

# KIC 005006437

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005006437-01	OBS	No	538.064220	160.276866	521.2	50.162	11.0	19.2	1.22	6341	3.52	1.24

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005006437-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—ALL_TRANS_CHASES—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.

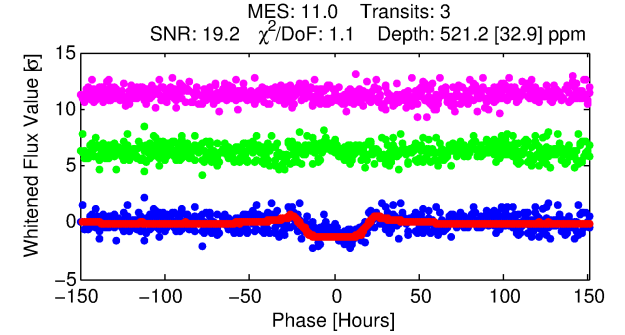
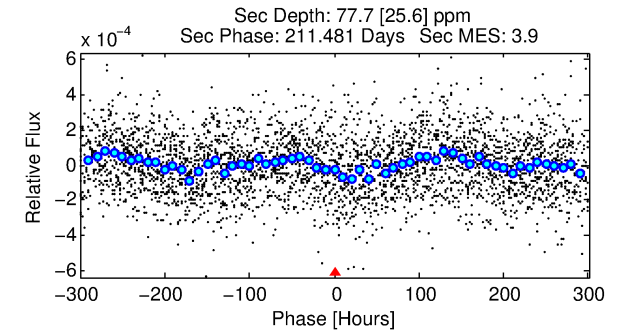
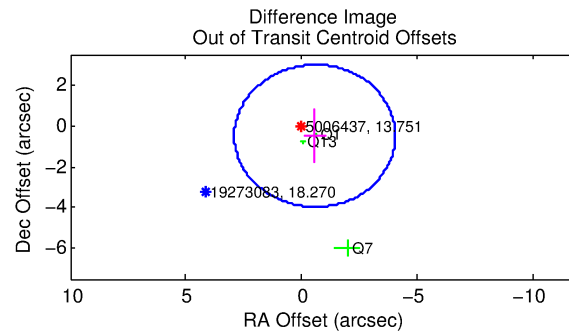
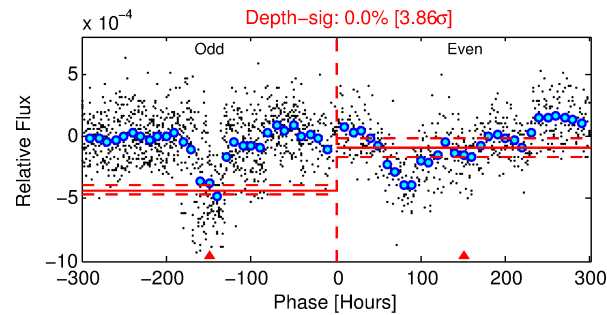
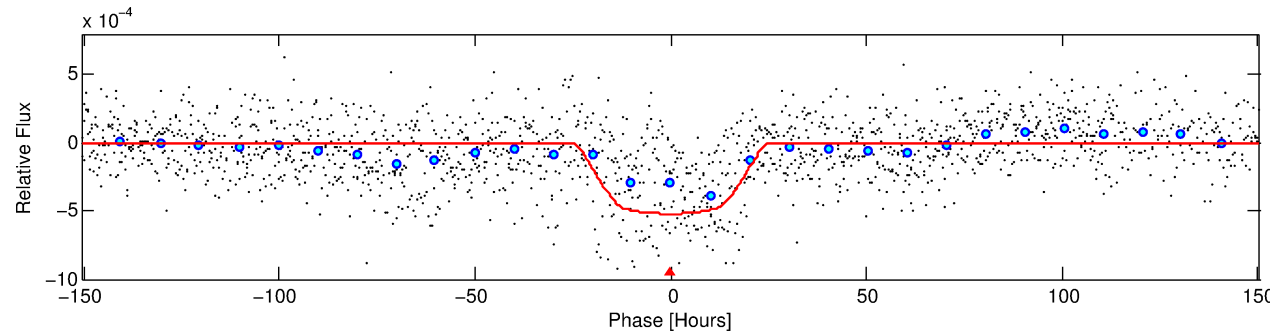
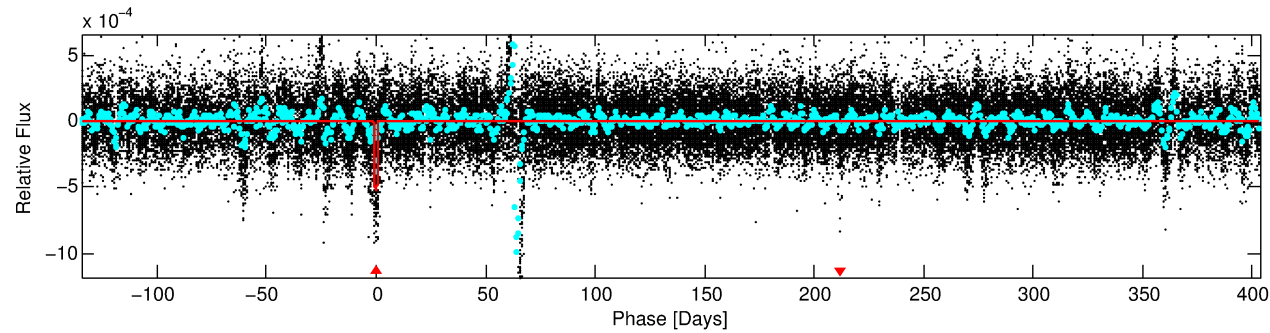
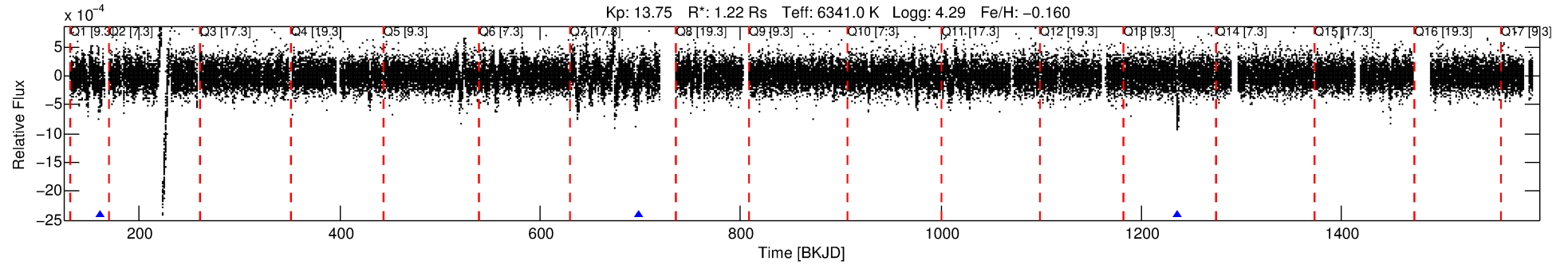
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005006437-01

No Significant Match Found

# DV One-Page Summary

KIC: 5006437 Candidate: 1 of 1 Period: 538.064 d



## DV Fit Results:

Period = 538.06422 [0.02790] d  
Epoch = 160.2769 [0.0404] BKJD  
Rp/R\* = 0.0263 [0.0010]  
a/R\* = 30.29 [2.58]  
b = 0.96 [0.01]  
Seff = 1.23 [0.49]  
Teq = 269 [26] K  
Rp = 3.52 [1.13] Re  
a = 1.3257 [0.3468] AU  
Ag = 6066.29 [3044.37] [1.99 $\sigma$ ]  
Teffp = 3668 [332] K [10.21 $\sigma$ ]

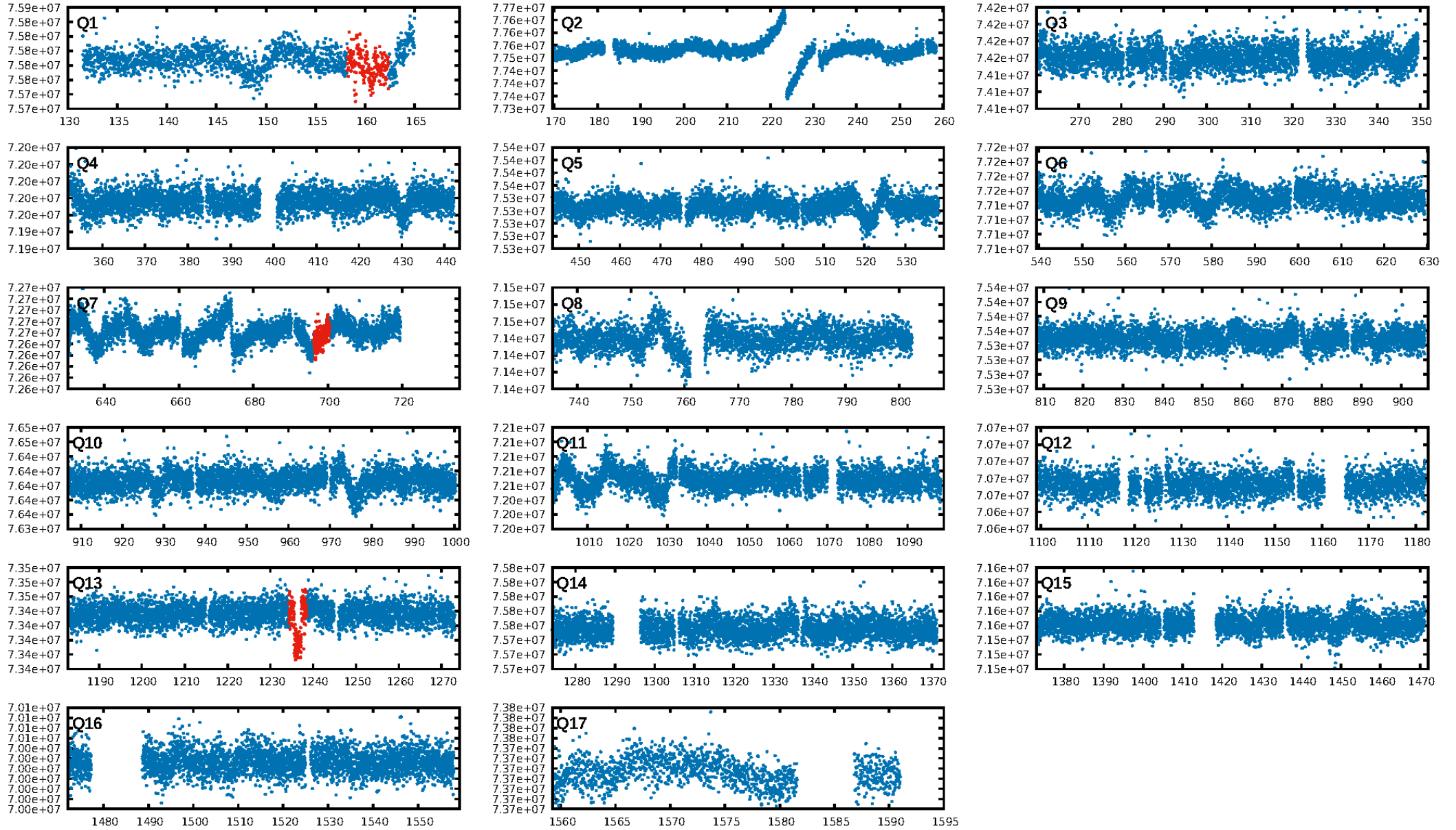
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: 1.19e-11  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 1.4  
Centroid-sig: 2.8%  
Centroid-so: 0.682 arcsec [1.48 $\sigma$ ]  
OotOffset-rm: 0.758 arcsec [0.65 $\sigma$ ]  
KicOffset-rm: 0.677 arcsec [0.53 $\sigma$ ]  
OotOffset-st: 0/1/0/2 [3]  
KicOffset-st: 0/1/0/2 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

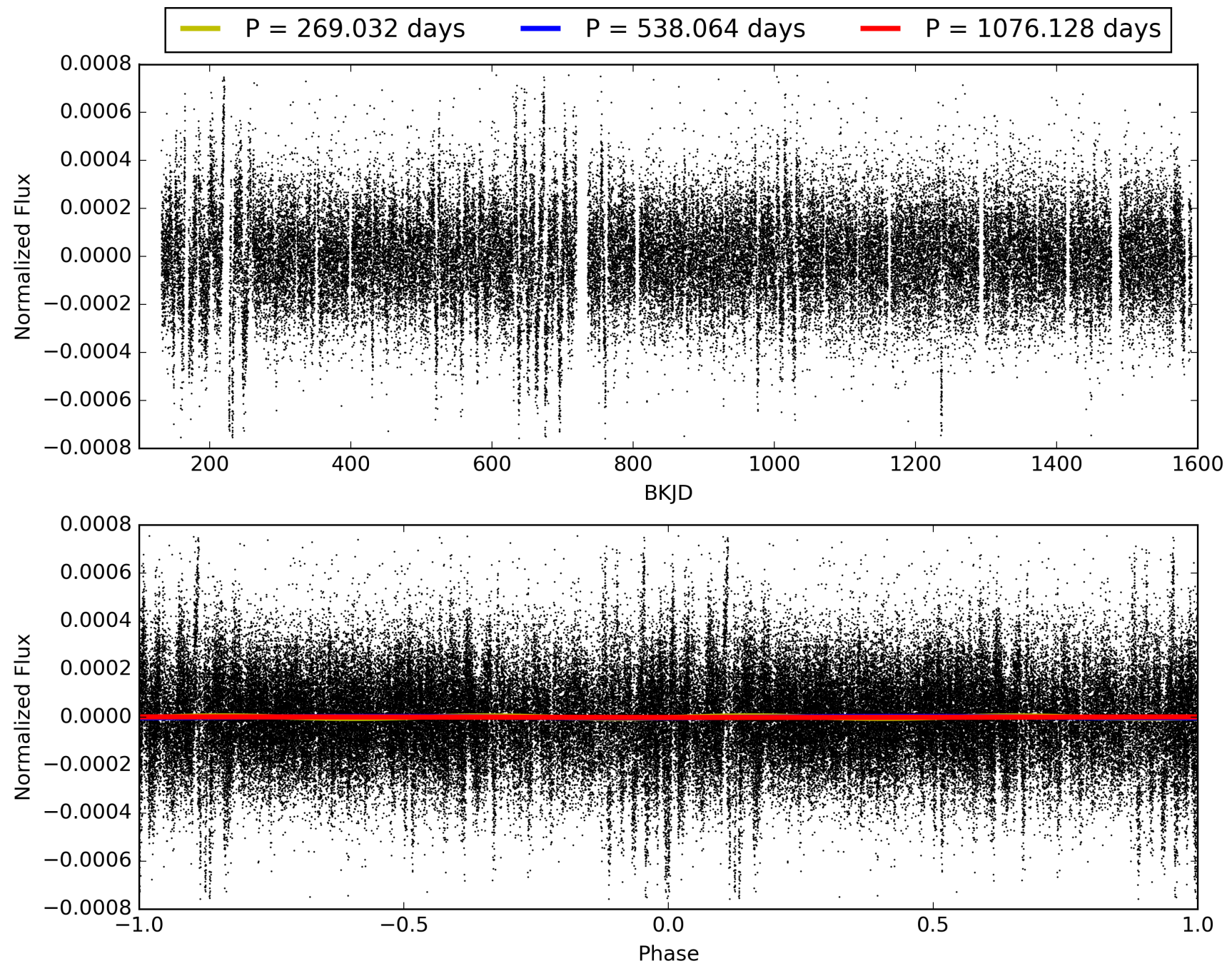
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:34:43 Z

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

# TCE 005006437-01, PDC Light Curves

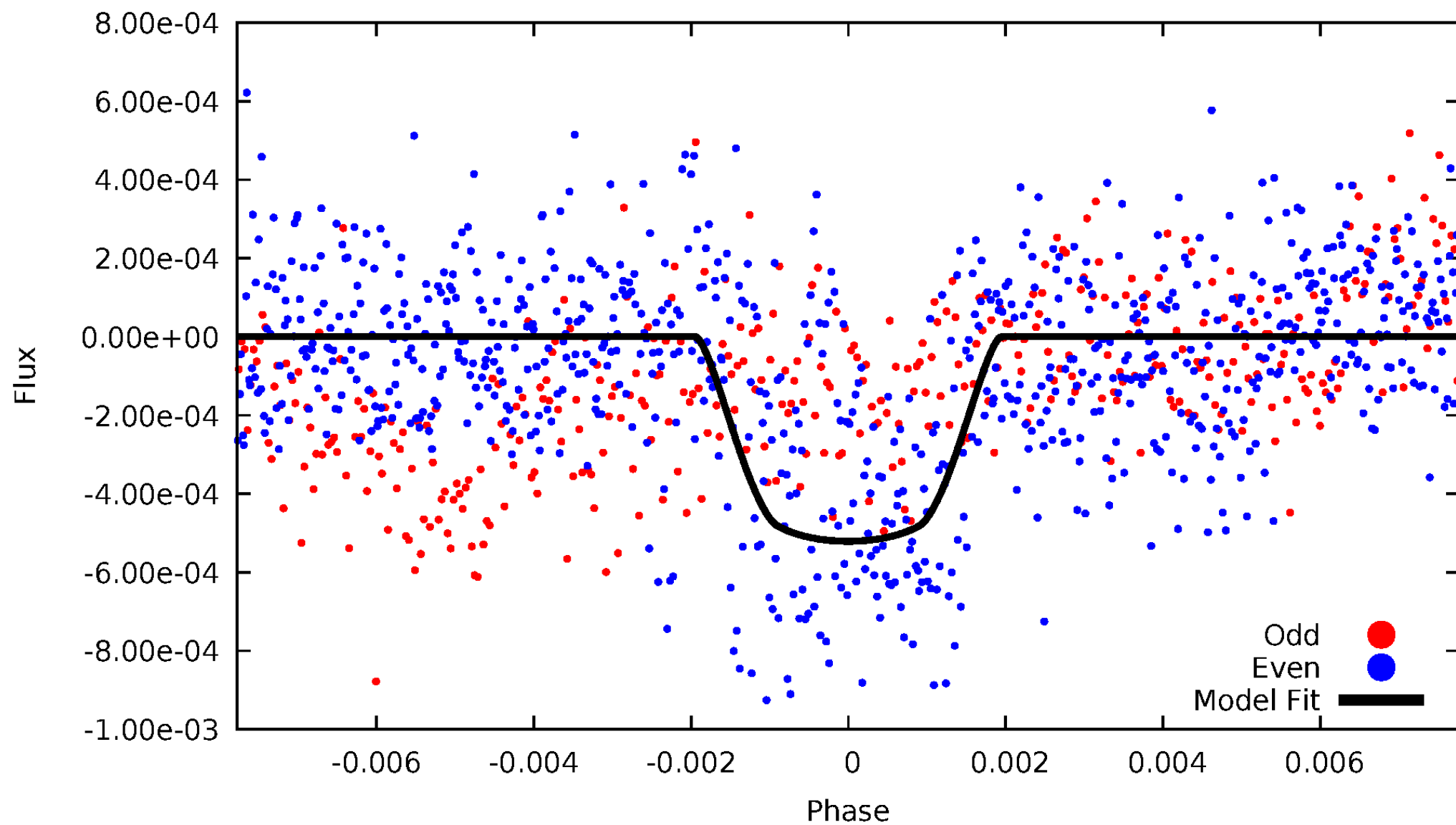


TCE 005006437-01



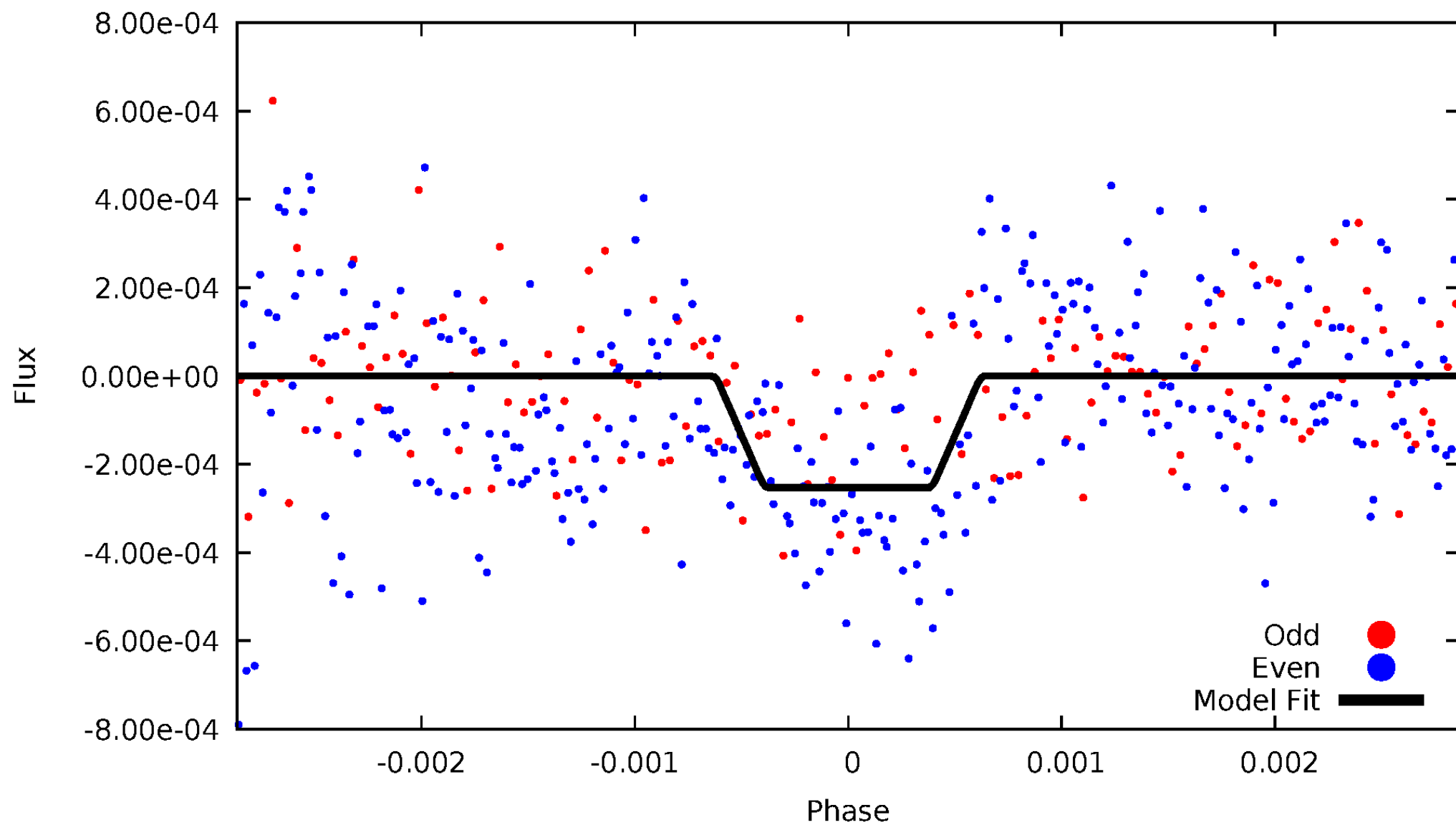
# DV Odd/Even

TCE 005006437-01



# ALT Odd/Even

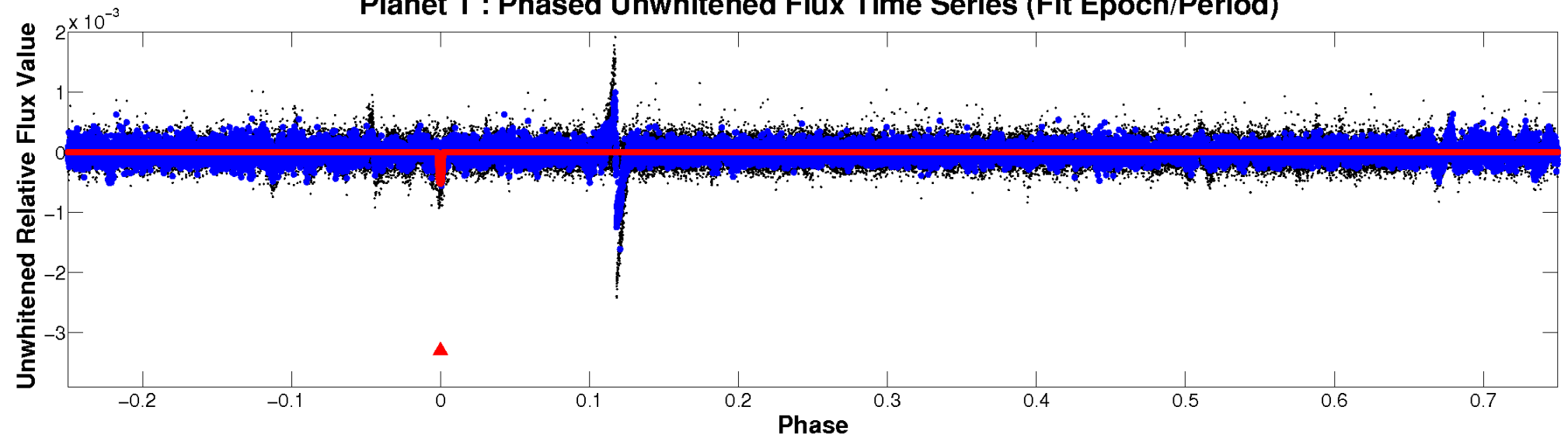
TCE 005006437-01



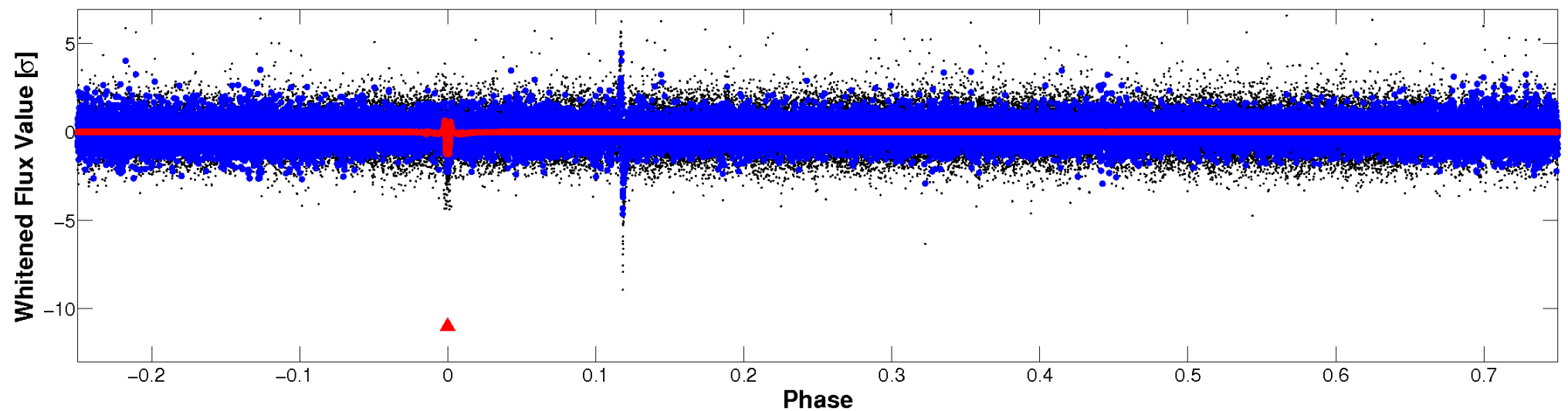


# Non-Whitened Vs. Whitened Light Curve

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 005006437-01 P=538.064220 Days  $T_0=160.276866$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 005006437-01     $P=538.064220$  Days     $T_0=160.276866$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

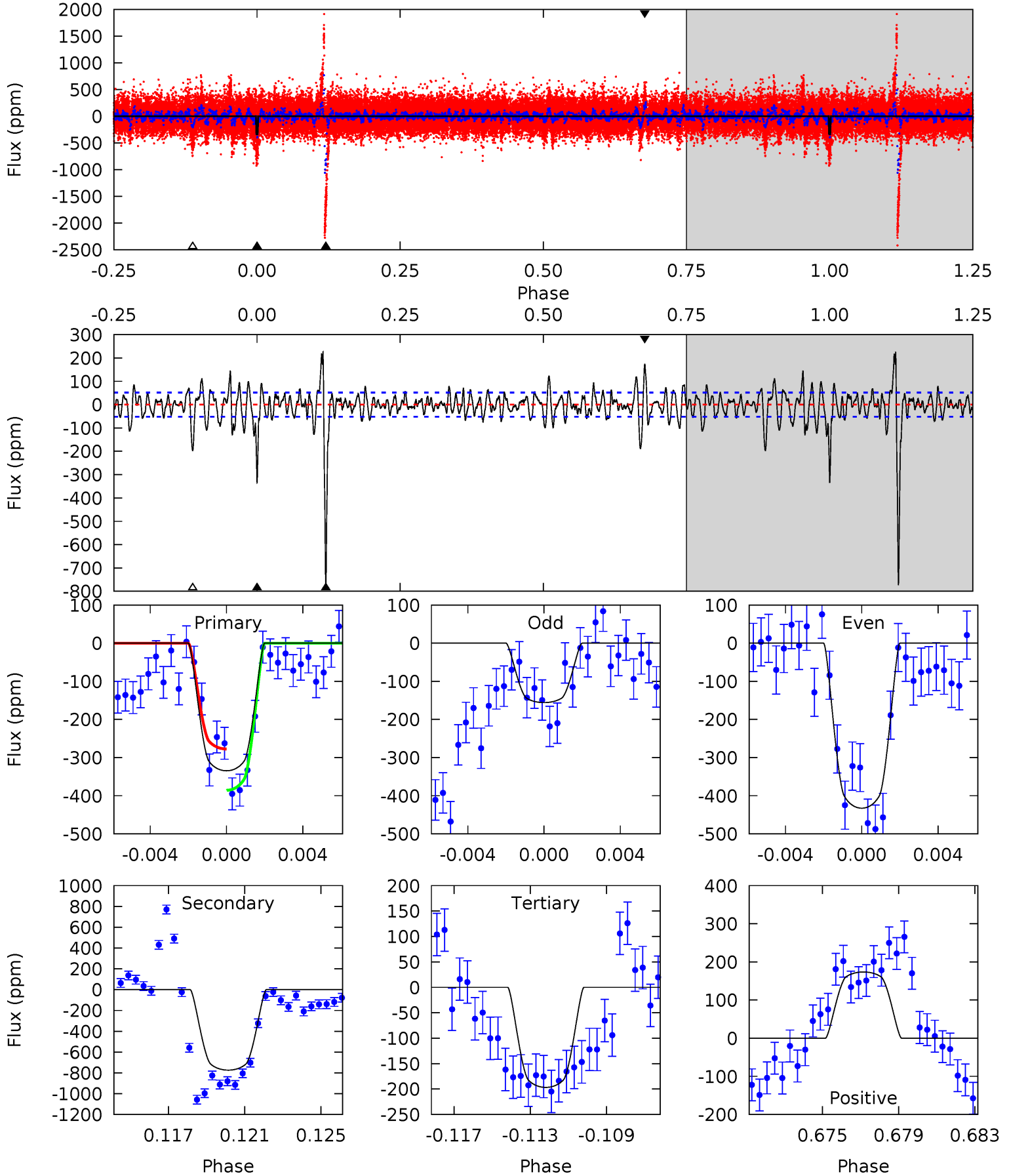
TCE 005006437-01 P=538.172292 Days  $T_0=160.575411$  (BKJD)



# DV Model-Shift Uniqueness Test

005006437-01, P = 538.064220 Days, E = 160.276866 Days

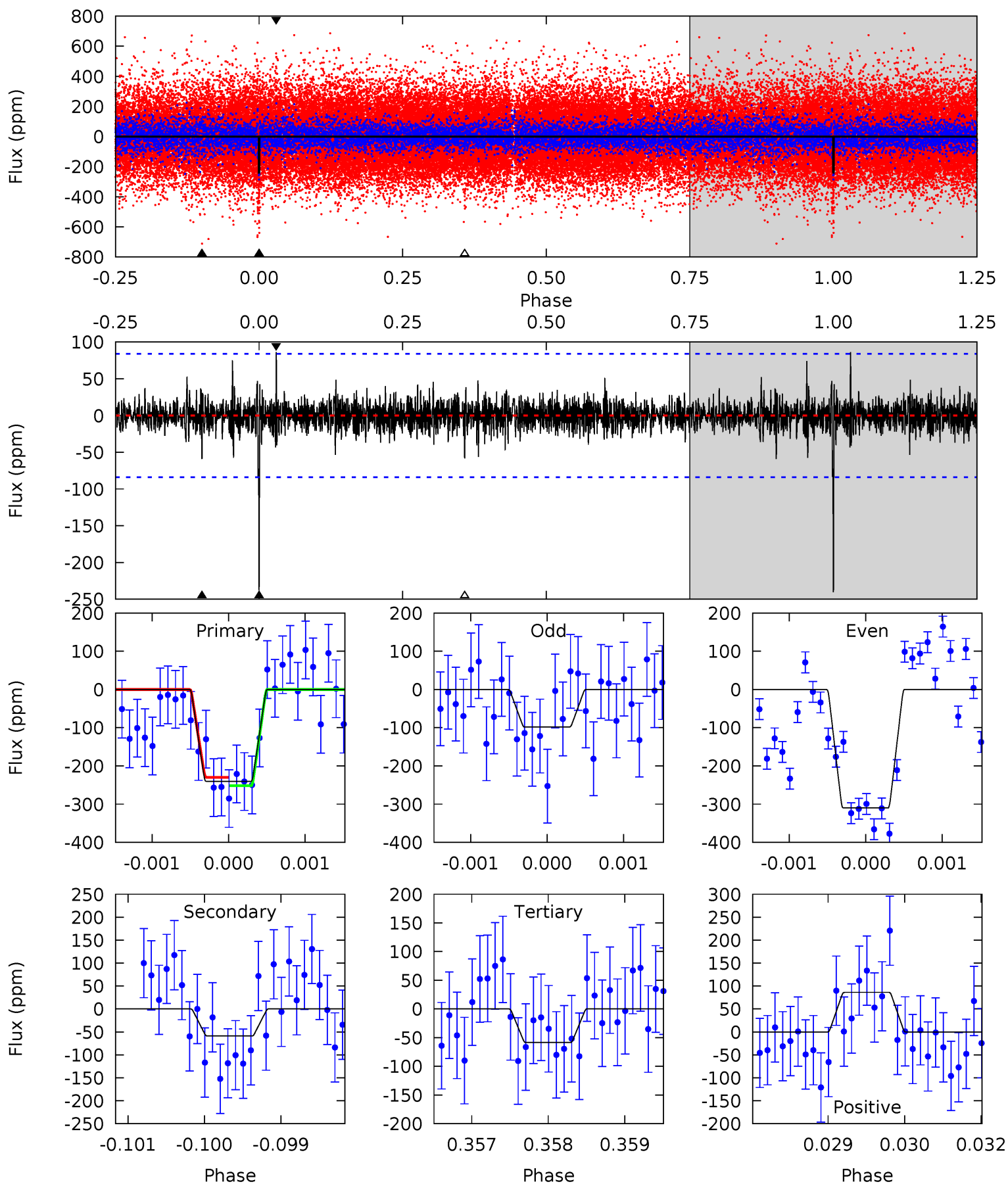
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.7	77.9	19.8	17.5	5.20	2.89	4.76	13.9	16.2	58.1	60.4	13.1	1.87	0.23	5.44



# Alt Model-Shift Uniqueness Test

005006437-01, P = 538.172292 Days, E = 160.575411 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
15.5	3.80	3.76	5.54	5.41	3.22	0.90	11.7	9.94	0.03	-1.75	6.44	0.86	0.26	0.71



### Stellar Parameters For KIC 005006437

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6341^{+169}_{-206}$	$4.293^{+0.132}_{-0.198}$	$-0.160^{+0.250}_{-0.300}$	$1.224^{+0.391}_{-0.210}$	$1.070^{+0.185}_{-0.123}$	$0.822^{+0.504}_{-0.420}$
	+3%/-3%	+3%/-5%	+156%/-188%	+32%/-17%	+17%/-11%	+61%/-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 005006437-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-774 \pm 10$	$3.55^{+0.59}_{-0.40}$	$377^{+27}_{-23}$	$6517^{+232}_{-227}$	$58994^{+15650}_{-14540}$
Alt.	$-59 \pm 16$	$2.15^{+0.39}_{-0.27}$	$377^{+30}_{-22}$	$4539^{+300}_{-289}$	$11672^{+5474}_{-4186}$

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

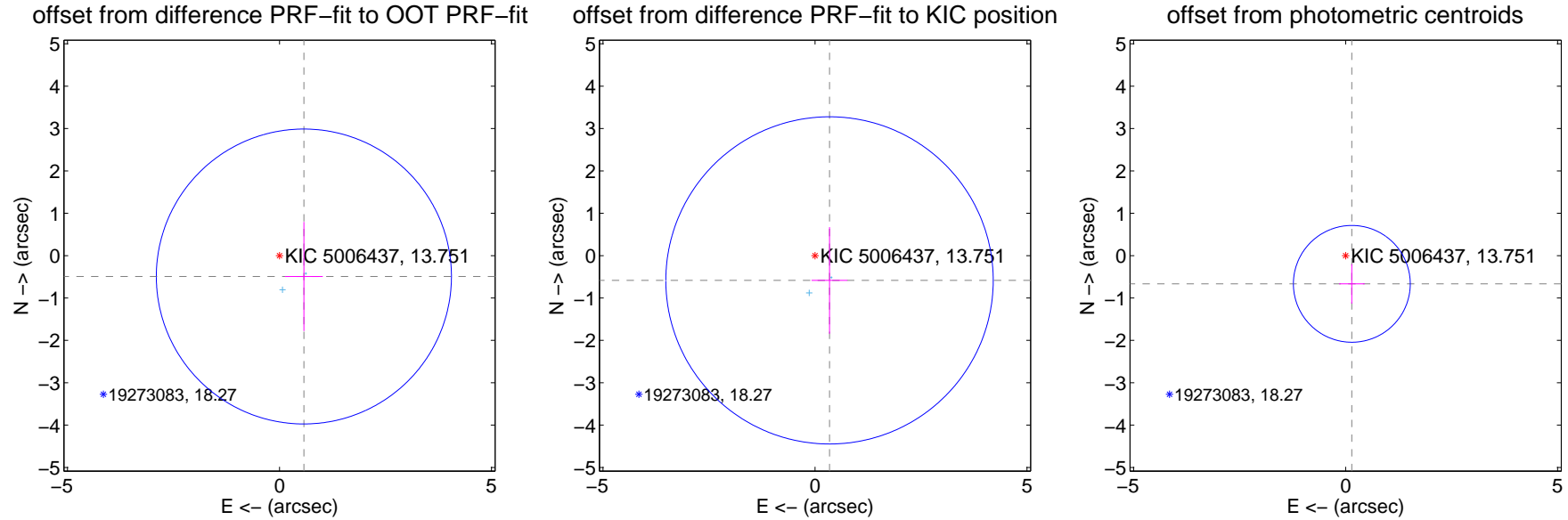
## DV Centroid Data

Supplemental centroid analysis for 005006437-01. Kepler magnitude: 13.75. Transit SNR 19.17

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

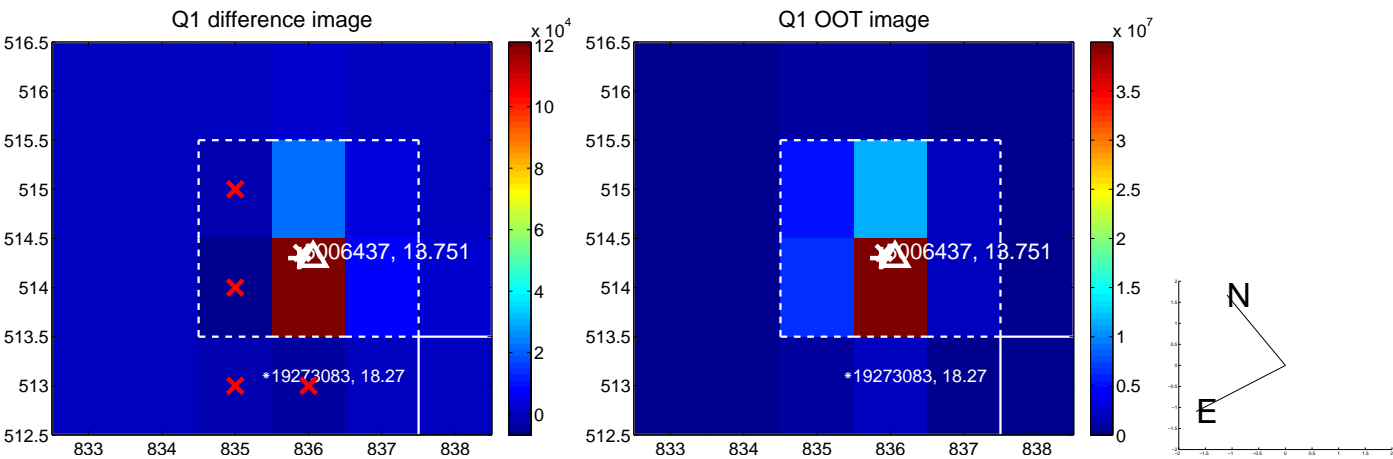
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.758 \pm 1.160$	0.65	$-0.576 \pm 0.447$	$-0.493 \pm 1.288$
PRF-fit source offset from KIC position	$0.677 \pm 1.287$	0.53	$-0.343 \pm 0.422$	$-0.584 \pm 1.258$
photometric centroid source offset	$0.68 \pm 0.46$	1.48	$-0.15 \pm 0.30$	$-0.67 \pm 0.47$



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.

Q5 no difference image



Q5 no OOT image



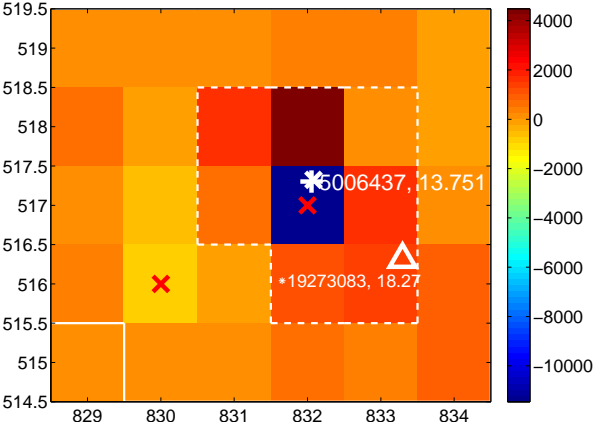
Q6 no difference image



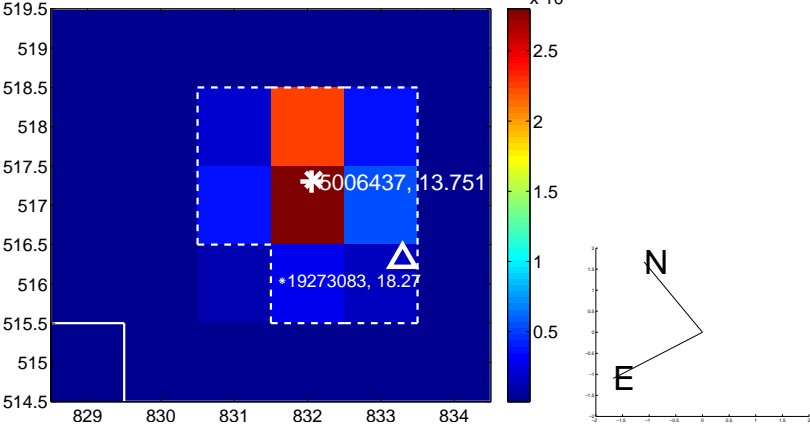
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



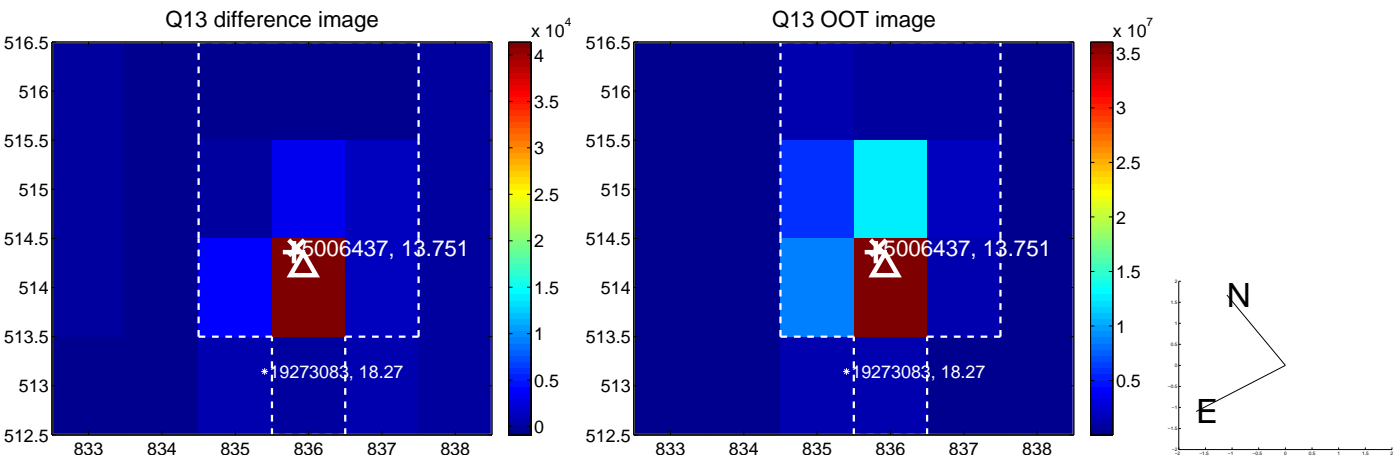
Q8 no OOT image



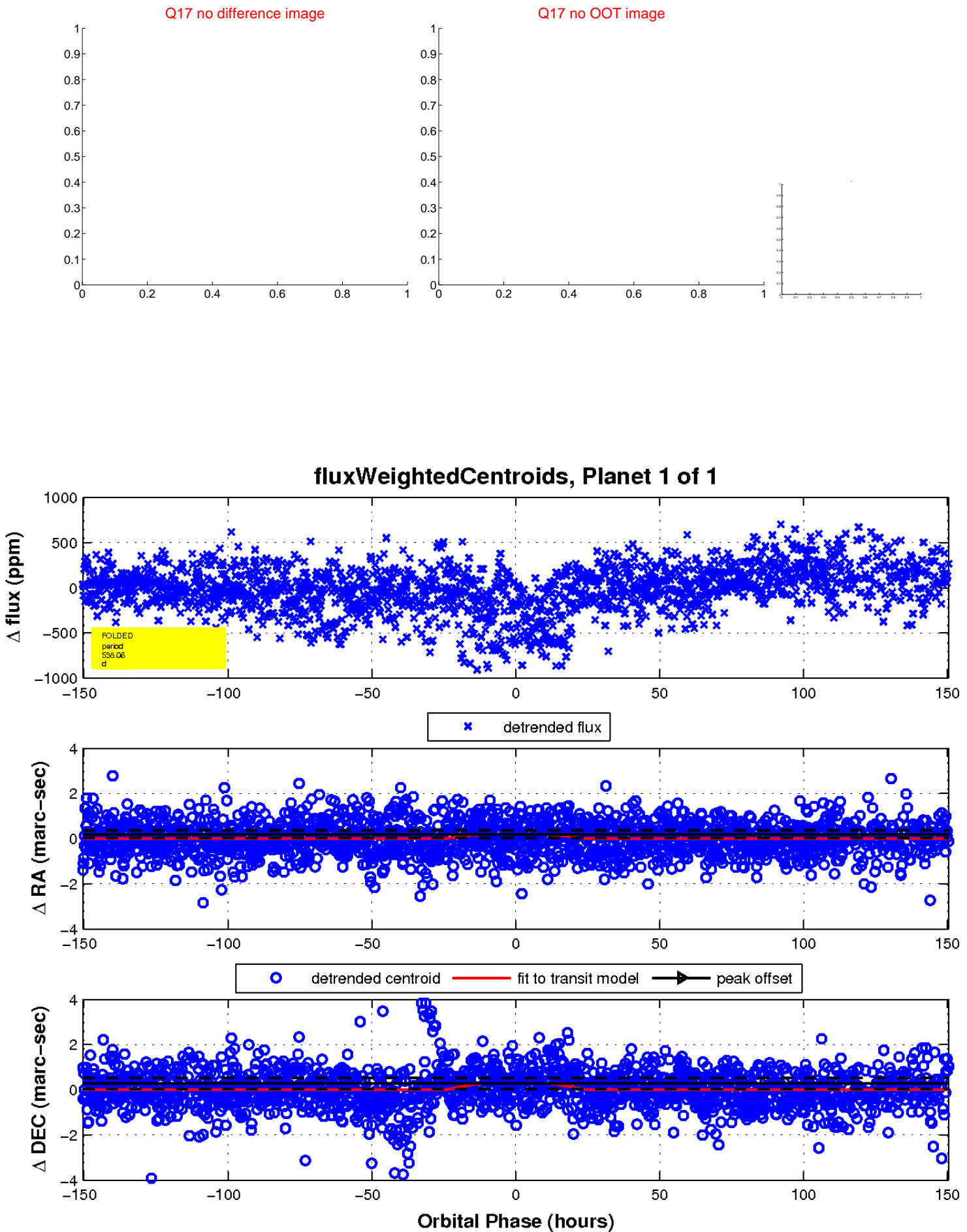
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

