

# KIC 004862155

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004862155-01	OBS	No	1.046432	132.308288	31.5	3.460	11.2	10.0	1.10	6661	0.70	4852.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004862155-01	OBS	FP	0.00	1	0	0	0	LPP_DV

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

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

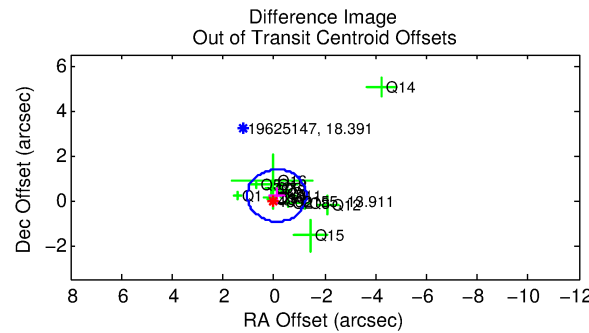
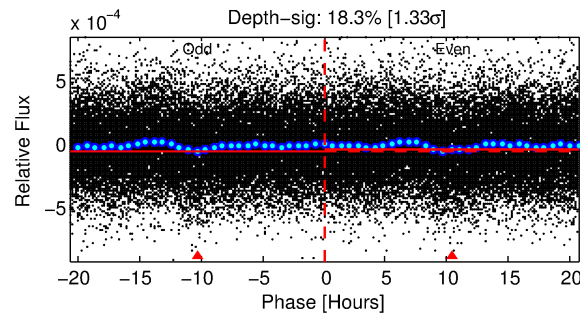
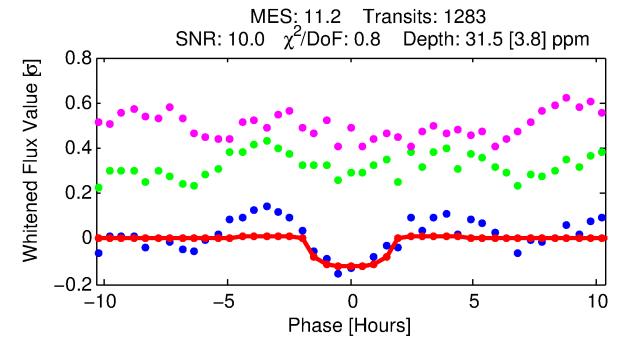
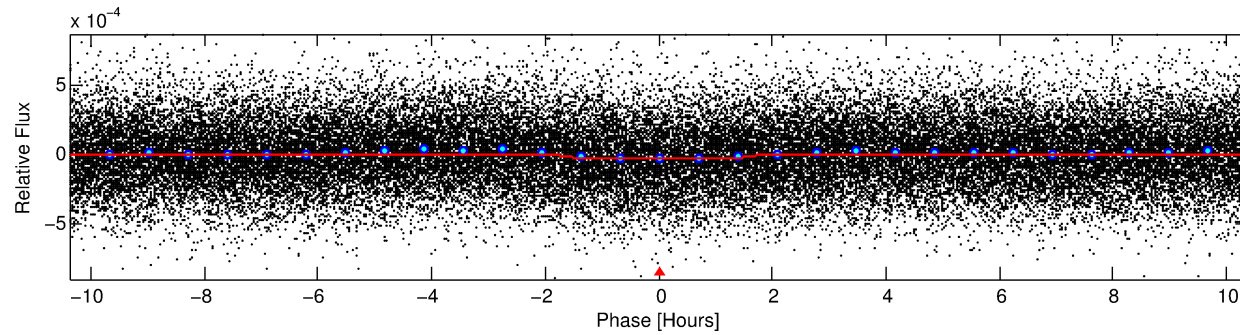
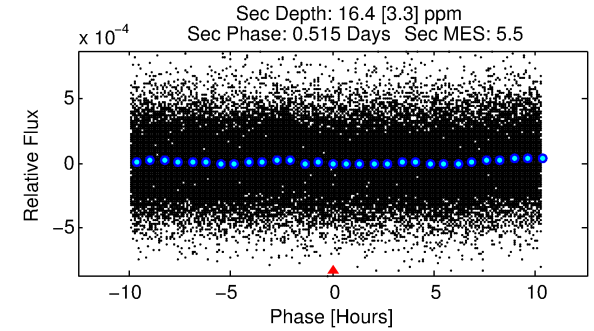
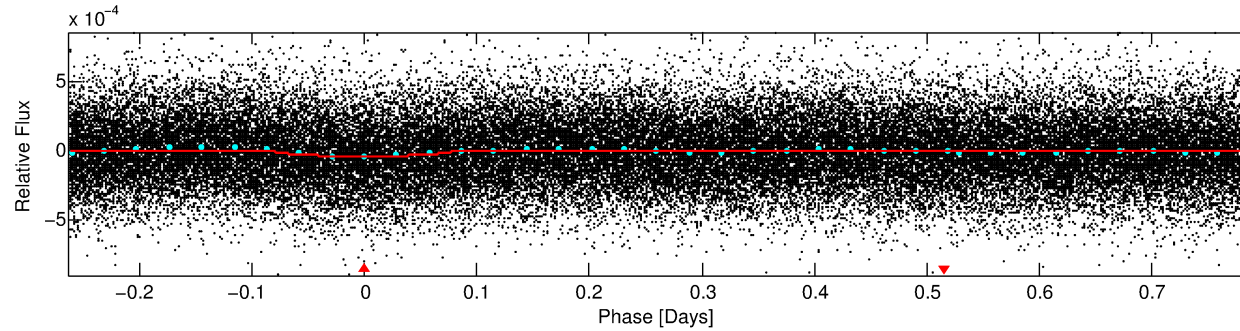
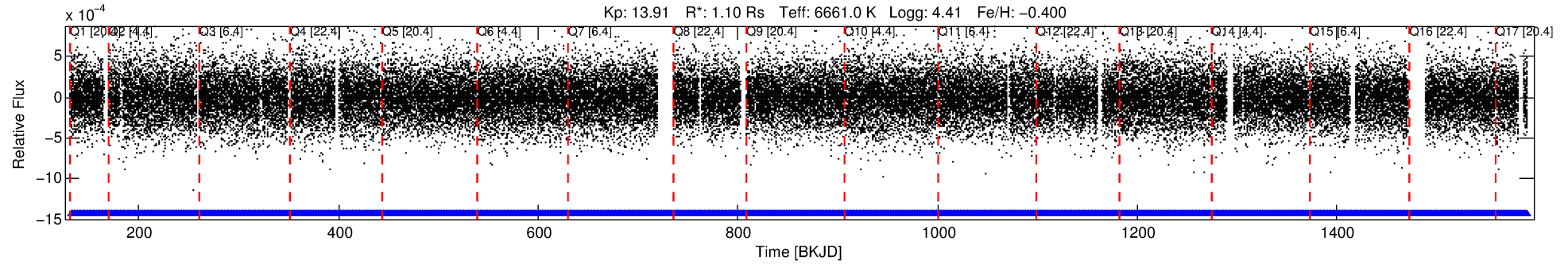
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004862155-01

No Significant Match Found

# DV One-Page Summary

KIC: 4862155 Candidate: 1 of 1 Period: 1.046 d



## DV Fit Results:

Period = 1.04643 [0.00001] d  
Epoch = 132.3083 [0.0039] BKJD  
Rp/R\* = 0.0058 [0.0021]  
a/R\* = 1.55 [1.92]  
b = 0.85 [0.72]  
Seff = 4852.47 [1866.98]  
Teq = 2128 [205] K  
Rp = 0.70 [0.33] Re  
a = 0.0210 [0.0053] AU  
Ag = 8.22 [6.90] [1.05σ]  
Teffp = 5572 [1072] K [3.16σ]

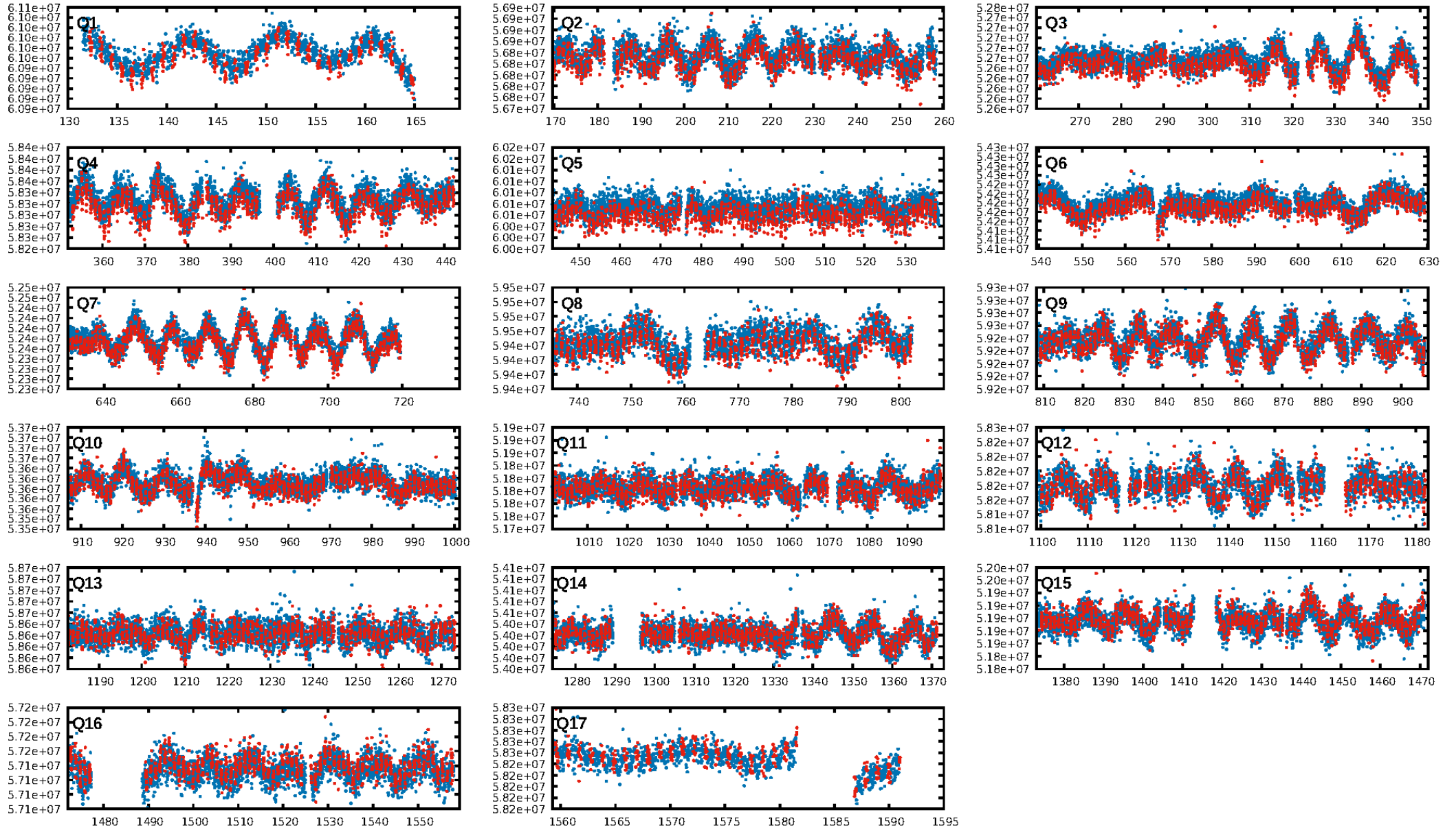
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGo-sig: N/A  
Bootstrap-pfa: 2.26e-25  
RollingBand-fgt: 1.00 [1224/1224]  
GhostDiagnostic-chr: 1.068  
Centroid-sig: 78.2%  
Centroid-so: 0.440 arcsec [0.35σ]  
OotOffset-rm: 0.245 arcsec [0.63σ]  
KicOffset-rm: 0.349 arcsec [0.92σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:44:16 Z

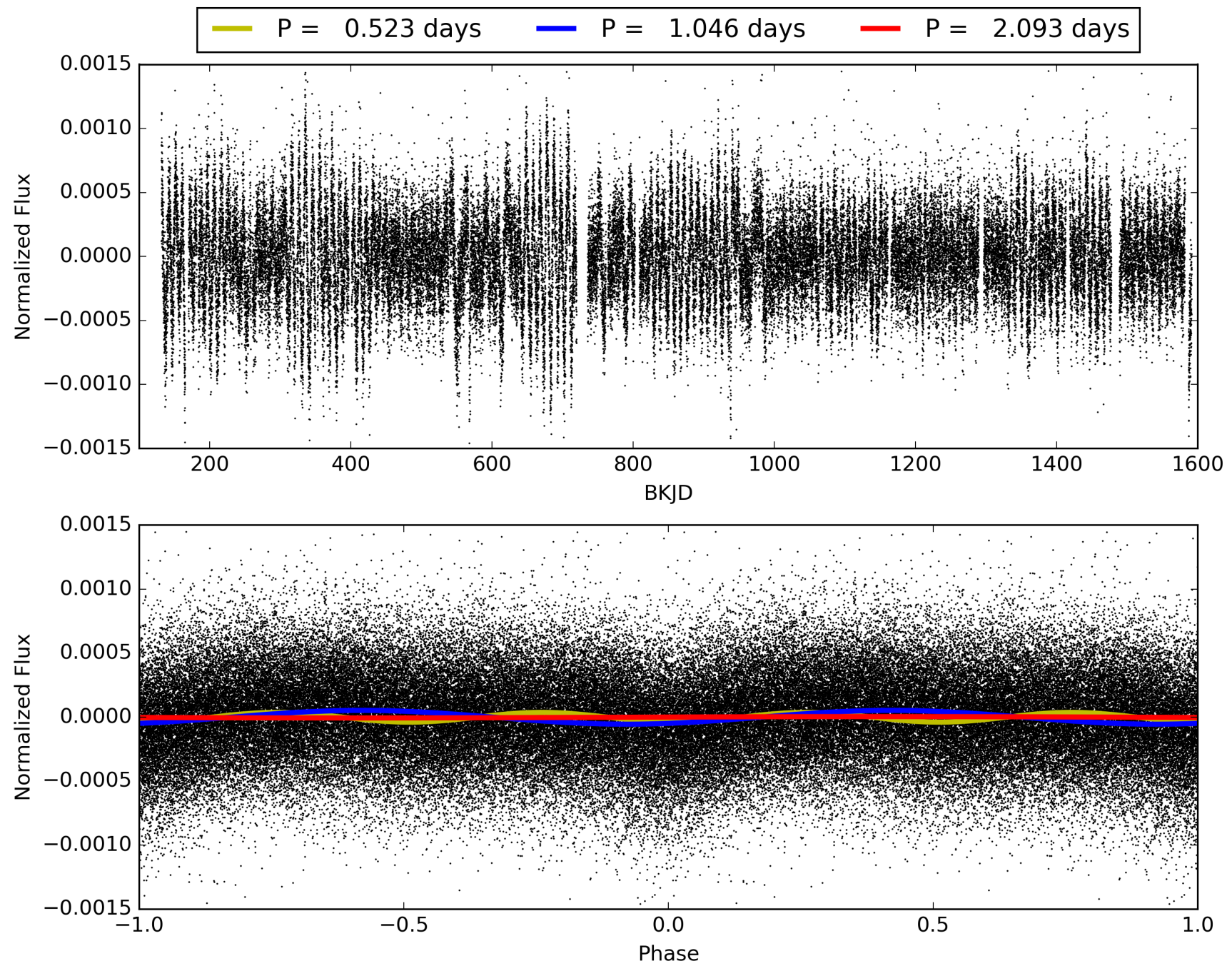
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004862155-01, PDC Light Curves



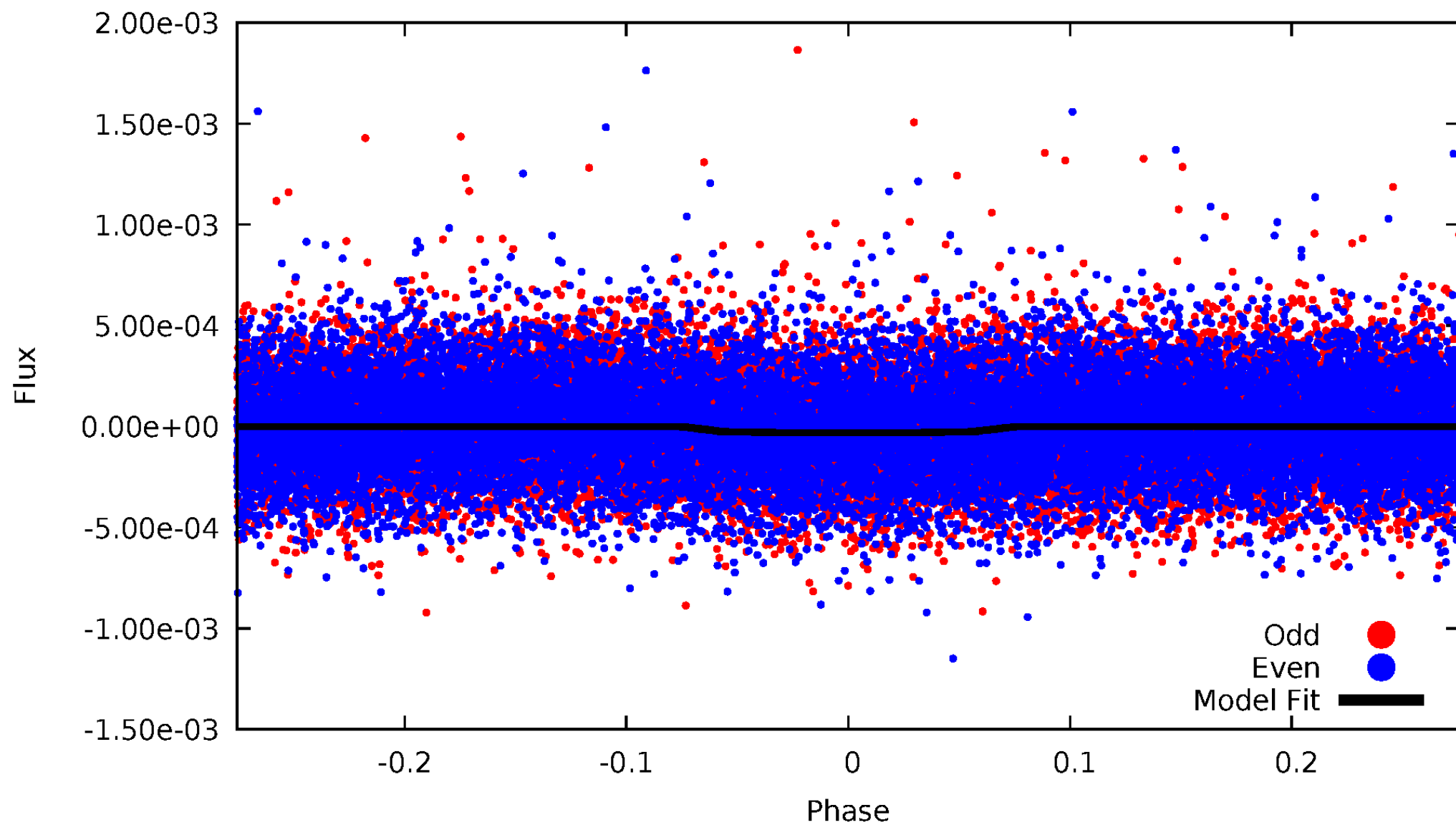


TCE 004862155-01



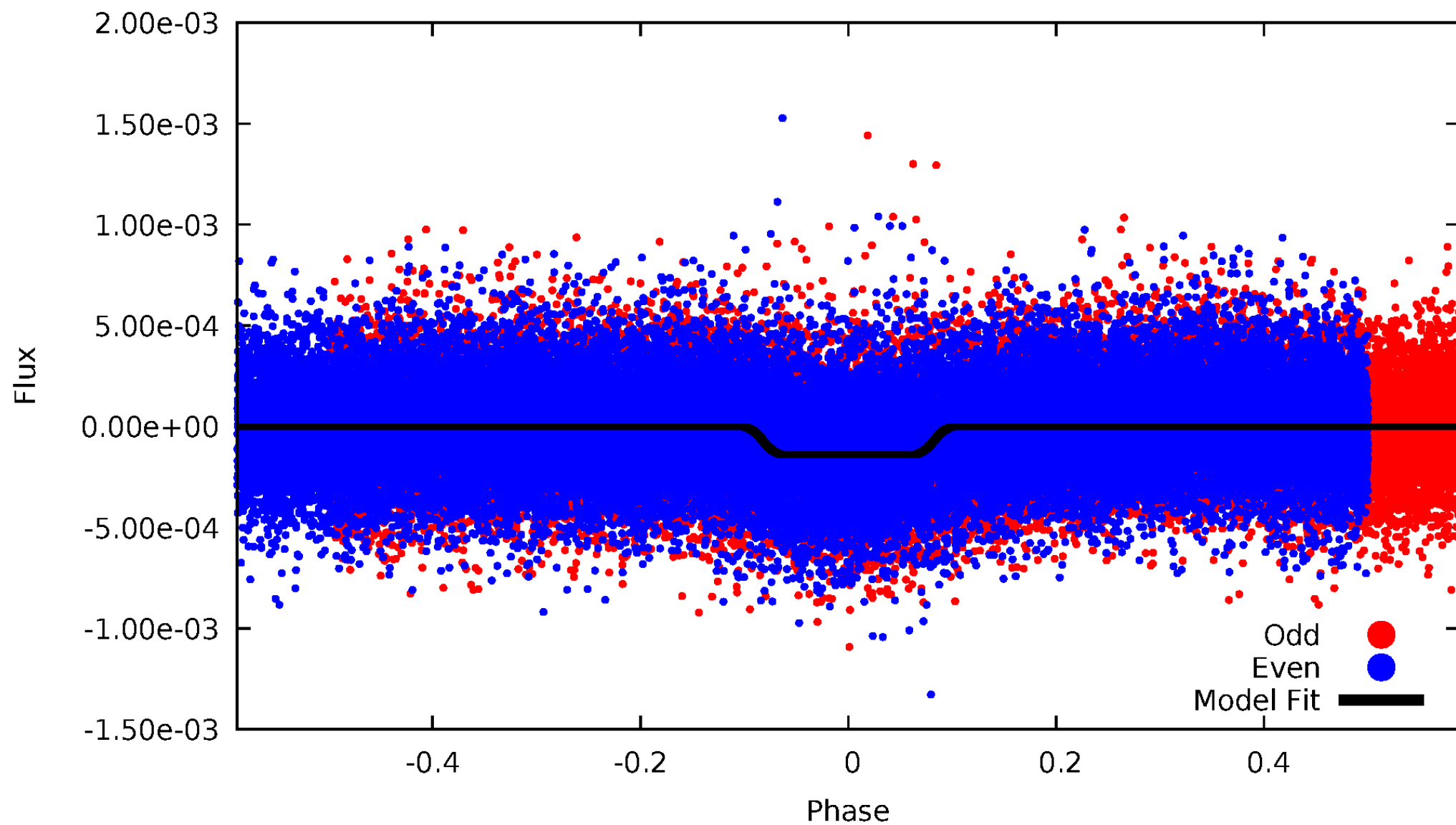
# DV Odd/Even

TCE 004862155-01



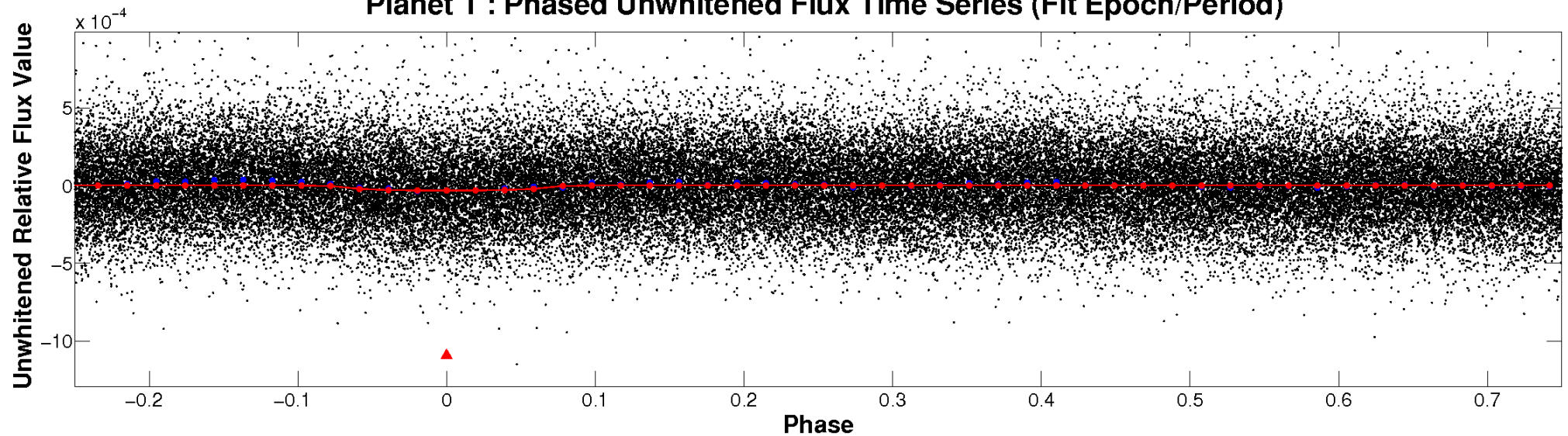
# ALT Odd/Even

TCE 004862155-01

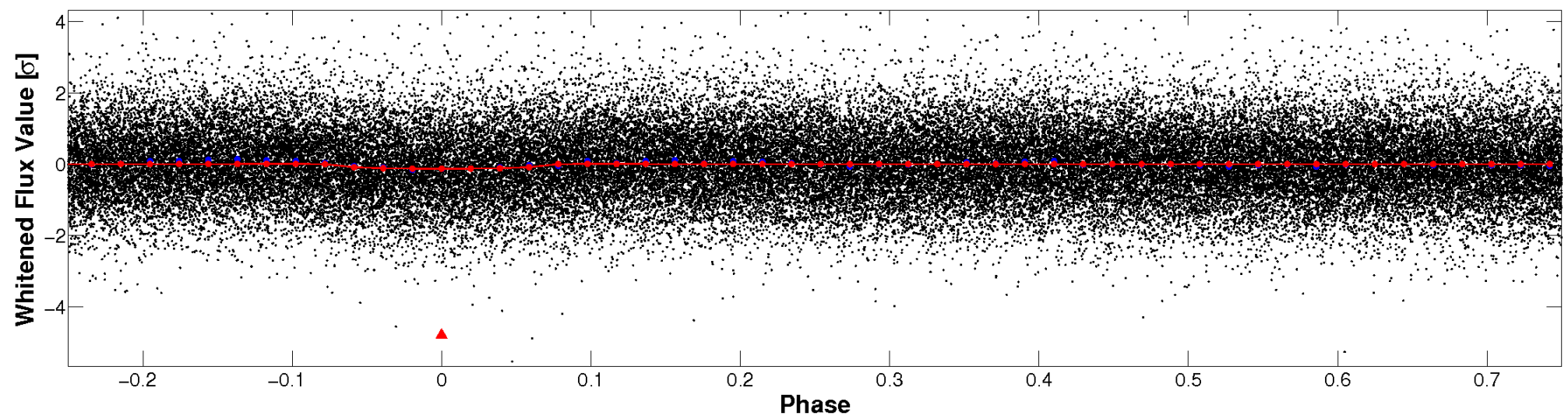


# Non-Whitened Vs. Whitened Light Curve

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



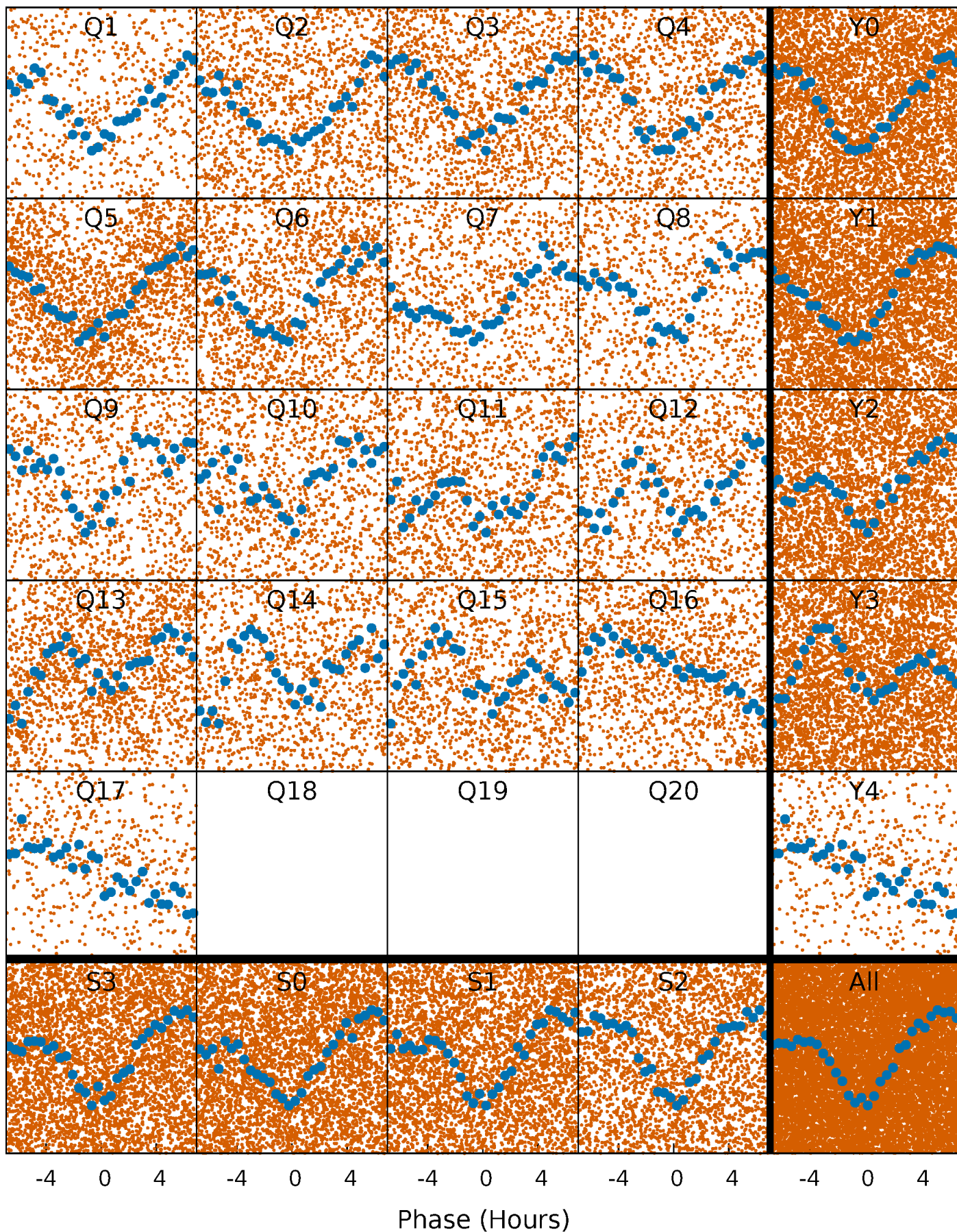
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

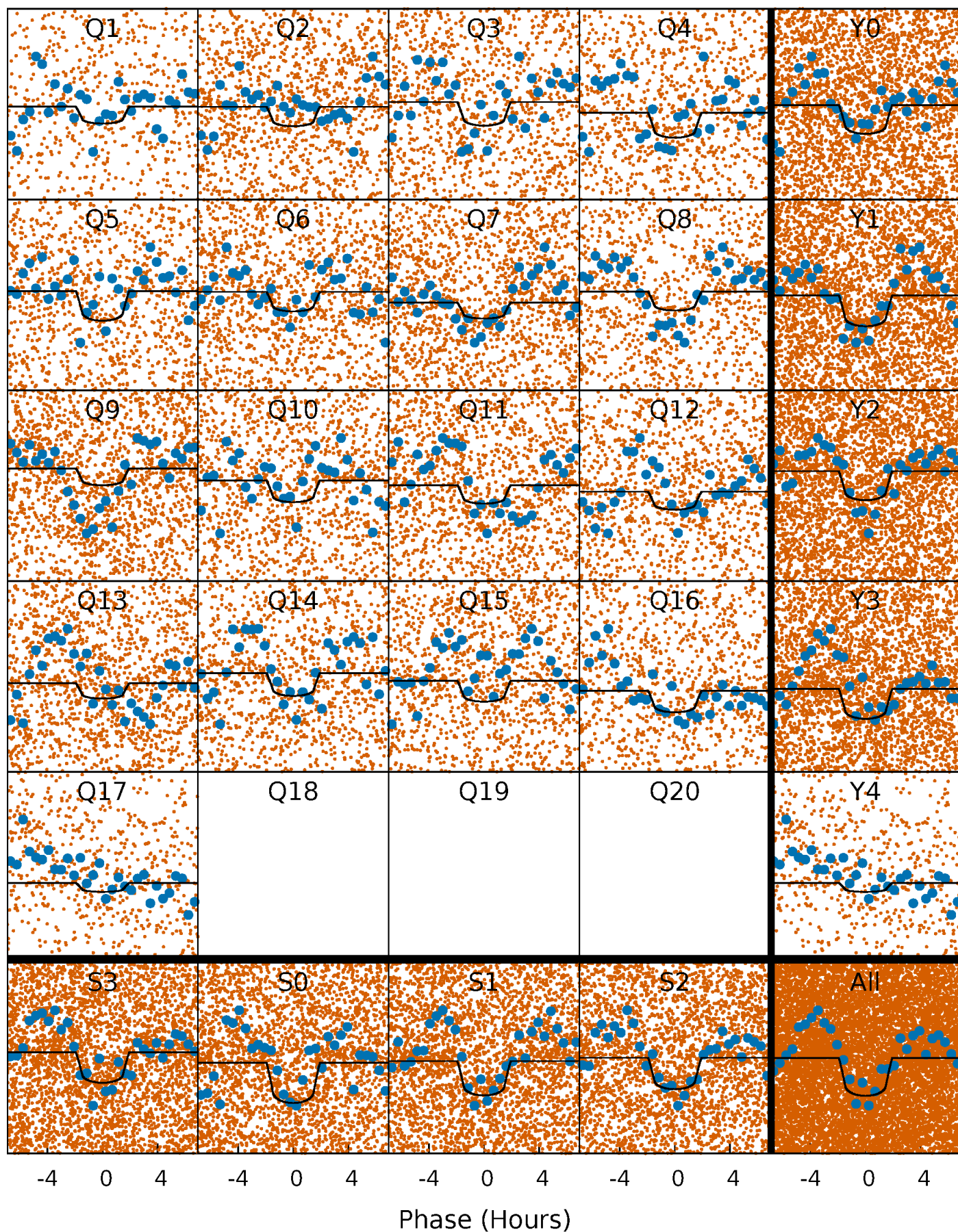
TCE 004862155-01 P= 1.046432 Days  $T_0=132.308288$  (BKJD)





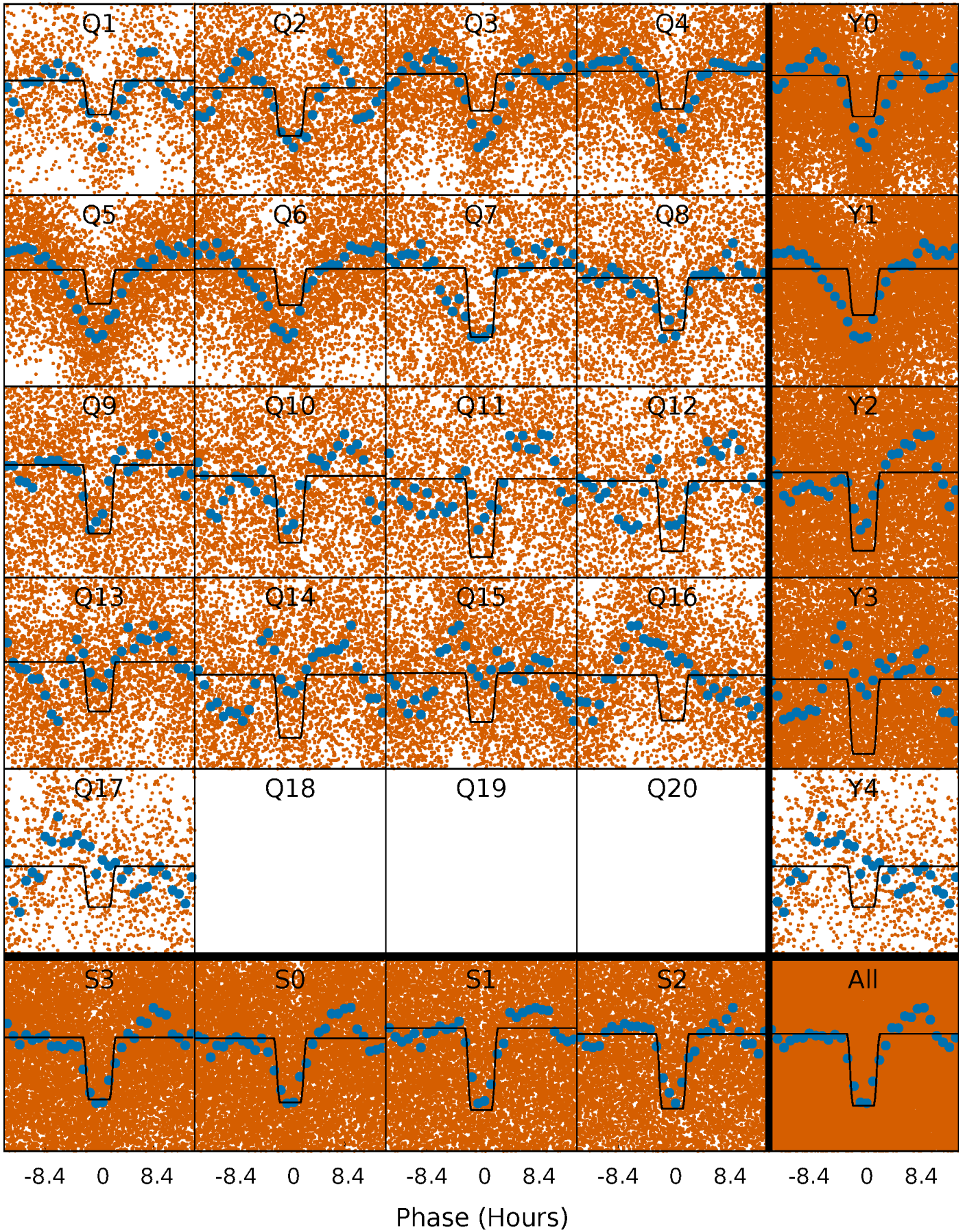
# DV Quarter-Phased Transit Curves

TCE 004862155-01 P= 1.046432 Days  $T_0=132.308288$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 004862155-01 P= 1.046488 Days  $T_0=132.267944$  (BKJD)

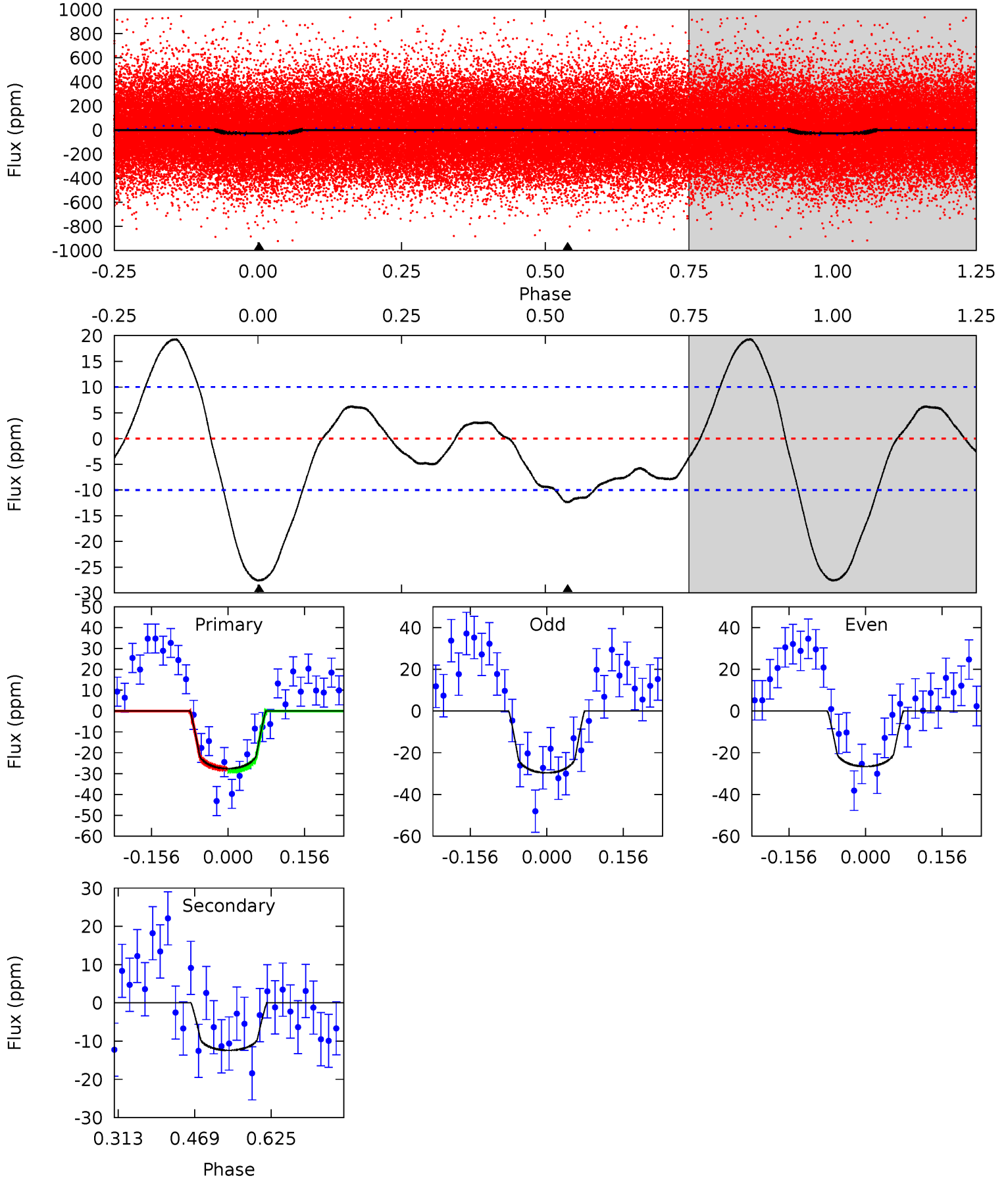




# DV Model-Shift Uniqueness Test

004862155-01, P = 1.046432 Days, E = 131.261856 Days

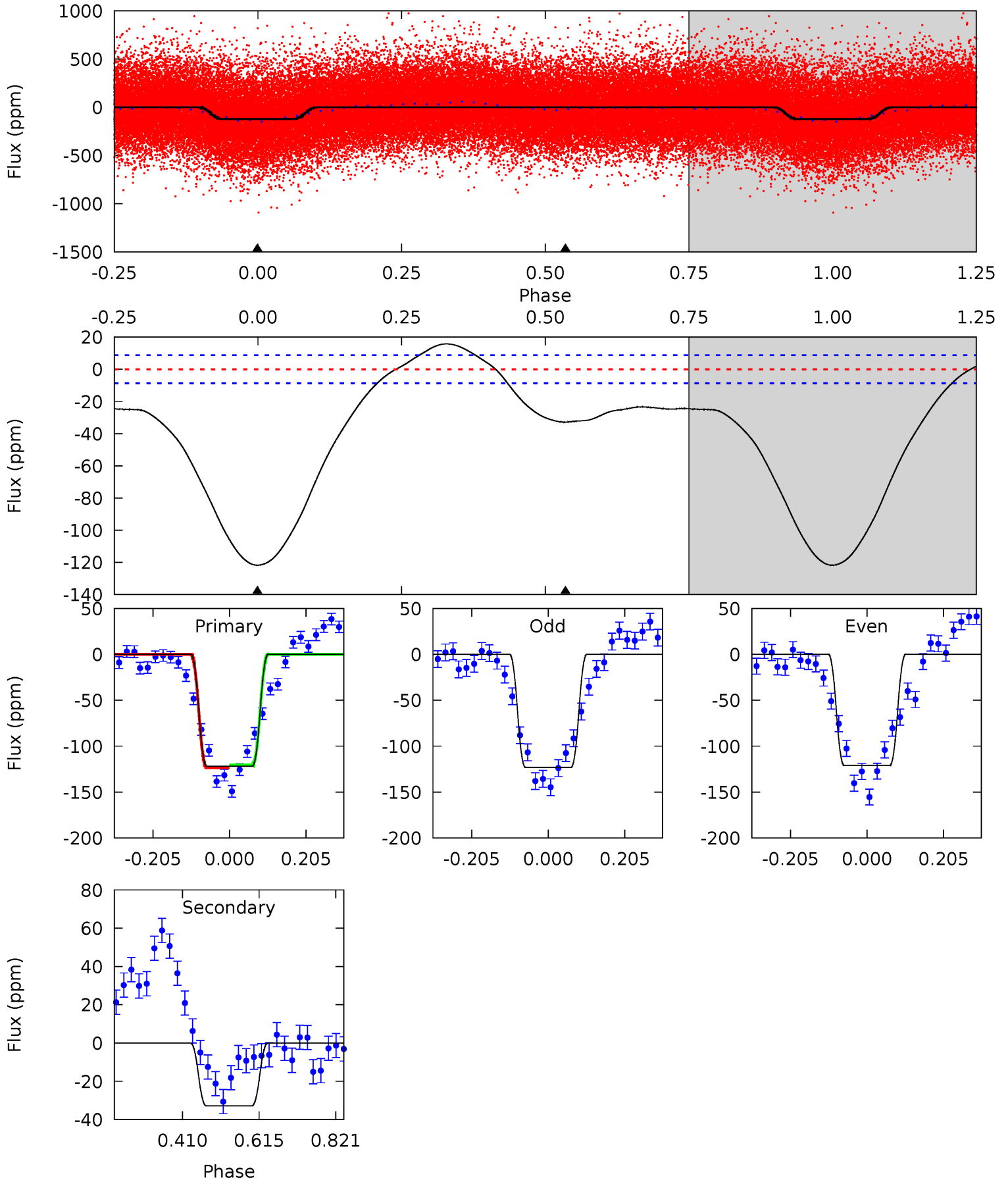
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	5.53	0	0	4.47	1.42	2.99	12.3	12.3	5.53	5.53	0.68	0.94	0.41	0.22



# Alt Model-Shift Uniqueness Test

004862155-01, P = 1.046488 Days, E = 131.221456 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
61.5	16.6	0	0	4.41	1.27	7.67	61.5	61.5	16.6	16.6	0.50	1.01	0.11	0.73





### Stellar Parameters For KIC 004862155

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6661^{+181}_{-222}$	$4.406^{+0.065}_{-0.195}$	$-0.400^{+0.250}_{-0.300}$	$1.101^{+0.333}_{-0.119}$	$1.125^{+0.157}_{-0.142}$	$1.187^{+0.333}_{-0.622}$
	+3%/-3%	+1%/-4%	+62%/-75%	+30%/-11%	+14%/-13%	+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 004862155-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-12 \pm 2$	$0.73^{+0.28}_{-0.27}$	$3021^{+201}_{-160}$	$5152^{+1276}_{-739}$	$5.474^{+8.516}_{-2.692}$
Alt.	$-33 \pm 2$	$1.46^{+0.33}_{-0.27}$	$3012^{+217}_{-136}$	$4674^{+427}_{-335}$	$3.687^{+1.891}_{-1.231}$

$T_{\text{max}}$  = 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

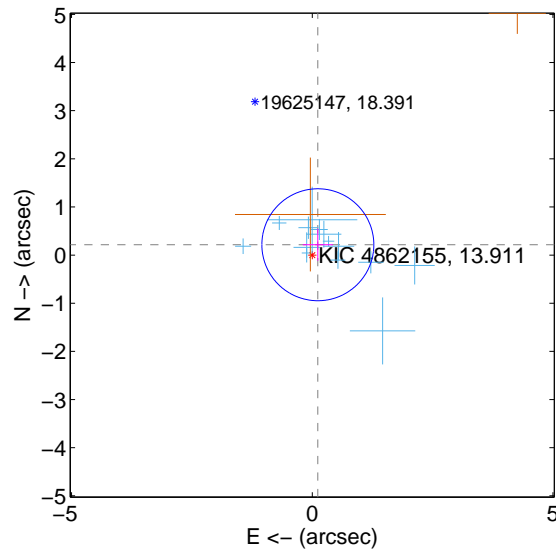
Supplemental centroid analysis for 004862155-01. Kepler magnitude: 13.91. Transit SNR 9.95

There are 14 quarters with good PRF difference image offsets

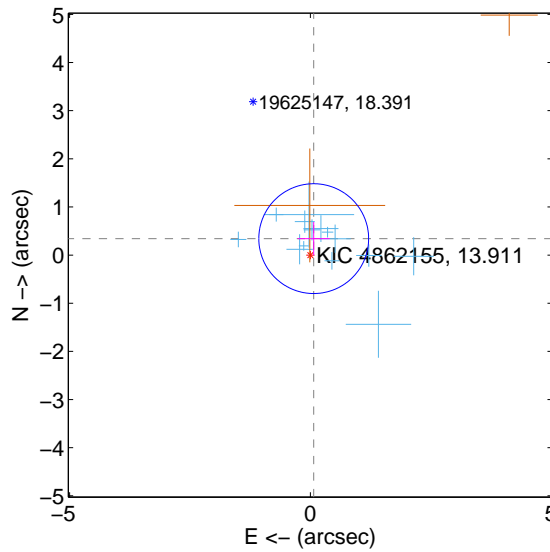
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.245 \pm 0.388$	0.63	$-0.116 \pm 0.313$	$0.215 \pm 0.333$
PRF-fit source offset from KIC position	$0.349 \pm 0.380$	0.92	$-0.070 \pm 0.334$	$0.342 \pm 0.348$
photometric centroid source offset	$0.44 \pm 1.25$	0.35	$-0.39 \pm 1.27$	$0.20 \pm 1.18$

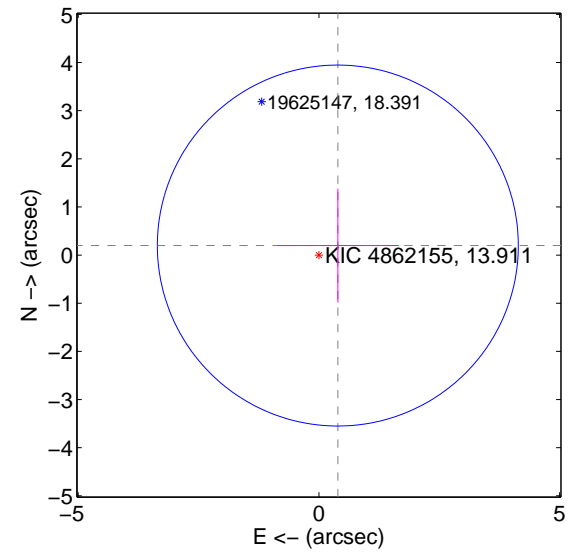
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

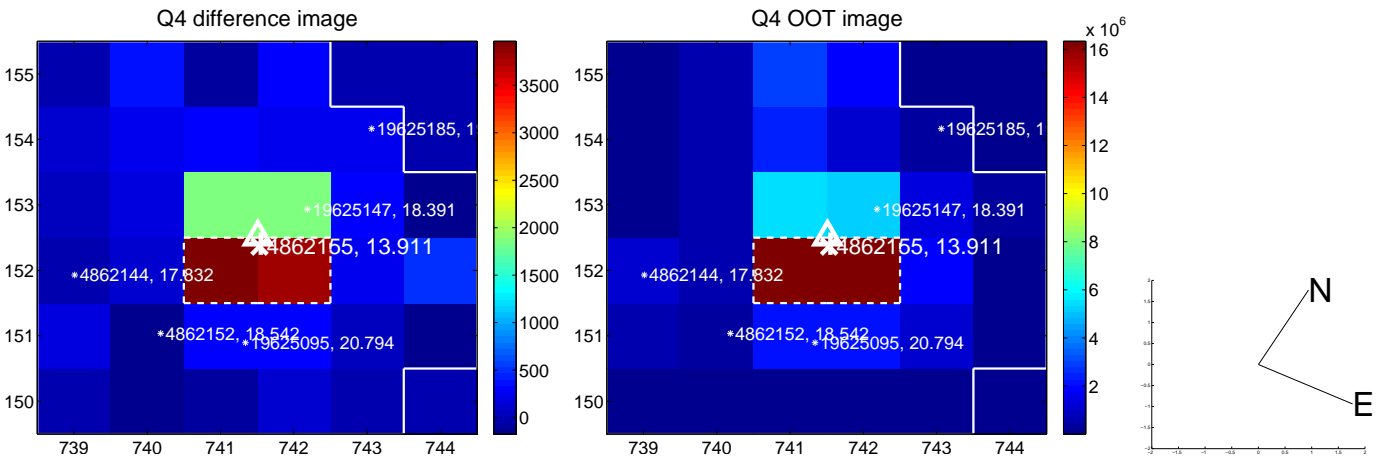
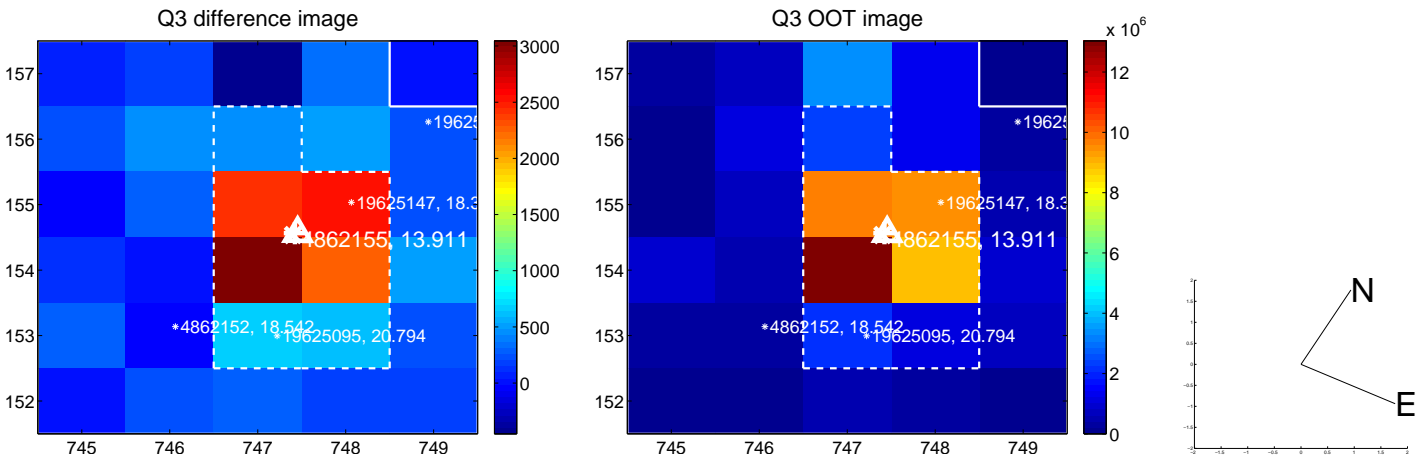
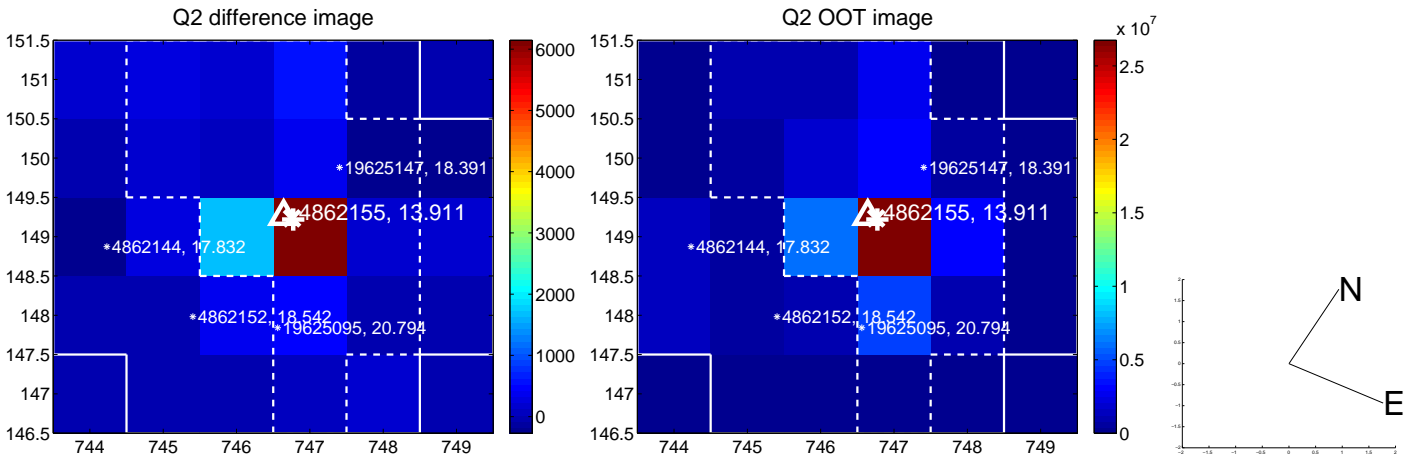
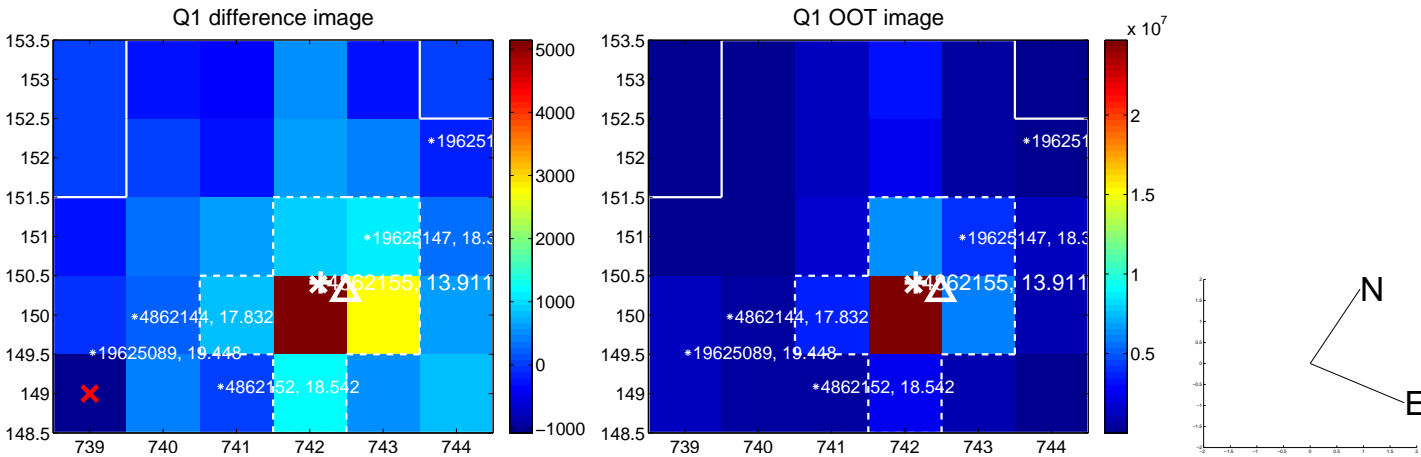


offset from photometric centroids

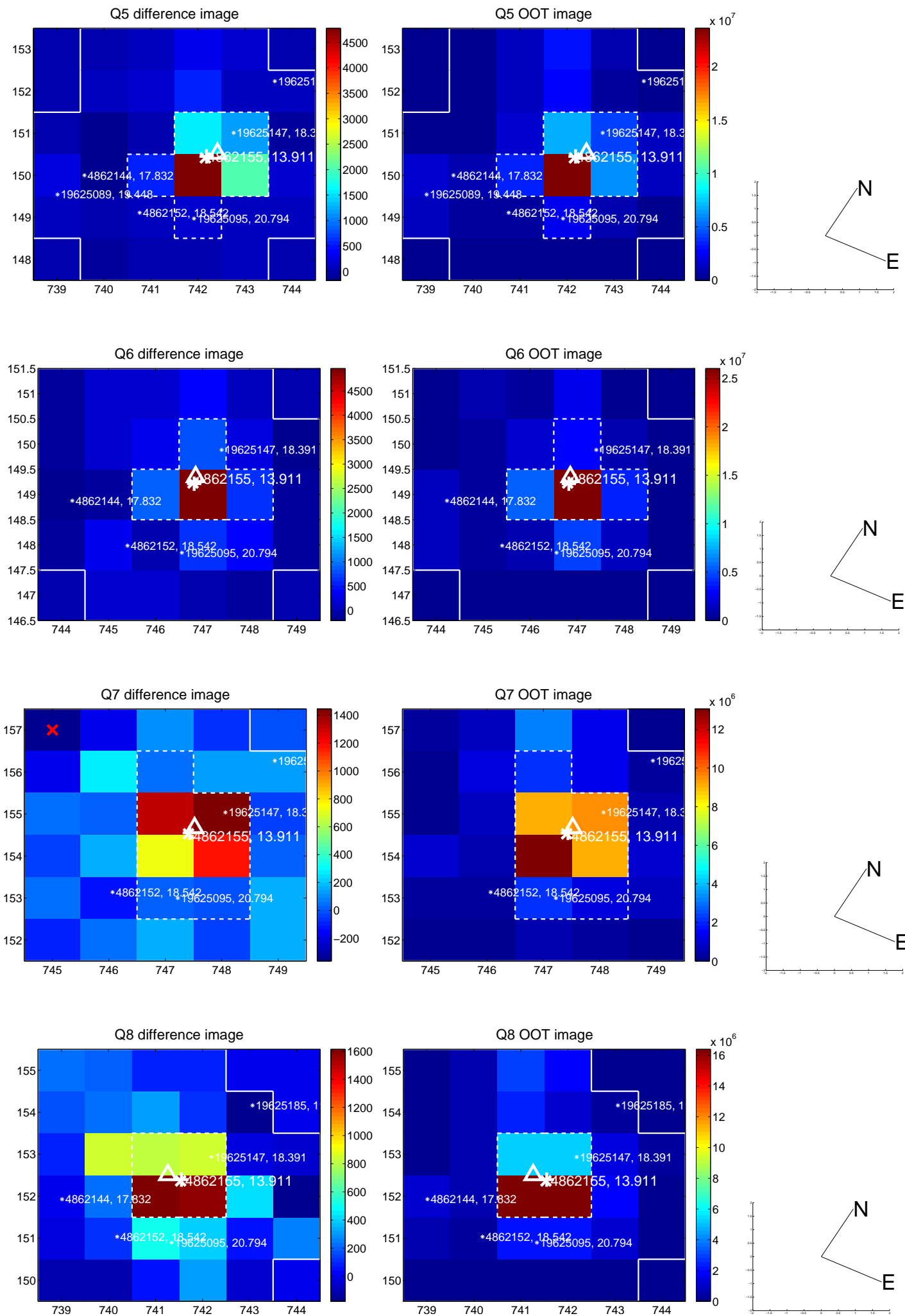


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

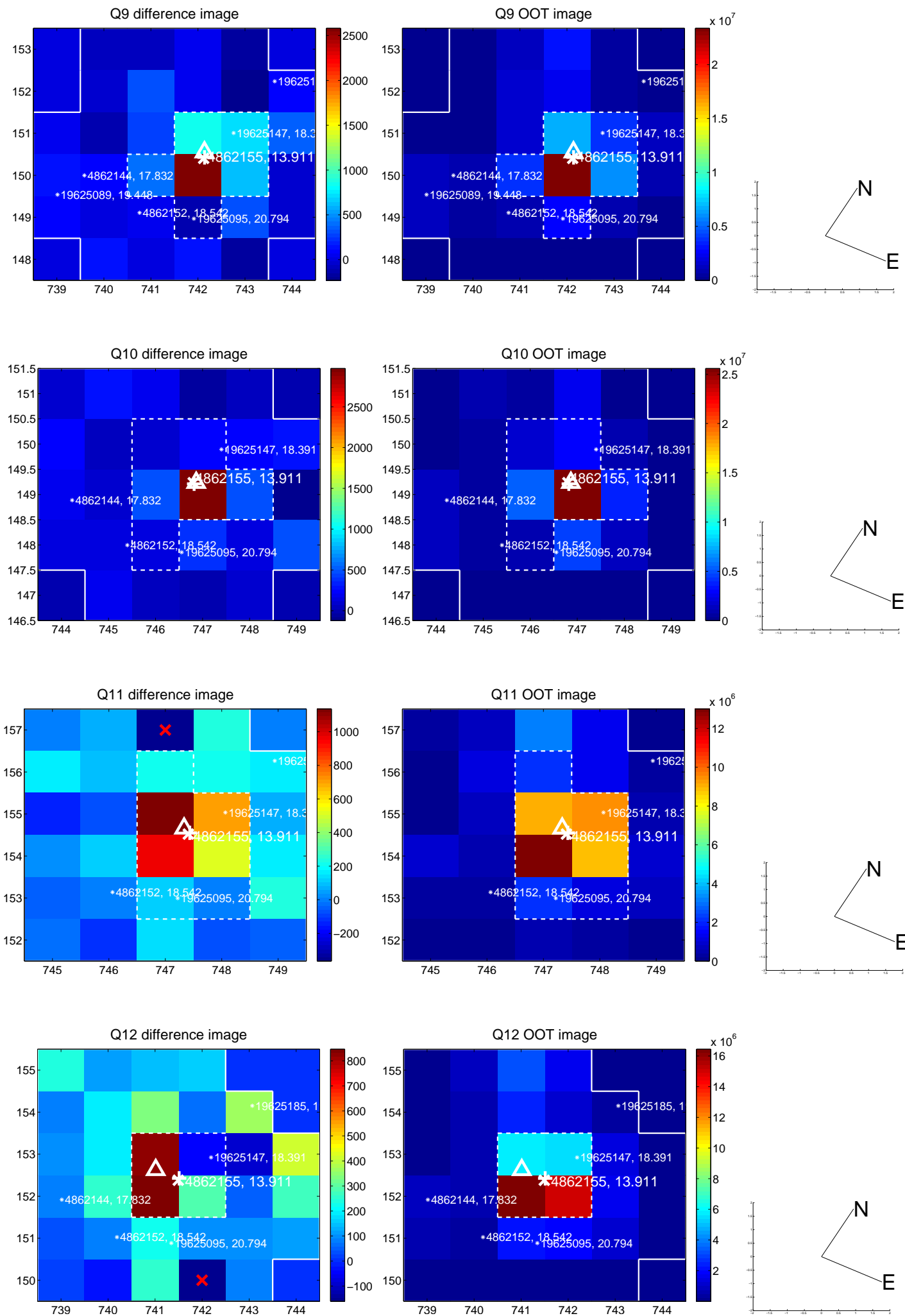


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

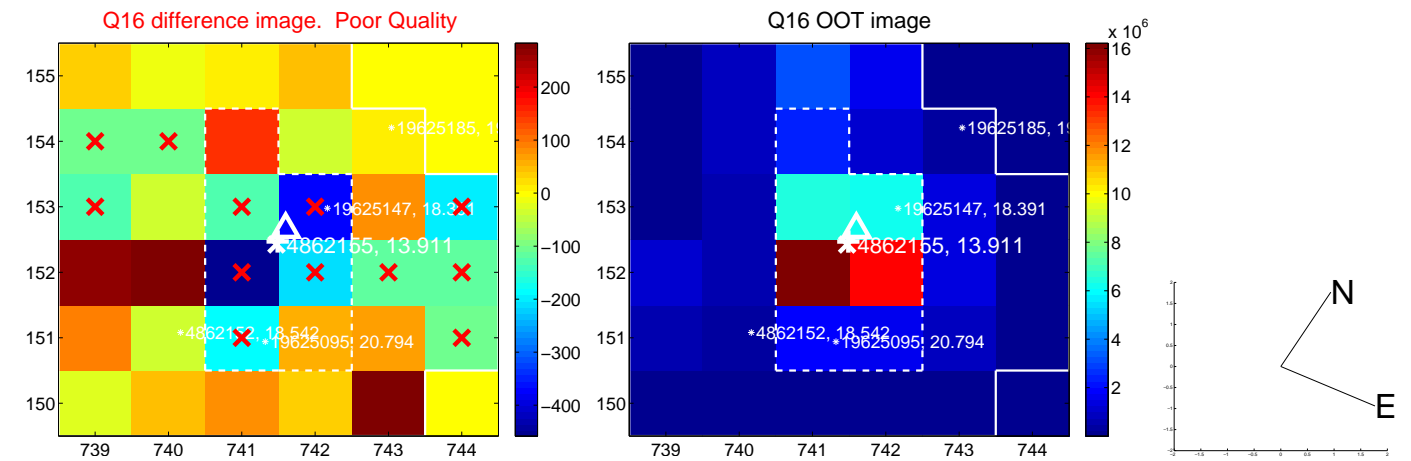
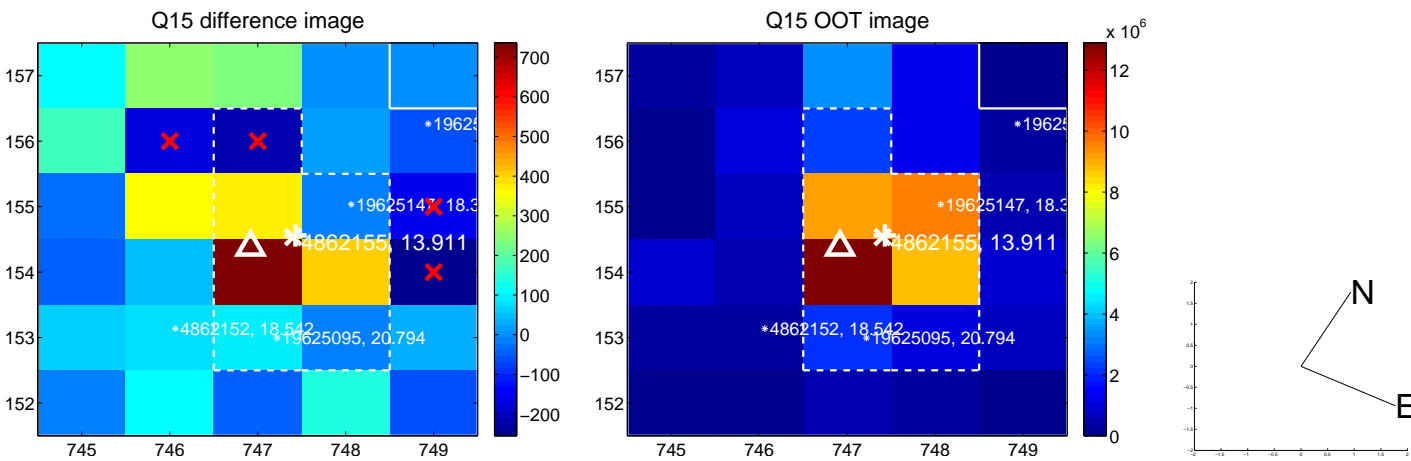
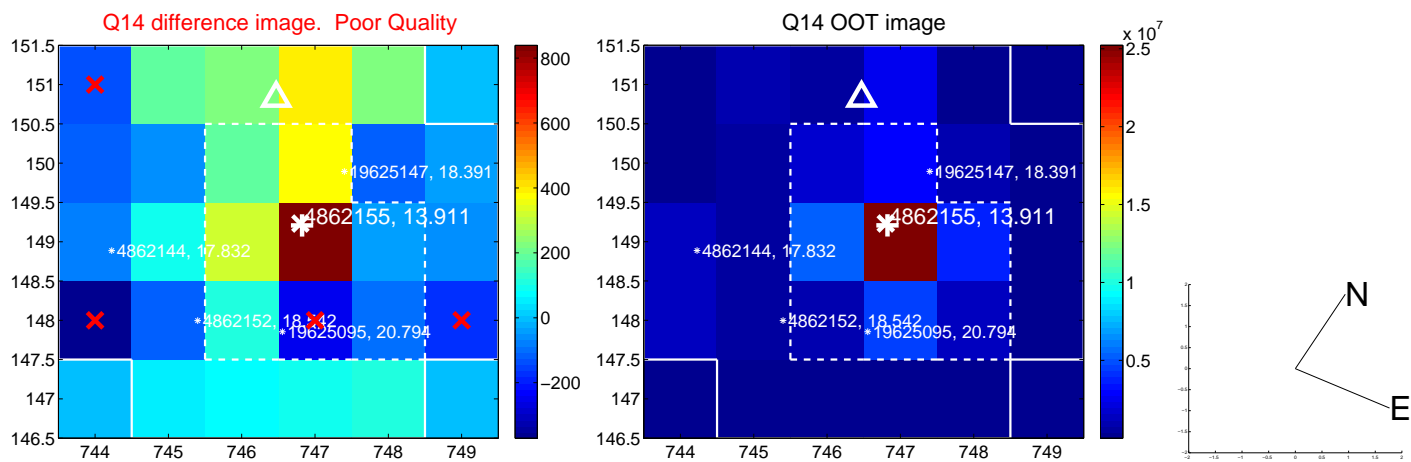
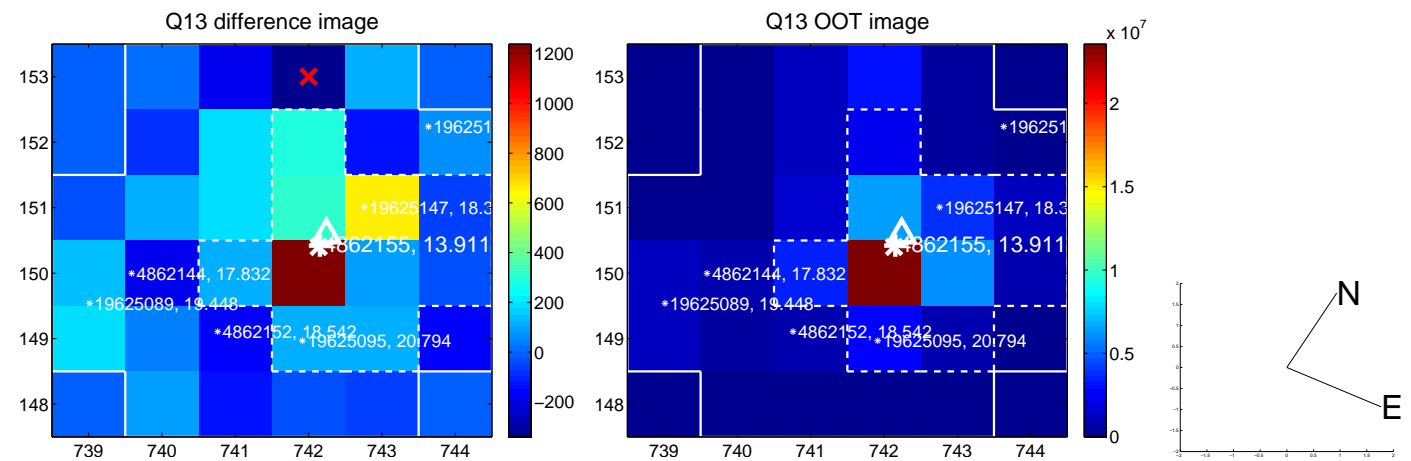




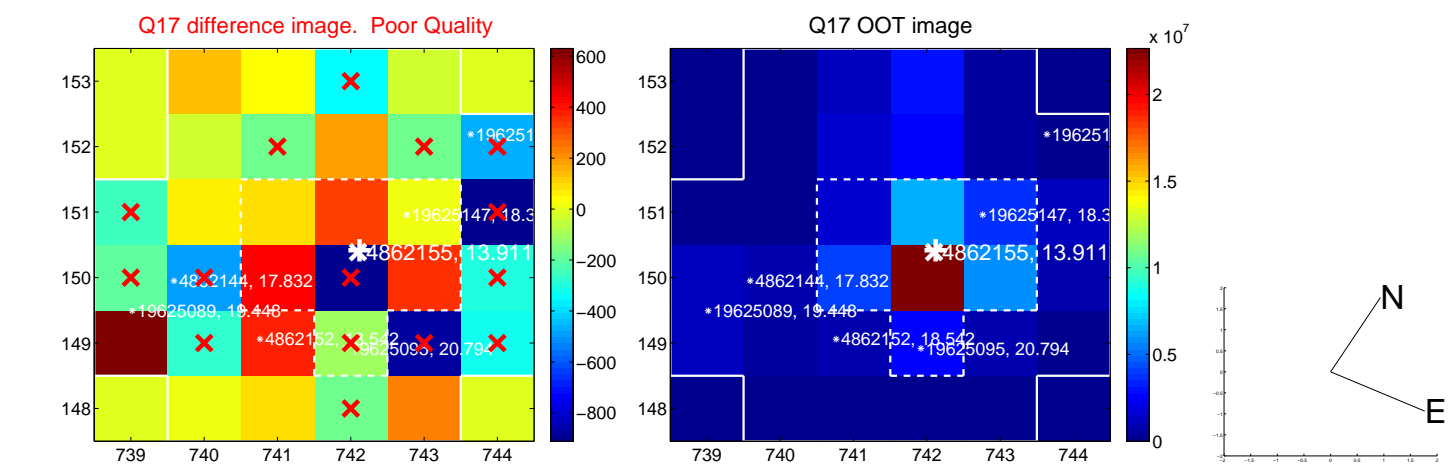
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



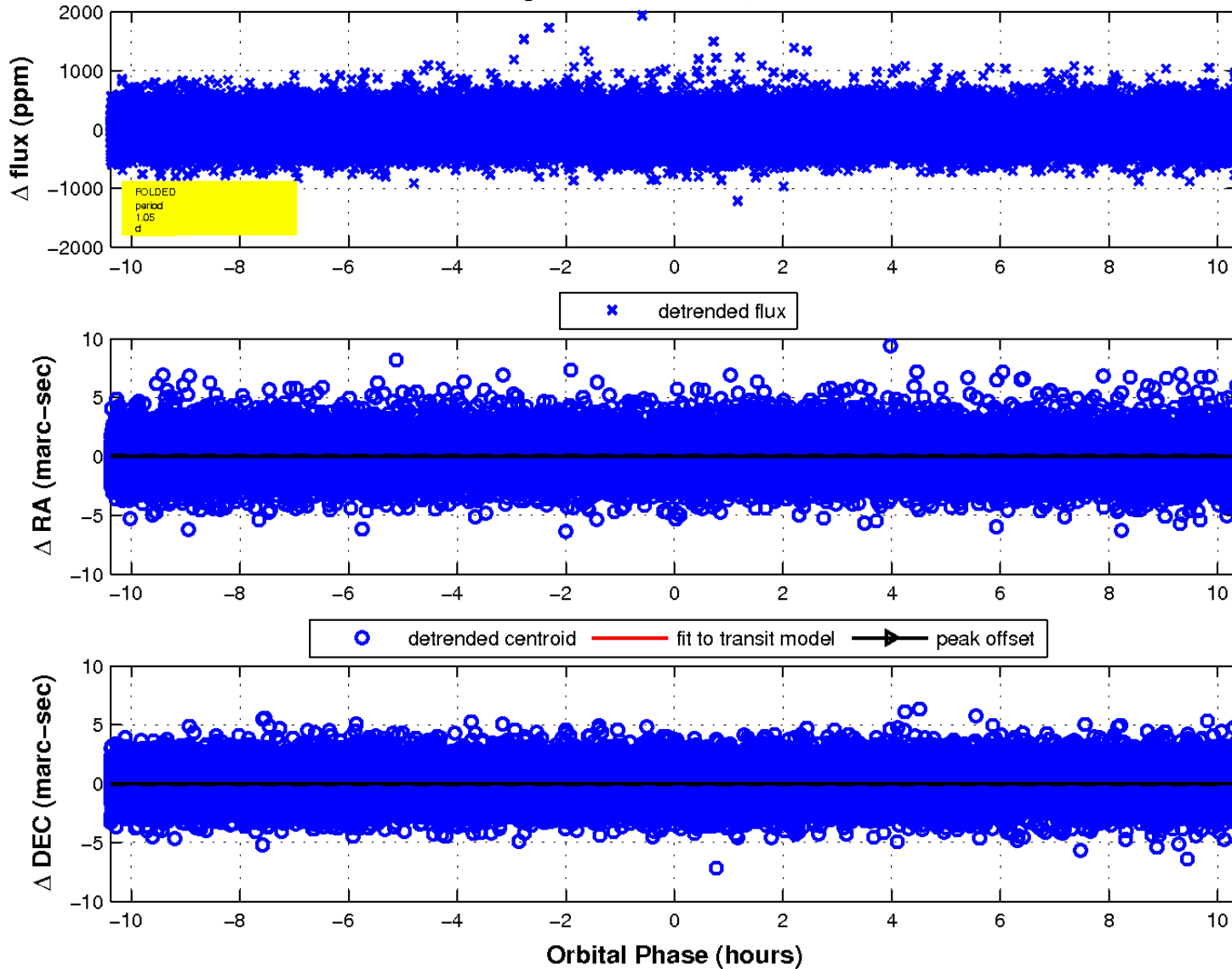
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

