

# KIC 008491437

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008491437-01	OBS	No	373.963464	171.736454	266.5	26.695	8.1	8.2	0.94	6406	1.59	1.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008491437-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE—LPP_DV—ALL_TRANS_CHASES—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.

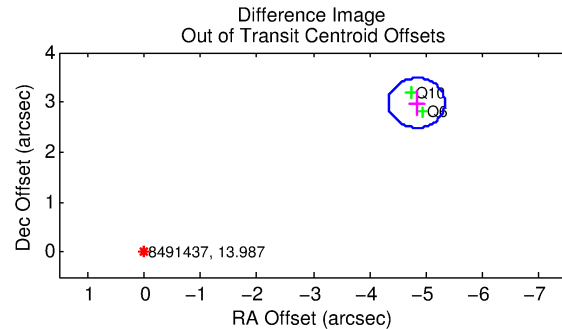
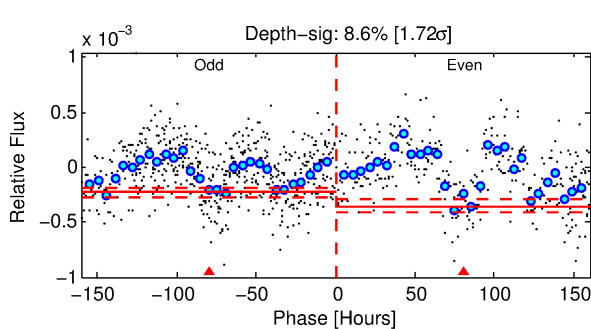
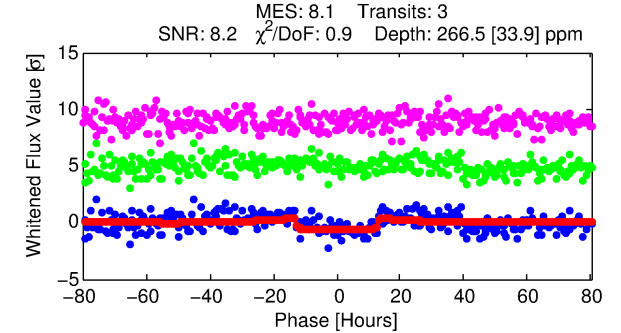
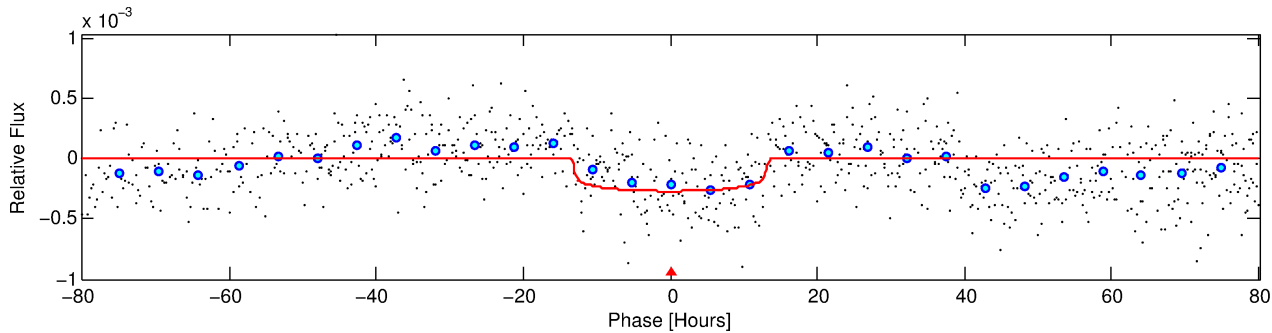
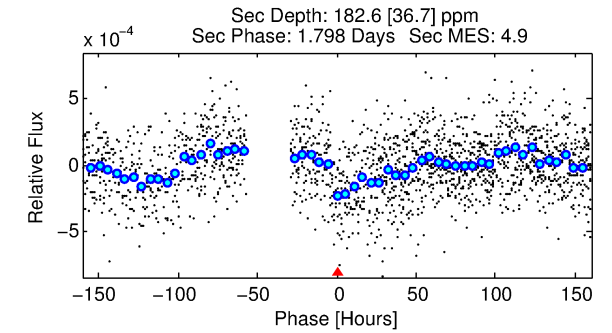
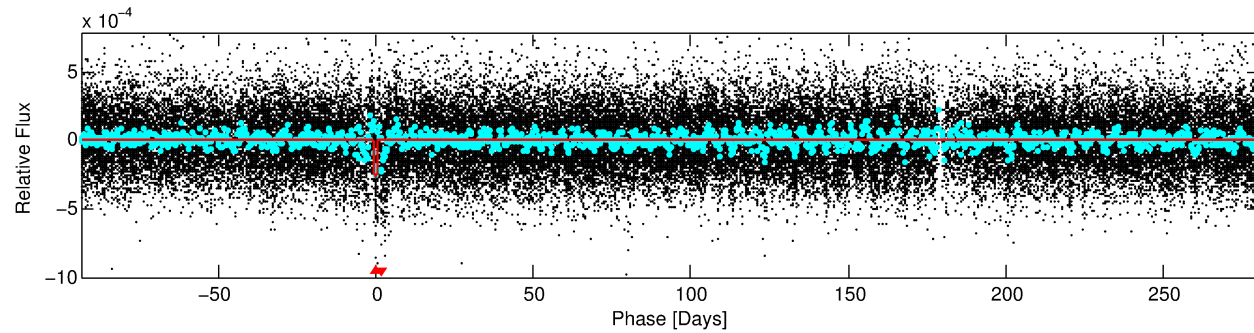
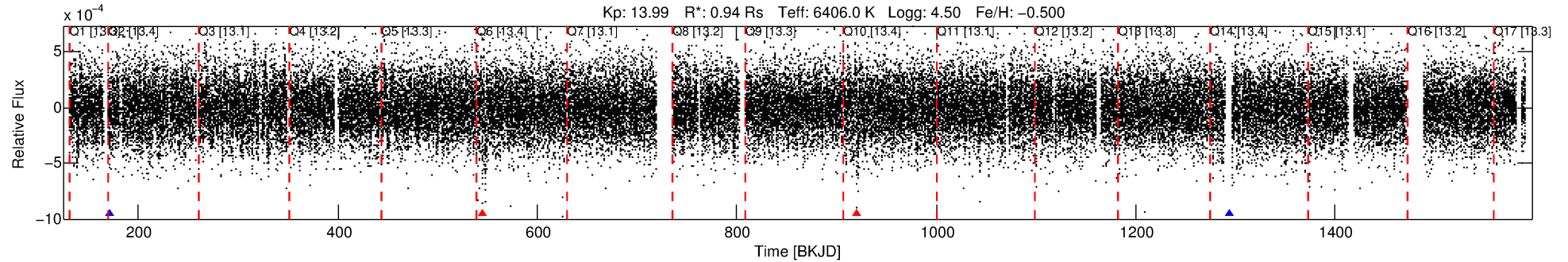
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008491437-01

No Significant Match Found

# DV One-Page Summary

KIC: 8491437 Candidate: 1 of 1 Period: 373.963 d



## DV Fit Results:

Period = 373.96346 [0.01573] d  
Epoch = 171.7365 [0.0194] BKJD  
Rp/R\* = 0.0155 [0.0053]  
a/R\* = 94.07 [170.76]  
b = 0.51 [2.65]  
Seff = 1.27 [0.51]  
Teq = 271 [27] K  
Rp = 1.59 [0.73] Re  
a = 1.0241 [0.2668] AU  
Ag = 41850.78 [33989.05] [1.23σ]  
Teffp = 5988 [1086] K [5.26σ]

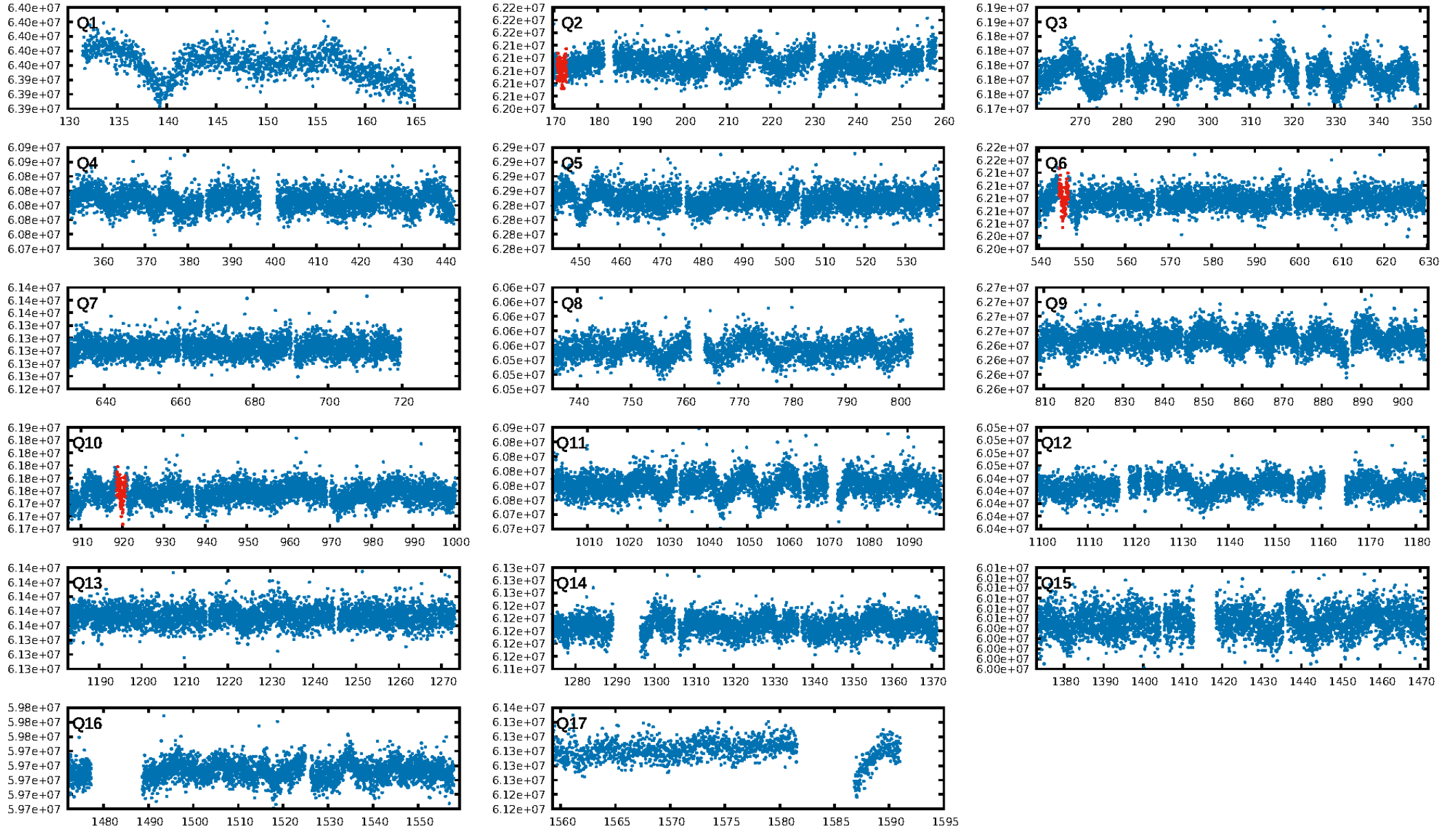
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 23.7%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 5.07e-14  
RollingBand-figt: 0.33 [1/3]  
GhostDiagnostic-chr: 1.037  
Centroid-sig: 2.5%  
Centroid-so: 4.150 arcsec [2.27σ]  
OotOffset-rm: 5.678 arcsec [34.28σ]  
KicOffset-rm: 5.638 arcsec [32.24σ]  
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]

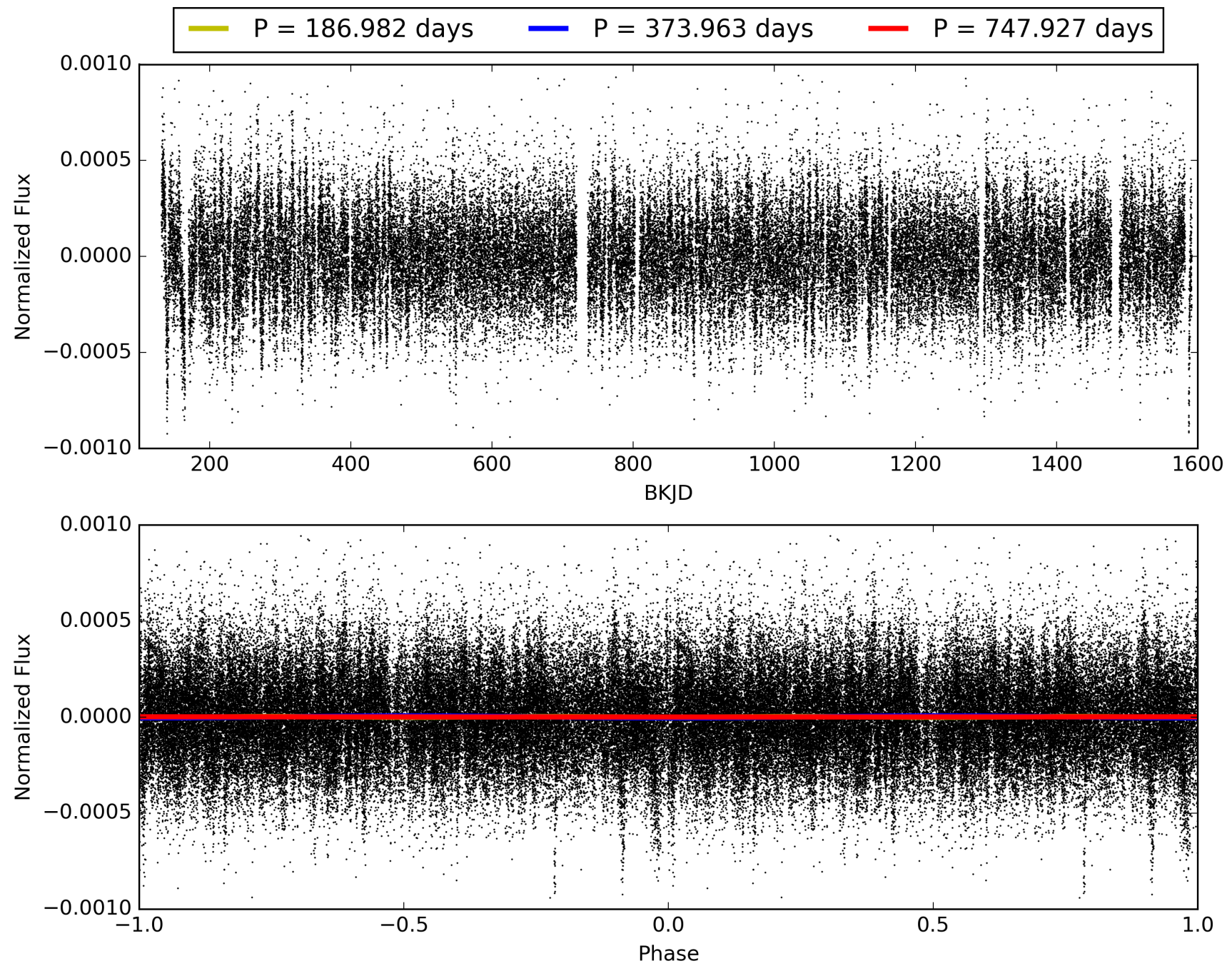
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:37:16 Z

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

# TCE 008491437-01, PDC Light Curves

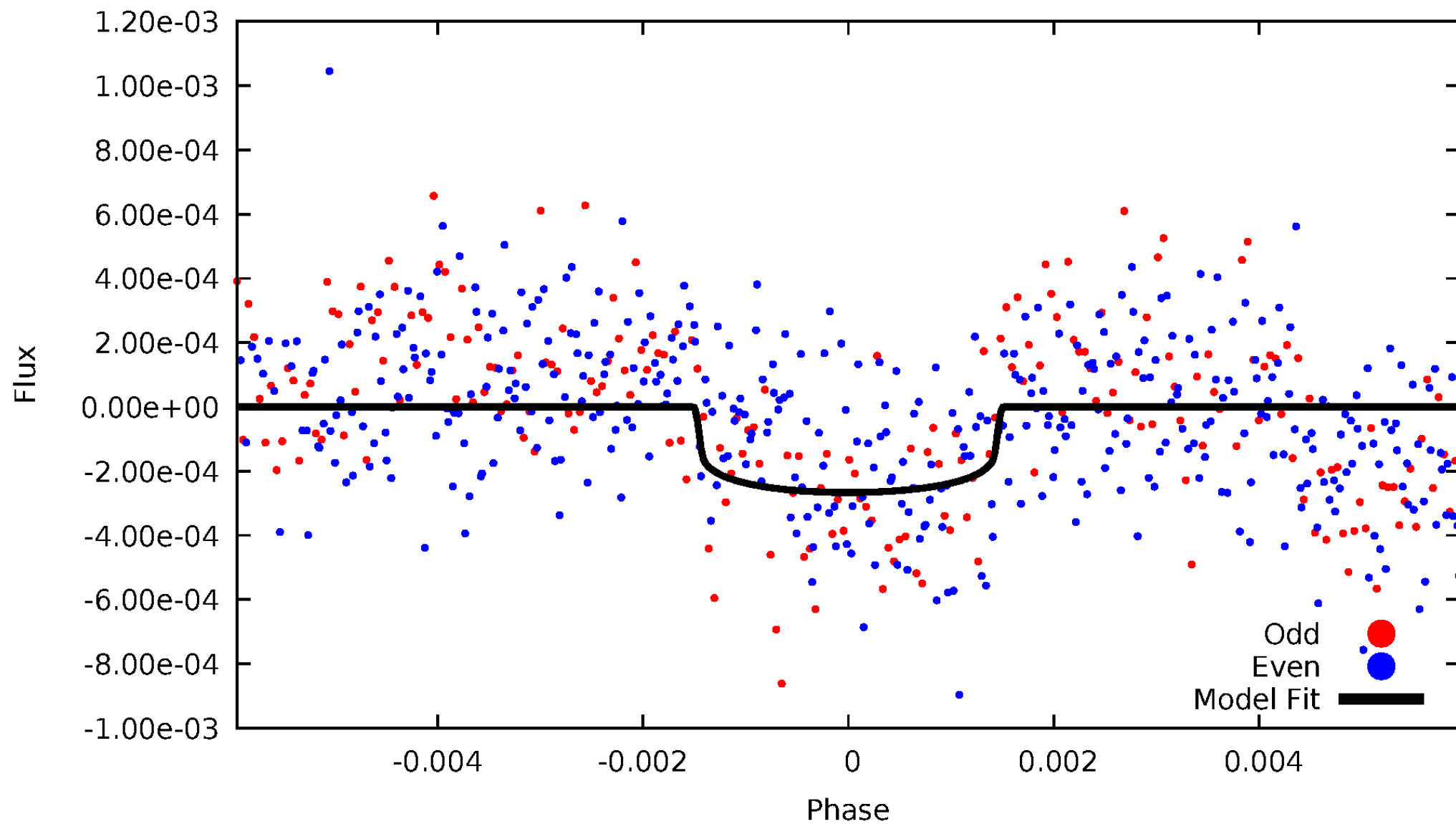


TCE 008491437-01



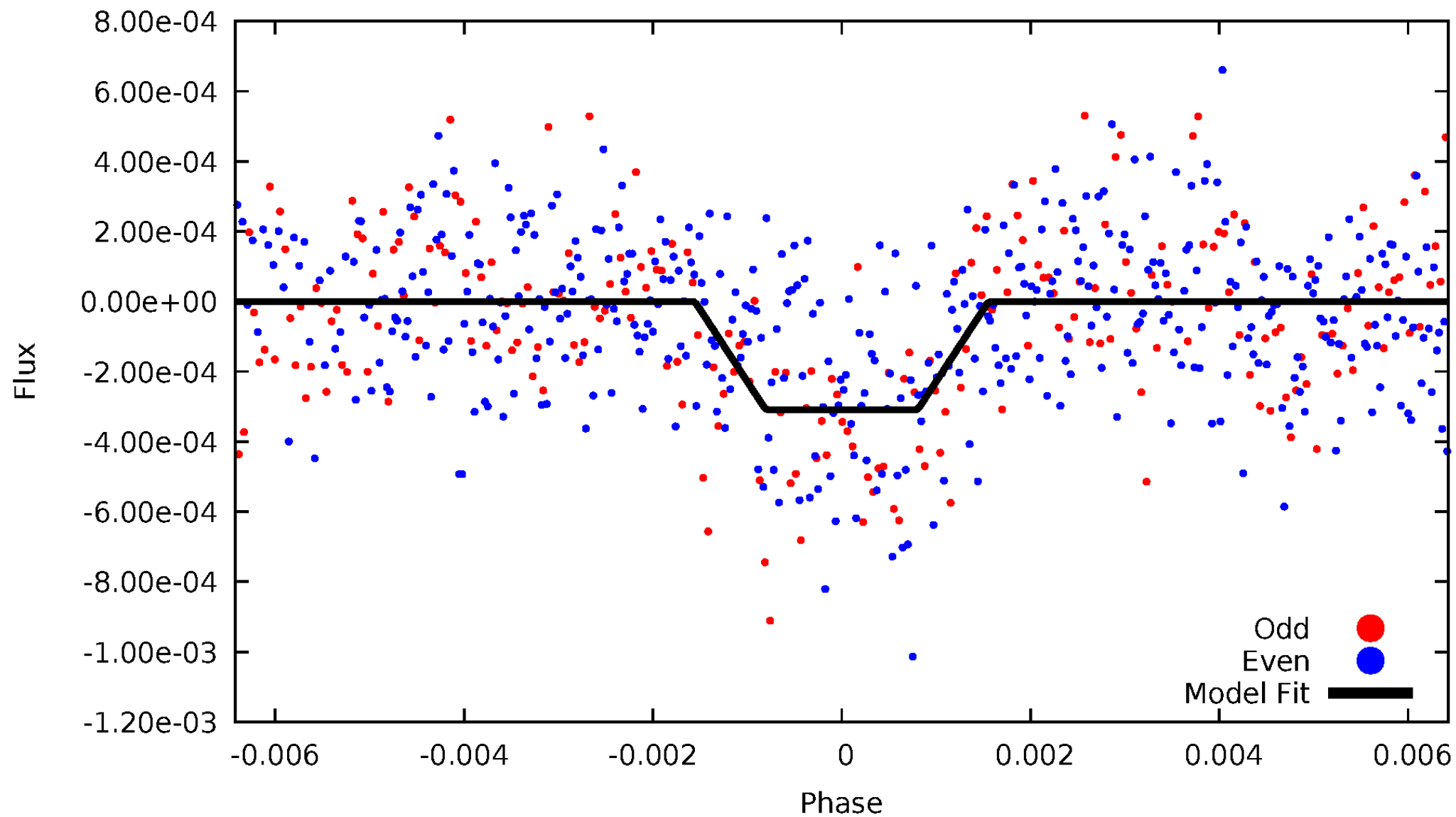
# DV Odd/Even

TCE 008491437-01



# ALT Odd/Even

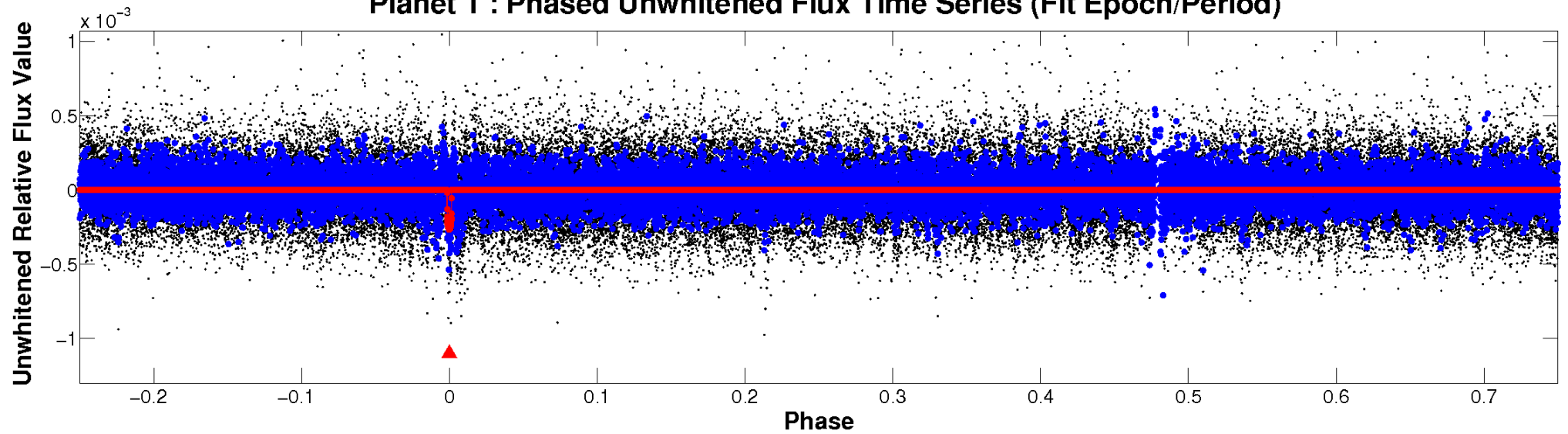
TCE 008491437-01



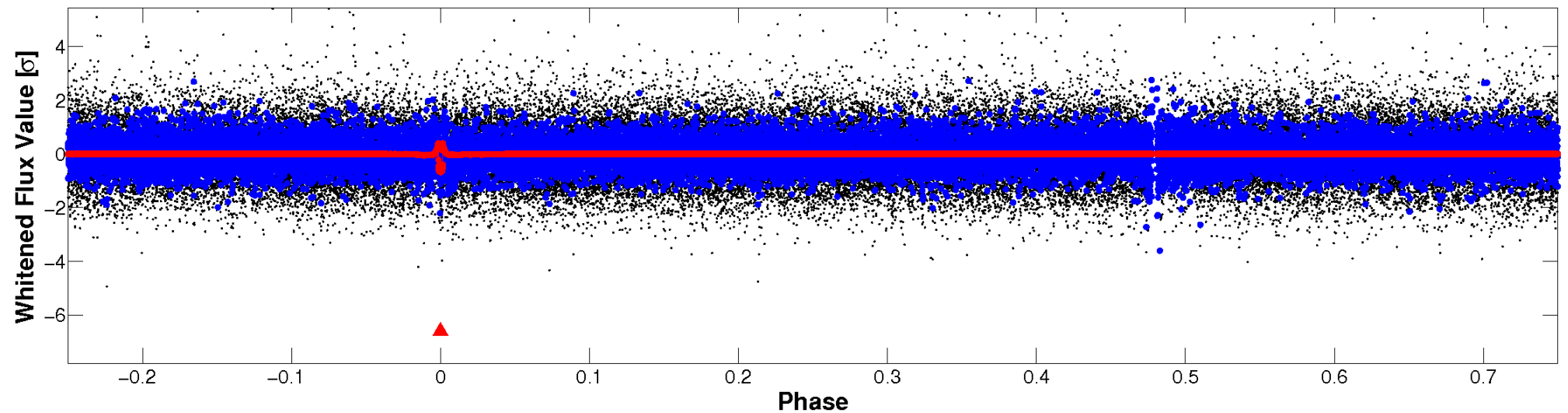


# Non-Whitened Vs. Whitened Light Curve

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

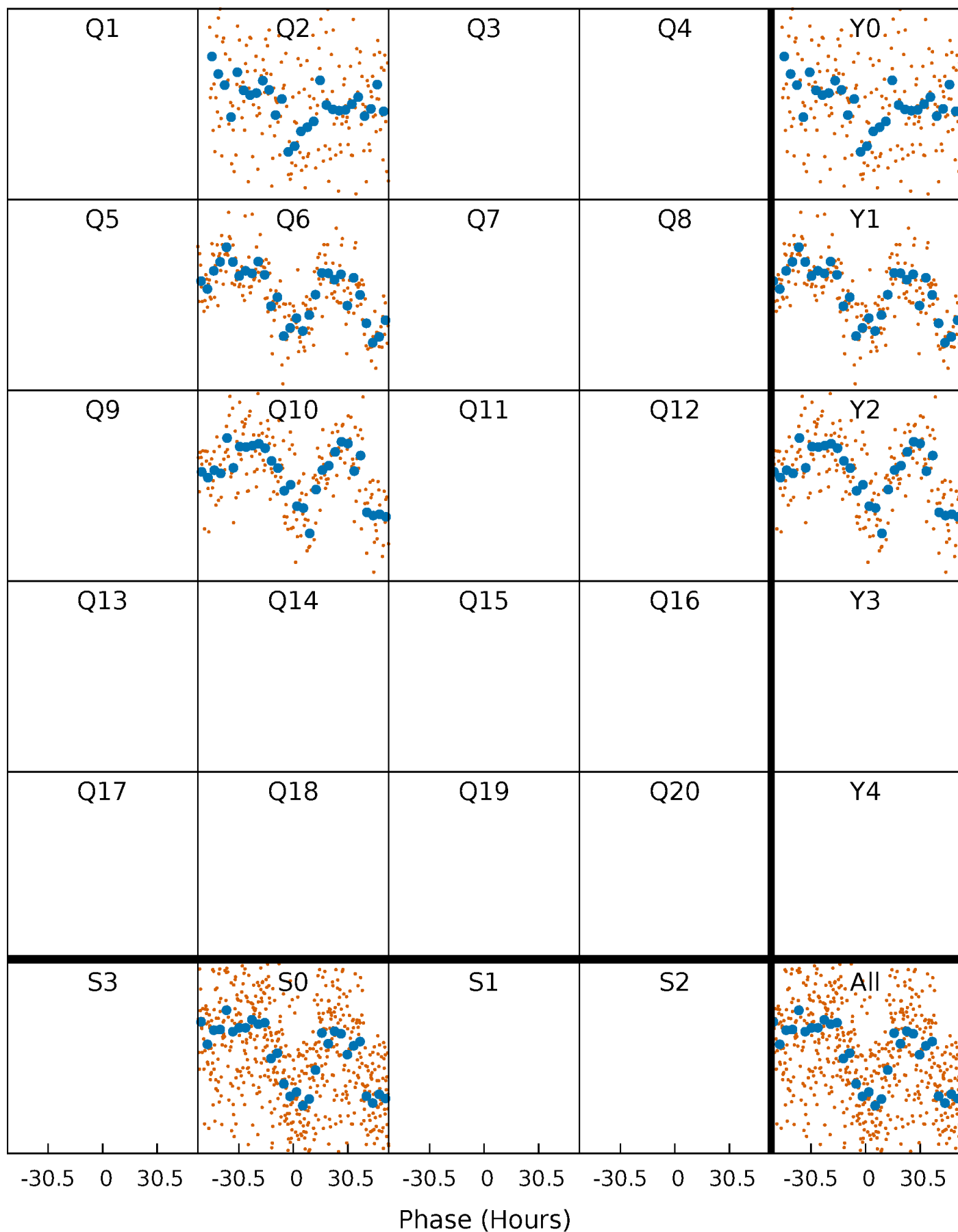


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

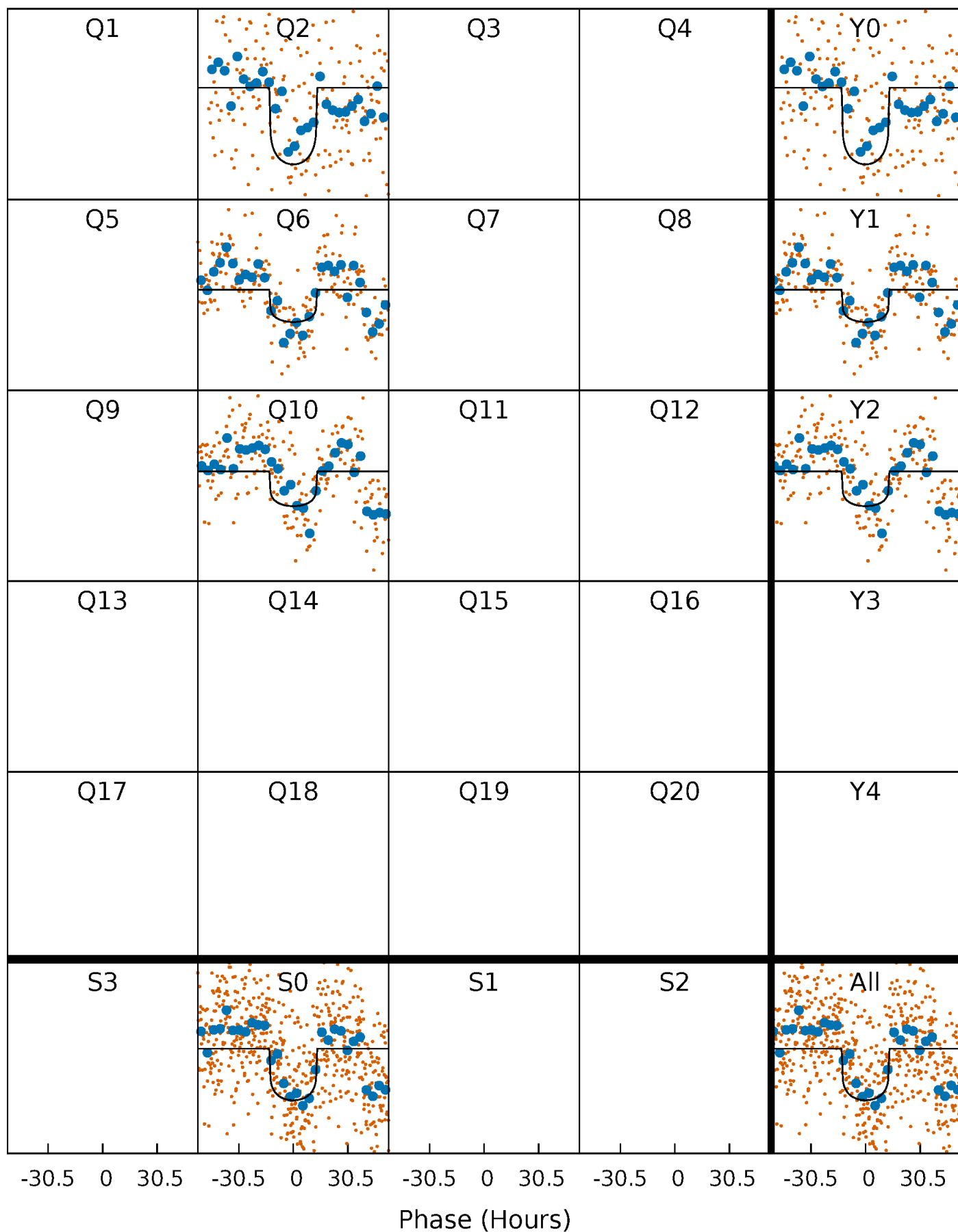
TCE 008491437-01 P=373.963464 Days  $T_0=171.736454$  (BKJD)





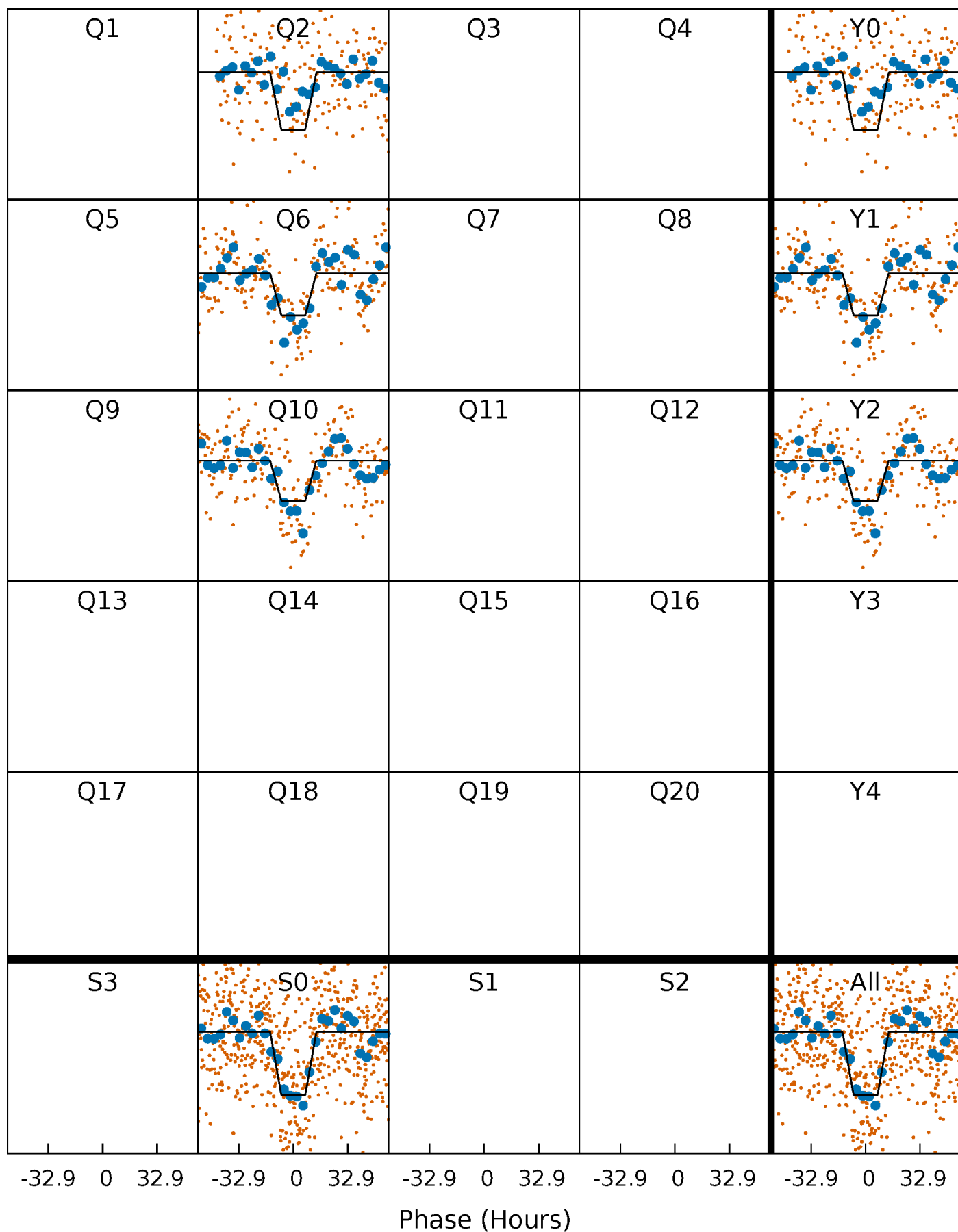
# DV Quarter-Phased Transit Curves

TCE 008491437-01 P=373.963464 Days  $T_0=171.736454$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

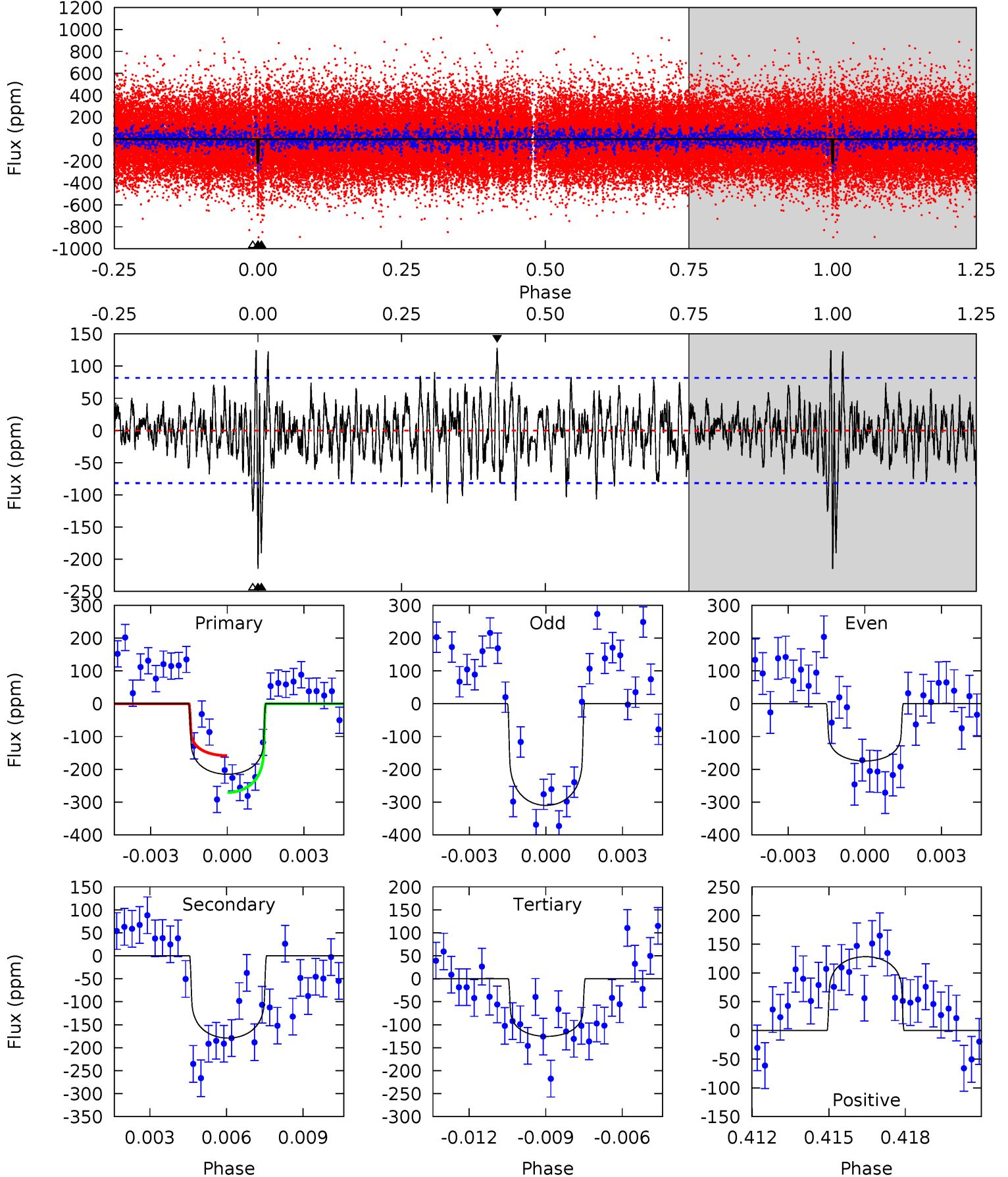
TCE 008491437-01 P=374.043127 Days  $T_0=171.698371$  (BKJD)



# DV Model-Shift Uniqueness Test

008491437-01, P = 373.963464 Days, E = 171.736454 Days

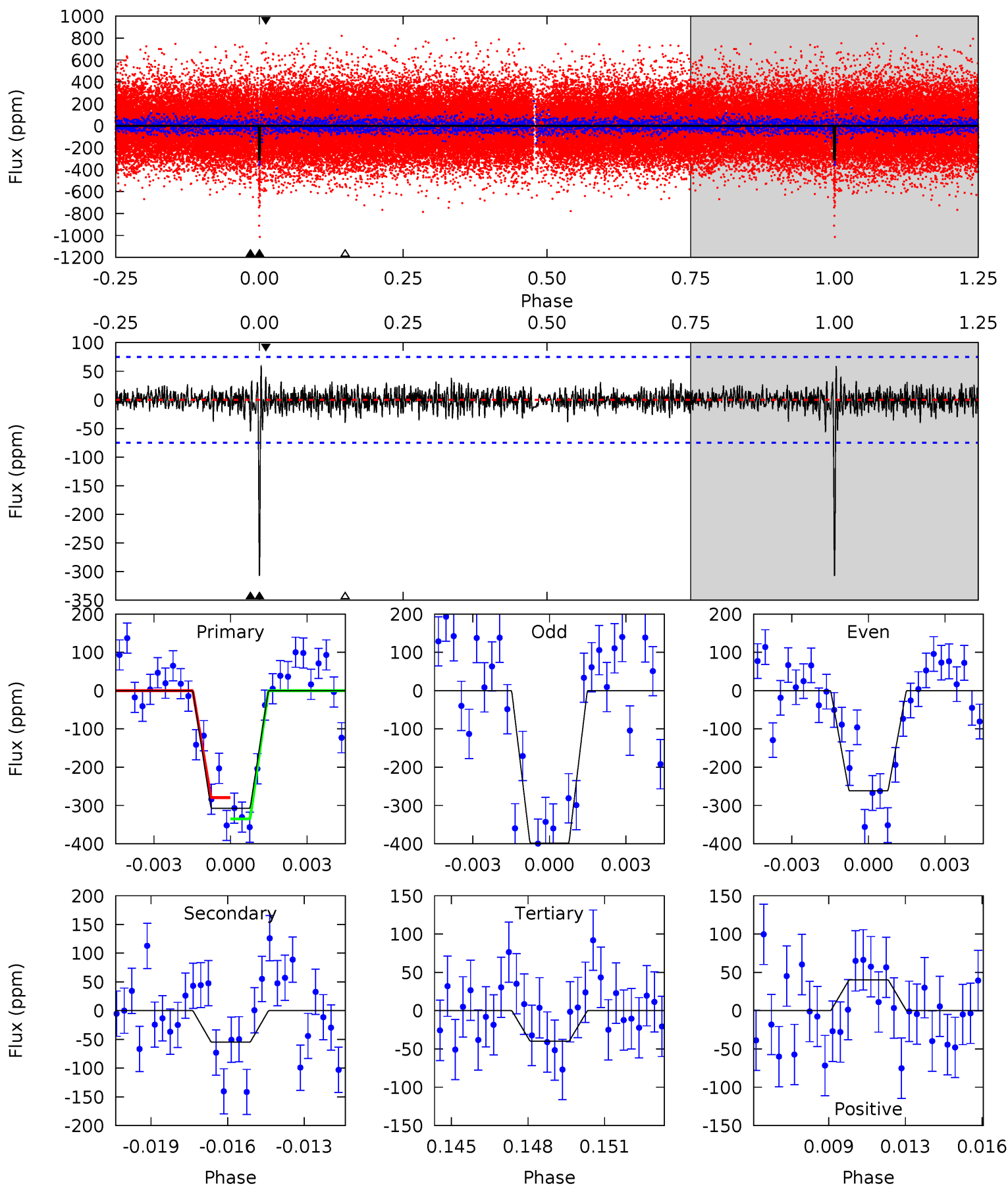
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	11.5	8.06	8.26	5.25	2.97	2.21	5.76	5.57	3.45	3.26	4.14	1.06	0.37	3.61



# Alt Model-Shift Uniqueness Test

008491437-01, P = 374.043127 Days, E = 171.698371 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
21.5	3.83	2.78	2.81	5.24	2.95	0.83	18.7	18.6	1.05	1.02	4.48	0.77	0.16	1.94



### Stellar Parameters For KIC 008491437

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6406^{+154}_{-192}$	$4.502^{+0.050}_{-0.213}$	$-0.500^{+0.300}_{-0.300}$	$0.940^{+0.286}_{-0.095}$	$1.024^{+0.121}_{-0.133}$	$1.736^{+0.347}_{-0.893}$
	+2%/-3%	+1%/-5%	+60%/-60%	+30%/-10%	+12%/-13%	+20%/-51%
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 008491437-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-179 \pm 16$	$1.66^{+0.61}_{-0.60}$	$385^{+27}_{-15}$	$5953^{+1622}_{-758}$	$36397^{+54861}_{-16738}$
Alt.	$-55 \pm 14$	$1.85^{+0.64}_{-0.59}$	$386^{+28}_{-18}$	$4392^{+702}_{-518}$	$8688^{+10084}_{-4382}$

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

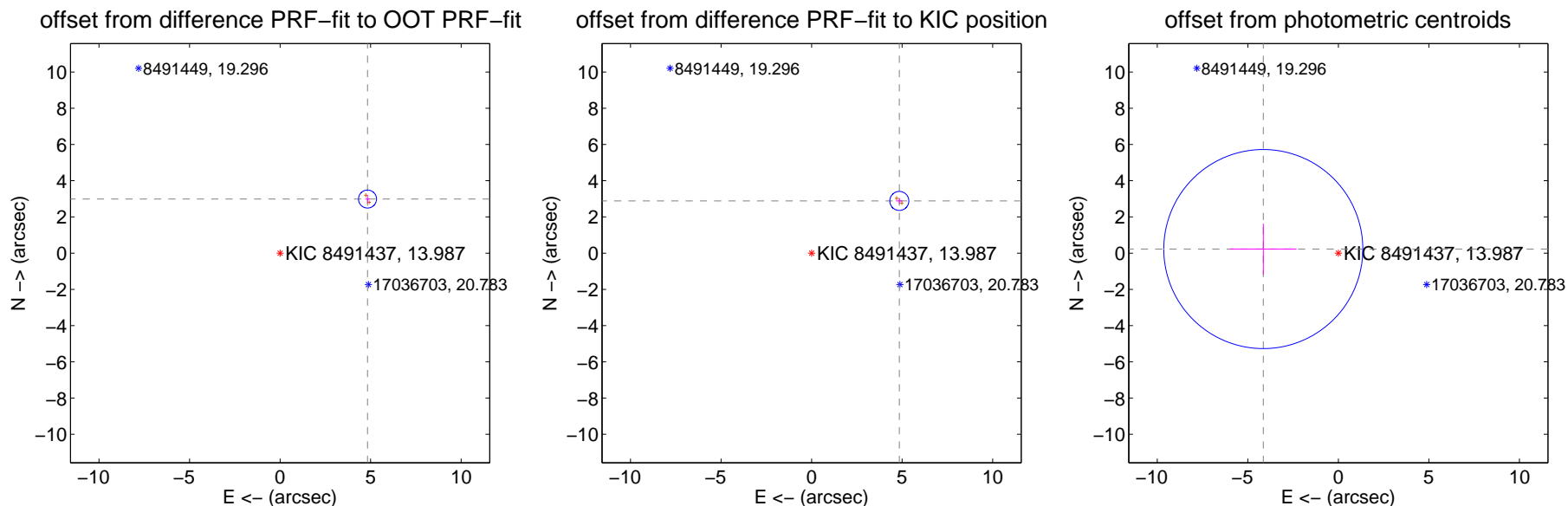
## DV Centroid Data

Supplemental centroid analysis for 008491437-01. Kepler magnitude: 13.99. Transit SNR 8.24

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.678 \pm 0.166$	34.28	$-4.829 \pm 0.128$	$2.987 \pm 0.238$
PRF-fit source offset from KIC position	$5.638 \pm 0.175$	32.24	$-4.844 \pm 0.178$	$2.884 \pm 0.166$
photometric centroid source offset	$4.15 \pm 1.83$	2.27	$4.14 \pm 1.83$	$0.23 \pm 1.40$



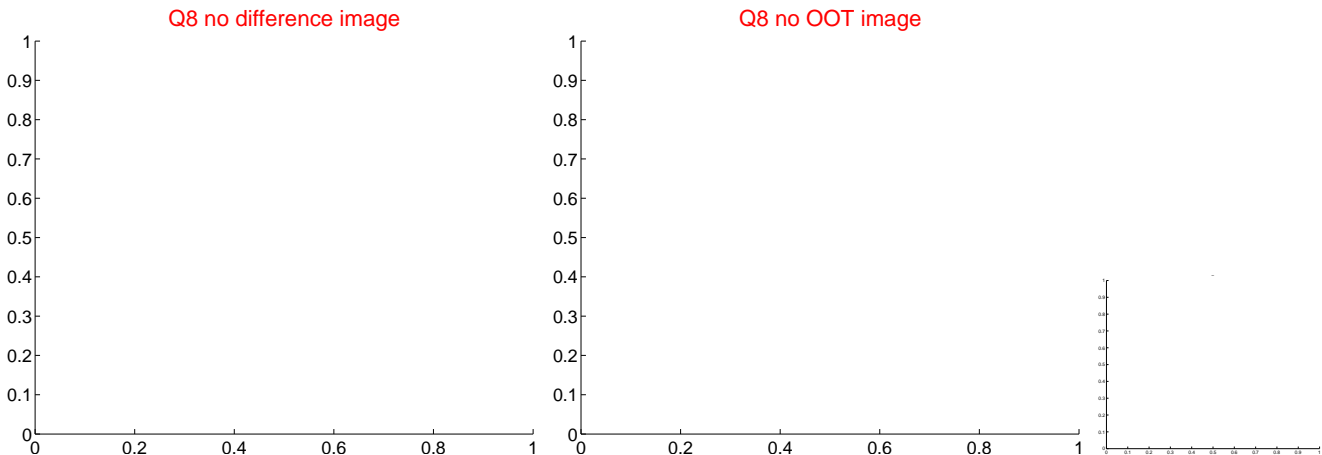
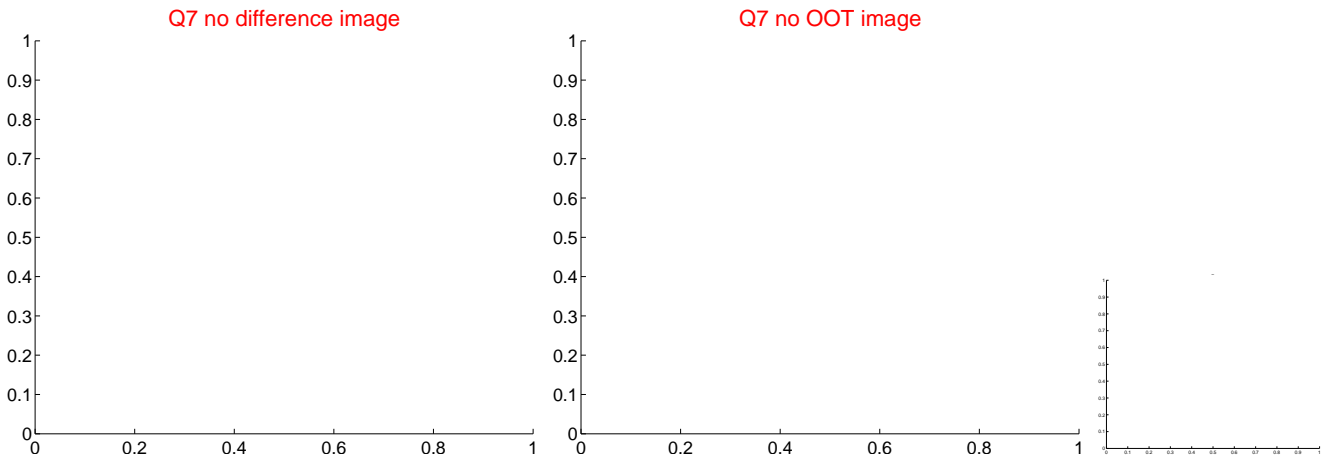
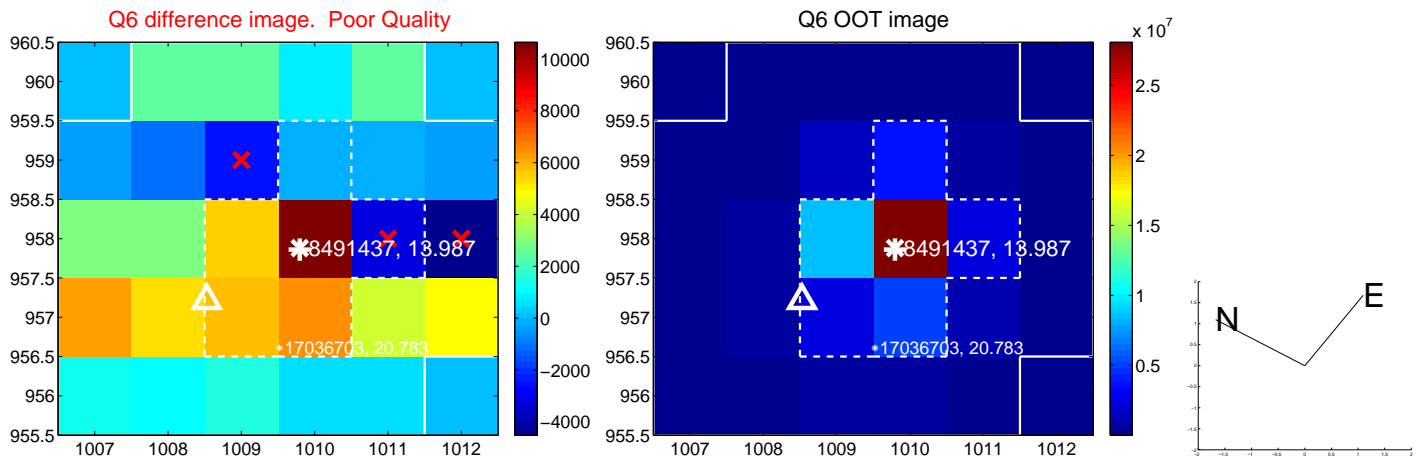
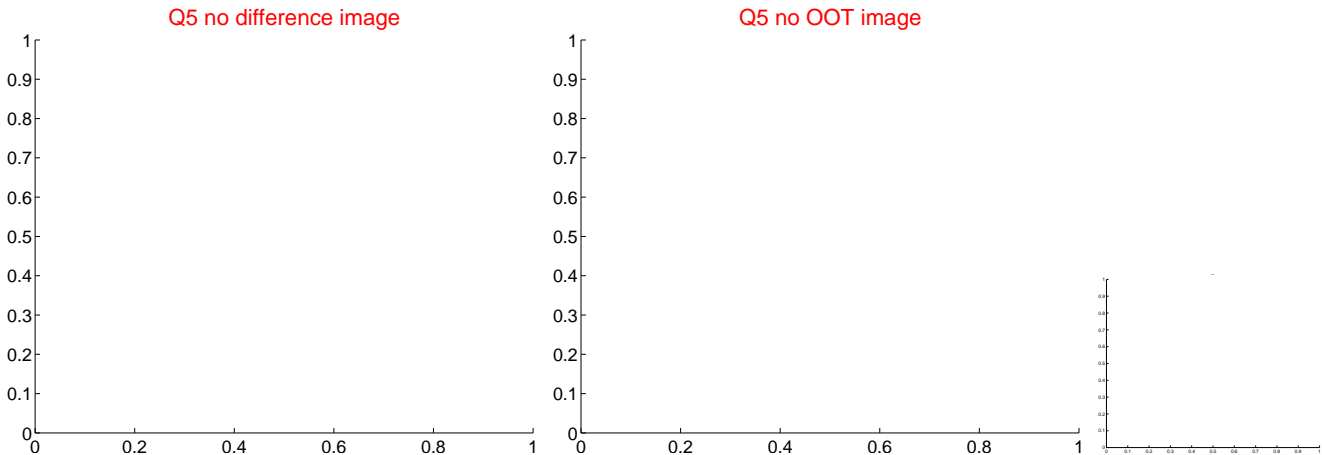
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



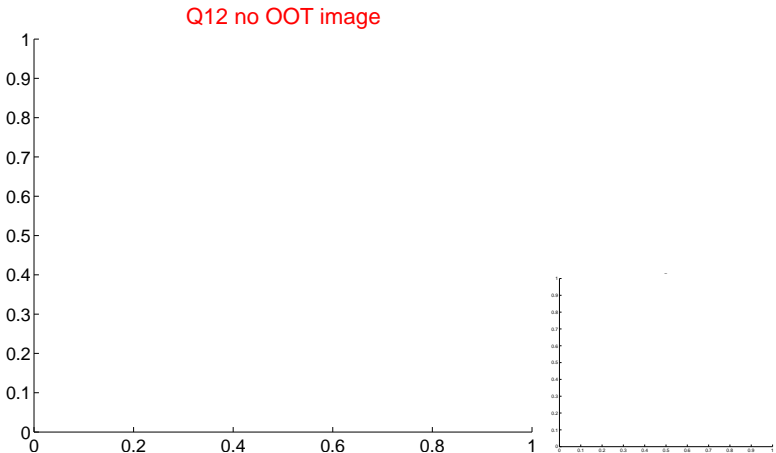
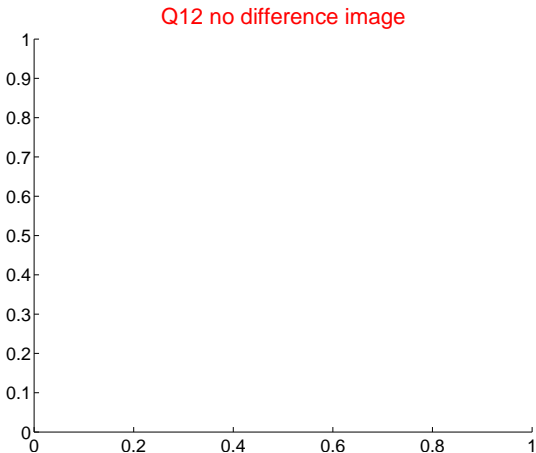
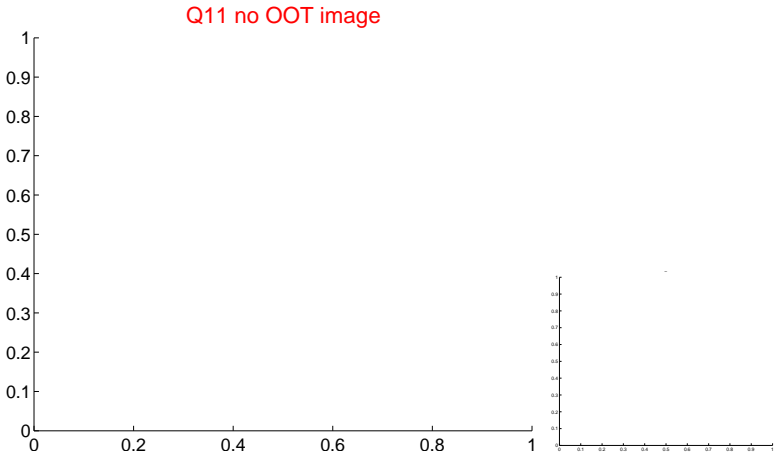
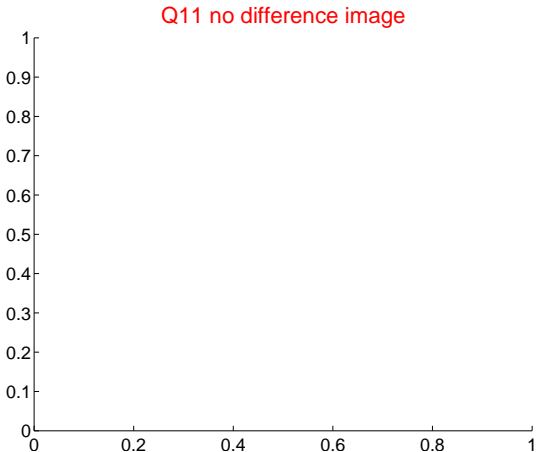
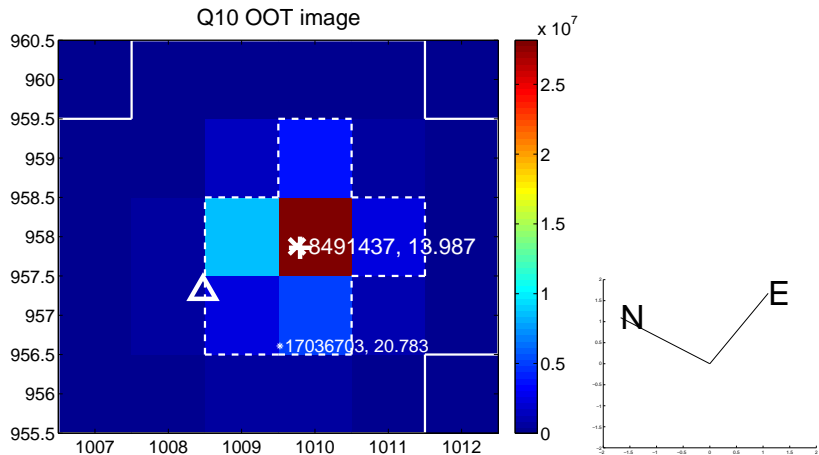
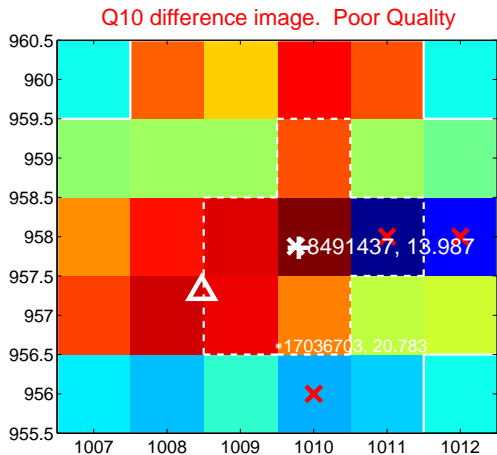
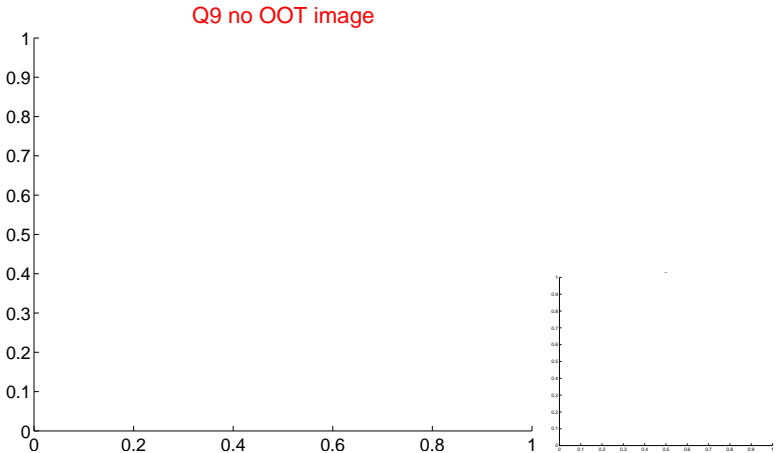
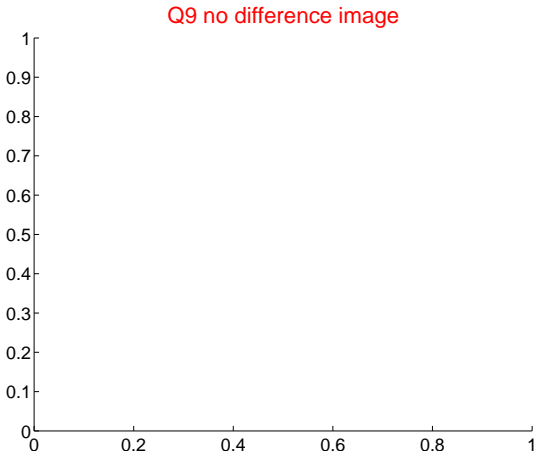
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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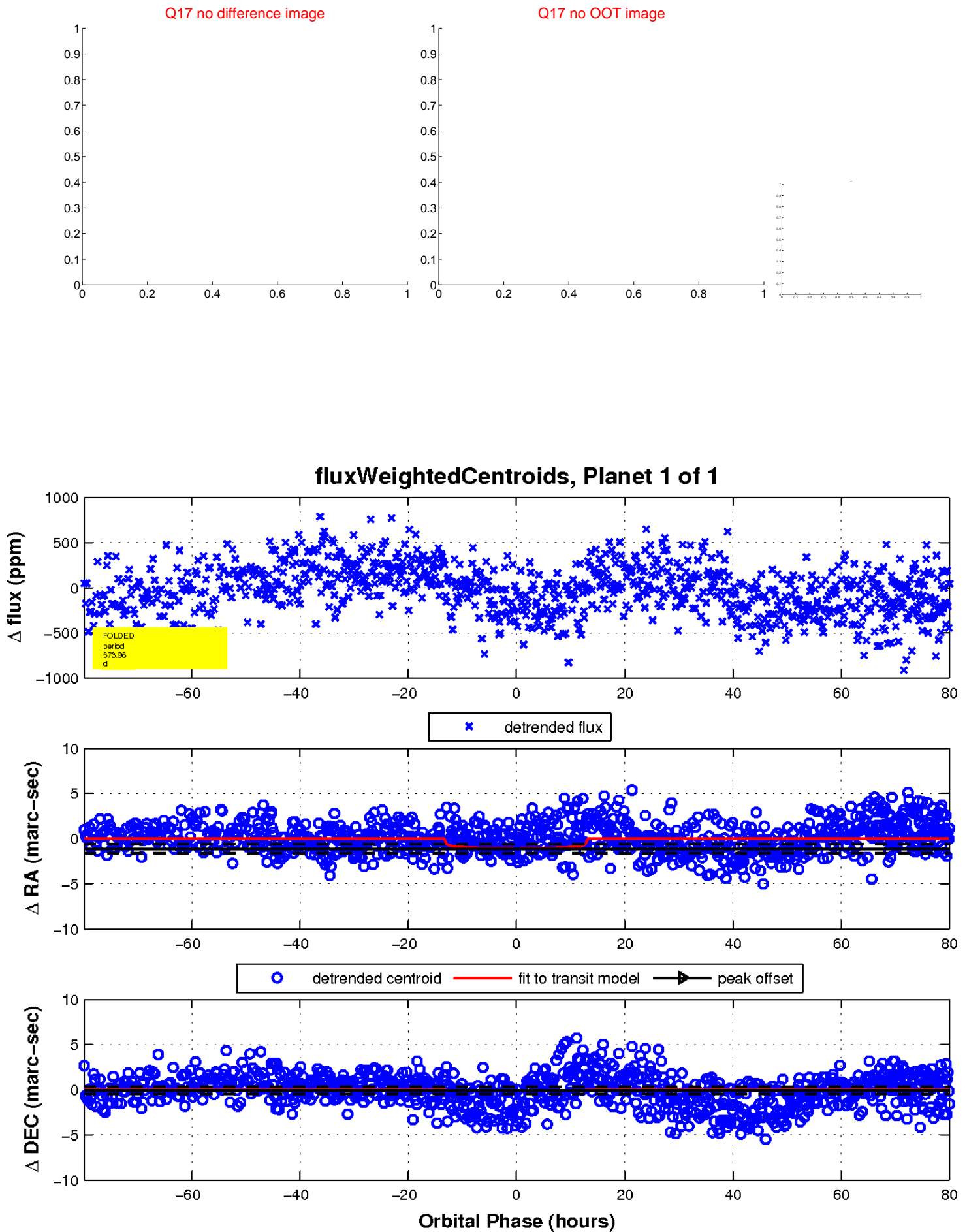
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



# UKIRT Image

Declination

