

# KIC 009347056

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009347056-01	OBS	No	0.883211	132.103689	70.1	0.984	7.7	5.0	1.08	5973	1.08	3702.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009347056-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

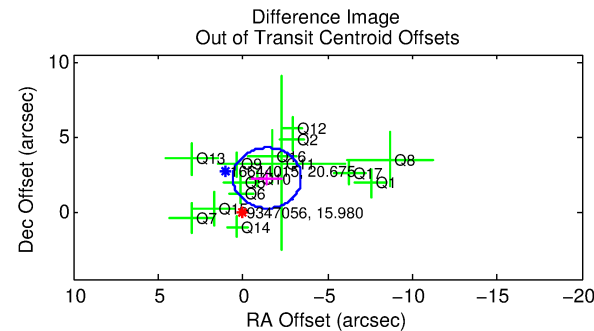
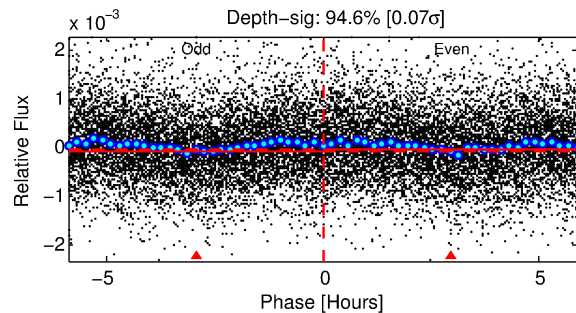
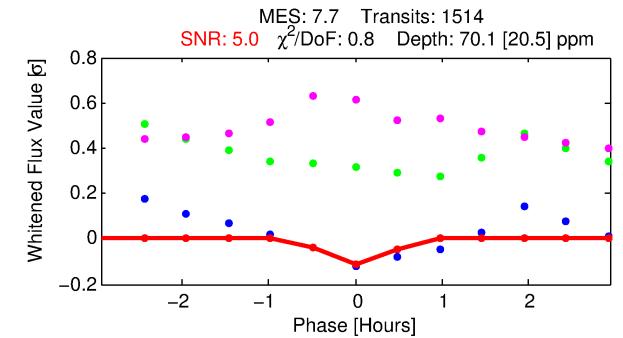
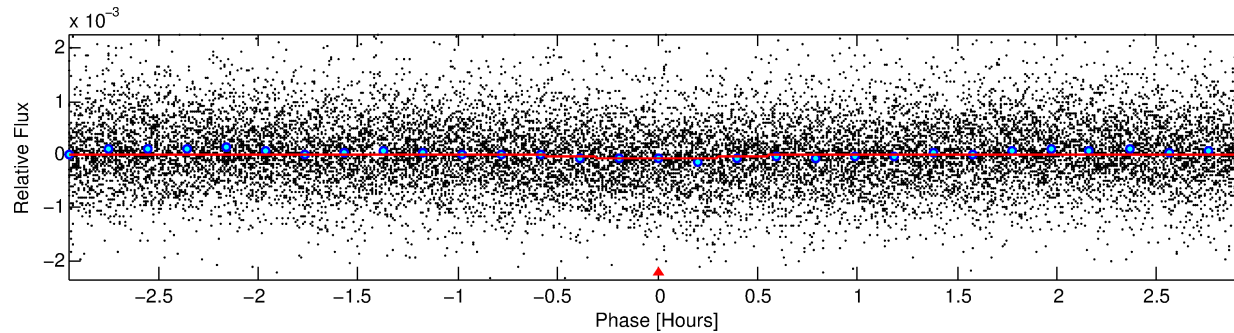
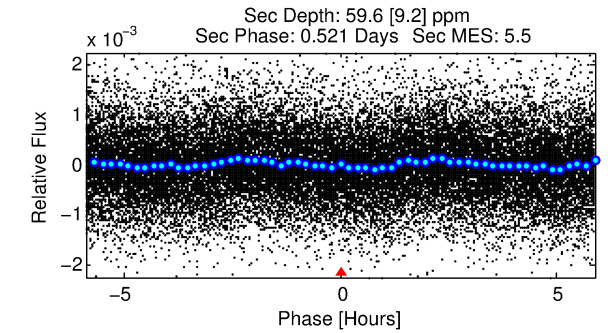
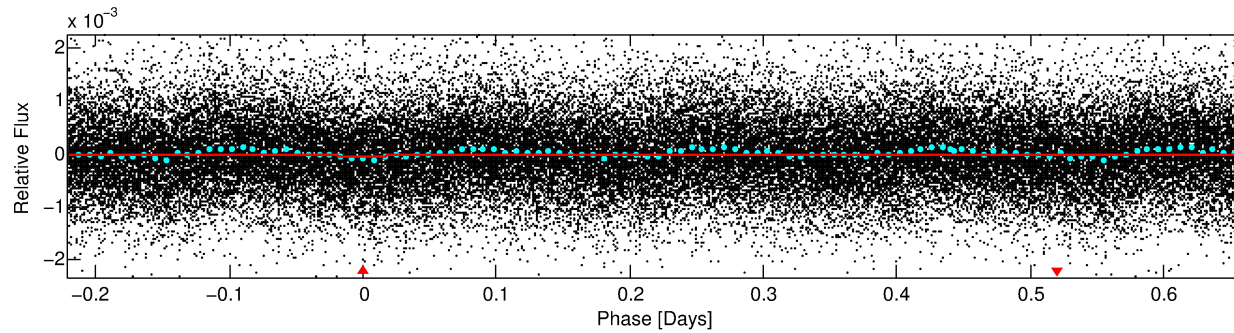
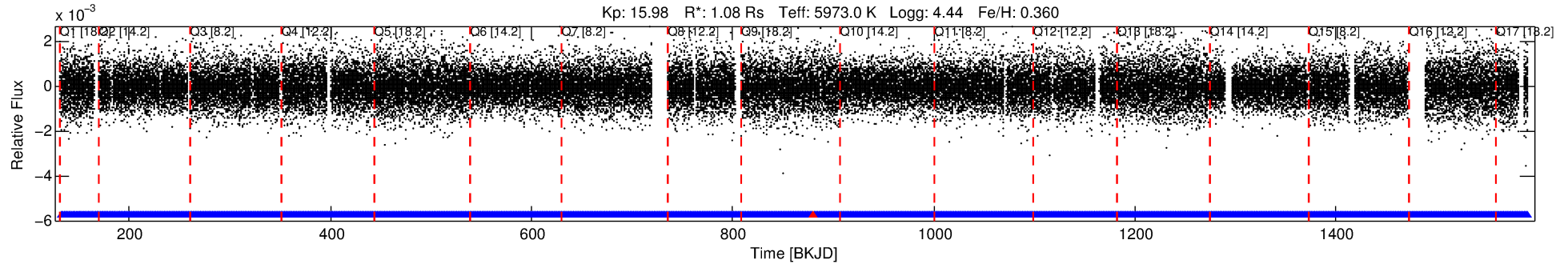
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009347056-01

No Significant Match Found

# DV One-Page Summary

KIC: 9347056 Candidate: 1 of 1 Period: 0.883 d



## DV Fit Results:

Period = 0.88321 [0.00002] d  
Epoch = 132.1037 [0.0035] BKJD  
Rp/R\* = 0.0092 [0.0074]  
a/R\* = 3.33 [11.45]  
b = 0.89 [0.86]  
Seff = 3702.81 [1353.49]  
Teq = 1989 [182] K  
Rp = 1.08 [0.92] Re  
a = 0.0190 [0.0043] AU  
Ag = 10.11 [16.68] [0.55σ]  
Teffp = 5484 [2225] K [1.57σ]

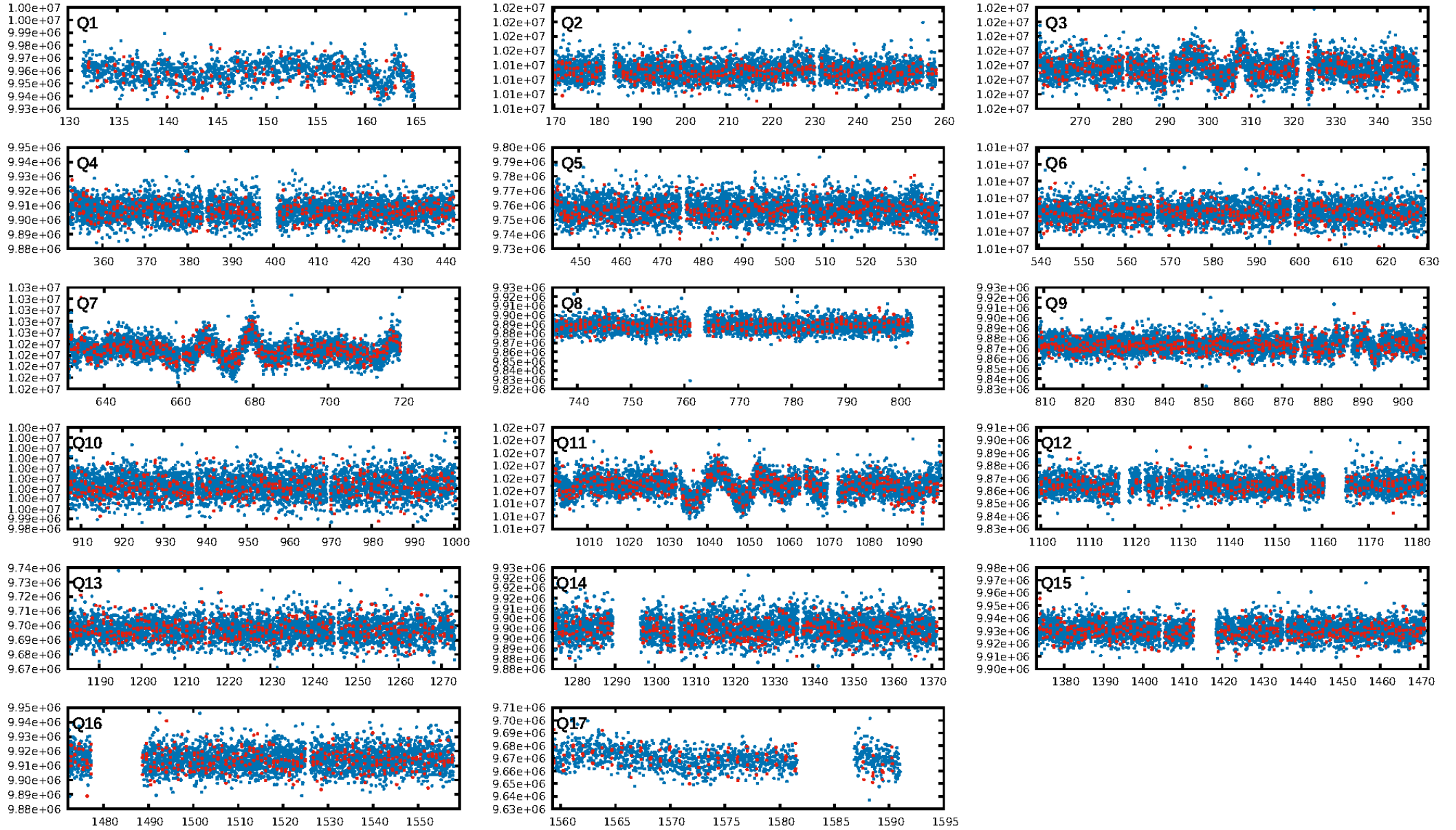
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.20e-14  
RollingBand-fgt: 1.00 [1445/1446]  
GhostDiagnostic-chr: 3.032  
Centroid-sig: 0.1%  
Centroid-so: 5.460 arcsec [2.05σ]  
OotOffset-rm: 2.664 arcsec [3.96σ]  
KicOffset-rm: 2.830 arcsec [3.96σ]  
OotOffset-st: 4/3/3/5 [15]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.13 [2/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:17:07 Z

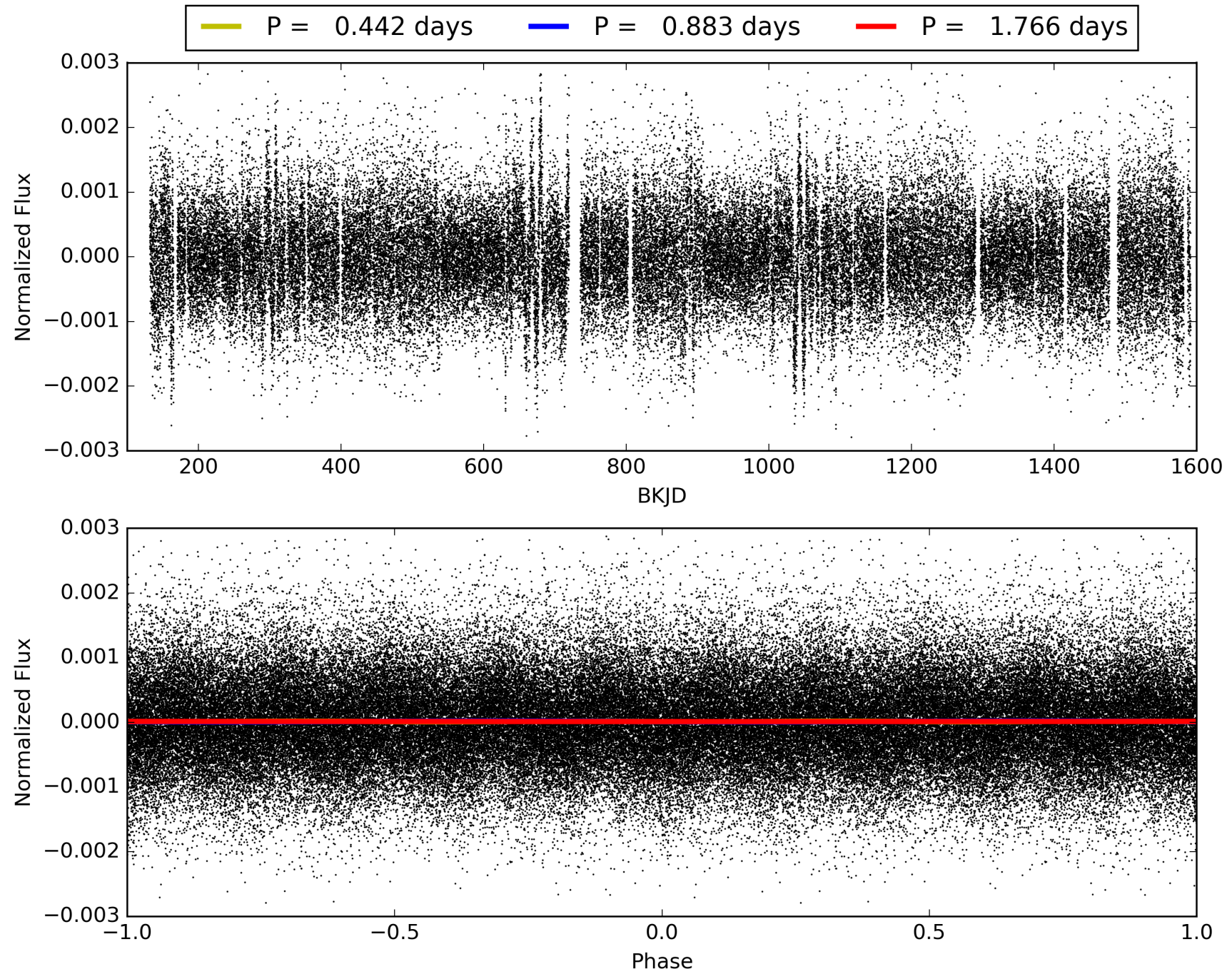
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009347056-01, PDC Light Curves



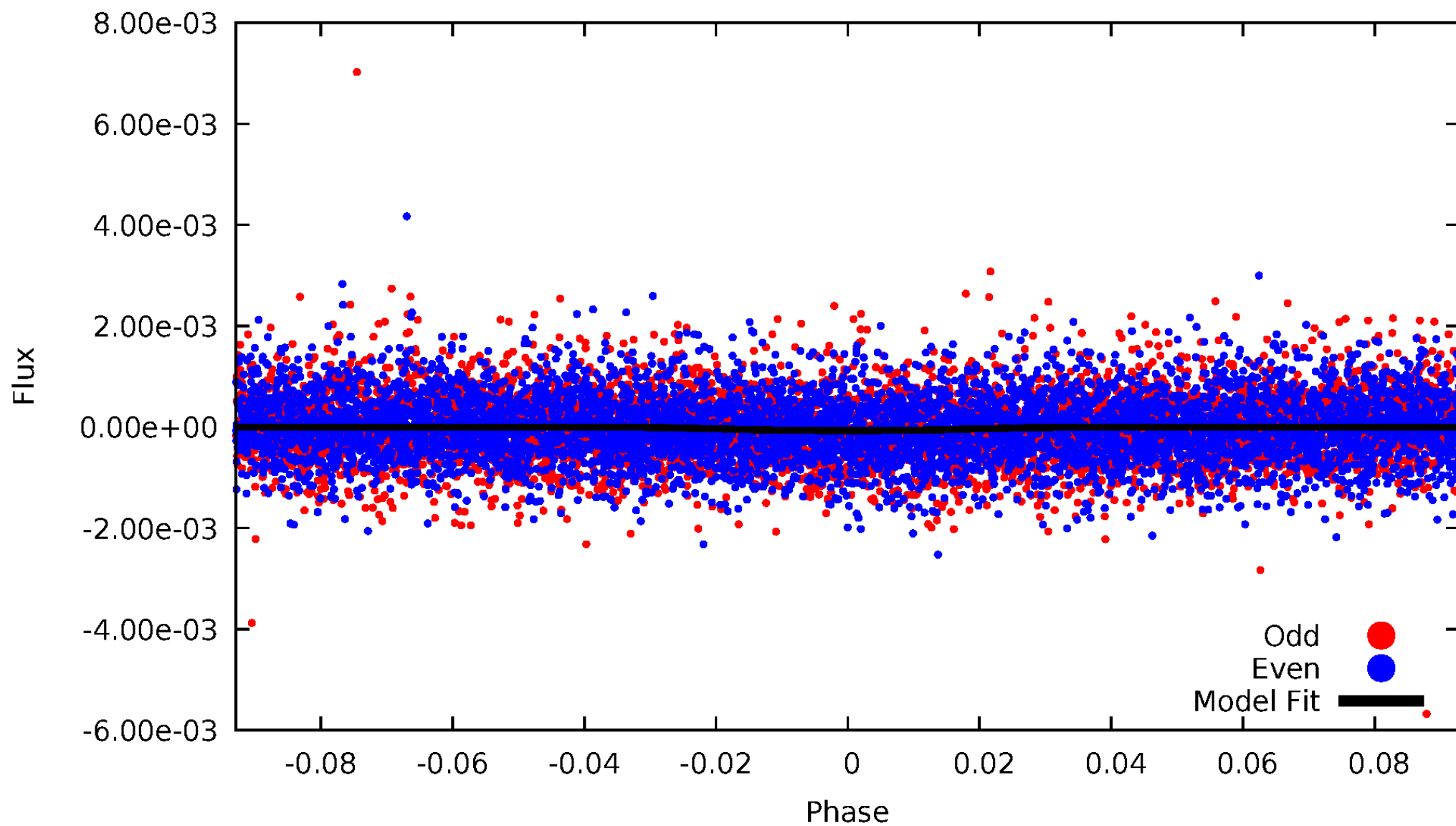


TCE 009347056-01



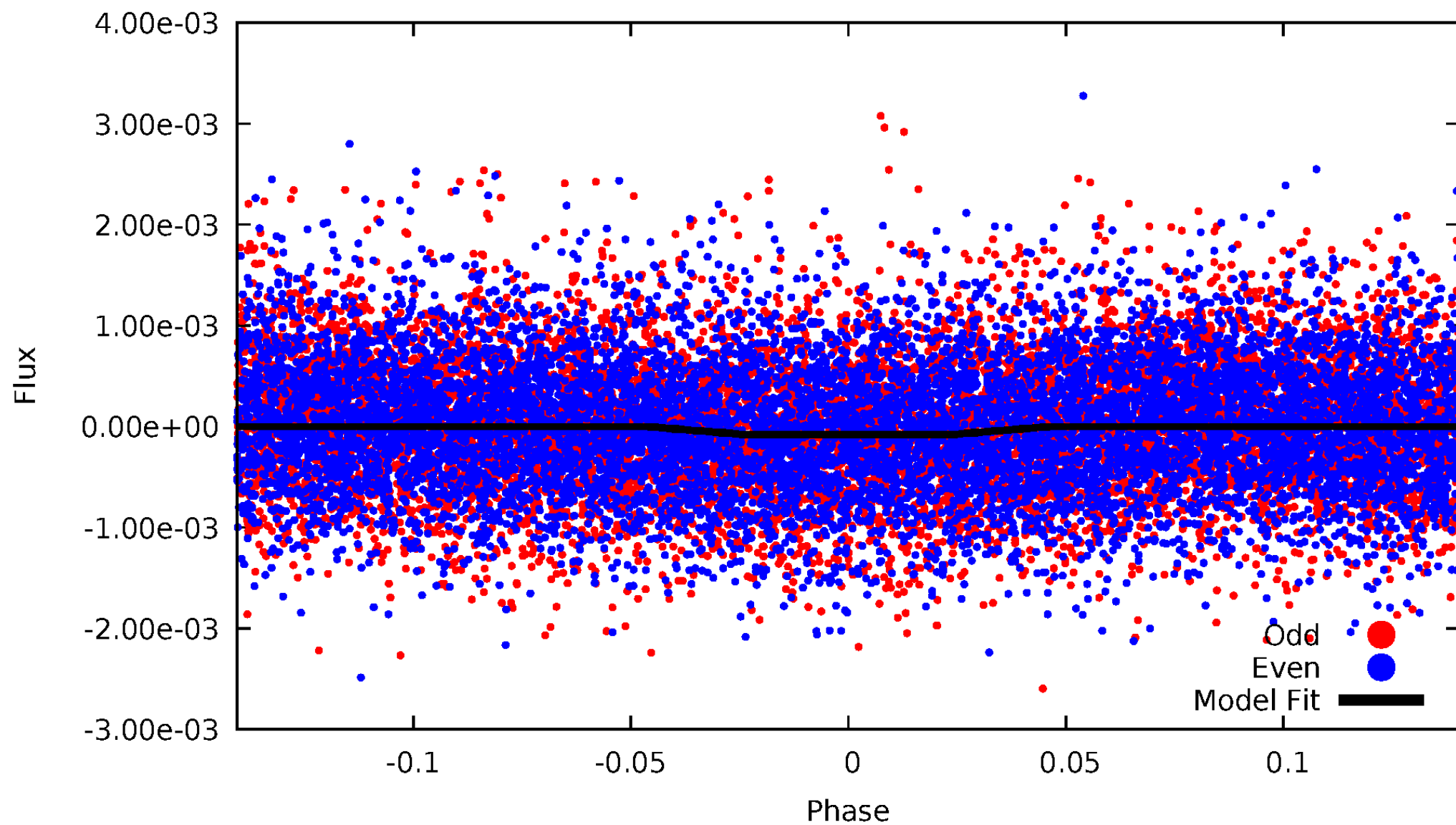
# DV Odd/Even

TCE 009347056-01



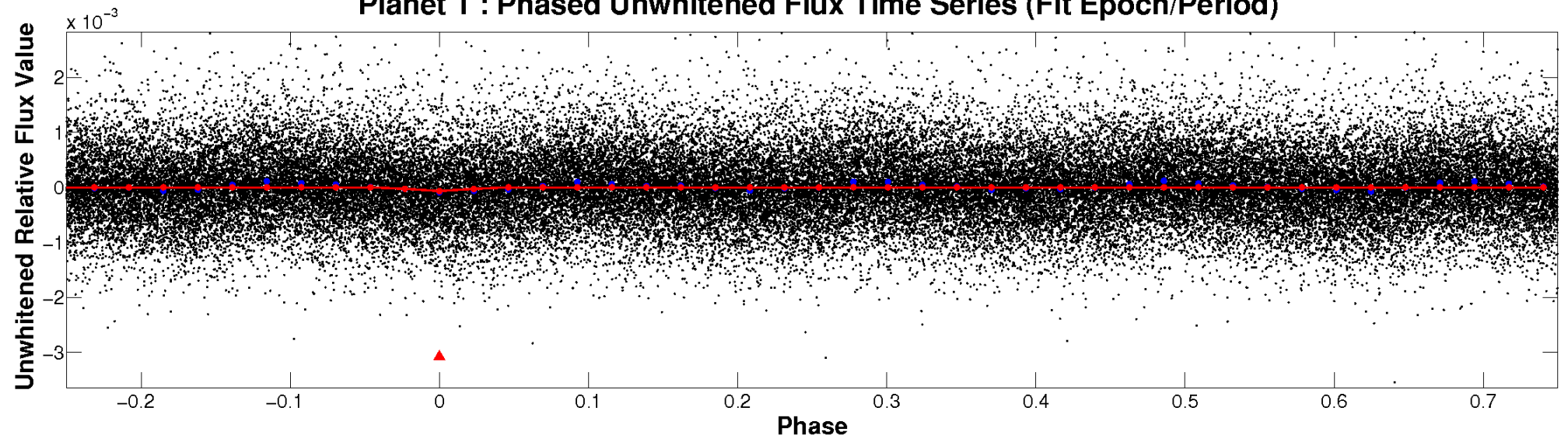
# ALT Odd/Even

TCE 009347056-01

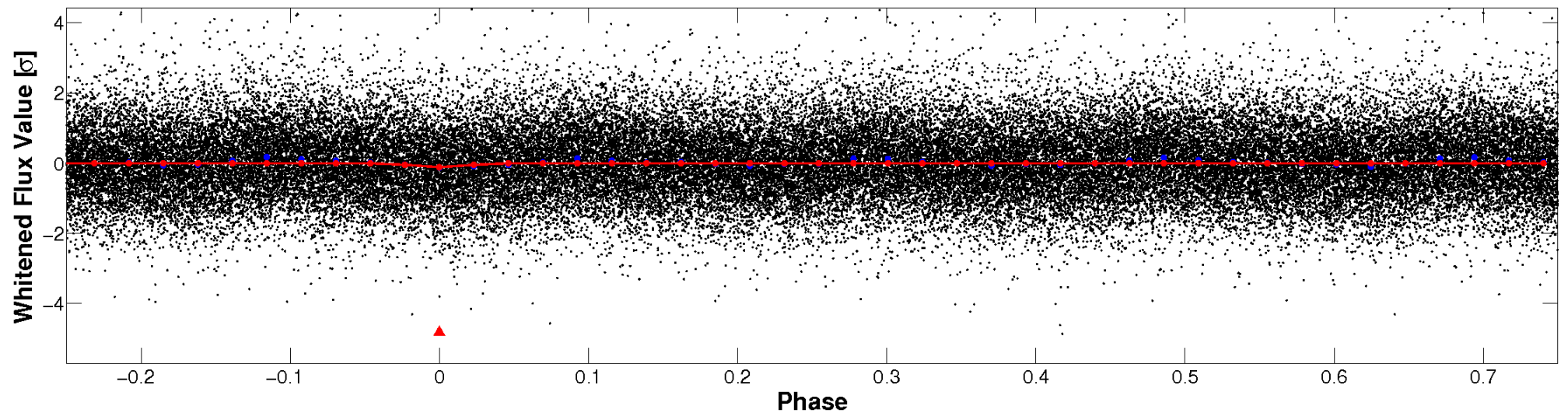


# Non-Whitened Vs. Whitened Light Curve

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



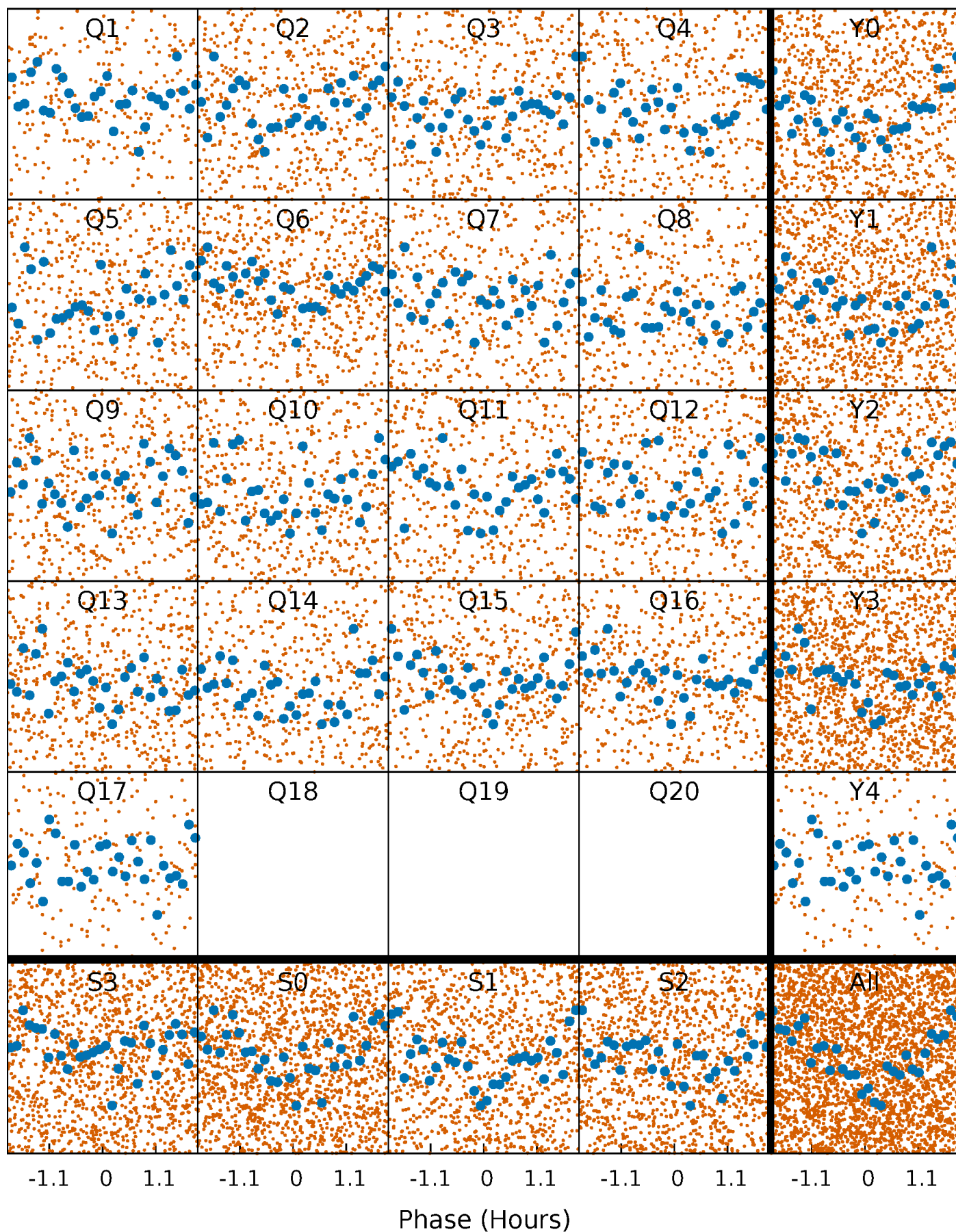
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





## PDC Quarter-Phased Transit Curves

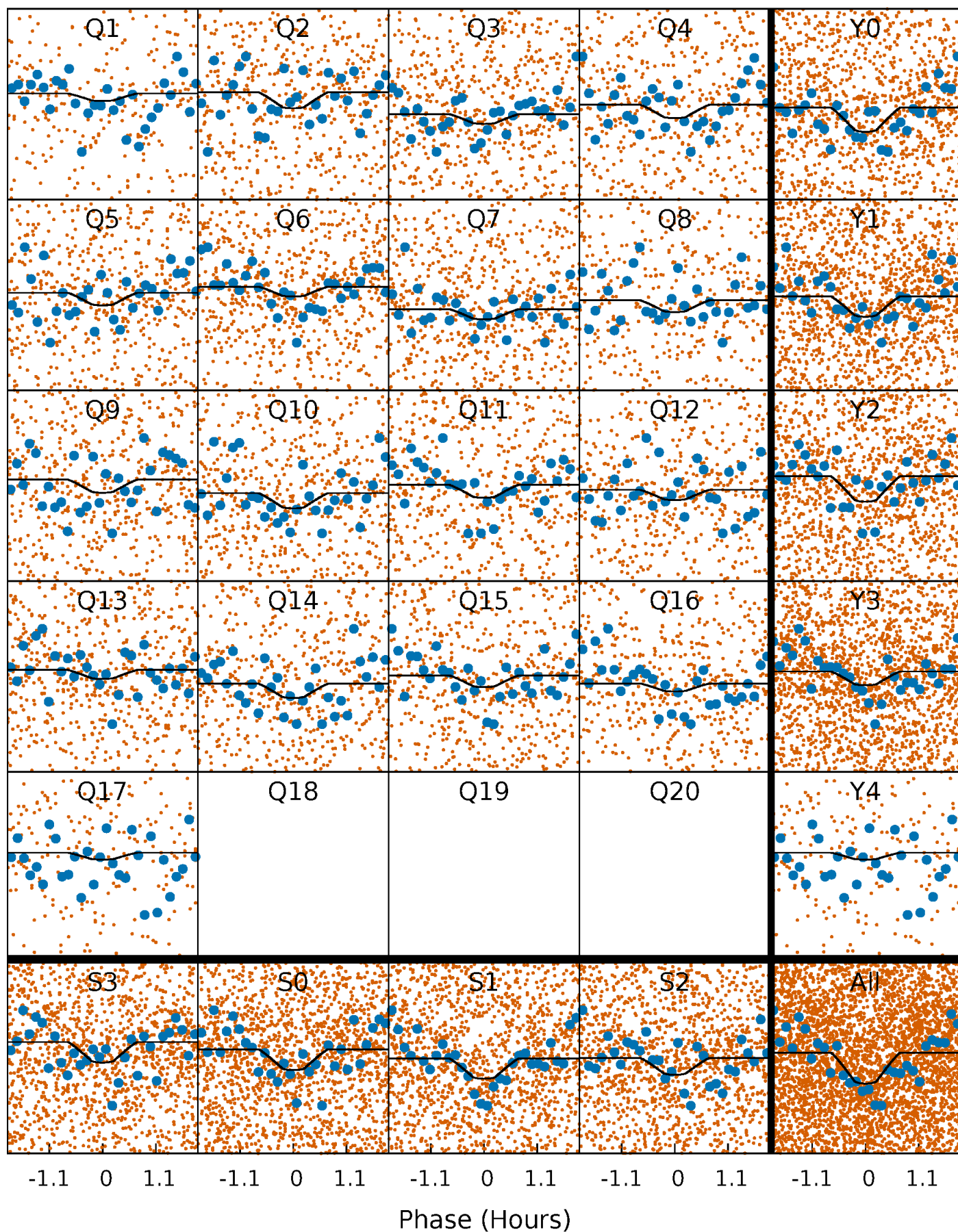
TCE 009347056-01    P= 0.883211 Days     $T_0=132.103689$  (BKJD)





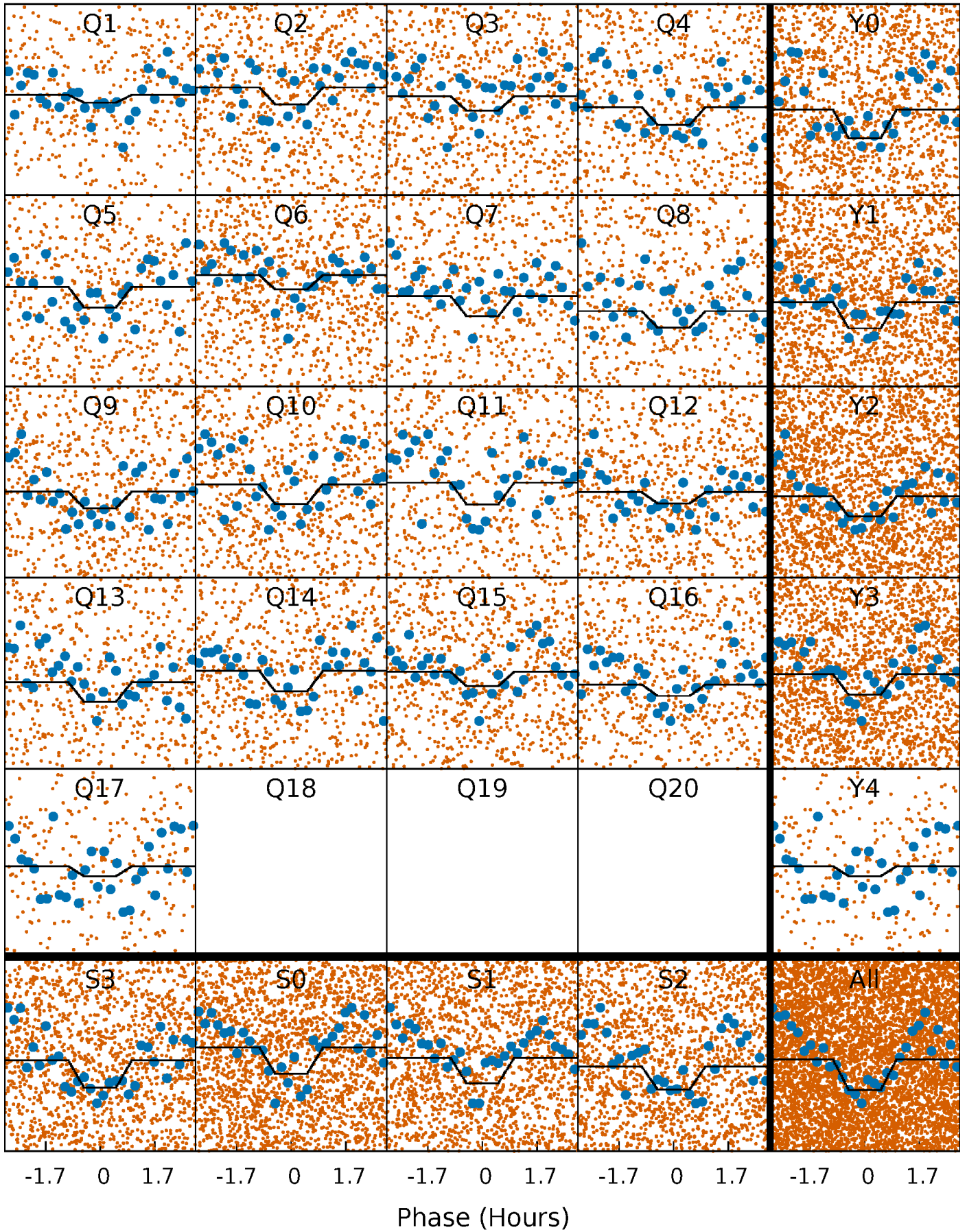
# DV Quarter-Phased Transit Curves

TCE 009347056-01 P= 0.883211 Days  $T_0=132.103689$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

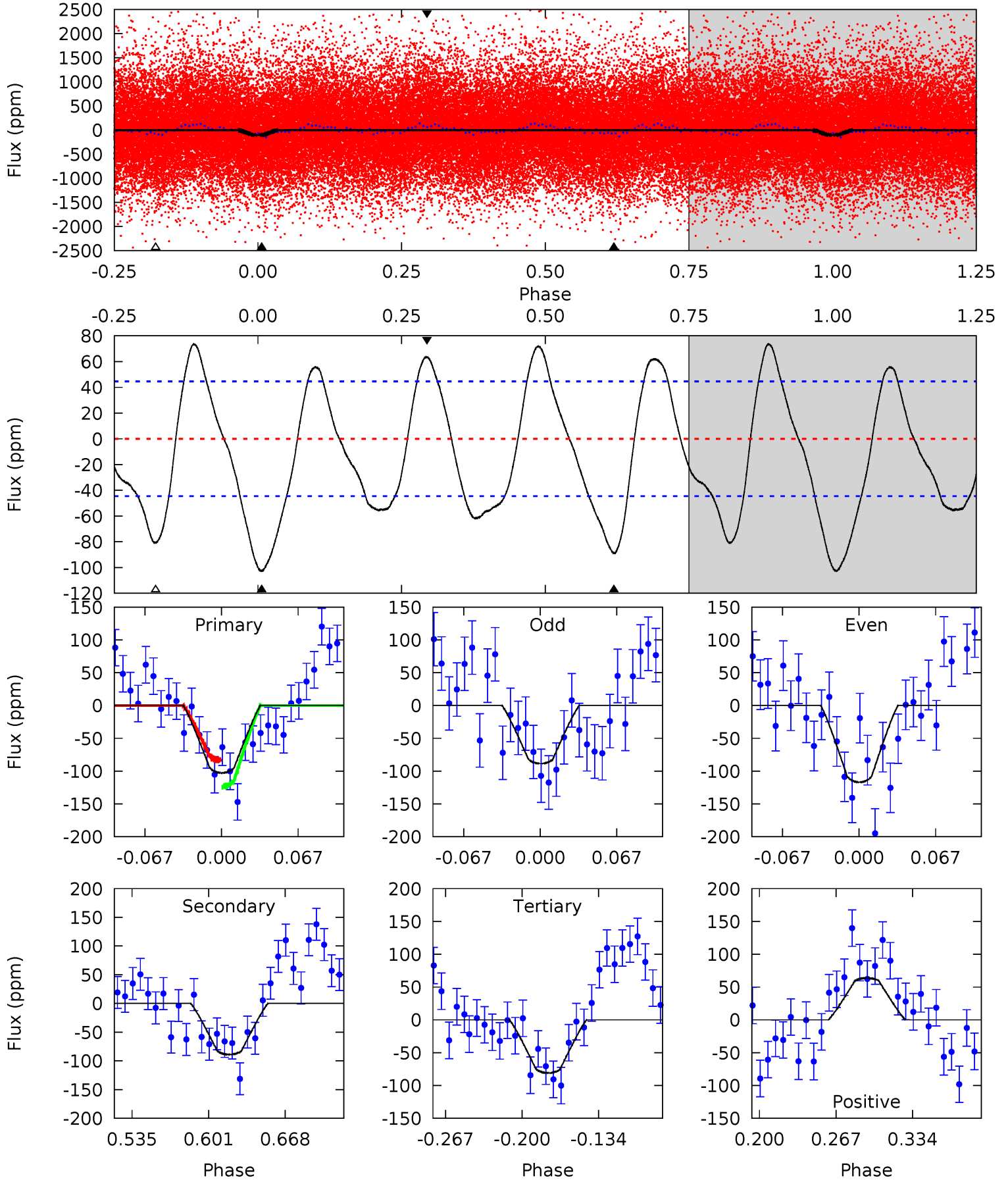
TCE 009347056-01 P= 0.883220 Days  $T_0=132.105119$  (BKJD)



# DV Model-Shift Uniqueness Test

009347056-01, P = 0.883211 Days, E = 131.220478 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
10.7	9.29	8.44	6.66	4.65	1.83	4.67	2.28	4.06	0.85	2.63	1.49	0.85	0.42	2.10

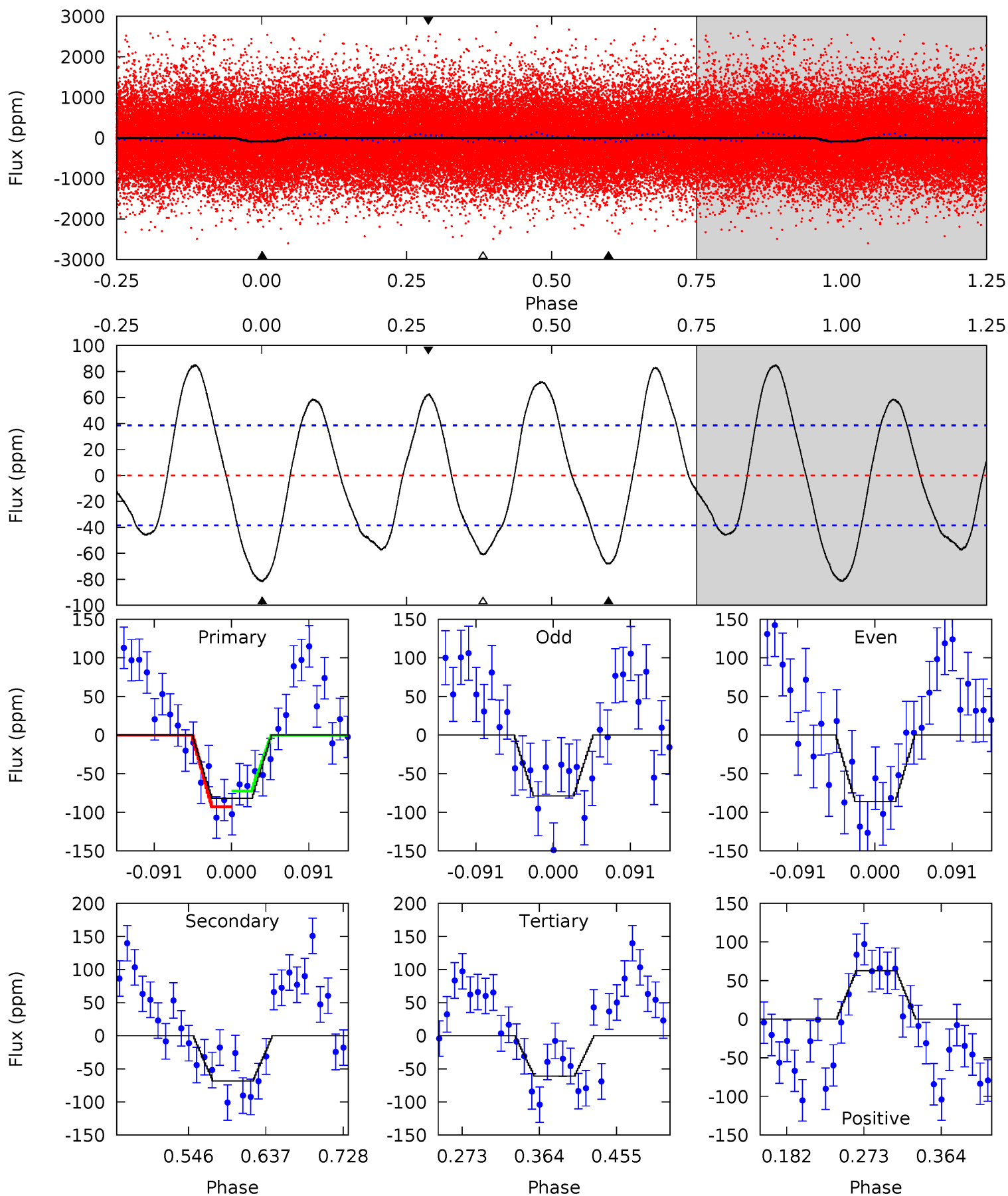




# Alt Model-Shift Uniqueness Test

009347056-01, P = 0.883220 Days, E = 131.221899 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
9.75	8.14	7.29	7.47	4.58	1.69	5.40	2.46	2.28	0.85	0.67	0.44	0.89	0.51	1.21





### Stellar Parameters For KIC 009347056

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5973^{+182}_{-223}$	$4.439^{+0.046}_{-0.184}$	$0.360^{+0.100}_{-0.300}$	$1.085^{+0.289}_{-0.116}$	$1.181^{+0.112}_{-0.137}$	$1.303^{+0.307}_{-0.610}$
	+3%/-4%	+1%/-4%	+28%/-83%	+27%/-11%	+9%/-12%	+24%/-47%
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 009347056-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-89 \pm 10$	$1.26^{+0.83}_{-0.73}$	$2846^{+189}_{-140}$	$5736^{+3601}_{-1184}$	$11^{+49}_{-7}$
Alt.	$-68 \pm 8$	$1.14^{+0.96}_{-0.72}$	$2838^{+184}_{-136}$	$5572^{+4187}_{-1272}$	$10^{+66}_{-7}$

$T_{max}$  = 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

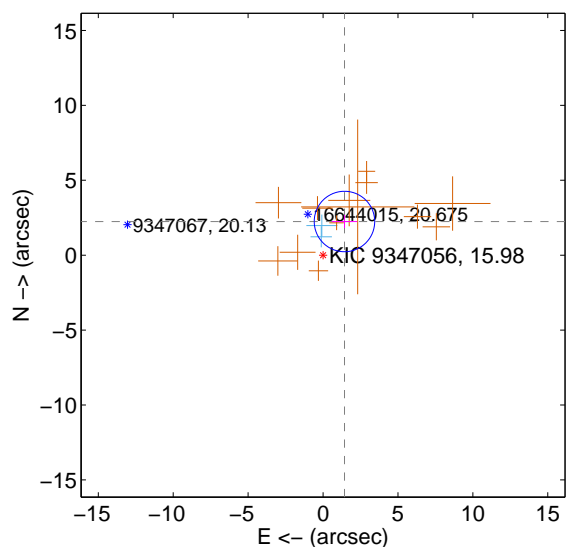
Supplemental centroid analysis for 009347056-01. Kepler magnitude: 15.98. Transit SNR 5.02

There are 2 quarters with good PRF difference image offsets

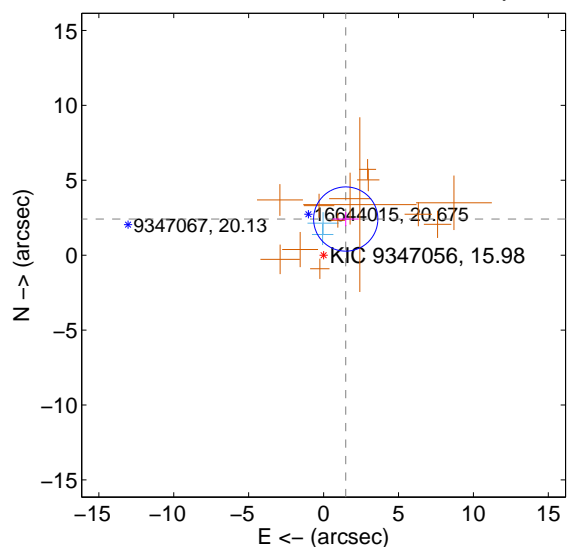
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.664 \pm 0.673$	3.96	$-1.431 \pm 0.850$	$2.248 \pm 0.440$
PRF-fit source offset from KIC position	$2.830 \pm 0.715$	3.96	$-1.478 \pm 0.867$	$2.413 \pm 0.475$
photometric centroid source offset	$5.46 \pm 2.67$	2.05	$-0.70 \pm 2.69$	$5.41 \pm 2.67$

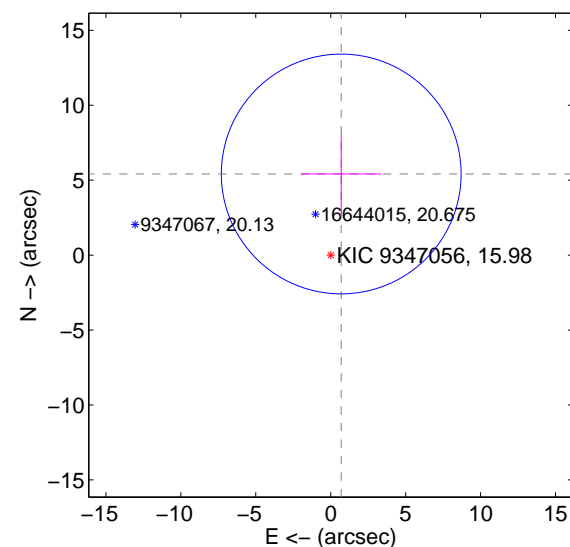
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

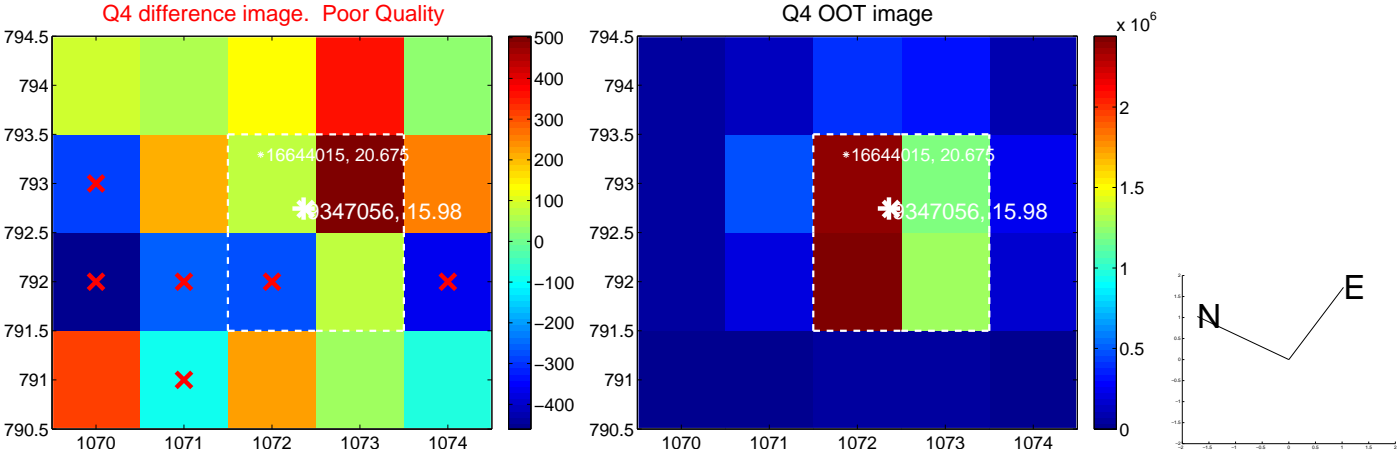
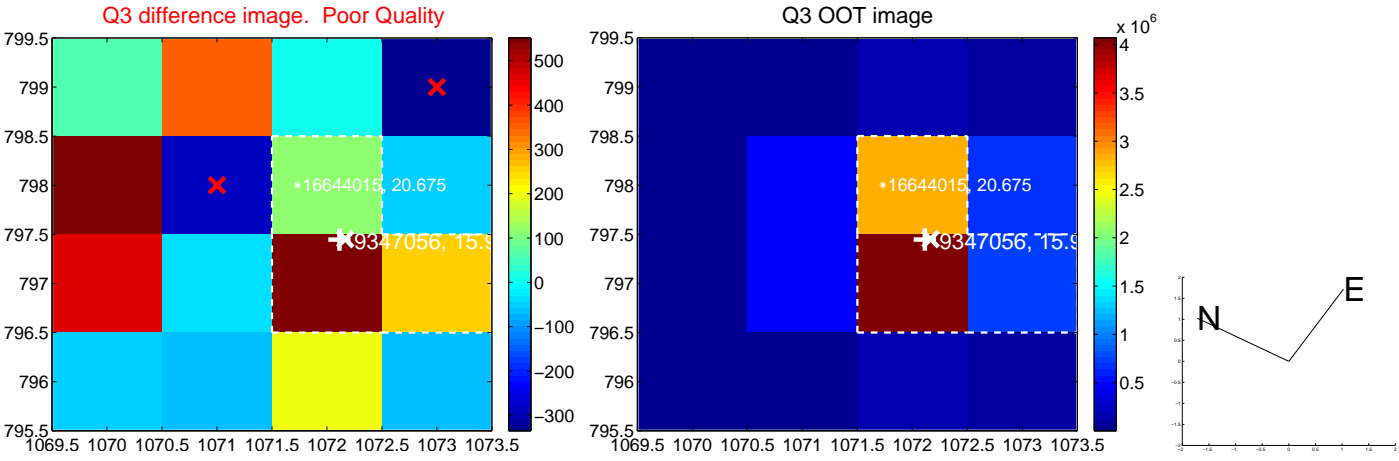
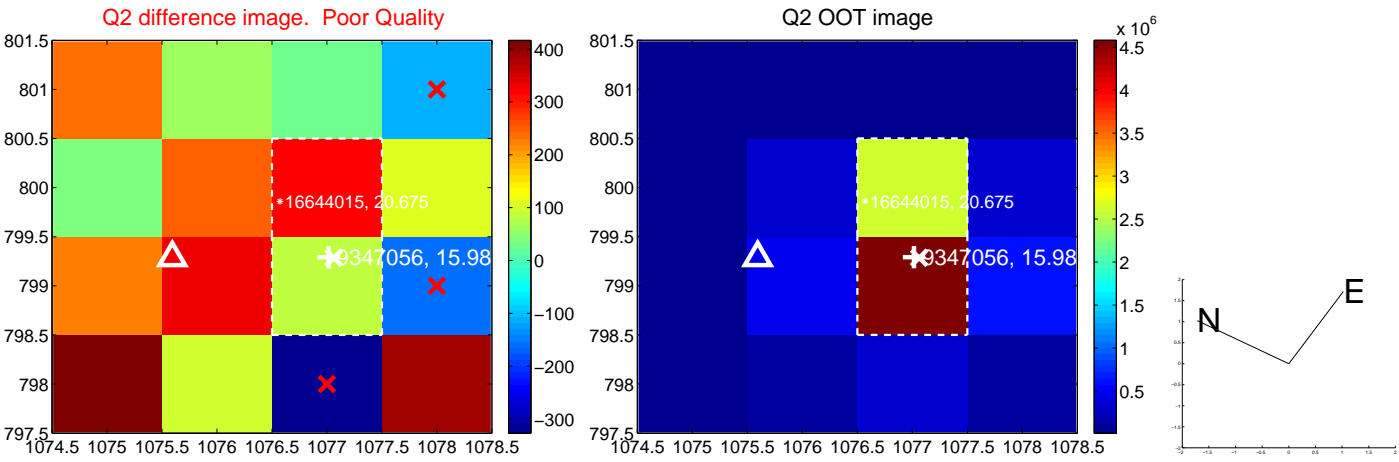
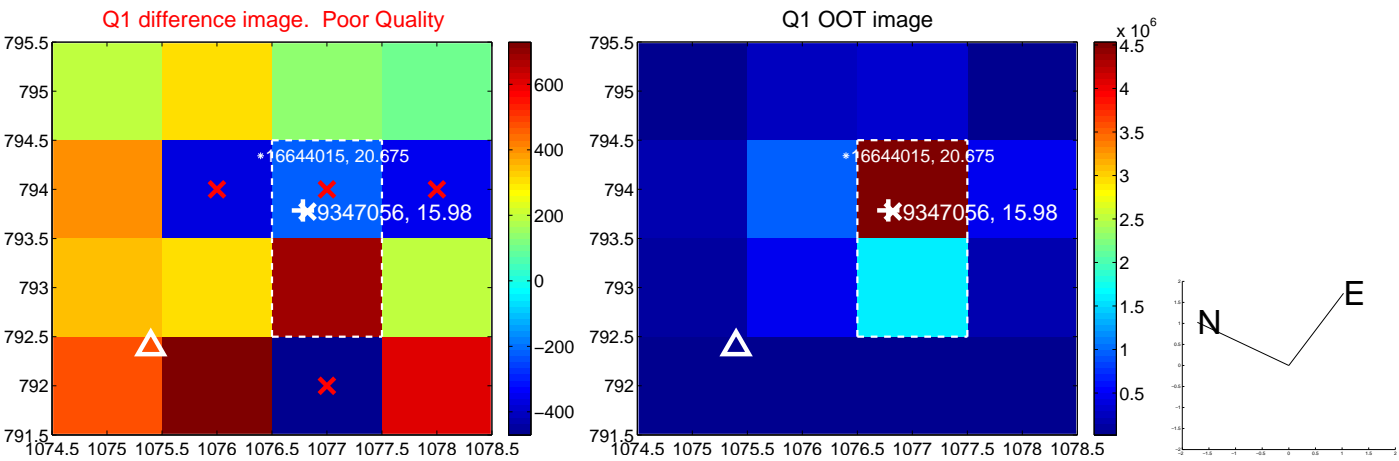


offset from photometric centroids

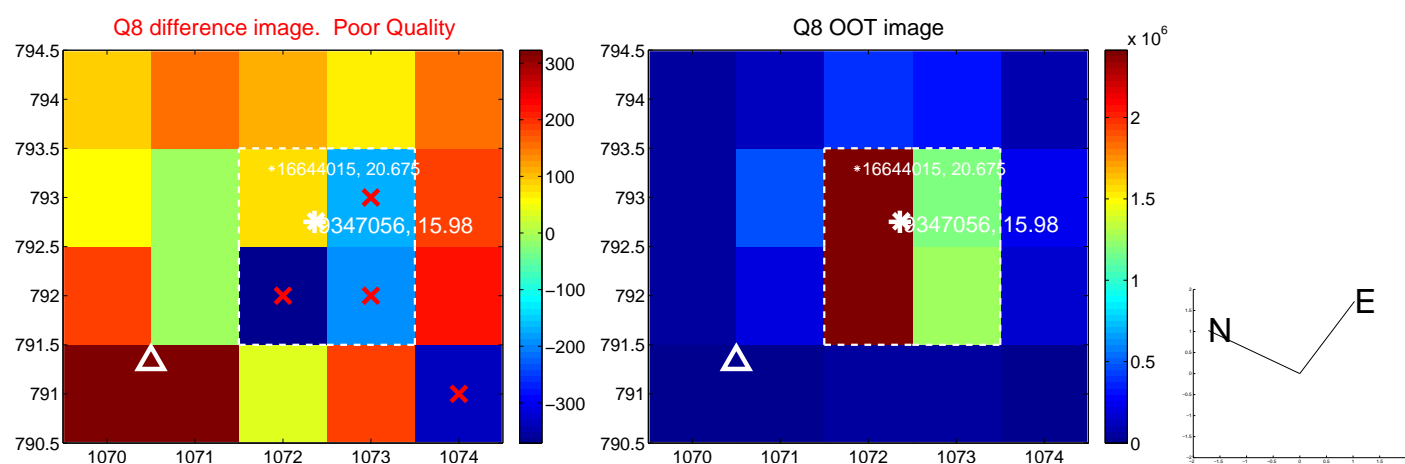
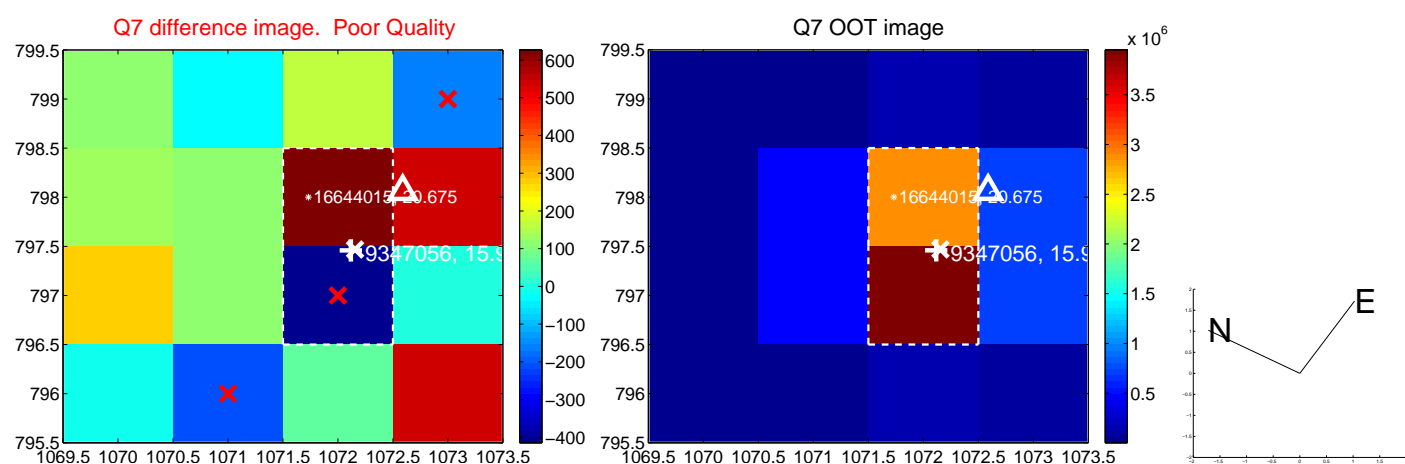
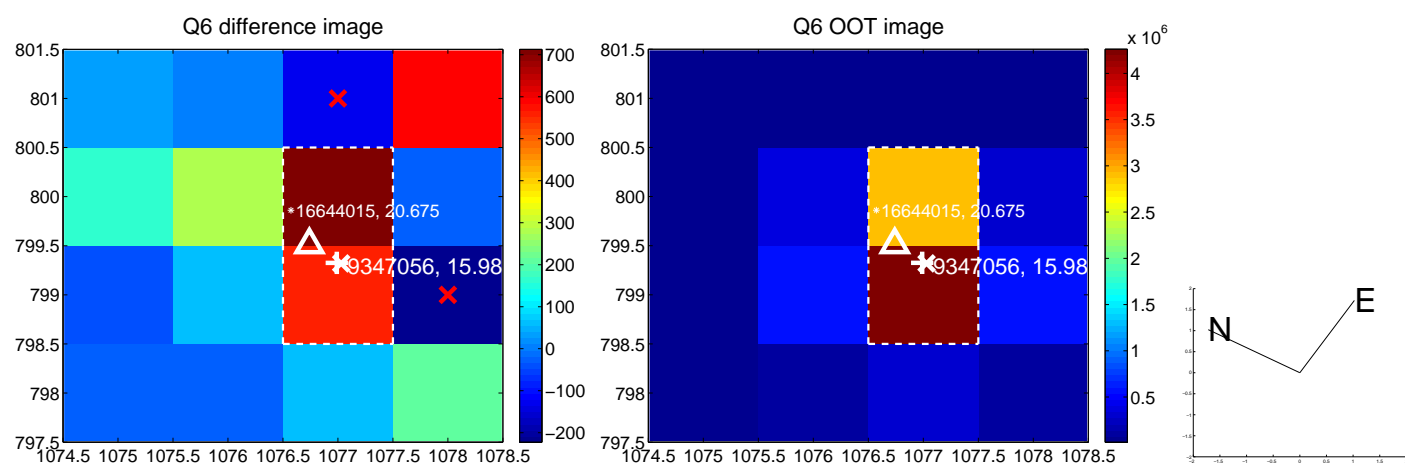
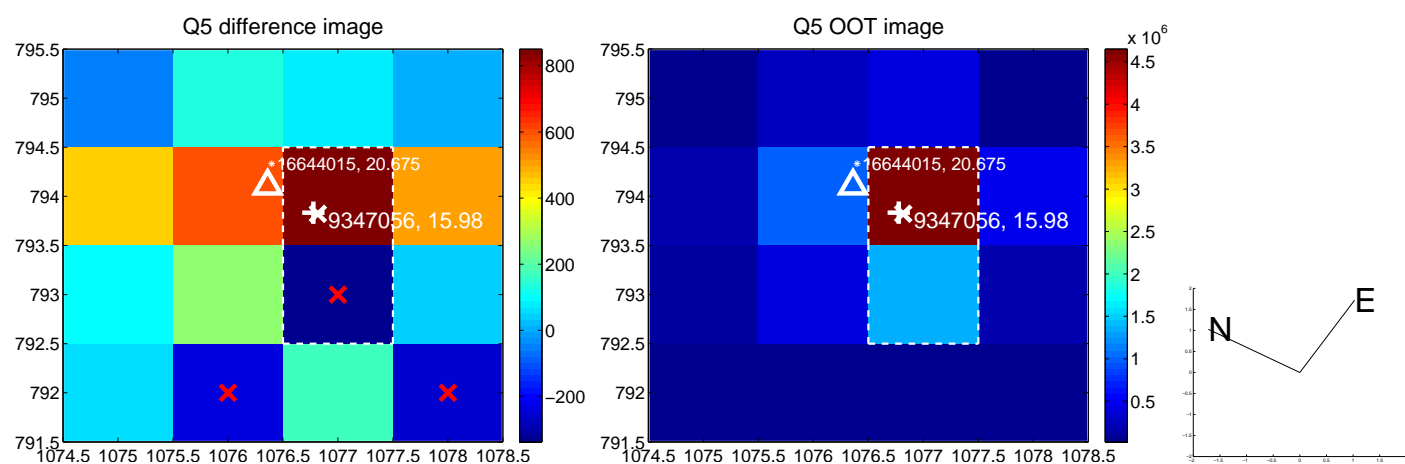


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

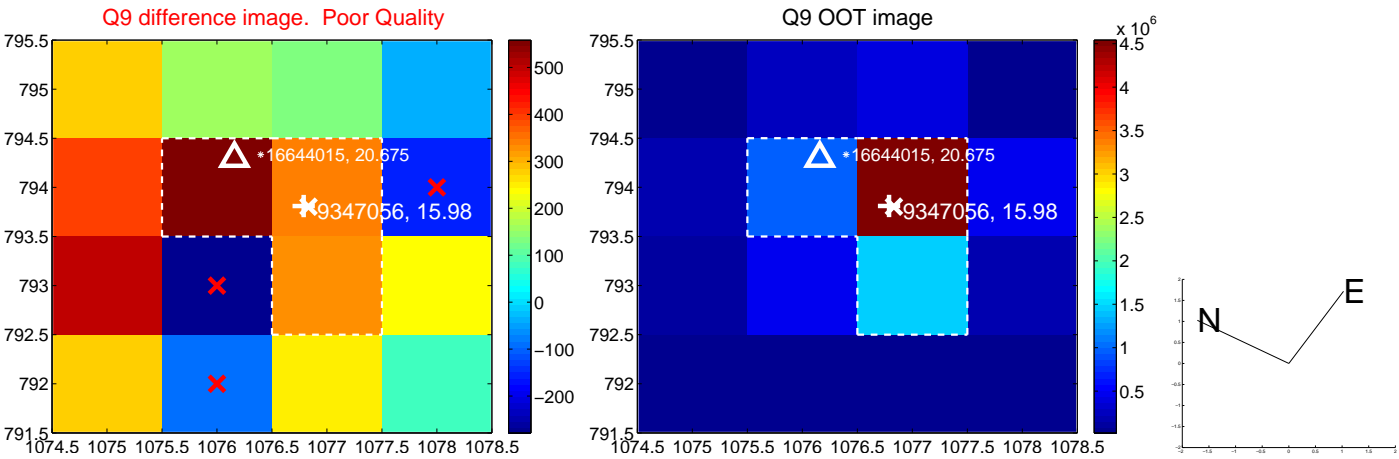


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

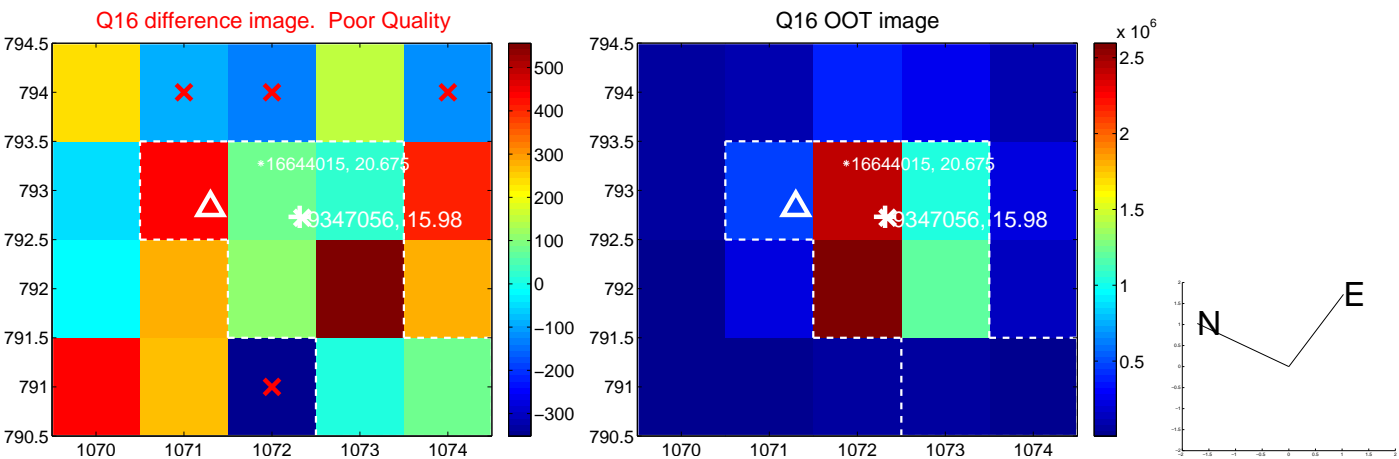
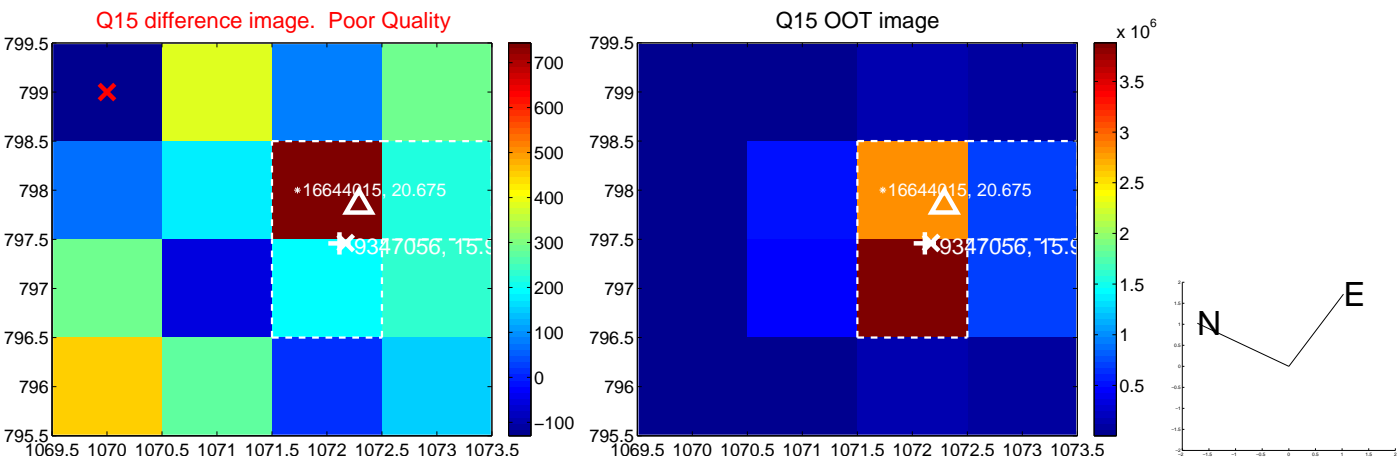
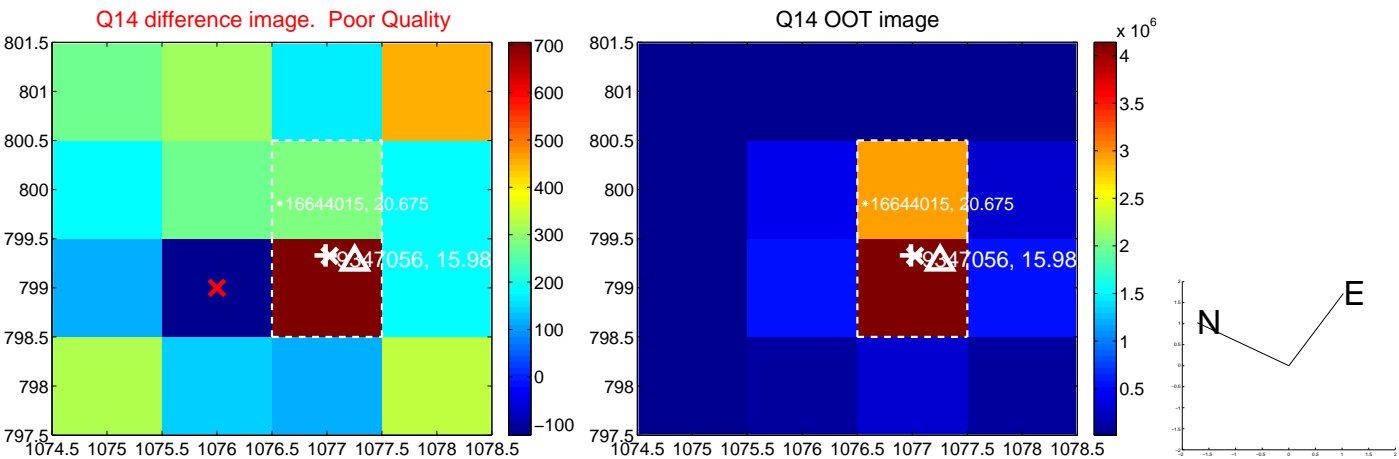
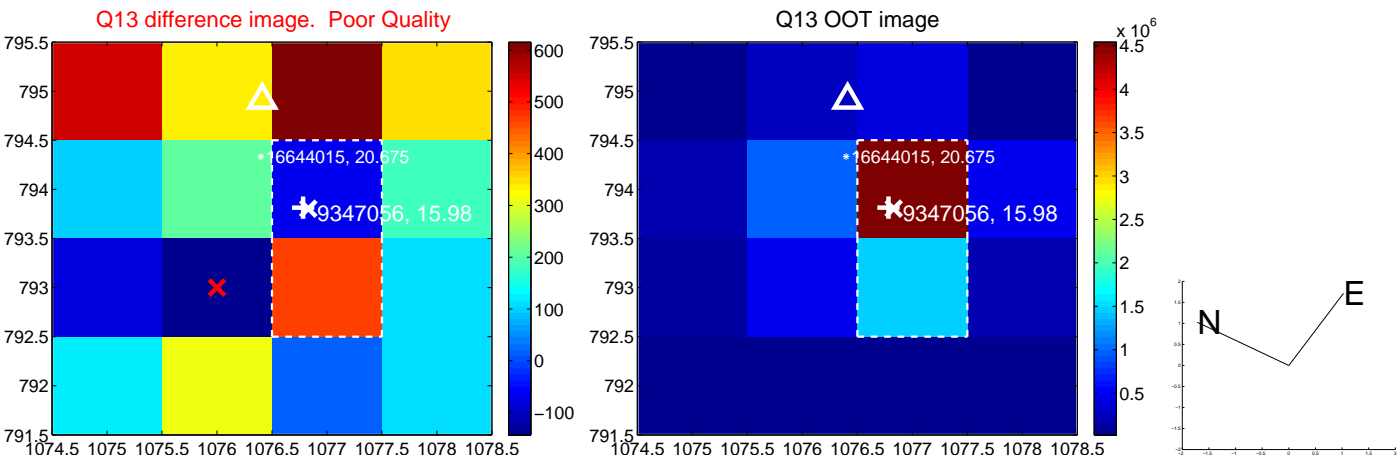




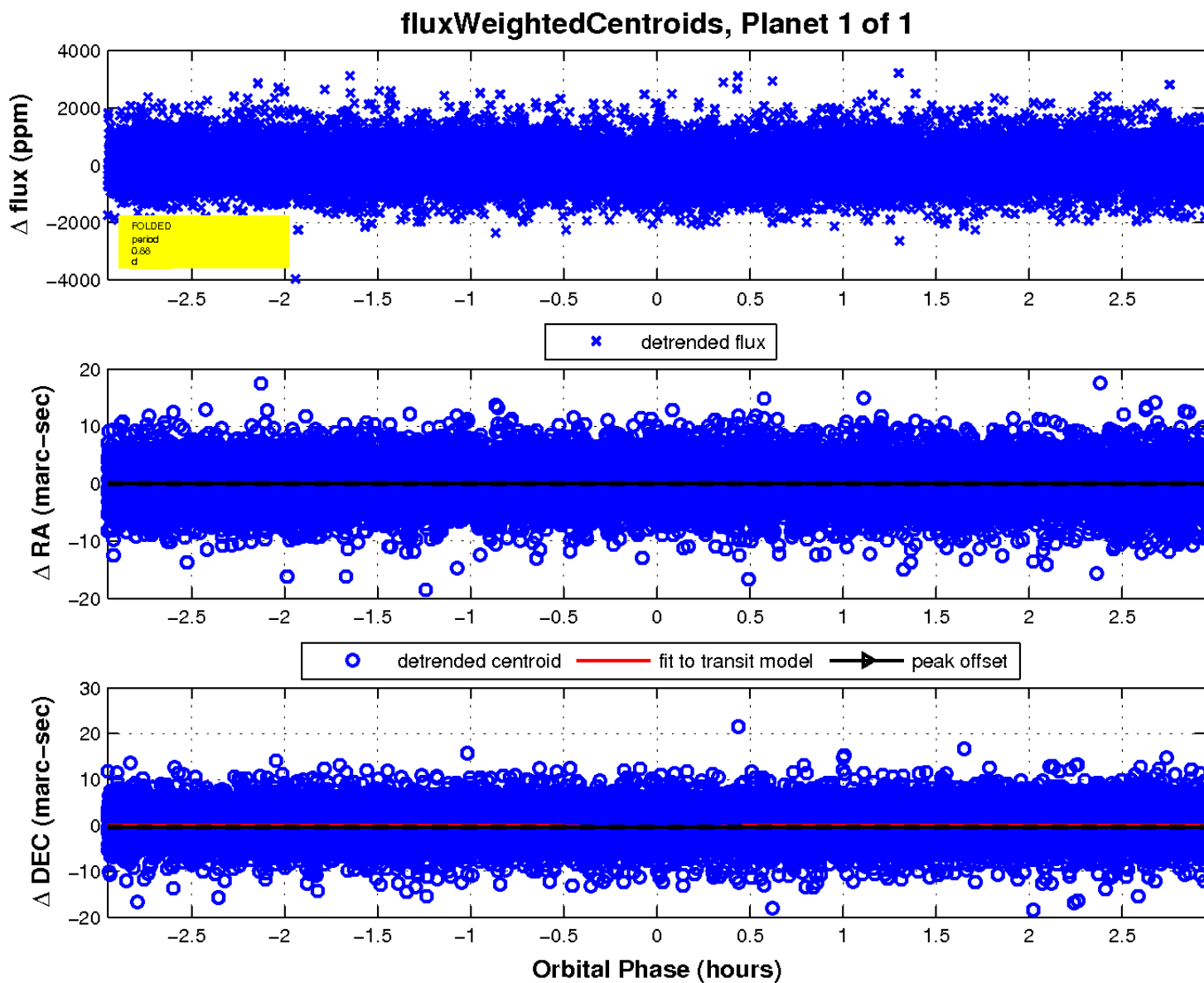
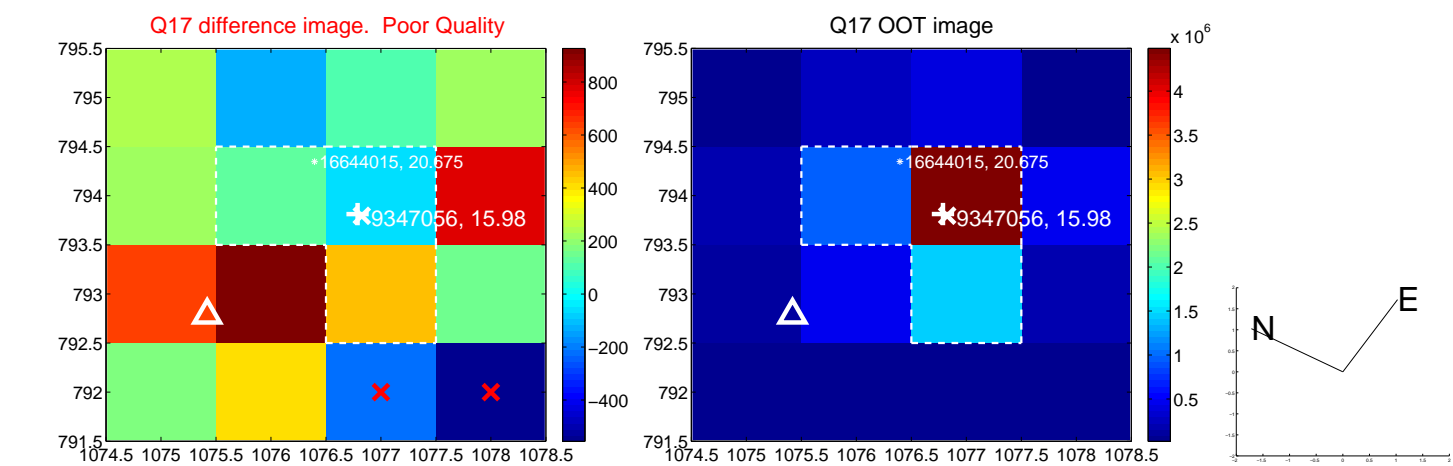
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



# UKIRT Image

Declination

