

# KIC 010407482

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010407482-01	OBS	4255.01	6.305639	131.526539	209.8	2.682	10.9	13.2	1.76	4934	3.18	379.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010407482-01	OBS	PC	0.97	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.

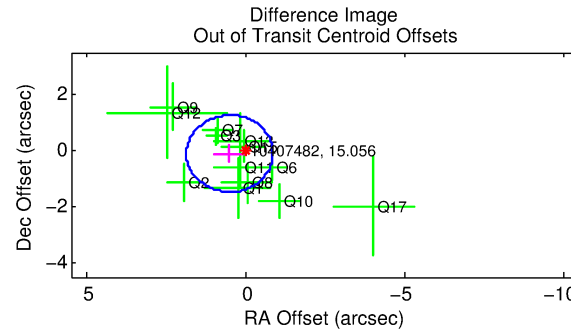
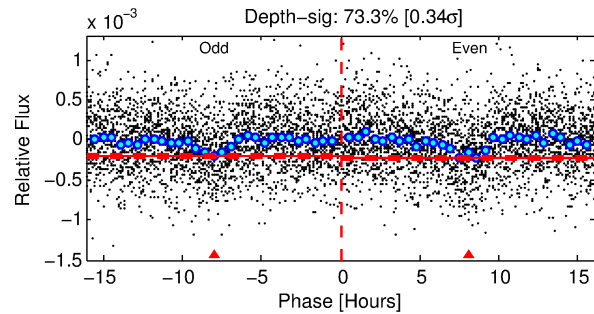
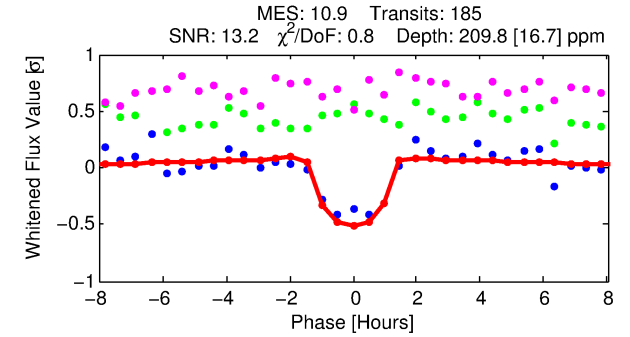
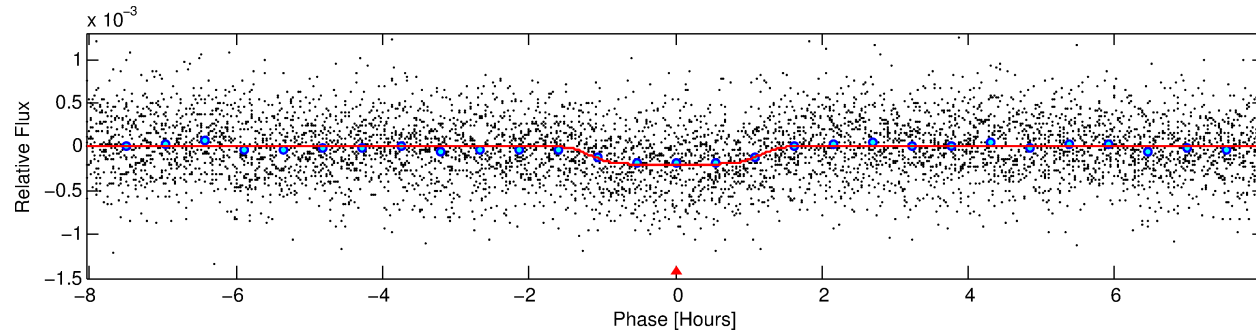
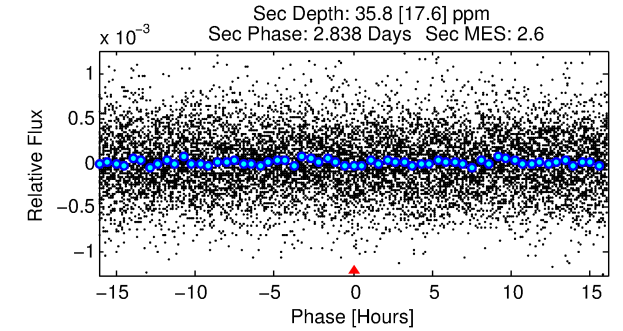
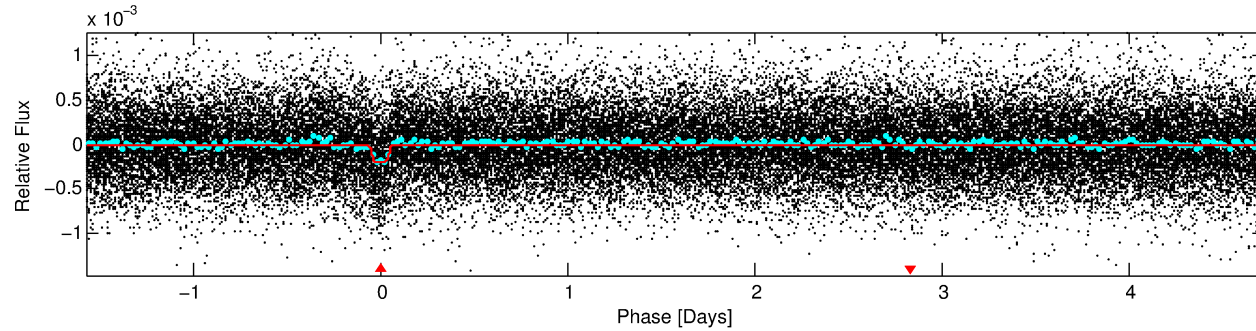
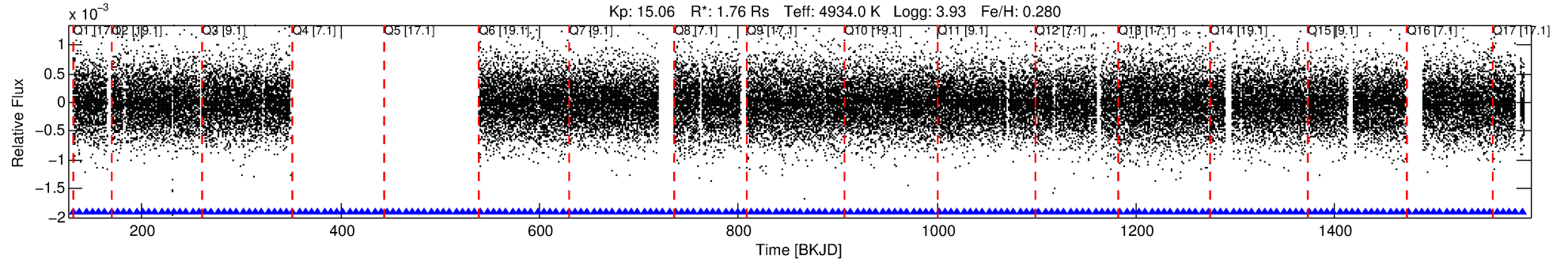
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010407482-01

No Significant Match Found

# DV One-Page Summary

KIC: 10407482 Candidate: 1 of 1 Period: 6.306 d  
KOI: K04255.01 Corr: 0.959



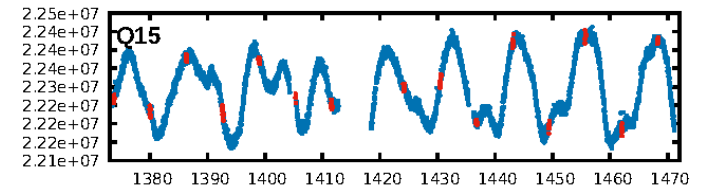
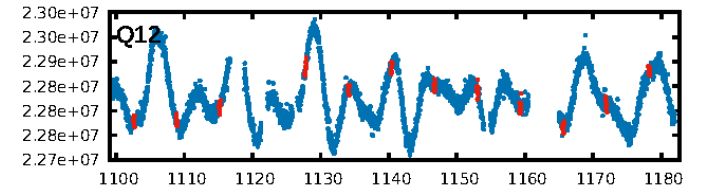
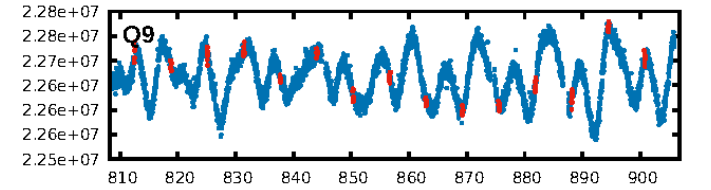
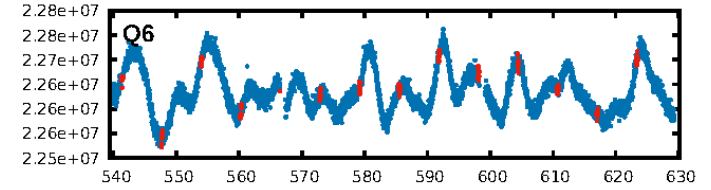
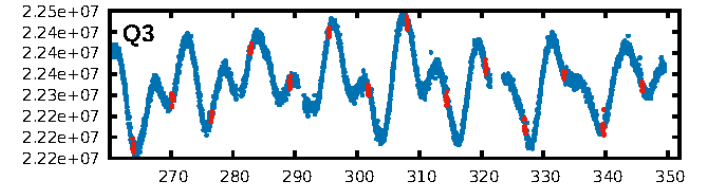
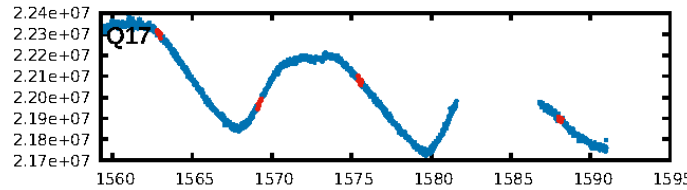
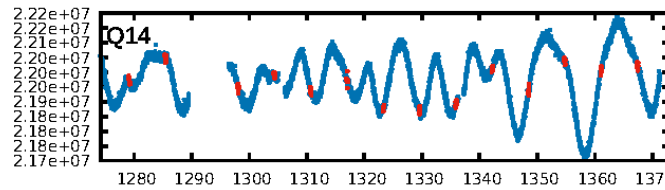
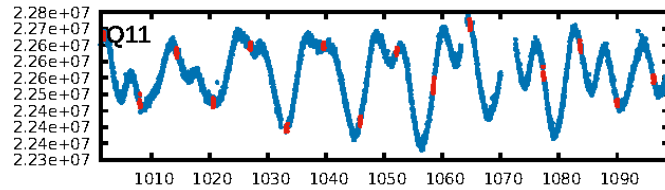
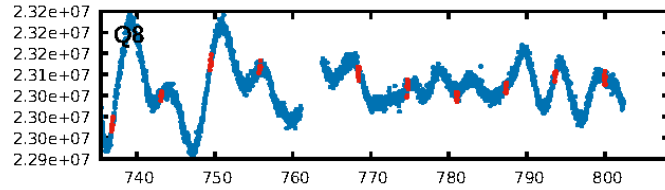
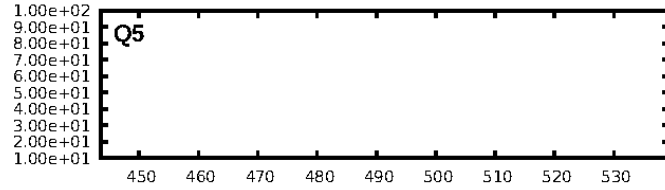
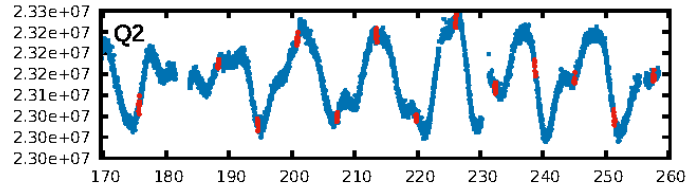
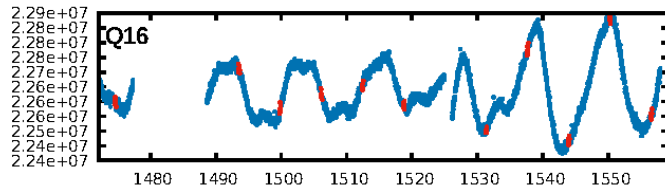
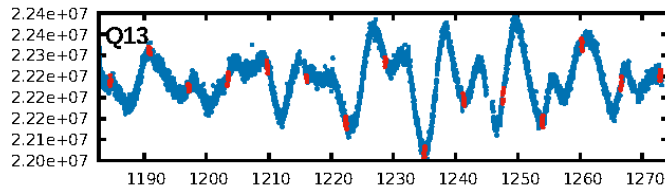
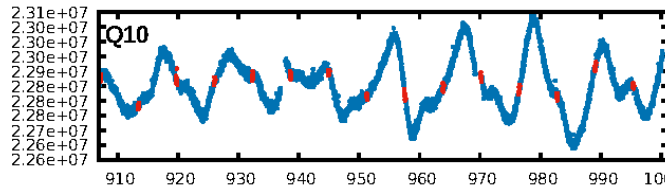
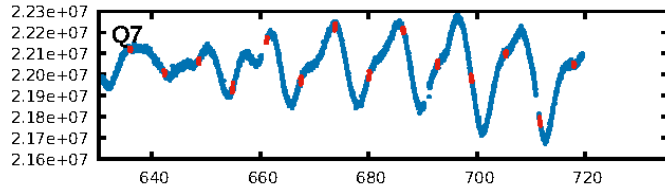
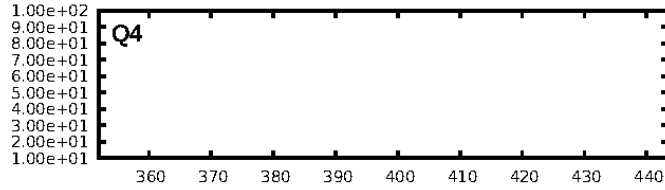
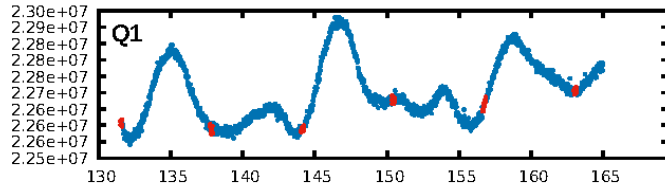
## DV Fit Results:

Period = 6.30564 [0.00003] d  
Epoch = 131.5265 [0.0037] BKJD  
Rp/R\* = 0.0166 [0.0067]  
a/R\* = 7.97 [12.52]  
b = 0.92 [0.29]  
Seff = 379.37 [409.28]  
Teff = 1125 [304] K  
Rp = 3.18 [2.14] Re  
a = 0.0657 [0.0407] AU  
Ag = 8.40 [11.99] [0.62σ]  
Teffp = 2962 [705] K [2.39σ]

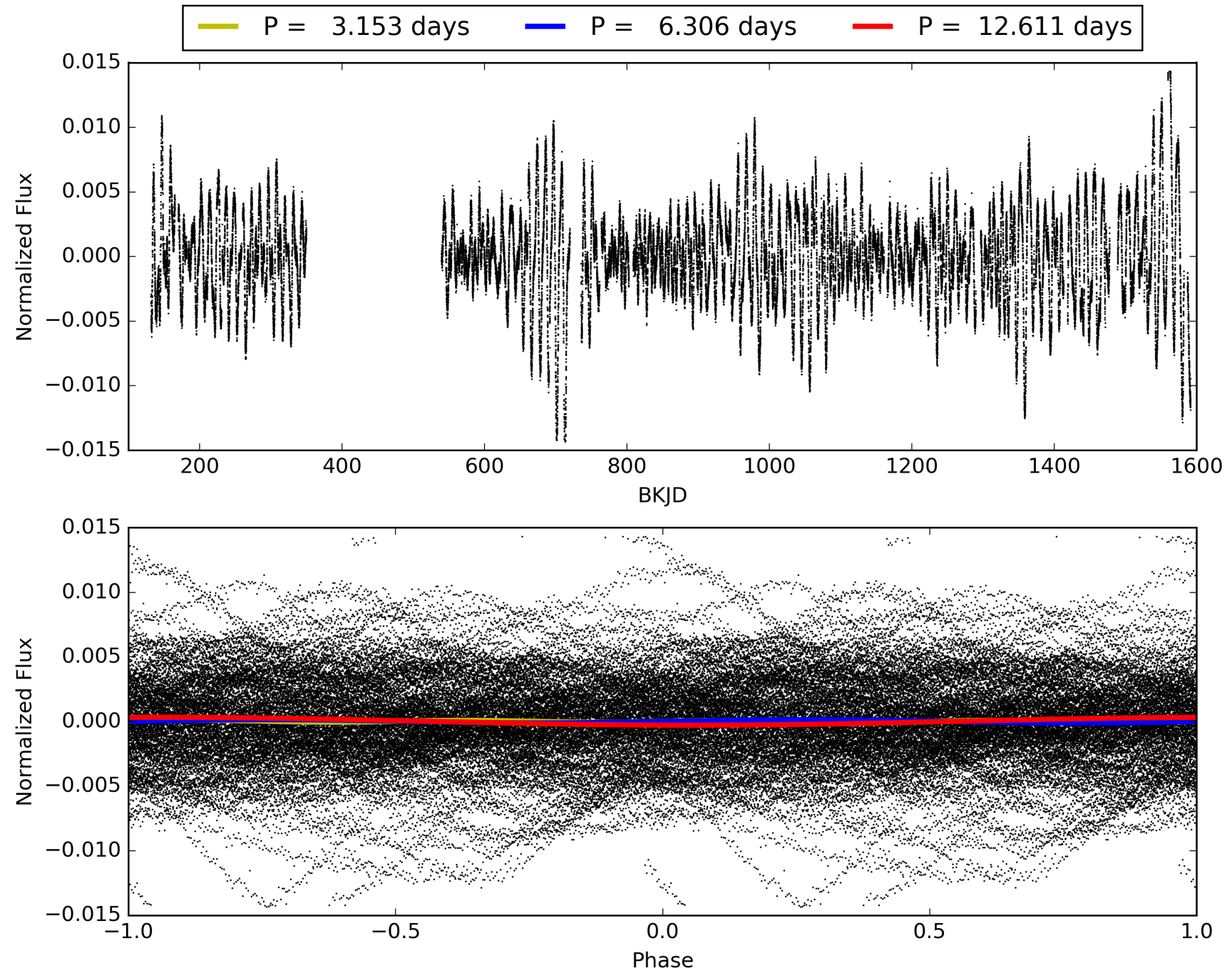
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 100.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.65e-27  
RollingBand-fgt: 1.00 [175/175]  
GhostDiagnostic-chr: 8.925  
Centroid-sig: 57.5%  
Centroid-so: 0.857 arcsec [0.98σ]  
OotOffset-rm: 0.524 arcsec [1.15σ]  
KicOffset-rm: 0.682 arcsec [1.78σ]  
OotOffset-st: 3/4/2/4 [13]  
KicOffset-st: 3/4/2/4 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [15/15]

# TCE 010407482-01, PDC Light Curves

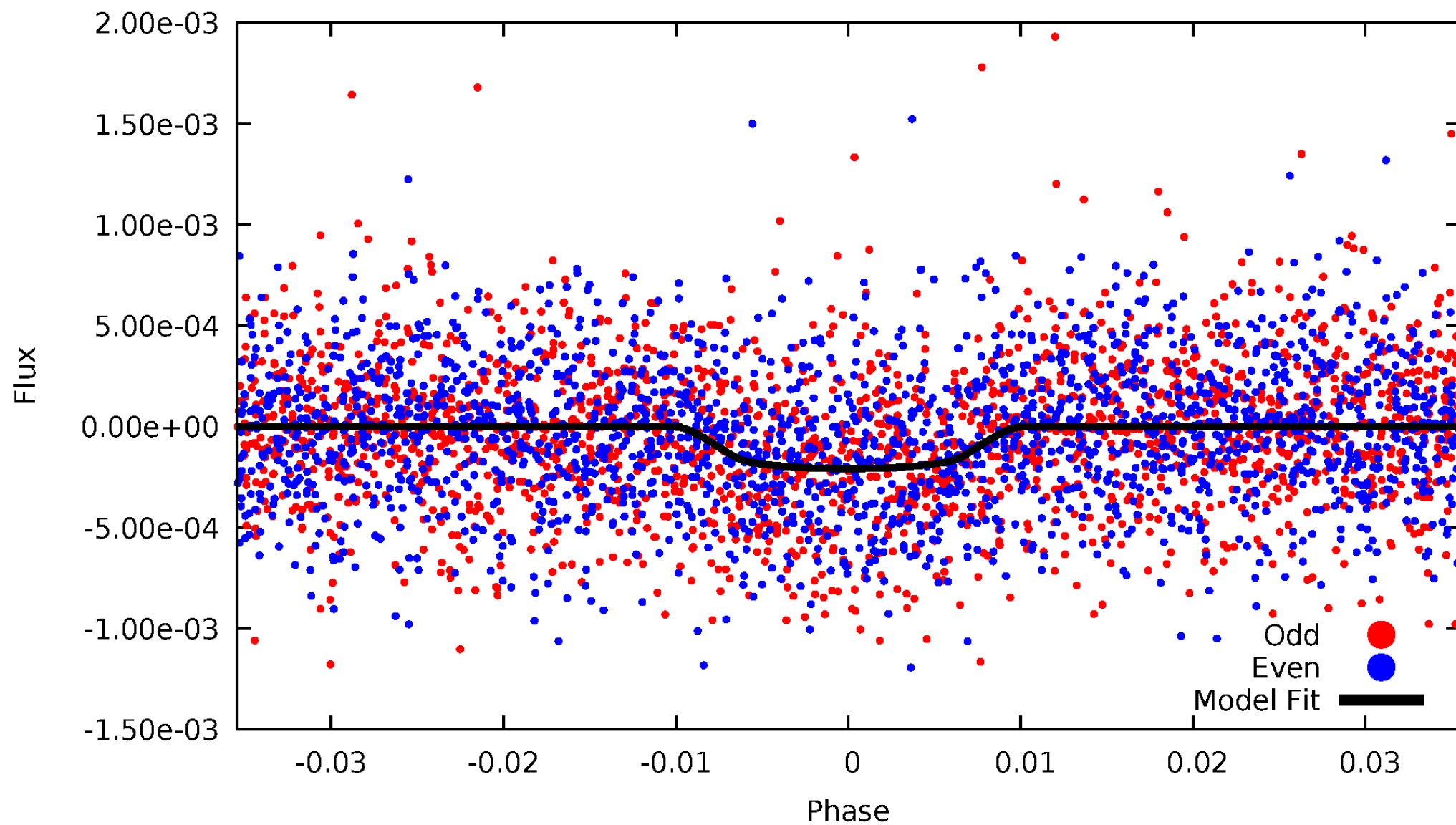


TCE 010407482-01



# DV Odd/Even

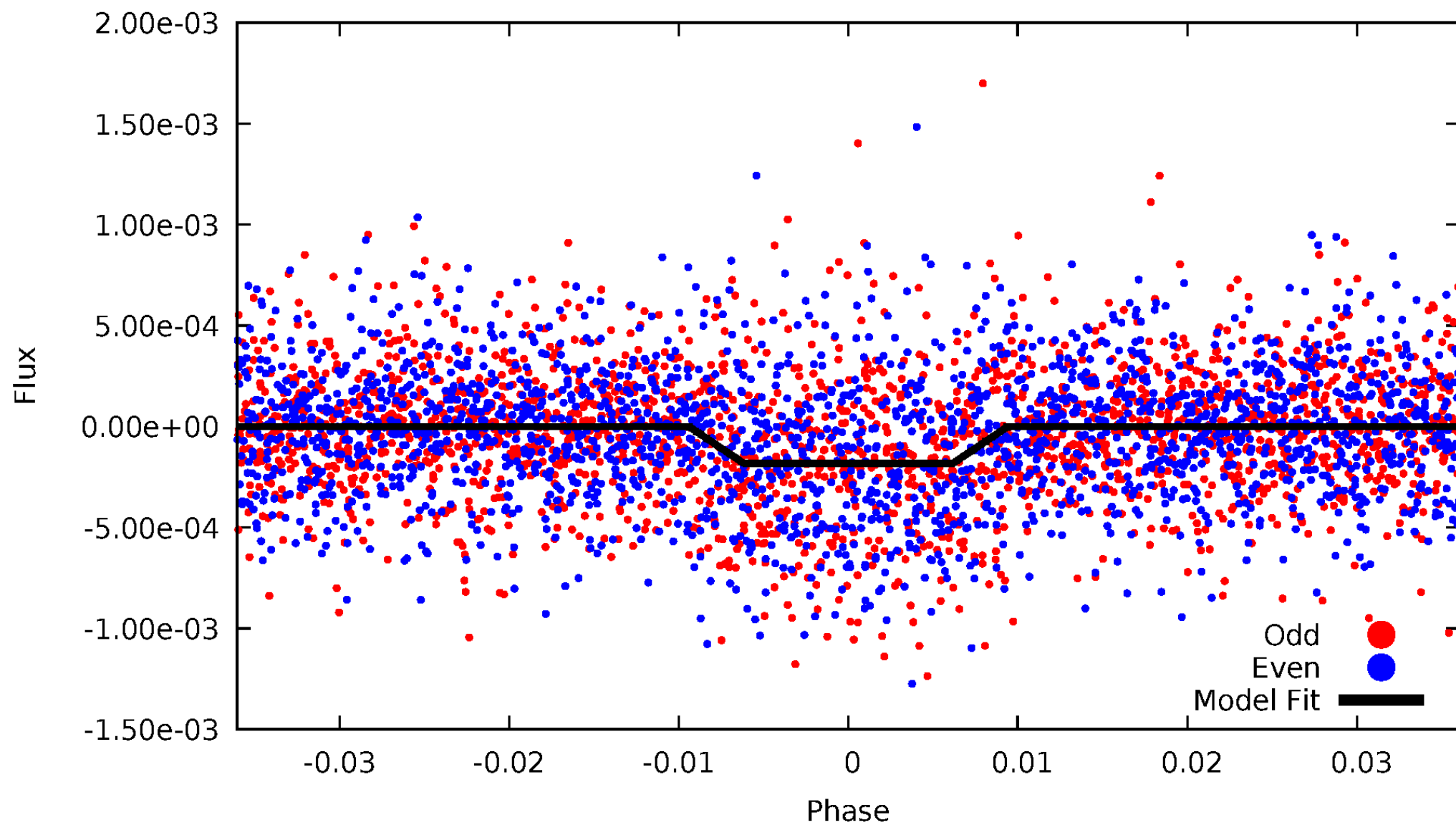
TCE 010407482-01



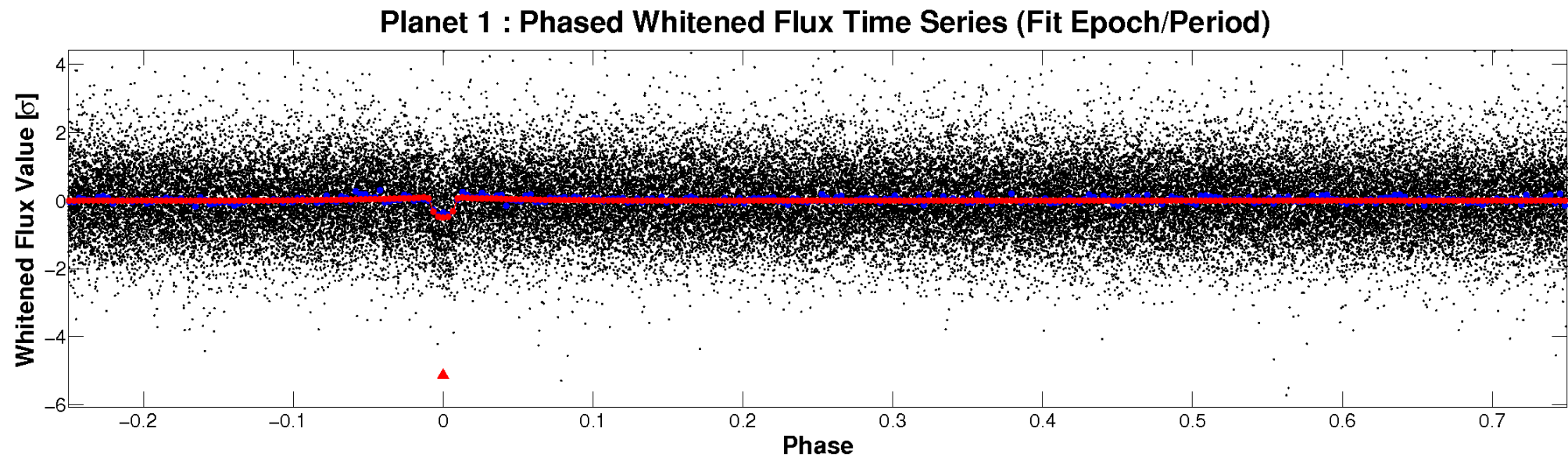
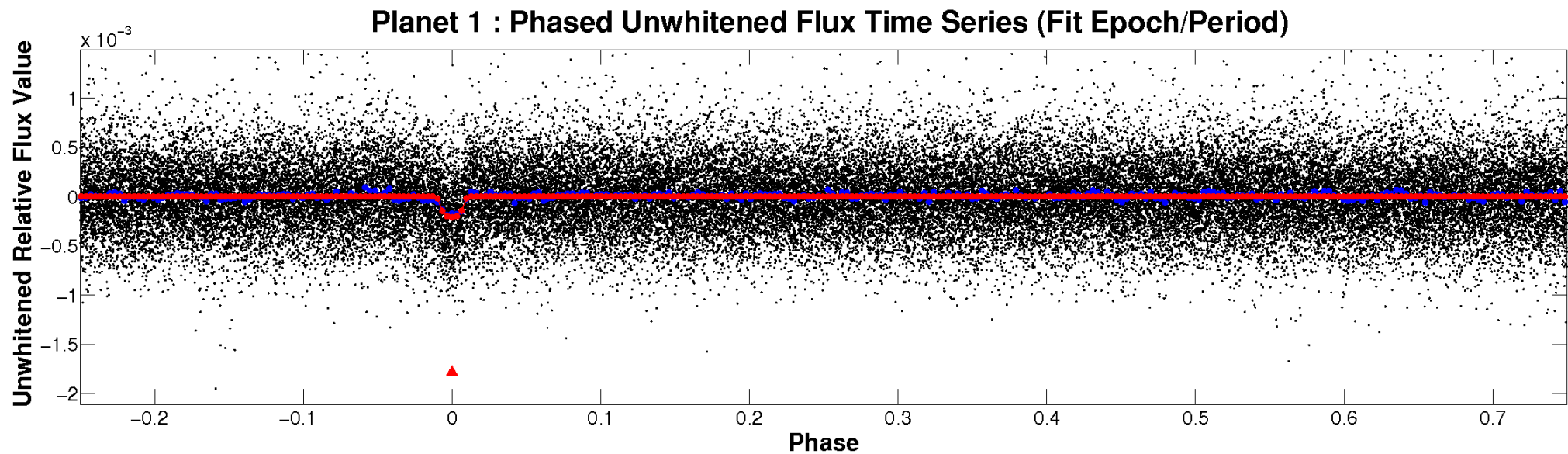


# ALT Odd/Even

TCE 010407482-01

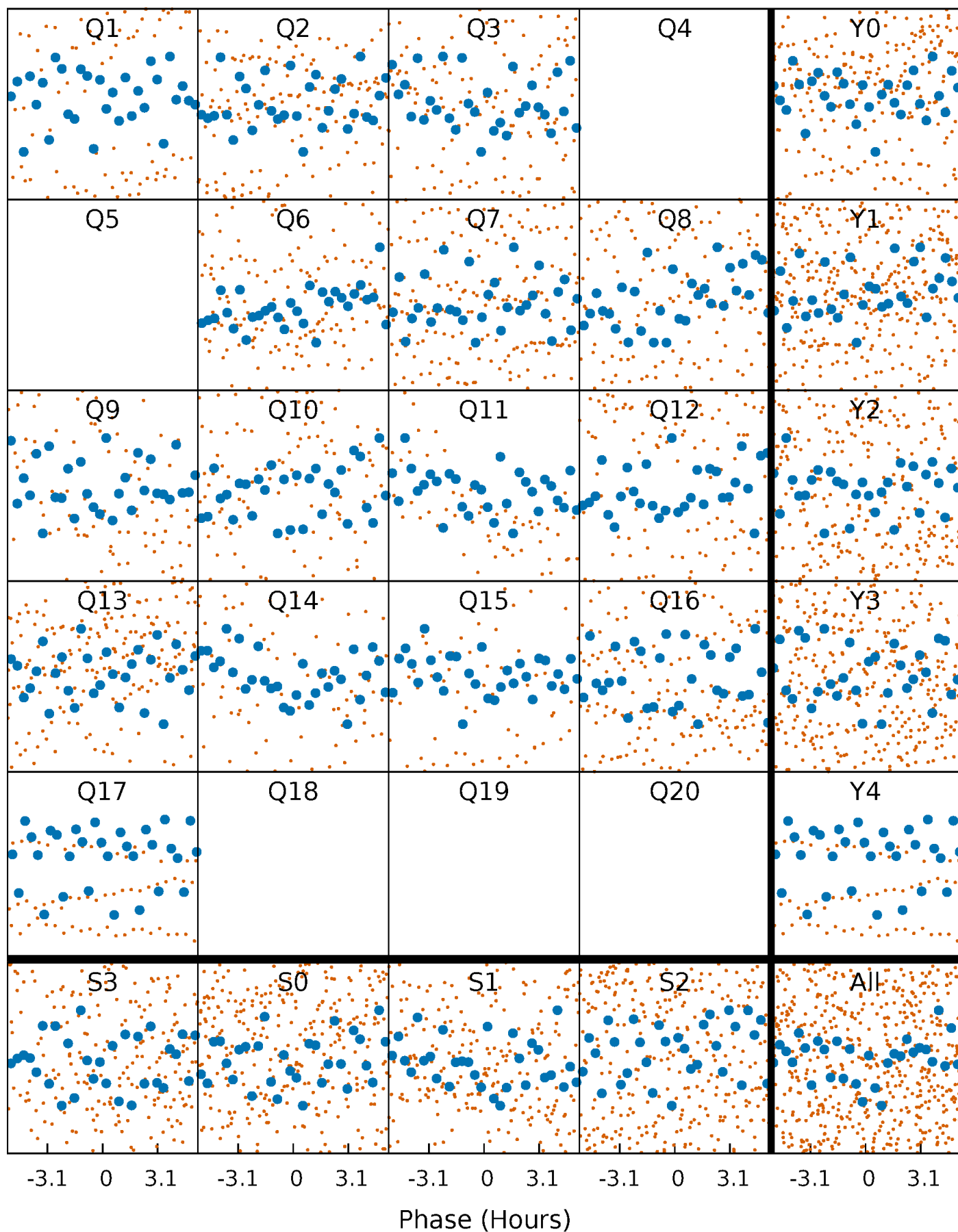


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

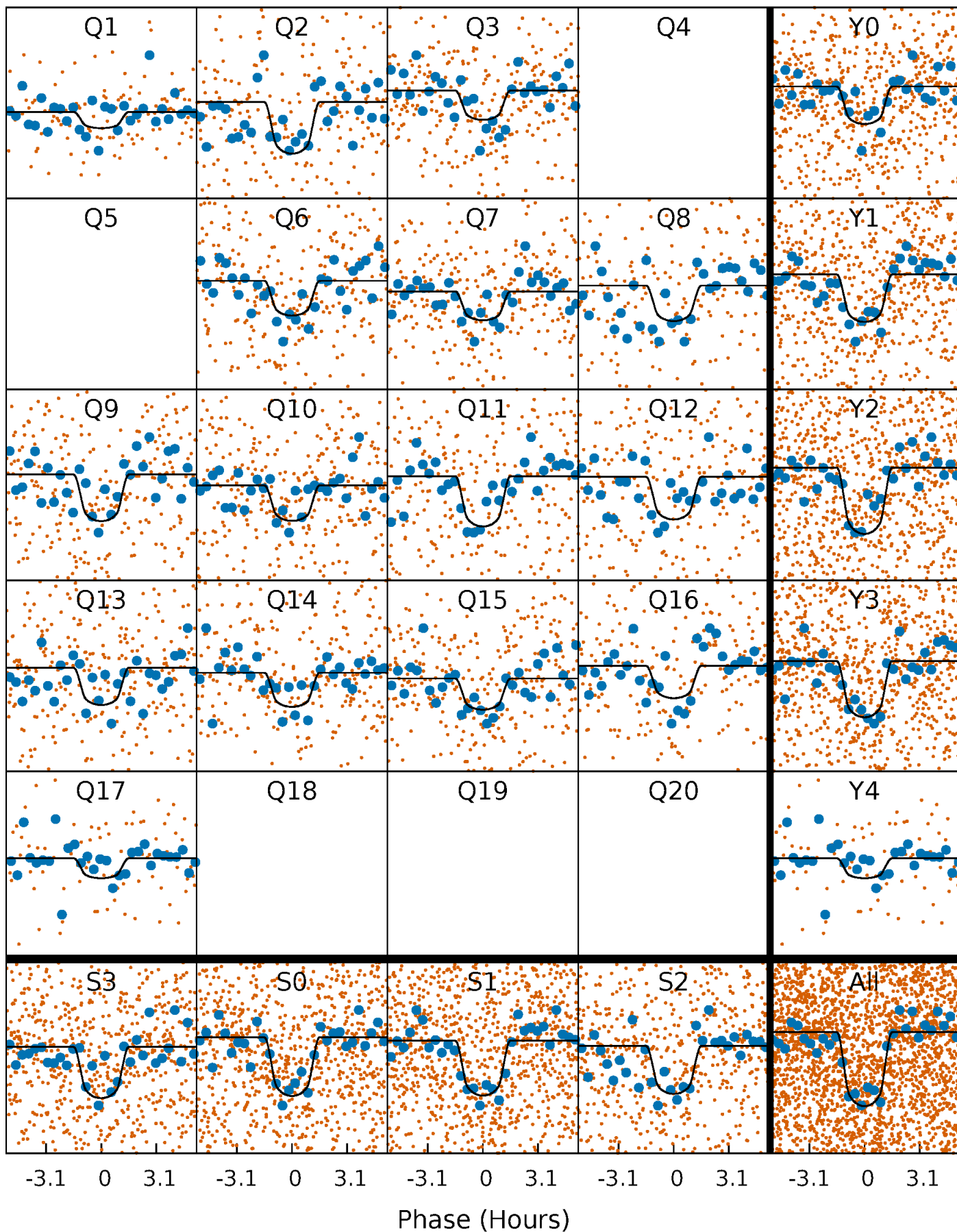
TCE 010407482-01 P= 6.305639 Days  $T_0=131.526539$  (BKJD)





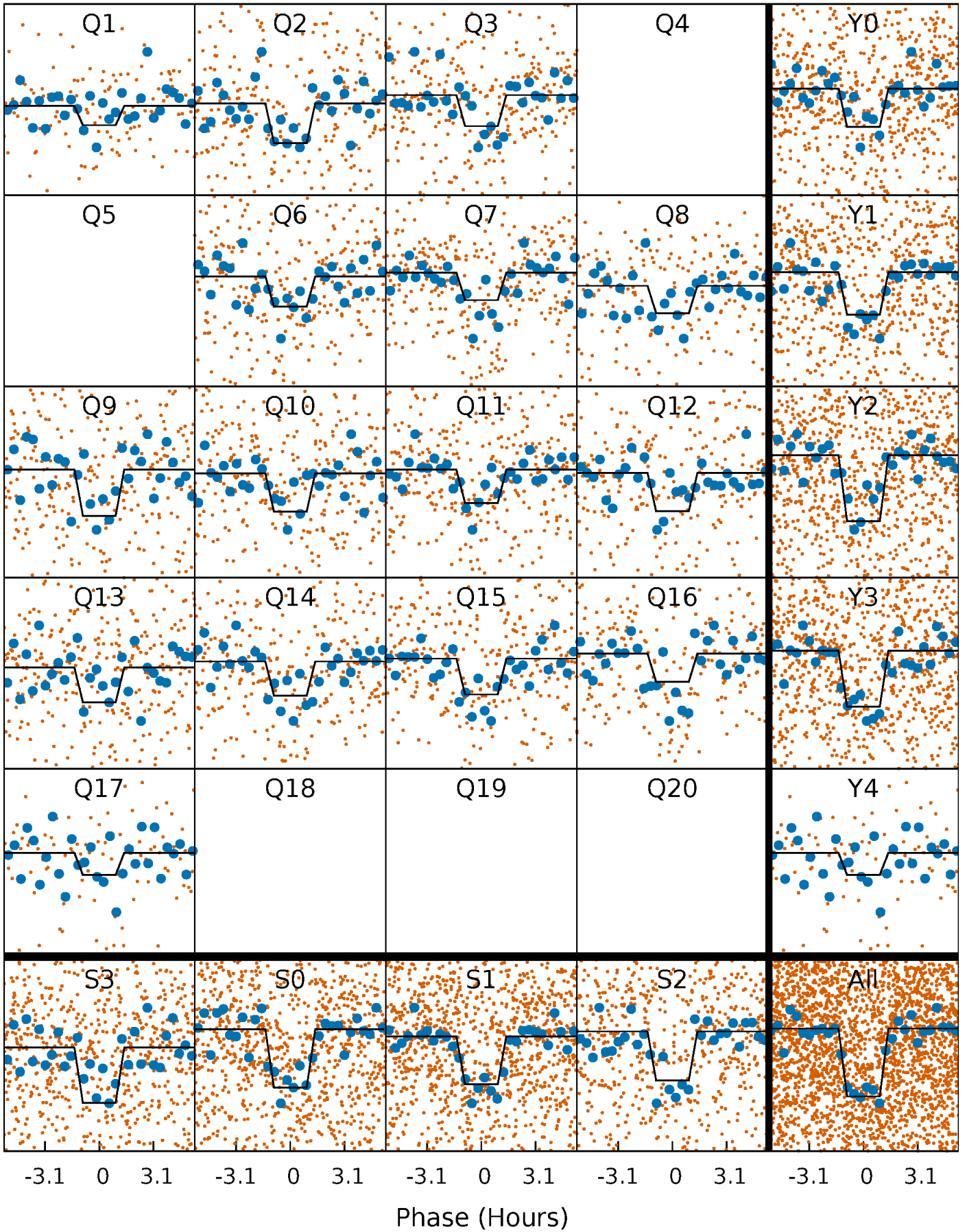
# DV Quarter-Phased Transit Curves

TCE 010407482-01 P= 6.305639 Days  $T_0=131.526539$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

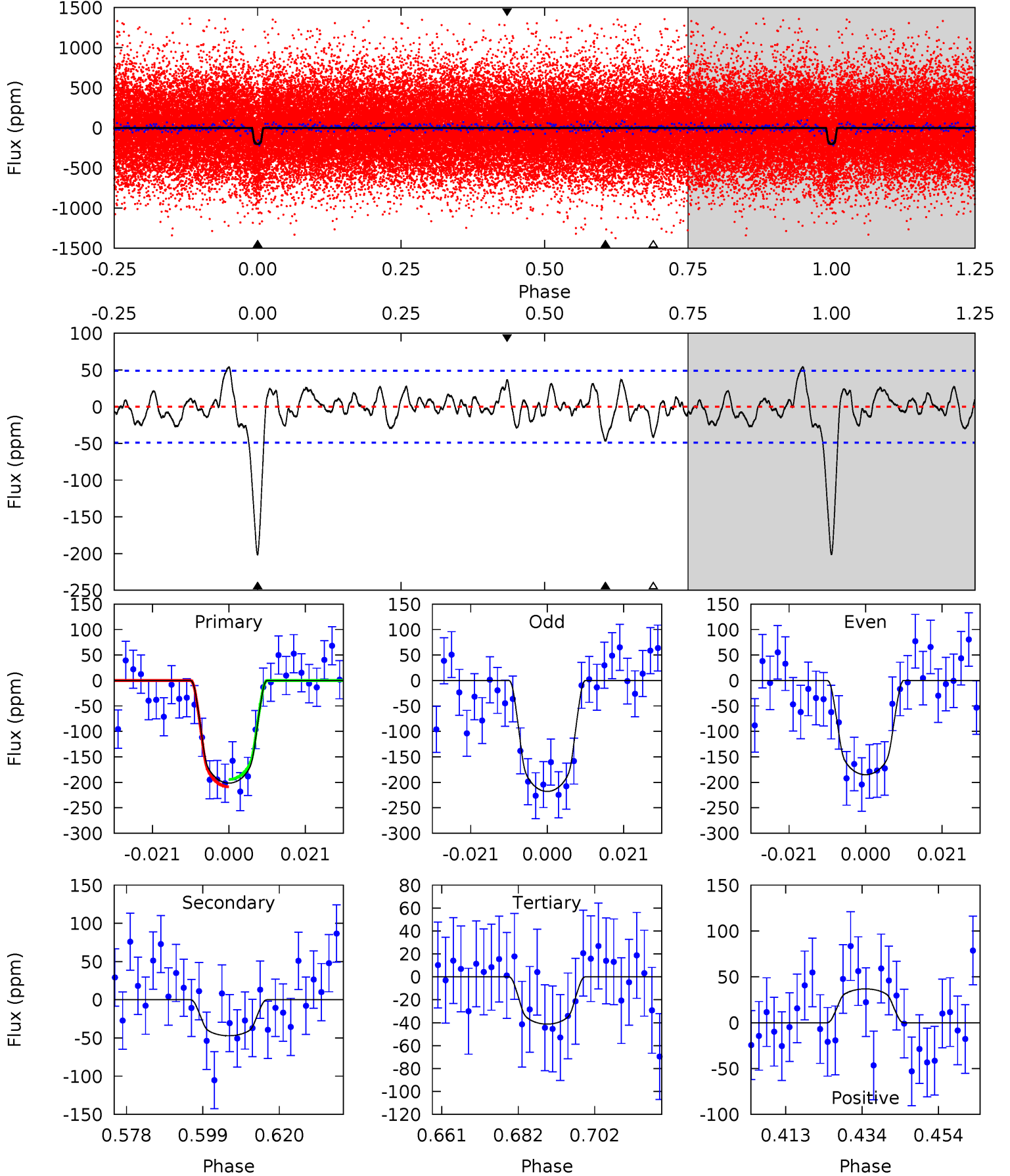
TCE 010407482-01 P= 6.305623 Days  $T_0=131.527461$  (BKJD)



# DV Model-Shift Uniqueness Test

010407482-01, P = 6.305639 Days, E = 125.220900 Days

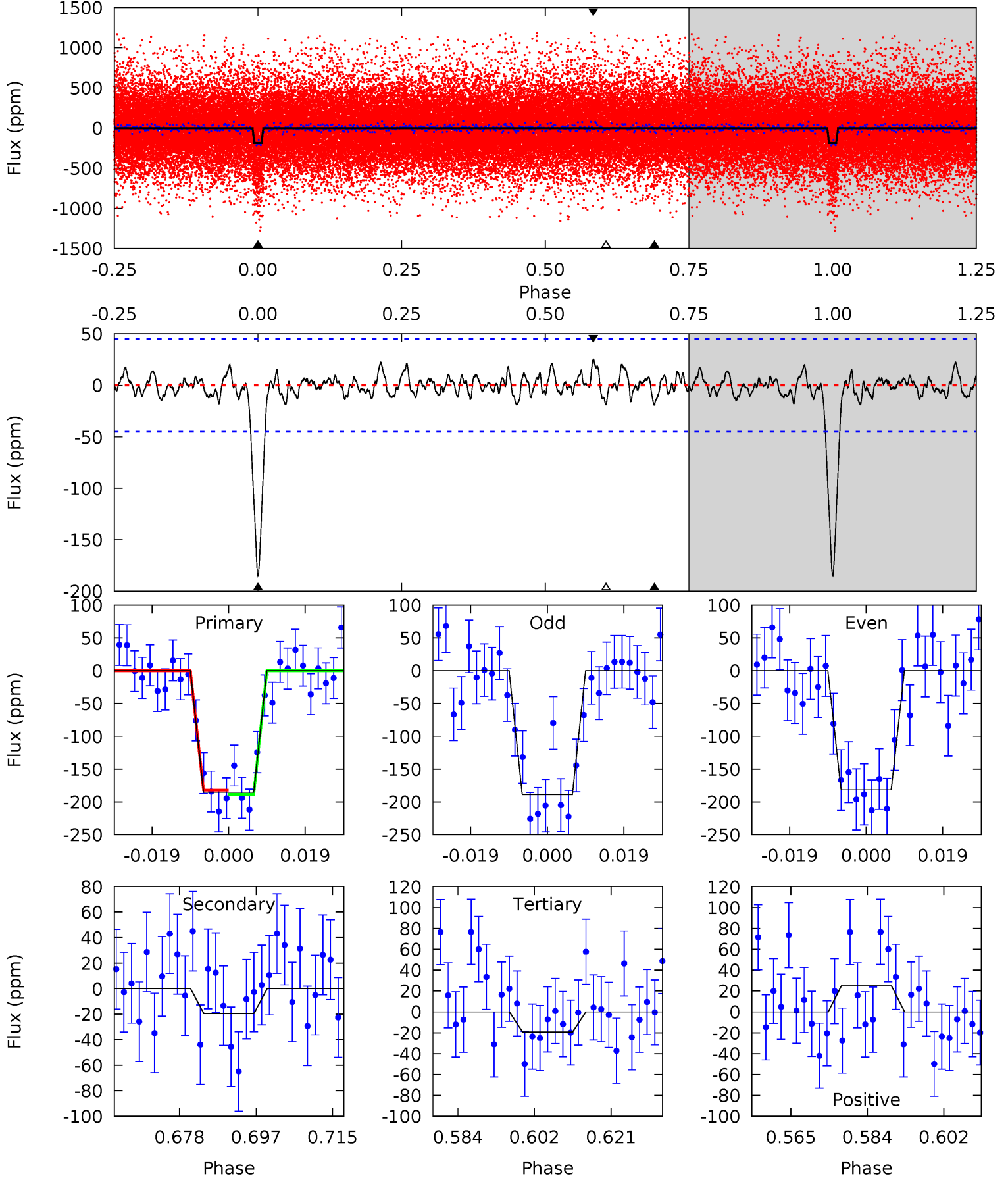
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	4.70	4.12	3.67	4.89	2.31	1.51	16.0	16.4	0.58	1.03	1.64	1.00	0.21	0.73



# Alt Model-Shift Uniqueness Test

010407482-01, P = 6.305623 Days, E = 125.221838 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
20.2	2.11	2.09	2.71	4.90	2.35	0.89	18.1	17.5	0.02	-0.60	0.39	0.98	0.12	0.34



### Stellar Parameters For KIC 010407482

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4934^{+148}_{-133}$	$3.927^{+0.658}_{-0.282}$	$0.280^{+0.150}_{-0.250}$	$1.756^{+0.947}_{-0.947}$	$0.952^{+0.191}_{-0.157}$	$0.248^{+2.321}_{-0.151}$
	+3%/-3%	+17%/-7%	+54%/-89%	+54%/-54%	+20%/-16%	+937%/-61%
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 010407482-01 / KOI 4255.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-47 \pm 10$	$2.87^{+1.90}_{-1.38}$	$1540^{+205}_{-245}$	$3536^{+814}_{-388}$	$13^{+37}_{-8}$
Alt.	$-19 \pm 9$	$2.51^{+1.43}_{-1.30}$	$1535^{+211}_{-245}$	$3237^{+726}_{-526}$	$7.464^{+23.504}_{-5.403}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$



## DV Centroid Data

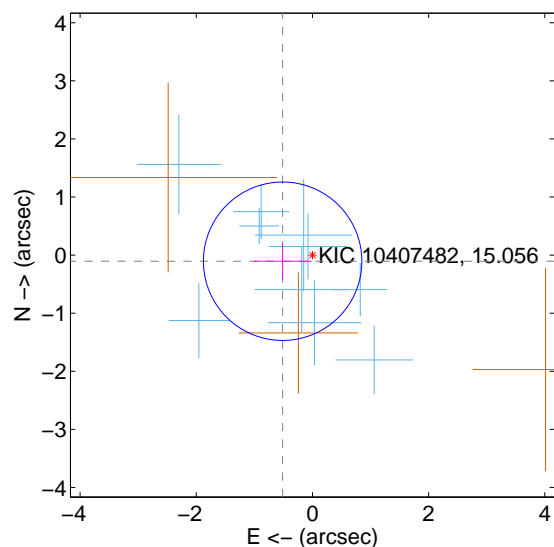
Supplemental centroid analysis for 010407482-01. Kepler magnitude: 15.06. Transit SNR 13.18

There are 10 quarters with good PRF difference image offsets

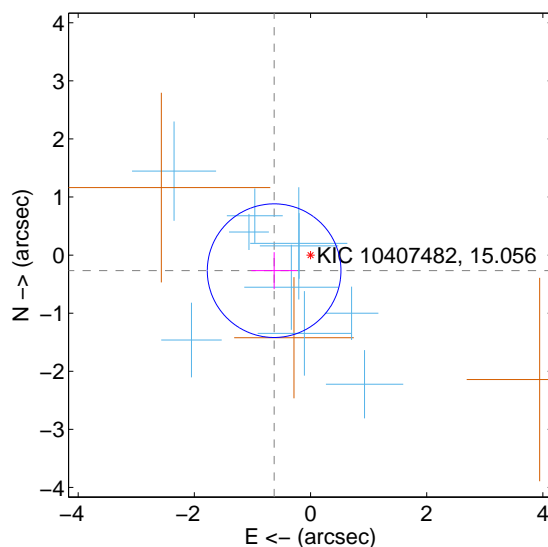
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.524 \pm 0.455$	1.15	$0.513 \pm 0.501$	$-0.106 \pm 0.310$
PRF-fit source offset from KIC position	$0.682 \pm 0.384$	1.78	$0.627 \pm 0.394$	$-0.268 \pm 0.319$
photometric centroid source offset	$0.86 \pm 0.87$	0.98	$0.83 \pm 0.88$	$0.22 \pm 0.83$

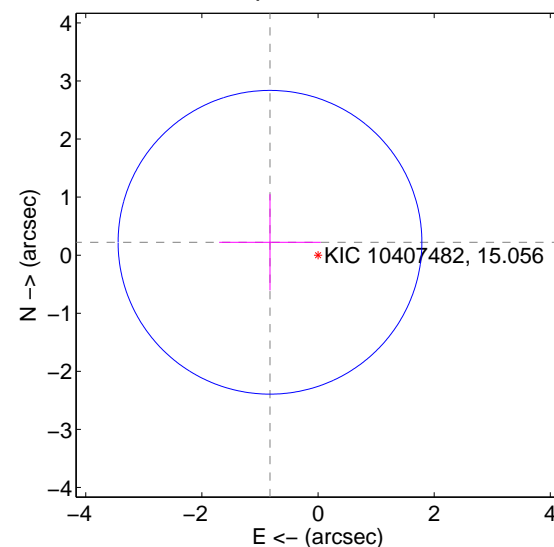
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

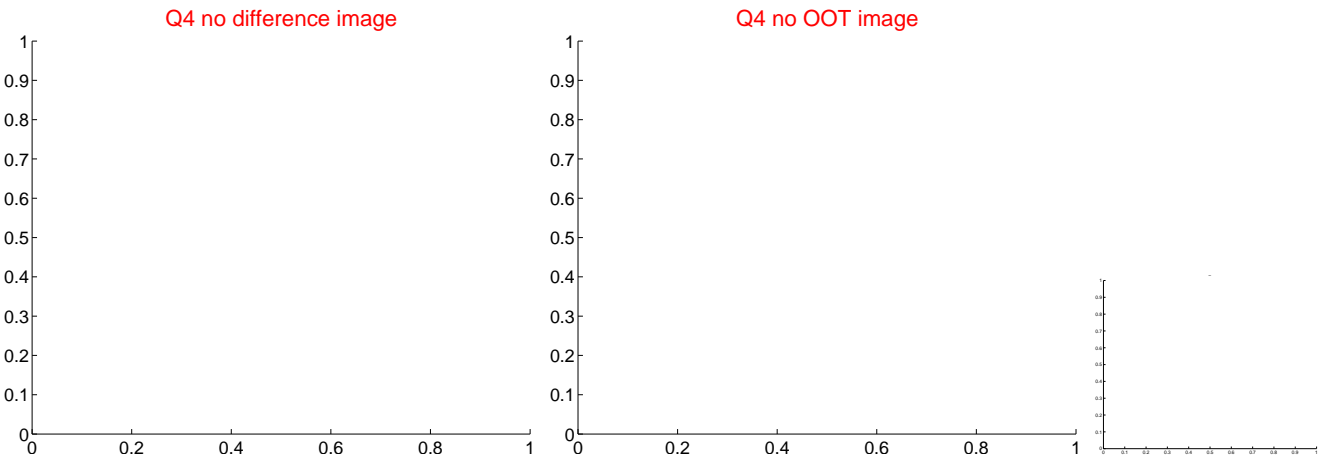
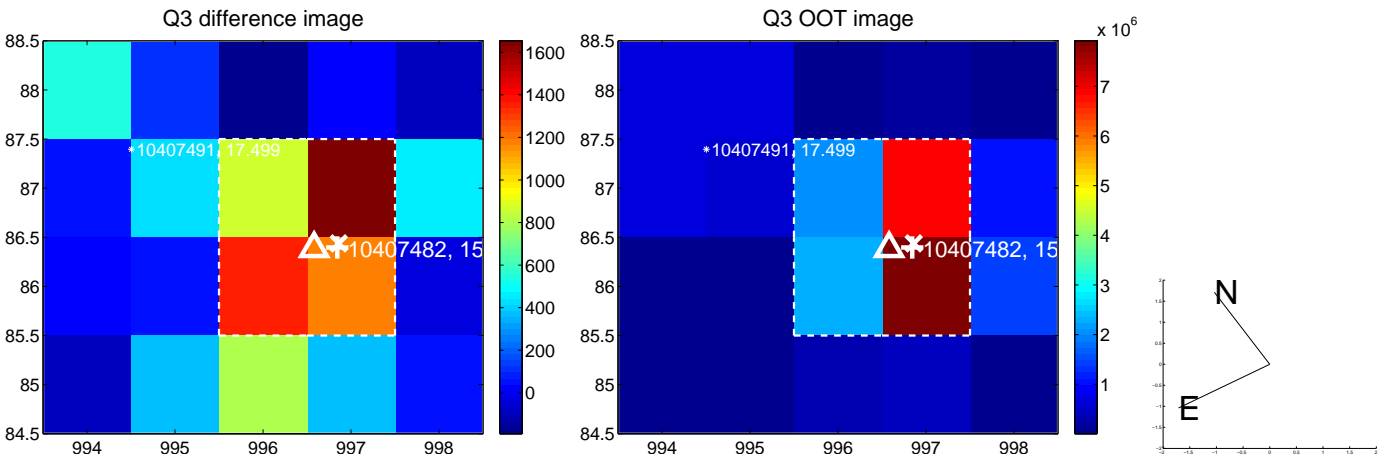
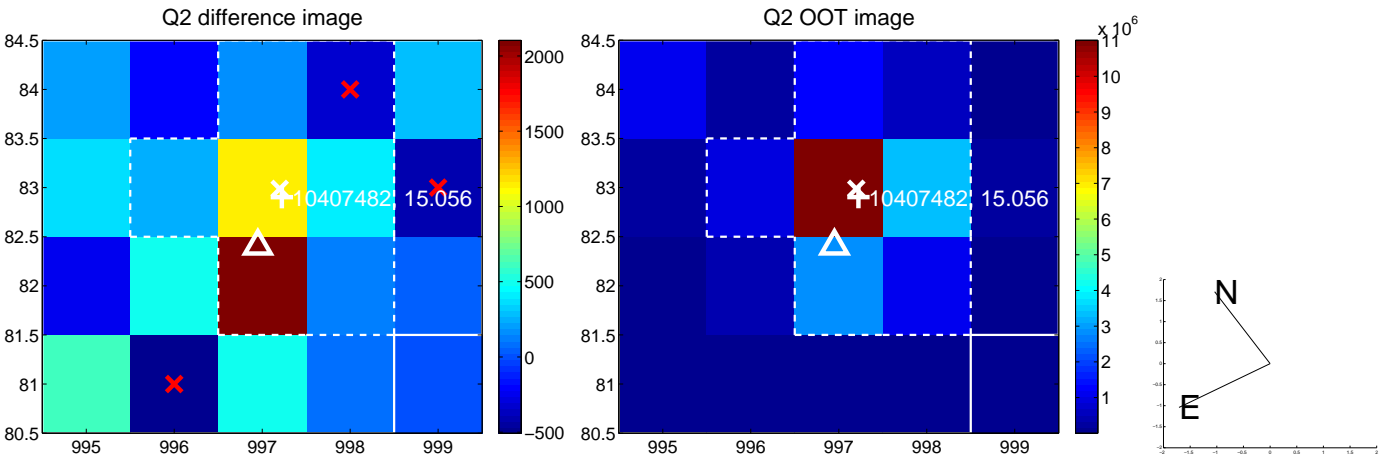
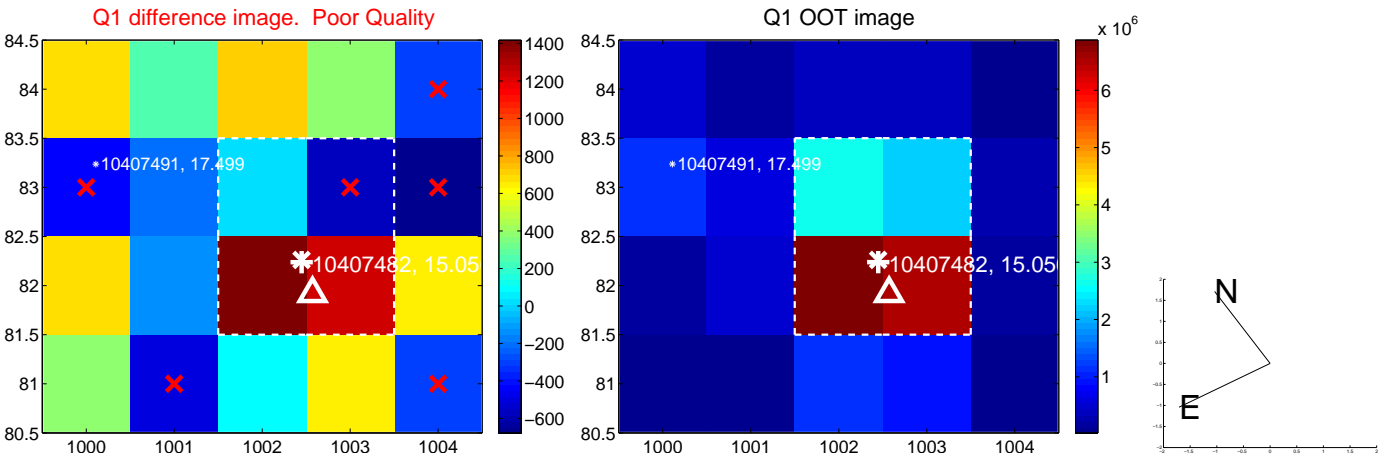


offset from photometric centroids

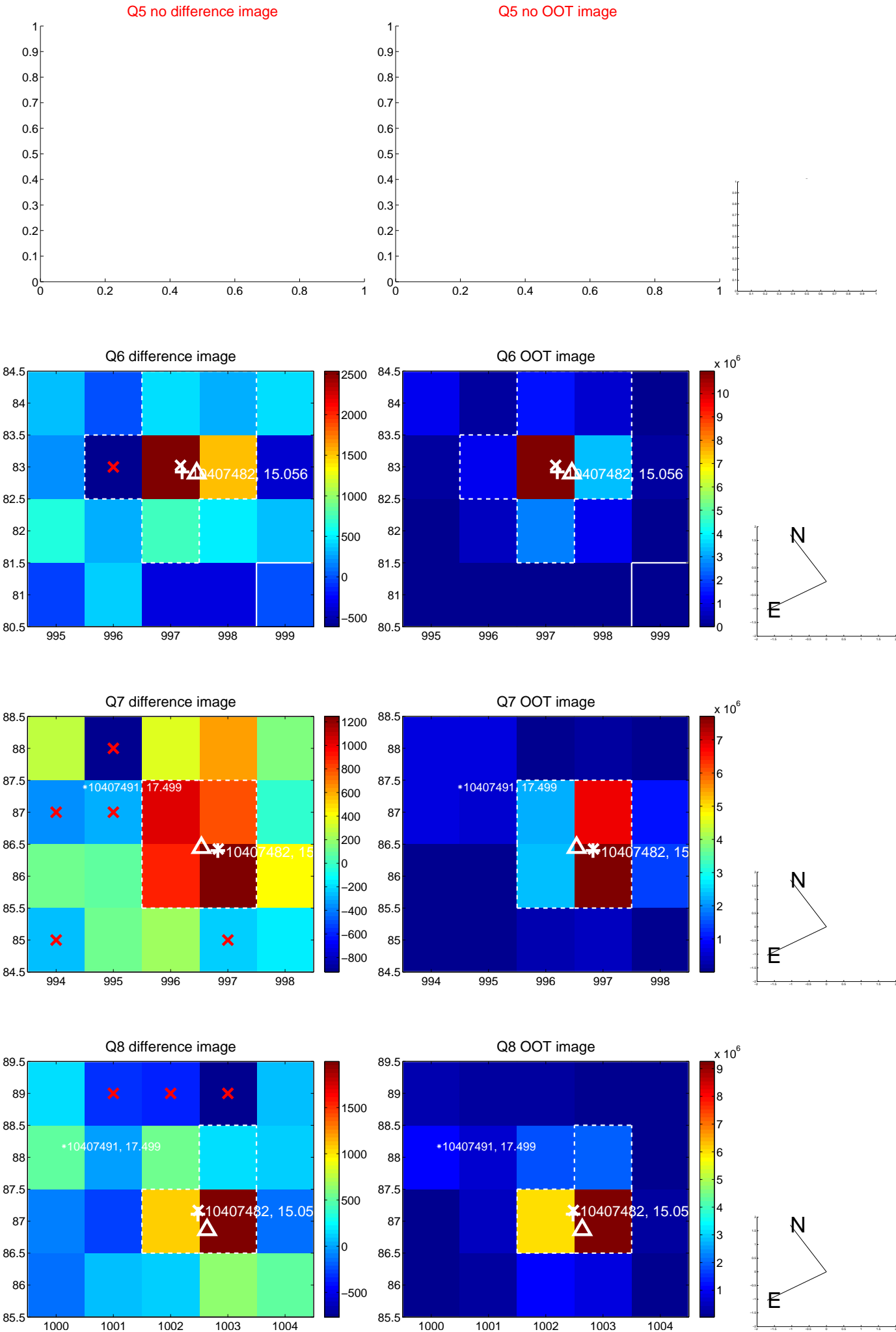


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

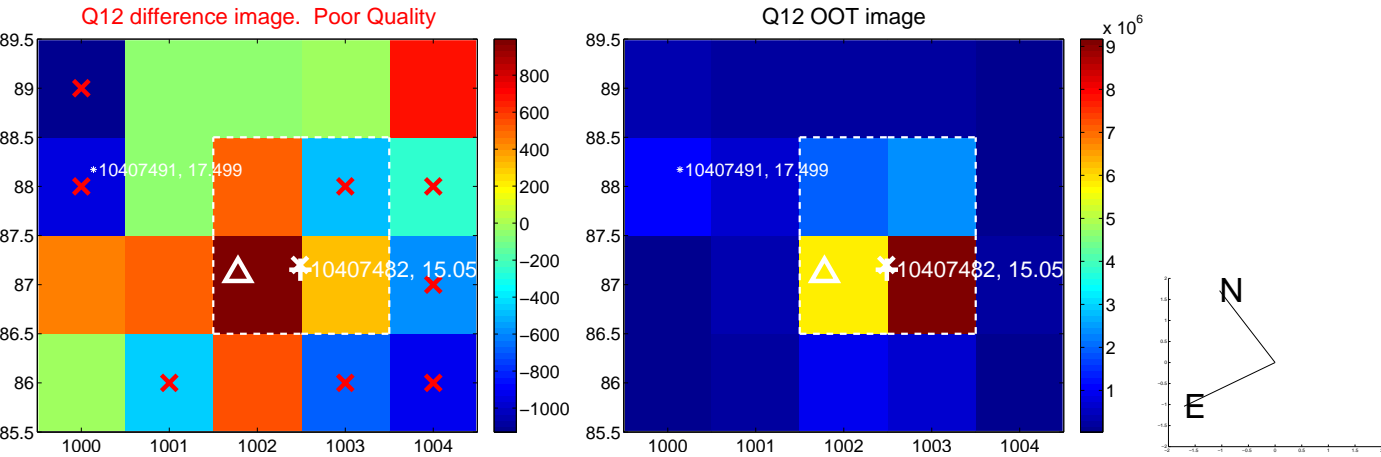
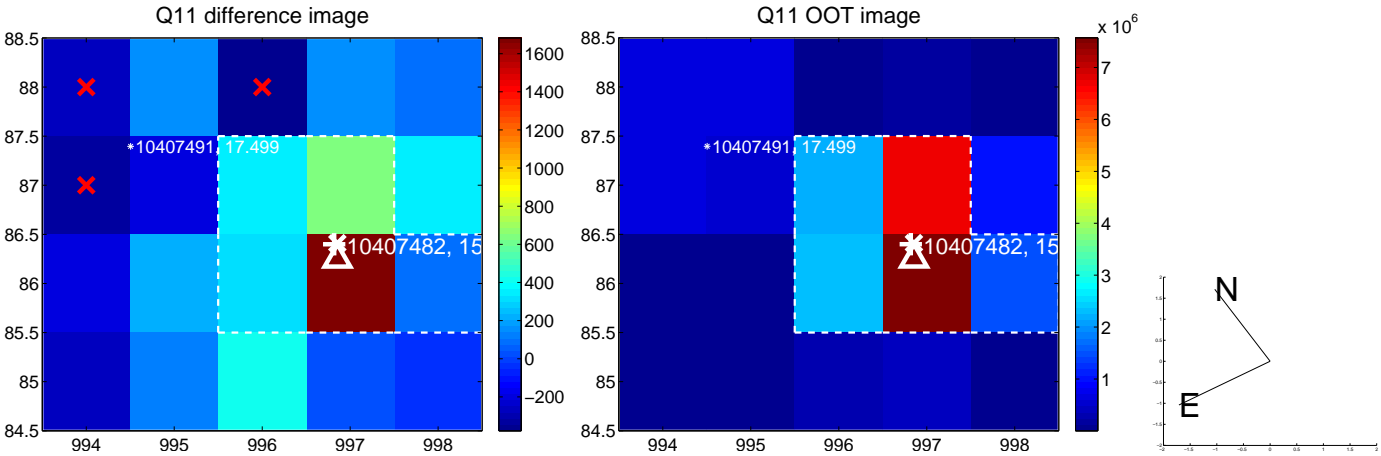
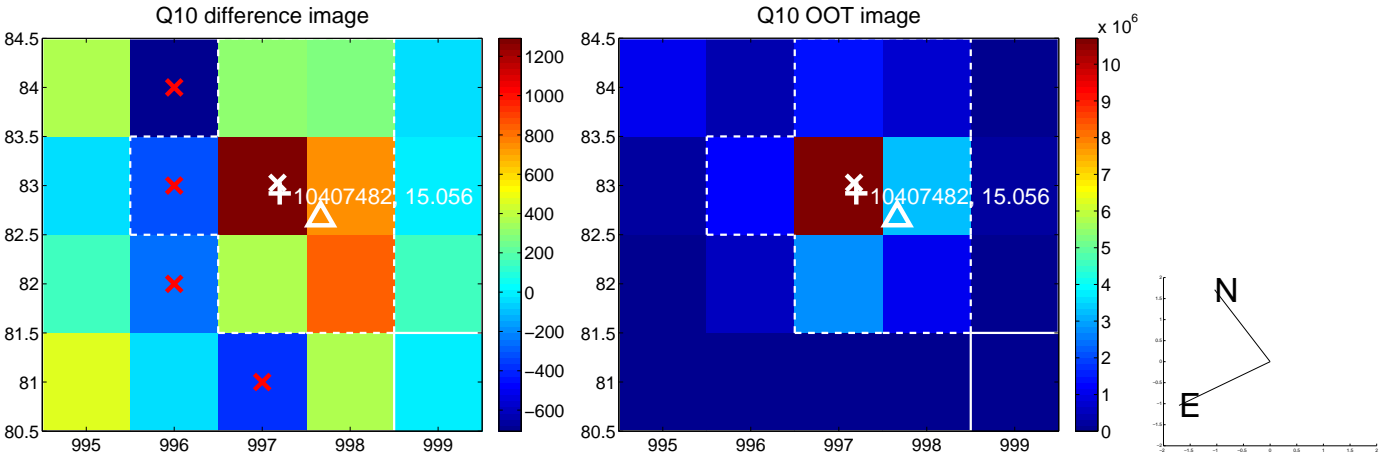
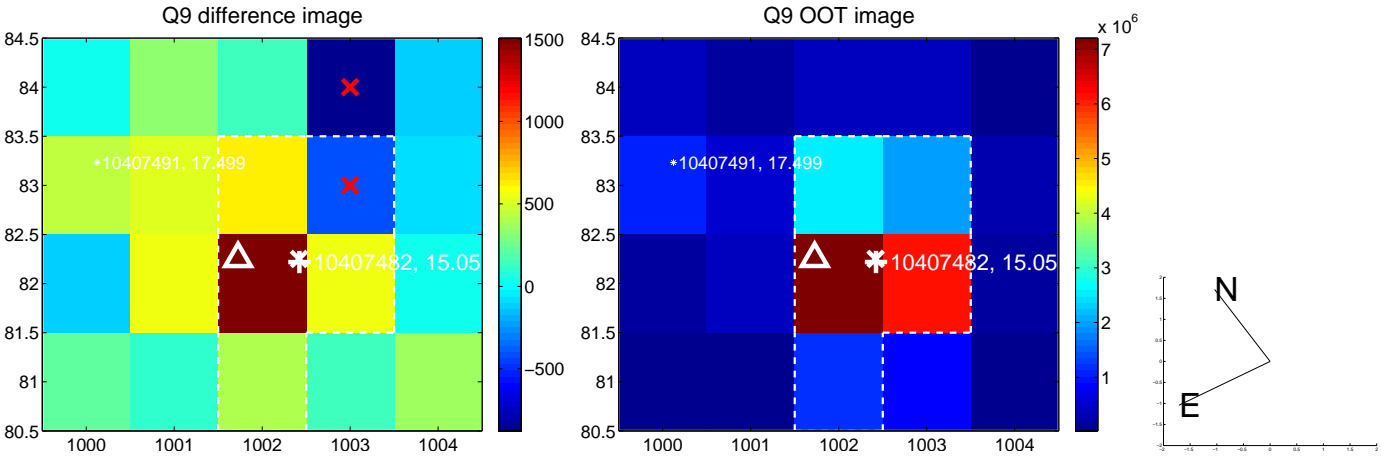
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



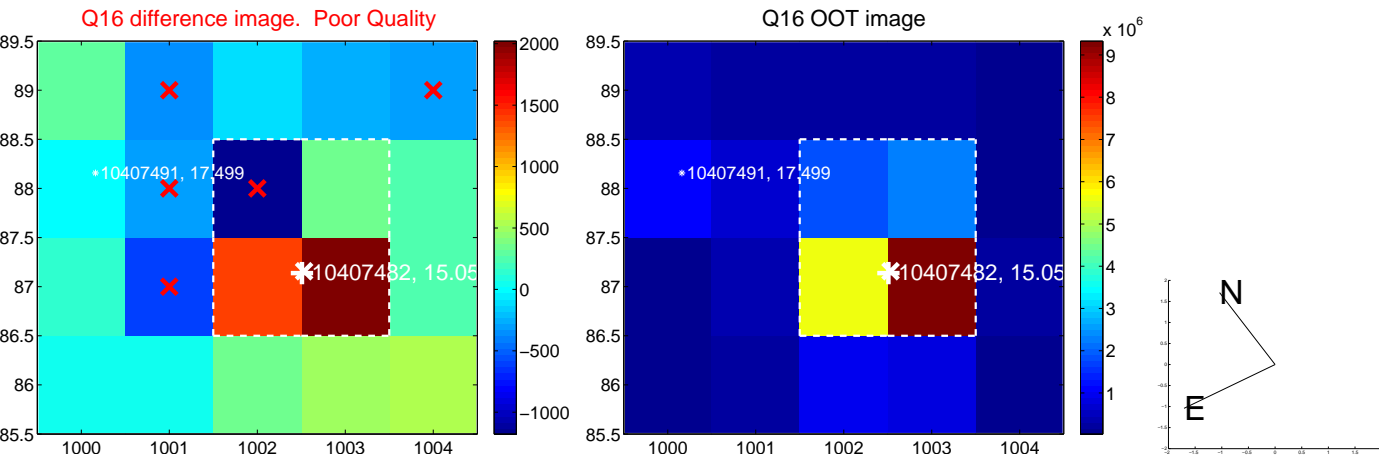
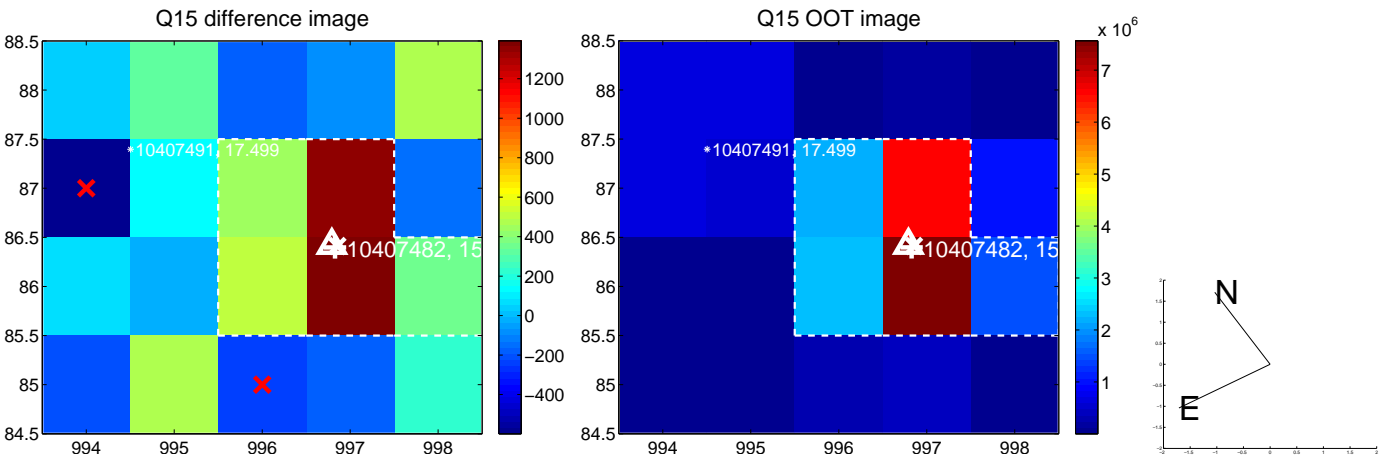
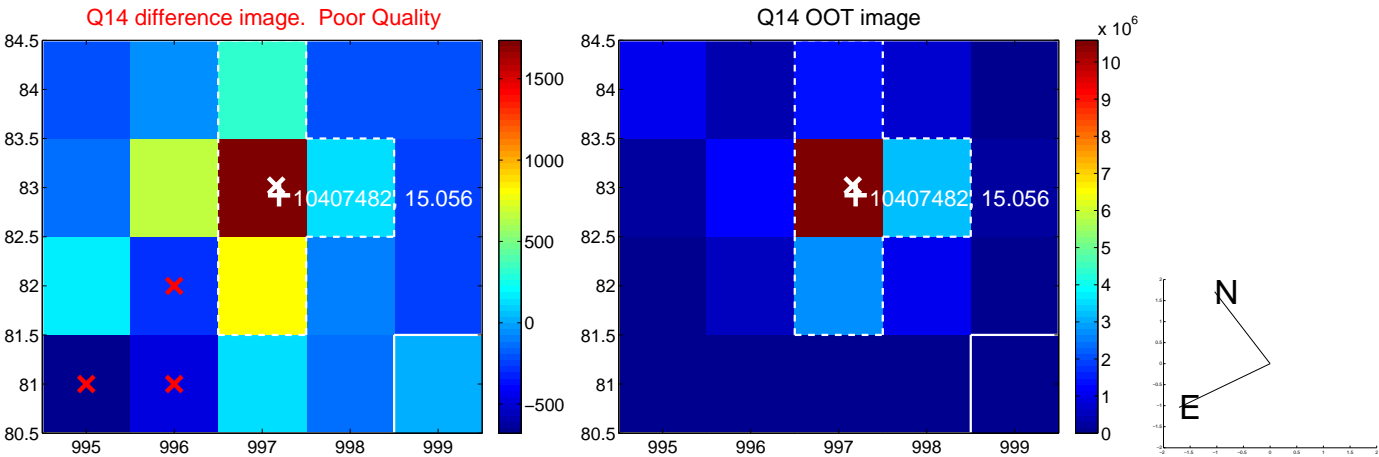
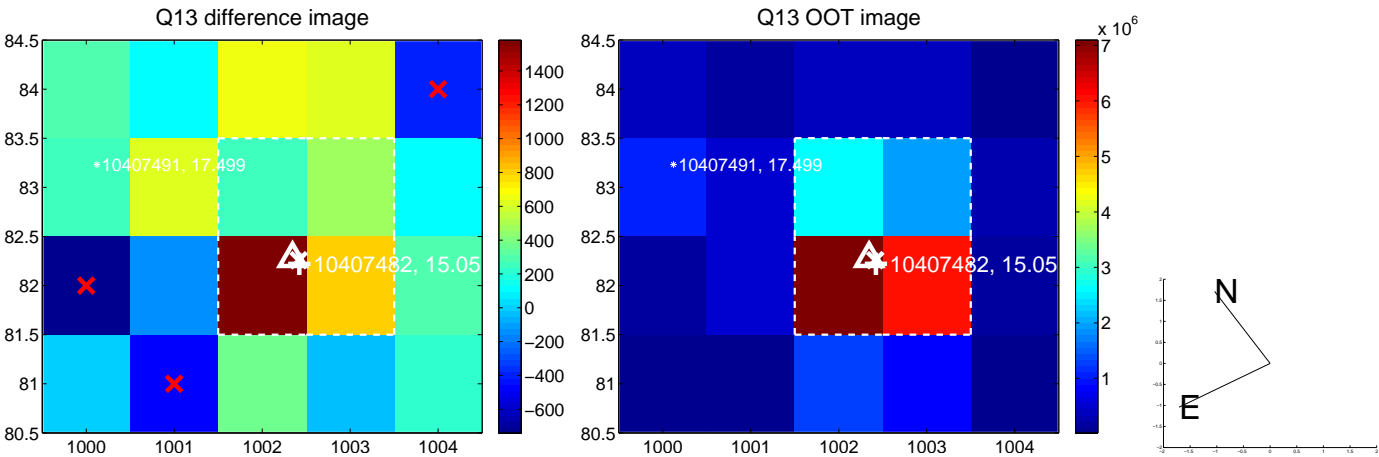
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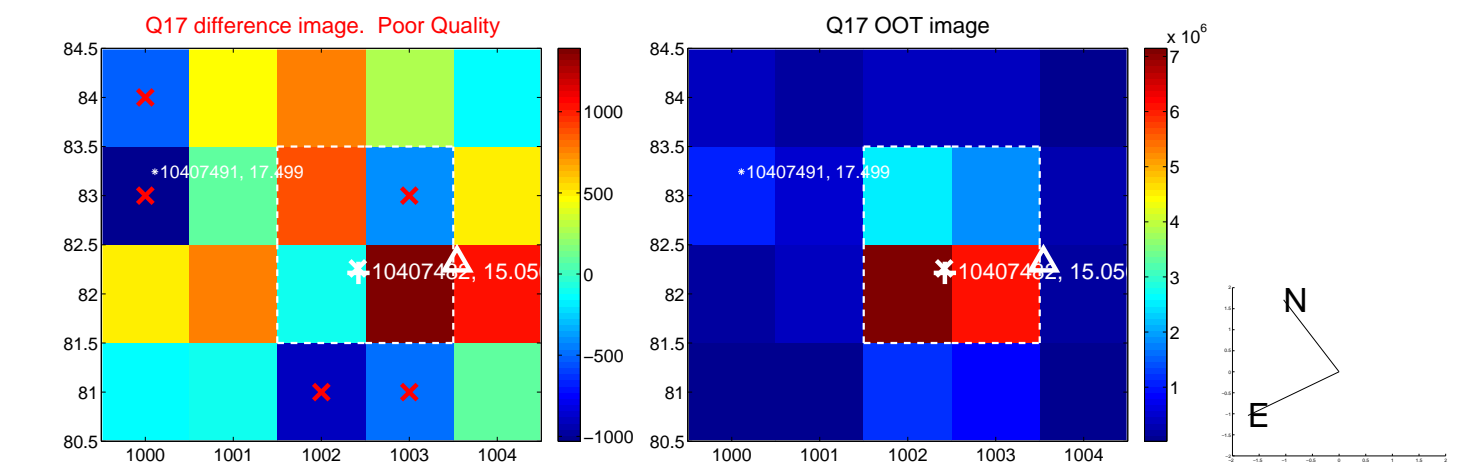


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

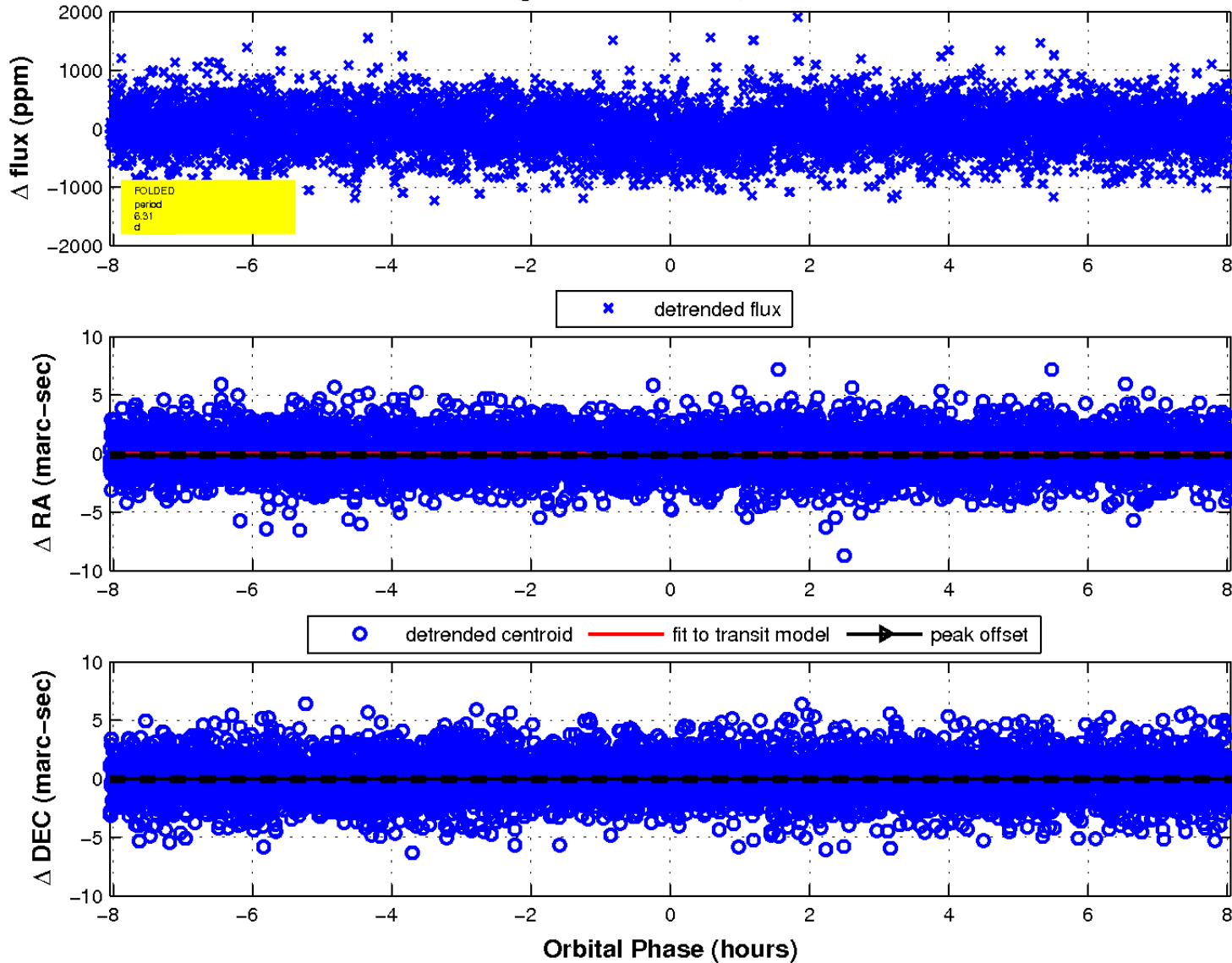




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

