

# KIC 009783760

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009783760-01	OBS	3487.01	89.739664	205.265487	102681.7	3.283	2204.9	1097.6	0.75	5777	29.18	4.11

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009783760-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—CENT_KIC_POS

**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.

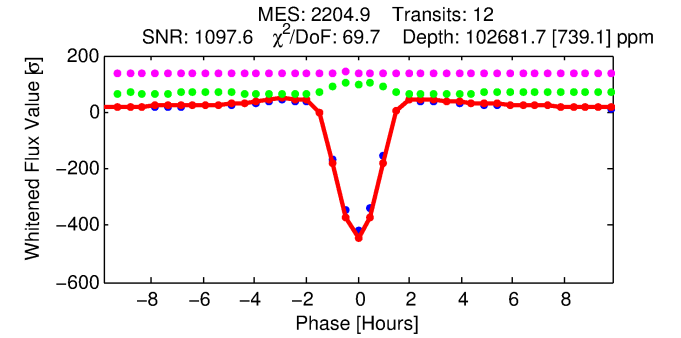
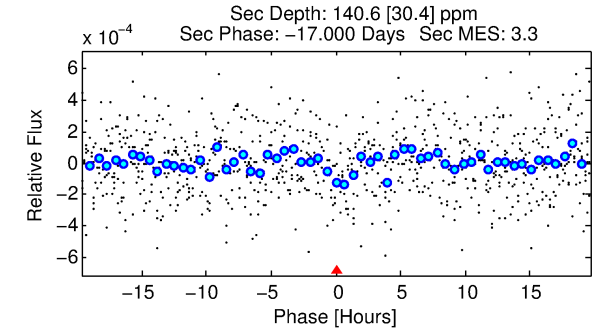
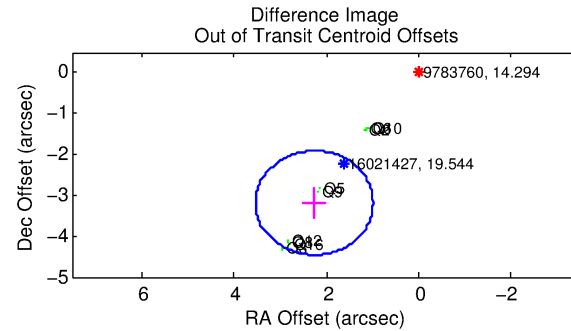
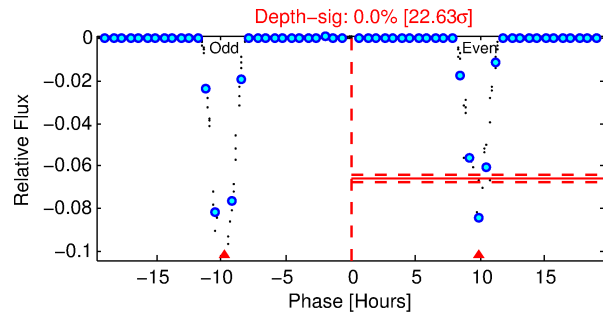
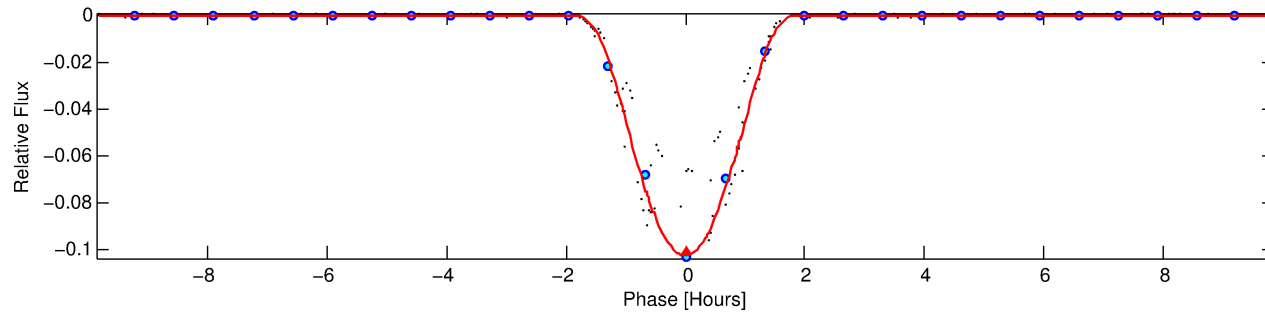
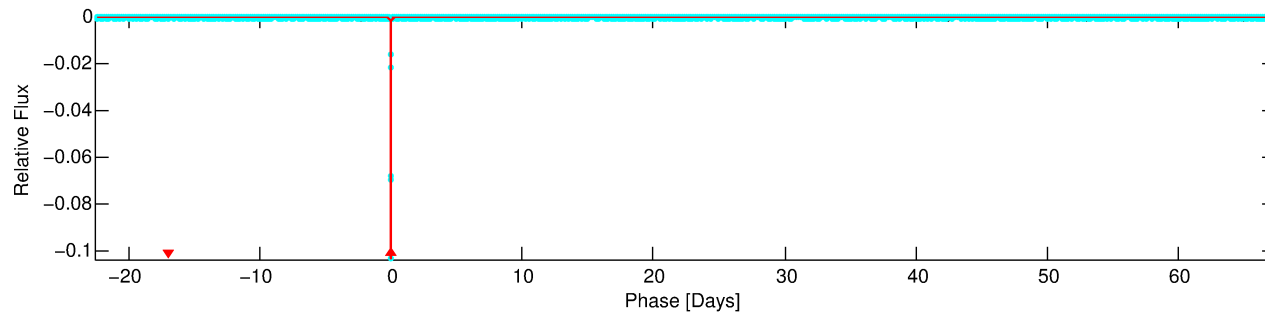
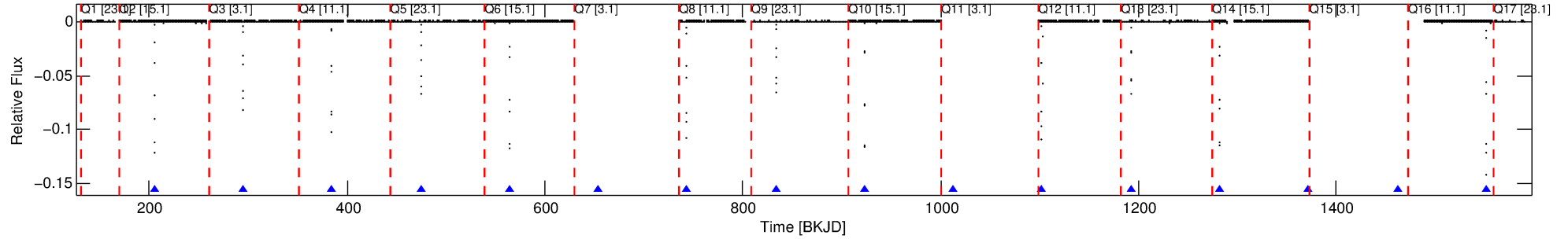
## Ephemeris Match Information For 009783760-01

No Significant Match Found

# DV One-Page Summary

KIC: 9783760 Candidate: 1 of 1 Period: 89.740 d  
KOI: K03487.01 Corr: 0.996

Kp: 14.29 R\*: 0.75 Rs Teff: 5777.0 K Logg: 4.61 Fe/H: -0.620



## DV Fit Results:

Period = 89.73966 [0.00005] d  
Epoch = 205.2655 [0.0004] BKJD  
Rp/R\* = 0.3580 [0.0344]  
a/R\* = 231.93 [3.02]  
b = 0.78 [0.07]  
Seff = 4.11 [1.18]  
Teq = 363 [26] K  
Rp = 29.18 [6.96] Re  
a = 0.3680 [0.0672] AU  
Ag = 12.30 [4.82] [2.34σ]  
Teffp = 1051 [81] K [8.07σ]

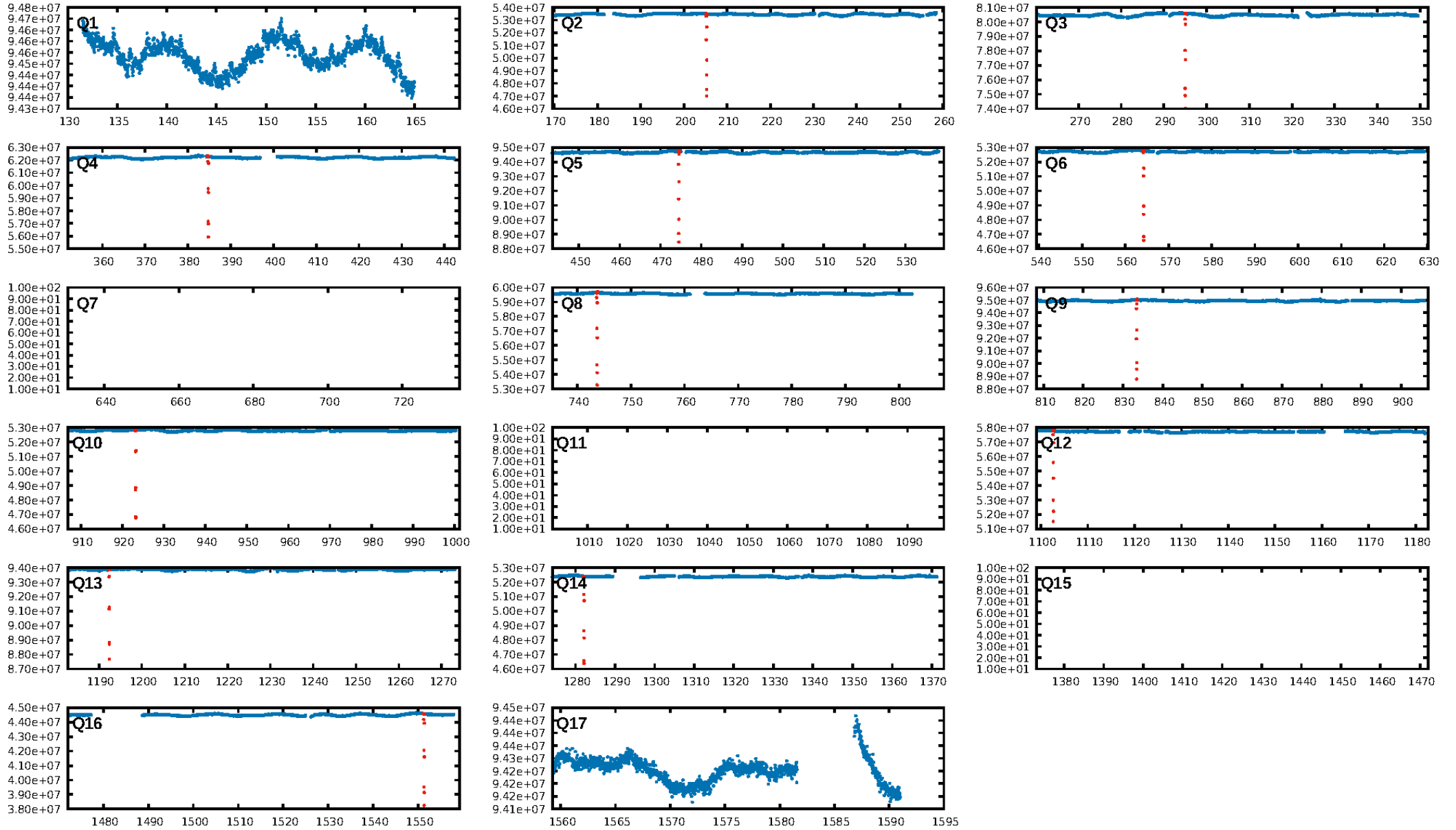
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [12/12]  
GhostDiagnostic-chr: 3.64  
Centroid-sig: 0.0%  
Centroid-so: 1.135 arcsec [390.73σ]  
OotOffset-rm: 3.908 arcsec [9.21σ]  
KicOffset-rm: 0.103 arcsec [1.51σ]  
OotOffset-st: 3/1/3/2 [9]  
KicOffset-st: 3/1/3/2 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [9/9]

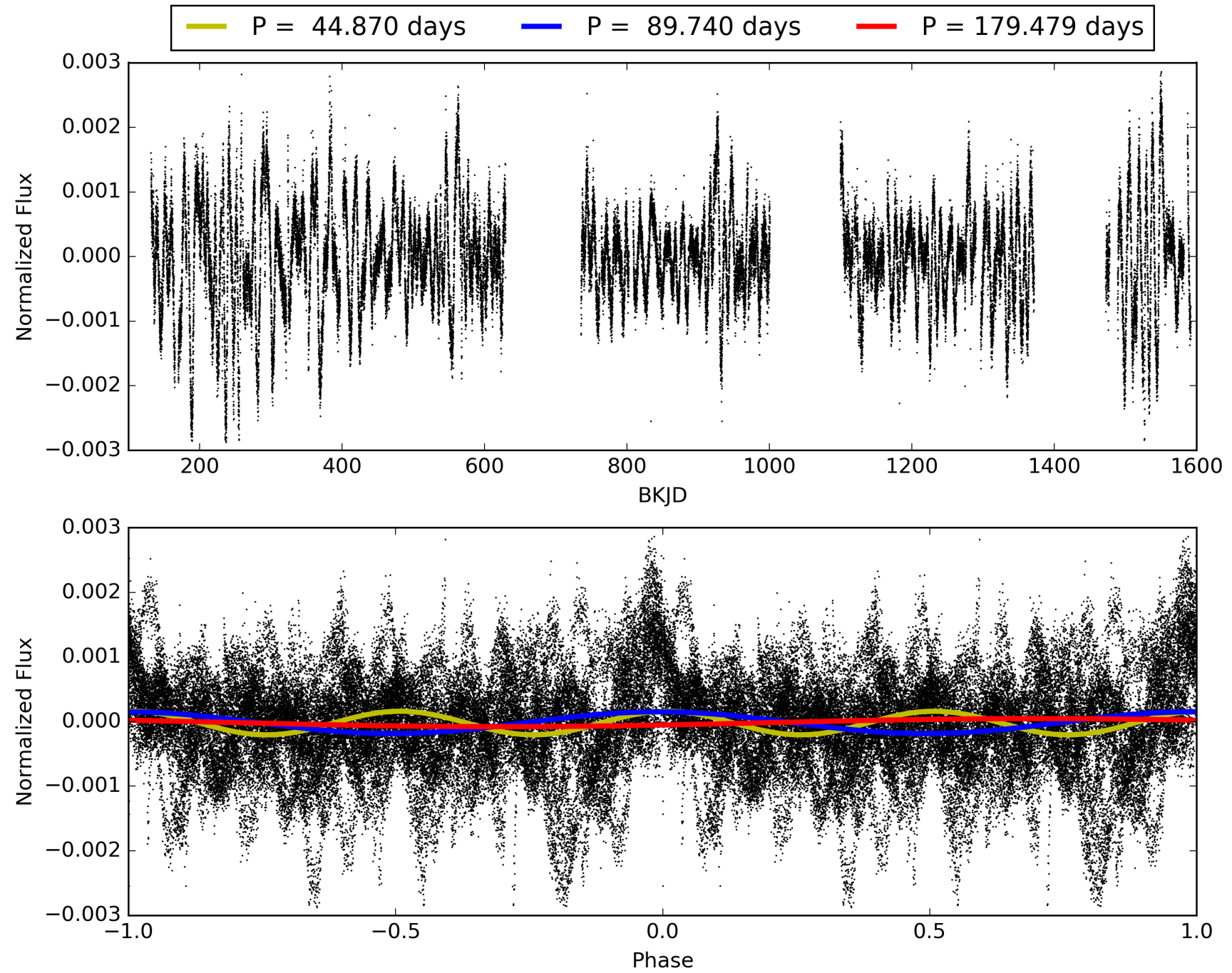
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:47:15 Z

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

# TCE 009783760-01, PDC Light Curves

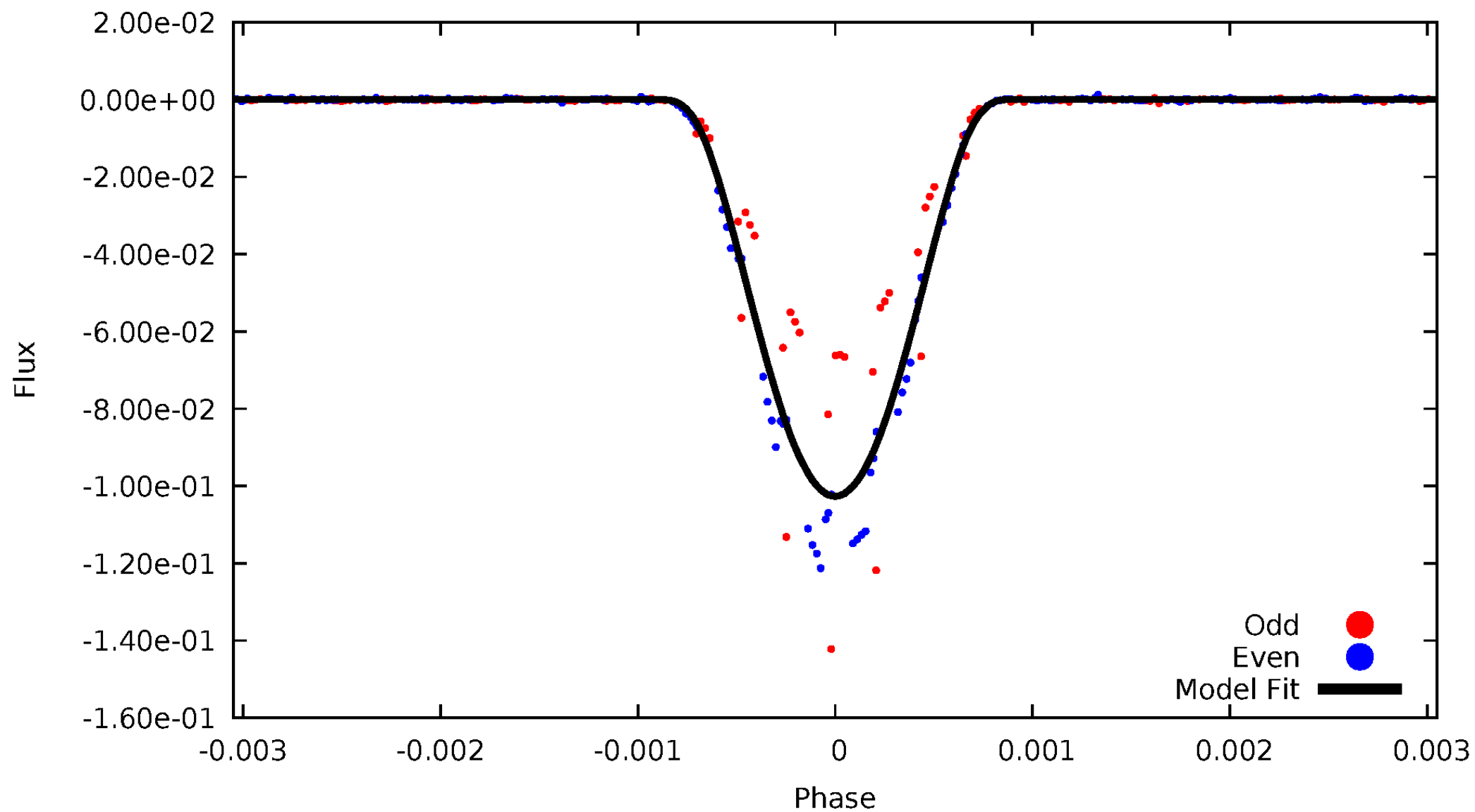


TCE 009783760-01



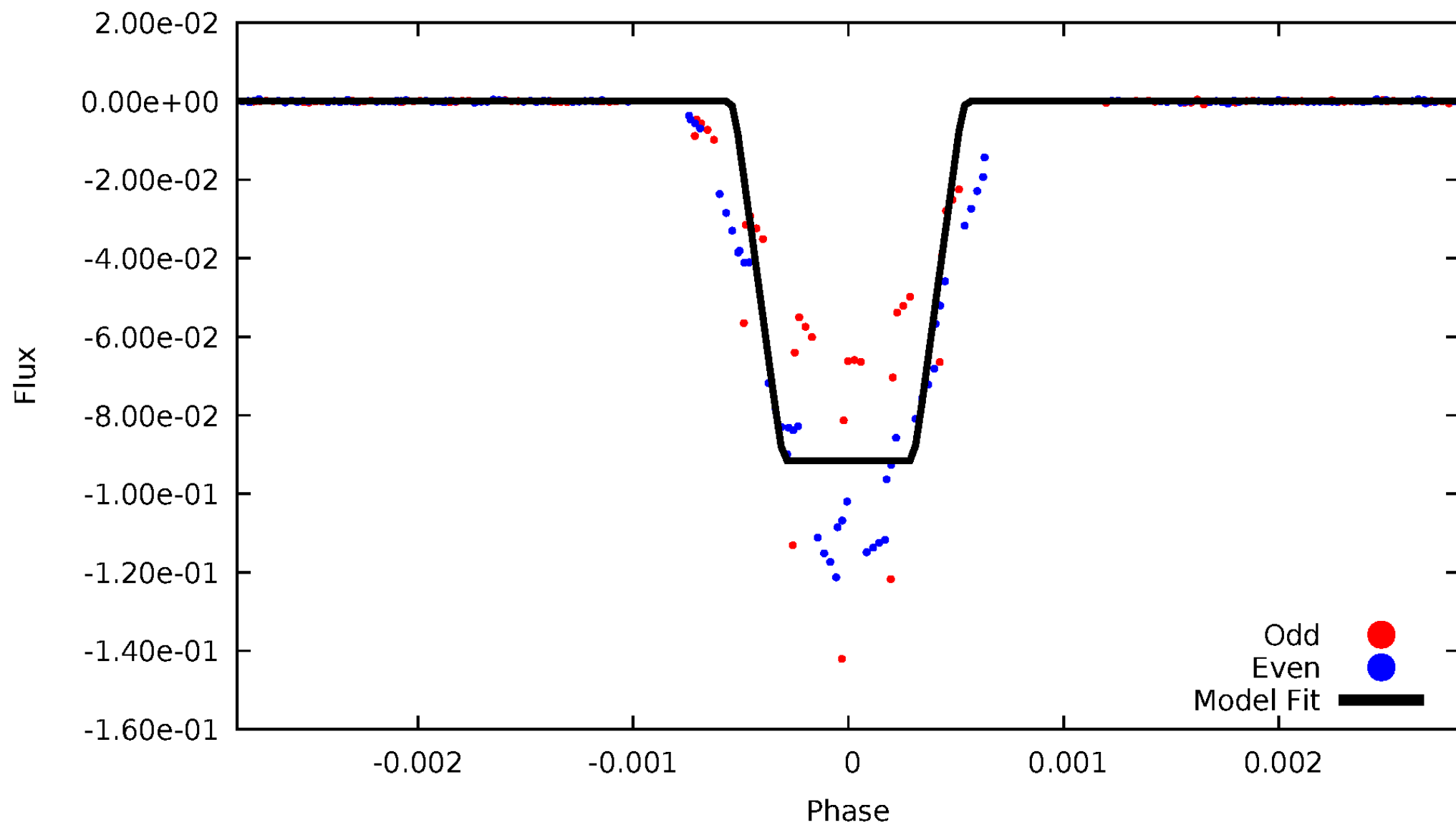
# DV Odd/Even

TCE 009783760-01



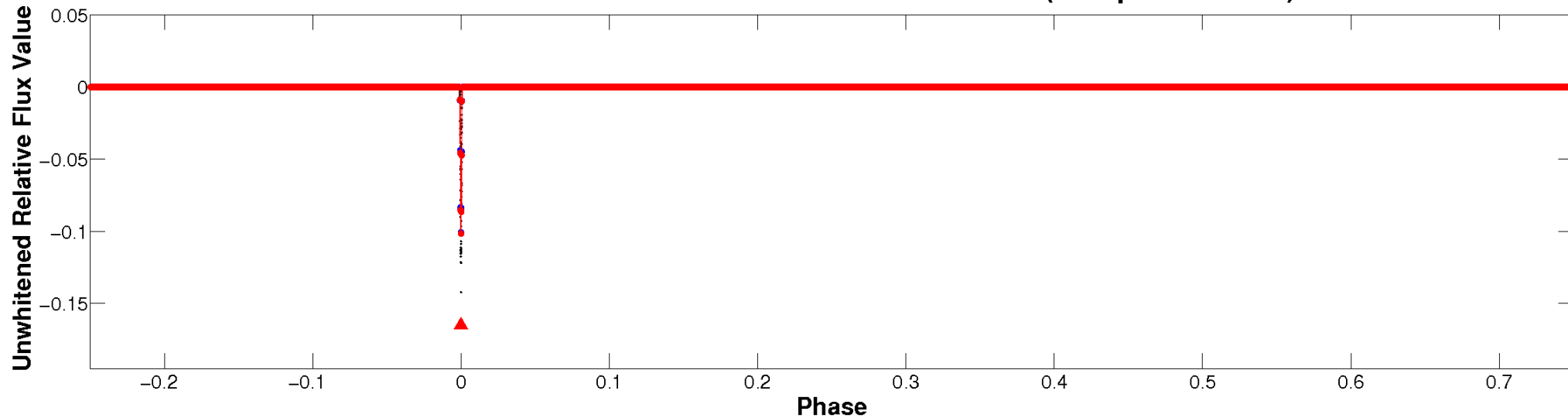
# ALT Odd/Even

TCE 009783760-01

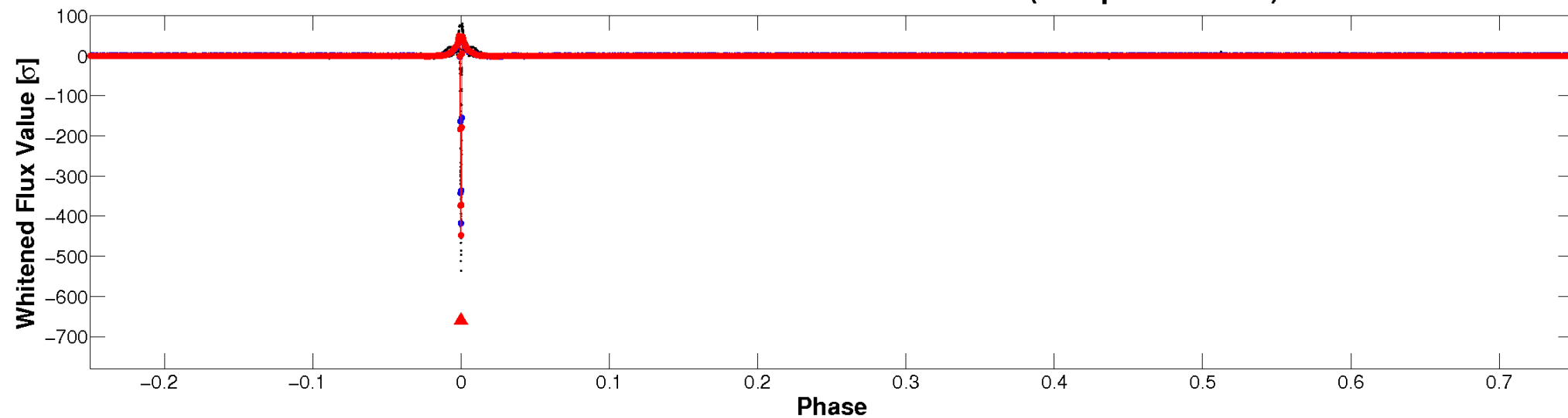


# Non-Whitened Vs. Whitened Light Curve

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

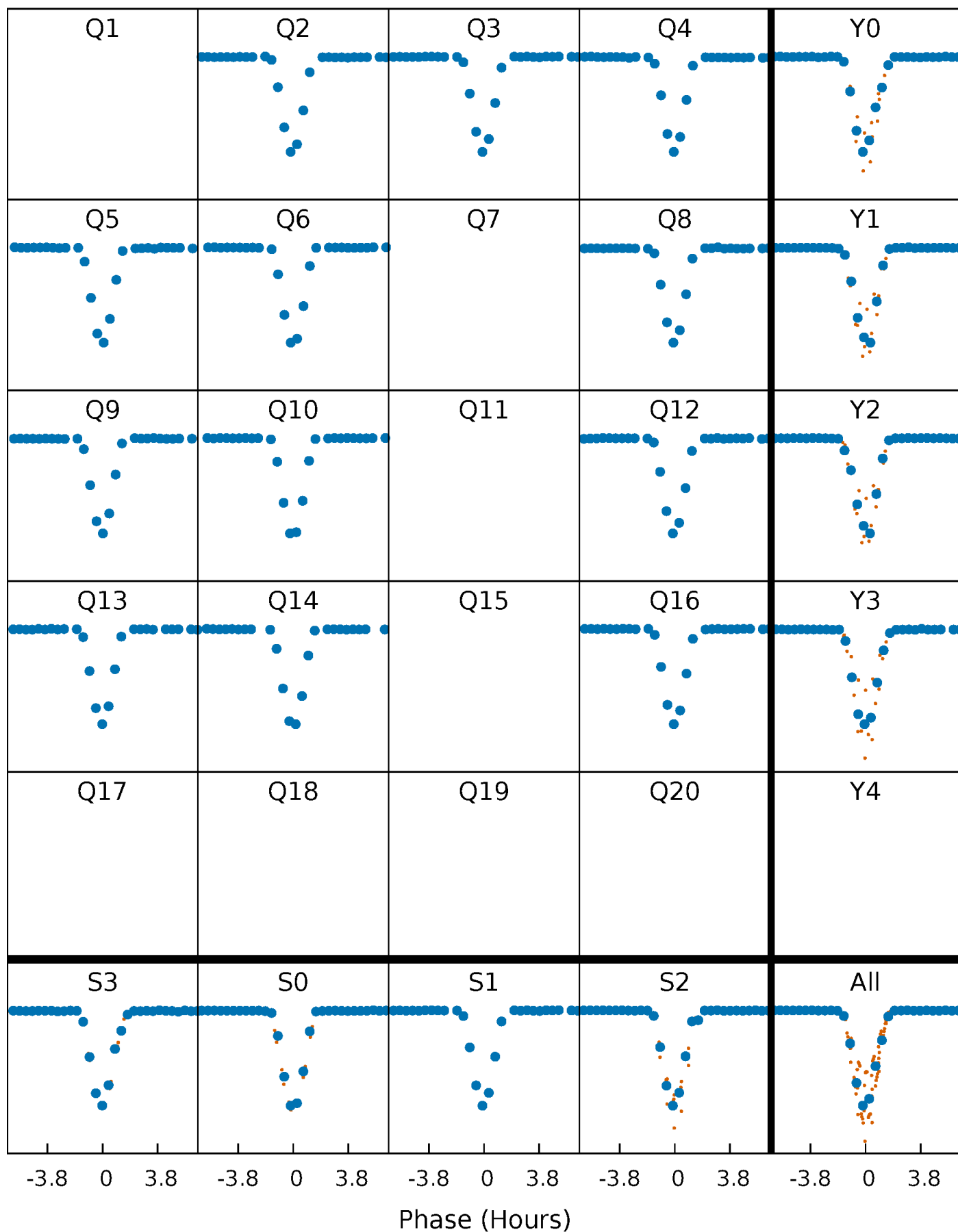


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

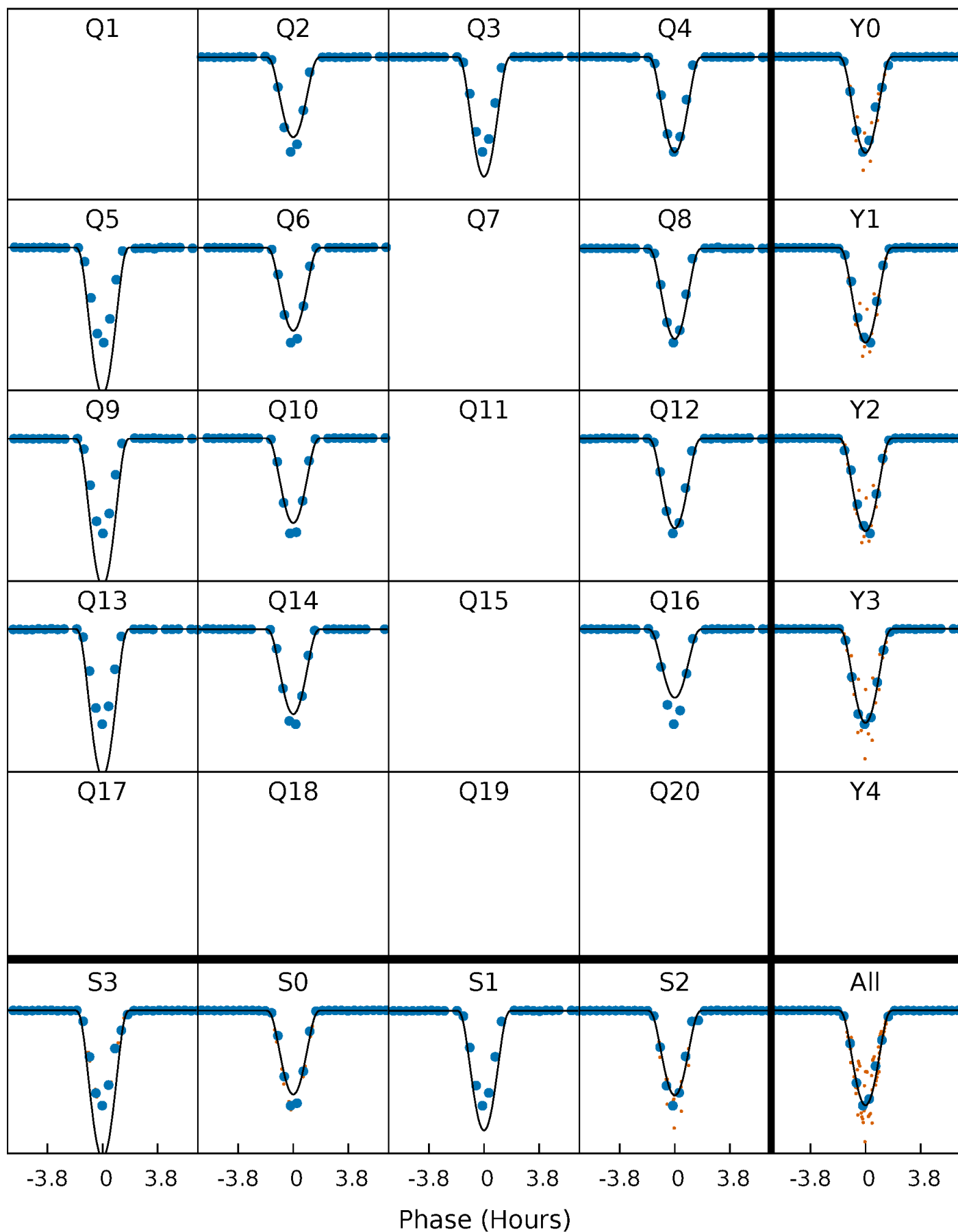
TCE 009783760-01 P= 89.739664 Days  $T_0=205.265487$  (BKJD)





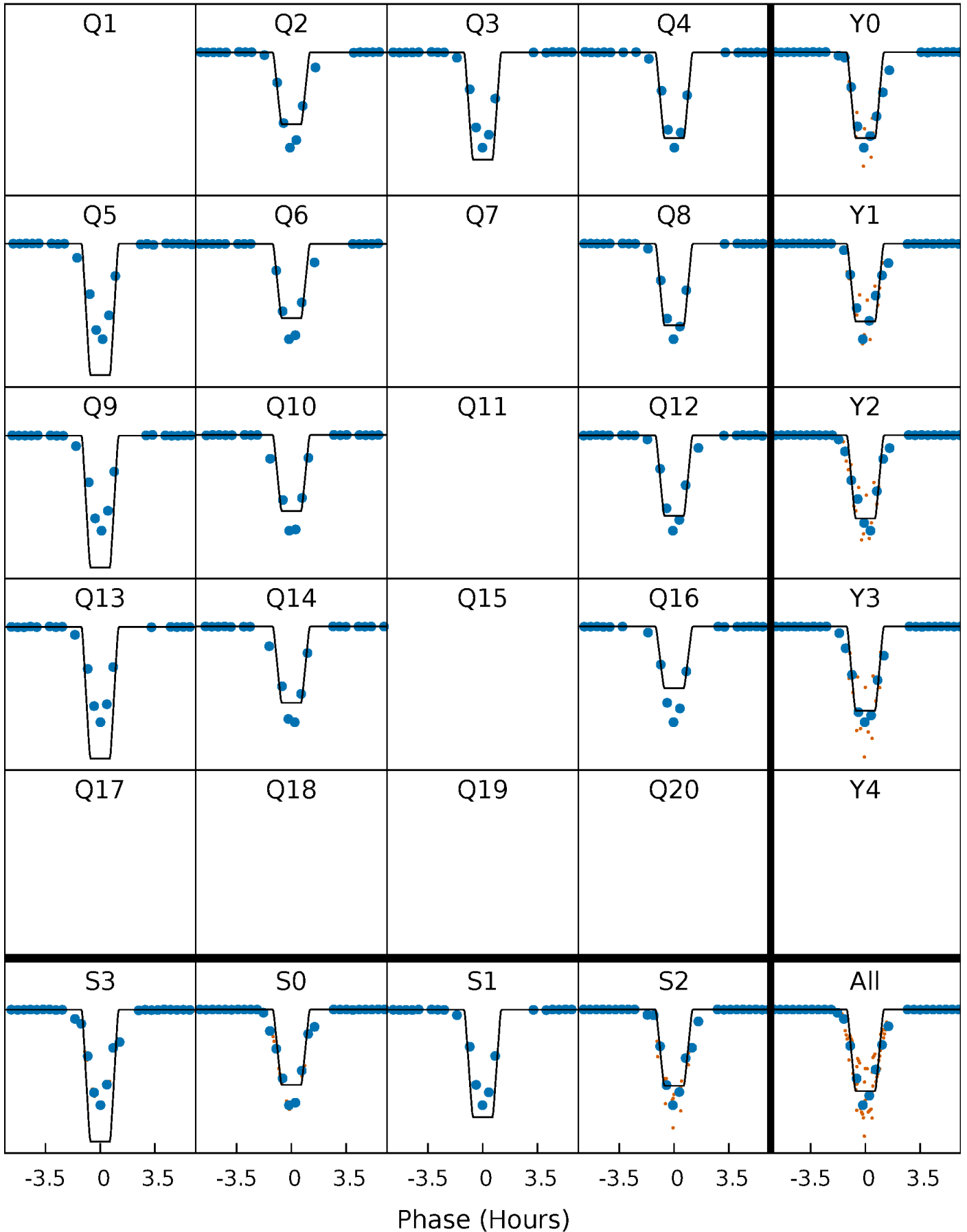
# DV Quarter-Phased Transit Curves

TCE 009783760-01 P= 89.739664 Days  $T_0=205.265487$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

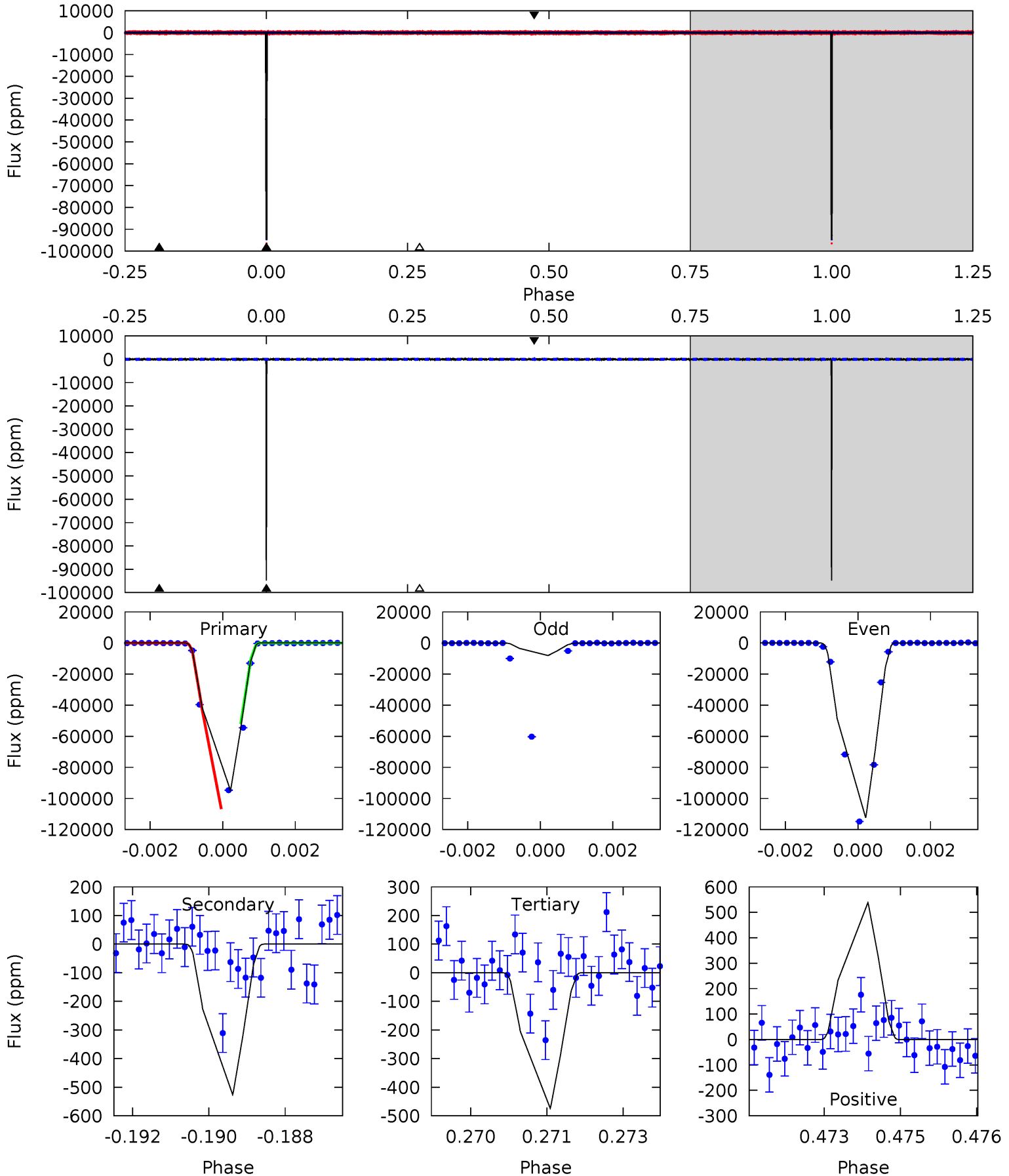
TCE 009783760-01 P= 89.739826 Days  $T_0=205.263967$  (BKJD)



# DV Model-Shift Uniqueness Test

009783760-01, P = 89.739664 Days, E = 115.525823 Days

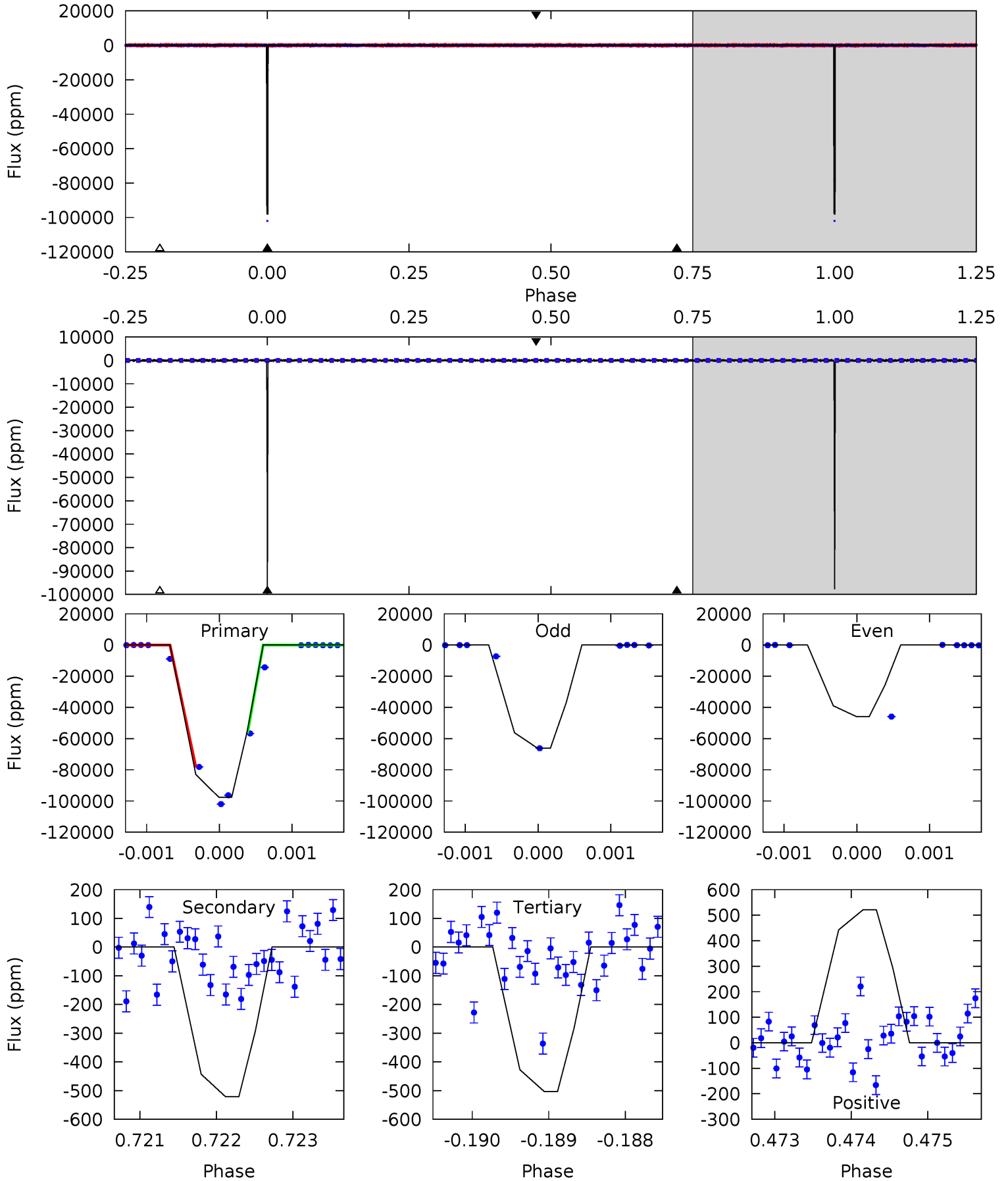
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2012	11.2	10.1	11.4	5.36	3.14	2.48	2002	2000	1.11	-0.25	1124	0.94	0.01	0



# Alt Model-Shift Uniqueness Test

009783760-01, P = 89.739826 Days, E = 115.524141 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
947.2	5.05	4.88	5.05	5.44	3.28	1.15	942.3	942.1	0.17	-0.00	84.3	0.94	0.01	0



### Stellar Parameters For KIC 009783760

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5777^{+157}_{-157}$	$4.608^{+0.036}_{-0.144}$	$-0.620^{+0.300}_{-0.300}$	$0.747^{+0.163}_{-0.061}$	$0.832^{+0.077}_{-0.086}$	$2.806^{+0.422}_{-1.209}$
	+3%/-3%	+1%/-3%	+48%/-48%	+22%/-8%	+9%/-10%	+15%/-43%
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 009783760-01 / KOI 3487.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-526 \pm 47$	$29.95^{+4.25}_{-3.44}$	$515^{+26}_{-21}$	$2366^{+67}_{-70}$	$43^{+12}_{-10}$
Alt.	$-521 \pm 103$	$25.63^{+3.69}_{-3.61}$	$517^{+25}_{-21}$	$2451^{+108}_{-87}$	$58^{+24}_{-16}$

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

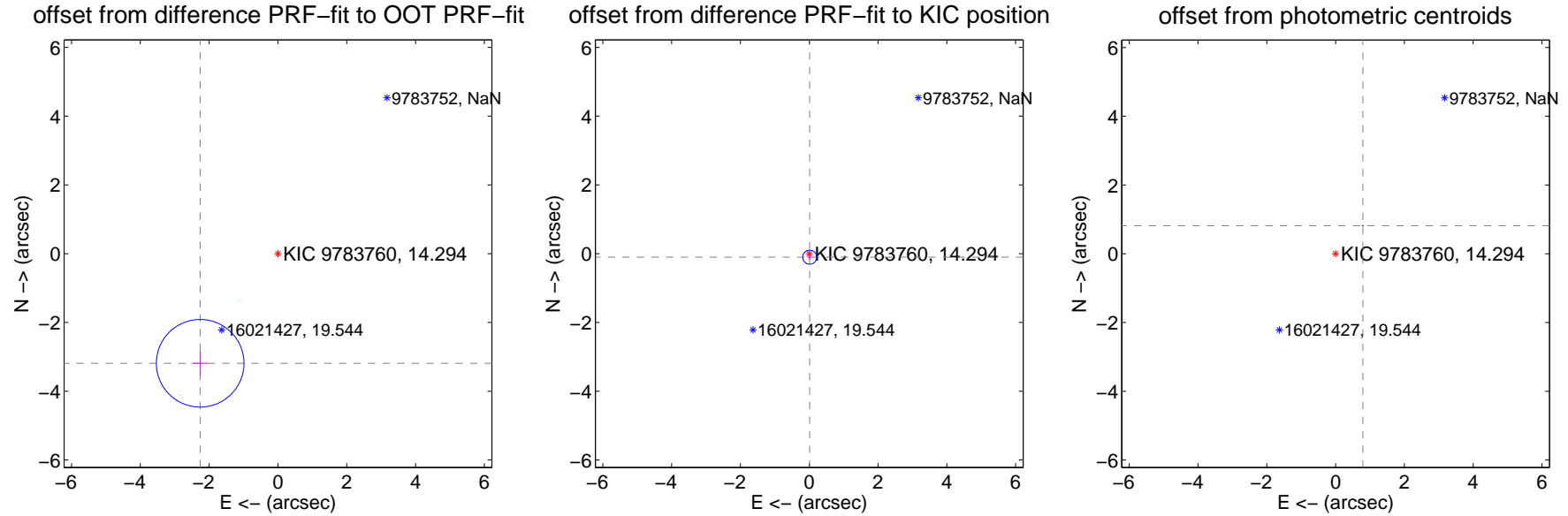
## DV Centroid Data

Supplemental centroid analysis for 009783760-01. Kepler magnitude: 14.29. Transit SNR 1097.55

There are 9 quarters with good PRF difference image offsets

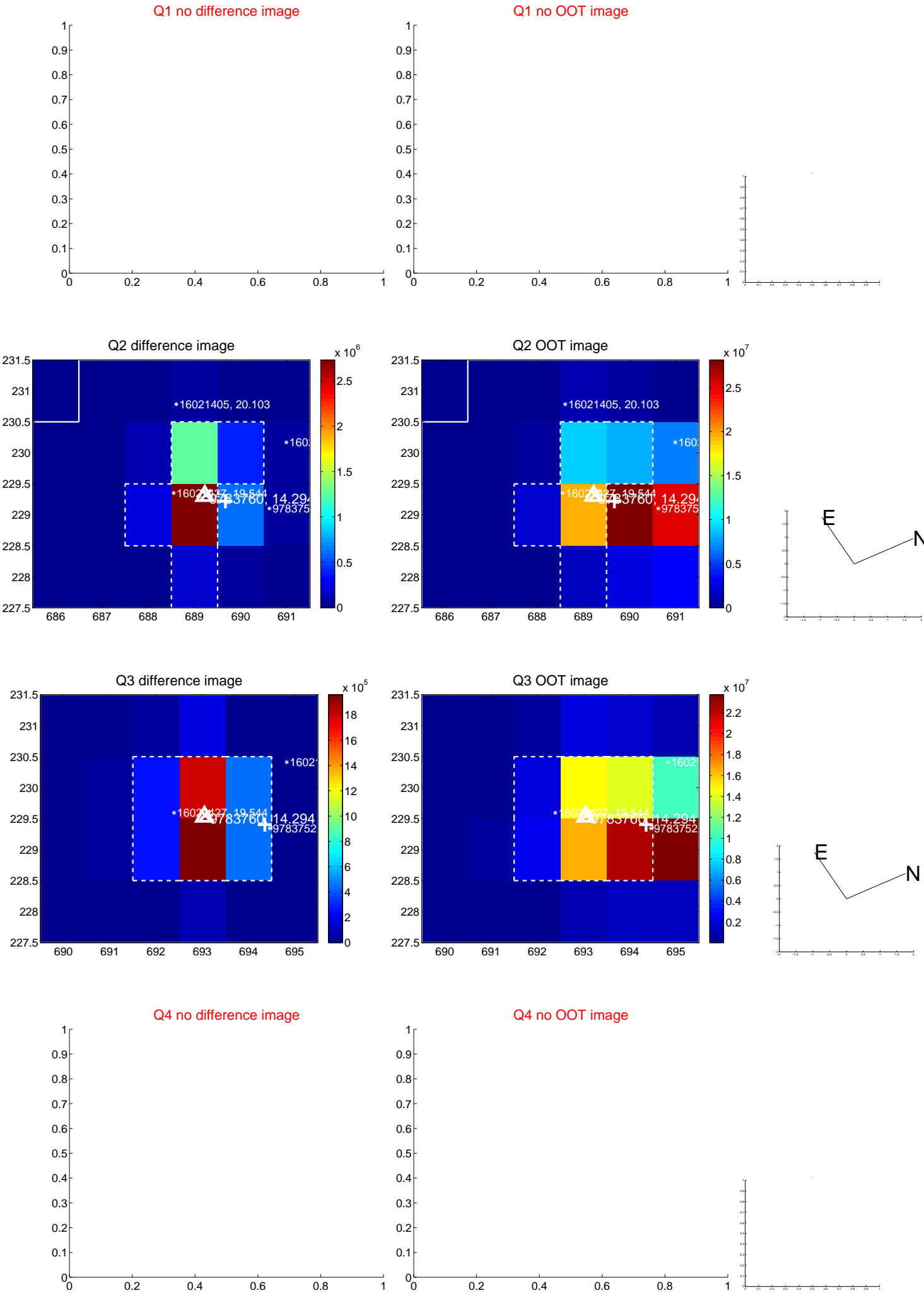
The OOT PRF centroid is offset from the target star catalog position by about 4.98 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.908 \pm 0.425$	9.21	$2.261 \pm 0.231$	$-3.188 \pm 0.364$
PRF-fit source offset from KIC position	$0.103 \pm 0.068$	1.51	$-0.013 \pm 0.068$	$-0.102 \pm 0.068$
photometric centroid source offset	$1.14 \pm 0.00$	390.73	$-0.79 \pm 0.00$	$0.81 \pm 0.00$

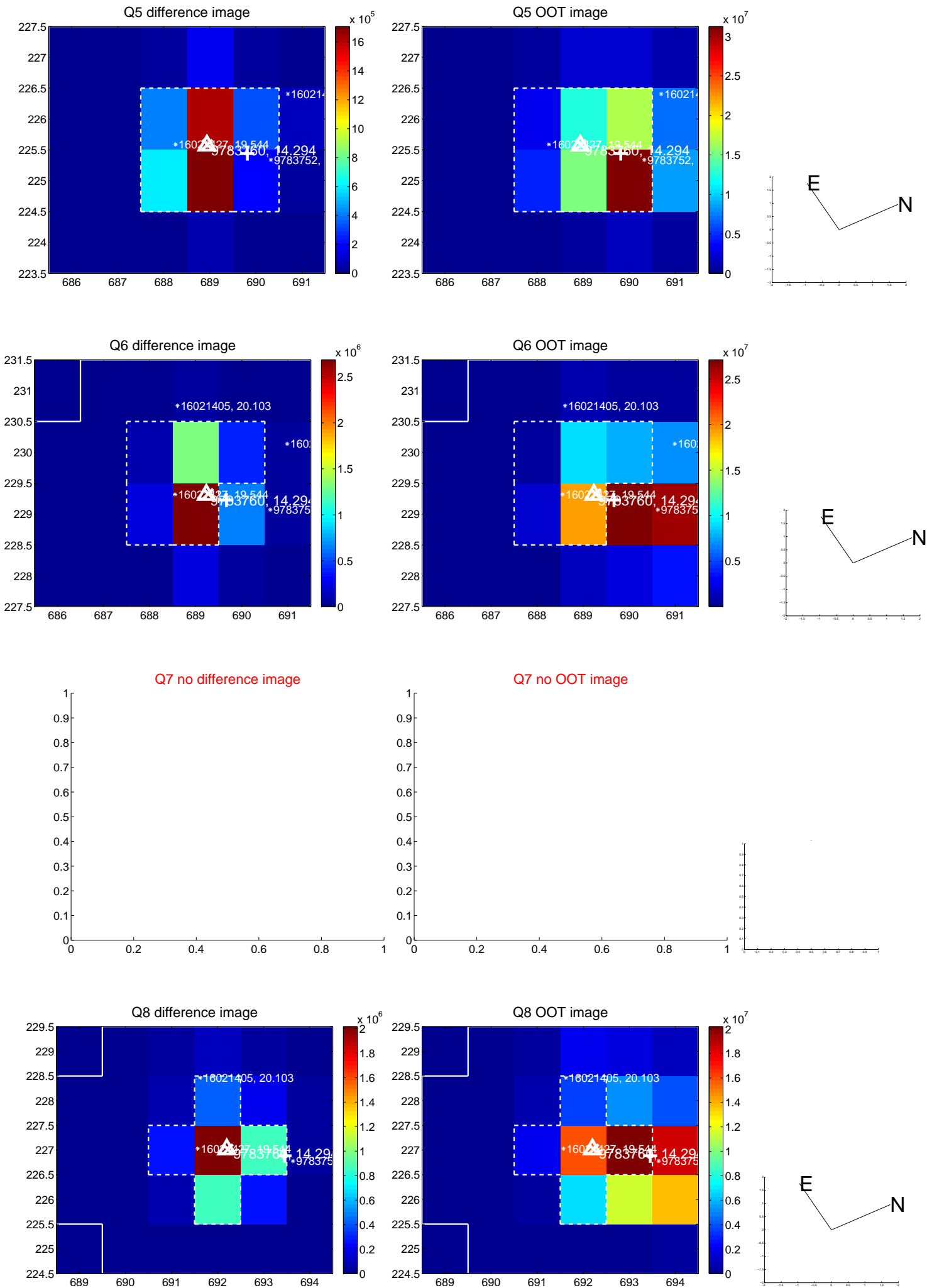


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

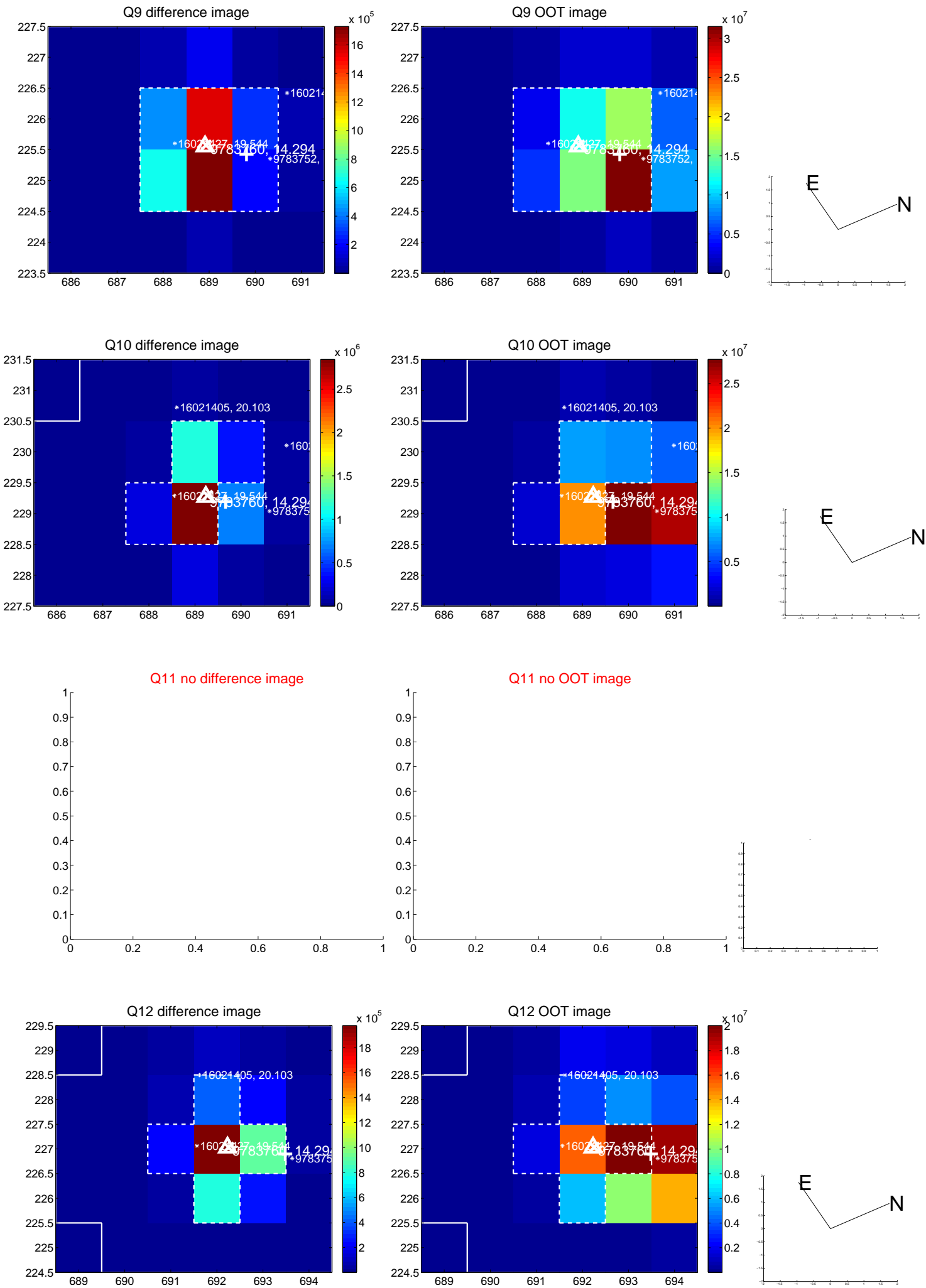


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

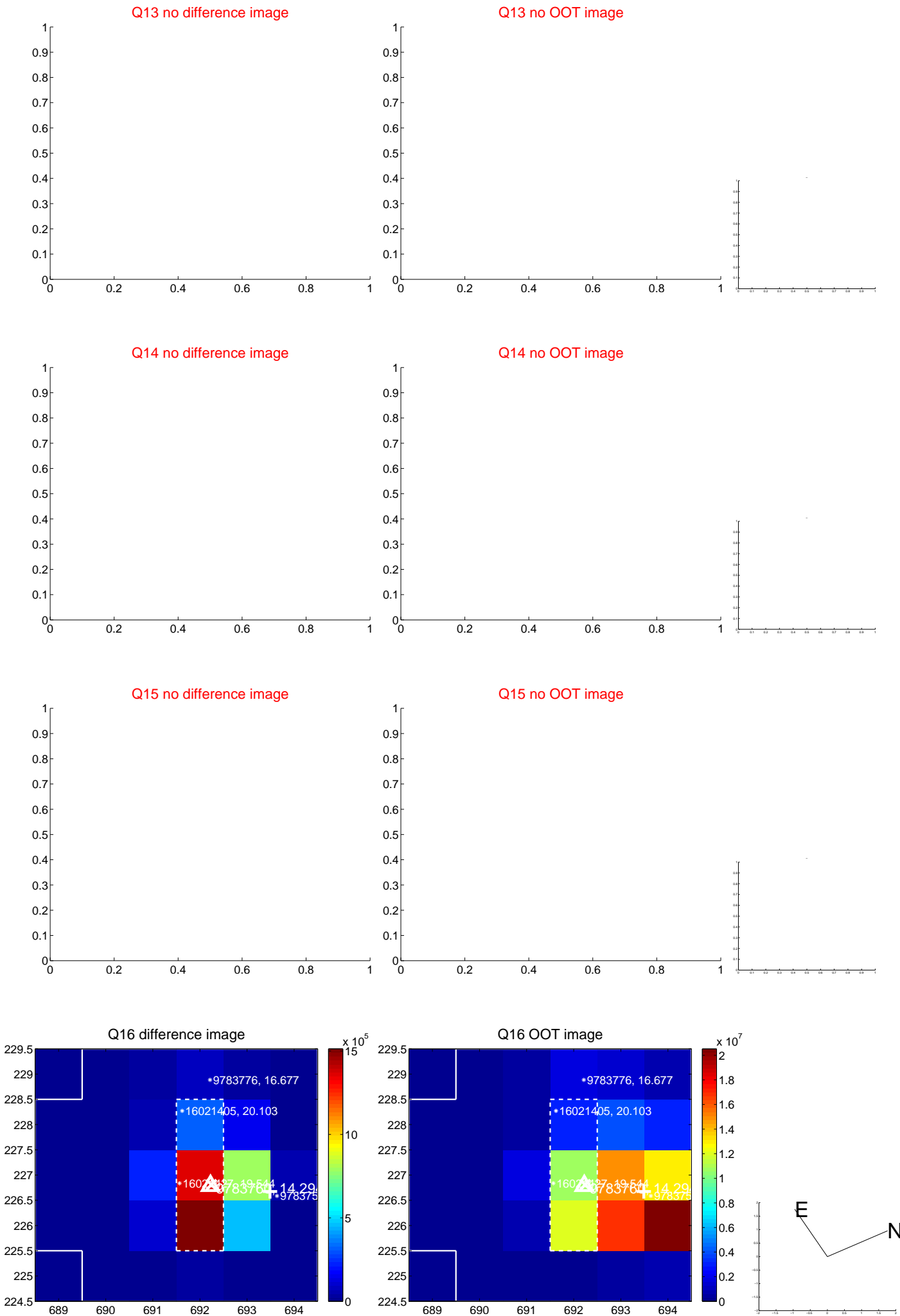




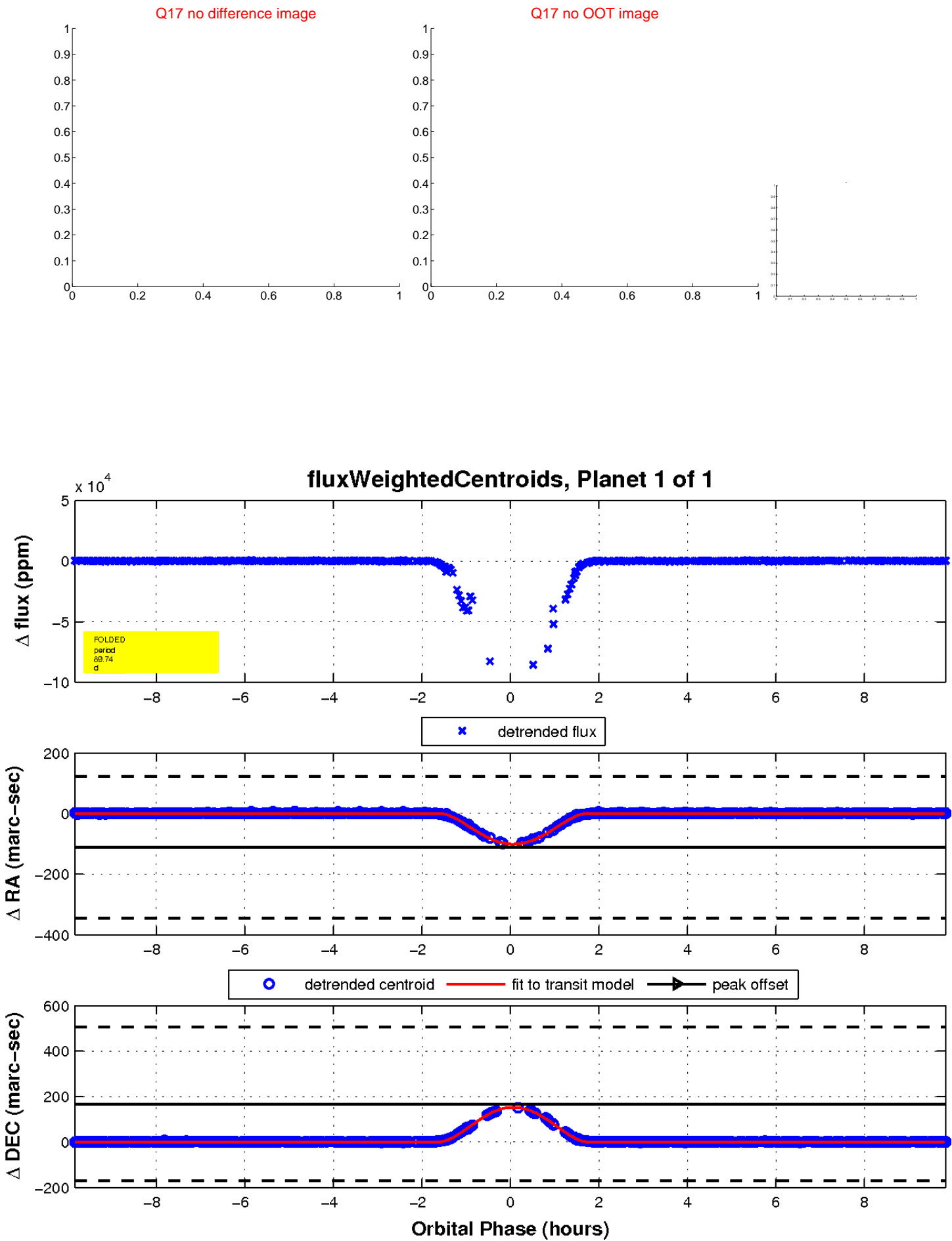
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

