

# KIC 002716289

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002716289-01	OBS	No	408.453363	368.292079	594.9	7.489	8.7	8.5	1.14	6171	2.97	1.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002716289-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—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.

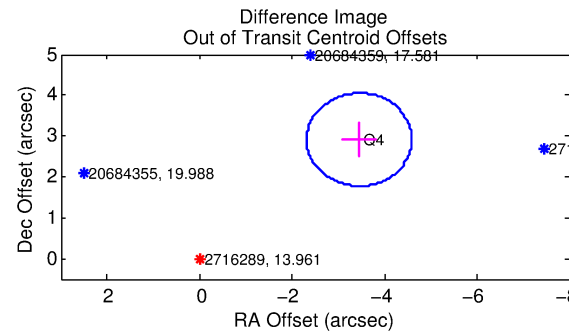
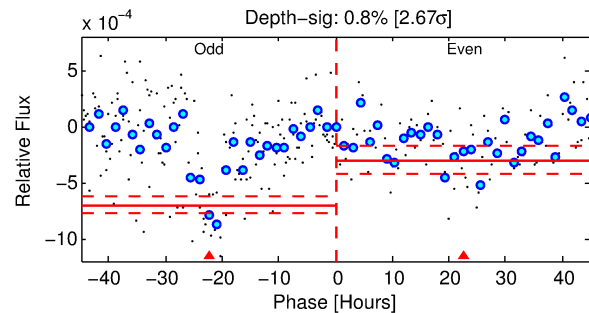
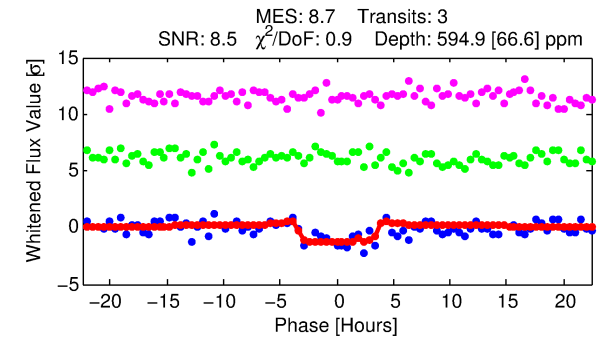
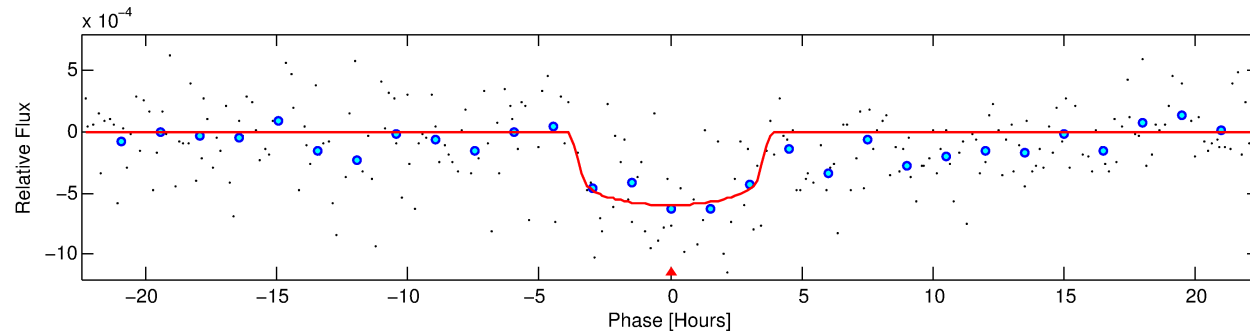
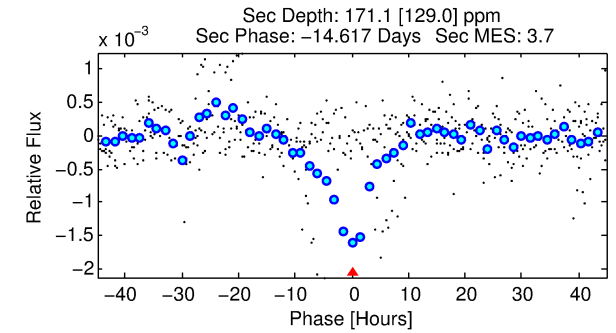
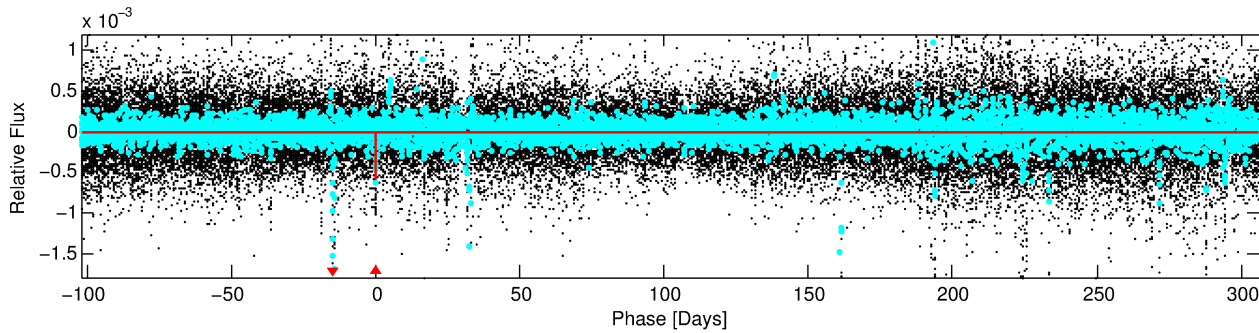
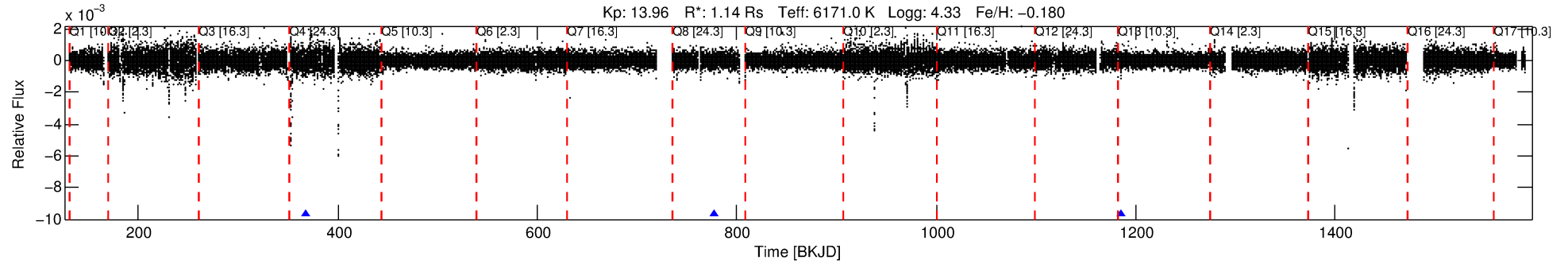
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002716289-01

No Significant Match Found

# DV One-Page Summary

KIC: 2716289 Candidate: 1 of 1 Period: 408.453 d



## DV Fit Results:

Period = 408.45336 [0.00946] d  
Epoch = 368.2921 [0.0120] BKJD  
Rp/R\* = 0.0238 [0.0134]  
a/R\* = 314.42 [894.57]  
b = 0.69 [2.15]  
Seff = 1.45 [0.57]  
Teq = 280 [27] K  
Rp = 2.97 [1.91] Re  
a = 1.0829 [0.2783] AU  
Ag = 12496.84 [17546.72] [0.71σ]  
Teffp = 4570 [1556] K [2.76σ]

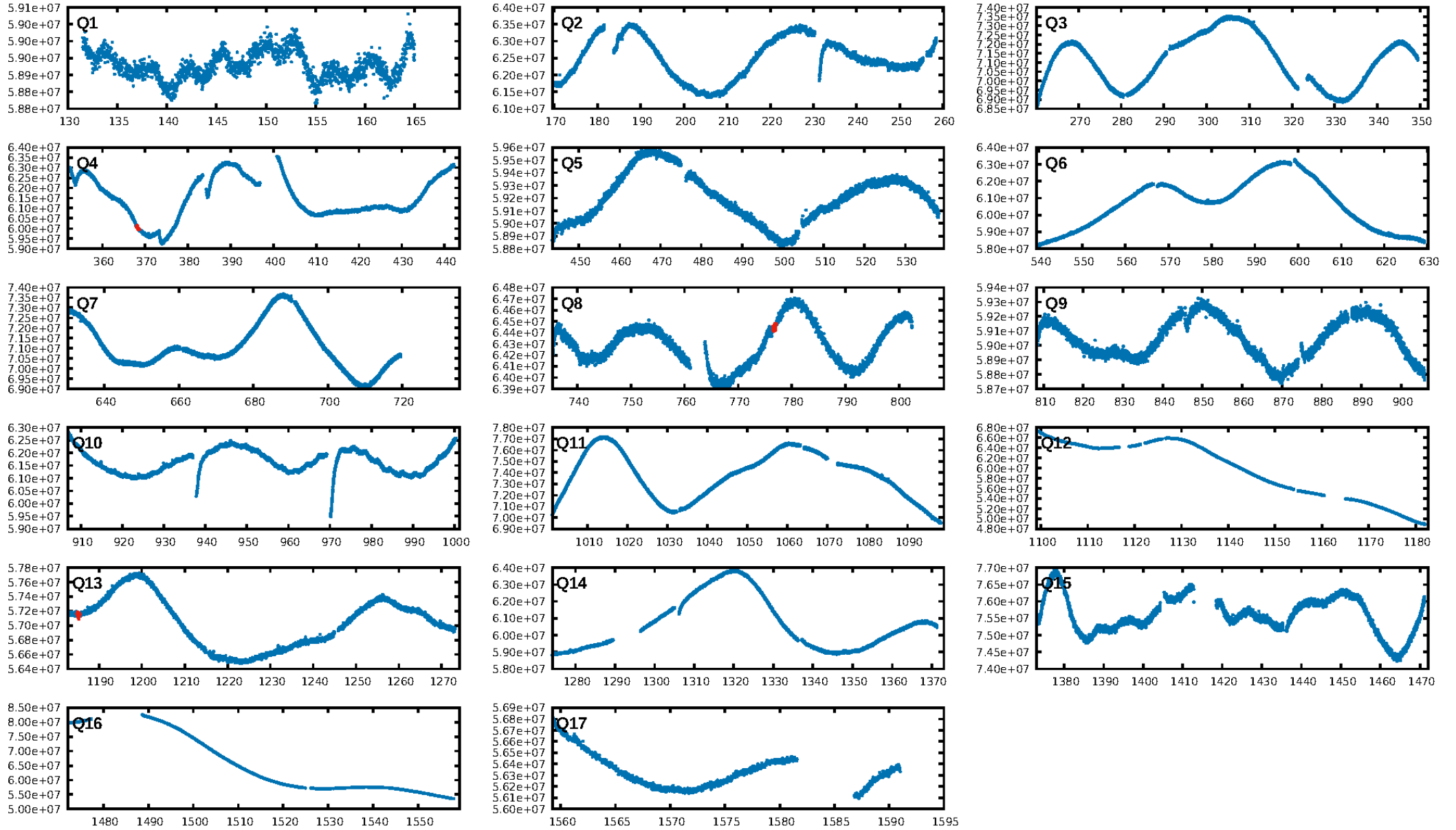
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 31.7%  
ModelChiSquareGof-sig: 94.1%  
**Bootstrap-pfa: 7.28e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -0.7931**  
Centroid-sig: 26.6%  
Centroid-so: 1.953 arcsec [1.15σ]  
**OotOffset-rm: 4.515 arcsec [11.91σ]**  
**KicOffset-rm: 6.490 arcsec [17.22σ]**  
OotOffset-st: 0/0/1/0 [1]  
KicOffset-st: 0/0/1/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [2/2]

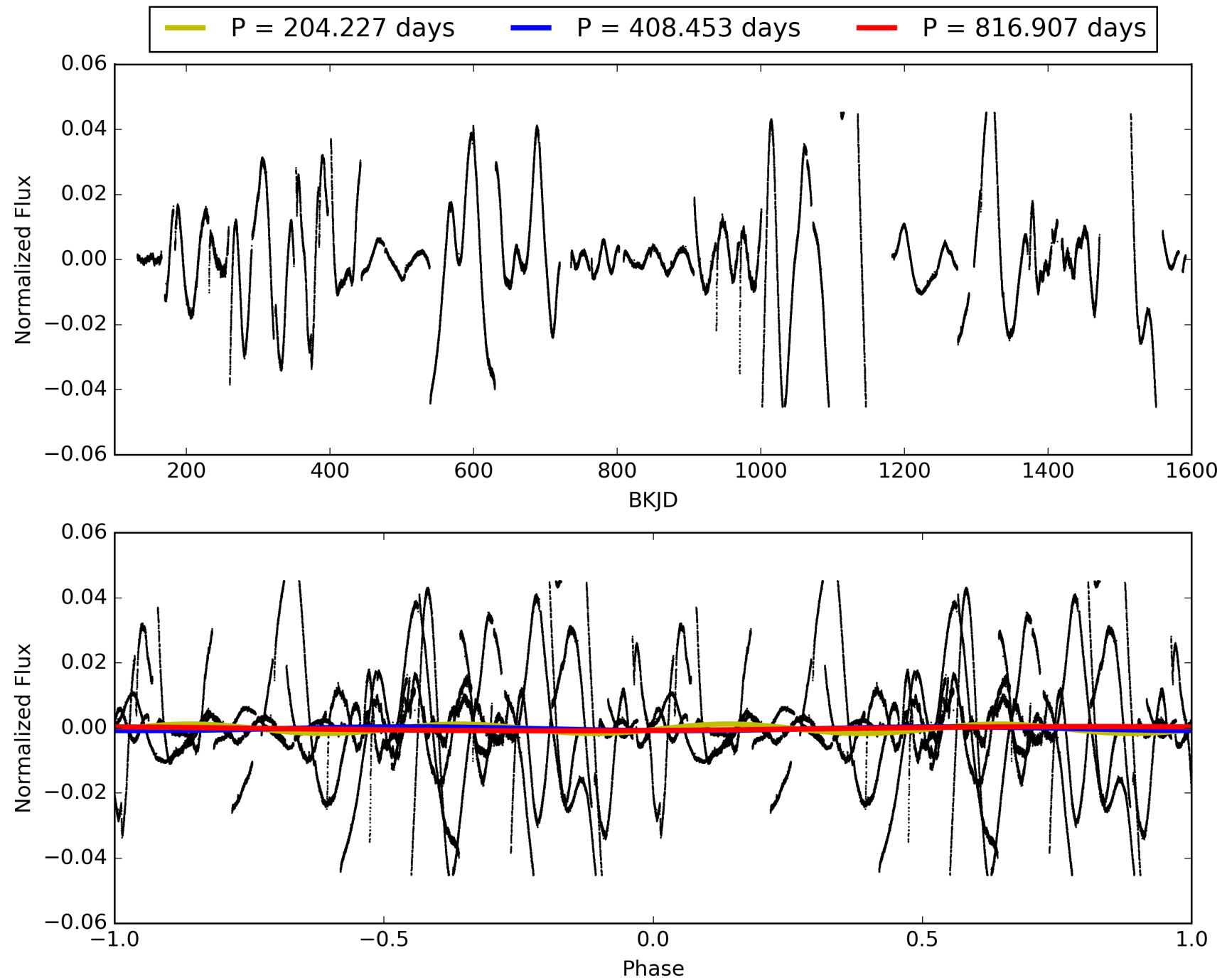
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:06:02 Z

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

# TCE 002716289-01, PDC Light Curves

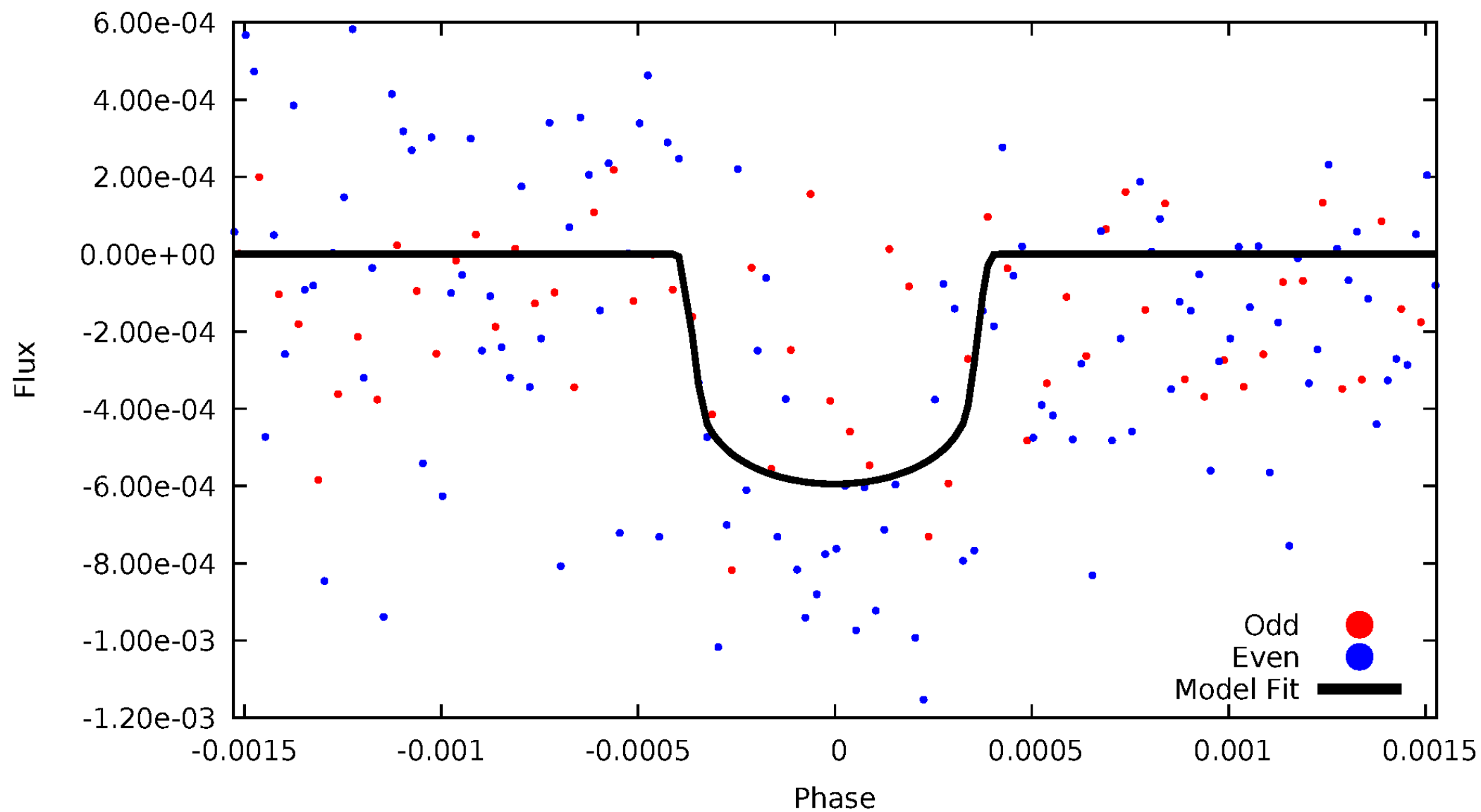


# TCE 002716289-01



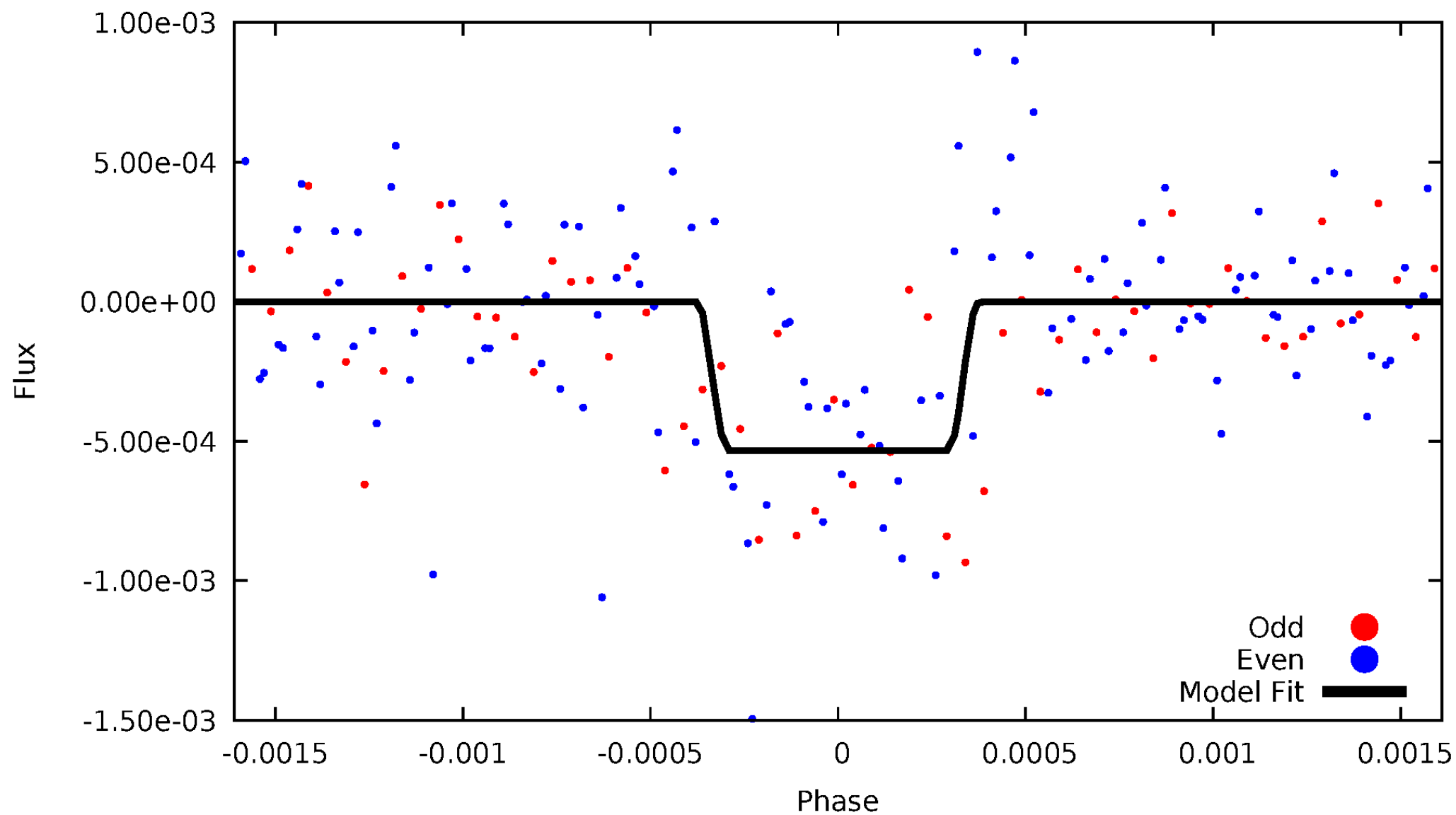
# DV Odd/Even

TCE 002716289-01

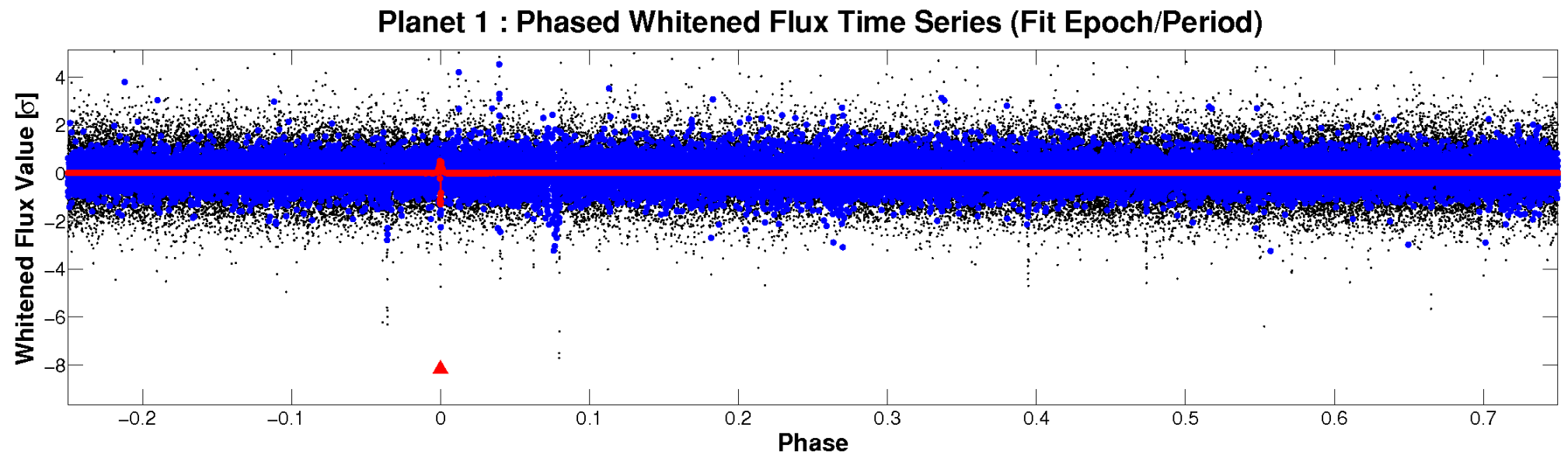
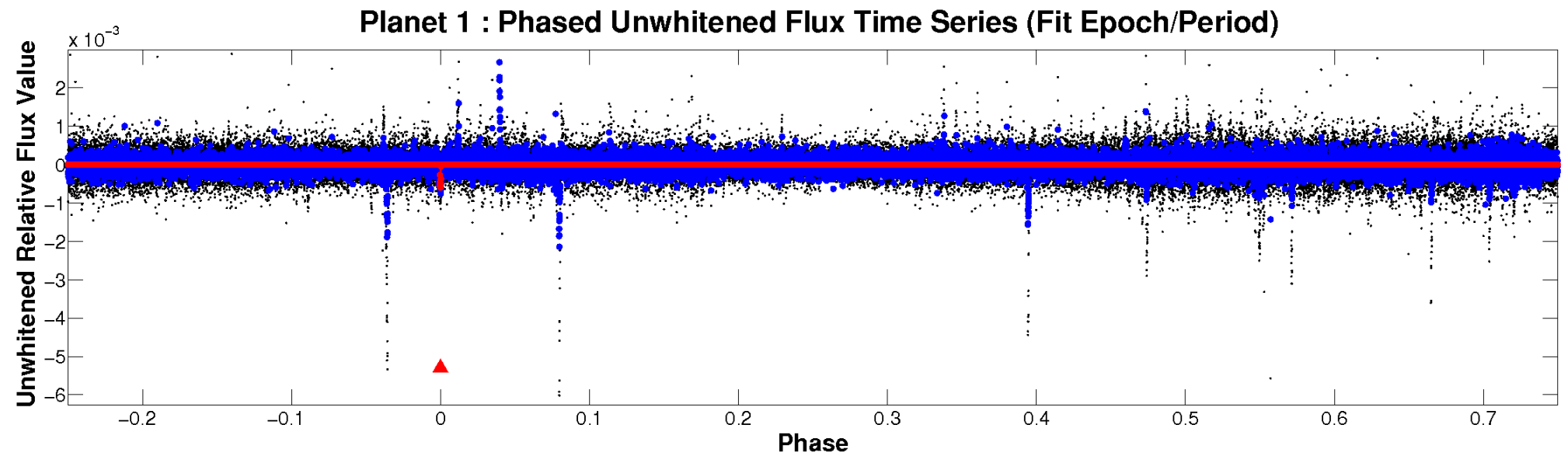


# ALT Odd/Even

TCE 002716289-01

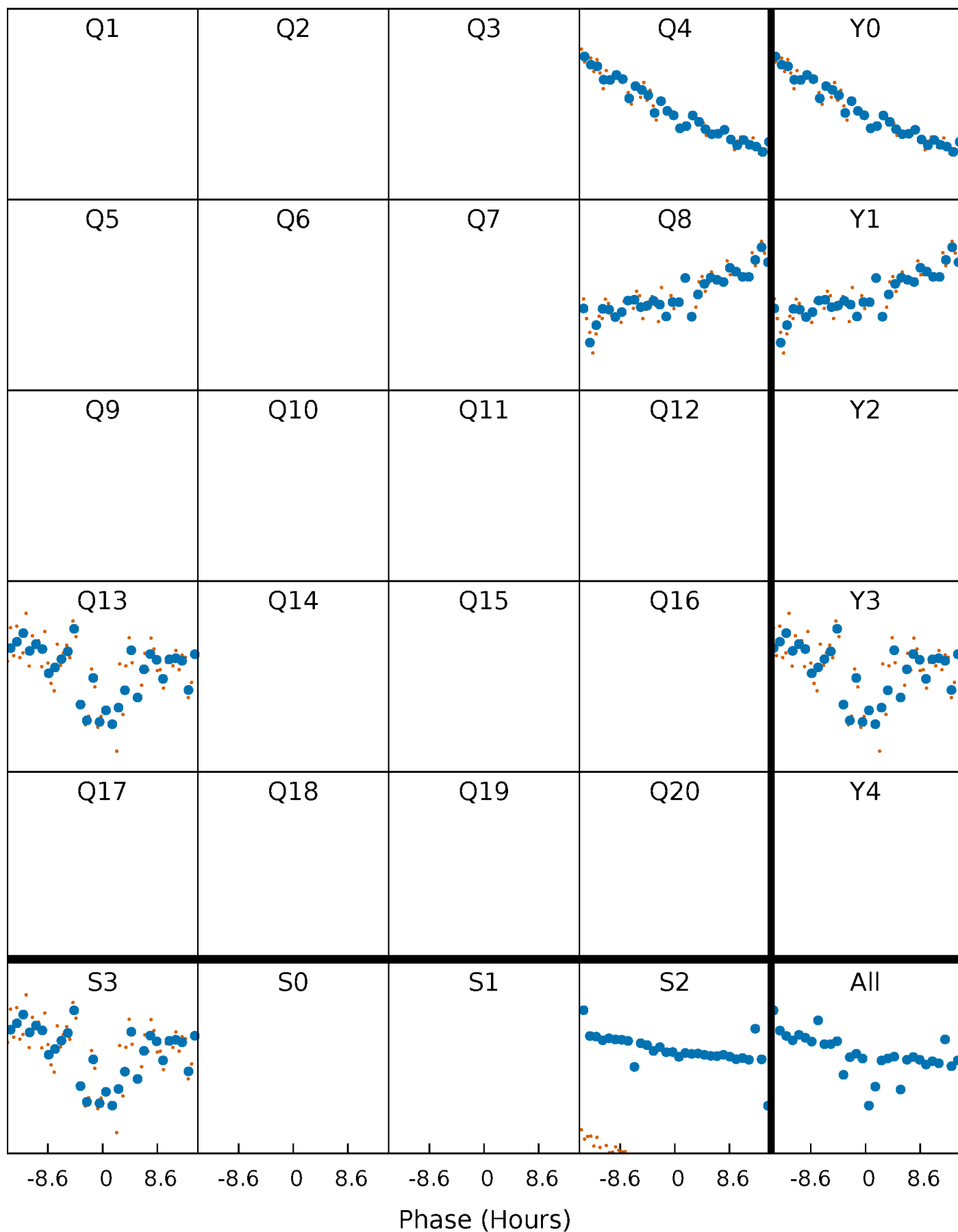


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

TCE 002716289-01 P=408.453363 Days  $T_0=368.292079$  (BKJD)





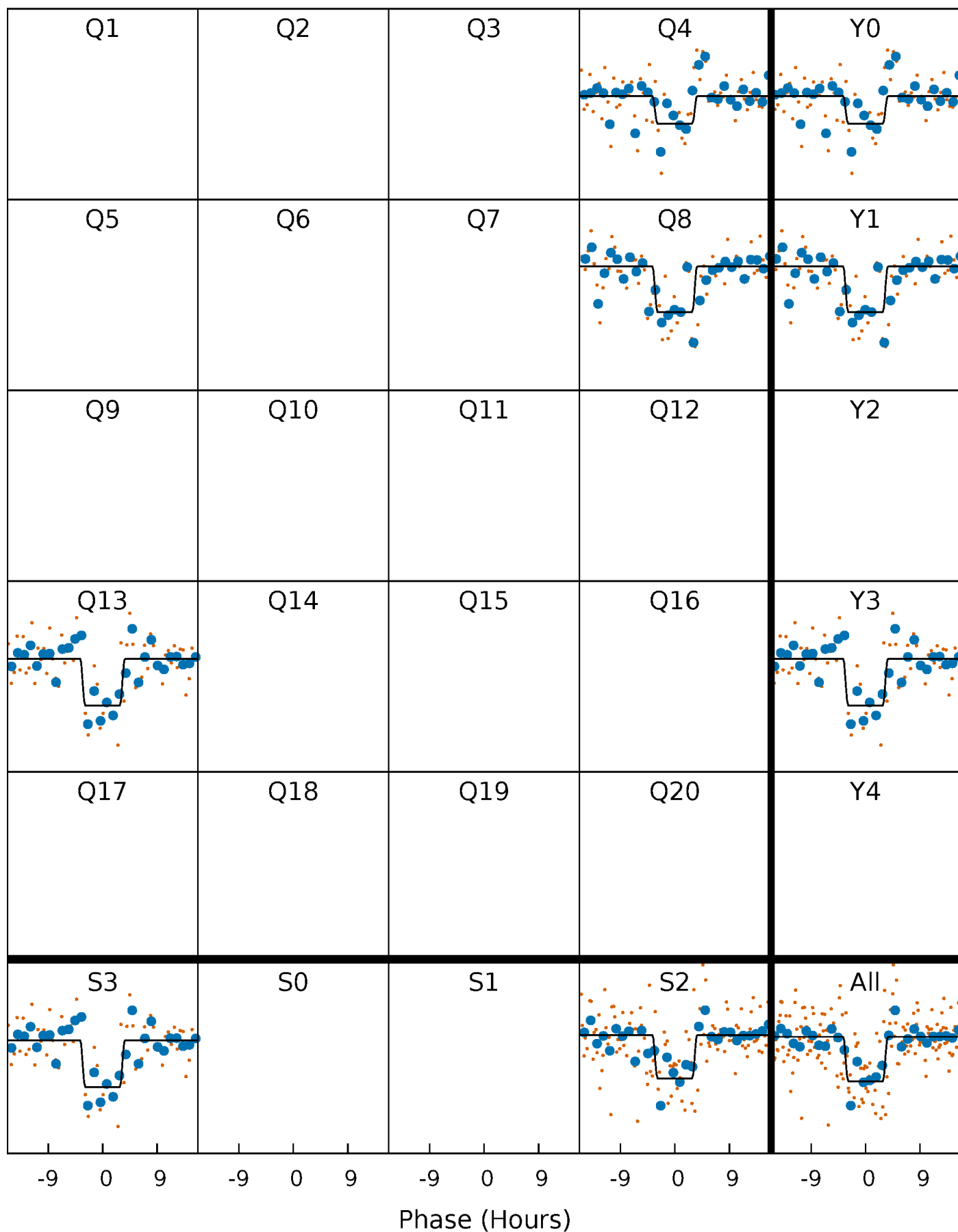
# DV Quarter-Phased Transit Curves

TCE 002716289-01 P=408.453363 Days  $T_0=368.292079$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

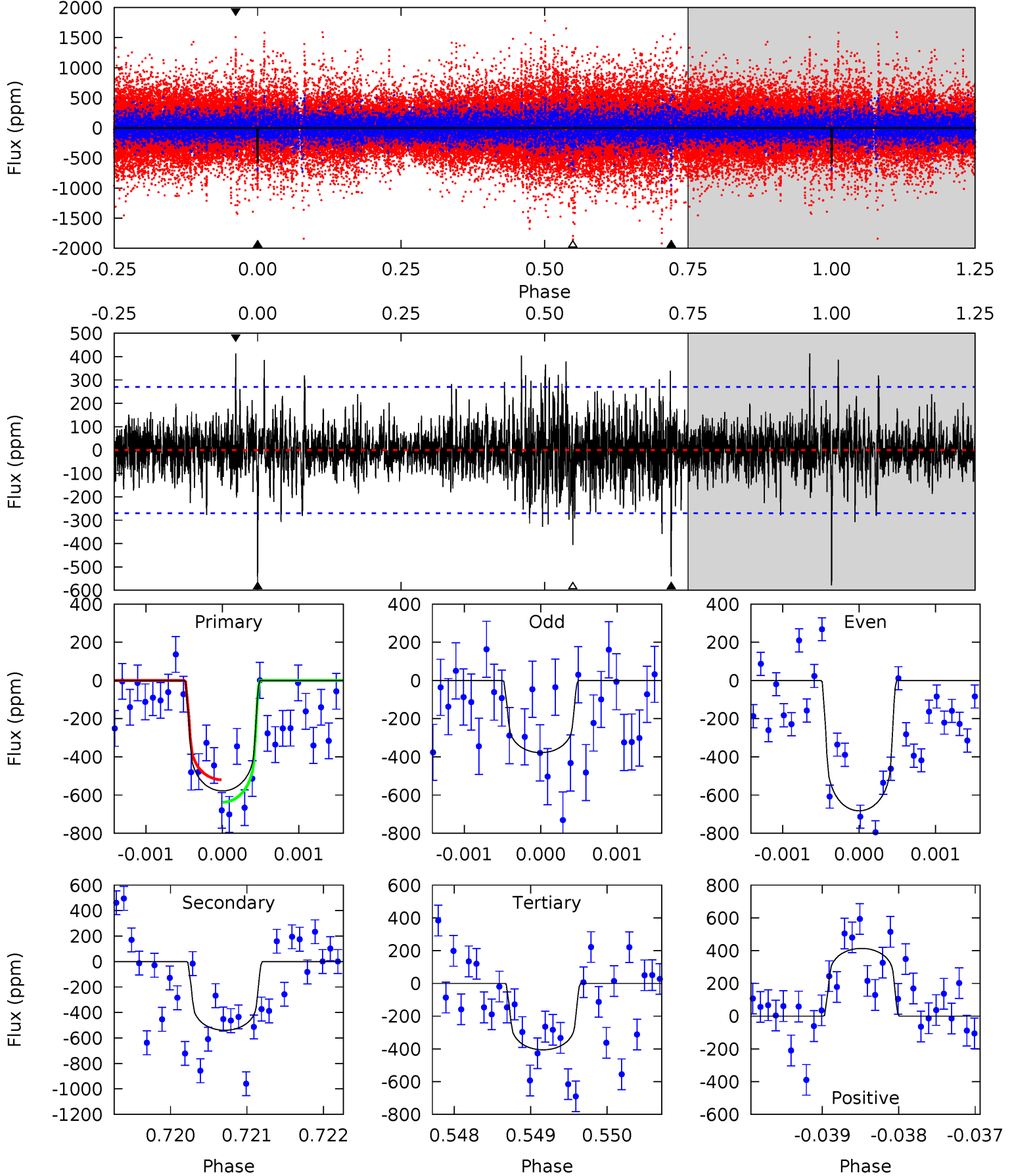
TCE 002716289-01 P=408.460053 Days  $T_0=368.264482$  (BKJD)



# DV Model-Shift Uniqueness Test

002716289-01, P = 408.453363 Days, E = 368.292079 Days

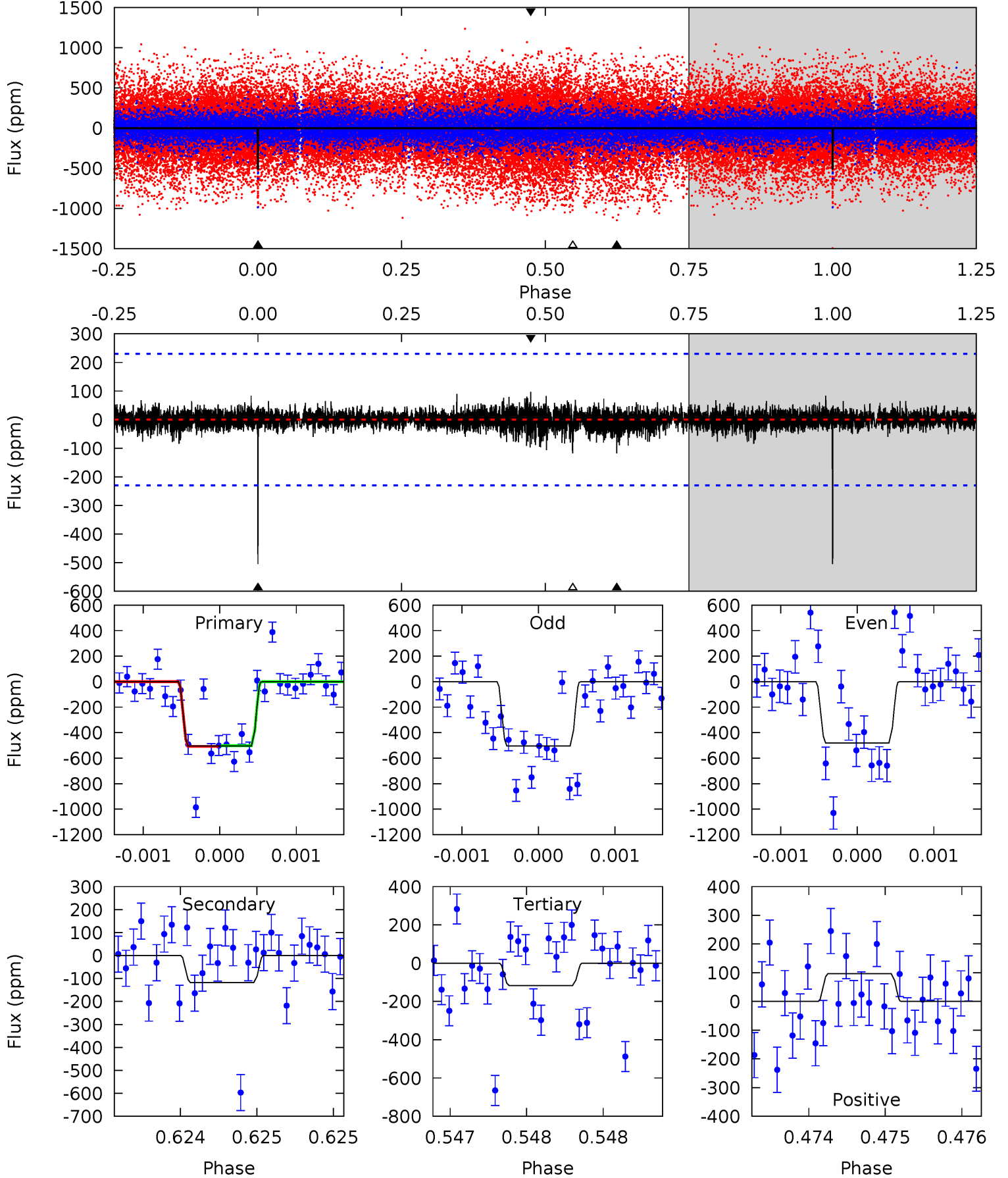
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	11.0	8.24	8.40	5.49	3.35	1.74	3.50	3.34	2.72	2.56	2.81	0.88	0.42	1.20



# Alt Model-Shift Uniqueness Test

002716289-01, P = 408.460053 Days, E = 368.264482 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
12.1	2.82	2.82	2.33	5.51	3.39	0.49	9.29	9.78	0.00	0.50	0.27	0.97	0.16	0.08



### Stellar Parameters For KIC 002716289

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6171^{+168}_{-205}$	$4.329^{+0.132}_{-0.198}$	$-0.180^{+0.250}_{-0.300}$	$1.142^{+0.355}_{-0.191}$	$1.012^{+0.174}_{-0.116}$	$0.958^{+0.593}_{-0.495}$
	+3%/-3%	+3%/-5%	+139%/-167%	+31%/-17%	+17%/-11%	+62%/-52%
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 002716289-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-539 \pm 49$	$3.21^{+1.74}_{-1.67}$	$393^{+29}_{-22}$	$5899^{+2901}_{-1016}$	$33017^{+119346}_{-19051}$
Alt.	$-118 \pm 42$	$2.97^{+1.87}_{-1.53}$	$393^{+30}_{-24}$	$4381^{+1545}_{-749}$	$8440^{+27097}_{-5616}$

$T_{max}$  = 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

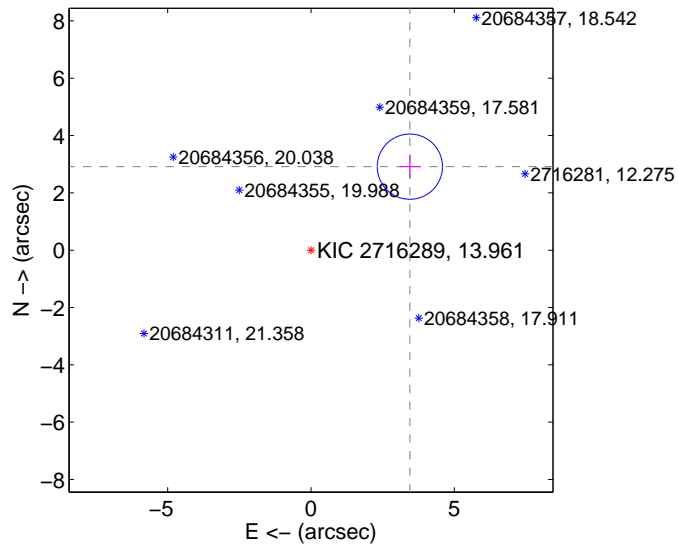
Supplemental centroid analysis for 002716289-01. Kepler magnitude: 13.96. Transit SNR 8.48

There are 1 quarters with good PRF difference image offsets

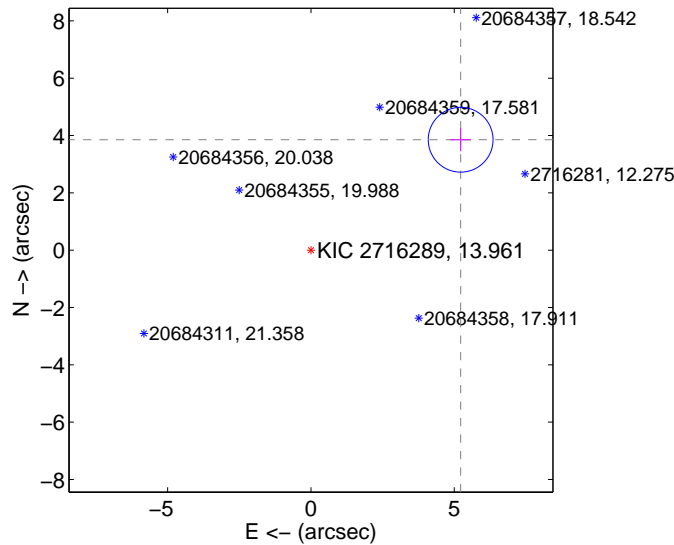
The OOT PRF centroid is offset from the target star catalog position by about 2.01 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.515 \pm 0.379$	<b>11.91</b>	$-3.449 \pm 0.363$	$2.913 \pm 0.401$
PRF-fit source offset from KIC position	$6.490 \pm 0.377$	<b>17.22</b>	$-5.222 \pm 0.363$	$3.853 \pm 0.401$
photometric centroid source offset	$1.95 \pm 1.69$	1.15	$-1.94 \pm 1.70$	$-0.21 \pm 0.83$

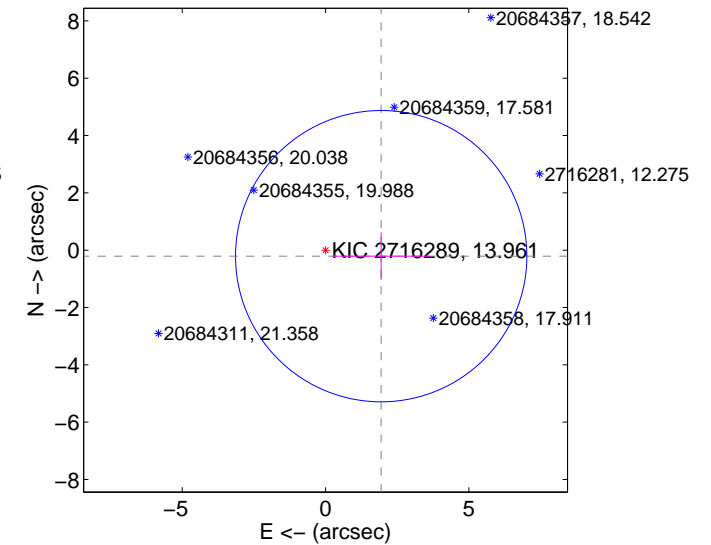
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

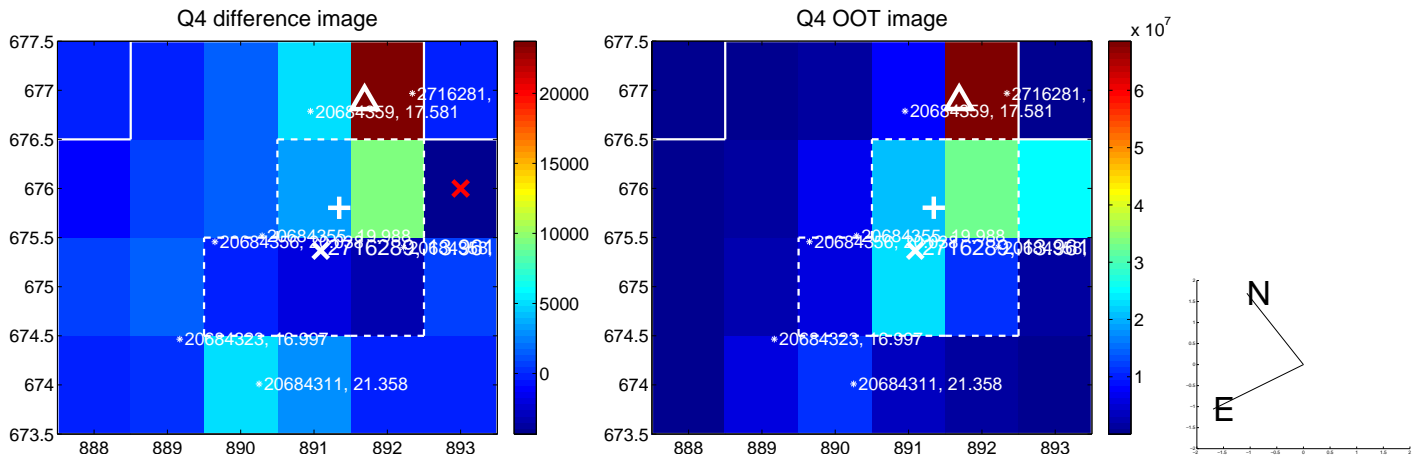


offset from photometric centroids

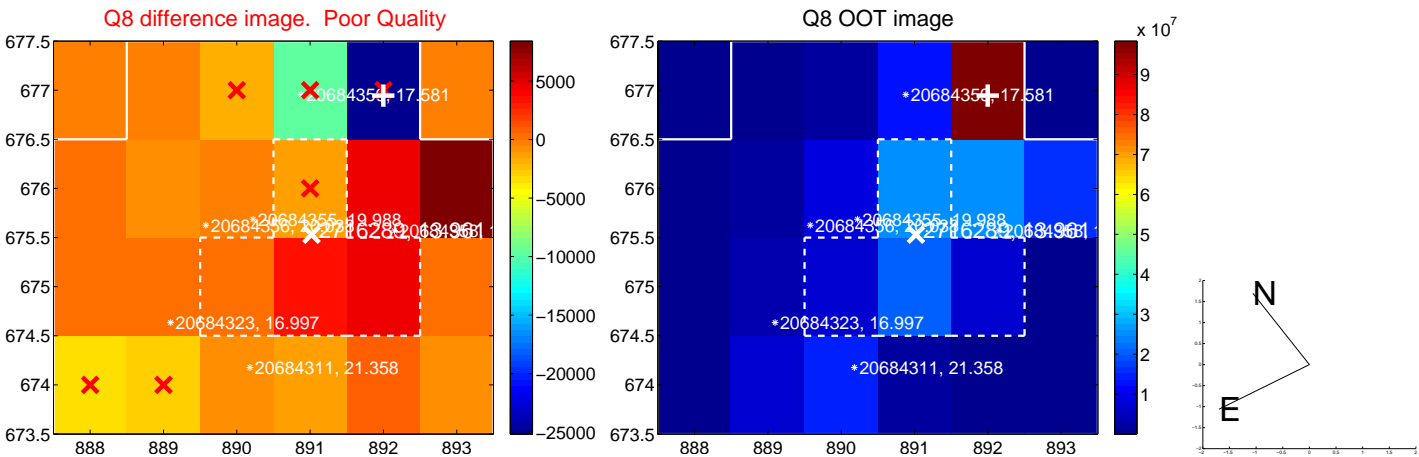
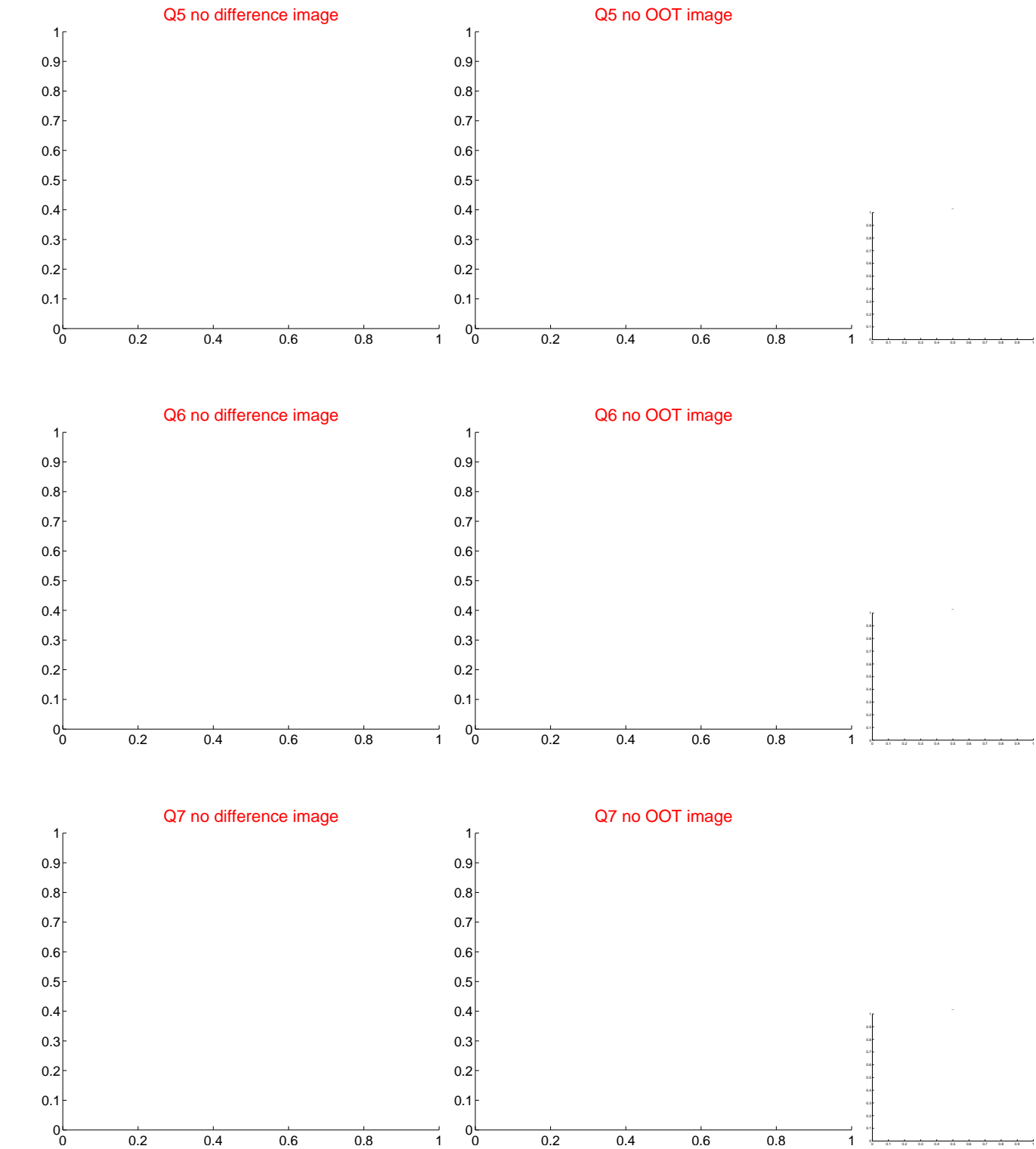


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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





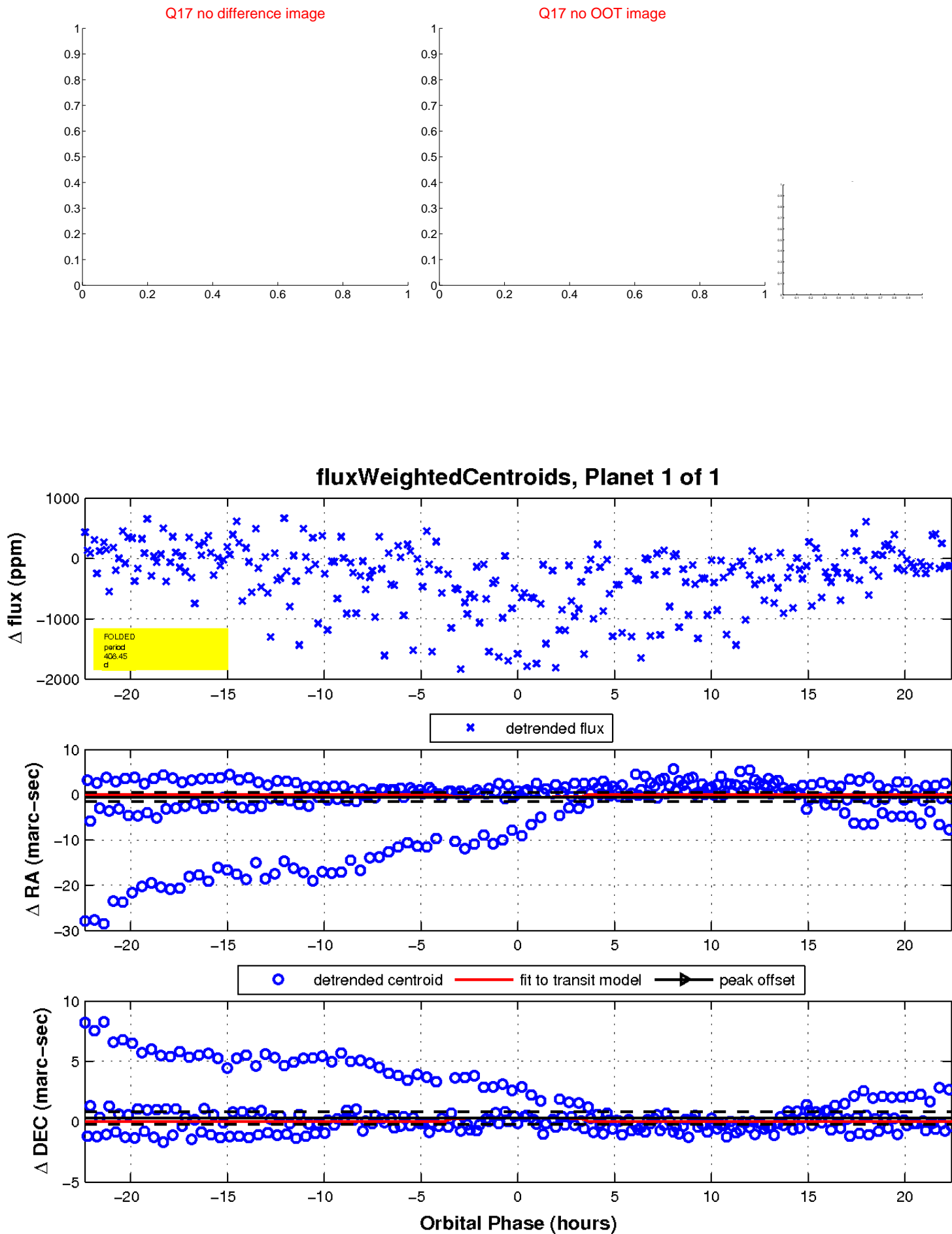
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

