

# KIC 011407805

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011407805-01	OBS	No	315.424741	393.012397	513.9	4.185	7.3	7.3	6.07	4833	17.46	14.72

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011407805-01	OBS	FP	0.08	1	0	0	0	MOD_NONUNIQ_ALT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

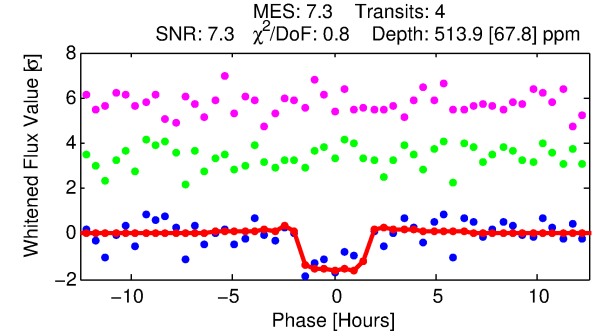
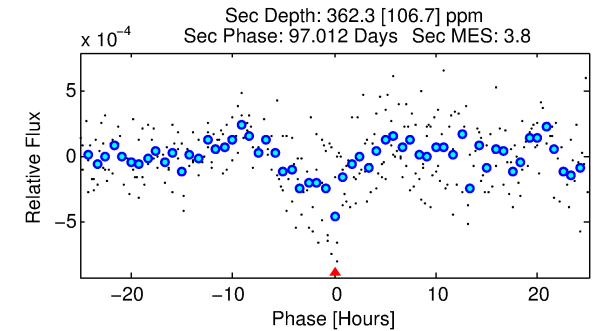
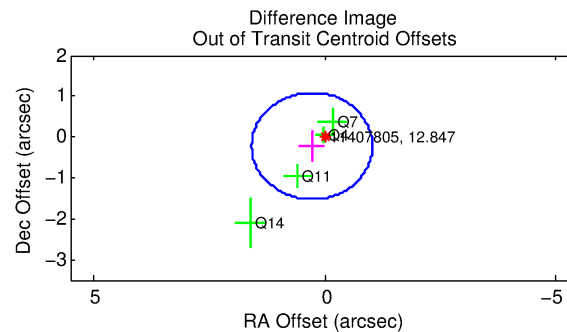
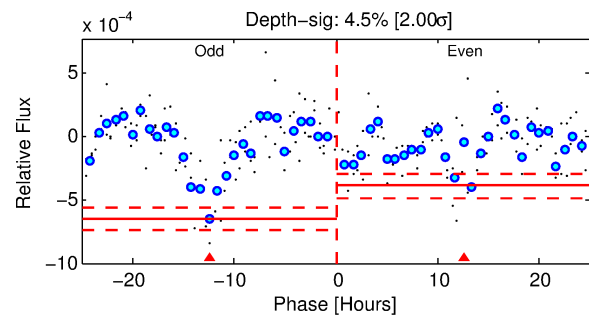
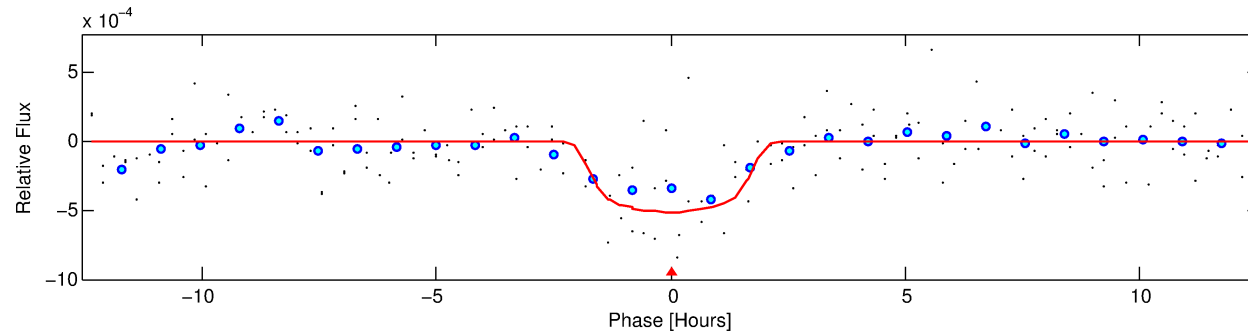
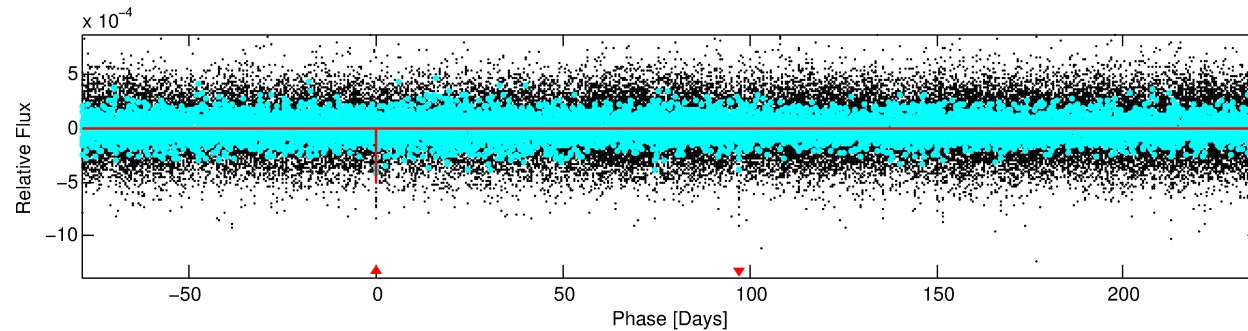
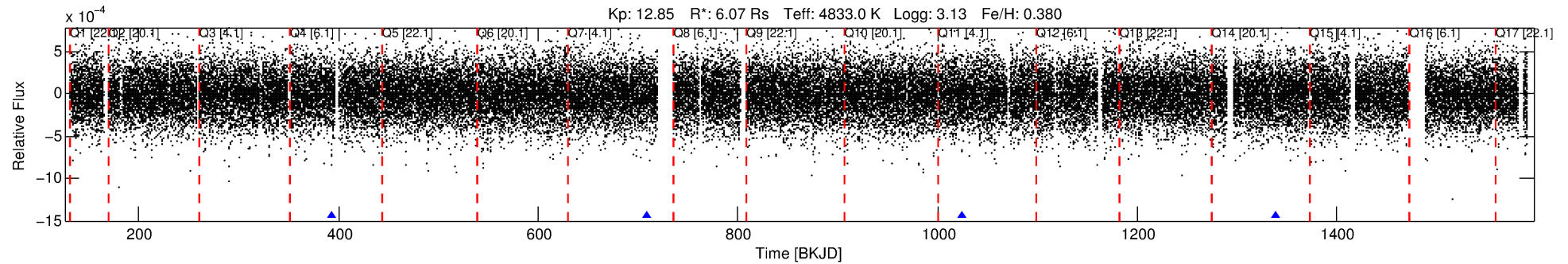
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011407805-01

No Significant Match Found

# DV One-Page Summary

KIC: 11407805 Candidate: 1 of 1 Period: 315.425 d



## DV Fit Results:

Period = 315.42474 [0.00364] d  
Epoch = 393.0124 [0.0062] BKJD  
Rp/R\* = 0.0264 [0.0036]  
a/R\* = 258.20 [105.56]  
b = 0.92 [0.07]  
Seff = 14.72 [2.41]  
Teq = 499 [20] K  
Rp = 17.46 [4.00] Re  
a = 1.1054 [0.1389] AU  
Ag = 799.07 [337.42] [2.37 $\sigma$ ]  
Teffp = 4105 [423] K [8.52 $\sigma$ ]

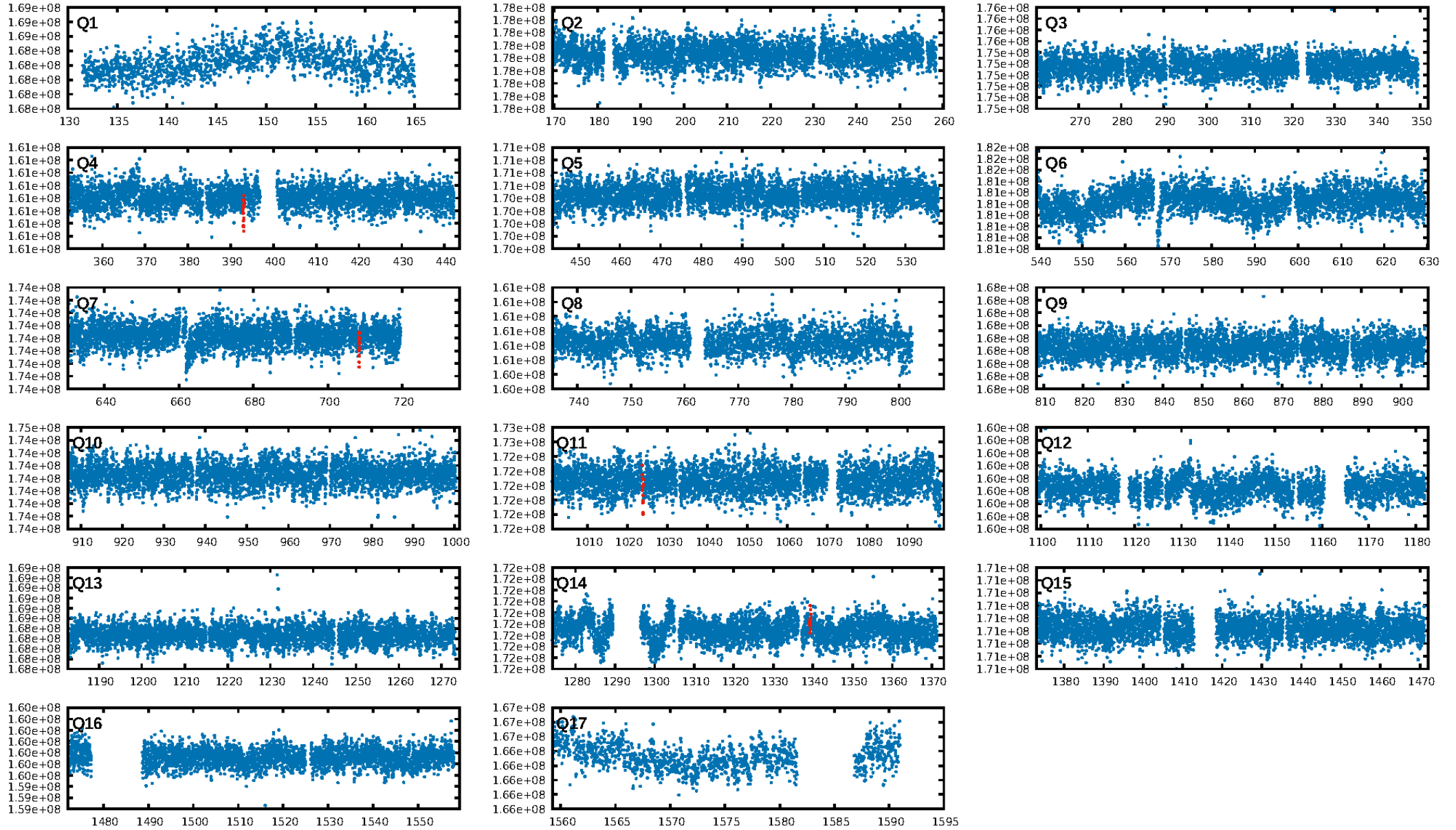
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 39.6%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.04e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.077  
Centroid-sig: 98.4%  
Centroid-so: 0.180 arcsec [0.29 $\sigma$ ]  
OotOffset-rm: 0.354 arcsec [0.81 $\sigma$ ]  
KicOffset-rm: 0.395 arcsec [0.59 $\sigma$ ]  
OotOffset-st: 1/2/1/0 [4]  
KicOffset-st: 1/2/1/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [4/4]

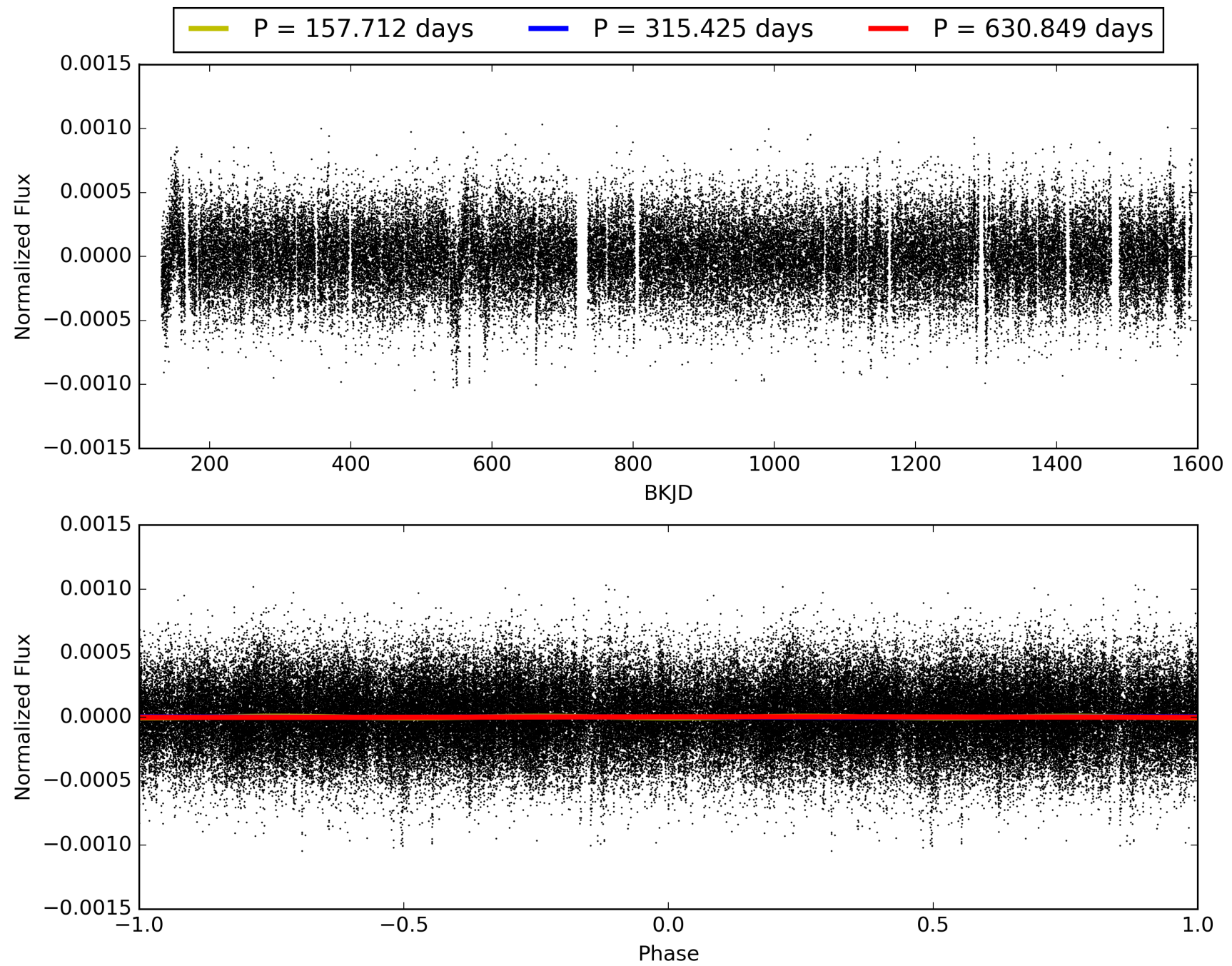
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 19:37:50 Z

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

# TCE 011407805-01, PDC Light Curves

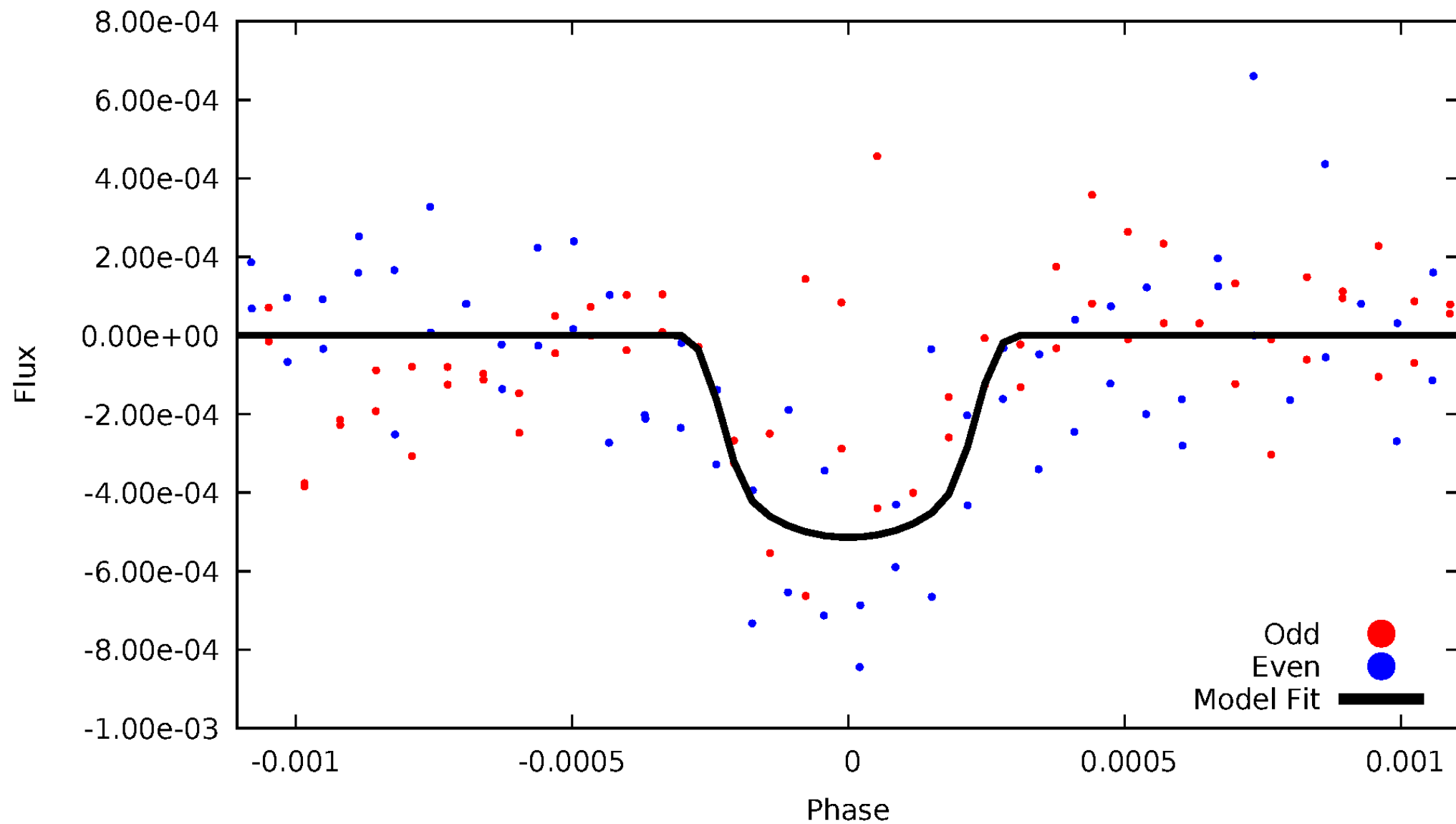


# TCE 011407805-01



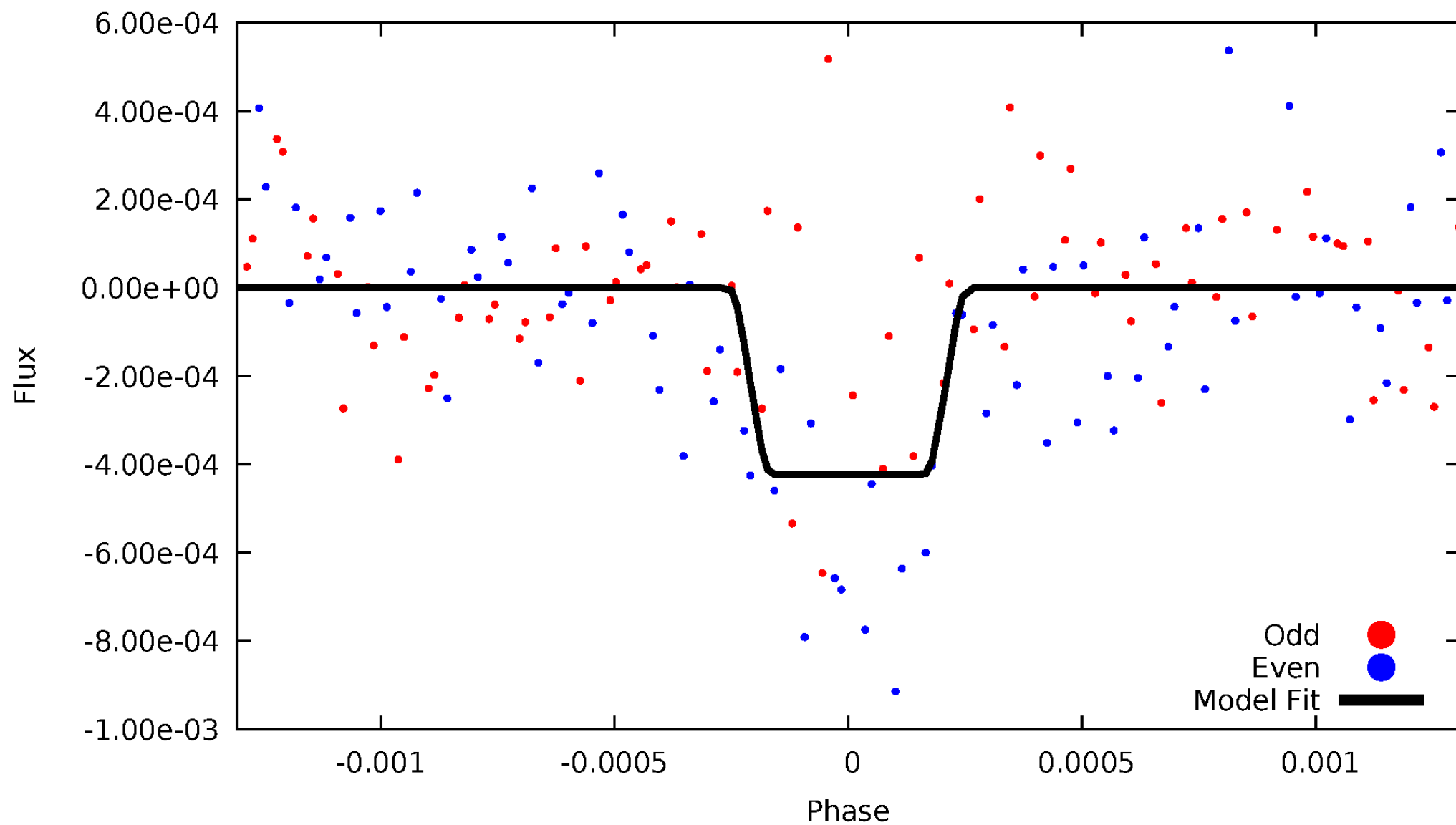
# DV Odd/Even

TCE 011407805-01



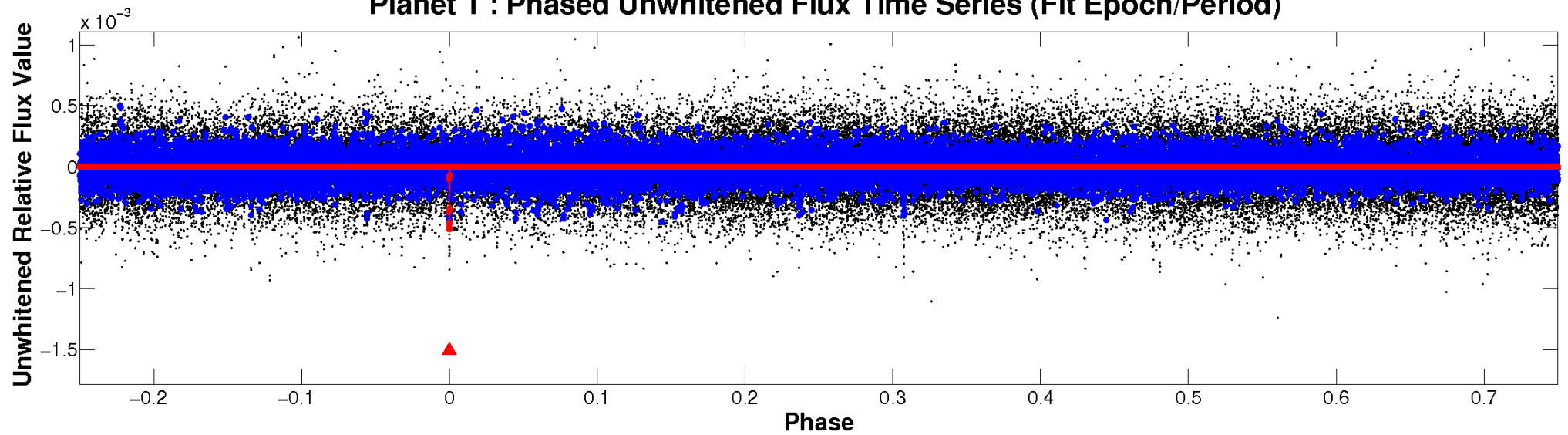
# ALT Odd/Even

TCE 011407805-01

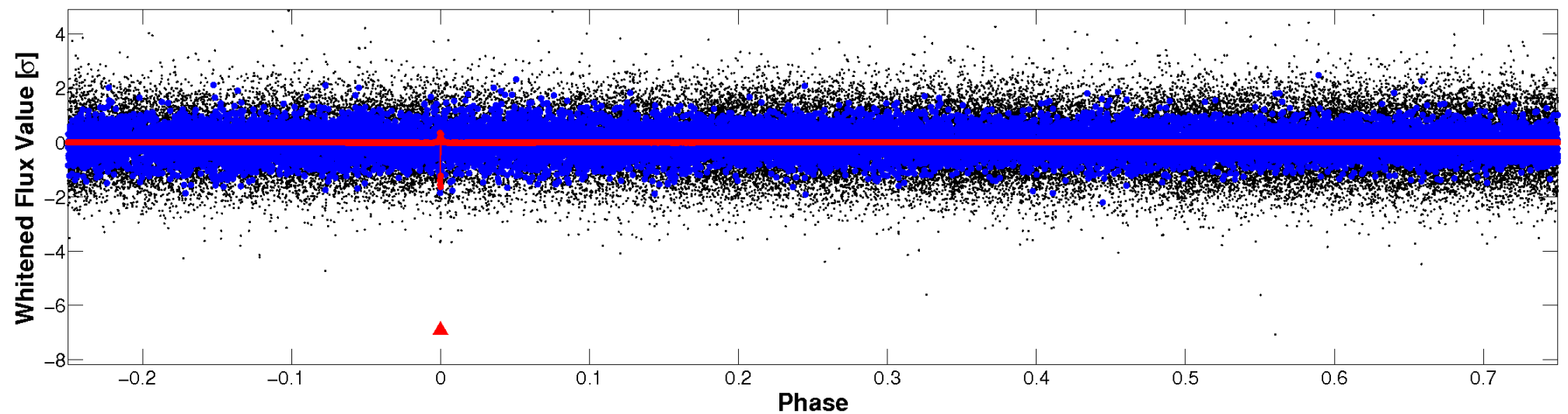


# Non-Whitened Vs. Whitened Light Curve

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



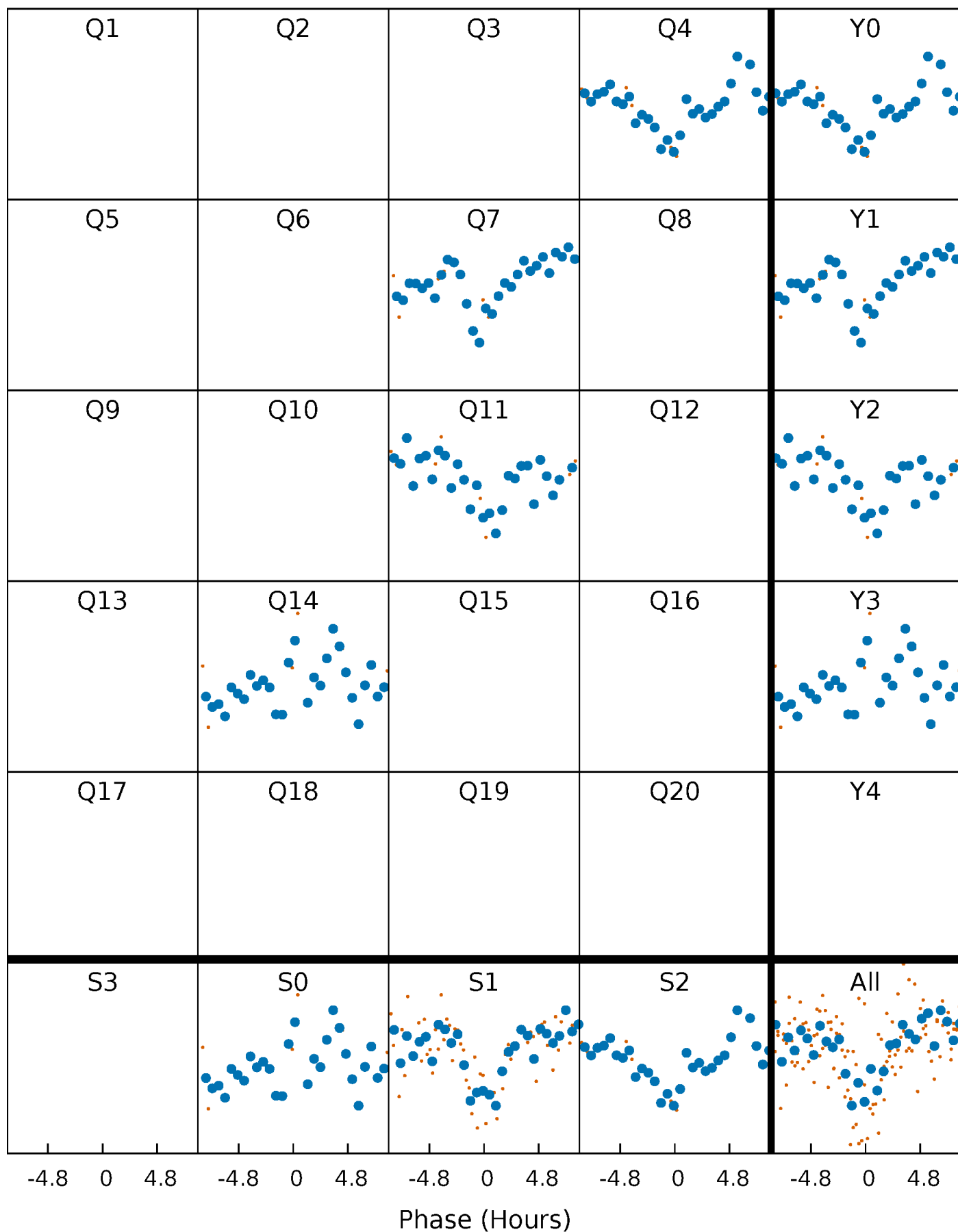
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

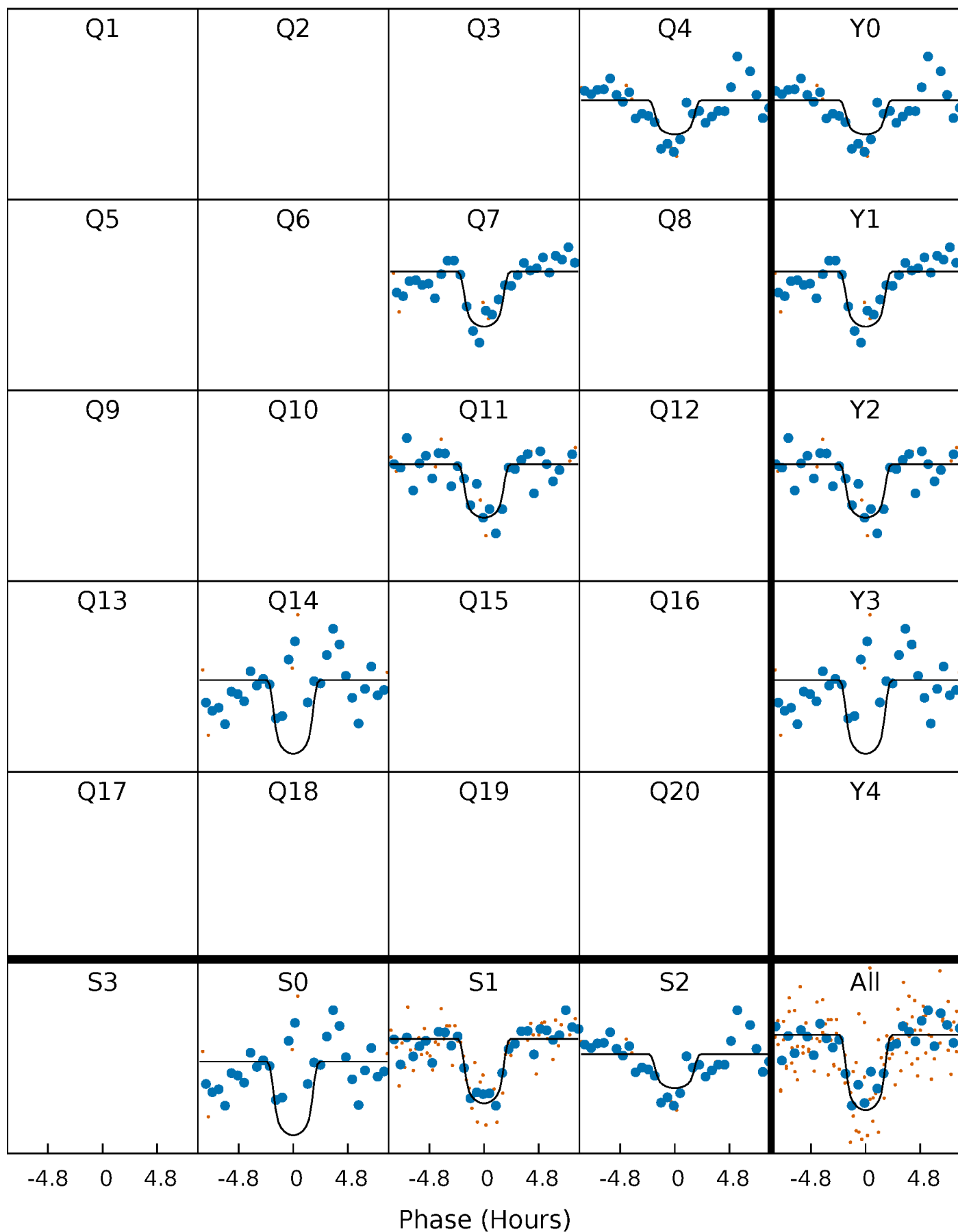
TCE 011407805-01 P=315.424741 Days  $T_0=393.012397$  (BKJD)





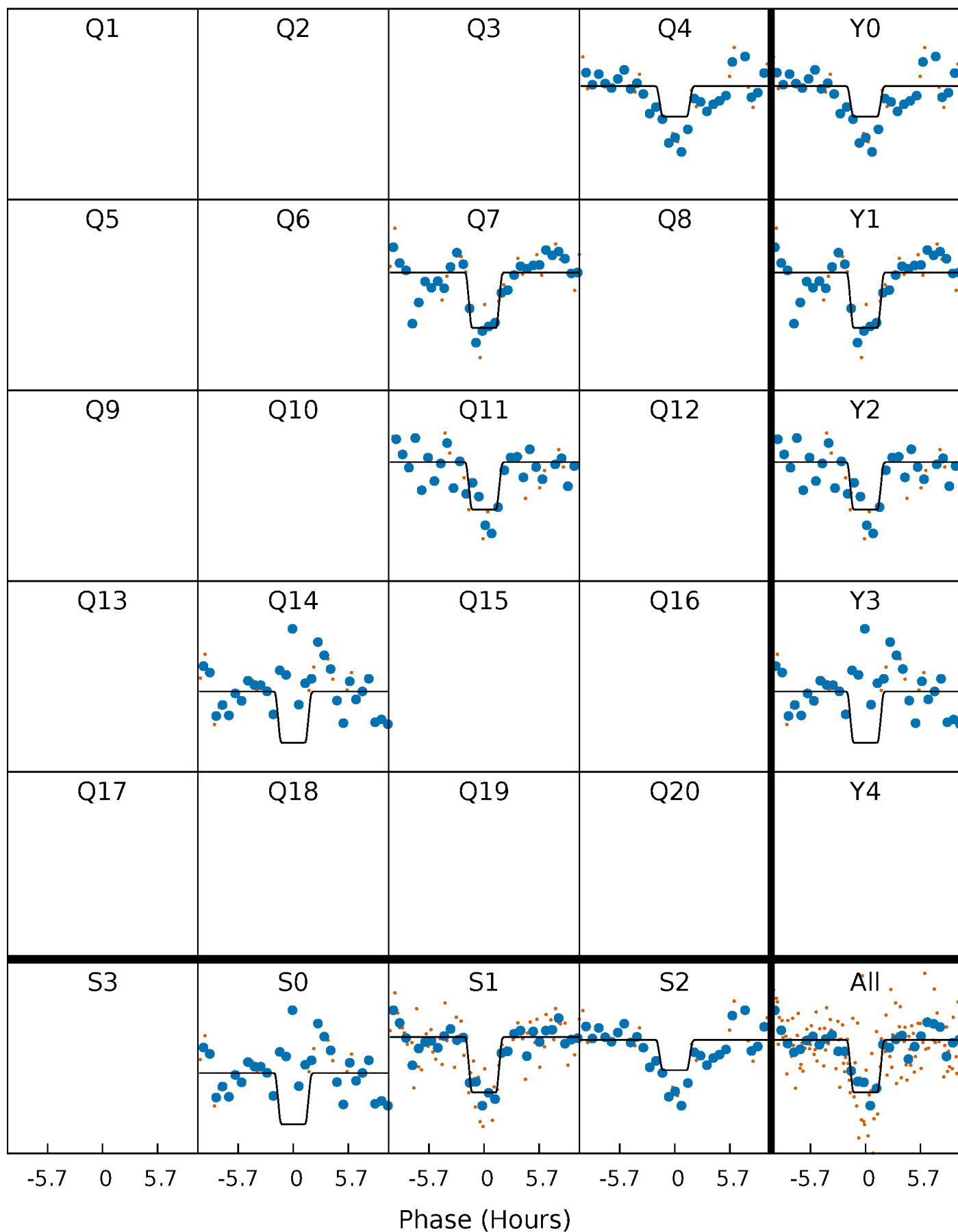
# DV Quarter-Phased Transit Curves

TCE 011407805-01 P=315.424741 Days  $T_0=393.012397$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

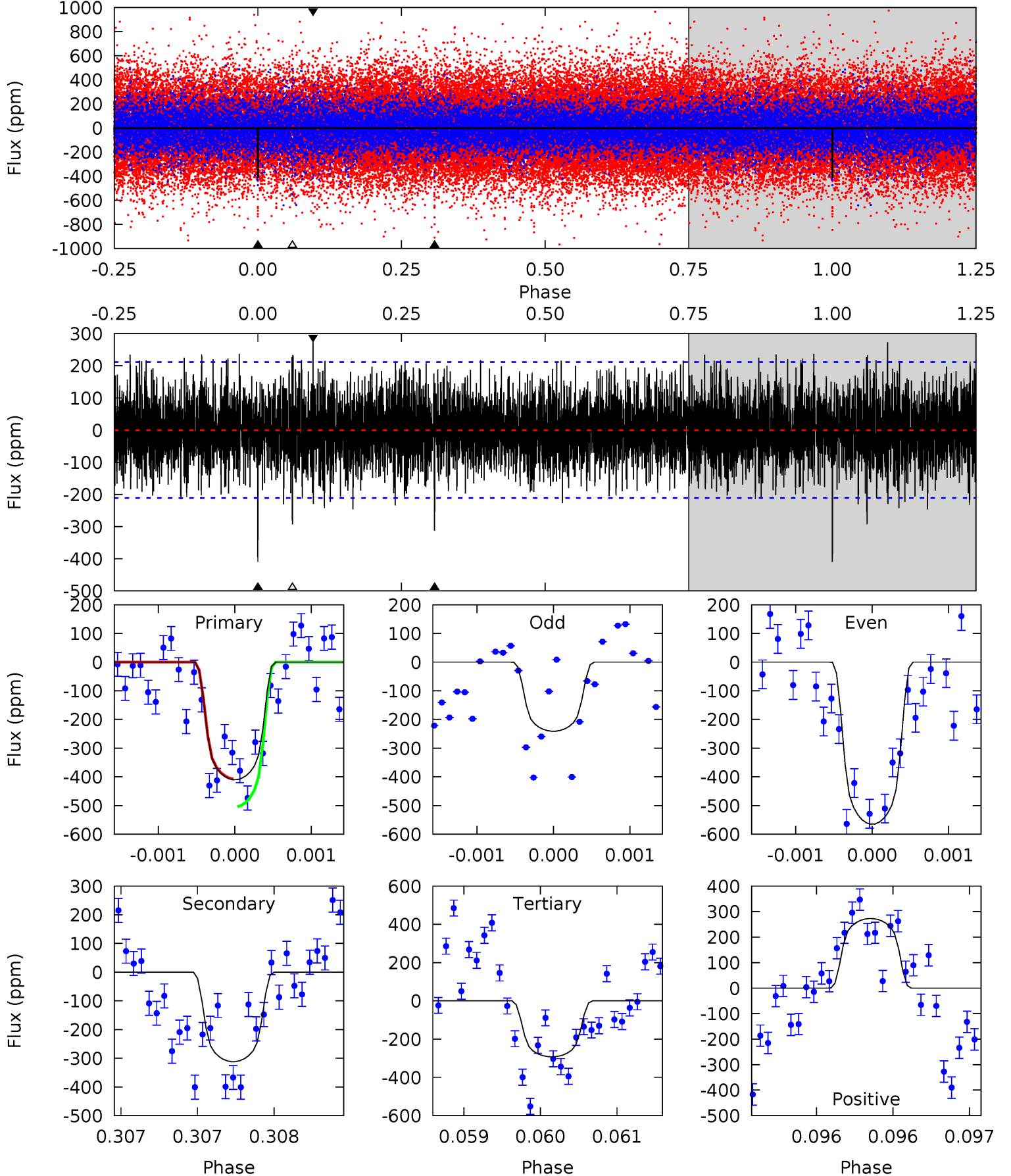
TCE 011407805-01 P=315.443175 Days  $T_0=392.987085$  (BKJD)



# DV Model-Shift Uniqueness Test

011407805-01,  $P = 315.424741$  Days,  $E = 77.587656$  Days

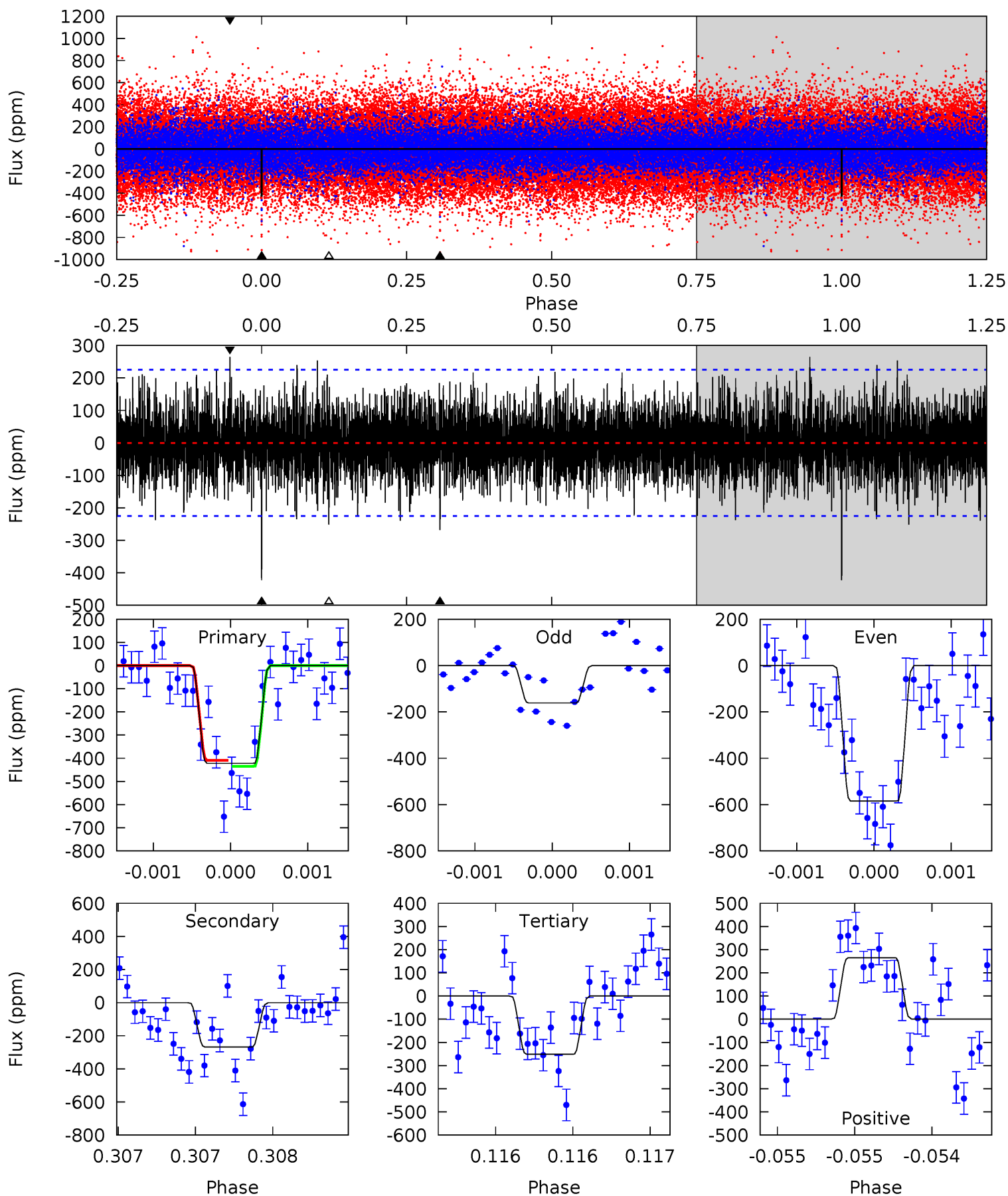
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	8.19	7.68	7.16	5.55	3.44	2.00	3.07	3.59	0.51	1.02	4.25	0.81	0.40	1.24



# Alt Model-Shift Uniqueness Test

011407805-01,  $P = 315.443175$  Days,  $E = 77.543910$  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
10.4	6.62	6.20	6.55	5.57	3.47	1.71	4.23	3.88	0.41	0.07	5.30	0.81	0.39	0.31



### Stellar Parameters For KIC 011407805

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4833^{+43}_{-115}$	$3.130^{+0.033}_{-0.027}$	$0.380^{+0.100}_{-0.200}$	$6.065^{+0.320}_{-1.120}$	$1.810^{+0.181}_{-0.579}$	$0.011^{+0.003}_{-0.001}$
	+1%/-2%	+1%/-1%	+26%/-53%	+5%/-18%	+10%/-32%	+30%/-8%
Source	SPE74	AST9	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011407805-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-312 \pm 38$	$17.67^{+2.68}_{-2.83}$	$695^{+14}_{-19}$	$4101^{+264}_{-219}$	$683^{+255}_{-187}$
Alt.	$-268 \pm 40$	$13.48^{+2.67}_{-2.42}$	$696^{+13}_{-20}$	$4400^{+361}_{-306}$	$996^{+470}_{-325}$

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

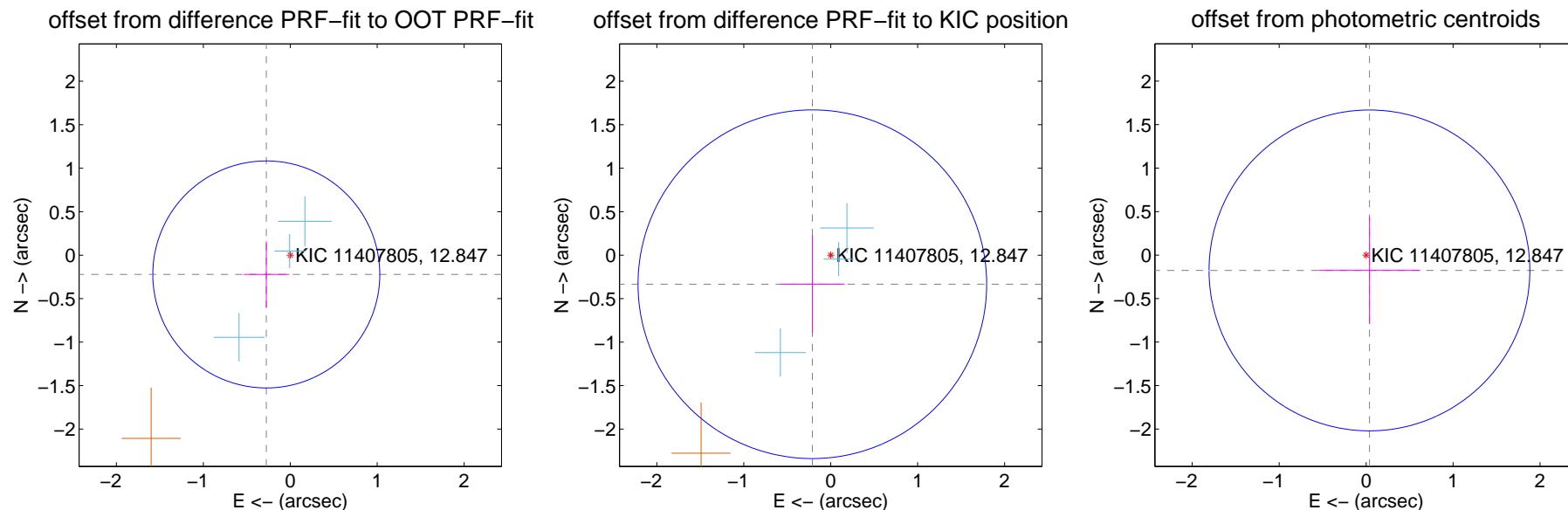
## DV Centroid Data

Supplemental centroid analysis for 011407805-01. Kepler magnitude: 12.85. Transit SNR 7.27

There are 3 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	$0.354 \pm 0.435$	0.81	$0.276 \pm 0.261$	$-0.222 \pm 0.380$
PRF-fit source offset from KIC position	$0.395 \pm 0.668$	0.59	$0.211 \pm 0.370$	$-0.334 \pm 0.561$
photometric centroid source offset	$0.18 \pm 0.61$	0.29	$-0.04 \pm 0.58$	$-0.18 \pm 0.62$



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



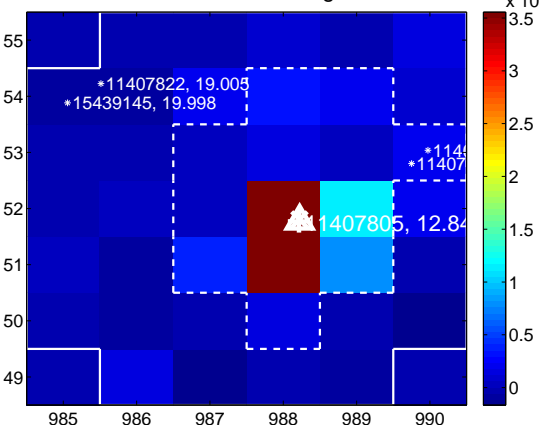
Q3 no difference image



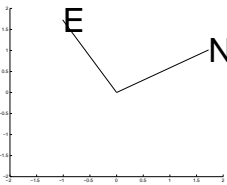
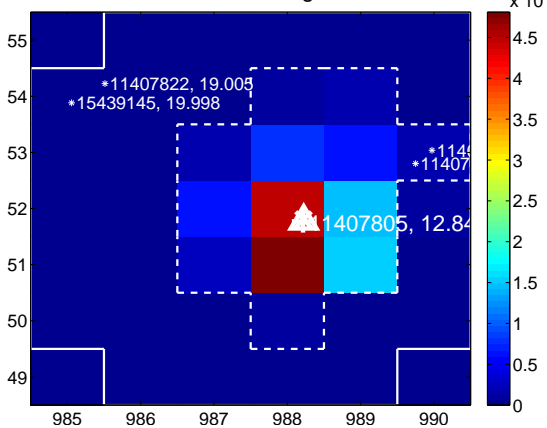
Q3 no OOT image



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



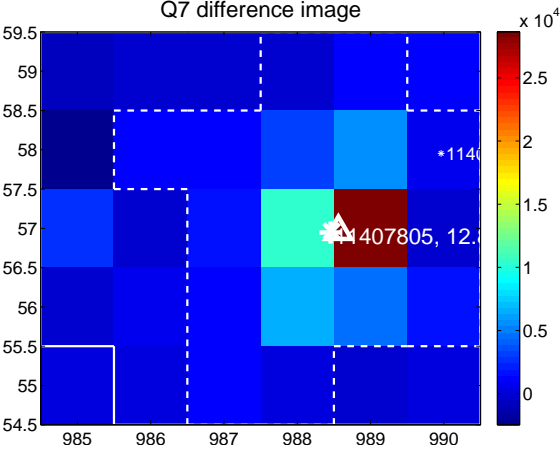
Q6 no difference image



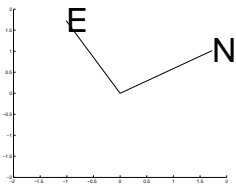
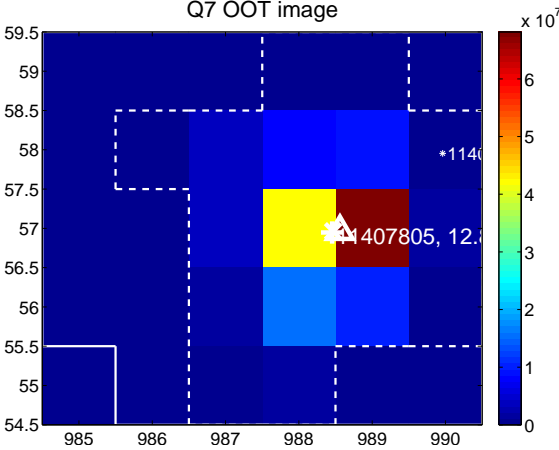
Q6 no OOT image



Q7 difference image



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.

Q9 no difference image



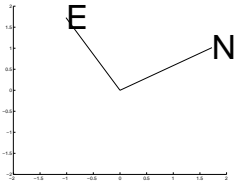
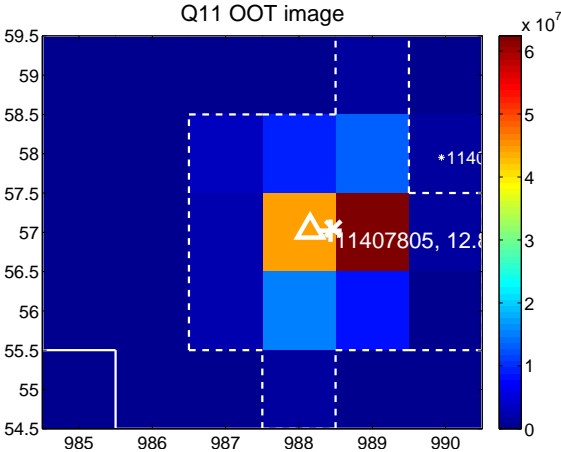
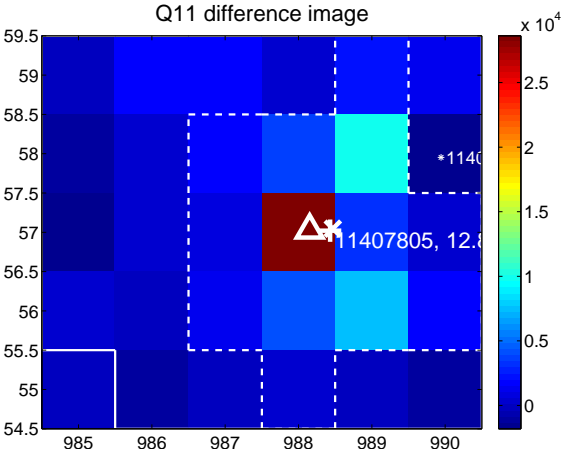
Q9 no OOT image



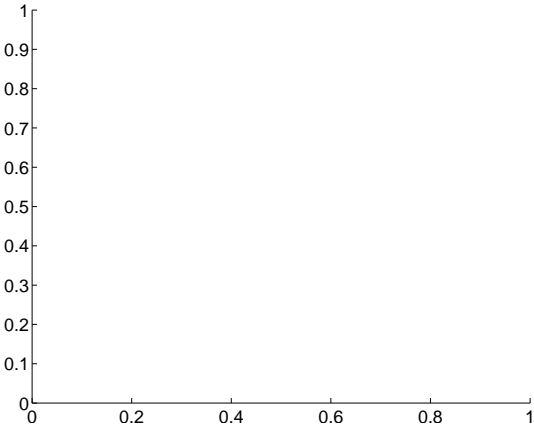
Q10 no difference image



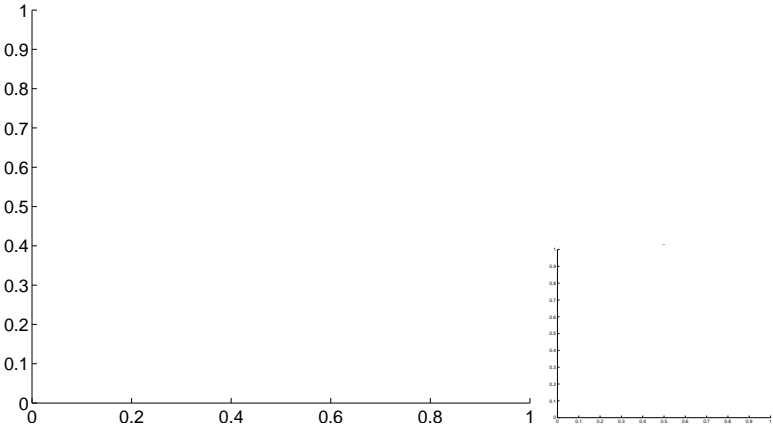
Q10 no OOT image



Q12 no difference image



Q12 no OOT image



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

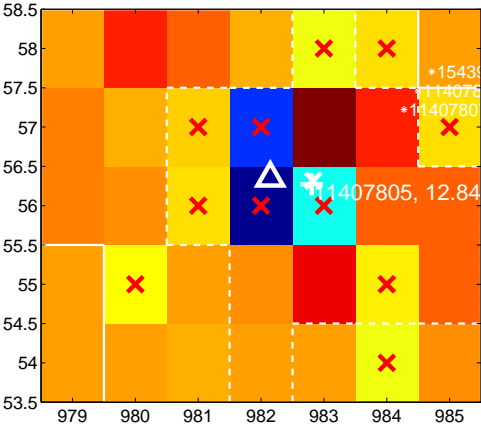
Q13 no difference image



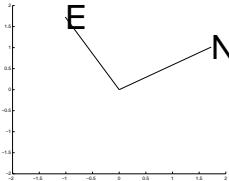
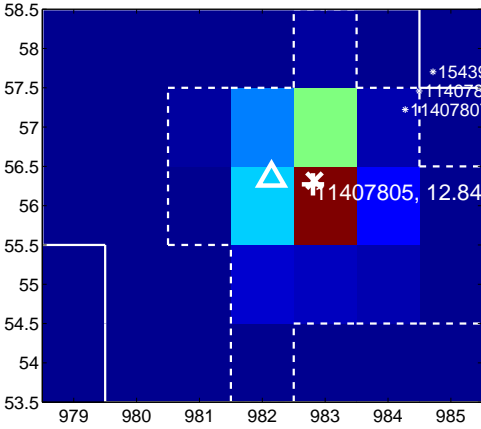
Q13 no OOT image



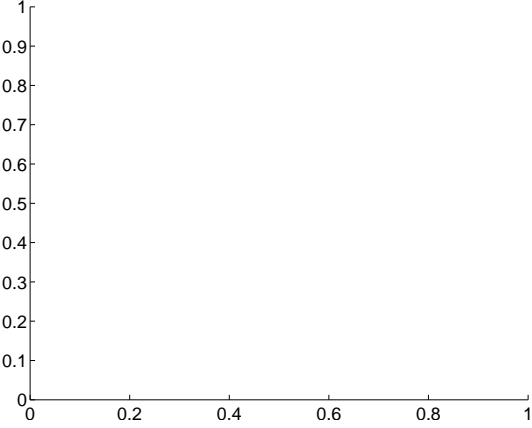
Q14 difference image. Poor Quality



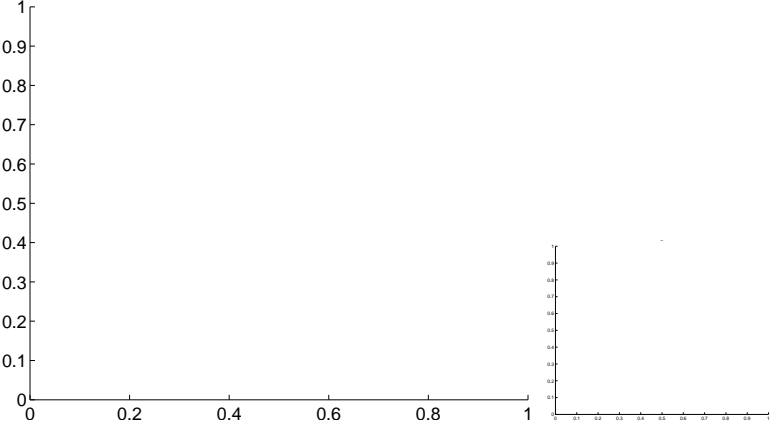
Q14 OOT image



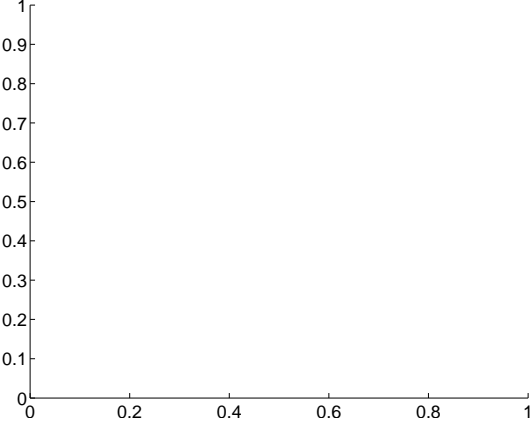
Q15 no difference image



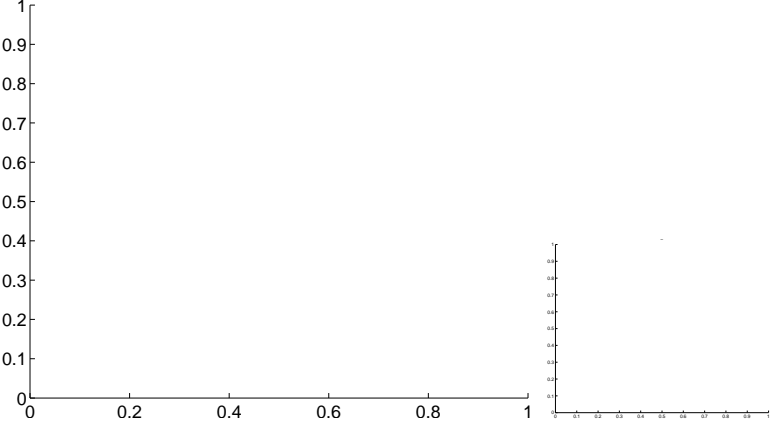
Q15 no OOT image



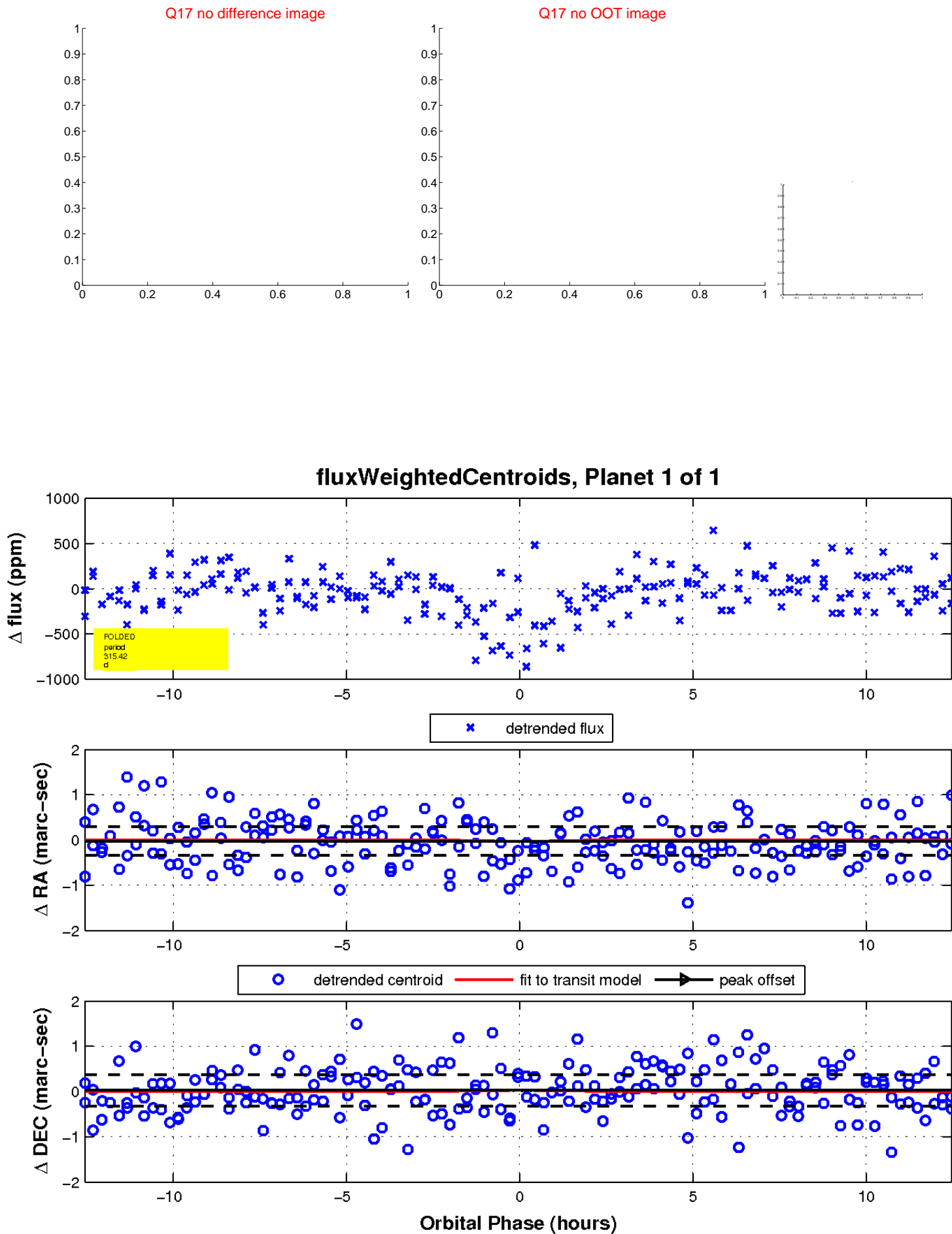
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

