

# KIC 007813039

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007813039-01	OBS	3787.01	141.734065	167.345797	7682.0	1.647	109.2	137.3	0.92	5606	11.35	2.78

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007813039-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

**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.

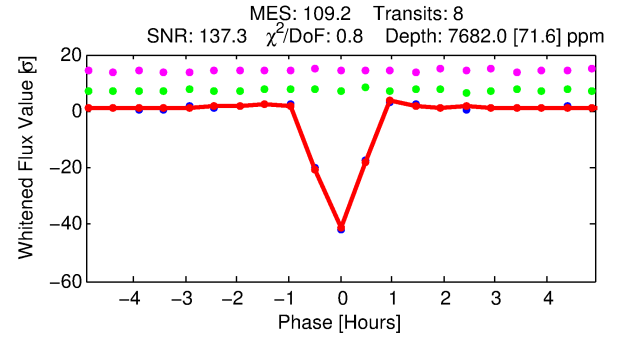
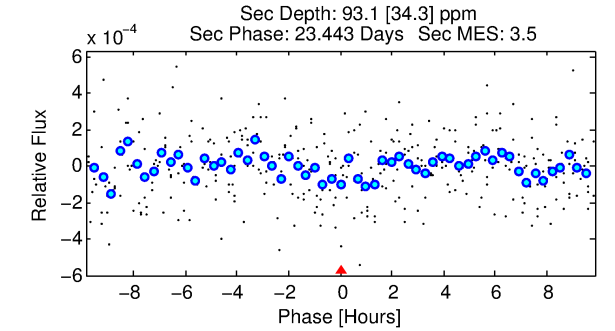
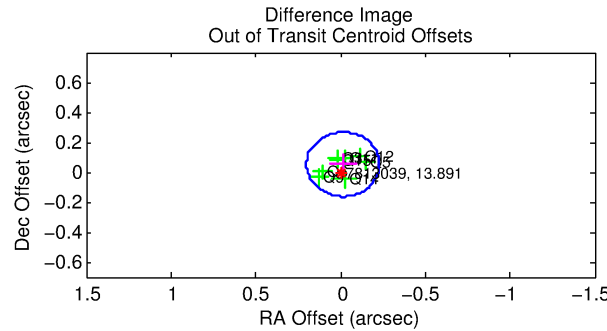
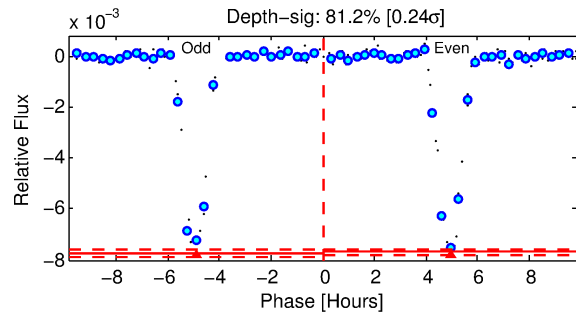
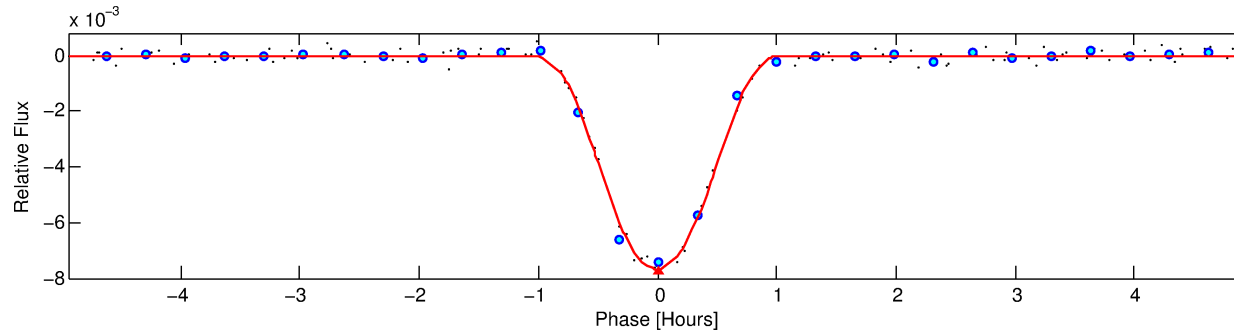
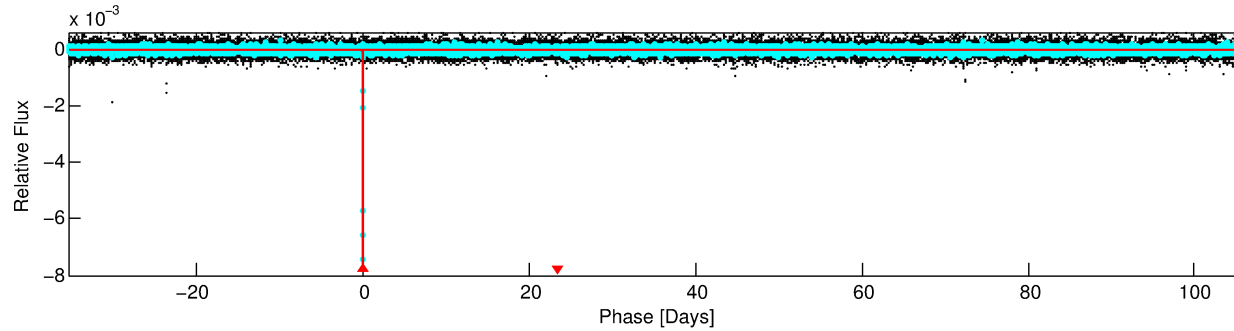
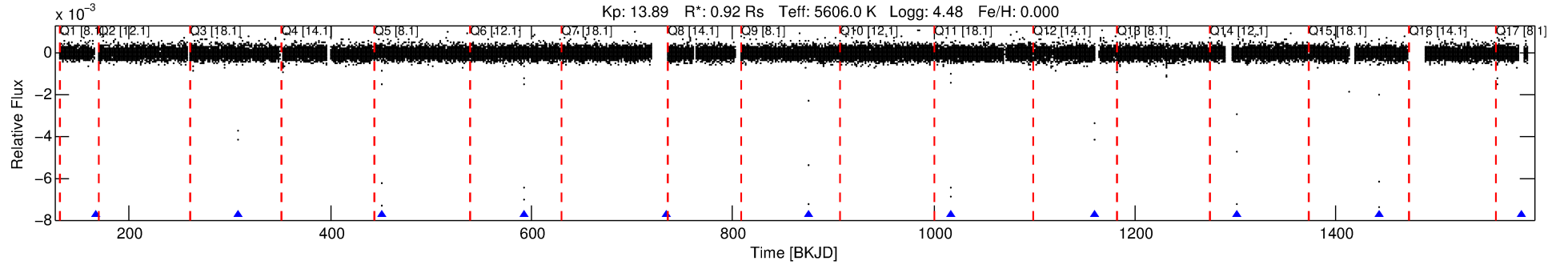
## Ephemeris Match Information For 007813039-01

No Significant Match Found

# DV One-Page Summary

KIC: 7813039 Candidate: 1 of 1 Period: 141.734 d

KOI: K03787.01 Corr: 0.993



## DV Fit Results:

Period = 141.73407 [0.00004] d  
Epoch = 167.3458 [0.0002] BKJD  
Rp/R\* = 0.1133 [0.0182]  
a/R\* = 392.57 [23.19]  
b = 0.94 [0.04]  
Seff = 2.78 [0.58]  
Teq = 329 [17] K  
Rp = 11.35 [2.38] Re  
a = 0.5183 [0.0643] AU  
Ag = 106.75 [56.18] [1.88 $\sigma$ ]  
Teffp = 1636 [203] K [6.42 $\sigma$ ]

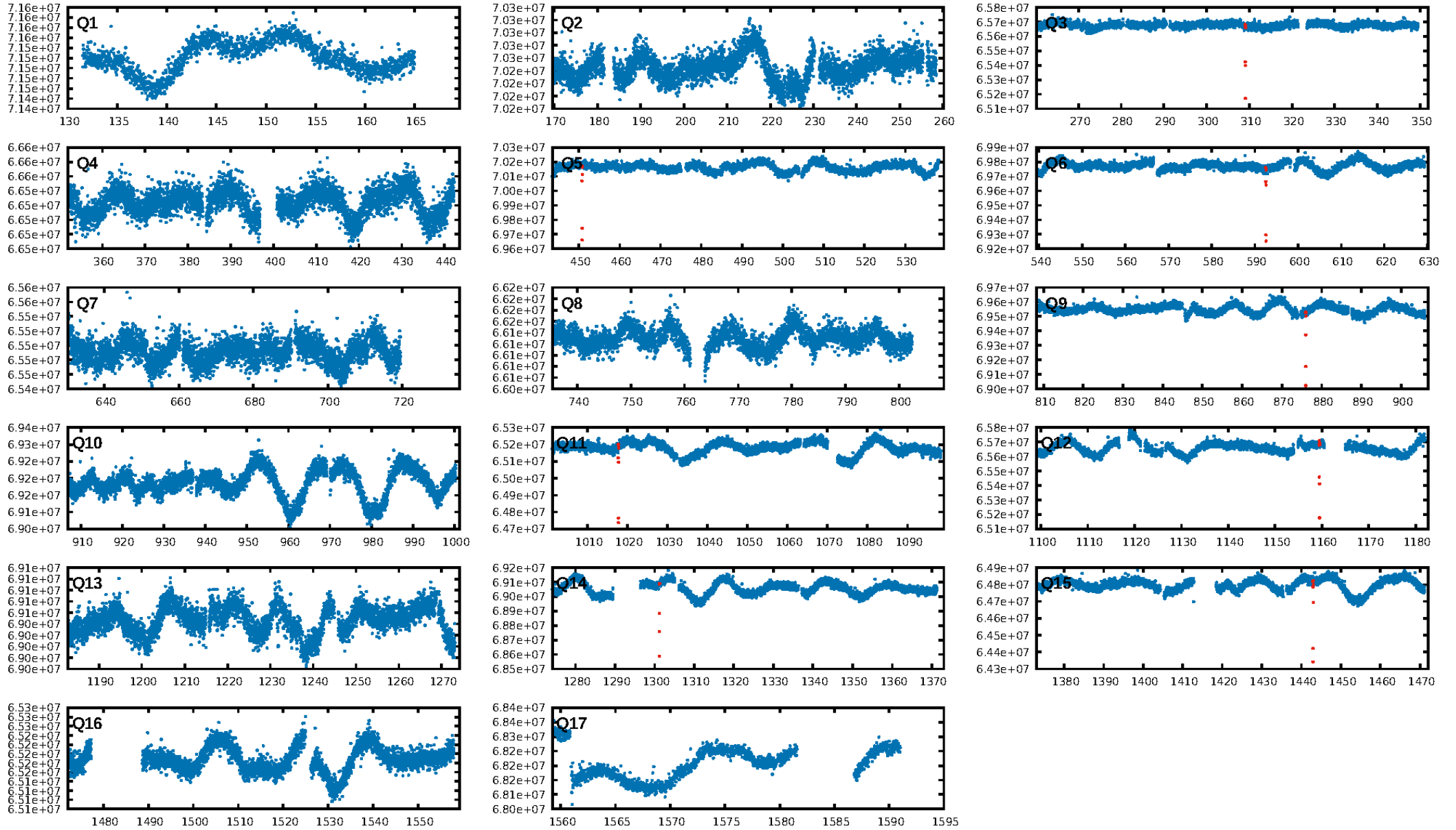
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 41.4%  
ModelChiSquareGof-sig: 99.5%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 5.001  
Centroid-sig: 8.9%  
Centroid-so: 0.229 arcsec [2.60 $\sigma$ ]  
OotOffset-rm: 0.054 arcsec [0.75 $\sigma$ ]  
KicOffset-rm: 0.165 arcsec [2.08 $\sigma$ ]  
OotOffset-st: 2/3/1/2 [8]  
KicOffset-st: 2/3/1/2 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [8/8]

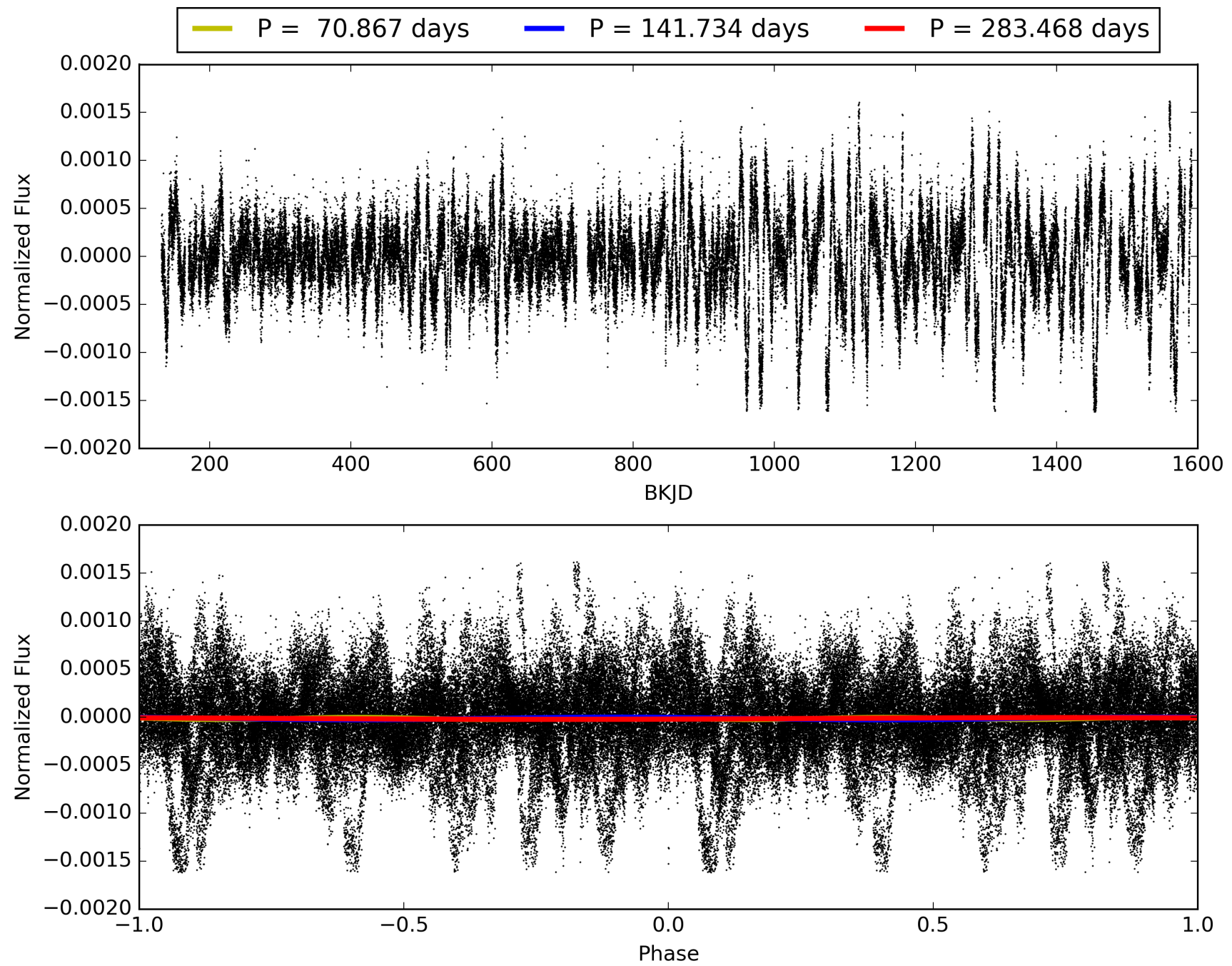
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:51:53 Z

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

# TCE 007813039-01, PDC Light Curves

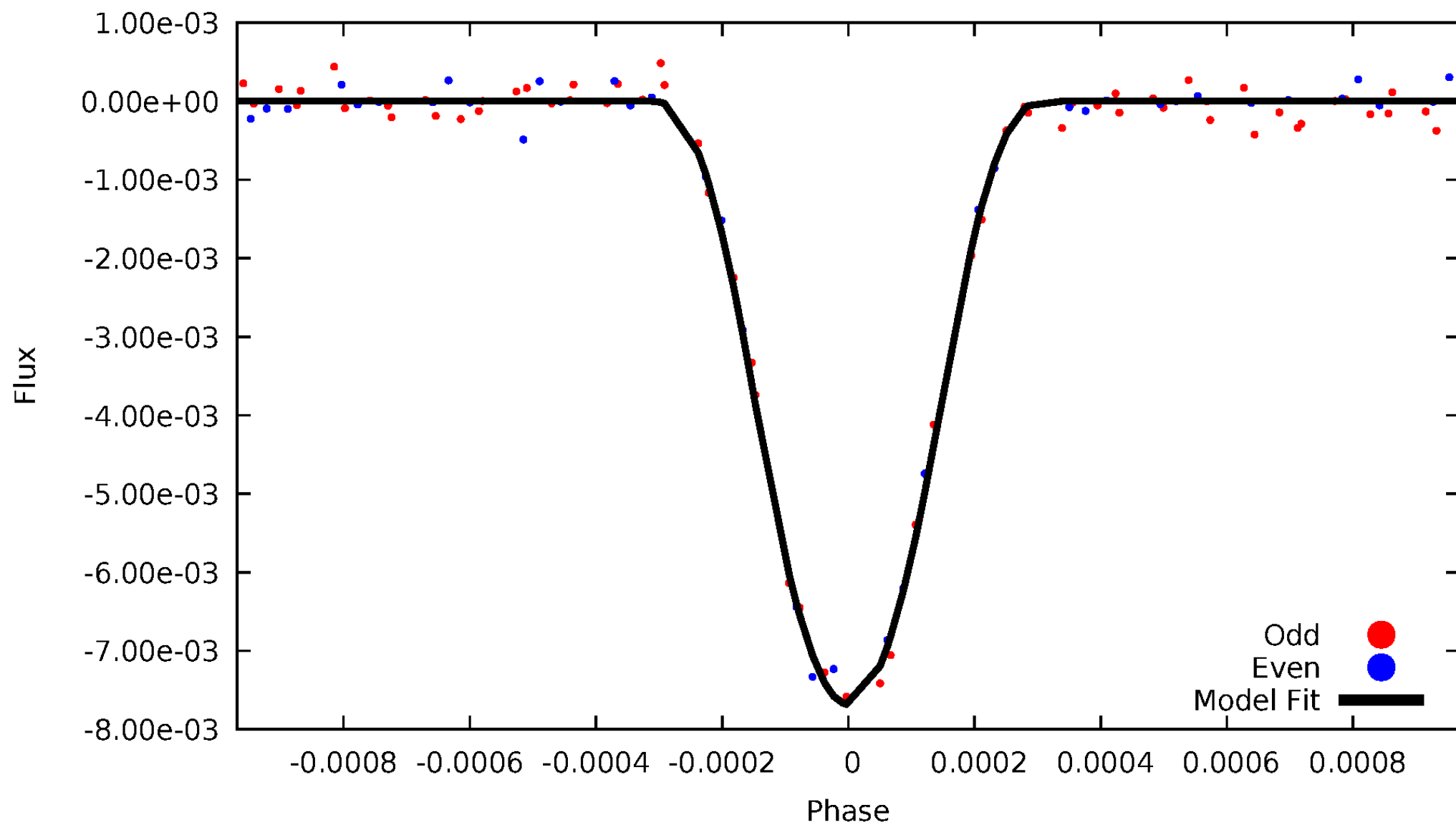


TCE 007813039-01



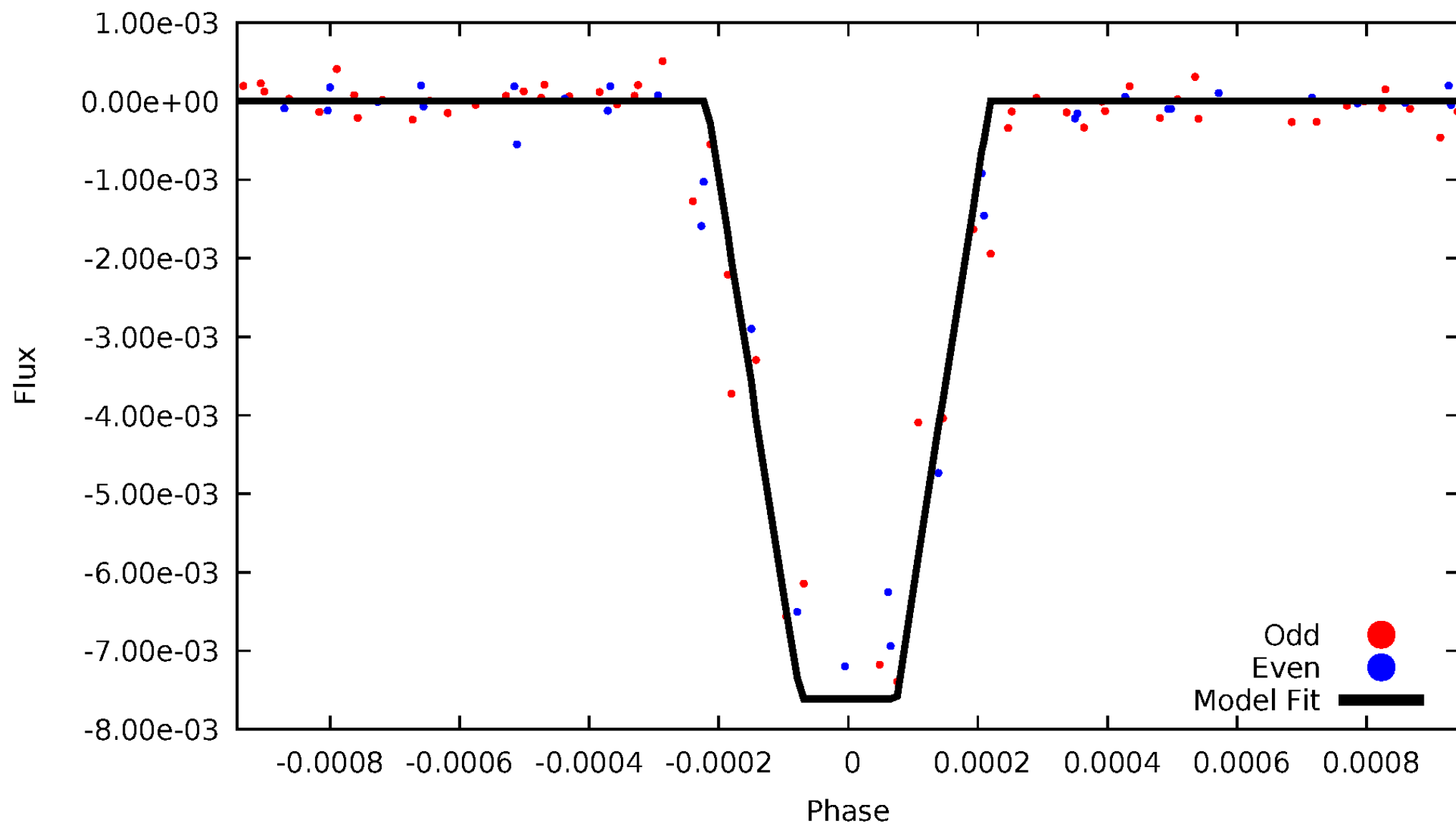
# DV Odd/Even

TCE 007813039-01

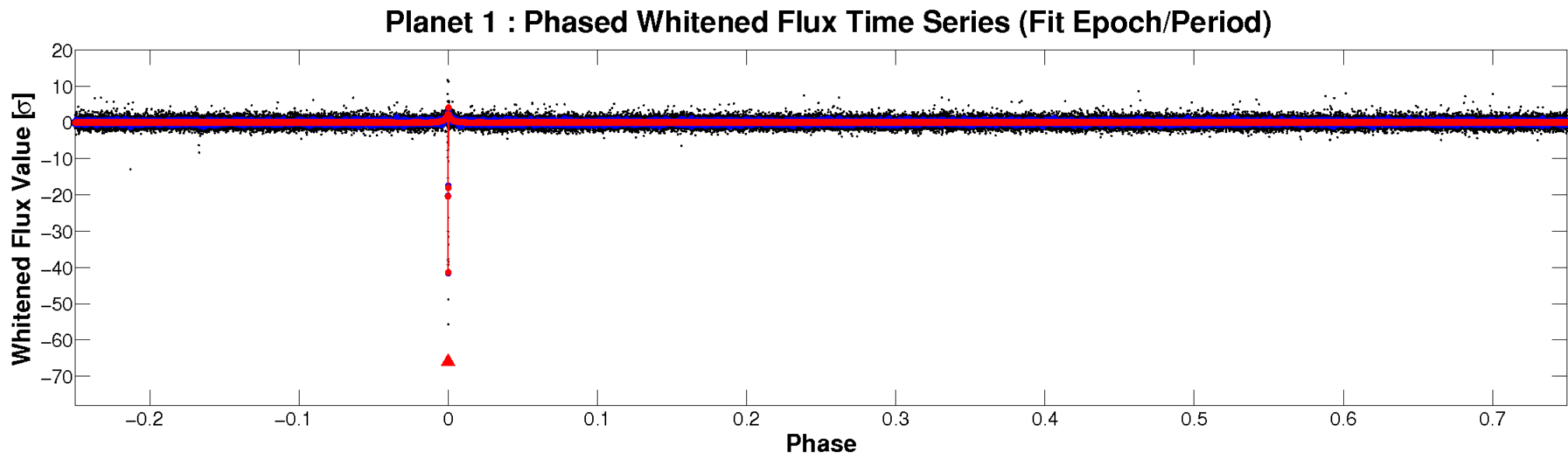
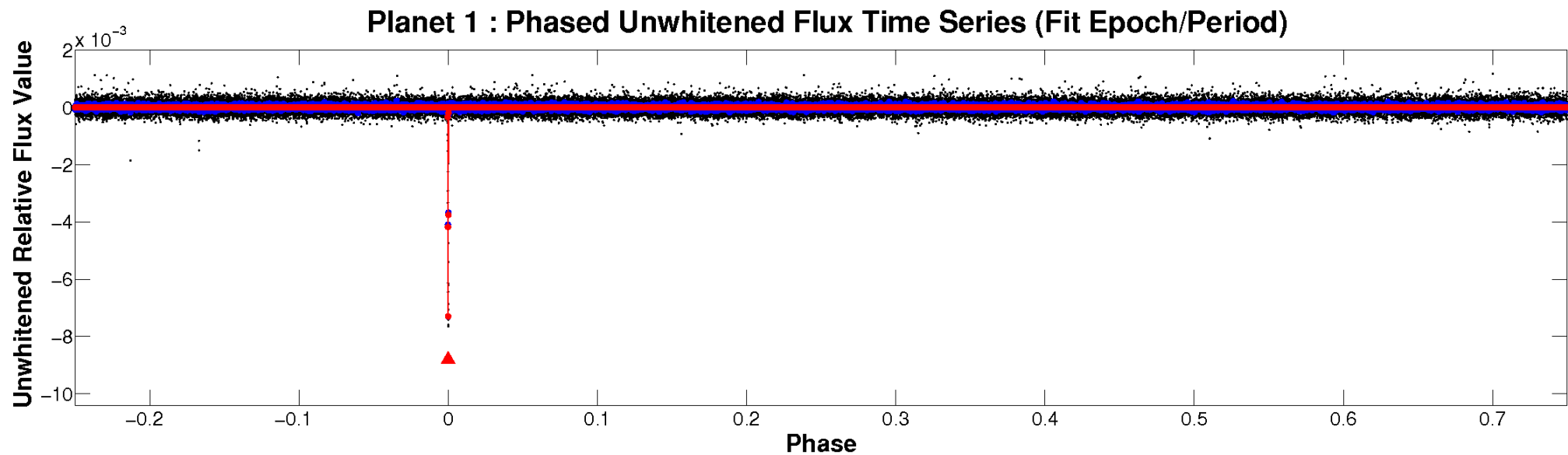


# ALT Odd/Even

TCE 007813039-01

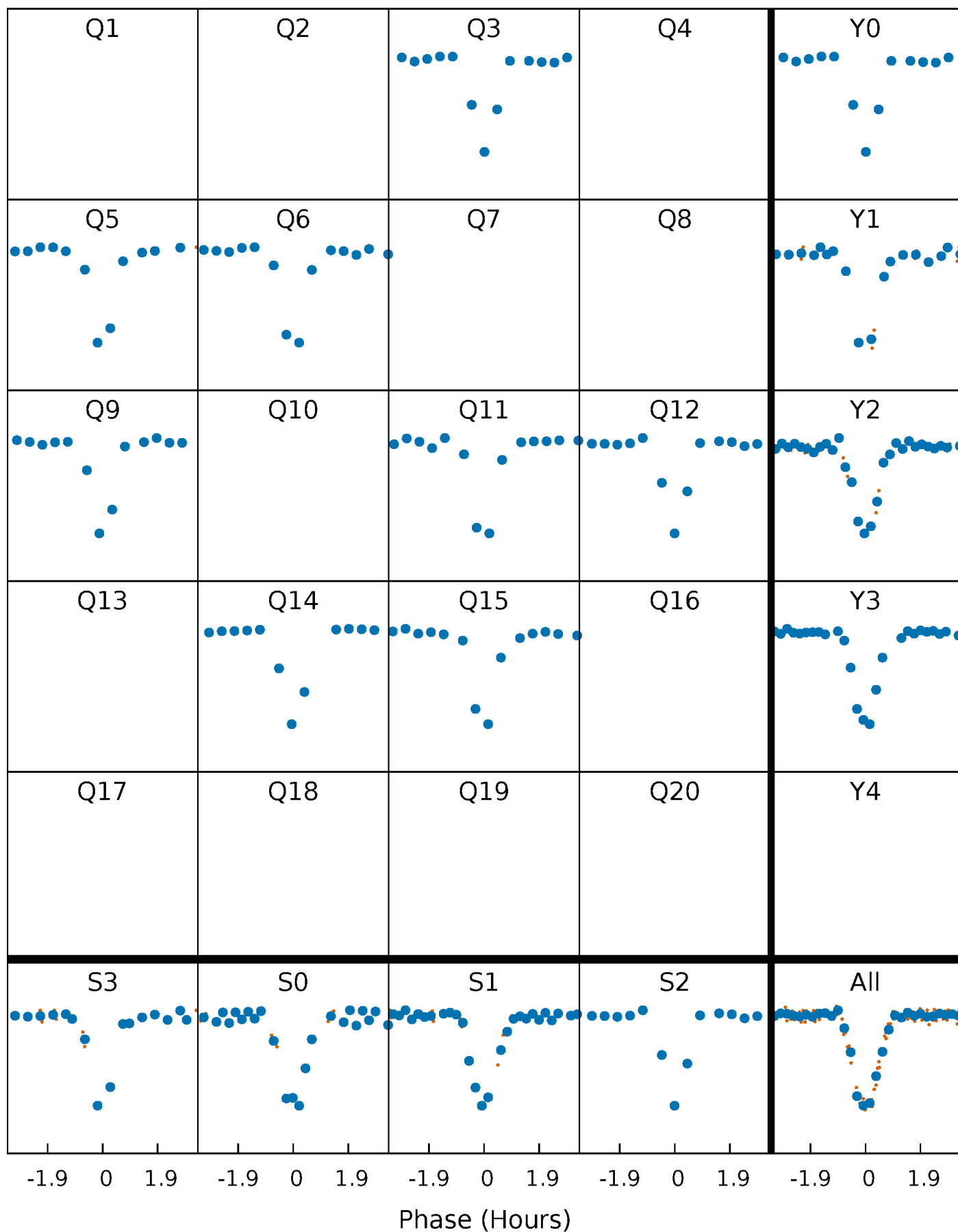


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

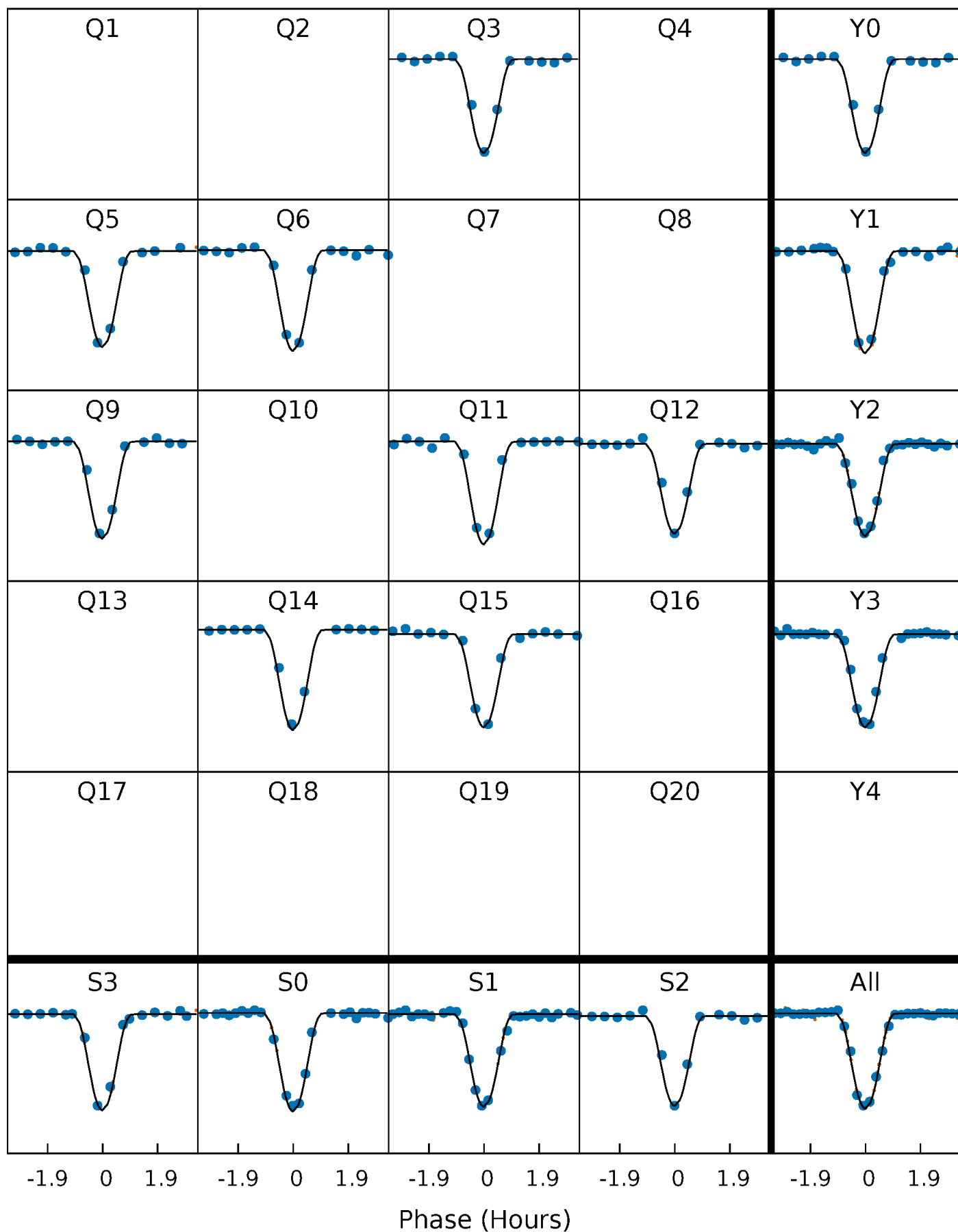
TCE 007813039-01 P=141.734065 Days  $T_0=167.345797$  (BKJD)





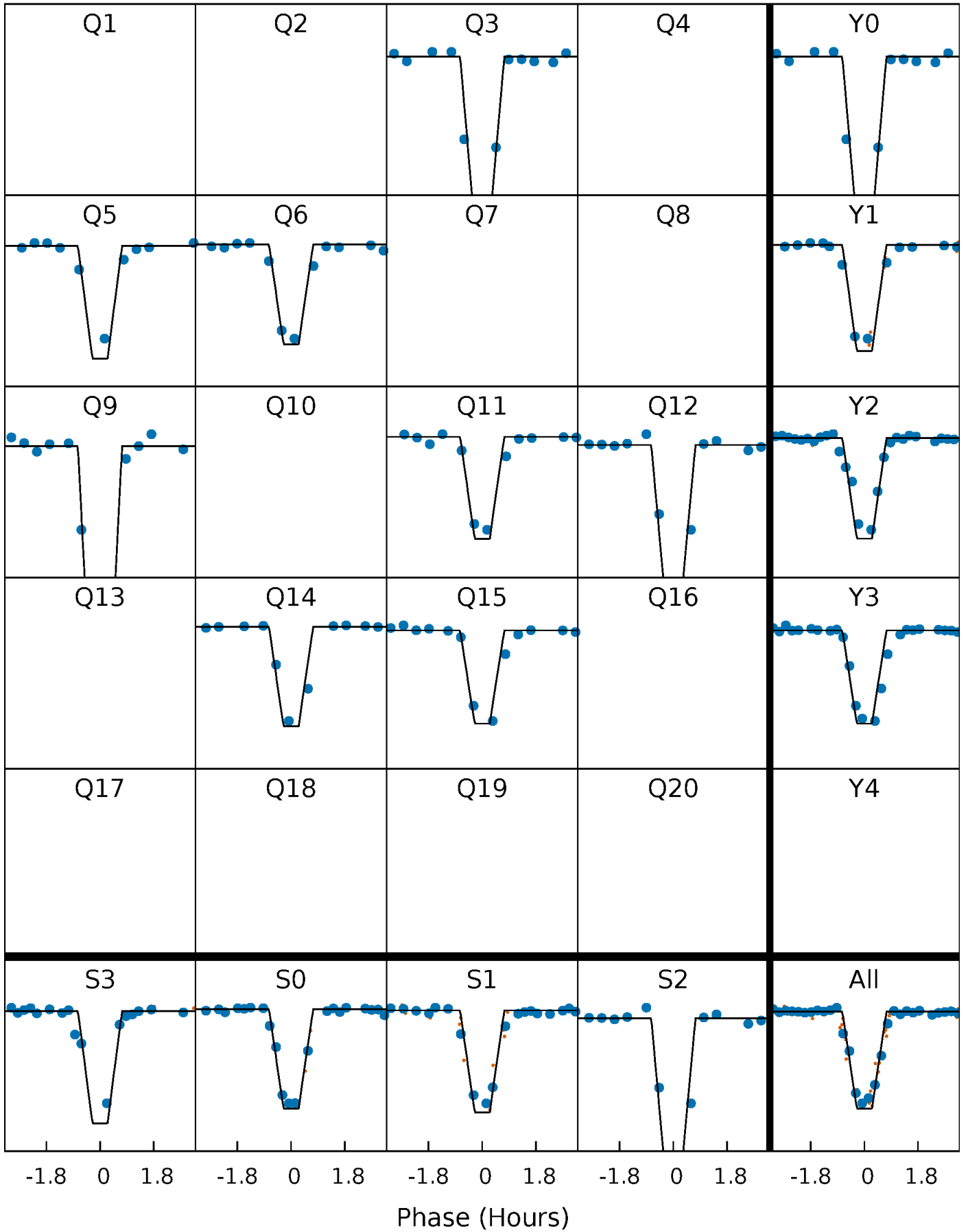
# DV Quarter-Phased Transit Curves

TCE 007813039-01 P=141.734065 Days  $T_0=167.345797$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

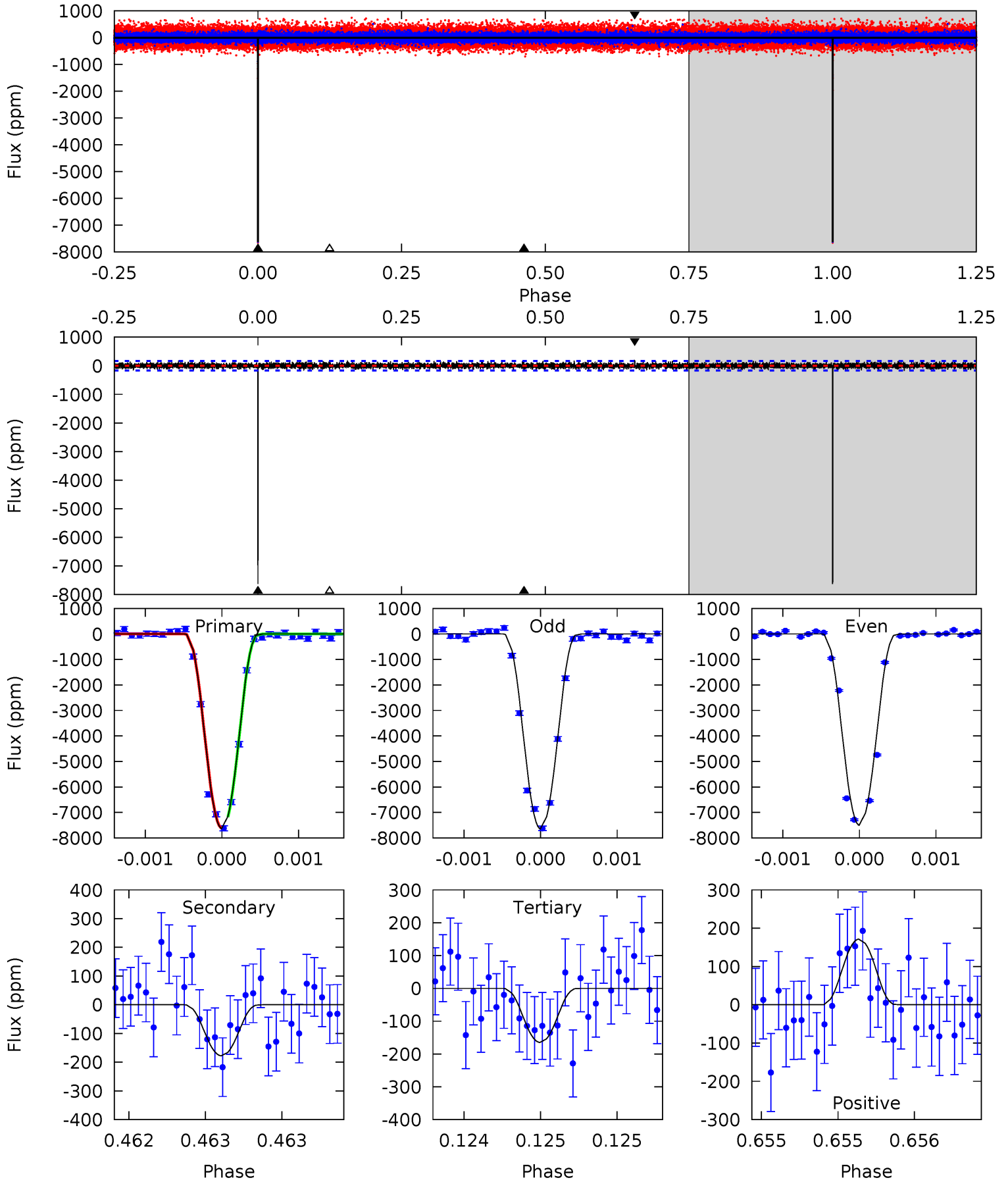
TCE 007813039-01 P=141.733029 Days  $T_0=167.351554$  (BKJD)



# DV Model-Shift Uniqueness Test

007813039-01, P = 141.734065 Days, E = 25.611732 Days

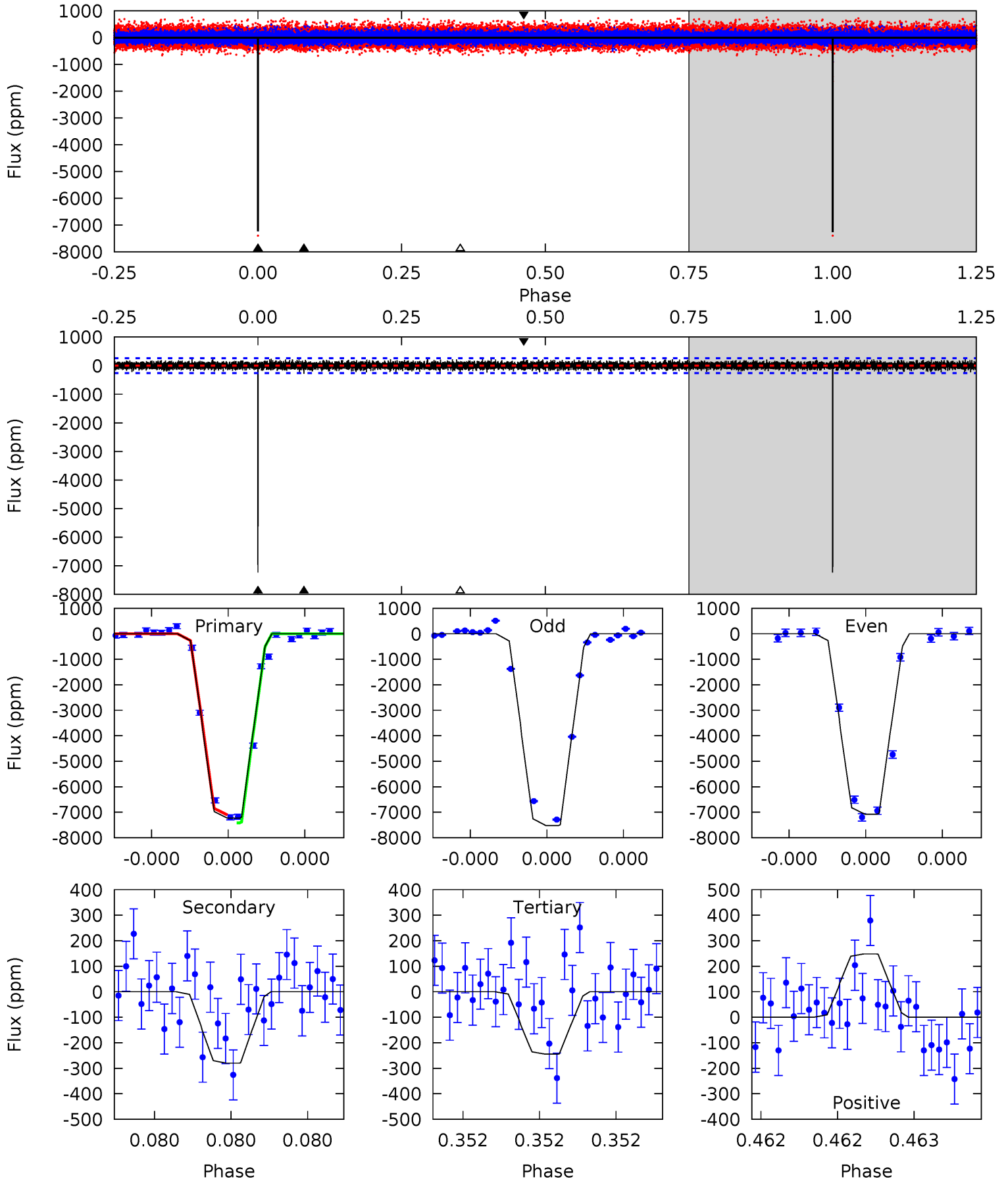
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
254.3	5.93	5.49	5.72	5.53	3.42	1.58	248.8	248.6	0.43	0.21	2.33	1.00	0.02	7.17



# Alt Model-Shift Uniqueness Test

007813039-01,  $P = 141.733029$  Days,  $E = 25.618525$  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
155.4	6.02	5.25	5.33	5.60	3.52	1.36	150.2	150.1	0.77	0.69	4.63	1.00	0.03	3.02



### Stellar Parameters For KIC 007813039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5606^{+112}_{-101}$	$4.478^{+0.056}_{-0.112}$	$0.000^{+0.150}_{-0.150}$	$0.918^{+0.123}_{-0.066}$	$0.924^{+0.057}_{-0.057}$	$1.683^{+0.378}_{-0.528}$
	+2%/-2%	+1%/-3%	+inf%/-inf%	+13%/-7%	+6%/-6%	+22%/-31%
Source	SPE57	SPE57	SPE57	DSEP		

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

### Secondary Eclipse Parameters for KIC 007813039-01 / KOI 3787.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-178 \pm 30$	$11.58^{+1.85}_{-1.90}$	$463^{+19}_{-15}$	$2703^{+136}_{-115}$	$195^{+94}_{-57}$
Alt.	$-280 \pm 47$	$8.86^{+1.88}_{-1.97}$	$462^{+19}_{-14}$	$3082^{+249}_{-163}$	$519^{+360}_{-169}$

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

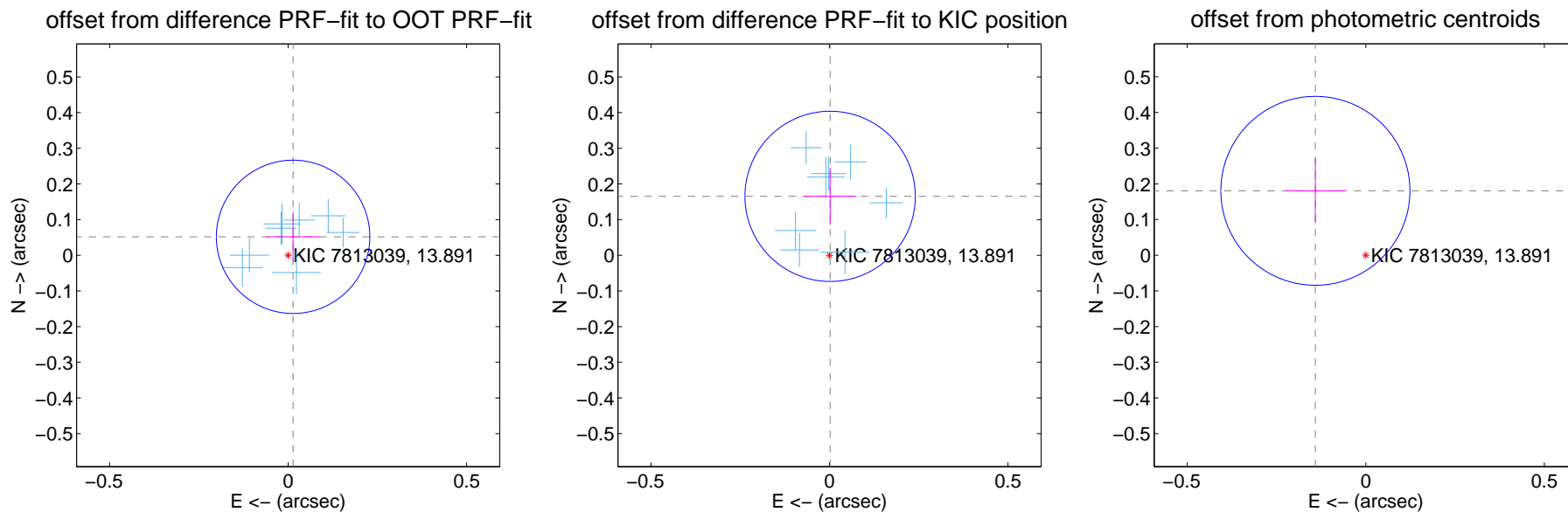
## DV Centroid Data

Supplemental centroid analysis for 007813039-01. Kepler magnitude: 13.89. Transit SNR 137.28

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.054 \pm 0.072$	0.75	$-0.014 \pm 0.076$	$0.052 \pm 0.070$
PRF-fit source offset from KIC position	$0.165 \pm 0.080$	2.08	$-0.002 \pm 0.074$	$0.165 \pm 0.080$
photometric centroid source offset	$0.23 \pm 0.09$	2.60	$0.14 \pm 0.08$	$0.18 \pm 0.09$



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.

Q1 no difference image



Q1 no OOT image



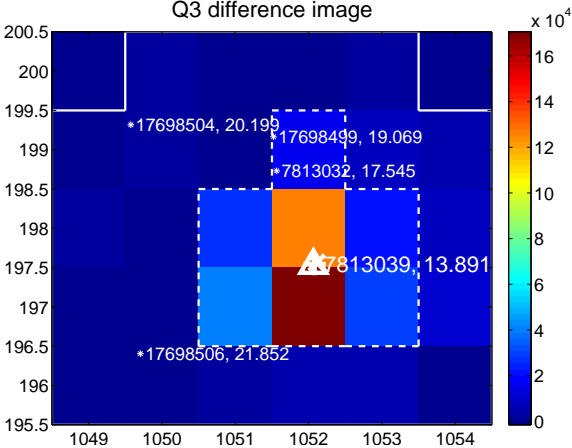
Q2 no difference image



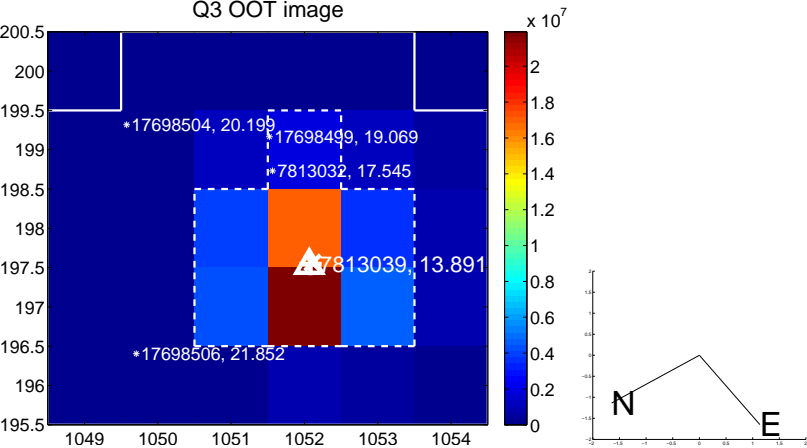
Q2 no OOT image



Q3 difference image



Q3 OOT image



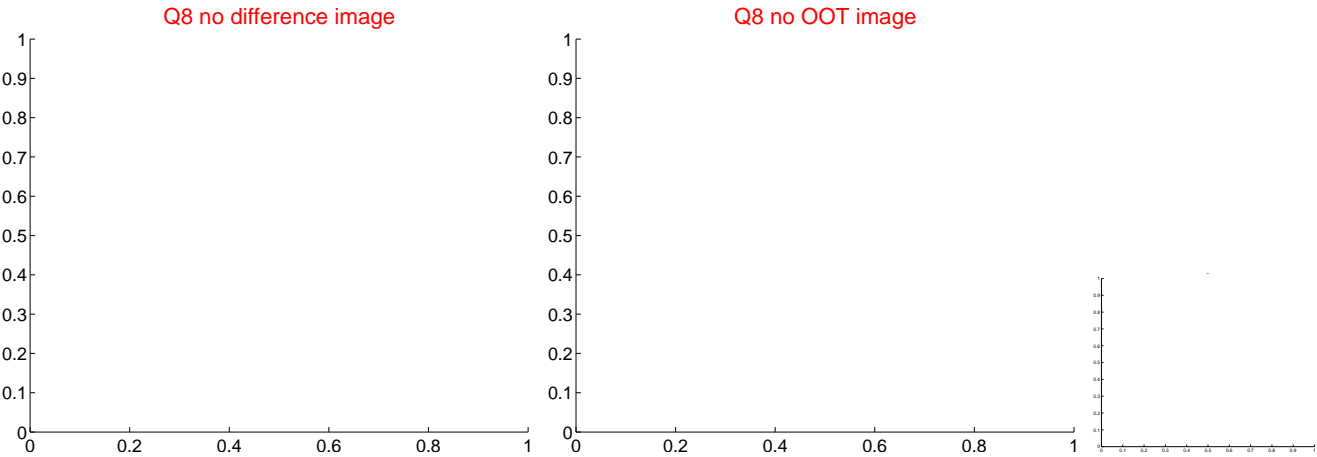
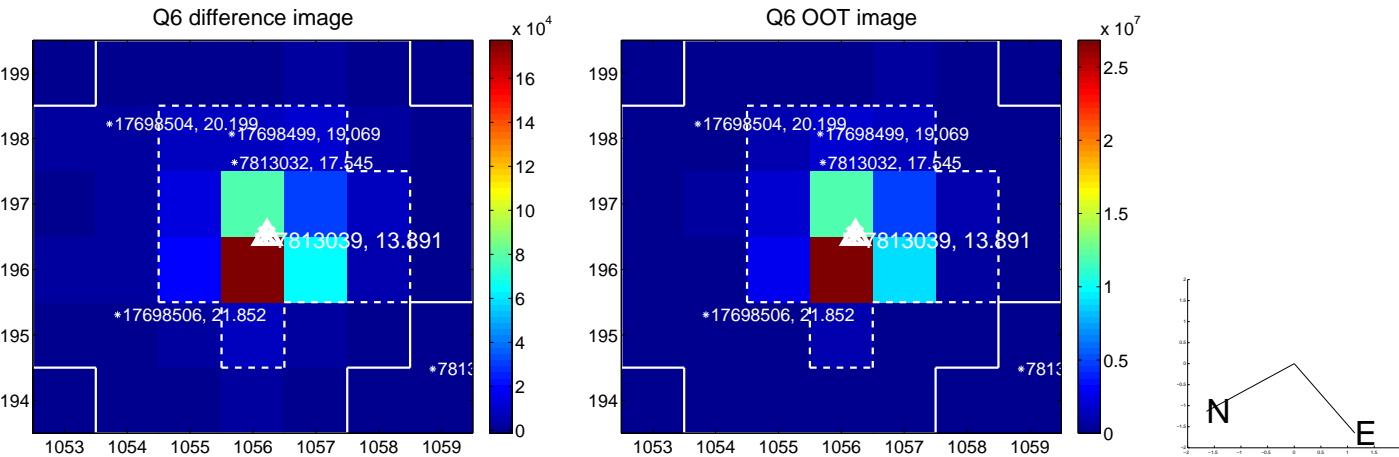
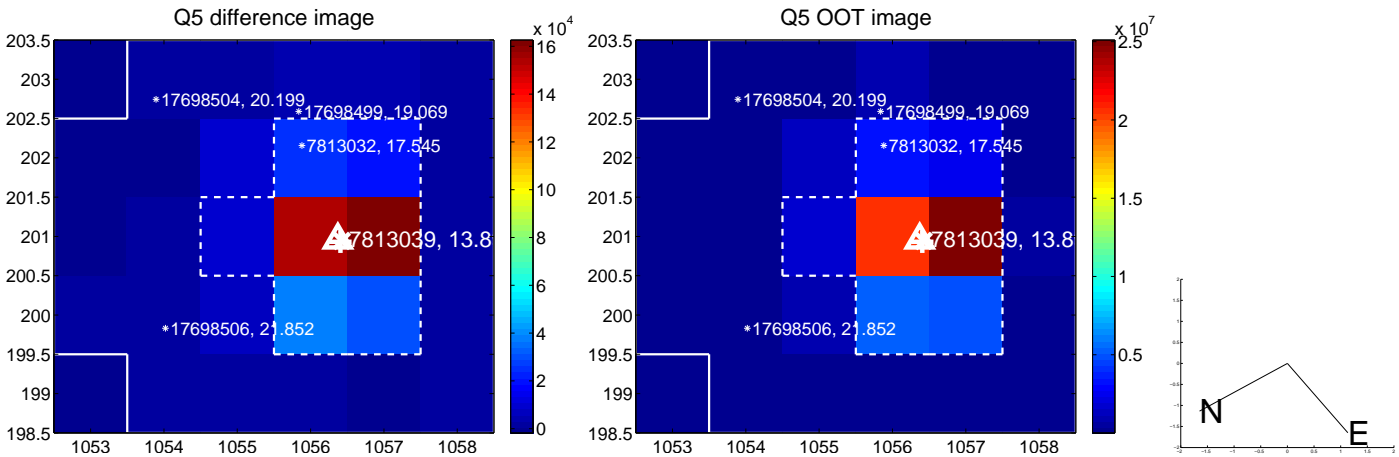
Q4 no difference image



Q4 no OOT image

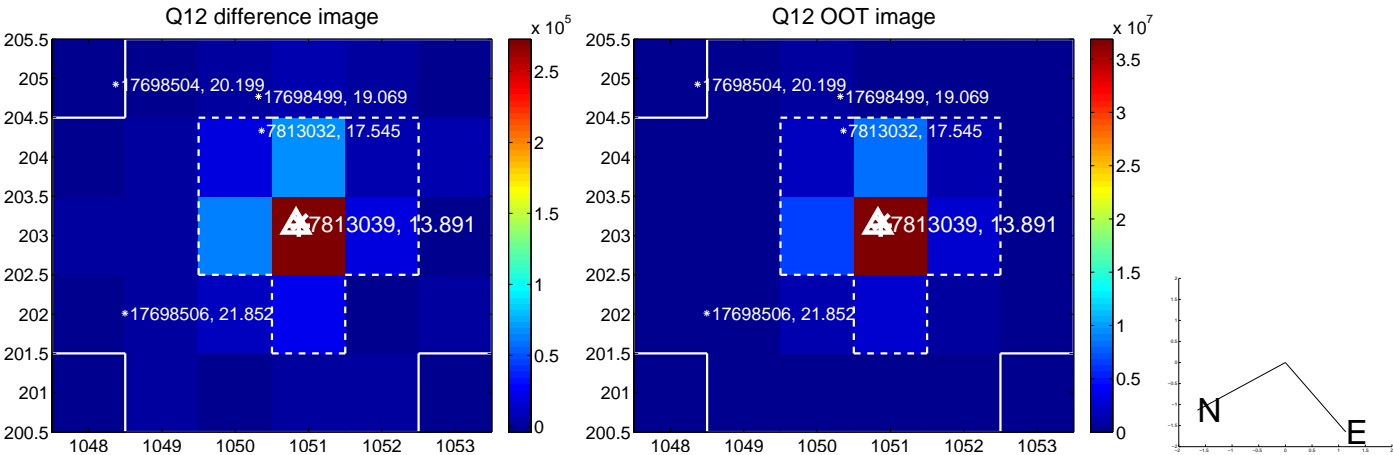
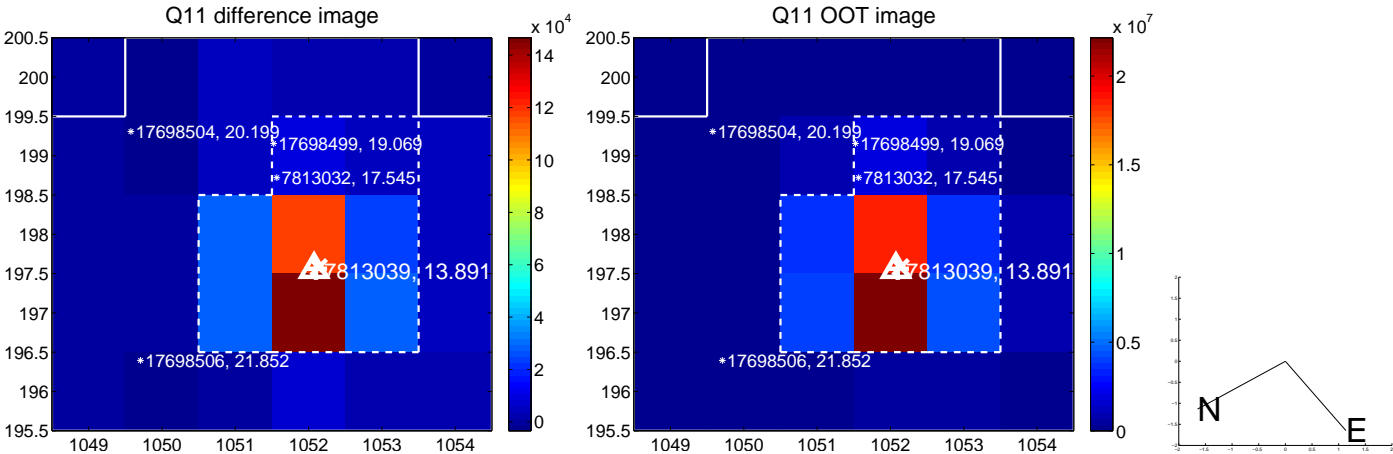
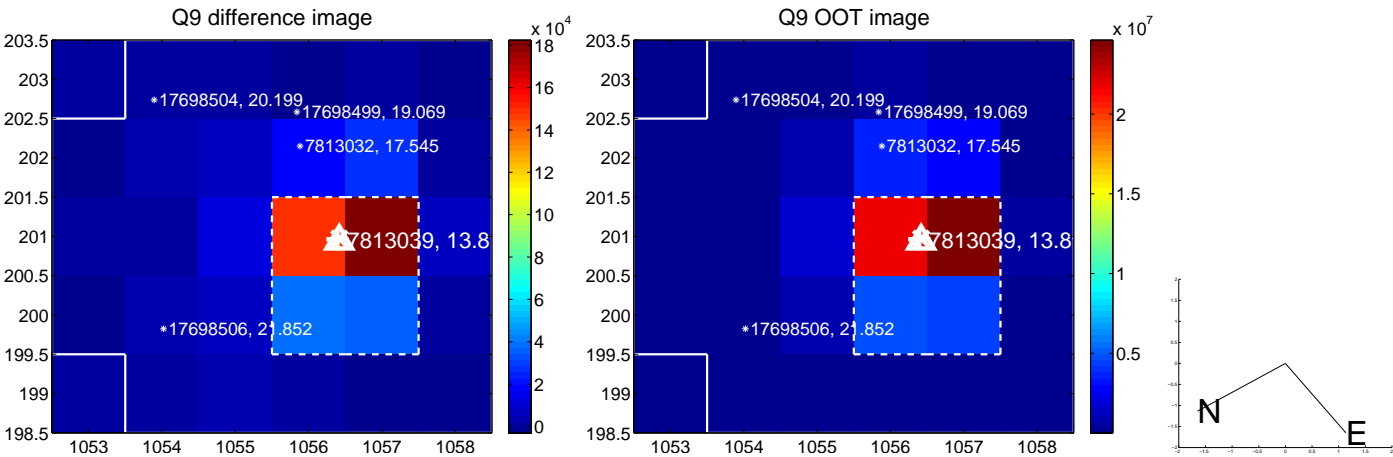


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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.

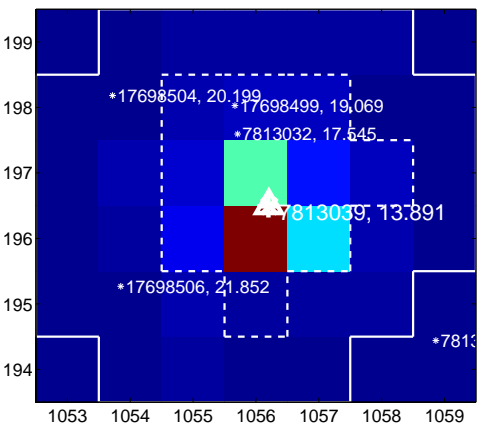
Q13 no difference image



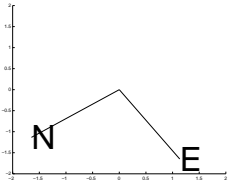
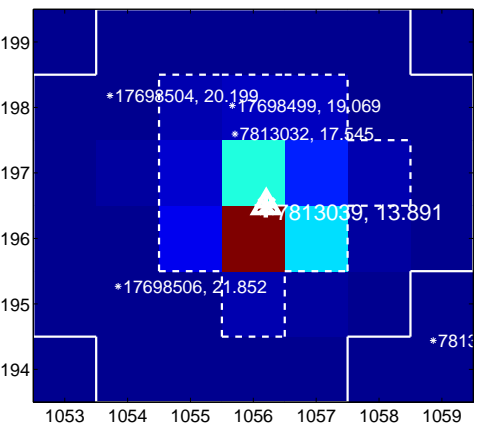
Q13 no OOT image



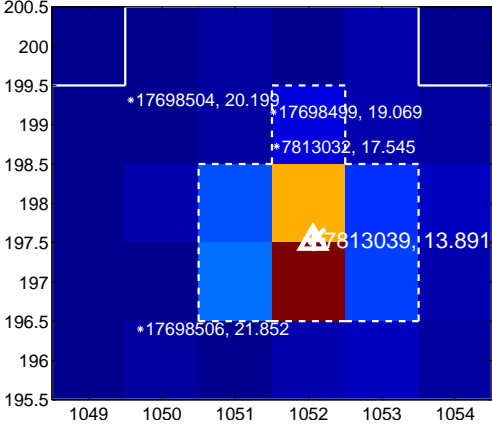
Q14 difference image



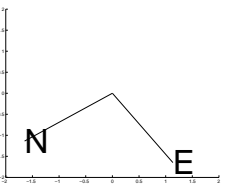
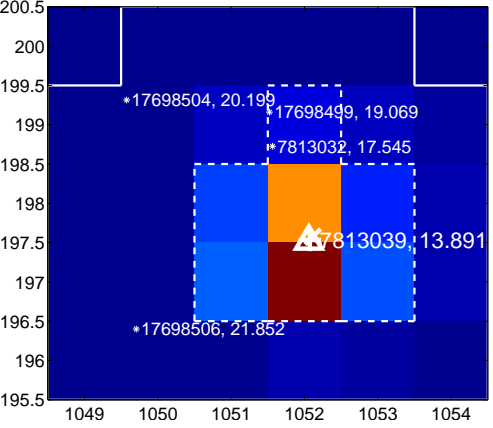
Q14 OOT image



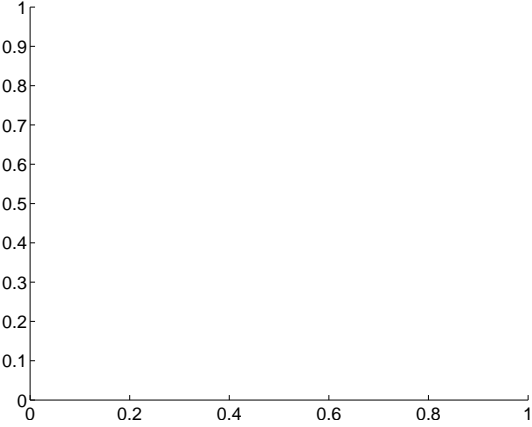
Q15 difference image



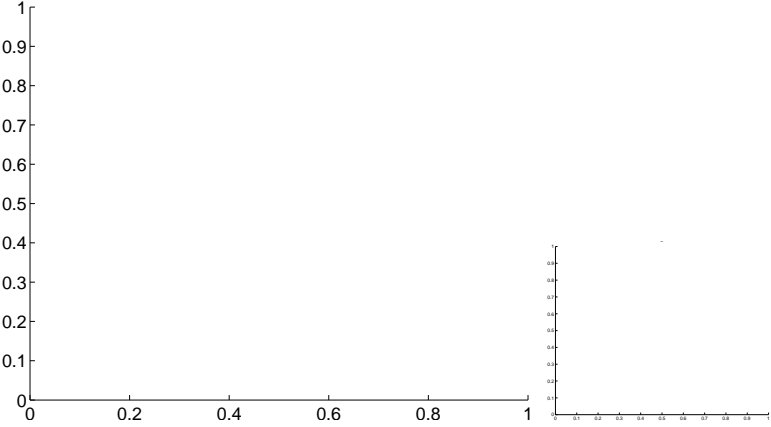
Q15 OOT image



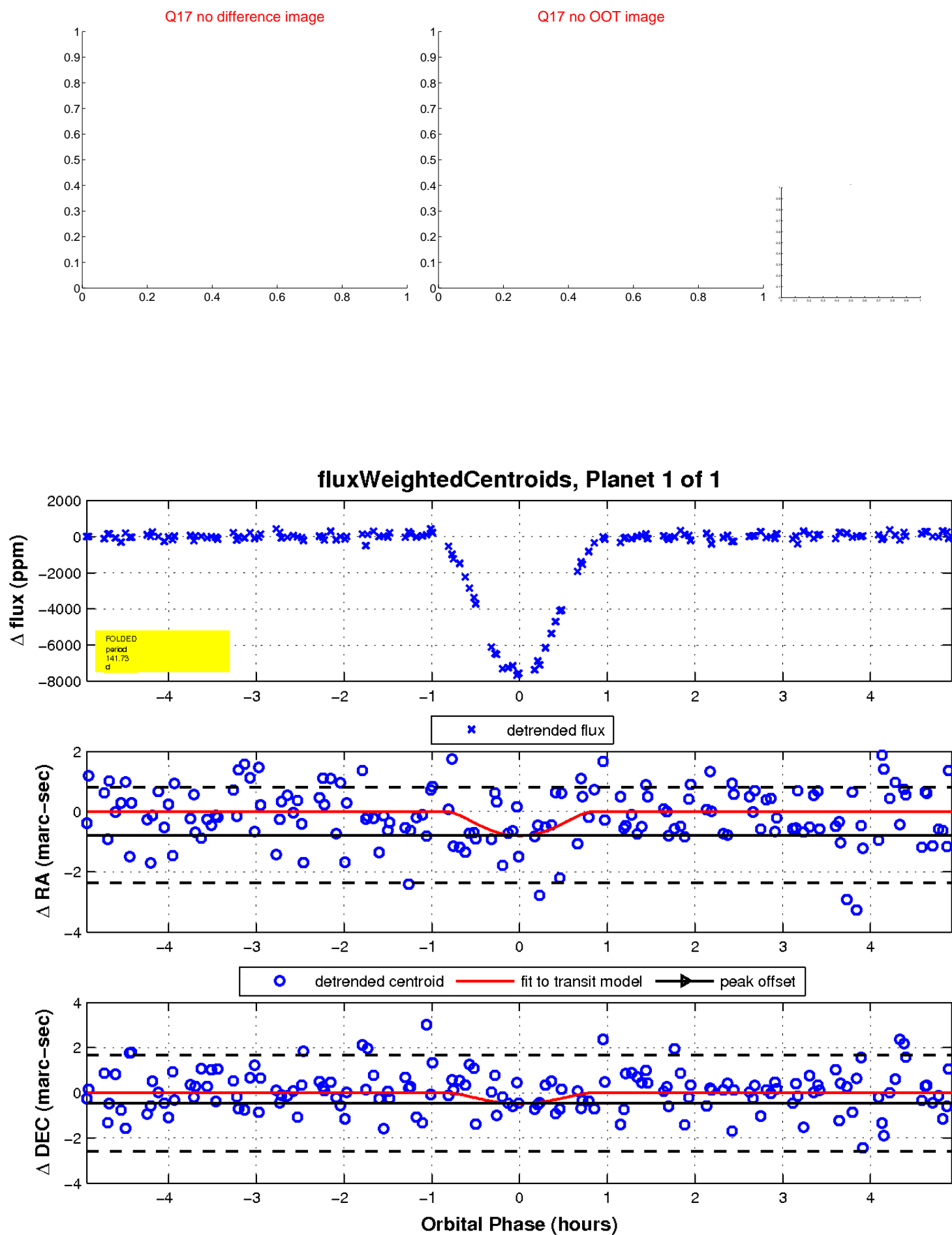
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

