

# KIC 004454934

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004454934-01	OBS	2245.01	33.469834	140.149572	370.1	4.740	20.0	20.7	1.09	5912	2.43	32.58

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004454934-01	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.

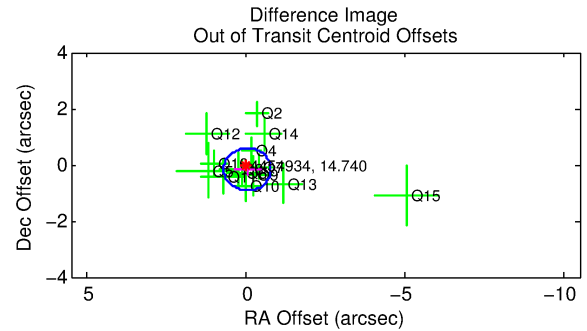
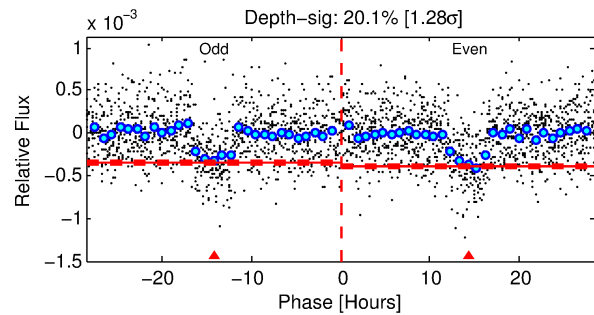
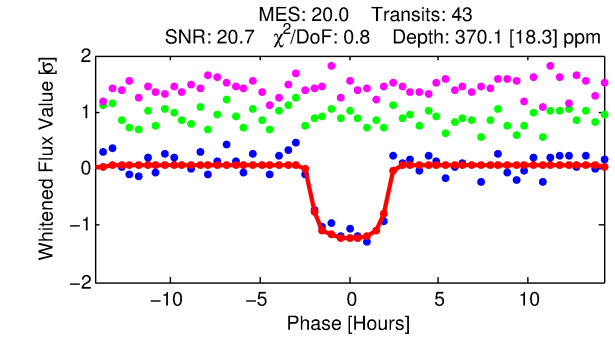
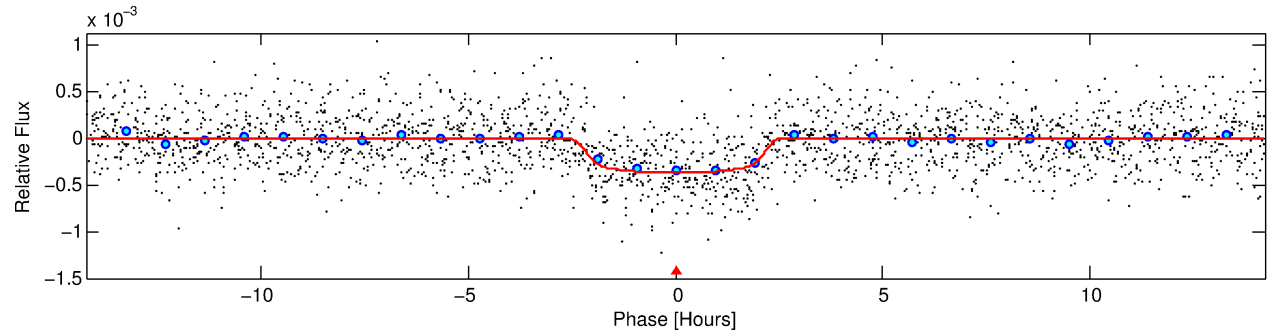
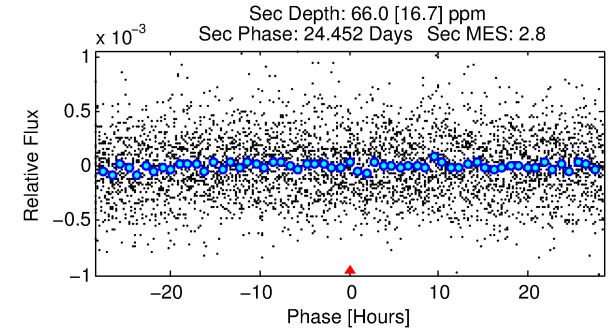
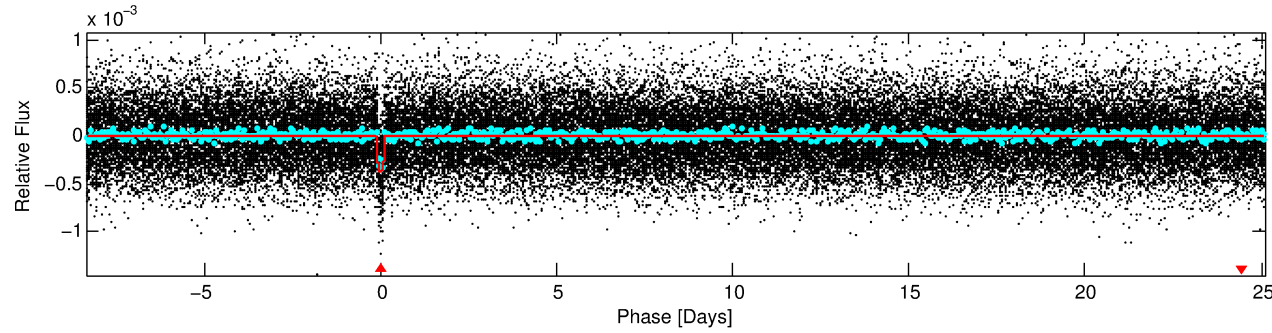
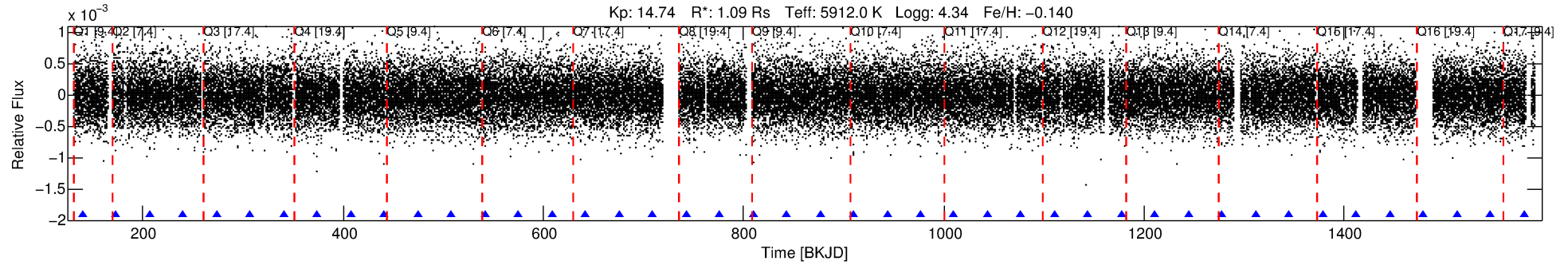
## Ephemeris Match Information For 004454934-01

No Significant Match Found

# DV One-Page Summary

KIC: 4454934 Candidate: 1 of 1 Period: 33.470 d

KOI: K02245.01 Corr: 0.976



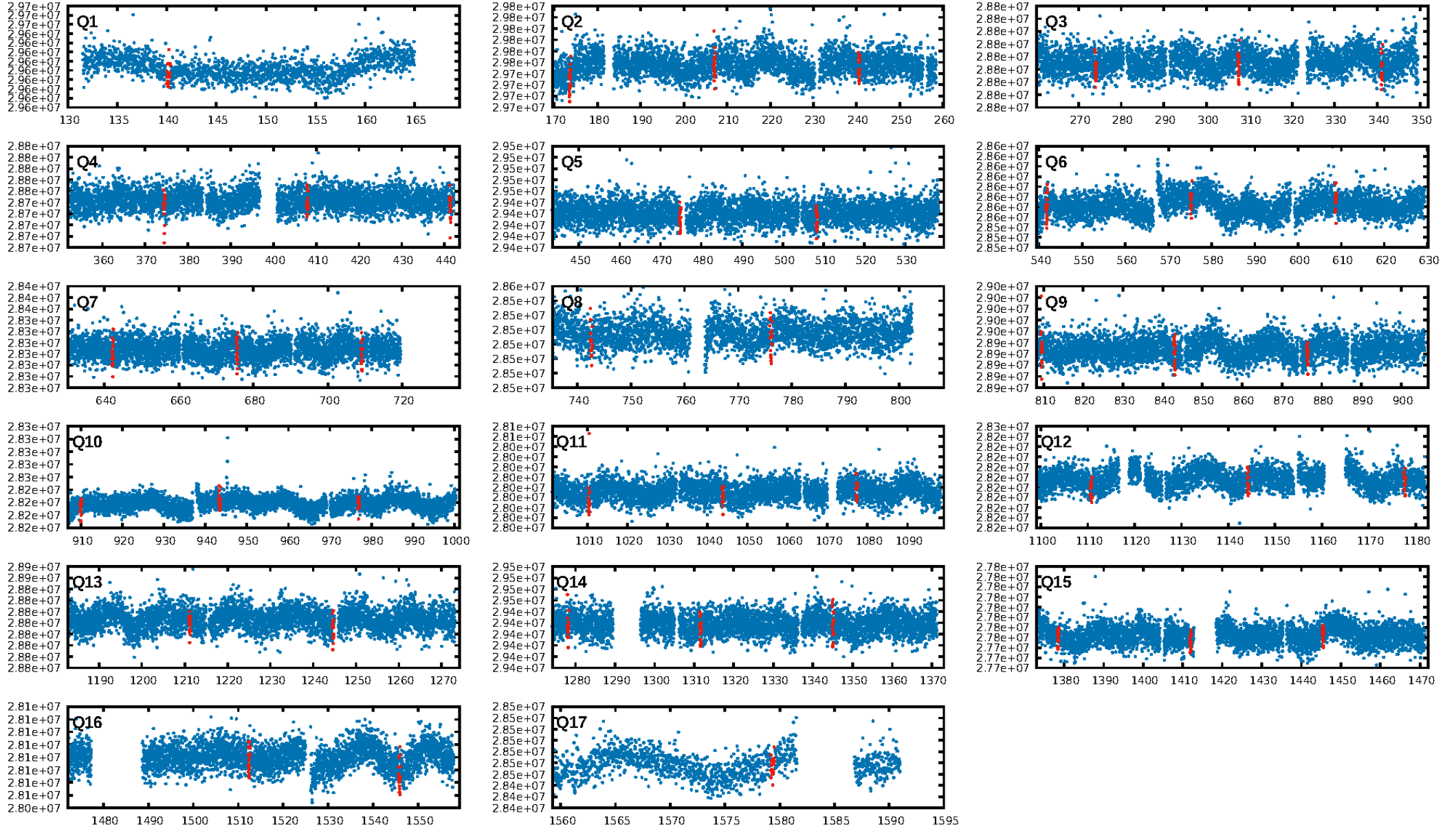
## DV Fit Results:

Period = 33.46983 [0.00019] d  
Epoch = 140.1496 [0.0045] BKJD  
Rp/R\* = 0.0203 [0.0034]  
a/R\* = 28.84 [23.24]  
b = 0.87 [0.23]  
Seff = 32.58 [11.91]  
Teq = 609 [56] K  
Rp = 2.43 [0.81] Re  
a = 0.2005 [0.0480] AU  
Ag = 247.77 [134.61] [1.83σ]  
Teffp = 3737 [408] K [7.60σ]

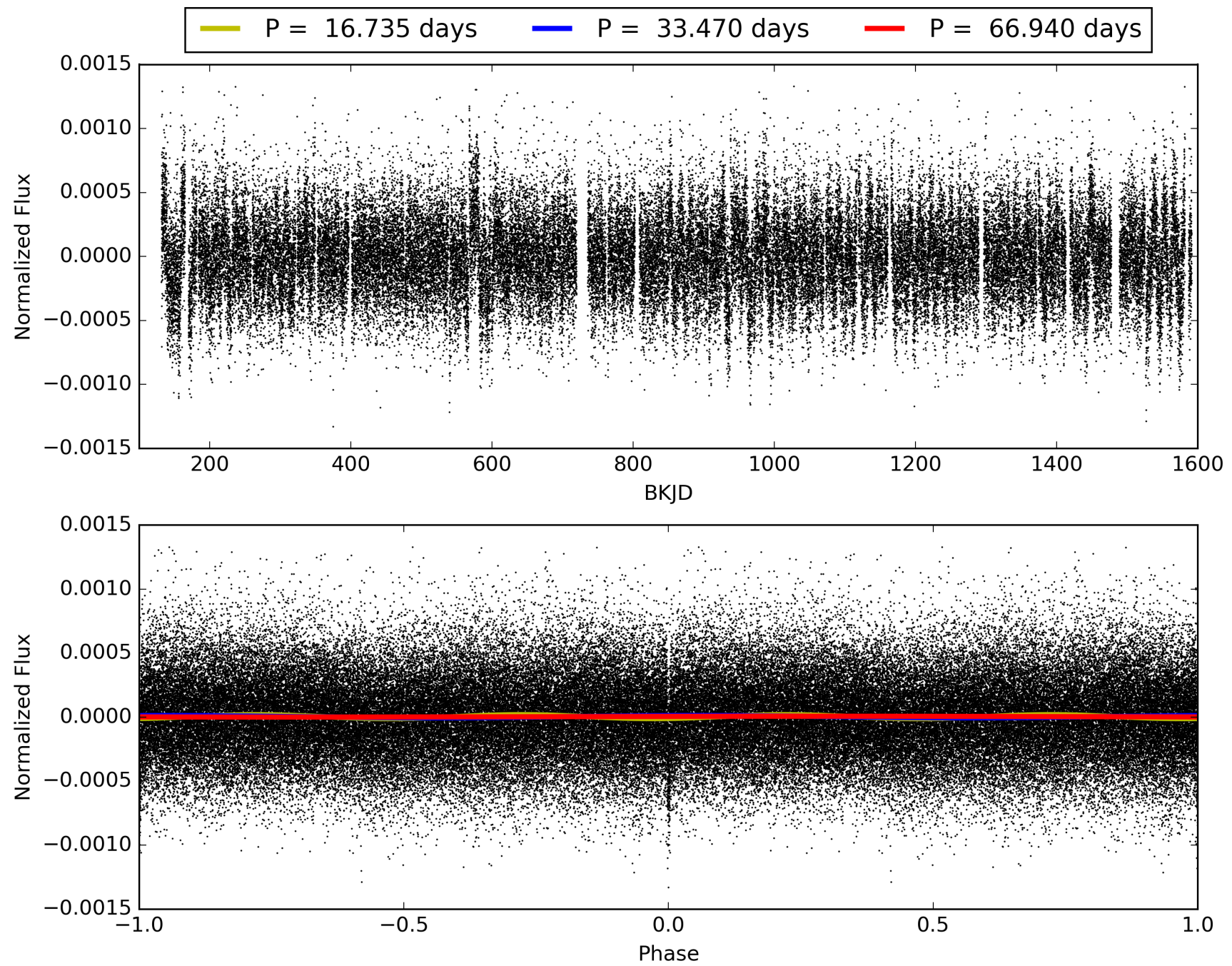
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 87.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.51e-87  
RollingBand-fgt: 1.00 [41/41]  
GhostDiagnostic-chr: 3.108  
Centroid-sig: 0.4%  
Centroid-so: 1.134 arcsec [1.79σ]  
OotOffset-rm: 0.174 arcsec [0.70σ]  
KicOffset-rm: 0.058 arcsec [0.18σ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.93 [14/15]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 004454934-01, PDC Light Curves

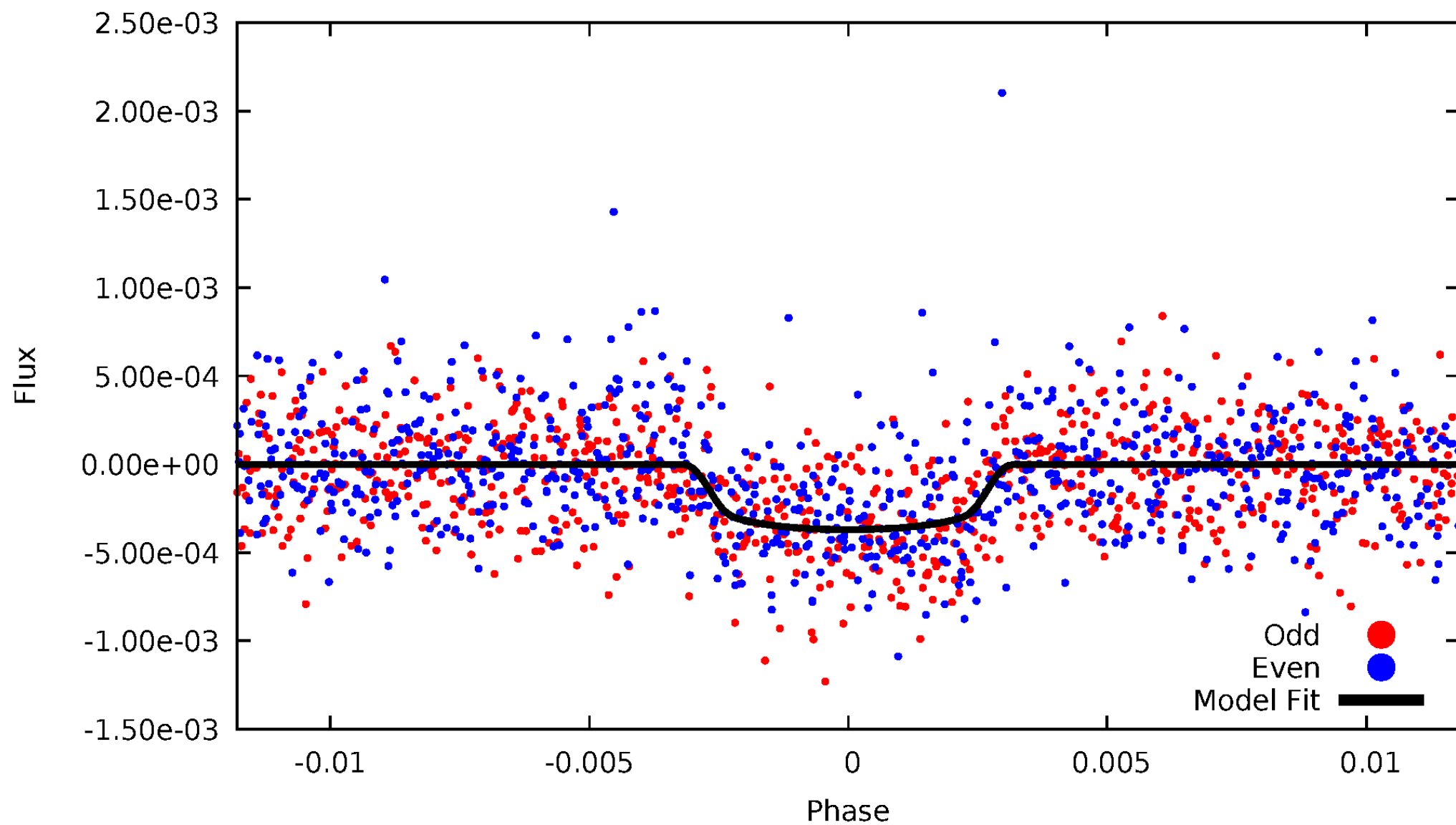


TCE 004454934-01



# DV Odd/Even

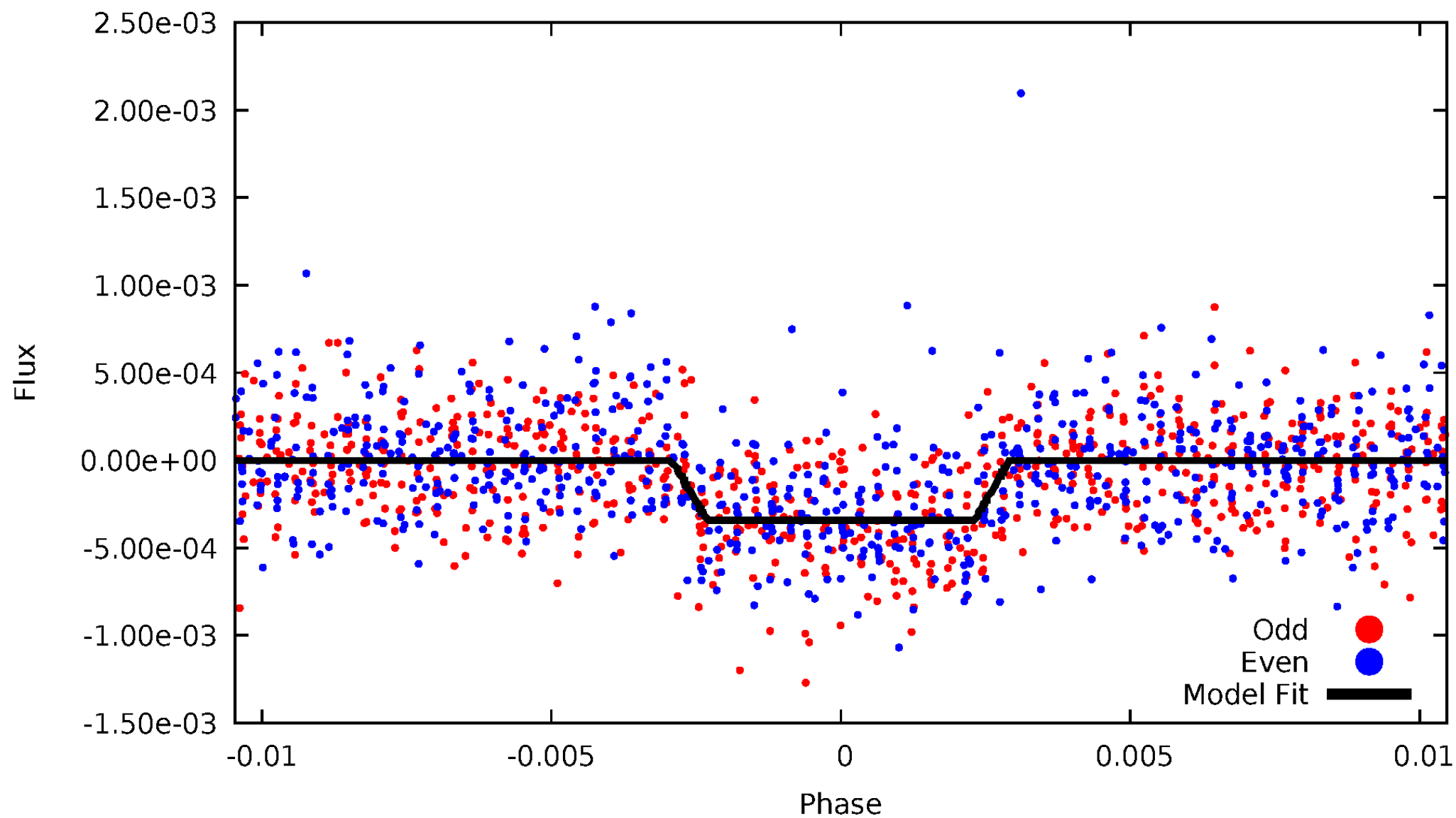
TCE 004454934-01



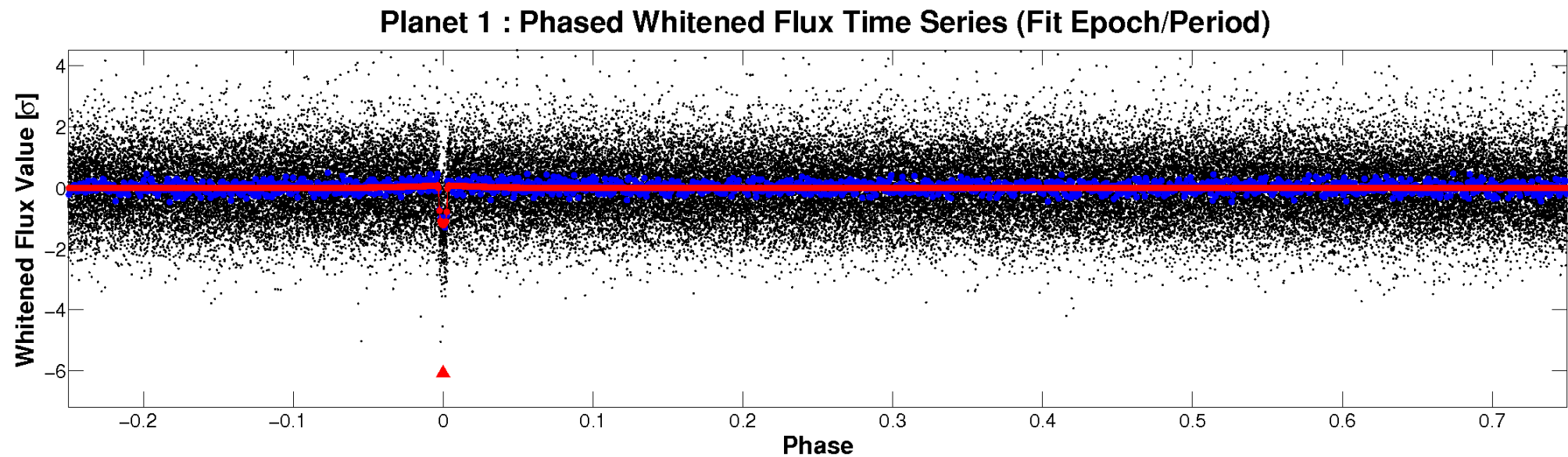
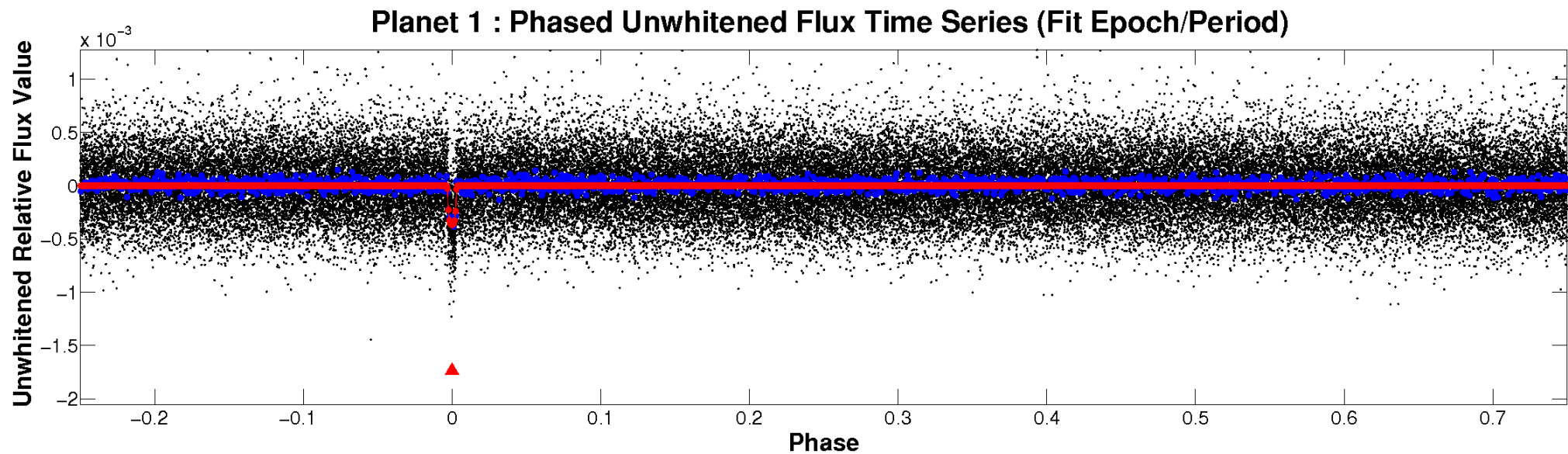


# ALT Odd/Even

TCE 004454934-01

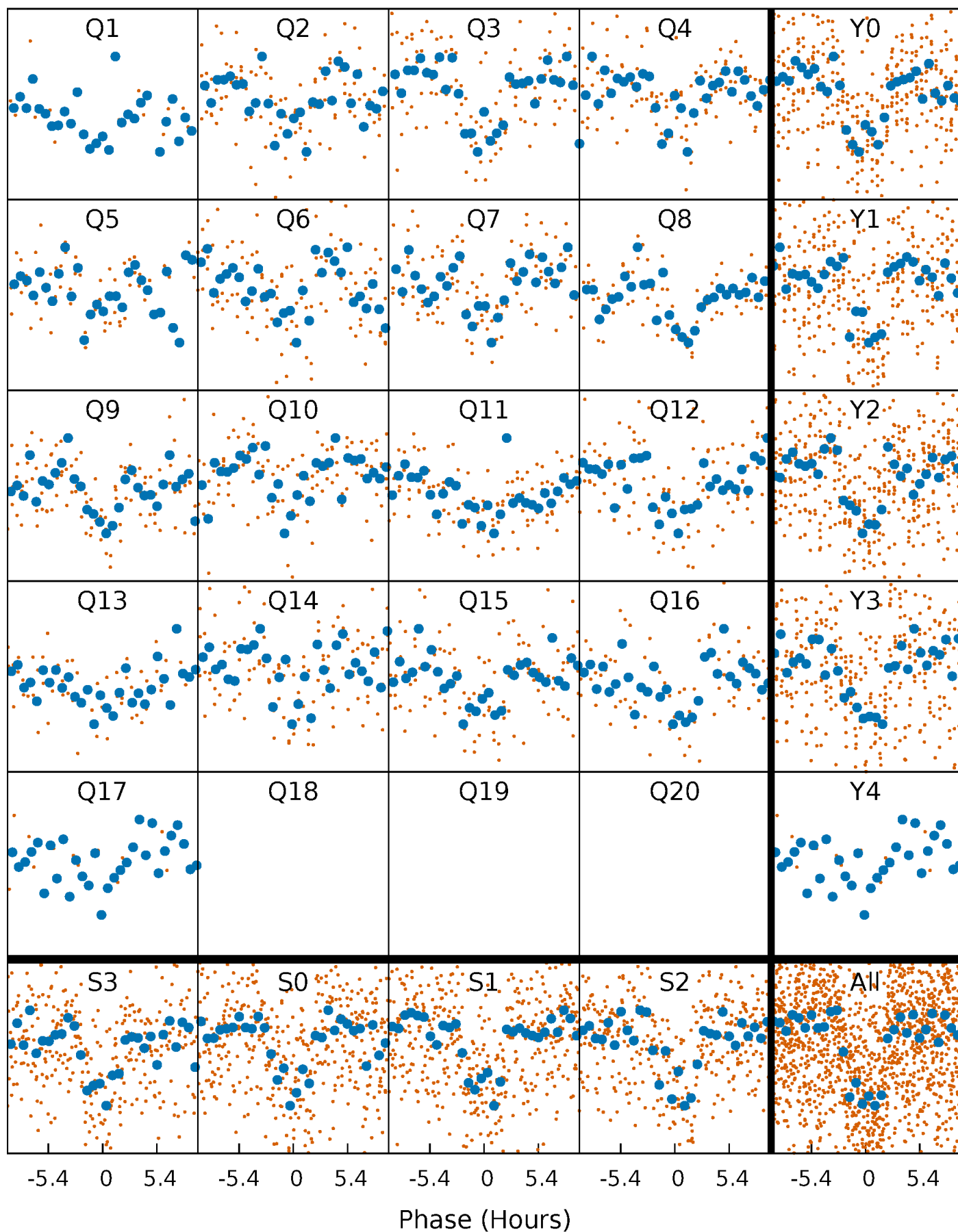


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

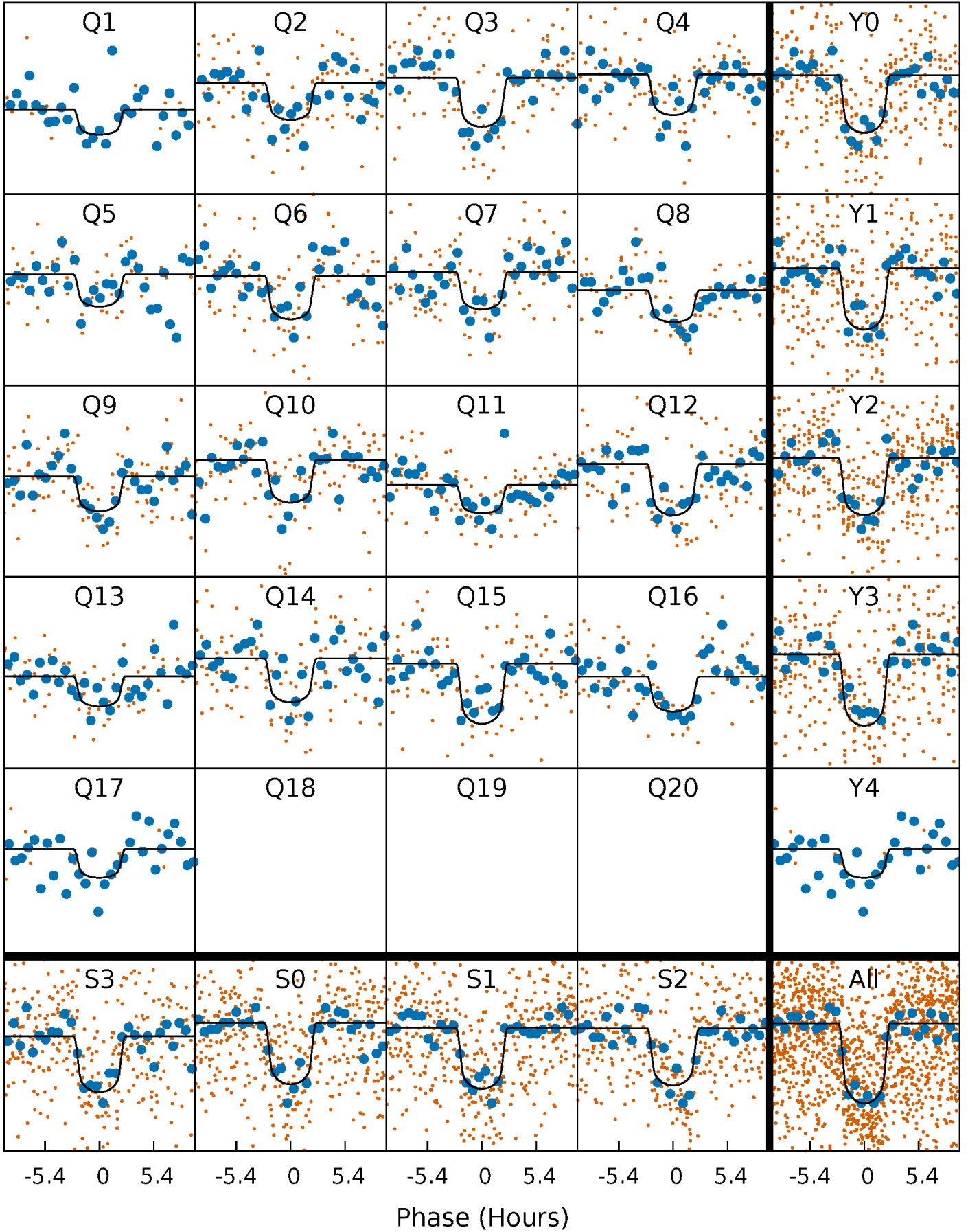
TCE 004454934-01 P= 33.469834 Days  $T_0=140.149572$  (BKJD)





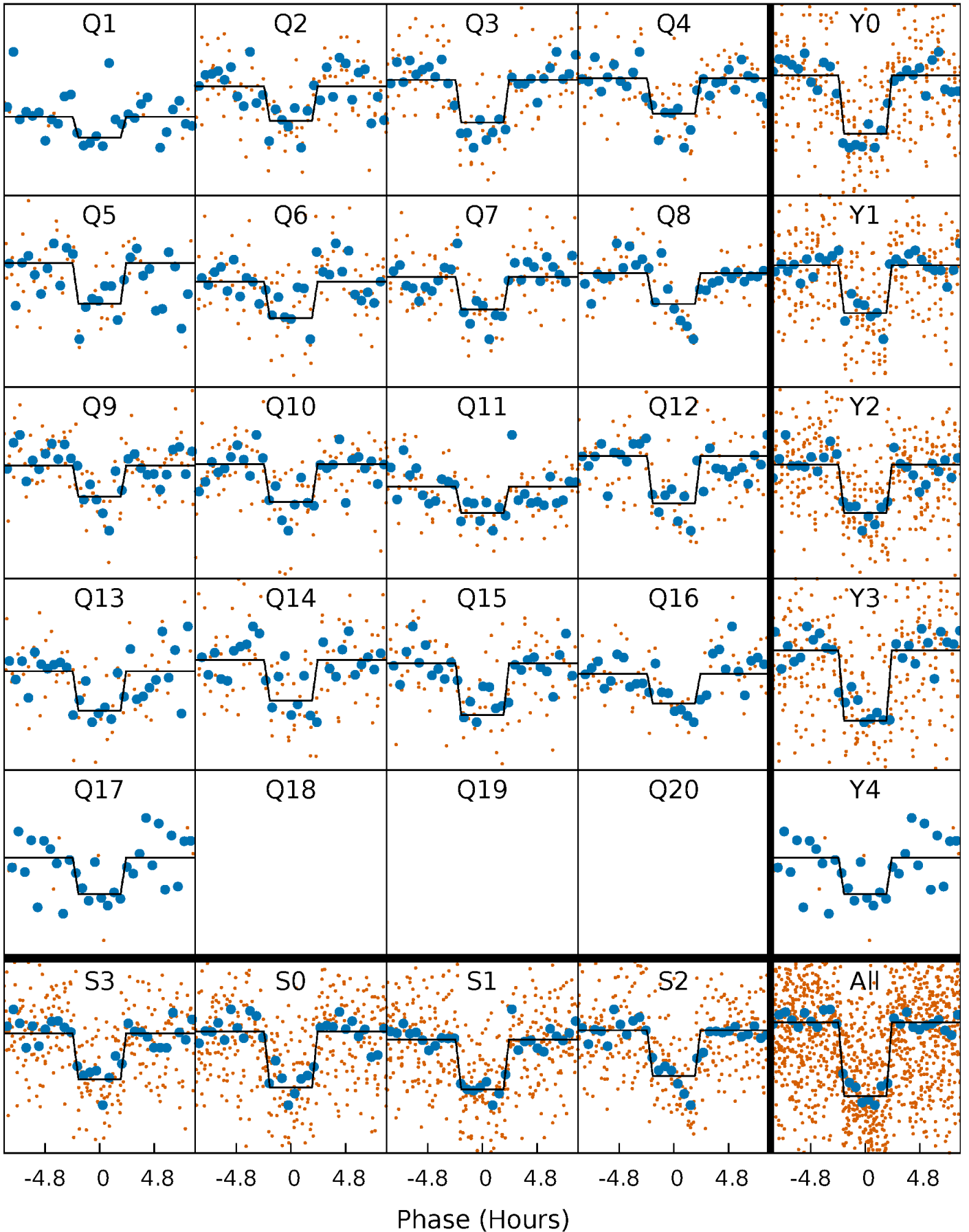
# DV Quarter-Phased Transit Curves

TCE 004454934-01 P= 33.469834 Days  $T_0=140.149572$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

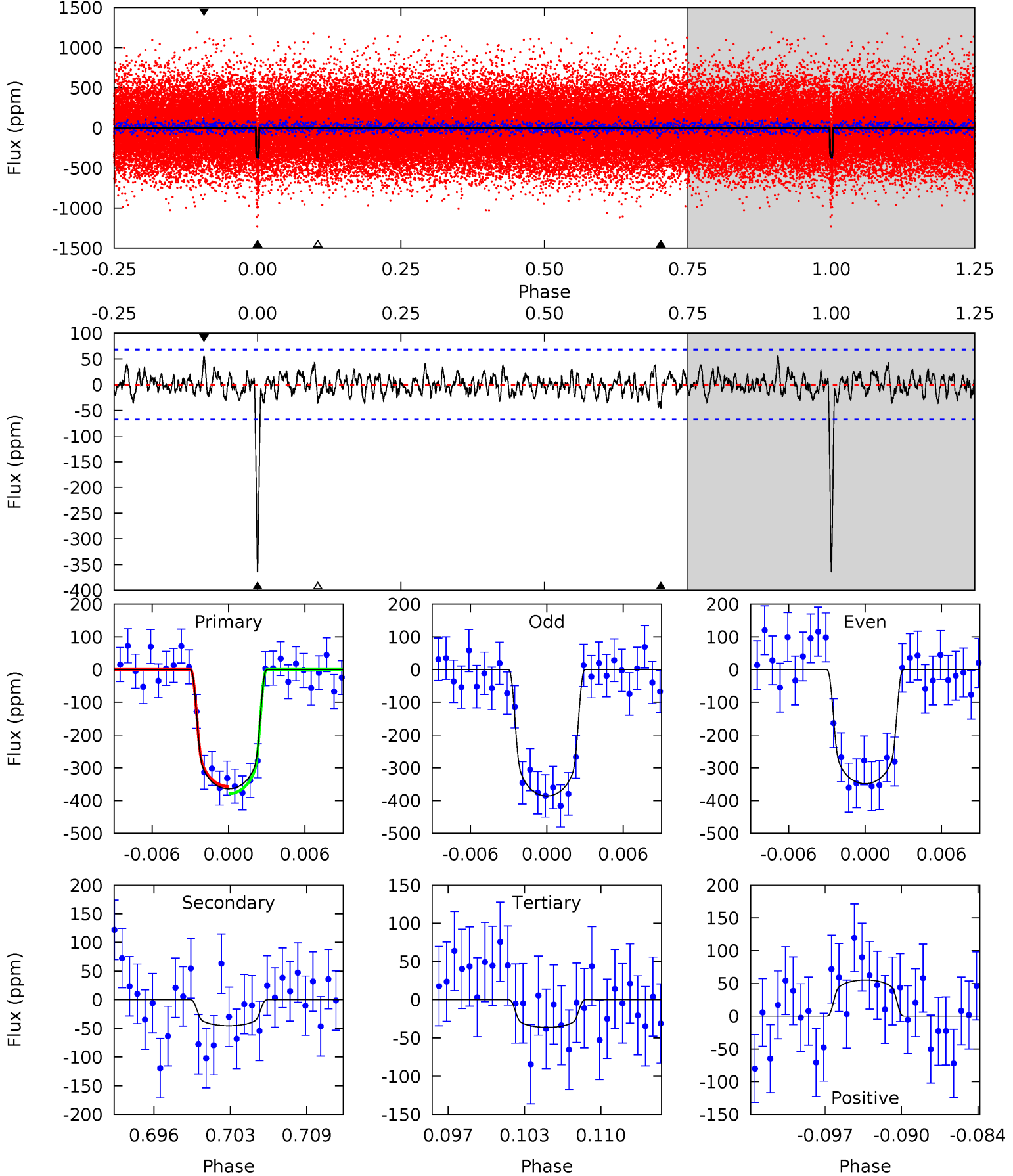
TCE 004454934-01 P= 33.469285 Days  $T_0=140.159071$  (BKJD)



# DV Model-Shift Uniqueness Test

004454934-01, P = 33.469834 Days, E = 106.679738 Days

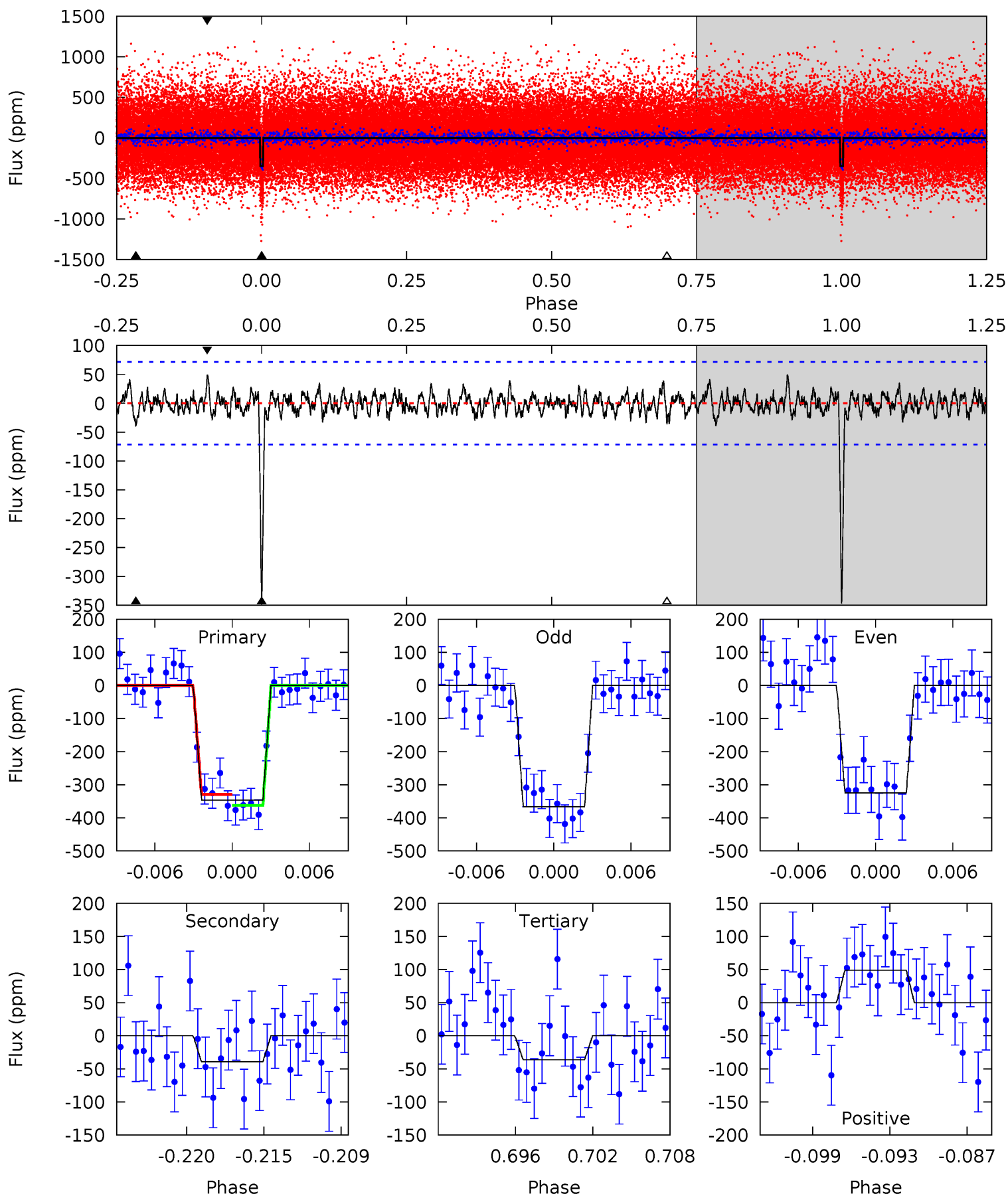
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.3	3.40	2.71	4.14	5.11	2.72	1.14	24.6	23.2	0.69	-0.74	1.41	0.99	0.13	0.84



# Alt Model-Shift Uniqueness Test

004454934-01, P = 33.469285 Days, E = 106.689786 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
24.8	2.83	2.60	3.50	5.13	2.76	0.97	22.2	21.3	0.23	-0.67	1.48	1.04	0.12	1.20



### Stellar Parameters For KIC 004454934

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5912^{+160}_{-178}$	$4.342^{+0.136}_{-0.187}$	$-0.140^{+0.300}_{-0.300}$	$1.094^{+0.314}_{-0.183}$	$0.960^{+0.135}_{-0.110}$	$1.033^{+0.754}_{-0.504}$
	+3%/-3%	+3%/-4%	+214%/-214%	+29%/-17%	+14%/-11%	+73%/-49%
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 004454934-01 / KOI 2245.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-45 \pm 13$	$2.47^{+0.58}_{-0.47}$	$857^{+64}_{-51}$	$3773^{+312}_{-297}$	$157^{+112}_{-63}$
Alt.	$-39 \pm 14$	$2.25^{+0.52}_{-0.50}$	$852^{+58}_{-45}$	$3792^{+396}_{-342}$	$168^{+128}_{-77}$

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



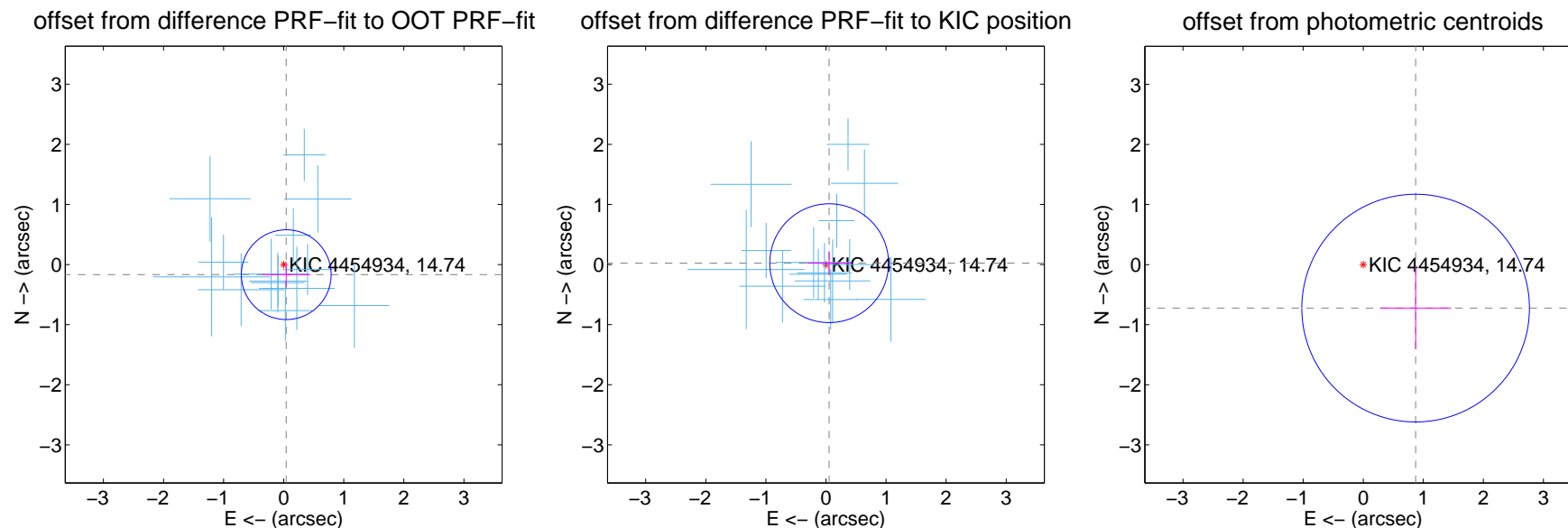
## DV Centroid Data

Supplemental centroid analysis for 004454934-01. Kepler magnitude: 14.74. Transit SNR 20.67

There are 14 quarters with good PRF difference image offsets

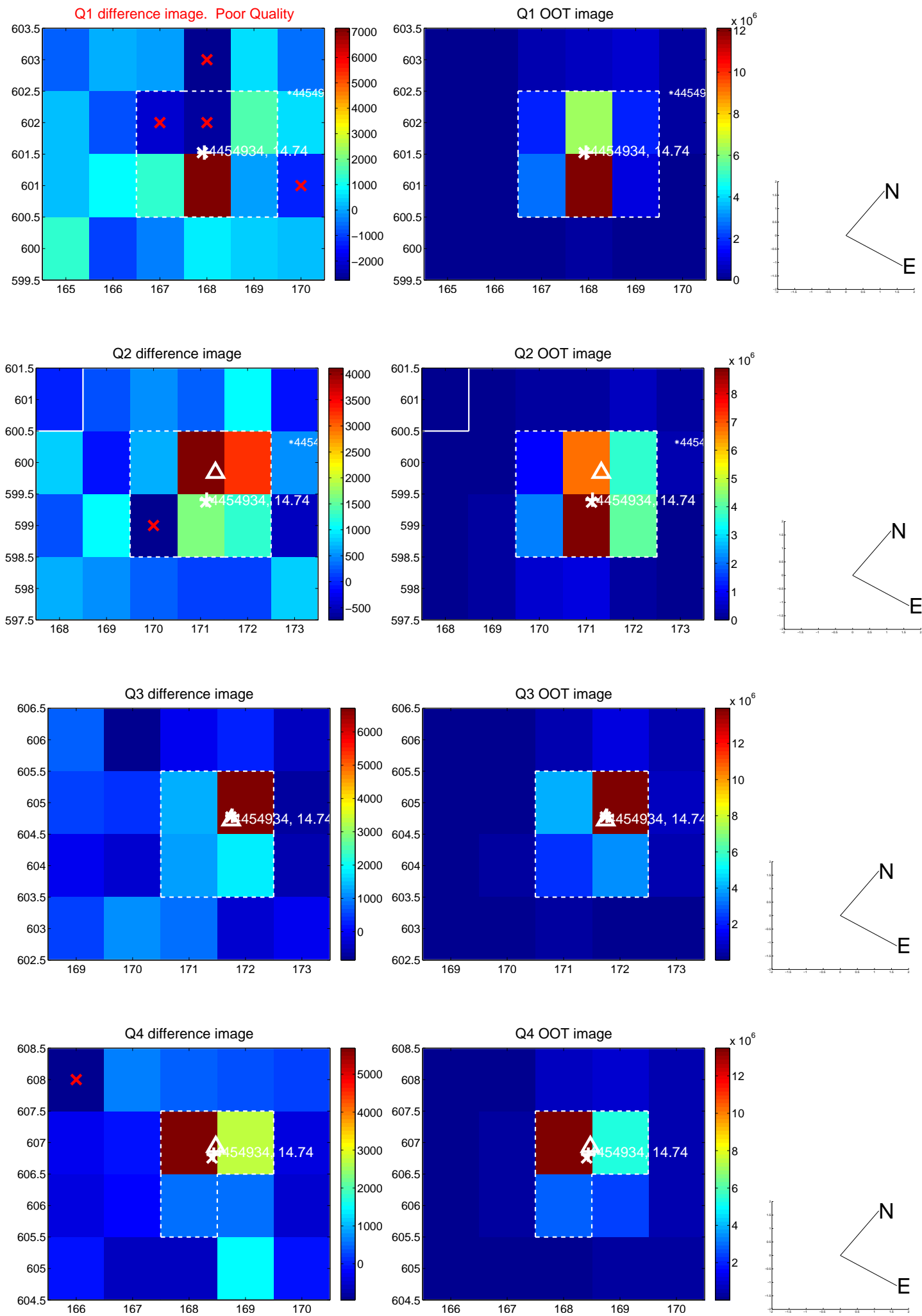
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.174 \pm 0.249$	0.70	$-0.043 \pm 0.400$	$-0.168 \pm 0.197$
PRF-fit source offset from KIC position	$0.058 \pm 0.329$	0.18	$-0.053 \pm 0.368$	$0.023 \pm 0.202$
photometric centroid source offset	$1.13 \pm 0.63$	1.79	$-0.87 \pm 0.59$	$-0.72 \pm 0.68$

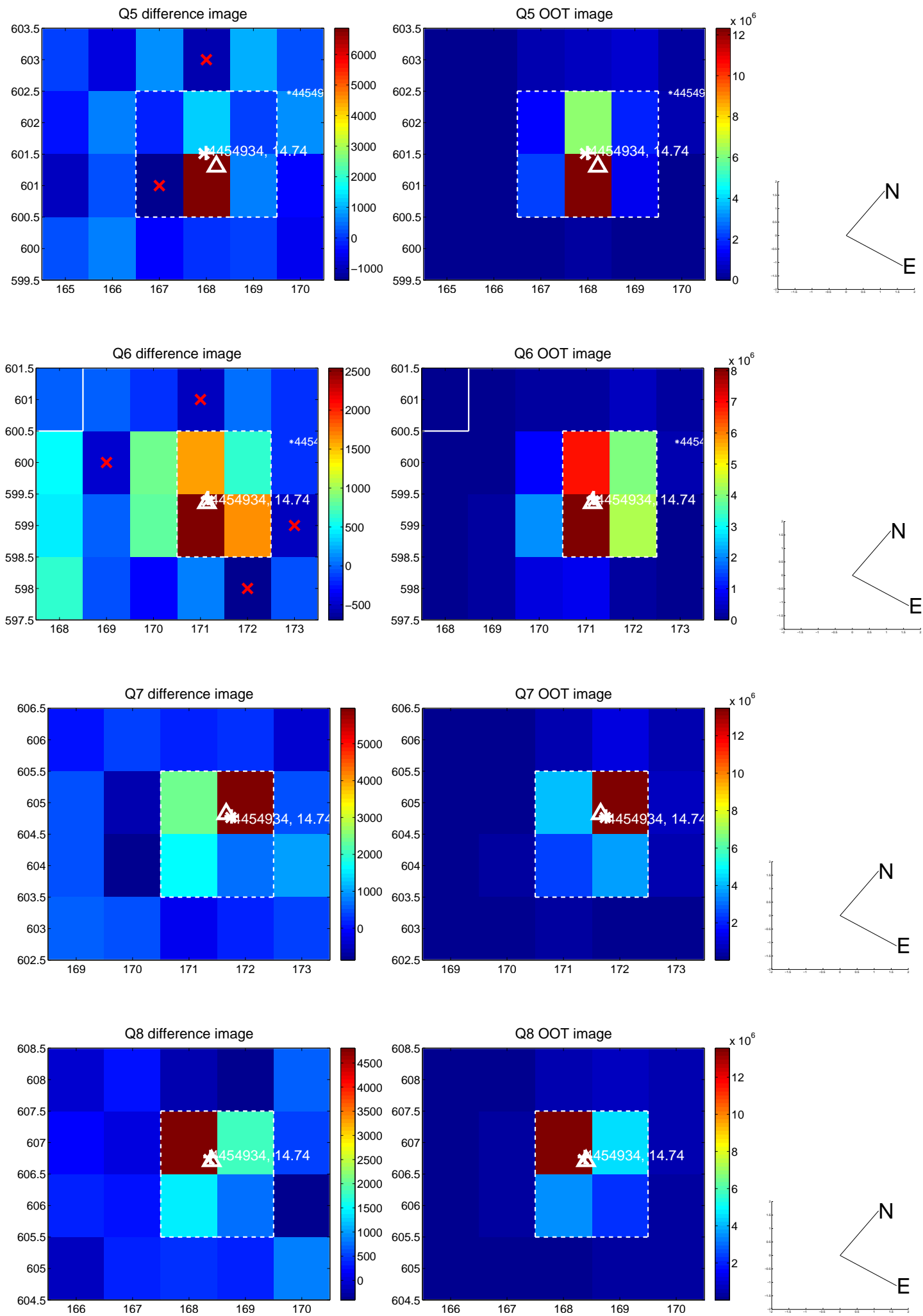


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

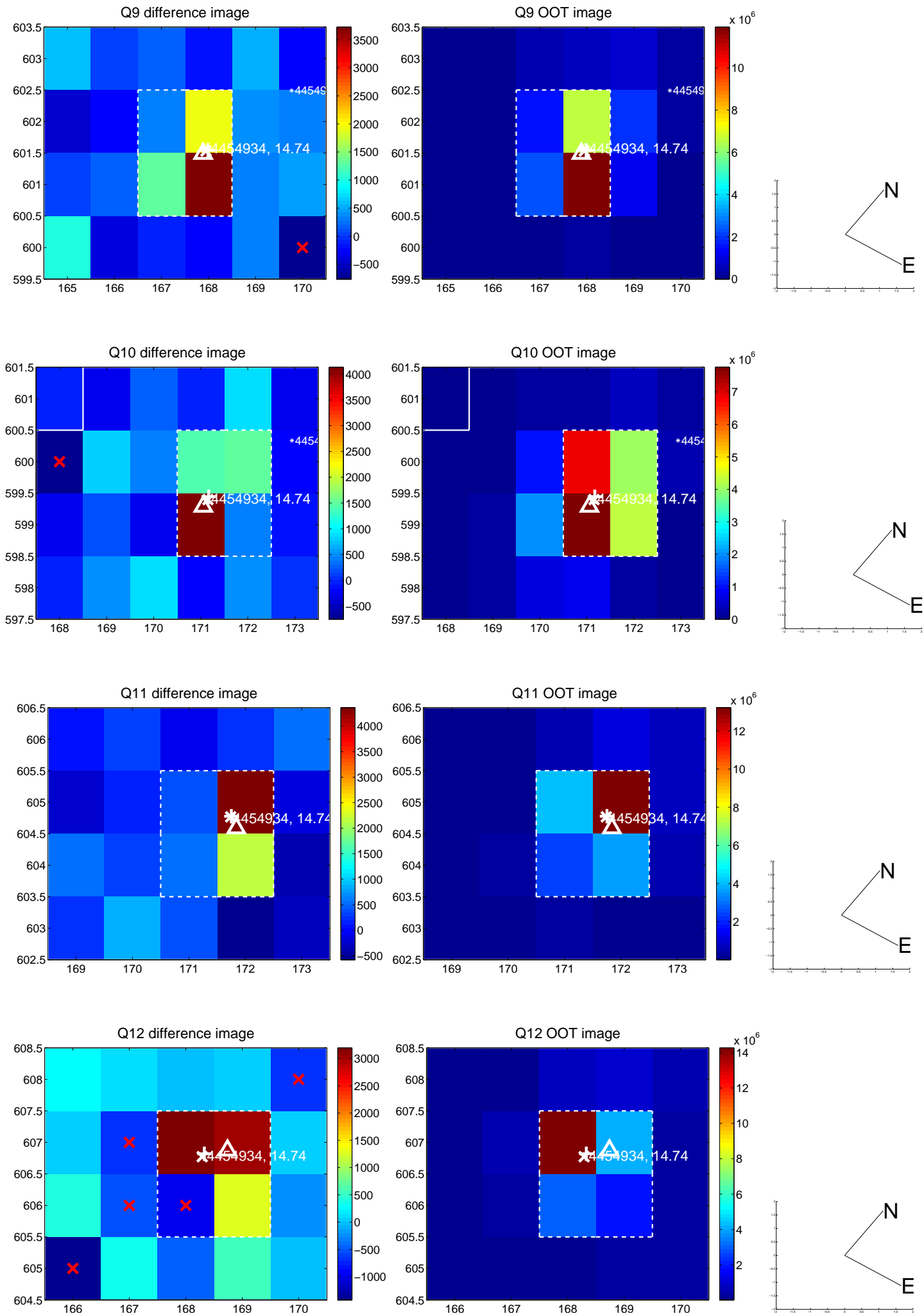
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



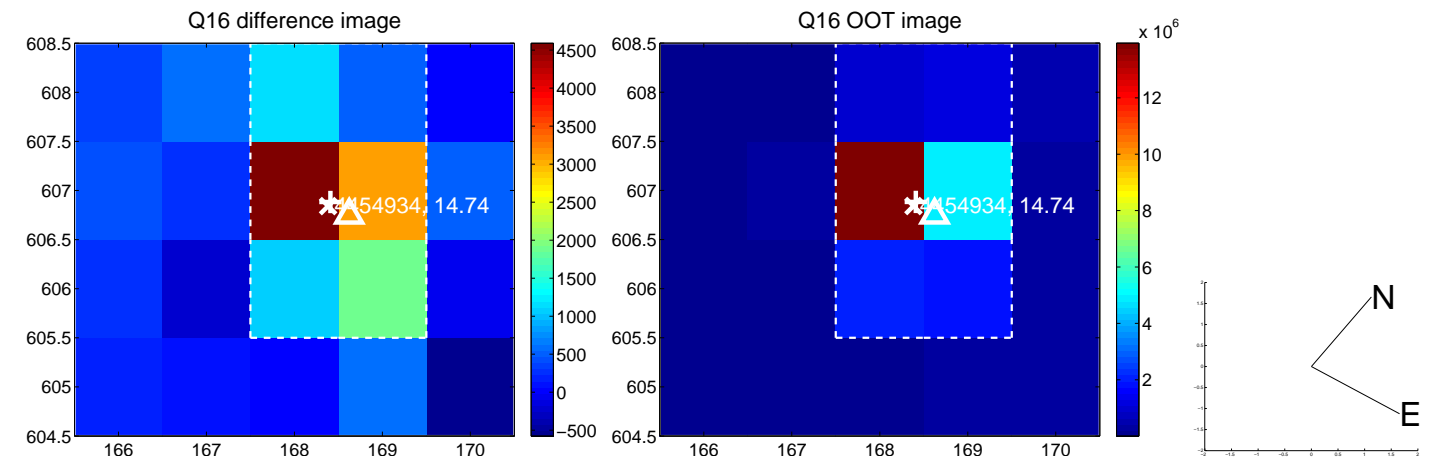
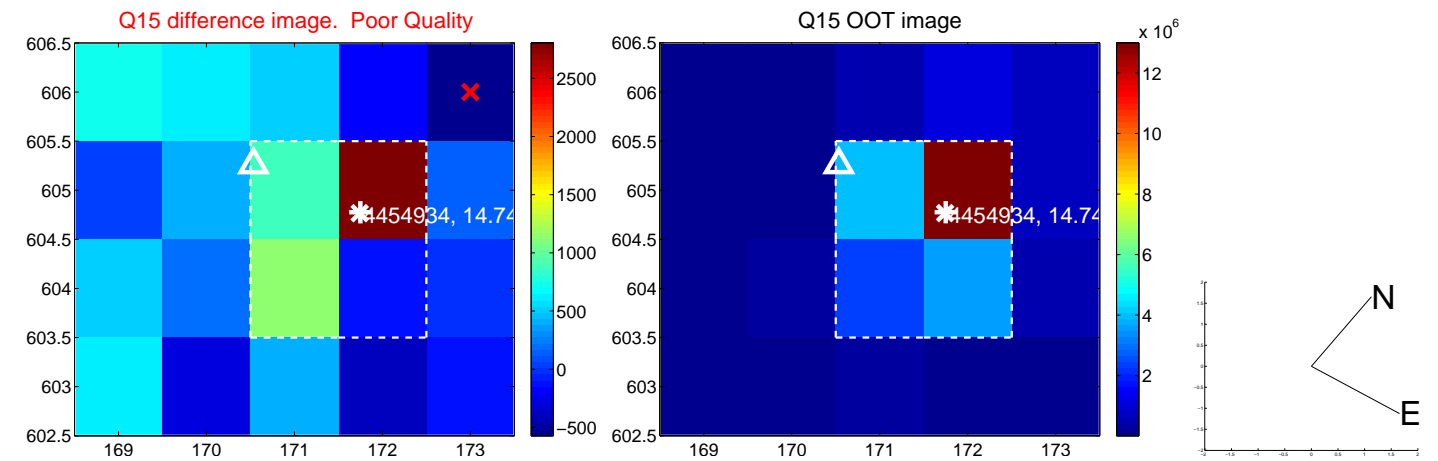
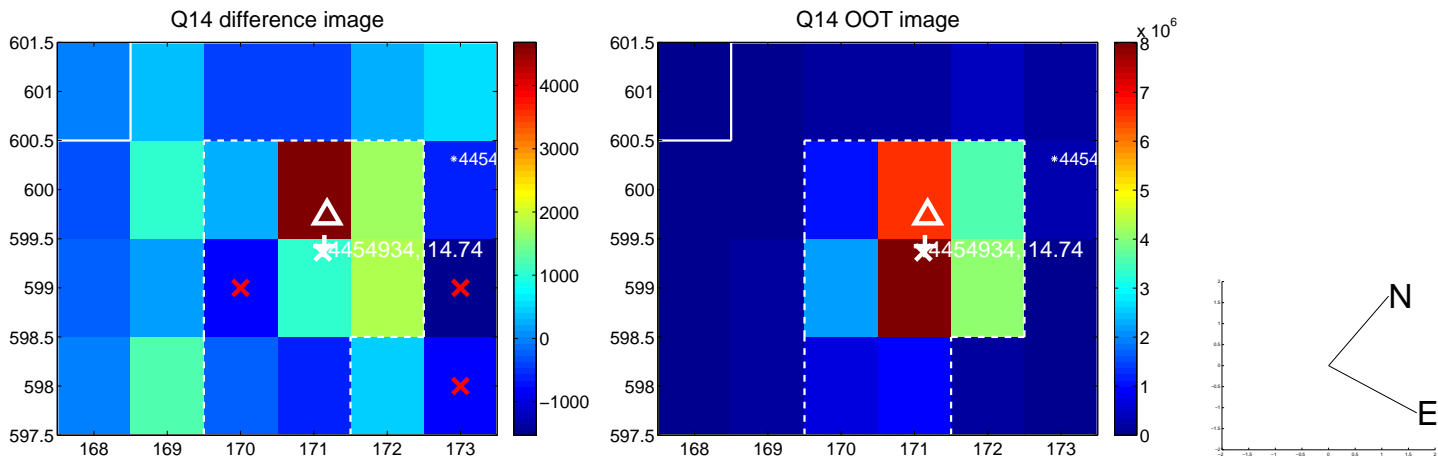
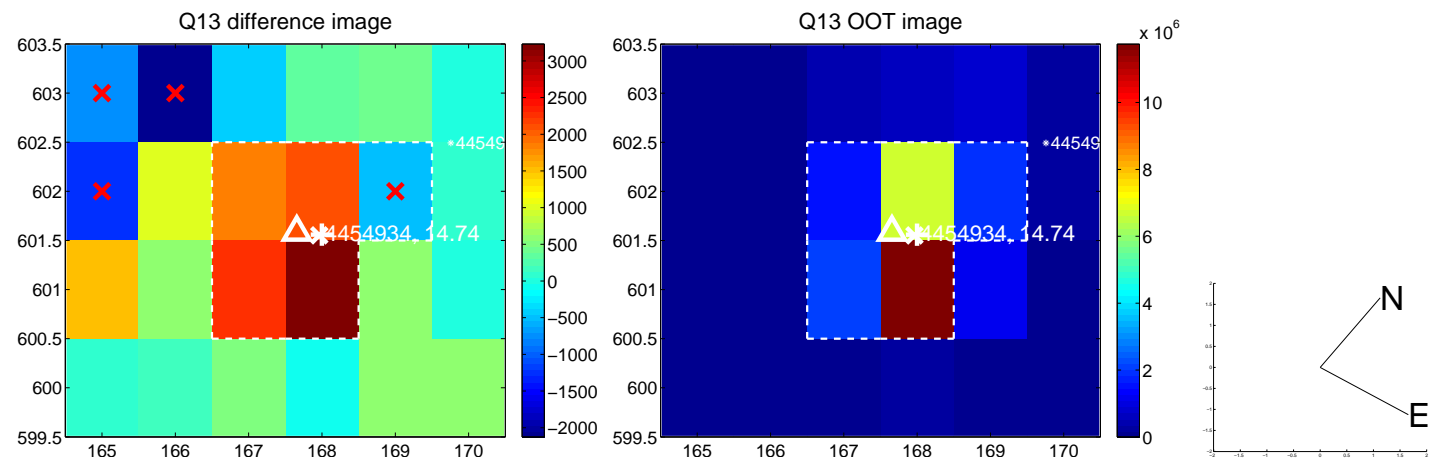
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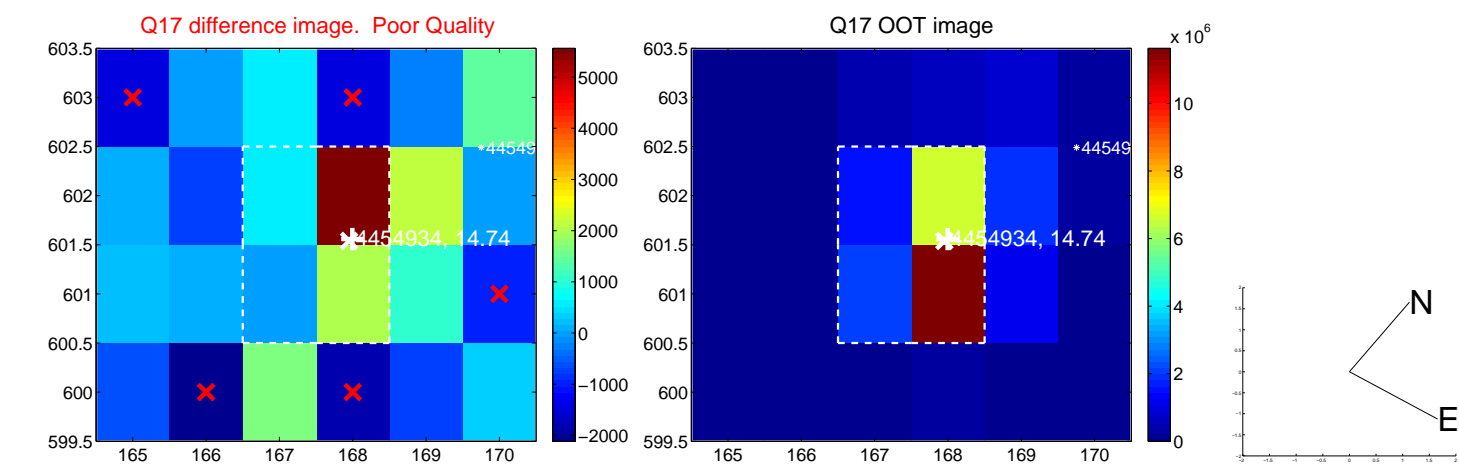


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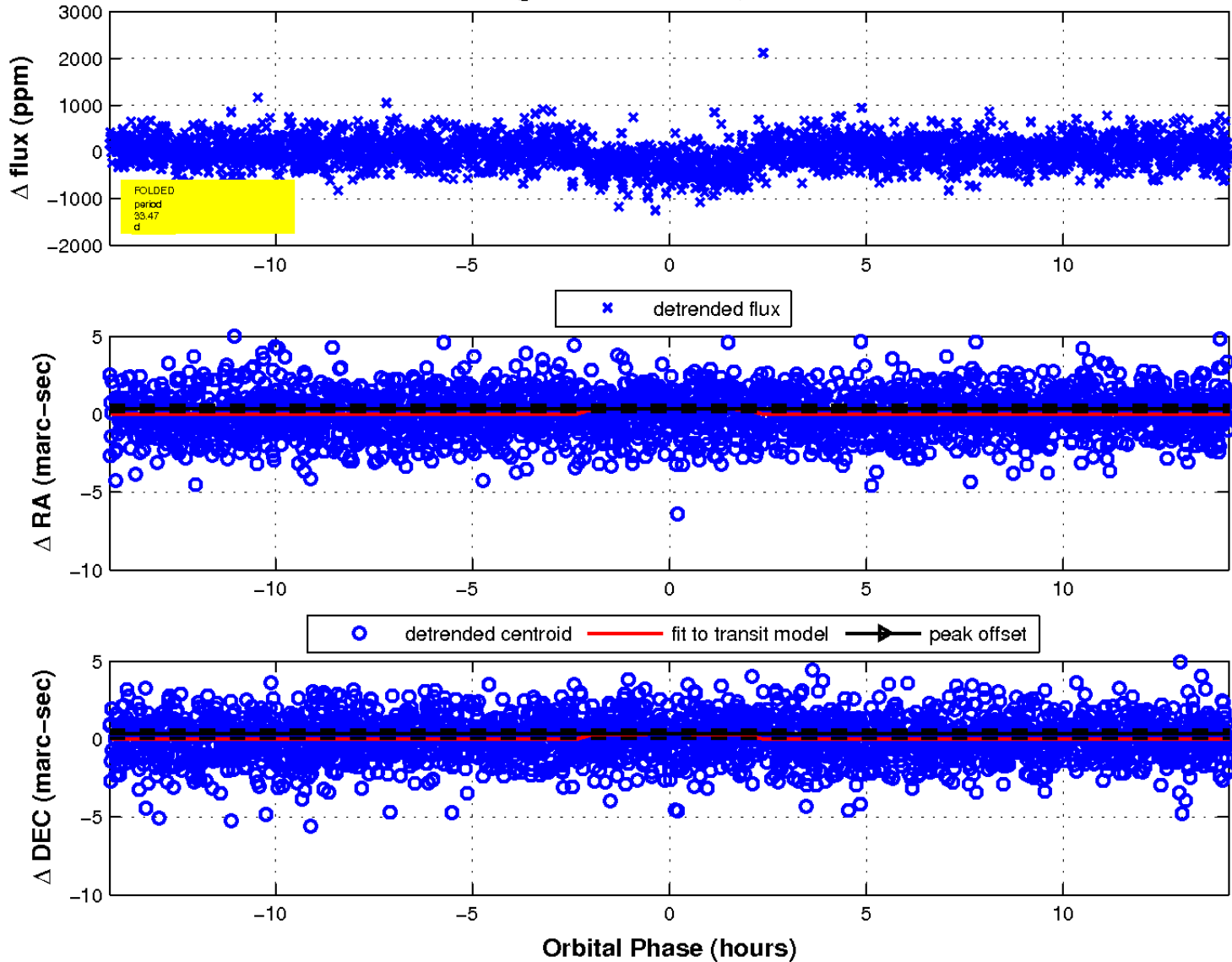




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

