

# KIC 007031343

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007031343-01	OBS	No	545.160355	420.986223	1742.3	5.054	10.2	6.3	0.71	5278	2.93	0.27

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007031343-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_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.

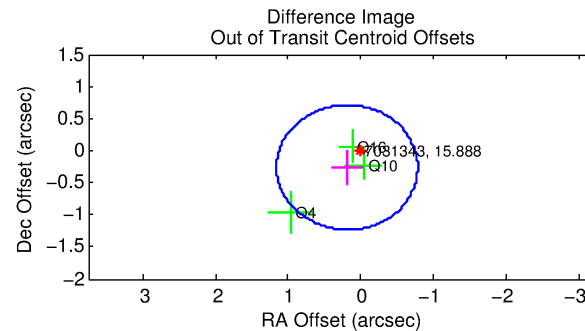
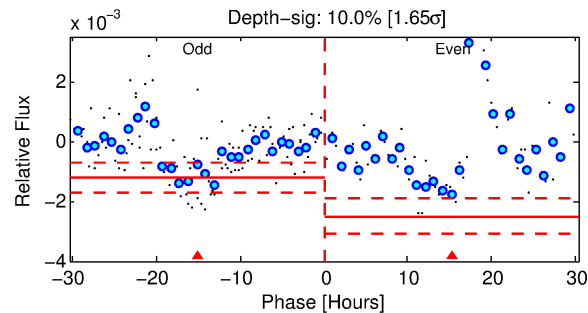
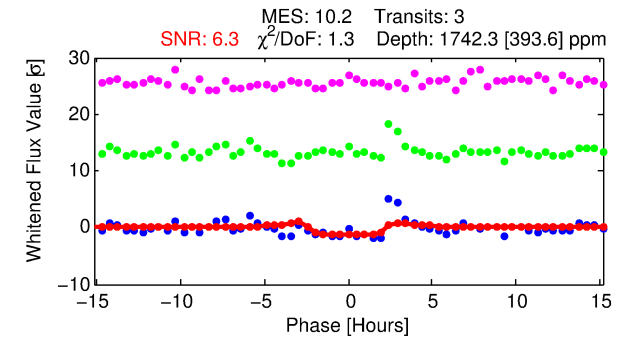
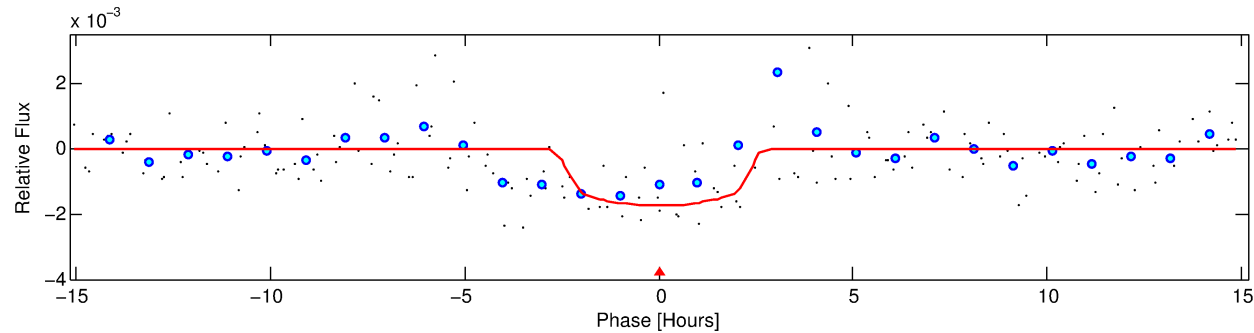
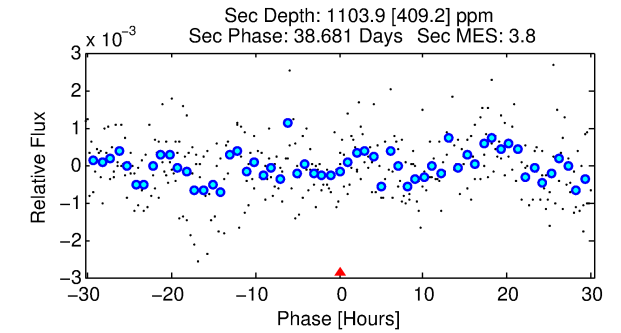
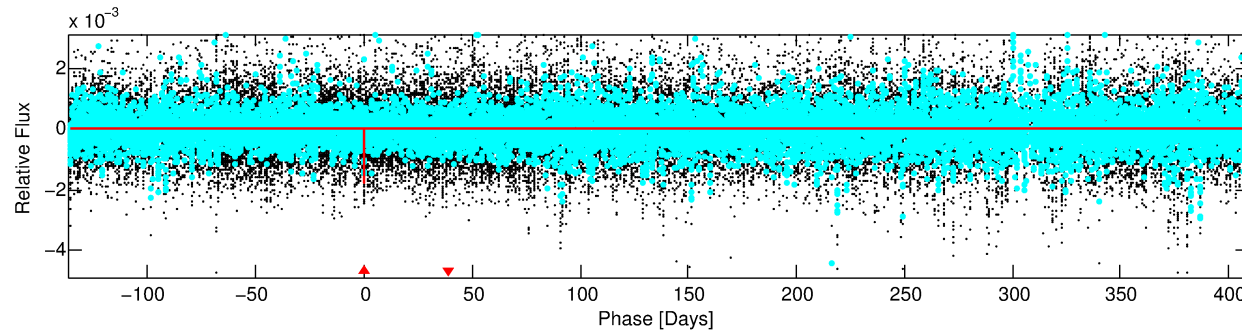
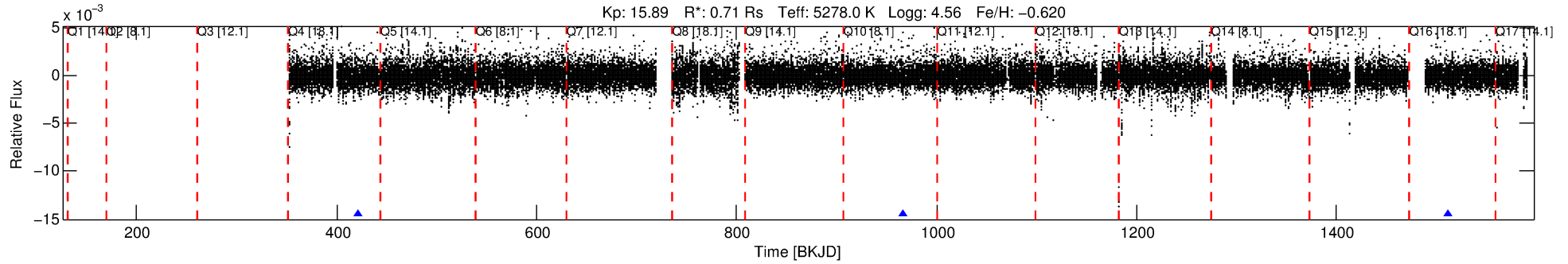
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007031343-01

No Significant Match Found

# DV One-Page Summary

KIC: 7031343 Candidate: 1 of 1 Period: 545.160 d



## DV Fit Results:

Period = 545.16035 [0.01085] d  
Epoch = 420.9862 [0.0150] BKJD  
Rp/R\* = 0.0378 [0.1945]  
a/R\* = 845.71 [18099.69]  
b = 0.15 [136.44]  
Seff = 0.27 [0.06]  
Teq = 183 [10] K  
Rp = 2.93 [15.12] Re  
a = 1.1474 [0.1177] AU  
Ag = 92865.00 [957413.80] [0.10 $\sigma$ ]  
Teffp = 4951 [12760] K [0.37 $\sigma$ ]

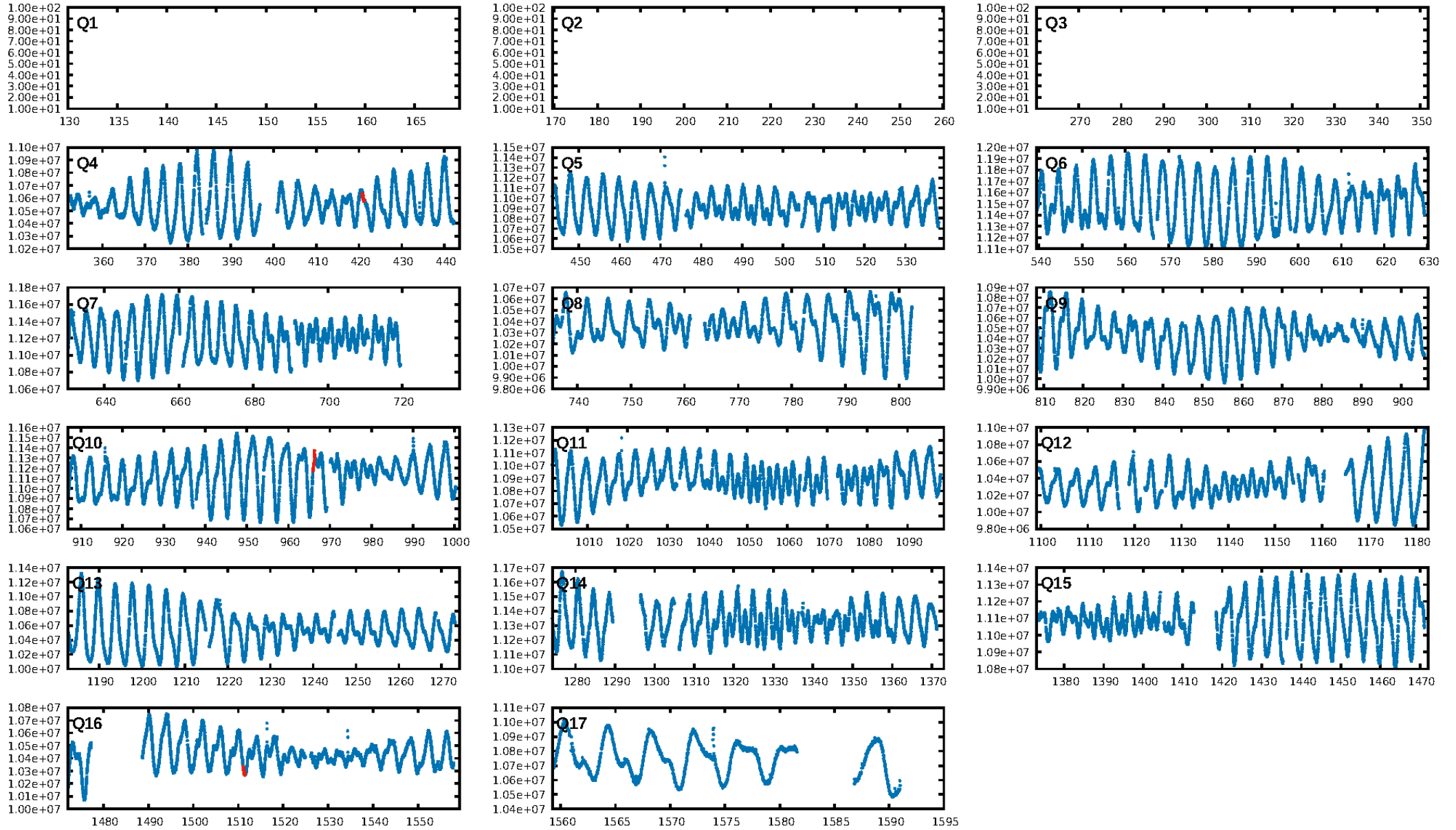
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 10.1%  
ModelChiSquareGof-sig: 89.9%  
Bootstrap-pfa: 7.48e-10  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.2586  
Centroid-sig: 69.5%  
Centroid-so: 0.629 arcsec [0.61 $\sigma$ ]  
OotOffset-rm: 0.323 arcsec [1.00 $\sigma$ ]  
OotOffset-st: 1/0/2/0 [3]  
KicOffset-rm: 0.419 arcsec [1.27 $\sigma$ ]  
KicOffset-st: 1/0/2/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

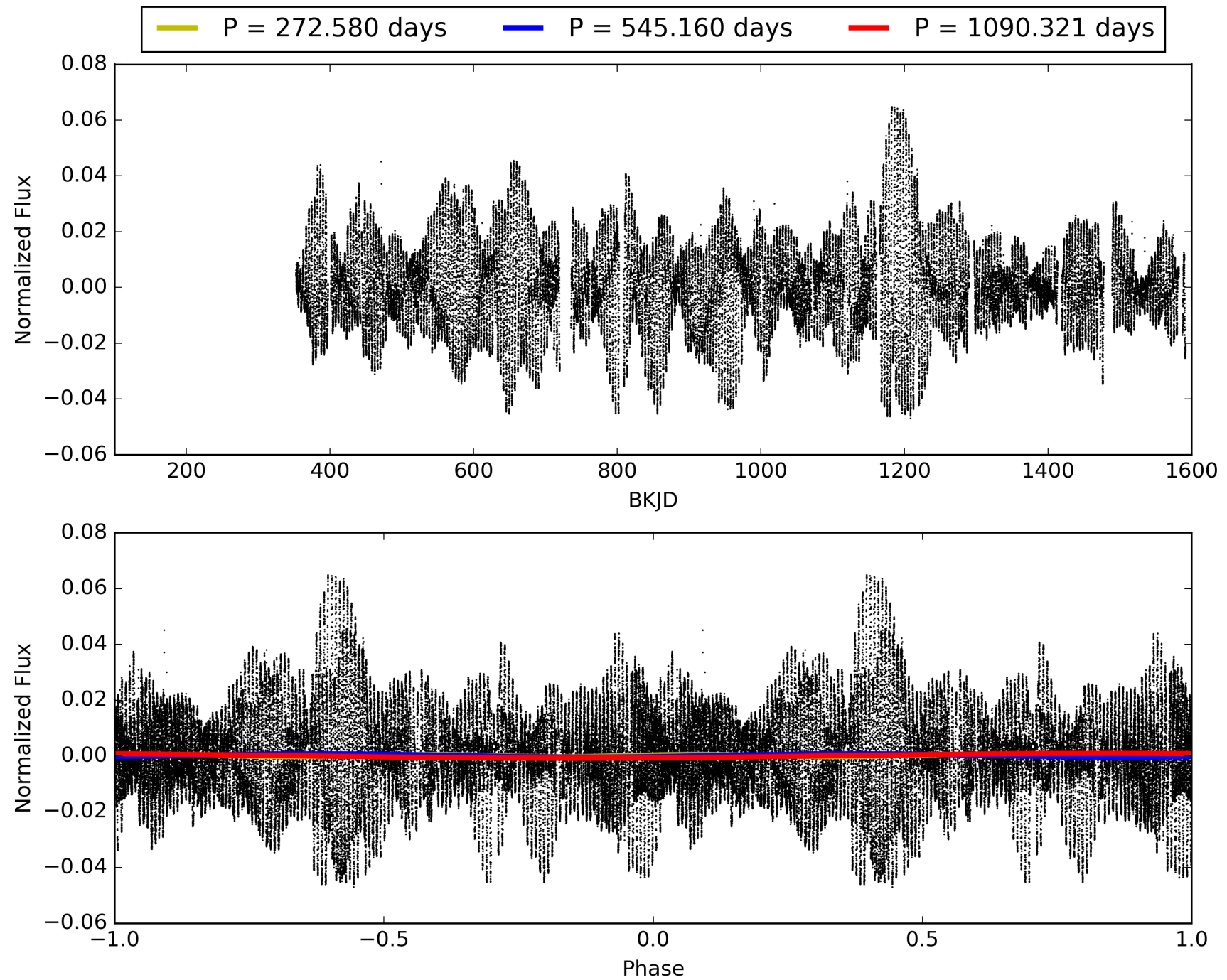
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:31:39 Z

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

# TCE 007031343-01, PDC Light Curves

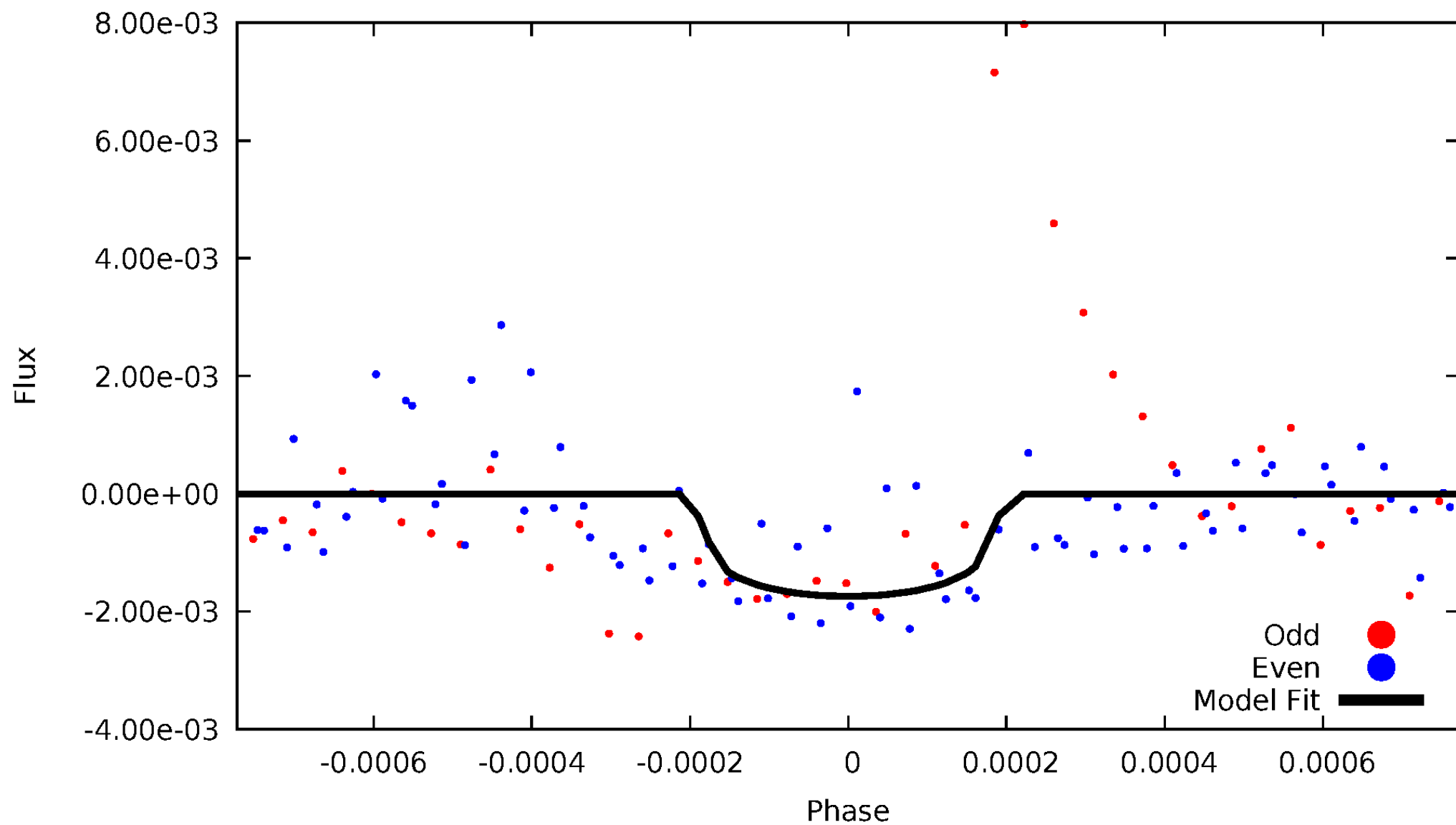


TCE 007031343-01



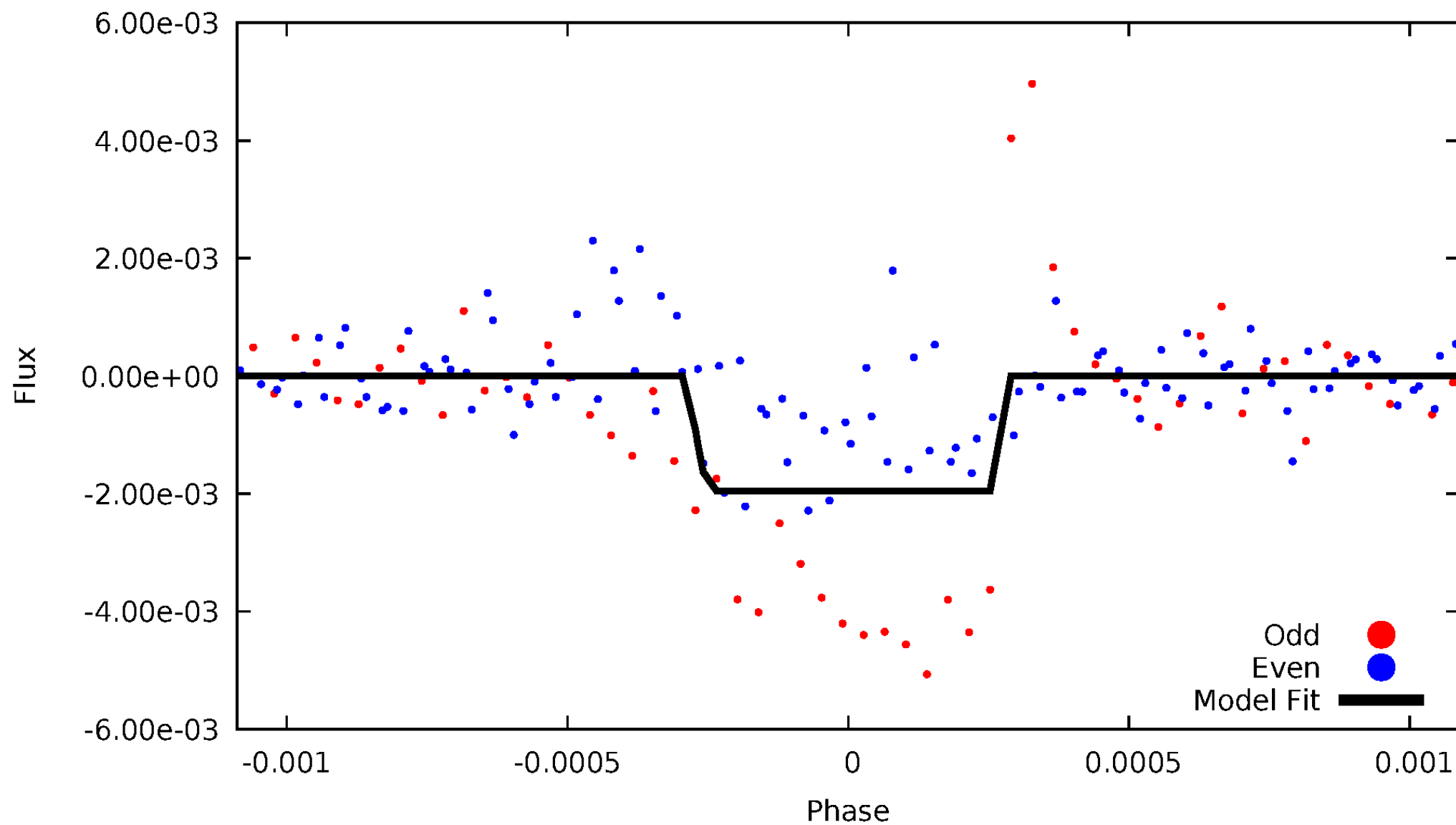
# DV Odd/Even

TCE 007031343-01

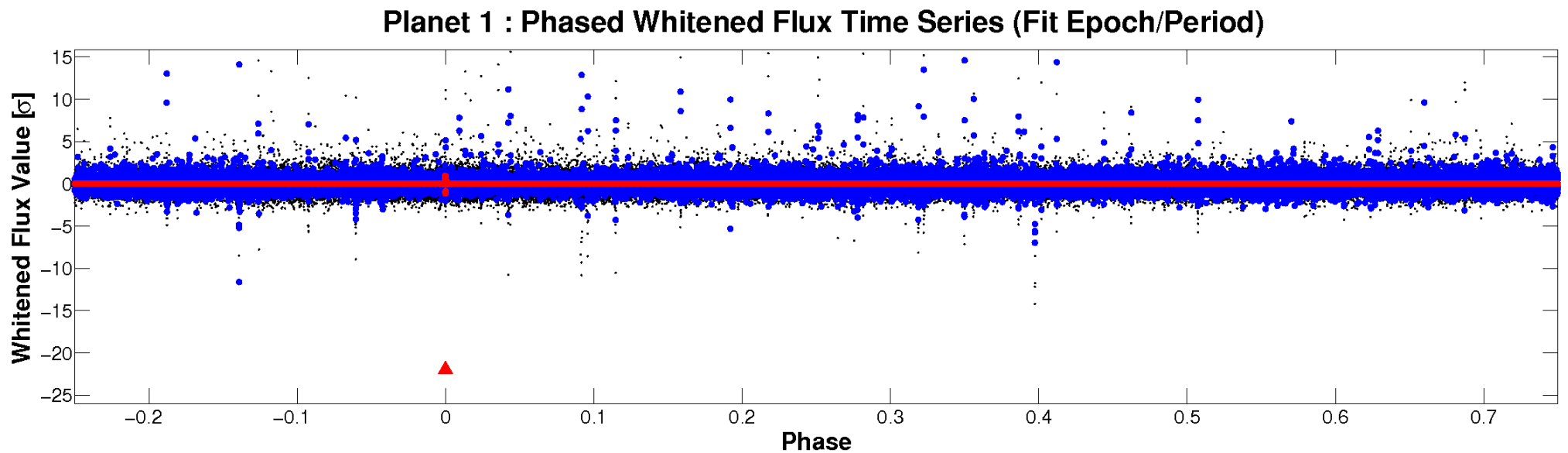
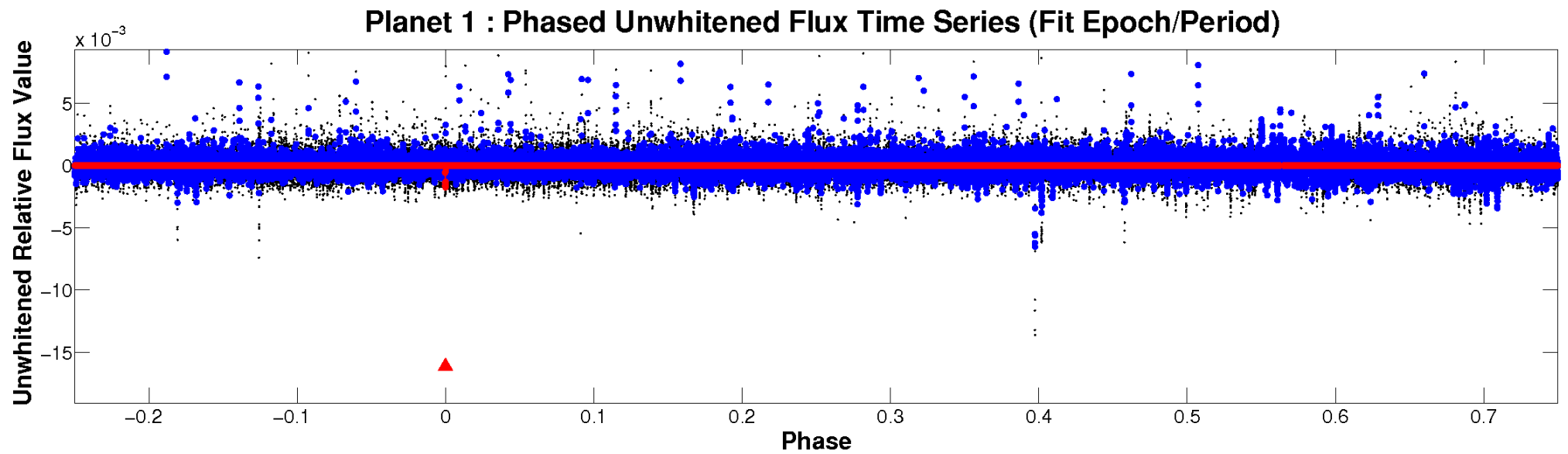


# ALT Odd/Even

TCE 007031343-01

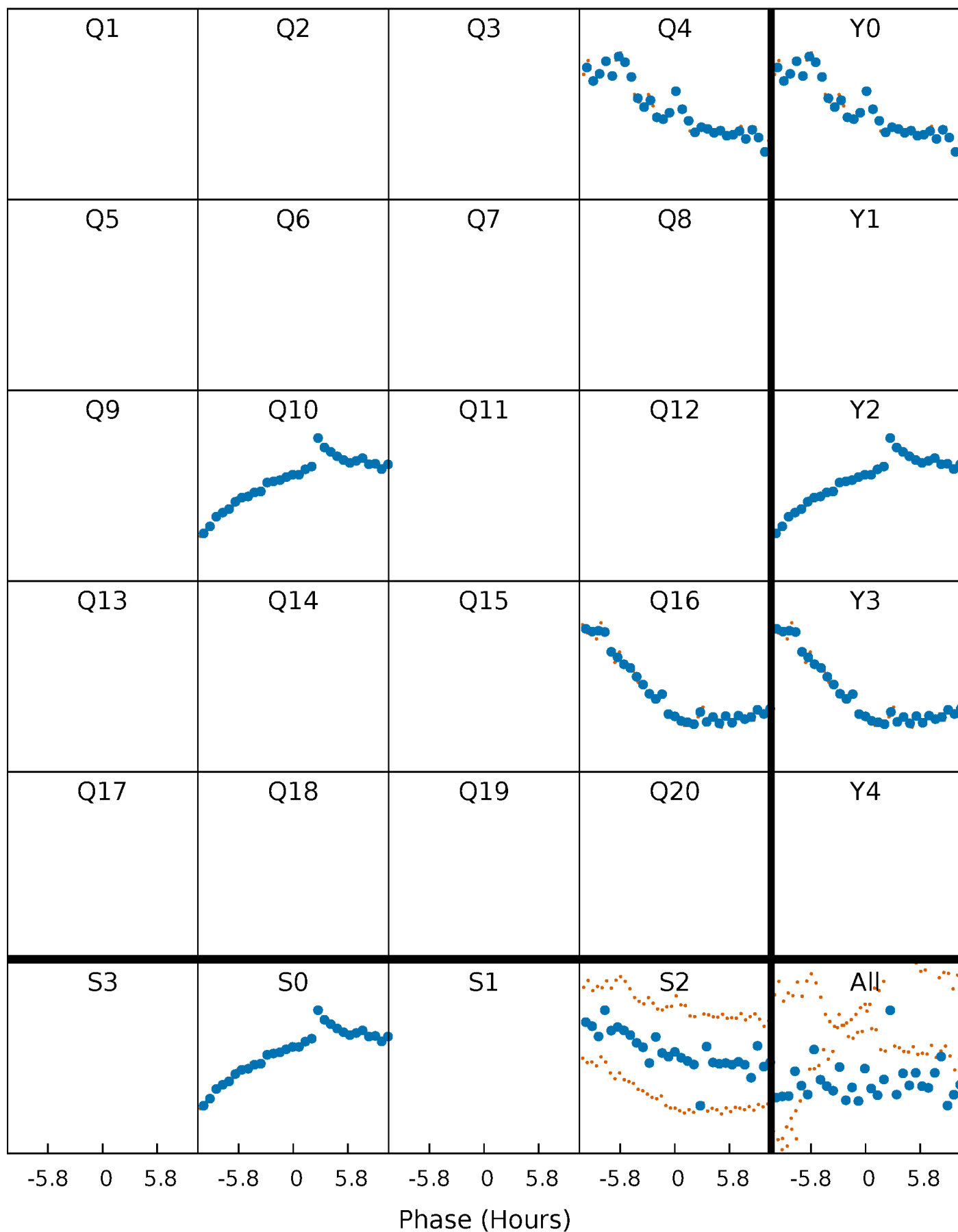


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

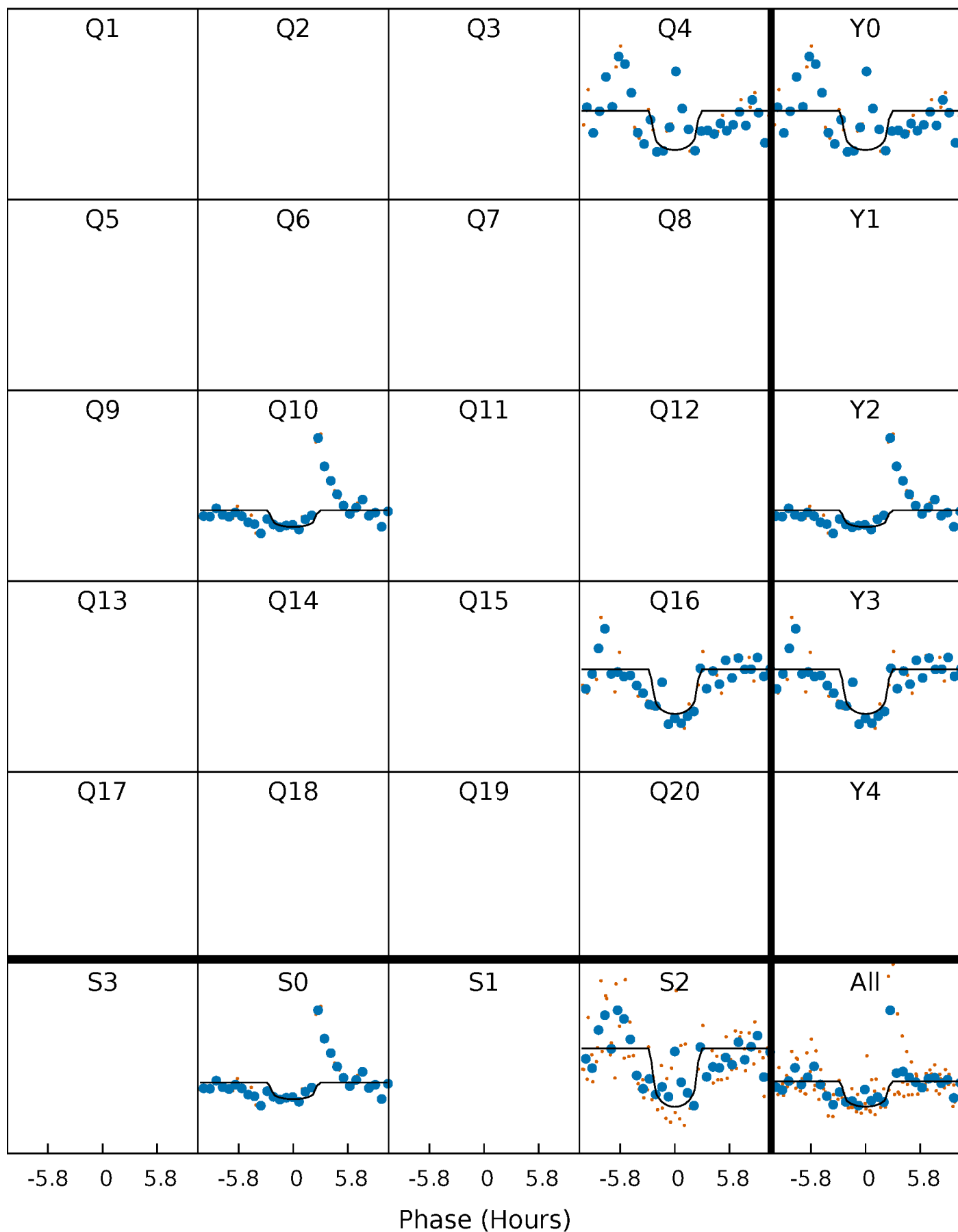
TCE 007031343-01 P=545.160355 Days  $T_0=420.986222$  (BKJD)





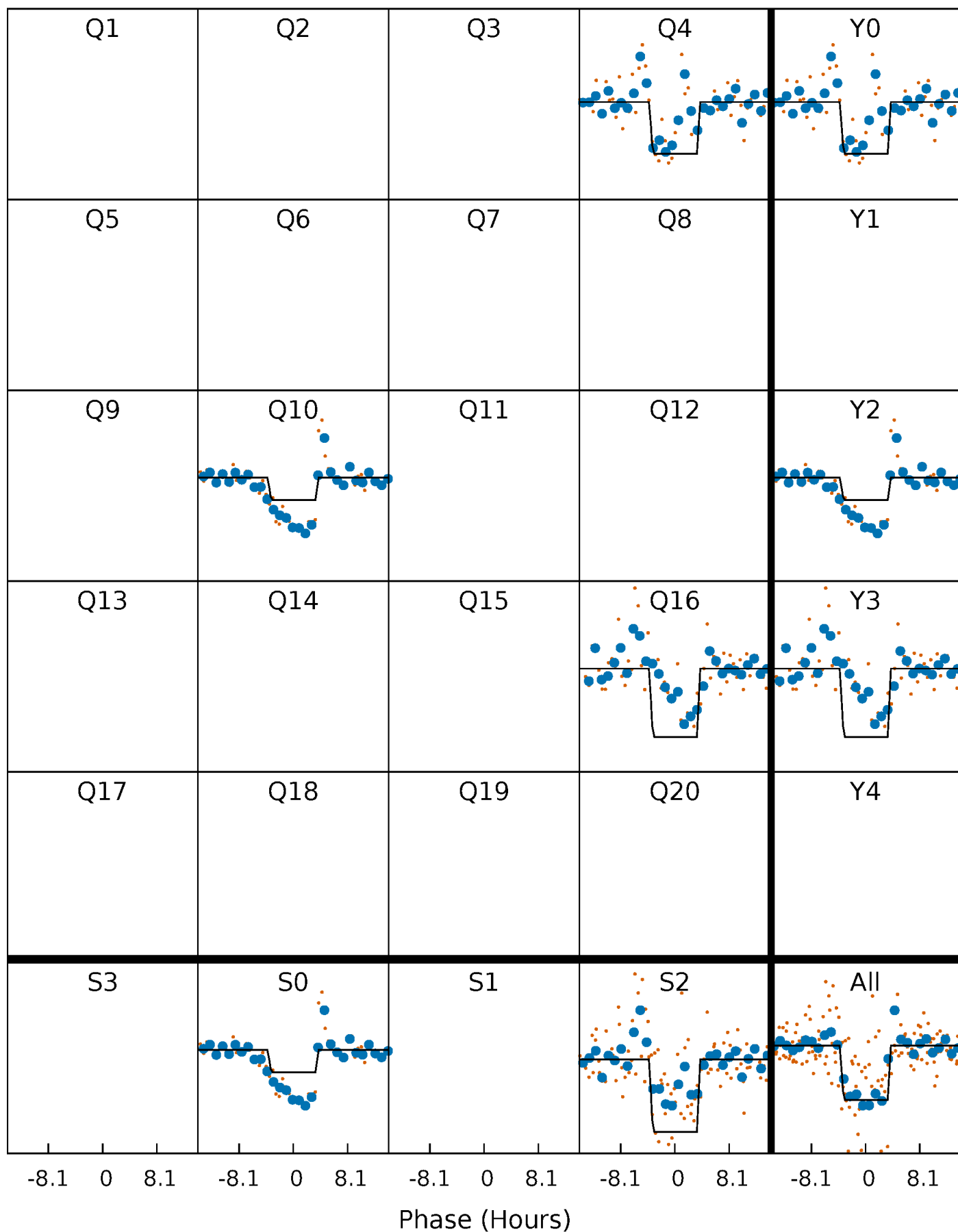
# DV Quarter-Phased Transit Curves

TCE 007031343-01 P=545.160355 Days  $T_0=420.986222$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

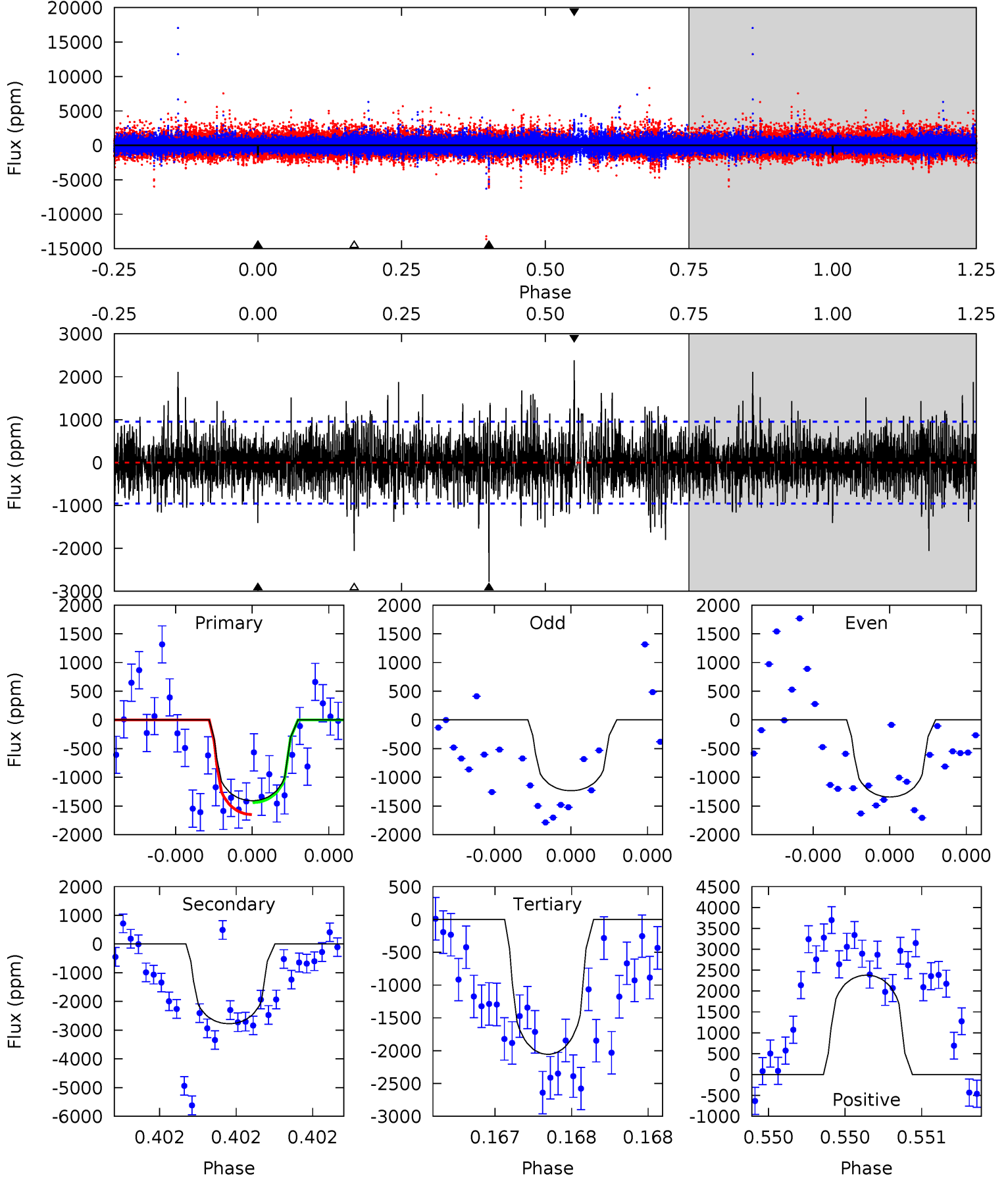
TCE 007031343-01 P=545.140136 Days  $T_0=420.949187$  (BKJD)



# DV Model-Shift Uniqueness Test

007031343-01, P = 545.160355 Days, E = 420.986222 Days

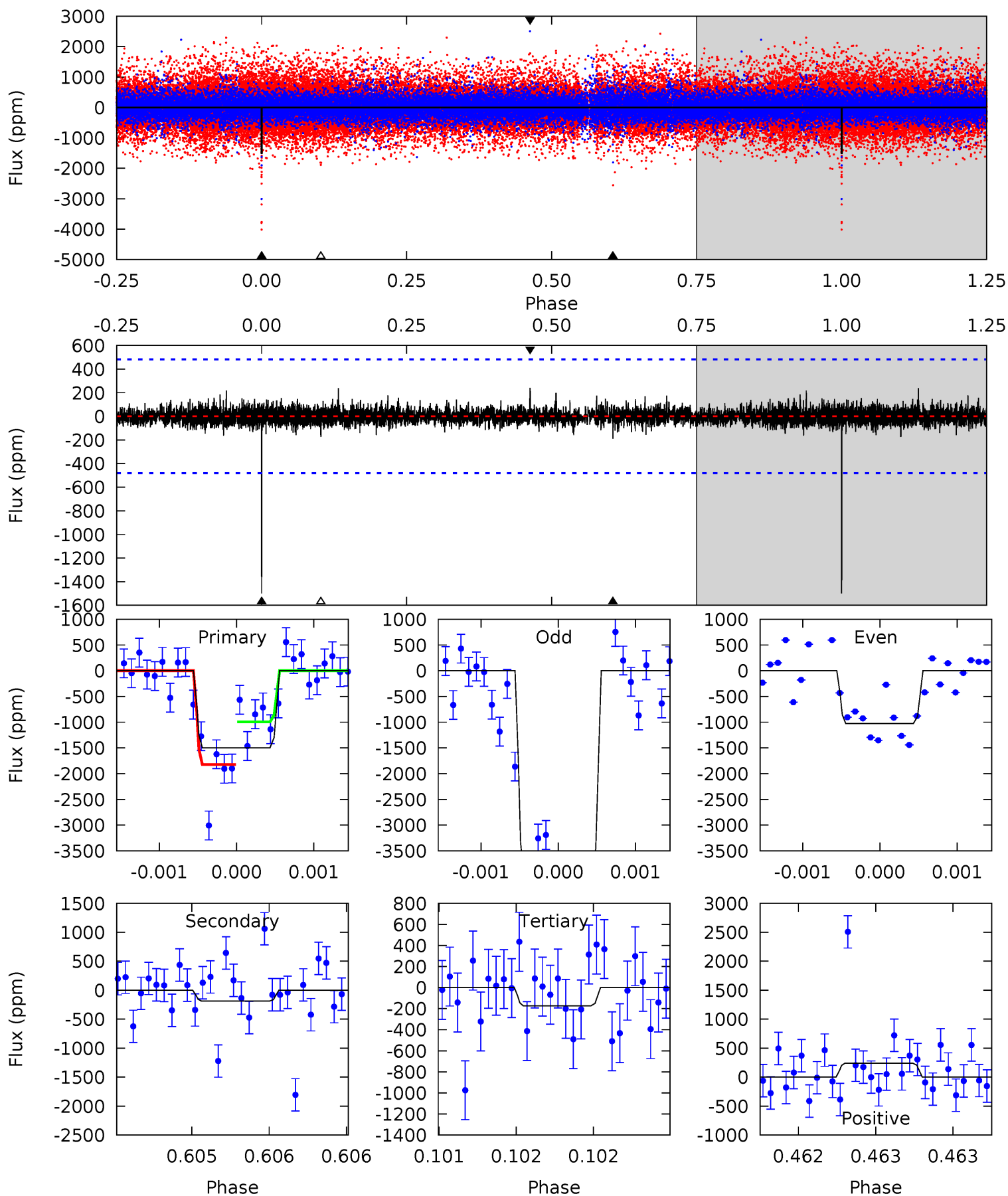
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.30	16.4	12.1	14.0	5.62	3.55	2.55	-3.83	-5.74	4.24	2.33	0.28	1.06	0.46	0.60



# Alt Model-Shift Uniqueness Test

007031343-01, P = 545.140136 Days, E = 420.949187 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
17.3	2.18	2.00	2.78	5.56	3.47	0.47	15.3	14.5	0.18	-0.60	18.1	1.89	0.14	4.53



### Stellar Parameters For KIC 007031343

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5278^{+202}_{-183}$	$4.564^{+0.090}_{-0.060}$	$-0.620^{+0.350}_{-0.300}$	$0.712^{+0.081}_{-0.074}$	$0.676^{+0.088}_{-0.038}$	$2.638^{+0.991}_{-0.607}$
	+4%/-3%	+2%/-1%	+56%/-48%	+11%/-10%	+13%/-6%	+38%/-23%
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 007031343-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-2776 \pm 170$	$11.51^{+11.13}_{-8.88}$	$255^{+11}_{-11}$	$3593^{+2923}_{-658}$	$15788^{+296525}_{-11775}$
Alt.	$-189 \pm 87$	$12.13^{+12.35}_{-8.09}$	$255^{+12}_{-11}$	$2409^{+818}_{-405}$	$856^{+7213}_{-686}$

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

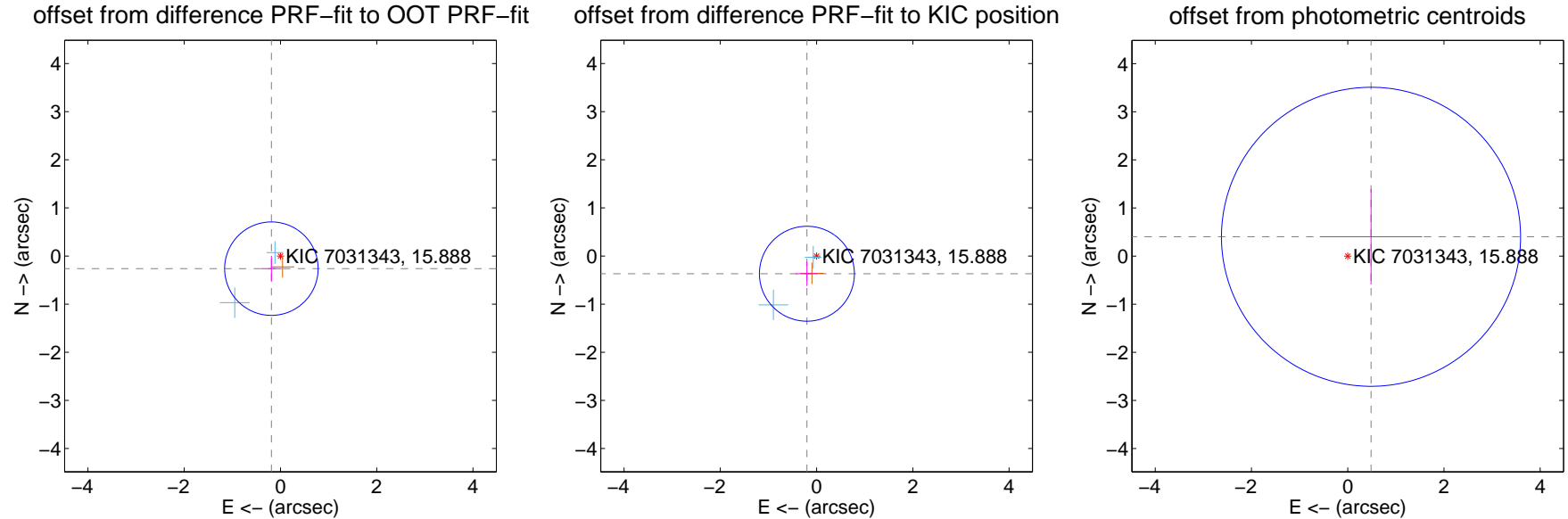
## DV Centroid Data

Supplemental centroid analysis for 007031343-01. Kepler magnitude: 15.89. Transit SNR 6.32

There are 2 quarters with good PRF difference image offsets

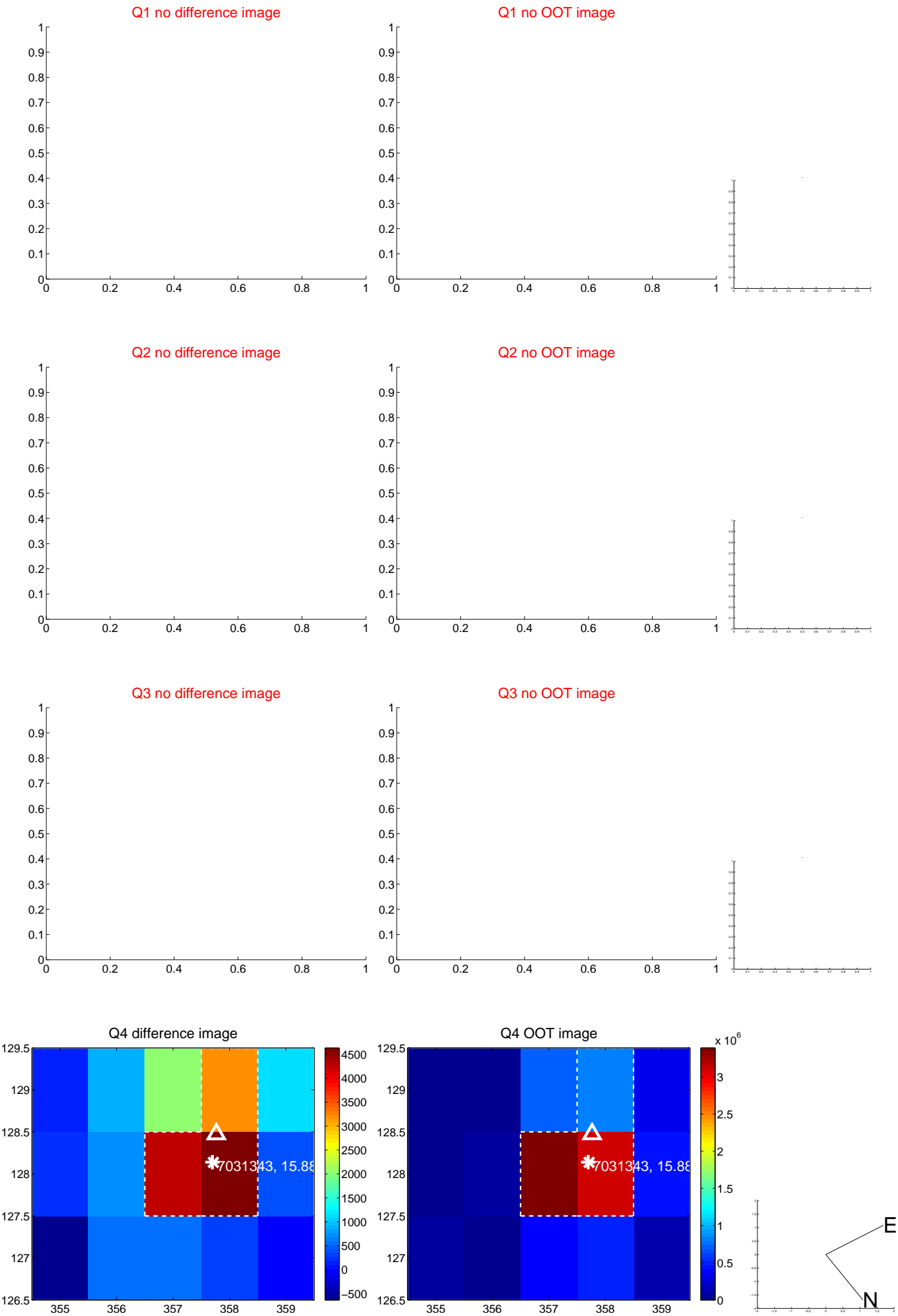
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.323 \pm 0.324$	1.00	$0.188 \pm 0.213$	$-0.263 \pm 0.268$
PRF-fit source offset from KIC position	$0.419 \pm 0.329$	1.27	$0.201 \pm 0.236$	$-0.368 \pm 0.255$
photometric centroid source offset	$0.63 \pm 1.04$	0.61	$-0.48 \pm 1.06$	$0.40 \pm 0.99$



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.



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

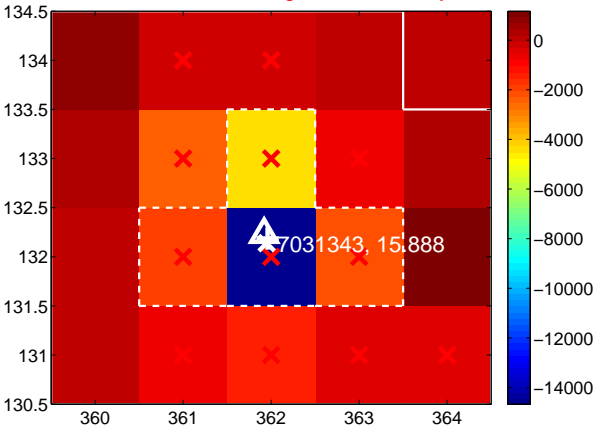
Q9 no difference image



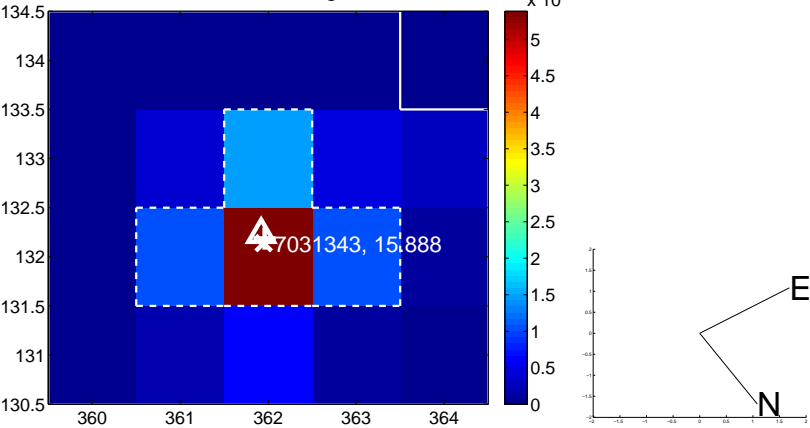
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



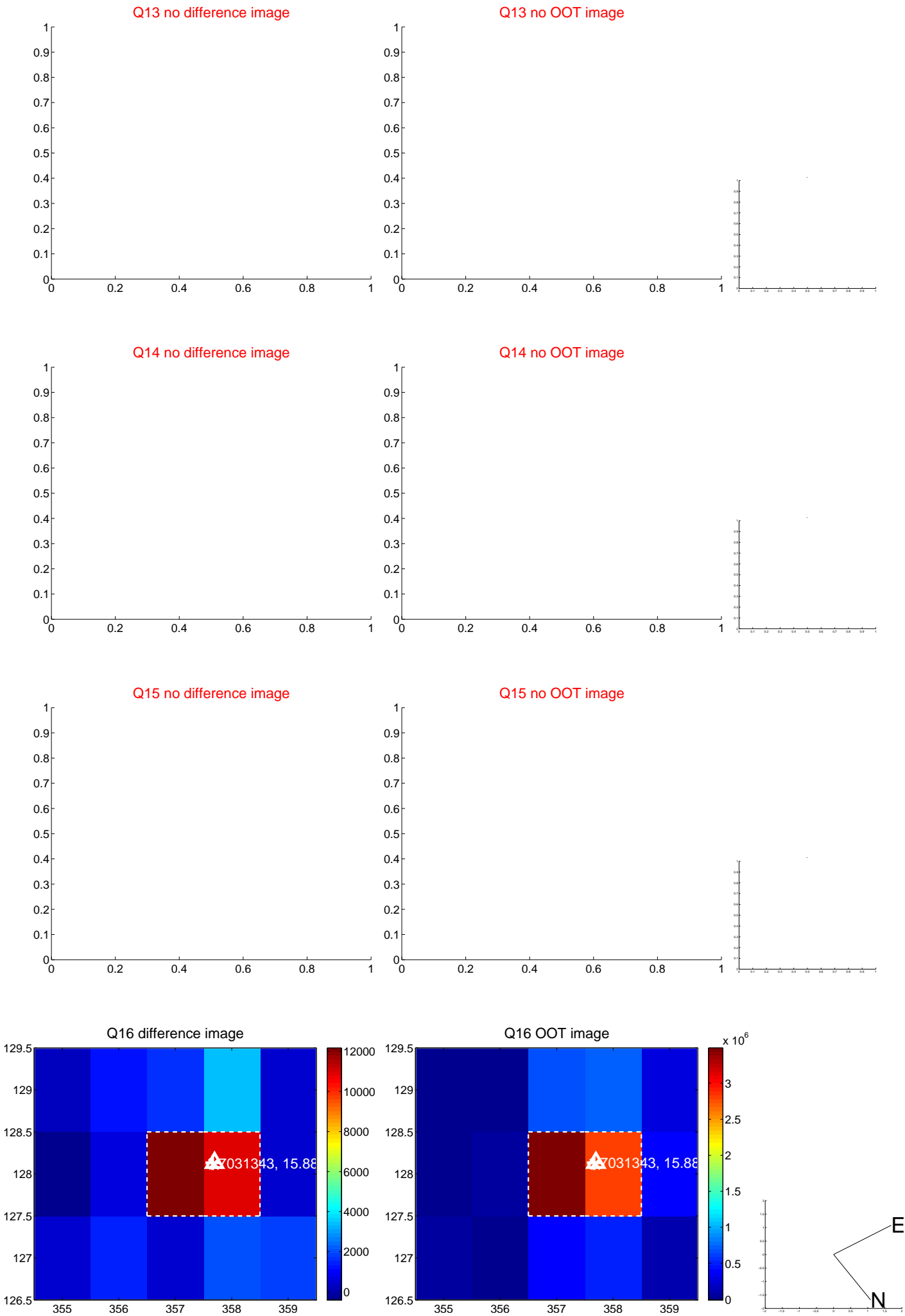
Q12 no difference image



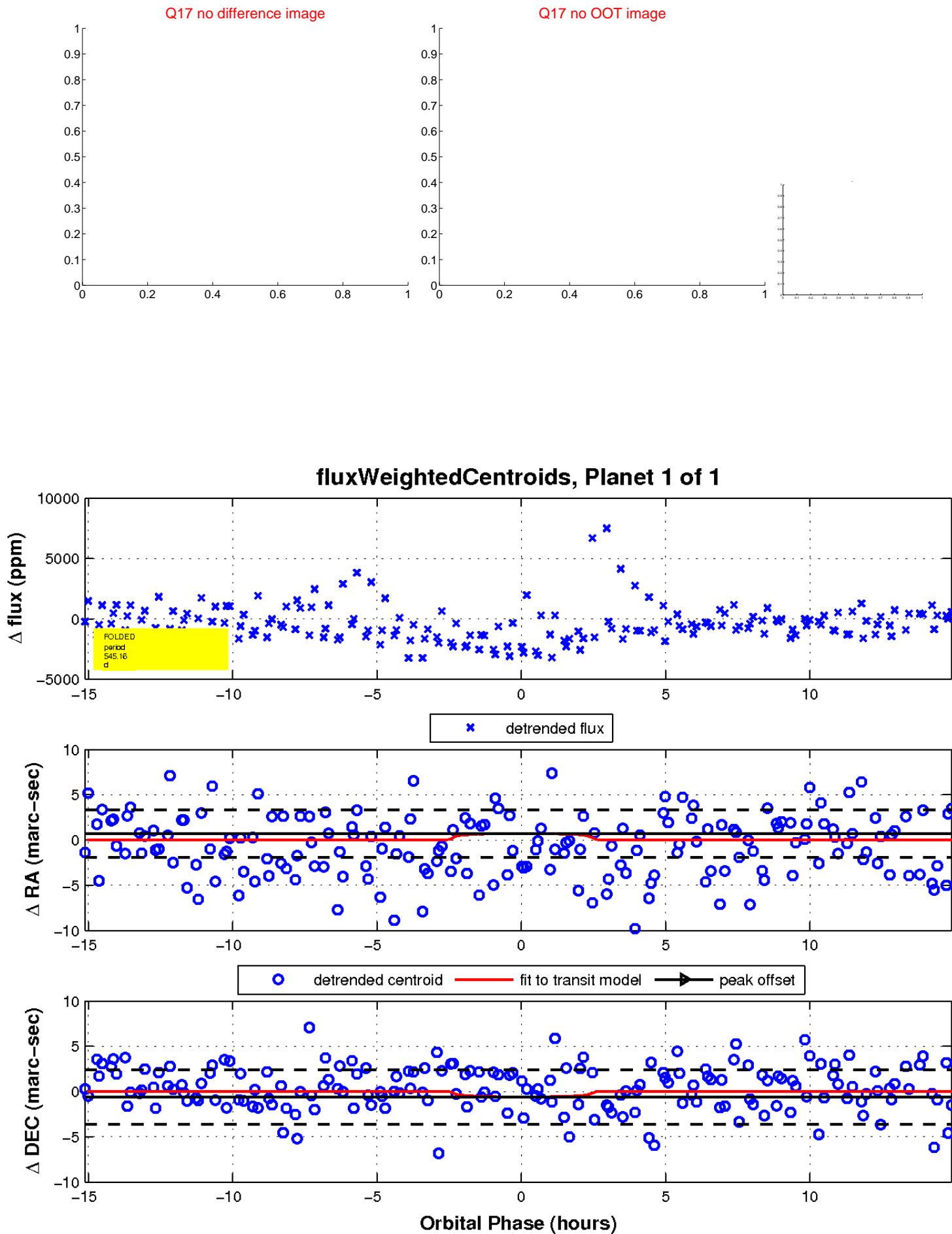
Q12 no OOT image



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



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



# UKIRT Image

Declination

