

# KIC 007456441

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007456441-01	OBS	No	0.639919	131.669145	146.3	6.812	13.6	17.6	2.91	7262	3.65	74624.55

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007456441-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

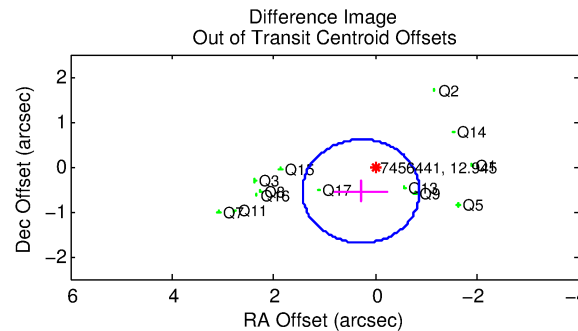
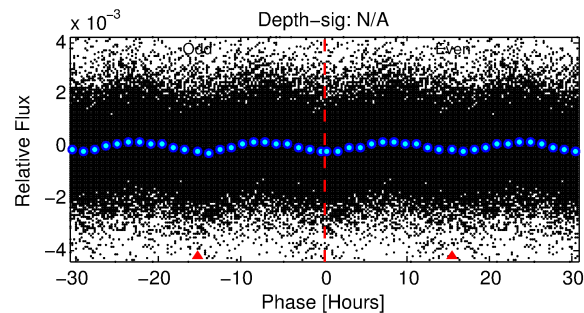
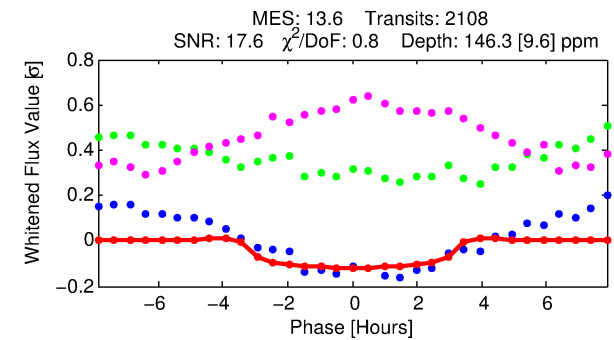
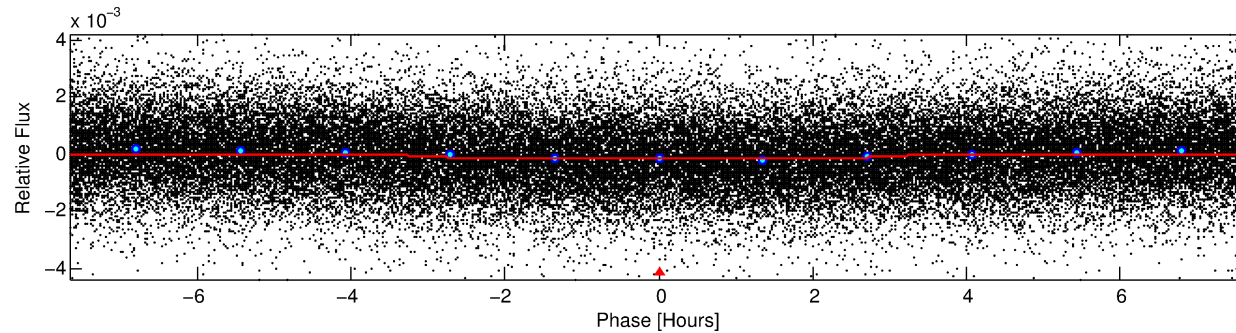
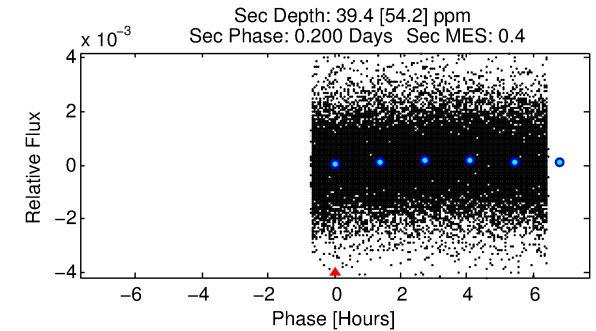
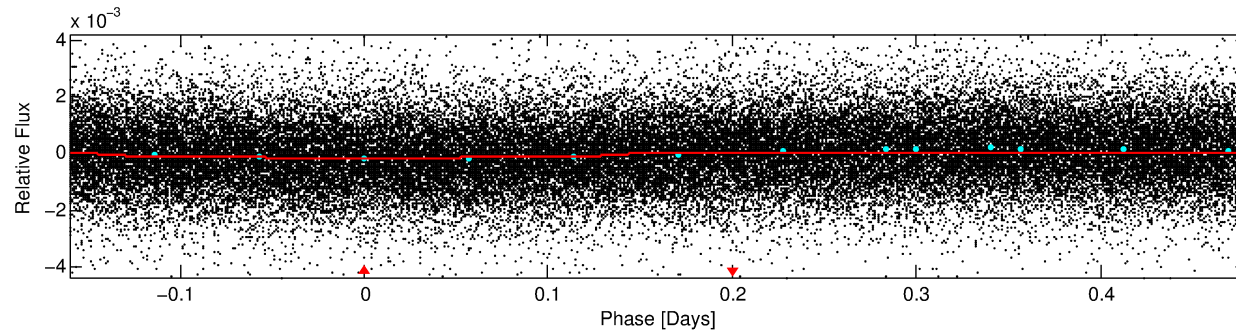
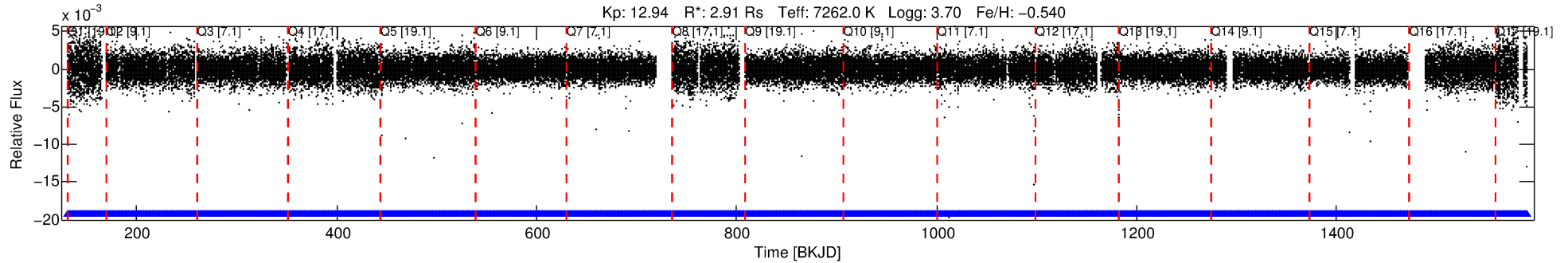
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007456441-01

No Significant Match Found

# DV One-Page Summary

KIC: 7456441 Candidate: 1 of 1 Period: 0.640 d



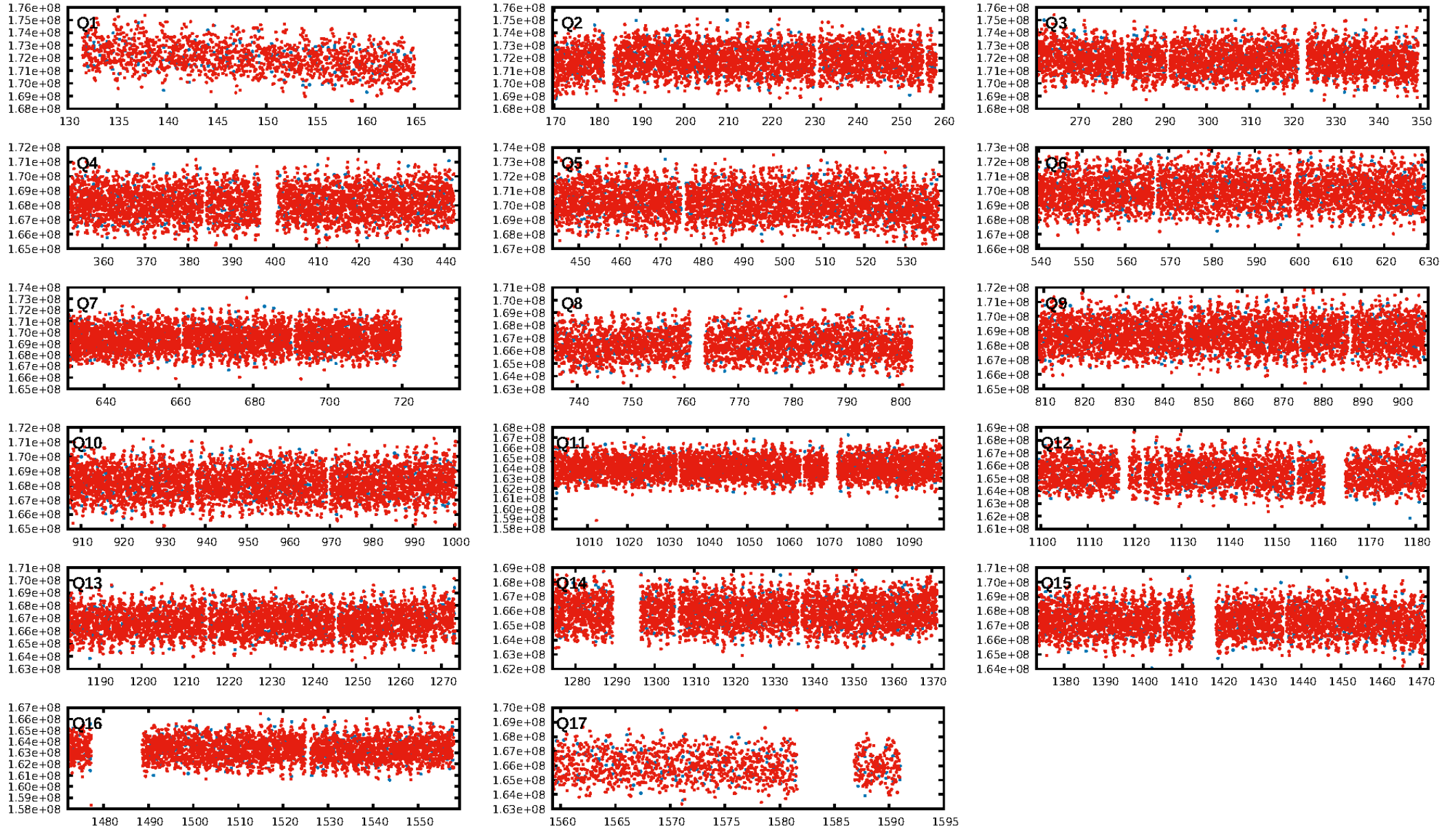
## DV Fit Results:

Period = 0.63992 [0.00001] d  
Epoch = 131.6691 [0.0037] BKJD  
Rp/R\* = 0.0115 [0.0037]  
a/R\* = 1.02 [0.09]  
b = 0.49 [3.04]  
Seff = 74624.55 [66294.27]  
Teq = 4215 [936] K  
Rp = 3.65 [2.16] Re  
a = 0.0168 [0.0088] AU  
Ag = 0.46 [0.81] [-0.67σ]  
Teffp = 5368 [2047] K [0.51σ]

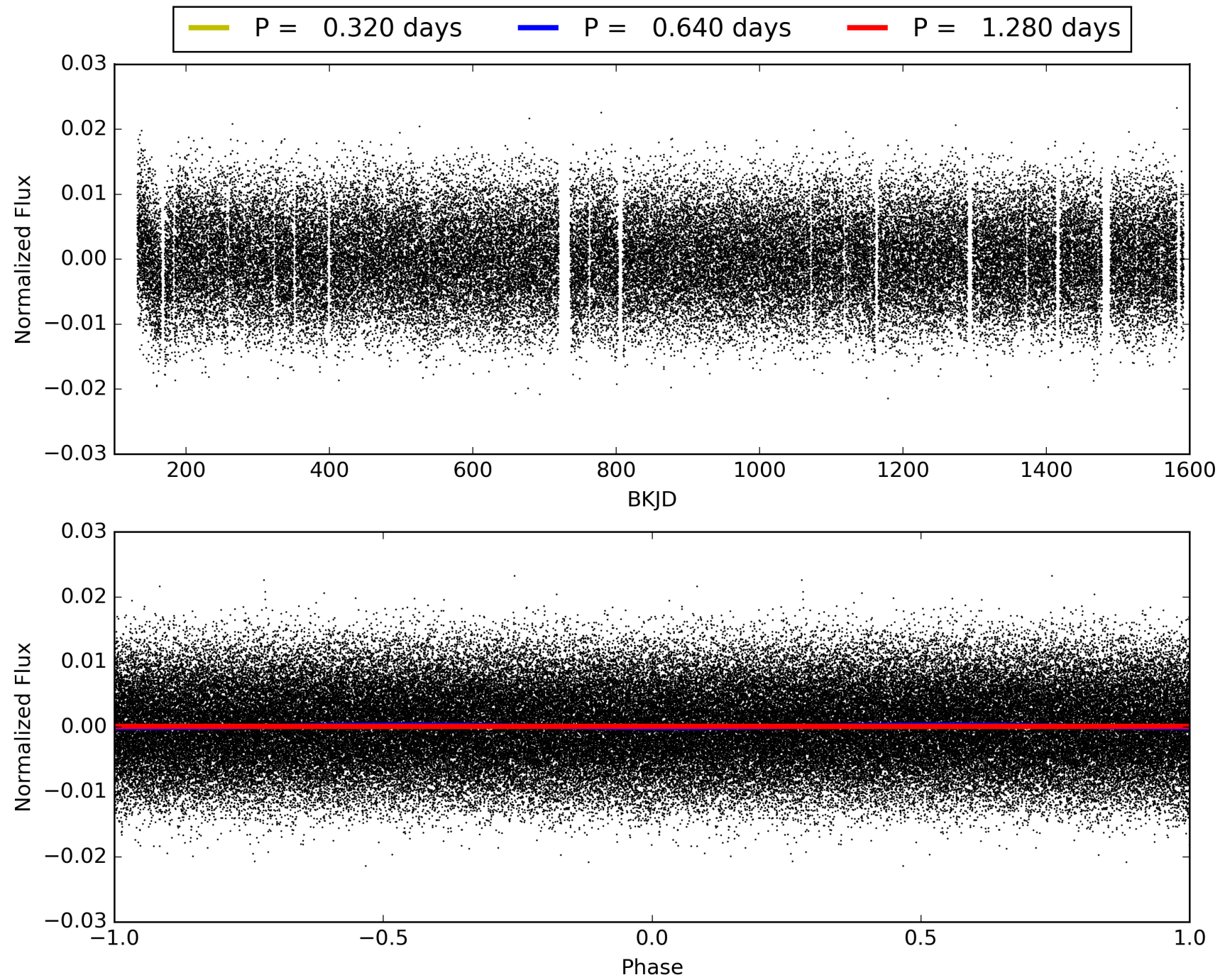
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2012/2012]  
GhostDiagnostic-chr: 1.67  
Centroid-sig: 0.0%  
Centroid-so: 0.150 arcsec [2.55σ]  
OotOffset-rm: 0.618 arcsec [1.61σ]  
OotOffset-st: 2/4/2/5 [13]  
KicOffset-rm: 0.454 arcsec [0.90σ]  
KicOffset-st: 2/4/2/5 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 007456441-01, PDC Light Curves



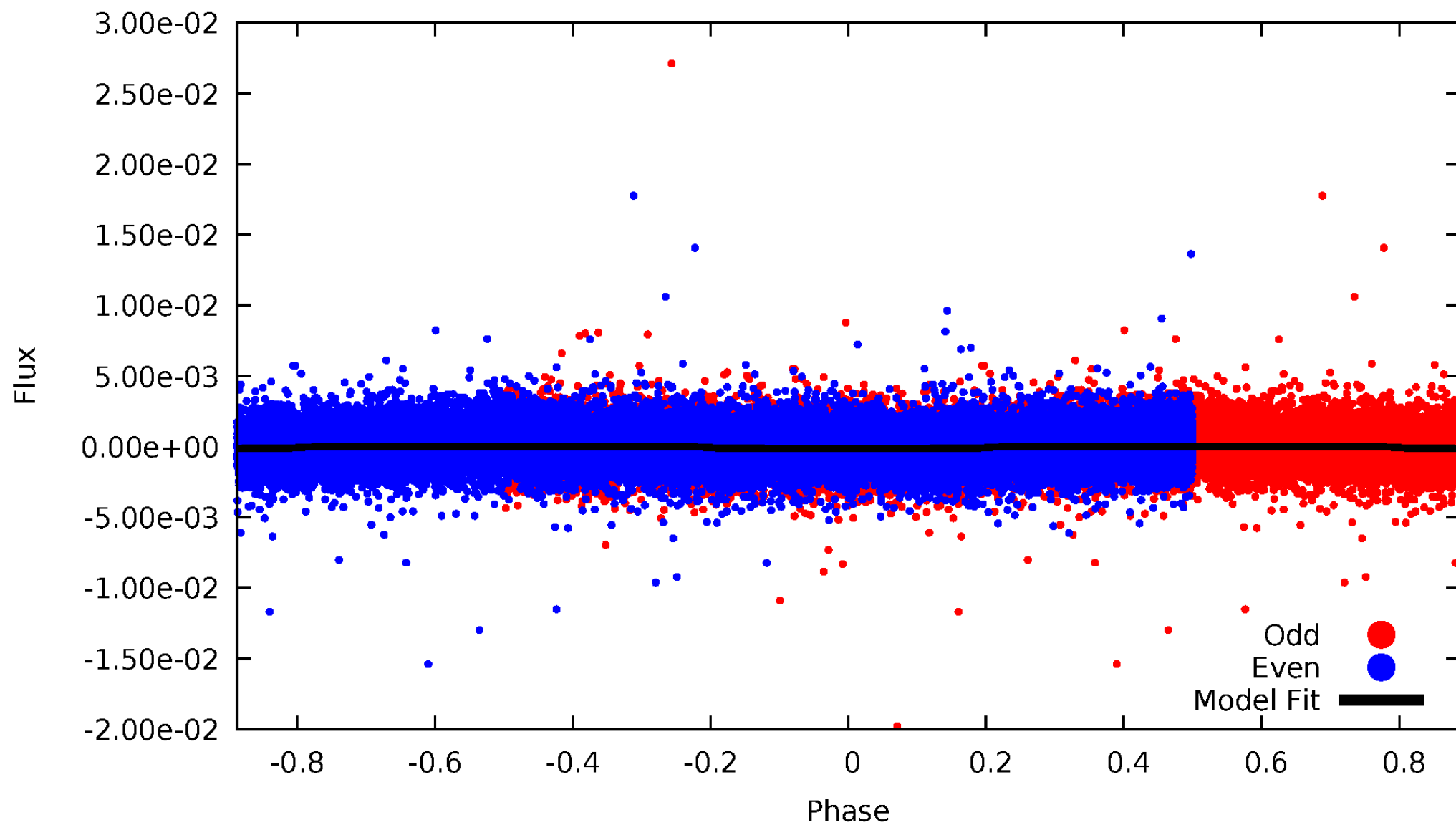
TCE 007456441-01





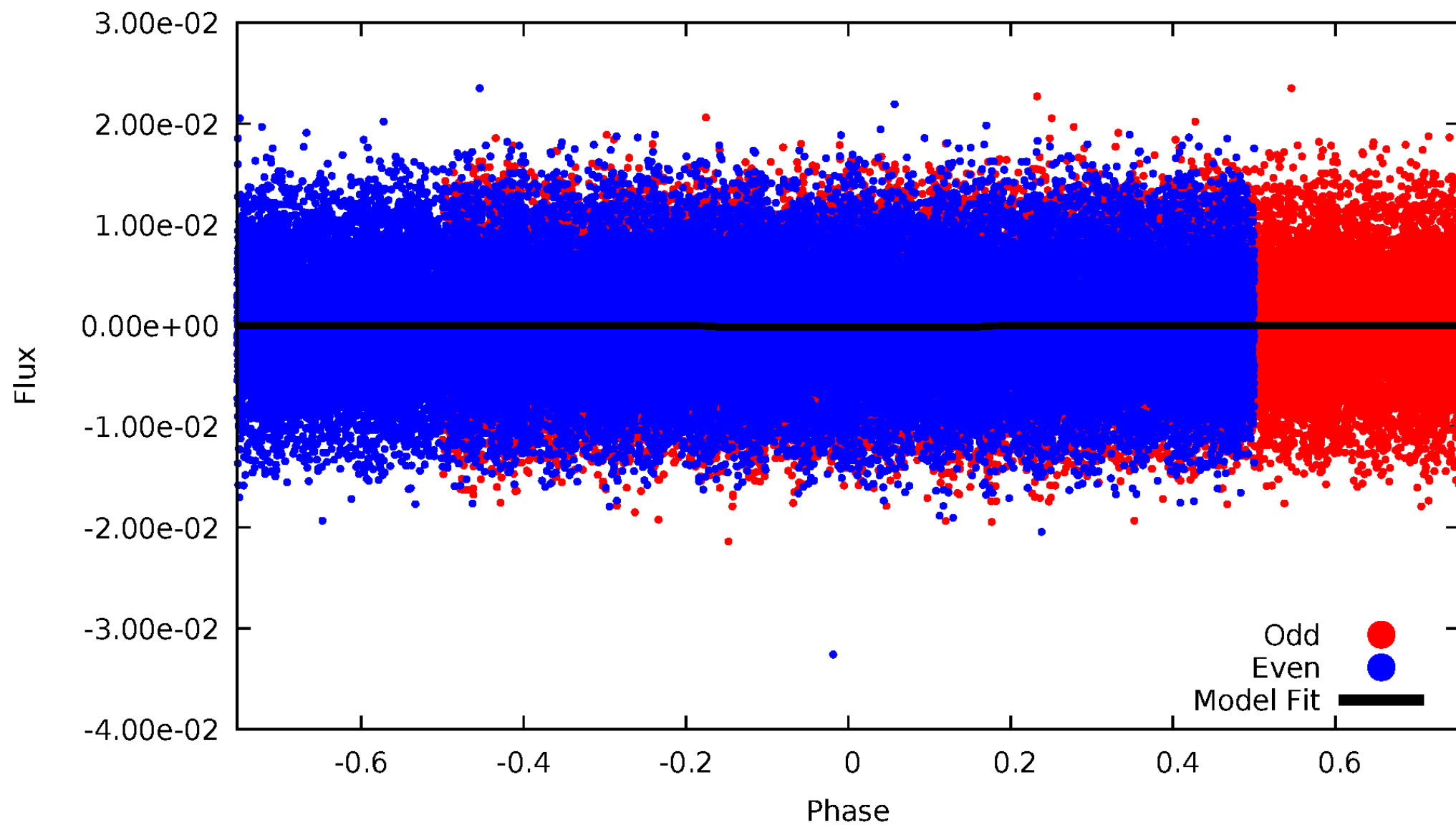
# DV Odd/Even

TCE 007456441-01

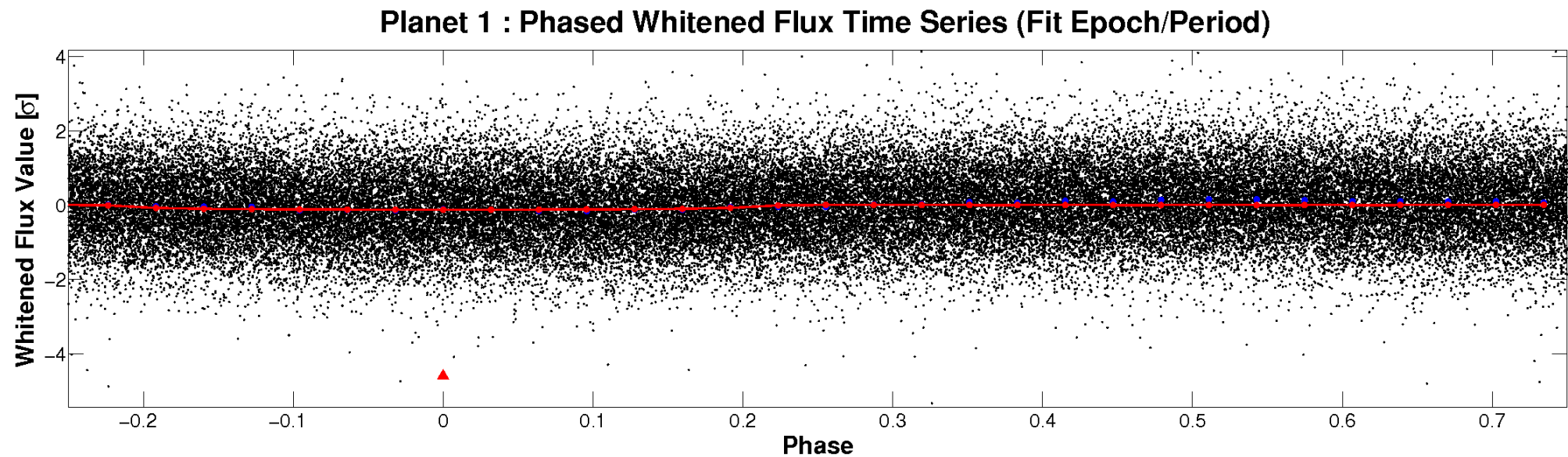
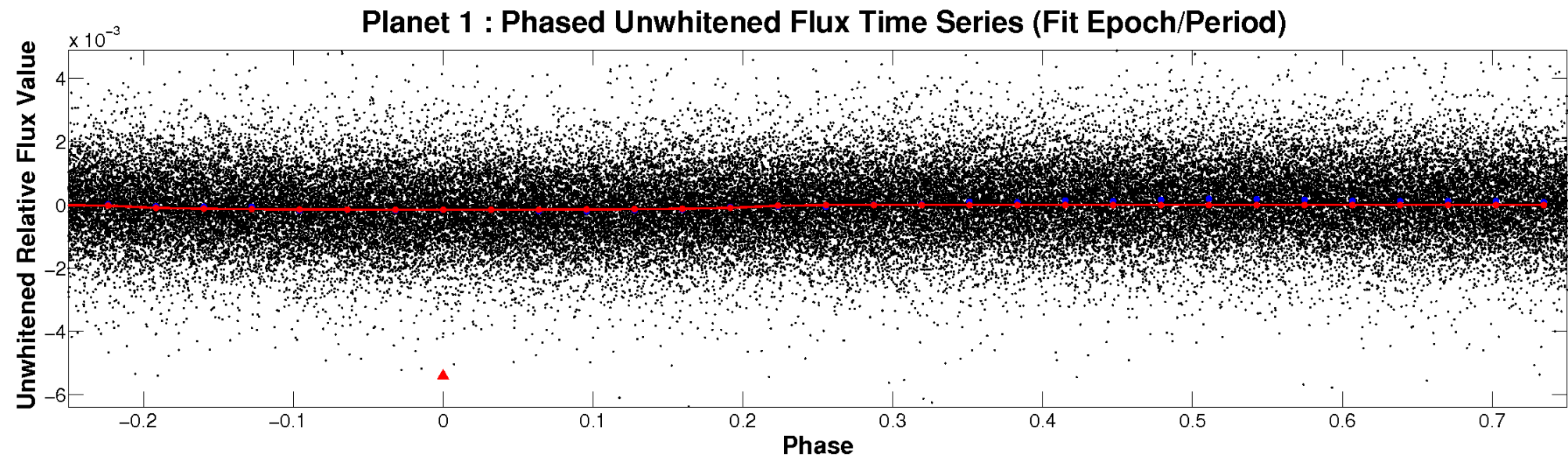


# ALT Odd/Even

TCE 007456441-01

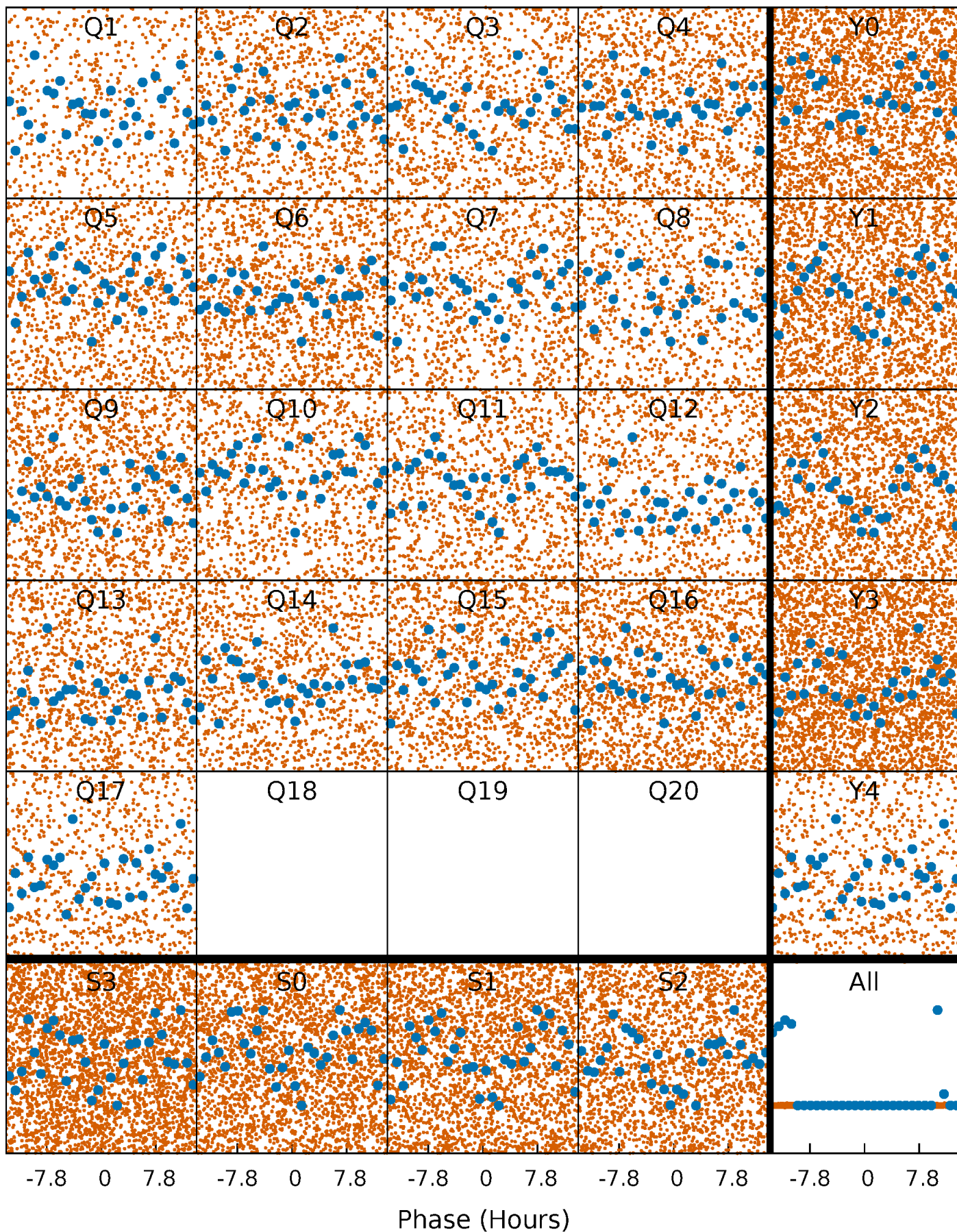


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

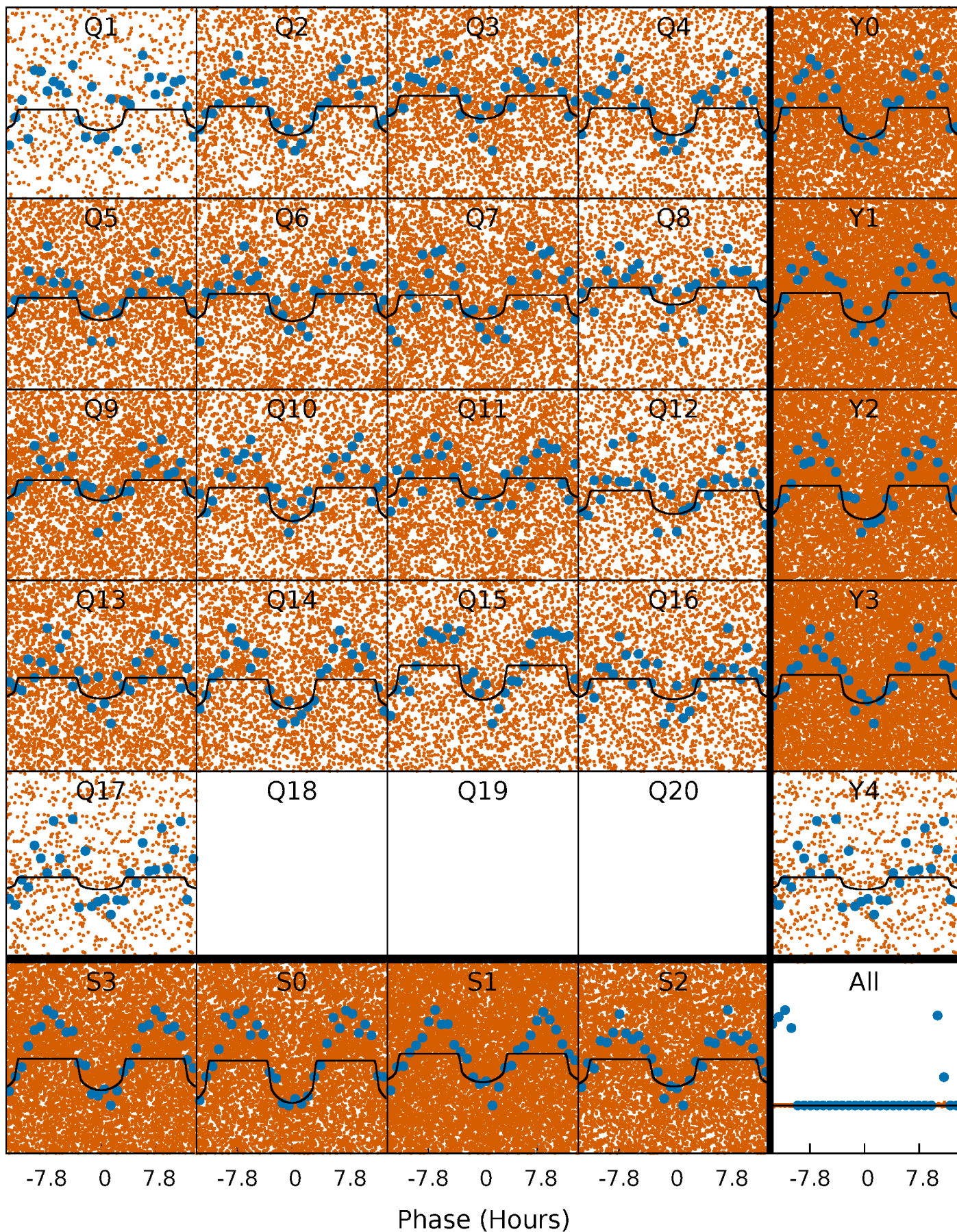
TCE 007456441-01 P= 0.639919 Days  $T_0=131.669144$  (BKJD)





# DV Quarter-Phased Transit Curves

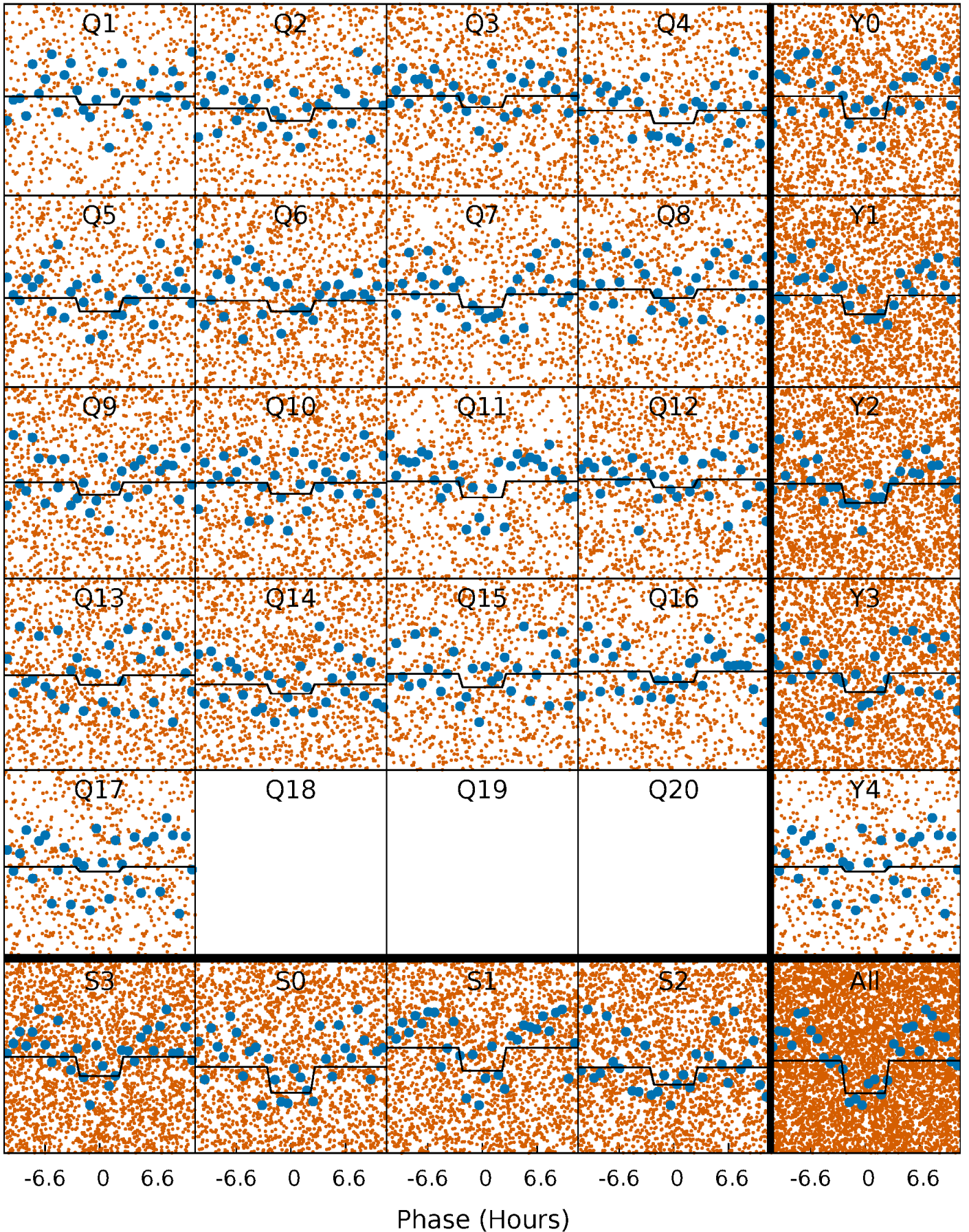
TCE 007456441-01 P= 0.639919 Days  $T_0=131.669144$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

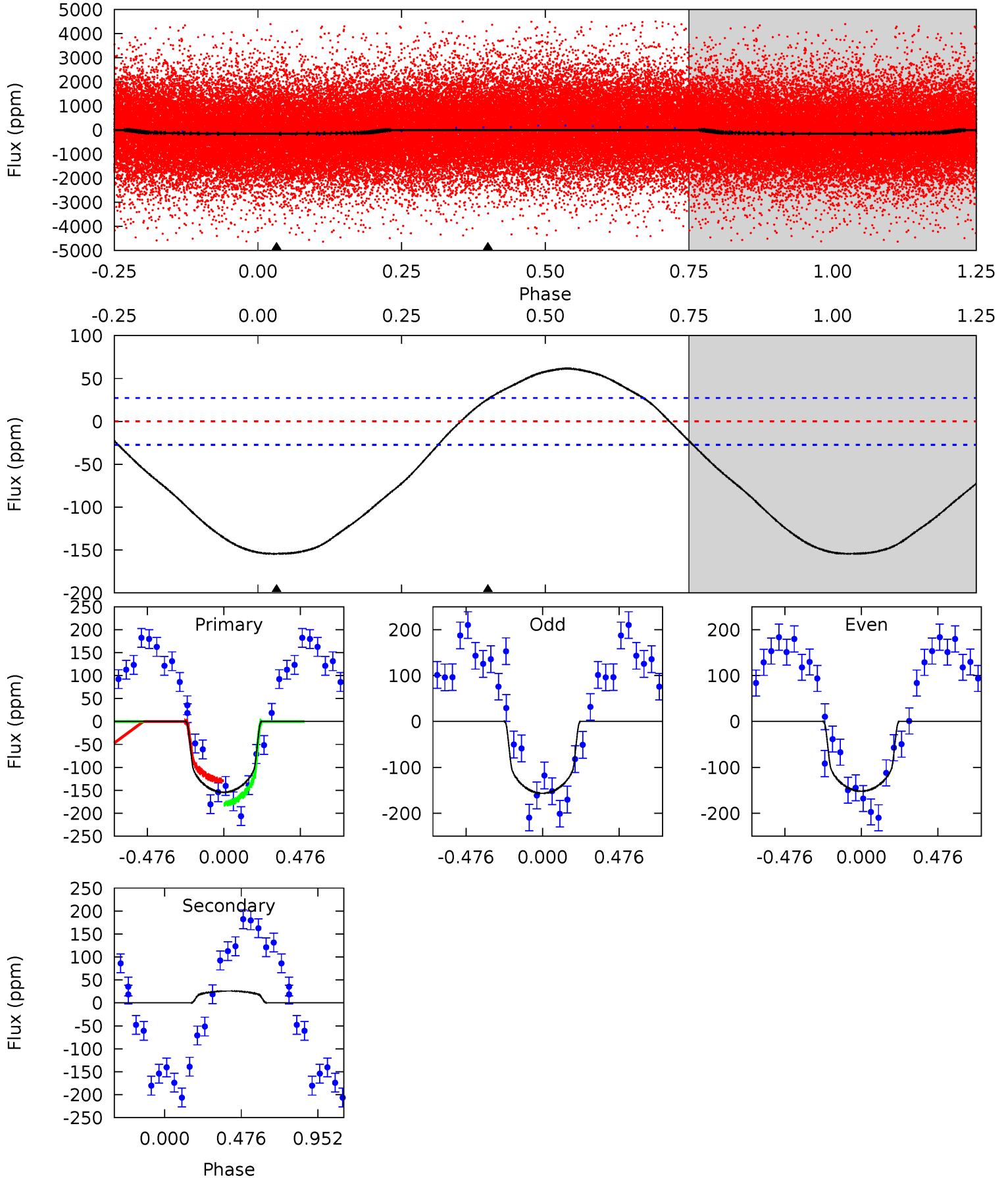
TCE 007456441-01 P= 0.639996 Days  $T_0=131.619694$  (BKJD)



# DV Model-Shift Uniqueness Test

007456441-01, P = 0.639919 Days, E = 131.029225 Days

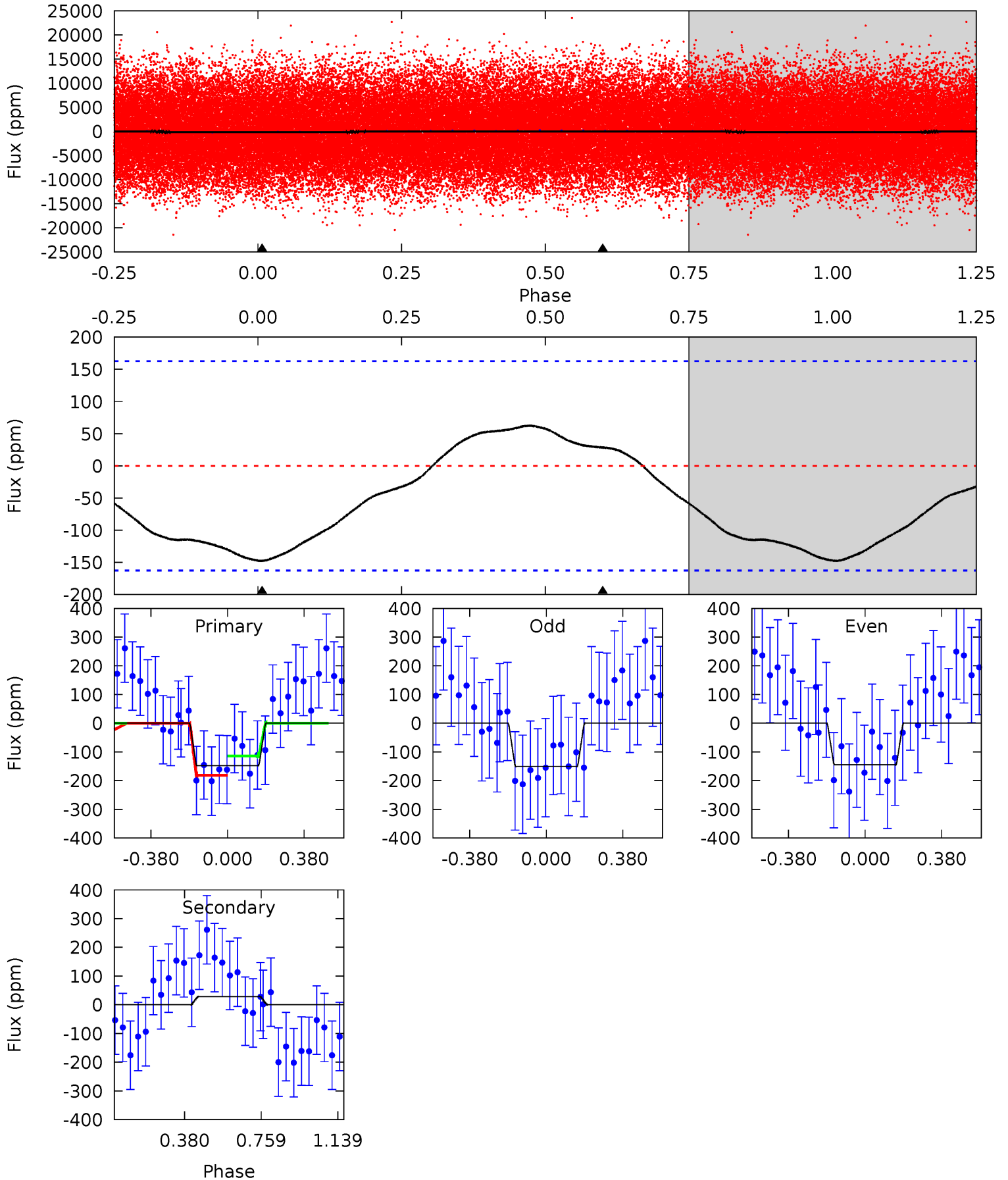
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.0	-4.02	0	0	4.23	0.71	3.02	24.0	24.0	-4.02	-4.02	0.37	1.07	0.29	3.88



# Alt Model-Shift Uniqueness Test

007456441-01, P = 0.639996 Days, E = 130.979698 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
3.89	-0.75	0	0	4.28	0.88	0.58	3.89	3.89	-0.75	-0.75	0.07	0.92	0.30	0.89





### Stellar Parameters For KIC 007456441

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7262^{+230}_{-281}$	$3.700^{+0.527}_{-0.093}$	$-0.540^{+0.300}_{-0.300}$	$2.910^{+0.387}_{-1.453}$	$1.548^{+0.208}_{-0.386}$	$0.089^{+0.550}_{-0.026}$
	+3%/-4%	+14%/-3%	+56%/-56%	+13%/-50%	+13%/-25%	+621%/-30%
Source	KIC0	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 007456441-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$26 \pm 6$	$3.14^{+1.45}_{-1.11}$	$5710^{+396}_{-796}$	$-5605^{+450}_{-816}$	$-0.385^{+0.209}_{-0.650}$
Alt.	$28 \pm 38$	$3.43^{+1.38}_{-1.25}$	$5712^{+375}_{-744}$	$-5473^{+1321}_{-1217}$	$-0.301^{+0.443}_{-0.915}$

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

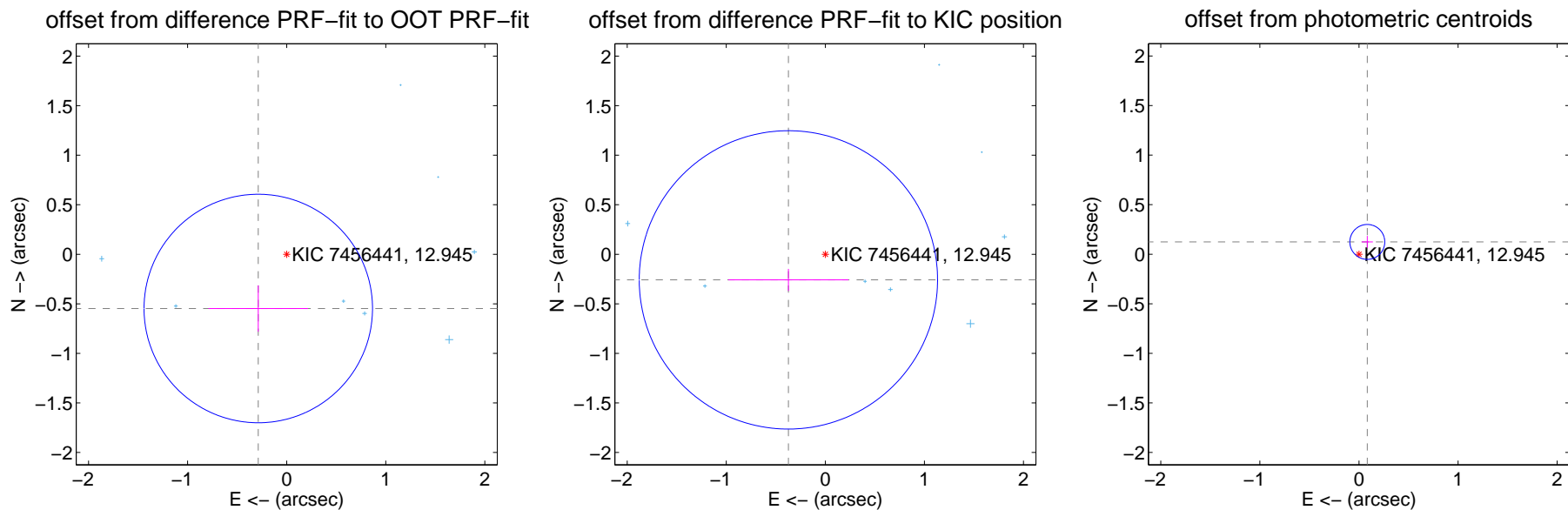
## DV Centroid Data

Supplemental centroid analysis for 007456441-01. Kepler magnitude: 12.95. Transit SNR 17.62

There are 13 quarters with good PRF difference image offsets

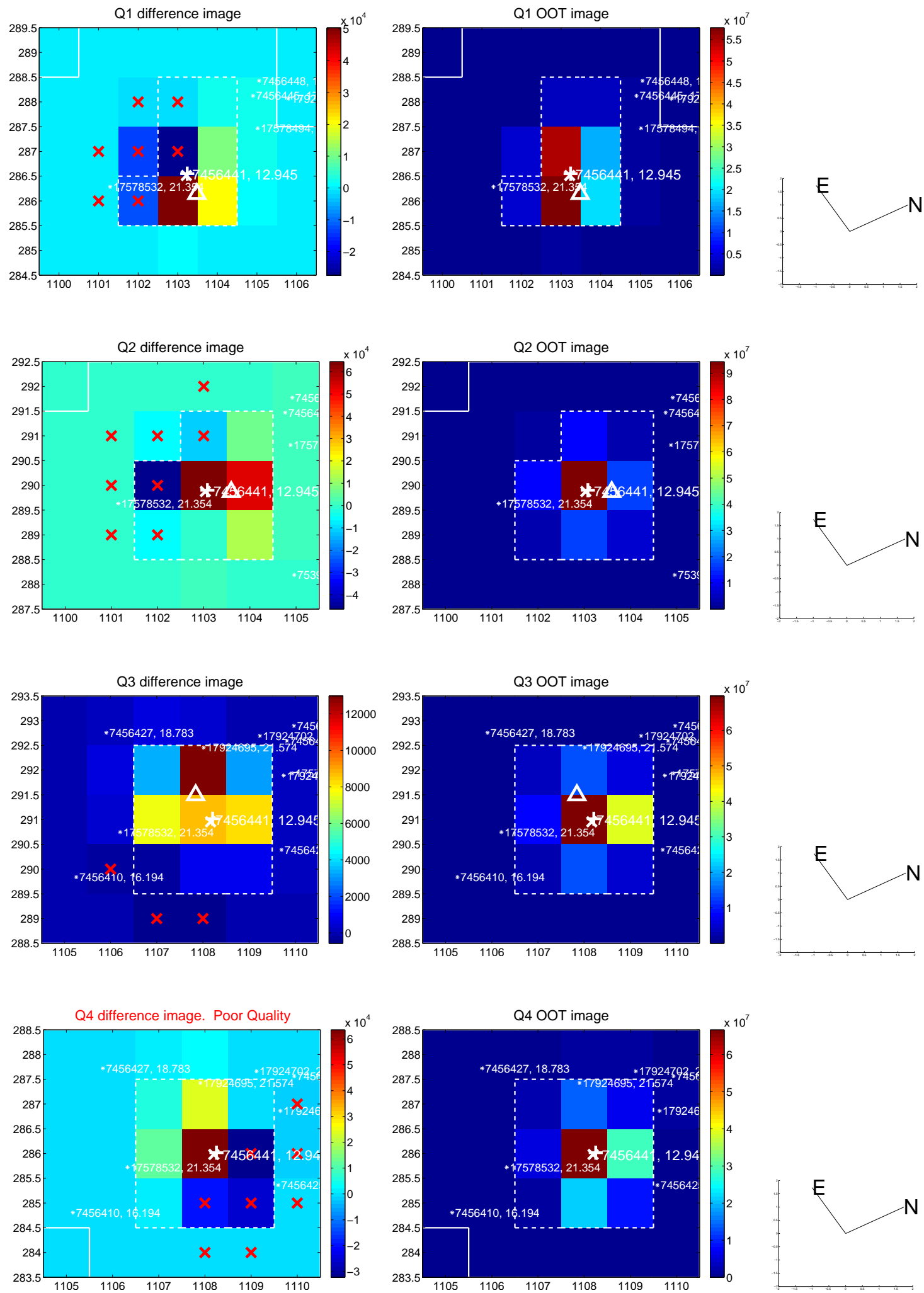
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.618 \pm 0.384$	1.61	$0.287 \pm 0.502$	$-0.547 \pm 0.234$
PRF-fit source offset from KIC position	$0.454 \pm 0.502$	0.90	$0.373 \pm 0.606$	$-0.258 \pm 0.111$
photometric centroid source offset	$0.15 \pm 0.06$	2.55	$-0.08 \pm 0.06$	$0.12 \pm 0.06$

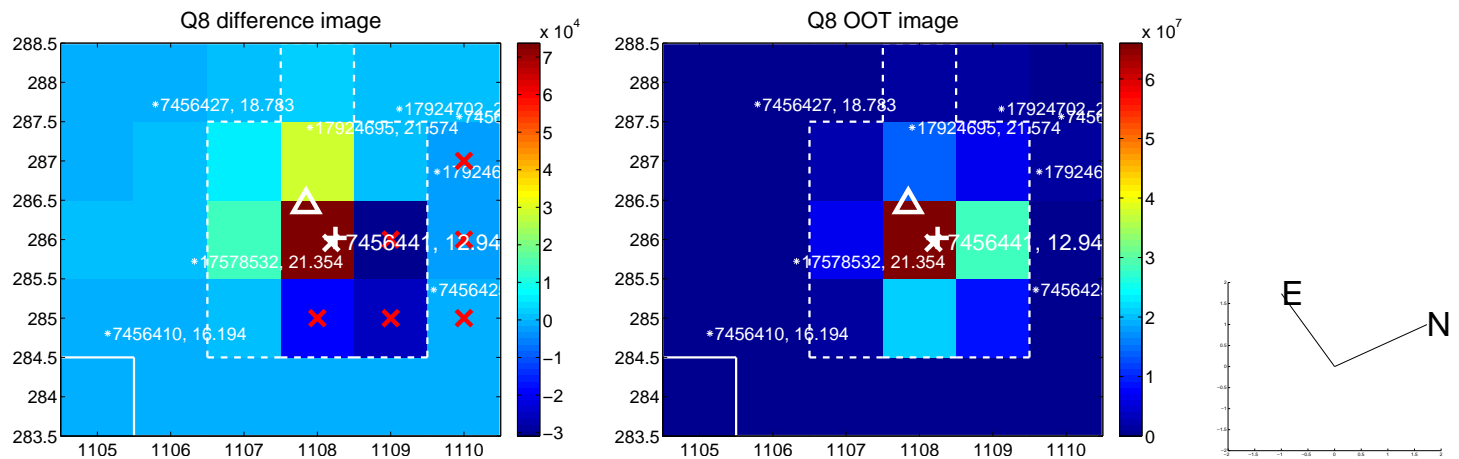
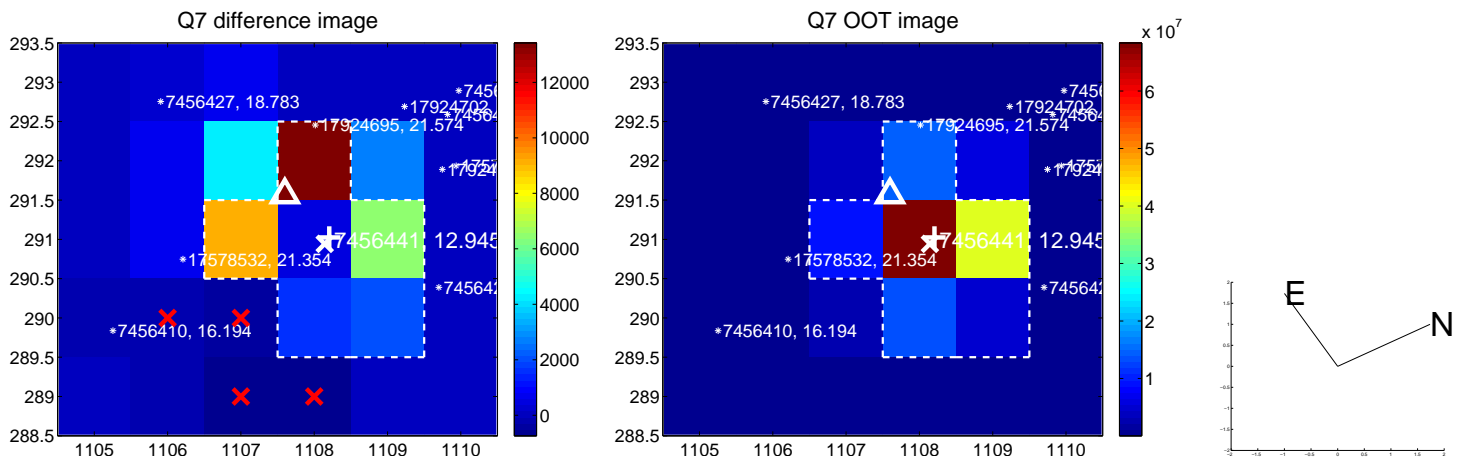
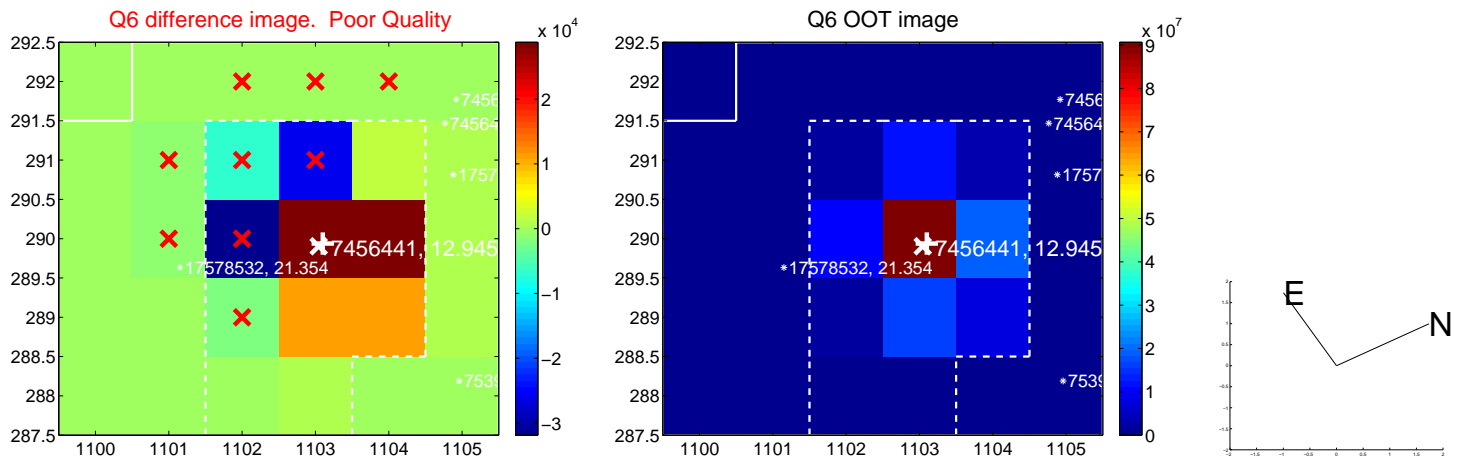
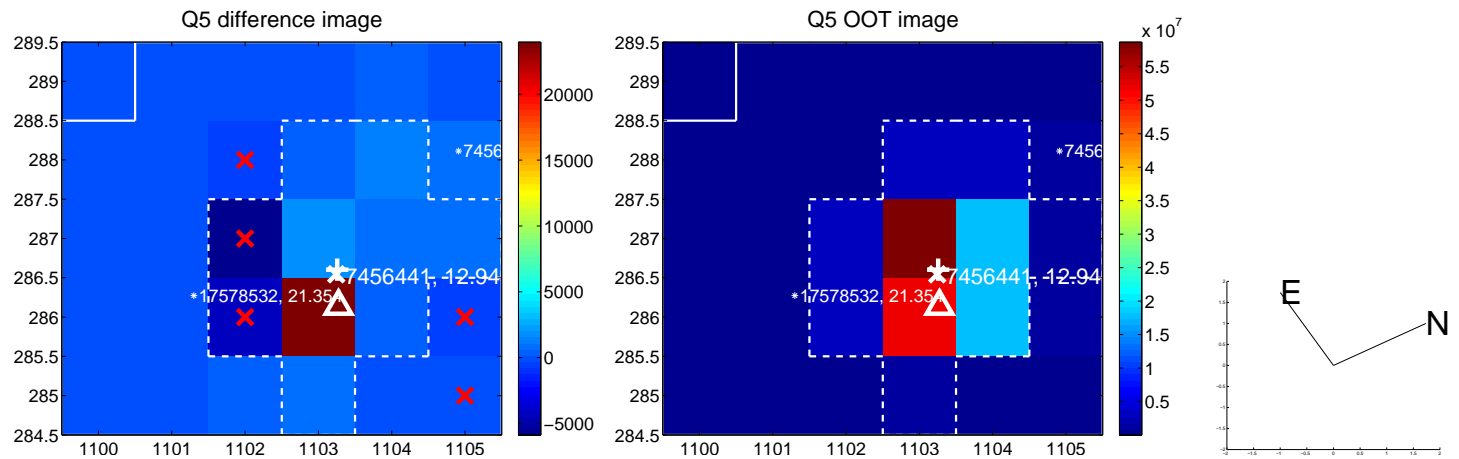


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

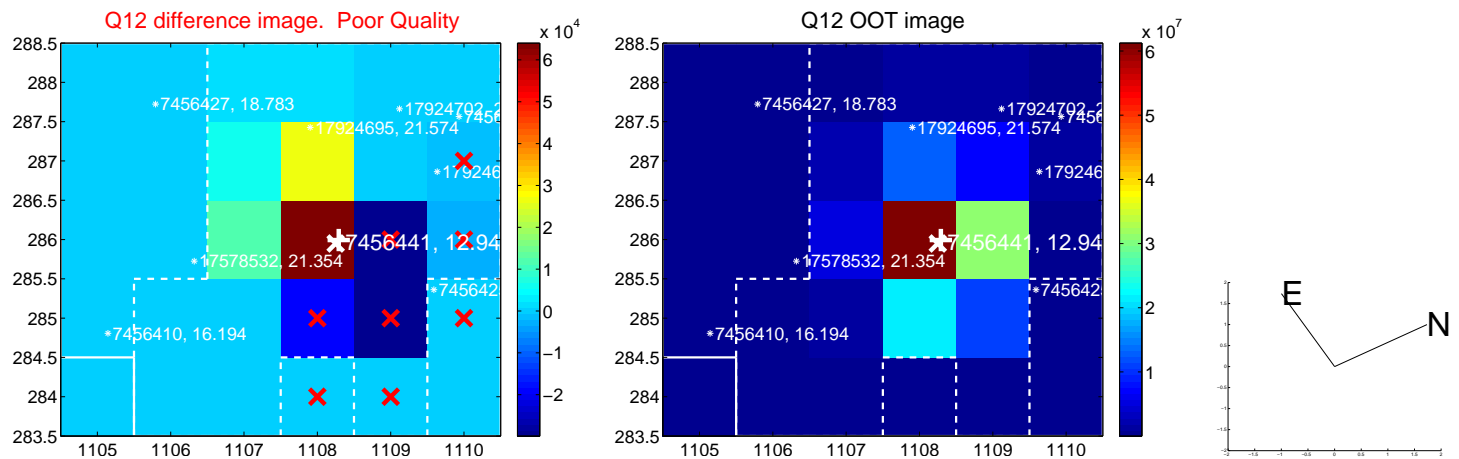
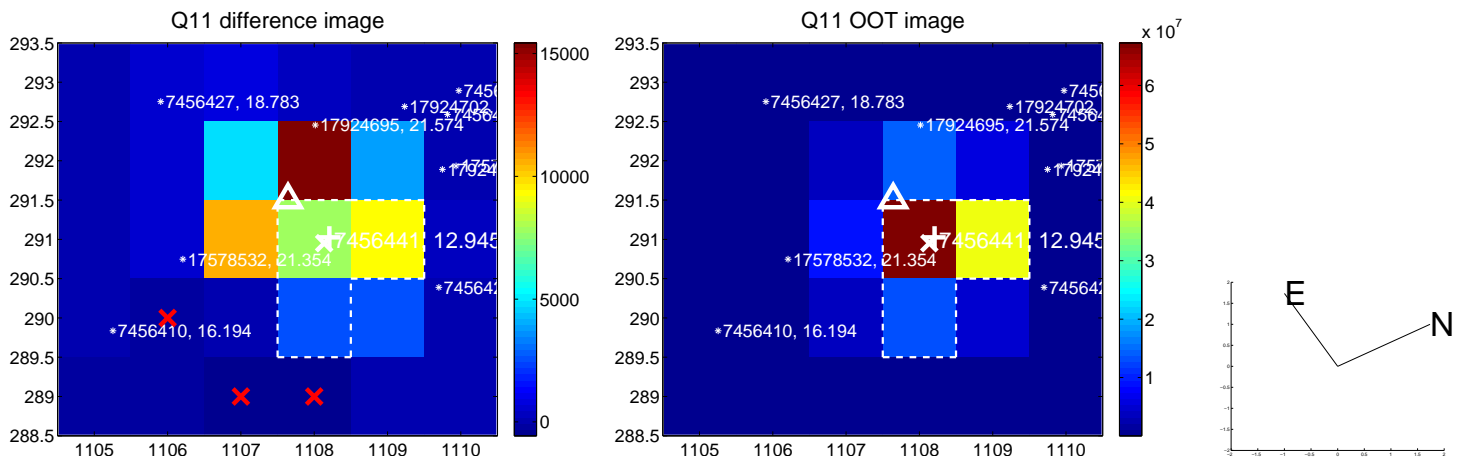
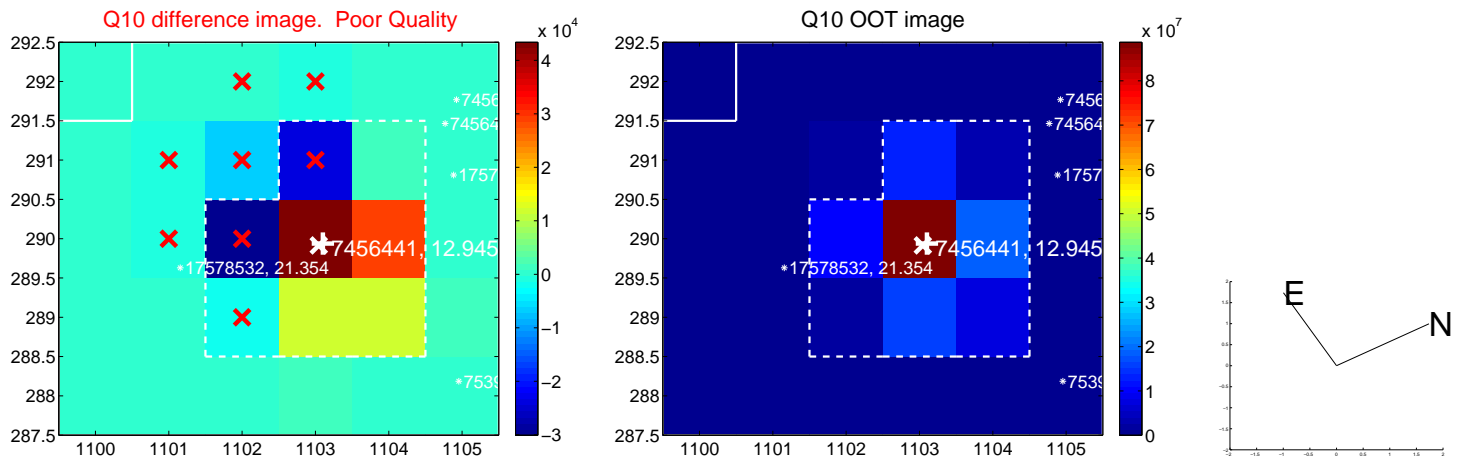
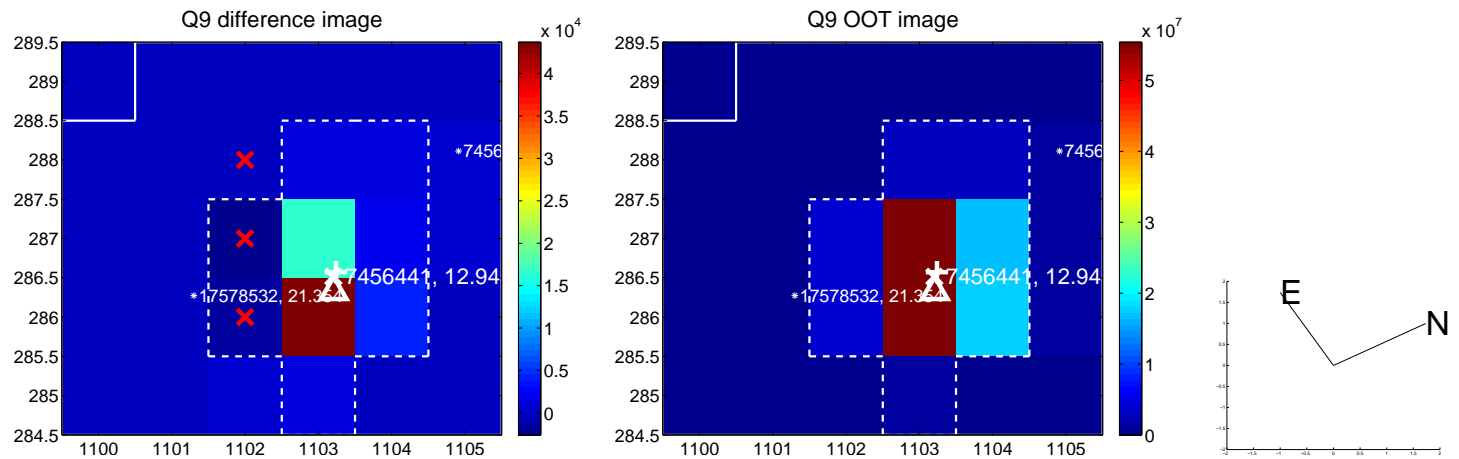


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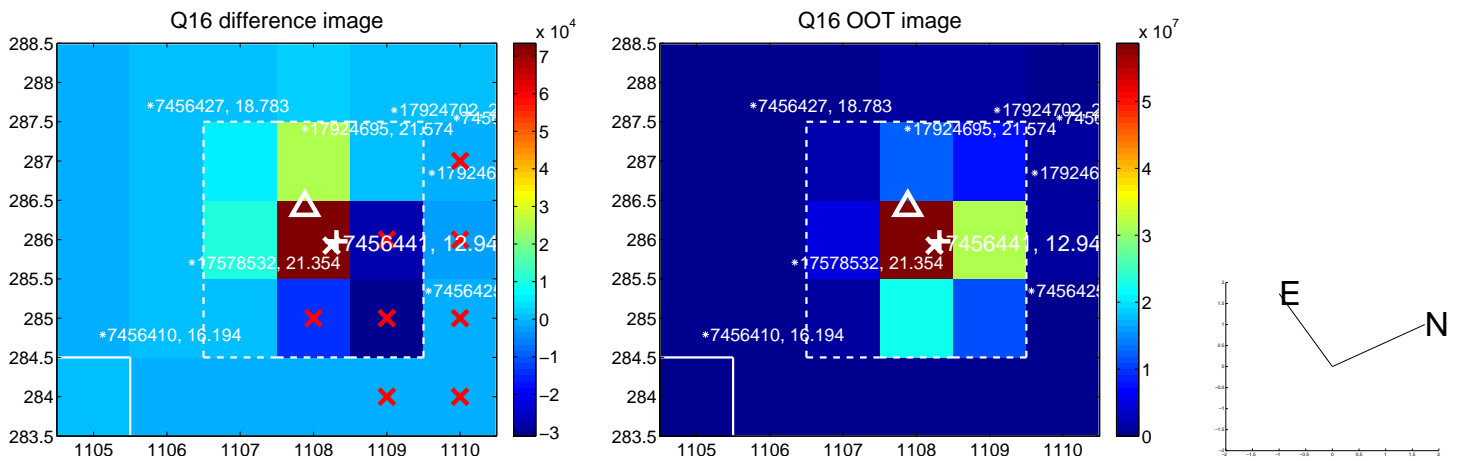
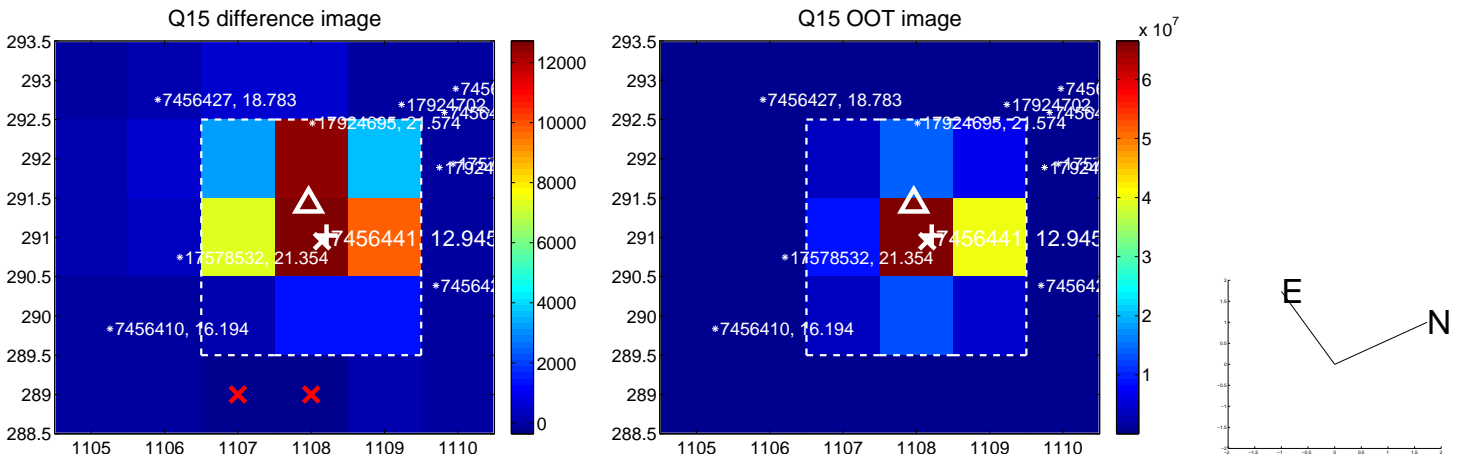
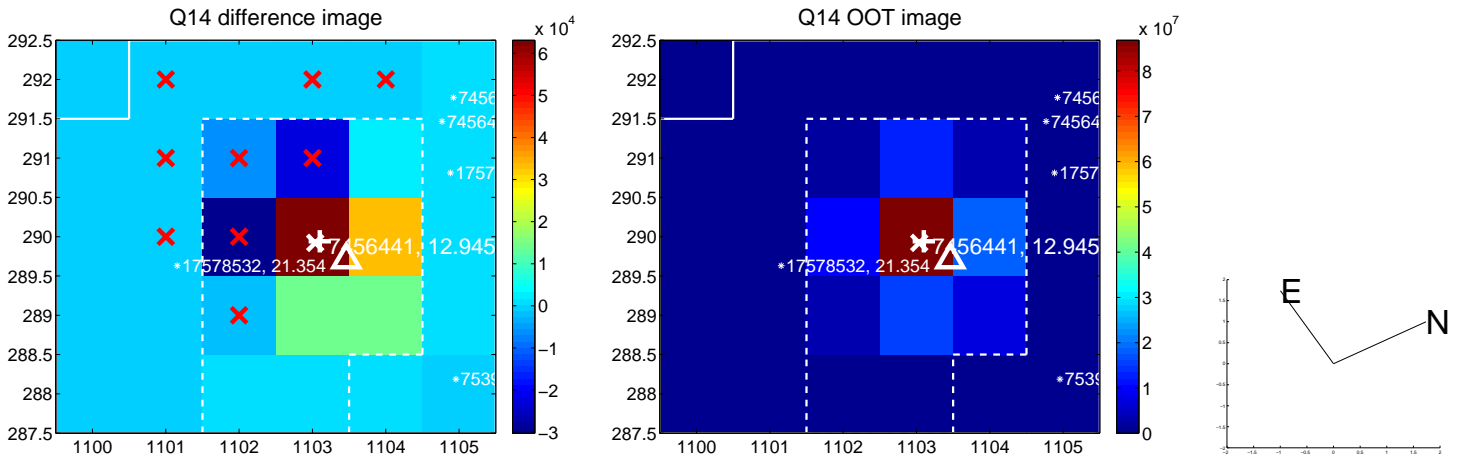
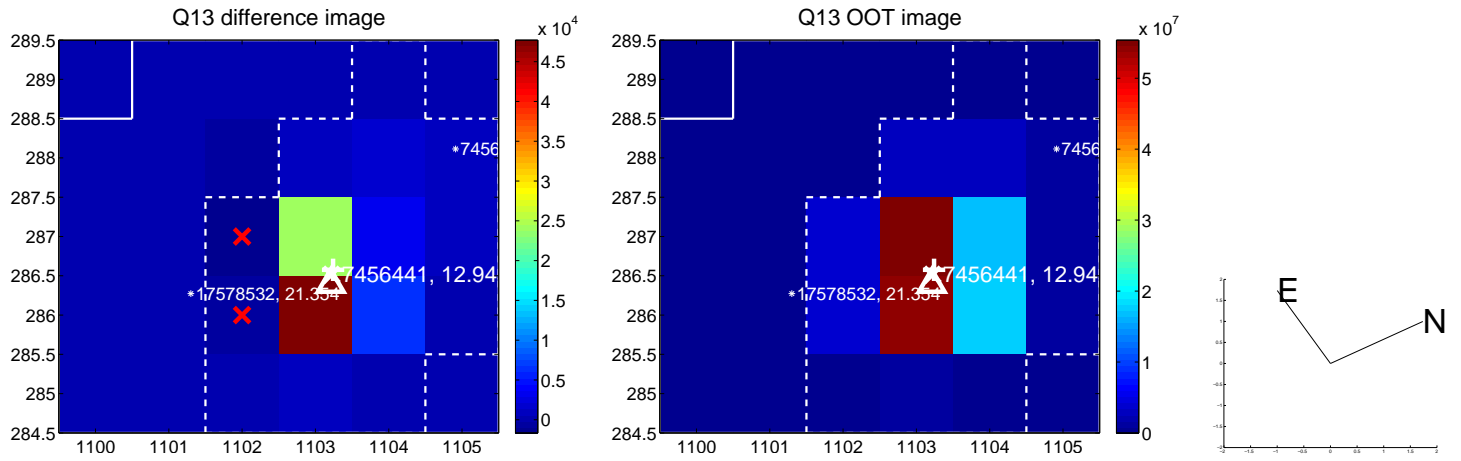




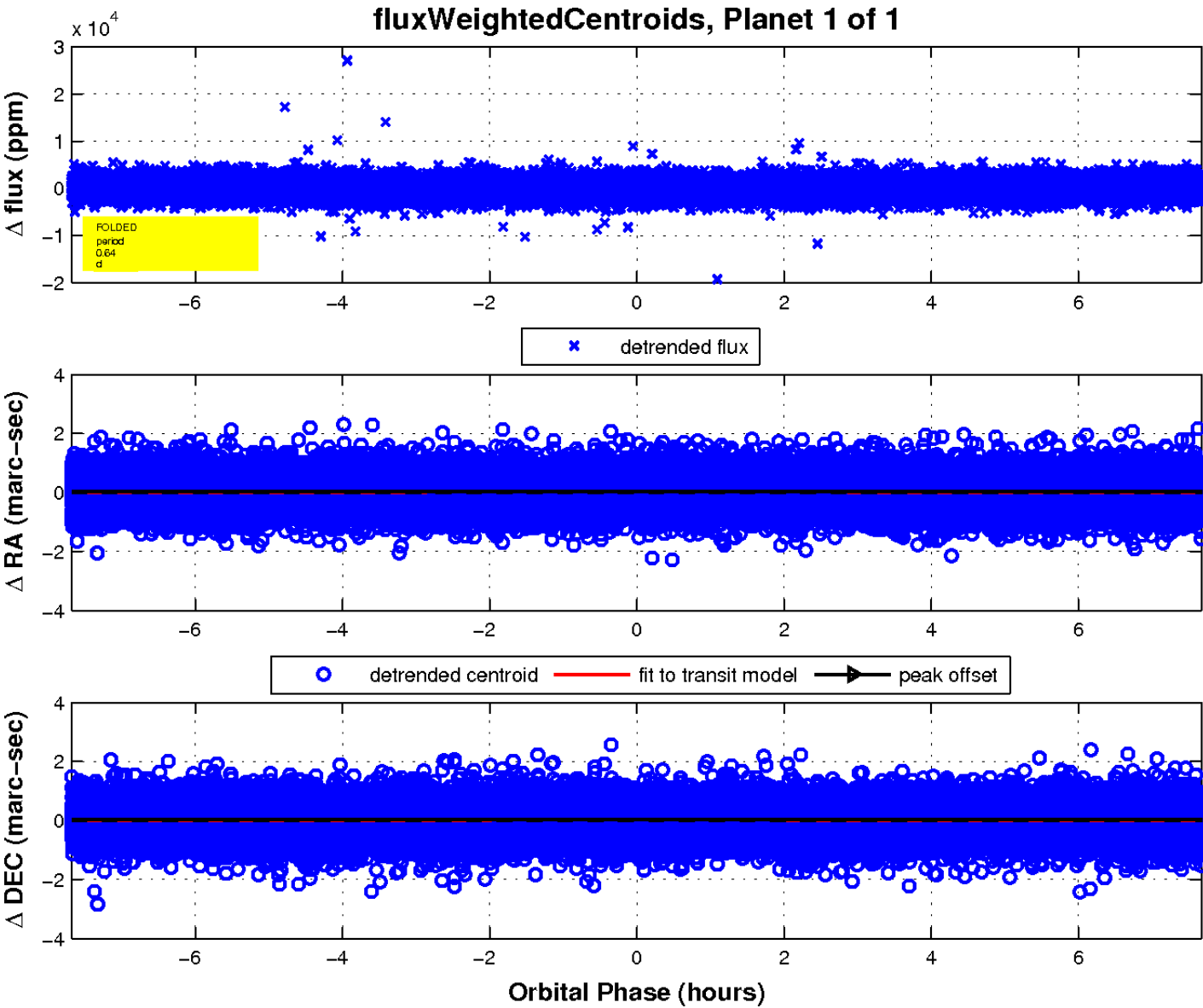
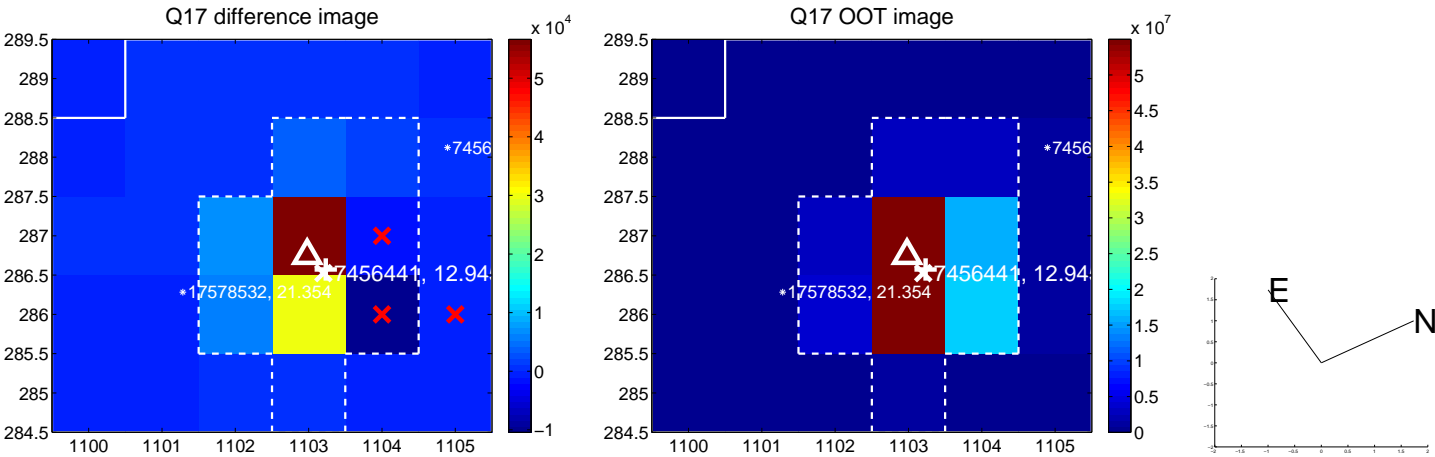
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

