

# KIC 005444384

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005444384-01	OBS	1778.01	0.759750	131.803179	3841.9	4.792	1109.3	302.5	1.05	6033	10.58	4451.31

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005444384-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—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 005444384-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
005444384-01	5444384	005444392-pri	5444392	1:2	15.6	-2	4	11.38	15.55	107.13	Direct-PRF	0	3.74	0.91

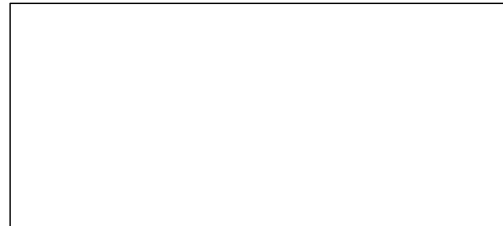
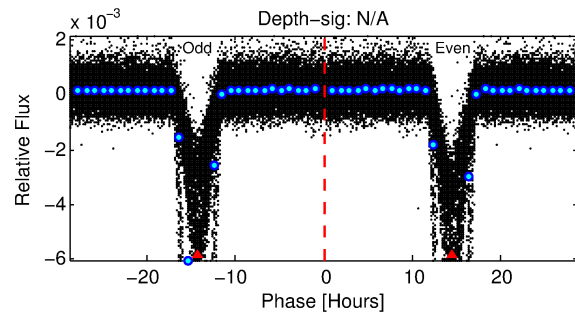
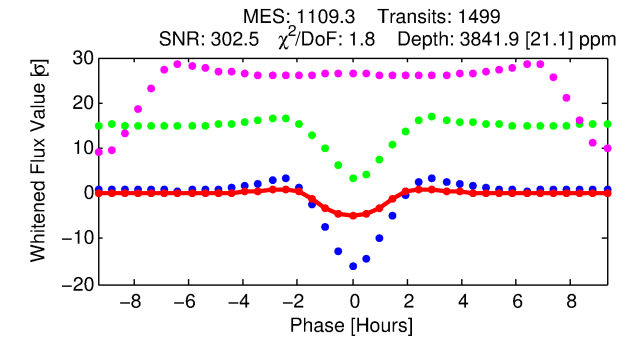
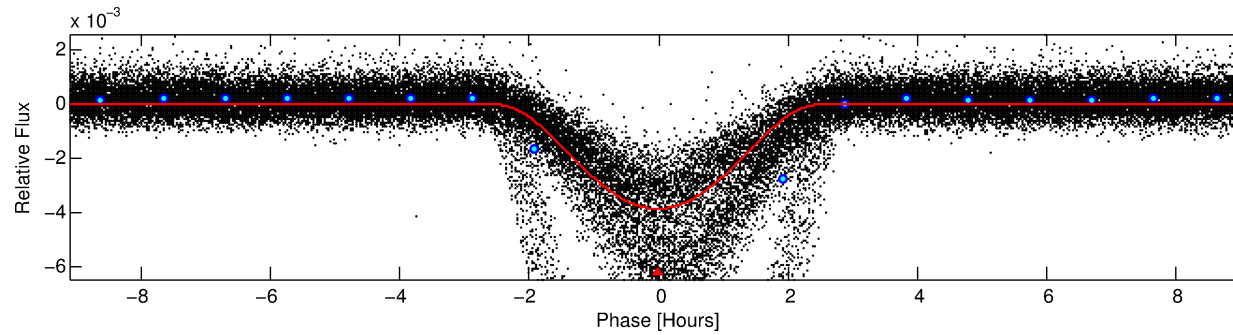
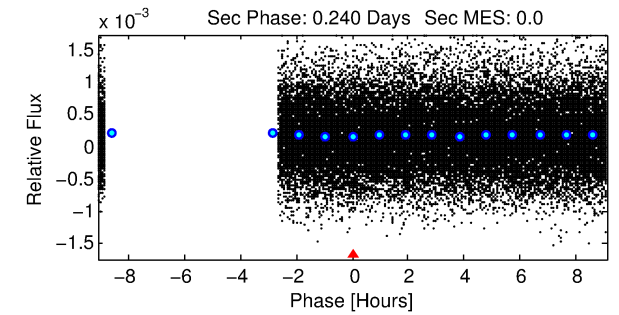
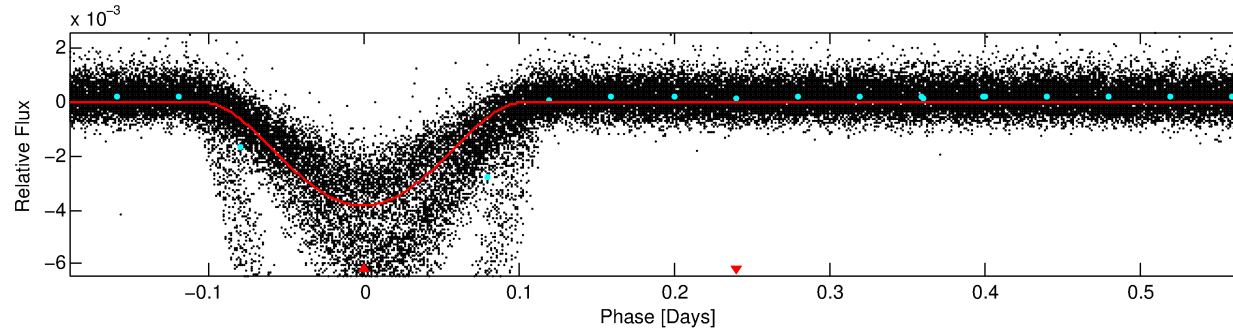
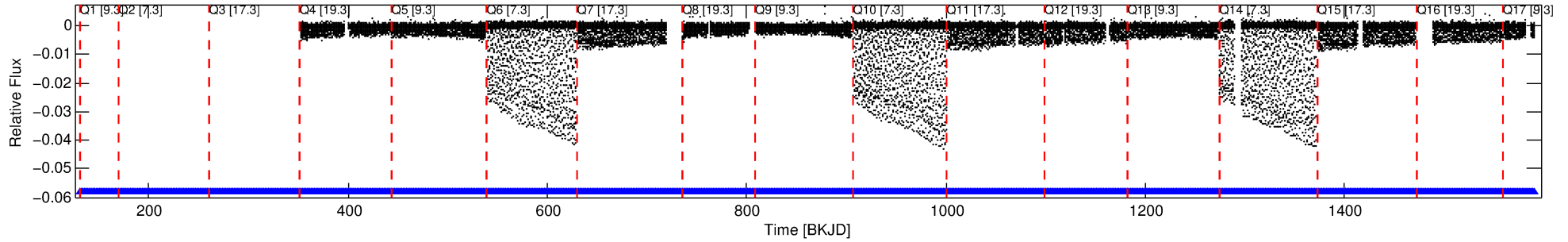
**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit 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: 5444384 Candidate: 1 of 1 Period: 0.760 d

KOI: K01778 Corr: No Ephemeris Match

Kp: 15.55 R\*: 1.05 Rs Teff: 6033.0 K Logg: 4.46 Fe/H: 0.210



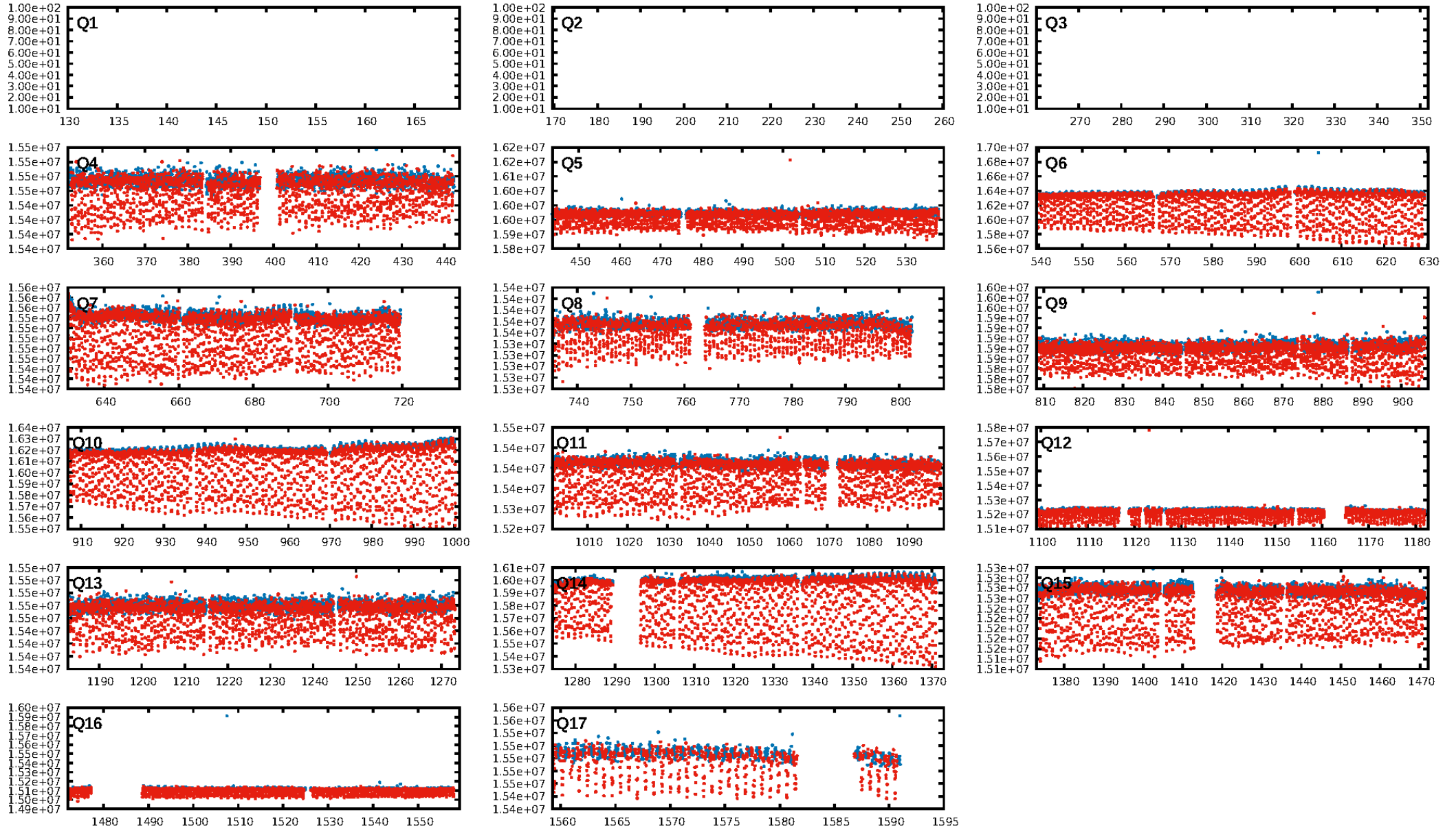
## DV Fit Results:

Period = 0.75975 [0.00000] d  
Epoch = 131.8032 [0.0002] BKJD  
Rp/R\* = 0.0927 [0.0065]  
a/R\* = 1.18 [0.00]  
b = 0.98 [0.01]  
Seff = 4451.31 [1767.75]  
Teq = 2083 [207] K  
Rp = 10.58 [3.25] Re  
a = 0.0171 [0.0043] AU  
Ag = N/A  
Teffp = N/A

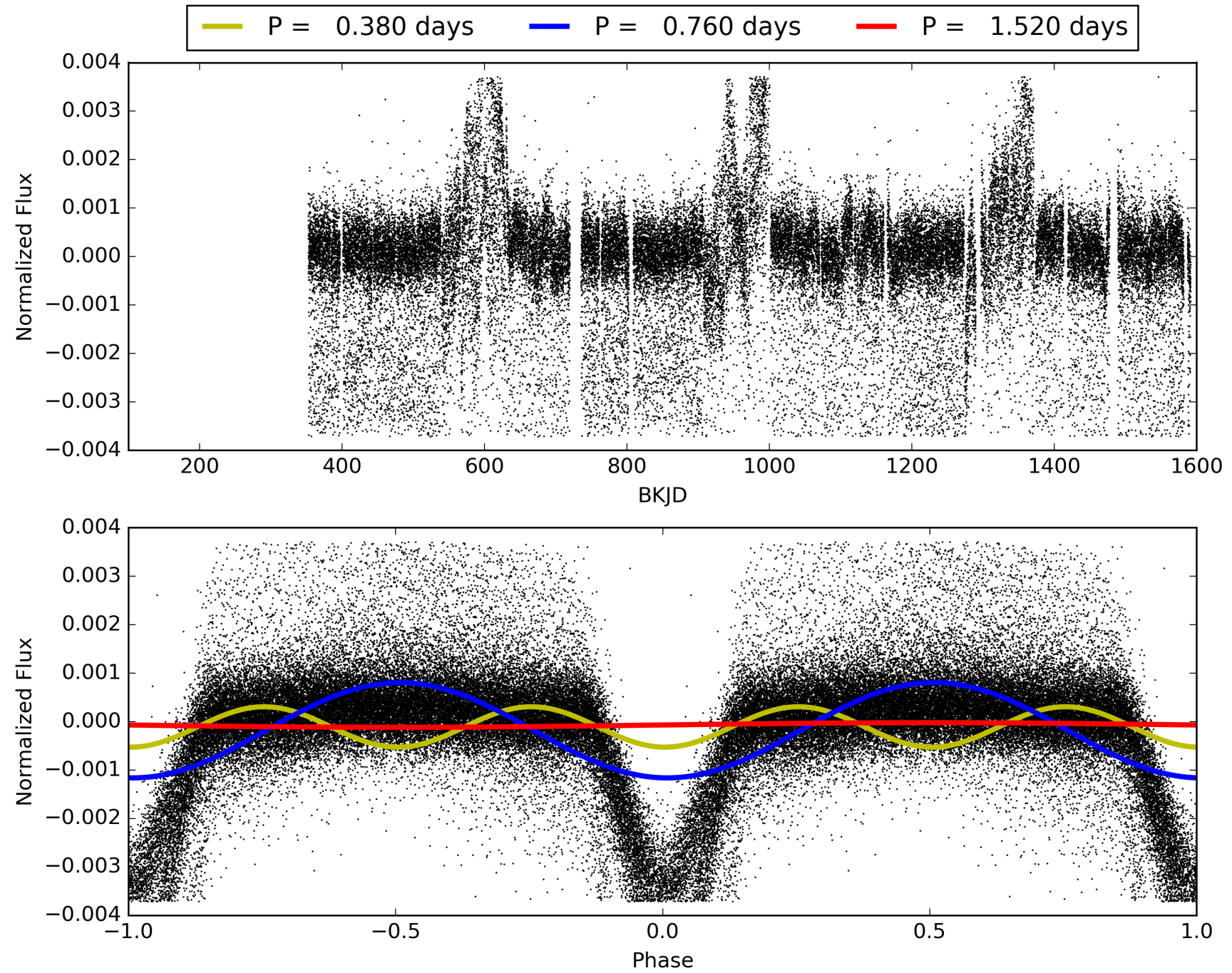
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1463/1463]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
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]

# TCE 005444384-01, PDC Light Curves

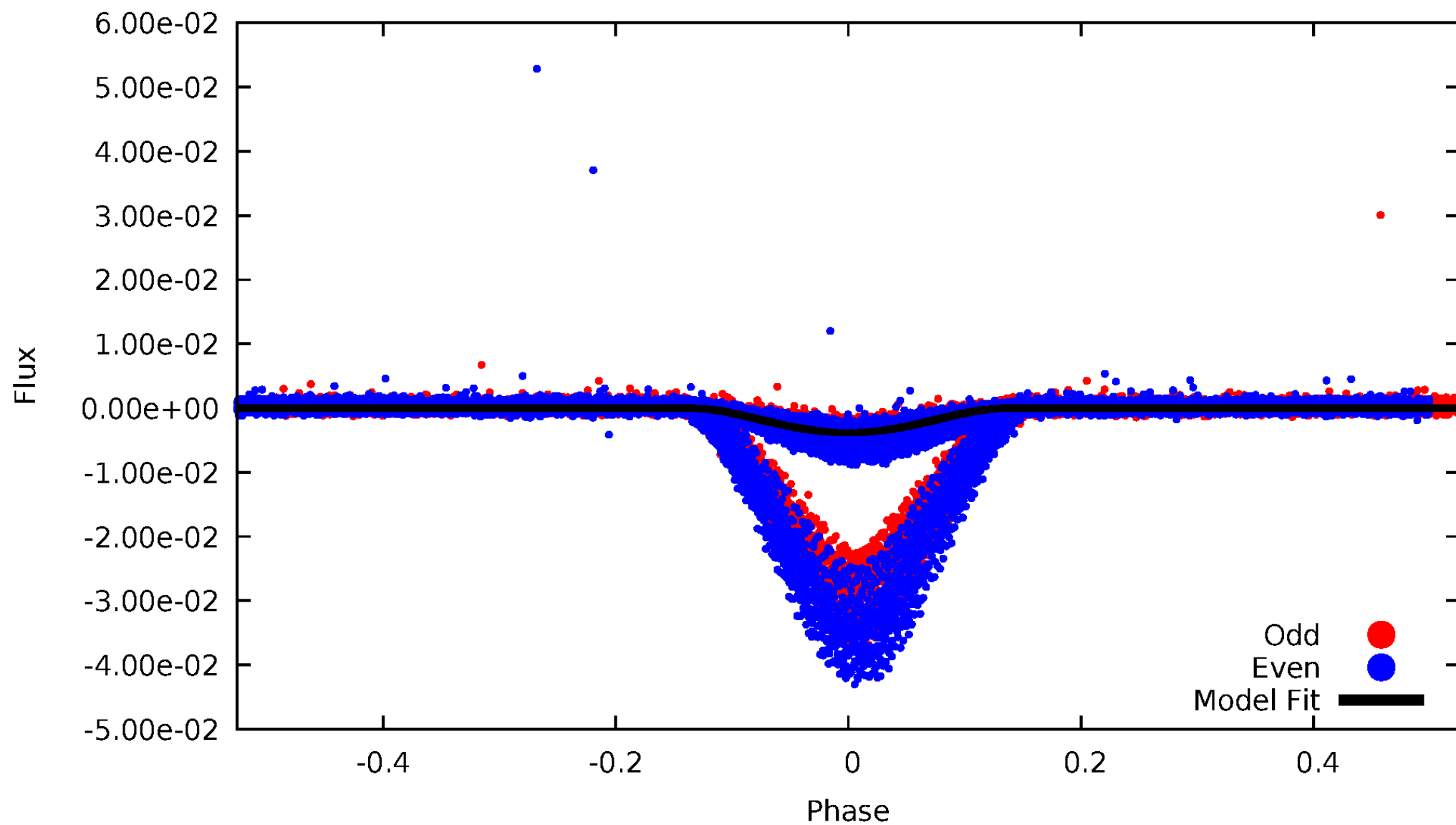


TCE 005444384-01



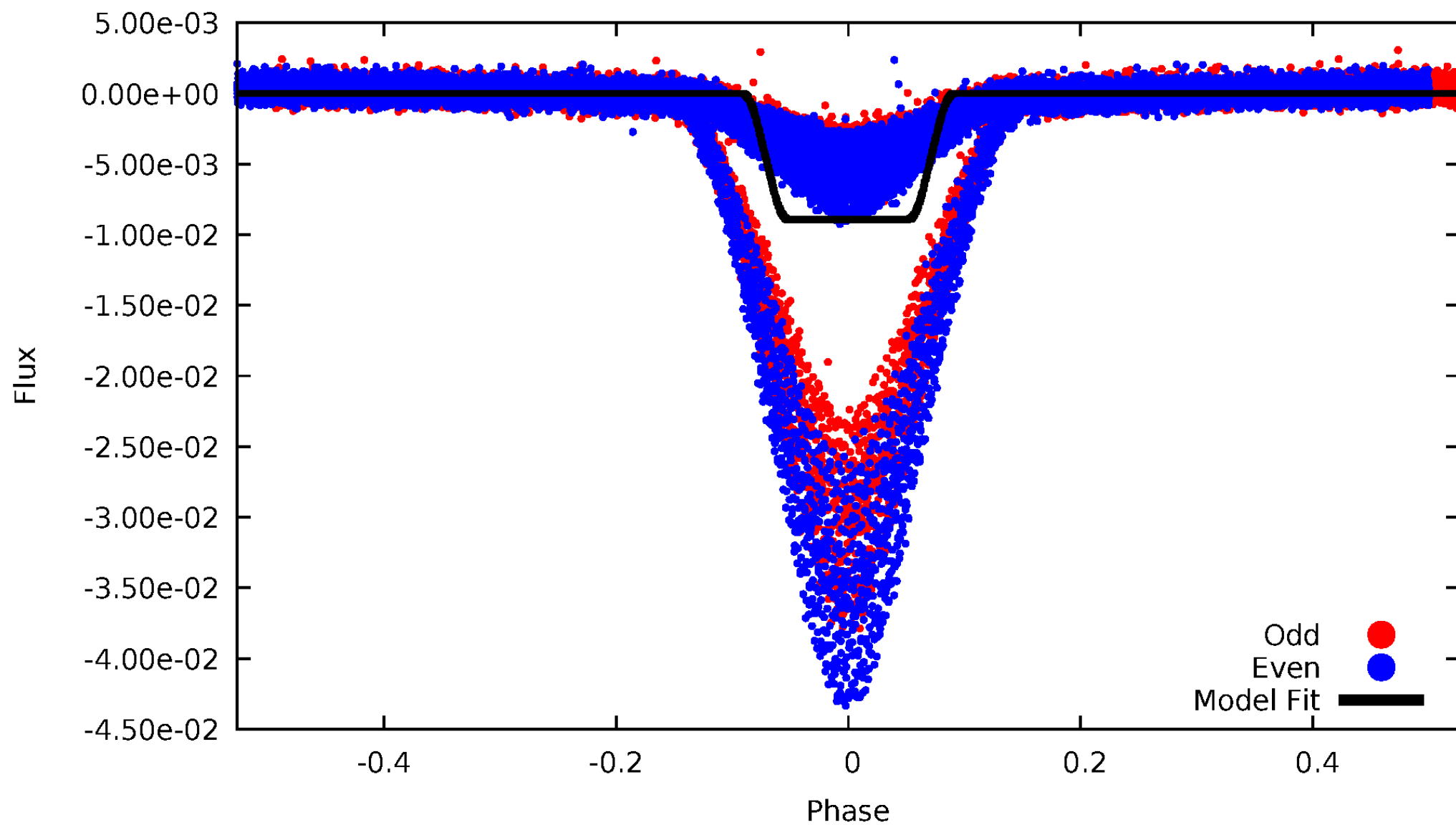
# DV Odd/Even

TCE 005444384-01



# ALT Odd/Even

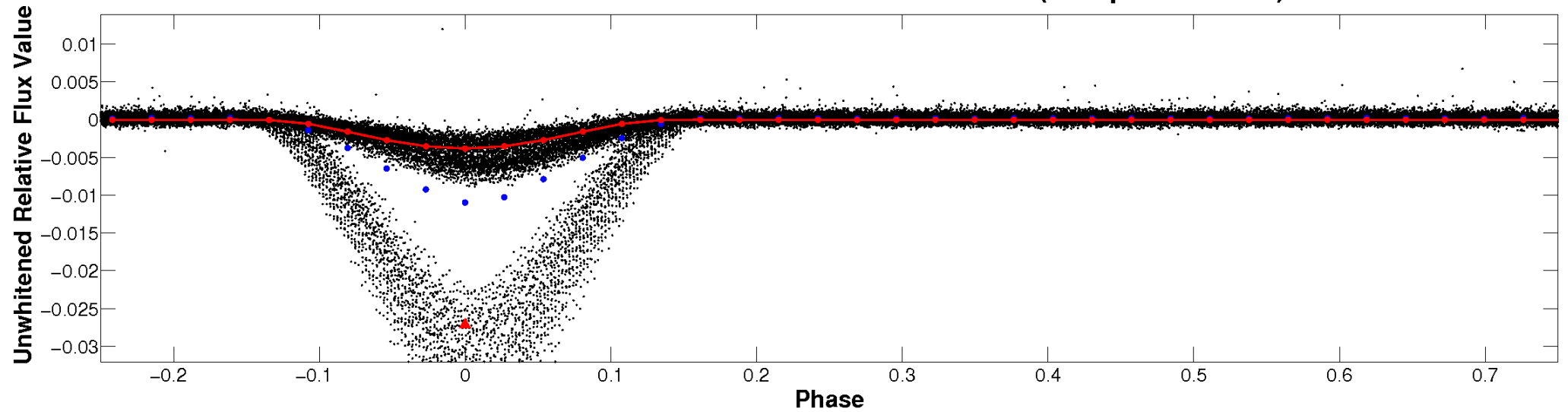
TCE 005444384-01



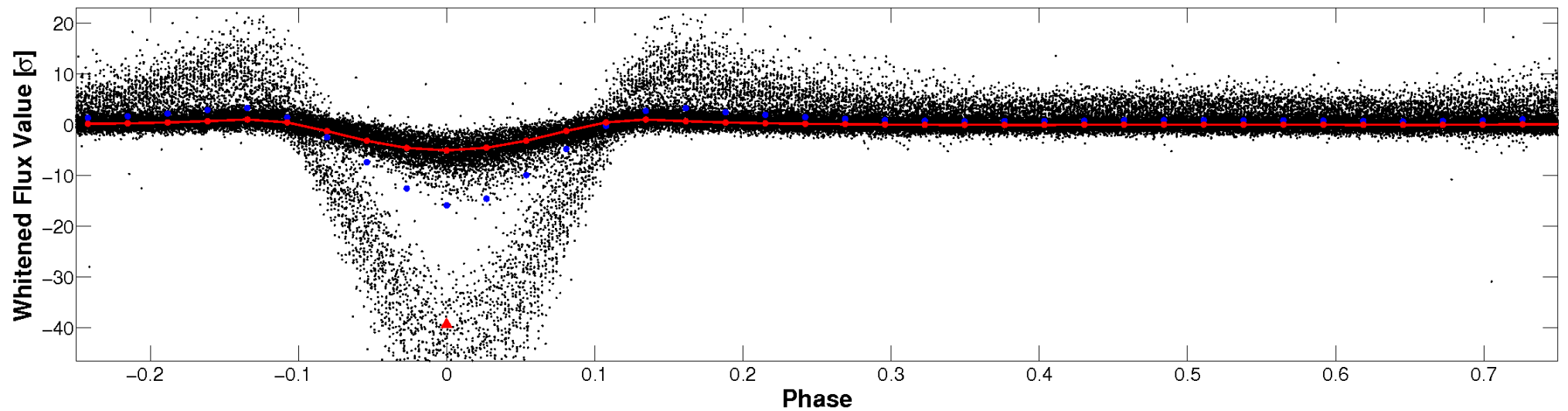


# Non-Whitened Vs. Whitened Light Curve

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

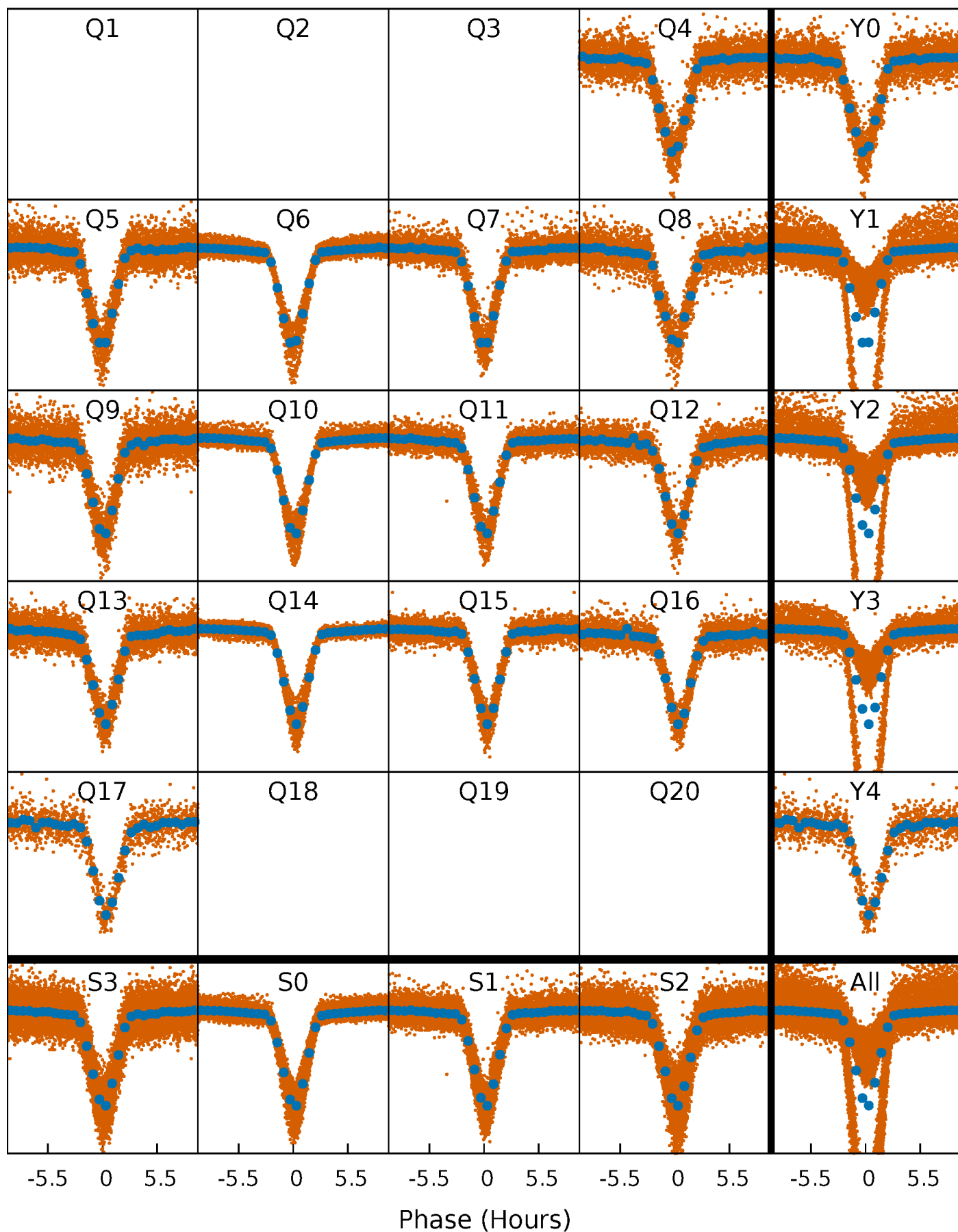


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

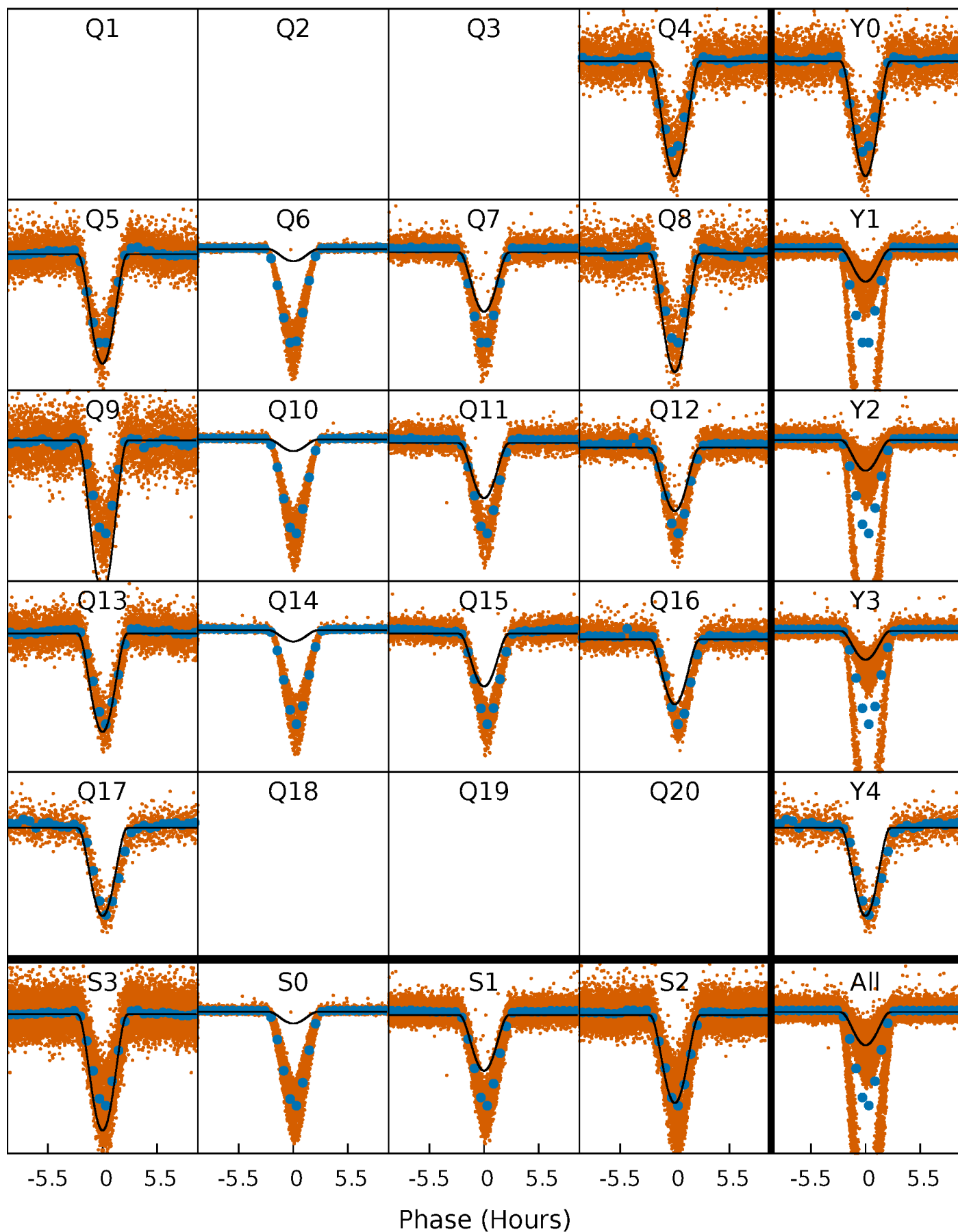
TCE 005444384-01 P= 0.759750 Days  $T_0=131.803179$  (BKJD)





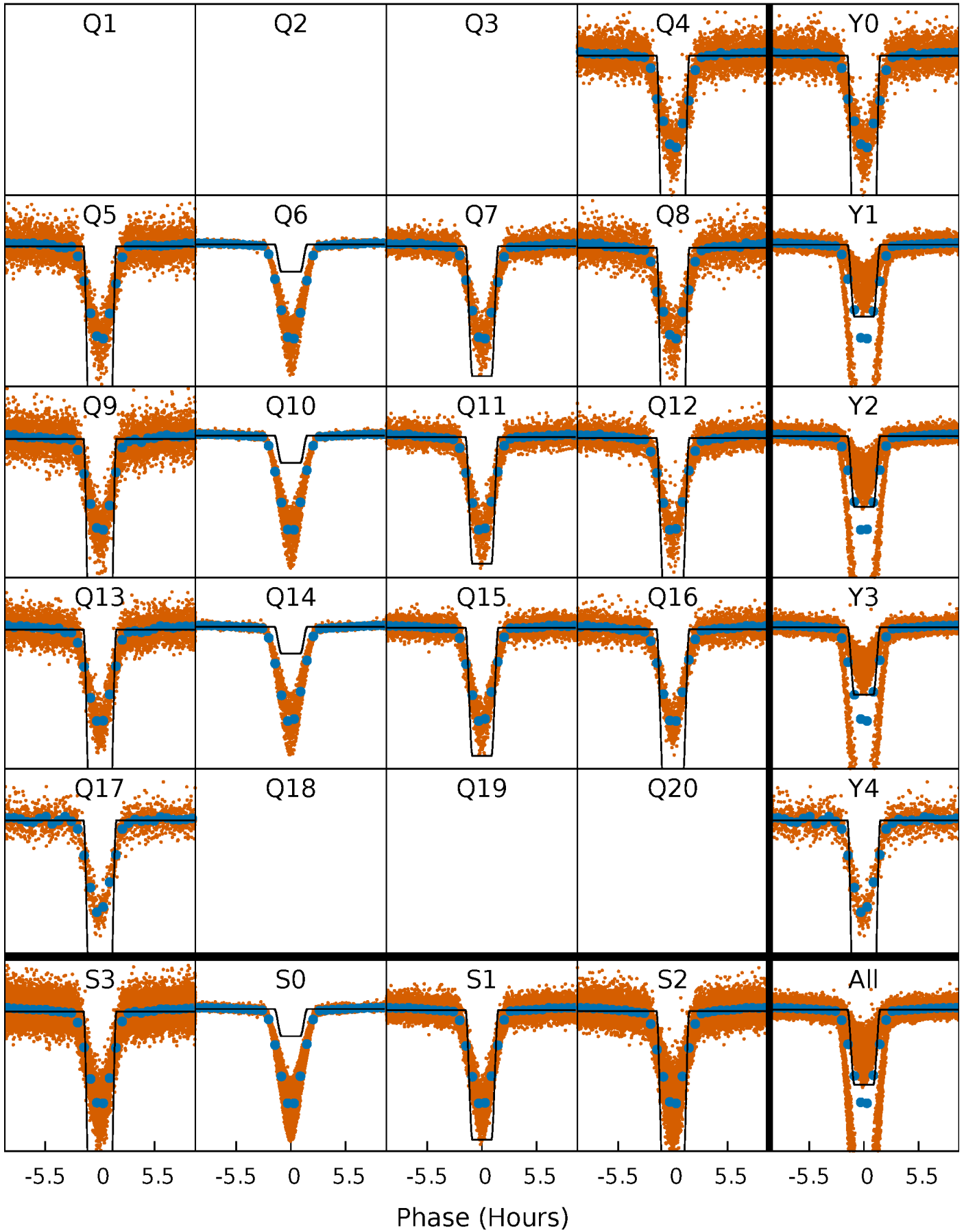
# DV Quarter-Phased Transit Curves

TCE 005444384-01 P= 0.759750 Days  $T_0=131.803179$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

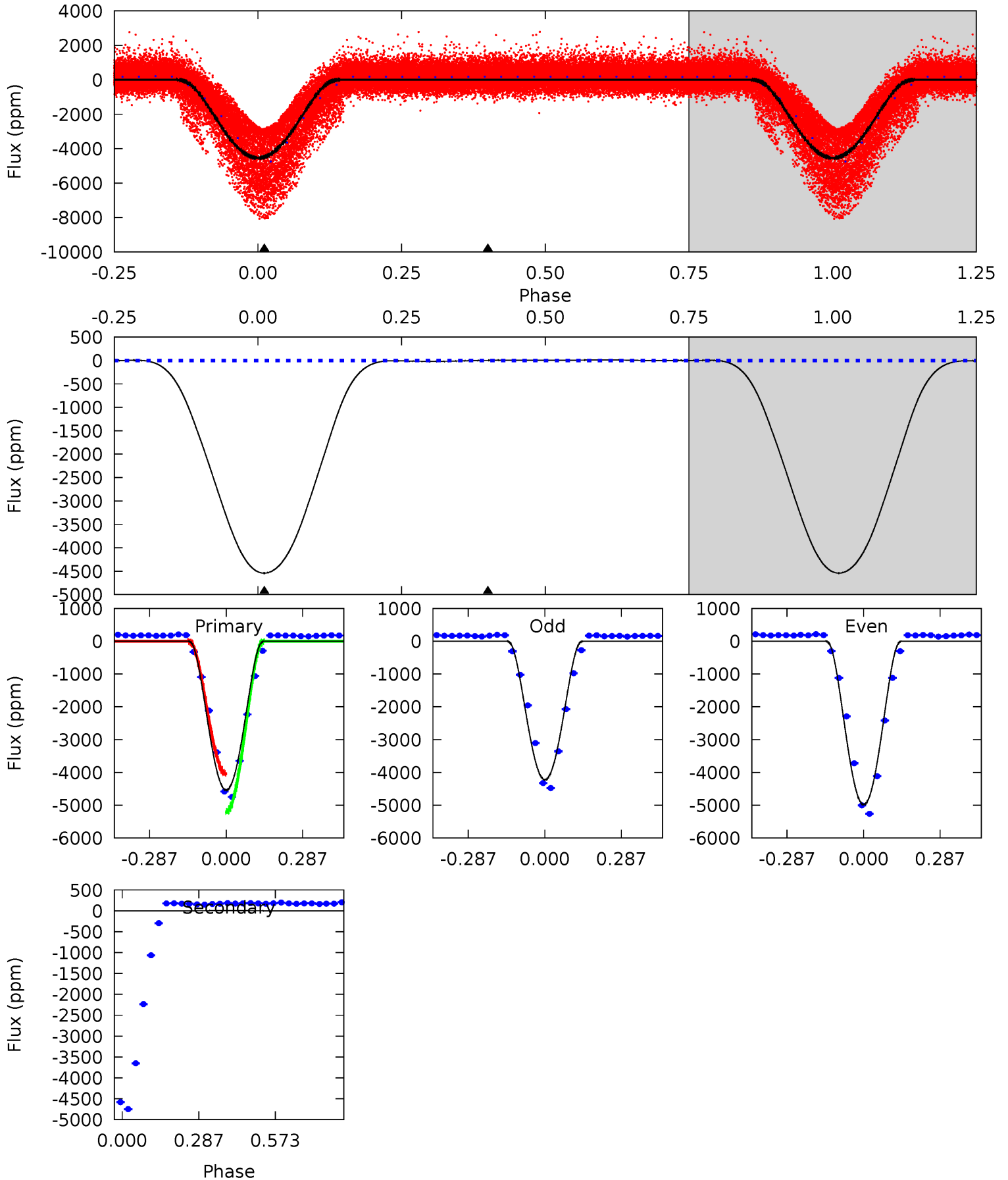
TCE 005444384-01 P= 0.759766 Days  $T_0=131.790688$  (BKJD)



# DV Model-Shift Uniqueness Test

005444384-01, P = 0.759750 Days, E = 131.803179 Days

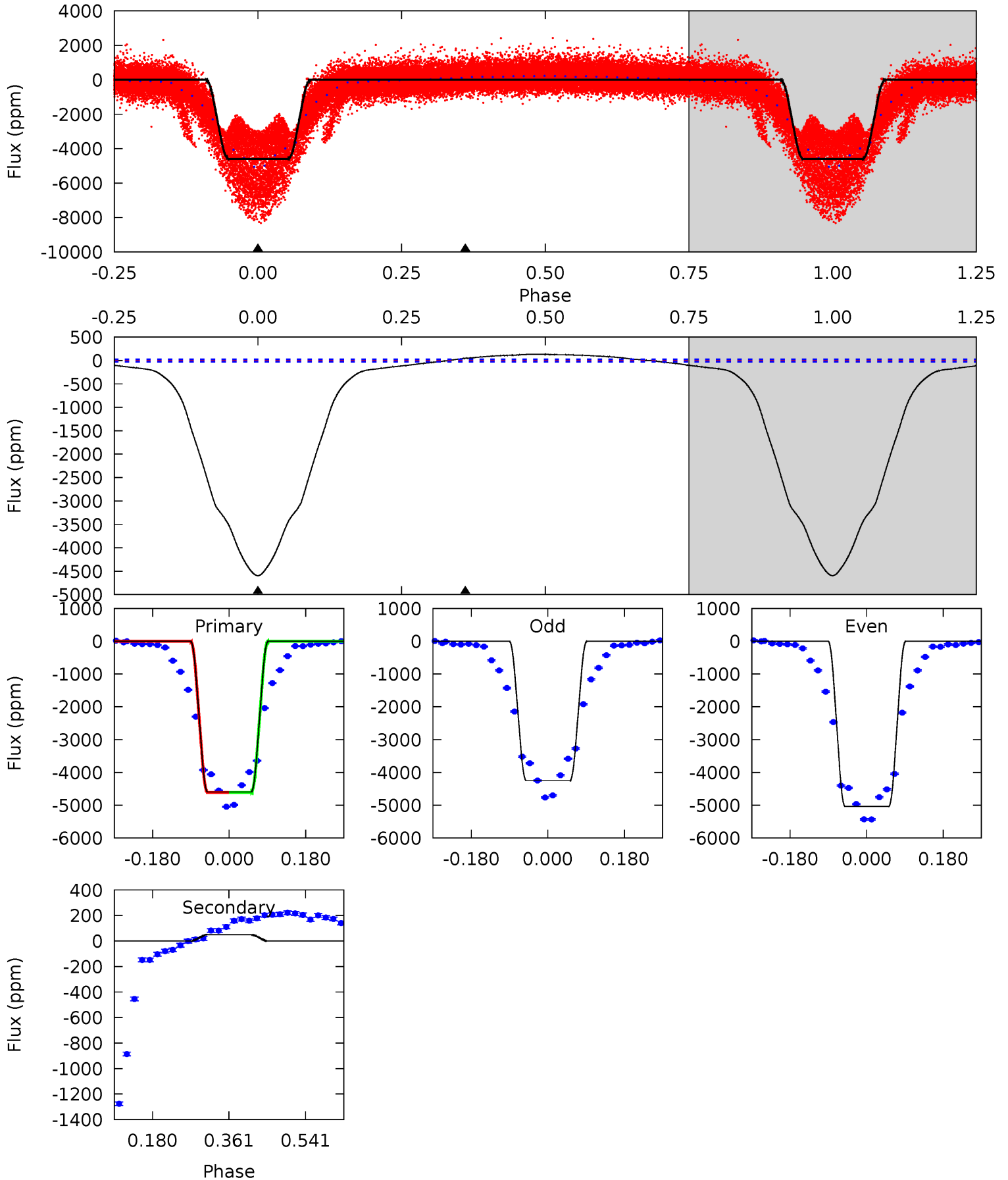
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1003	-0.95	0	0	4.34	1.07	0.36	1003	1003	-0.95	-0.95	82.4	2.11	0.00	0



# Alt Model-Shift Uniqueness Test

005444384-01, P = 0.759766 Days, E = 131.790688 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
770.5	-8.04	0	0	4.44	1.34	16.9	770.5	770.5	-8.04	-8.04	64.9	2.03	0.03	0



### Stellar Parameters For KIC 005444384

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6033^{+190}_{-232}$	$4.460^{+0.050}_{-0.200}$	$0.210^{+0.200}_{-0.300}$	$1.046^{+0.313}_{-0.125}$	$1.153^{+0.125}_{-0.152}$	$1.418^{+0.370}_{-0.705}$
	+3%/-4%	+1%/-4%	+95%/-143%	+30%/-12%	+11%/-13%	+26%/-50%
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 005444384-01 / KOI 1778.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$4\pm5$	$10.90^{+1.92}_{-1.14}$	$2971^{+215}_{-156}$	$-3086^{+98}_{-126}$	$-0.005^{+0.005}_{-0.006}$
Alt.	$48\pm6$	$11.19^{+1.92}_{-1.22}$	$2983^{+213}_{-144}$	$-3172^{+90}_{-114}$	$-0.059^{+0.016}_{-0.017}$

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

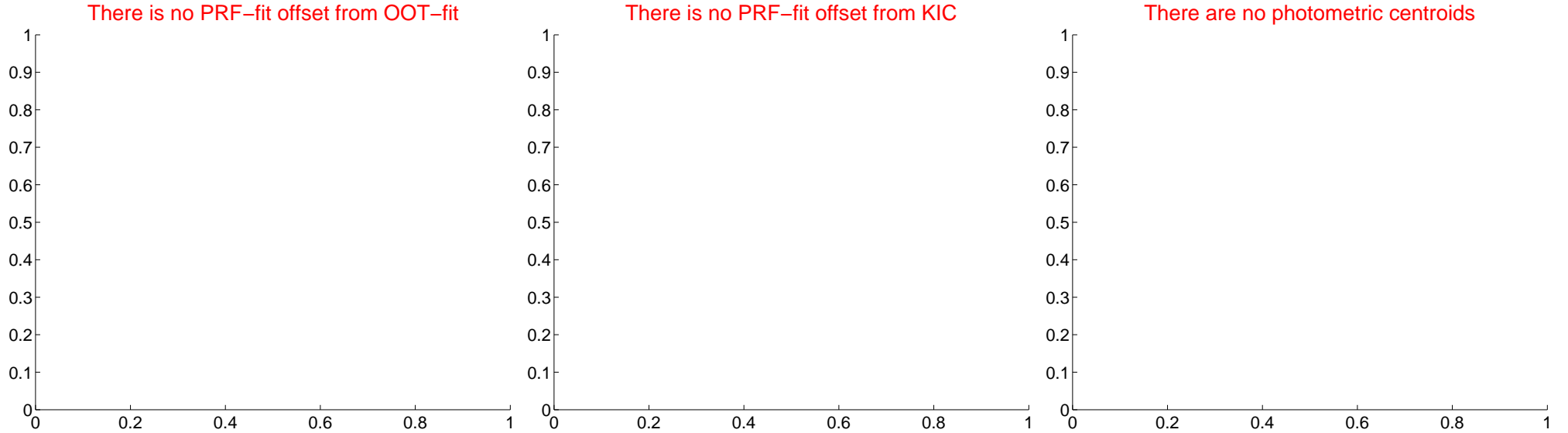
## DV Centroid Data

Supplemental centroid analysis for 005444384-01. Kepler magnitude: 15.55. Transit SNR 302.47

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

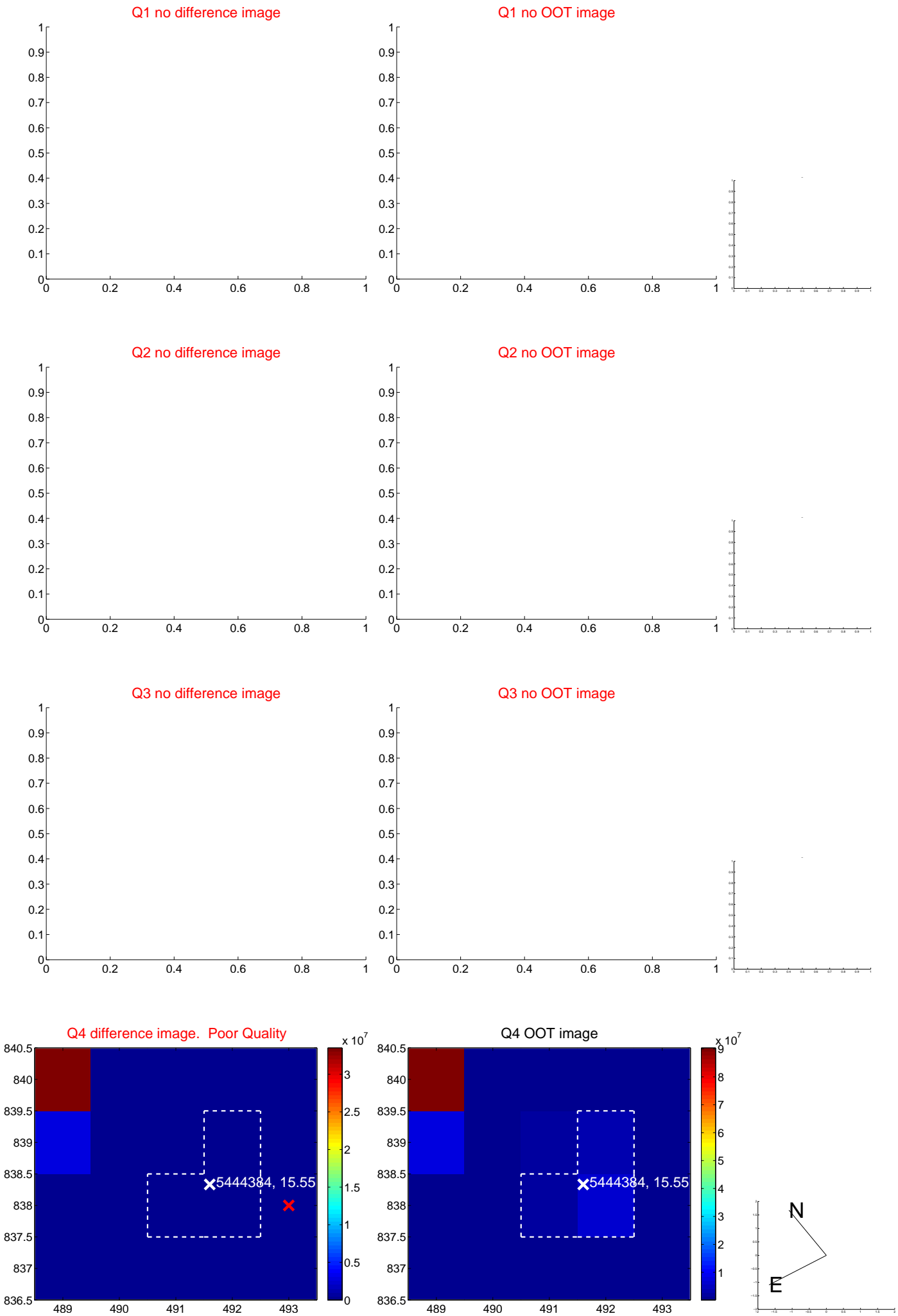
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	—	—	—	—



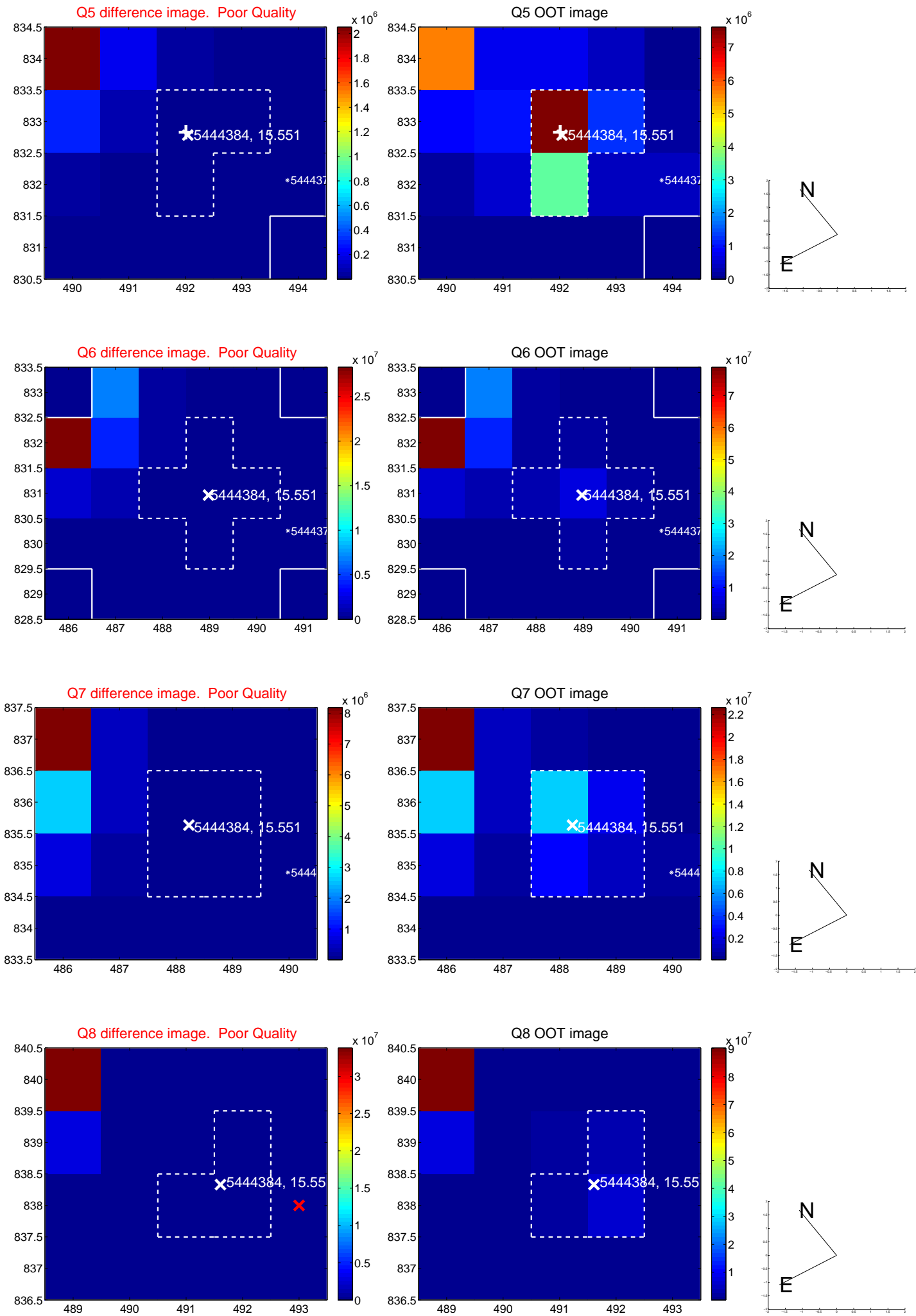
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



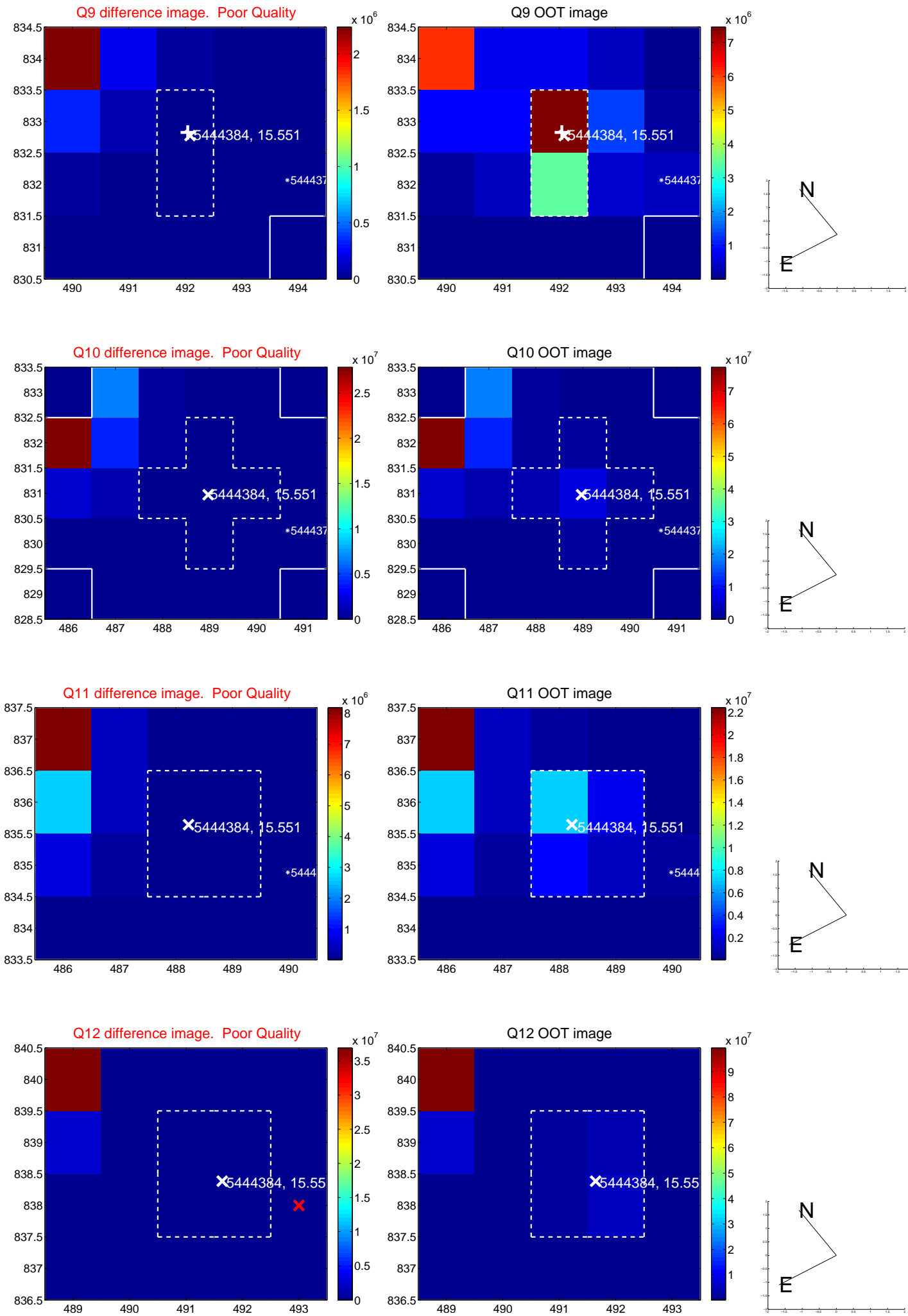
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



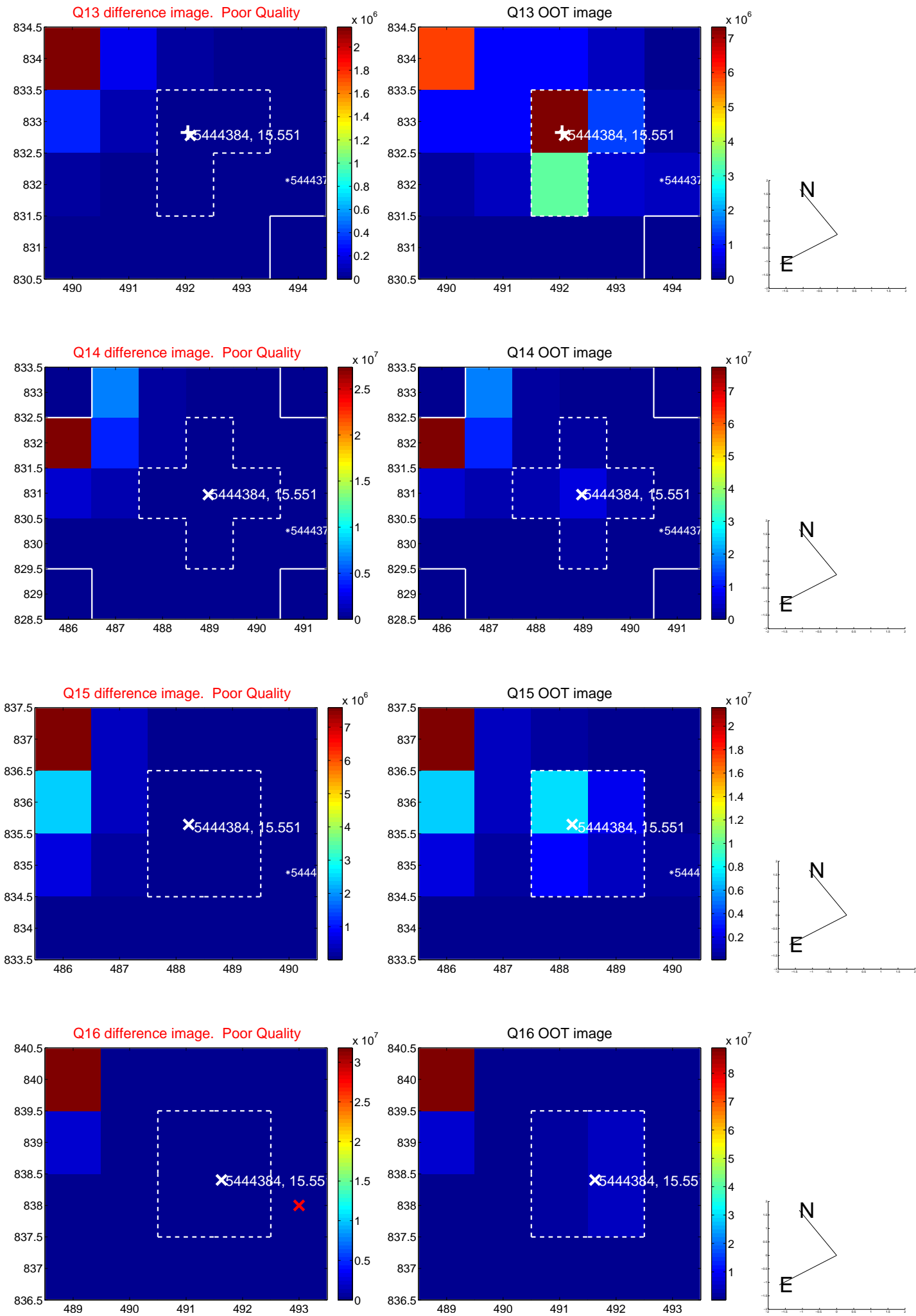
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



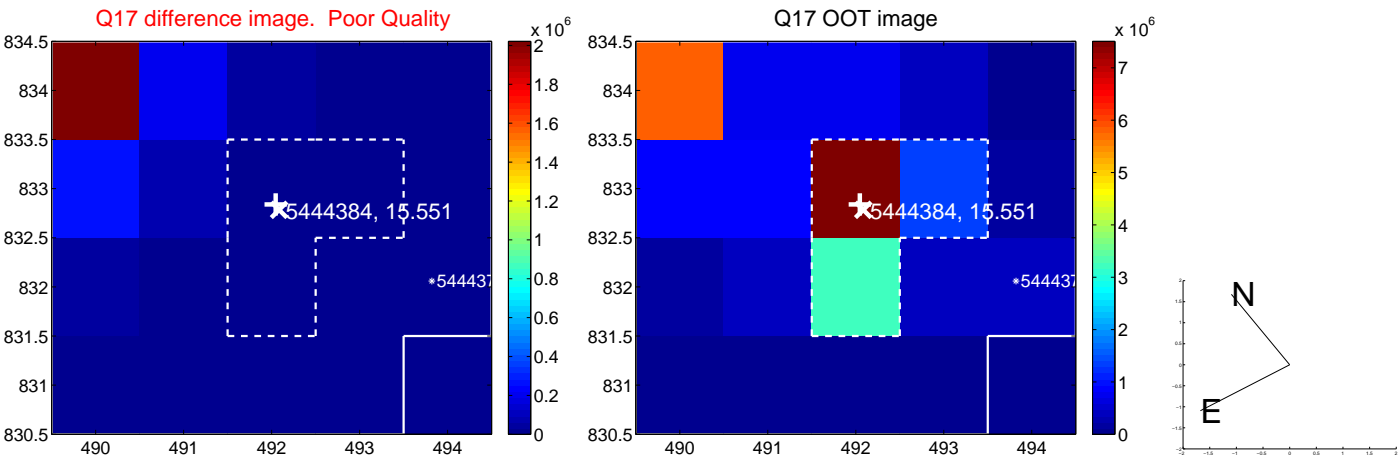
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

