

# KIC 005952309

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005952309-01	OBS	6636.01	0.905675	132.192459	47.3	1.285	9.0	7.6	0.91	6075	0.73	3096.18

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005952309-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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 005952309-01

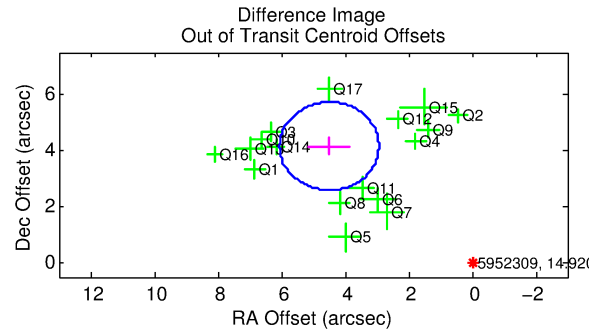
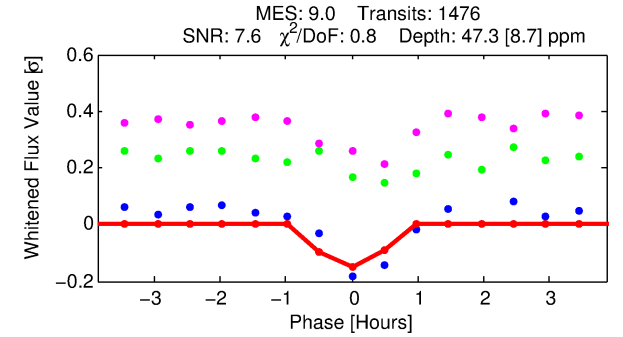
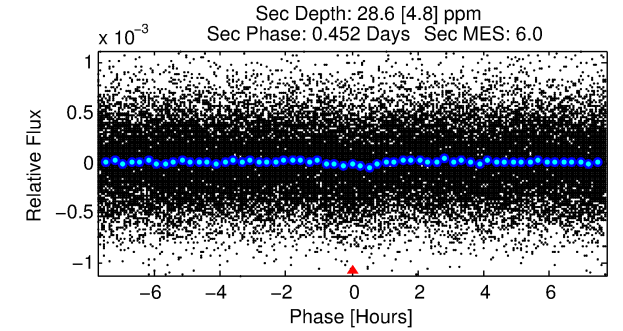
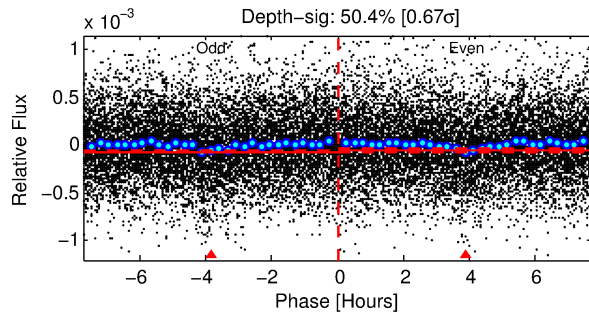
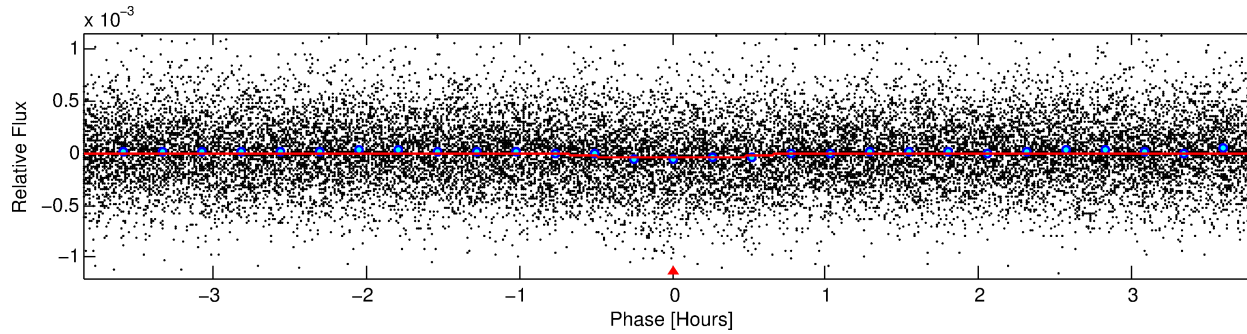
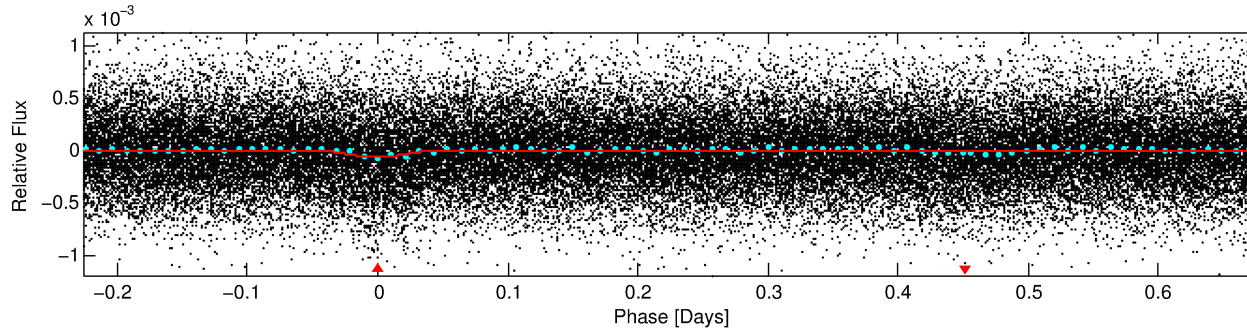
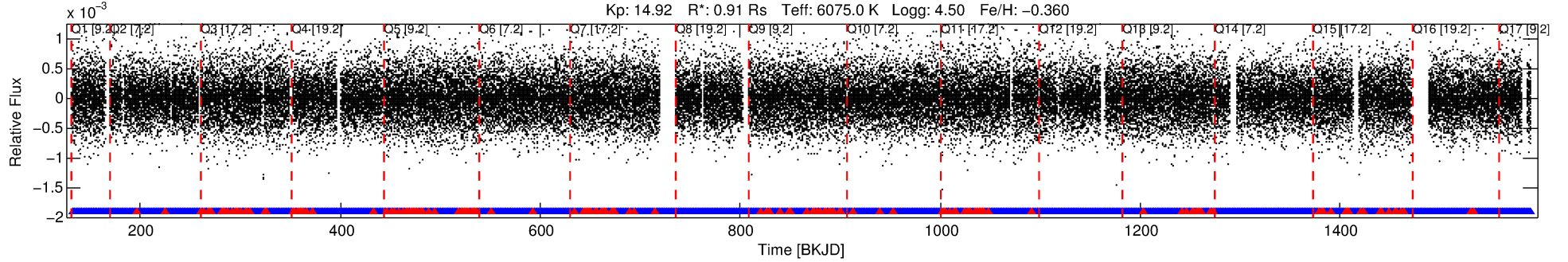
TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
005952309-01	5952309	6139.01	5952403	1:1	66.3	-10	13	6.97	14.92	70.45	Direct-PRF	0	0.33	0.42

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5952309 Candidate: 1 of 1 Period: 0.906 d  
KOI: K06636.01 Corr: 0.881

Kp: 14.92 R\*: 0.91 Rs Teff: 6075.0 K Logg: 4.50 Fe/H: -0.360



## DV Fit Results:

Period = 0.90567 [0.00001] d  
Epoch = 132.1925 [0.0028] BKJD  
Rp/R\* = 0.0074 [0.0033]  
a/R\* = 2.69 [5.55]  
b = 0.89 [0.56]  
Seff = 3096.18 [1236.73]  
Teq = 1902 [190] K  
Rp = 0.73 [0.40] Re  
a = 0.0180 [0.0046] AU  
Ag = 9.55 [9.51] [0.90σ]  
Teffp = 5170 [1204] K [2.68σ]

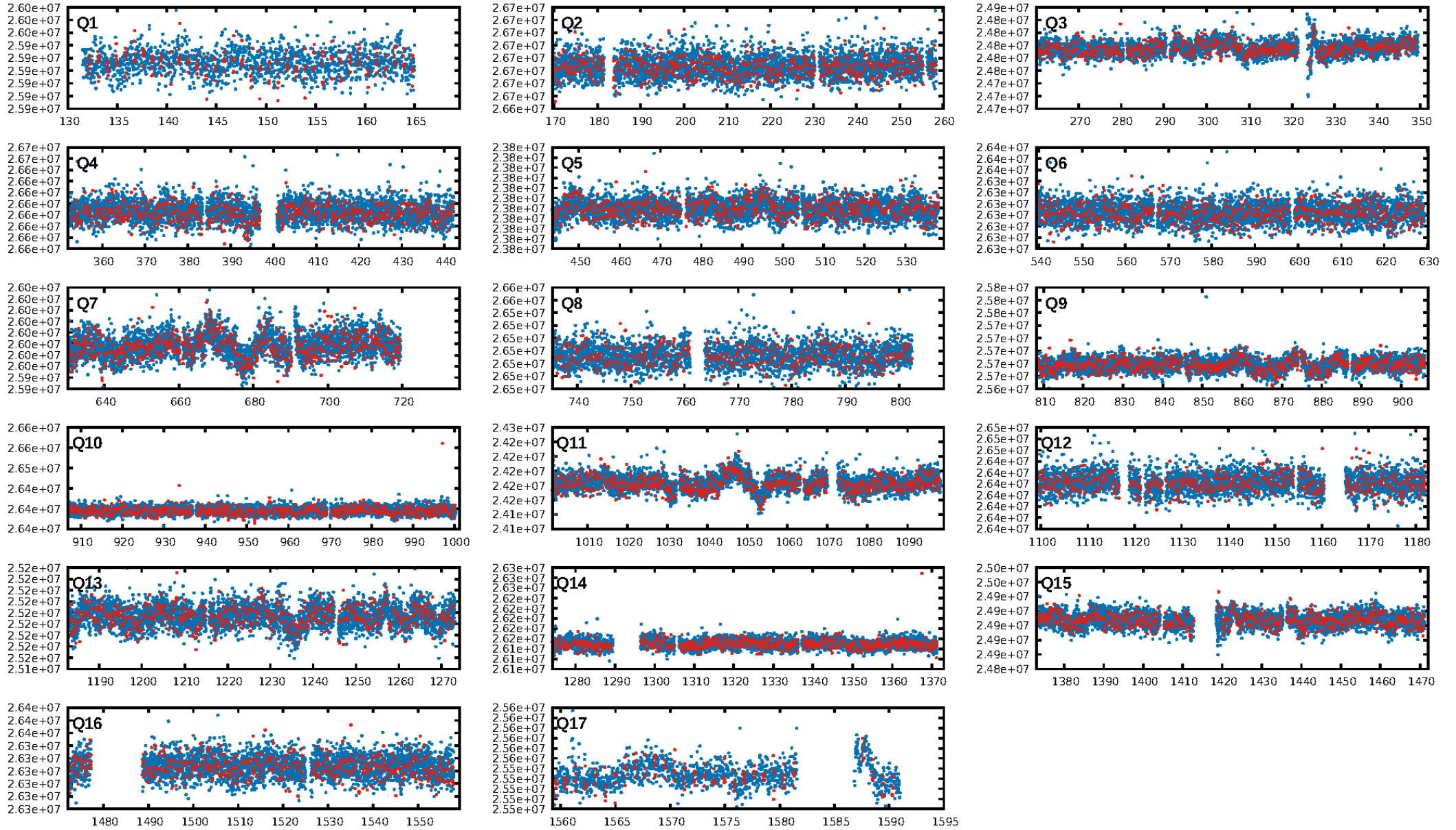
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.31e-20  
RollingBand-fgt: 0.88 [1236/1410]  
GhostDiagnostic-chr: 0.1276  
Centroid-sig: 0.0%  
Centroid-so: 8.210 arcsec [4.76σ]  
OotOffset-rm: 6.126 arcsec [11.74σ]  
KicOffset-rm: 6.031 arcsec [11.41σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.06 [1/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:47:10 Z

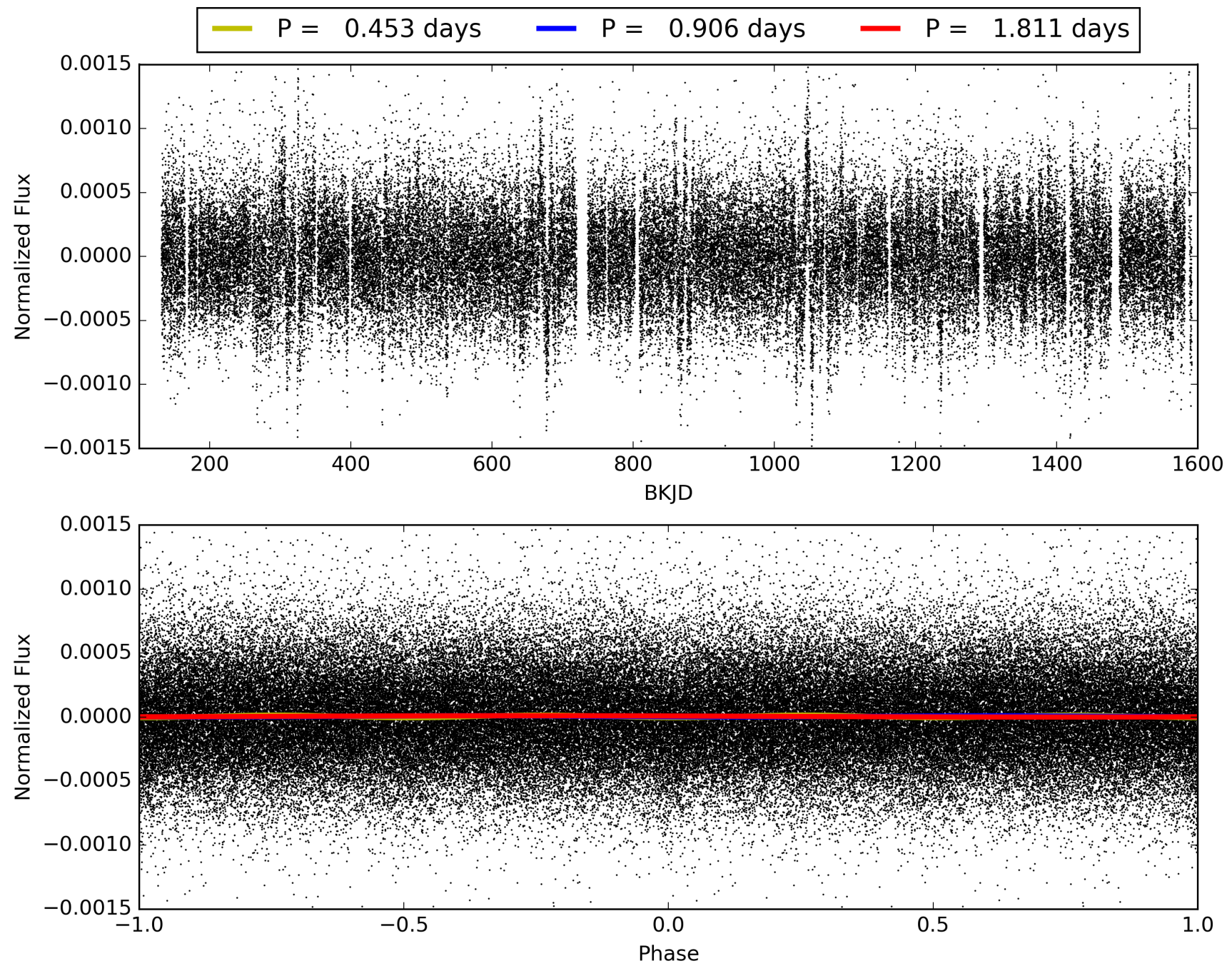
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005952309-01, PDC Light Curves



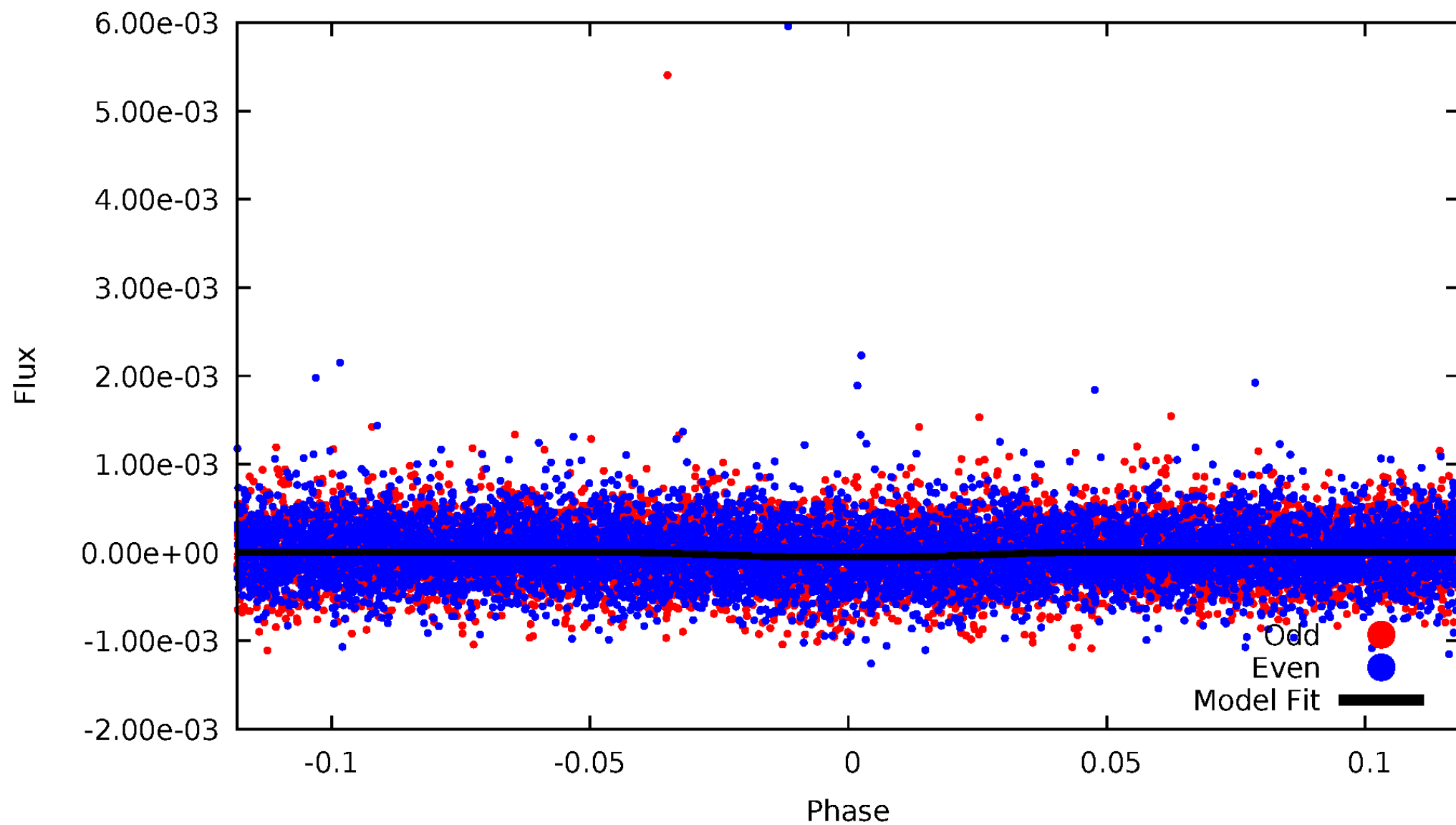


TCE 005952309-01



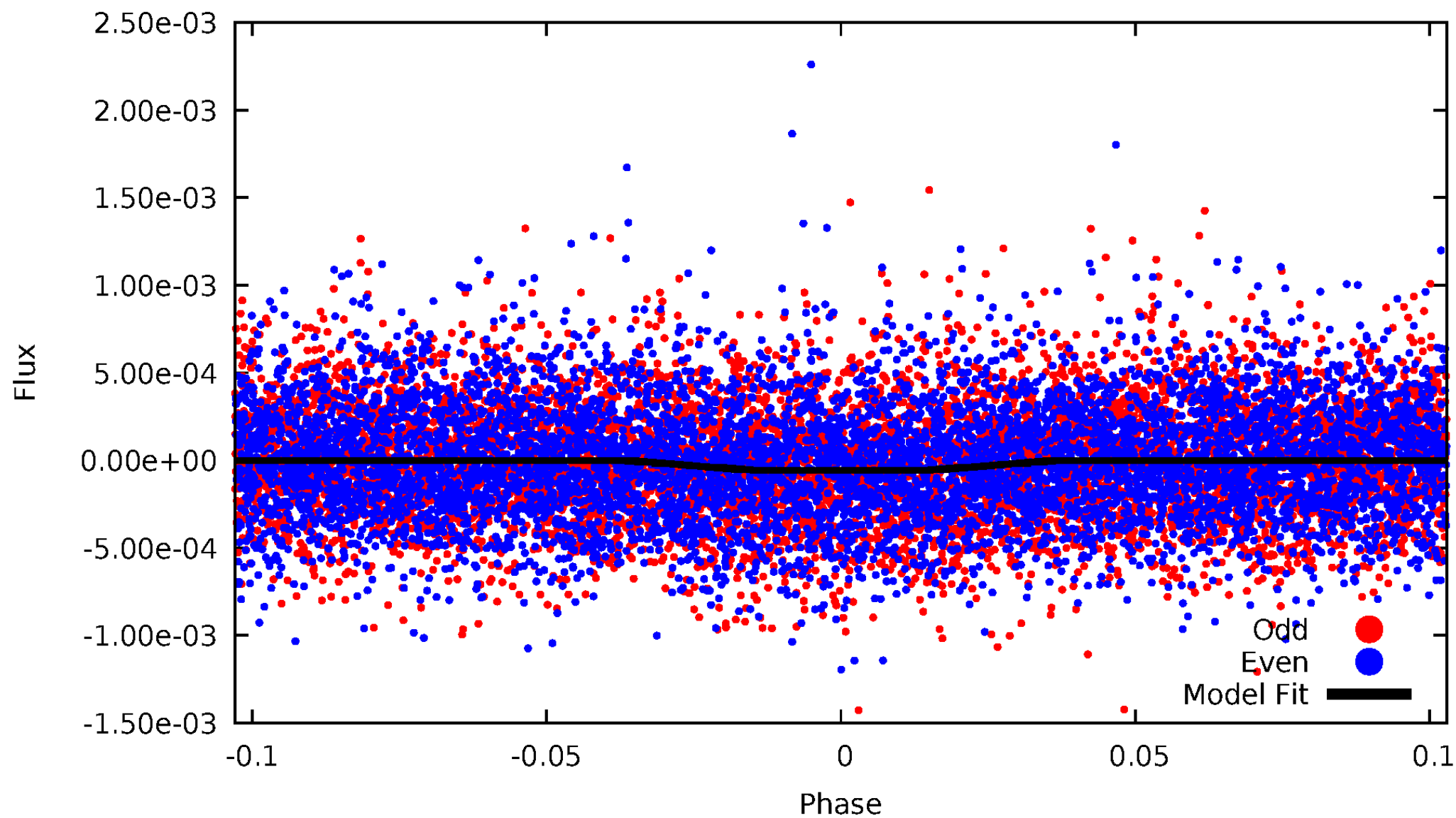
# DV Odd/Even

TCE 005952309-01

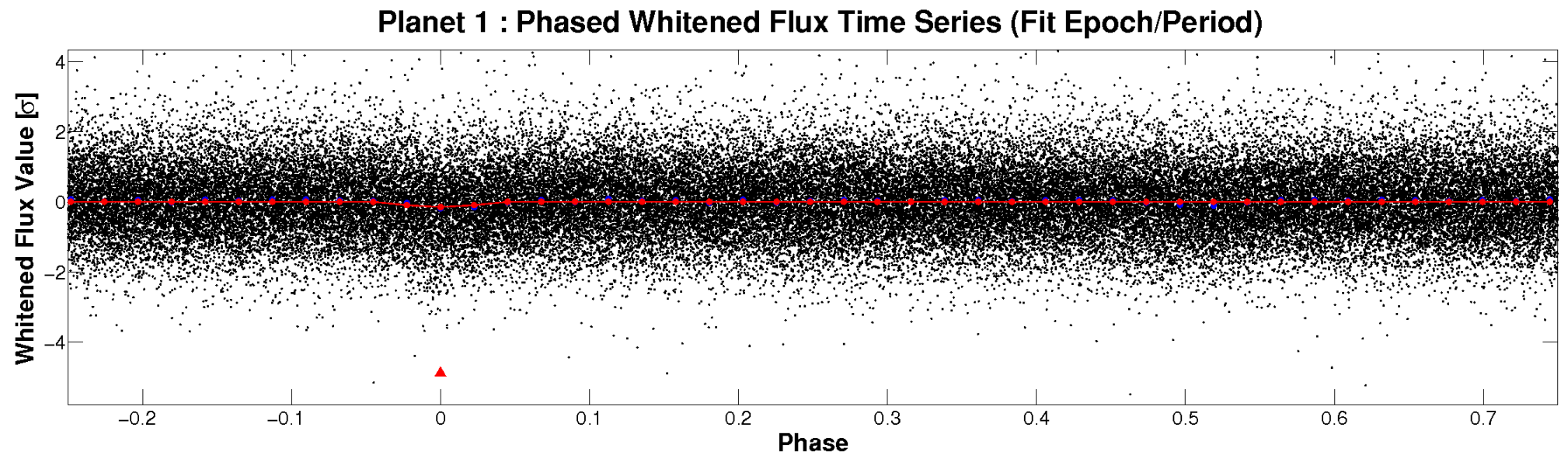
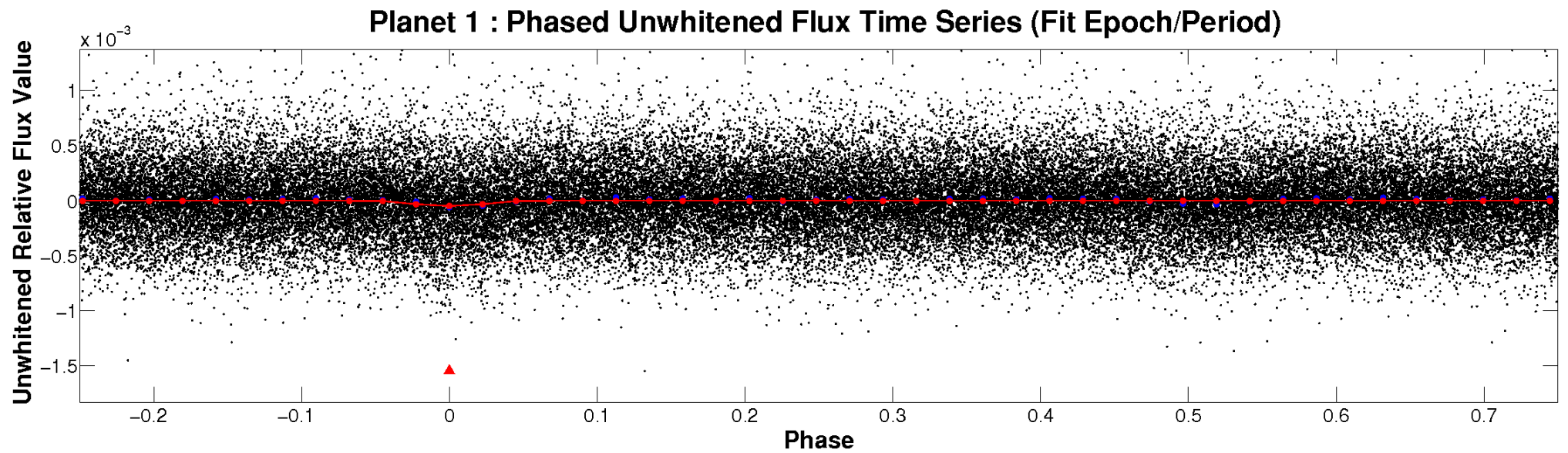


# ALT Odd/Even

TCE 005952309-01



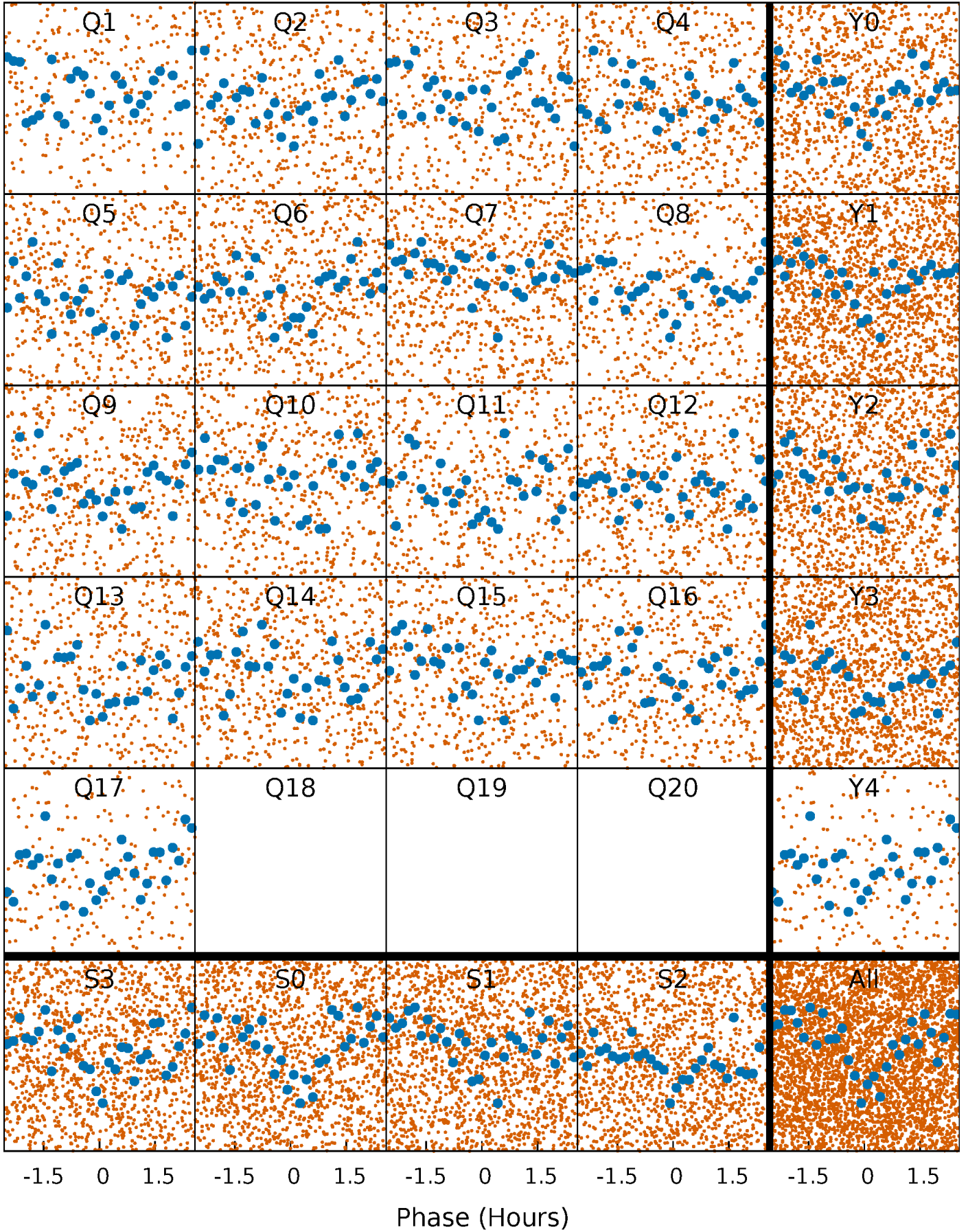
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

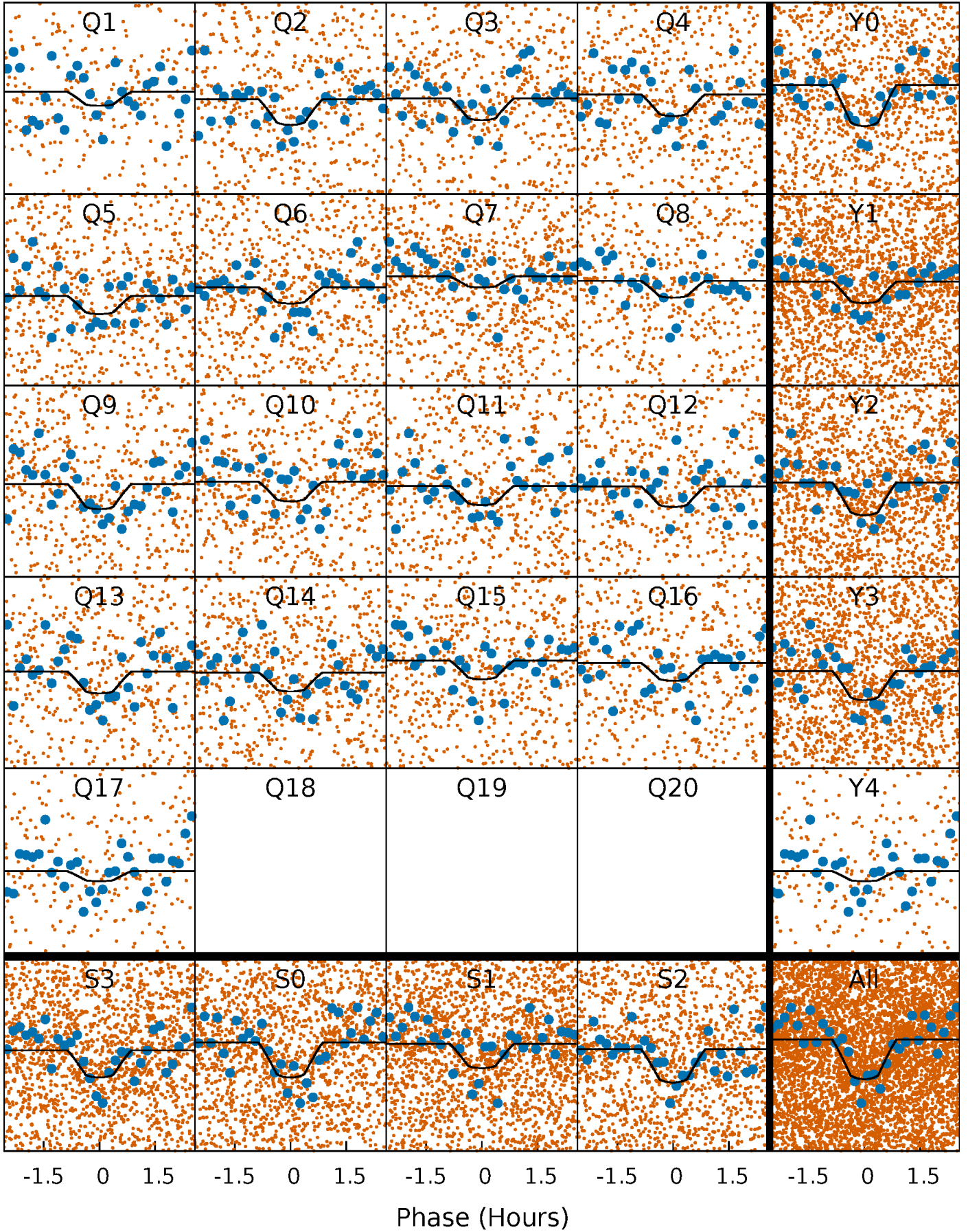
TCE 005952309-01   P= 0.905675 Days    $T_0=132.192459$  (BKJD)





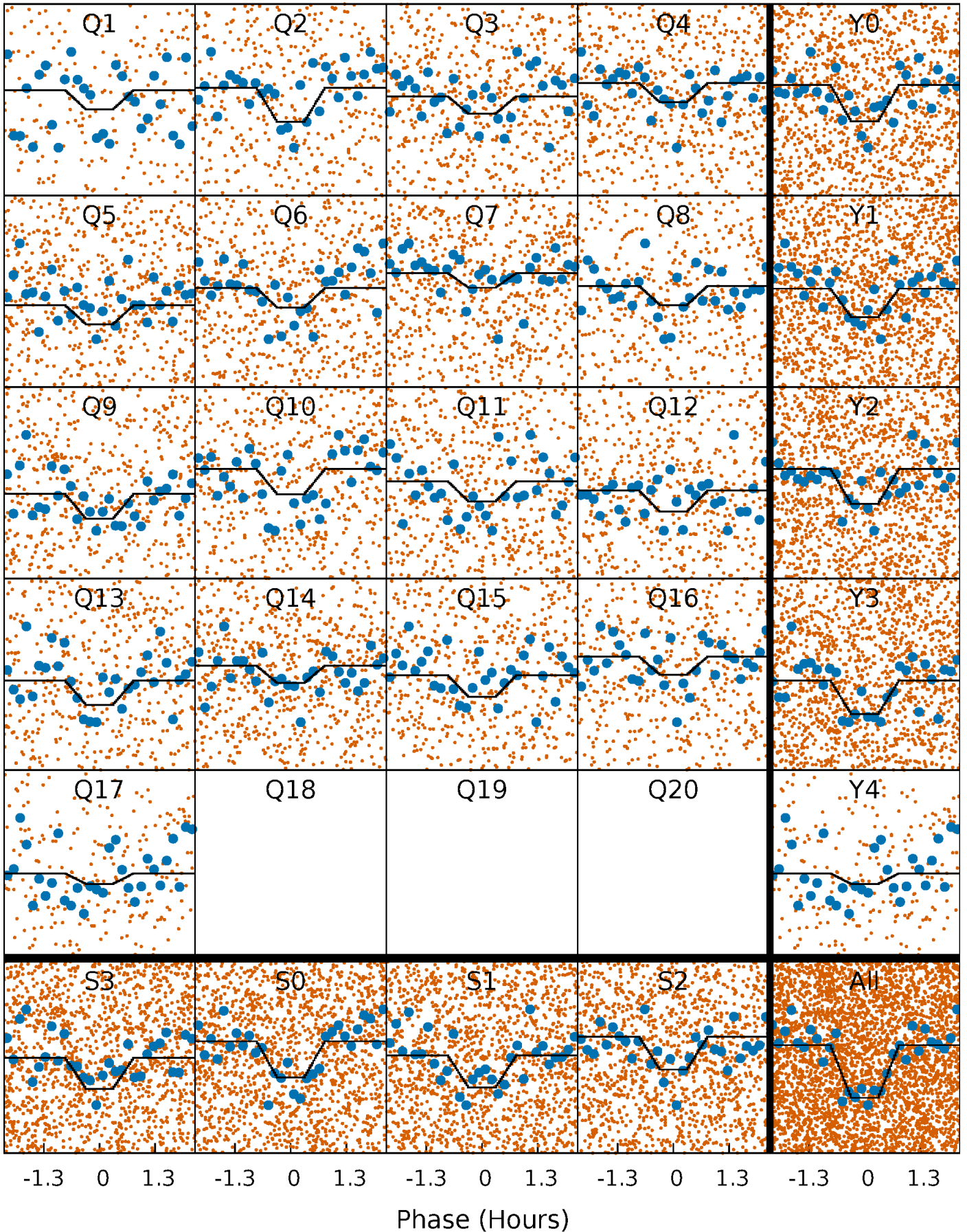
# DV Quarter-Phased Transit Curves

TCE 005952309-01   P= 0.905675 Days    $T_0=132.192459$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

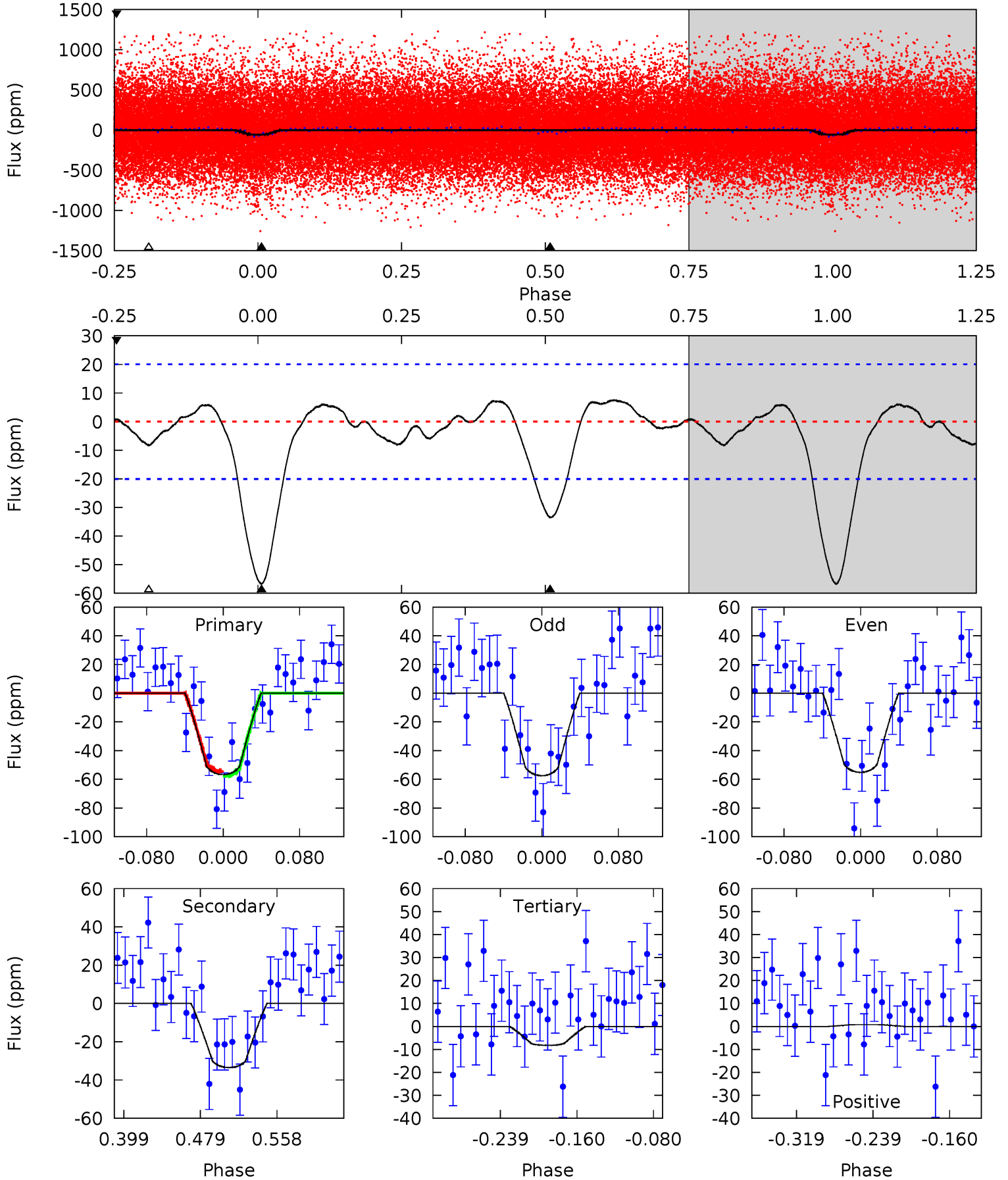
TCE 005952309-01 P= 0.905683 Days  $T_0=132.192012$  (BKJD)



# DV Model-Shift Uniqueness Test

005952309-01, P = 0.905675 Days, E = 131.286784 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
13.0	7.70	1.90	0.18	4.61	1.75	1.01	11.2	12.9	5.81	7.52	0.26	1.07	0.12	0.37

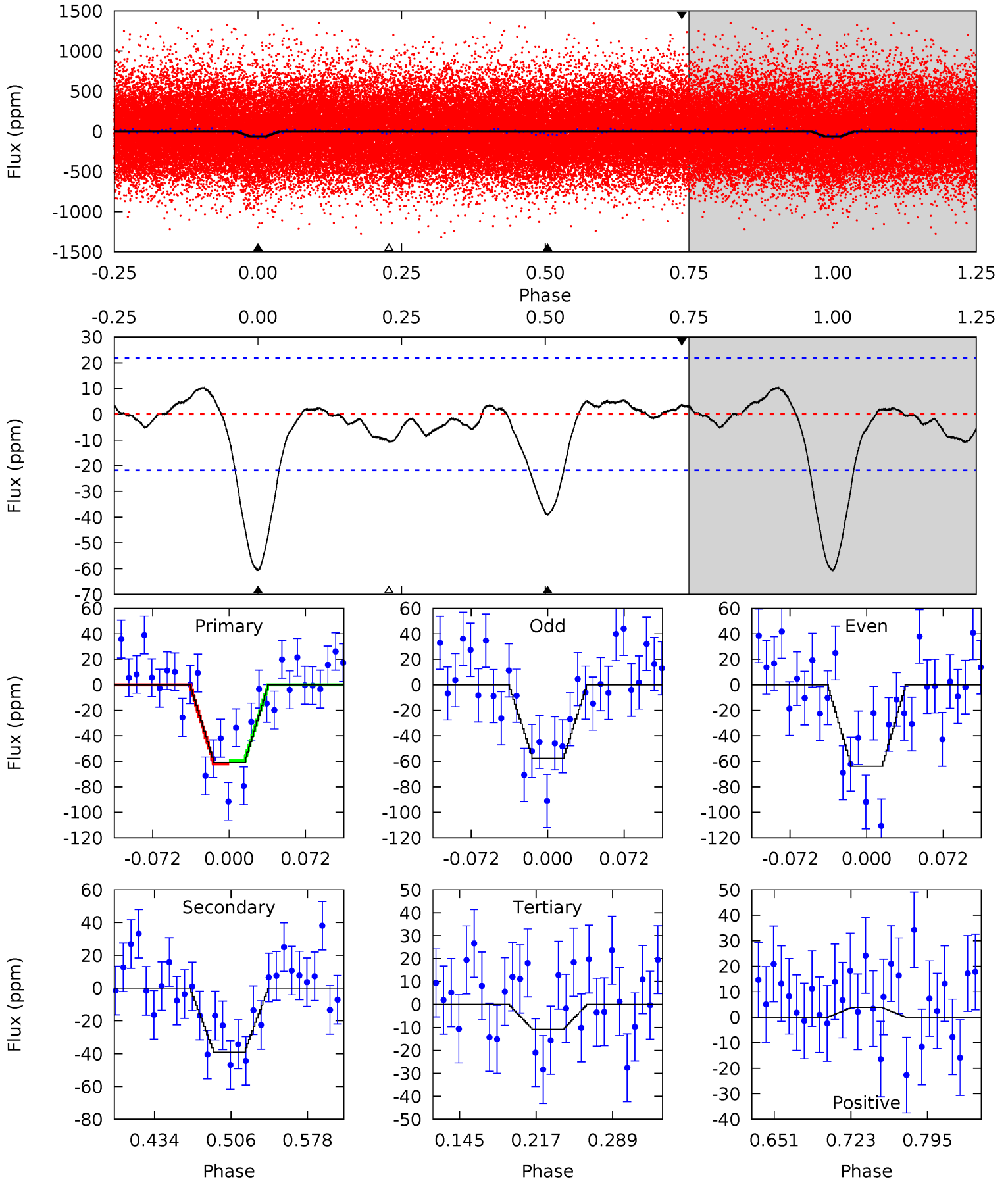




# Alt Model-Shift Uniqueness Test

005952309-01, P = 0.905683 Days, E = 131.286329 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
13.0	8.32	2.31	0.81	4.63	1.80	0.98	10.7	12.2	6.01	7.51	0.69	0.93	0.15	0.29





### Stellar Parameters For KIC 005952309

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6075^{+164}_{-201}$	$4.501^{+0.052}_{-0.208}$	$-0.360^{+0.300}_{-0.300}$	$0.909^{+0.273}_{-0.091}$	$0.957^{+0.118}_{-0.118}$	$1.793^{+0.490}_{-0.924}$
	+3%/-3%	+1%/-5%	+83%/-83%	+30%/-10%	+12%/-12%	+27%/-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 005952309-01 / KOI 6636.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-33 \pm 4$	$0.75^{+0.36}_{-0.33}$	$2712^{+196}_{-133}$	$5408^{+1772}_{-839}$	$11^{+23}_{-6}$
Alt.	$-39 \pm 5$	$0.82^{+0.38}_{-0.34}$	$2713^{+193}_{-125}$	$5395^{+1750}_{-796}$	$10^{+21}_{-5}$

$T_{\text{max}}$  = 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

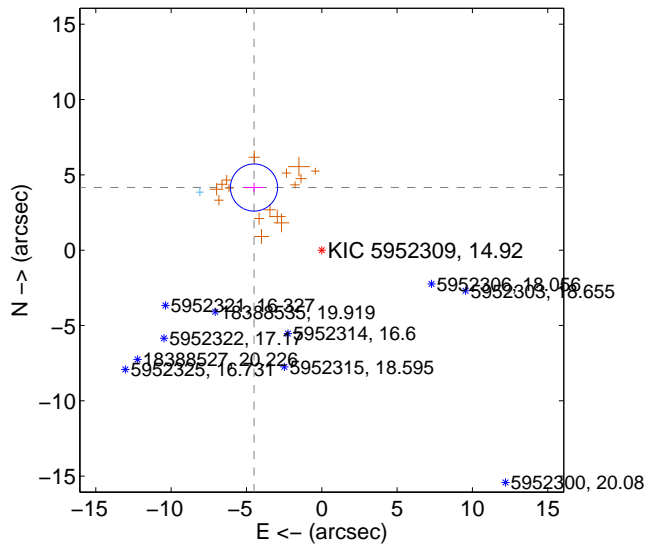
Supplemental centroid analysis for 005952309-01. Kepler magnitude: 14.92. Transit SNR 7.61

There are 1 quarters with good PRF difference image offsets

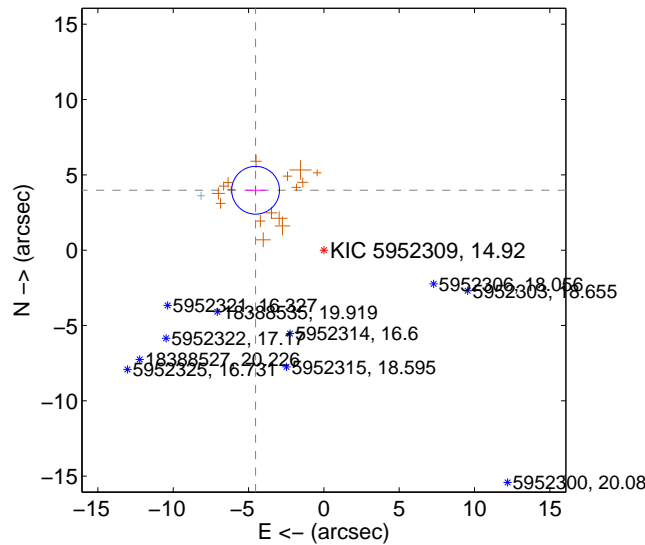
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.126 \pm 0.522$	11.74	$4.498 \pm 0.649$	$4.159 \pm 0.312$
PRF-fit source offset from KIC position	$6.031 \pm 0.529$	11.41	$4.533 \pm 0.648$	$3.978 \pm 0.312$
photometric centroid source offset	$8.21 \pm 1.73$	4.76	$6.48 \pm 1.81$	$5.04 \pm 1.58$

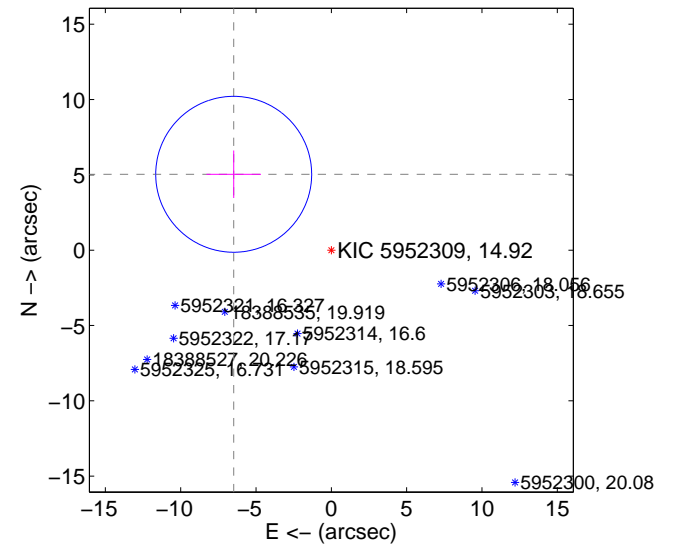
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

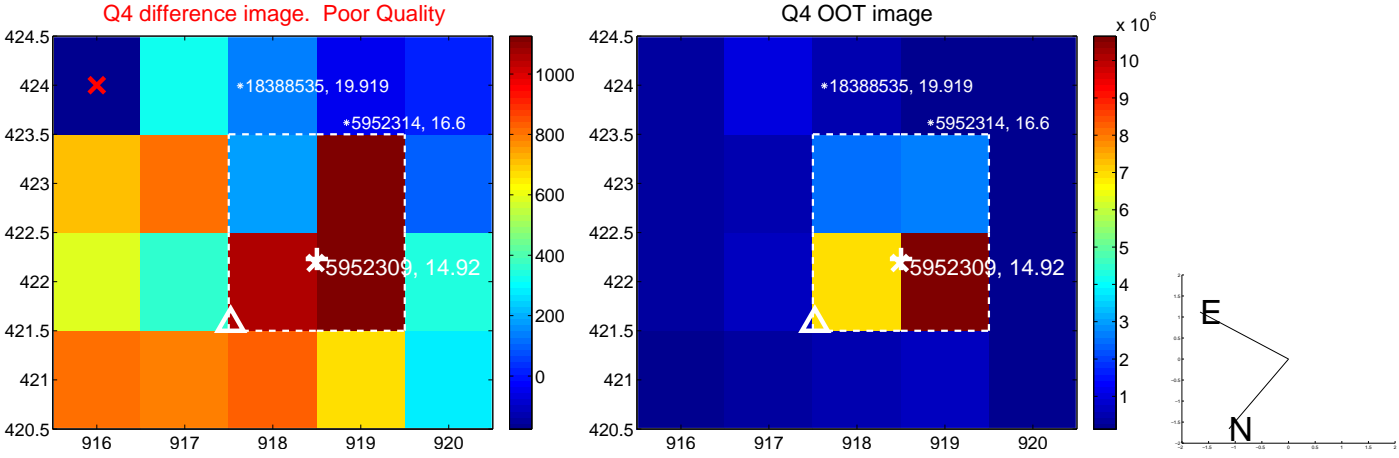
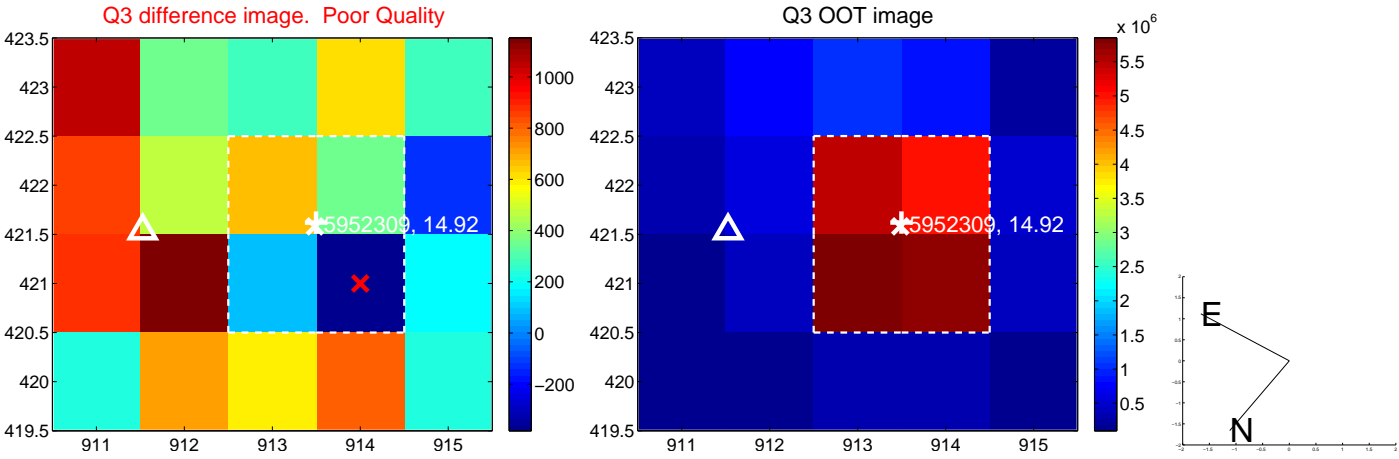
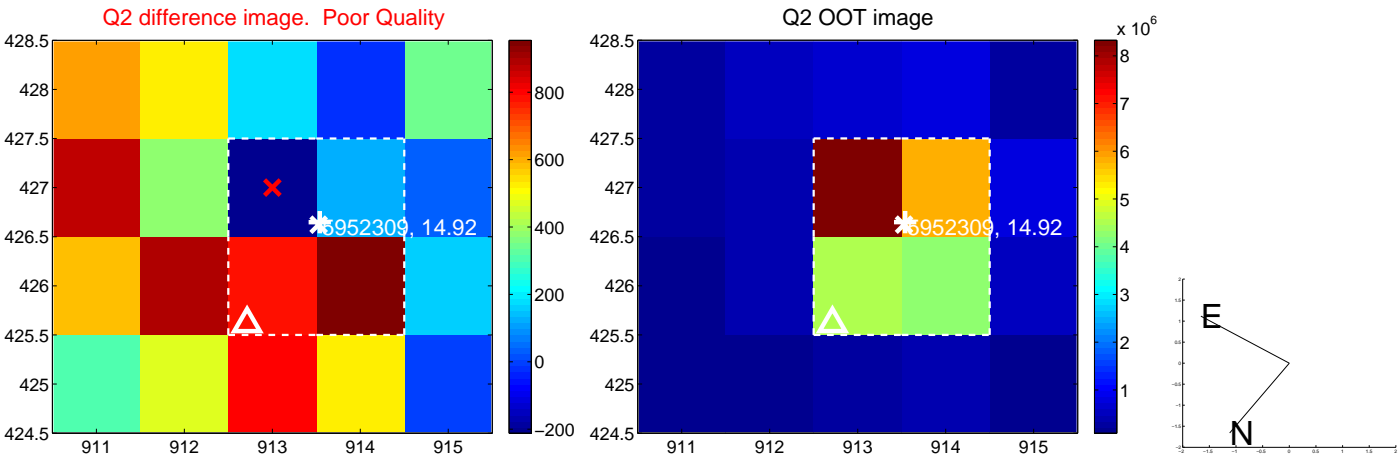
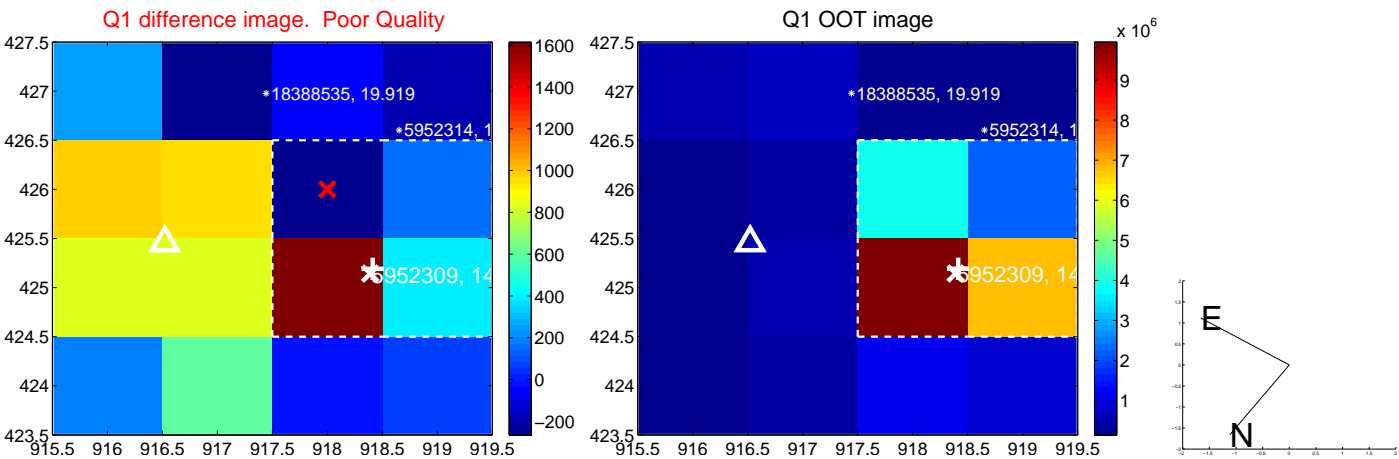


offset from photometric centroids

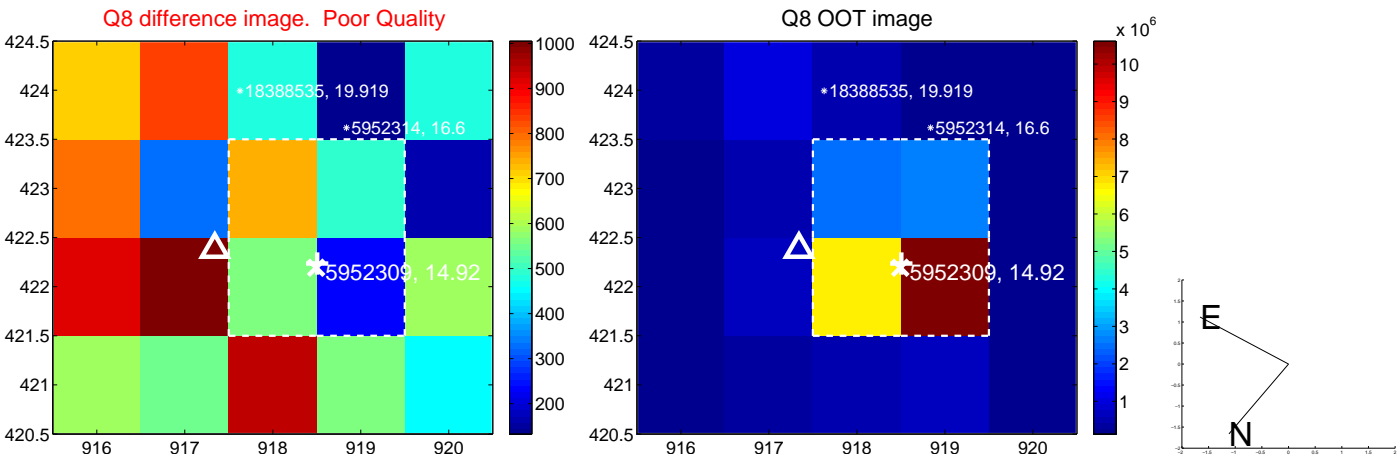
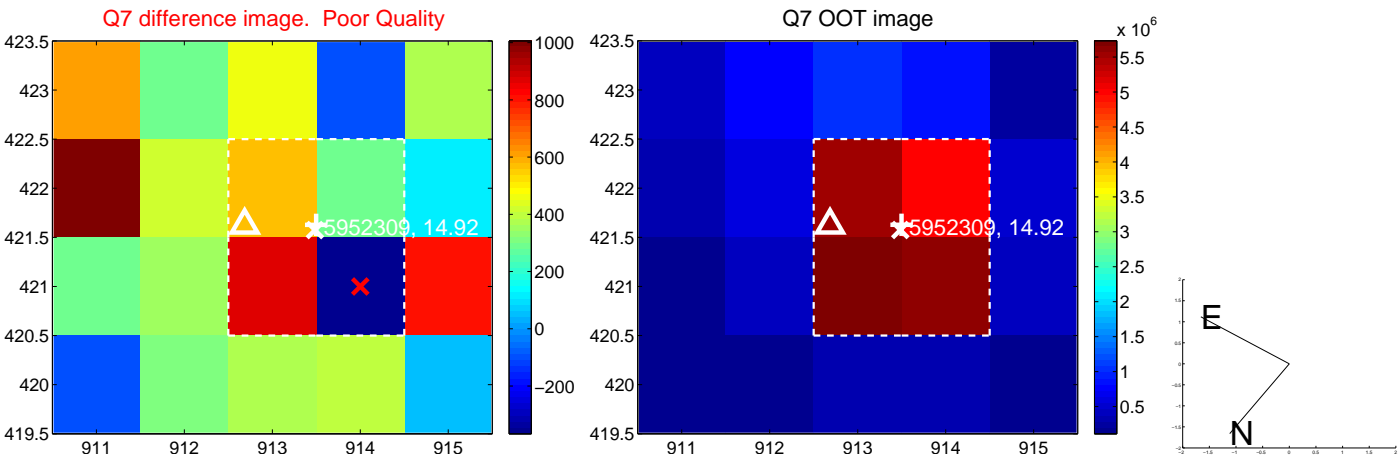
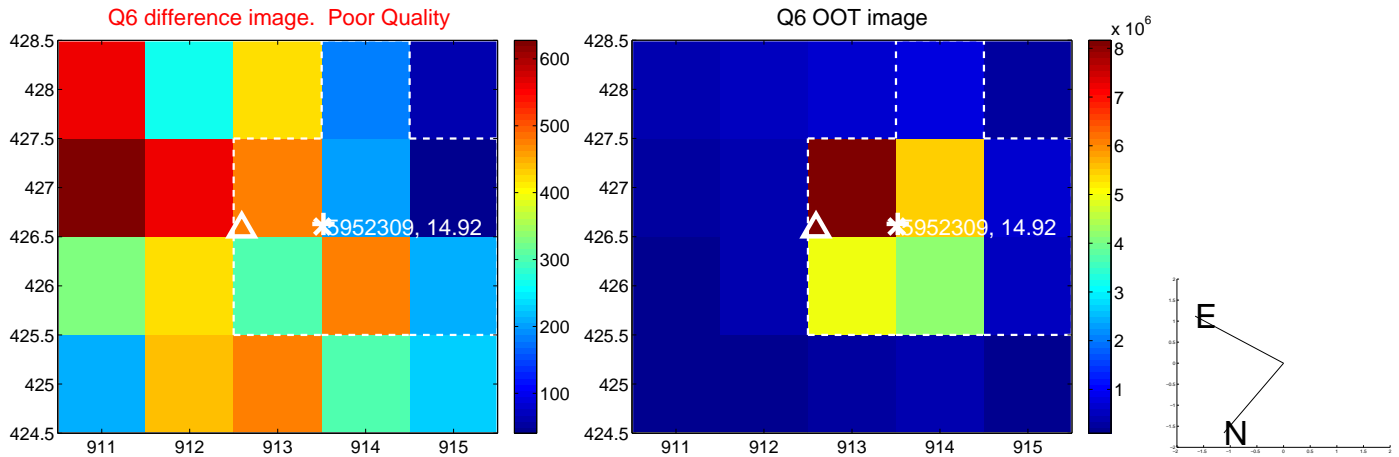
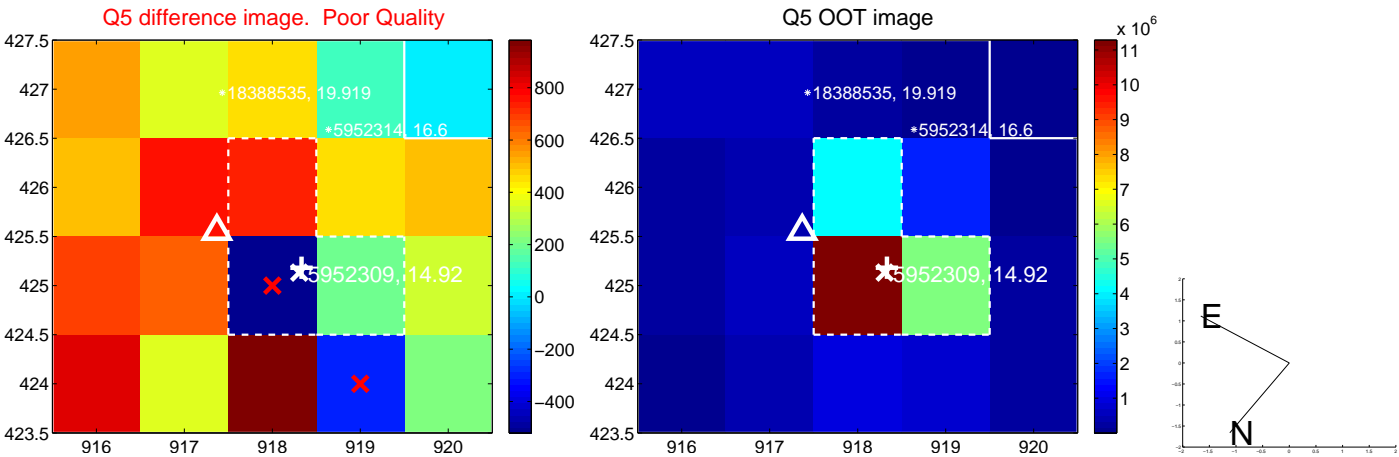


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

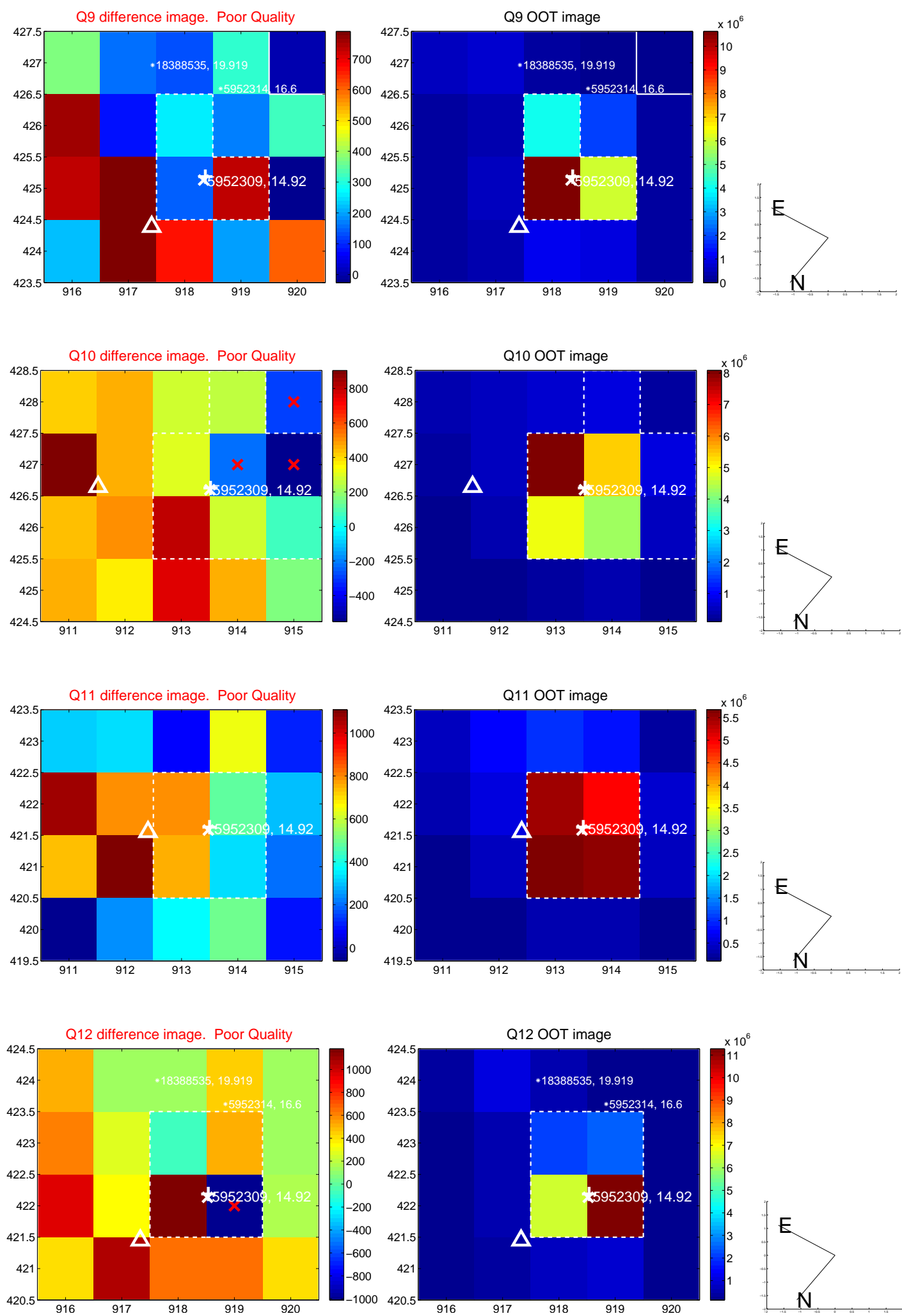


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

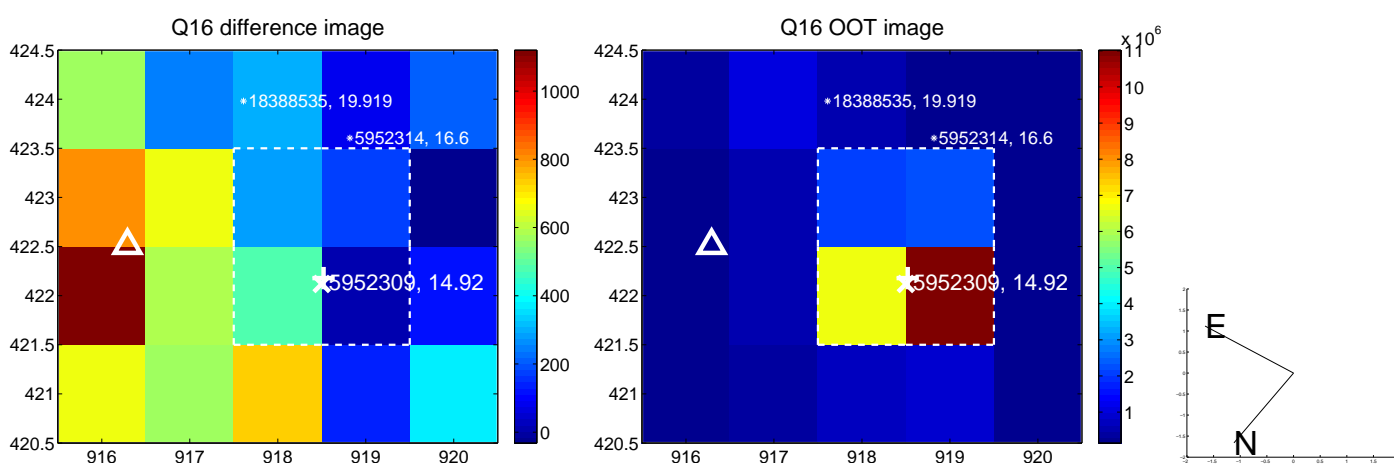
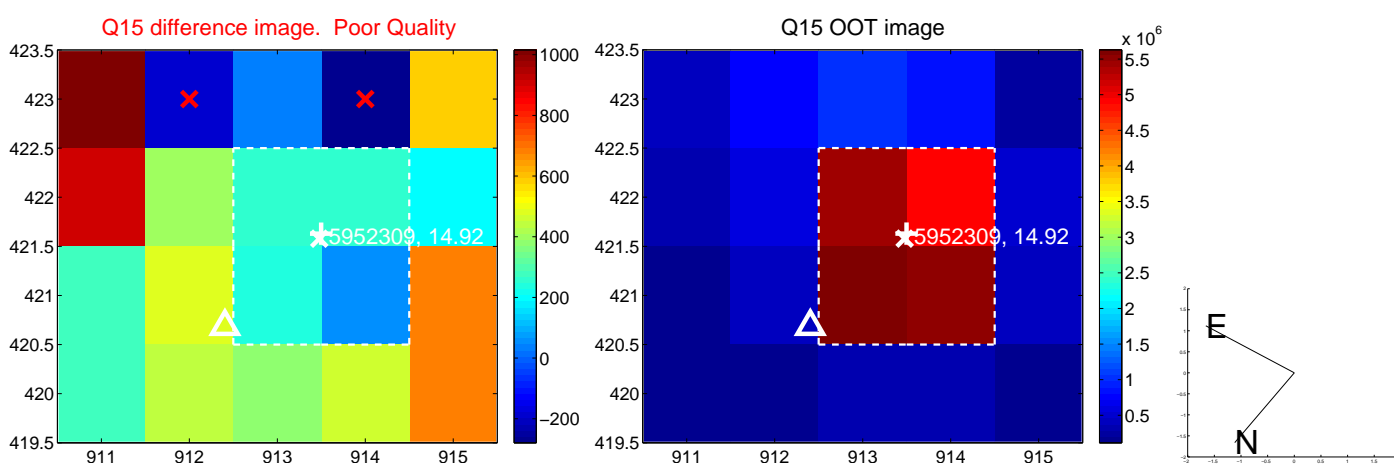
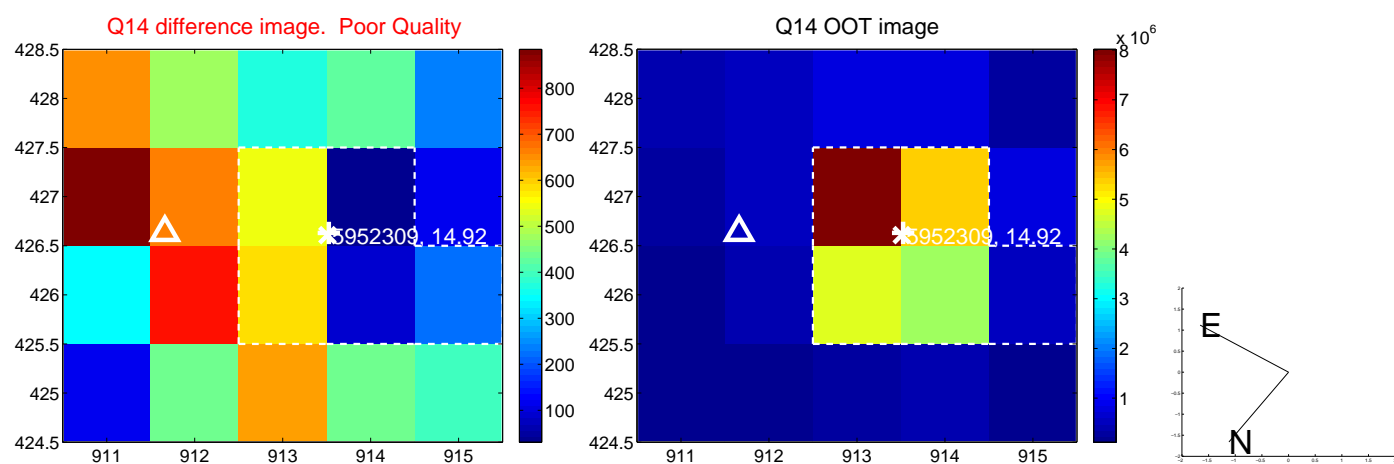
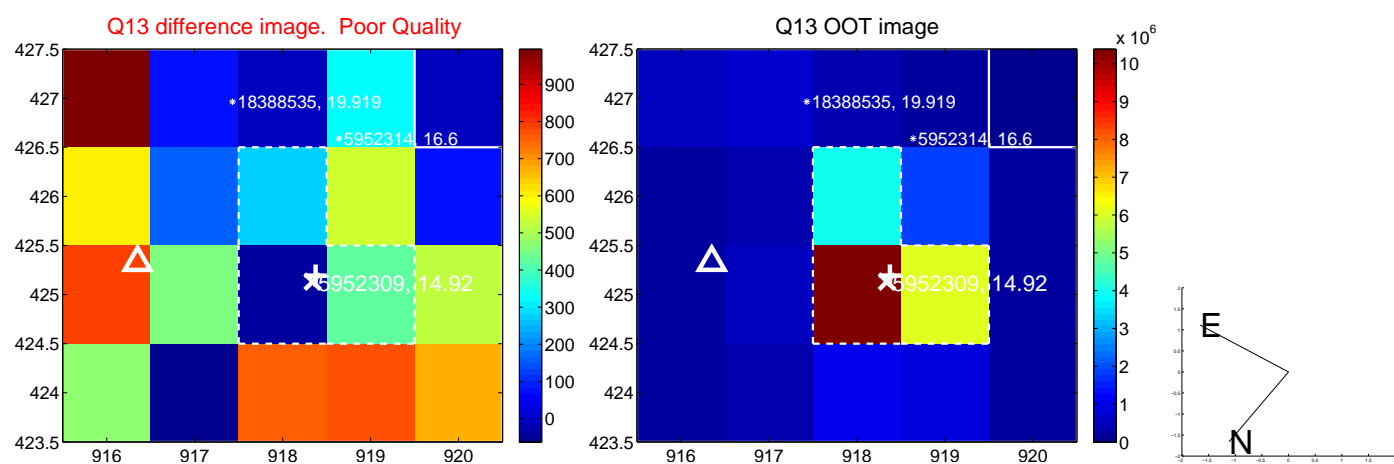




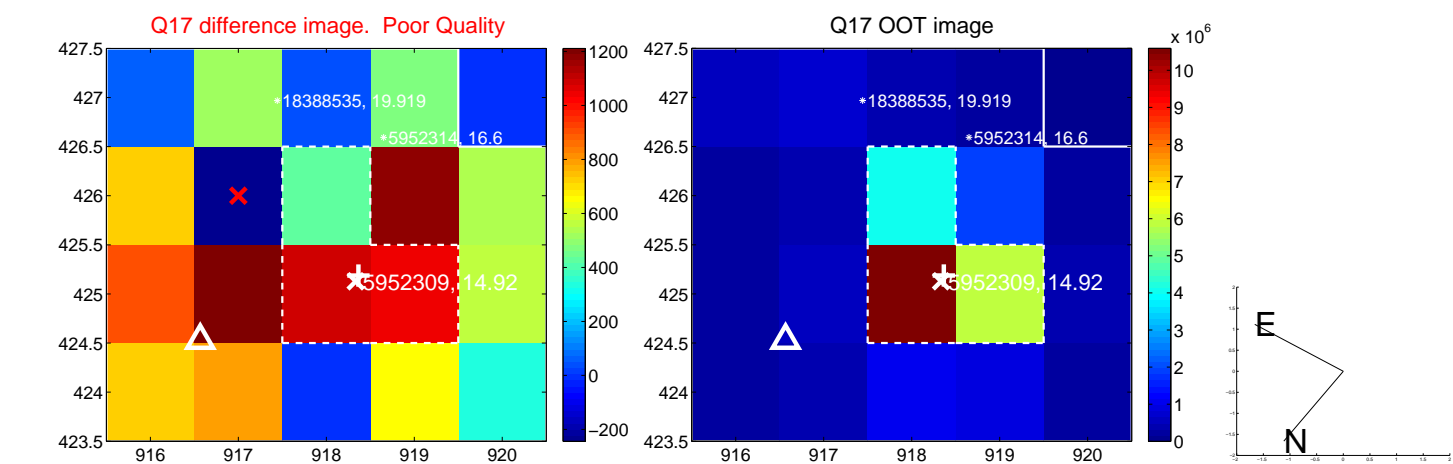
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



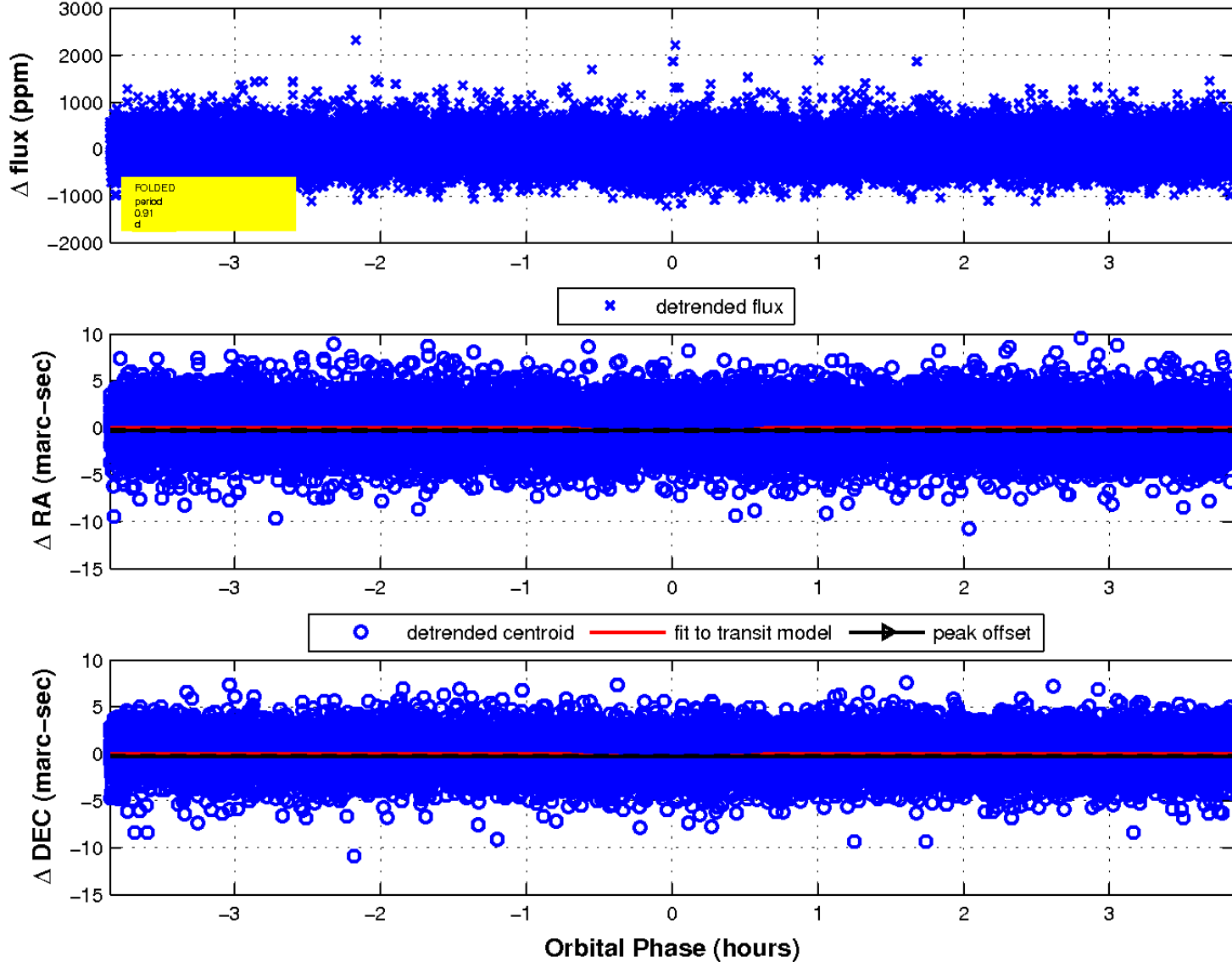
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



# UKIRT Image

Declination

