

# KIC 003728432

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003728432-01	OBS	3893.01	3.908631	133.931024	847.9	1.967	31.9	35.3	0.65	4518	2.33	91.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003728432-01	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 003728432-01

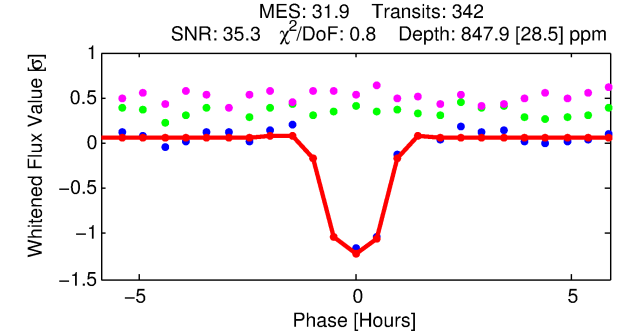
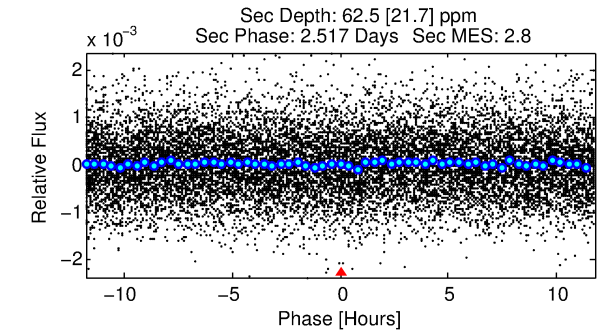
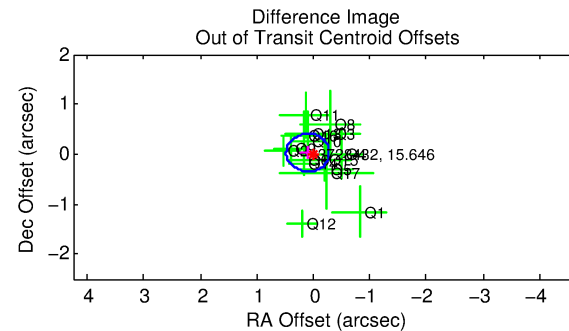
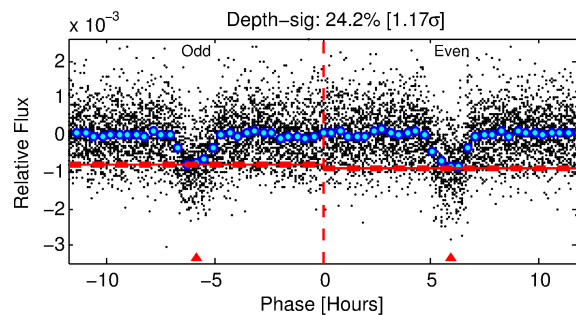
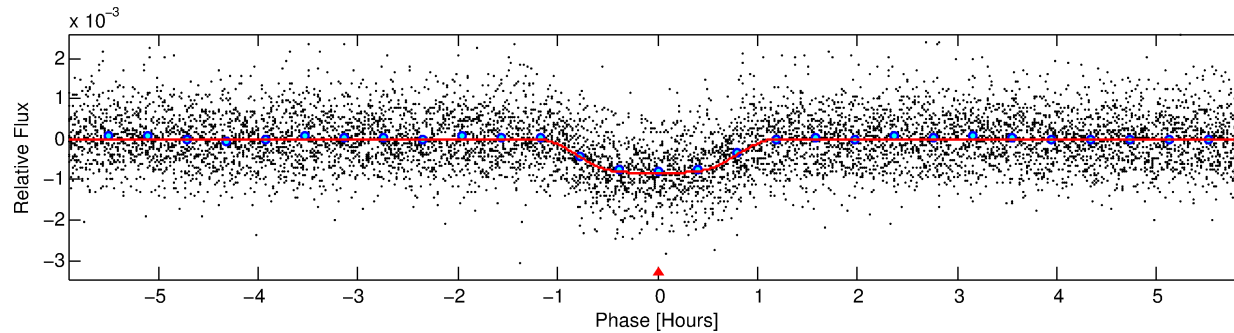
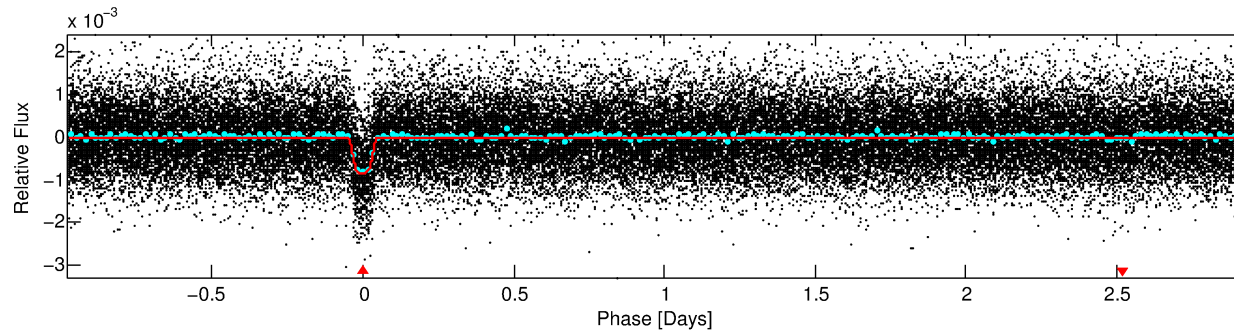
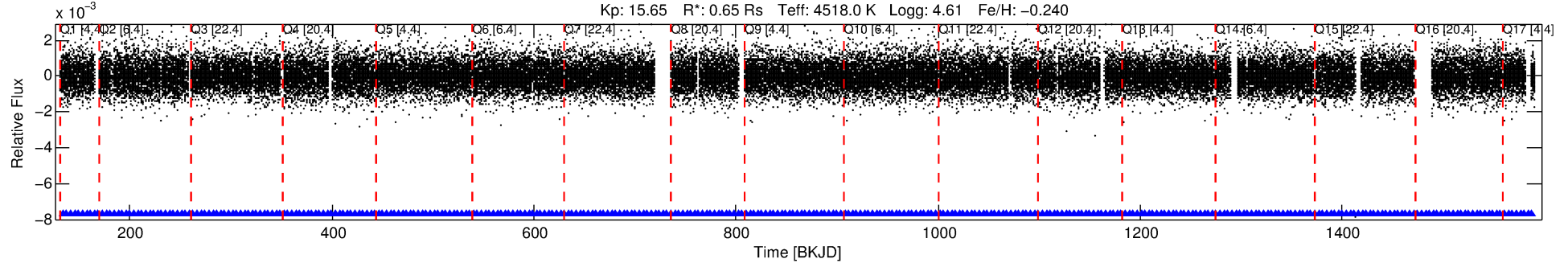
No Significant Match Found

# DV One-Page Summary

KIC: 3728432 Candidate: 1 of 1 Period: 3.909 d

KOI: K03893.01 Corr: 0.968

Kp: 15.65 R\*: 0.65 Rs Teff: 4518.0 K Logg: 4.61 Fe/H: -0.240



## DV Fit Results:

Period = 3.90863 [0.00001] d  
Epoch = 133.9310 [0.0010] BKJD  
Rp/R\* = 0.0327 [0.0047]  
a/R\* = 7.92 [3.95]  
b = 0.89 [0.12]  
Seff = 91.04 [14.27]  
Teq = 788 [31] K  
Rp = 2.33 [0.41] Re  
a = 0.0418 [0.0032] AU  
Ag = 11.06 [5.13] [1.96σ]  
Teffp = 2221 [260] K [5.48σ]

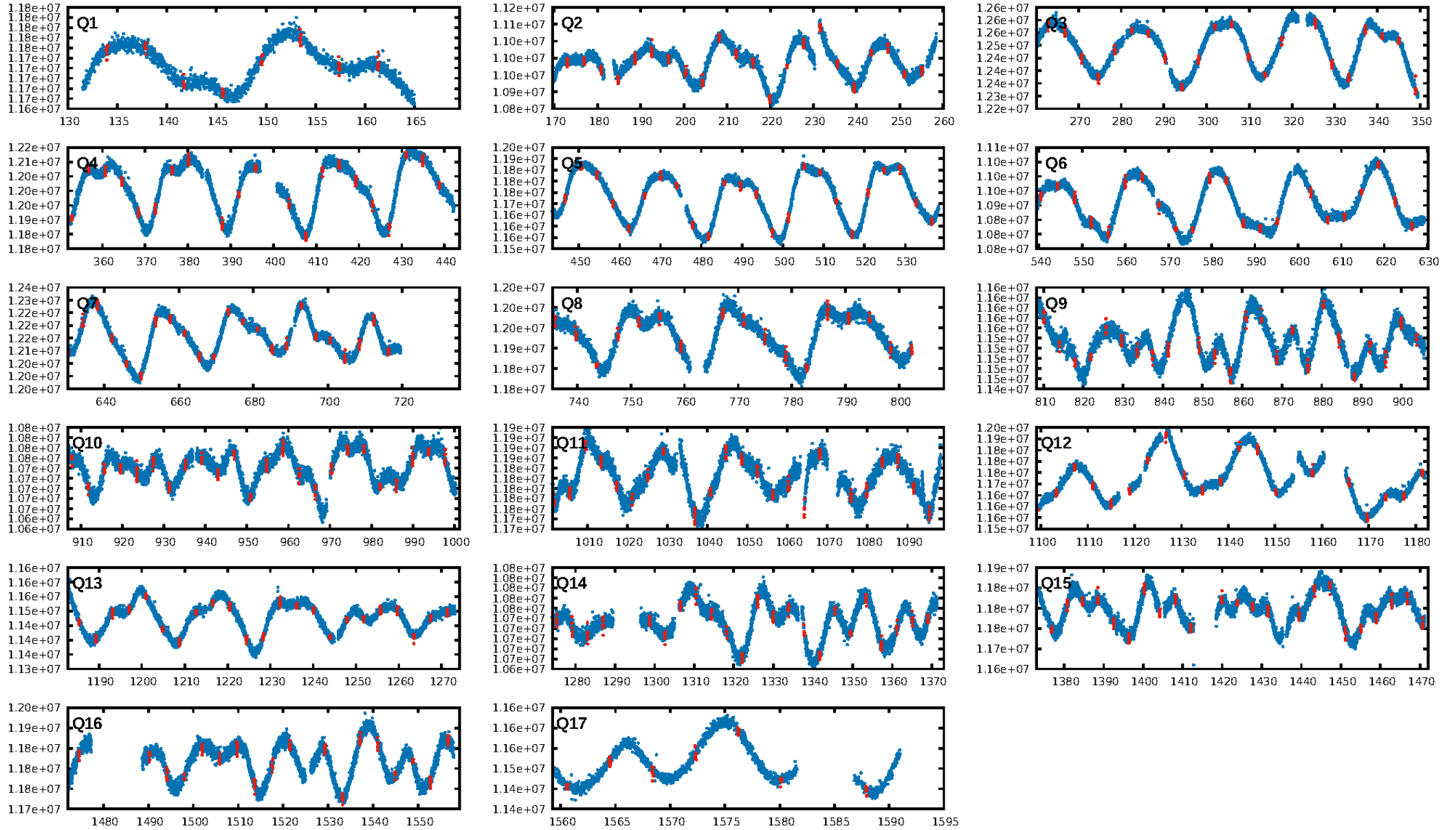
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.80e-219  
RollingBand-fgt: 1.00 [327/327]  
GhostDiagnostic-chr: 4.446  
Centroid-sig: 85.4%  
Centroid-so: 0.397 arcsec [0.97σ]  
OotOffset-rm: 0.106 arcsec [0.84σ]  
KicOffset-rm: 0.218 arcsec [1.34σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [17/17]

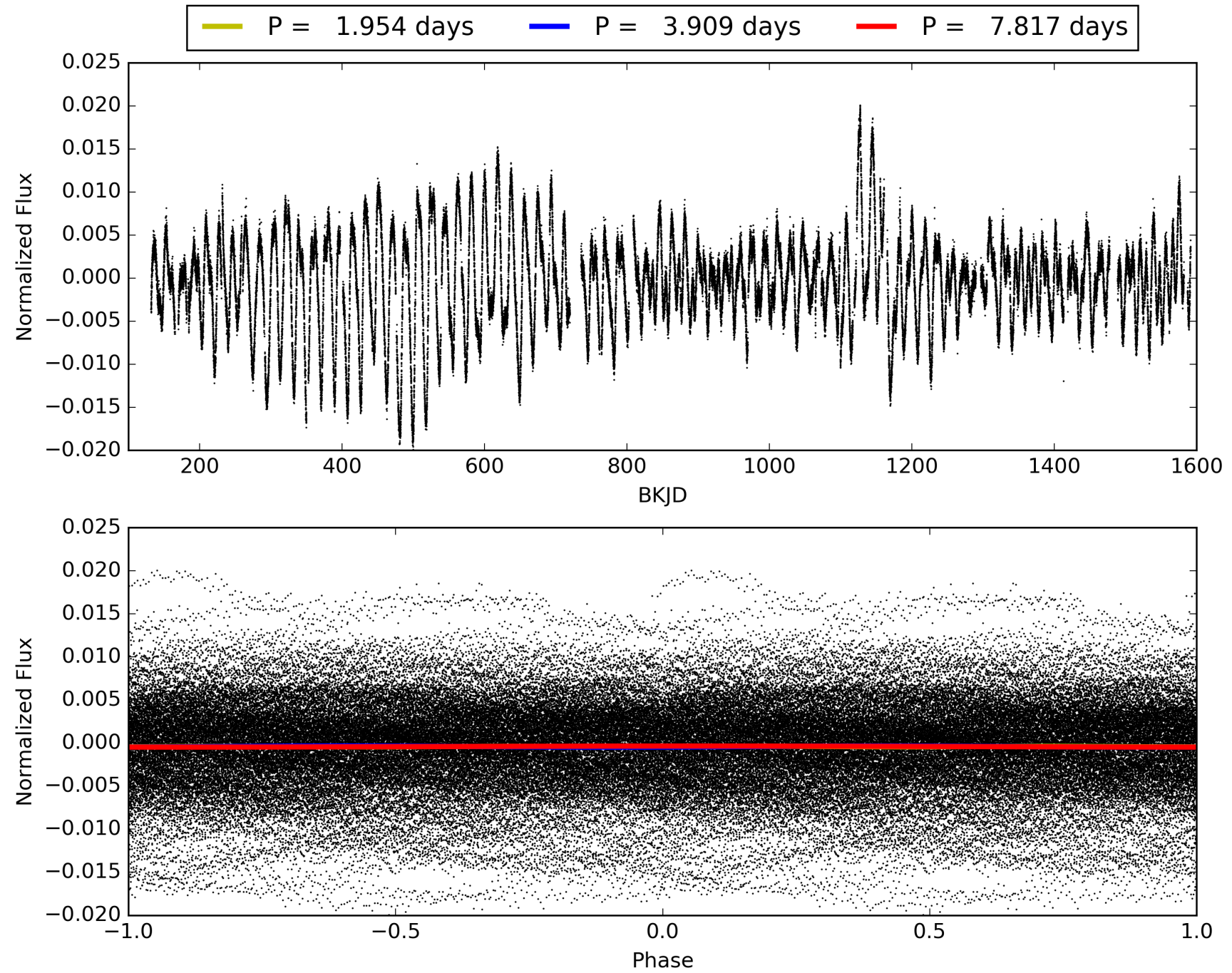
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:06:30 Z

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

# TCE 003728432-01, PDC Light Curves

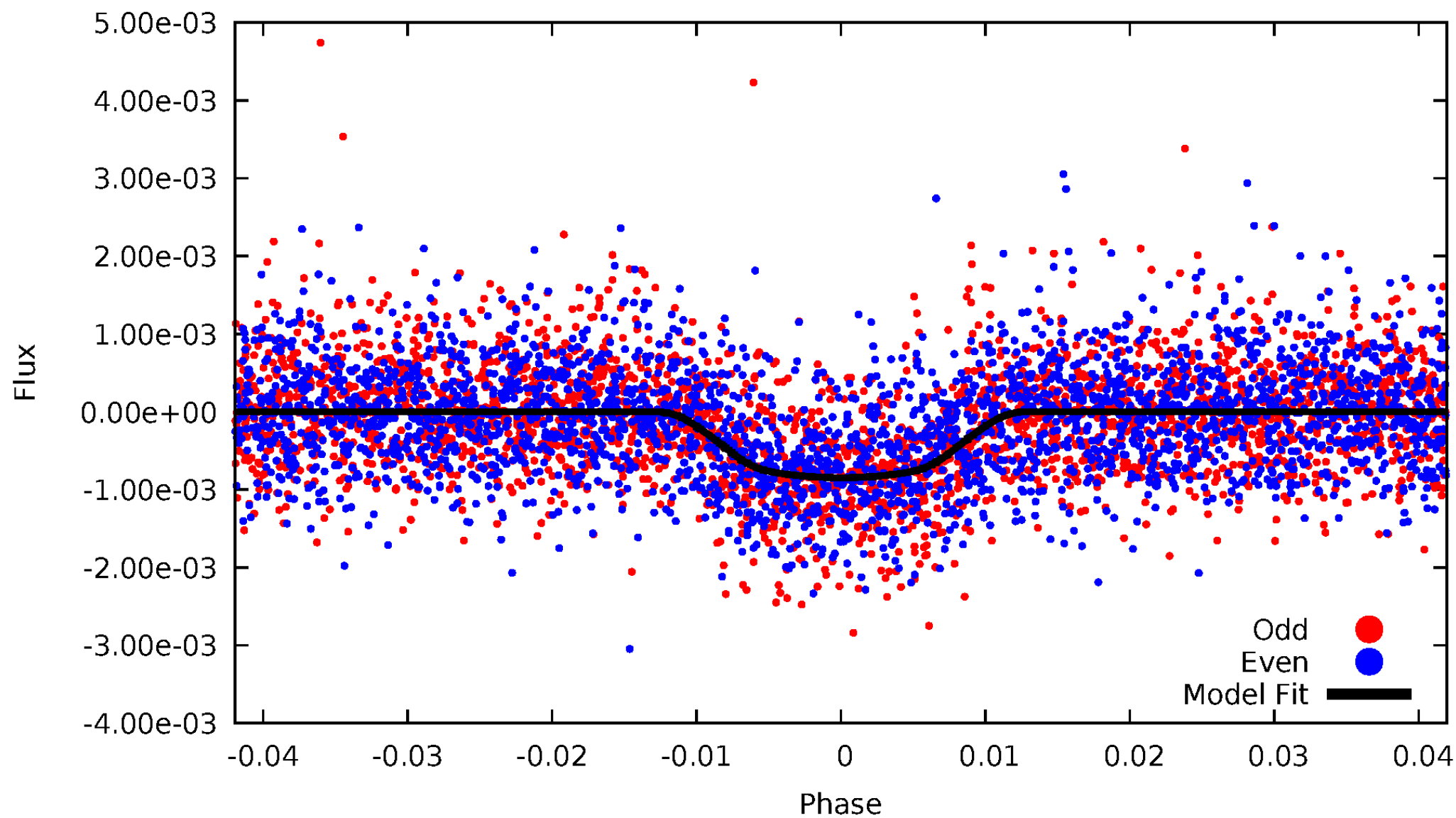


TCE 003728432-01



# DV Odd/Even

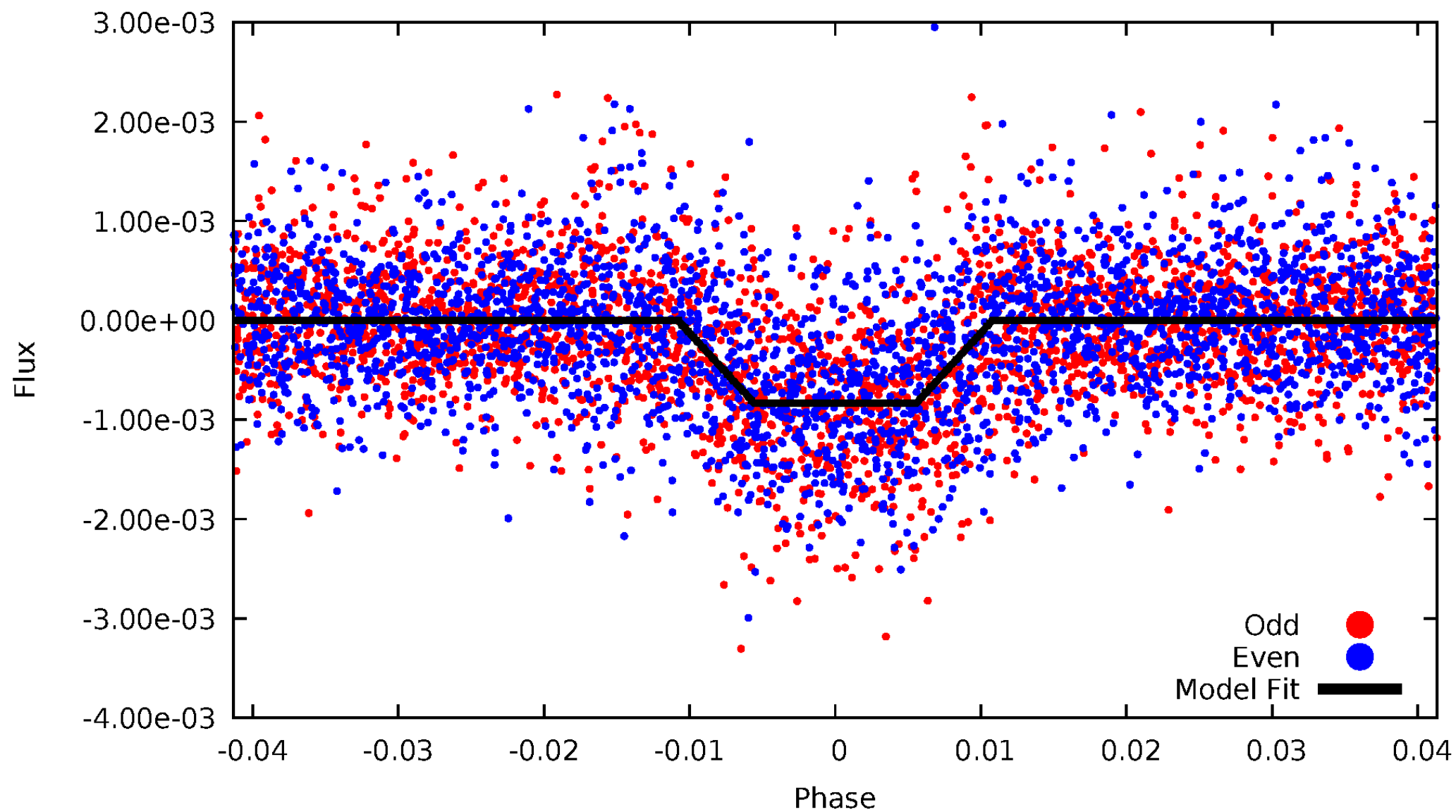
TCE 003728432-01





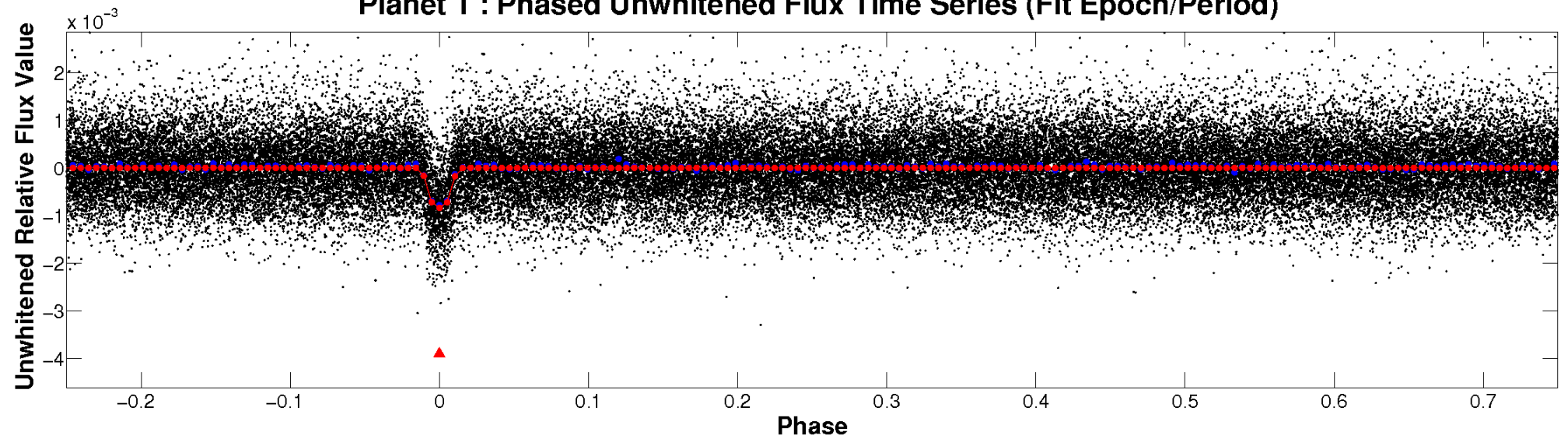
# ALT Odd/Even

TCE 003728432-01

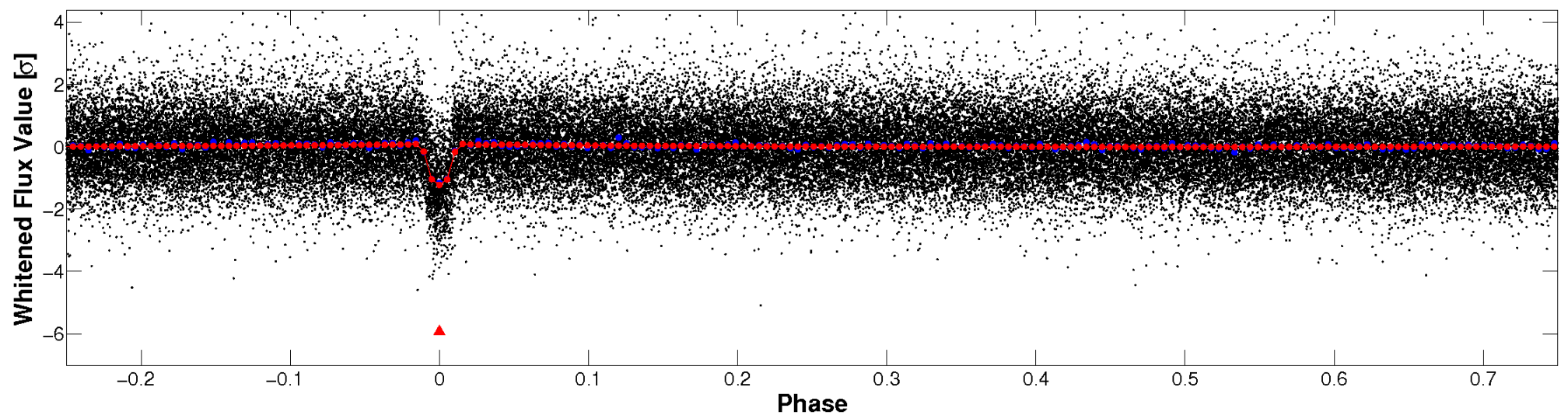


# Non-Whitened Vs. Whitened Light Curve

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

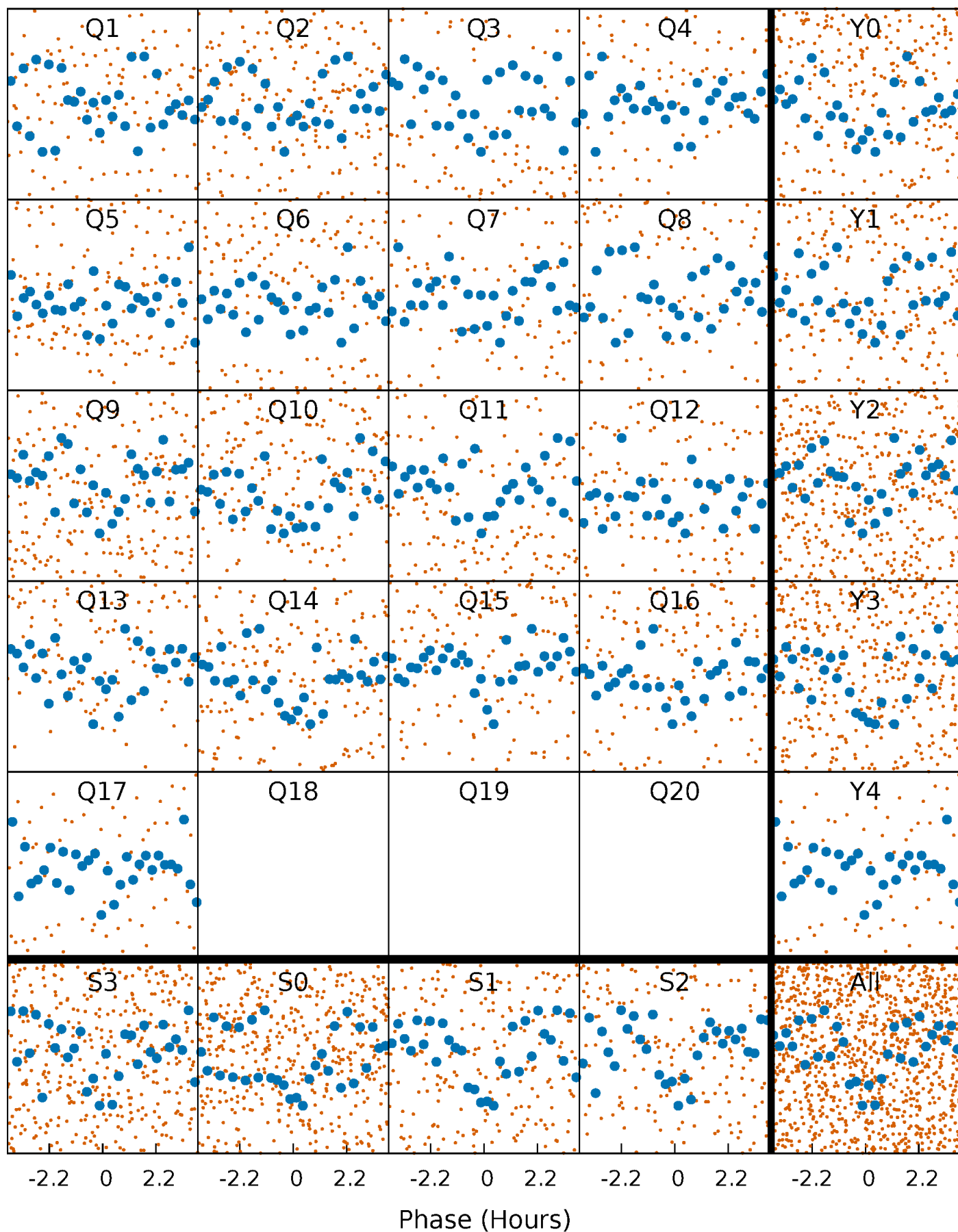


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

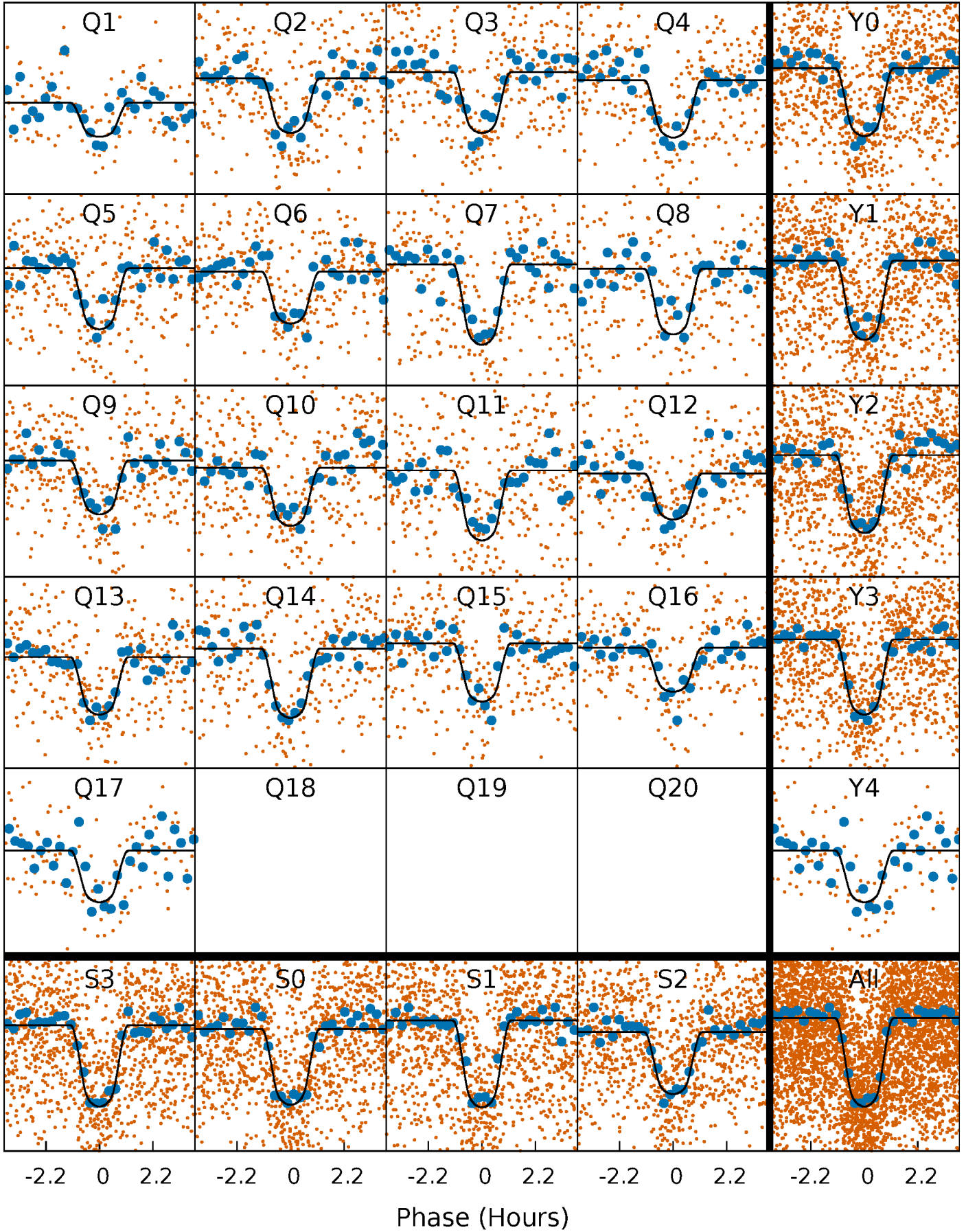
TCE 003728432-01 P= 3.908631 Days  $T_0=133.931024$  (BKJD)





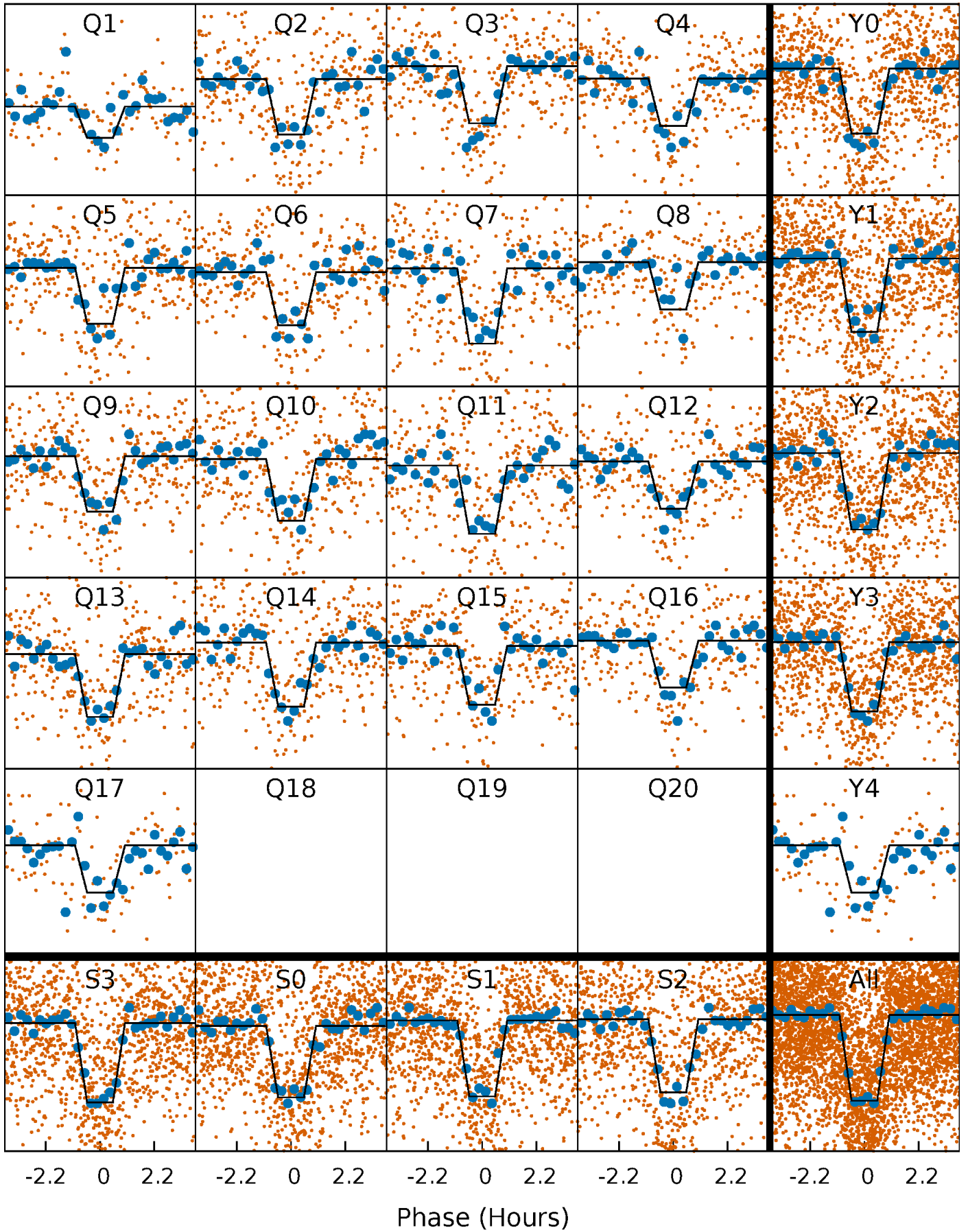
# DV Quarter-Phased Transit Curves

TCE 003728432-01 P= 3.908631 Days  $T_0=133.931024$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

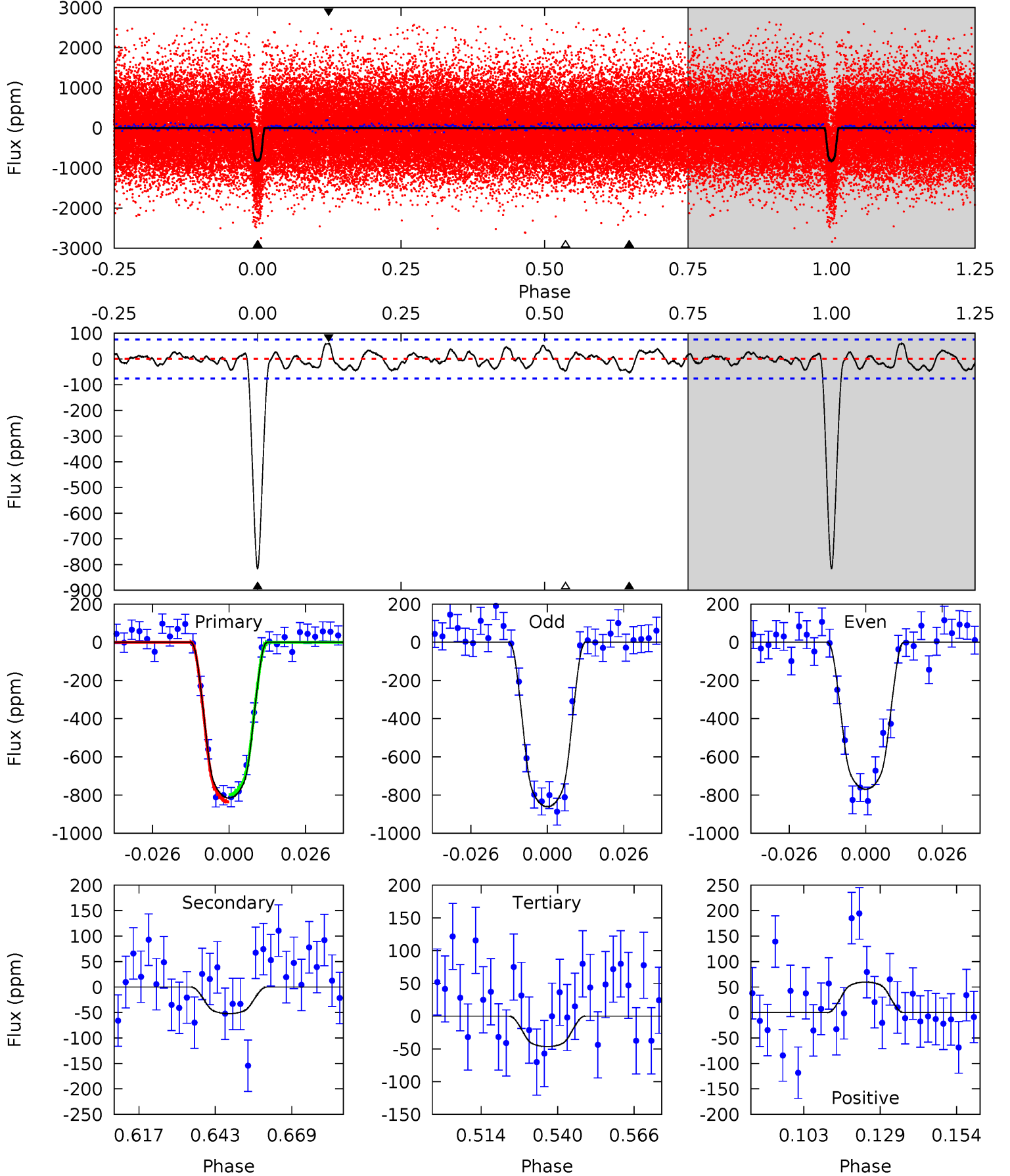
TCE 003728432-01 P= 3.908634 Days  $T_0=133.929658$  (BKJD)



# DV Model-Shift Uniqueness Test

003728432-01, P = 3.908631 Days, E = 130.022393 Days

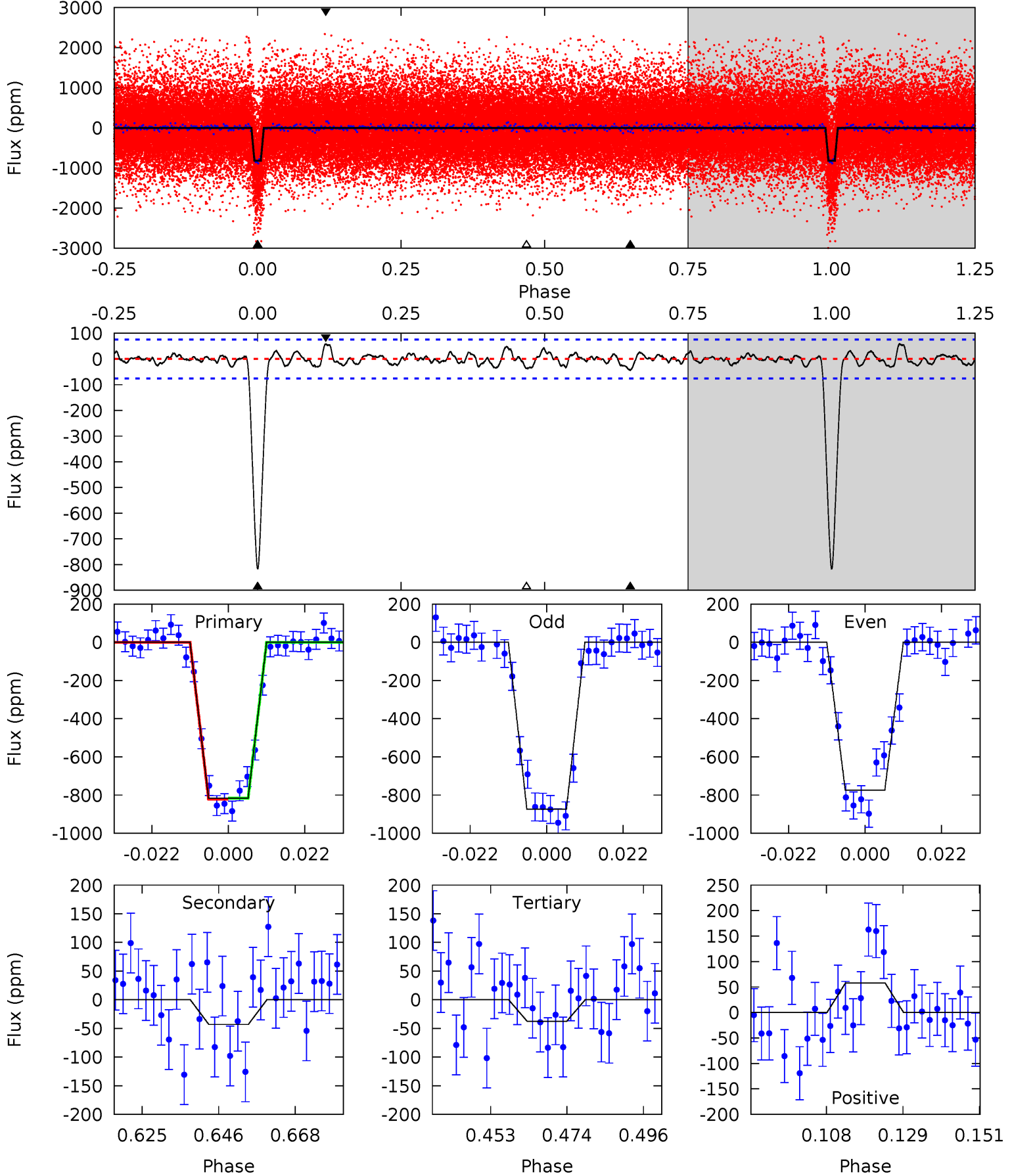
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.2	3.35	2.98	3.82	4.84	2.23	1.42	49.2	48.4	0.37	-0.48	2.94	1.01	0.07	1.19



# Alt Model-Shift Uniqueness Test

003728432-01, P = 3.908634 Days, E = 130.021024 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
52.7	2.78	2.42	3.75	4.88	2.30	1.10	50.2	48.9	0.36	-0.97	3.22	0.99	0.07	0.17



### Stellar Parameters For KIC 003728432

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4518^{+121}_{-134}$	$4.613^{+0.052}_{-0.024}$	$-0.240^{+0.300}_{-0.300}$	$0.653^{+0.046}_{-0.063}$	$0.639^{+0.070}_{-0.051}$	$3.230^{+0.807}_{-0.365}$
	+3%/-3%	+1%/-1%	+125%/-125%	+7%/-10%	+11%/-8%	+25%/-11%
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 003728432-01 / KOI 3893.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-52 \pm 16$	$2.32^{+0.34}_{-0.35}$	$1095^{+35}_{-38}$	$2770^{+166}_{-174}$	$9.398^{+4.992}_{-3.447}$
Alt.	$-43 \pm 16$	$2.07^{+0.35}_{-0.36}$	$1095^{+35}_{-38}$	$2790^{+212}_{-203}$	$9.900^{+6.207}_{-4.092}$

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



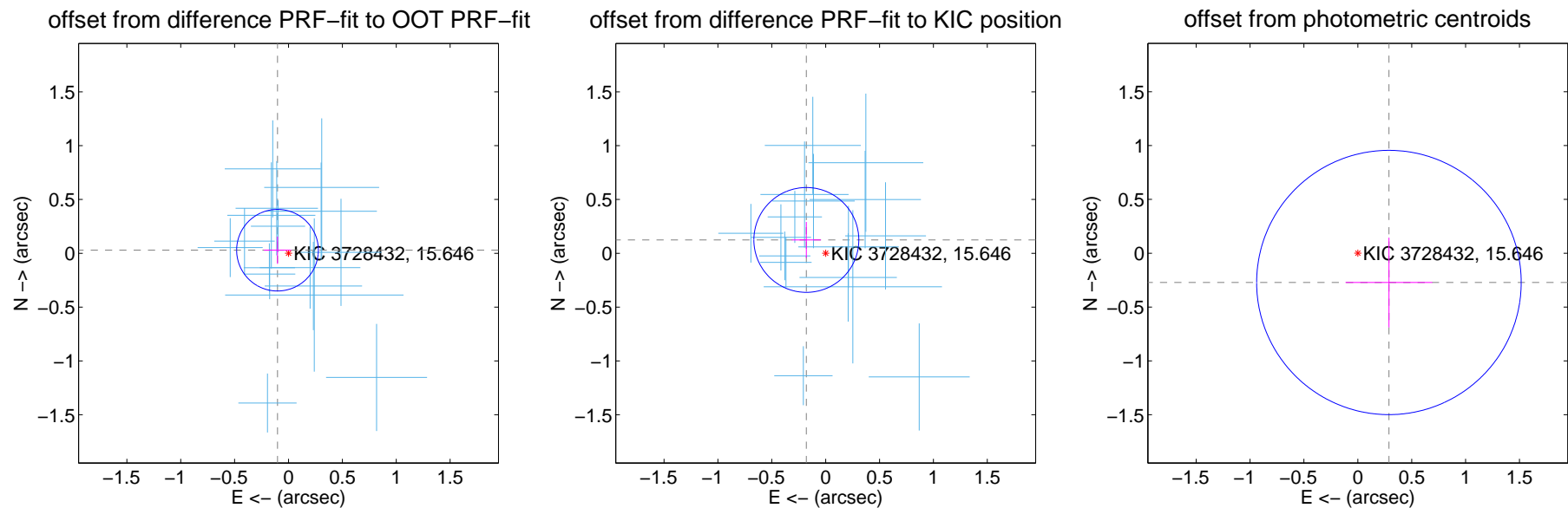
## DV Centroid Data

Supplemental centroid analysis for 003728432-01. Kepler magnitude: 15.65. Transit SNR 35.29

There are 16 quarters with good PRF difference image offsets

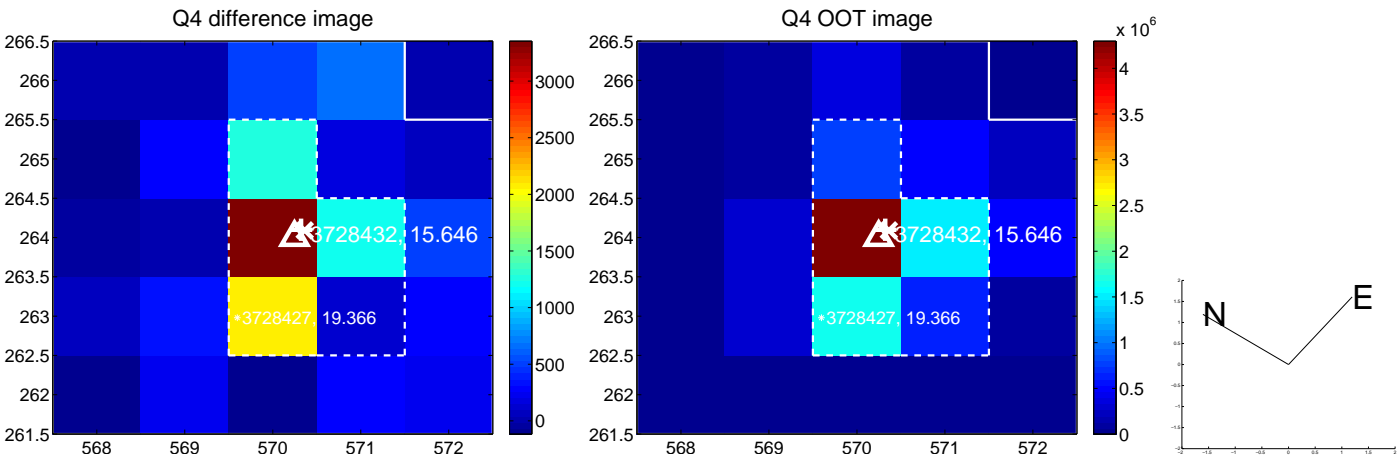
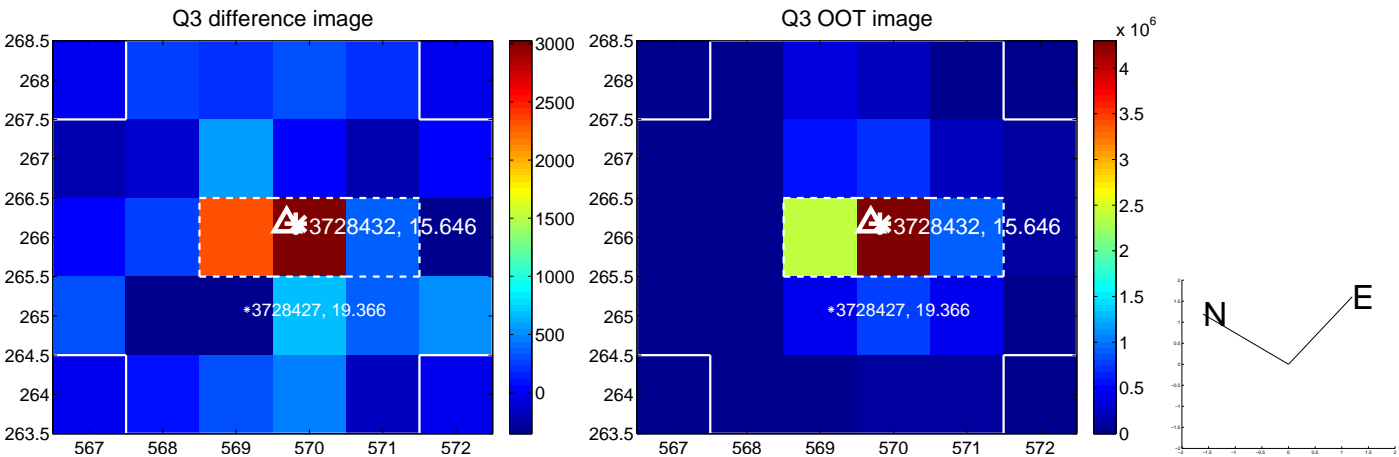
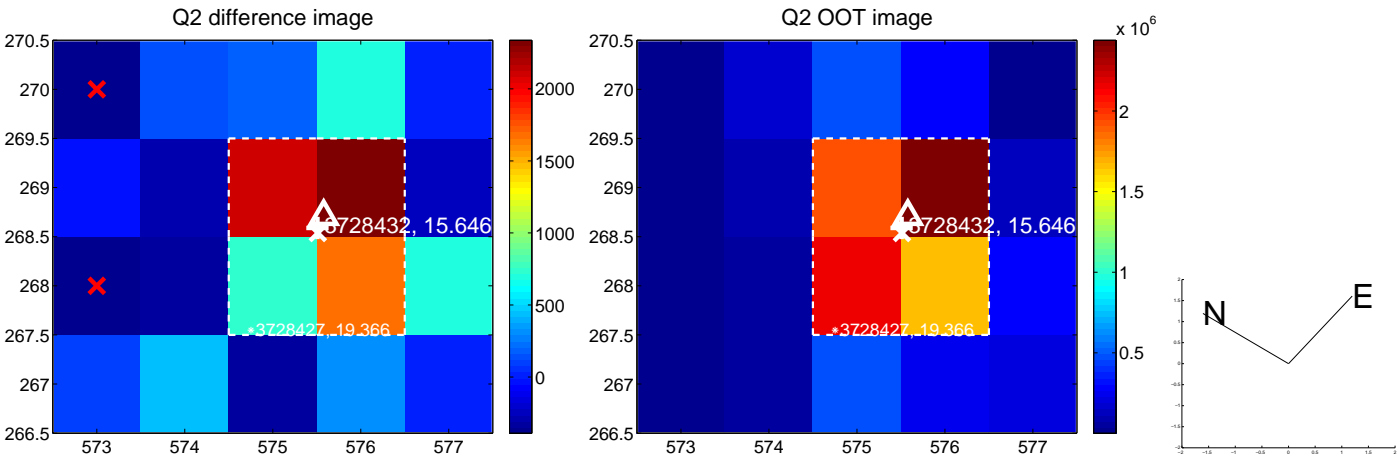
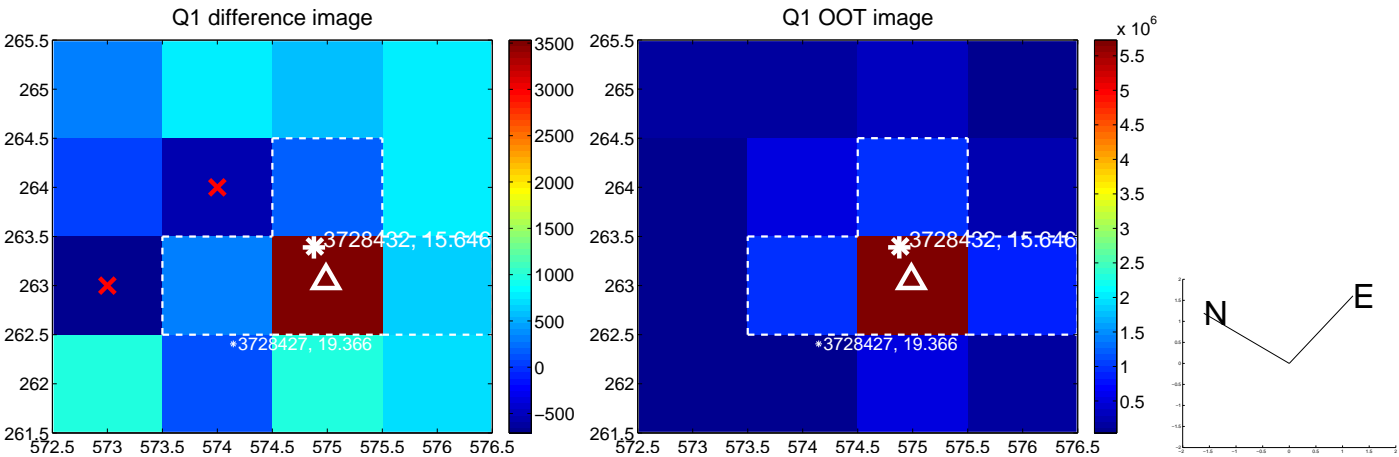
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.106 \pm 0.126$	0.84	$0.102 \pm 0.126$	$0.029 \pm 0.127$
PRF-fit source offset from KIC position	$0.218 \pm 0.162$	1.34	$0.179 \pm 0.135$	$0.124 \pm 0.167$
photometric centroid source offset	$0.40 \pm 0.41$	0.97	$-0.29 \pm 0.40$	$-0.27 \pm 0.42$

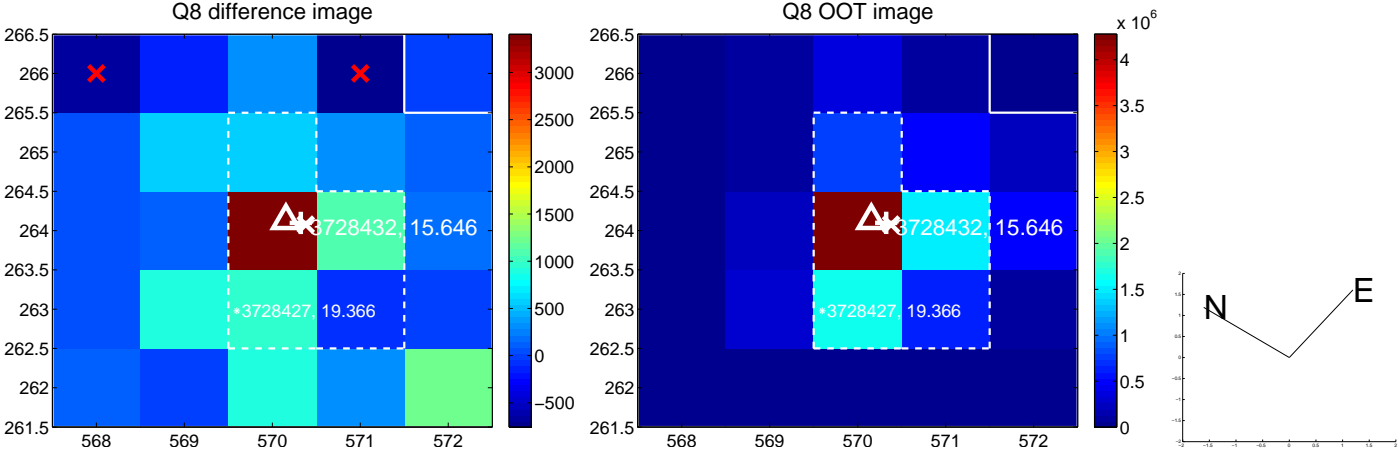
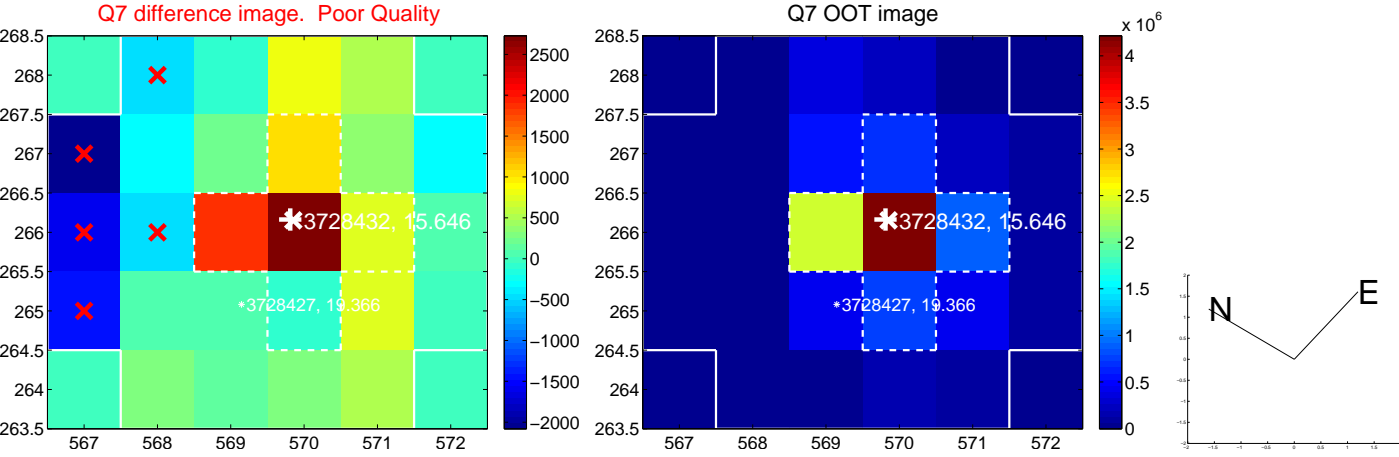
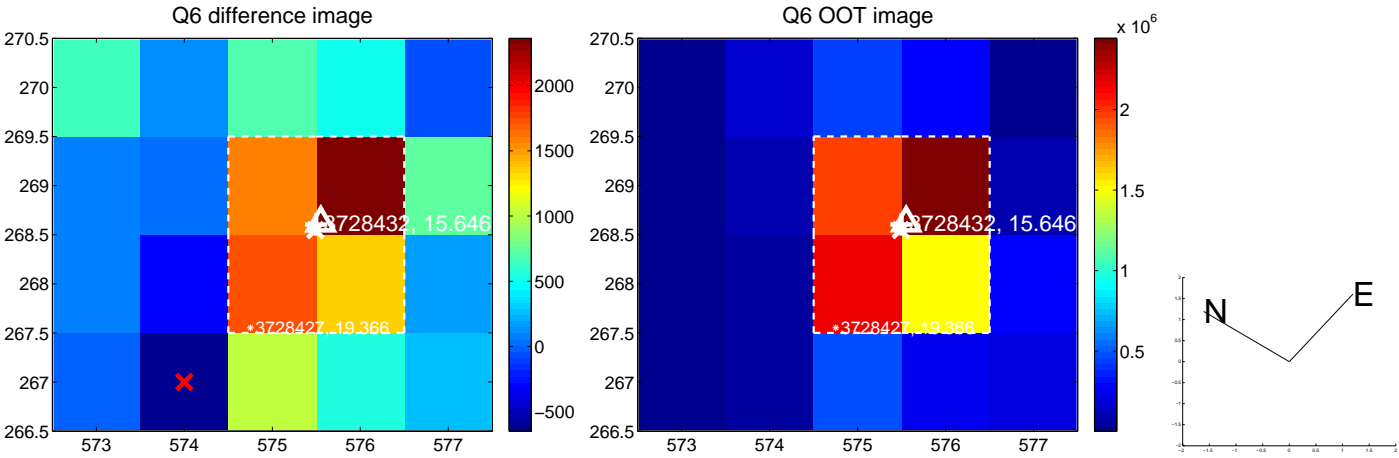
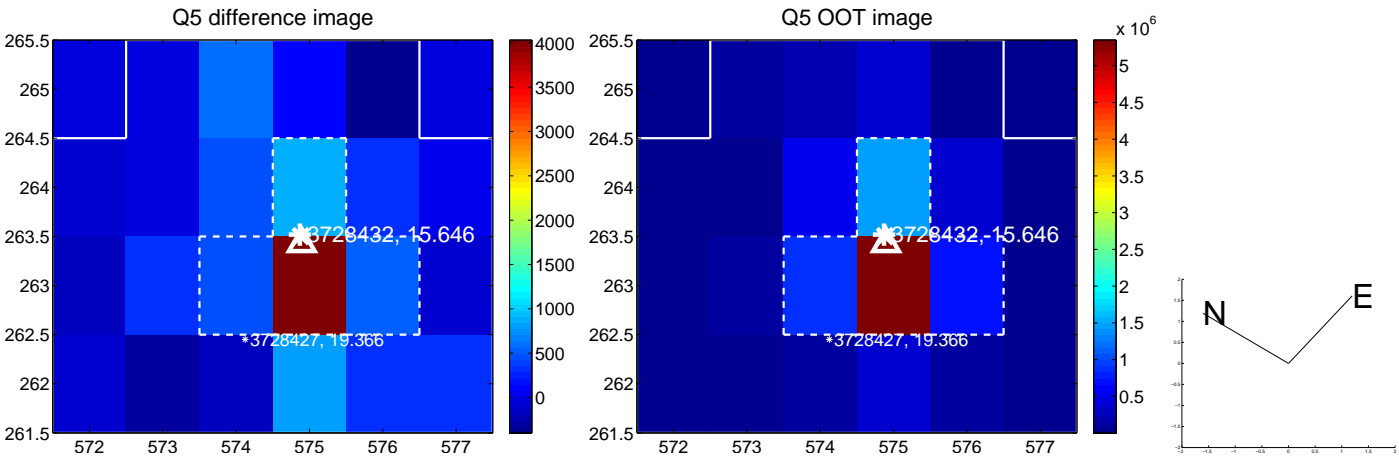


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

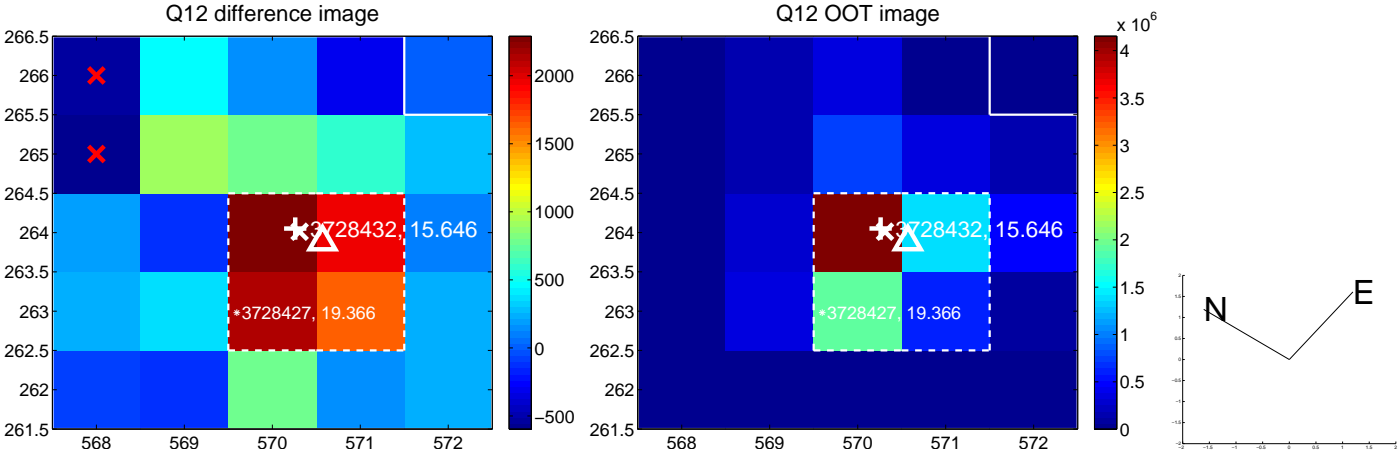
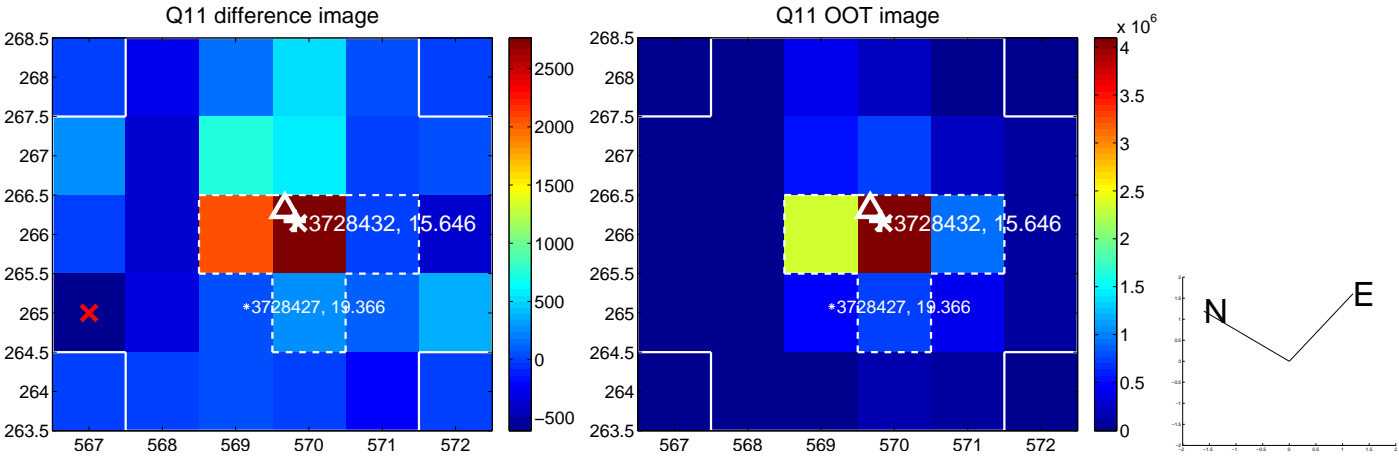
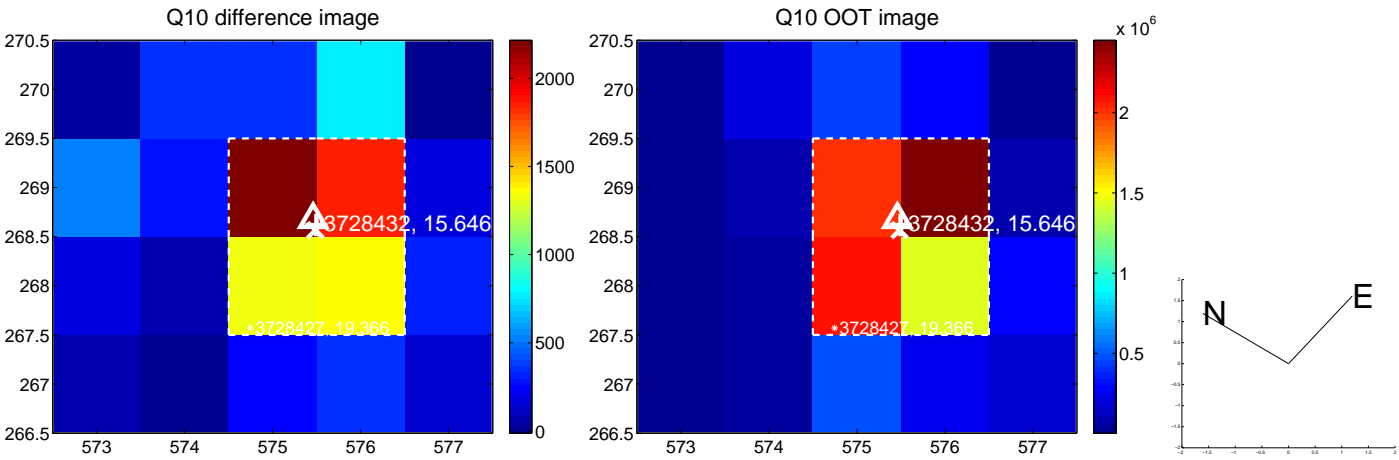
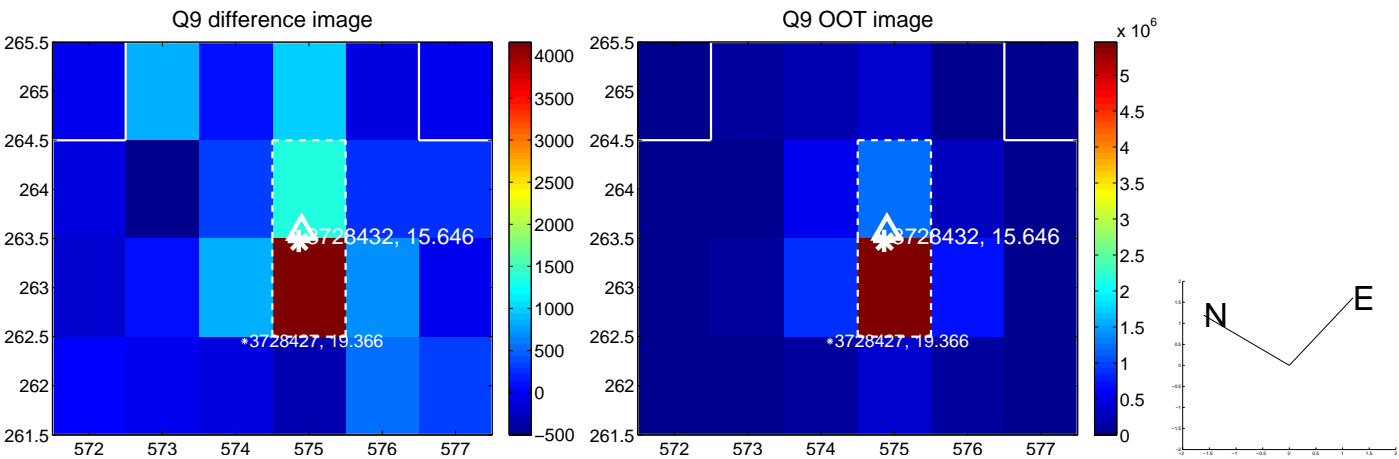
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



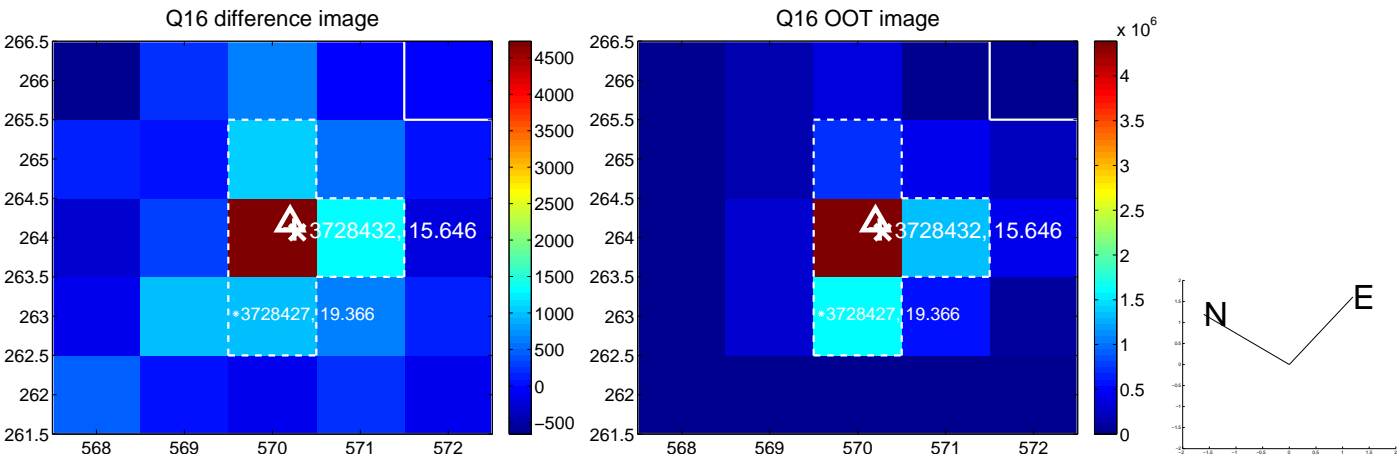
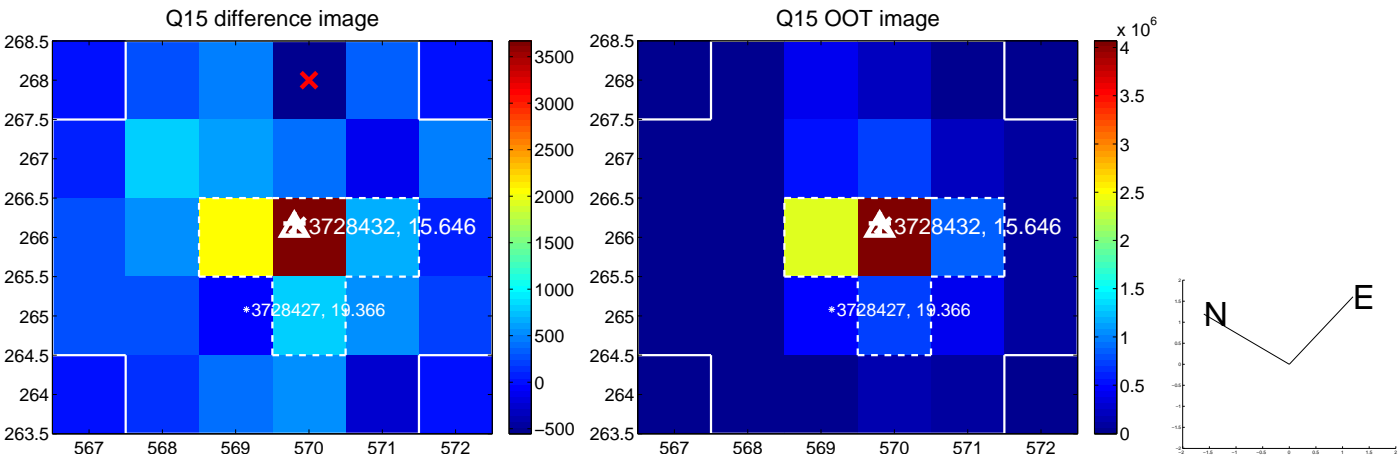
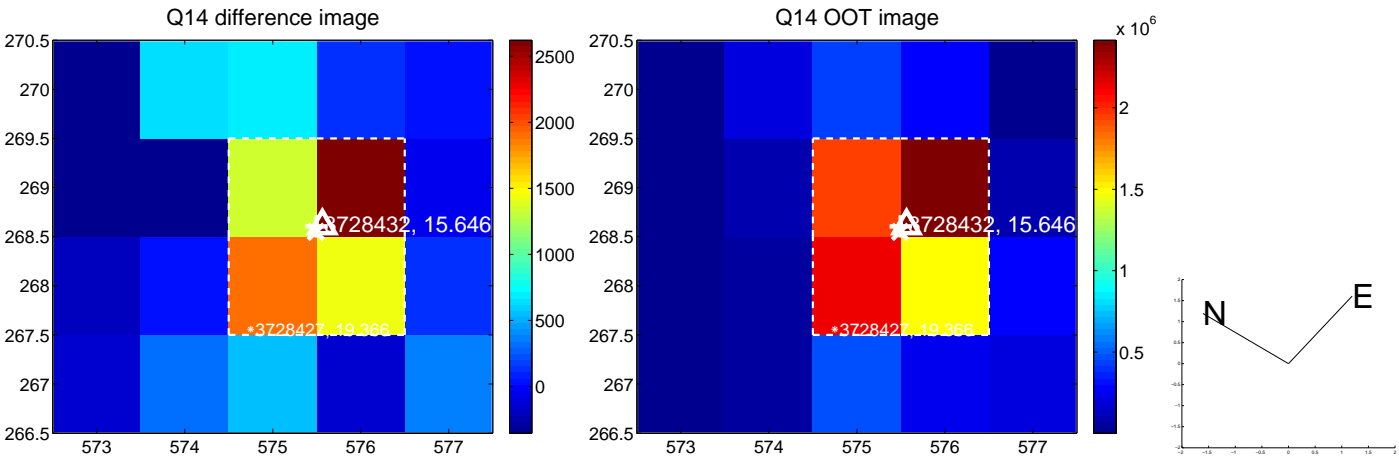
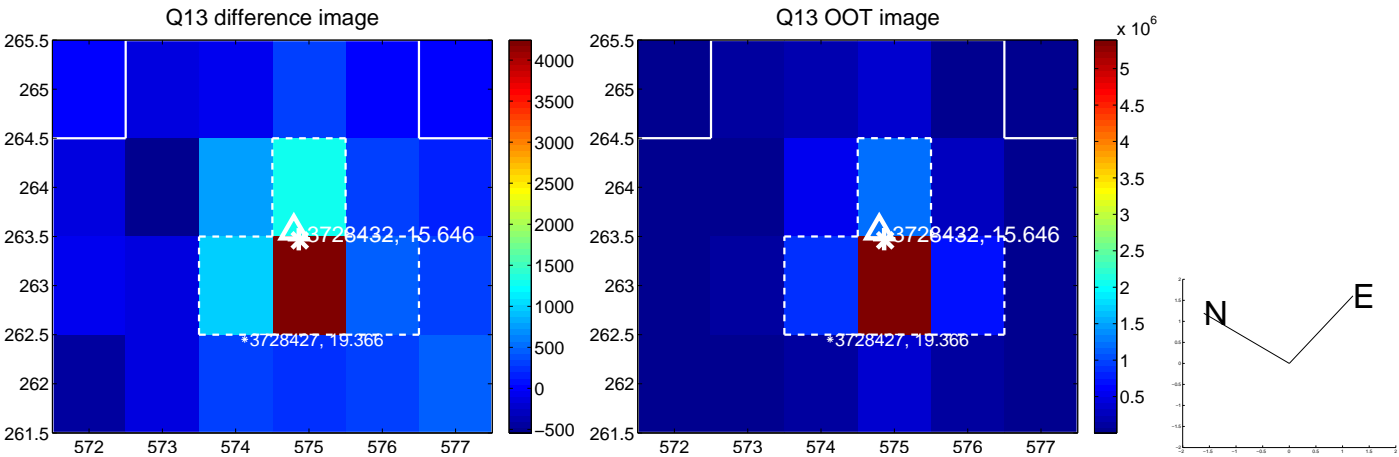
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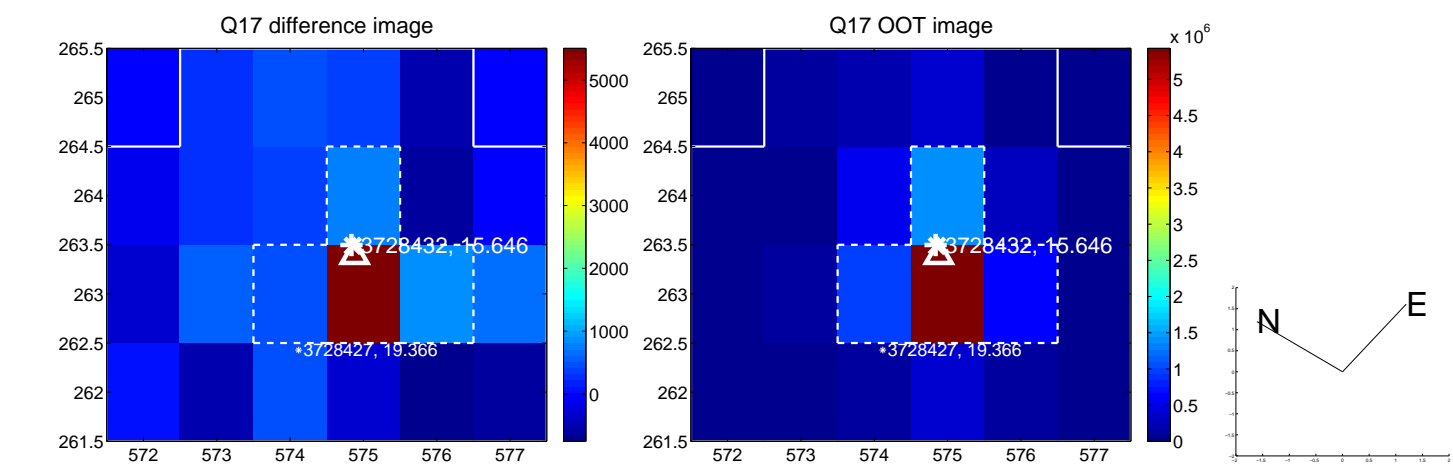


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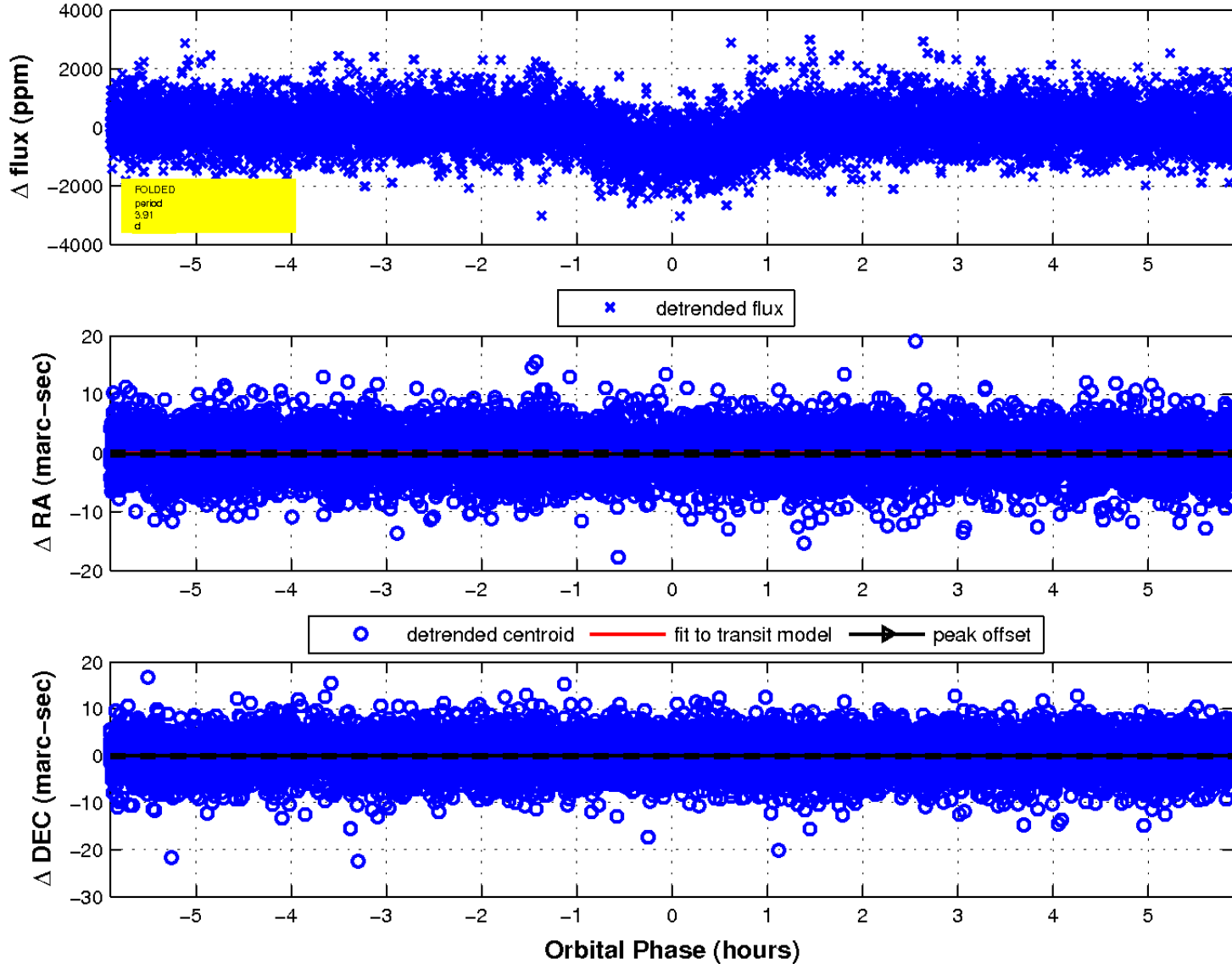




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

