

# KIC 008746656

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008746656-01	OBS	No	374.072077	172.404507	337.5	41.986	9.3	10.3	2.23	6088	8.02	5.32

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008746656-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

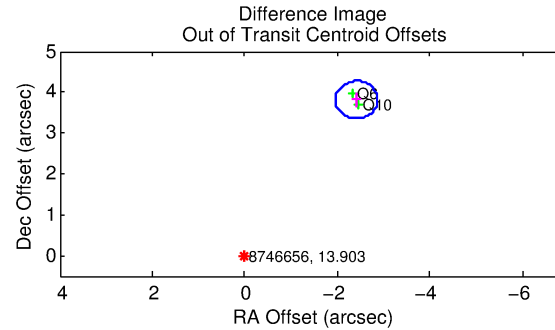
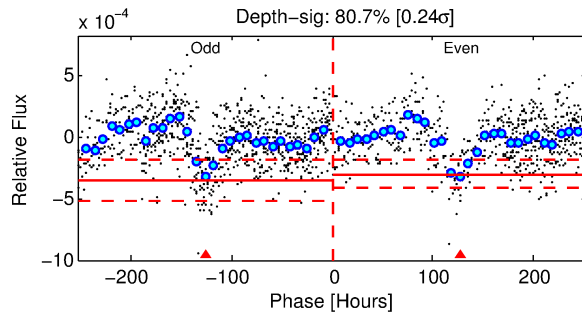
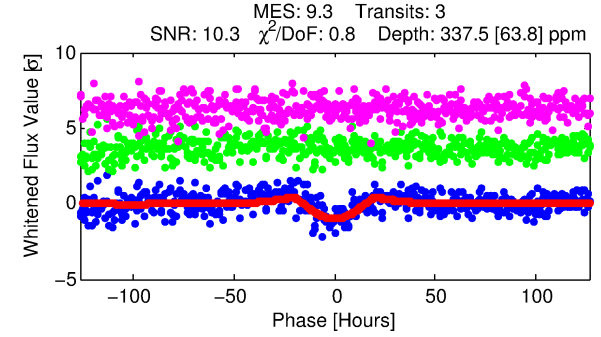
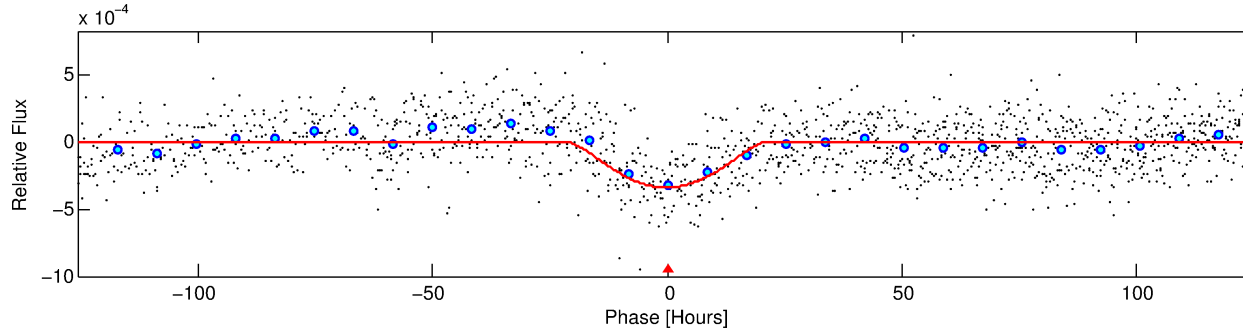
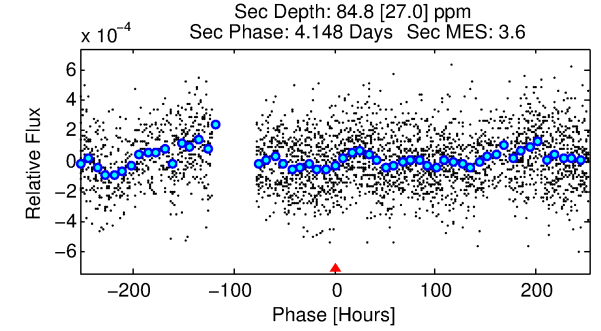
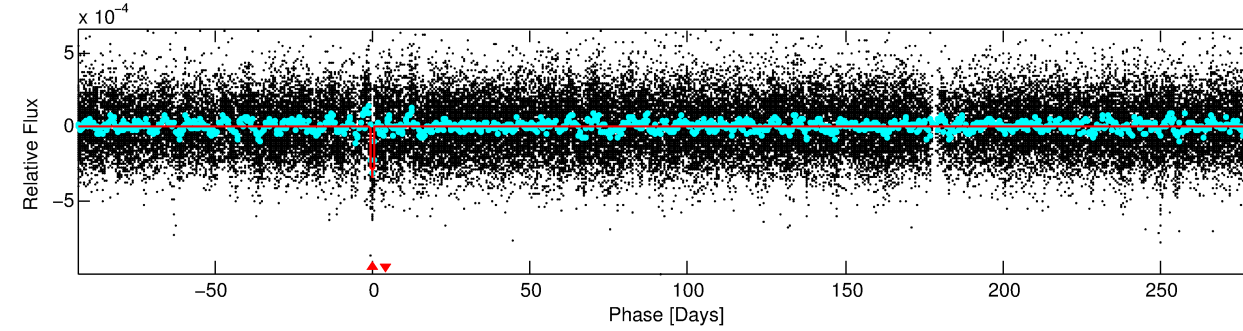
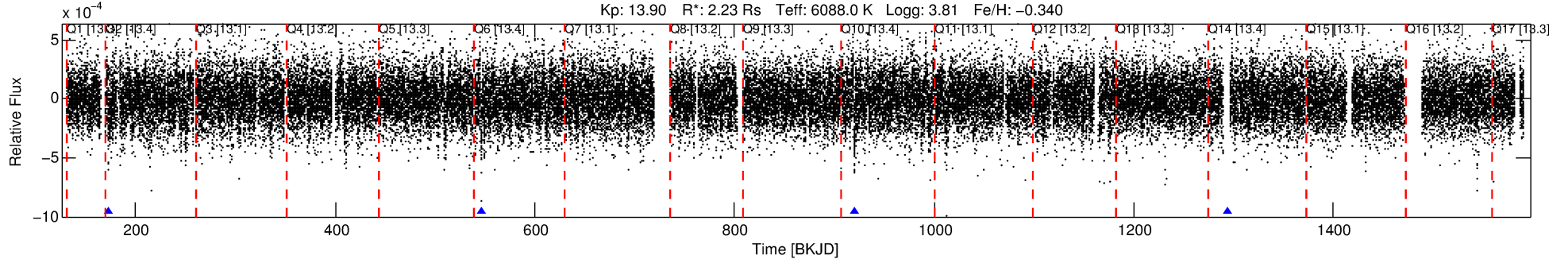
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008746656-01

No Significant Match Found

# DV One-Page Summary

KIC: 8746656 Candidate: 1 of 1 Period: 374.072 d



## DV Fit Results:

Period = 374.07208 [0.04183] d  
Epoch = 172.4045 [0.0537] BKJD  
Rp/R\* = 0.0329 [0.0641]  
a/R\* = 17.74 [9.01]  
b = 1.00 [0.10]  
Seff = 5.32 [5.13]  
Teq = 387 [93] K  
Rp = 8.02 [16.17] Re  
a = 1.0735 [0.6053] AU  
Ag = 836.45 [3366.26] [0.25σ]  
Teffp = 3220 [3150] K [0.90σ]

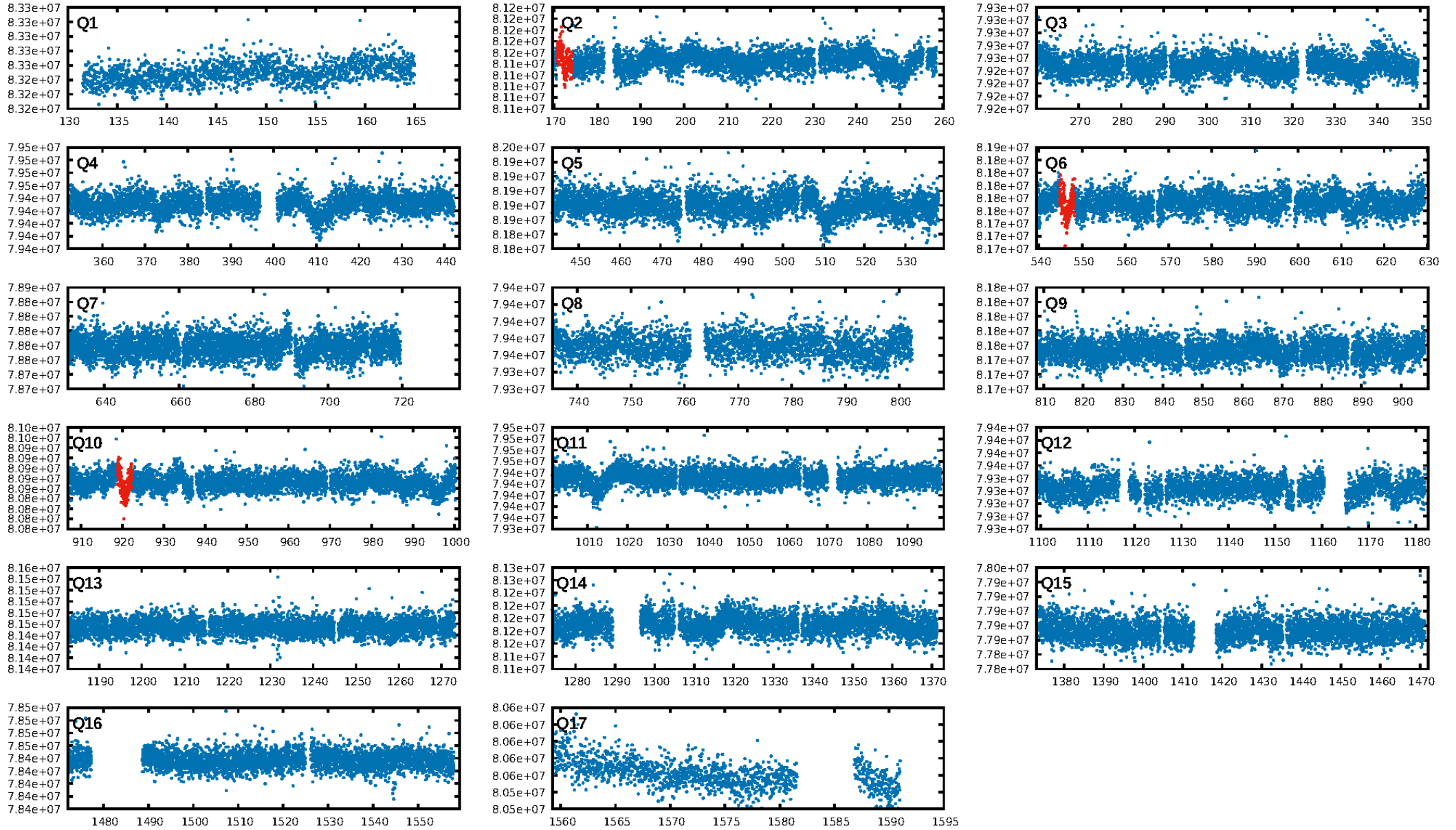
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.7%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 4.51e-11**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.0352**  
Centroid-sig: 69.3%  
Centroid-so: 0.910 arcsec [0.52σ]  
**OotOffset-rm: 4.511 arcsec [29.56σ]**  
**KicOffset-rm: 4.512 arcsec [25.30σ]**  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [2/2]

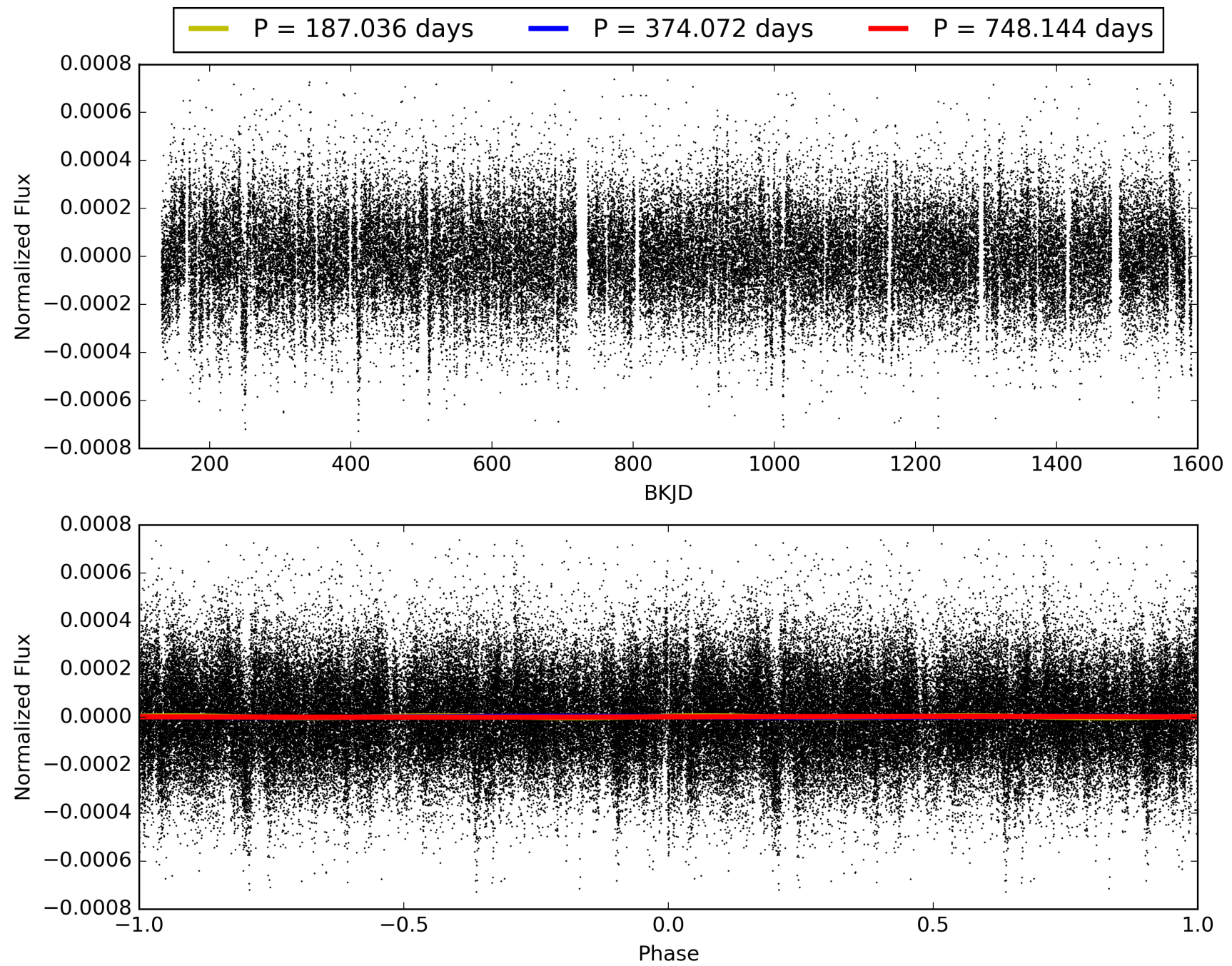
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:03:42 Z

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

# TCE 008746656-01, PDC Light Curves

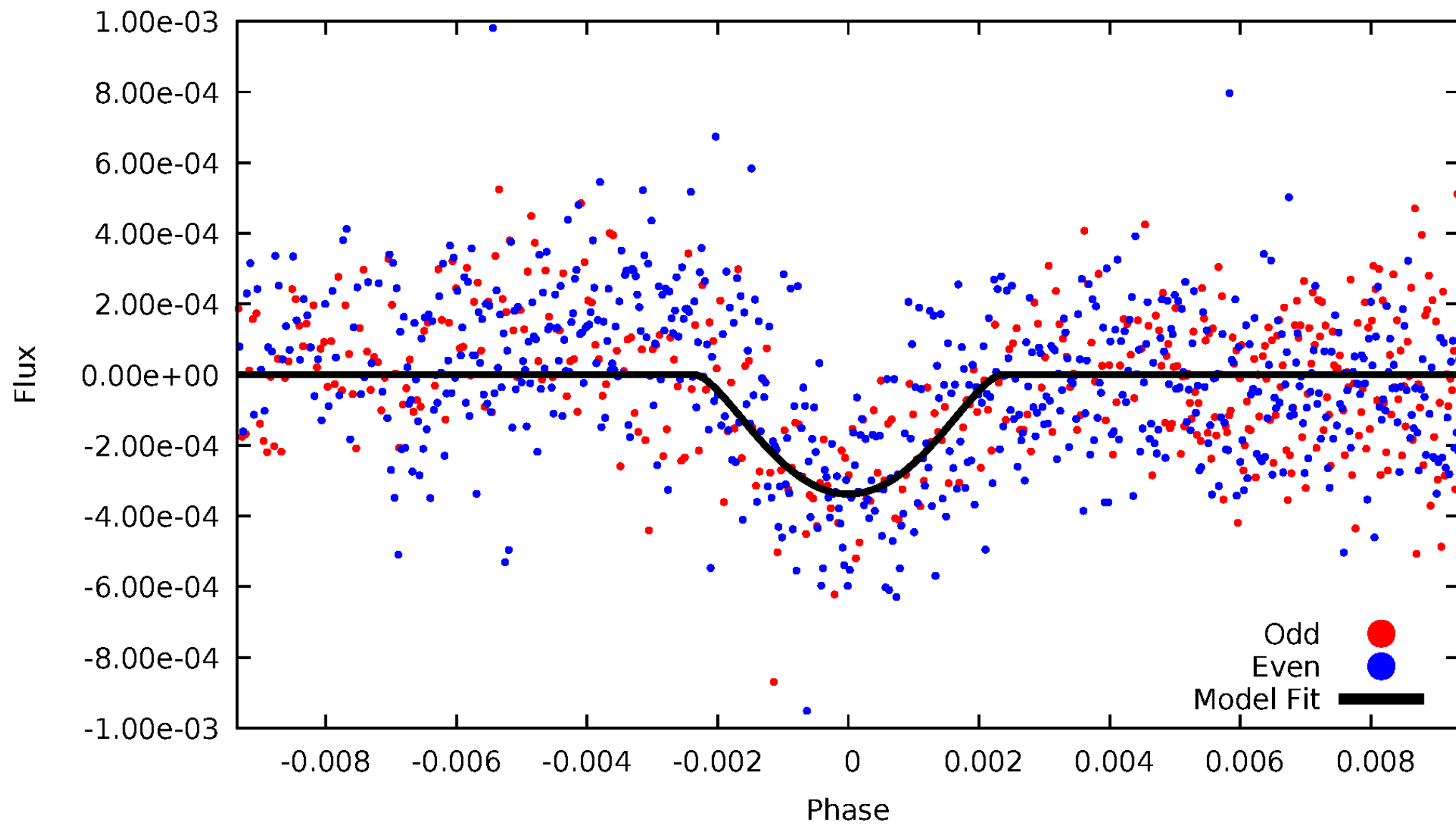


TCE 008746656-01



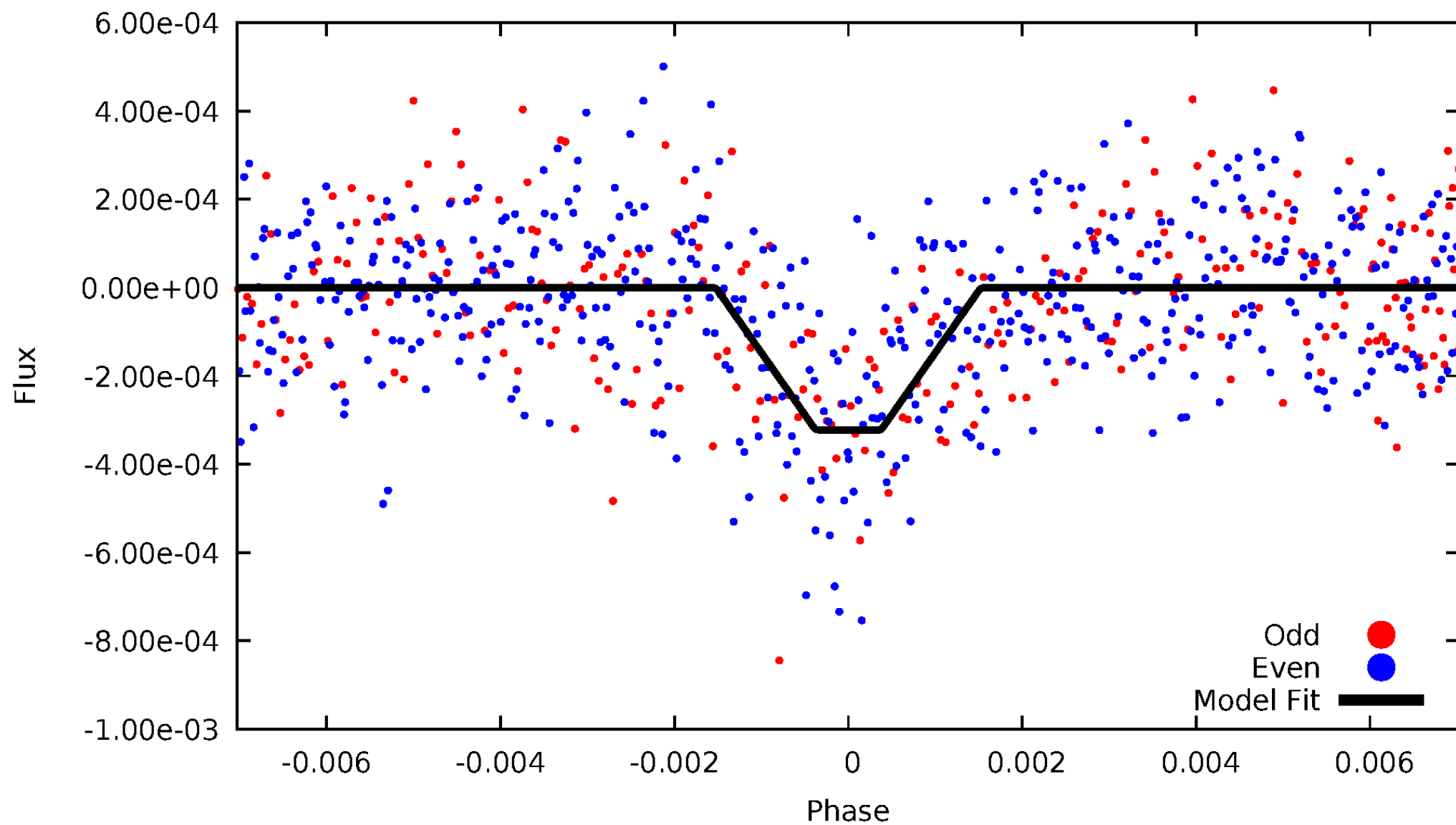
# DV Odd/Even

TCE 008746656-01



# ALT Odd/Even

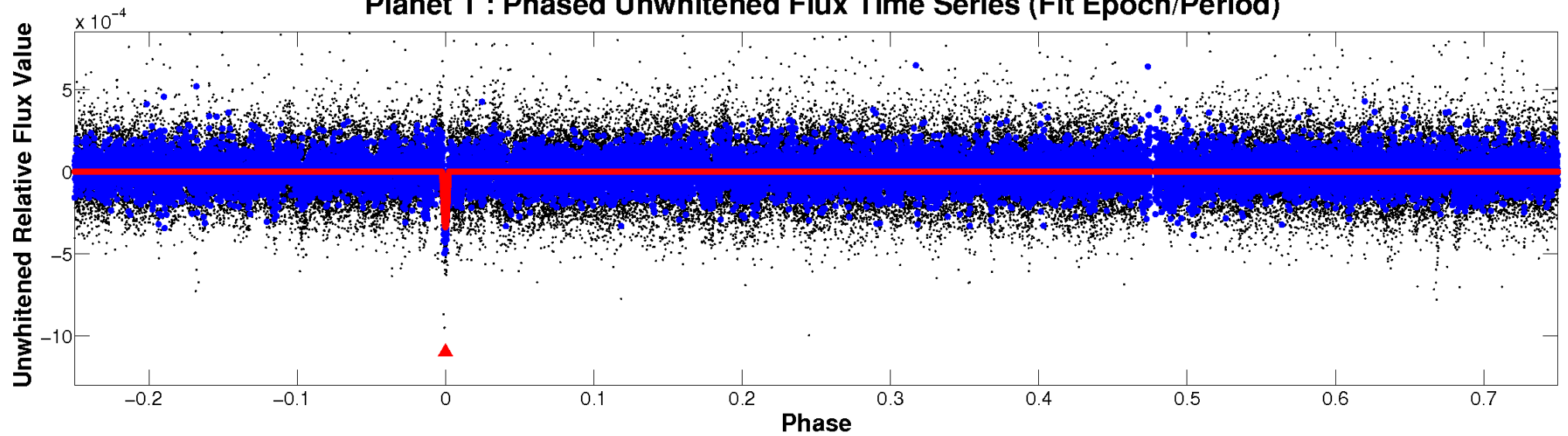
TCE 008746656-01



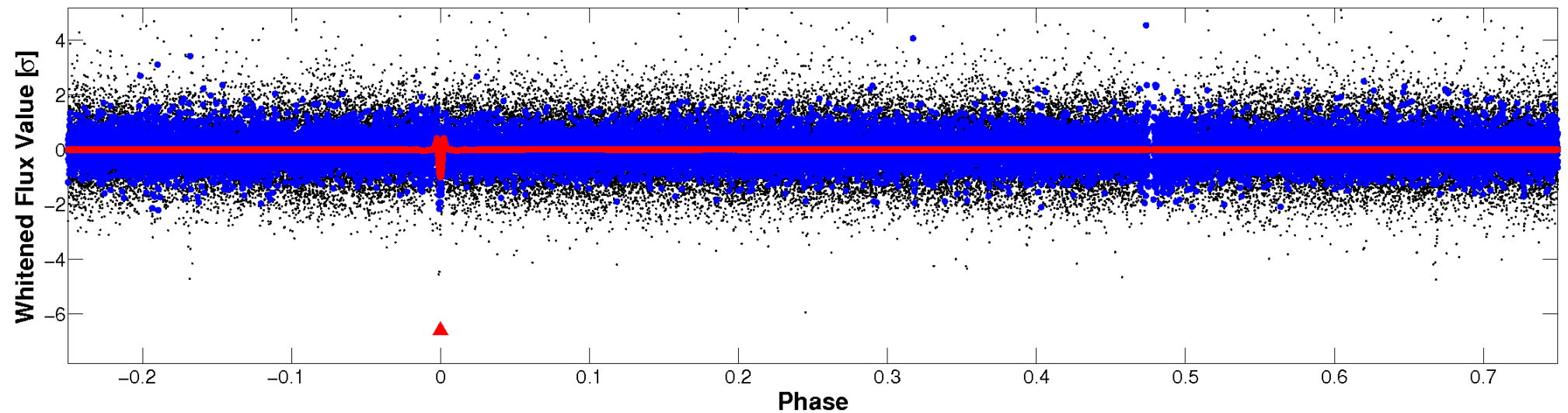


# Non-Whitened Vs. Whitened Light Curve

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

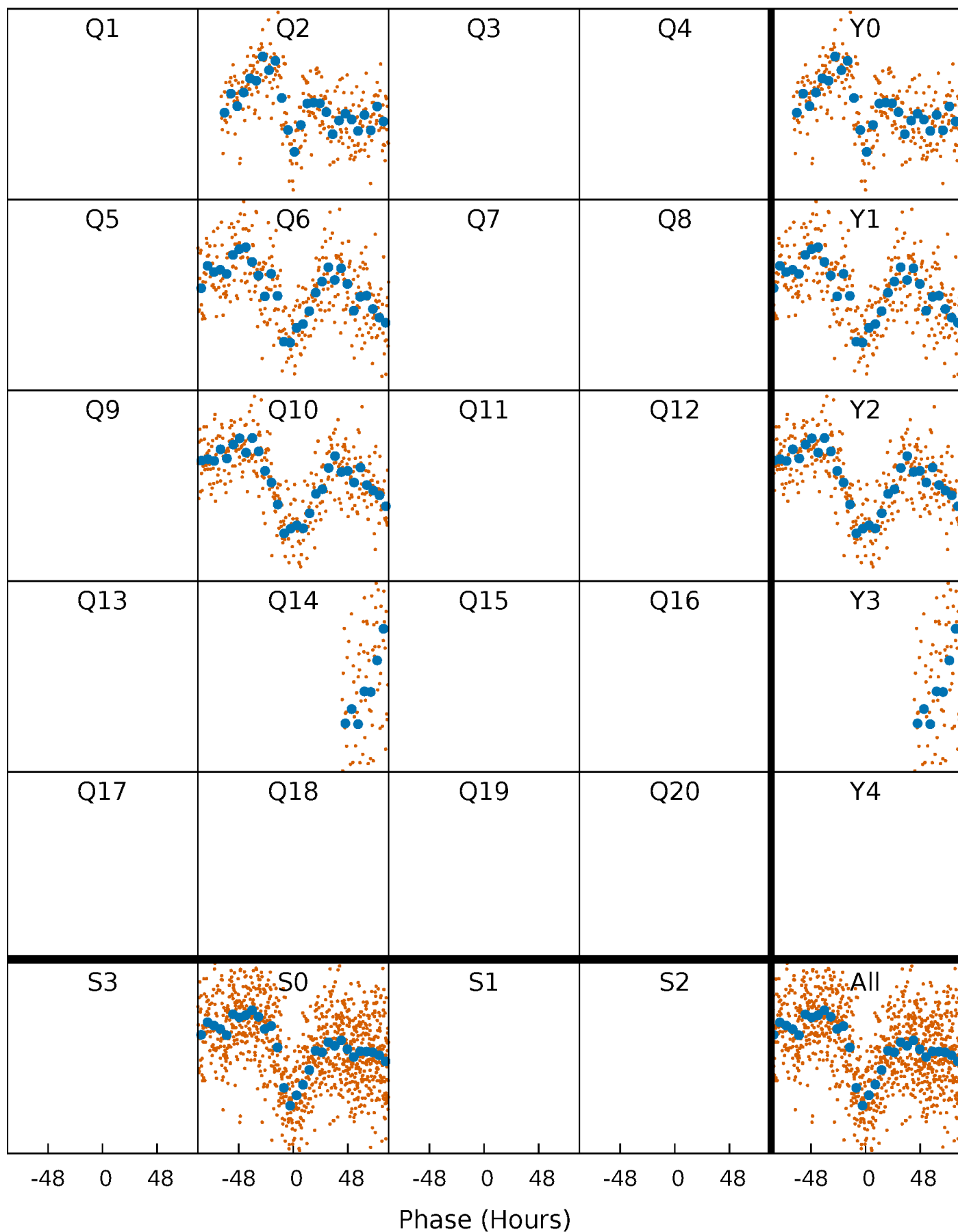


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

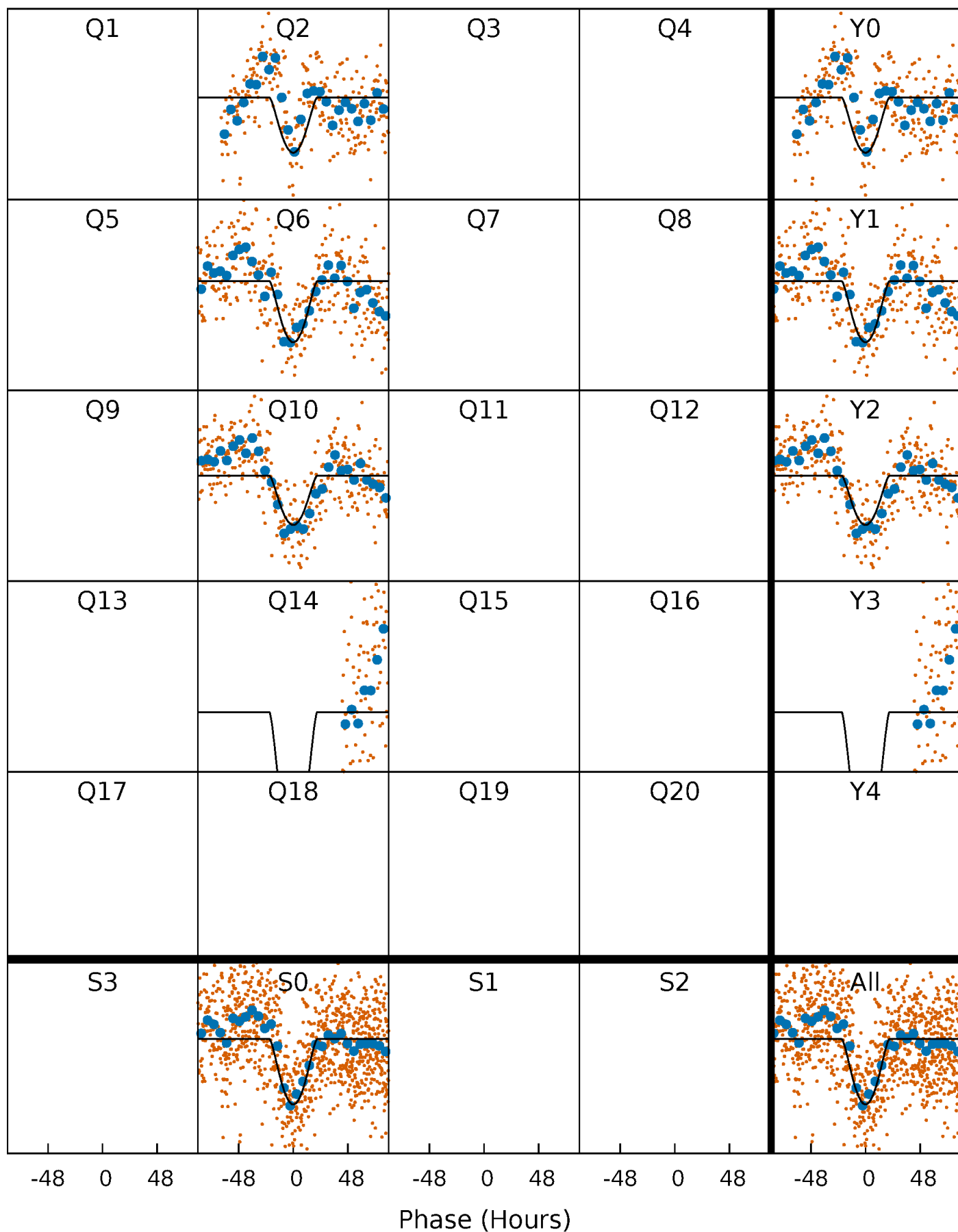
TCE 008746656-01 P=374.072077 Days  $T_0=172.404507$  (BKJD)





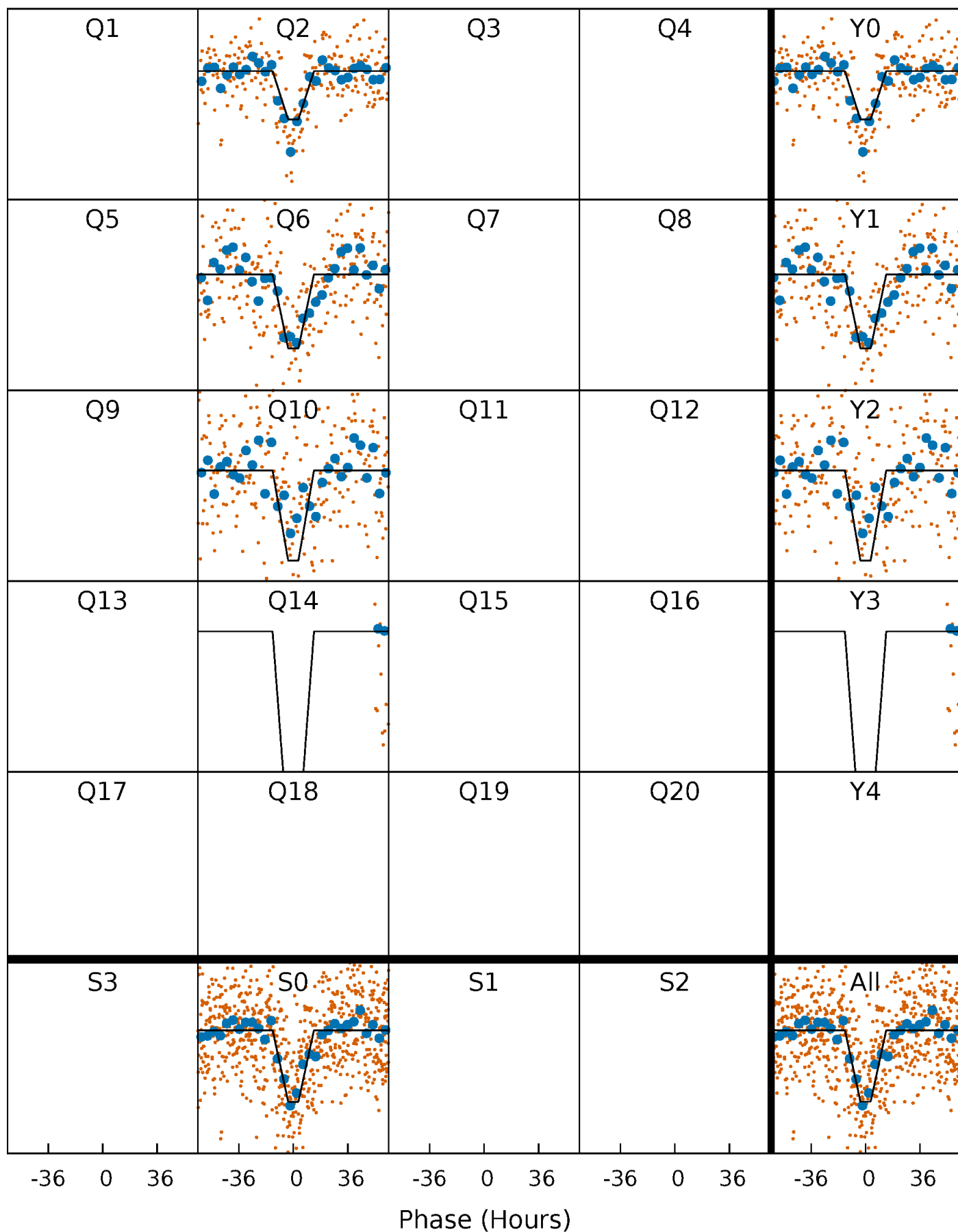
# DV Quarter-Phased Transit Curves

TCE 008746656-01 P=374.072077 Days  $T_0=172.404507$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

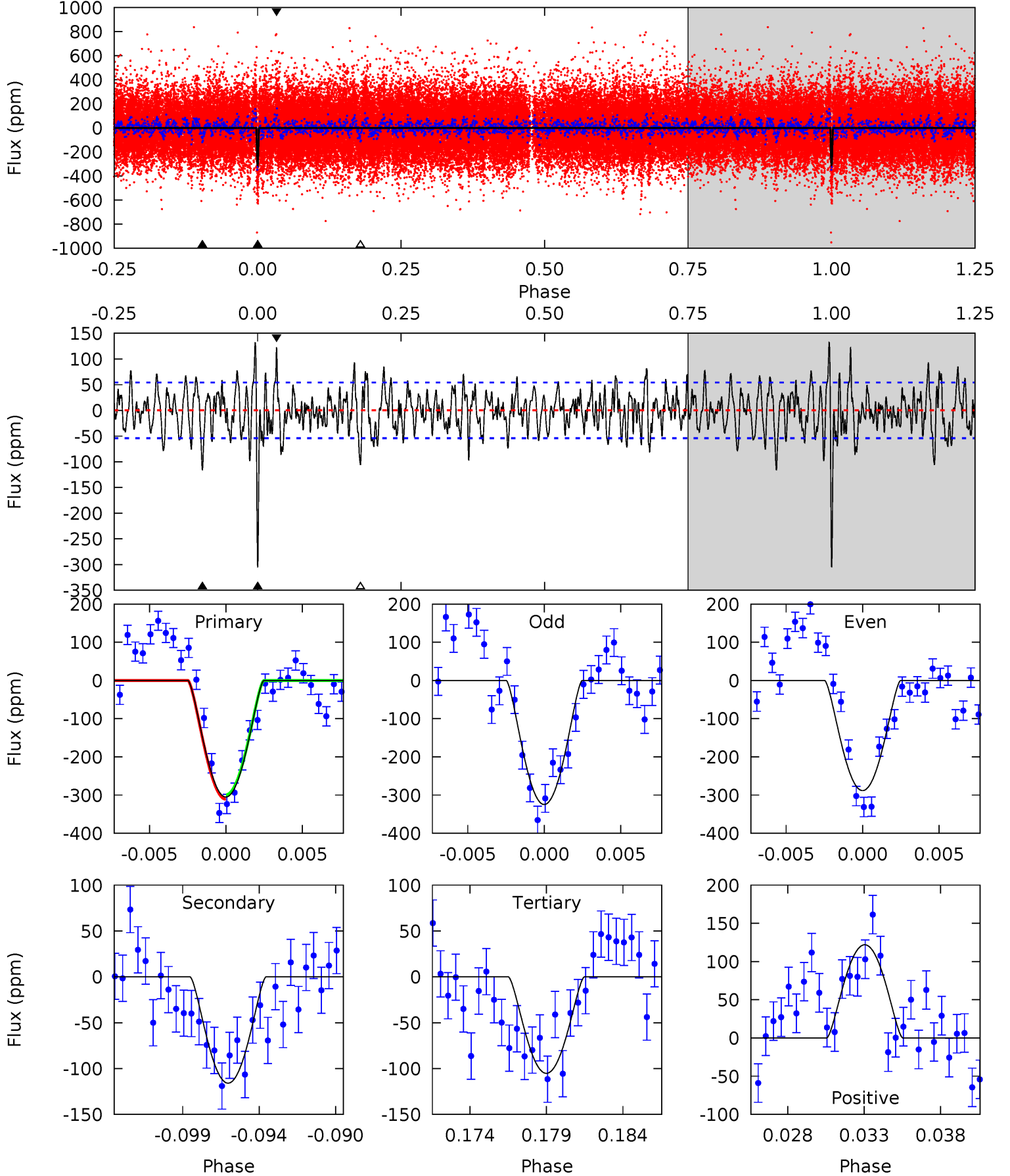
TCE 008746656-01 P=373.906903 Days  $T_0=172.440089$  (BKJD)



# DV Model-Shift Uniqueness Test

008746656-01, P = 374.072077 Days, E = 172.404507 Days

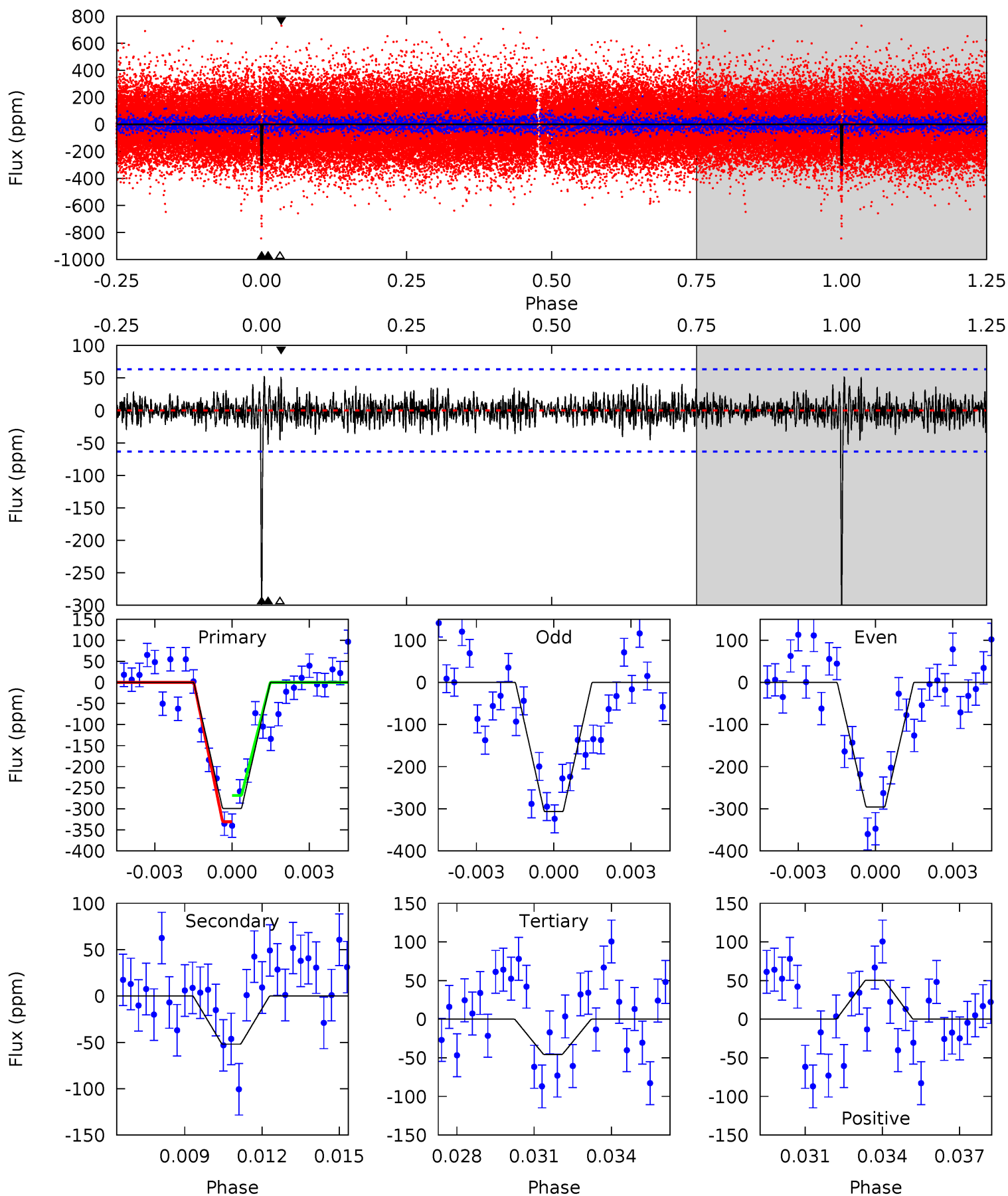
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.1	11.1	10.0	11.6	5.17	2.83	3.22	19.1	17.5	1.02	-0.57	1.63	0.94	0.30	0.56



# Alt Model-Shift Uniqueness Test

008746656-01, P = 373.906903 Days, E = 172.440089 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
24.8	4.29	3.77	4.16	5.25	2.96	1.09	21.0	20.6	0.52	0.13	0.42	0.98	0.15	2.57



### Stellar Parameters For KIC 008746656

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6088^{+218}_{-218}$	$3.812^{+0.578}_{-0.136}$	$-0.340^{+0.300}_{-0.300}$	$2.232^{+0.499}_{-1.165}$	$1.179^{+0.184}_{-0.277}$	$0.149^{+0.952}_{-0.059}$
	+4%/-4%	+15%/-4%	+88%/-88%	+22%/-52%	+16%/-23%	+637%/-40%
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 008746656-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-116 \pm 10$	$12.35^{+13.03}_{-8.67}$	$524^{+45}_{-72}$	$3244^{+1498}_{-564}$	$501^{+4788}_{-388}$
Alt.	$-52 \pm 12$	$10.24^{+12.53}_{-7.10}$	$525^{+46}_{-75}$	$3005^{+1367}_{-512}$	$305^{+2789}_{-240}$

$T_{max}$  = 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

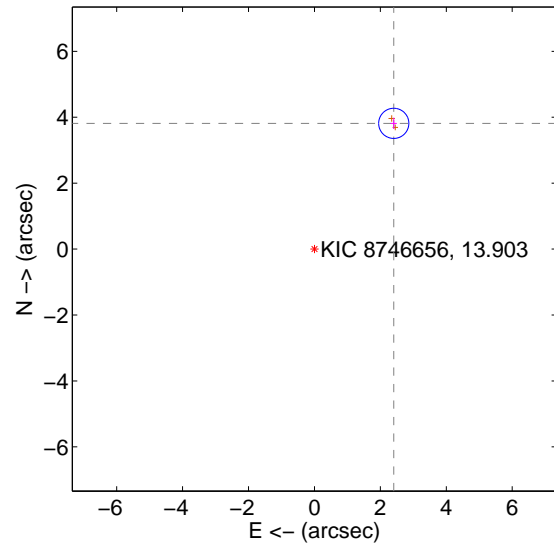
Supplemental centroid analysis for 008746656-01. Kepler magnitude: 13.90. Transit SNR 10.26

There are 0 quarters with good PRF difference image offsets

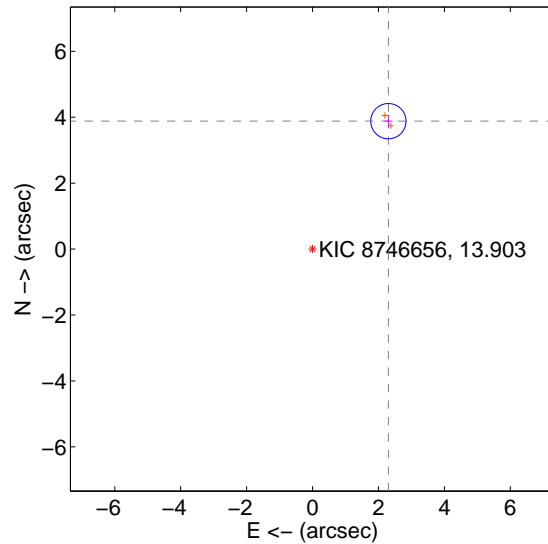
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.511 \pm 0.153$	29.56	$-2.406 \pm 0.092$	$3.815 \pm 0.171$
PRF-fit source offset from KIC position	$4.512 \pm 0.178$	25.30	$-2.301 \pm 0.123$	$3.881 \pm 0.194$
photometric centroid source offset	$0.91 \pm 1.74$	0.52	$-0.75 \pm 1.94$	$0.52 \pm 1.22$

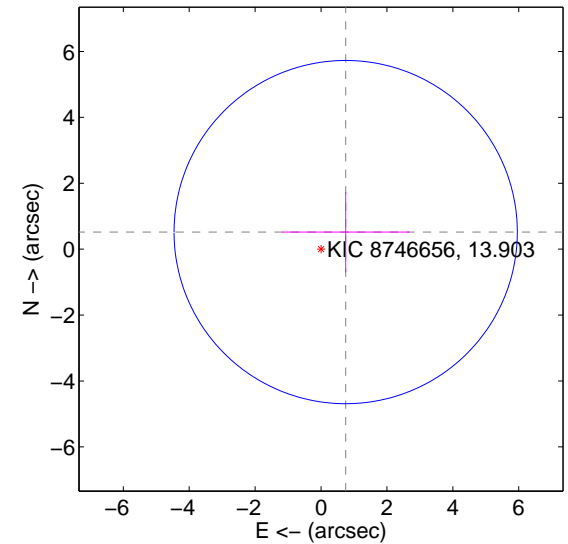
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



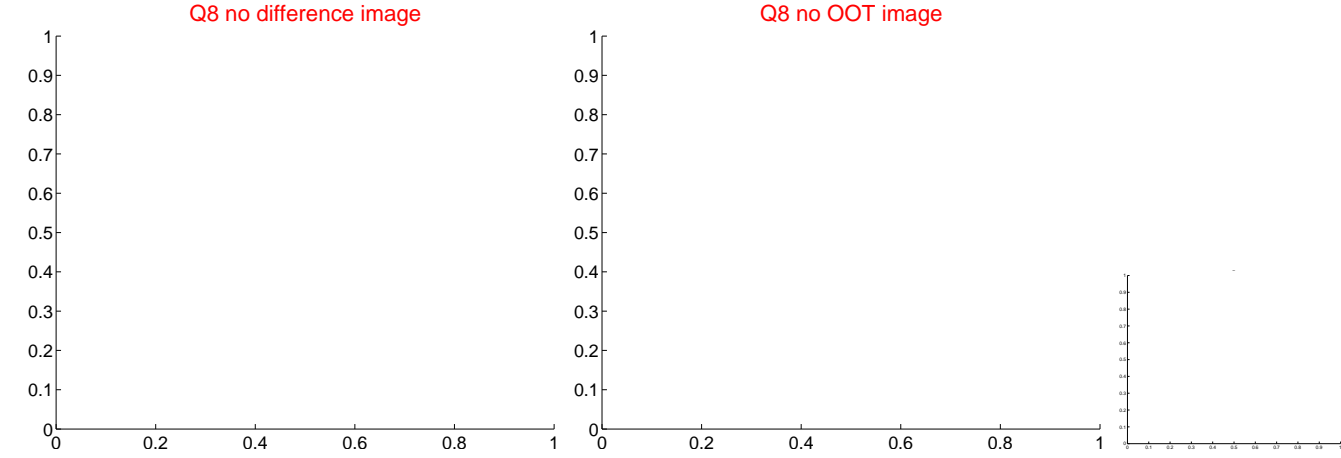
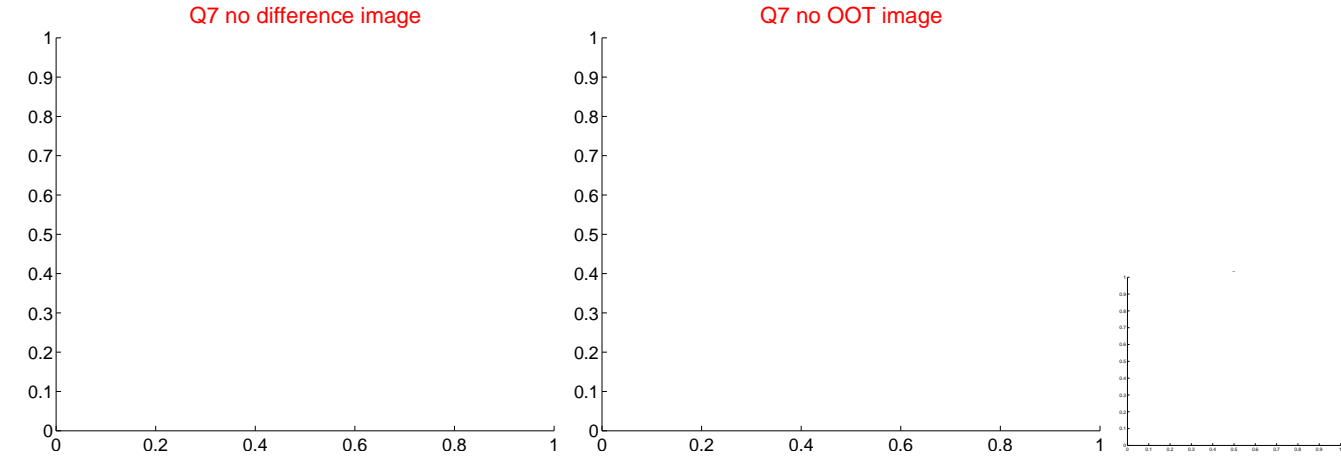
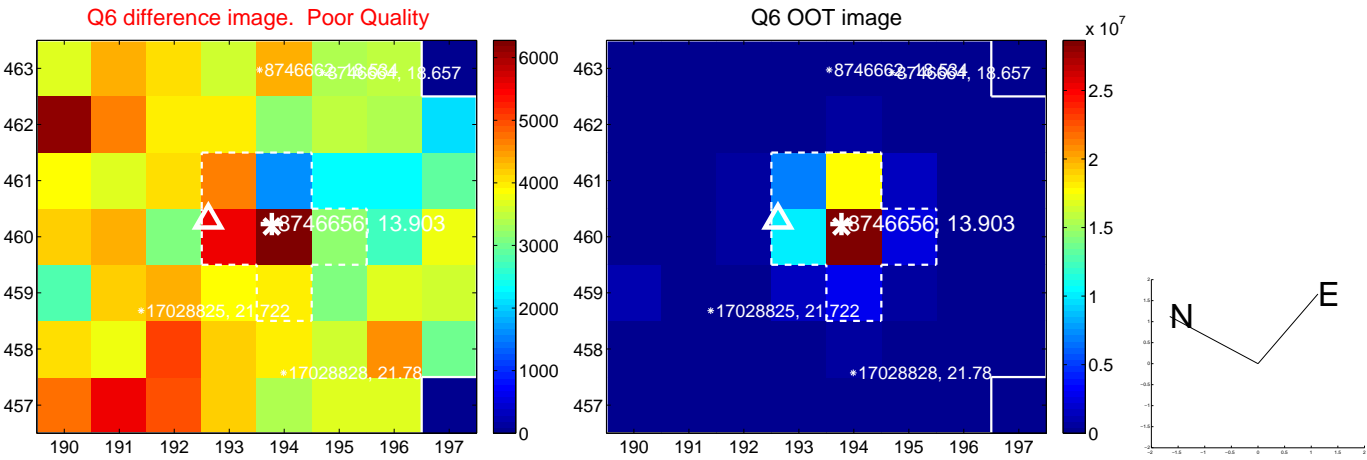
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



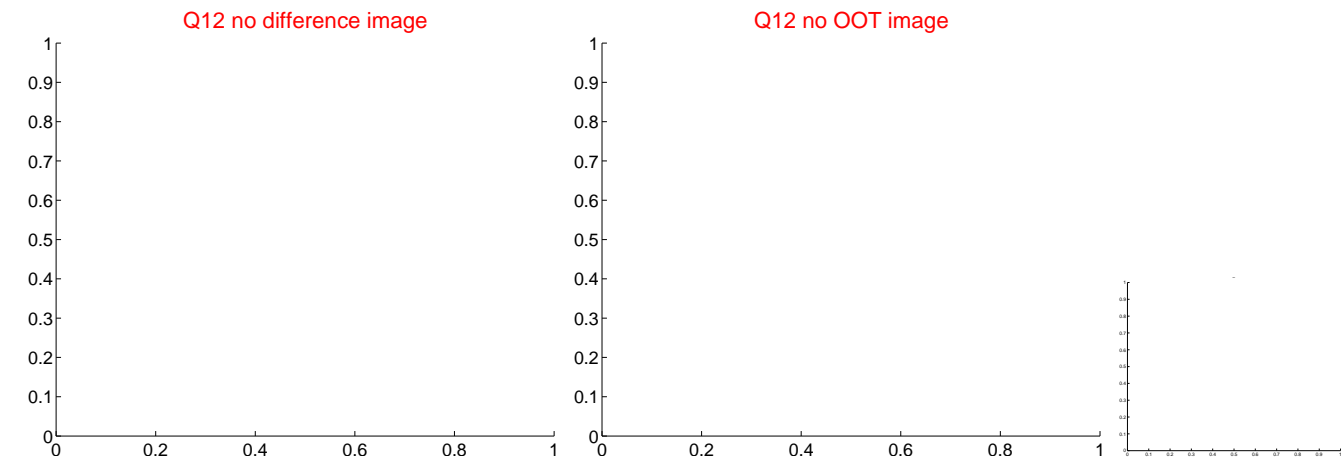
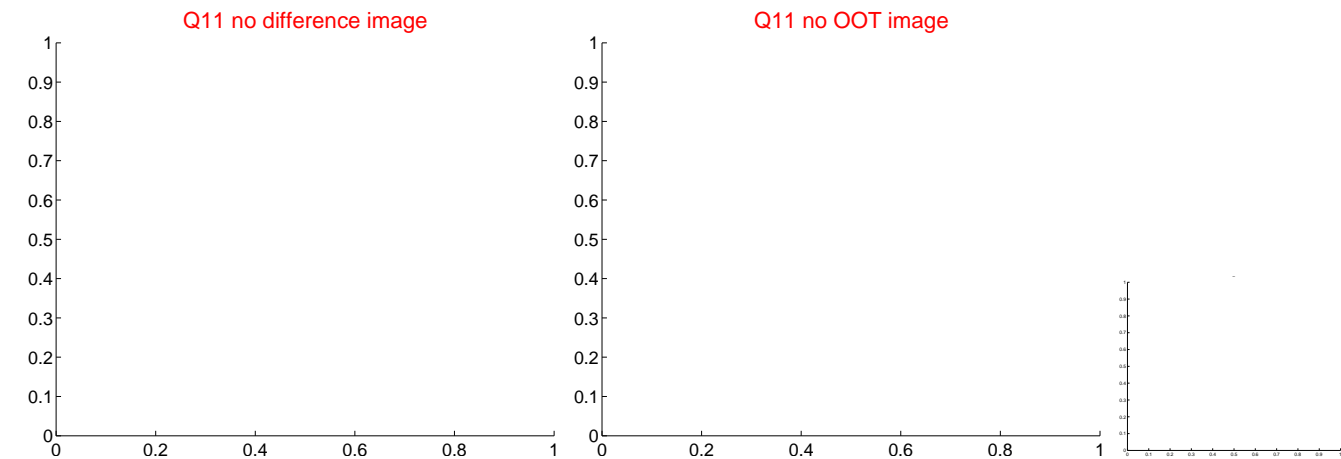
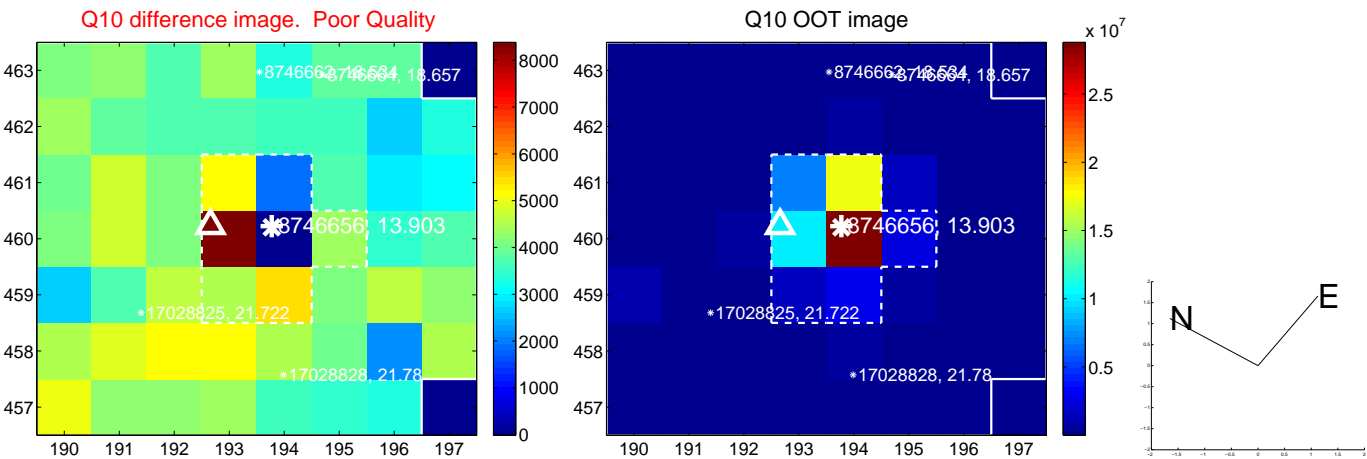
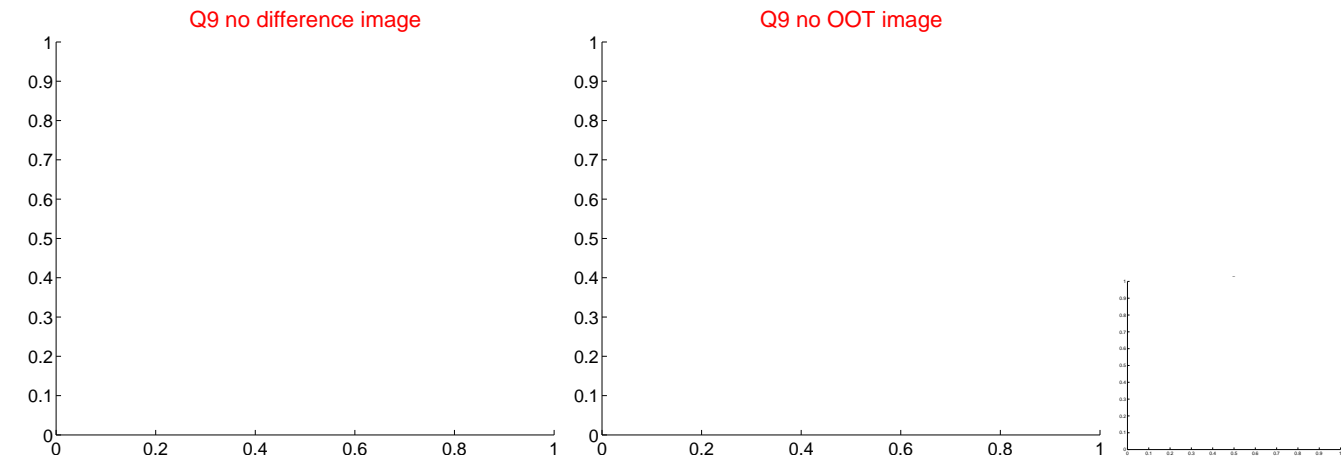
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



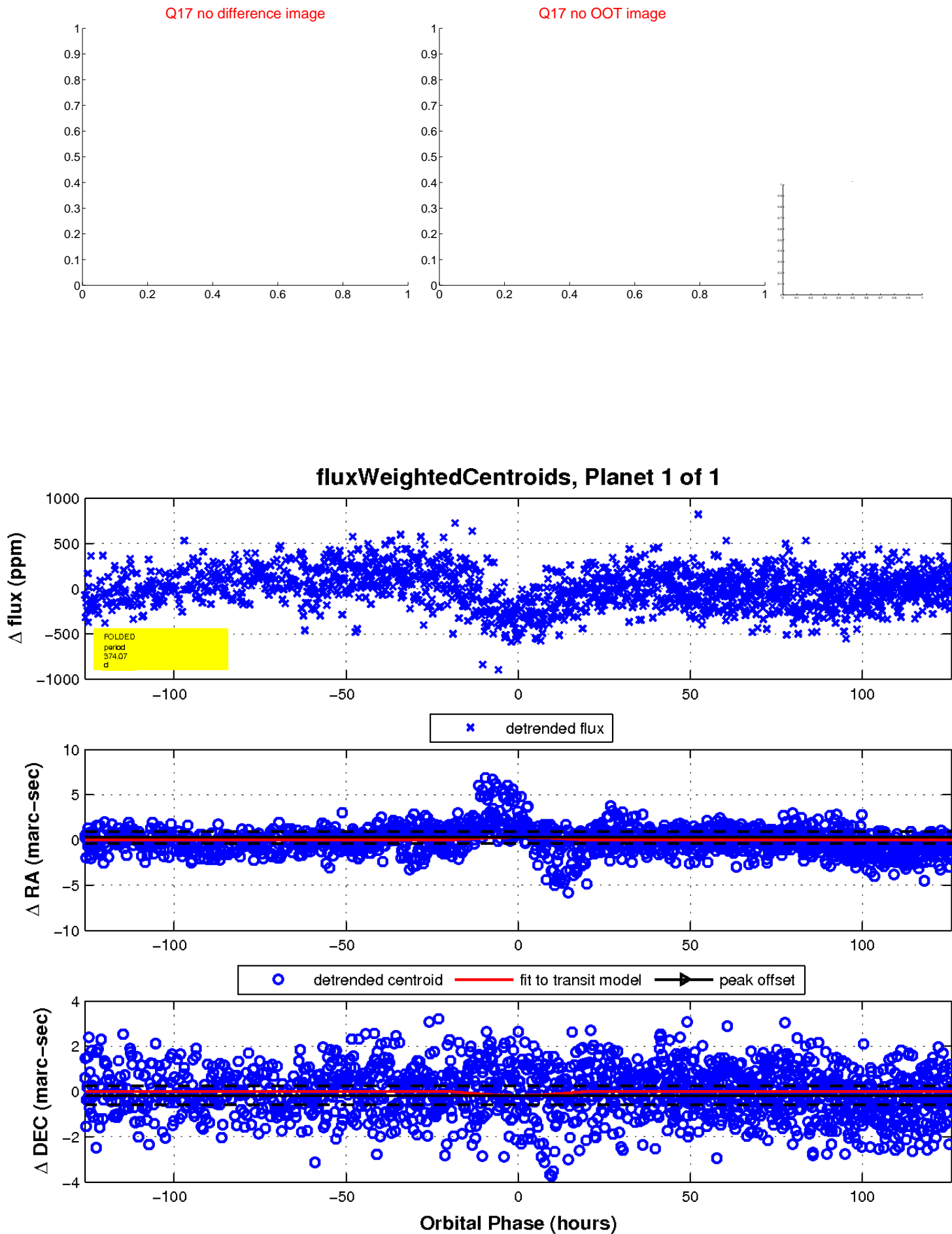
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

