

# KIC 008703884

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008703884-01	OBS	1262.01	14.170996	133.092886	2955.4	3.718	122.1	100.9	0.78	5107	4.57	32.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008703884-01	OBS	FP	0.00	0	0	1	1	CENT_RESOLVED_OFFSET—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 008703884-01

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	$\sigma_P$	$\sigma_T$
008703884-01	8703884	008703887-pri	8703887	1:1	12.4	-1	-3	11.05	15.37	5.21	Direct-PRF	0	0.04	0.05

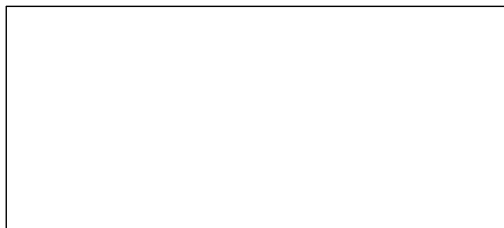
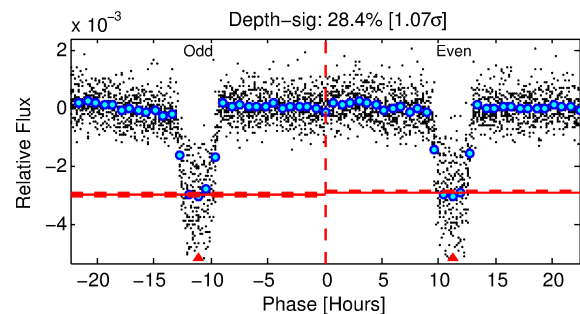
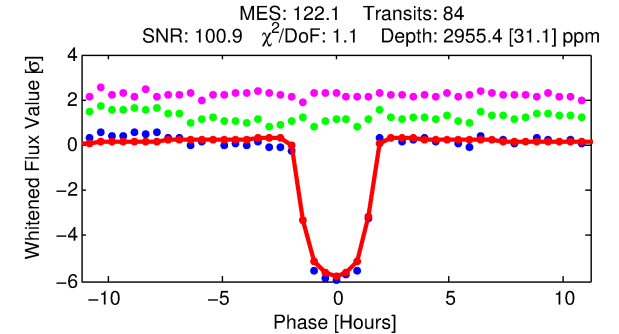
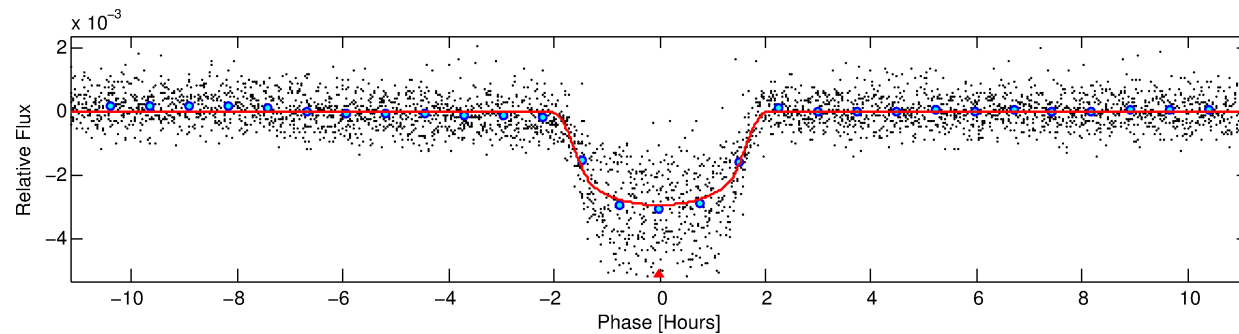
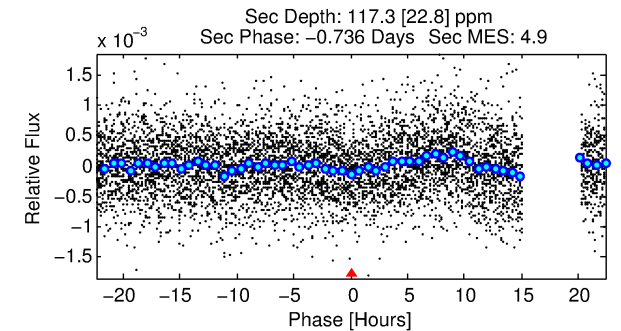
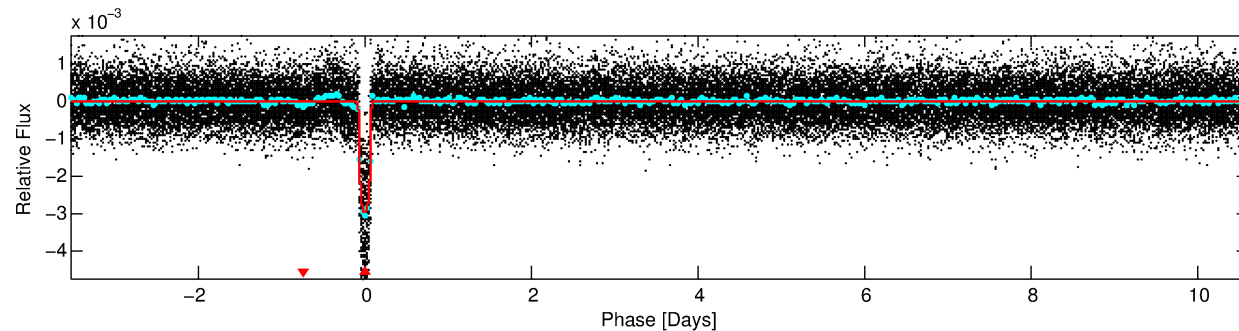
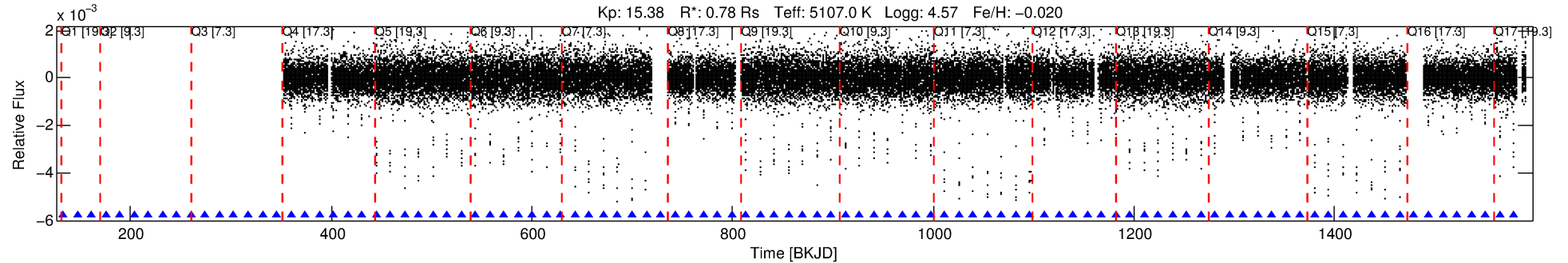
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  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: 8703884 Candidate: 1 of 1 Period: 14.171 d

KOI: K01262.01 Corr: 0.969

Kp: 15.38 R\*: 0.78 Rs Teff: 5107.0 K Logg: 4.57 Fe/H: -0.020



## DV Fit Results:

Period = 14.17100 [0.00002] d  
Epoch = 133.0929 [0.0011] BKJD  
Rp/R\* = 0.0539 [0.0027]  
a/R\* = 22.12 [3.85]  
b = 0.73 [0.11]  
Seff = 32.26 [6.35]  
Teq = 608 [30] K  
Rp = 4.57 [0.61] Re  
a = 0.1068 [0.0107] AU  
Ag = 35.30 [9.13] [3.76σ]  
Teffp = 2290 [149] K [11.09σ]

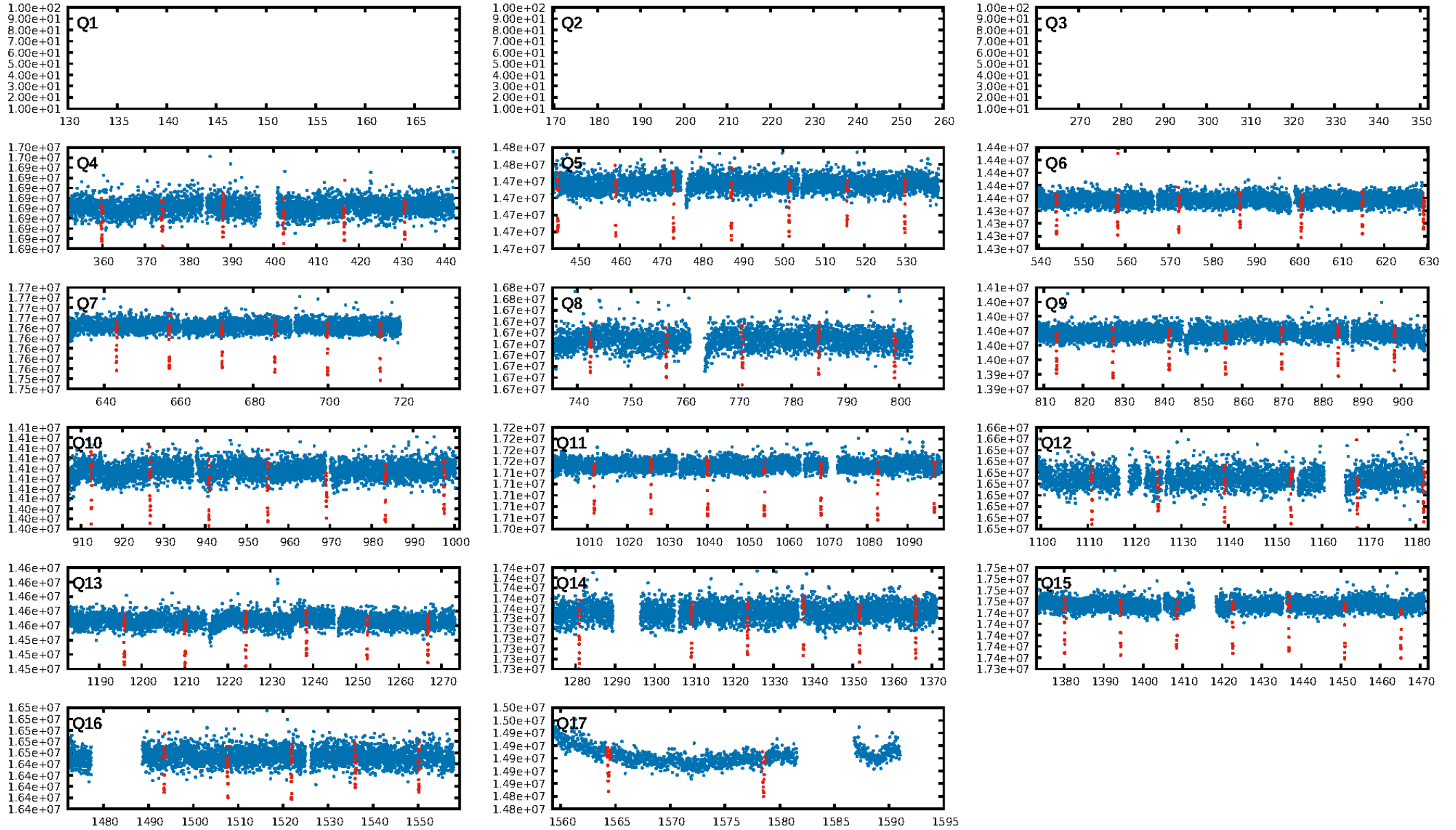
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 7.3%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [82/82]  
GhostDiagnostic-chr: -0.62  
Centroid-sig: 0.0%  
Centroid-so: 7.813 arcsec [255.27σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [14/14]

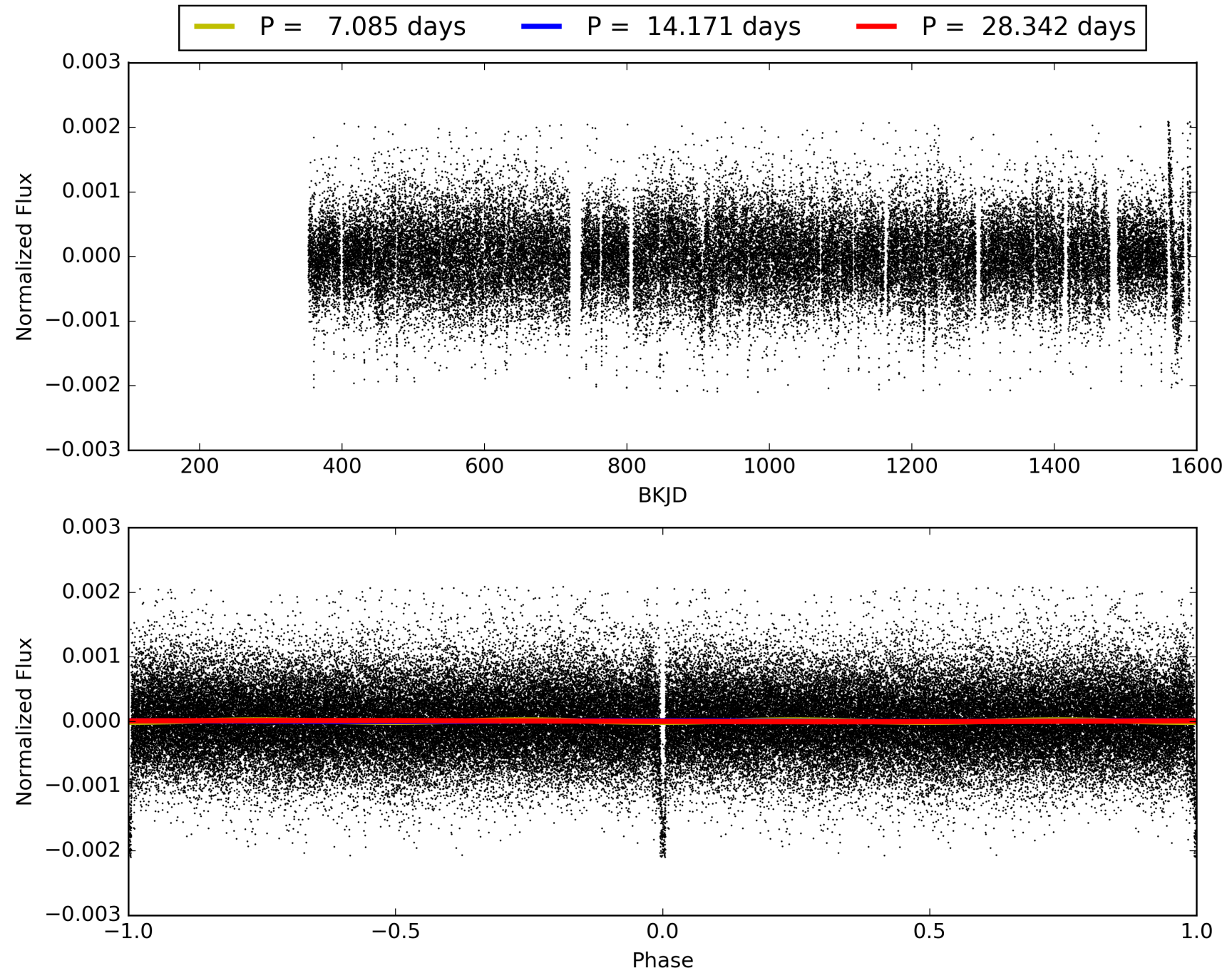
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:17:49 Z

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

# TCE 008703884-01, PDC Light Curves

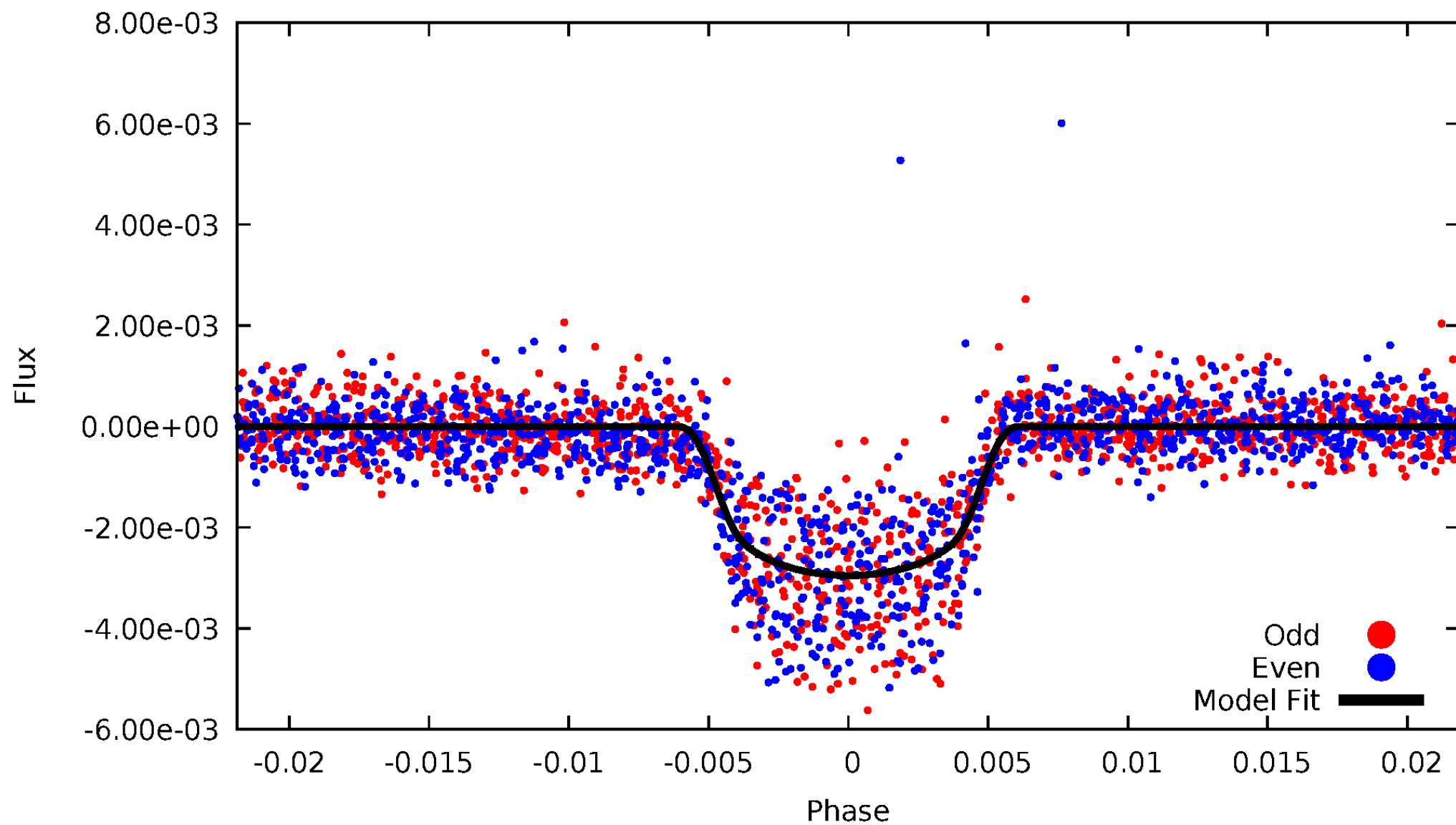


TCE 008703884-01



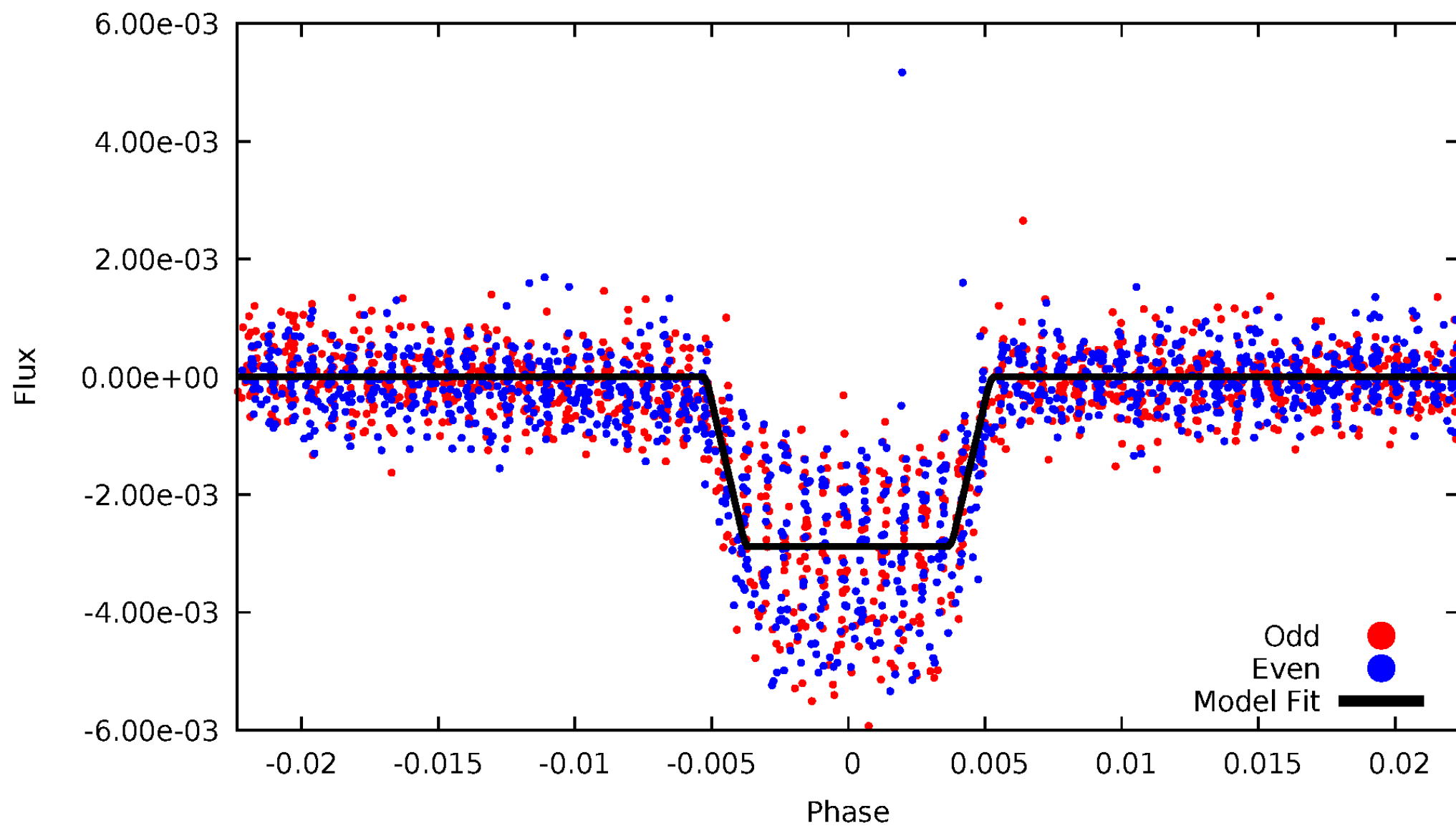
# DV Odd/Even

TCE 008703884-01



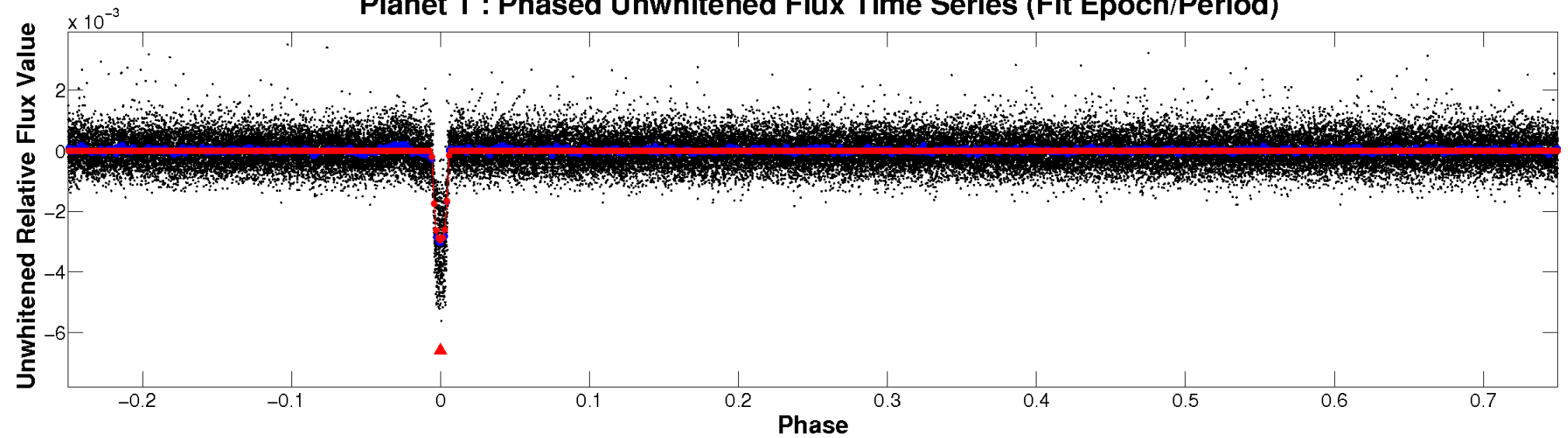
# ALT Odd/Even

TCE 008703884-01

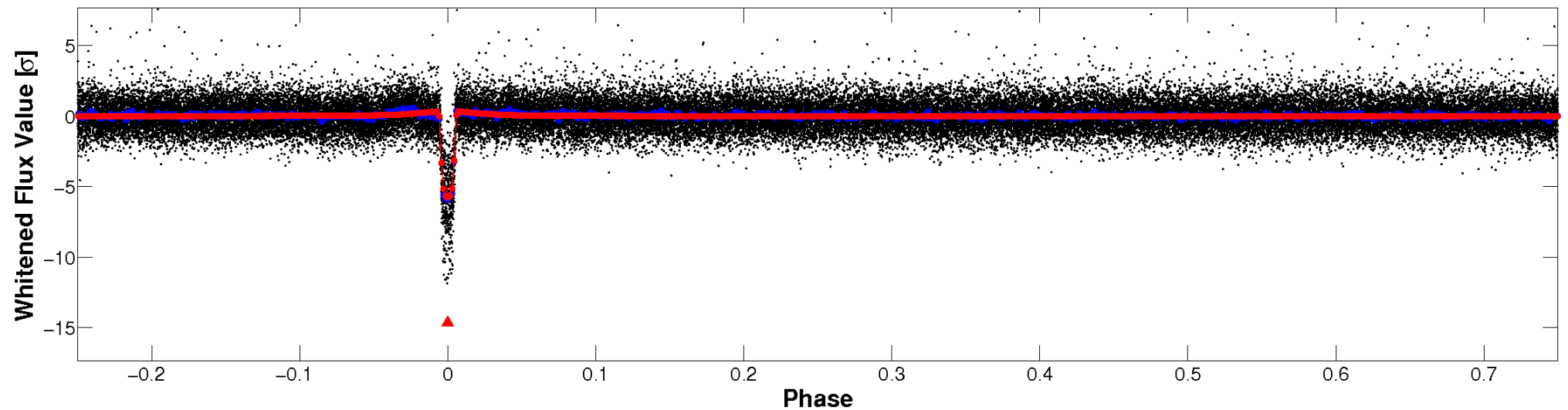


# Non-Whitened Vs. Whitened Light Curve

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



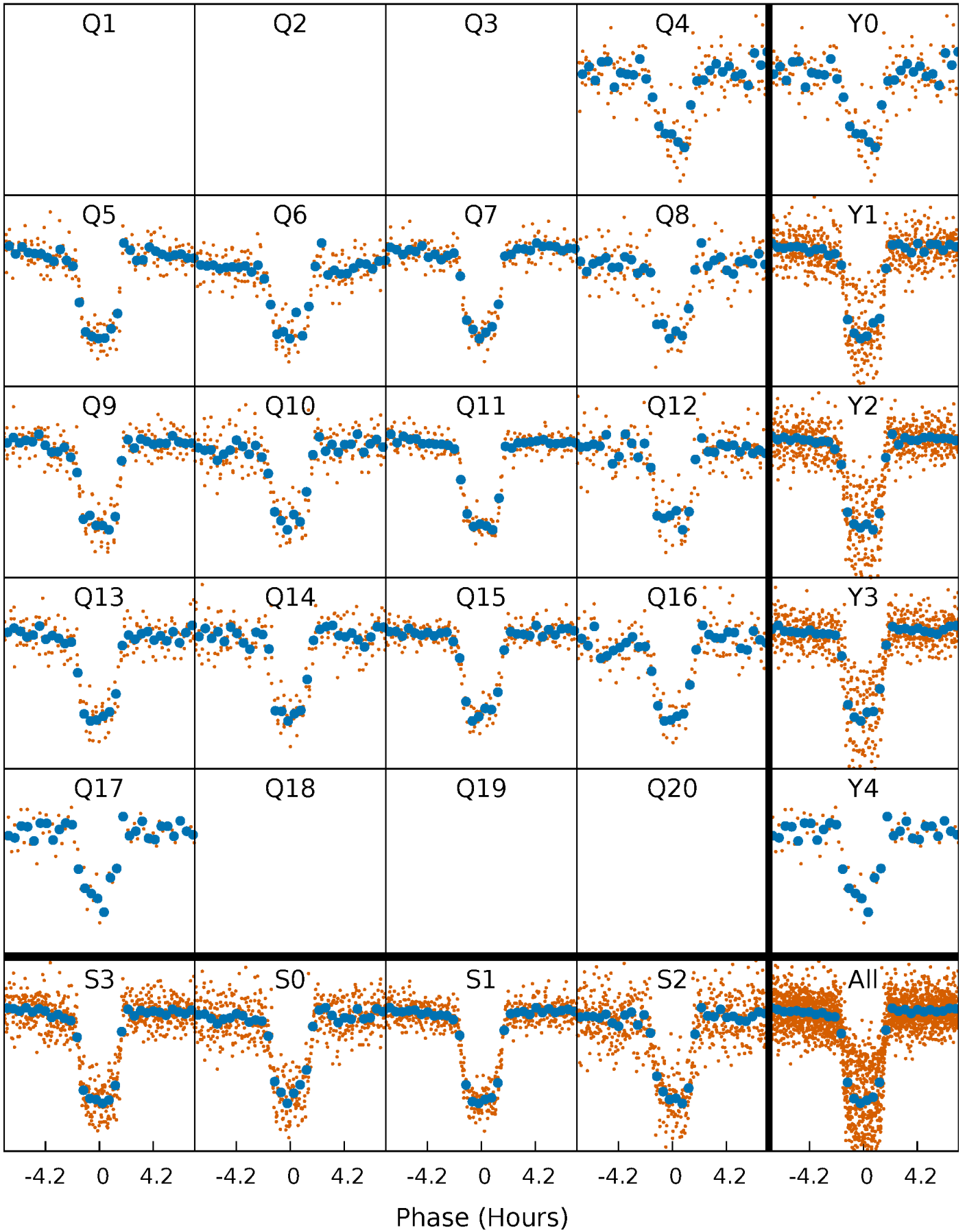
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

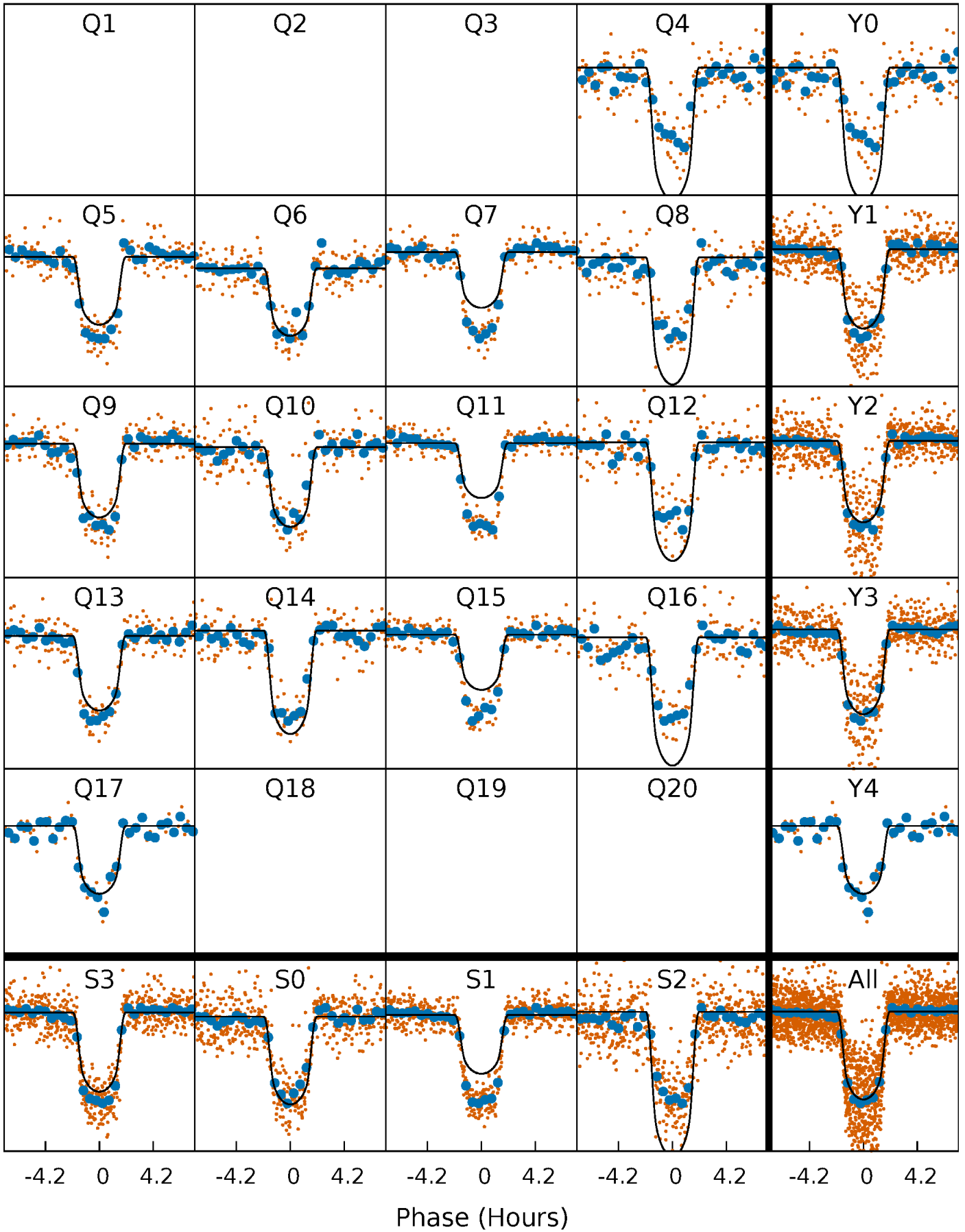
TCE 008703884-01 P= 14.170996 Days  $T_0=133.092886$  (BKJD)





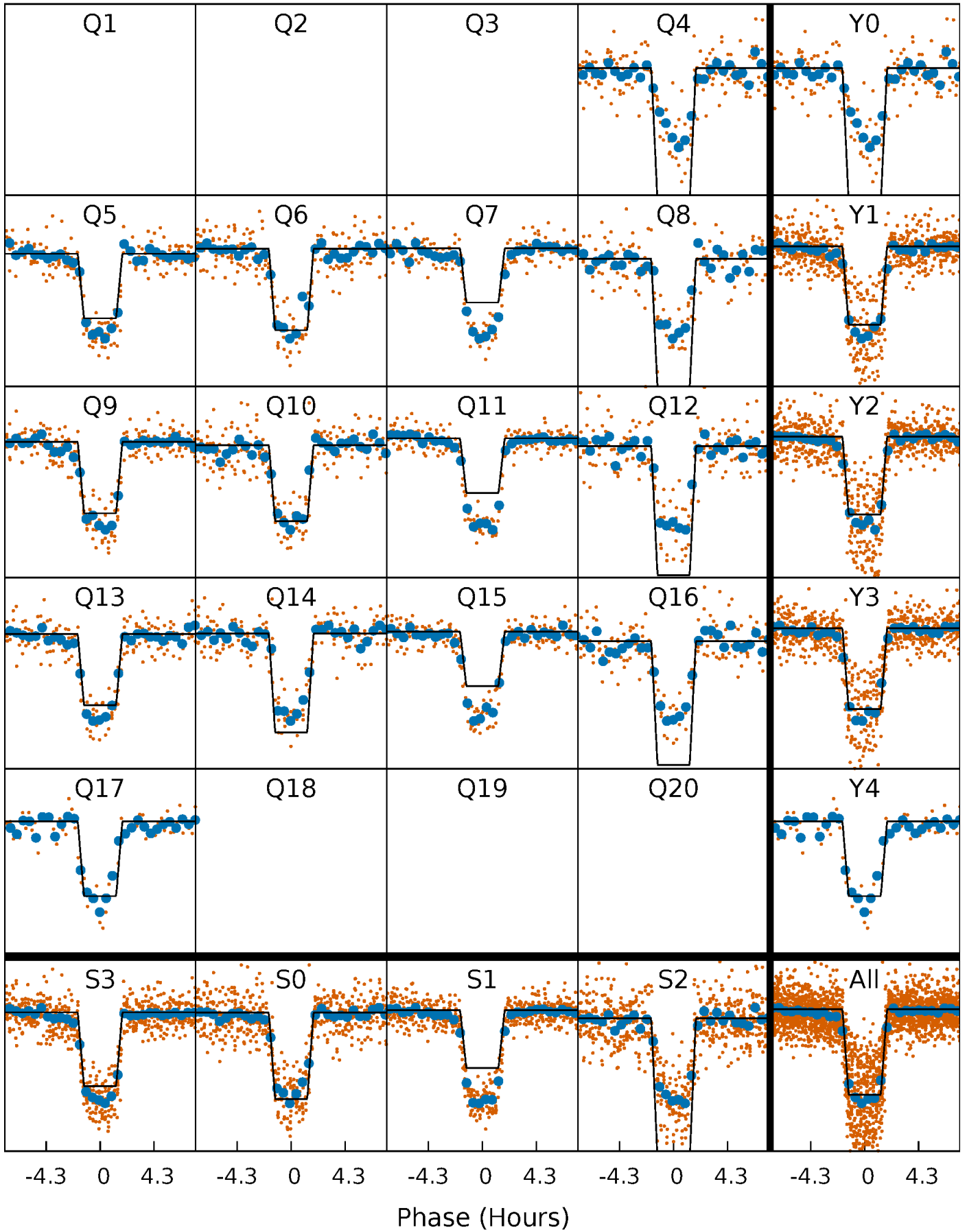
# DV Quarter-Phased Transit Curves

TCE 008703884-01 P= 14.170996 Days  $T_0=133.092886$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

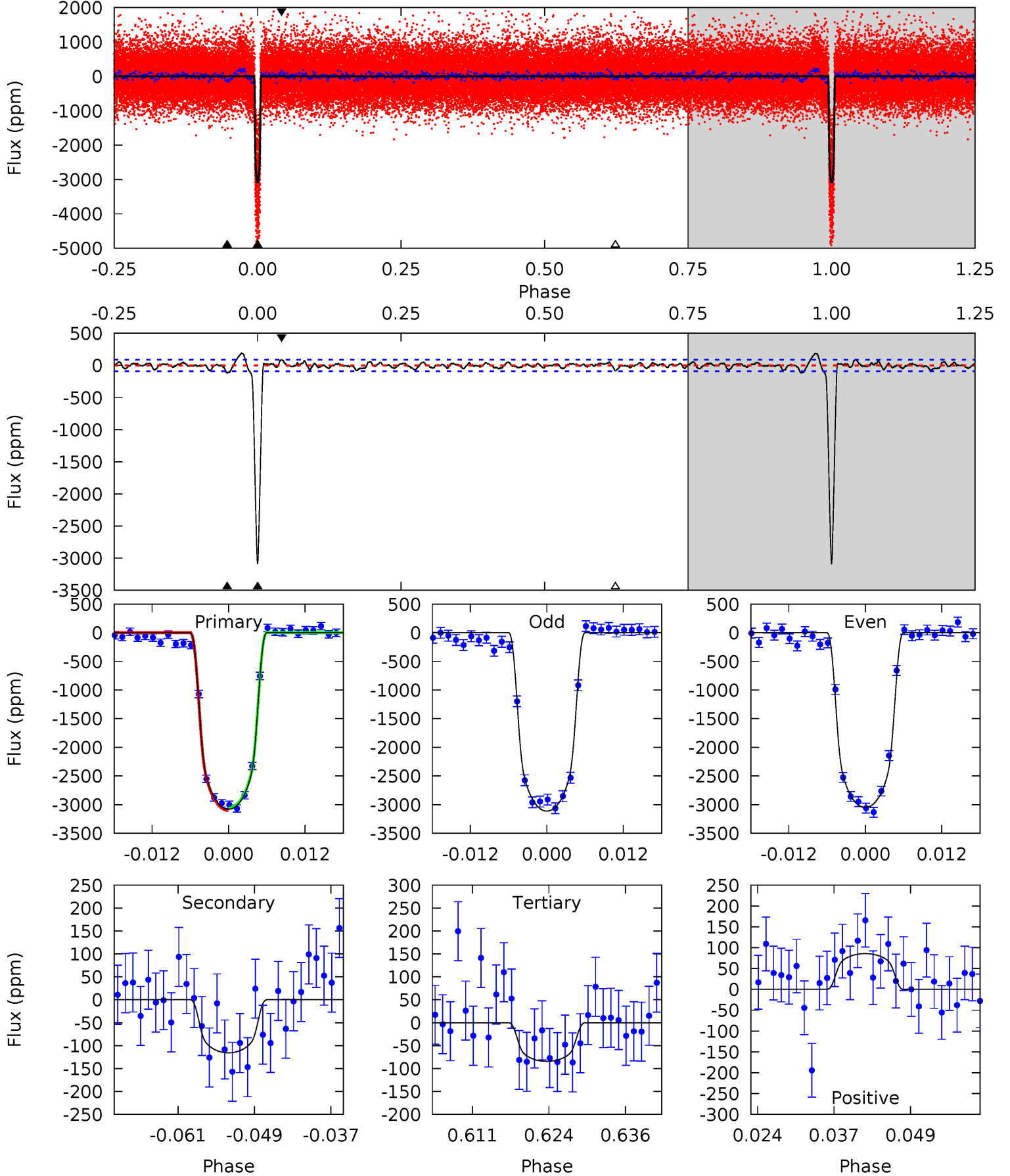
TCE 008703884-01 P= 14.171049 Days  $T_0=133.089846$  (BKJD)



# DV Model-Shift Uniqueness Test

008703884-01,  $P = 14.170996$  Days,  $E = 133.092886$  Days

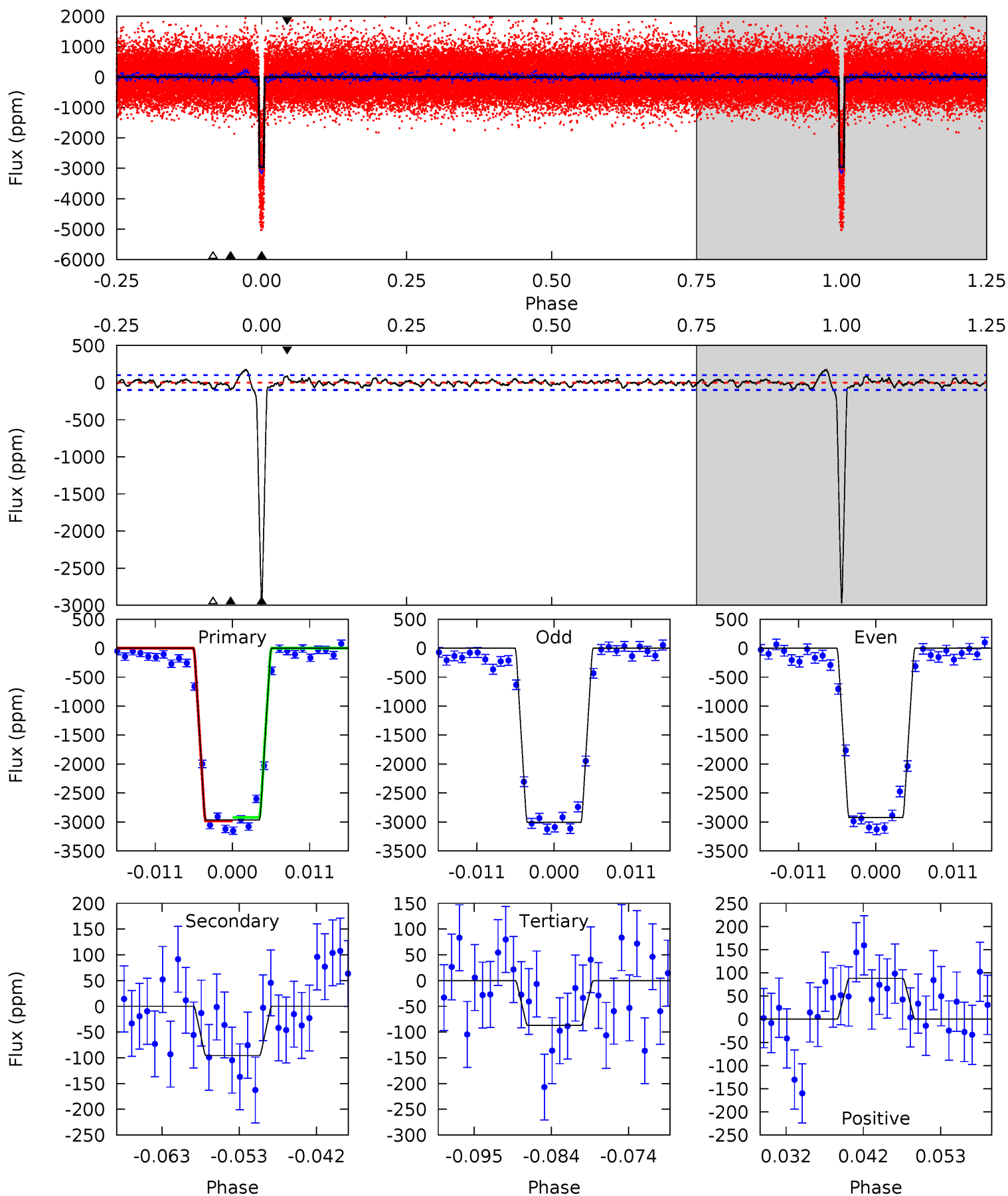
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
171.4	6.43	4.69	4.76	4.99	2.51	1.95	166.7	166.6	1.74	1.67	1.73	0.98	0.06	1.14



# Alt Model-Shift Uniqueness Test

008703884-01, P = 14.171049 Days, E = 133.089846 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
149.3	4.82	4.37	4.43	5.02	2.56	1.75	144.9	144.8	0.45	0.38	2.09	0.96	0.06	1.46



### Stellar Parameters For KIC 008703884

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5107^{+179}_{-179}$	$4.565^{+0.044}_{-0.072}$	$-0.020^{+0.300}_{-0.300}$	$0.777^{+0.097}_{-0.073}$	$0.807^{+0.082}_{-0.073}$	$2.427^{+0.521}_{-0.571}$
	+4%/-4%	+1%/-2%	+1500%/-1500%	+12%/-9%	+10%/-9%	+21%/-24%
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 008703884-01 / KOI 1262.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-116 \pm 18$	$4.61^{+0.40}_{-0.34}$	$853^{+38}_{-33}$	$2932^{+104}_{-103}$	$34^{+8}_{-7}$
Alt.	$-96 \pm 20$	$4.61^{+0.38}_{-0.35}$	$854^{+39}_{-33}$	$2861^{+119}_{-116}$	$28^{+7}_{-7}$

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

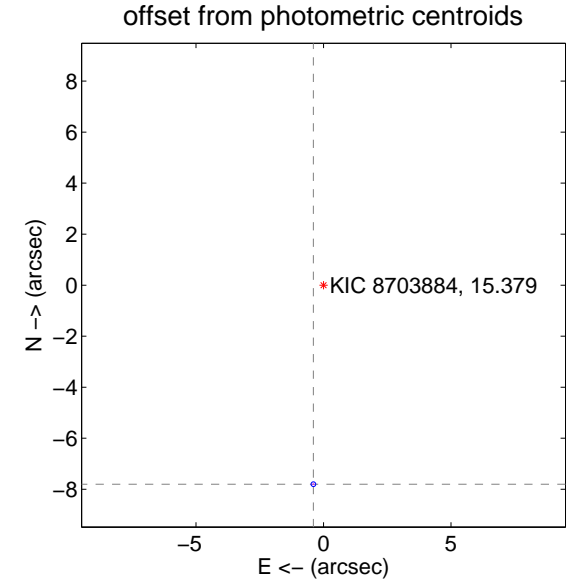
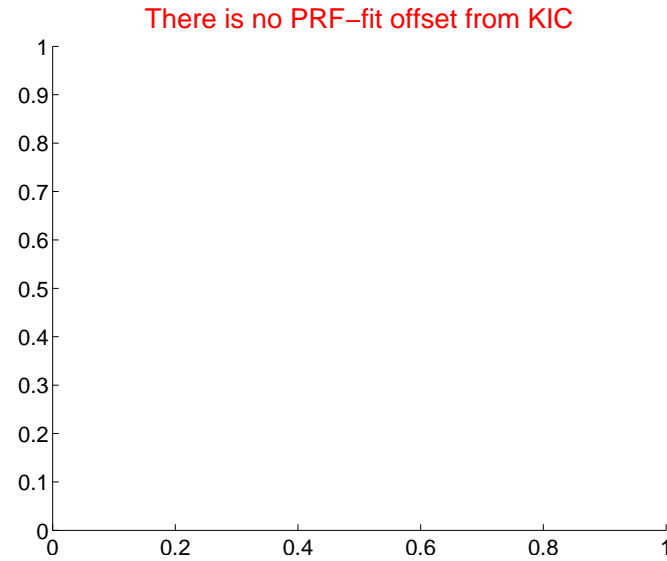
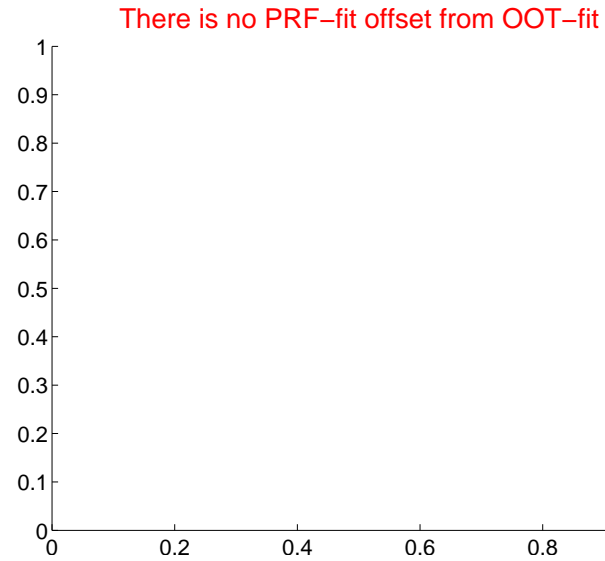
## DV Centroid Data

Supplemental centroid analysis for 008703884-01. Kepler magnitude: 15.38. Transit SNR 100.91

There are 0 quarters with good PRF difference image offsets

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

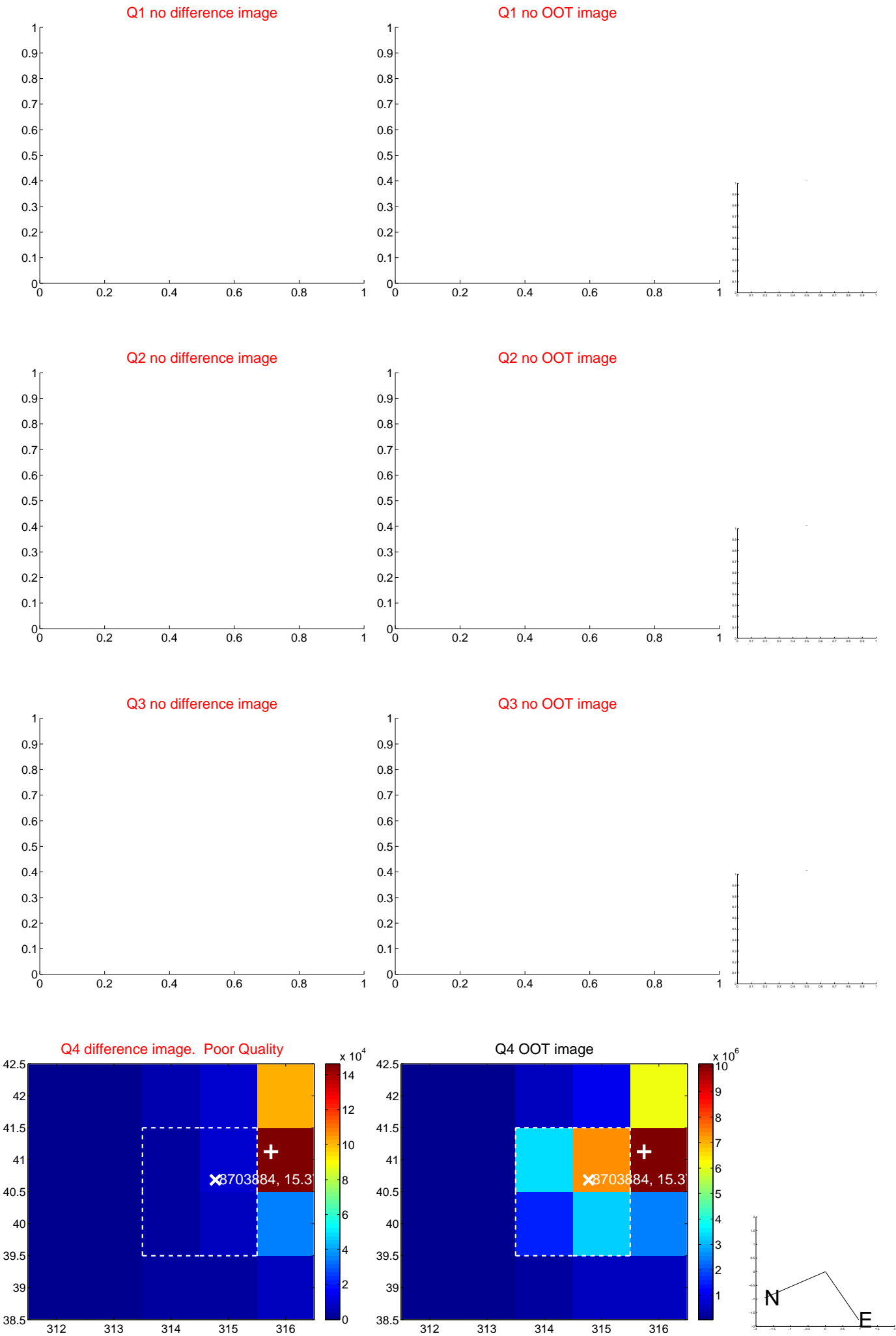
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$7.81 \pm 0.03$	$255.27$	$0.40 \pm 0.02$	$-7.80 \pm 0.03$



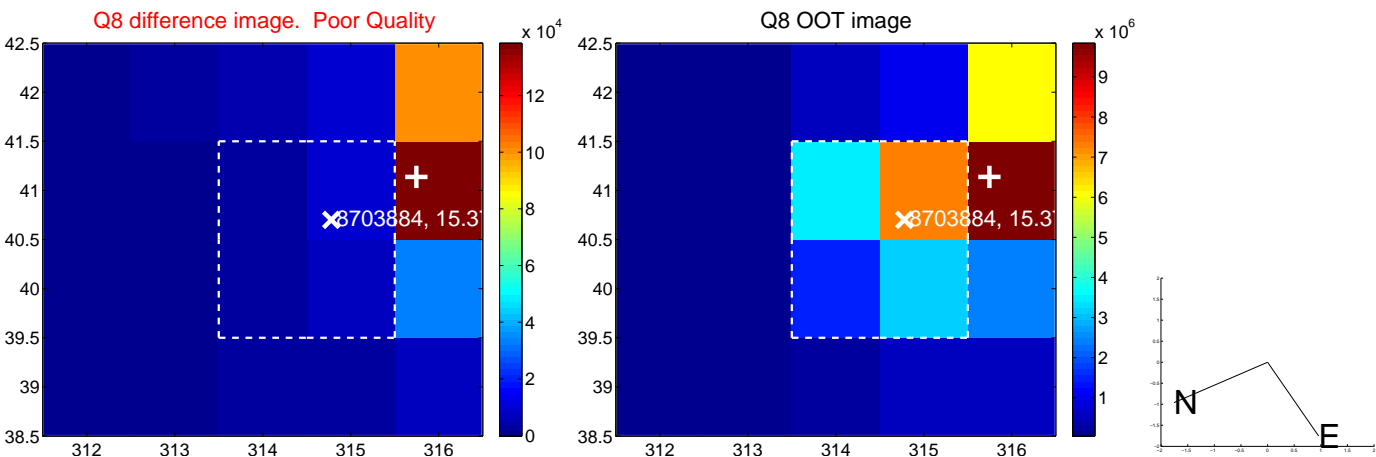
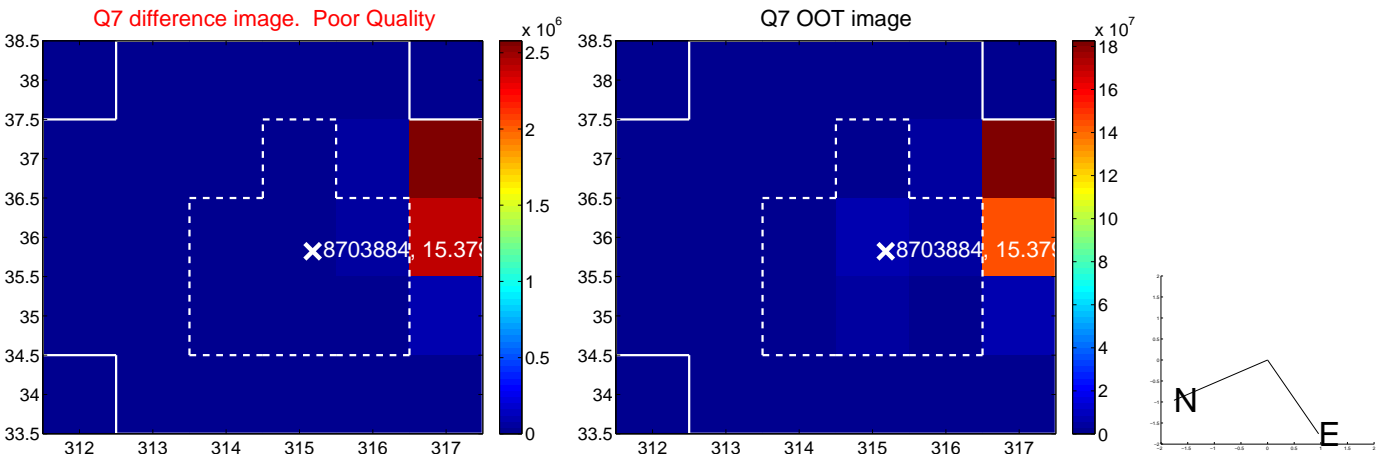
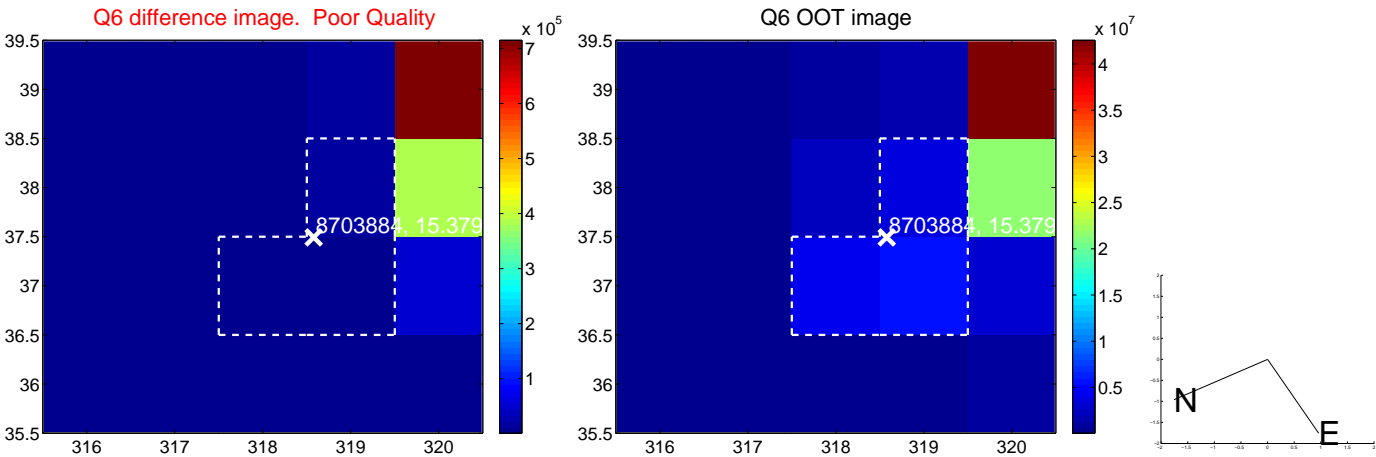
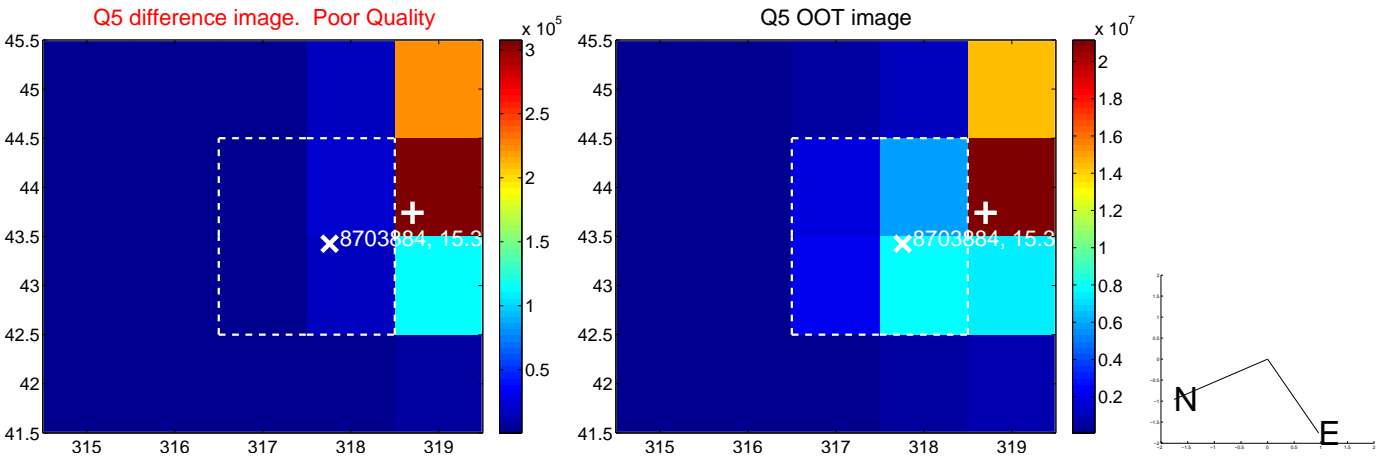
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



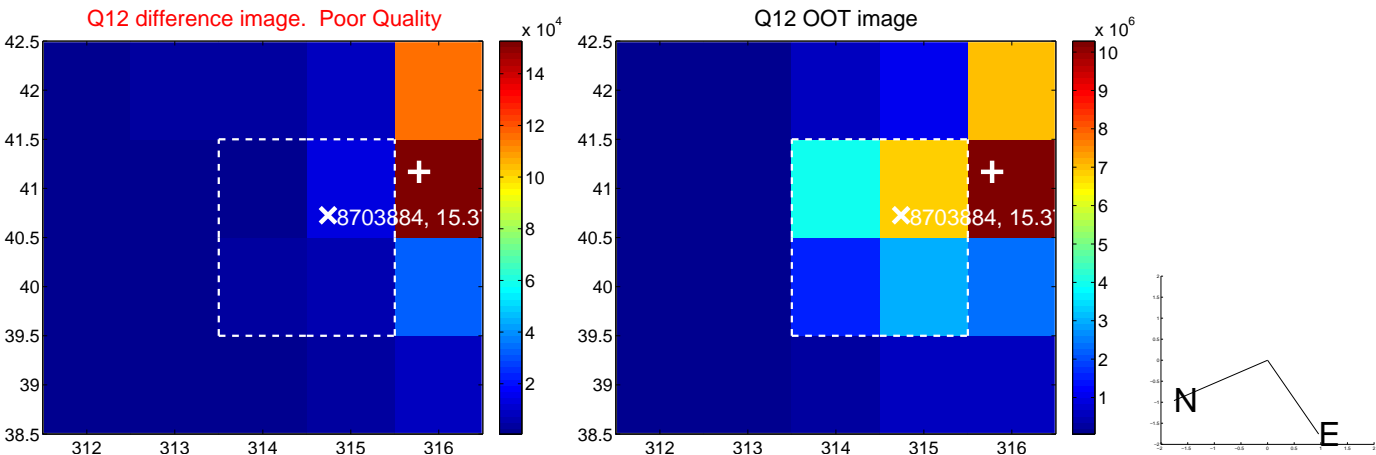
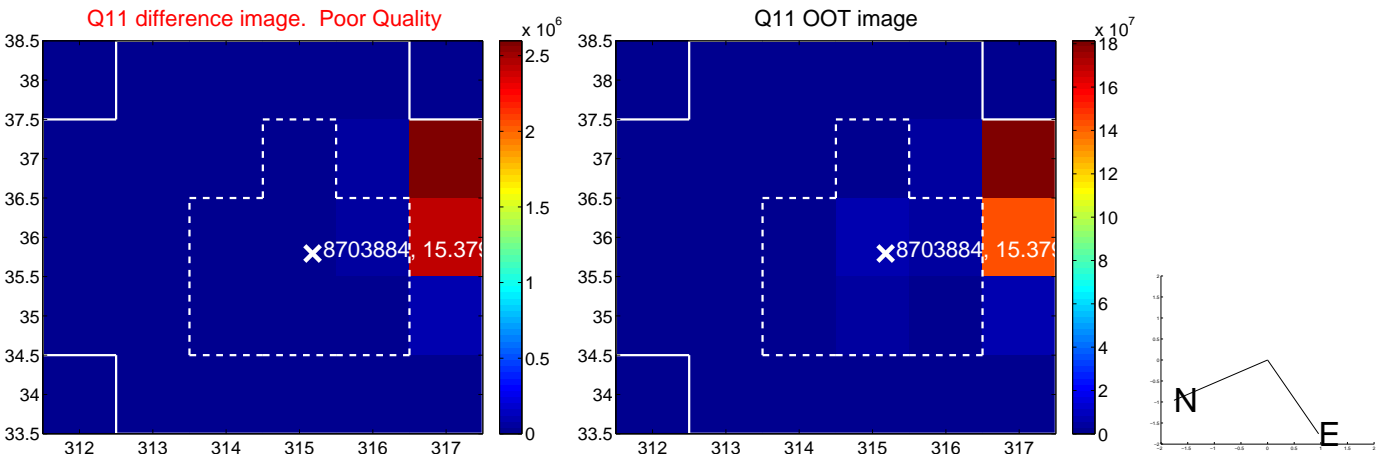
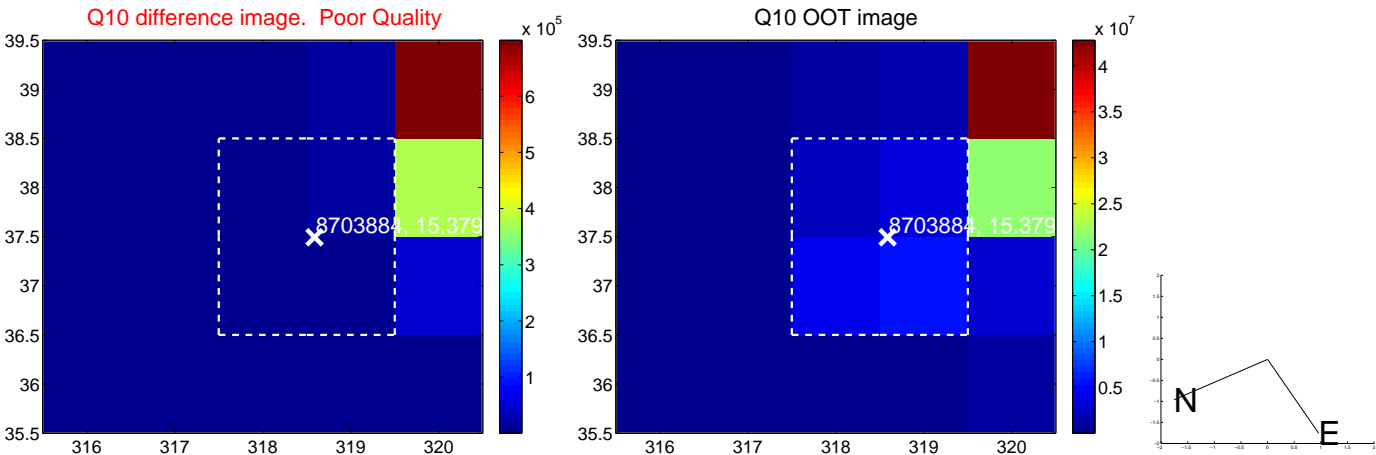
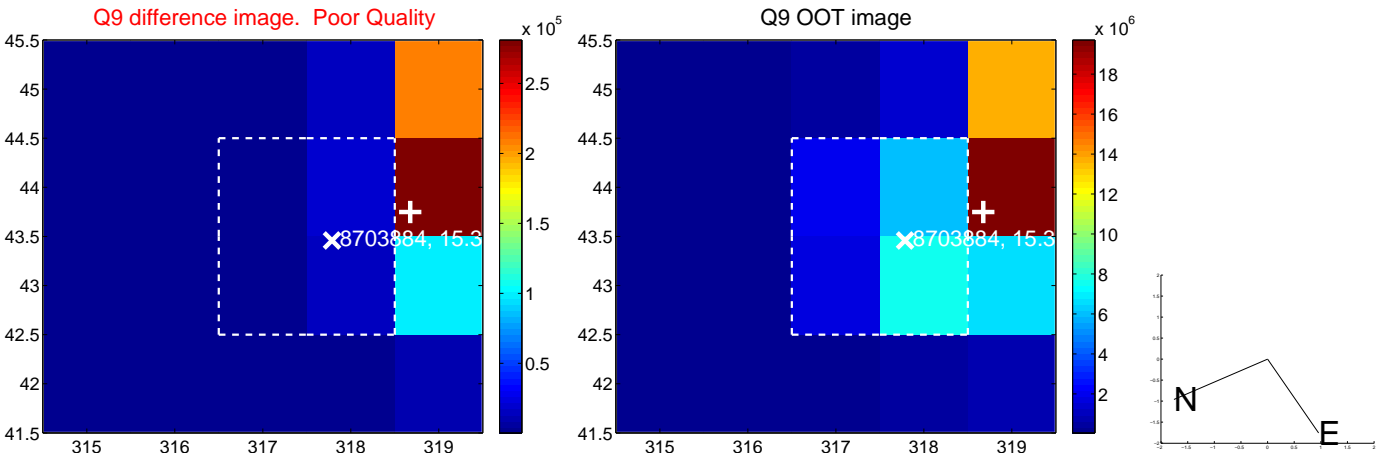
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



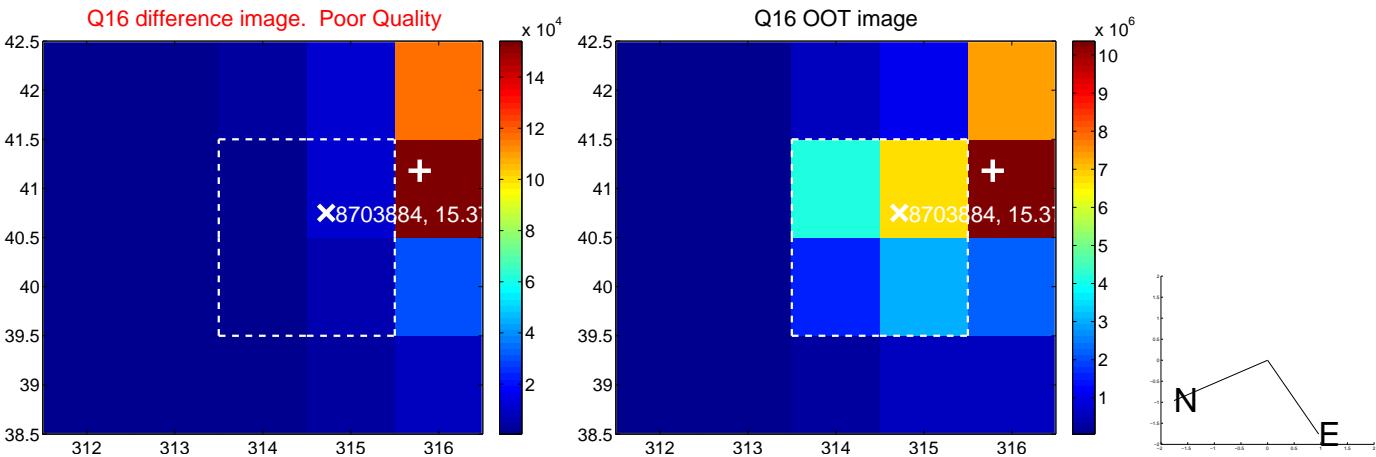
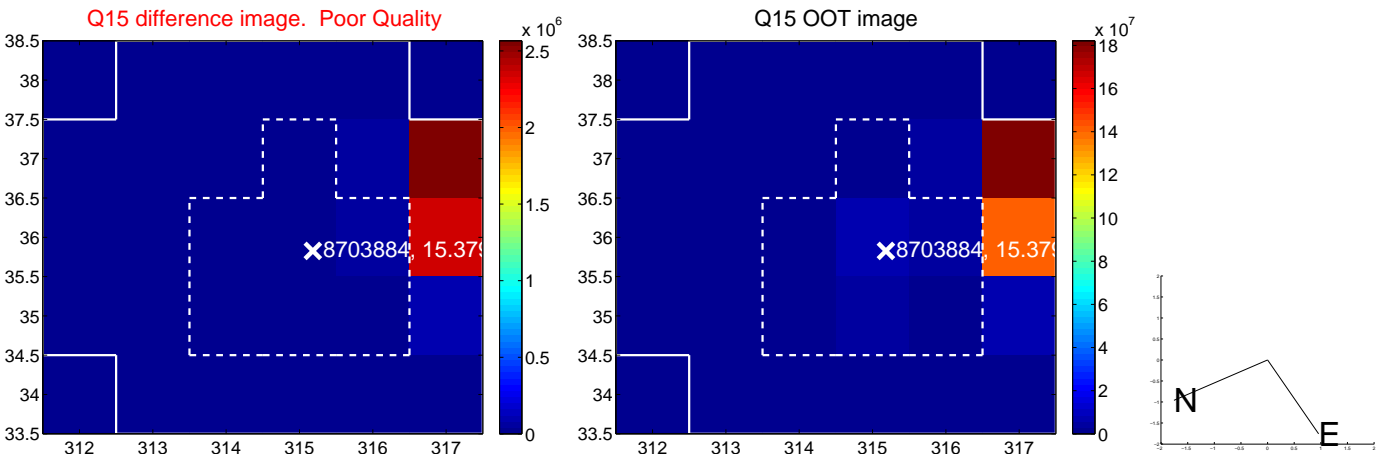
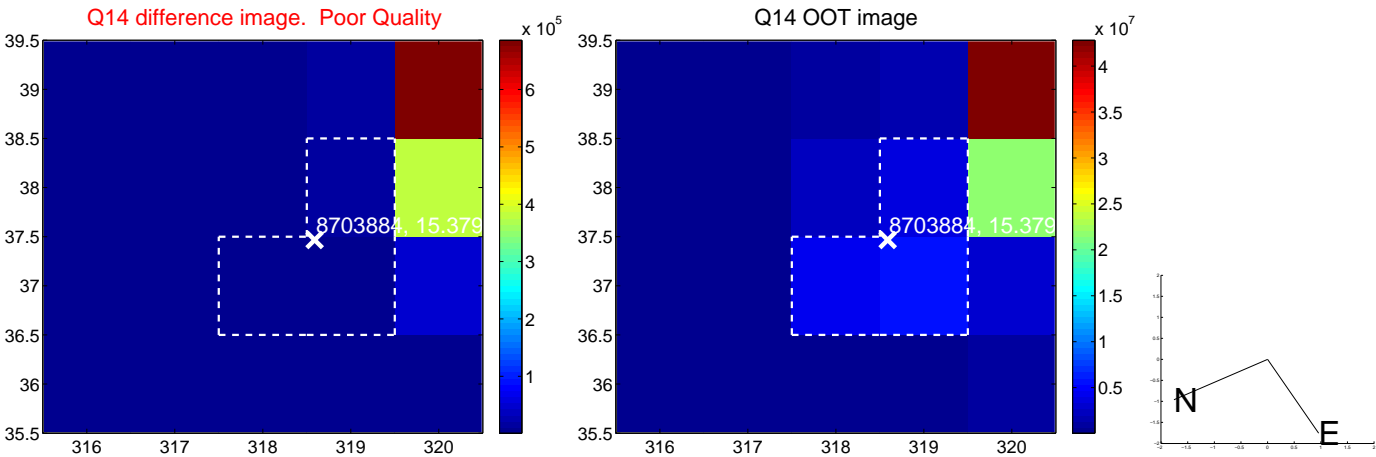
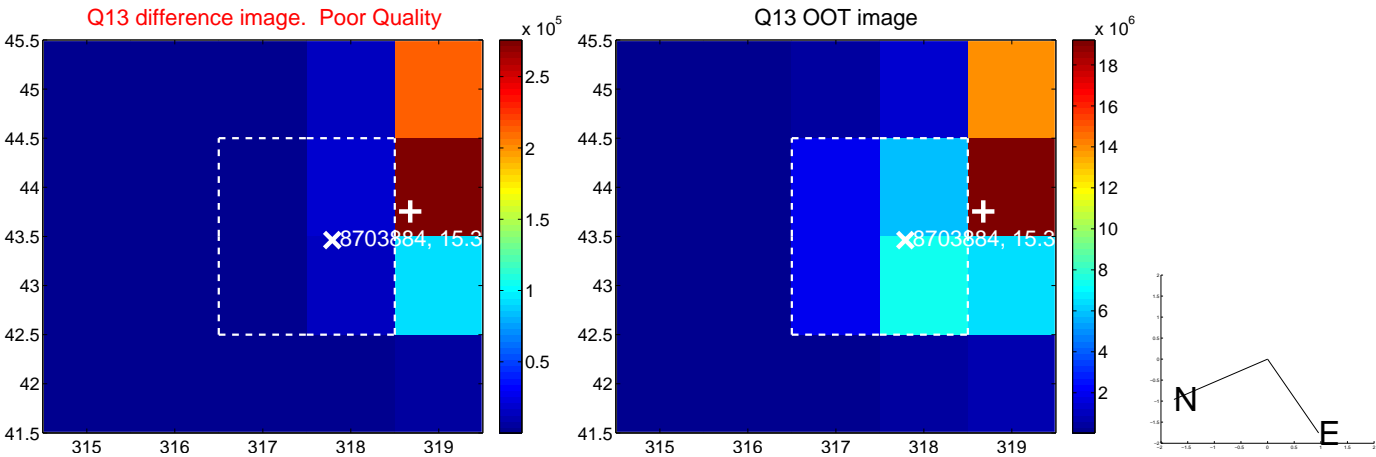
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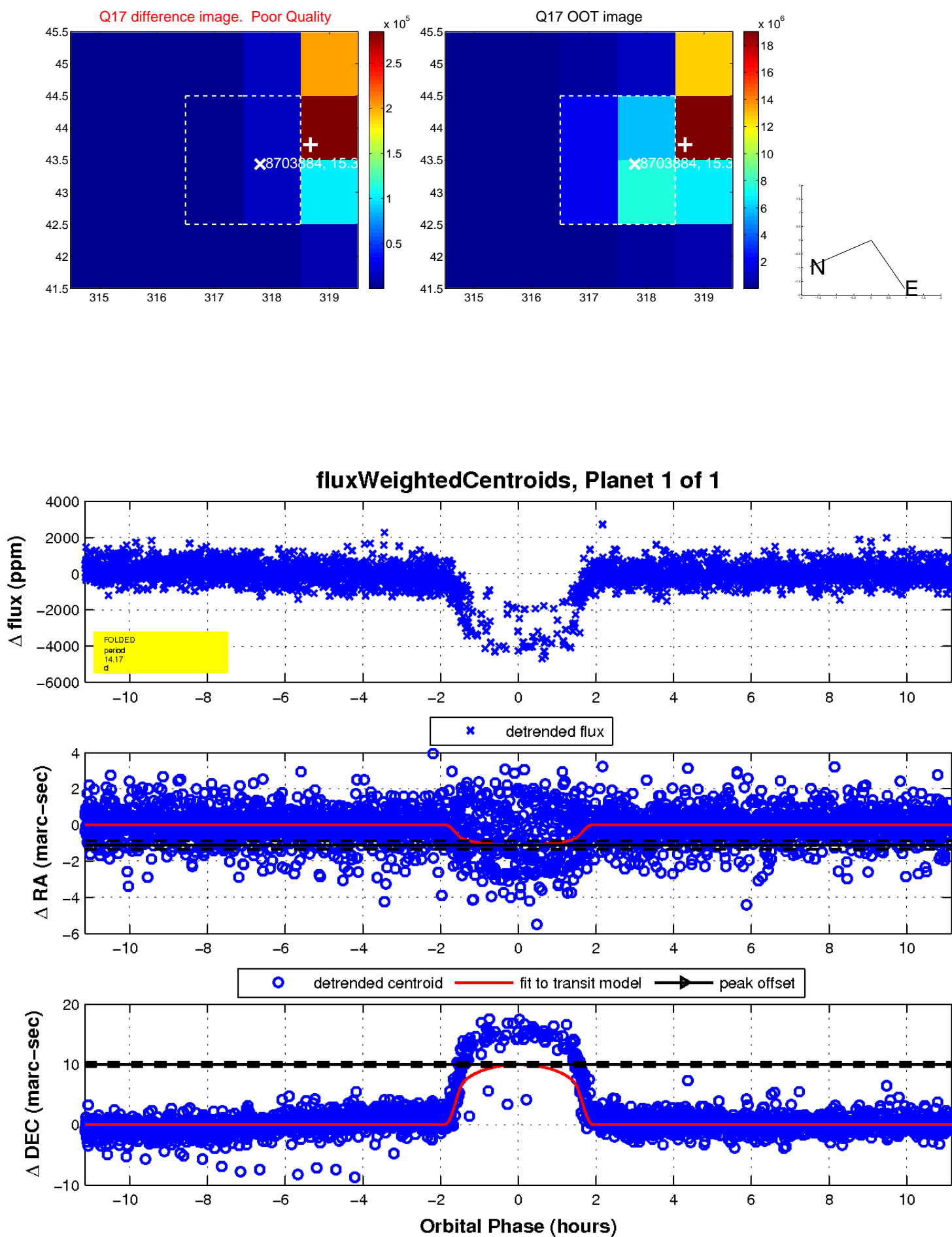
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UKIRT Image

