

# KIC 005653163

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653163-01	OBS	5190.01	2.404279	133.255657	305.1	6.186	14.3	14.9	1.00	5780	3.49	810.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653163-01	OBS	FP	0.00	0	1	0	1	MOD_SEC_DV—CENT_SATURATED—EPHEM_MATCH

**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 005653163-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
005653163-01	5653163	6134.01	5738698	1:1	96.9	-18	16	11.94	10.63	1050.40	Direct-PRF	0	2.99	2.39

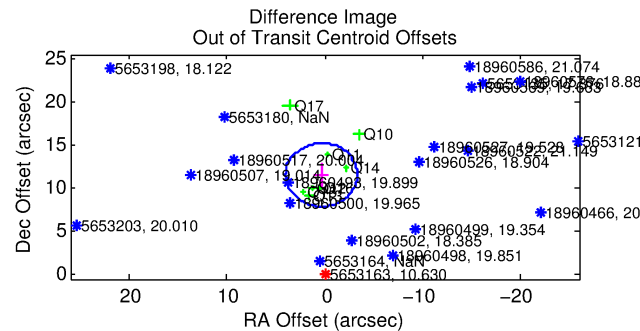
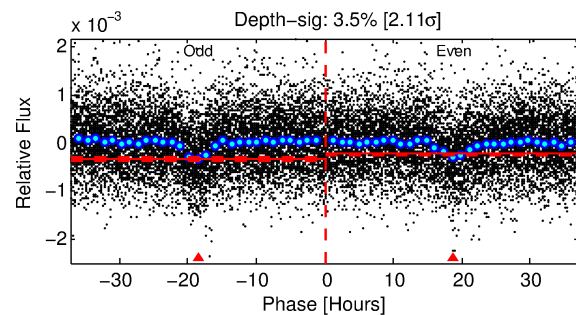
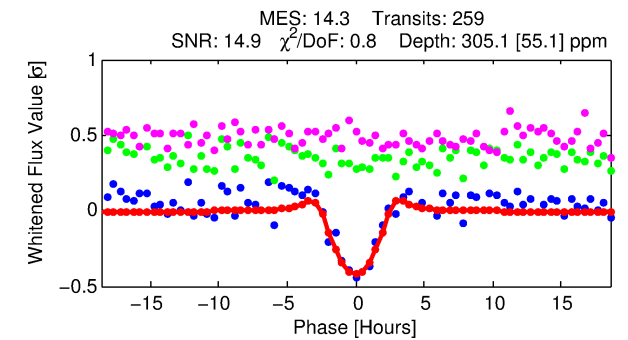
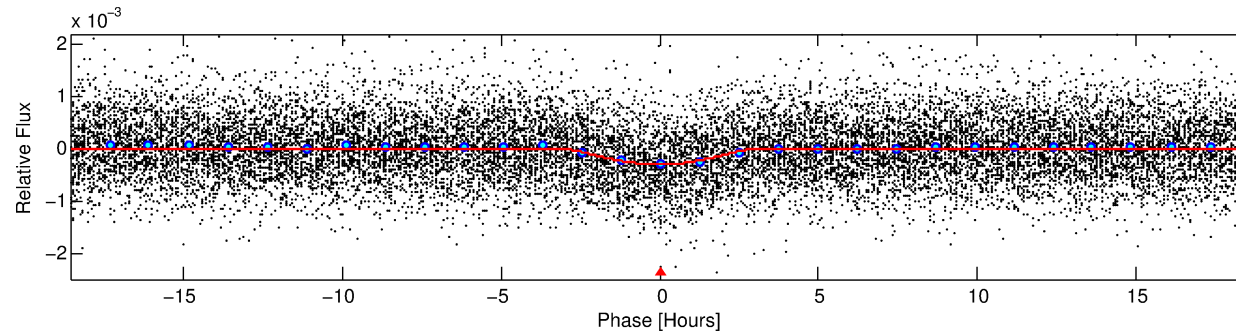
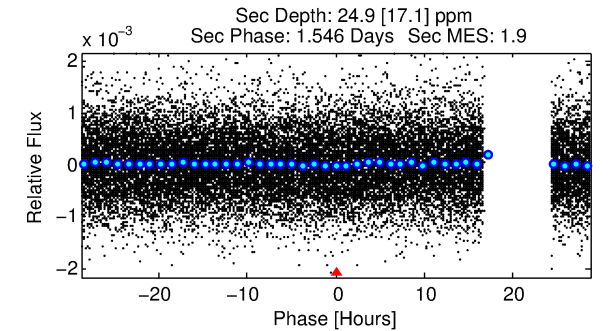
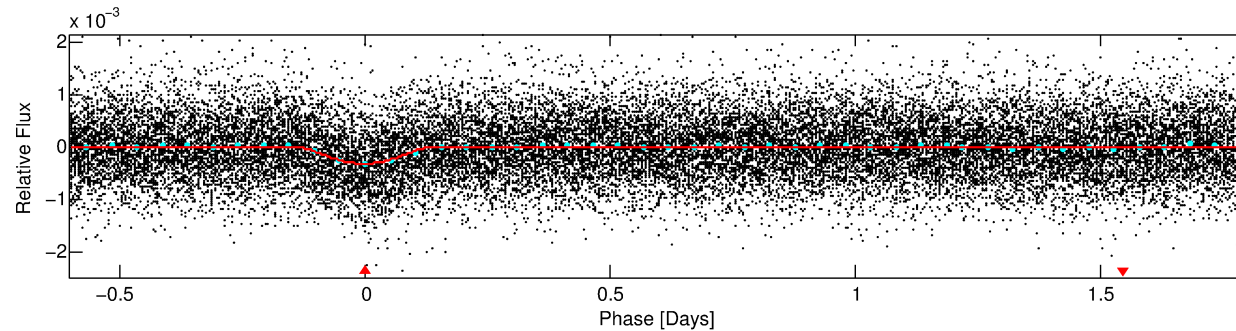
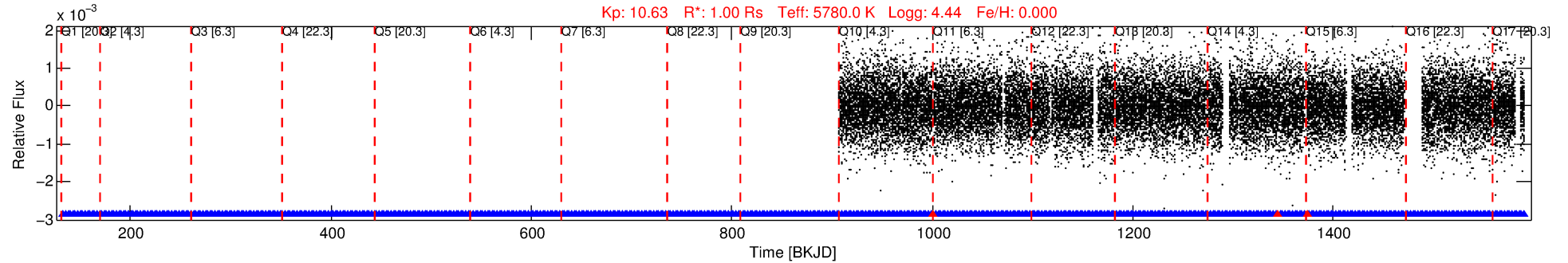
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5653163 Candidate: 1 of 1 Period: 2.404 d

KOI: K05190.01 Corr: 0.768

Kp: 10.63 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



## DV Fit Results:

Period = 2.40428 [0.00003] d  
Epoch = 133.2557 [0.0113] BKJD  
Rp/R\* = 0.0319 [0.0612]  
b/R\* = 1.27 [0.18]  
b = 1.00 [0.09]  
Seff = 810.26 [0.01]  
Teq = 1360 [0] K  
Rp = 3.49 [6.67] Re  
a = 0.0351 [0.0000] AU  
Ag = 1.39 [5.41] [0.07σ]  
Teff = 2284 [2222] K [0.42σ]

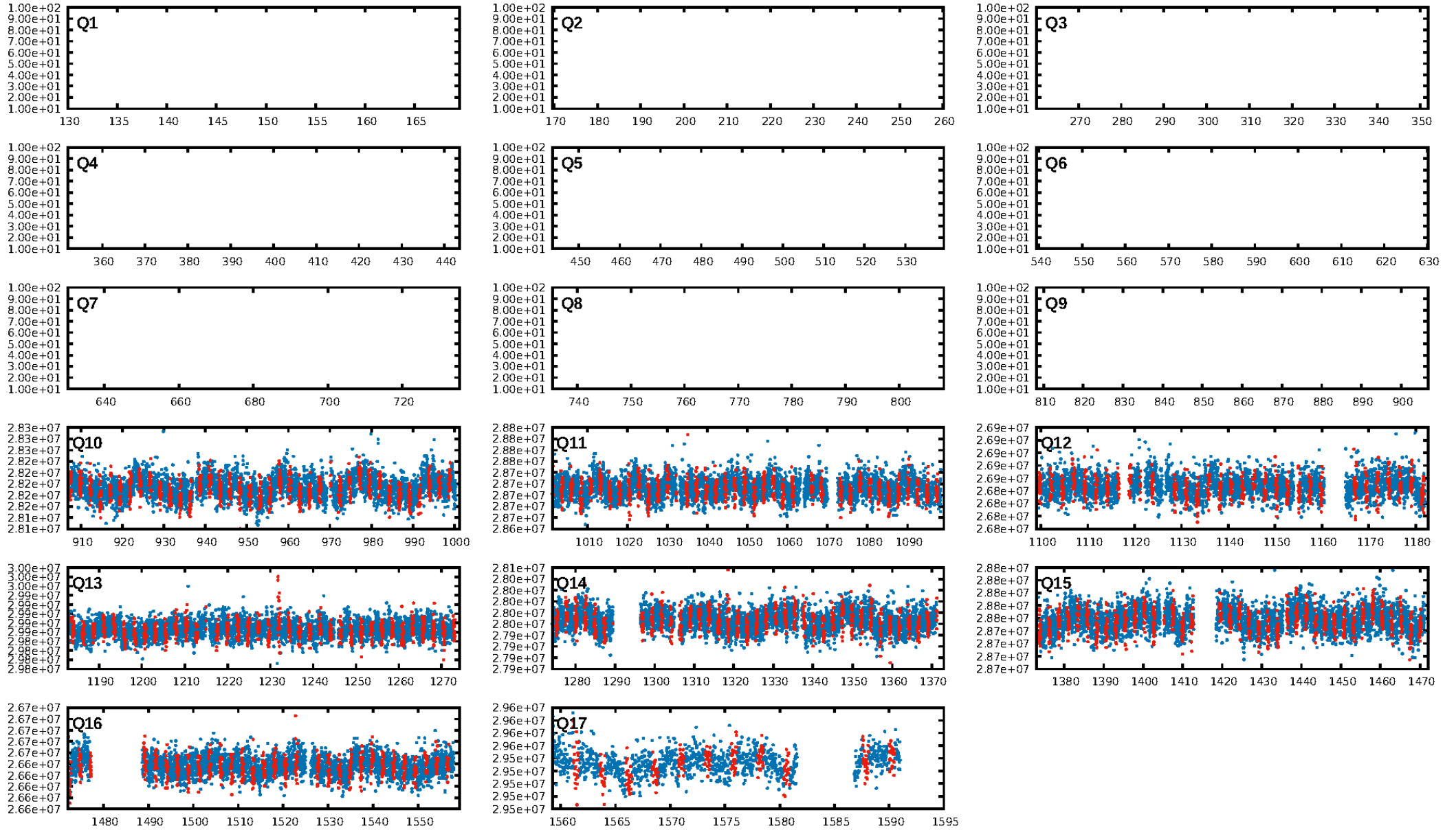
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.21e-39  
RollingBand-fgt: 0.99 [245/248]  
GhostDiagnostic-chr: 0.4369  
Centroid-sig: 0.0%  
Centroid-so: 10.838 arcsec [9.12σ]  
OotOffset-rm: 11.557 arcsec [9.46σ]  
KicOffset-rm: 8.165 arcsec [7.18σ]  
OotOffset-st: 2/2/2 [8]  
KicOffset-st: 2/2/2 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 1.00 [8/8]

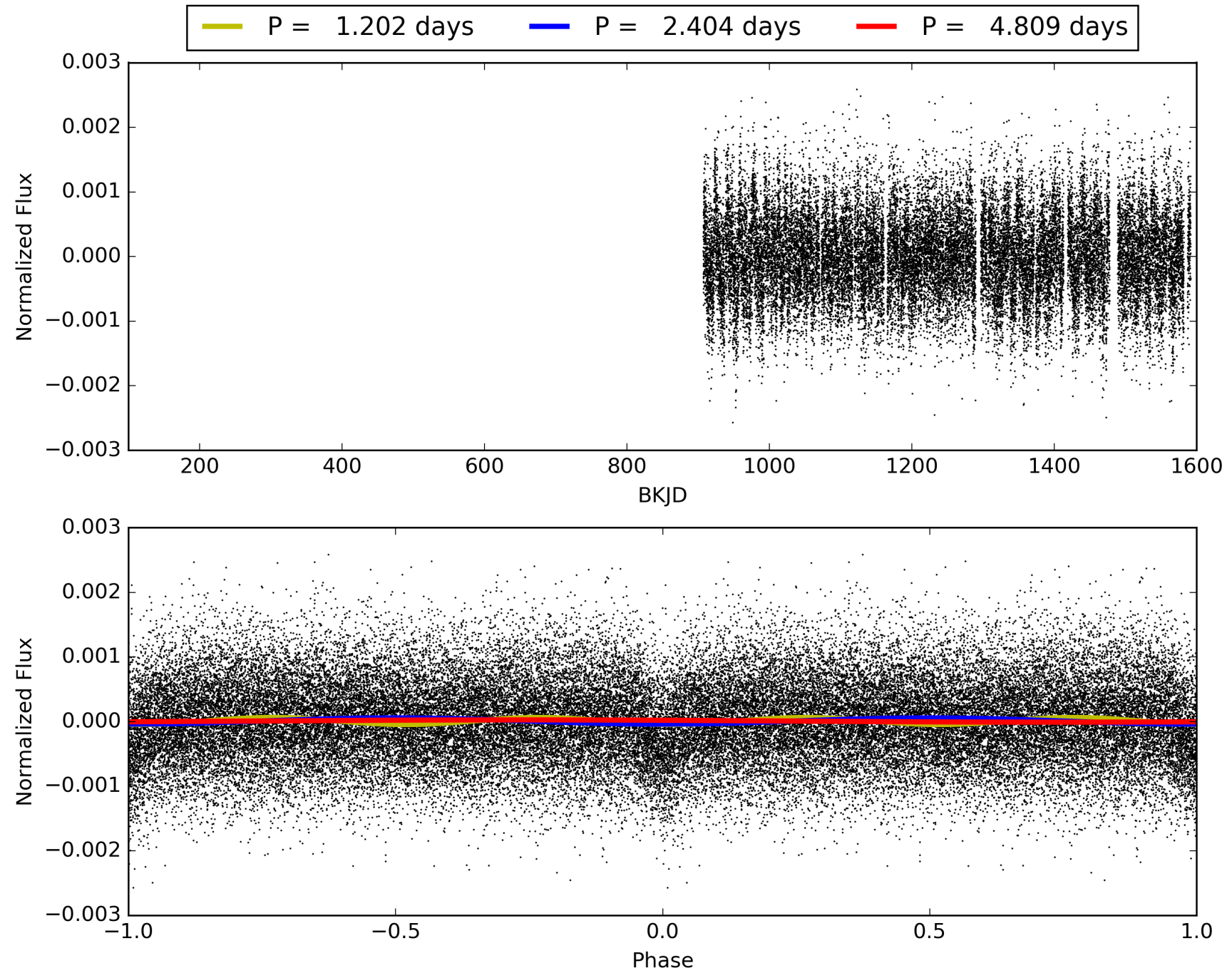
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:21:32 Z

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

# TCE 005653163-01, PDC Light Curves

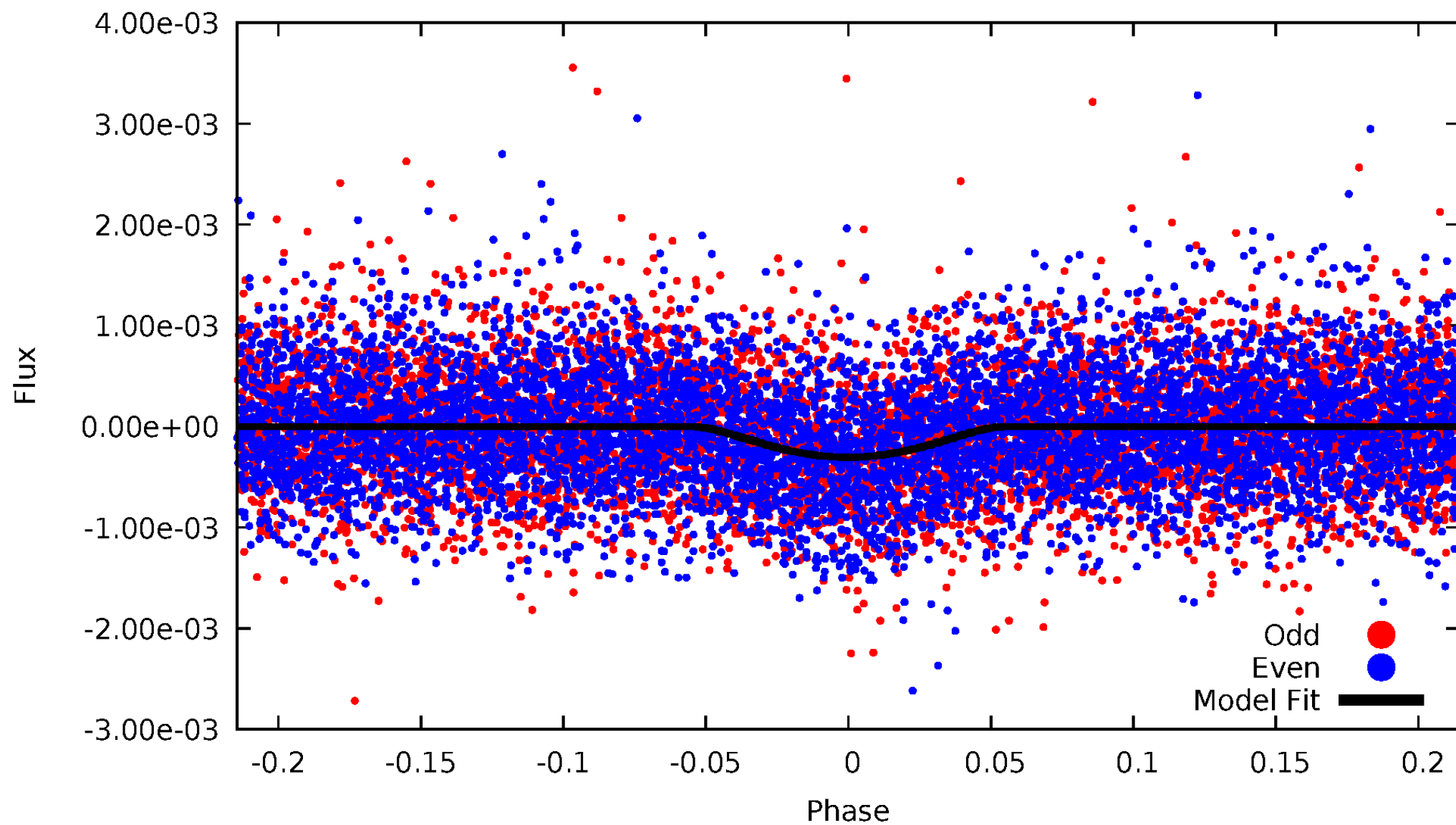


TCE 005653163-01



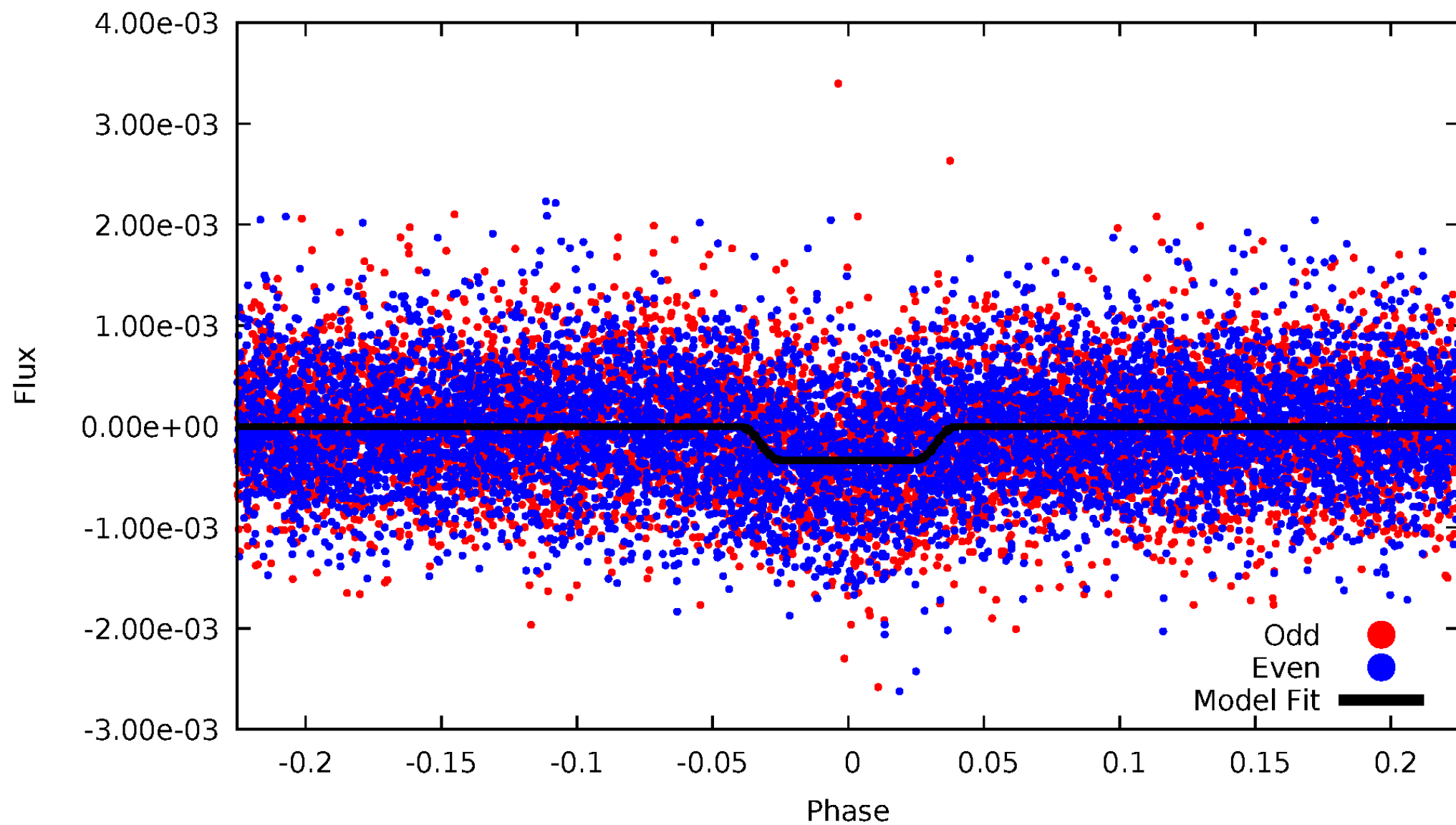
# DV Odd/Even

TCE 005653163-01

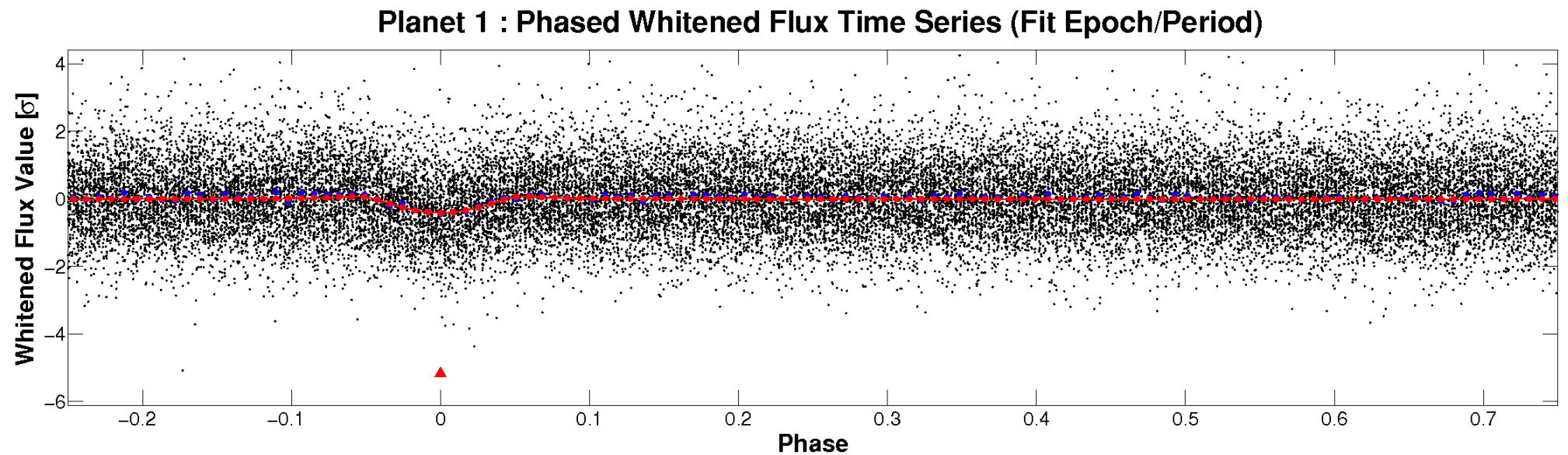
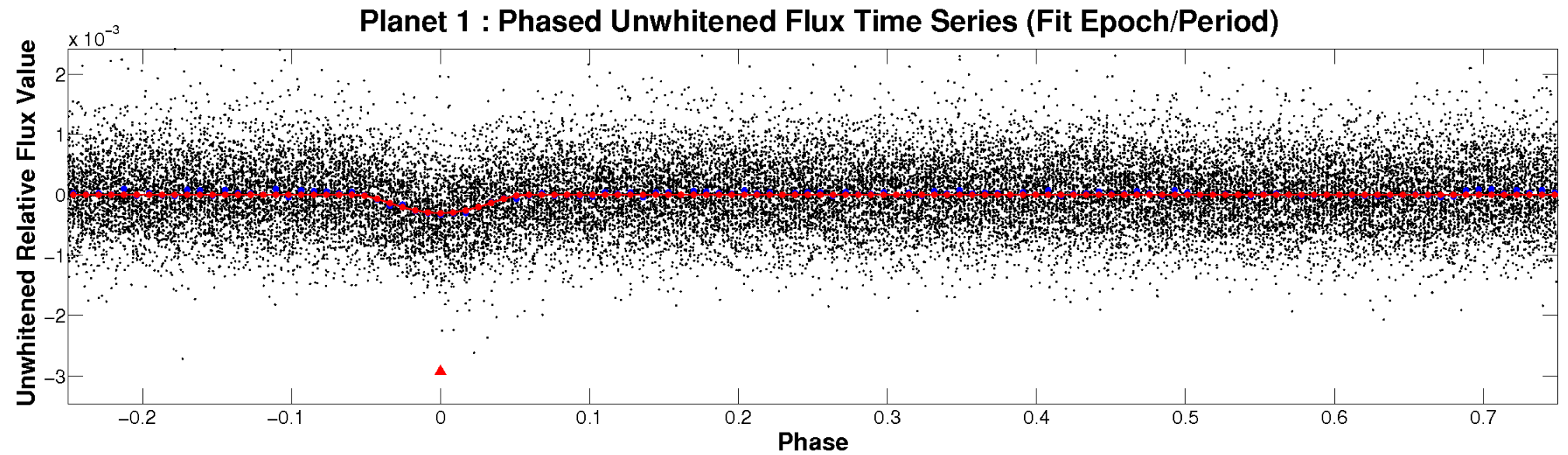


# ALT Odd/Even

TCE 005653163-01

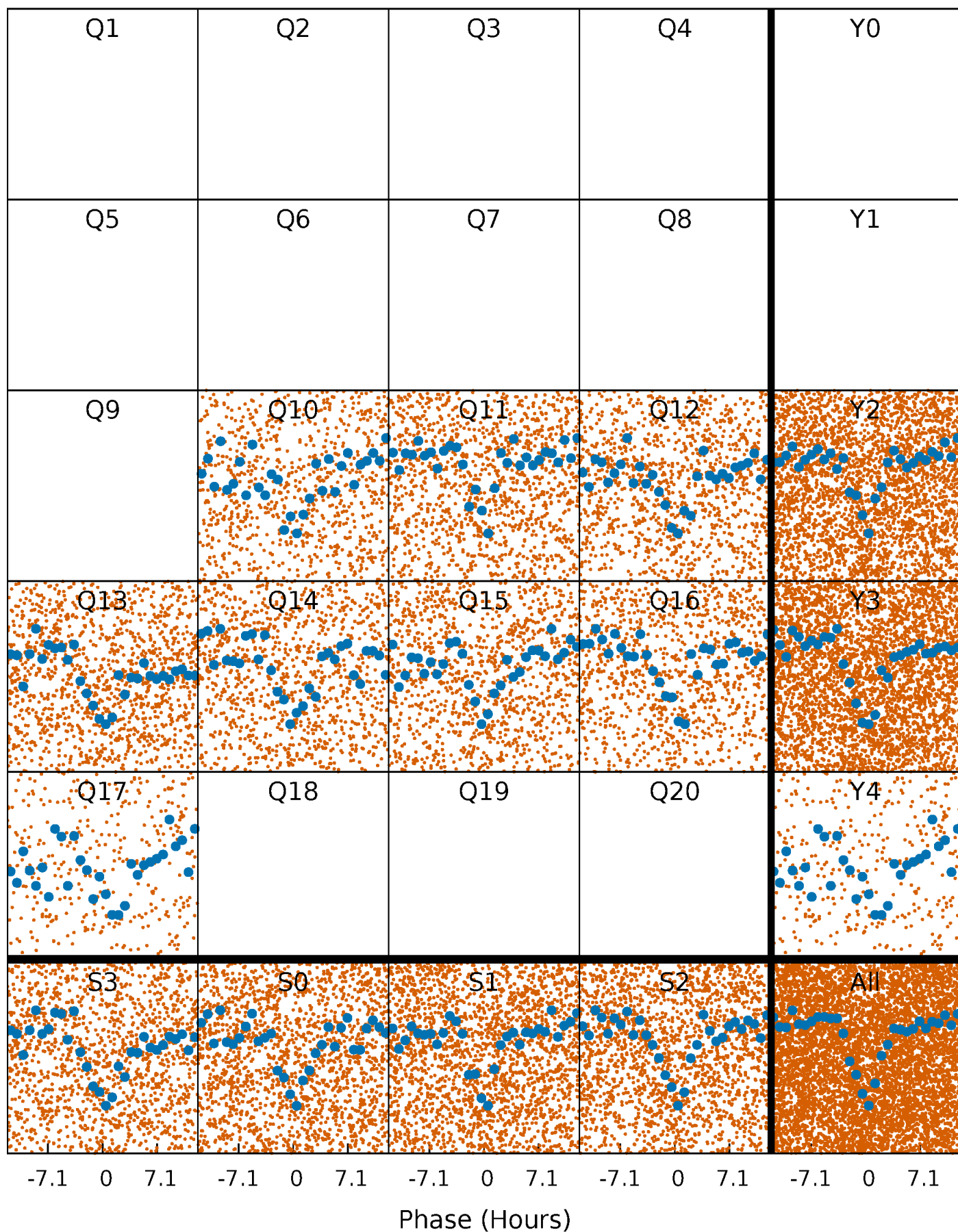


# Non-Whitened Vs. Whitened Light Curve



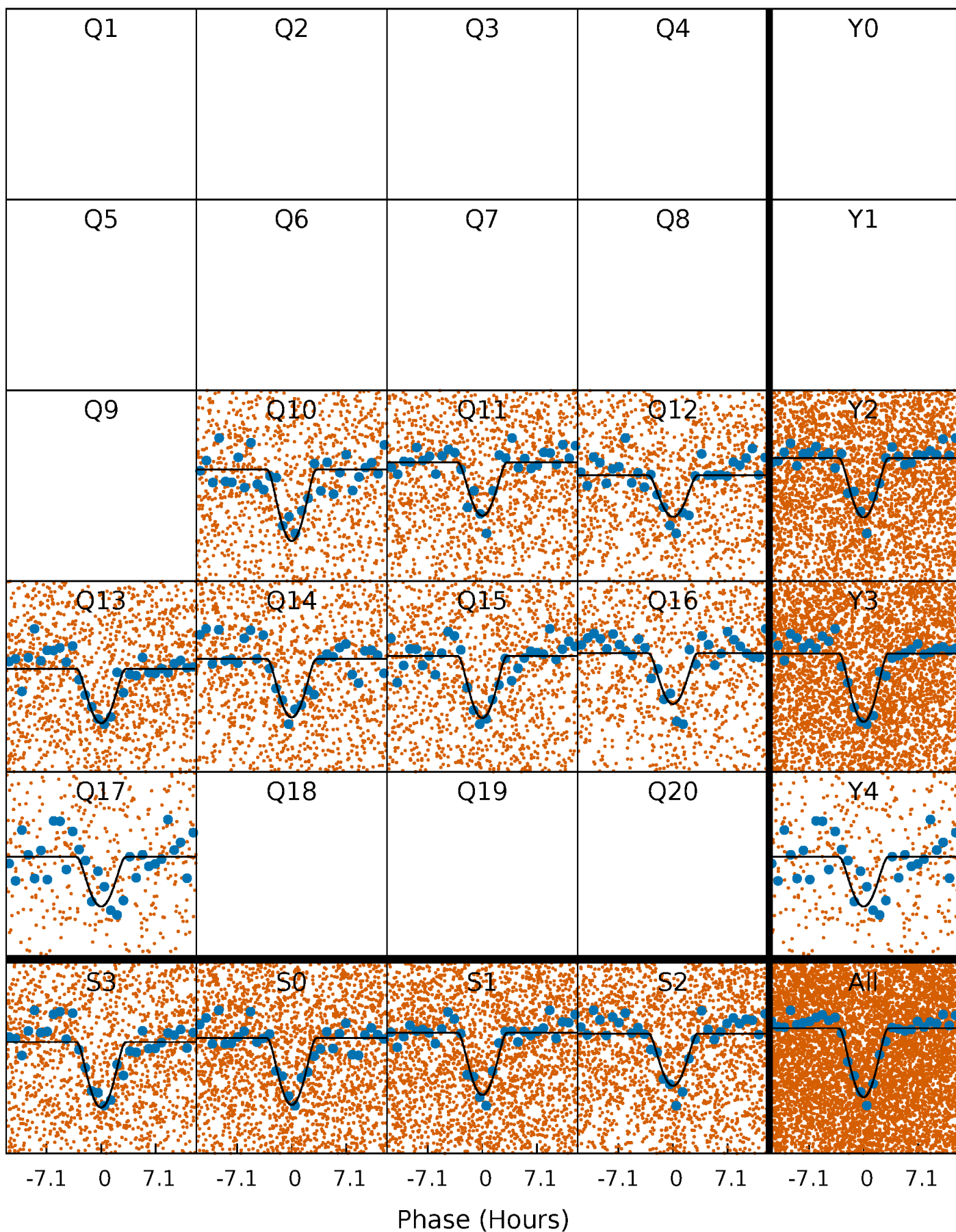
# PDC Quarter-Phased Transit Curves

TCE 005653163-01 P= 2.404279 Days  $T_0=133.255656$  (BKJD)



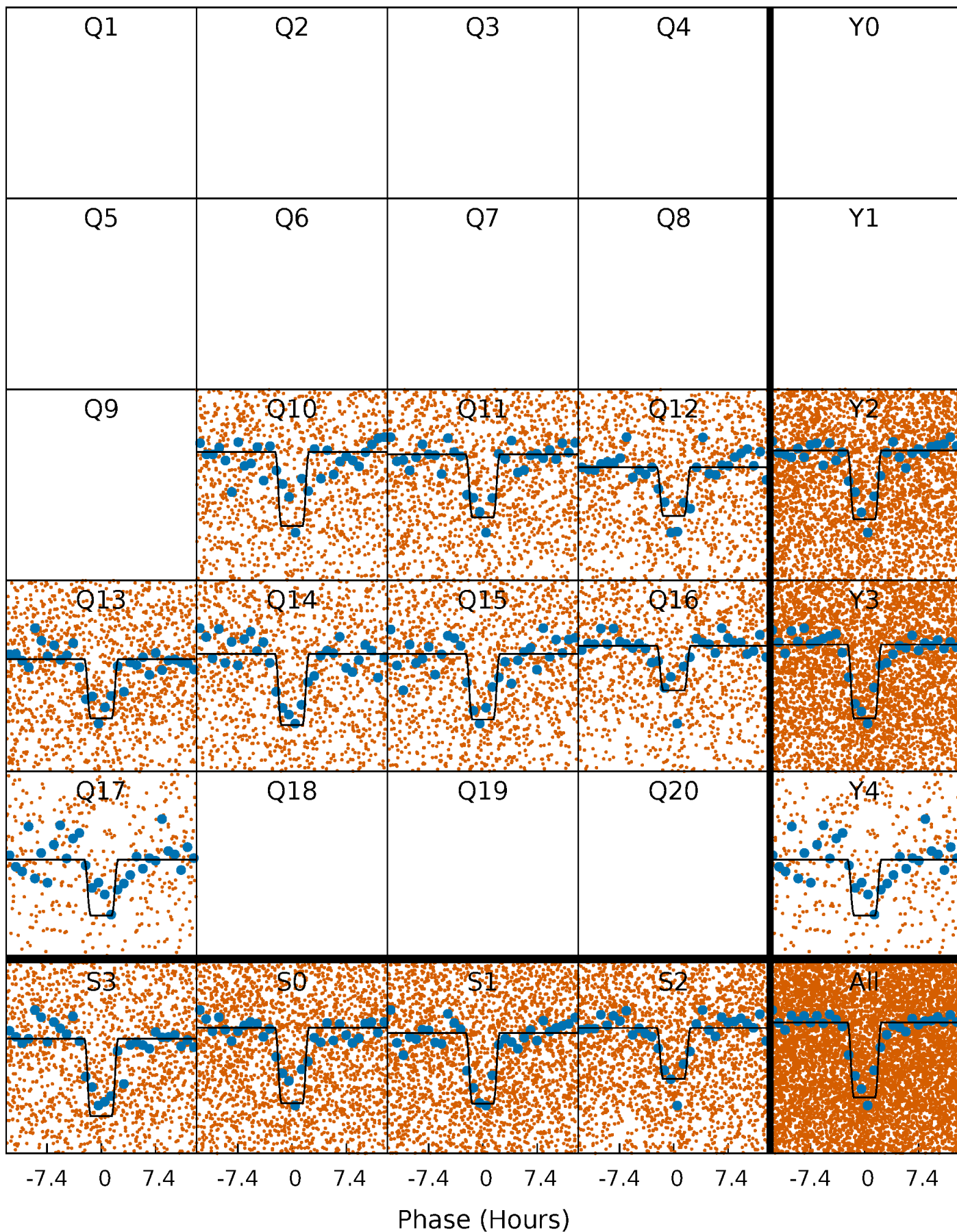
# DV Quarter-Phased Transit Curves

TCE 005653163-01   P= 2.404279 Days    $T_0=133.255656$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

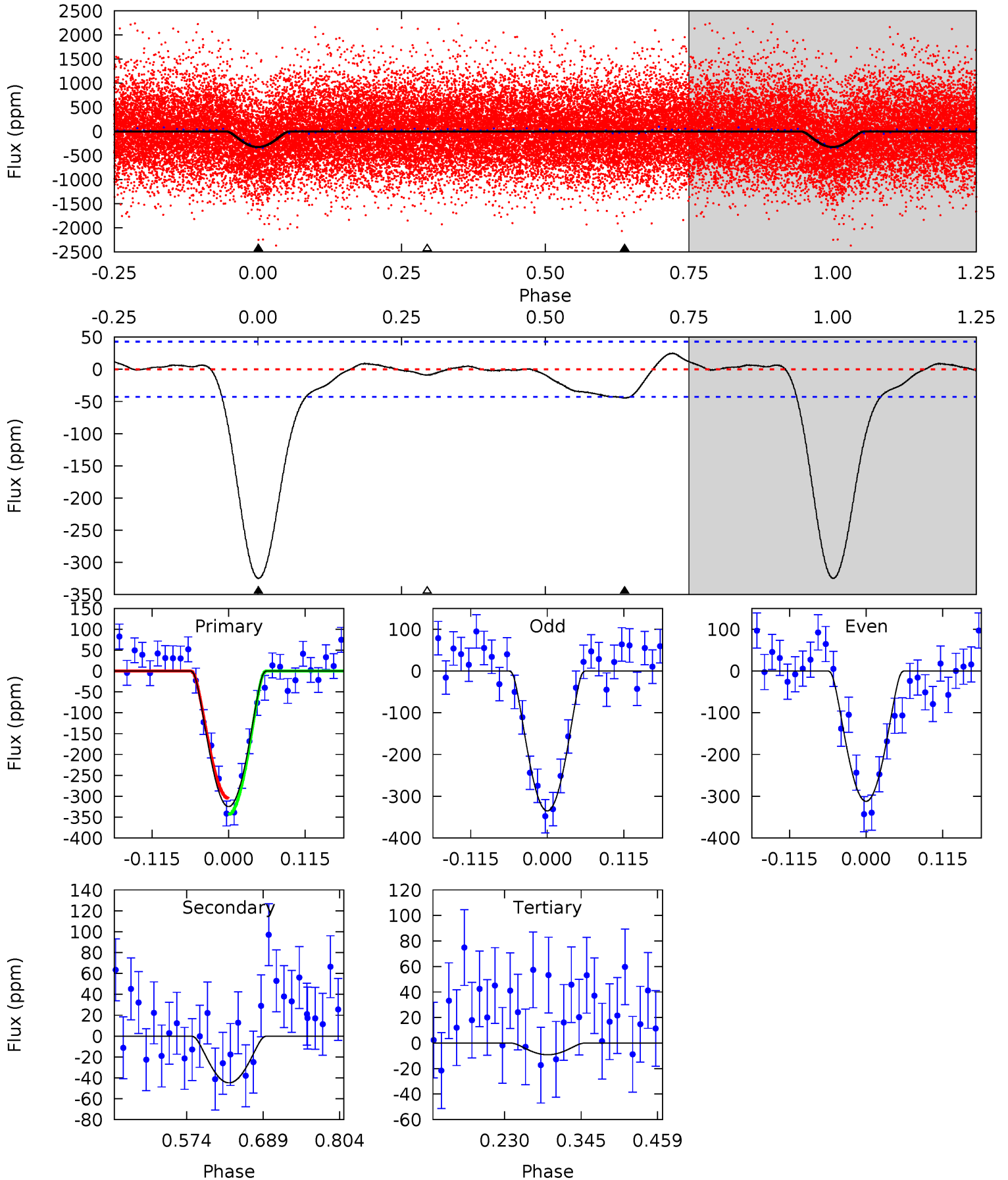
TCE 005653163-01 P= 2.404362 Days  $T_0=133.222232$  (BKJD)



# DV Model-Shift Uniqueness Test

005653163-01, P = 2.404279 Days, E = 133.255656 Days

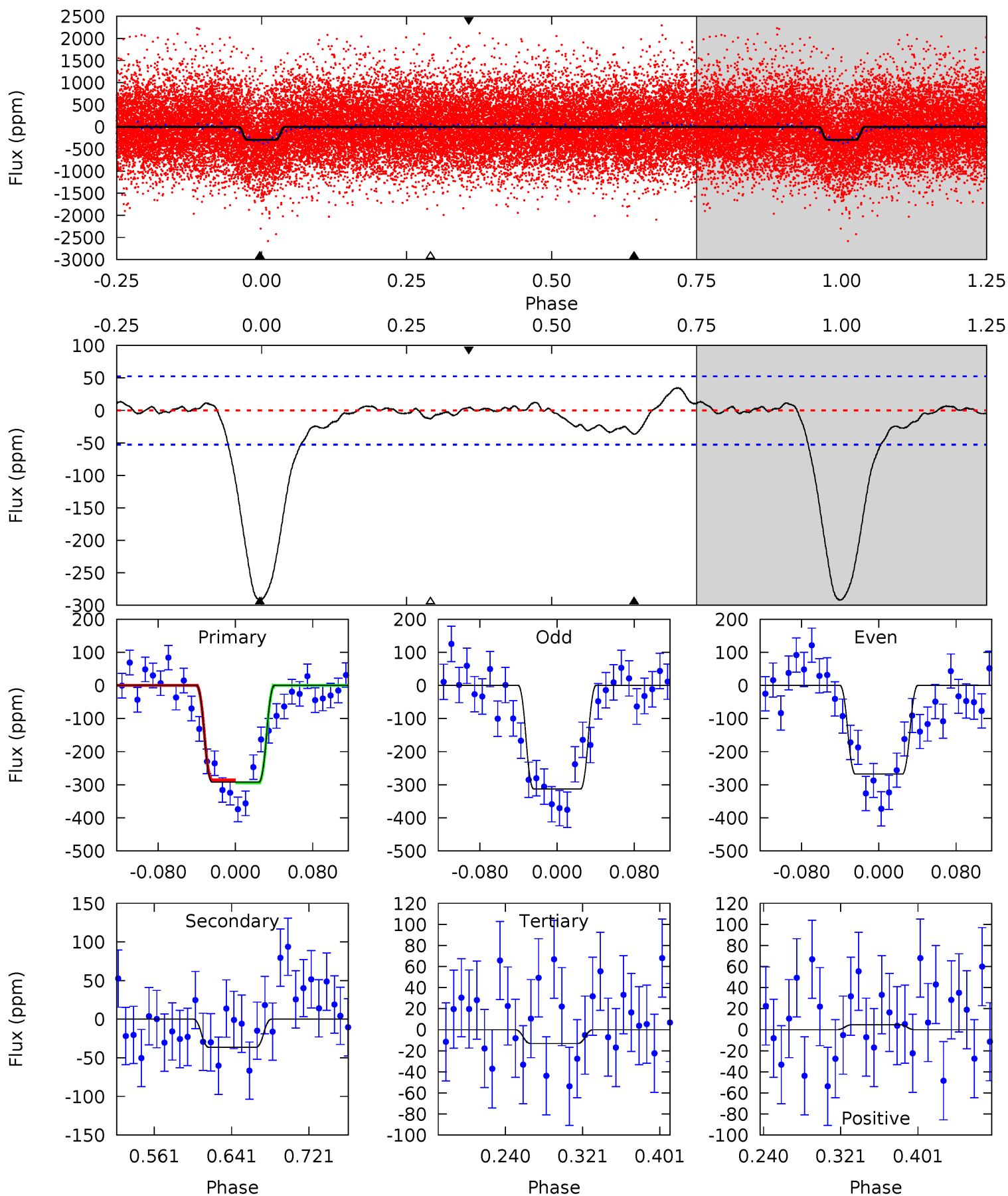
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.3	4.73	0.97	0	4.54	1.58	0.71	33.4	34.3	3.76	4.73	1.21	1.01	0.07	2.03



# Alt Model-Shift Uniqueness Test

005653163-01, P = 2.404362 Days, E = 133.222232 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
25.6	3.20	1.15	0.42	4.61	1.75	0.95	24.4	25.2	2.05	2.78	1.96	0.94	0.11	0.35



### Stellar Parameters For KIC 005653163

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

### Secondary Eclipse Parameters for KIC 005653163-01 / KOI 5190.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-45 \pm 9$	$5.81^{+5.80}_{-3.86}$	$1905^{+94}_{-86}$	$2648^{+1209}_{-4724}$	$0.884^{+7.071}_{-0.655}$
Alt.	$-37 \pm 11$	$5.20^{+5.51}_{-3.60}$	$1901^{+90}_{-84}$	$2620^{+1330}_{-4792}$	$0.863^{+8.282}_{-0.675}$

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

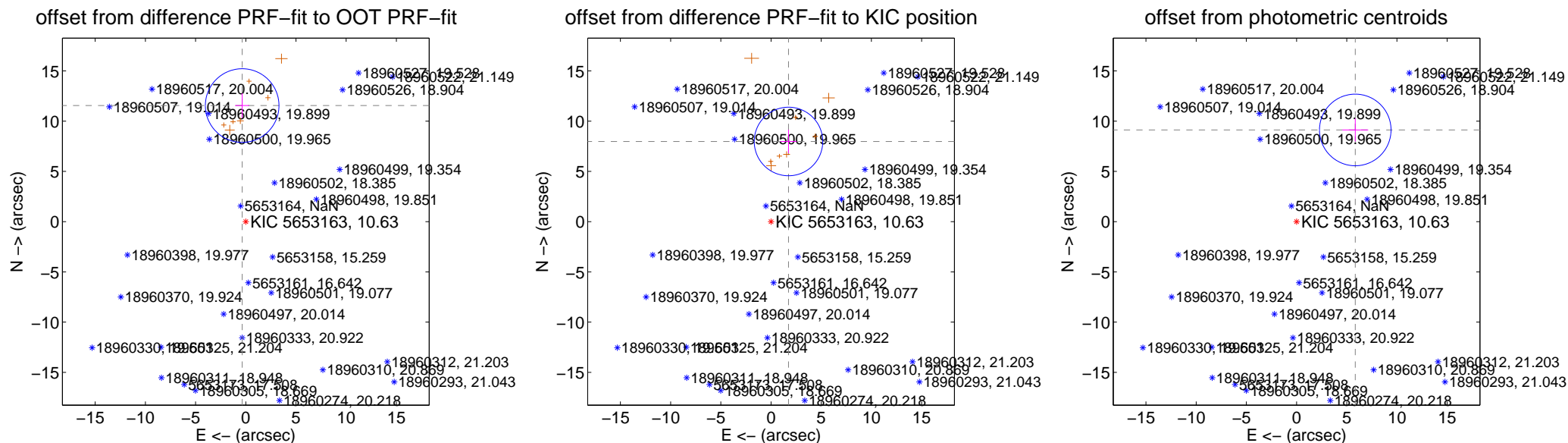
## DV Centroid Data

Supplemental centroid analysis for 005653163-01. **Kepler magnitude: 10.63.** Transit SNR 14.93

There are 0 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.74 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	$11.557 \pm 1.222$	9.46	$0.359 \pm 0.702$	$11.552 \pm 1.226$
PRF-fit source offset from KIC position	$8.165 \pm 1.138$	7.18	$-1.739 \pm 0.817$	$7.977 \pm 1.171$
photometric centroid source offset	$10.84 \pm 1.19$	9.12	$-5.85 \pm 1.29$	$9.13 \pm 1.15$



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.

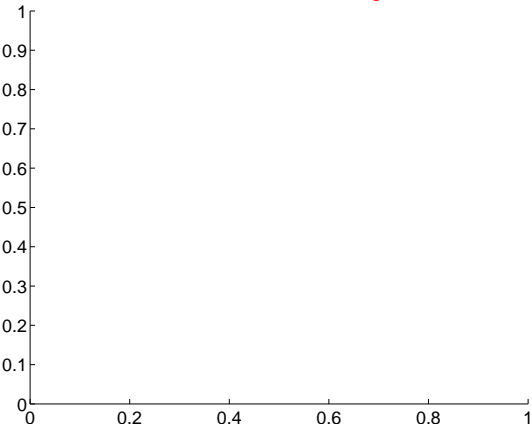


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

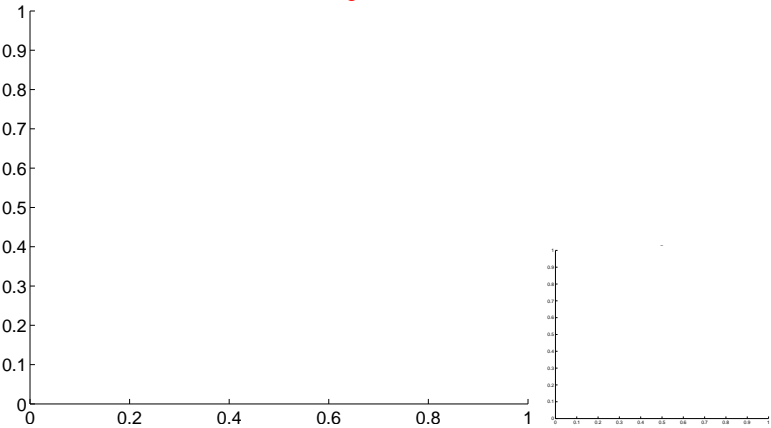


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

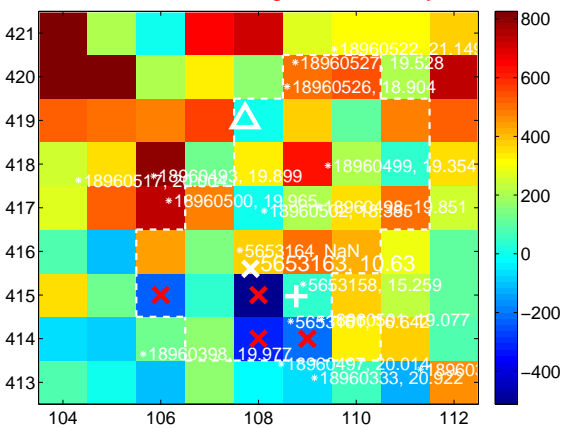
Q9 no difference image



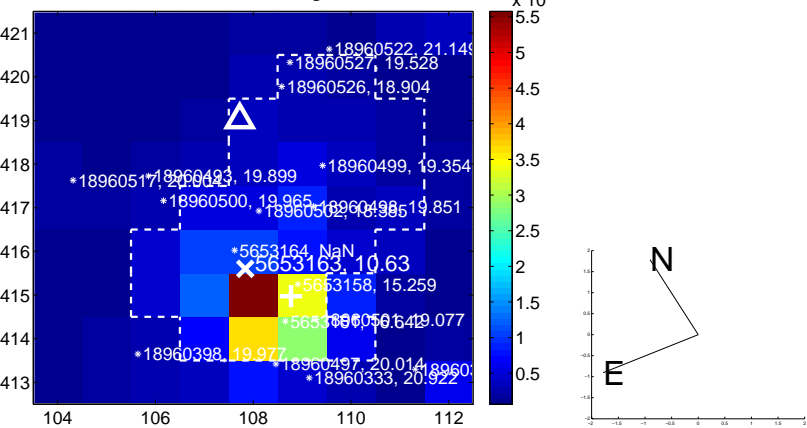
Q9 no OOT image



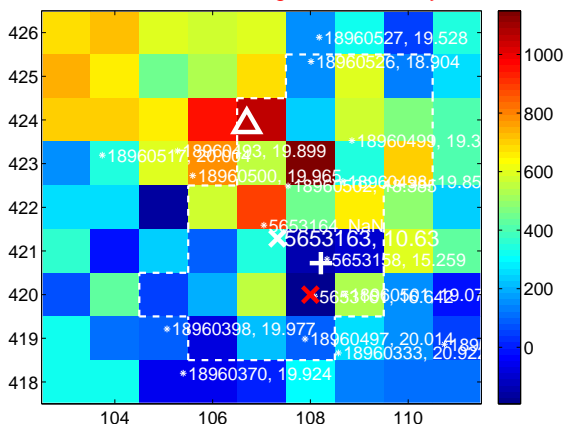
Q10 difference image. Poor Quality



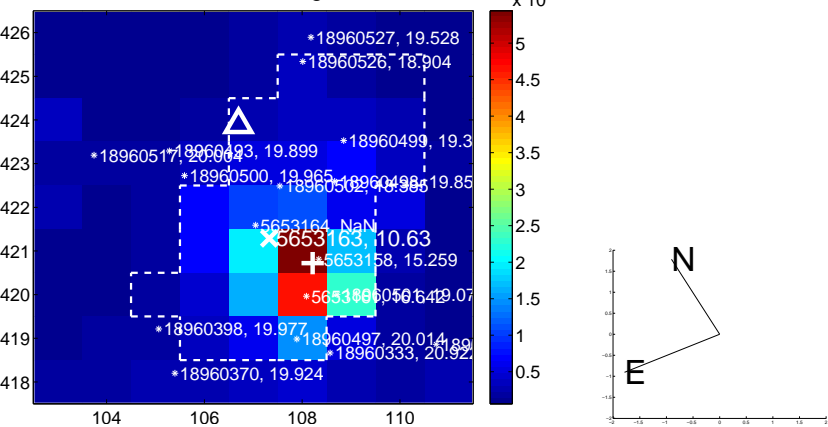
Q10 OOT image



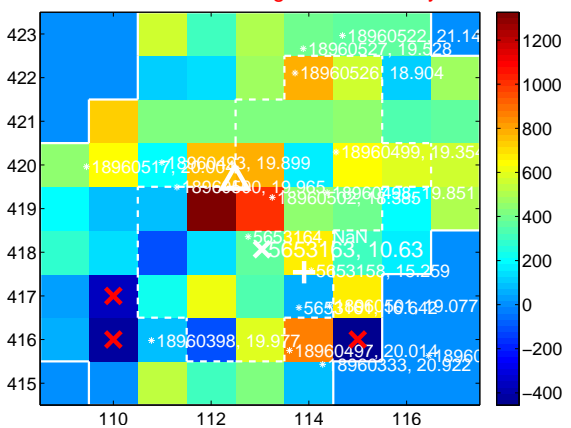
Q11 difference image. Poor Quality



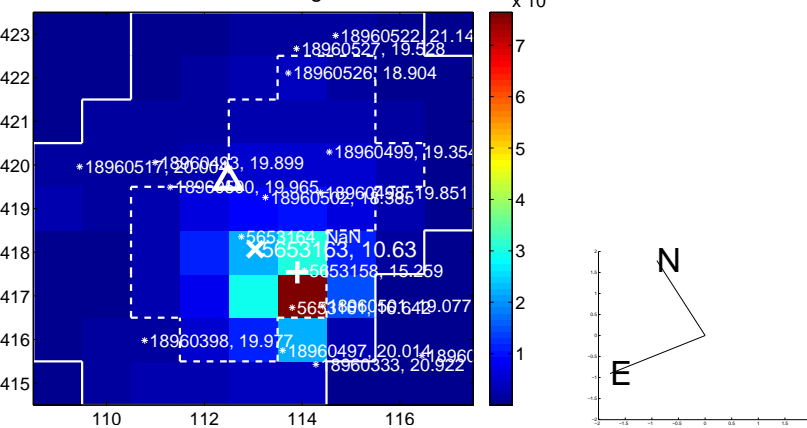
Q11 OOT image



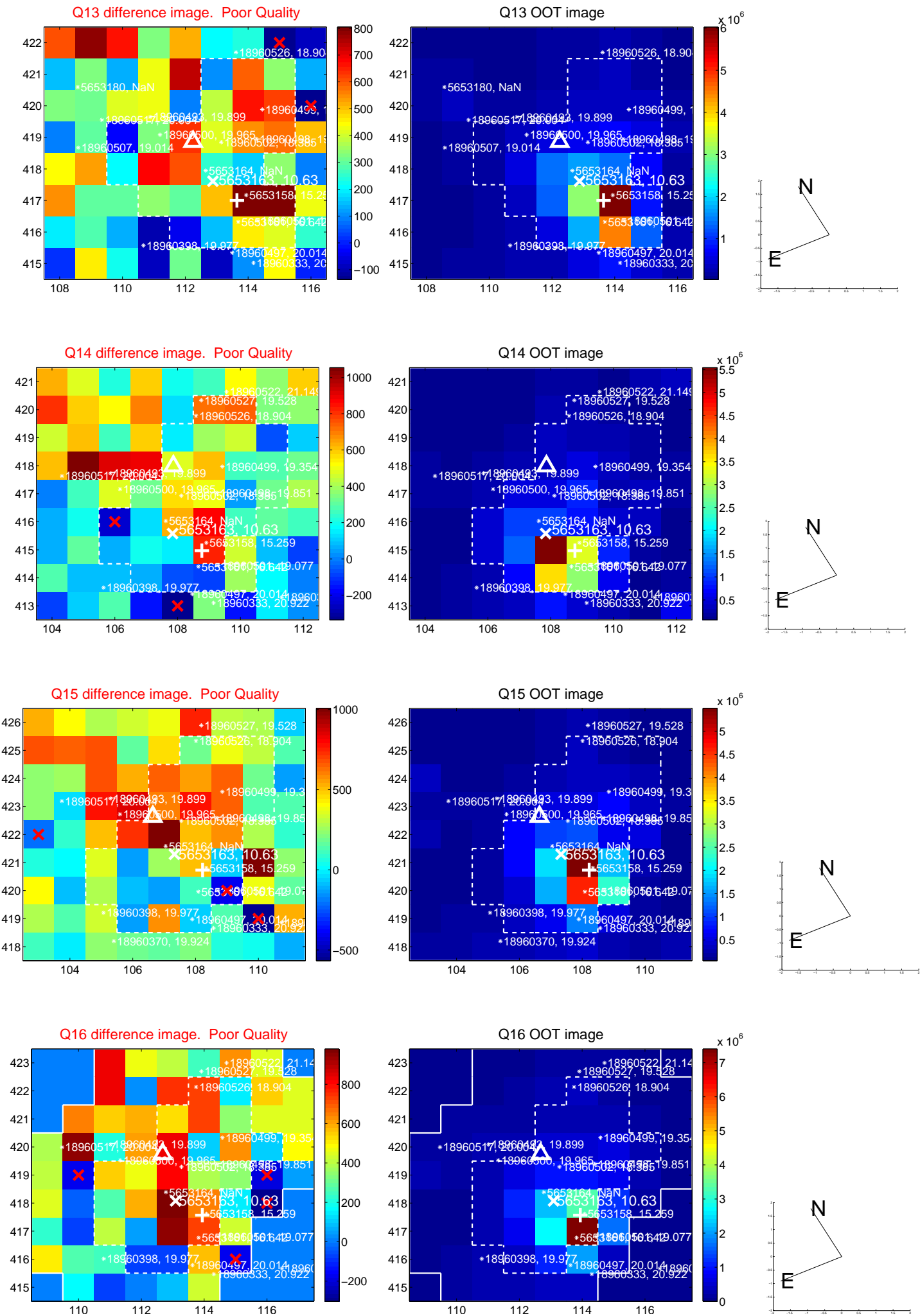
Q12 difference image. Poor Quality



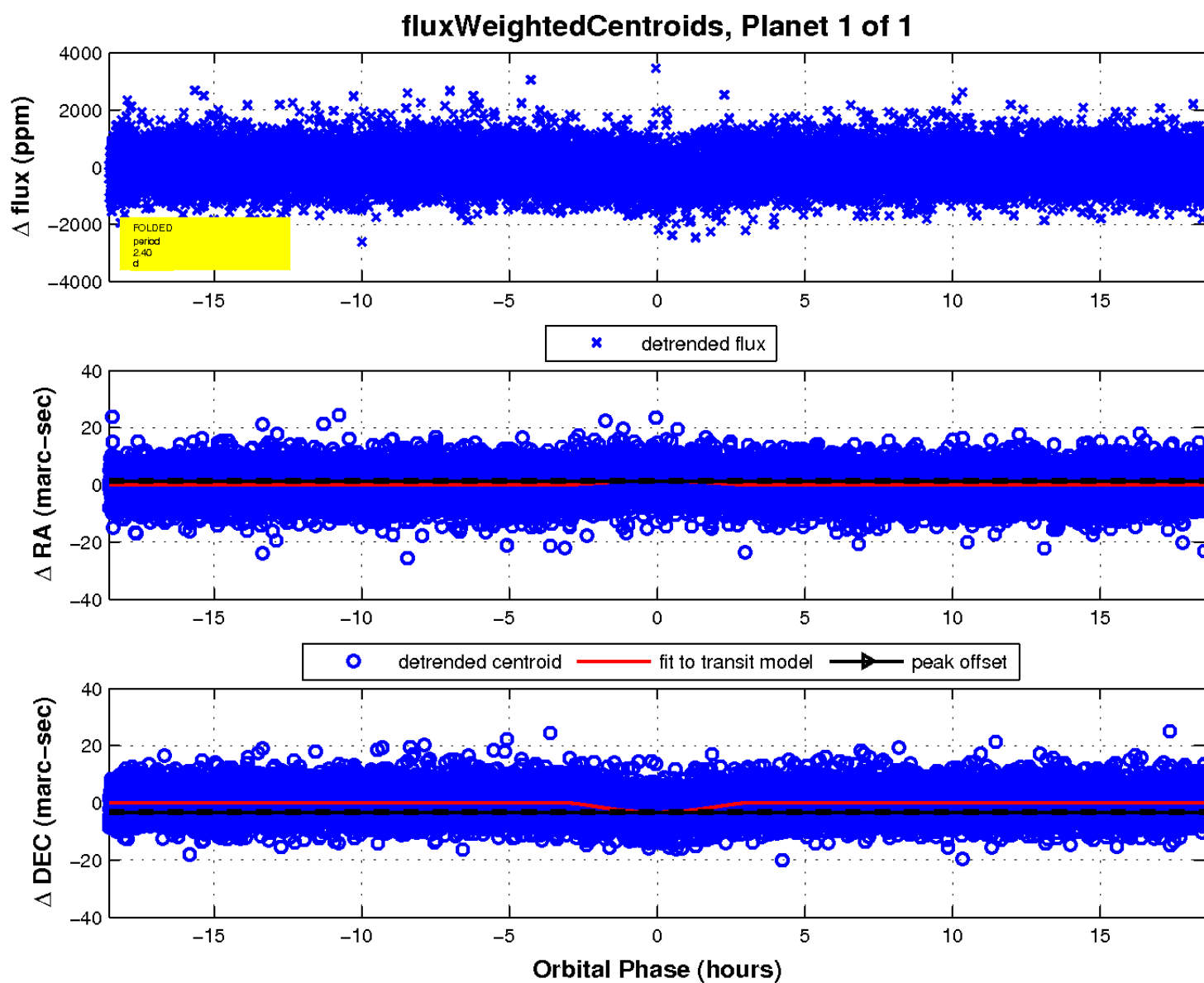
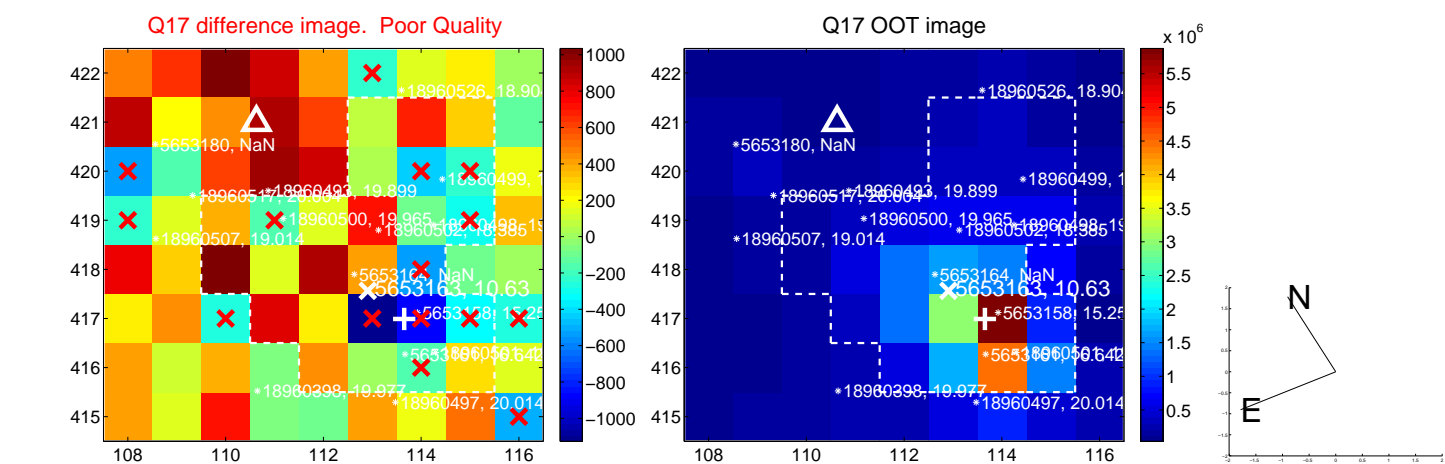
Q12 OOT image



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

