

# KIC 005545815

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005545815-01	OBS	2452.01	4.353740	134.088773	165.4	2.079	12.8	13.6	0.98	5992	1.49	457.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005545815-01	OBS	FP	0.01	0	0	1	0	CENT_RESOLVED_OFFSET

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

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

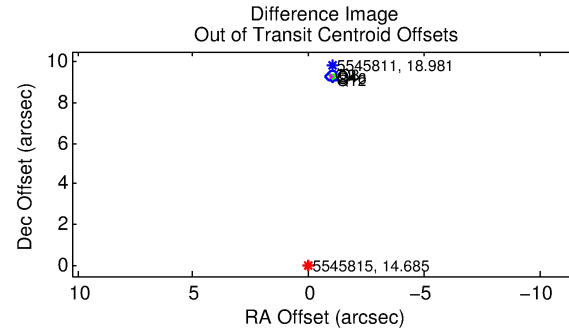
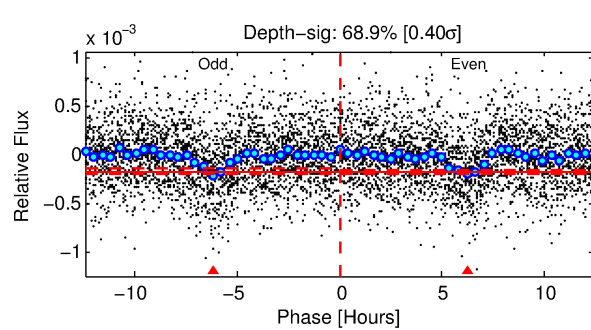
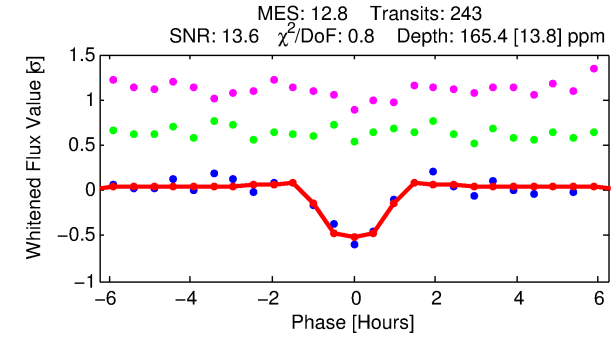
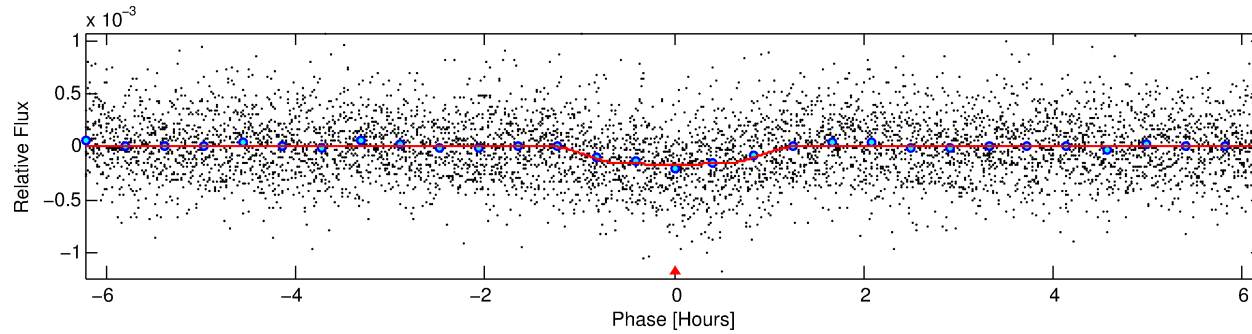
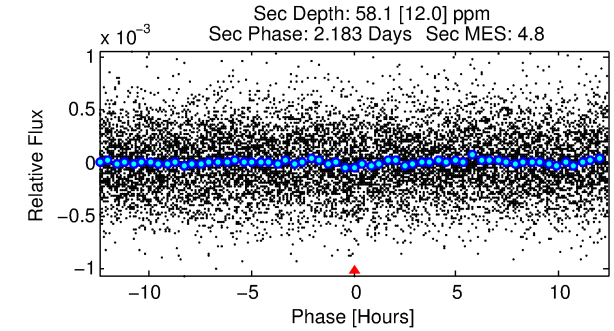
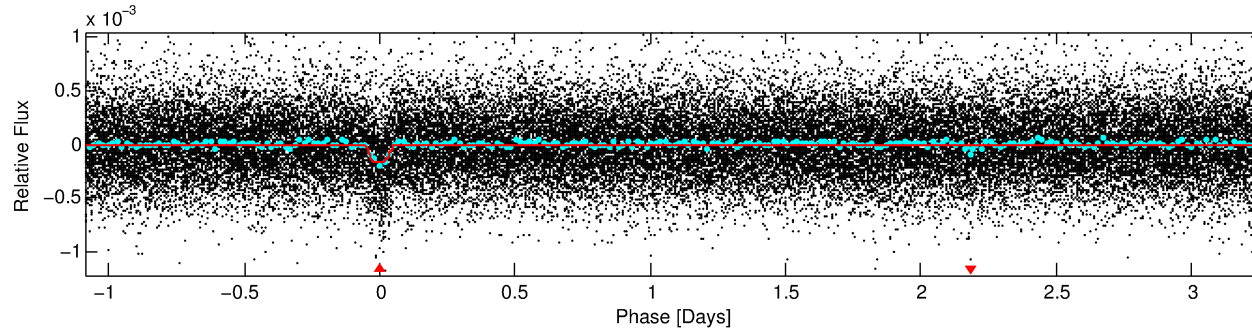
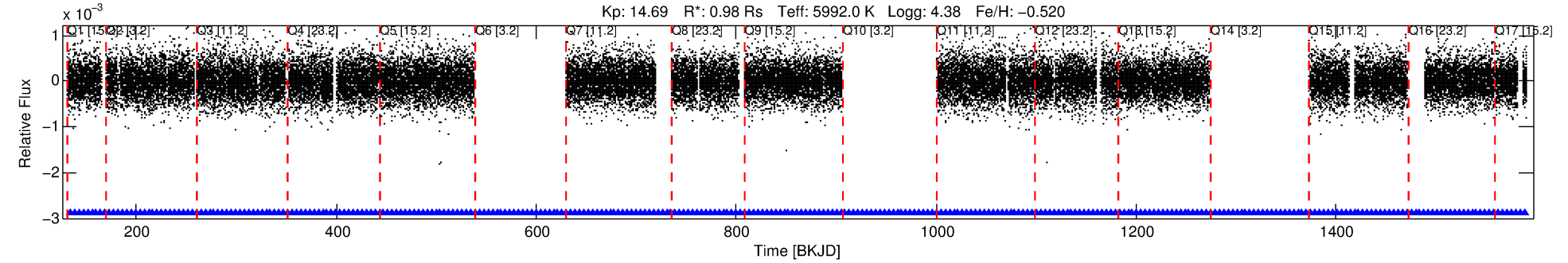
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005545815-01

No Significant Match Found

# DV One-Page Summary

KIC: 5545815 Candidate: 1 of 1 Period: 4.354 d  
KOI: K02452.01 Corr: 0.914



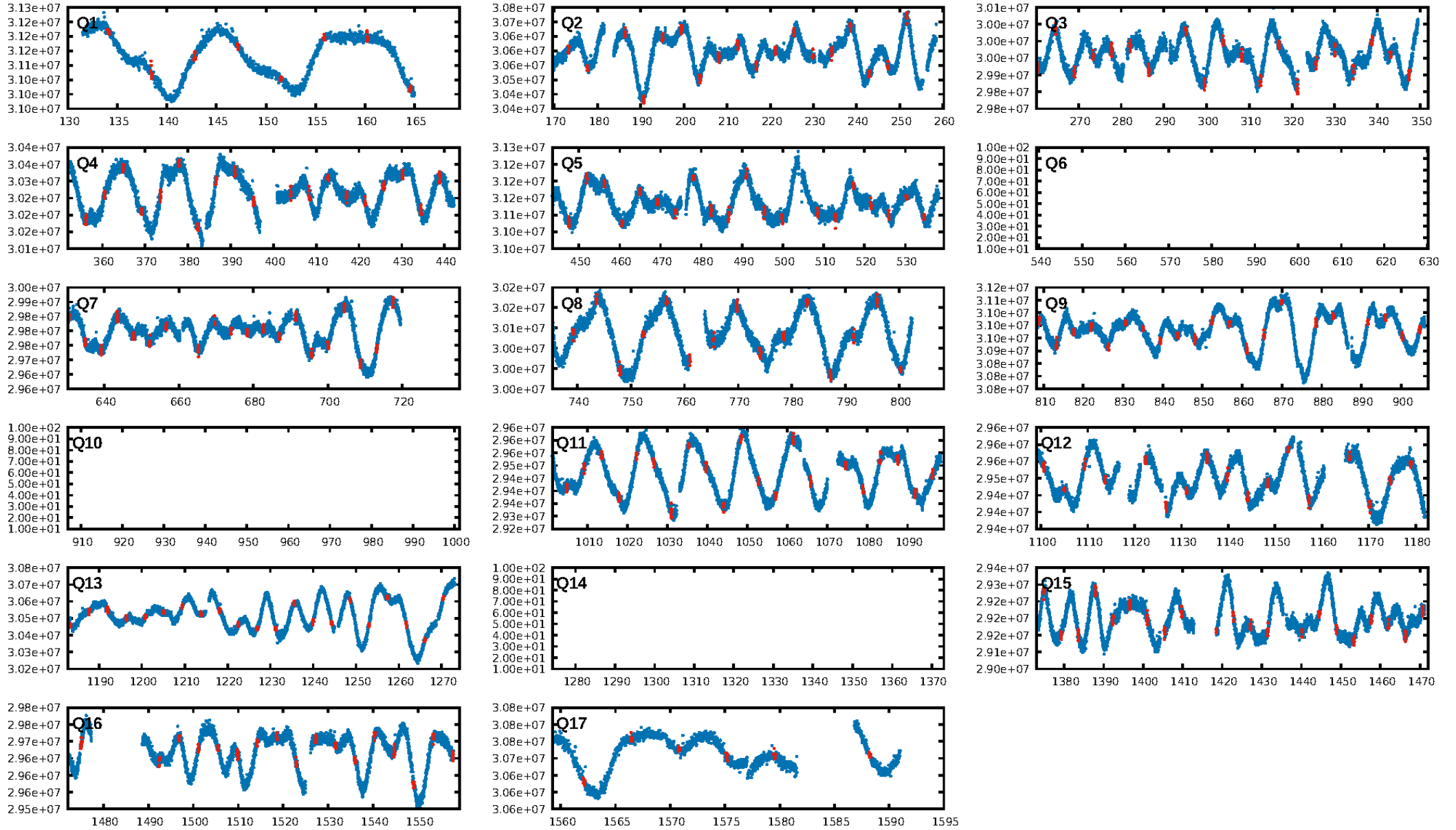
## DV Fit Results:

Period = 4.35374 [0.00002] d  
Epoch = 134.0888 [0.0026] BKJD  
Rp/R\* = 0.0138 [0.0059]  
a/R\* = 7.60 [17.19]  
b = 0.90 [0.51]  
Seff = 457.43 [161.56]  
Teq = 1179 [104] K  
Rp = 1.49 [0.75] Re  
a = 0.0495 [0.0113] AU  
Ag = 35.42 [33.40] [1.03σ]  
Teffp = 4448 [990] K [3.28σ]

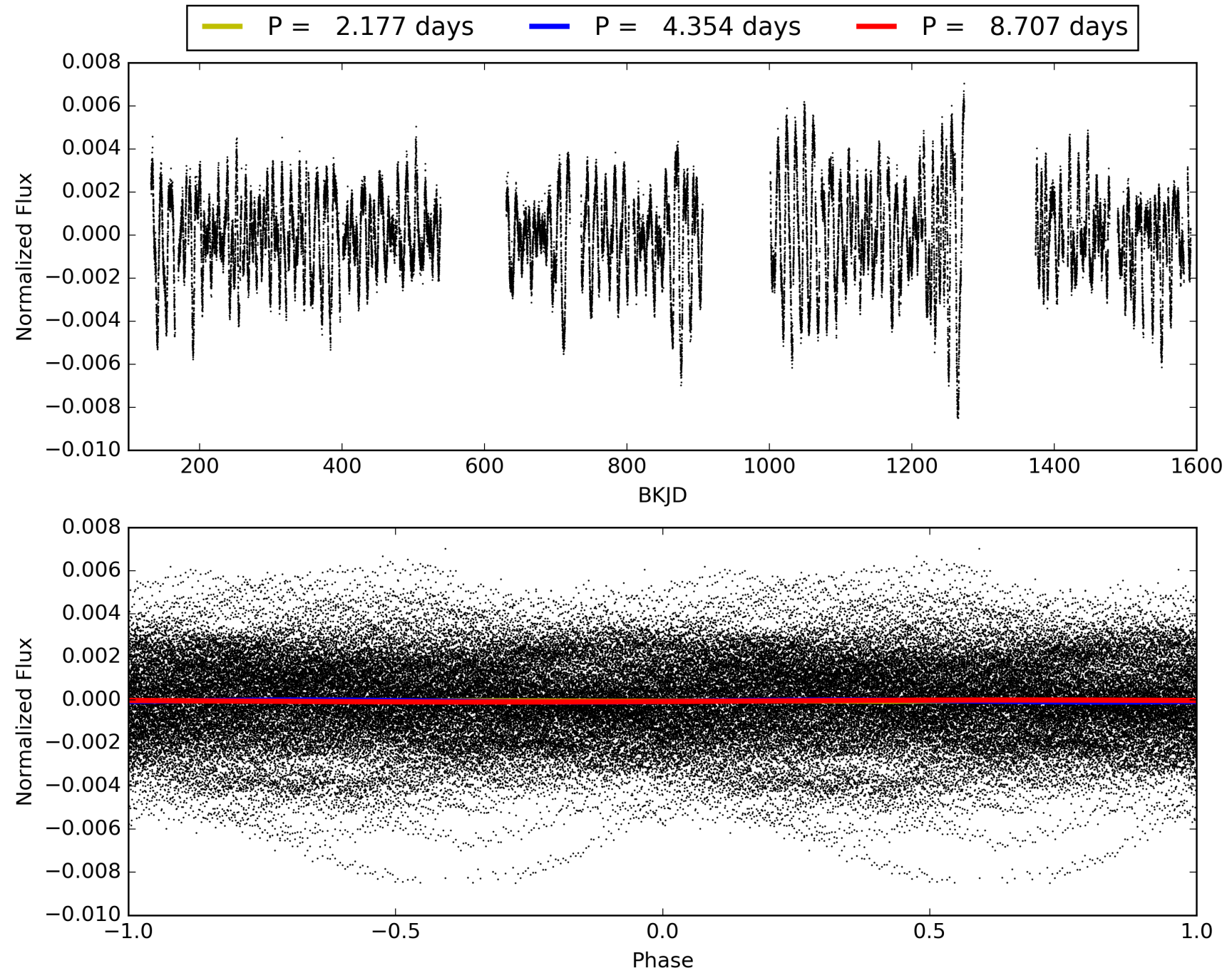
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.01e-35  
RollingBand-fgt: 1.00 [229/229]  
GhostDiagnostic-chr: -0.4427  
Centroid-sig: 0.0%  
Centroid-so: N/A  
OotOffset-rm: 9.337 arcsec [108.20σ]  
KicOffset-rm: 9.281 arcsec [105.81σ]  
OotOffset-st: 1/0/4/0 [5]  
KicOffset-st: 1/0/4/0 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 005545815-01, PDC Light Curves

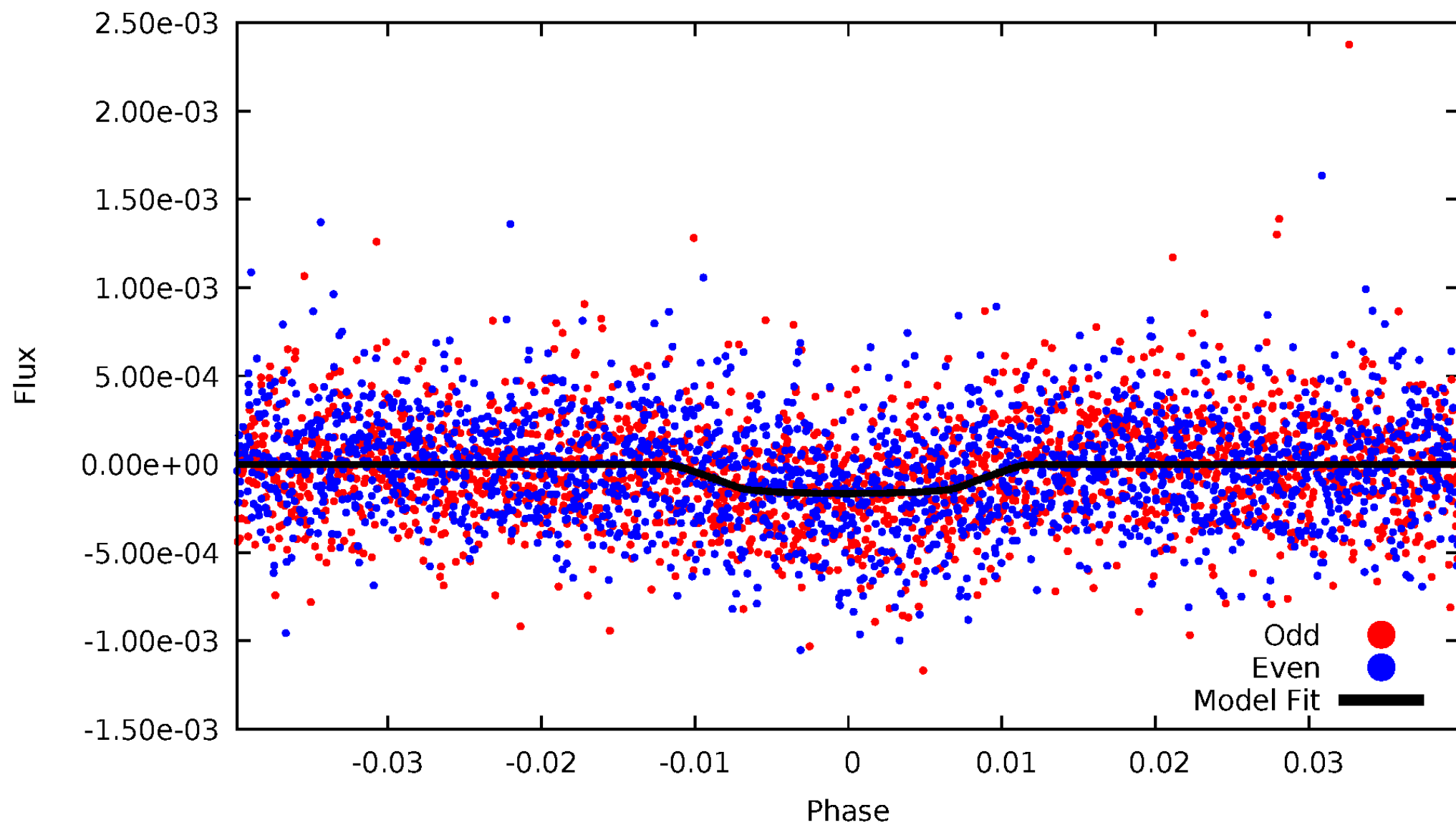


# TCE 005545815-01



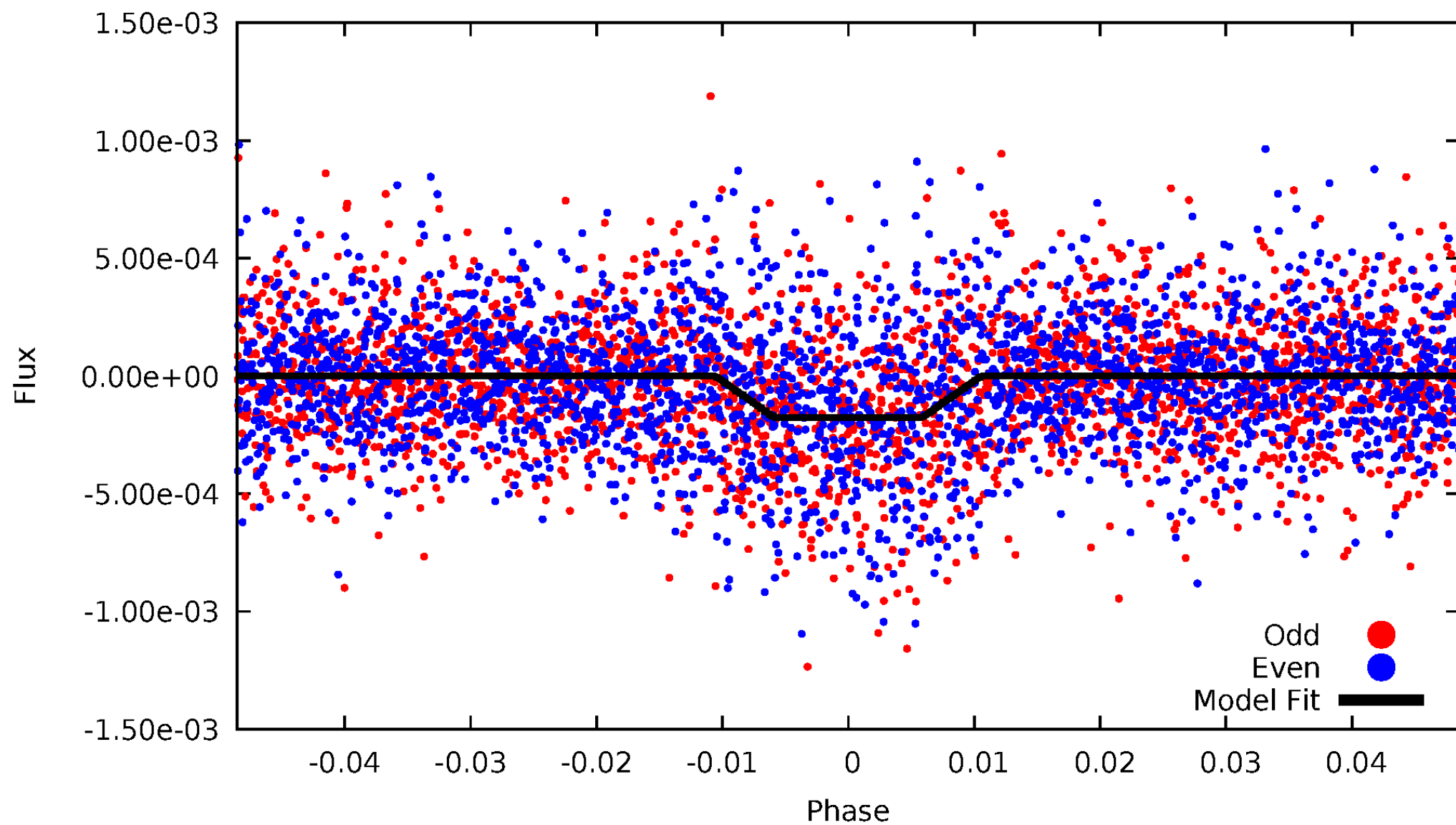
# DV Odd/Even

TCE 005545815-01



# ALT Odd/Even

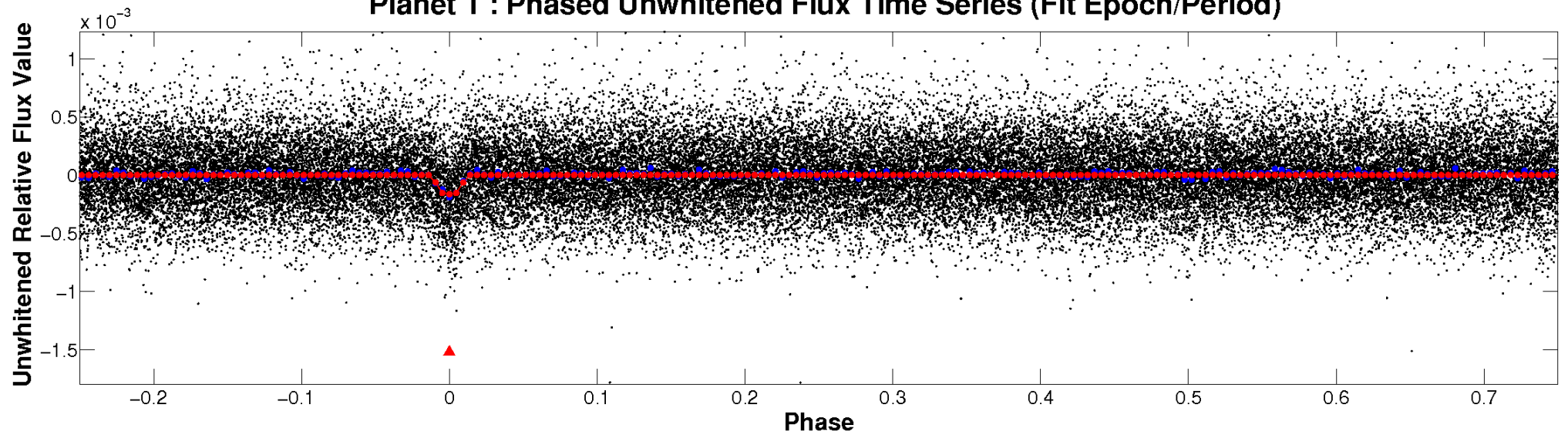
TCE 005545815-01



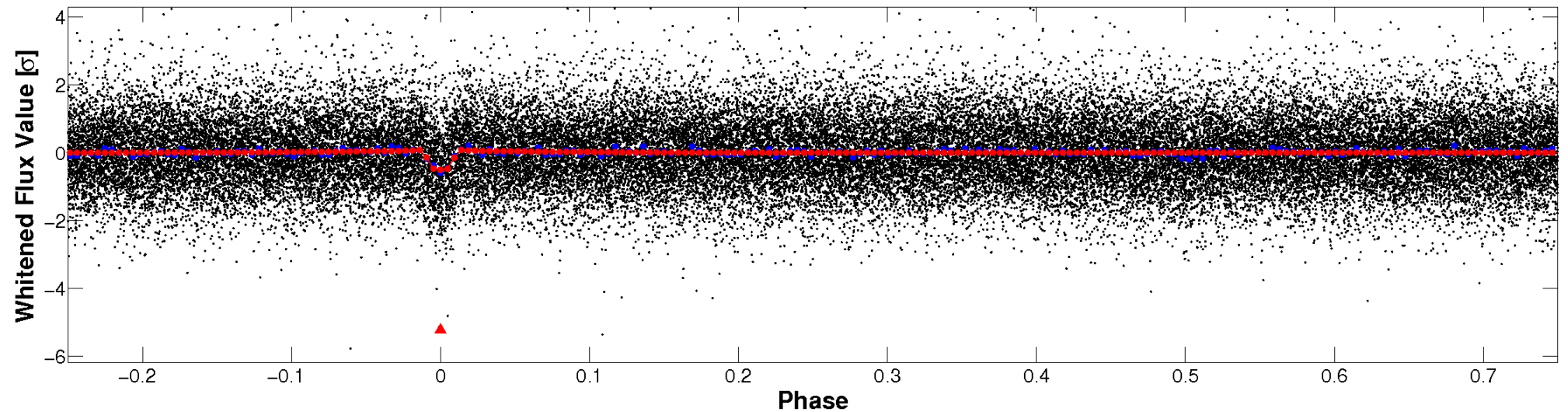


# Non-Whitened Vs. Whitened Light Curve

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

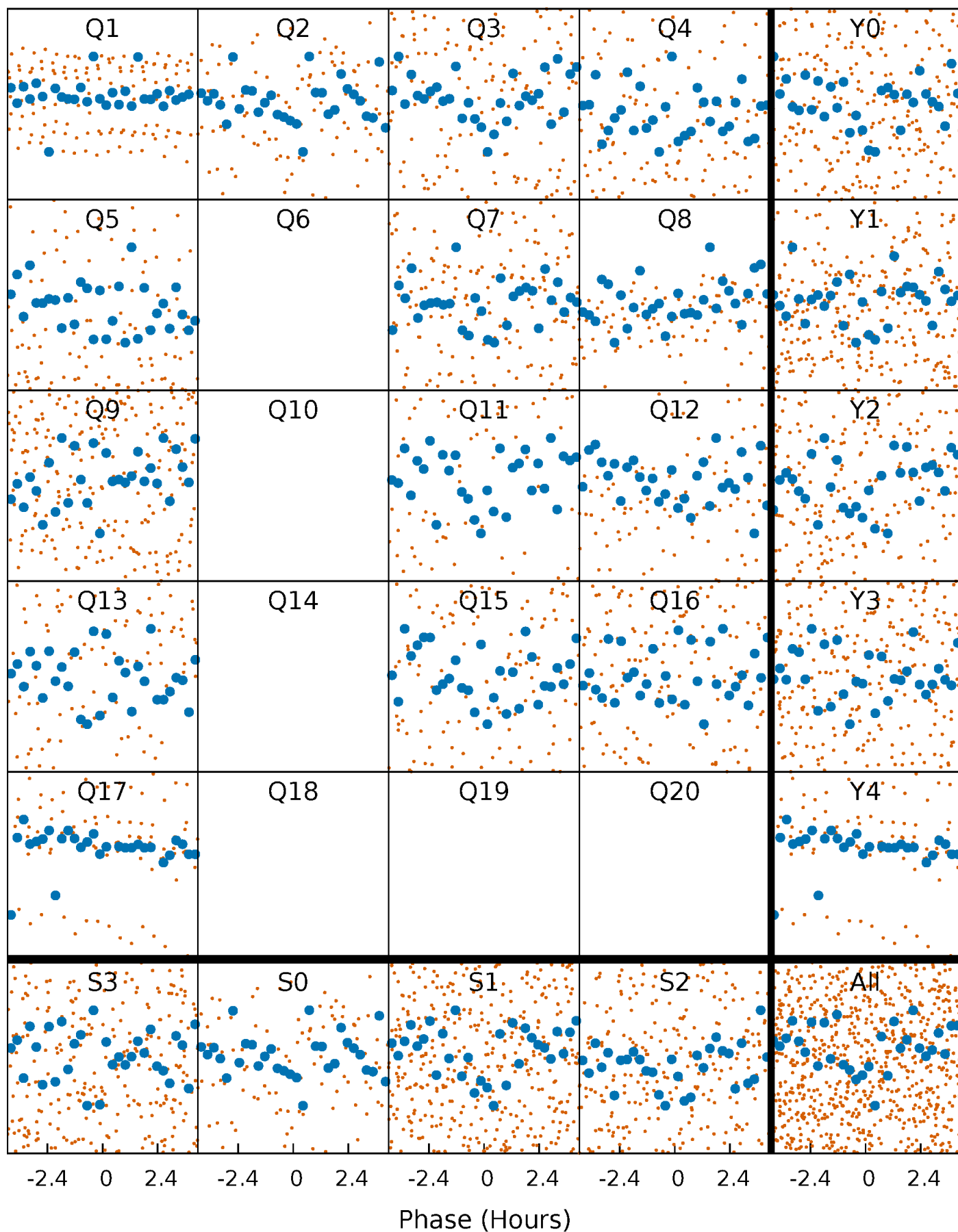


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

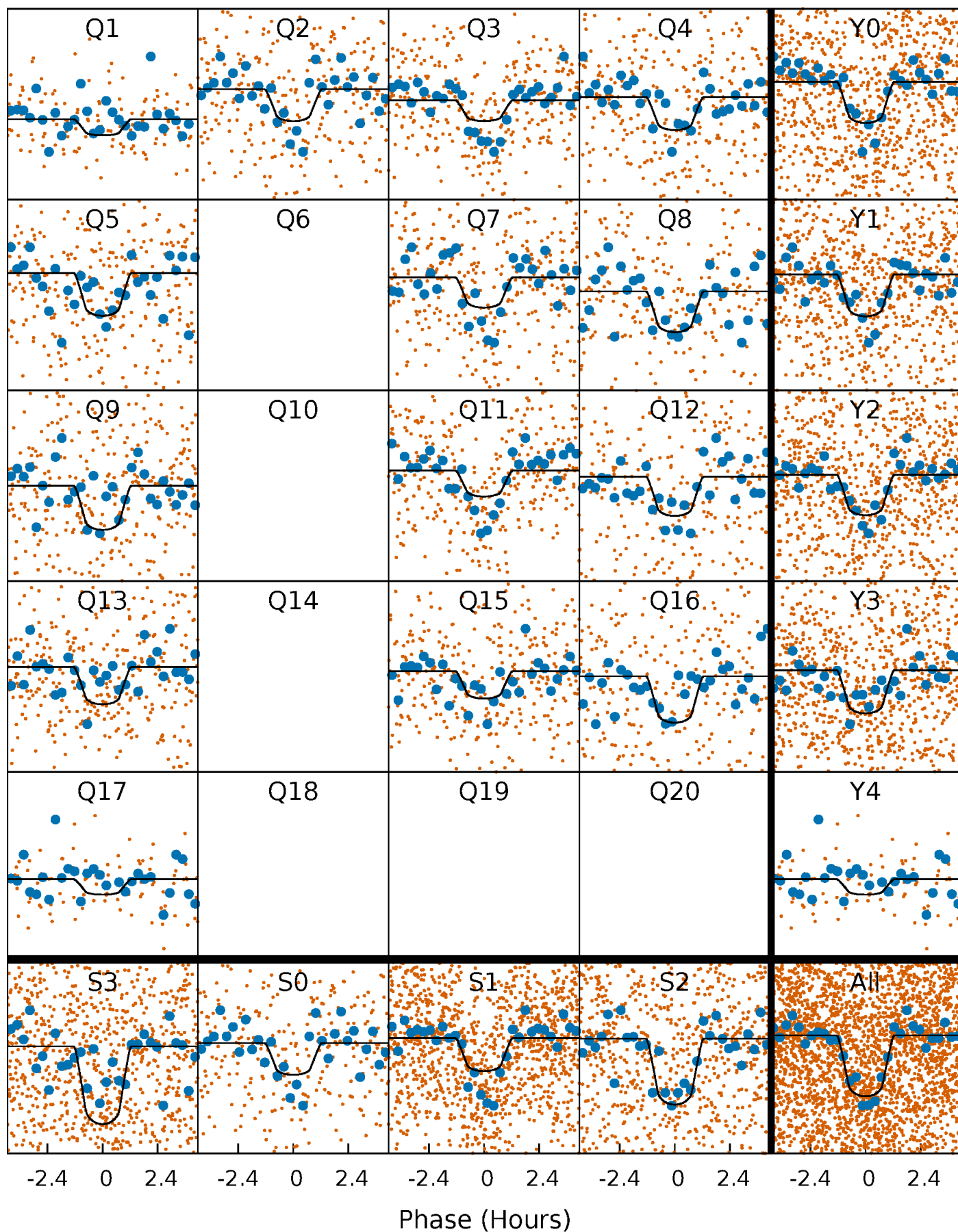
TCE 005545815-01 P= 4.353740 Days  $T_0=134.088773$  (BKJD)





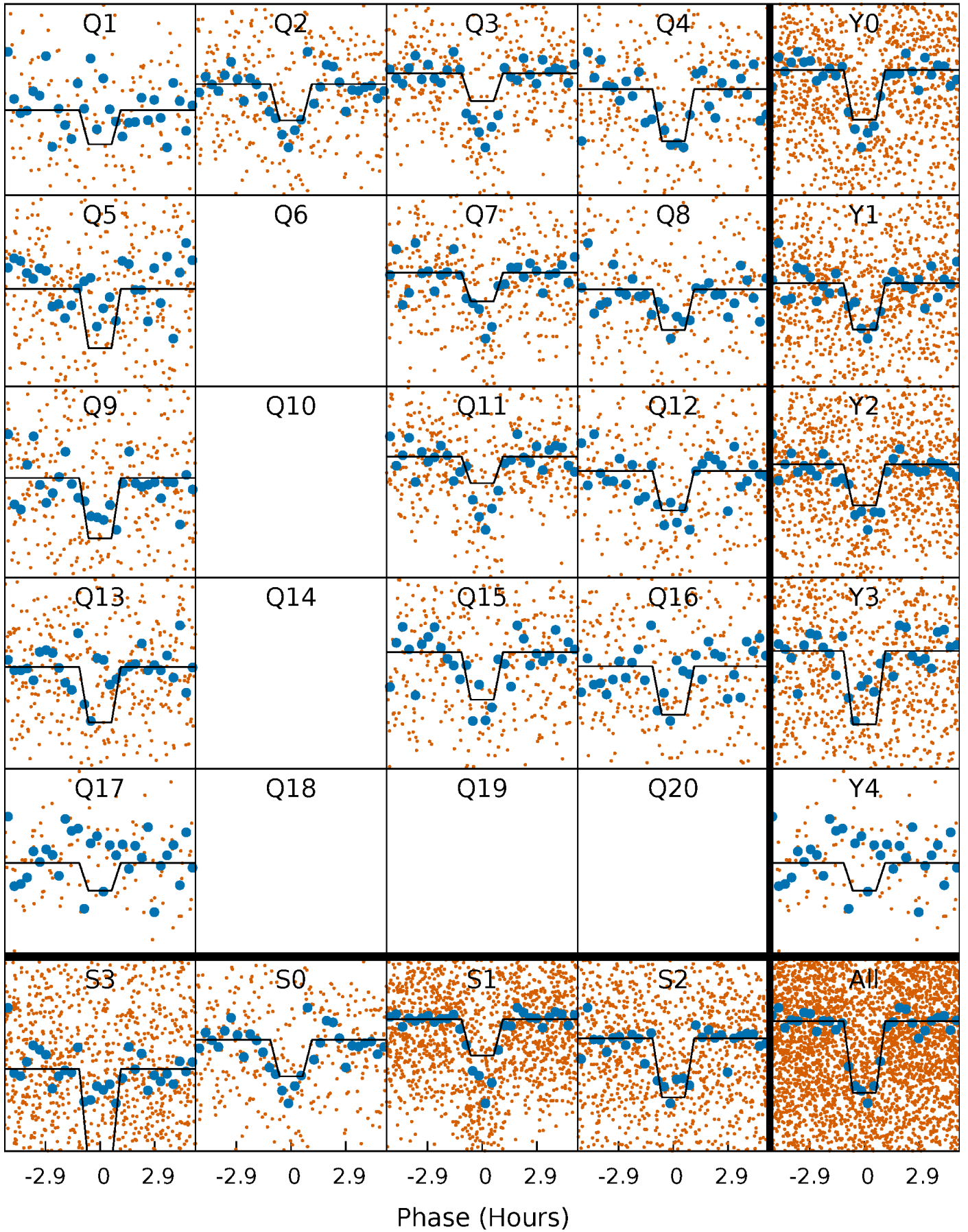
# DV Quarter-Phased Transit Curves

TCE 005545815-01 P= 4.353740 Days  $T_0=134.088773$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

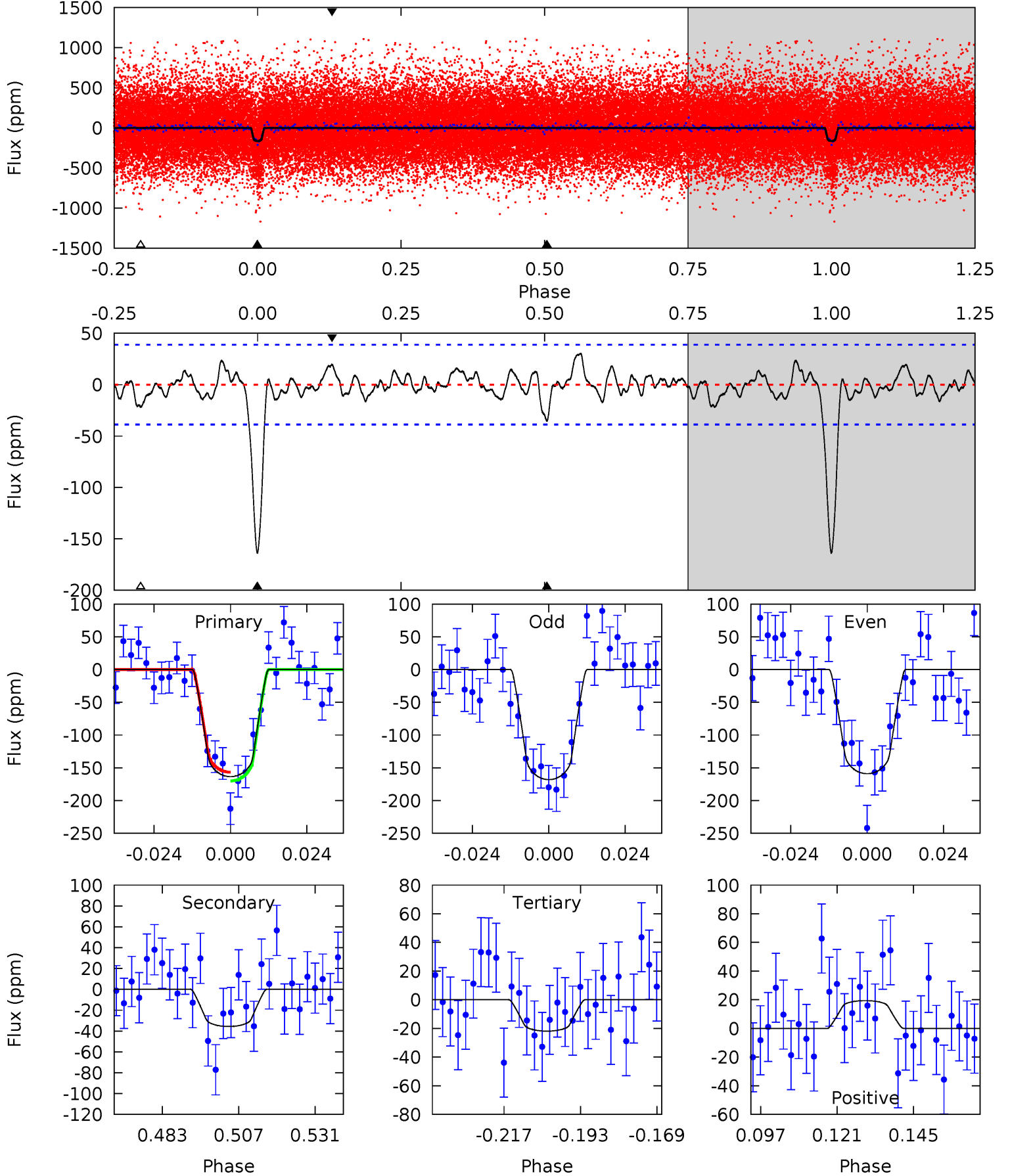
TCE 005545815-01 P= 4.353707 Days  $T_0=134.092614$  (BKJD)



# DV Model-Shift Uniqueness Test

005545815-01, P = 4.353740 Days, E = 129.735033 Days

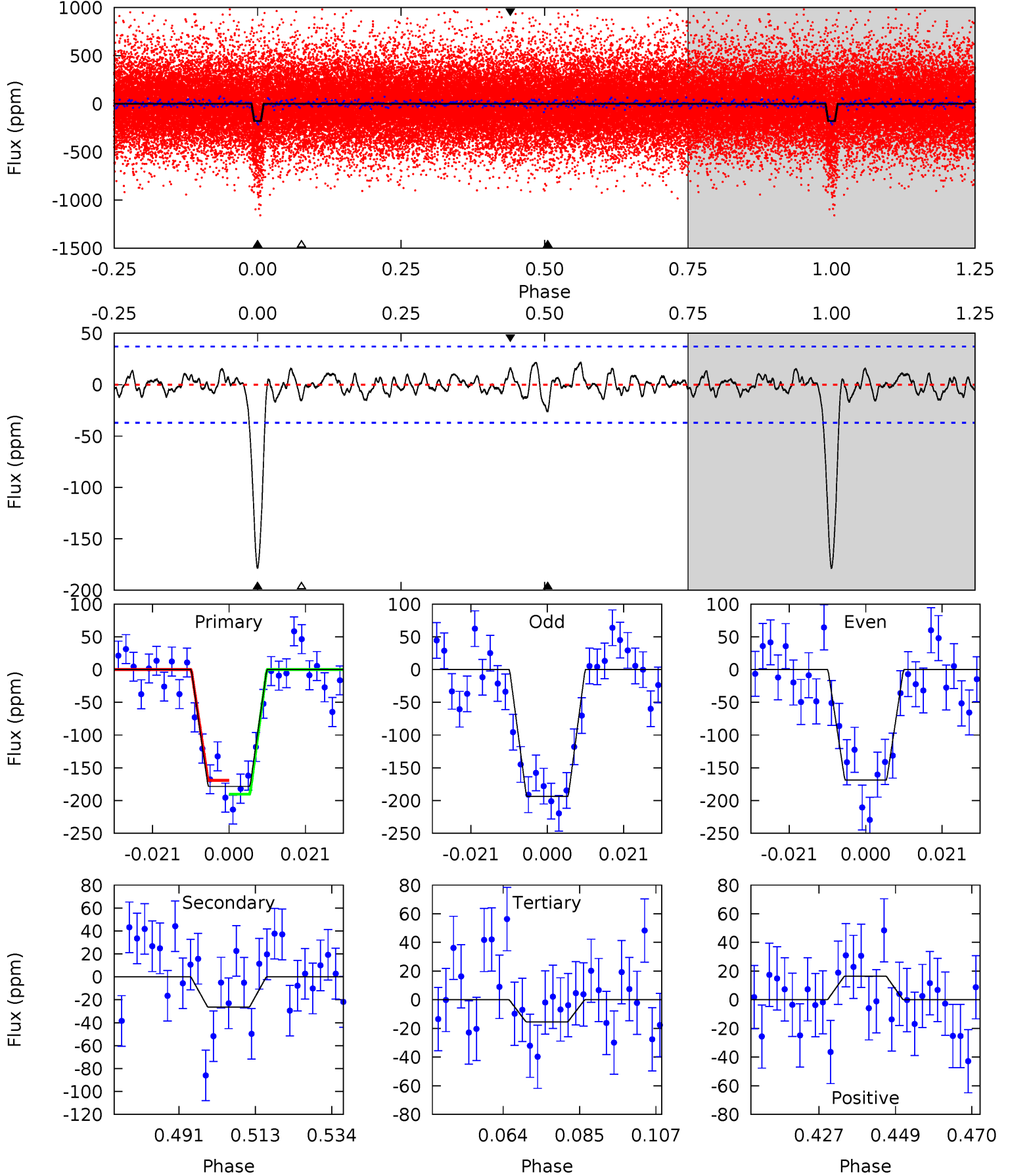
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	4.47	2.74	2.43	4.85	2.25	1.16	17.7	18.1	1.73	2.04	0.57	1.00	0.16	0.84



# Alt Model-Shift Uniqueness Test

005545815-01, P = 4.353707 Days, E = 129.738907 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
23.5	3.48	2.03	2.17	4.88	2.30	0.91	21.5	21.3	1.45	1.30	1.64	1.02	0.11	1.40



### Stellar Parameters For KIC 005545815

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5992^{+179}_{-179}$	$4.382^{+0.149}_{-0.182}$	$-0.520^{+0.300}_{-0.300}$	$0.985^{+0.266}_{-0.177}$	$0.852^{+0.117}_{-0.072}$	$1.257^{+0.908}_{-0.614}$
	+3%/-3%	+3%/-4%	+58%/-58%	+27%/-18%	+14%/-8%	+72%/-49%
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 005545815-01 / KOI 2452.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-36 \pm 8$	$1.51^{+0.69}_{-0.63}$	$1652^{+117}_{-96}$	$4152^{+1063}_{-521}$	$20^{+45}_{-11}$
Alt.	$-26 \pm 8$	$1.41^{+0.76}_{-0.63}$	$1653^{+115}_{-91}$	$4019^{+1100}_{-524}$	$17^{+40}_{-10}$

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



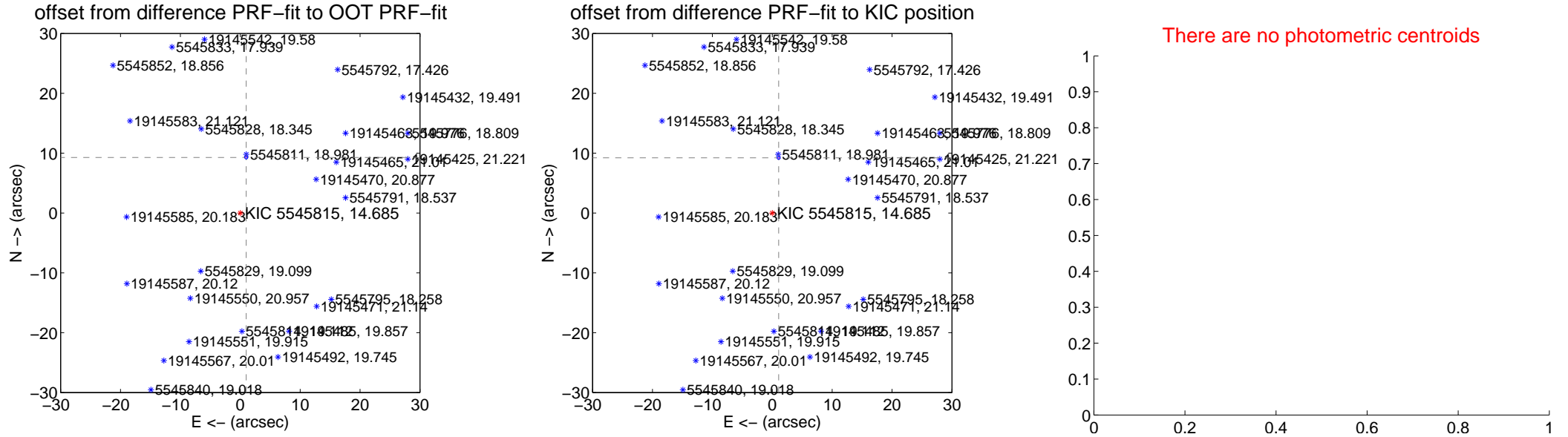
## DV Centroid Data

Supplemental centroid analysis for 005545815-01. Kepler magnitude: 14.69. Transit SNR 13.56

There are 5 quarters with good PRF difference image offsets

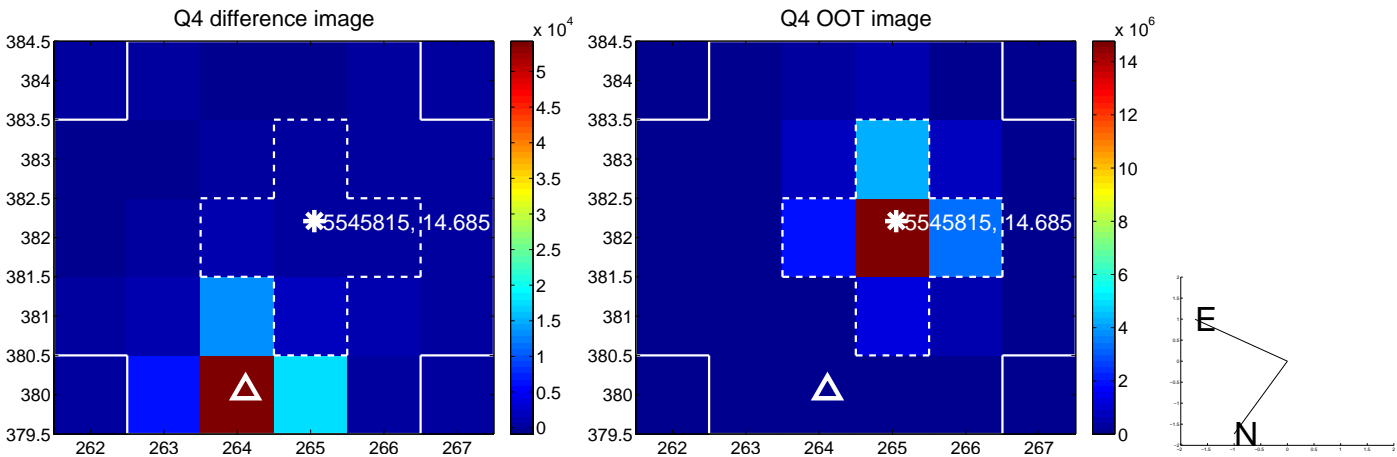
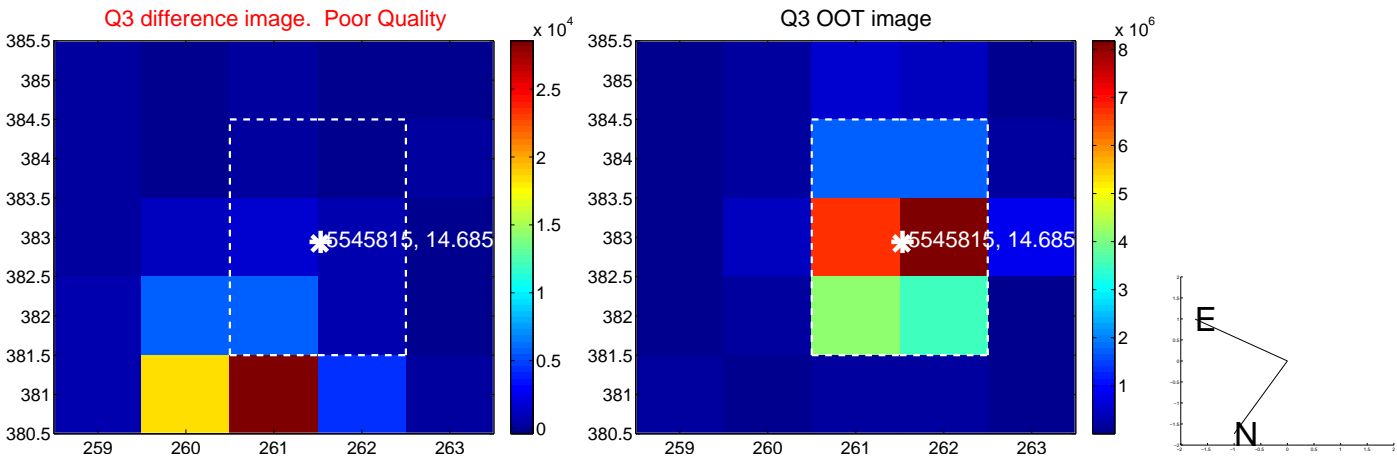
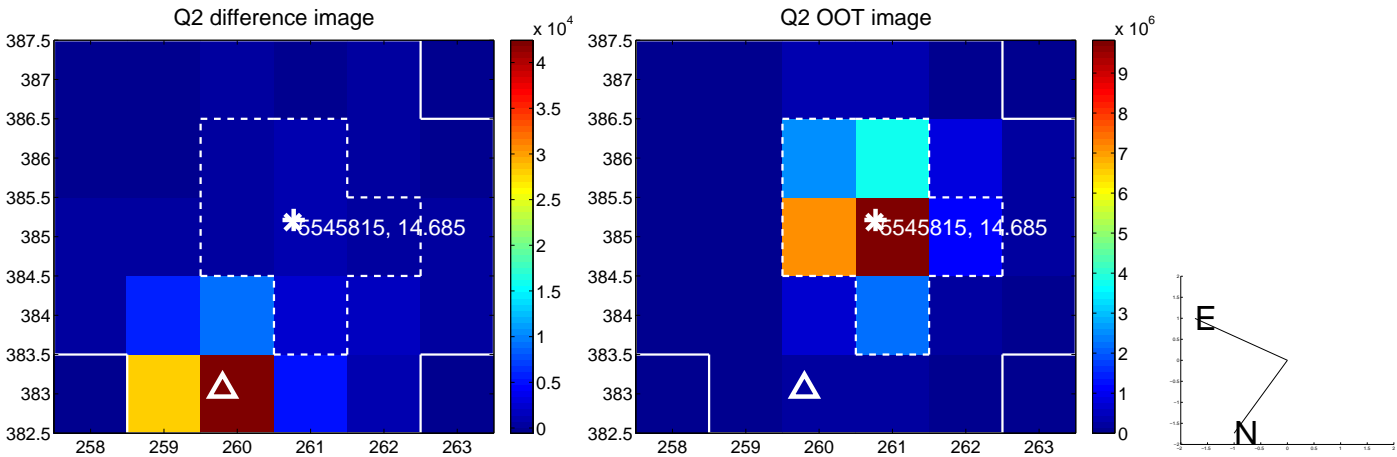
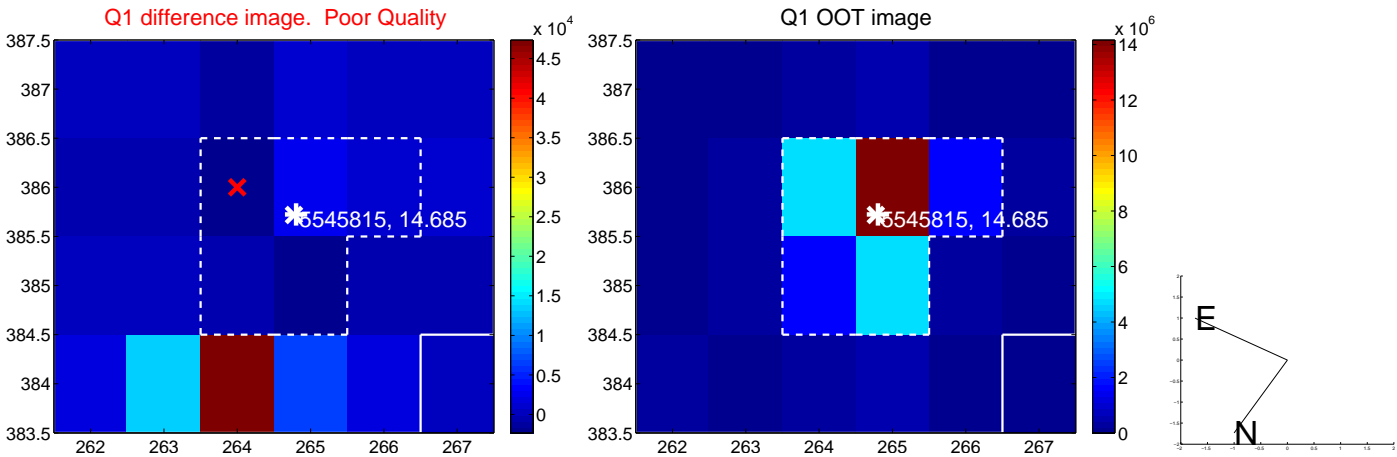
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	9.337 $\pm$ 0.086	108.20	-0.993 $\pm$ 0.077	9.284 $\pm$ 0.086
PRF-fit source offset from KIC position	9.281 $\pm$ 0.088	105.81	-1.065 $\pm$ 0.074	9.219 $\pm$ 0.087
photometric centroid source offset	—	—	—	—

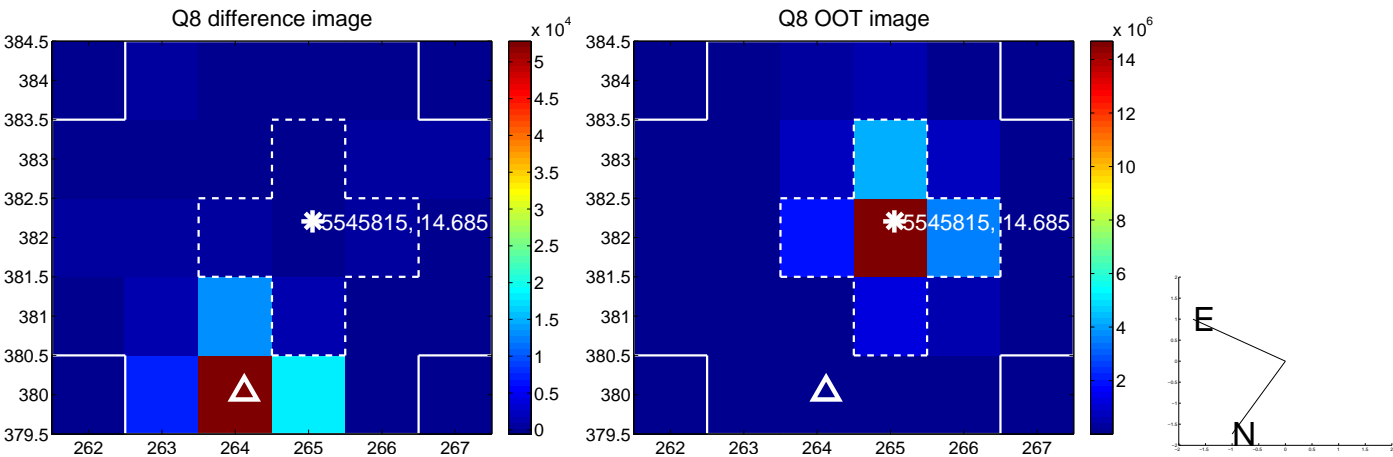
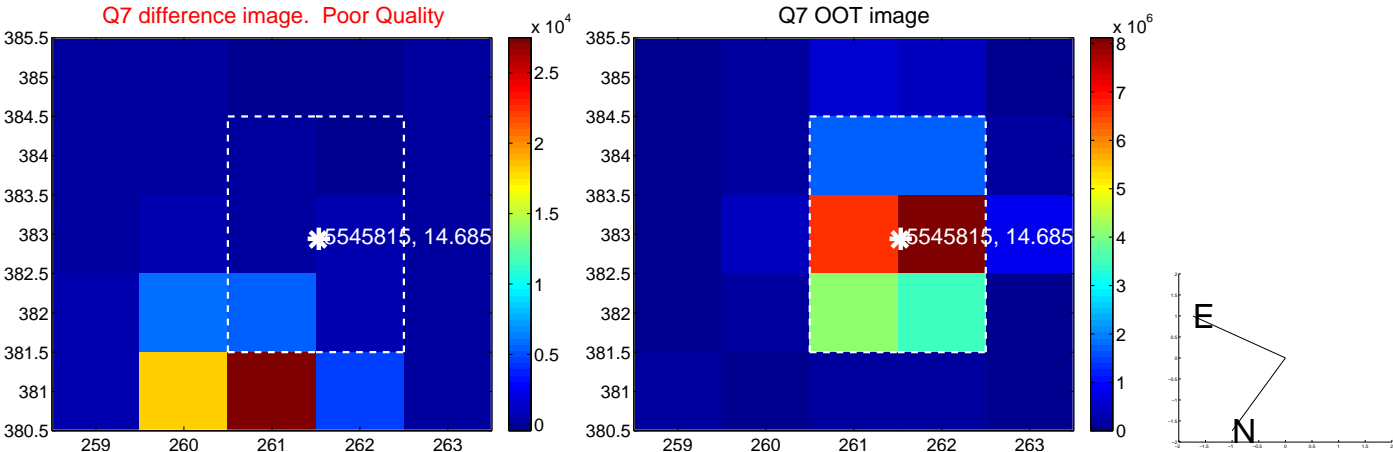
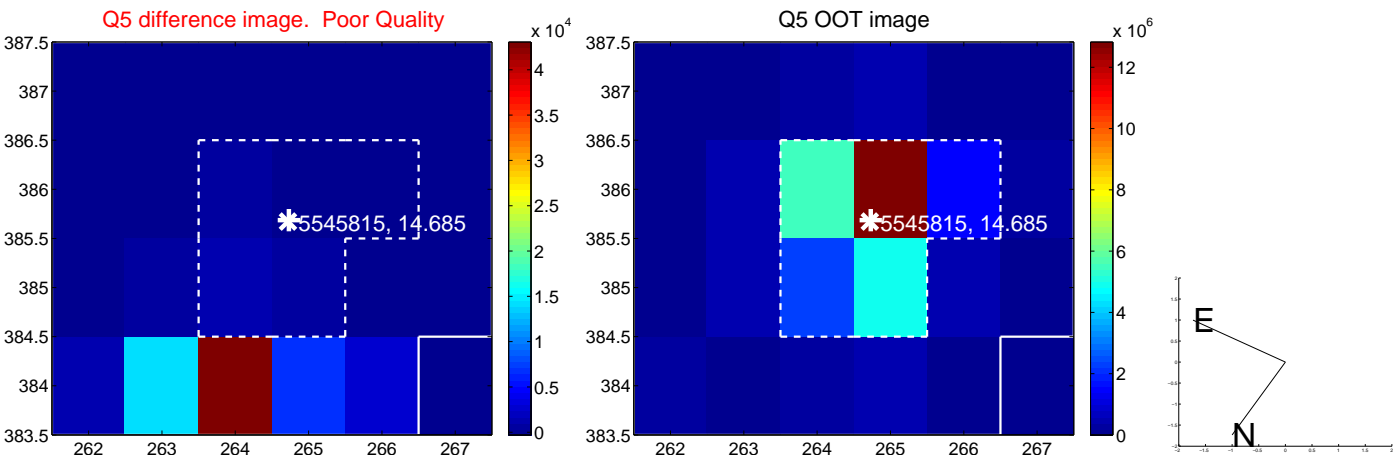


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

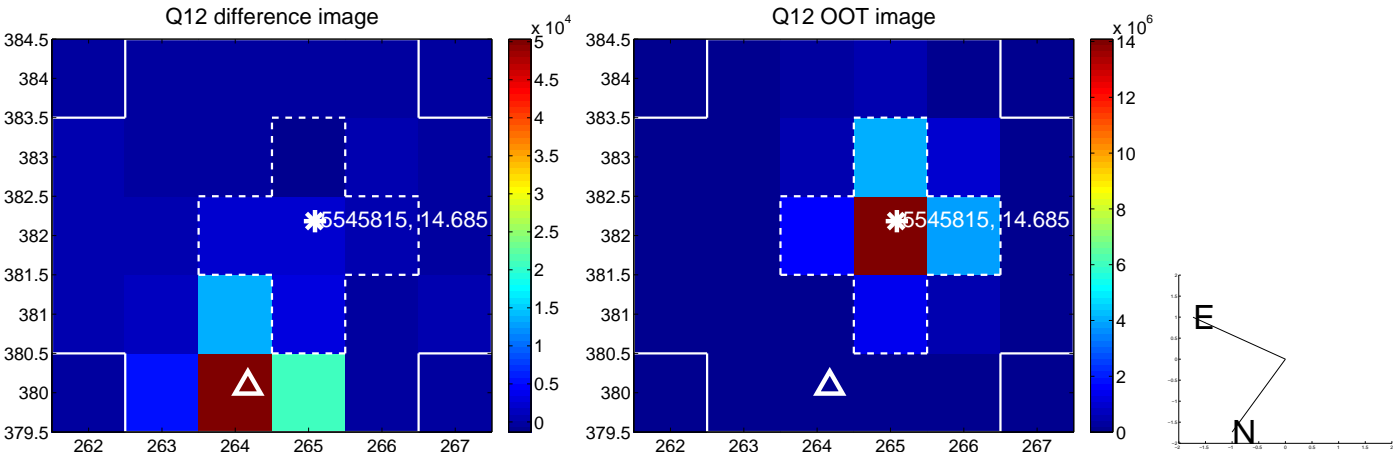
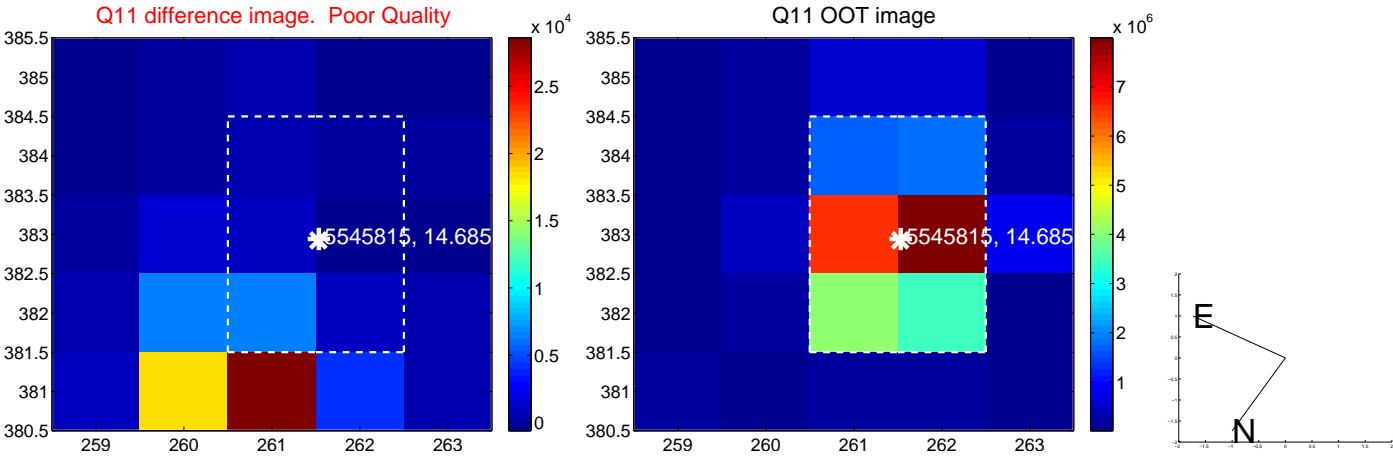
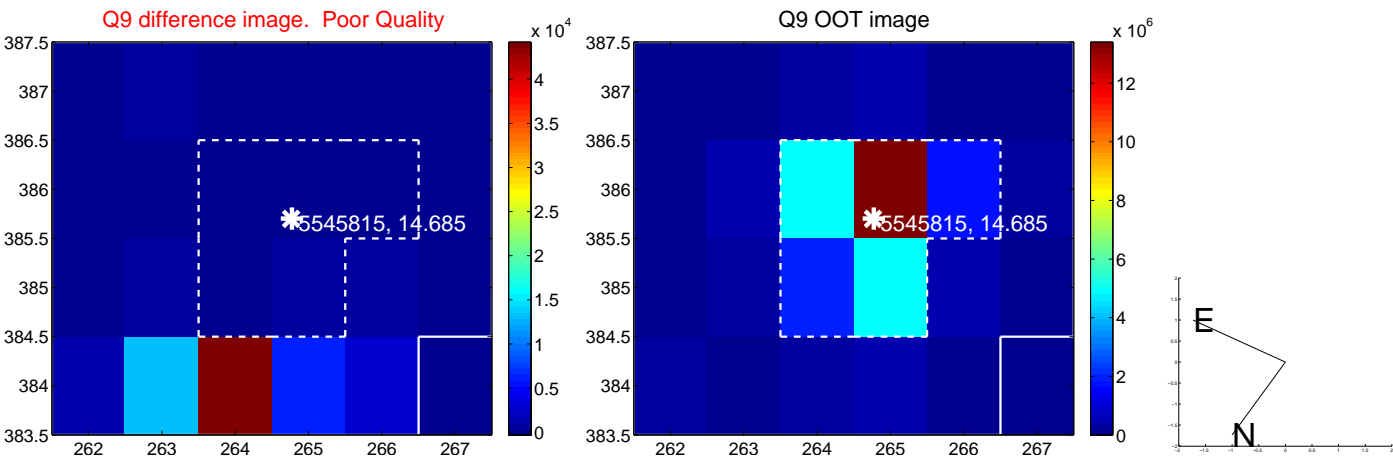
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



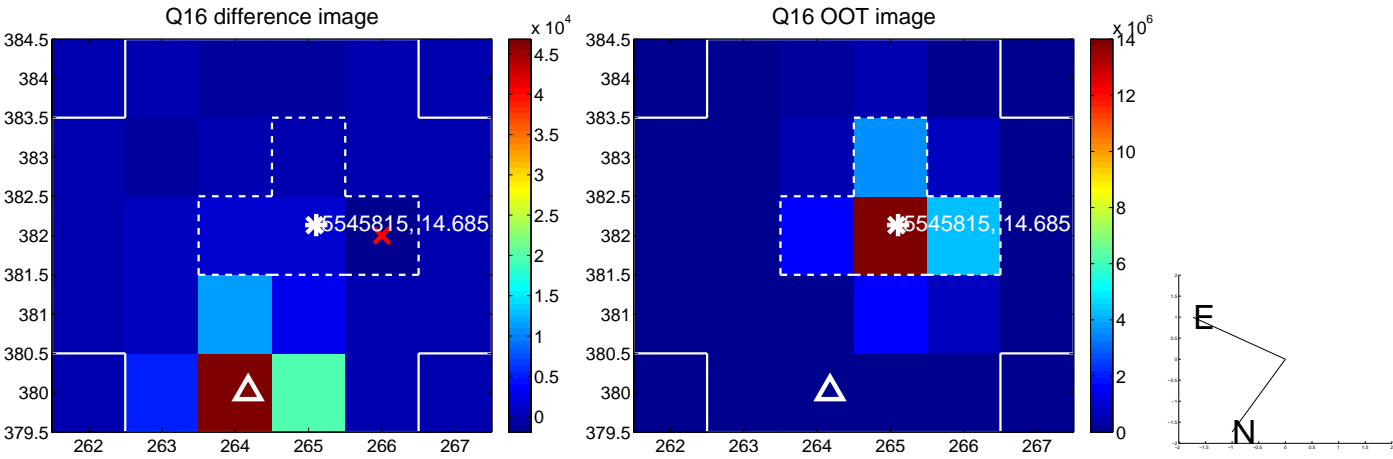
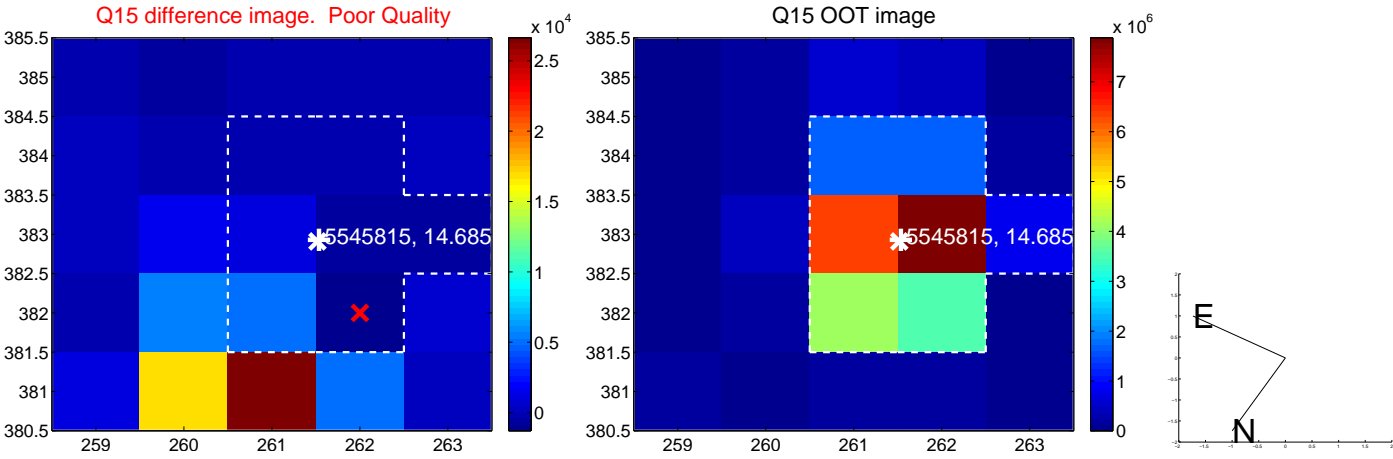
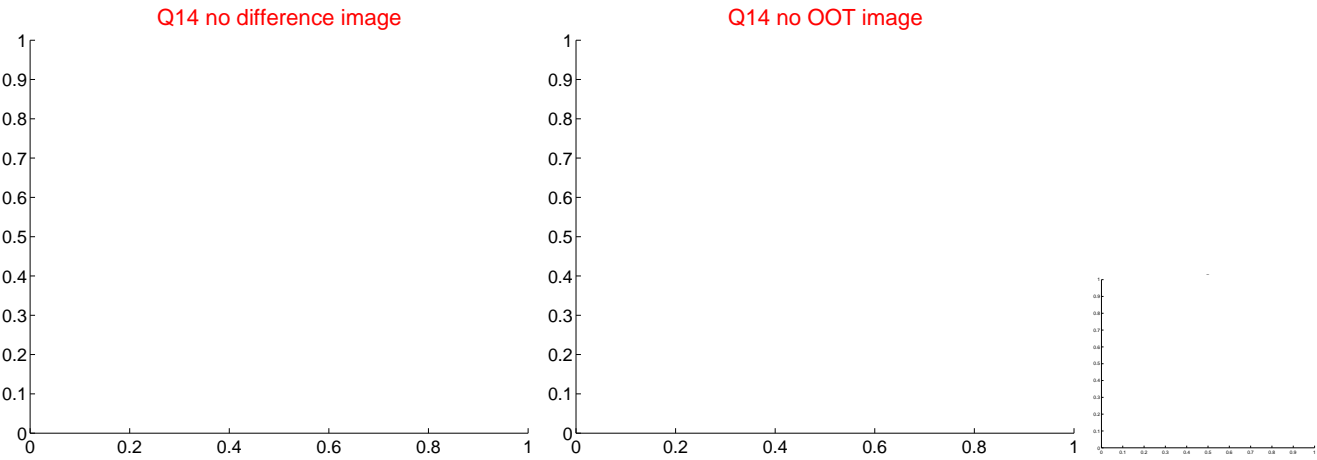
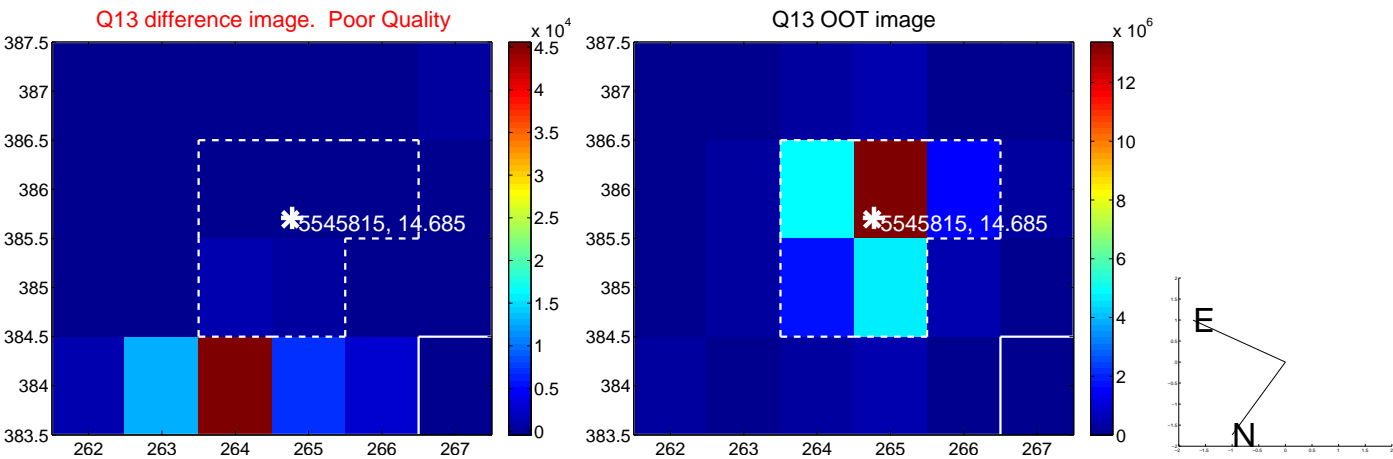
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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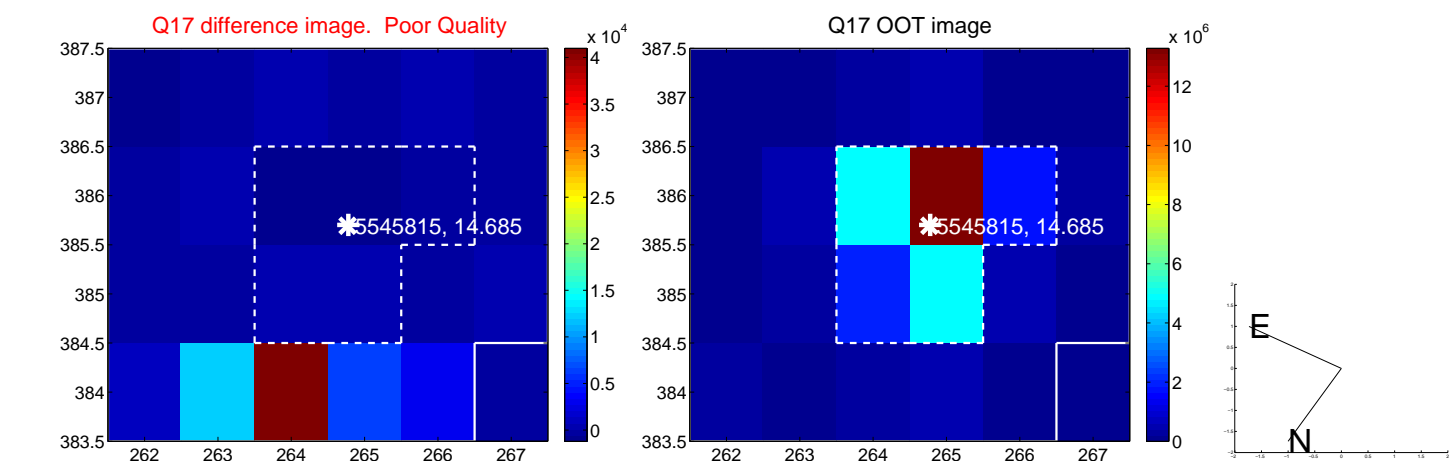


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

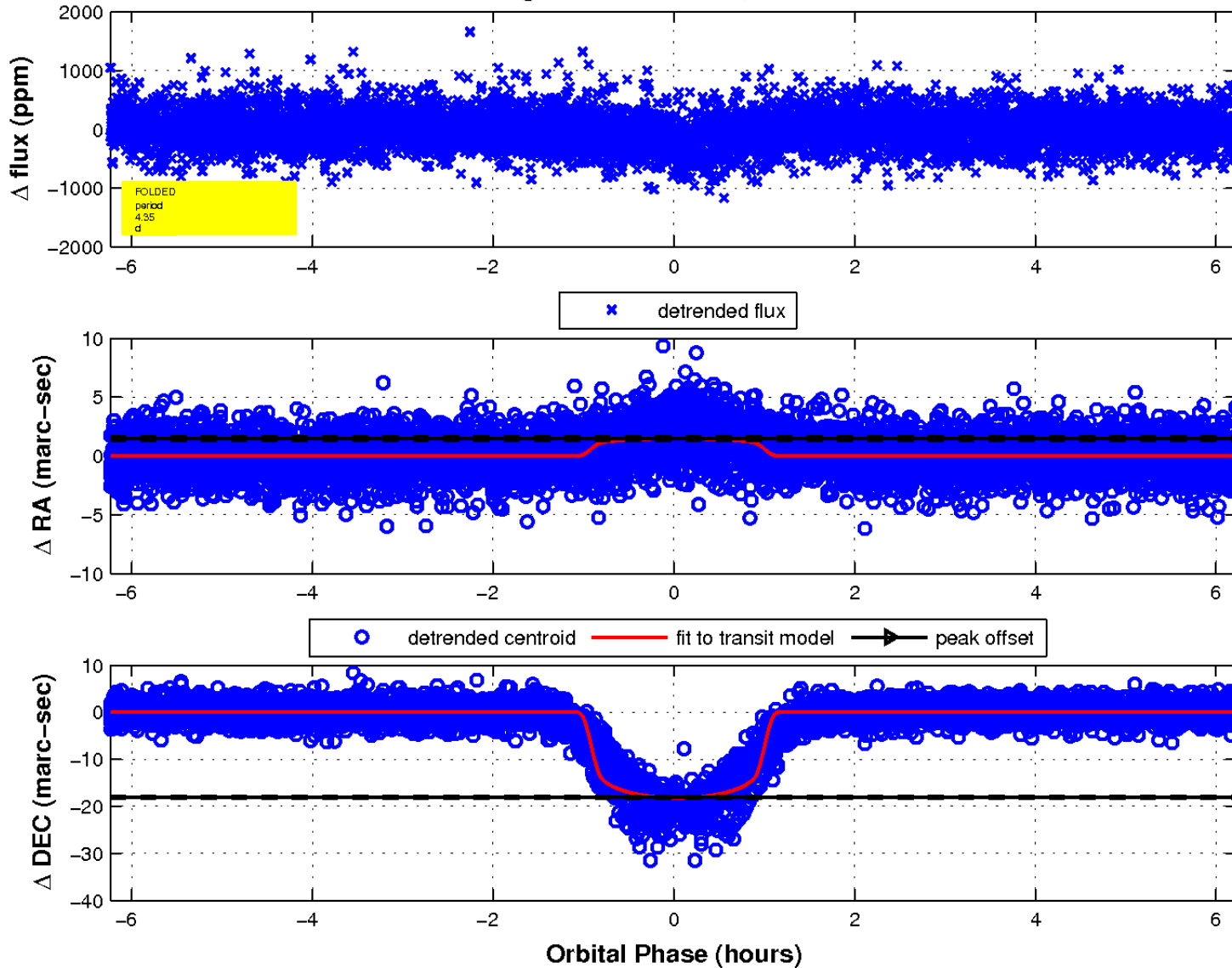




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

