

# KIC 001849702

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001849702-01	OBS	2538.01	39.831085	155.643241	386.6	3.013	13.0	13.9	0.76	5026	2.11	7.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001849702-01	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.

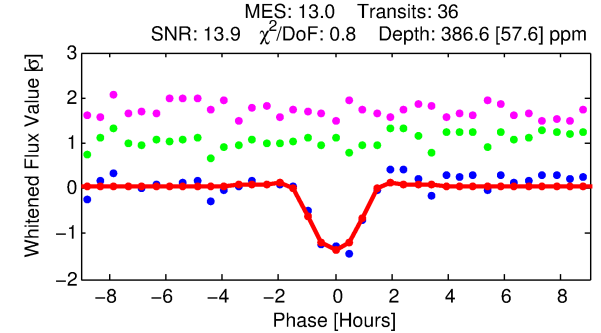
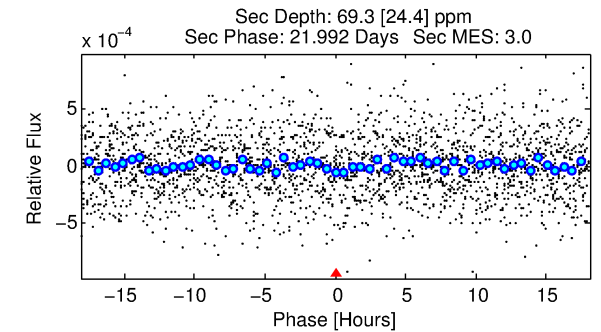
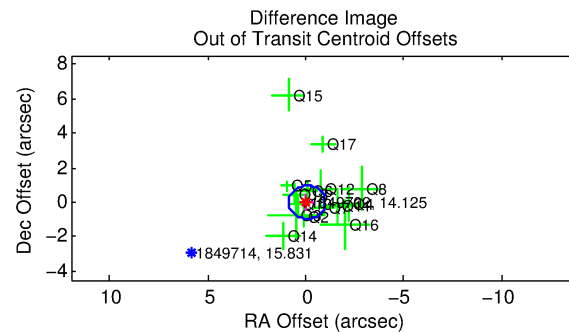
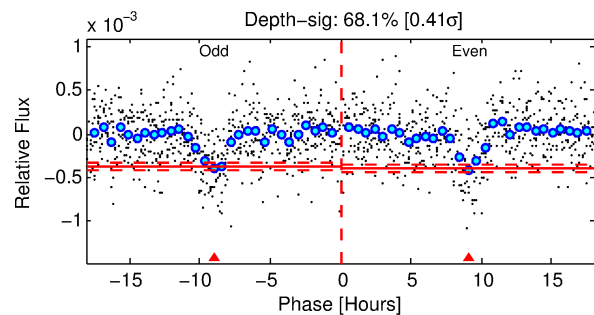
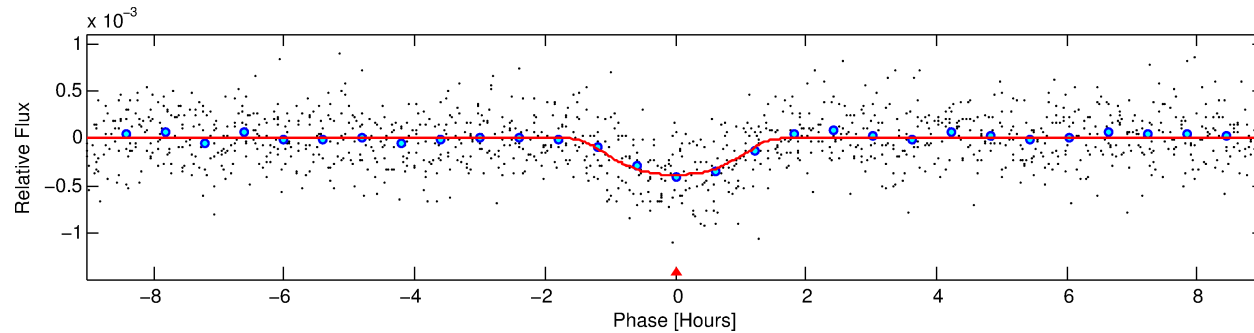
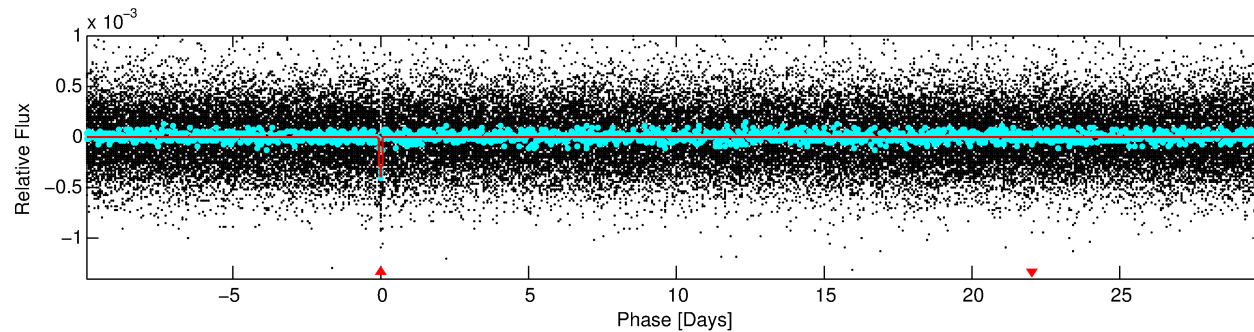
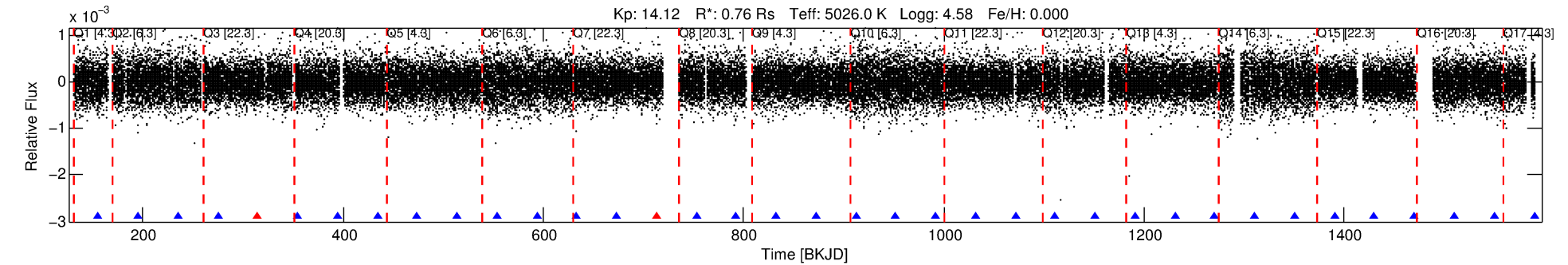
## Ephemeris Match Information For 001849702-01

No Significant Match Found

# DV One-Page Summary

KIC: 1849702 Candidate: 1 of 1 Period: 39.831 d

KOI: K02538.01 Corr: 0.896



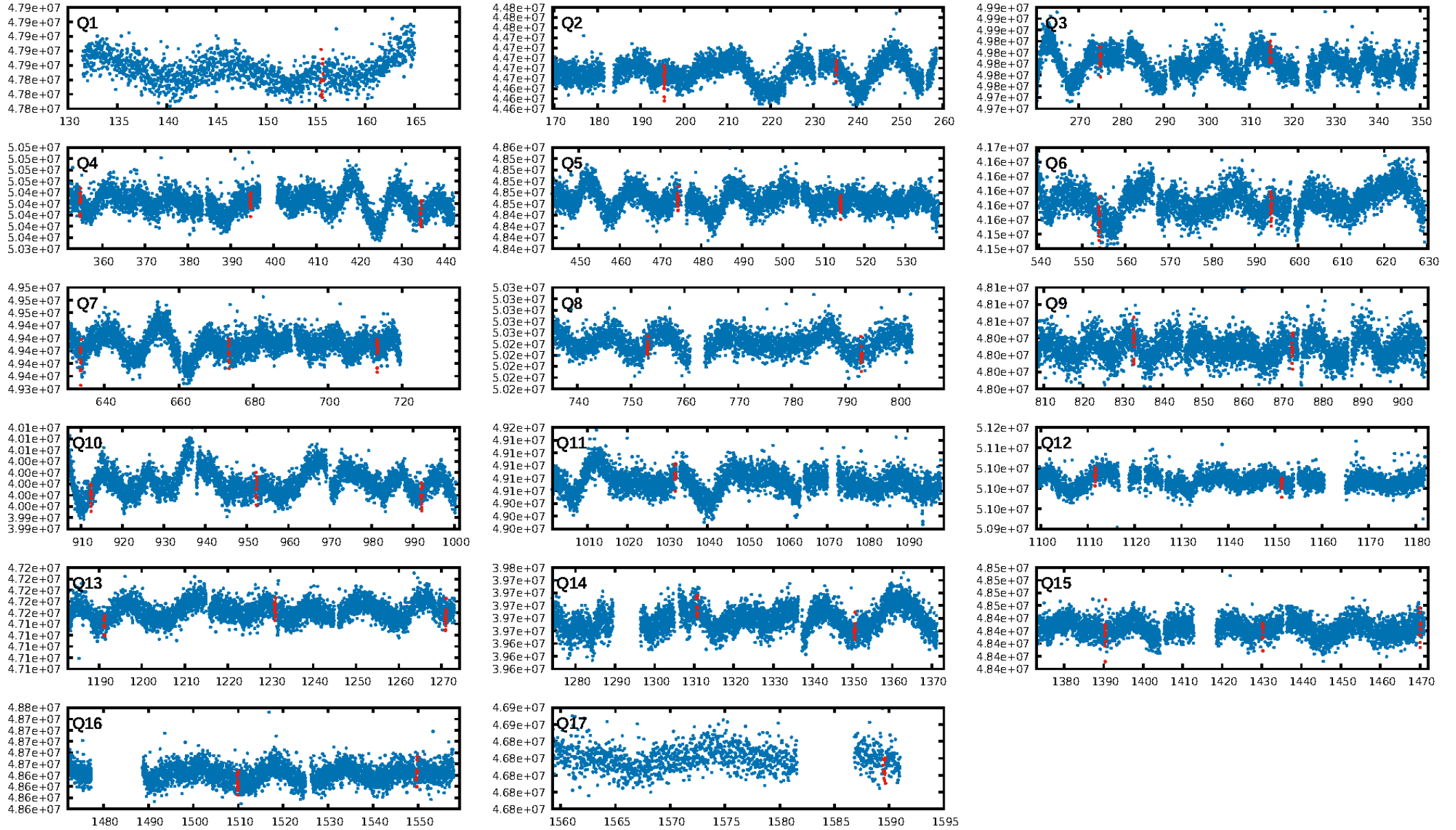
## DV Fit Results:

Period = 39.83108 [0.00024] d  
Epoch = 155.6432 [0.0051] BKJD  
Rp/R\* = 0.0255 [0.0032]  
a/R\* = 32.44 [6.19]  
b = 0.97 [0.01]  
Seff = 7.34 [0.86]  
Teq = 420 [12] K  
Rp = 2.11 [0.30] Re  
a = 0.2118 [0.0121] AU  
Ag = 384.26 [170.07] [2.25 $\sigma$ ]  
Teffp = 2873 [317] K [7.73 $\sigma$ ]

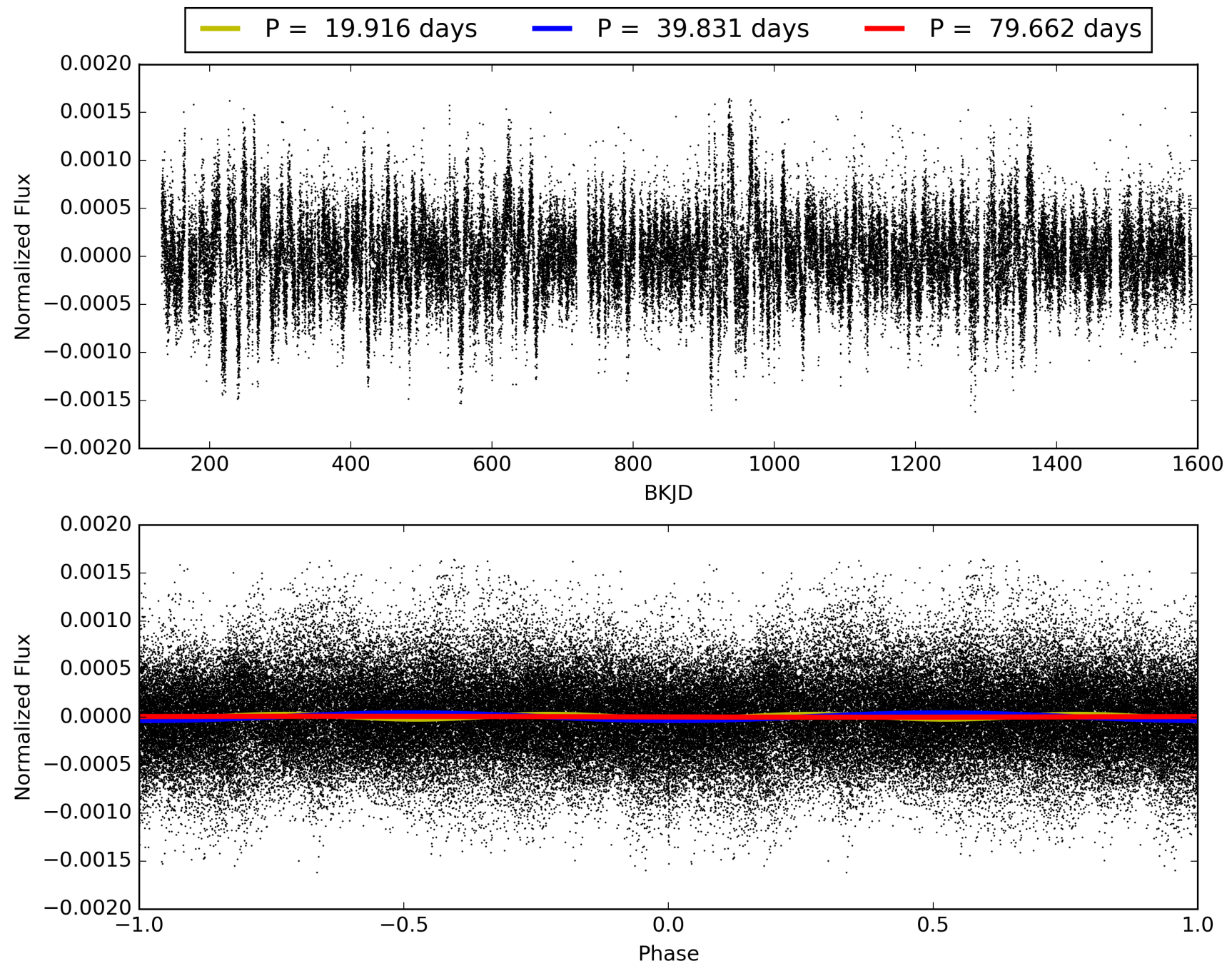
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 79.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.63e-36  
RollingBand-fgt: 0.94 [32/34]  
GhostDiagnostic-chr: -20.73  
Centroid-sig: 82.9%  
Centroid-so: 1.260 arcsec [1.50 $\sigma$ ]  
OotOffset-rm: 0.041 arcsec [0.13 $\sigma$ ]  
KicOffset-rm: 0.307 arcsec [0.61 $\sigma$ ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 001849702-01, PDC Light Curves

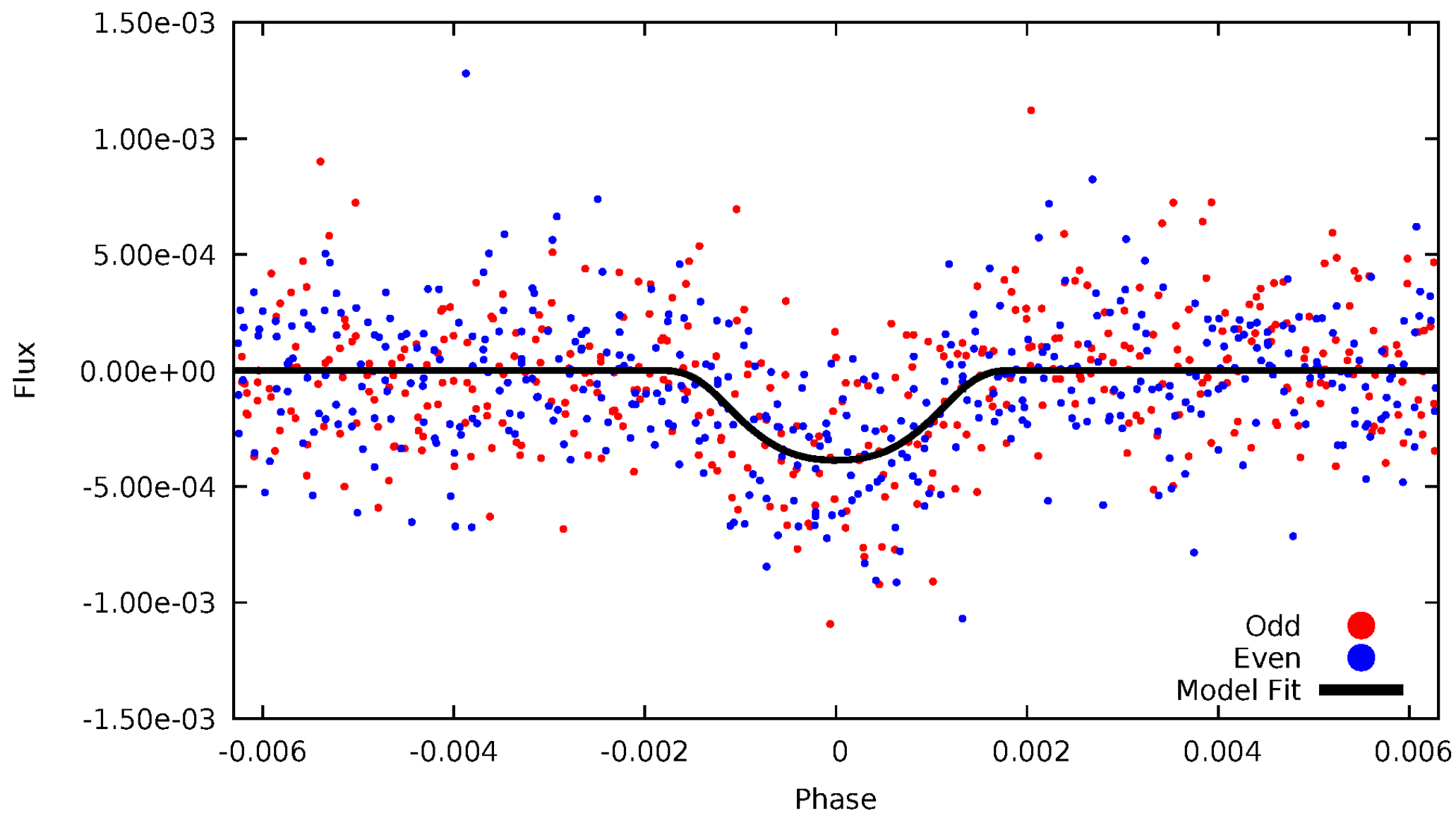


TCE 001849702-01



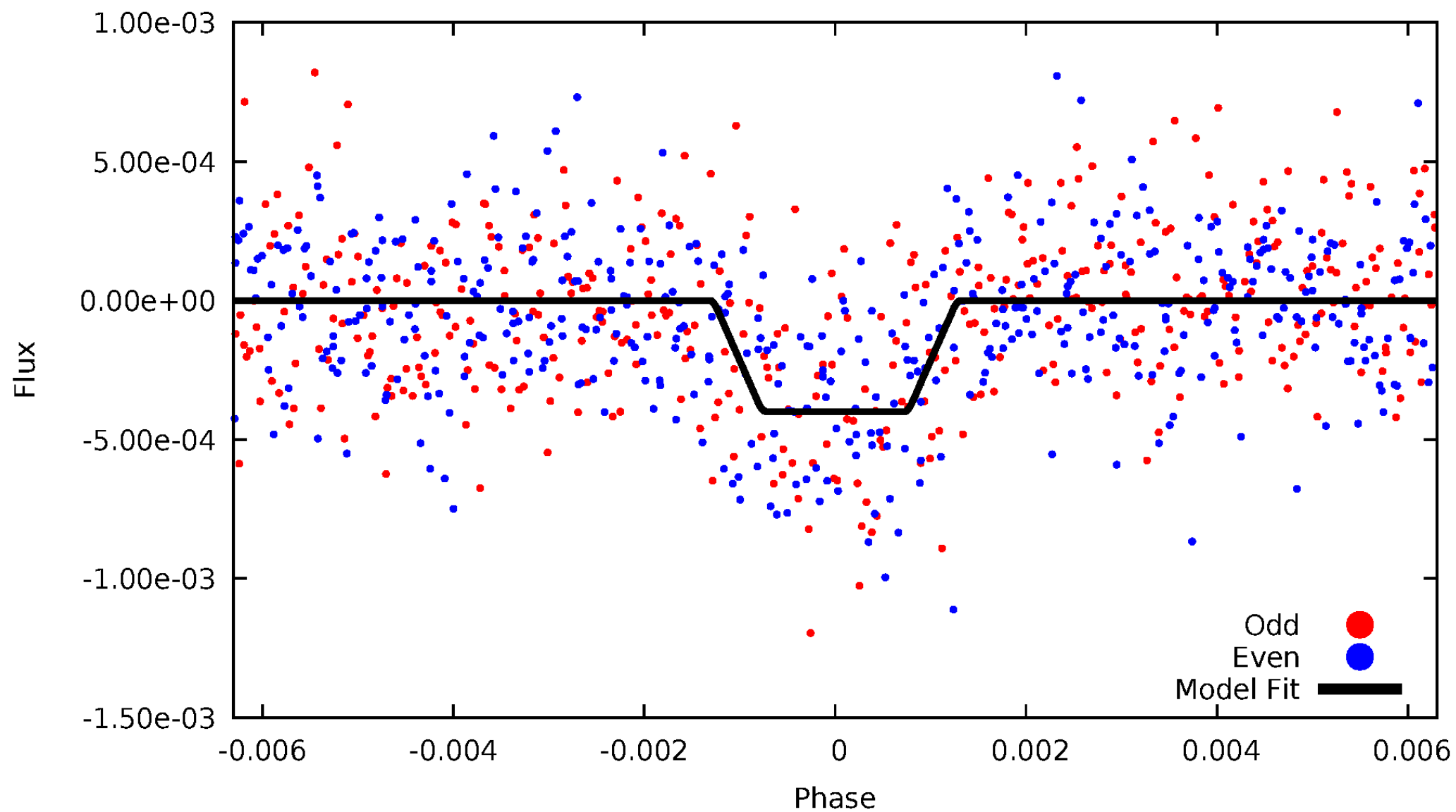
# DV Odd/Even

TCE 001849702-01



# ALT Odd/Even

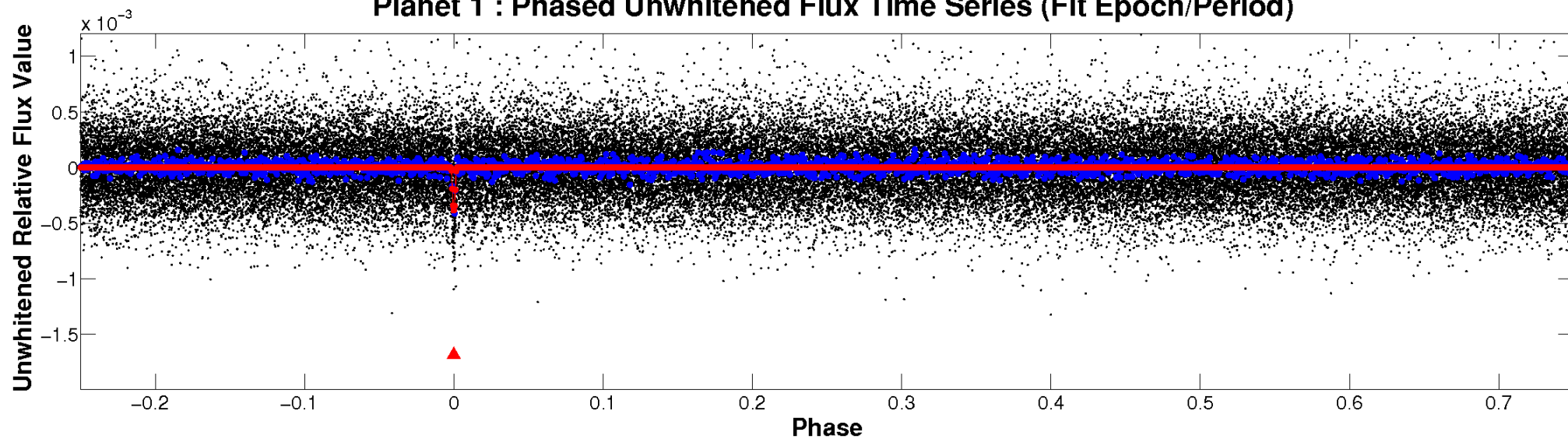
TCE 001849702-01



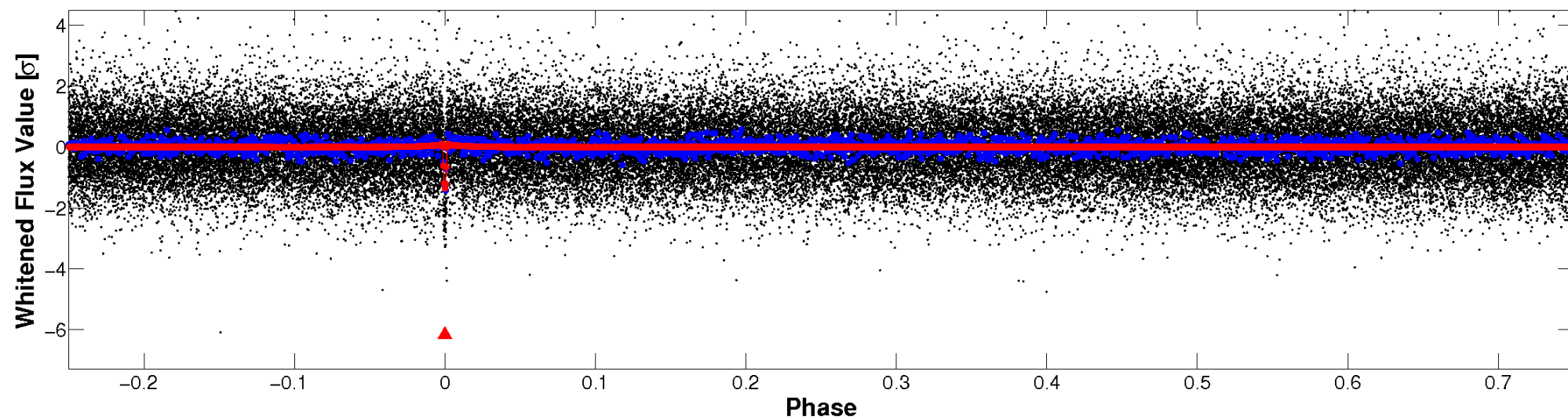


# Non-Whitened Vs. Whitened Light Curve

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

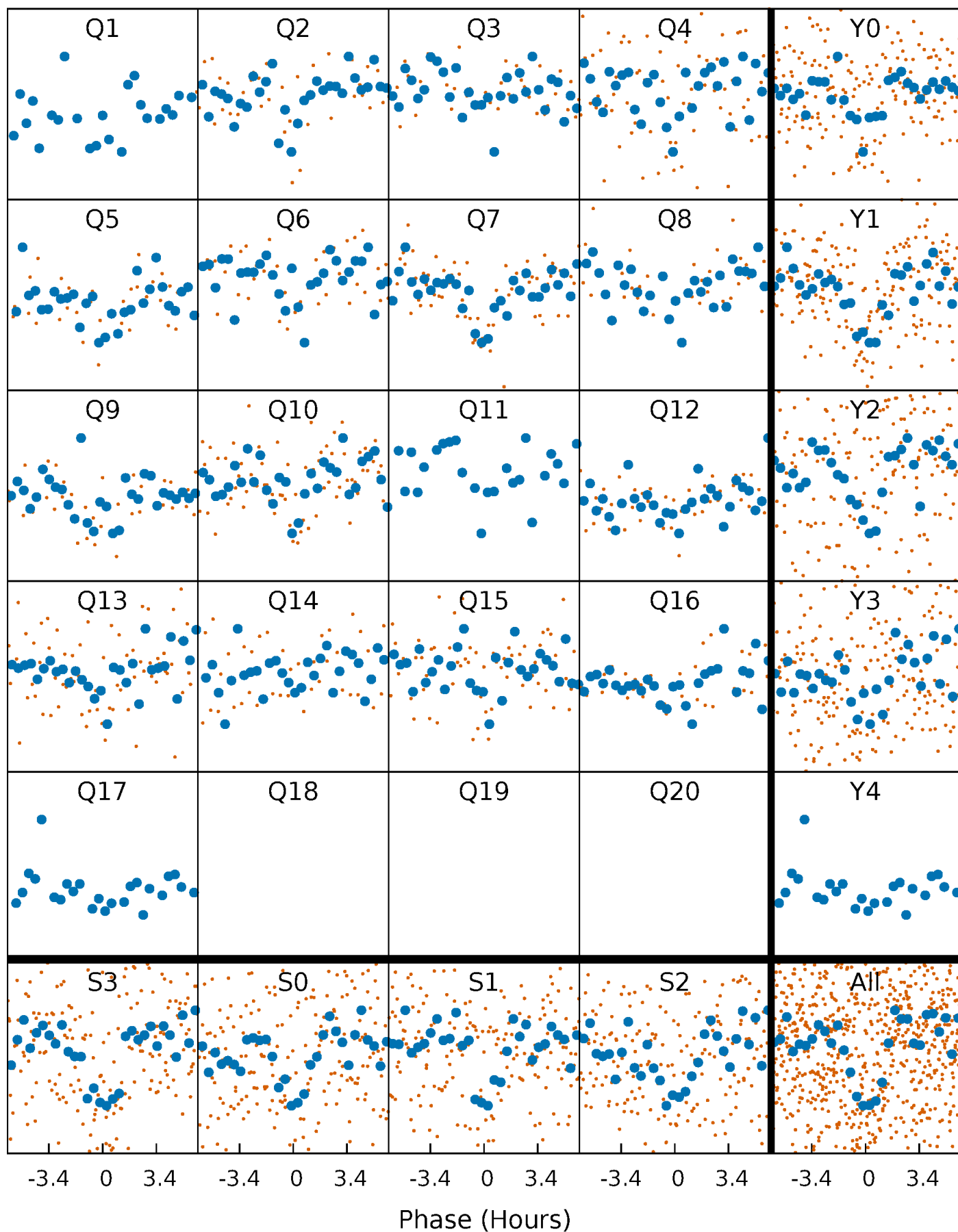


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

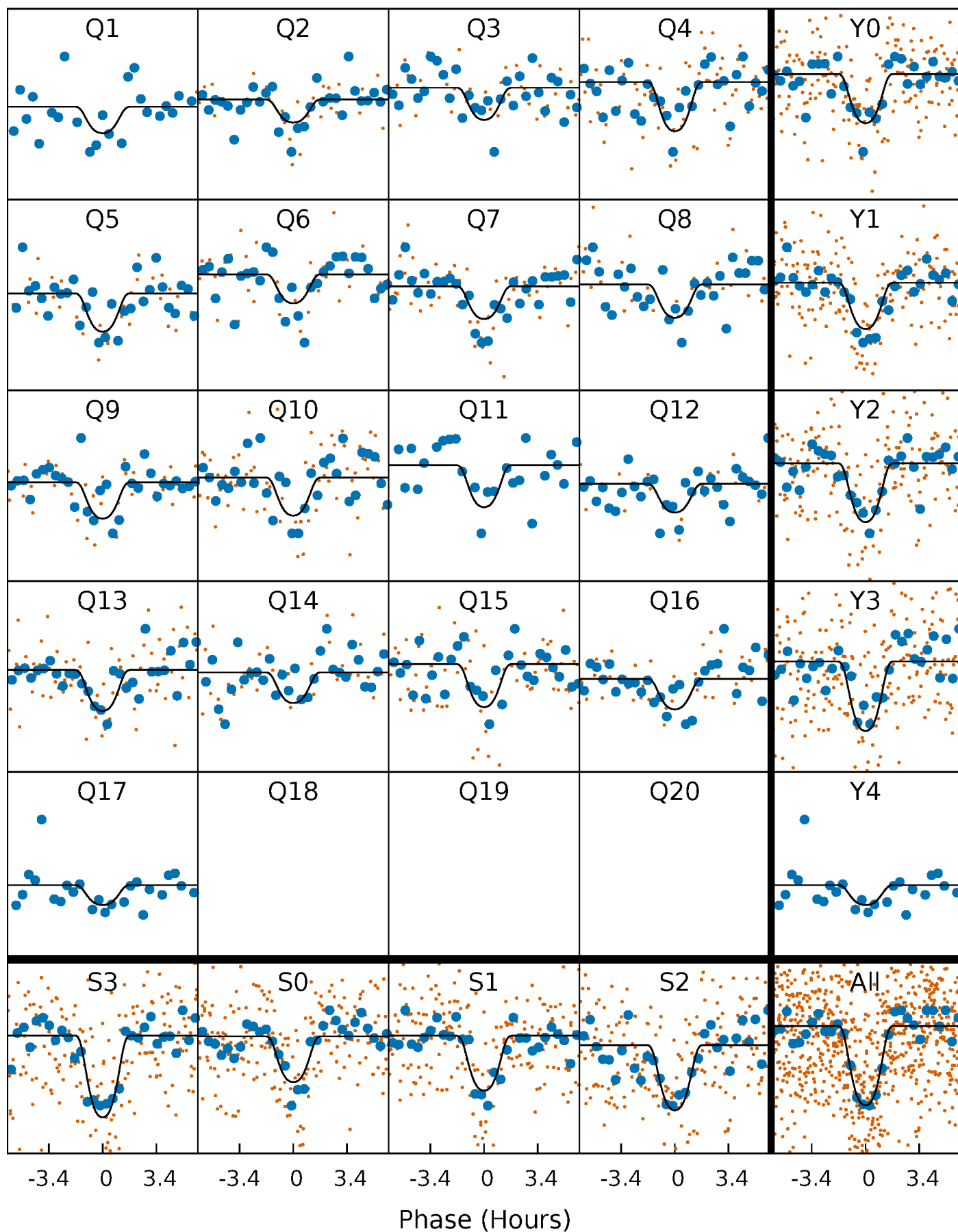
TCE 001849702-01   P= 39.831085 Days    $T_0=155.643241$  (BKJD)





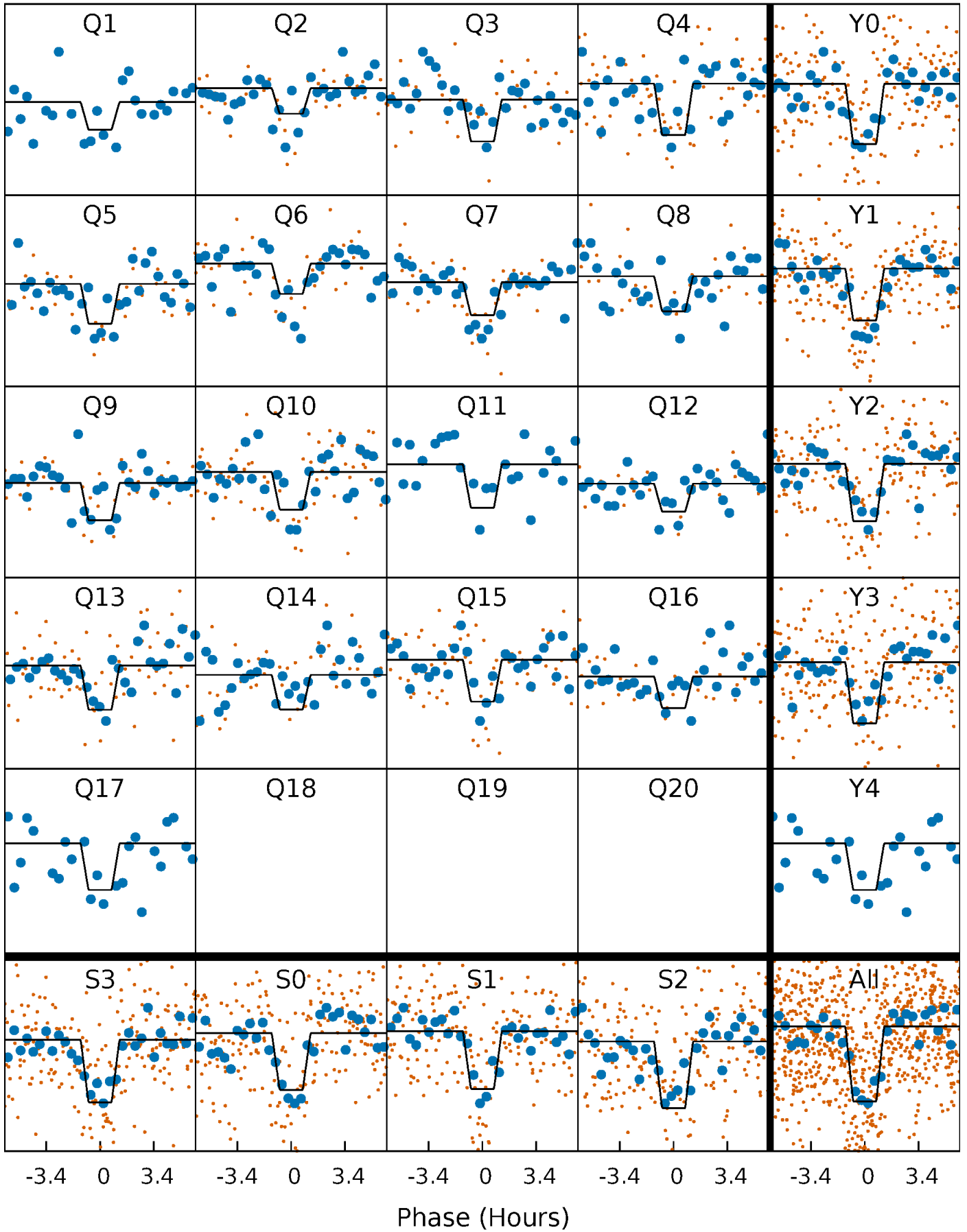
# DV Quarter-Phased Transit Curves

TCE 001849702-01   P= 39.831085 Days    $T_0=155.643241$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

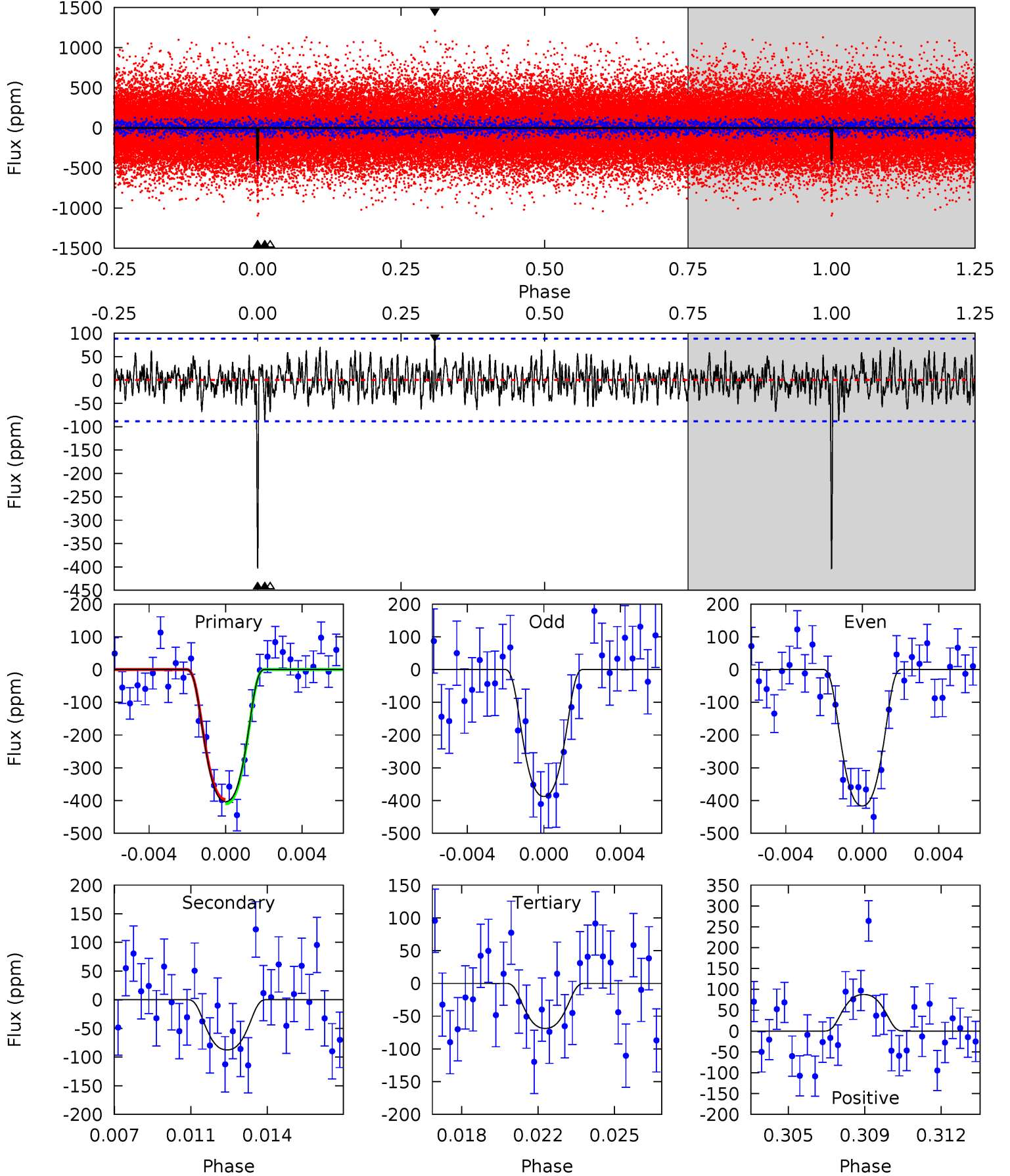
TCE 001849702-01 P= 39.830682 Days  $T_0=155.651587$  (BKJD)



# DV Model-Shift Uniqueness Test

001849702-01, P = 39.831085 Days, E = 115.812156 Days

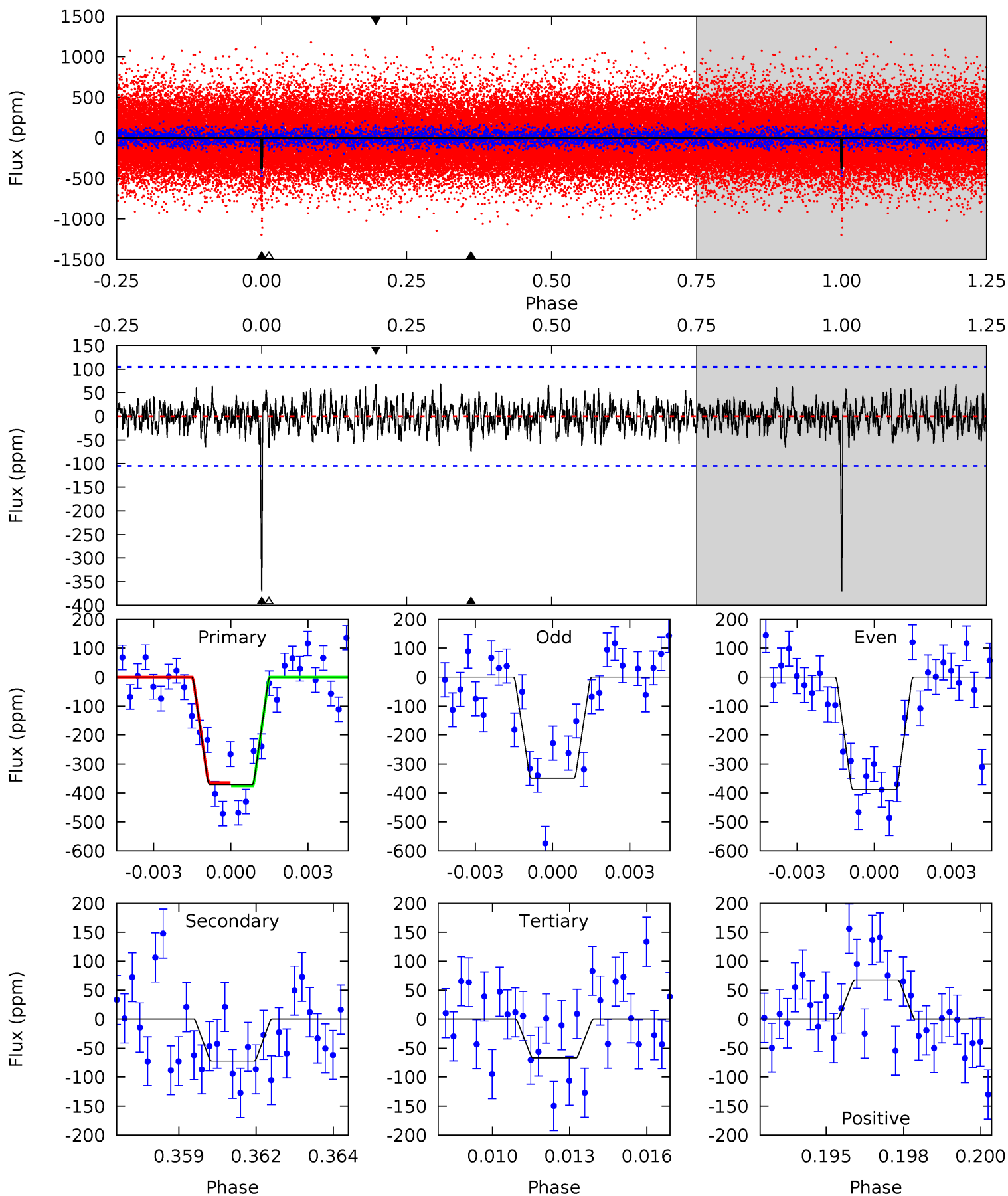
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	5.16	4.05	5.17	5.22	2.91	1.44	19.7	18.6	1.11	-0.01	0.85	1.03	0.18	0.40



# Alt Model-Shift Uniqueness Test

001849702-01,  $P = 39.830682$  Days,  $E = 115.820905$  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
18.7	3.63	3.36	3.42	5.28	3.01	1.15	15.3	15.2	0.27	0.21	0.98	0.97	0.15	0.29



### Stellar Parameters For KIC 001849702

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5026^{+100}_{-100}$	$4.580^{+0.024}_{-0.048}$	$0.000^{+0.150}_{-0.150}$	$0.759^{+0.050}_{-0.034}$	$0.800^{+0.038}_{-0.048}$	$2.575^{+0.301}_{-0.394}$
	+2%/-2%	+1%/-1%	+inf%/-inf%	+7%/-4%	+5%/-6%	+12%/-15%
Source	SPE57	SPE57	SPE57	DSEP		

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

### Secondary Eclipse Parameters for KIC 001849702-01 / KOI 2538.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-87 \pm 17$	$2.14^{+0.28}_{-0.28}$	$589^{+15}_{-14}$	$3477^{+200}_{-168}$	$473^{+186}_{-122}$
Alt.	$-72 \pm 20$	$1.67^{+0.28}_{-0.27}$	$589^{+15}_{-15}$	$3643^{+269}_{-248}$	$623^{+342}_{-214}$

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

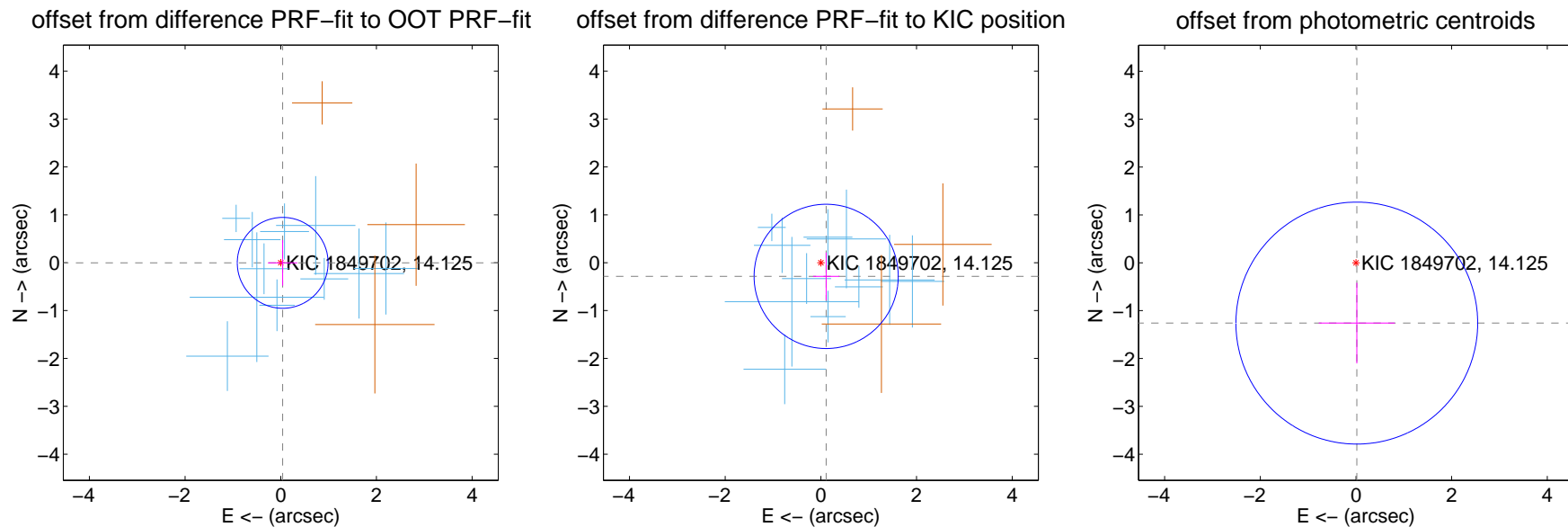
## DV Centroid Data

Supplemental centroid analysis for 001849702-01. Kepler magnitude: 14.12. Transit SNR 13.94

There are 11 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

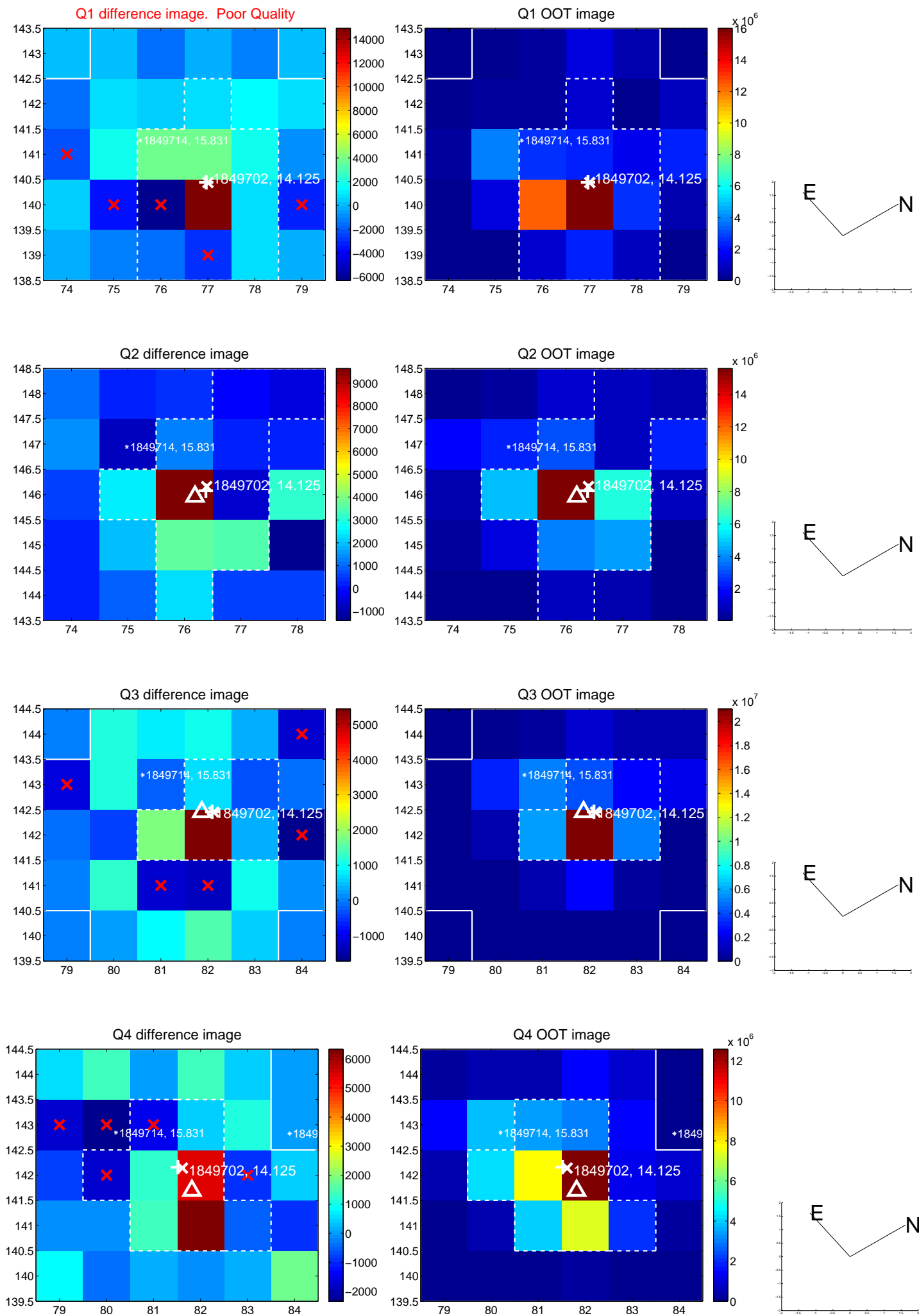
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.041 \pm 0.316$	0.13	$-0.040 \pm 0.307$	$-0.003 \pm 0.475$
PRF-fit source offset from KIC position	$0.307 \pm 0.502$	0.61	$-0.111 \pm 0.274$	$-0.286 \pm 0.498$
photometric centroid source offset	$1.26 \pm 0.84$	1.50	$-0.02 \pm 0.79$	$-1.26 \pm 0.84$



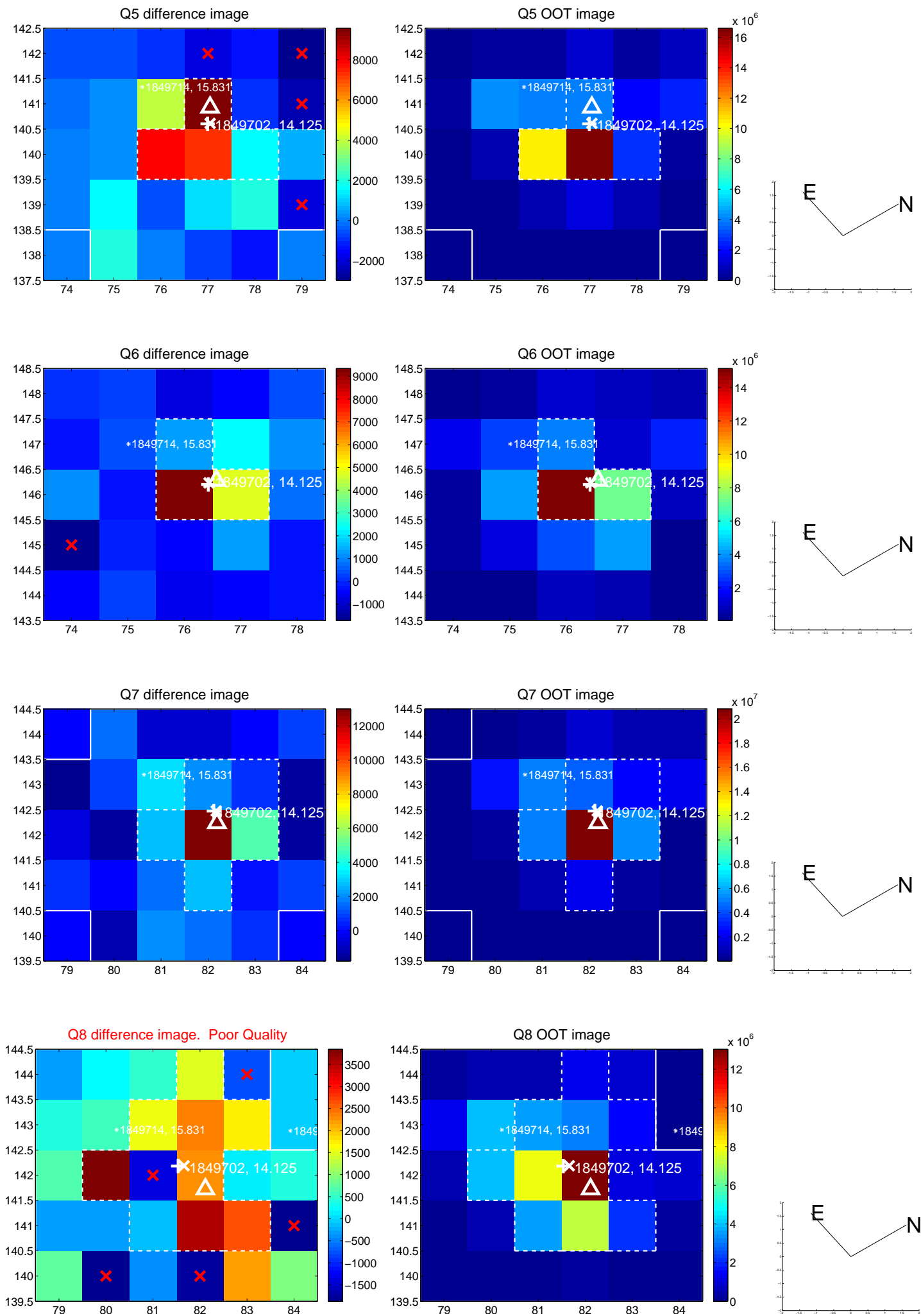
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



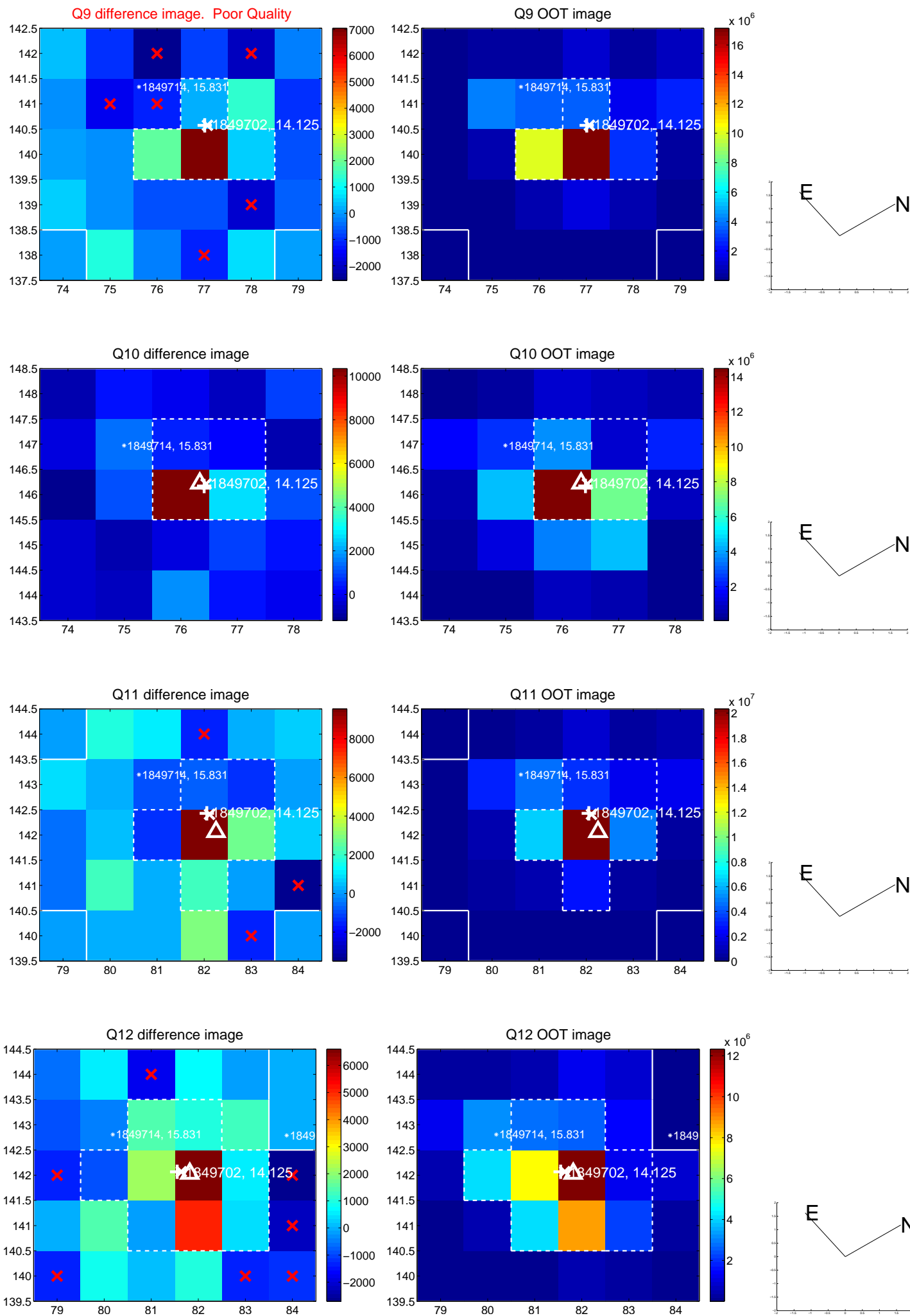
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

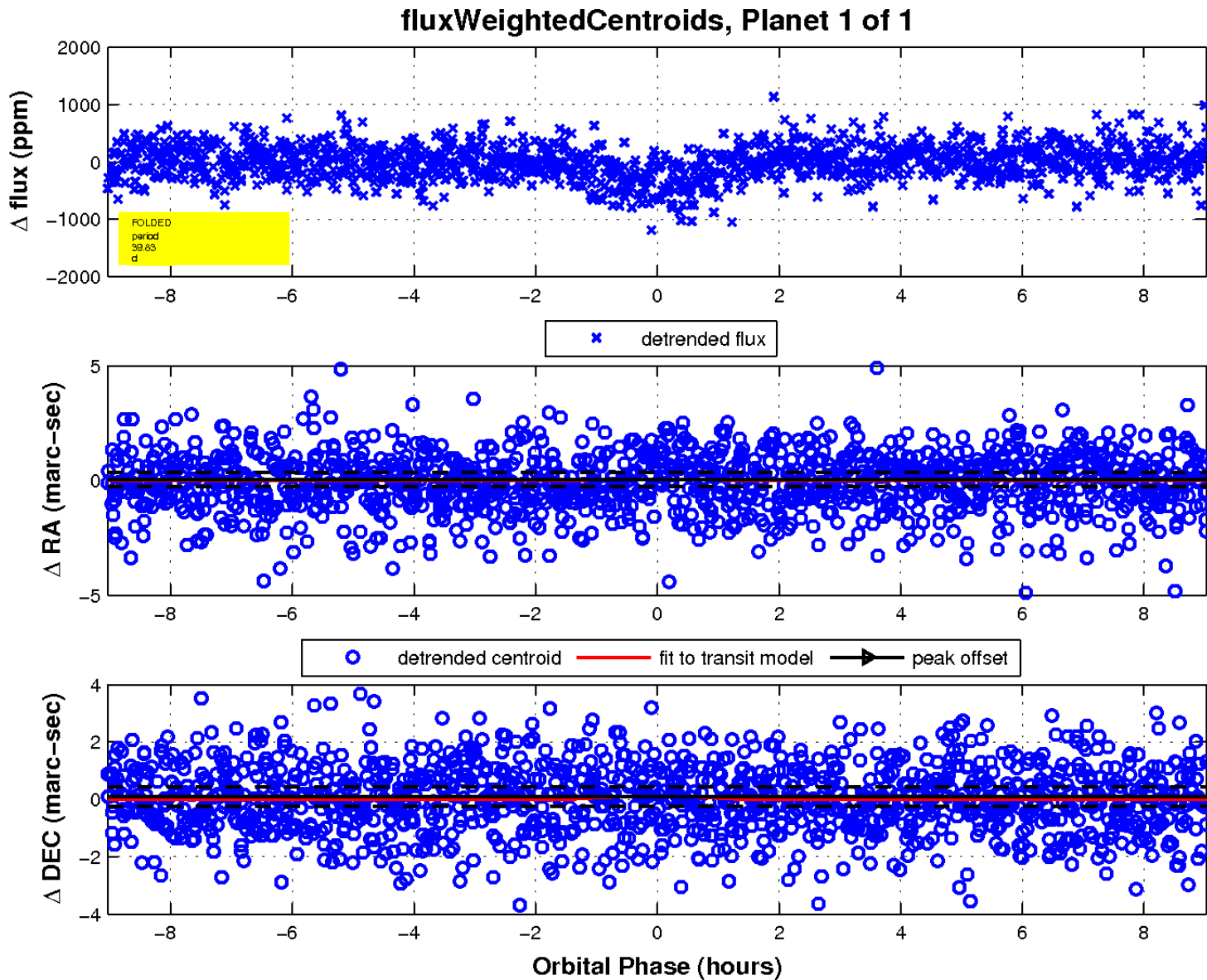
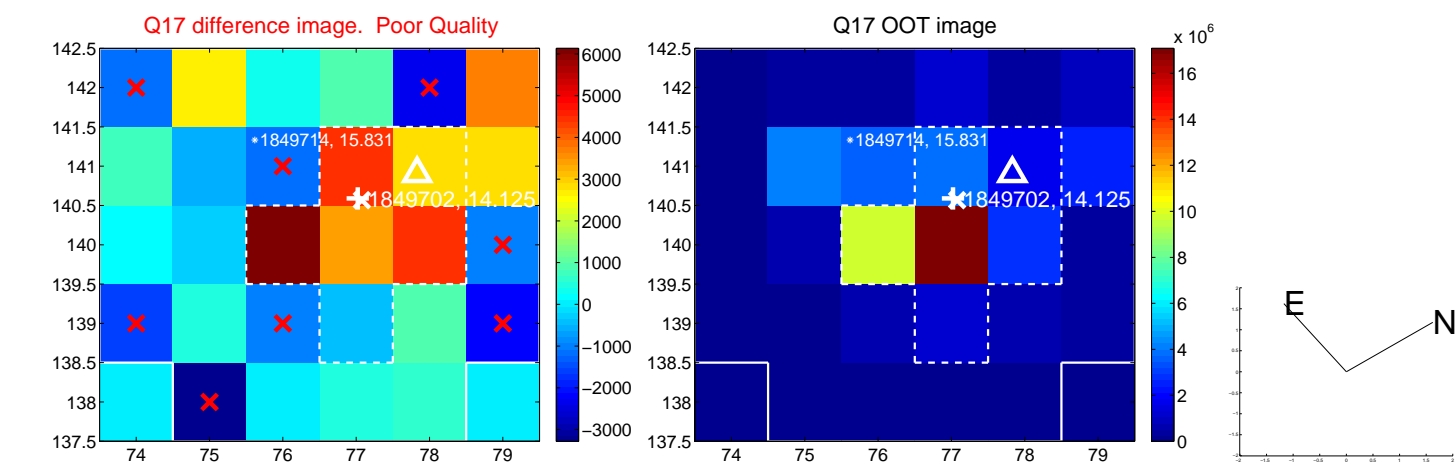


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

