

# KIC 004376559

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004376559-01	OBS	No	1.138668	132.020397	0.0	9.584	12.9	0.0	1.61	6945	0.02	9400.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004376559-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_KIC_POS

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

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

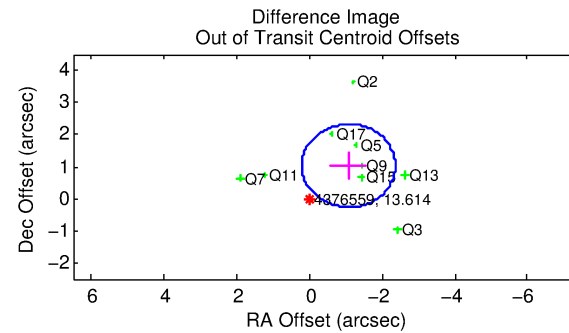
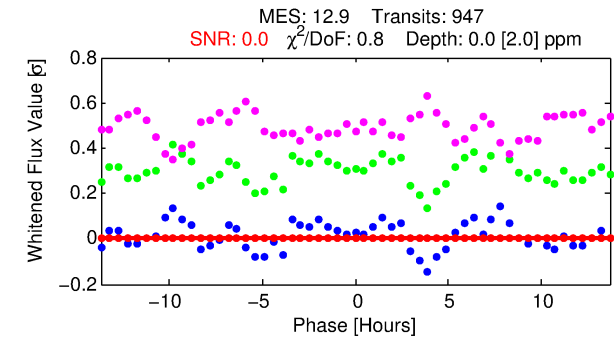
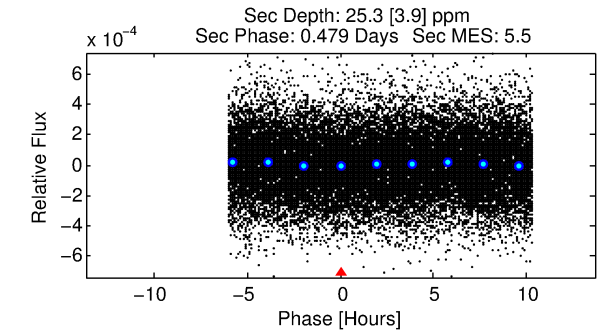
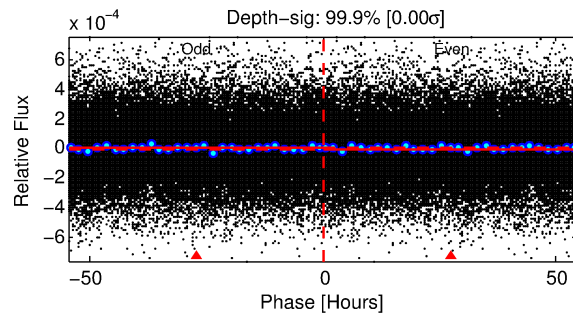
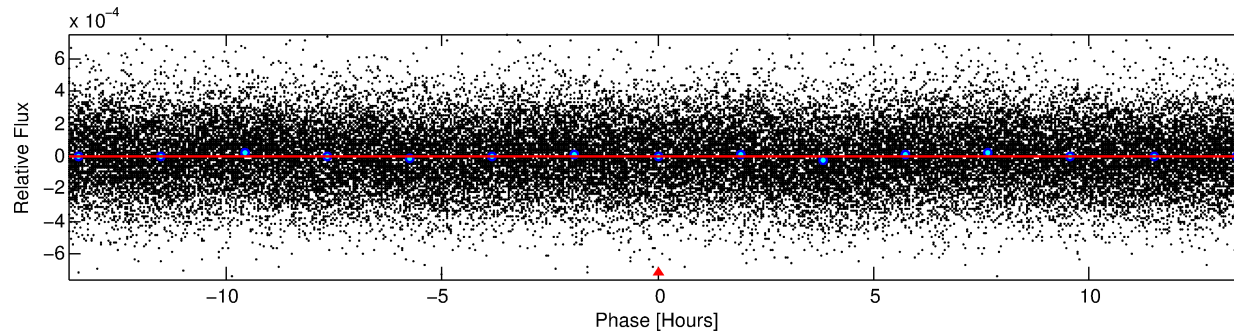
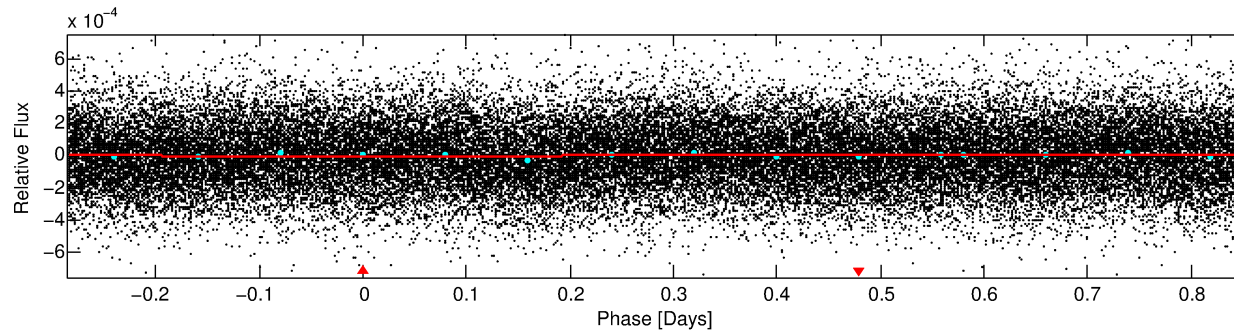
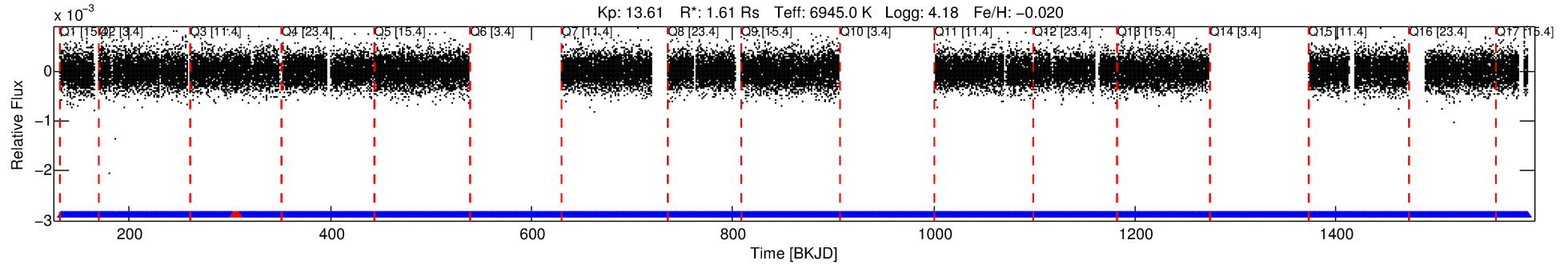
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004376559-01

No Significant Match Found

# DV One-Page Summary

KIC: 4376559 Candidate: 1 of 1 Period: 1.139 d



## DV Fit Results:

Period = 1.13867 [0.03953] d  
Epoch = 132.0204 [13.6016] BKJD  
Rp/R\* = 0.0001 [0.0102]  
a/R\* = 1.08 [35.82]  
b = 0.60 [256.82]  
Seff = 9400.89 [2113.95]  
Teq = 2511 [141] K  
Rp = 0.02 [1.80] Re  
a = 0.0240 [0.0037] AU  
Ag = 25909.91 [5288945.89] [0.00σ]  
Teff = 49252 [2513578] K [0.02σ]

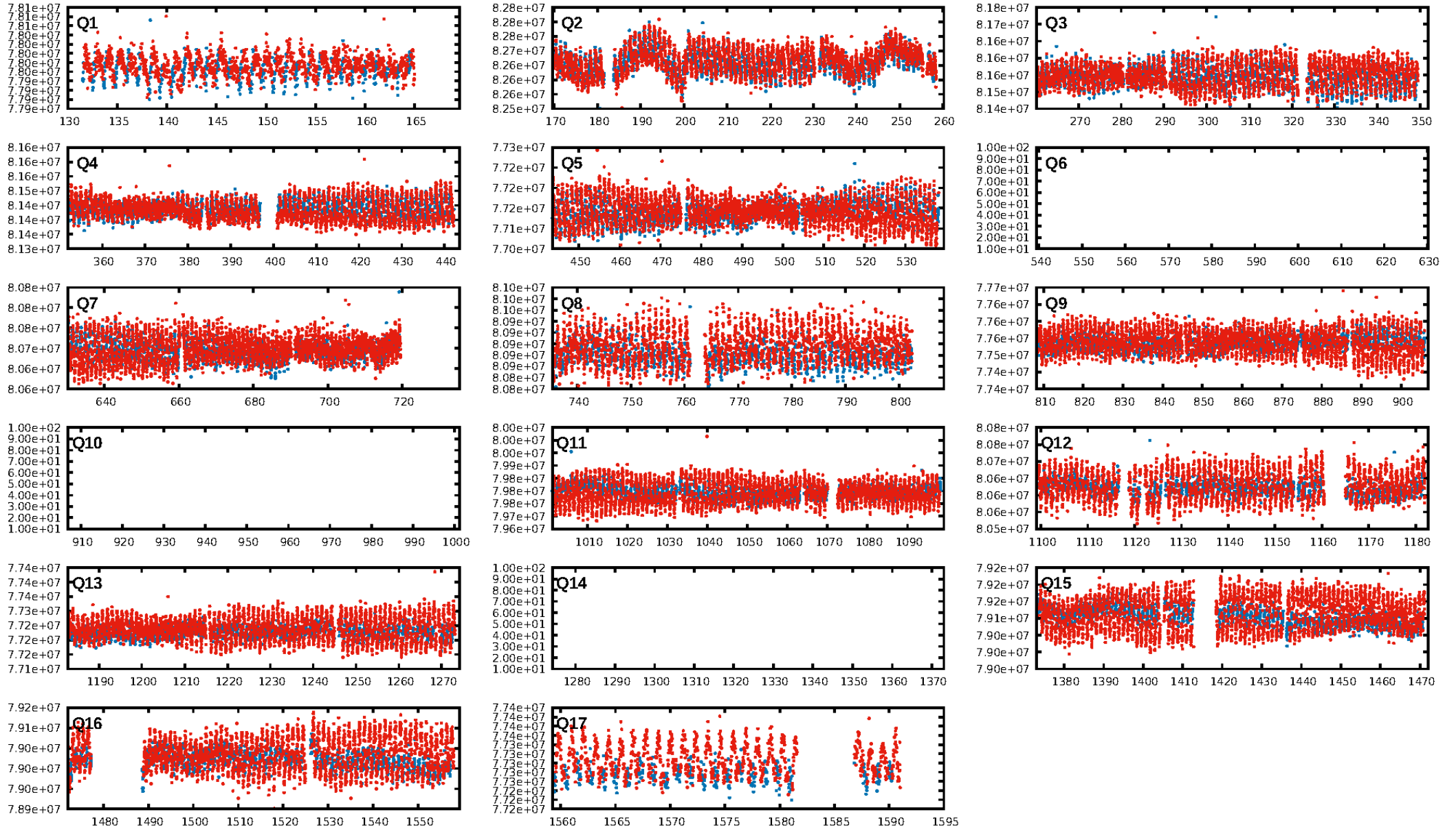
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [889/893]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 1.489 arcsec [3.46σ]  
KicOffset-rm: 1.108 arcsec [2.24σ]  
OotOffset-st: 1/4/0/4 [9]  
KicOffset-st: 1/4/0/4 [9]  
DiffImageQuality-fgm: 0.44 [4/9]  
DiffImageOverlap-fno: 1.00 [14/14]

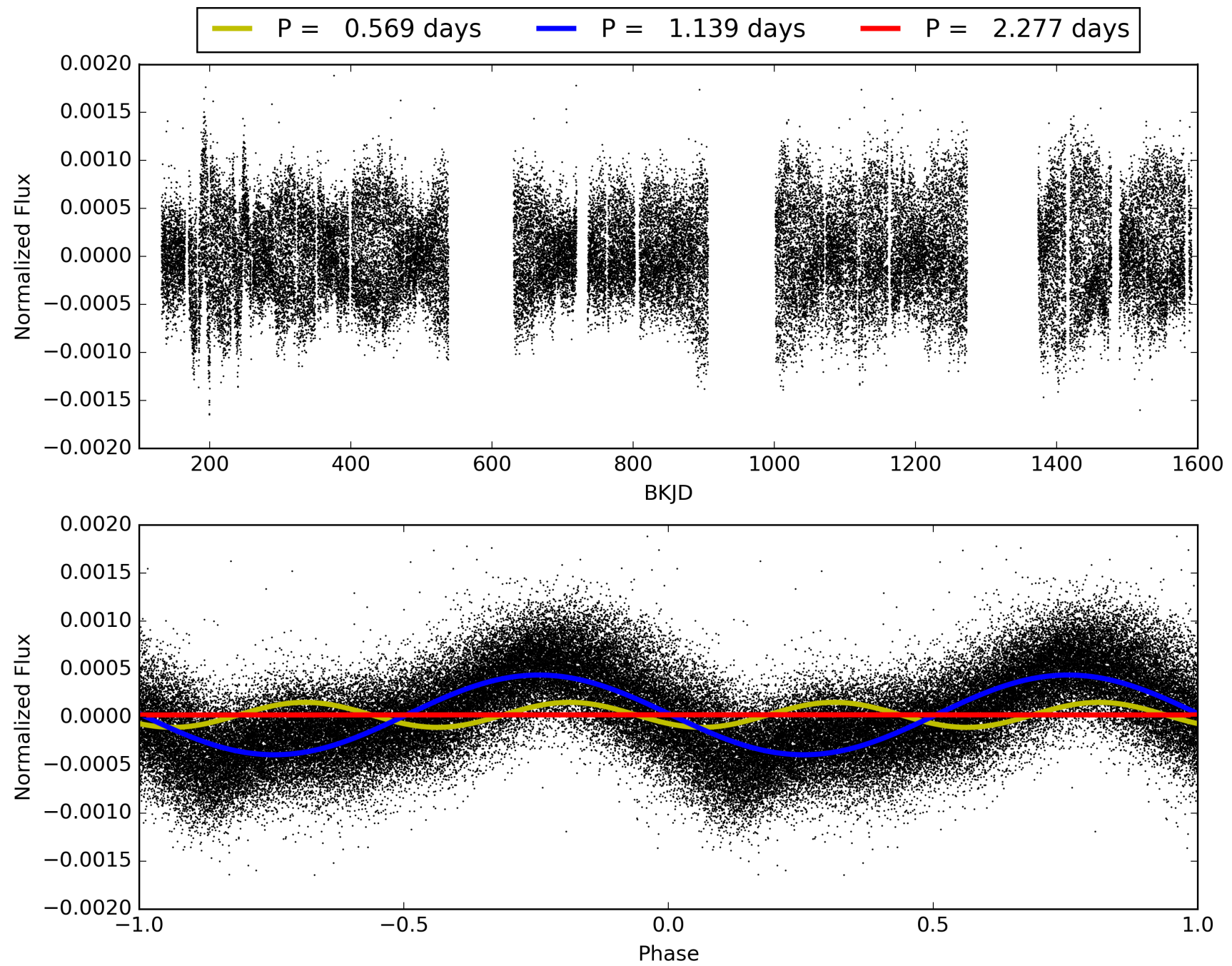
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:59:17 Z

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

# TCE 004376559-01, PDC Light Curves

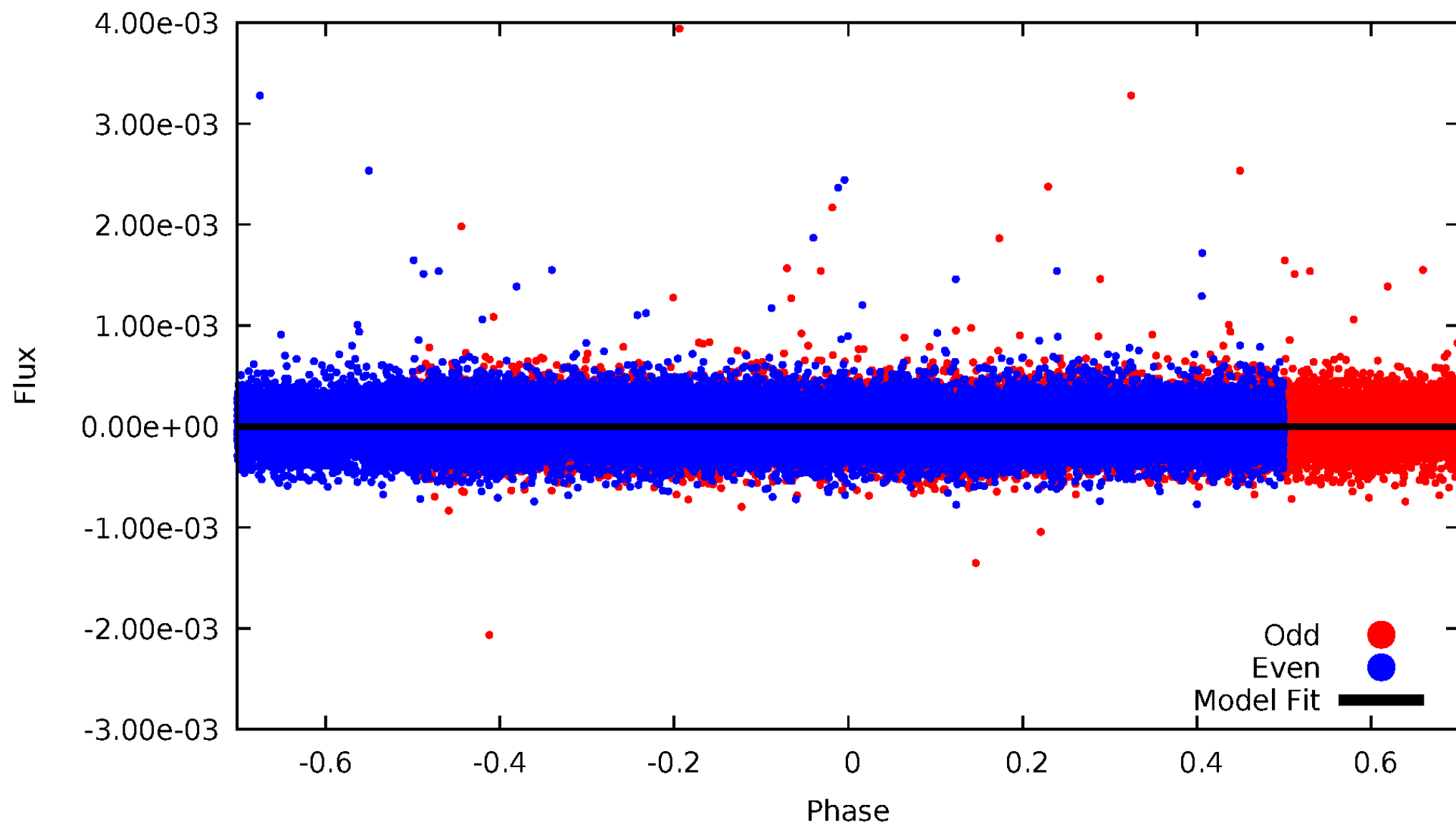


TCE 004376559-01



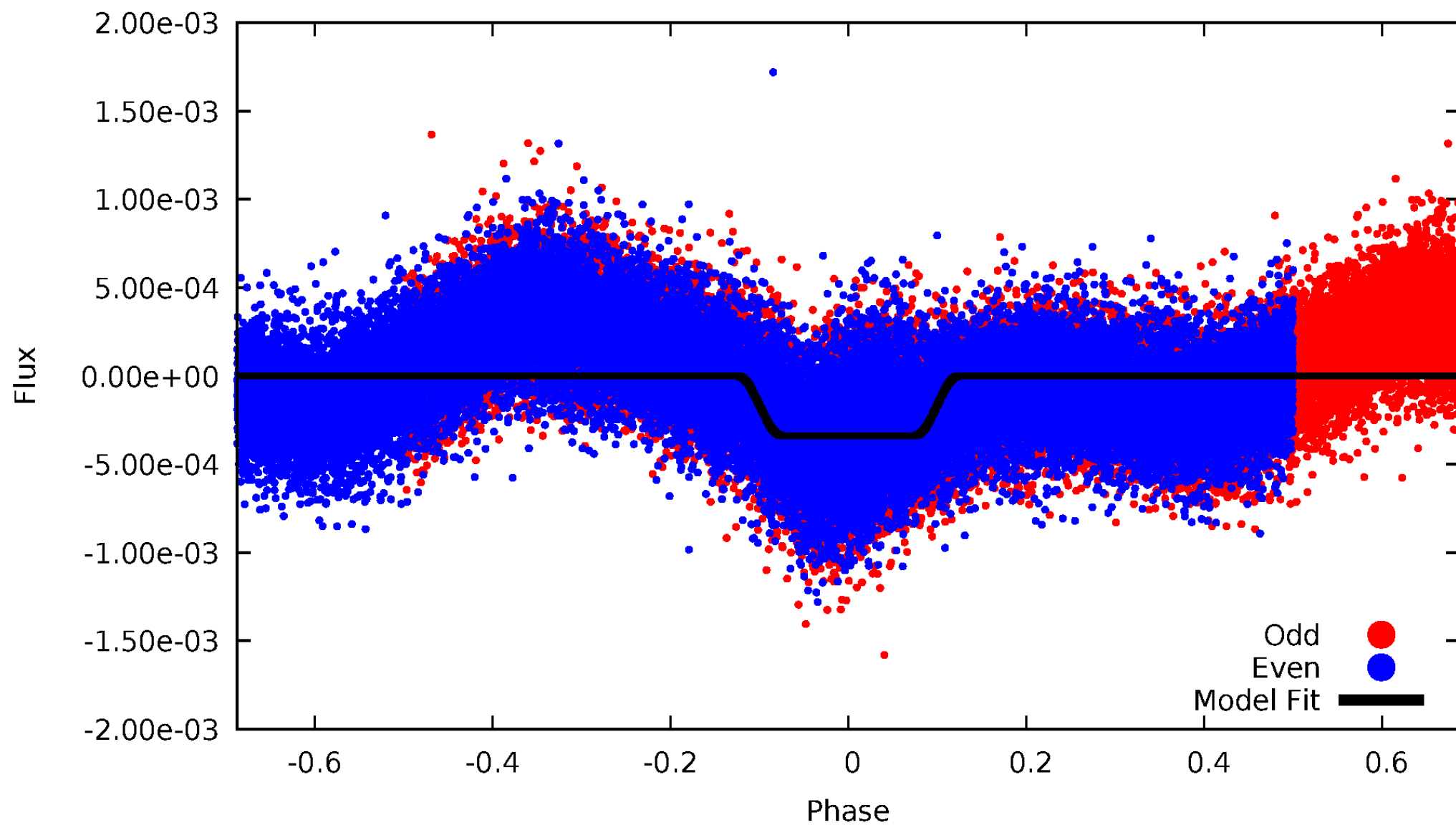
# DV Odd/Even

TCE 004376559-01



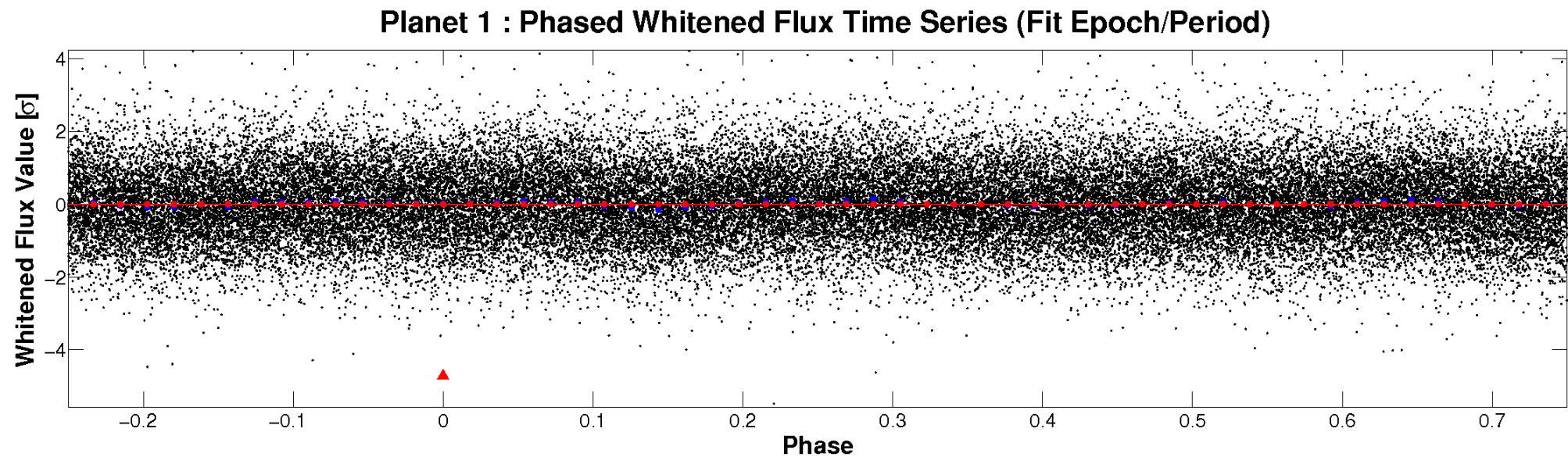
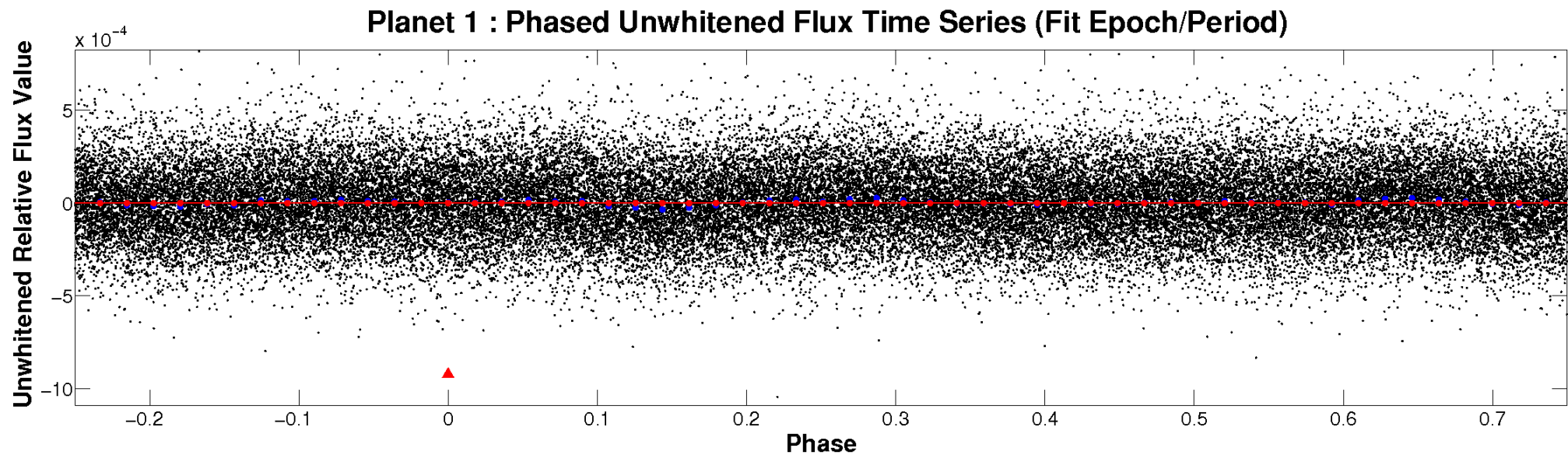
# ALT Odd/Even

TCE 004376559-01



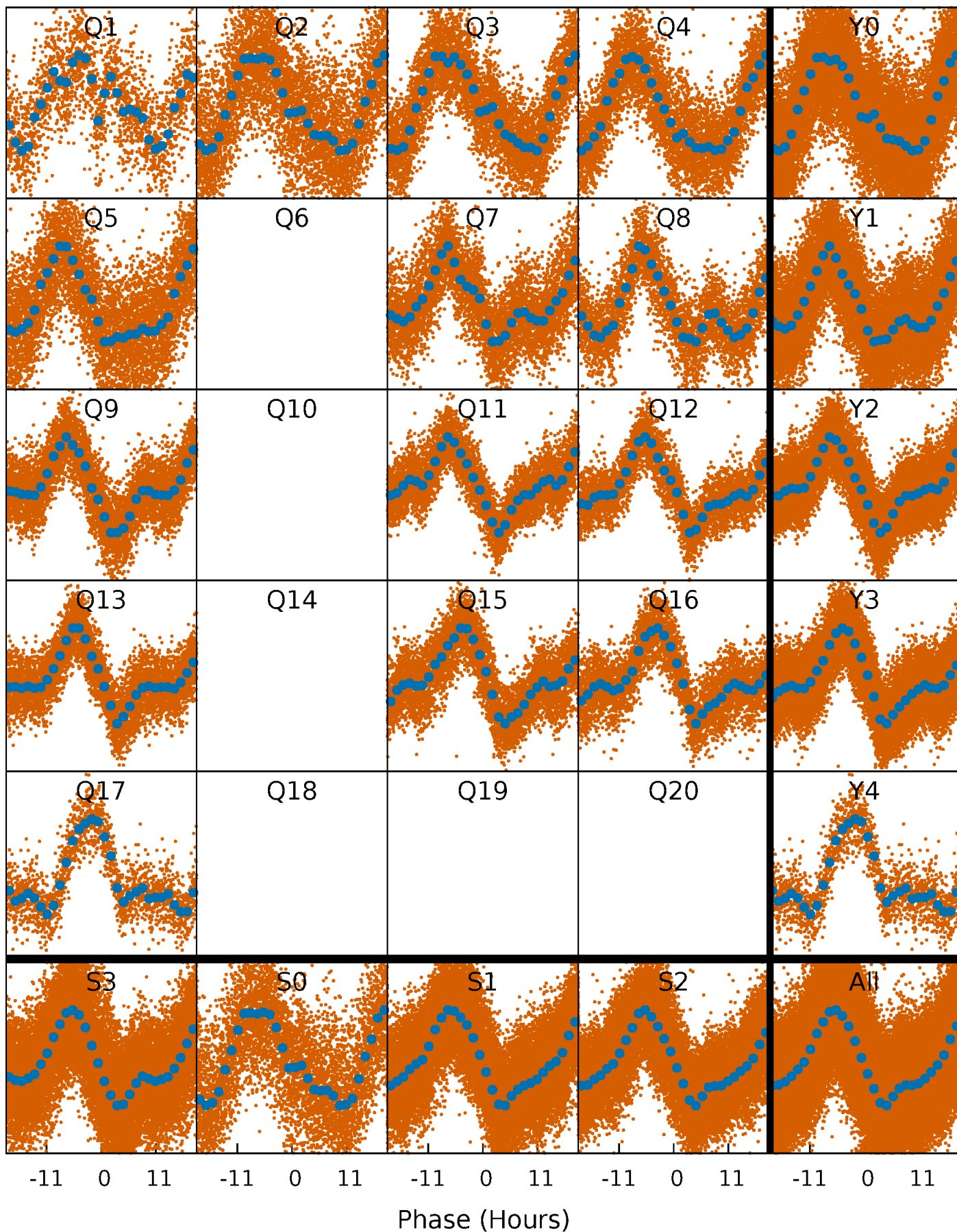


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

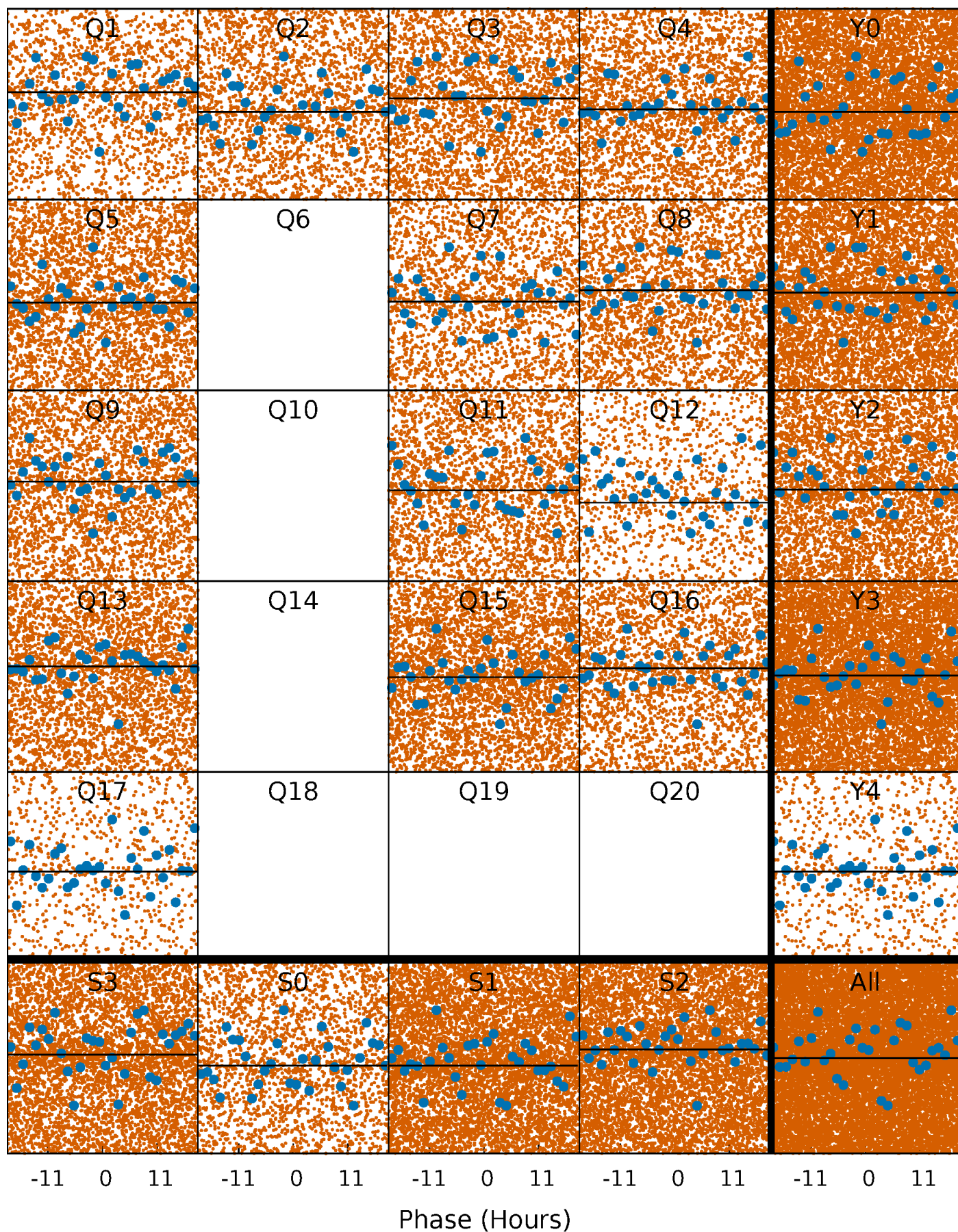
TCE 004376559-01 P= 1.138668 Days  $T_0=132.020397$  (BKJD)





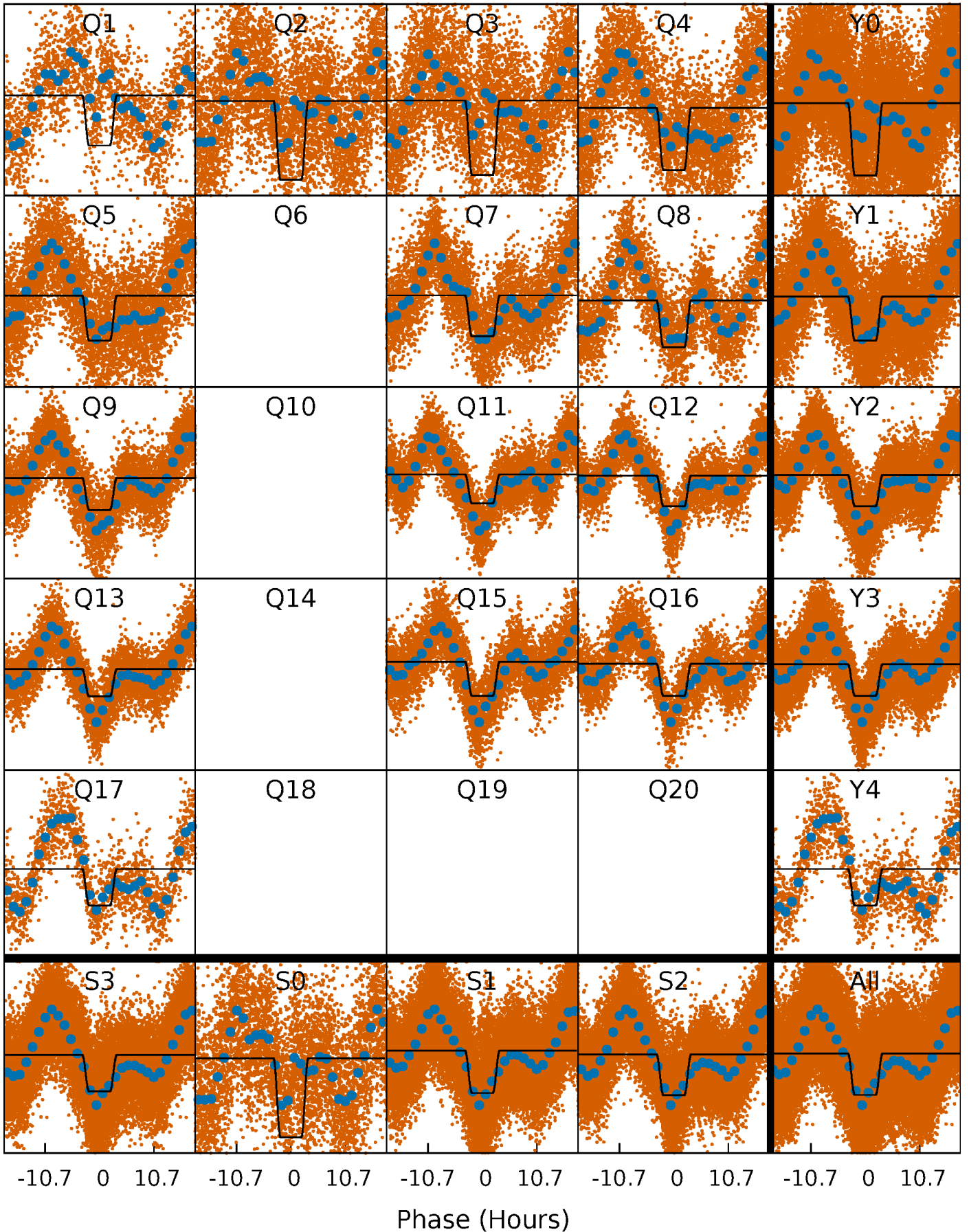
# DV Quarter-Phased Transit Curves

TCE 004376559-01 P= 1.138668 Days  $T_0=132.020397$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

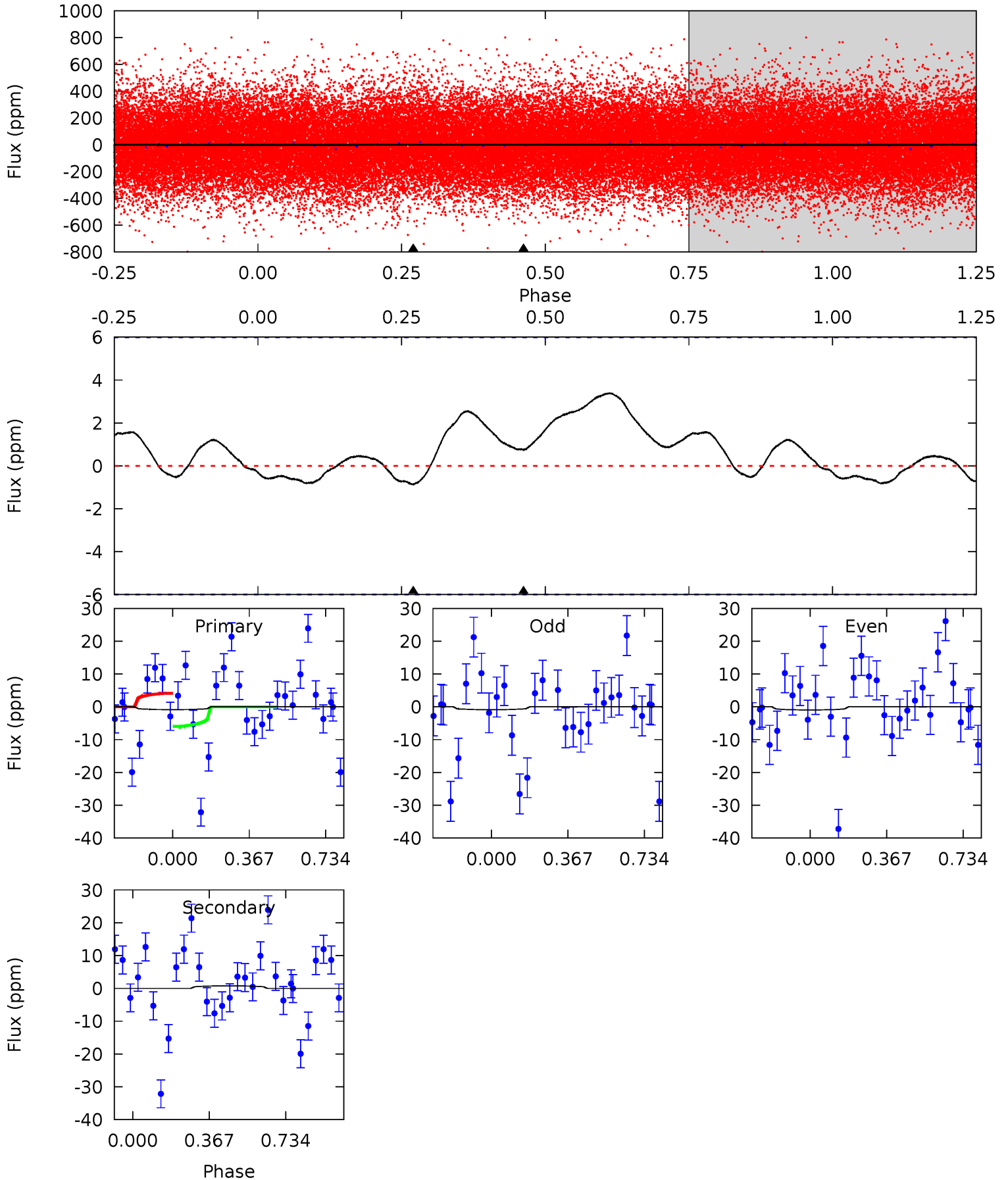
TCE 004376559-01 P= 1.138822 Days  $T_0=132.037997$  (BKJD)



# DV Model-Shift Uniqueness Test

004376559-01, P = 1.138668 Days, E = 130.881729 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
0.62	-0.53	0	0	4.28	0.90	0.39	0.62	0.62	-0.53	-0.53	0.03	0.46	0.80	0.66

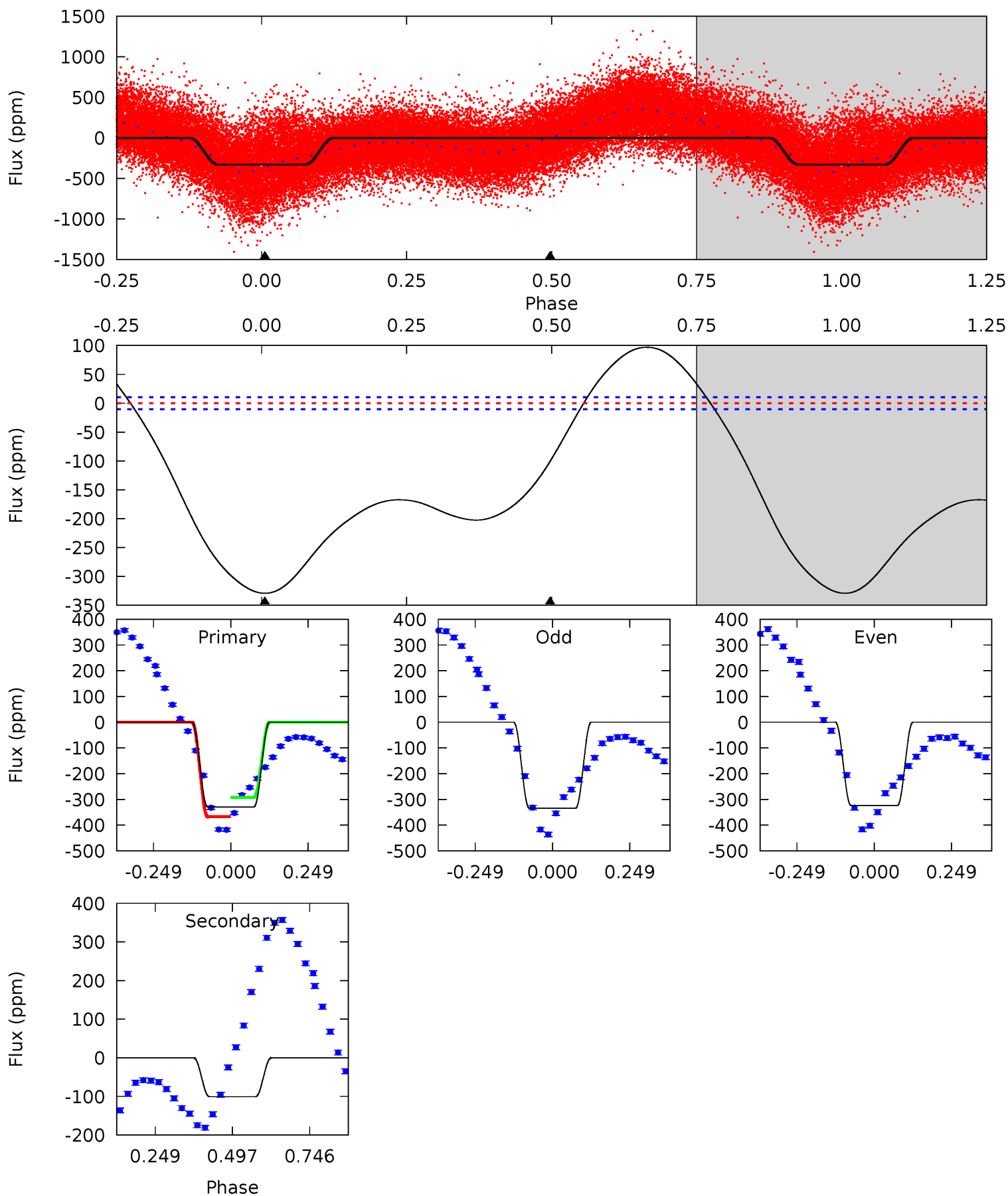




# Alt Model-Shift Uniqueness Test

004376559-01, P = 1.138822 Days, E = 130.899175 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
138.5	42.3	0	0	4.37	1.15	42.0	138.5	138.5	42.3	42.3	2.20	0.98	0.23	16.0



### Stellar Parameters For KIC 004376559

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6945^{+72}_{-93}$	$4.177^{+0.066}_{-0.114}$	$-0.020^{+0.150}_{-0.150}$	$1.615^{+0.296}_{-0.160}$	$1.433^{+0.111}_{-0.081}$	$0.479^{+0.133}_{-0.176}$
	+1%/-1%	+2%/-3%	+750%/-750%	+18%/-10%	+8%/-6%	+28%/-37%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 004376559-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$1\pm1$	$1.17^{+1.29}_{-0.85}$	$3520^{+153}_{-118}$	$-3546^{+457}_{-1239}$	$-0.087^{+0.219}_{-1.709}$
Alt.	$-101\pm2$	$3.38^{+1.89}_{-1.79}$	$3515^{+159}_{-108}$	$4971^{+2386}_{-892}$	$2.811^{+9.746}_{-1.644}$

$T_{max}$  = 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

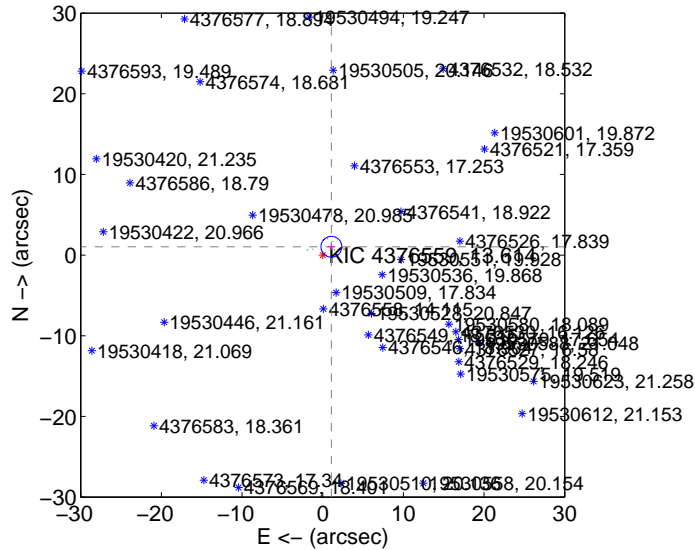
Supplemental centroid analysis for 004376559-01. Kepler magnitude: 13.61. Transit SNR 0.01

There are 4 quarters with good PRF difference image offsets

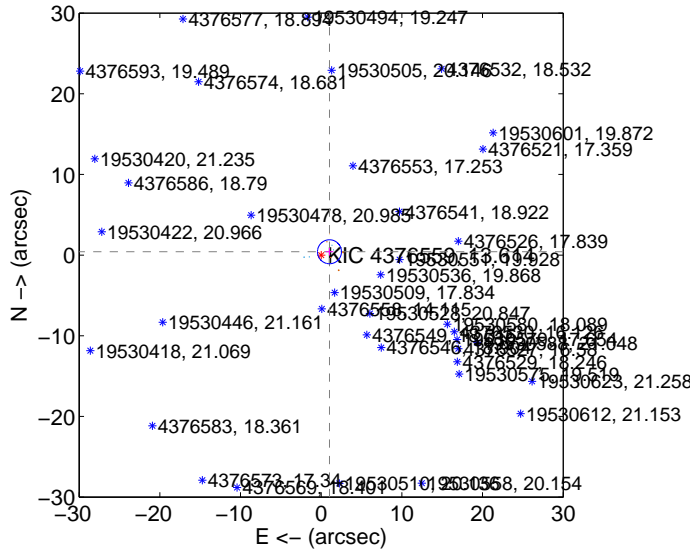
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>1.489 <math>\pm</math> 0.431</b>	<b>3.46</b>	-1.075 $\pm$ 0.486	1.030 $\pm$ 0.432
PRF-fit source offset from KIC position	1.108 $\pm$ 0.496	2.24	-1.028 $\pm$ 0.481	0.413 $\pm$ 0.468
photometric centroid source offset	—	—	—	—

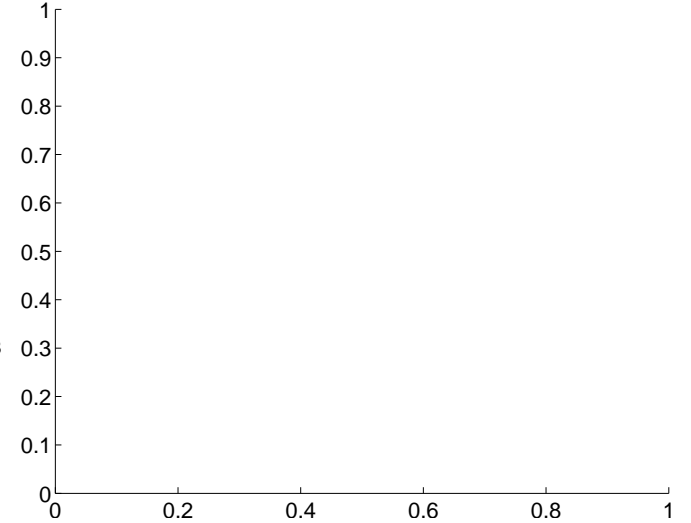
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

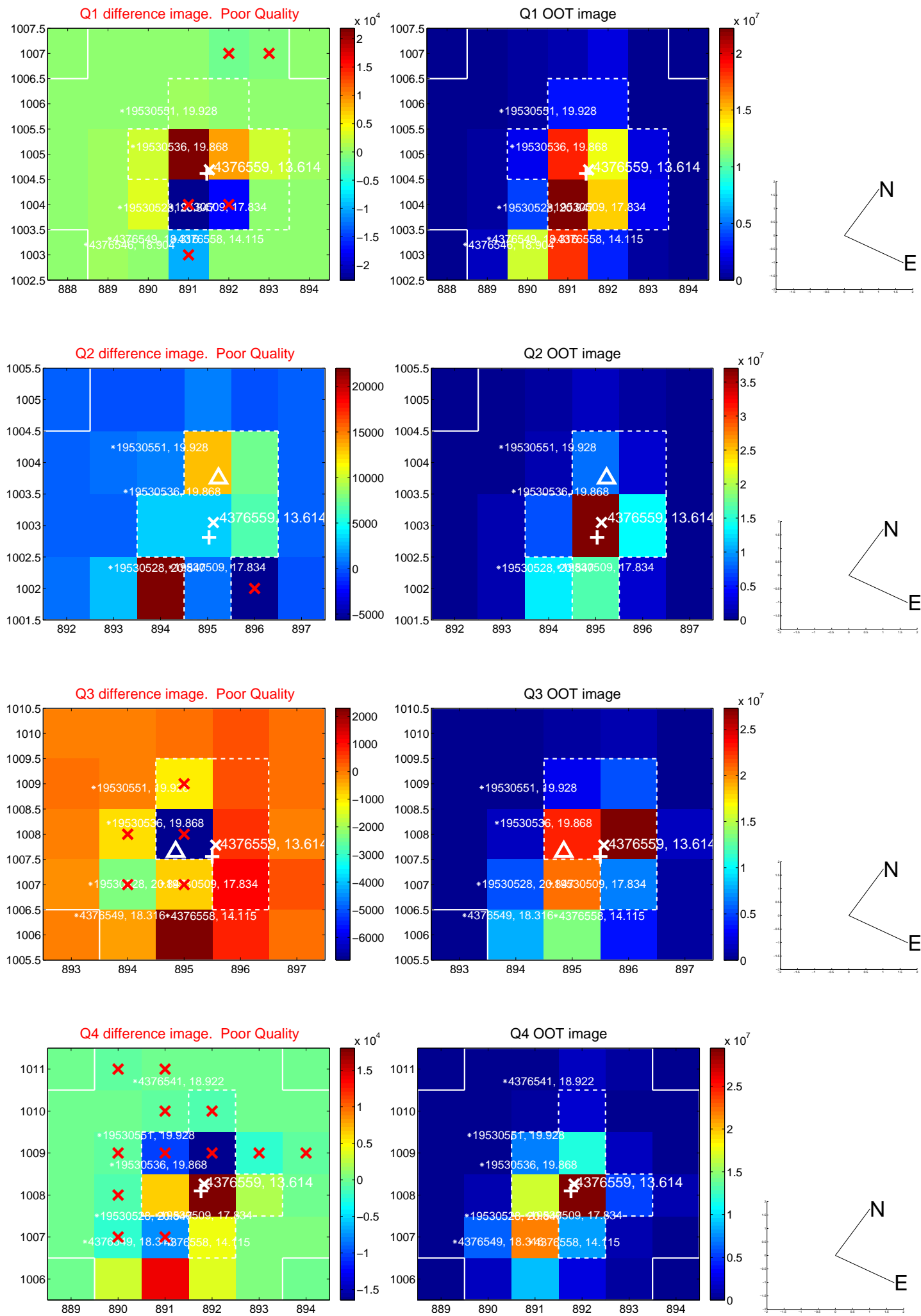


There are no photometric centroids

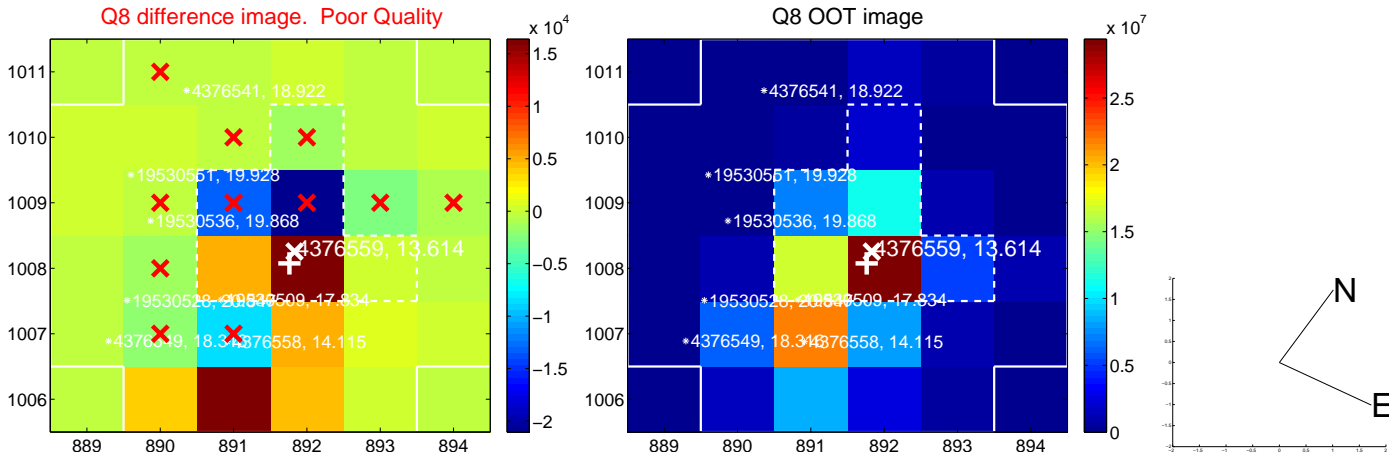
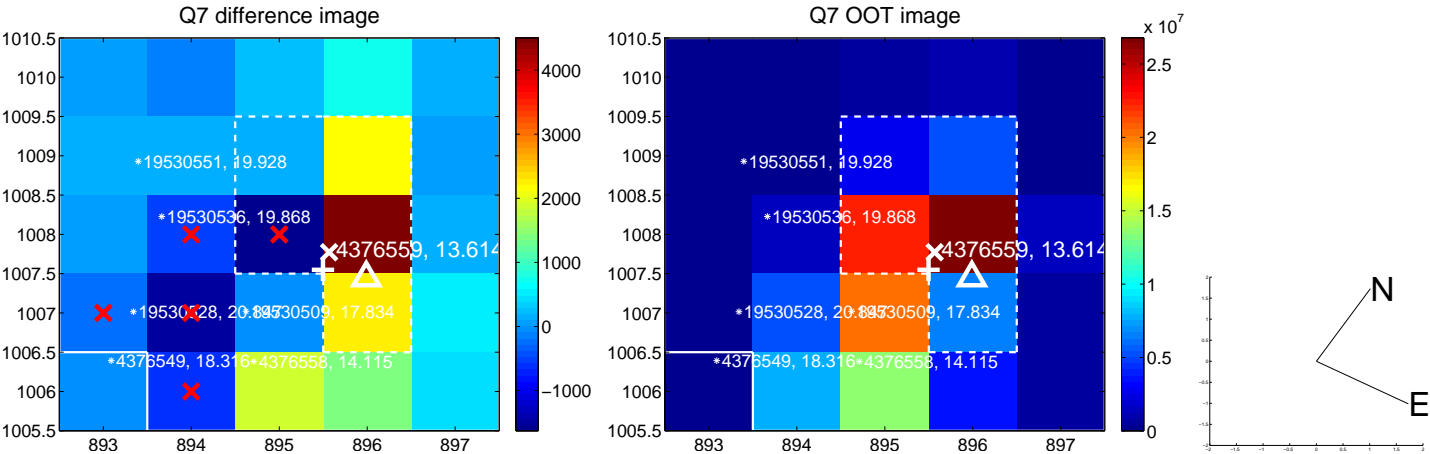
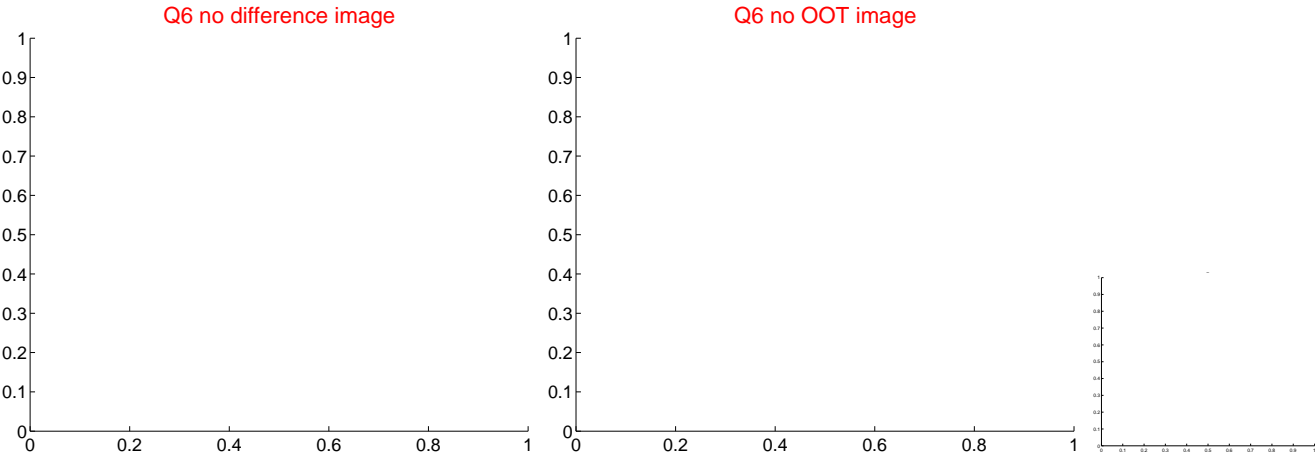
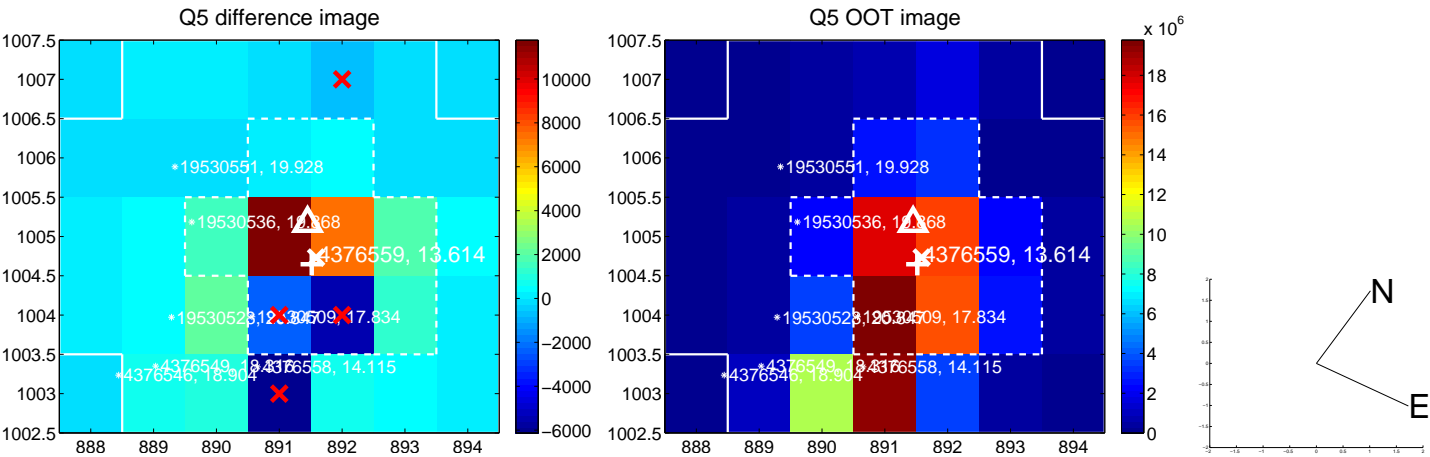


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

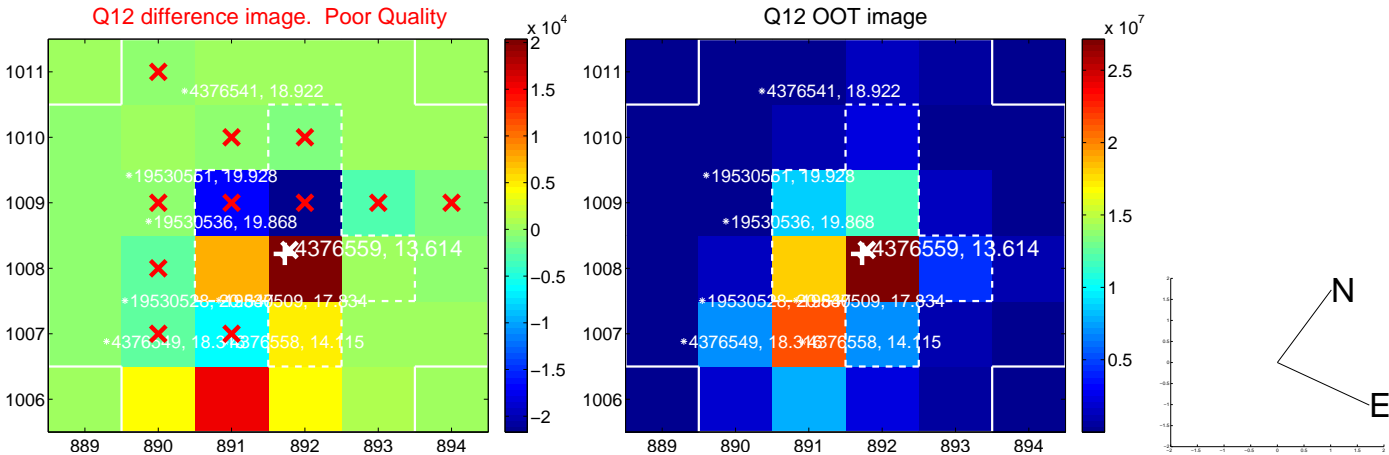
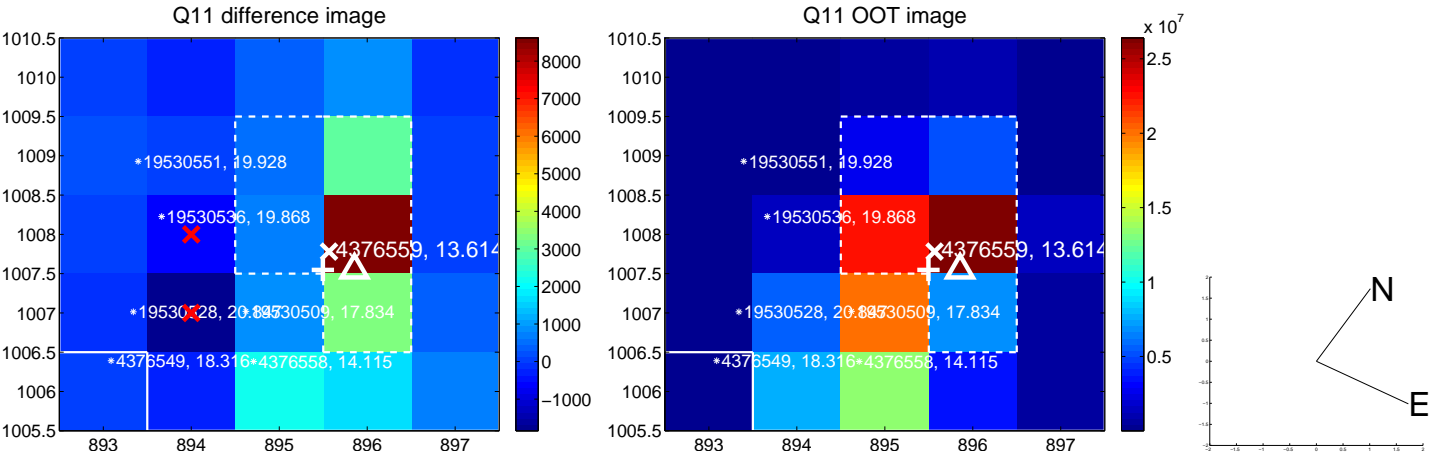
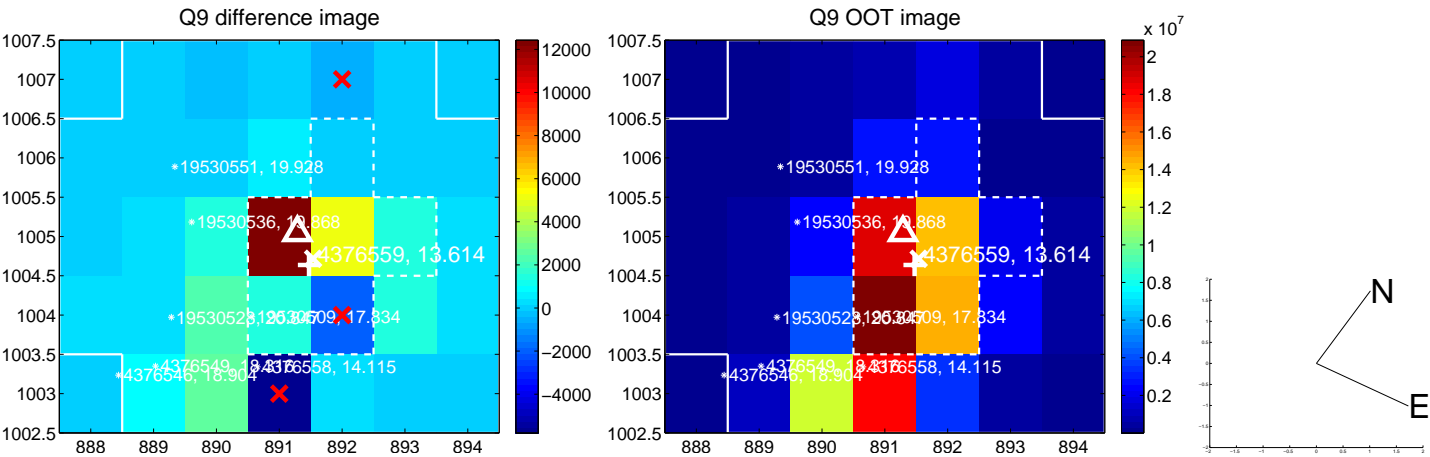
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



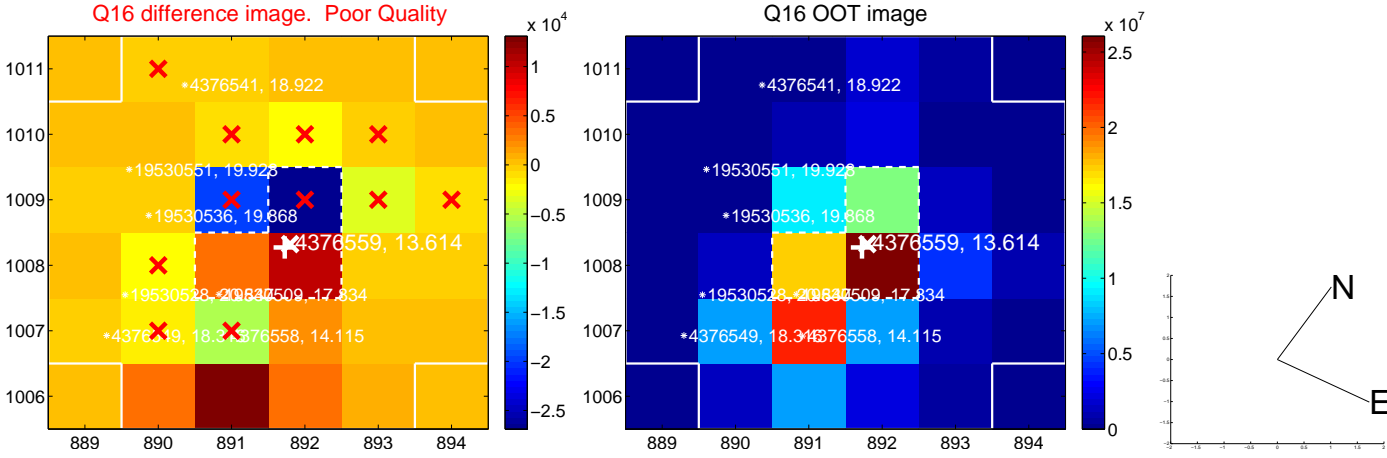
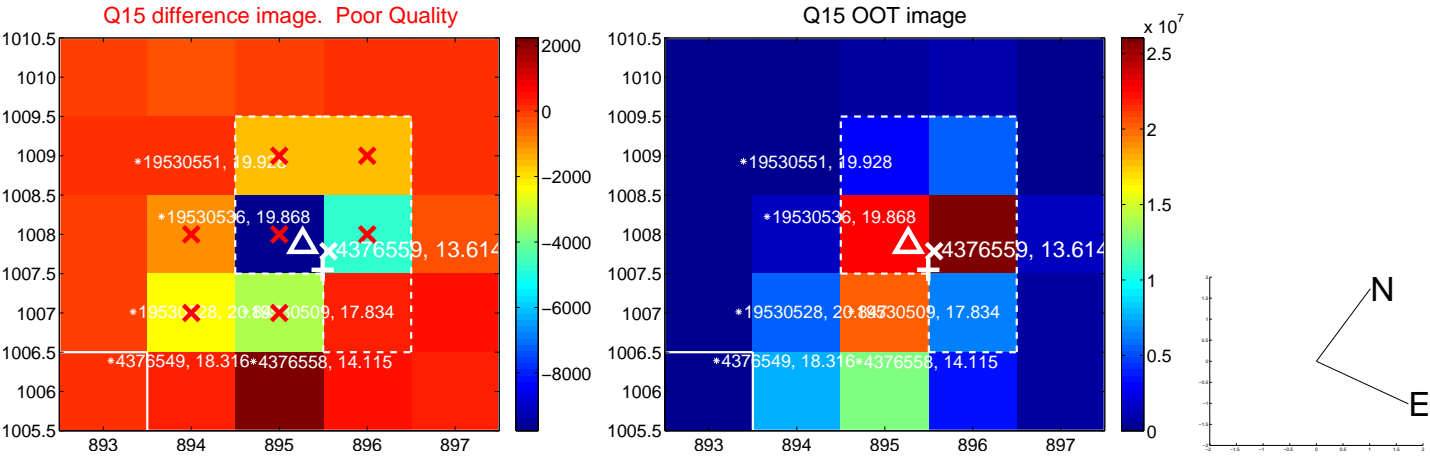
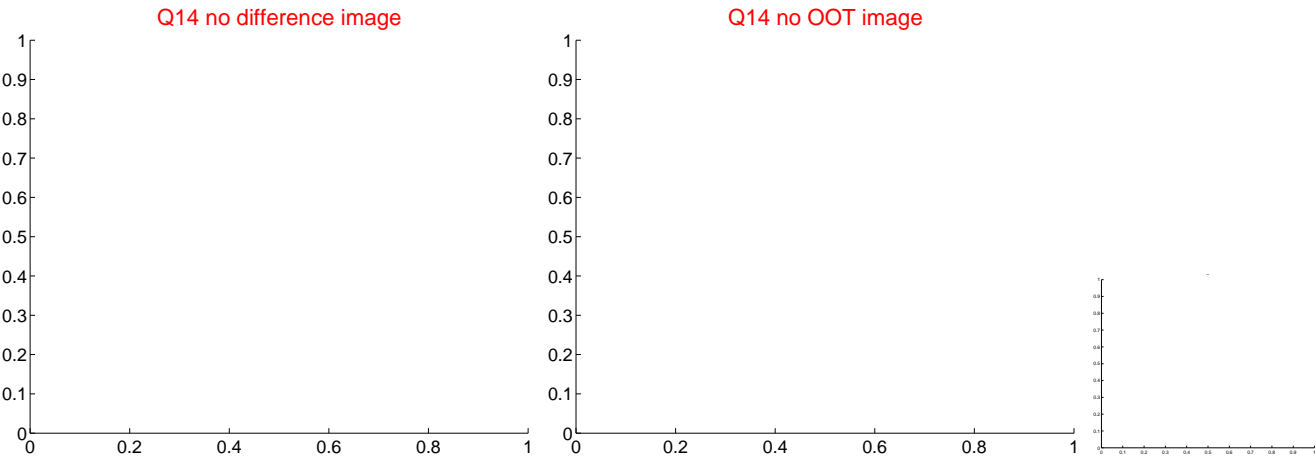
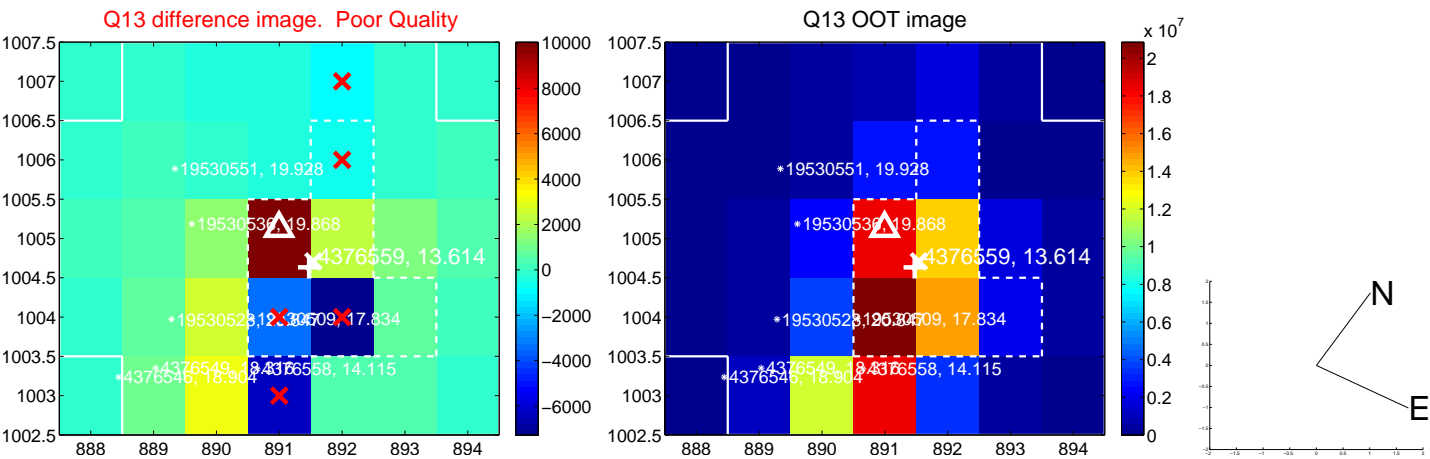
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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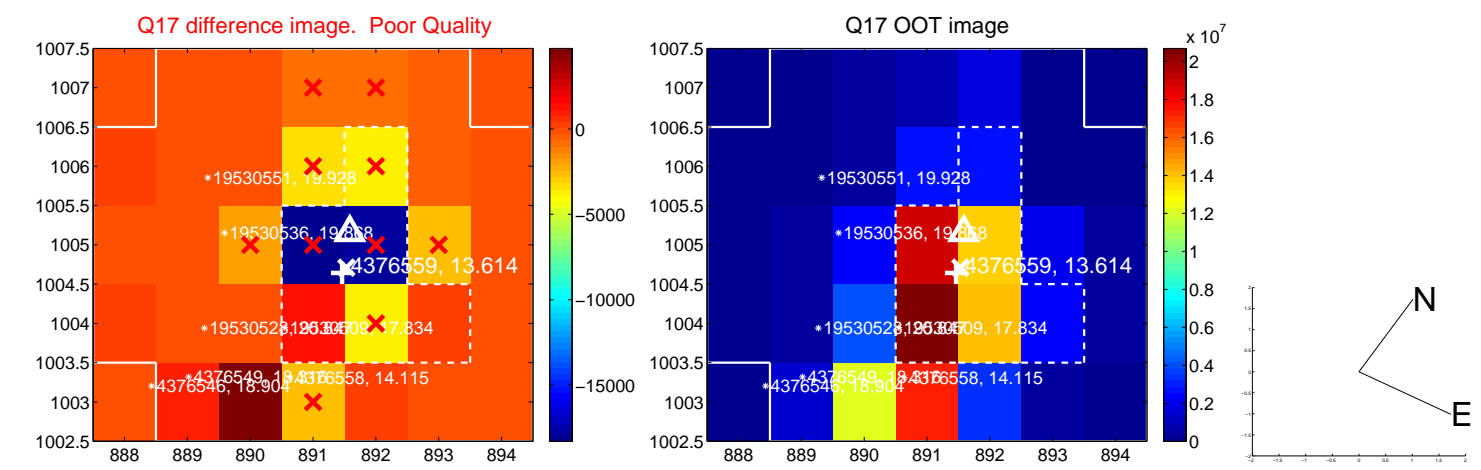


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



folded centroid time series figure for this object.

UKIRT Image

