

# KIC 003858943

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003858943-01	OBS	7674.01	25.952971	154.870773	126.7	12.383	7.2	6.6	1.11	6370	1.40	55.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003858943-01	OBS	FP	0.00	0	0	1	1	CENT_KIC_POS—HALO_GHOST—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.

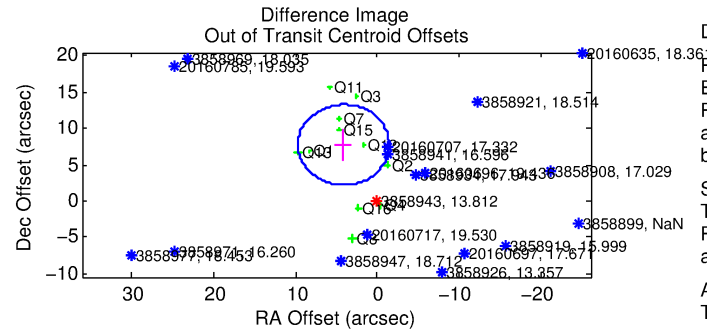
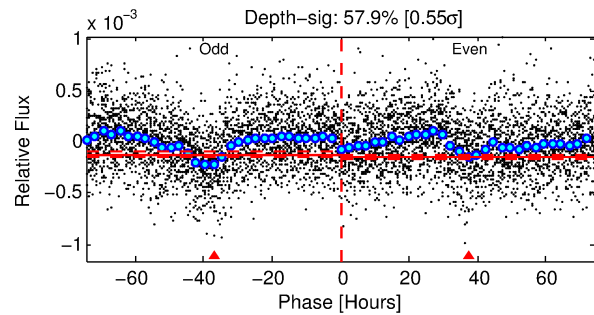
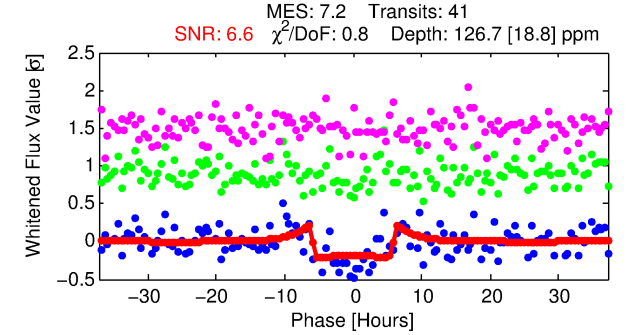
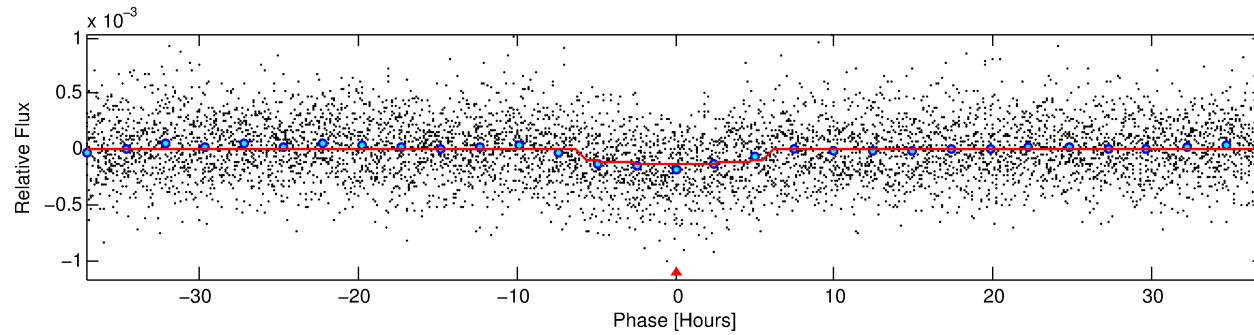
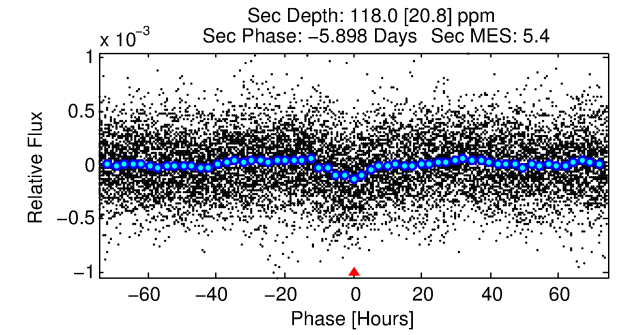
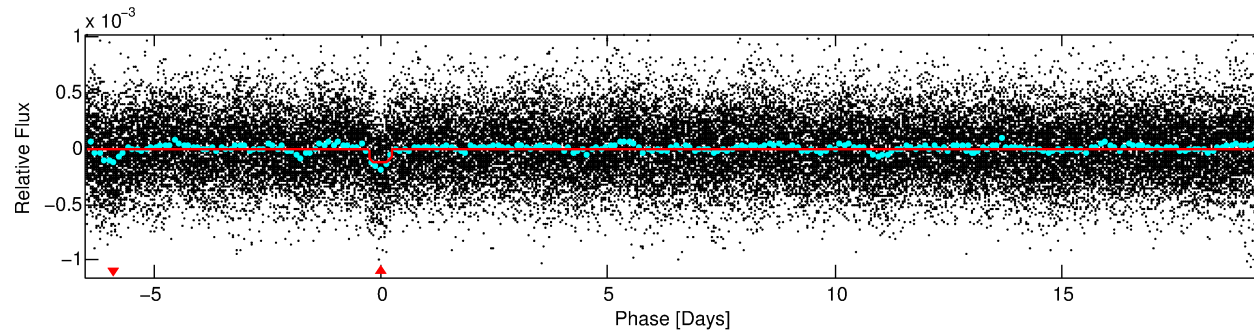
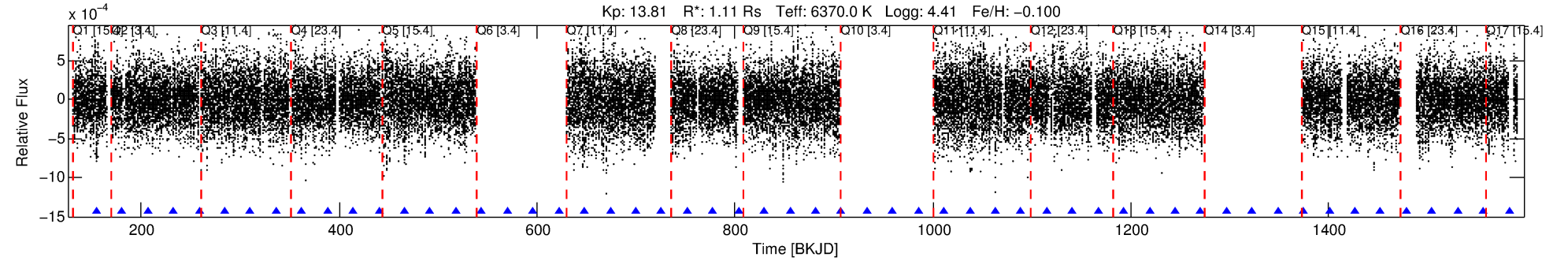
## Ephemeris Match Information For 003858943-01

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	$\sigma_P$	$\sigma_T$
003858943-01	3858943	003858884-01	3858884	1:1	96.4	-24	-3	9.28	13.82	3138.30	Direct-PRF	0	1.44	0.44

**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: 3858943 Candidate: 1 of 1 Period: 25.953 d



## DV Fit Results:

Period = 25.95297 [0.00041] d  
Epoch = 154.8708 [0.0124] BKJD  
Rp/R\* = 0.0116 [0.0021]  
a/R\* = 9.01 [7.43]  
b = 0.84 [0.29]  
Seff = 55.94 [23.35]  
Teff = 697 [73] K  
Rp = 1.40 [0.53] Re  
a = 0.1796 [0.0499] AU  
Ag = 1063.74 [600.76] [1.77 $\sigma$ ]  
Teffp = 6157 [642] K [8.45 $\sigma$ ]

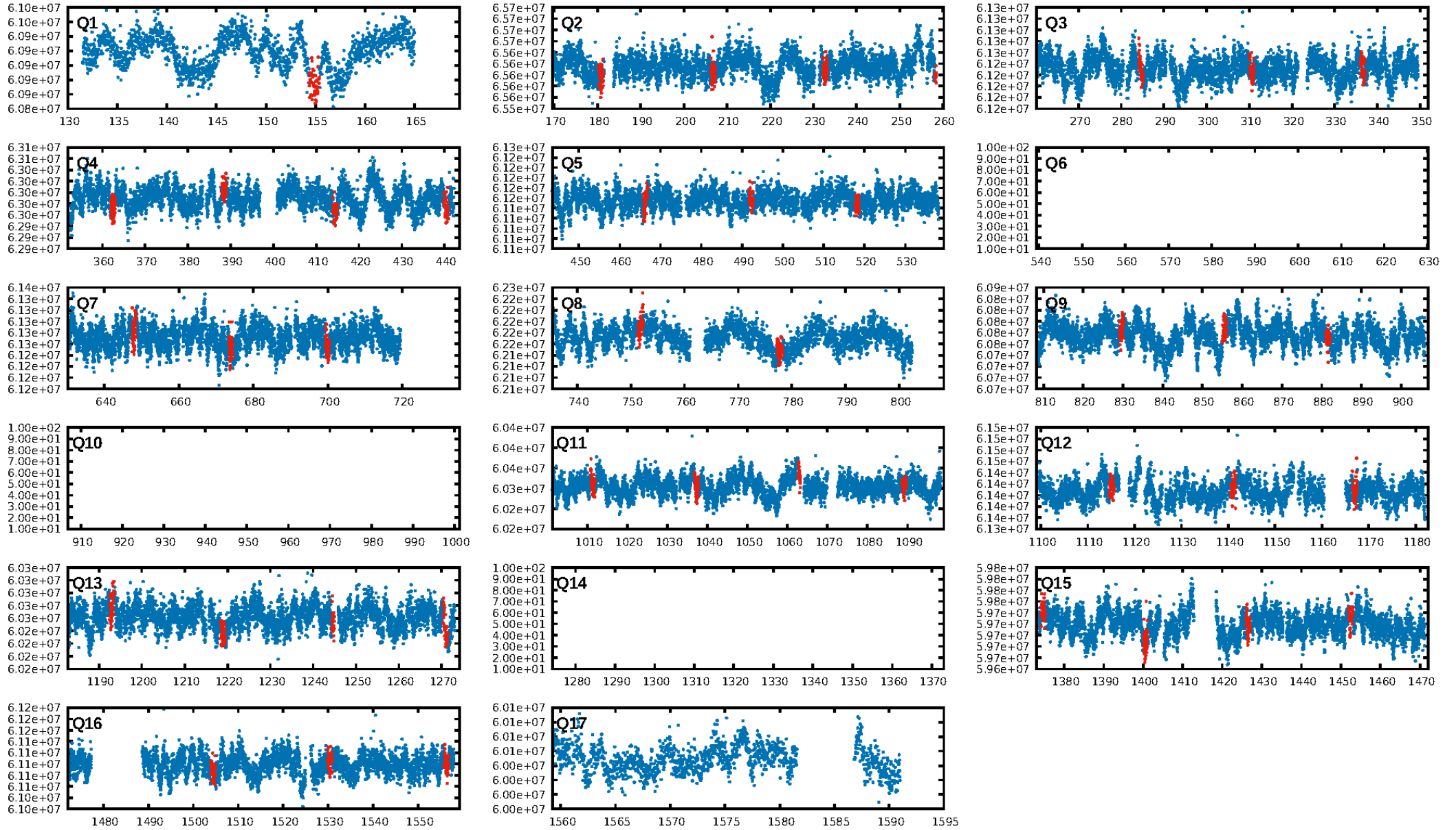
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 69.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.49e-12  
RollingBand-fgt: 1.00 [40/40]  
GhostDiagnostic-chr: -0.2197  
Centroid-sig: 0.0%  
Centroid-so: 4.980 arcsec [4.67 $\sigma$ ]  
OotOffset-rm: 8.770 arcsec [4.74 $\sigma$ ]  
KicOffset-rm: 2.801 arcsec [2.17 $\sigma$ ]  
OotOffset-st: 1/4/4/2 [11]  
KicOffset-st: 1/4/4/2 [11]  
DiffImageQuality-fgm: 0.00 [0/11]  
DiffImageOverlap-fno: 1.00 [13/13]

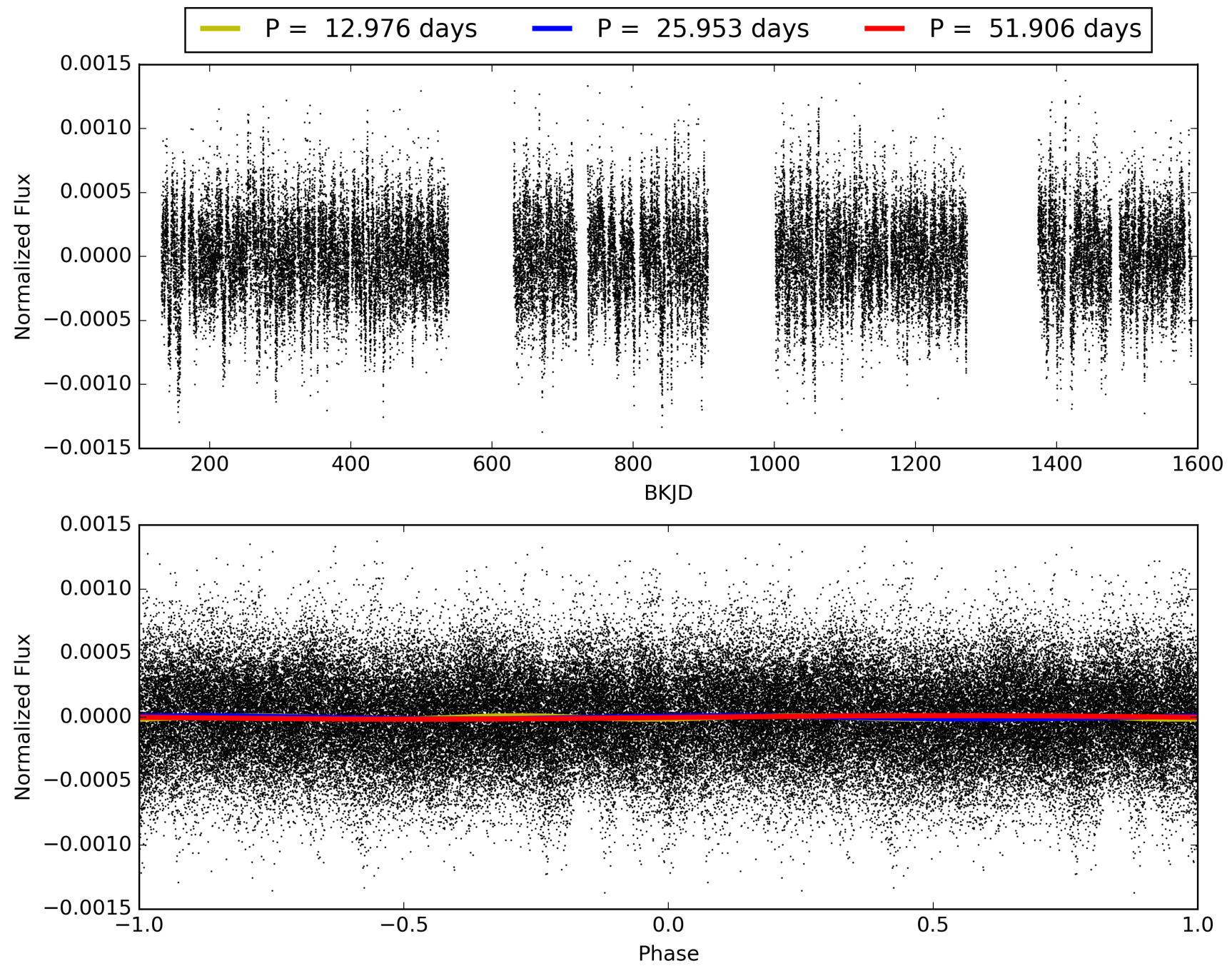
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 11:52:13 Z

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

# TCE 003858943-01, PDC Light Curves



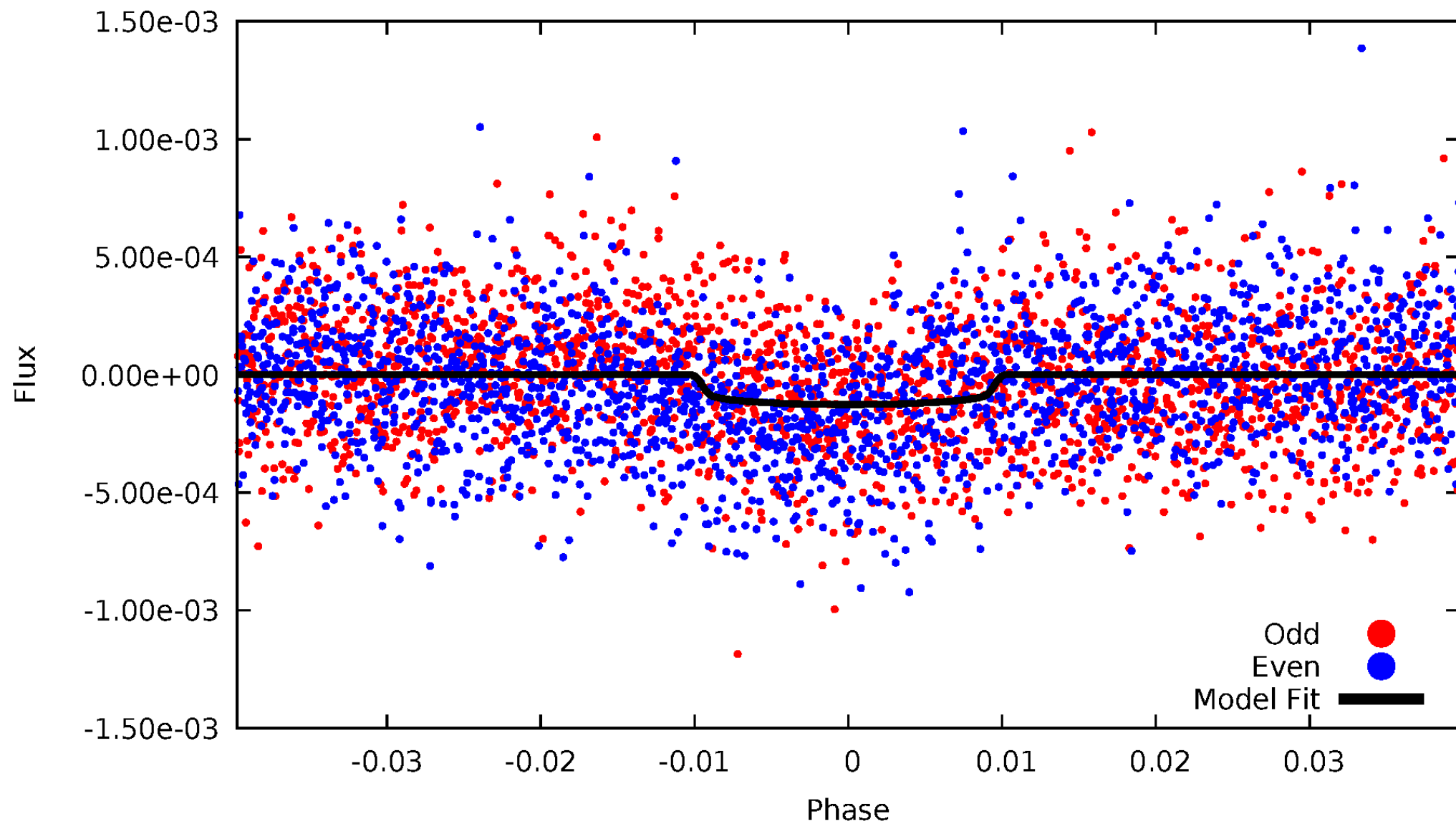
TCE 003858943-01





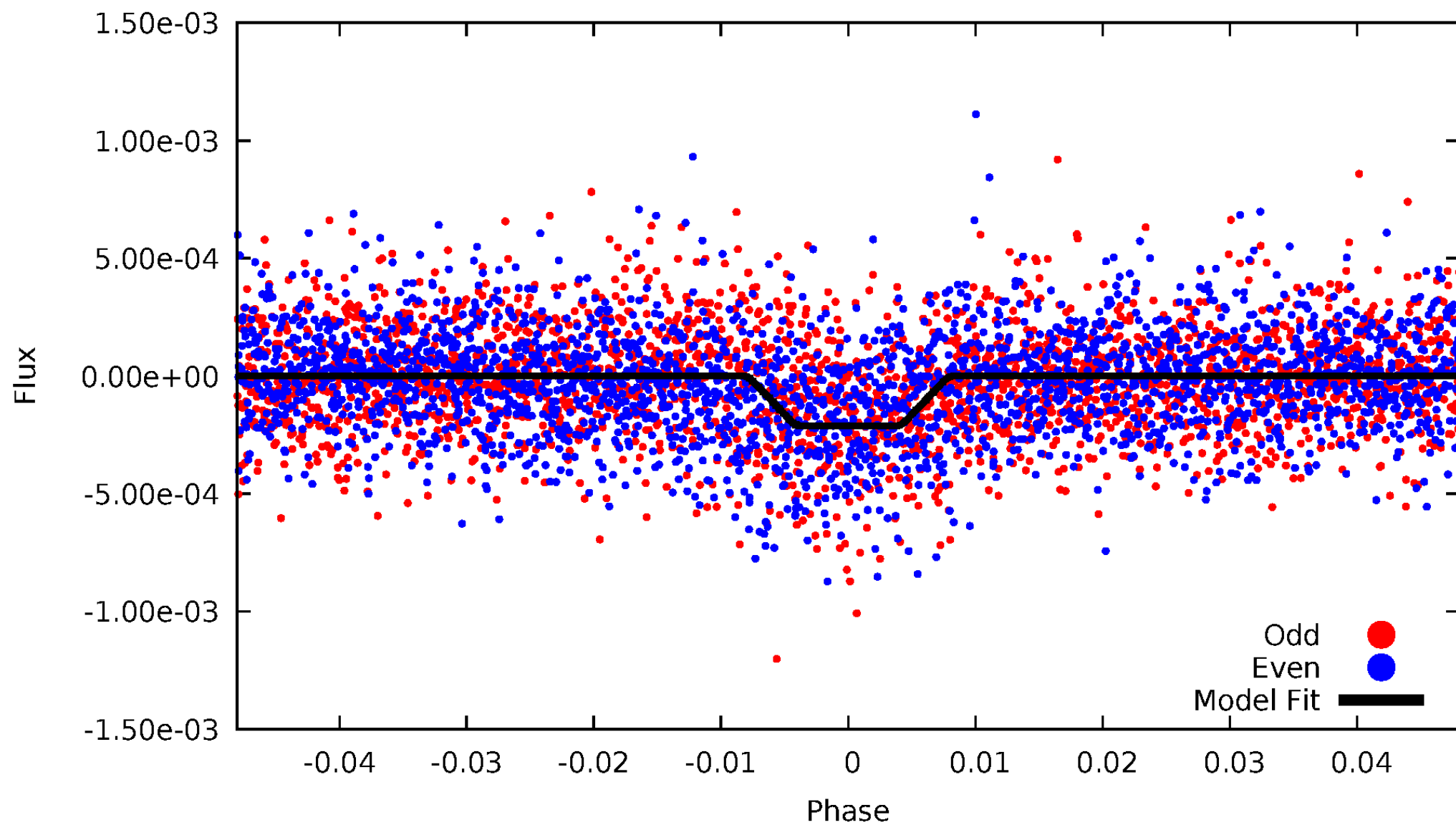
# DV Odd/Even

TCE 003858943-01

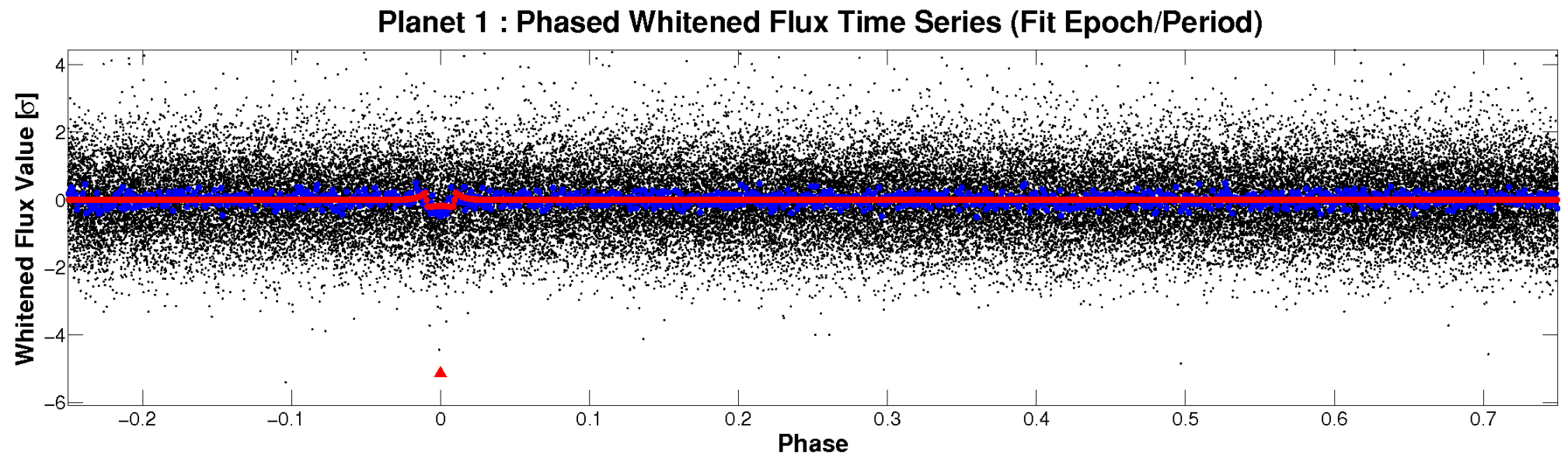
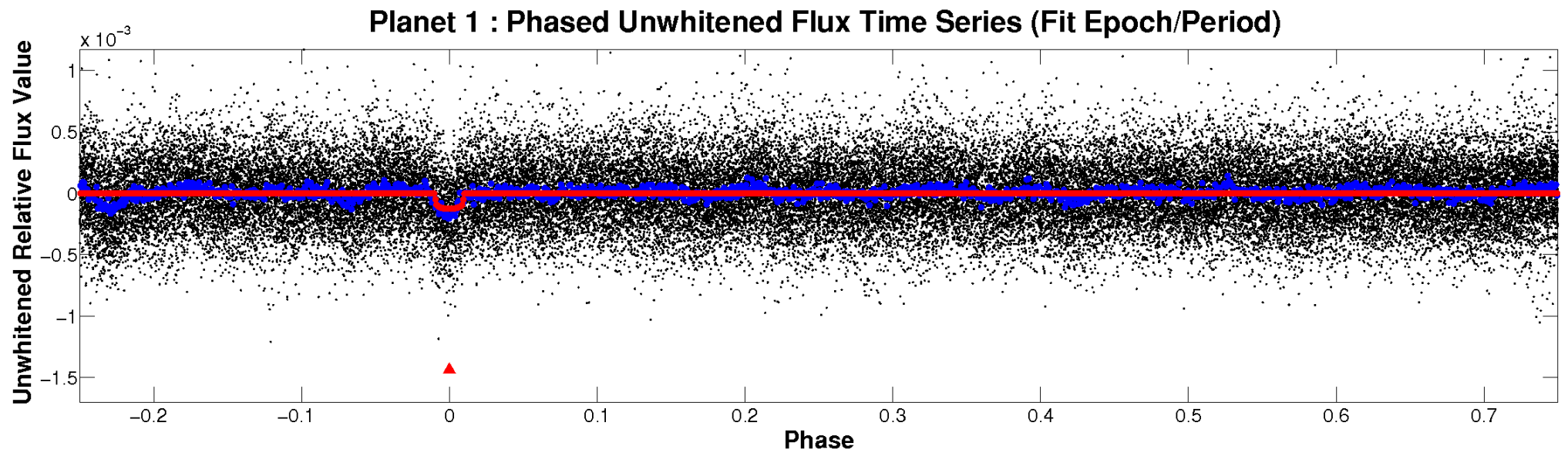


# ALT Odd/Even

TCE 003858943-01

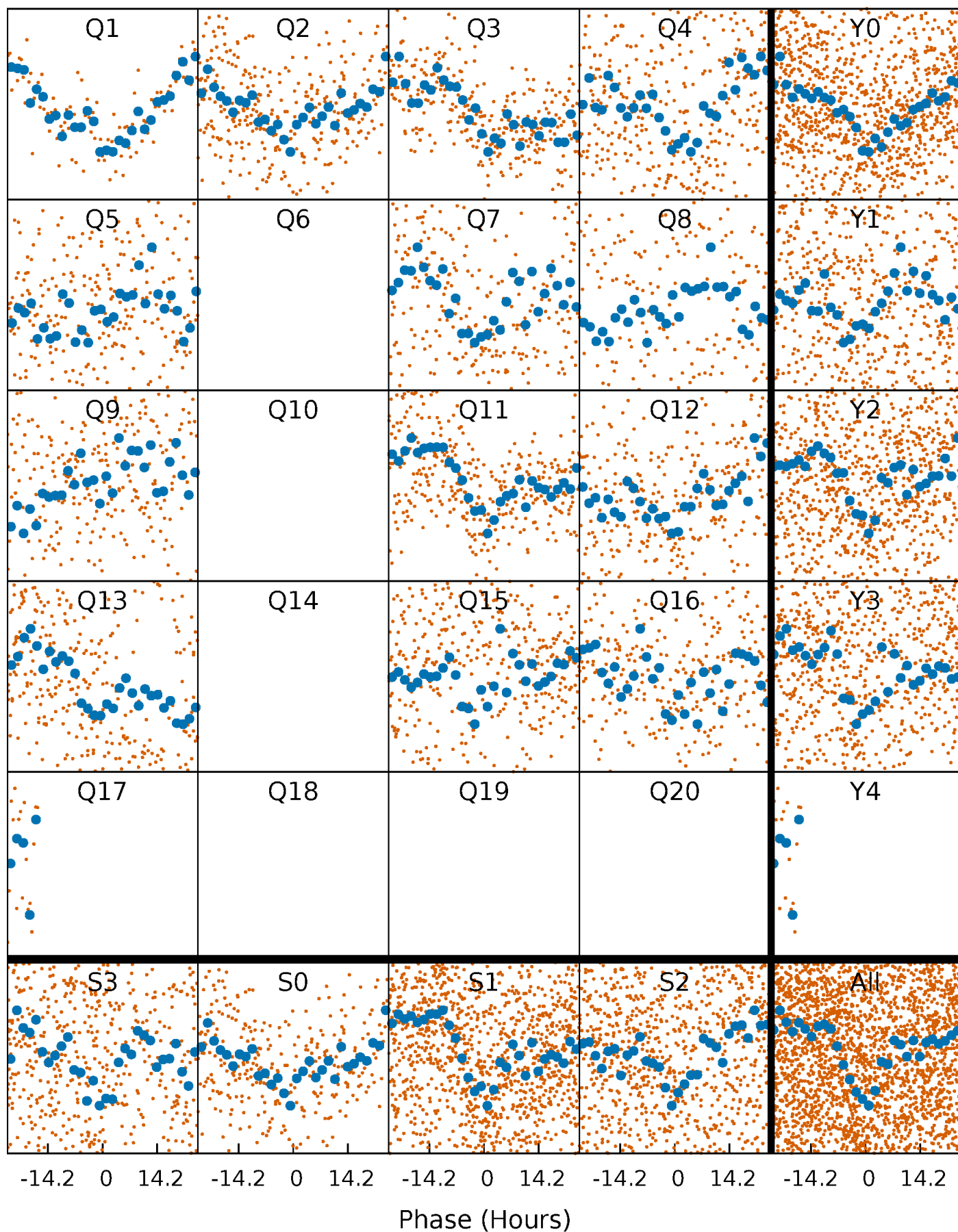


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

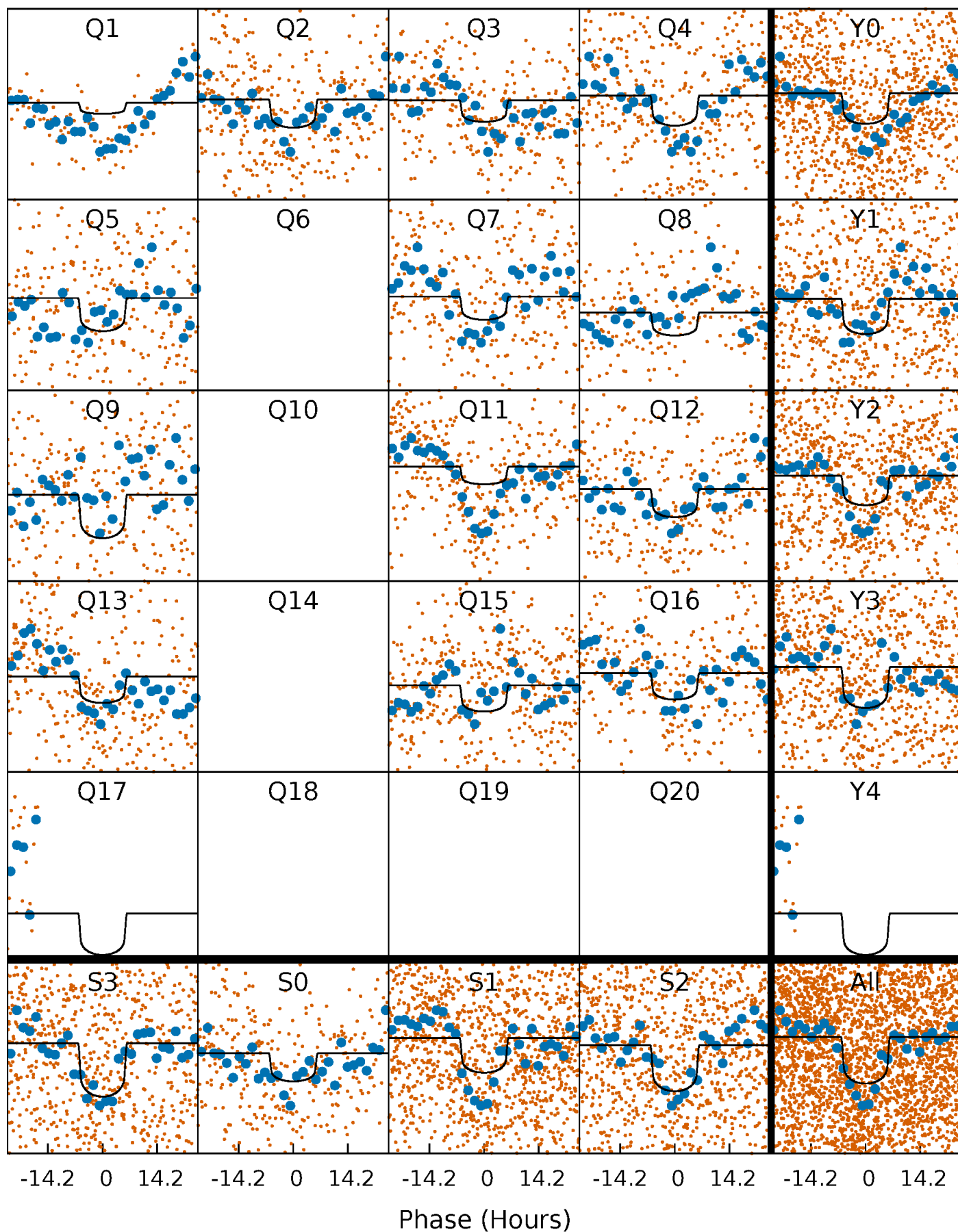
TCE 003858943-01 P= 25.952971 Days  $T_0=154.870772$  (BKJD)





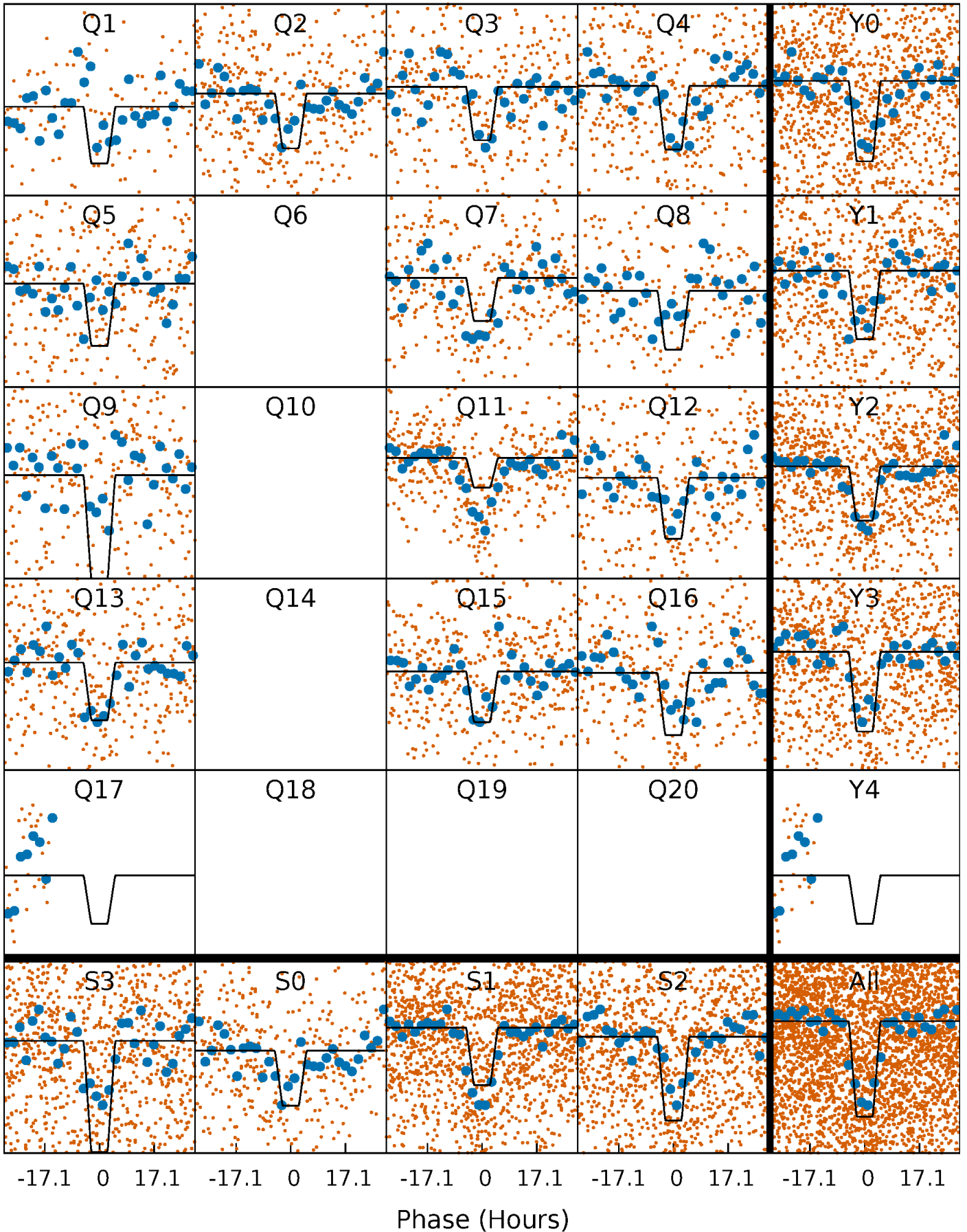
# DV Quarter-Phased Transit Curves

TCE 003858943-01 P= 25.952971 Days  $T_0=154.870772$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

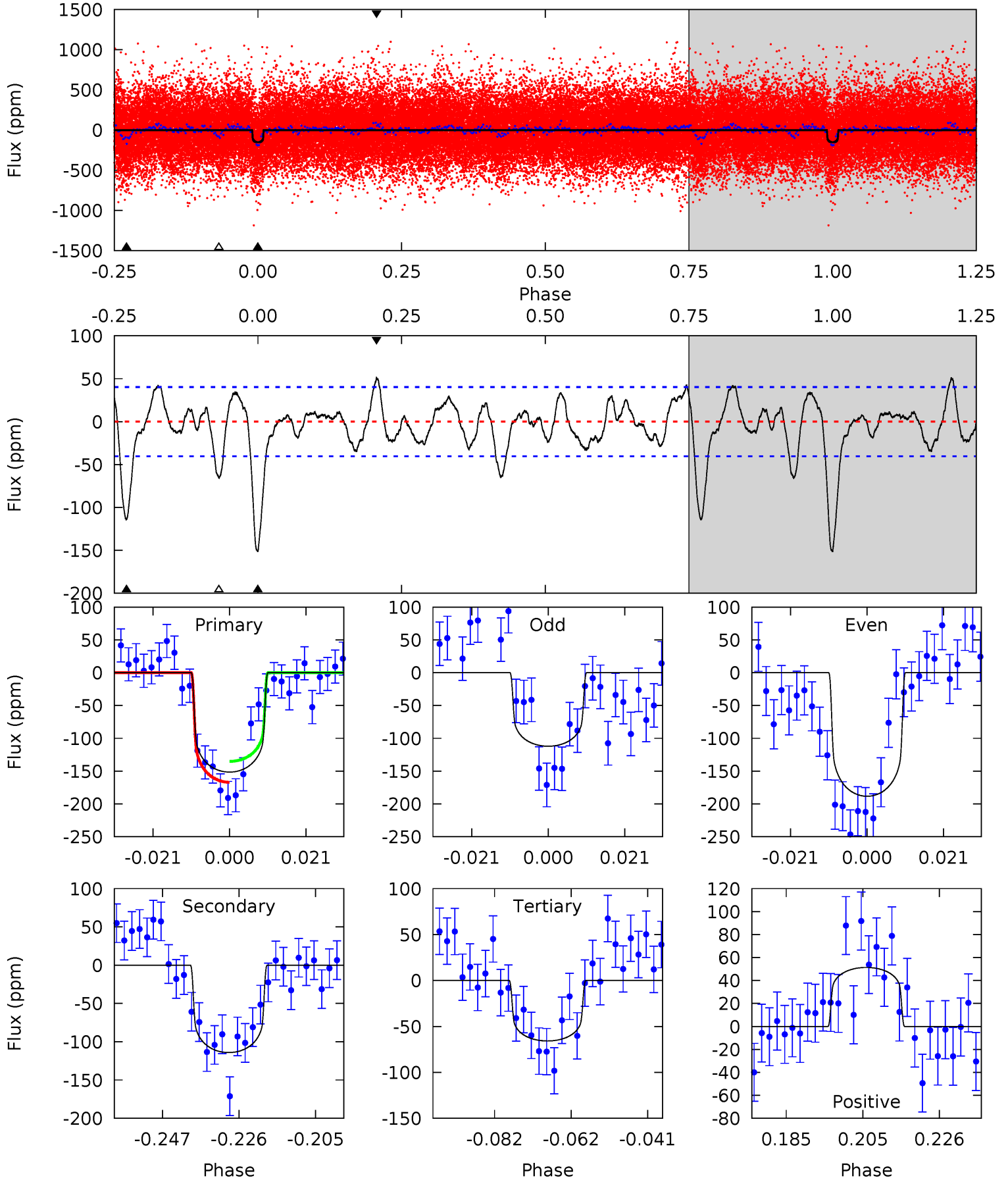
TCE 003858943-01 P= 25.950949 Days  $T_0=154.900985$  (BKJD)



# DV Model-Shift Uniqueness Test

003858943-01, P = 25.952971 Days, E = 128.917801 Days

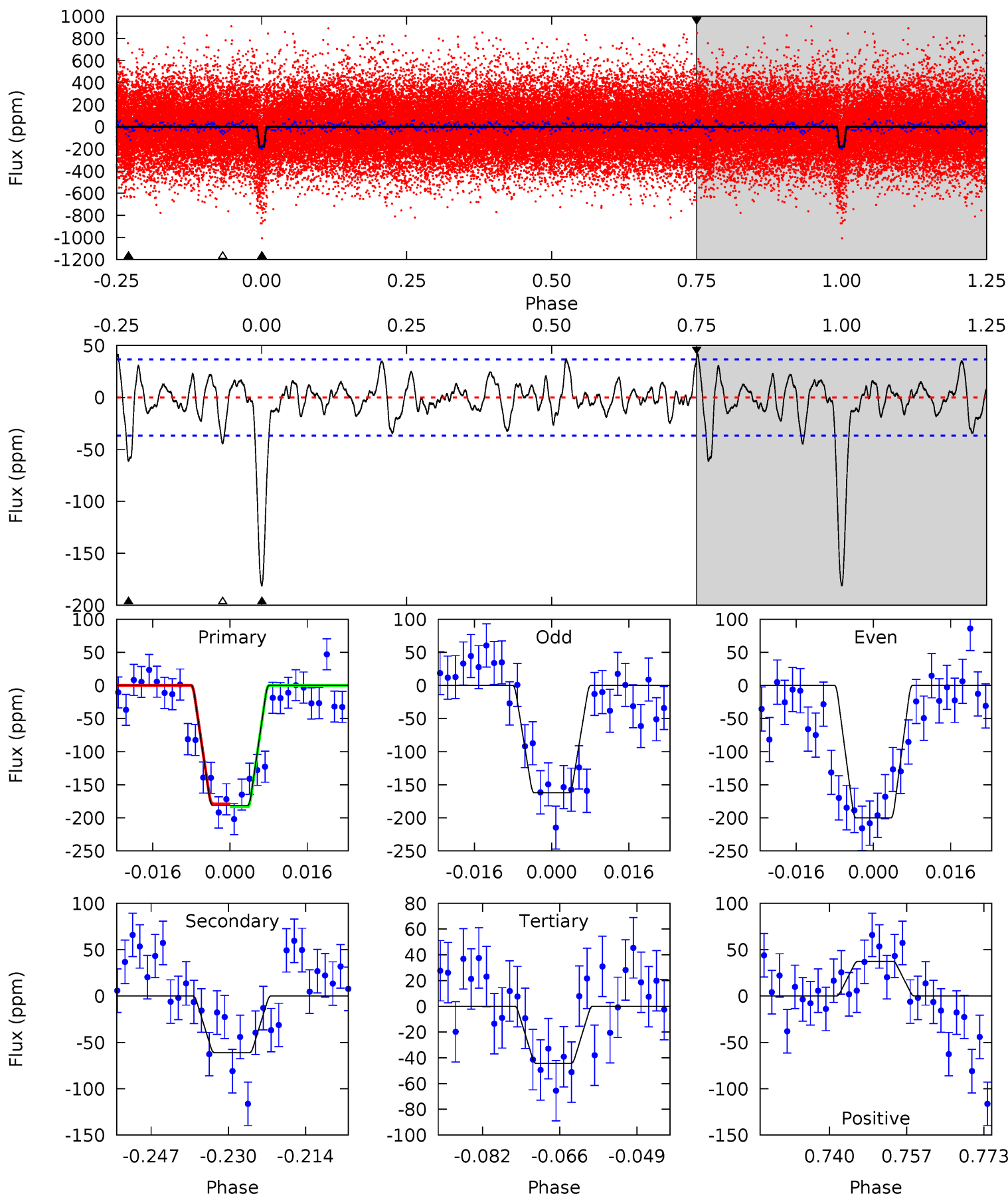
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	13.8	7.99	6.23	4.89	2.32	2.57	10.4	12.2	5.86	7.62	4.63	1.06	0.25	1.92



# Alt Model-Shift Uniqueness Test

003858943-01, P = 25.950949 Days, E = 128.950036 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
24.3	8.22	5.96	5.01	4.93	2.40	1.78	18.4	19.3	2.26	3.20	2.55	1.09	0.19	0.32



### Stellar Parameters For KIC 003858943

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6370^{+160}_{-192}$	$4.410^{+0.067}_{-0.216}$	$-0.100^{+0.250}_{-0.300}$	$1.106^{+0.370}_{-0.123}$	$1.148^{+0.169}_{-0.152}$	$1.194^{+0.337}_{-0.622}$
	+3%/-3%	+2%/-5%	+250%/-300%	+33%/-11%	+15%/-13%	+28%/-52%
Source	PHO1	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 003858943-01 / KOI 7674.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-114 \pm 8$	$1.47^{+0.32}_{-0.29}$	$988^{+68}_{-47}$	$6071^{+683}_{-488}$	$931^{+498}_{-299}$
Alt.	$-61 \pm 7$	$1.85^{+0.40}_{-0.32}$	$994^{+77}_{-48}$	$4764^{+340}_{-283}$	$305^{+148}_{-94}$

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



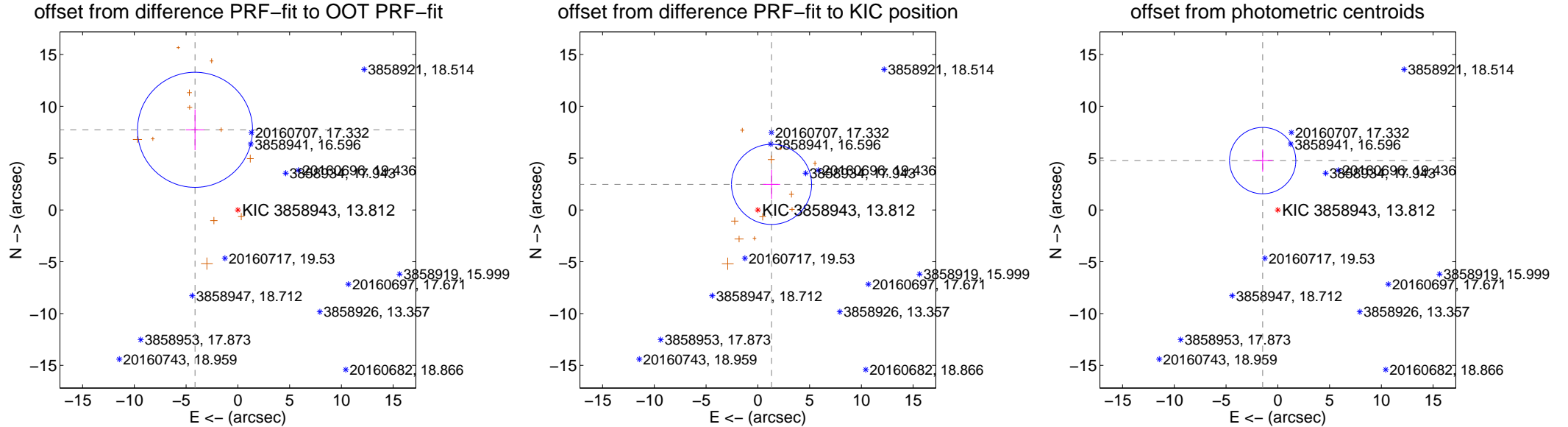
## DV Centroid Data

Supplemental centroid analysis for 003858943-01. Kepler magnitude: 13.81. Transit SNR 6.59

There are 0 quarters with good PRF difference image offsets

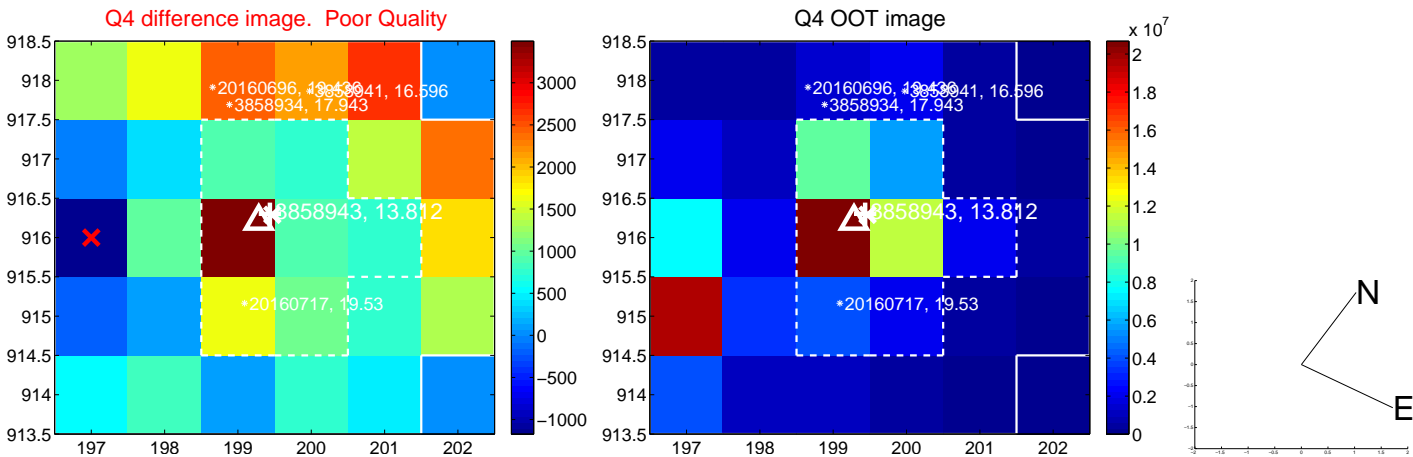
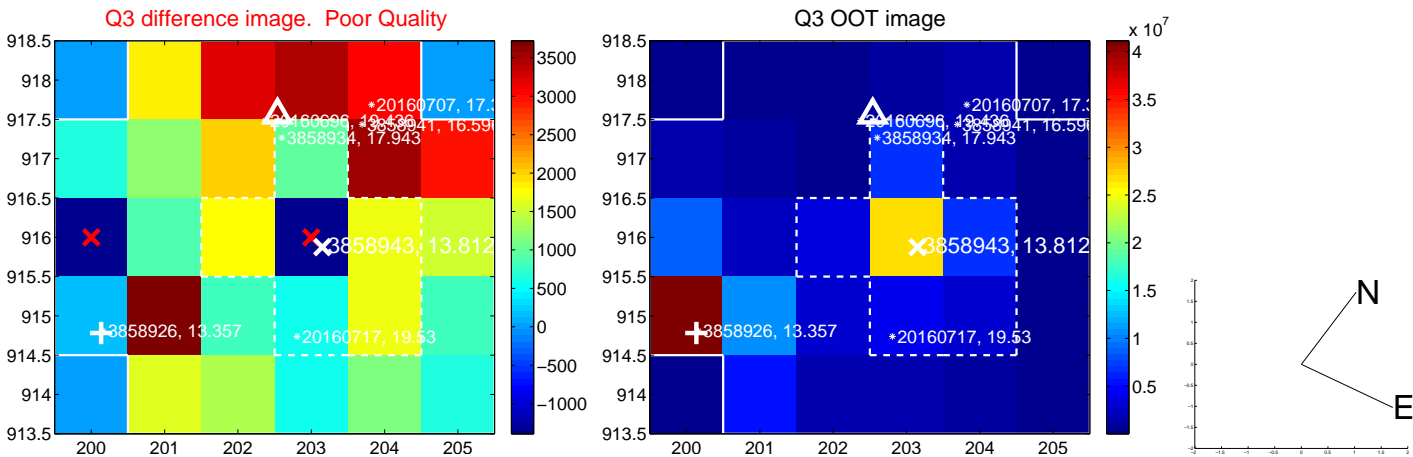
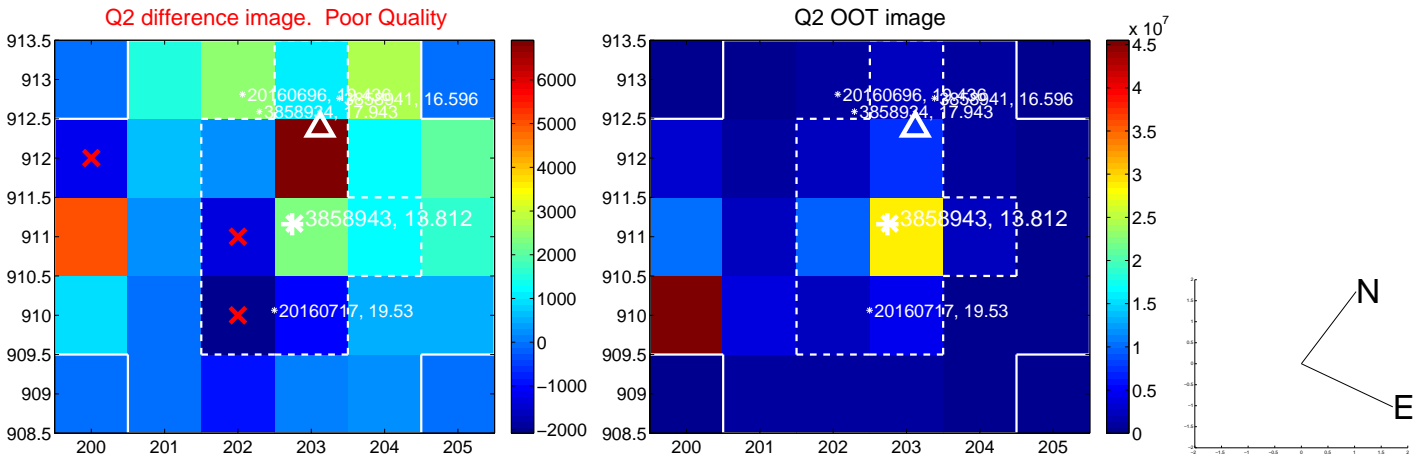
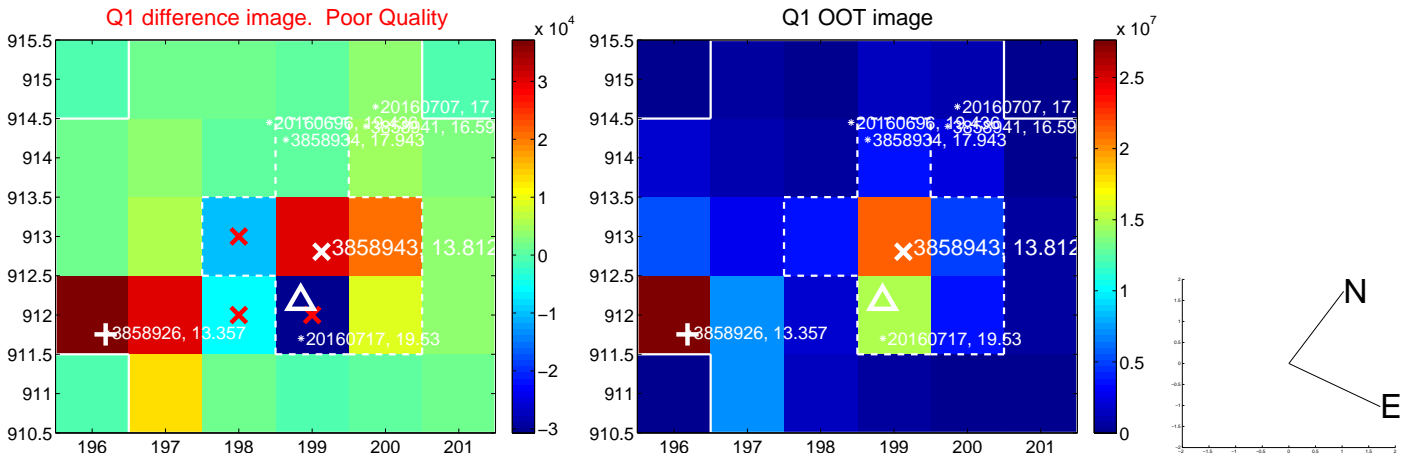
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	8.770 $\pm$ 1.851	4.74	4.136 $\pm$ 0.881	7.734 $\pm$ 1.966
PRF-fit source offset from KIC position	2.801 $\pm$ 1.289	2.17	-1.324 $\pm$ 0.826	2.469 $\pm$ 1.394
photometric centroid source offset	4.98 $\pm$ 1.07	4.67	1.46 $\pm$ 0.98	4.76 $\pm$ 1.07

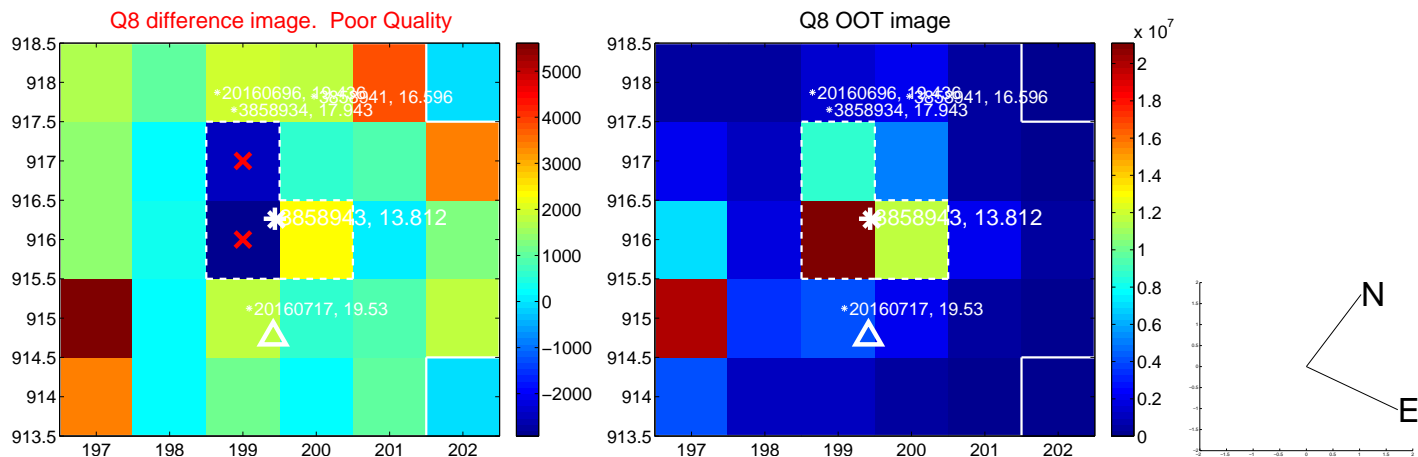
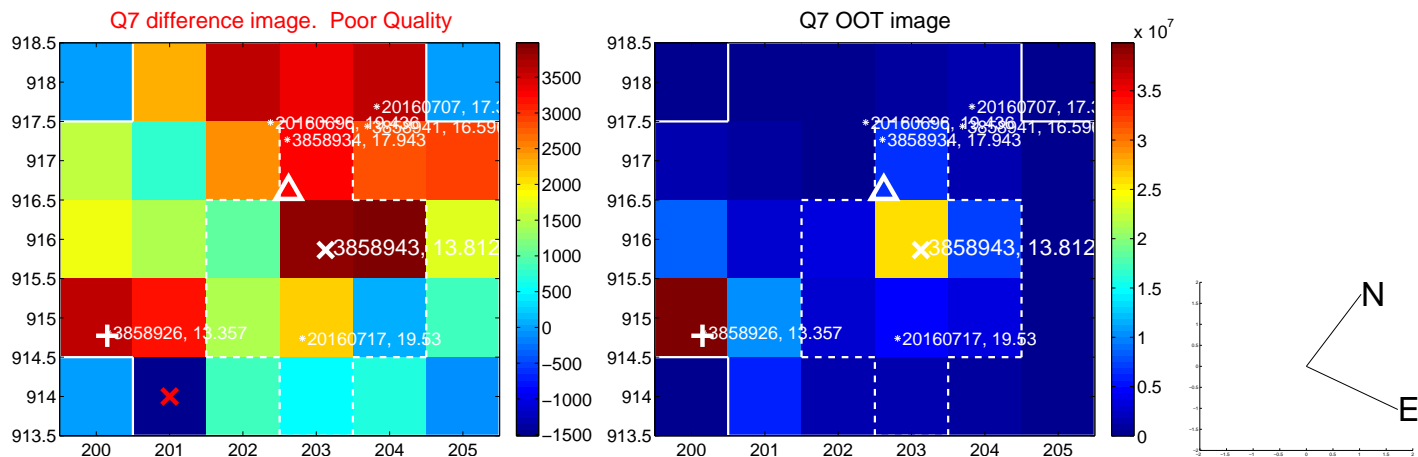
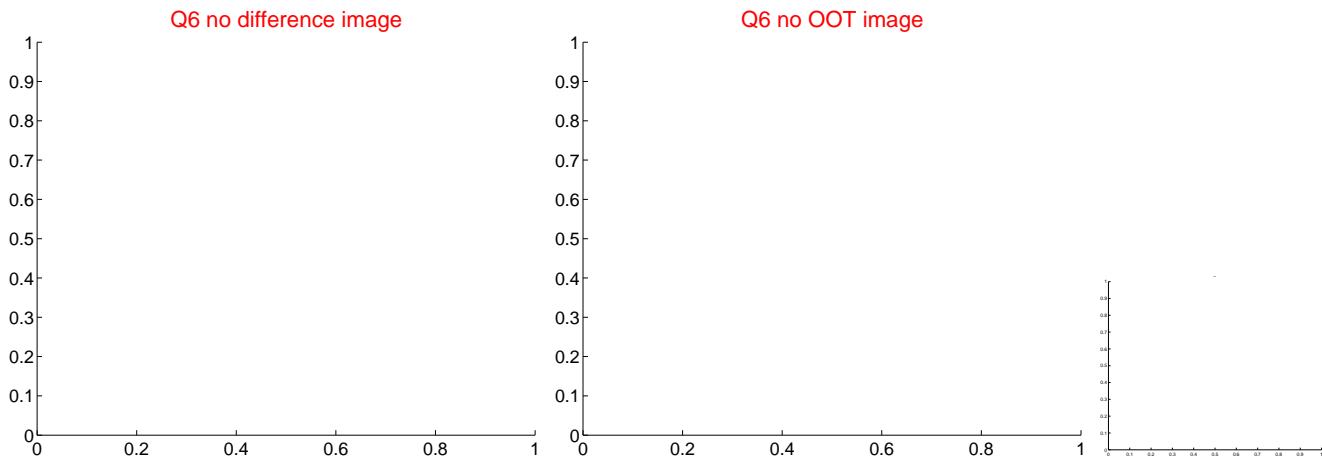
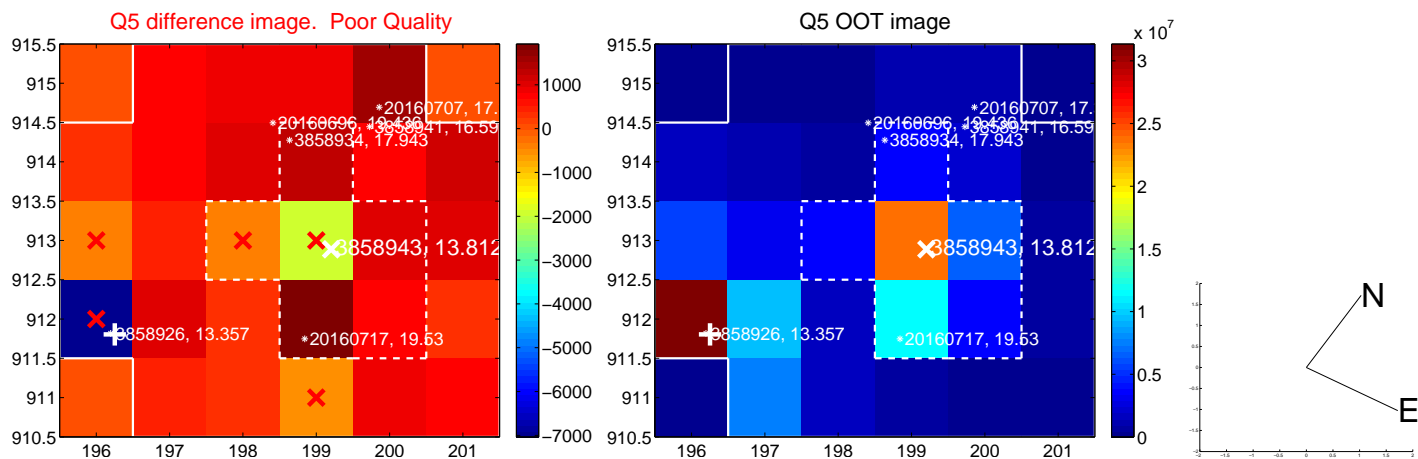


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

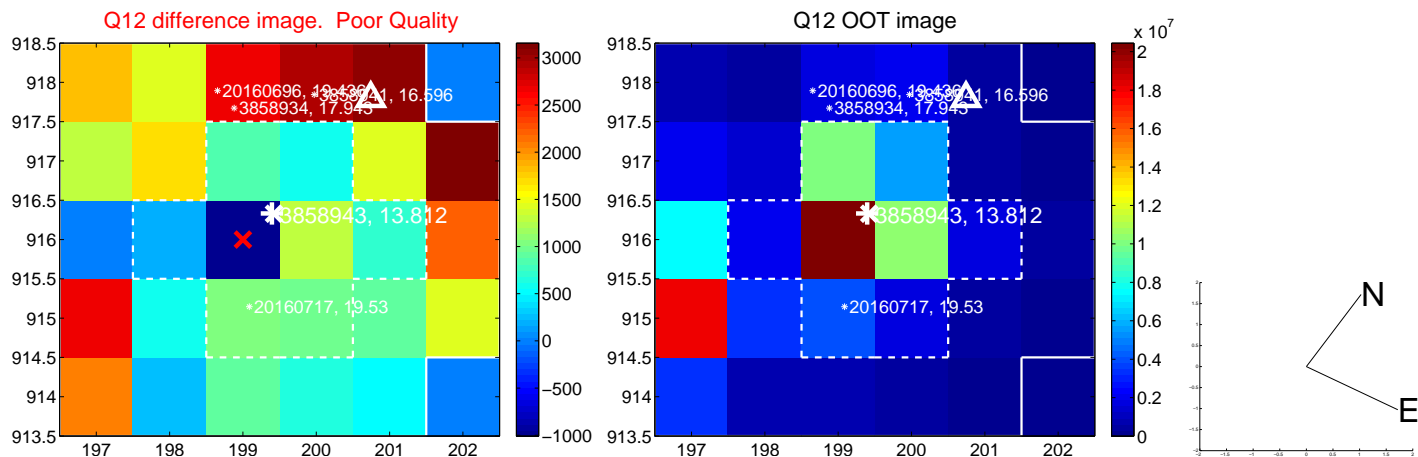
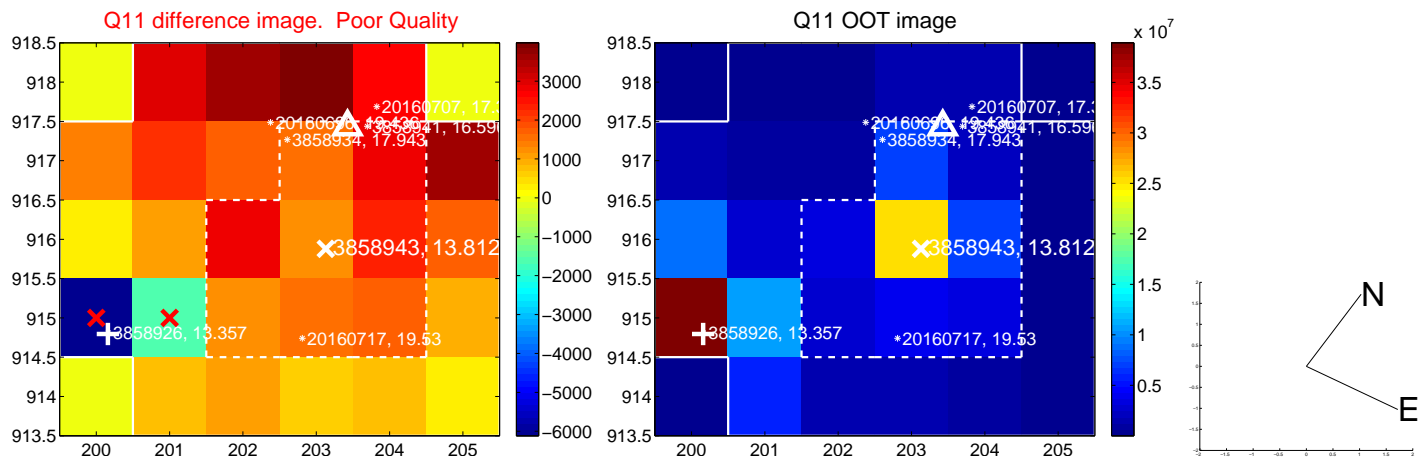
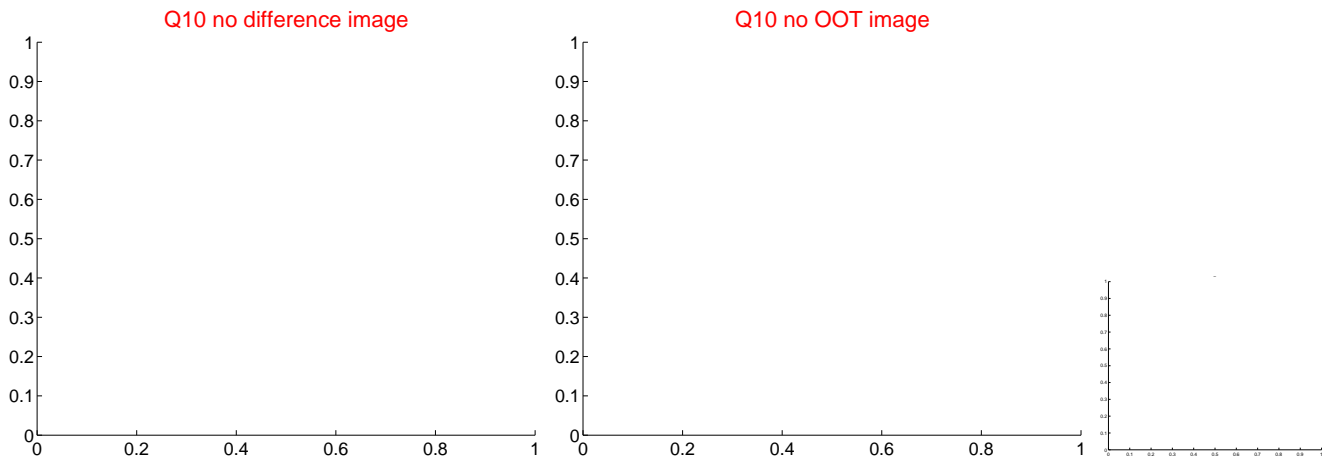
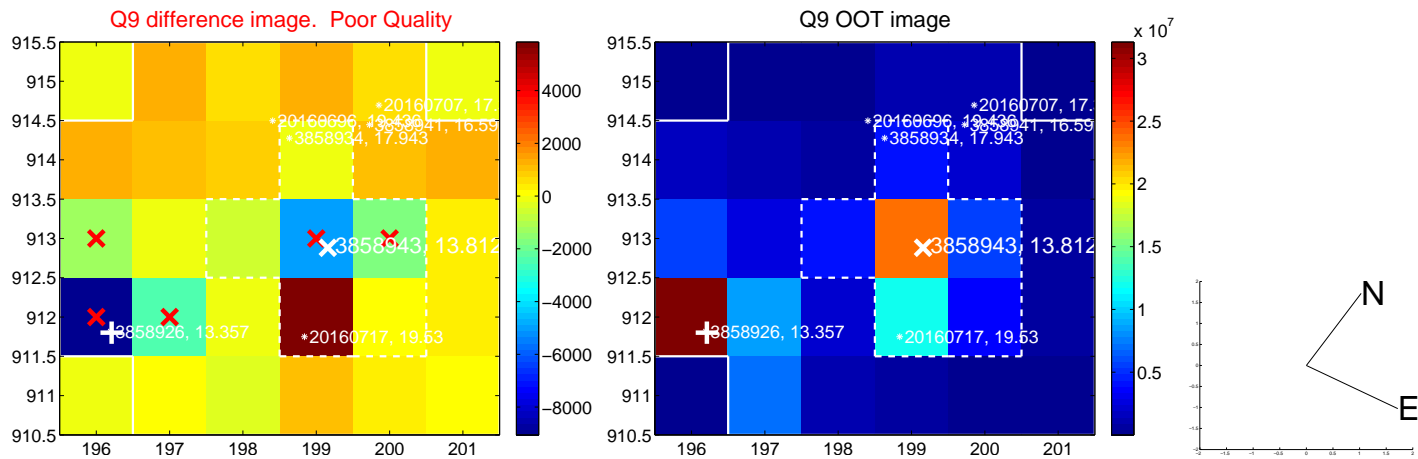
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



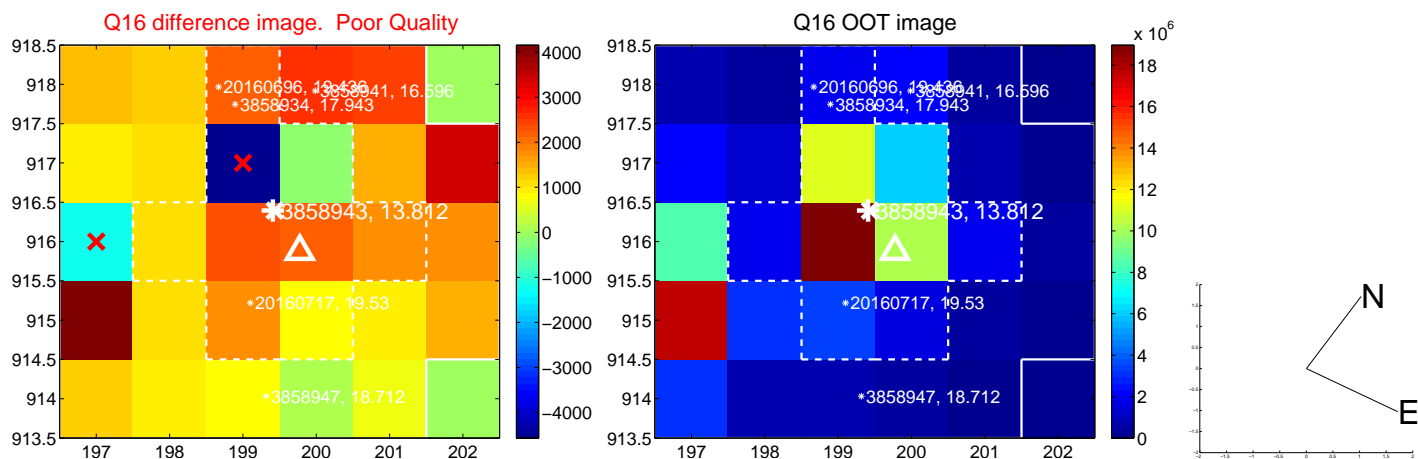
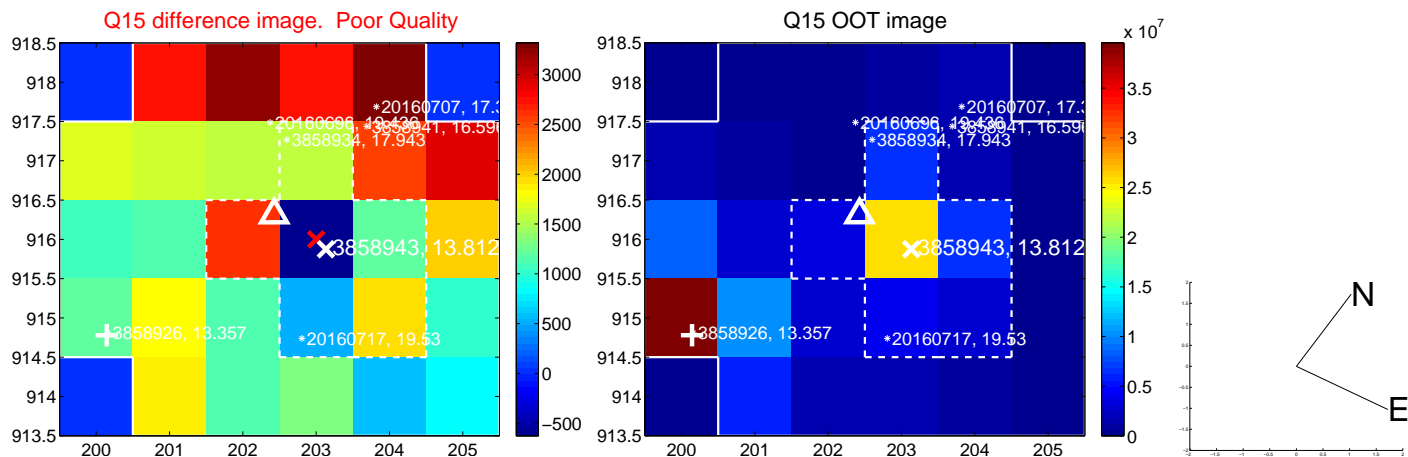
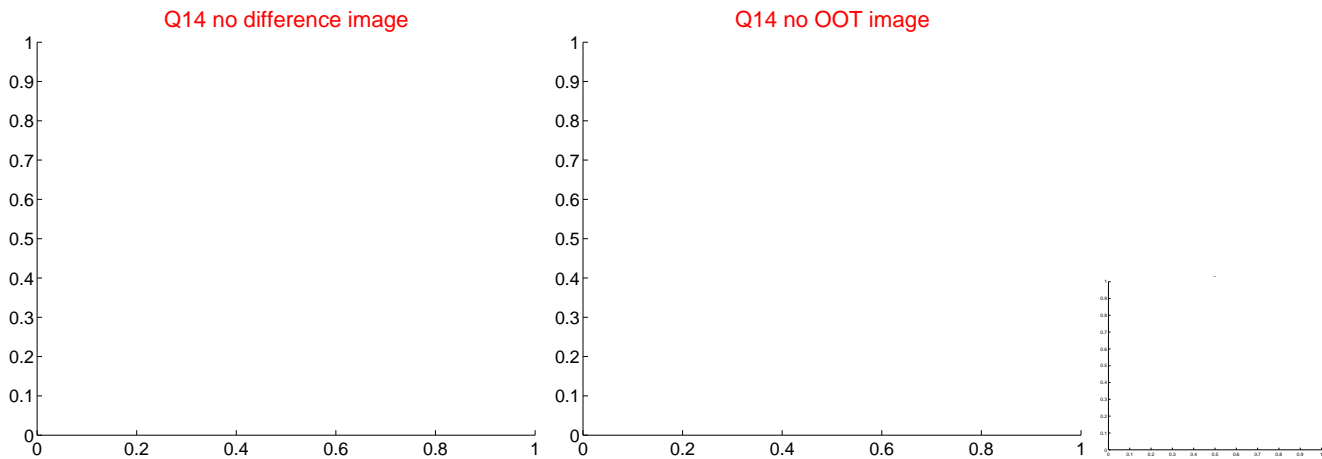
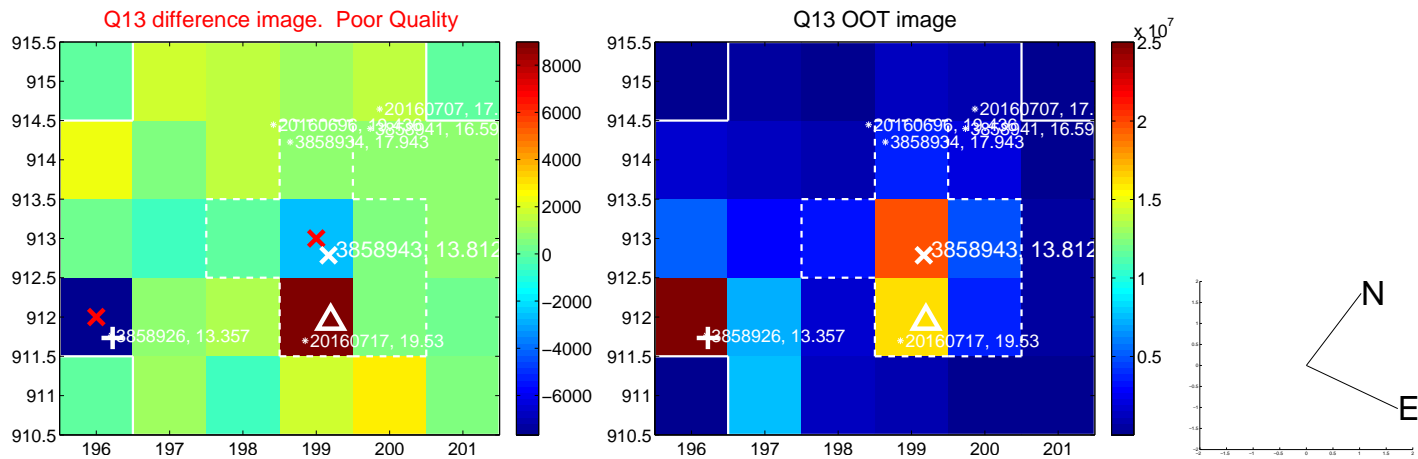
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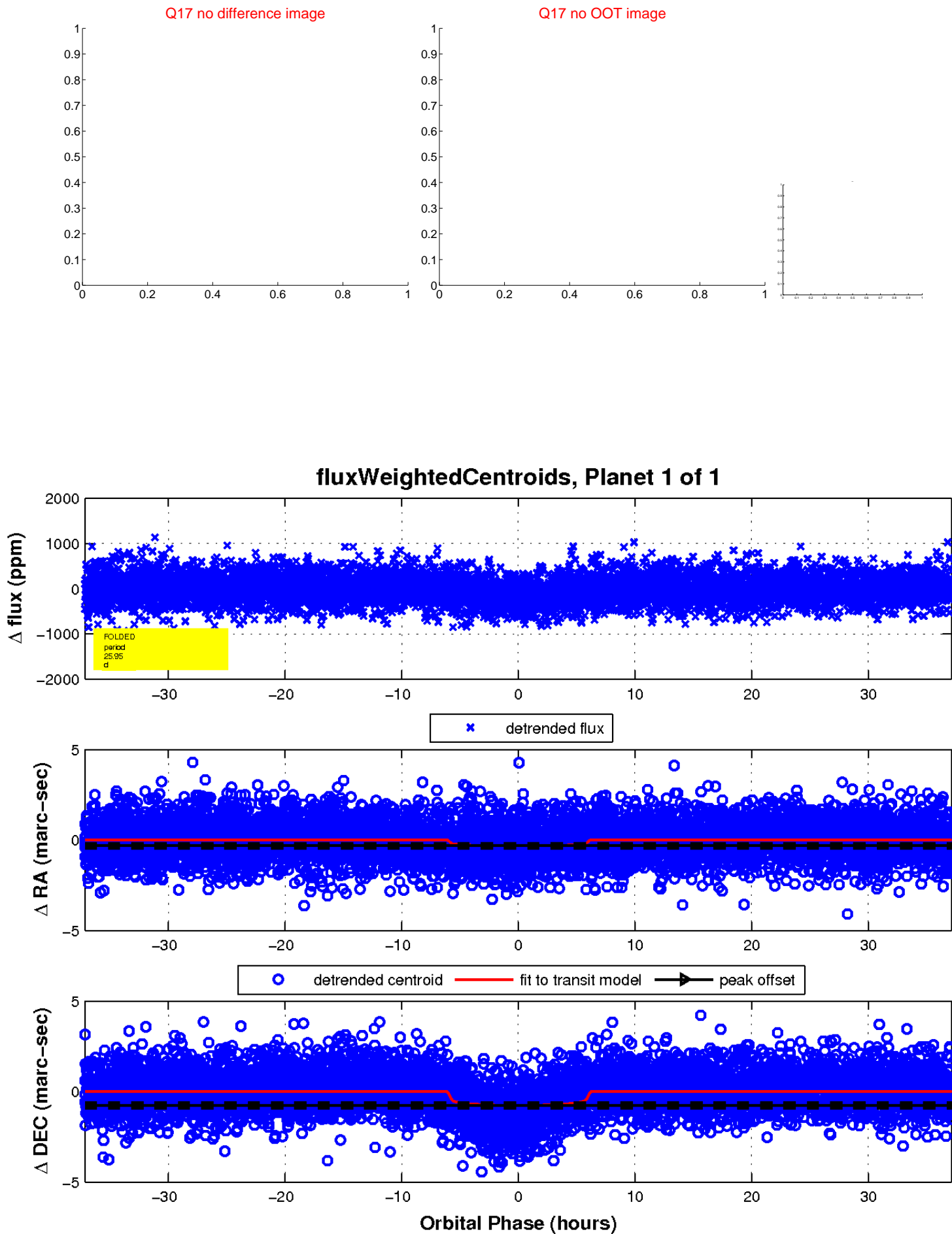


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

