

# KIC 011824786

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011824786-01	OBS	2371.01	12.941216	139.898594	325.6	4.806	18.9	19.3	0.94	6119	1.92	94.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011824786-01	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.

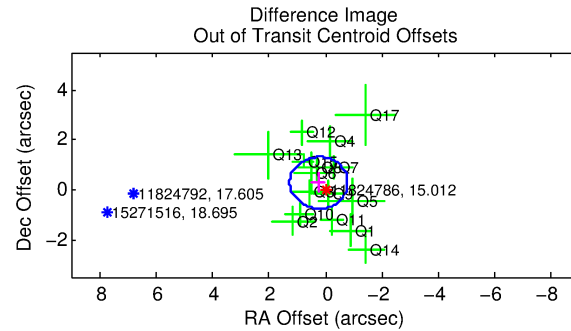
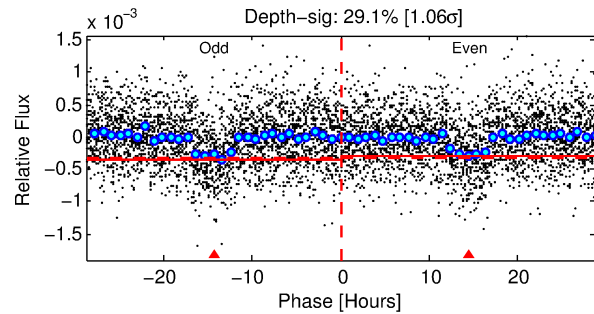
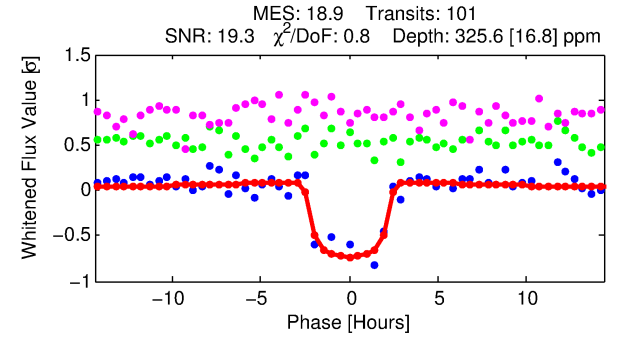
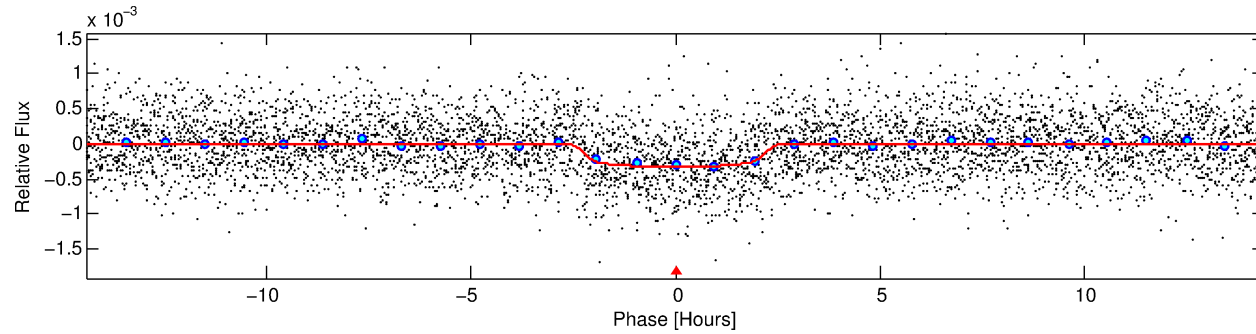
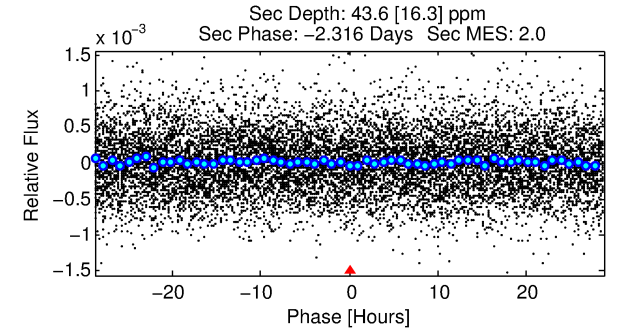
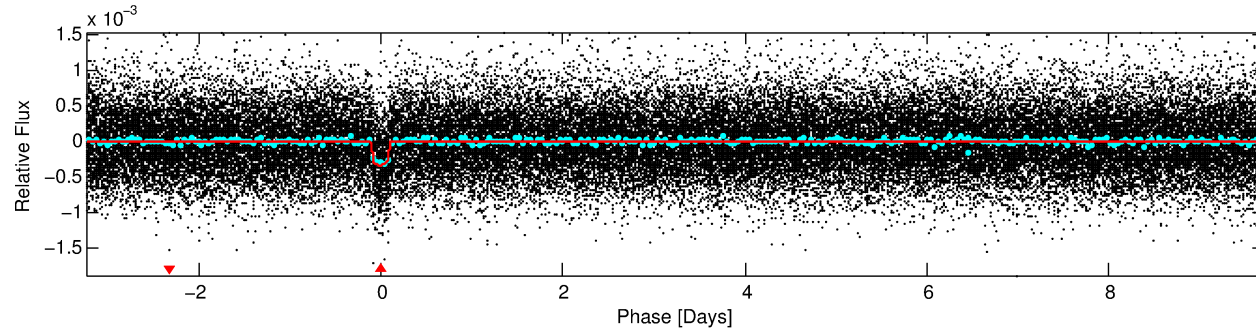
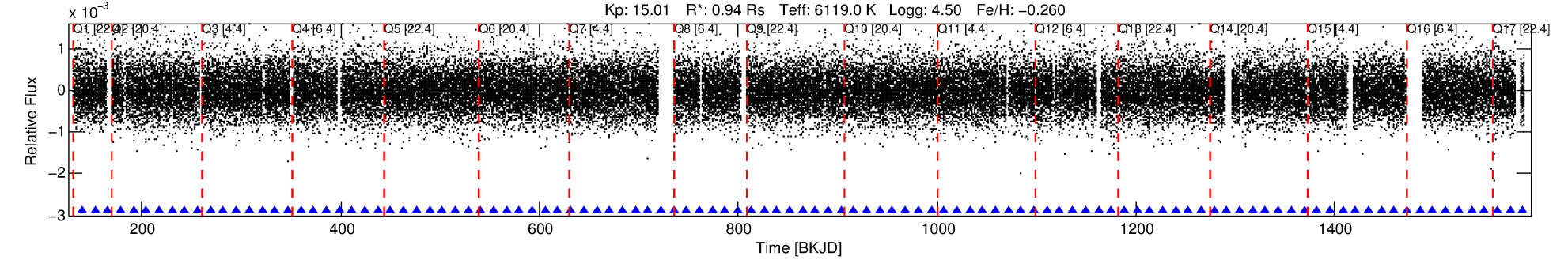
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011824786-01

No Significant Match Found

# DV One-Page Summary

KIC: 11824786 Candidate: 1 of 1 Period: 12.941 d  
KOI: K02371.01 Corr: 0.964



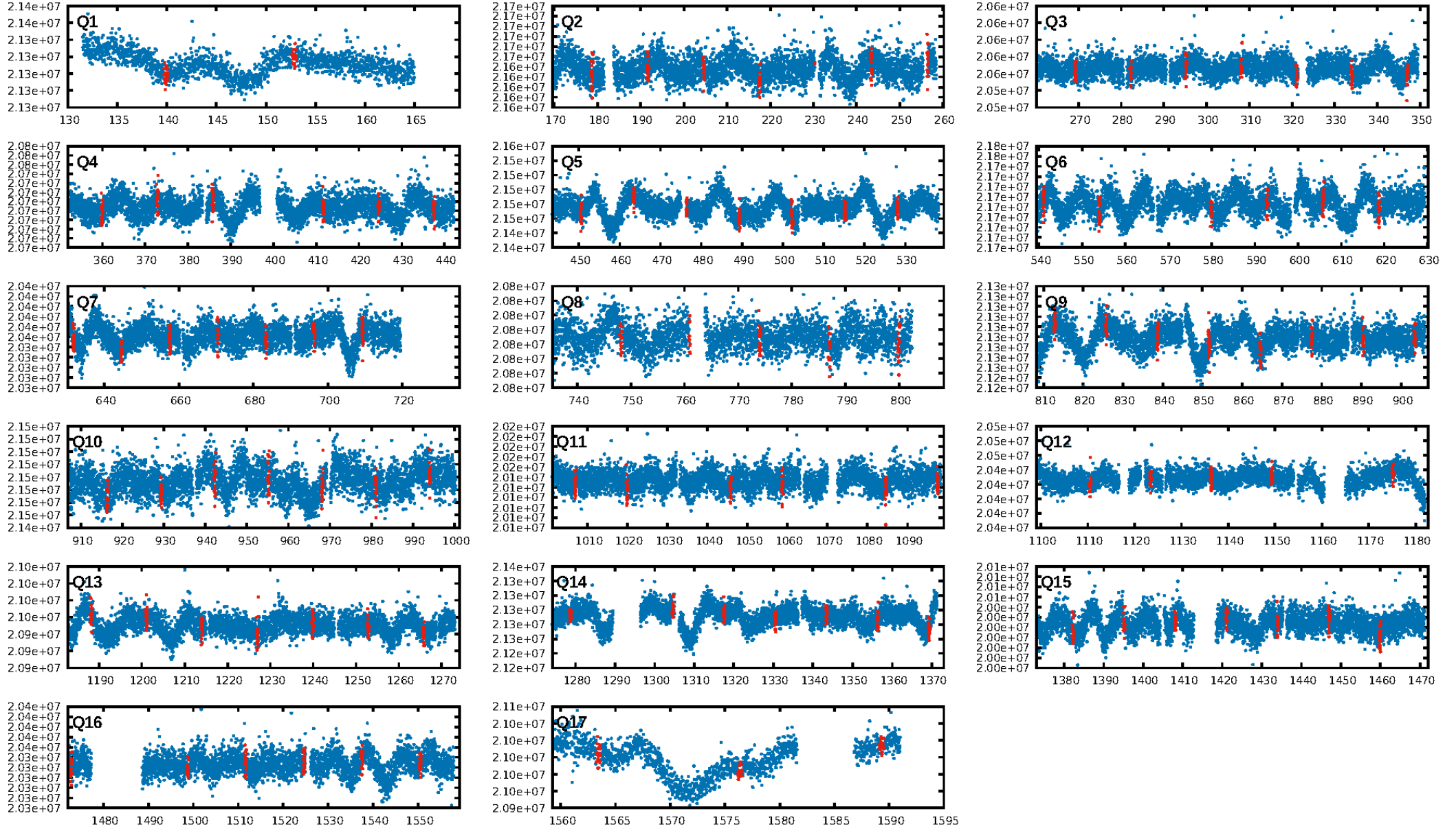
## DV Fit Results:

Period = 12.94122 [0.00008] d  
Epoch = 139.8986 [0.0049] BKJD  
Rp/R\* = 0.0188 [0.0039]  
a/R\* = 11.55 [12.30]  
b = 0.85 [0.35]  
Seff = 94.43 [37.88]  
Teq = 795 [80] K  
Rp = 1.92 [0.71] Re  
a = 0.1082 [0.0281] AU  
Ag = 76.09 [51.44] [1.46σ]  
Teffp = 3630 [521] K [5.37σ]

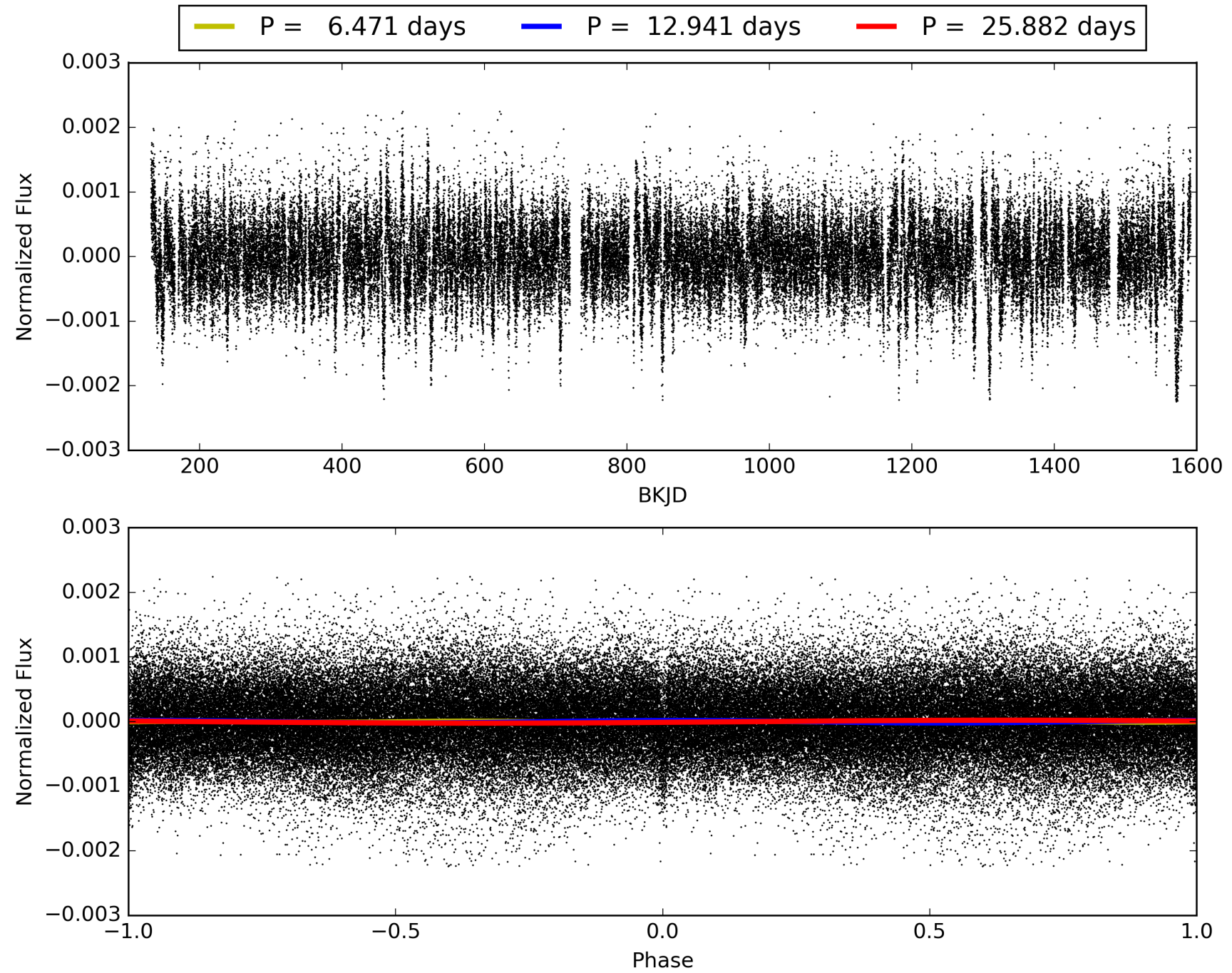
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.38e-78  
RollingBand-fgt: 1.00 [96/96]  
GhostDiagnostic-chr: 3.722  
Centroid-sig: 1.6%  
Centroid-so: 2.068 arcsec [3.04σ]  
OotOffset-rm: 0.364 arcsec [1.06σ]  
KicOffset-rm: 0.438 arcsec [1.27σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 011824786-01, PDC Light Curves

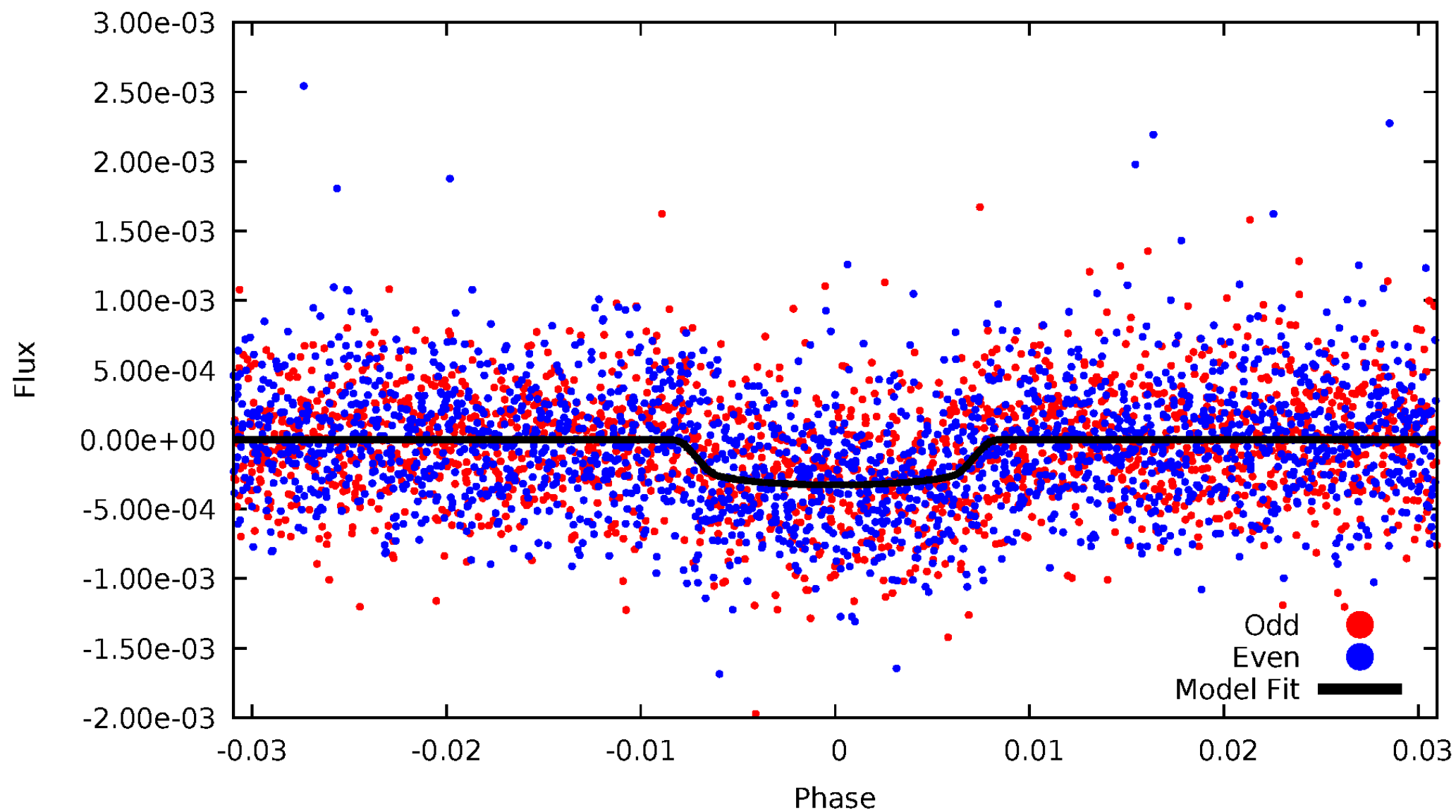


TCE 011824786-01



# DV Odd/Even

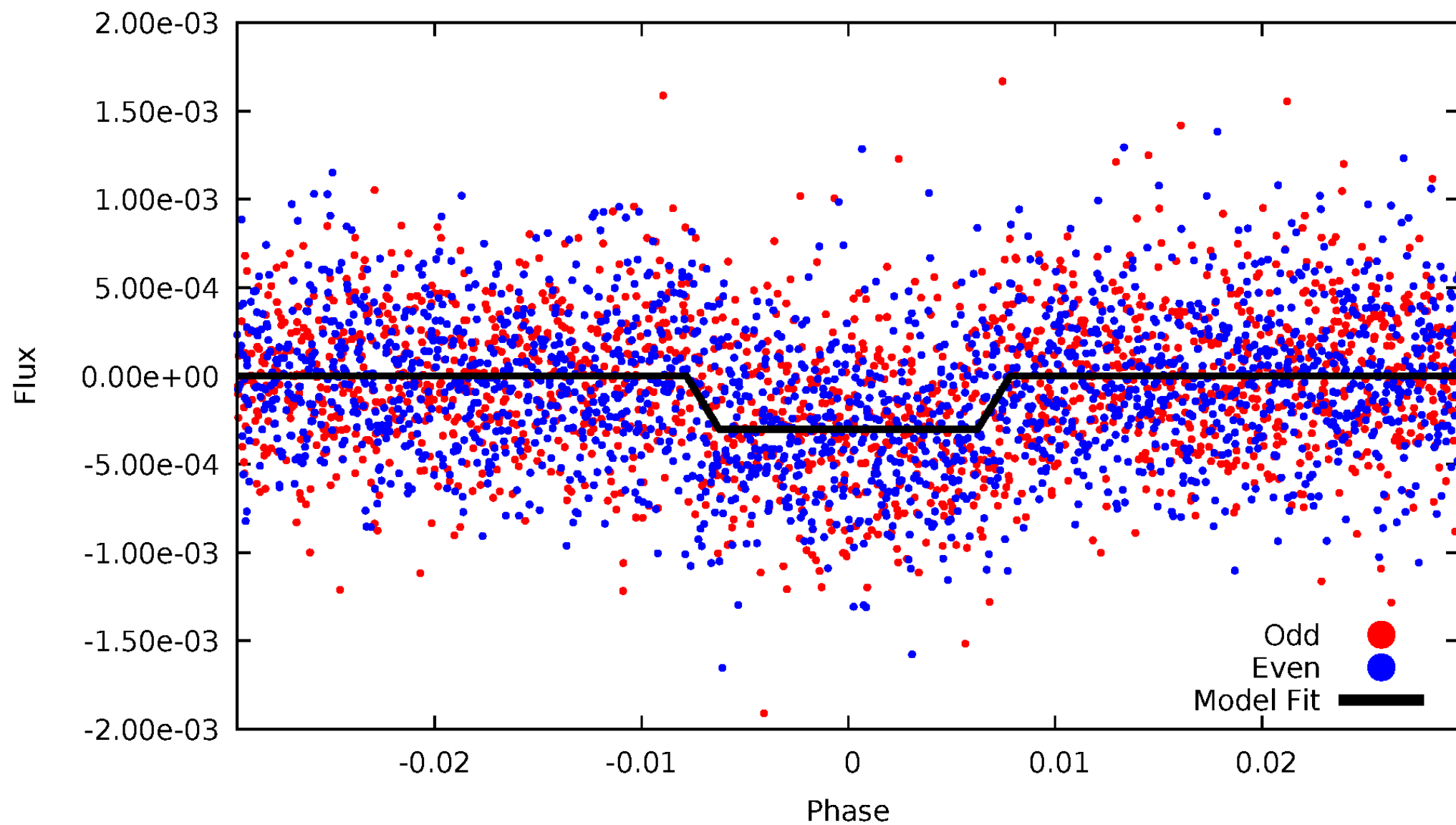
TCE 011824786-01



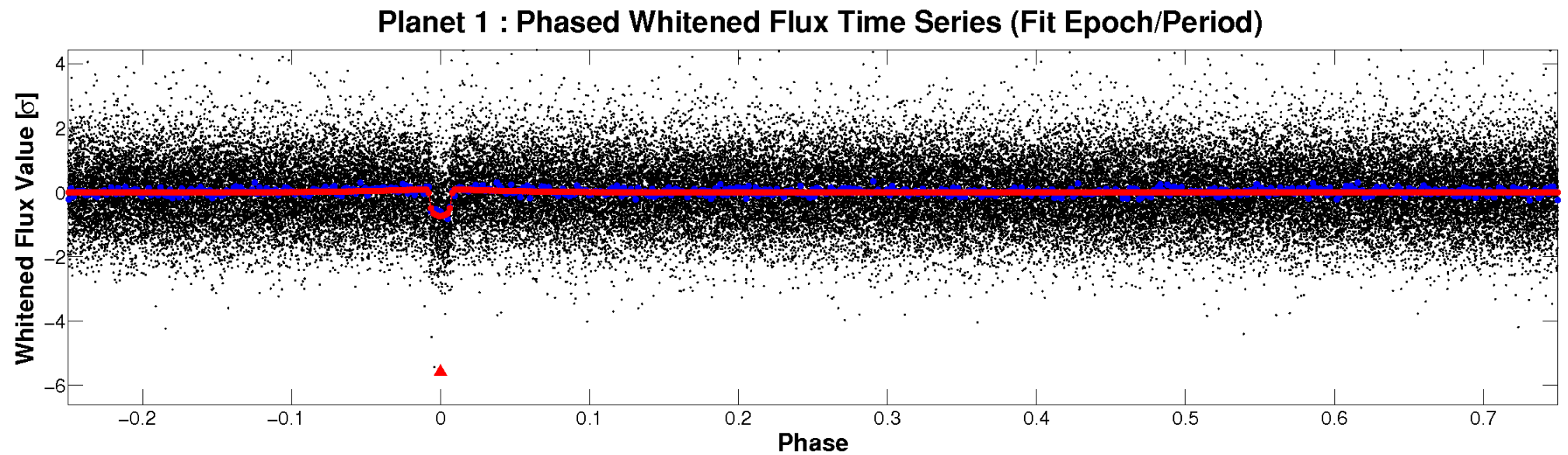
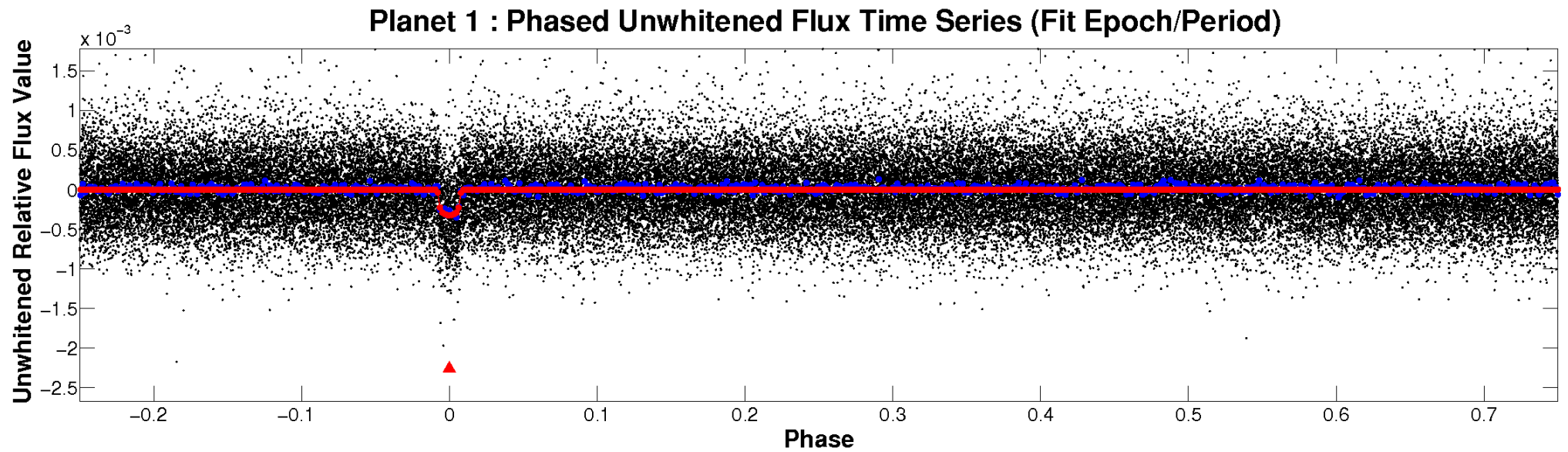


# ALT Odd/Even

TCE 011824786-01

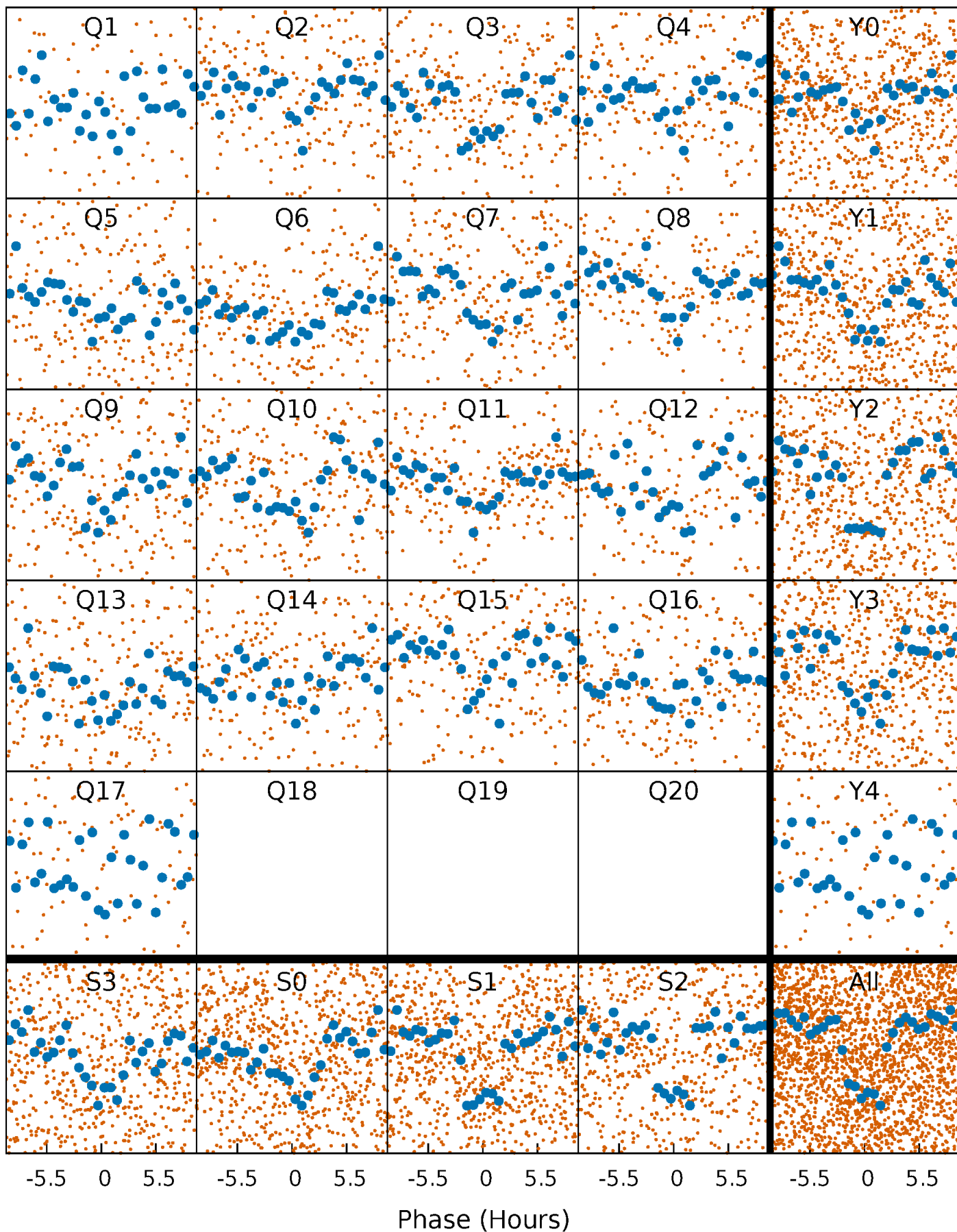


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

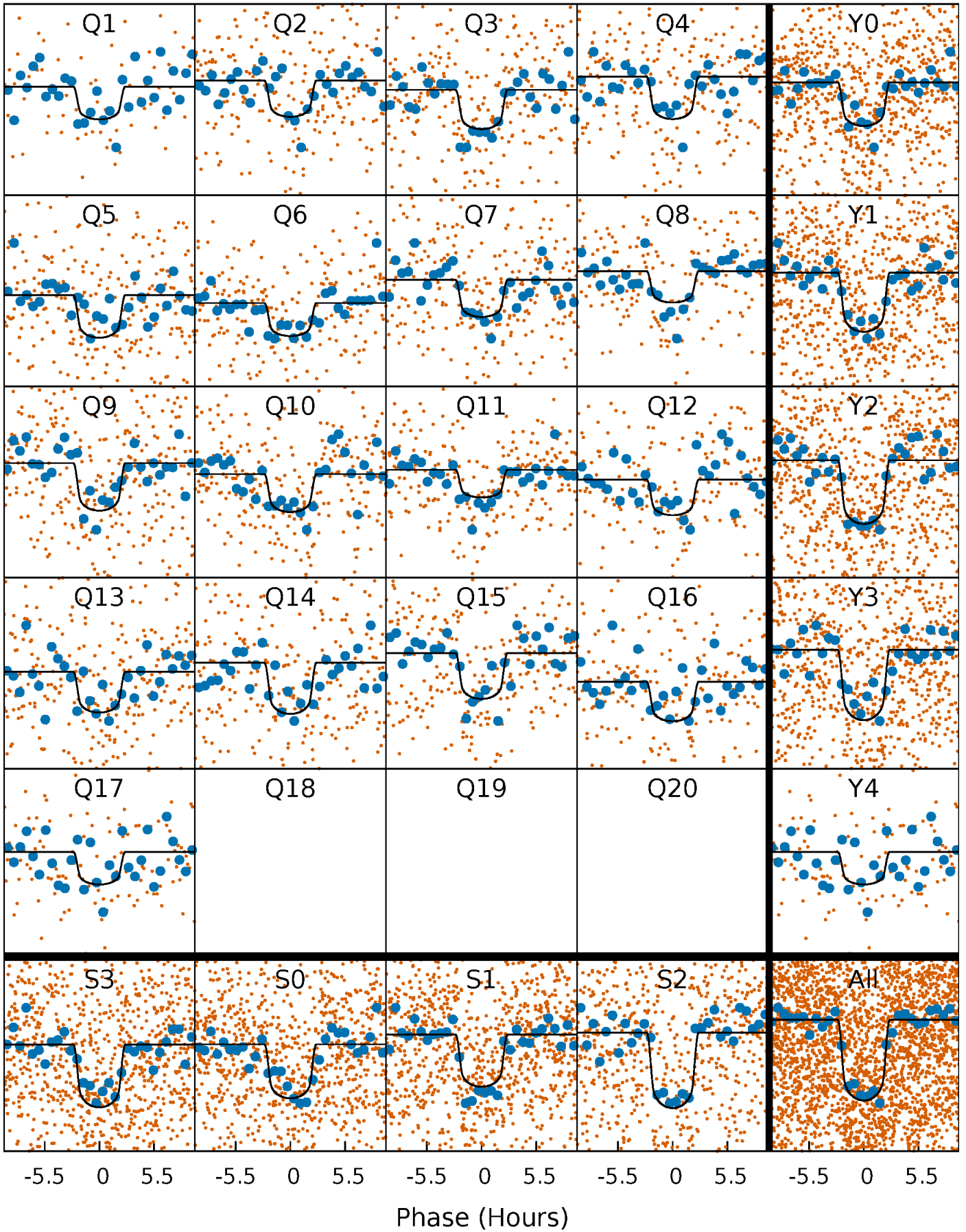
TCE 011824786-01 P= 12.941216 Days  $T_0=139.898594$  (BKJD)





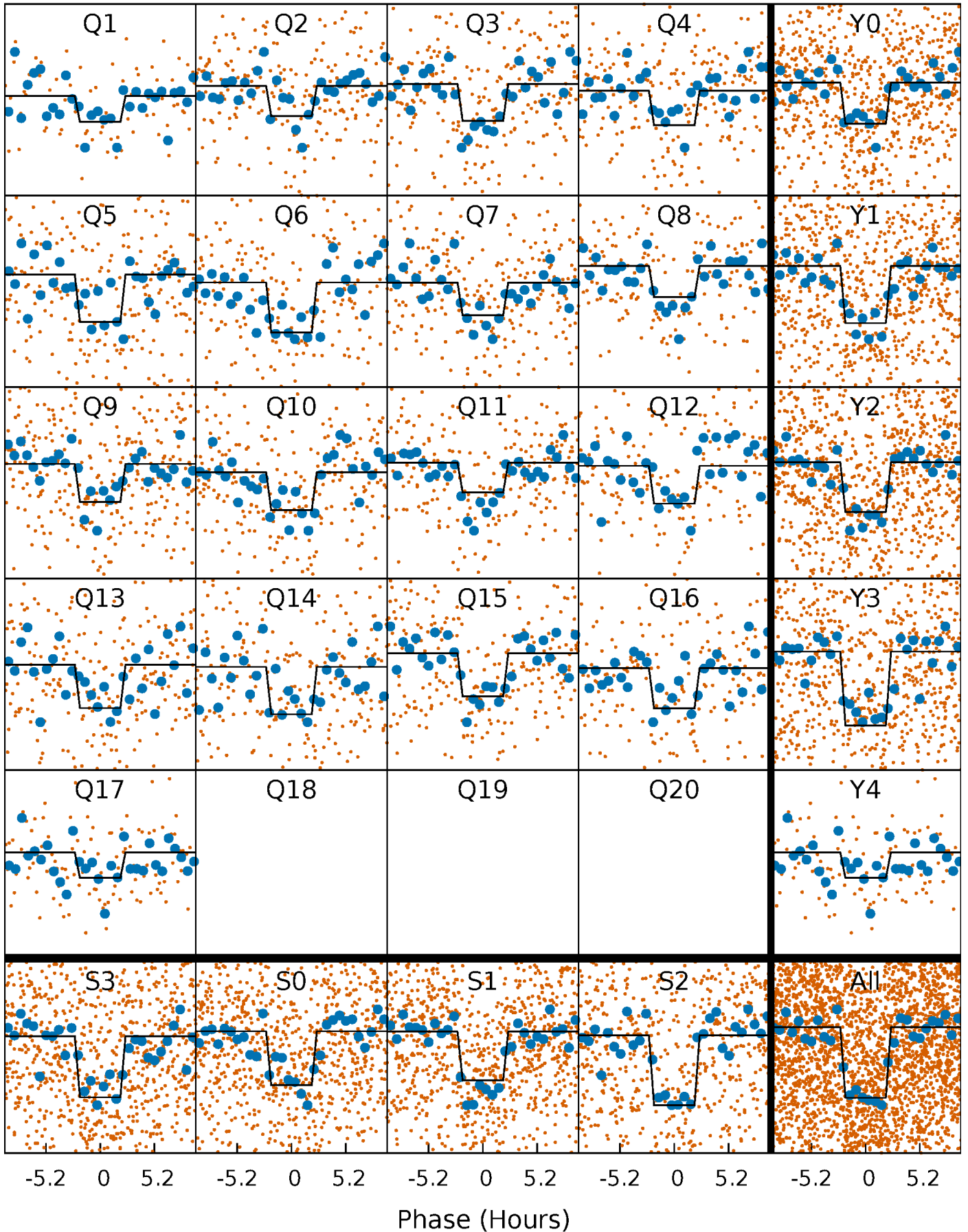
# DV Quarter-Phased Transit Curves

TCE 011824786-01 P= 12.941216 Days  $T_0=139.898594$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

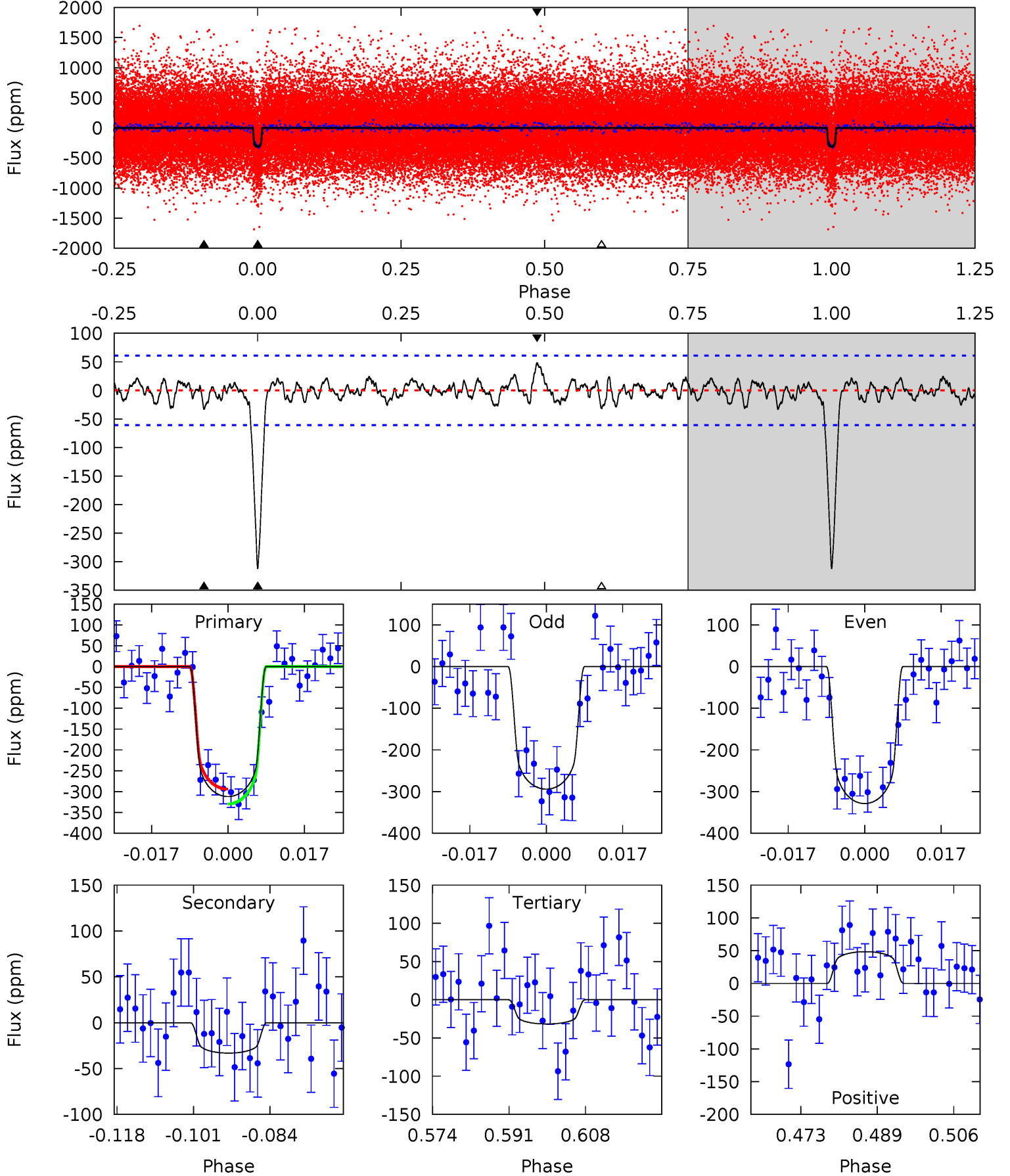
TCE 011824786-01 P= 12.941183 Days  $T_0=139.900939$  (BKJD)



# DV Model-Shift Uniqueness Test

011824786-01, P = 12.941216 Days, E = 126.957378 Days

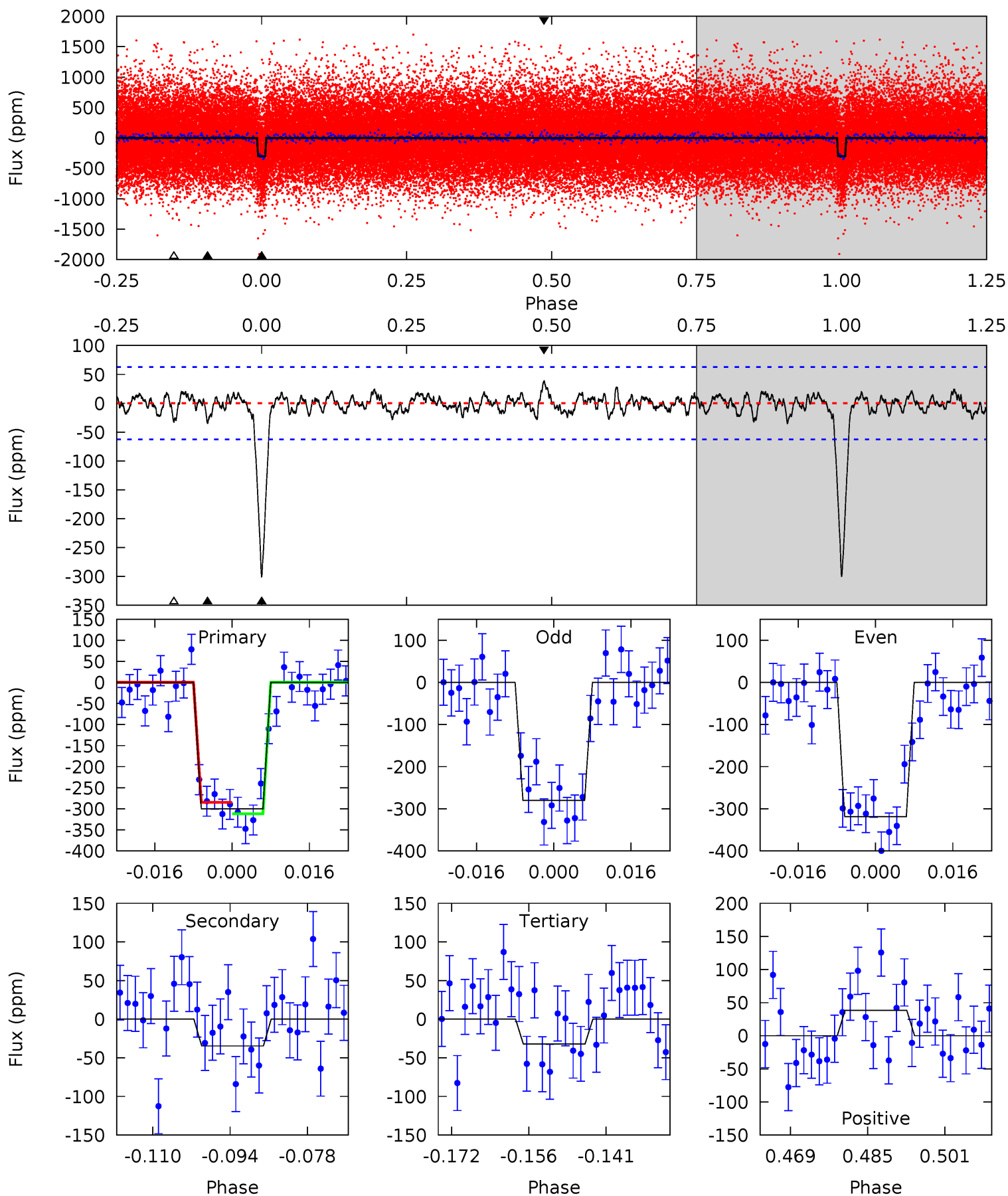
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	2.68	2.56	3.91	4.92	2.39	1.04	22.7	21.3	0.12	-1.23	1.40	1.03	0.13	1.44



# Alt Model-Shift Uniqueness Test

011824786-01, P = 12.941183 Days, E = 126.959756 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
23.7	2.74	2.54	3.03	4.94	2.42	0.90	21.1	20.6	0.20	-0.29	1.51	0.98	0.11	1.06



### Stellar Parameters For KIC 011824786

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6119^{+182}_{-200}$	$4.497^{+0.052}_{-0.208}$	$-0.260^{+0.300}_{-0.300}$	$0.938^{+0.288}_{-0.096}$	$1.010^{+0.124}_{-0.138}$	$1.723^{+0.478}_{-0.902}$
	+3%/-3%	+1%/-5%	+115%/-115%	+31%/-10%	+12%/-14%	+28%/-52%
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 011824786-01 / KOI 2371.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-33 \pm 12$	$1.99^{+0.51}_{-0.45}$	$1135^{+73}_{-51}$	$3763^{+412}_{-377}$	$52^{+42}_{-27}$
Alt.	$-35 \pm 13$	$1.84^{+0.49}_{-0.43}$	$1133^{+77}_{-54}$	$3883^{+454}_{-365}$	$62^{+53}_{-30}$

$T_{max}$  = 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

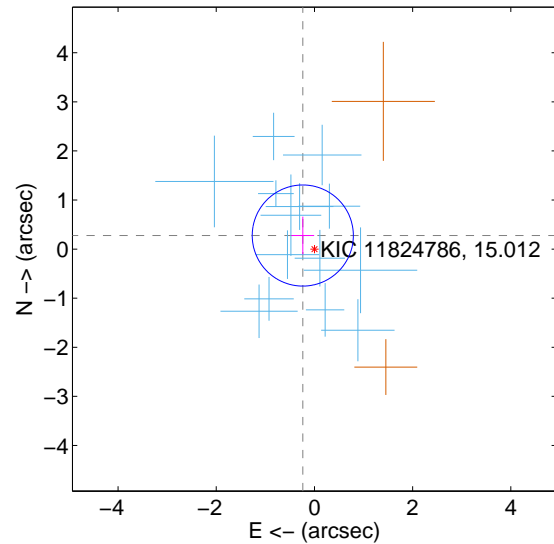
Supplemental centroid analysis for 011824786-01. Kepler magnitude: 15.01. Transit SNR 19.35

There are 14 quarters with good PRF difference image offsets

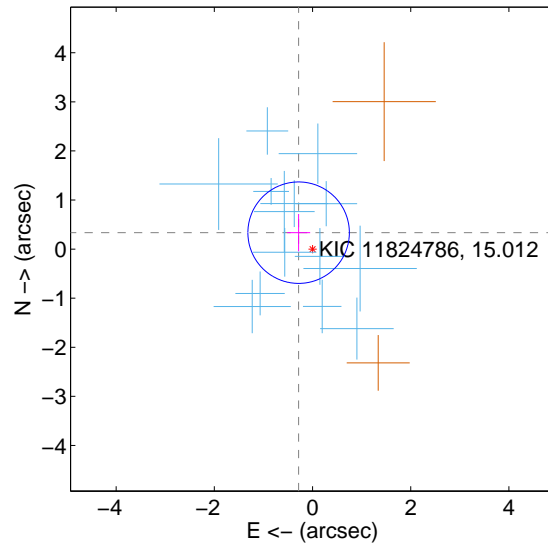
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.364 \pm 0.343$	1.06	$0.237 \pm 0.231$	$0.276 \pm 0.385$
PRF-fit source offset from KIC position	$0.438 \pm 0.344$	1.27	$0.283 \pm 0.234$	$0.335 \pm 0.381$
photometric centroid source offset	$2.07 \pm 0.68$	3.04	$1.89 \pm 0.67$	$0.84 \pm 0.71$

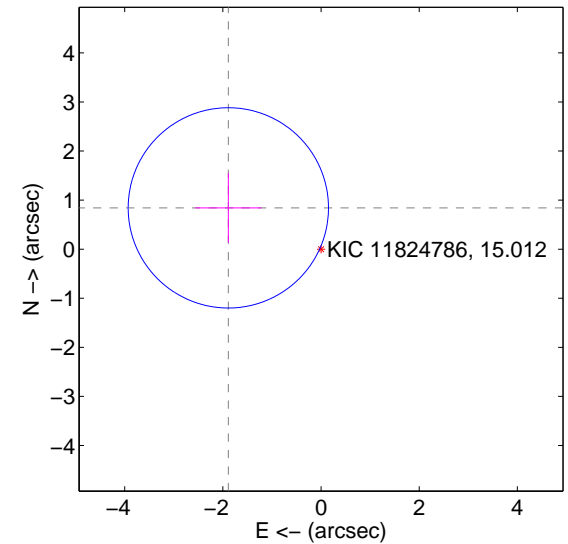
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

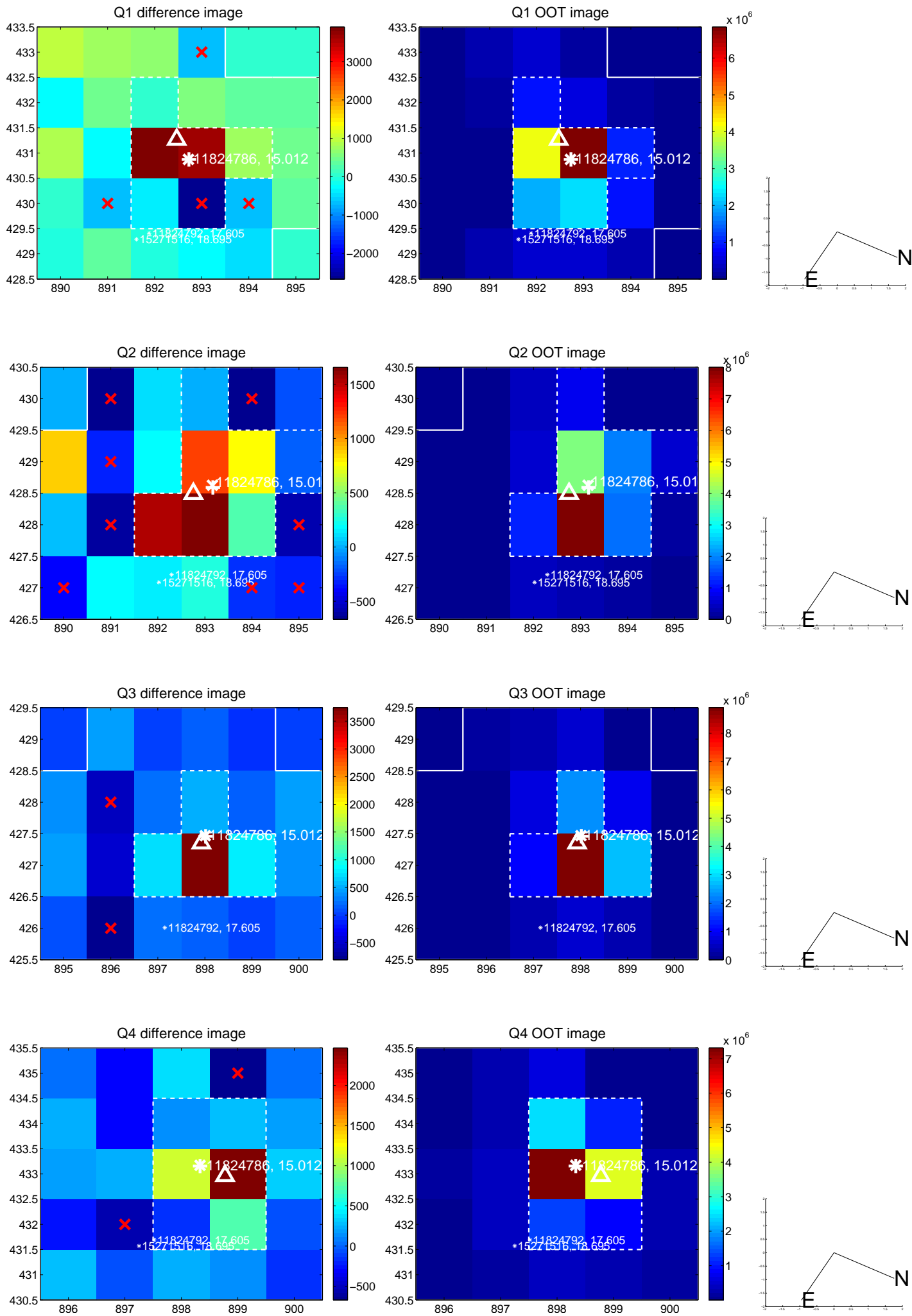


offset from photometric centroids

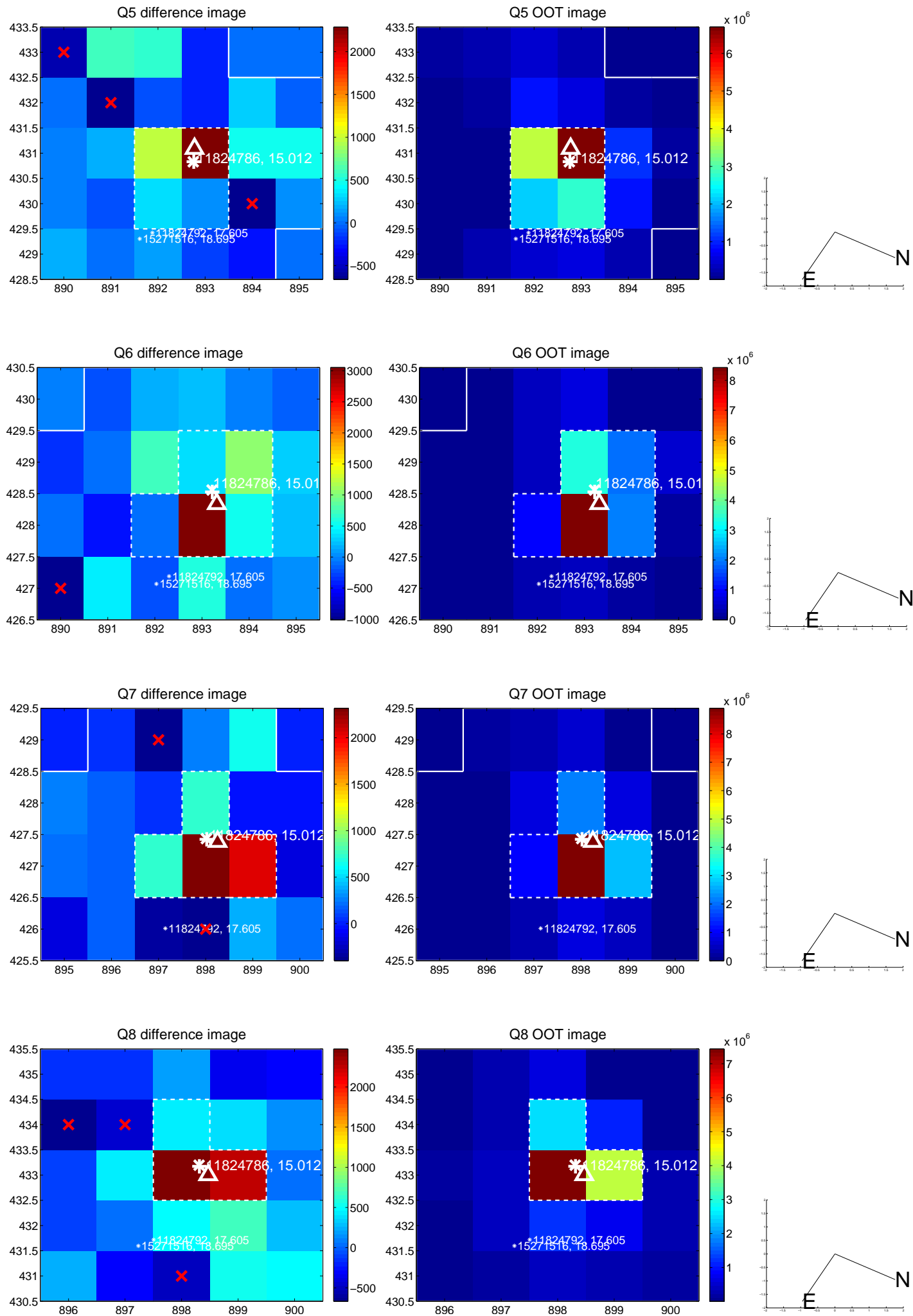


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

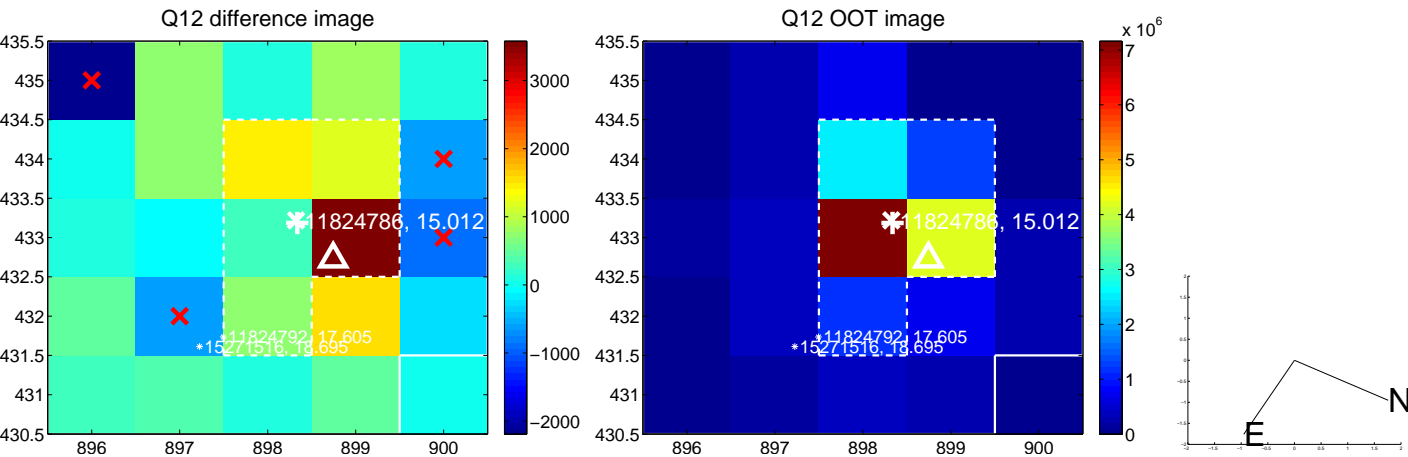
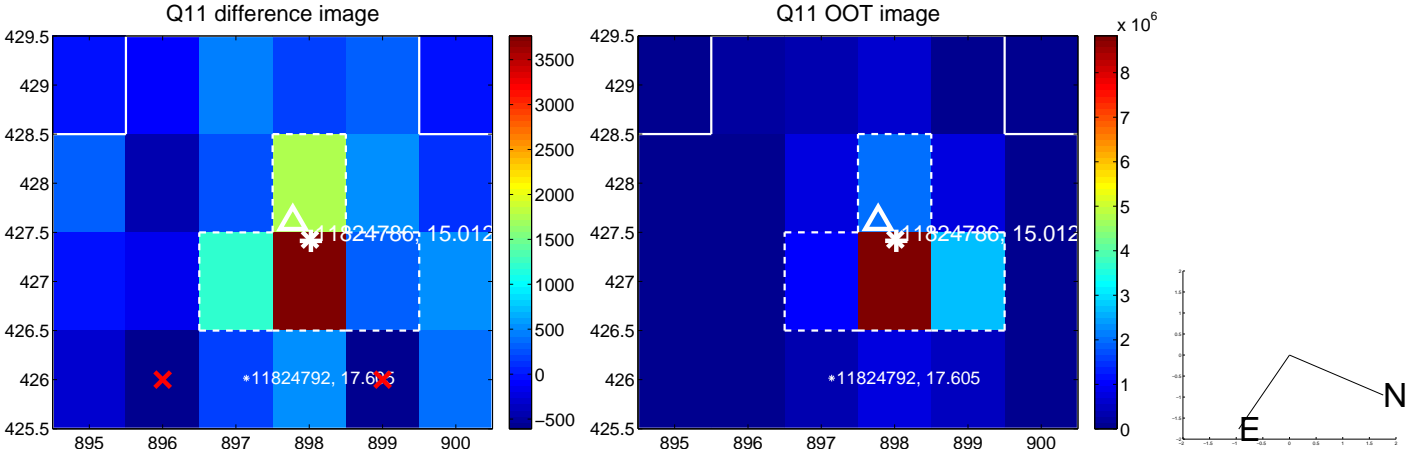
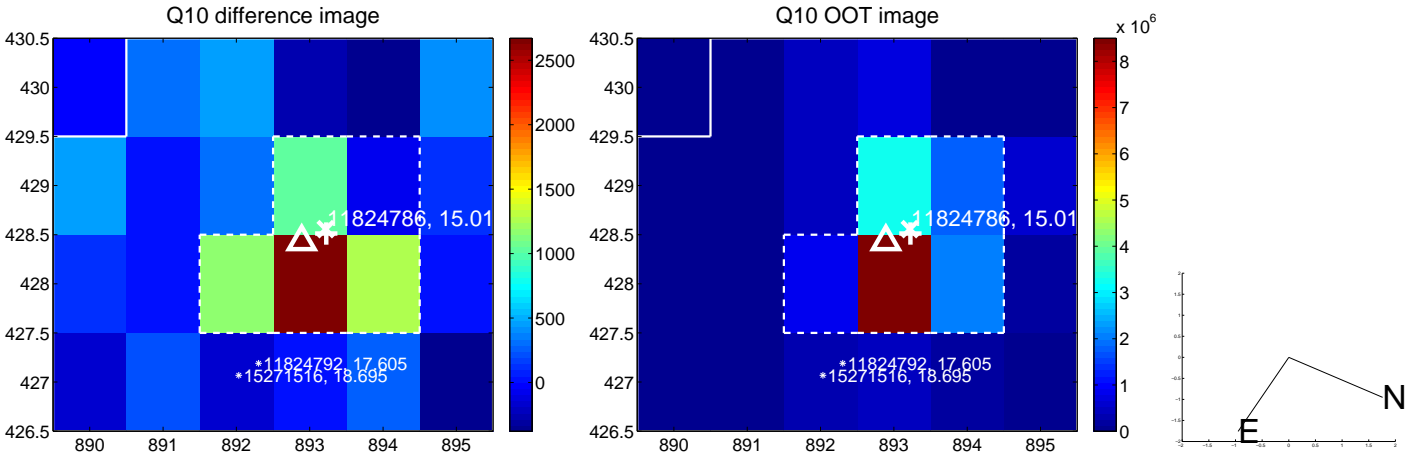
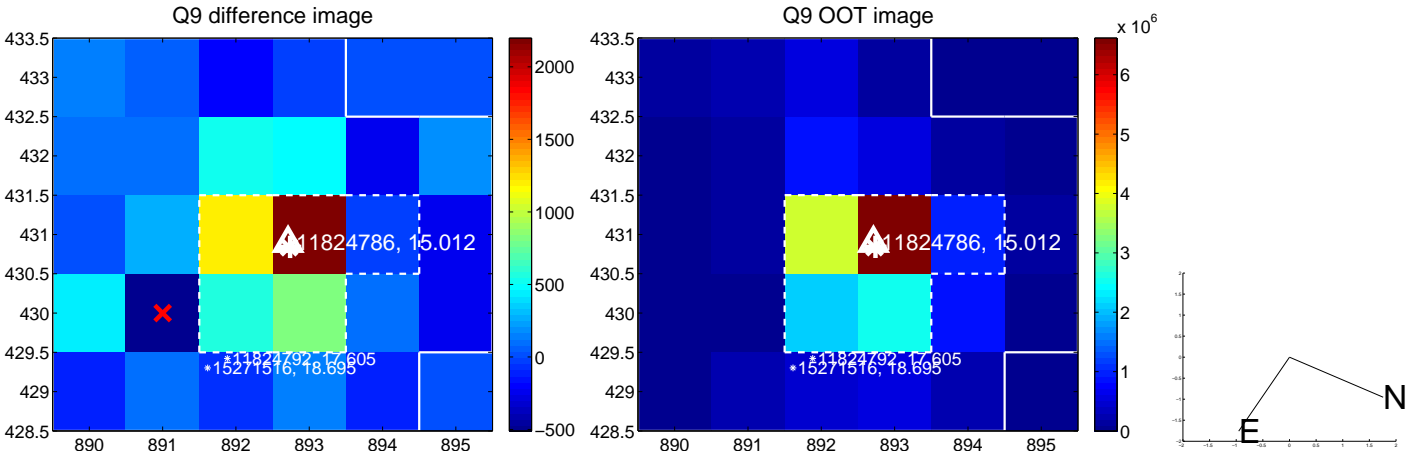
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



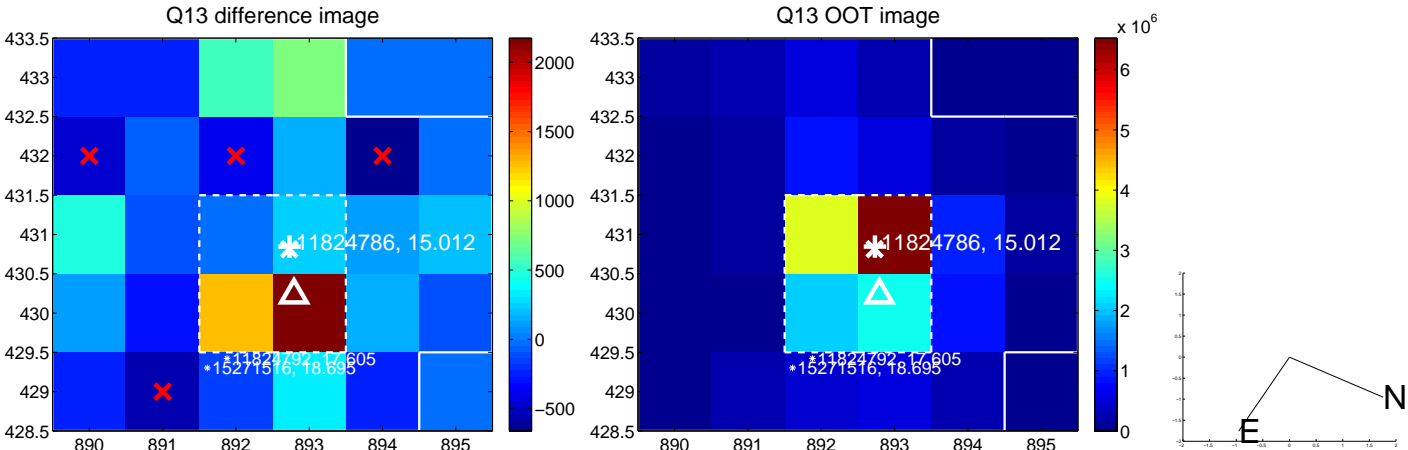
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

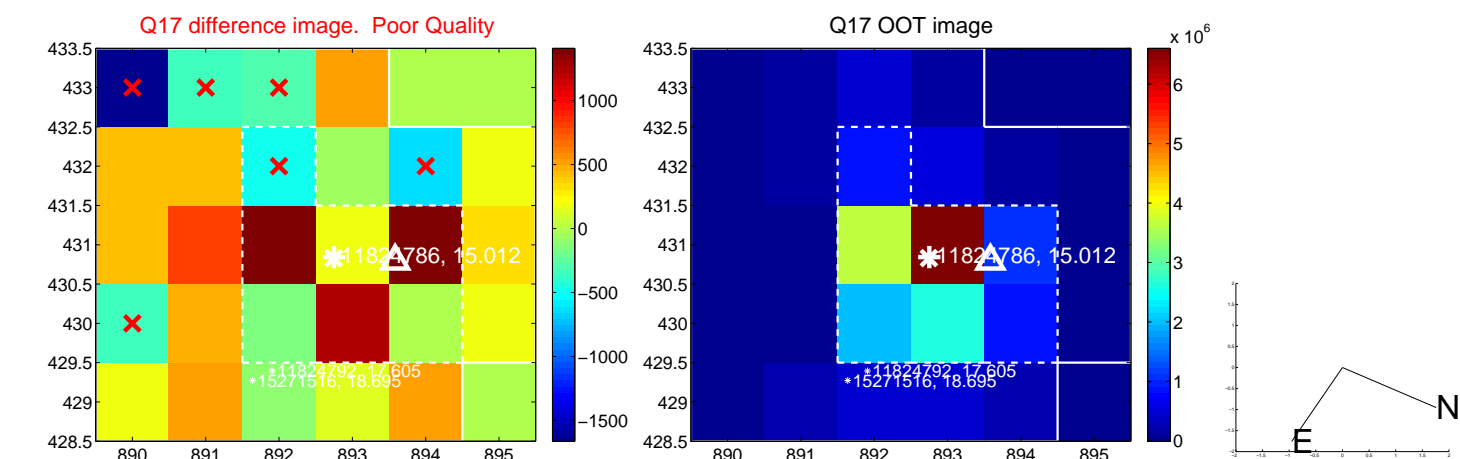


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

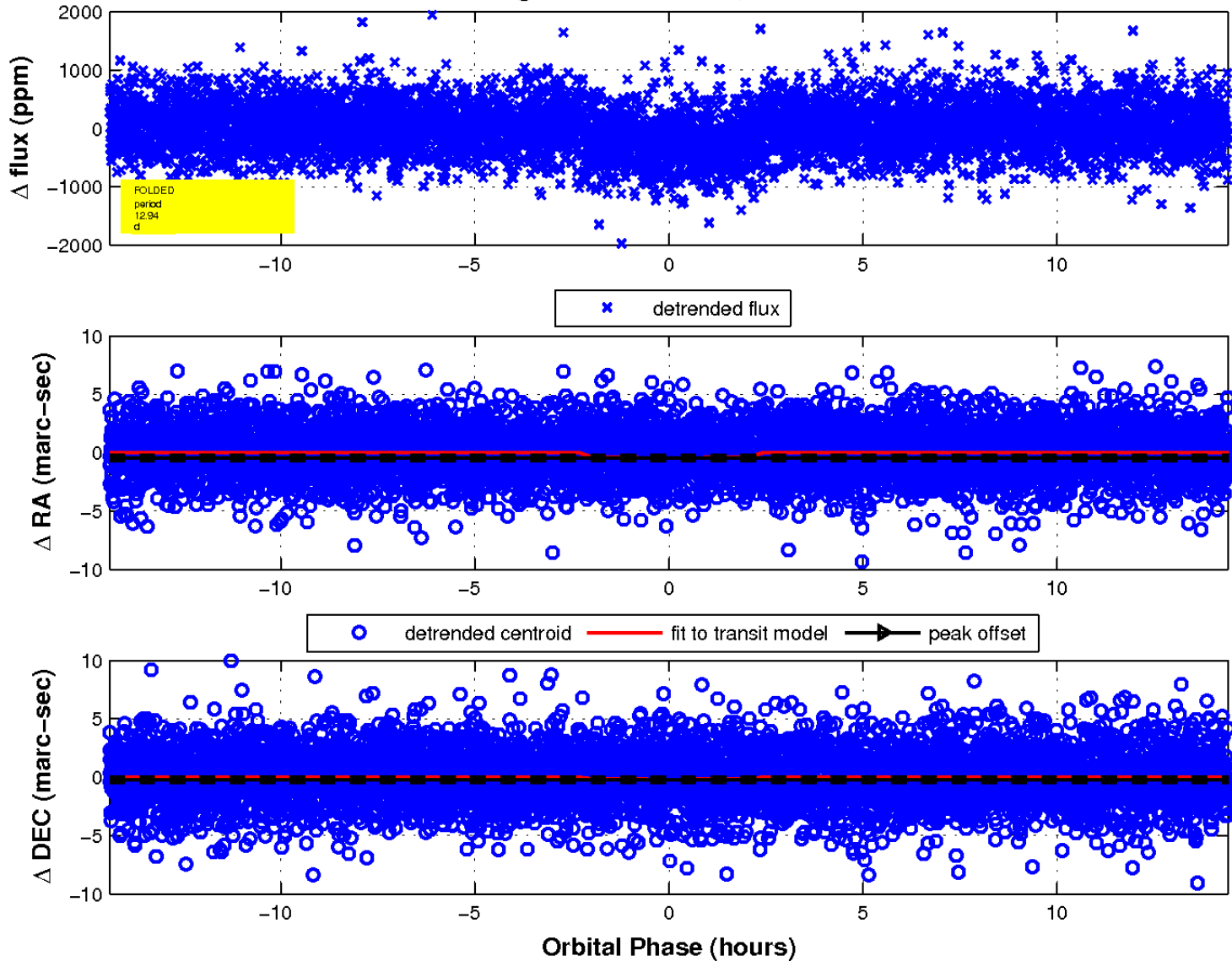




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

