

# KIC 008073821

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008073821-01	OBS	No	3.415701	133.806463	77.5	40.988	9.9	16.7	1.42	6230	1.74	1342.90

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008073821-01	OBS	FP	0.00	1	0	0	0	<del>SWEET_NTL</del> <del>—LPP_DV</del> <del>—CENT_FEW_DIFFS</del>

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

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

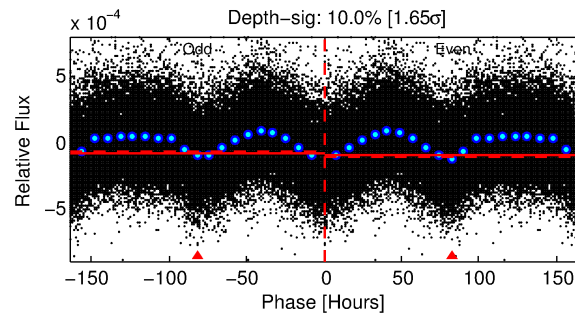
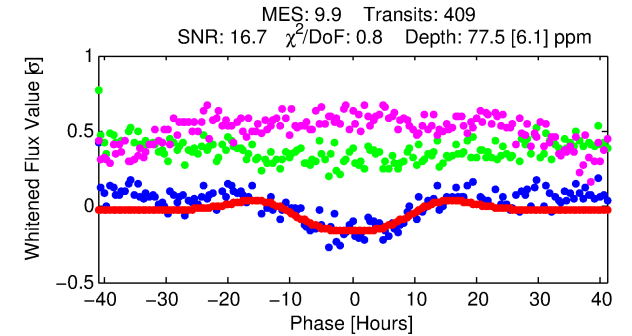
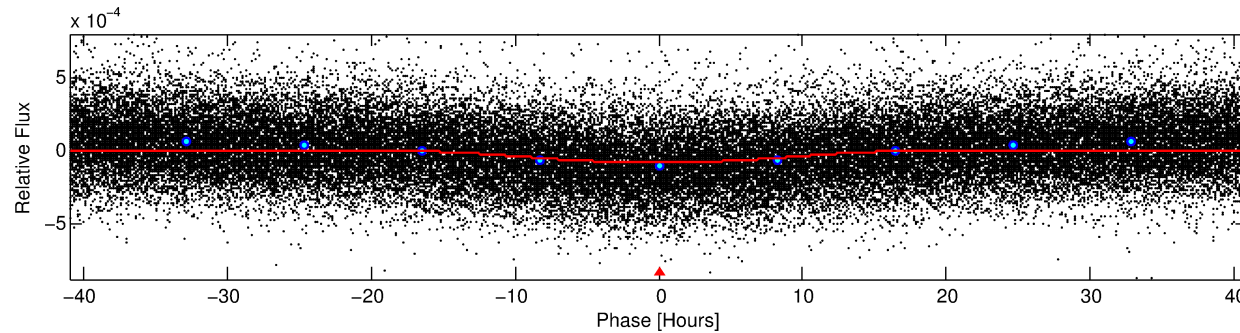
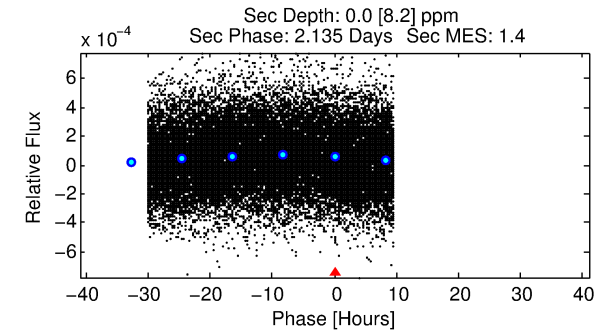
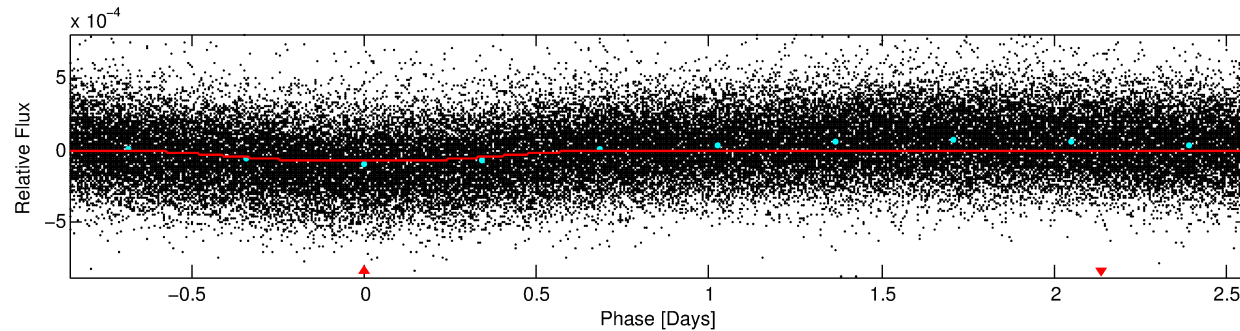
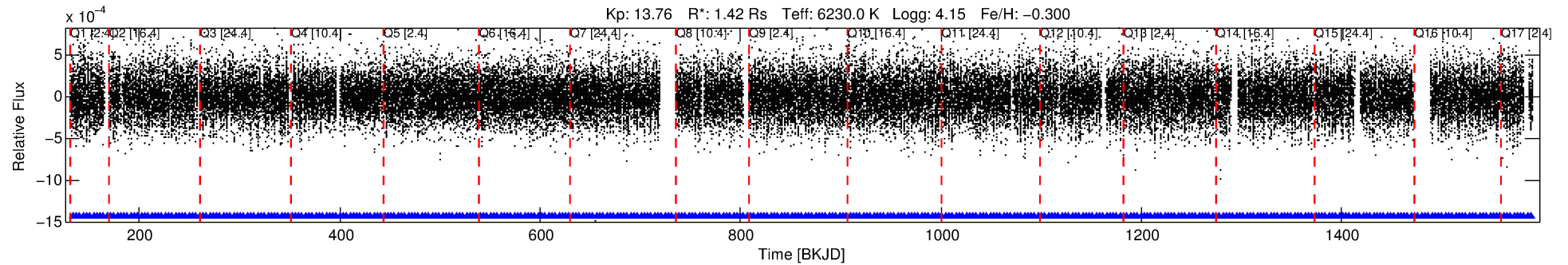
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008073821-01

No Significant Match Found

# DV One-Page Summary

KIC: 8073821 Candidate: 1 of 1 Period: 3.416 d



## DV Fit Results:

Period = 3.41570 [0.00015] d  
Epoch = 133.8065 [0.0348] BKJD  
Rp/R\* = 0.0112 [0.0005]  
a/R\* = 1.01 [0.00]  
b = 0.99 [0.00]  
Seff = 1342.90 [636.92]  
Teff = 1544 [183] K  
Rp = 1.73 [0.51] Re  
a = 0.0449 [0.0125] AU  
Ag = 0.01 [3.01] [-0.33σ]  
Teffp = 711 [67979] K [-0.01σ]

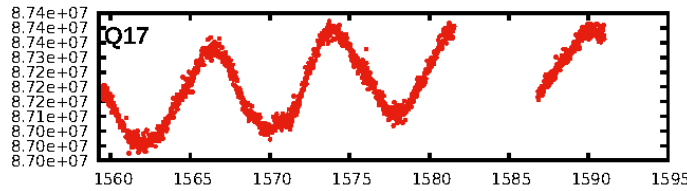
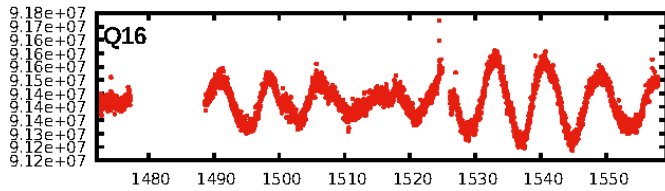
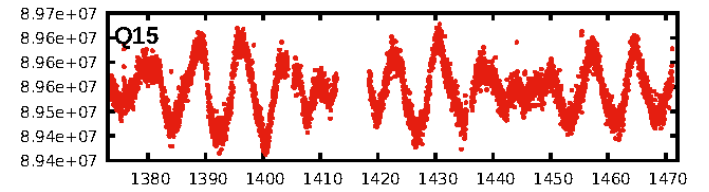
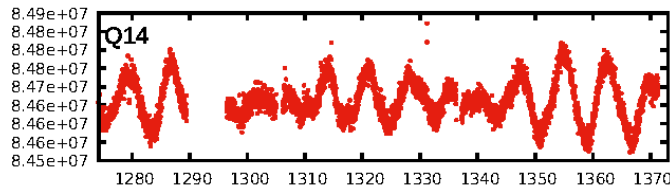
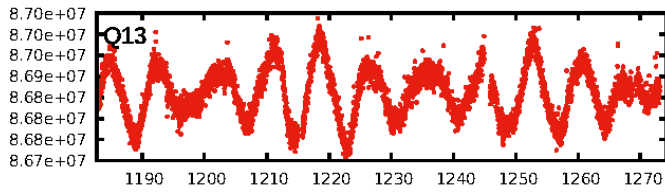
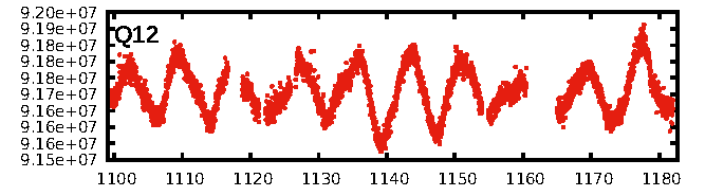
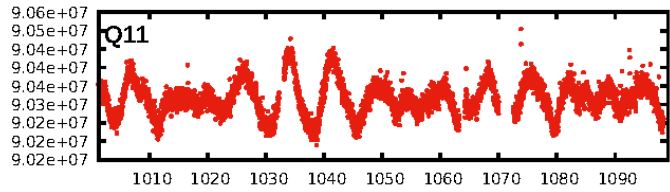
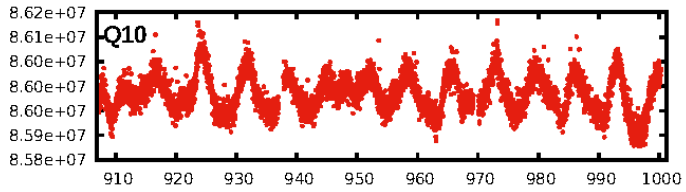
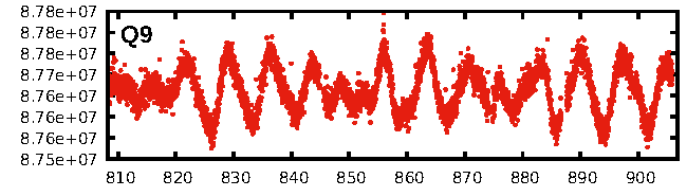
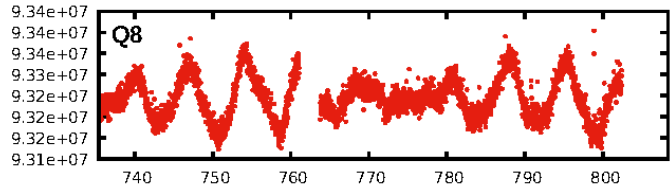
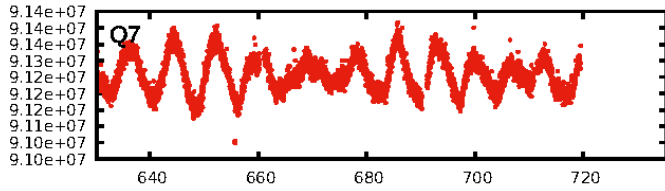
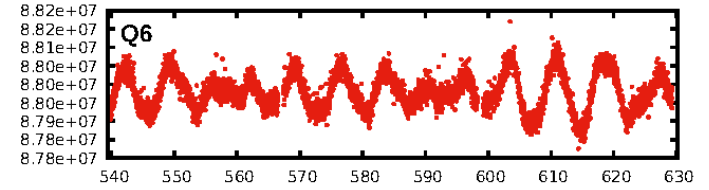
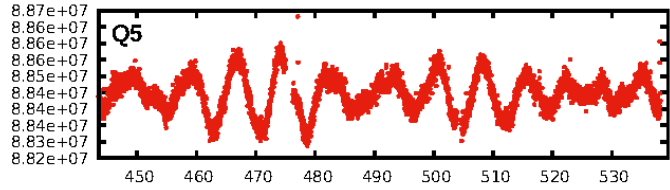
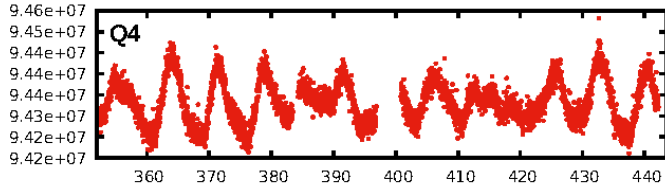
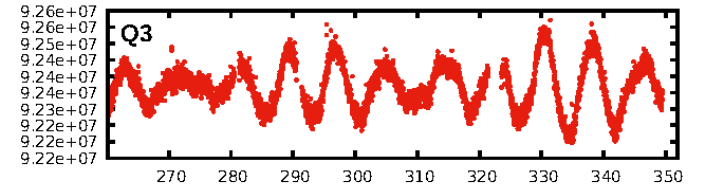
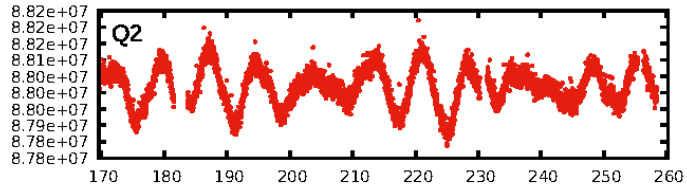
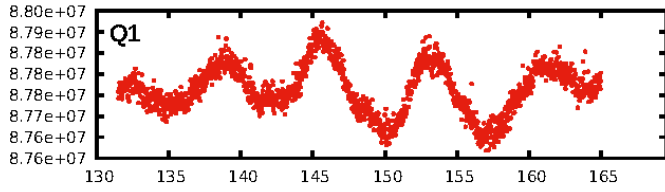
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [391/391]  
GhostDiagnostic-chr: 1.369  
Centroid-sig: 53.9%  
Centroid-so: 0.812 arcsec [2.19σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0 [0]  
KicOffset-st: 0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [17/17]

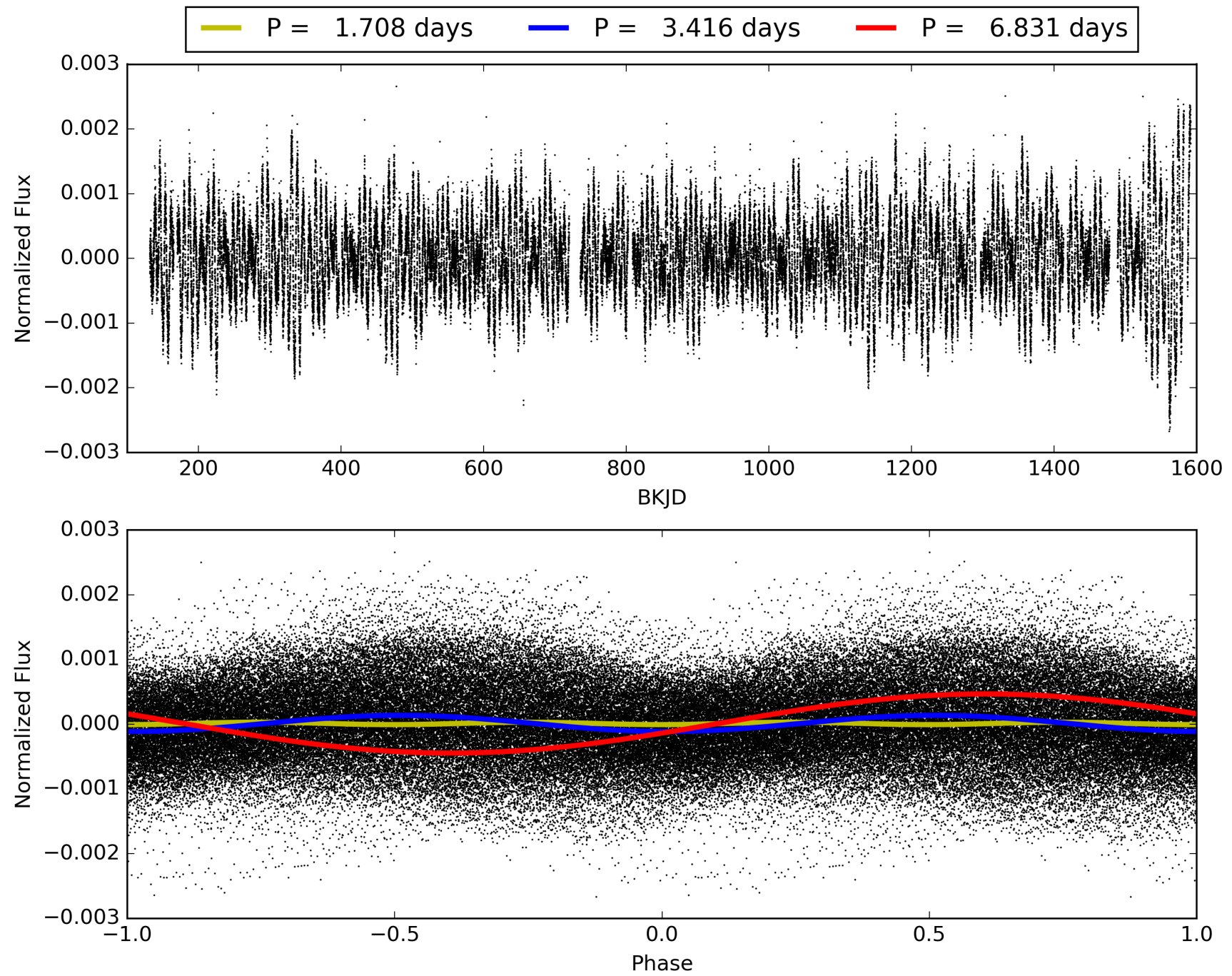
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:34:57 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

## TCE 008073821-01, PDC Light Curves

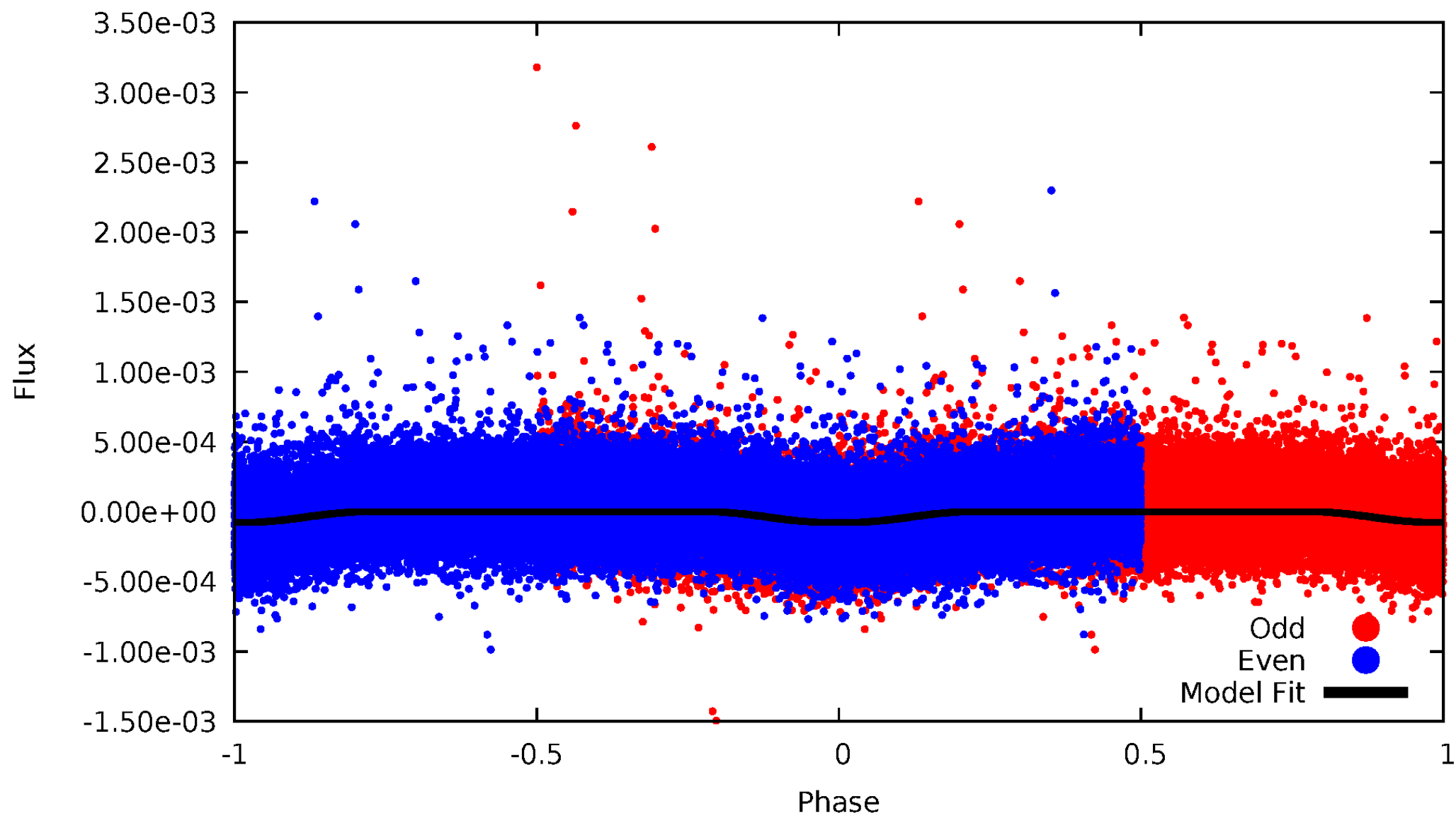


TCE 008073821-01



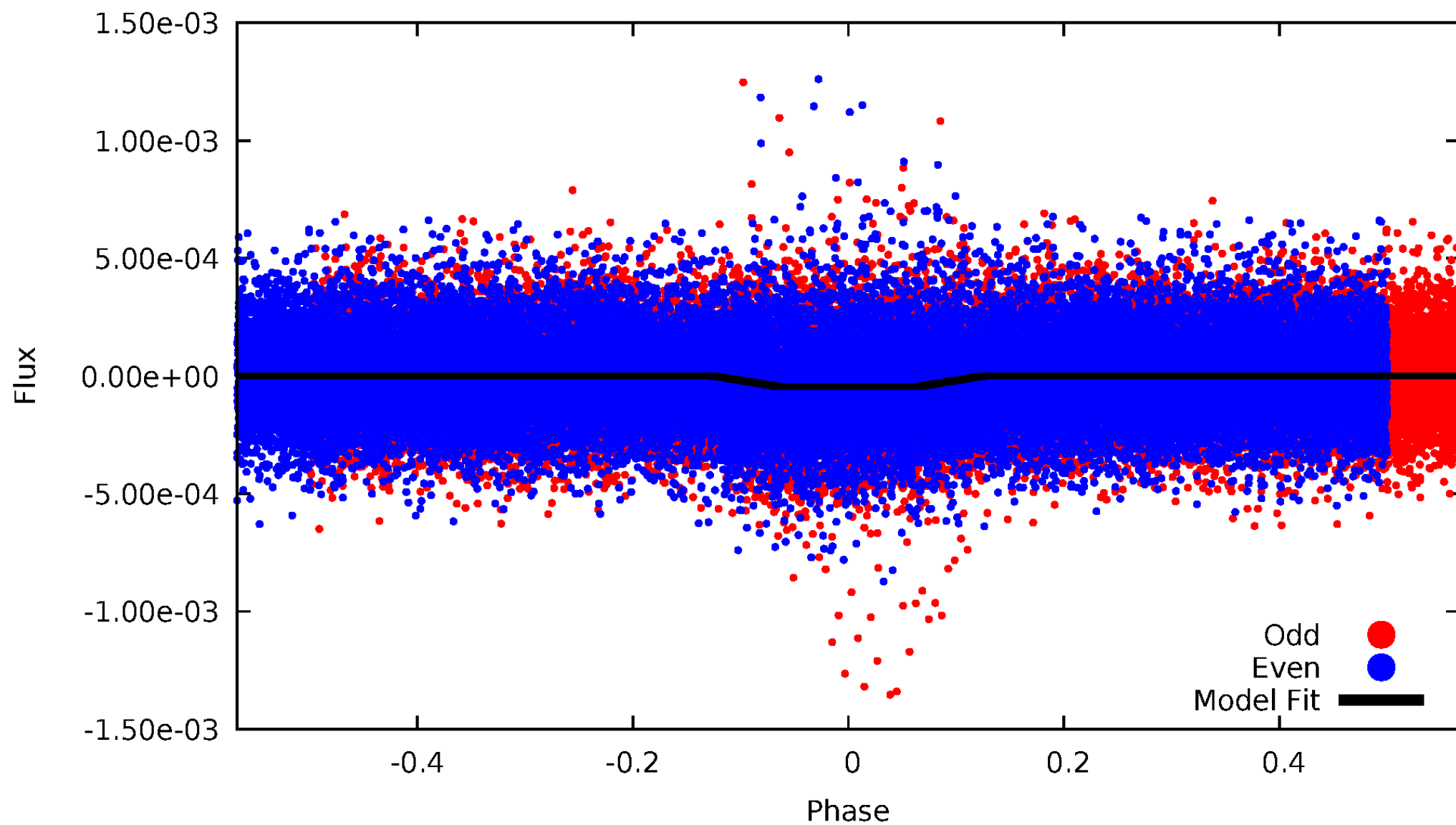
# DV Odd/Even

TCE 008073821-01



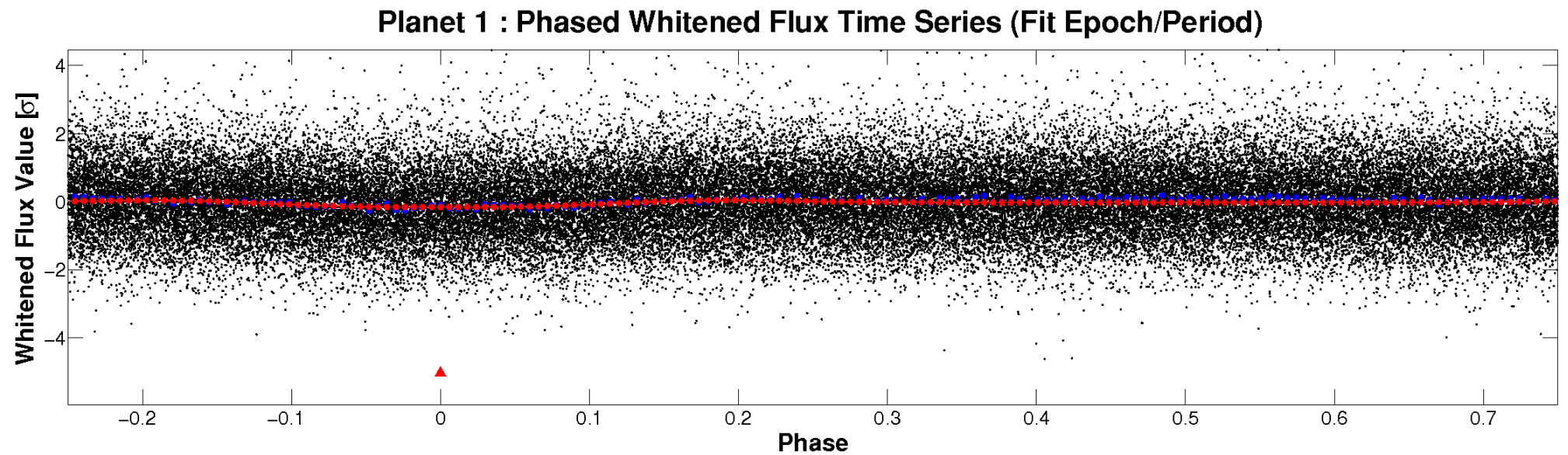
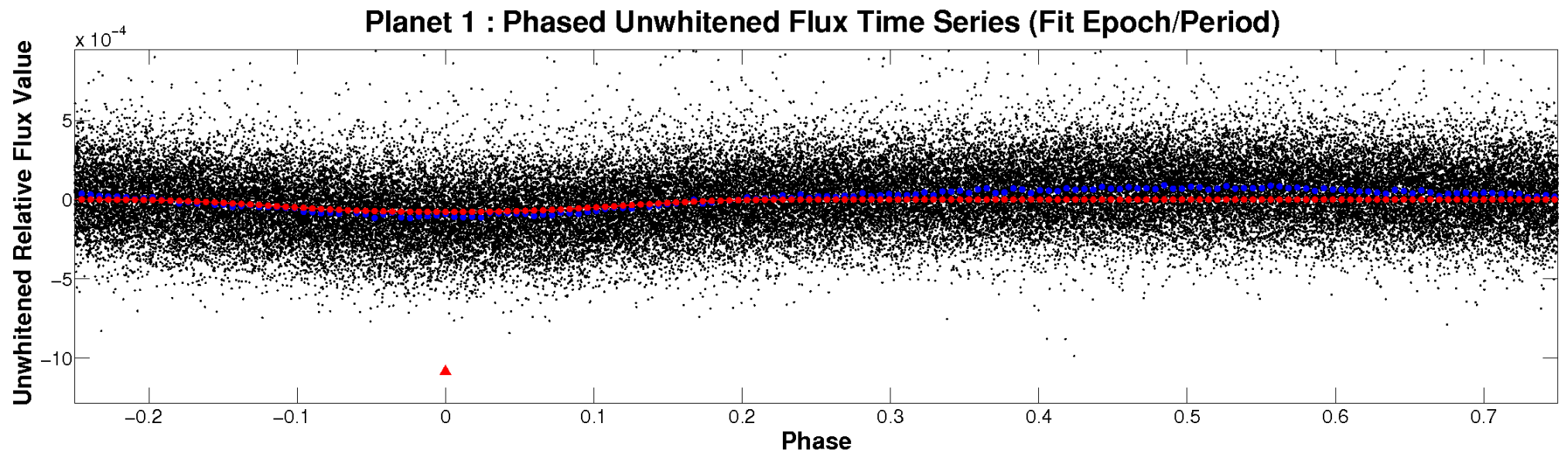
# ALT Odd/Even

TCE 008073821-01



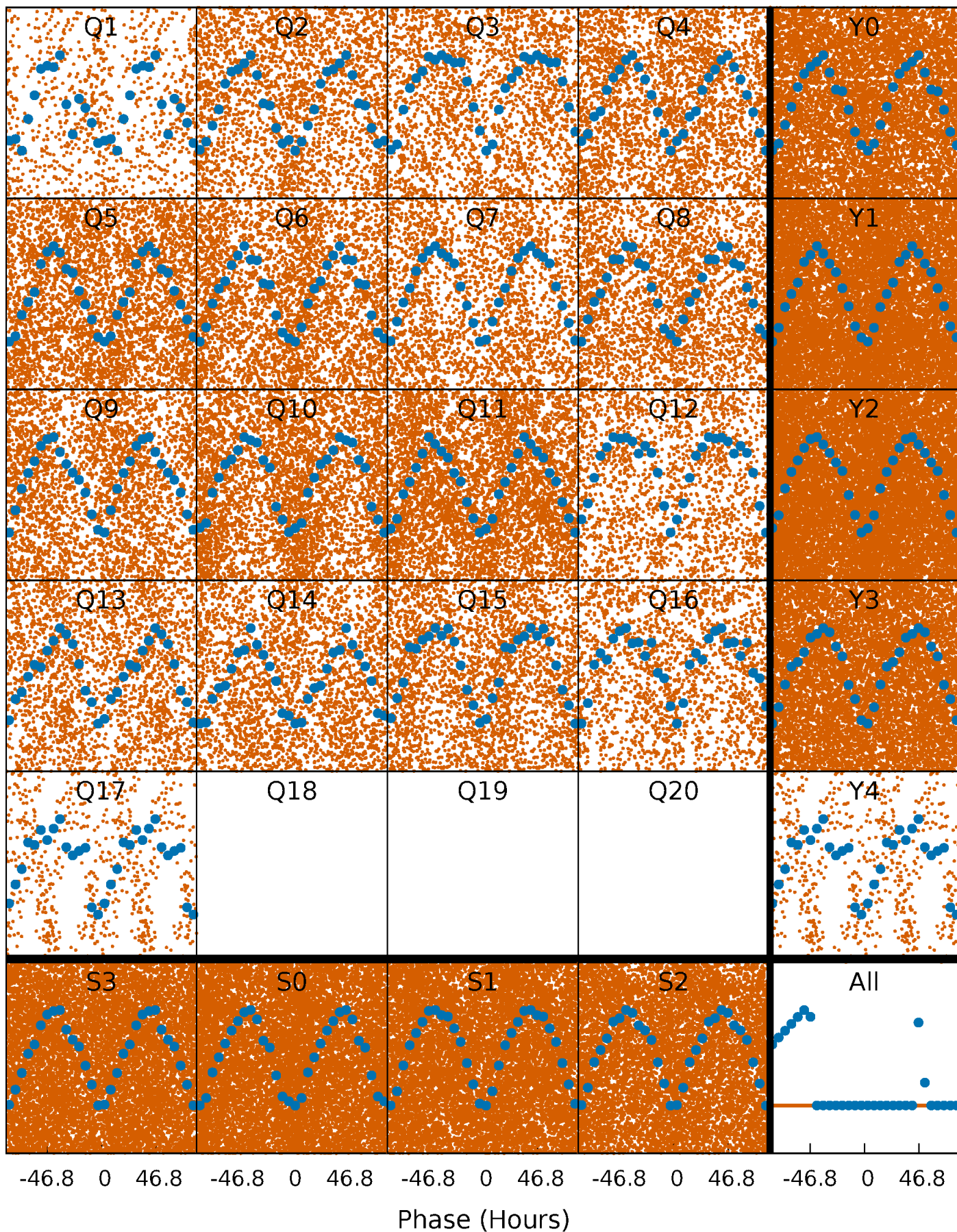


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

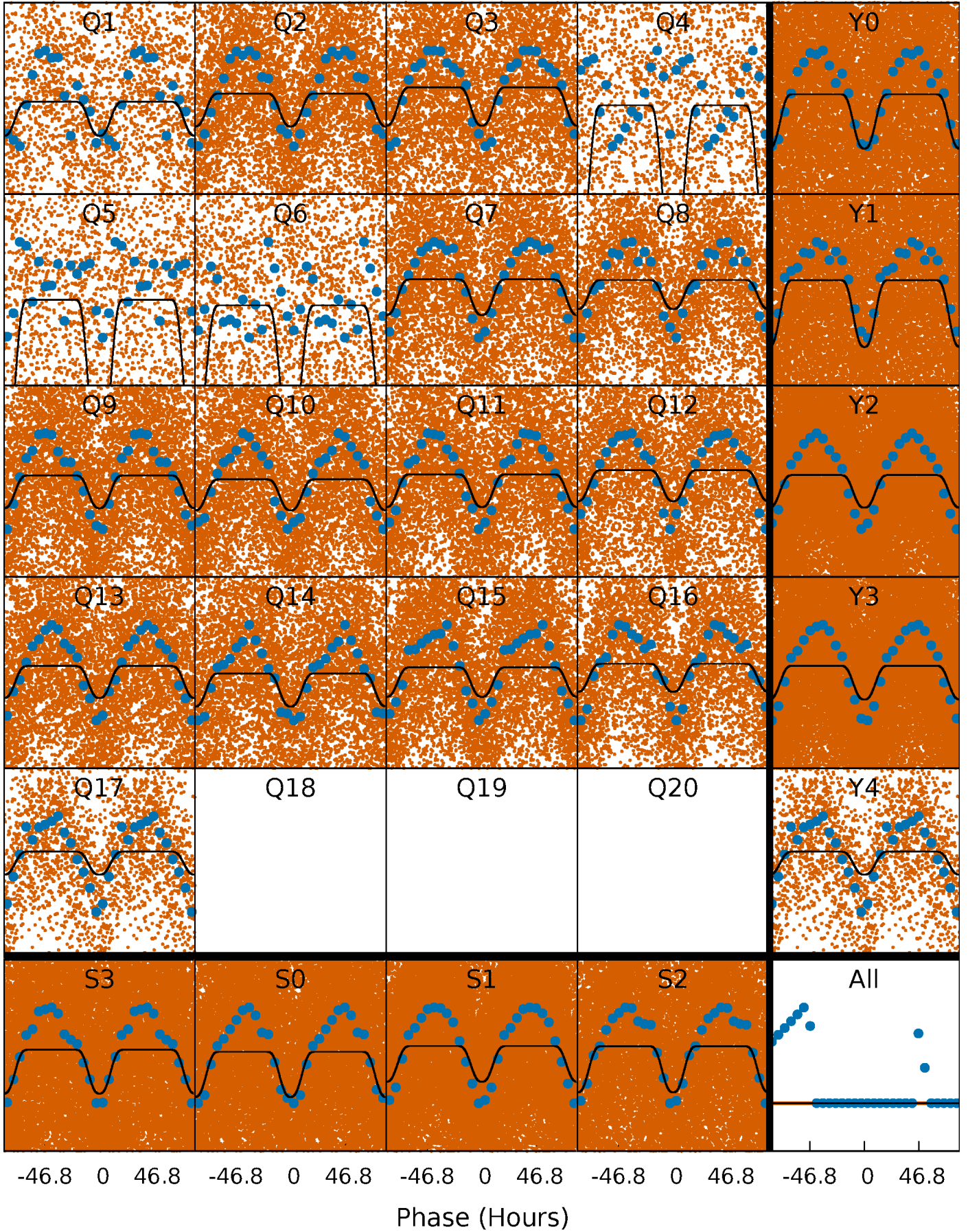
TCE 008073821-01   P= 3.415701 Days    $T_0=133.806463$  (BKJD)





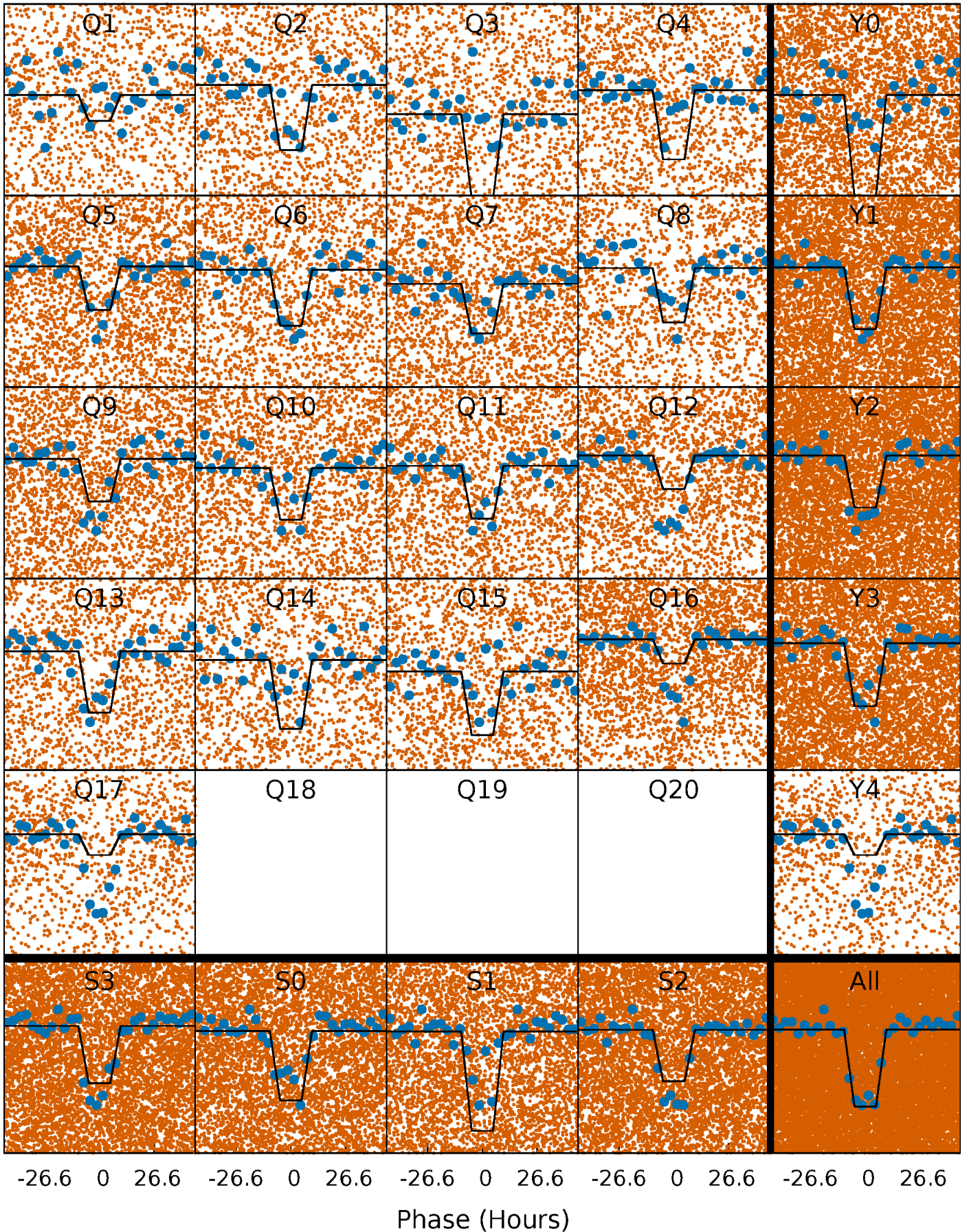
# DV Quarter-Phased Transit Curves

TCE 008073821-01 P= 3.415701 Days  $T_0=133.806463$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008073821-01 P= 3.415674 Days  $T_0=133.870136$  (BKJD)

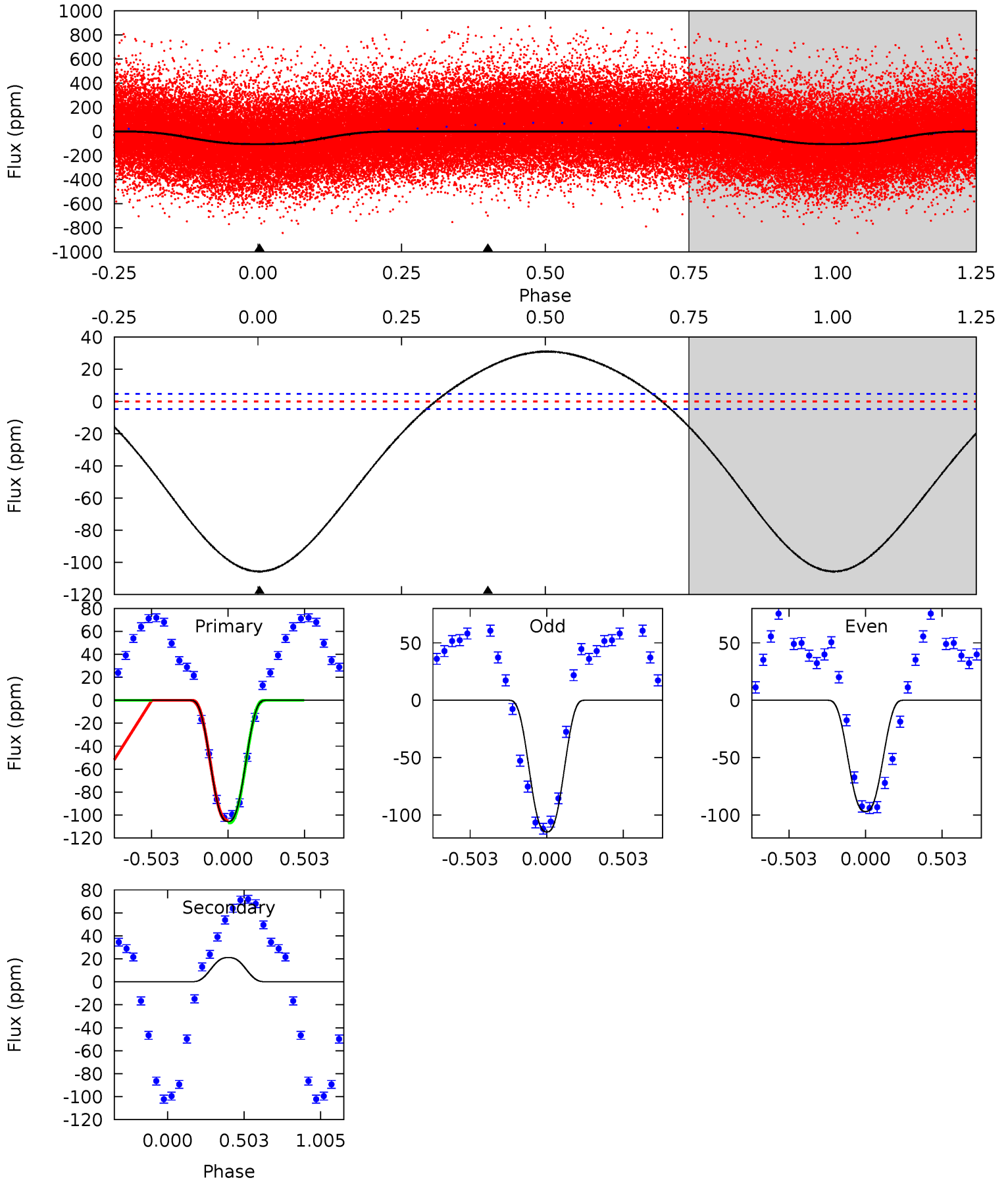




# DV Model-Shift Uniqueness Test

008073821-01, P = 3.415701 Days, E = 130.390762 Days

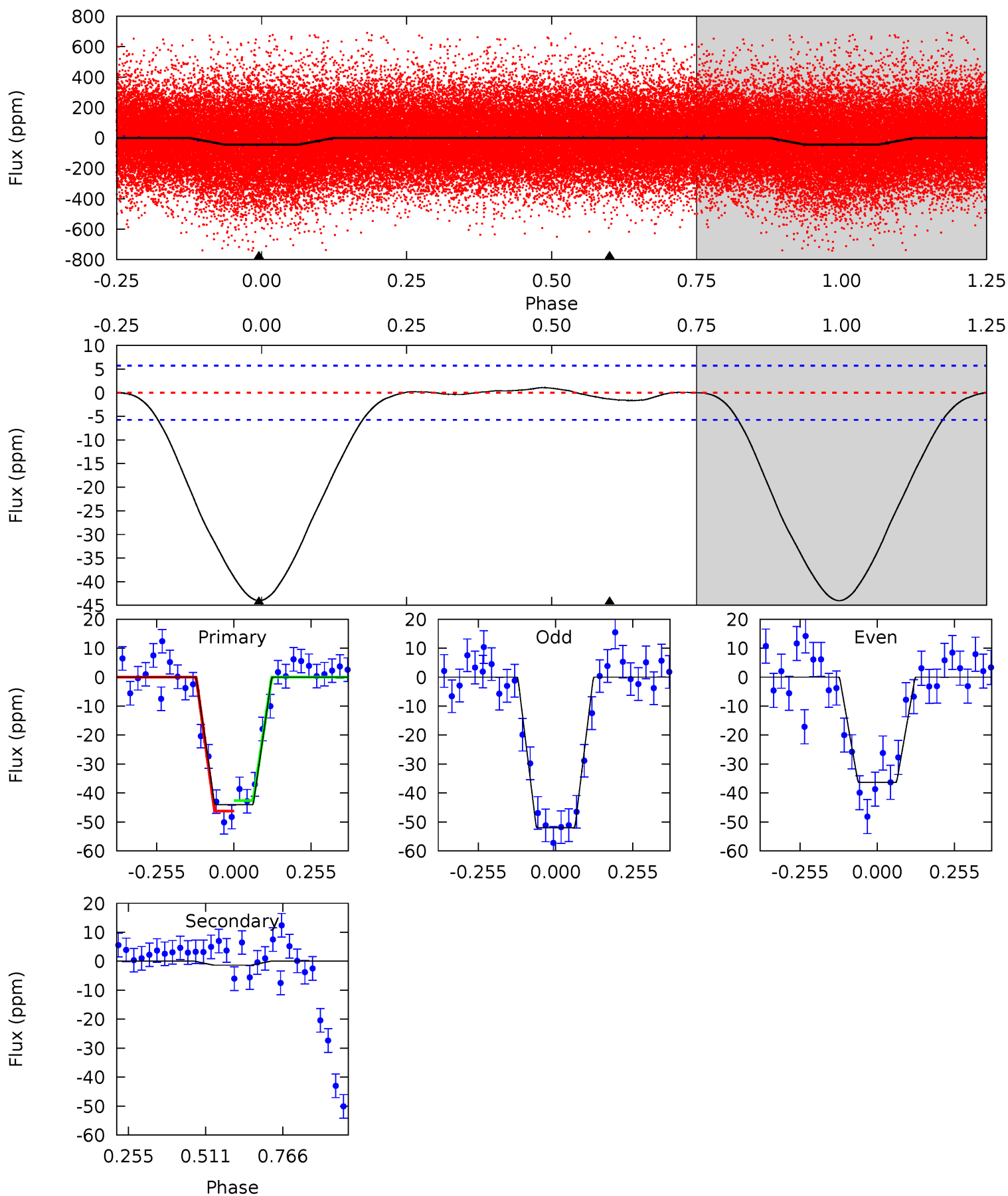
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
94.5	-18.9	0	0	4.21	0.67	7.66	94.5	94.5	-18.9	-18.9	8.04	-65.7	0.23	0.98



# Alt Model-Shift Uniqueness Test

008073821-01, P = 3.415674 Days, E = 130.454462 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
33.5	1.01	0	0	4.36	1.14	0.17	33.5	33.5	1.01	1.01	5.98	1.12	0.02	1.32





### Stellar Parameters For KIC 008073821

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6230^{+197}_{-241}$	$4.150^{+0.264}_{-0.176}$	$-0.300^{+0.300}_{-0.300}$	$1.415^{+0.407}_{-0.407}$	$1.032^{+0.169}_{-0.139}$	$0.513^{+0.842}_{-0.248}$
	+3%/-4%	+6%/-4%	+100%/-100%	+29%/-29%	+16%/-13%	+164%/-48%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 008073821-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$21 \pm 1$	$1.72^{+0.29}_{-0.30}$	$2131^{+175}_{-183}$	$-4261^{+137}_{-137}$	$-7.933^{+1.991}_{-3.530}$
Alt.	$-1 \pm 1$	$1.04^{+0.17}_{-0.17}$	$2138^{+172}_{-192}$	$3066^{+408}_{-5586}$	$1.365^{+1.628}_{-1.354}$

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

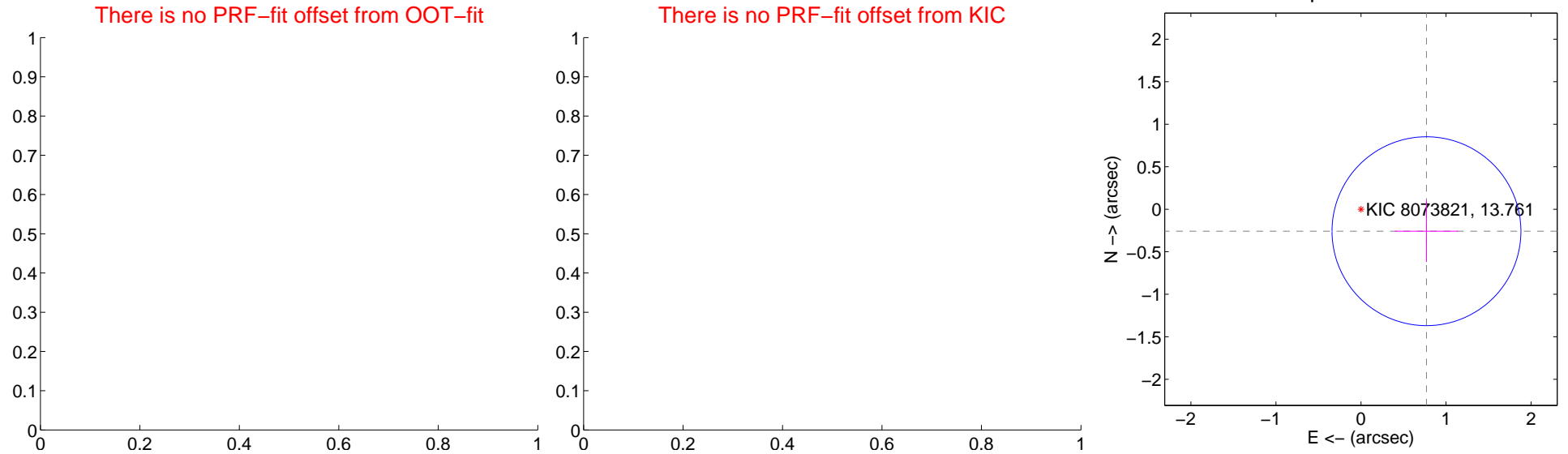
## DV Centroid Data

Supplemental centroid analysis for 008073821-01. Kepler magnitude: 13.76. Transit SNR 16.70

There are 0 quarters with good PRF difference image offsets

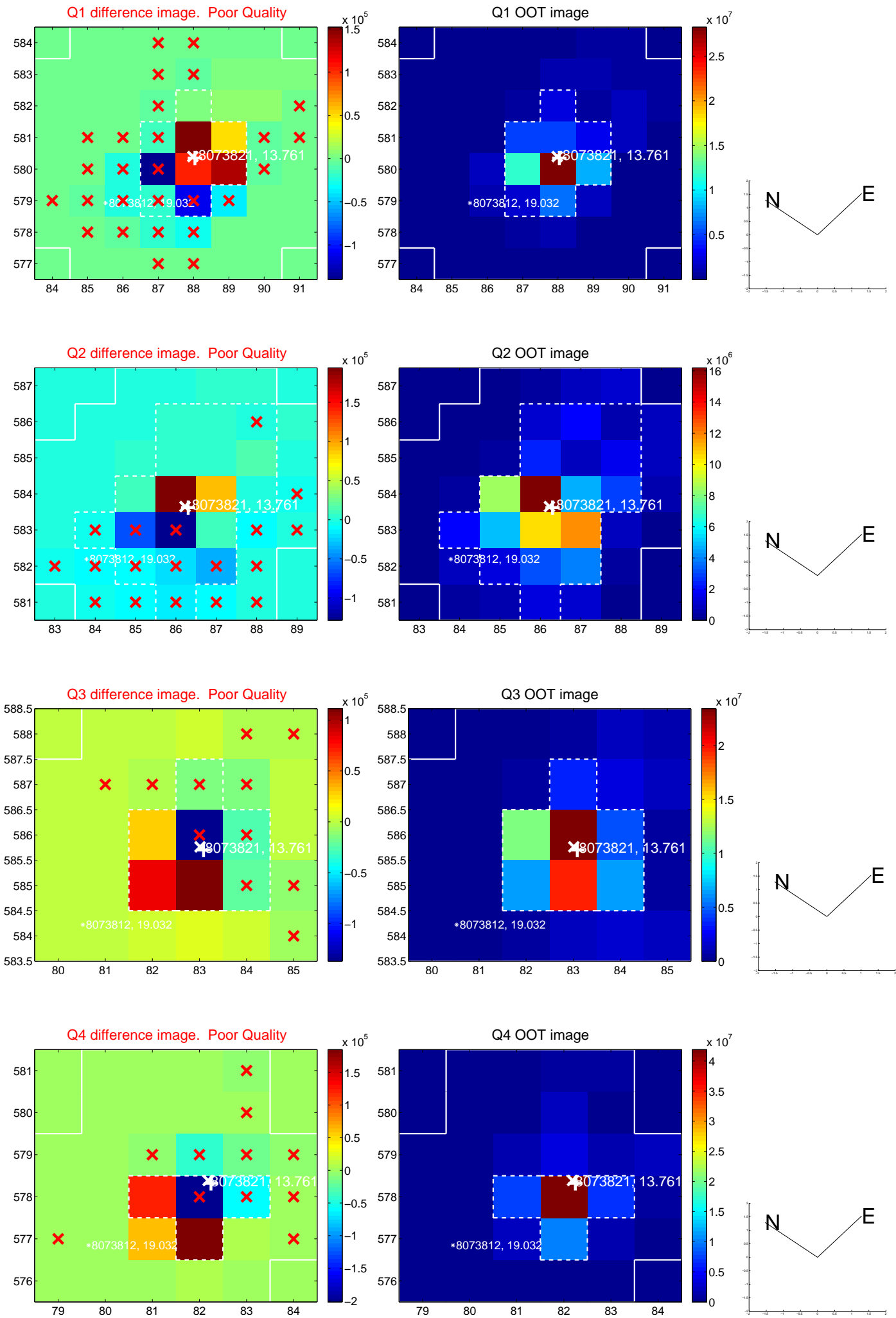
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$0.81 \pm 0.37$	2.19	$-0.77 \pm 0.37$	$-0.26 \pm 0.36$

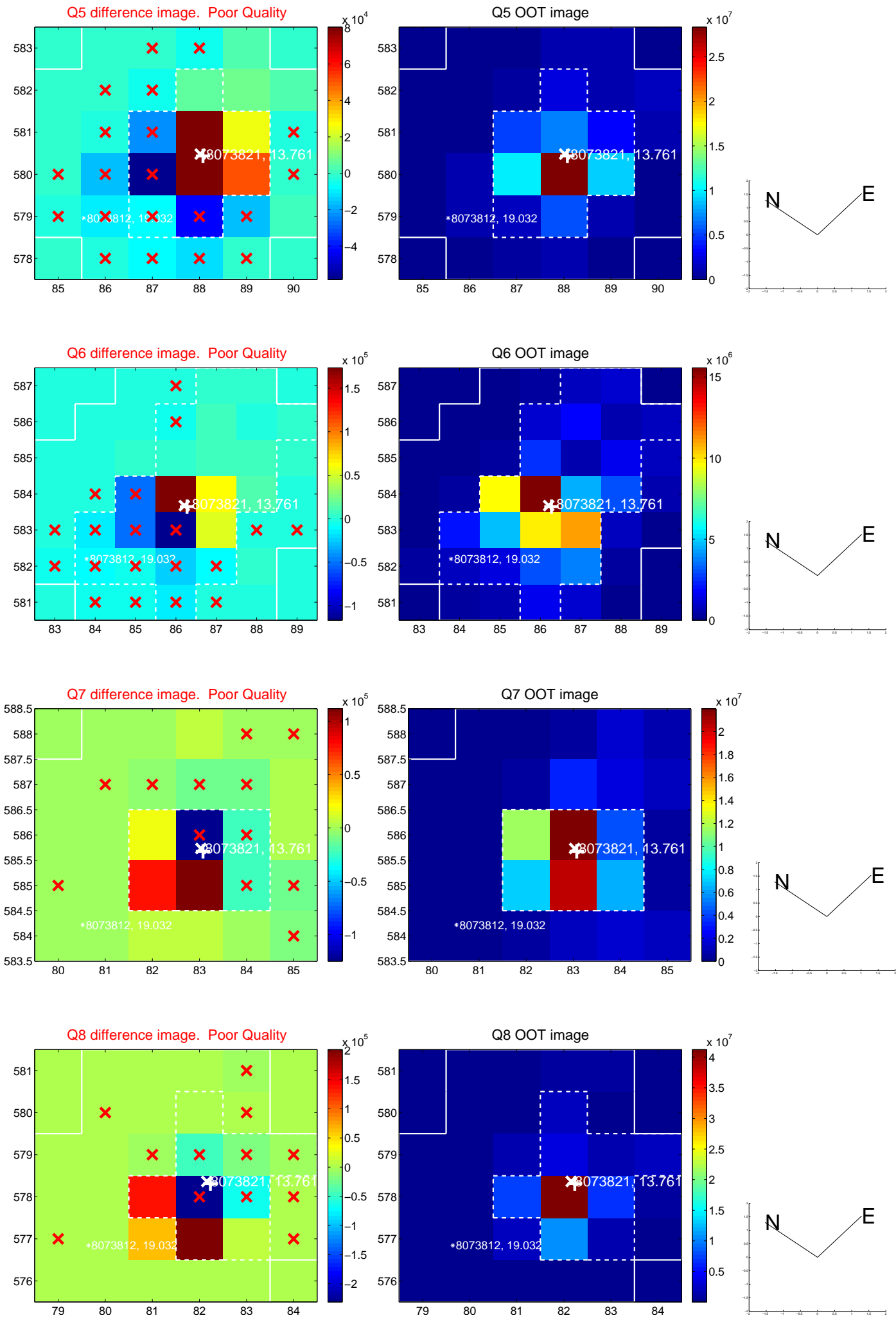


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

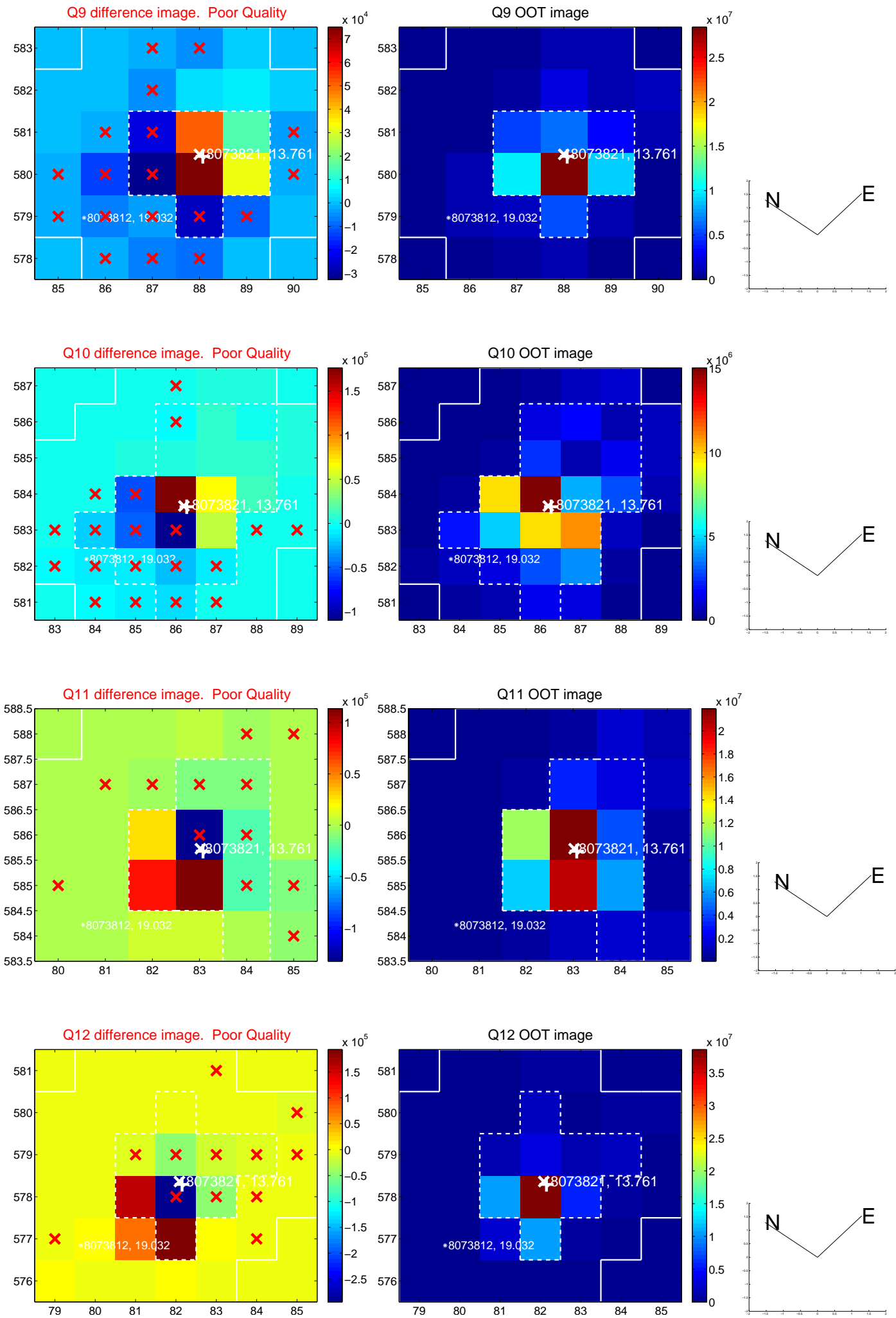


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

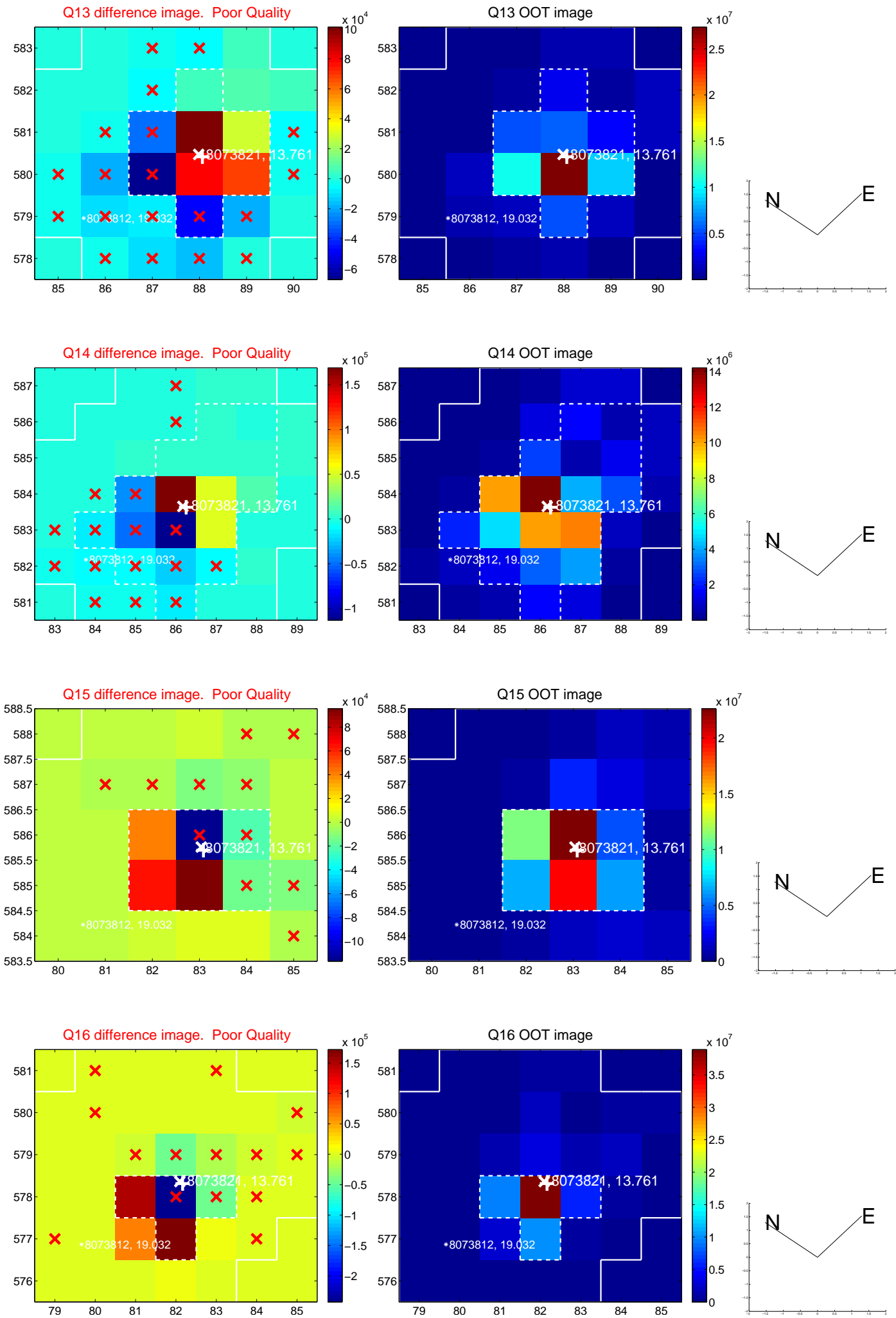




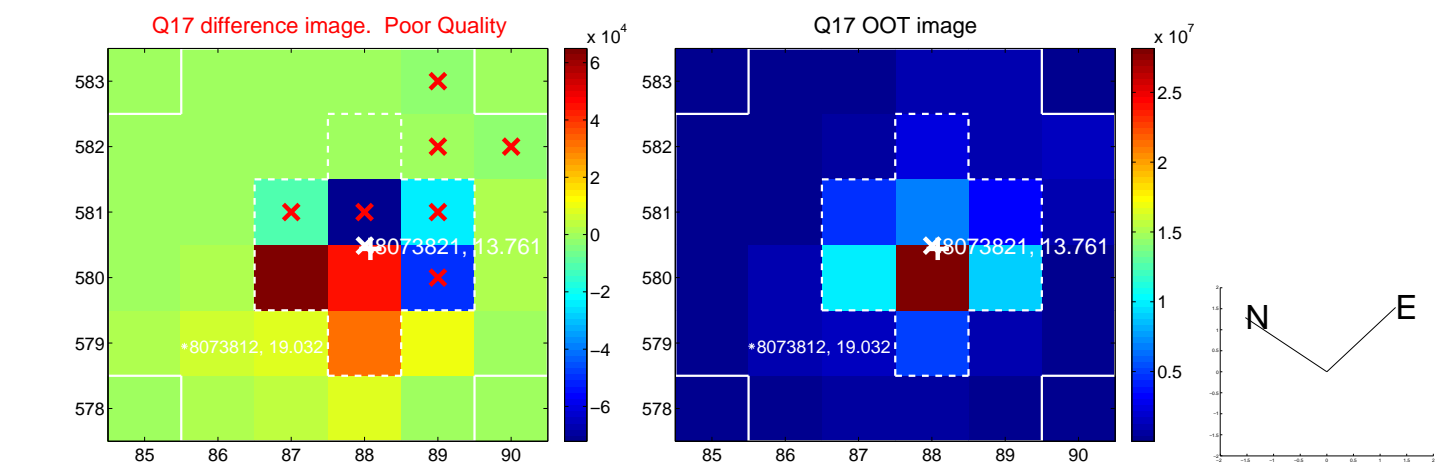
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



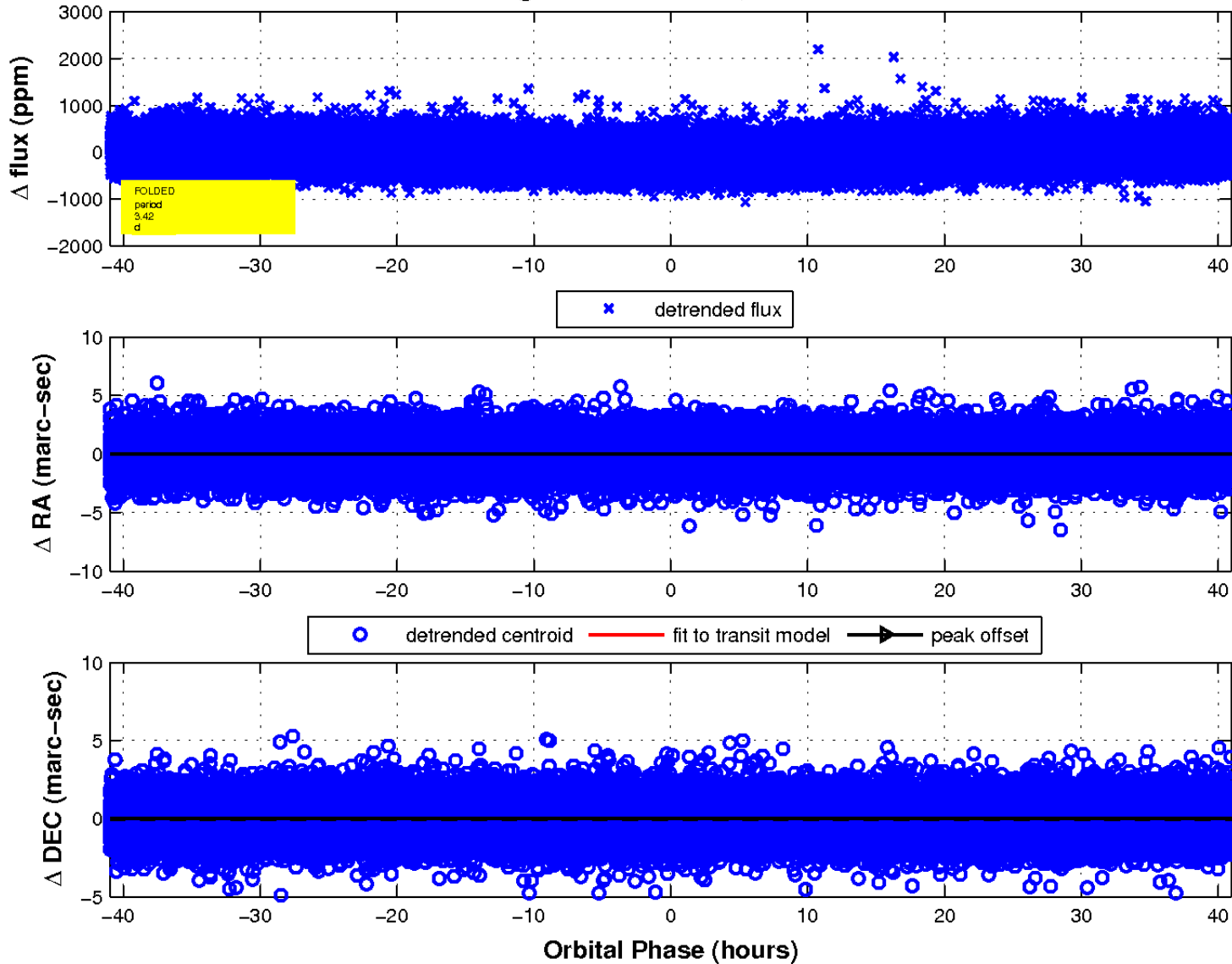
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

