

# KIC 002712016

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002712016-01	OBS	No	381.794816	362.887138	229.8	5.668	8.1	4.5	1.84	7296	3.06	5.97

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002712016-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— 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.

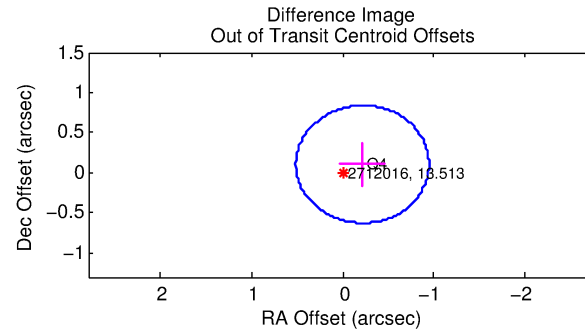
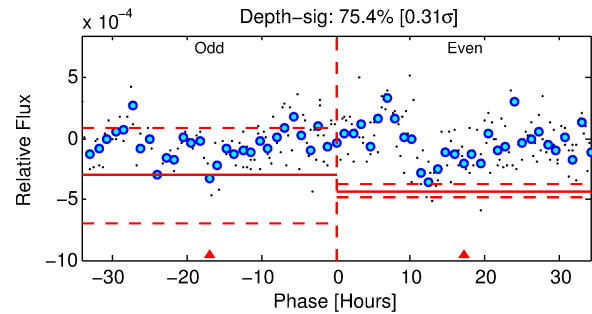
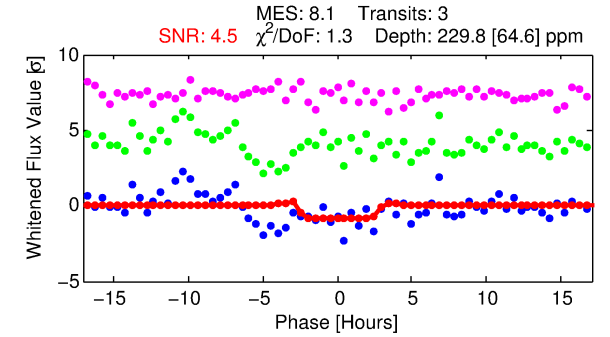
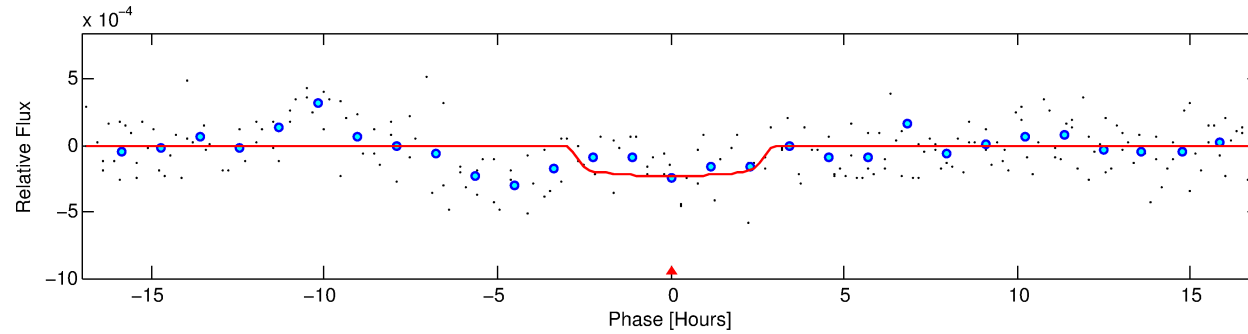
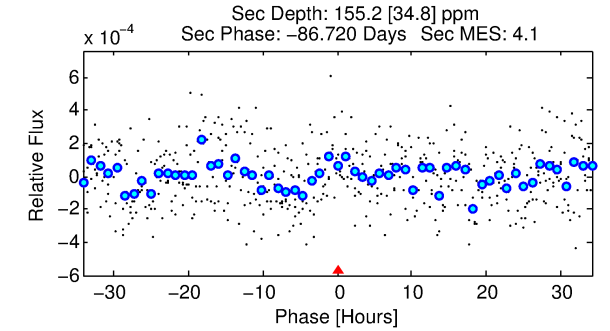
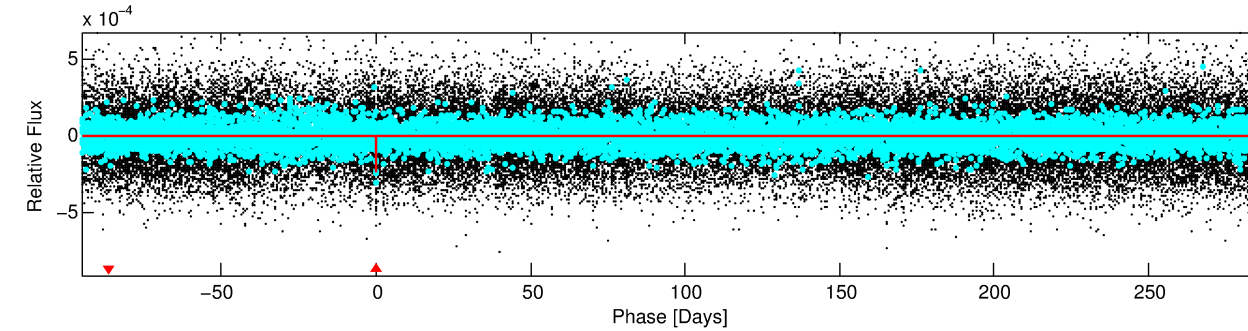
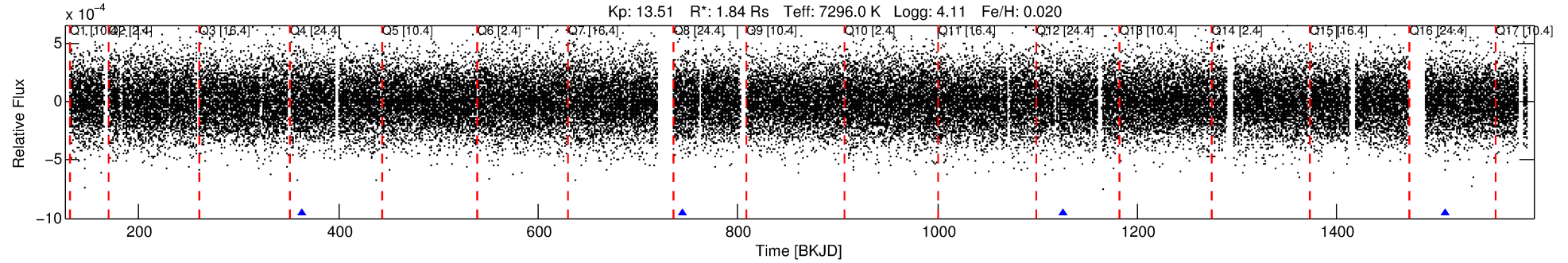
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002712016-01

No Significant Match Found

# DV One-Page Summary

KIC: 2712016 Candidate: 1 of 1 Period: 381.795 d



## DV Fit Results:

Period = 381.79482 [0.00827] d  
Epoch = 362.8871 [0.0178] BKJD  
Rp/R\* = 0.0152 [0.0167]  
a/R\* = 334.54 [2225.99]  
b = 0.78 [3.39]  
Seff = 5.97 [2.36]  
Teff = 399 [39] K  
Rp = 3.06 [3.48] Re  
a = 1.2025 [0.2938] AU  
Ag = 13189.24 [29376.35] [0.45σ]  
Teffp = 6604 [3650] K [1.70σ]

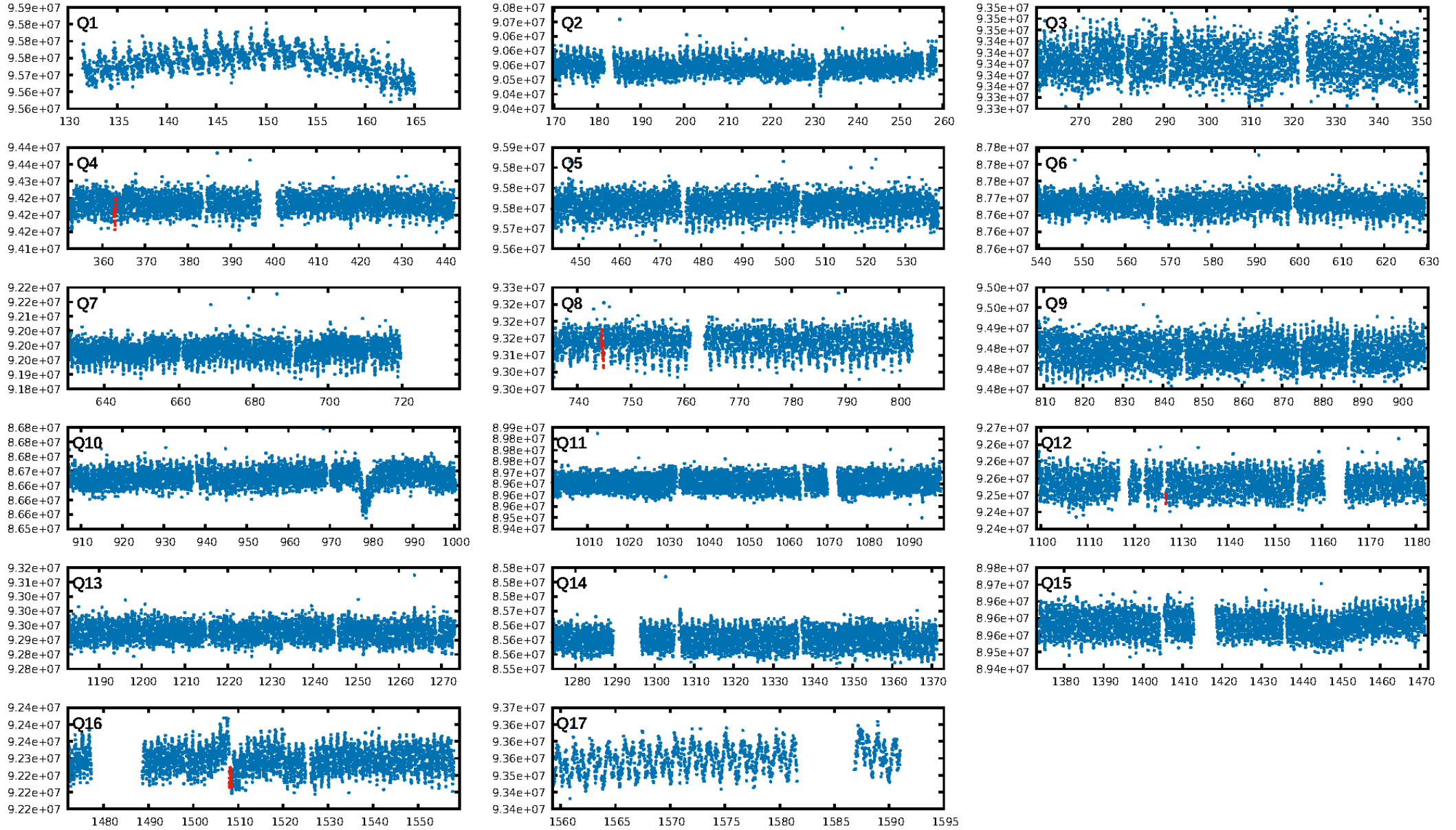
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 81.8%  
Bootstrap-pfa: 1.06e-16  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -3.701  
Centroid-sig: 8.7%  
Centroid-so: 2.968 arcsec [1.38σ]  
OotOffset-rm: 0.241 arcsec [0.99σ]  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-rm: 0.200 arcsec [0.77σ]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

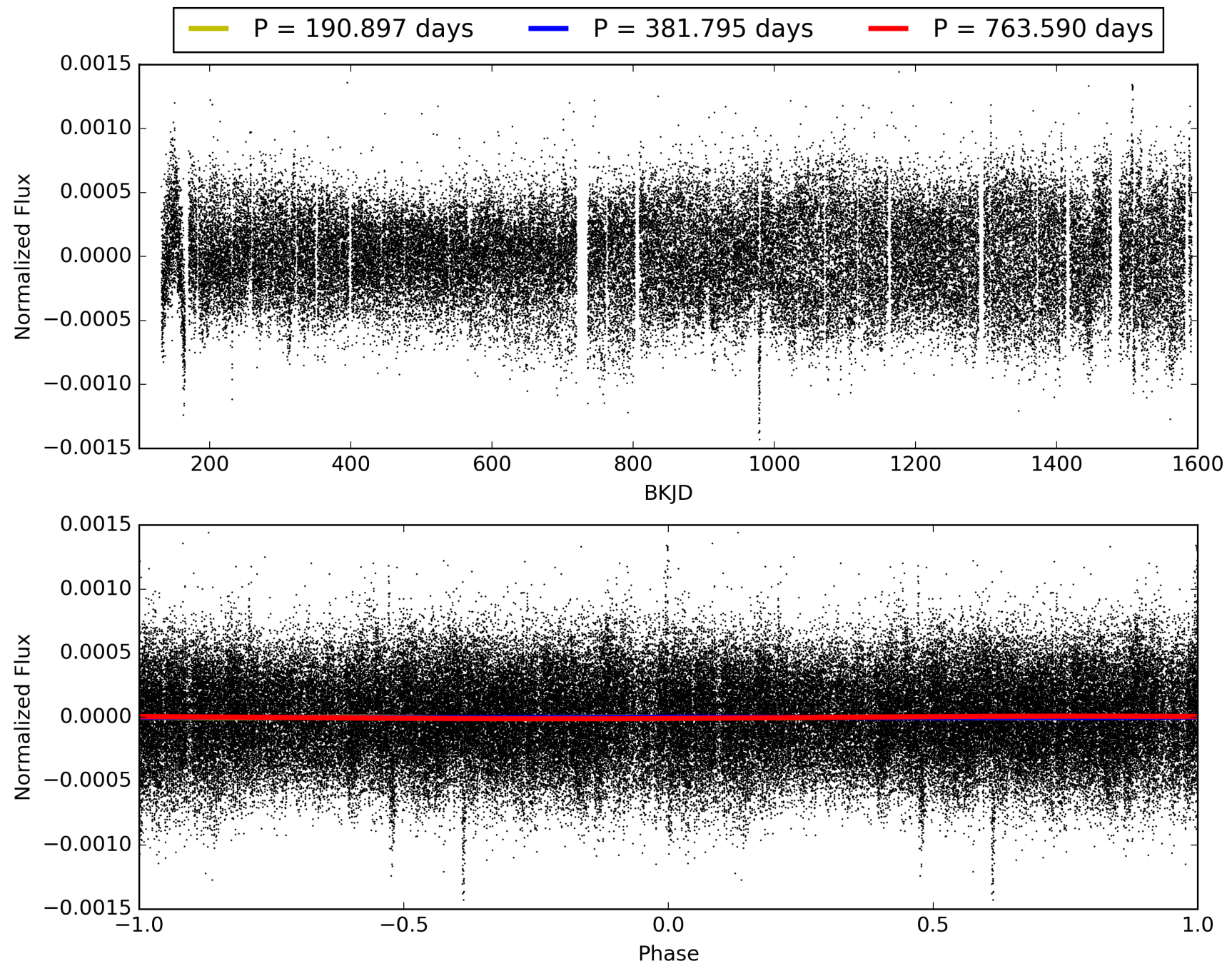
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:10:18 Z

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

# TCE 002712016-01, PDC Light Curves

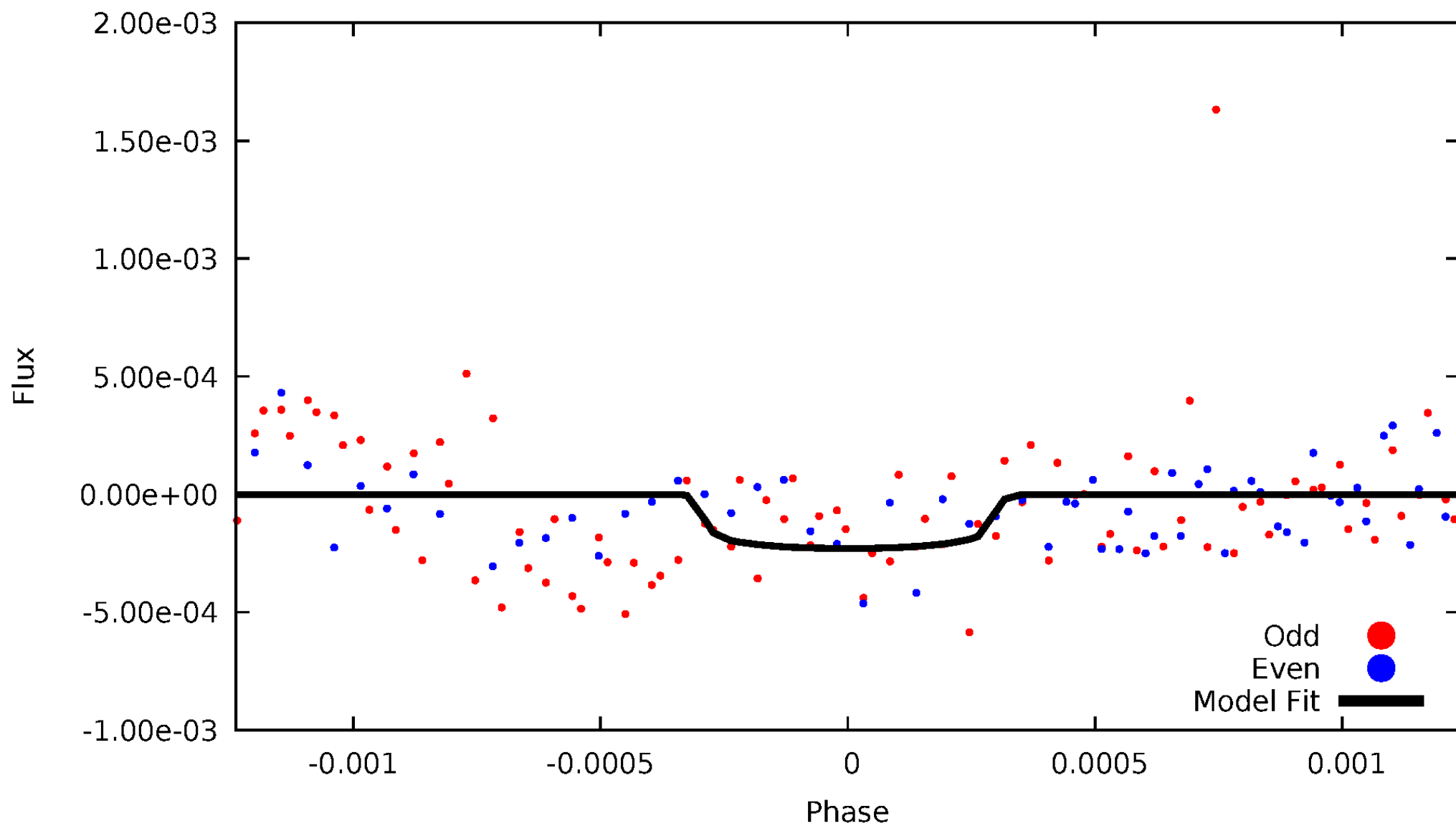


# TCE 002712016-01



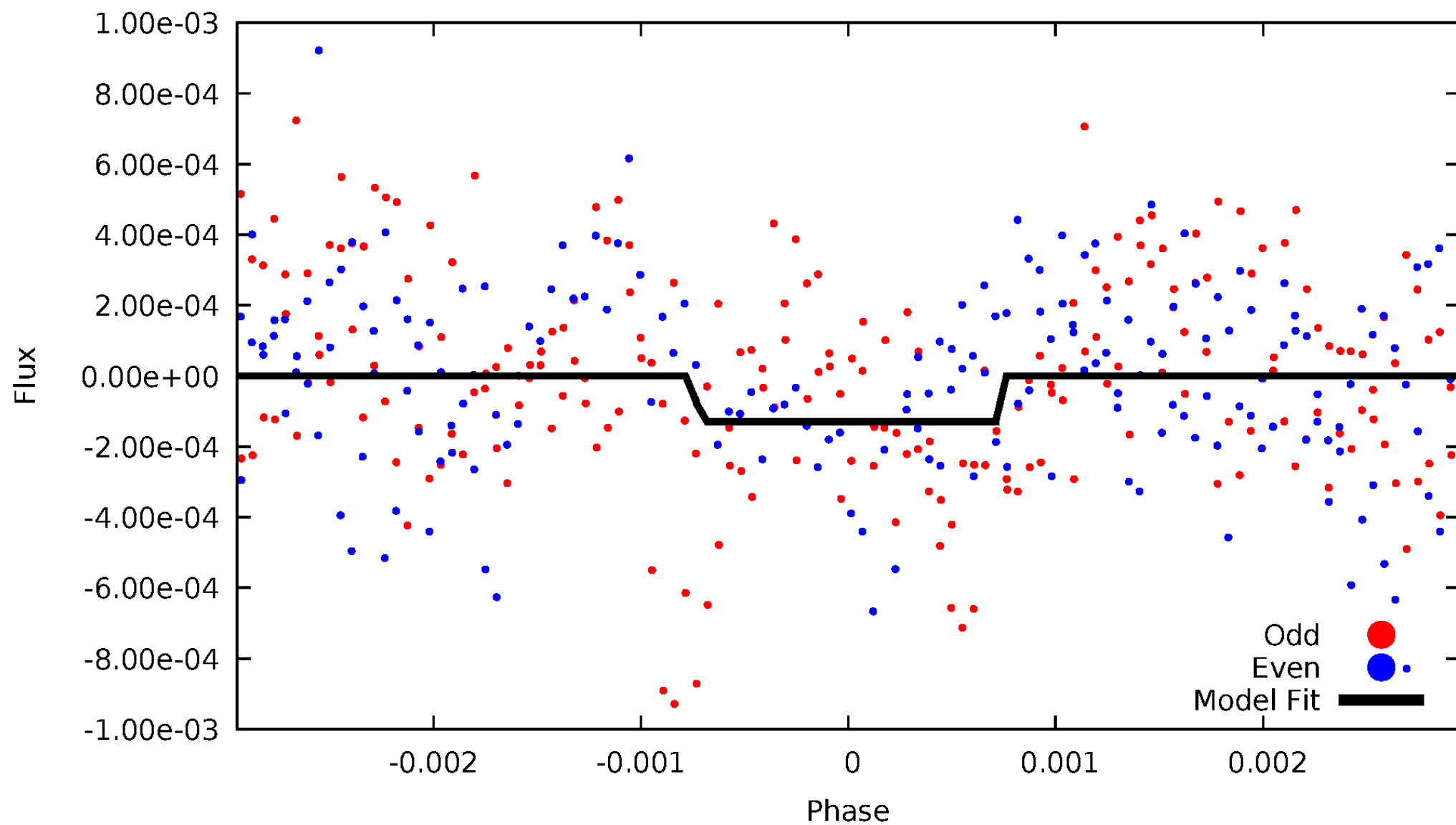
# DV Odd/Even

TCE 002712016-01



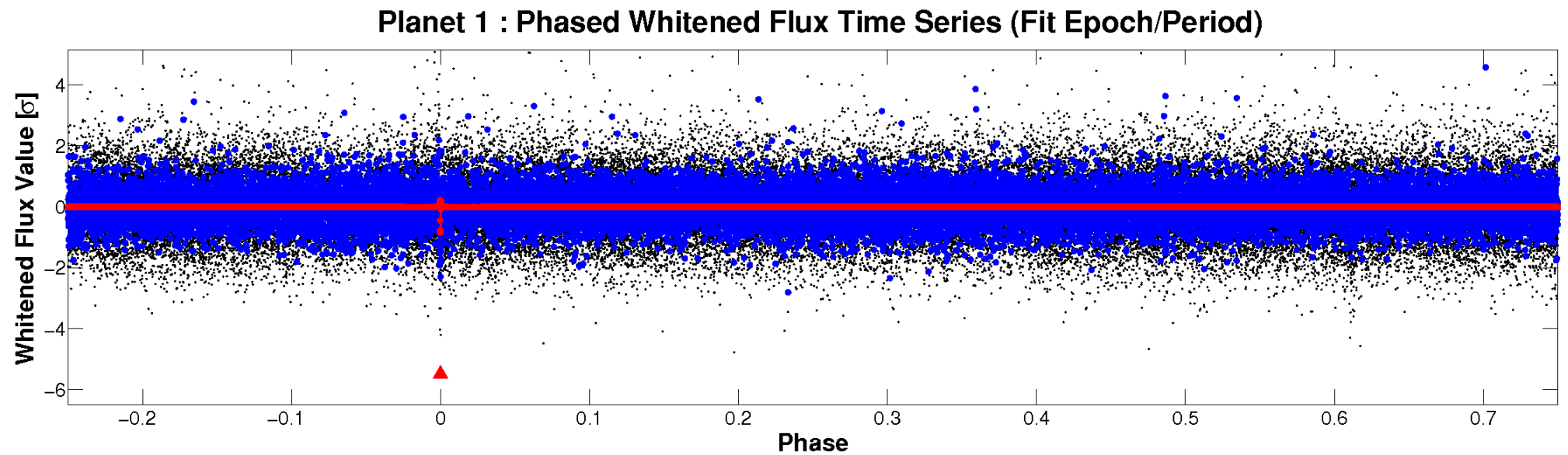
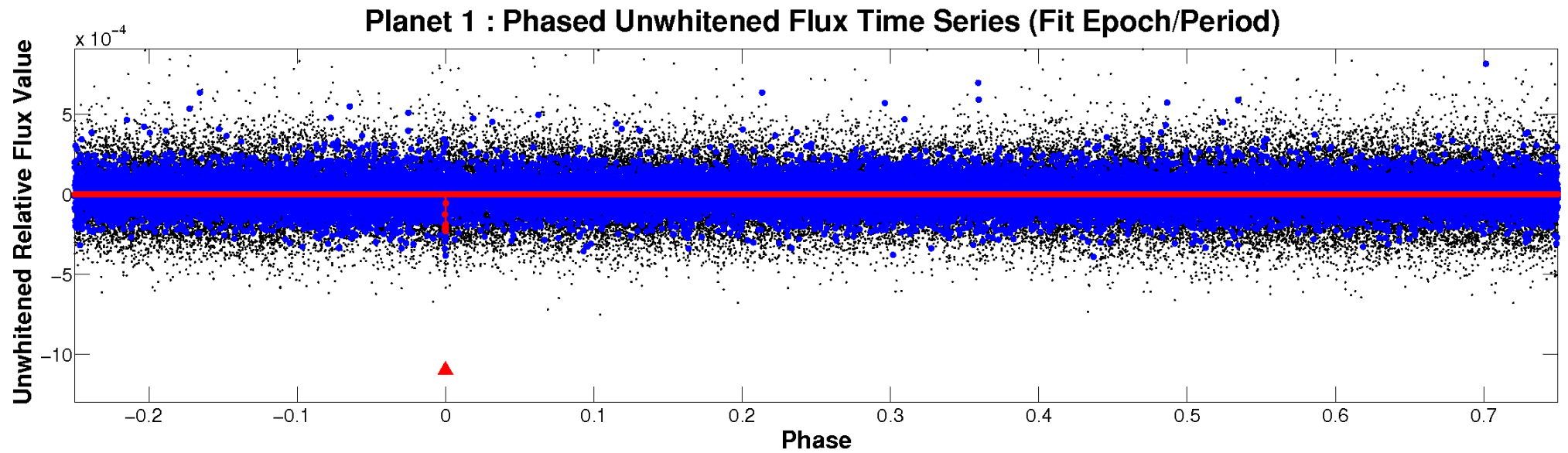
# ALT Odd/Even

TCE 002712016-01



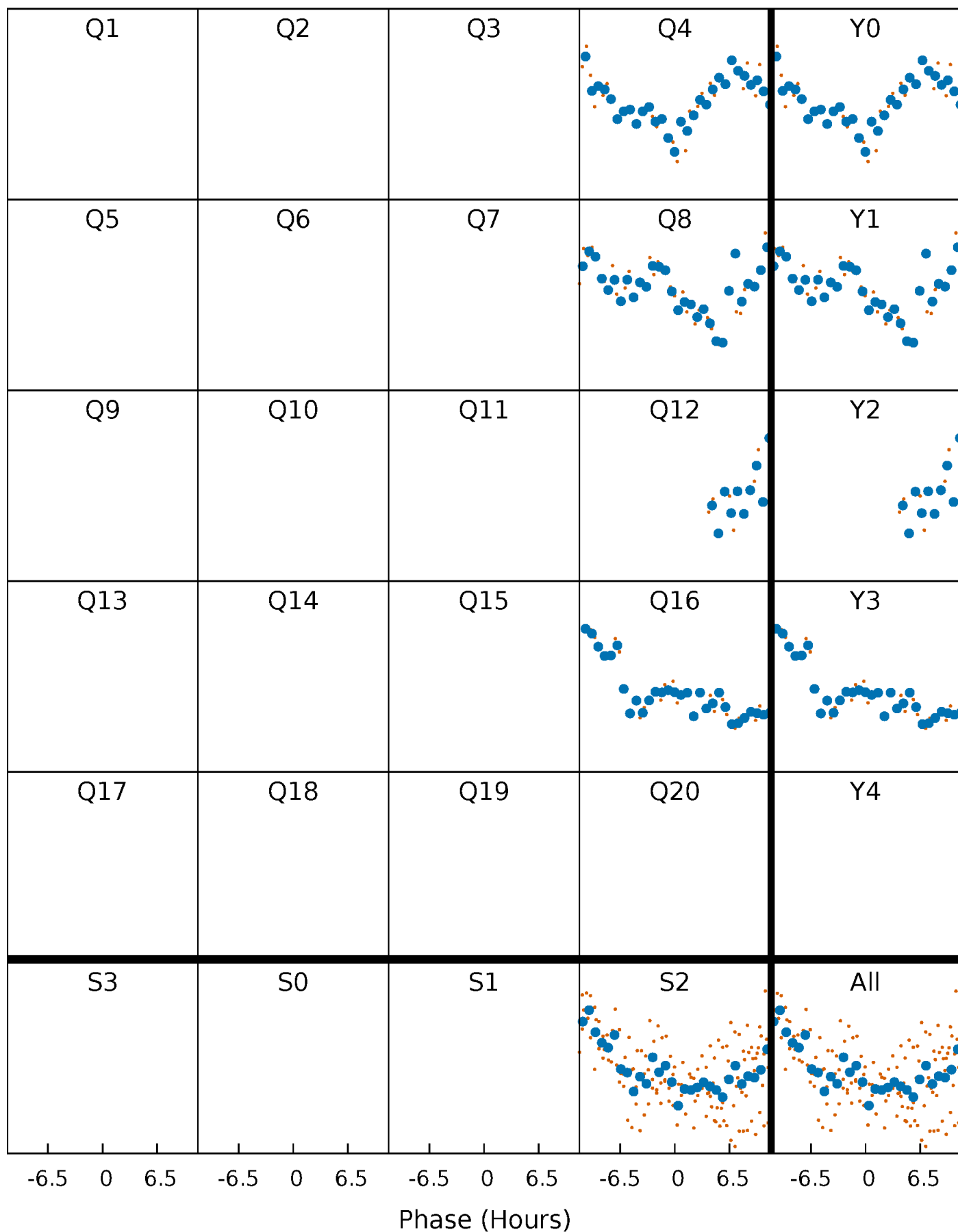


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

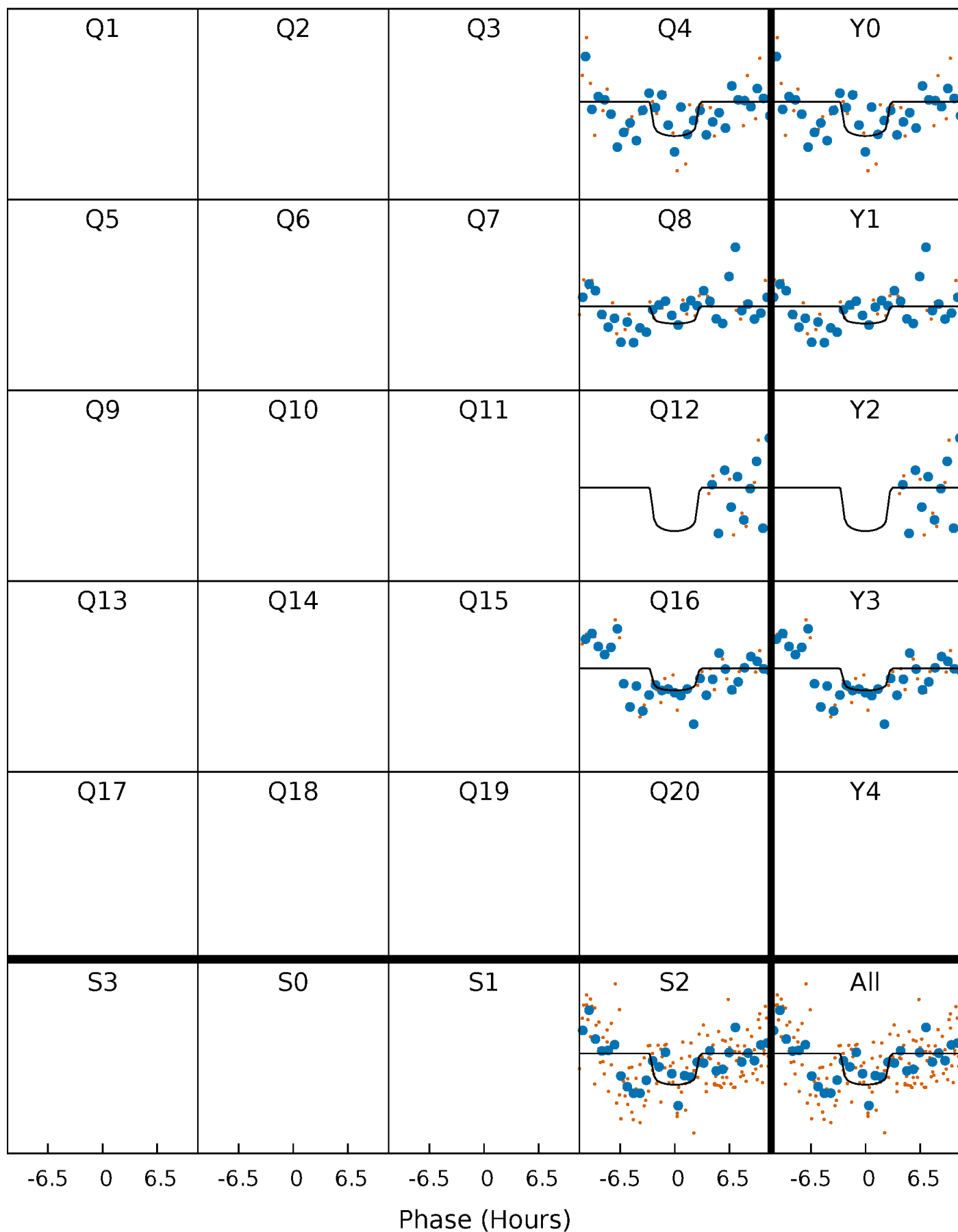
TCE 002712016-01 P=381.794816 Days  $T_0=362.887138$  (BKJD)





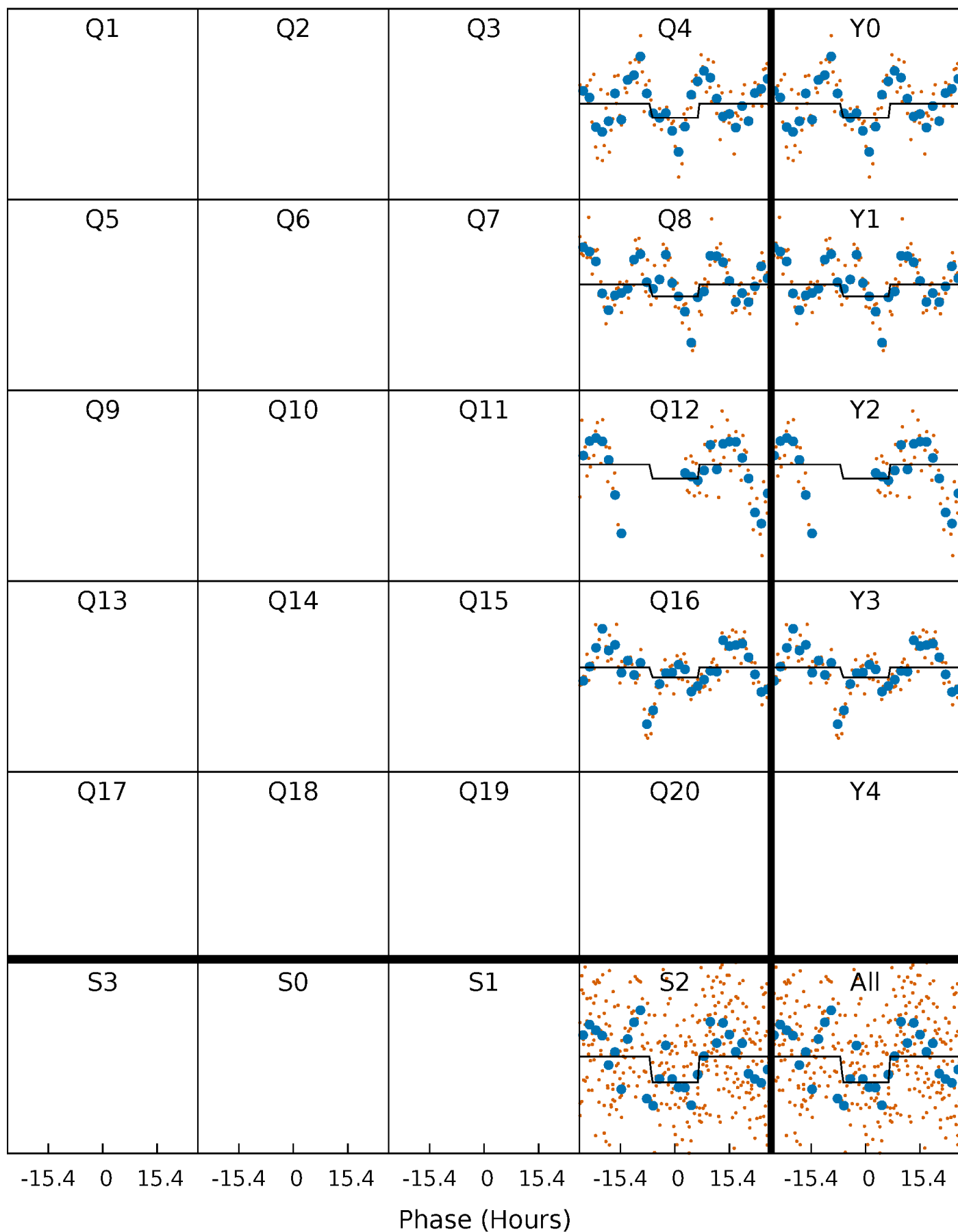
# DV Quarter-Phased Transit Curves

TCE 002712016-01   P=381.794816 Days    $T_0=362.887138$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

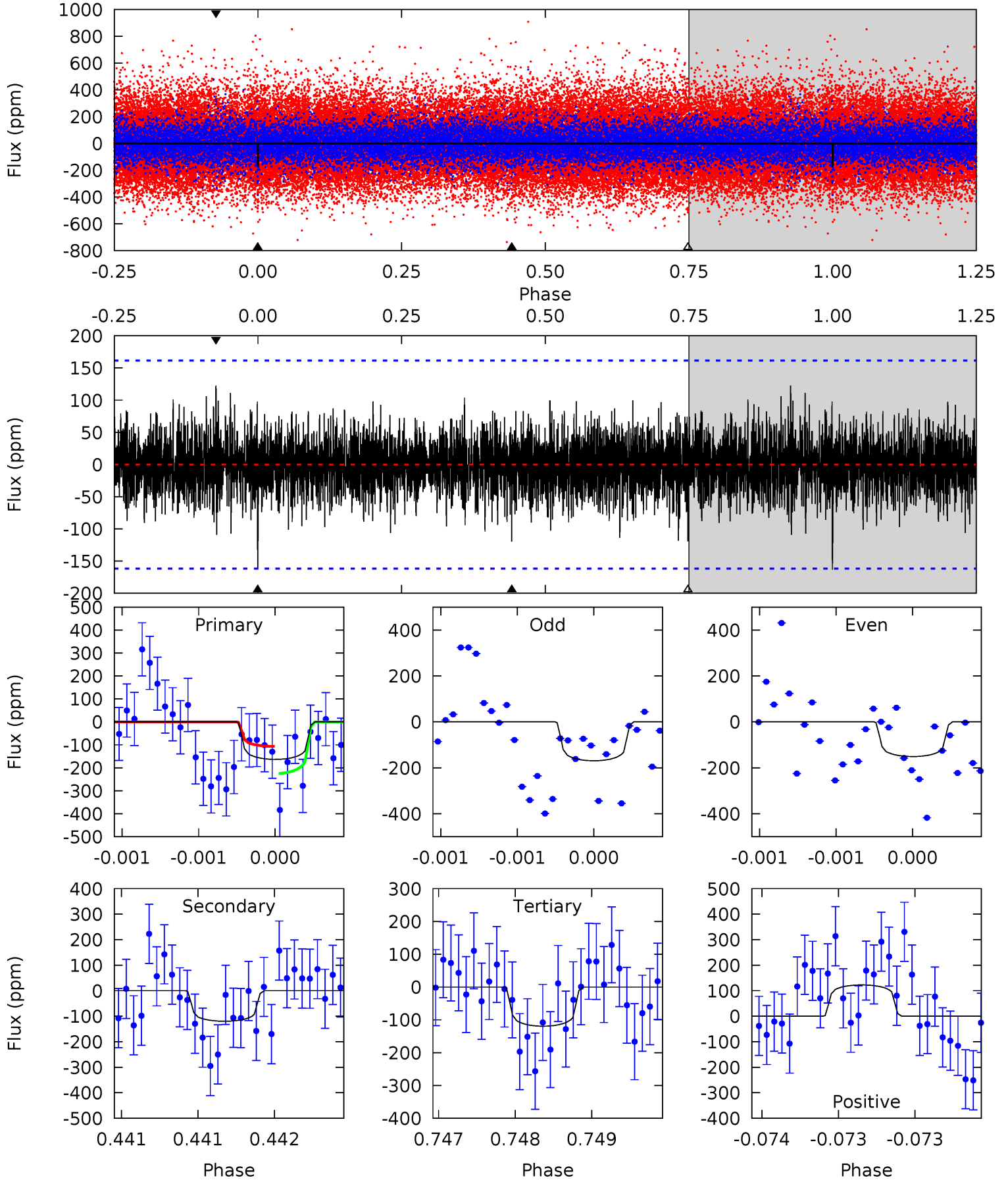
TCE 002712016-01 P=381.841936 Days  $T_0=362.853391$  (BKJD)



# DV Model-Shift Uniqueness Test

002712016-01, P = 381.794816 Days, E = 362.887138 Days

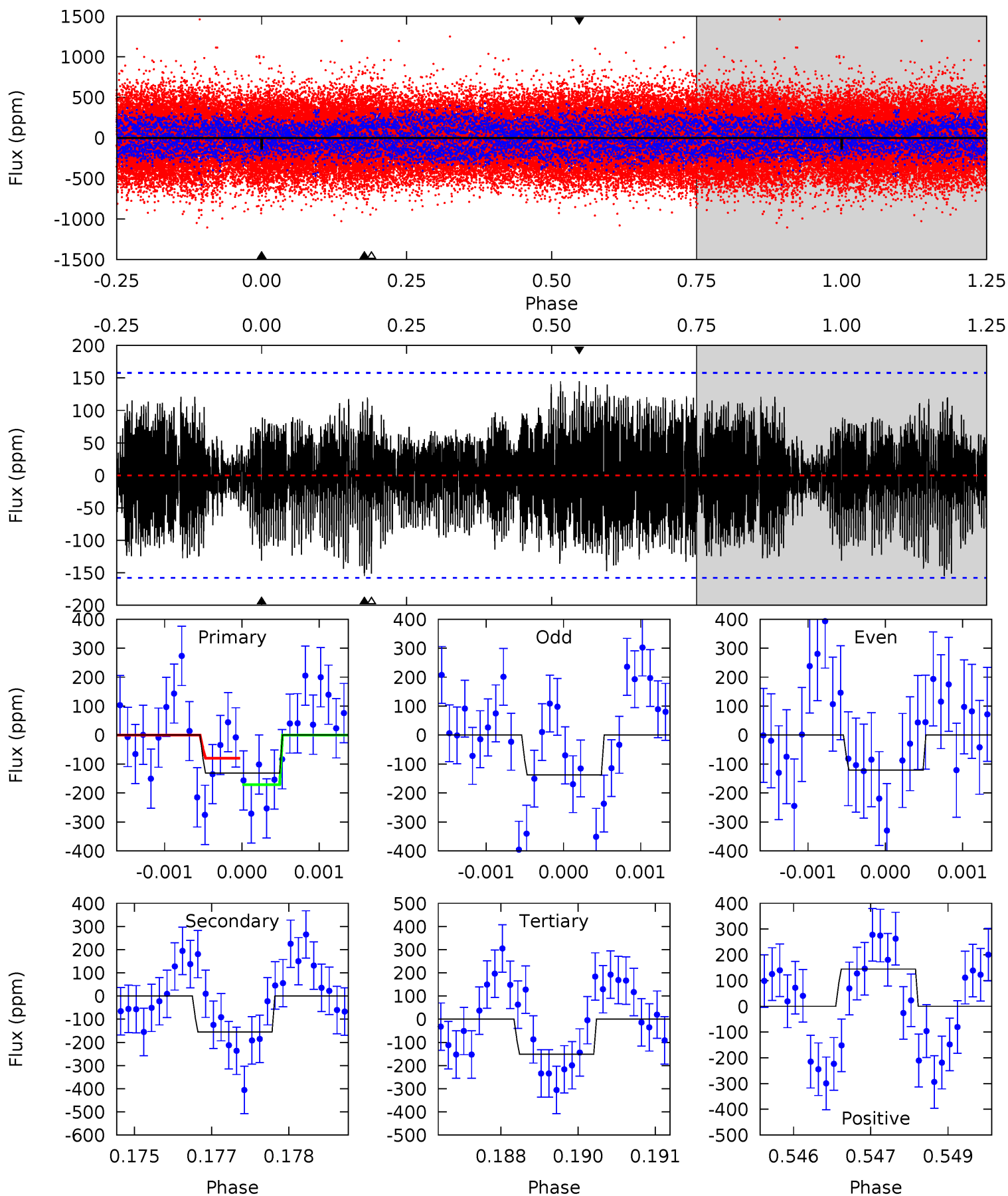
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.58	4.09	4.08	4.19	5.52	3.40	1.11	1.50	1.39	0.01	-0.10	0.30	1.08	0.43	2.02



# Alt Model-Shift Uniqueness Test

002712016-01, P = 381.841936 Days, E = 362.853391 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
4.48	5.29	5.16	4.94	5.39	3.18	1.86	-0.68	-0.47	0.13	0.35	0.29	1.09	0.48	1.56



### Stellar Parameters For KIC 002712016

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7296^{+230}_{-374}$	$4.108^{+0.144}_{-0.176}$	$0.020^{+0.200}_{-0.350}$	$1.844^{+0.563}_{-0.375}$	$1.590^{+0.212}_{-0.259}$	$0.357^{+0.261}_{-0.174}$
	+3%/-5%	+4%/-4%	+1000%/-1750%	+31%/-20%	+13%/-16%	+73%/-49%
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 002712016-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-120 \pm 29$	$3.87^{+3.02}_{-2.47}$	$556^{+43}_{-40}$	$5493^{+4249}_{-1244}$	$6302^{+37999}_{-4500}$
Alt.	$-155 \pm 29$	$3.35^{+3.02}_{-2.24}$	$556^{+43}_{-37}$	$6248^{+6400}_{-1636}$	$10952^{+86408}_{-8138}$

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

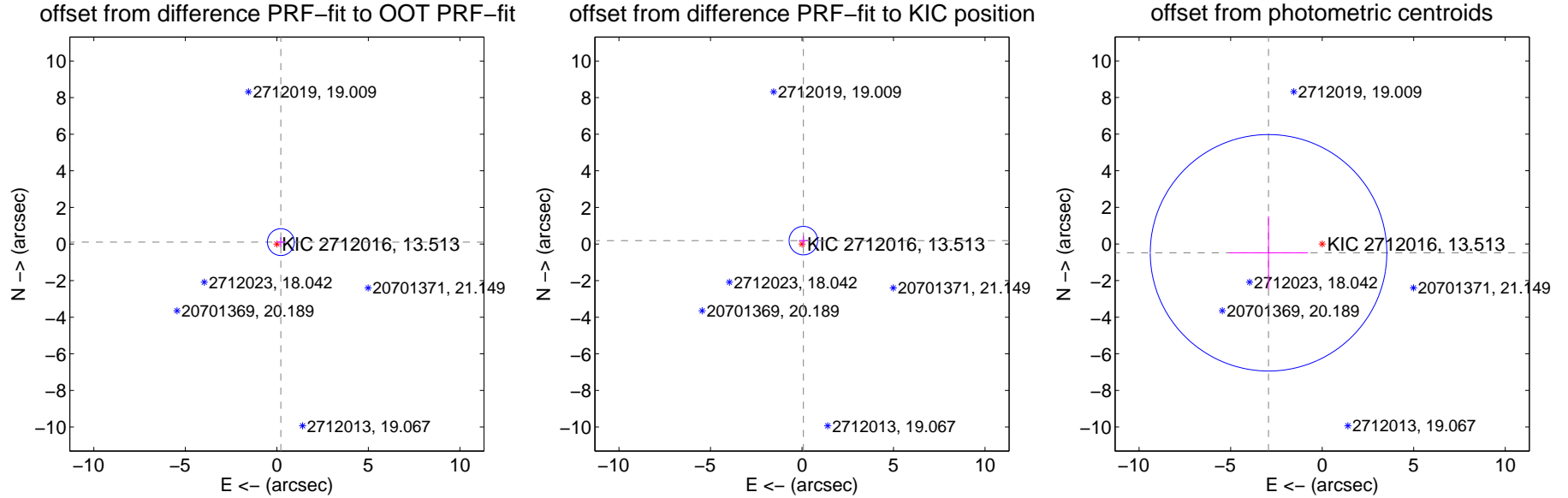
## DV Centroid Data

Supplemental centroid analysis for 002712016-01. Kepler magnitude: 13.51. Transit SNR 4.52

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.241 \pm 0.244$	0.99	$-0.218 \pm 0.240$	$0.104 \pm 0.263$
PRF-fit source offset from KIC position	$0.200 \pm 0.260$	0.77	$-0.076 \pm 0.240$	$0.186 \pm 0.263$
photometric centroid source offset	$2.97 \pm 2.15$	1.38	$2.93 \pm 2.16$	$-0.48 \pm 2.00$



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.

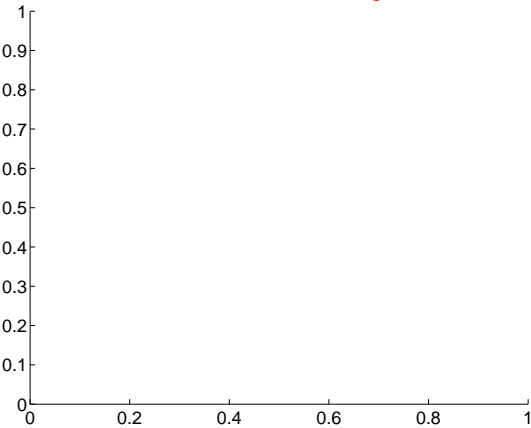
Q1 no difference image



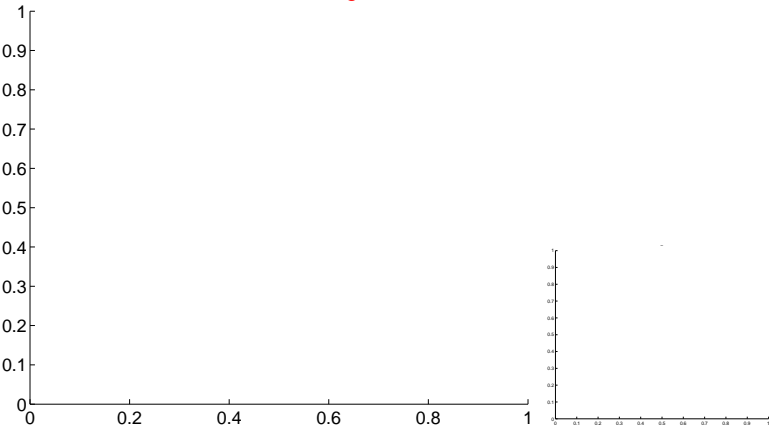
Q1 no OOT image



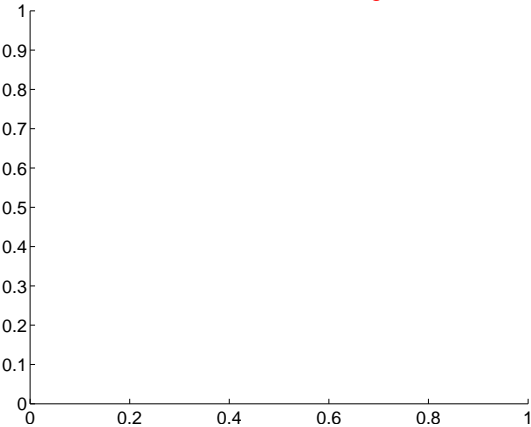
Q2 no difference image



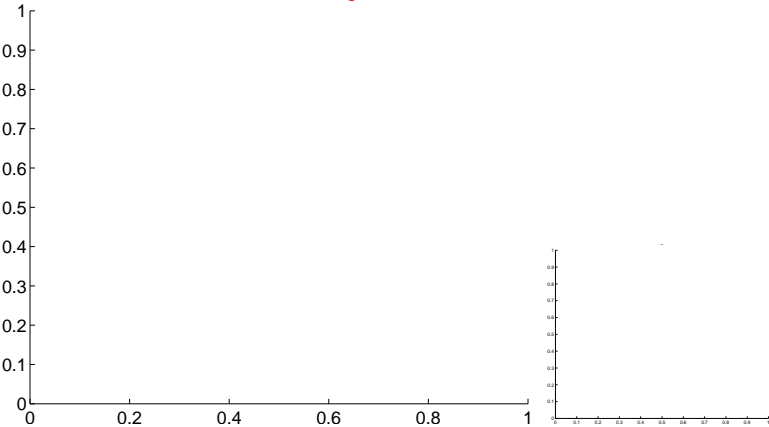
Q2 no OOT image



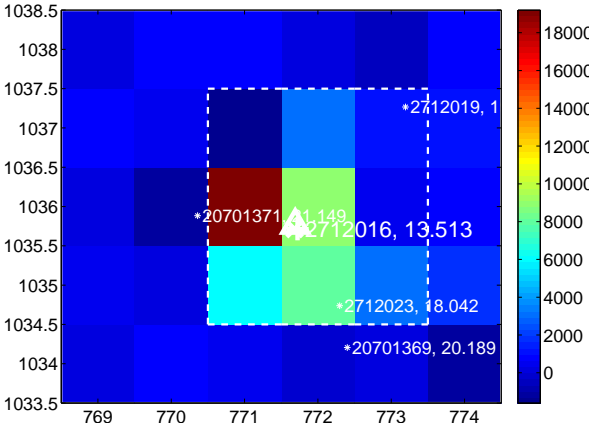
Q3 no difference image



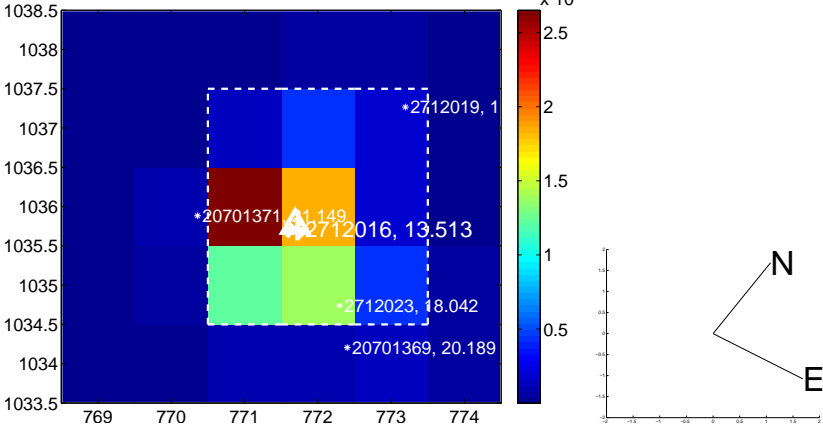
Q3 no OOT image



Q4 difference image



Q4 OOT image





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



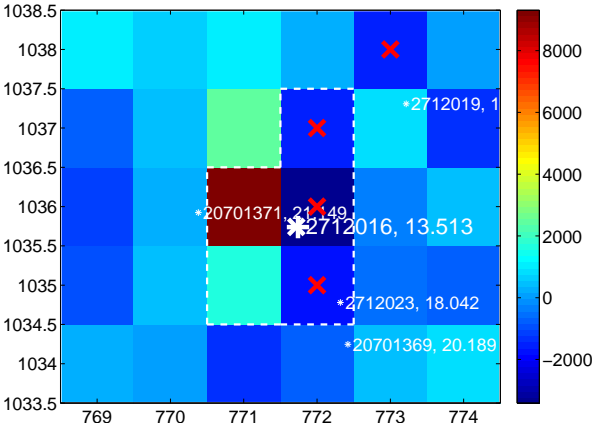
Q7 no difference image



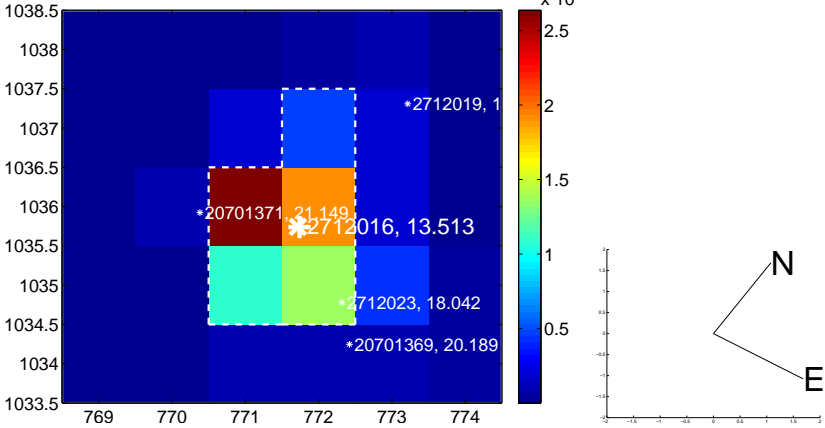
Q7 no OOT image



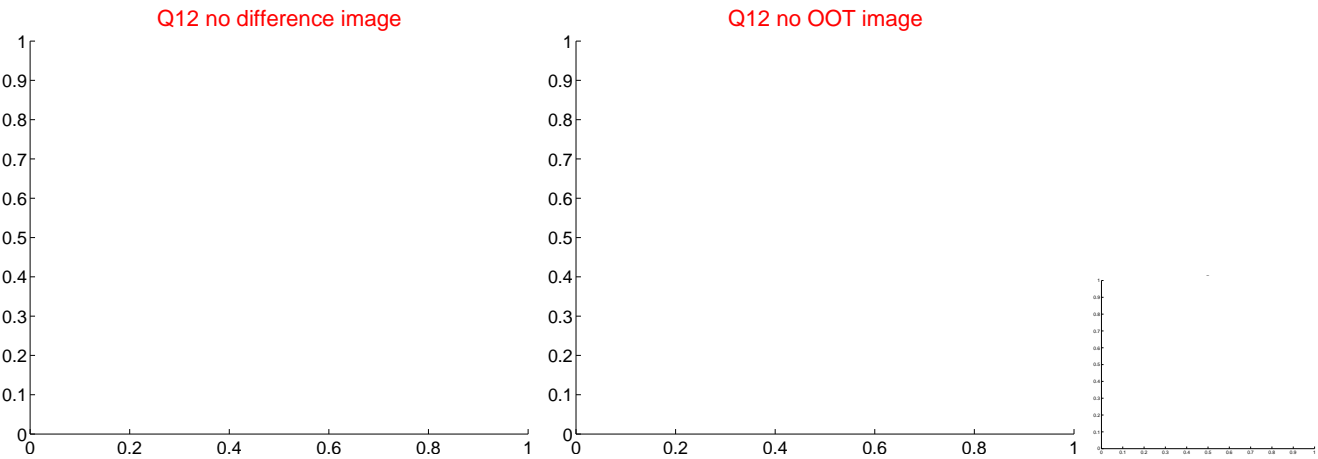
Q8 difference image. Poor Quality



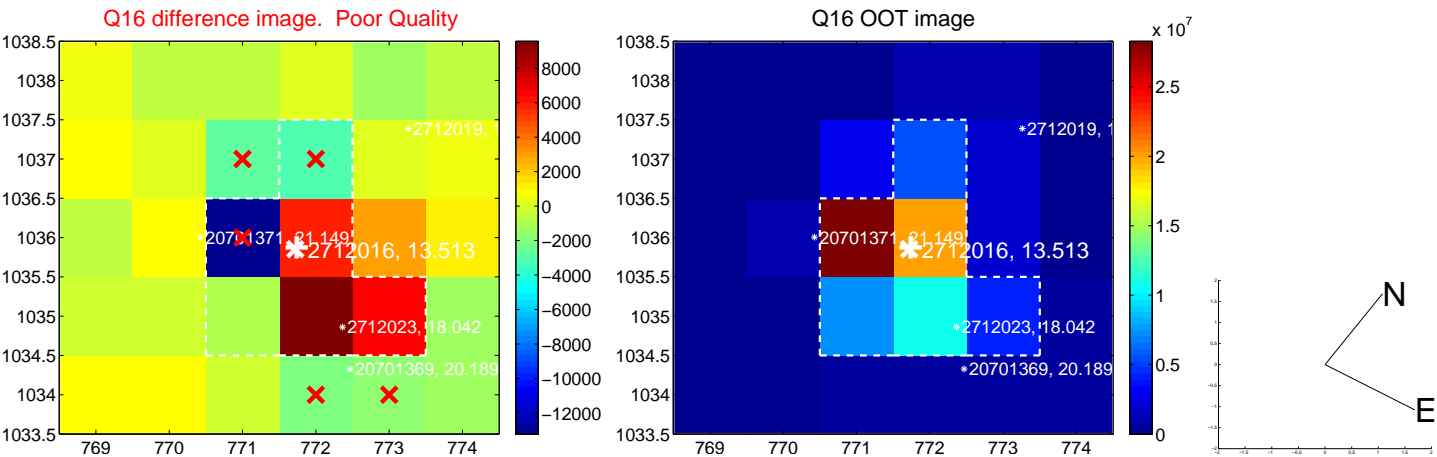
Q8 OOT image



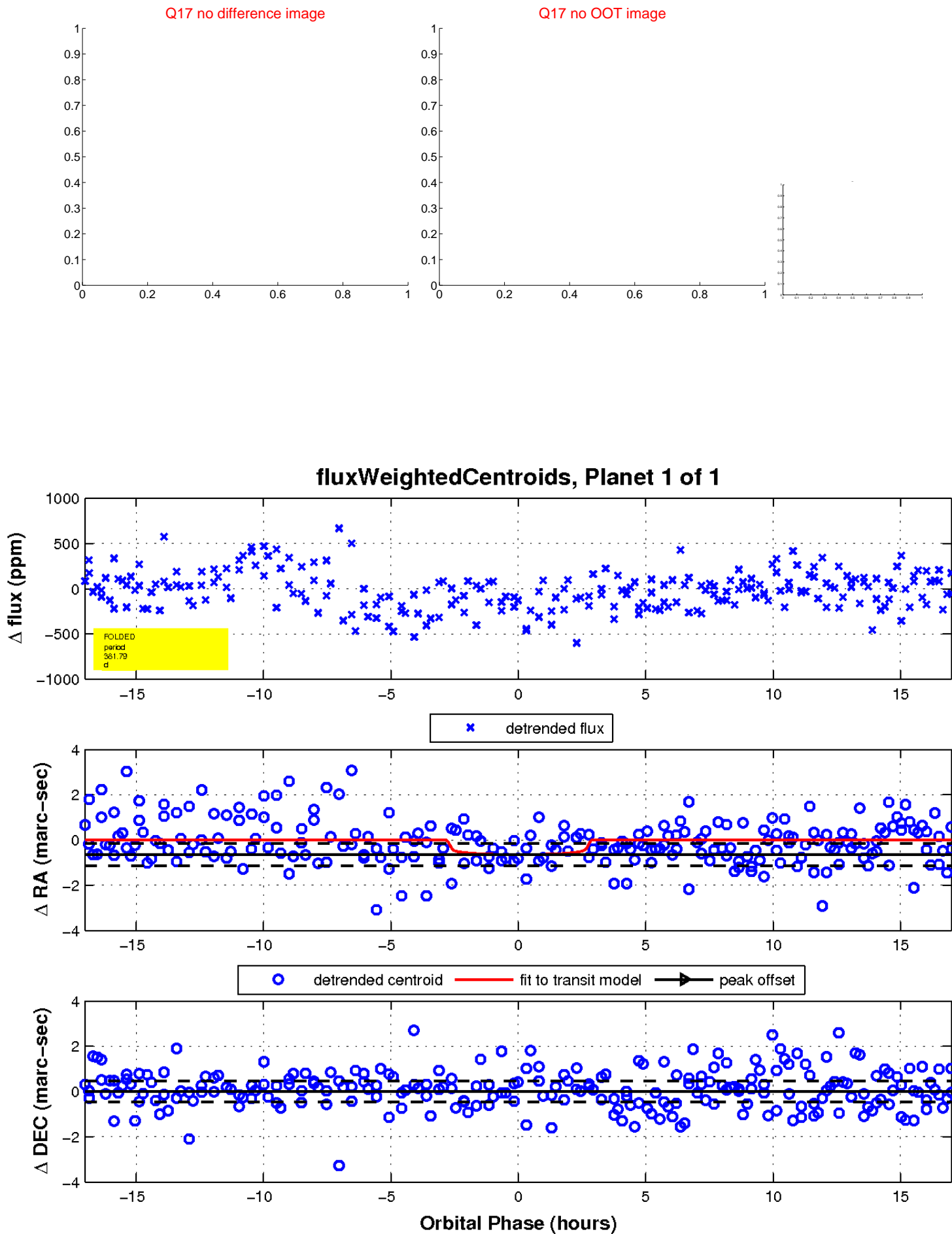
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



# UKIRT Image

Declination

