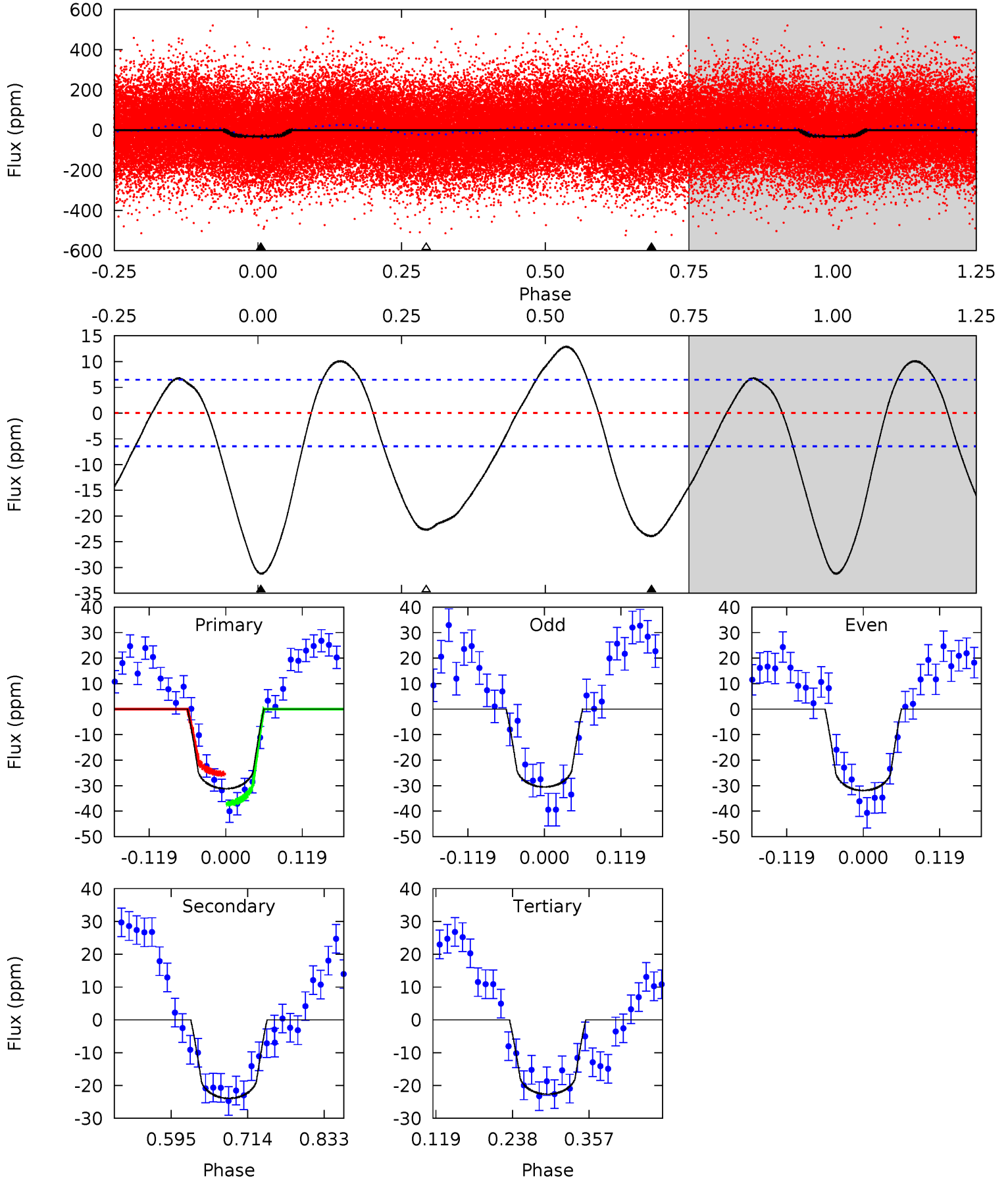




# DV Model-Shift Uniqueness Test

004357967-01, P = 1.201637 Days, E = 130.744888 Days

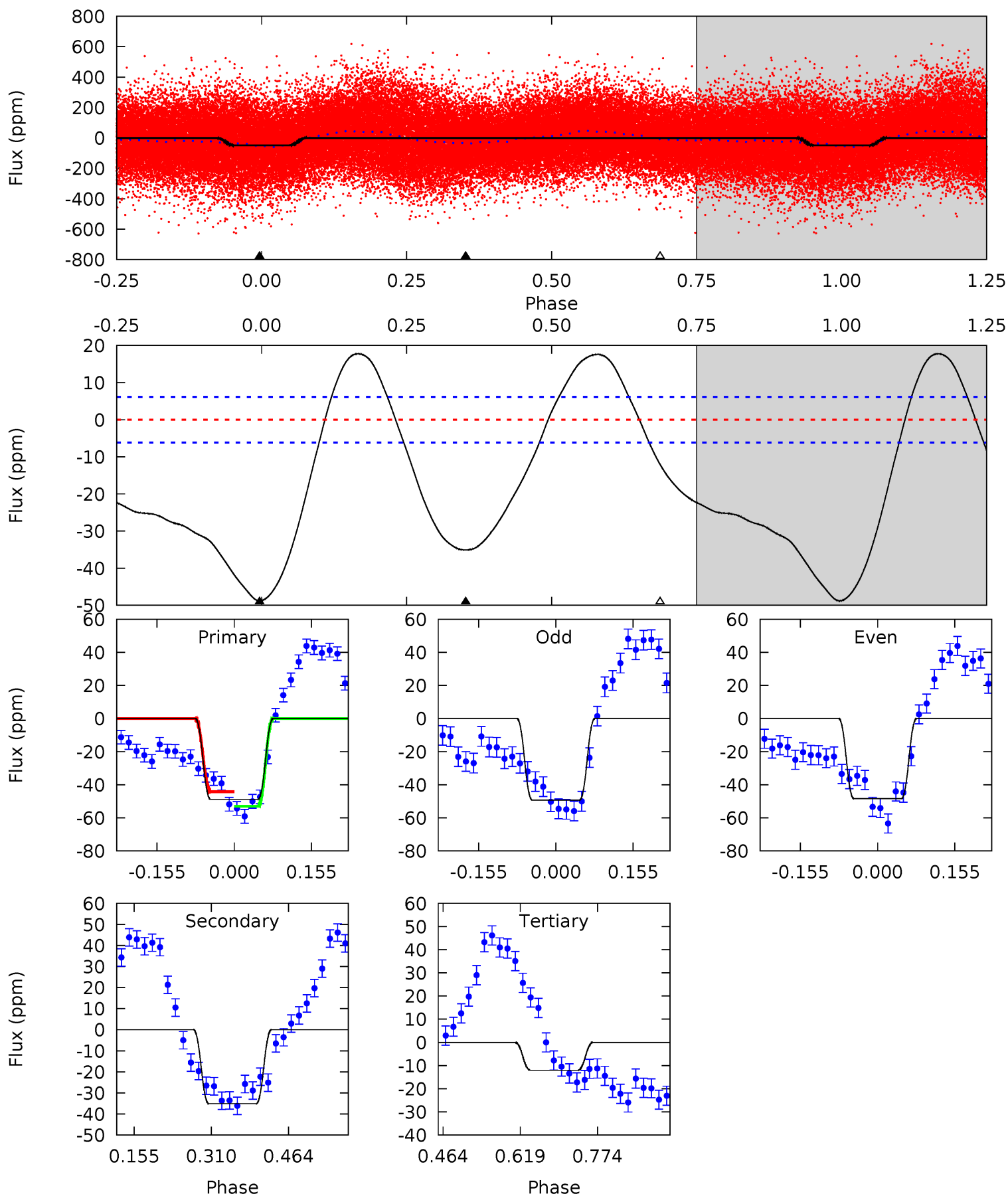
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	16.7	15.9	0	4.53	1.56	8.29	5.98	21.8	0.87	16.7	0.49	0.98	0.29	4.05



# Alt Model-Shift Uniqueness Test

004357967-01, P = 1.201679 Days, E = 130.693093 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
35.5	25.5	8.75	0	4.47	1.42	12.6	26.8	35.5	16.8	25.5	0.30	1.02	0.27	2.96





### Stellar Parameters For KIC 004357967

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7050^{+189}_{-232}$	$3.554^{+0.336}_{-0.063}$	$-0.180^{+0.300}_{-0.250}$	$3.775^{+0.268}_{-1.518}$	$1.864^{+0.193}_{-0.359}$	$0.049^{+0.130}_{-0.010}$
	+3%/-3%	+9%/-2%	+167%/-139%	+7%/-40%	+10%/-19%	+265%/-21%
Source	PHO1	FLK73	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 004357967-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-24 \pm 1$	$1.89^{+0.35}_{-0.39}$	$5026^{+254}_{-424}$	$6903^{+677}_{-565}$	$2.768^{+1.501}_{-0.763}$
Alt.	$-35 \pm 1$	$2.86^{+0.39}_{-0.58}$	$5000^{+263}_{-458}$	$6036^{+401}_{-344}$	$1.797^{+0.979}_{-0.420}$

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

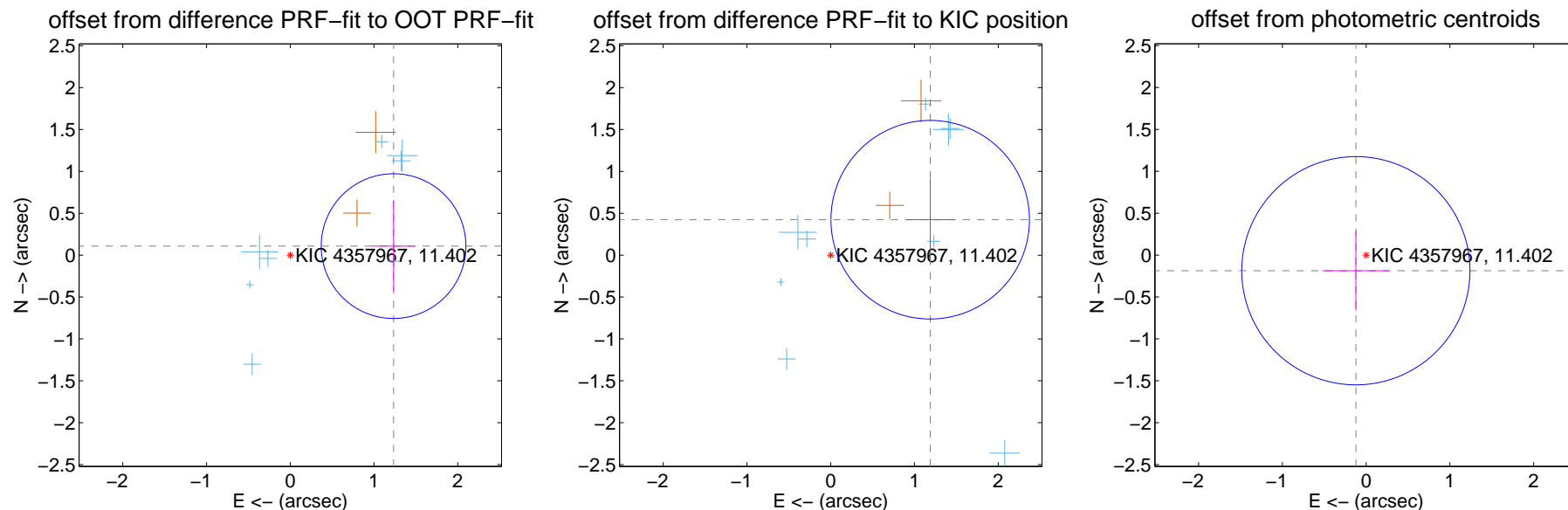
## DV Centroid Data

Supplemental centroid analysis for 004357967-01. **Kepler magnitude: 11.40.** Transit SNR 8.90

There are 10 quarters with good PRF difference image offsets

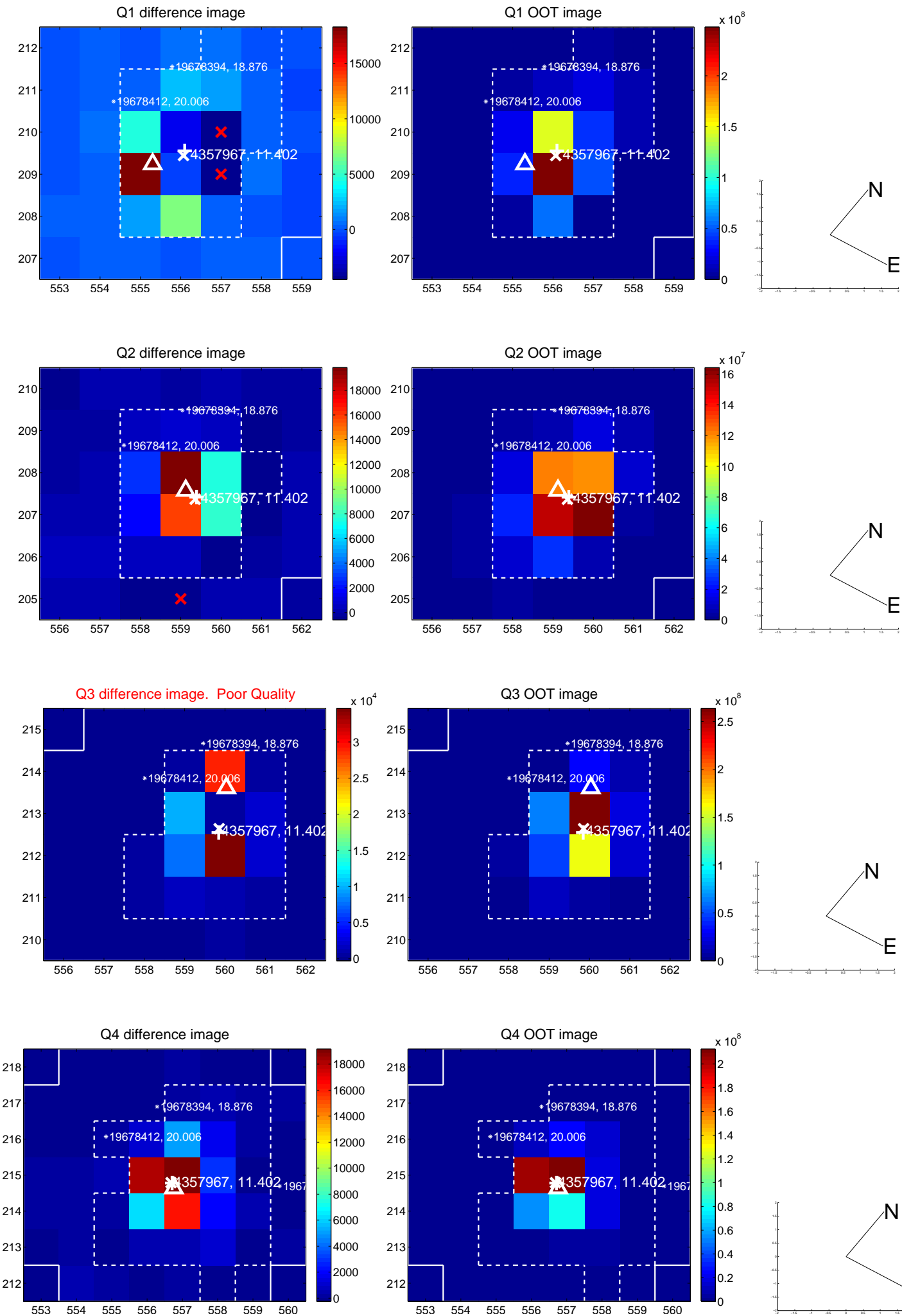
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.238 \pm 0.288</math></b>	<b>4.30</b>	$-1.233 \pm 0.260$	$0.108 \pm 0.538$
PRF-fit source offset from KIC position	<b><math>1.261 \pm 0.395</math></b>	<b>3.19</b>	$-1.188 \pm 0.292$	$0.423 \pm 0.486$
photometric centroid source offset	$0.22 \pm 0.45$	0.49	$0.12 \pm 0.40$	$-0.19 \pm 0.48$

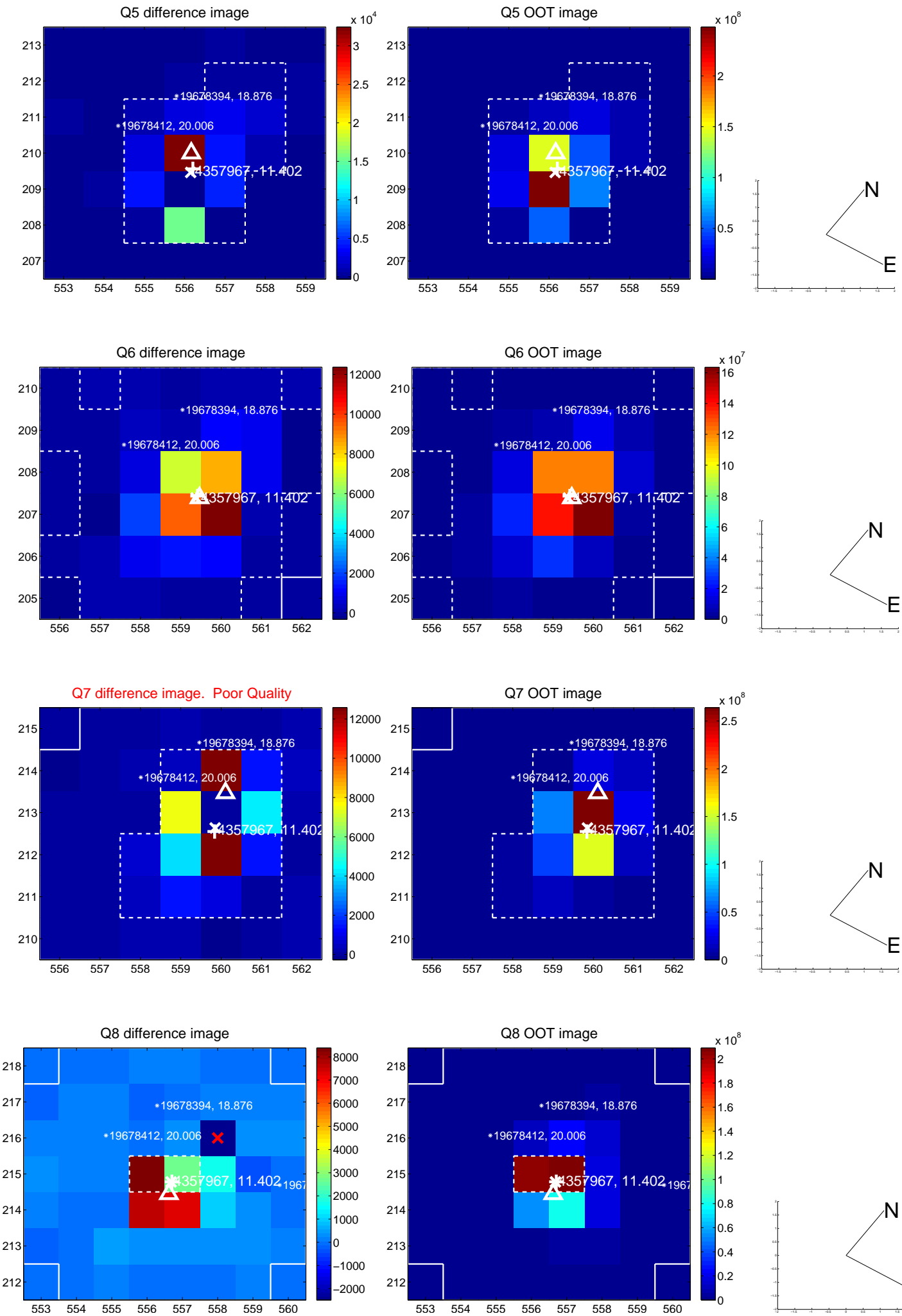


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

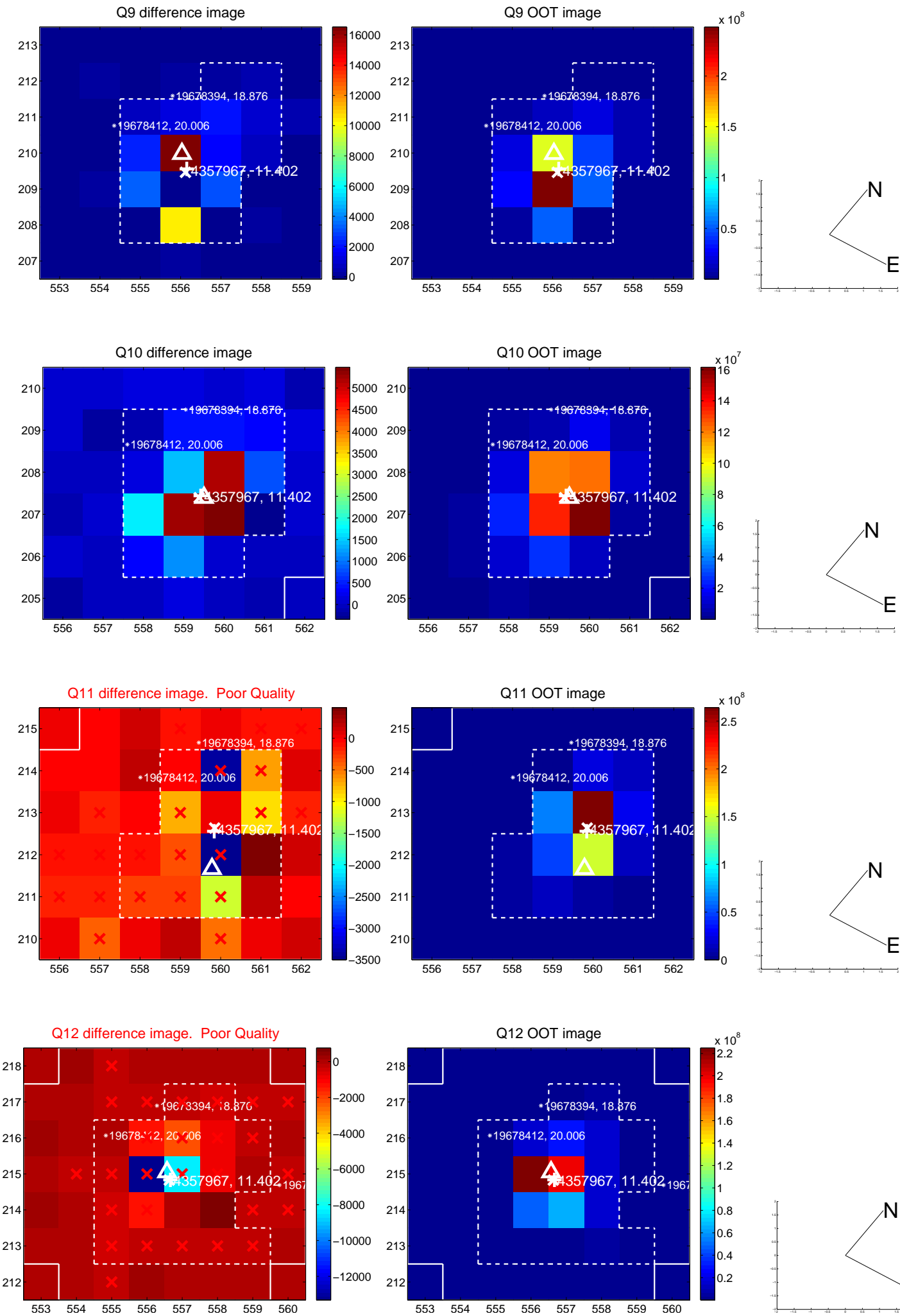


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

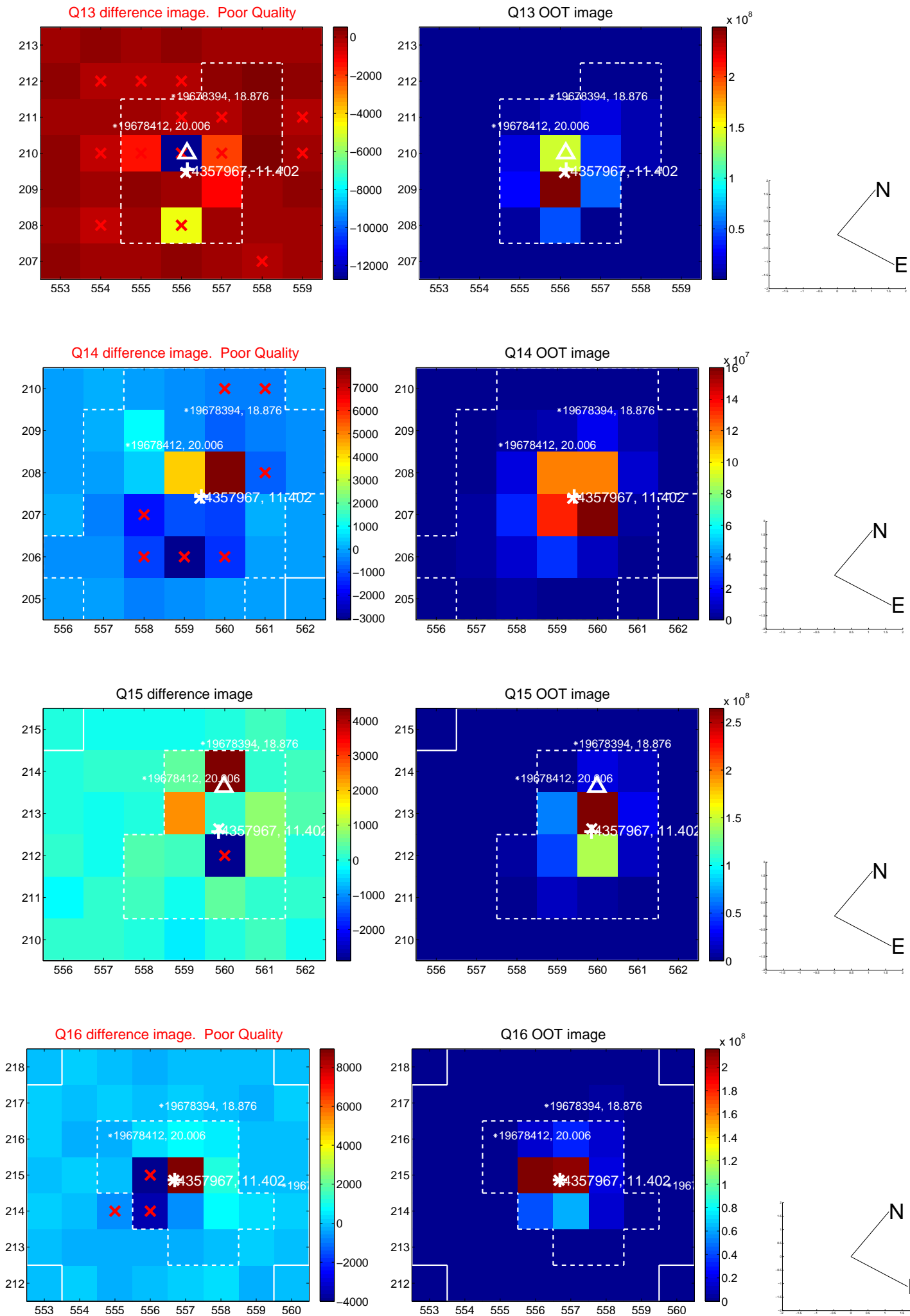




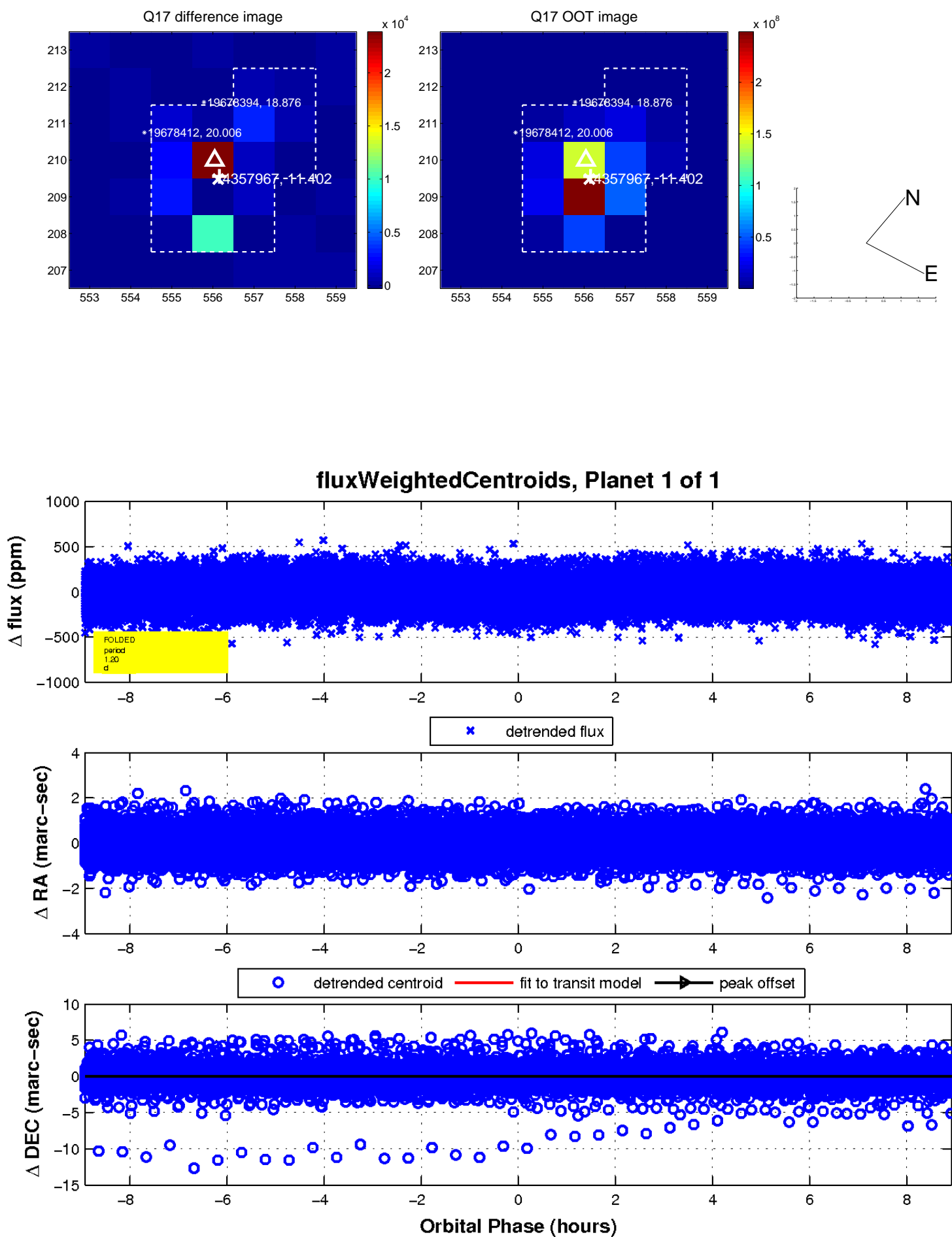
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

