

# KIC 007515762

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007515762-01	OBS	2524.01	40.990446	132.412593	299.3	7.518	14.7	14.8	1.41	5842	2.63	36.56

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007515762-01	OBS	PC	0.95	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 007515762-01

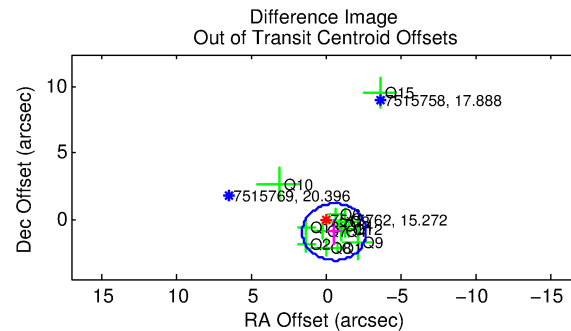
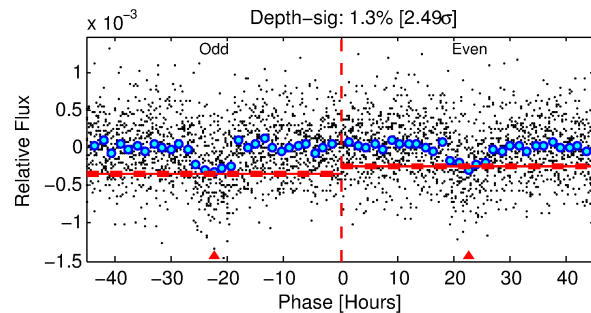
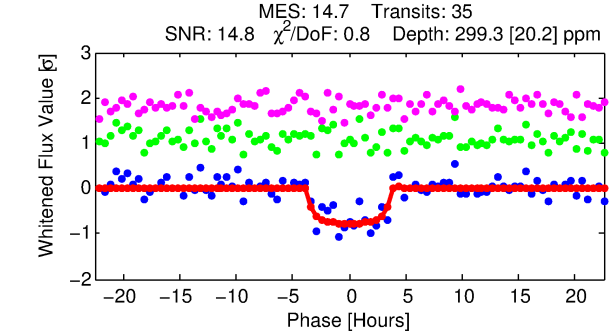
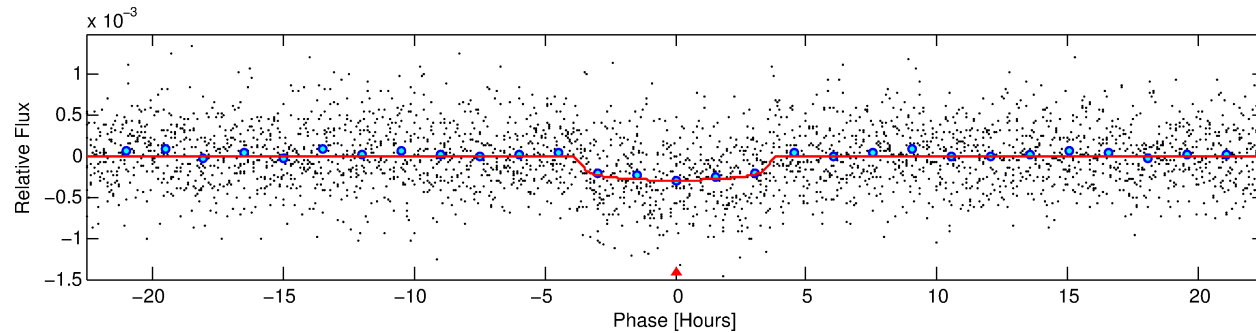
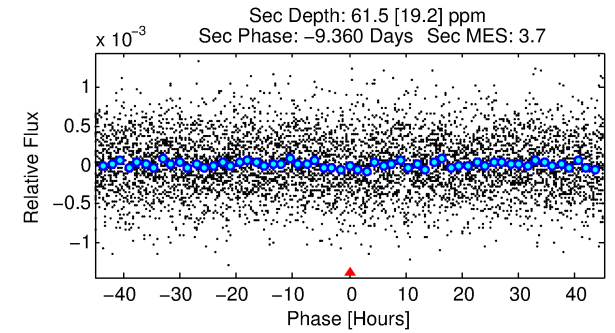
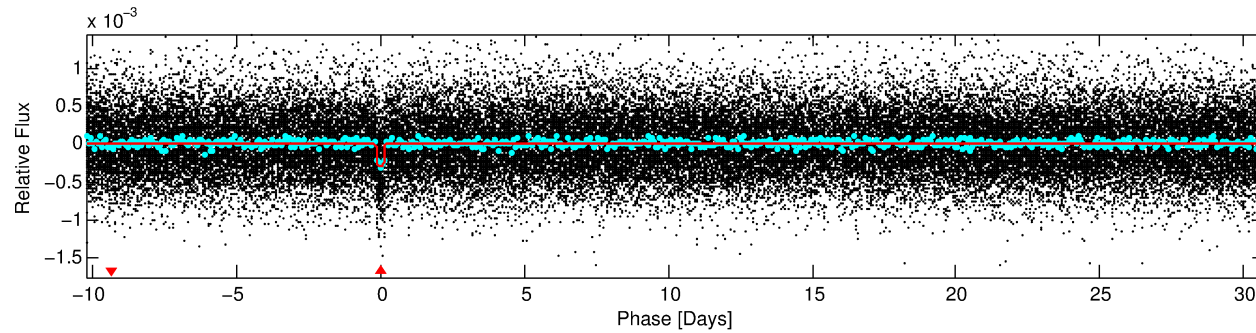
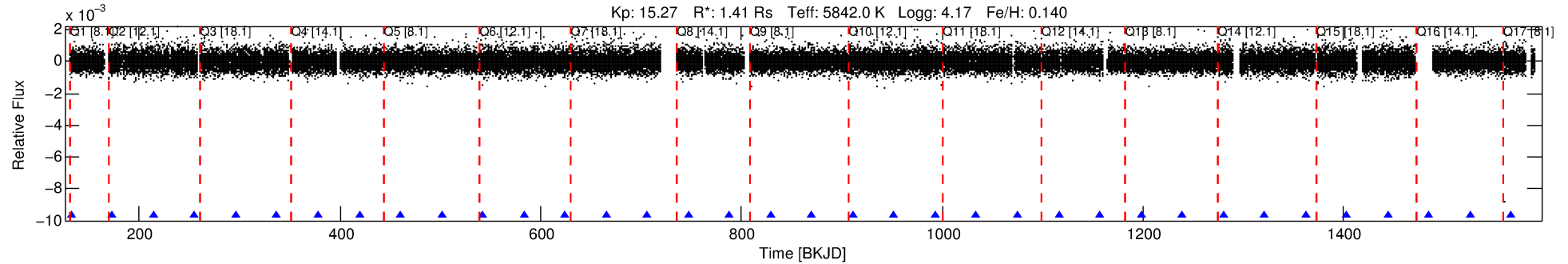
No Significant Match Found

# DV One-Page Summary

KIC: 7515762 Candidate: 1 of 1 Period: 40.990 d

KOI: K02524.01 Corr: 0.983

Kp: 15.27 R\*: 1.41 Rs Teff: 5842.0 K Logg: 4.17 Fe/H: 0.140



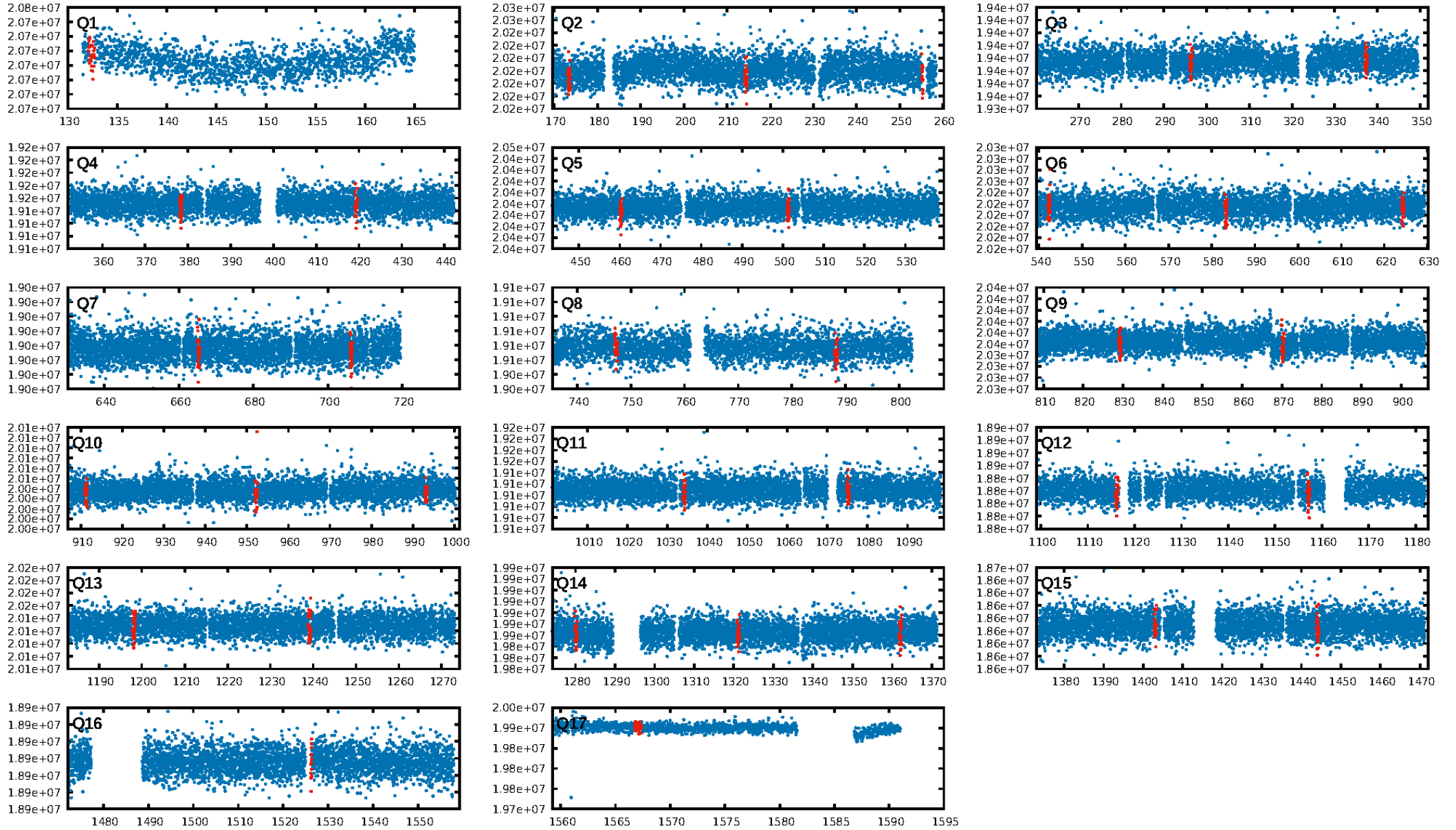
## DV Fit Results:

Period = 40.99045 [0.00048] d  
Epoch = 132.4126 [0.0092] BKJD  
Rp/R\* = 0.0171 [0.0084]  
a/R\* = 29.44 [64.78]  
b = 0.73 [1.41]  
Seff = 36.56 [11.10]  
Teff = 627 [48] K  
Rp = 2.63 [1.39] Re  
a = 0.2382 [0.0443] AU  
Ag = 277.19 [297.15] [0.93σ]  
Teffp = 3956 [1020] K [3.26σ]

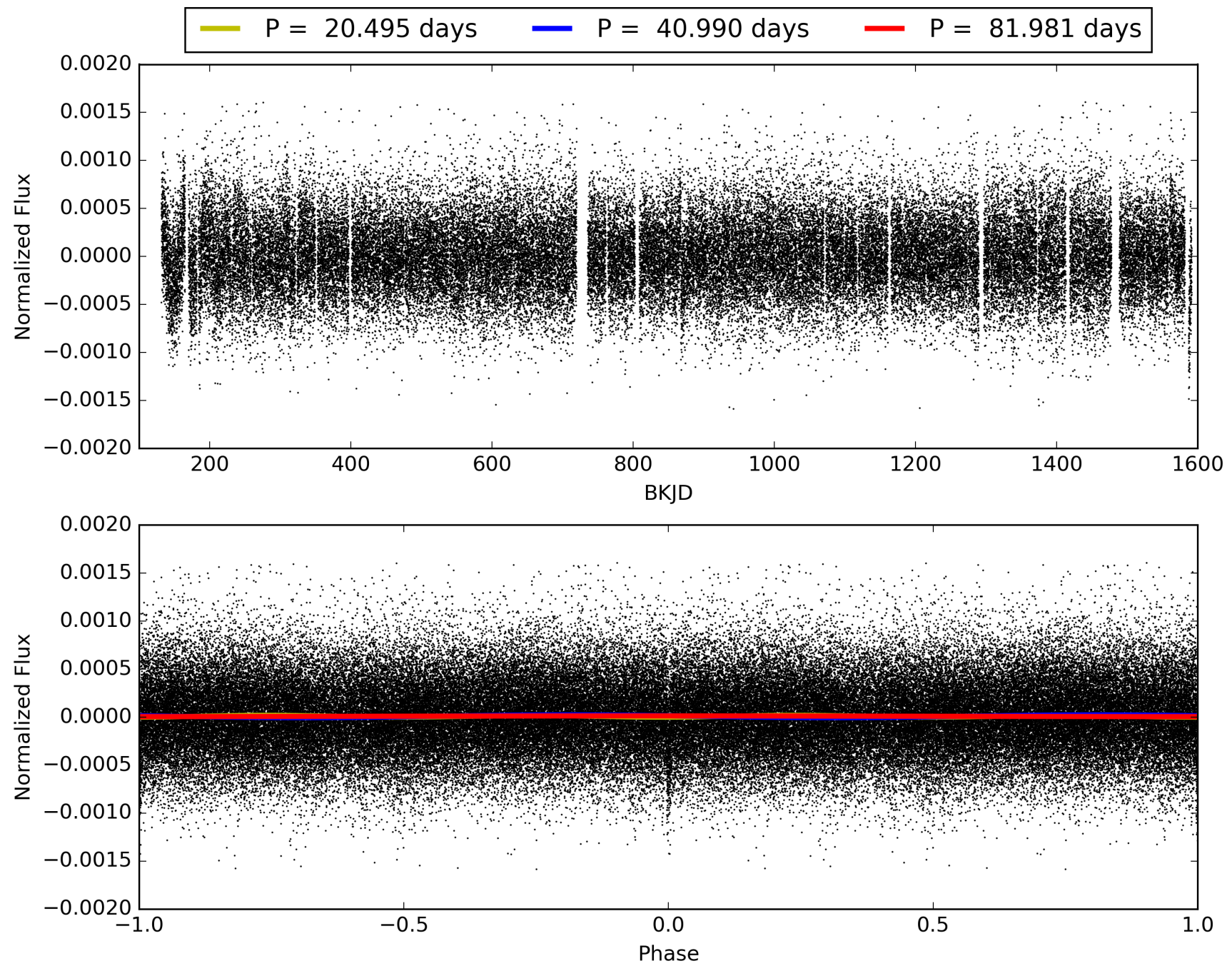
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.67e-47  
RollingBand-fgt: 1.00 [33/33]  
GhostDiagnostic-chr: 12.58  
Centroid-sig: 7.8%  
Centroid-so: 1.086 arcsec [1.11σ]  
OotOffset-rm: 1.114 arcsec [1.56σ]  
KicOffset-rm: 1.250 arcsec [1.88σ]  
OotOffset-st: 4/3/3/3 [13]  
KicOffset-st: 4/3/3/3 [13]  
DiffImageQuality-fgm: 0.69 [9/13]  
DiffImageOverlap-fno: 1.00 [16/16]

# TCE 007515762-01, PDC Light Curves

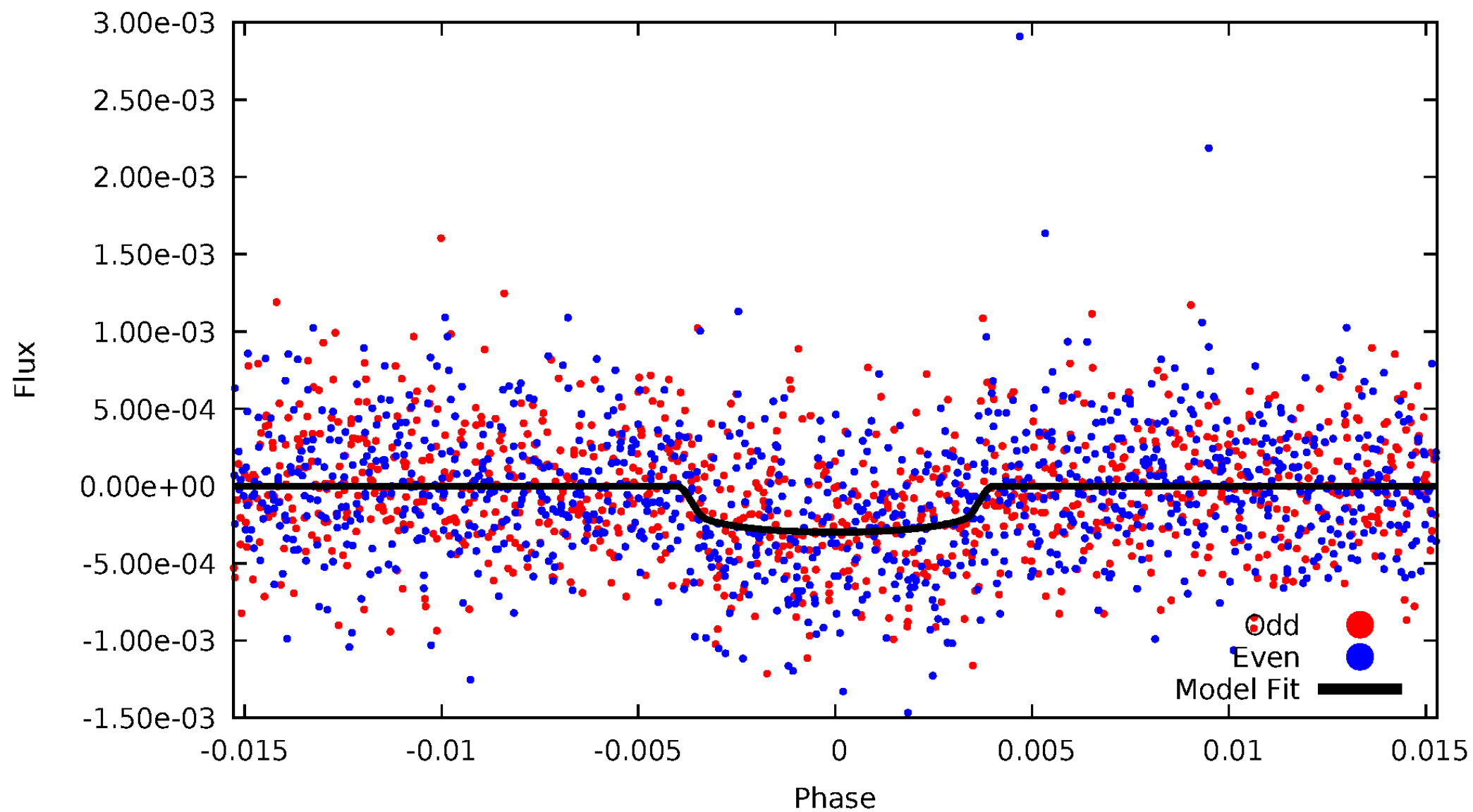


TCE 007515762-01



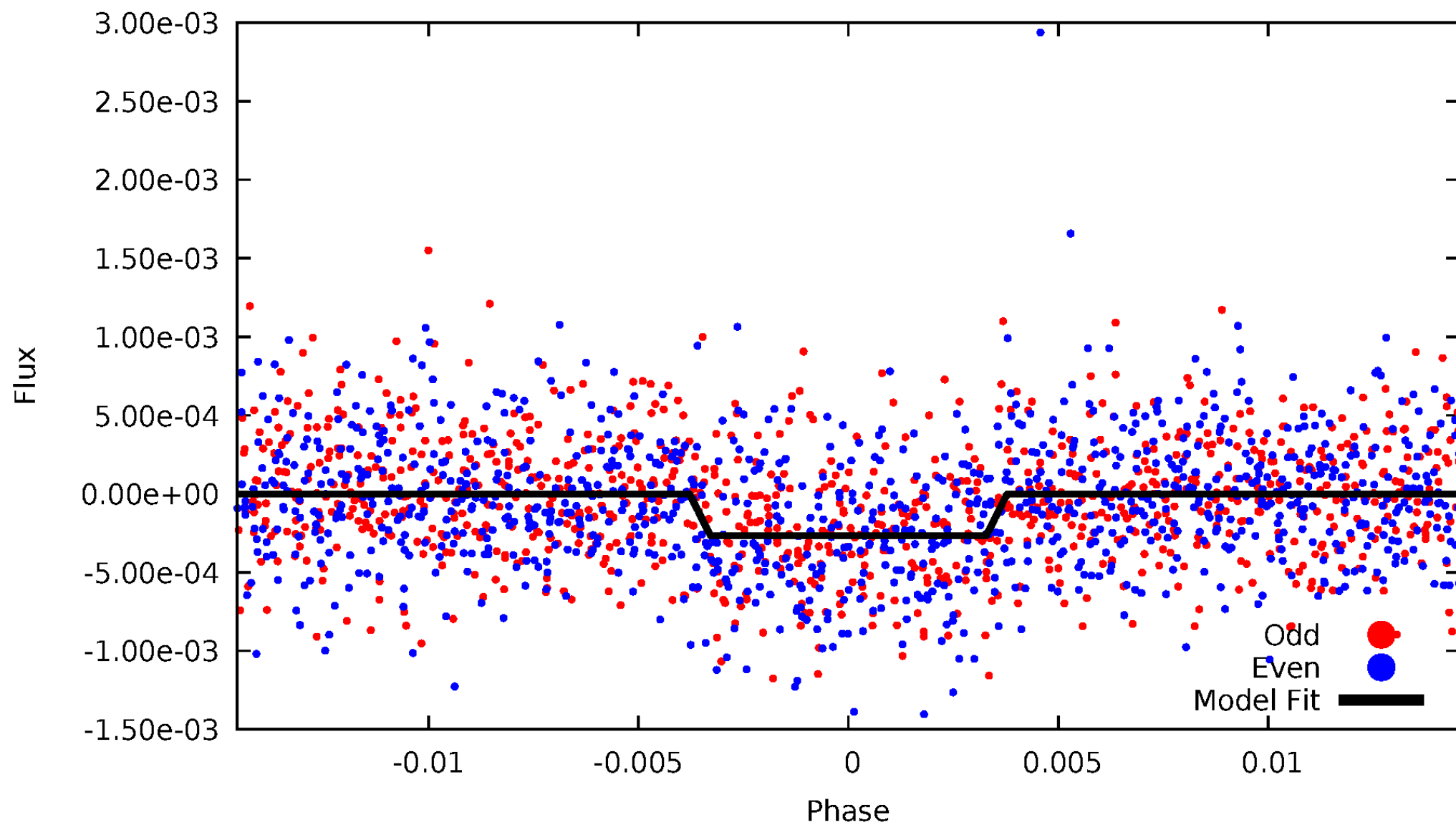
# DV Odd/Even

TCE 007515762-01



# ALT Odd/Even

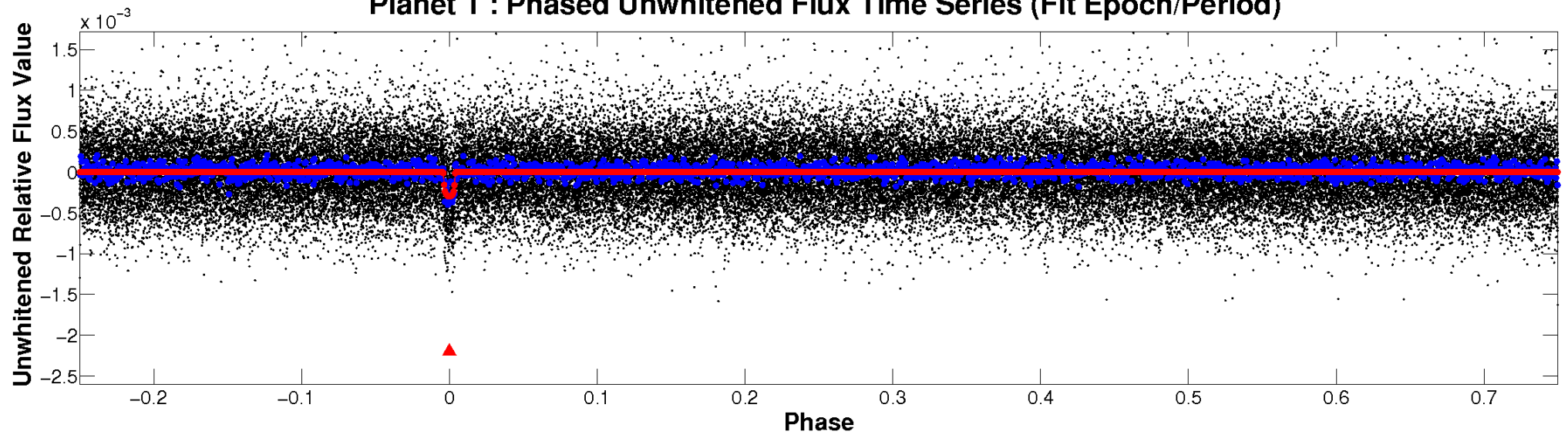
TCE 007515762-01



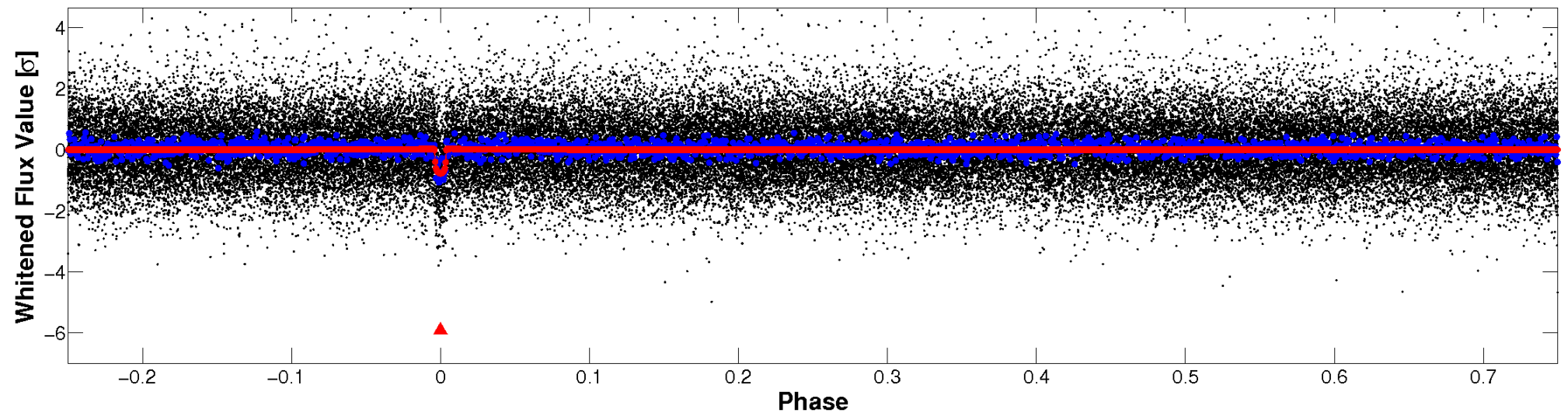


# Non-Whitened Vs. Whitened Light Curve

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

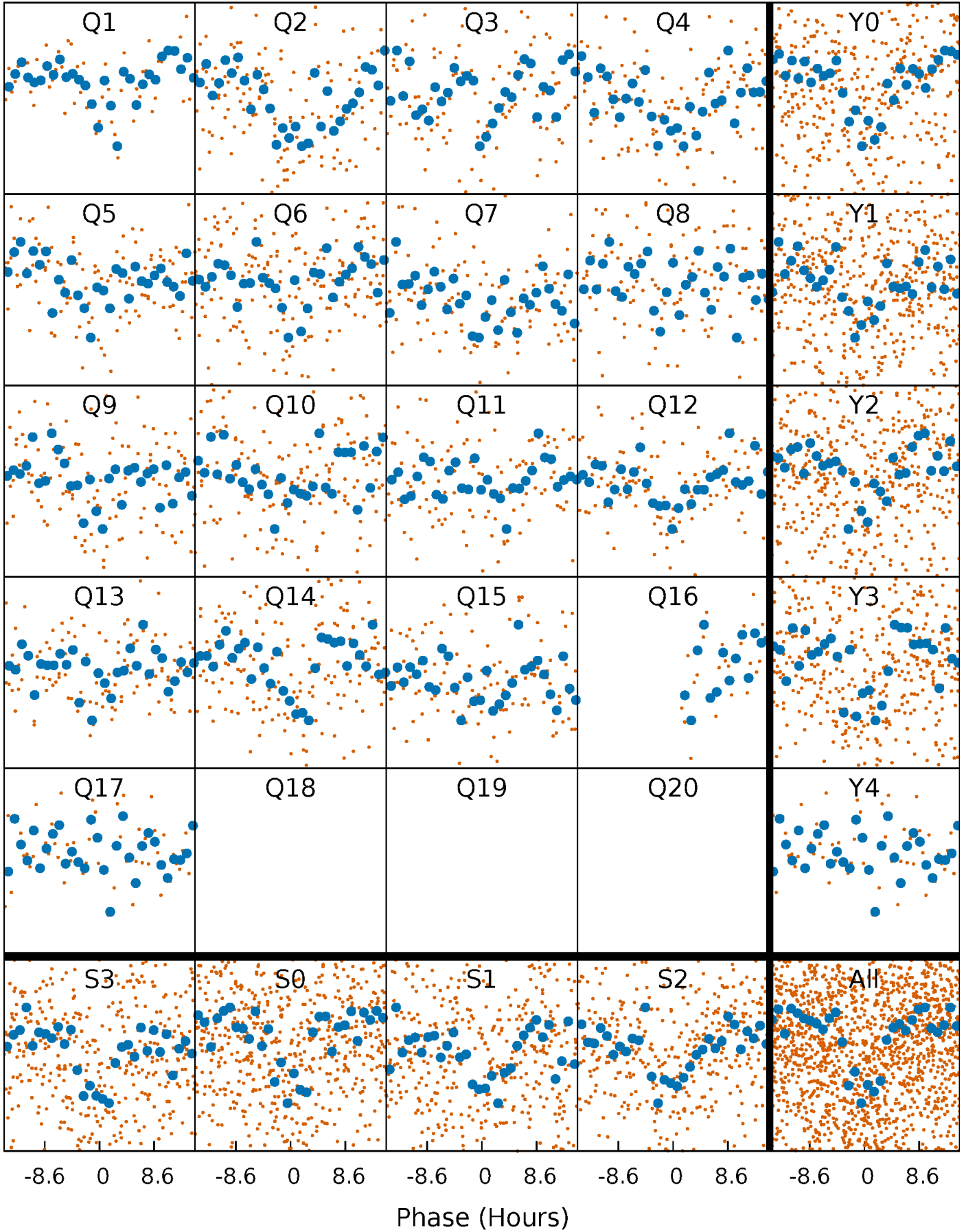


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

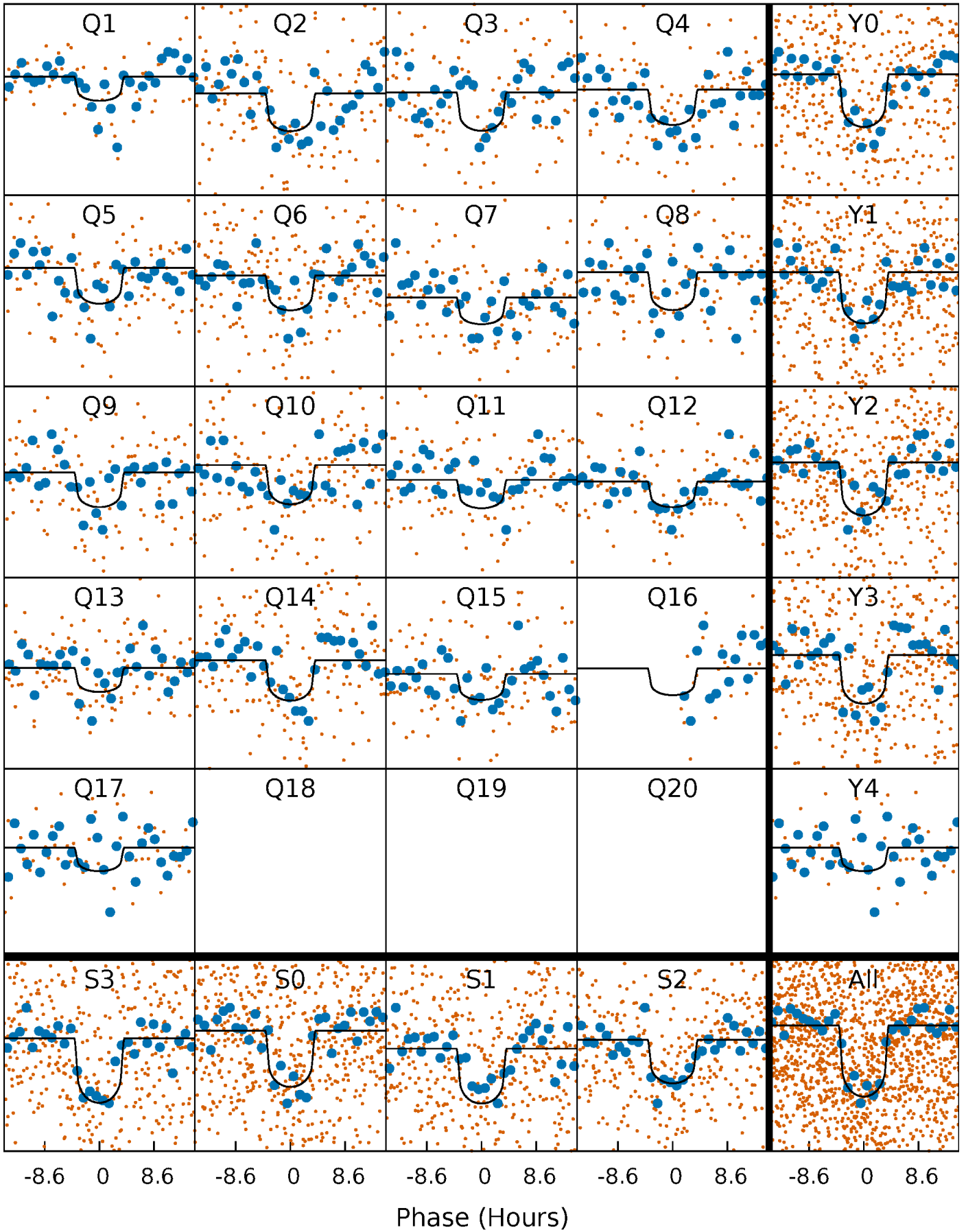
TCE 007515762-01 P= 40.990446 Days  $T_0=132.412593$  (BKJD)





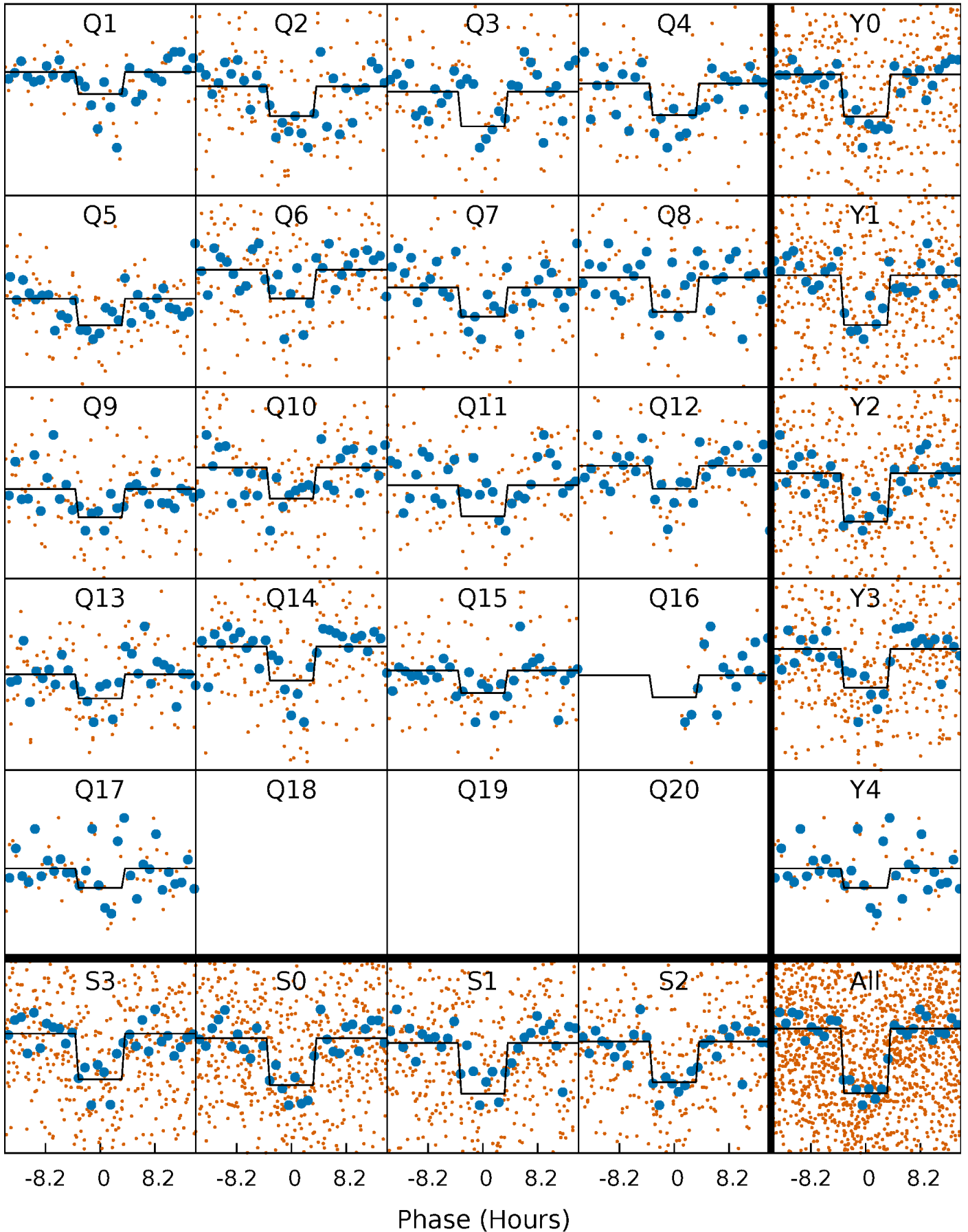
# DV Quarter-Phased Transit Curves

TCE 007515762-01 P= 40.990446 Days  $T_0=132.412593$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

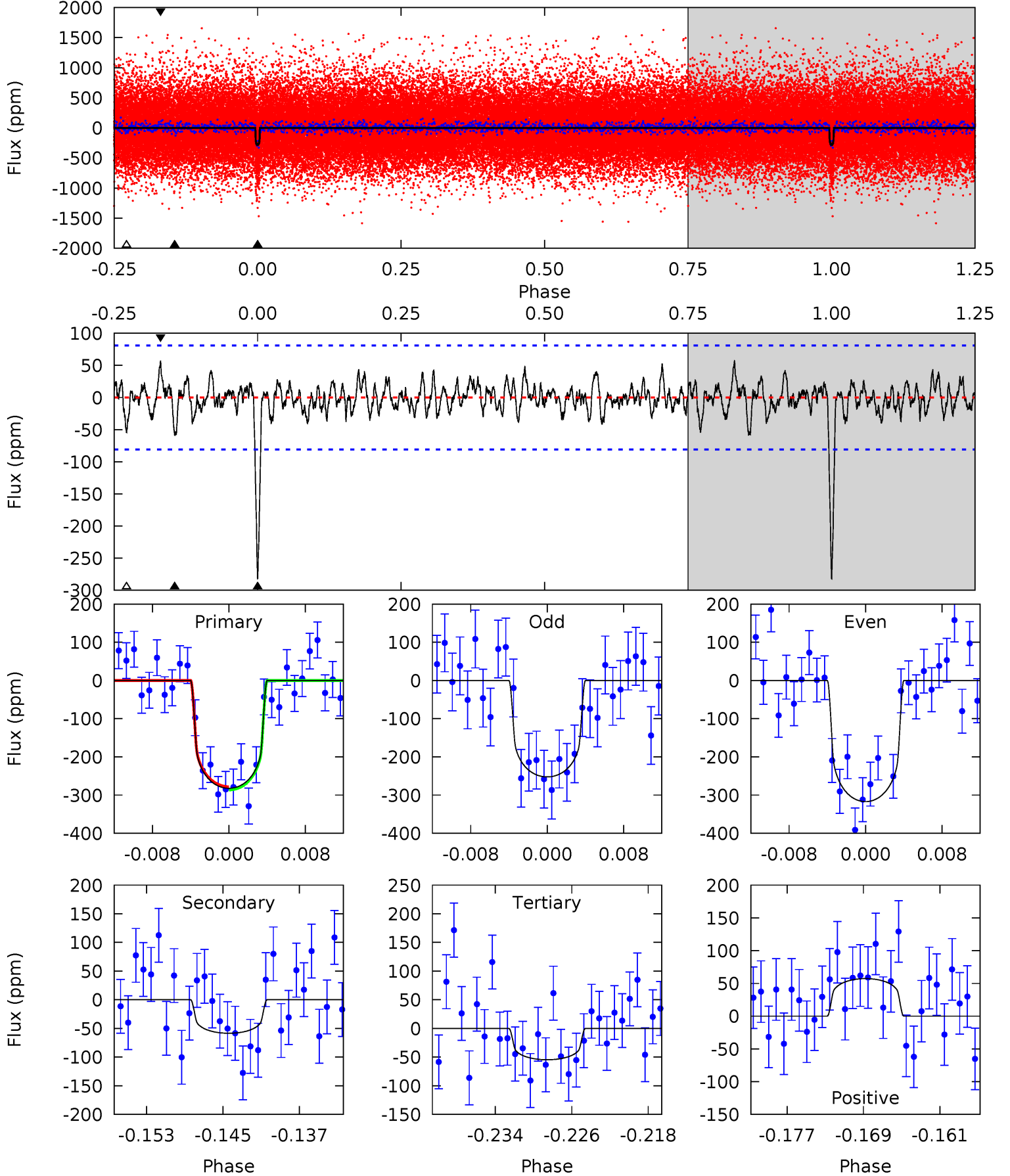
TCE 007515762-01 P= 40.990731 Days  $T_0=132.411340$  (BKJD)



# DV Model-Shift Uniqueness Test

007515762-01, P = 40.990446 Days, E = 91.422147 Days

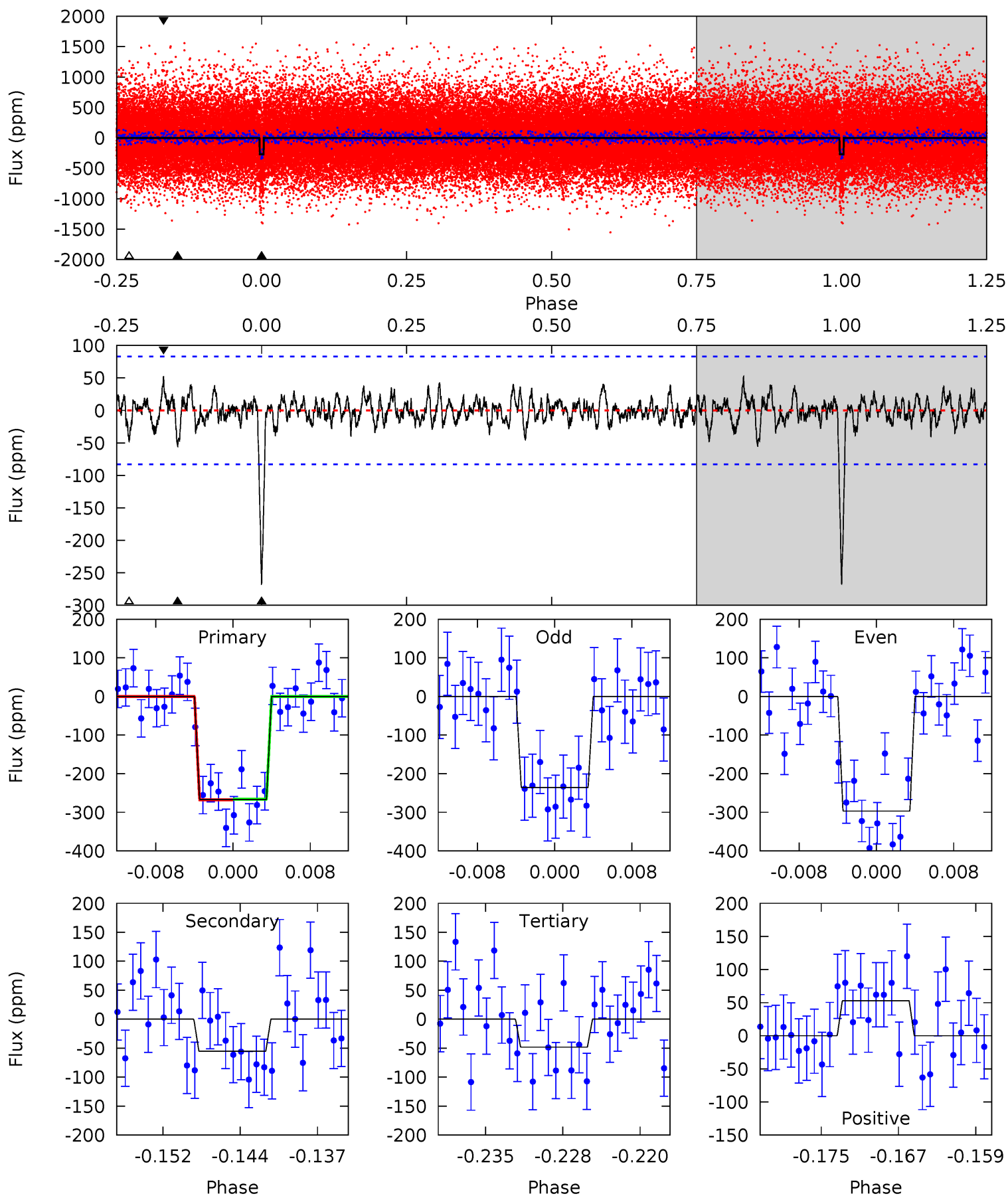
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	3.66	3.42	3.58	5.07	2.65	1.08	14.2	14.1	0.24	0.08	2.03	1.03	0.17	0.26



# Alt Model-Shift Uniqueness Test

007515762-01, P = 40.990731 Days, E = 91.420609 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
16.3	3.39	2.95	3.22	5.08	2.67	0.93	13.4	13.1	0.44	0.17	1.87	1.07	0.16	0.05



### Stellar Parameters For KIC 007515762

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5842^{+79}_{-70}$	$4.170^{+0.176}_{-0.095}$	$0.140^{+0.150}_{-0.150}$	$1.410^{+0.246}_{-0.270}$	$1.072^{+0.107}_{-0.071}$	$0.539^{+0.446}_{-0.180}$
	+1%/-1%	+4%/-2%	+107%/-107%	+17%/-19%	+10%/-7%	+83%/-33%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 007515762-01 / KOI 2524.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-58 \pm 16$	$2.60^{+1.33}_{-1.16}$	$874^{+36}_{-46}$	$4114^{+1216}_{-531}$	$256^{+658}_{-149}$
Alt.	$-55 \pm 16$	$2.40^{+1.22}_{-1.17}$	$871^{+36}_{-45}$	$4231^{+1358}_{-593}$	$299^{+861}_{-175}$

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



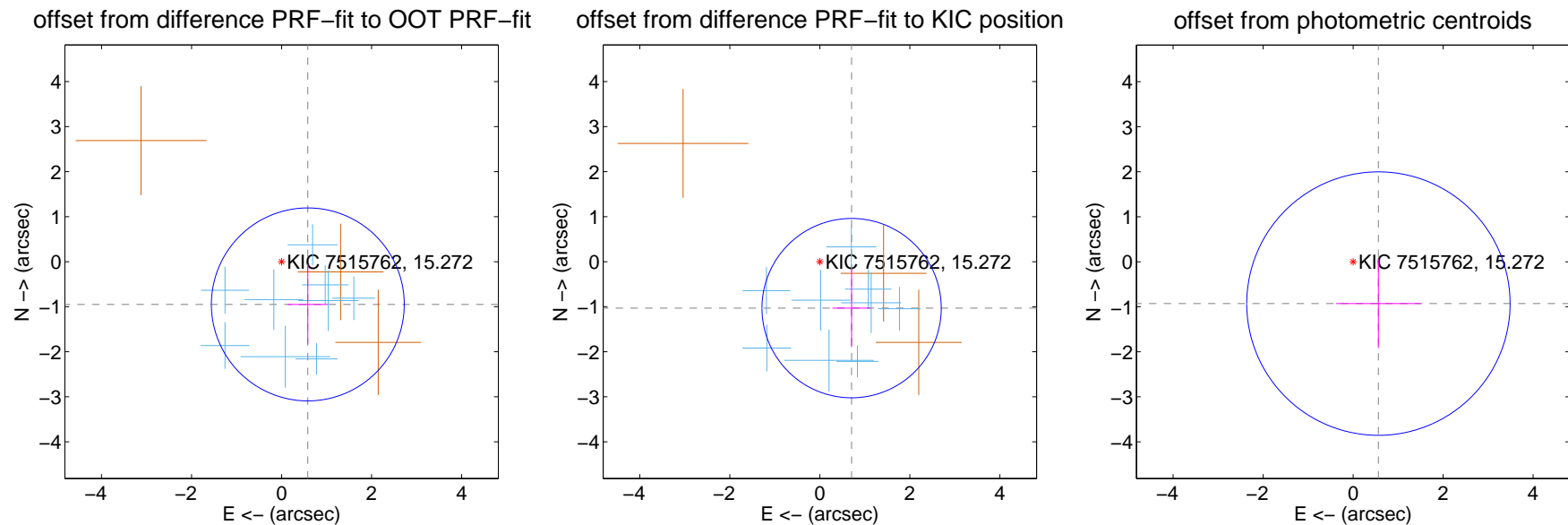
## DV Centroid Data

Supplemental centroid analysis for 007515762-01. Kepler magnitude: 15.27. Transit SNR 14.79

There are 9 quarters with good PRF difference image offsets

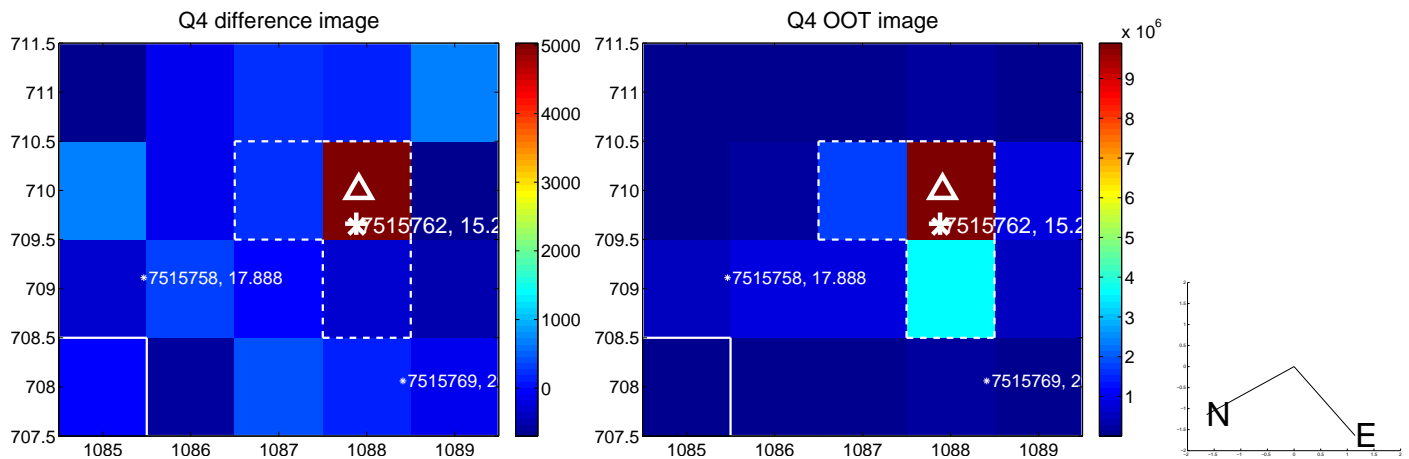
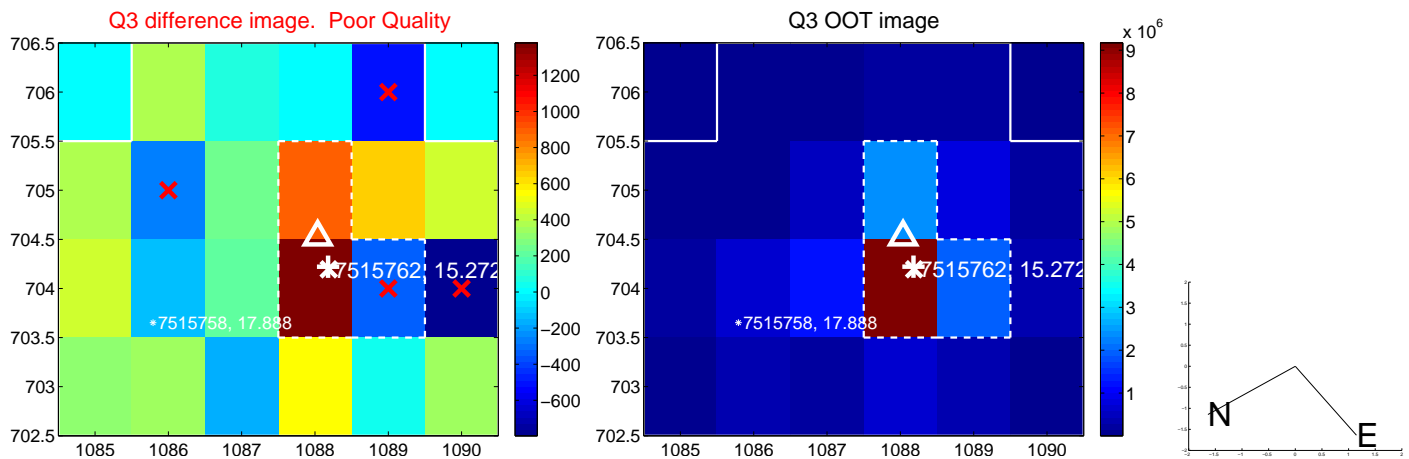
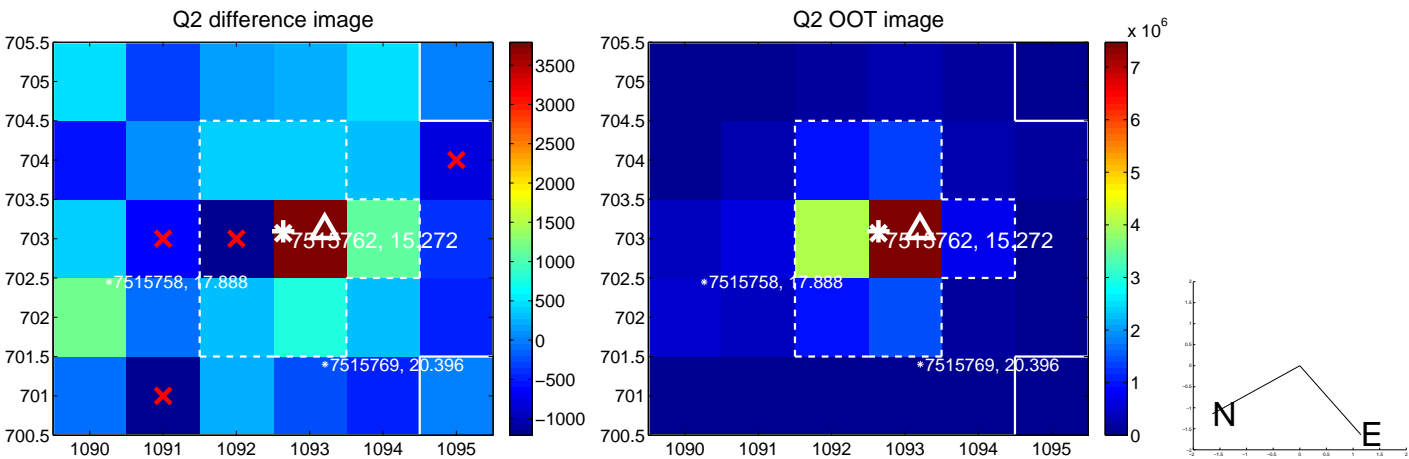
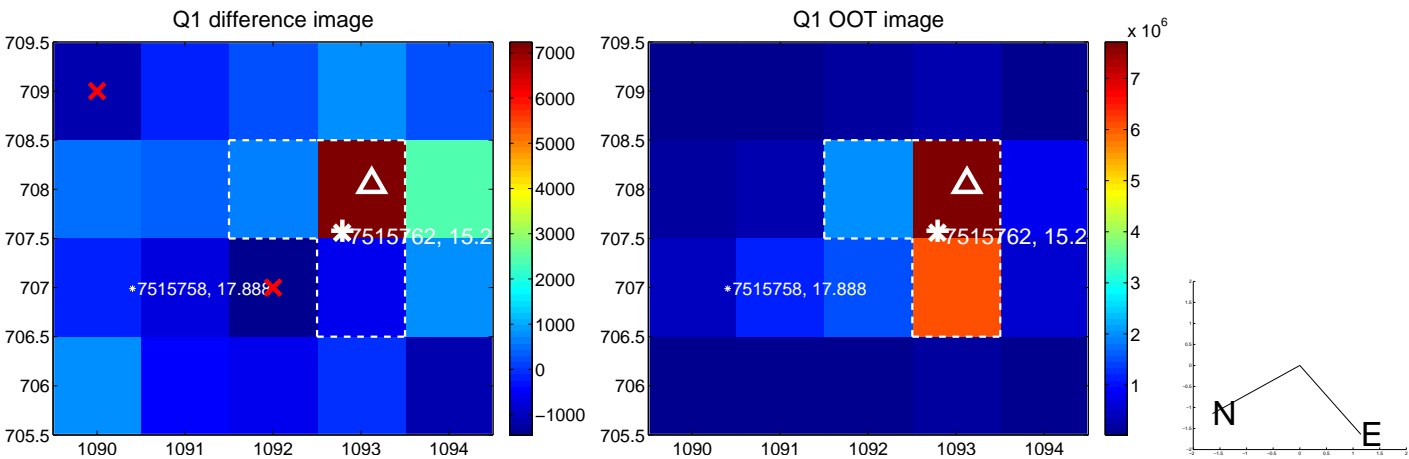
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.114 \pm 0.714$	1.56	$-0.583 \pm 0.443$	$-0.949 \pm 0.878$
PRF-fit source offset from KIC position	$1.250 \pm 0.664$	1.88	$-0.706 \pm 0.425$	$-1.031 \pm 0.867$
photometric centroid source offset	$1.09 \pm 0.98$	1.11	$-0.56 \pm 0.94$	$-0.93 \pm 0.99$

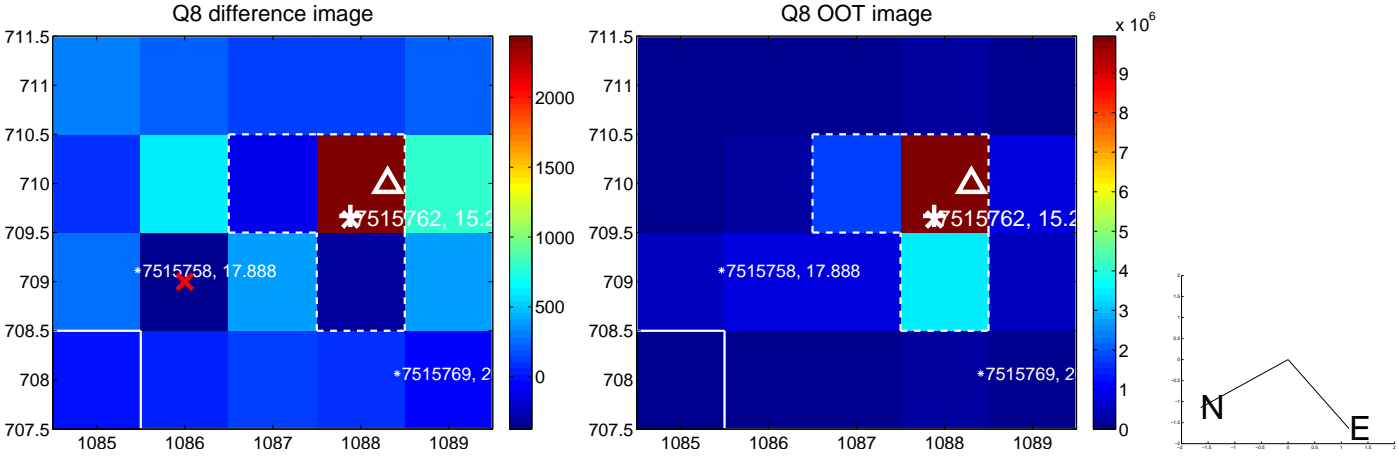
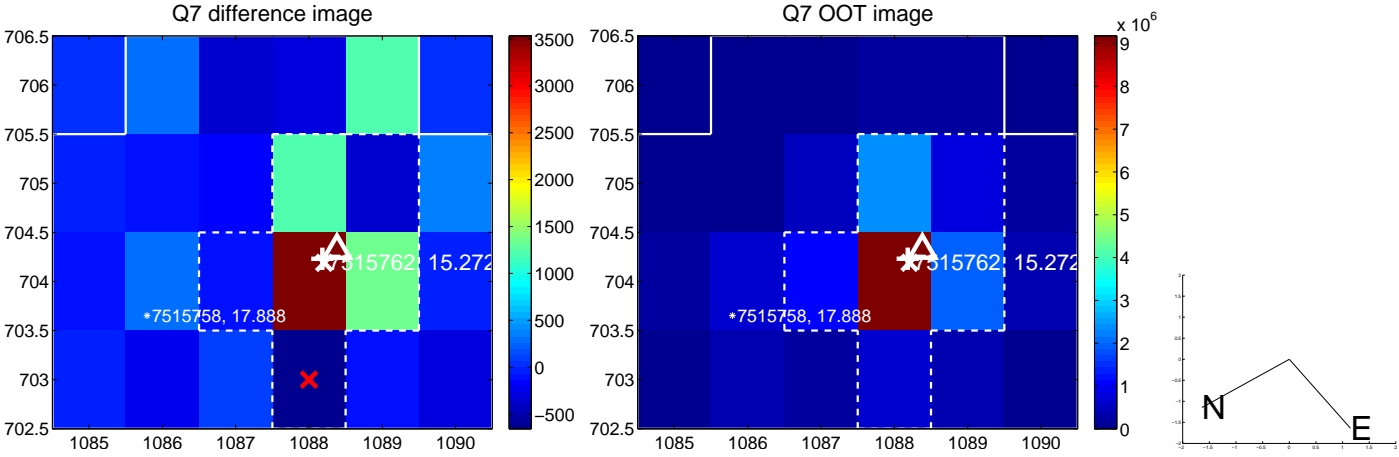
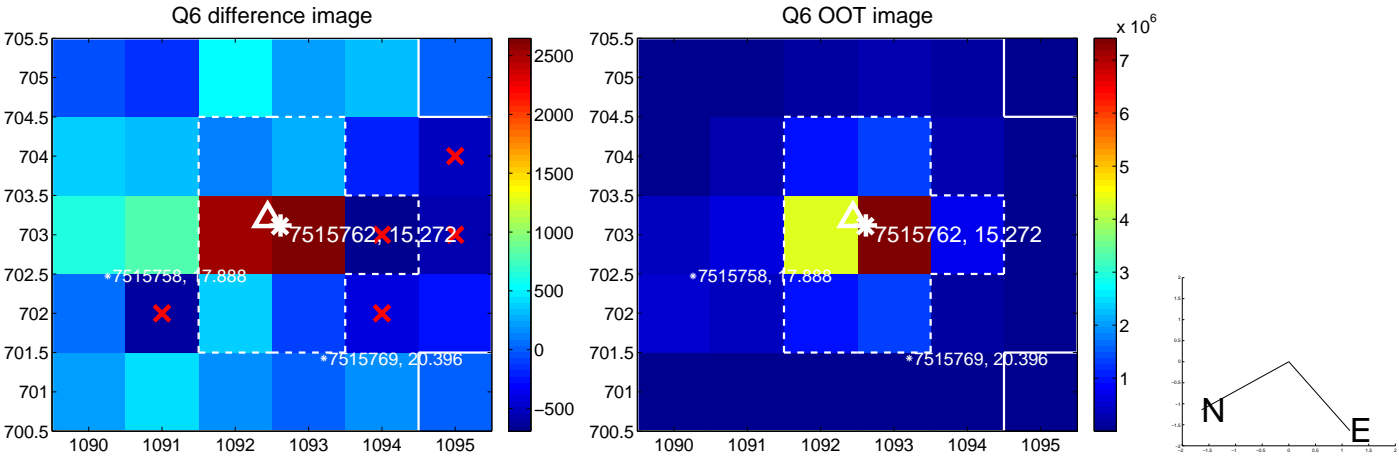
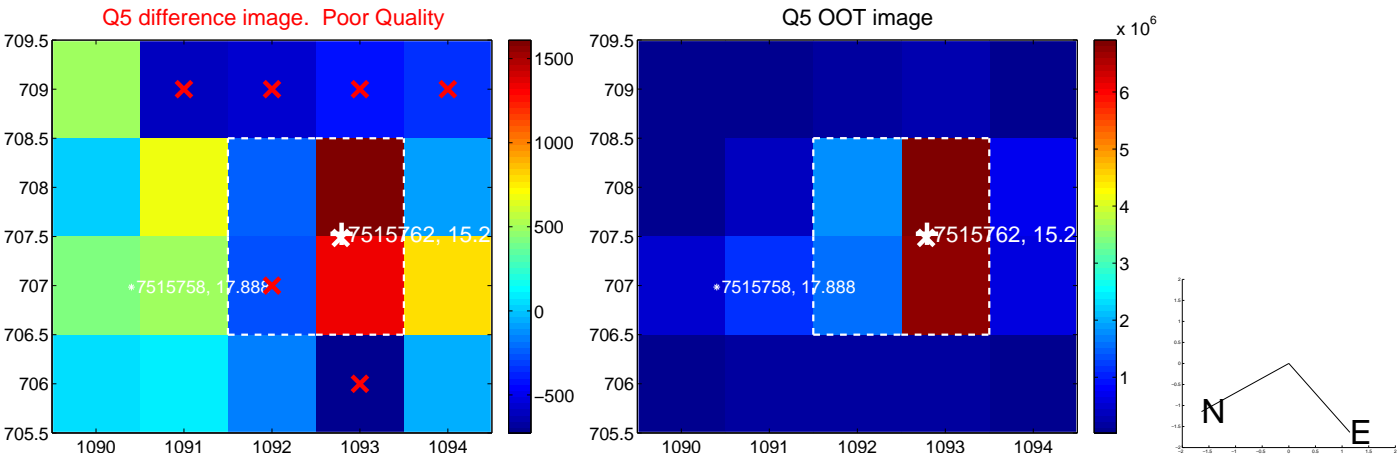


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

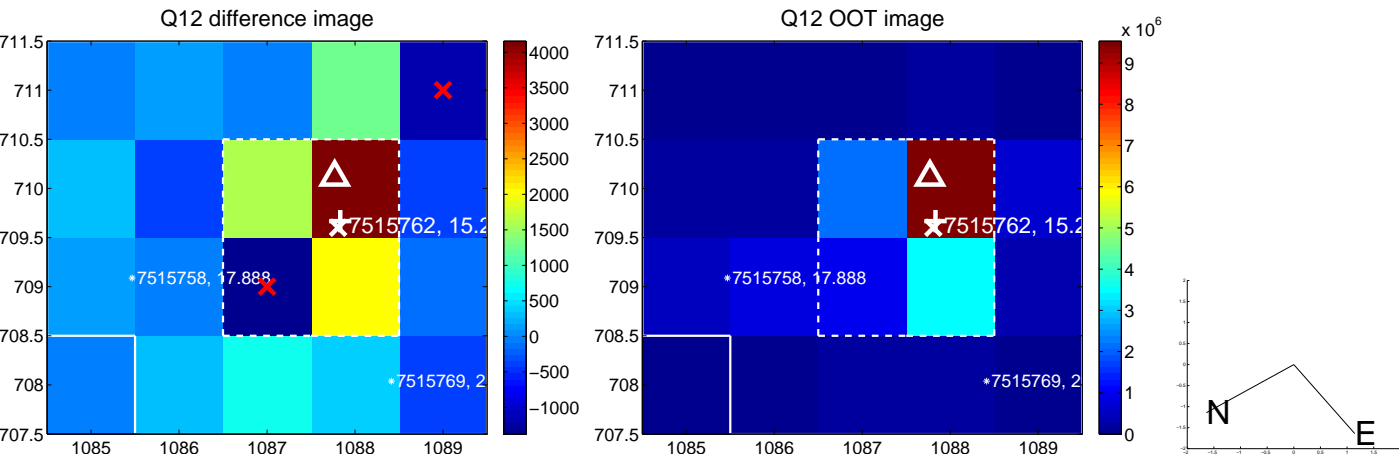
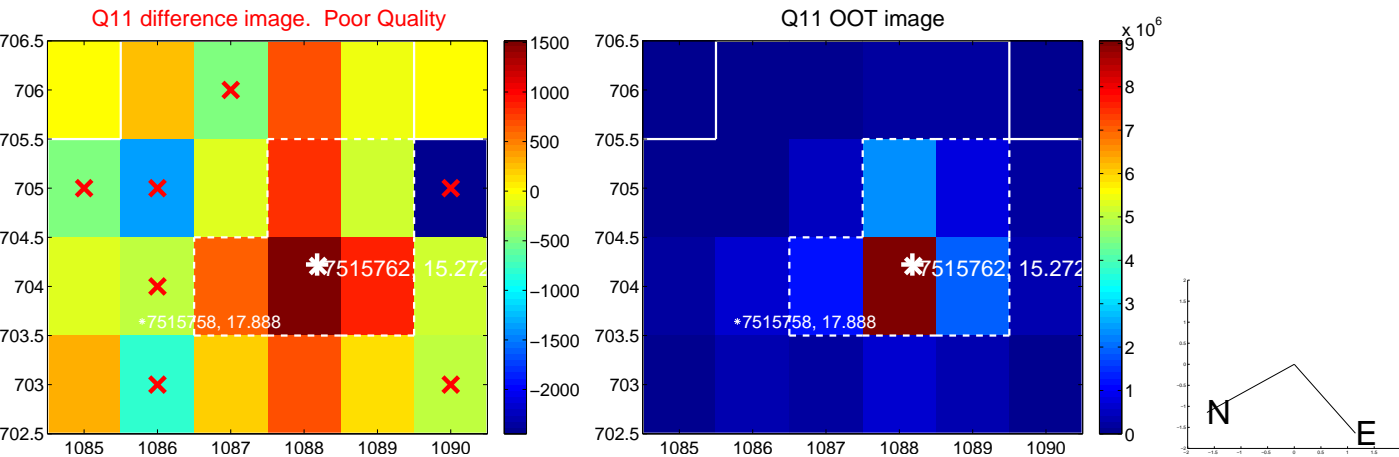
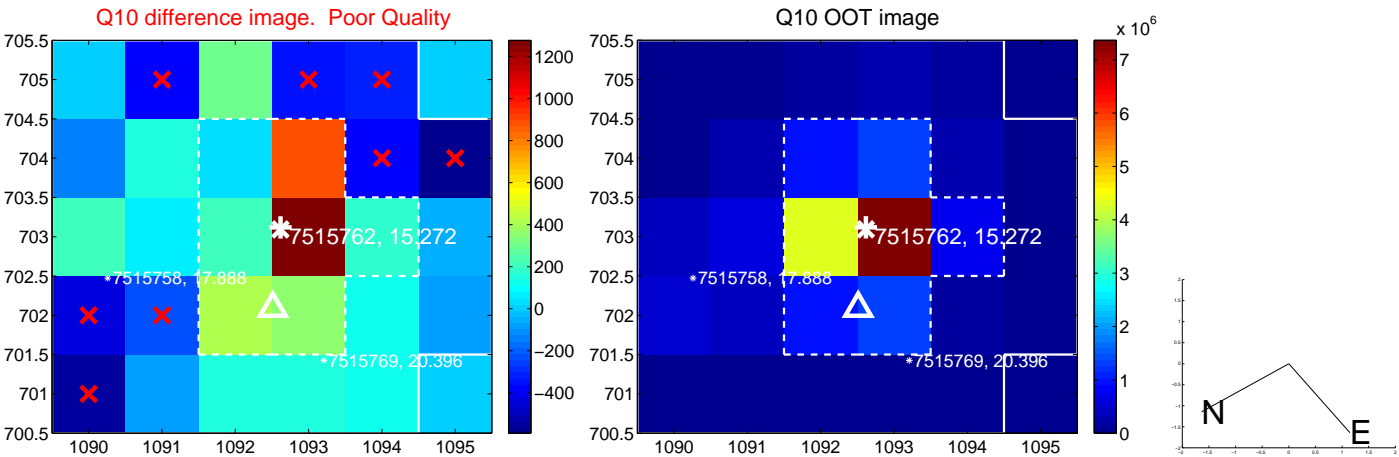
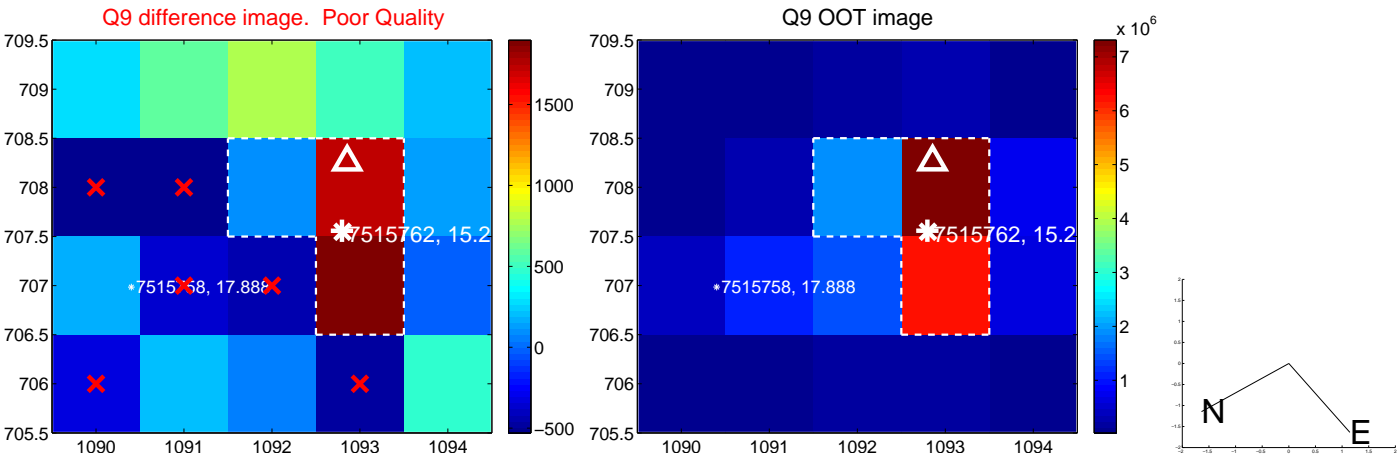
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



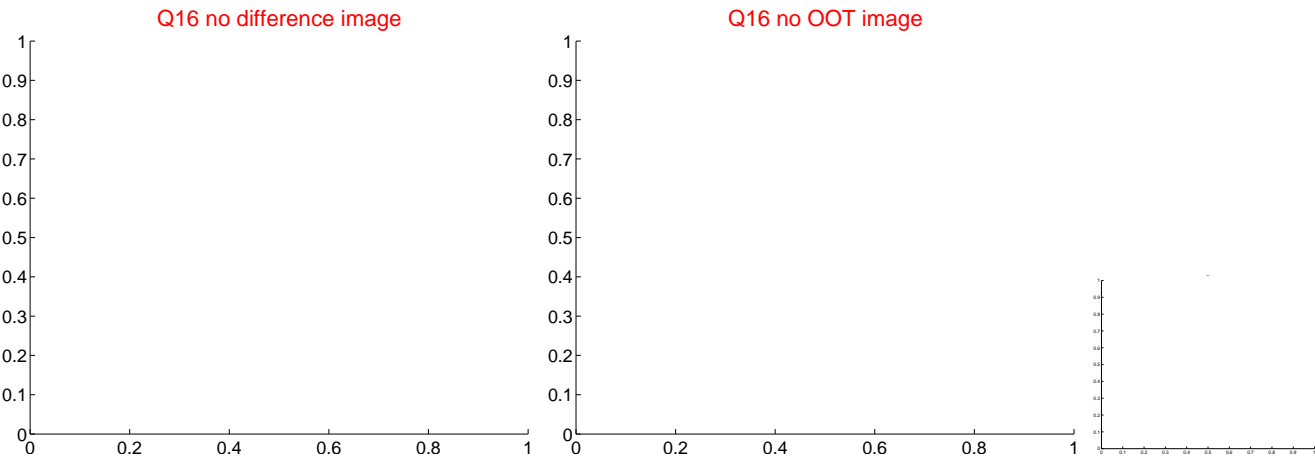
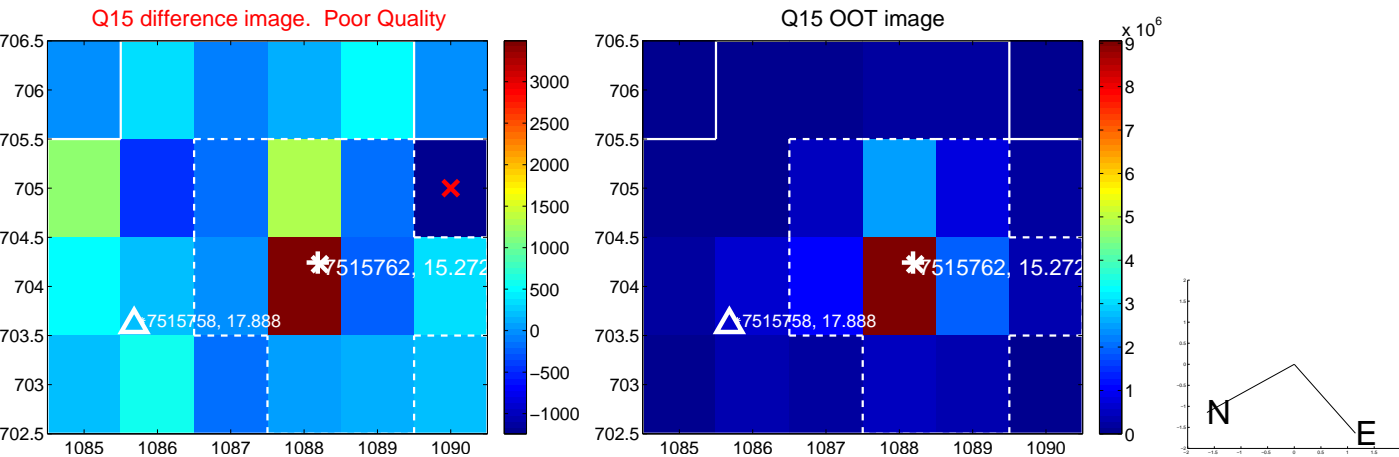
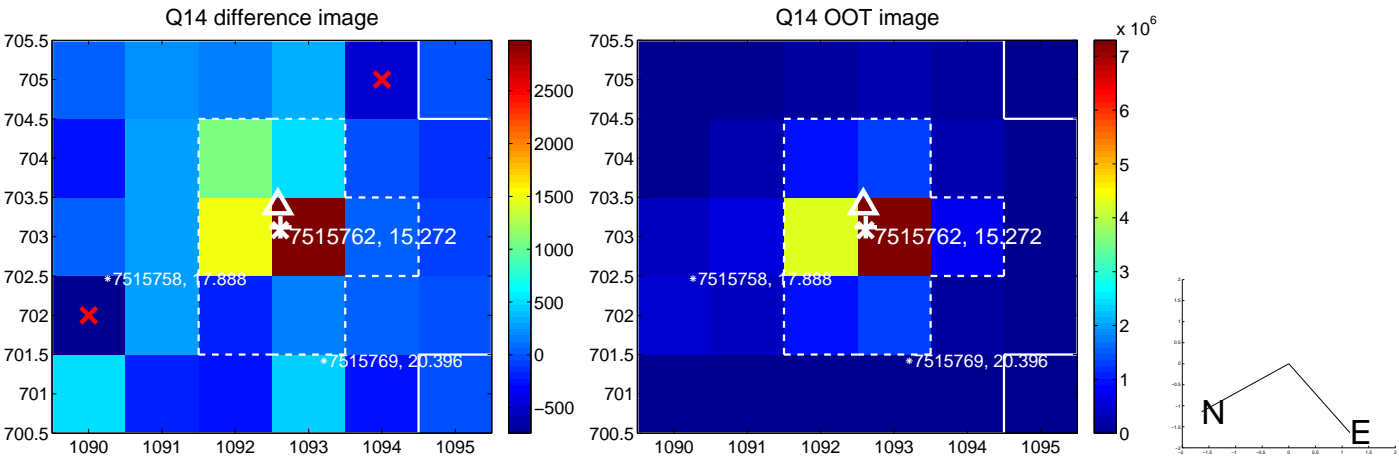
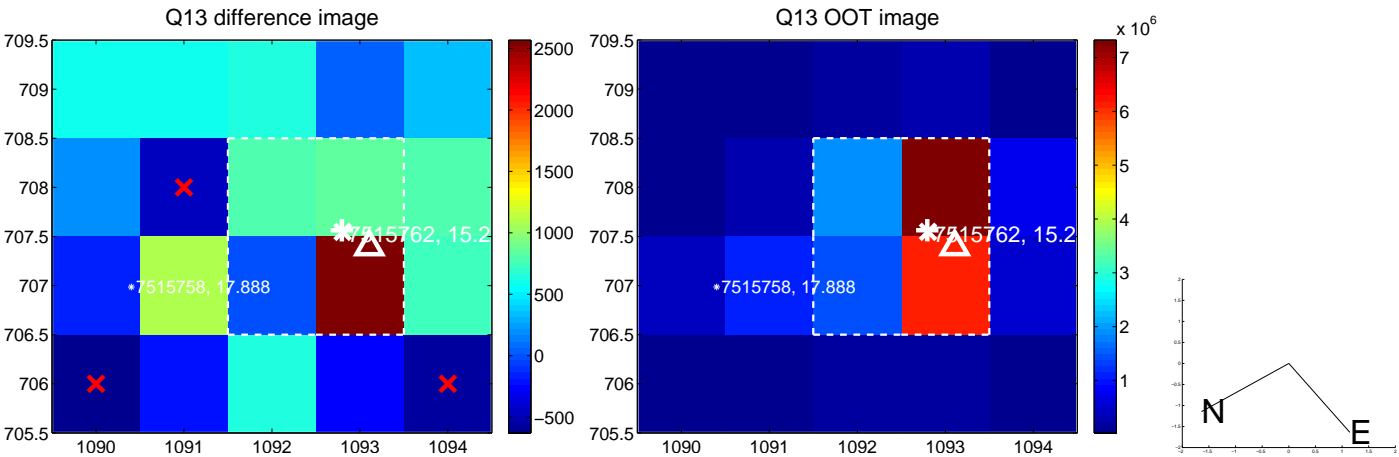
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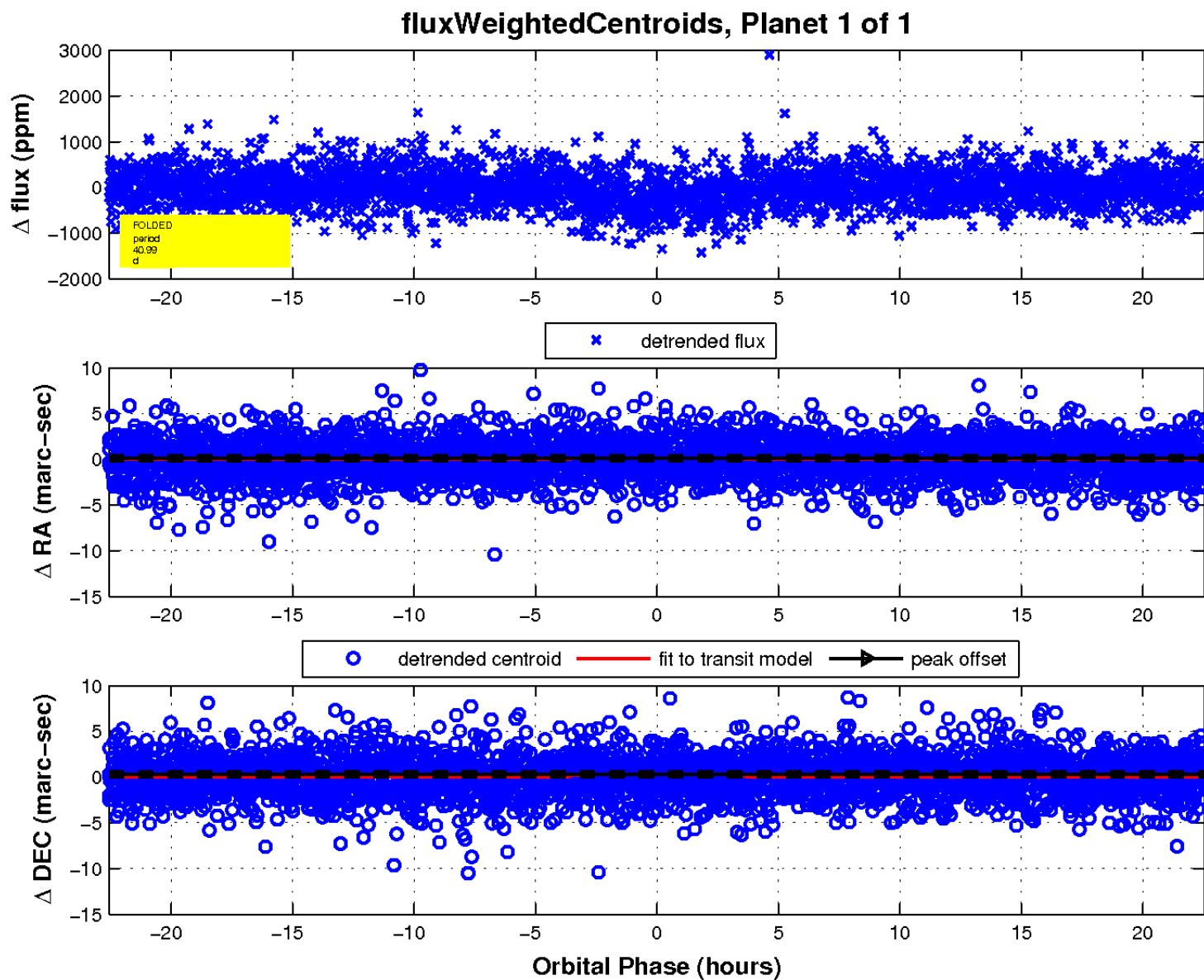
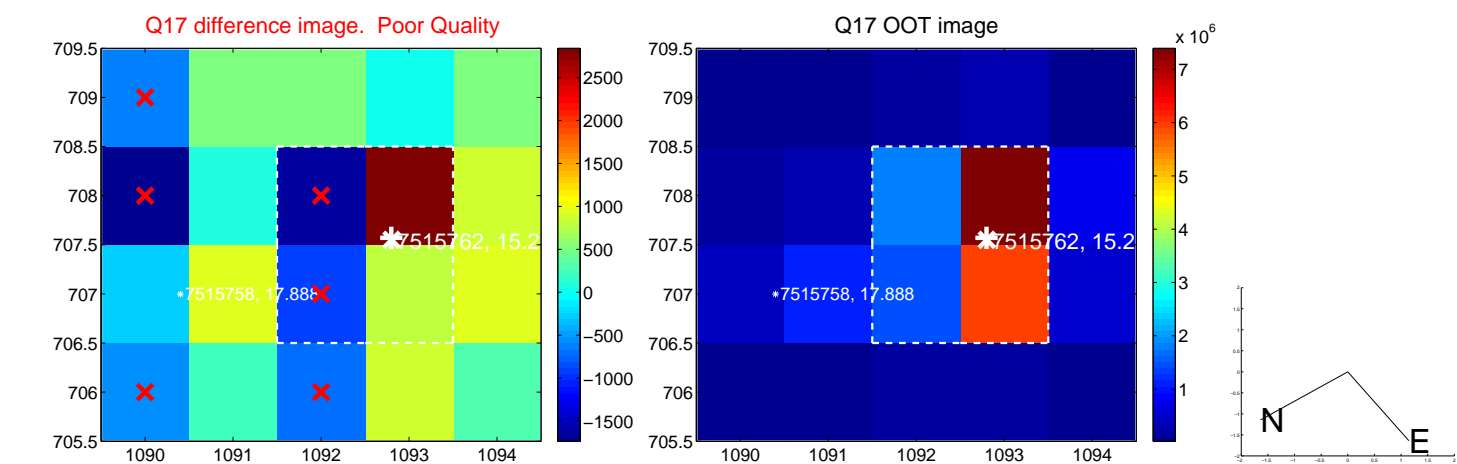


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

