

# KIC 006442602

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006442602-01	OBS	7778.01	0.566854	131.743313	96.3	4.530	7.3	8.6	0.75	4796	0.71	1803.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006442602-01	OBS	FP	0.11	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

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

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

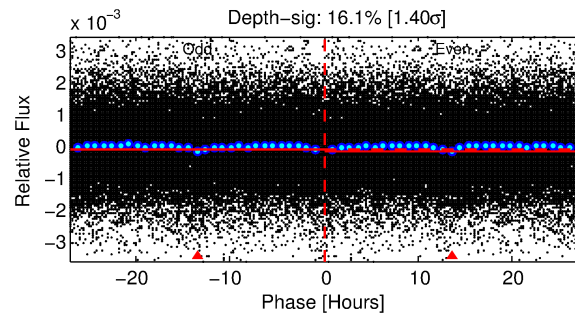
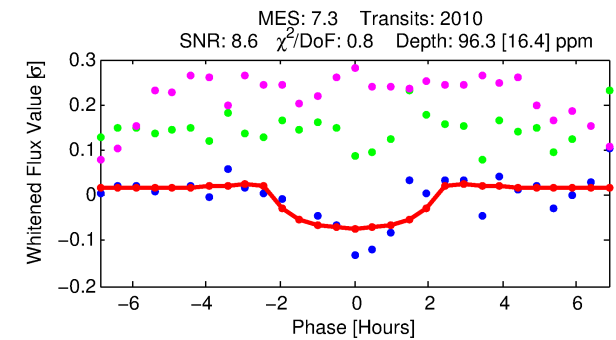
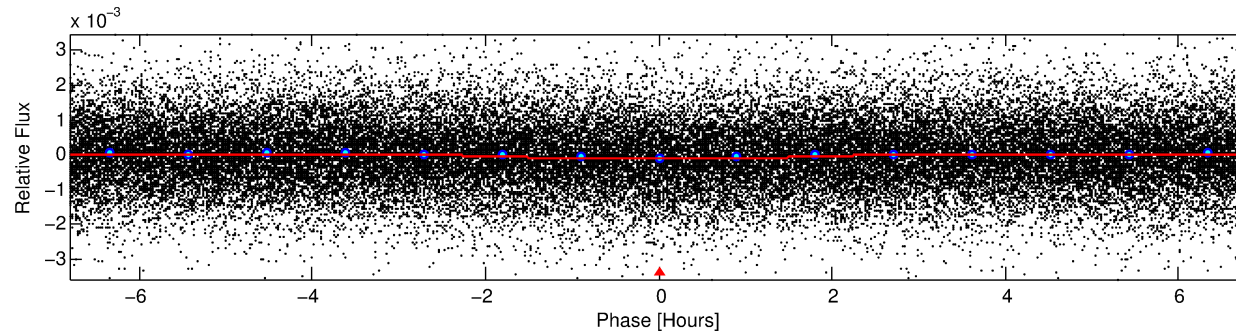
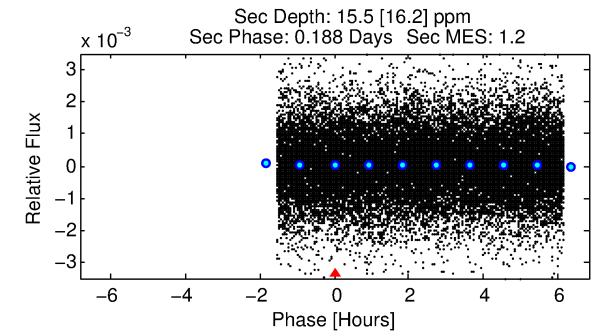
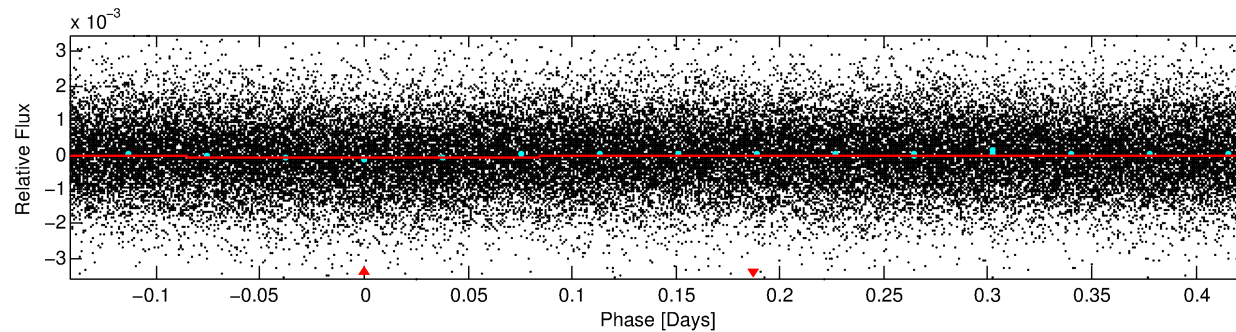
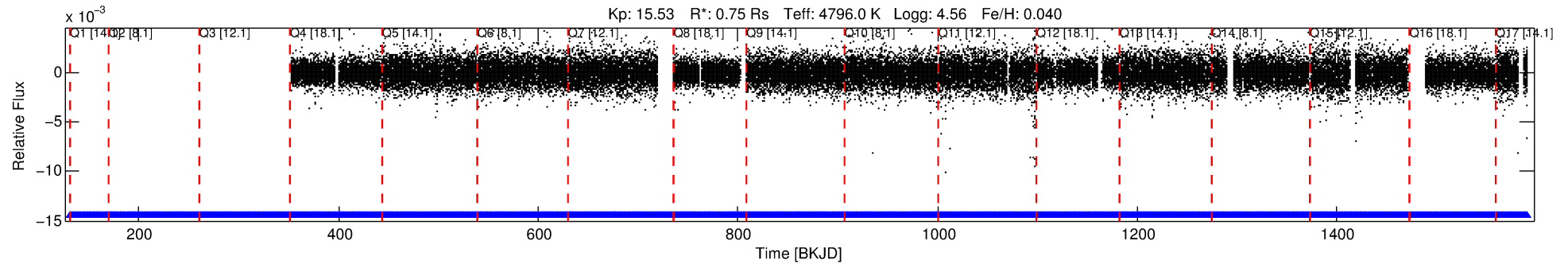
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006442602-01

No Significant Match Found

# DV One-Page Summary

KIC: 6442602 Candidate: 1 of 1 Period: 0.567 d



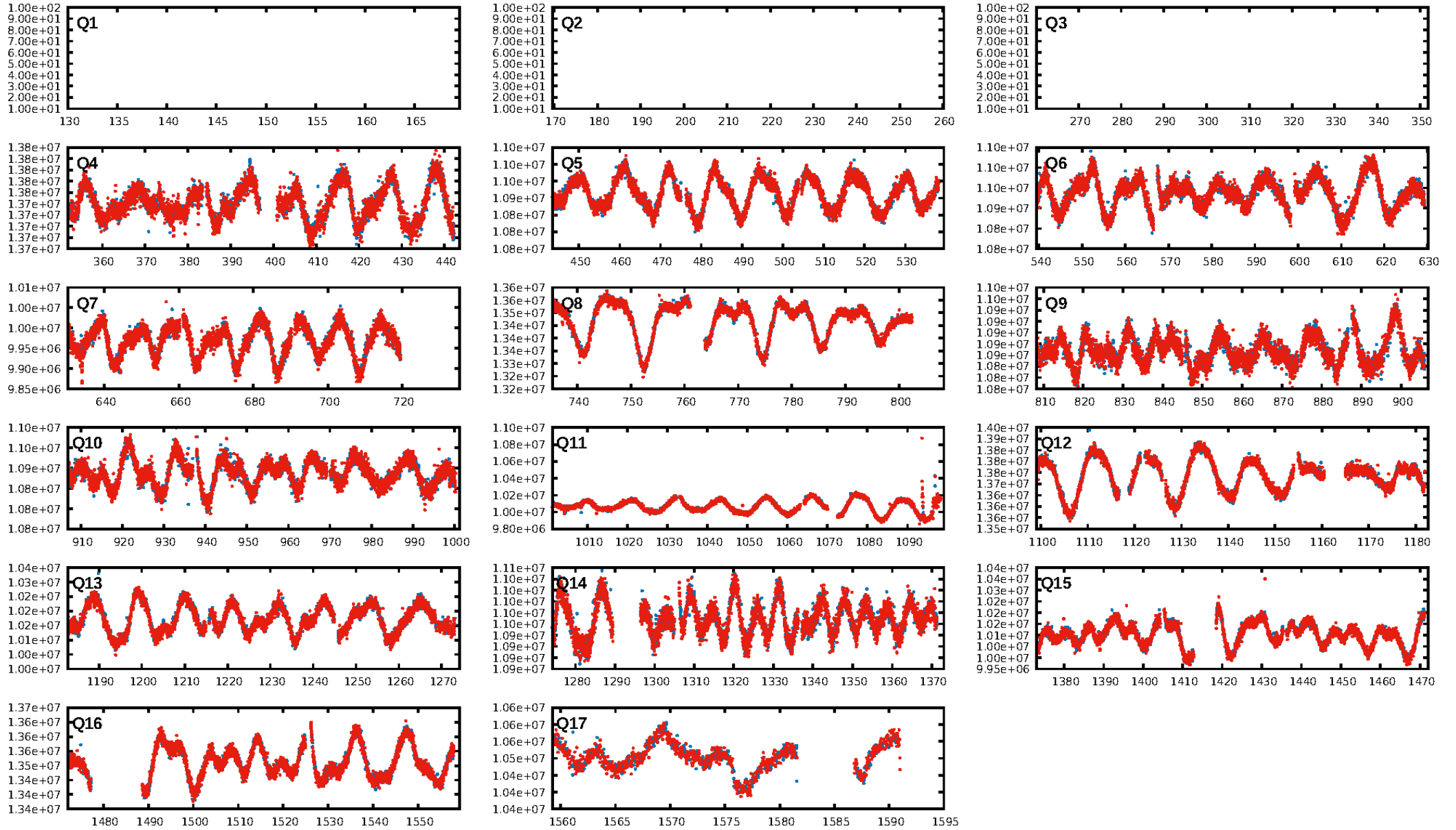
## DV Fit Results:

Period = 0.56685 [0.00001] d  
Epoch = 131.7433 [0.0050] BKJD  
Rp/R\* = 0.0087 [0.0089]  
a/R\* = 1.16 [0.94]  
b = 0.18 [18.34]  
Seff = 1803.45 [326.25]  
Teff = 1662 [75] K  
Rp = 0.71 [0.73] Re  
a = 0.0121 [0.0009] AU  
Ag = 2.49 [5.76] [0.26σ]  
Teffp = 3228 [1868] K [0.84σ]

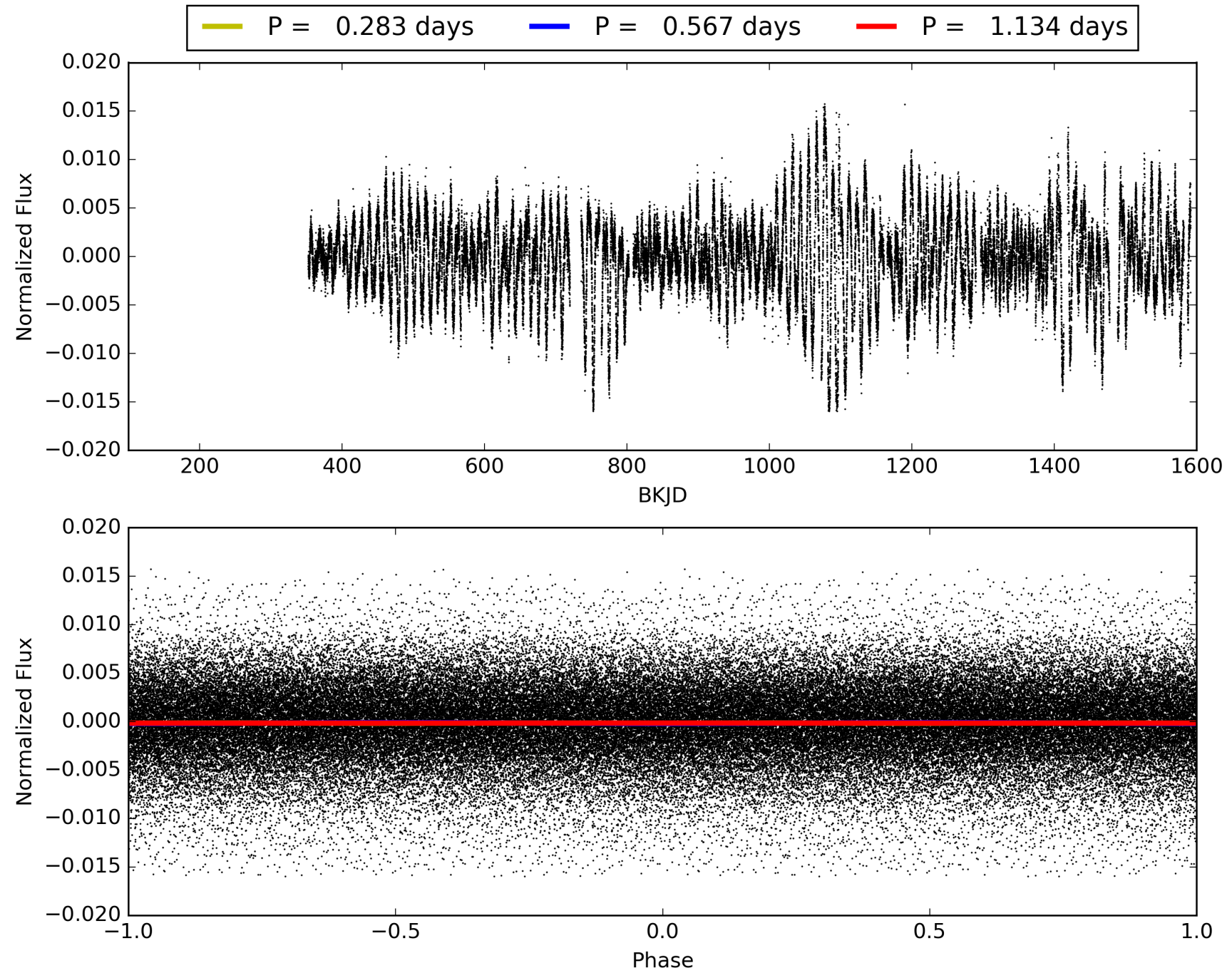
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1963/1963]  
GhostDiagnostic-chr: -0.6103  
Centroid-sig: 0.1%  
Centroid-so: 4.171 arcsec [49.76σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 006442602-01, PDC Light Curves

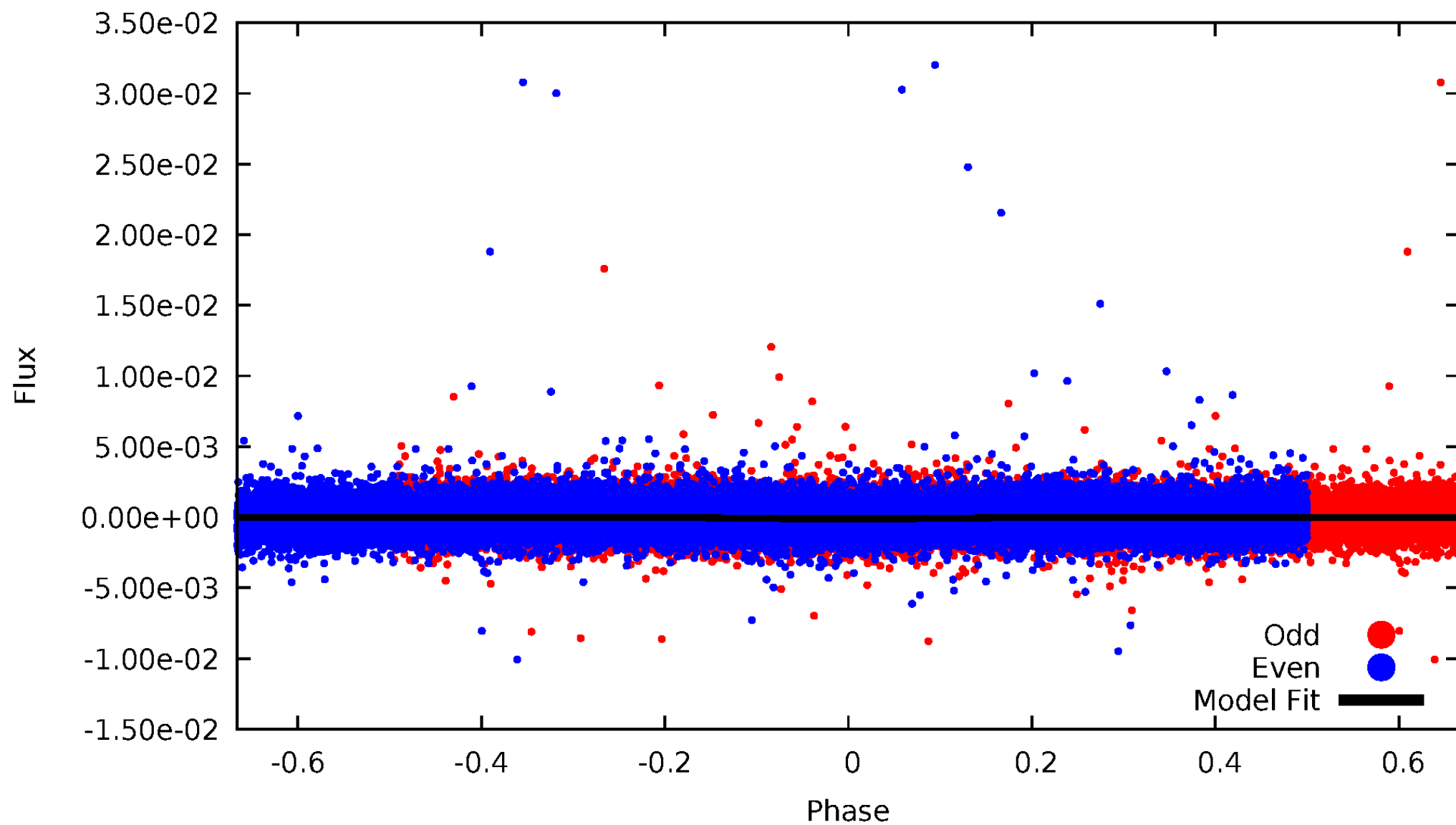


TCE 006442602-01



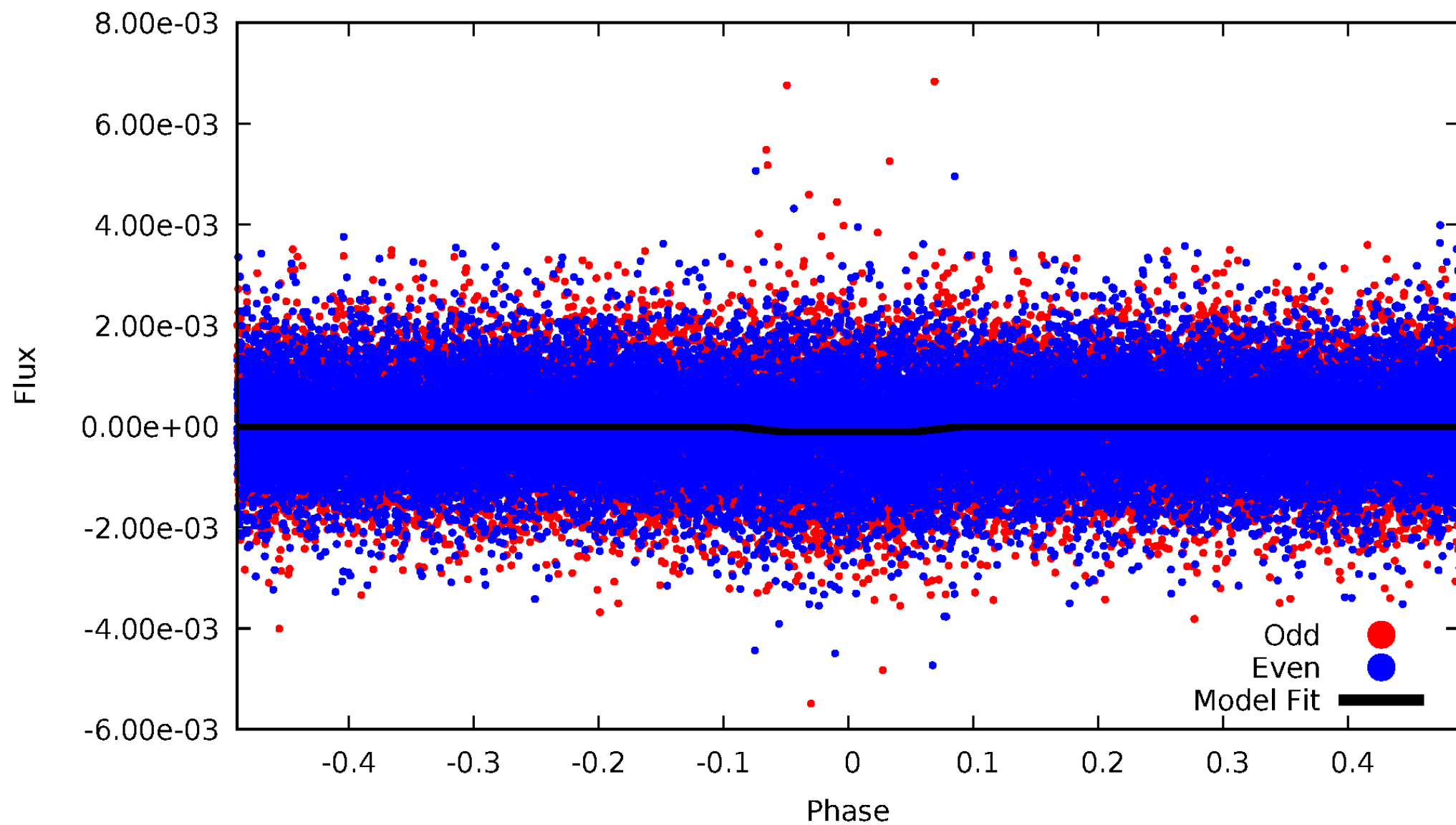
# DV Odd/Even

TCE 006442602-01



# ALT Odd/Even

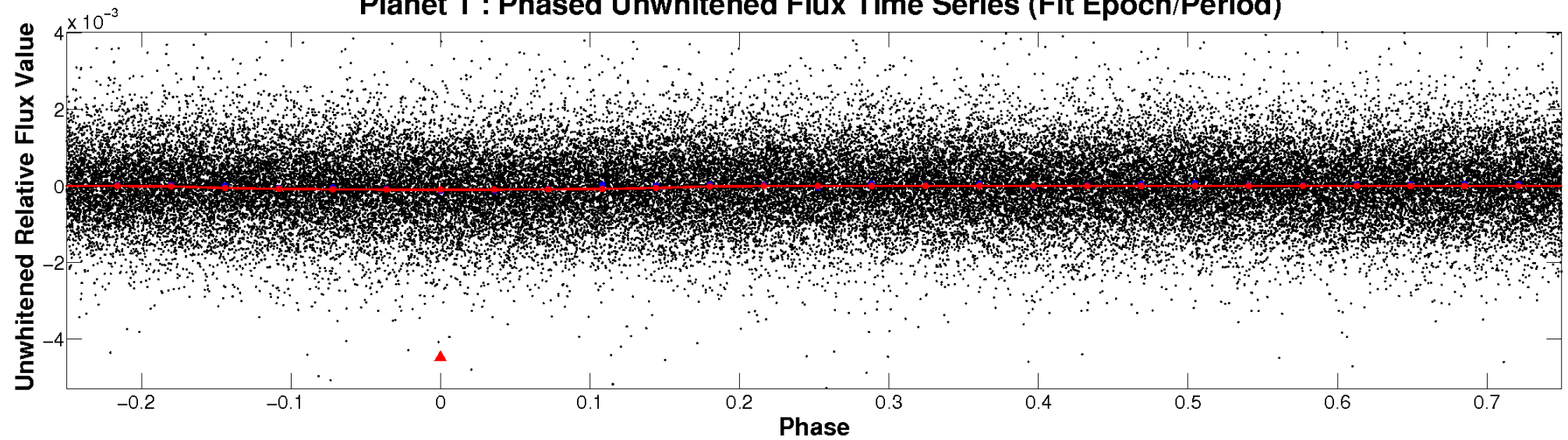
TCE 006442602-01



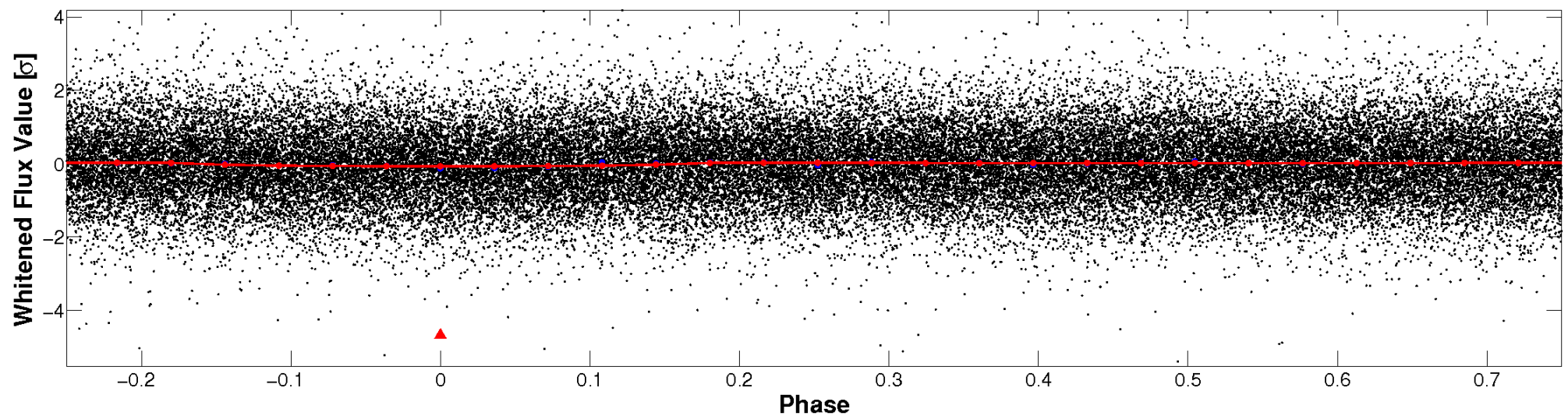


# Non-Whitened Vs. Whitened Light Curve

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

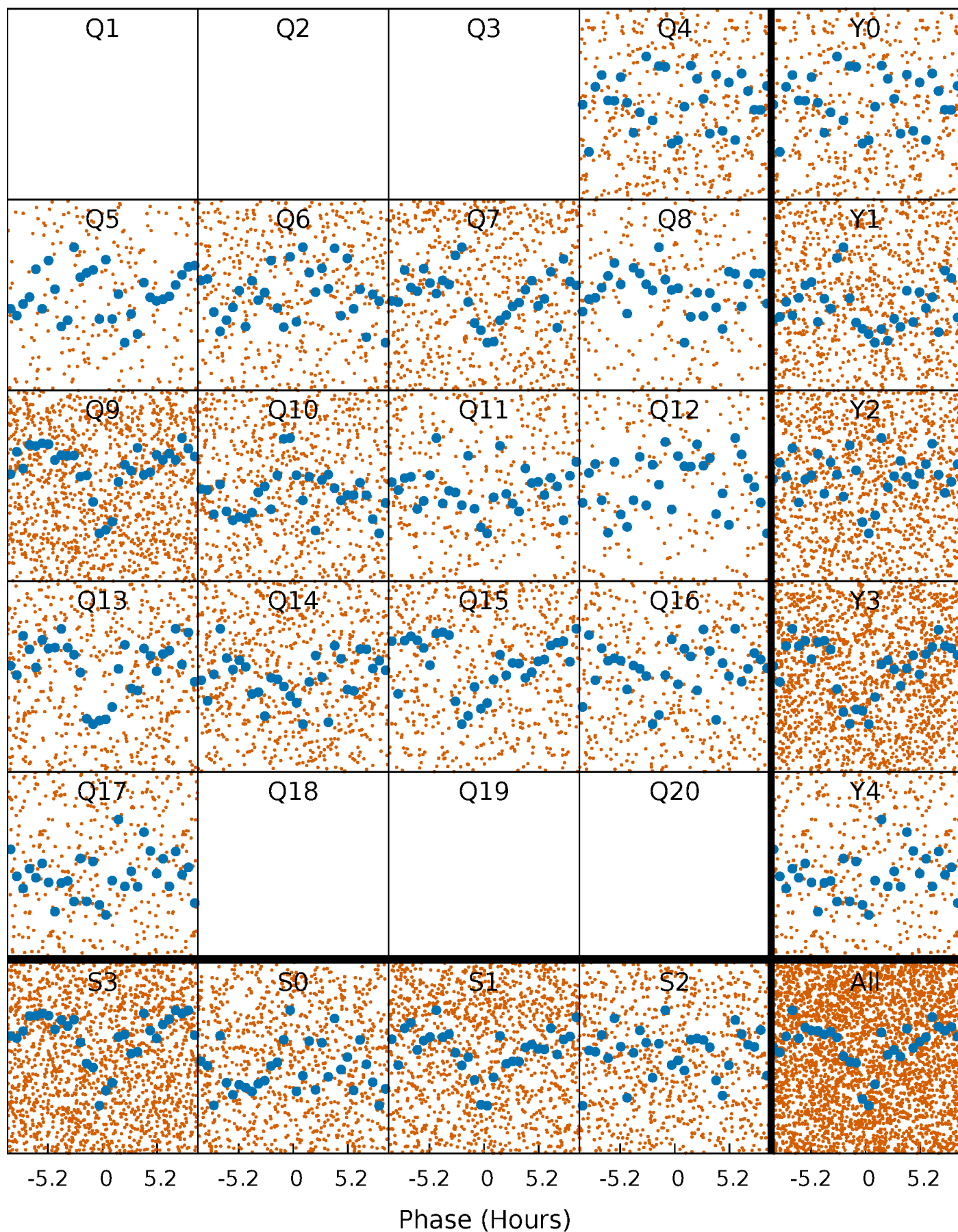


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

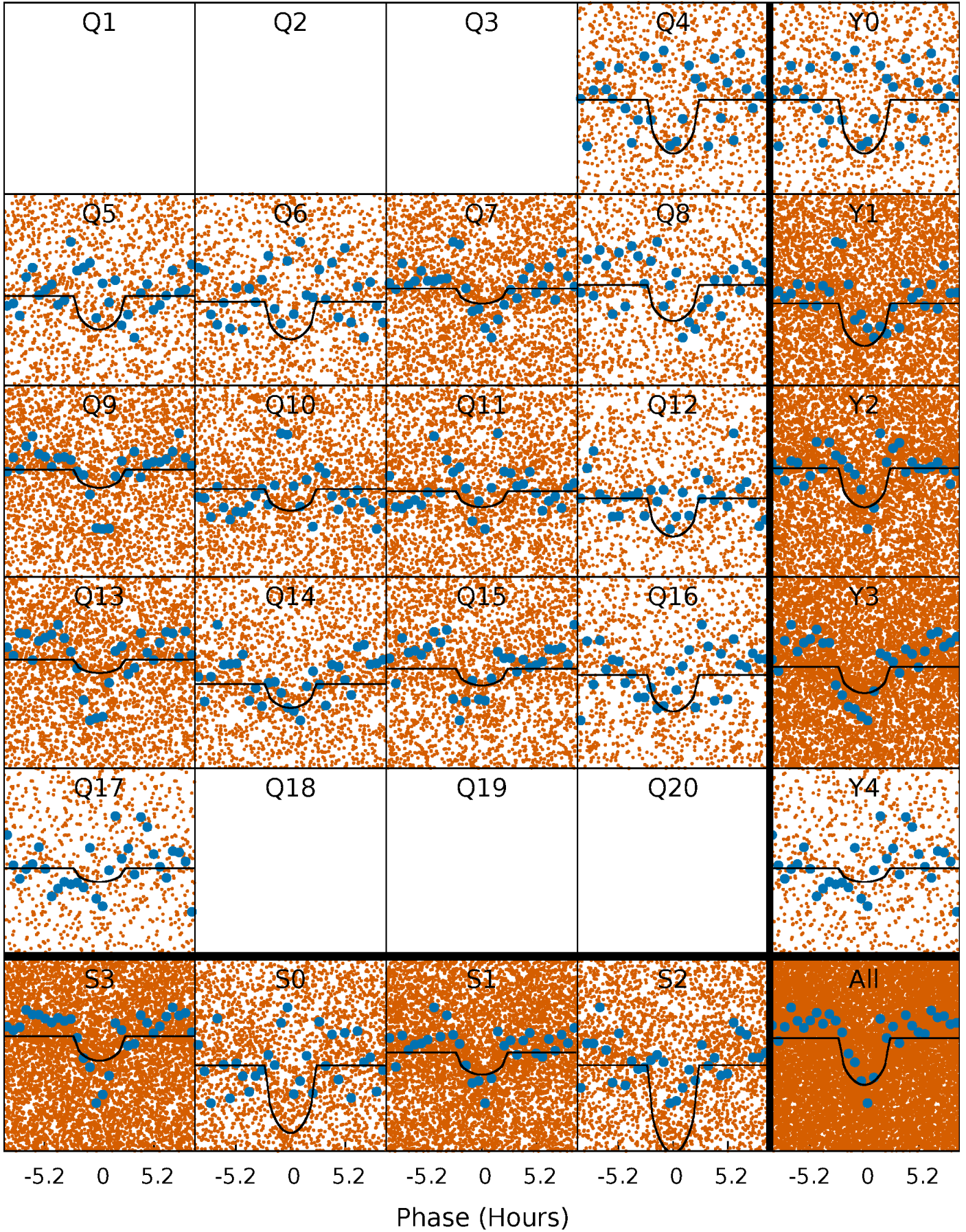
TCE 006442602-01   P= 0.566854 Days    $T_0=131.743313$  (BKJD)





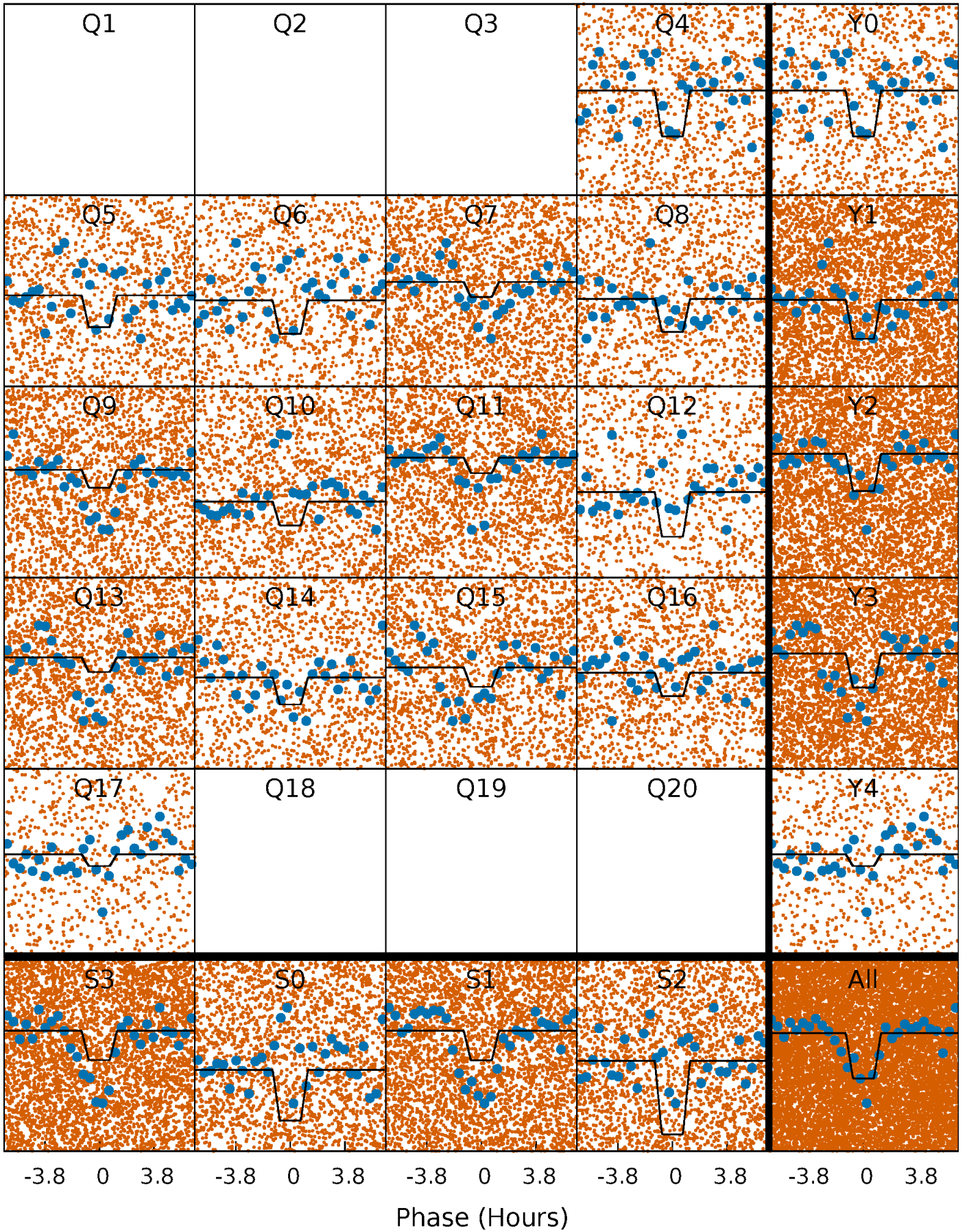
# DV Quarter-Phased Transit Curves

TCE 006442602-01 P= 0.566854 Days  $T_0=131.743313$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006442602-01 P= 0.566847 Days  $T_0=131.755581$  (BKJD)

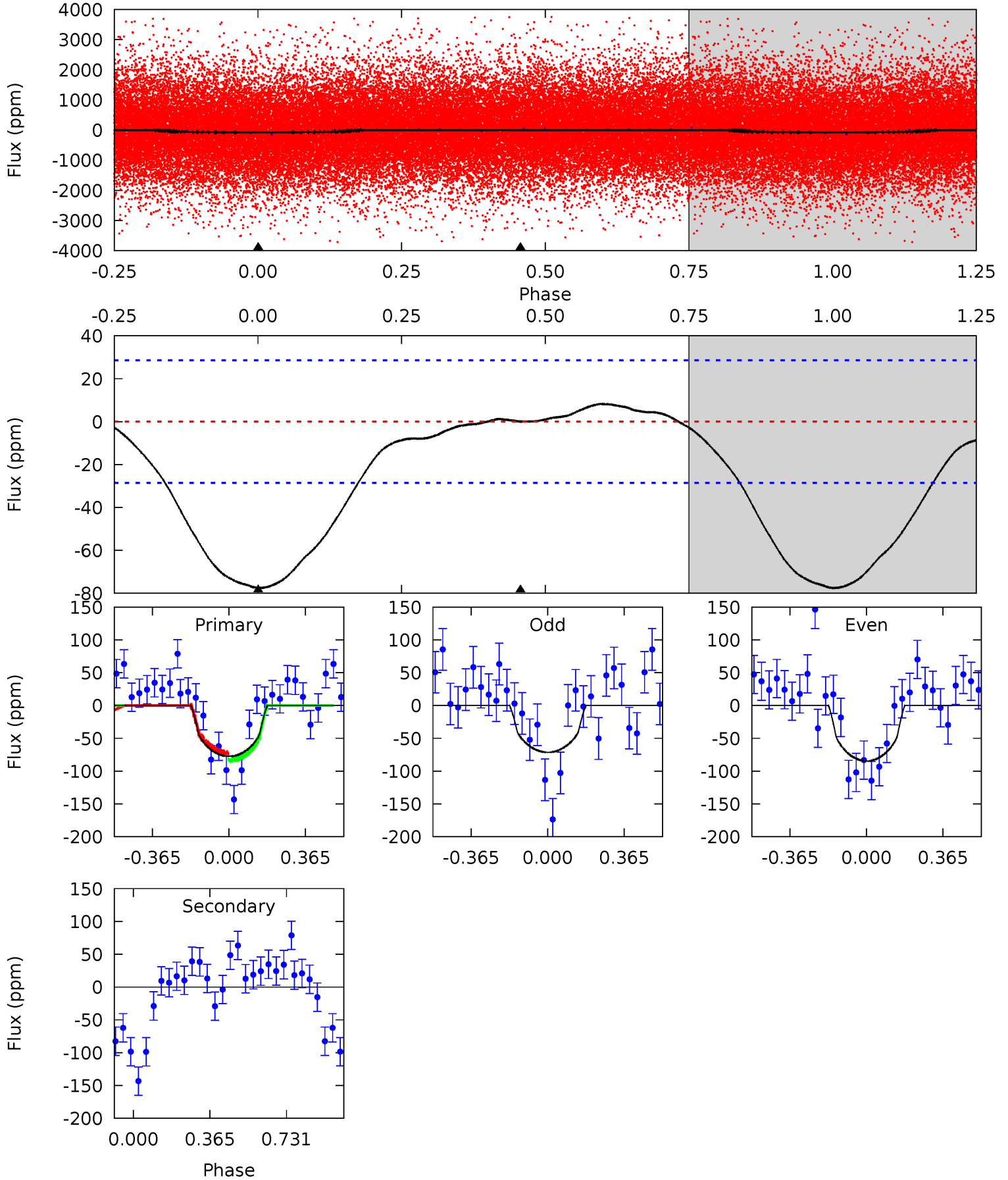




# DV Model-Shift Uniqueness Test

006442602-01, P = 0.566854 Days, E = 131.743313 Days

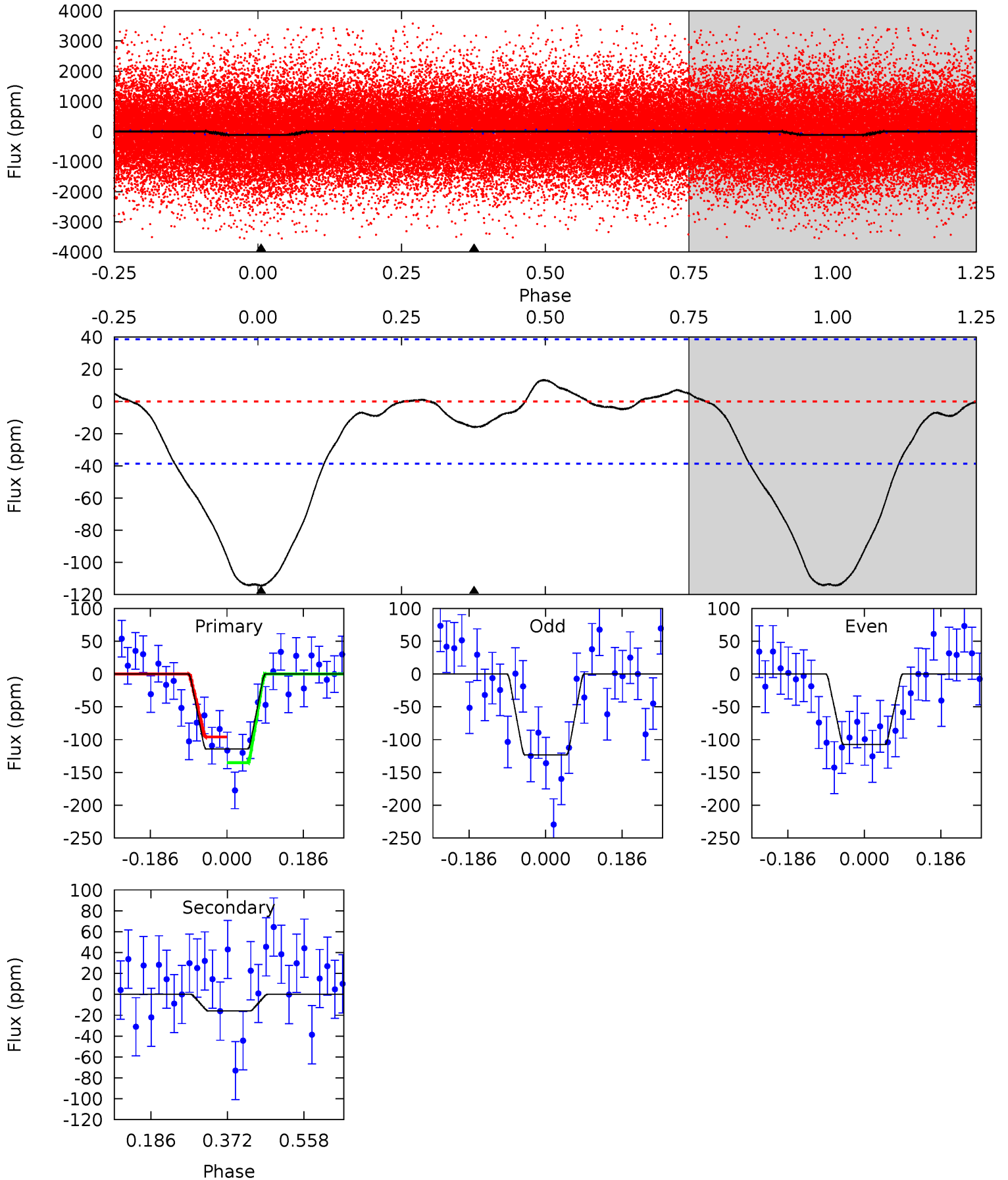
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	0	0	0	4.29	0.91	0.69	11.6	11.6	0	0	1.01	0.77	0.10	0.77



# Alt Model-Shift Uniqueness Test

006442602-01, P = 0.566847 Days, E = 131.755581 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
13.1	1.82	0	0	4.43	1.32	0.48	13.1	13.1	1.82	1.82	0.91	1.05	0.10	2.23



### Stellar Parameters For KIC 006442602

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4796^{+172}_{-172}$	$4.560^{+0.060}_{-0.035}$	$0.040^{+0.250}_{-0.300}$	$0.749^{+0.055}_{-0.068}$	$0.742^{+0.075}_{-0.061}$	$2.486^{+0.668}_{-0.338}$
	+4%/-4%	+1%/-1%	+625%/-750%	+7%/-9%	+10%/-8%	+27%/-14%
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 006442602-01 / KOI 7778.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-0 \pm 7$	$0.84^{+0.65}_{-0.53}$	$2314^{+93}_{-97}$	$-2642^{+5763}_{-625}$	$-0.006^{+1.312}_{-1.070}$
Alt.	$-16 \pm 9$	$0.96^{+0.62}_{-0.58}$	$2307^{+93}_{-90}$	$3109^{+1425}_{-1110}$	$1.250^{+8.304}_{-0.927}$

$T_{max}$  = 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

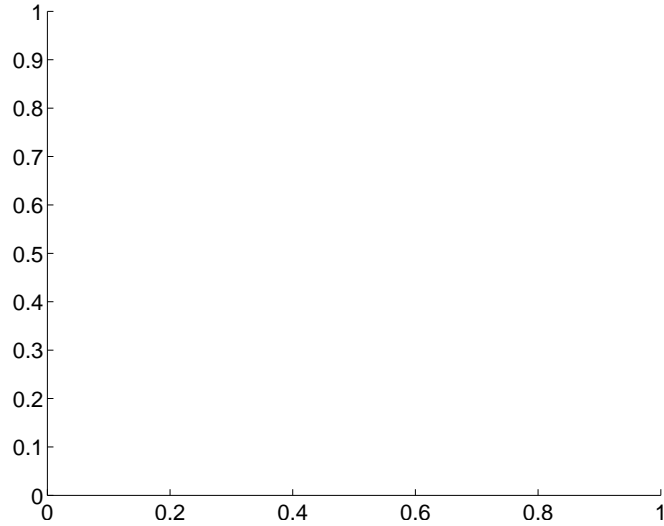
Supplemental centroid analysis for 006442602-01. Kepler magnitude: 15.53. Transit SNR 8.60

There are 0 quarters with good PRF difference image offsets

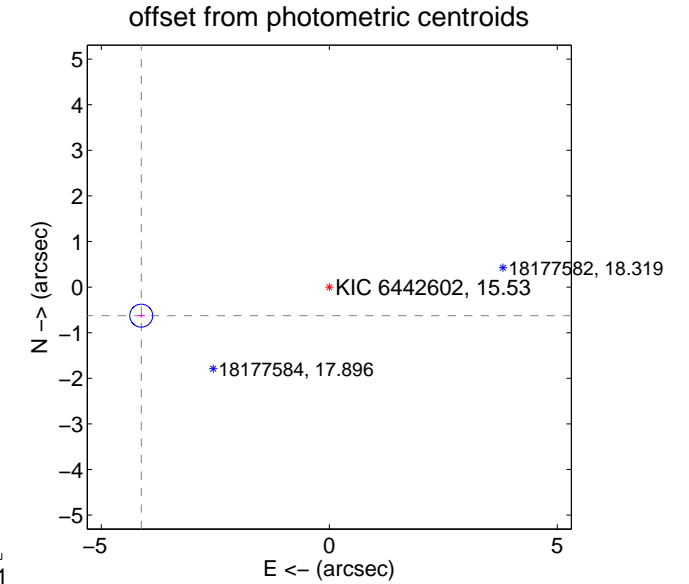
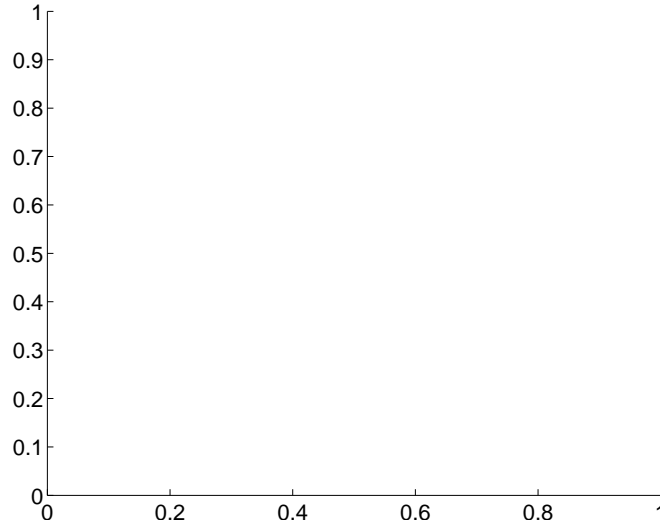
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$4.17 \pm 0.08$	$49.76$	$4.12 \pm 0.08$	$-0.63 \pm 0.05$

There is no PRF-fit offset from OOT-fit

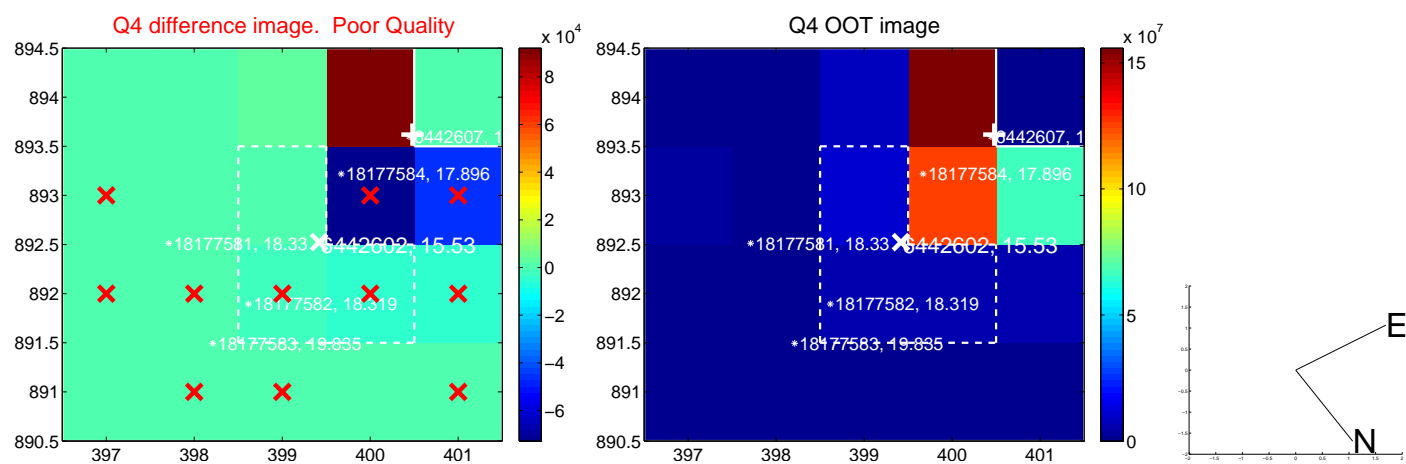
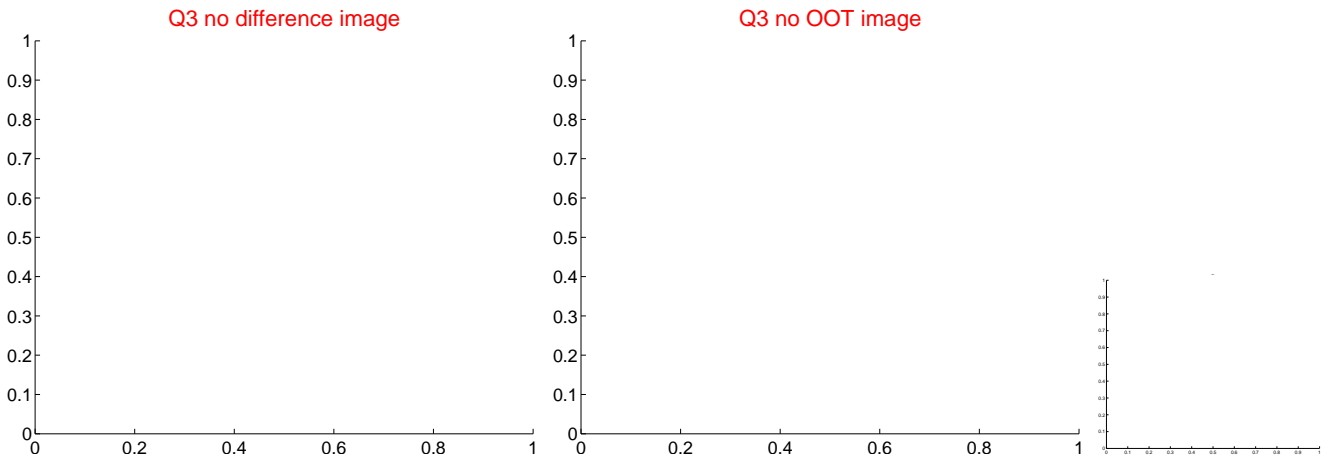
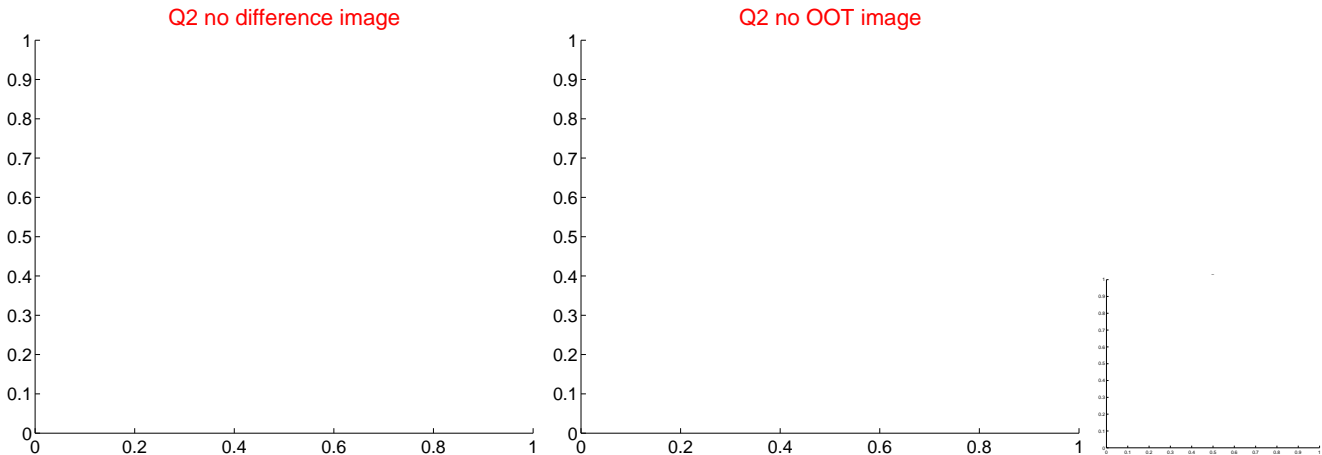
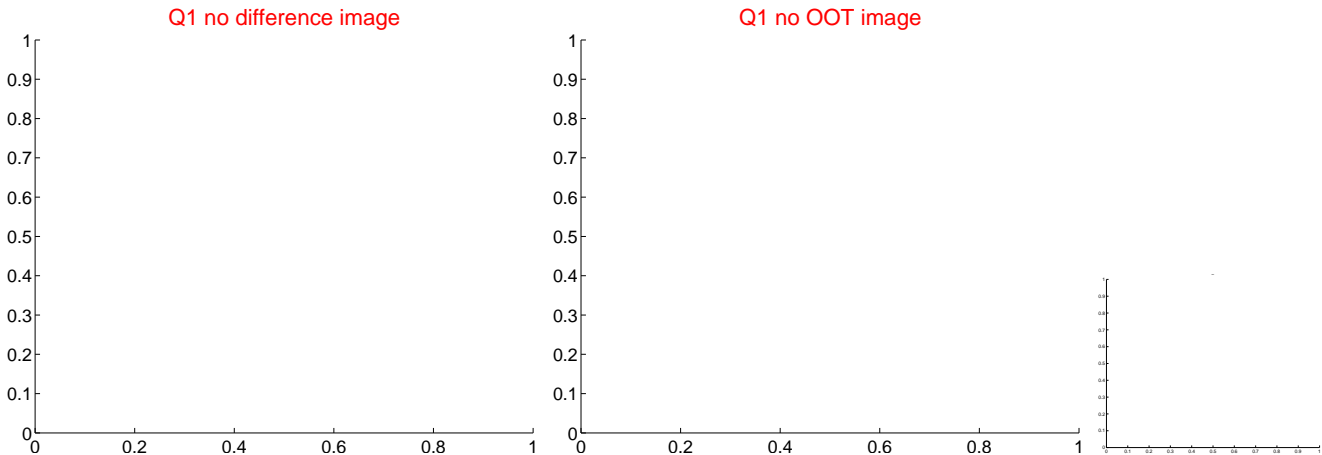


There is no PRF-fit offset from KIC

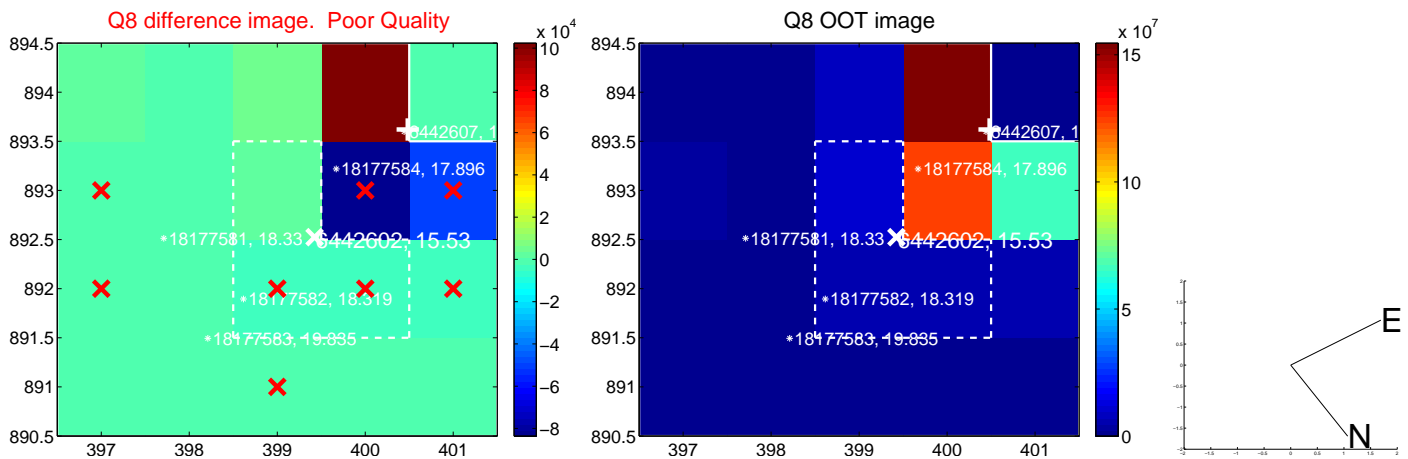
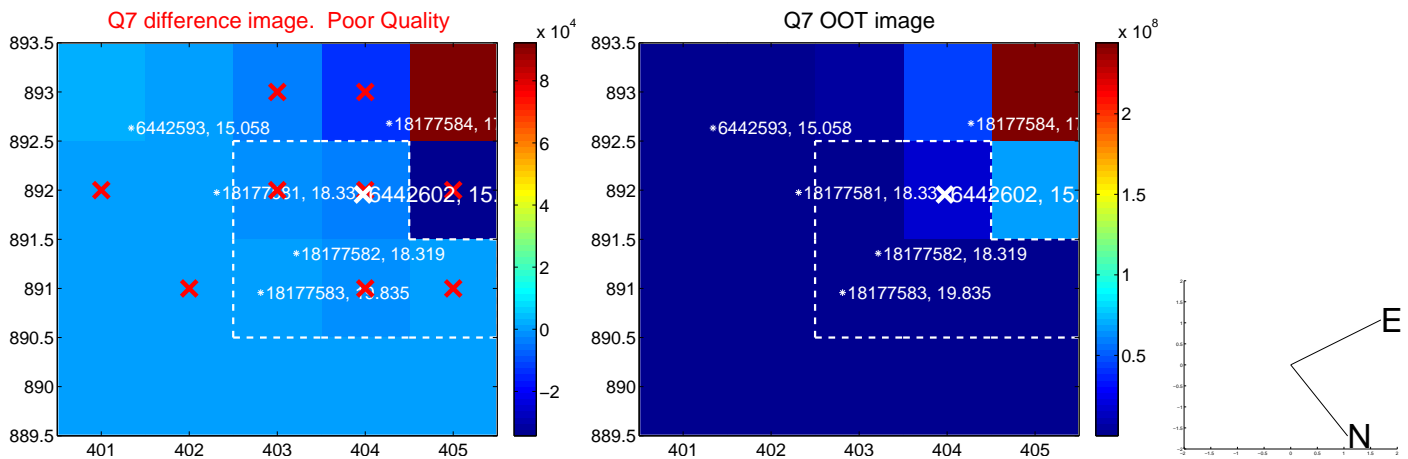
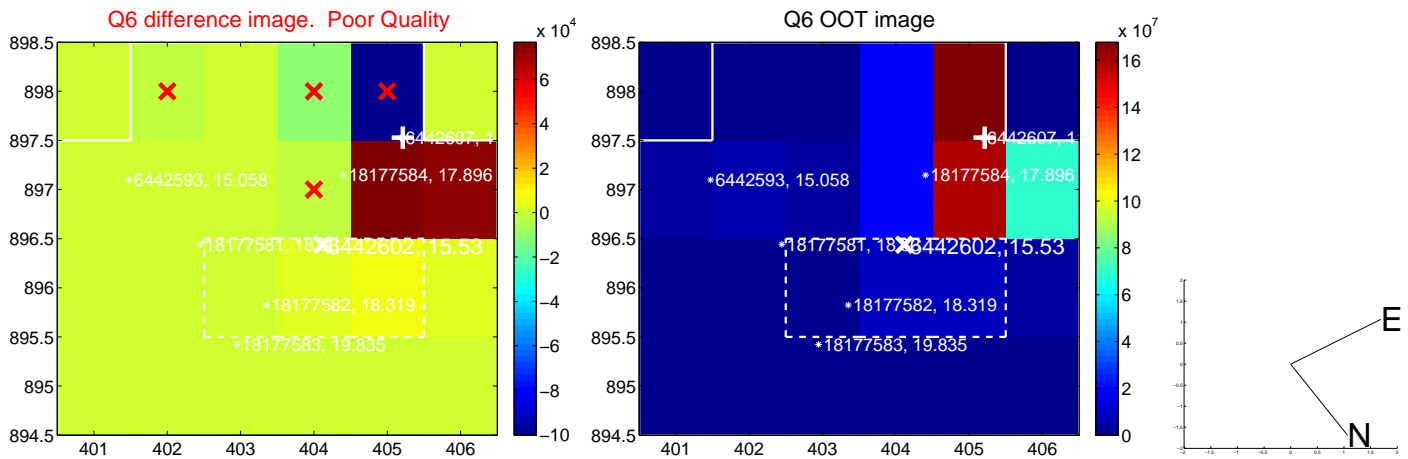
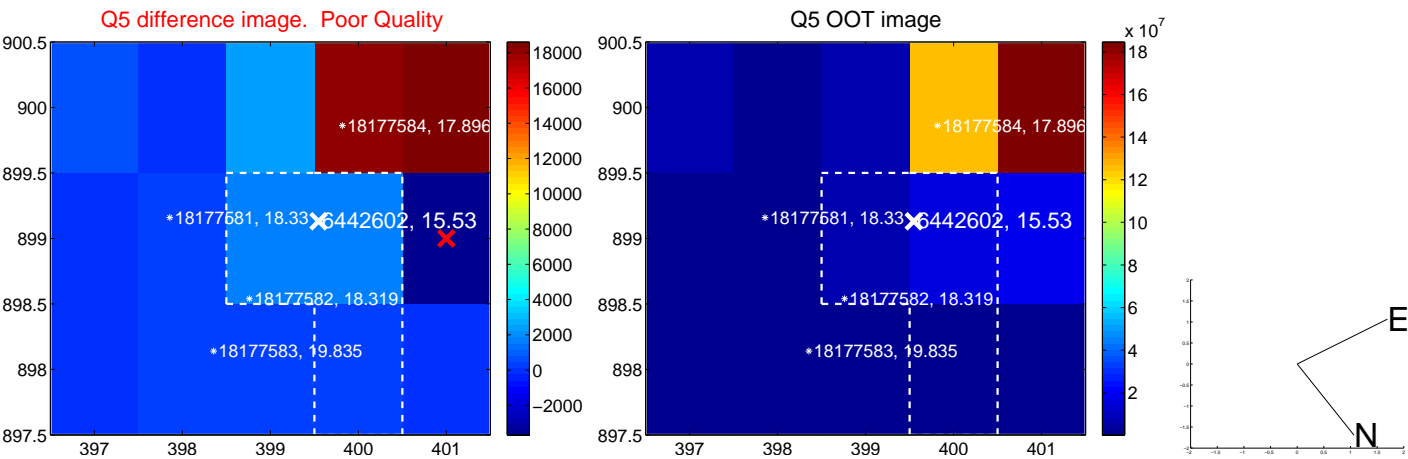


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

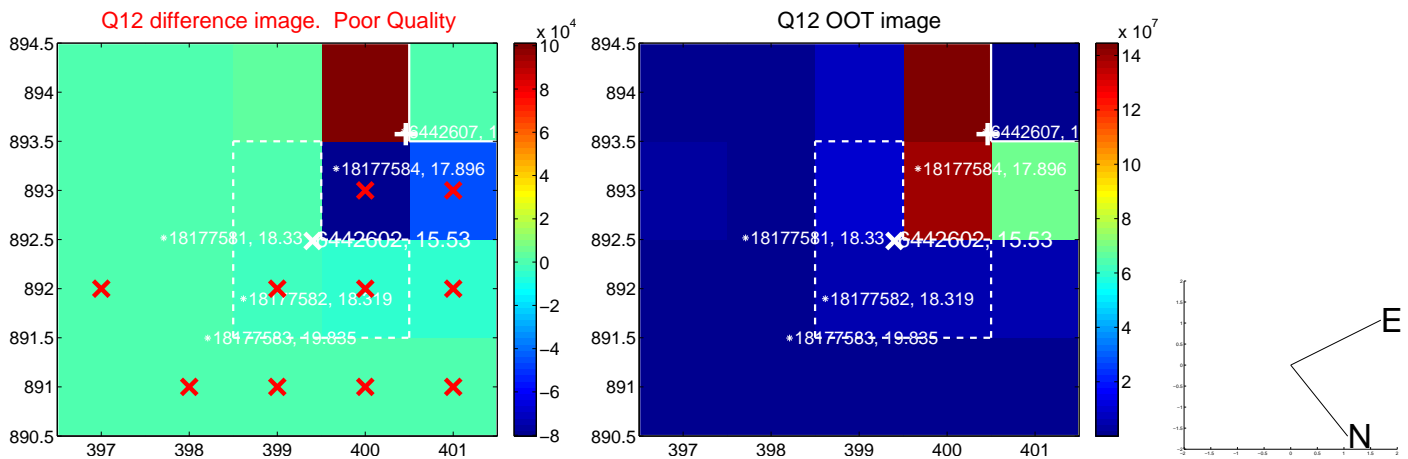
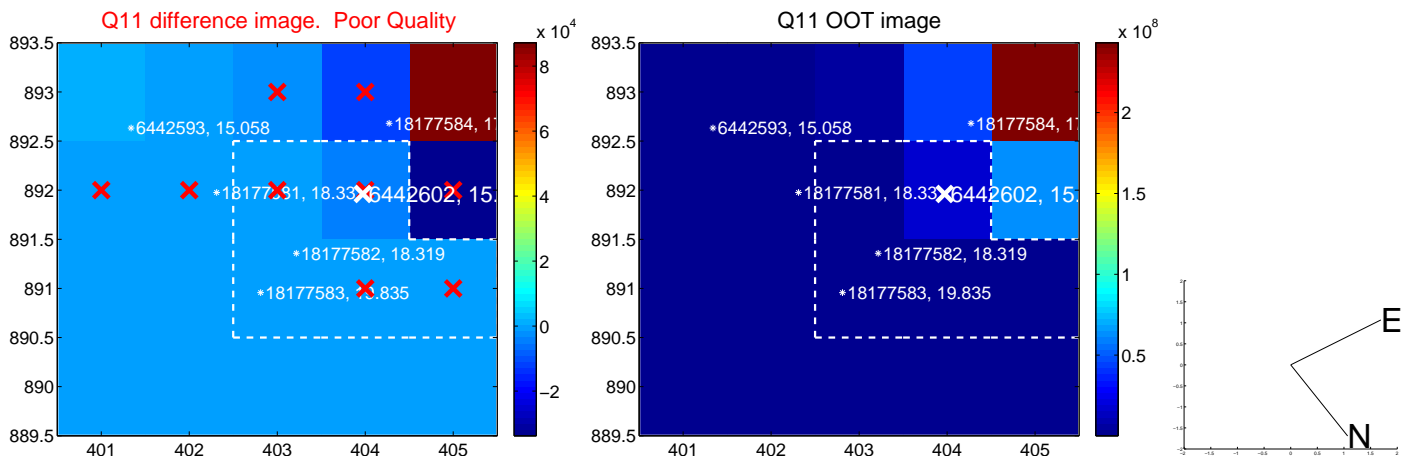
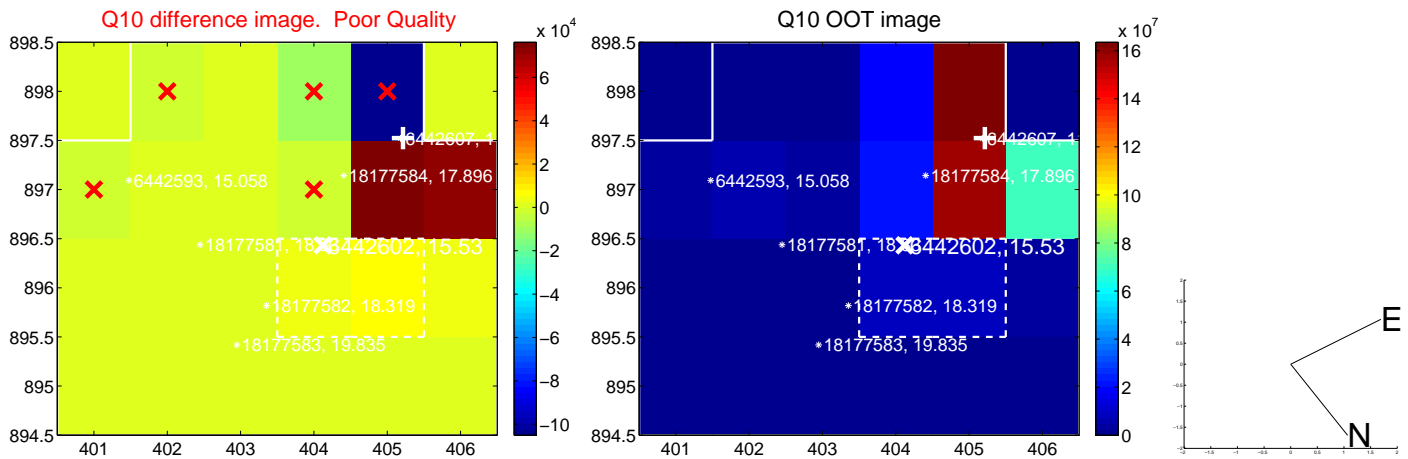
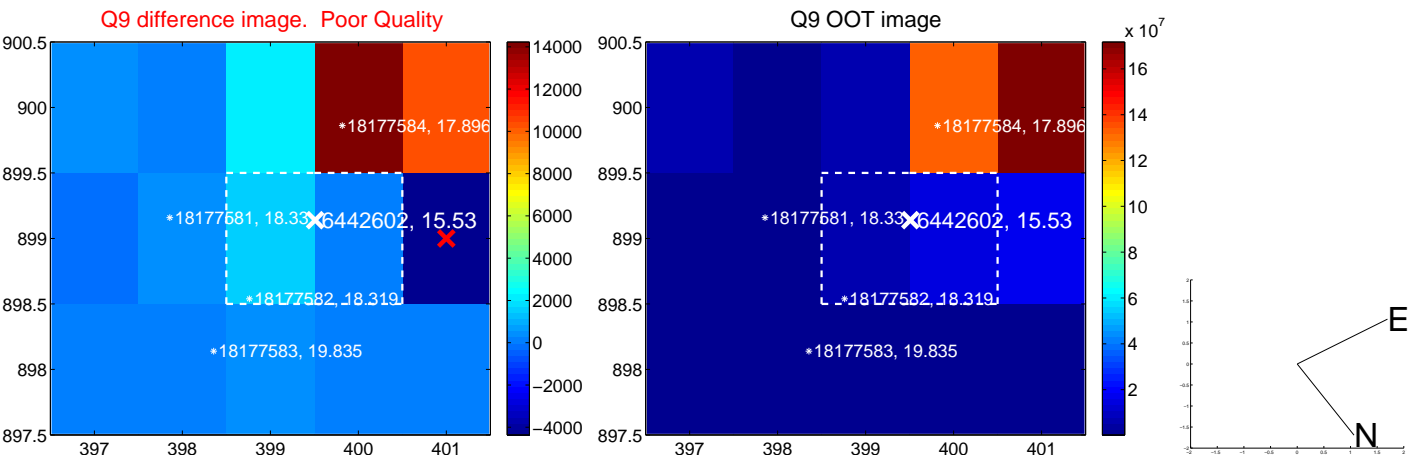
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



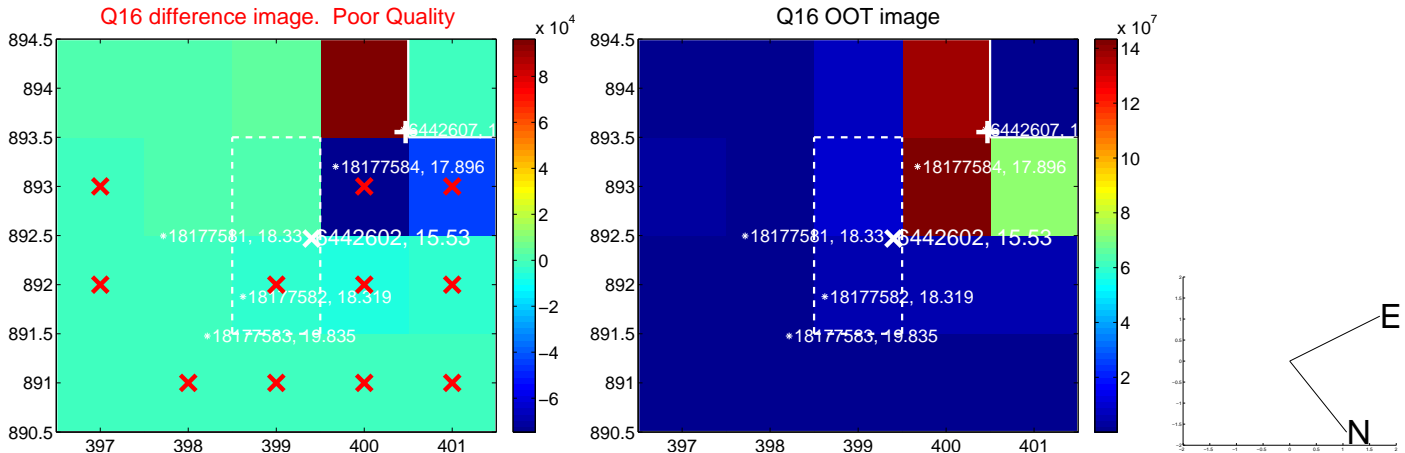
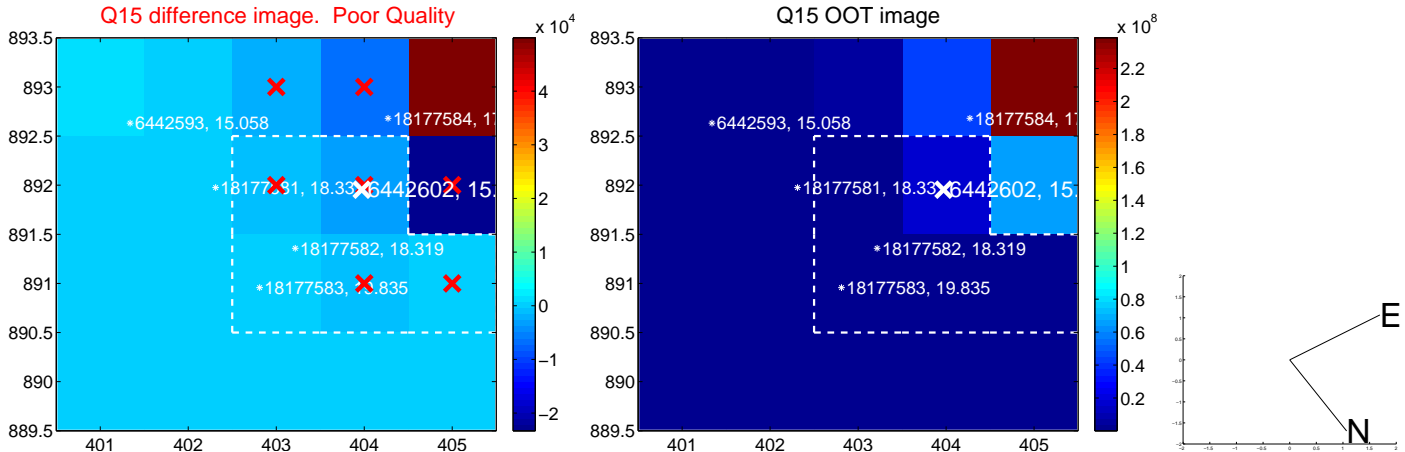
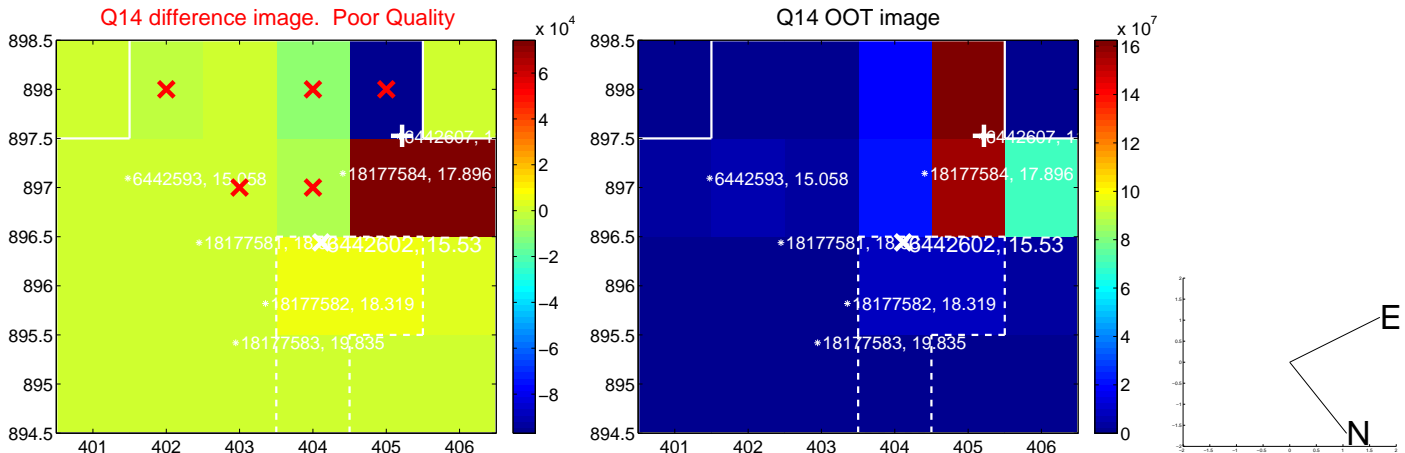
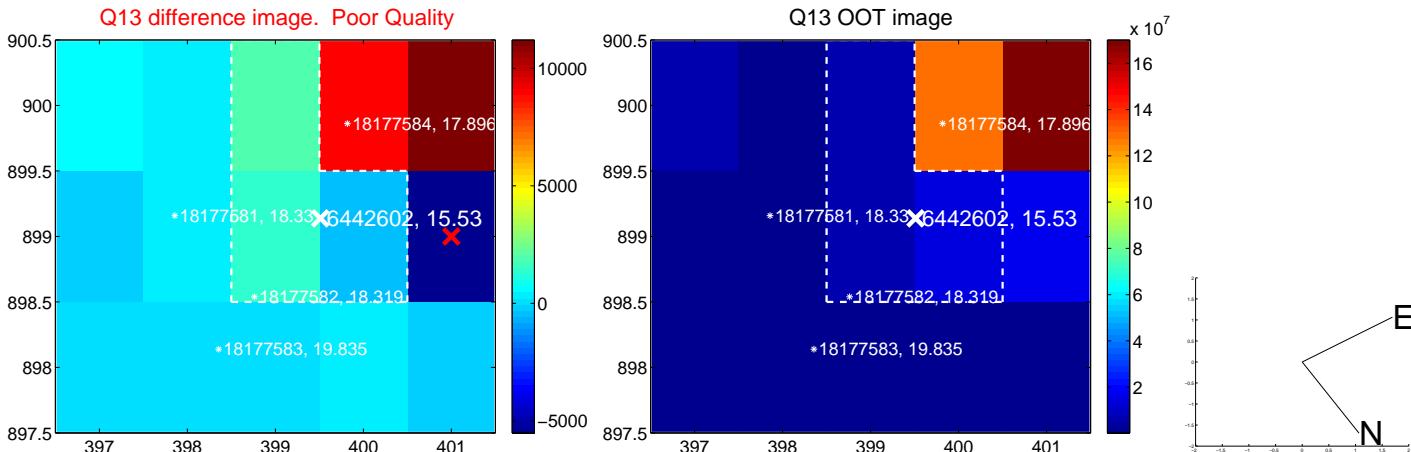
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

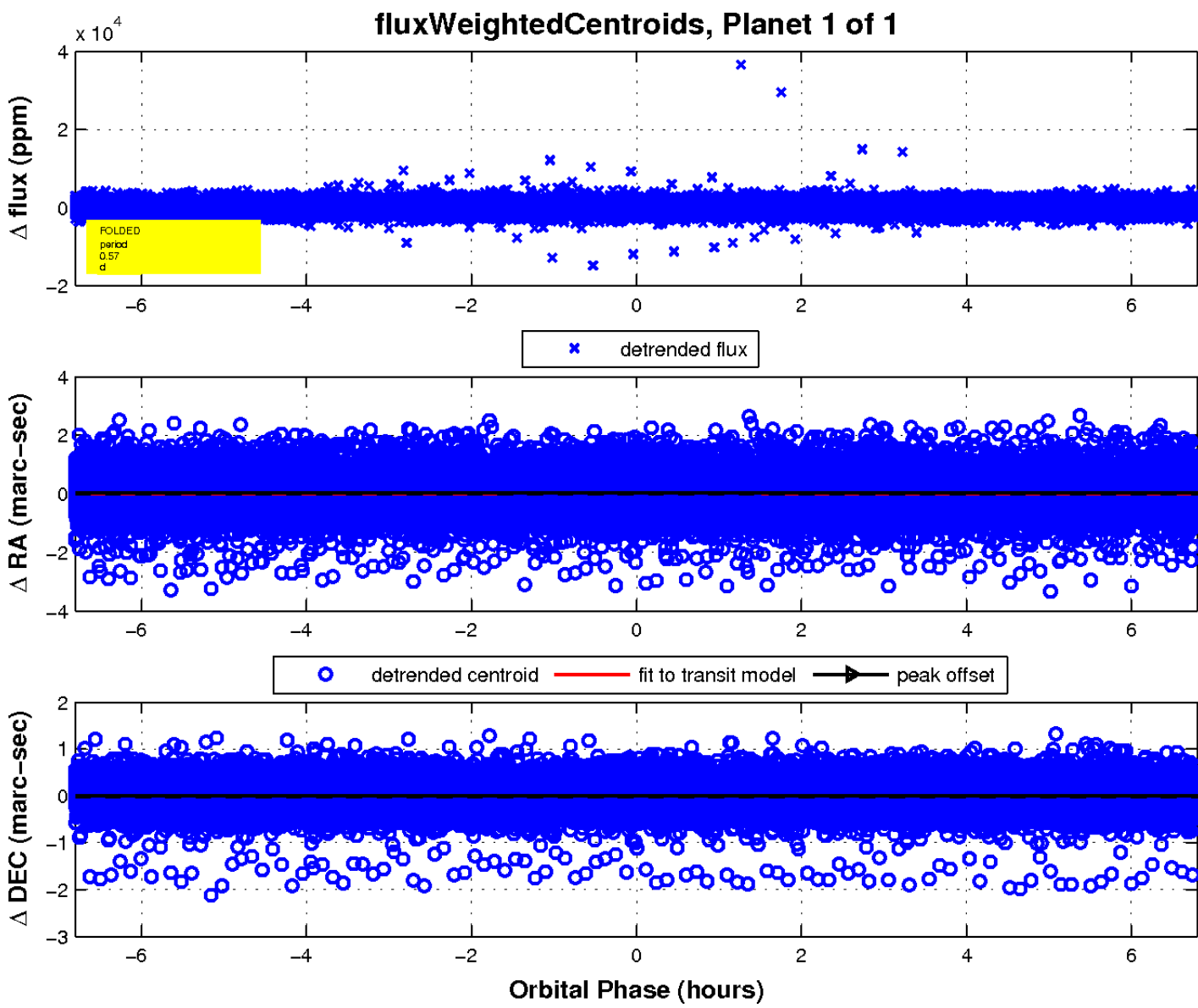
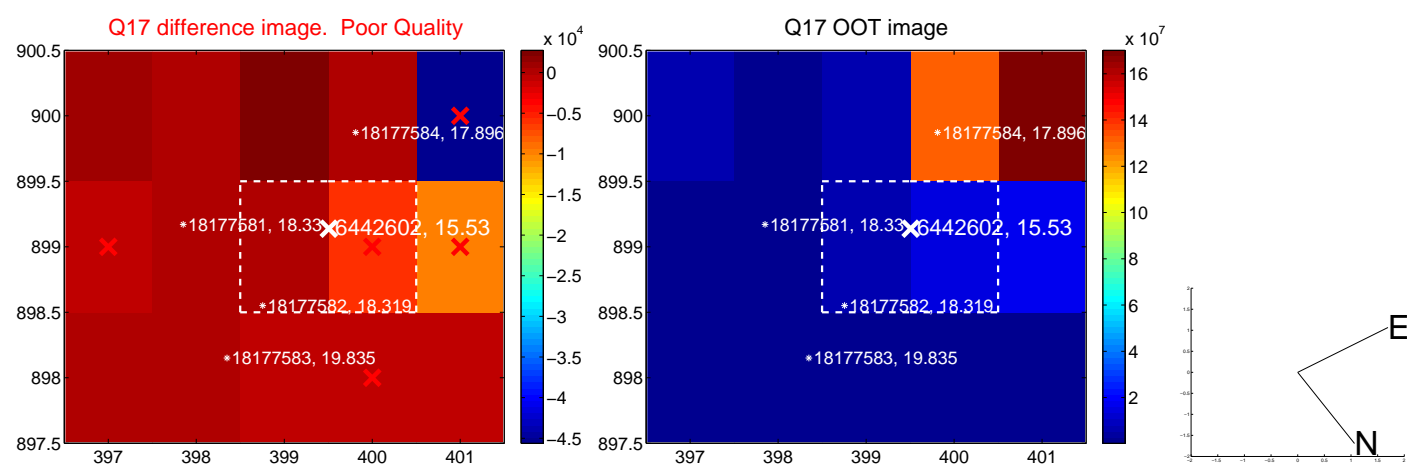


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

