

# KIC 009844088

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009844088-01	OBS	0470.01	3.750835	133.643053	2397.6	2.045	205.5	204.4	0.95	5776	5.03	385.23

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009844088-01	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.

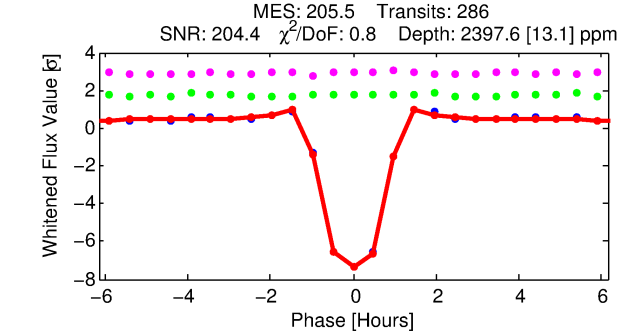
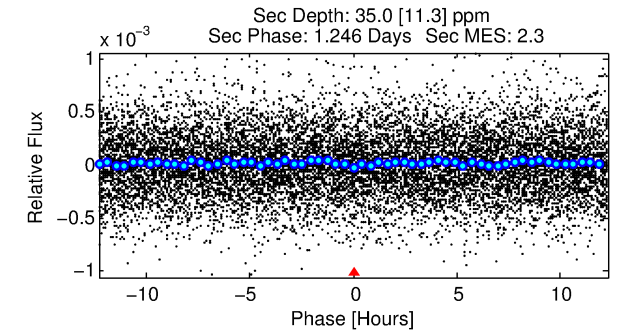
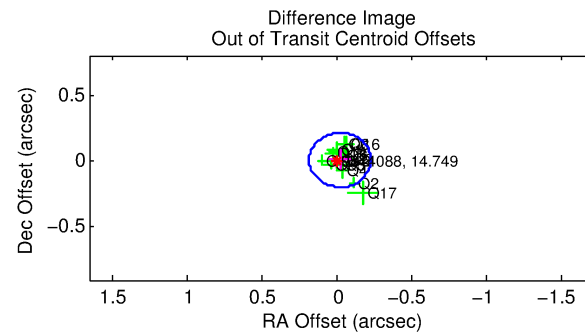
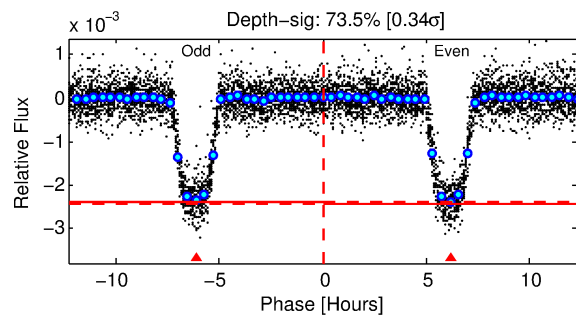
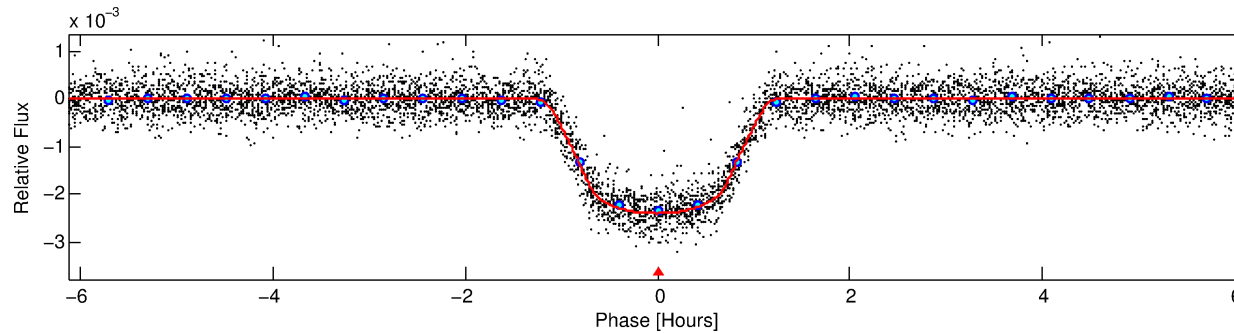
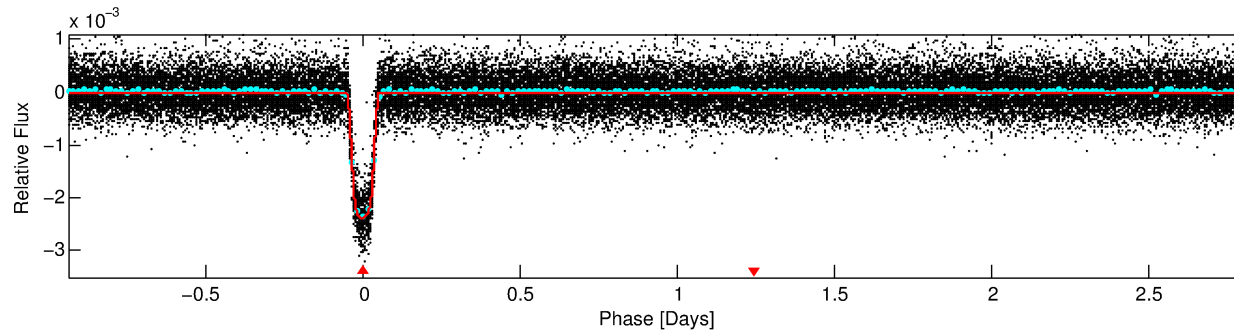
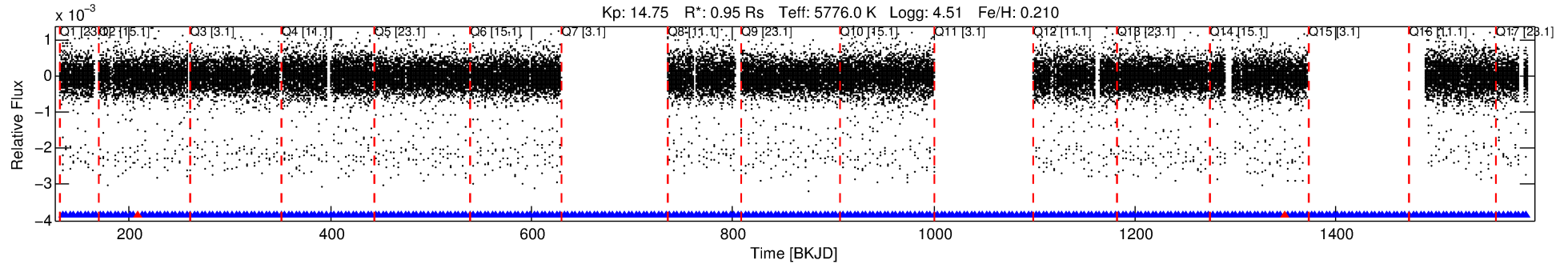
## Ephemeris Match Information For 009844088-01

No Significant Match Found

# DV One-Page Summary

KIC: 9844088 Candidate: 1 of 1 Period: 3.751 d  
KOI: K00470.01 Corr: 0.979

Kp: 14.75 R\*: 0.95 Rs Teff: 5776.0 K Logg: 4.51 Fe/H: 0.210



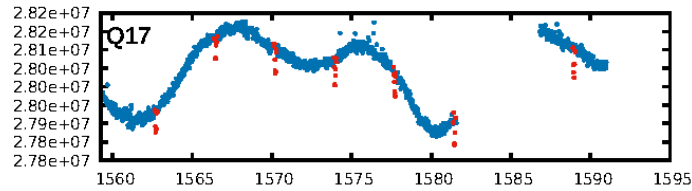
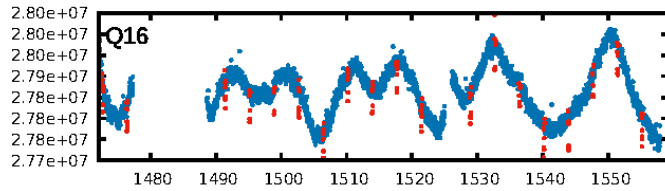
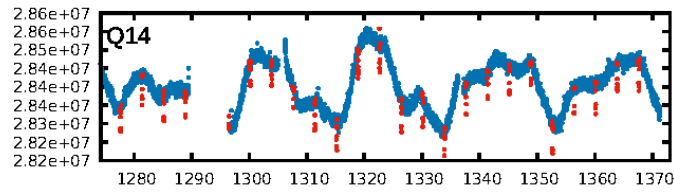
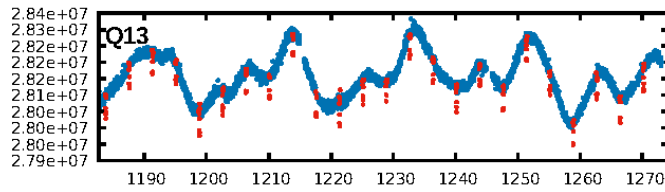
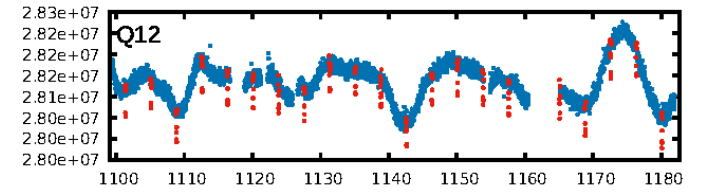
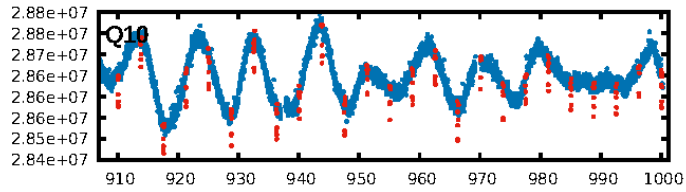
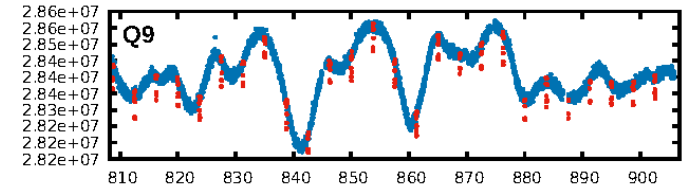
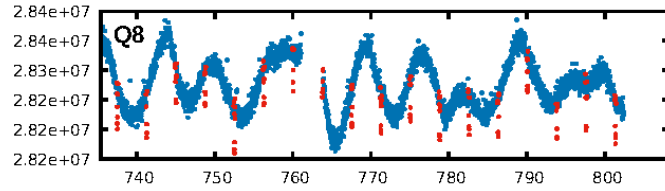
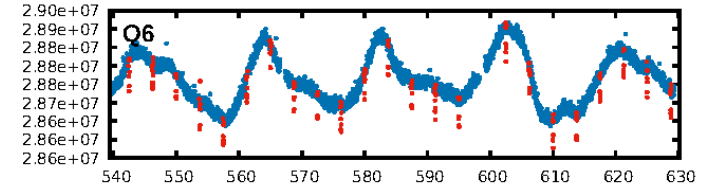
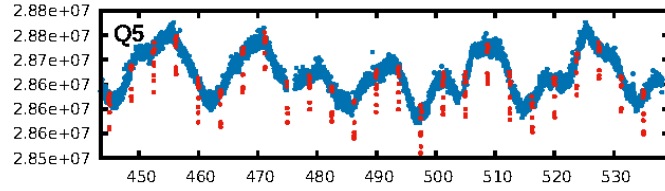
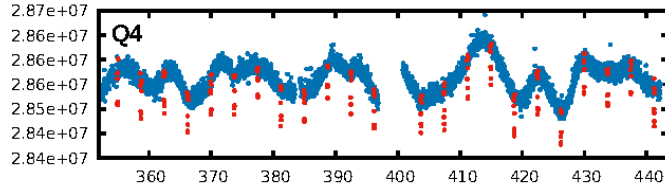
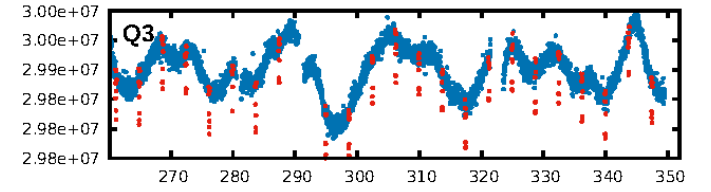
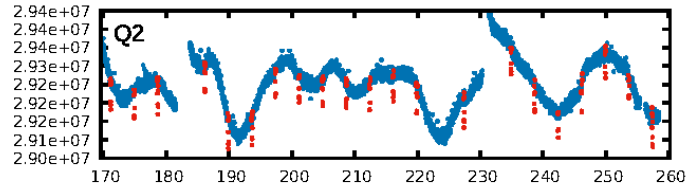
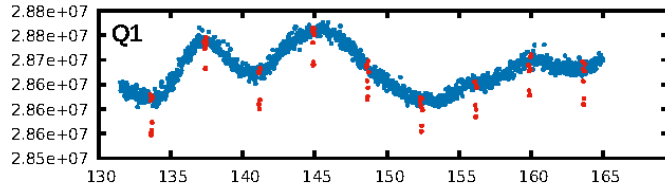
## DV Fit Results:

Period = 3.75084 [0.00000] d  
Epoch = 133.6431 [0.0002] BKJD  
Rp/R\* = 0.0485 [0.0017]  
a/R\* = 10.58 [1.54]  
b = 0.73 [0.10]  
Seff = 385.23 [148.98]  
Teq = 1130 [109] K  
Rp = 5.03 [1.46] Re  
a = 0.0483 [0.0120] AU  
Ag = 1.78 [0.88] [0.88σ]  
Teffp = 2017 [178] K [4.25σ]

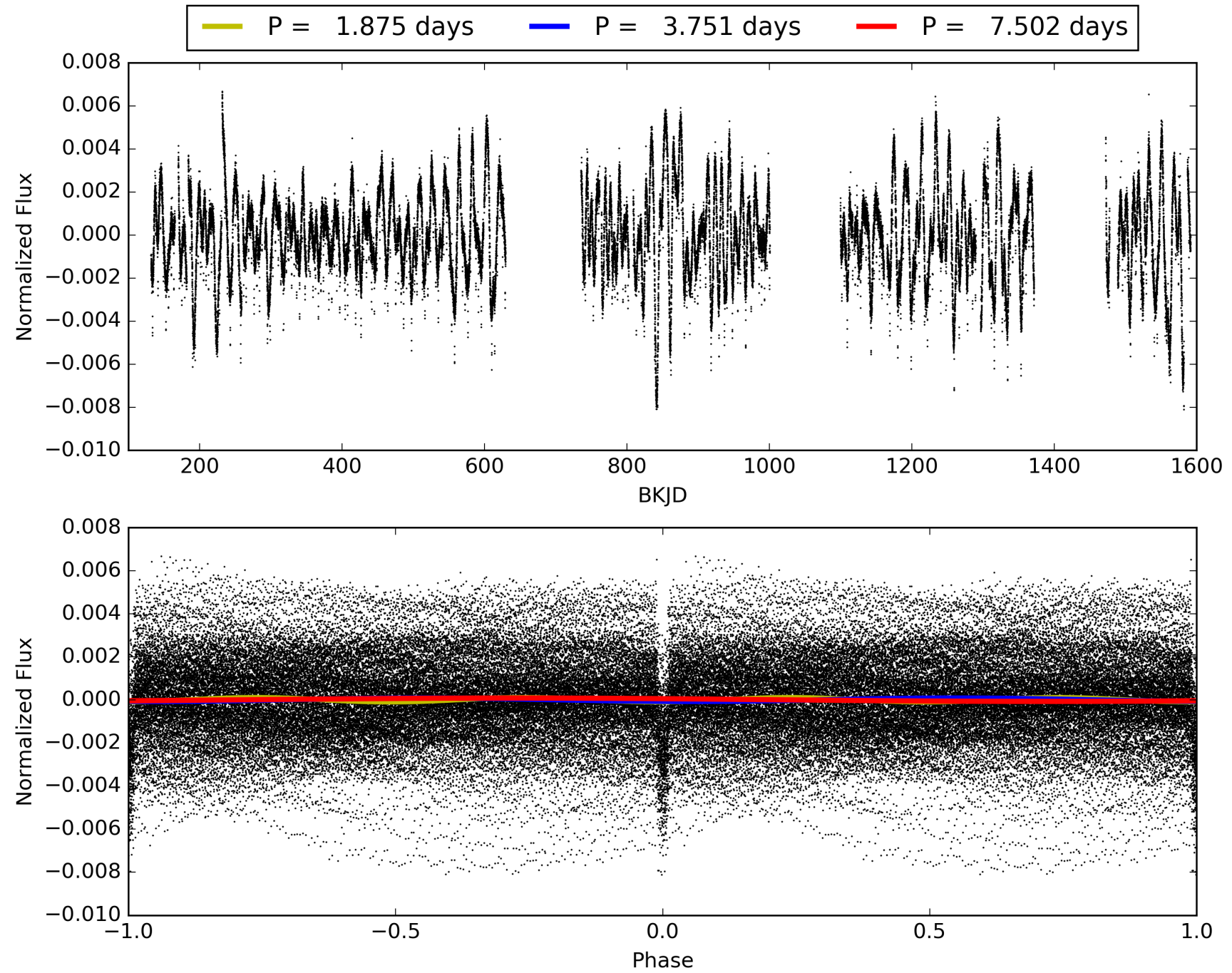
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [268/270]  
GhostDiagnostic-chr: 5.13  
Centroid-sig: 20.8%  
Centroid-so: 0.217 arcsec [3.63σ]  
OotOffset-rm: 0.027 arcsec [0.39σ]  
KicOffset-rm: 0.058 arcsec [0.83σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 009844088-01, PDC Light Curves

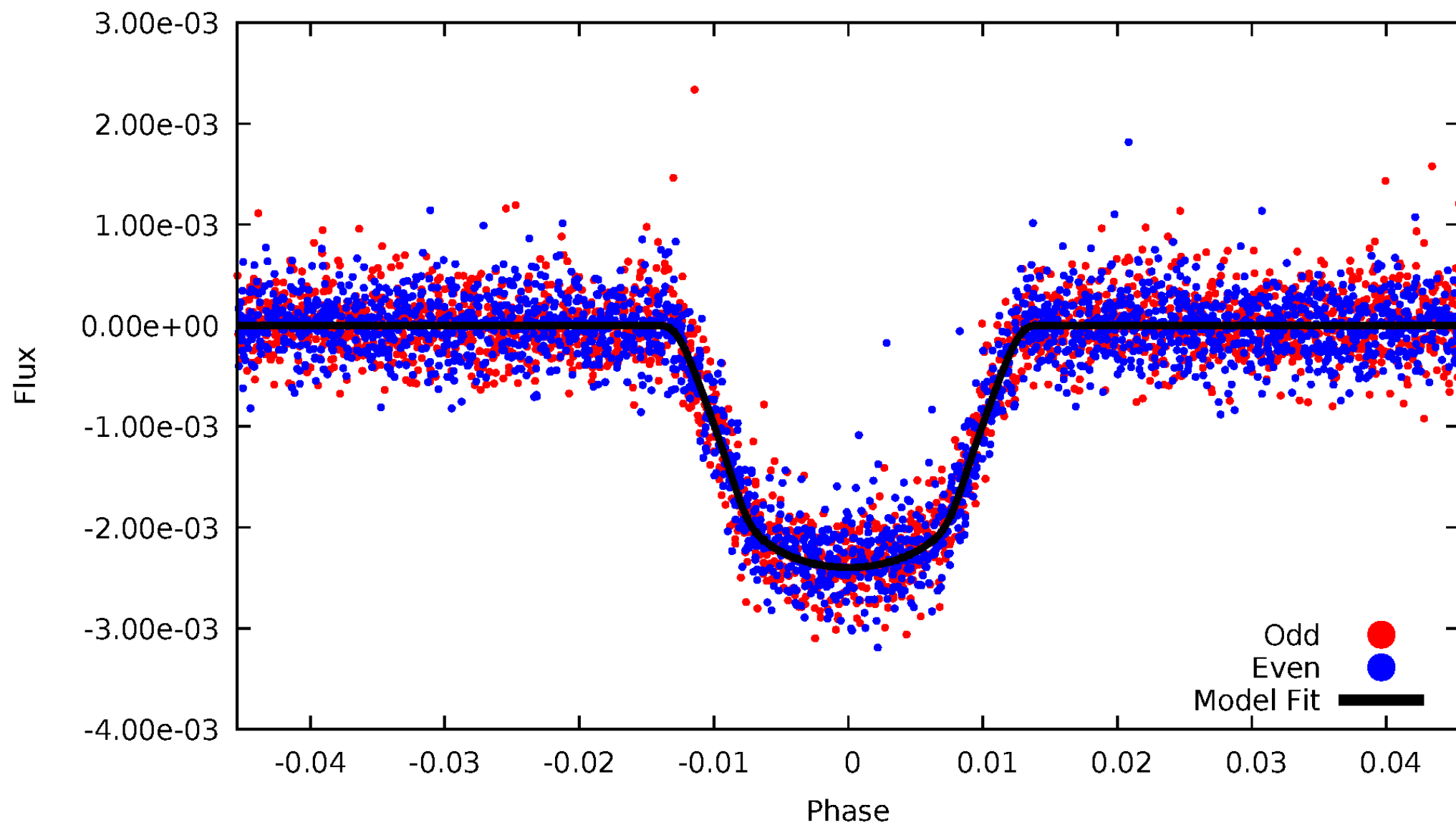


TCE 009844088-01



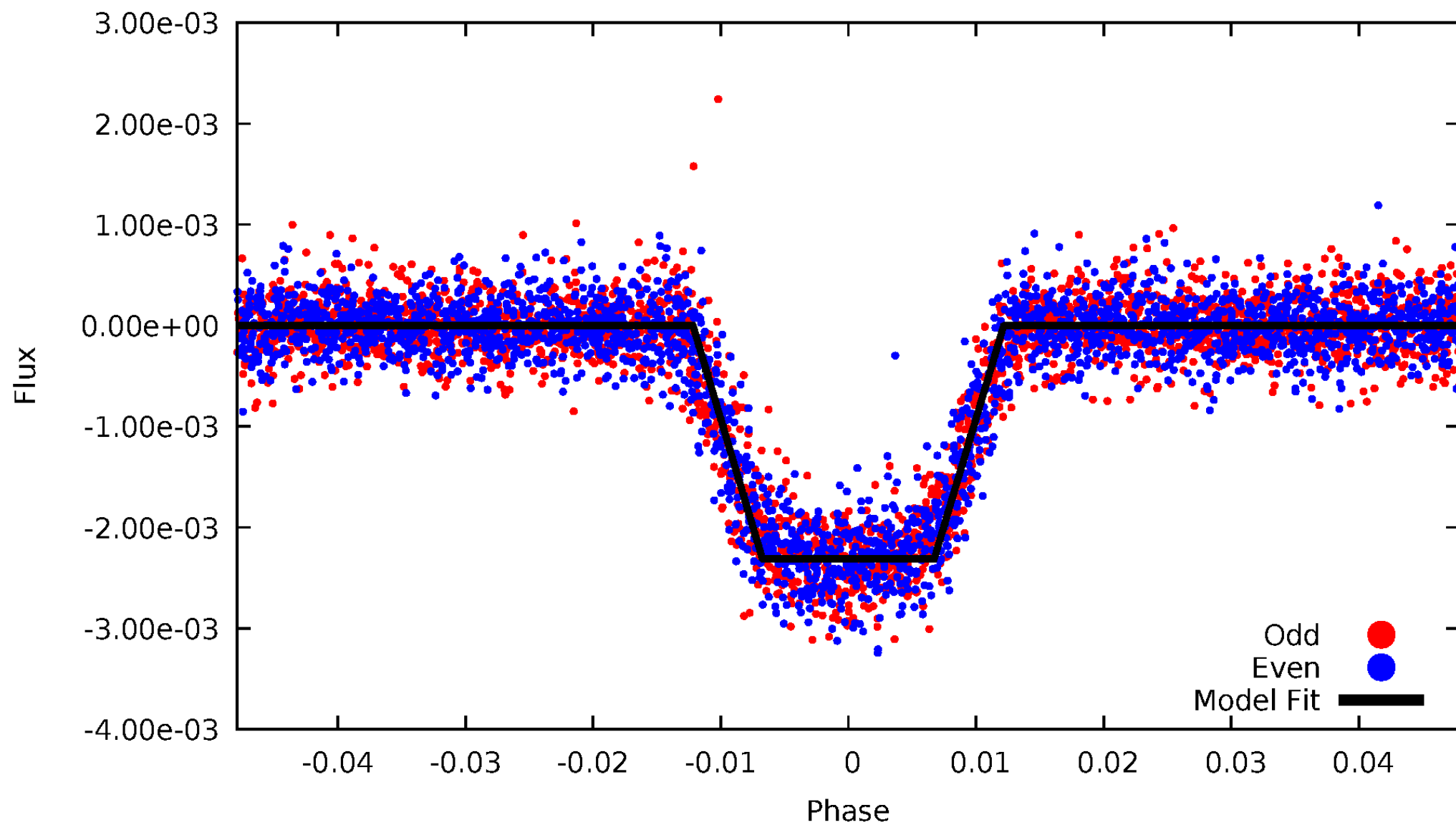
# DV Odd/Even

TCE 009844088-01



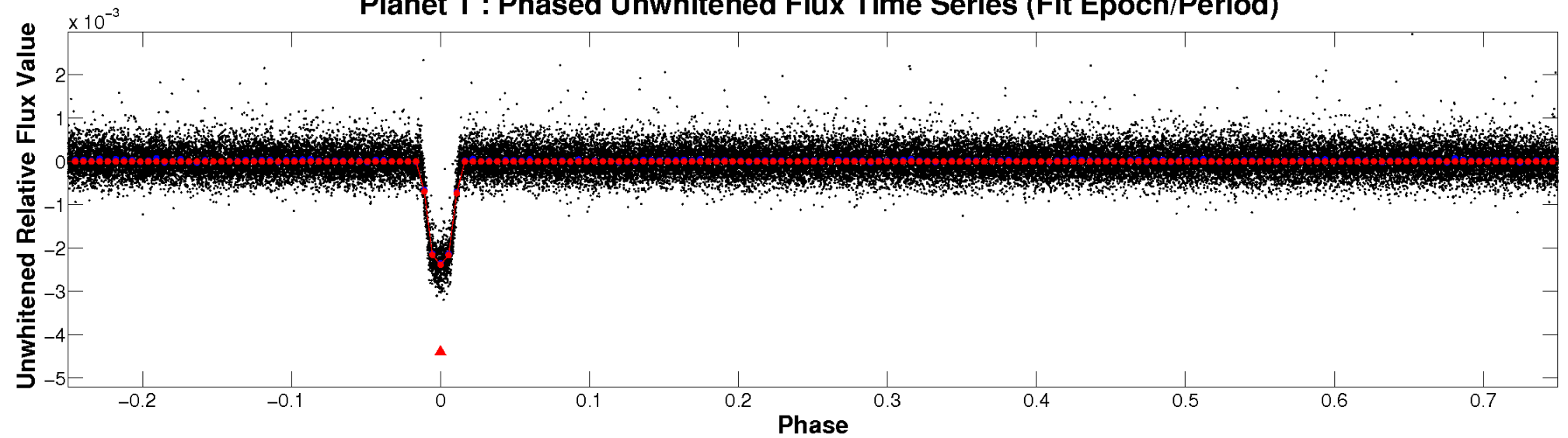
# ALT Odd/Even

TCE 009844088-01

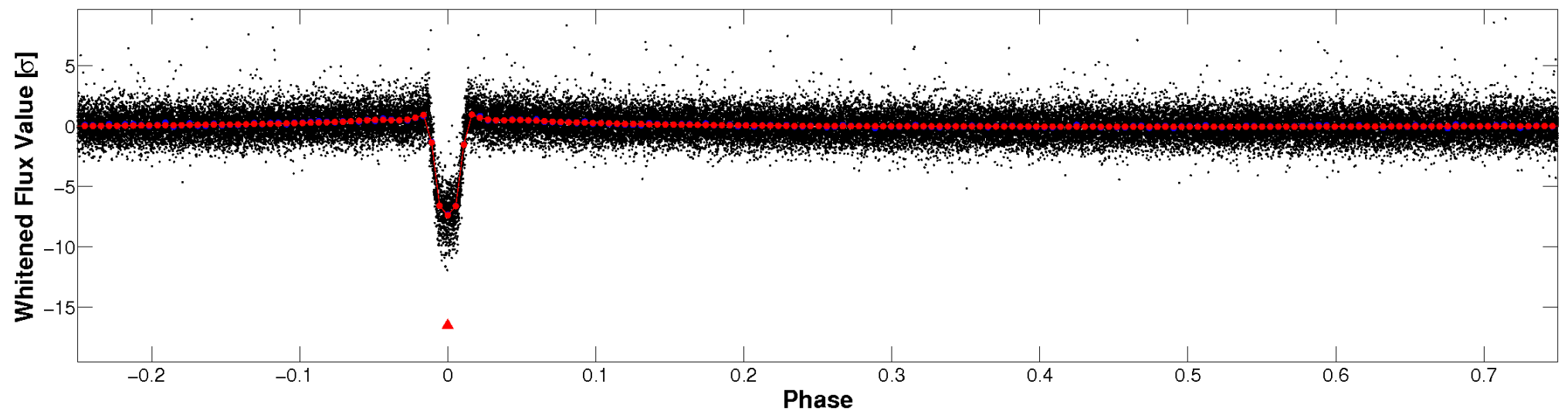


# Non-Whitened Vs. Whitened Light Curve

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



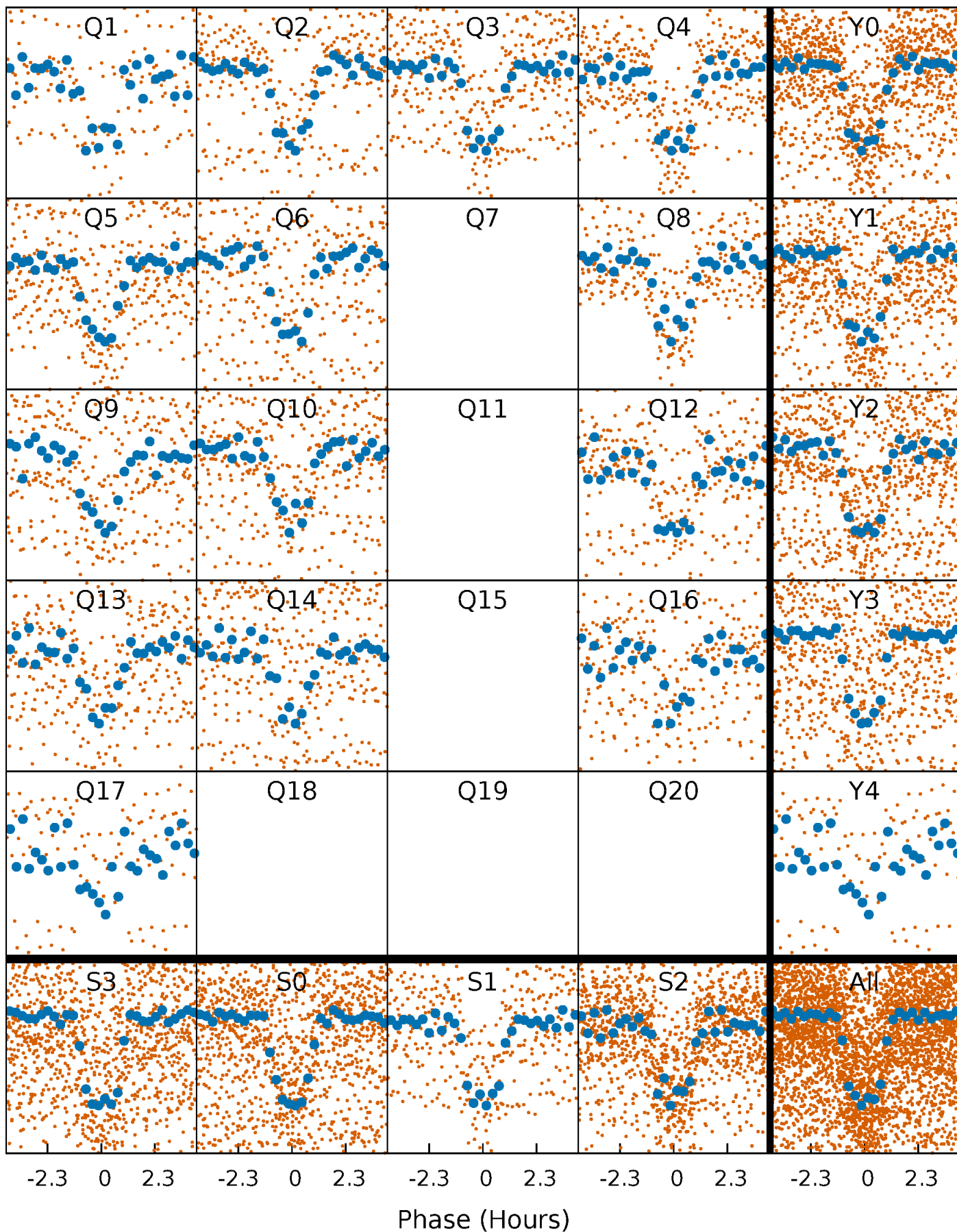
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

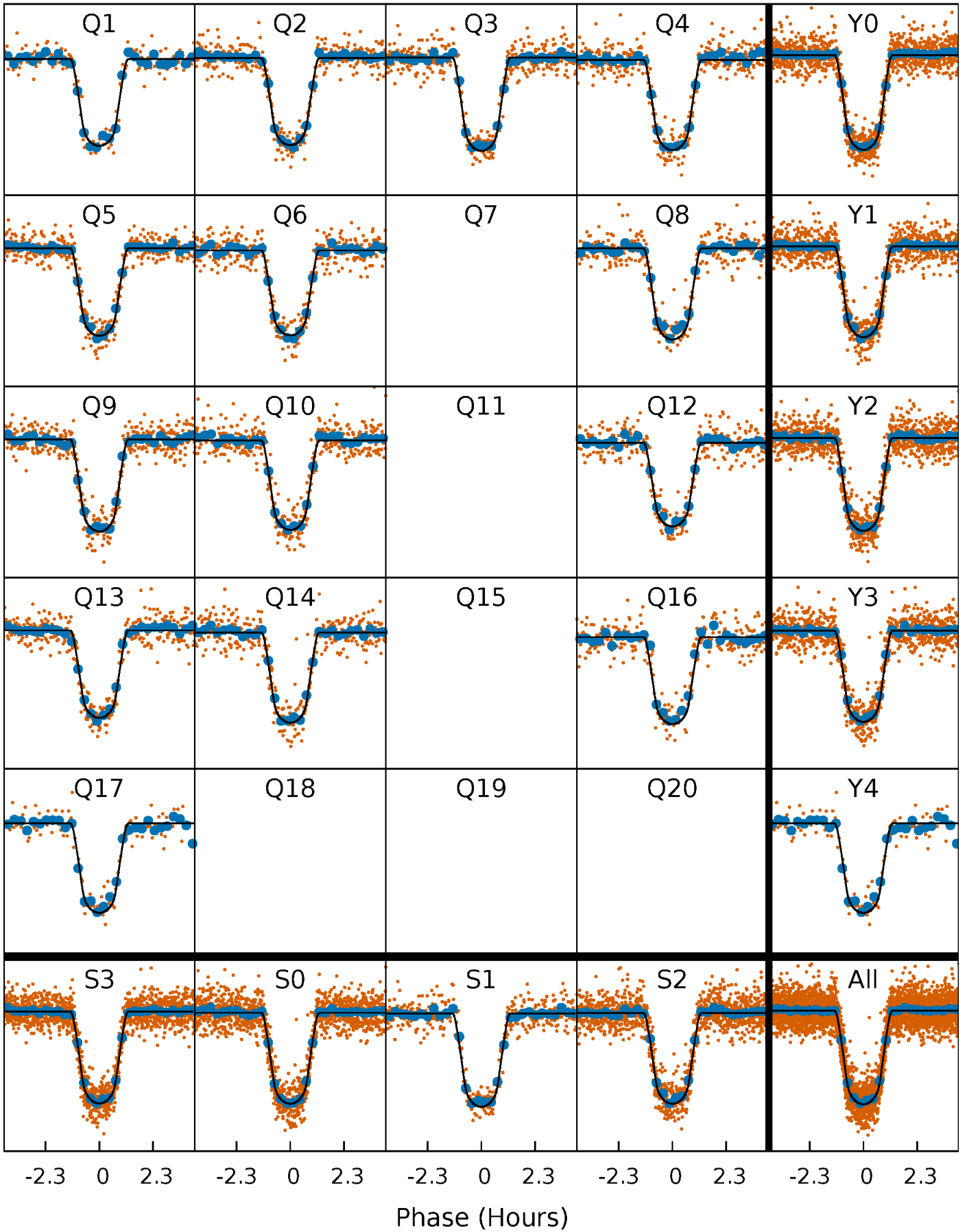
TCE 009844088-01 P= 3.750835 Days  $T_0=133.643053$  (BKJD)





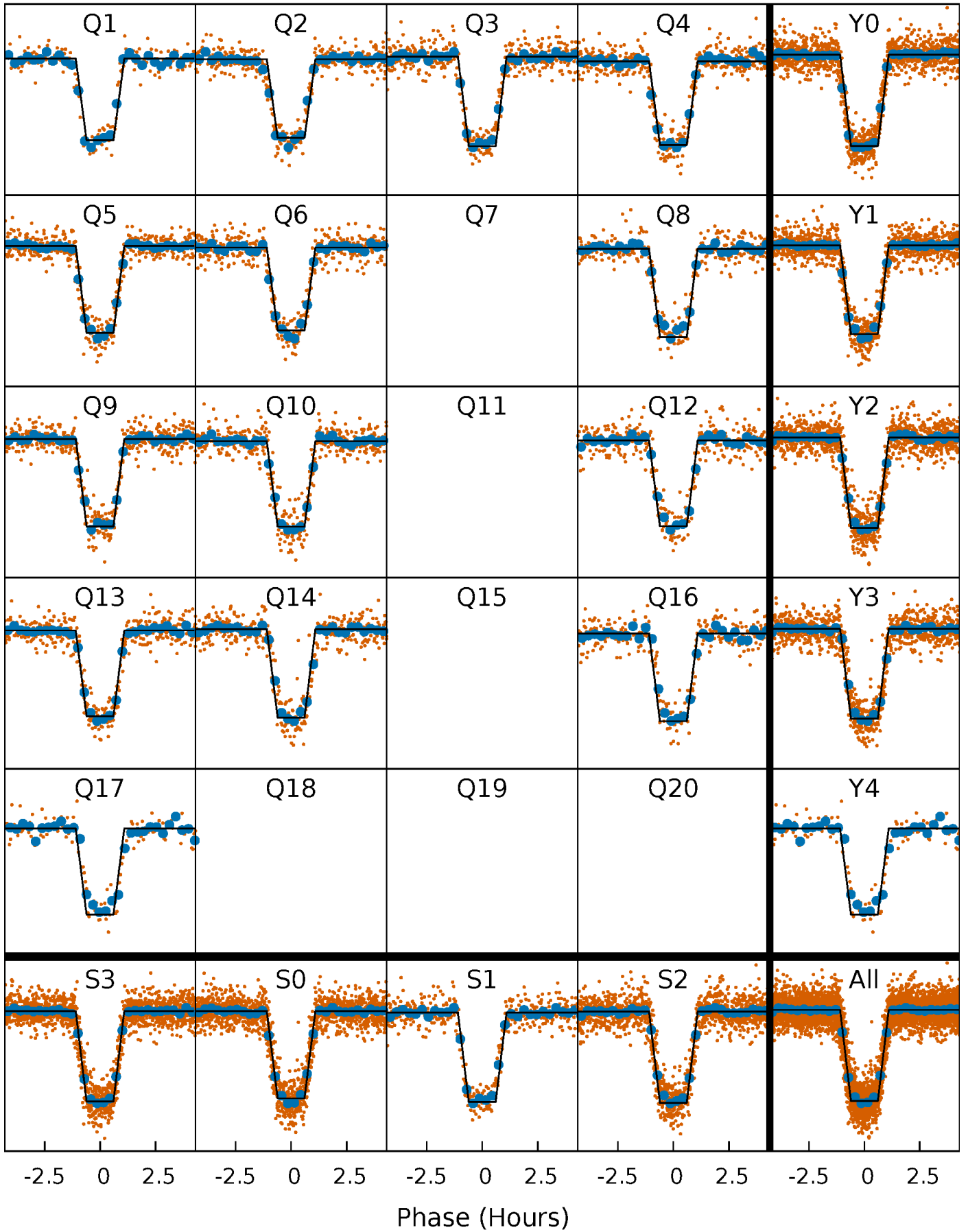
# DV Quarter-Phased Transit Curves

TCE 009844088-01 P= 3.750835 Days  $T_0=133.643053$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

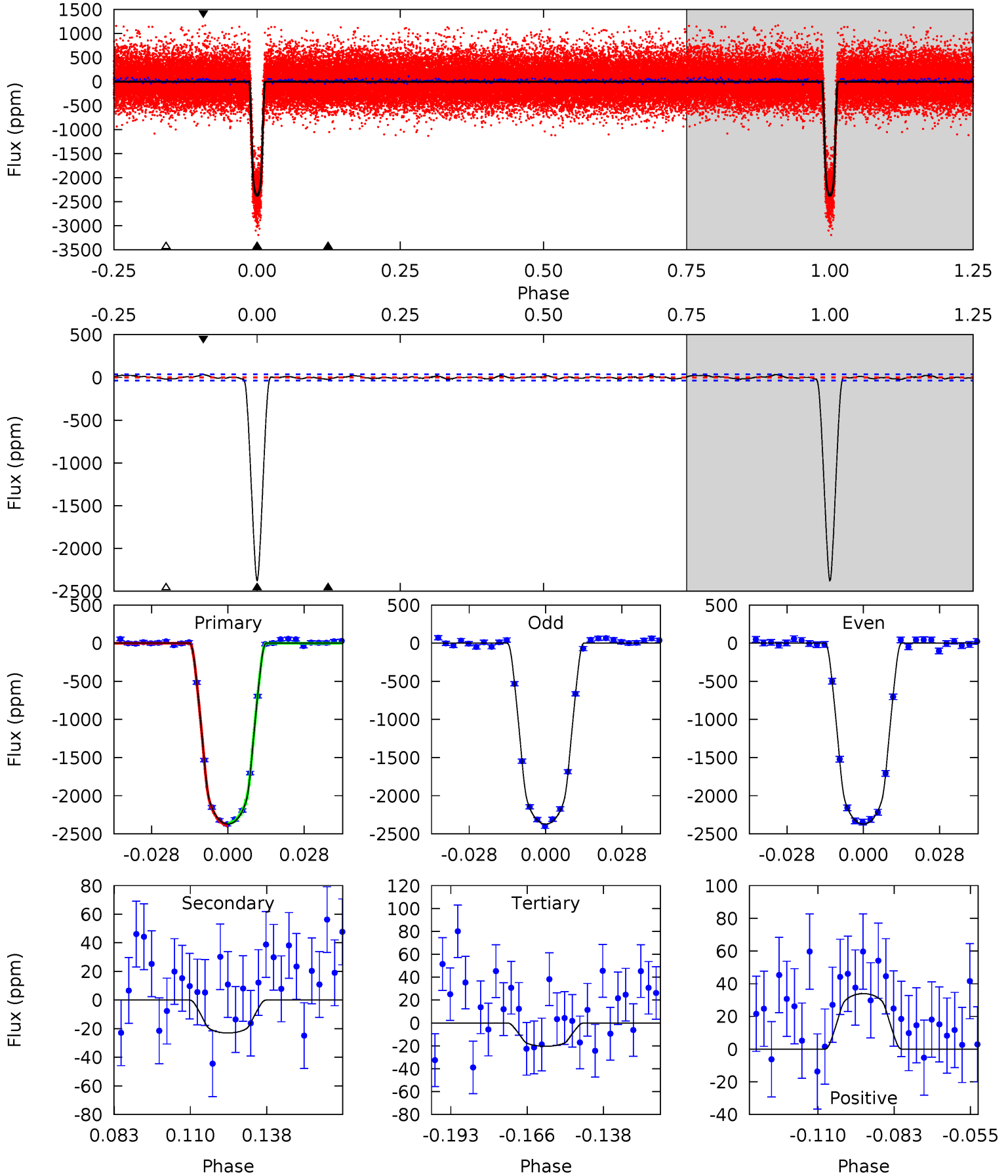
TCE 009844088-01   P= 3.750811 Days    $T_0=133.647345$  (BKJD)



# DV Model-Shift Uniqueness Test

009844088-01, P = 3.750835 Days, E = 129.892218 Days

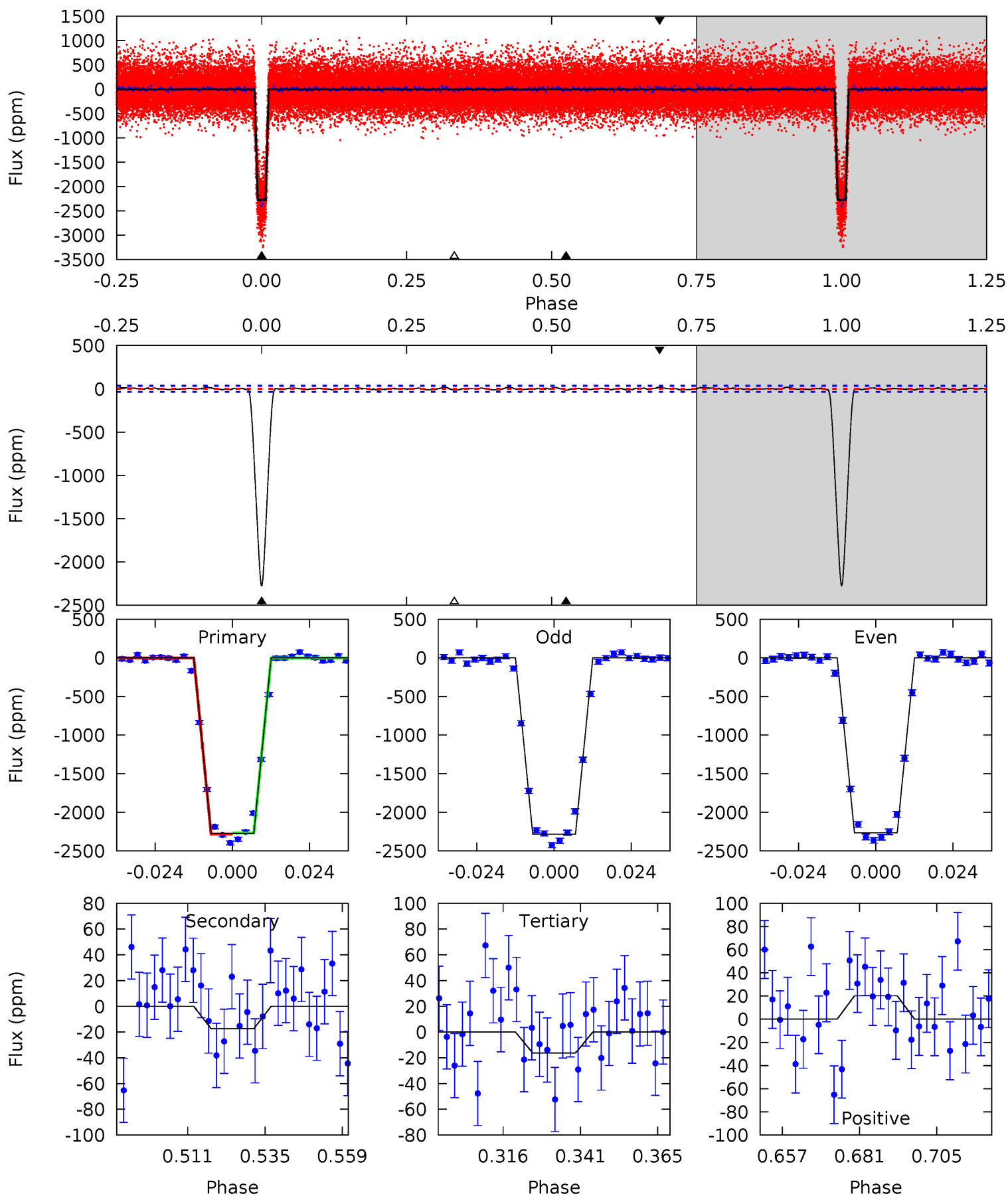
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
310.6	3.01	2.67	4.45	4.83	2.20	1.39	308.0	306.2	0.34	-1.43	0.01	0.99	0.01	1.22



# Alt Model-Shift Uniqueness Test

009844088-01, P = 3.750811 Days, E = 129.896534 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
305.8	2.34	2.20	2.71	4.85	2.25	0.95	303.6	303.1	0.14	-0.38	1.22	0.99	0.01	0.91



### Stellar Parameters For KIC 009844088

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5776^{+156}_{-174}$	$4.512^{+0.036}_{-0.204}$	$0.210^{+0.200}_{-0.300}$	$0.950^{+0.274}_{-0.086}$	$1.068^{+0.091}_{-0.147}$	$1.757^{+0.352}_{-0.918}$
	+3%/-3%	+1%/-5%	+95%/-143%	+29%/-9%	+9%/-14%	+20%/-52%
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 009844088-01 / KOI 0470.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-23 \pm 8$	$5.18^{+0.84}_{-0.43}$	$1616^{+117}_{-76}$	$2501^{+149}_{-198}$	$1.012^{+0.482}_{-0.374}$
Alt.	$-17 \pm 7$	$5.19^{+0.79}_{-0.45}$	$1622^{+112}_{-77}$	$2405^{+163}_{-280}$	$0.792^{+0.402}_{-0.342}$

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

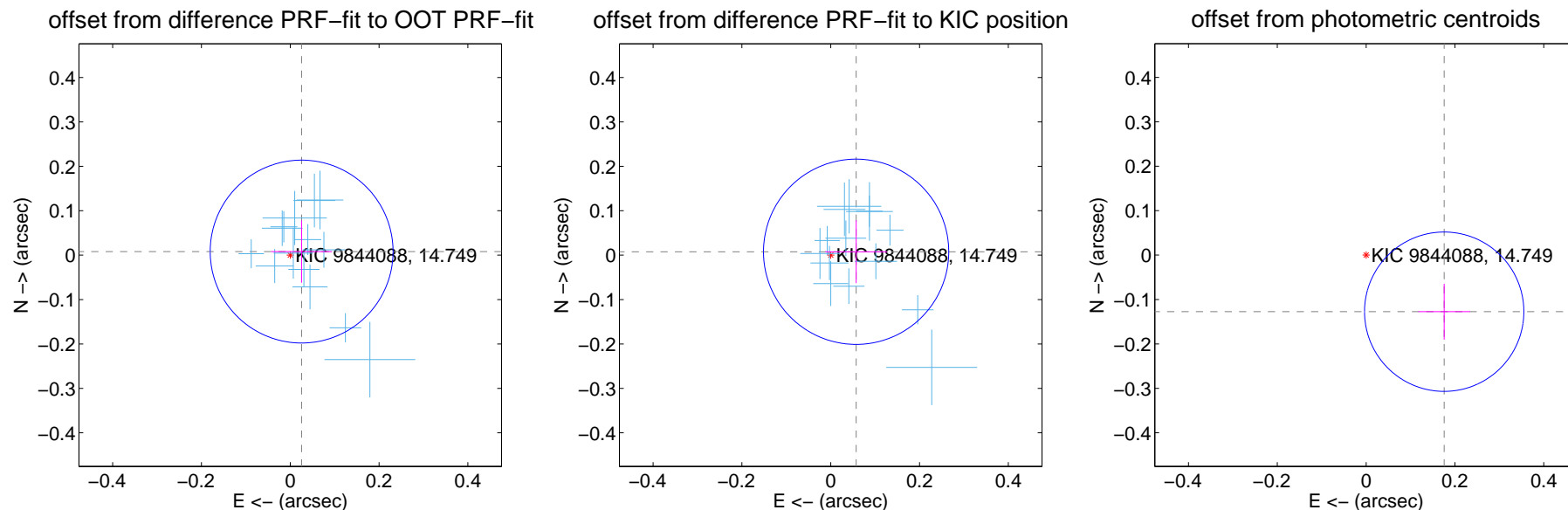
## DV Centroid Data

Supplemental centroid analysis for 009844088-01. Kepler magnitude: 14.75. Transit SNR 204.42

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

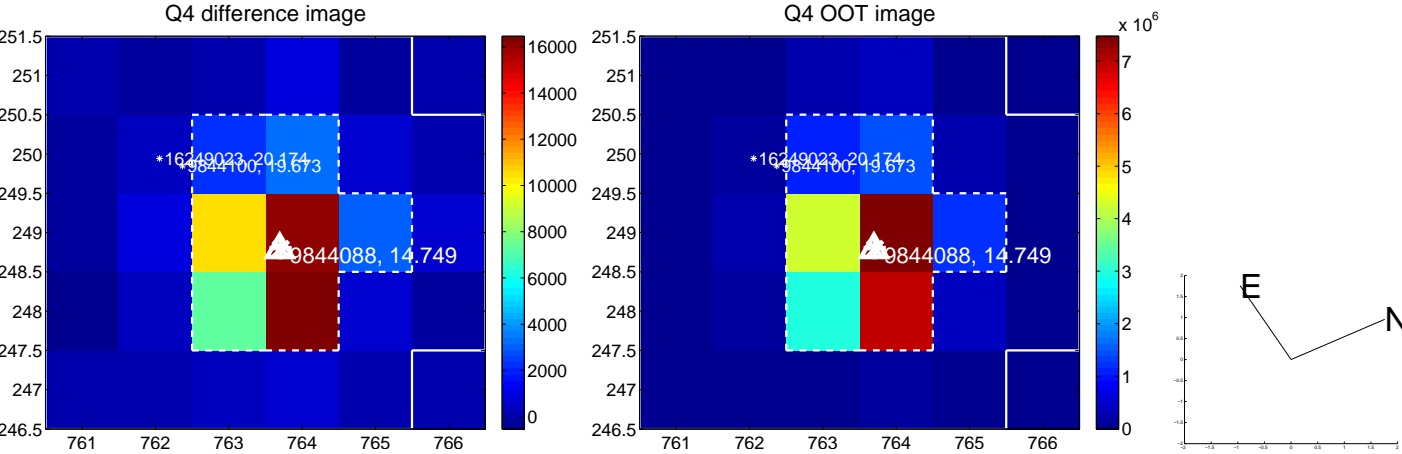
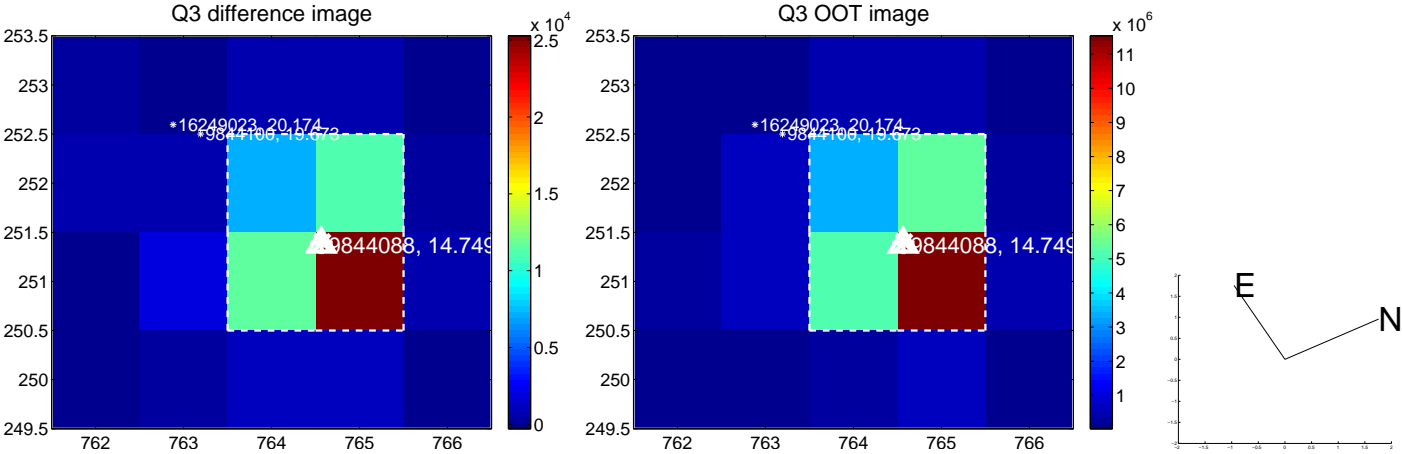
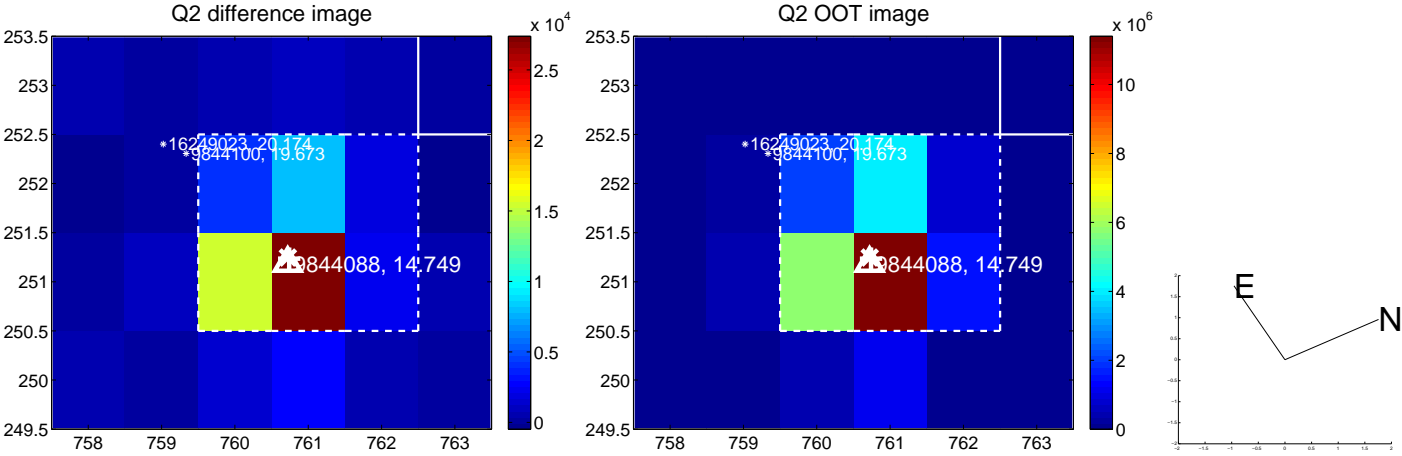
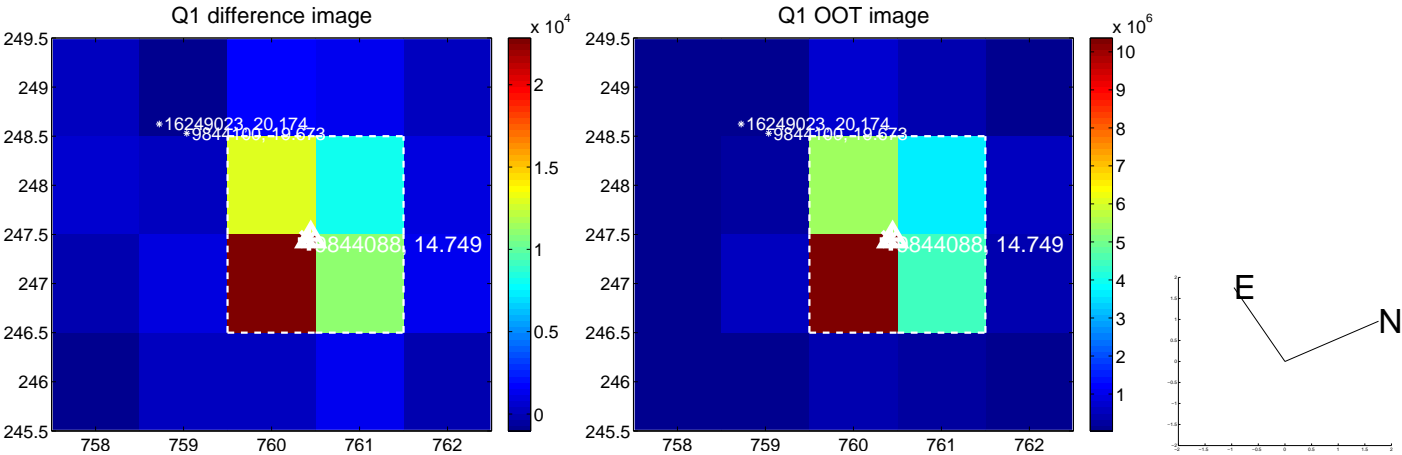
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.027 \pm 0.069$	0.39	$-0.026 \pm 0.069$	$0.008 \pm 0.070$
PRF-fit source offset from KIC position	$0.058 \pm 0.070$	0.83	$-0.057 \pm 0.070$	$0.008 \pm 0.071$
photometric centroid source offset	$0.22 \pm 0.06$	3.63	$-0.18 \pm 0.06$	$-0.13 \pm 0.06$



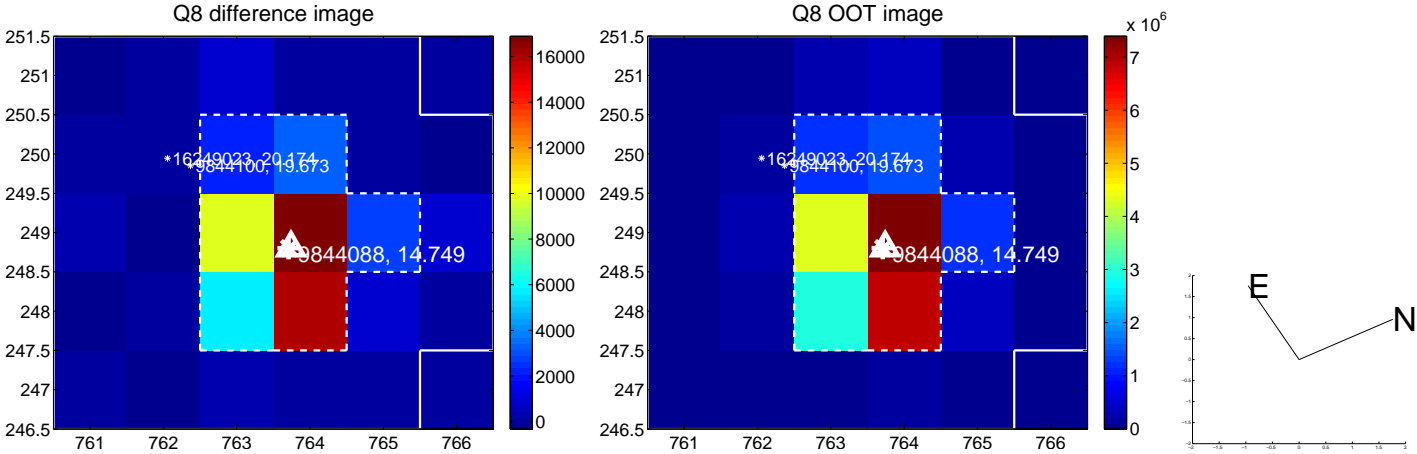
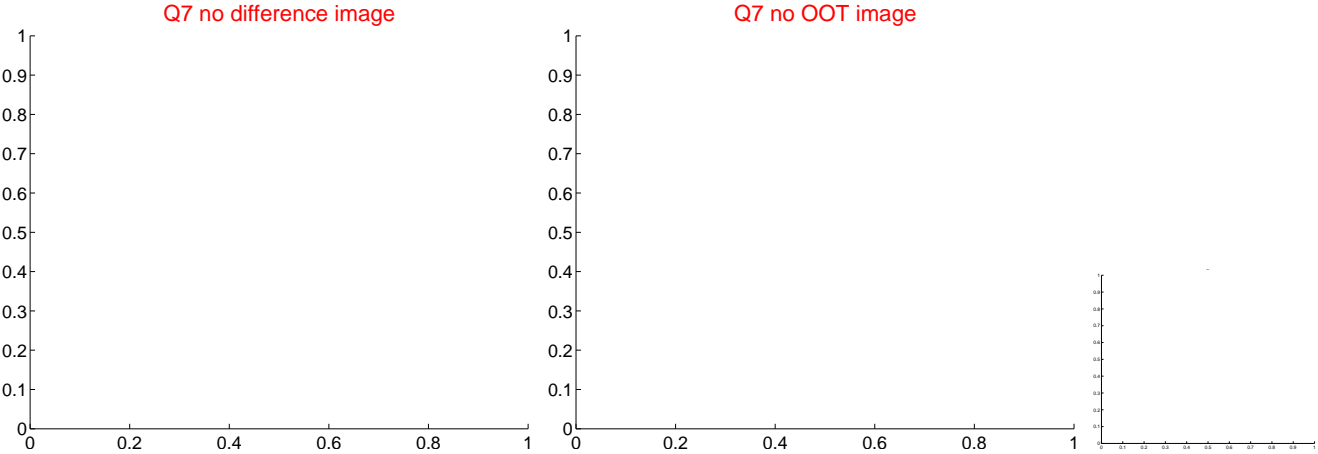
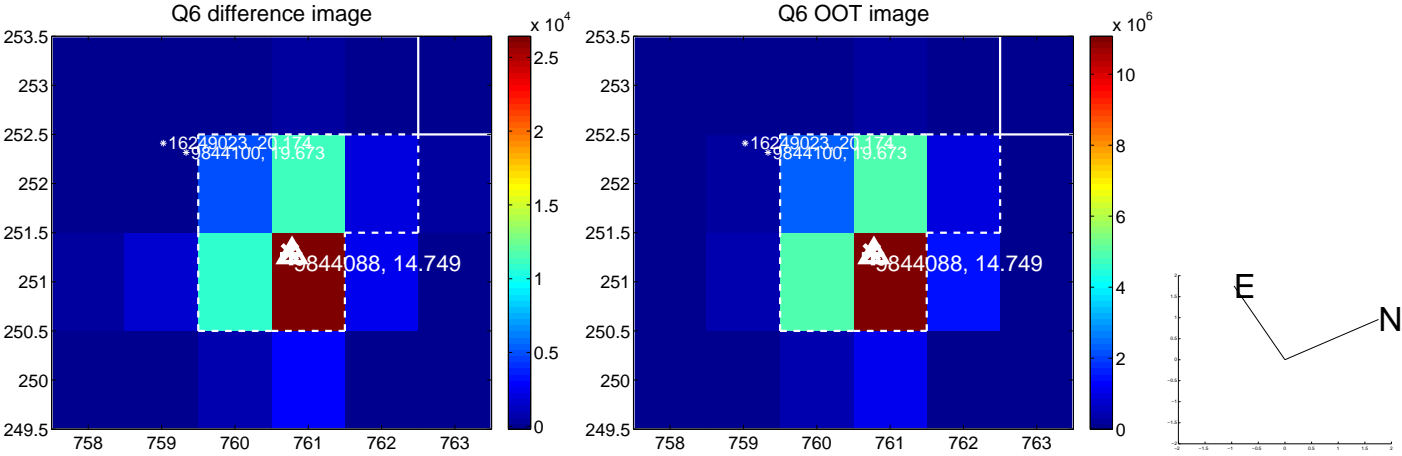
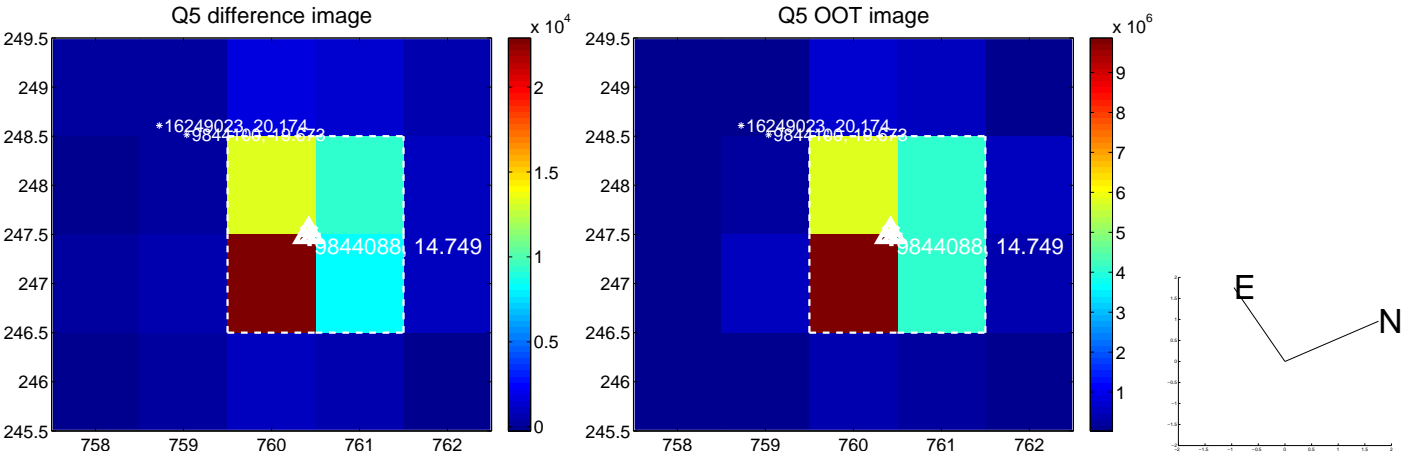
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



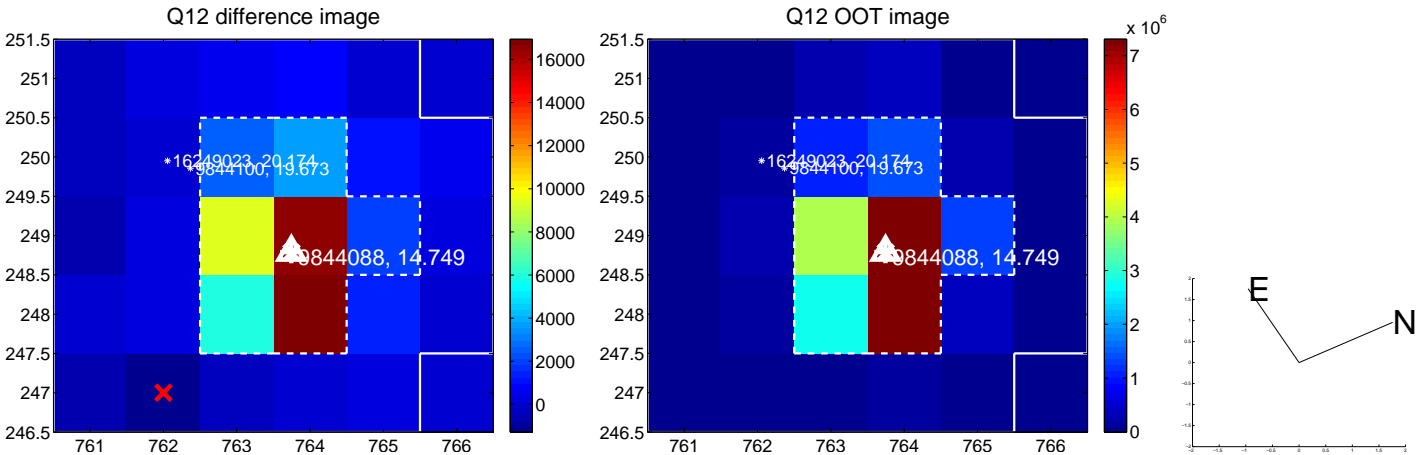
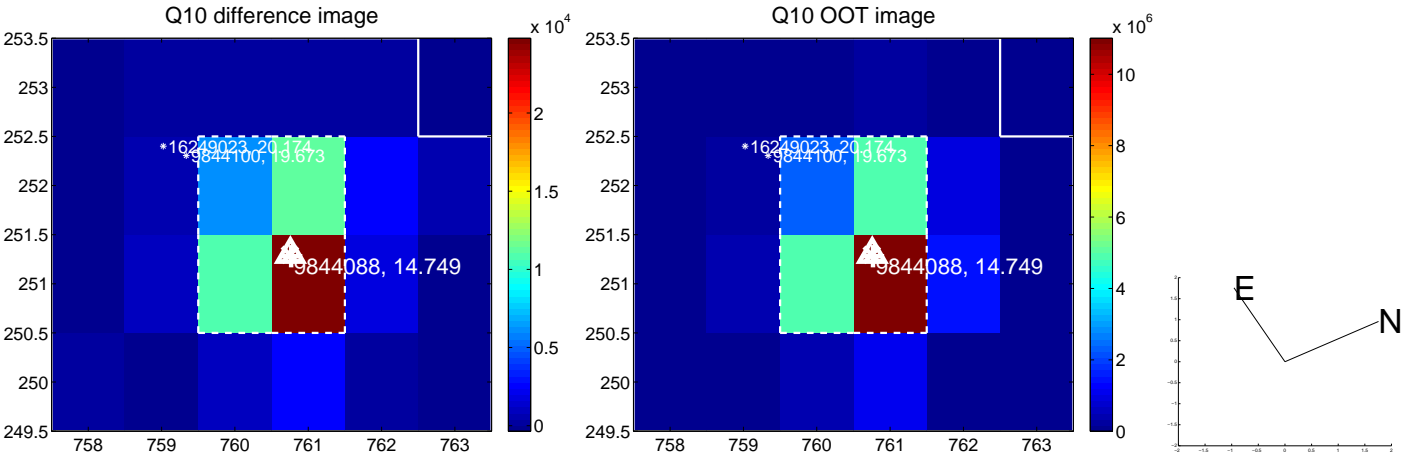
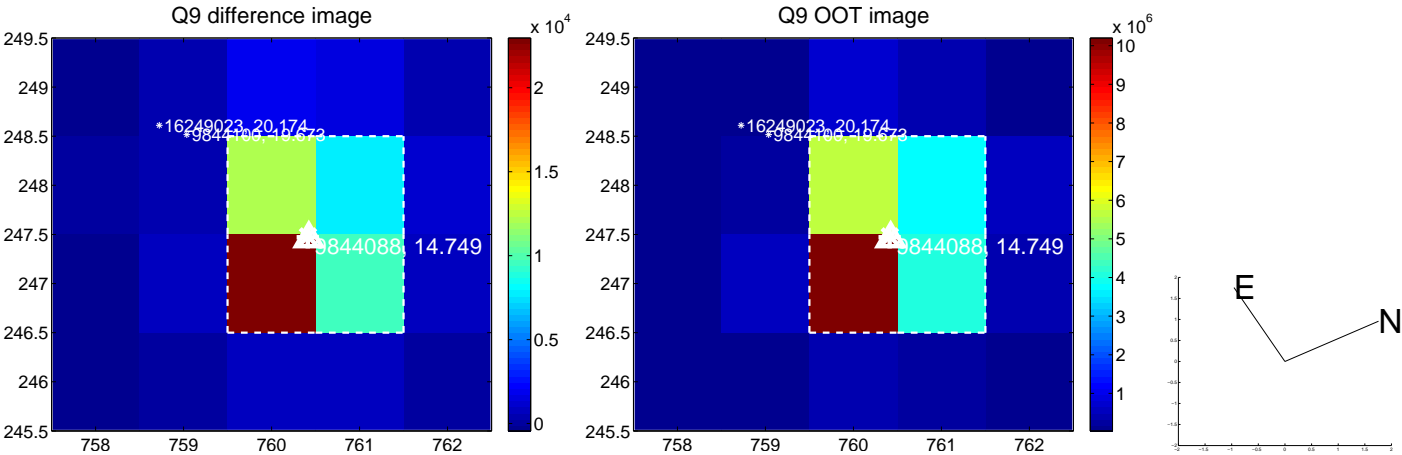
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



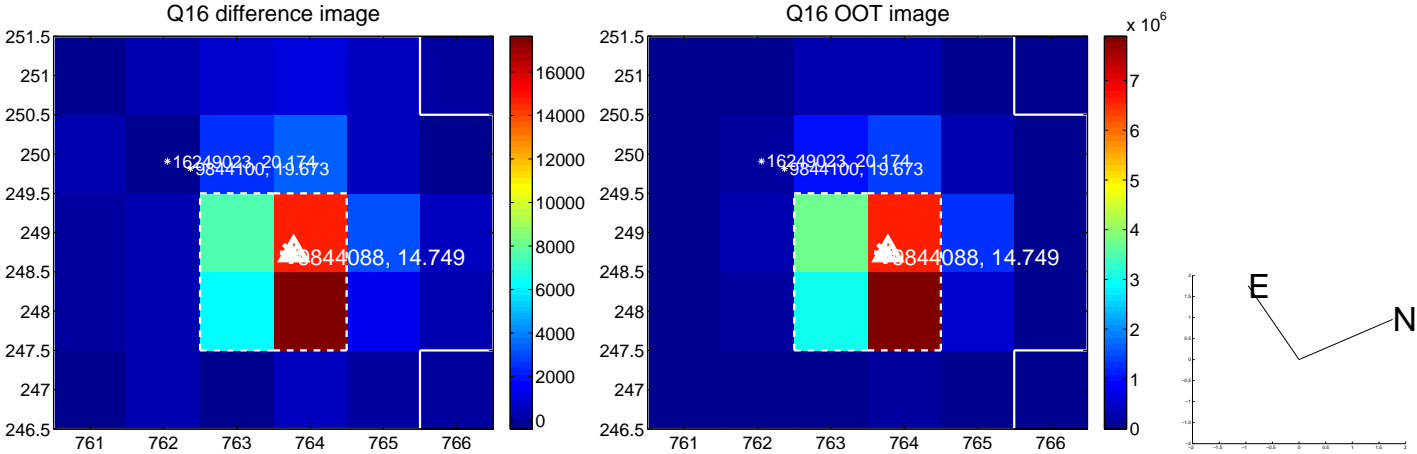
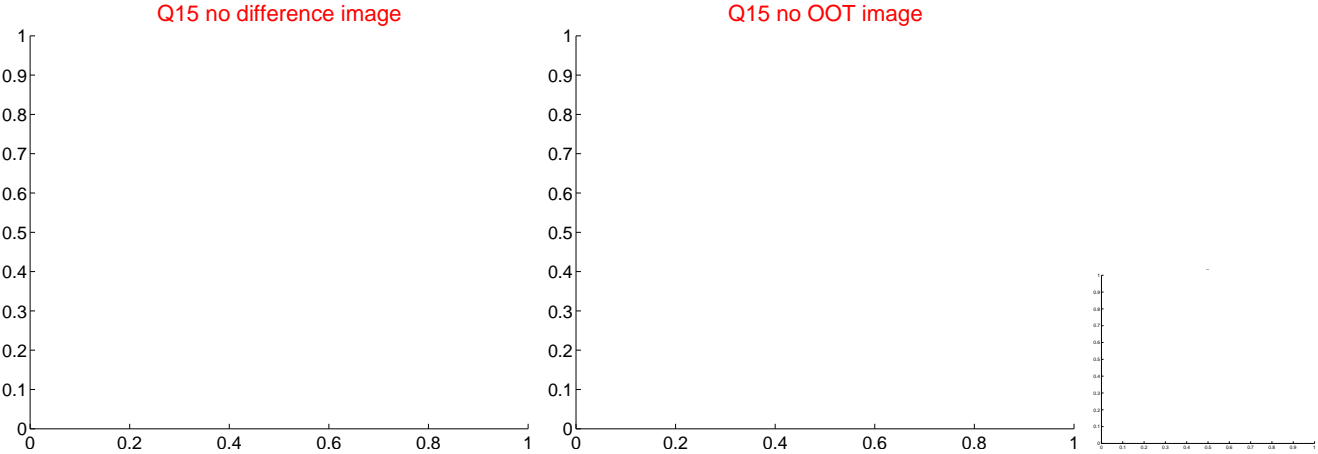
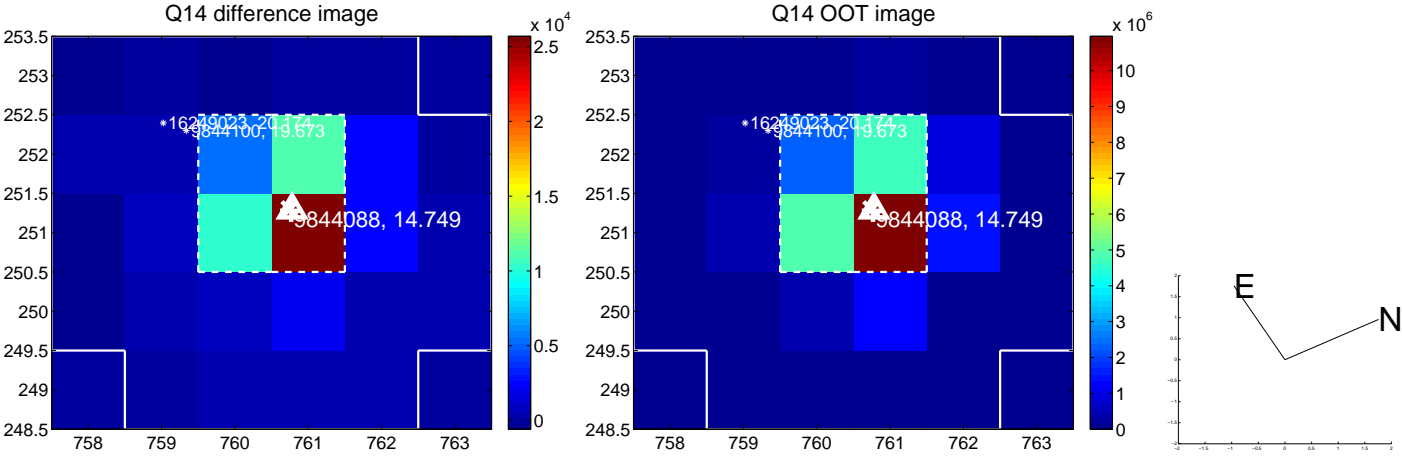
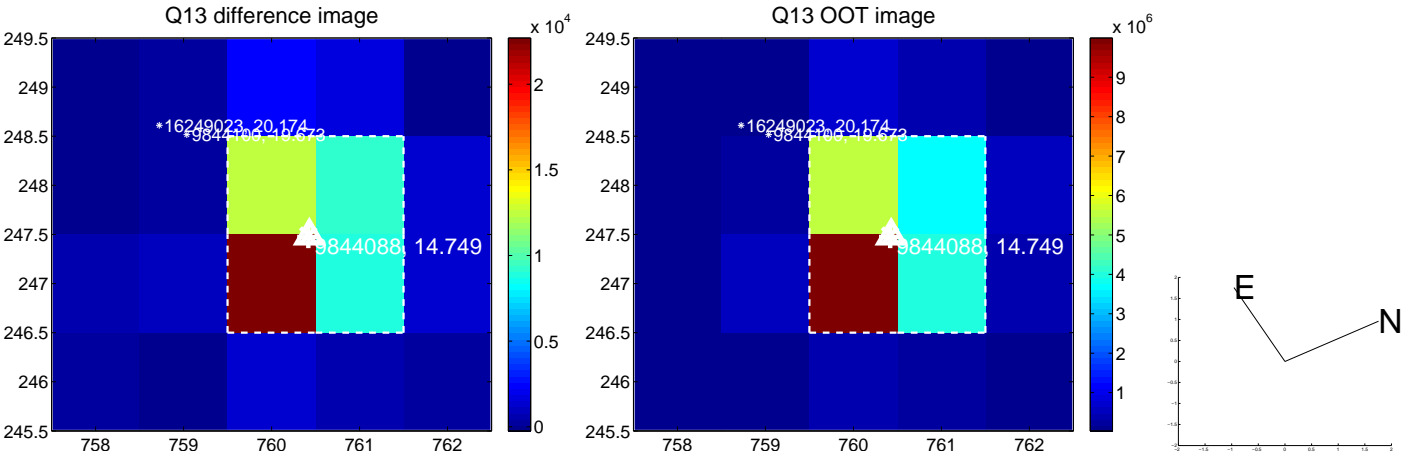
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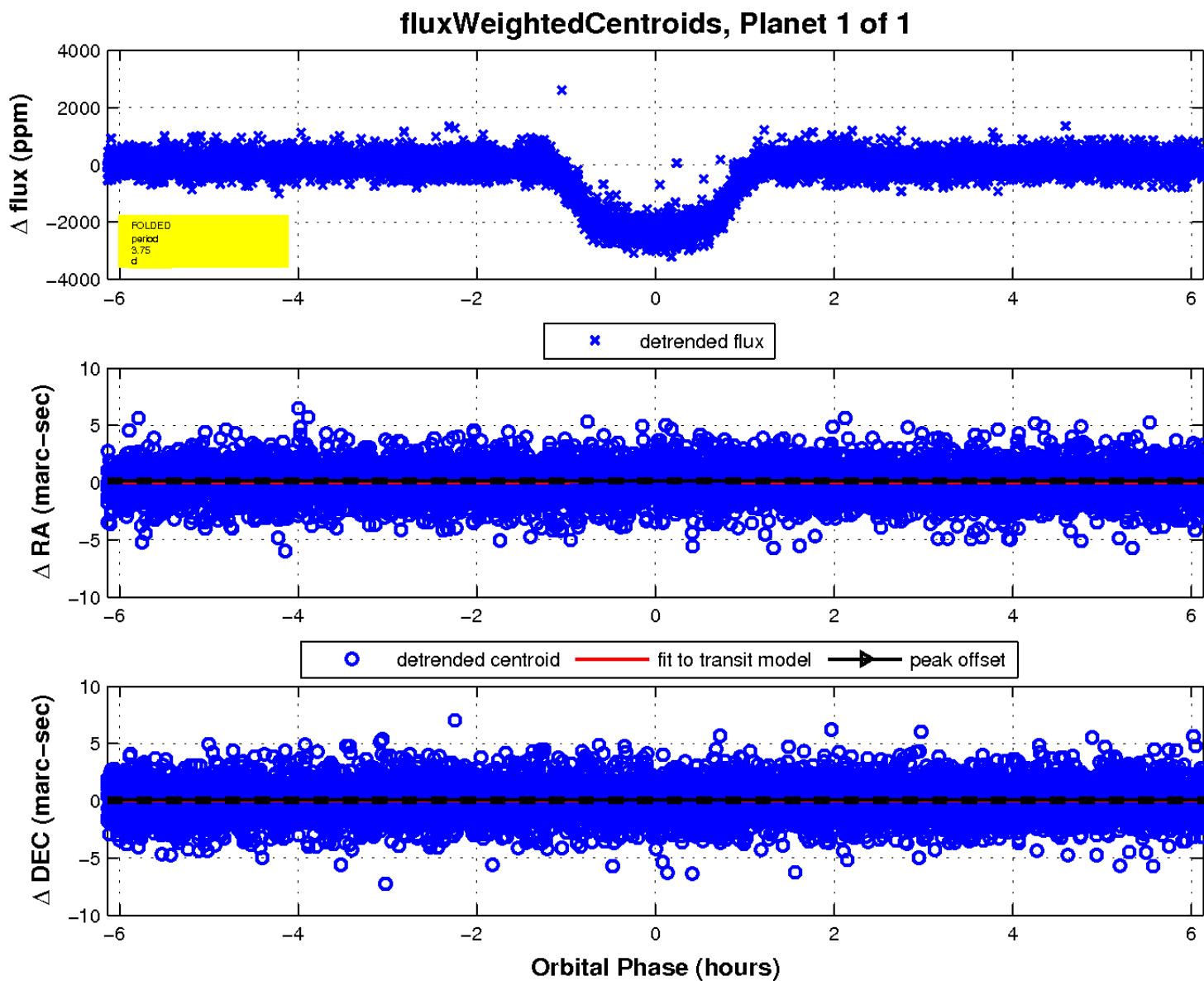
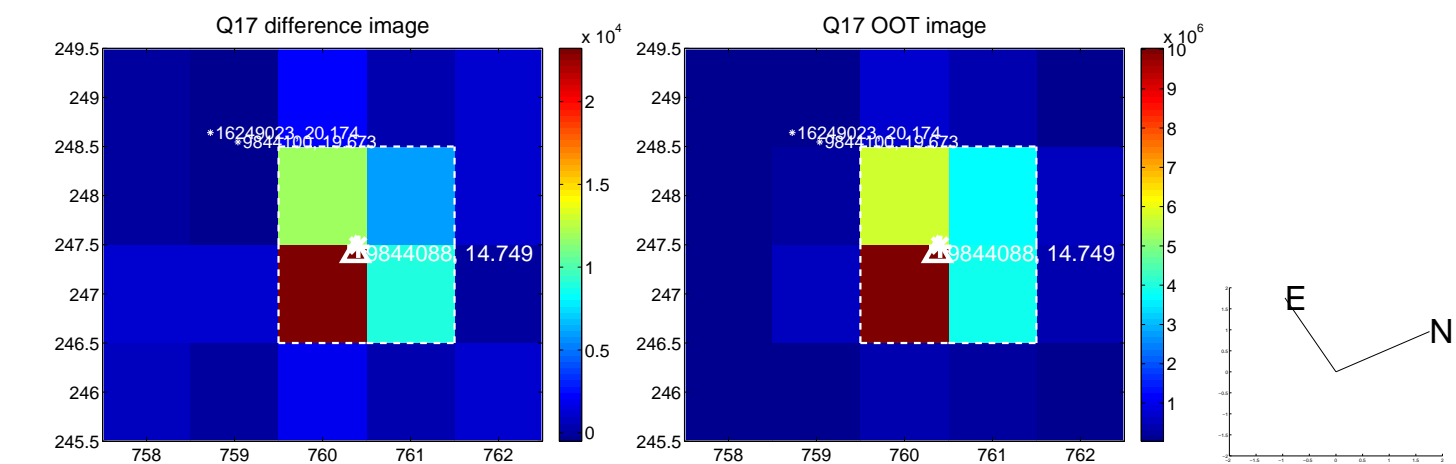
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

