

# KIC 008107225

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008107225-01	OBS	0235.01	5.632527	133.817882	629.3	2.235	62.7	70.2	0.80	5216	2.31	120.08

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008107225-01	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.

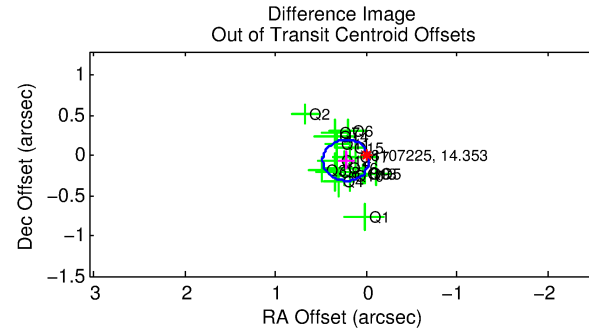
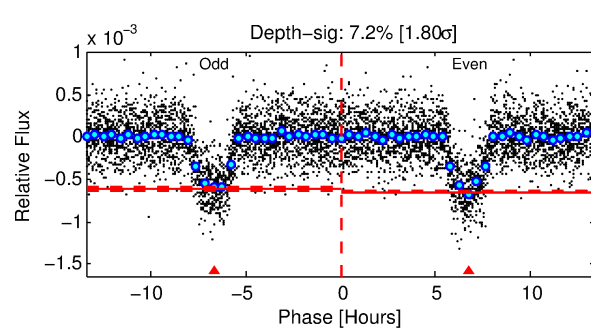
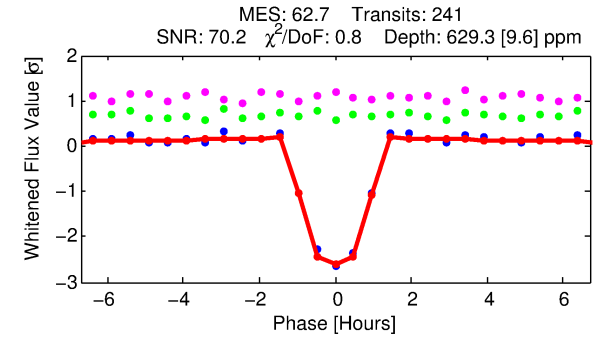
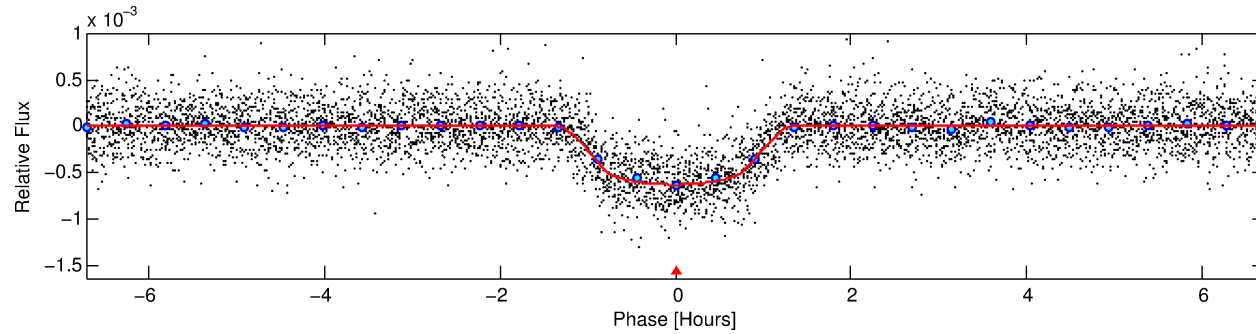
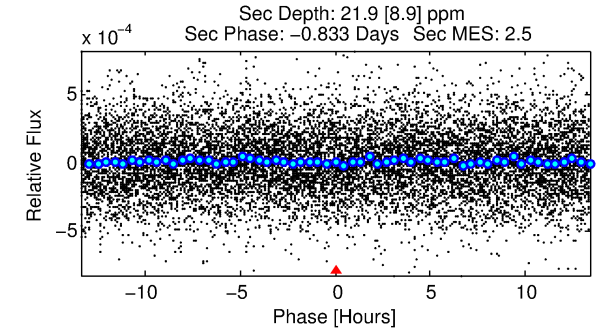
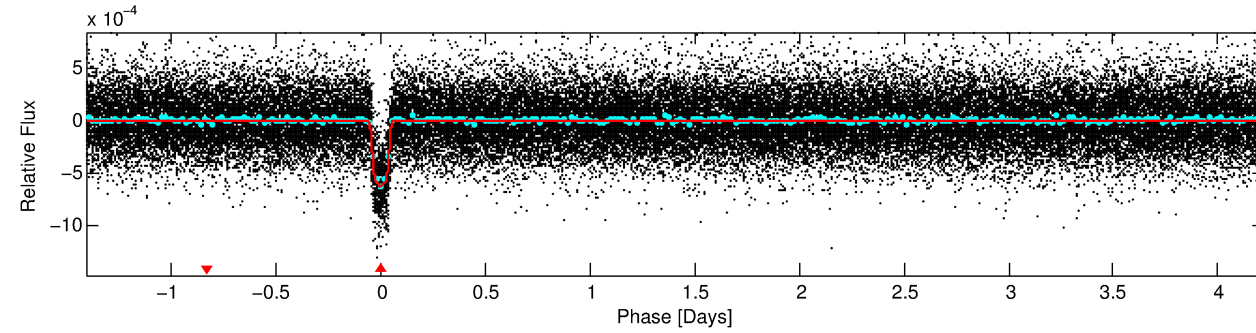
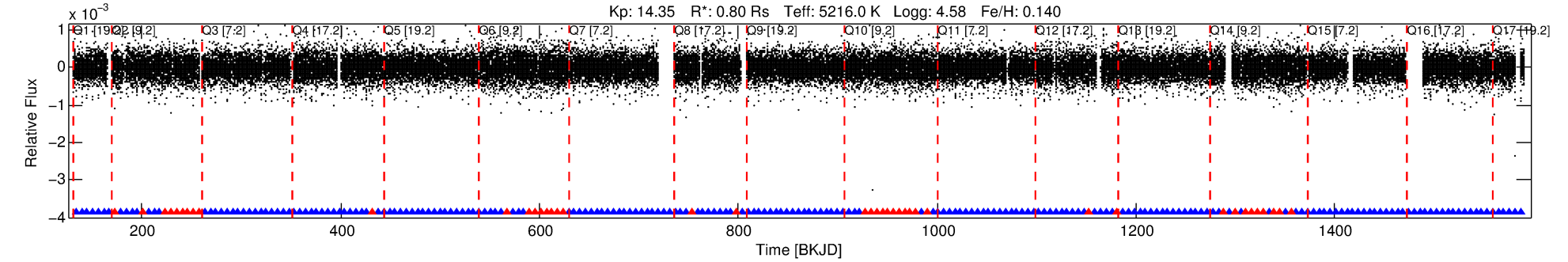
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008107225-01

No Significant Match Found

# DV One-Page Summary

KIC: 8107225 Candidate: 1 of 1 Period: 5.633 d  
KOI: K00235.01 Corr: 0.981



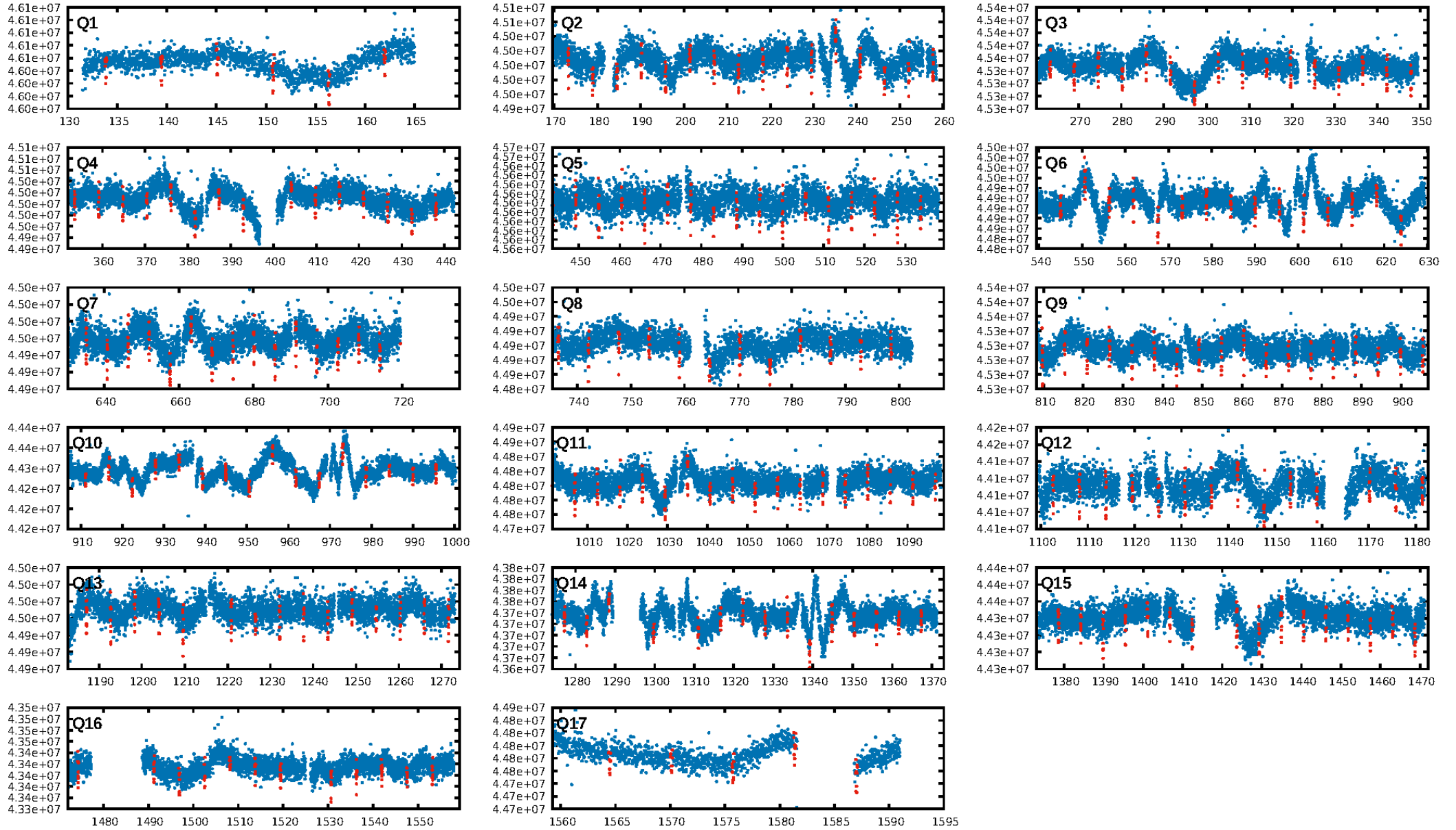
## DV Fit Results:

Period = 5.63253 [0.00000] d  
Epoch = 133.8179 [0.0006] BKJD  
Rp/R\* = 0.0264 [0.0035]  
a/R\* = 11.48 [5.77]  
b = 0.84 [0.19]  
Seff = 120.08 [26.65]  
Teq = 844 [47] K  
Rp = 2.31 [0.45] Re  
a = 0.0597 [0.0074] AU  
Ag = 8.03 [4.19] [1.68σ]  
Teffp = 2197 [276] K [4.83σ]

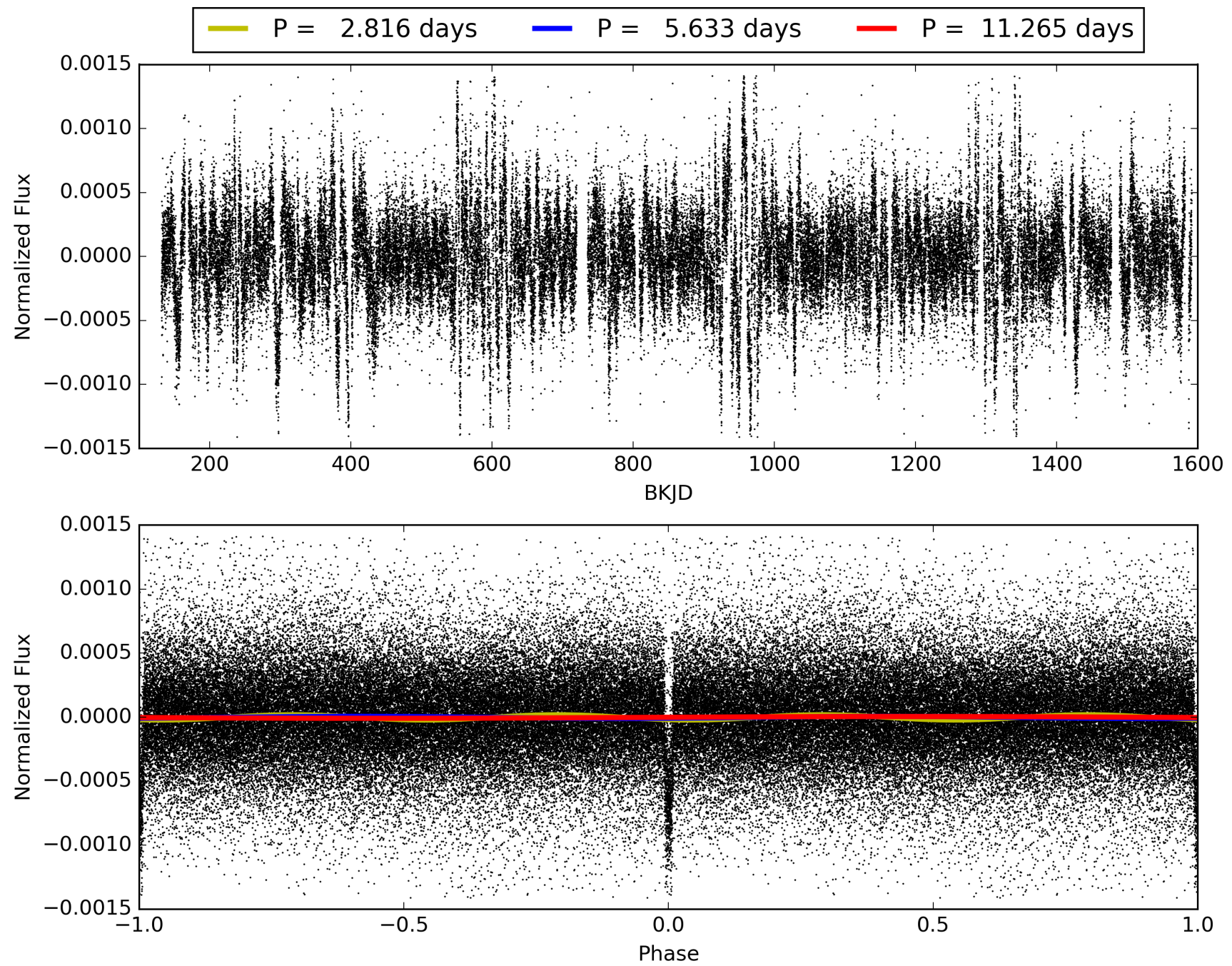
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.82 [188/230]  
GhostDiagnostic-chr: 3.467  
Centroid-sig: 0.0%  
Centroid-so: 0.160 arcsec [0.92σ]  
OotOffset-rm: 0.230 arcsec [2.70σ]  
KicOffset-rm: 0.351 arcsec [3.63σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008107225-01, PDC Light Curves

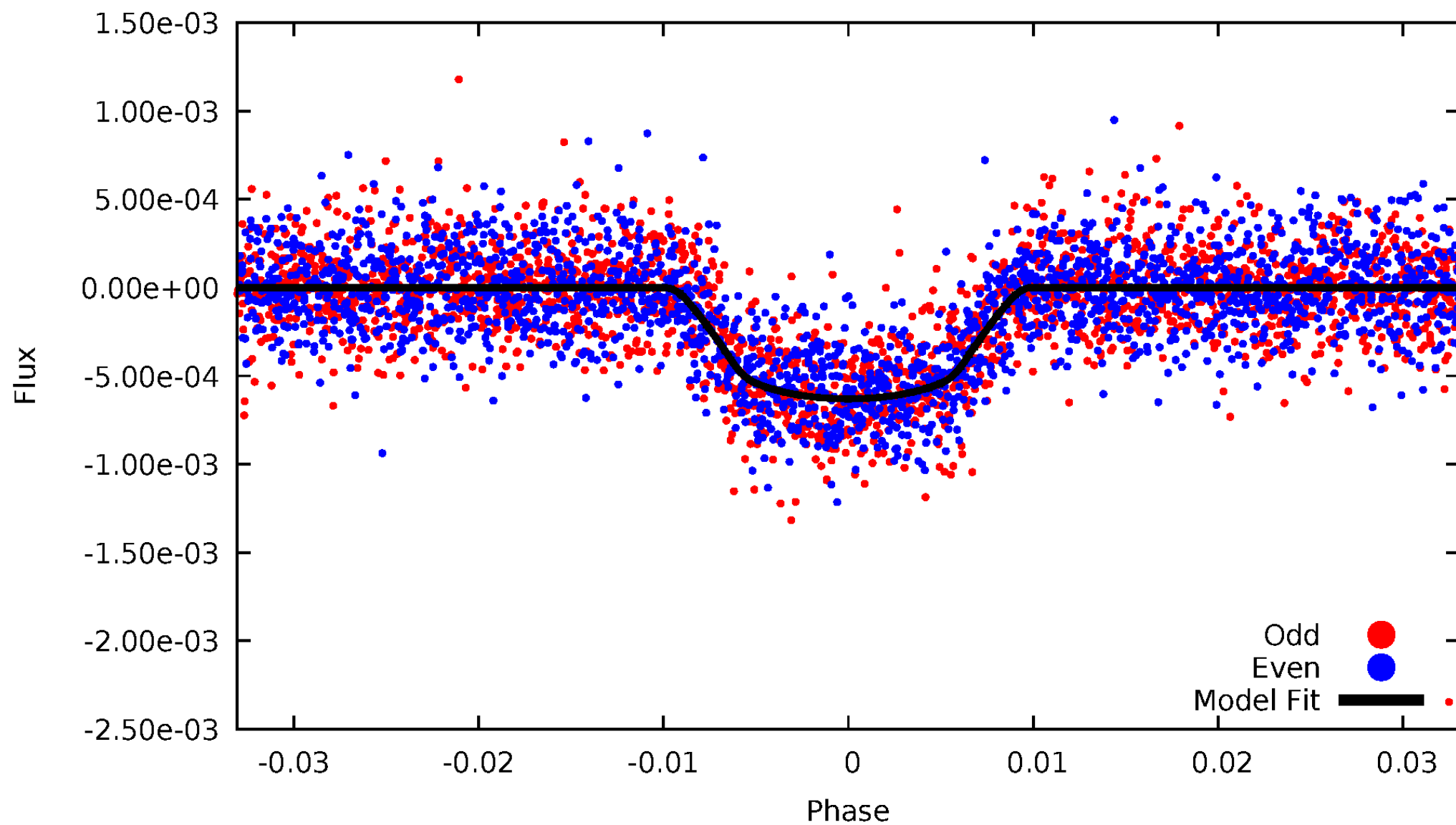


# TCE 008107225-01



# DV Odd/Even

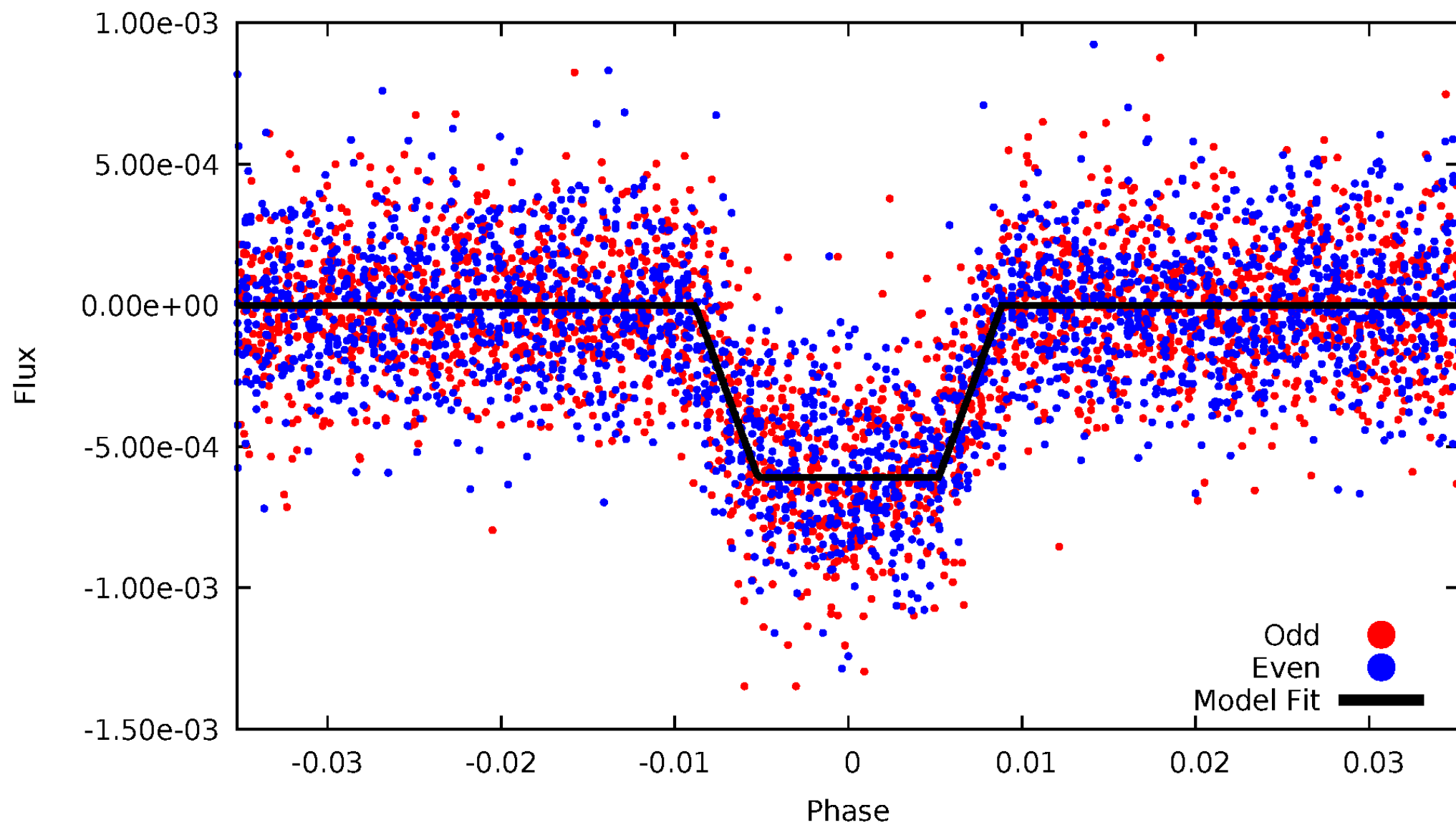
TCE 008107225-01



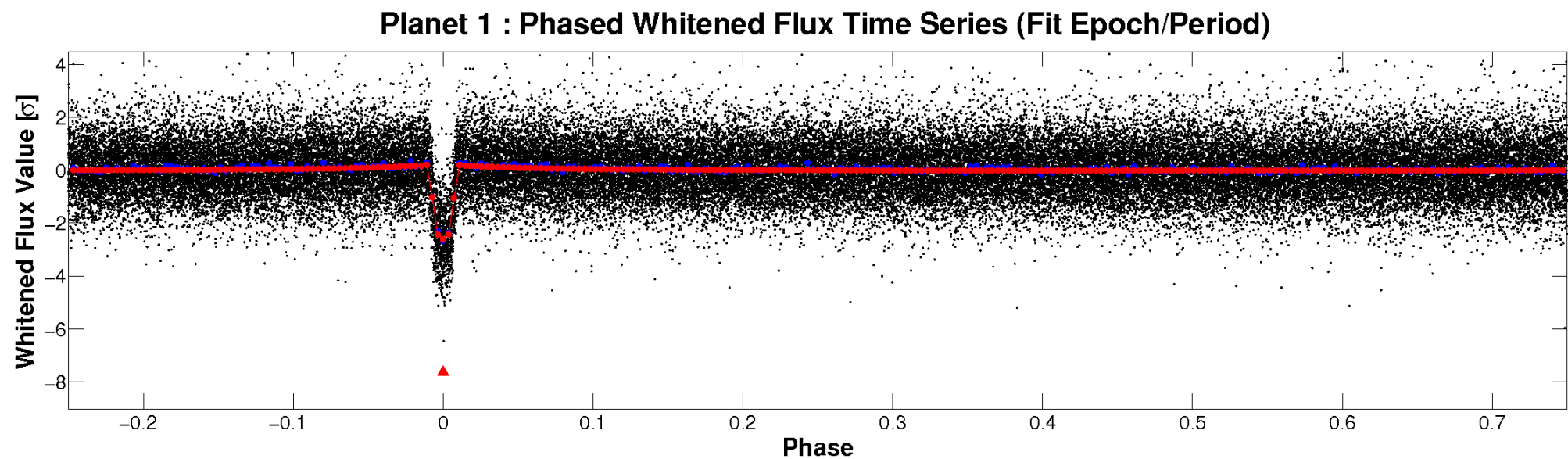
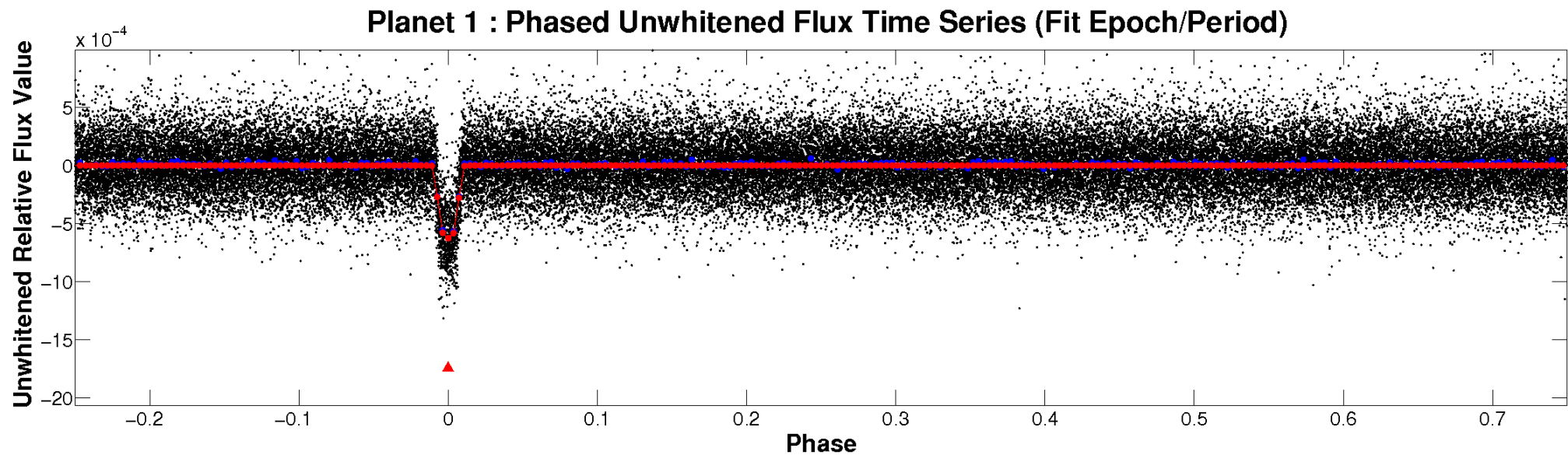


# ALT Odd/Even

TCE 008107225-01

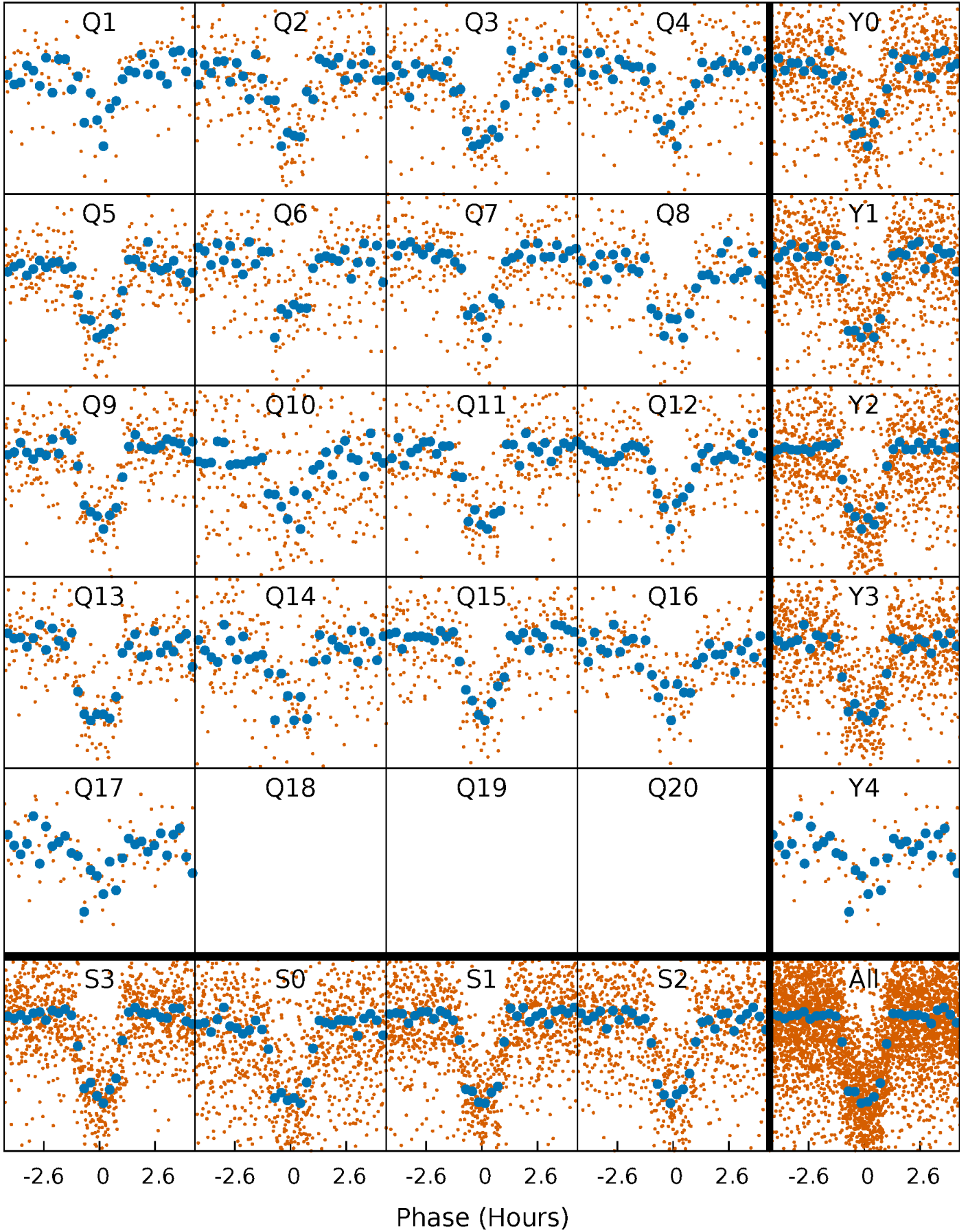


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

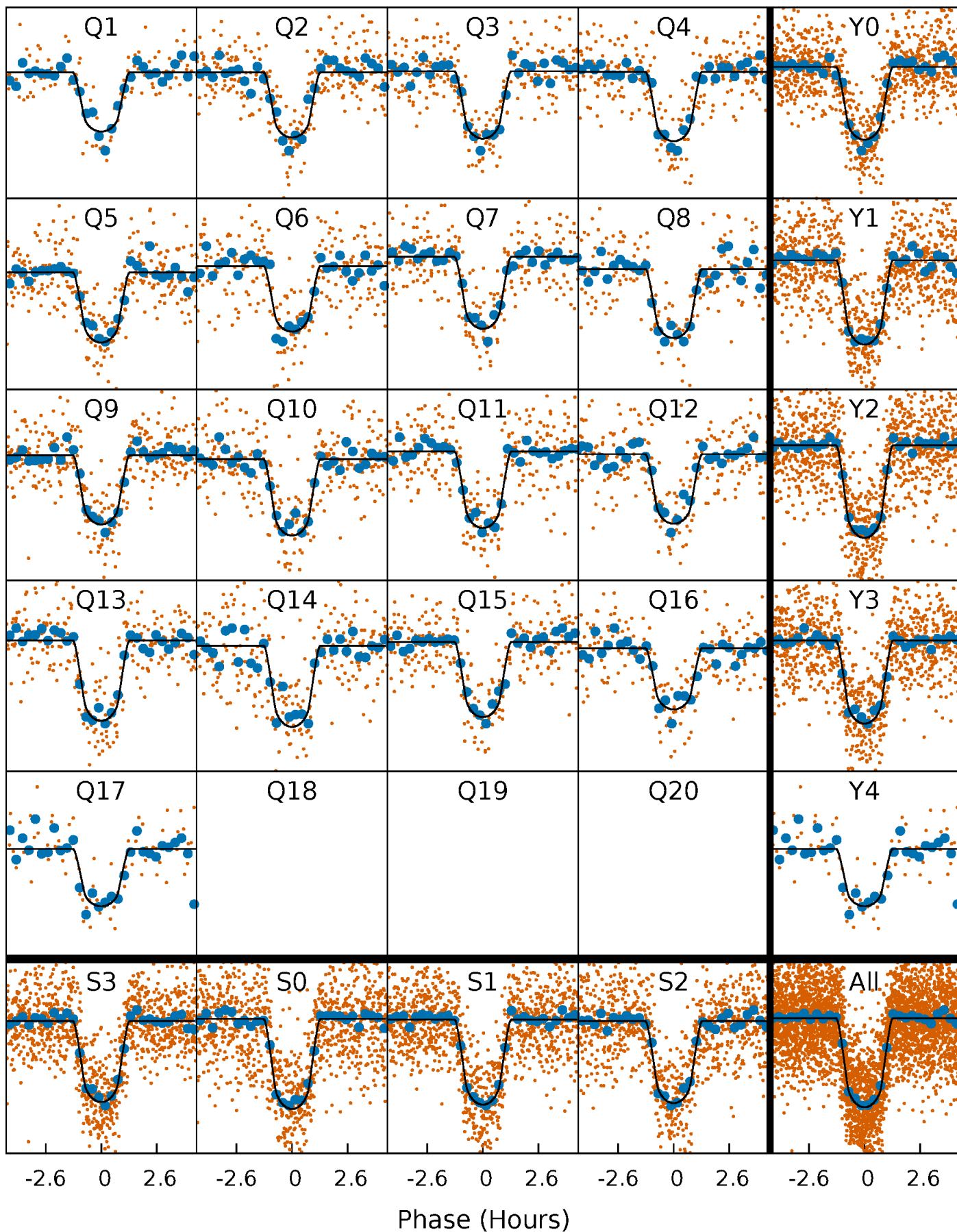
TCE 008107225-01   P= 5.632527 Days    $T_0=133.817882$  (BKJD)





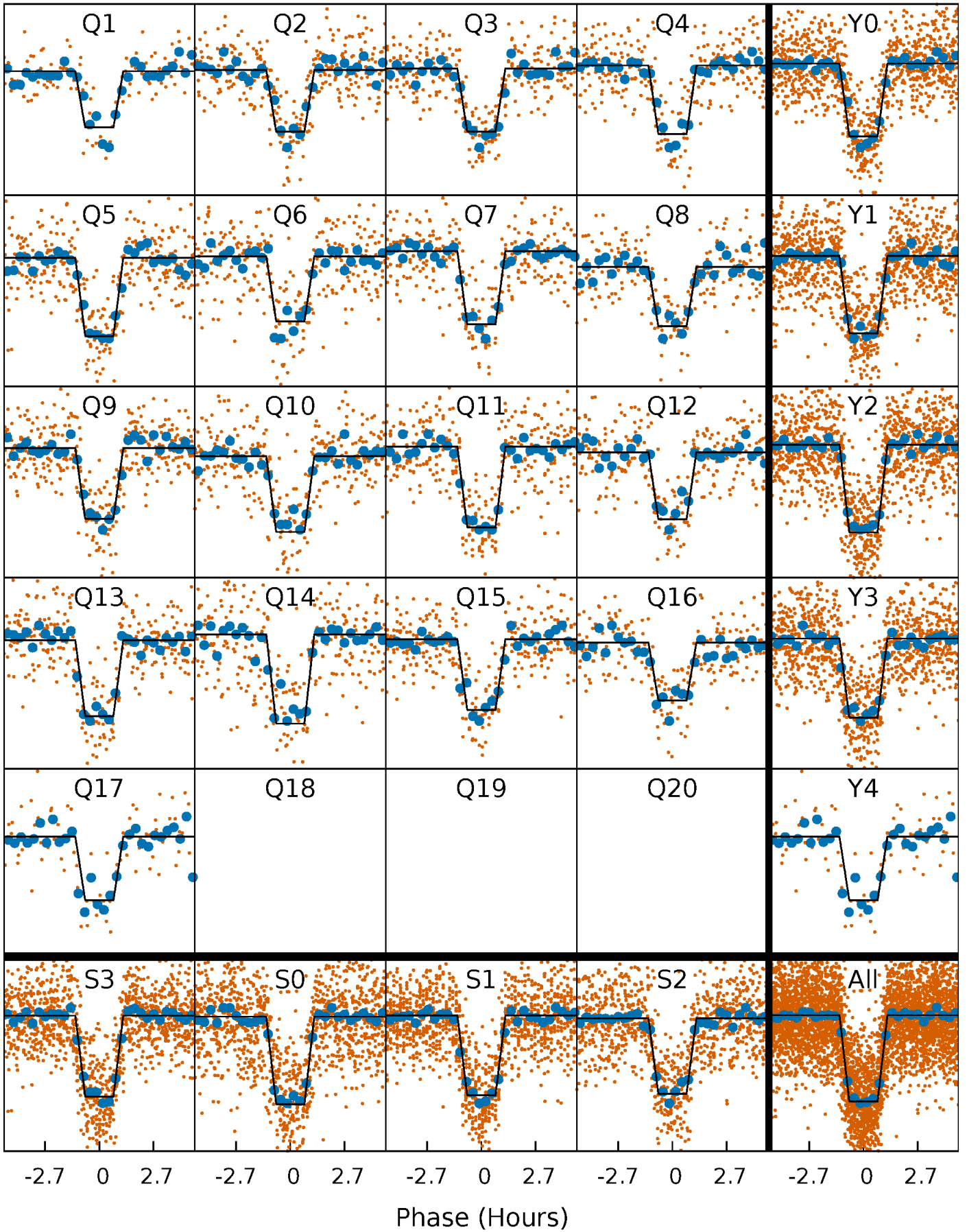
# DV Quarter-Phased Transit Curves

TCE 008107225-01 P= 5.632527 Days  $T_0=133.817882$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

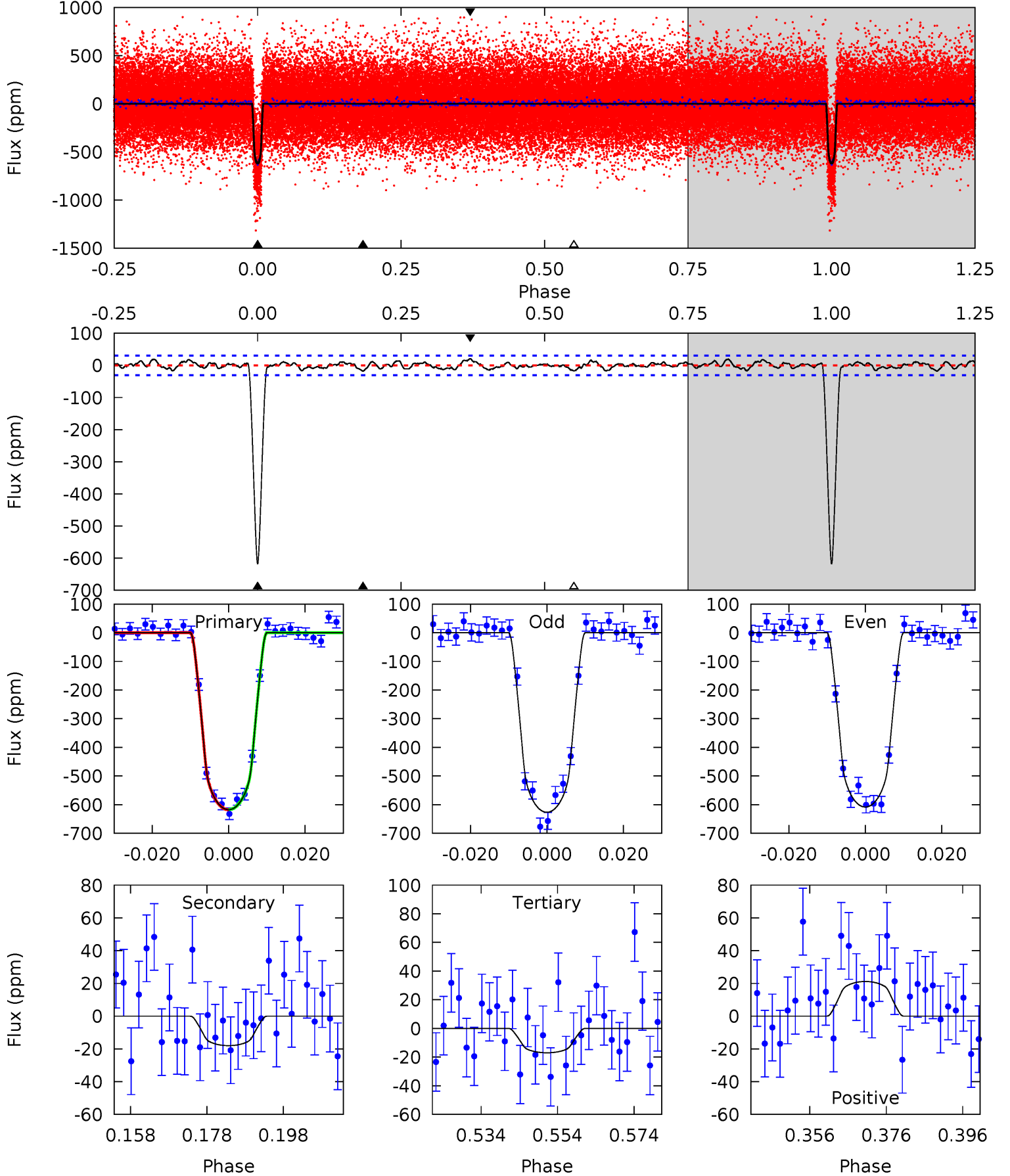
TCE 008107225-01 P= 5.632553 Days  $T_0=133.814598$  (BKJD)



# DV Model-Shift Uniqueness Test

008107225-01, P = 5.632527 Days, E = 128.185355 Days

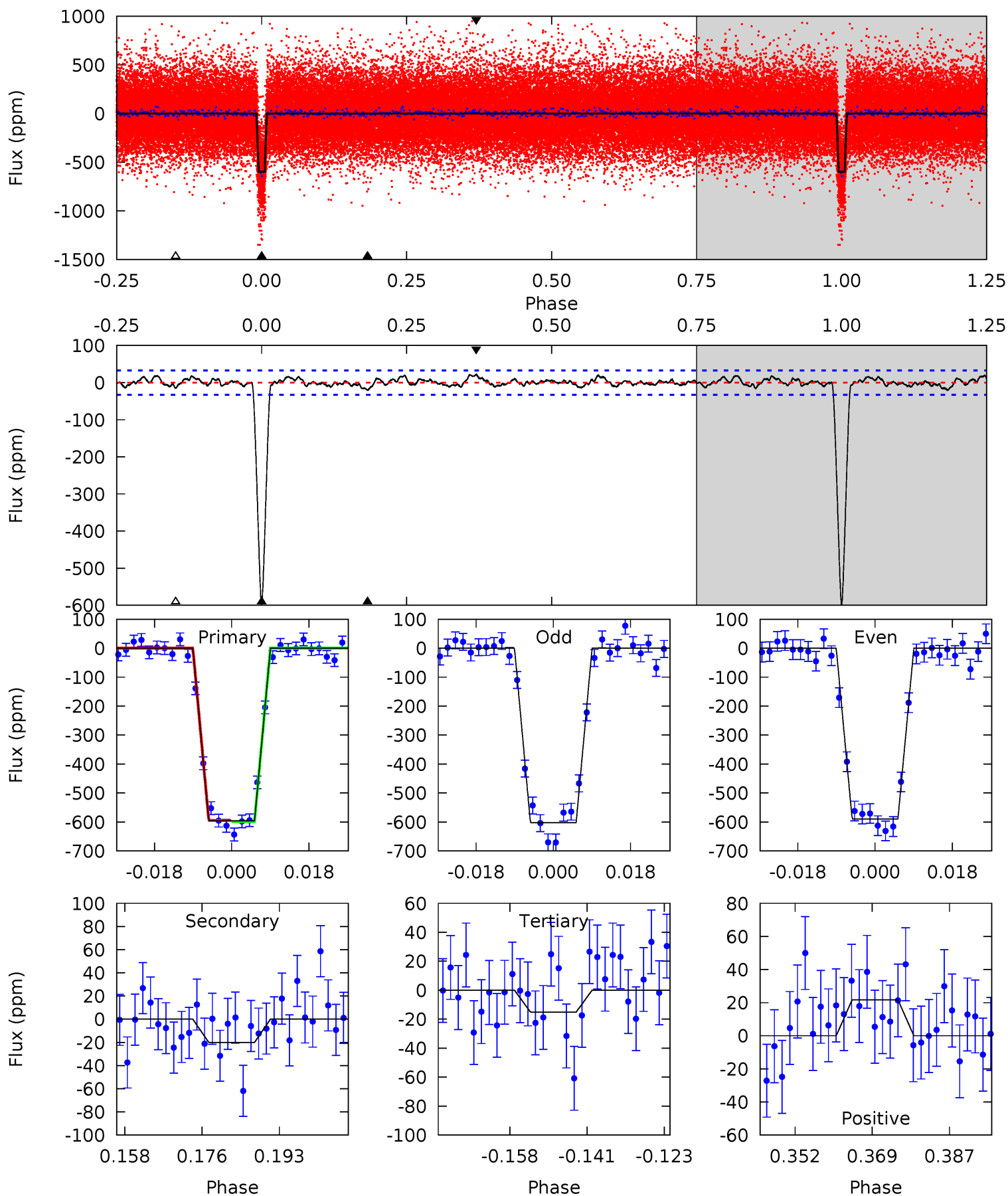
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.3	2.87	2.70	3.37	4.89	2.33	1.22	95.6	94.9	0.16	-0.50	1.46	0.99	0.03	0.04



# Alt Model-Shift Uniqueness Test

008107225-01, P = 5.632553 Days, E = 128.182045 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
89.3	3.01	2.26	3.26	4.92	2.37	1.11	87.1	86.1	0.75	-0.25	0.92	0.99	0.04	0.33



### Stellar Parameters For KIC 008107225

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5216^{+157}_{-157}$	$4.580^{+0.028}_{-0.105}$	$0.140^{+0.250}_{-0.300}$	$0.804^{+0.113}_{-0.061}$	$0.896^{+0.054}_{-0.088}$	$2.427^{+0.399}_{-0.768}$
	+3%/-3%	+1%/-2%	+179%/-214%	+14%/-8%	+6%/-10%	+16%/-32%
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 008107225-01 / KOI 0235.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-18 \pm 6$	$2.37^{+0.36}_{-0.34}$	$1196^{+53}_{-45}$	$2798^{+176}_{-187}$	$6.245^{+3.187}_{-2.421}$
Alt.	$-20 \pm 7$	$2.23^{+0.35}_{-0.34}$	$1196^{+53}_{-45}$	$2871^{+197}_{-182}$	$7.535^{+4.396}_{-2.796}$

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



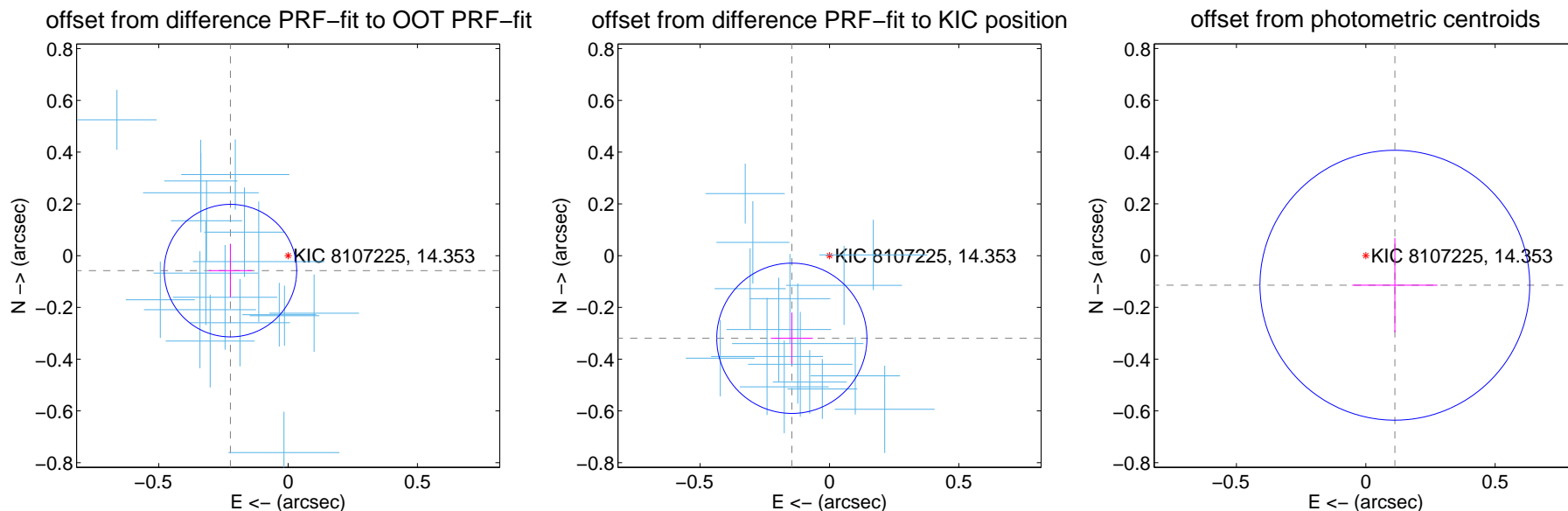
## DV Centroid Data

Supplemental centroid analysis for 008107225-01. Kepler magnitude: 14.35. Transit SNR 70.25

There are 17 quarters with good PRF difference image offsets

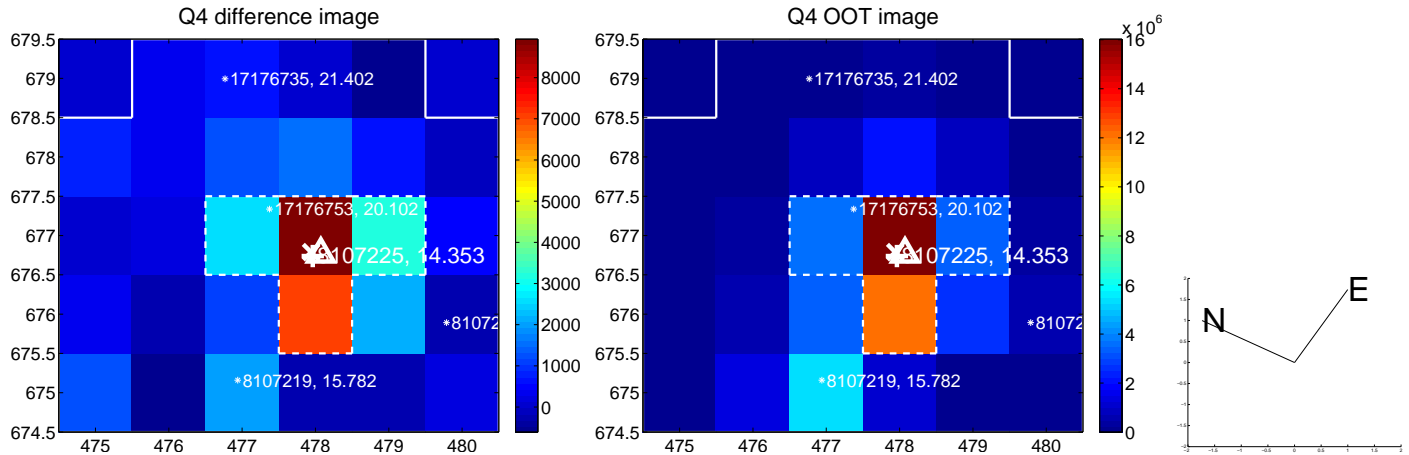
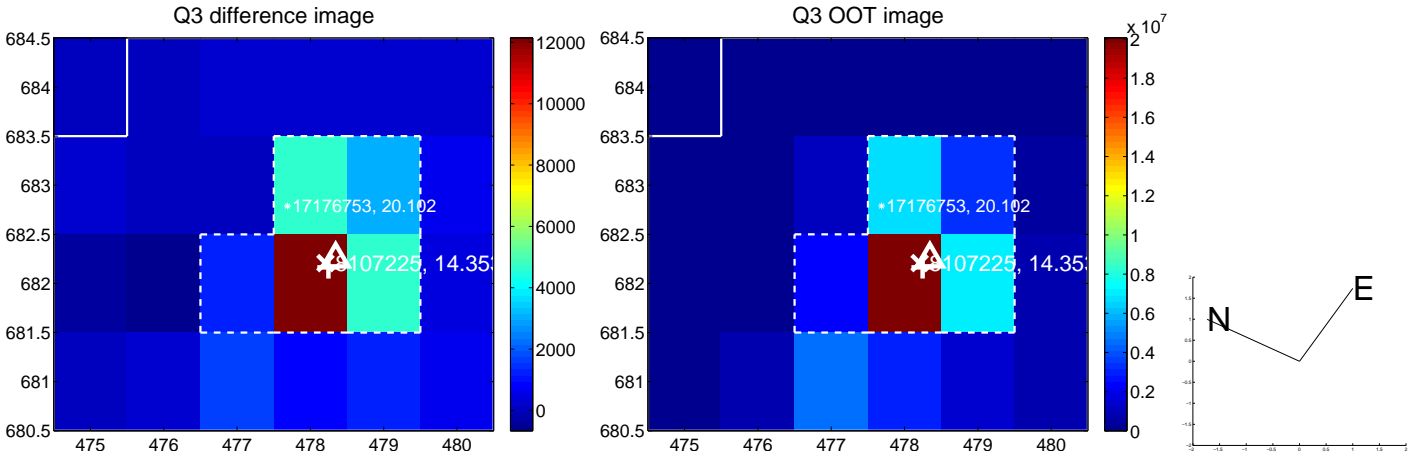
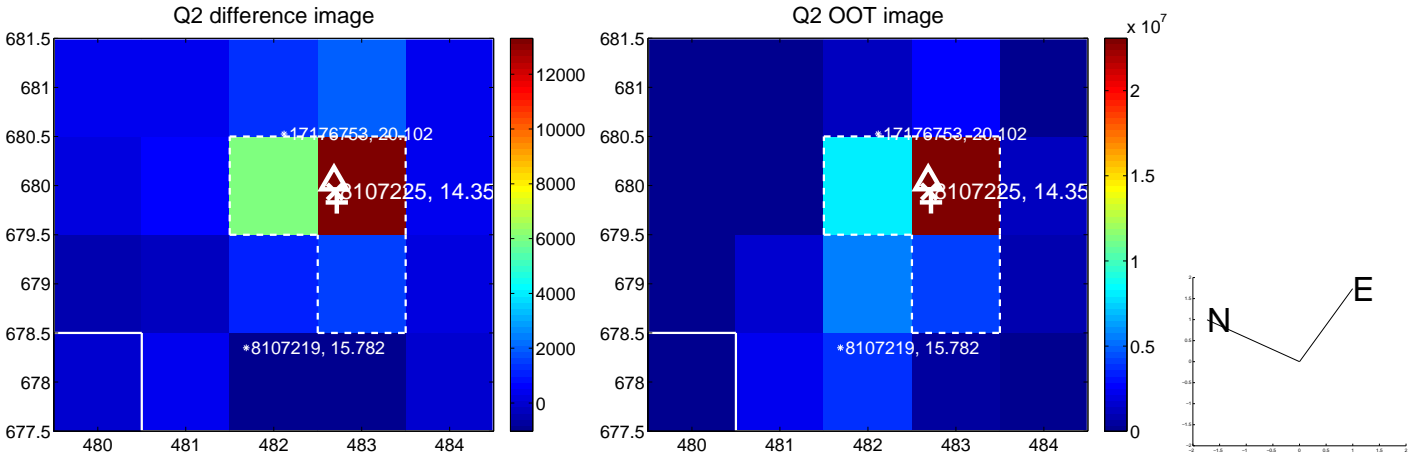
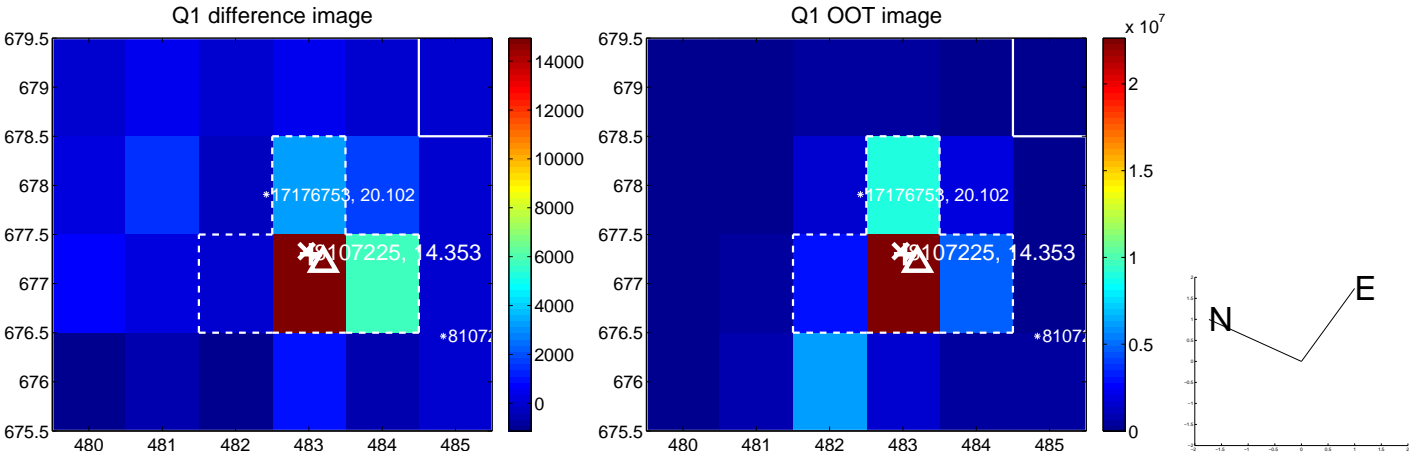
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.230 \pm 0.085$	2.70	$0.223 \pm 0.084$	$-0.058 \pm 0.103$
PRF-fit source offset from KIC position	$0.351 \pm 0.097$	3.63	$0.146 \pm 0.081$	$-0.319 \pm 0.100$
photometric centroid source offset	$0.16 \pm 0.17$	0.92	$-0.11 \pm 0.16$	$-0.11 \pm 0.18$



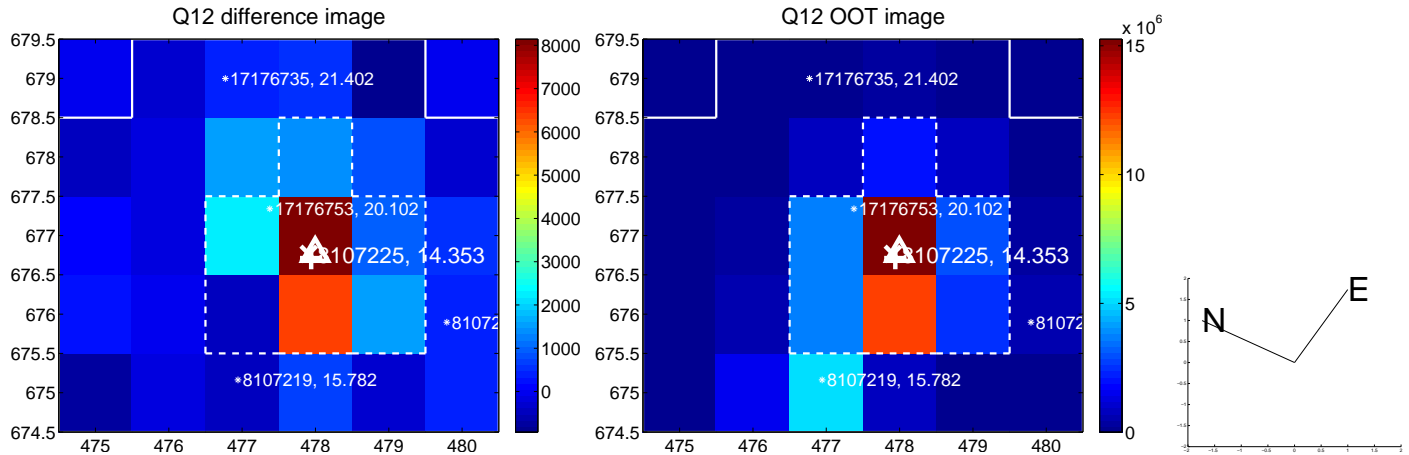
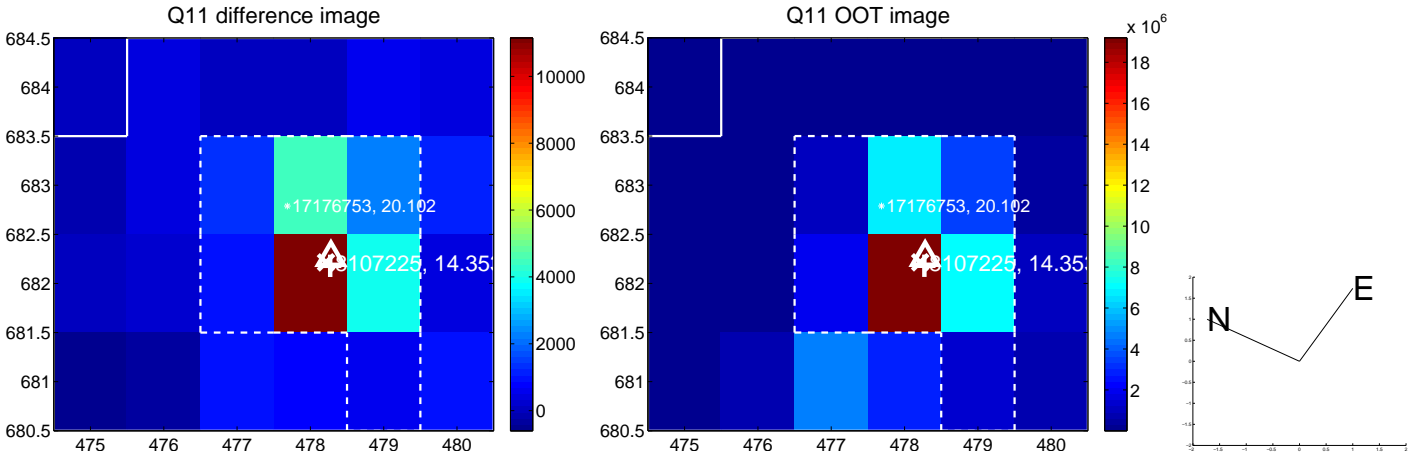
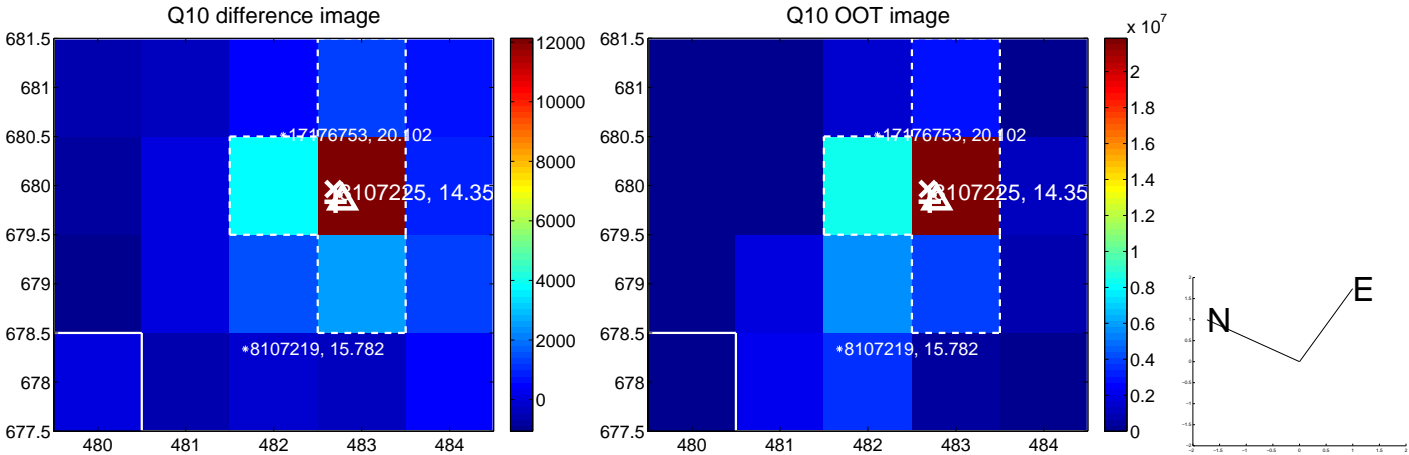
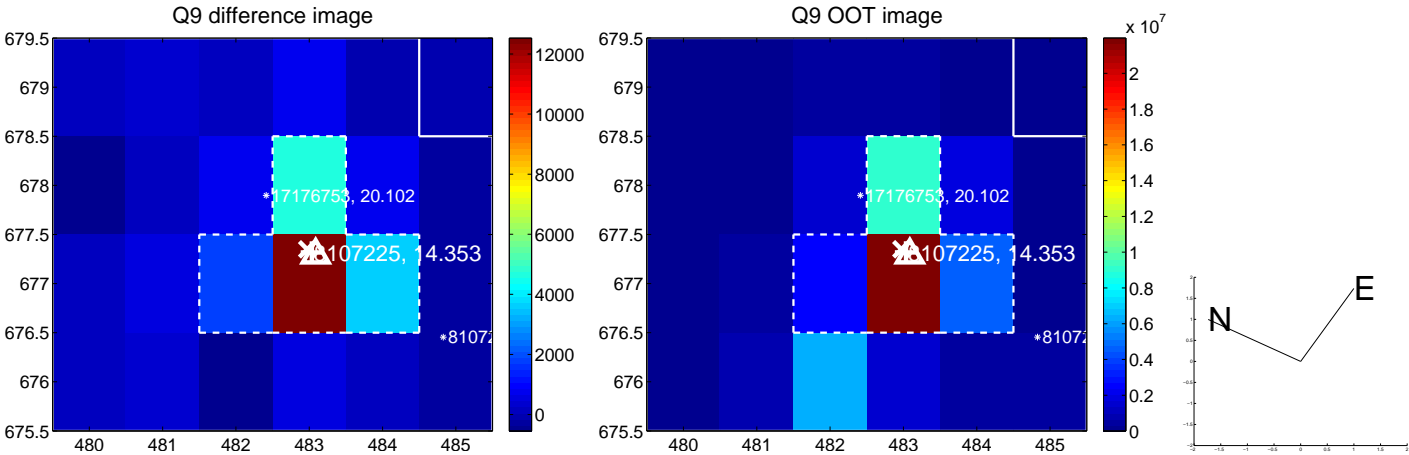
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

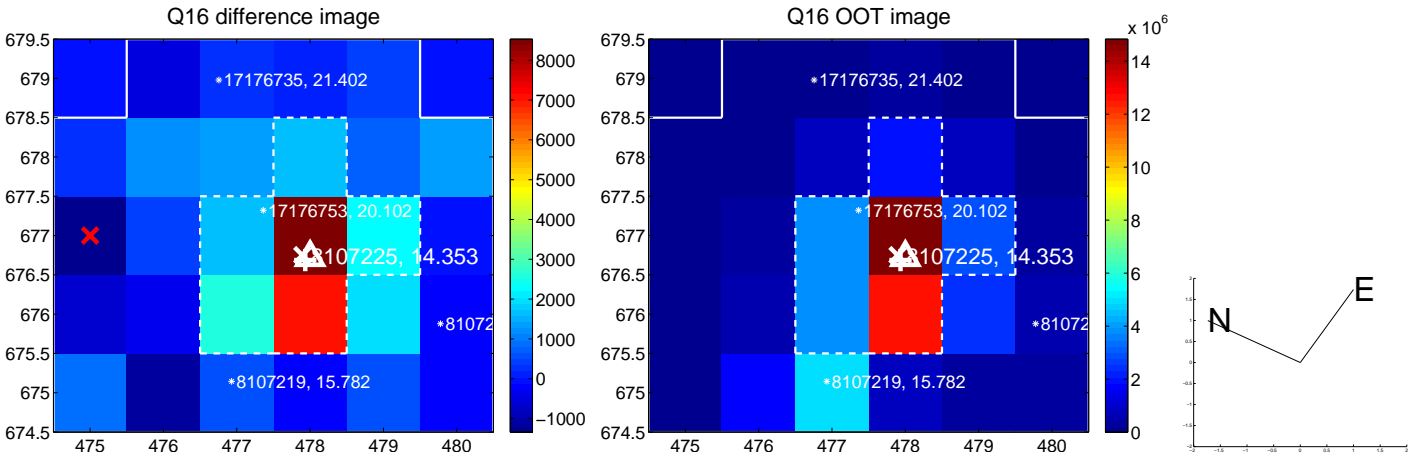
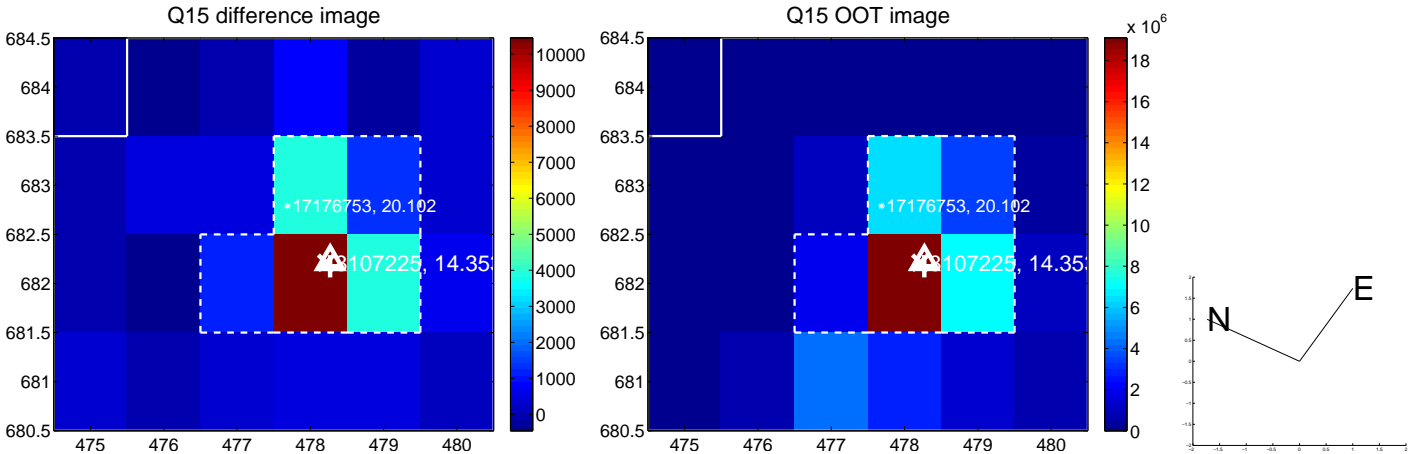
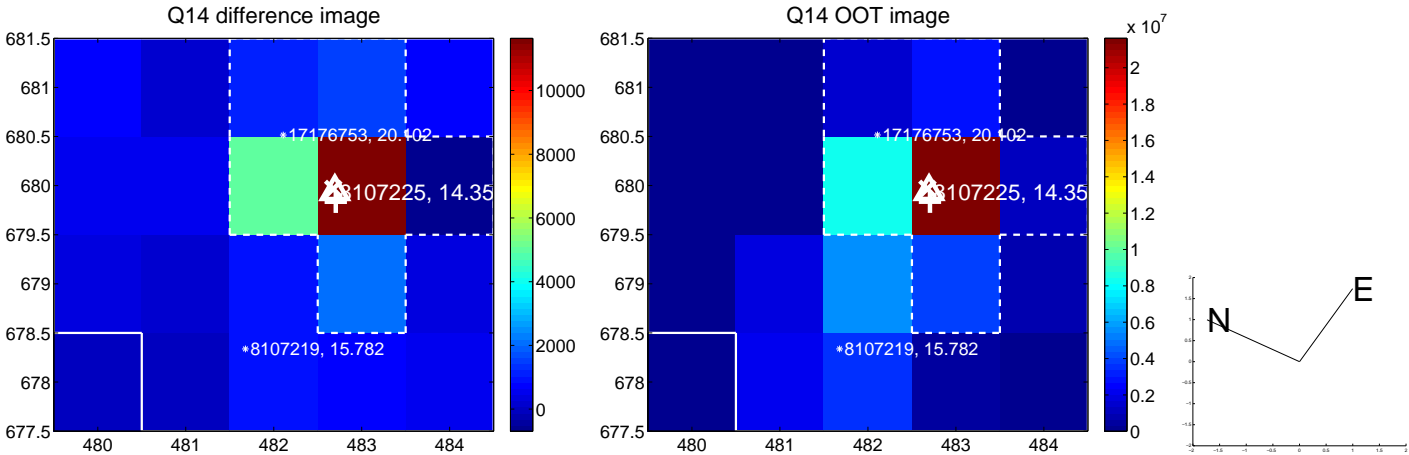
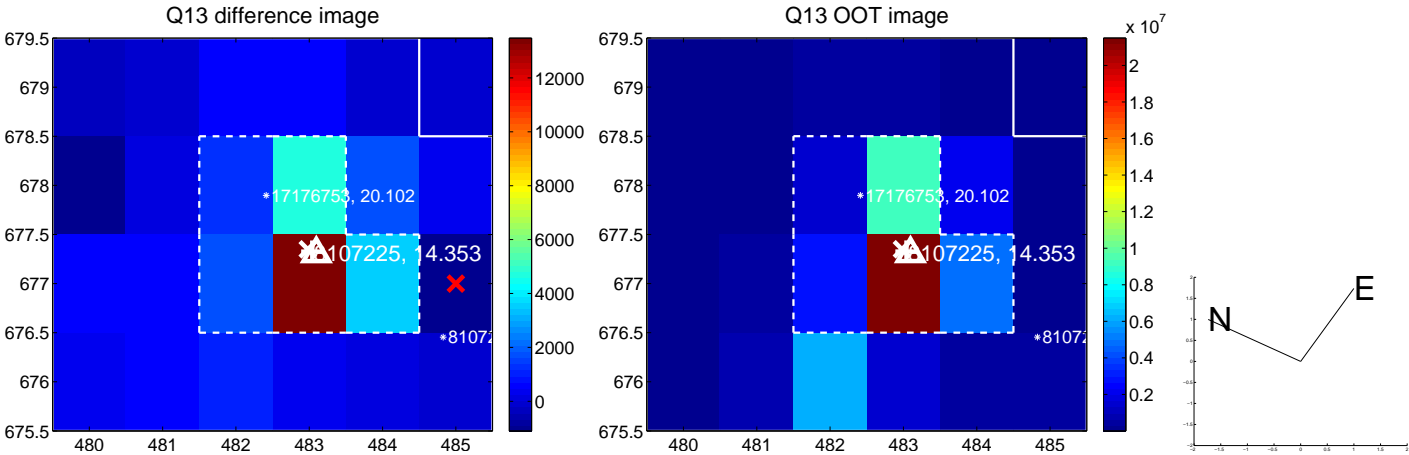




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

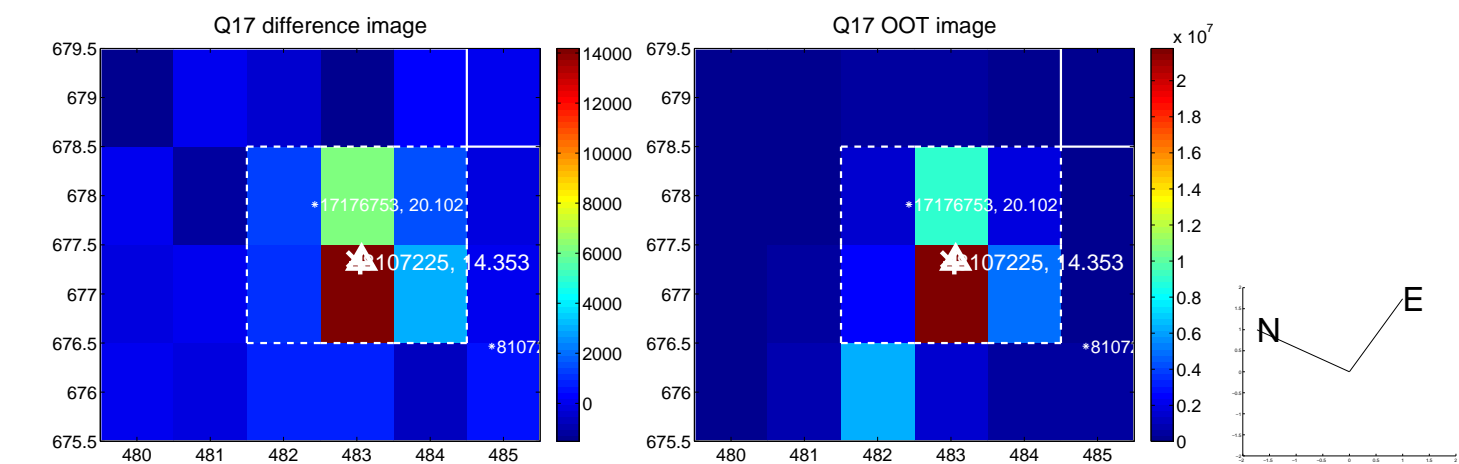


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

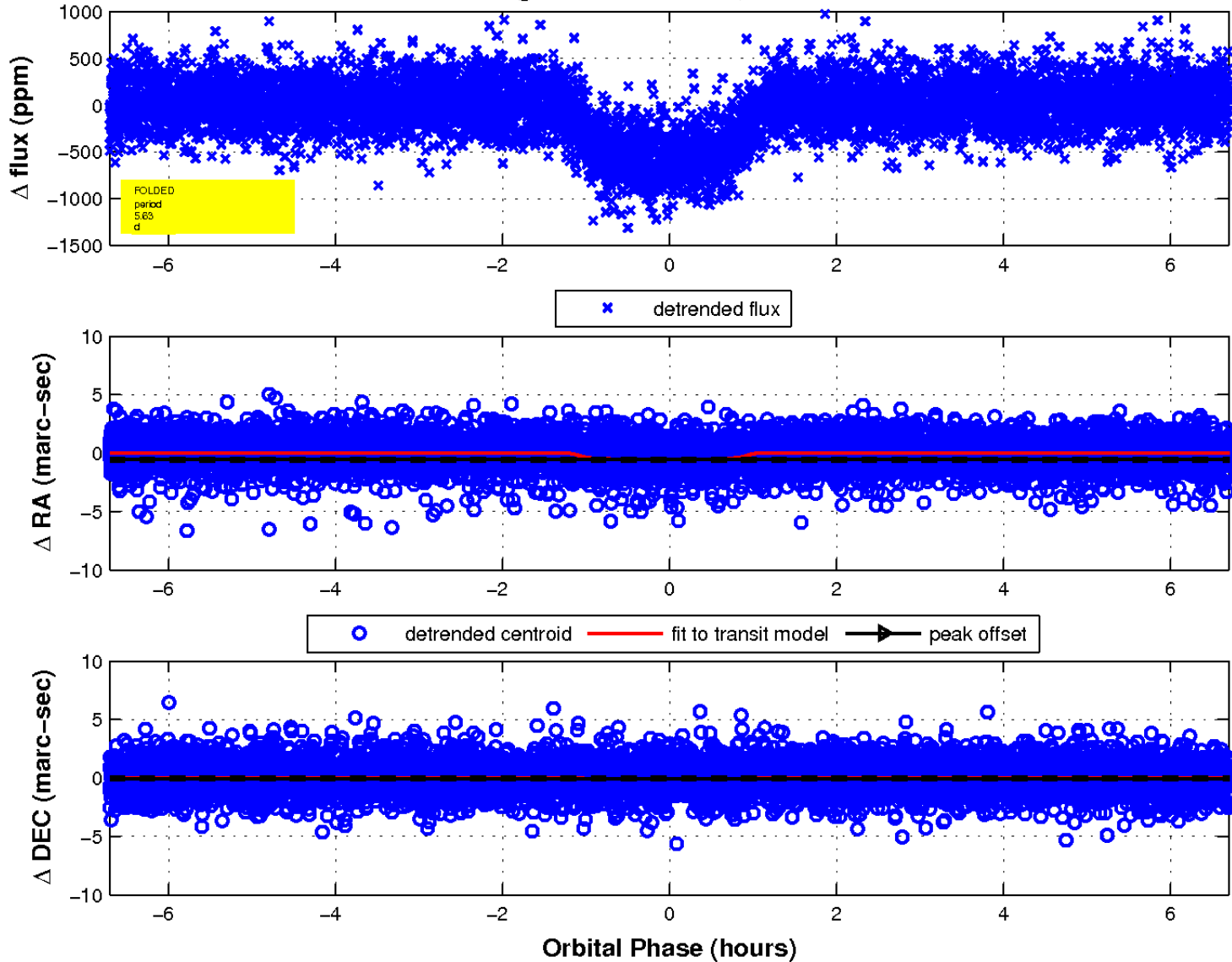




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

