

# KIC 009635606

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009635606-01	OBS	2535.01	48.888199	153.824966	423.9	4.519	12.0	12.5	0.79	4821	1.61	5.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009635606-01	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.

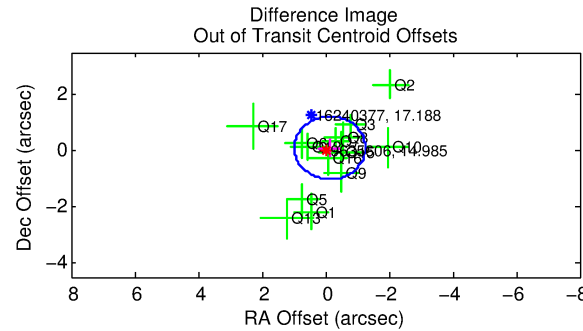
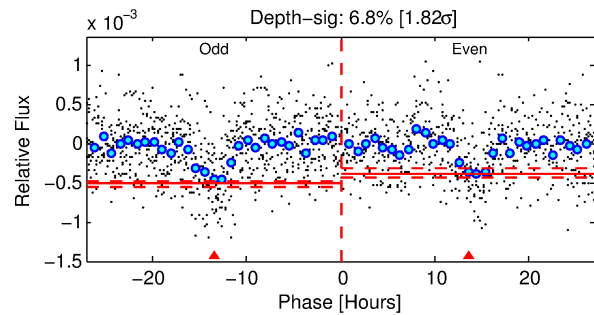
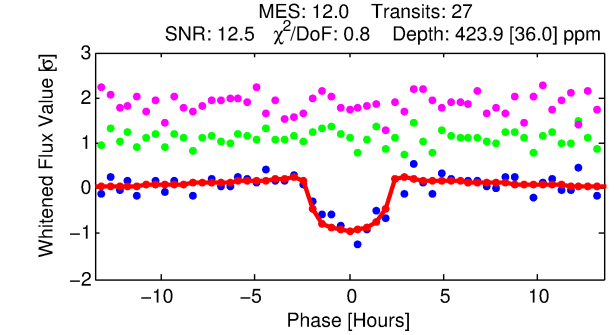
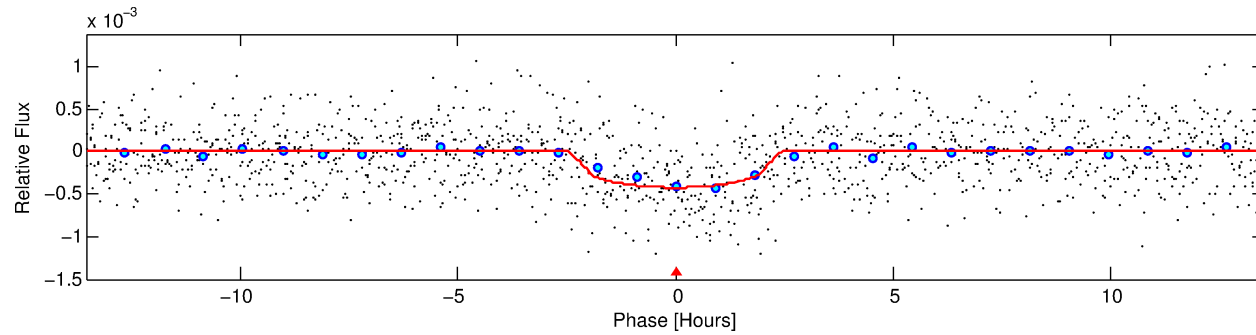
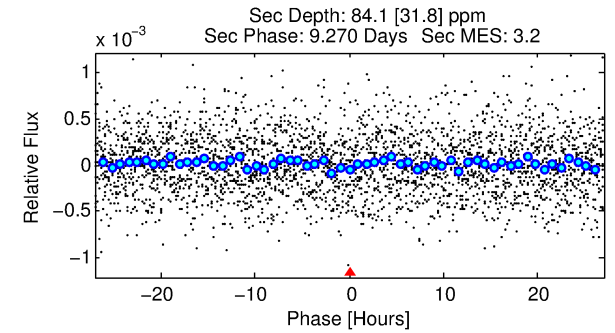
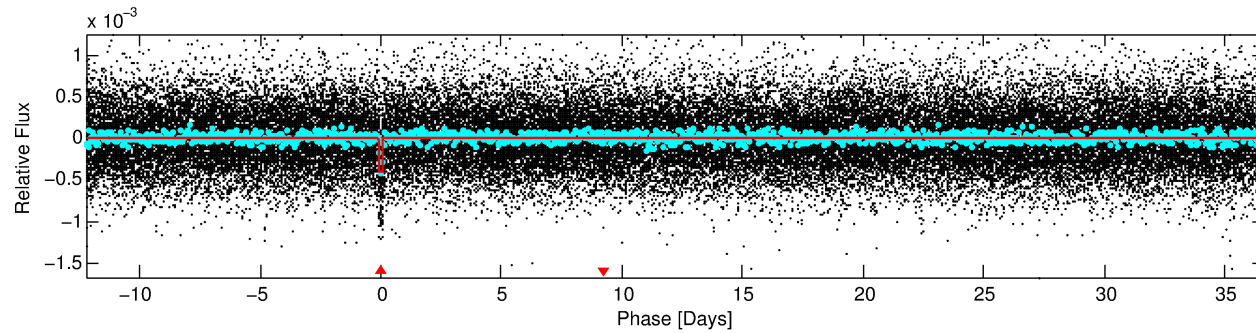
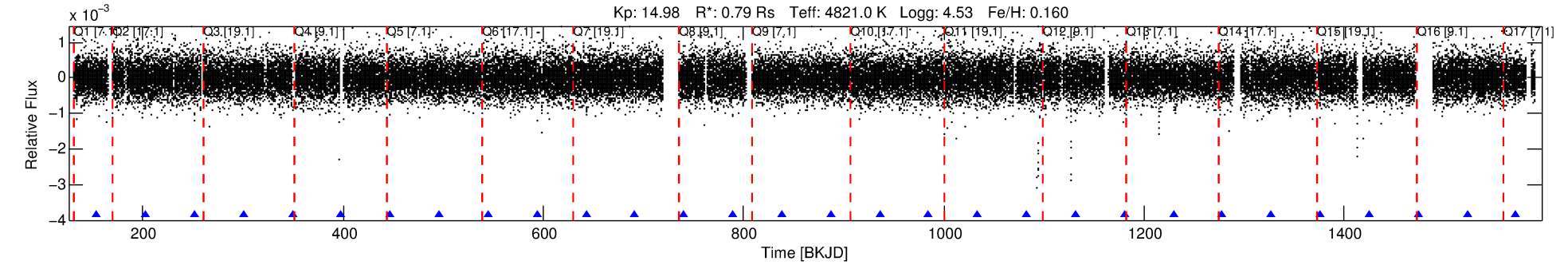
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009635606-01

No Significant Match Found

# DV One-Page Summary

KIC: 9635606 Candidate: 1 of 1 Period: 48.888 d  
KOI: K02535.01 Corr: 0.892



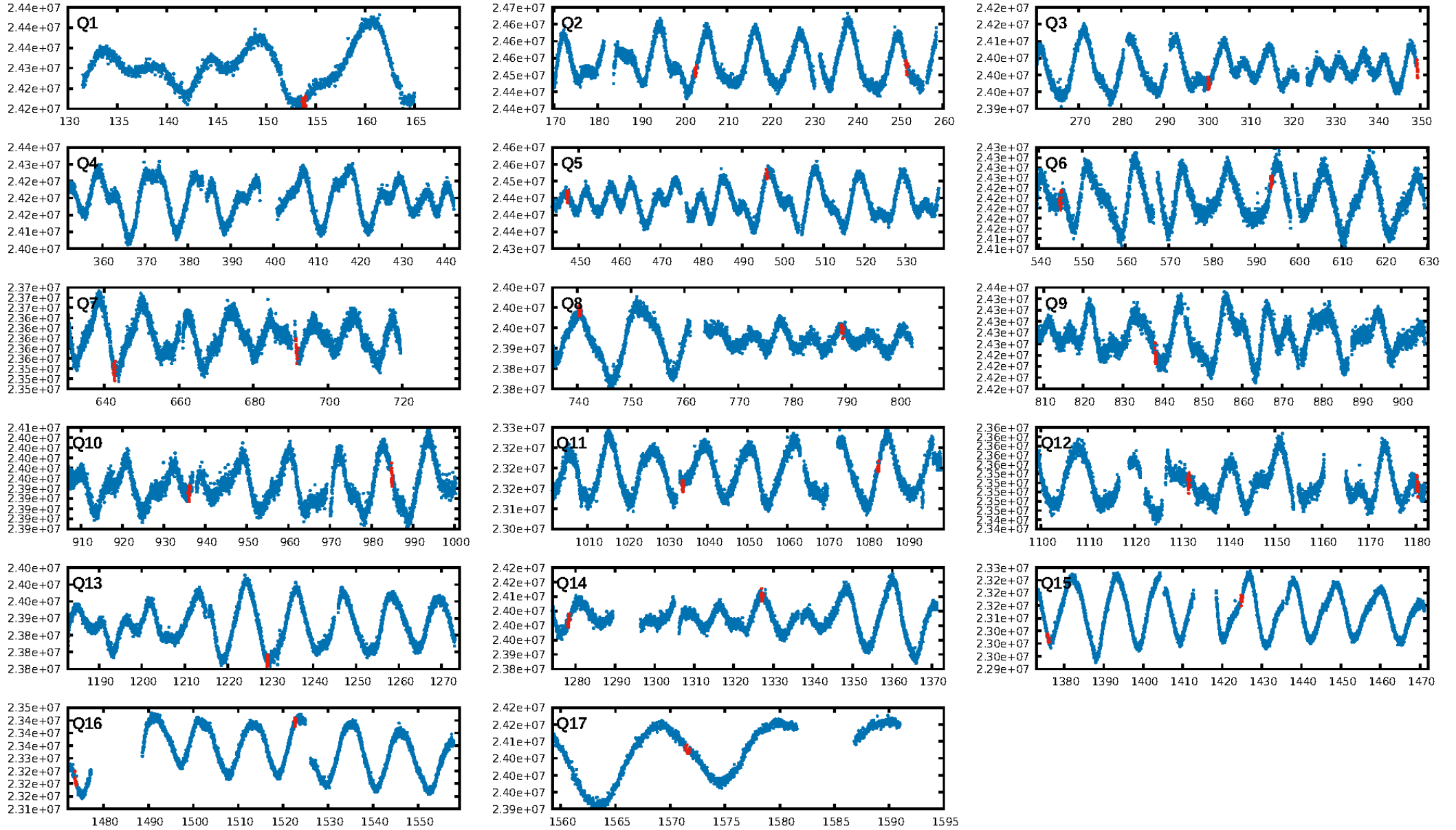
## DV Fit Results:

Period = 48.88820 [0.00039] d  
Epoch = 153.8250 [0.0066] BKJD  
Rp/R\* = 0.0187 [0.0186]  
a/R\* = 76.21 [237.55]  
b = 0.43 [5.97]  
Seff = 5.24 [0.62]  
Teff = 386 [11] K  
Rp = 1.61 [1.60] Re  
a = 0.2394 [0.0144] AU  
Ag = 1023.81 [2068.09] [0.49σ]  
Teffp = 3374 [1703] K [1.76σ]

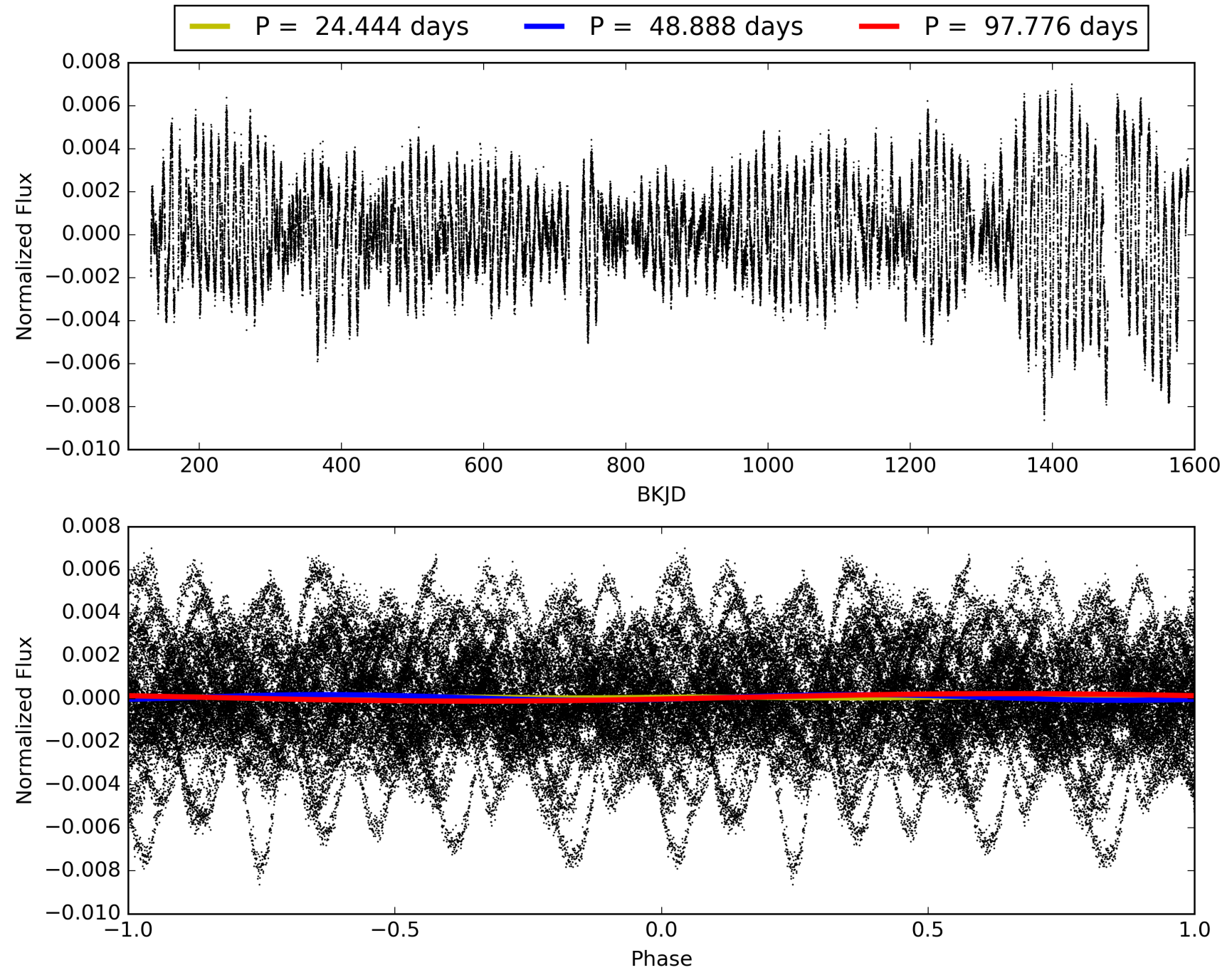
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 64.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.01e-27  
RollingBand-fgt: 1.00 [25/25]  
GhostDiagnostic-chr: 2.139  
Centroid-sig: N/A  
Centroid-so: 0.384 arcsec [0.48σ]  
OotOffset-rm: 0.167 arcsec [0.45σ]  
KicOffset-rm: 0.215 arcsec [0.72σ]  
OotOffset-st: 3/3/3/5 [14]  
KicOffset-st: 3/3/3/5 [14]  
DiffImageQuality-fgm: 0.93 [13/14]  
DiffImageOverlap-fno: 1.00 [15/15]

# TCE 009635606-01, PDC Light Curves

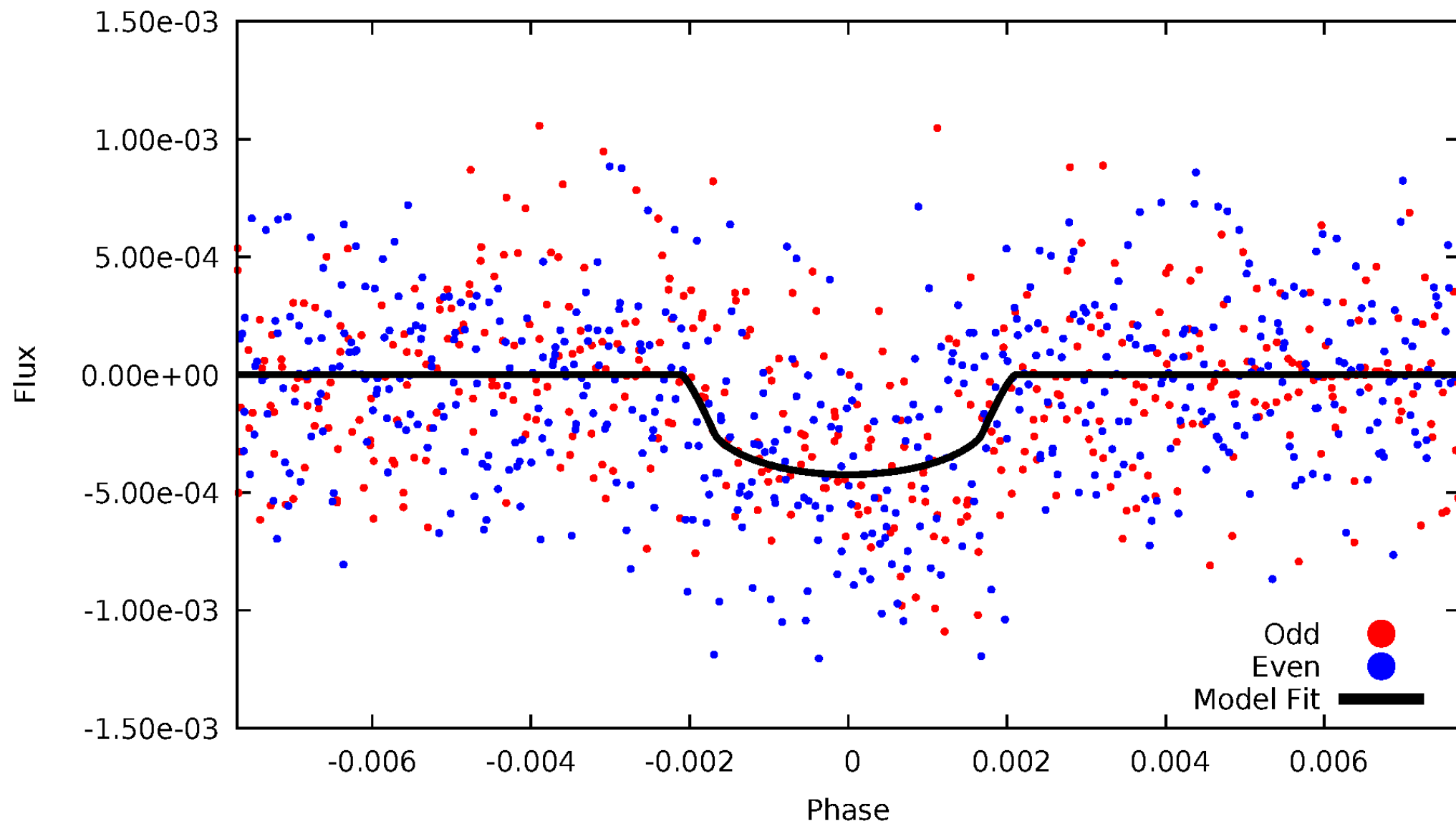


# TCE 009635606-01



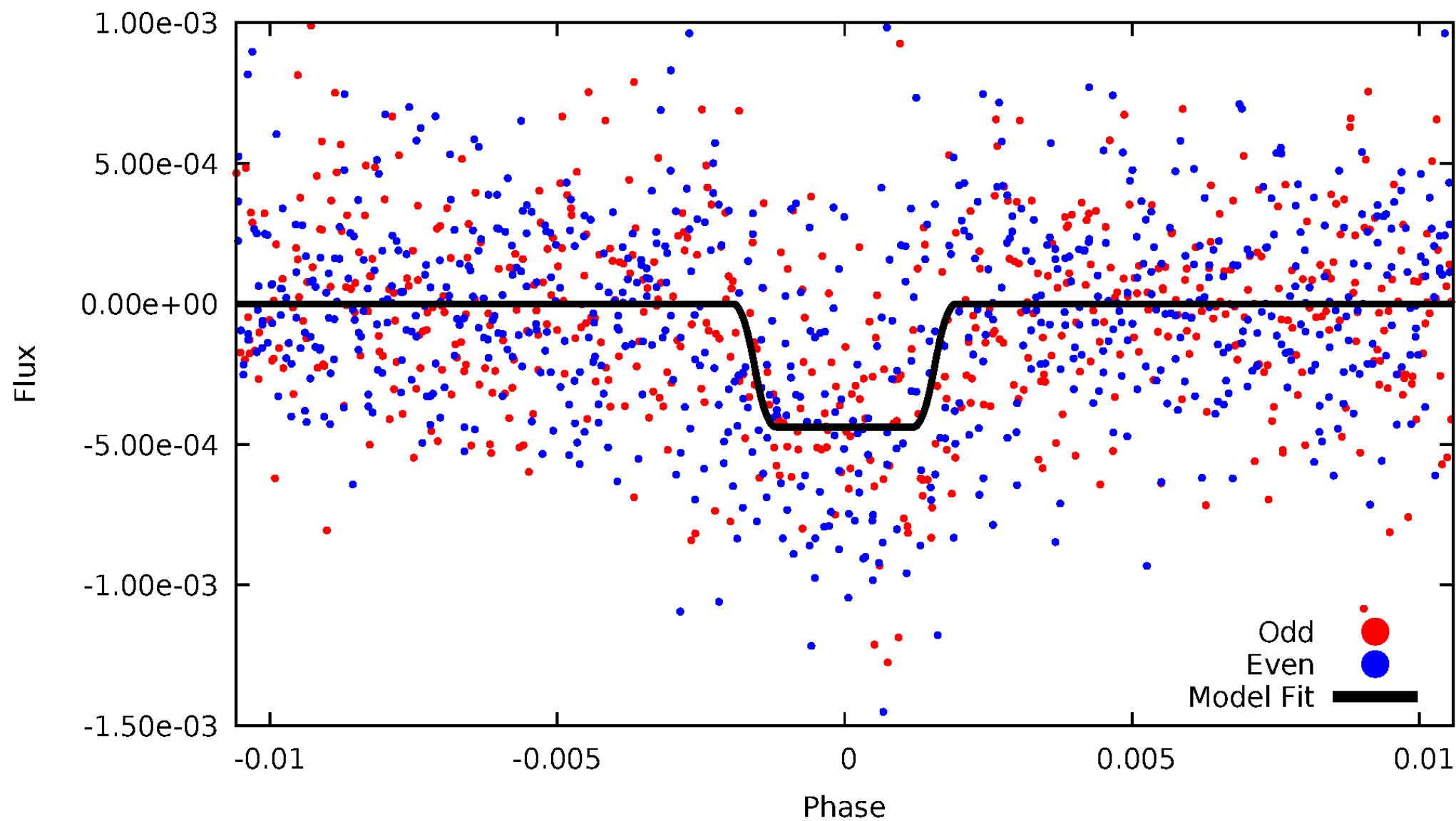
# DV Odd/Even

TCE 009635606-01



# ALT Odd/Even

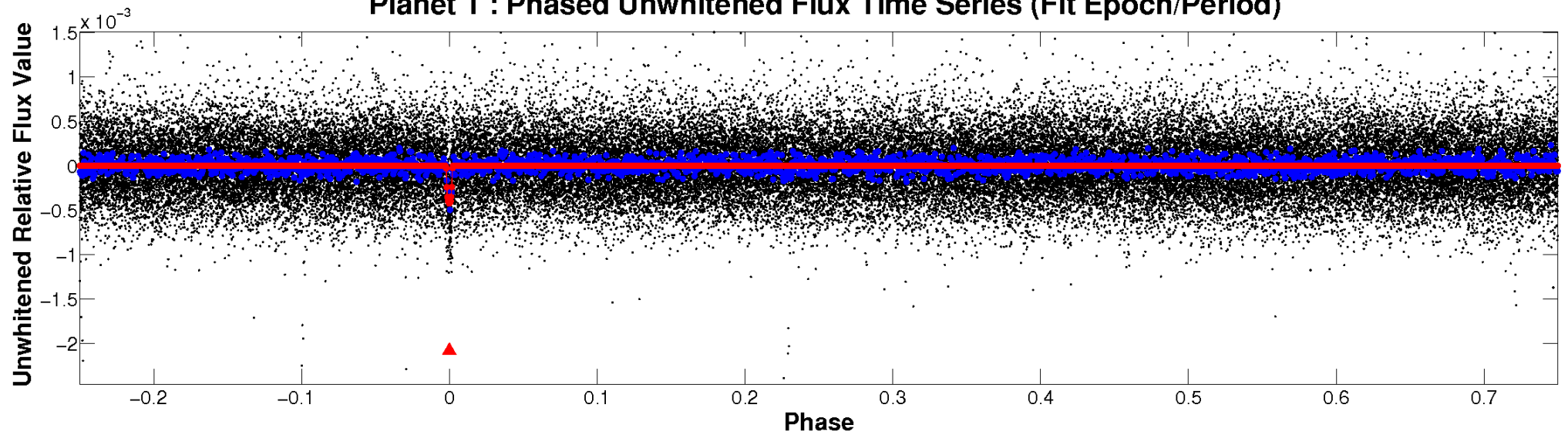
TCE 009635606-01



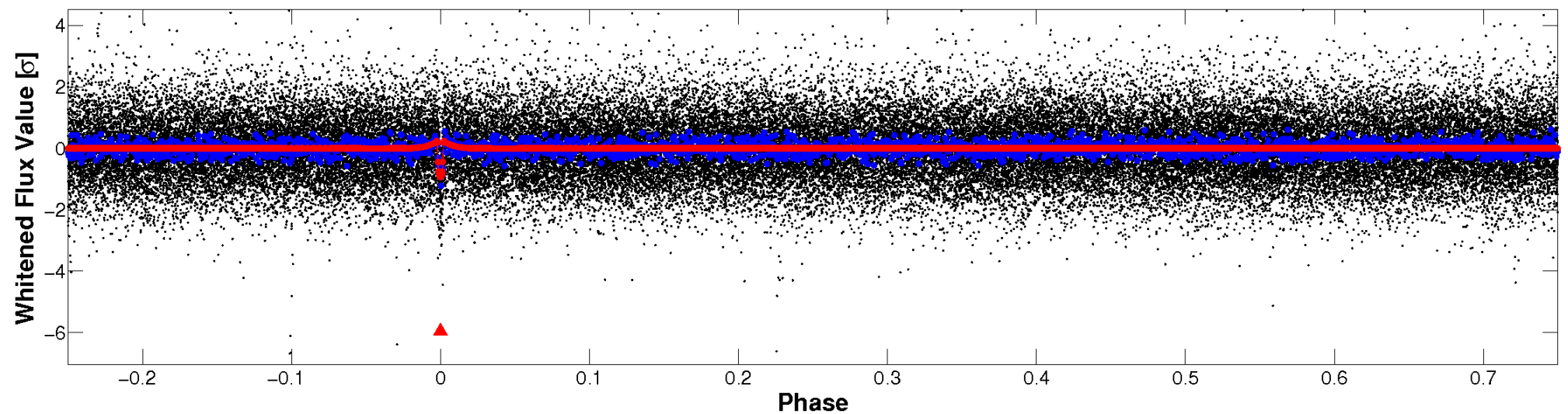


# Non-Whitened Vs. Whitened Light Curve

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

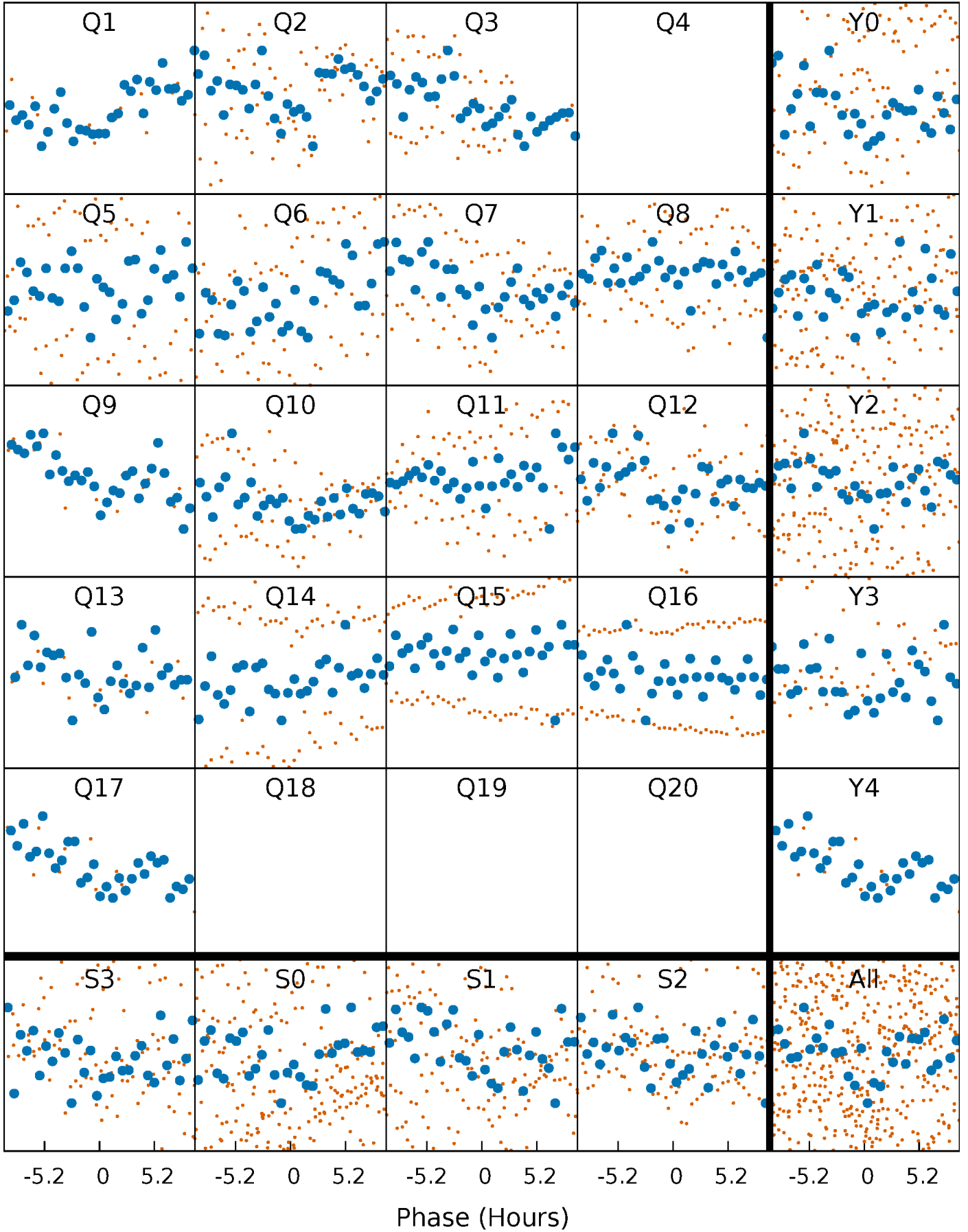


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

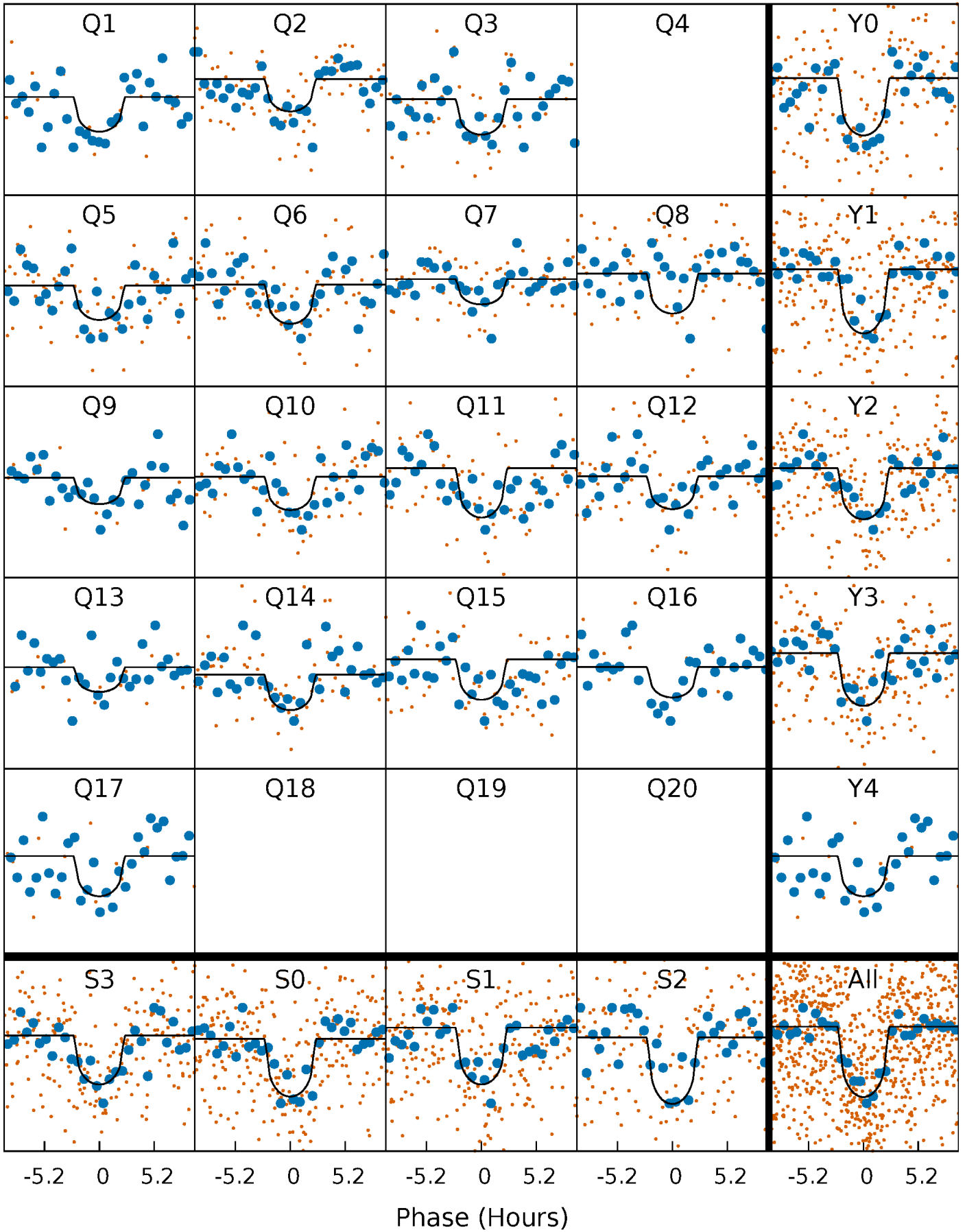
TCE 009635606-01   P= 48.888199 Days    $T_0=153.824966$  (BKJD)





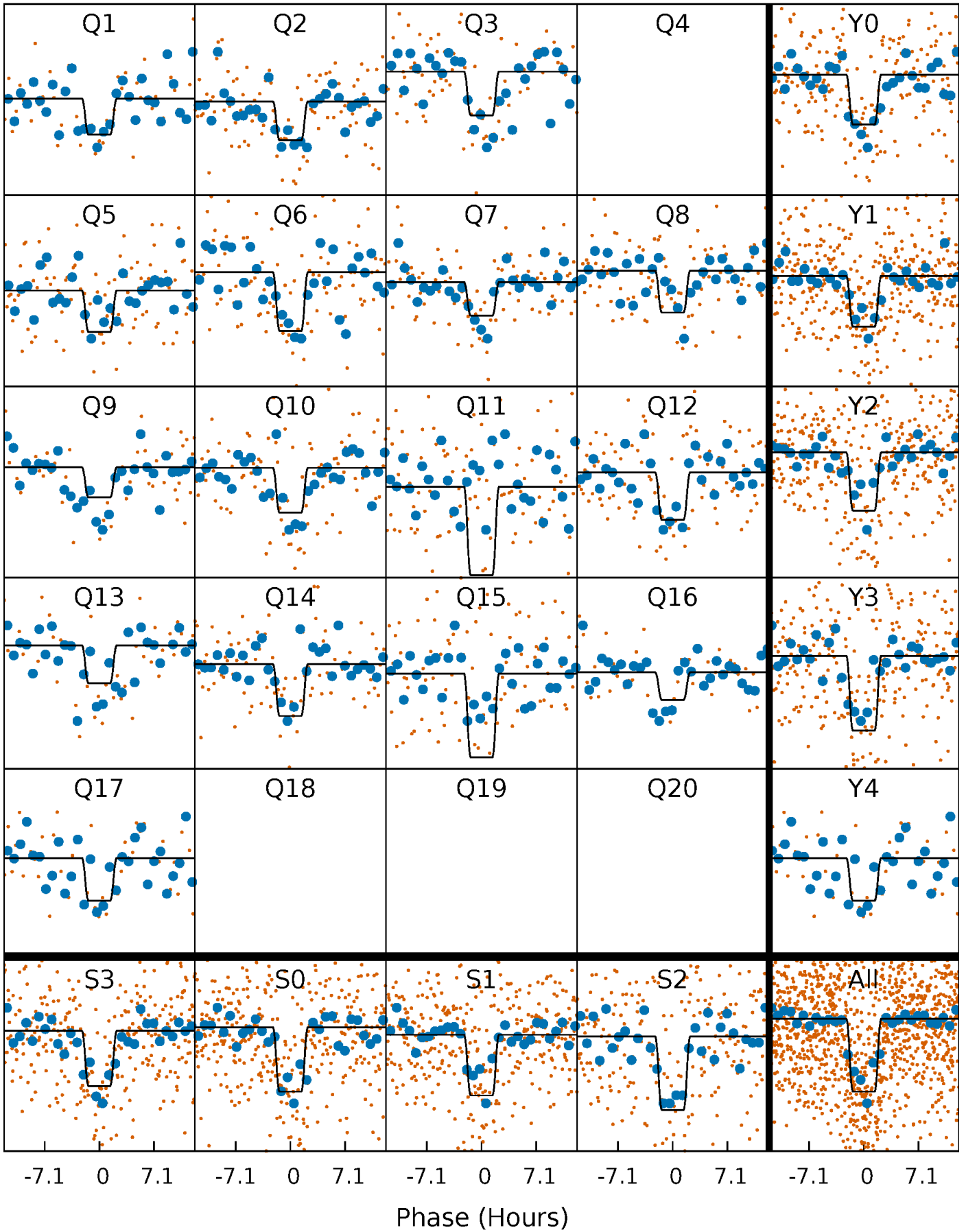
# DV Quarter-Phased Transit Curves

TCE 009635606-01 P= 48.888199 Days  $T_0=153.824966$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

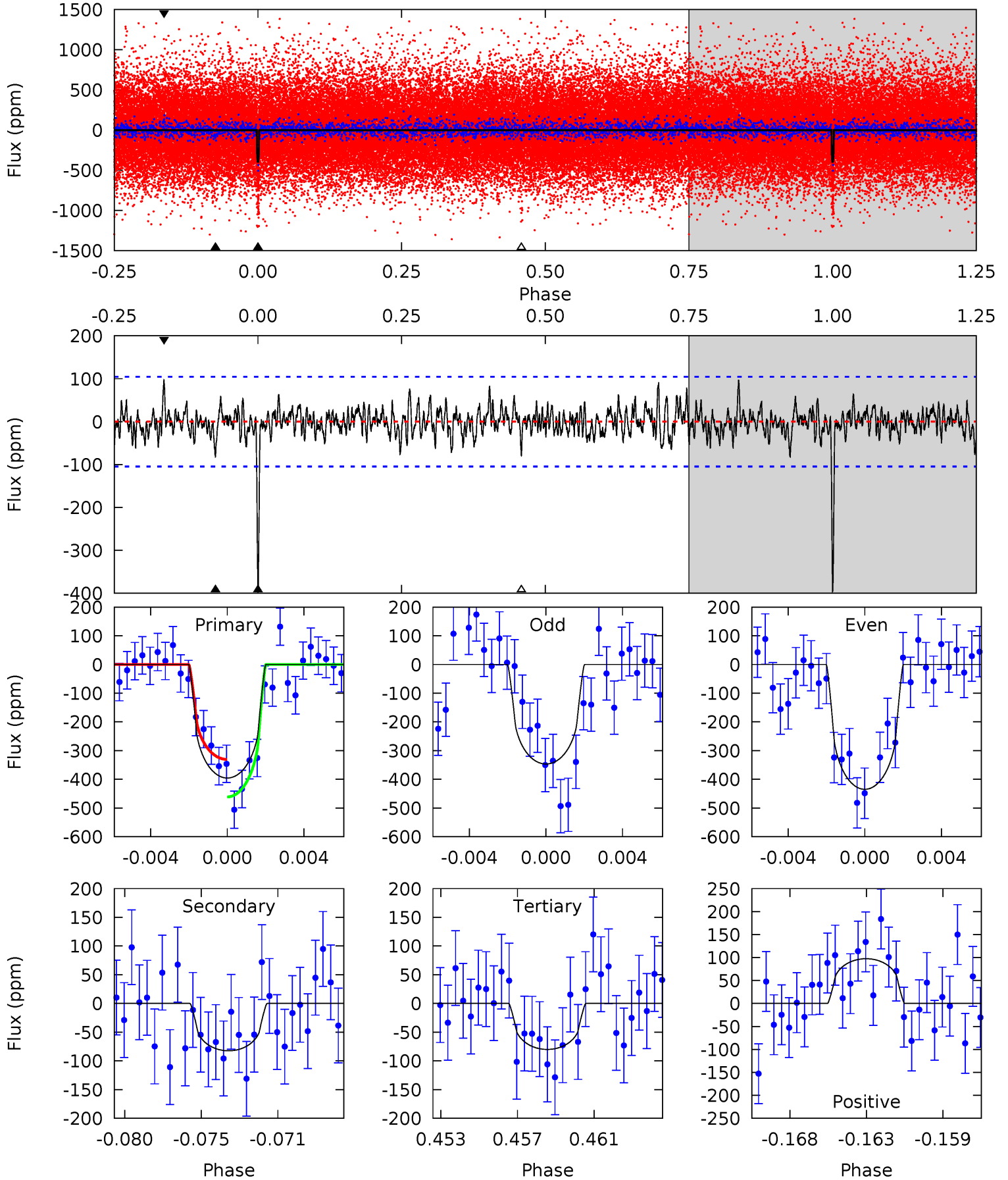
TCE 009635606-01 P= 48.888442 Days  $T_0=153.827265$  (BKJD)



# DV Model-Shift Uniqueness Test

009635606-01,  $P = 48.888199$  Days,  $E = 104.936767$  Days

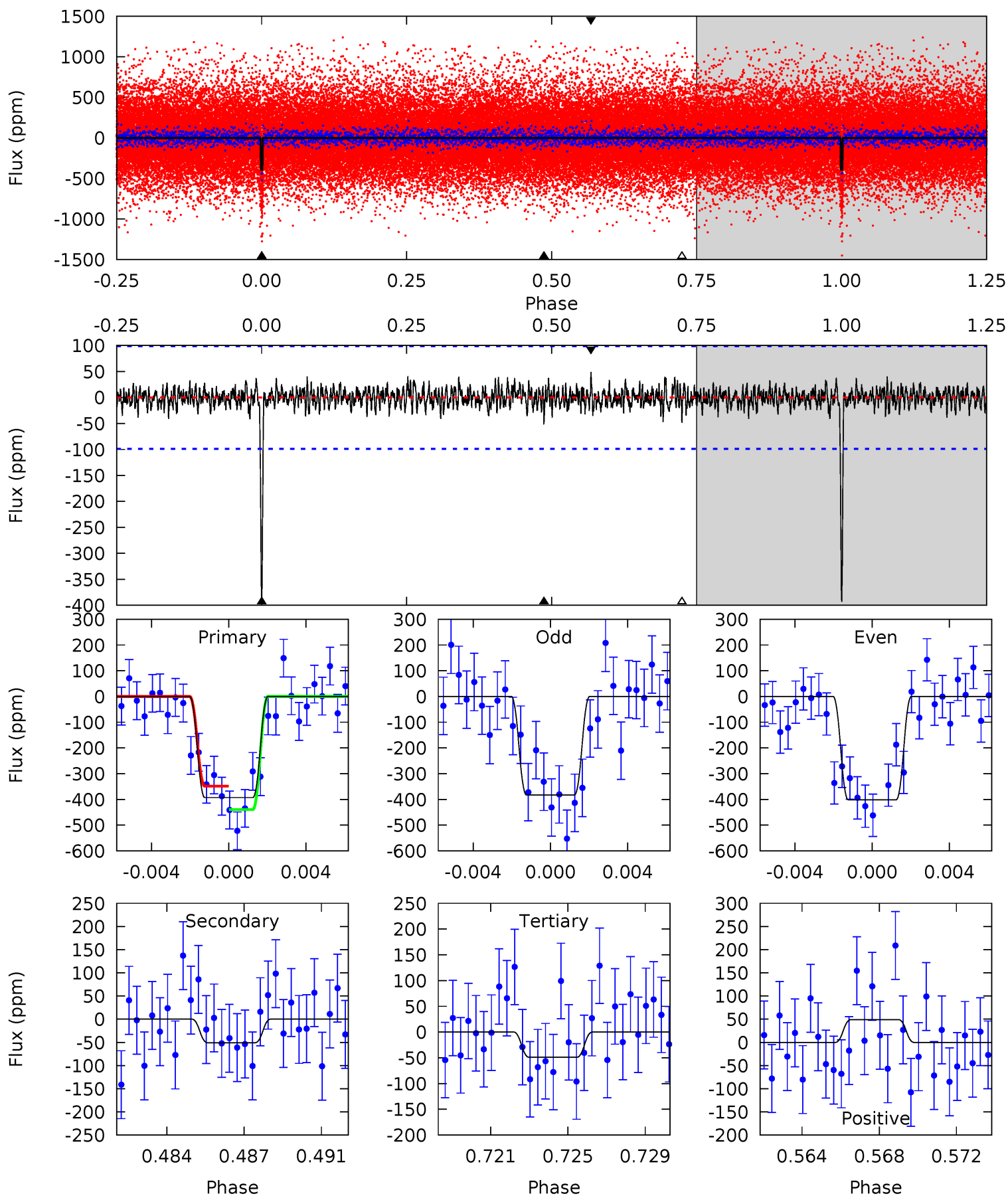
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.6	4.09	3.97	4.83	5.19	2.86	1.28	15.7	14.8	0.12	-0.74	2.18	0.87	0.20	3.25



# Alt Model-Shift Uniqueness Test

009635606-01, P = 48.888442 Days, E = 104.938823 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
20.7	2.67	2.58	2.58	5.21	2.89	0.74	18.1	18.1	0.10	0.09	0.50	0.95	0.11	2.39



### Stellar Parameters For KIC 009635606

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4821^{+76}_{-76}$	$4.529^{+0.060}_{-0.020}$	$0.160^{+0.150}_{-0.150}$	$0.788^{+0.027}_{-0.046}$	$0.765^{+0.051}_{-0.028}$	$2.204^{+0.461}_{-0.161}$
	+2%/-2%	+1%/-0%	+94%/-94%	+3%/-6%	+7%/-4%	+21%/-7%
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 009635606-01 / KOI 2535.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-82 \pm 20$	$1.89^{+1.47}_{-1.20}$	$536^{+10}_{-11}$	$3491^{+1618}_{-560}$	$735^{+5107}_{-504}$
Alt.	$-51 \pm 19$	$2.01^{+1.49}_{-1.25}$	$535^{+11}_{-11}$	$3152^{+1194}_{-480}$	$379^{+2281}_{-269}$

$T_{max}$  = 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

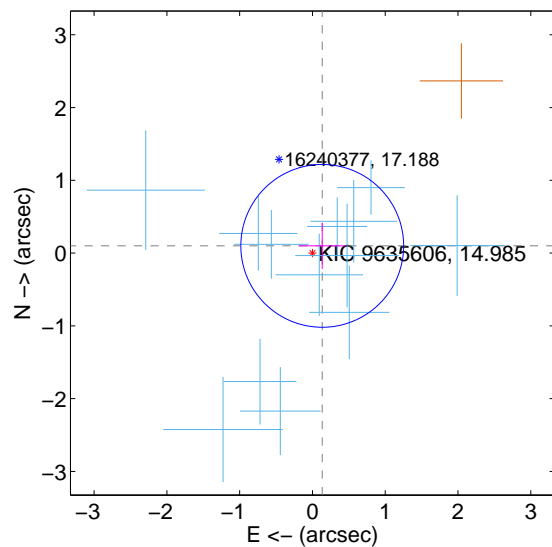
Supplemental centroid analysis for 009635606-01. Kepler magnitude: 14.98. Transit SNR 12.47

There are 13 quarters with good PRF difference image offsets

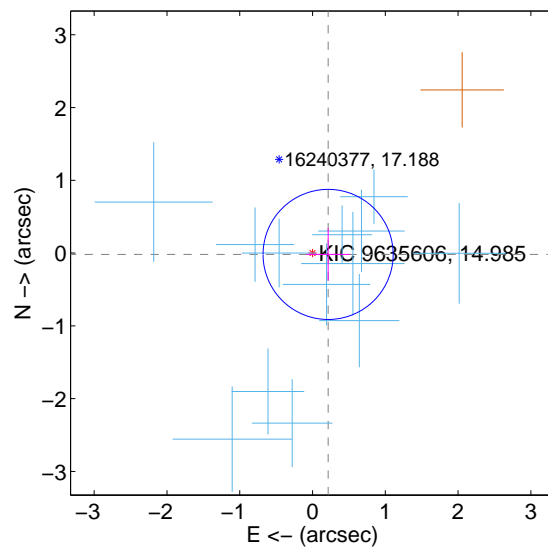
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.167 \pm 0.373$	0.45	$-0.135 \pm 0.325$	$0.099 \pm 0.318$
PRF-fit source offset from KIC position	$0.215 \pm 0.298$	0.72	$-0.214 \pm 0.297$	$-0.018 \pm 0.360$
photometric centroid source offset	$0.38 \pm 0.80$	0.48	$0.10 \pm 0.85$	$0.37 \pm 0.79$

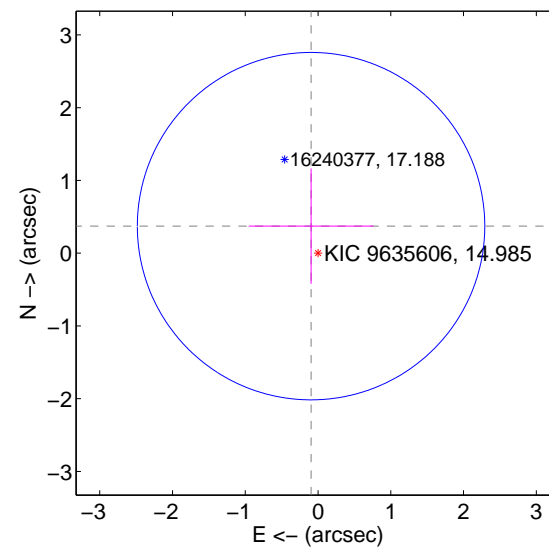
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



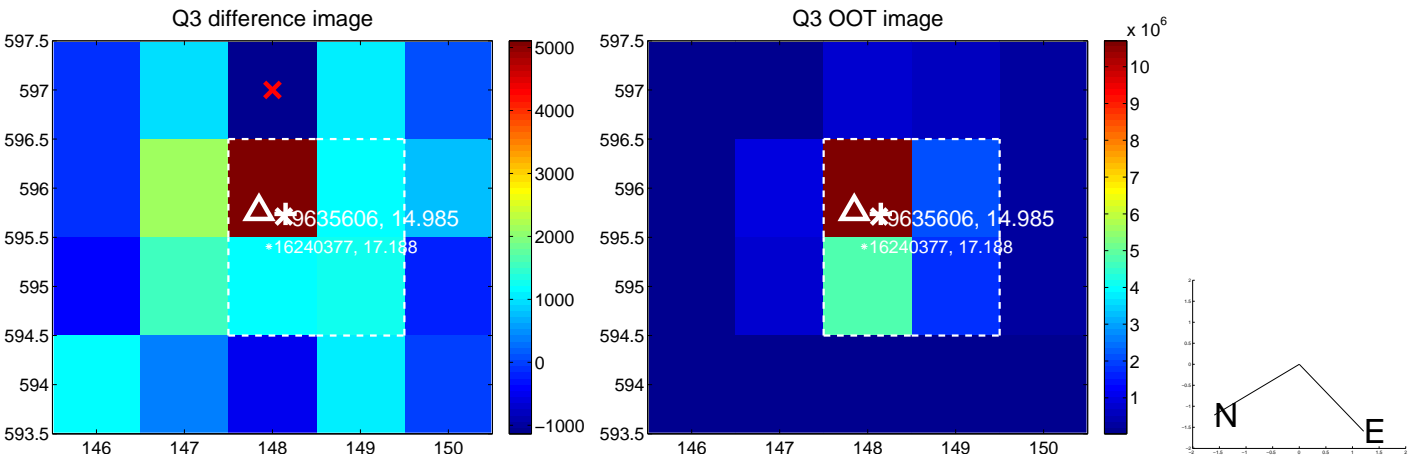
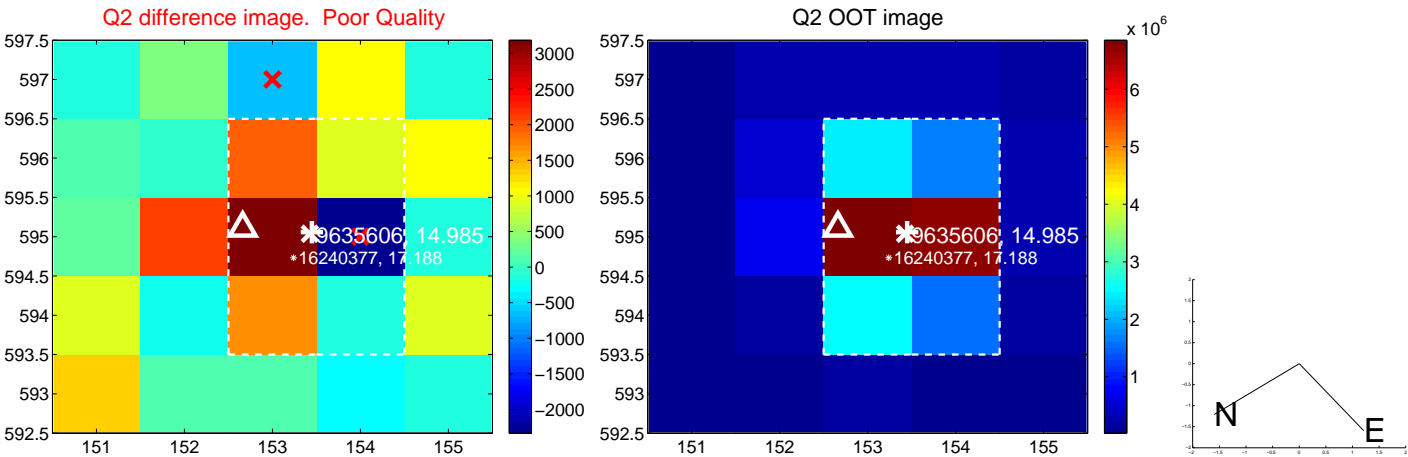
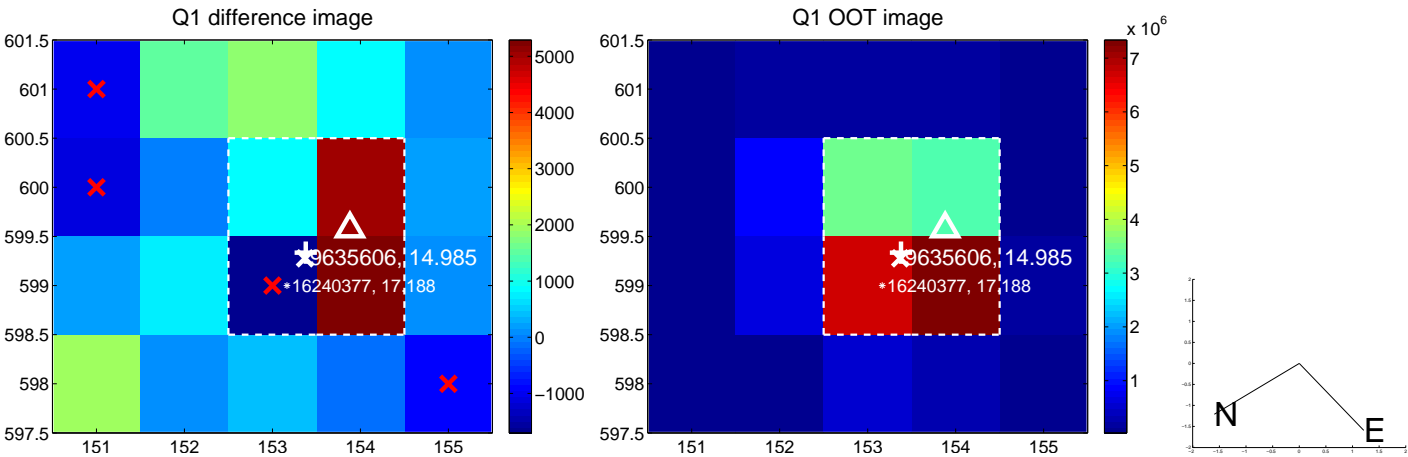
offset from photometric centroids



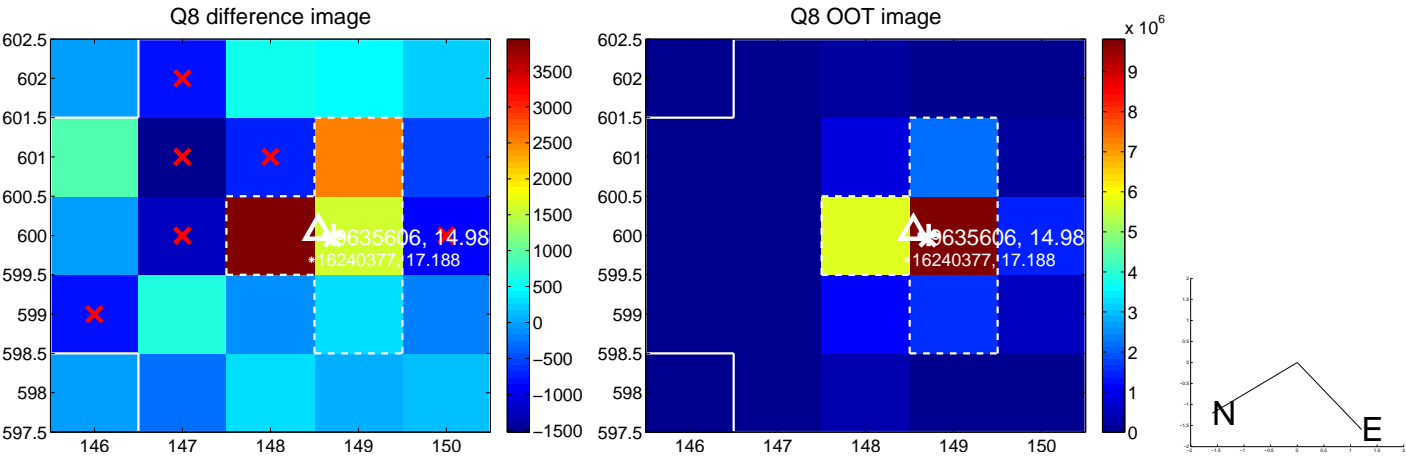
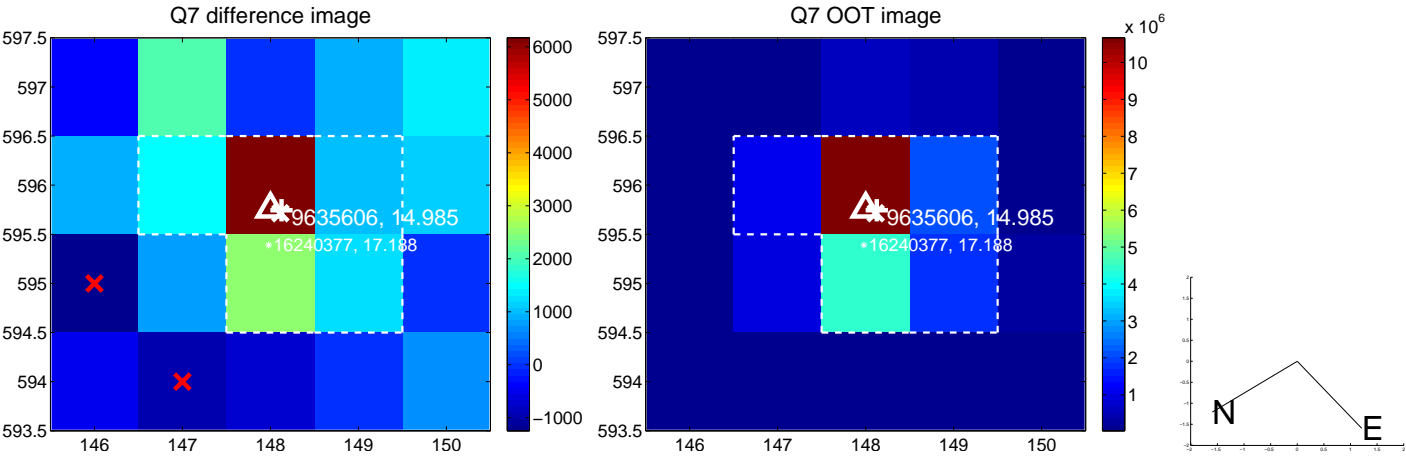
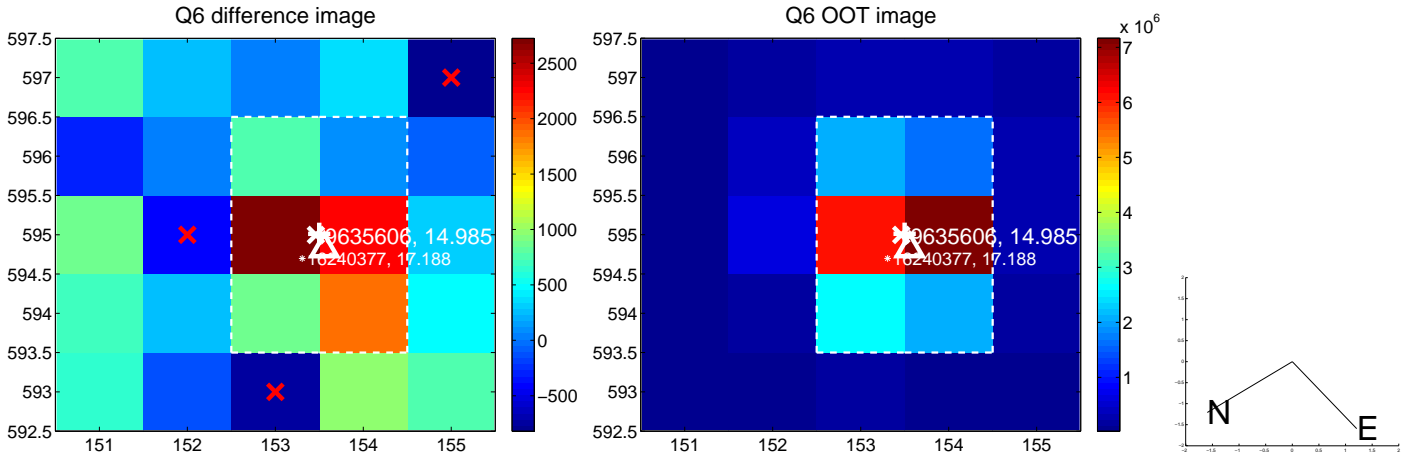
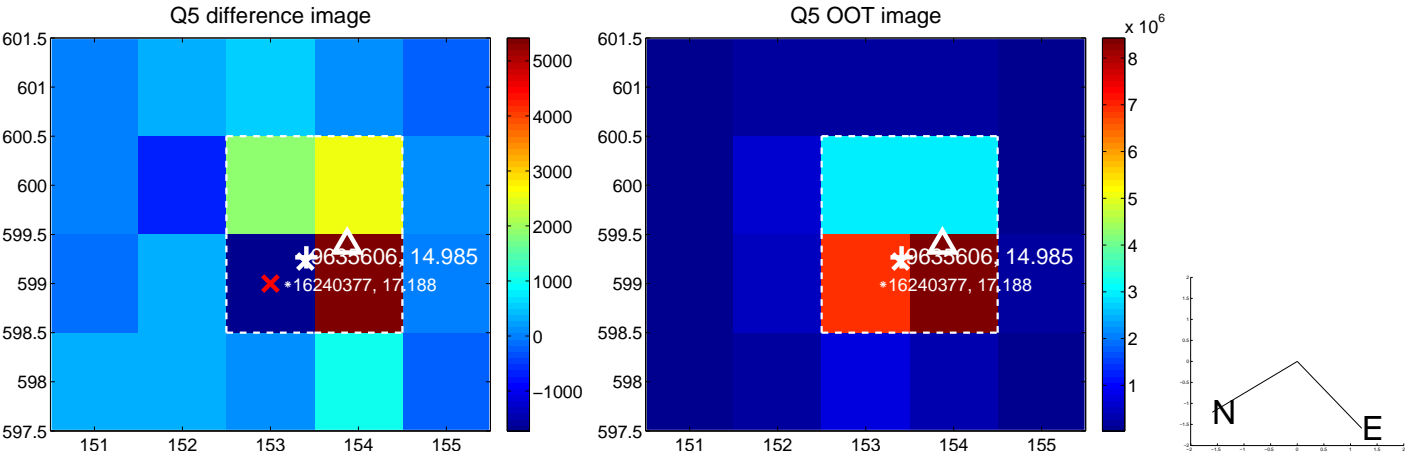
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



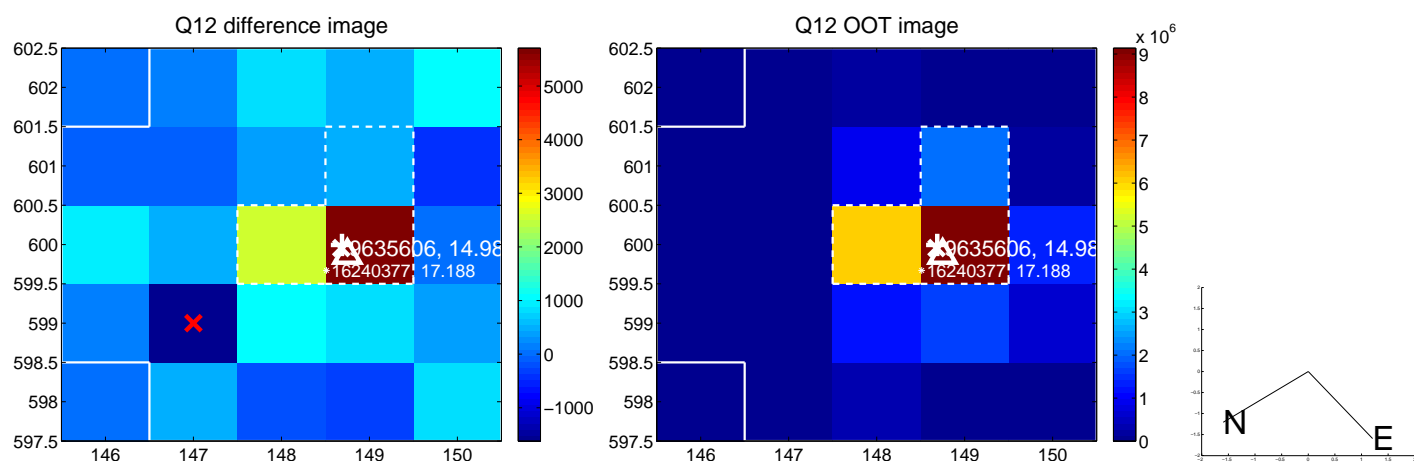
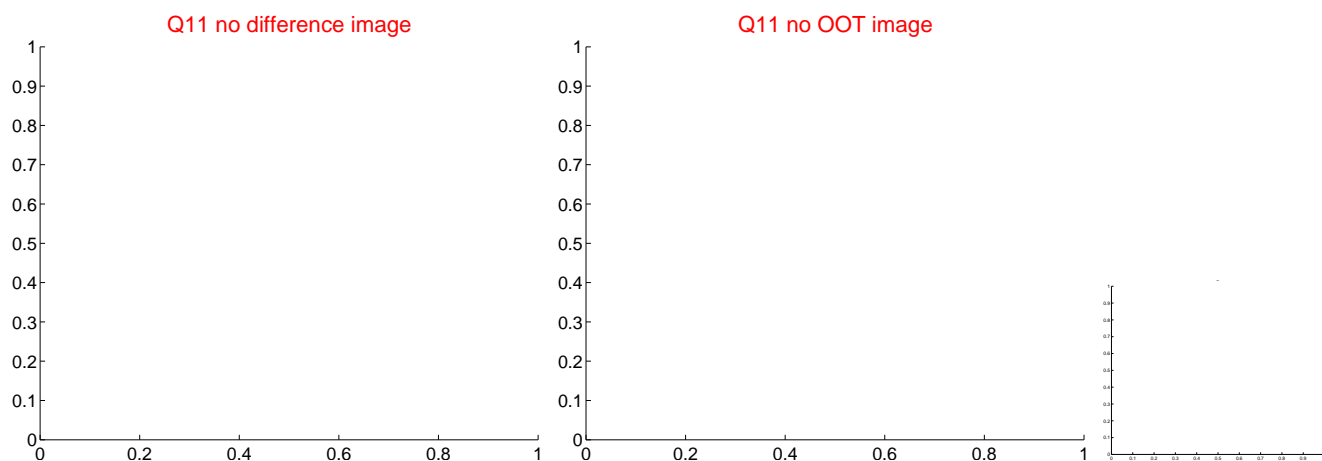
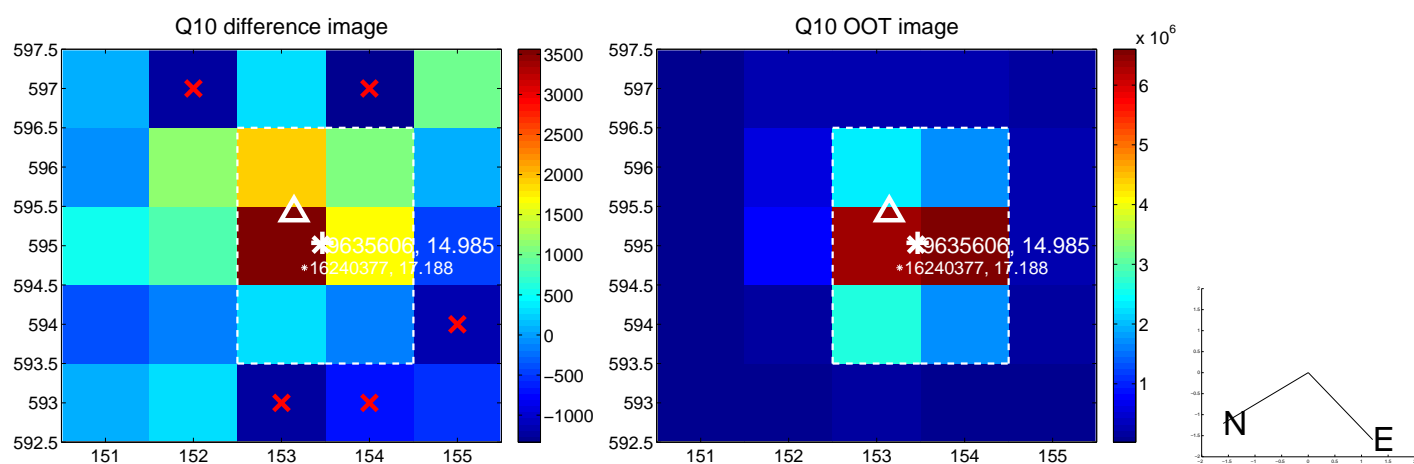
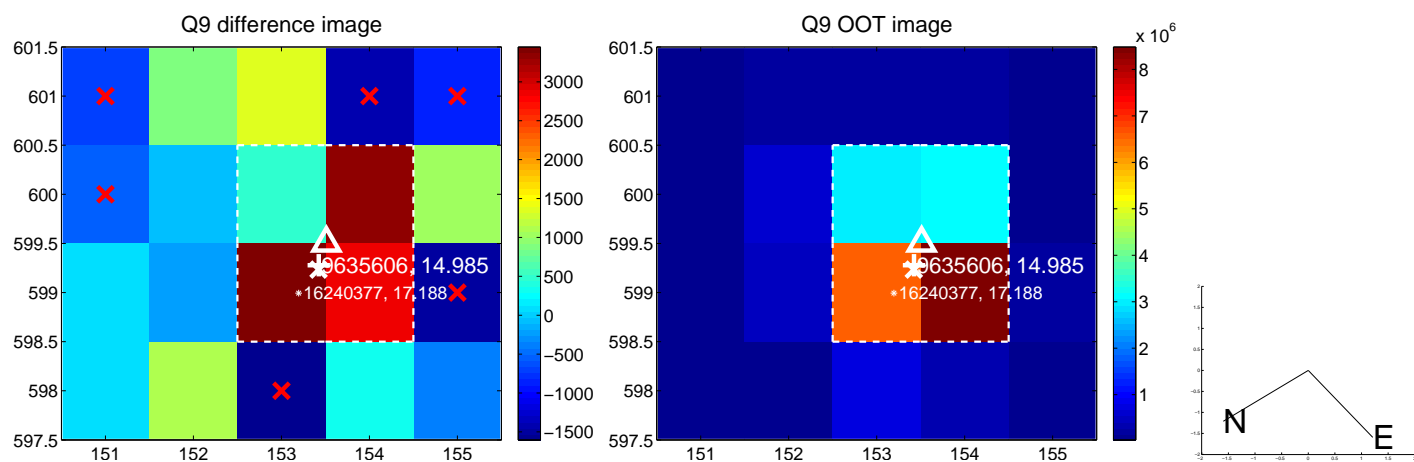
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



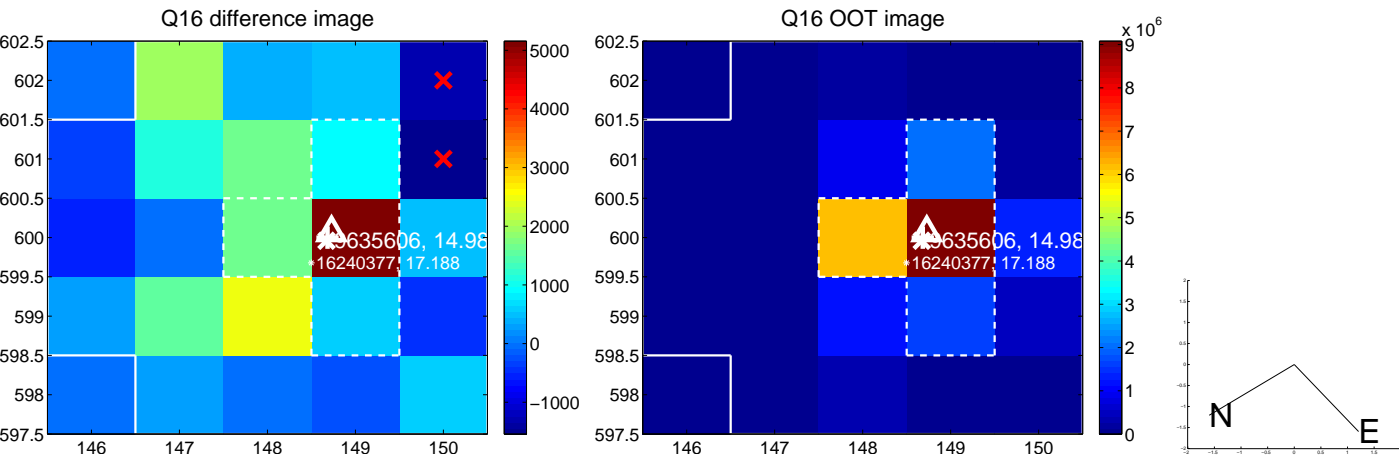
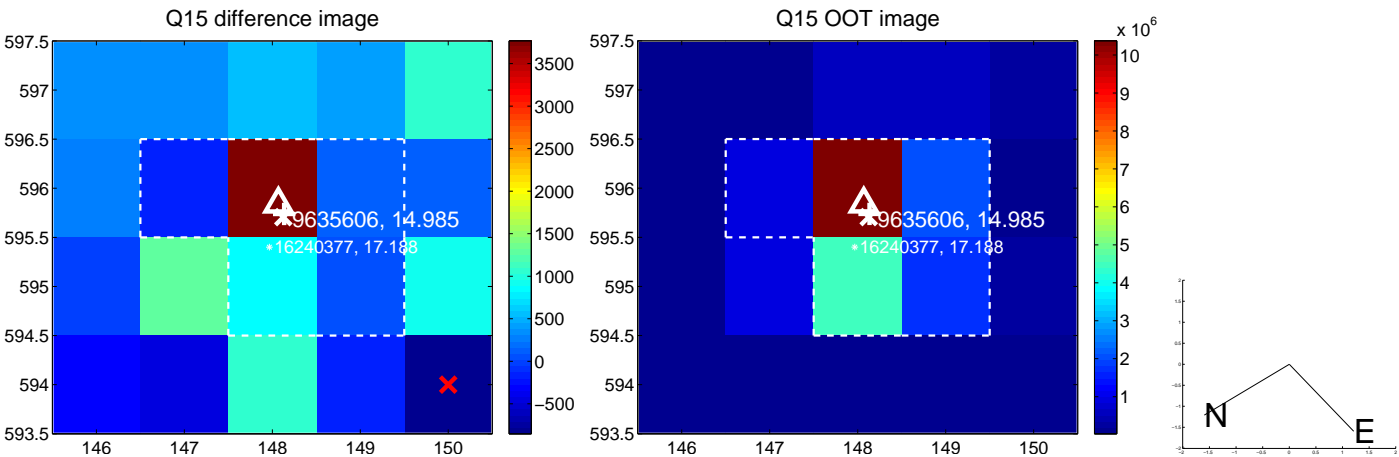
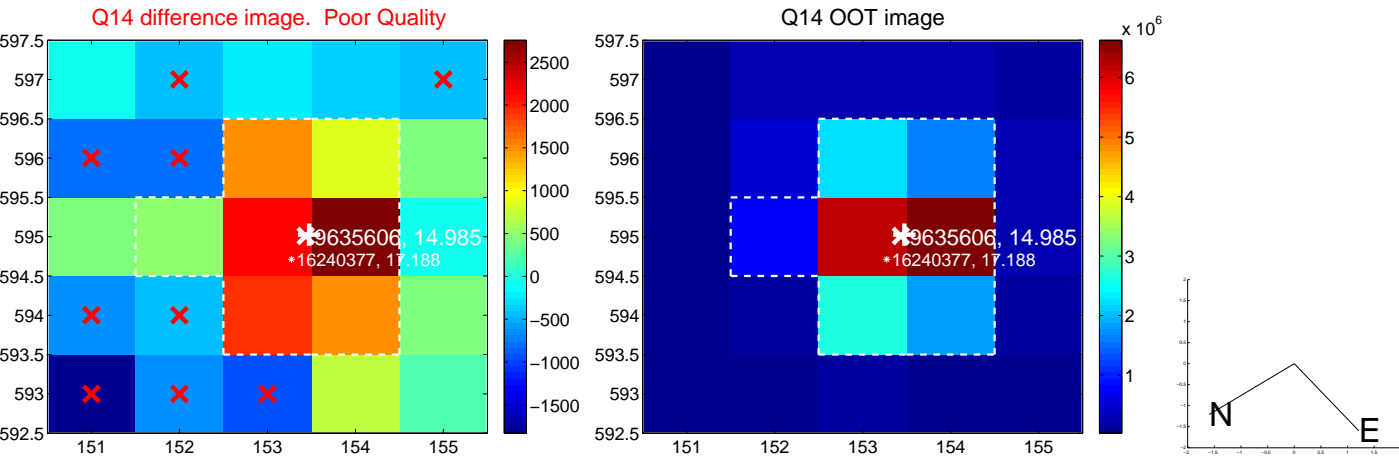
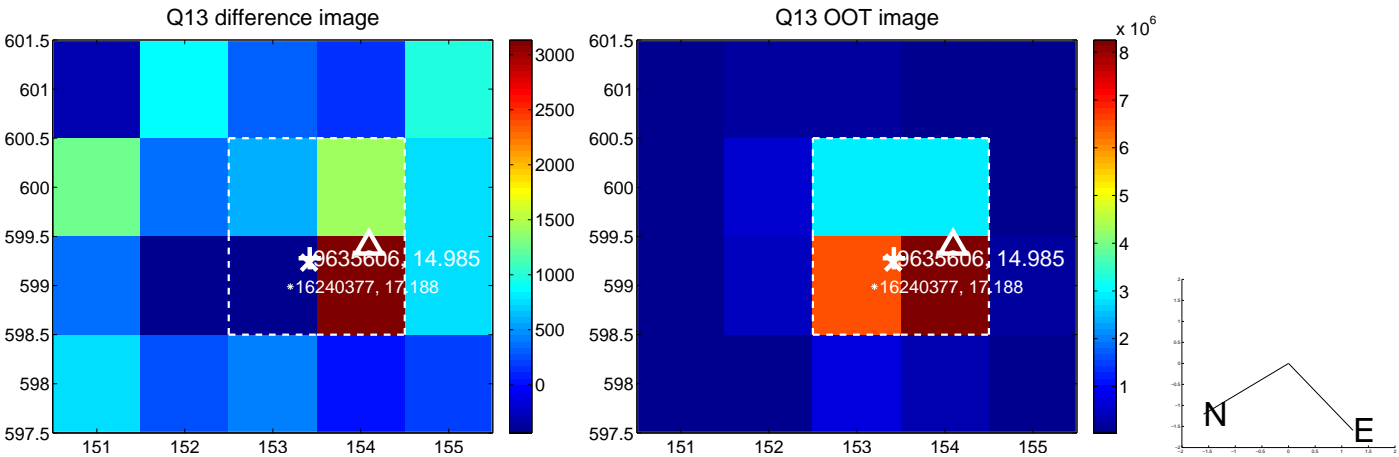
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



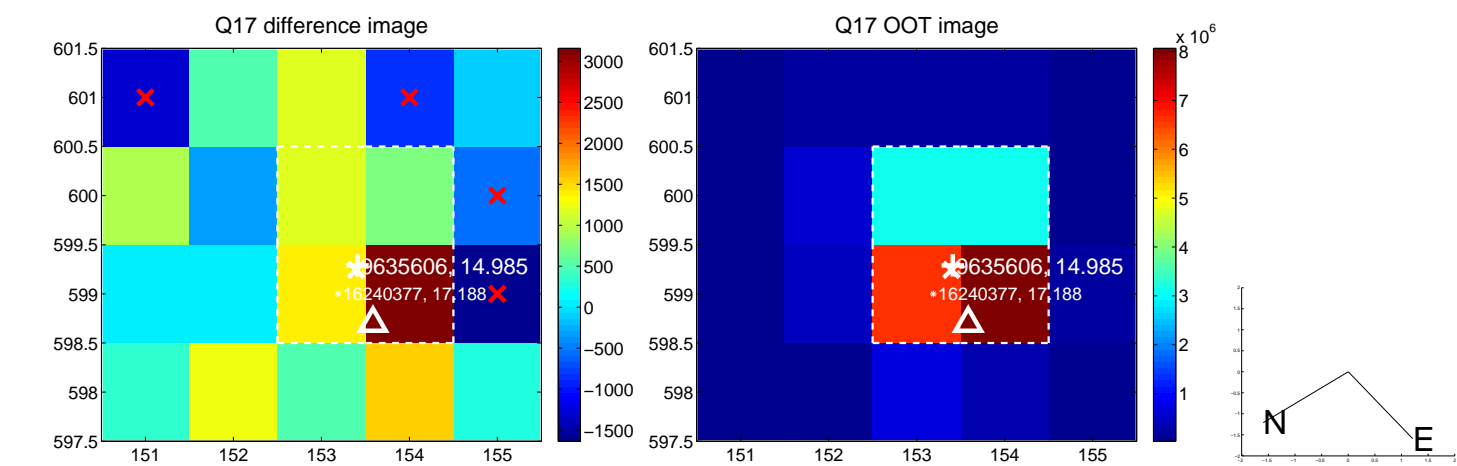
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



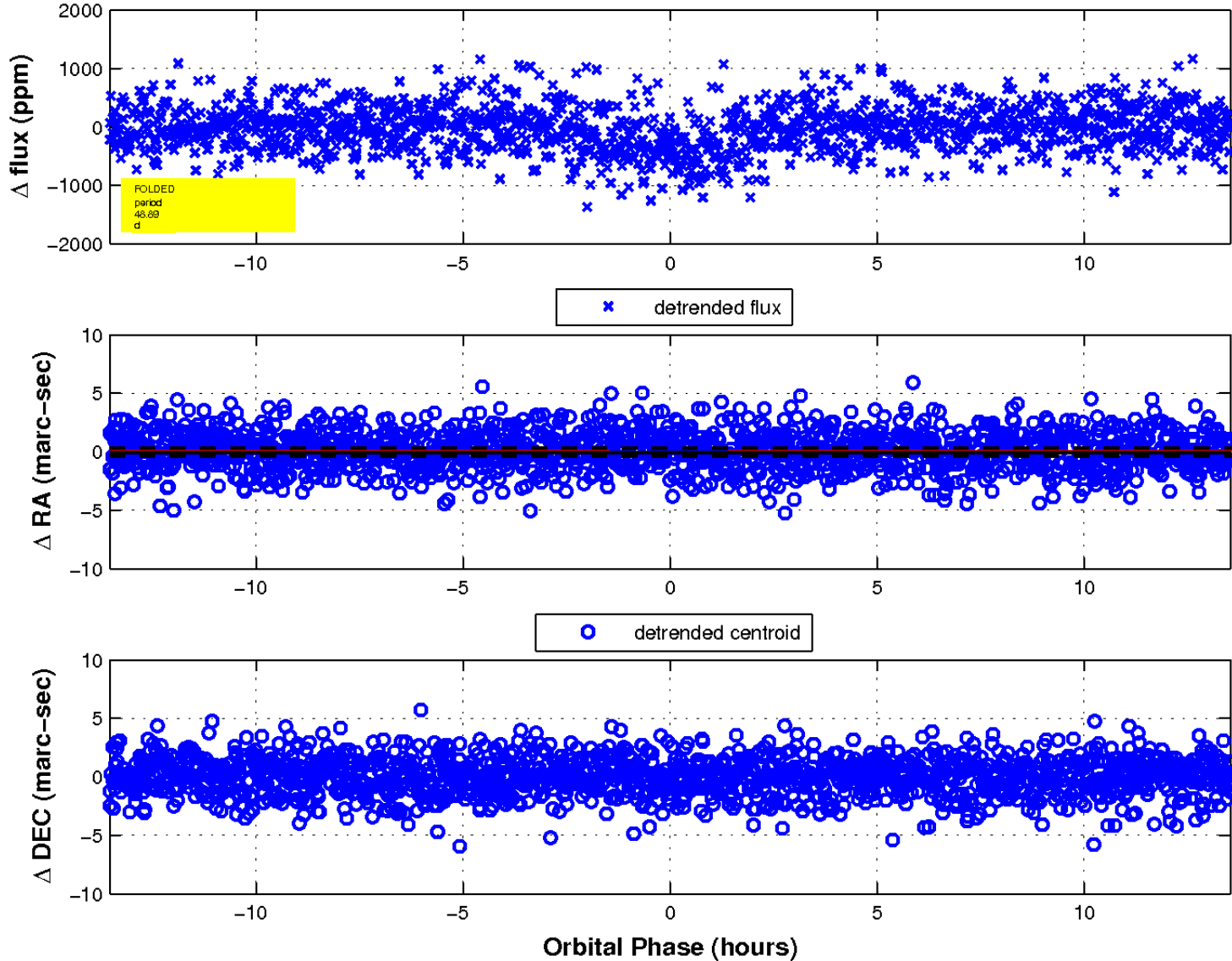
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



This astronomical image displays a field of stars against a dark background. A blue grid is overlaid on the image, with green numerical labels indicating coordinates. The labels are arranged in two rows at the bottom: the top row shows '02.0', '01.0', '18:59:00.0', '59.0', '58.0', and '57.0'; the bottom row shows '00.0', '10.0', '20.0', '46.22', '30.0', and '40.0'. The stars are concentrated in the central region, with a prominent bright star at the center. The grid lines are spaced at intervals of 1.0 unit in the horizontal direction and 10.0 units in the vertical direction.

Declination