

# KIC 005444334

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R <sub>★</sub> (R <sub>☉</sub> )	T <sub>★</sub> (K)	R <sub>p</sub> (R <sub>⊕</sub> )	S <sub>p</sub> (S <sub>⊕</sub> )
005444334-01	OBS	4064.01	0.759705	131.829728	77.1	3.480	18.4	12.4	0.82	5520	0.71	2229.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005444334-01	OBS	FP	0.00	0	0	0	1	CENT_FEW_DIFFS—EPHEM_MATCH

**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 005444334-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	ΔRow	ΔCol	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	σ <sub>P</sub>	σ <sub>T</sub>
005444334-01	5444334	005529643-01	5529643	1:1	57.3	-7	13	15.93	15.91	1.40	Direct-PRF	1	3.80	1.92

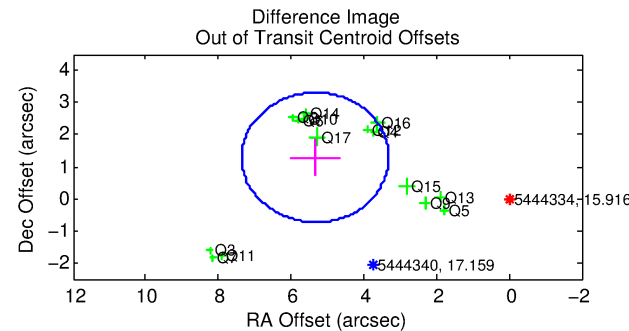
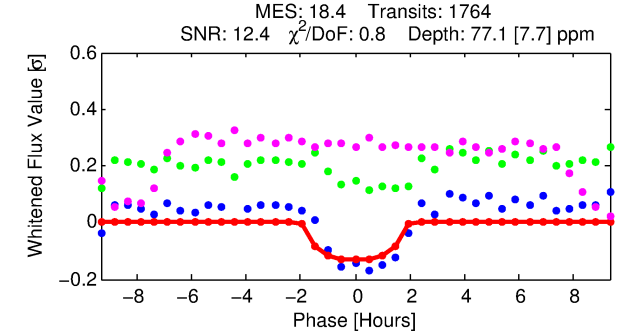
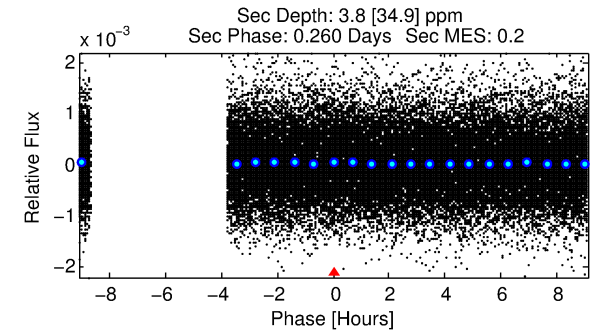
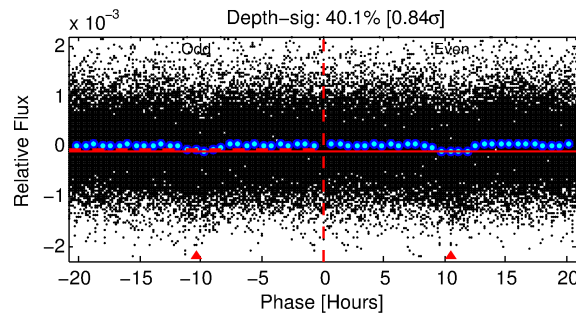
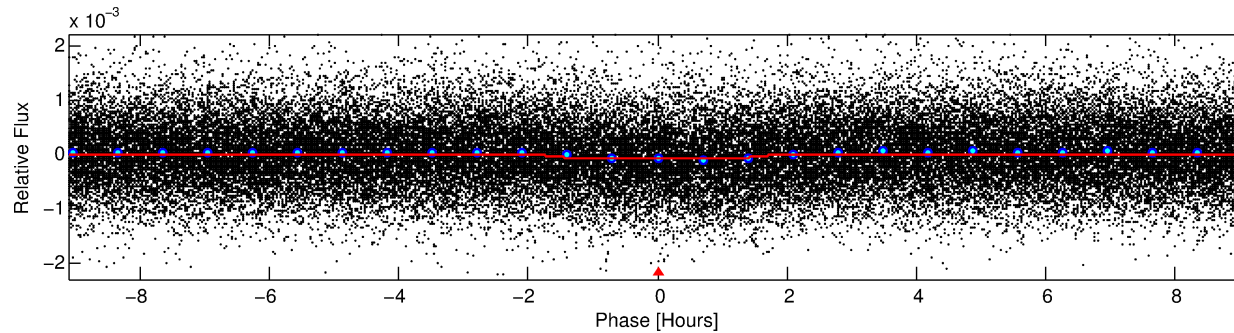
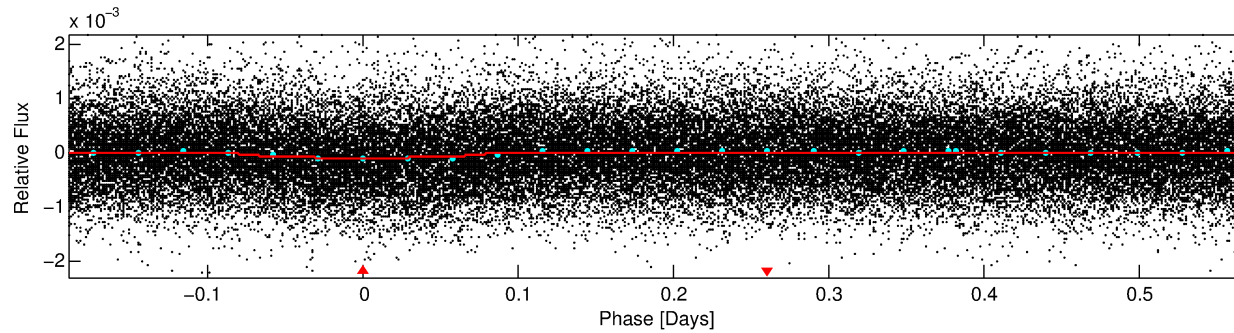
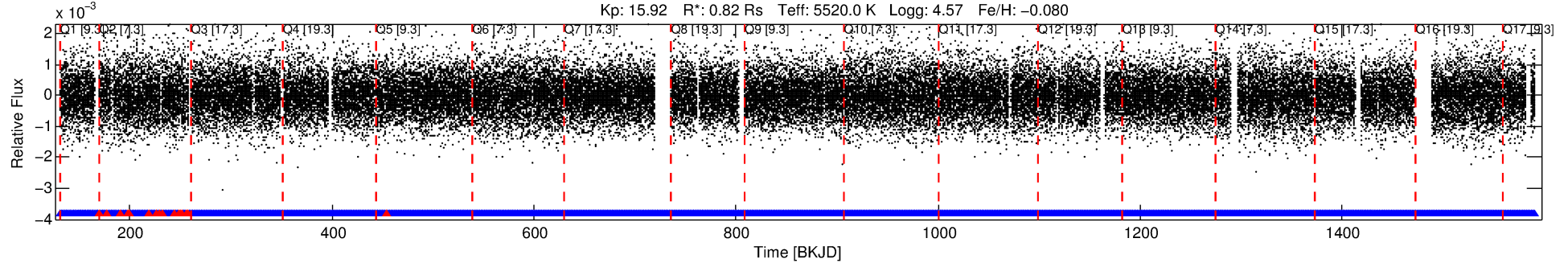
**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's. σ<sub>P</sub> and σ<sub>T</sub> are the significance of the match in period and epoch. For a match to be considered significant σ<sub>P</sub> < 5.0 and σ<sub>T</sub> < 5.0. Matches which have σ<sub>P</sub> and σ<sub>T</sub> very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5444334 Candidate: 1 of 1 Period: 0.760 d

KOI: K04064.01 Corr: 0.763

Kp: 15.92 R\*: 0.82 Rs Teff: 5520.0 K Logg: 4.57 Fe/H: -0.080



## DV Fit Results:

Period = 0.75970 [0.00001] d  
Epoch = 131.8297 [0.0036] BKJD  
Rp/R\* = 0.0080 [0.0095]  
a/R\* = 1.73 [5.60]  
b = 0.30 [14.93]  
Seff = 2229.94 [626.14]  
Teq = 1752 [123] K  
Rp = 0.71 [0.86] Re  
a = 0.0158 [0.0027] AU  
Ag = 1.02 [9.68] [0.00σ]  
Teffp = 2720 [6483] K [0.15σ]

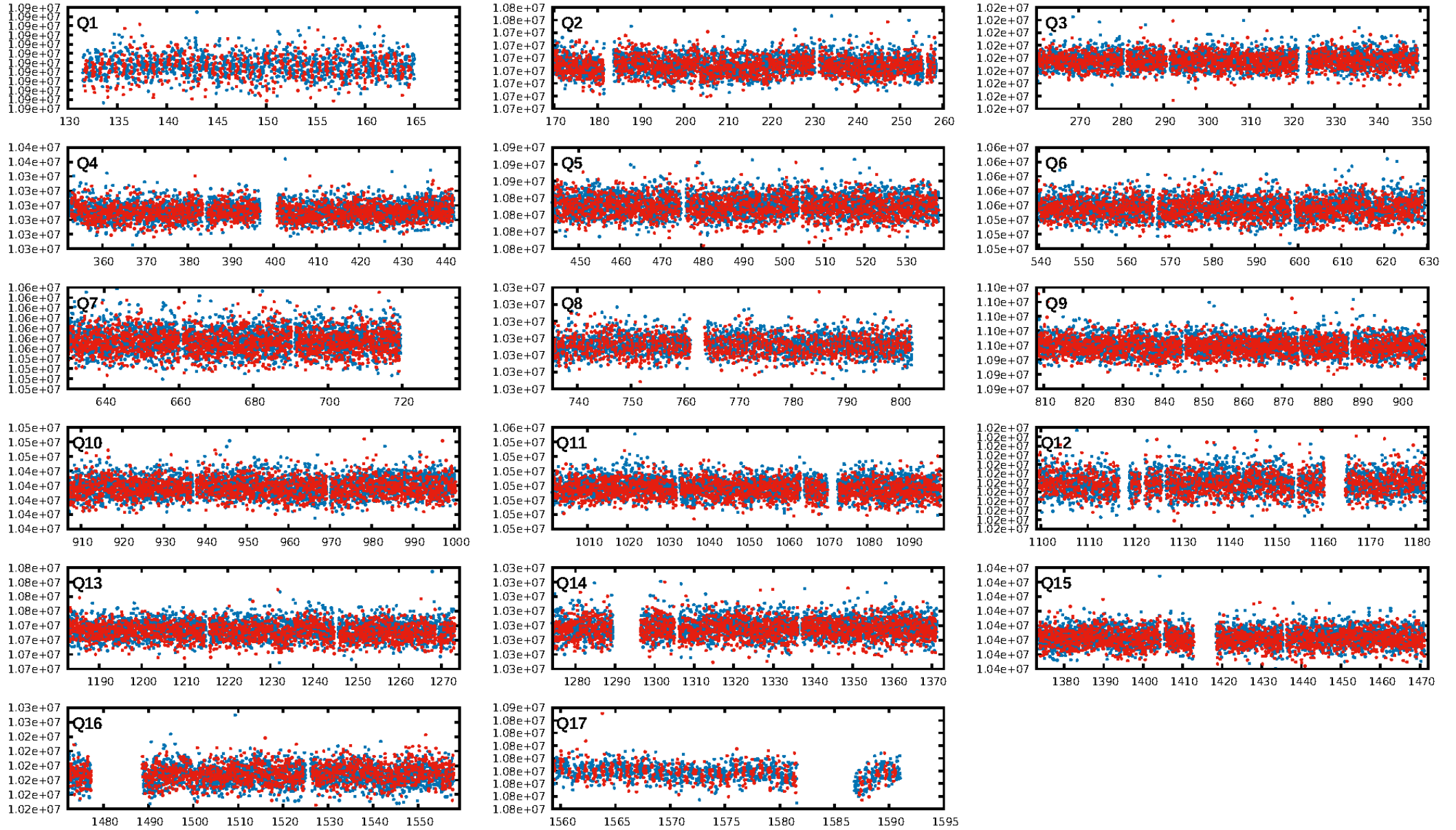
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.52e-68  
RollingBand-fgt: 0.99 [1668/1685]  
**GhostDiagnostic-chr: -6.949**  
Centroid-sig: 14.9%  
Centroid-so: 0.704 arcsec [0.75σ]  
**OotOffset-rm: 5.491 arcsec [8.15σ]**  
**KicOffset-rm: 5.792 arcsec [8.56σ]**  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.00 [0/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:34:38 Z

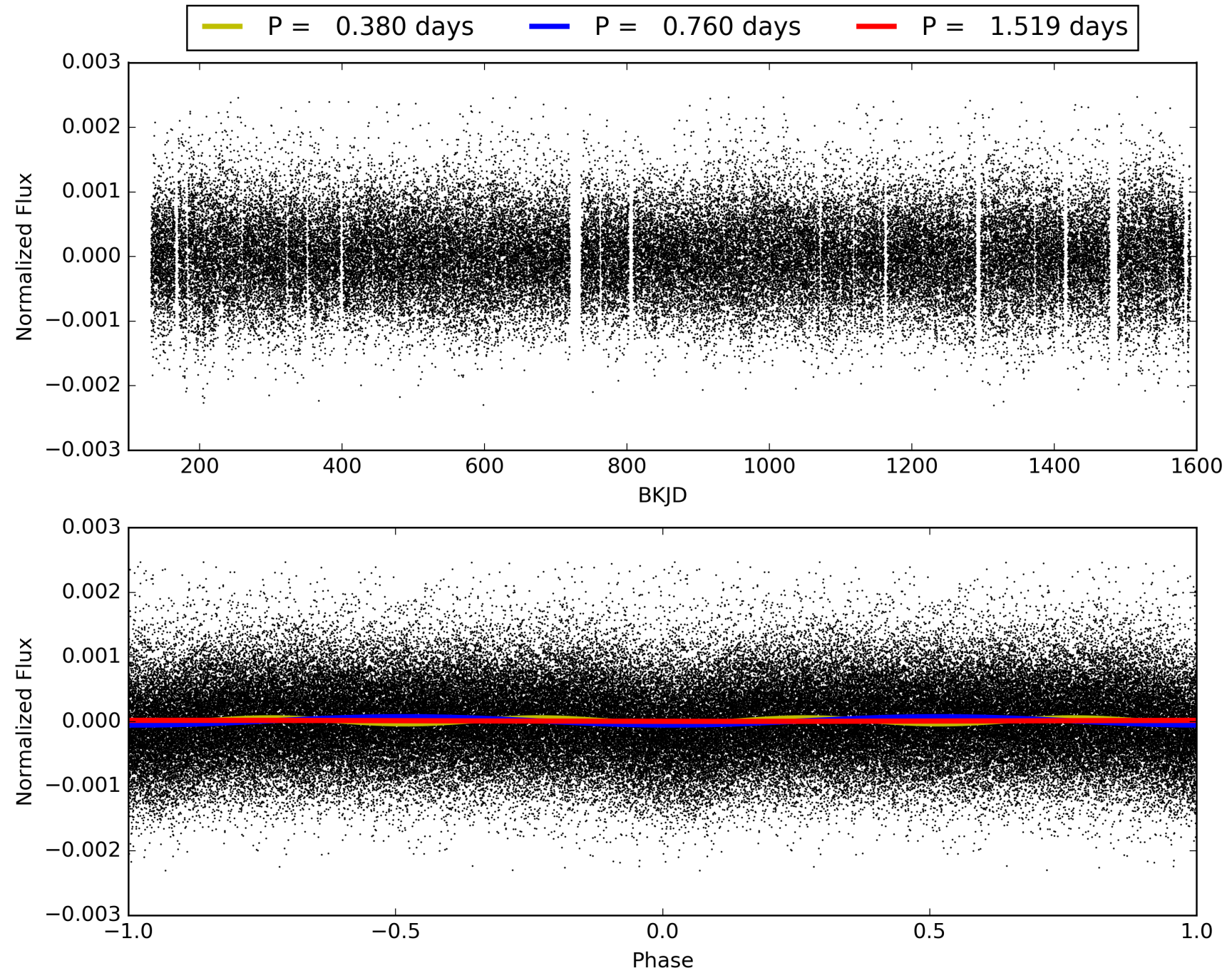
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005444334-01, PDC Light Curves



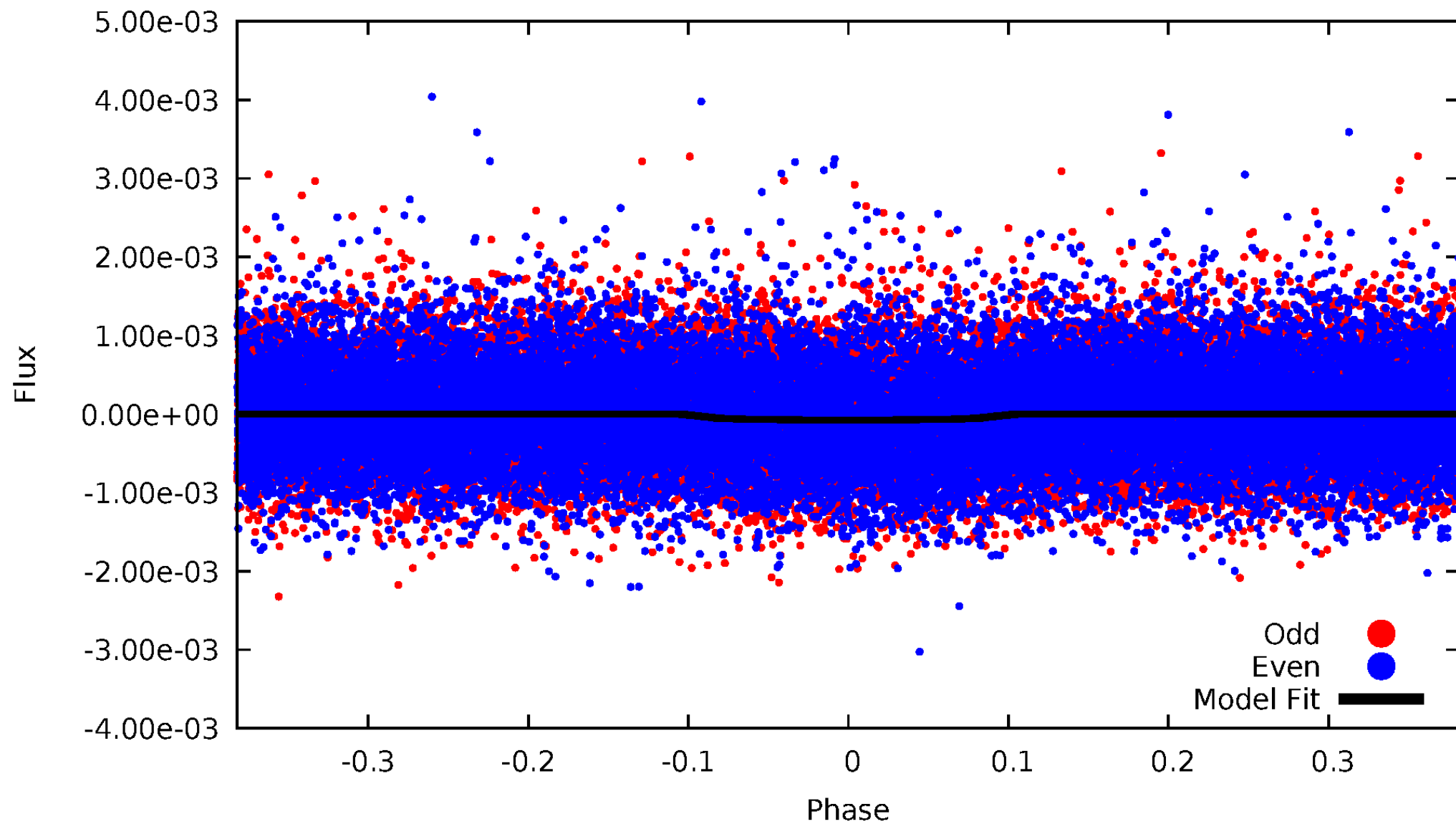


TCE 005444334-01



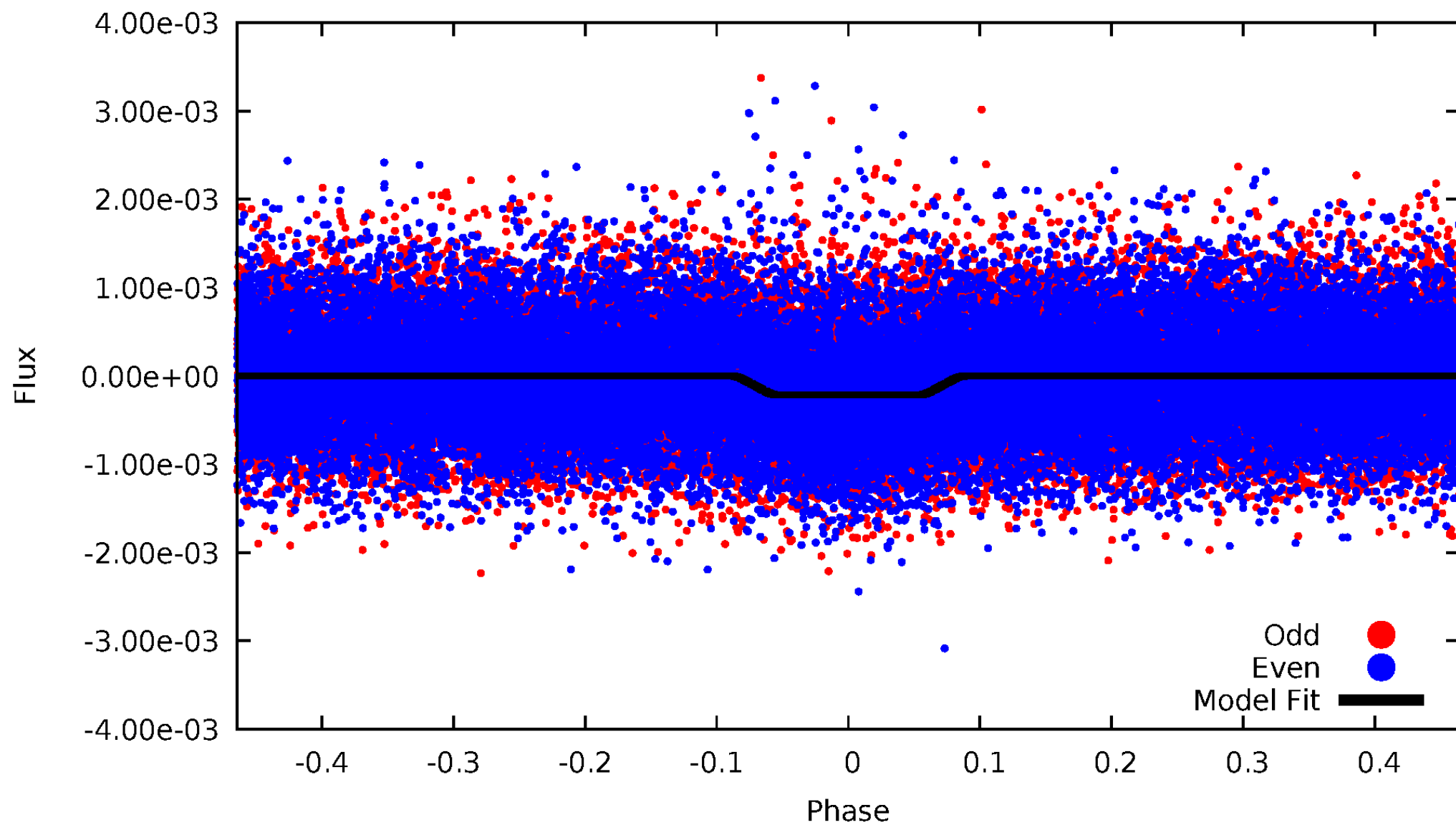
# DV Odd/Even

TCE 005444334-01



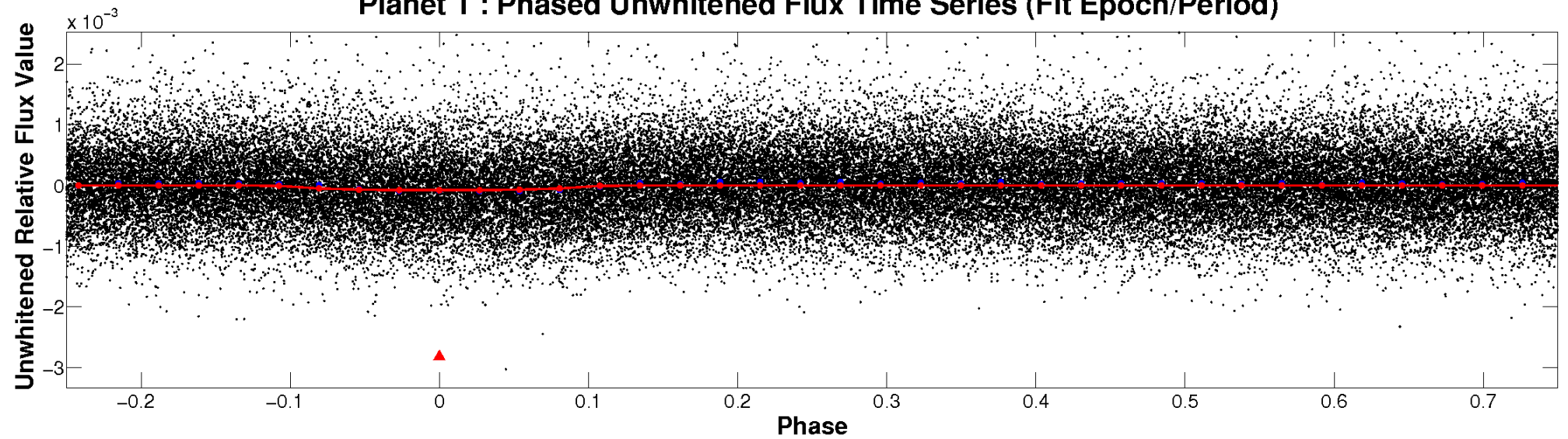
# ALT Odd/Even

TCE 005444334-01

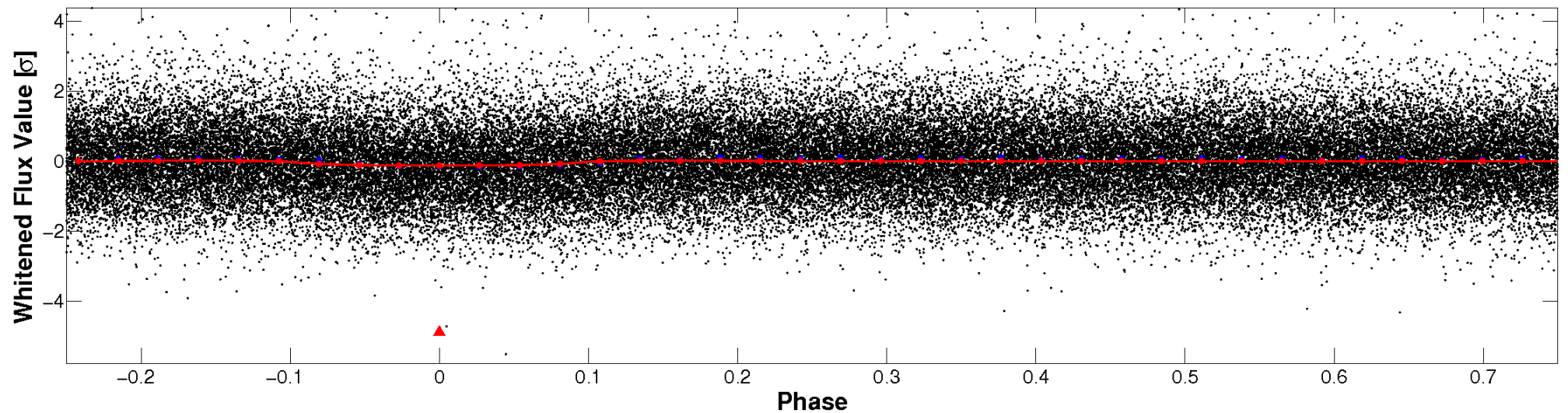


# Non-Whitened Vs. Whitened Light Curve

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



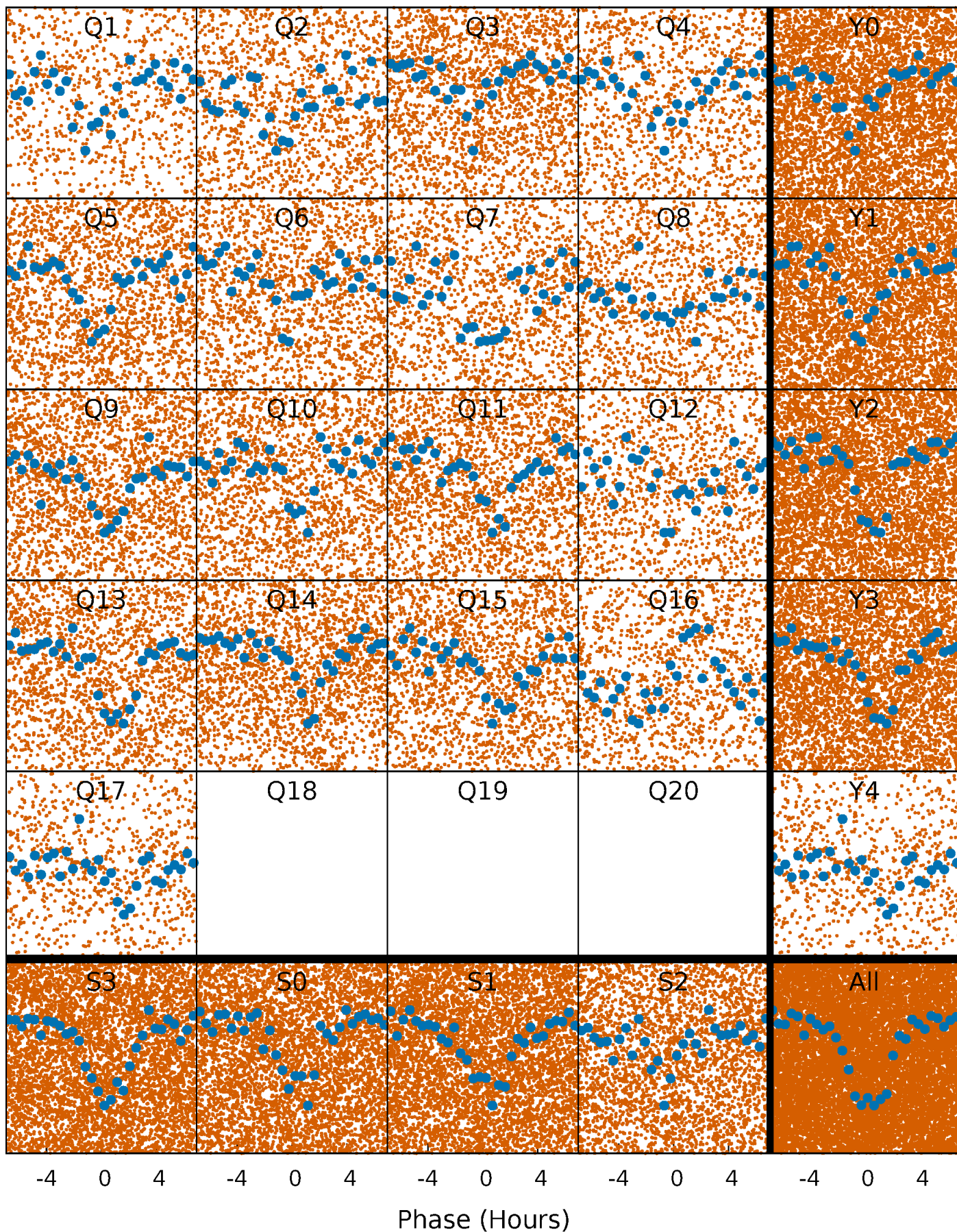
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

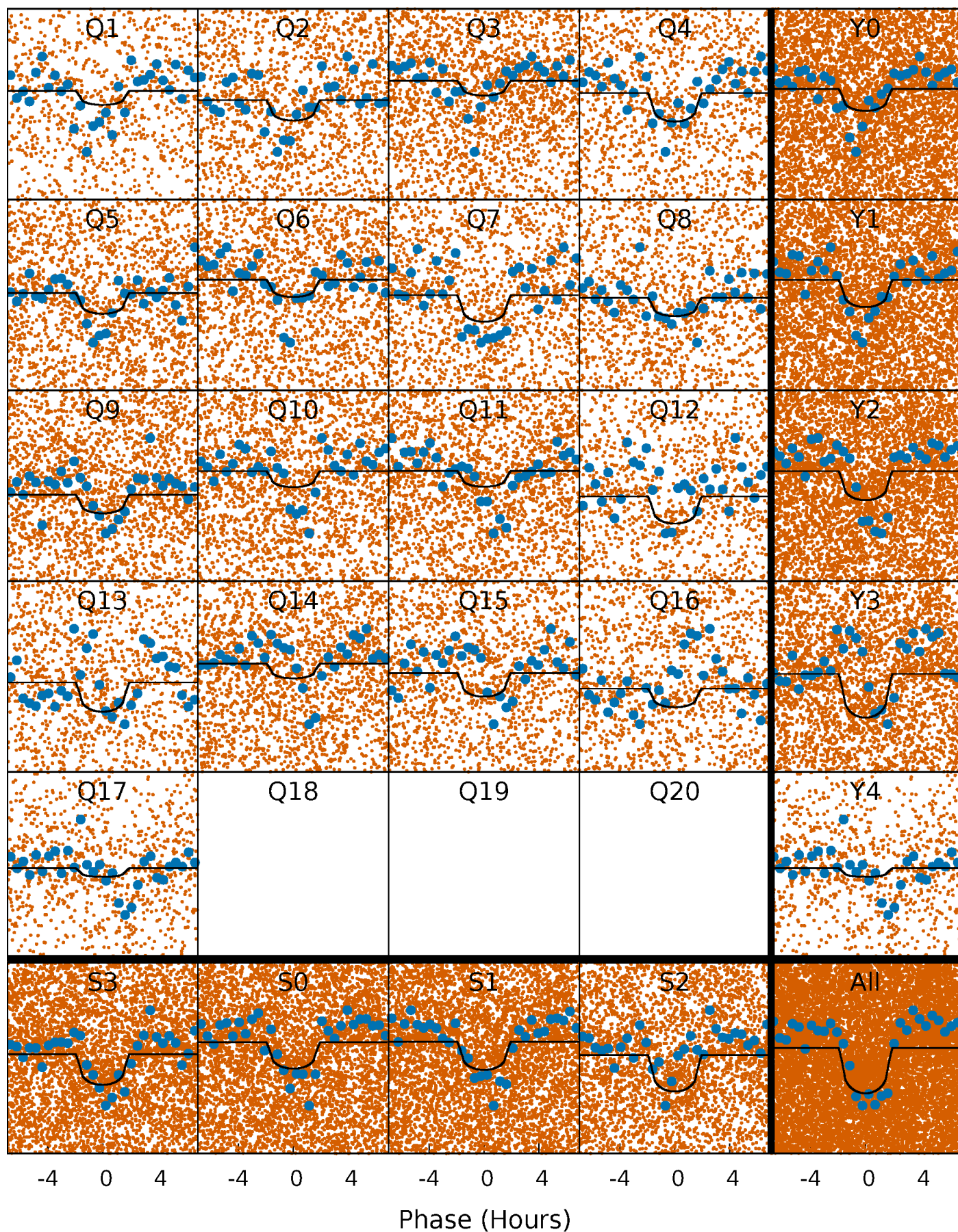
TCE 005444334-01 P= 0.759705 Days  $T_0=131.829728$  (BKJD)





# DV Quarter-Phased Transit Curves

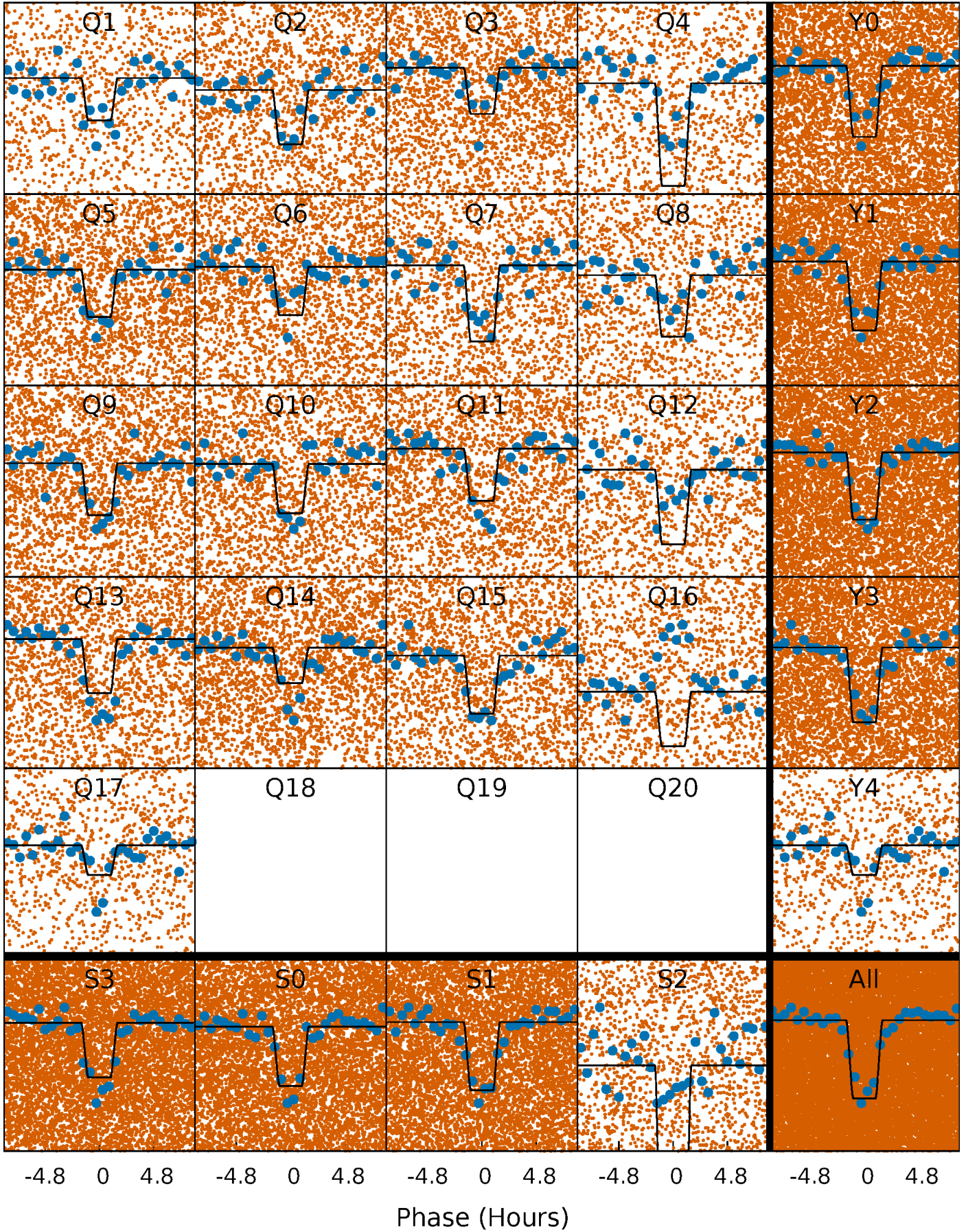
TCE 005444334-01 P= 0.759705 Days  $T_0=131.829728$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

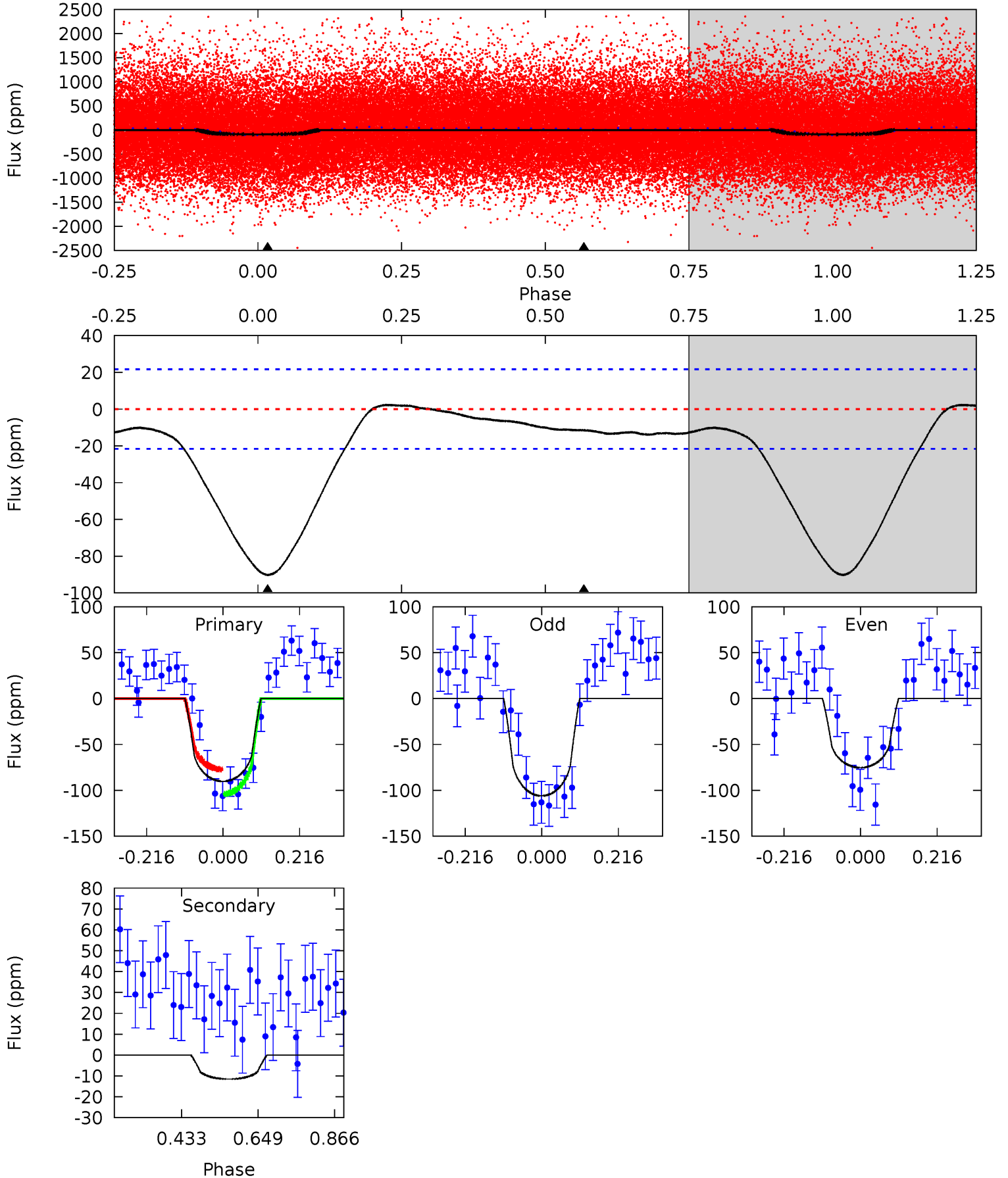
TCE 005444334-01 P= 0.759756 Days  $T_0=131.797191$  (BKJD)



# DV Model-Shift Uniqueness Test

005444334-01, P = 0.759705 Days, E = 131.070023 Days

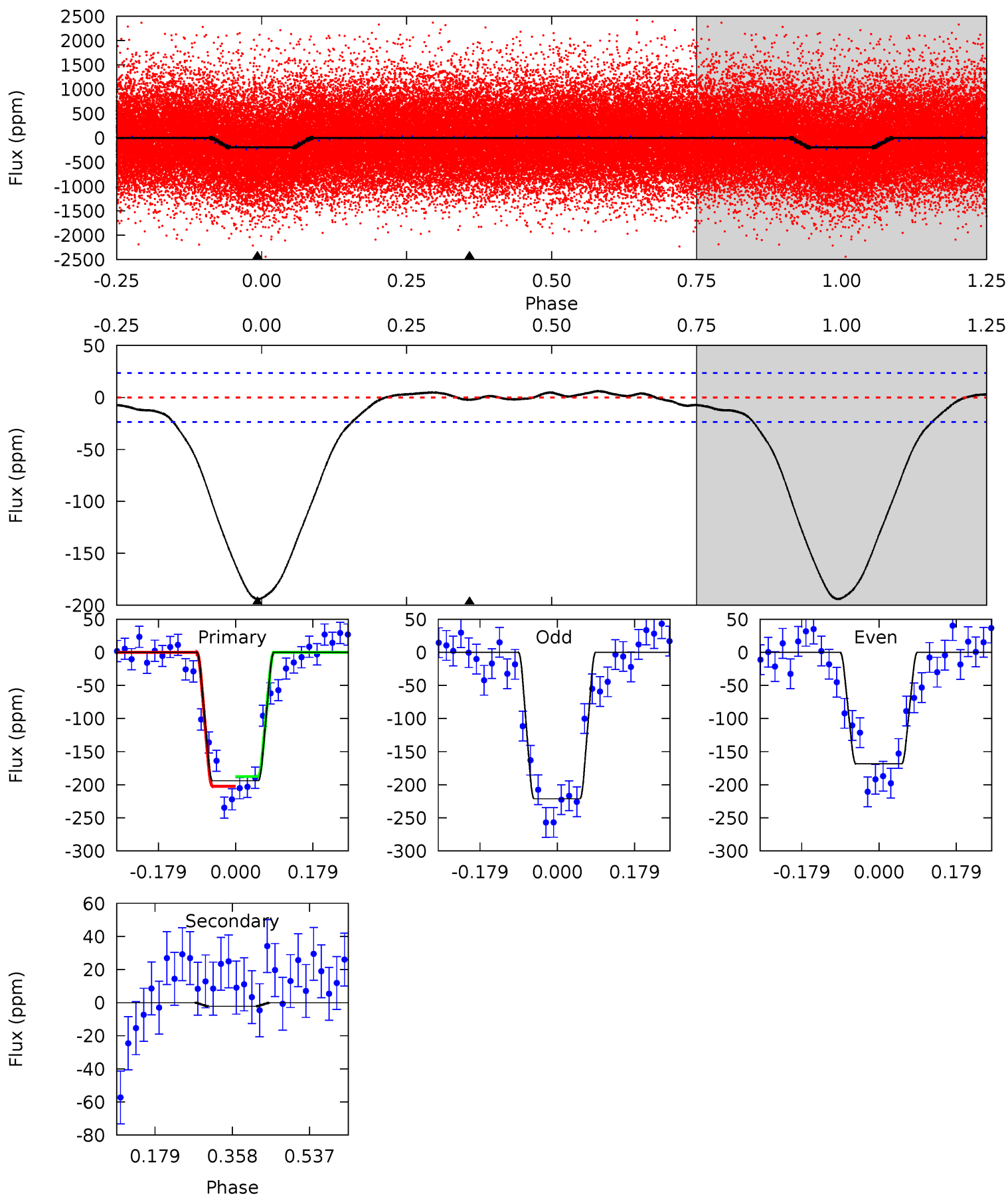
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	2.34	0	0	4.40	1.24	0.76	18.3	18.3	2.34	2.34	3.13	0.83	0.02	2.73



# Alt Model-Shift Uniqueness Test

005444334-01, P = 0.759756 Days, E = 131.037435 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
36.6	0.42	0	0	4.44	1.34	1.18	36.6	36.6	0.42	0.42	4.94	0.91	0.03	1.39





### Stellar Parameters For KIC 005444334

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5520^{+166}_{-182}$	$4.572^{+0.034}_{-0.136}$	$-0.080^{+0.300}_{-0.300}$	$0.818^{+0.164}_{-0.070}$	$0.917^{+0.074}_{-0.111}$	$2.358^{+0.409}_{-0.896}$
	+3%/-3%	+1%/-3%	+375%/-375%	+20%/-9%	+8%/-12%	+17%/-38%
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 005444334-01 / KOI 4064.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-12 \pm 5$	$1.00^{+0.75}_{-0.63}$	$2499^{+125}_{-110}$	$3412^{+1662}_{-946}$	$1.529^{+8.877}_{-1.116}$
Alt.	$-2 \pm 5$	$1.41^{+0.91}_{-0.78}$	$2487^{+128}_{-106}$	$-2606^{+5713}_{-394}$	$0.116^{+0.916}_{-0.320}$

$T_{\text{max}}$  = 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

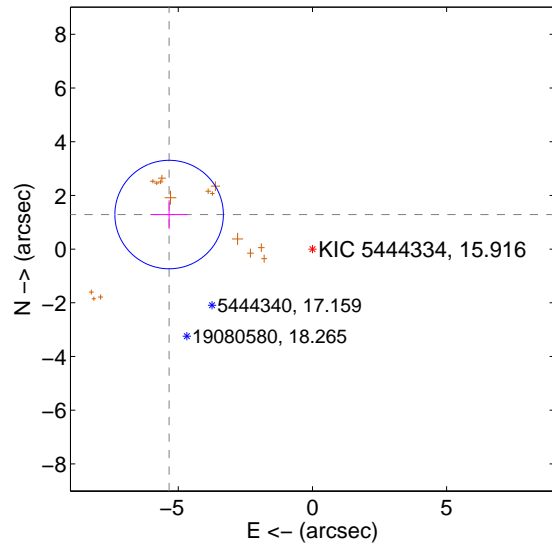
Supplemental centroid analysis for 005444334-01. Kepler magnitude: 15.92. Transit SNR 12.37

There are 0 quarters with good PRF difference image offsets

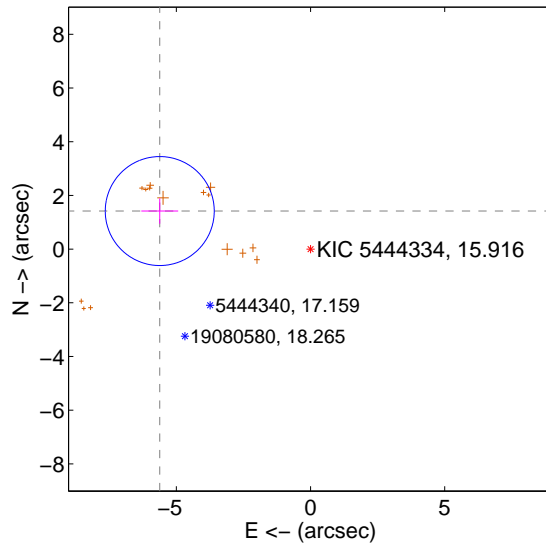
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.491 \pm 0.674$	8.15	$5.339 \pm 0.681$	$1.287 \pm 0.534$
PRF-fit source offset from KIC position	$5.792 \pm 0.677$	8.56	$5.616 \pm 0.687$	$1.417 \pm 0.472$
photometric centroid source offset	$0.70 \pm 0.94$	0.75	$-0.48 \pm 0.95$	$0.52 \pm 0.94$

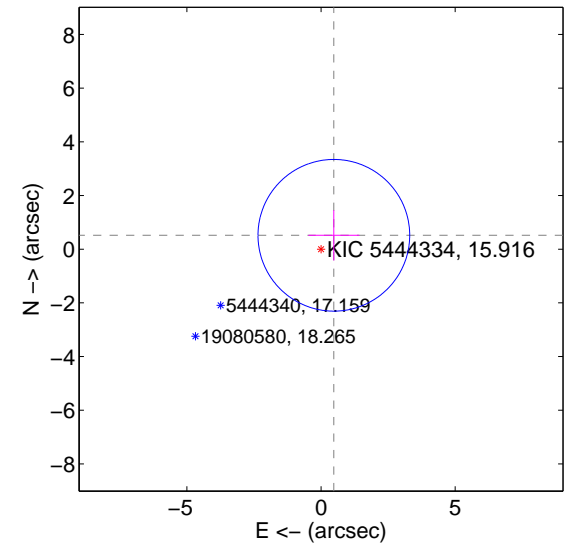
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

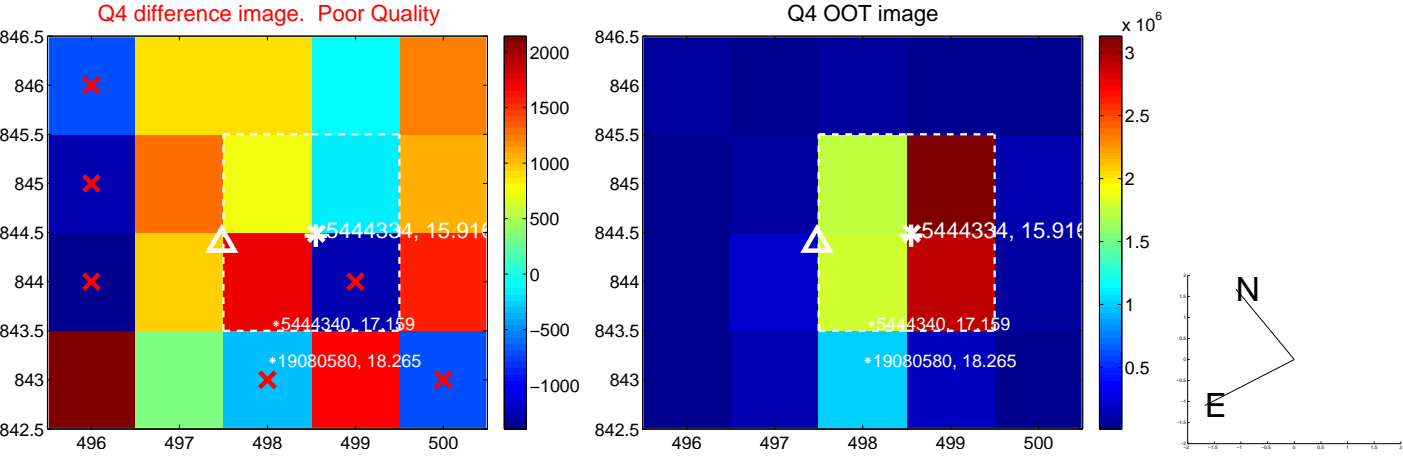
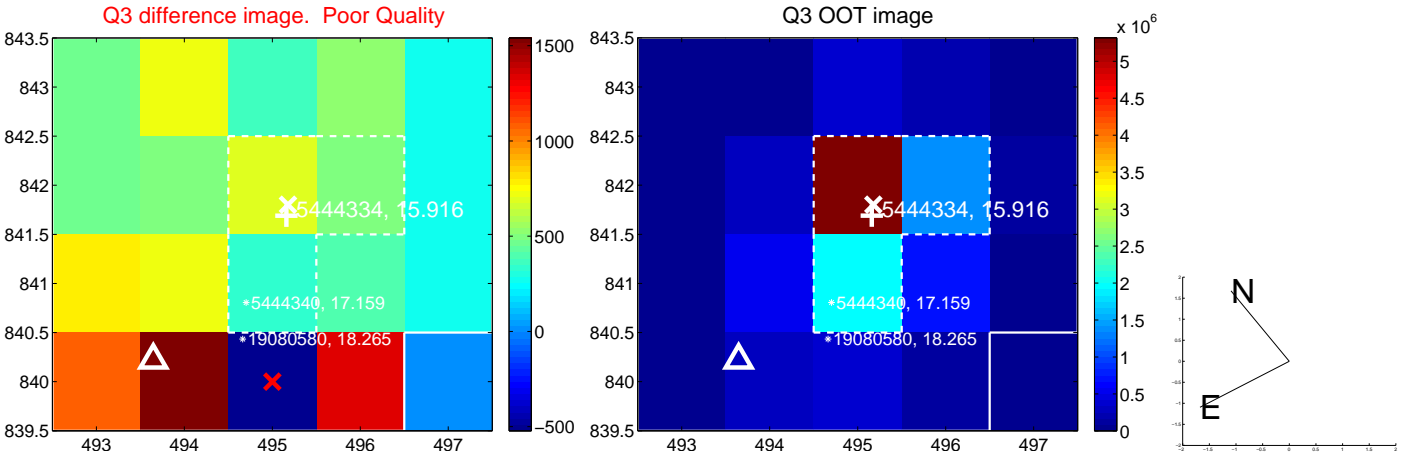
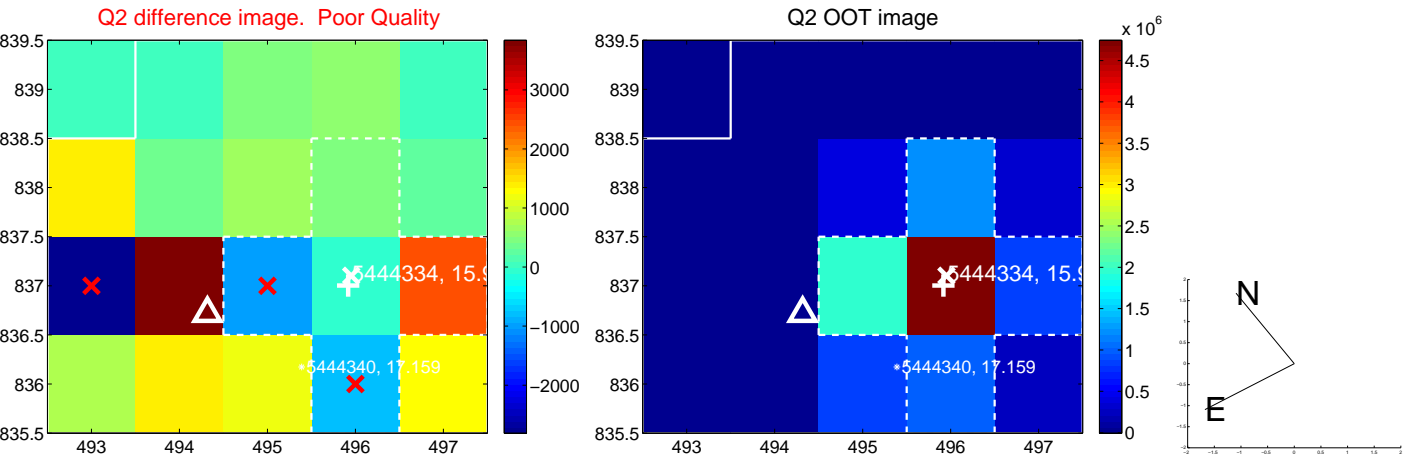
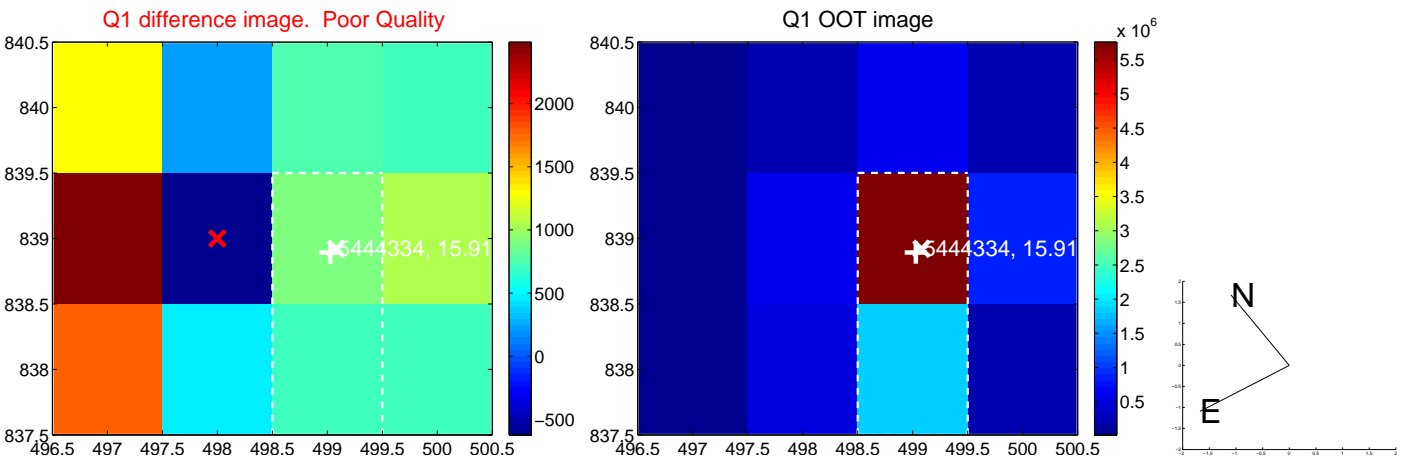


offset from photometric centroids

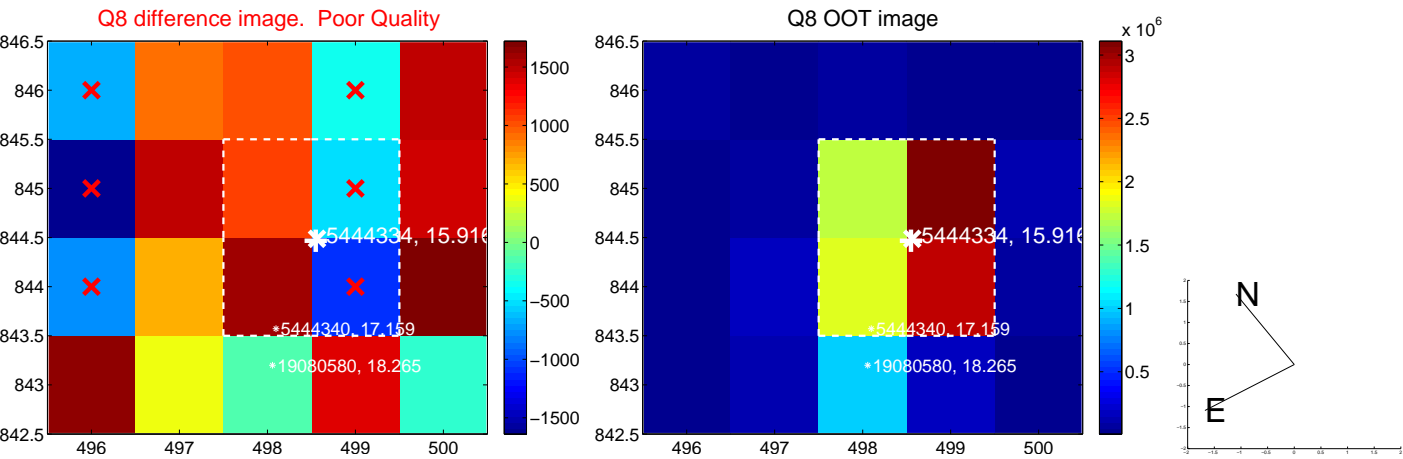
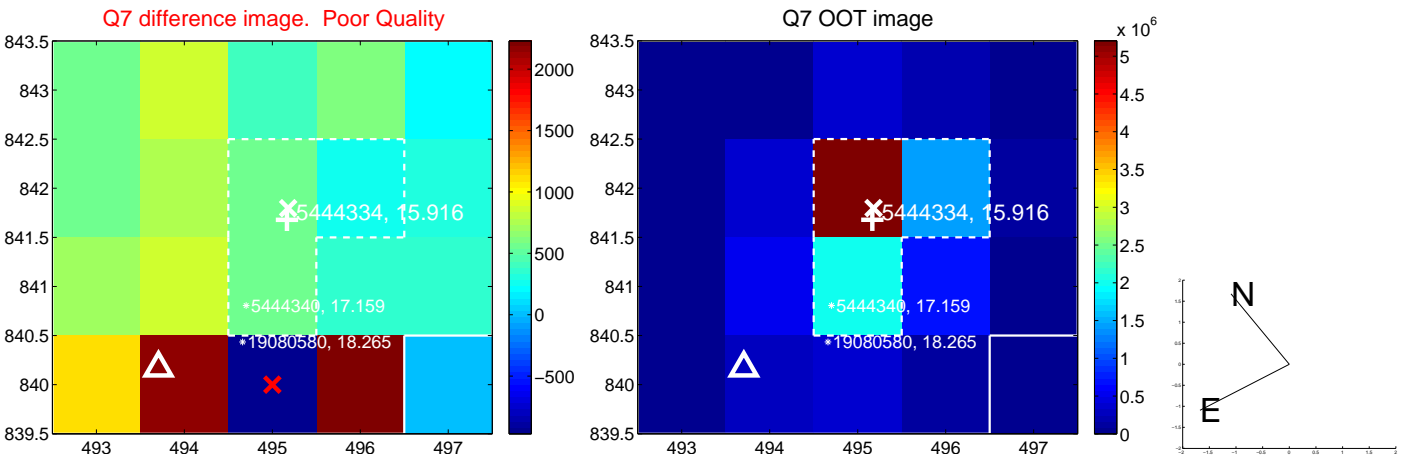
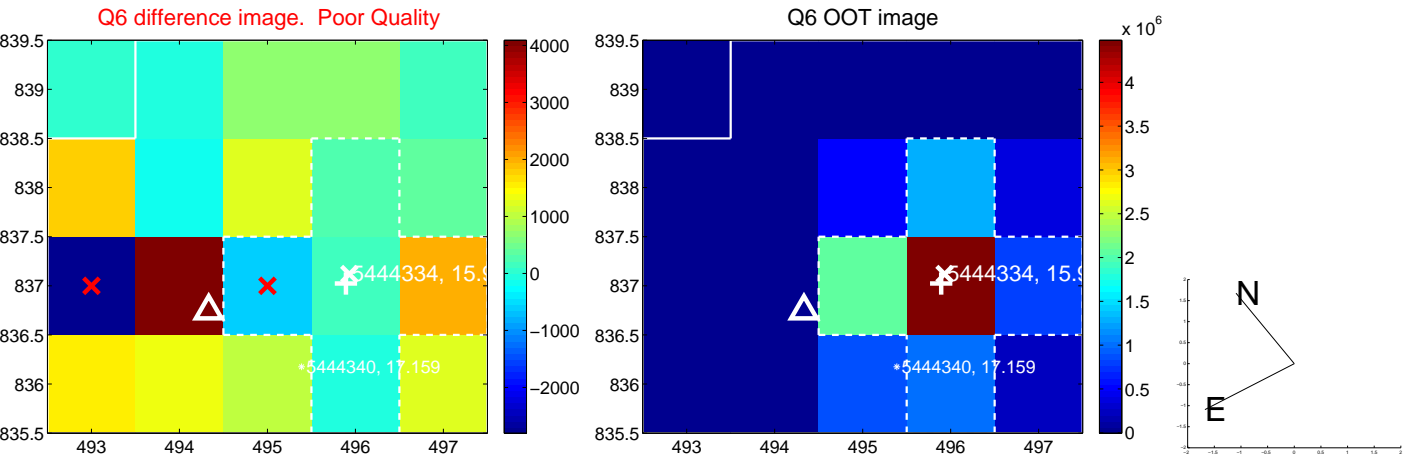
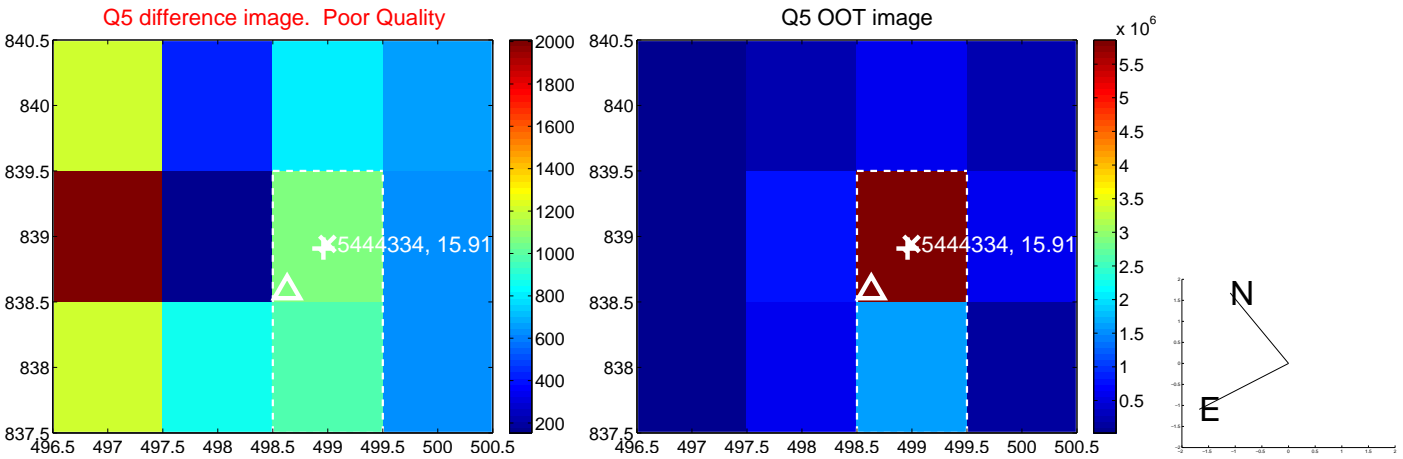


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

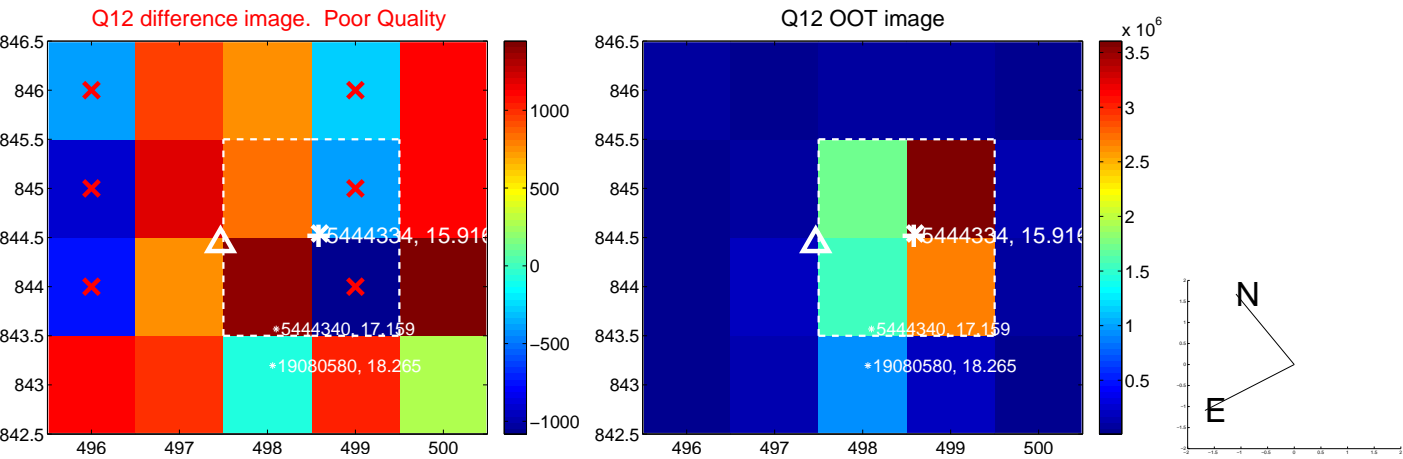
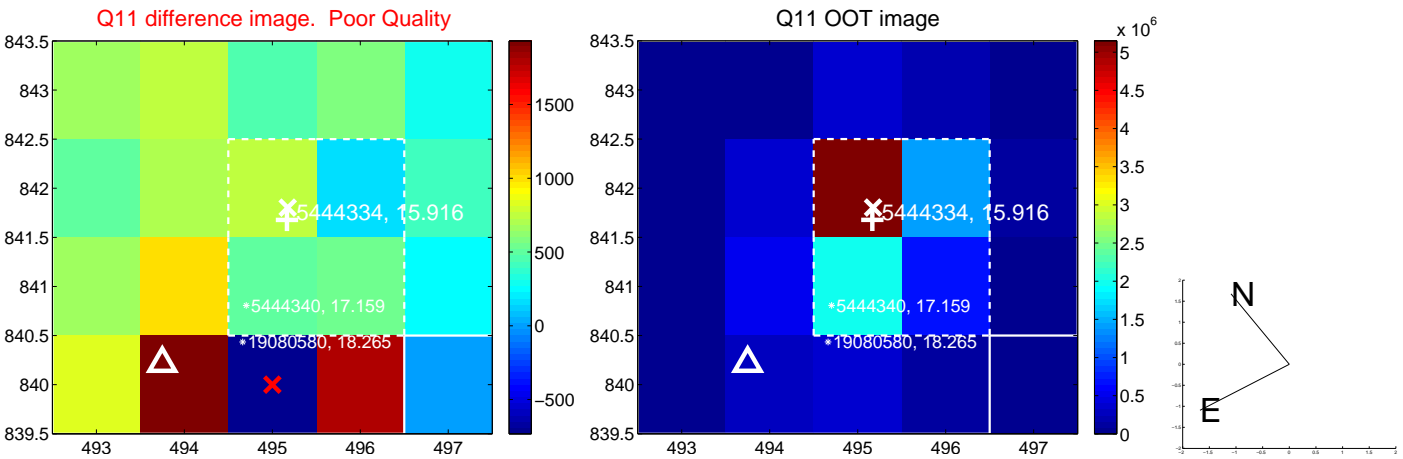
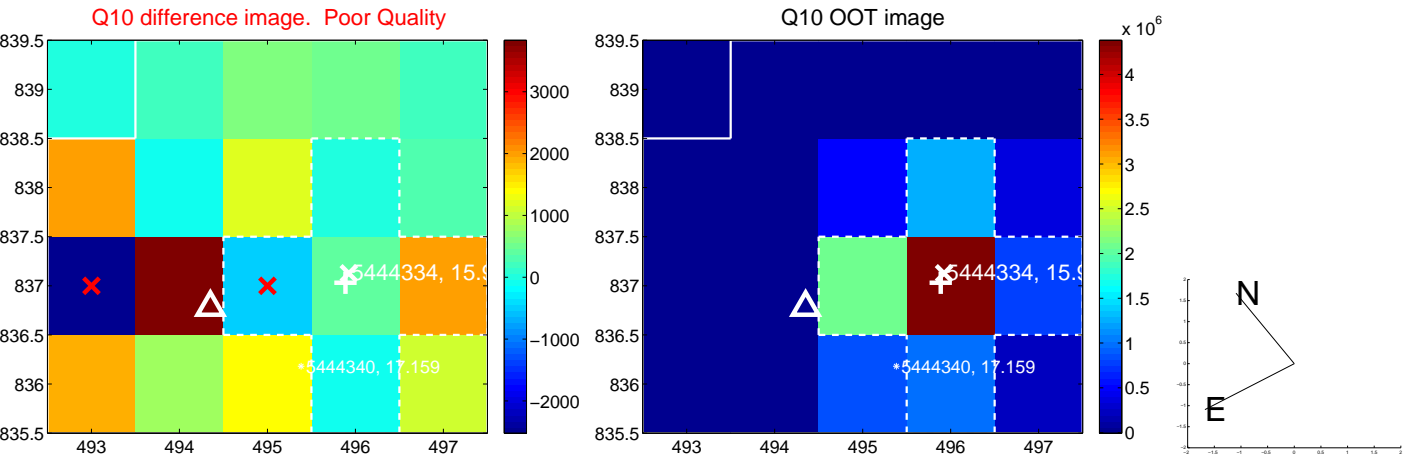
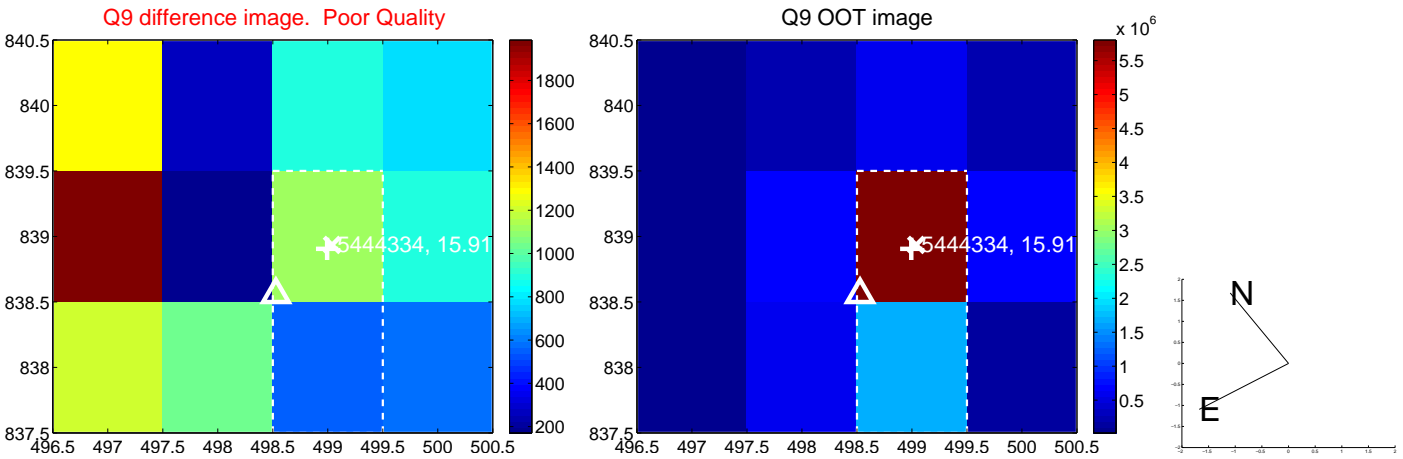


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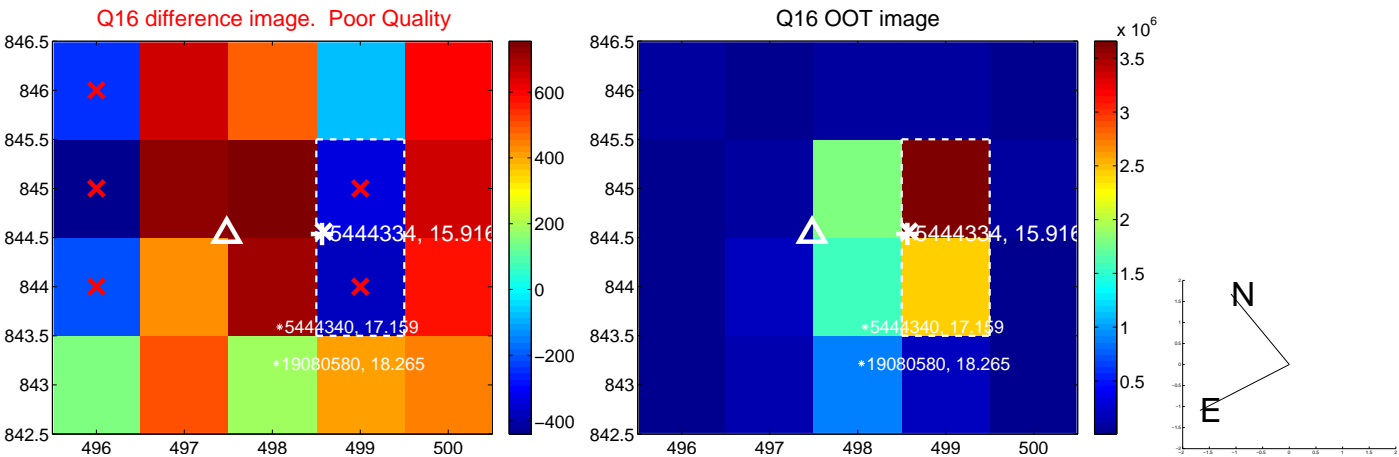
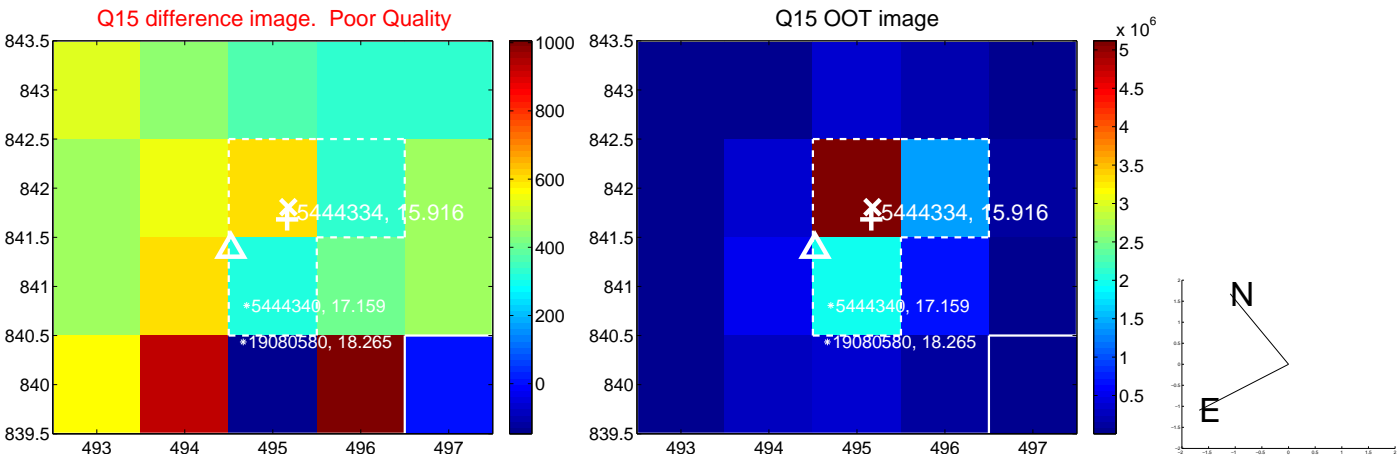
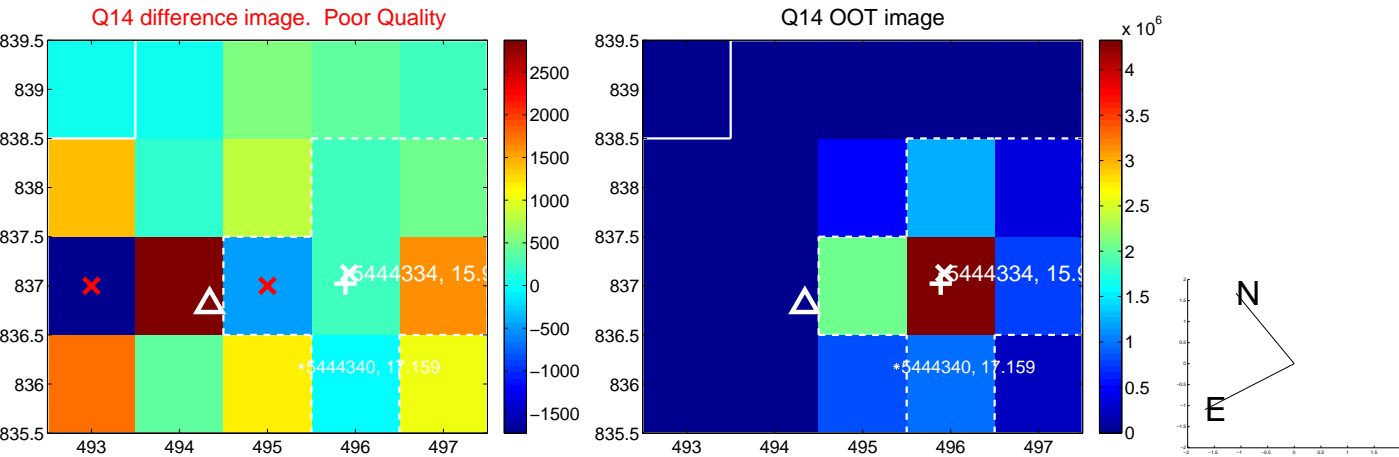
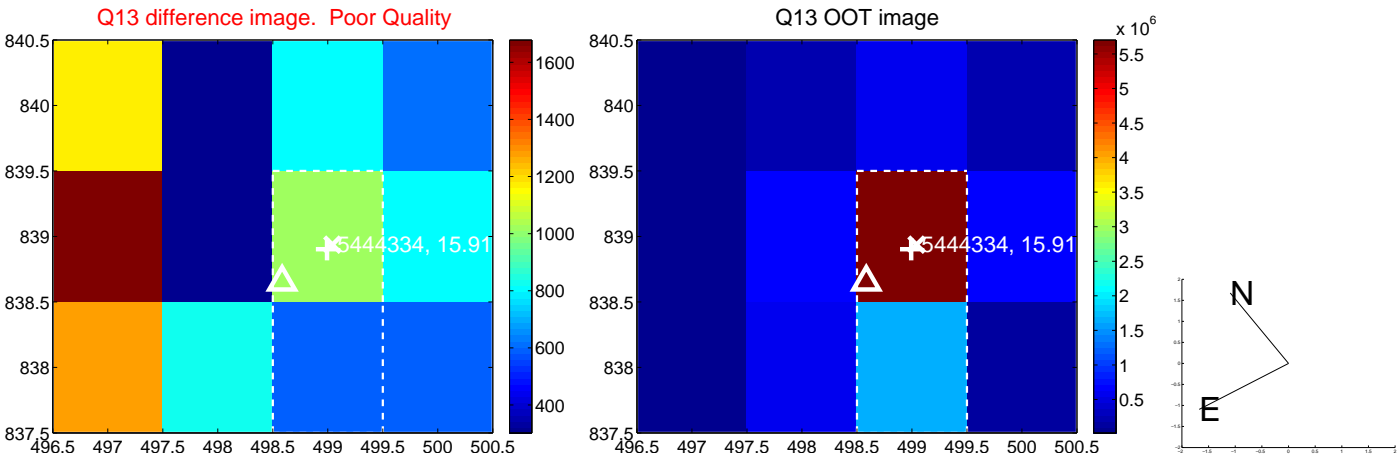




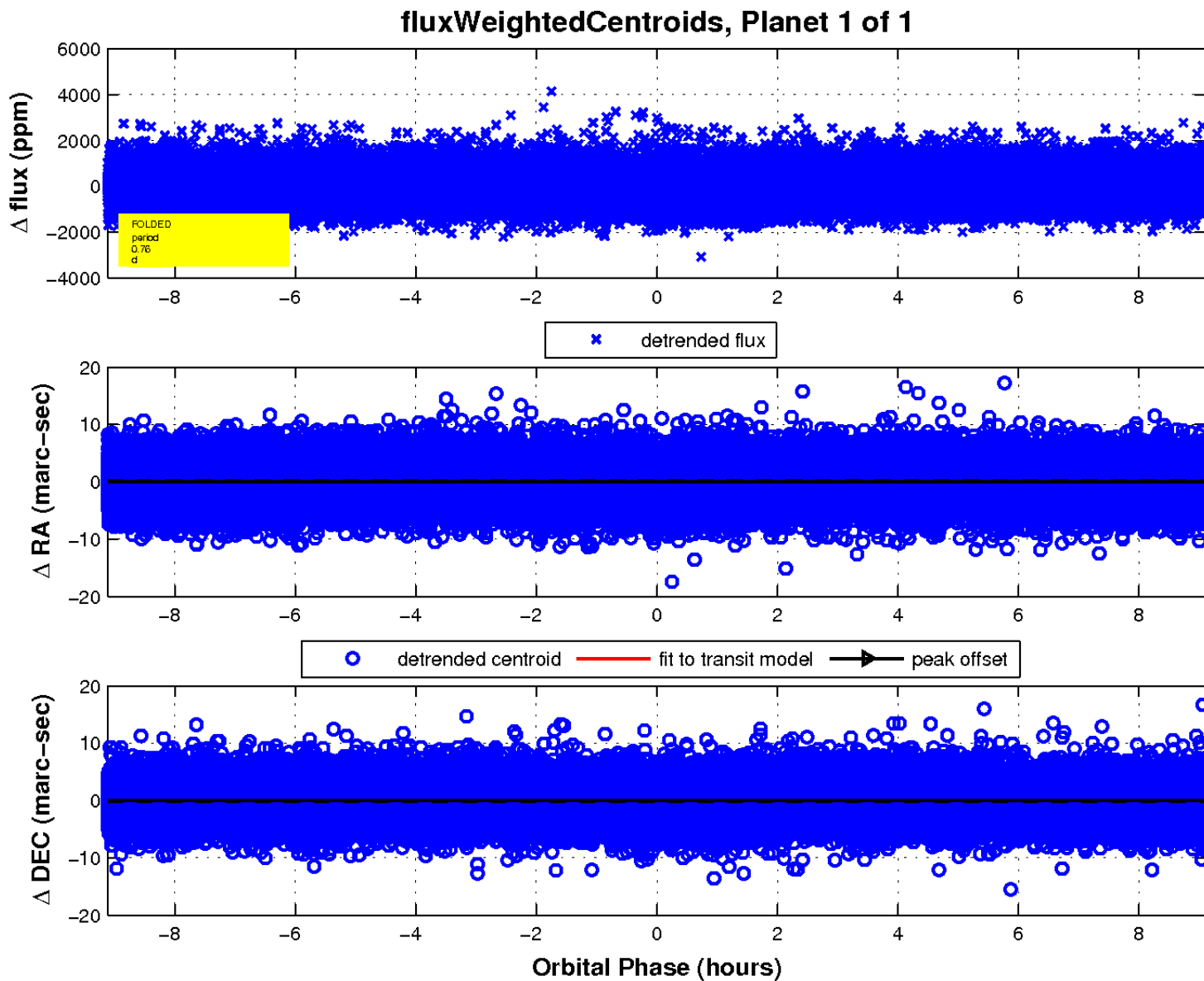
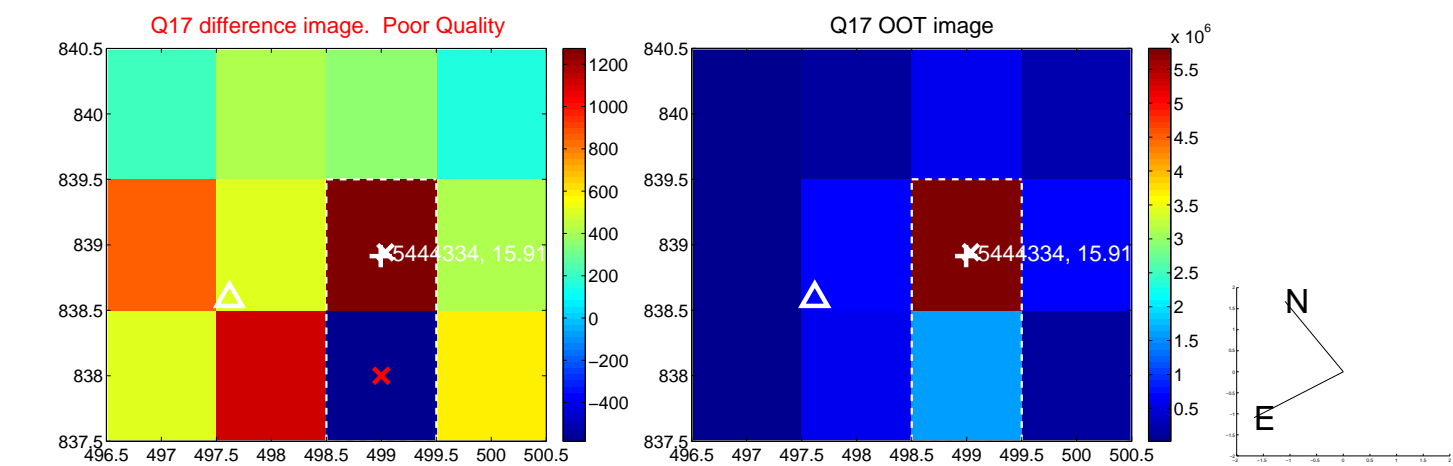
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

