

# KIC 006437103

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006437103-01	OBS	No	470.834299	146.669649	660.5	16.968	9.5	9.3	1.14	6404	3.15	1.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006437103-01	OBS	FP	0.00	1	0	1	0	LPP_DV—ALL_TRANS_CHASES—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.

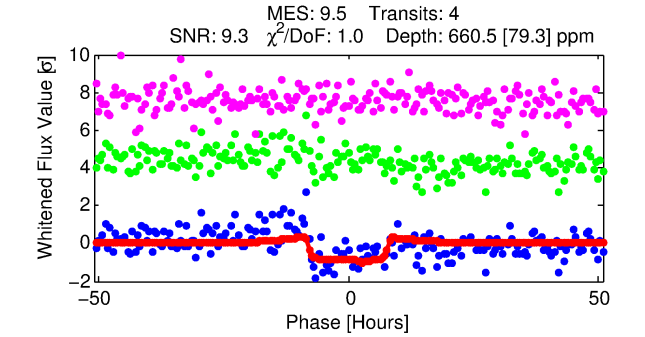
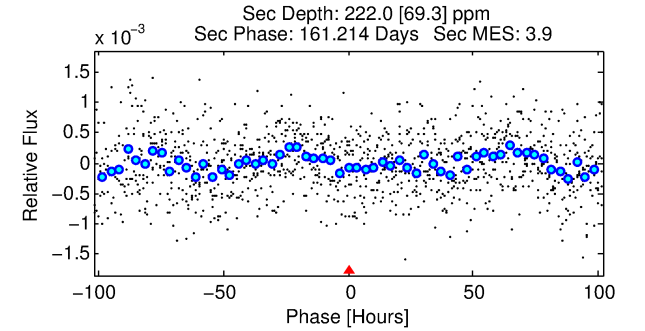
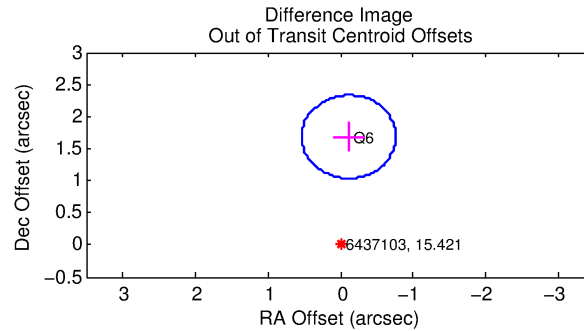
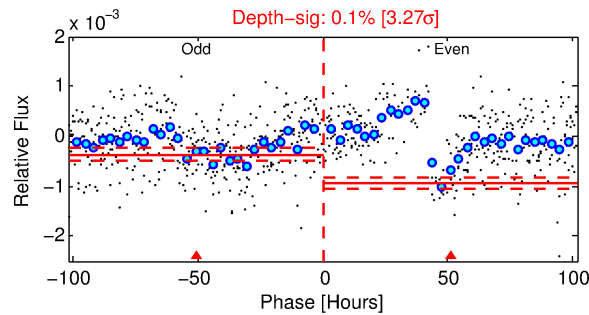
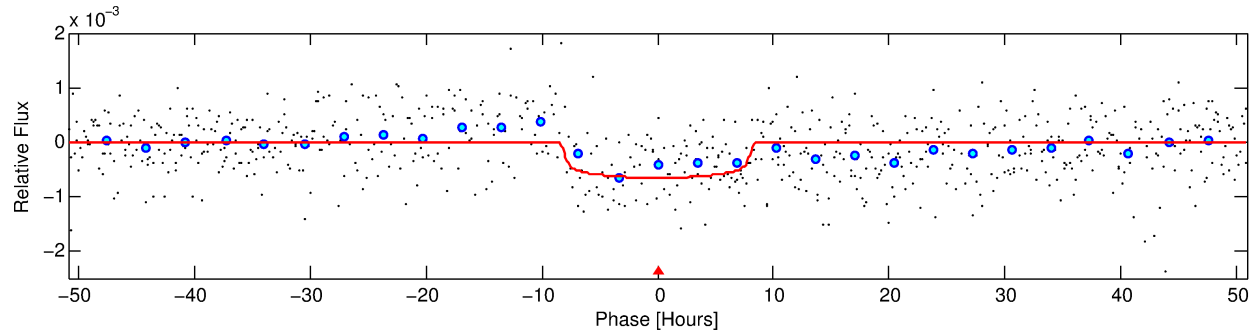
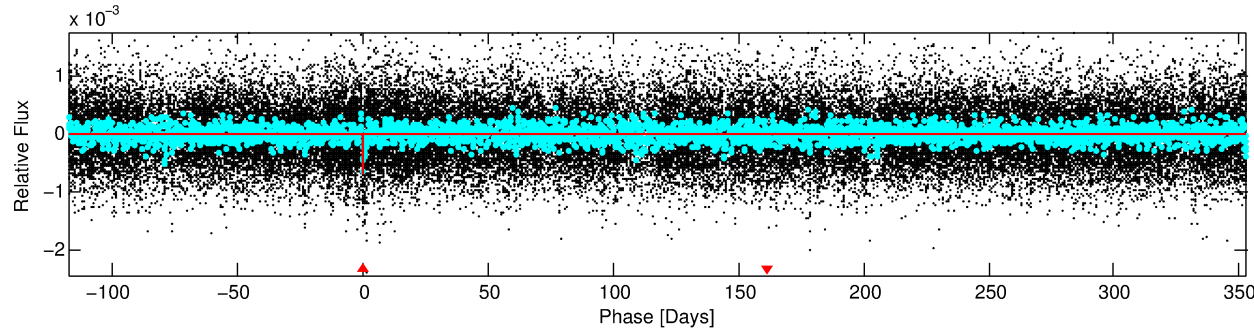
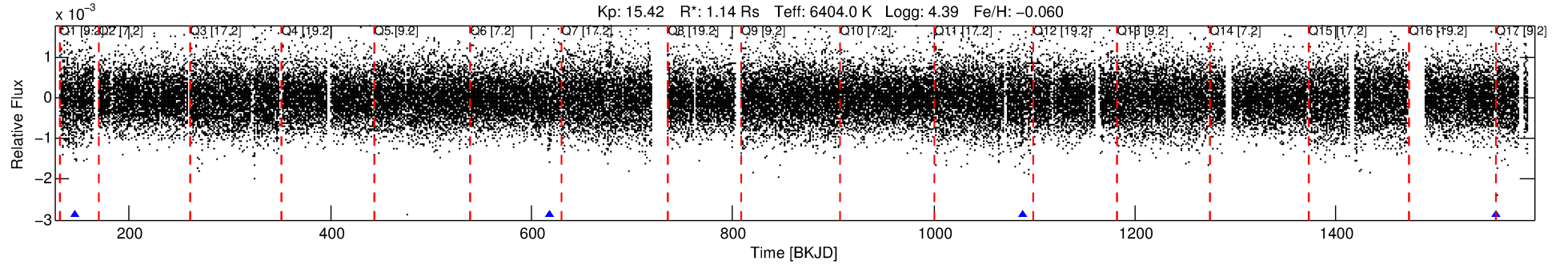
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006437103-01

No Significant Match Found

# DV One-Page Summary

KIC: 6437103 Candidate: 1 of 1 Period: 470.834 d



## DV Fit Results:

Period = 470.83430 [0.01413] d  
Epoch = 146.6696 [0.0228] BKJD  
Rp/R\* = 0.0253 [0.0053]  
a/R\* = 156.09 [162.78]  
b = 0.71 [0.72]  
Seff = 1.26 [0.47]  
Teq = 270 [25] K  
Rp = 3.15 [1.12] Re  
a = 1.2504 [0.2992] AU  
Ag = 19233.98 [12016.19] [1.60 $\sigma$ ]  
Teffp = 4916 [659] K [7.04 $\sigma$ ]

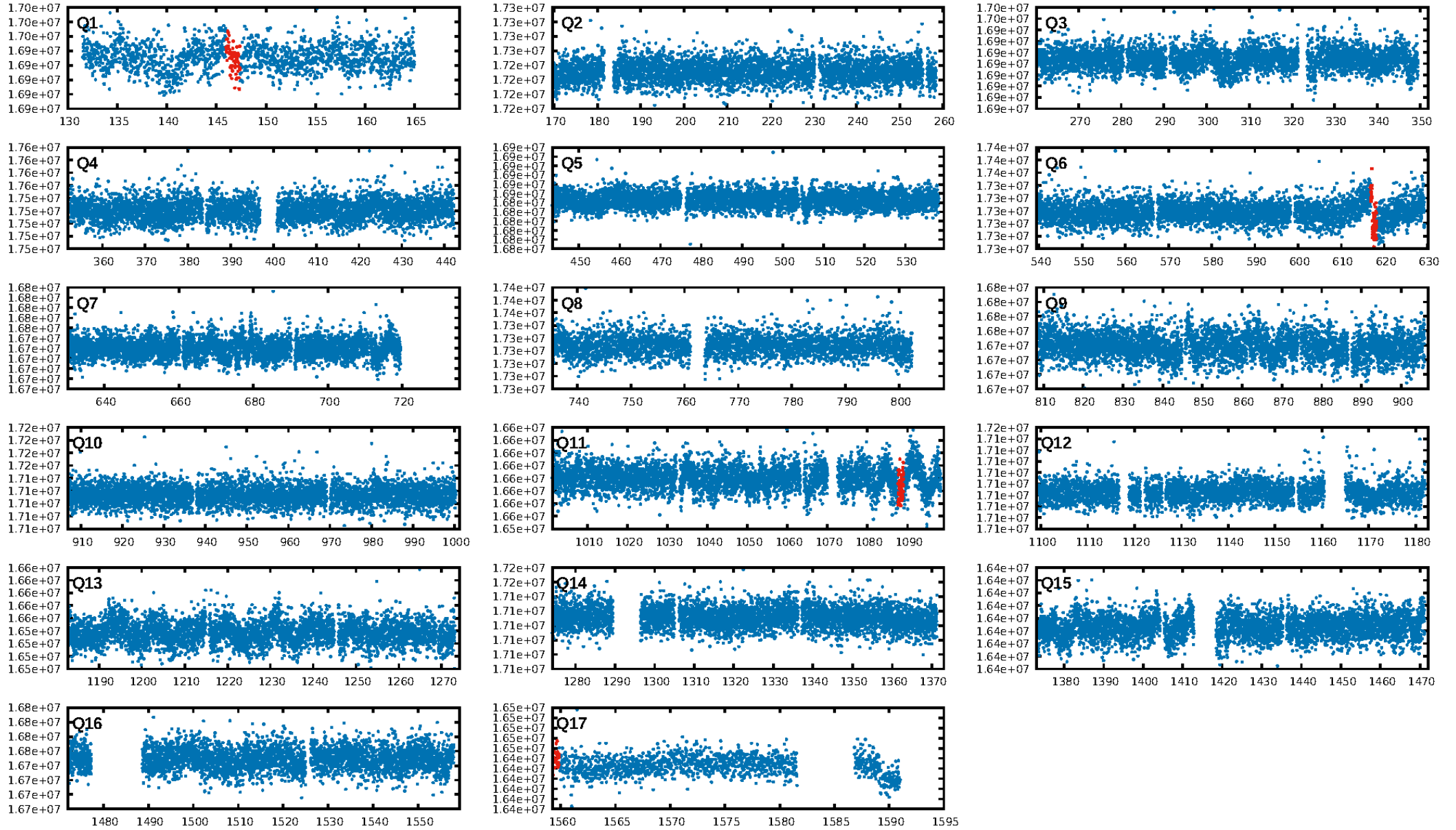
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.01e-15  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.2003  
Centroid-sig: 5.8%  
Centroid-so: 2.530 arcsec [1.66 $\sigma$ ]  
OotOffset-rm: 1.688 arcsec [7.81 $\sigma$ ]  
KicOffset-rm: 1.776 arcsec [8.22 $\sigma$ ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

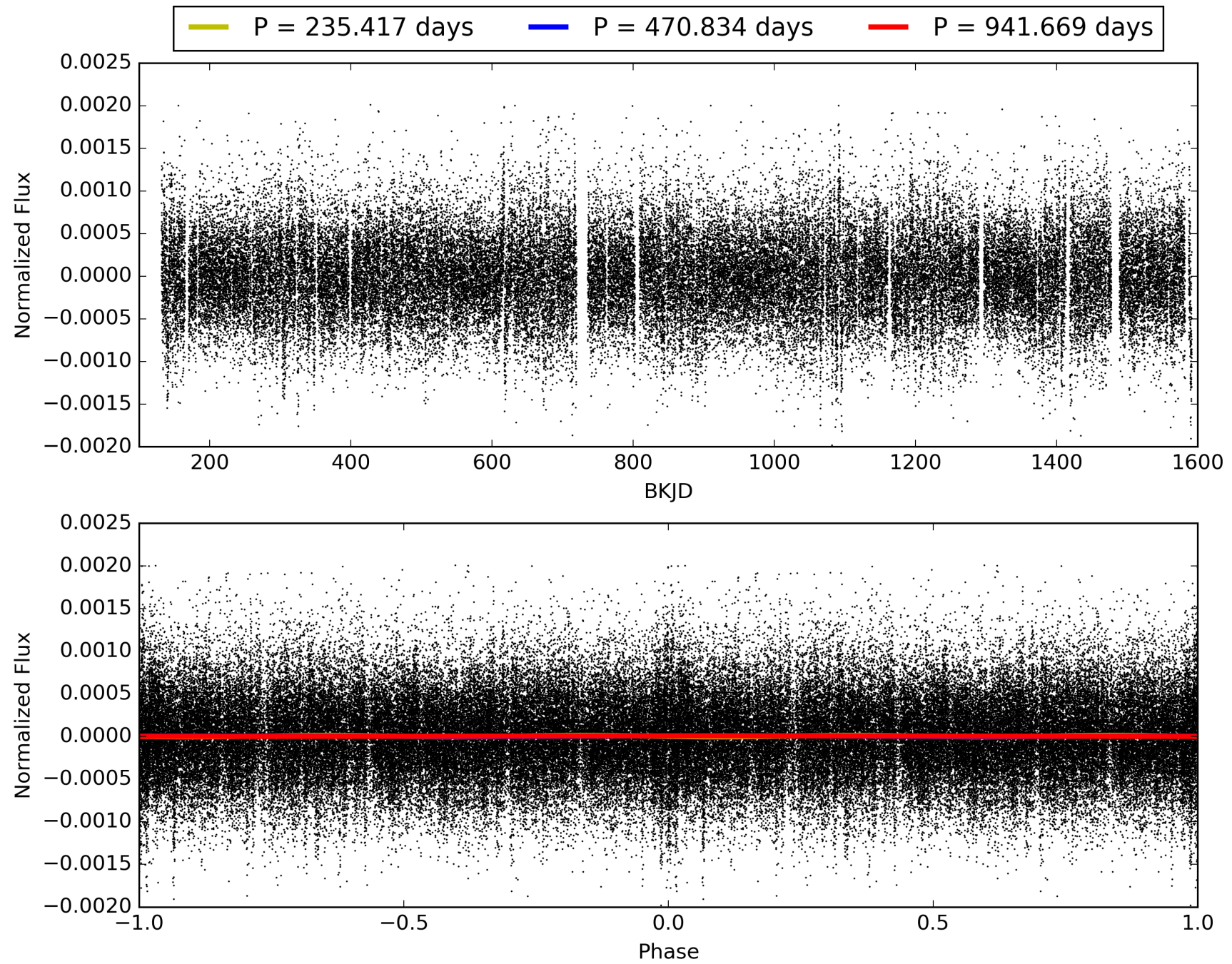
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:50:33 Z

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

# TCE 006437103-01, PDC Light Curves

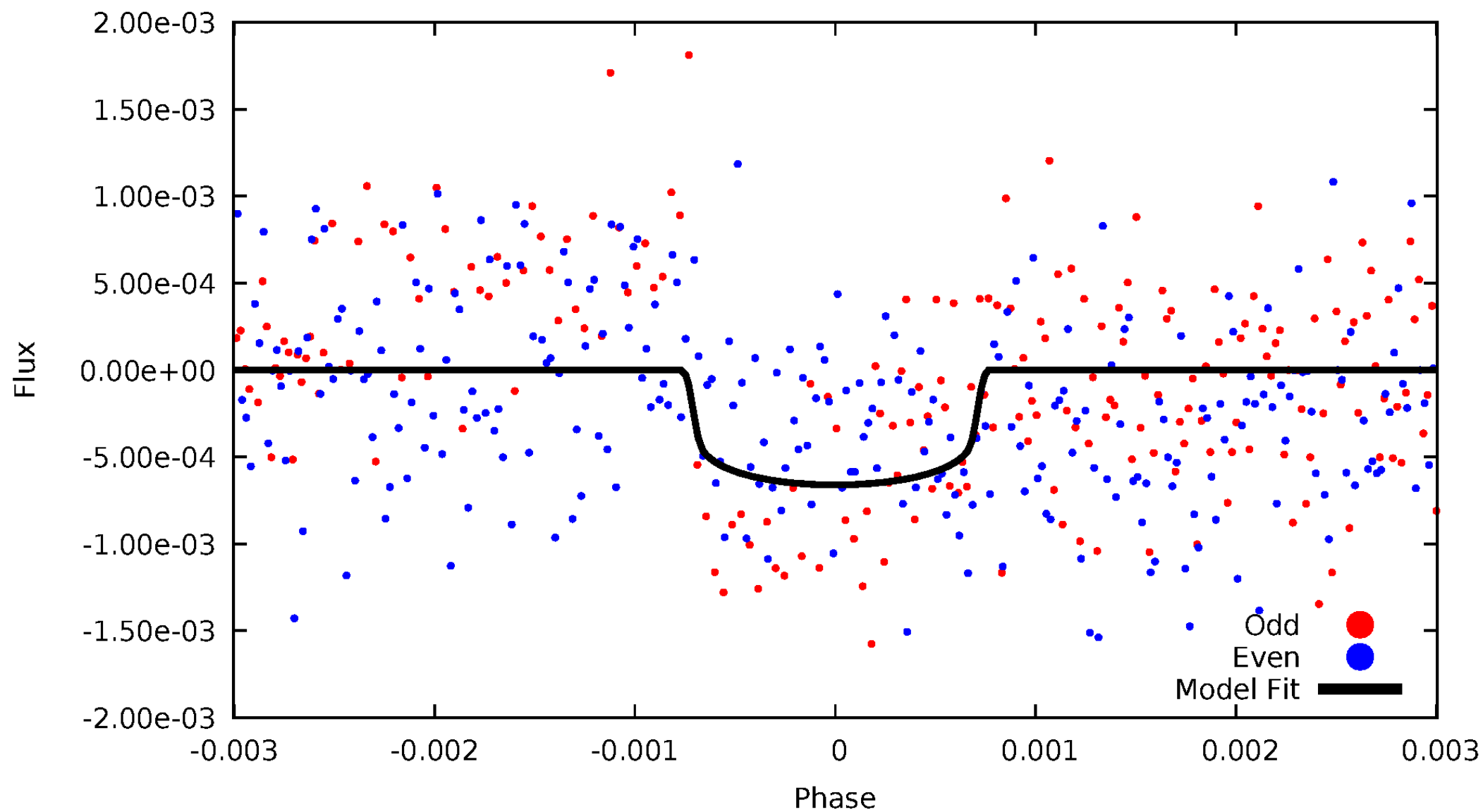


# TCE 006437103-01



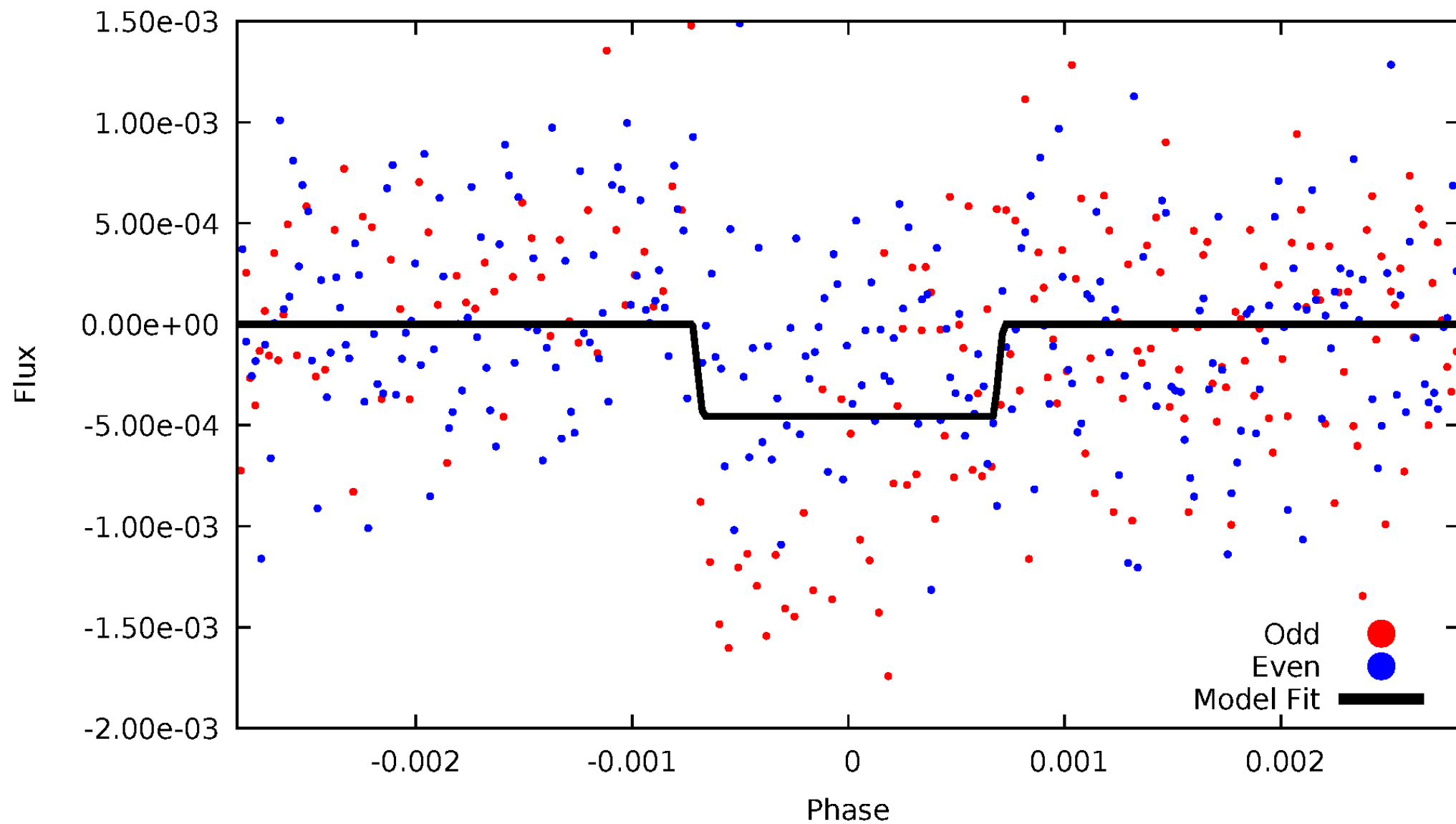
# DV Odd/Even

TCE 006437103-01



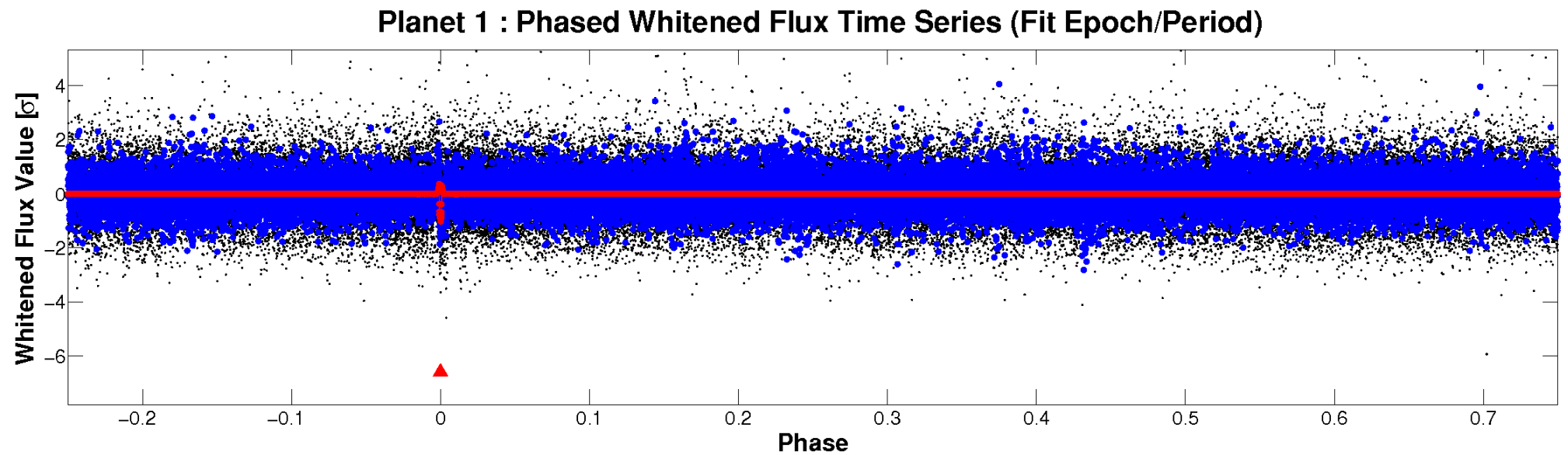
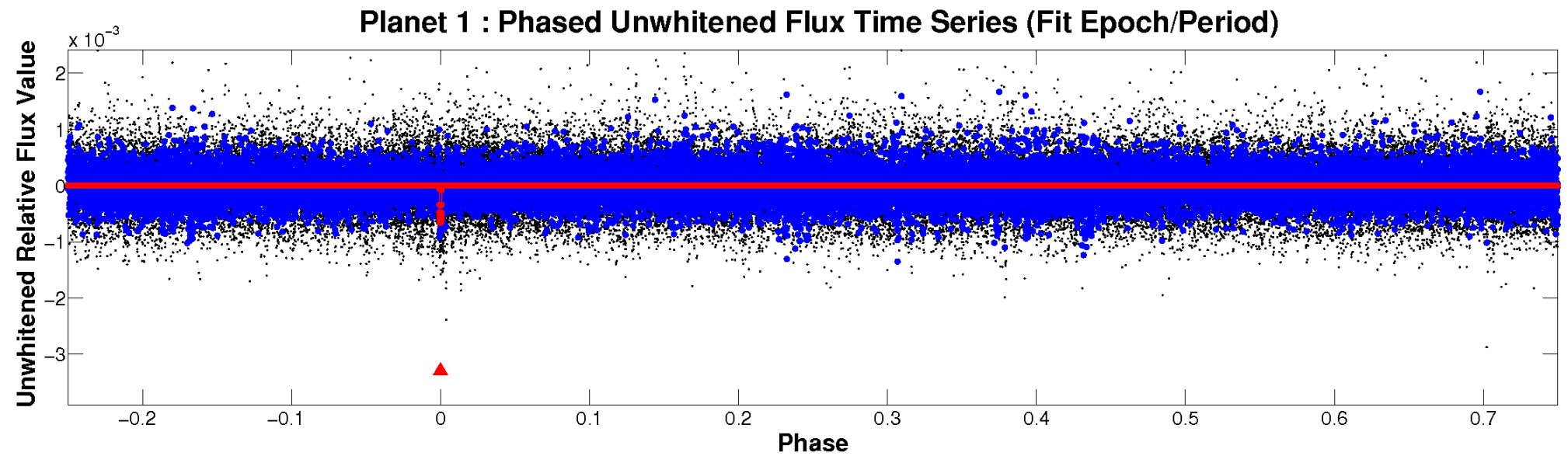
# ALT Odd/Even

TCE 006437103-01



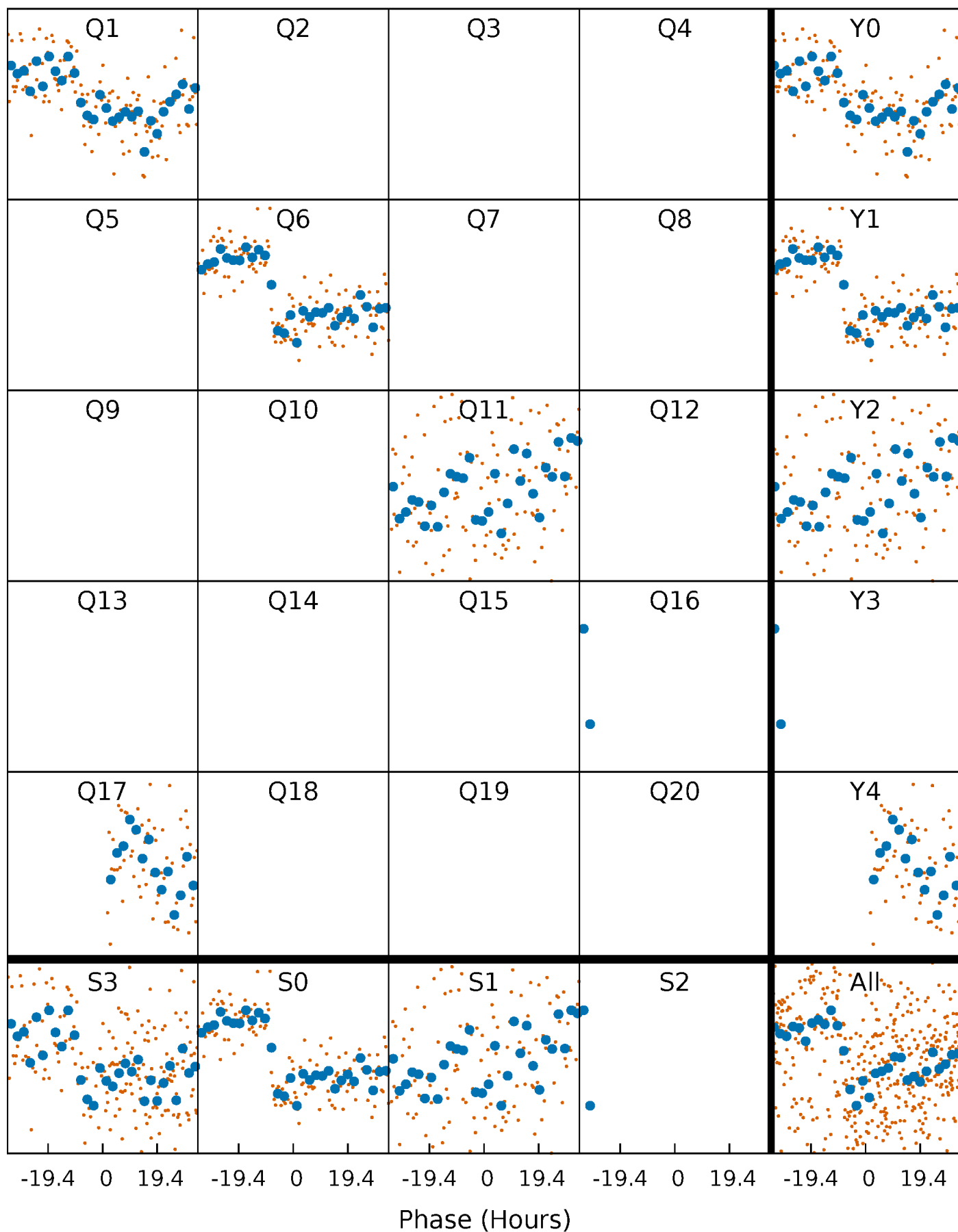


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

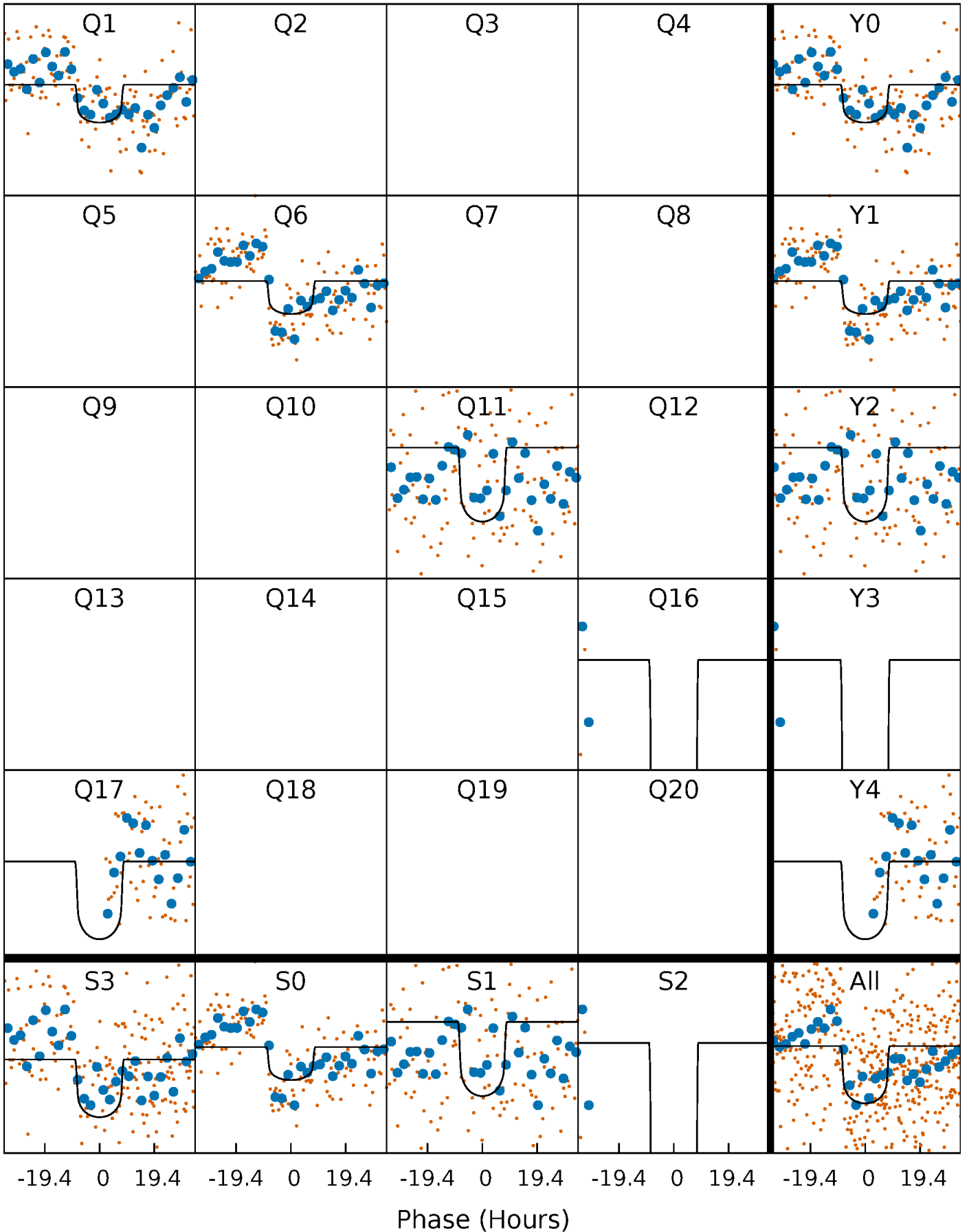
TCE 006437103-01 P=470.834298 Days  $T_0=146.669649$  (BKJD)





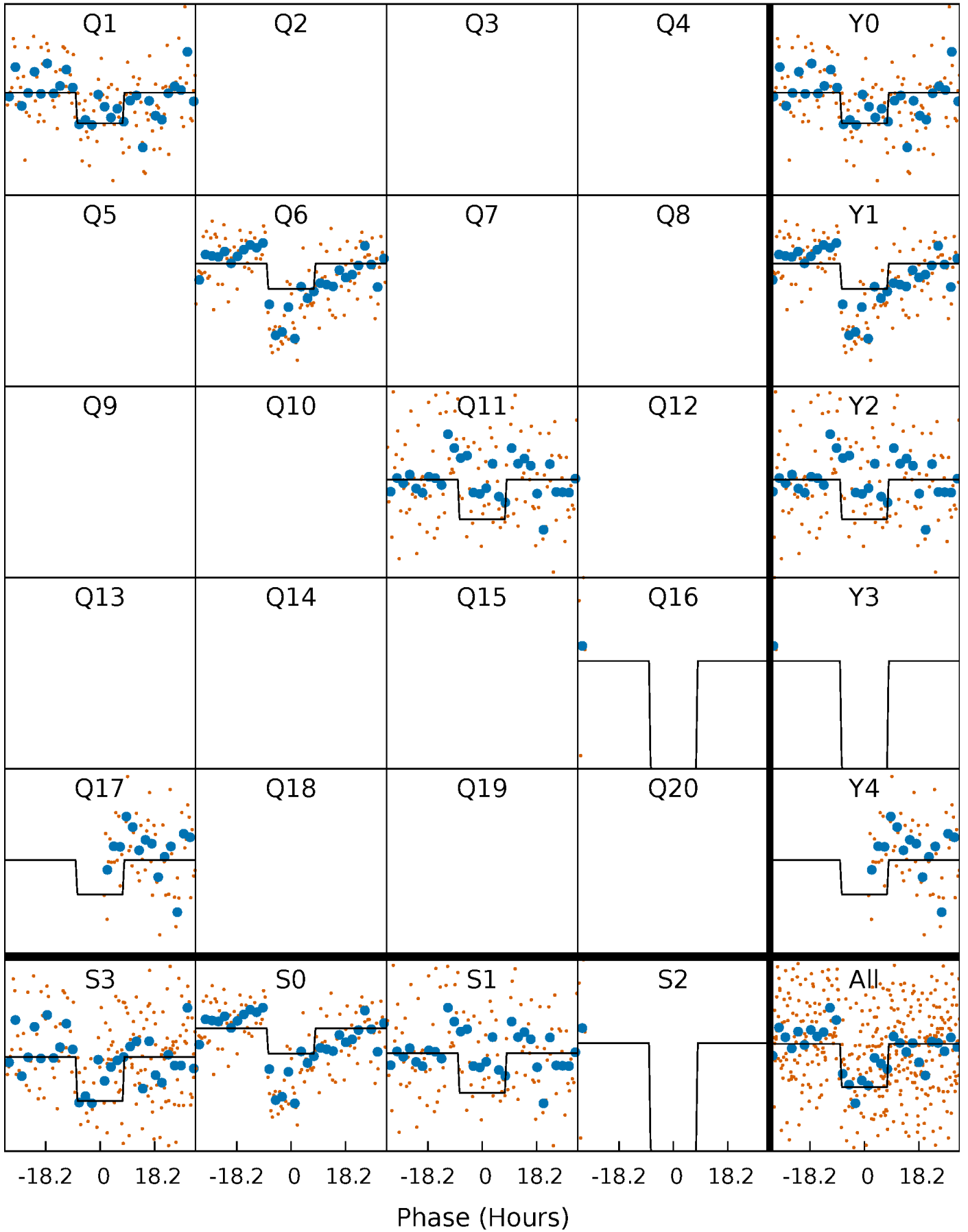
# DV Quarter-Phased Transit Curves

TCE 006437103-01 P=470.834298 Days  $T_0=146.669649$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

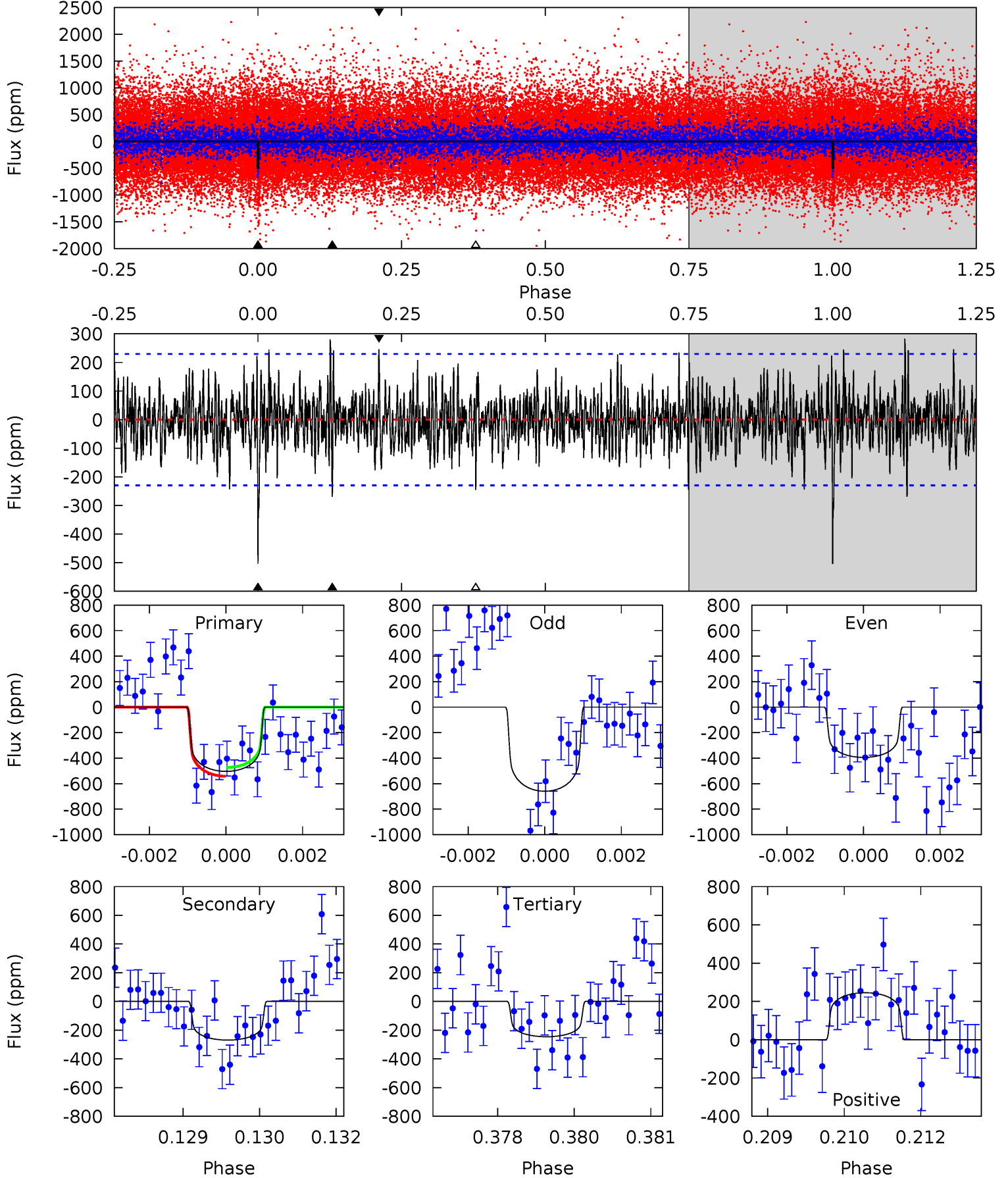
TCE 006437103-01 P=470.843712 Days  $T_0=146.657816$  (BKJD)



# DV Model-Shift Uniqueness Test

006437103-01, P = 470.834298 Days, E = 146.669649 Days

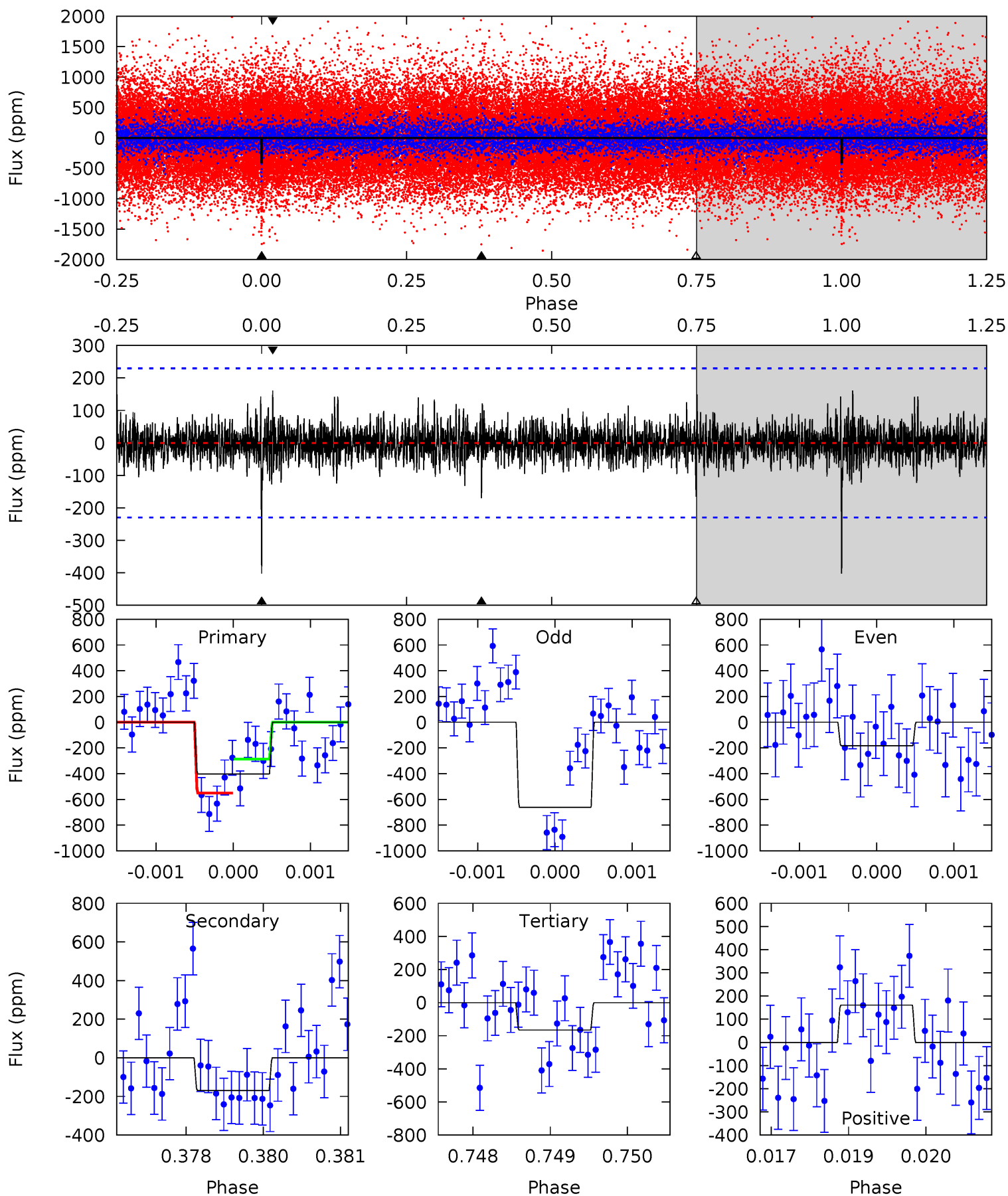
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	6.31	5.76	5.76	5.38	3.17	1.69	6.05	6.05	0.55	0.55	3.08	1.18	0.36	0.80



# Alt Model-Shift Uniqueness Test

006437103-01, P = 470.843712 Days, E = 146.657816 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
9.44	3.98	3.89	3.77	5.39	3.19	0.86	5.55	5.67	0.09	0.21	5.59	1.72	0.29	3.07



### Stellar Parameters For KIC 006437103

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6404^{+173}_{-211}$	$4.393^{+0.062}_{-0.188}$	$-0.060^{+0.250}_{-0.300}$	$1.142^{+0.327}_{-0.140}$	$1.175^{+0.169}_{-0.152}$	$1.113^{+0.363}_{-0.536}$
	+3%/-3%	+1%/-4%	+417%/-500%	+29%/-12%	+14%/-13%	+33%/-48%
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 006437103-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-269 \pm 43$	$3.25^{+0.75}_{-0.69}$	$384^{+26}_{-20}$	$5234^{+592}_{-457}$	$21674^{+13458}_{-8097}$
Alt.	$-170 \pm 43$	$2.80^{+0.81}_{-0.74}$	$384^{+27}_{-20}$	$5058^{+765}_{-523}$	$18472^{+16031}_{-8062}$

$T_{\text{max}}$  = 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

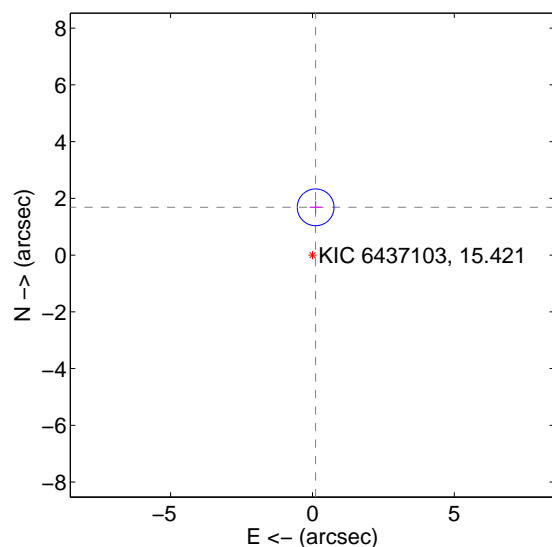
Supplemental centroid analysis for 006437103-01. Kepler magnitude: 15.42. Transit SNR 9.27

There are 1 quarters with good PRF difference image offsets

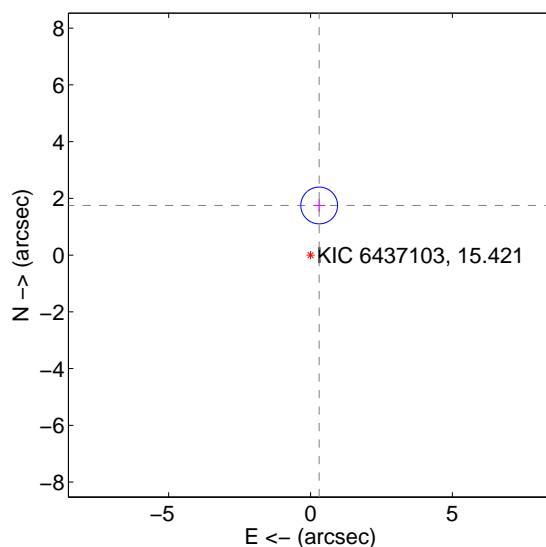
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.688 \pm 0.216$	7.81	$-0.112 \pm 0.210$	$1.684 \pm 0.216$
PRF-fit source offset from KIC position	$1.776 \pm 0.216$	8.22	$-0.305 \pm 0.210$	$1.749 \pm 0.216$
photometric centroid source offset	$2.53 \pm 1.53$	1.66	$2.34 \pm 1.56$	$0.95 \pm 1.28$

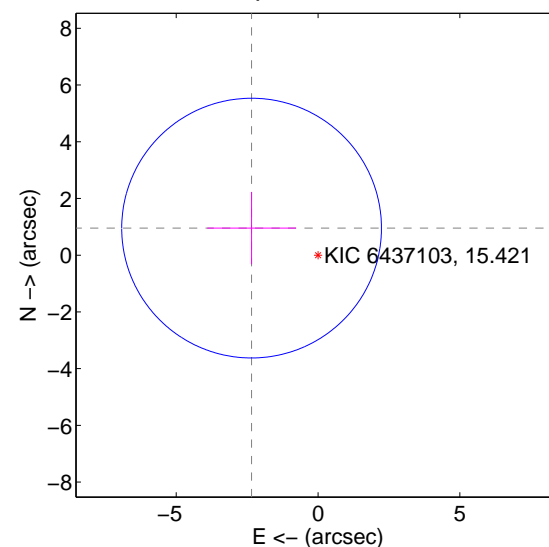
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



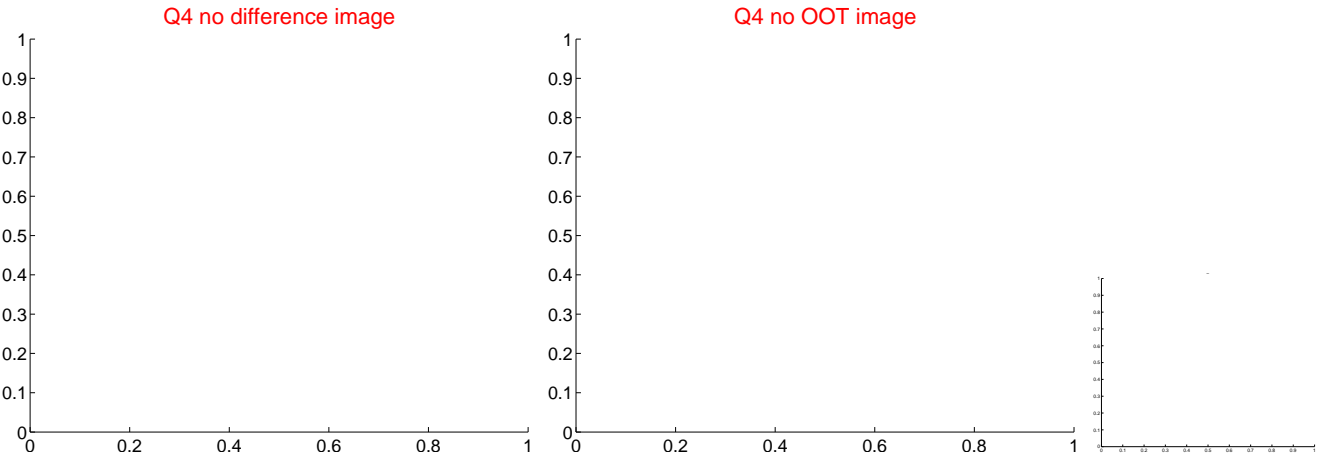
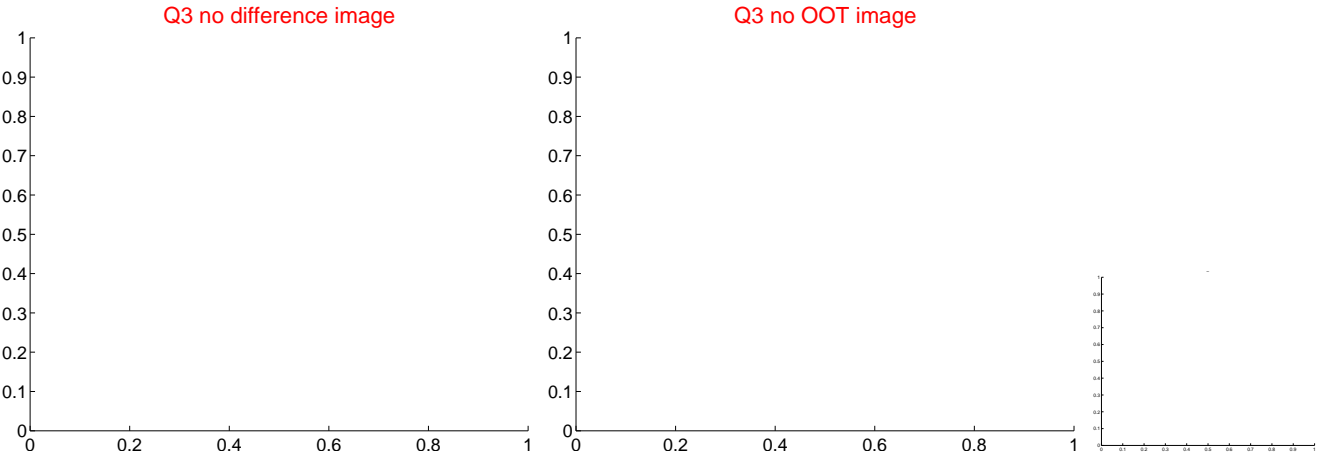
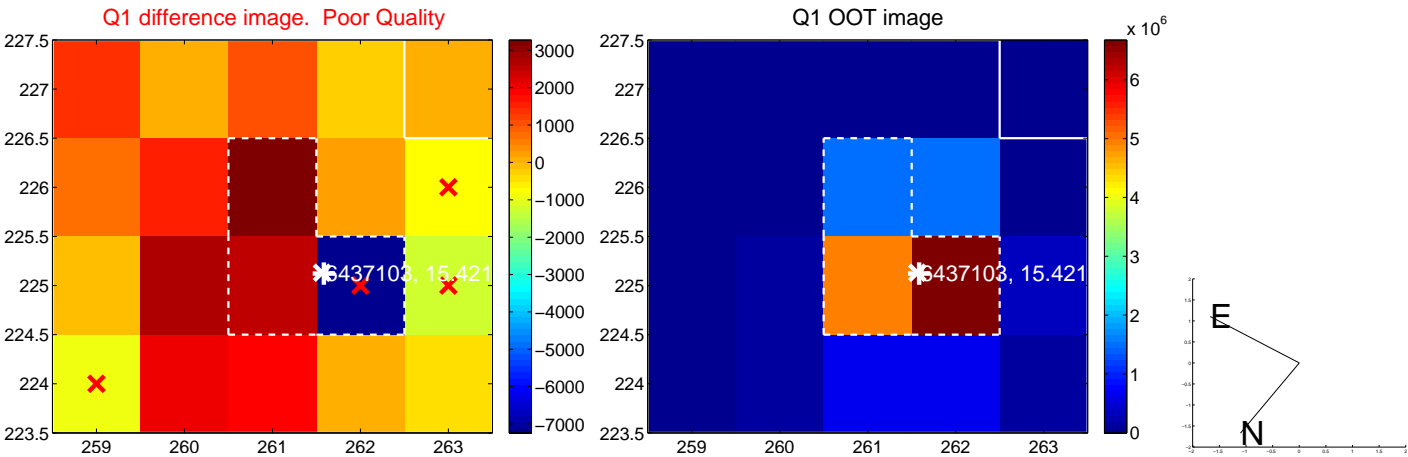
offset from photometric centroids



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 ×: 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.

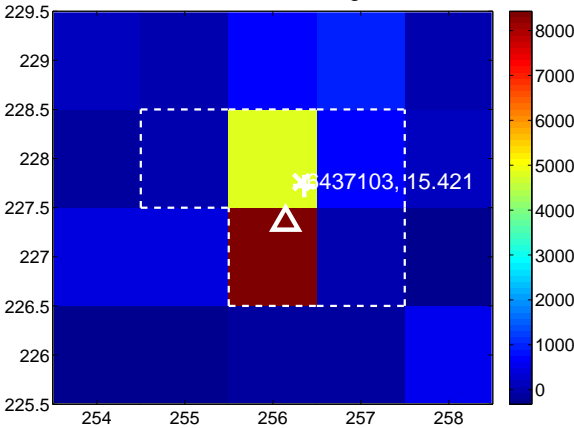
Q5 no difference image



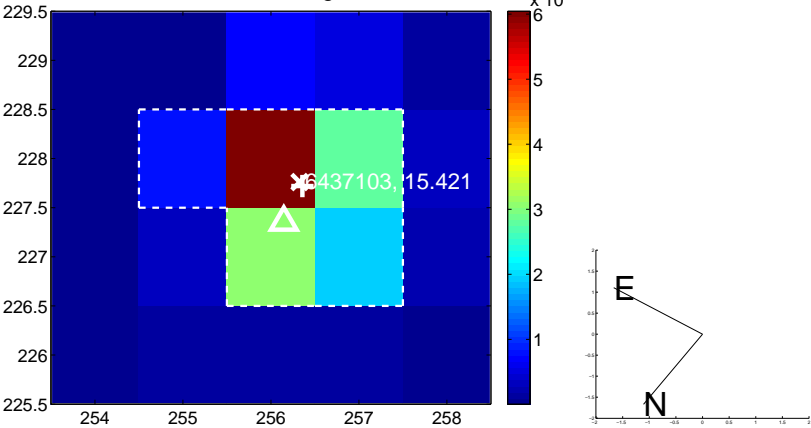
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



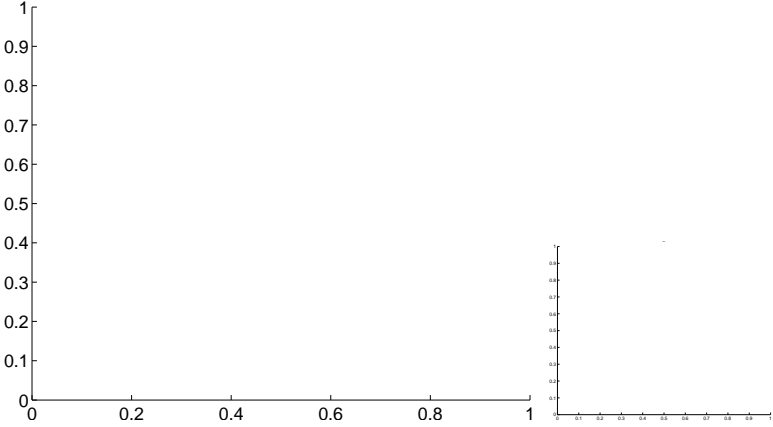
Q7 no OOT image



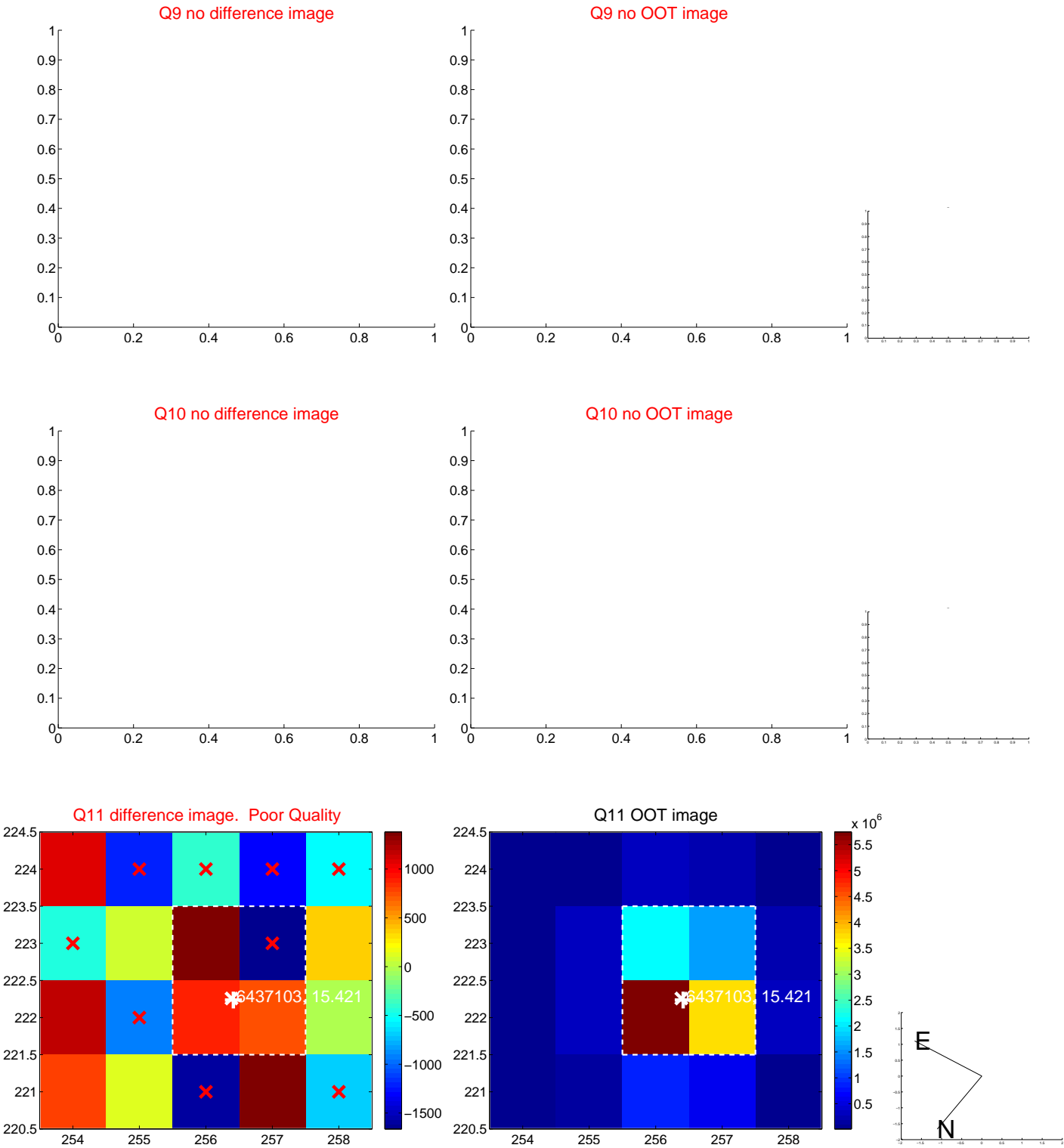
Q8 no difference image



Q8 no OOT image



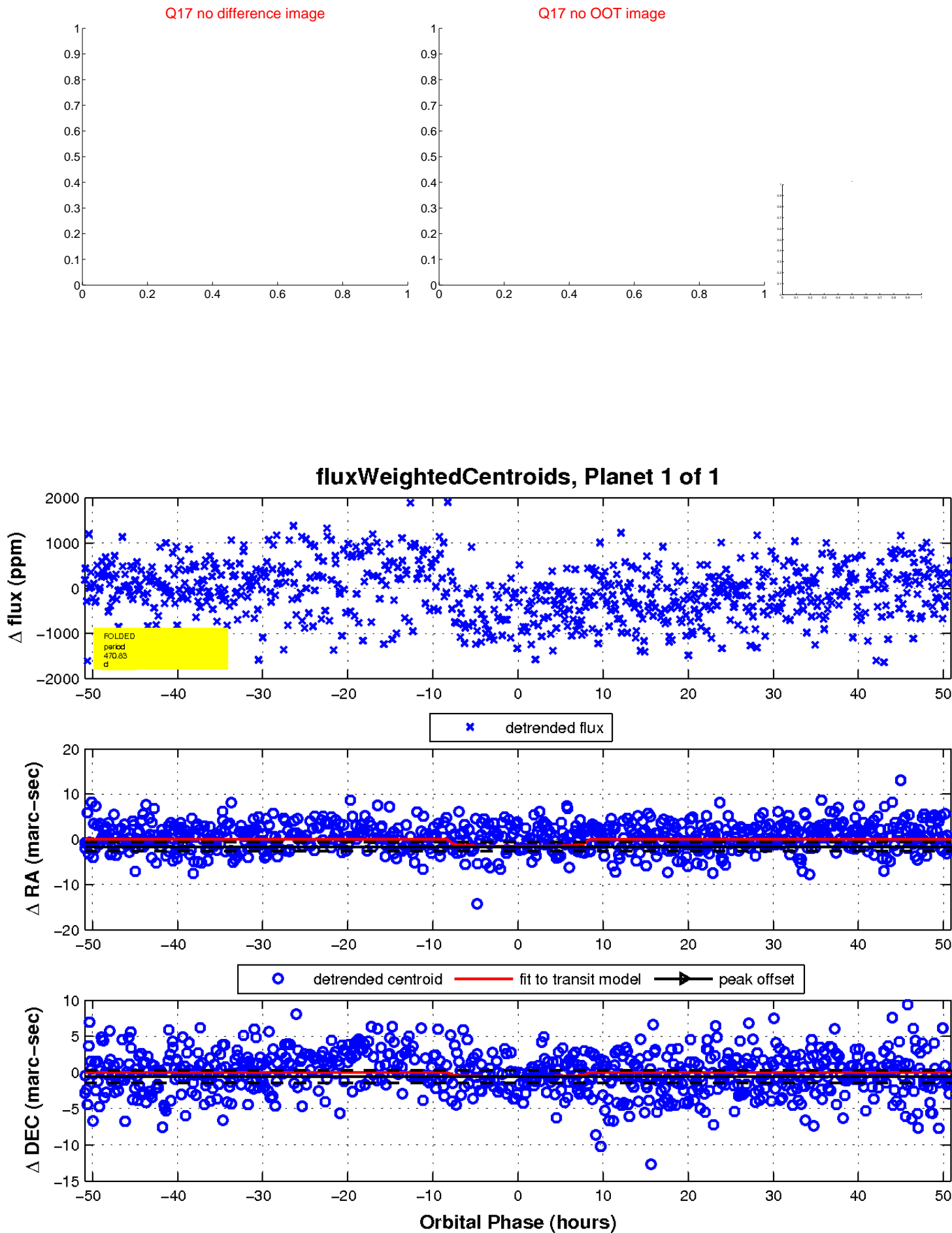
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

