

# KIC 010733985

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010733985-01	OBS	No	356.444537	374.132155	2068.8	60.127	20.7	27.2	1.55	6447	13.07	3.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010733985-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_SATURATED

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

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

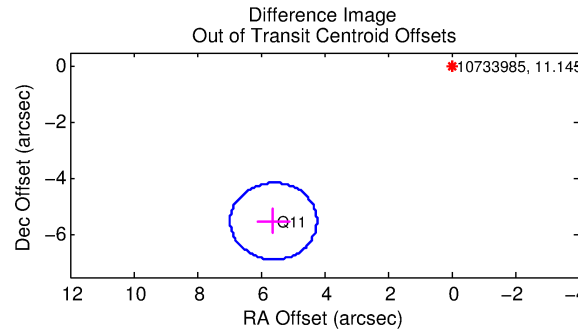
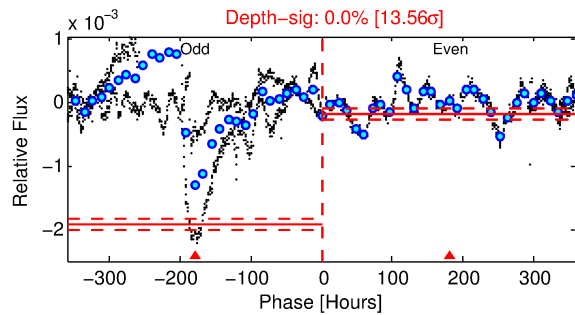
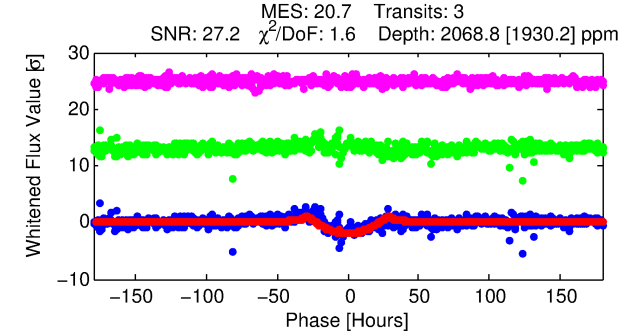
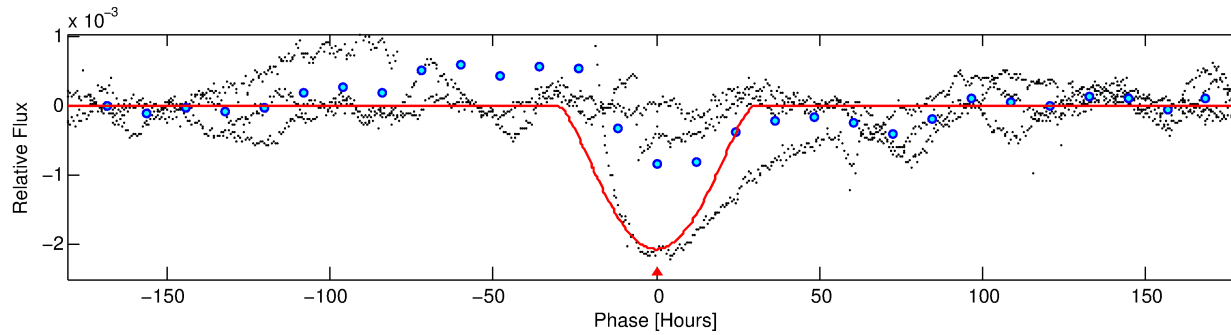
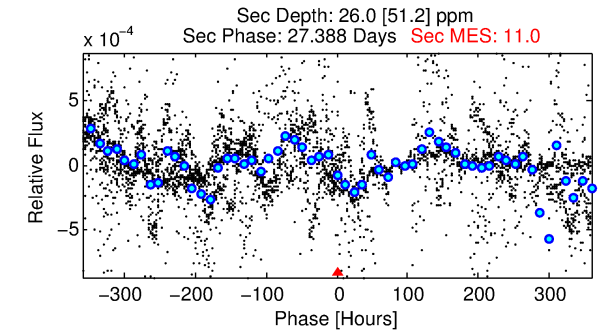
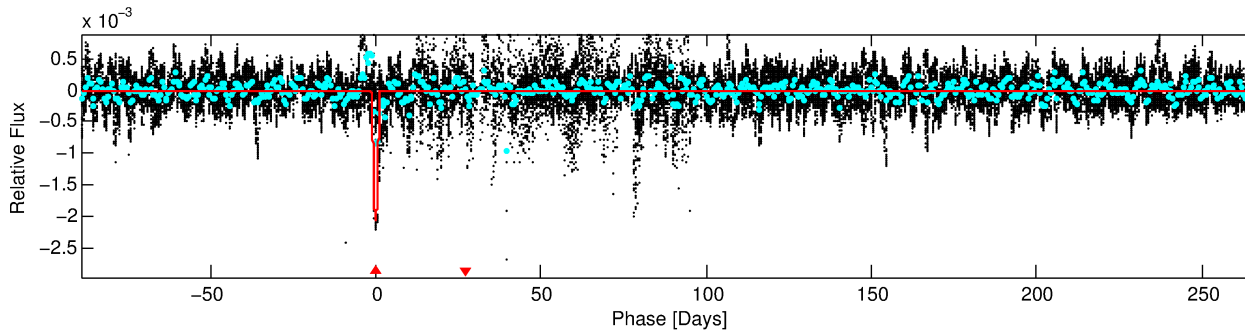
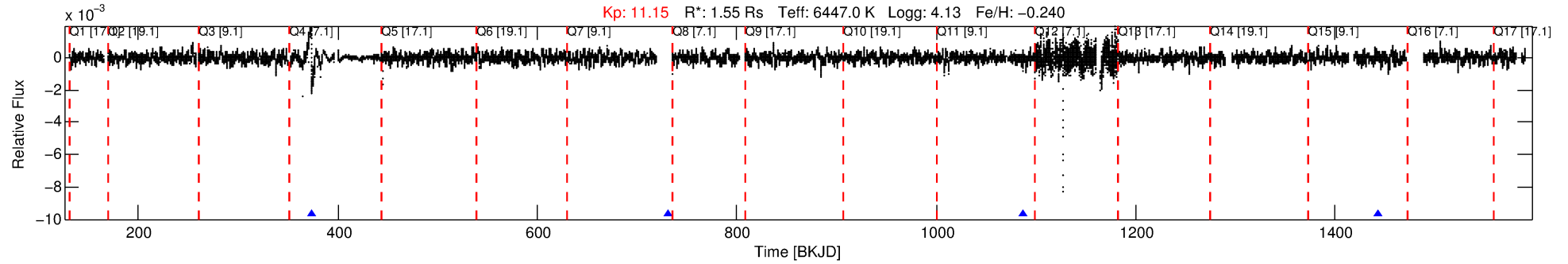
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010733985-01

No Significant Match Found

# DV One-Page Summary

KIC: 10733985 Candidate: 1 of 1 Period: 356.445 d



## DV Fit Results:

Period = 356.44454 [0.01741] d  
Epoch = 374.1322 [0.0245] BKJD  
Rp/R\* = 0.0770 [0.0483]  
a/R\* = 18.14 [2.31]  
b = 1.00 [0.12]  
Seff = 3.42 [1.23]  
Teq = 347 [31] K  
Rp = 13.07 [8.81] Re  
a = 1.0468 [0.2339] AU  
Ag = 91.68 [216.53] [0.42σ]  
Teffp = 1658 [970] K [1.35σ]

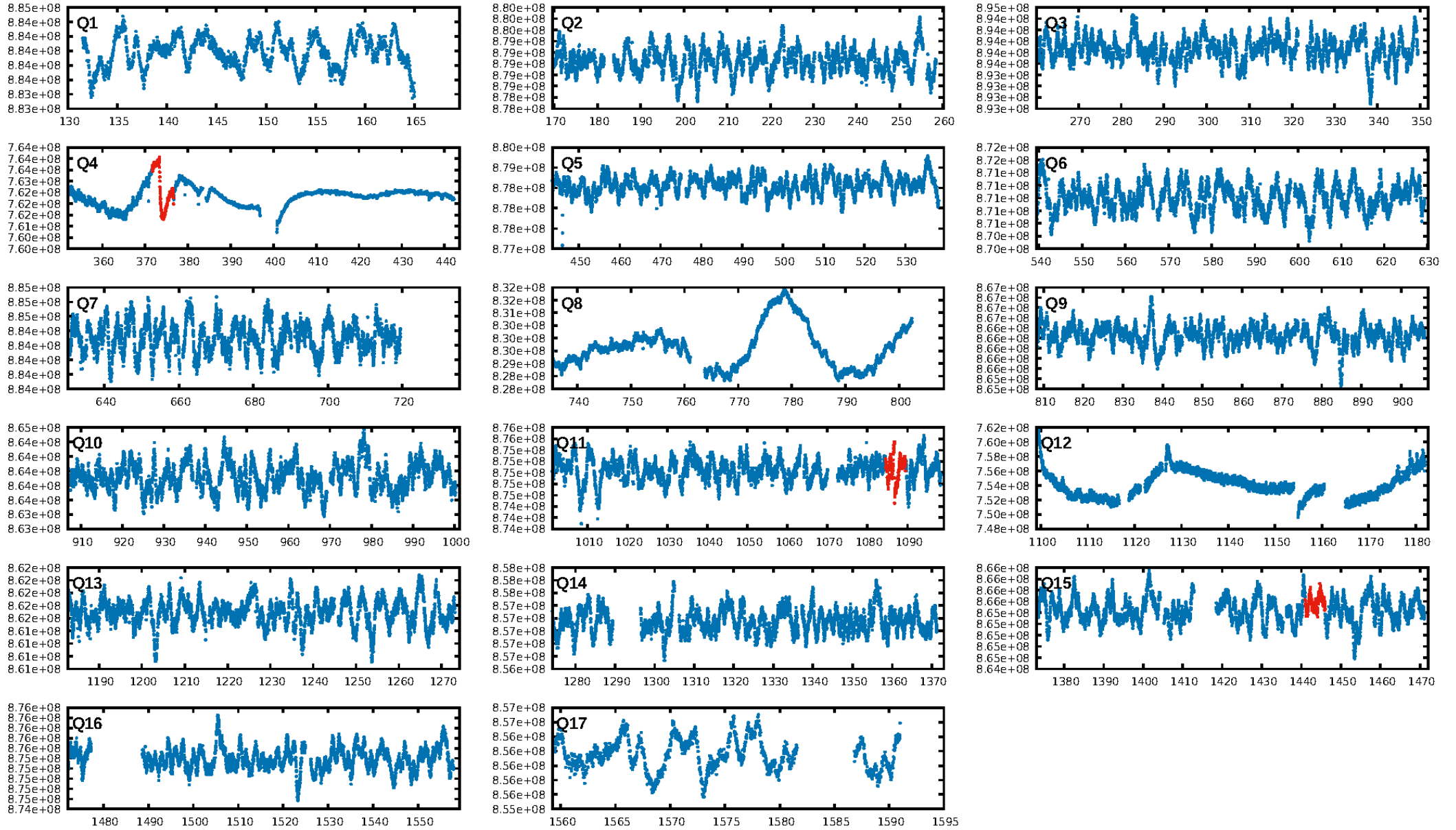
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 2.4%  
Bootstrap-pfa: 3.85e-16  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.6642  
Centroid-sig: 1.3%  
Centroid-so: 0.892 arcsec [2.02σ]  
OotOffset-rm: 7.855 arcsec [17.27σ]  
KicOffset-rm: 7.865 arcsec [17.28σ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [2/2]

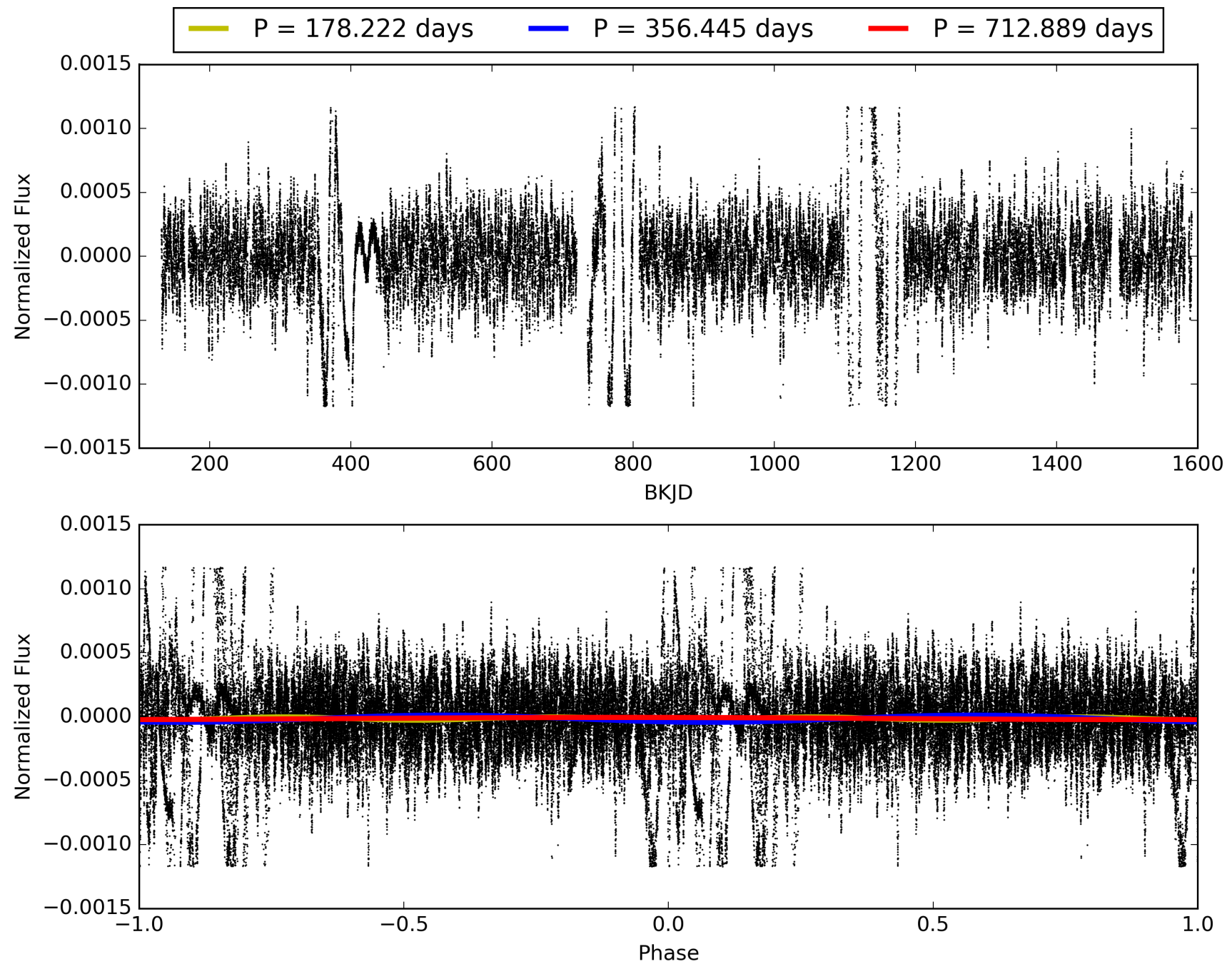
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:40:55 Z

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

# TCE 010733985-01, PDC Light Curves

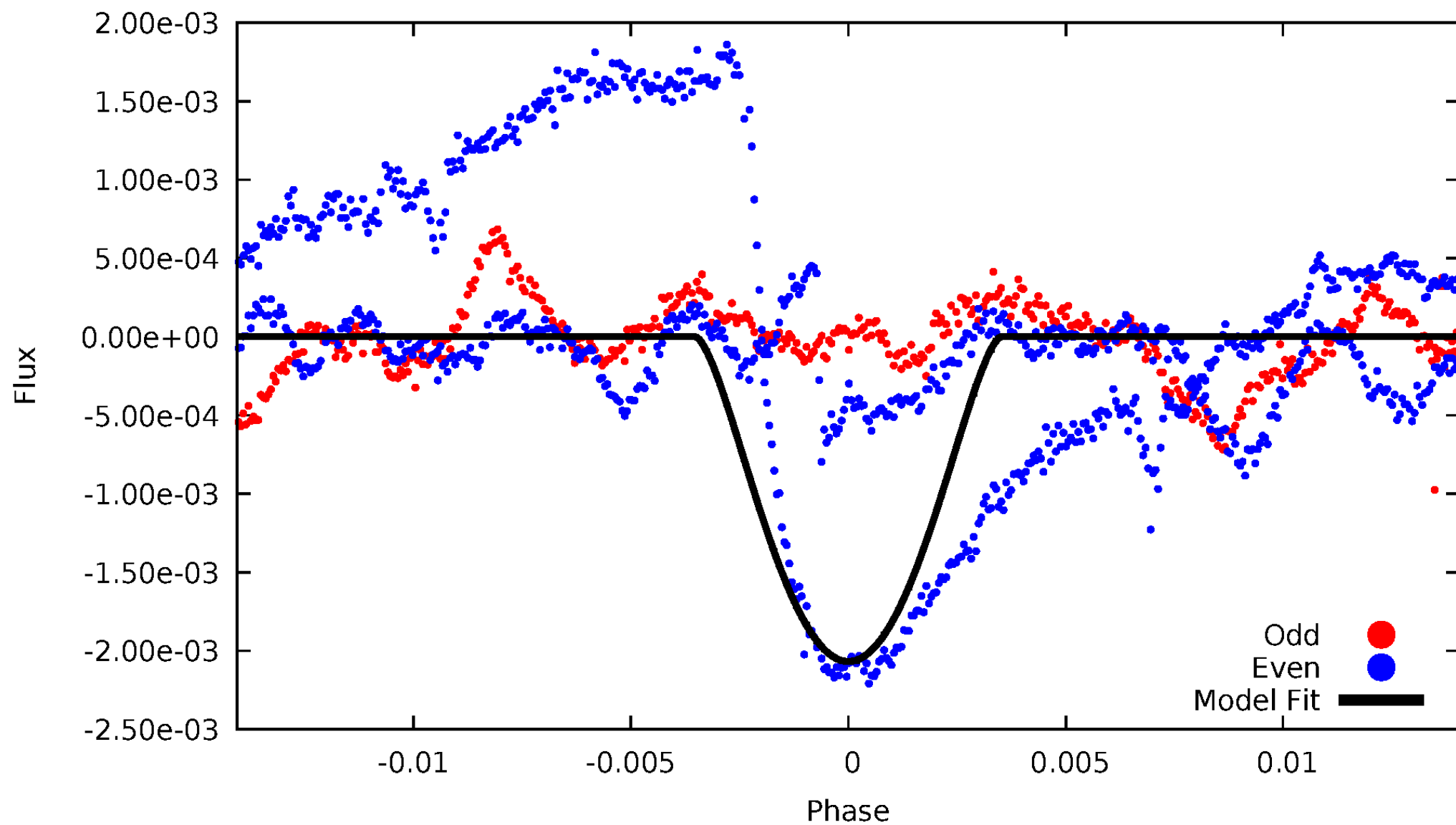


# TCE 010733985-01



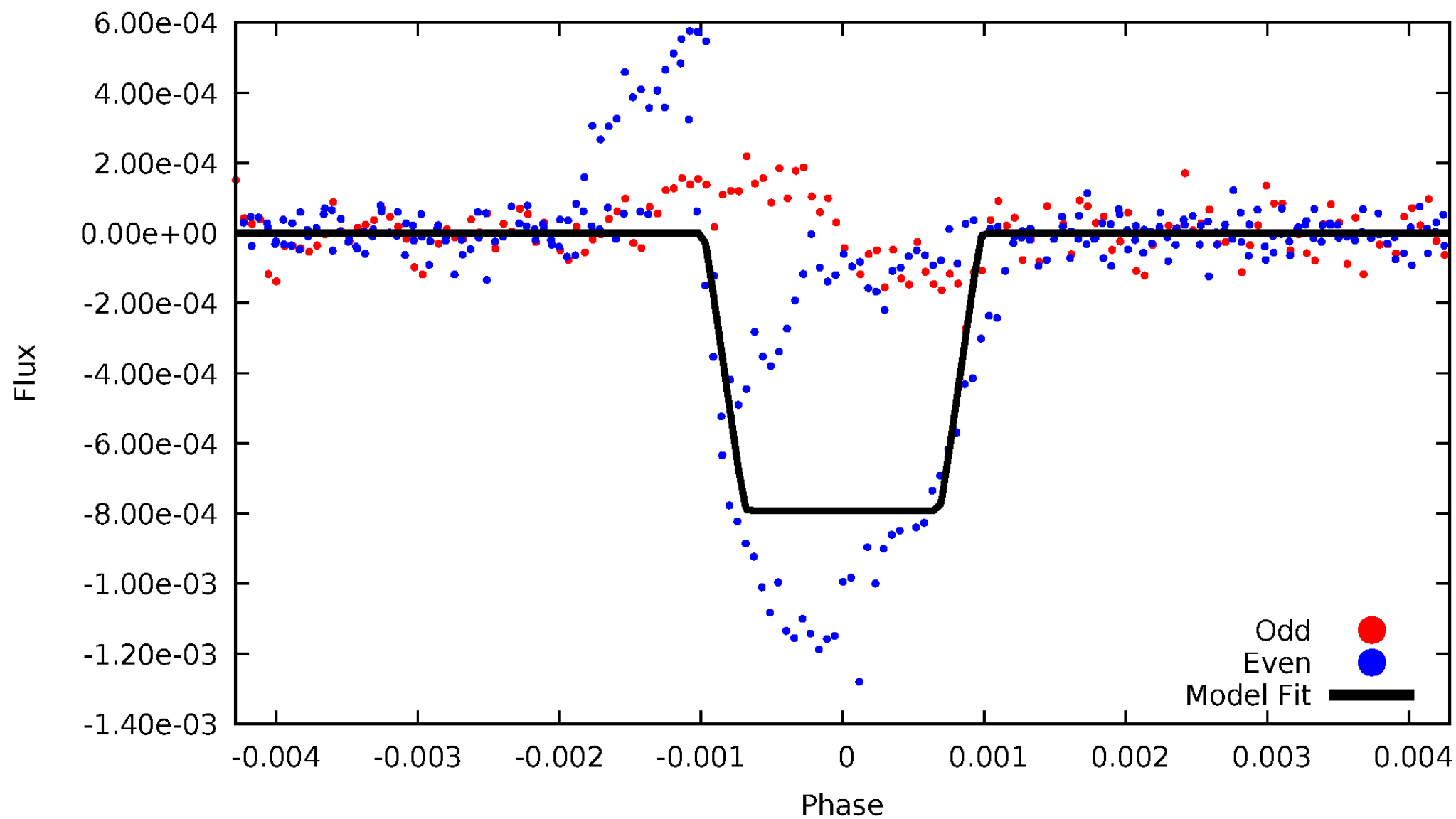
# DV Odd/Even

TCE 010733985-01



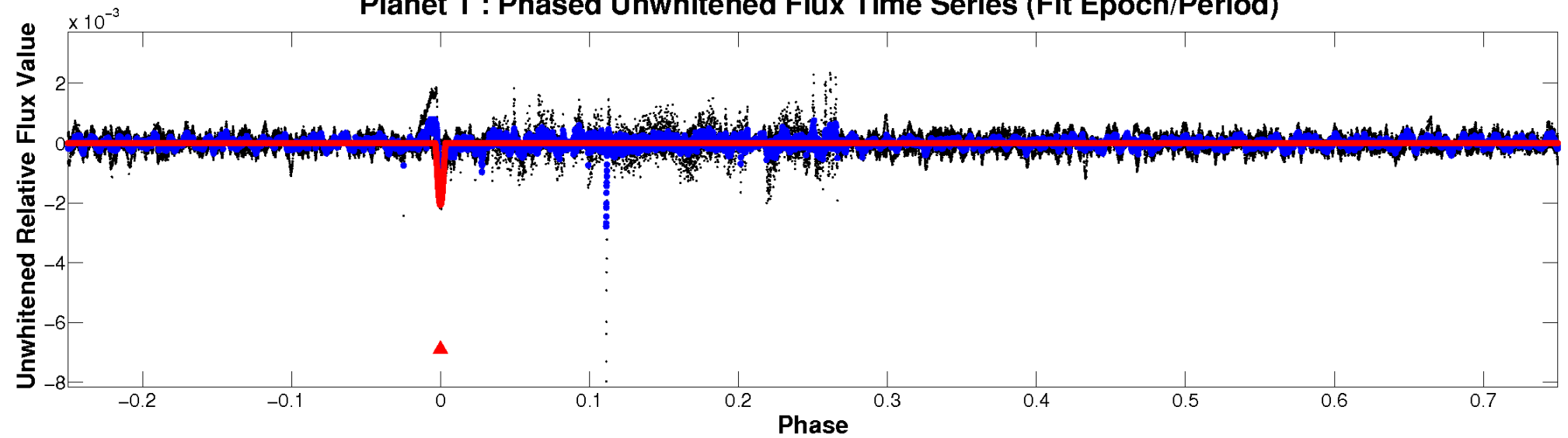
# ALT Odd/Even

TCE 010733985-01

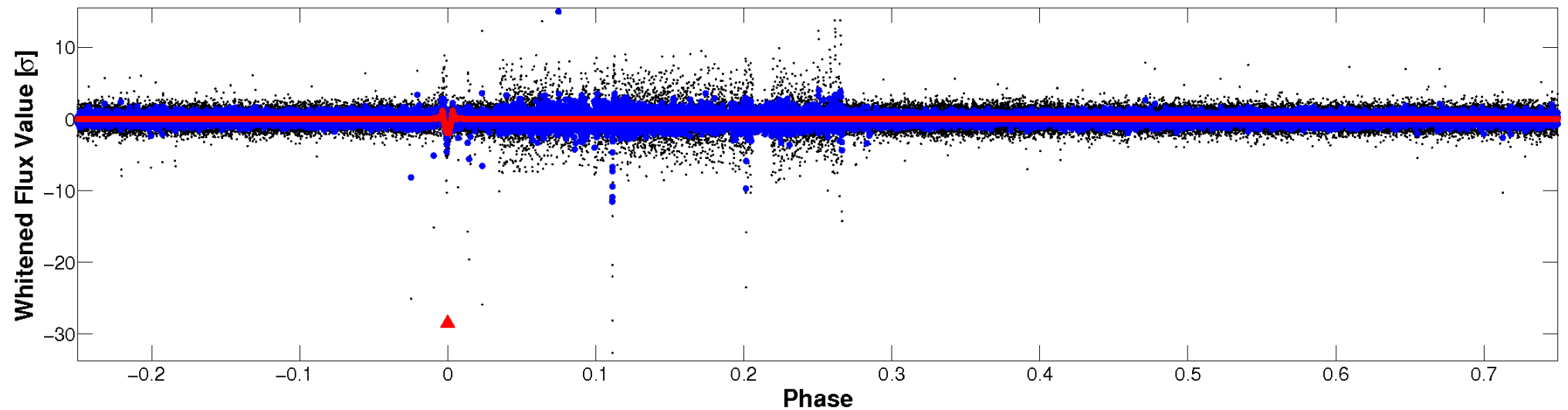


# Non-Whitened Vs. Whitened Light Curve

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

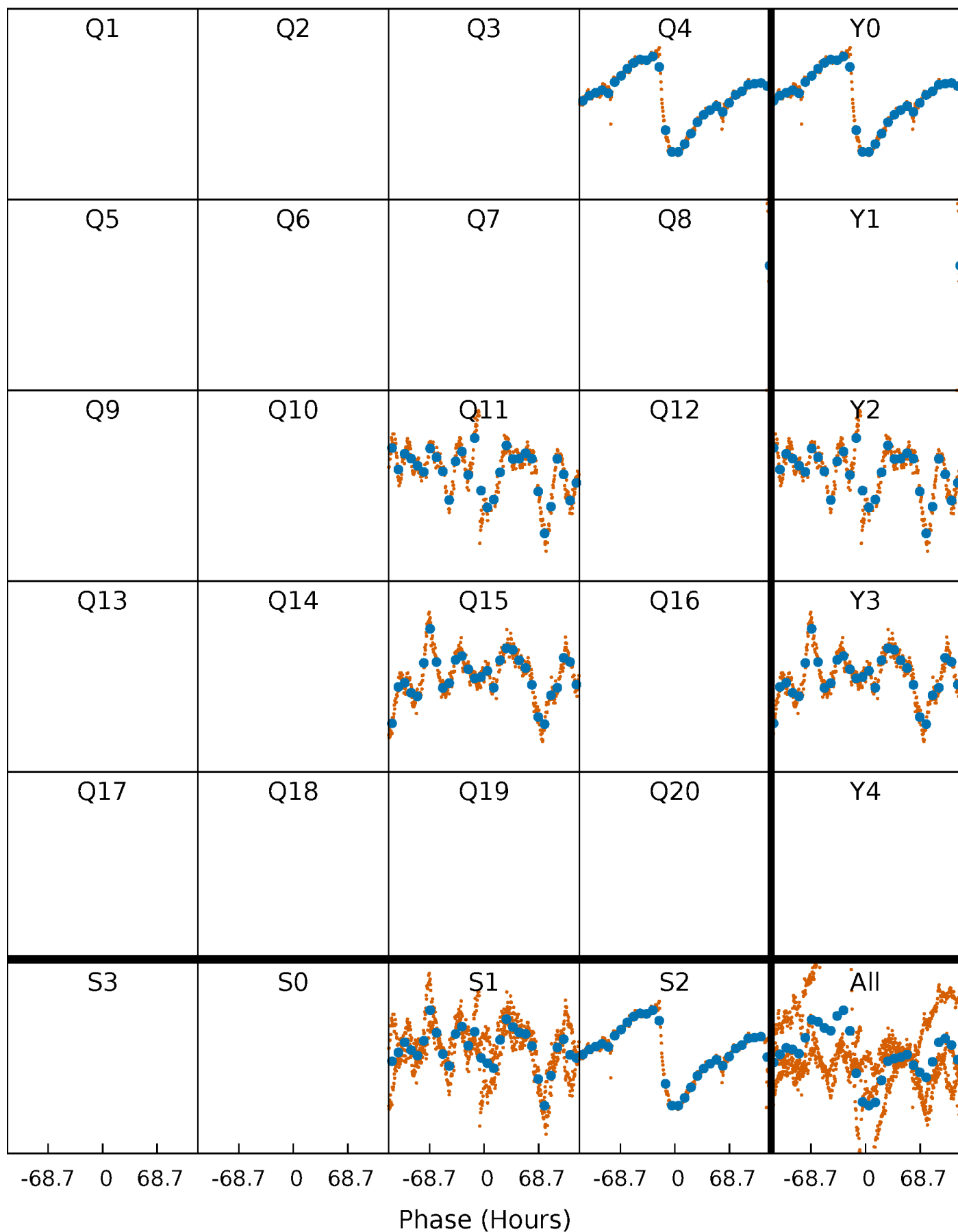


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

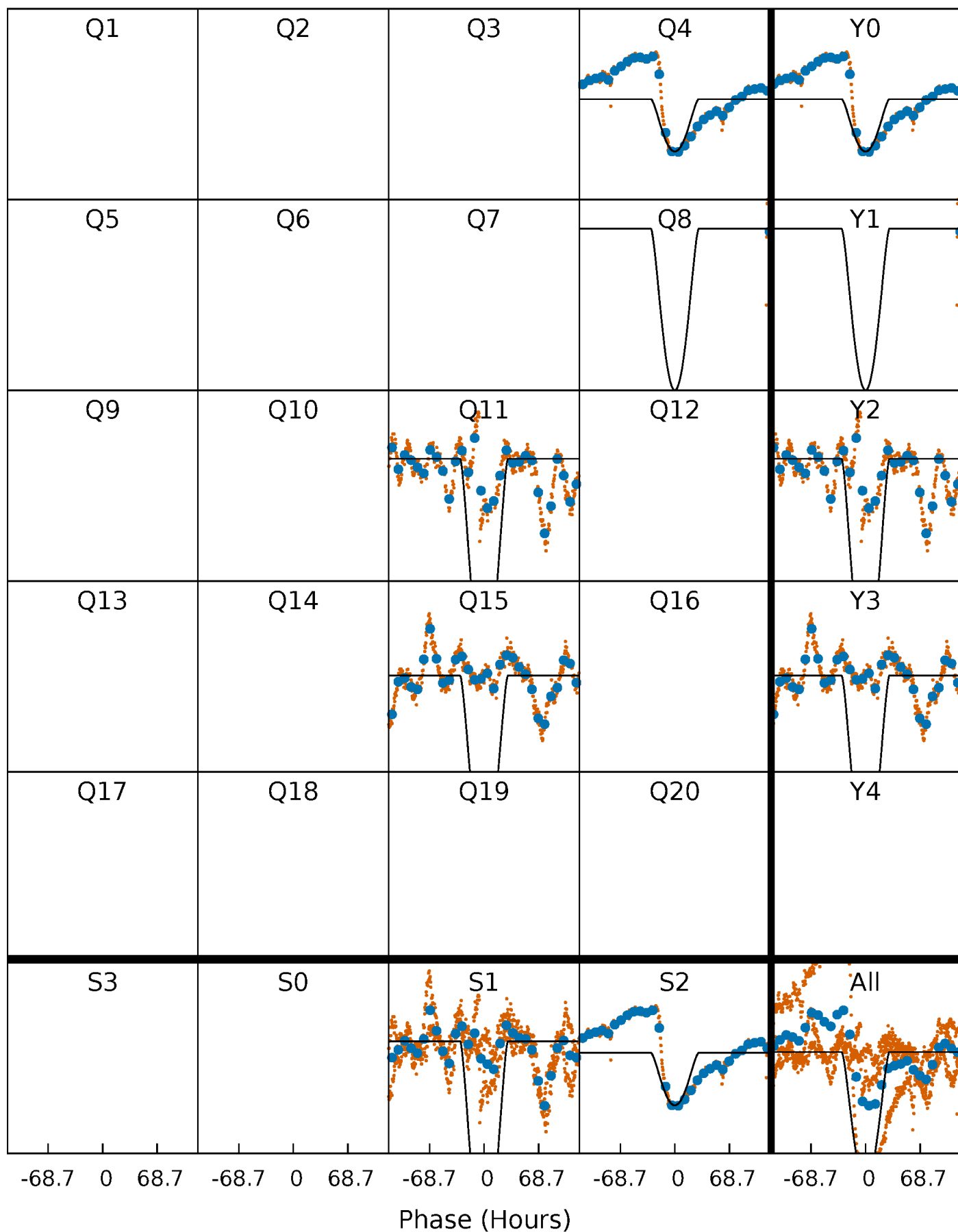
TCE 010733985-01 P=356.444537 Days  $T_0=374.132155$  (BKJD)





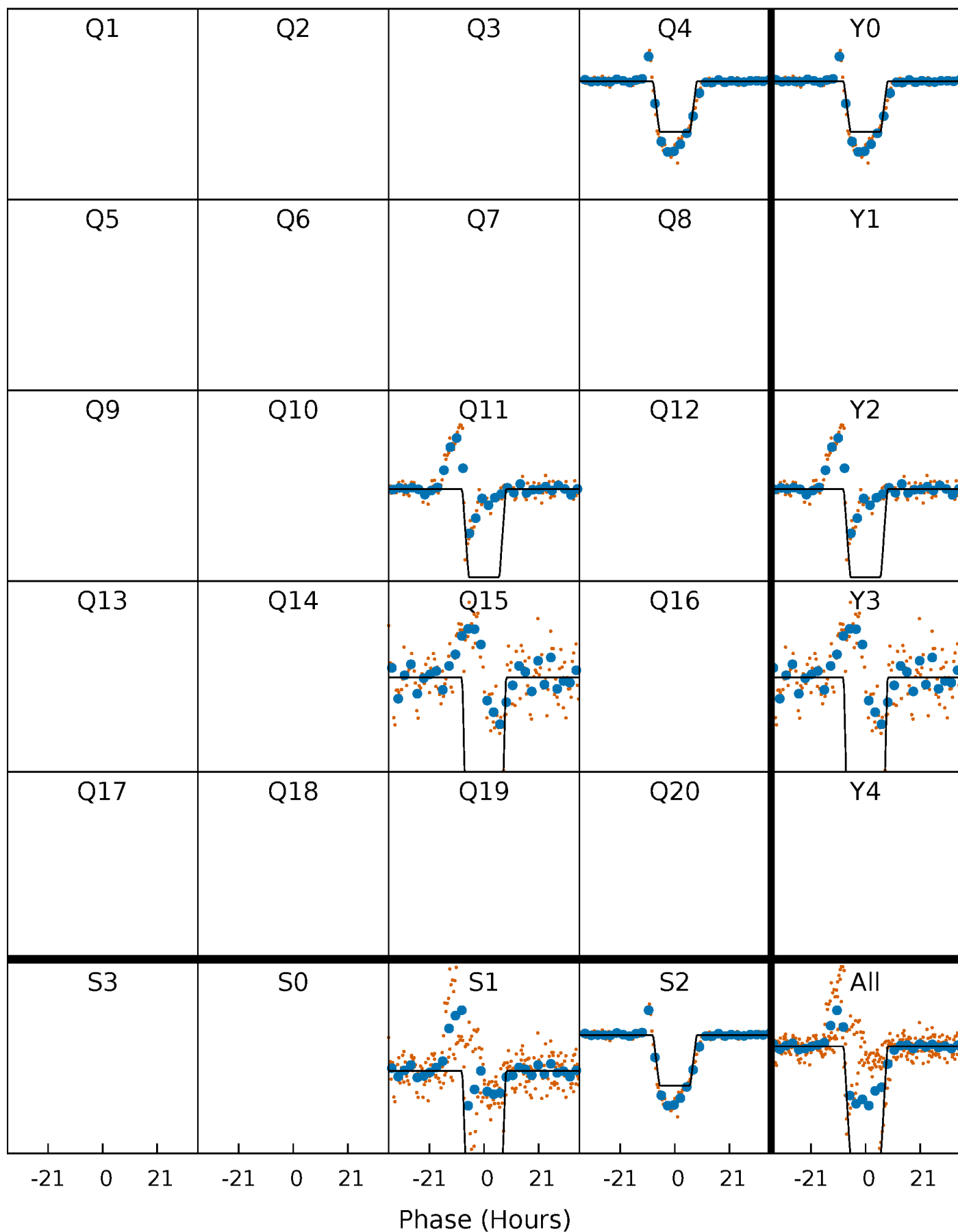
# DV Quarter-Phased Transit Curves

TCE 010733985-01 P=356.444537 Days  $T_0=374.132155$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

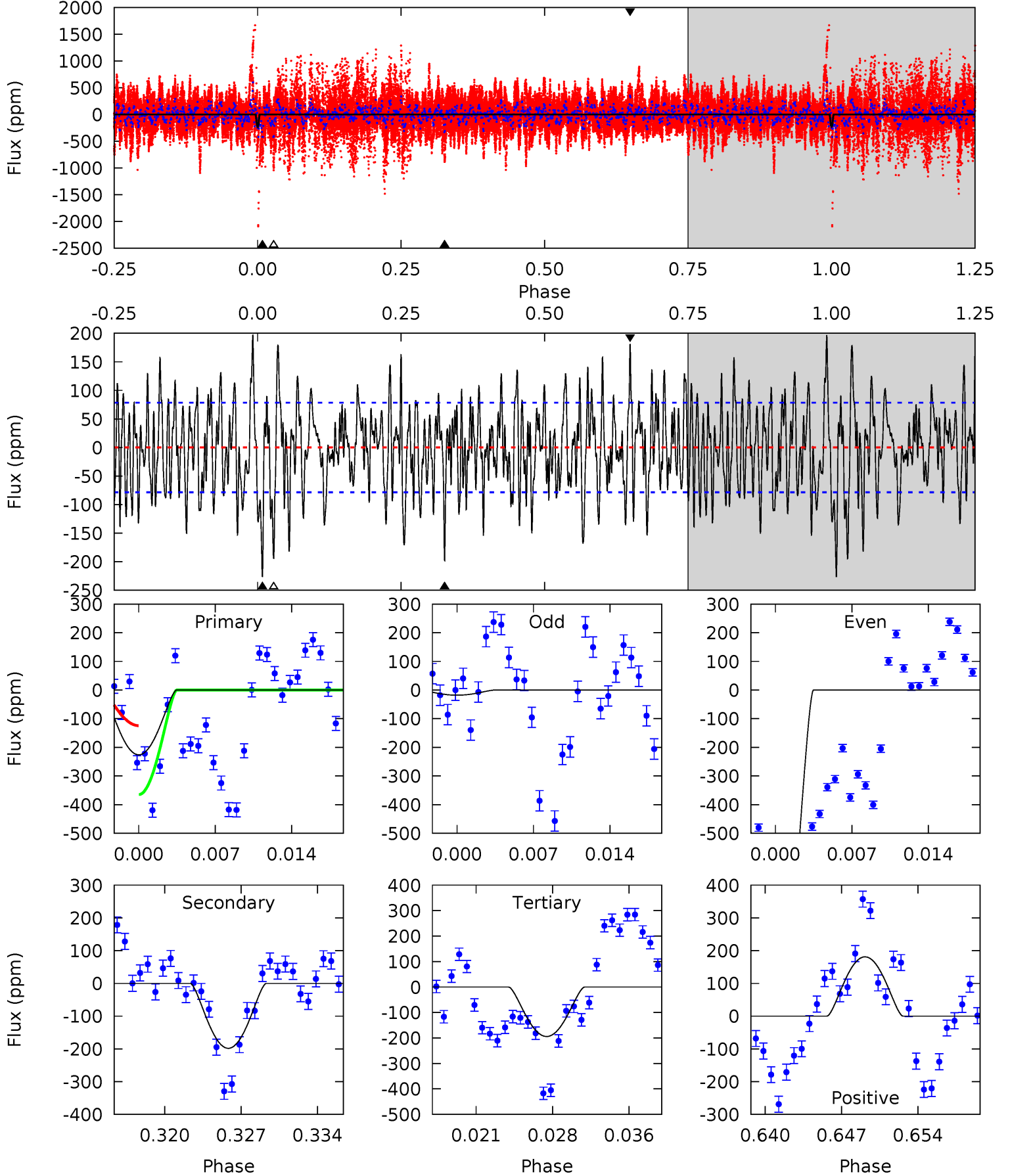
TCE 010733985-01 P=356.688223 Days  $T_0=373.728560$  (BKJD)



# DV Model-Shift Uniqueness Test

010733985-01,  $P = 356.444537$  Days,  $E = 17.687618$  Days

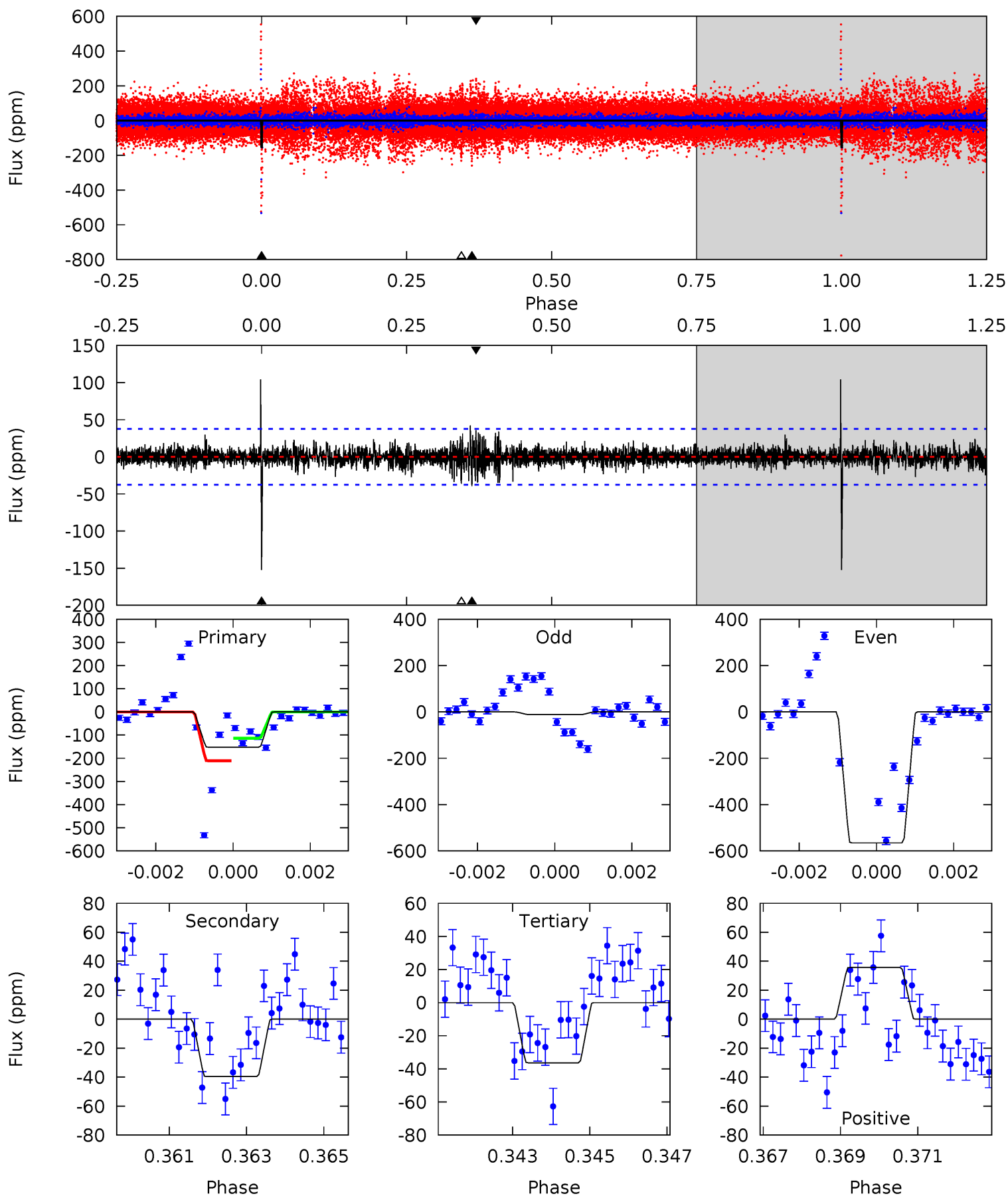
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	12.9	12.6	11.7	5.09	2.69	4.26	2.07	2.93	0.26	1.12	40.3	2.55	0.46	7.94



# Alt Model-Shift Uniqueness Test

010733985-01,  $P = 356.688223$  Days,  $E = 17.040337$  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
21.6	5.61	5.15	5.06	5.33	3.10	1.14	16.4	16.5	0.46	0.55	46.3	2.11	0.41	6.83



### Stellar Parameters For KIC 010733985

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6447^{+146}_{-162}$	$4.135^{+0.198}_{-0.132}$	$-0.240^{+0.250}_{-0.300}$	$1.555^{+0.313}_{-0.382}$	$1.208^{+0.157}_{-0.192}$	$0.452^{+0.472}_{-0.171}$
	+2%/-3%	+5%/-3%	+104%/-125%	+20%/-25%	+13%/-16%	+104%/-38%
Source	PHO1	FLK73	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 010733985-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-198 \pm 15$	$12.99^{+8.26}_{-7.50}$	$481^{+31}_{-31}$	$3284^{+1067}_{-412}$	$692^{+3312}_{-425}$
Alt.	$-40 \pm 7$	$7.67^{+6.90}_{-5.03}$	$481^{+30}_{-31}$	$3032^{+1277}_{-473}$	$404^{+2741}_{-295}$

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

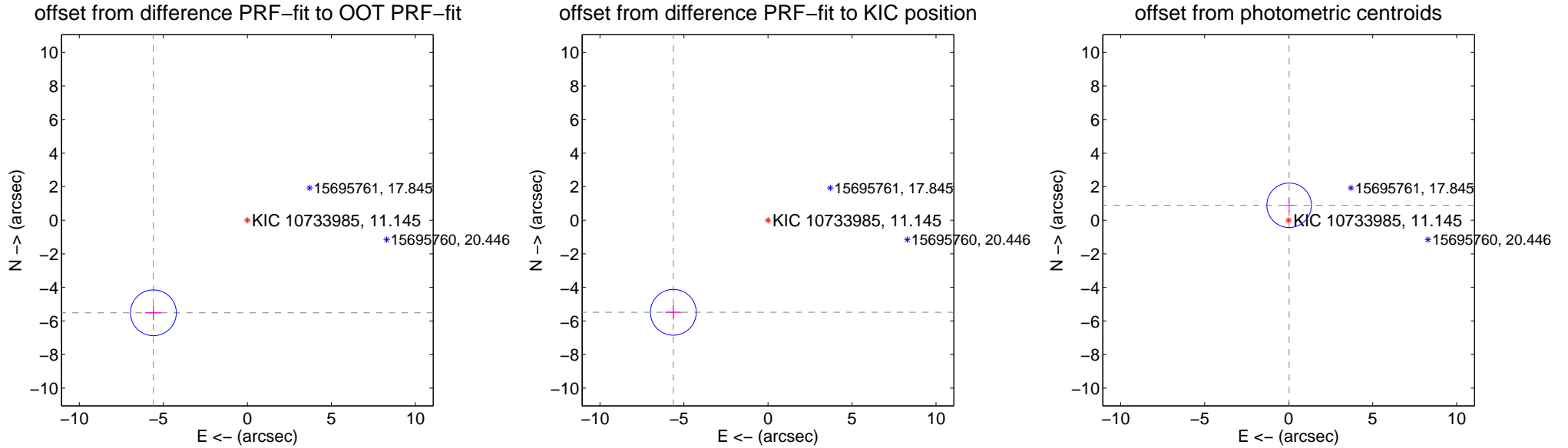
## DV Centroid Data

Supplemental centroid analysis for 010733985-01. **Kepler magnitude: 11.14.** Transit SNR 27.17

**There are 0 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>7.855 \pm 0.455</math></b>	<b>17.27</b>	$5.592 \pm 0.483$	$-5.516 \pm 0.424$
PRF-fit source offset from KIC position	<b><math>7.865 \pm 0.455</math></b>	<b>17.28</b>	$5.635 \pm 0.483$	$-5.487 \pm 0.424$
photometric centroid source offset	$0.89 \pm 0.44$	2.02	$-0.03 \pm 0.24$	$0.89 \pm 0.44$



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.

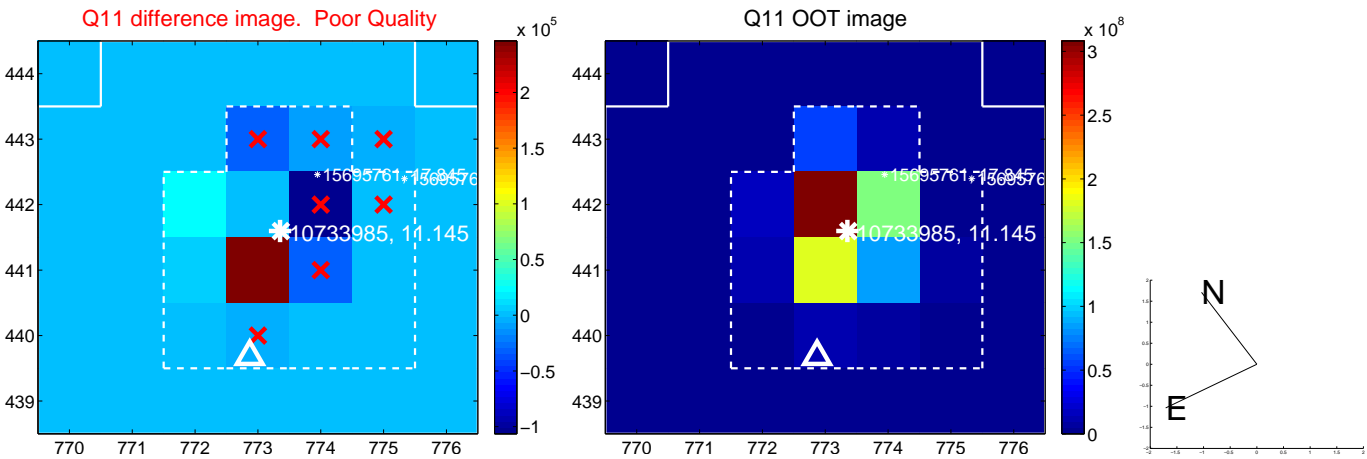


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

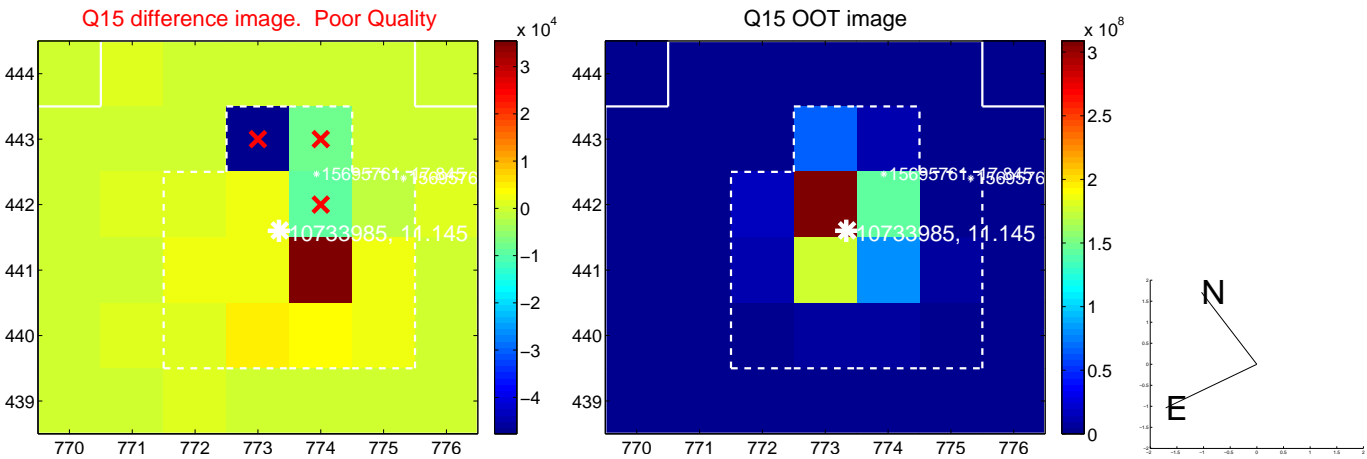




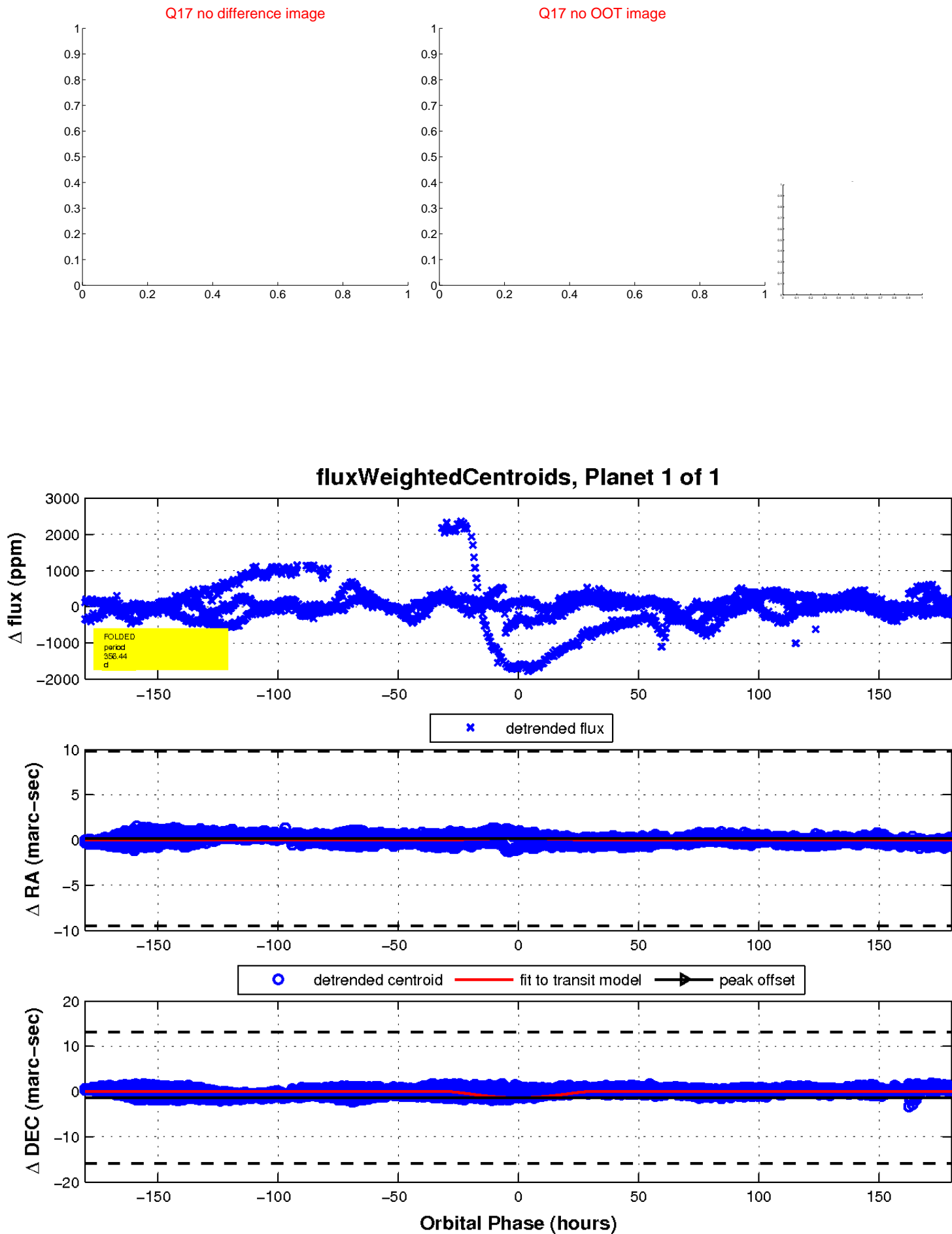
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

