

# KIC 008309169

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008309169-01	OBS	No	369.168079	233.476605	728.7	16.479	8.5	8.2	0.85	6074	2.83	0.95

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008309169-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—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.

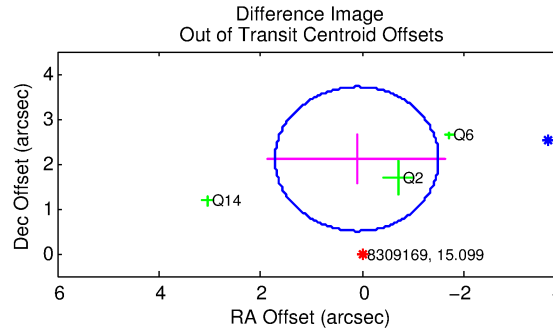
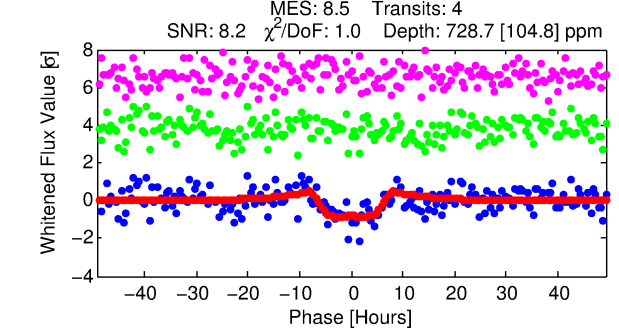
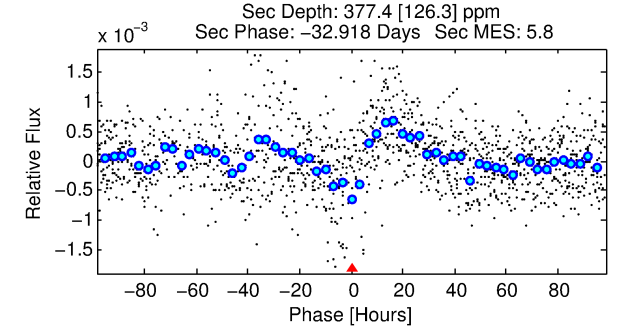
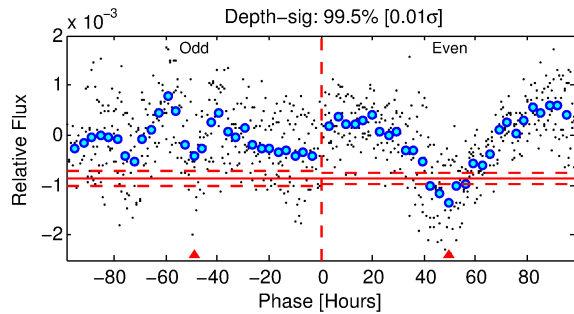
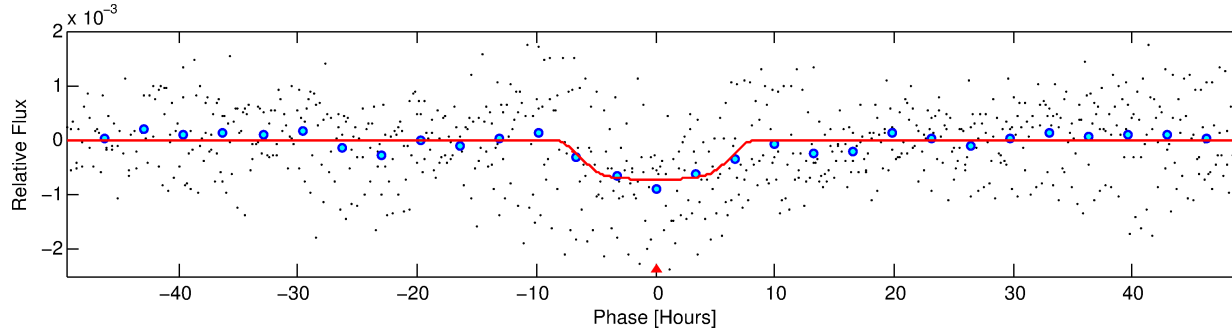
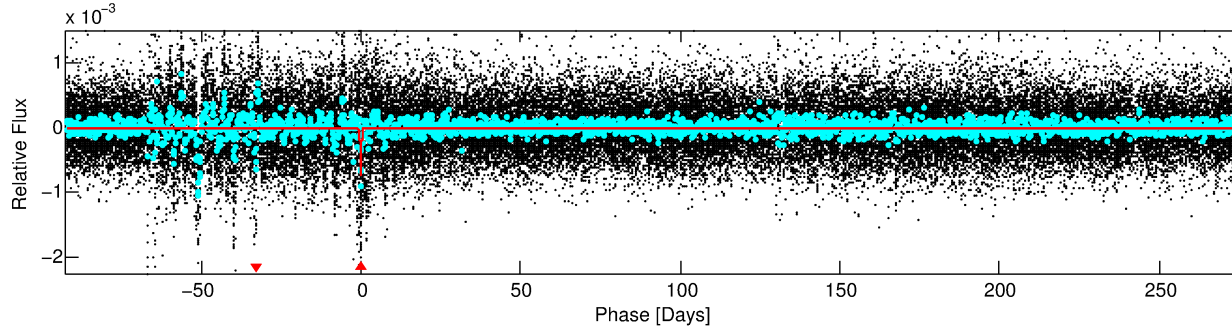
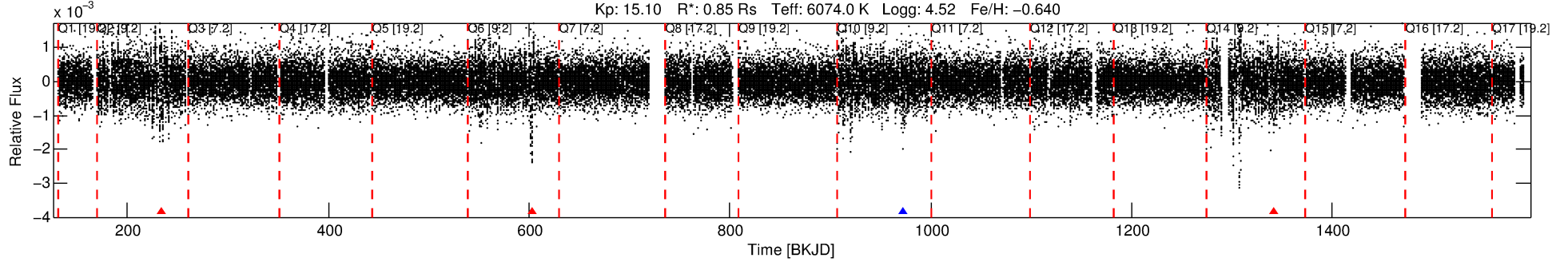
## Ephemeris Match Information For 008309169-01

No Significant Match Found

# DV One-Page Summary

KIC: 8309169 Candidate: 1 of 1 Period: 369.168 d  
KOI: K04218 Corr: No Ephemeris Match

Kp: 15.10 R\*: 0.85 Rs Teff: 6074.0 K Logg: 4.52 Fe/H: -0.640



## DV Fit Results:

Period = 369.16808 [0.01551] d  
Epoch = 233.4766 [0.0285] BKJD  
Rp/R\* = 0.0307 [0.0028]  
a/R\* = 69.20 [14.99]  
b = 0.95 [0.02]  
Seff = 0.95 [0.33]  
Teq = 251 [22] K  
Rp = 2.83 [0.79] Re  
a = 0.9618 [0.2154] AU  
Ag = 23911.00 [12013.97] [1.99σ]  
Teffp = 4835 [487] K [9.40σ]

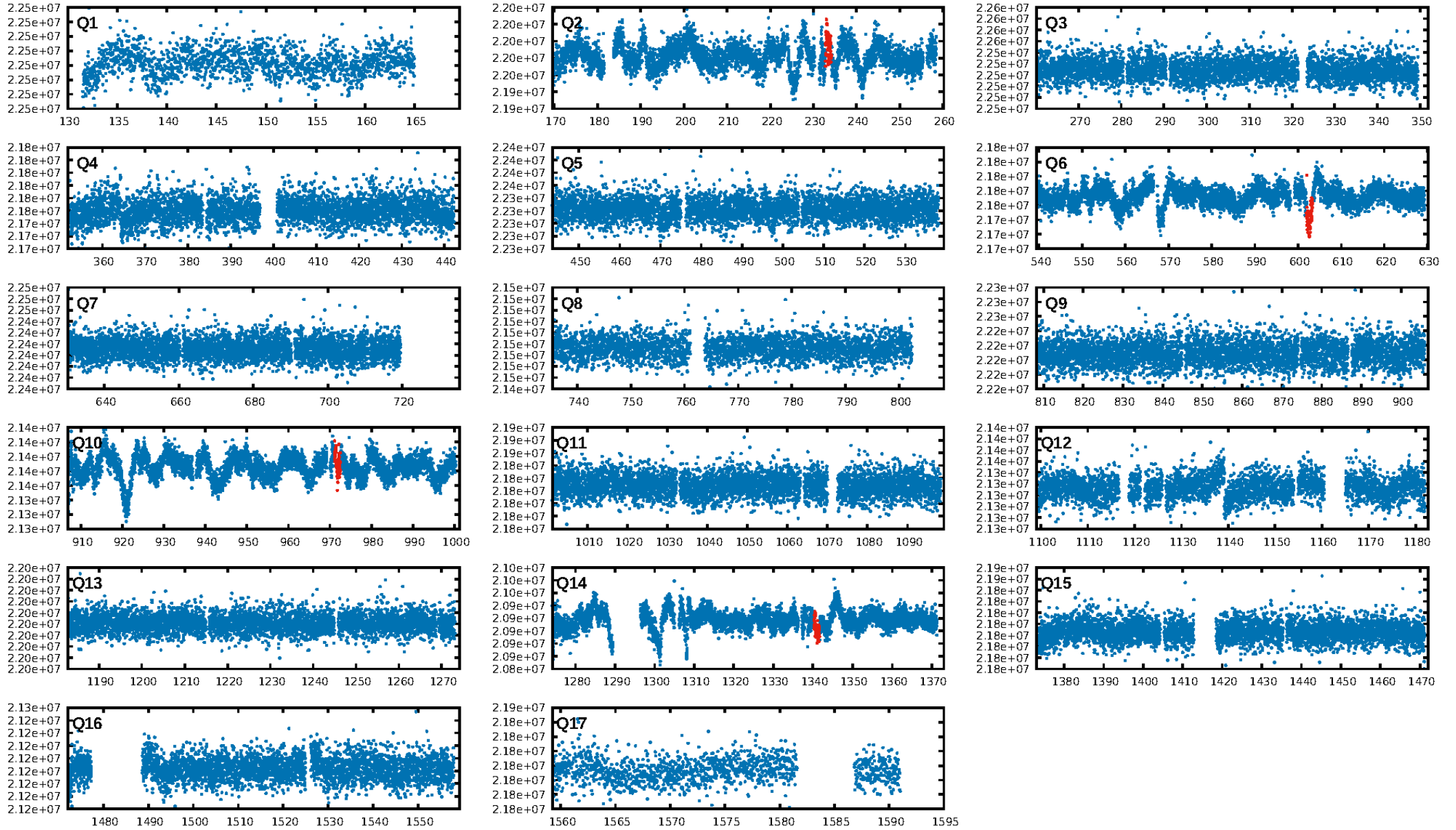
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.0%  
ModelChiSquareGof-sig: 97.7%  
Bootstrap-pfa: 4.51e-11  
RollingBand-fgt: 0.25 [1/4]  
GhostDiagnostic-chr: 0.5079  
Centroid-sig: 0.5%  
Centroid-so: 3.219 arcsec [1.97σ]  
OotOffset-rm: 2.107 arcsec [3.94σ]  
KicOffset-rm: 1.719 arcsec [2.66σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

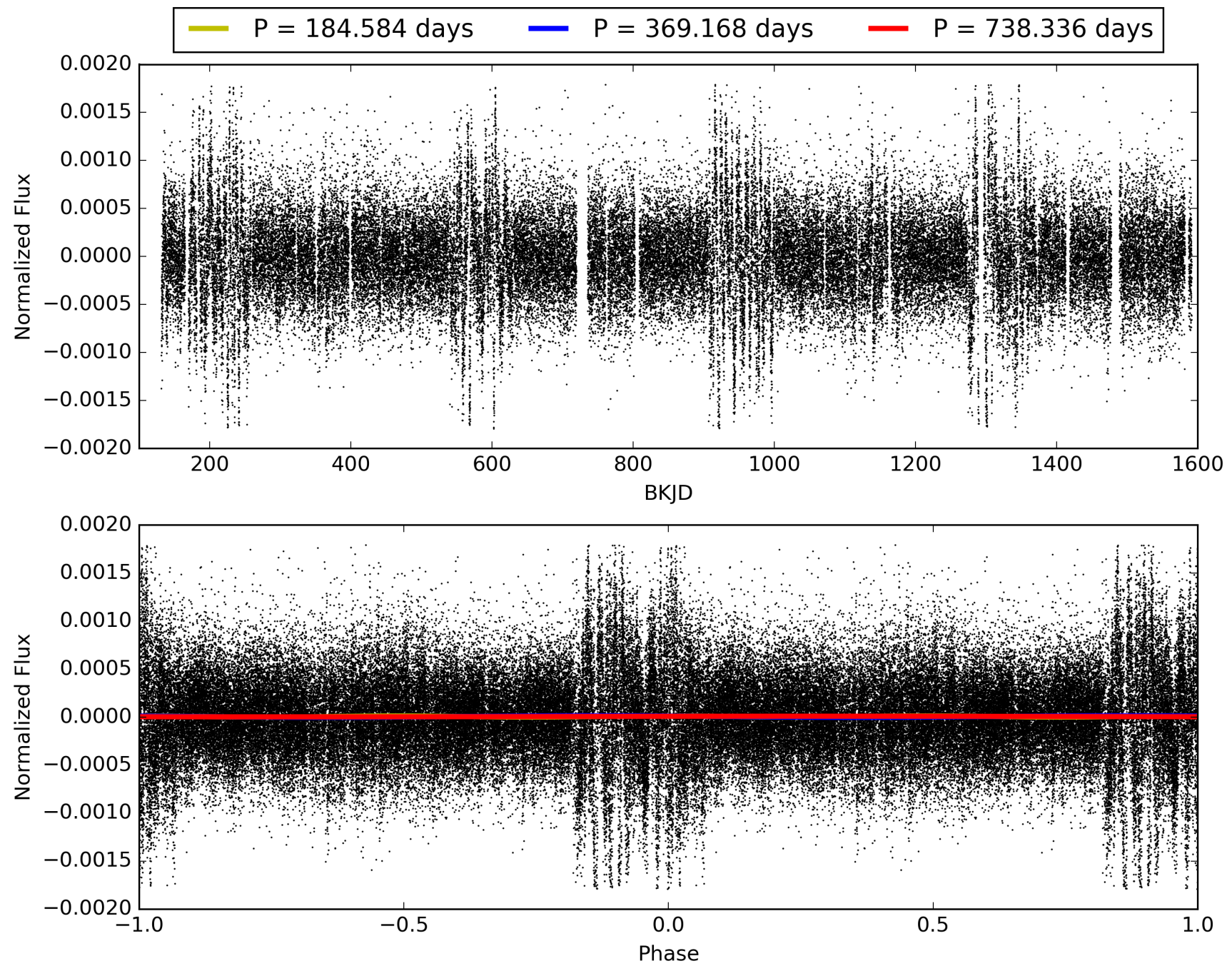
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 01:14:08 Z

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

# TCE 008309169-01, PDC Light Curves

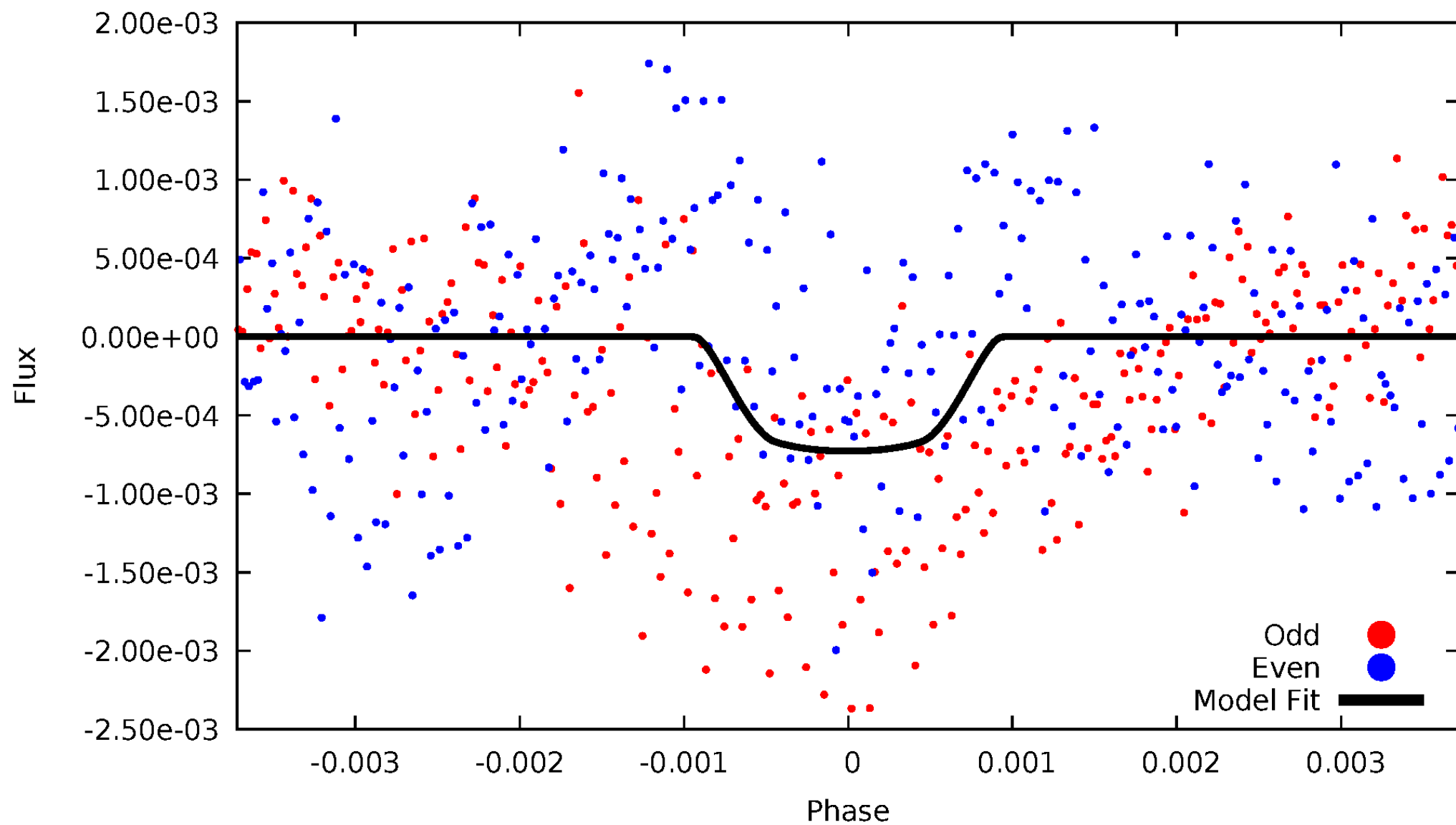


# TCE 008309169-01



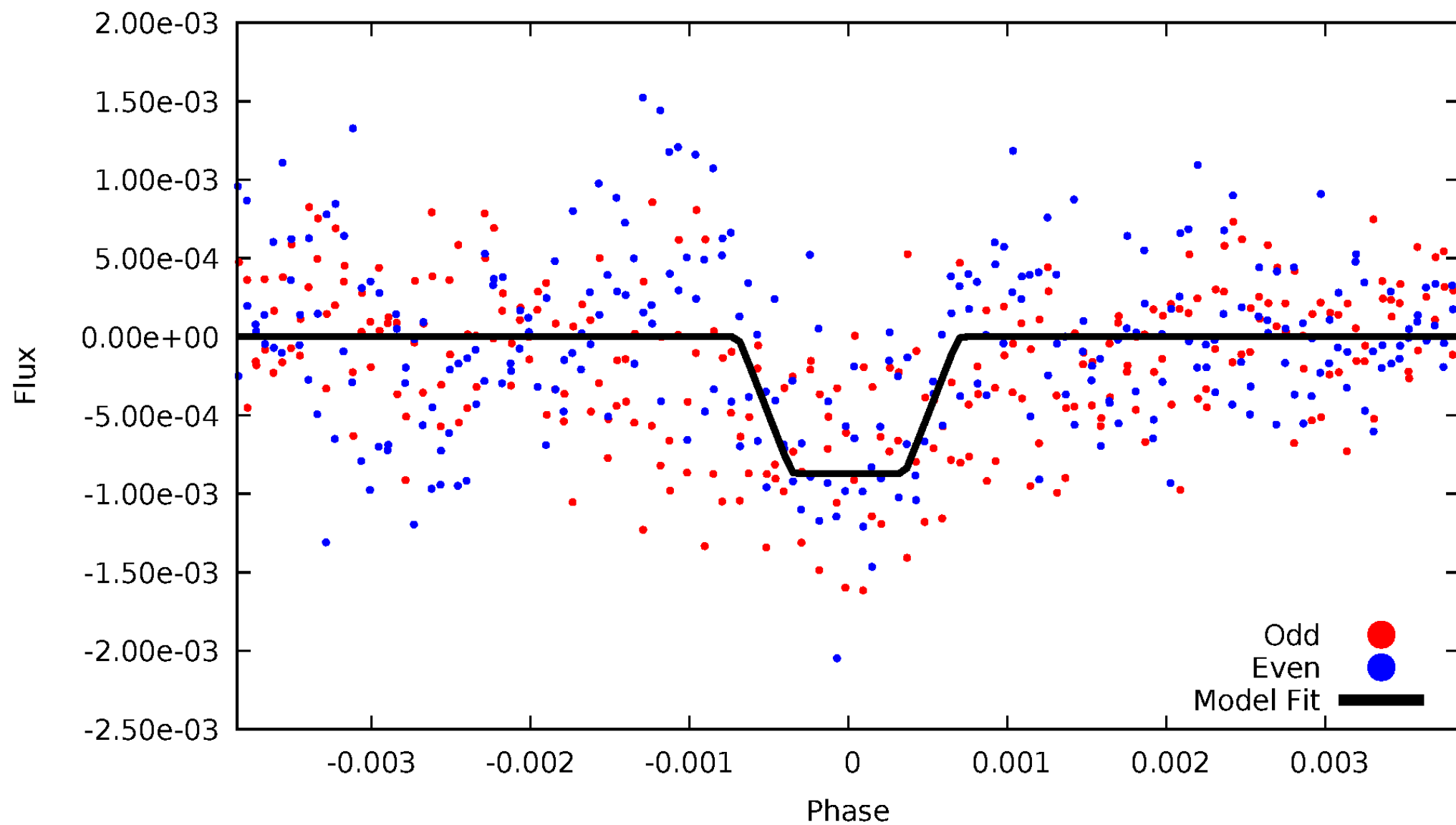
# DV Odd/Even

TCE 008309169-01



# ALT Odd/Even

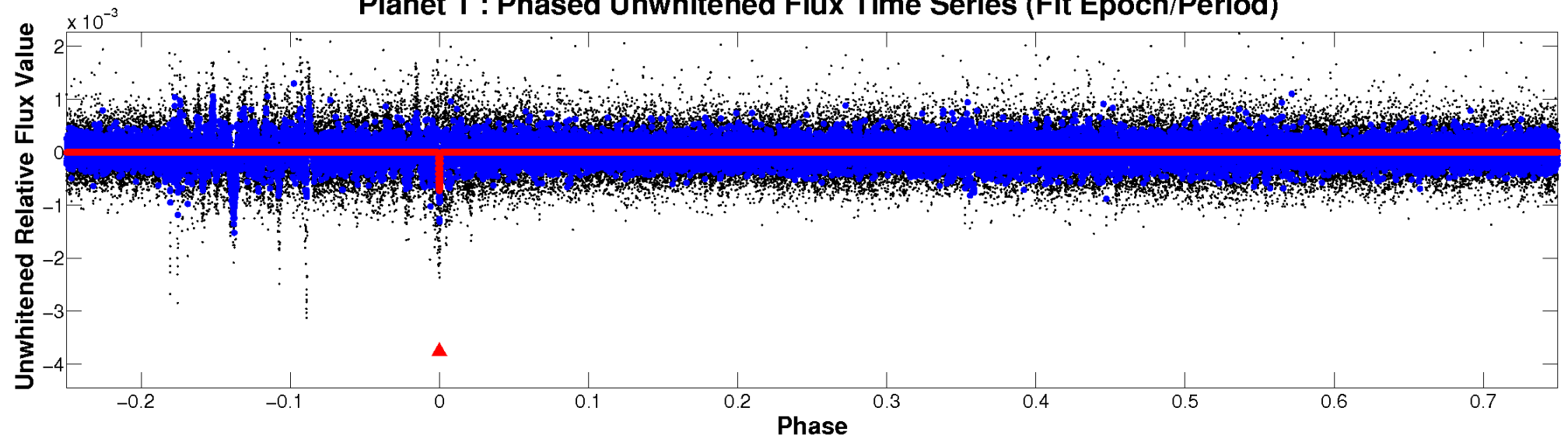
TCE 008309169-01



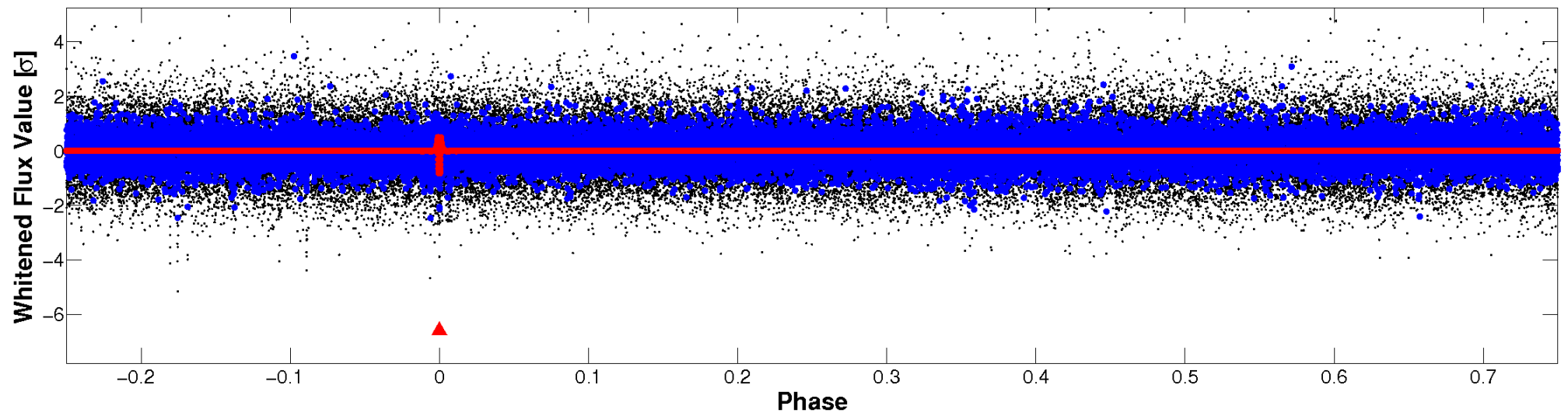


# Non-Whitened Vs. Whitened Light Curve

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

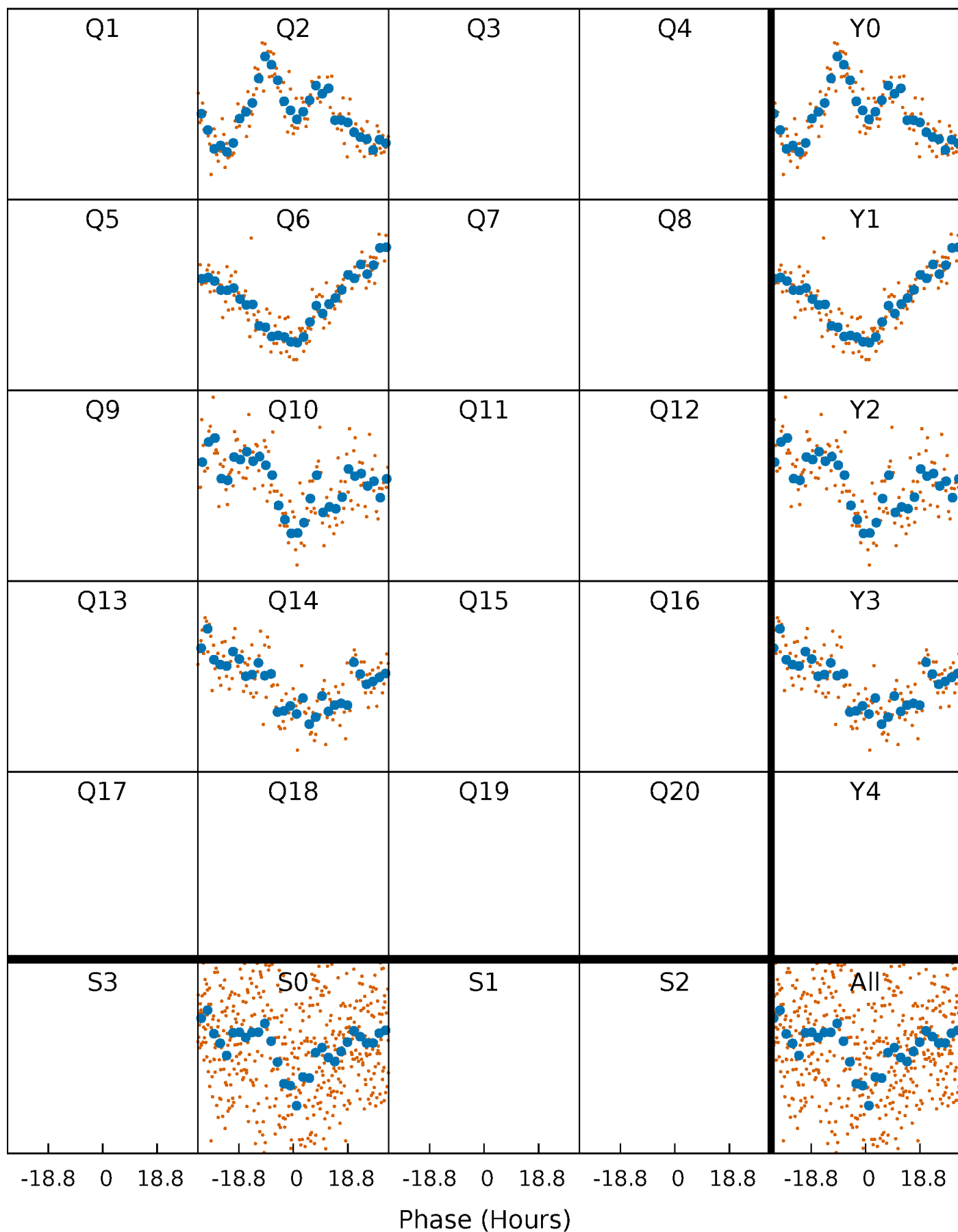


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

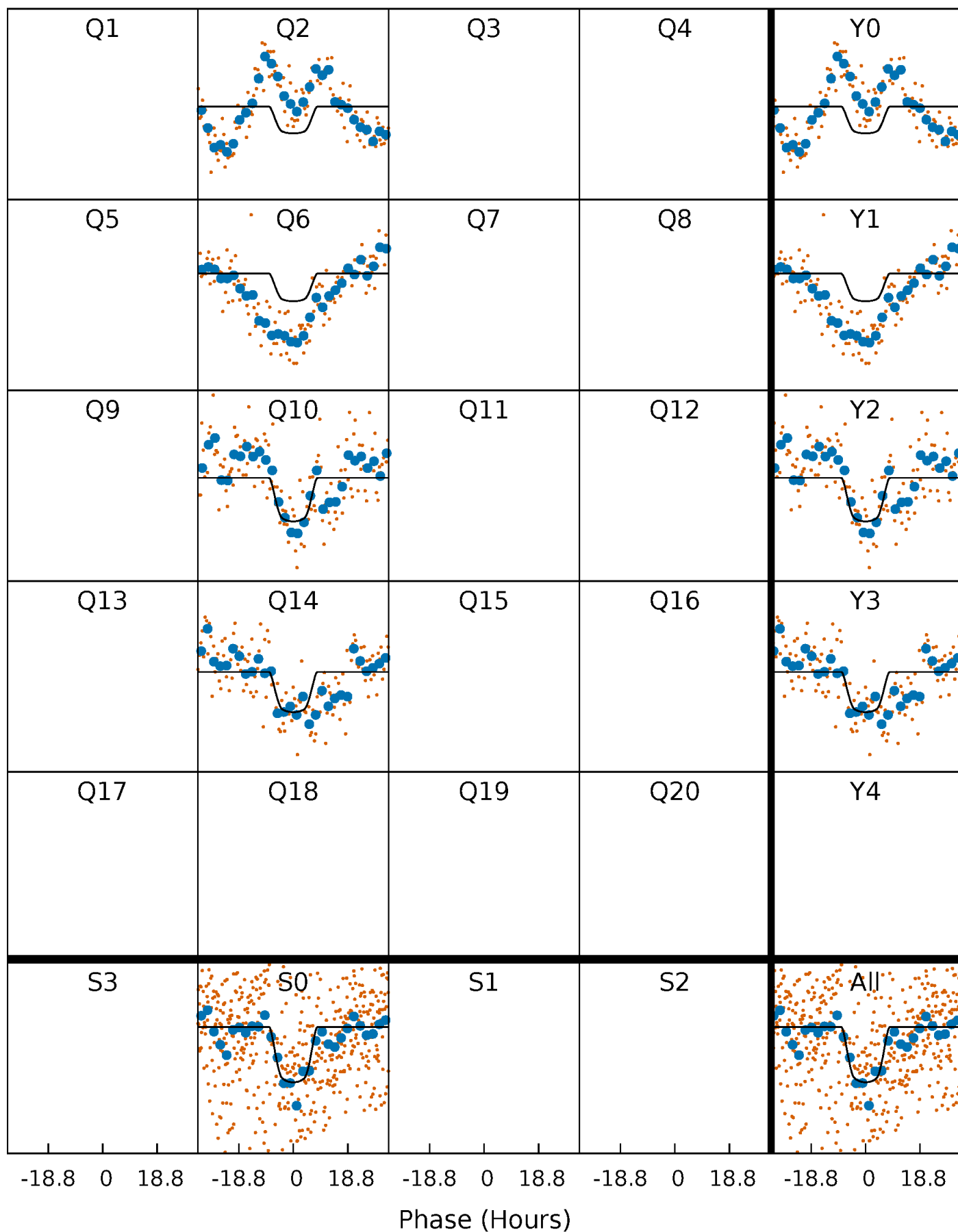
TCE 008309169-01 P=369.168079 Days  $T_0=233.476605$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008309169-01 P=369.168079 Days  $T_0=233.476605$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

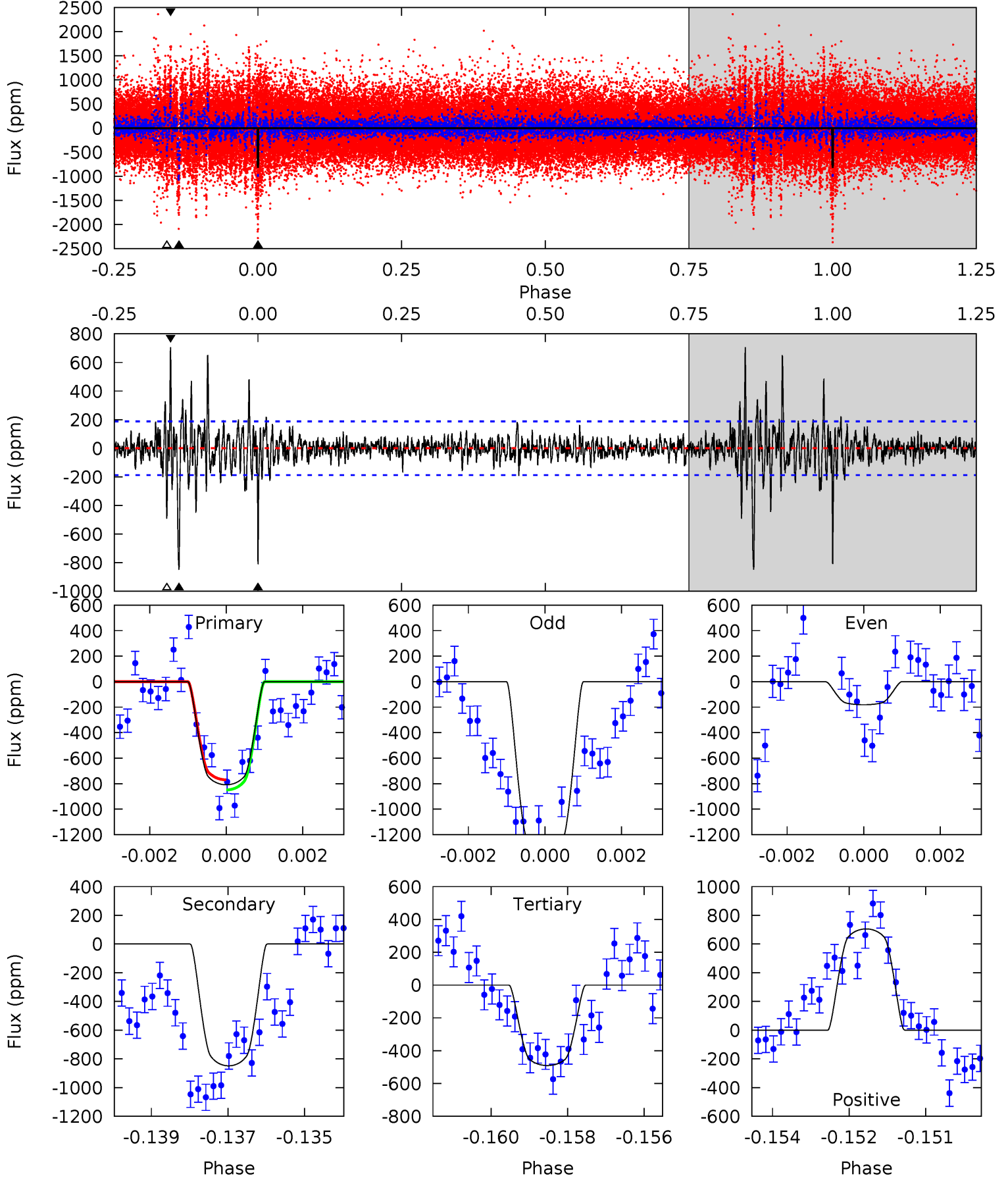
TCE 008309169-01 P=369.152695 Days  $T_0=233.505877$  (BKJD)



# DV Model-Shift Uniqueness Test

008309169-01, P = 369.168079 Days, E = 233.476605 Days

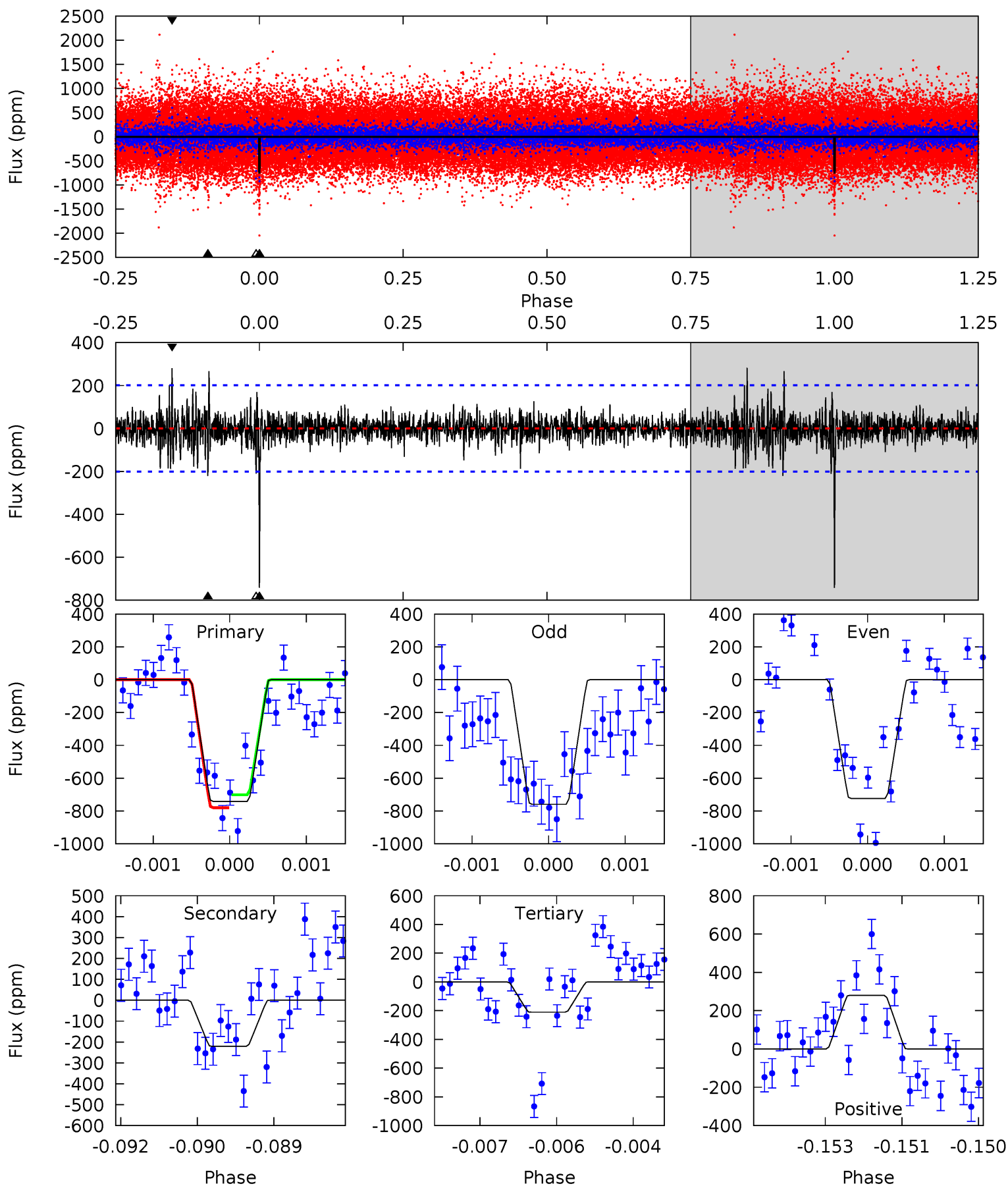
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	24.1	13.9	20.0	5.34	3.11	2.52	9.04	2.94	10.2	4.07	16.8	1.01	0.45	1.13



# Alt Model-Shift Uniqueness Test

008309169-01, P = 369.152695 Days, E = 233.505877 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
19.9	5.91	5.64	7.51	5.39	3.20	1.18	14.2	12.4	0.28	-1.59	0.48	1.02	0.27	1.06



### Stellar Parameters For KIC 008309169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6074^{+164}_{-200}$	$4.522^{+0.060}_{-0.180}$	$-0.640^{+0.300}_{-0.300}$	$0.847^{+0.224}_{-0.090}$	$0.871^{+0.090}_{-0.081}$	$2.016^{+0.593}_{-0.951}$
	+3%/-3%	+1%/-4%	+47%/-47%	+26%/-11%	+10%/-9%	+29%/-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 008309169-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-849 \pm 35$	$2.94^{+0.44}_{-0.37}$	$357^{+23}_{-17}$	$5915^{+357}_{-307}$	$49684^{+14265}_{-11679}$
Alt.	$-221 \pm 37$	$2.81^{+0.44}_{-0.36}$	$356^{+22}_{-18}$	$4484^{+259}_{-238}$	$14120^{+4995}_{-4287}$

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

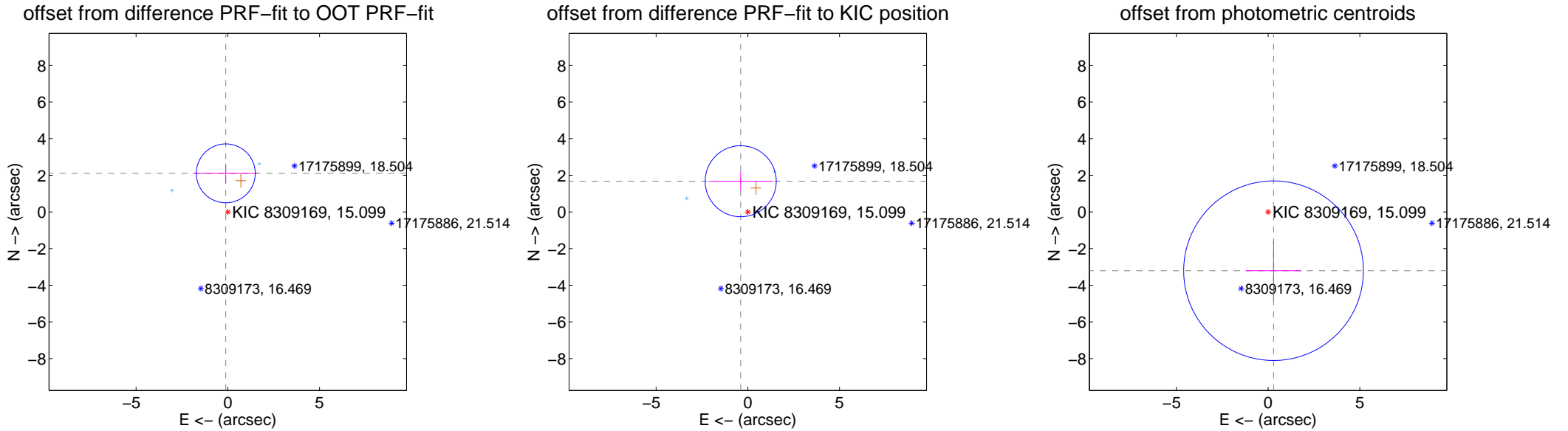
## DV Centroid Data

Supplemental centroid analysis for 008309169-01. Kepler magnitude: 15.10. Transit SNR 8.23

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

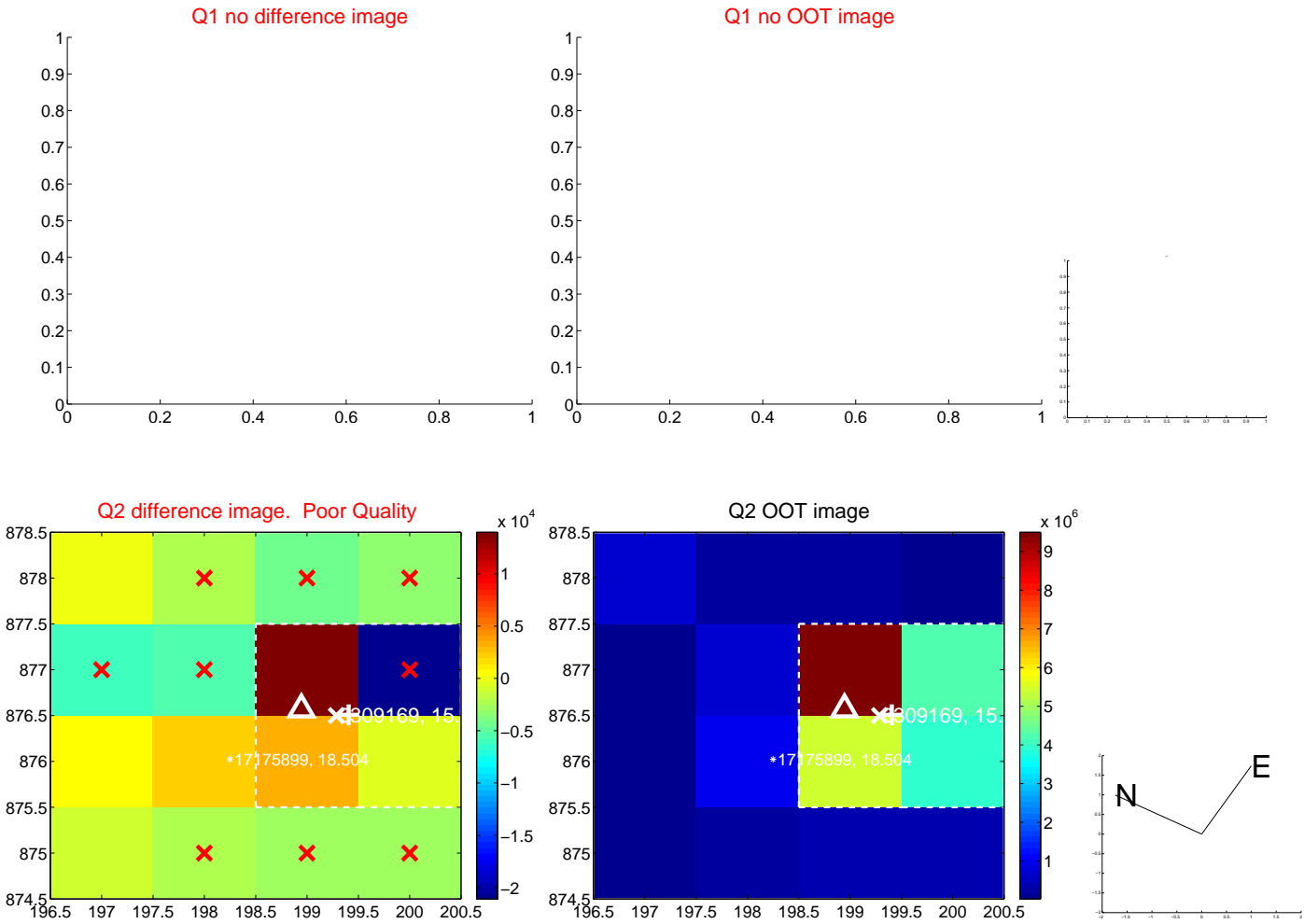
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>2.107 \pm 0.535</math></b>	<b>3.94</b>	$0.111 \pm 1.742$	$2.104 \pm 0.528$
PRF-fit source offset from KIC position	$1.719 \pm 0.646$	2.66	$0.387 \pm 1.745$	$1.674 \pm 0.525$
photometric centroid source offset	$3.22 \pm 1.63$	1.97	$-0.30 \pm 1.51$	$-3.21 \pm 1.63$



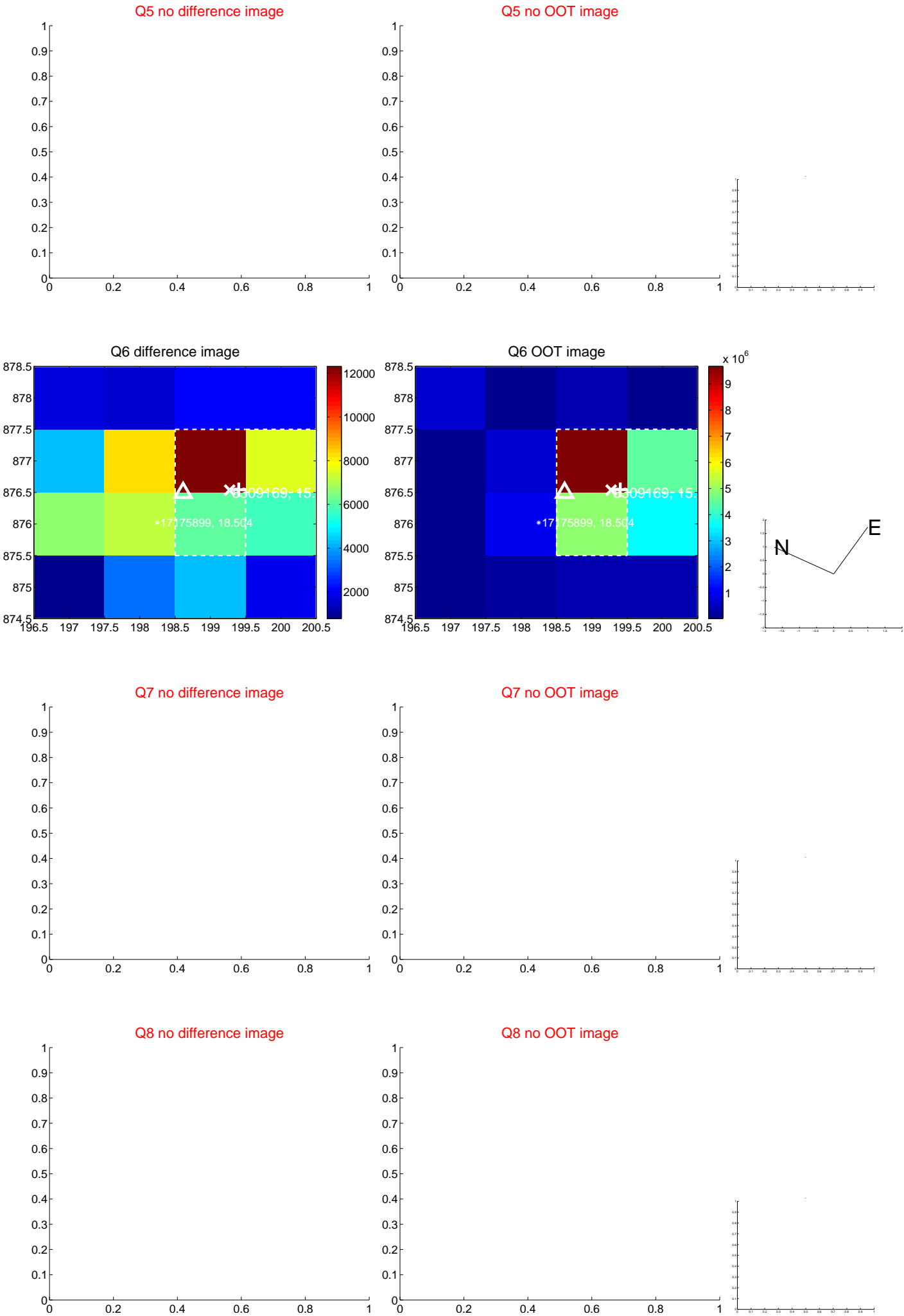
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



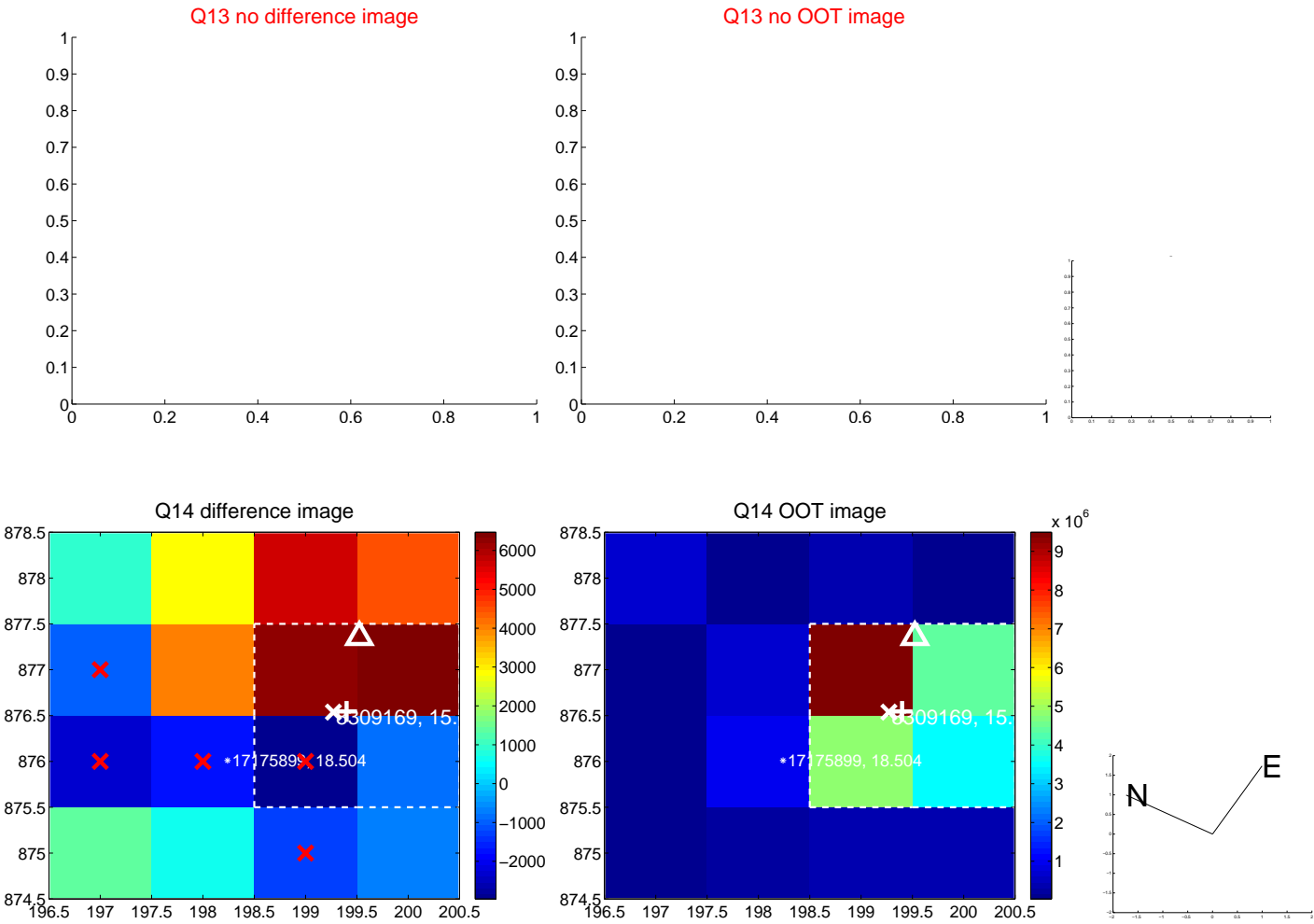
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



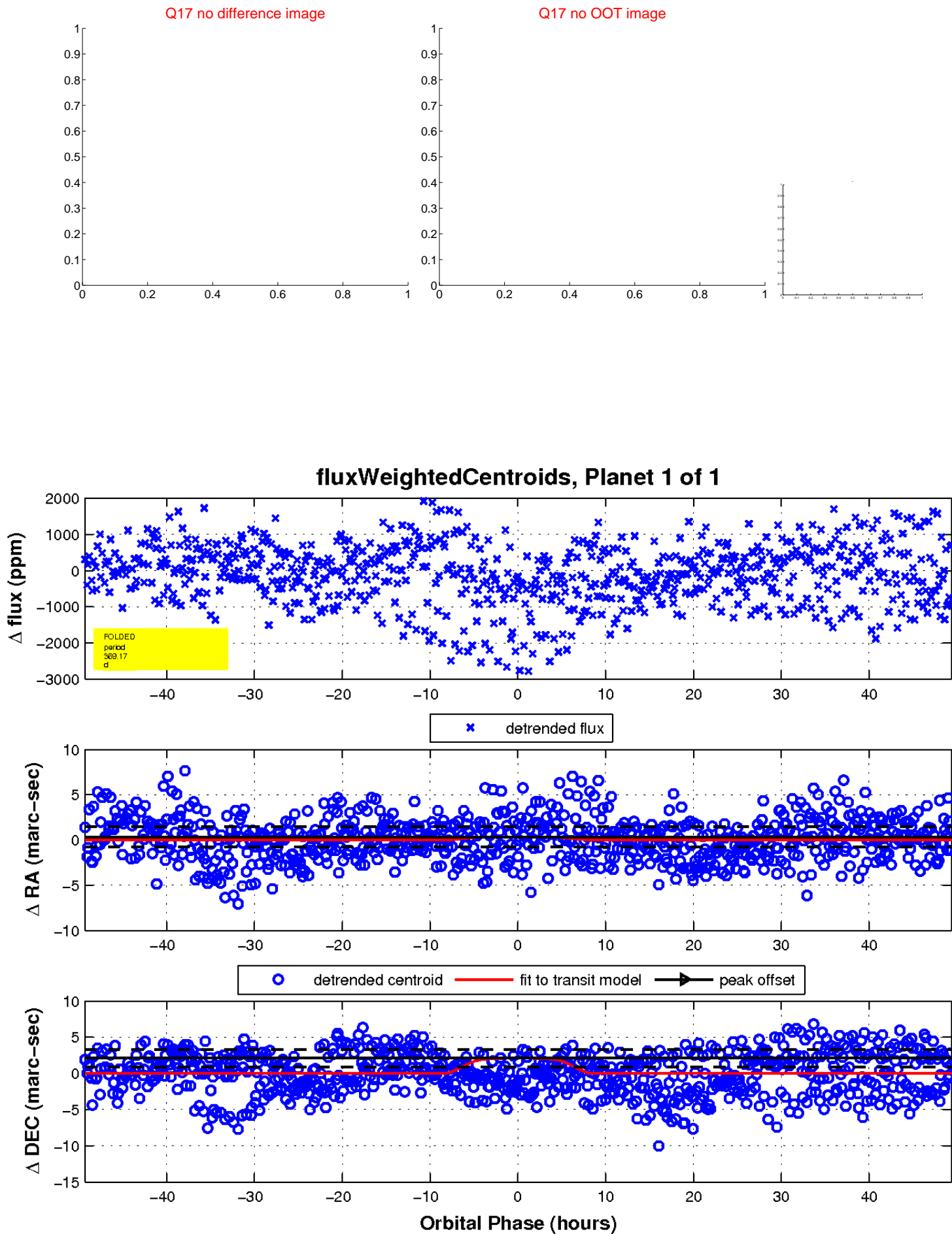
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

