

# KIC 009845898

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009845898-01	OBS	2423.01	45.125968	165.421134	385.3	7.221	16.4	17.2	1.17	6499	2.77	31.59

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009845898-01	OBS	PC	1.00	0	0	0	0	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.

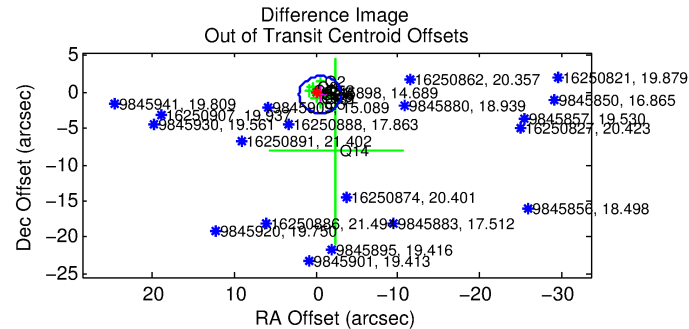
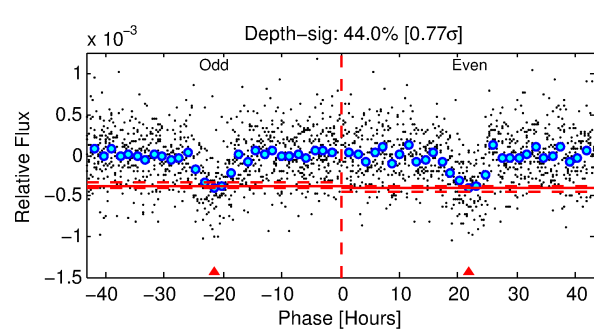
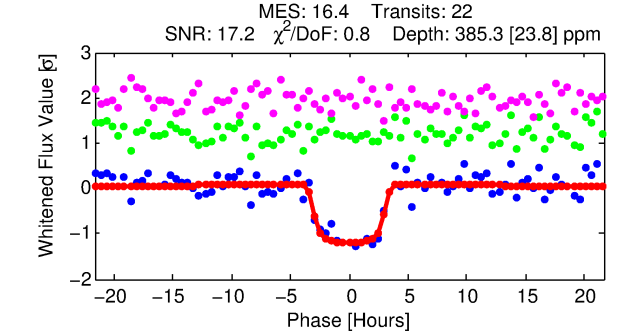
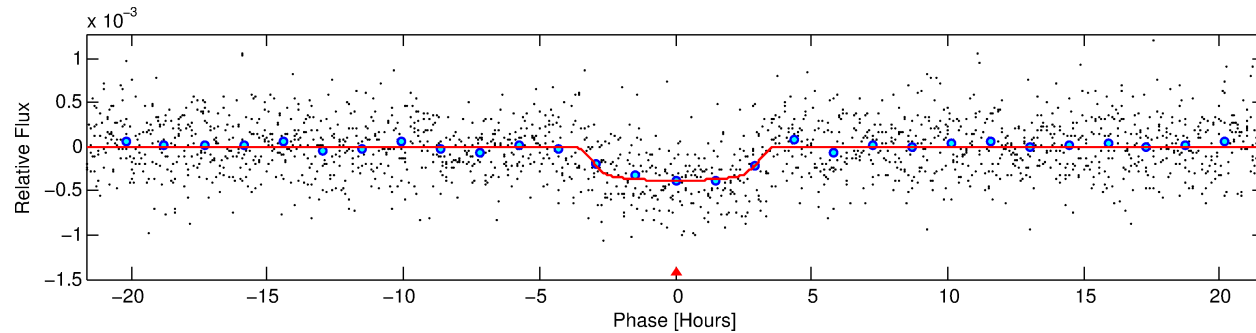
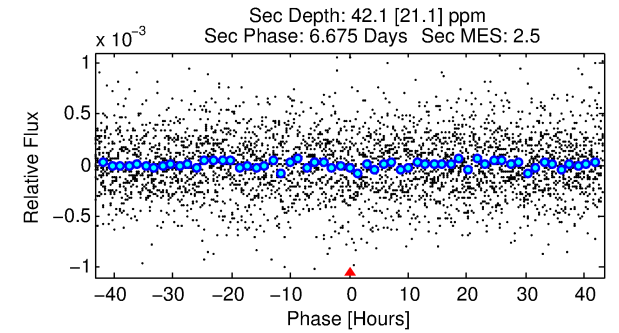
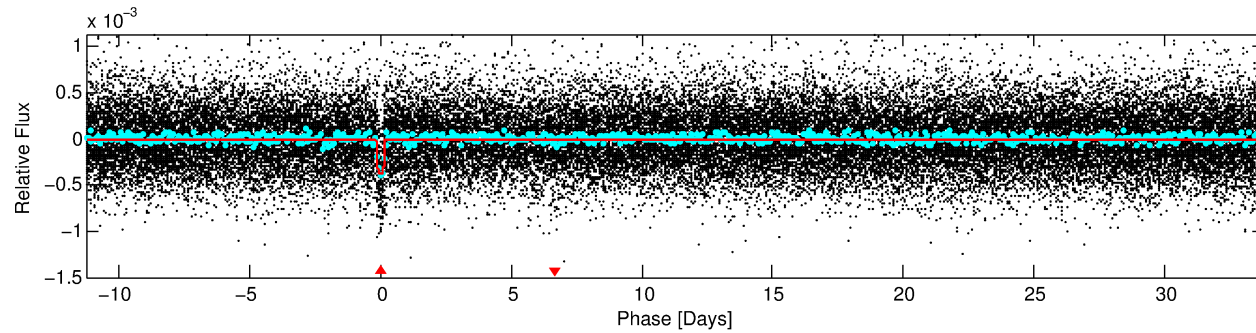
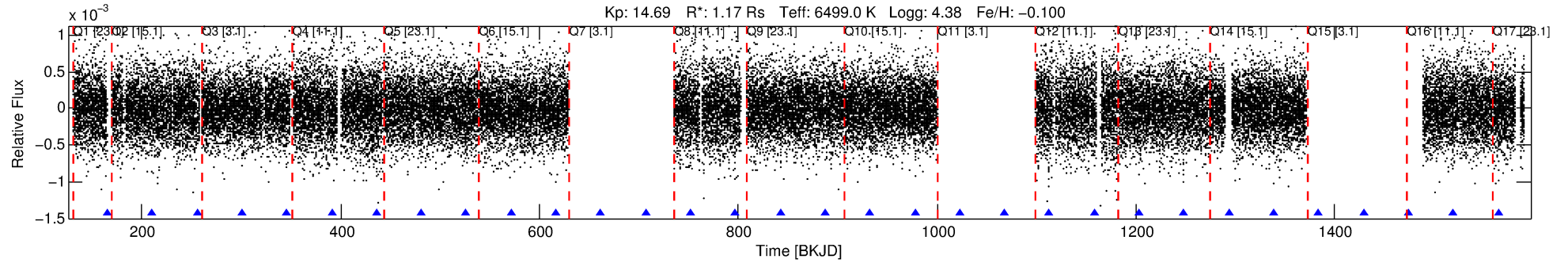
## Ephemeris Match Information For 009845898-01

No Significant Match Found

# DV One-Page Summary

KIC: 9845898 Candidate: 1 of 1 Period: 45.126 d

KOI: K02423.01 Corr: 0.958



## DV Fit Results:

Period = 45.12597 [0.00050] d  
Epoch = 165.4211 [0.0085] BKJD  
Rp/R\* = 0.0217 [0.0014]  
a/R\* = 19.85 [5.65]  
b = 0.93 [0.04]  
Seff = 31.59 [12.79]  
Teff = 605 [61] K  
Rp = 2.77 [0.92] Re  
a = 0.2629 [0.0703] AU  
Ag = 208.17 [133.47] [1.55σ]  
Teffp = 3550 [476] K [6.14σ]

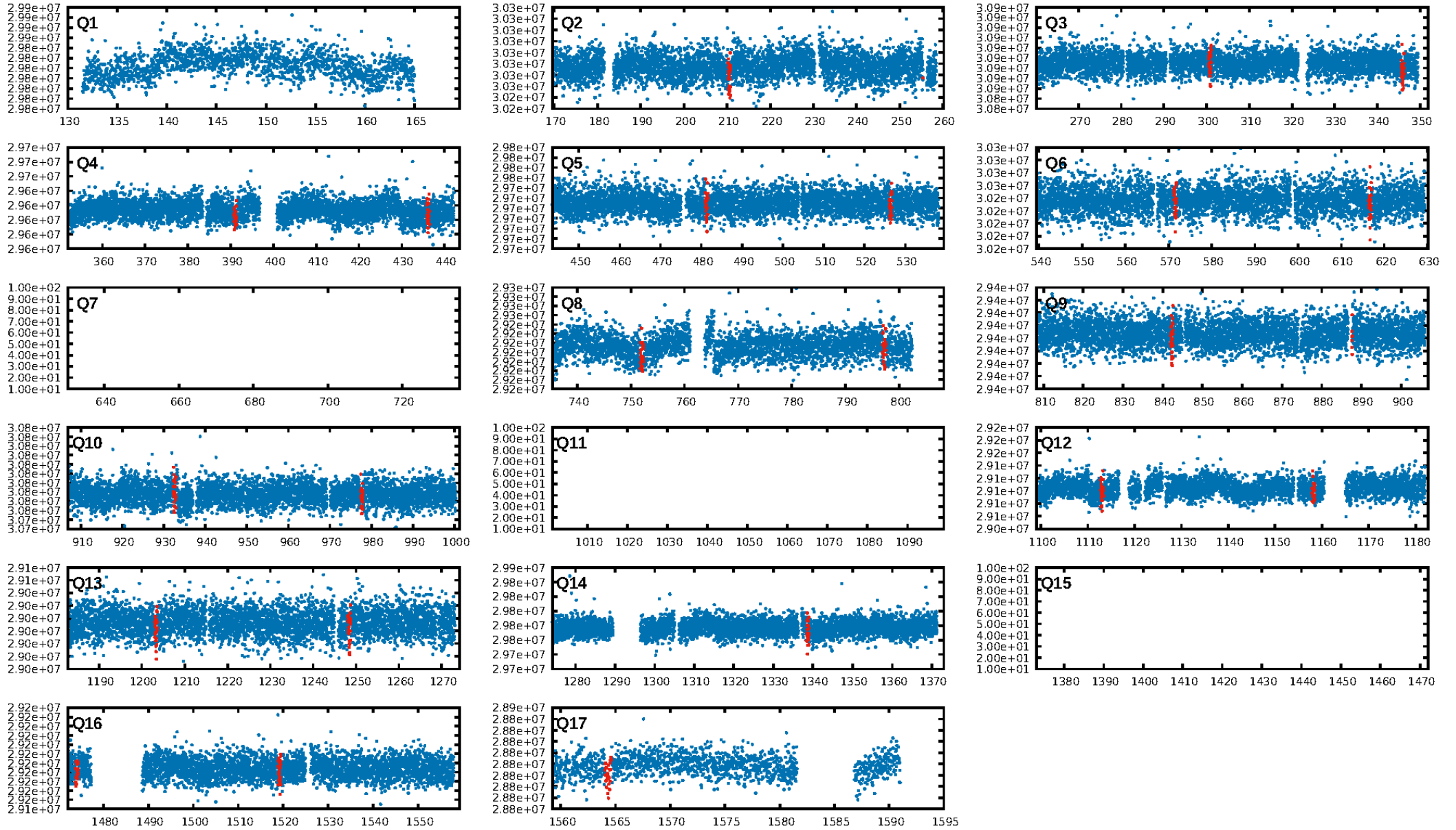
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 96.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 7.74e-55  
RollingBand-fgt: 1.00 [21/21]  
GhostDiagnostic-chr: -30.78  
Centroid-sig: 4.4%  
Centroid-so: 1.221 arcsec [2.23σ]  
OotOffset-rm: 0.604 arcsec [0.71σ]  
KicOffset-rm: 0.668 arcsec [0.62σ]  
OotOffset-st: 3/1/4/4 [12]  
KicOffset-st: 3/1/4/4 [12]  
DiffImageQuality-fgm: 0.75 [9/12]  
DiffImageOverlap-fno: 1.00 [13/13]

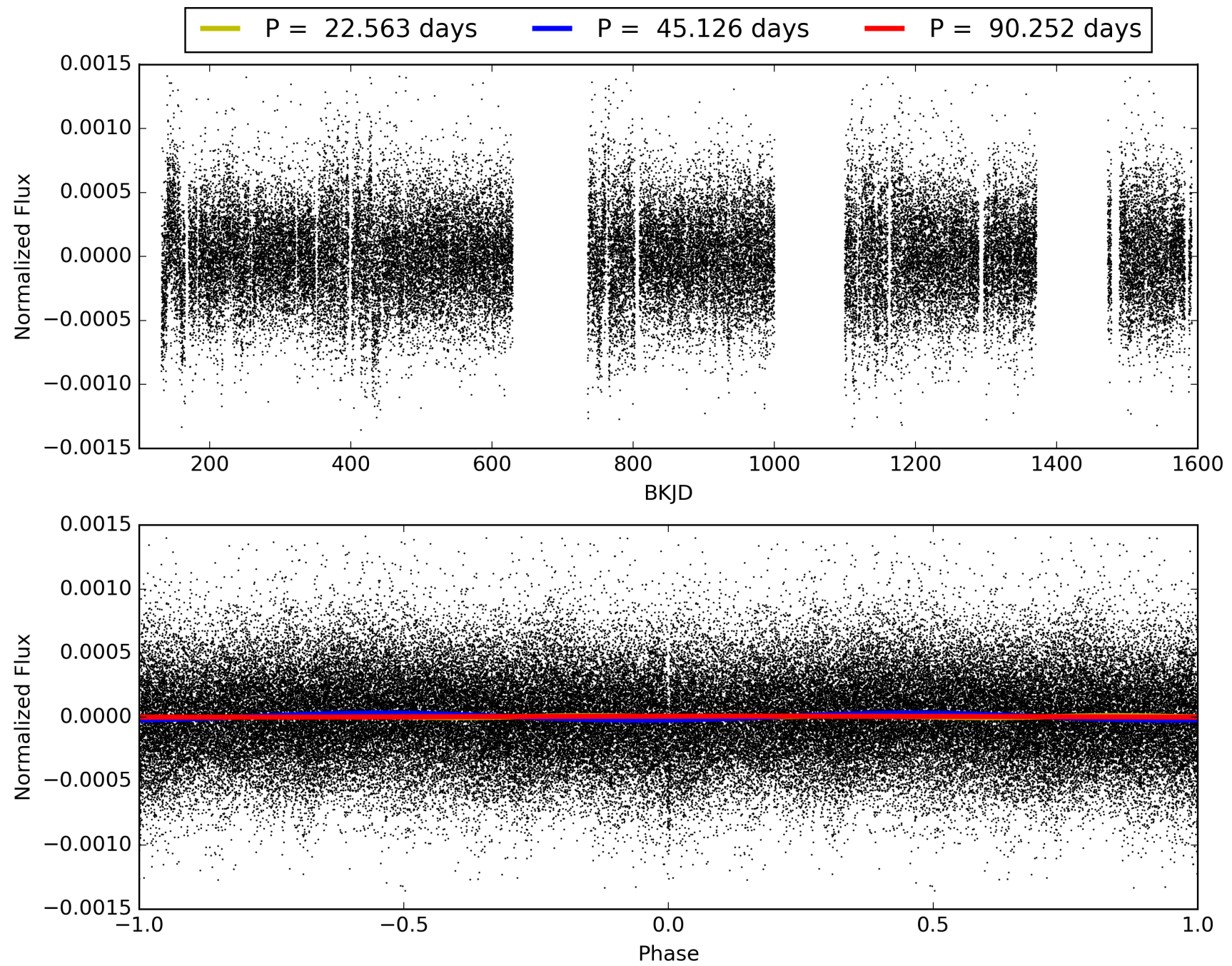
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:45:41 Z

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

# TCE 009845898-01, PDC Light Curves

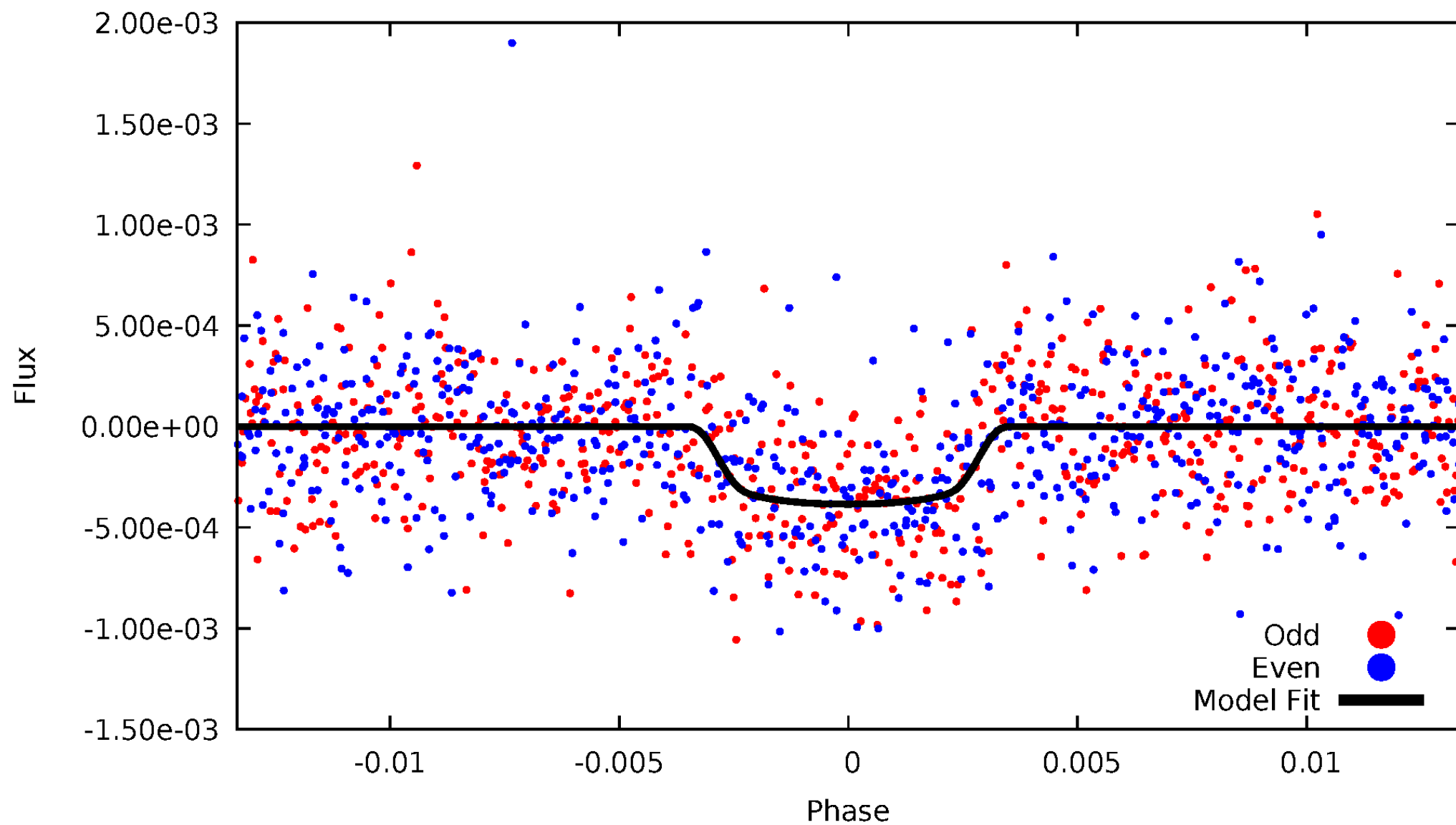


TCE 009845898-01



# DV Odd/Even

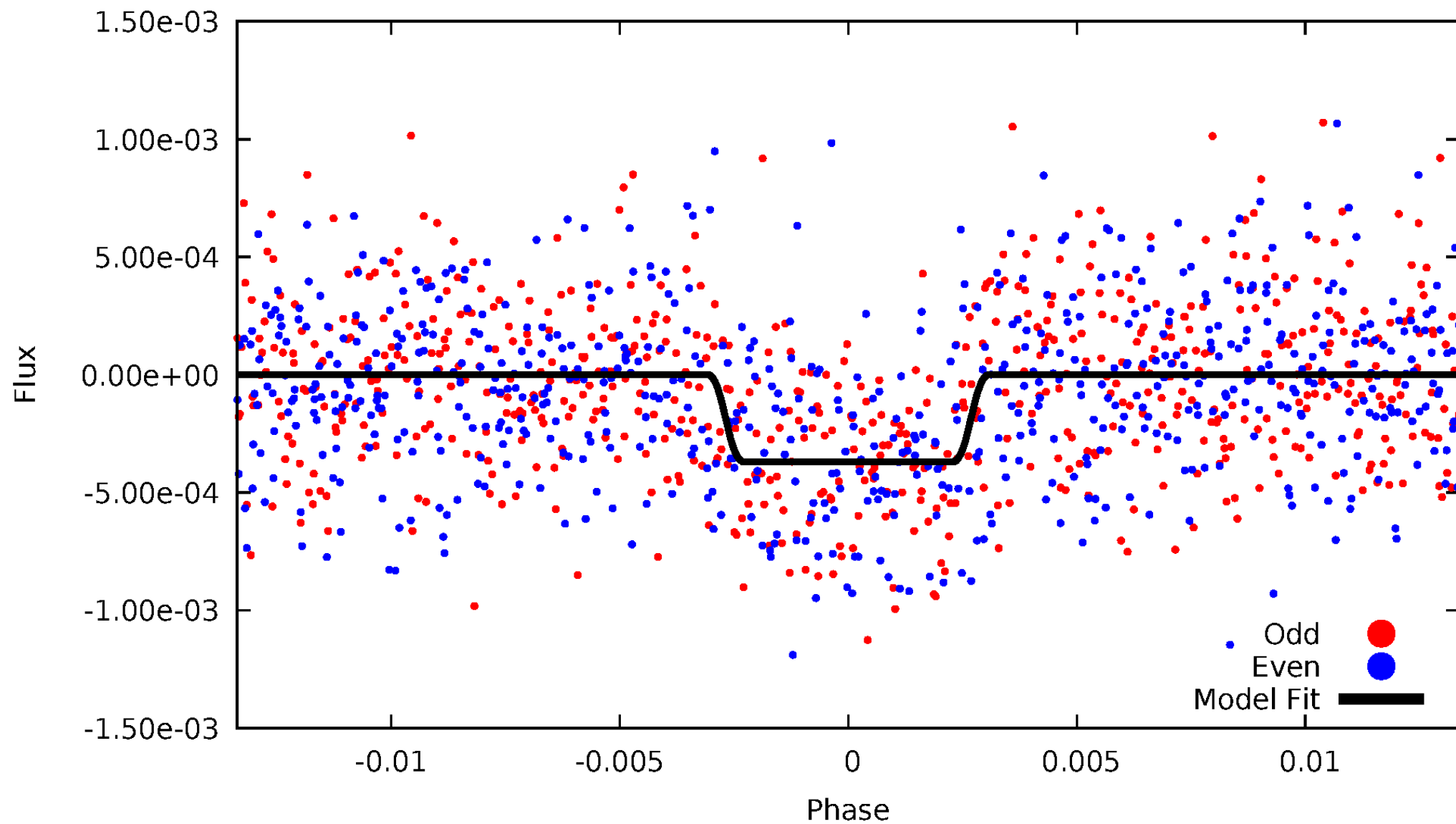
TCE 009845898-01



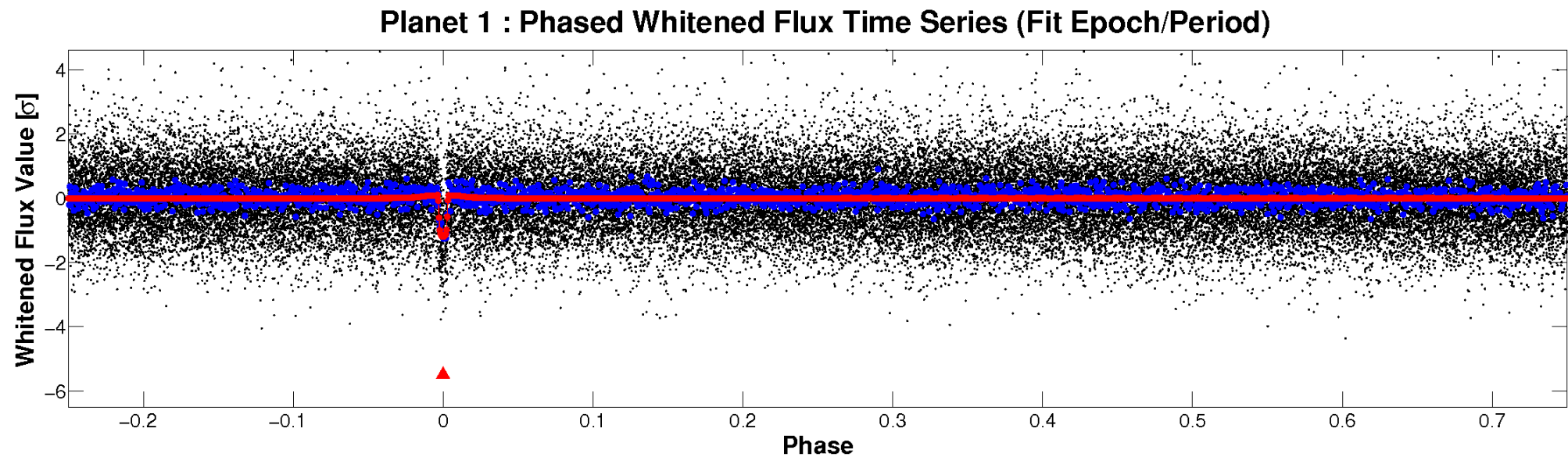
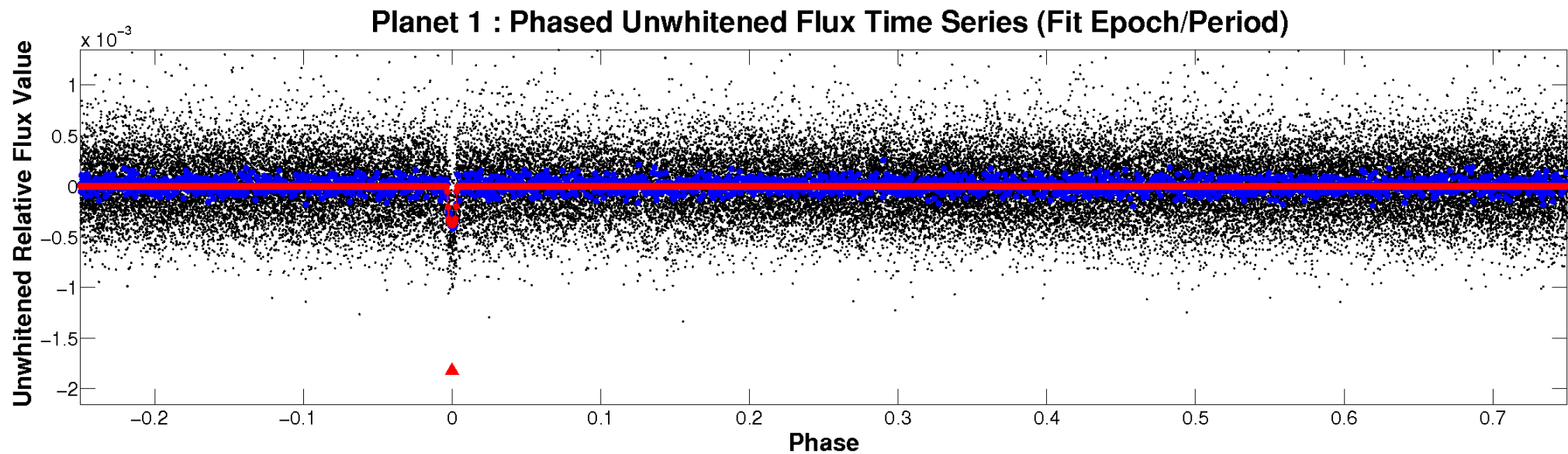


# ALT Odd/Even

TCE 009845898-01

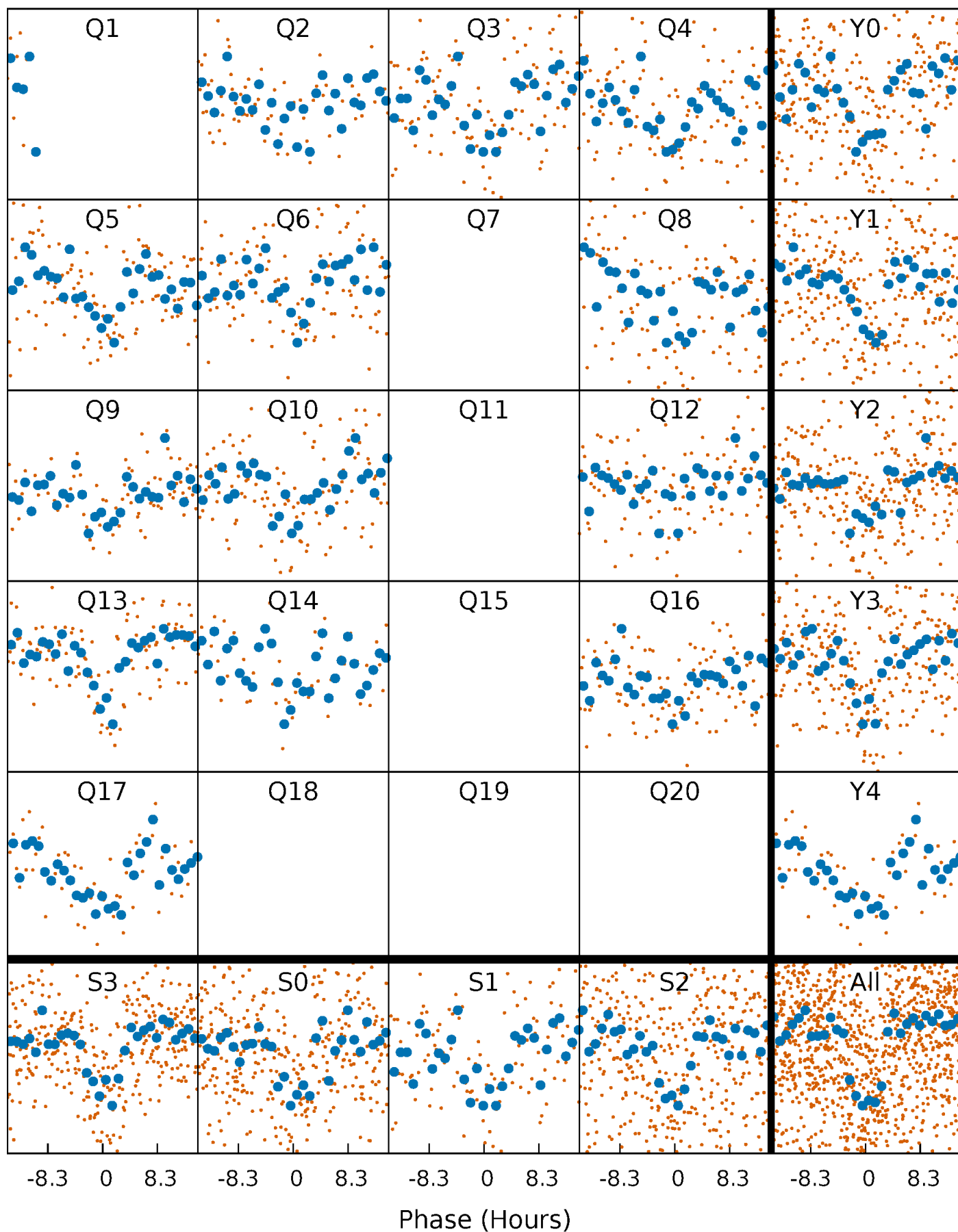


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

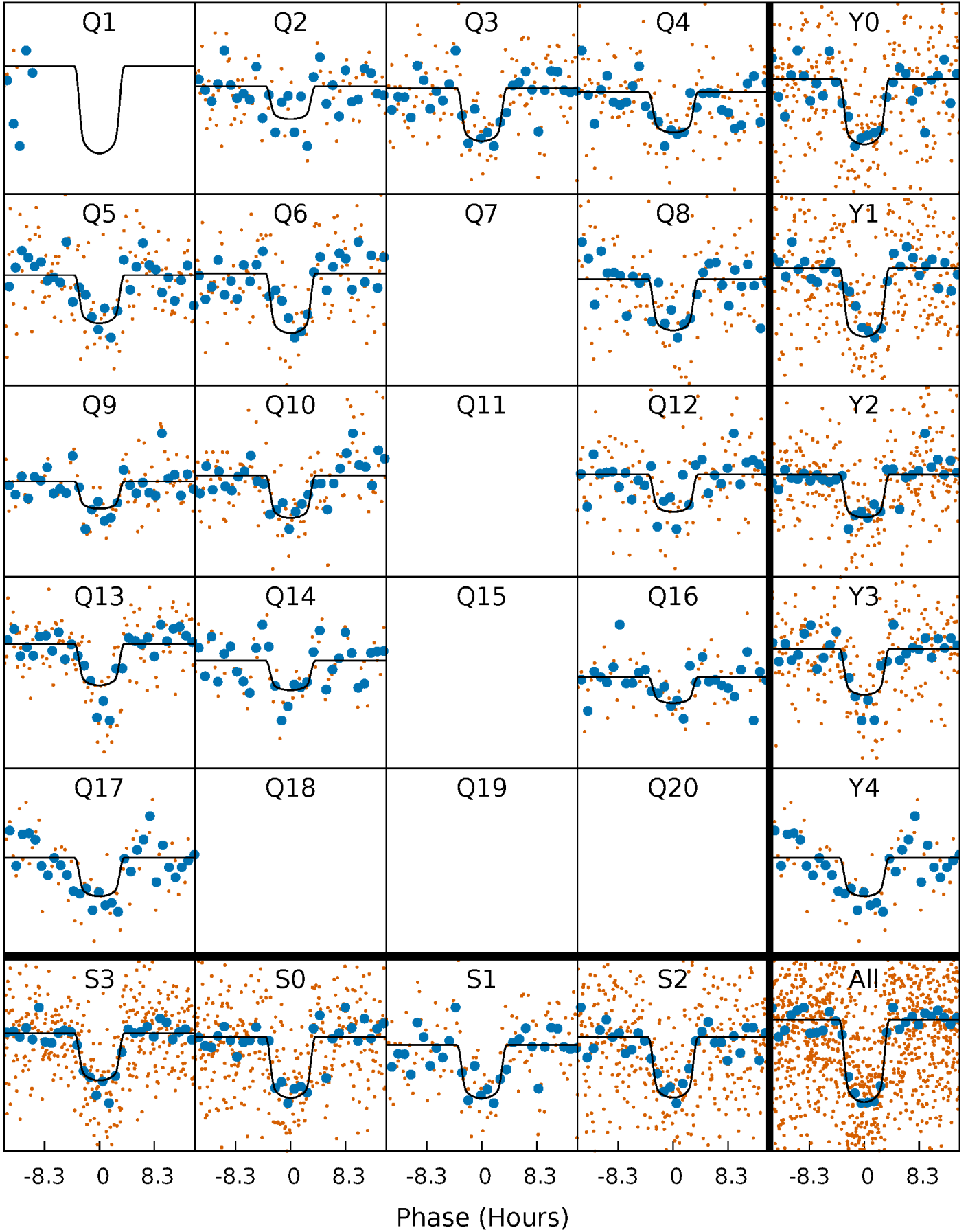
TCE 009845898-01     $P = 45.125968$  Days     $T_0 = 165.421134$  (BKJD)





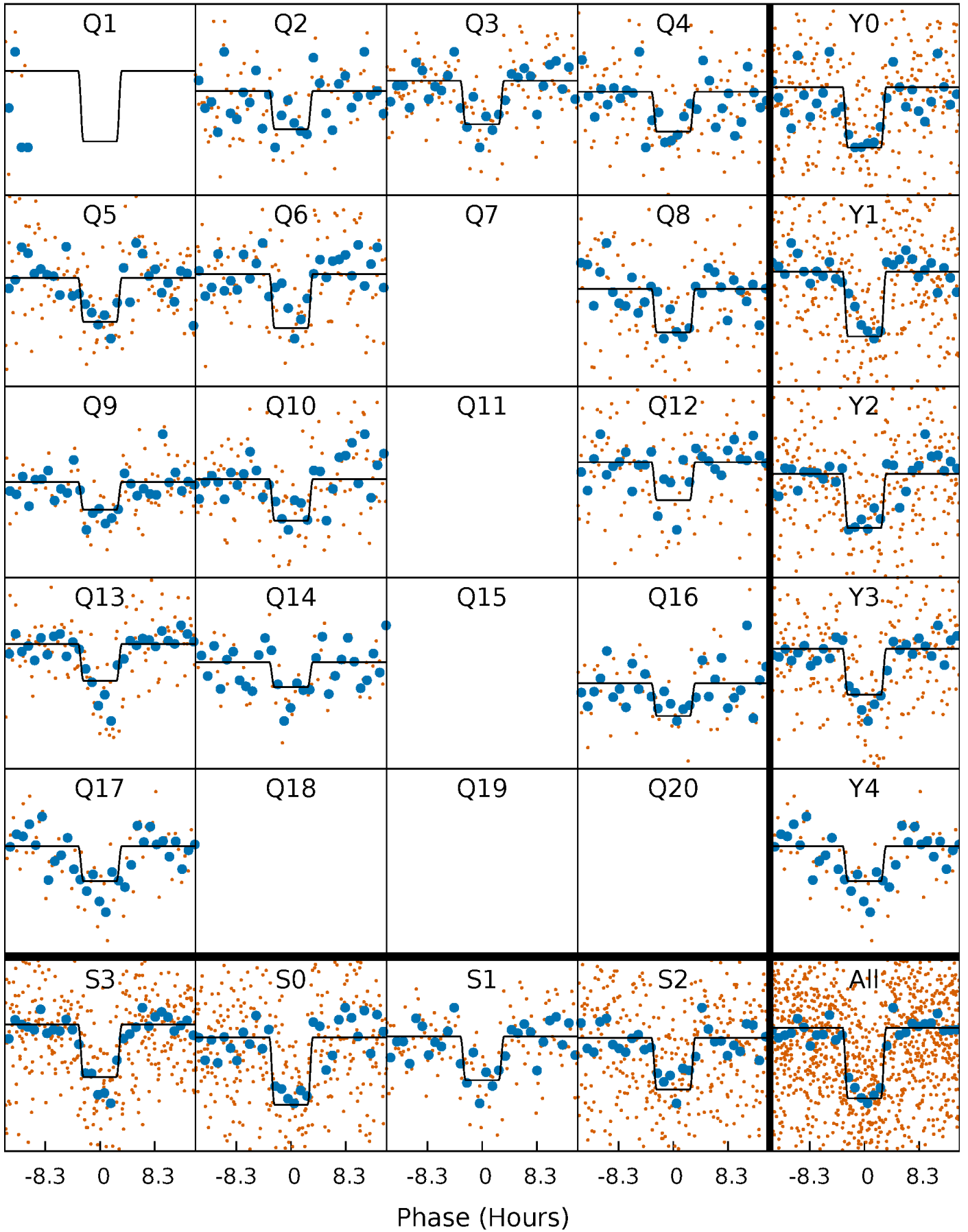
# DV Quarter-Phased Transit Curves

TCE 009845898-01   P= 45.125968 Days    $T_0=165.421134$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

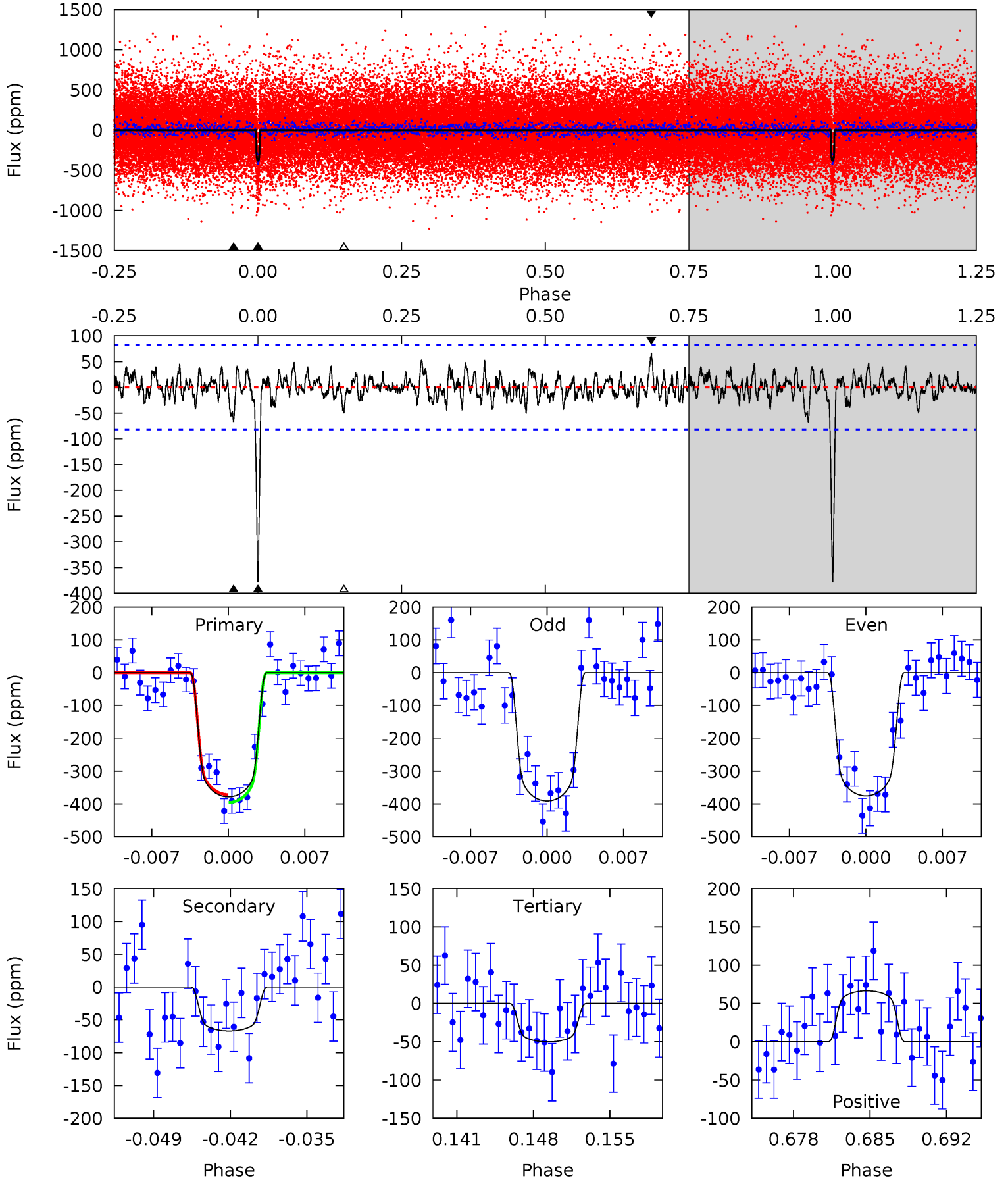
TCE 009845898-01 P= 45.124891 Days  $T_0=165.436760$  (BKJD)



# DV Model-Shift Uniqueness Test

009845898-01,  $P = 45.125968$  Days,  $E = 120.295166$  Days

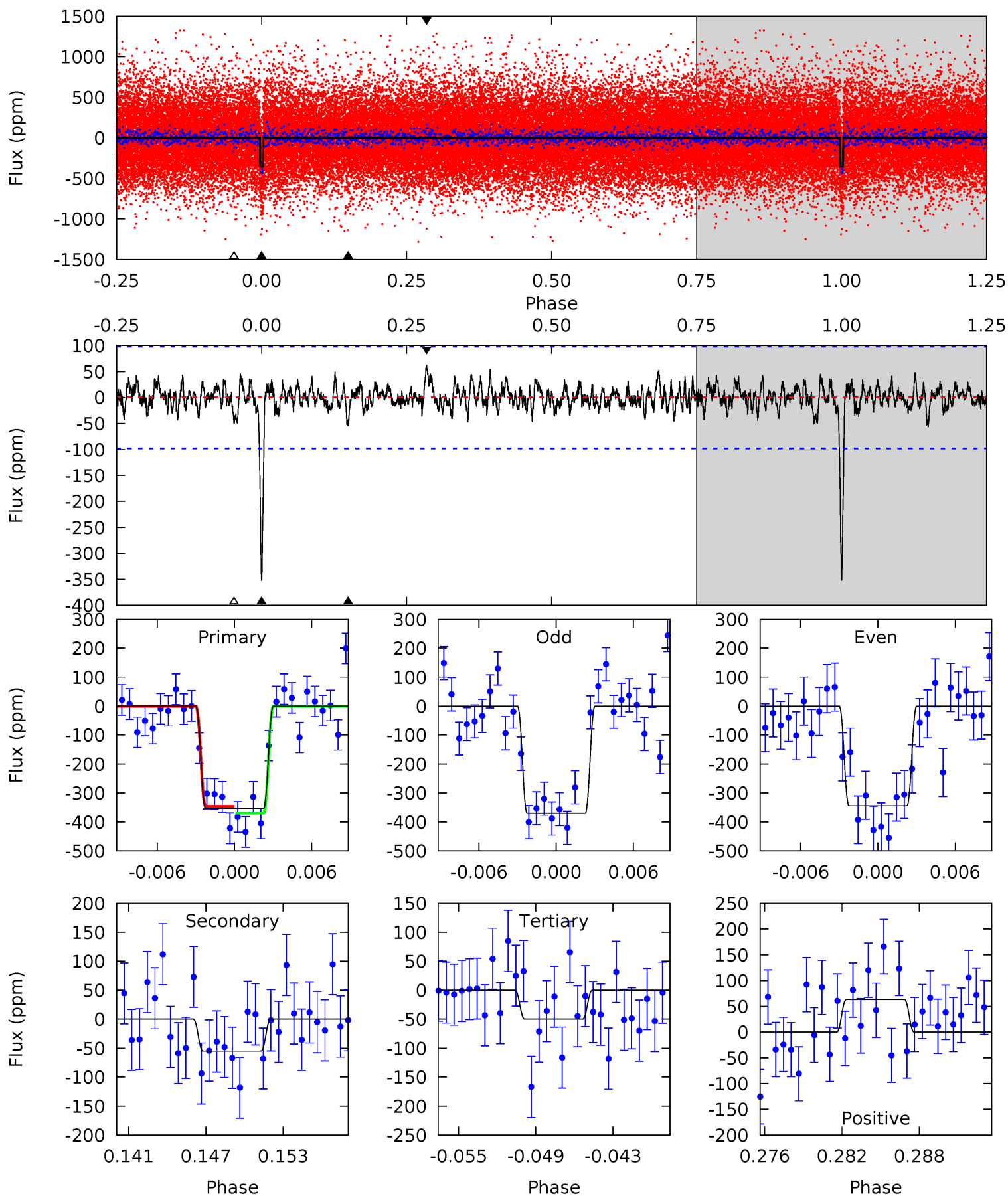
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.3	4.11	3.08	4.09	5.09	2.69	1.13	20.2	19.2	1.03	0.02	0.48	1.03	0.15	0.74



# Alt Model-Shift Uniqueness Test

009845898-01,  $P = 45.124891$  Days,  $E = 120.311869$  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
18.4	2.87	2.61	3.30	5.12	2.74	0.94	15.8	15.1	0.26	-0.42	0.69	1.05	0.15	0.62



### Stellar Parameters For KIC 009845898

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6499^{+174}_{-232}$	$4.378^{+0.067}_{-0.202}$	$-0.100^{+0.250}_{-0.300}$	$1.169^{+0.382}_{-0.127}$	$1.191^{+0.164}_{-0.164}$	$1.050^{+0.369}_{-0.528}$
	+3%/-4%	+2%/-5%	+250%/-300%	+33%/-11%	+14%/-14%	+35%/-50%
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 009845898-01 / KOI 2423.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-67 \pm 16$	$2.84^{+0.54}_{-0.30}$	$853^{+67}_{-43}$	$4206^{+220}_{-226}$	$297^{+109}_{-92}$
Alt.	$-55 \pm 19$	$2.50^{+0.42}_{-0.28}$	$854^{+65}_{-42}$	$4267^{+296}_{-364}$	$317^{+153}_{-128}$

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



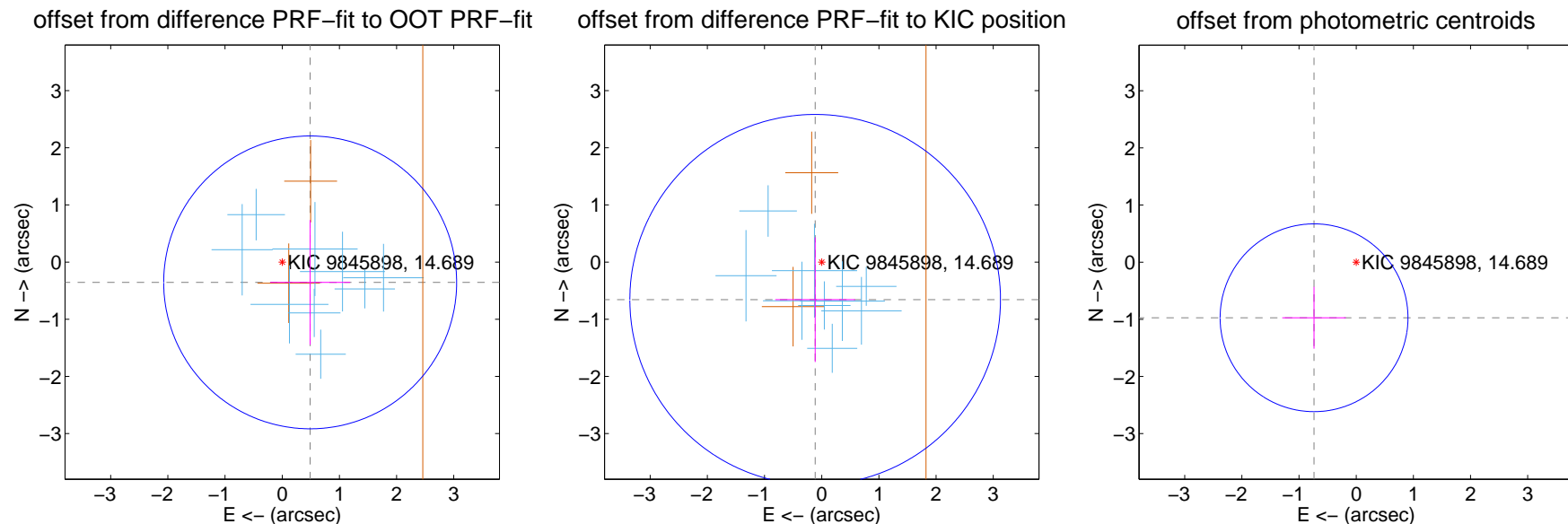
## DV Centroid Data

Supplemental centroid analysis for 009845898-01. Kepler magnitude: 14.69. Transit SNR 17.22

There are 9 quarters with good PRF difference image offsets

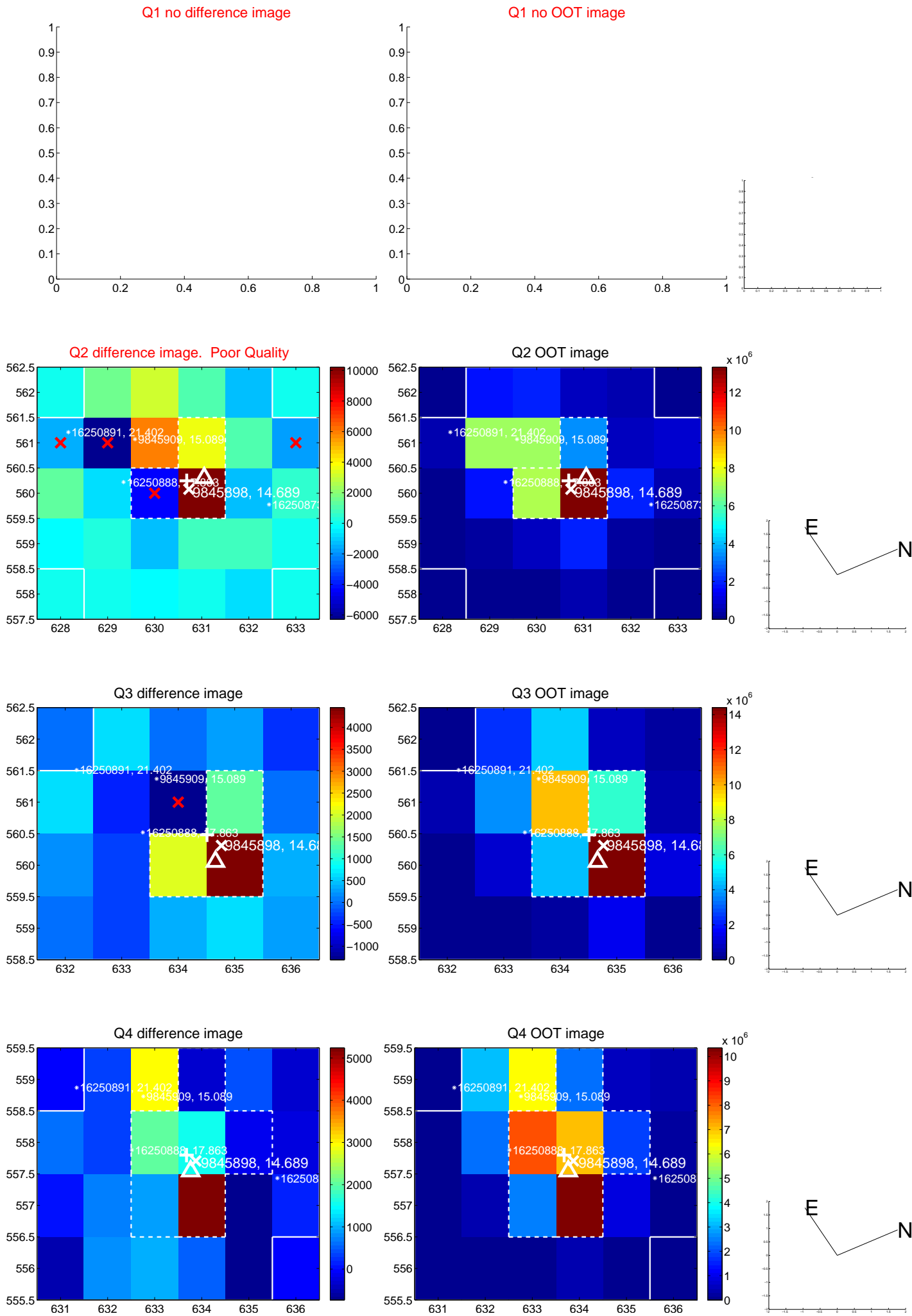
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.604 \pm 0.854$	0.71	$-0.489 \pm 0.698$	$-0.355 \pm 1.090$
PRF-fit source offset from KIC position	$0.668 \pm 1.080$	0.62	$0.115 \pm 0.698$	$-0.658 \pm 1.090$
photometric centroid source offset	$1.22 \pm 0.55$	2.23	$0.74 \pm 0.56$	$-0.97 \pm 0.54$

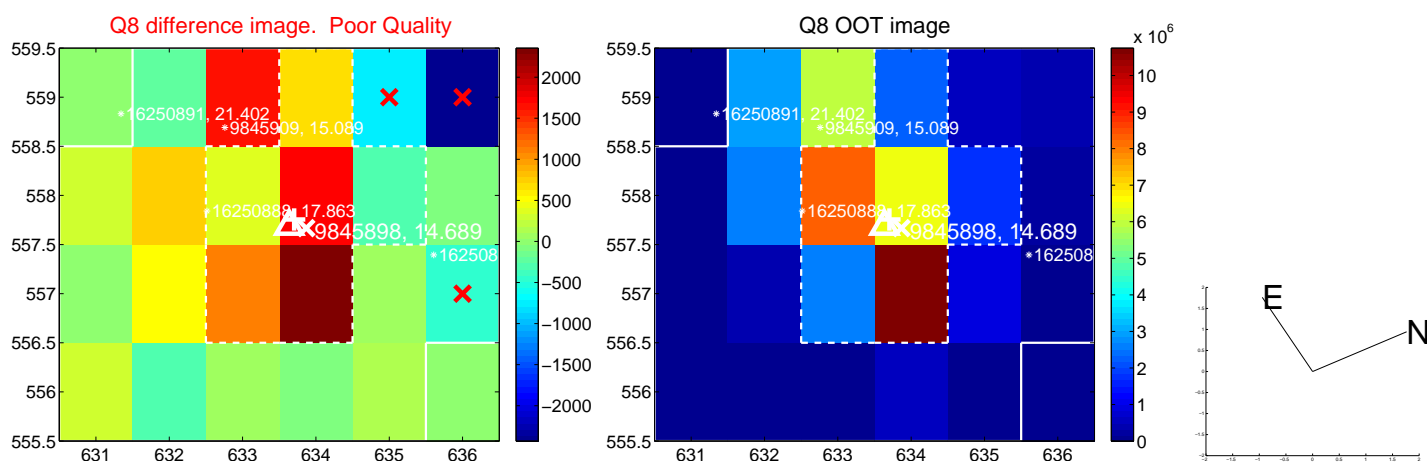
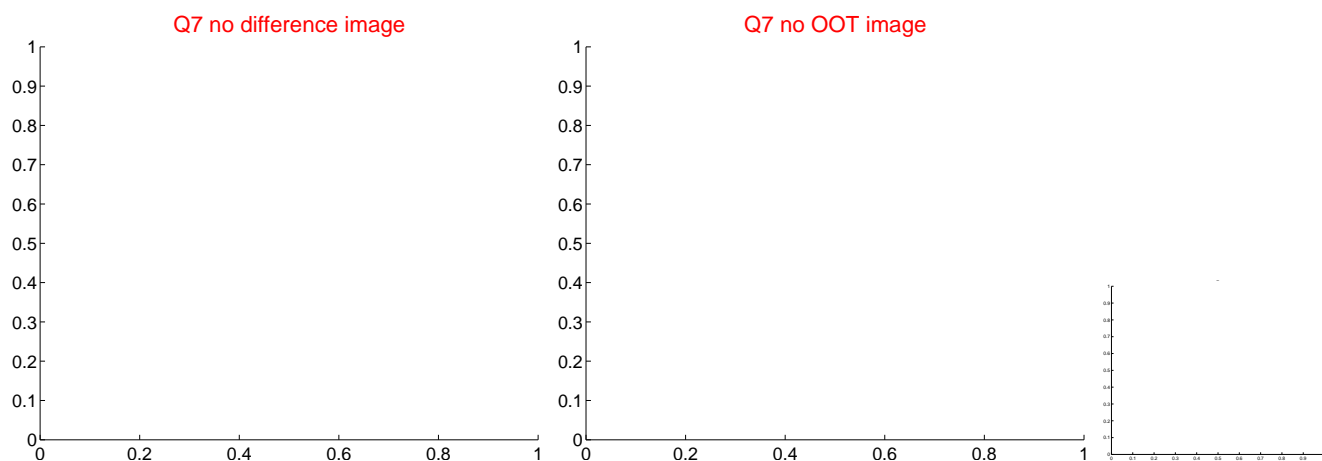
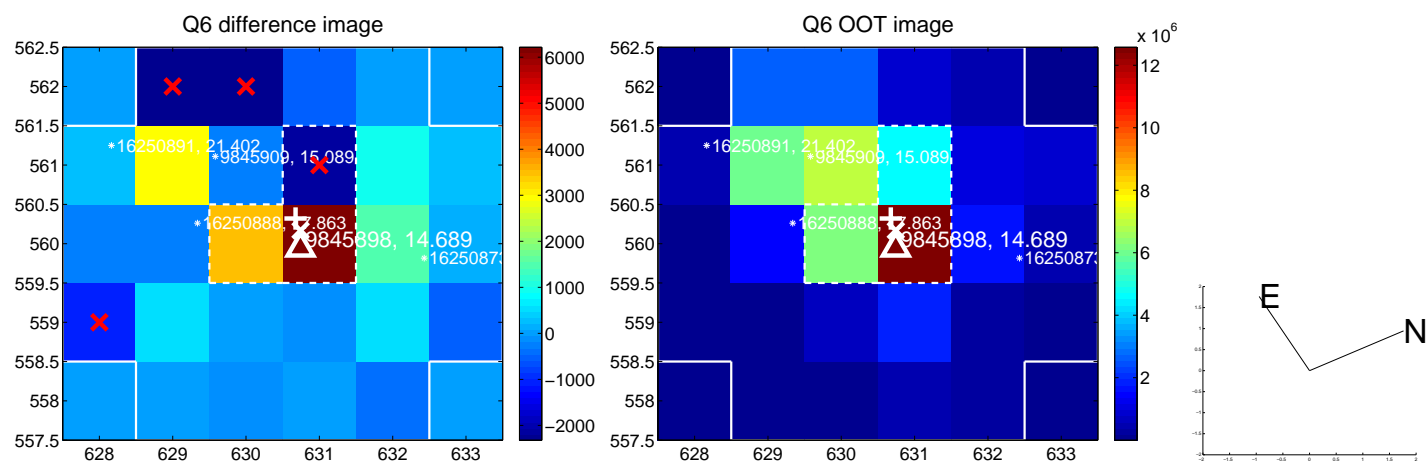
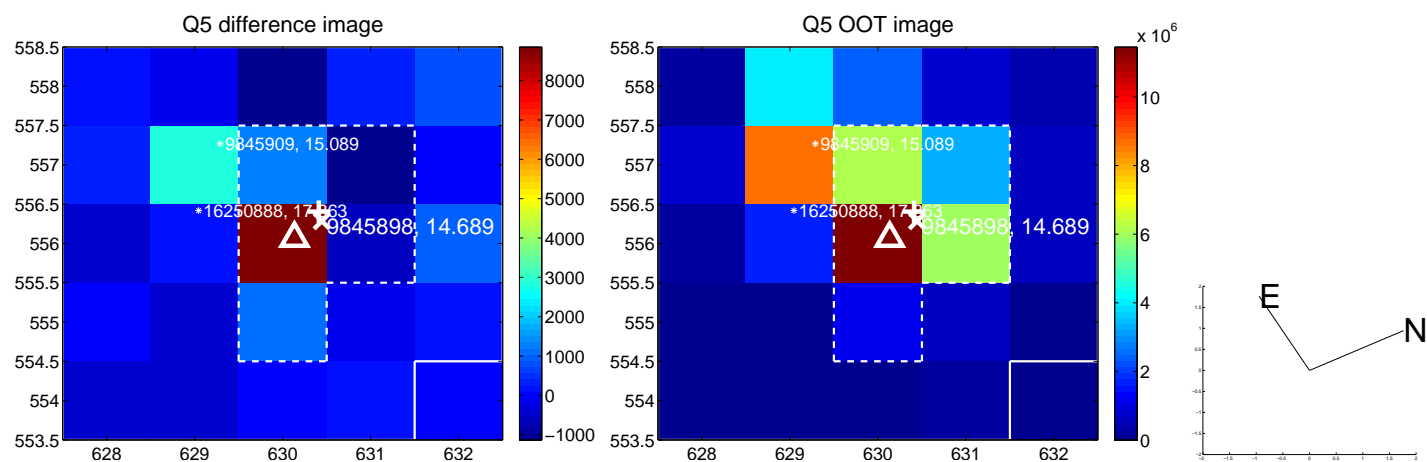


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

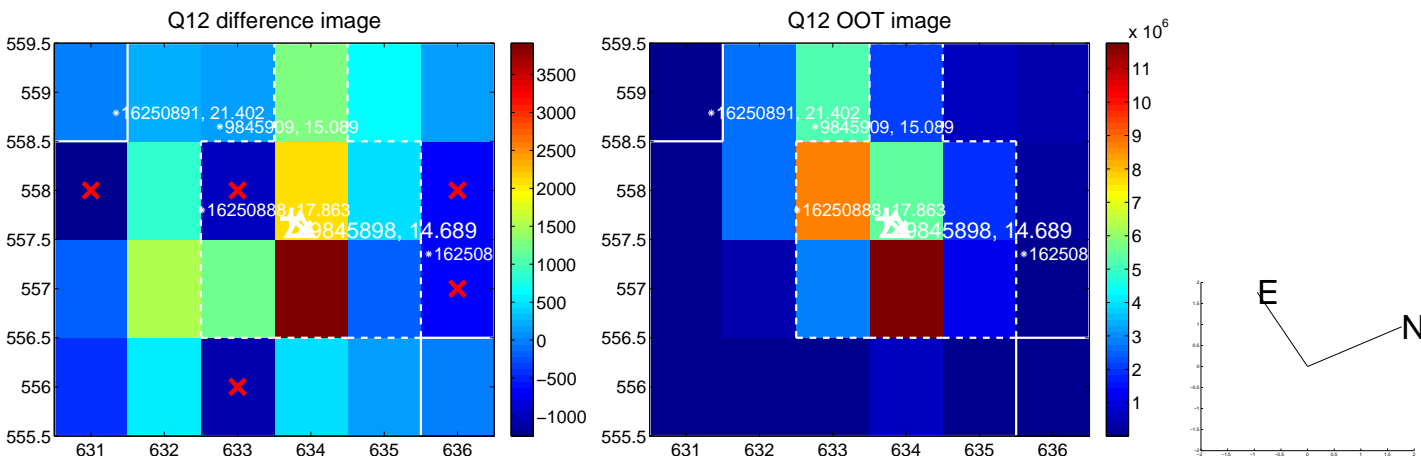
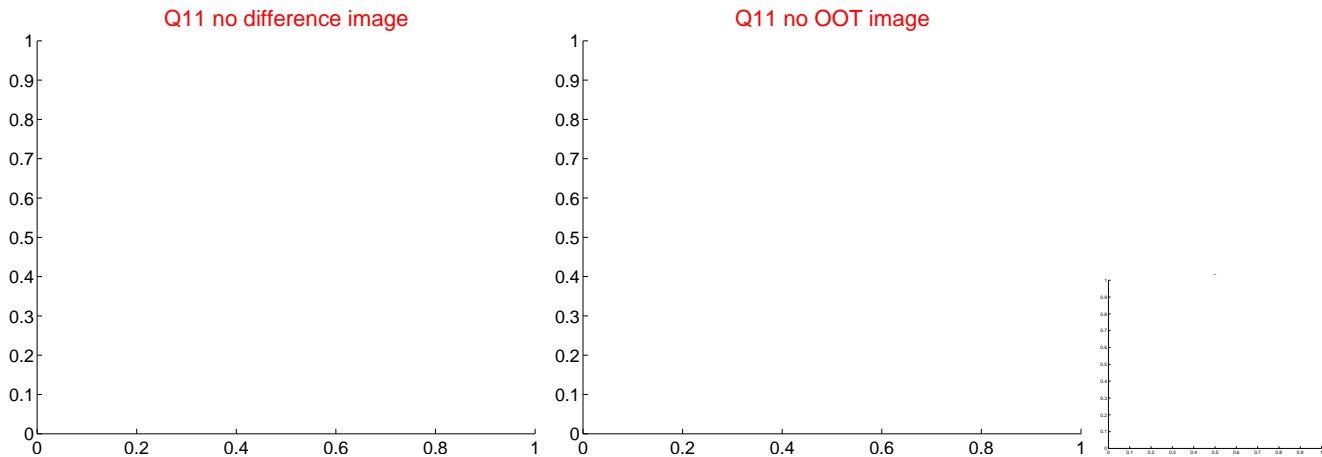
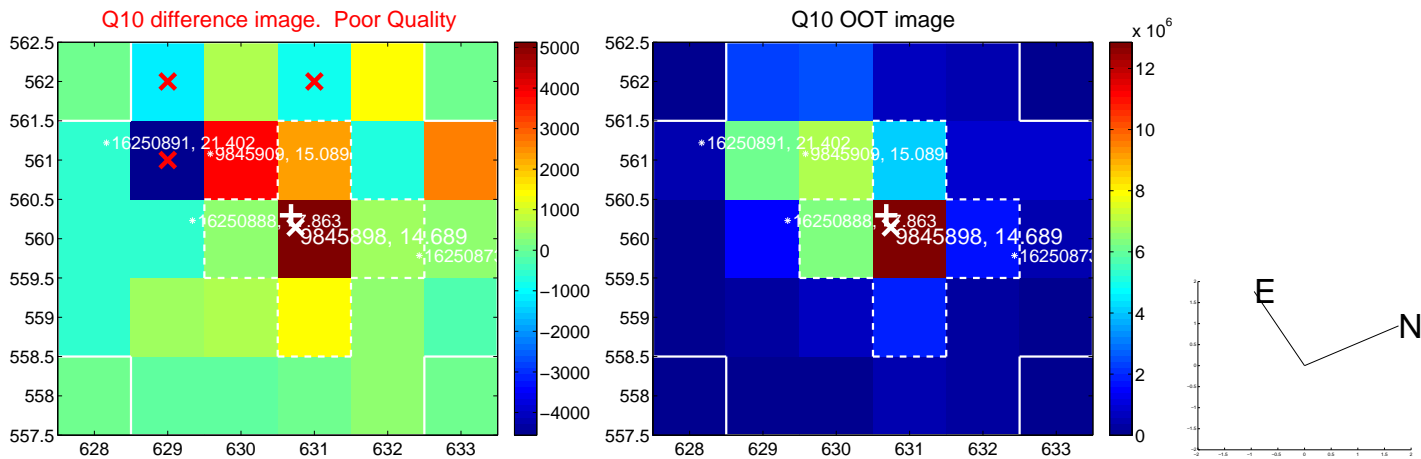
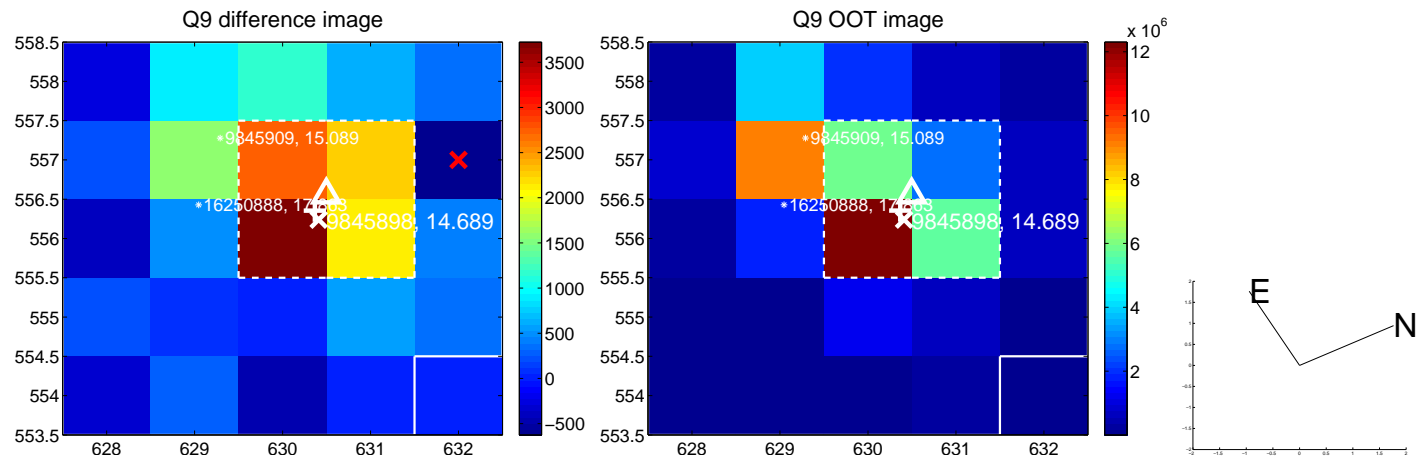
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



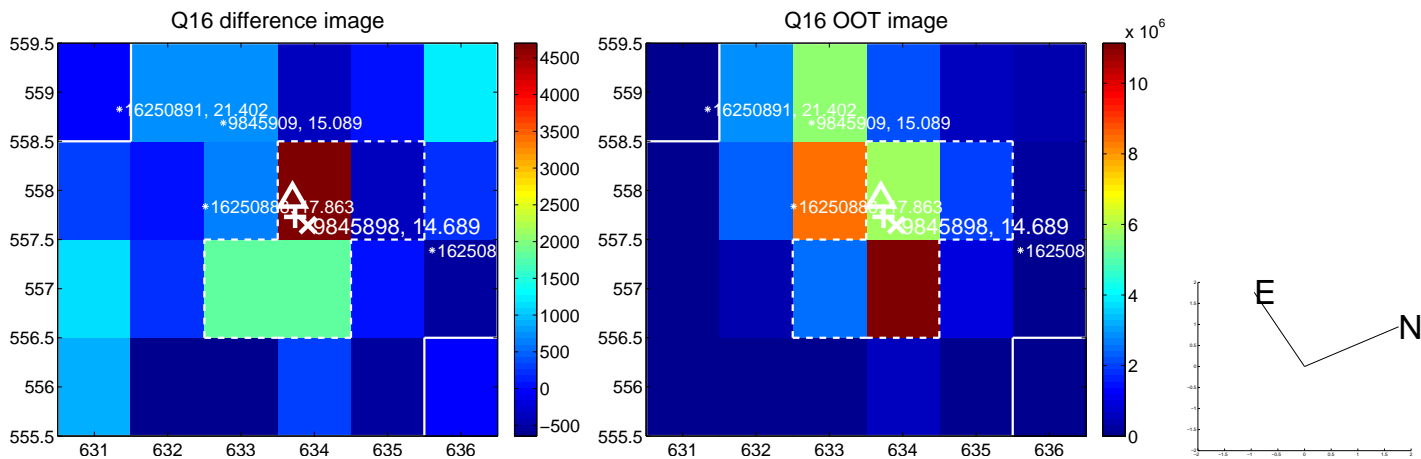
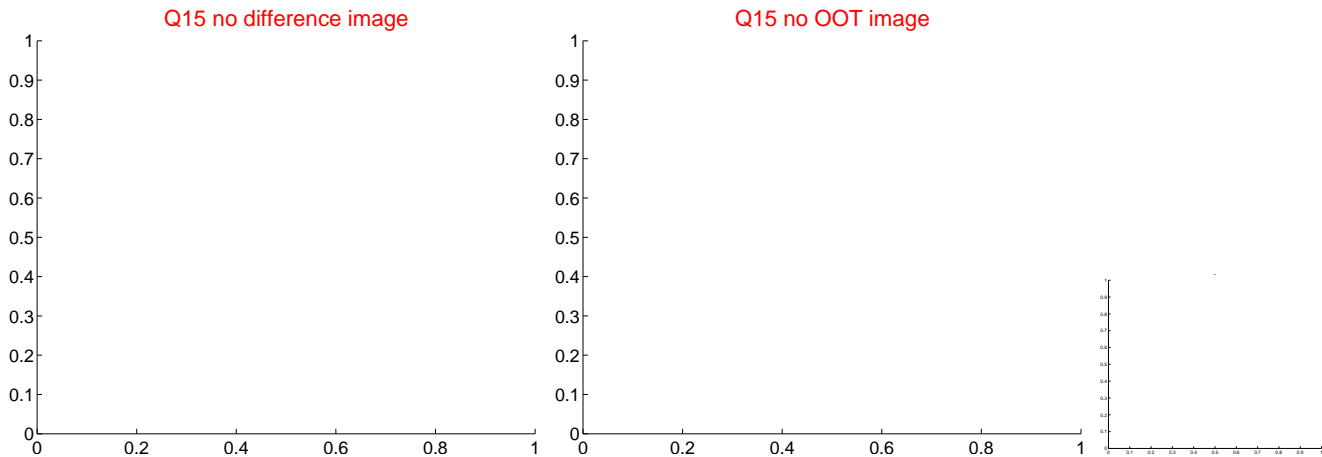
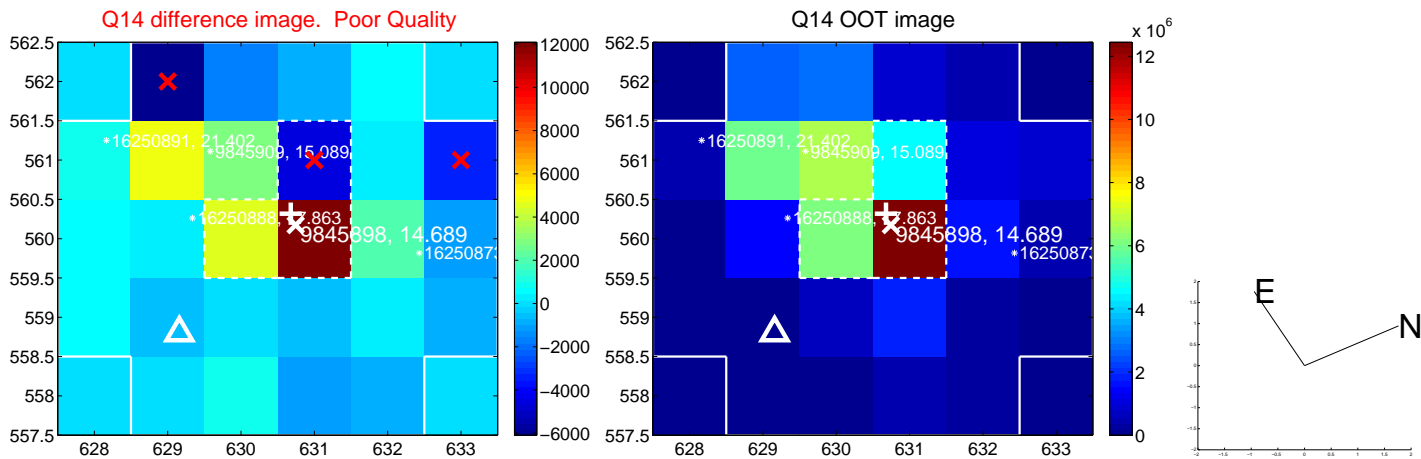
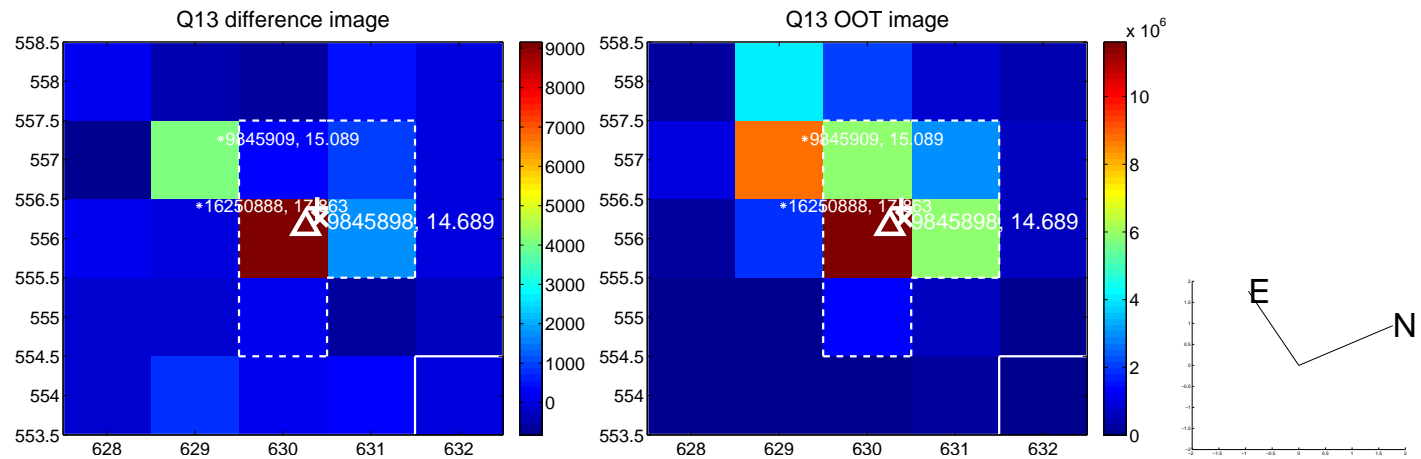
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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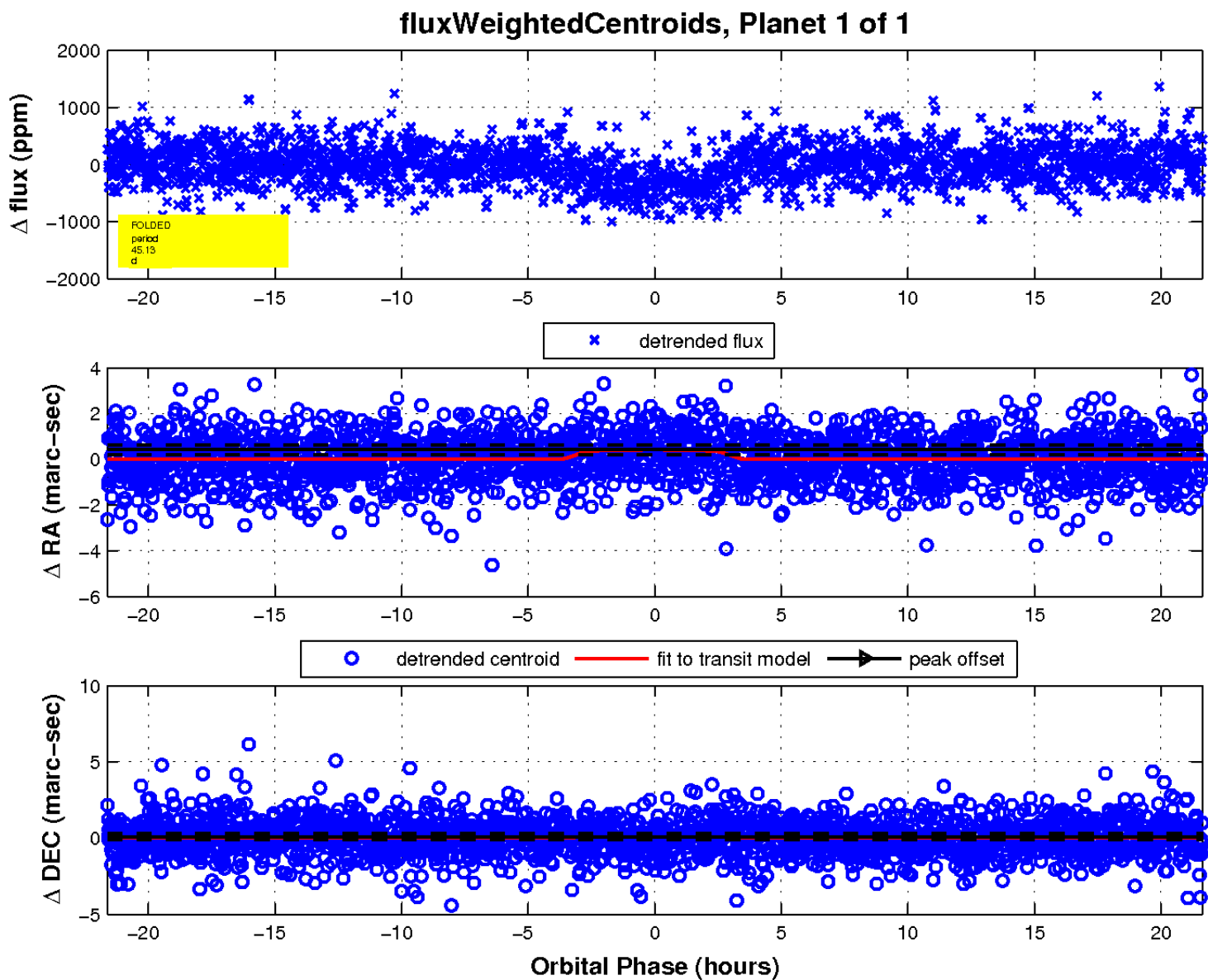
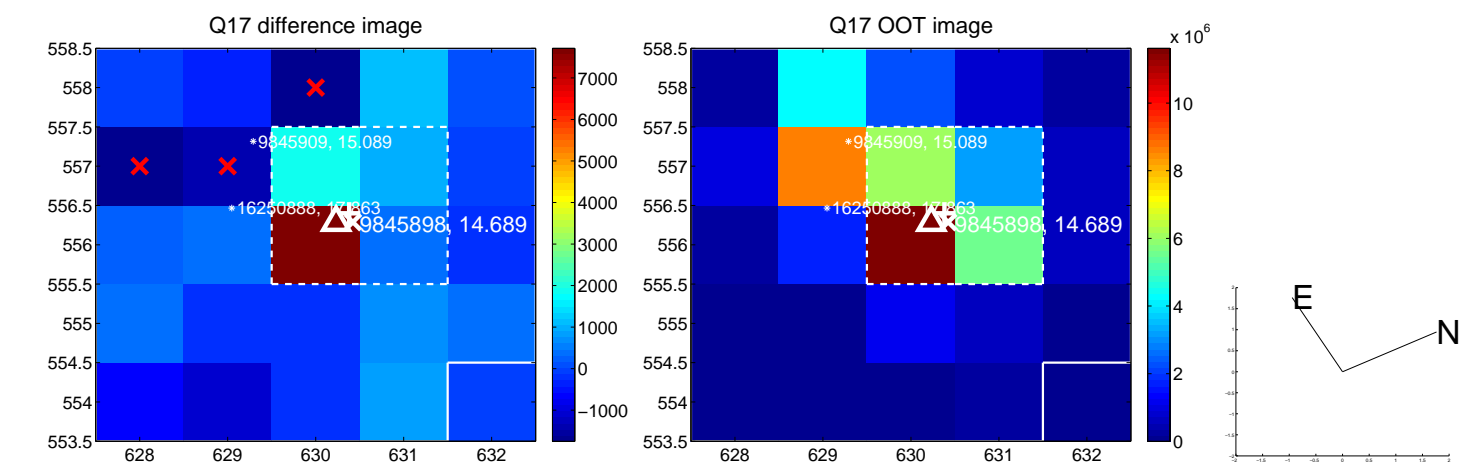


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

