

# KIC 003098810

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003098810-01	OBS	1878.01	40.809652	142.690490	432.2	3.154	34.8	36.9	1.30	6183	3.37	35.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003098810-01	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.

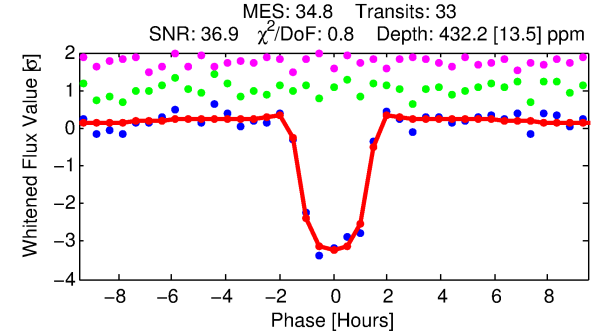
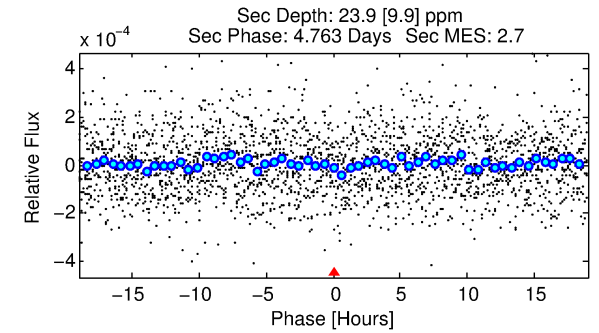
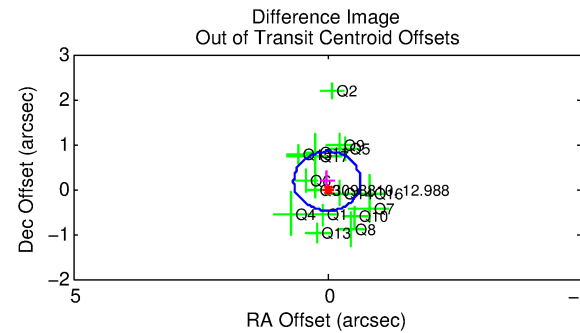
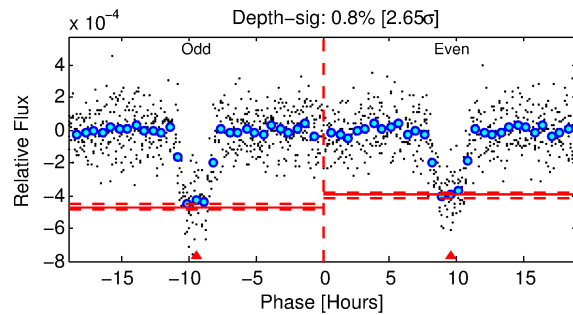
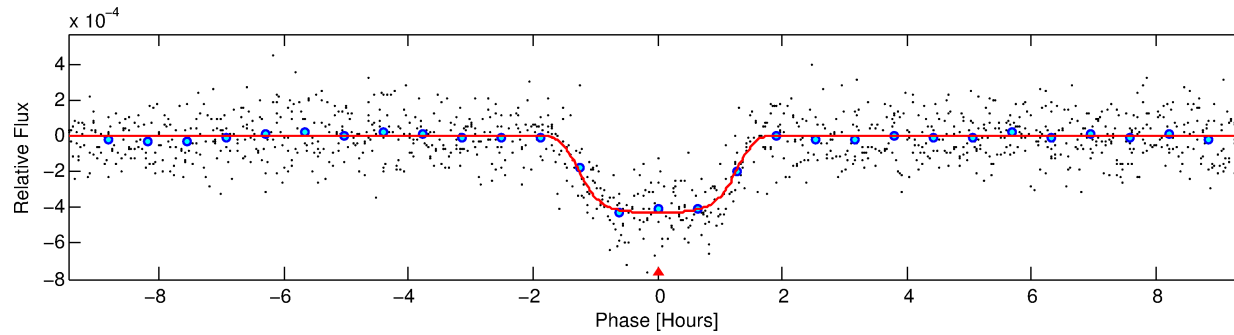
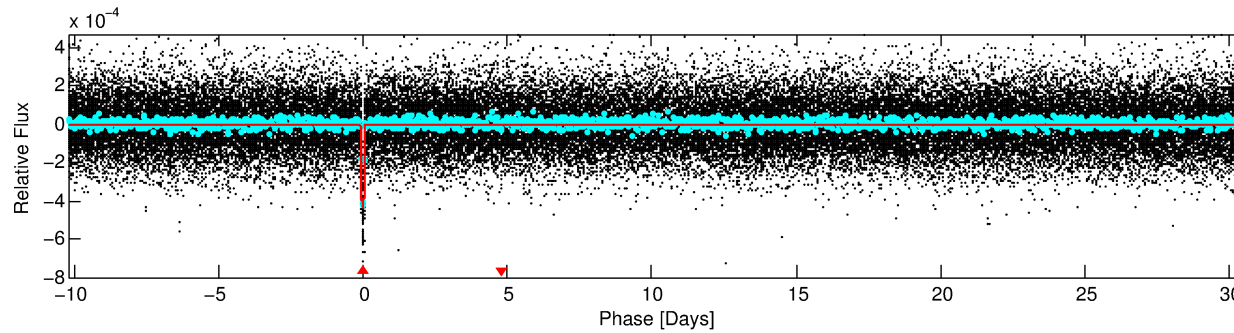
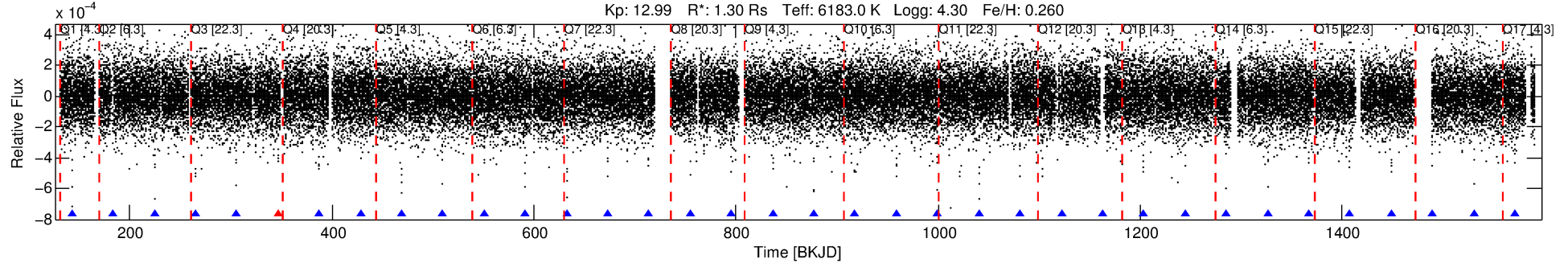
## Ephemeris Match Information For 003098810-01

No Significant Match Found

# DV One-Page Summary

KIC: 3098810 Candidate: 1 of 1 Period: 40.810 d  
KOI: K01878.01 Corr: 0.925

Kp: 12.99 R\*: 1.30 Rs Teff: 6183.0 K Logg: 4.30 Fe/H: 0.260



## DV Fit Results:

Period = 40.80965 [0.00009] d  
Epoch = 142.6905 [0.0020] BKJD  
Rp/R\* = 0.0237 [0.0009]  
a/R\* = 38.98 [6.70]  
b = 0.94 [0.02]  
Seff = 35.75 [8.05]  
Teq = 624 [35] K  
Rp = 3.37 [0.58] Re  
a = 0.2488 [0.0354] AU  
Ag = 71.85 [33.75] [2.10σ]  
Teffp = 2807 [302] K [7.19σ]

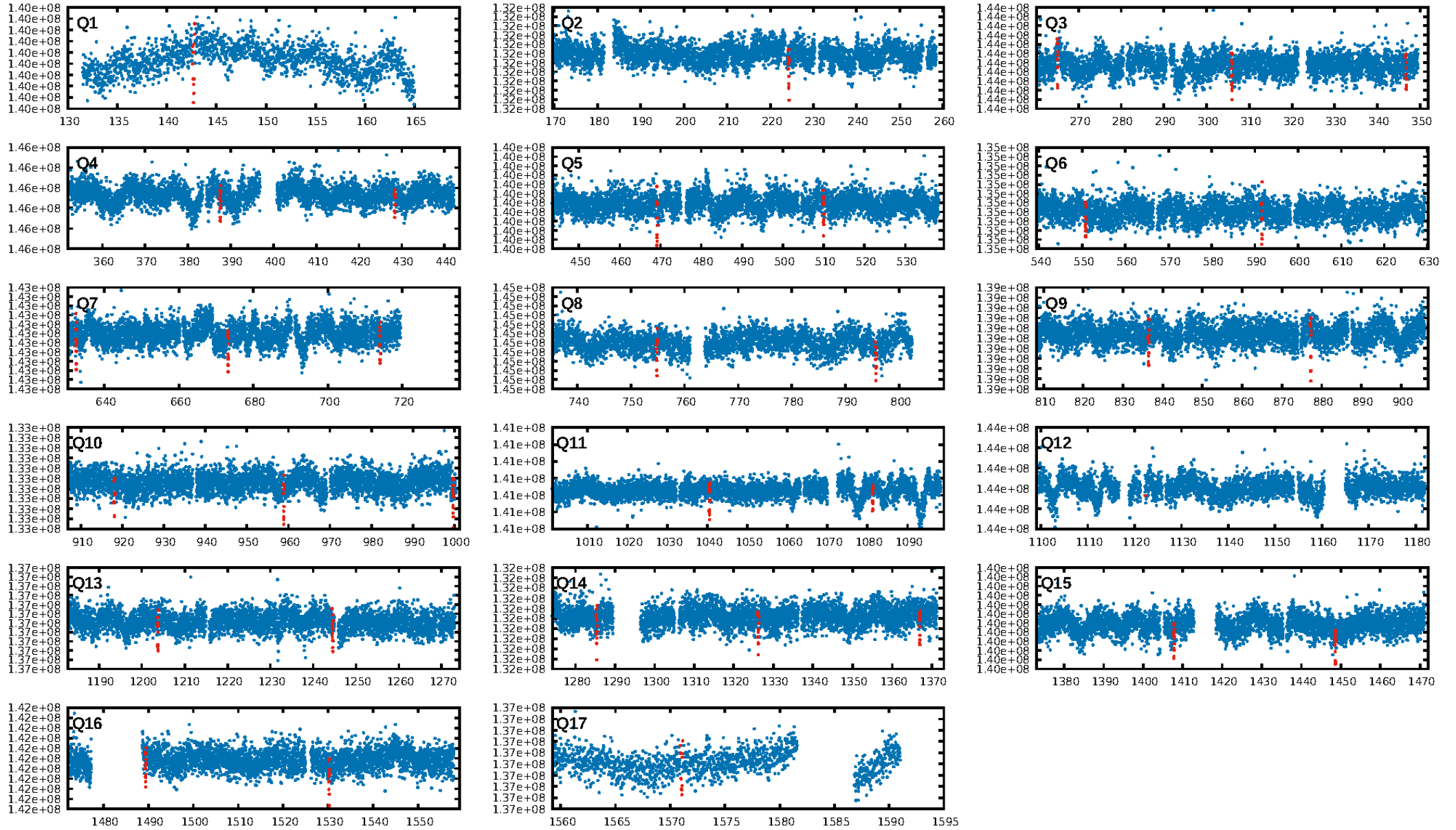
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 63.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 8.54e-258  
RollingBand-fgt: 0.97 [30/31]  
GhostDiagnostic-chr: 8.79  
Centroid-sig: 27.3%  
Centroid-so: 0.486 arcsec [1.16σ]  
OotOffset-rm: 0.180 arcsec [0.82σ]  
KicOffset-rm: 0.242 arcsec [1.08σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [16/16]

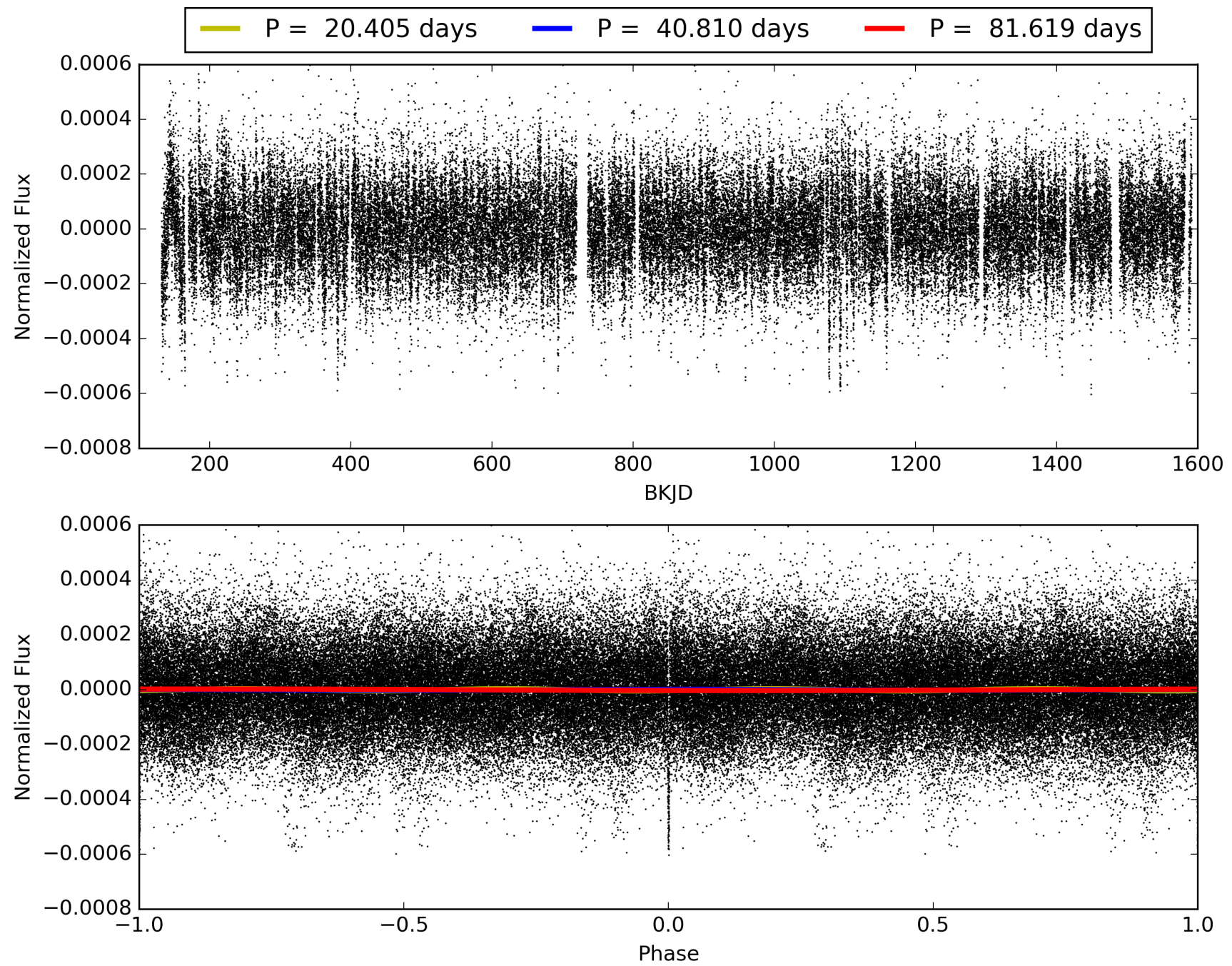
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:19:45 Z

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

# TCE 003098810-01, PDC Light Curves

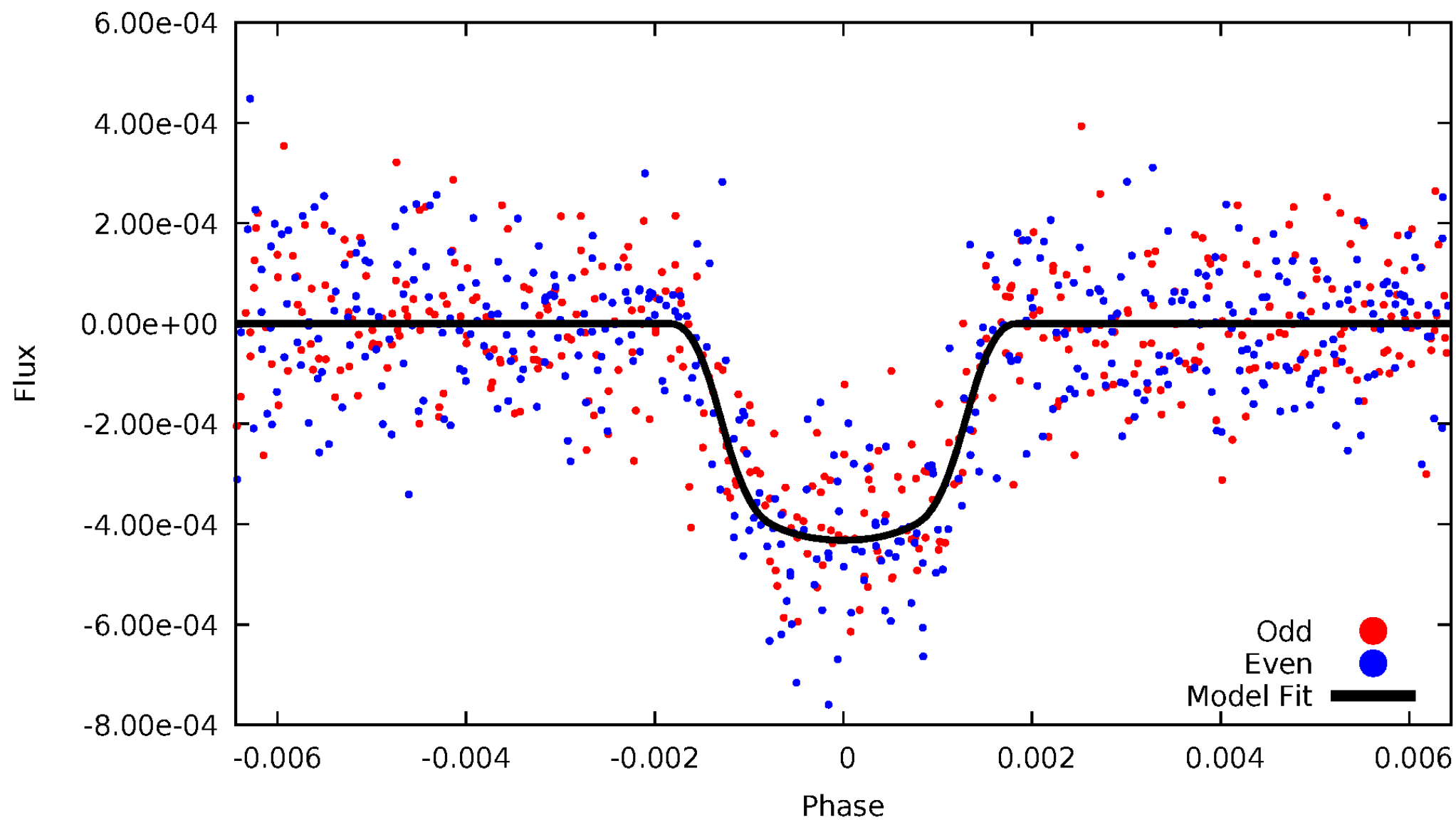


TCE 003098810-01



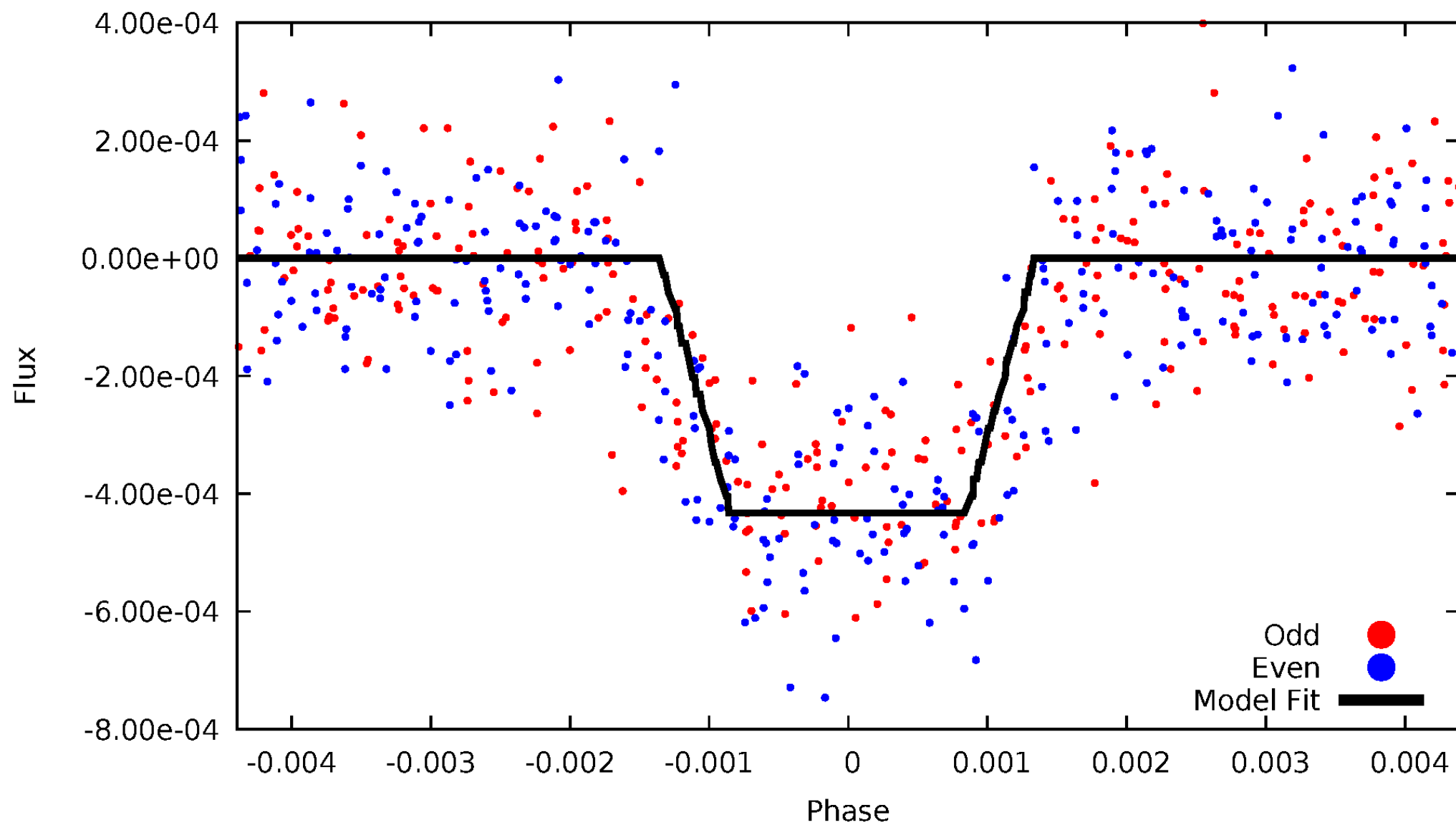
# DV Odd/Even

TCE 003098810-01



# ALT Odd/Even

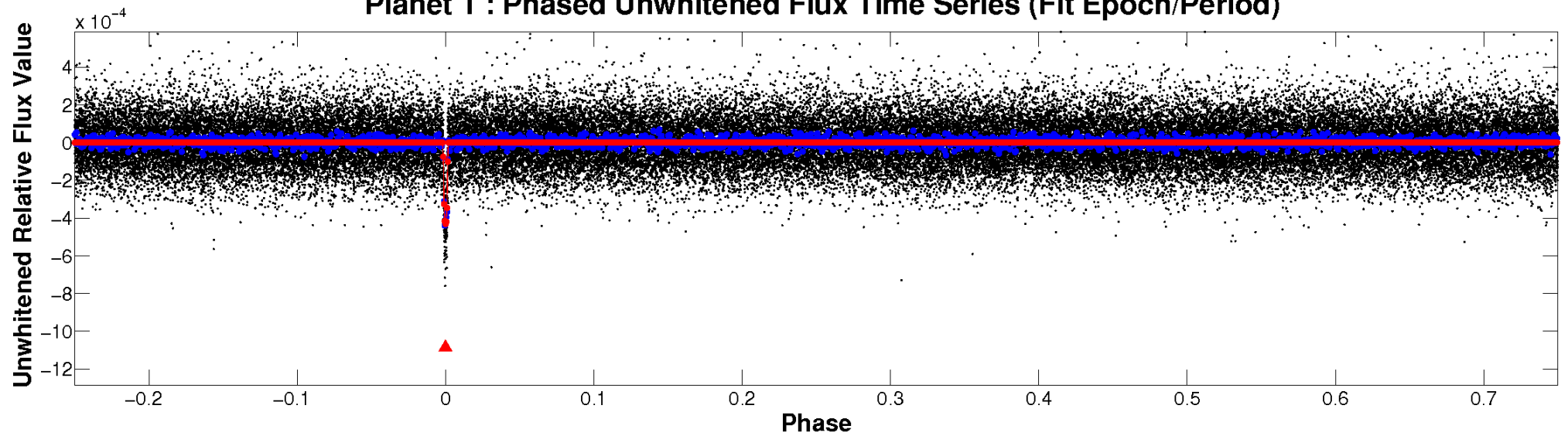
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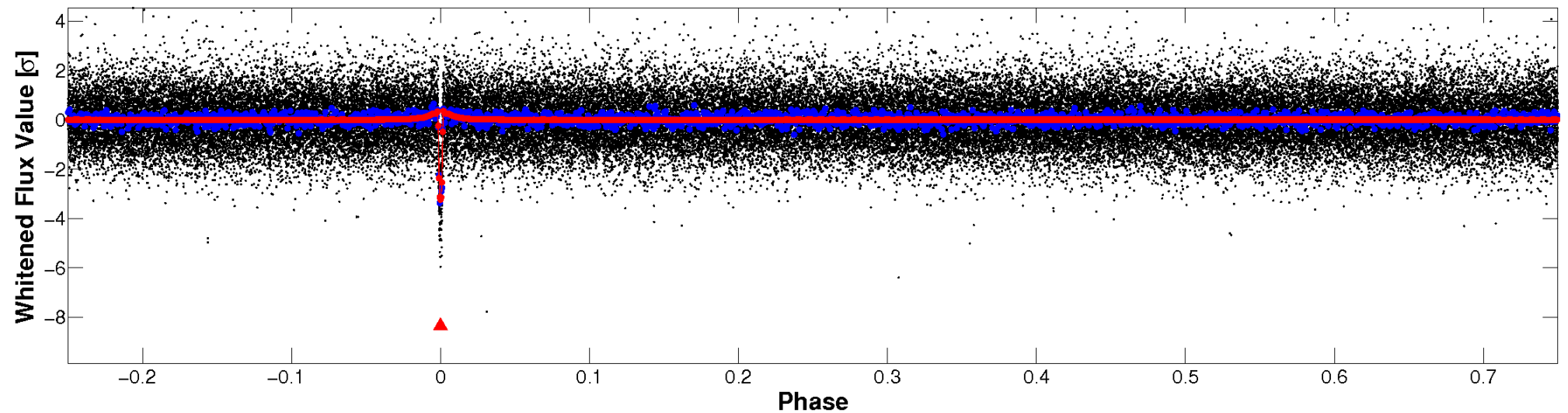


# Non-Whitened Vs. Whitened Light Curve

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

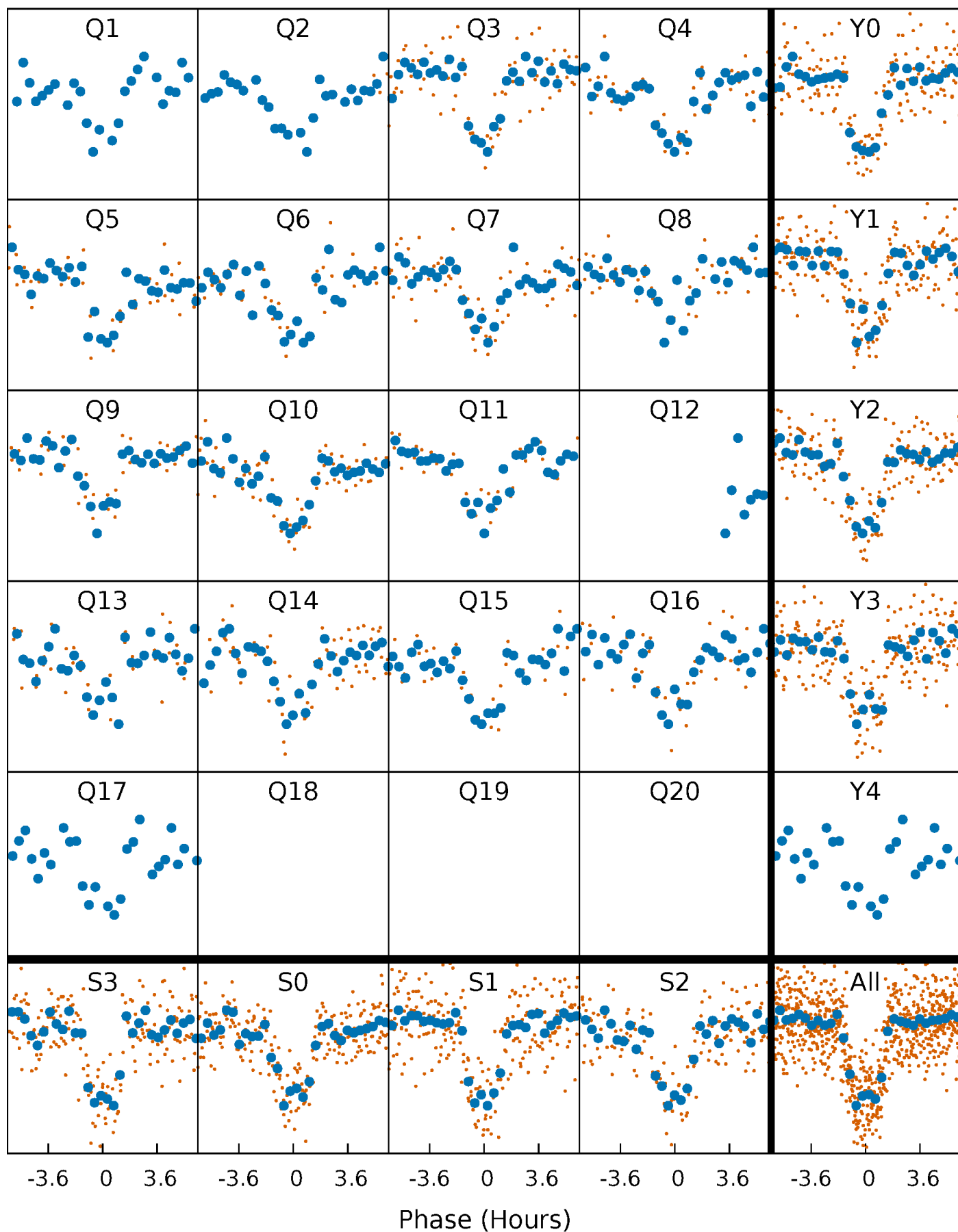


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

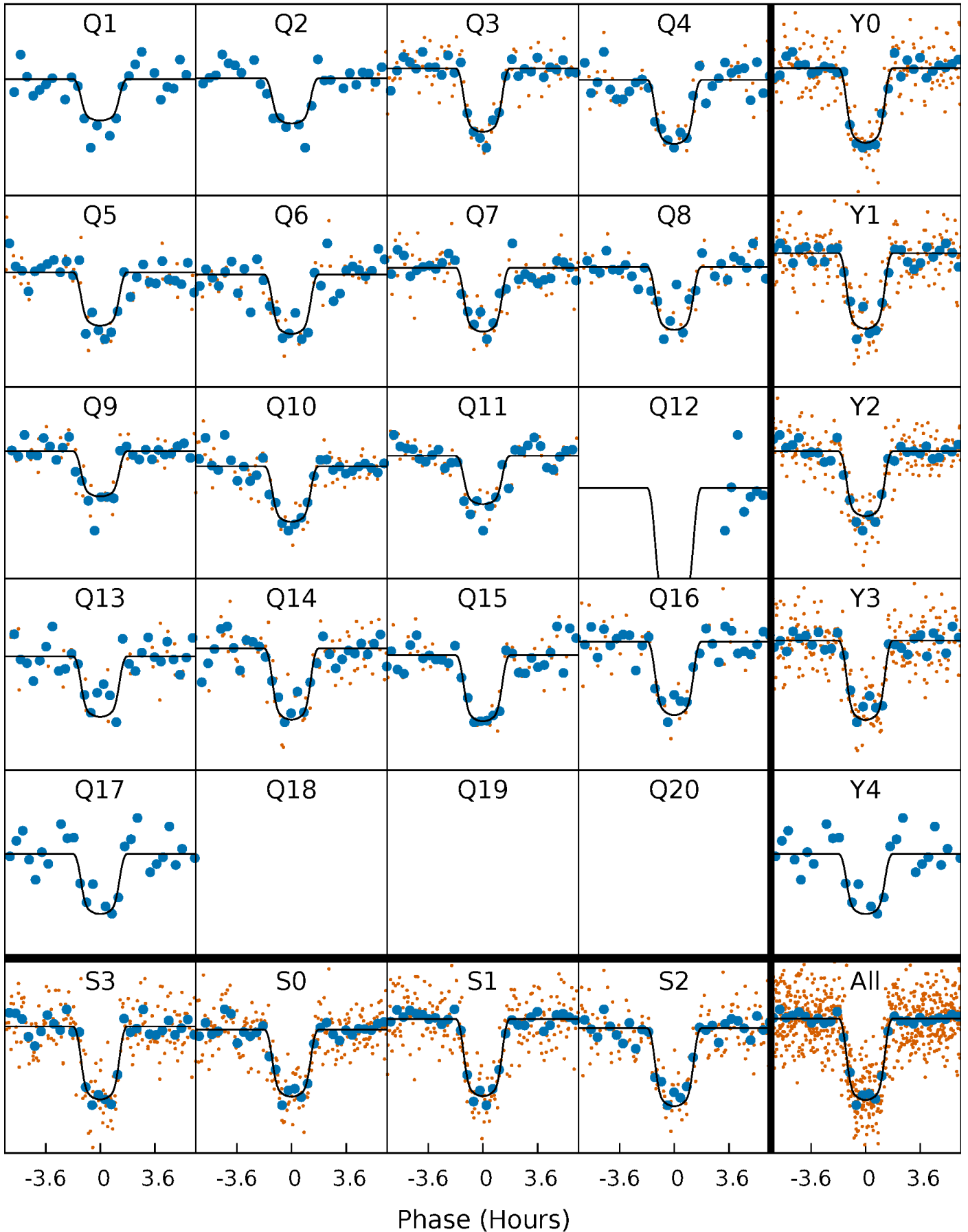
TCE 003098810-01   P= 40.809652 Days    $T_0=142.690490$  (BKJD)





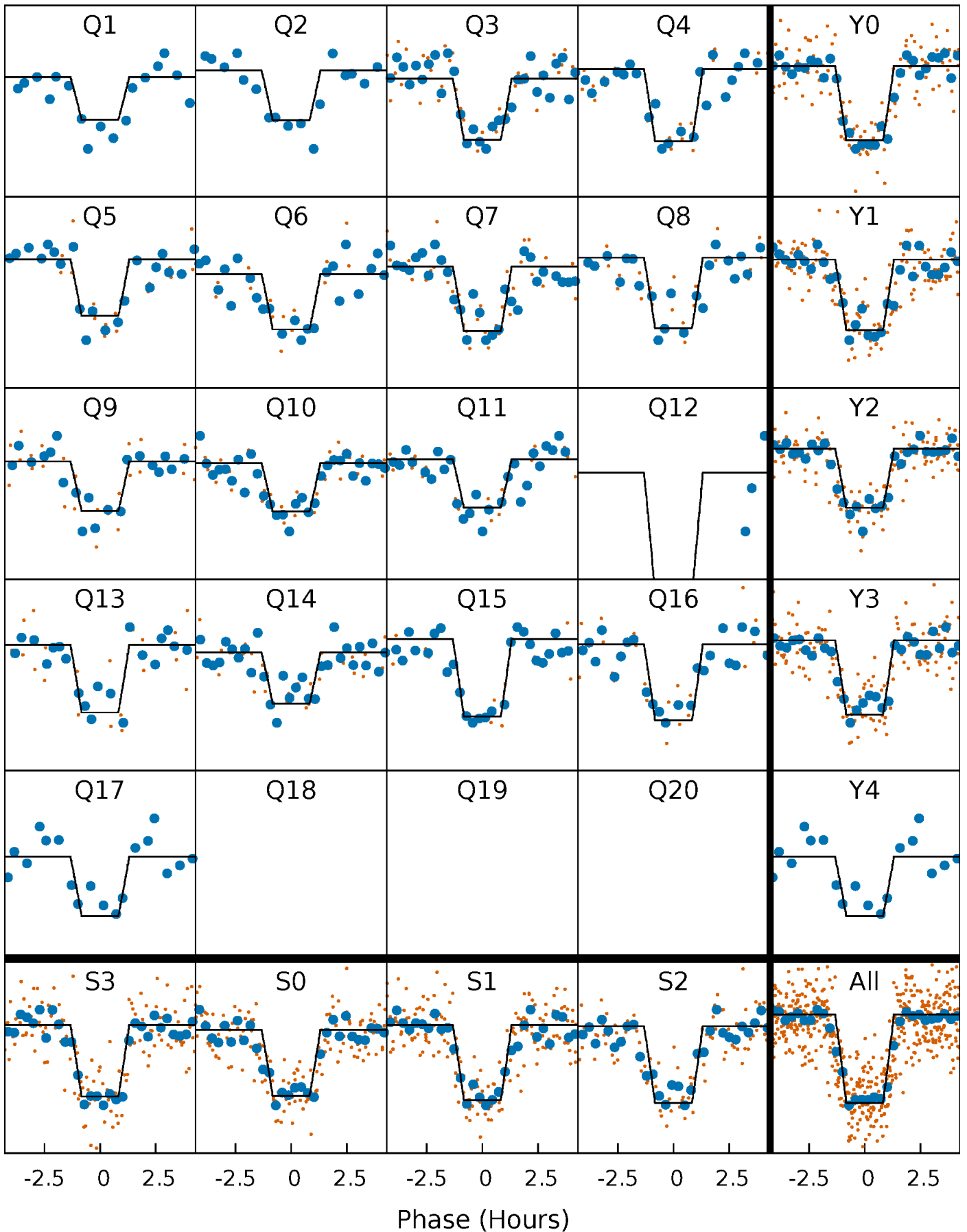
# DV Quarter-Phased Transit Curves

TCE 003098810-01 P= 40.809652 Days  $T_0=142.690490$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

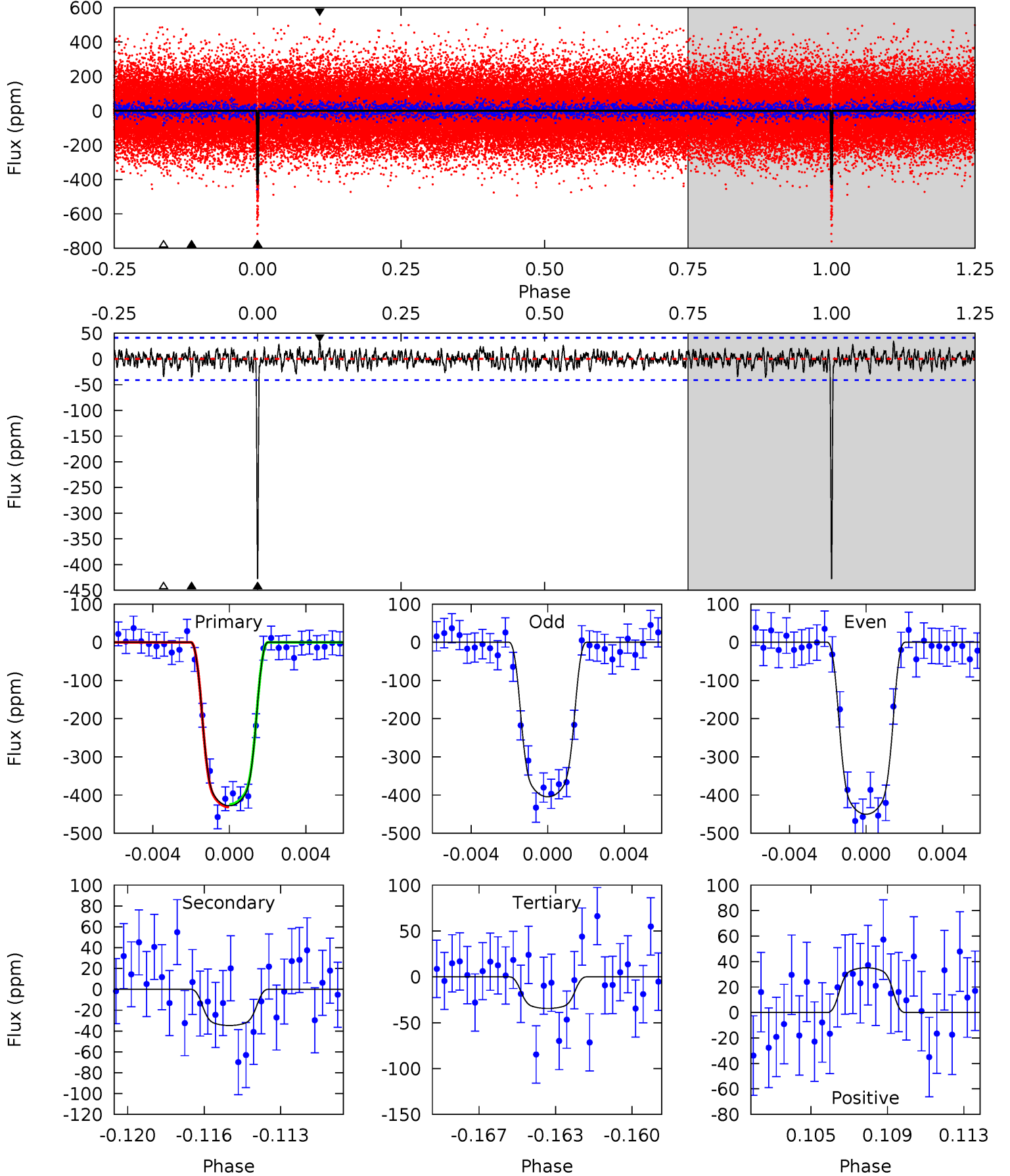
TCE 003098810-01   P= 40.809856 Days    $T_0=142.687226$  (BKJD)



# DV Model-Shift Uniqueness Test

003098810-01,  $P = 40.809652$  Days,  $E = 101.880838$  Days

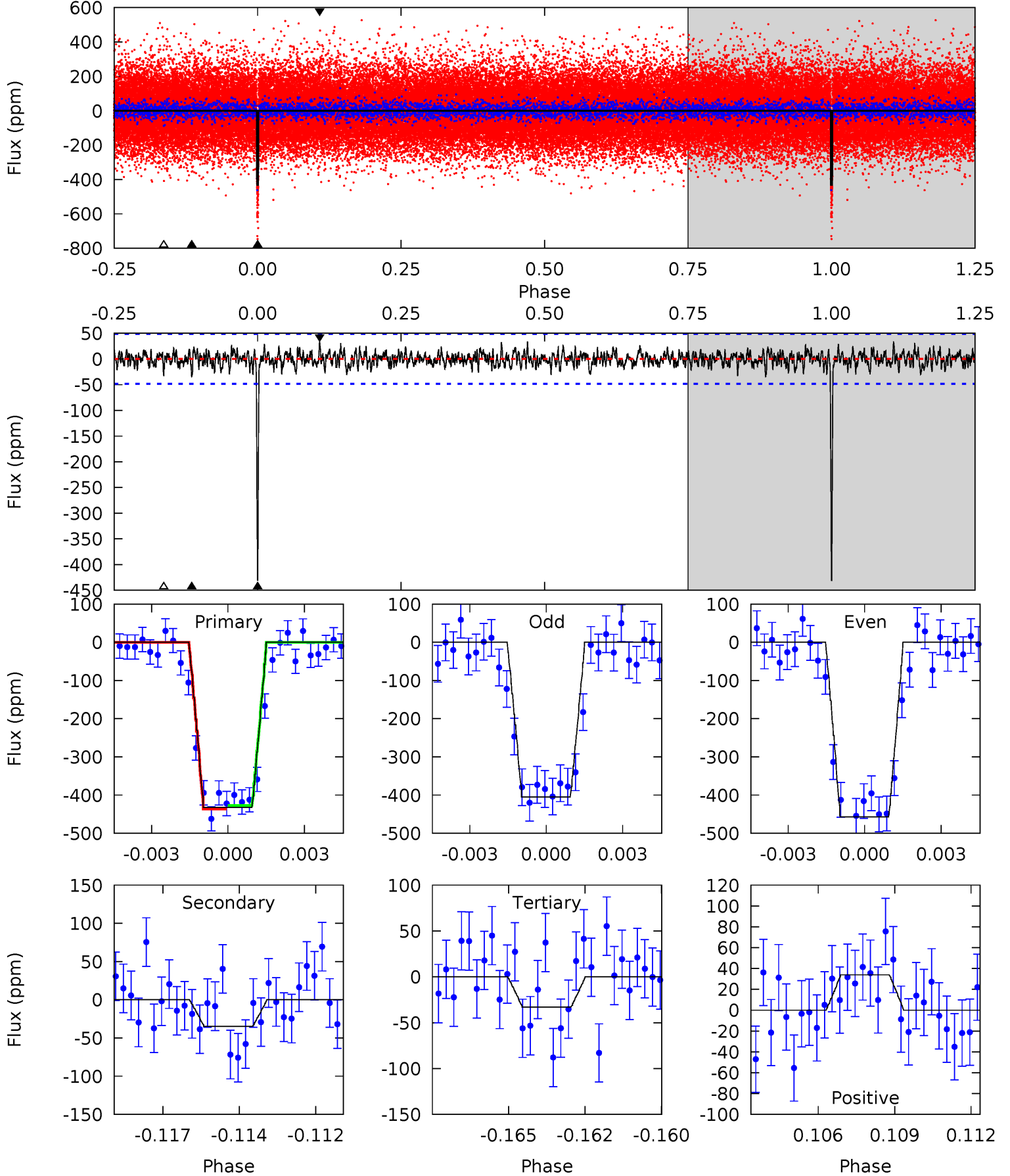
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.3	4.40	4.38	4.45	5.22	2.91	1.27	50.0	49.9	0.03	-0.05	2.90	1.02	0.08	0.42



# Alt Model-Shift Uniqueness Test

003098810-01, P = 40.809856 Days, E = 101.877370 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
47.0	3.78	3.60	3.68	5.27	3.00	1.14	43.4	43.3	0.18	0.10	2.86	1.03	0.07	0.46



### Stellar Parameters For KIC 003098810

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6183^{+110}_{-134}$	$4.301^{+0.066}_{-0.114}$	$0.260^{+0.150}_{-0.150}$	$1.300^{+0.219}_{-0.128}$	$1.241^{+0.088}_{-0.088}$	$0.794^{+0.220}_{-0.290}$
	+2%/-2%	+2%/-3%	+58%/-58%	+17%/-10%	+7%/-7%	+28%/-37%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 003098810-01 / KOI 1878.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-35 \pm 8$	$3.40^{+0.32}_{-0.25}$	$877^{+37}_{-36}$	$3535^{+141}_{-151}$	$100^{+29}_{-26}$
Alt.	$-35 \pm 9$	$2.99^{+0.30}_{-0.23}$	$876^{+38}_{-31}$	$3700^{+179}_{-185}$	$131^{+48}_{-40}$

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

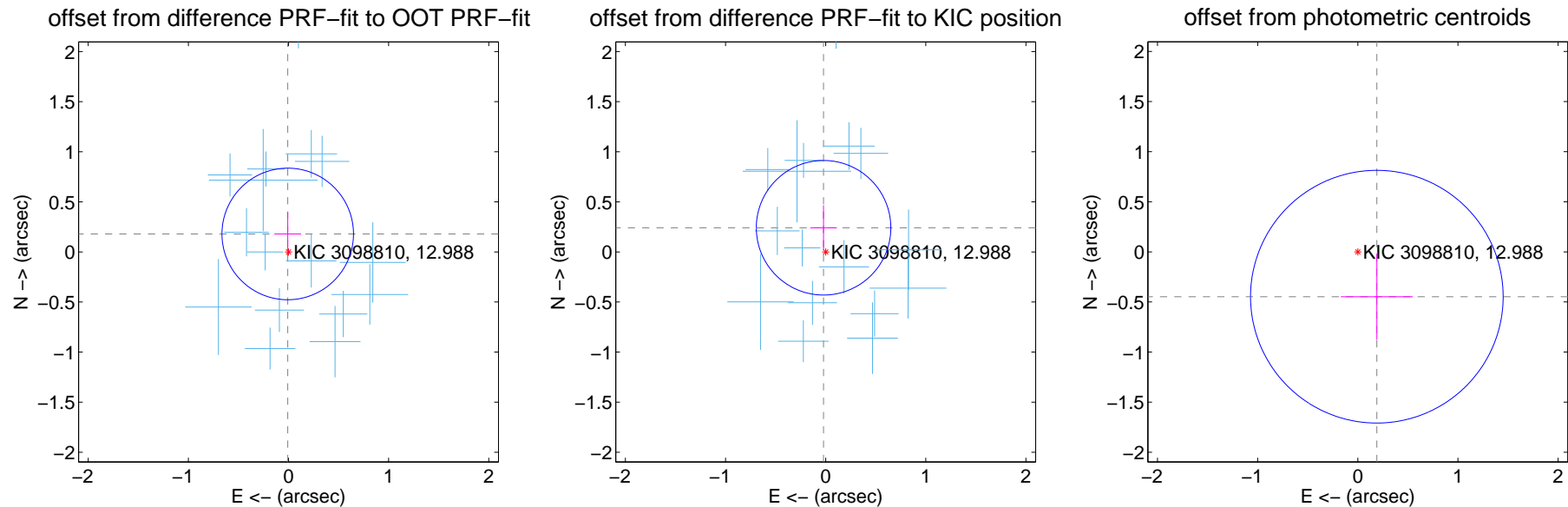
## DV Centroid Data

Supplemental centroid analysis for 003098810-01. Kepler magnitude: 12.99. Transit SNR 36.92

There are 16 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

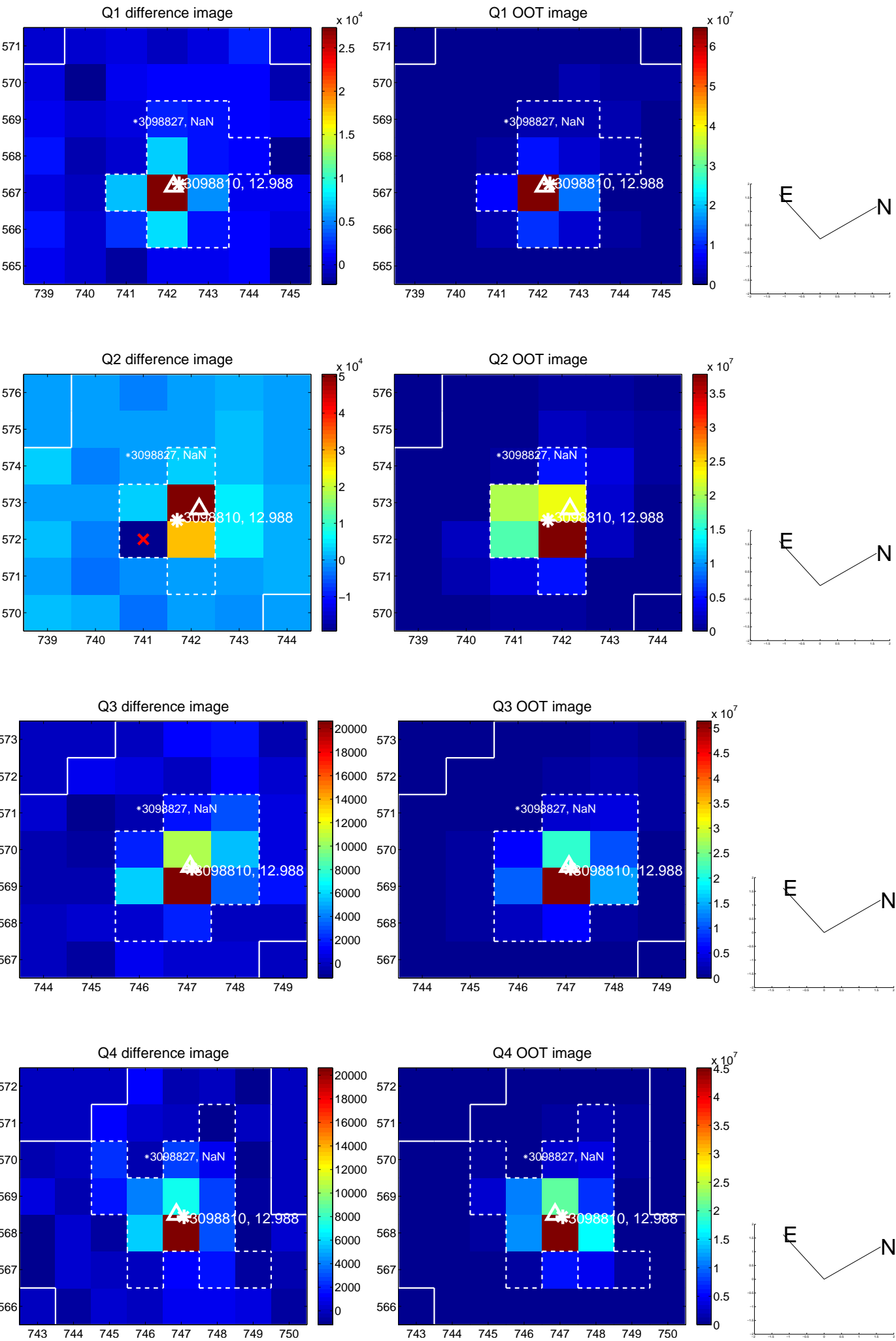
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.180 \pm 0.219$	0.82	$0.008 \pm 0.134$	$0.179 \pm 0.219$
PRF-fit source offset from KIC position	$0.242 \pm 0.224$	1.08	$0.021 \pm 0.133$	$0.241 \pm 0.224$
photometric centroid source offset	$0.49 \pm 0.42$	1.16	$-0.19 \pm 0.36$	$-0.45 \pm 0.43$



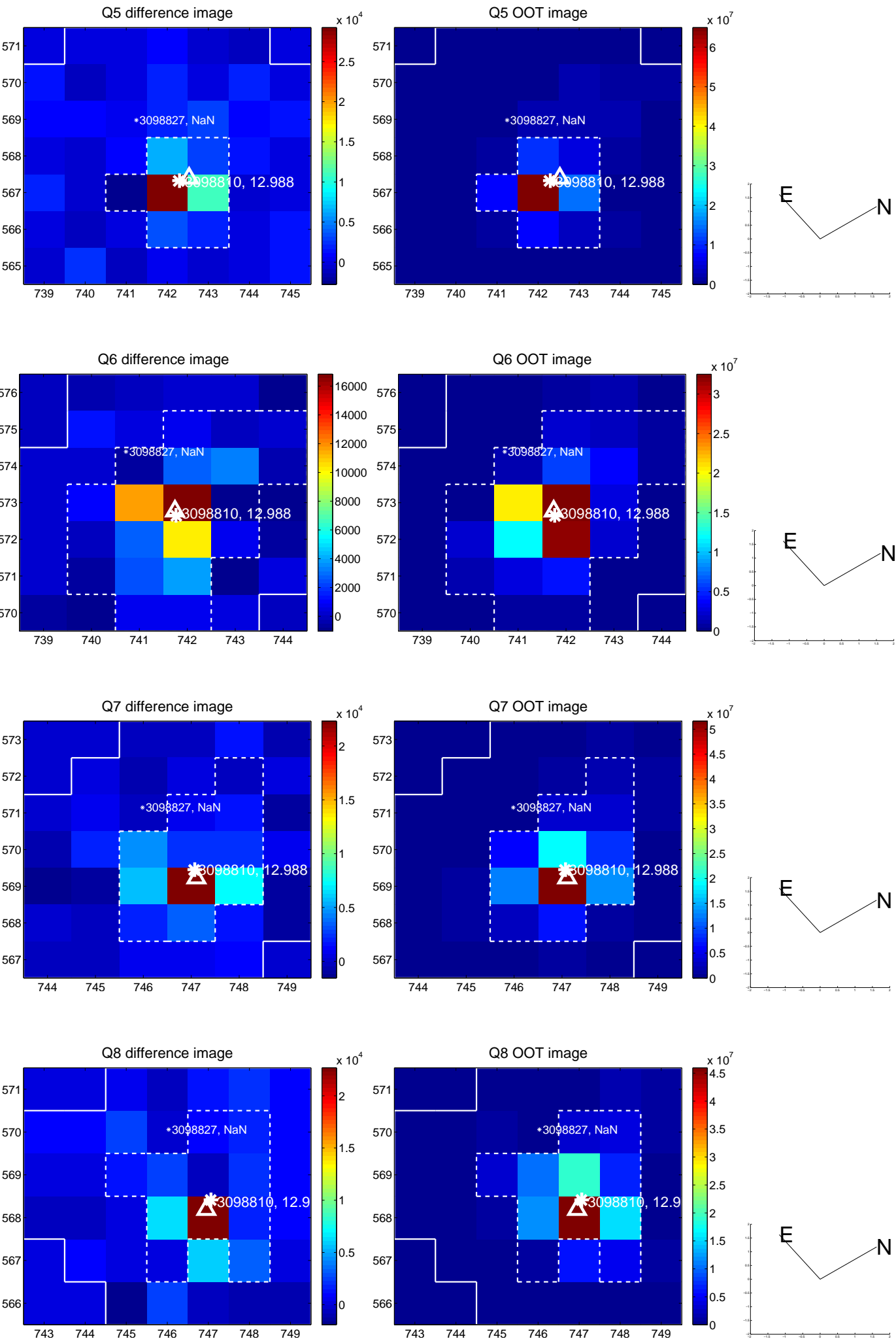
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



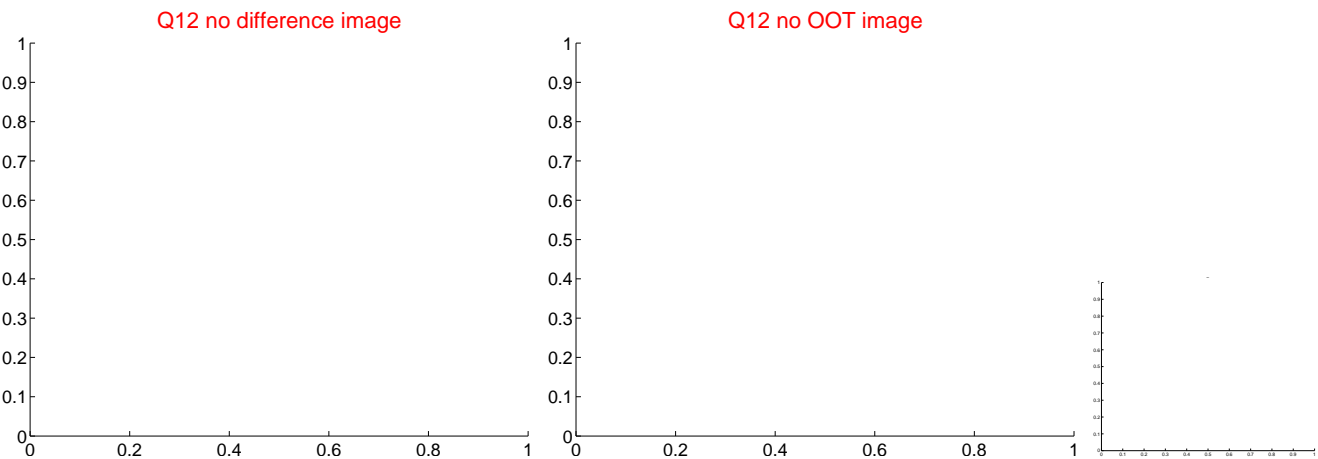
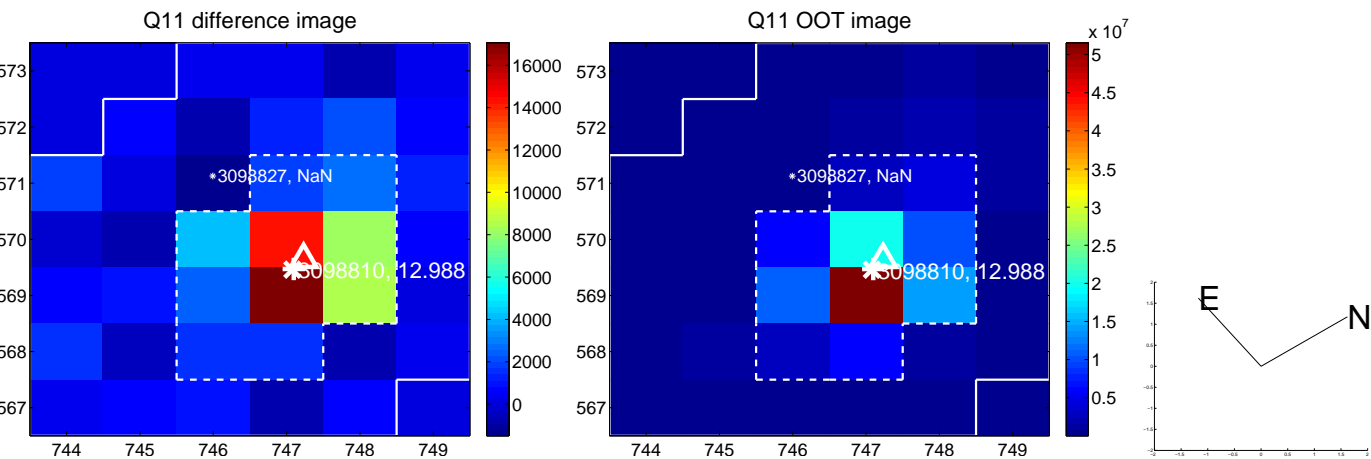
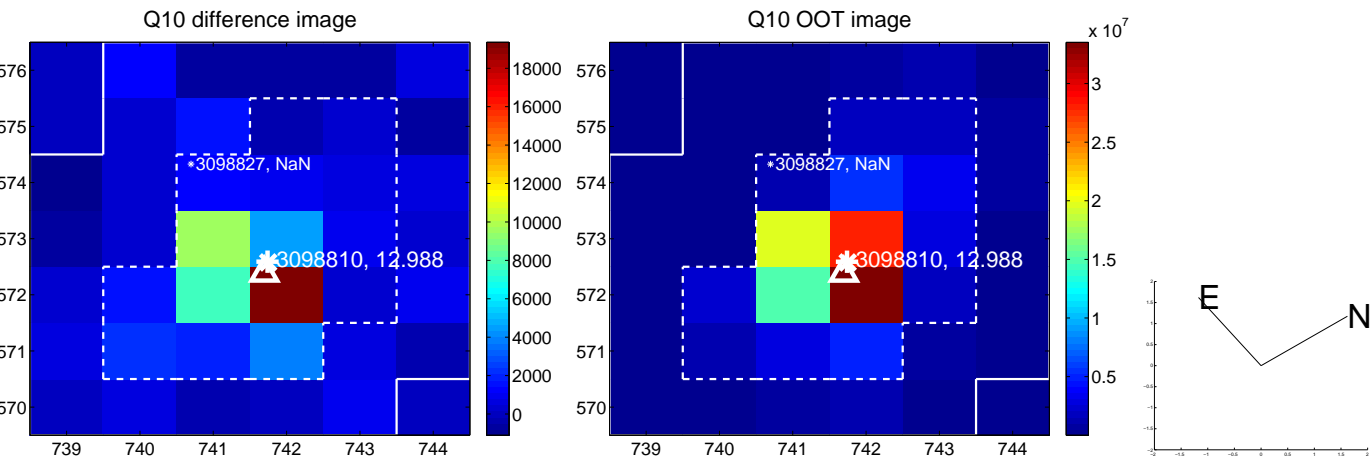
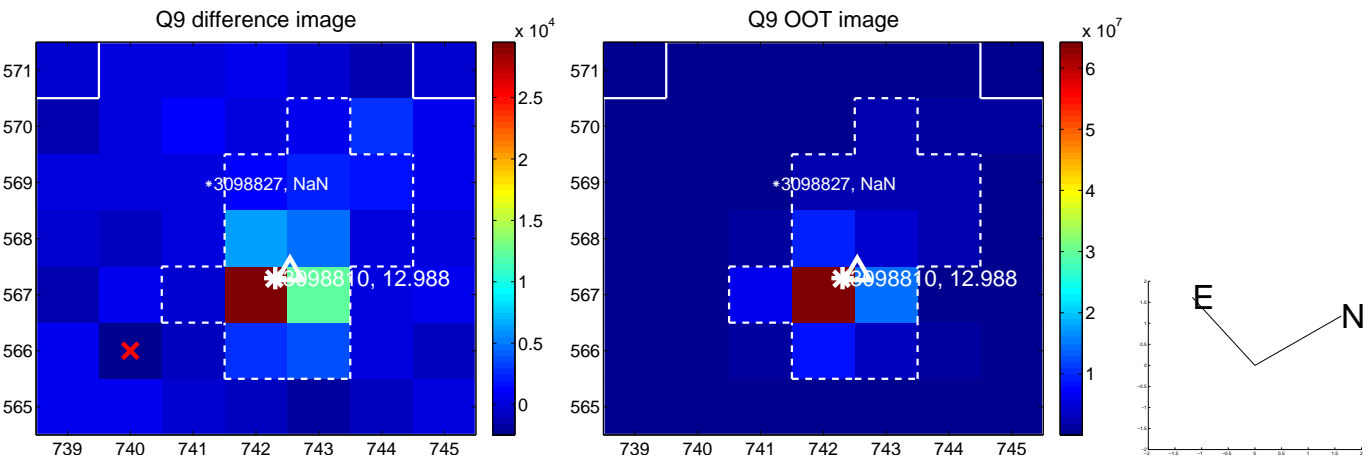
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



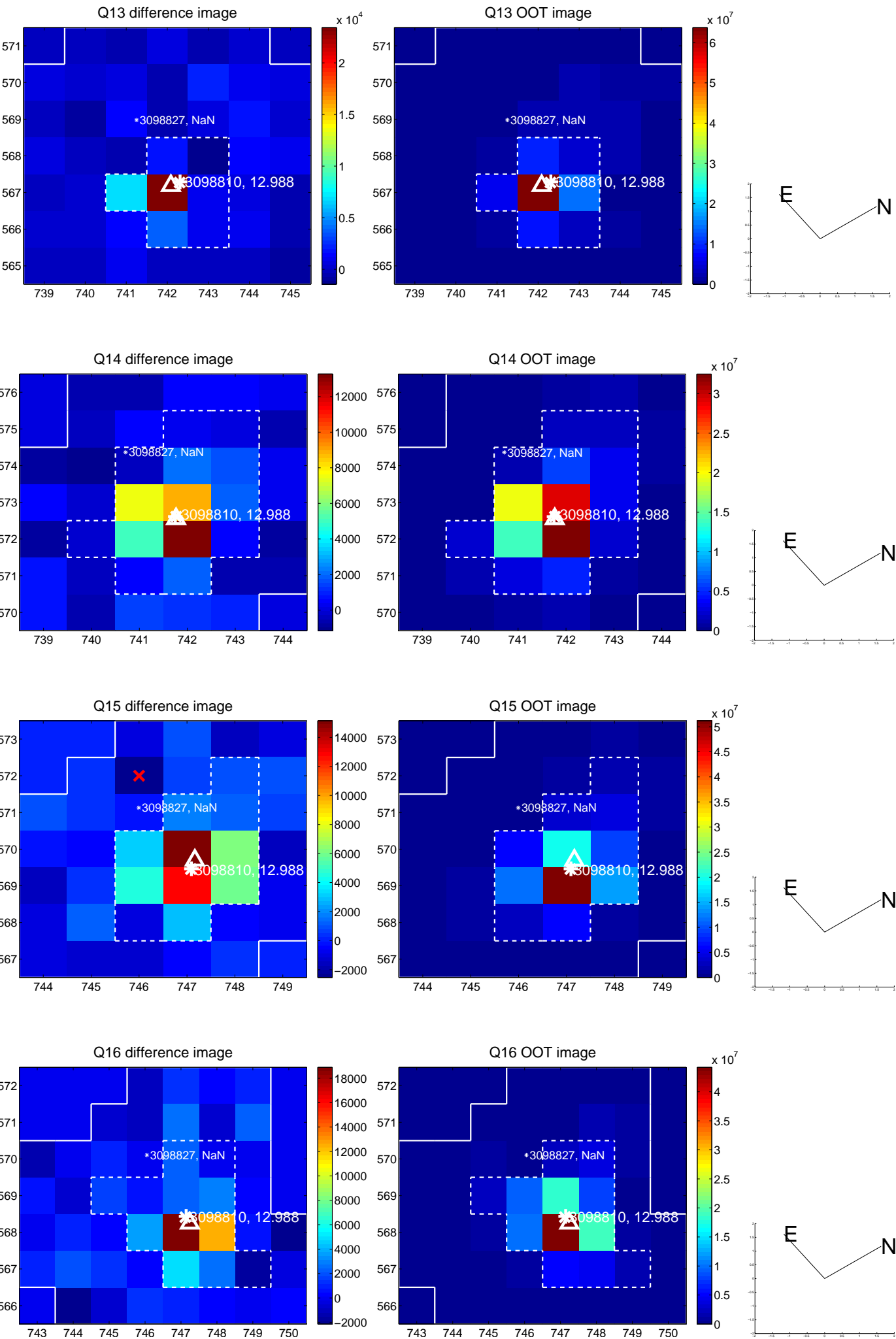
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



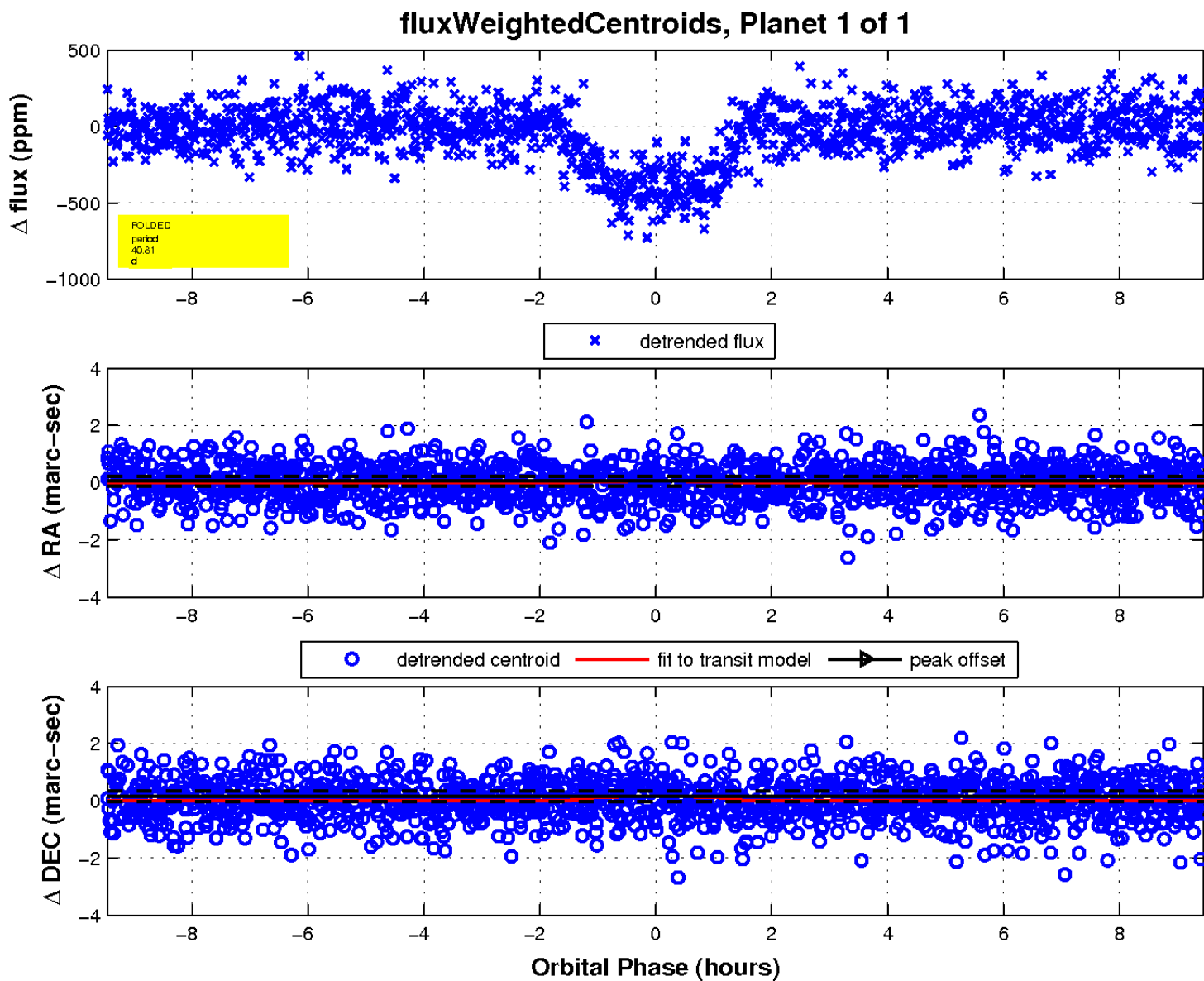
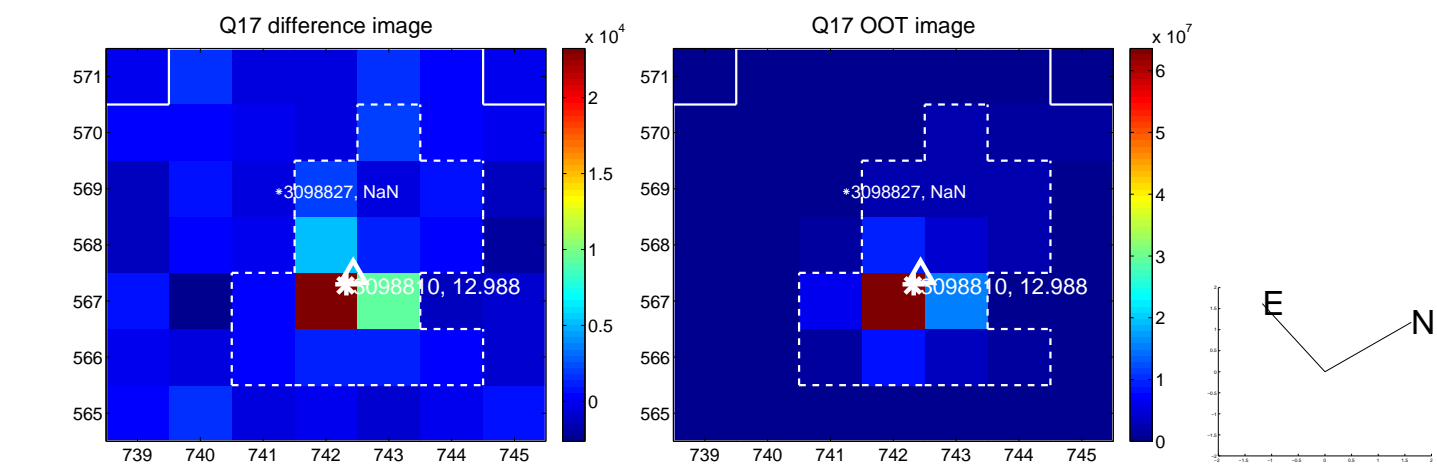
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

