

# KIC 004937206

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004937206-01	OBS	No	428.994437	370.239975	3721.3	13.001	11.7	5.6	4.23	4893	32.84	5.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004937206-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS—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.

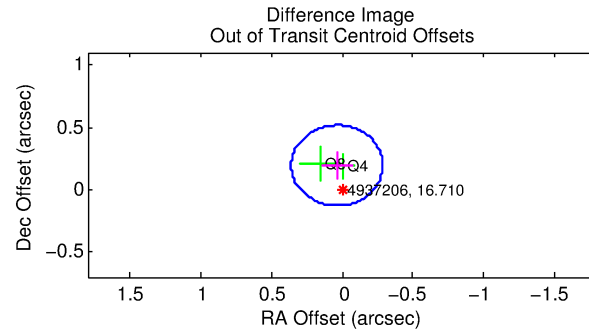
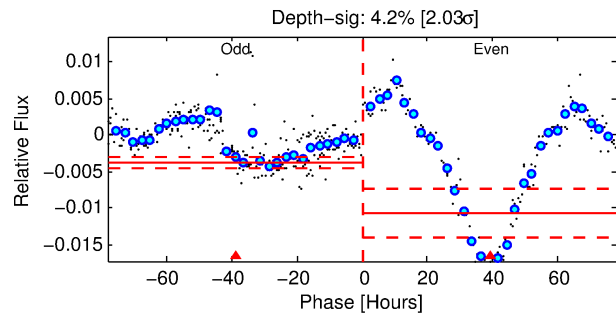
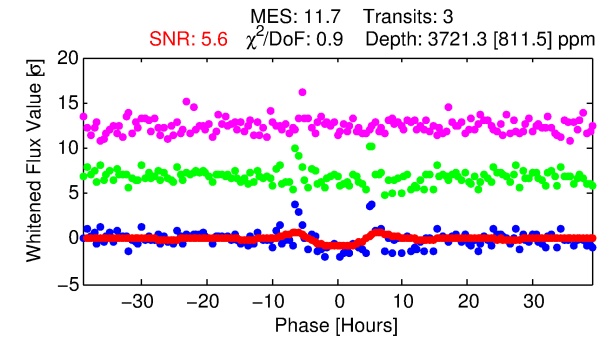
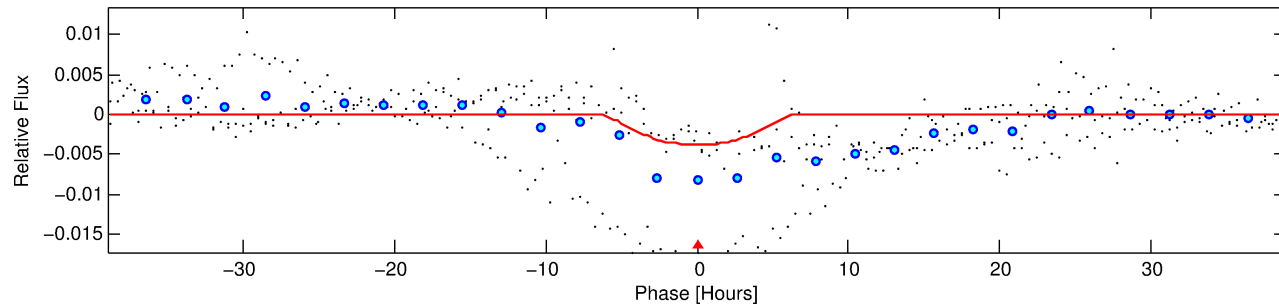
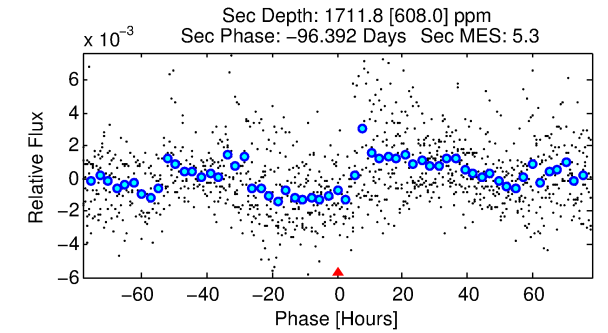
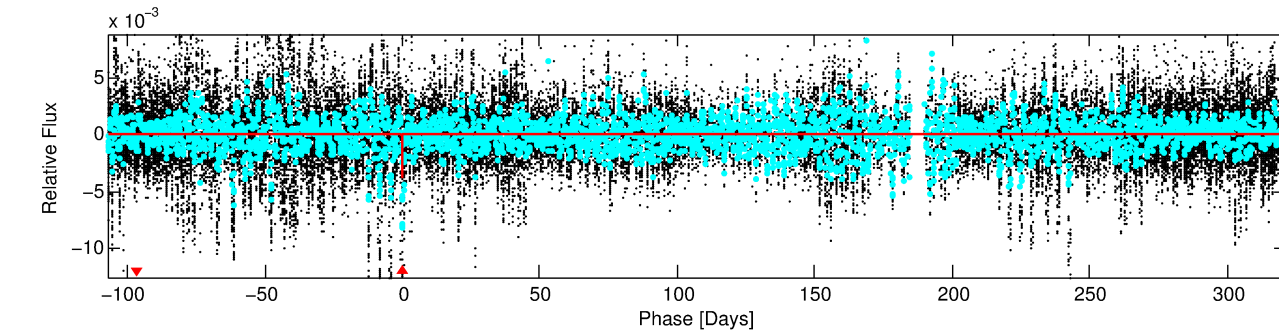
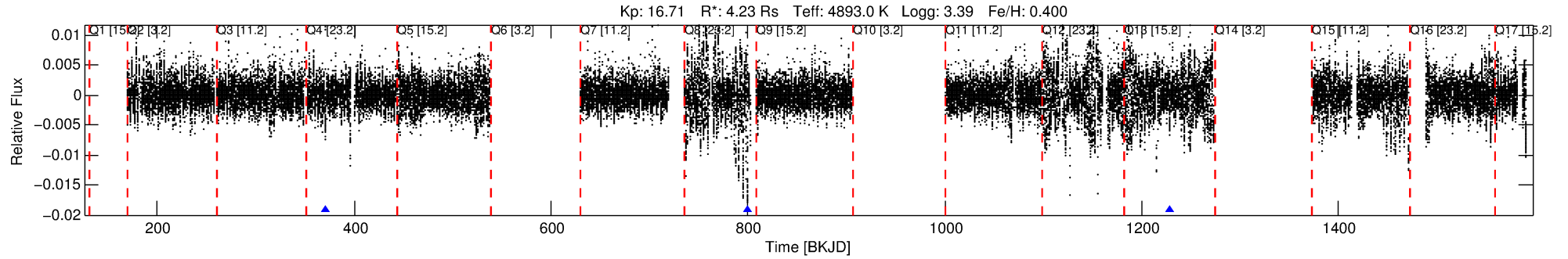
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004937206-01

No Significant Match Found

# DV One-Page Summary

KIC: 4937206 Candidate: 1 of 1 Period: 428.994 d



## DV Fit Results:

Period = 428.99444 [0.01846] d  
Epoch = 370.2400 [0.0219] BKJD  
Rp/R\* = 0.0712 [0.0098]  
a/R\* = 137.79 [21.44]  
b = 0.92 [0.03]  
Seff = 5.38 [3.80]  
Teq = 388 [69] K  
Rp = 32.84 [16.51] Re  
a = 1.3062 [0.5829] AU  
Ag = 1490.21 [1234.48] [1.21σ]  
Teff = 3730 [434] K [7.61σ]

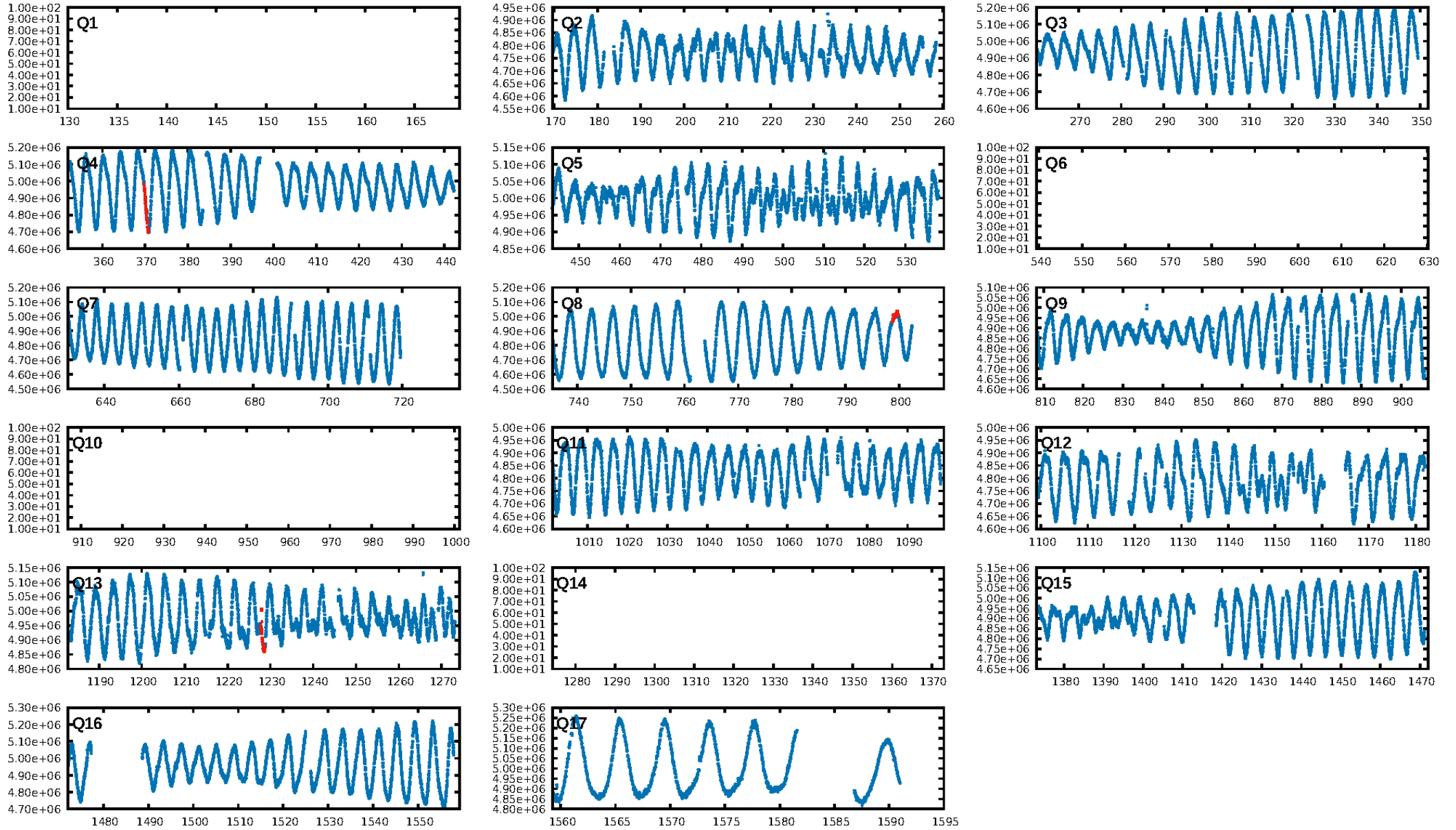
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 51.3%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 6.34e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.692  
Centroid-sig: 30.3%  
Centroid-so: 0.874 arcsec [0.94σ]  
OotOffset-rm: 0.197 arcsec [1.83σ]  
KicOffset-rm: 0.213 arcsec [1.99σ]  
OotOffset-st: 0/0/2/0 [2]  
KicOffset-st: 0/0/2/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

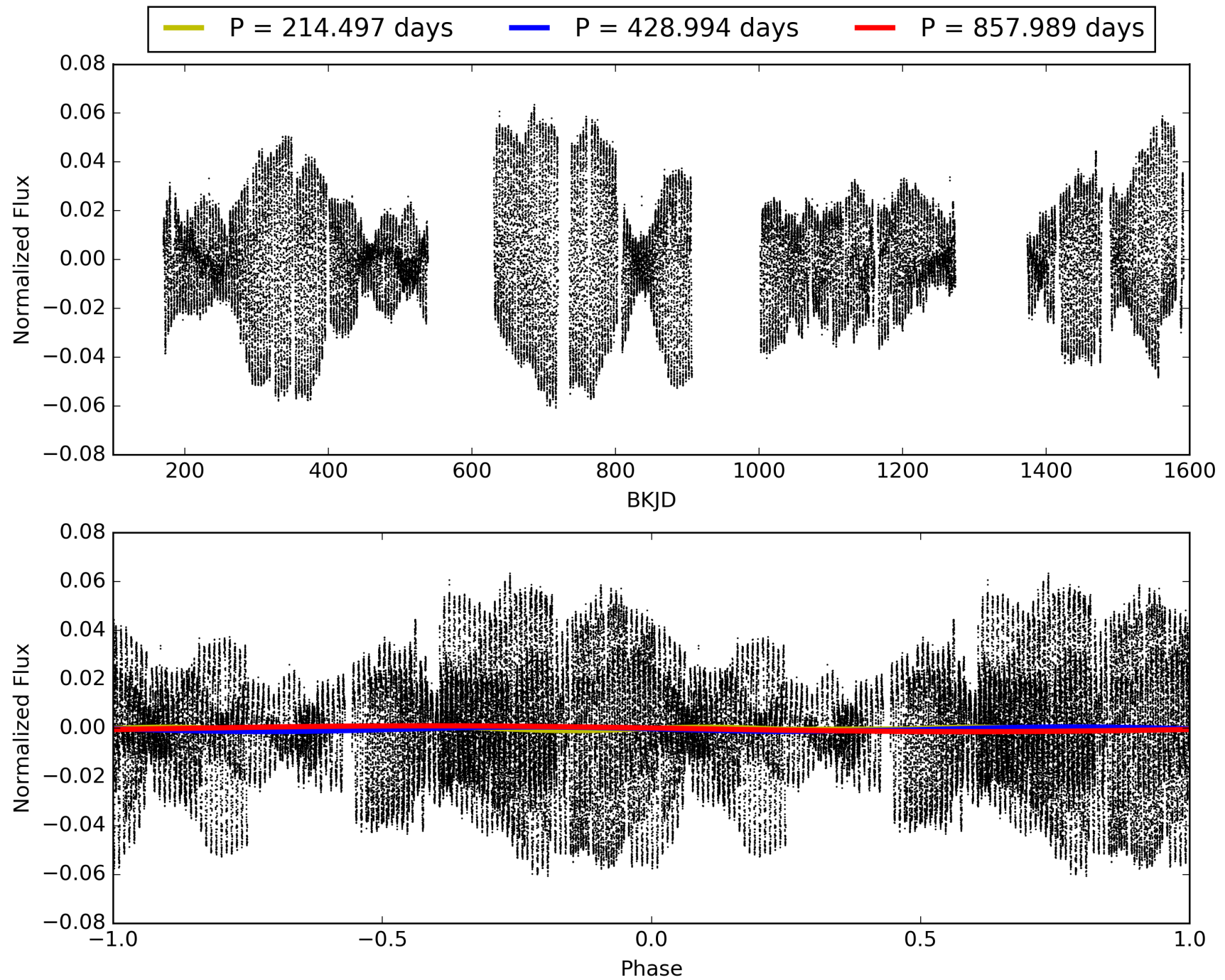
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:48:23 Z

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

# TCE 004937206-01, PDC Light Curves

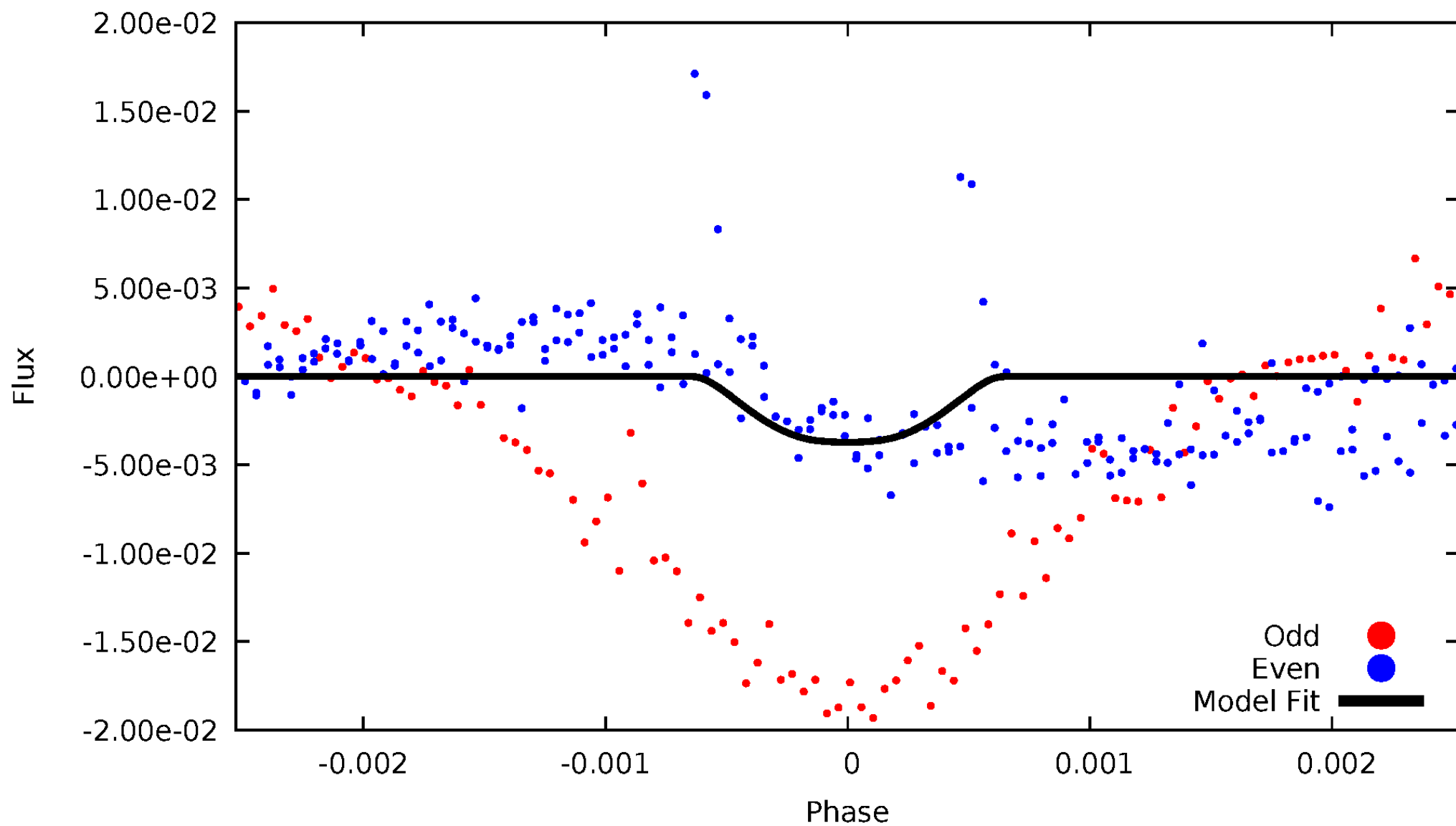


TCE 004937206-01



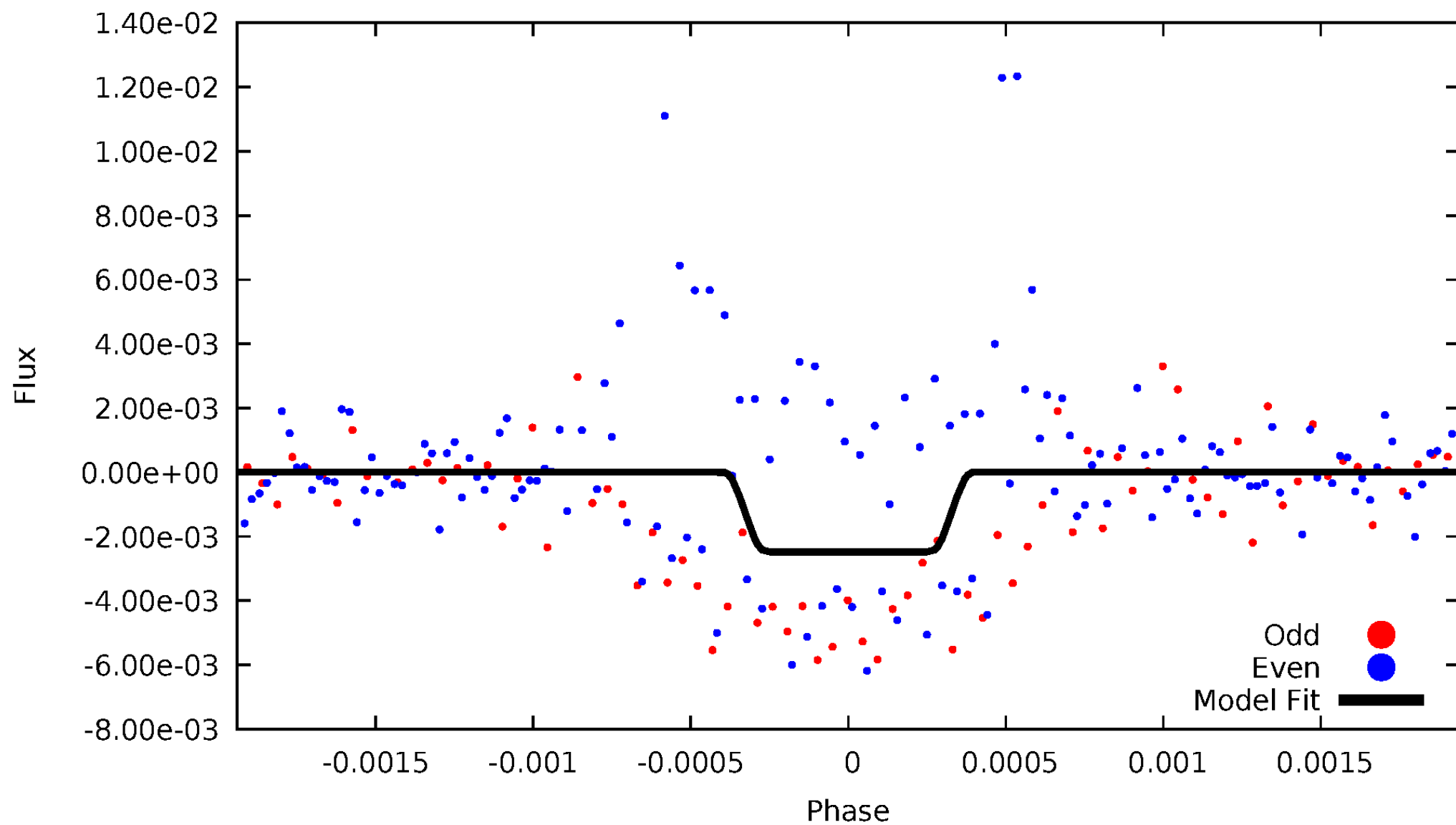
# DV Odd/Even

TCE 004937206-01



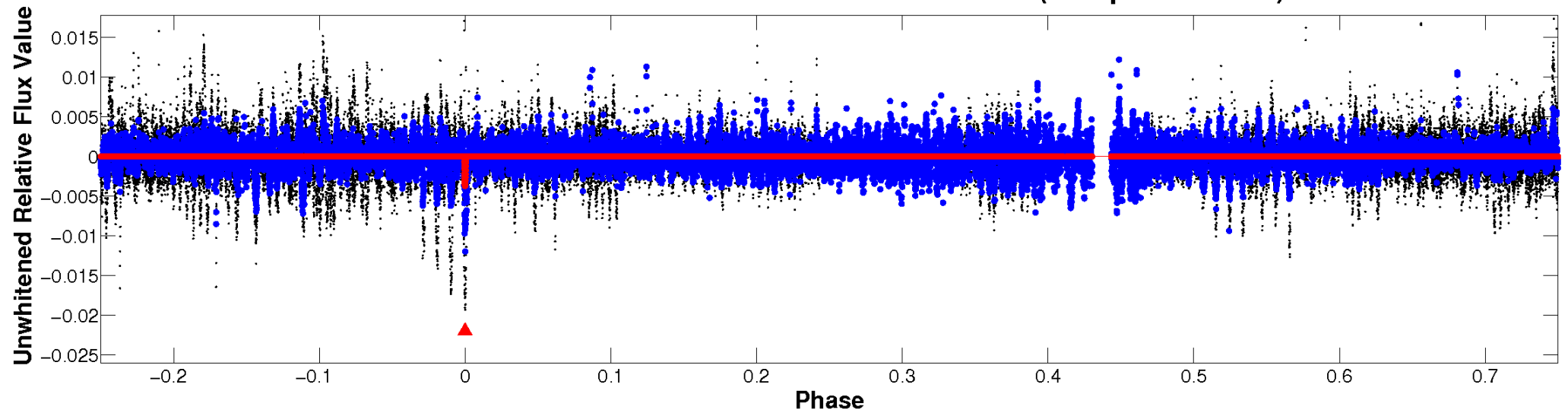
# ALT Odd/Even

TCE 004937206-01

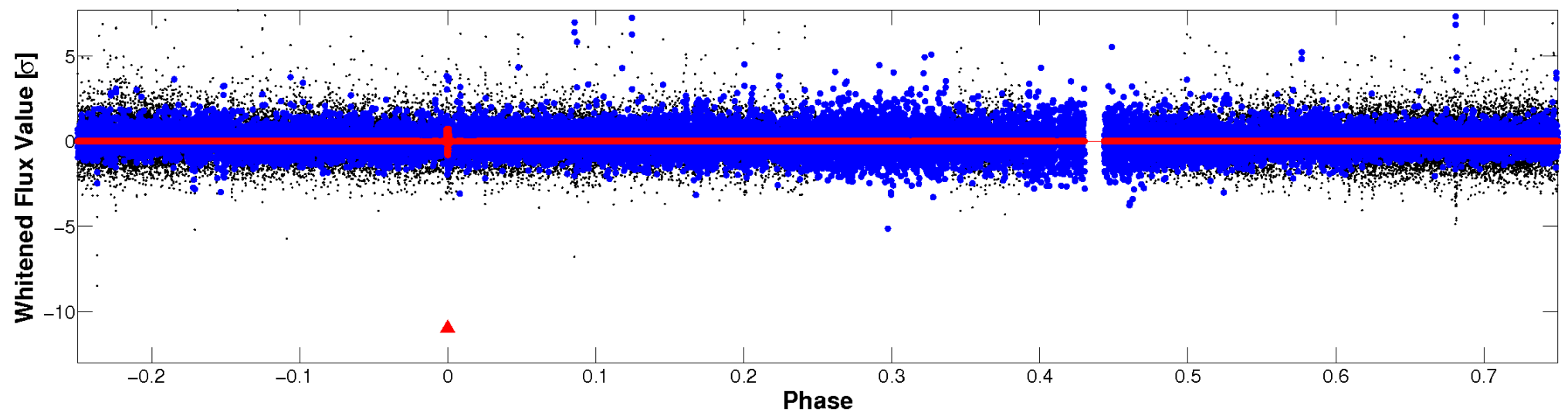


# Non-Whitened Vs. Whitened Light Curve

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



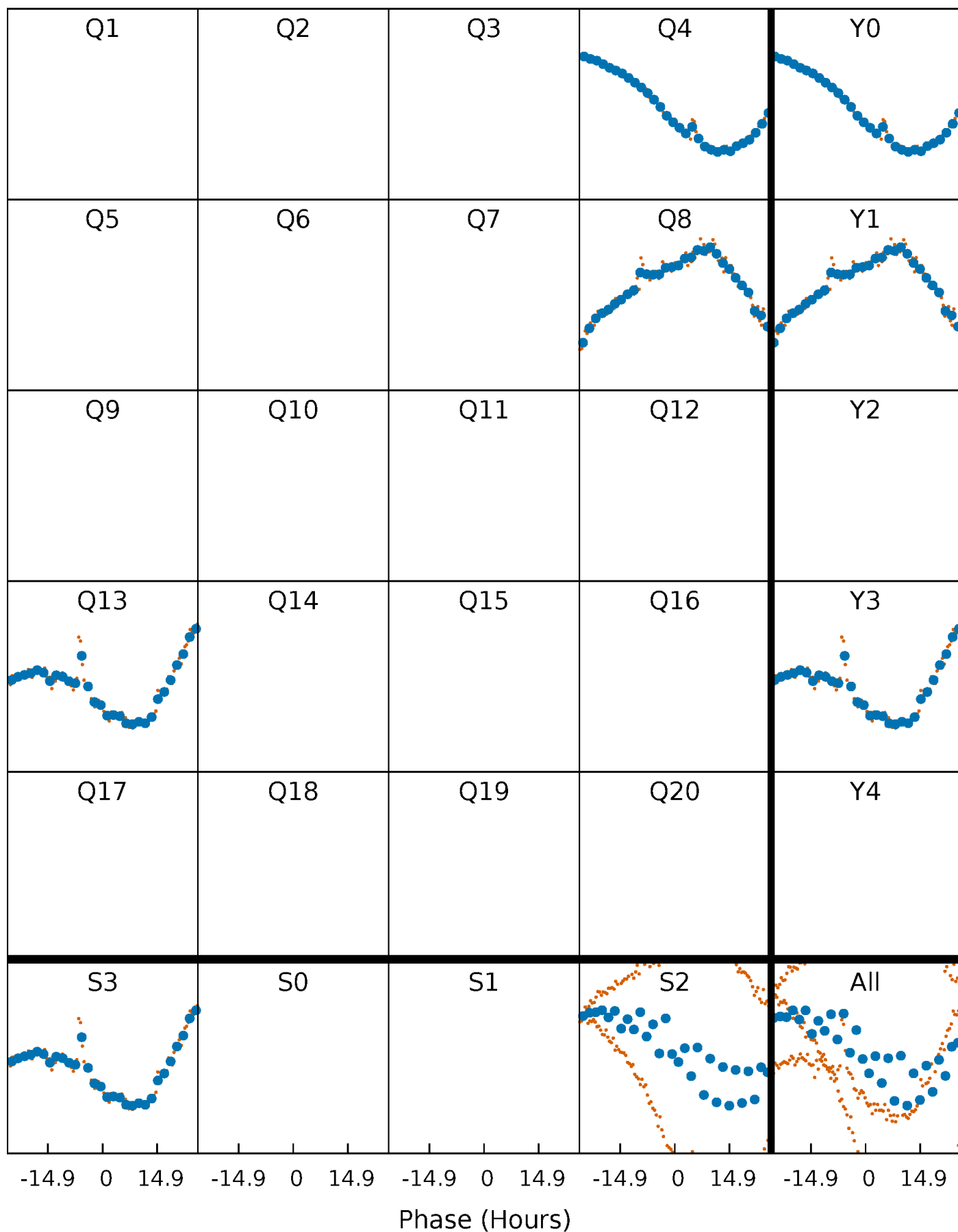
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

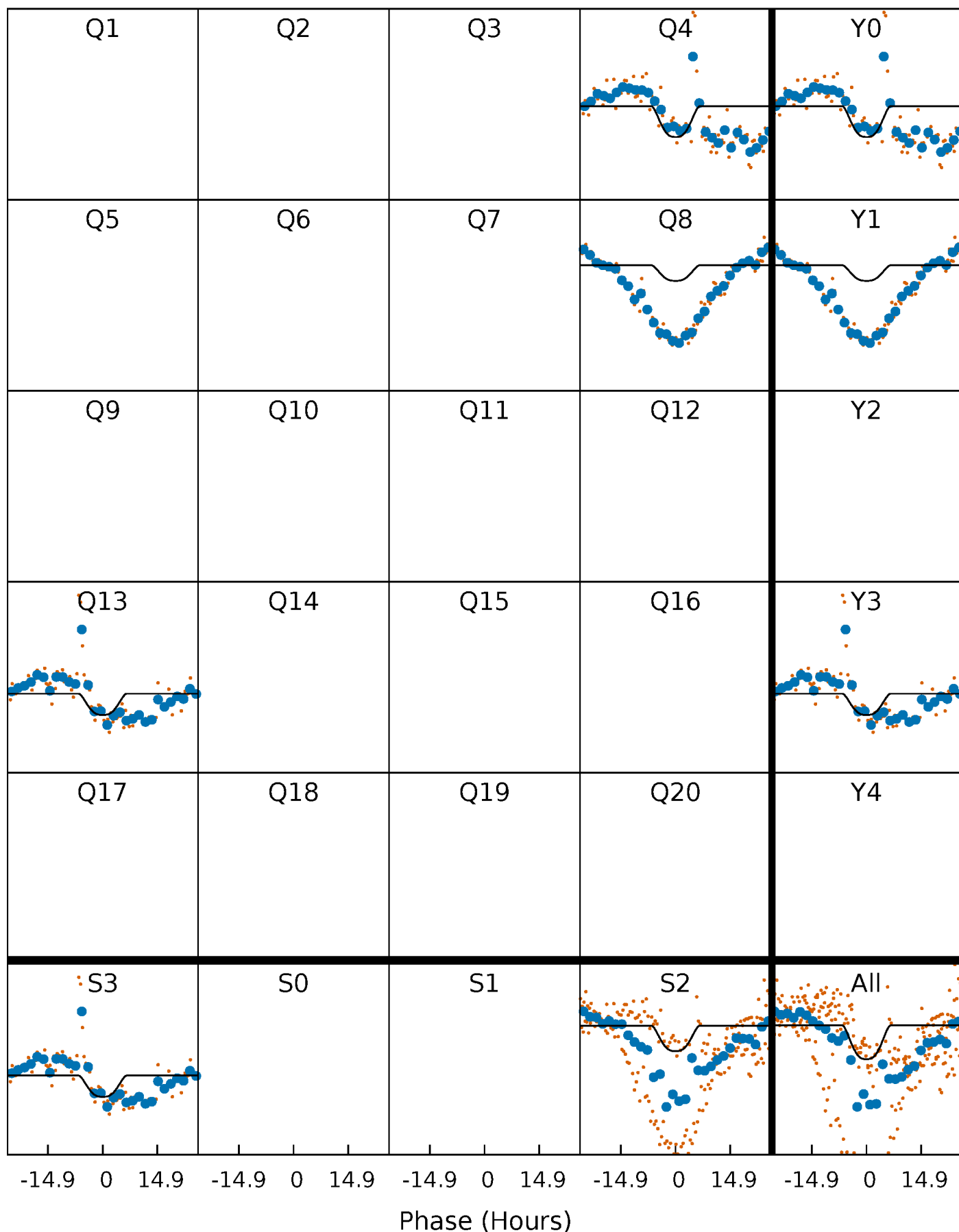
TCE 004937206-01 P=428.994437 Days  $T_0=370.239975$  (BKJD)





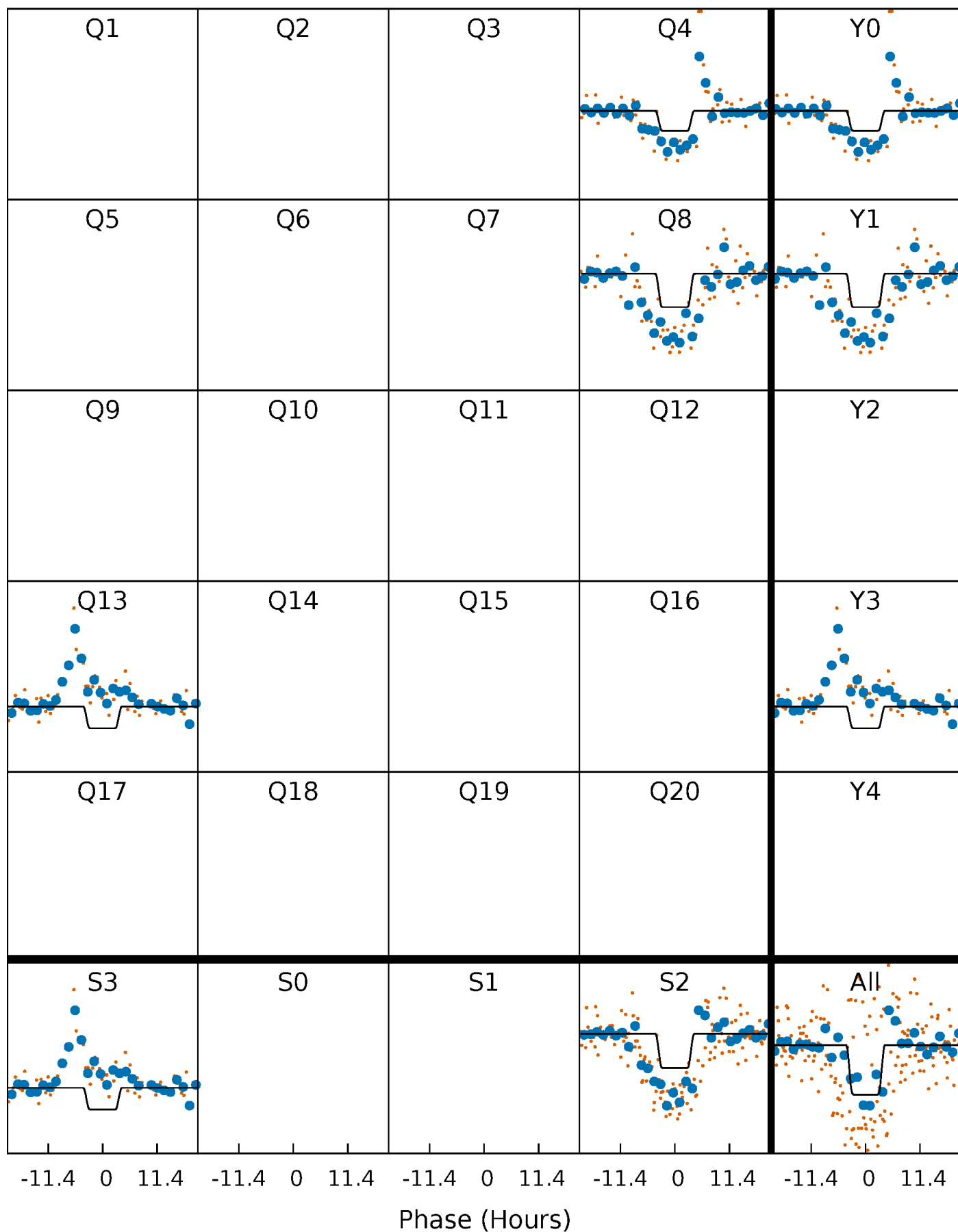
# DV Quarter-Phased Transit Curves

TCE 004937206-01 P=428.994437 Days  $T_0=370.239975$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

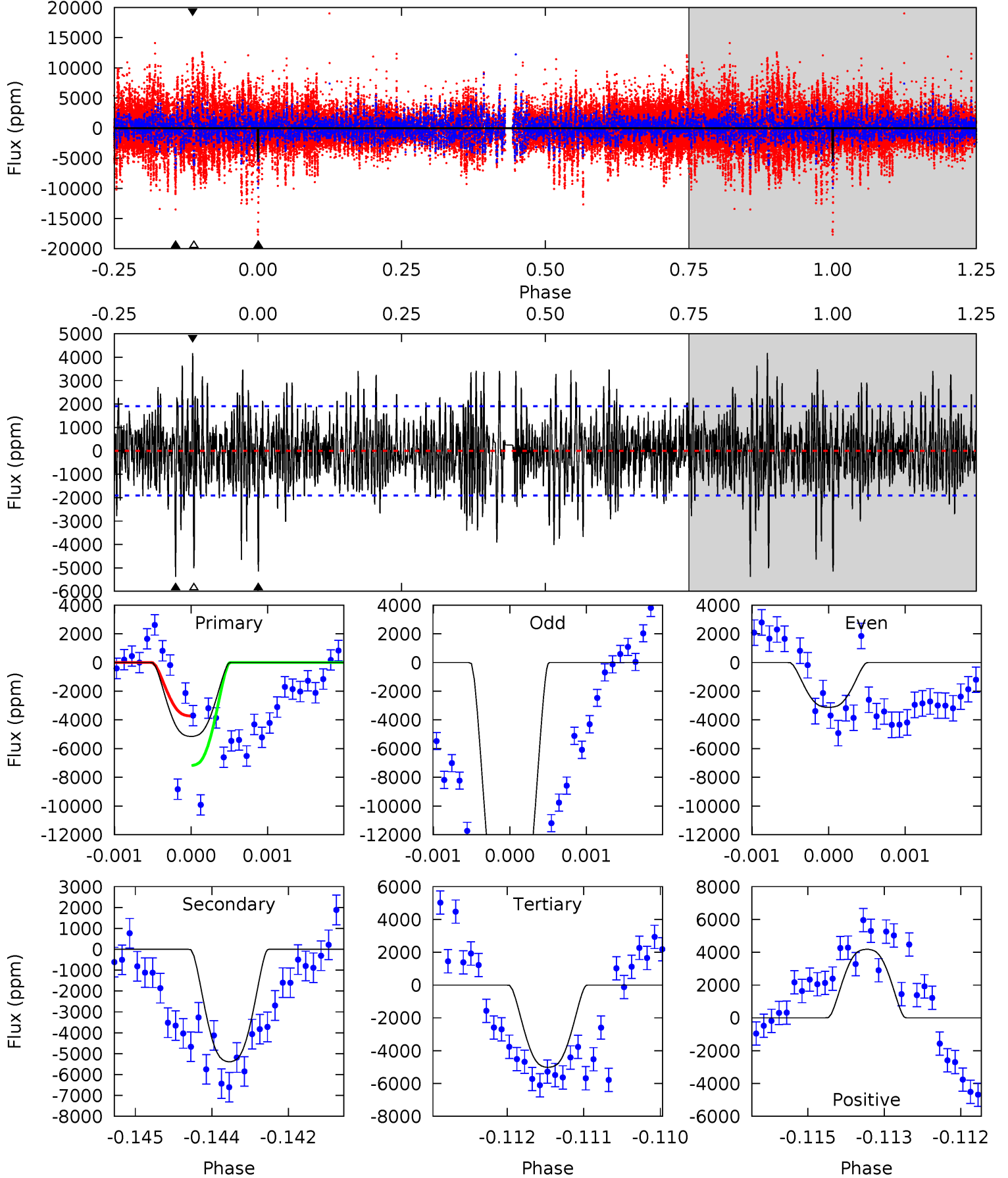
TCE 004937206-01 P=429.009403 Days  $T_0=370.229912$  (BKJD)



# DV Model-Shift Uniqueness Test

004937206-01, P = 428.994437 Days, E = 370.239975 Days

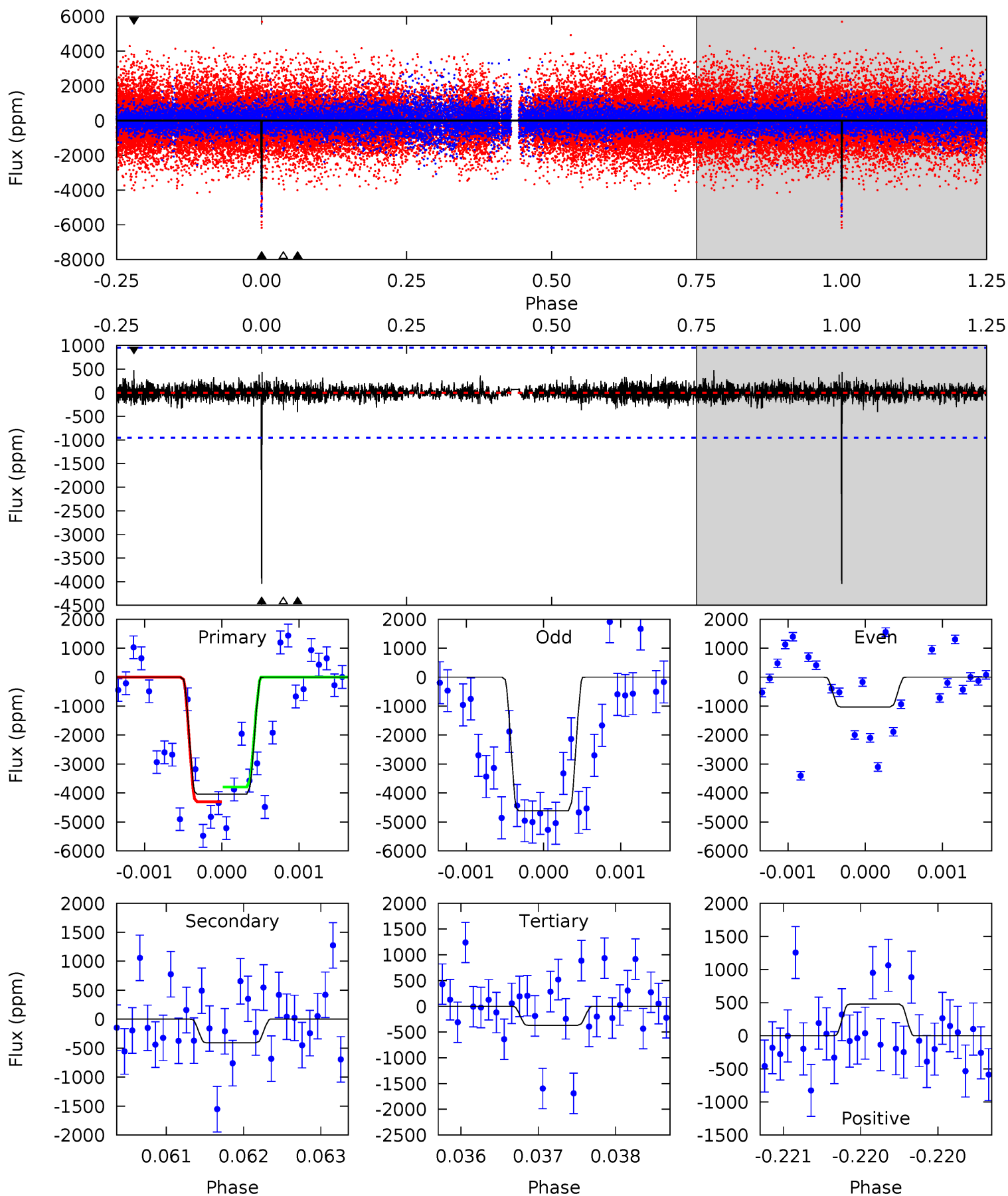
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	15.3	14.2	11.9	5.41	3.23	3.27	0.40	2.76	1.06	3.42	27.8	2.47	0.44	4.96



# Alt Model-Shift Uniqueness Test

004937206-01, P = 429.009403 Days, E = 370.229912 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
23.3	2.35	2.12	2.74	5.50	3.36	0.51	21.2	20.5	0.23	-0.40	11.4	0.55	0.11	1.46



### Stellar Parameters For KIC 004937206

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4893^{+148}_{-148}$	$3.394^{+0.402}_{-0.268}$	$0.400^{+0.050}_{-0.300}$	$4.227^{+1.362}_{-2.044}$	$1.615^{+0.310}_{-0.620}$	$0.030^{+0.119}_{-0.018}$
	+3%/-3%	+12%/-8%	+12%/-75%	+32%/-48%	+19%/-38%	+396%/-59%
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 004937206-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5381 \pm 352$	$32.33^{+9.12}_{-8.57}$	$547^{+55}_{-66}$	$4976^{+392}_{-301}$	$4755^{+3699}_{-1741}$
Alt.	$-407 \pm 174$	$22.43^{+7.07}_{-6.69}$	$545^{+54}_{-68}$	$3499^{+359}_{-341}$	$690^{+815}_{-368}$

$T_{max}$  = 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

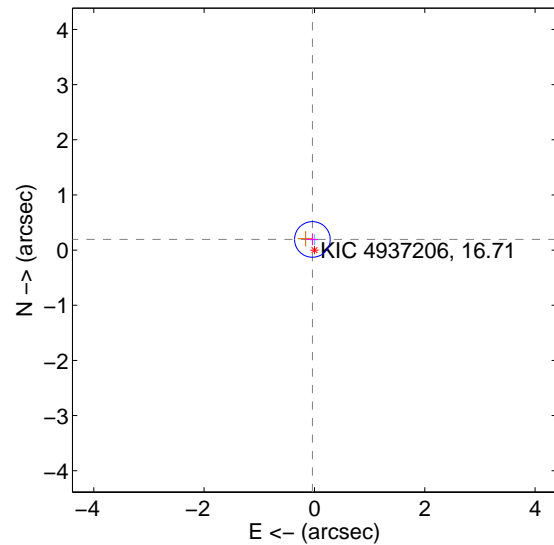
Supplemental centroid analysis for 004937206-01. Kepler magnitude: 16.71. Transit SNR 5.63

There are 1 quarters with good PRF difference image offsets

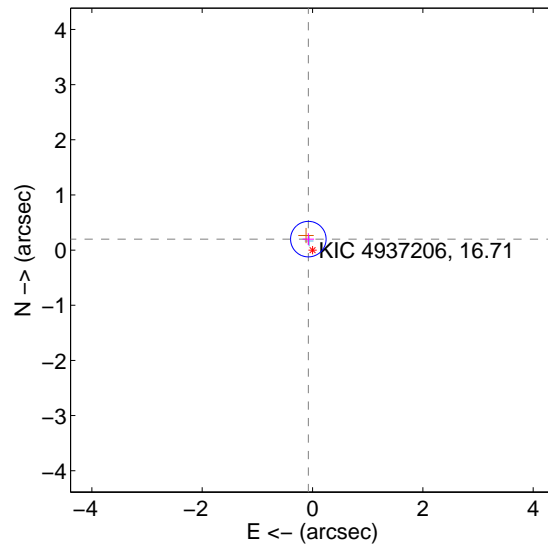
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.197 \pm 0.108$	1.83	$0.037 \pm 0.104$	$0.193 \pm 0.108$
PRF-fit source offset from KIC position	$0.213 \pm 0.107$	1.99	$0.076 \pm 0.104$	$0.199 \pm 0.108$
photometric centroid source offset	$0.87 \pm 0.93$	0.94	$-0.87 \pm 0.93$	$0.00 \pm 1.52$

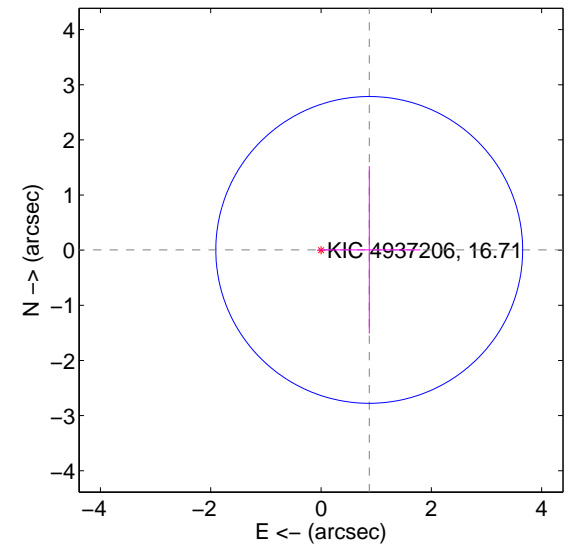
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

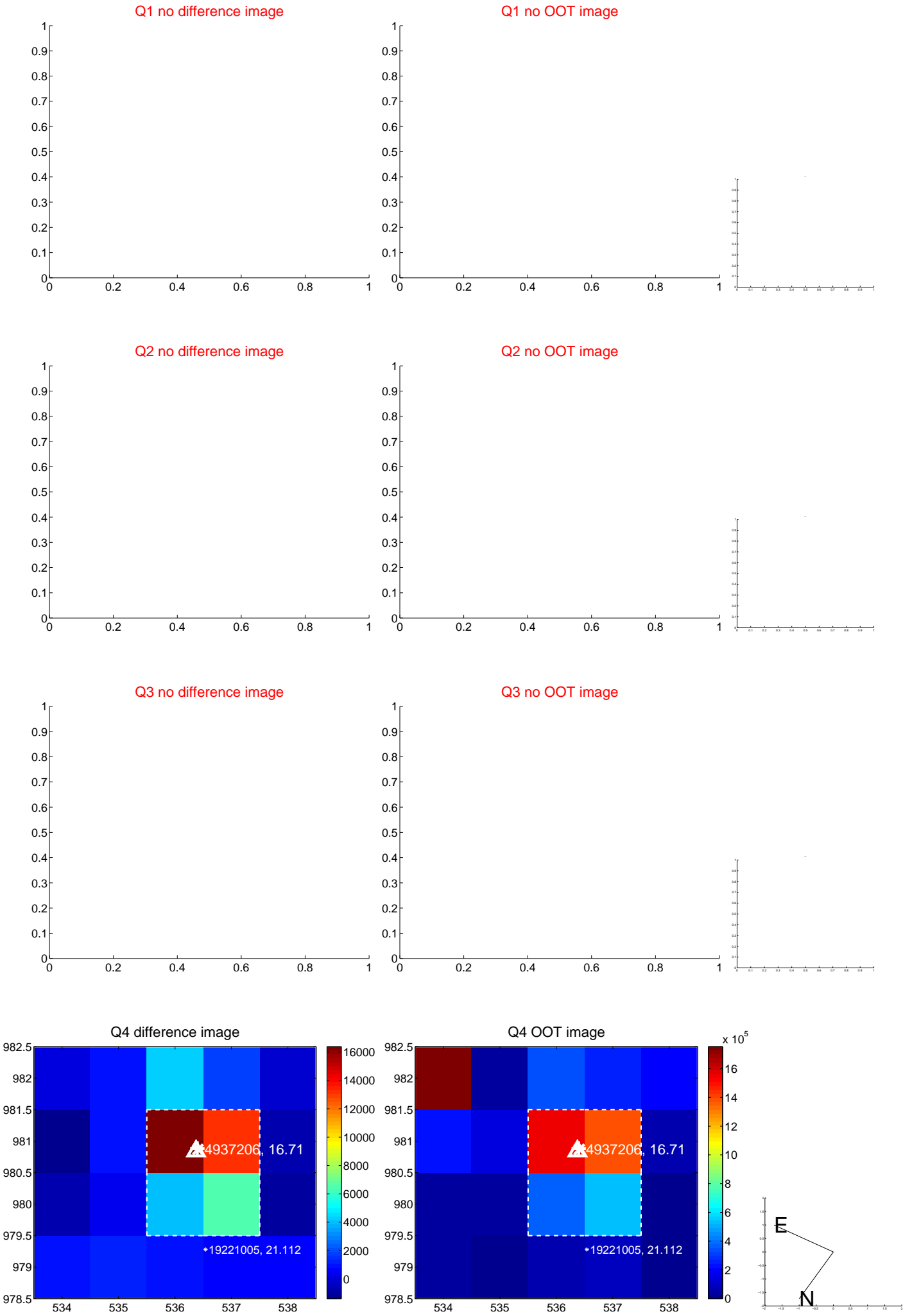


offset from photometric centroids



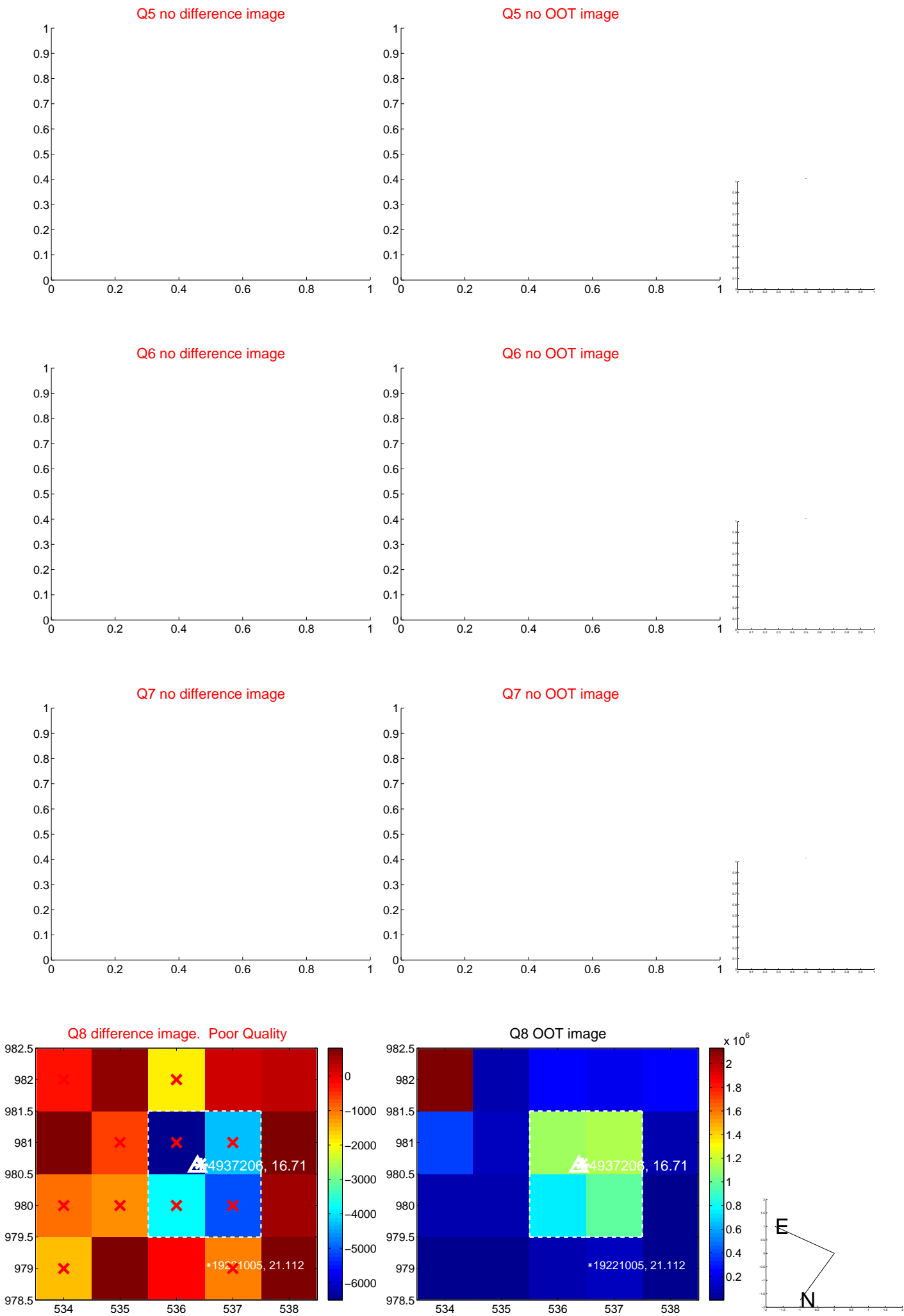
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



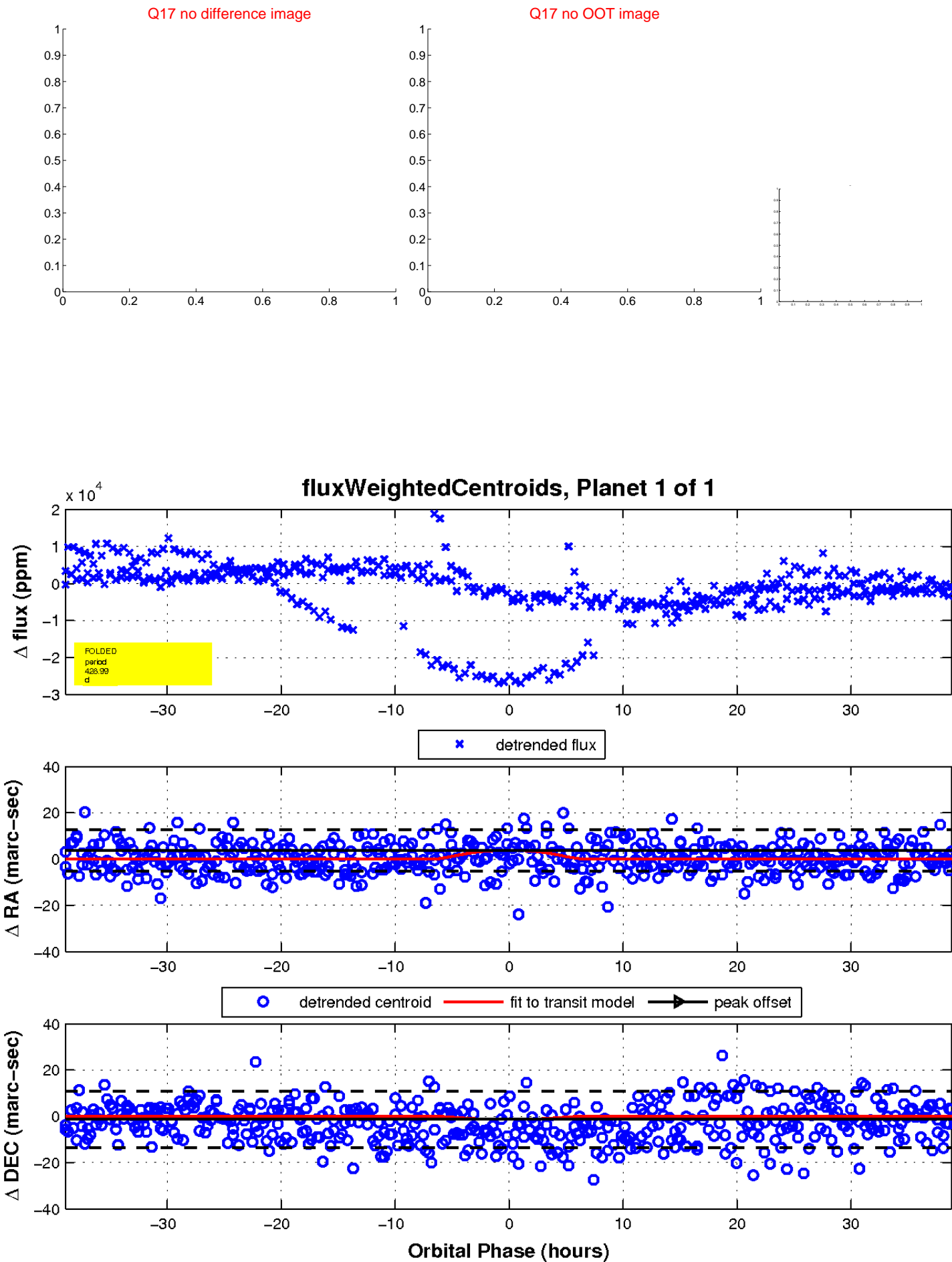
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

