

# KIC 009490653

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009490653-01	OBS	4173.01	1.227966	131.852038	122.1	1.888	13.7	13.8	0.93	5746	1.22	1856.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009490653-01	OBS	FP	0.00	0	0	1	0	CENT_RESOLVED_OFFSET—HALO_GHOST

**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.

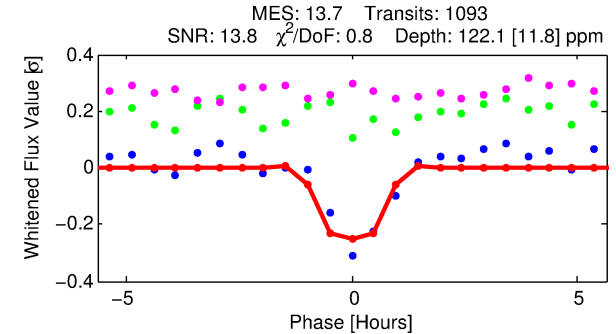
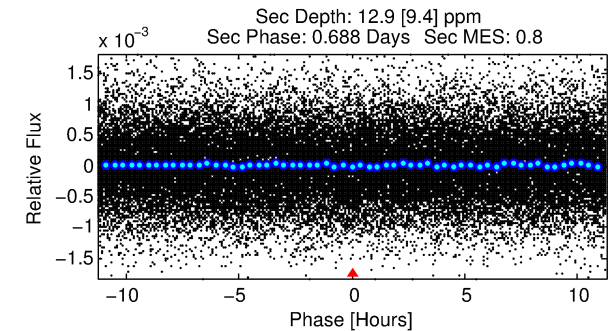
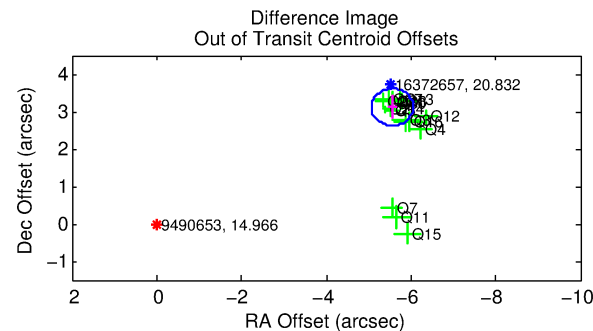
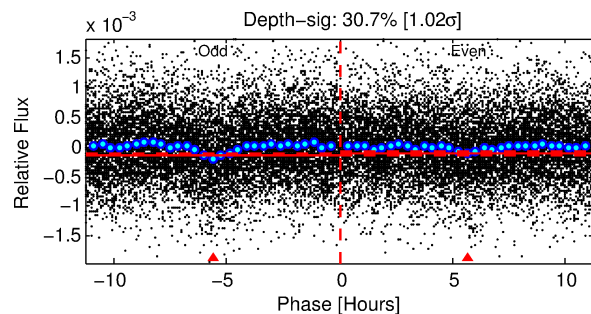
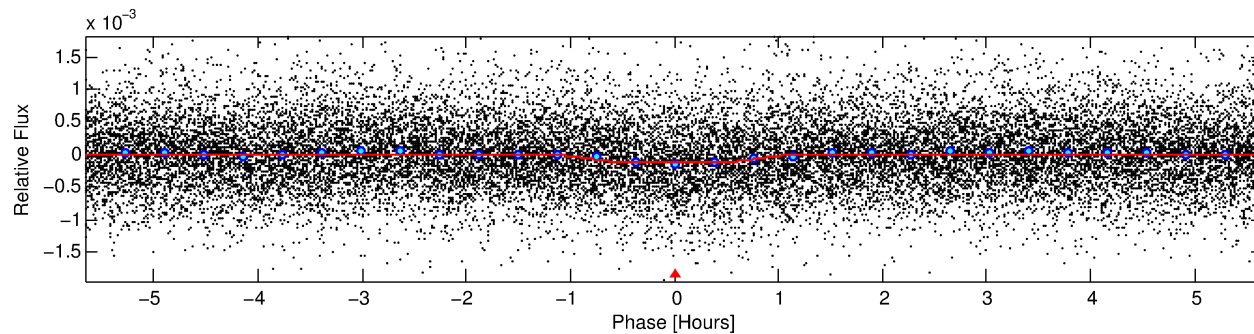
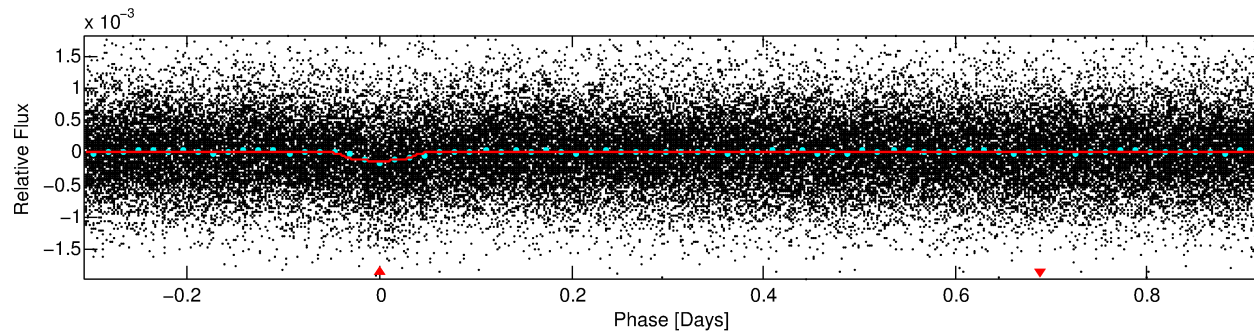
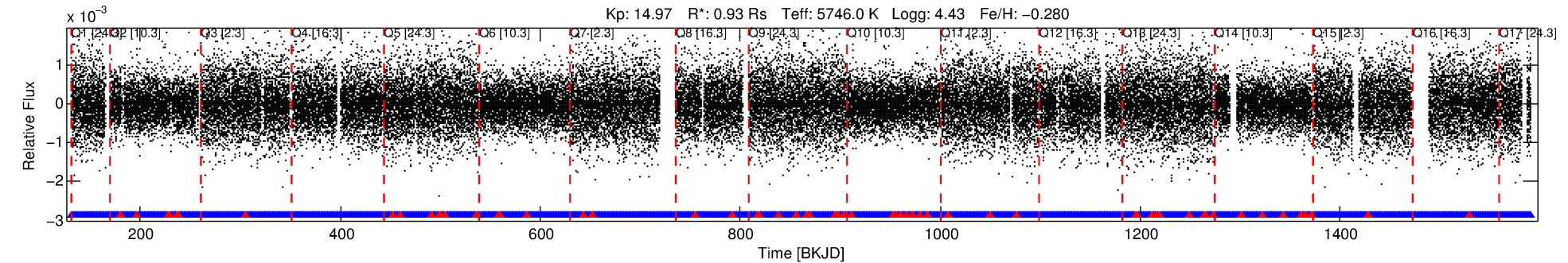
## Ephemeris Match Information For 009490653-01

No Significant Match Found

# DV One-Page Summary

KIC: 9490653    Candidate: 1 of 1    Period: 1.228 d

KOI: K04173.01    Corr: 0.885



DV Fit Results:

Period = 1.22797 [0.00001] d  
 Epoch = 131.8520 [0.0020] BKJD  
 Rp/R\* = 0.0120 [0.0074]  
 a/R\* = 2.47 [6.26]  
 b = 0.90 [0.64]  
 Seff = 1856.70 [635.67]  
 Teq = 1674 [143] K  
 Rp = 1.22 [0.82] Re  
 a = 0.0214 [0.0047] AU  
 Ag = 2.16 [3.16] [0.37σ]  
 T<sub>eff</sub> = 3137 [1125] K [1.29σ]

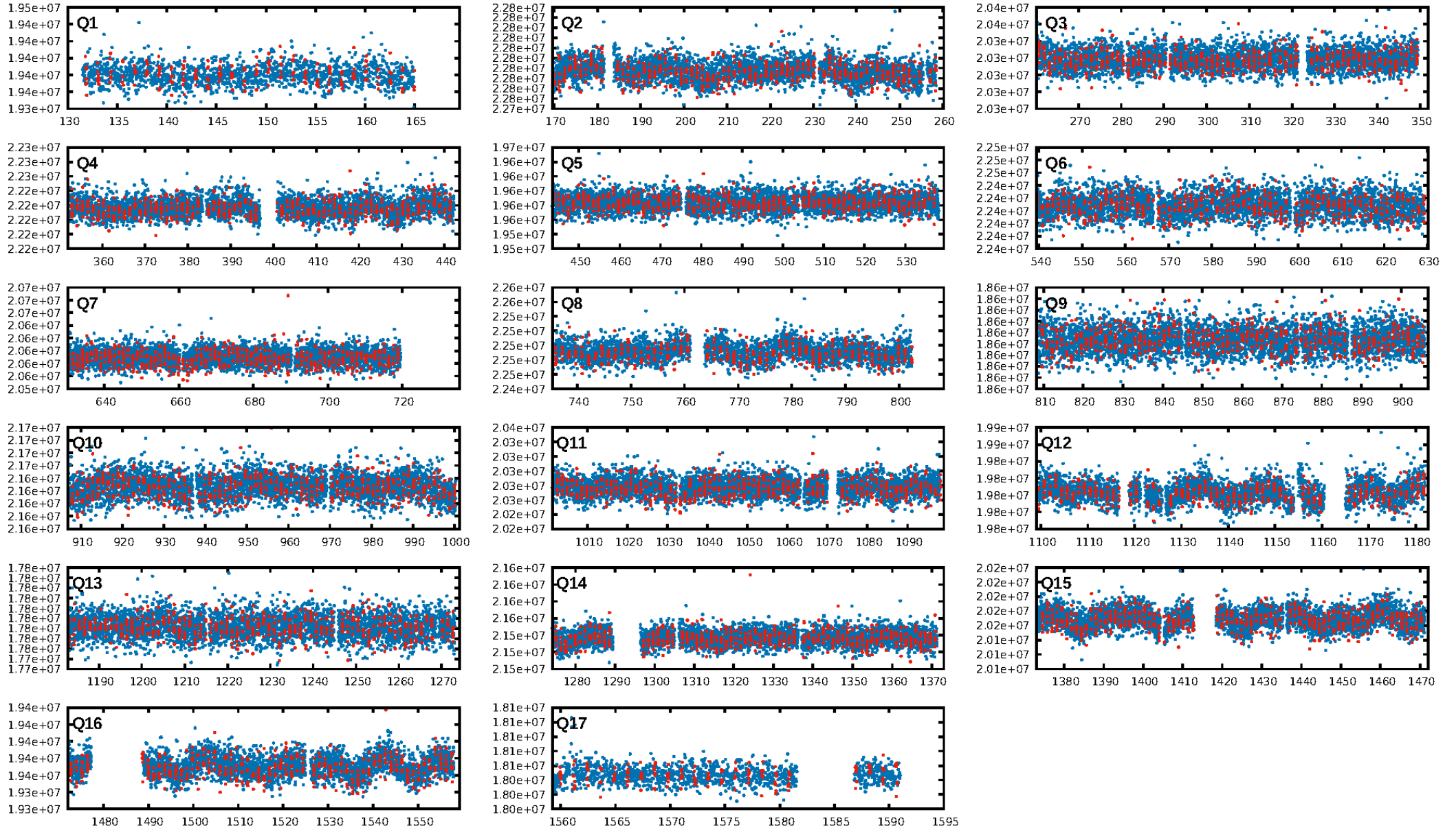
DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.68e-42  
RollingBand-fgt: 0.94 [984/1043]  
GhostDiagnostic-chr: -0.1292  
Centroid-sig: 0.0%  
Centroid-so: 15.562 arcsec [18.39σ]  
OotOffset-rm: 6.573 arcsec [38.76σ]  
KicOffset-rm: 6.538 arcsec [74.93σ]  
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]

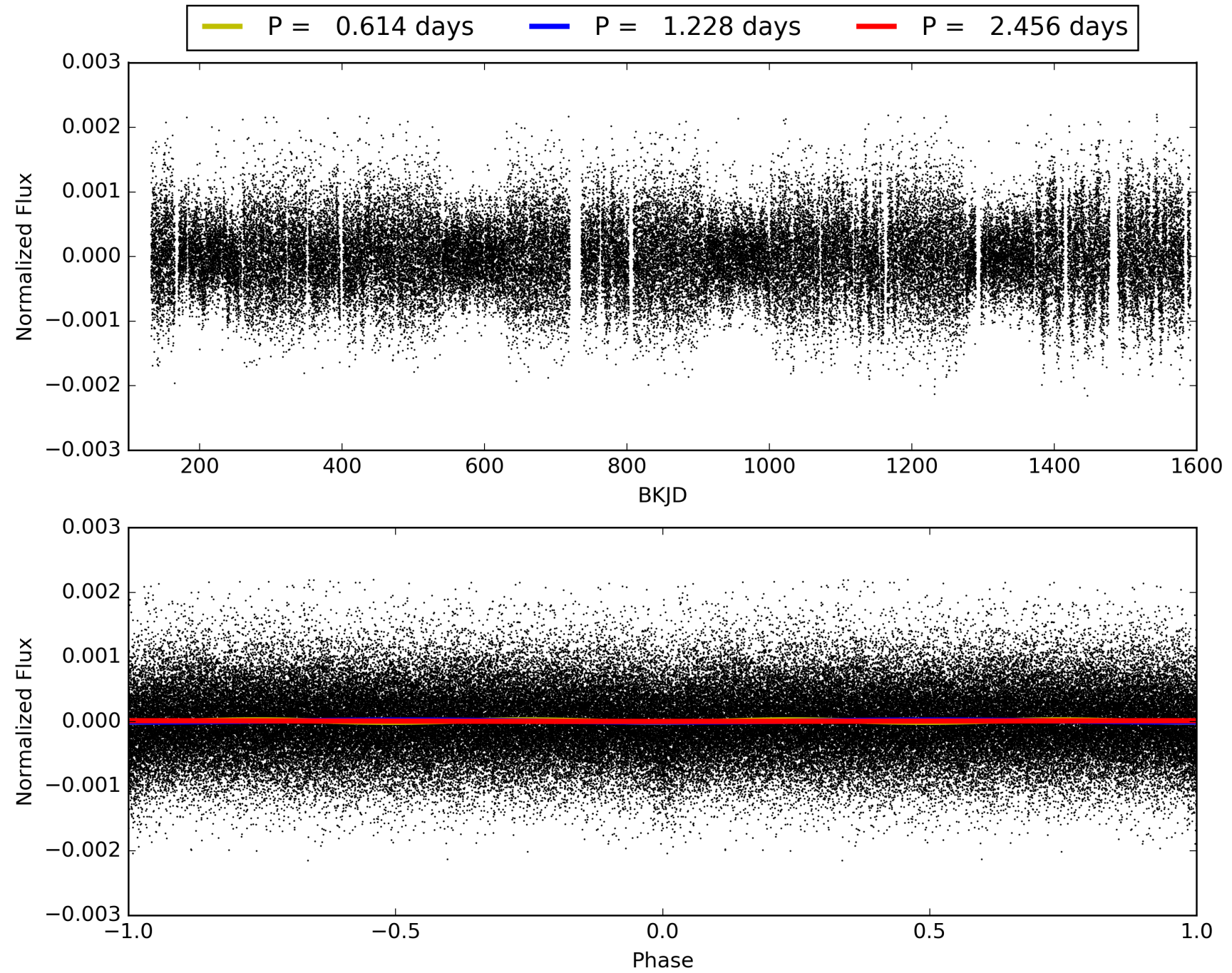
Software Revision: <svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958> -- Date Generated: 31-Jan-2016 08:30:30 Z

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

# TCE 009490653-01, PDC Light Curves



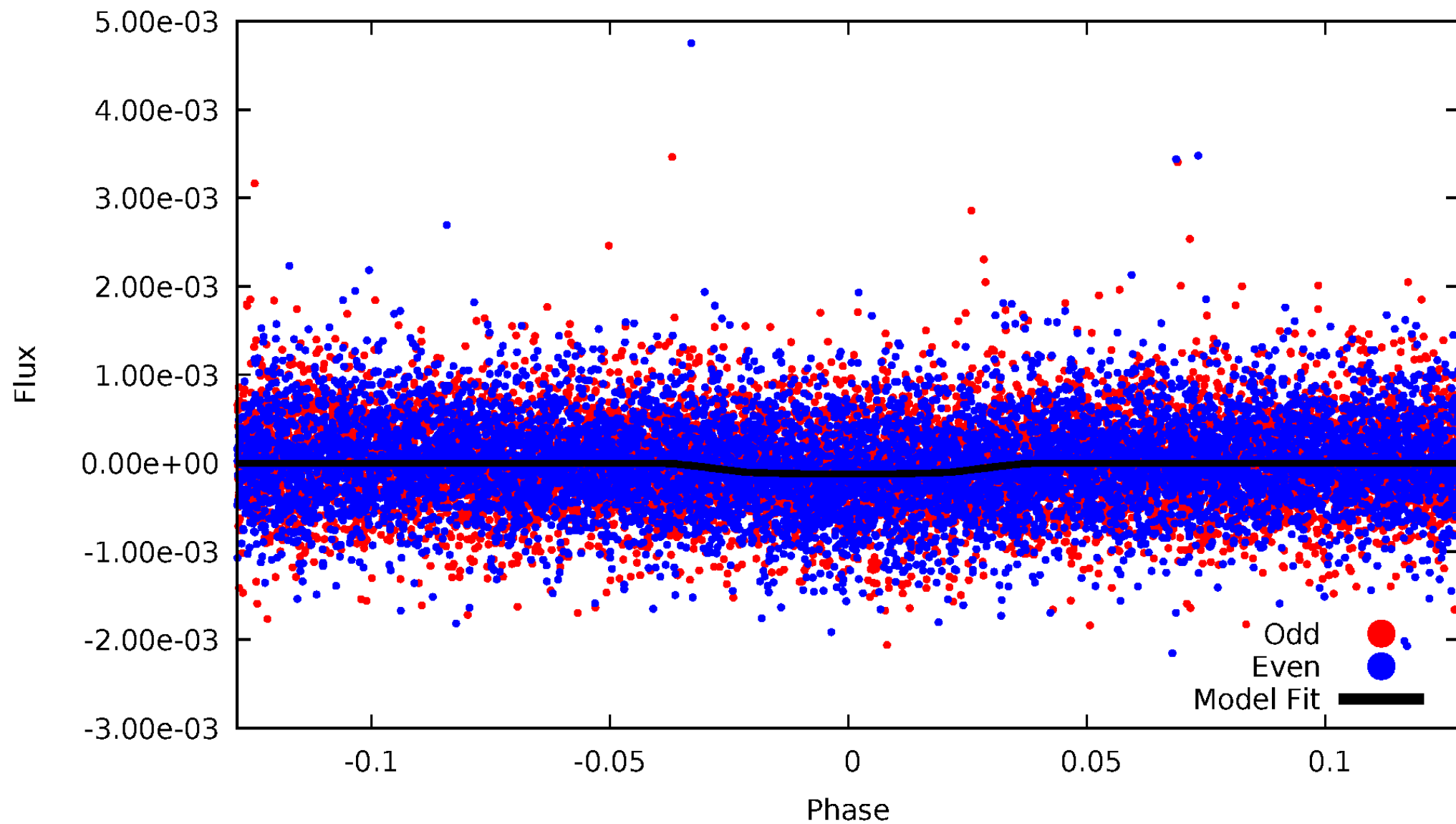
TCE 009490653-01





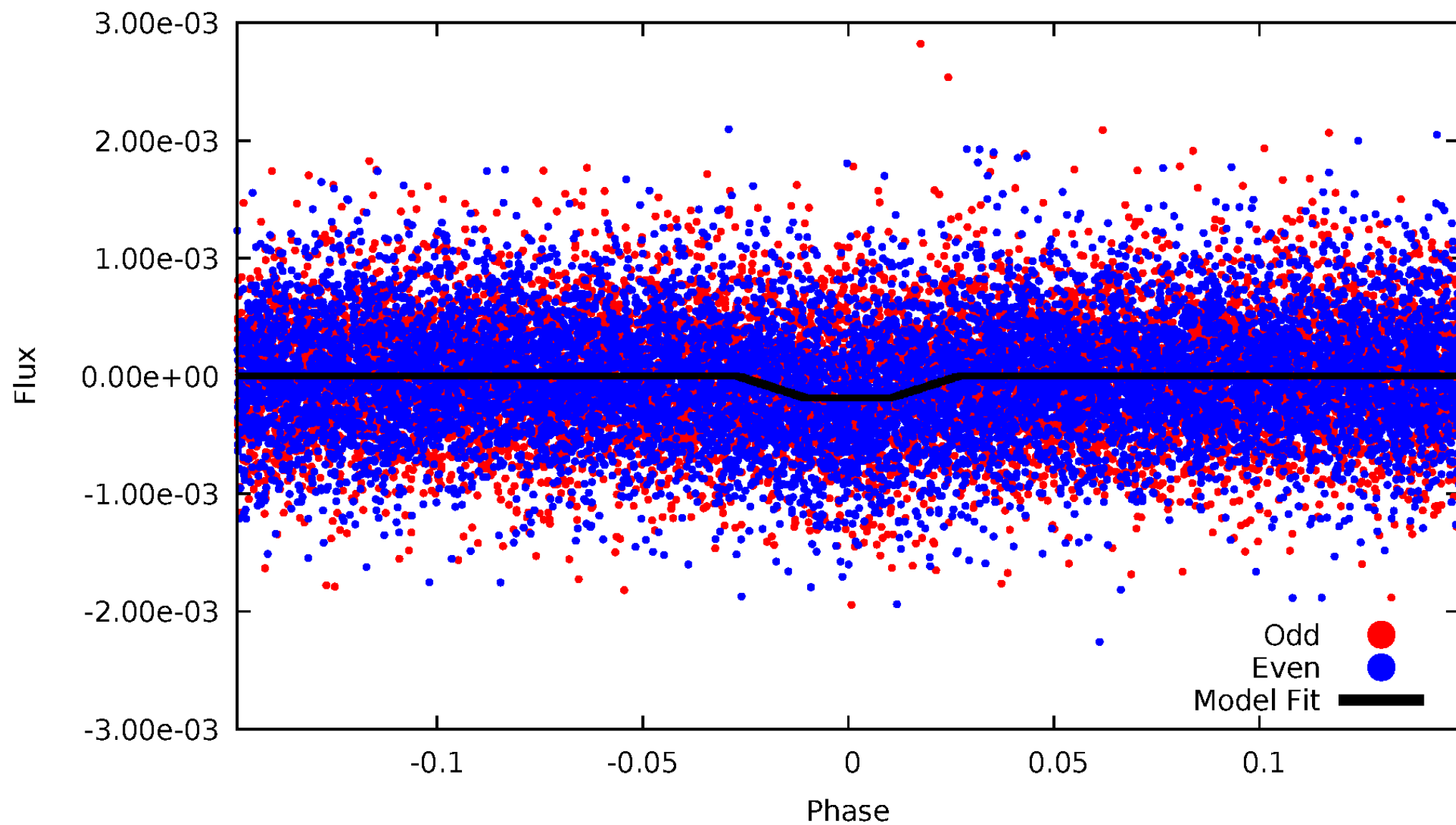
# DV Odd/Even

TCE 009490653-01

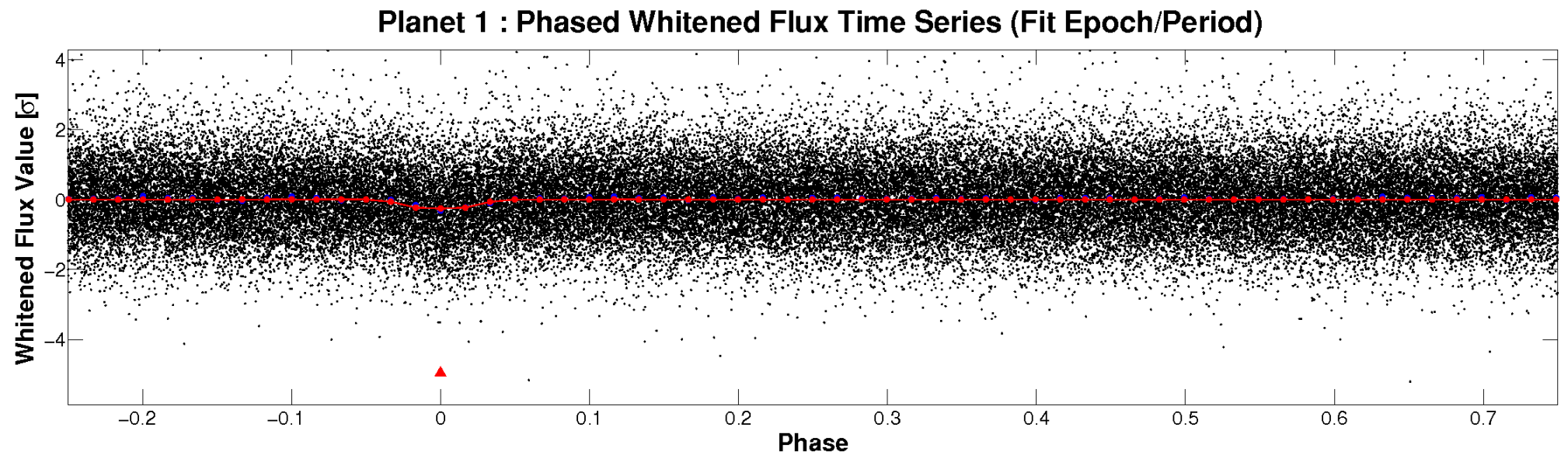
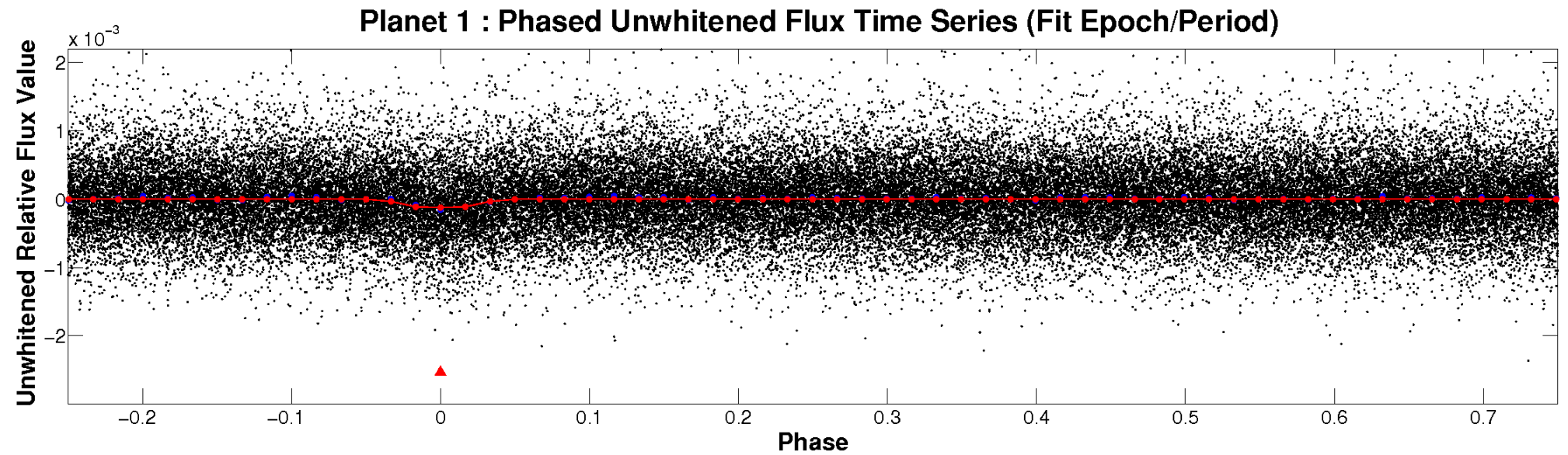


# ALT Odd/Even

TCE 009490653-01

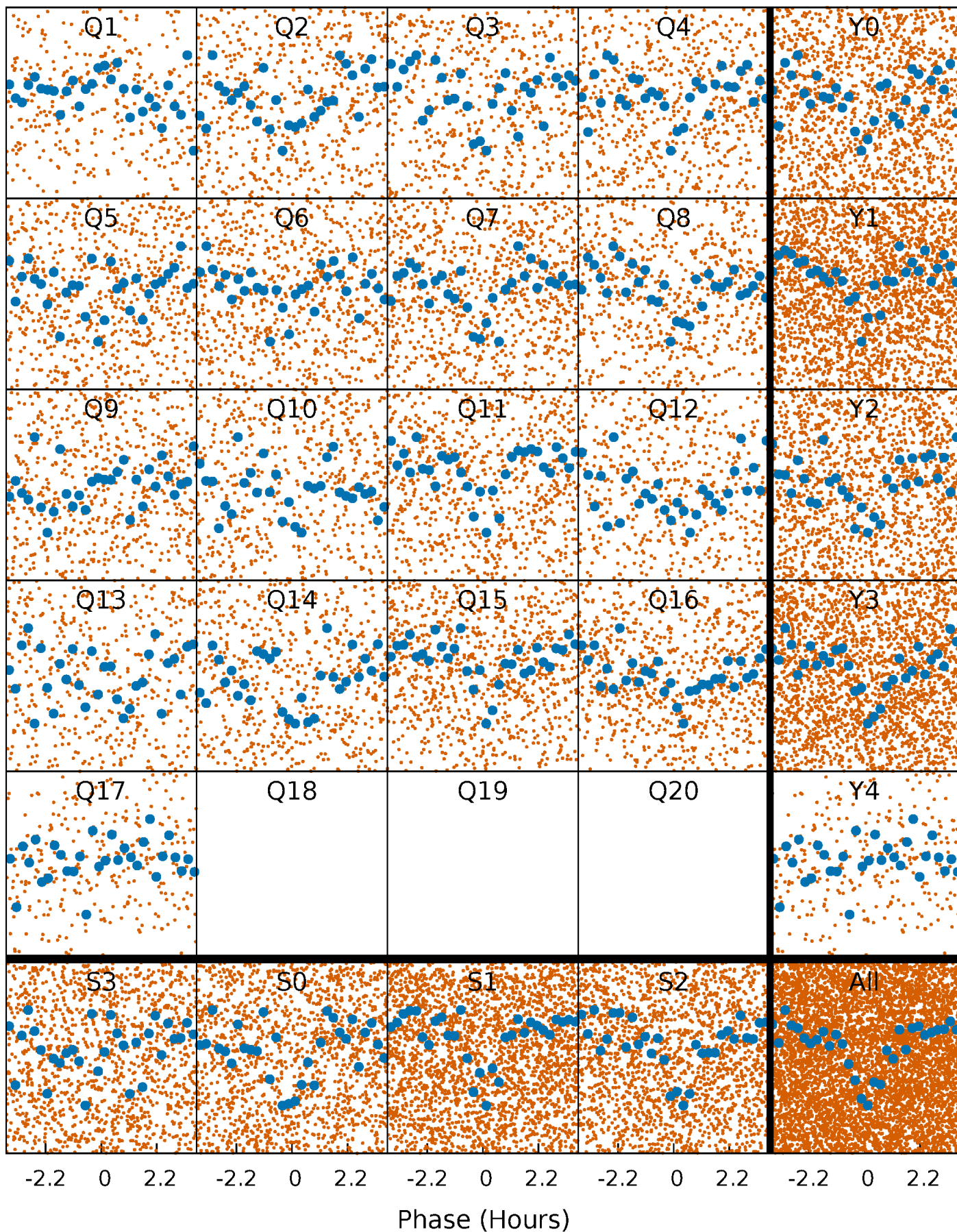


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

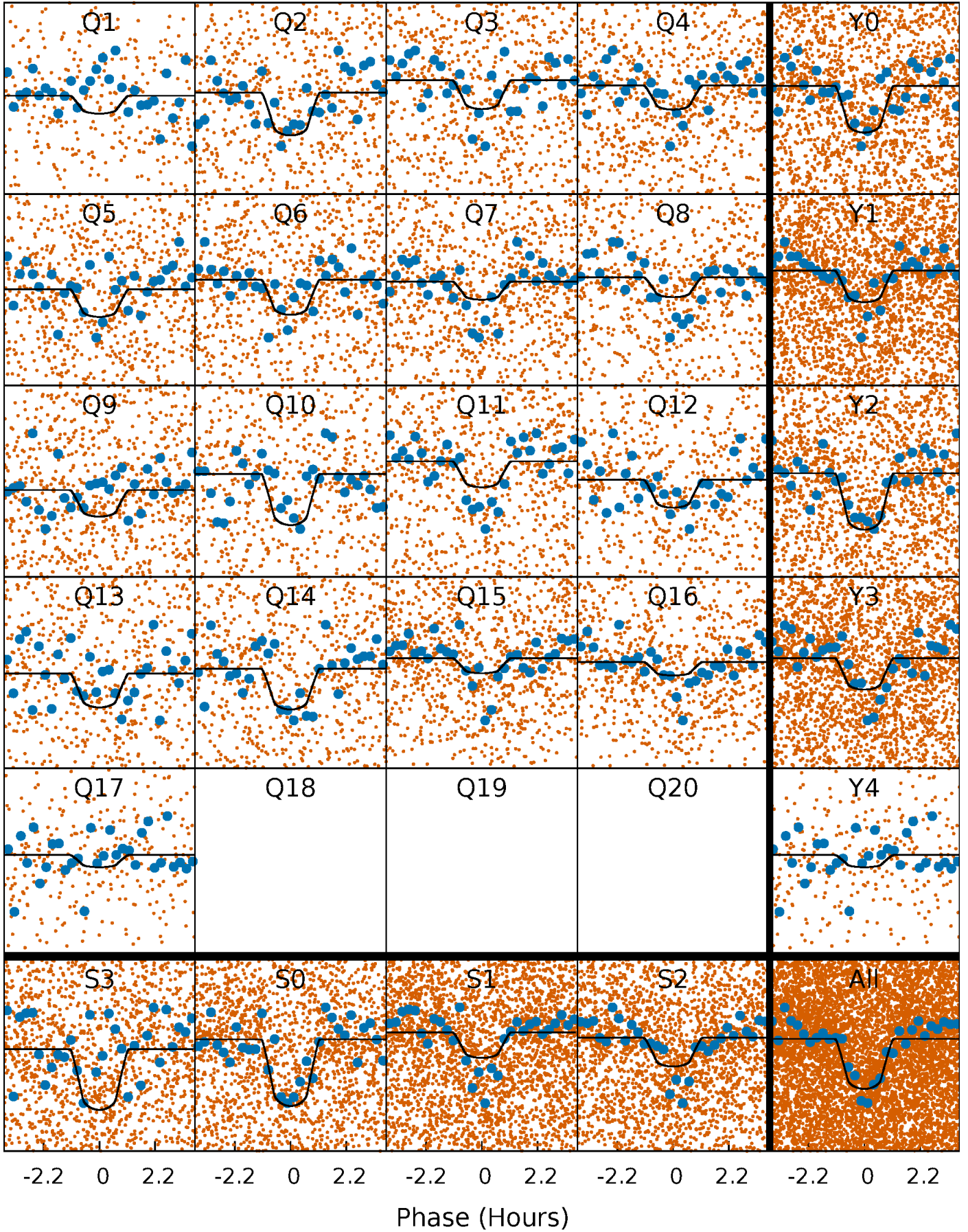
TCE 009490653-01 P= 1.227966 Days  $T_0=131.852038$  (BKJD)





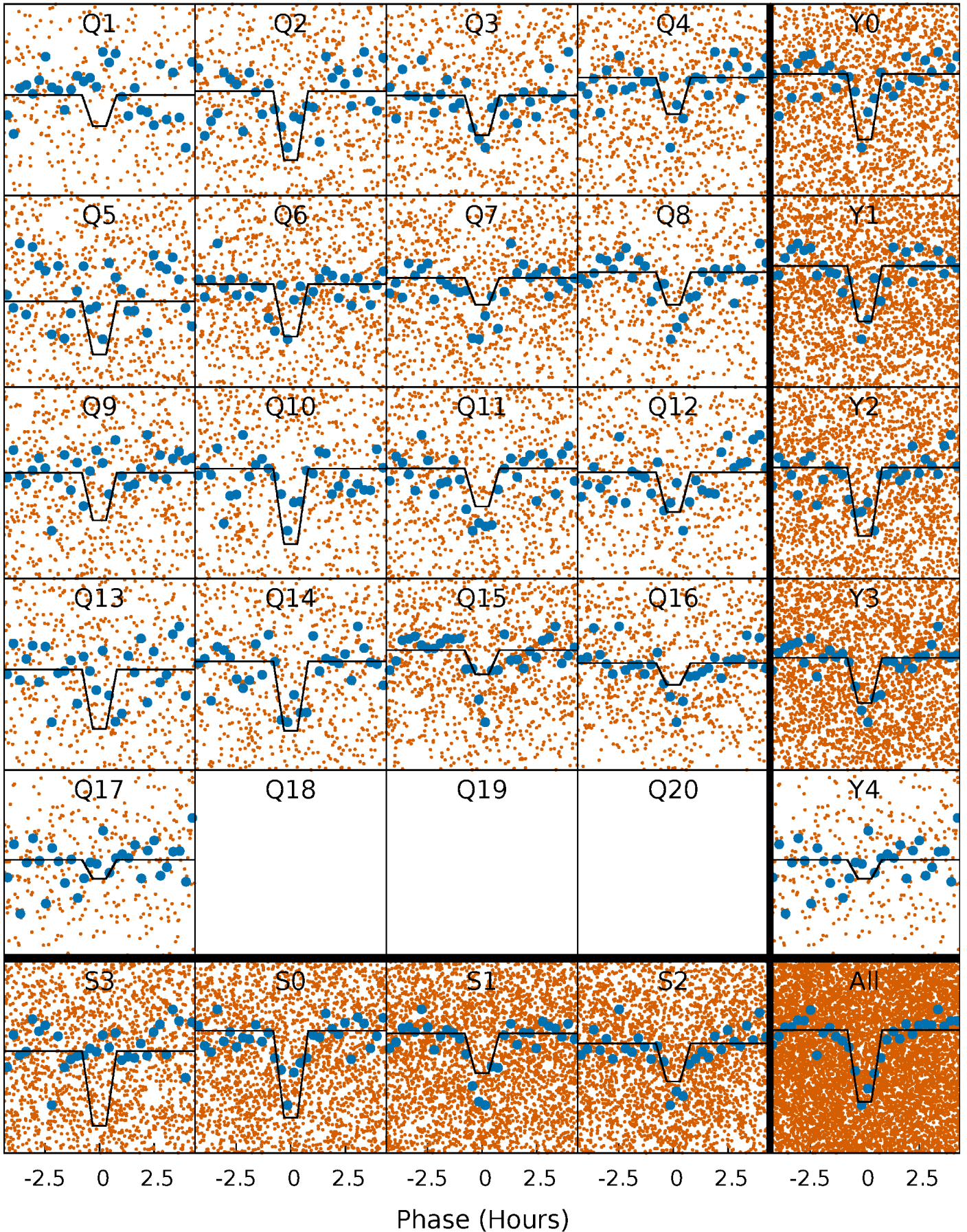
# DV Quarter-Phased Transit Curves

TCE 009490653-01   P= 1.227966 Days    $T_0=131.852038$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

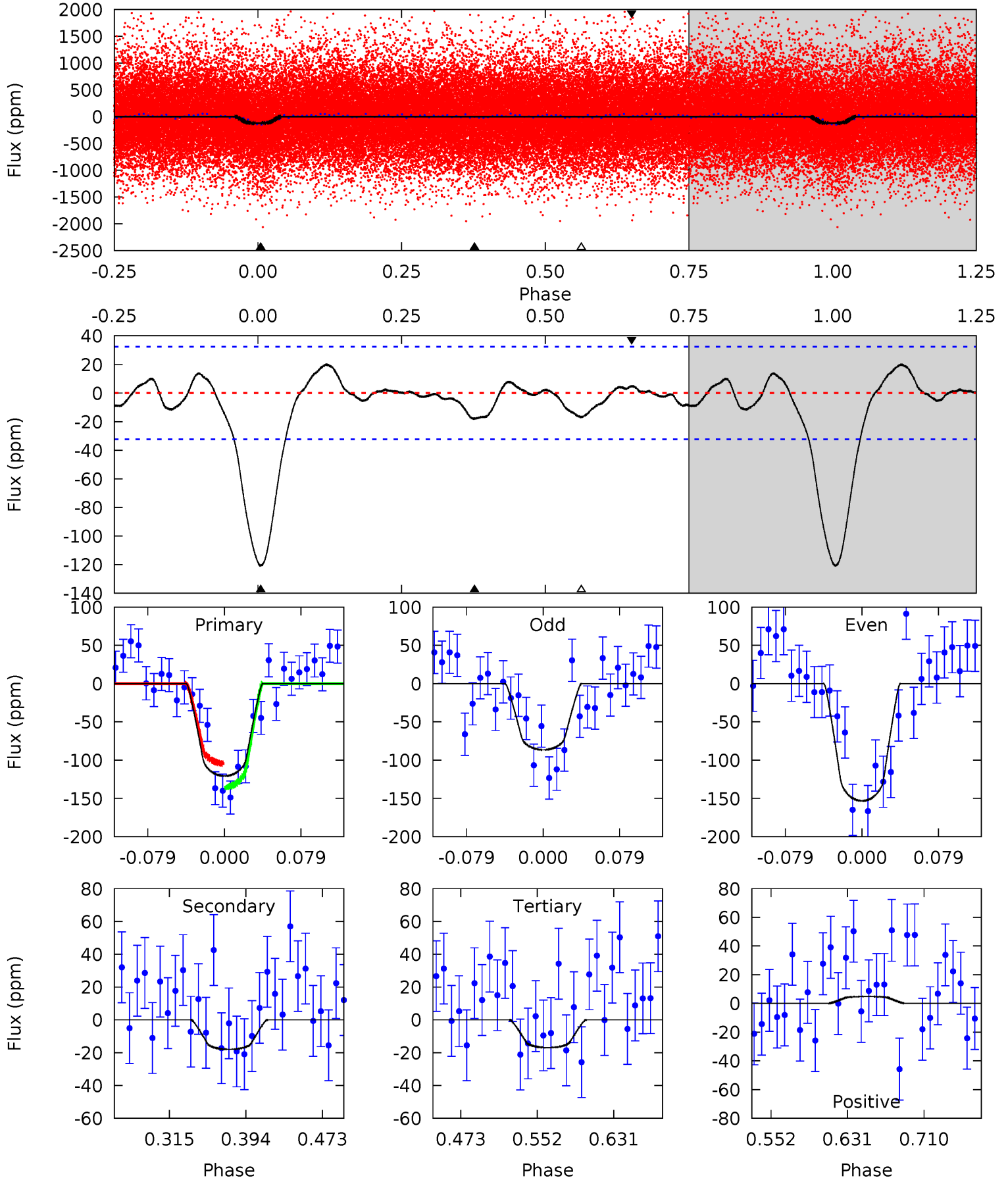
TCE 009490653-01 P= 1.227980 Days  $T_0=131.846990$  (BKJD)



# DV Model-Shift Uniqueness Test

009490653-01, P = 1.227966 Days, E = 130.624072 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
17.2	2.57	2.42	0.69	4.61	1.76	1.09	14.8	16.5	0.15	1.88	4.76	1.09	0.14	2.19

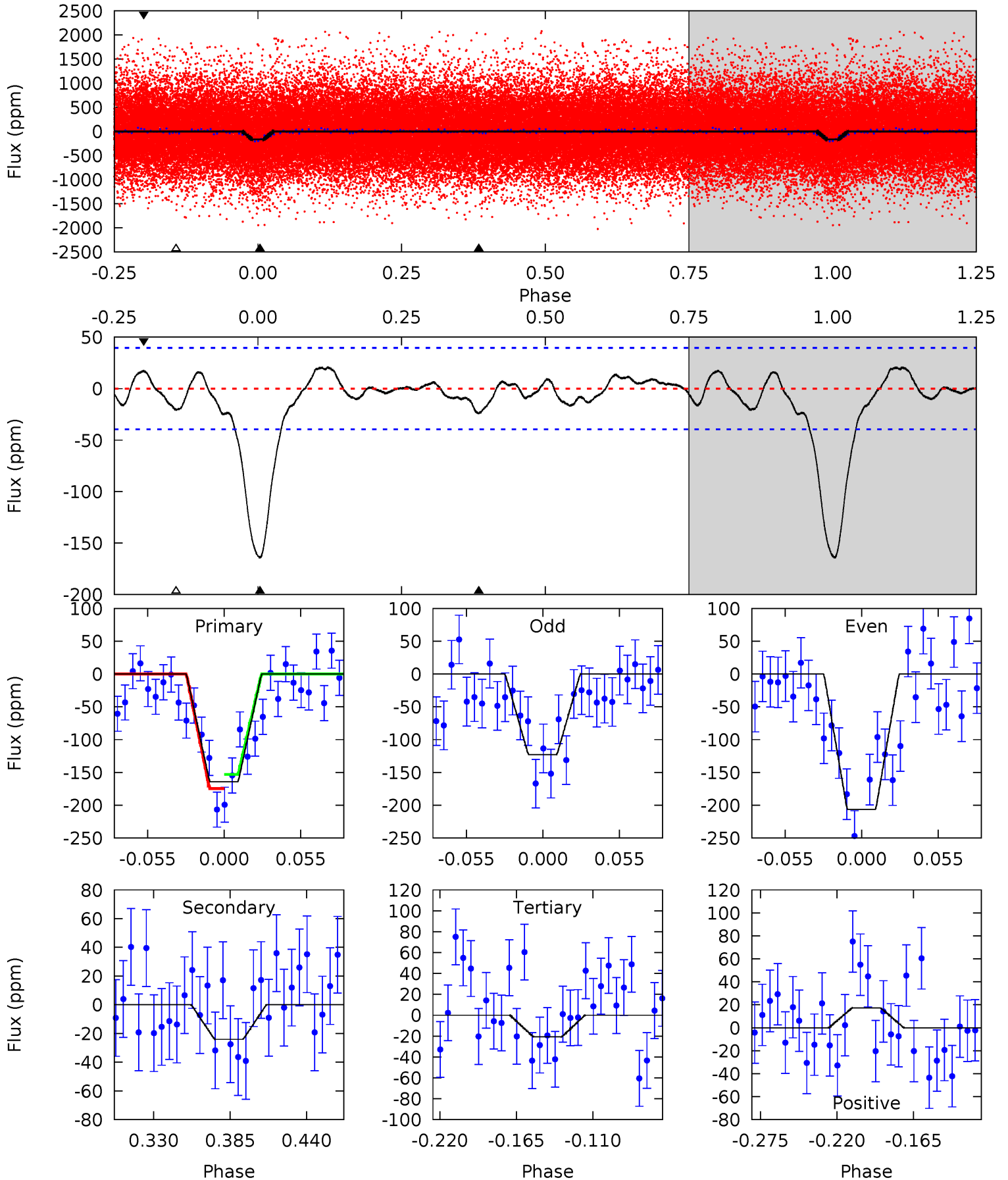




# Alt Model-Shift Uniqueness Test

009490653-01, P = 1.227980 Days, E = 130.619010 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
19.4	2.86	2.45	2.05	4.69	1.92	1.18	17.0	17.4	0.40	0.81	4.95	1.01	0.11	1.28





### Stellar Parameters For KIC 009490653

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5746^{+172}_{-172}$	$4.435^{+0.116}_{-0.174}$	$-0.280^{+0.300}_{-0.300}$	$0.931^{+0.248}_{-0.134}$	$0.861^{+0.120}_{-0.080}$	$1.504^{+0.687}_{-0.720}$
	+3%/-3%	+3%/-4%	+107%/-107%	+27%/-14%	+14%/-9%	+46%/-48%
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 009490653-01 / KOI 4173.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-18 \pm 7$	$1.30^{+0.78}_{-0.69}$	$2354^{+160}_{-130}$	$3623^{+1317}_{-680}$	$2.508^{+9.934}_{-1.664}$
Alt.	$-24 \pm 8$	$1.49^{+0.82}_{-0.75}$	$2352^{+172}_{-135}$	$3661^{+1184}_{-641}$	$2.652^{+8.629}_{-1.691}$

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

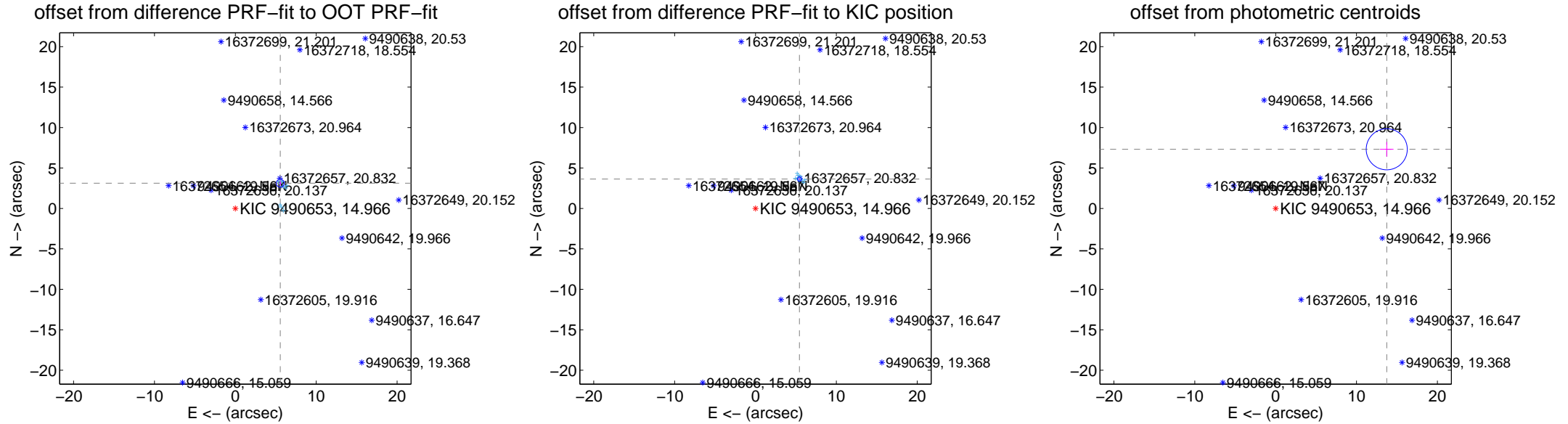
## DV Centroid Data

Supplemental centroid analysis for 009490653-01. Kepler magnitude: 14.97. Transit SNR 13.82

There are 17 quarters with good PRF difference image offsets

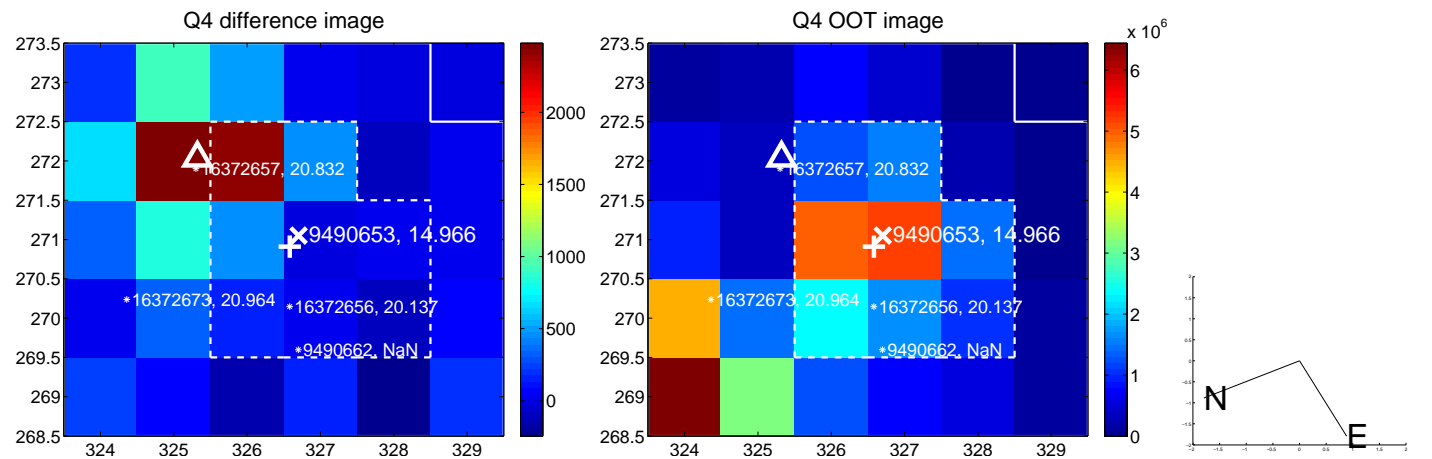
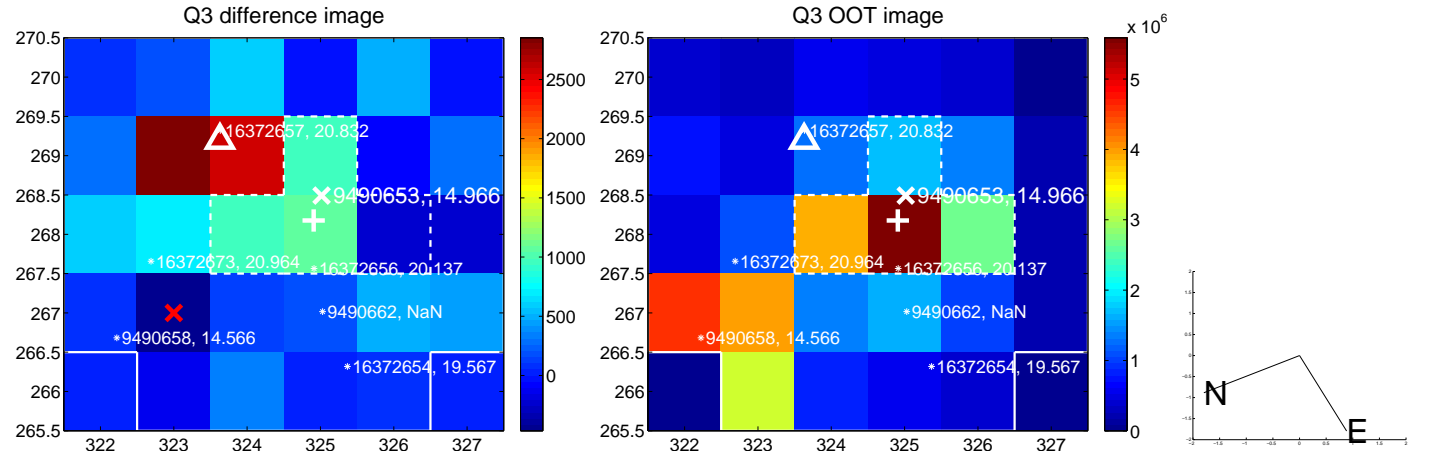
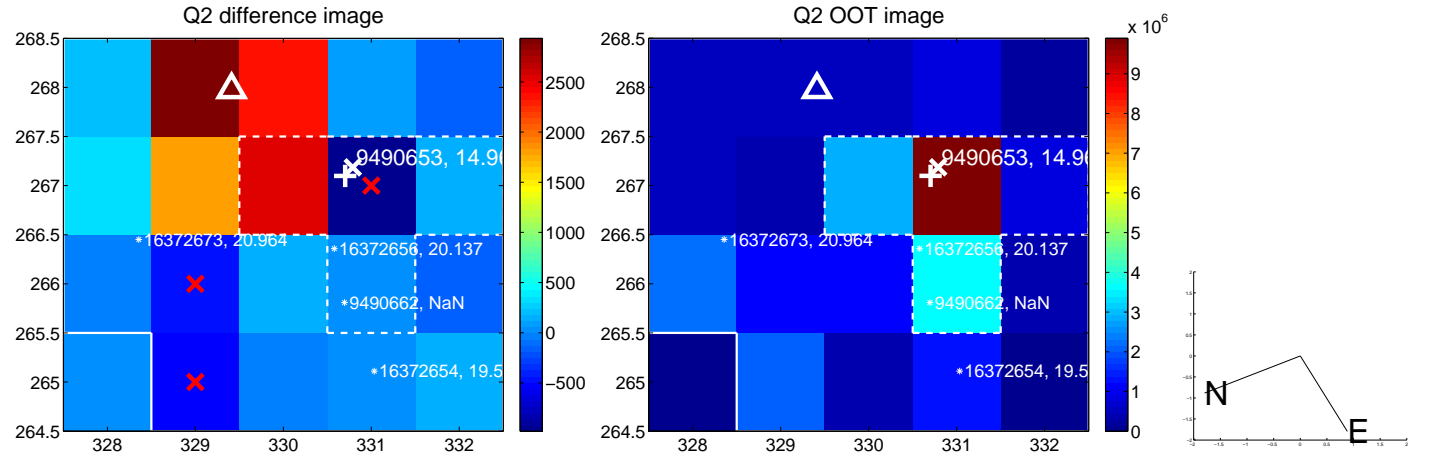
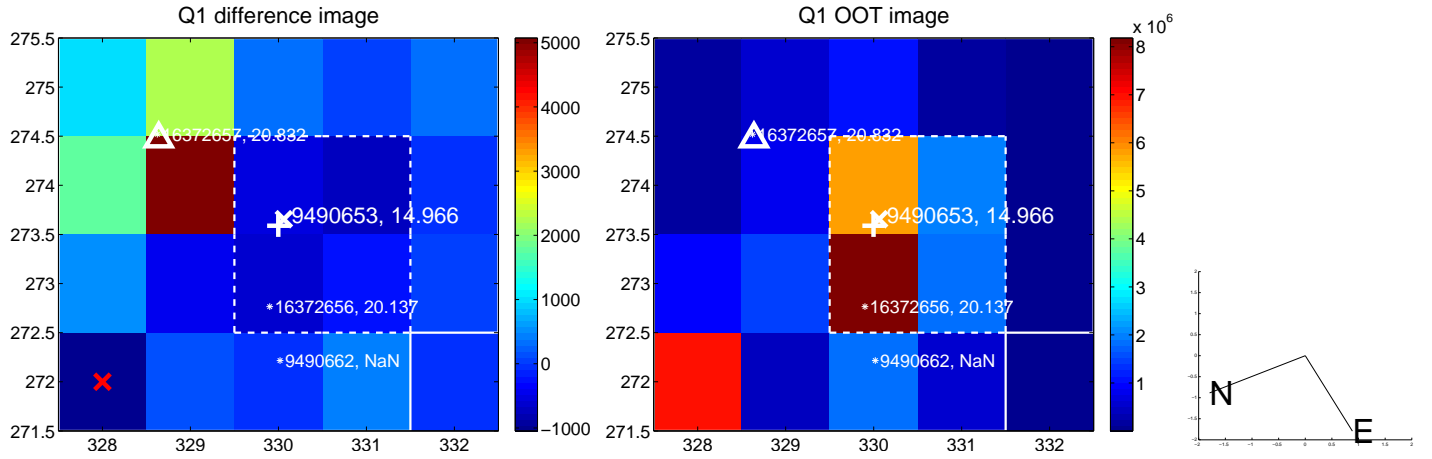
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>6.373 <math>\pm</math> 0.164</b>	<b>38.76</b>	-5.557 $\pm$ 0.095	3.120 $\pm$ 0.301
PRF-fit source offset from KIC position	<b>6.538 <math>\pm</math> 0.087</b>	<b>74.93</b>	-5.434 $\pm$ 0.089	3.635 $\pm$ 0.084
photometric centroid source offset	<b>15.56 <math>\pm</math> 0.85</b>	<b>18.39</b>	-13.74 $\pm$ 0.83	7.31 $\pm$ 0.90

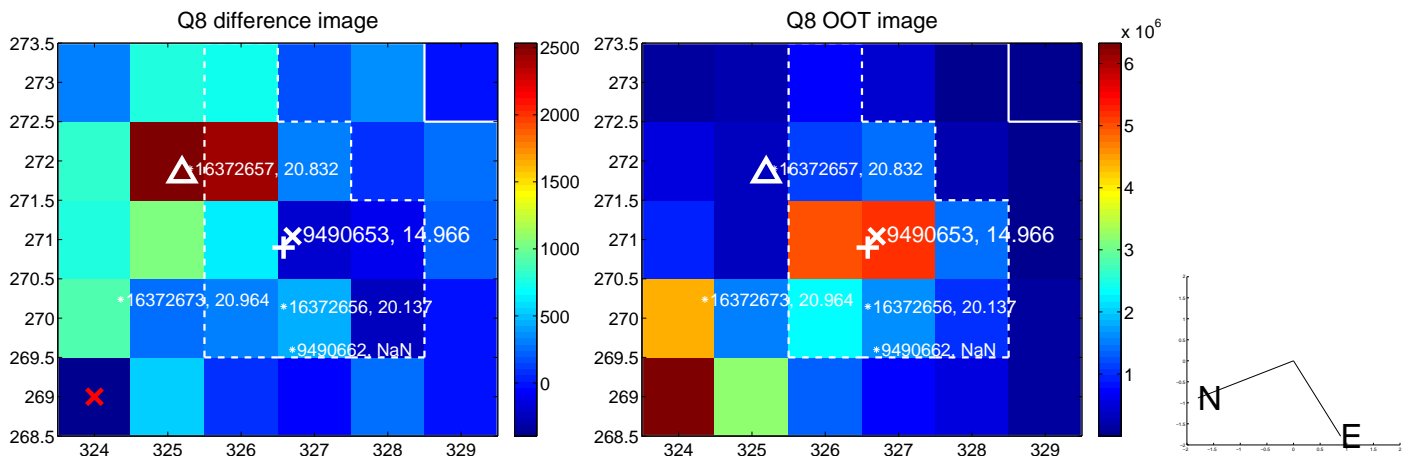
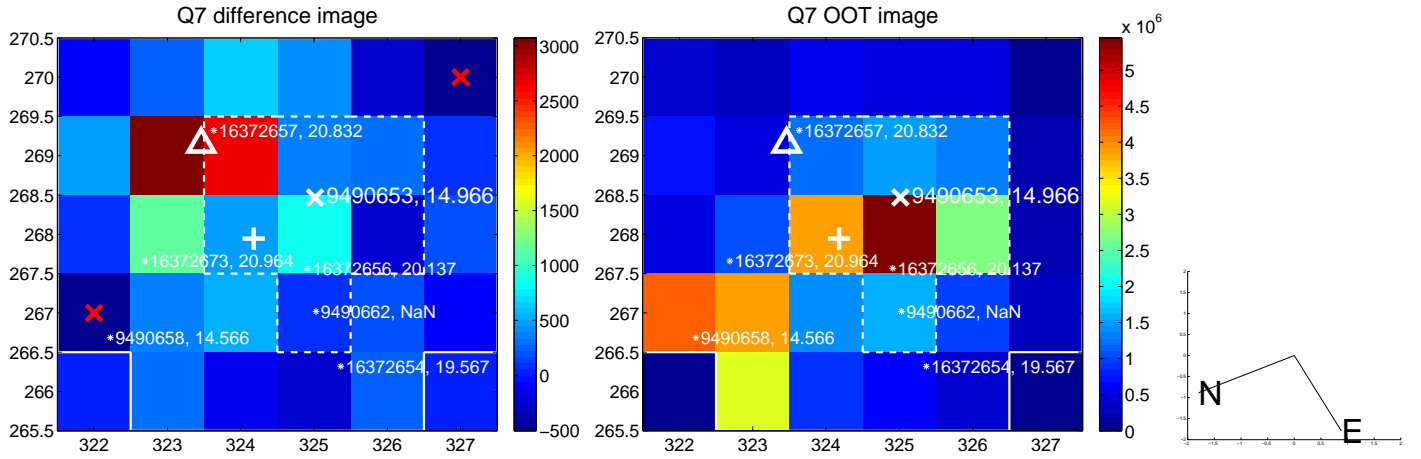
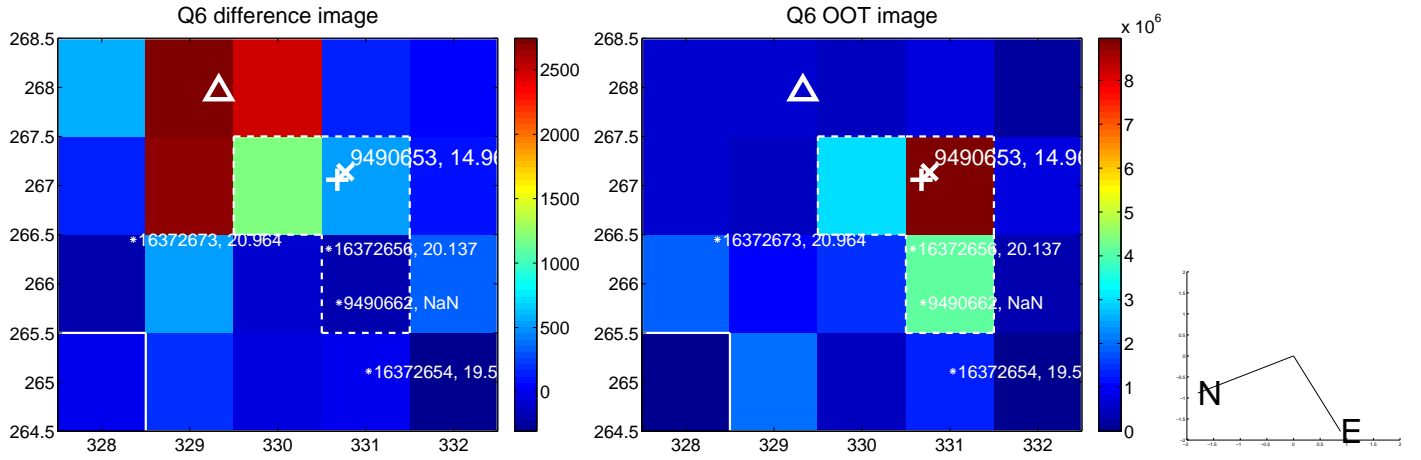
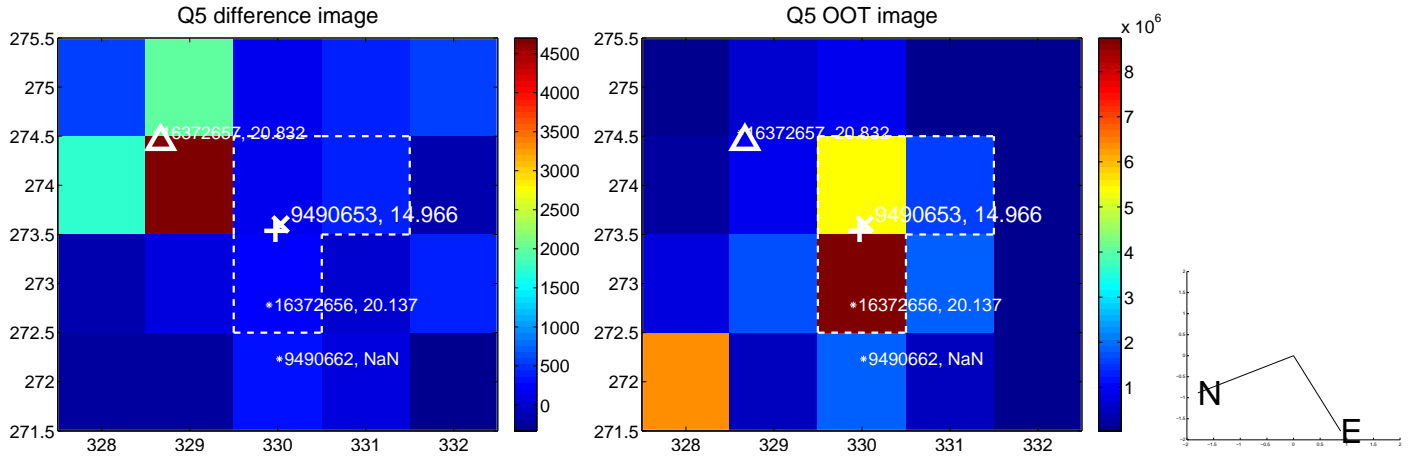


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

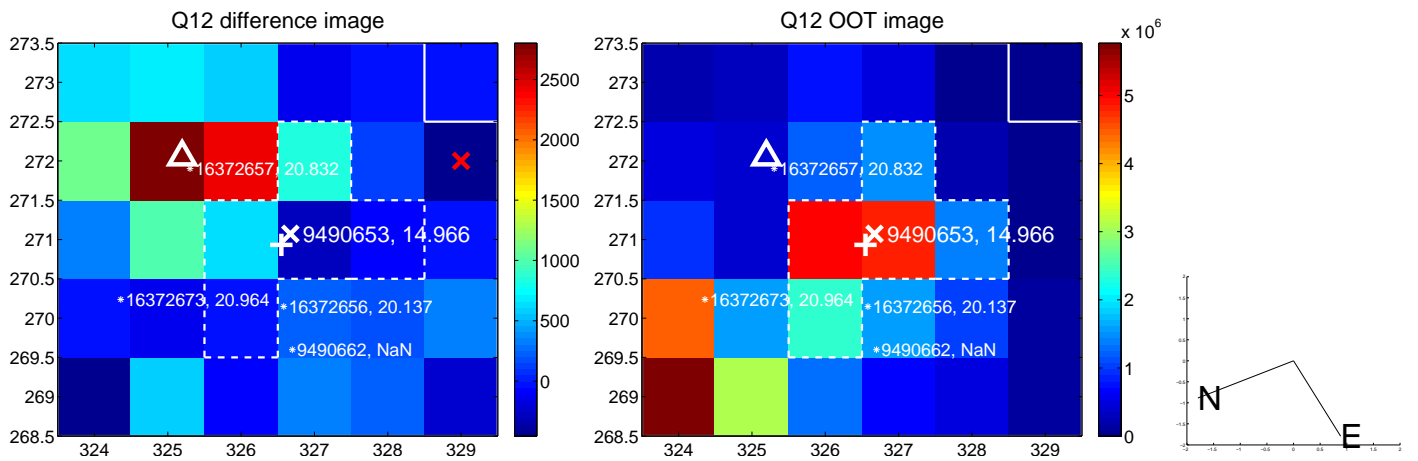
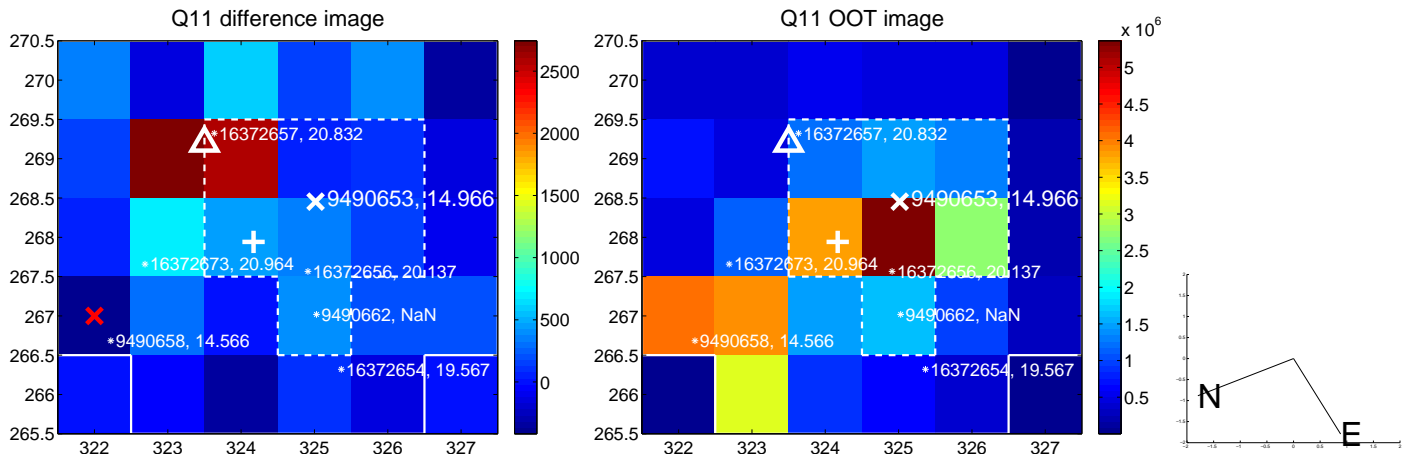
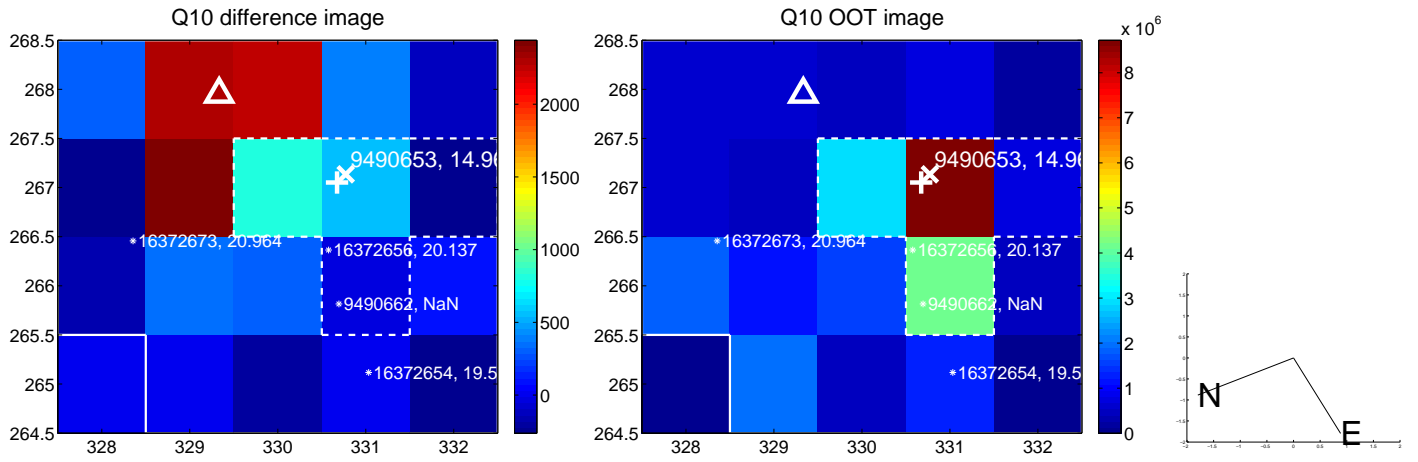
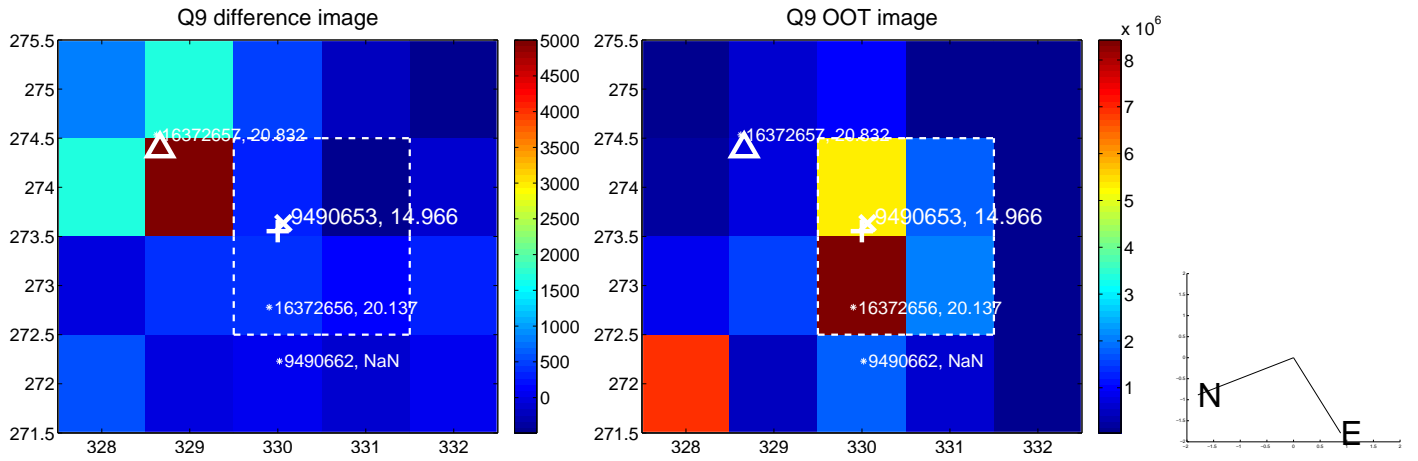


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

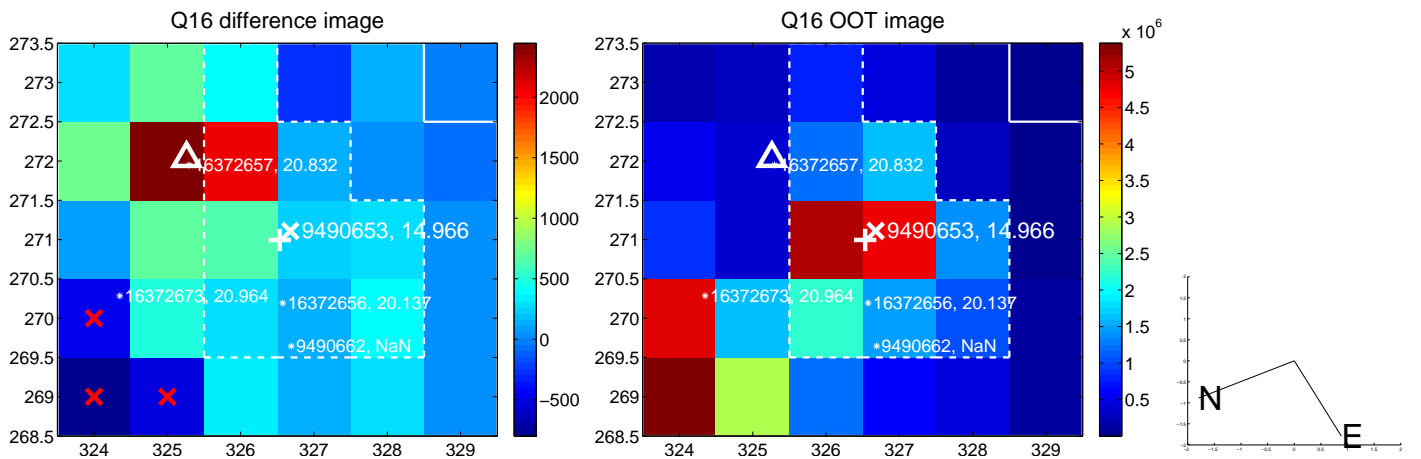
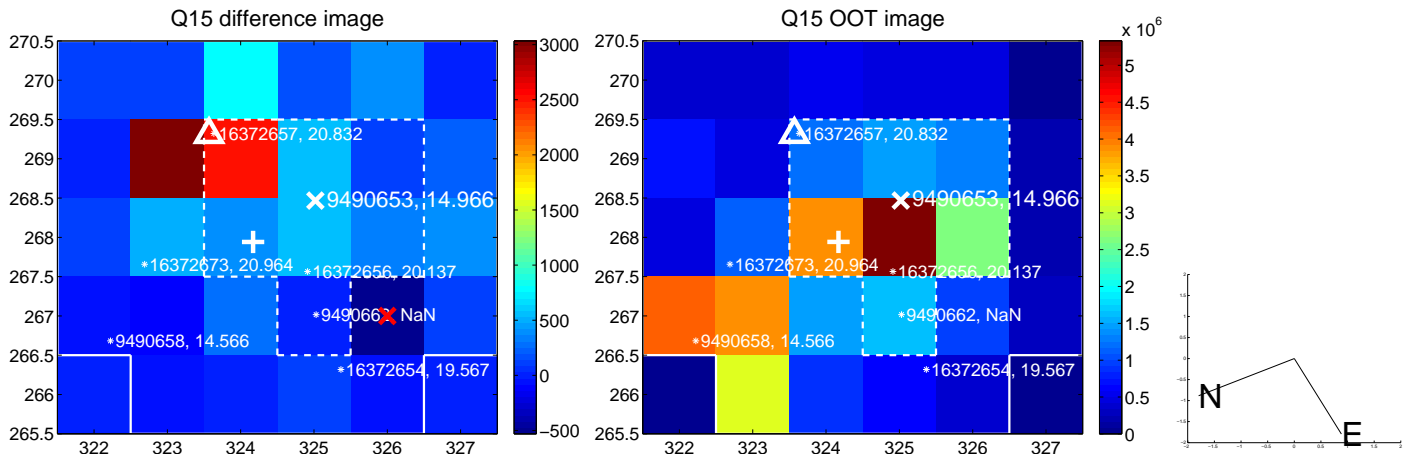
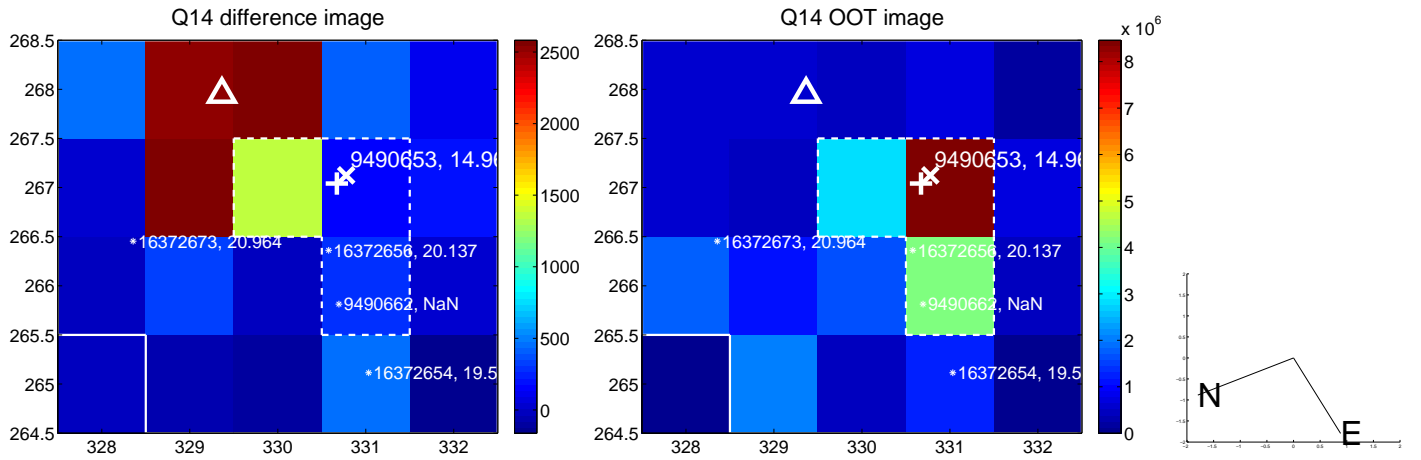
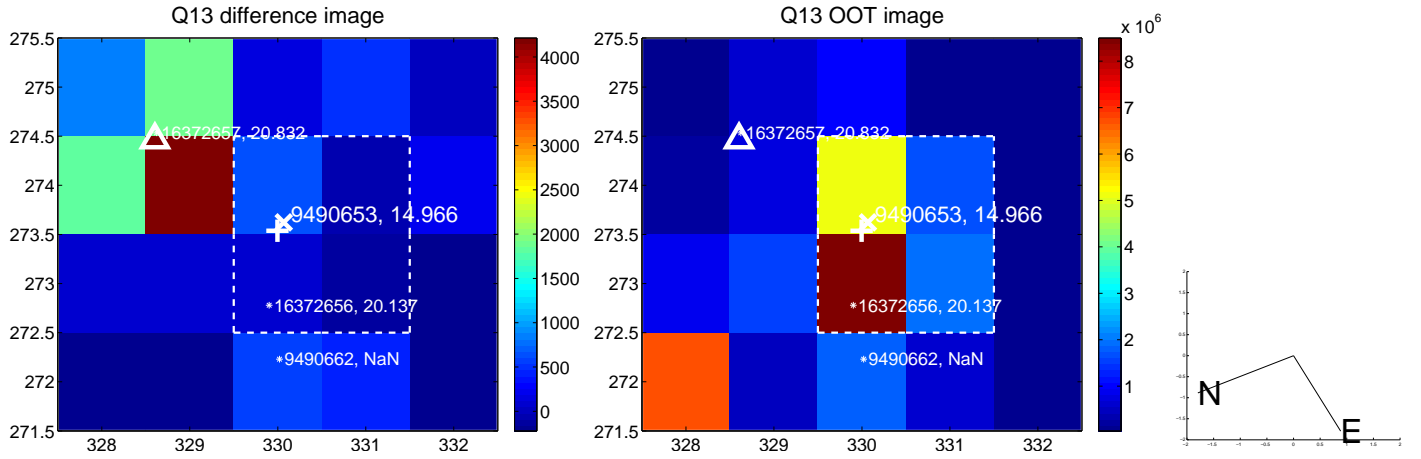




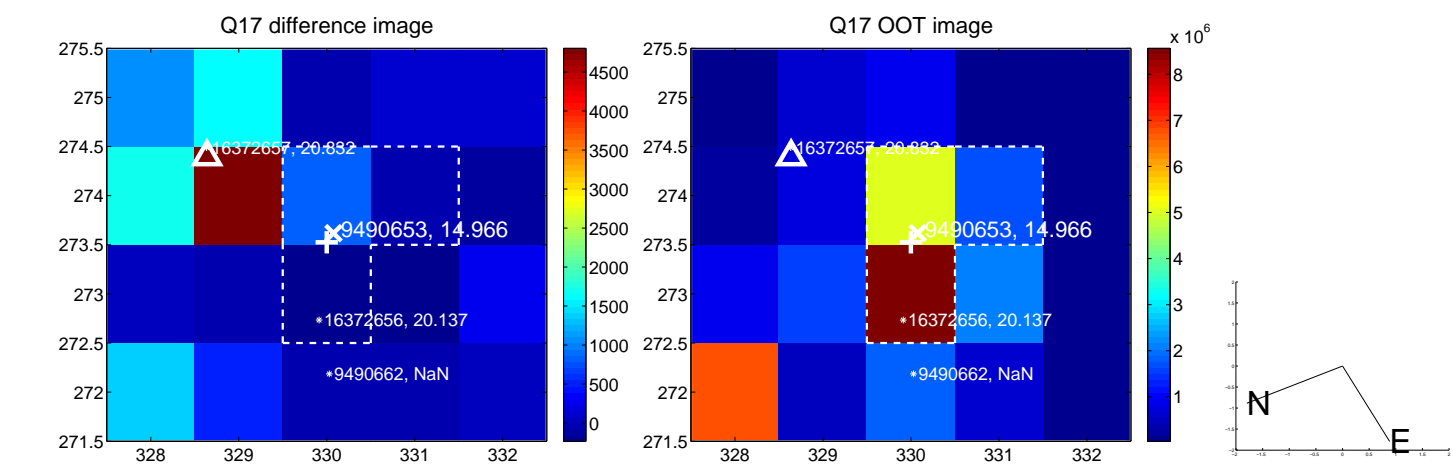
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



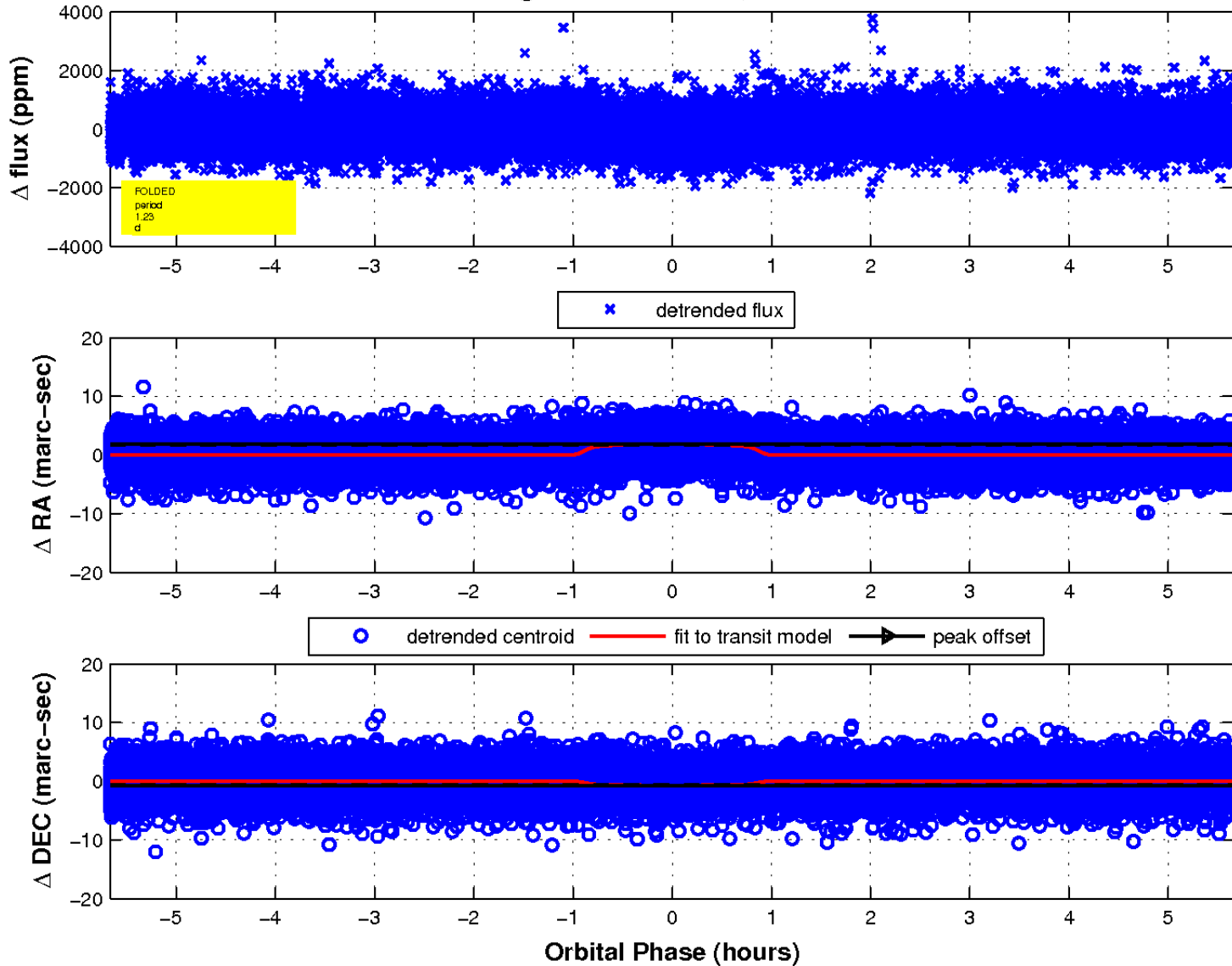
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

