

# KIC 007110077

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007110077-01	OBS	No	0.971704	131.636666	97.2	11.660	8.8	16.2	0.41	3597	0.53	119.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007110077-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET

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

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

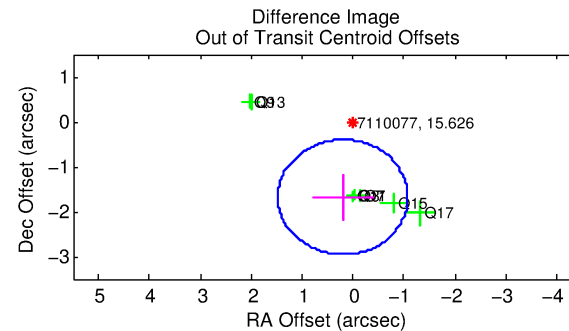
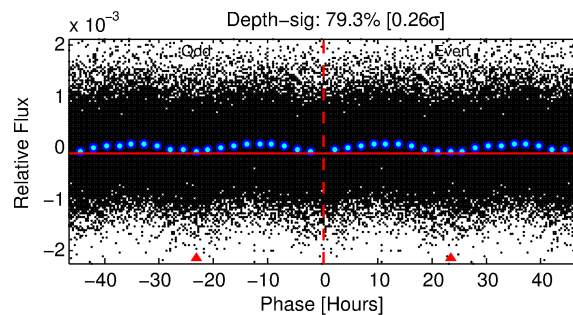
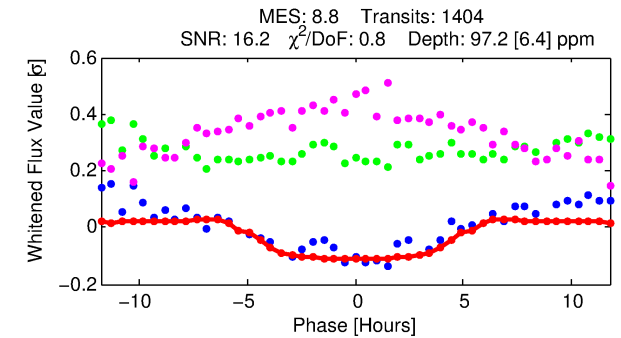
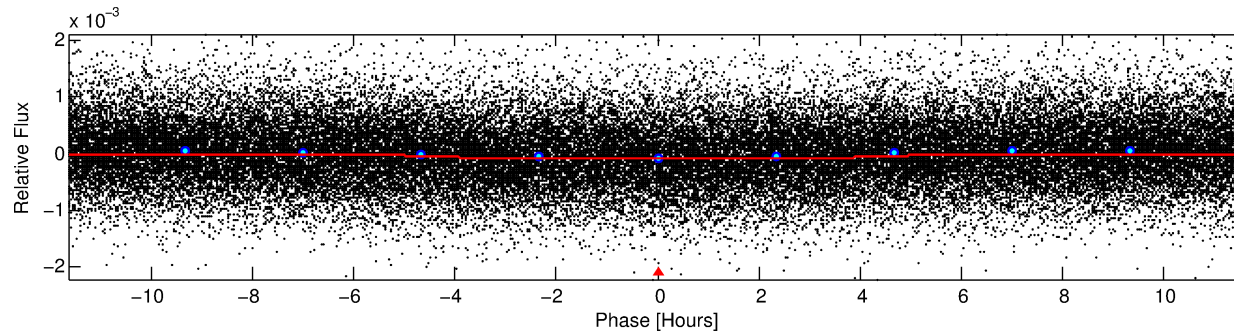
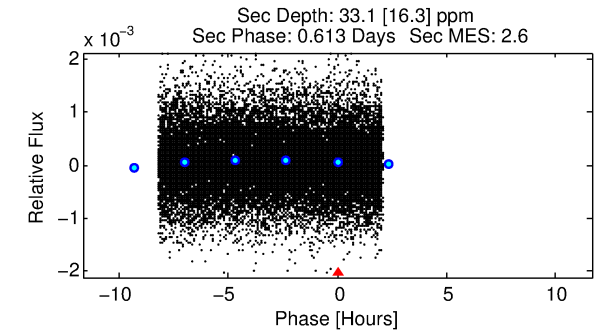
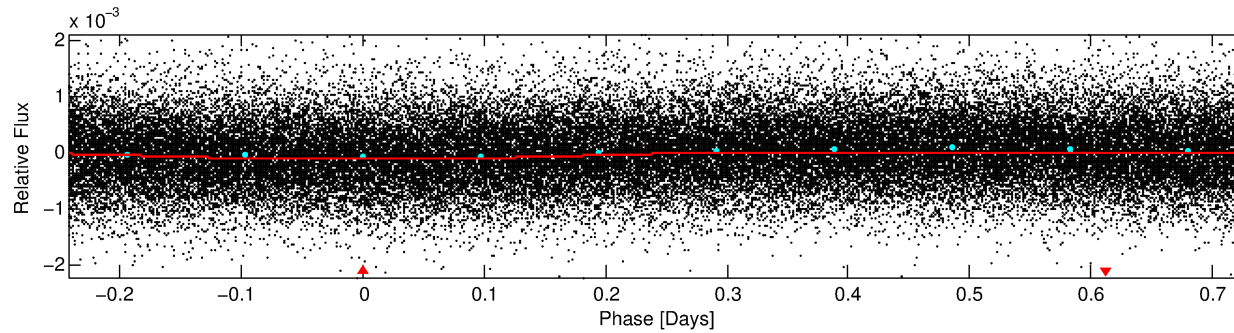
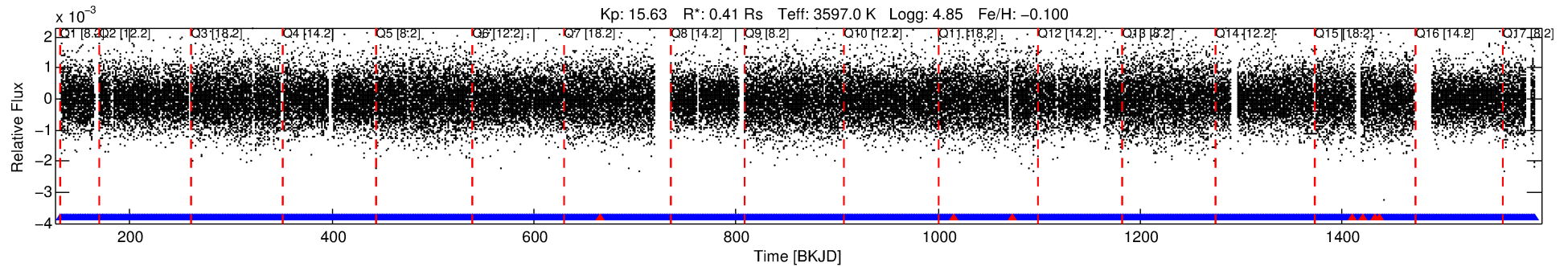
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007110077-01

No Significant Match Found

# DV One-Page Summary

KIC: 7110077 Candidate: 1 of 1 Period: 0.972 d



## DV Fit Results:

Period = 0.97170 [0.00001] d  
Epoch = 131.6367 [0.0080] BKJD  
Rp/R\* = 0.0117 [0.0007]  
a/R\* = 1.00 [0.00]  
b = 0.96 [0.02]  
Seff = 119.63 [10.77]  
Teq = 843 [19] K  
Rp = 0.53 [0.05] Re  
a = 0.0146 [0.0008] AU  
Ag = 13.90 [7.10] [1.82σ]  
Teffp = 2517 [320] K [5.22σ]

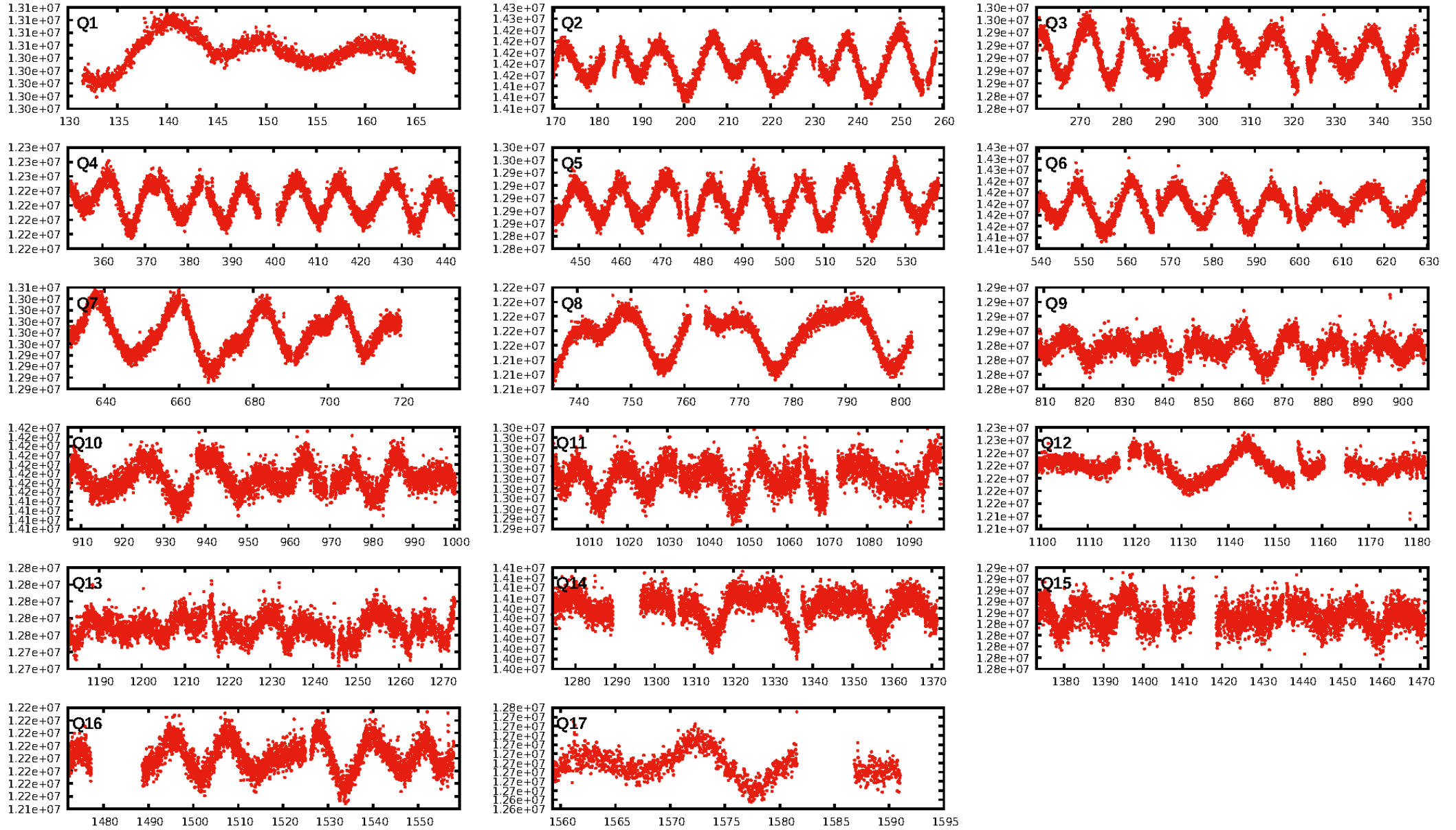
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1332/1340]  
GhostDiagnostic-chr: 1.447  
Centroid-sig: 0.0%  
Centroid-so: 2.316 arcsec [4.06σ]  
OotOffset-rm: 1.691 arcsec [3.97σ]  
KicOffset-rm: 1.815 arcsec [5.64σ]  
OotOffset-st: 0/4/0/3 [7]  
KicOffset-st: 0/4/0/3 [7]  
DiffImageQuality-fgm: 1.00 [7/7]  
DiffImageOverlap-fno: 1.00 [17/17]

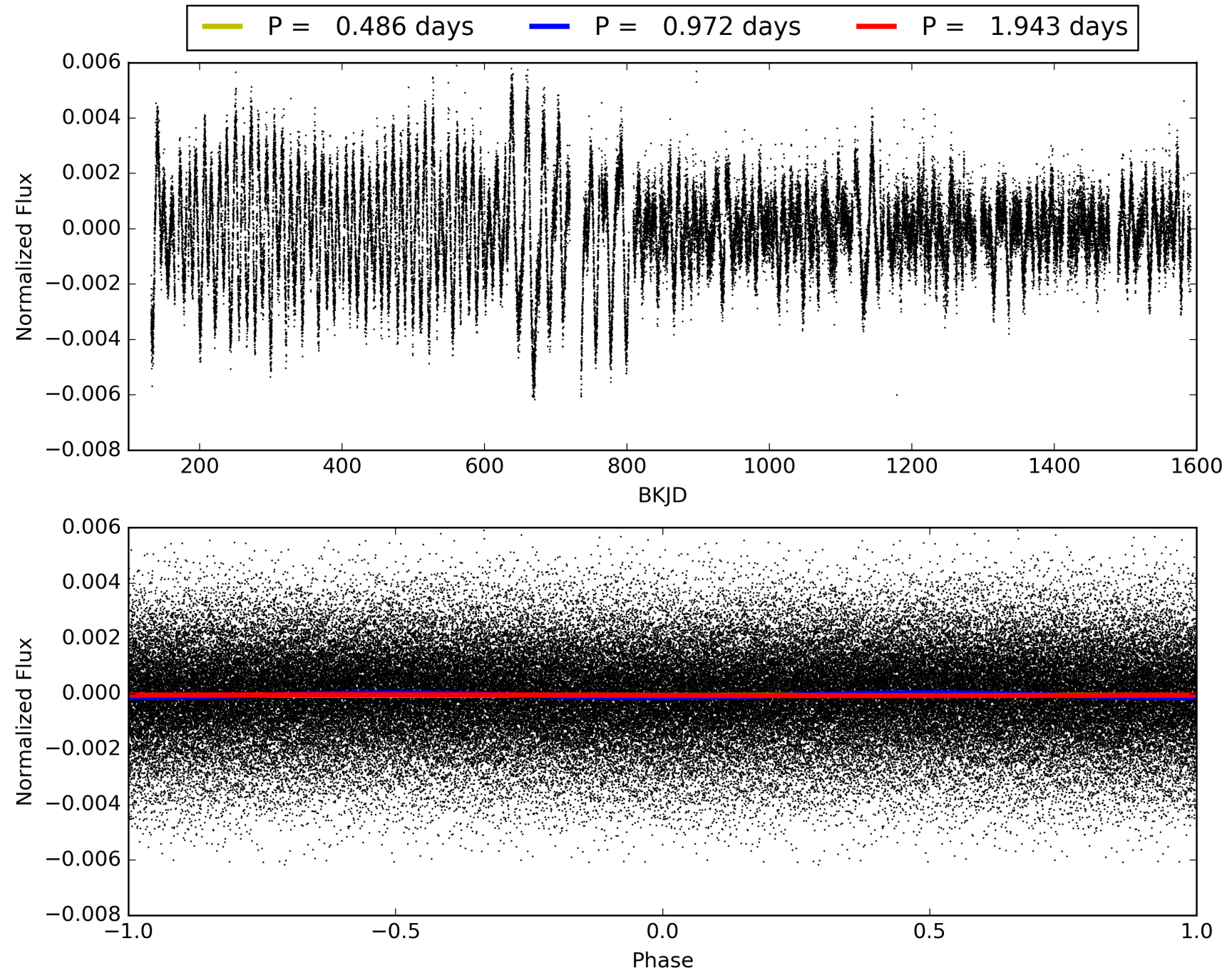
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:21:36 Z

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

# TCE 007110077-01, PDC Light Curves

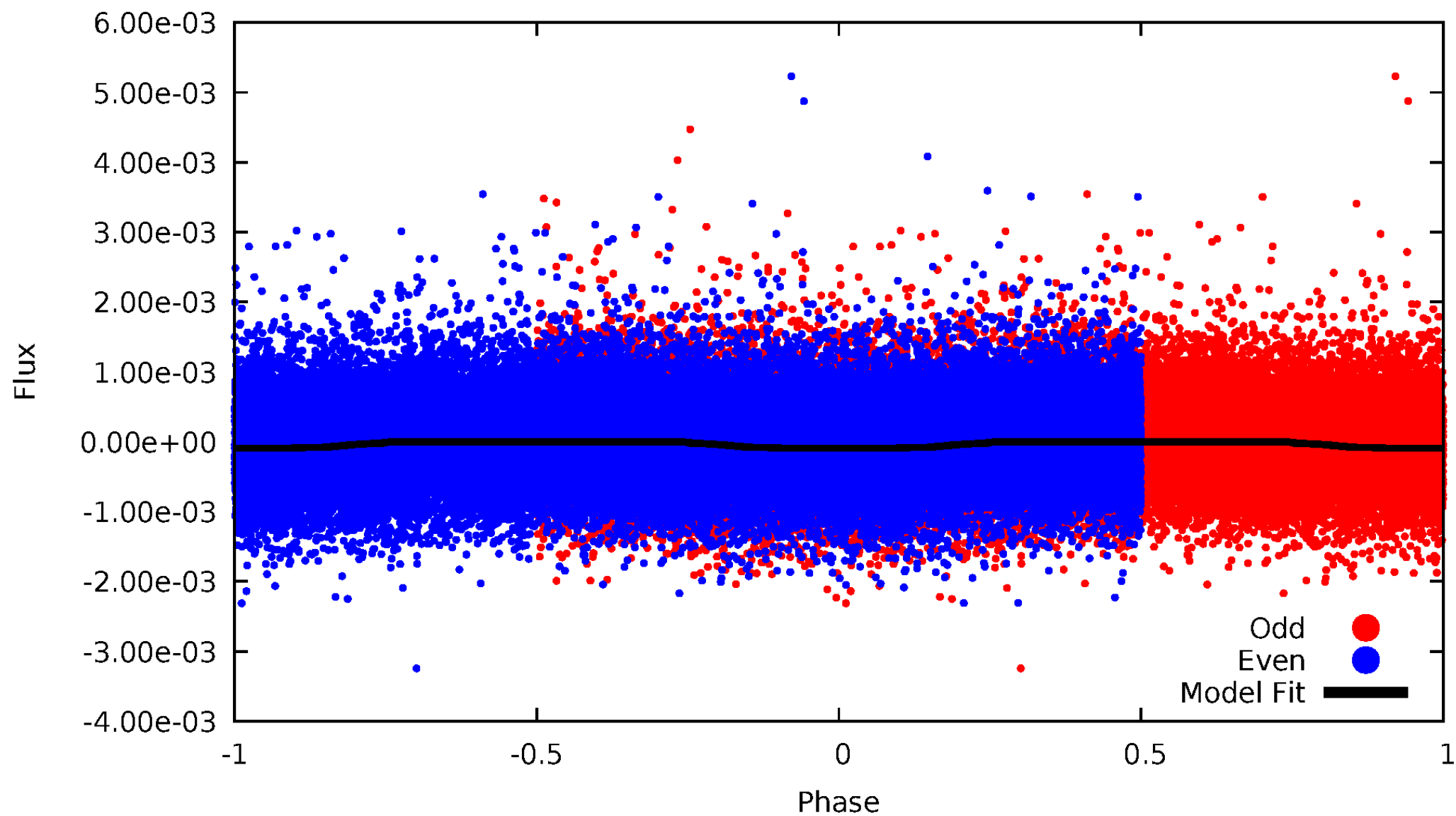


TCE 007110077-01



# DV Odd/Even

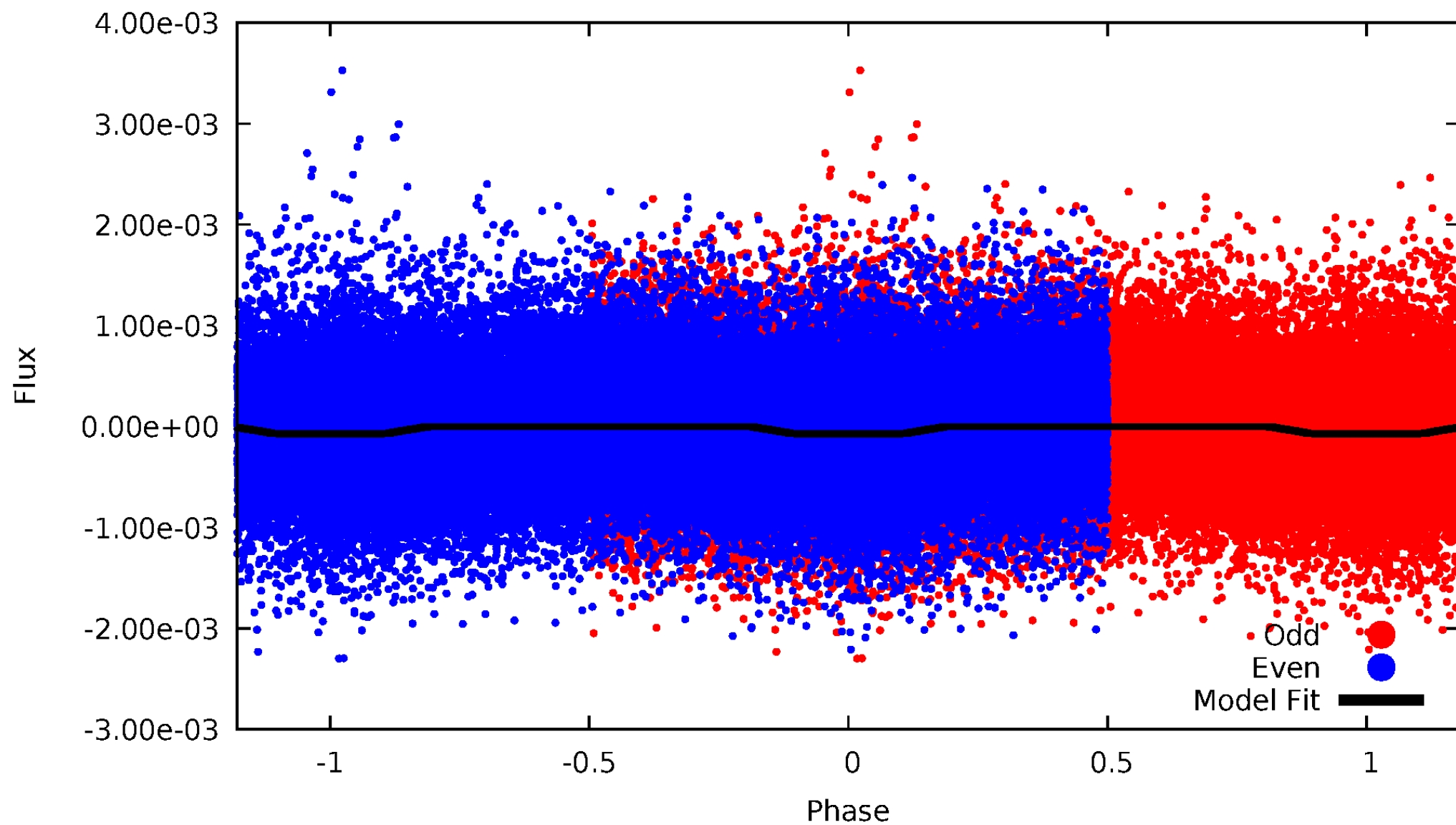
TCE 007110077-01





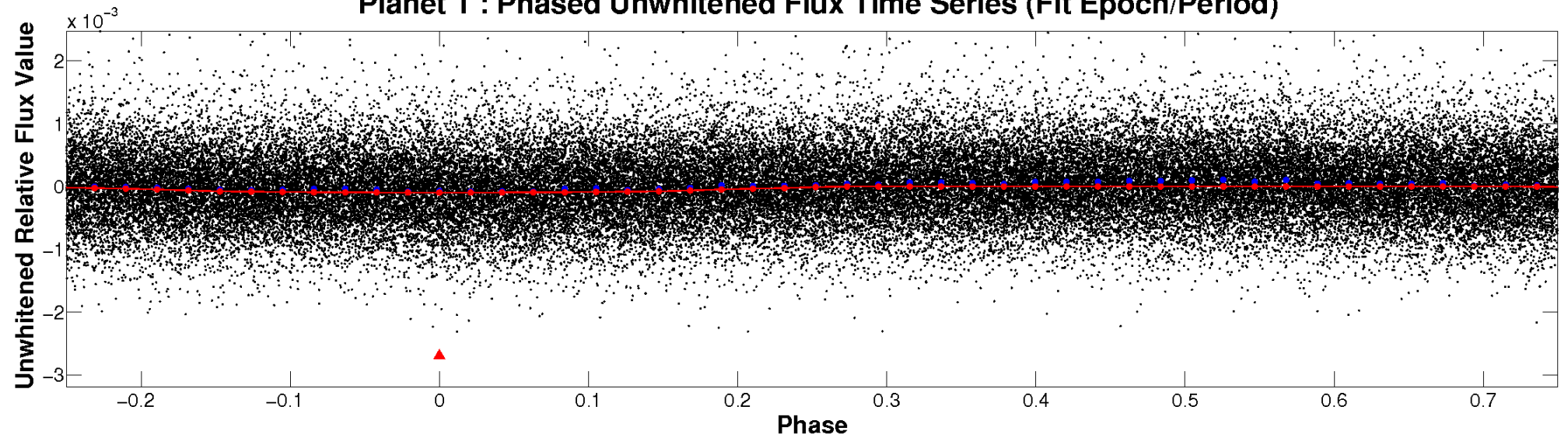
# ALT Odd/Even

TCE 007110077-01

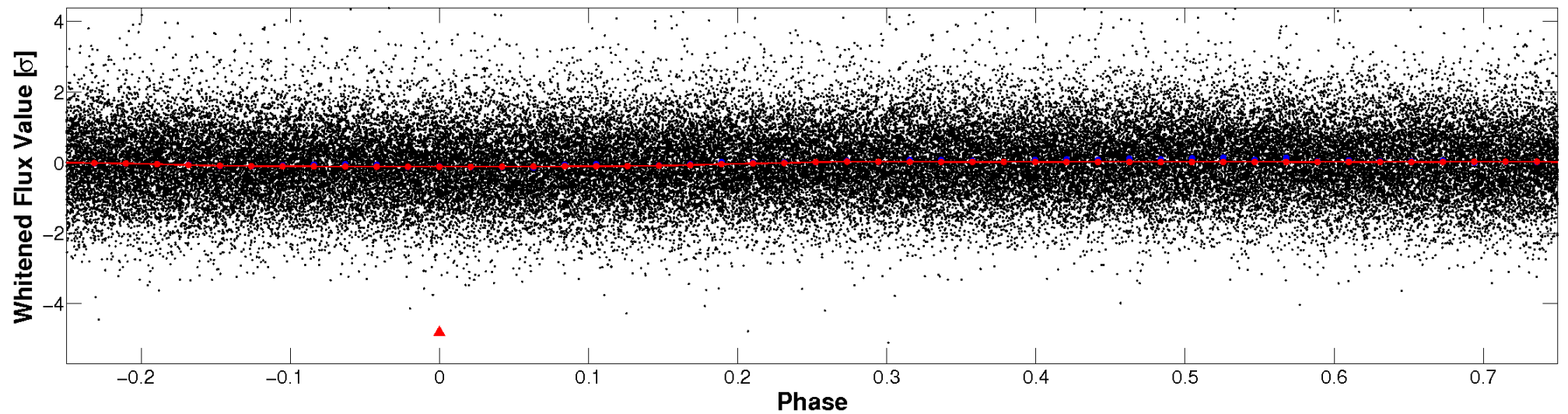


# Non-Whitened Vs. Whitened Light Curve

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

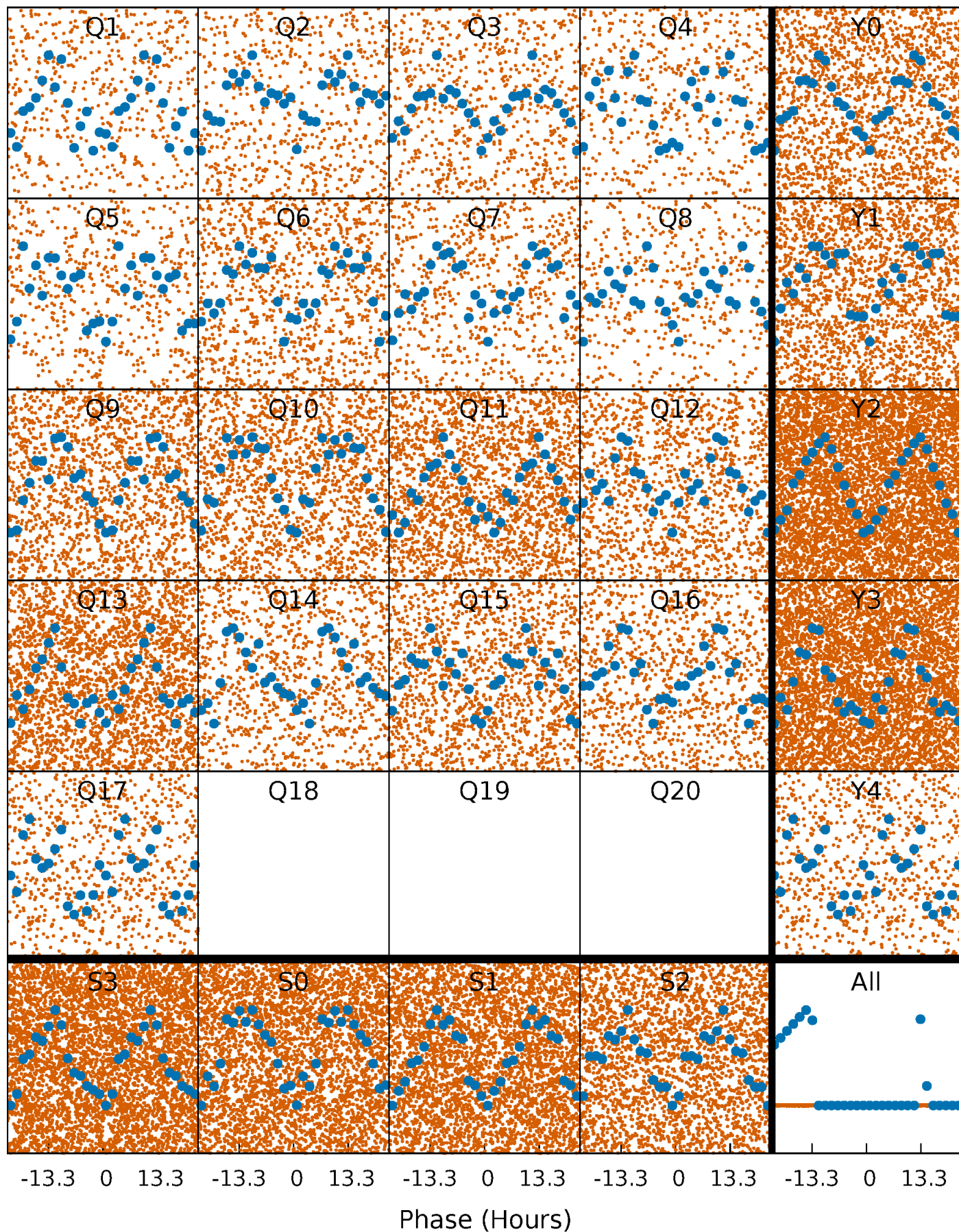


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

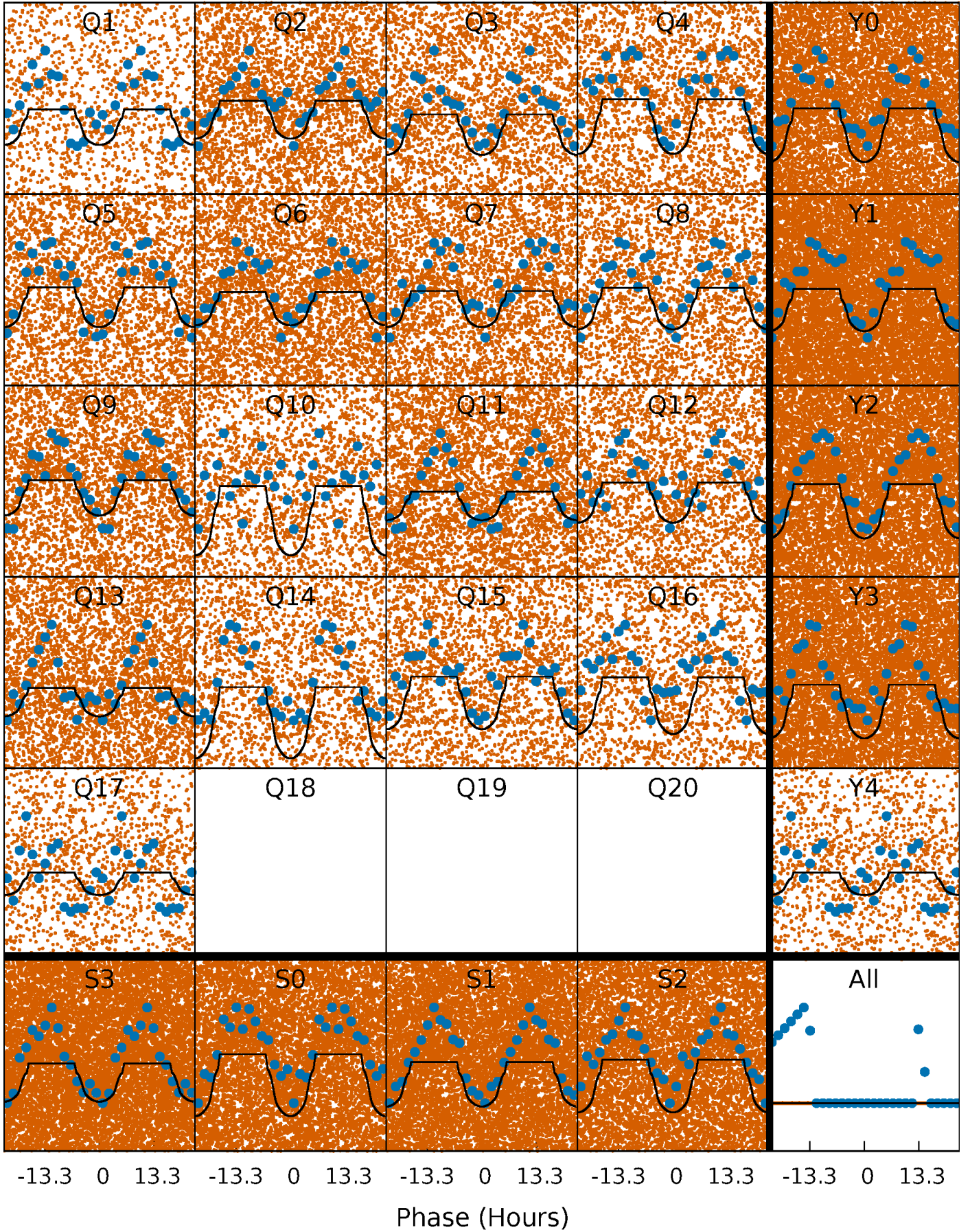
TCE 007110077-01 P= 0.971704 Days  $T_0=131.636666$  (BKJD)





# DV Quarter-Phased Transit Curves

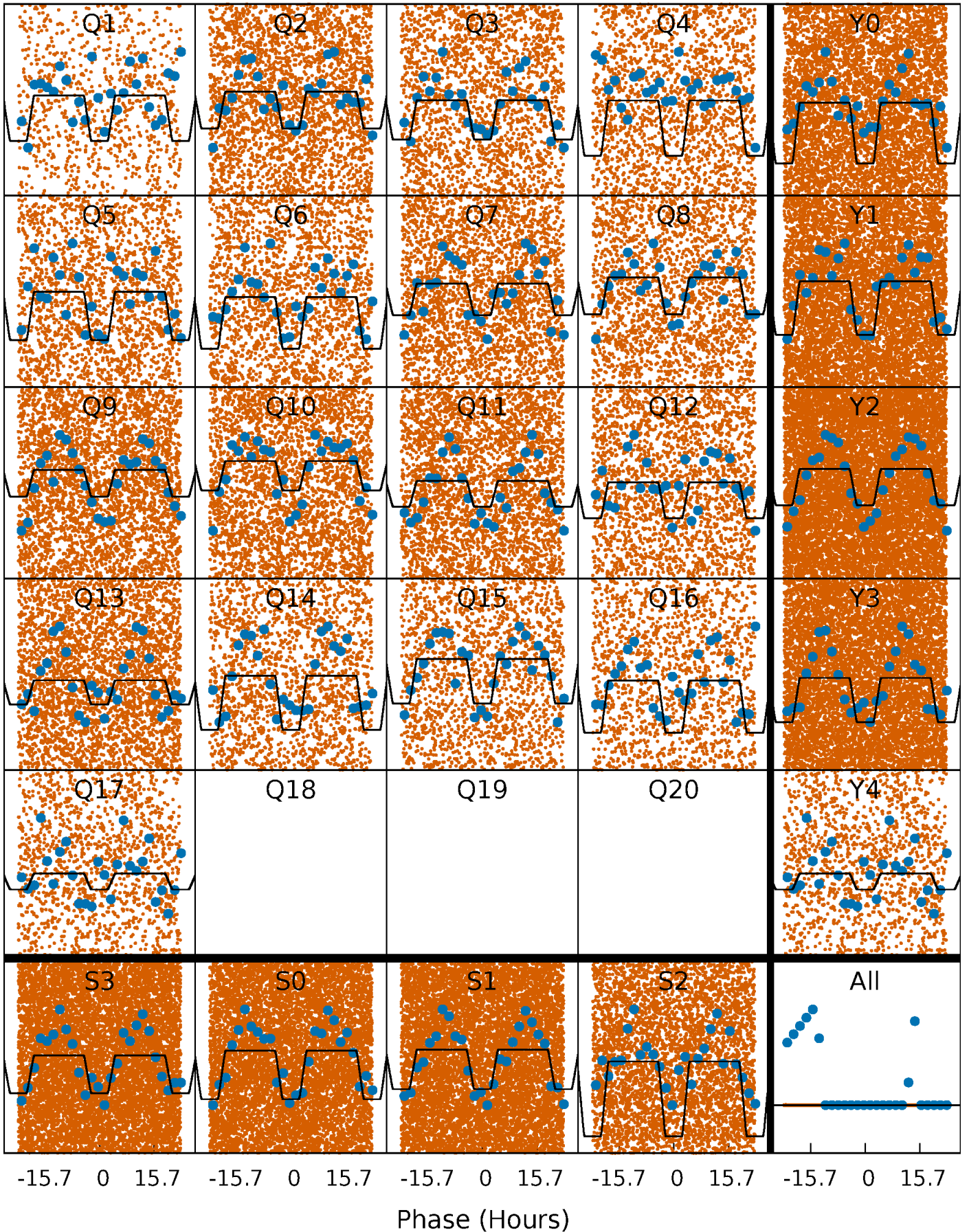
TCE 007110077-01   P= 0.971704 Days    $T_0=131.636666$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

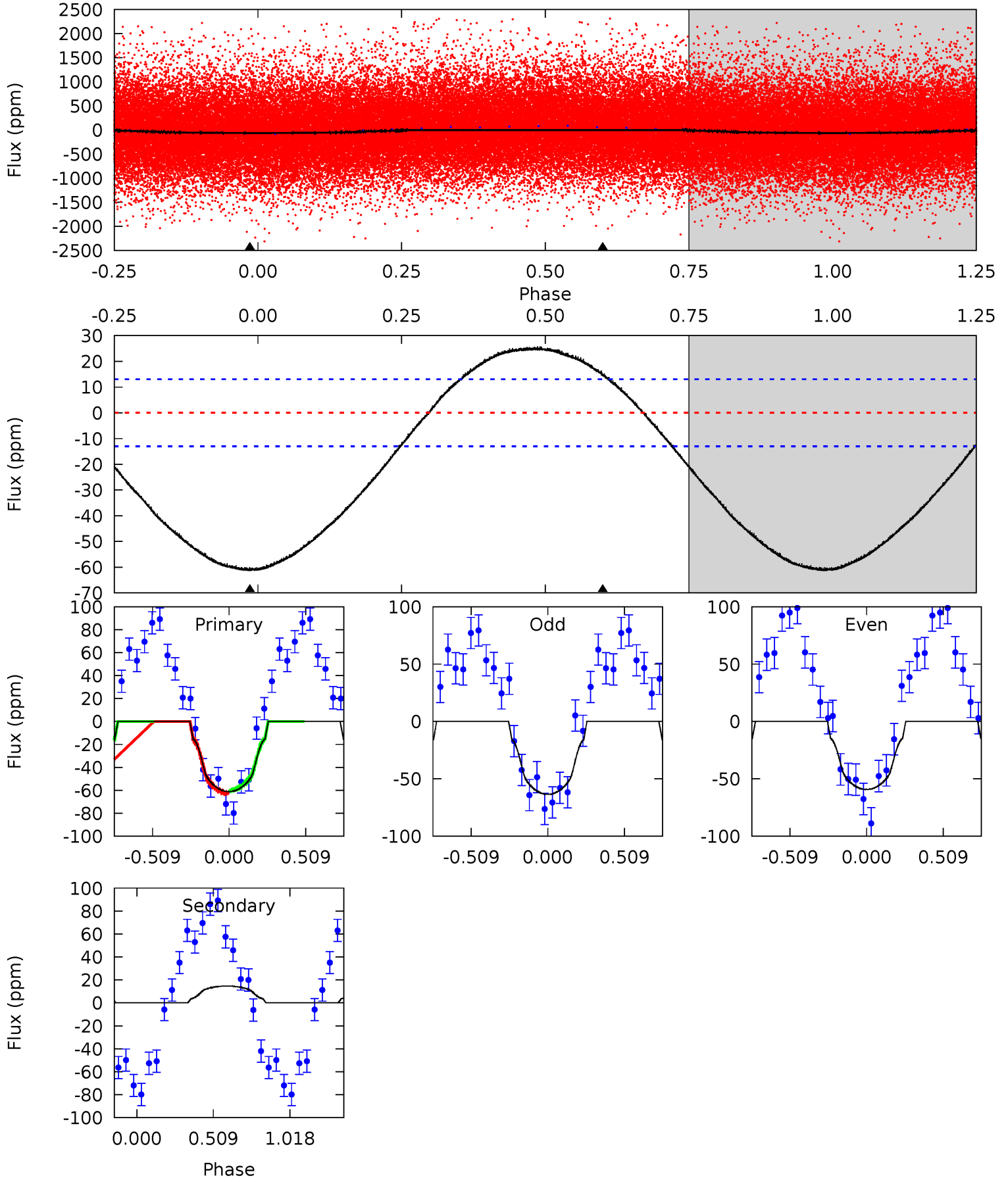
TCE 007110077-01 P= 0.971648 Days  $T_0=131.671147$  (BKJD)



# DV Model-Shift Uniqueness Test

007110077-01, P = 0.971704 Days, E = 130.664962 Days

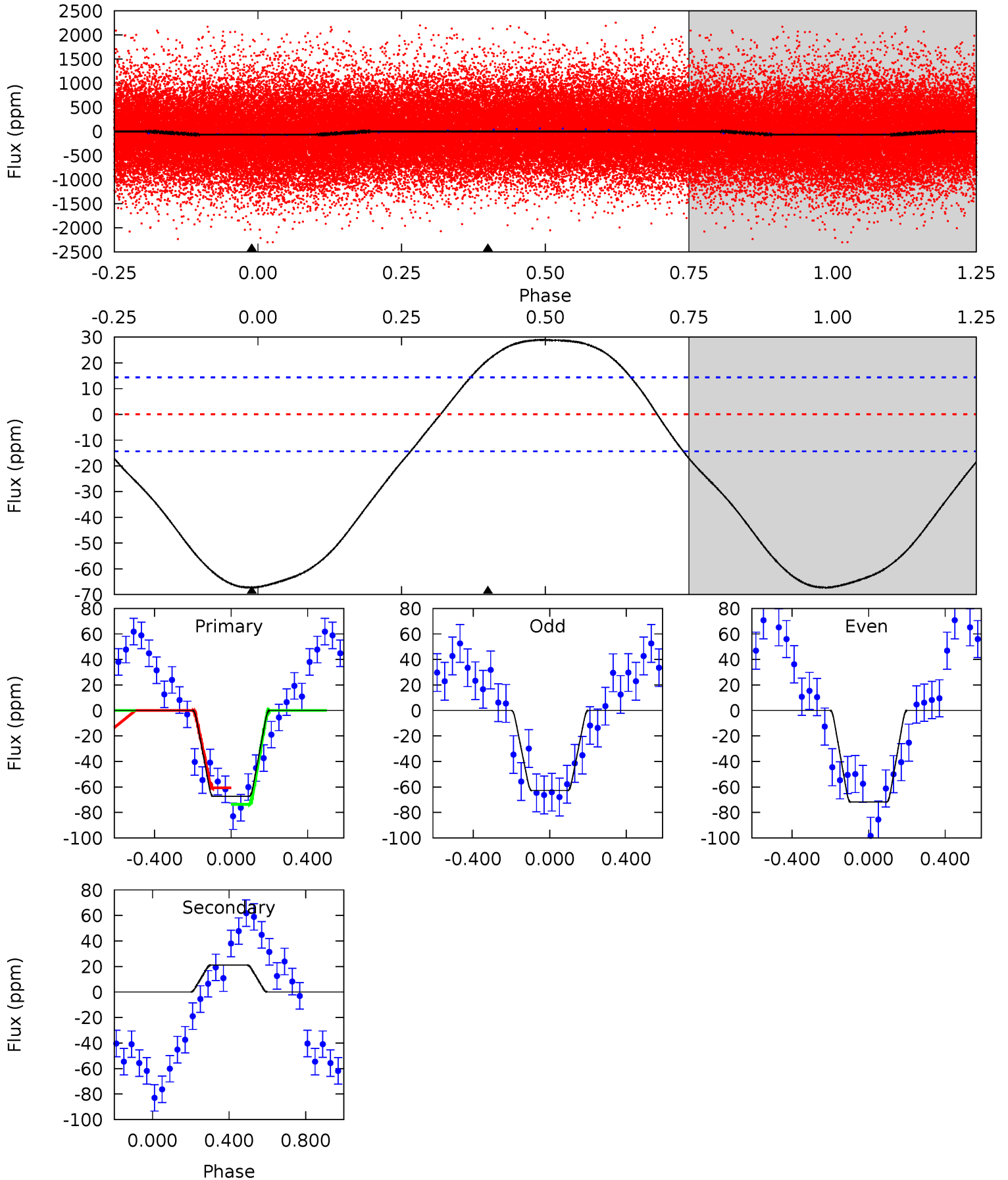
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.7	-4.73	0	0	4.21	0.66	2.50	19.7	19.7	-4.73	-4.73	0.69	1.27	0.30	0.42



# Alt Model-Shift Uniqueness Test

007110077-01, P = 0.971648 Days, E = 130.699499 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
20.0	-6.26	0	0	4.26	0.84	2.78	20.0	20.0	-6.26	-6.26	1.34	0.93	0.30	1.95





### Stellar Parameters For KIC 007110077

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3597^{+43}_{-48}$	$4.849^{+0.030}_{-0.033}$	$-0.100^{+0.100}_{-0.100}$	$0.411^{+0.029}_{-0.032}$	$0.436^{+0.027}_{-0.039}$	$8.847^{+1.430}_{-1.231}$
	+1%/-1%	+1%/-1%	+100%/-100%	+7%/-8%	+6%/-9%	+16%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 007110077-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$15 \pm 3$	$0.53^{+0.04}_{-0.04}$	$1179^{+20}_{-22}$	$-2632^{+89}_{-78}$	$-6.161^{+1.497}_{-1.624}$
Alt.	$21 \pm 3$	$0.38^{+0.03}_{-0.03}$	$1179^{+22}_{-21}$	$-2985^{+103}_{-112}$	$-16.468^{+3.660}_{-4.637}$

$T_{\text{max}}$  = 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

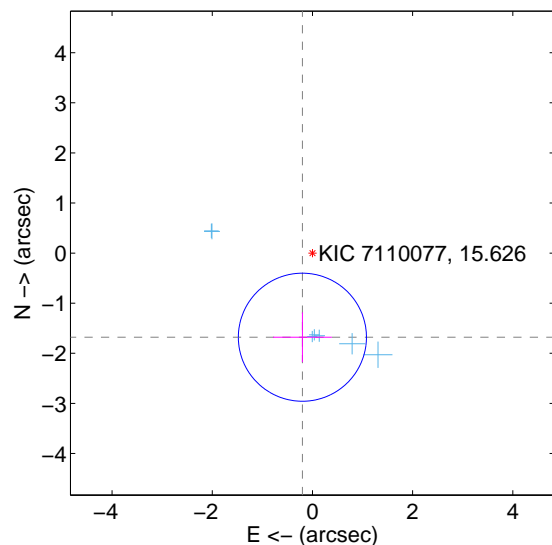
Supplemental centroid analysis for 007110077-01. Kepler magnitude: 15.63. Transit SNR 16.21

There are 7 quarters with good PRF difference image offsets

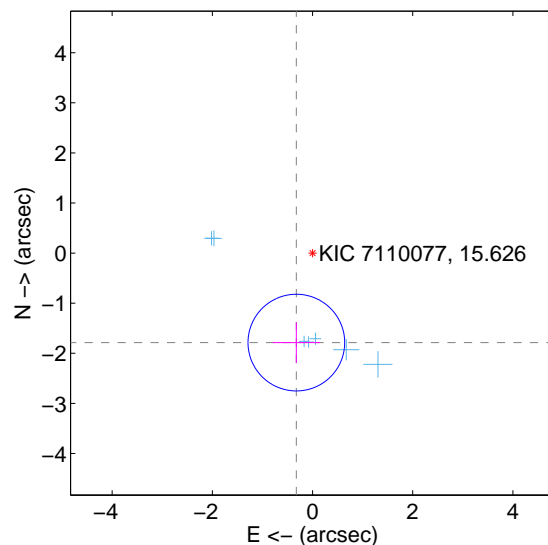
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.691 \pm 0.426$	$3.97$	$0.200 \pm 0.587$	$-1.679 \pm 0.496$
PRF-fit source offset from KIC position	$1.815 \pm 0.322$	$5.64$	$0.323 \pm 0.469$	$-1.786 \pm 0.406$
photometric centroid source offset	$2.32 \pm 0.57$	$4.06$	$1.83 \pm 0.55$	$1.43 \pm 0.60$

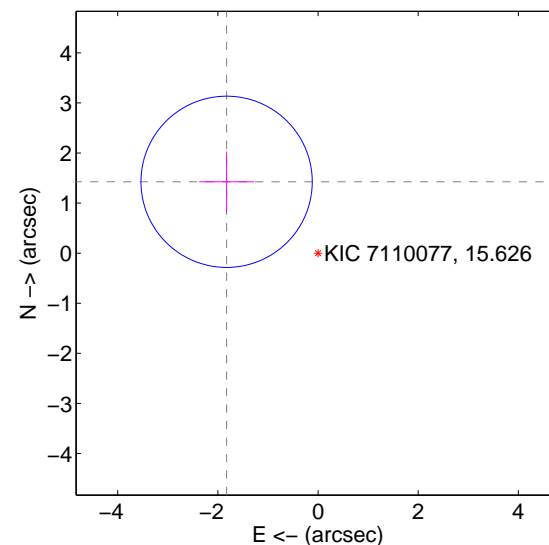
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

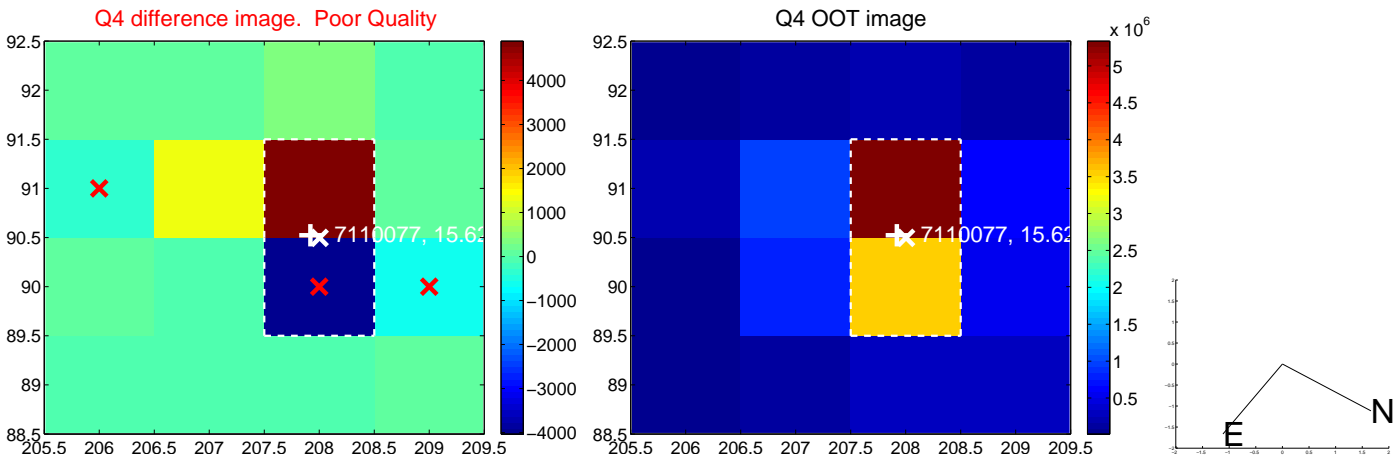
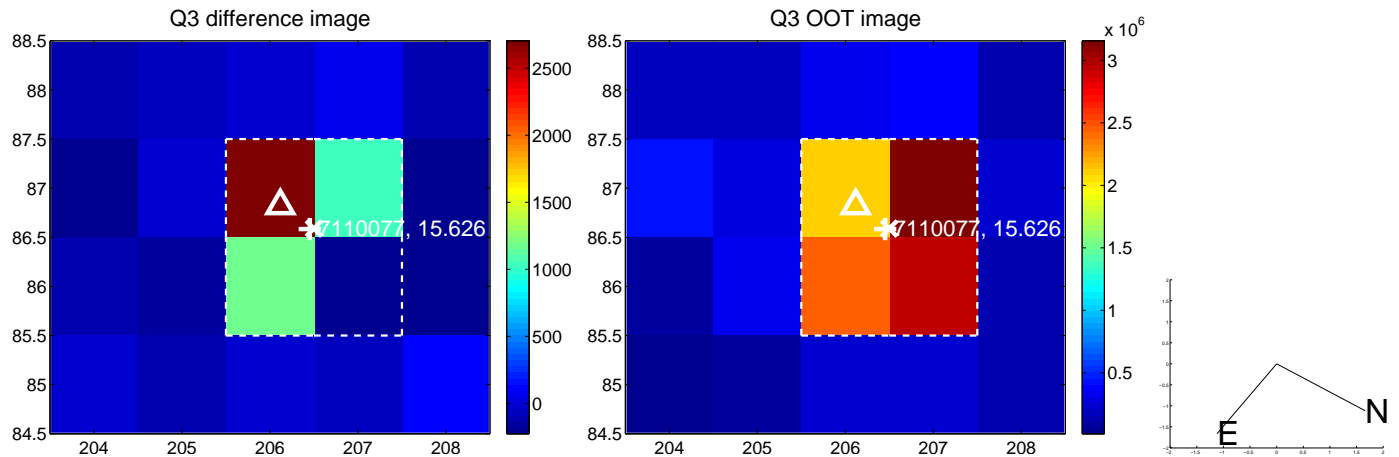
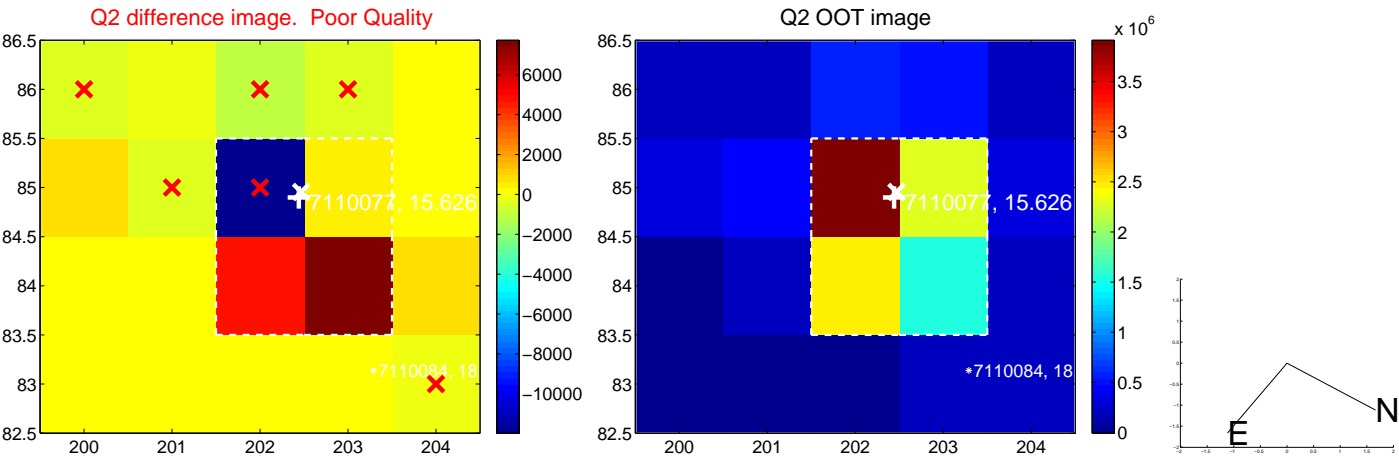
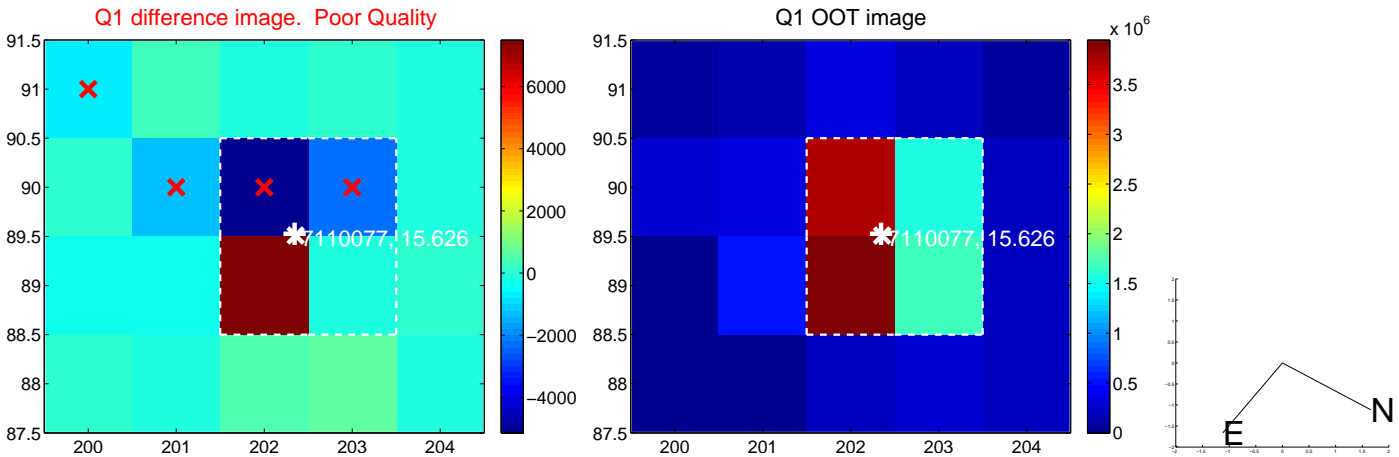


offset from photometric centroids

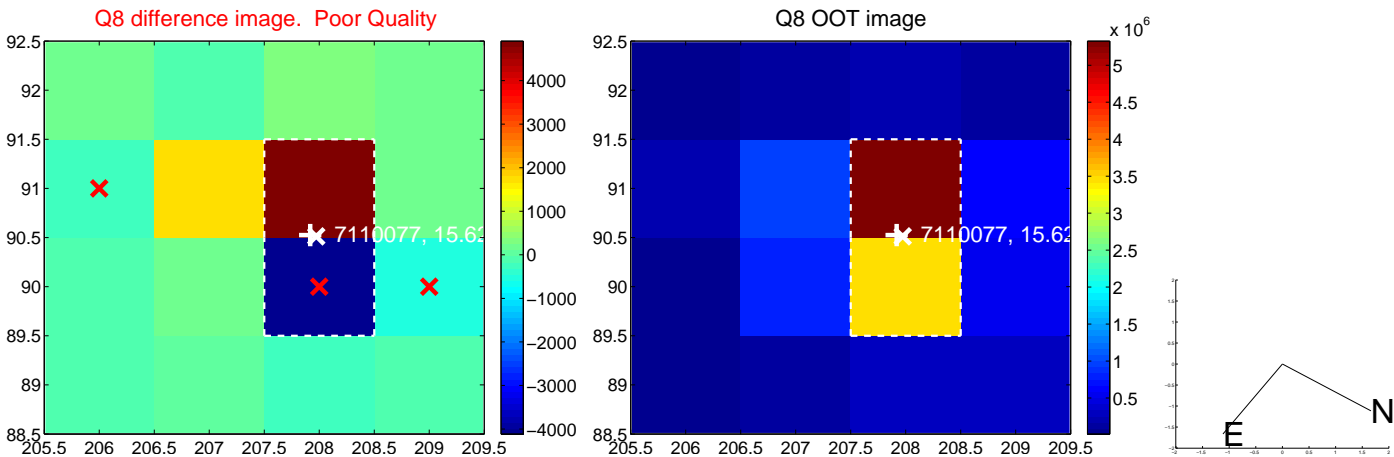
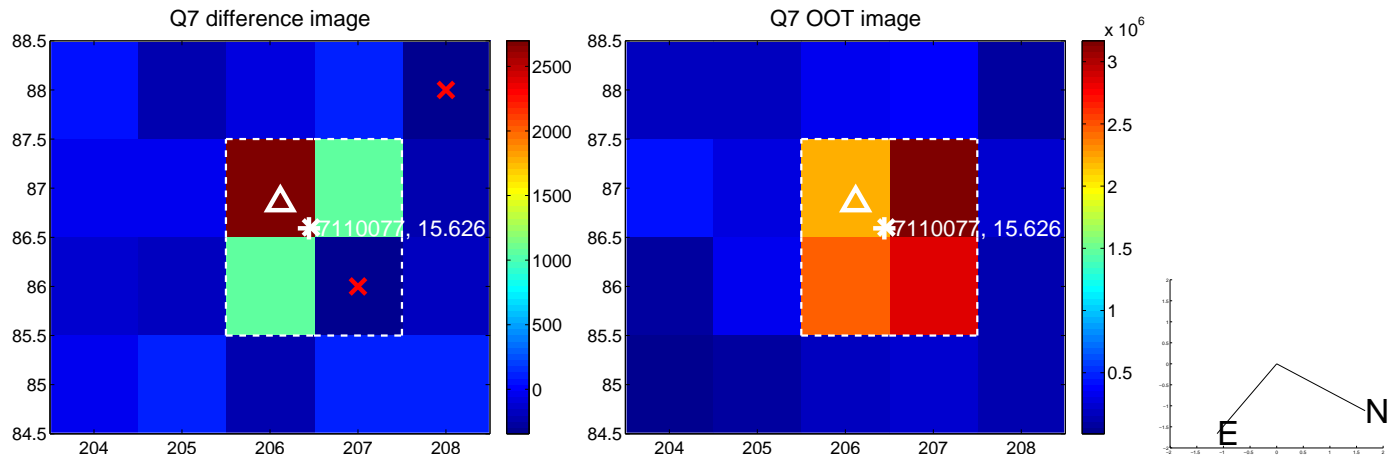
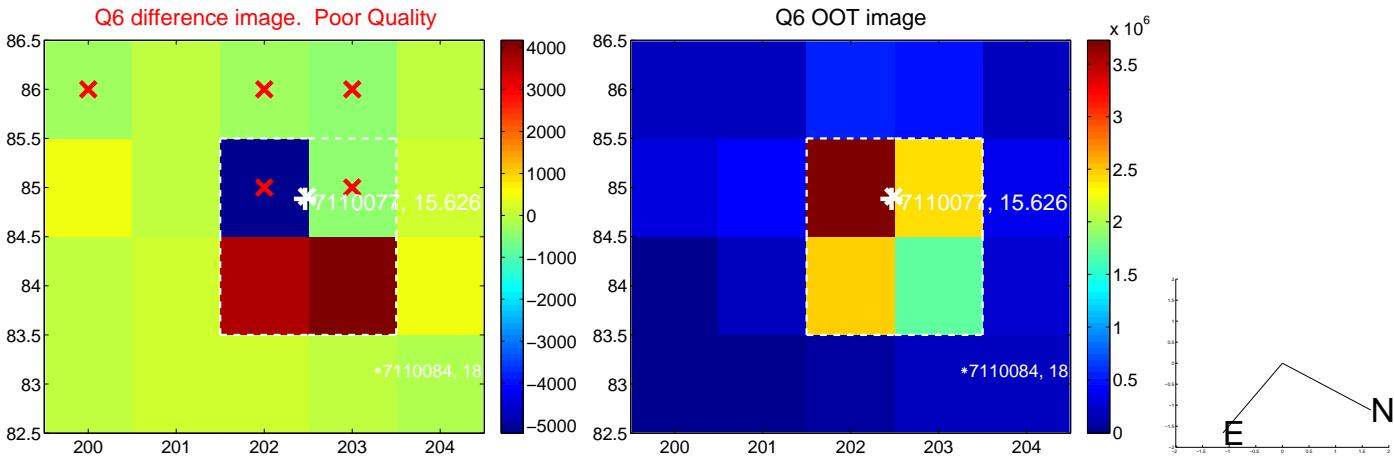
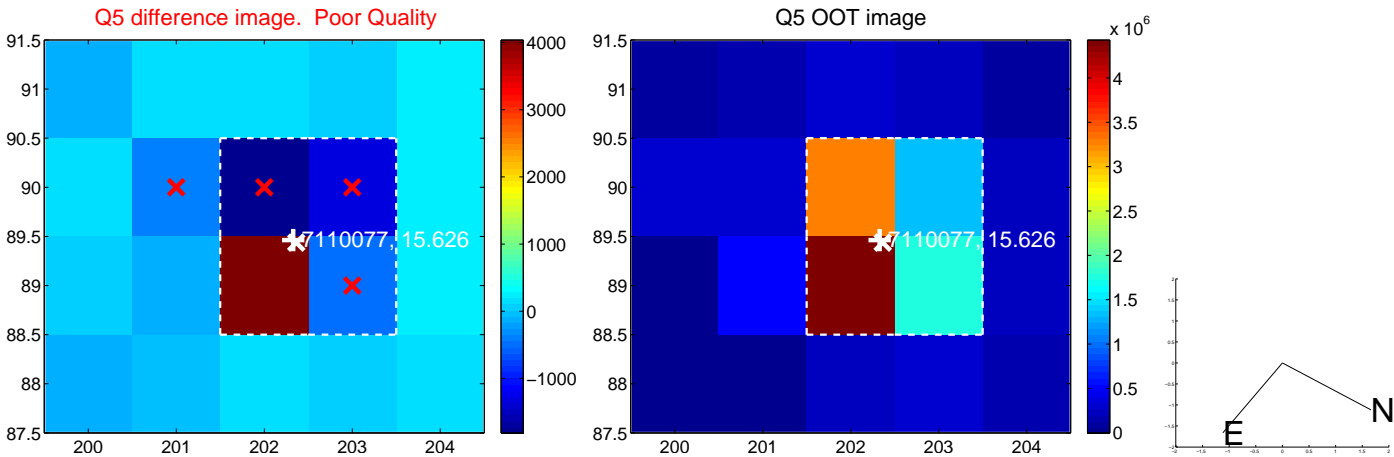


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

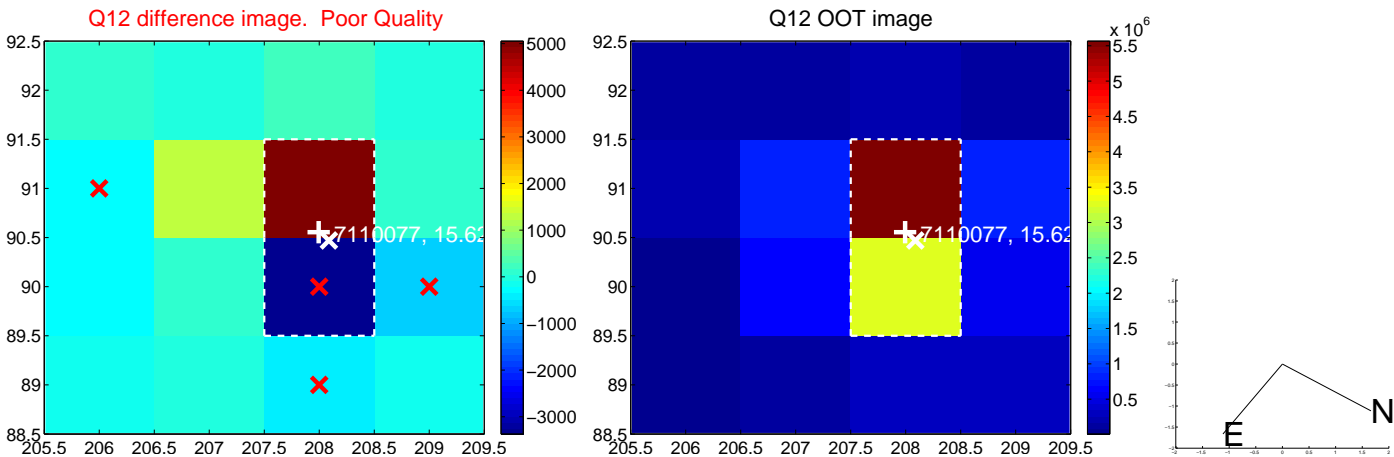
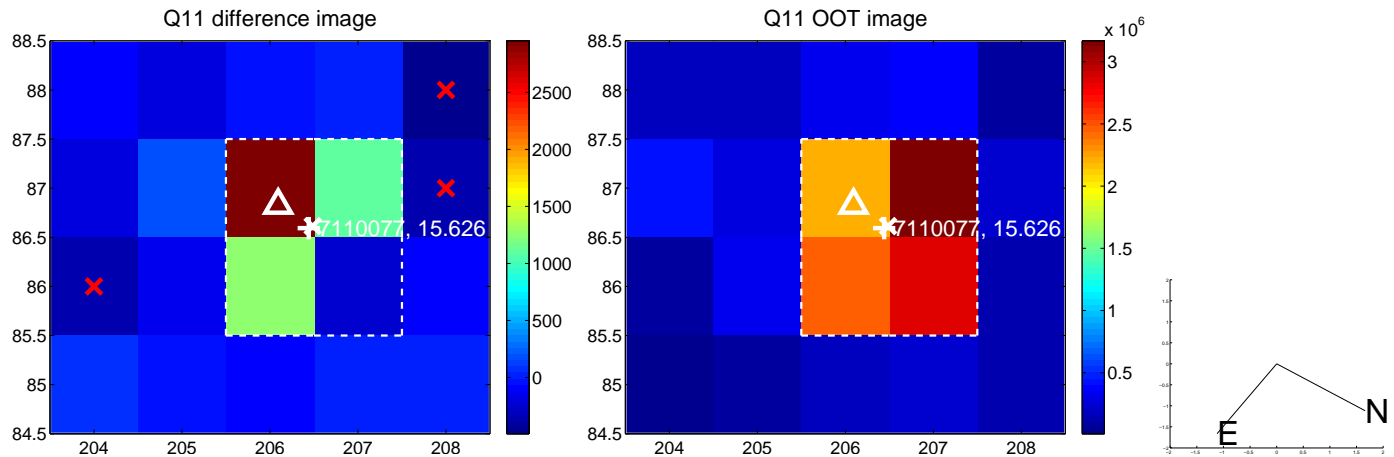
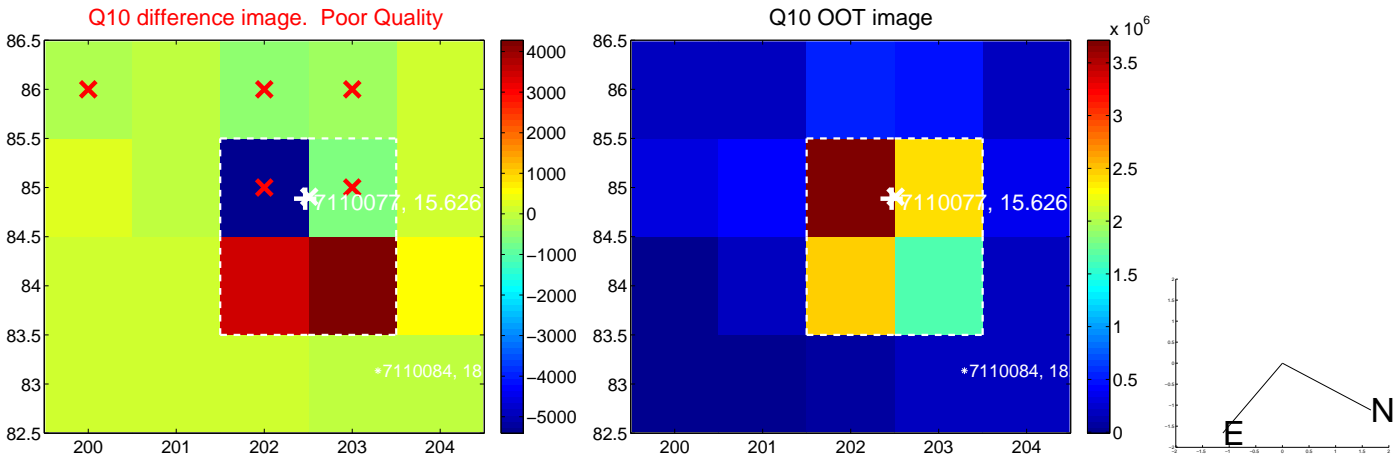
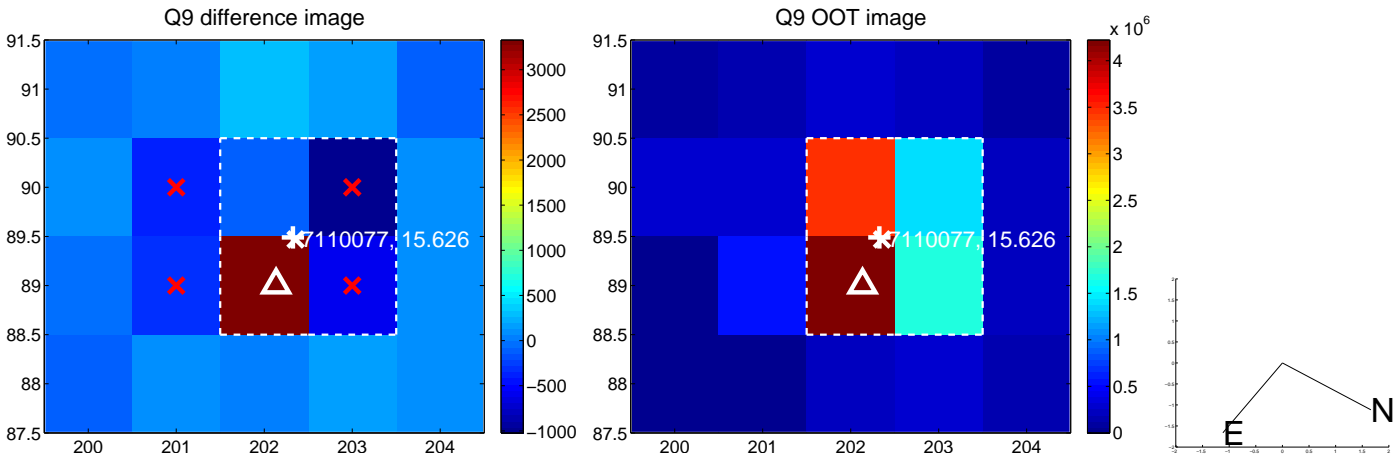


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

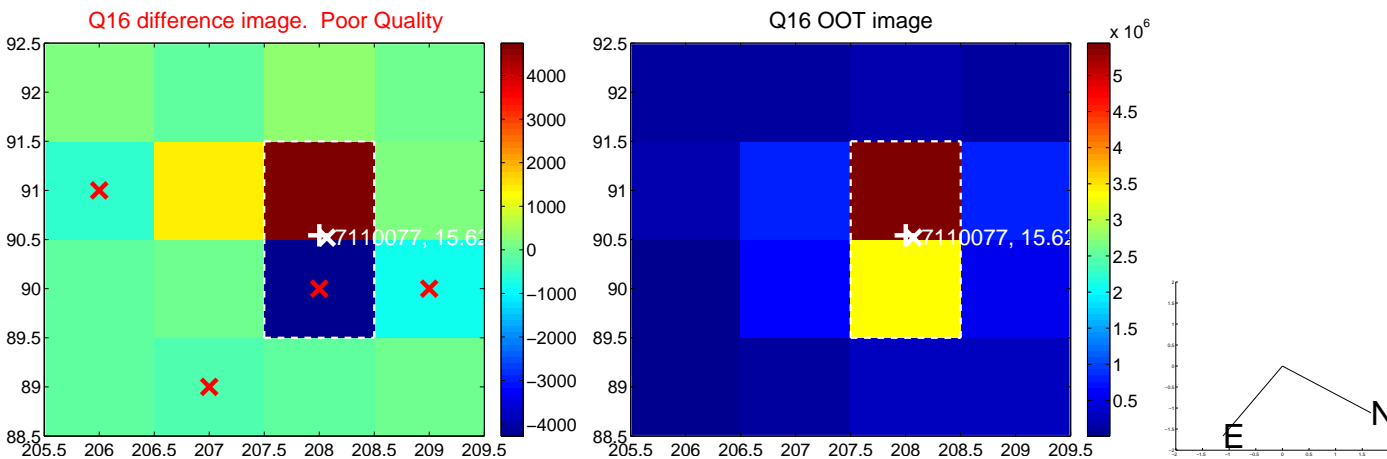
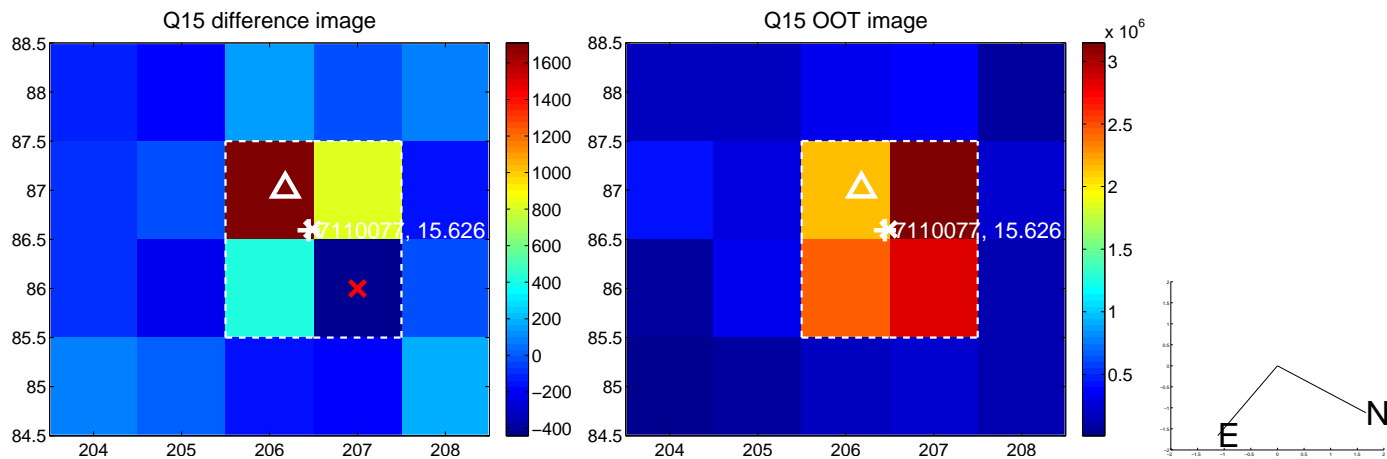
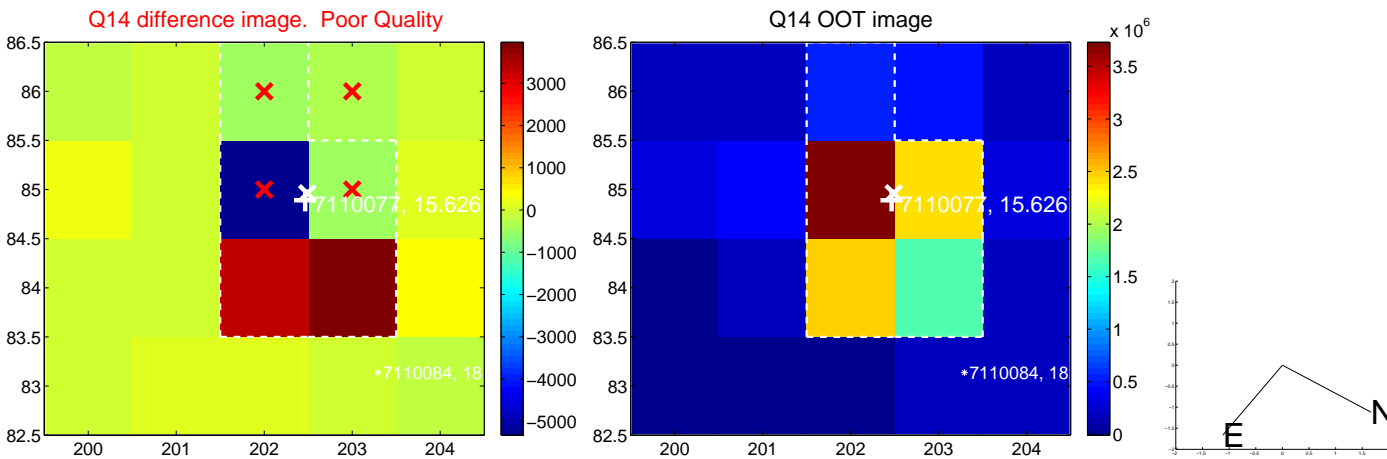
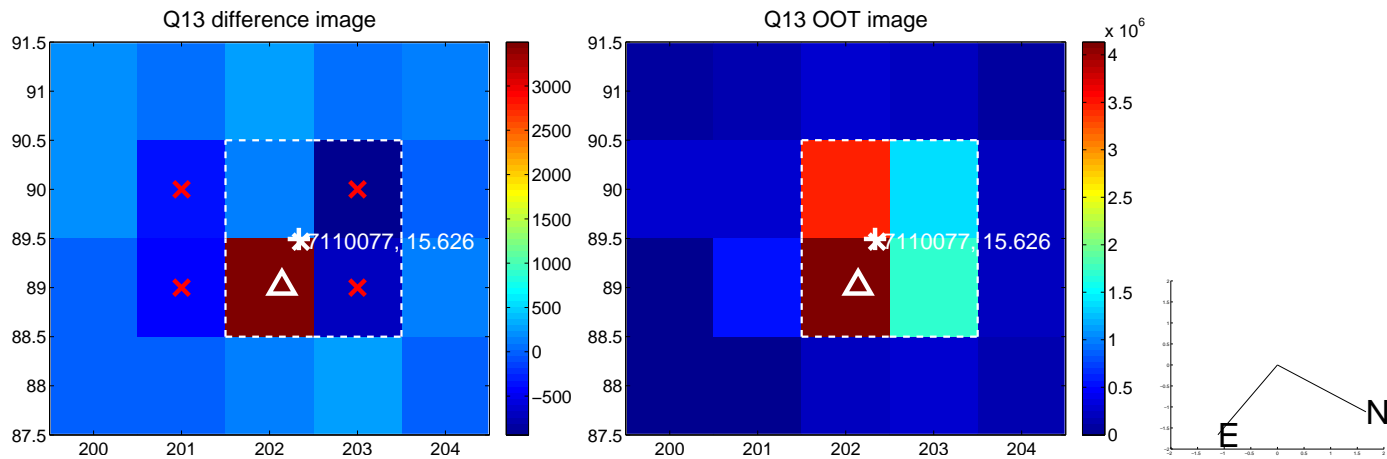




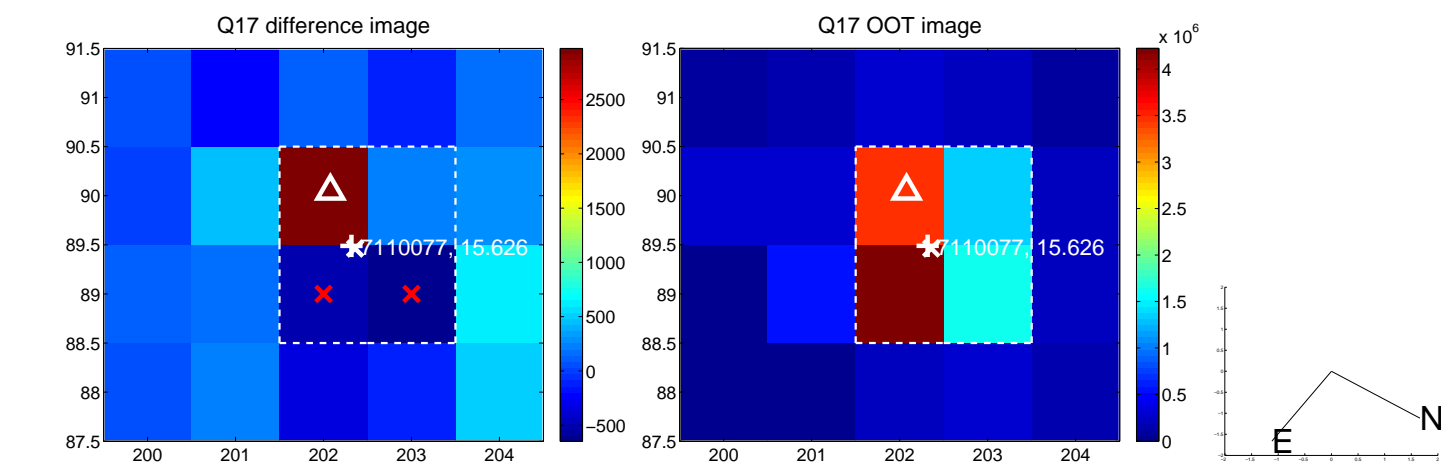
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



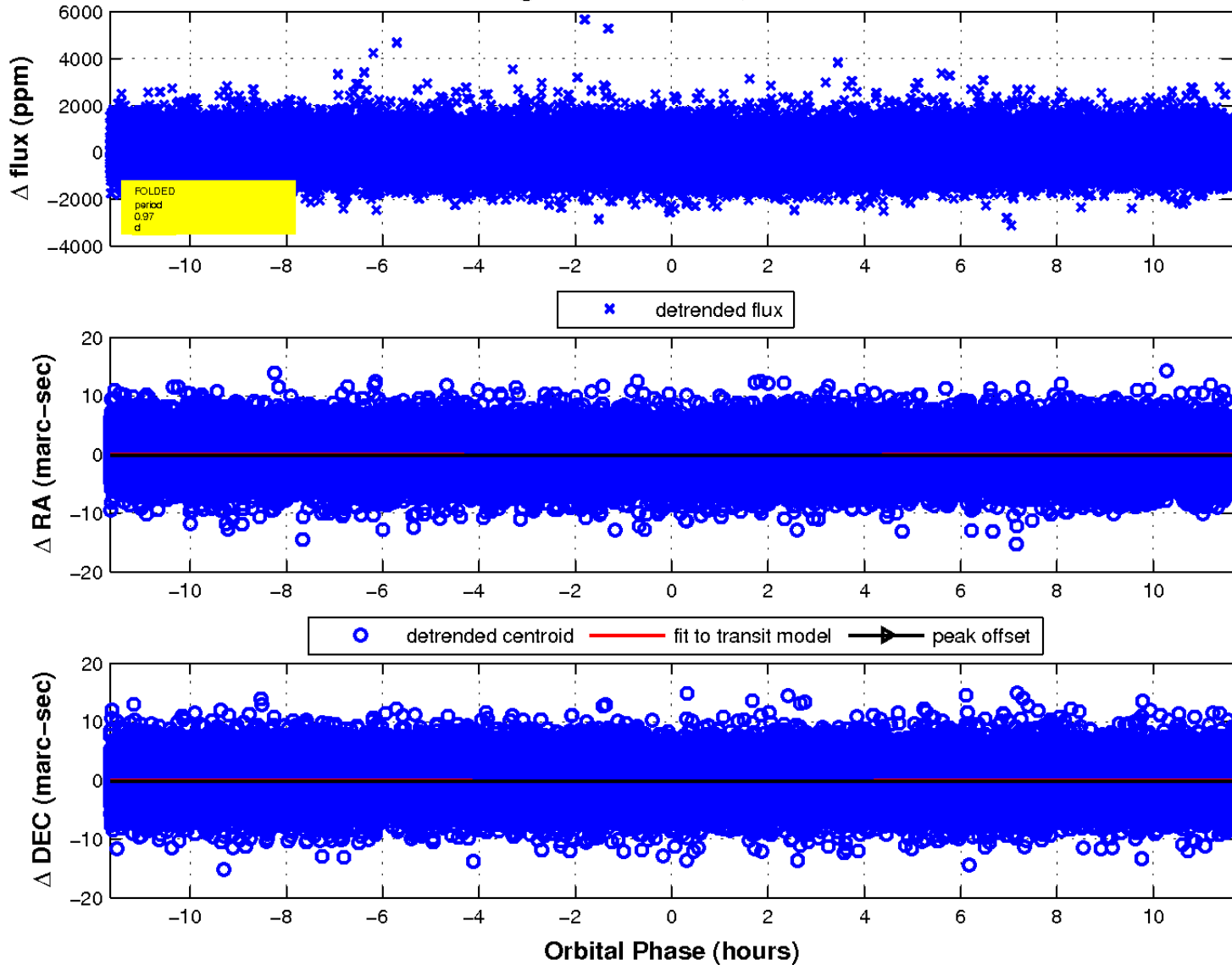
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

