

# KIC 008681734

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008681734-01	OBS	2340.01	7.684753	137.643672	252.7	2.668	17.9	20.0	0.91	5344	1.74	112.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008681734-01	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.

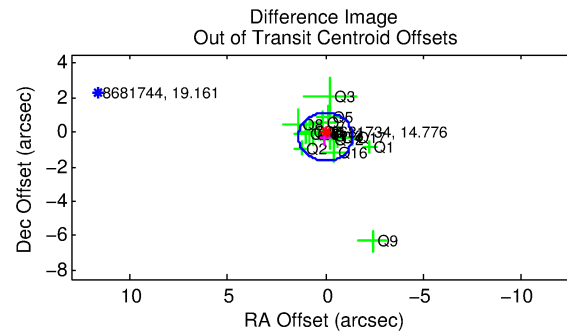
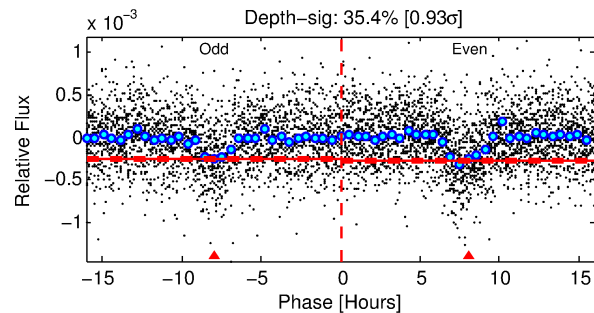
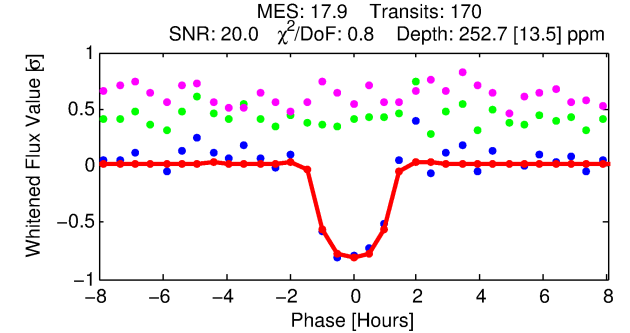
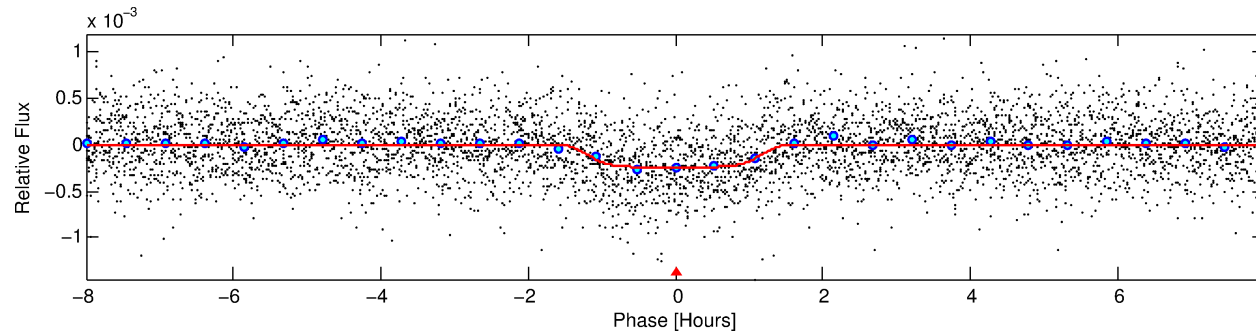
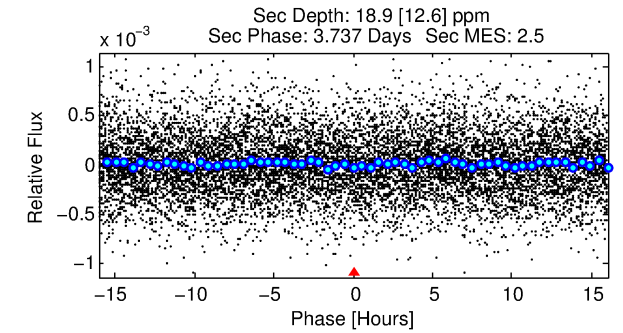
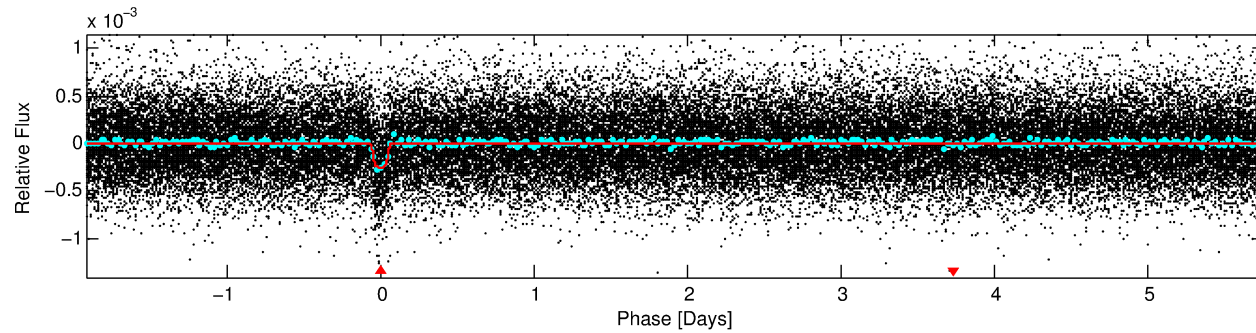
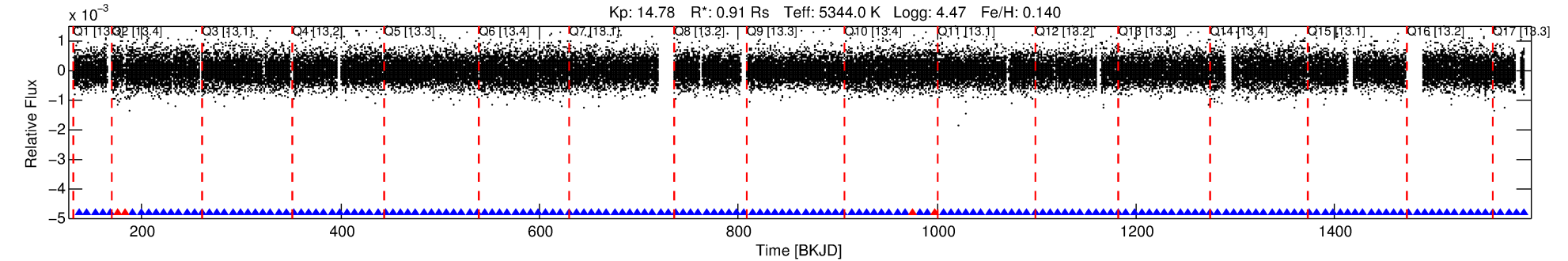
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008681734-01

No Significant Match Found

# DV One-Page Summary

KIC: 8681734 Candidate: 1 of 1 Period: 7.685 d  
KOI: K02340.01 Corr: 0.980



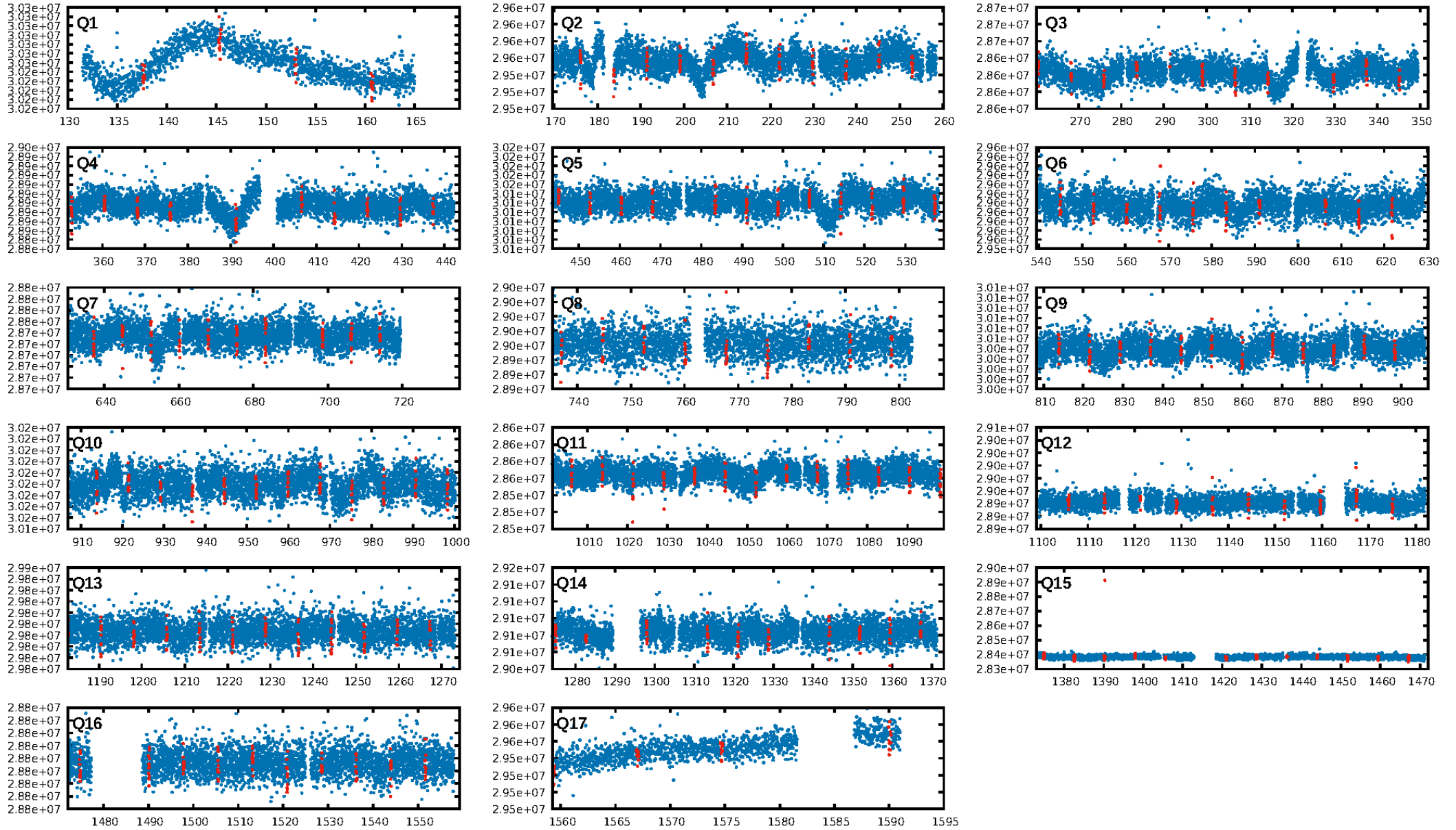
## DV Fit Results:

Period = 7.68475 [0.00003] d  
Epoch = 137.6437 [0.0030] BKJD  
Rp/R\* = 0.0176 [0.0060]  
a/R\* = 10.54 [15.14]  
b = 0.90 [0.32]  
Seff = 112.35 [16.50]  
Teff = 830 [30] K  
Rp = 1.74 [0.62] Re  
a = 0.0731 [0.0061] AU  
Ag = 18.45 [17.81] [0.98σ]  
Teffp = 2660 [637] K [2.87σ]

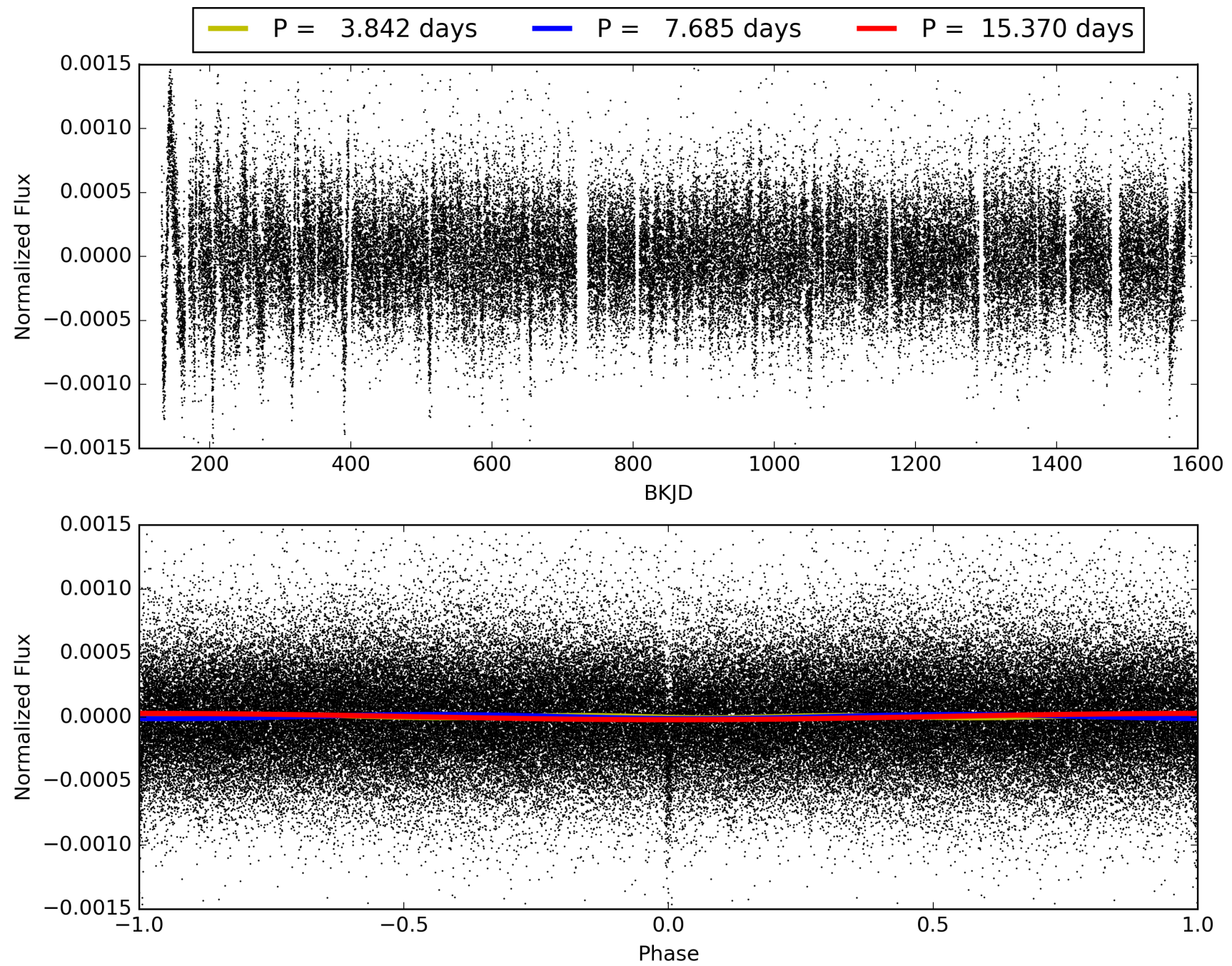
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.96e-69  
RollingBand-fgt: 0.98 [158/162]  
GhostDiagnostic-chr: 2.771  
Centroid-sig: 34.3%  
Centroid-so: 0.792 arcsec [1.04σ]  
OotOffset-rm: 0.269 arcsec [0.58σ]  
KicOffset-rm: 0.400 arcsec [0.96σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008681734-01, PDC Light Curves

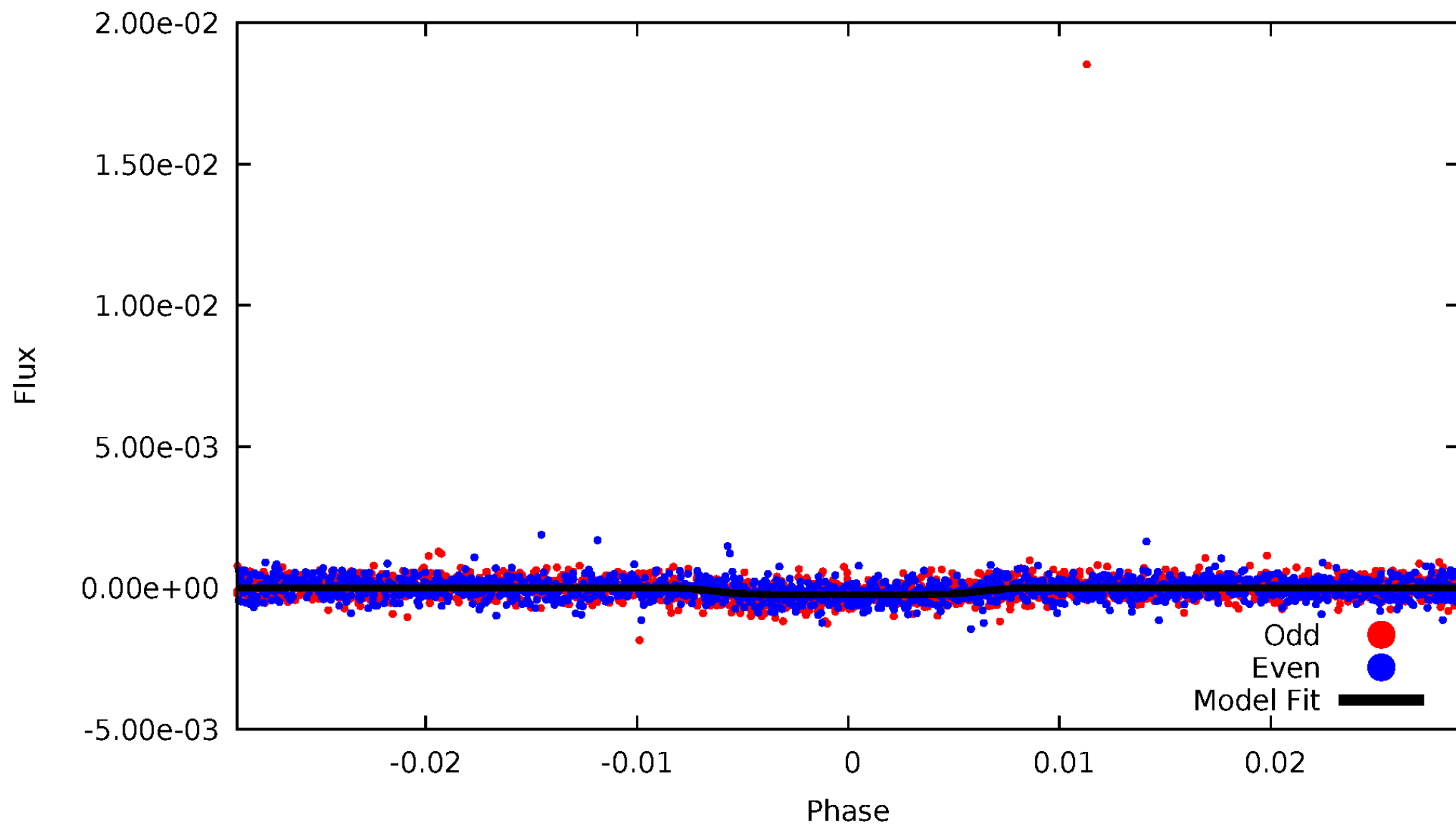


TCE 008681734-01



# DV Odd/Even

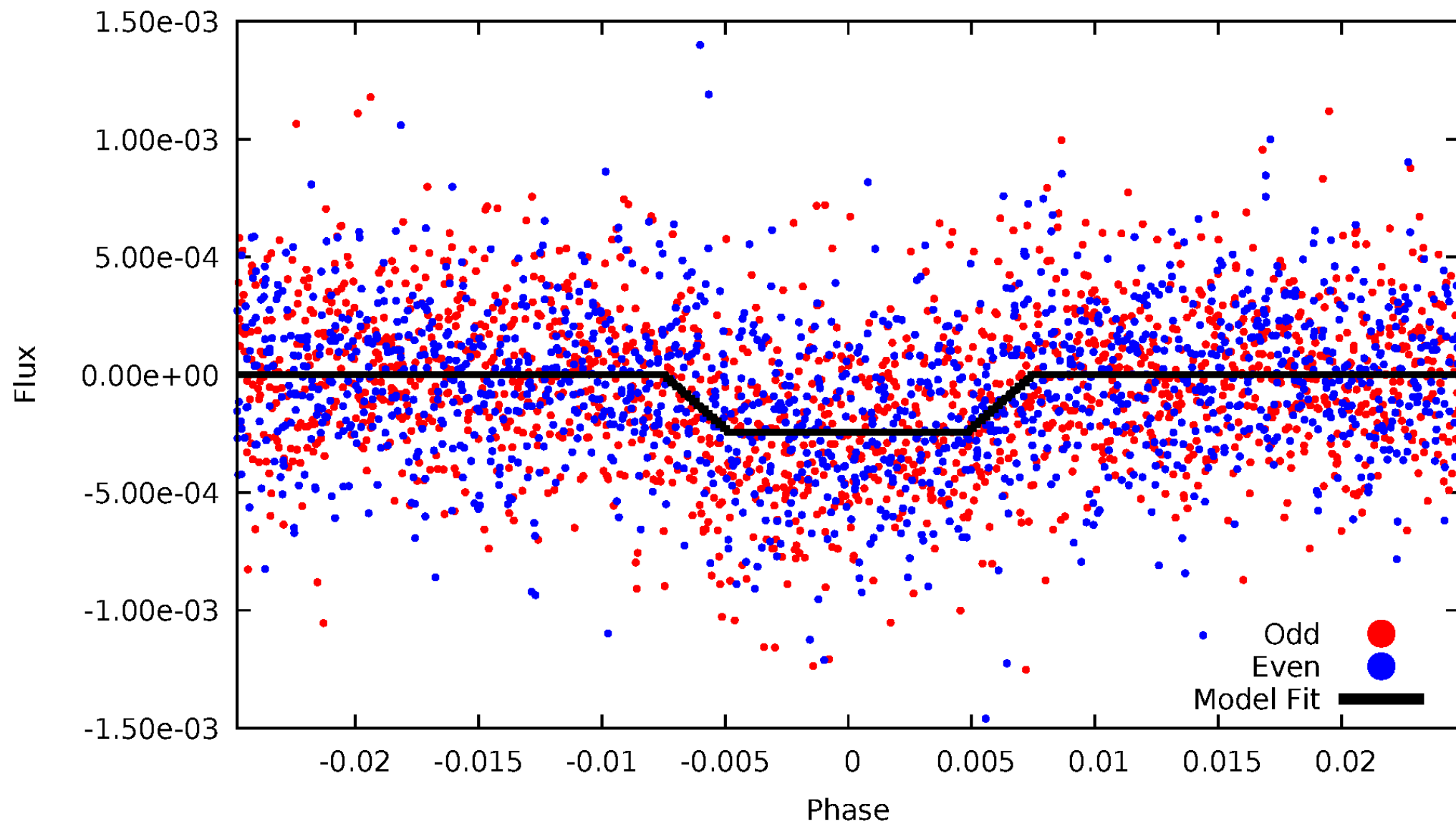
TCE 008681734-01



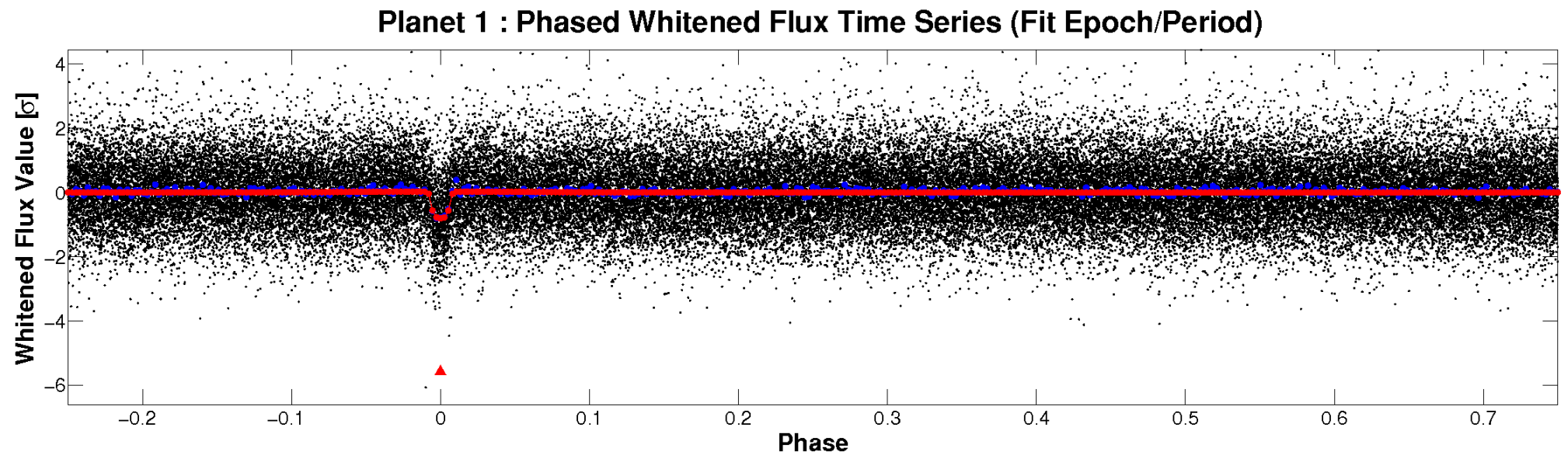
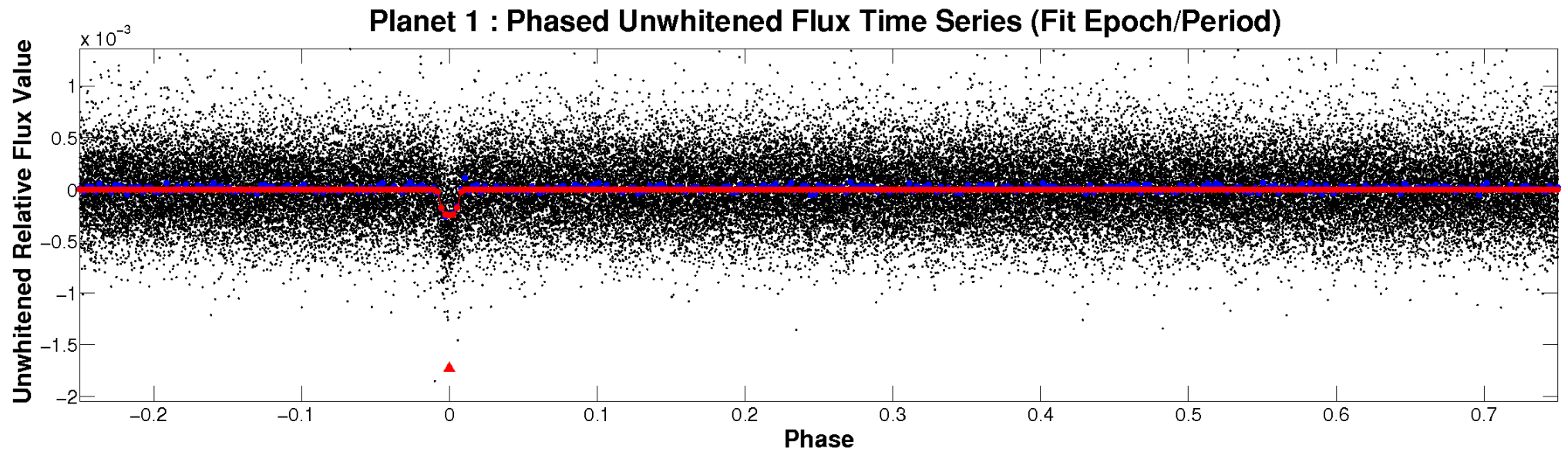


# ALT Odd/Even

TCE 008681734-01

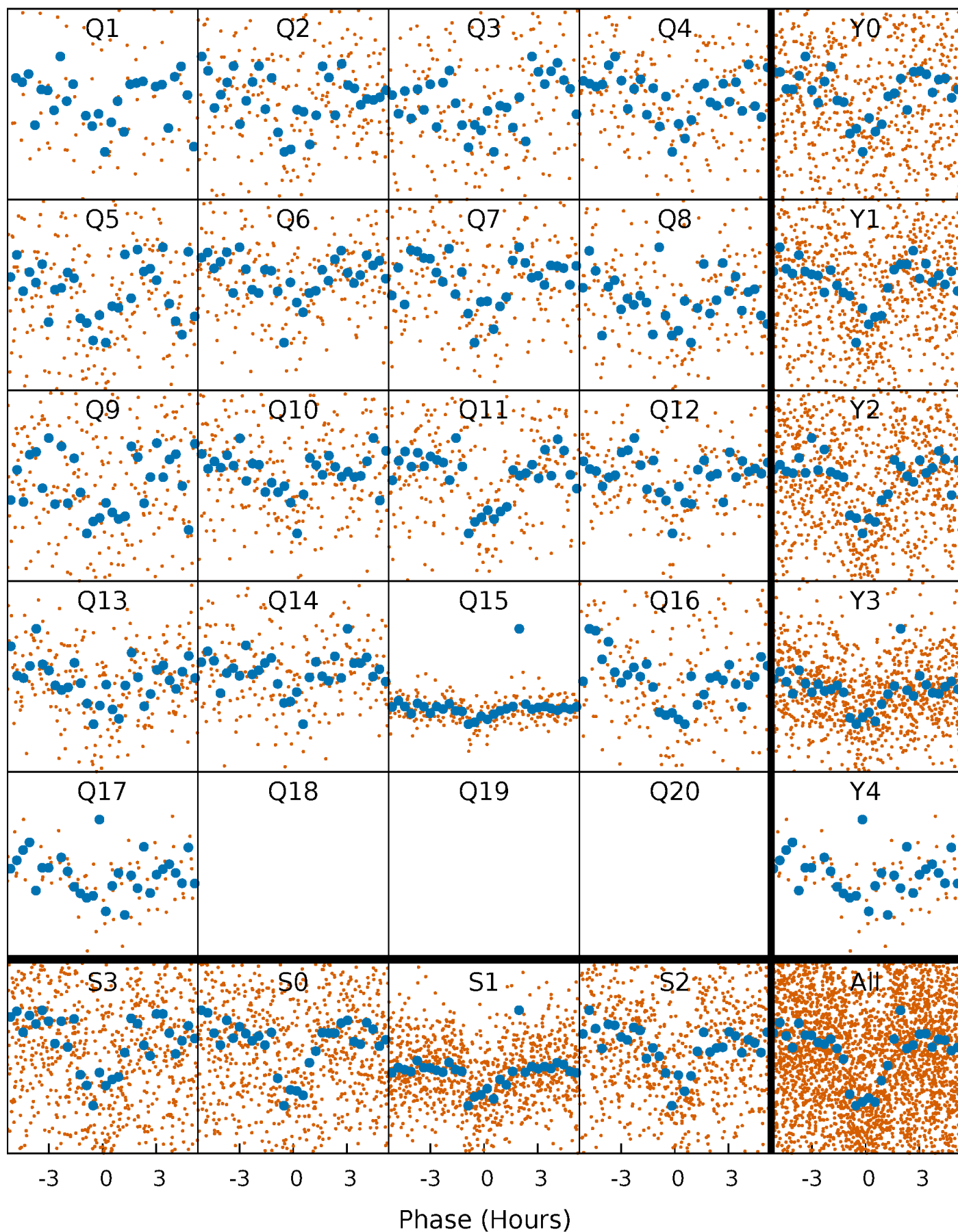


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

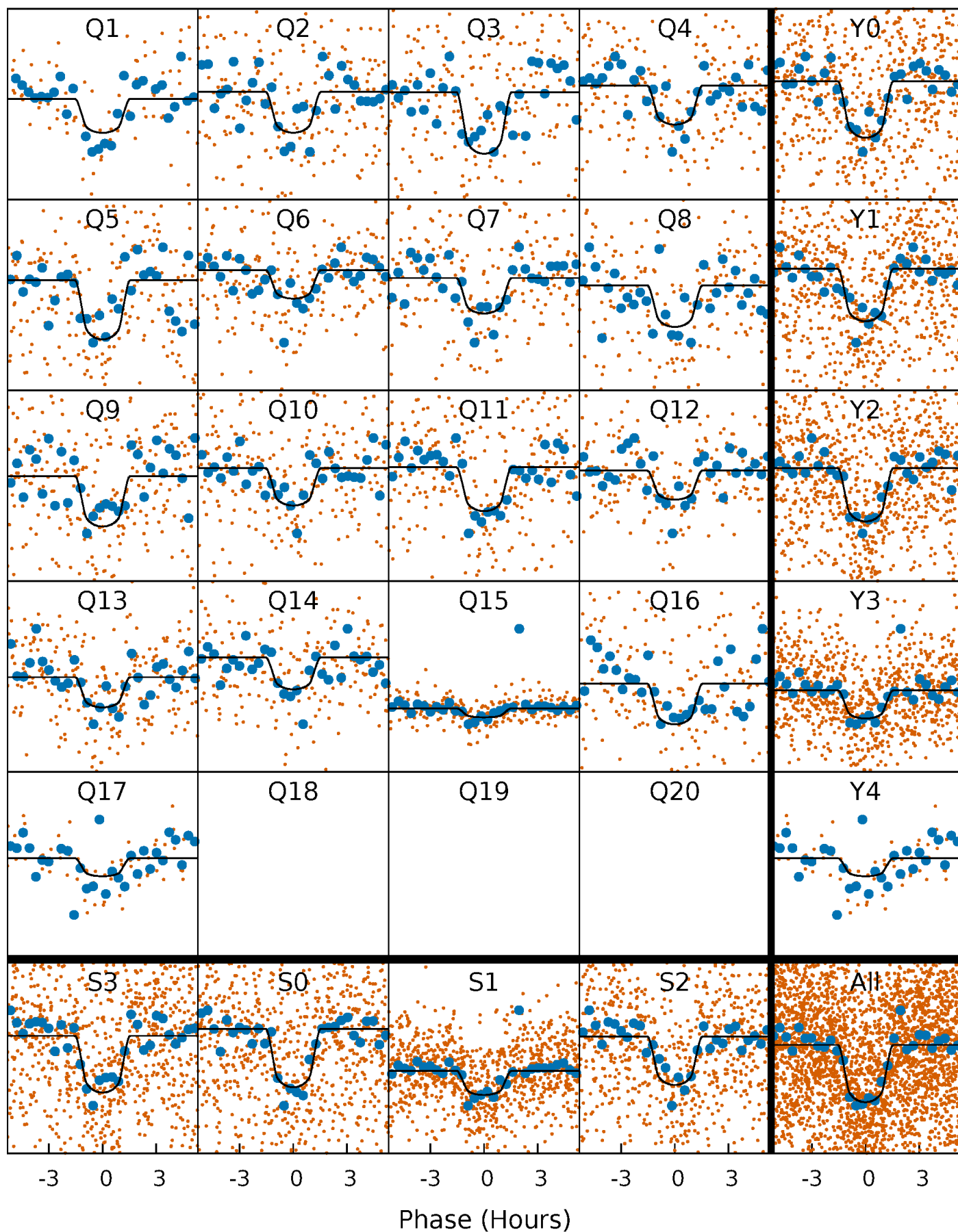
TCE 008681734-01 P= 7.684753 Days  $T_0=137.643672$  (BKJD)





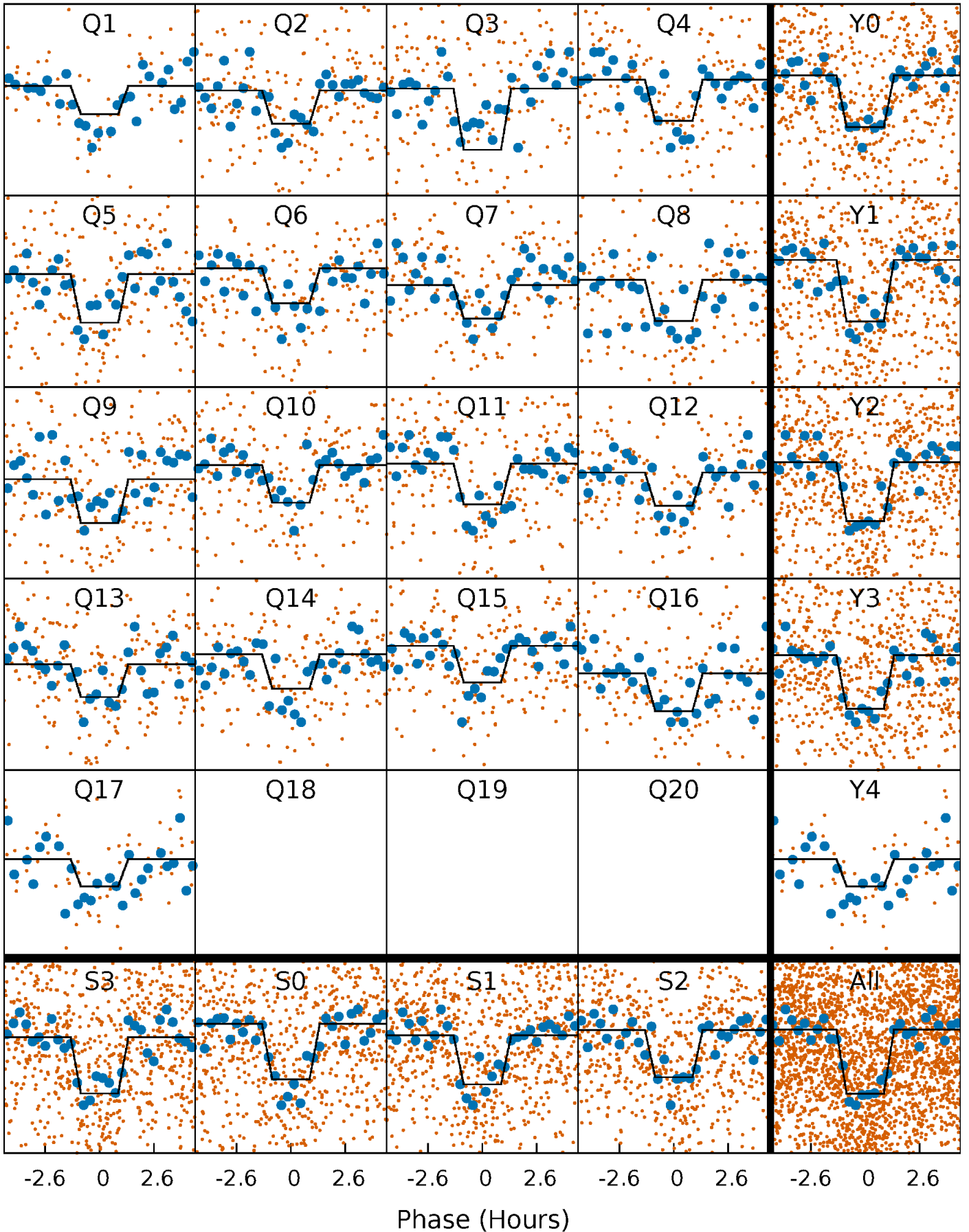
# DV Quarter-Phased Transit Curves

TCE 008681734-01 P= 7.684753 Days  $T_0=137.643672$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

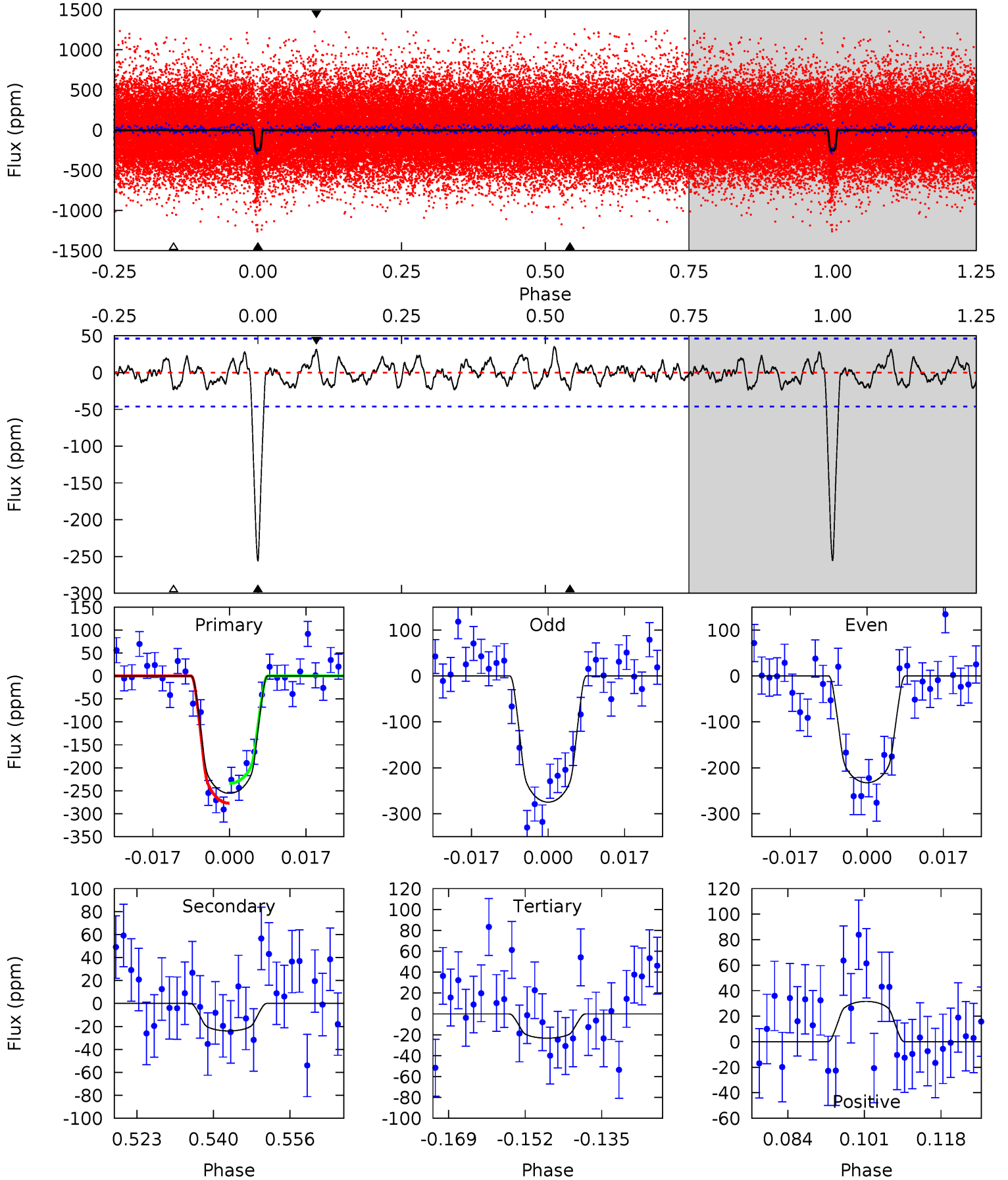
TCE 008681734-01 P= 7.684791 Days  $T_0=137.641023$  (BKJD)



# DV Model-Shift Uniqueness Test

008681734-01, P = 7.684753 Days, E = 129.958919 Days

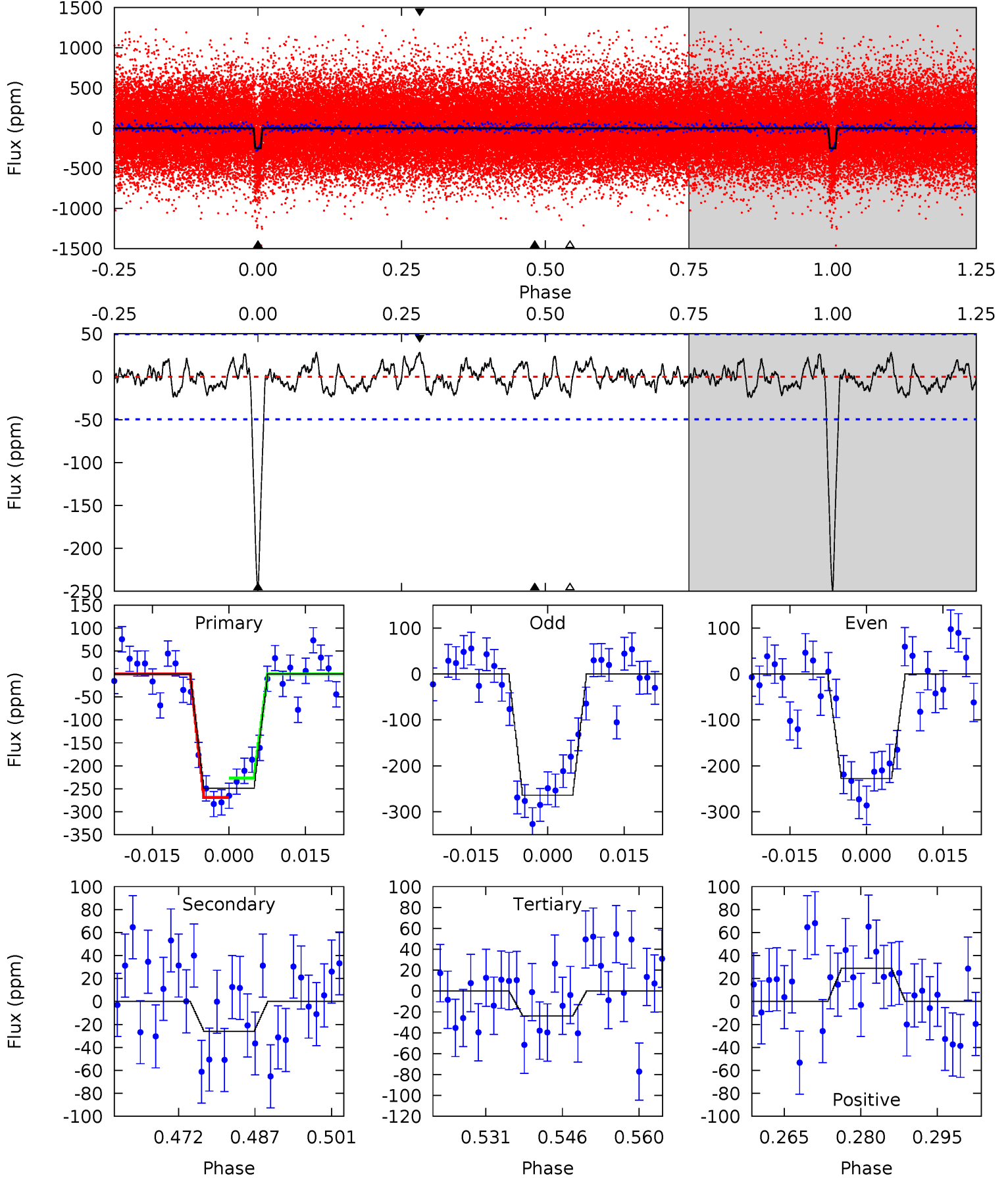
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.3	2.55	2.48	3.37	4.93	2.39	1.21	24.8	23.9	0.07	-0.82	2.25	1.00	0.12	2.31



# Alt Model-Shift Uniqueness Test

008681734-01, P = 7.684791 Days, E = 129.956232 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
24.9	2.61	2.38	2.88	4.95	2.44	1.10	22.5	22.0	0.23	-0.27	1.81	1.01	0.10	2.10



### Stellar Parameters For KIC 008681734

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5344^{+85}_{-74}$	$4.469^{+0.070}_{-0.077}$	$0.140^{+0.150}_{-0.150}$	$0.907^{+0.081}_{-0.066}$	$0.884^{+0.055}_{-0.041}$	$1.669^{+0.408}_{-0.392}$
	+2%/-1%	+2%/-2%	+107%/-107%	+9%/-7%	+6%/-5%	+24%/-24%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 008681734-01 / KOI 2340.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-24 \pm 9$	$1.73^{+0.63}_{-0.61}$	$1162^{+34}_{-32}$	$3323^{+543}_{-369}$	$23^{+34}_{-13}$
Alt.	$-26 \pm 10$	$1.56^{+0.58}_{-0.58}$	$1160^{+34}_{-31}$	$3511^{+585}_{-377}$	$32^{+52}_{-17}$

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



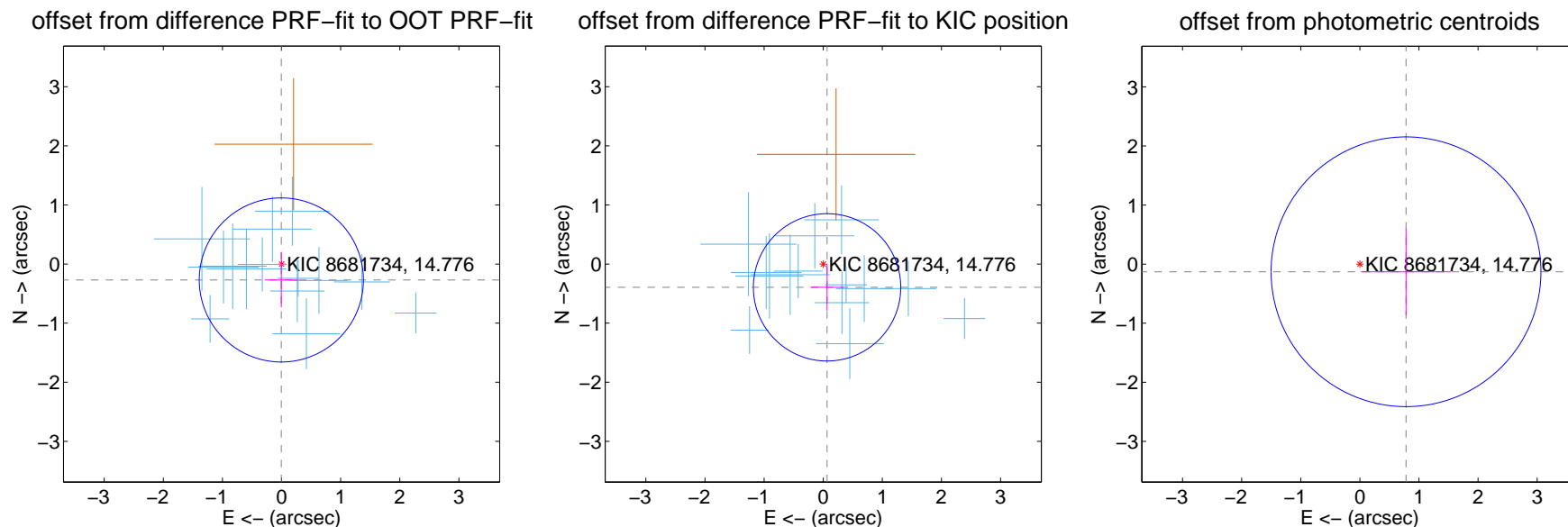
## DV Centroid Data

Supplemental centroid analysis for 008681734-01. Kepler magnitude: 14.78. Transit SNR 19.96

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

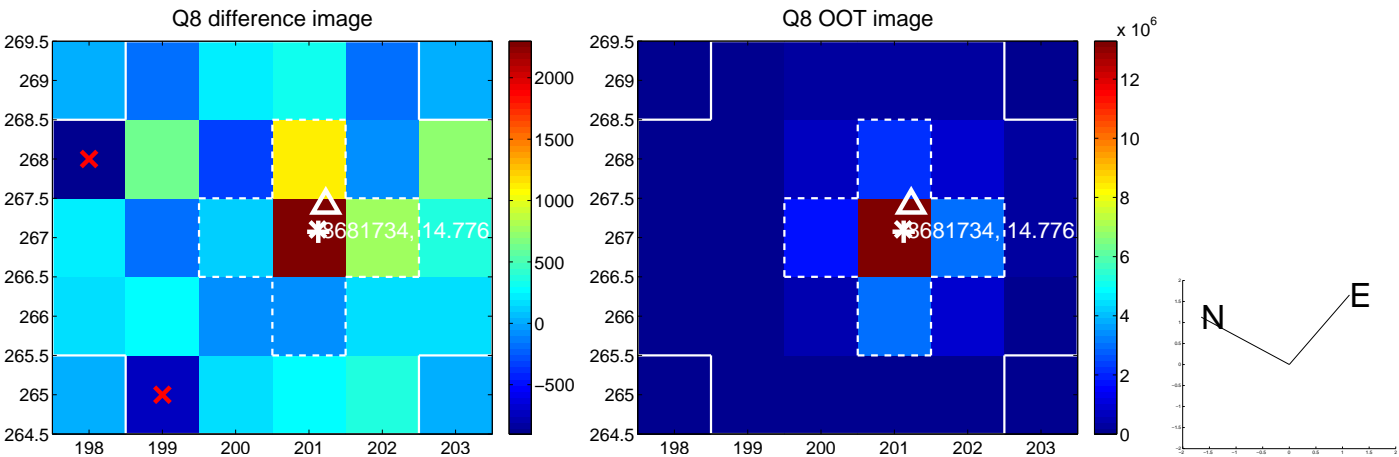
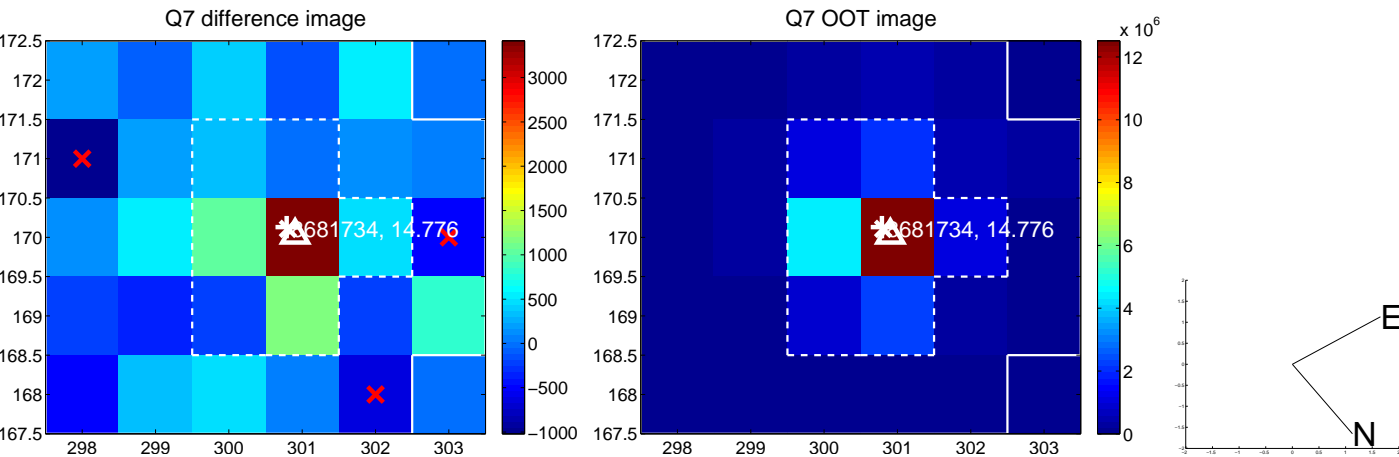
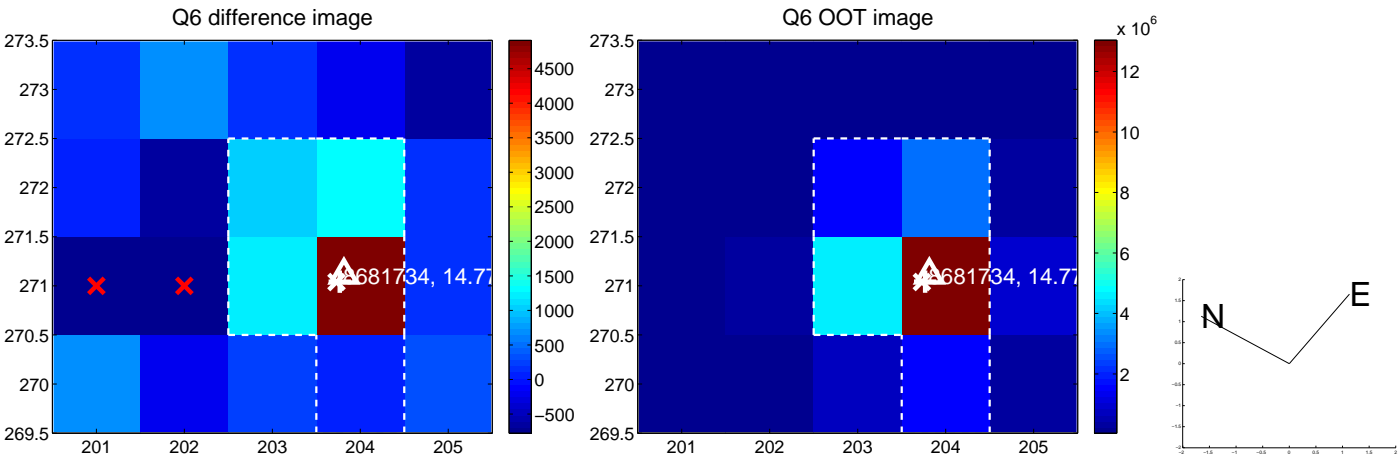
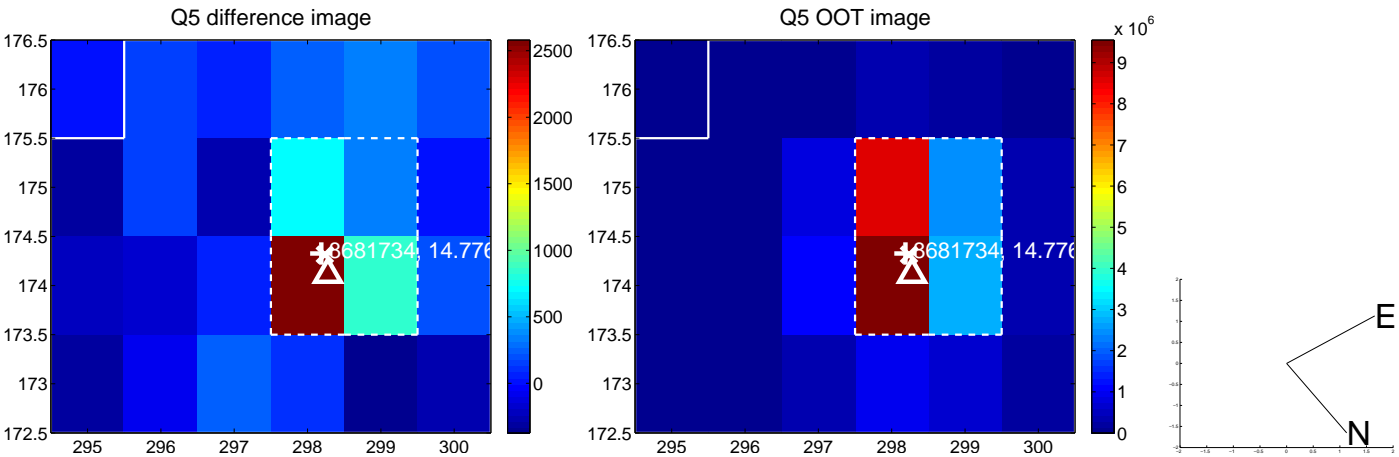
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.269 \pm 0.463$	0.58	$0.004 \pm 0.282$	$-0.269 \pm 0.465$
PRF-fit source offset from KIC position	$0.400 \pm 0.416$	0.96	$-0.065 \pm 0.280$	$-0.394 \pm 0.396$
photometric centroid source offset	$0.79 \pm 0.76$	1.04	$-0.78 \pm 0.76$	$-0.13 \pm 0.73$



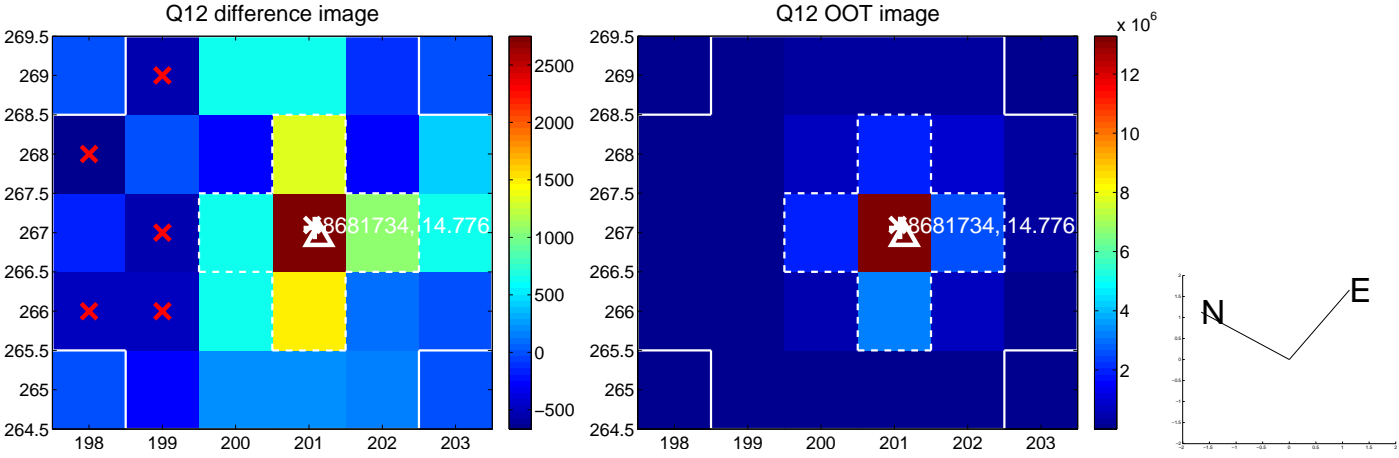
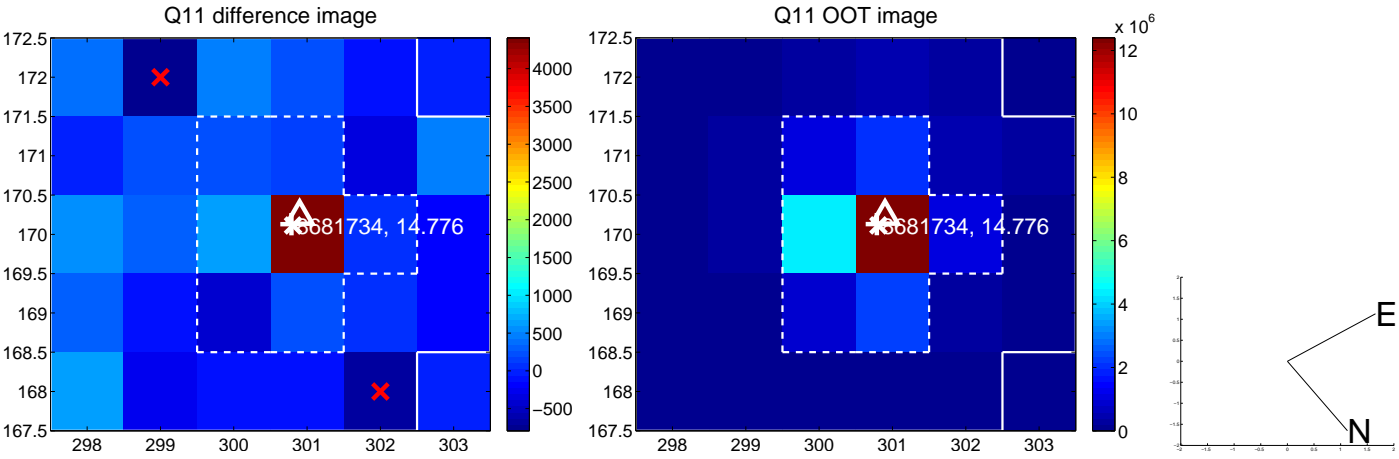
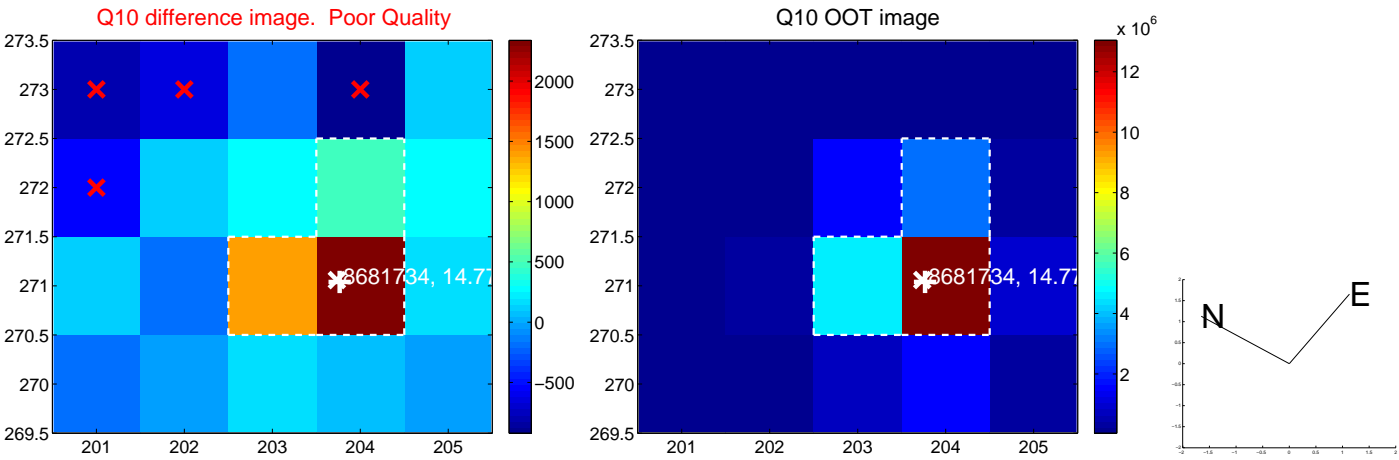
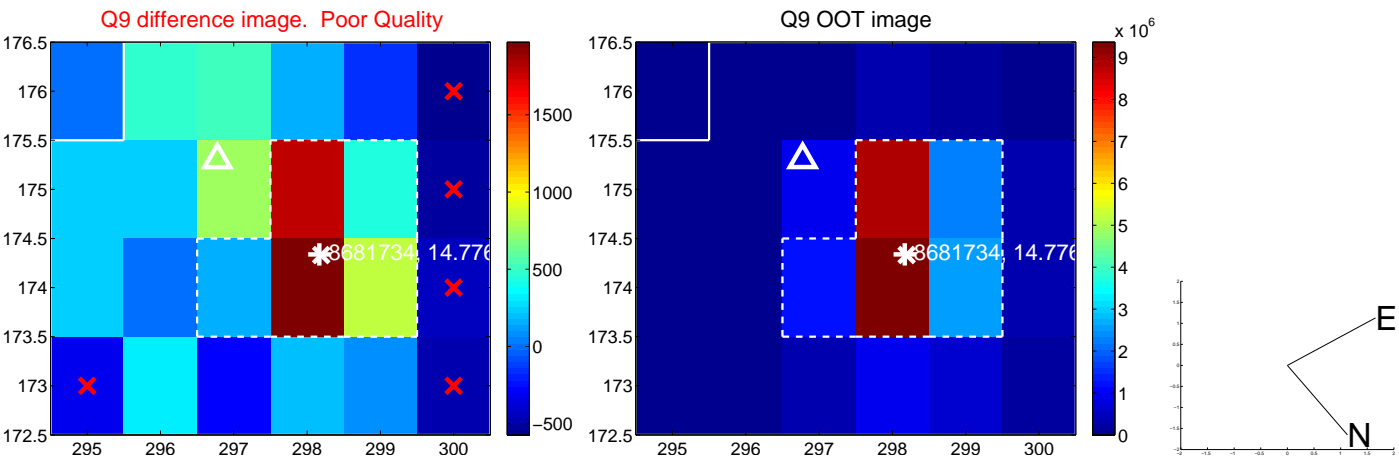
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



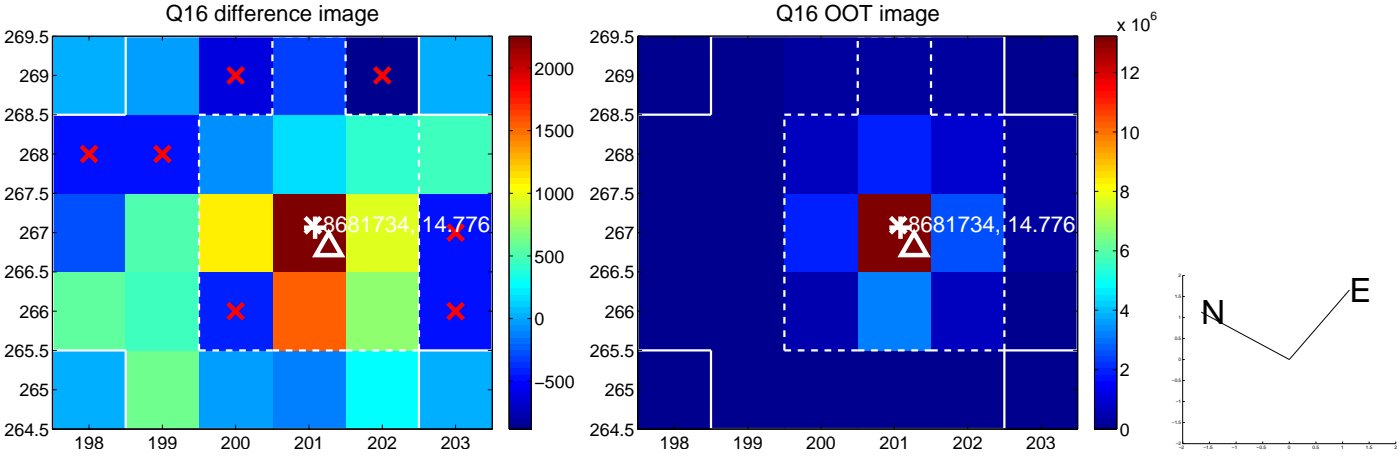
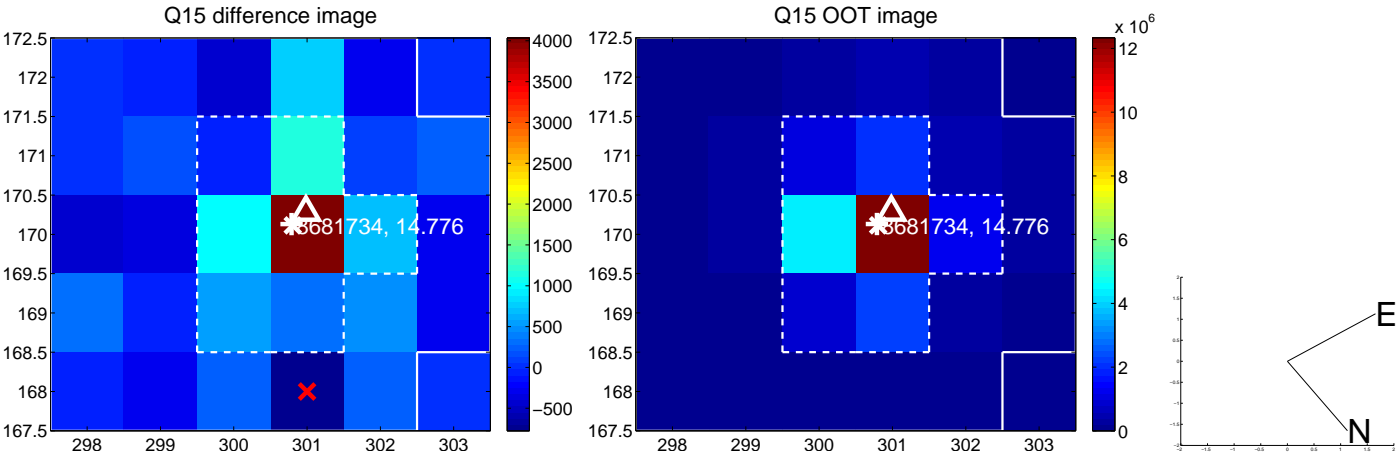
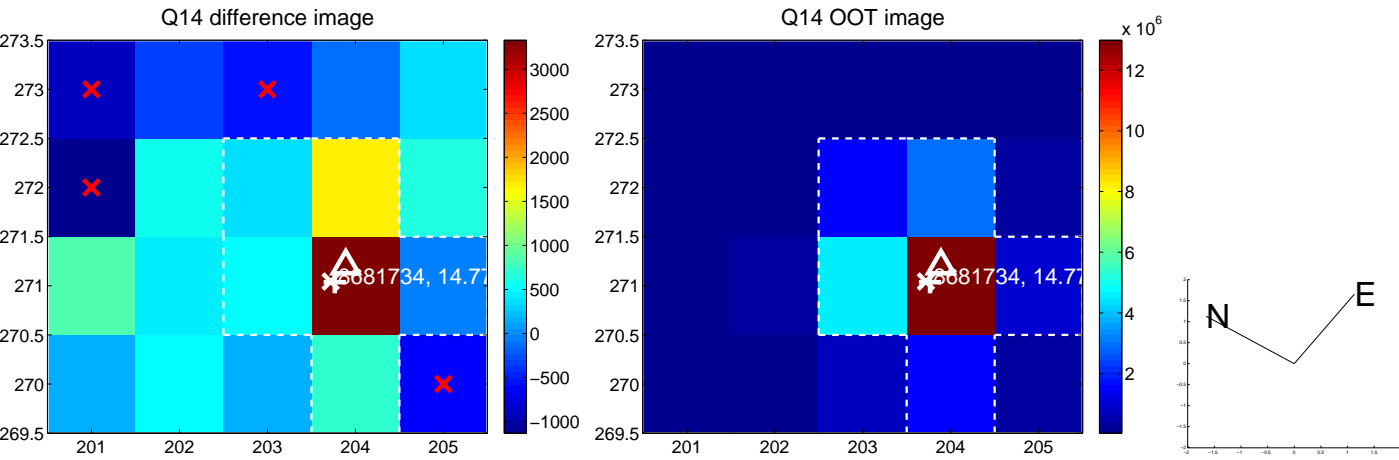
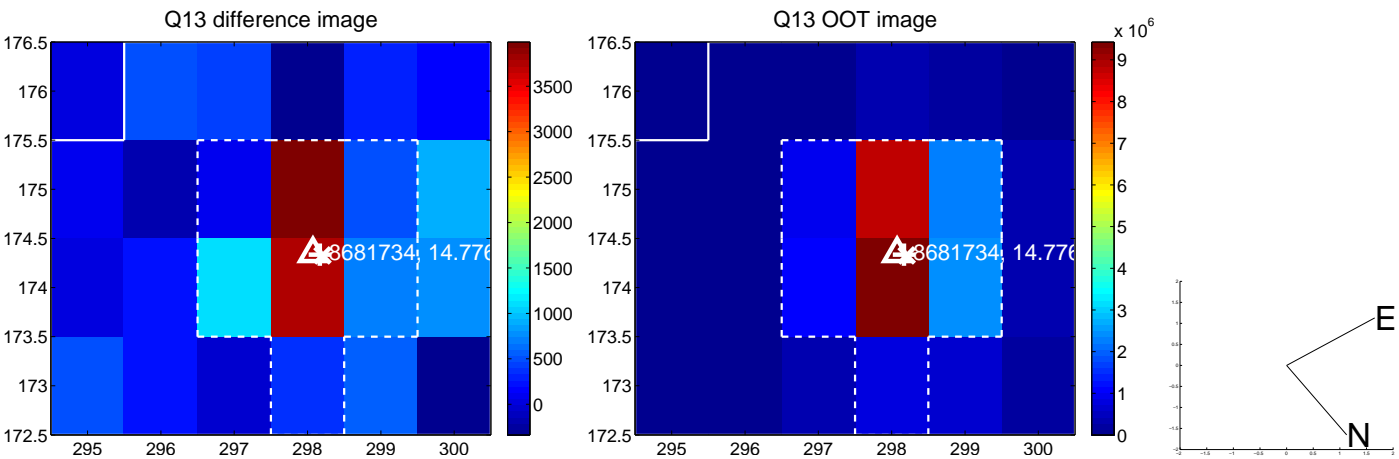
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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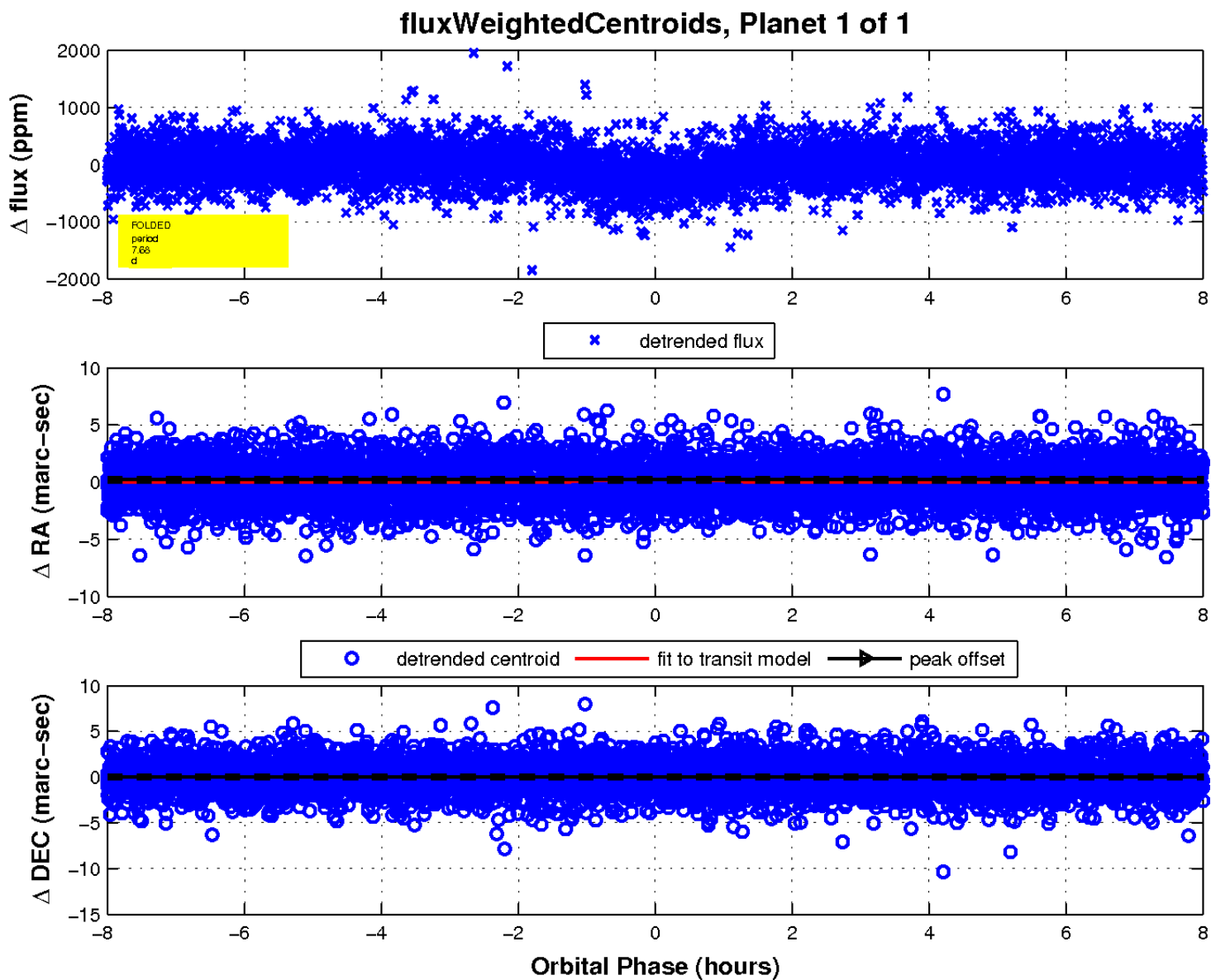
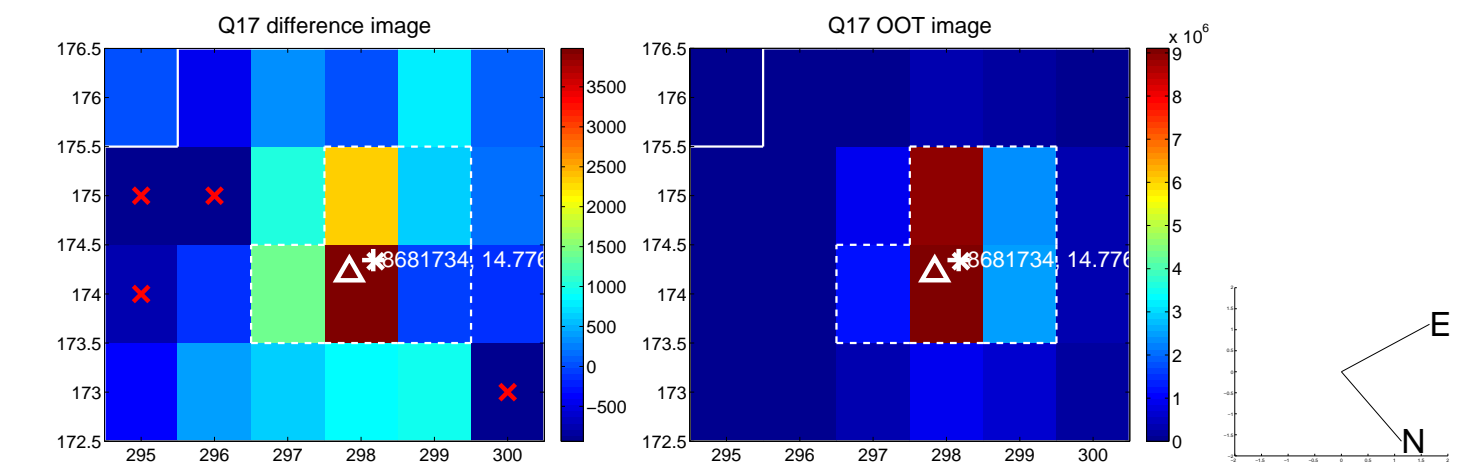


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

