

# KIC 010489286

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010489286-01	OBS	No	431.958248	362.573532	218.5	4.296	12.4	7.9	3.03	8572	4.88	22.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010489286-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_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.

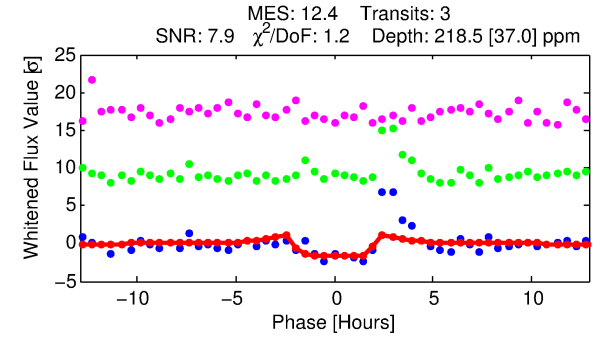
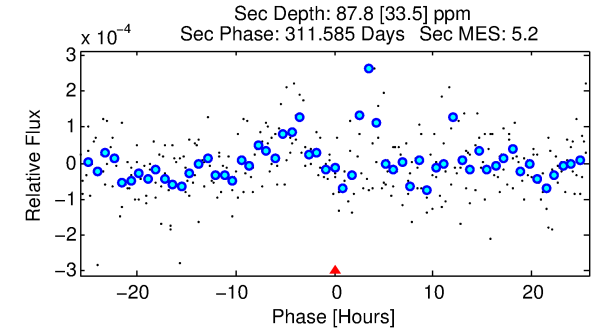
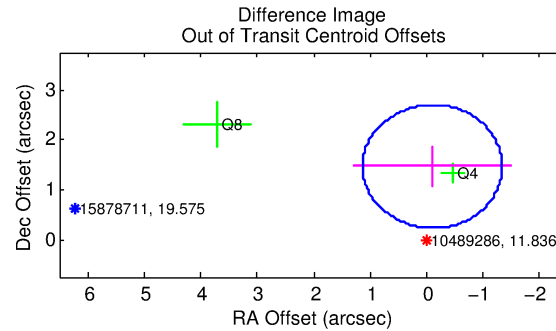
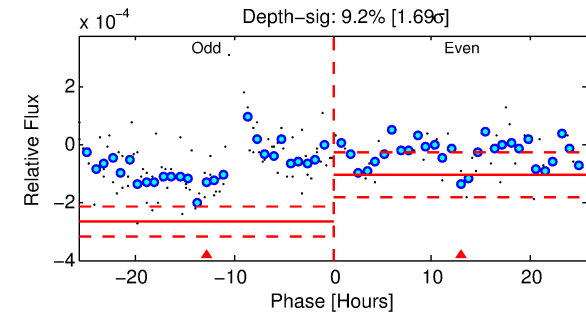
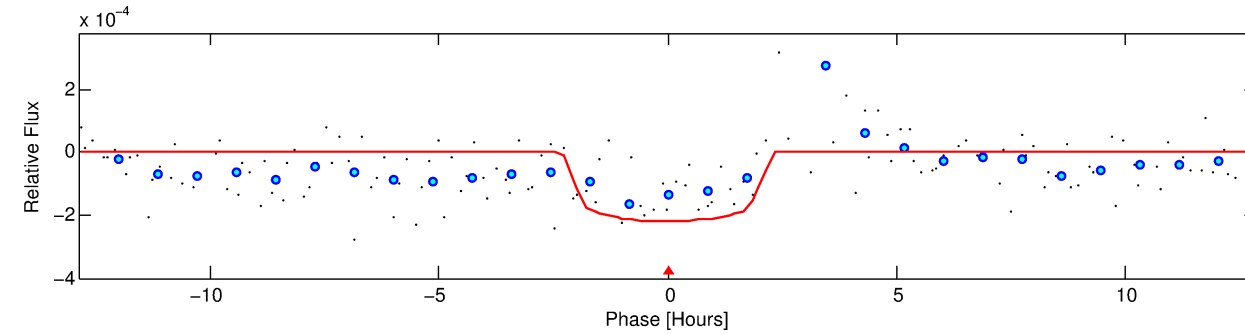
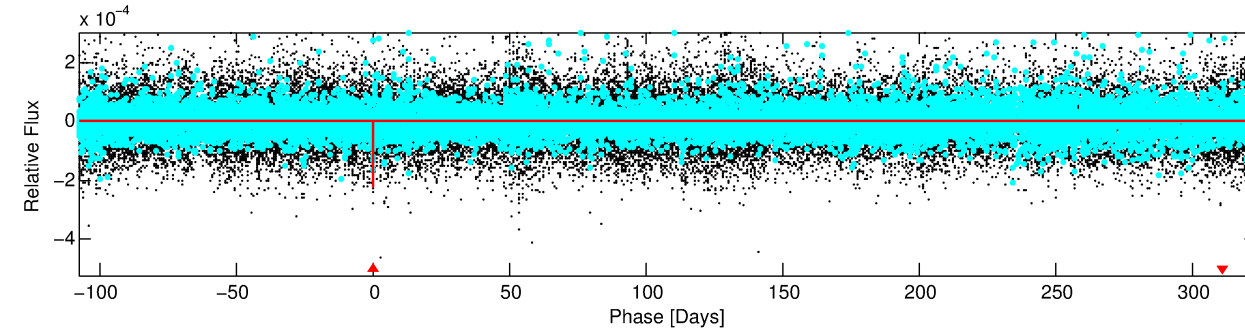
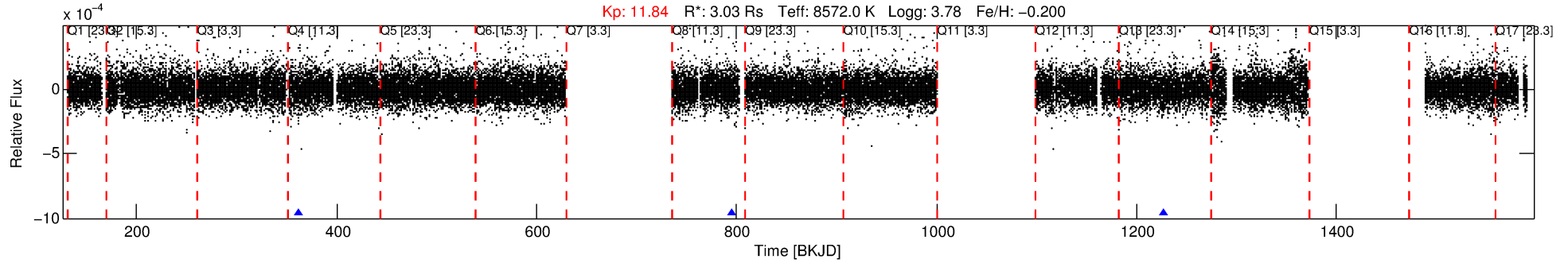
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010489286-01

No Significant Match Found

# DV One-Page Summary

KIC: 10489286 Candidate: 1 of 1 Period: 431.958 d



## DV Fit Results:

Period = 431.95825 [0.00598] d  
Epoch = 362.5735 [0.0082] BKJD  
 $R_p/R^*$  = 0.0147 [0.0139]  
 $a/R^*$  = 520.21 [3011.70]  
 $b$  = 0.76 [3.33]  
 $\text{Seff}$  = 22.39 [15.27]  
 $T_{\text{eq}}$  = 555 [95] K  
 $R_p$  = 4.88 [5.07]  $R_{\oplus}$   
 $a$  = 1.4104 [0.5868] AU  
 $A_g$  = 4036.94 [8200.67] [0.49 $\sigma$ ]  
 $T_{\text{effp}}$  = 6836 [3297] K [1.90 $\sigma$ ]

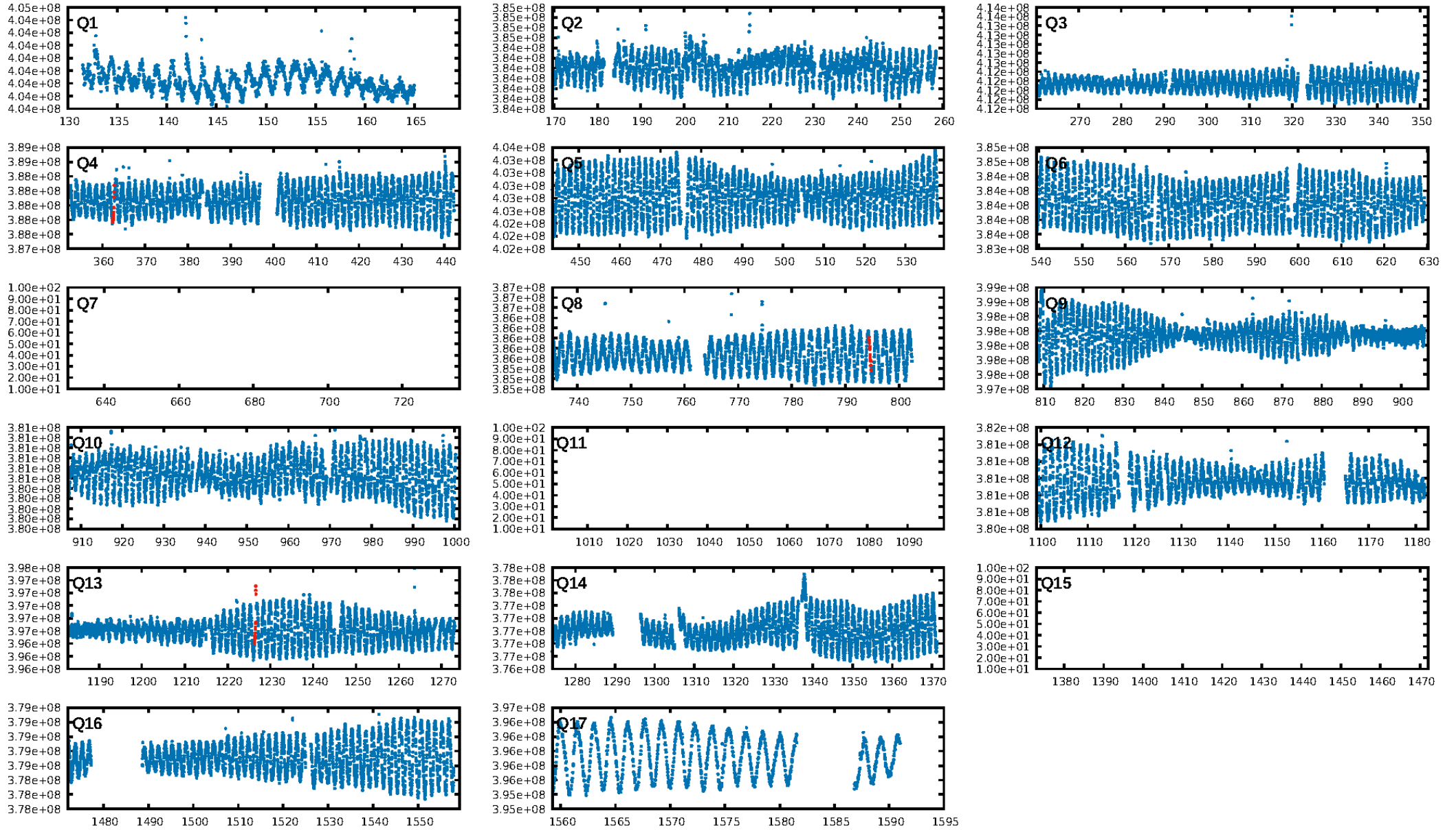
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.5%  
ModelChiSquareGof-sig: 67.0%  
Bootstrap-pfa: 1.29e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.024  
Centroid-sig: 1.8%  
Centroid-so: 1.992 arcsec [1.30 $\sigma$ ]  
OotOffset-rm: 1.466 arcsec [3.56 $\sigma$ ]  
KicOffset-rm: 1.279 arcsec [2.84 $\sigma$ ]  
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]

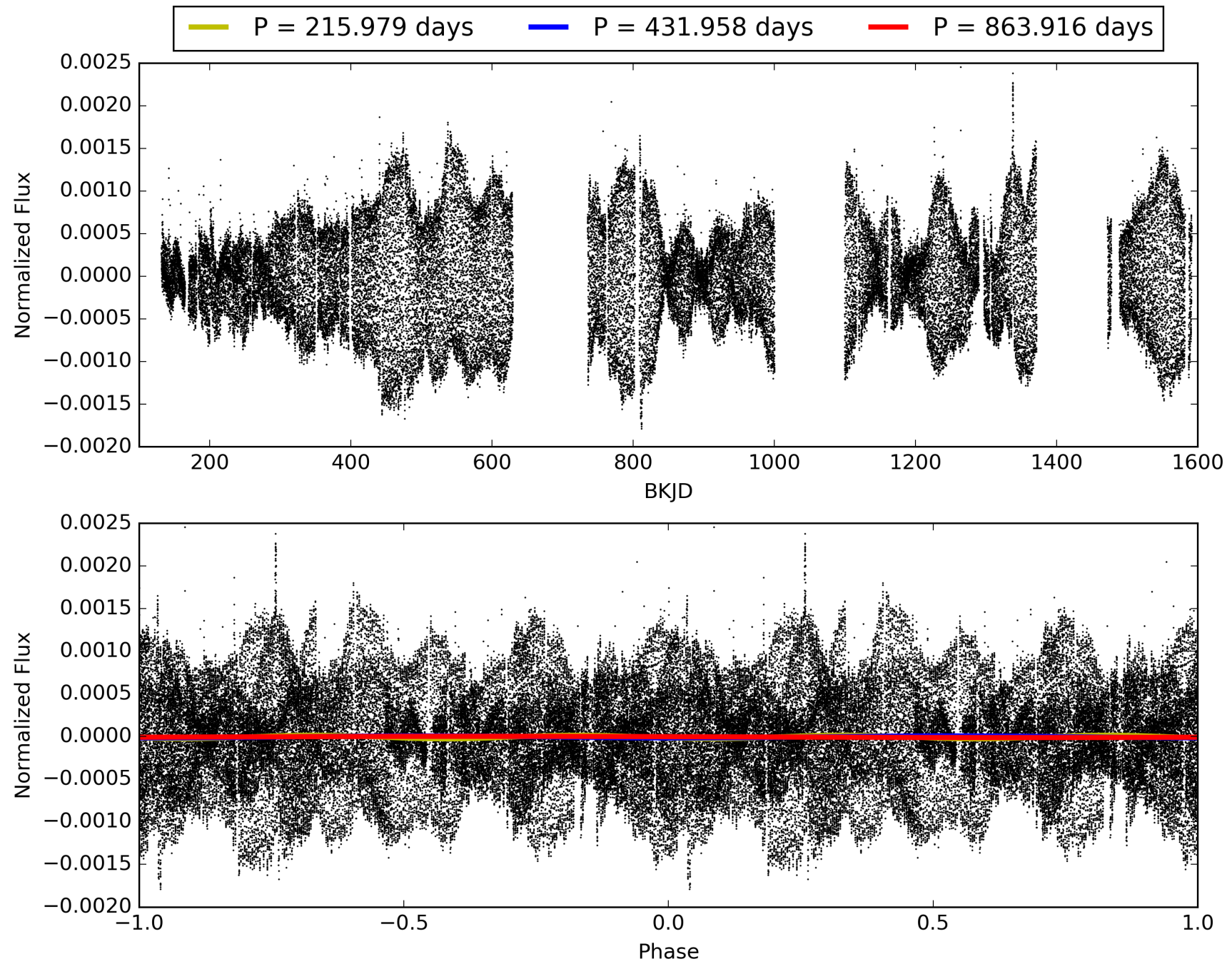
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:59:55 Z

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

# TCE 010489286-01, PDC Light Curves

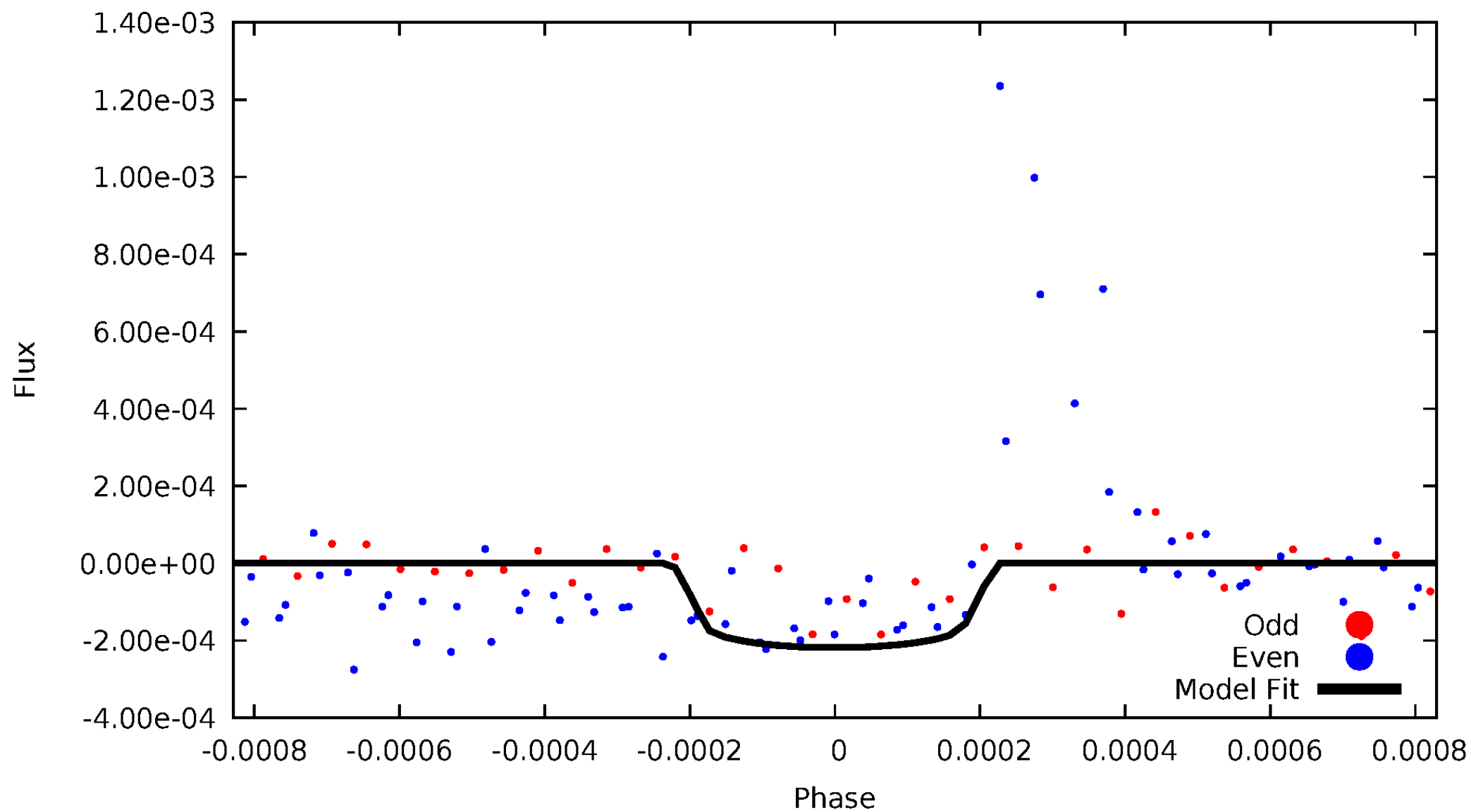


TCE 010489286-01



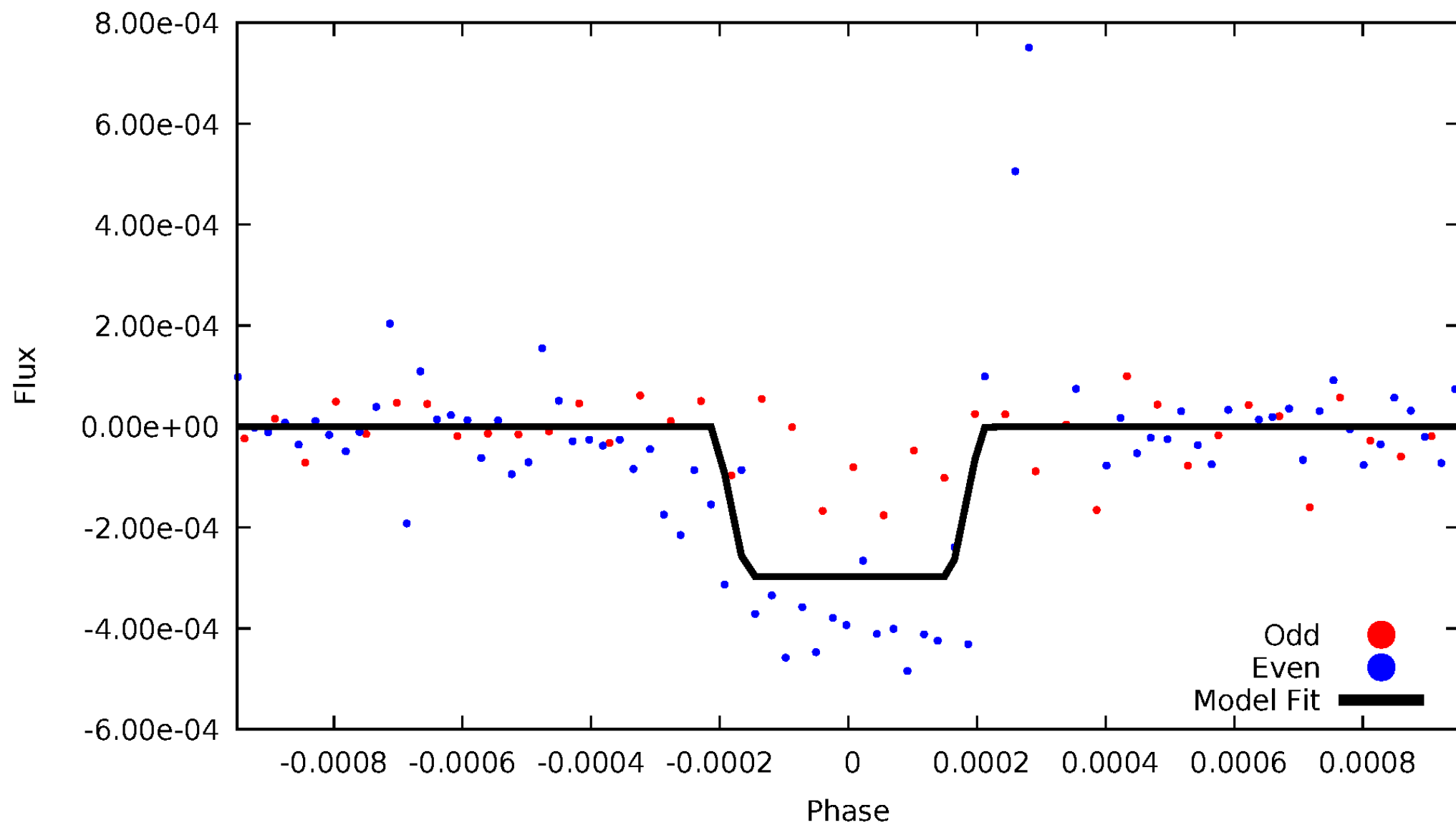
# DV Odd/Even

TCE 010489286-01



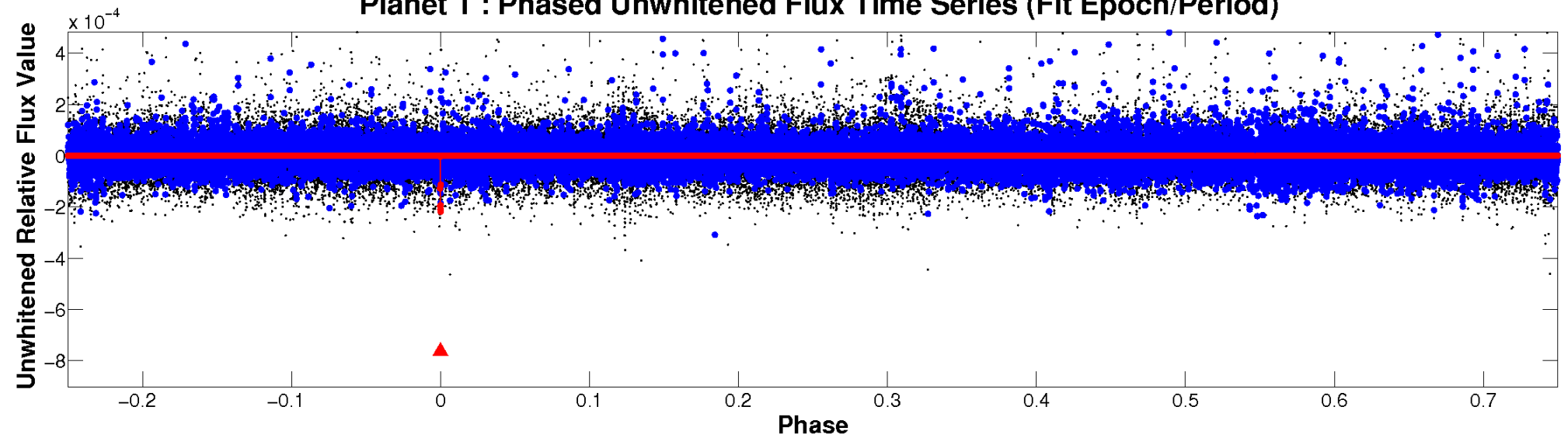
# ALT Odd/Even

TCE 010489286-01

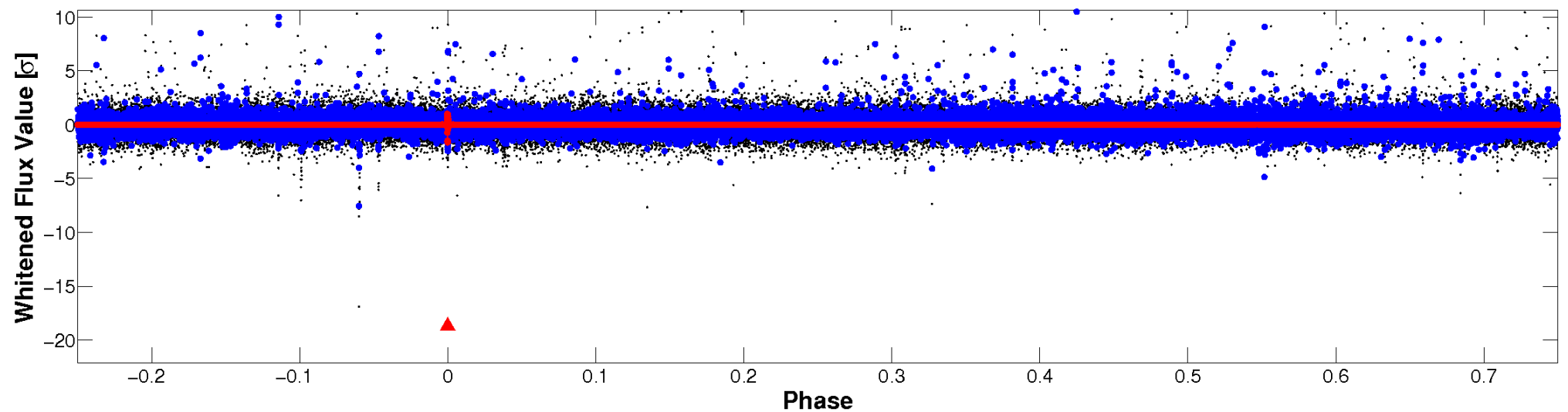


# Non-Whitened Vs. Whitened Light Curve

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

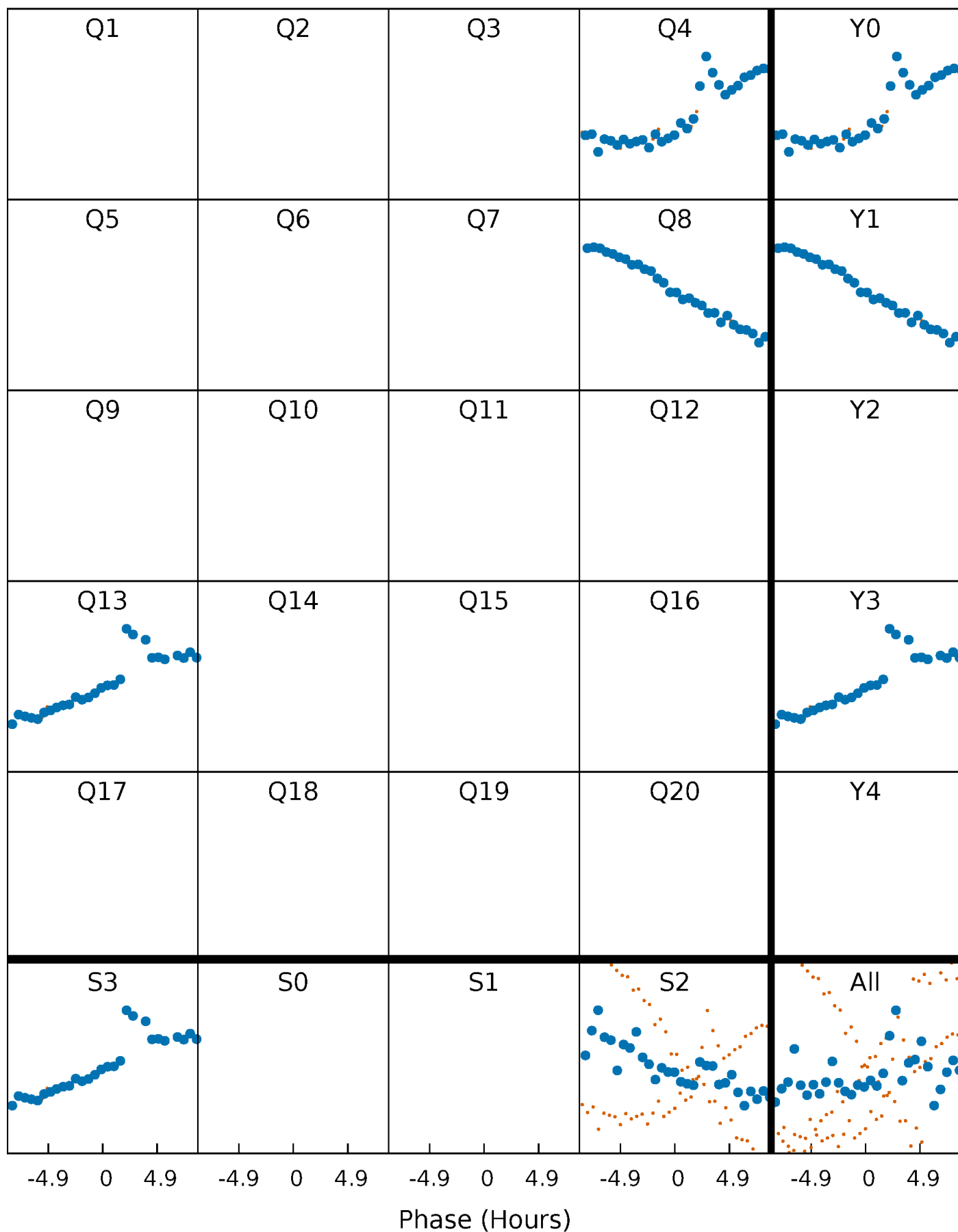


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

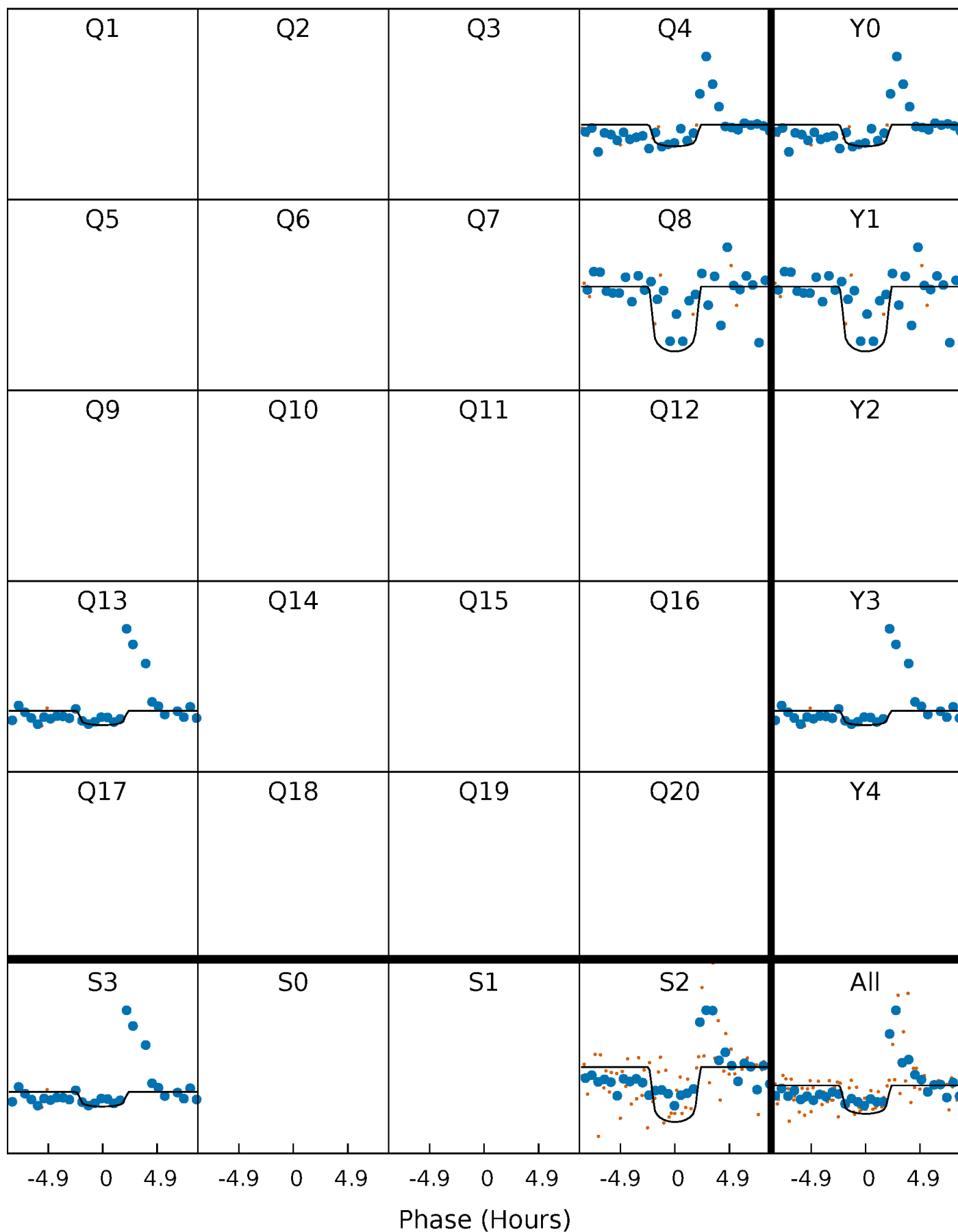
TCE 010489286-01 P=431.958248 Days  $T_0=362.573532$  (BKJD)





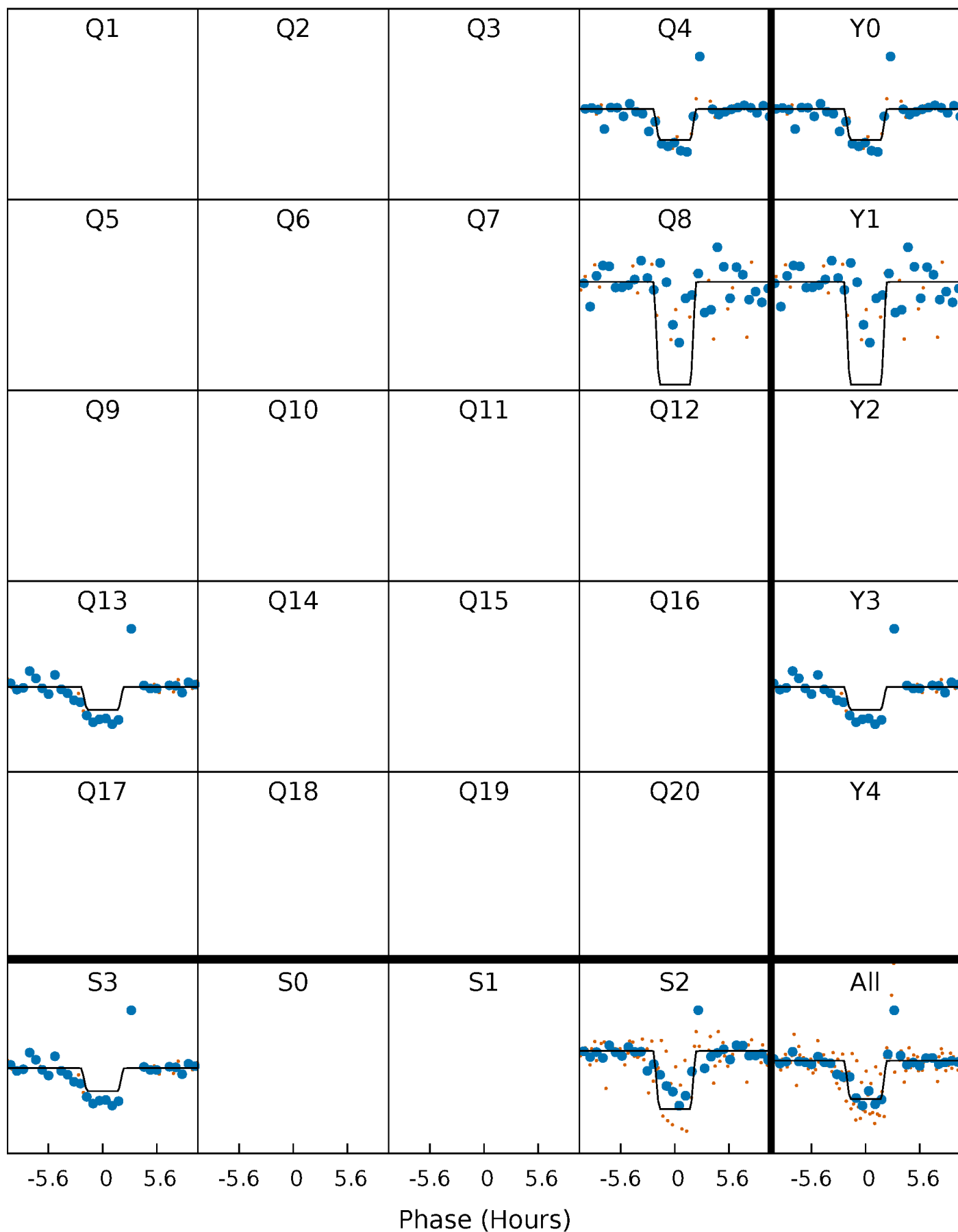
# DV Quarter-Phased Transit Curves

TCE 010489286-01     $P=431.958248$  Days     $T_0=362.573532$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

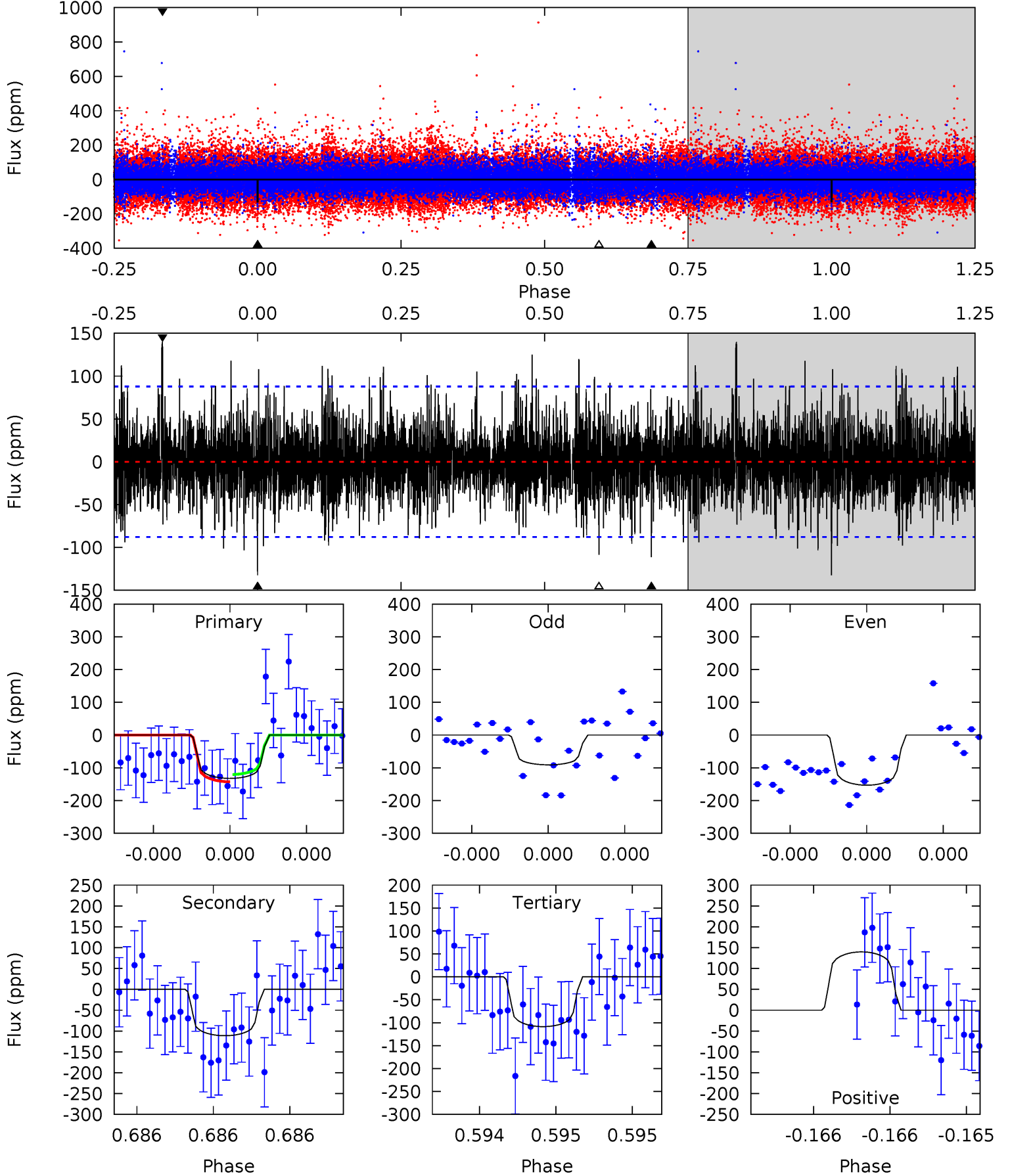
TCE 010489286-01 P=431.951836 Days  $T_0=362.583798$  (BKJD)



# DV Model-Shift Uniqueness Test

010489286-01, P = 431.958248 Days, E = 362.573532 Days

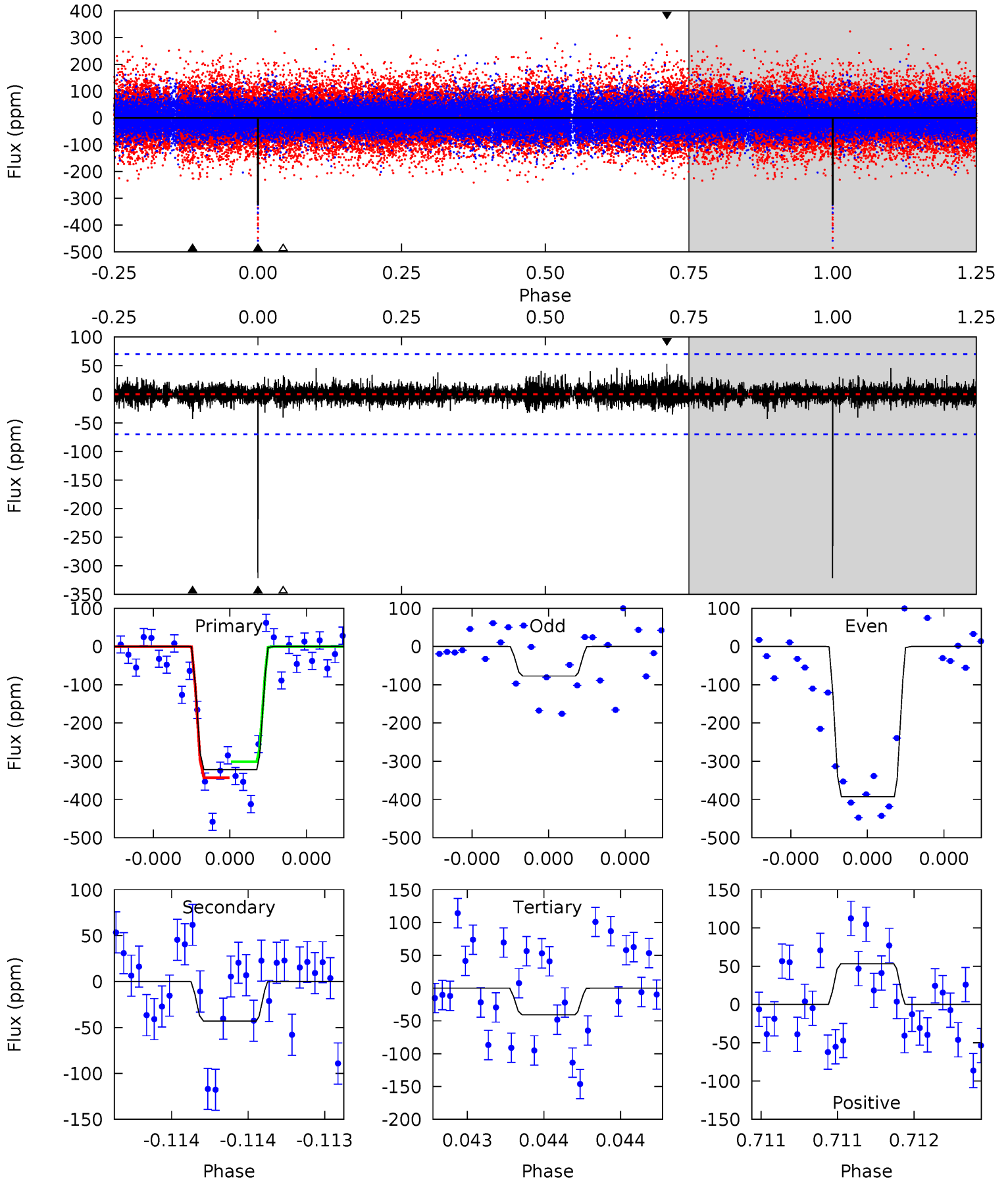
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.42	7.07	6.91	8.89	5.59	3.51	1.95	1.51	-0.47	0.16	-1.82	1.62	0.90	0.51	0.70



# Alt Model-Shift Uniqueness Test

010489286-01, P = 431.951836 Days, E = 362.583798 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
25.7	3.44	3.26	4.26	5.60	3.52	0.70	22.5	21.5	0.18	-0.83	12.9	0.88	0.14	1.69



### Stellar Parameters For KIC 010489286

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$8572^{+236}_{-372}$	$3.776^{+0.385}_{-0.137}$	$-0.200^{+0.400}_{-0.300}$	$3.034^{+0.889}_{-1.333}$	$2.009^{+0.430}_{-0.430}$	$0.101^{+0.333}_{-0.046}$
	+3%/-4%	+10%/-4%	+200%/-150%	+29%/-44%	+21%/-21%	+329%/-45%
Source	KIC0	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 010489286-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-111 \pm 16$	$5.29^{+4.08}_{-3.37}$	$750^{+62}_{-86}$	$6327^{+5968}_{-1395}$	$4418^{+28625}_{-3001}$
Alt.	$-43 \pm 12$	$5.65^{+4.81}_{-3.58}$	$749^{+68}_{-86}$	$4873^{+3210}_{-891}$	$1391^{+9200}_{-957}$

$T_{max}$  = 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

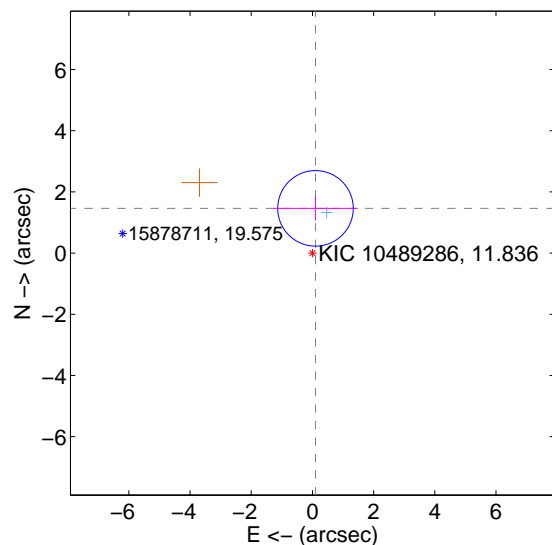
Supplemental centroid analysis for 010489286-01. **Kepler magnitude: 11.84.** Transit SNR 7.86

**There are 1 quarters with good PRF difference image offsets**

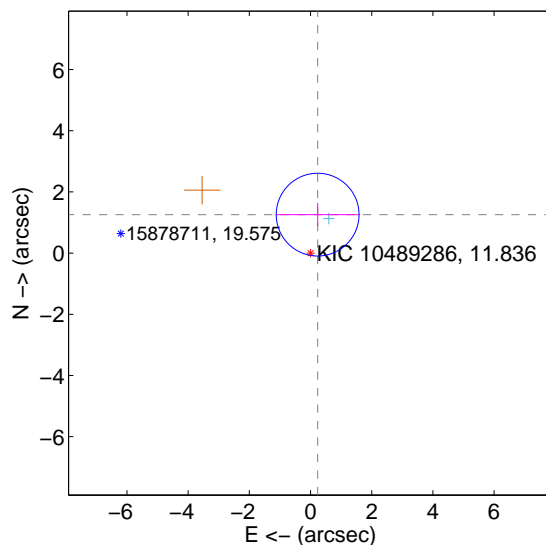
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.466 \pm 0.412</math></b>	<b>3.56</b>	$-0.100 \pm 1.382$	$1.463 \pm 0.402$
PRF-fit source offset from KIC position	$1.279 \pm 0.451$	2.84	$-0.233 \pm 1.376$	$1.258 \pm 0.382$
photometric centroid source offset	$1.99 \pm 1.53$	1.30	$-0.56 \pm 1.21$	$1.91 \pm 1.56$

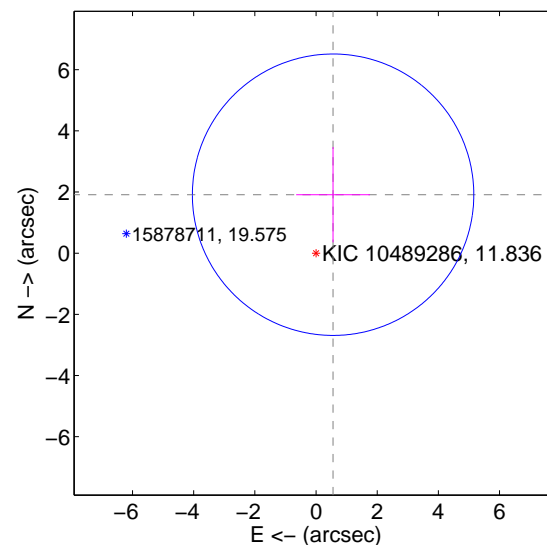
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

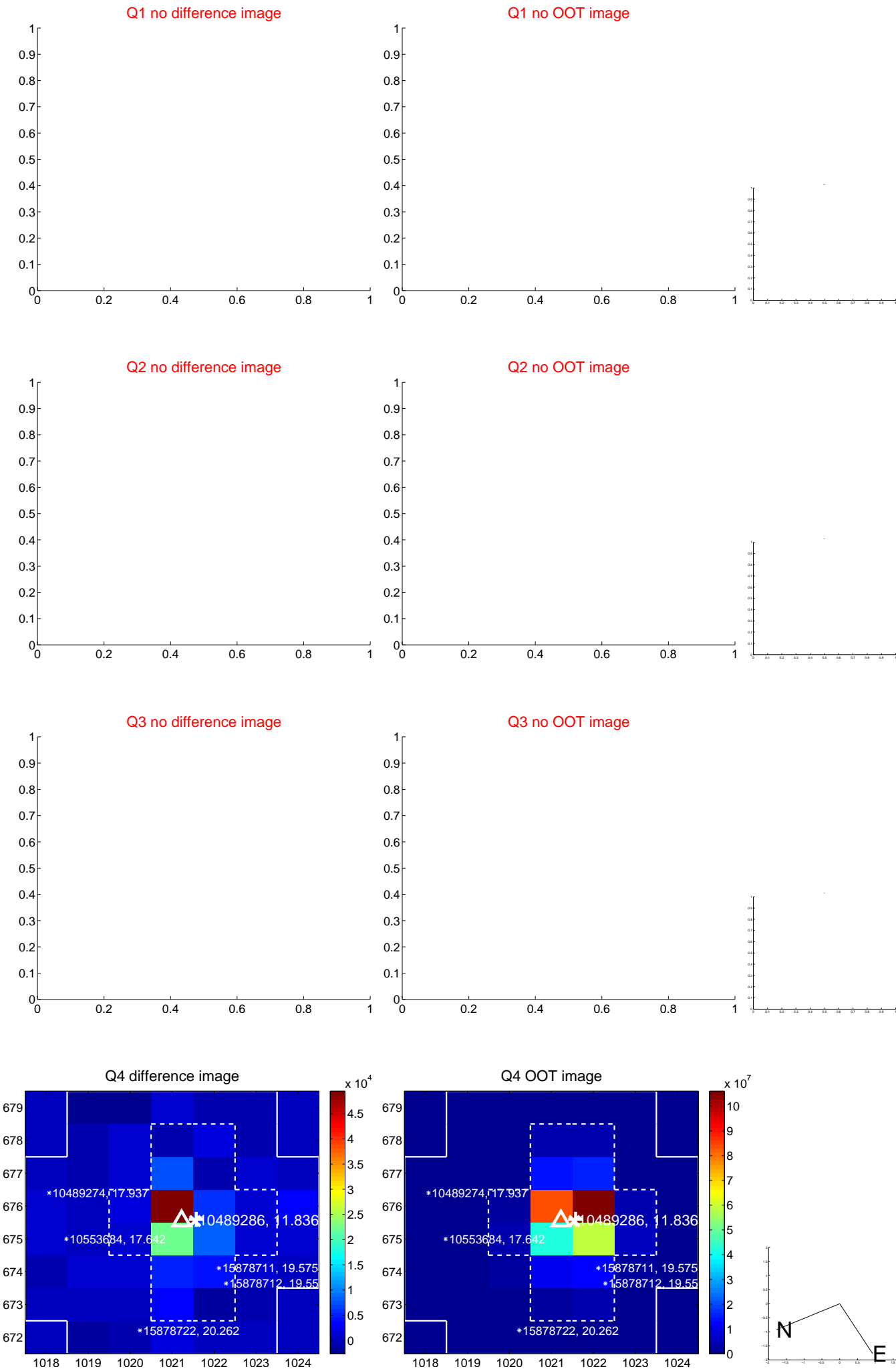


offset from photometric centroids



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

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



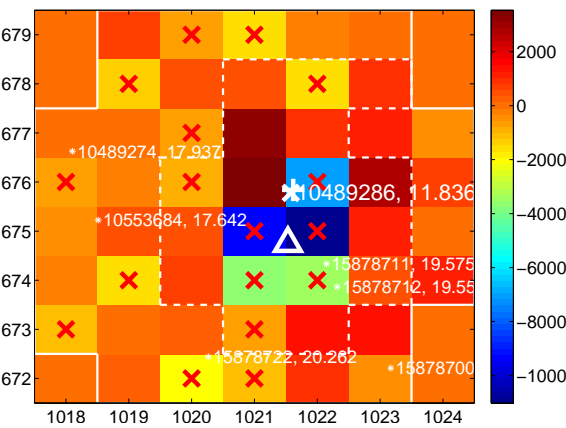
Q7 no difference image



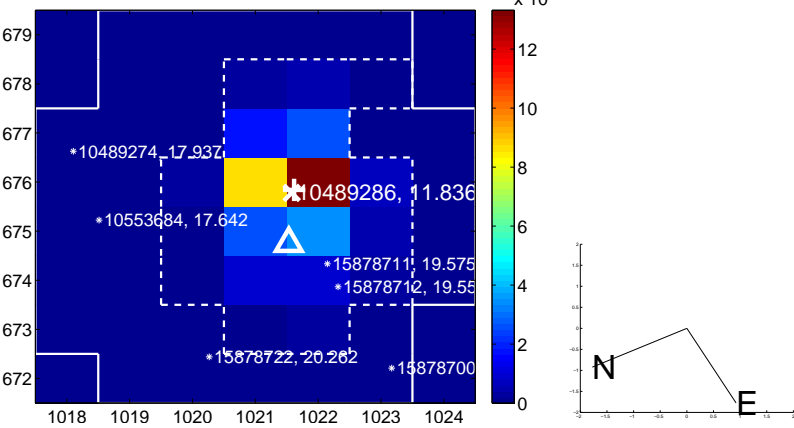
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 OOT image





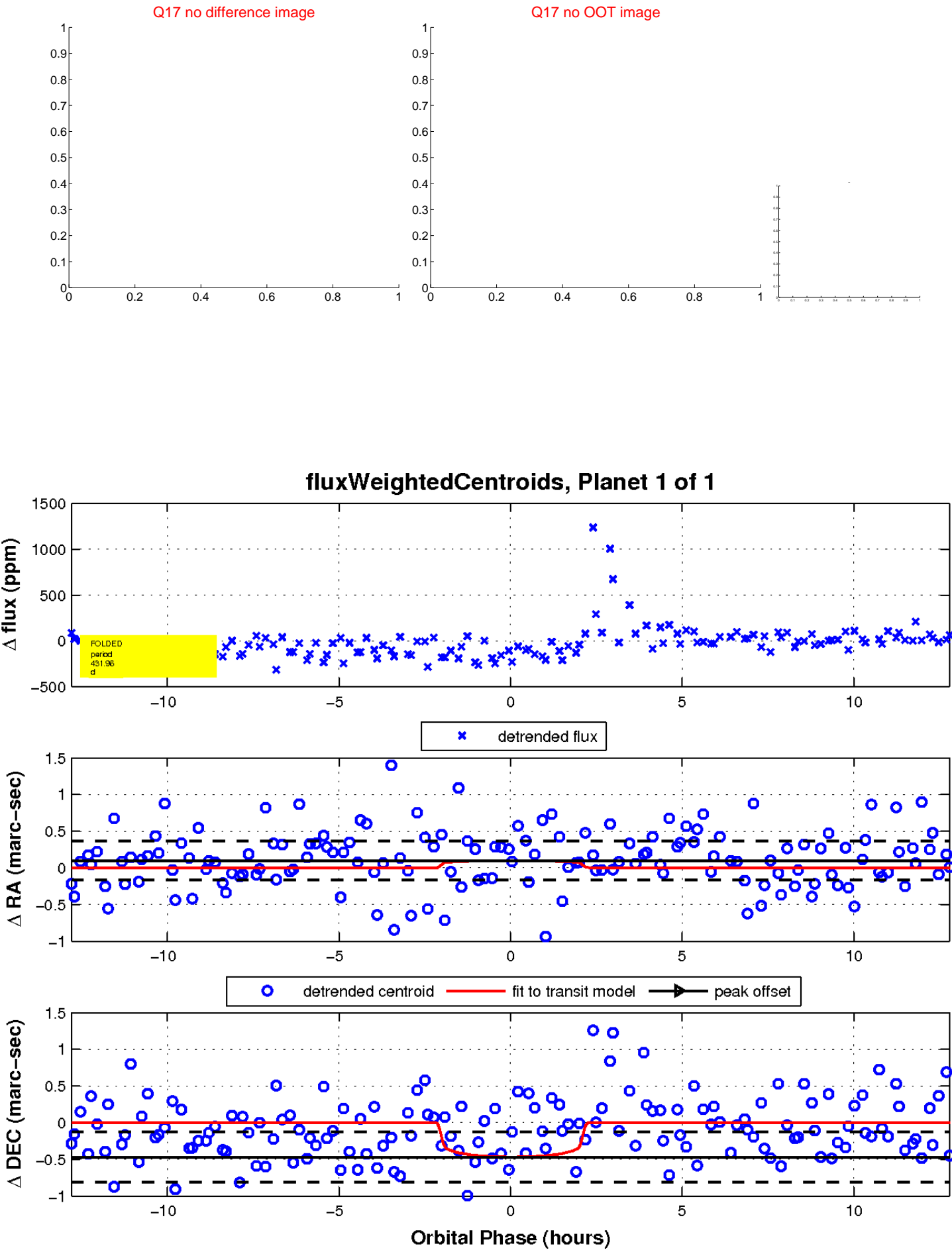
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

