

# KIC 008743043

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008743043-01	OBS	No	374.784983	174.444517	271.5	17.321	7.3	7.3	0.85	5815	1.48	0.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008743043-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—CENT_FEW_DIFFS

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

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

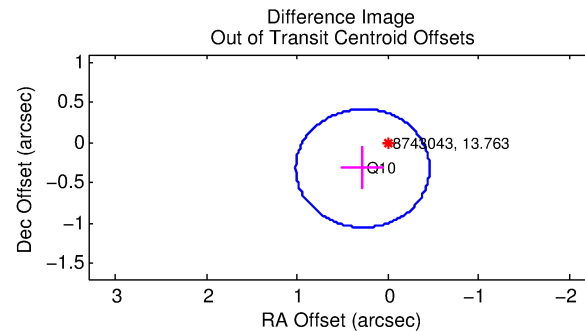
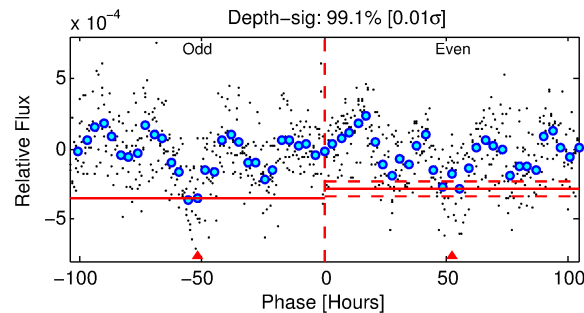
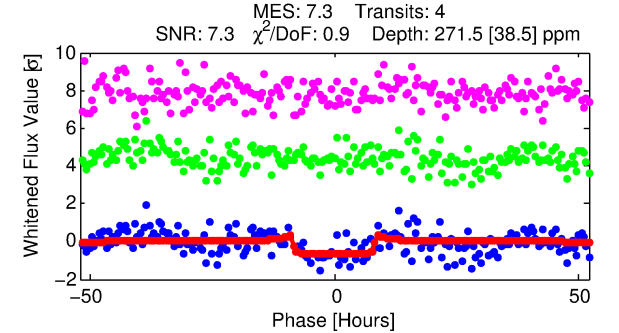
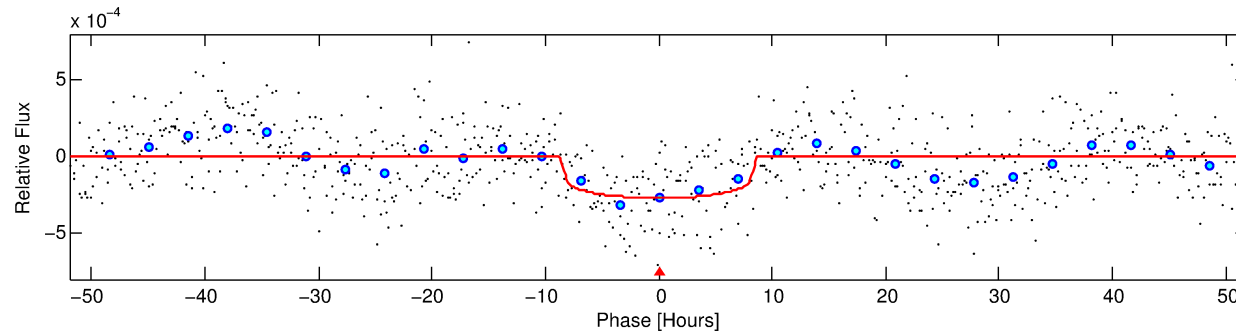
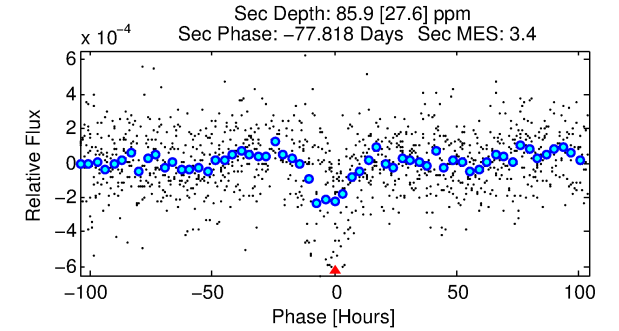
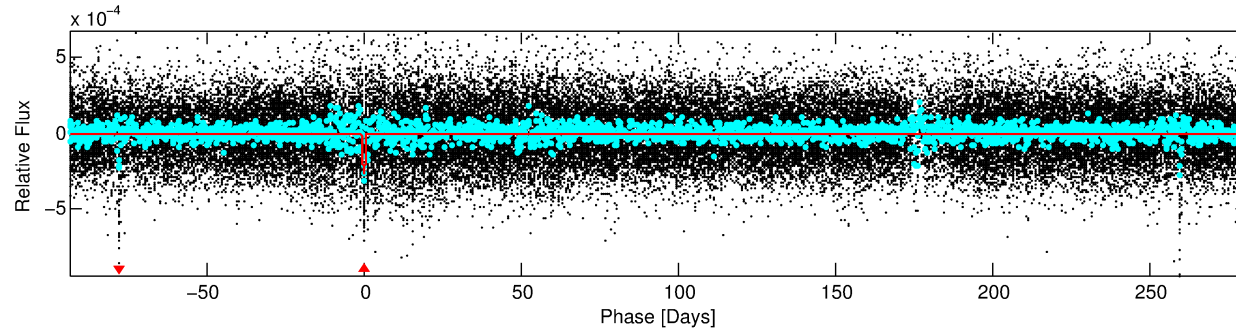
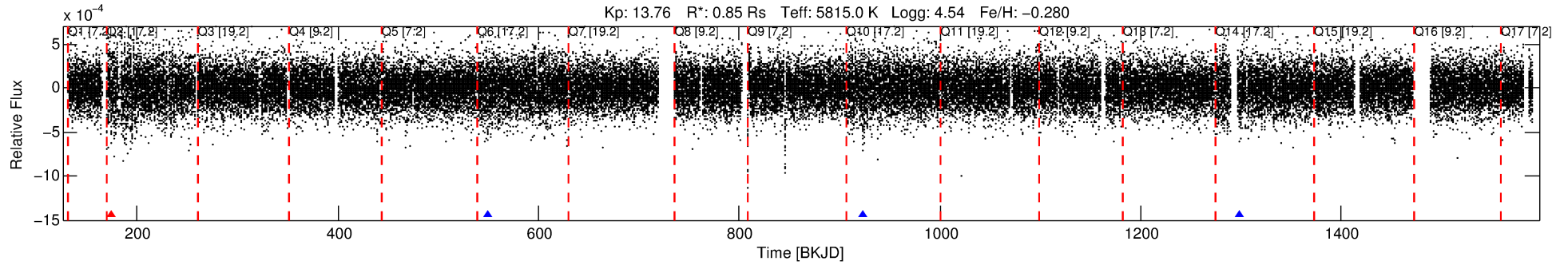
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008743043-01

No Significant Match Found

# DV One-Page Summary

KIC: 8743043 Candidate: 1 of 1 Period: 374.785 d



## DV Fit Results:

Period = 374.78498 [0.00899] d  
Epoch = 174.4445 [0.0172] BKJD  
Rp/R\* = 0.0160 [0.0054]  
a/R\* = 125.05 [191.33]  
b = 0.68 [1.22]  
Seff = 0.75 [0.28]  
Teq = 237 [22] K  
Rp = 1.48 [0.65] Re  
a = 0.9881 [0.2376] AU  
Ag = 21092.33 [17425.22] [1.21σ]  
Teffp = 4423 [834] K [5.02σ]

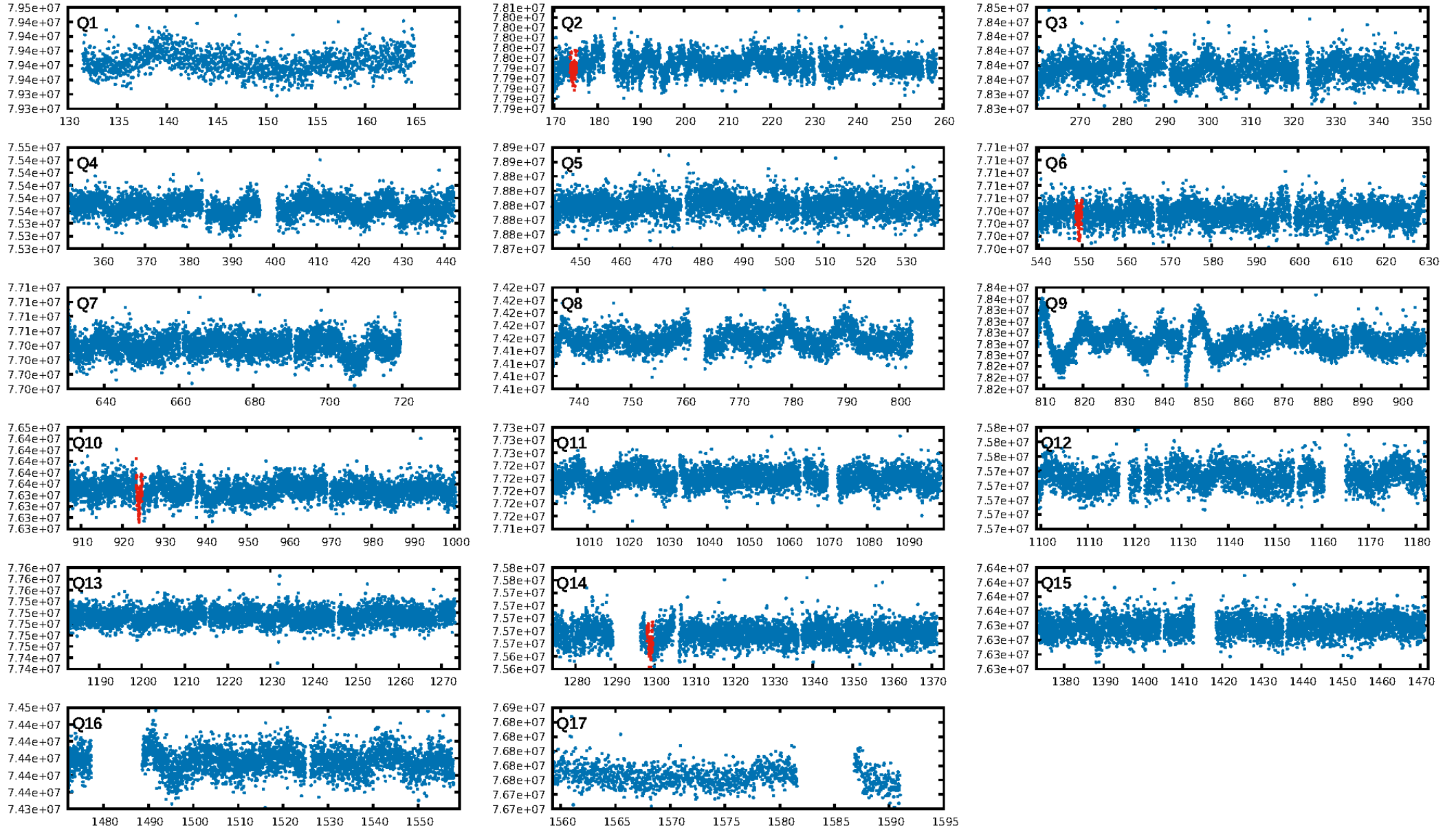
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 80.0%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 3.15e-11**  
**RollingBand-fgt: 0.75 [3/4]**  
GhostDiagnostic-chr: 4.605  
Centroid-sig: 0.8%  
Centroid-so: 4.251 arcsec [2.33σ]  
OotOffset-rm: 0.426 arcsec [1.73σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-rm: 0.335 arcsec [1.39σ]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [4/4]

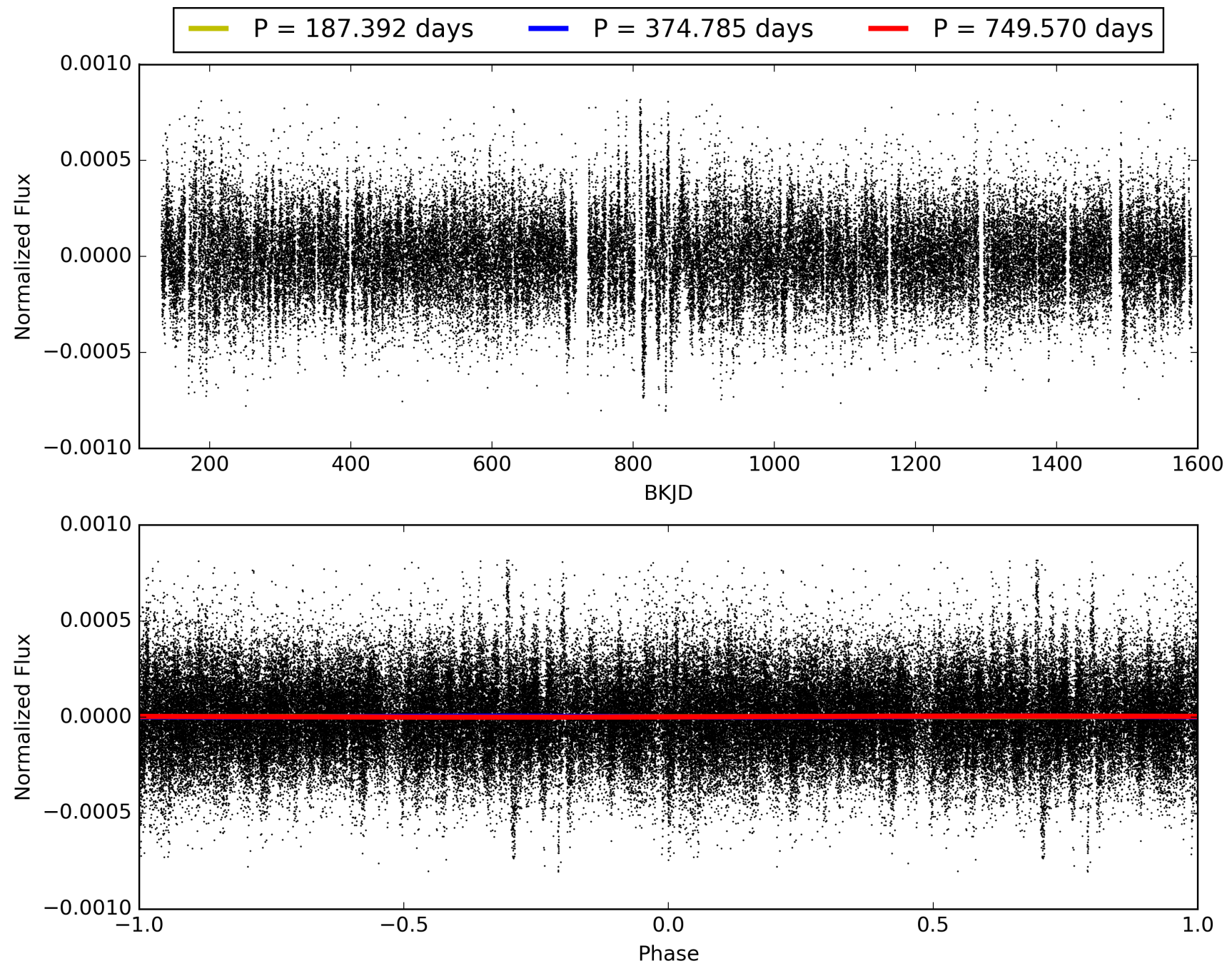
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:20:19 Z

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

# TCE 008743043-01, PDC Light Curves

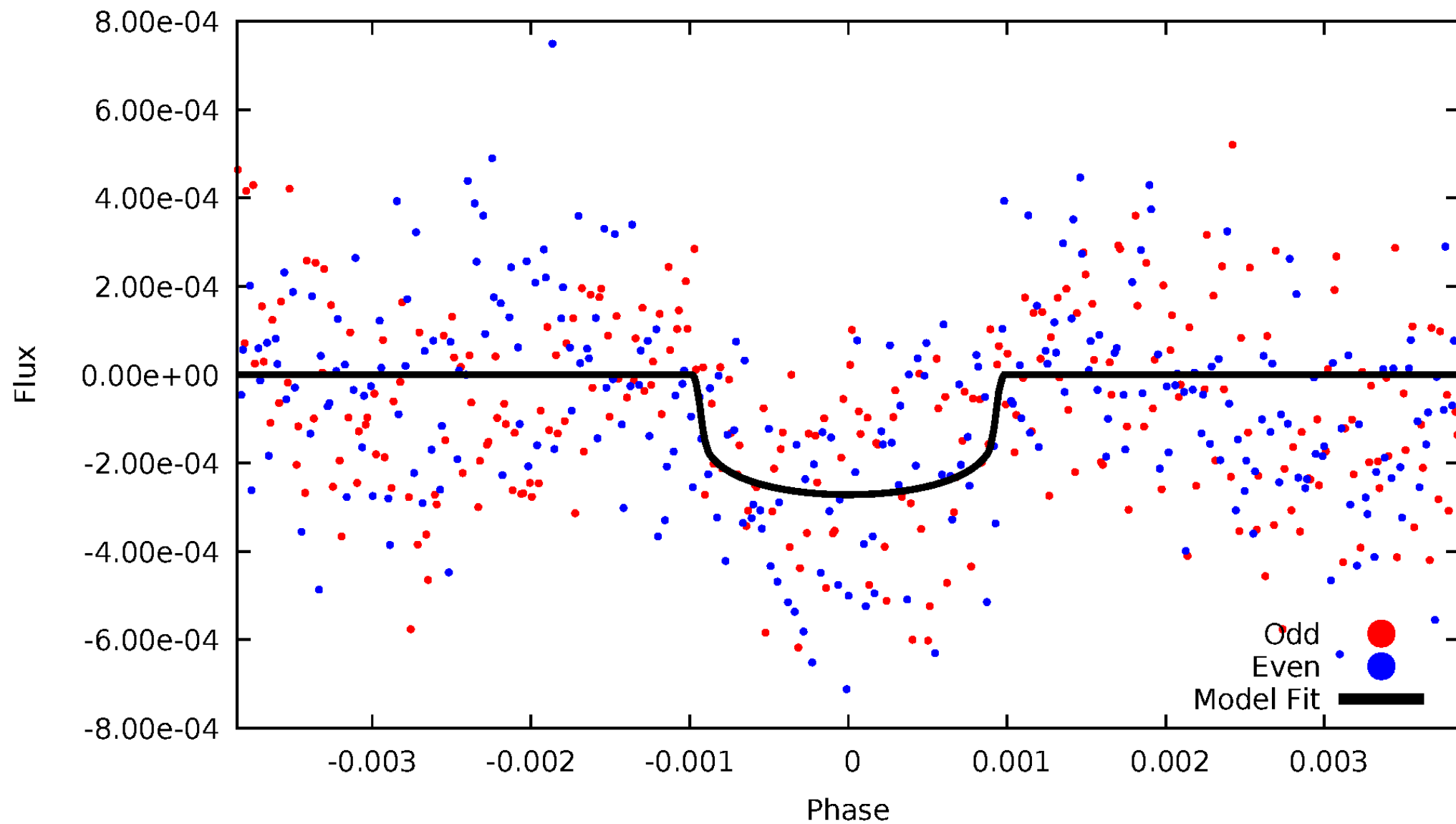


TCE 008743043-01



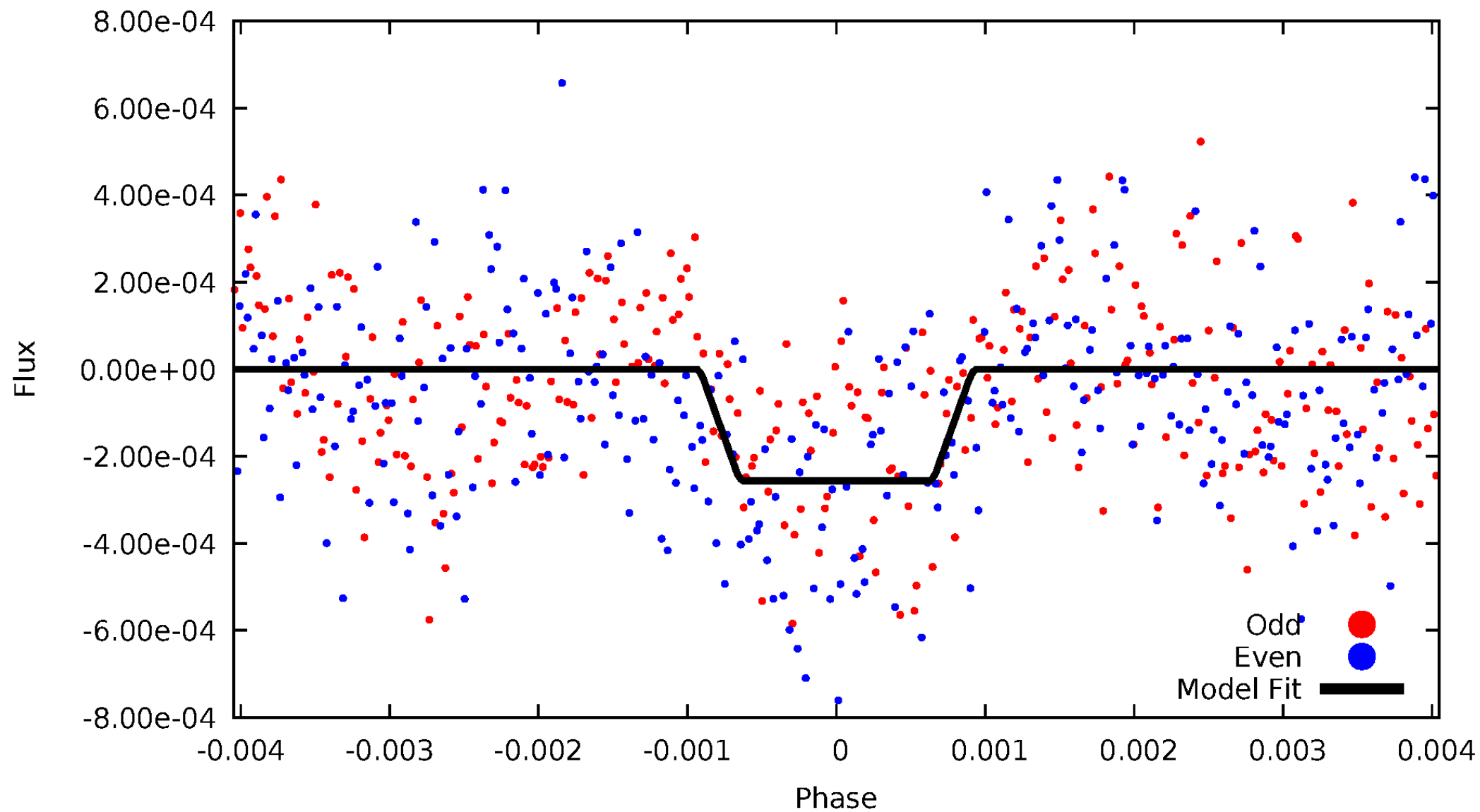
# DV Odd/Even

TCE 008743043-01



# ALT Odd/Even

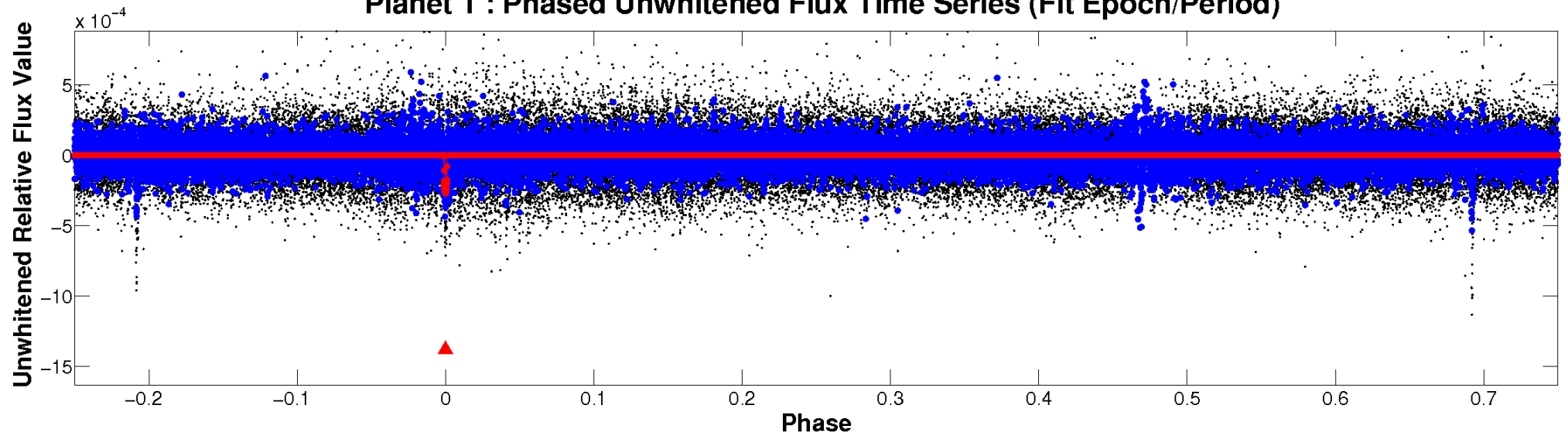
TCE 008743043-01



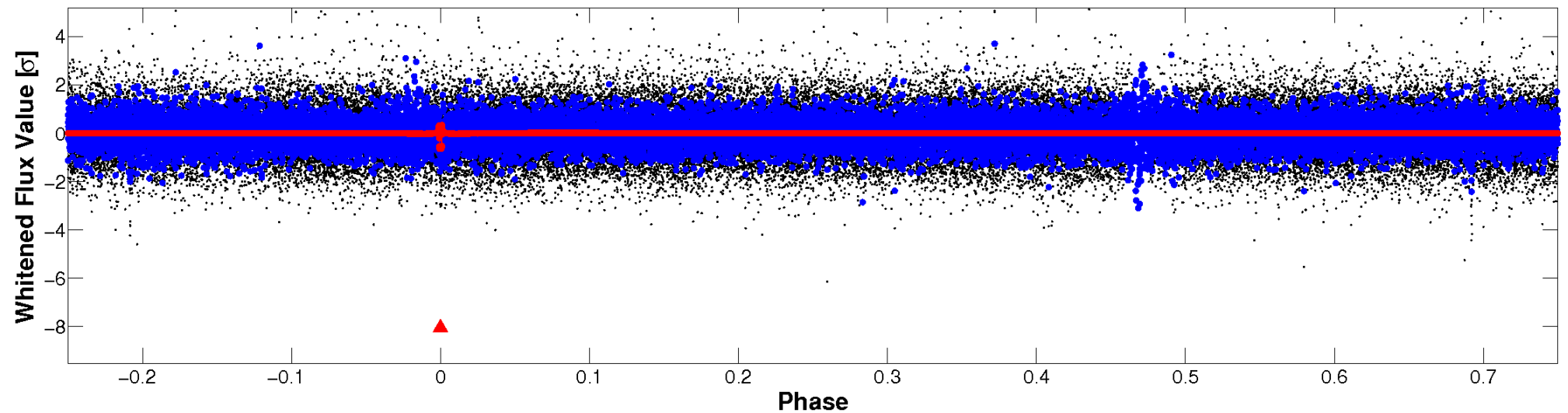


# Non-Whitened Vs. Whitened Light Curve

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

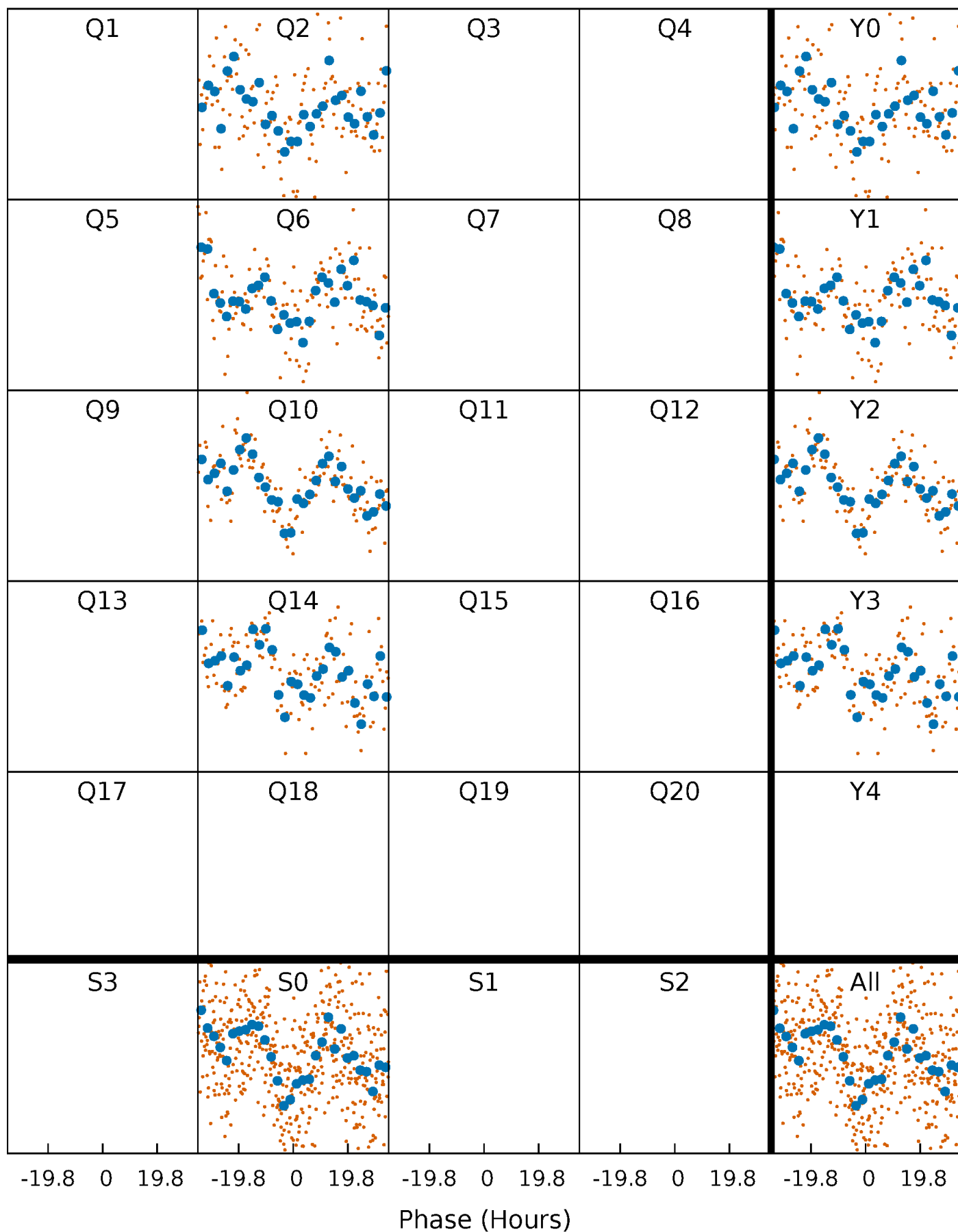


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

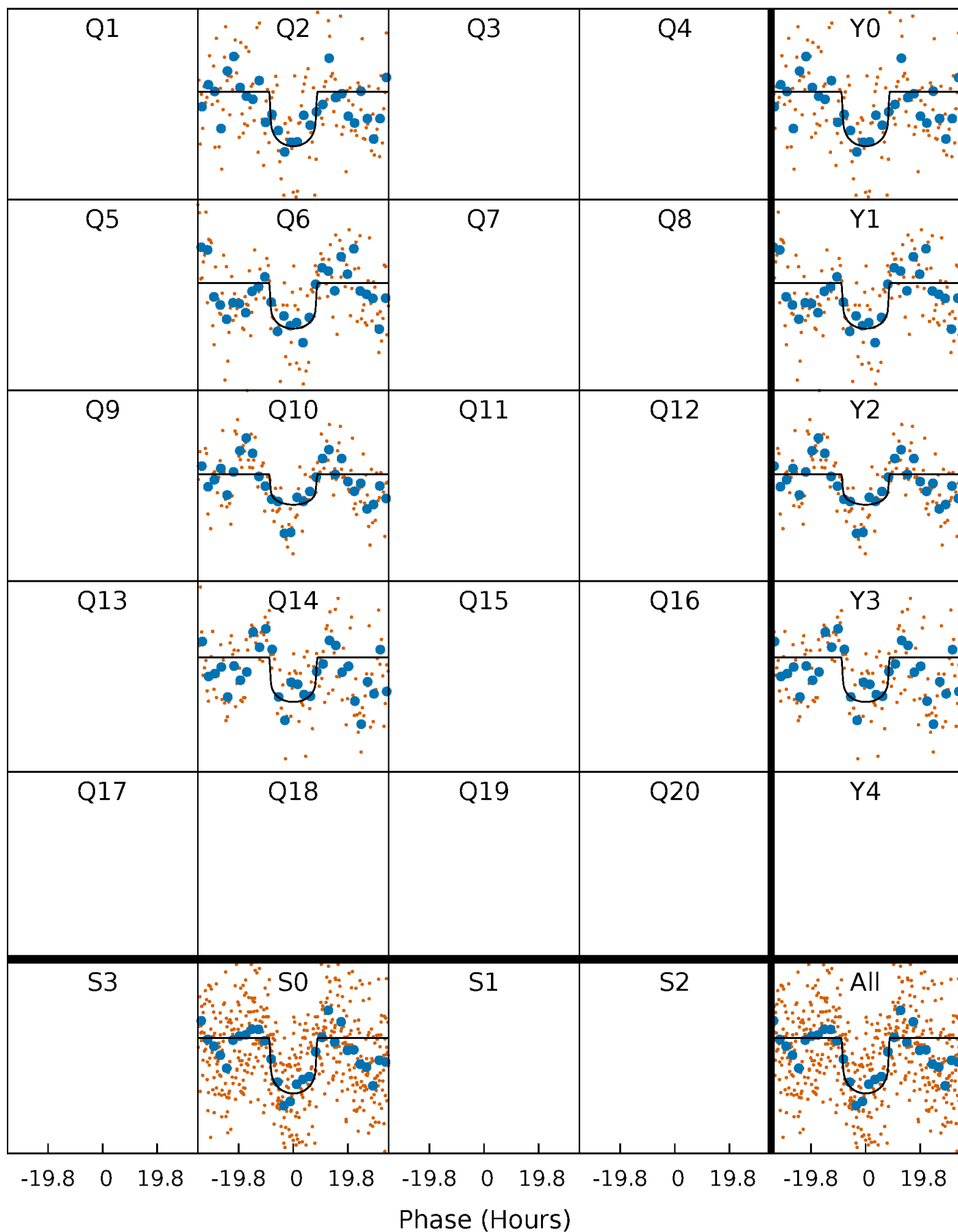
TCE 008743043-01 P=374.784983 Days  $T_0=174.444517$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008743043-01 P=374.784983 Days  $T_0=174.444517$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

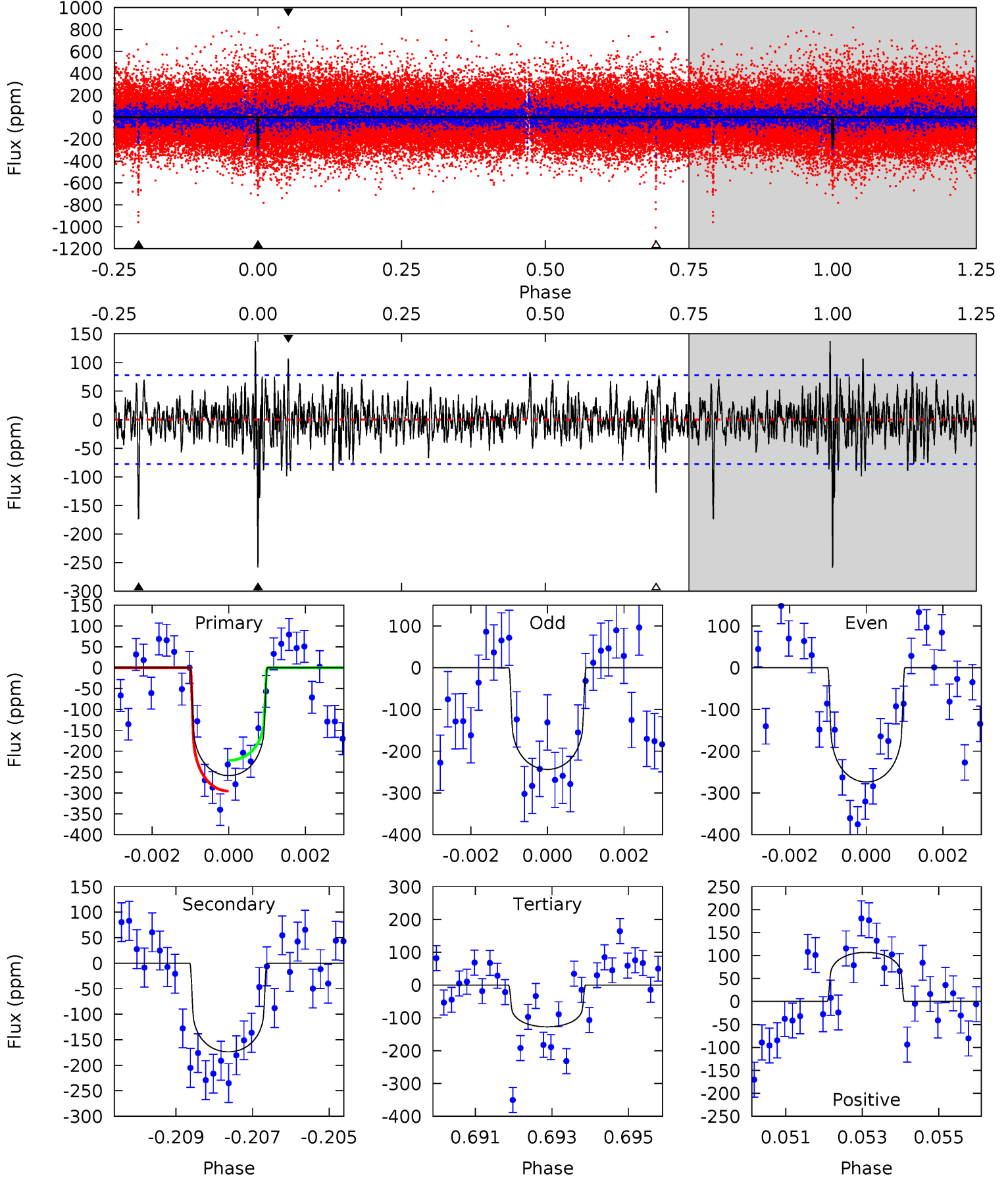
TCE 008743043-01 P=374.785546 Days  $T_0=174.434898$  (BKJD)



# DV Model-Shift Uniqueness Test

008743043-01, P = 374.784983 Days, E = 174.444517 Days

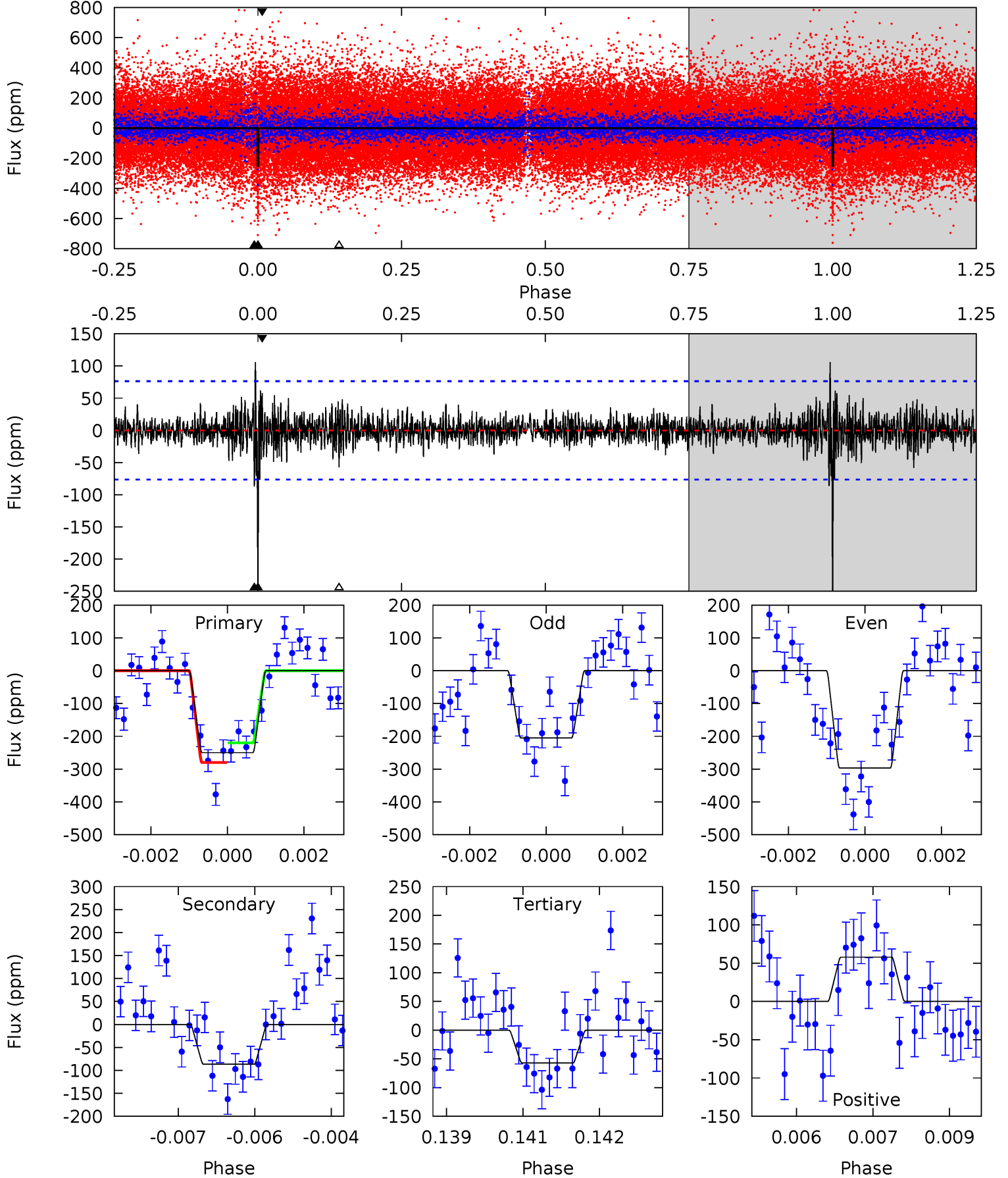
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	11.9	8.72	7.32	5.33	3.10	1.85	8.99	10.4	3.18	4.59	1.04	1.06	0.35	2.52



# Alt Model-Shift Uniqueness Test

008743043-01,  $P = 374.785546$  Days,  $E = 174.434898$  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
17.5	6.05	4.01	4.05	5.34	3.11	1.03	13.5	13.4	2.04	2.00	3.21	1.15	0.30	2.11



### Stellar Parameters For KIC 008743043

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5815^{+139}_{-157}$	$4.545^{+0.046}_{-0.196}$	$-0.280^{+0.300}_{-0.300}$	$0.846^{+0.238}_{-0.079}$	$0.915^{+0.099}_{-0.110}$	$2.130^{+0.513}_{-1.056}$
	+2%/-3%	+1%/-4%	+107%/-107%	+28%/-9%	+11%/-12%	+24%/-50%
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 008743043-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-174 \pm 15$	$1.56^{+0.53}_{-0.52}$	$339^{+22}_{-15}$	$5326^{+1090}_{-635}$	$37443^{+48003}_{-16628}$
Alt.	$-86 \pm 14$	$1.53^{+0.57}_{-0.55}$	$338^{+22}_{-13}$	$4628^{+888}_{-547}$	$19721^{+25758}_{-9717}$

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

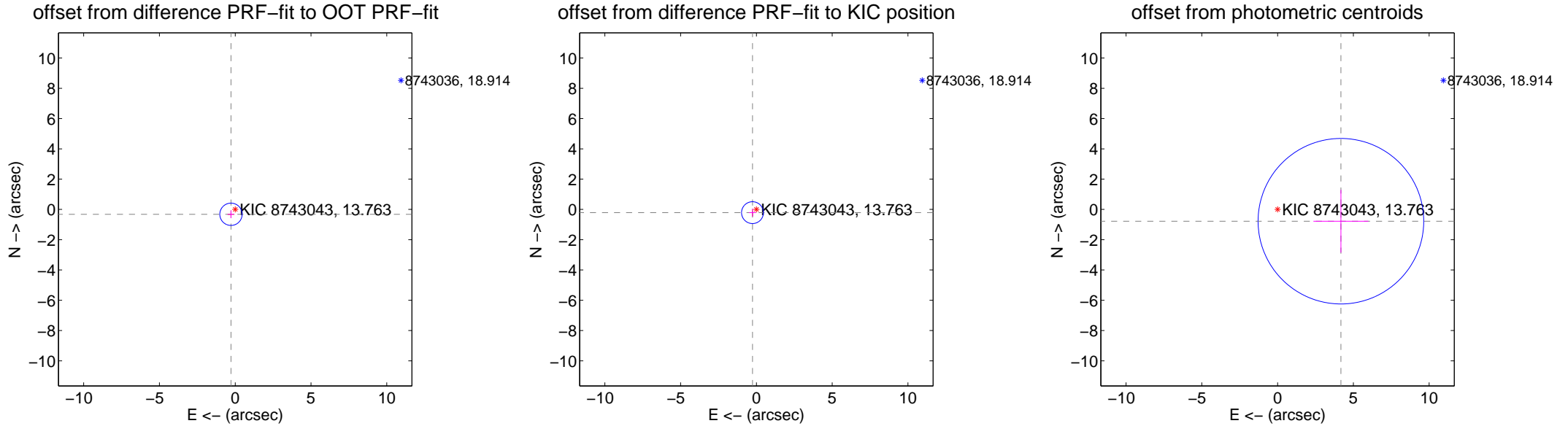
## DV Centroid Data

Supplemental centroid analysis for 008743043-01. Kepler magnitude: 13.76. Transit SNR 7.29

There are 0 quarters with good PRF difference image offsets

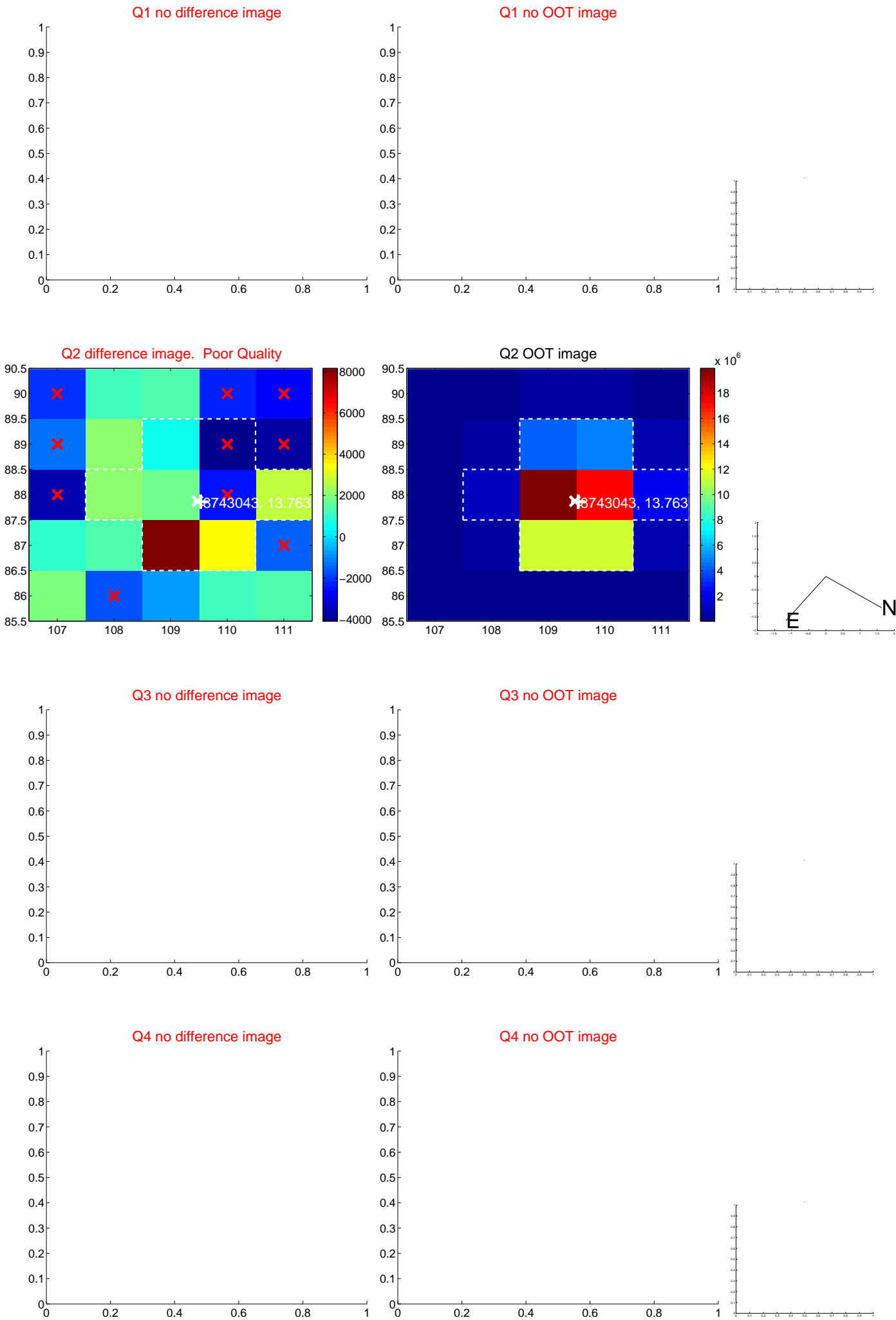
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.426 \pm 0.246$	1.73	$0.280 \pm 0.227$	$-0.320 \pm 0.259$
PRF-fit source offset from KIC position	$0.335 \pm 0.240$	1.39	$0.259 \pm 0.227$	$-0.212 \pm 0.259$
photometric centroid source offset	$4.25 \pm 1.82$	2.33	$-4.18 \pm 1.81$	$-0.78 \pm 2.07$



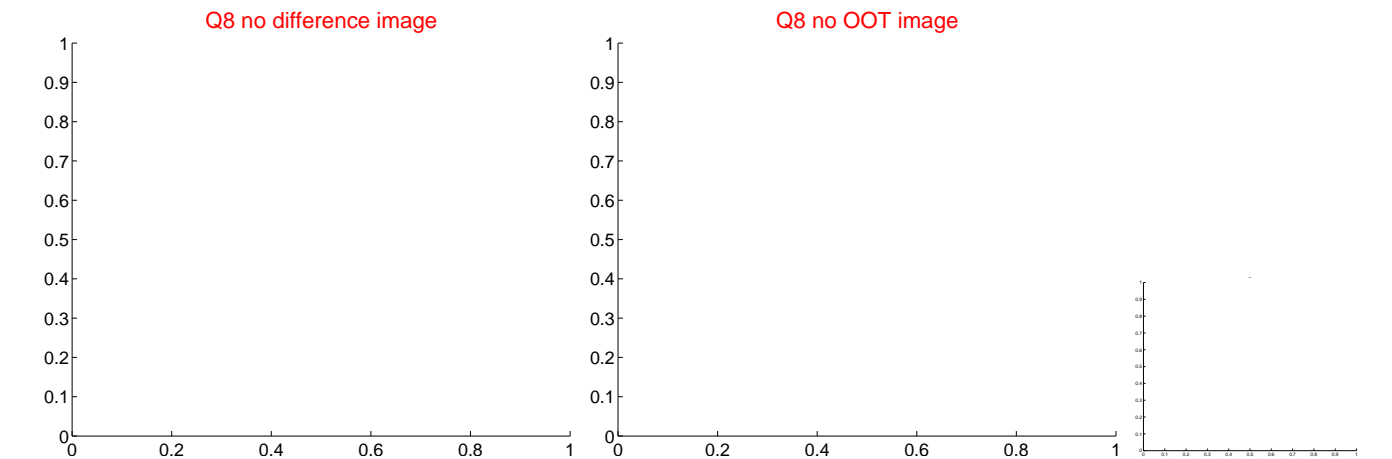
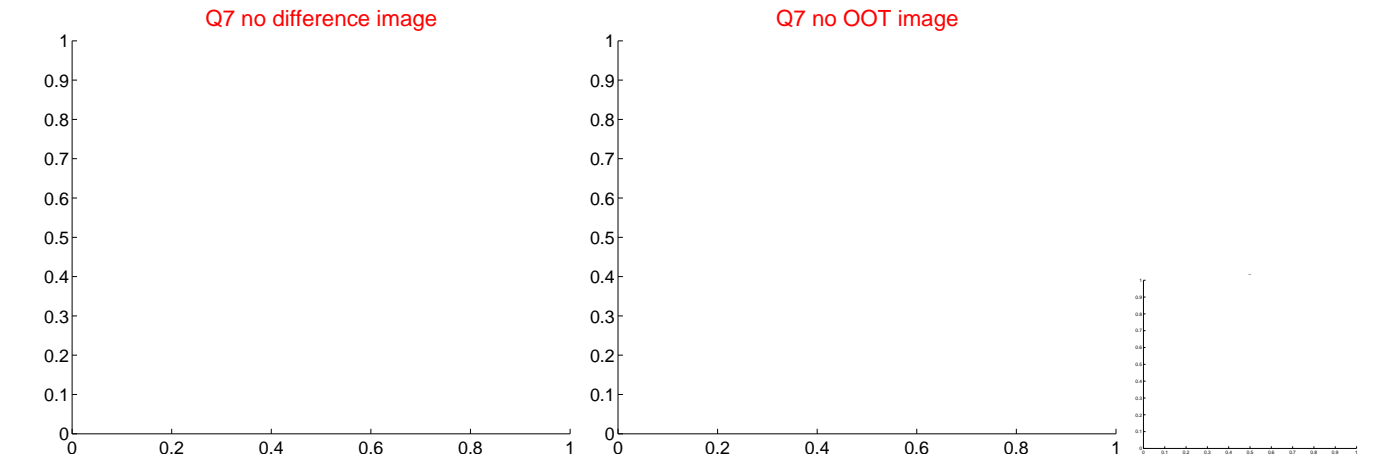
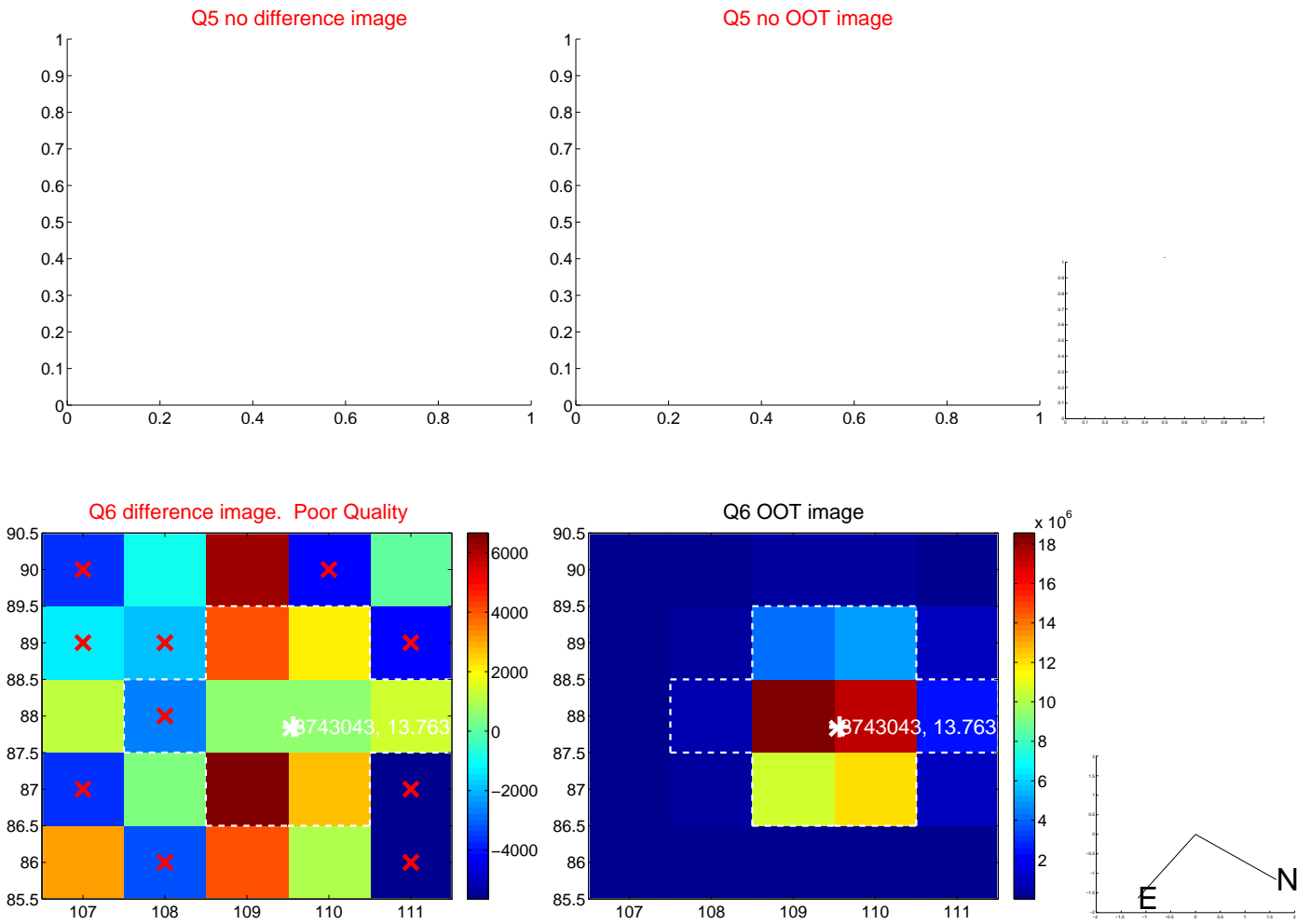
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

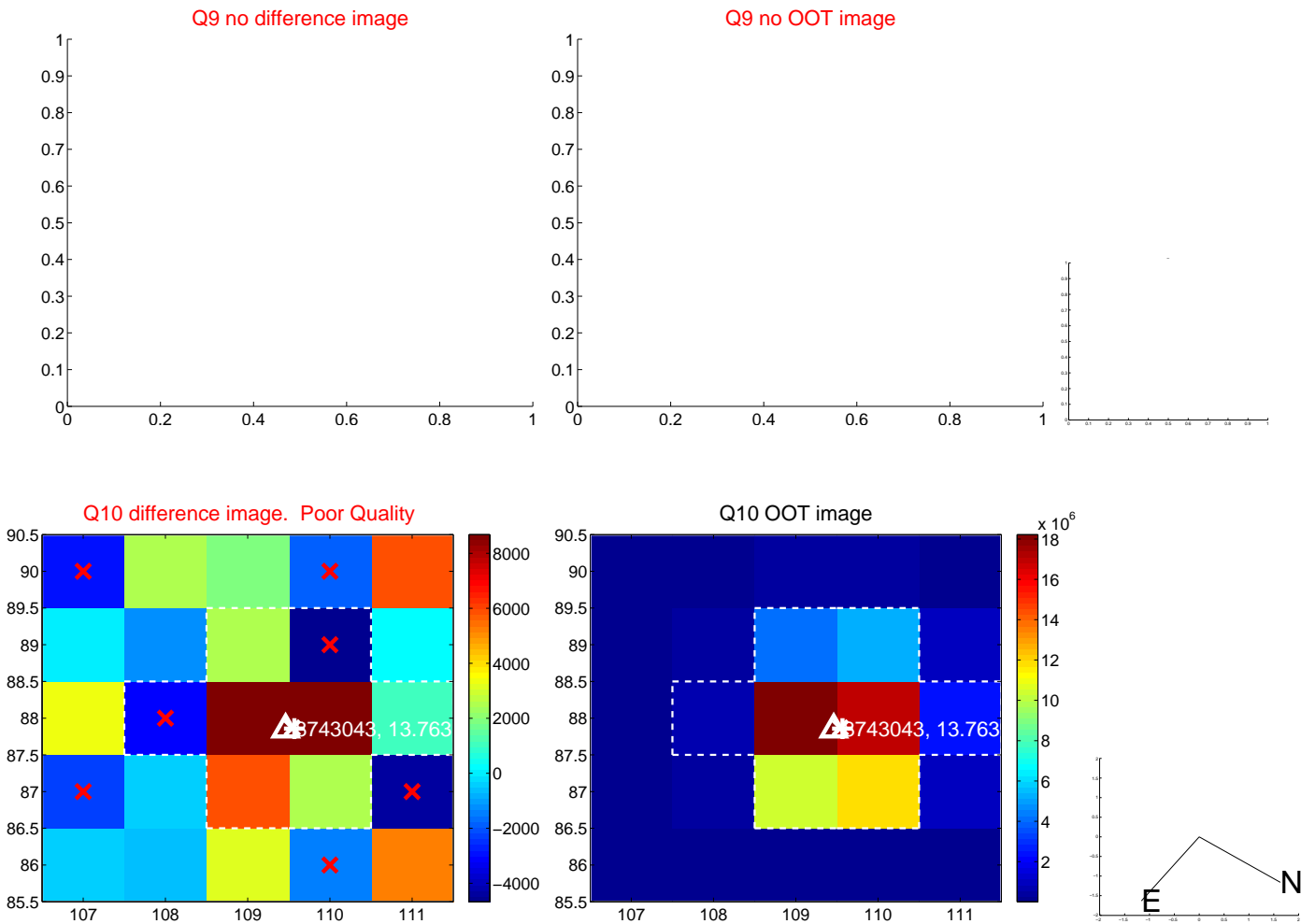




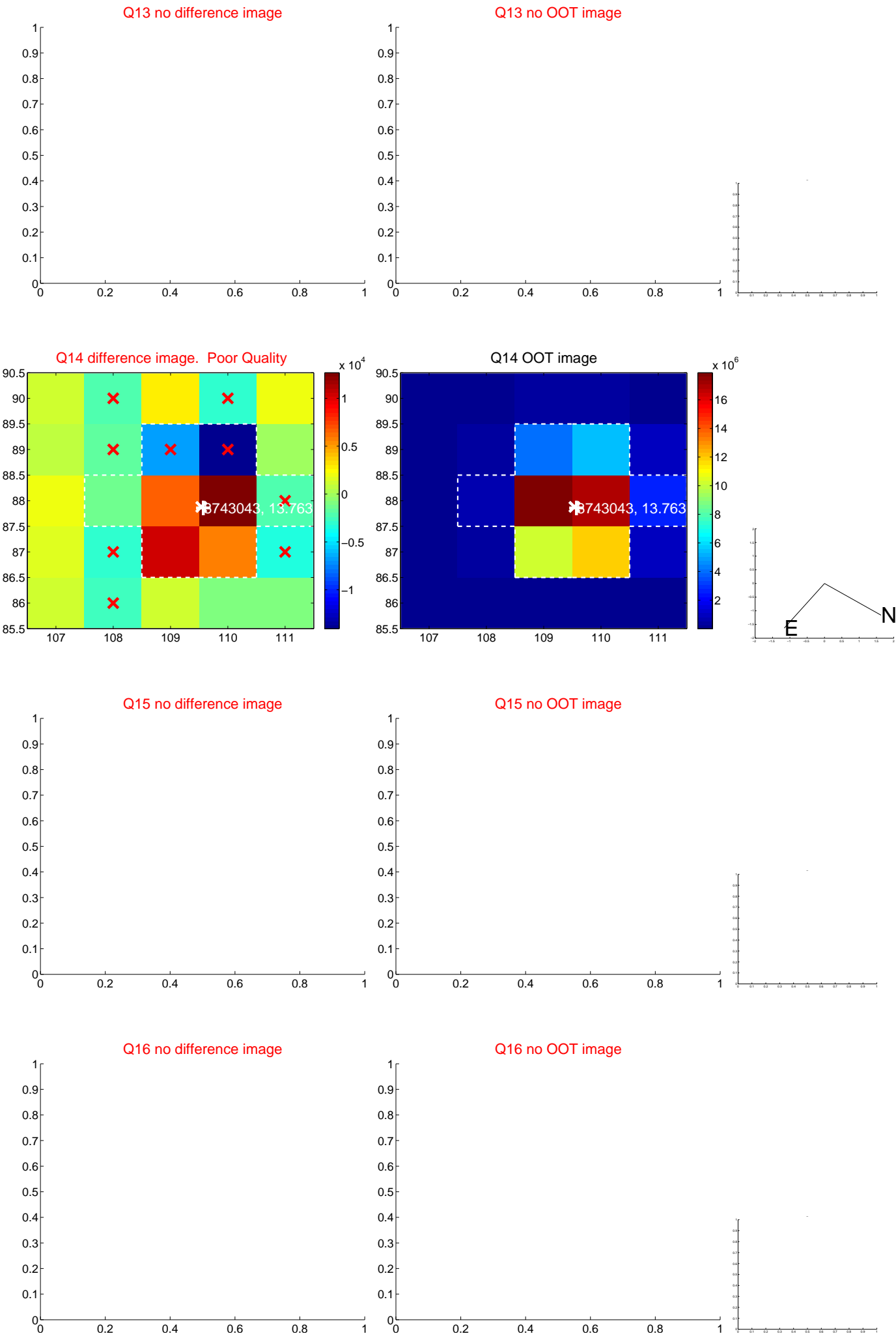
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



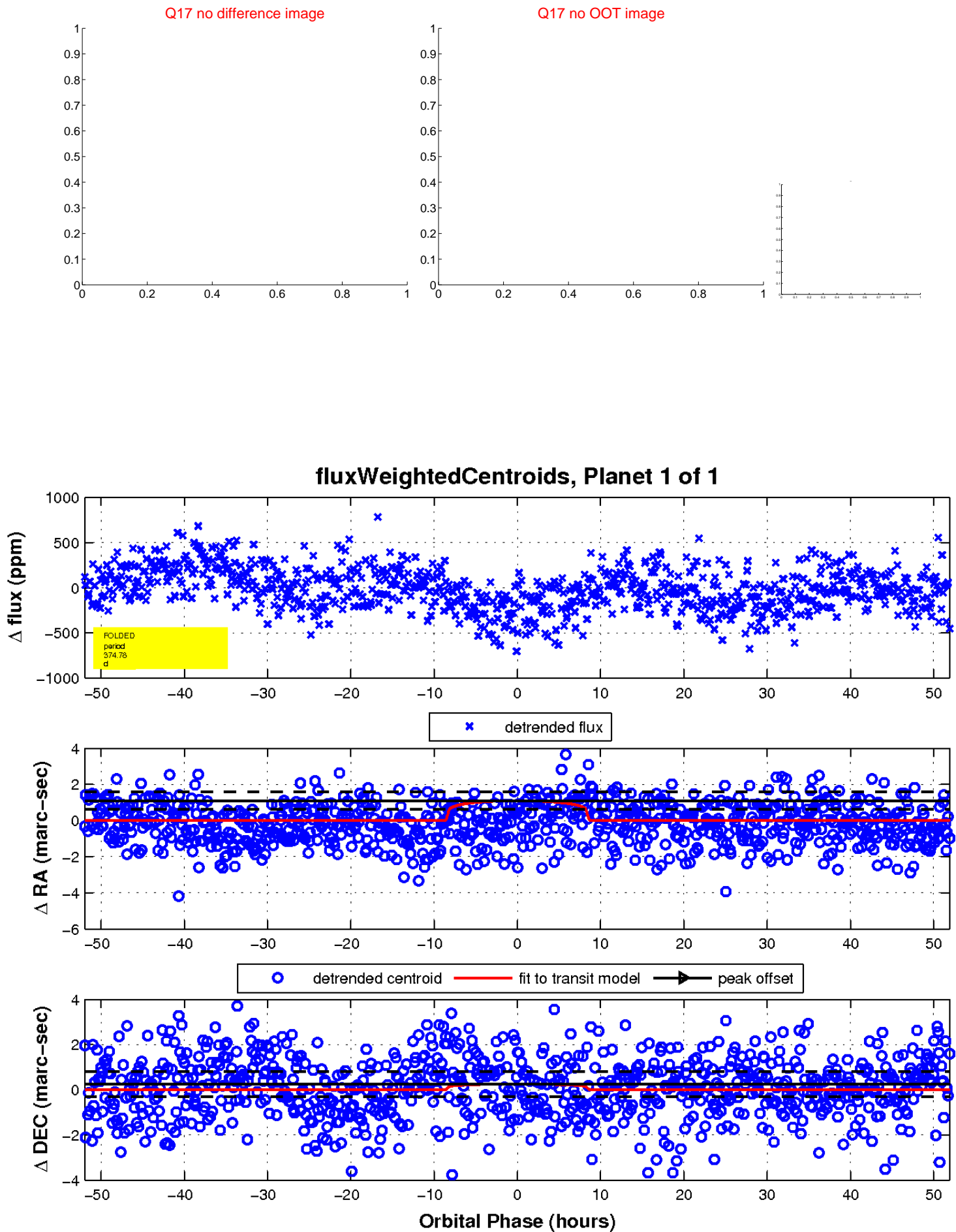
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

