

# KIC 009845931

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009845931-01	OBS	5721.01	61.224643	181.700671	519.2	4.090	8.6	9.2	1.14	6343	2.88	17.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009845931-01	OBS	FP	0.13	0	0	1	0	CENT_RESOLVED_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.

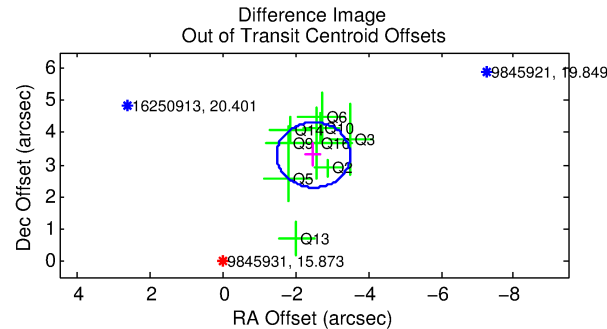
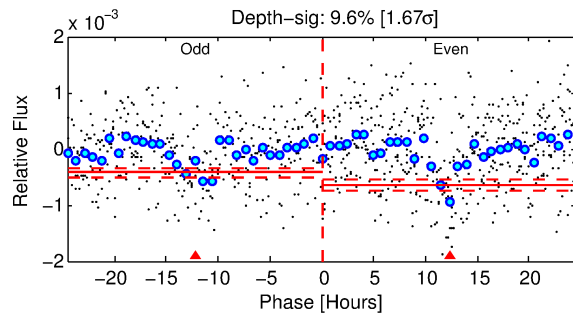
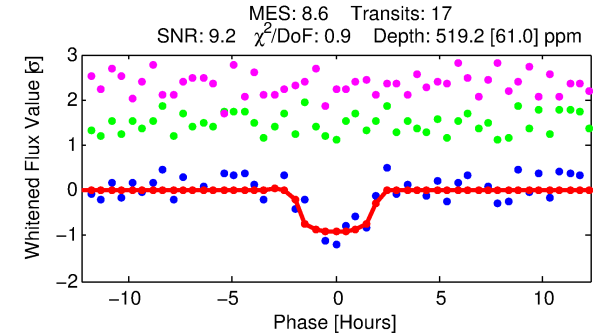
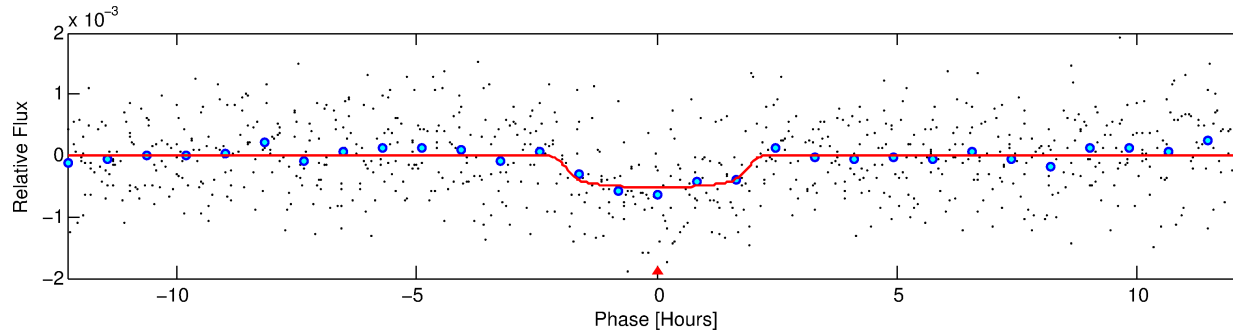
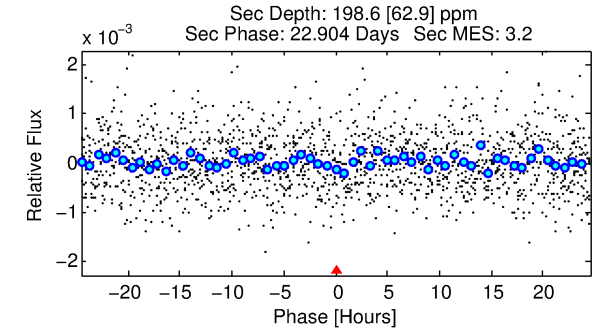
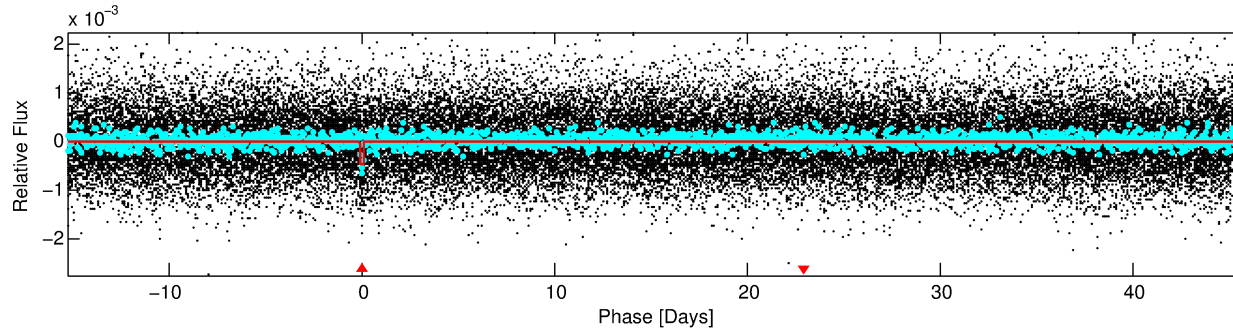
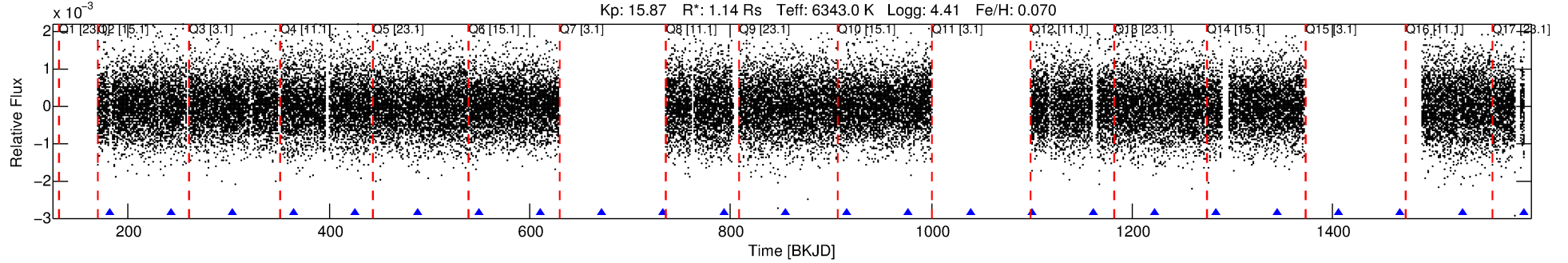
## Ephemeris Match Information For 009845931-01

No Significant Match Found

# DV One-Page Summary

KIC: 9845931 Candidate: 1 of 1 Period: 61.225 d  
KOI: K05721.01 Corr: 0.955

Kp: 15.87 R\*: 1.14 Rs Teff: 6343.0 K Logg: 4.41 Fe/H: 0.070



## DV Fit Results:

Period = 61.22464 [0.00081] d  
Epoch = 181.7007 [0.0106] BKJD  
Rp/R\* = 0.0231 [0.0157]  
a/R\* = 72.51 [252.71]  
b = 0.80 [1.56]  
Seff = 17.92 [7.74]  
Teq = 525 [57] K  
Rp = 2.88 [2.15] Re  
a = 0.3243 [0.0872] AU  
Ag = 1388.01 [2005.60] [0.69σ]  
Teff = 4951 [1735] K [2.55σ]

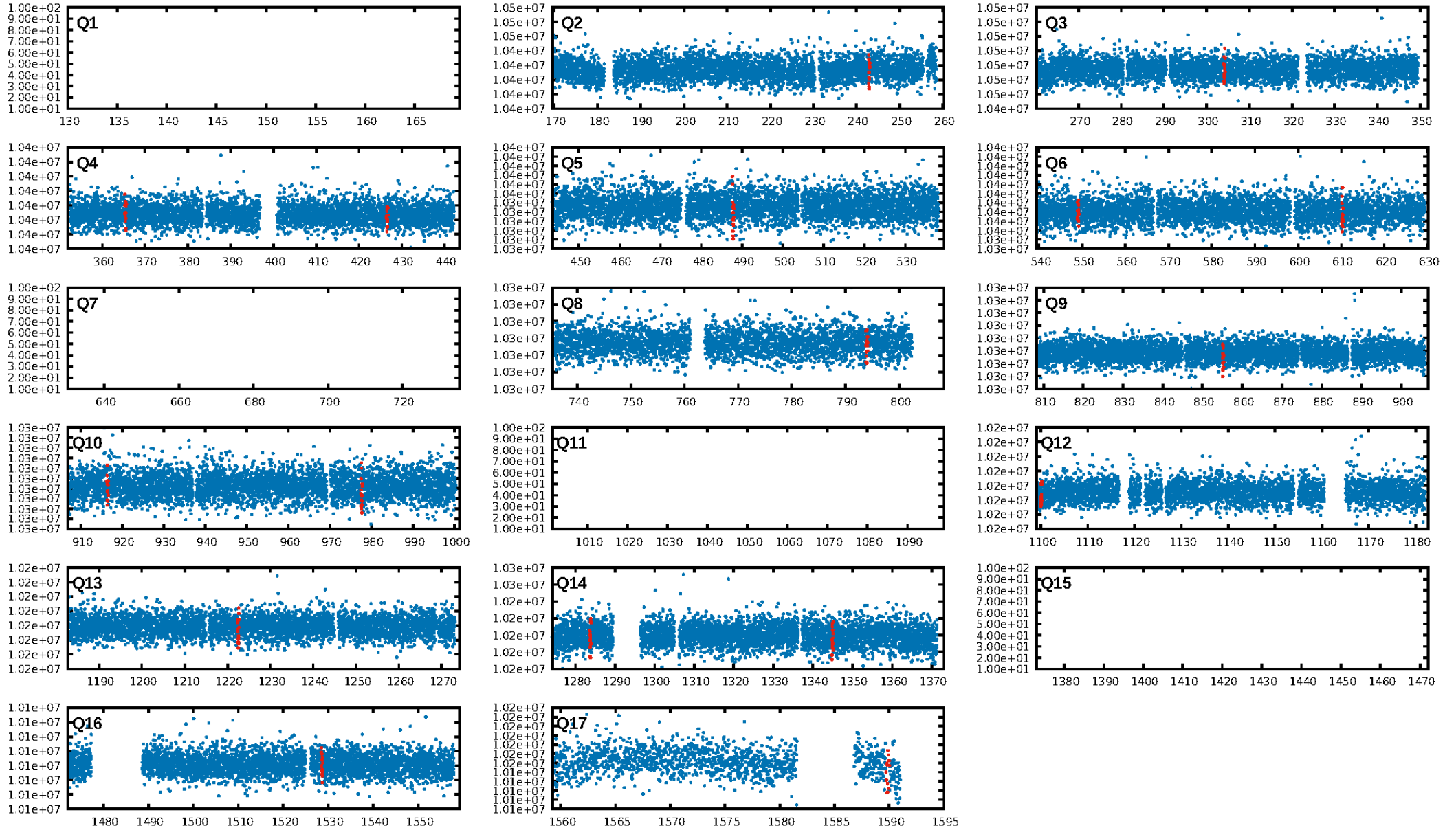
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 75.6%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: 2.58e-18  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: 0.3045  
Centroid-sig: 0.0%  
Centroid-so: 9.494 arcsec [5.65σ]  
OotOffset-rm: 4.135 arcsec [12.25σ]  
KicOffset-rm: 4.244 arcsec [11.55σ]  
OotOffset-st: 4/1/1/3 [9]  
KicOffset-st: 4/1/1/3 [9]  
DiffImageQuality-fgm: 0.89 [8/9]  
DiffImageOverlap-fno: 1.00 [12/12]

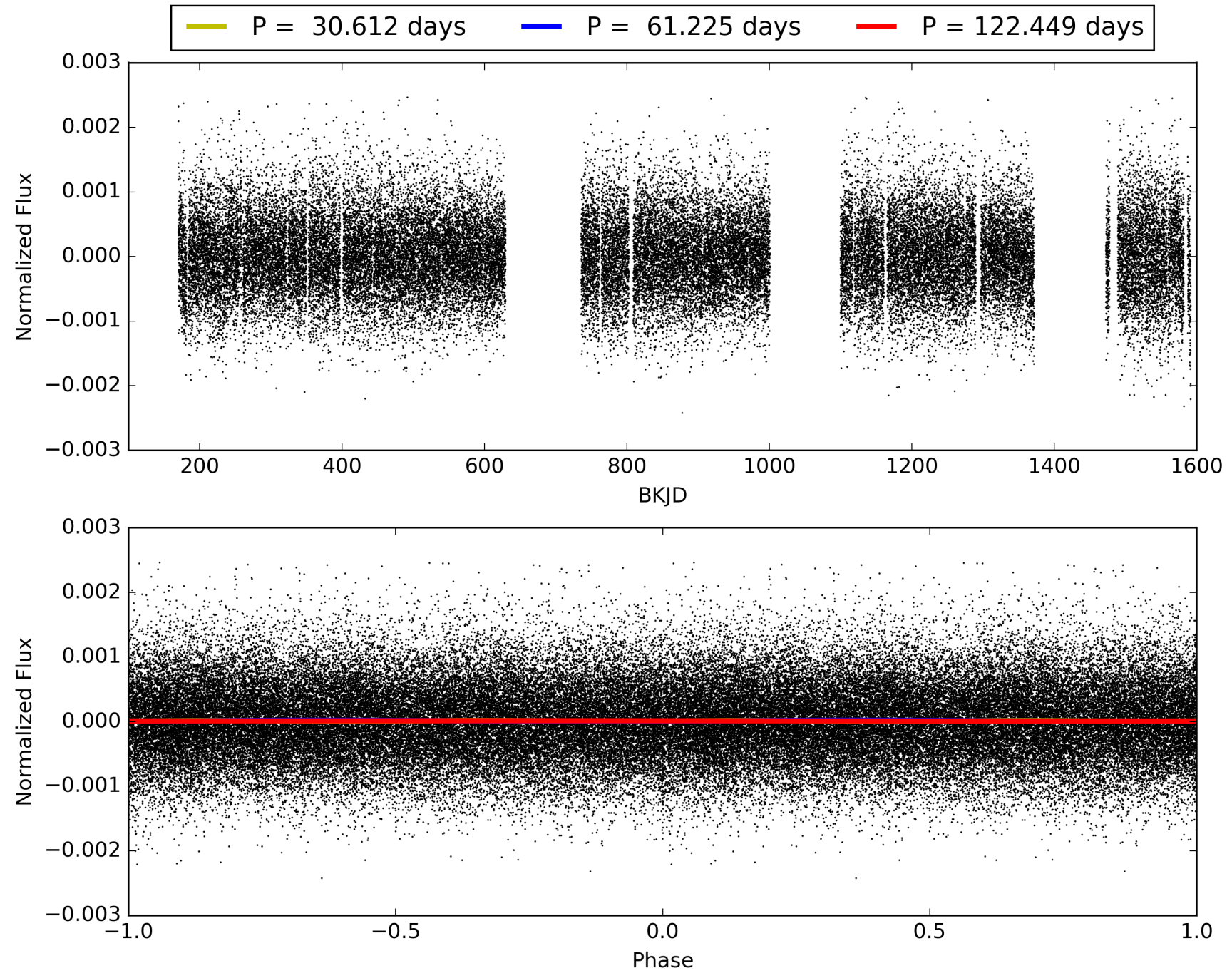
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 08:59:59 Z

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

# TCE 009845931-01, PDC Light Curves

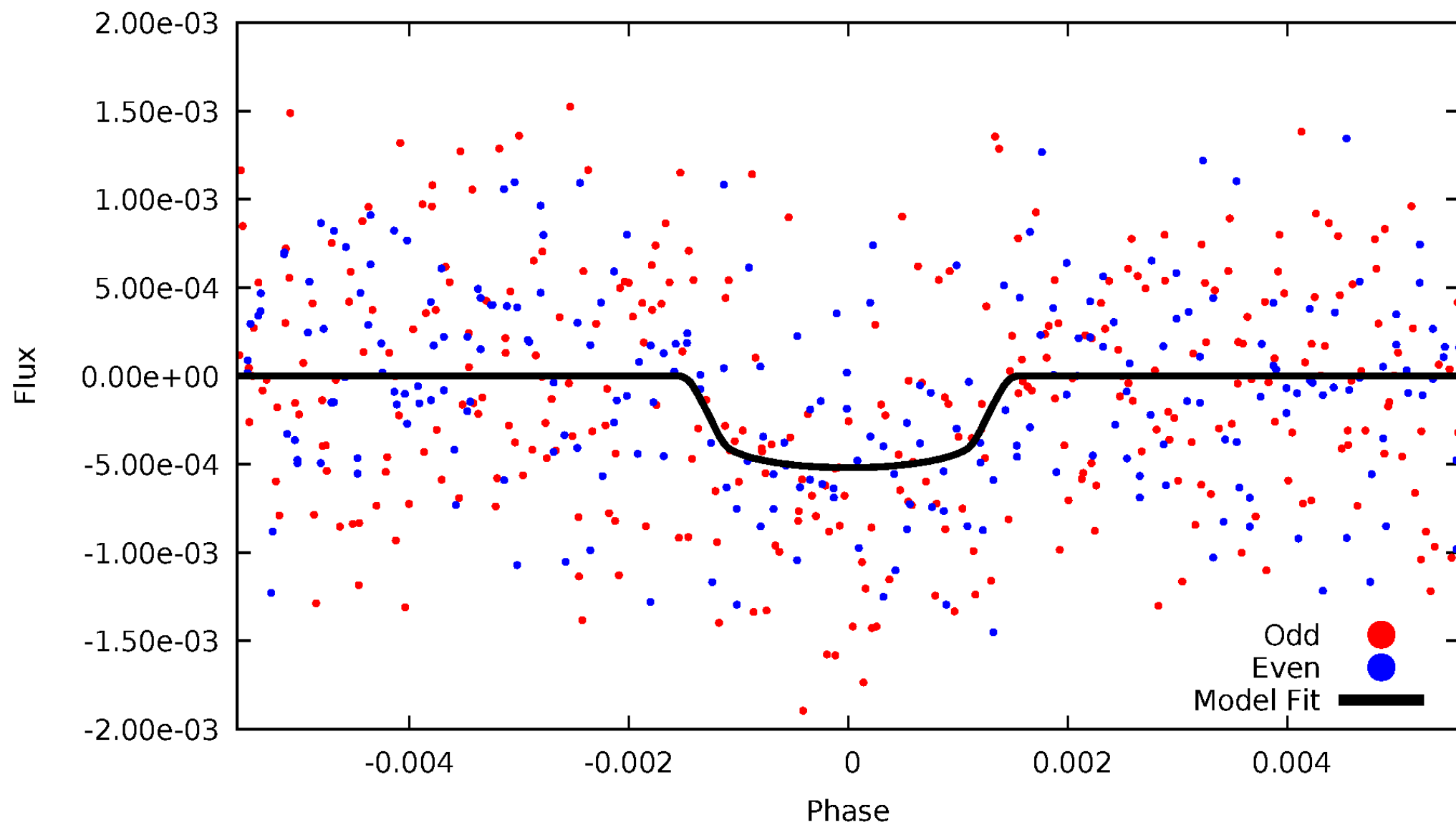


# TCE 009845931-01



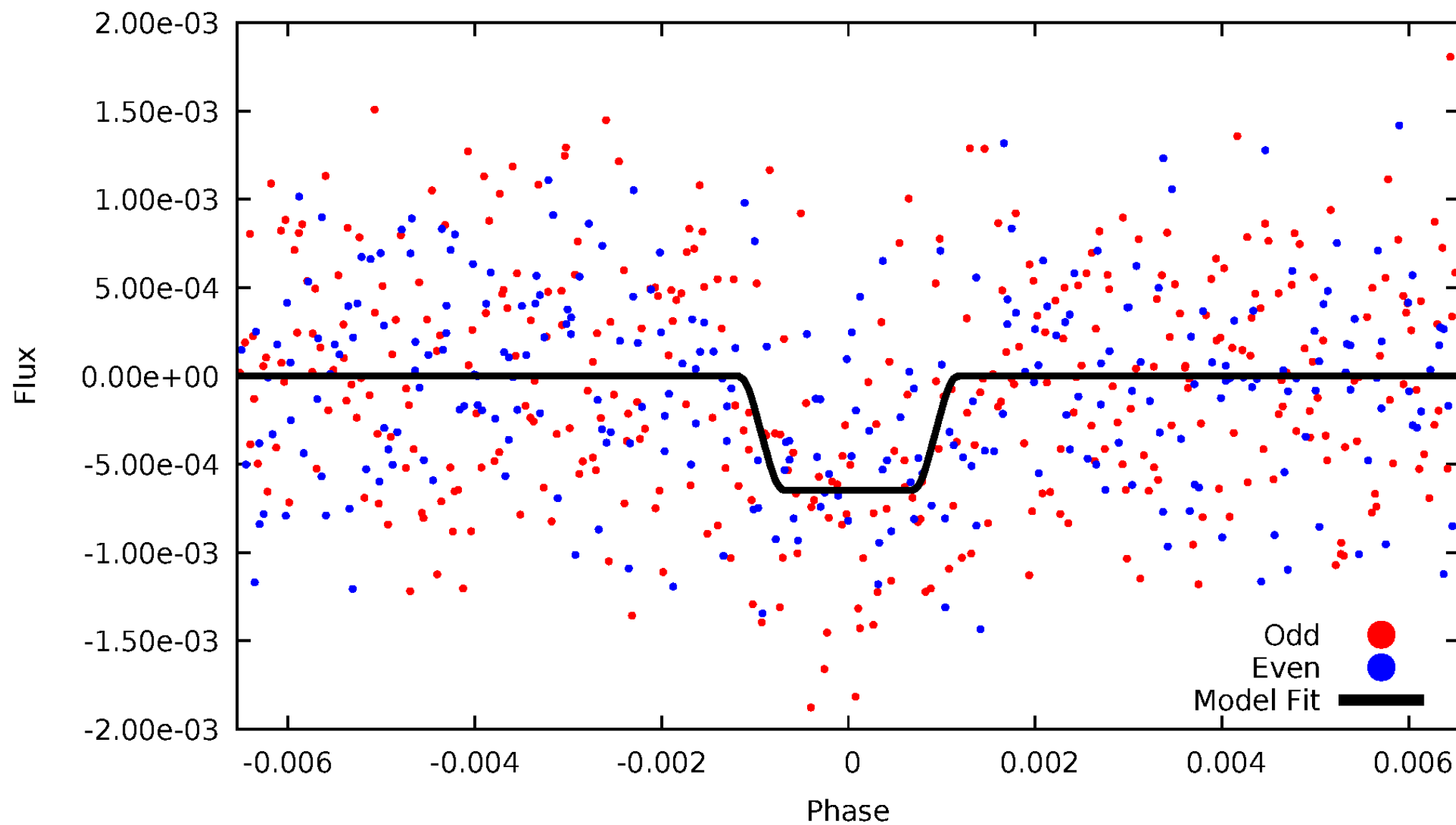
# DV Odd/Even

TCE 009845931-01



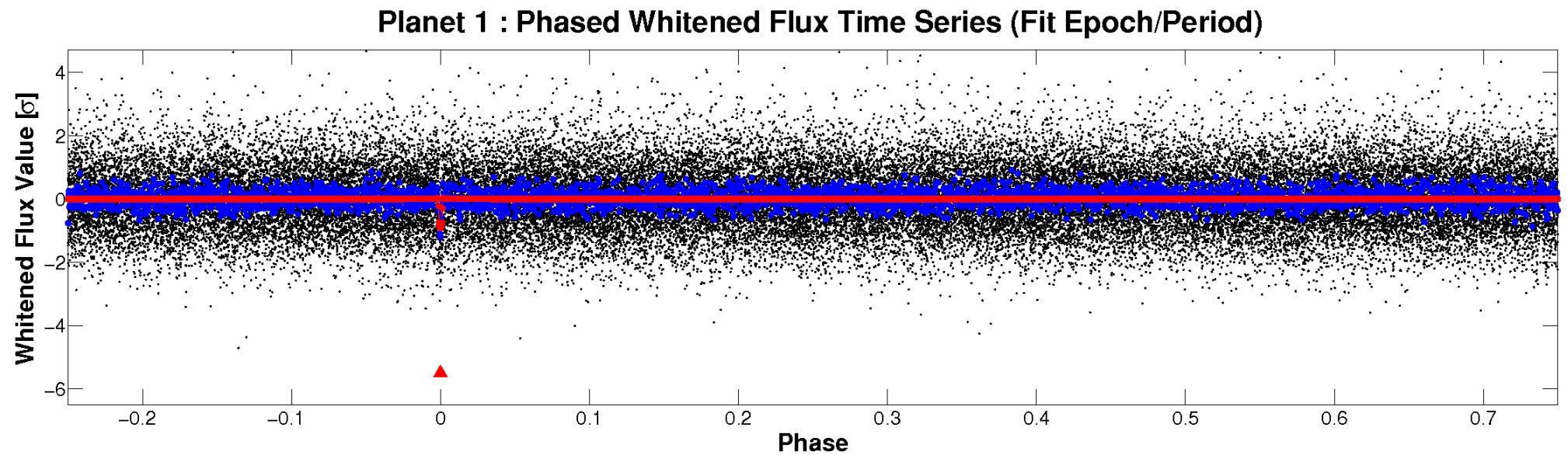
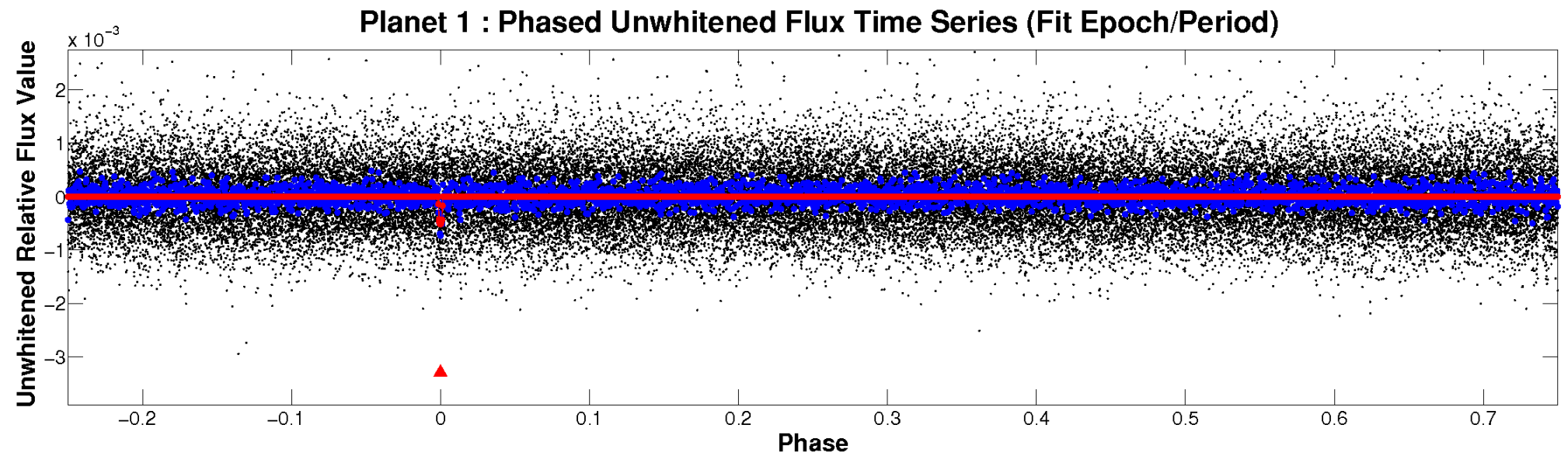
# ALT Odd/Even

TCE 009845931-01



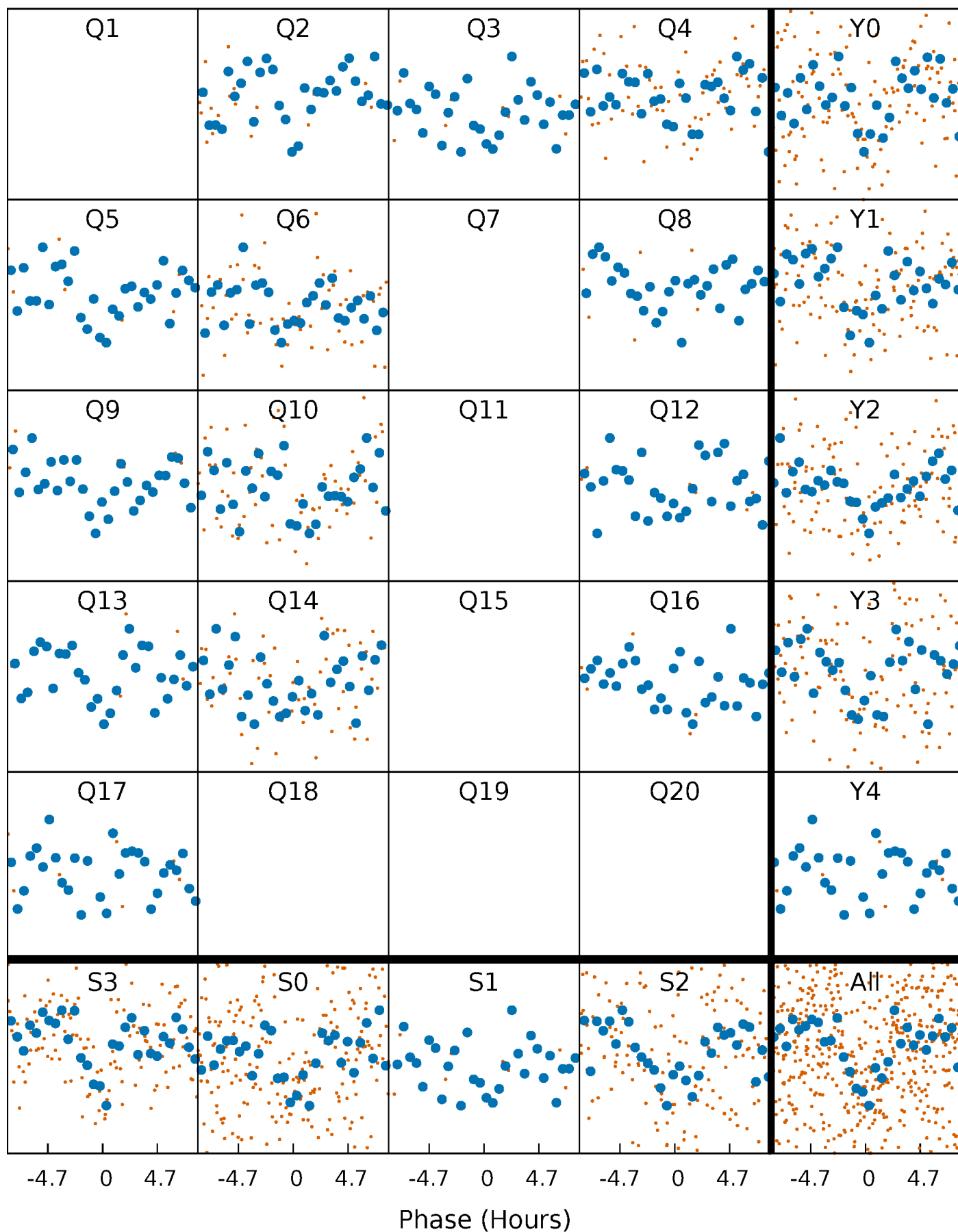


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

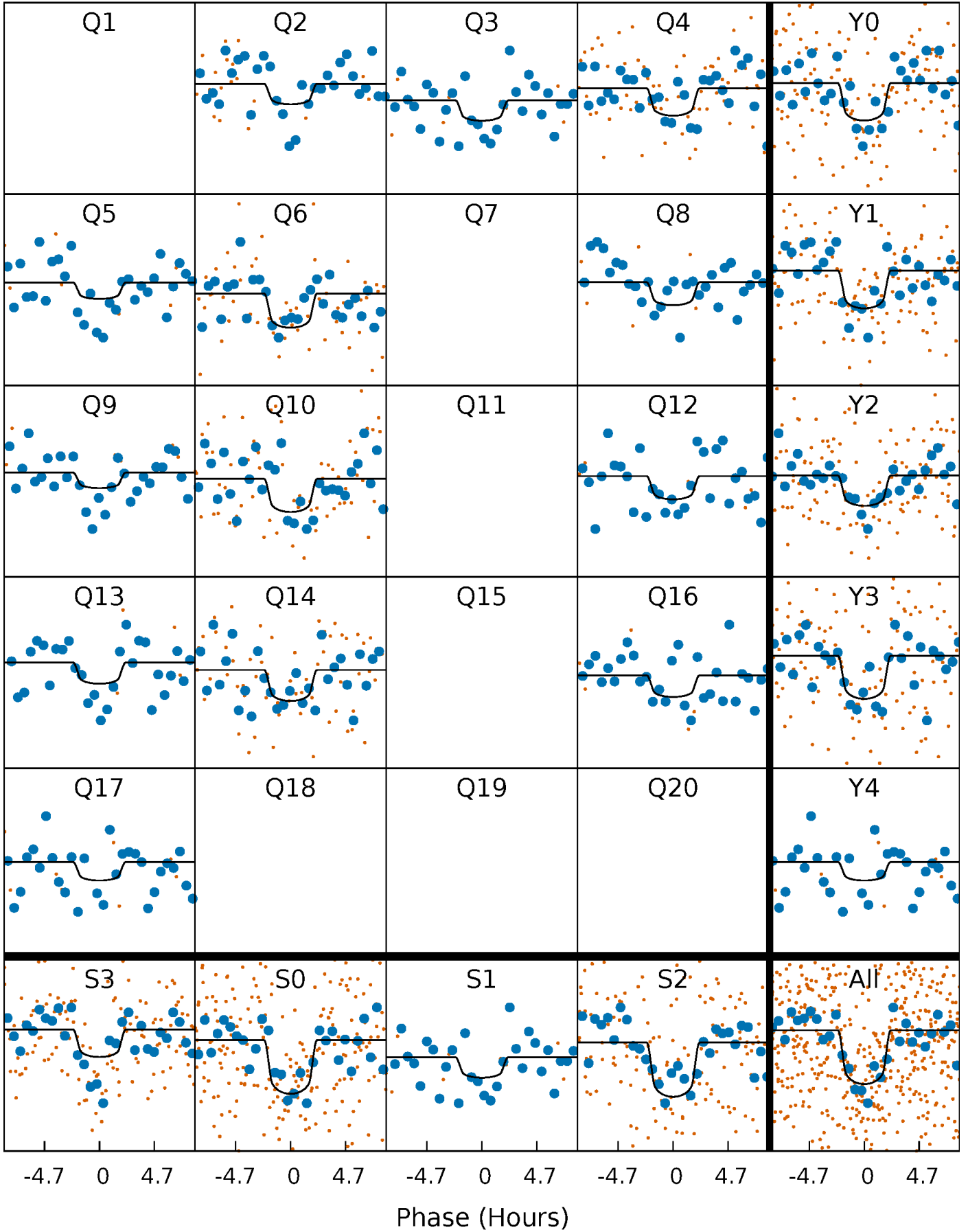
TCE 009845931-01 P= 61.224643 Days  $T_0=181.700671$  (BKJD)





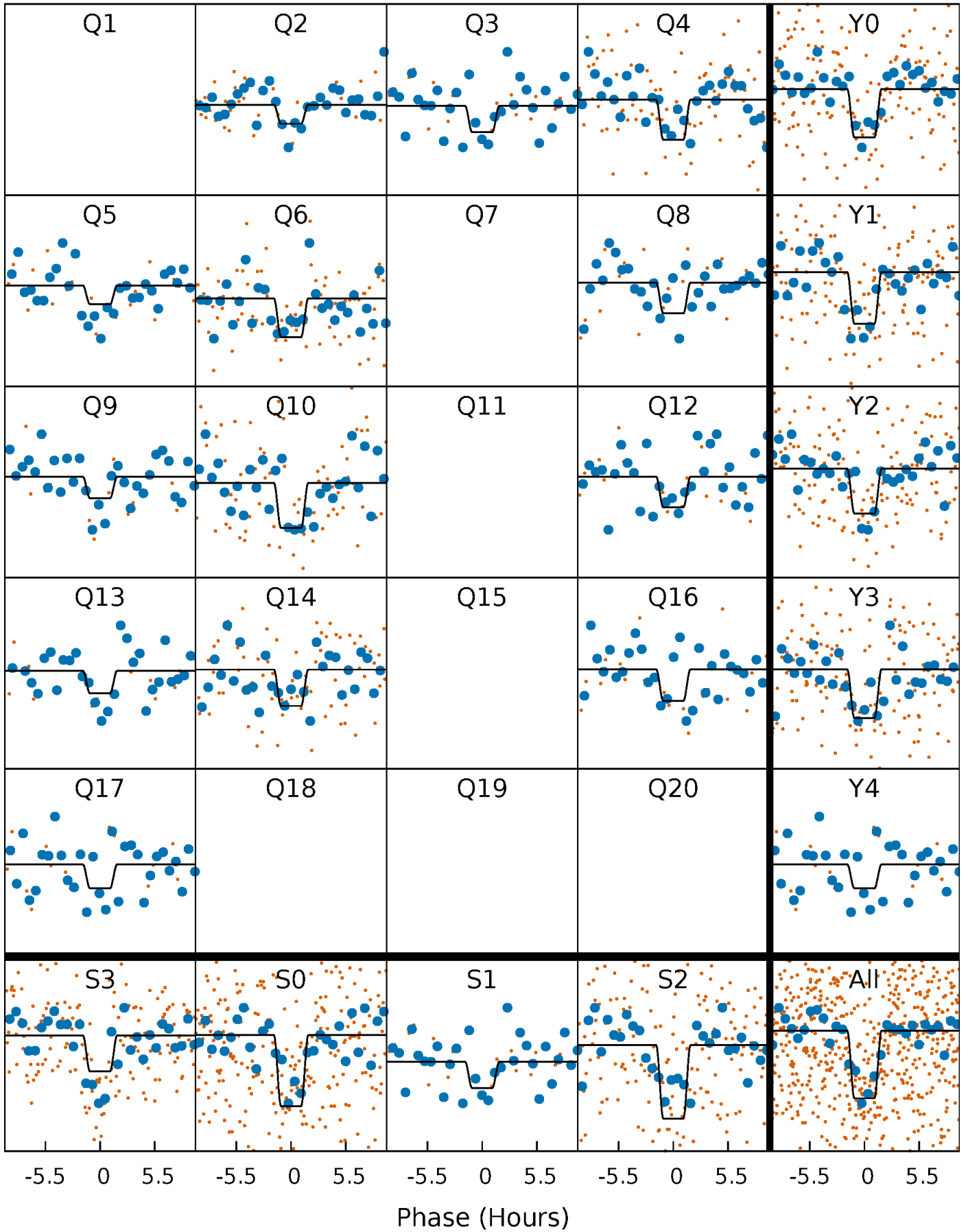
# DV Quarter-Phased Transit Curves

TCE 009845931-01 P= 61.224643 Days  $T_0=181.700671$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

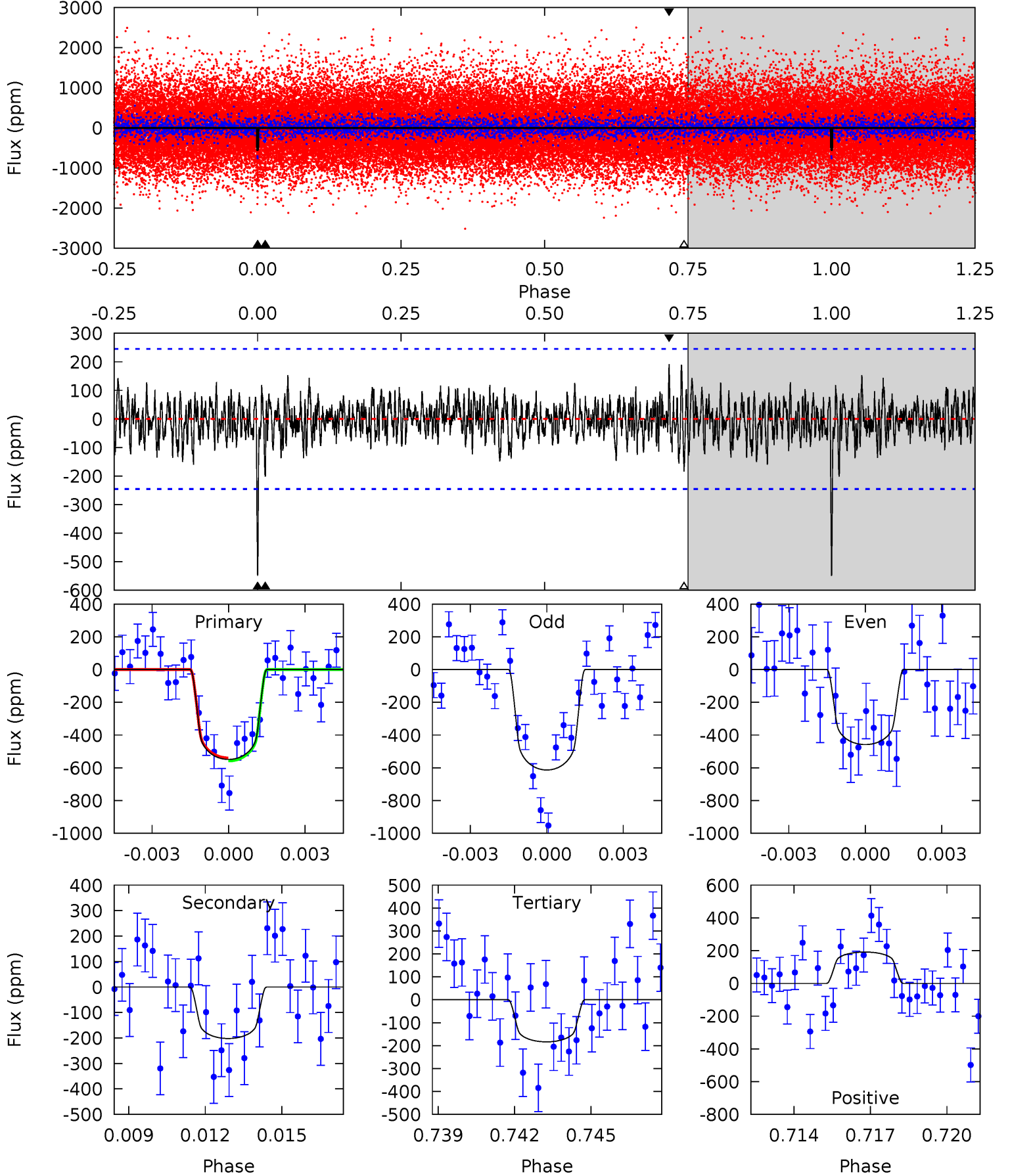
TCE 009845931-01   P= 61.223903 Days    $T_0=181.708123$  (BKJD)



# DV Model-Shift Uniqueness Test

009845931-01, P = 61.224643 Days, E = 120.476028 Days

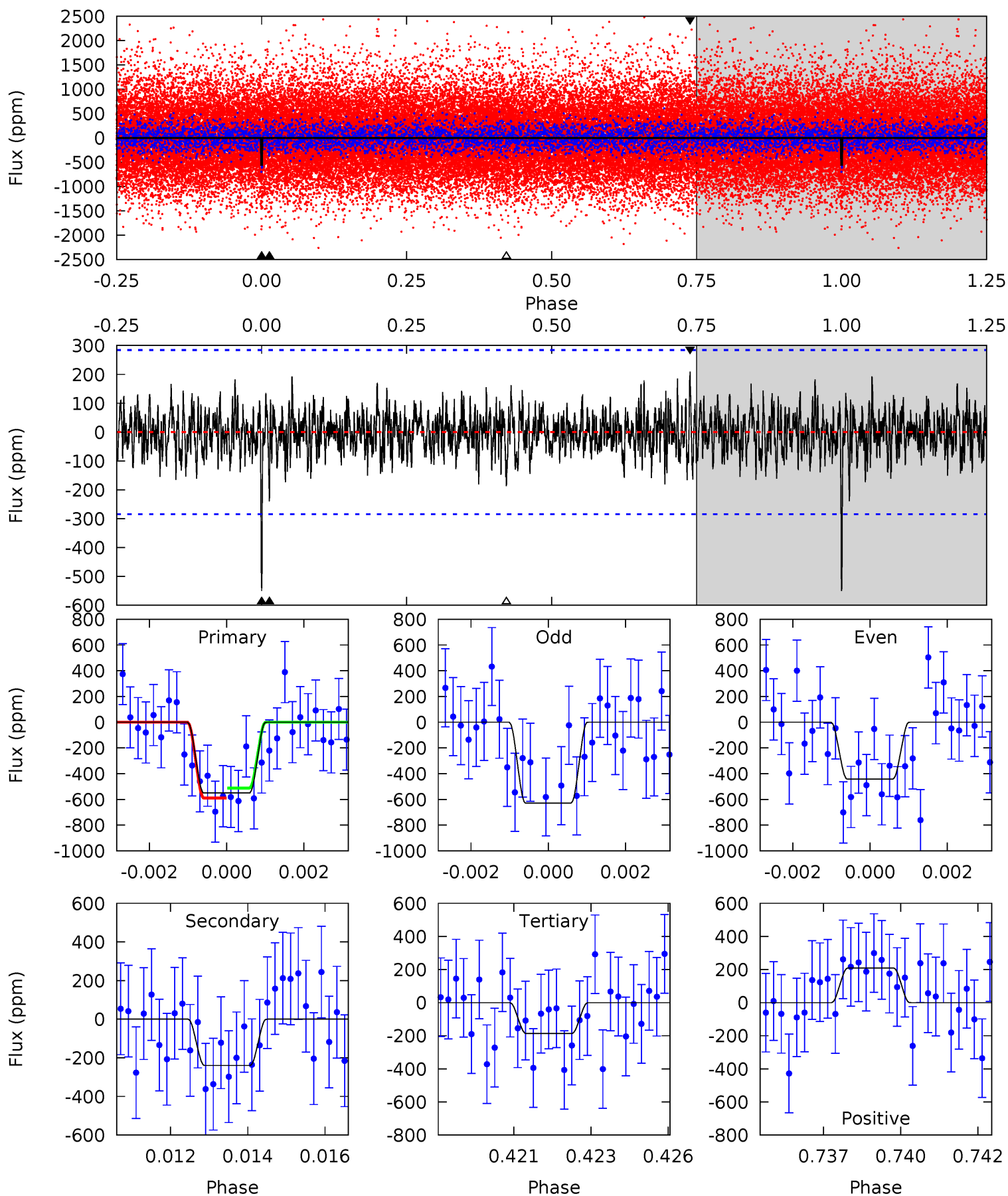
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	4.32	3.93	4.09	5.25	2.96	1.13	7.82	7.65	0.40	0.23	1.64	1.26	0.26	0.20



# Alt Model-Shift Uniqueness Test

009845931-01, P = 61.223903 Days, E = 120.484220 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
10.3	4.46	3.48	3.90	5.30	3.05	1.12	6.77	6.36	0.98	0.57	1.71	1.24	0.28	0.72



### Stellar Parameters For KIC 009845931

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6343^{+196}_{-283}$	$4.408^{+0.054}_{-0.216}$	$0.070^{+0.250}_{-0.300}$	$1.140^{+0.362}_{-0.129}$	$1.213^{+0.163}_{-0.181}$	$1.155^{+0.327}_{-0.603}$
	+3%/-4%	+1%/-5%	+357%/-429%	+32%/-11%	+13%/-15%	+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 009845931-01 / KOI 5721.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-202 \pm 47$	$3.06^{+2.07}_{-1.66}$	$746^{+52}_{-39}$	$4926^{+2495}_{-887}$	$1208^{+4730}_{-802}$
Alt.	$-240 \pm 54$	$3.52^{+2.12}_{-1.81}$	$752^{+55}_{-45}$	$4858^{+2001}_{-787}$	$1076^{+3427}_{-657}$

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

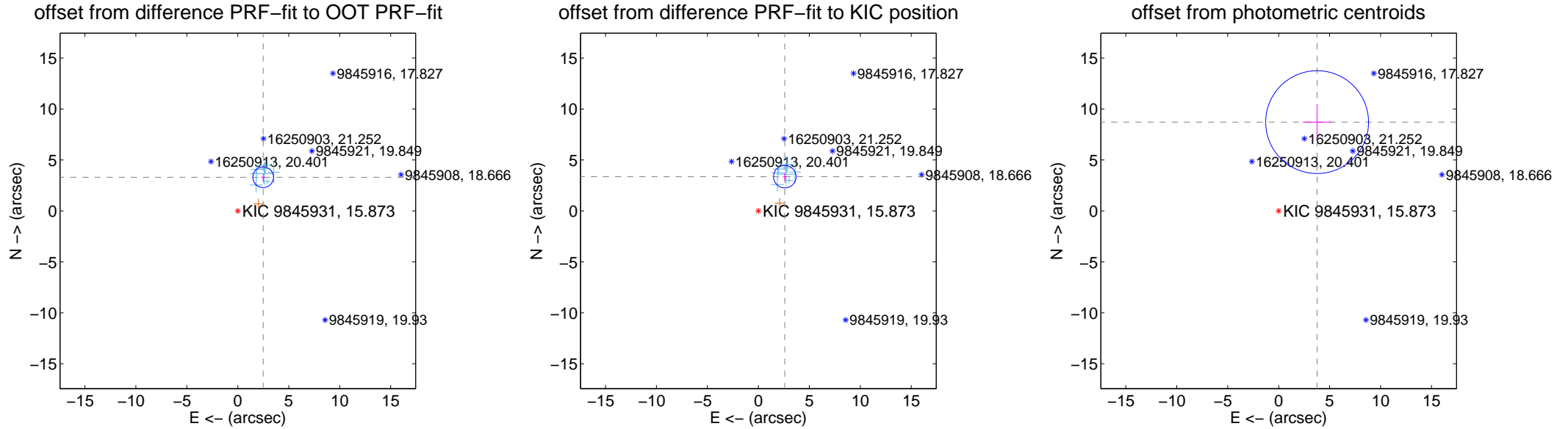
## DV Centroid Data

Supplemental centroid analysis for 009845931-01. Kepler magnitude: 15.87. Transit SNR 9.23

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

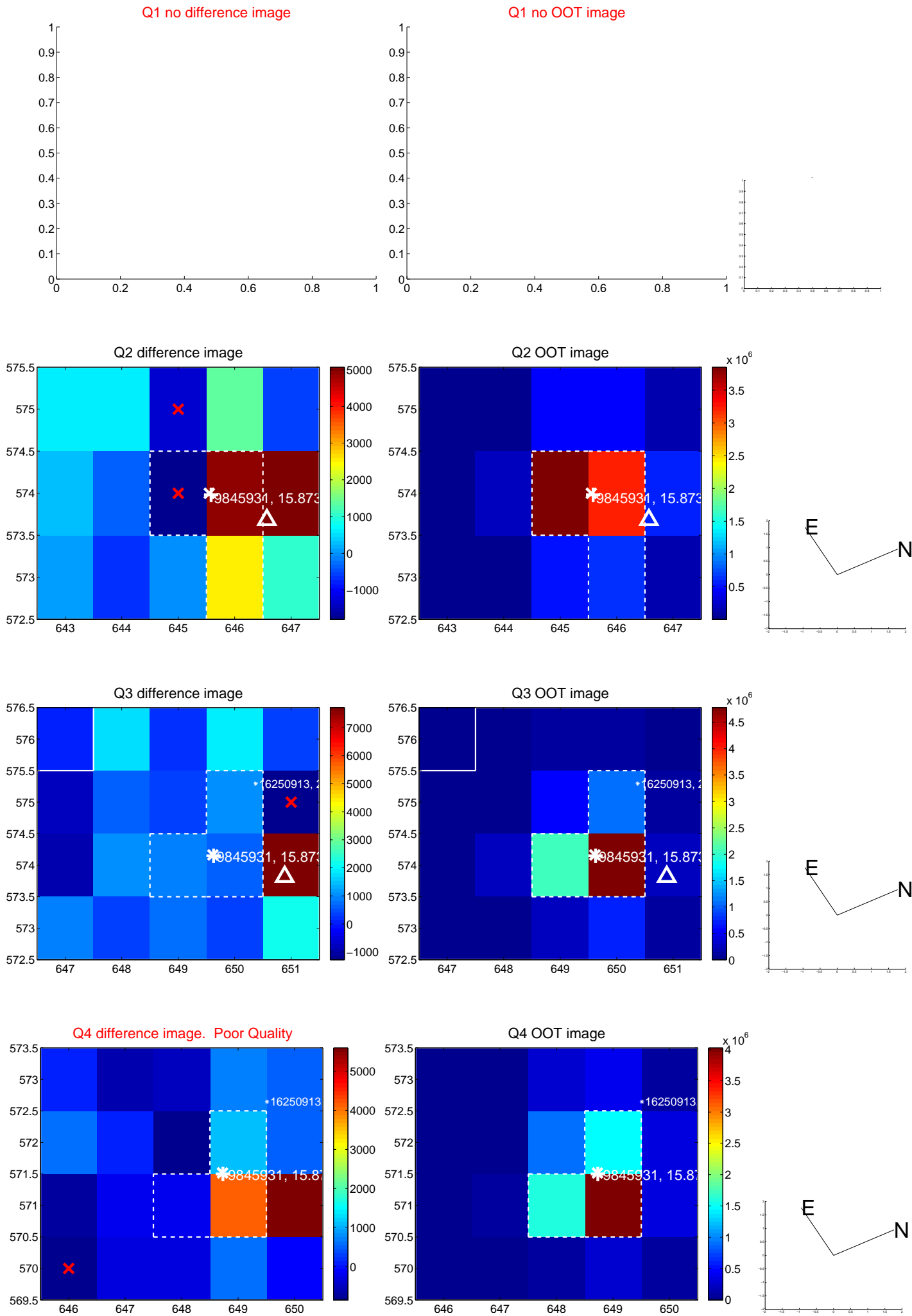
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>4.135 <math>\pm</math> 0.338</b>	<b>12.25</b>	-2.489 $\pm$ 0.213	3.303 $\pm$ 0.347
PRF-fit source offset from KIC position	<b>4.244 <math>\pm</math> 0.368</b>	<b>11.55</b>	-2.592 $\pm$ 0.179	3.361 $\pm$ 0.405
photometric centroid source offset	<b>9.49 <math>\pm</math> 1.68</b>	<b>5.65</b>	-3.77 $\pm$ 1.42	8.71 $\pm$ 1.73



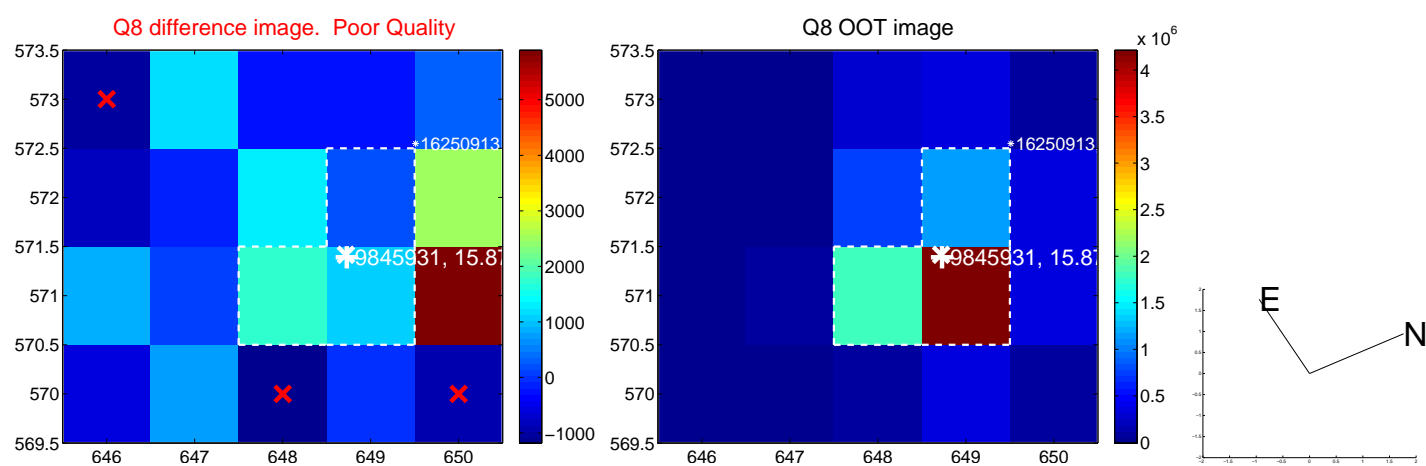
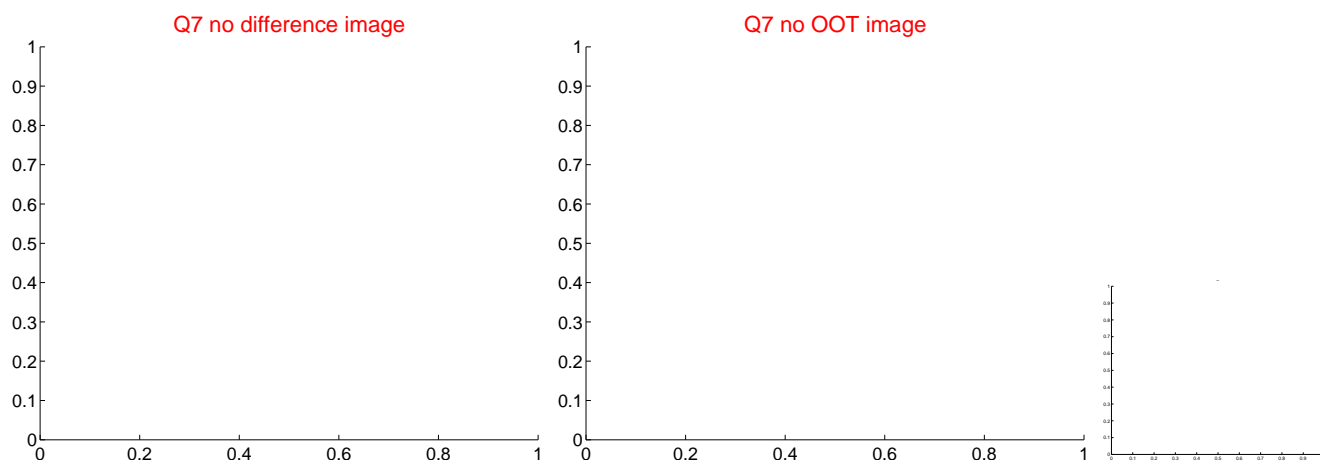
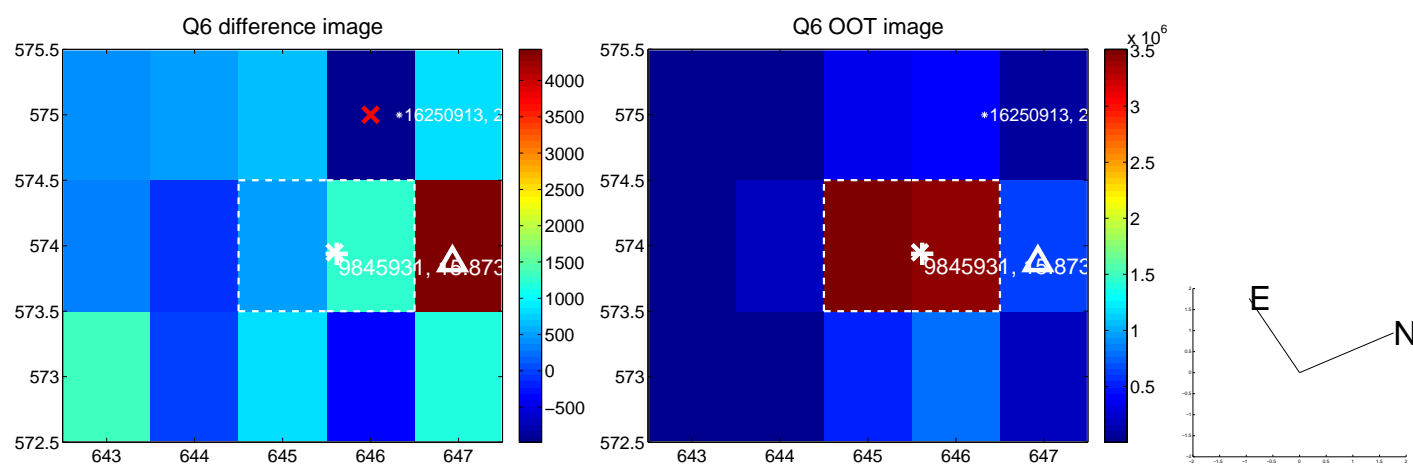
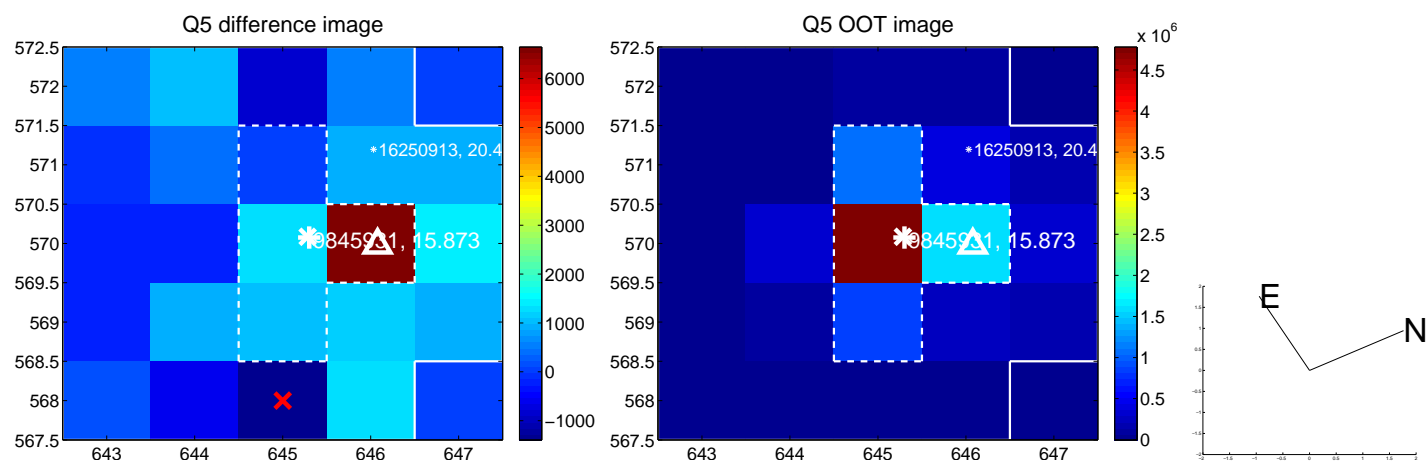
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

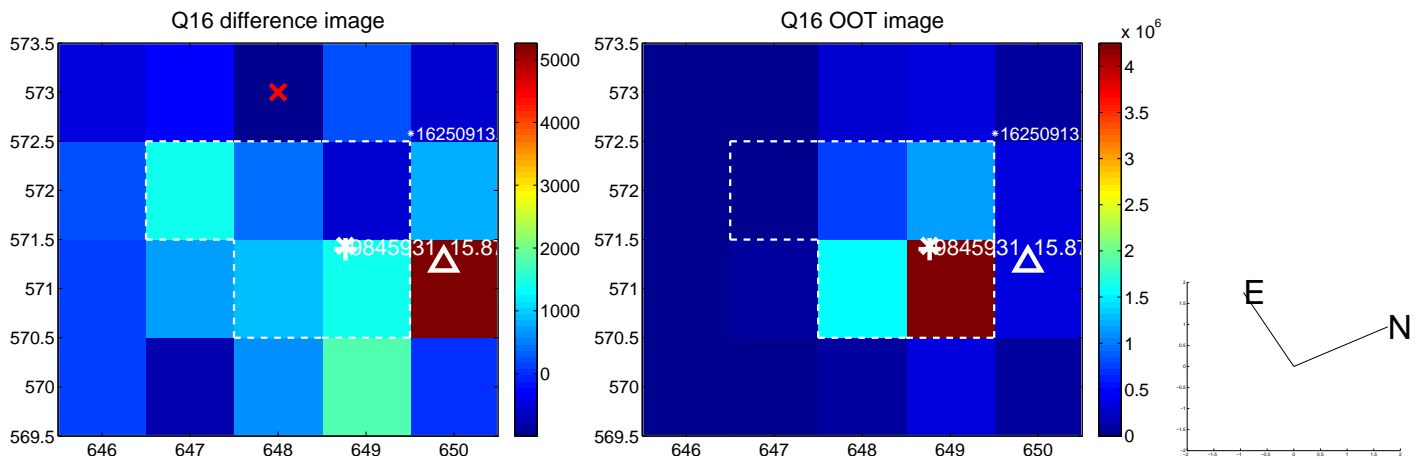
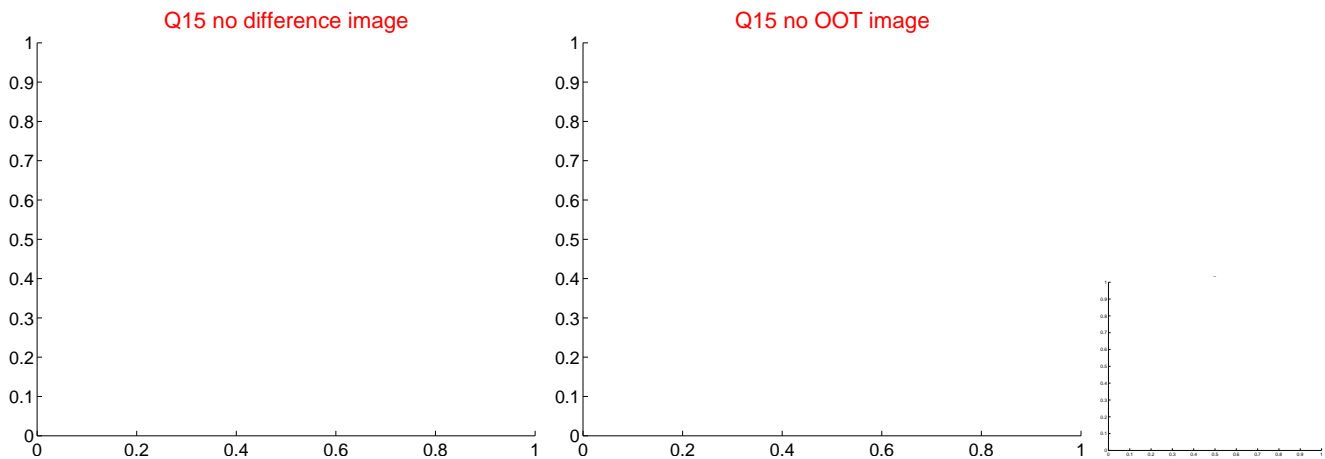
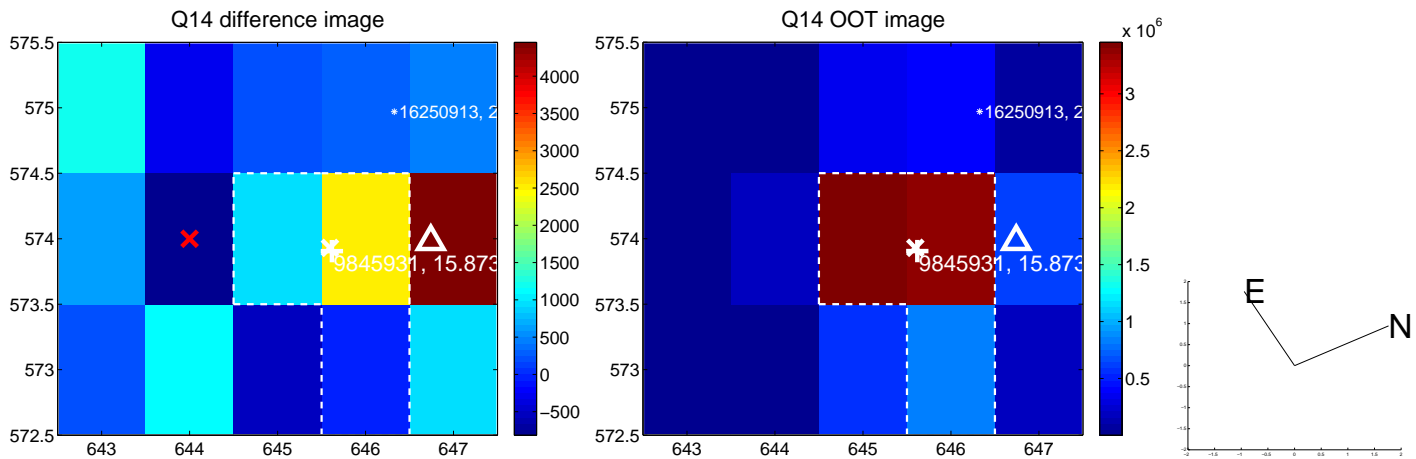
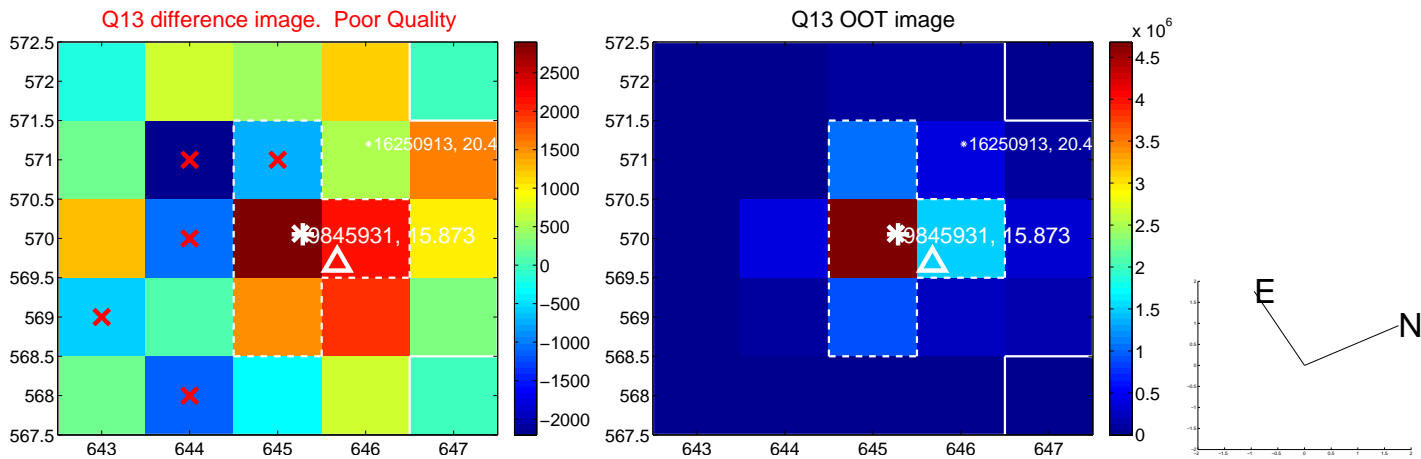


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

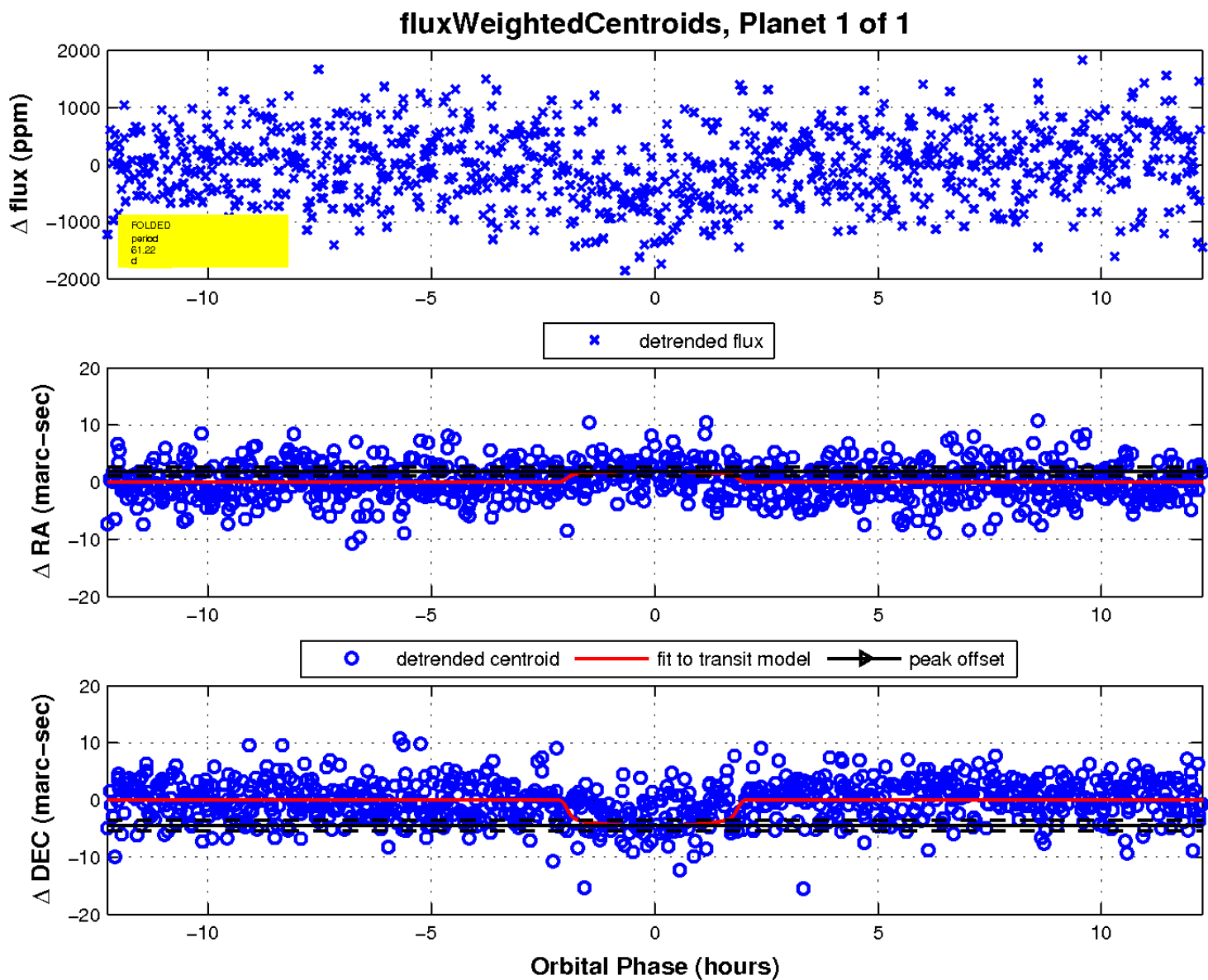
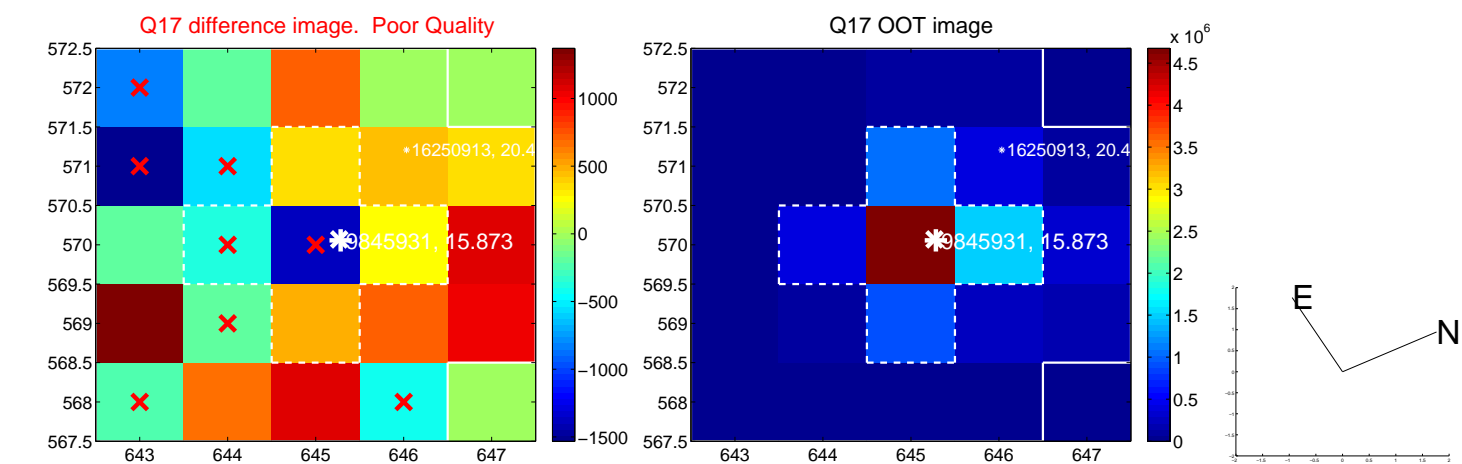




white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image

Declination

