

# KIC 009027847

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009027847-01	OBS	No	569.144407	357.894462	688.5	3.532	7.4	6.4	1.06	6360	2.89	0.85

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009027847-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_ALT—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.

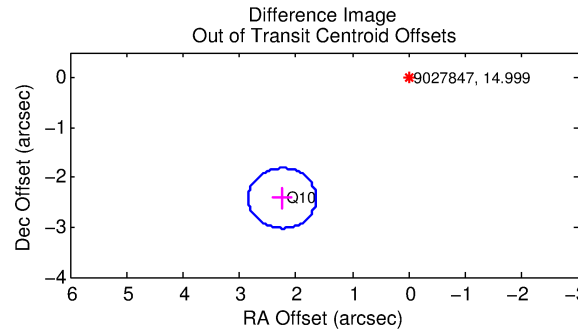
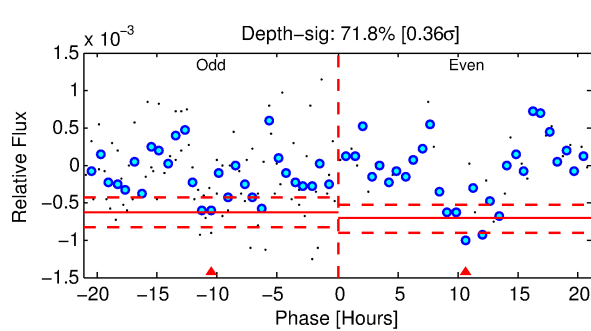
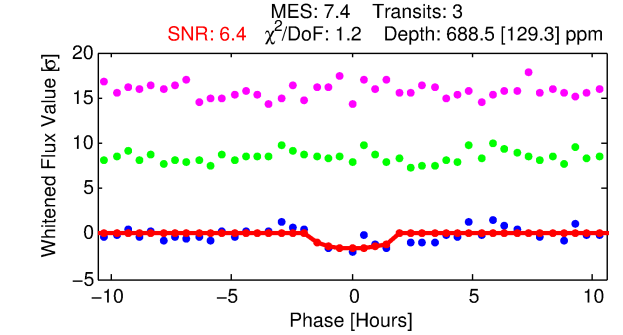
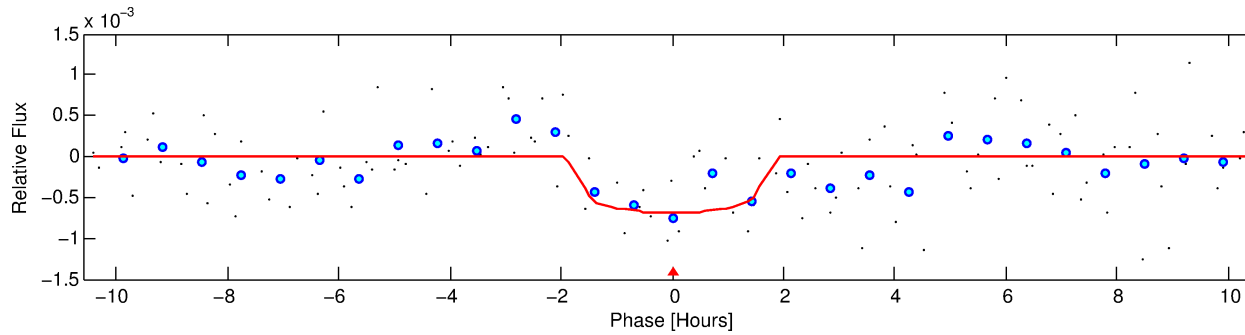
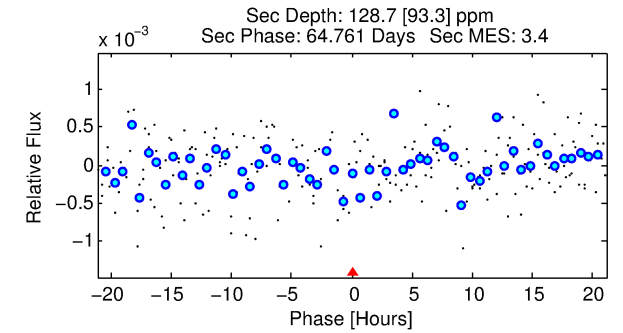
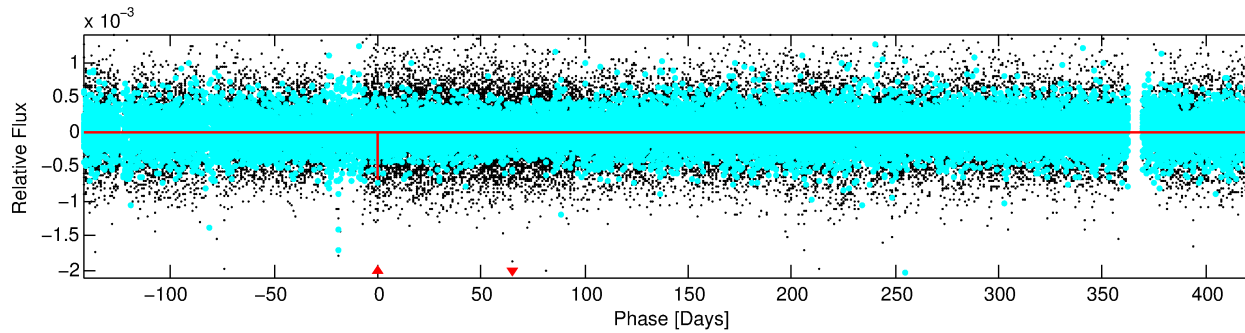
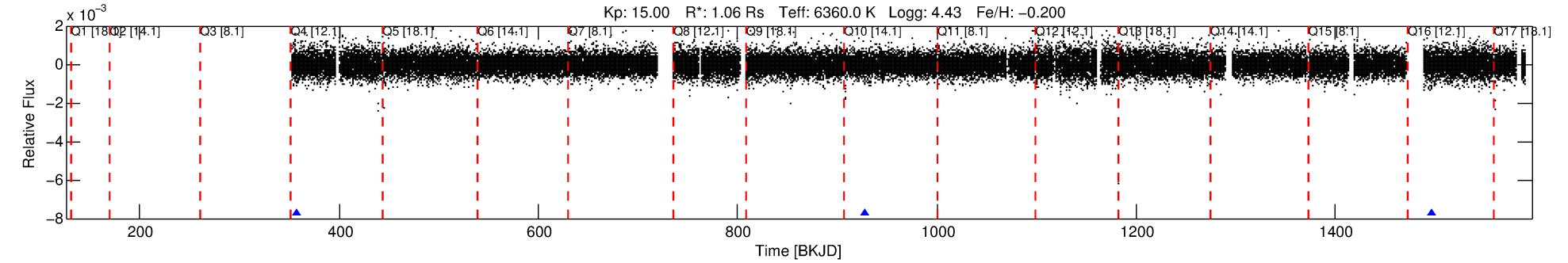
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009027847-01

No Significant Match Found

# DV One-Page Summary

KIC: 9027847 Candidate: 1 of 1 Period: 569.144 d



## DV Fit Results:

Period = 569.14441 [0.01033] d  
Epoch = 357.8945 [0.0122] BKJD  
Rp/R\* = 0.0251 [0.0458]  
a/R\* = 1046.91 [10039.37]  
b = 0.57 [11.33]  
Seff = 0.85 [0.36]  
Teq = 245 [26] K  
Rp = 2.89 [5.38] Re  
a = 1.3905 [0.3829] AU  
Ag = 16340.58 [61275.88] [0.27σ]  
Teffp = 4278 [3992] K [1.01σ]

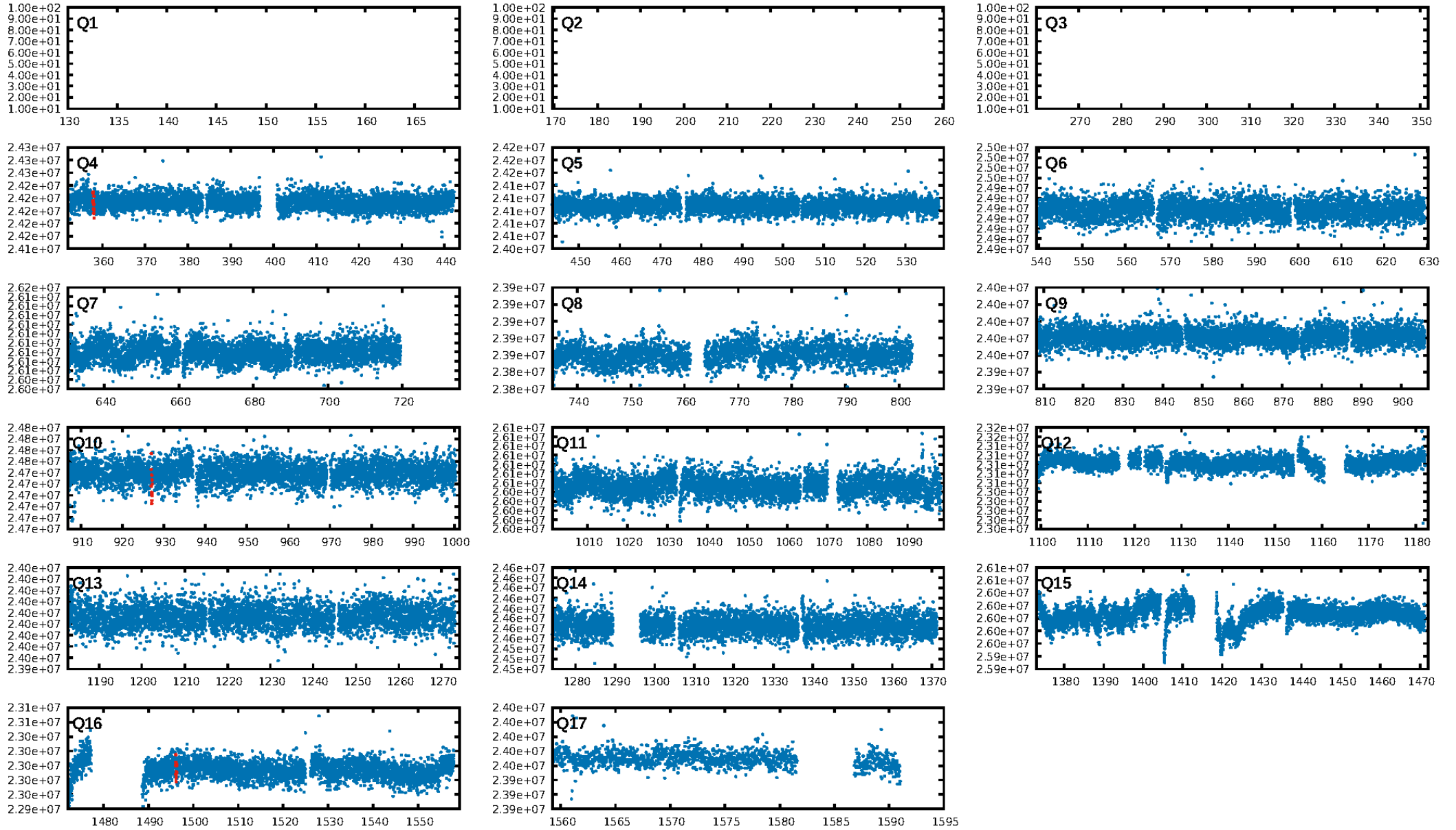
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 60.6%  
ModelChiSquareGof-sig: 96.0%  
**Bootstrap-pfa: 6.24e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 6.649  
Centroid-sig: 35.0%  
Centroid-so: 1.956 arcsec [2.62σ]  
**OotOffset-rm: 3.304 arcsec [16.45σ]**  
**KicOffset-rm: 2.411 arcsec [13.17σ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [3/3]

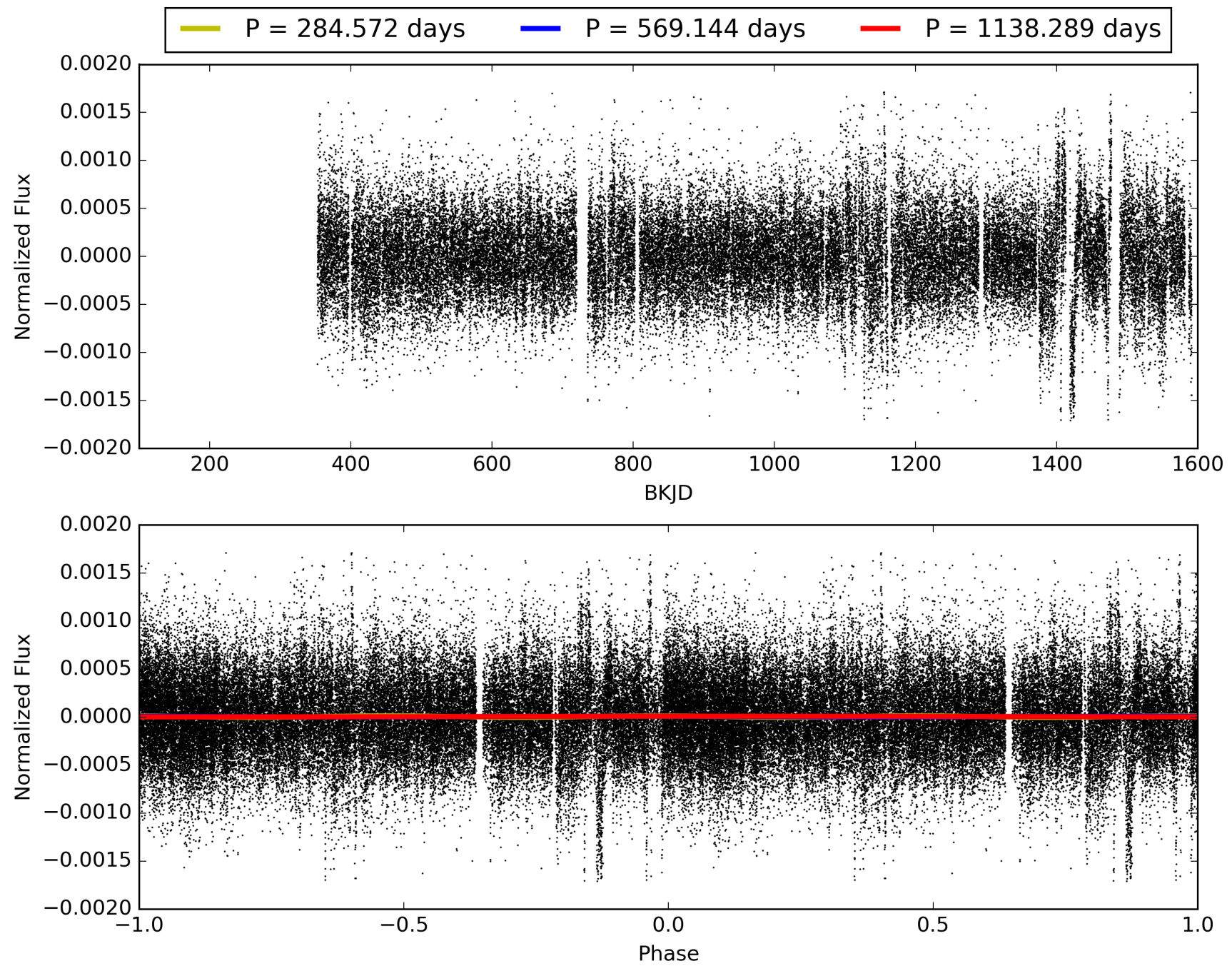
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 12:57:52 Z

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

# TCE 009027847-01, PDC Light Curves

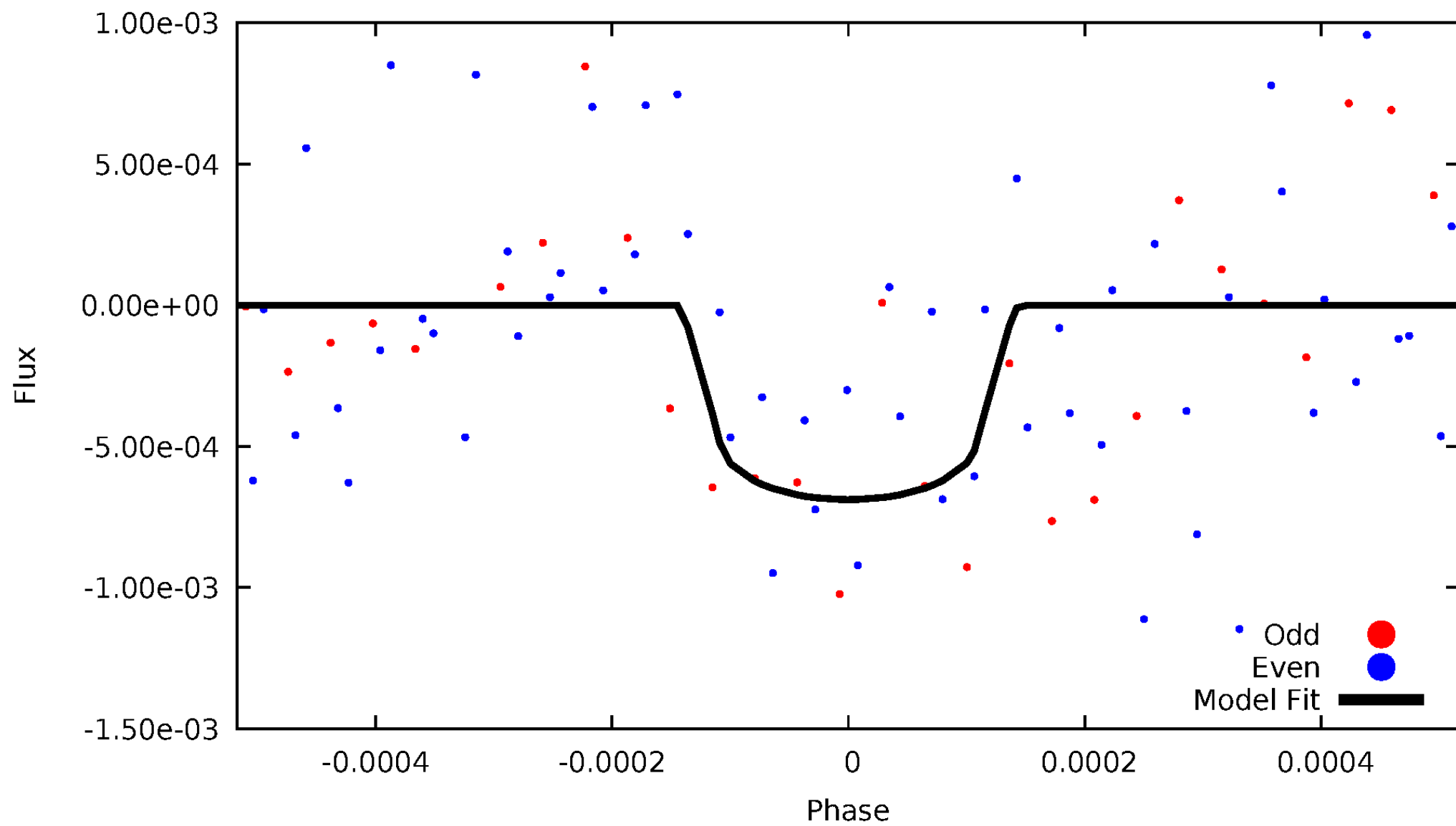


TCE 009027847-01



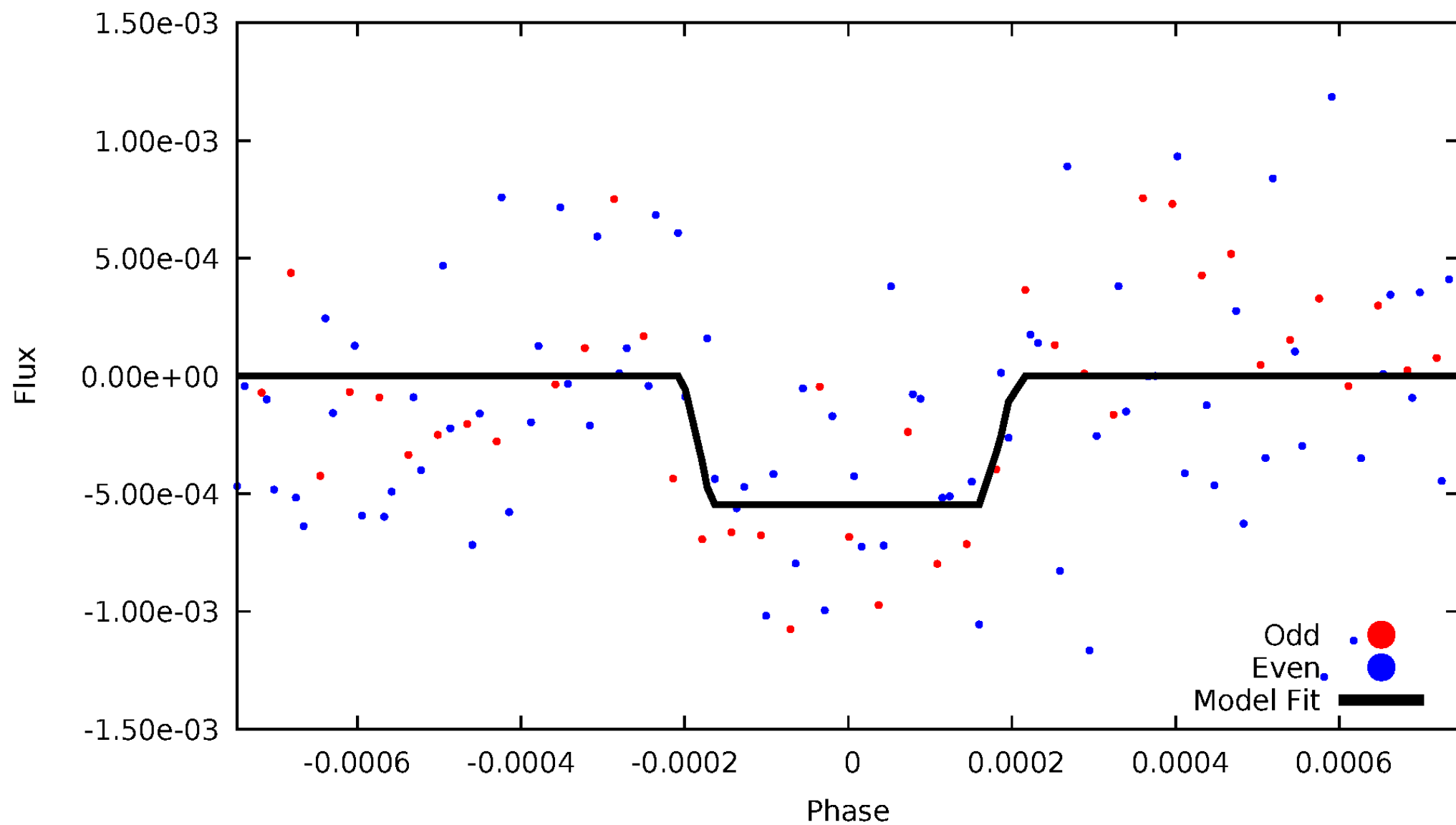
# DV Odd/Even

TCE 009027847-01



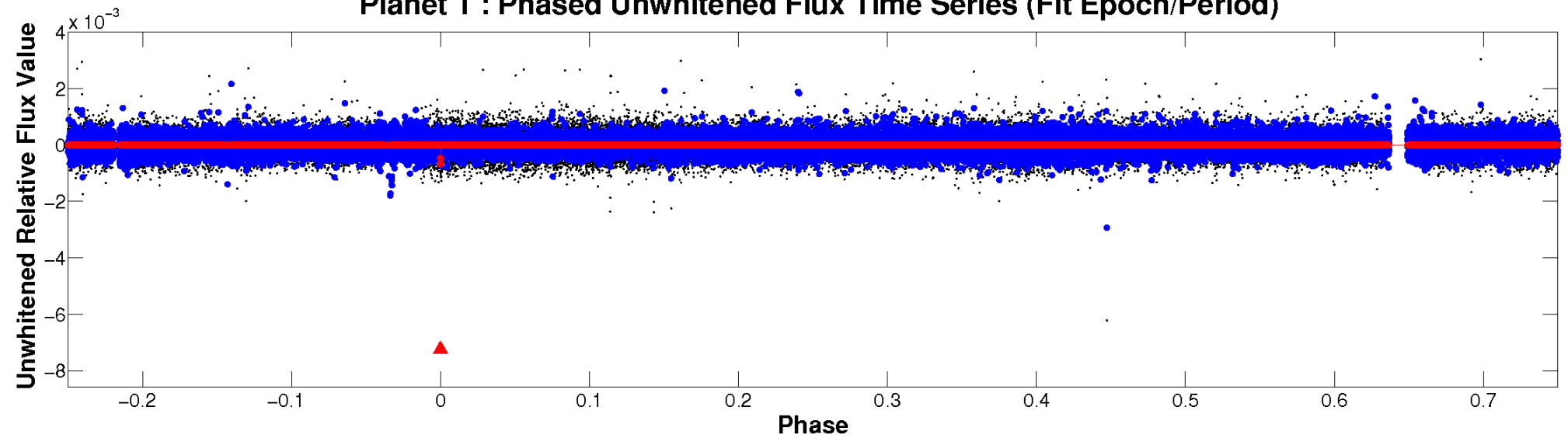
# ALT Odd/Even

TCE 009027847-01

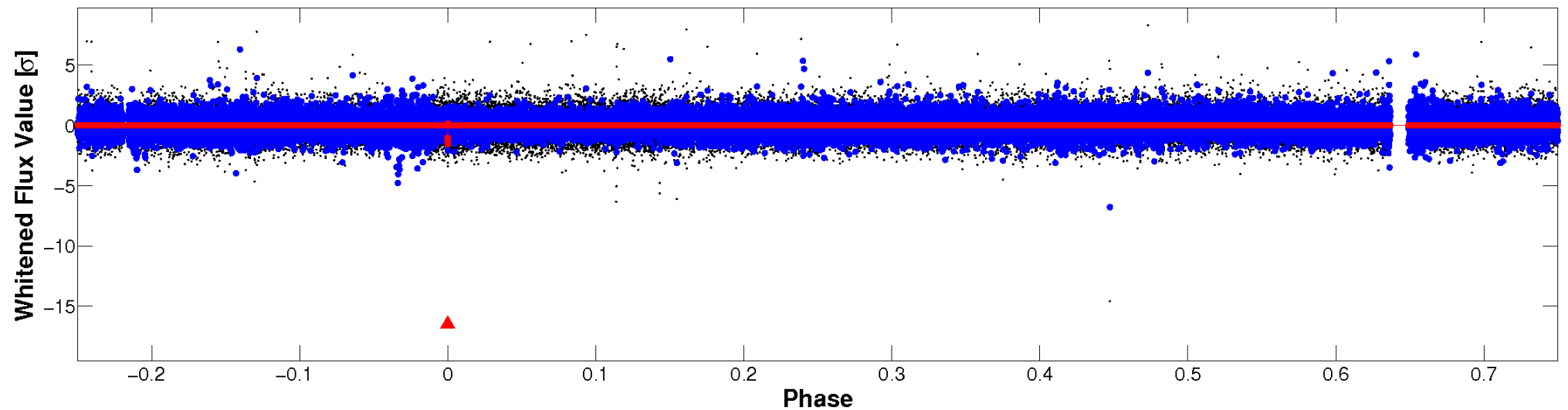


# Non-Whitened Vs. Whitened Light Curve

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

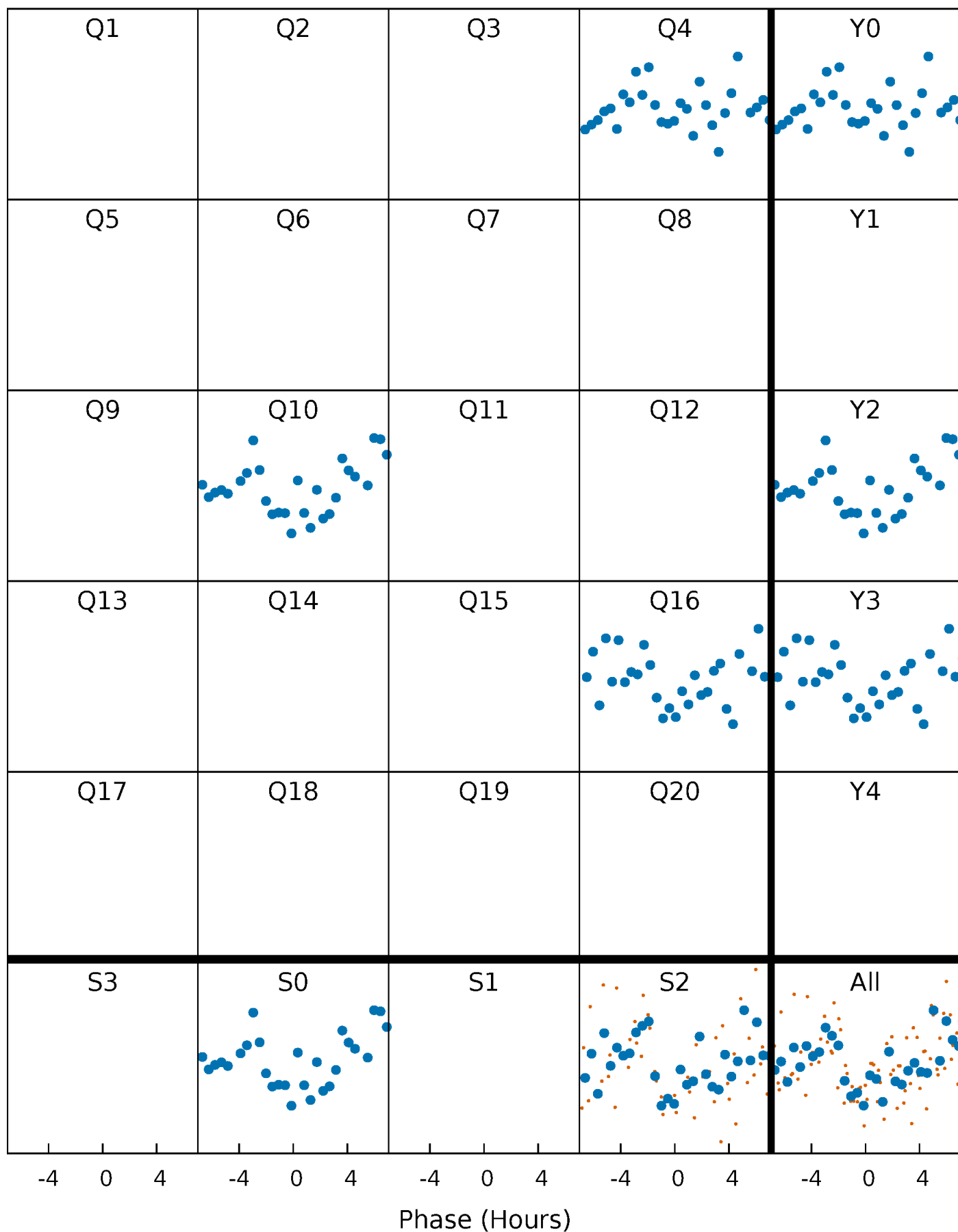


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

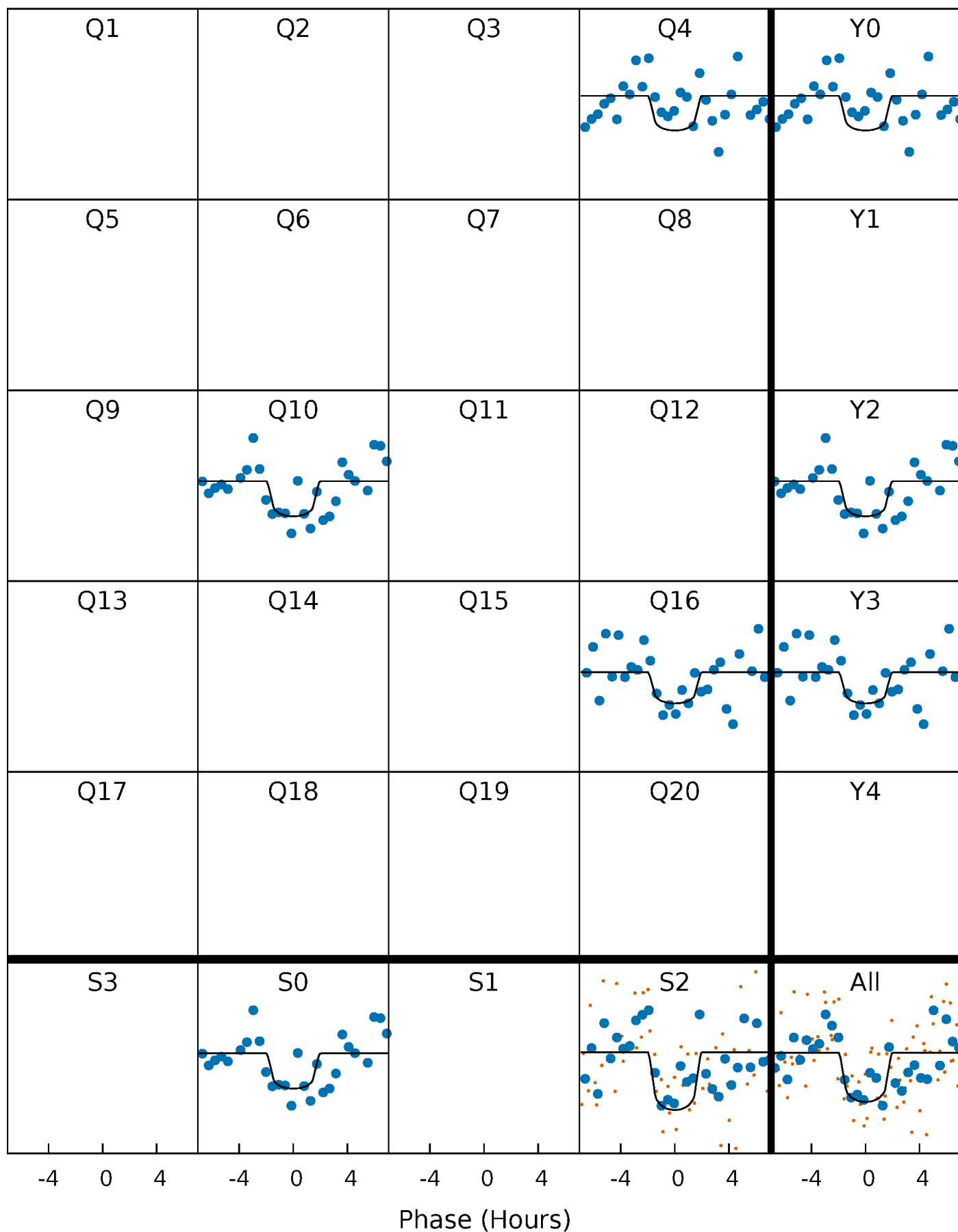
TCE 009027847-01 P=569.144407 Days  $T_0=357.894461$  (BKJD)





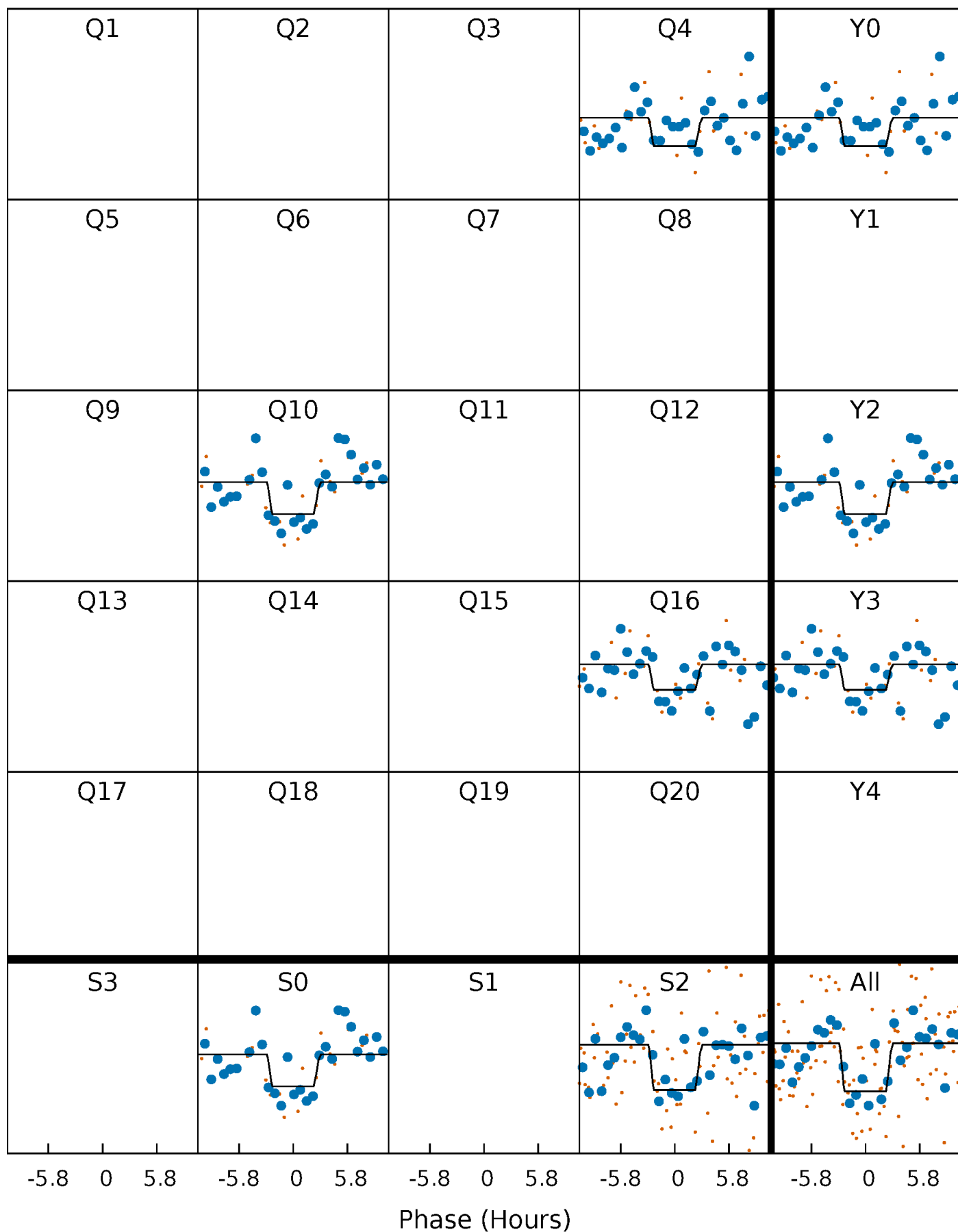
# DV Quarter-Phased Transit Curves

TCE 009027847-01 P=569.144407 Days  $T_0=357.894461$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

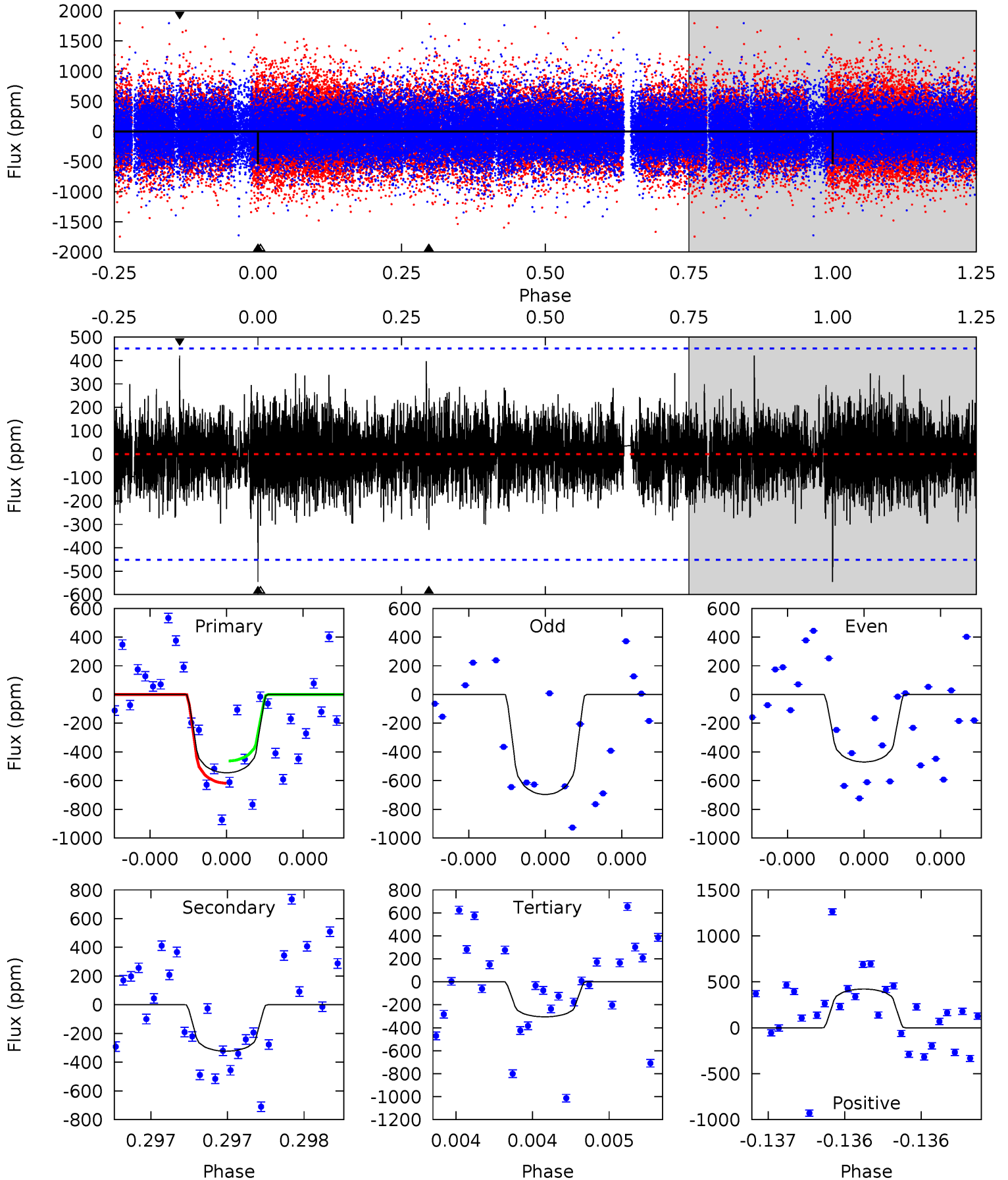
TCE 009027847-01 P=569.129135 Days  $T_0=357.945860$  (BKJD)



# DV Model-Shift Uniqueness Test

009027847-01, P = 569.144407 Days, E = 357.894461 Days

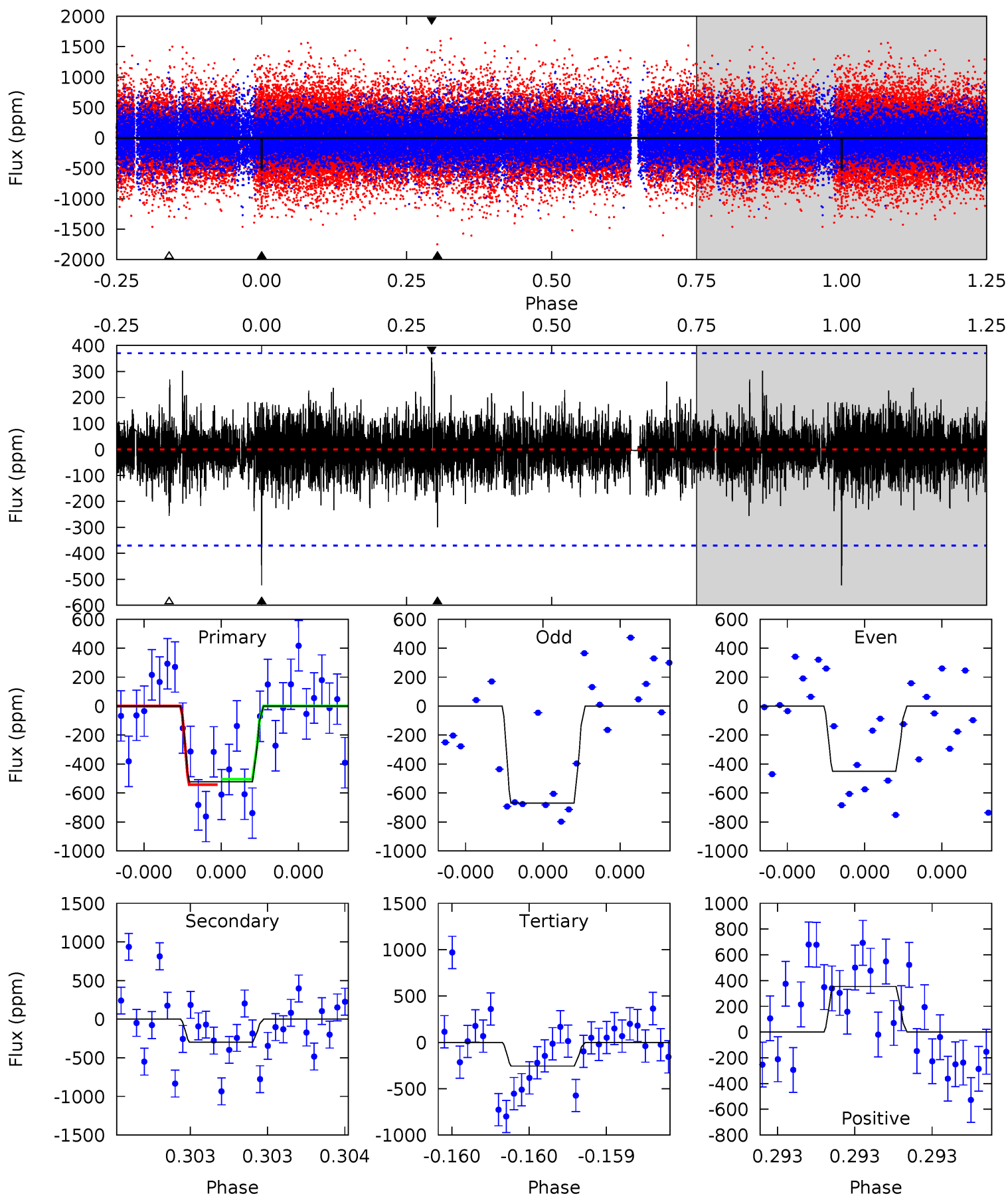
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.86	4.07	3.84	5.30	5.67	3.63	1.12	3.03	1.57	0.23	-1.23	1.40	0.79	0.44	0.98



# Alt Model-Shift Uniqueness Test

009027847-01, P = 569.129135 Days, E = 357.945860 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
7.94	4.54	3.89	5.37	5.61	3.54	1.01	4.05	2.57	0.65	-0.83	1.54	0.97	0.40	0.29



### Stellar Parameters For KIC 009027847

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6360^{+176}_{-242}$	$4.433^{+0.067}_{-0.216}$	$-0.200^{+0.250}_{-0.300}$	$1.058^{+0.349}_{-0.116}$	$1.105^{+0.154}_{-0.154}$	$1.313^{+0.388}_{-0.710}$
	+3%/-4%	+2%/-5%	+125%/-150%	+33%/-11%	+14%/-14%	+30%/-54%
Source	KIC0	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 009027847-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-323±80	$4.99^{+4.91}_{-3.38}$	$348^{+28}_{-19}$	$4347^{+3169}_{-874}$	$12909^{+128494}_{-9668}$
Alt.	-299±66	$4.85^{+4.78}_{-3.23}$	$347^{+29}_{-18}$	$4413^{+2731}_{-947}$	$14103^{+98716}_{-10682}$

$T_{max}$  = 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

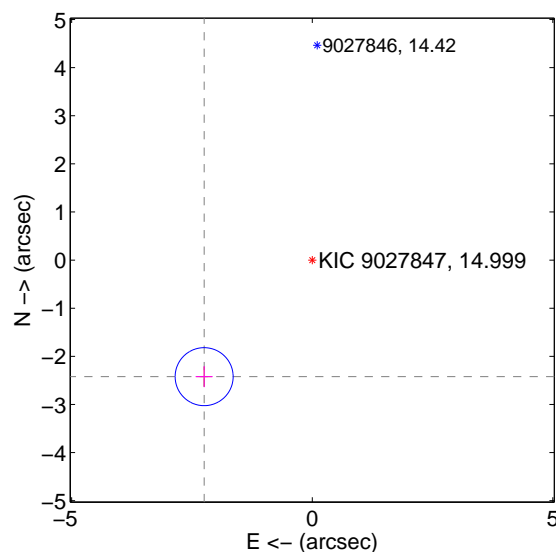
Supplemental centroid analysis for 009027847-01. Kepler magnitude: 15.00. Transit SNR 6.43

There are 0 quarters with good PRF difference image offsets

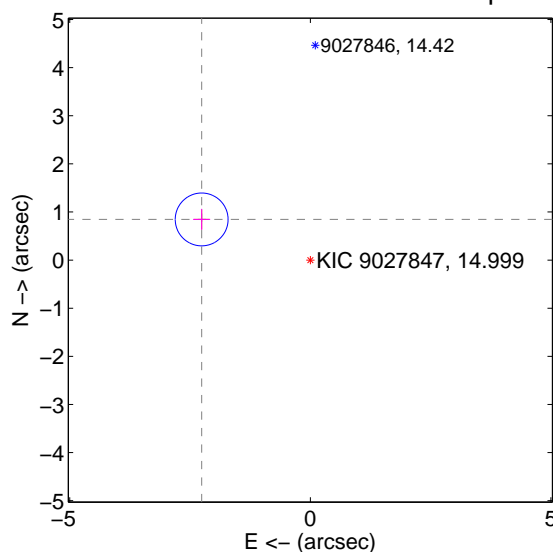
The OOT PRF centroid is offset from the target star catalog position by about 3.27 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.304 \pm 0.201$	16.45	$2.246 \pm 0.177$	$-2.423 \pm 0.219$
PRF-fit source offset from KIC position	$2.411 \pm 0.183$	13.17	$2.258 \pm 0.177$	$0.845 \pm 0.219$
photometric centroid source offset	$1.96 \pm 0.75$	2.62	$0.72 \pm 0.67$	$1.82 \pm 0.76$

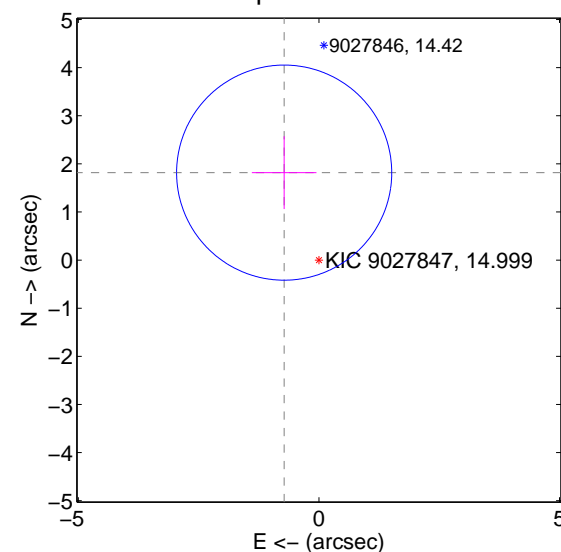
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

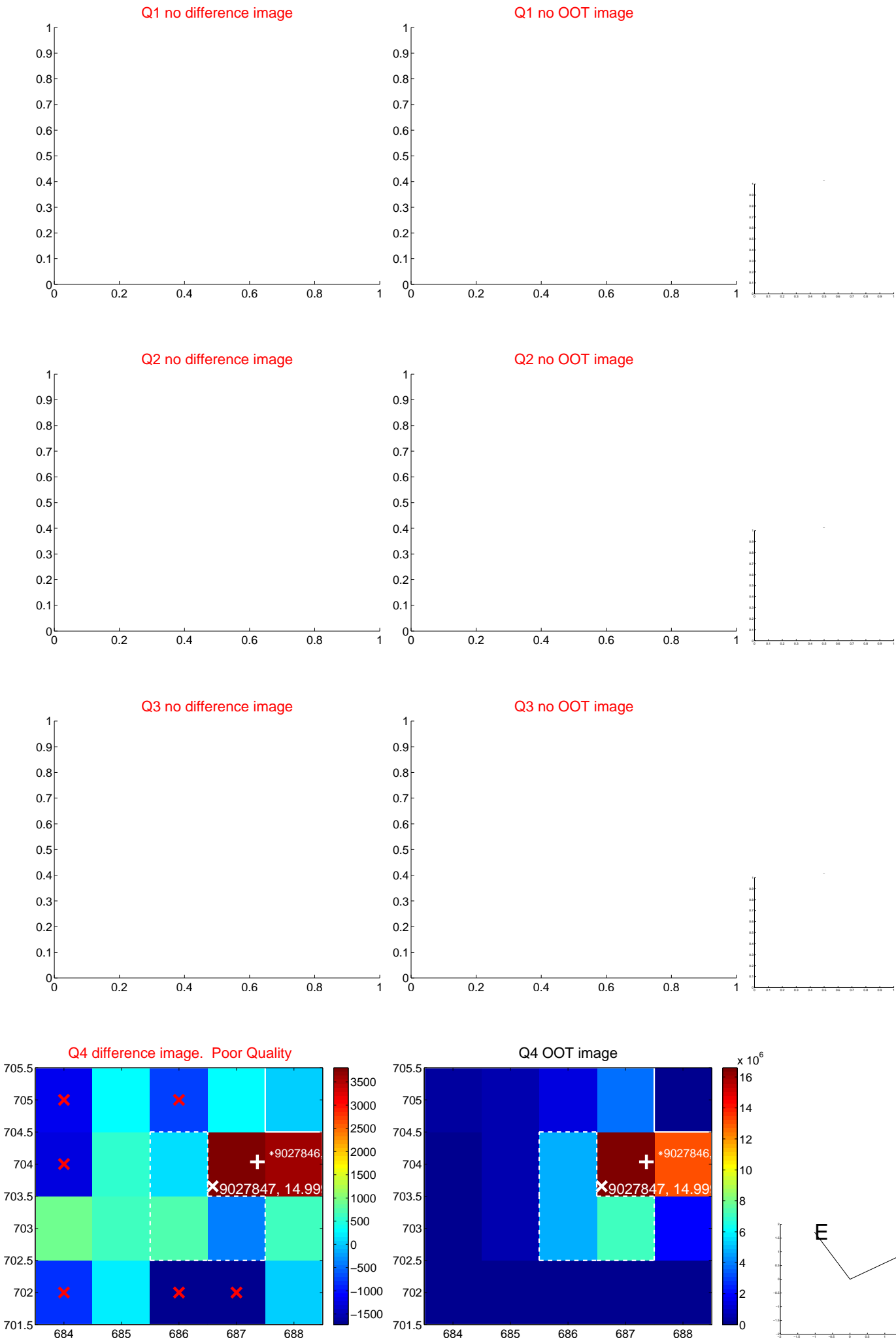


offset from photometric centroids



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.

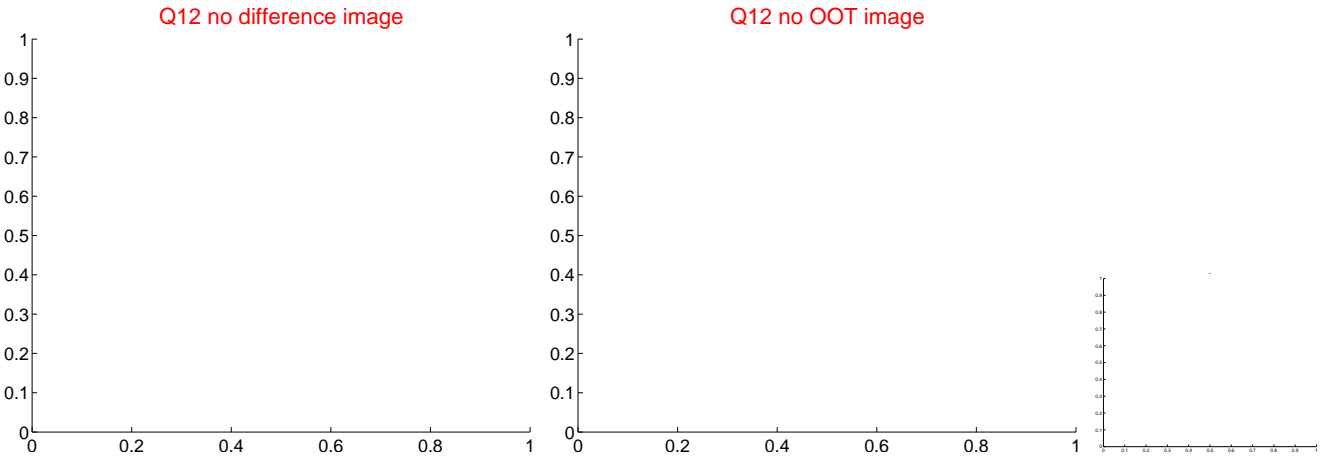
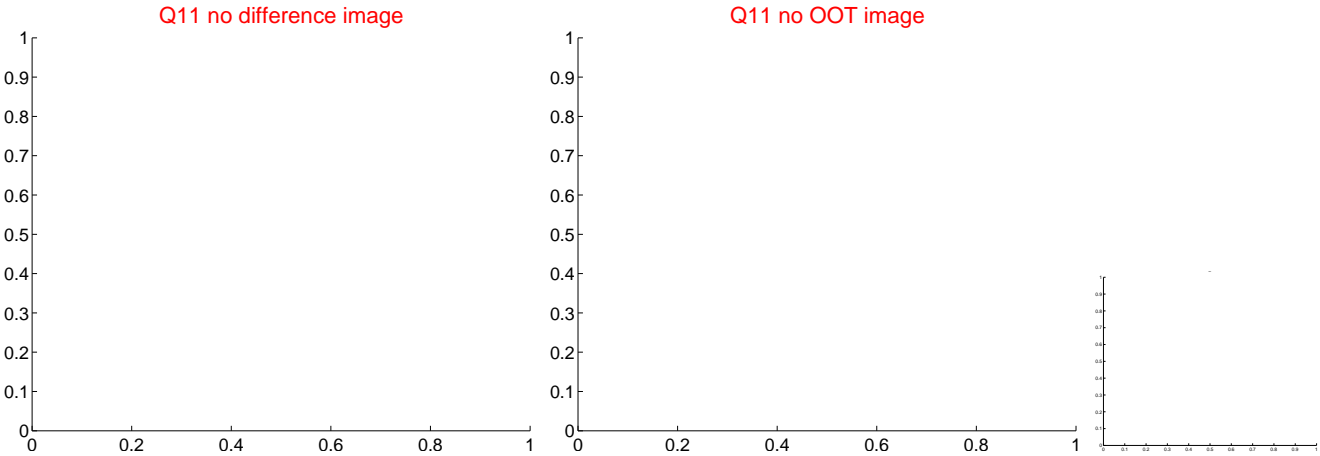
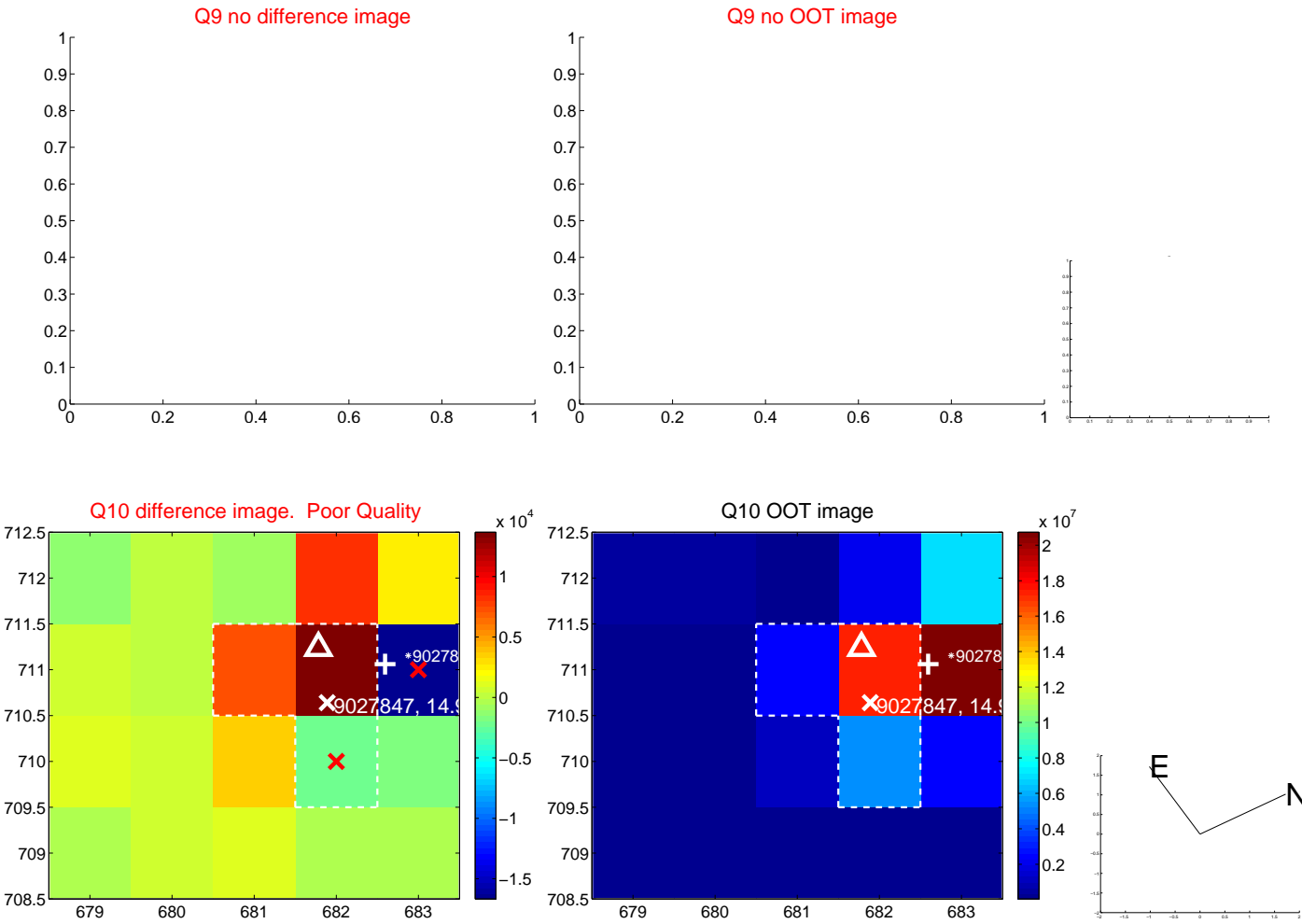


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

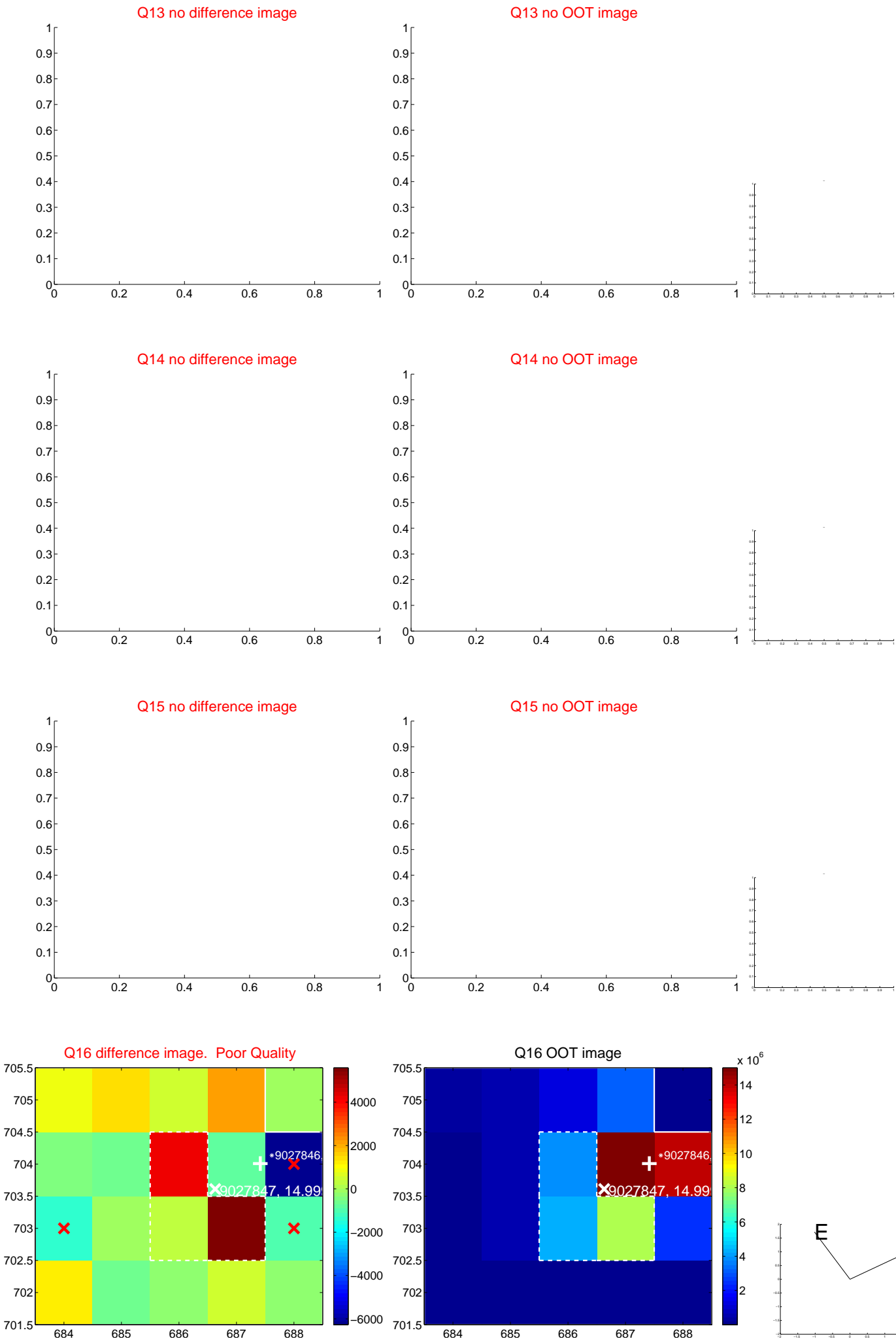




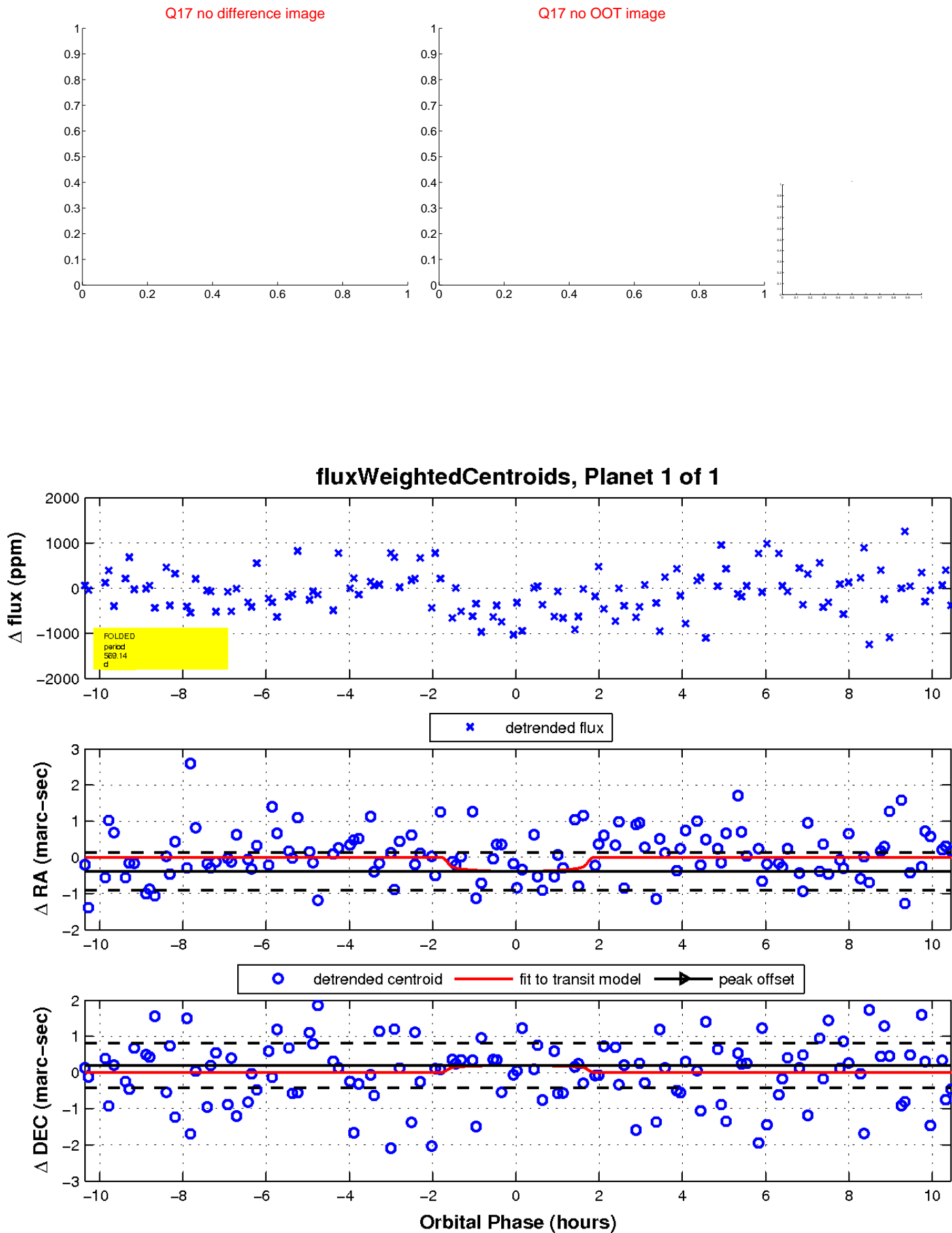
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

