

# KIC 008747939

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008747939-01	OBS	No	646.760755	135.517912	102.3	15.896	8.1	7.8	2.36	6505	3.19	3.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008747939-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—INCONSISTENT_TRANS—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.

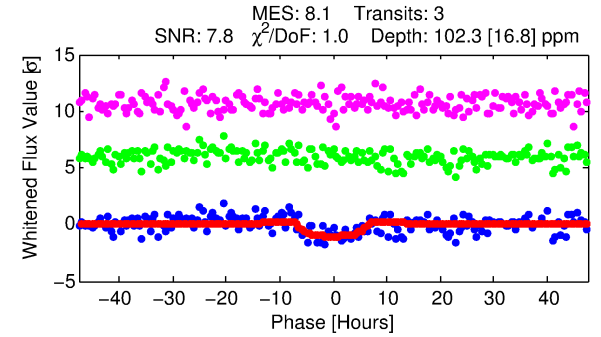
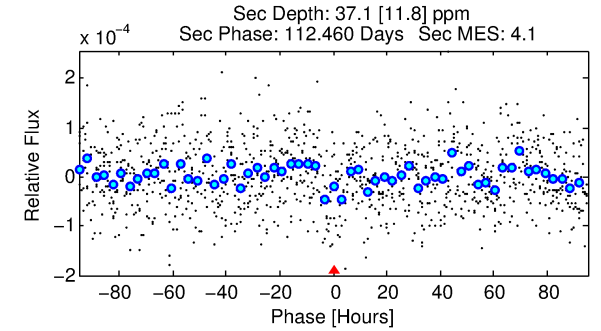
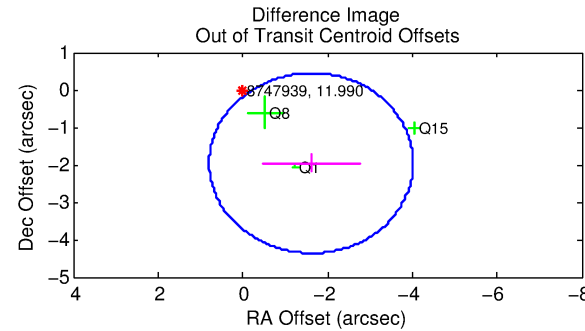
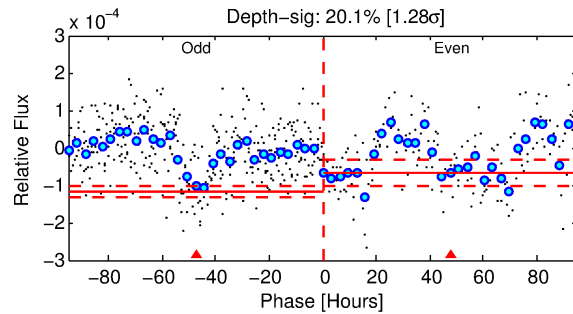
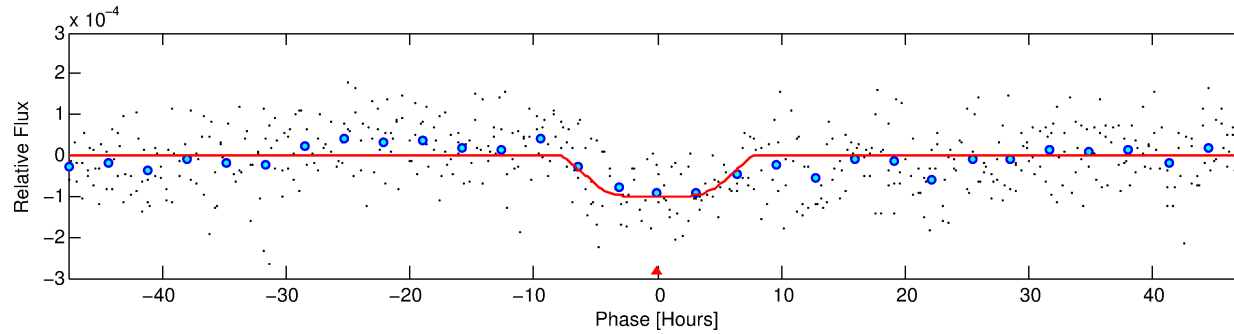
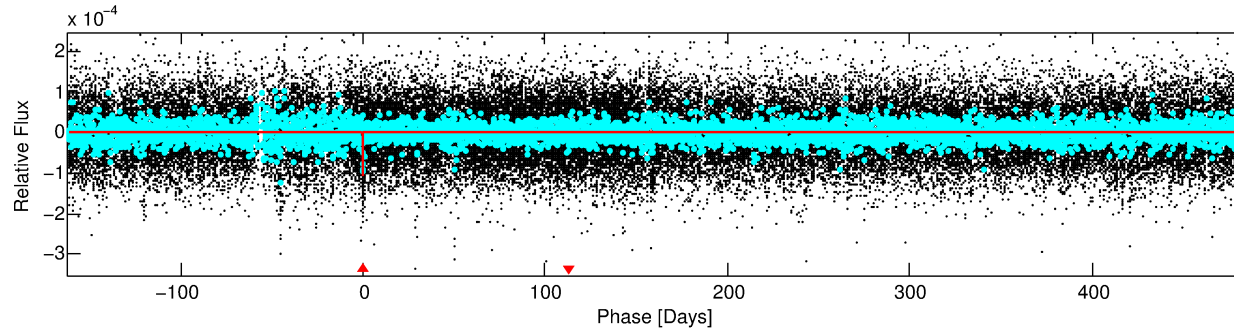
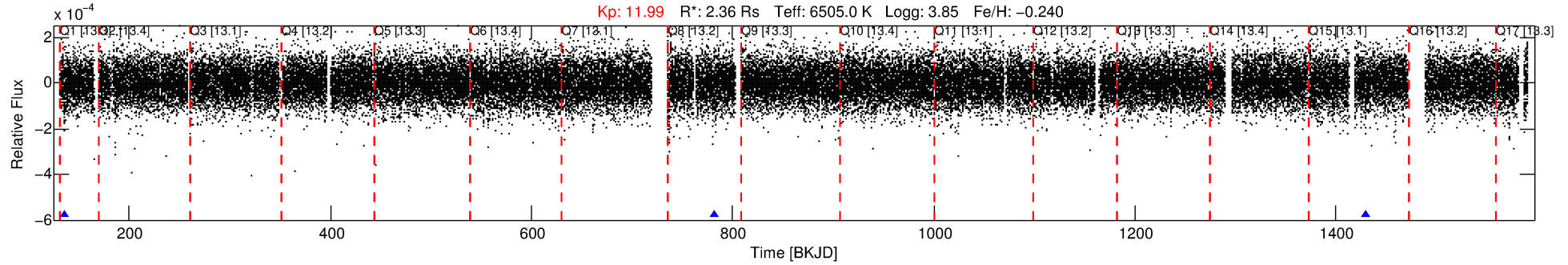
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008747939-01

No Significant Match Found

# DV One-Page Summary

KIC: 8747939 Candidate: 1 of 1 Period: 646.761 d



## DV Fit Results:

Period = 646.76075 [0.02559] d  
Epoch = 135.5179 [0.0323] BKJD  
Rp/R\* = 0.0124 [0.0013]  
a/R\* = 76.35 [19.99]  
b = 0.98 [0.01]  
Seff = 3.27 [2.53]  
Teq = 343 [66] K  
Rp = 3.19 [1.48] Re  
a = 1.6542 [0.7648] AU  
Ag = 5502.48 [4687.07] [1.17 $\sigma$ ]  
Teffp = 4565 [462] K [9.05 $\sigma$ ]

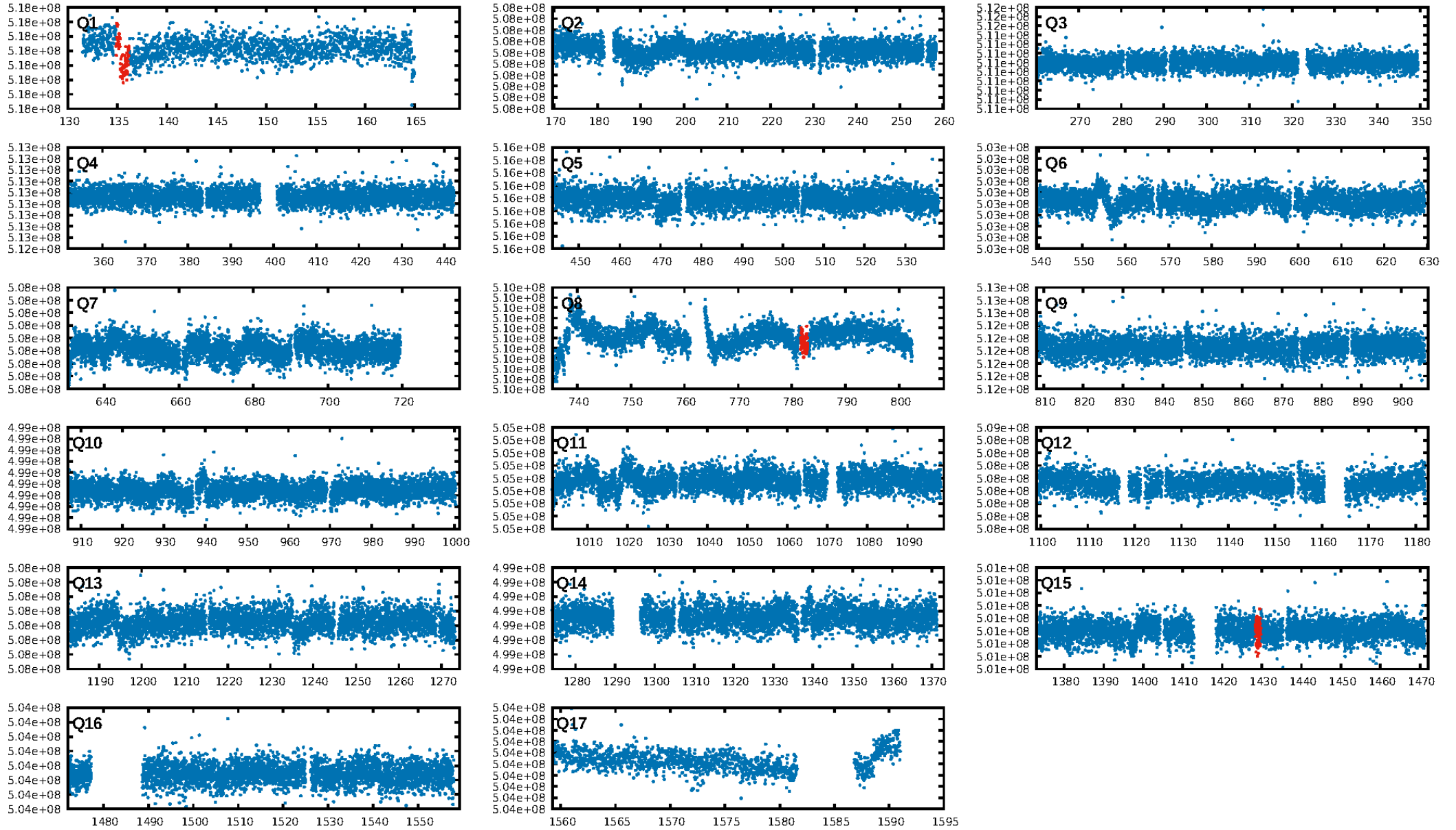
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.7%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 4.95e-11  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -2.493  
Centroid-sig: 0.2%  
Centroid-so: 3.189 arcsec [2.24 $\sigma$ ]  
OotOffset-rm: 2.540 arcsec [3.17 $\sigma$ ]  
KicOffset-rm: 2.536 arcsec [3.18 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

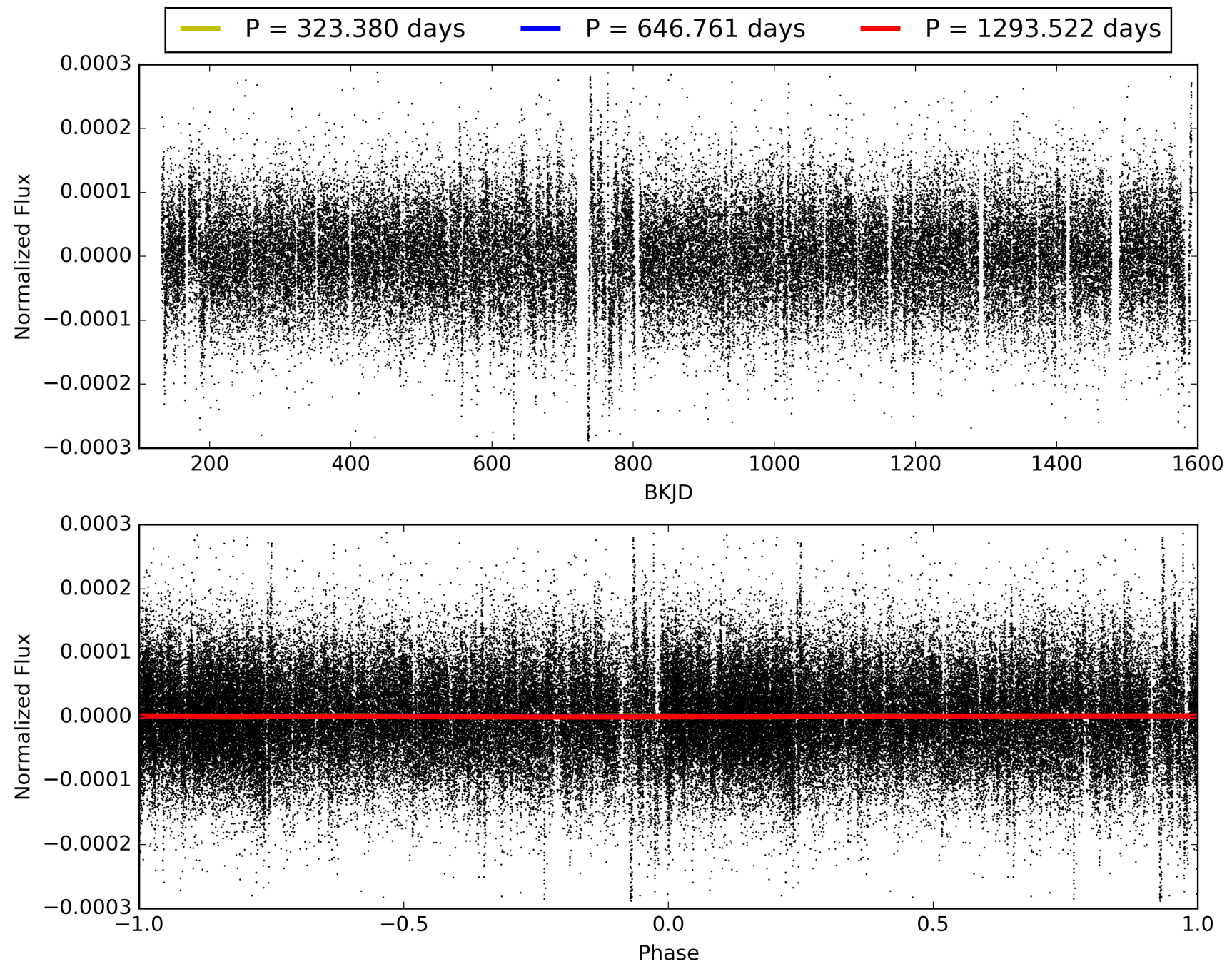
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:58:37 Z

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

# TCE 008747939-01, PDC Light Curves

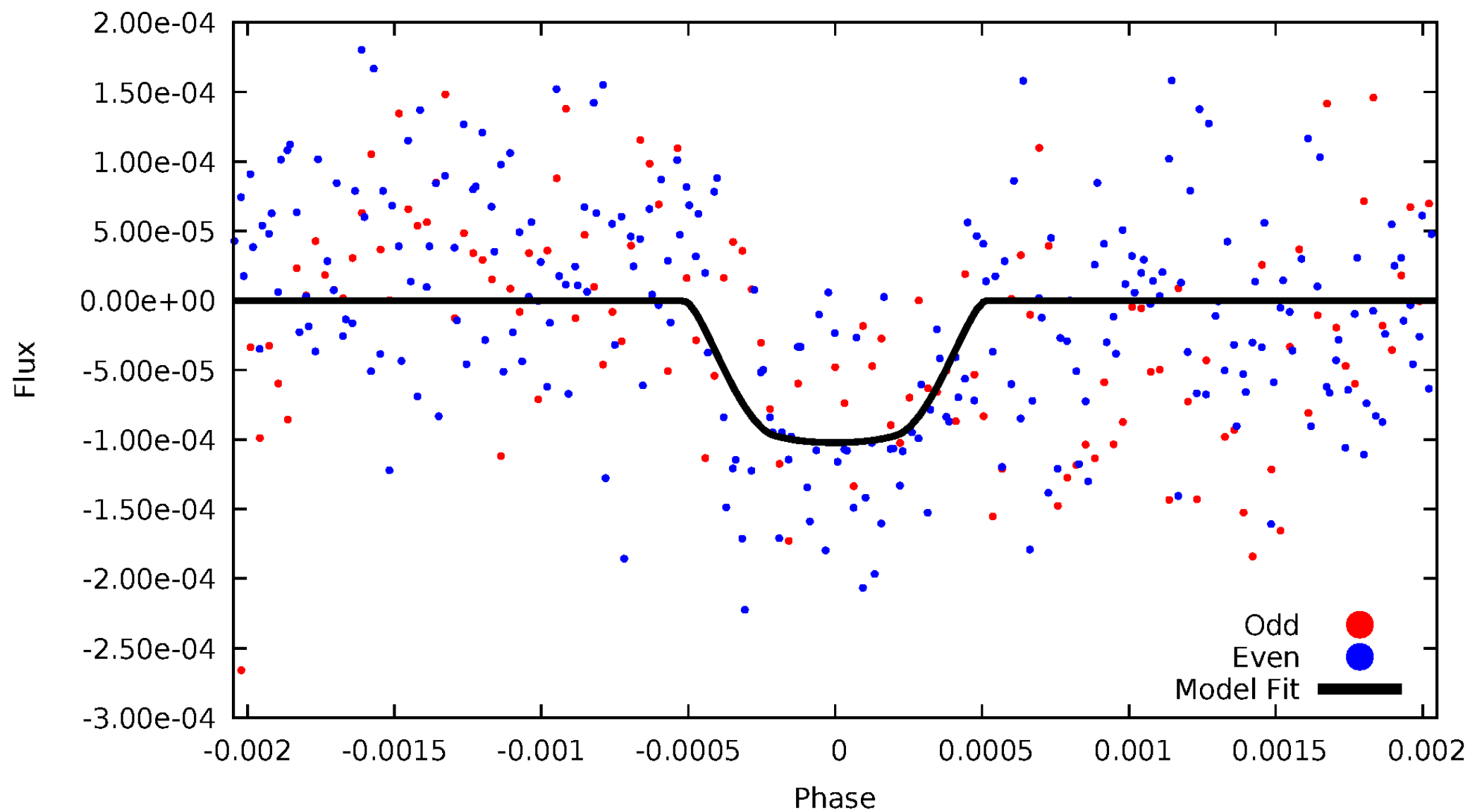


TCE 008747939-01



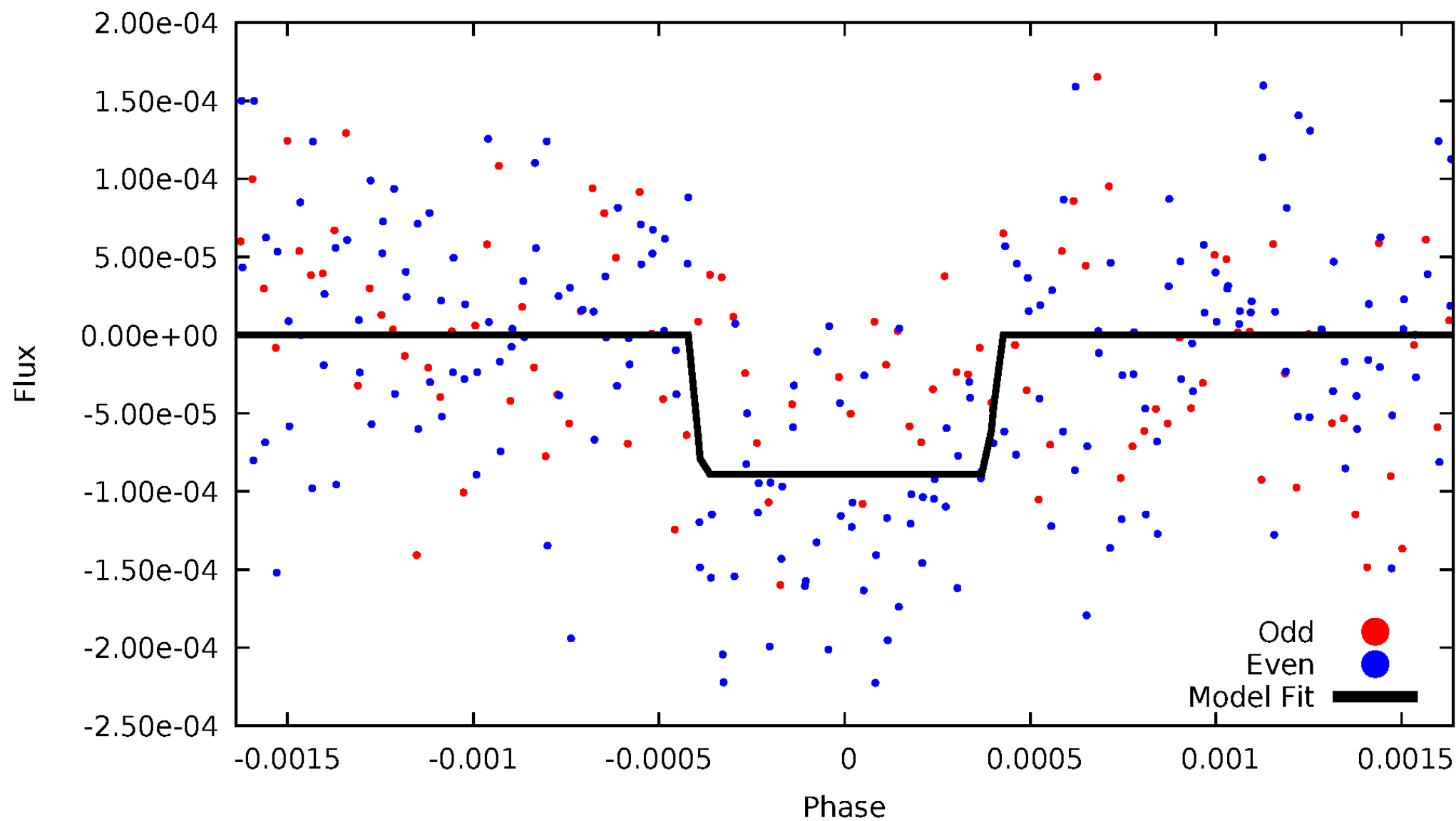
# DV Odd/Even

TCE 008747939-01



# ALT Odd/Even

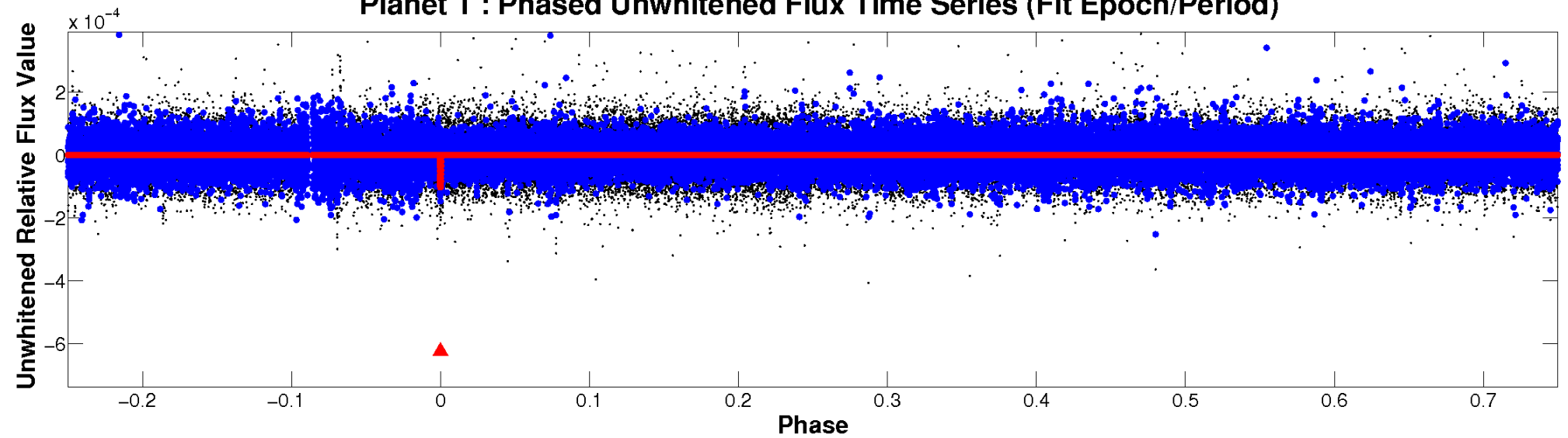
TCE 008747939-01



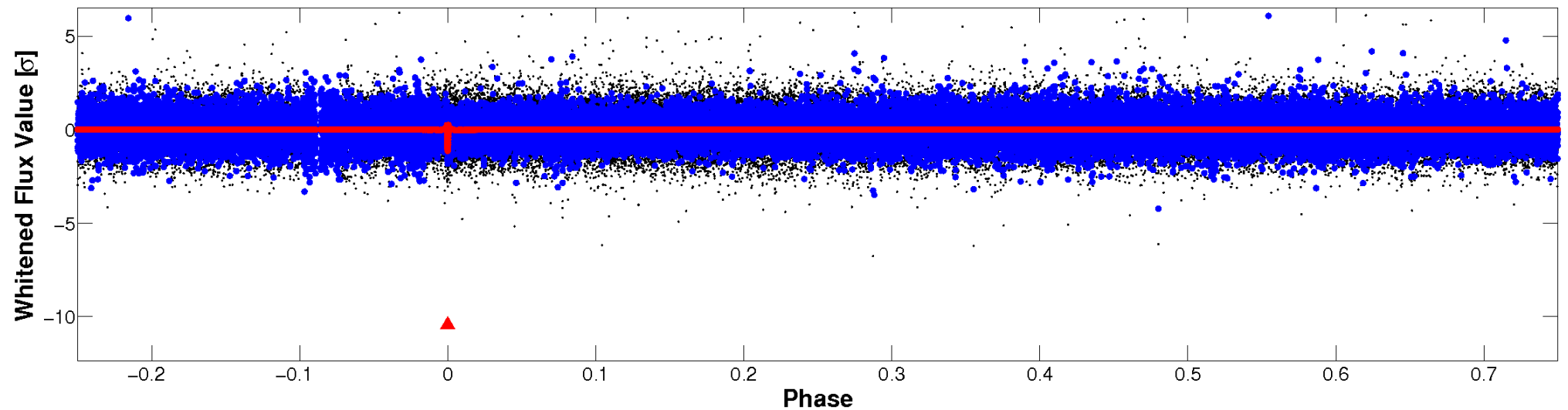


# Non-Whitened Vs. Whitened Light Curve

**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 008747939-01 P=646.760755 Days  $T_0=135.517912$  (BKJD)





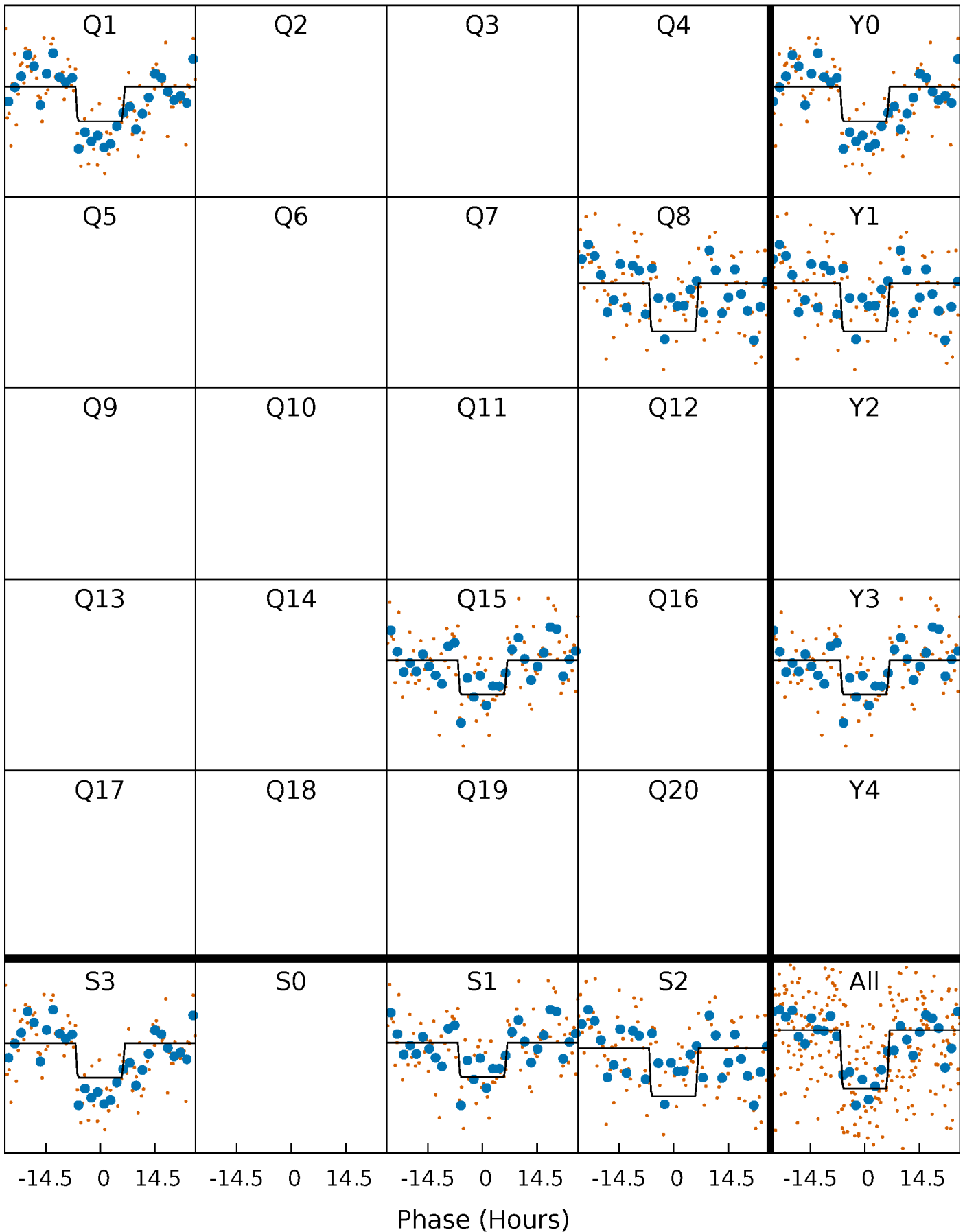
# DV Quarter-Phased Transit Curves

TCE 008747939-01 P=646.760755 Days  $T_0=135.517912$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

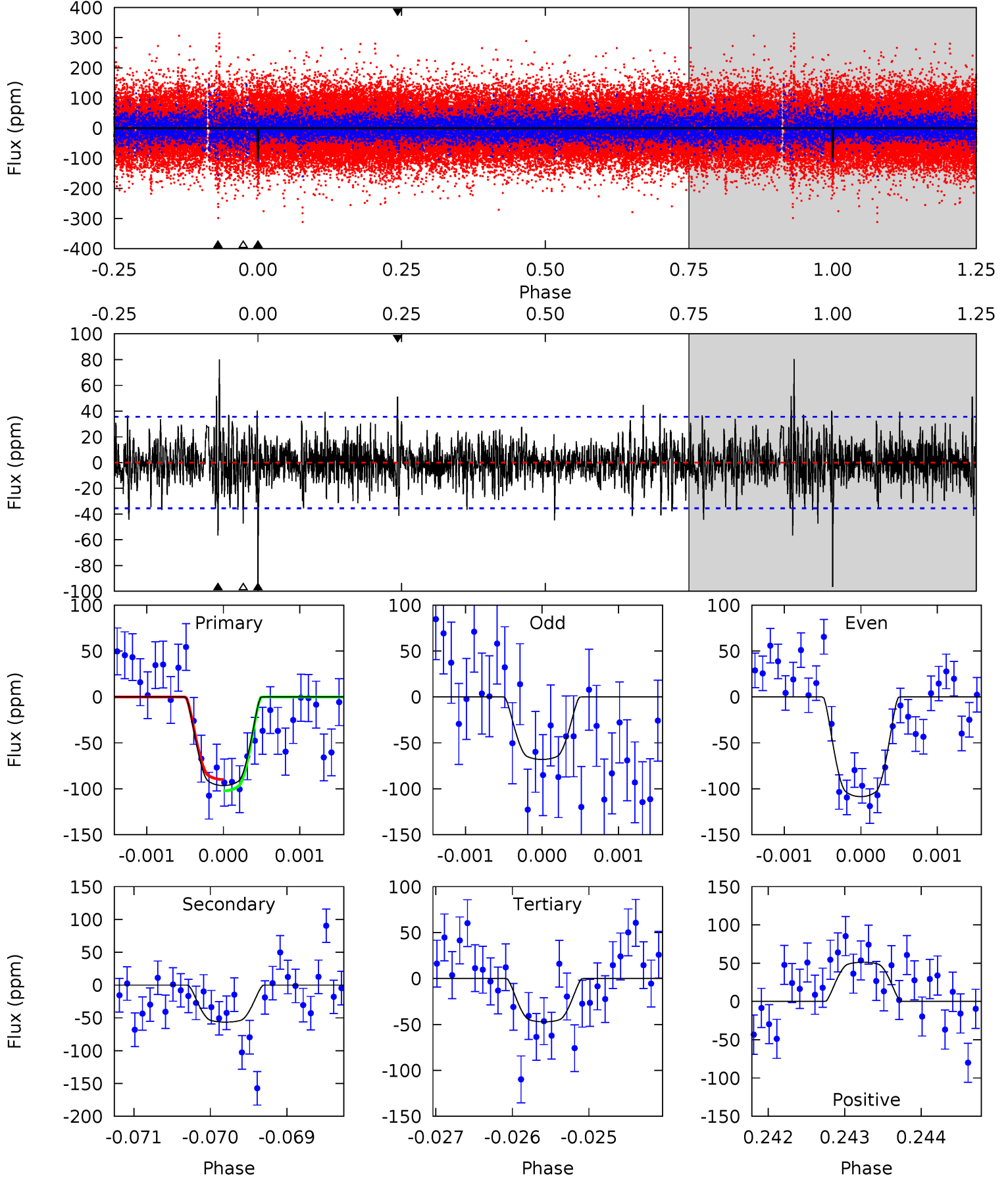
TCE 008747939-01 P=646.763041 Days  $T_0=135.525386$  (BKJD)



# DV Model-Shift Uniqueness Test

008747939-01, P = 646.760755 Days, E = 135.517912 Days

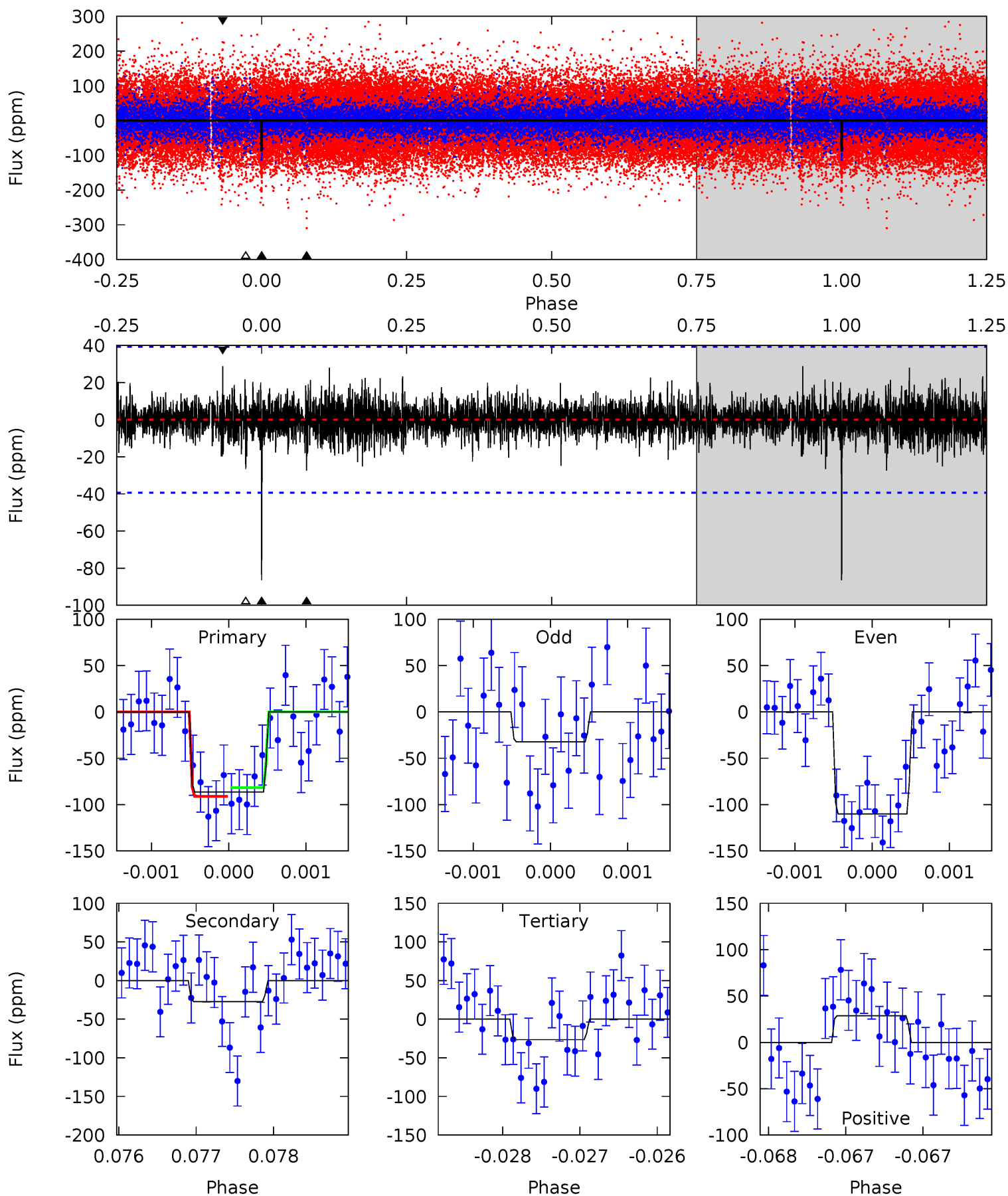
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	8.66	7.23	7.86	5.44	3.28	1.84	7.55	6.93	1.42	0.80	2.85	1.03	0.45	0.95



# Alt Model-Shift Uniqueness Test

008747939-01, P = 646.763041 Days, E = 135.525386 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
12.1	3.83	3.70	4.02	5.49	3.35	0.89	8.36	8.03	0.13	-0.19	4.94	0.97	0.25	0.66



### Stellar Parameters For KIC 008747939

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6505^{+181}_{-227}$	$3.851^{+0.456}_{-0.114}$	$-0.240^{+0.250}_{-0.300}$	$2.361^{+0.494}_{-1.070}$	$1.443^{+0.197}_{-0.366}$	$0.154^{+0.633}_{-0.067}$
	+3%/-3%	+12%/-3%	+104%/-125%	+21%/-45%	+14%/-25%	+410%/-43%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 008747939-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-57 \pm 7$	$2.95^{+0.61}_{-0.72}$	$463^{+36}_{-56}$	$5127^{+299}_{-299}$	$9729^{+6682}_{-3176}$
Alt.	$-27 \pm 7$	$2.24^{+0.55}_{-0.58}$	$467^{+34}_{-57}$	$4929^{+439}_{-382}$	$8093^{+6396}_{-3193}$

$T_{\text{max}}$  = 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

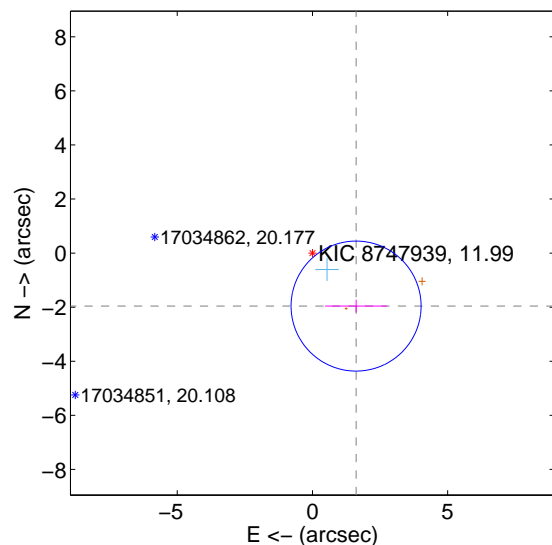
Supplemental centroid analysis for 008747939-01. **Kepler magnitude: 11.99.** Transit SNR 7.85

**There are 1 quarters with good PRF difference image offsets**

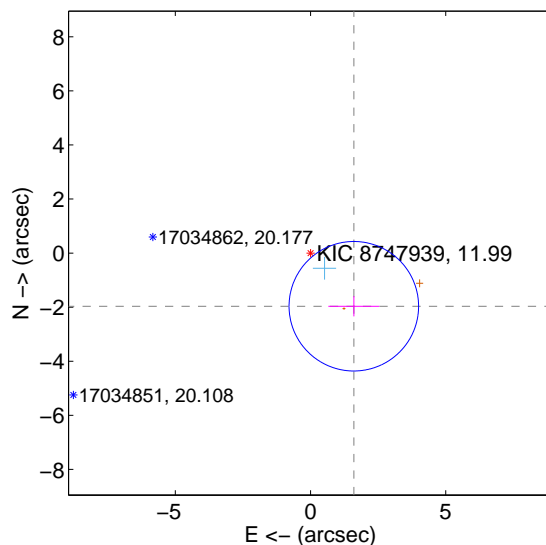
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>2.540 \pm 0.802</math></b>	<b>3.17</b>	$-1.614 \pm 1.147$	$-1.960 \pm 0.235$
PRF-fit source offset from KIC position	<b><math>2.536 \pm 0.799</math></b>	<b>3.18</b>	$-1.602 \pm 0.941$	$-1.966 \pm 0.375$
photometric centroid source offset	$3.19 \pm 1.42$	2.24	$-2.17 \pm 1.35$	$-2.34 \pm 1.48$

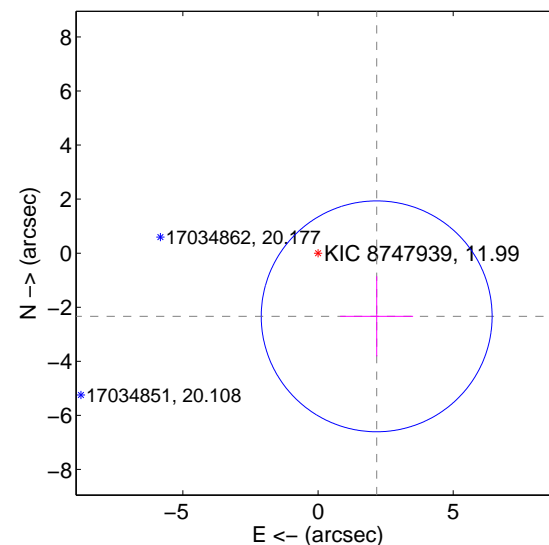
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

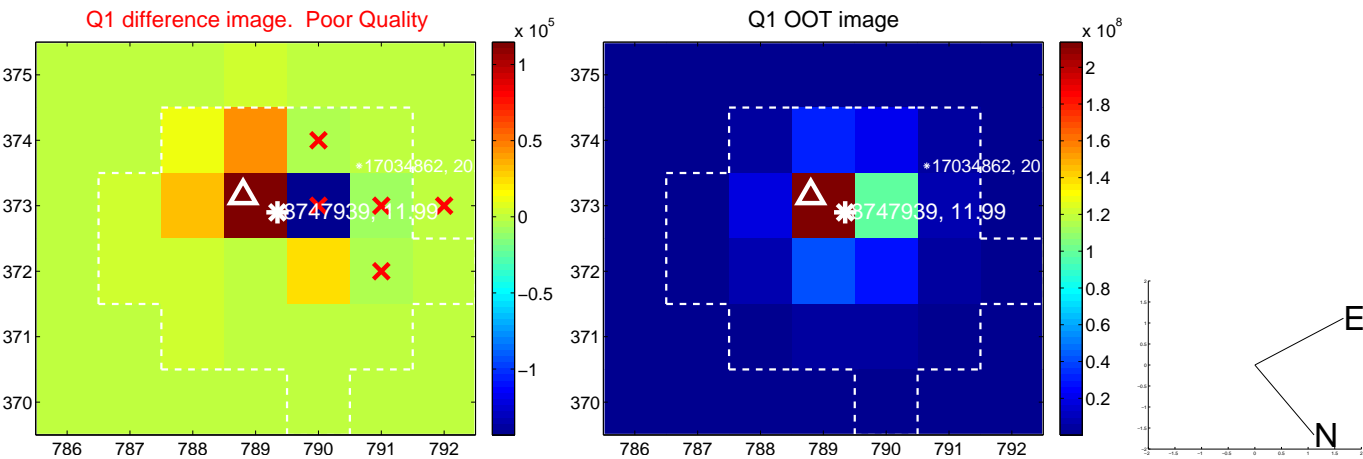


offset from photometric centroids



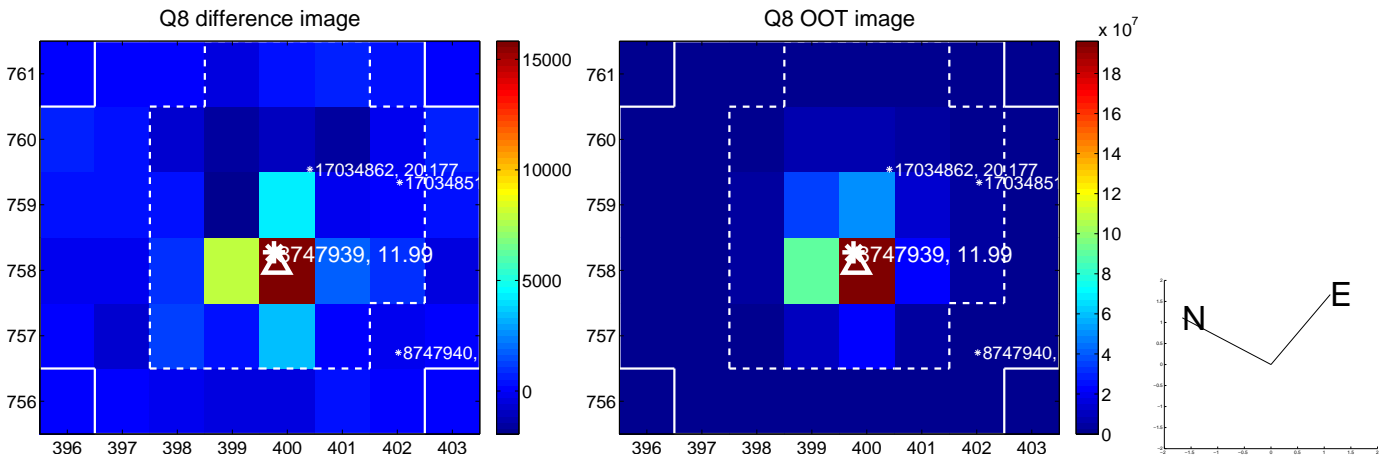
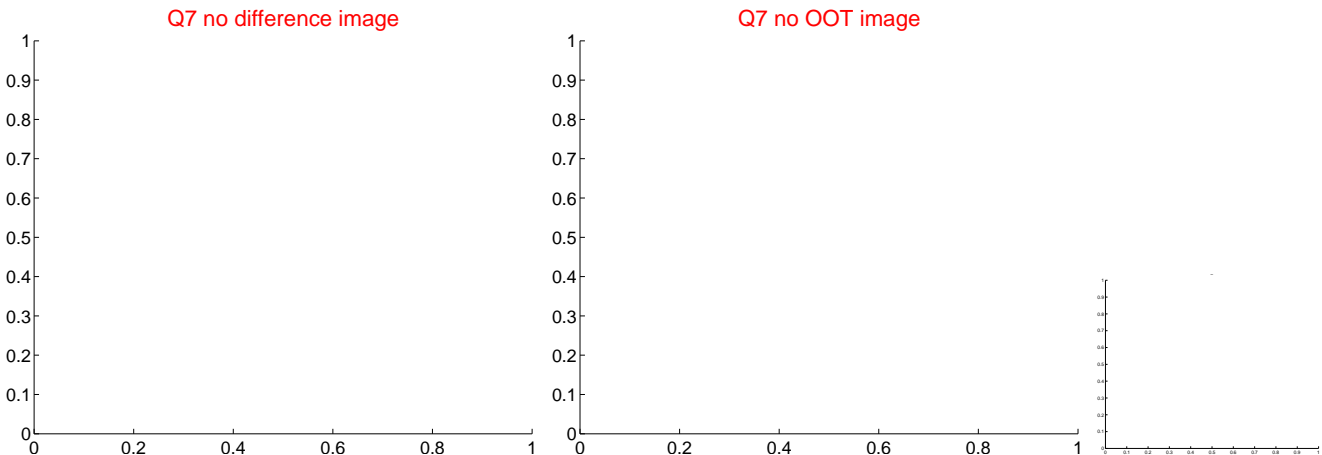
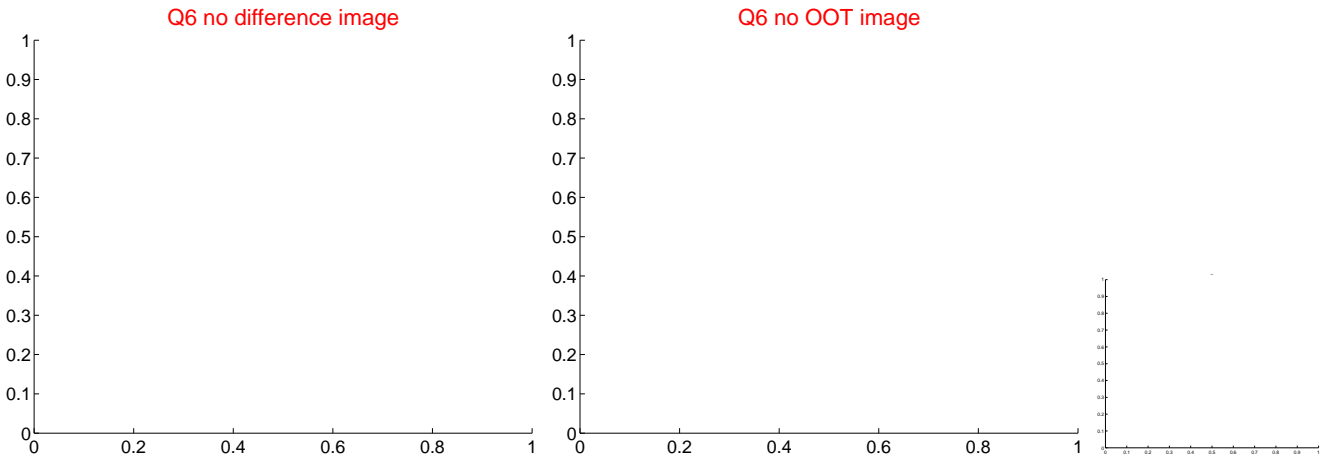
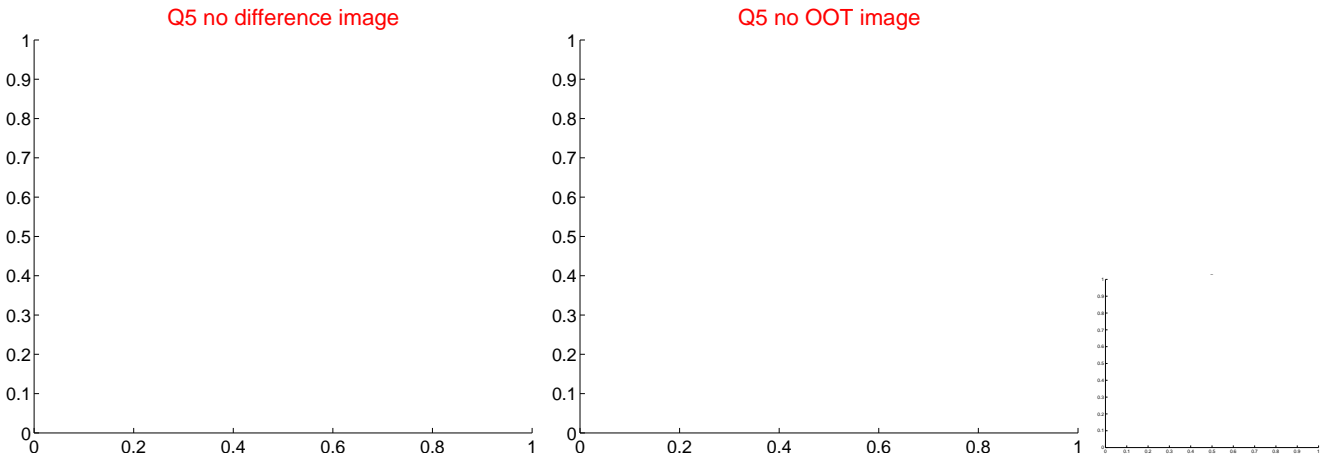
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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





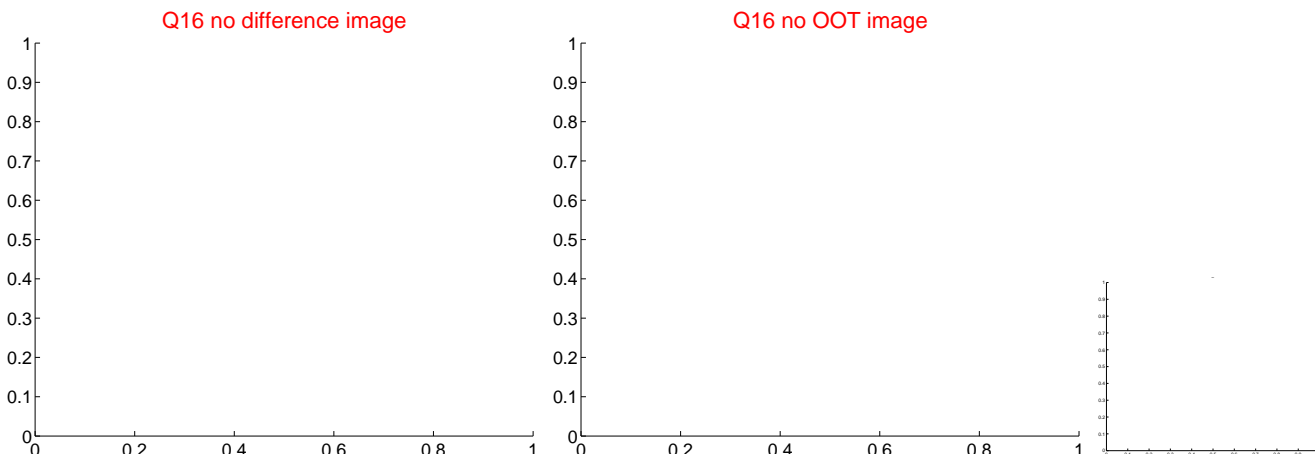
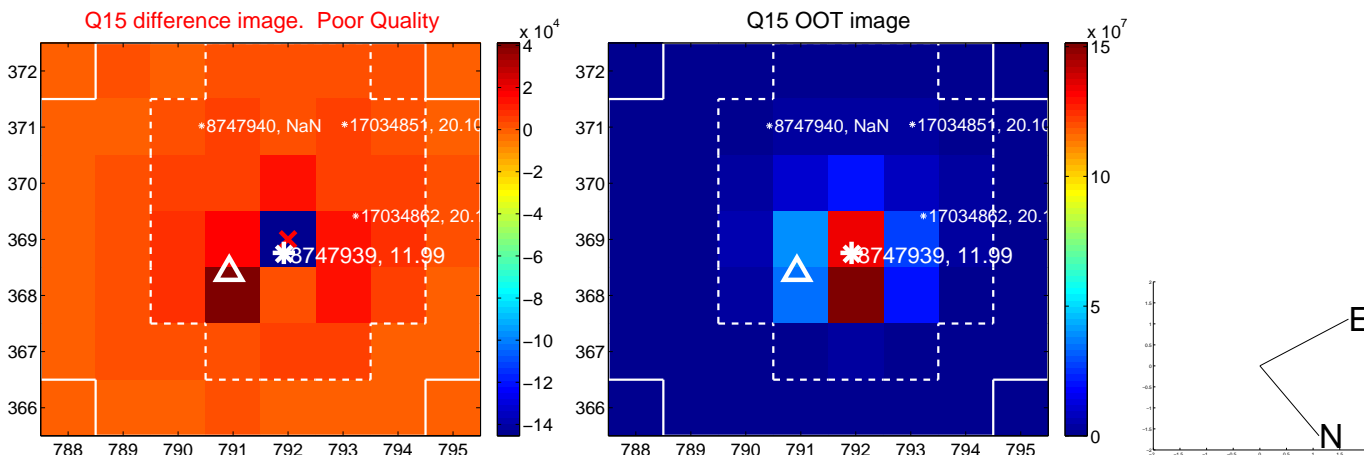
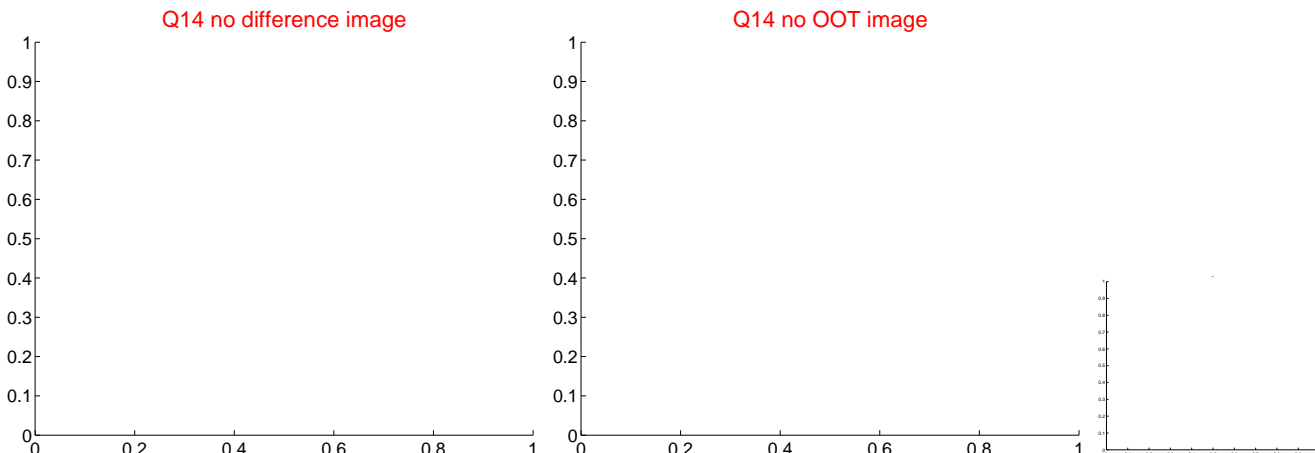
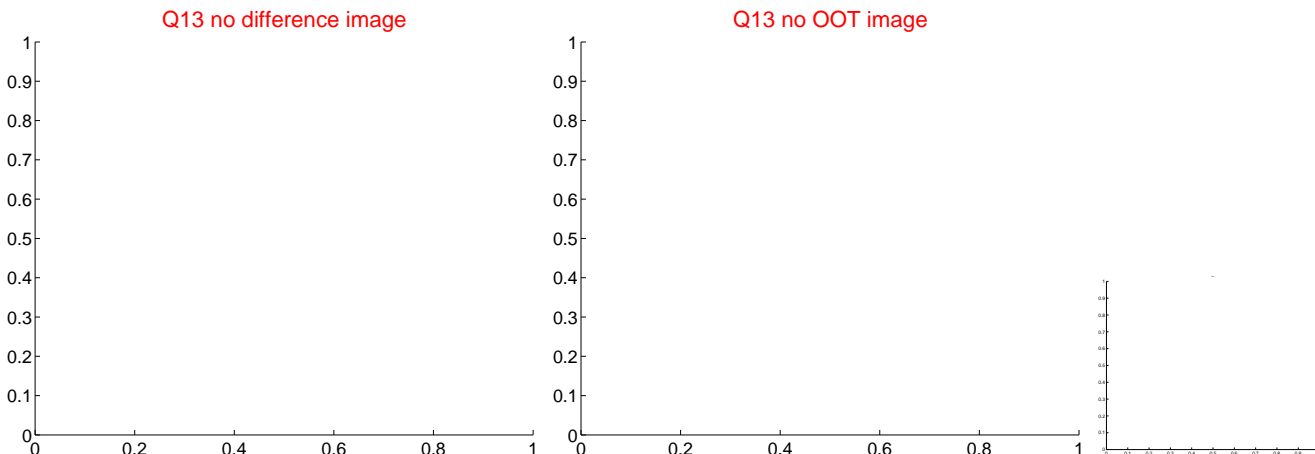
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



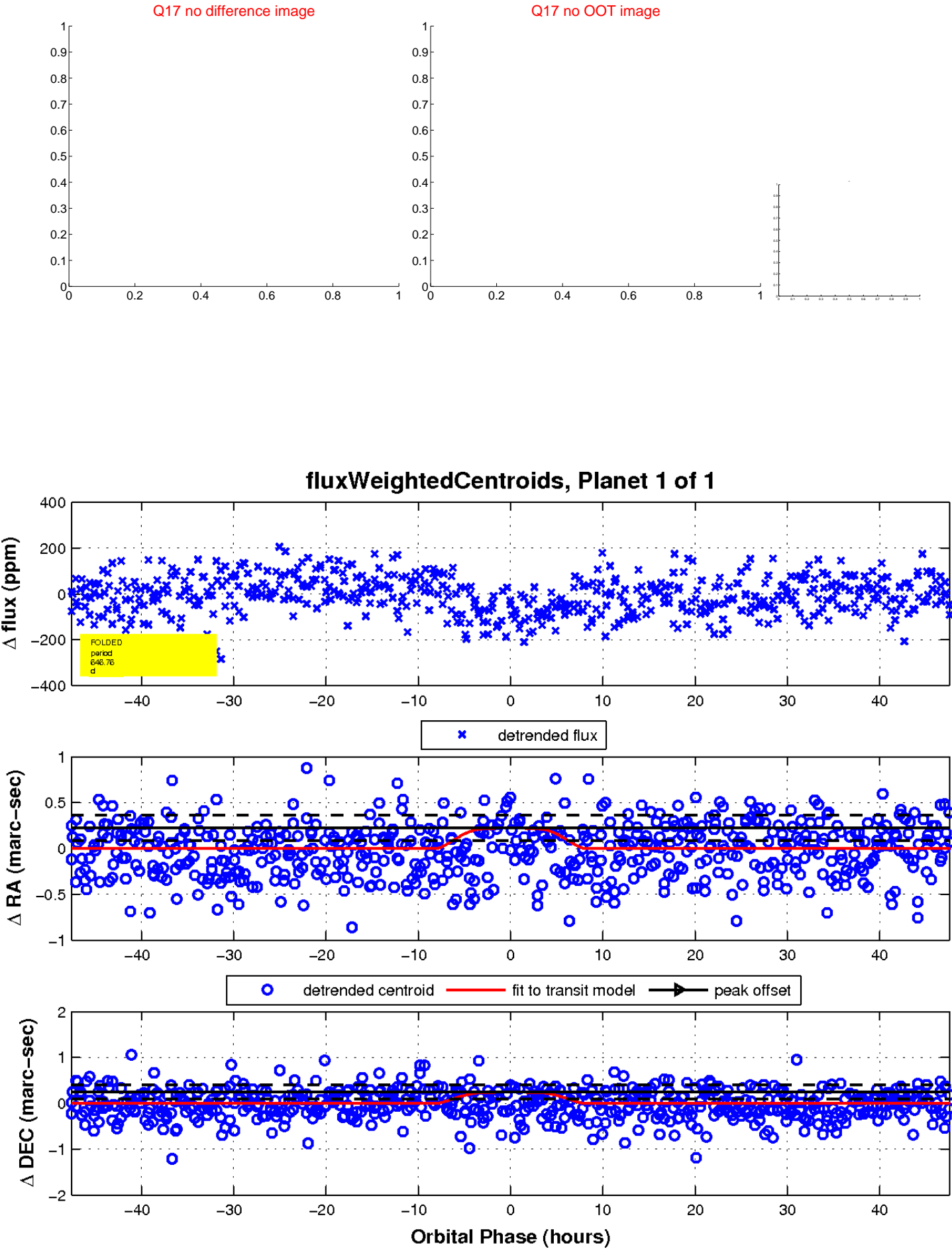
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

