

# KIC 008155169

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008155169-01	OBS	No	262.395979	182.551338	678.6	7.786	7.6	5.7	0.36	3500	1.00	0.05

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008155169-01	OBS	FP	0.01	1	0	0	0	MOD_NONUNIQ_ALT—MOD_POS_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.

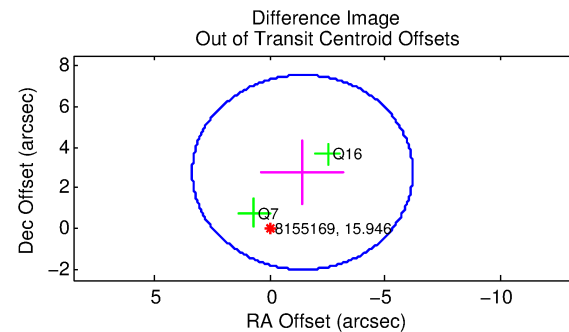
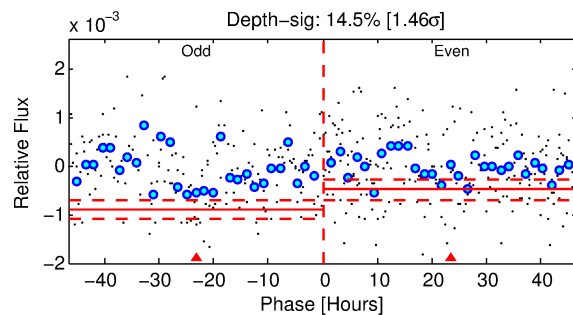
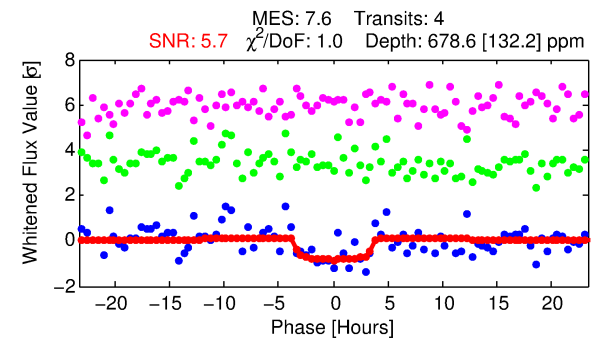
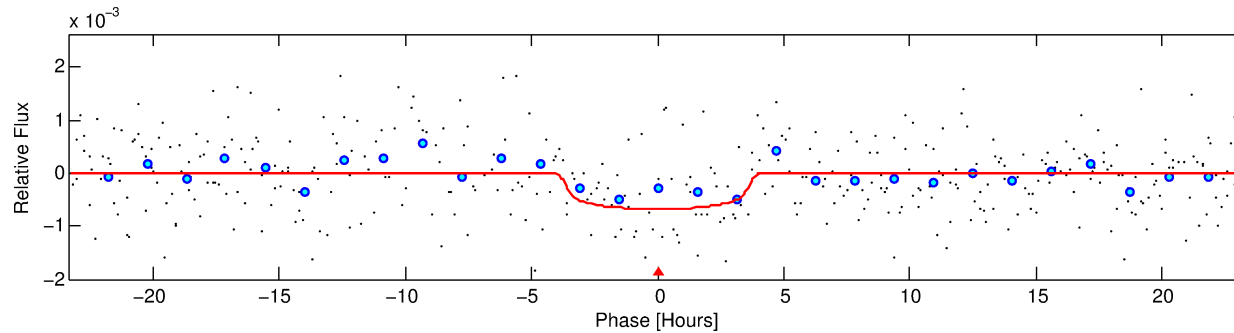
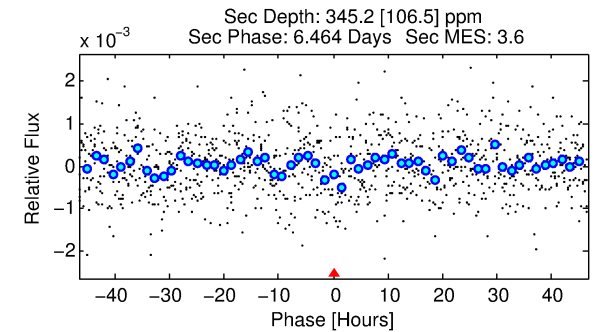
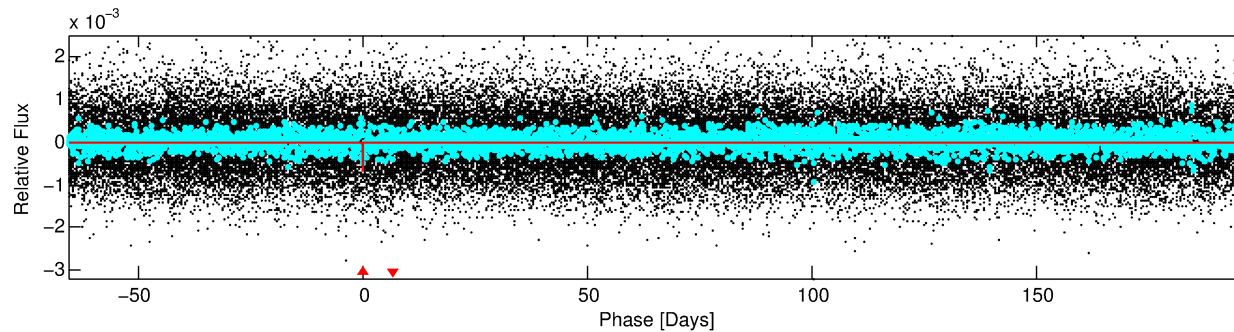
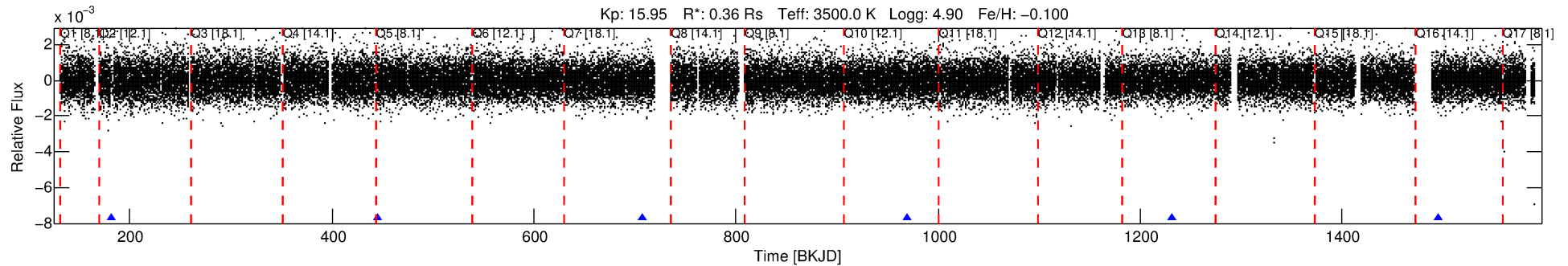
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008155169-01

No Significant Match Found

# DV One-Page Summary

KIC: 8155169 Candidate: 1 of 1 Period: 262.396 d



## DV Fit Results:

Period = 262.39598 [0.00850] d  
Epoch = 182.5513 [0.0292] BKJD  
Rp/R\* = 0.0257 [0.0216]  
a/R\* = 185.45 [670.18]  
b = 0.73 [2.32]  
Seff = 0.05 [0.00]  
Teq = 122 [3] K  
Rp = 1.00 [0.85] Re  
a = 0.5753 [0.0363] AU  
Ag = 62466.15 [106866.85] [0.58σ]  
Teffp = 2977 [1273] K [2.24σ]

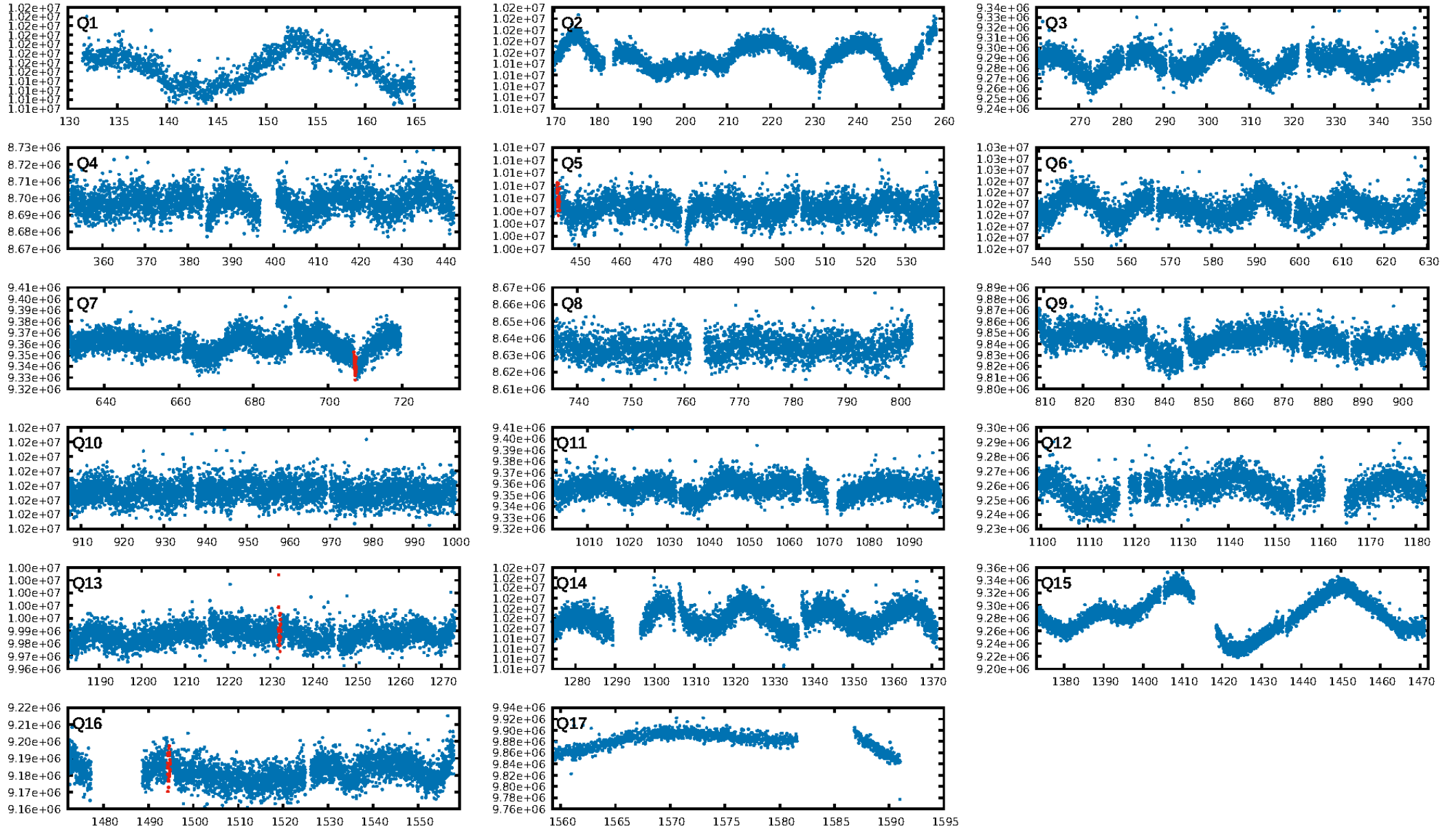
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.3%  
ModelChiSquareGof-sig: 98.9%  
Bootstrap-pfa: 4.07e-13  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 4.158  
Centroid-sig: 5.7%  
Centroid-so: 3.556 arcsec [1.57σ]  
OotOffset-rm: 3.113 arcsec [1.96σ]  
KicOffset-rm: 3.685 arcsec [2.34σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

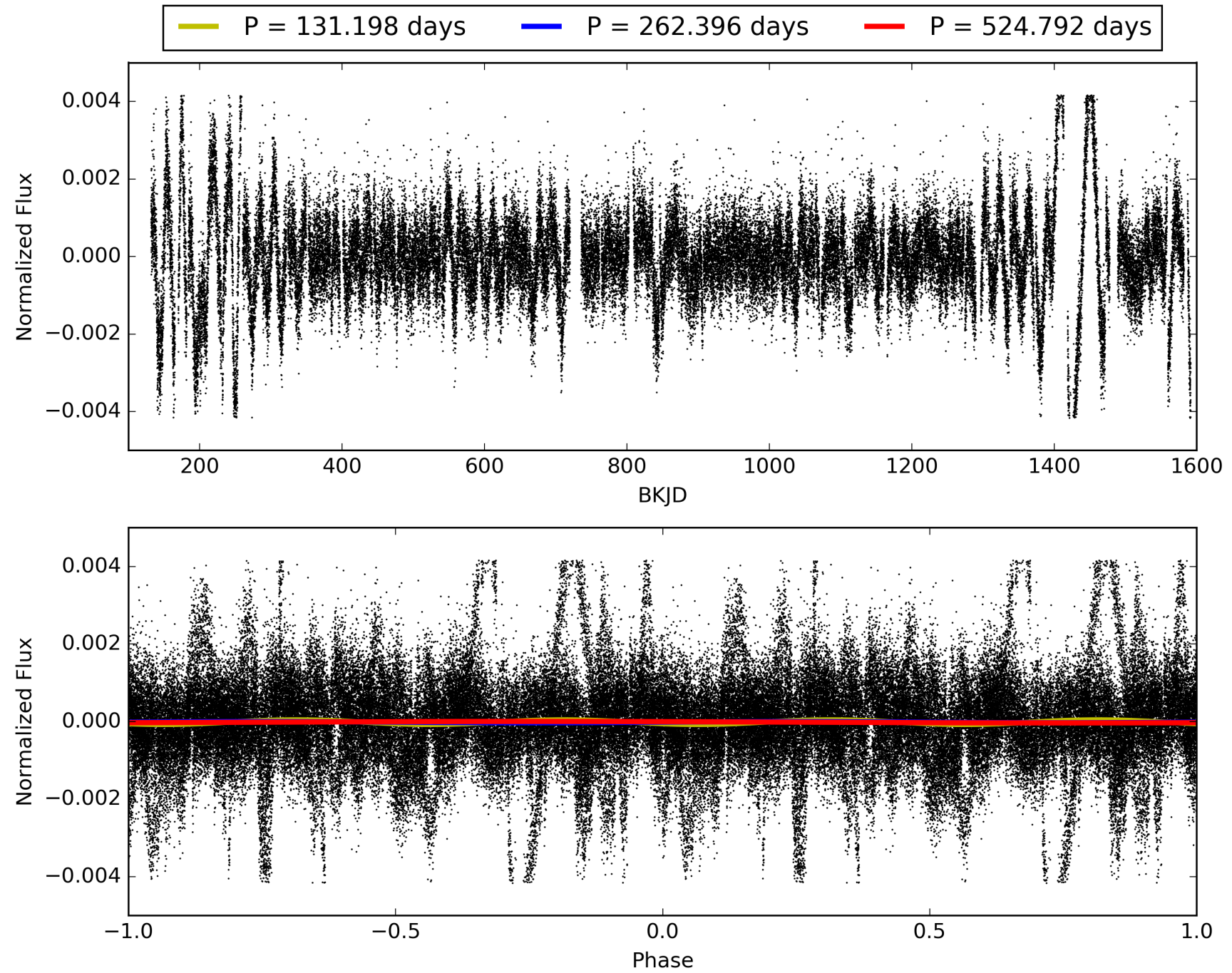
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:39:53 Z

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

# TCE 008155169-01, PDC Light Curves

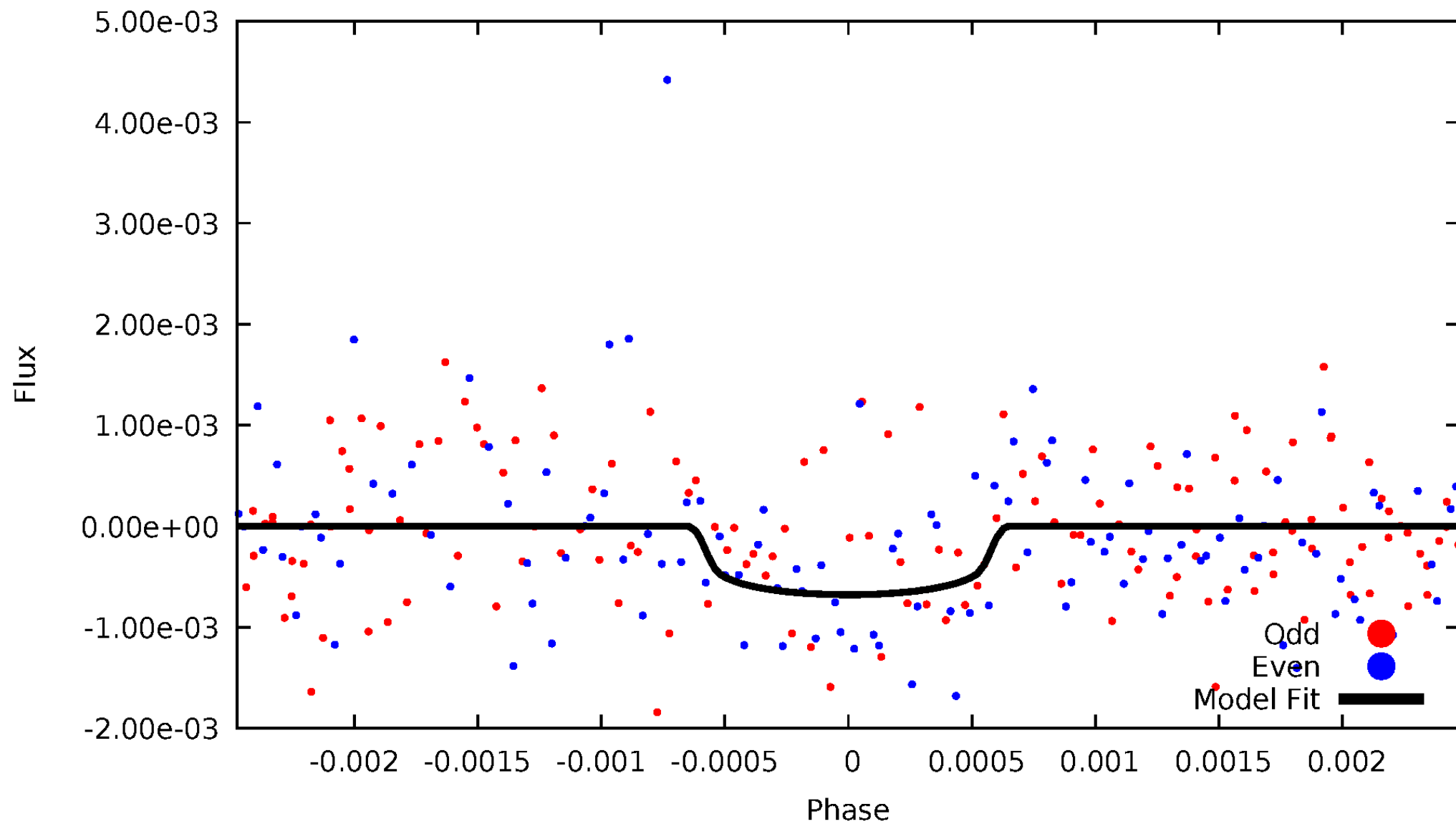


TCE 008155169-01



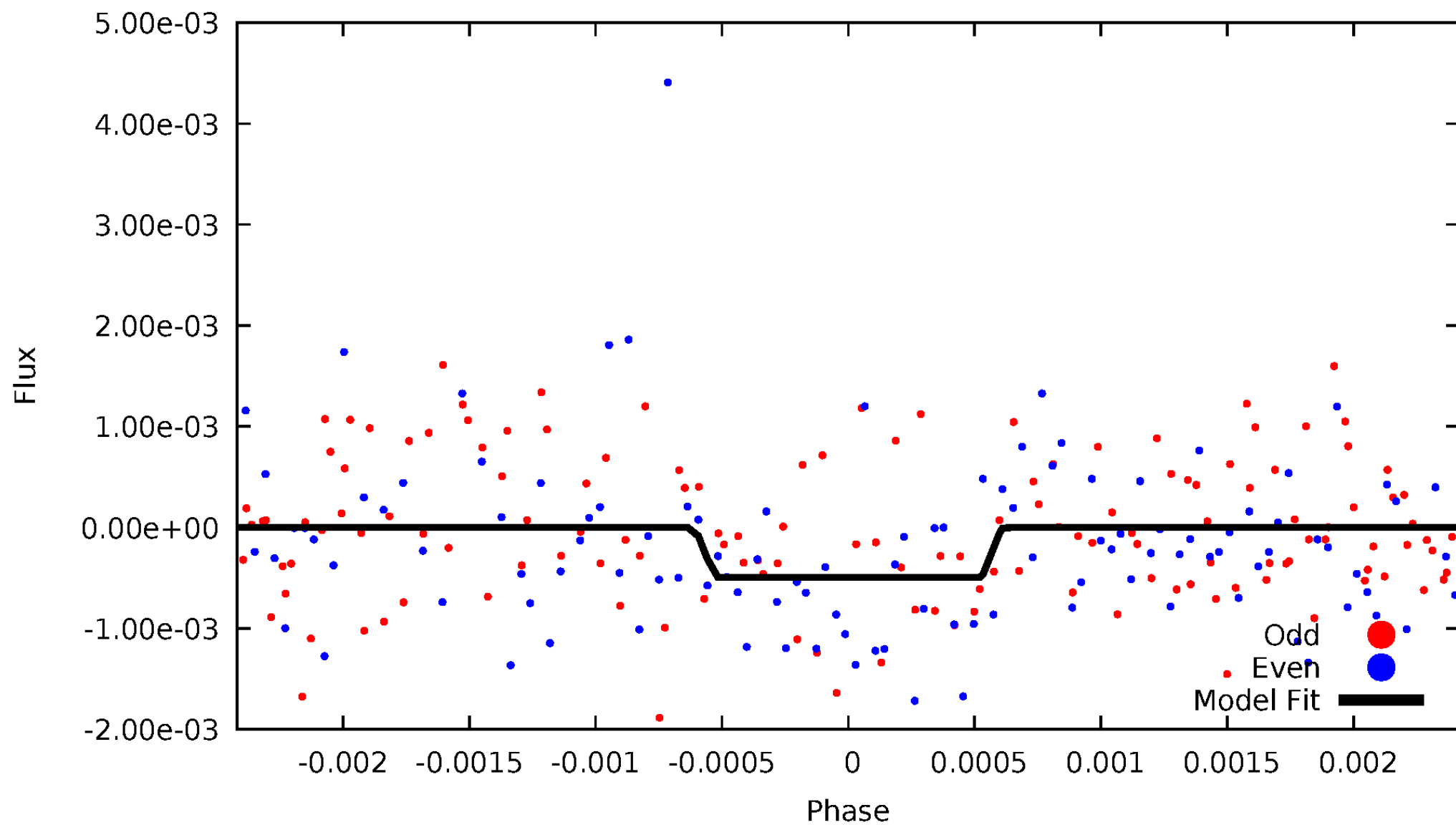
# DV Odd/Even

TCE 008155169-01



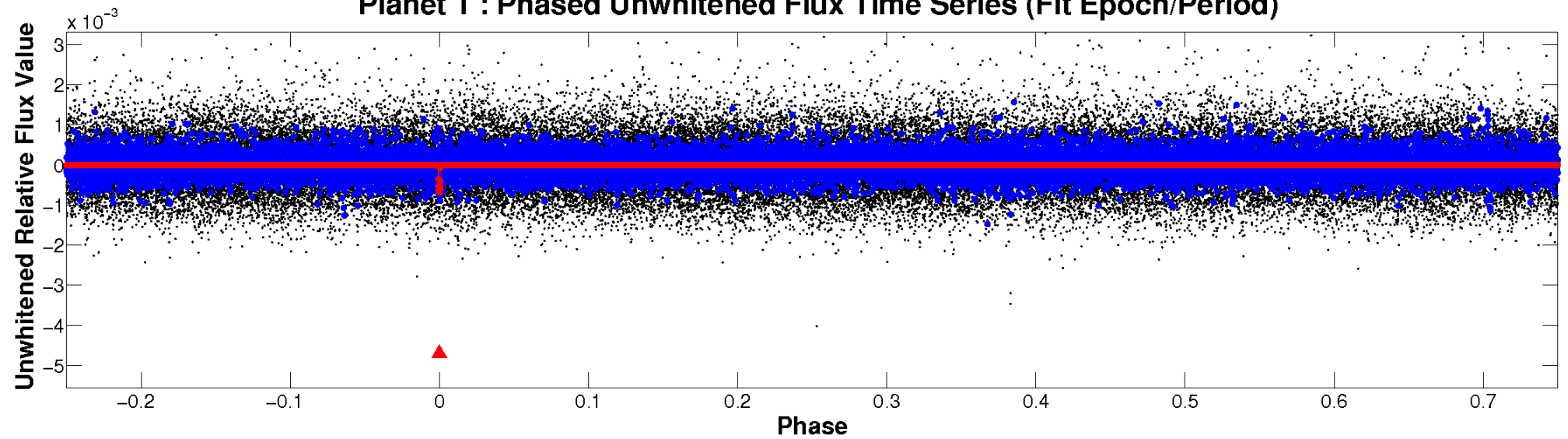
# ALT Odd/Even

TCE 008155169-01

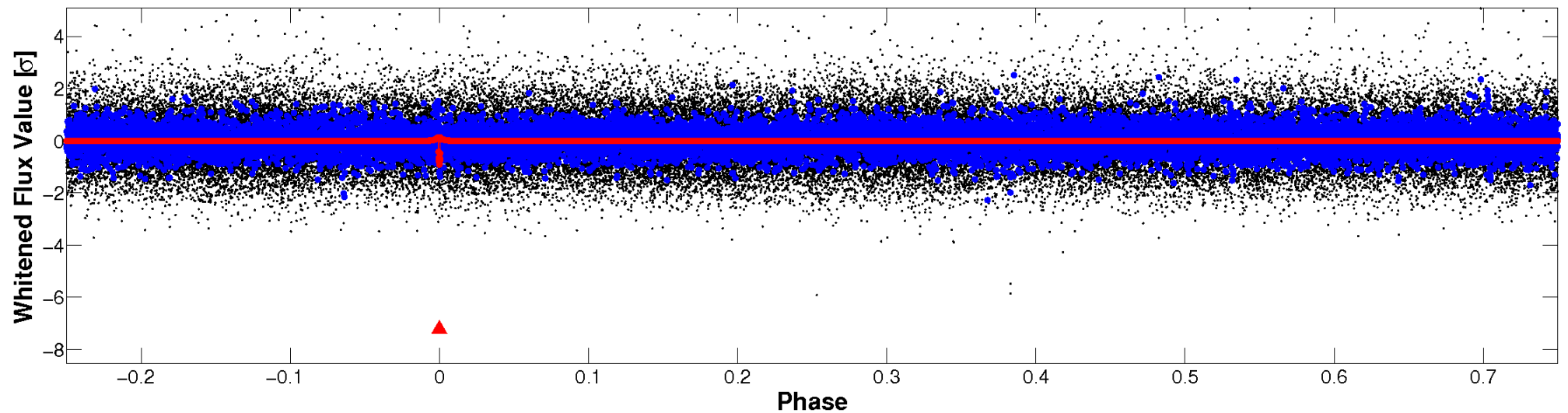


# Non-Whitened Vs. Whitened Light Curve

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



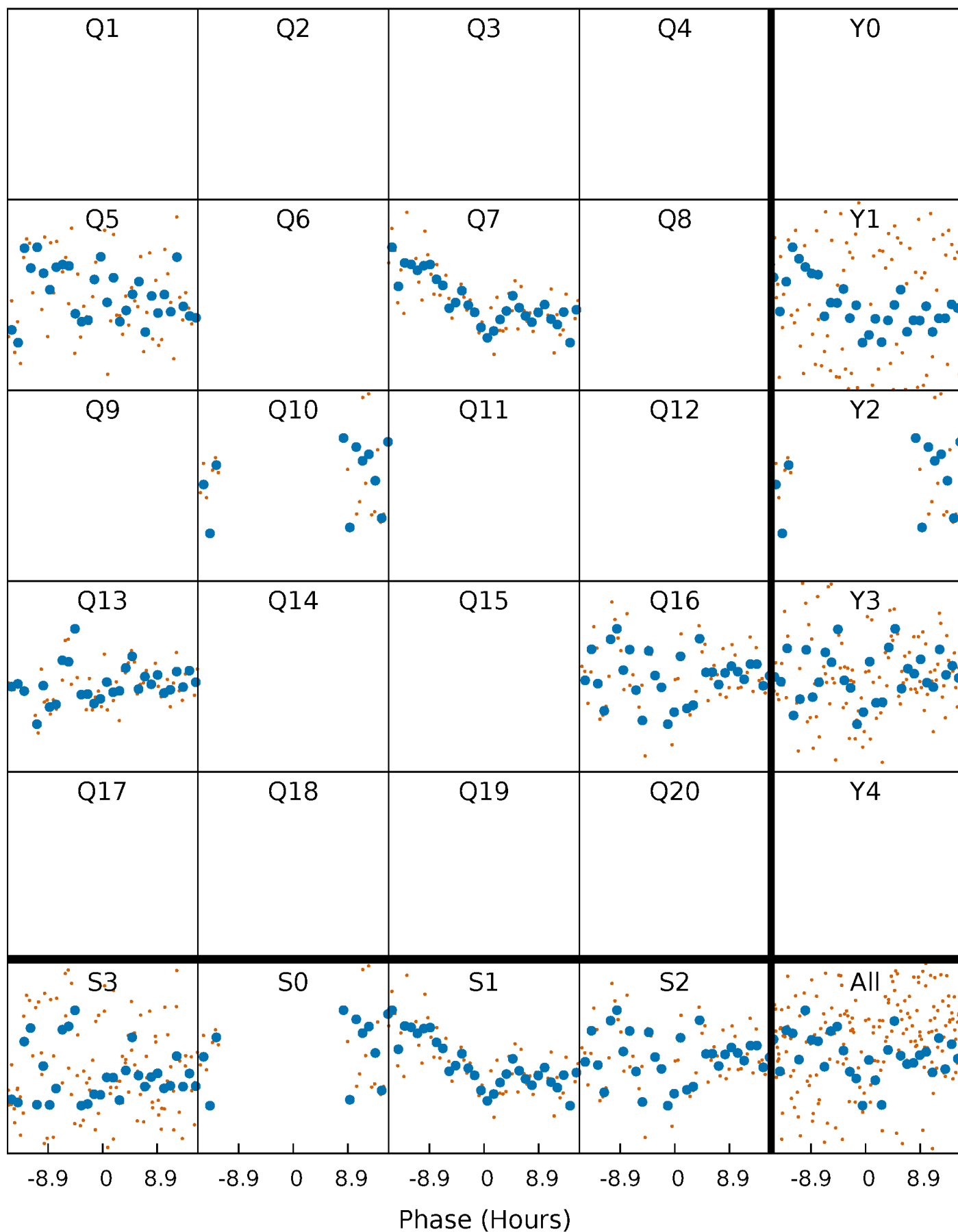
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

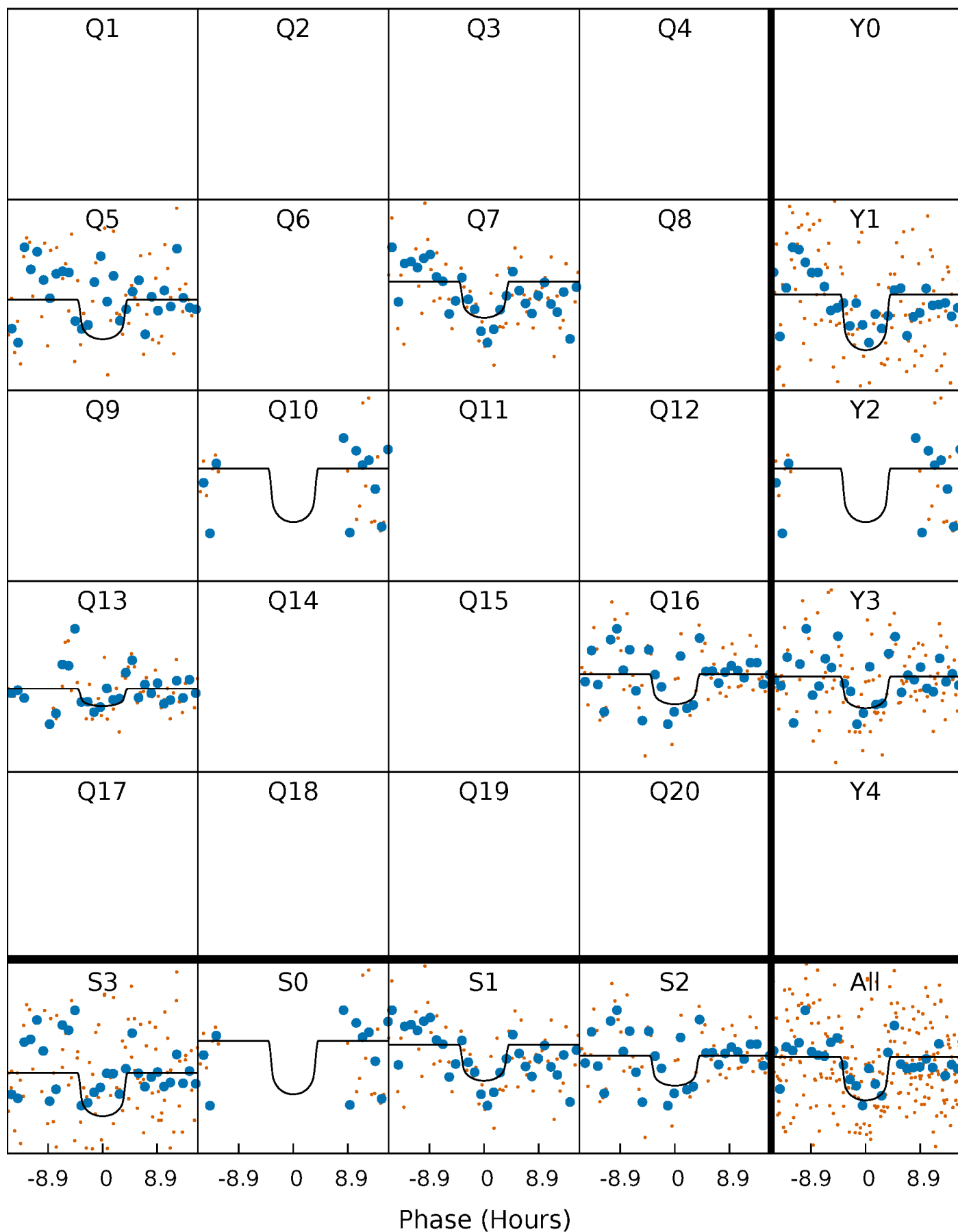
TCE 008155169-01 P=262.395979 Days  $T_0=182.551338$  (BKJD)





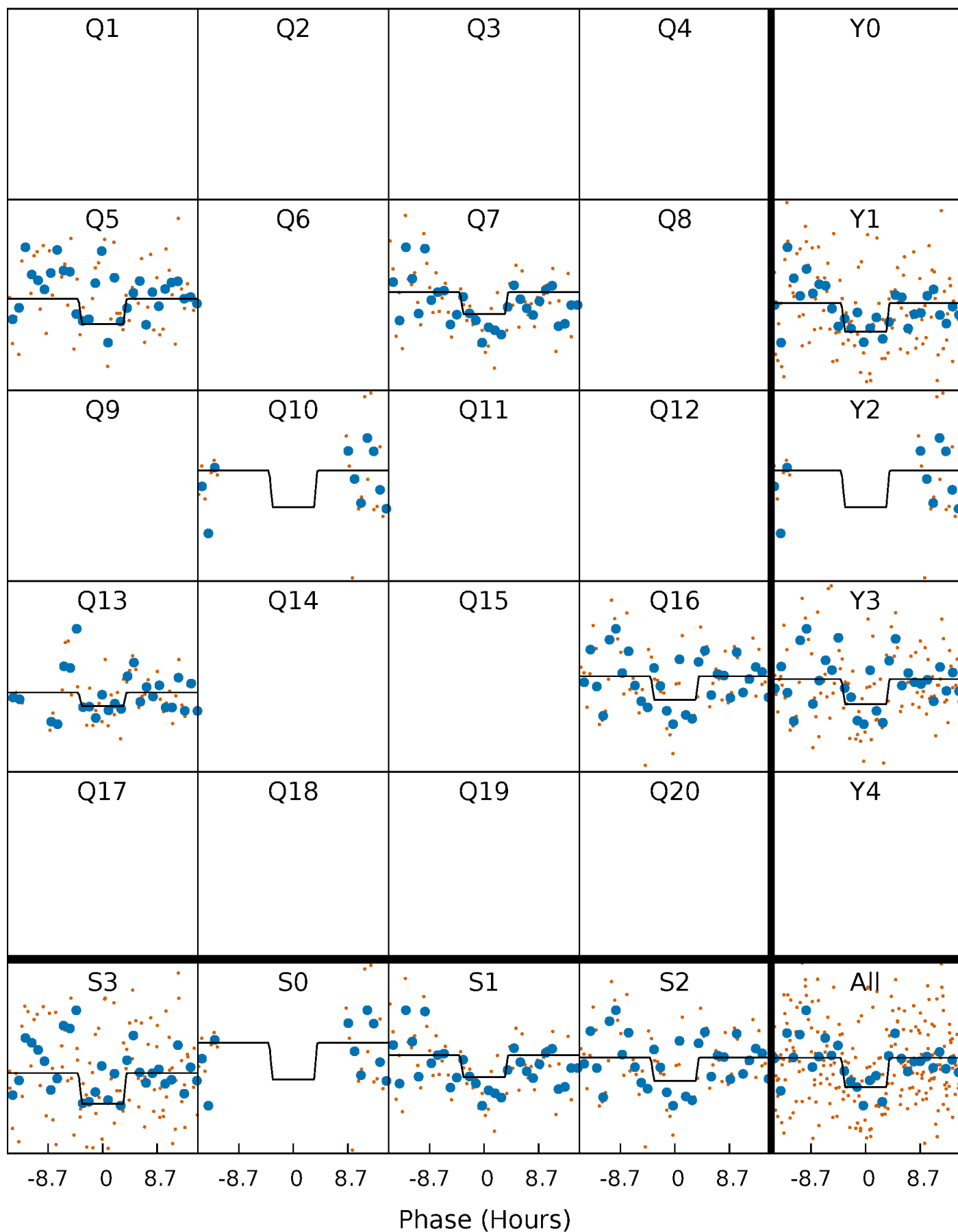
# DV Quarter-Phased Transit Curves

TCE 008155169-01 P=262.395979 Days  $T_0=182.551338$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

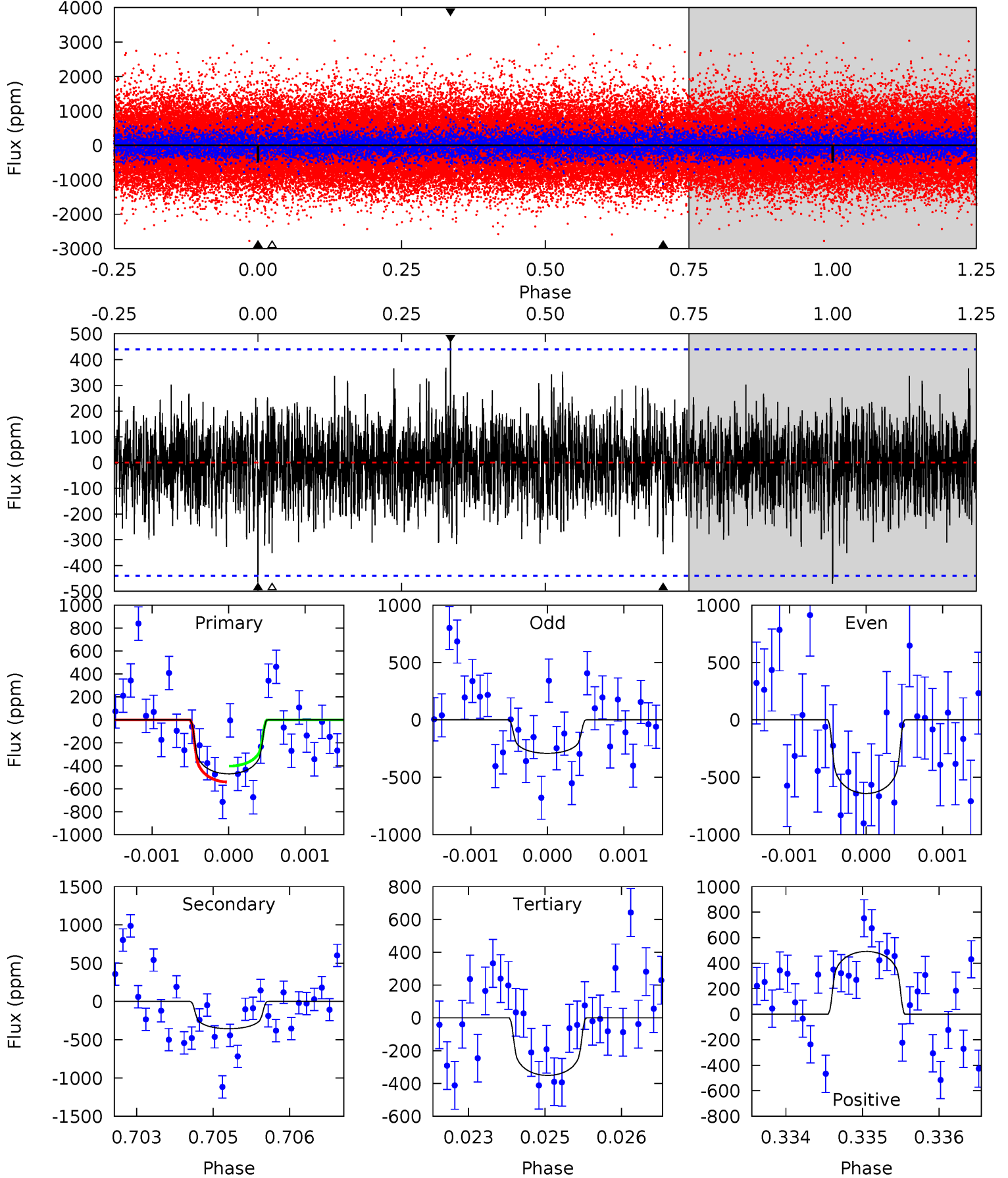
TCE 008155169-01 P=262.394155 Days  $T_0=182.553643$  (BKJD)



# DV Model-Shift Uniqueness Test

008155169-01, P = 262.395979 Days, E = 182.551338 Days

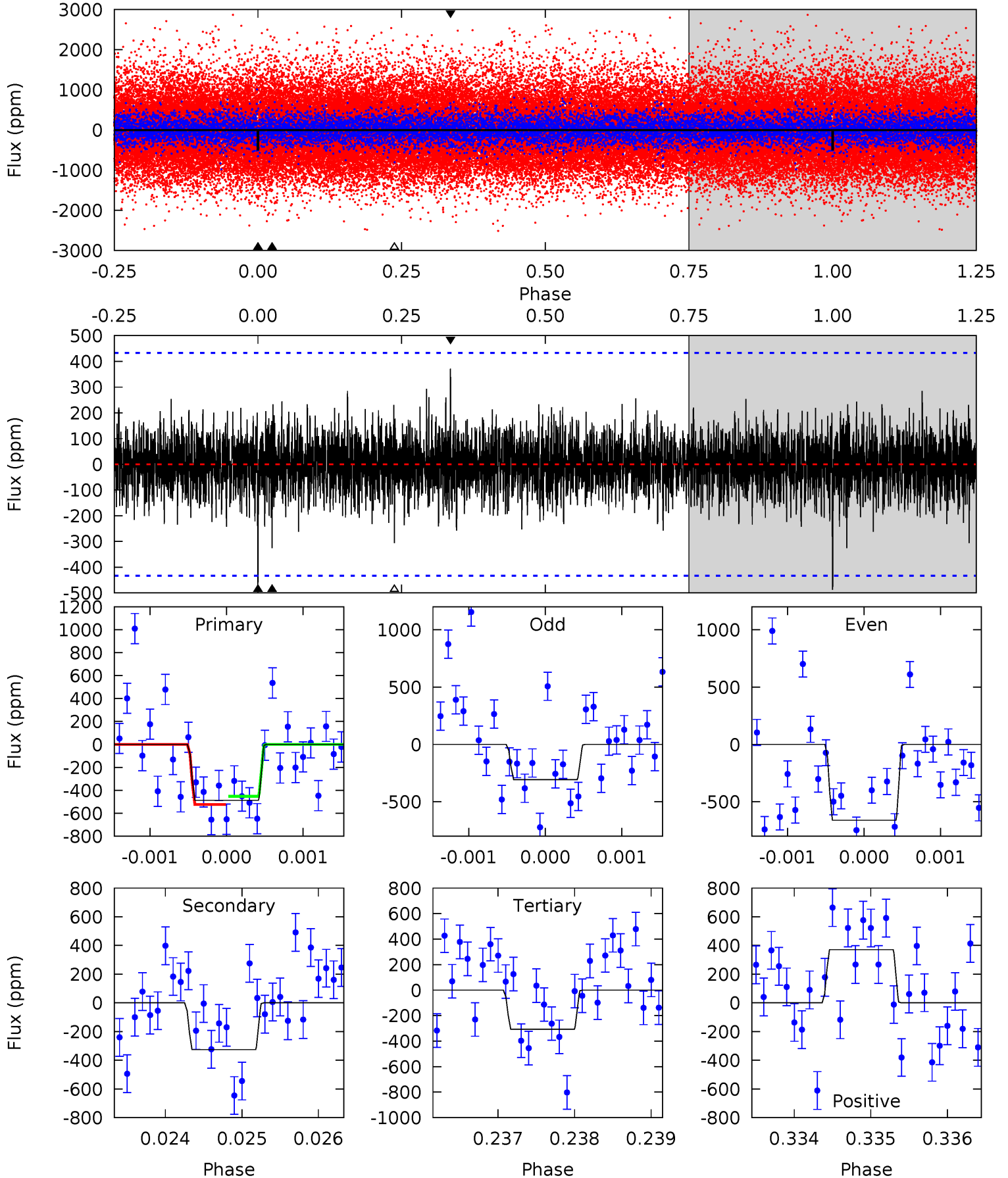
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.77	4.37	4.31	6.04	5.41	3.22	1.30	1.46	-0.27	0.07	-1.67	2.16	0.85	0.51	0.85



# Alt Model-Shift Uniqueness Test

008155169-01, P = 262.394155 Days, E = 182.553643 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
6.09	4.08	3.83	4.64	5.41	3.23	0.99	2.26	1.45	0.25	-0.56	2.22	0.90	0.43	0.44



### Stellar Parameters For KIC 008155169

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3500^{+41}_{-47}$	$4.897^{+0.033}_{-0.033}$	$-0.100^{+0.100}_{-0.100}$	$0.358^{+0.031}_{-0.031}$	$0.369^{+0.038}_{-0.041}$	$11.360^{+1.978}_{-1.684}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-9%	+10%/-11%	+17%/-15%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008155169-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-356 \pm 81$	$1.16^{+0.86}_{-0.73}$	$170^{+3}_{-4}$	$3056^{+1207}_{-439}$	$49223^{+323126}_{-33473}$
Alt.	$-326 \pm 80$	$1.06^{+0.85}_{-0.68}$	$170^{+3}_{-4}$	$3107^{+1185}_{-477}$	$52900^{+320821}_{-36180}$

$T_{max}$  = 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

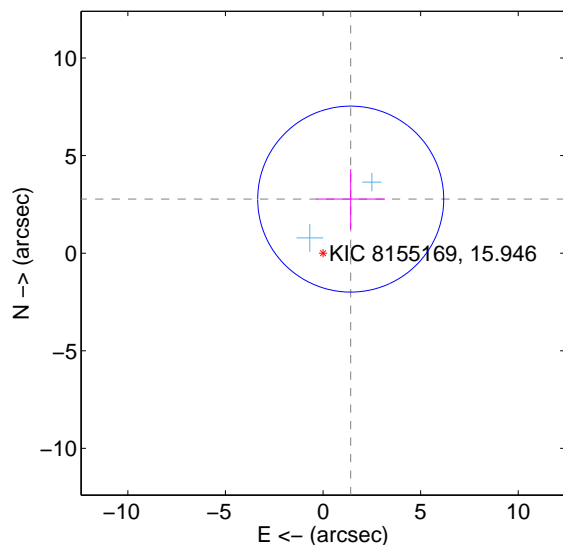
Supplemental centroid analysis for 008155169-01. Kepler magnitude: 15.95. Transit SNR 5.68

There are 2 quarters with good PRF difference image offsets

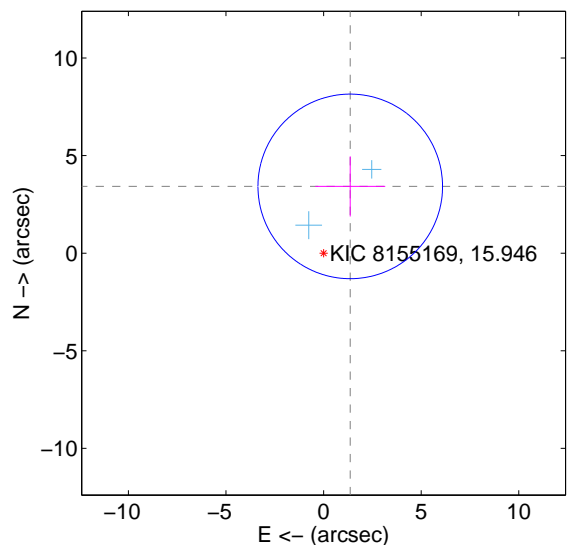
The direct PRF centroid is offset from the target star catalog position by about 0.65 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.113 \pm 1.589$	1.96	$-1.418 \pm 1.762$	$2.771 \pm 1.540$
PRF-fit source offset from KIC position	$3.685 \pm 1.577$	2.34	$-1.367 \pm 1.791$	$3.422 \pm 1.540$
photometric centroid source offset	$3.56 \pm 2.26$	1.57	$0.40 \pm 2.51$	$3.53 \pm 2.26$

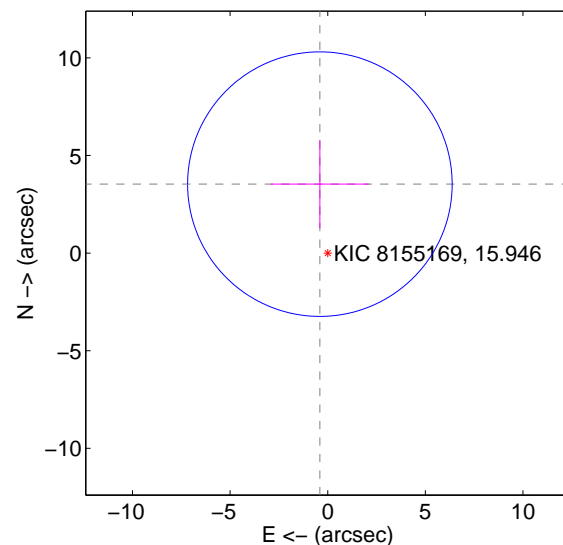
offset from difference PRF-fit to OOT PRF-fit



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.

Q5 no difference image



Q5 no OOT image



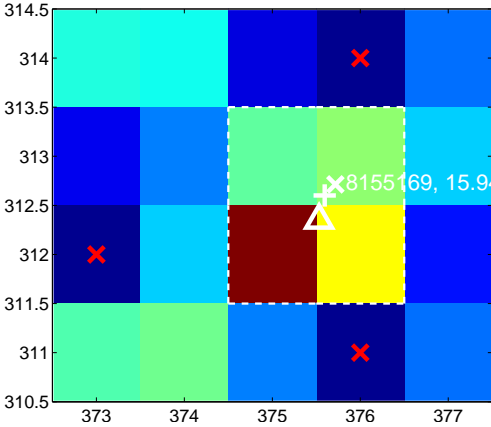
Q6 no difference image



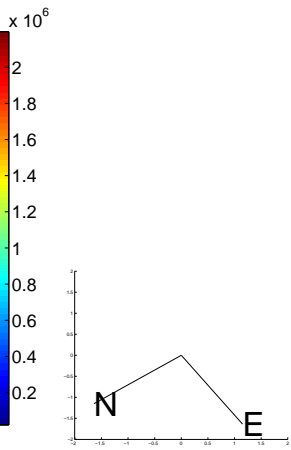
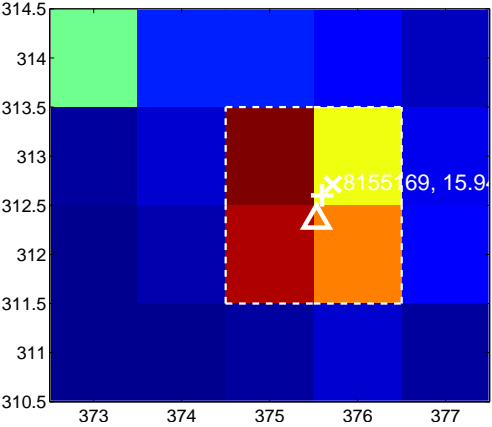
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



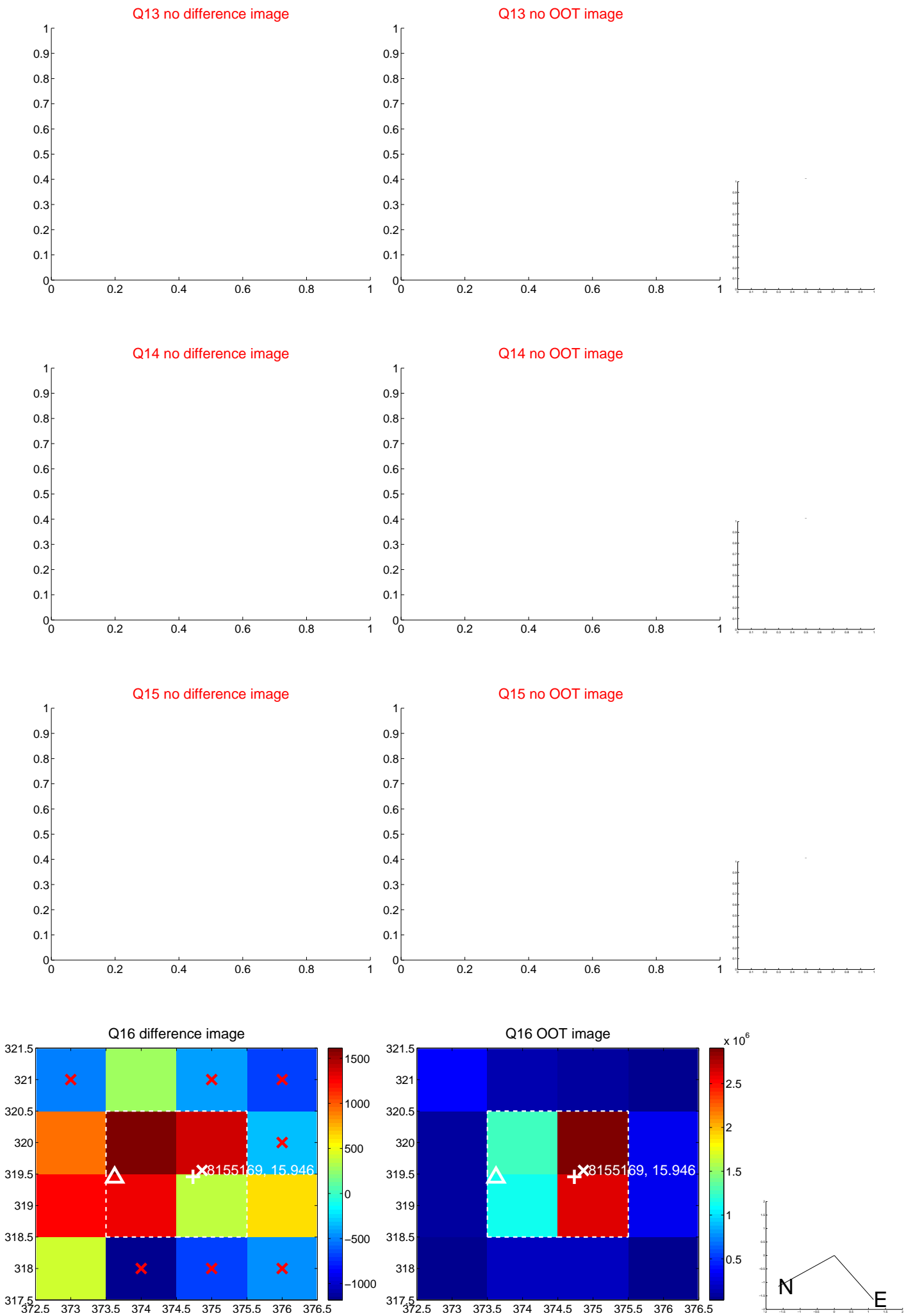
Q8 no OOT image



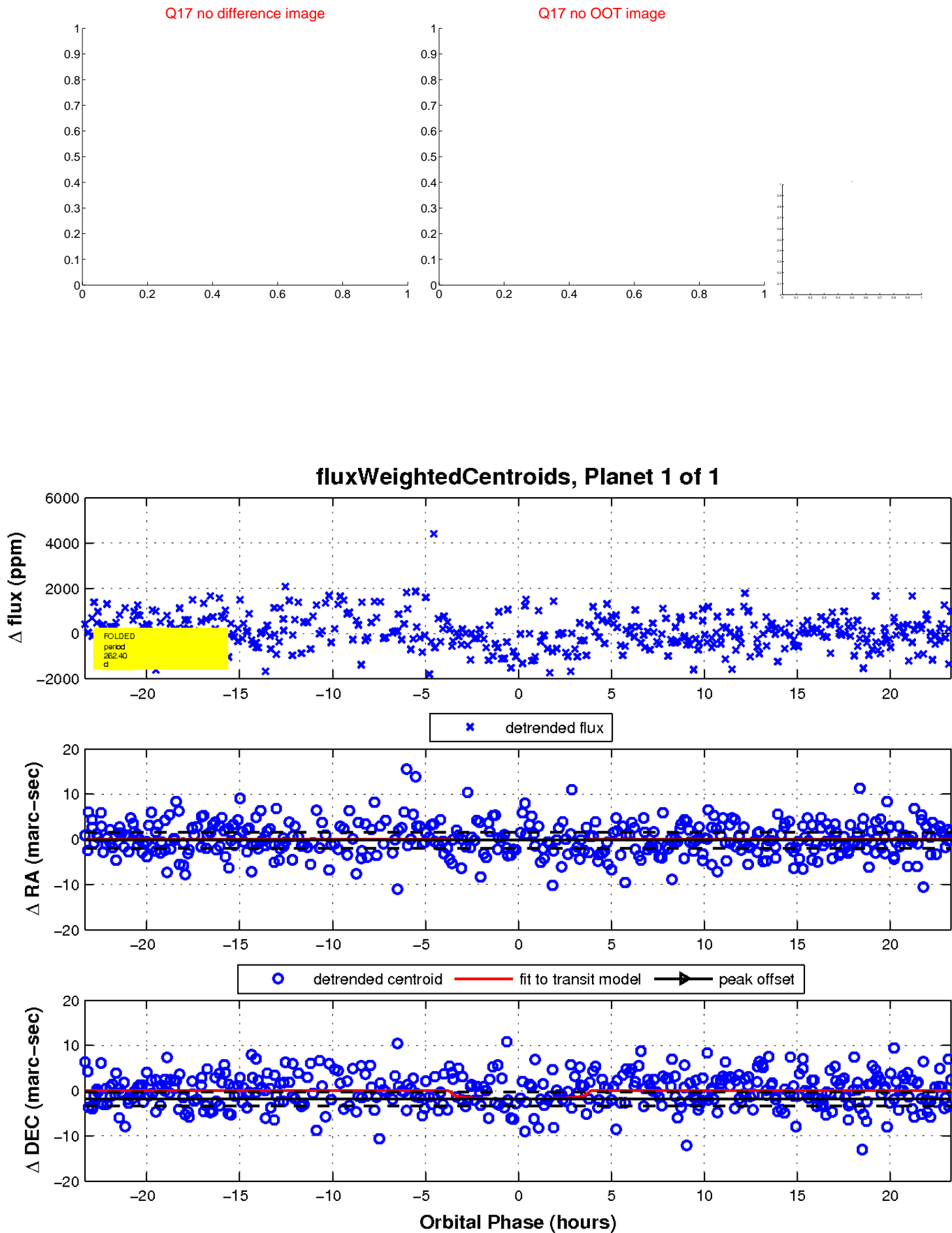
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

