

# KIC 005816806

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005816806-01	OBS	3645.01	2.227723	132.222804	192140.6	4.955	1942.4	1042.1	1.00	5780	44.61	897.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005816806-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—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 005816806-01

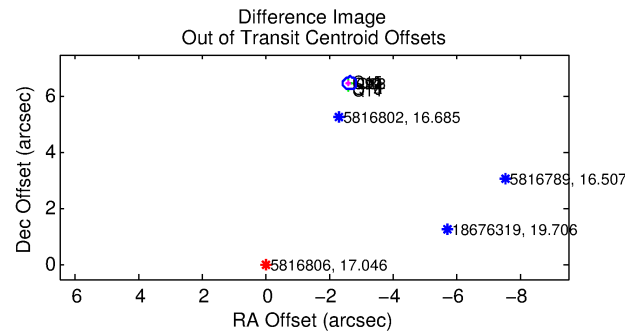
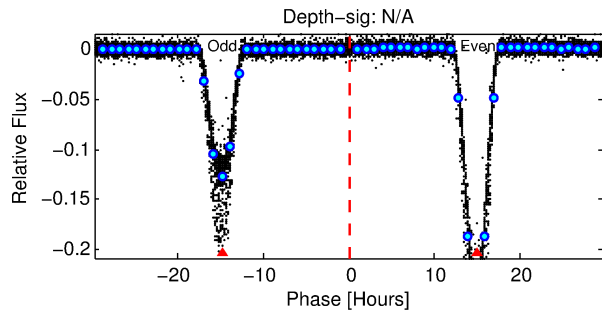
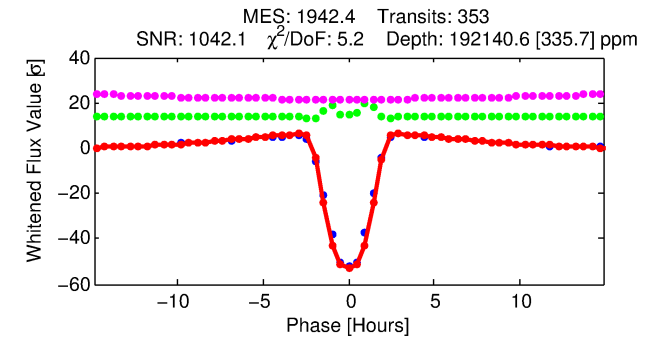
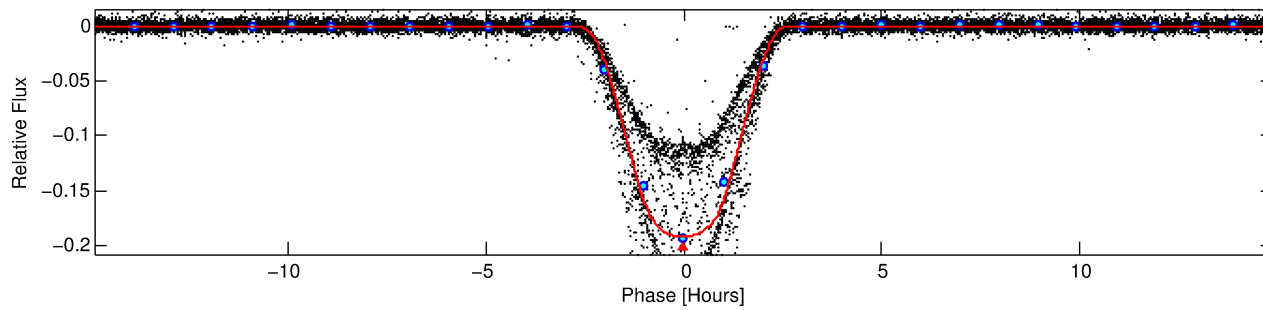
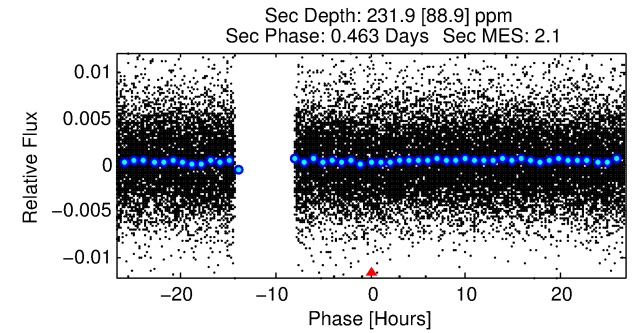
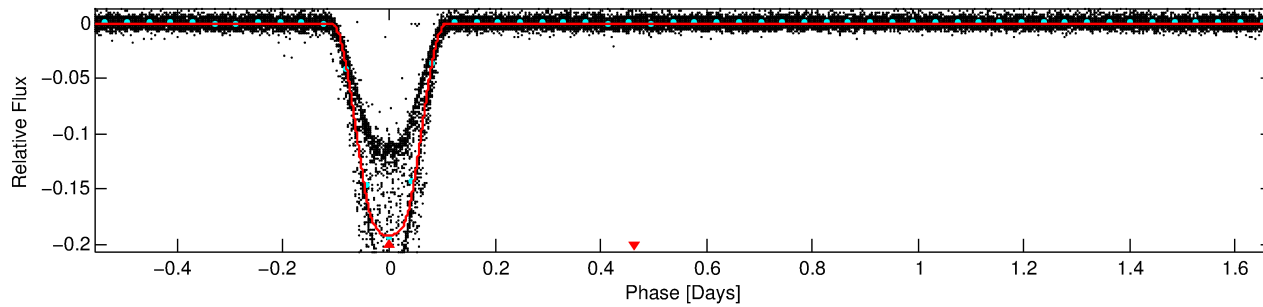
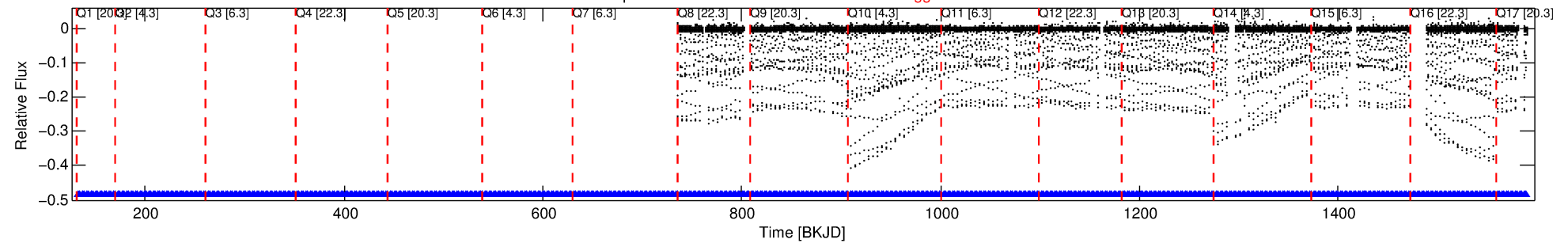
No Significant Match Found

# DV One-Page Summary

KIC: 5816806 Candidate: 1 of 1 Period: 2.228 d

KOI: K03645 Corr: No Ephemeris Match

Kp: 17.05  $R^*: 1.00 R_s$   $T_{\text{eff}}: 5780.0 \text{ K}$   $\text{Logg}: 4.44$   $\text{Fe/H}: 0.000$



## DV Fit Results:

Period = 2.22772 [0.00000] d  
Epoch = 132.2228 [0.0001] BKJD  
 $R_p/R^* = 0.4088$  [0.0005]  
 $a/R^* = 4.77$  [0.01]  
 $b = 0.35$  [0.01]  
 $S_{\text{eff}} = 897.00$  [0.00]  
 $T_{\text{eq}} = 1395$  [0] K  
 $R_p = 44.61$  [0.06]  $R_e$   
 $a = 0.0334$  [0.0000] AU  
 $A_g = 0.07$  [0.03] [-33.87 $\sigma$ ]  
 $T_{\text{eff}} = 1116$  [107] K [-2.62 $\sigma$ ]

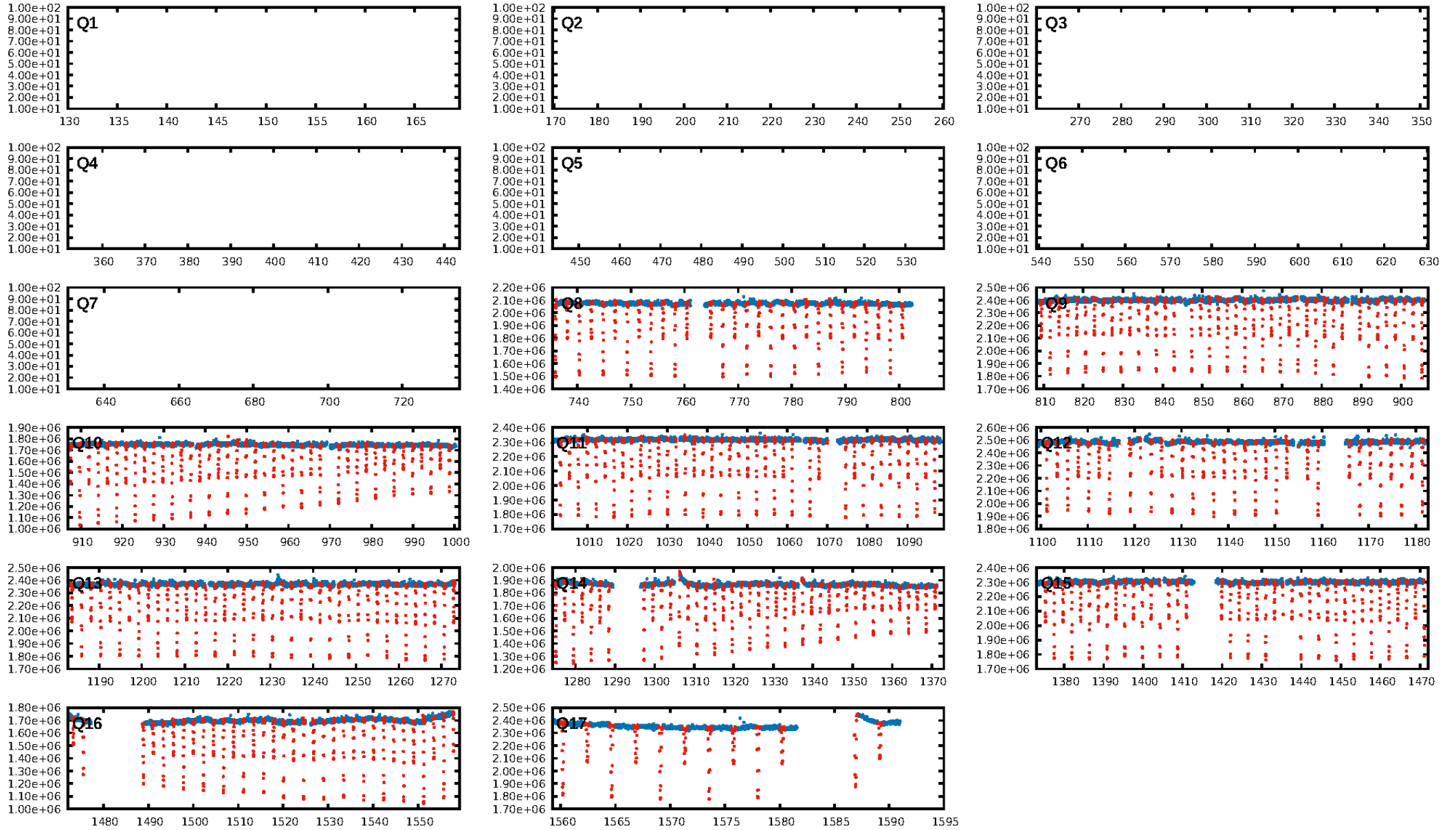
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-ftg: 1.00 [341/341]  
GhostDiagnostic-chr: 2.482  
Centroid-sig: N/A  
Centroid-so: 1.494 arcsec [1289.73 $\sigma$ ]  
OotOffset-rm: 6.984 arcsec [93.52 $\sigma$ ]  
KicOffset-rm: 0.213 arcsec [2.92 $\sigma$ ]  
OotOffset-st: 2/2/3/3 [10]  
KicOffset-st: 2/2/3/3 [10]  
DiffImageQuality-fgm: 1.00 [10/10]  
DiffImageOverlap-fno: 1.00 [10/10]

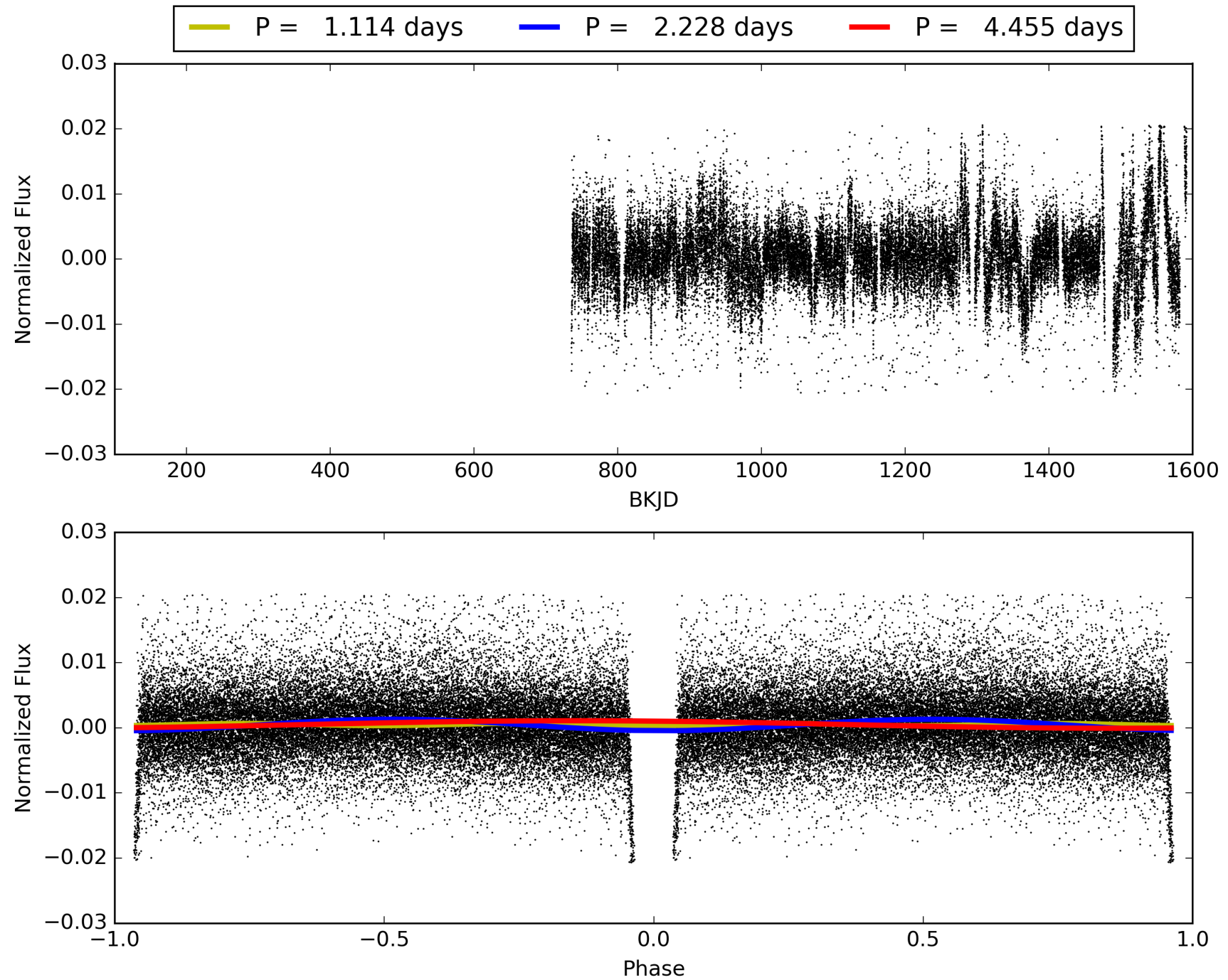
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:54:14 Z

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

# TCE 005816806-01, PDC Light Curves

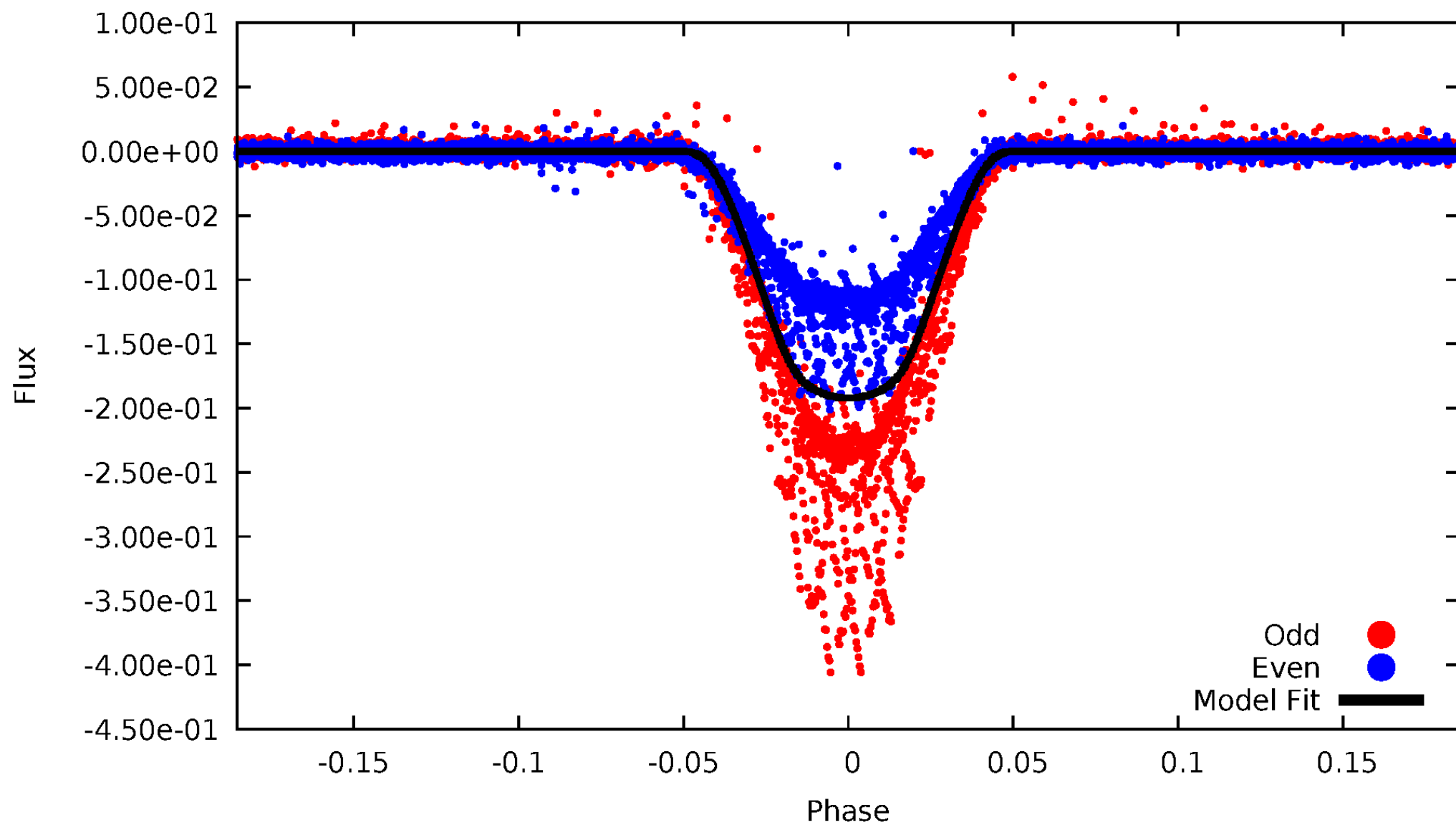


TCE 005816806-01



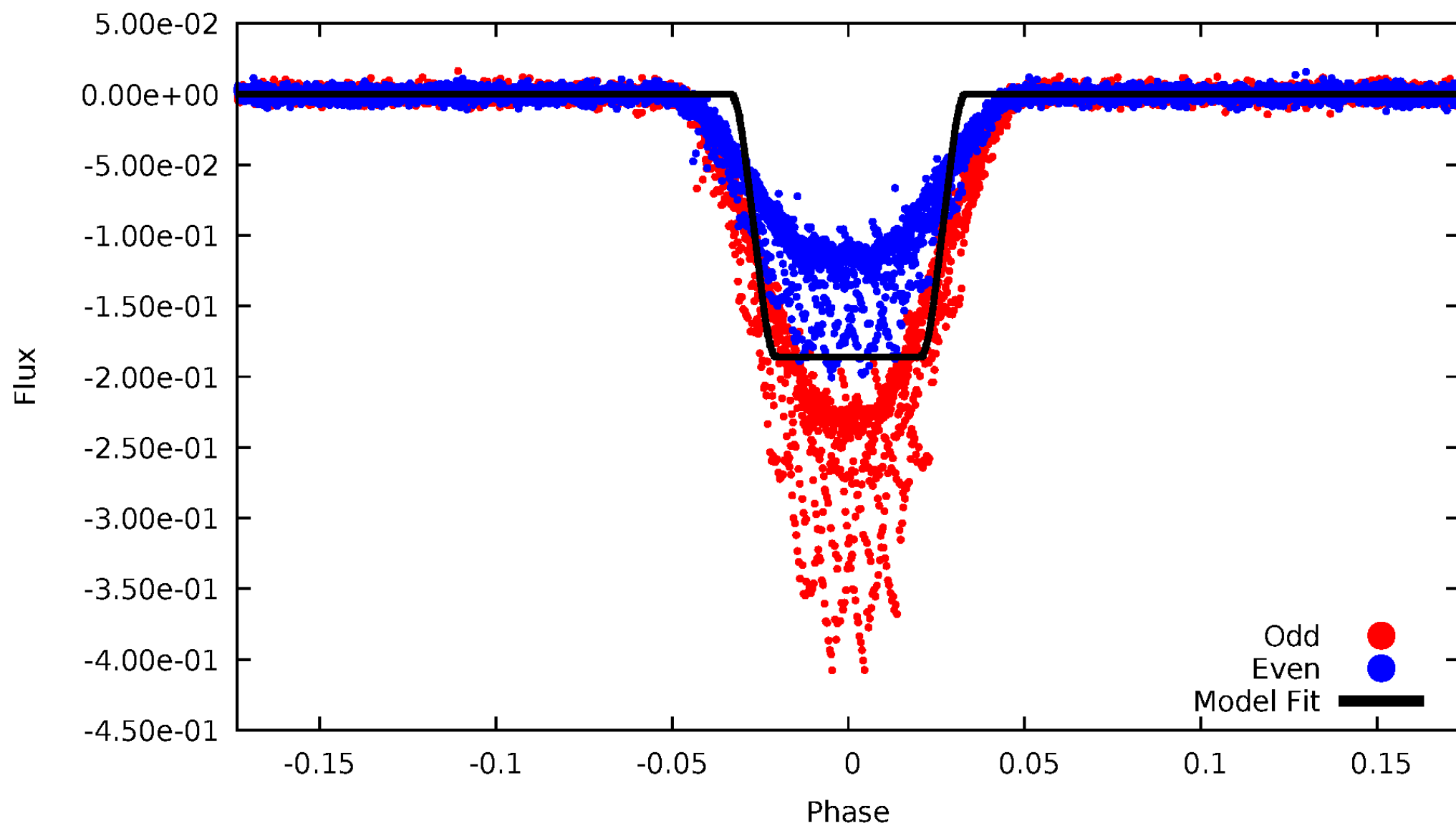
# DV Odd/Even

TCE 005816806-01



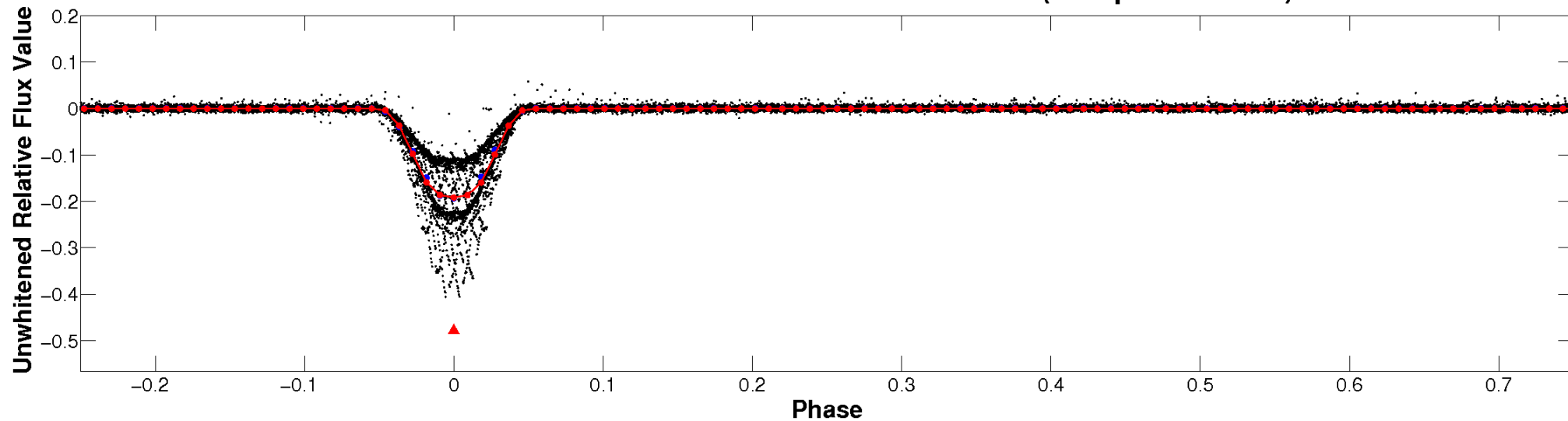
# ALT Odd/Even

TCE 005816806-01

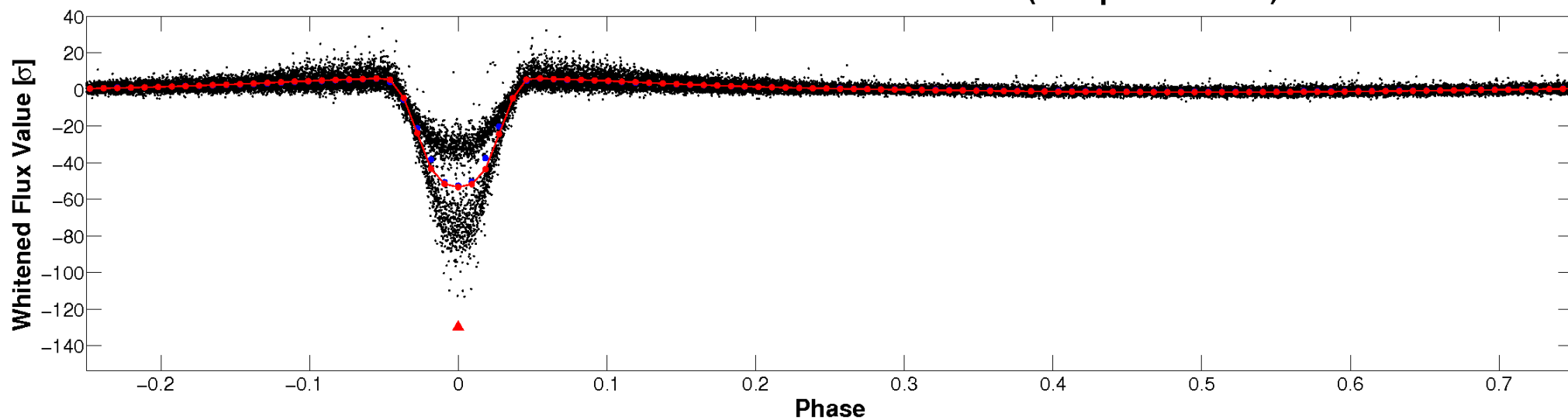


# Non-Whitened Vs. Whitened Light Curve

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

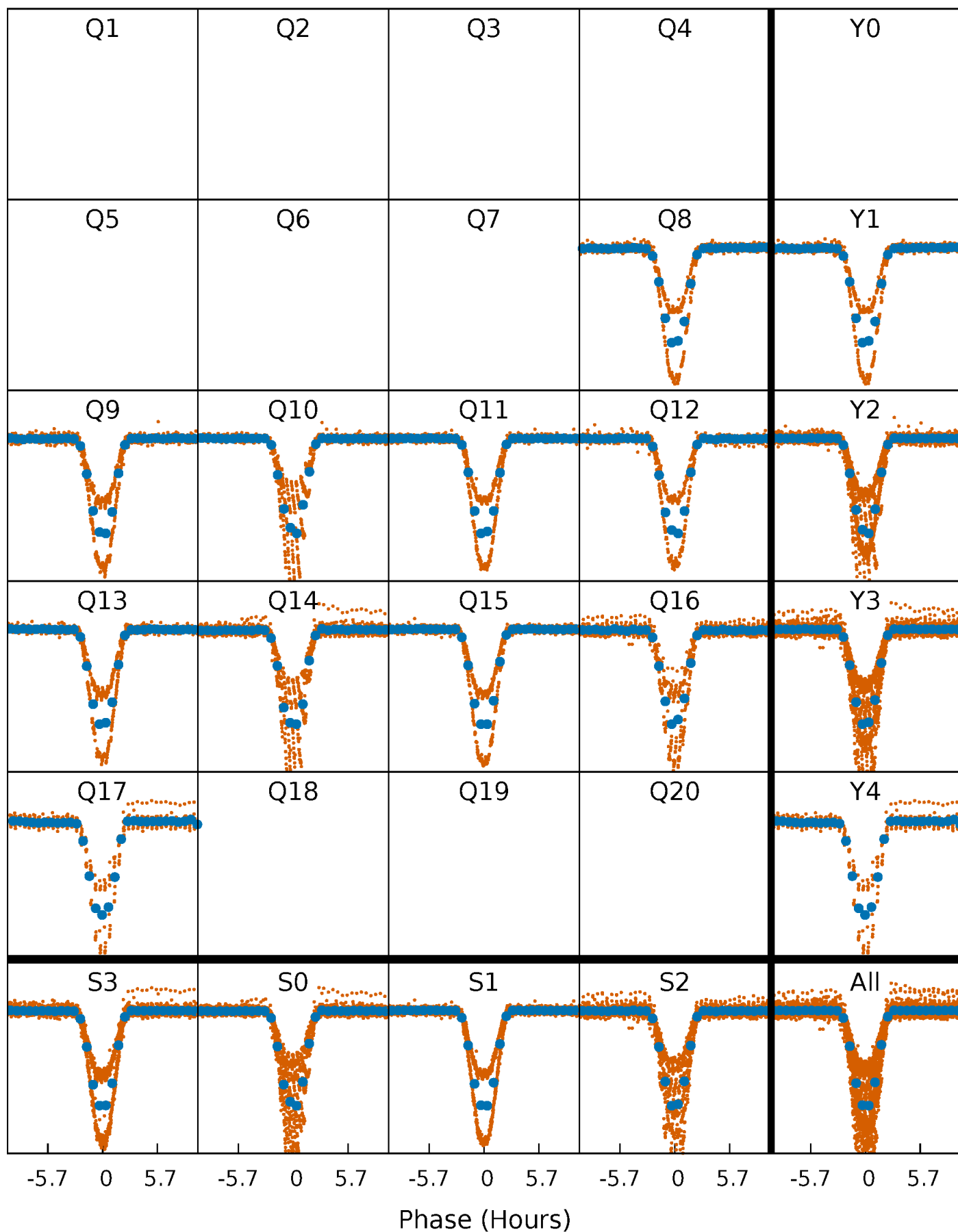


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

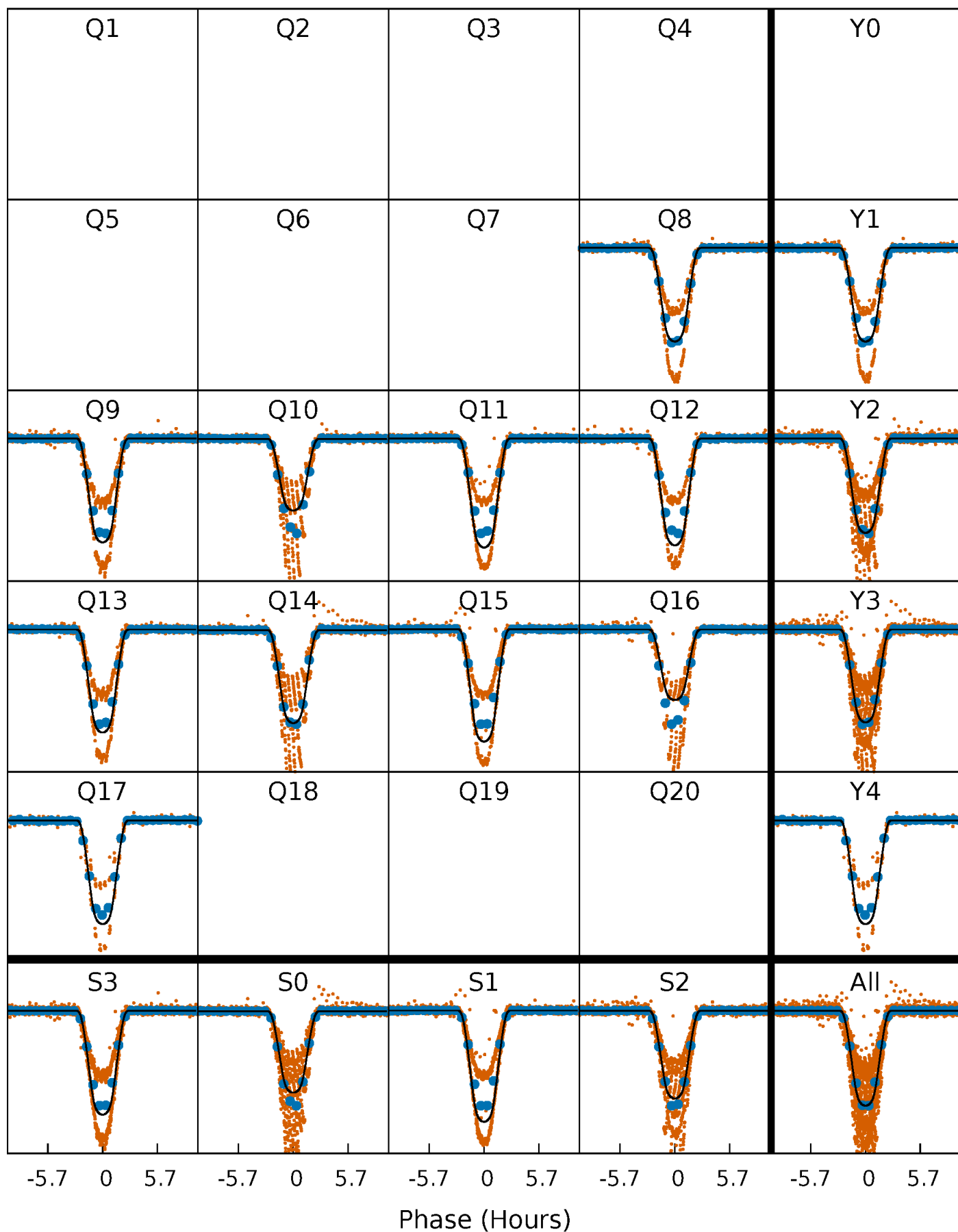
TCE 005816806-01   P= 2.227723 Days    $T_0=132.222804$  (BKJD)





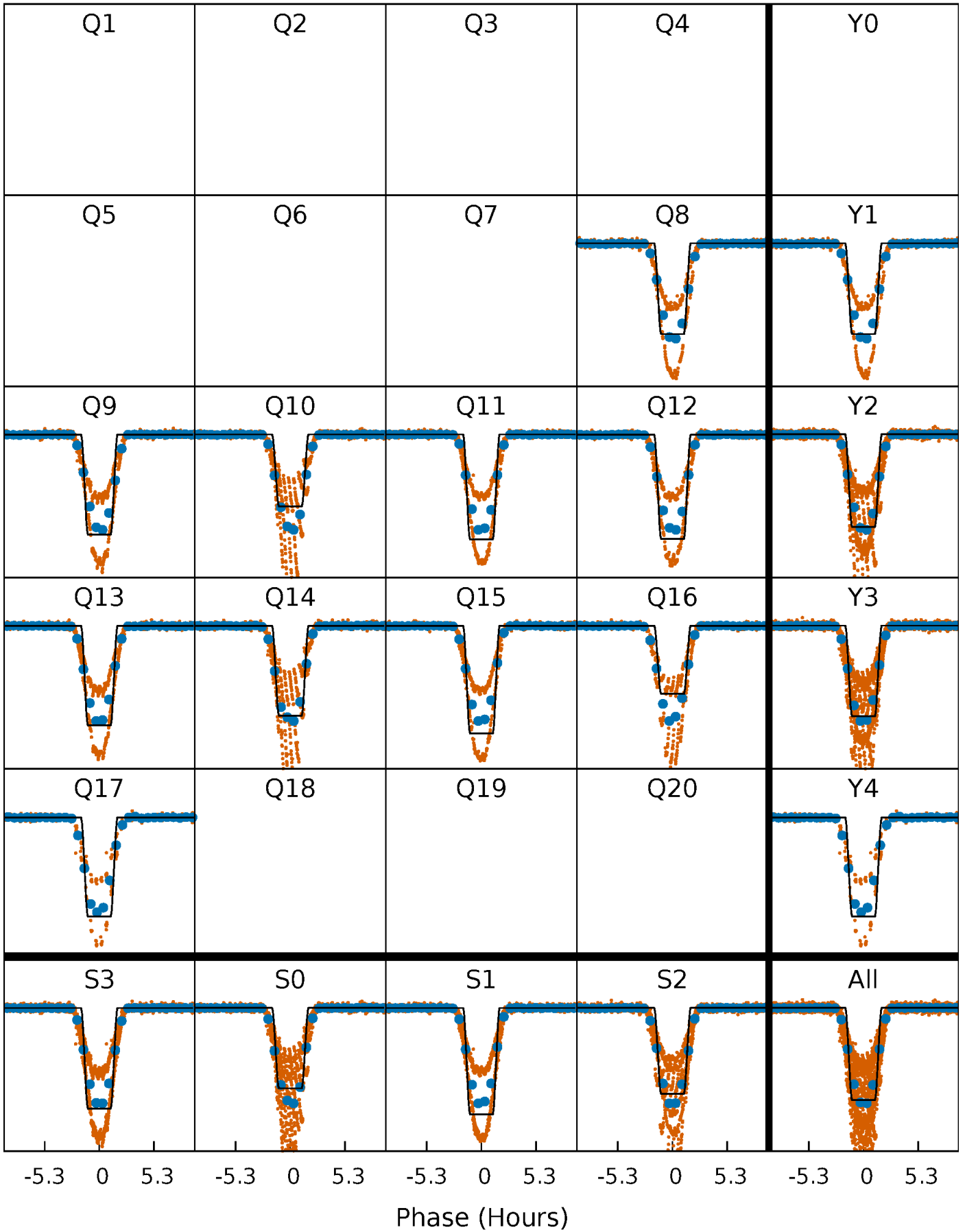
# DV Quarter-Phased Transit Curves

TCE 005816806-01 P= 2.227723 Days  $T_0=132.222804$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

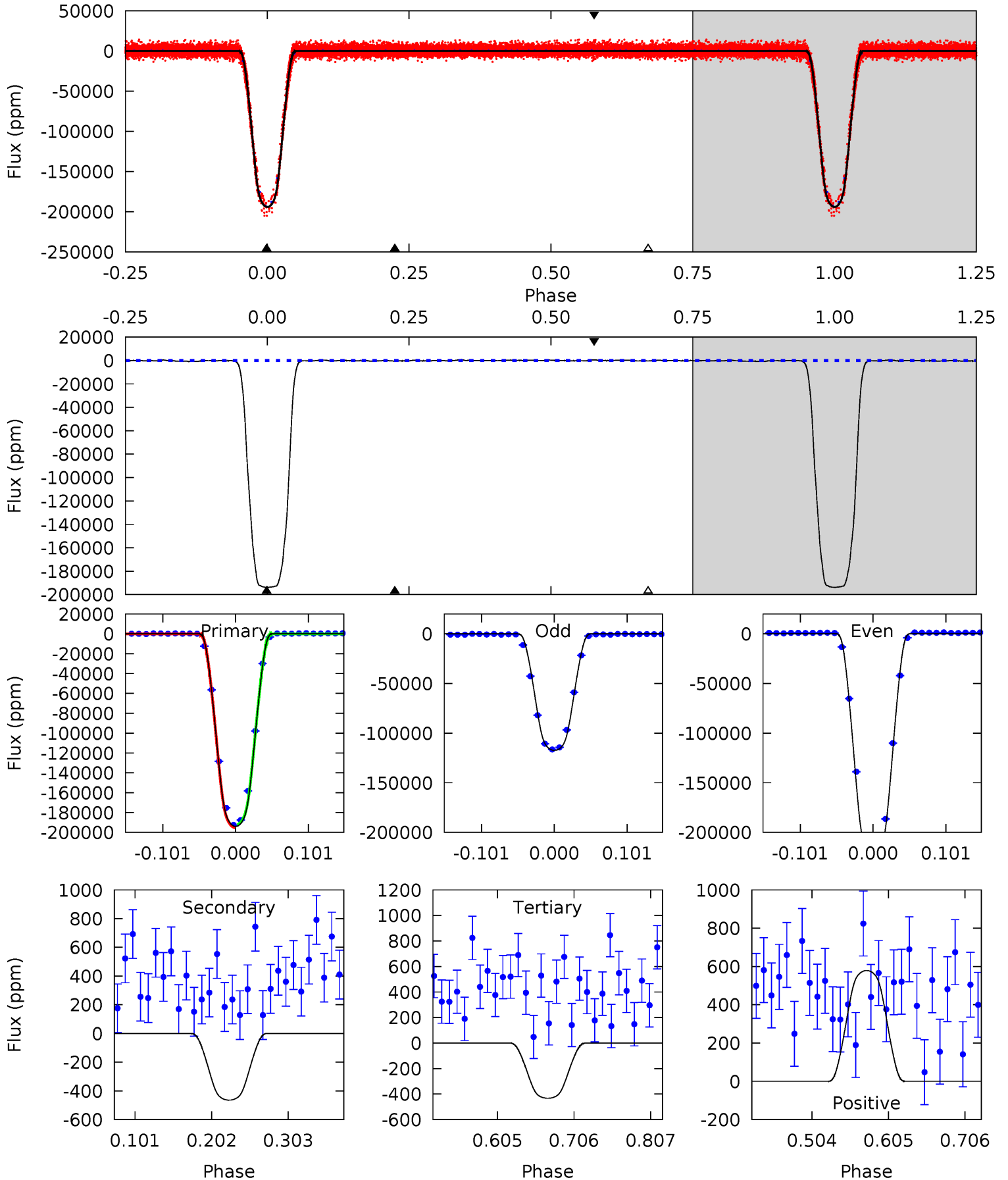
TCE 005816806-01 P= 2.227735 Days  $T_0=132.216871$  (BKJD)



# DV Model-Shift Uniqueness Test

005816806-01, P = 2.227723 Days, E = 132.222804 Days

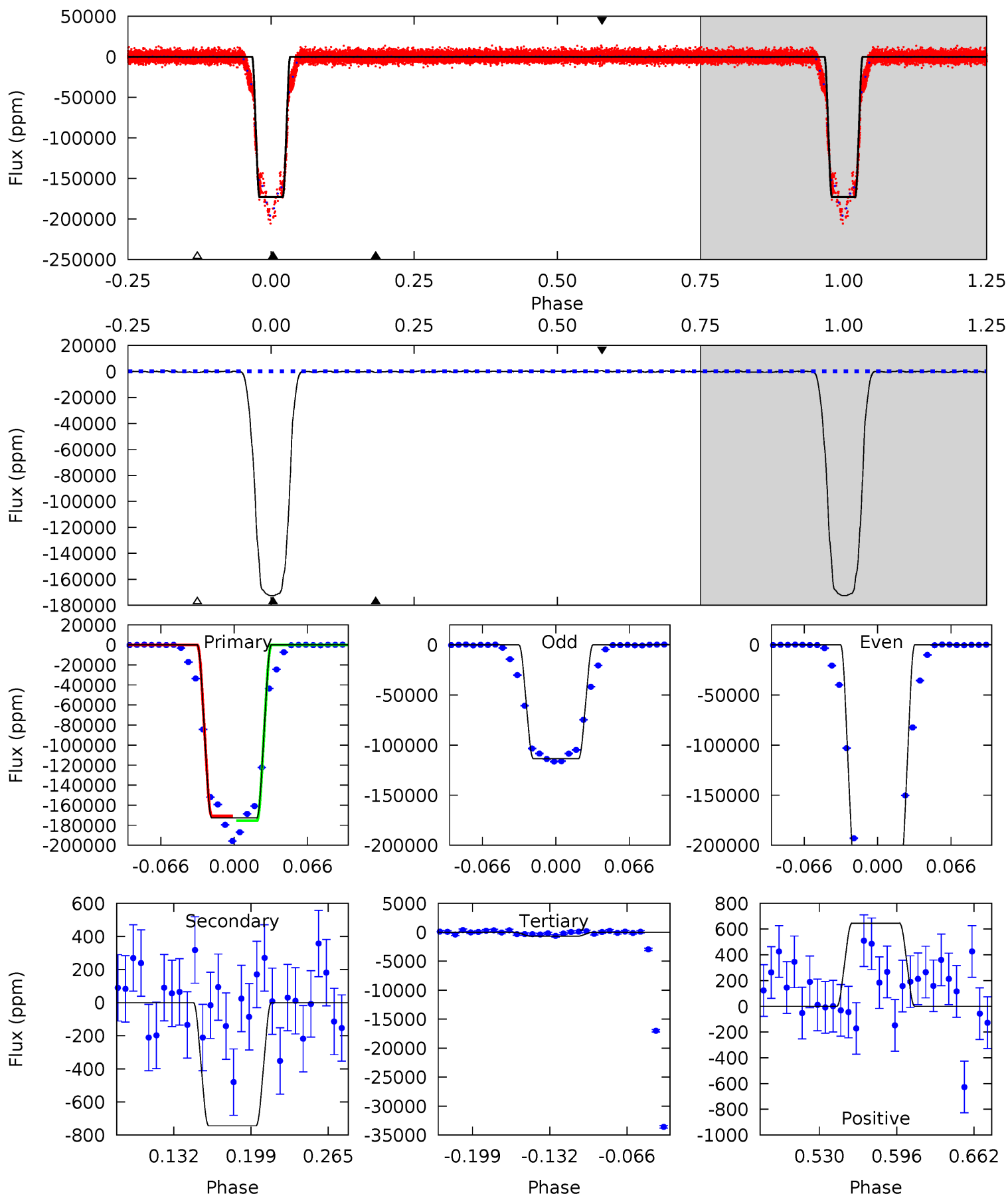
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2343	5.61	5.23	6.99	4.56	1.64	3.28	2338	2336	0.38	-1.39	847.0	0.98	0.00	0



# Alt Model-Shift Uniqueness Test

005816806-01, P = 2.227735 Days, E = 132.216871 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
1107	4.77	4.30	4.14	4.65	1.84	1.68	1103	1103	0.47	0.63	562.0	0.97	0.00	0



### Stellar Parameters For KIC 005816806

	$T_{\text{eff}}(K)$	$\log(g)$	[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 005816806-01 / KOI 3645.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-464 \pm 83$	$44.83^{+3.12}_{-2.96}$	$1953^{+94}_{-89}$	$-2288^{+90}_{-81}$	$0.144^{+0.032}_{-0.032}$
Alt.	$-744 \pm 156$	$47.46^{+2.99}_{-3.20}$	$1949^{+102}_{-89}$	$-2163^{+188}_{-126}$	$0.205^{+0.049}_{-0.049}$

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

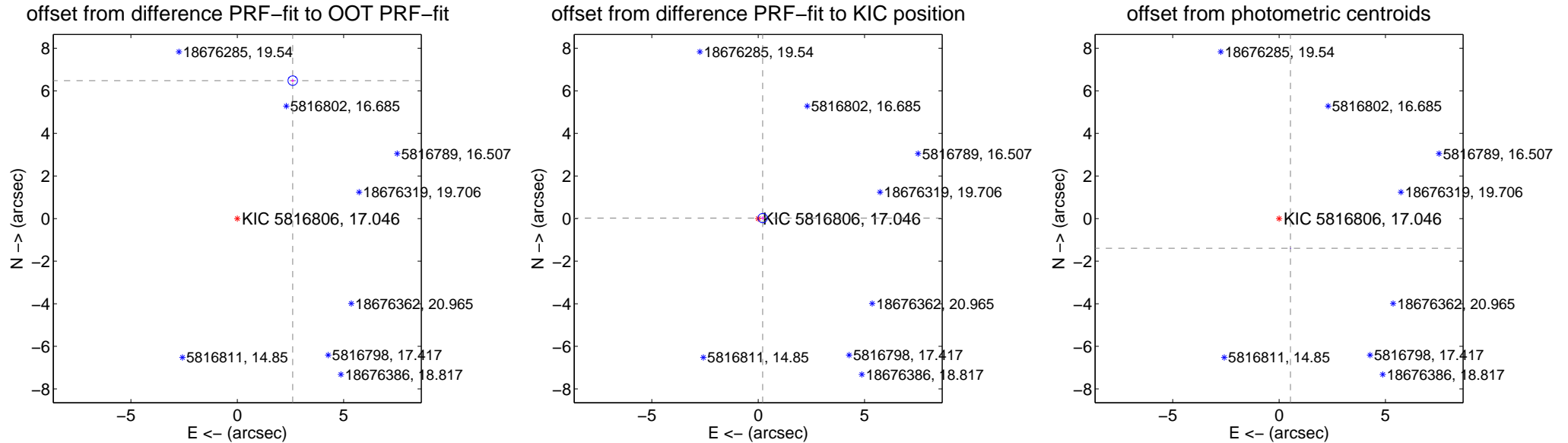
## DV Centroid Data

Supplemental centroid analysis for 005816806-01. Kepler magnitude: 17.05. Transit SNR 1042.11

There are 10 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 7.03 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	$6.984 \pm 0.075$	93.52	$-2.607 \pm 0.068$	$6.480 \pm 0.075$
PRF-fit source offset from KIC position	$0.213 \pm 0.073$	2.92	$-0.212 \pm 0.073$	$0.023 \pm 0.088$
photometric centroid source offset	$1.49 \pm 0.00$	1289.73	$-0.53 \pm 0.00$	$-1.40 \pm 0.00$



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



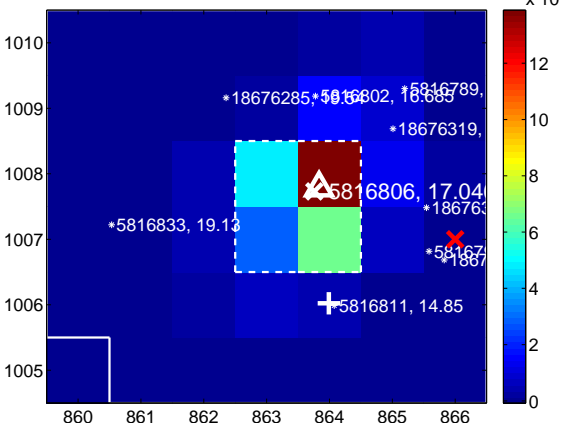
Q7 no difference image



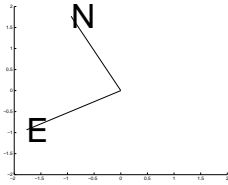
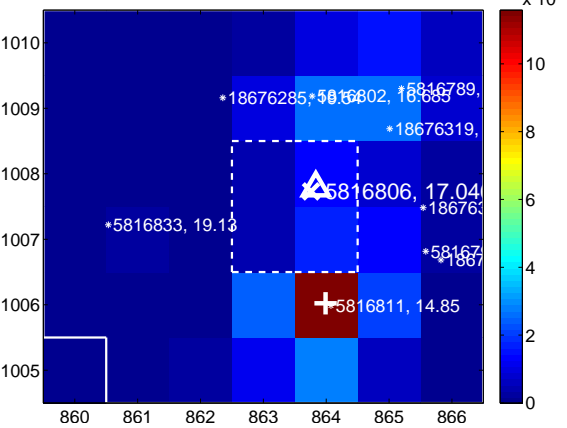
Q7 no OOT image



Q8 difference image

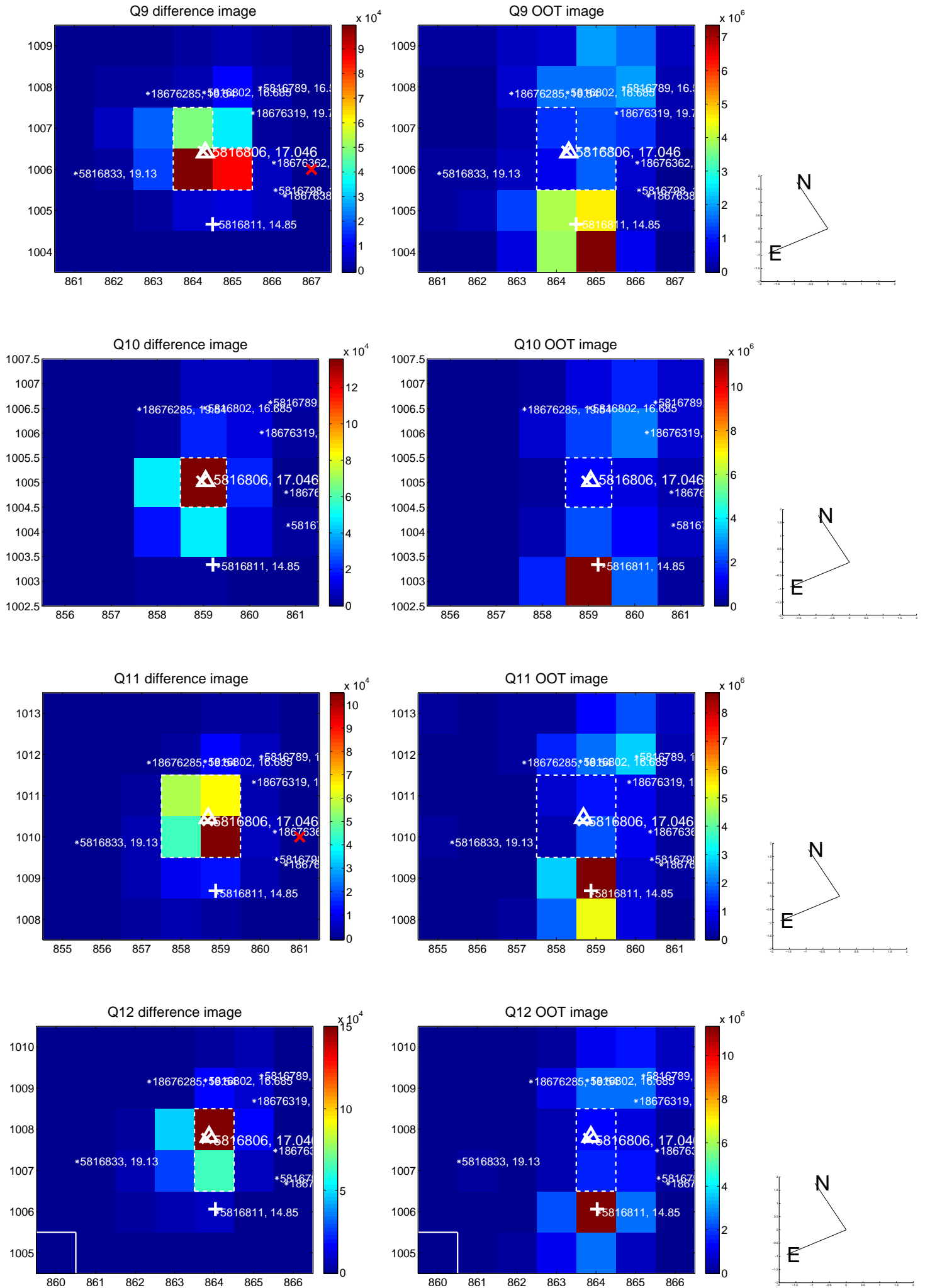


Q8 OOT image

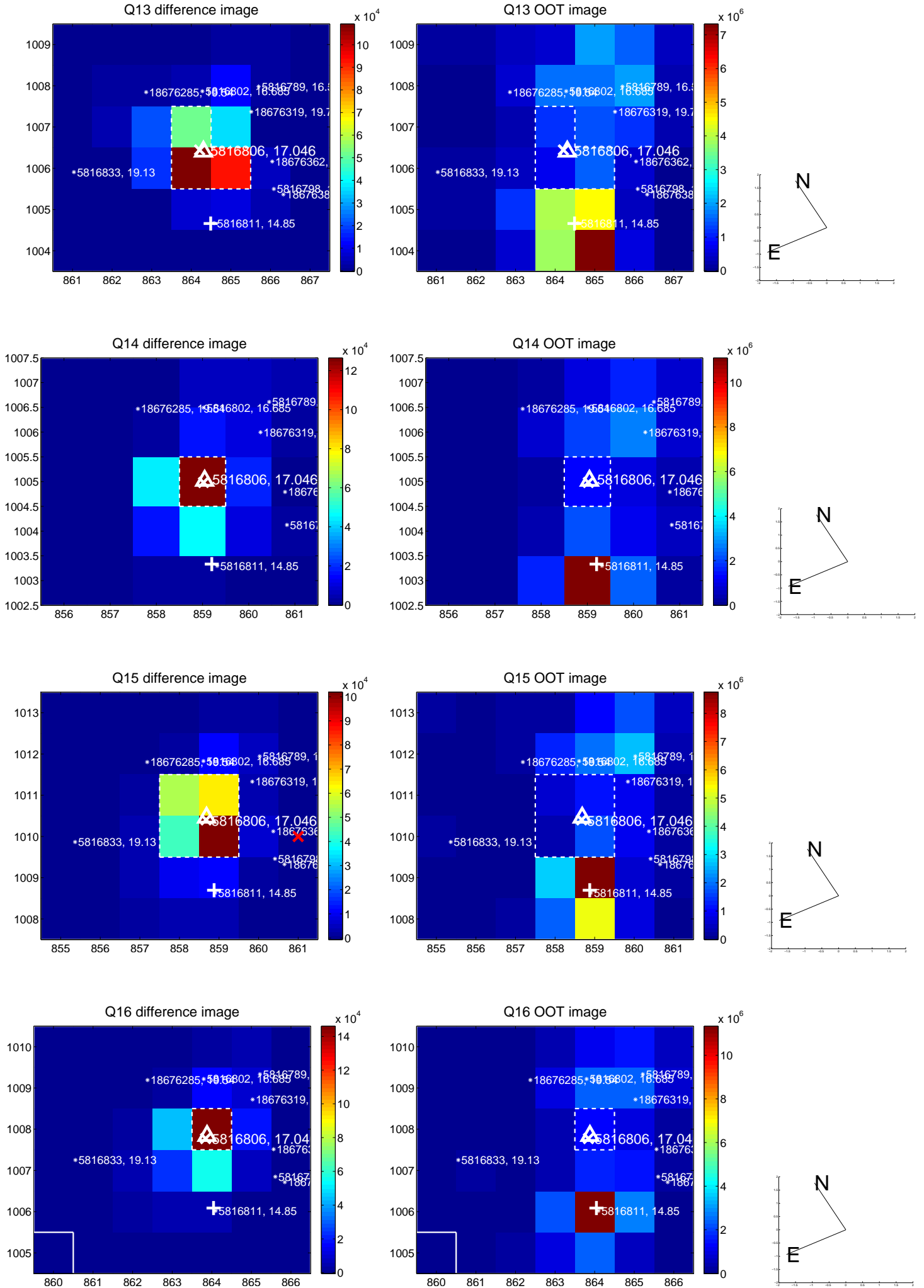




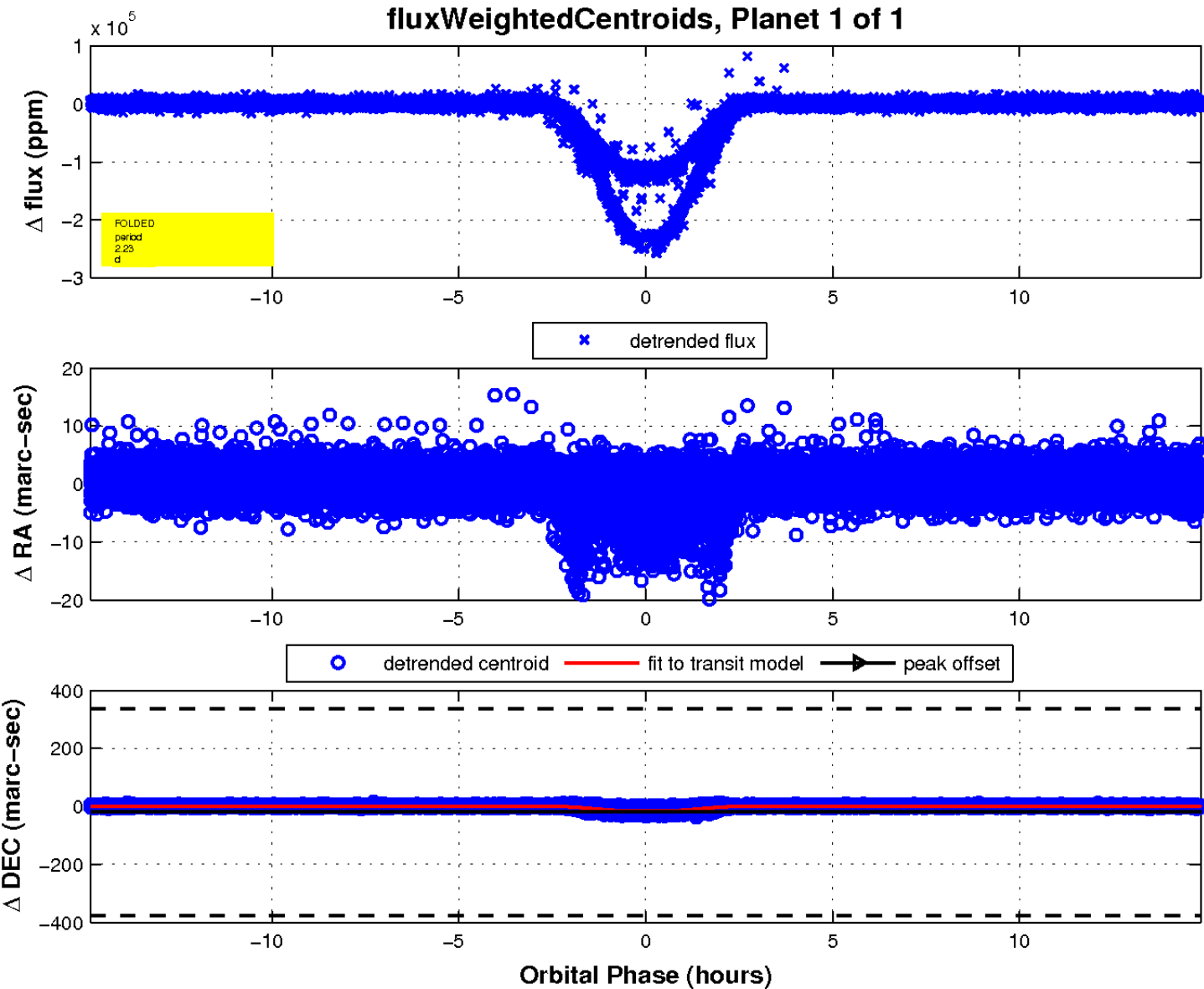
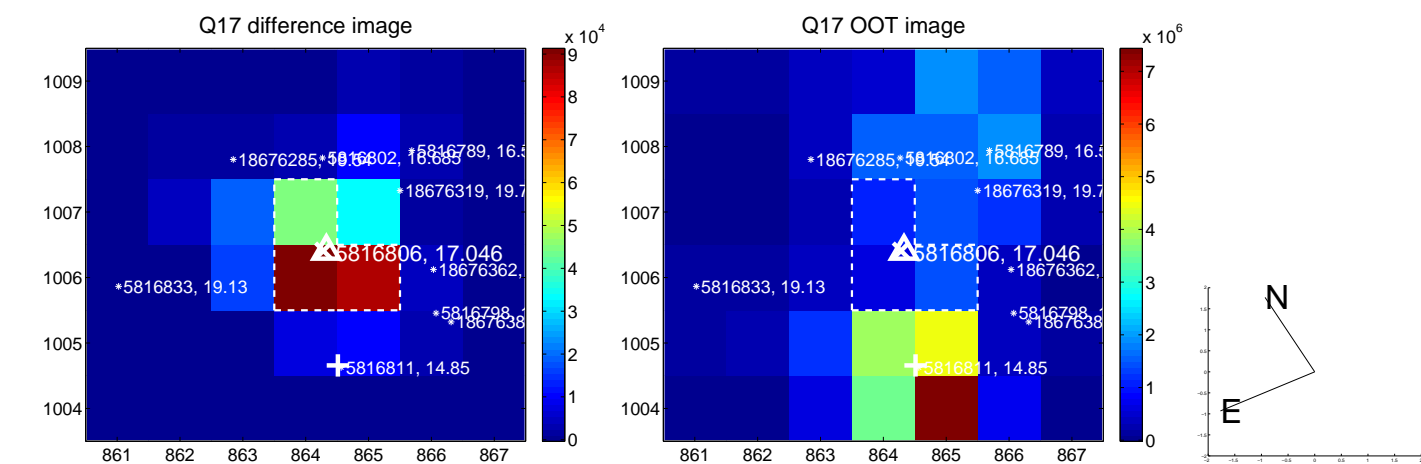
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

