

# KIC 005435816

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005435816-01	OBS	3696.01	181.852236	251.877819	27216.7	5.701	272.4	274.0	1.01	6063	24.14	2.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005435816-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

**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.

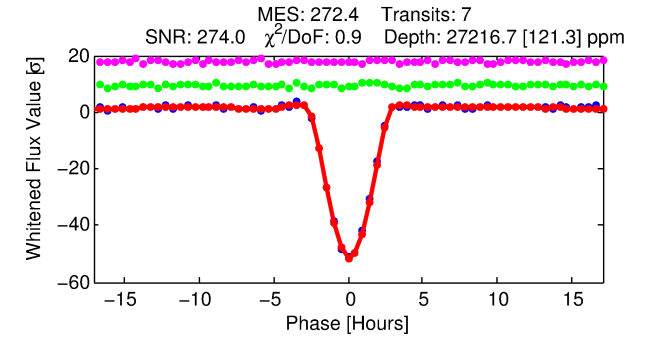
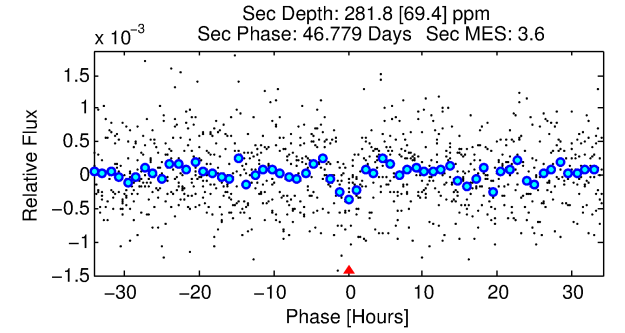
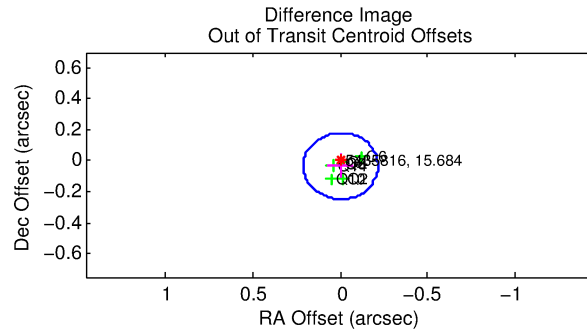
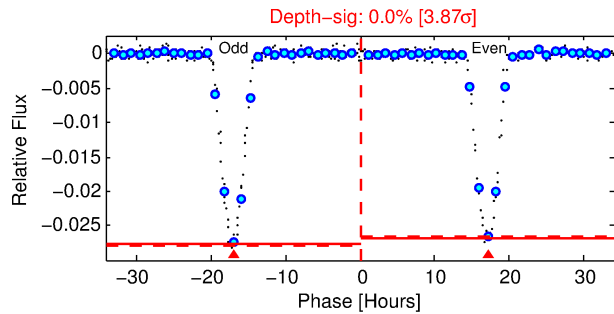
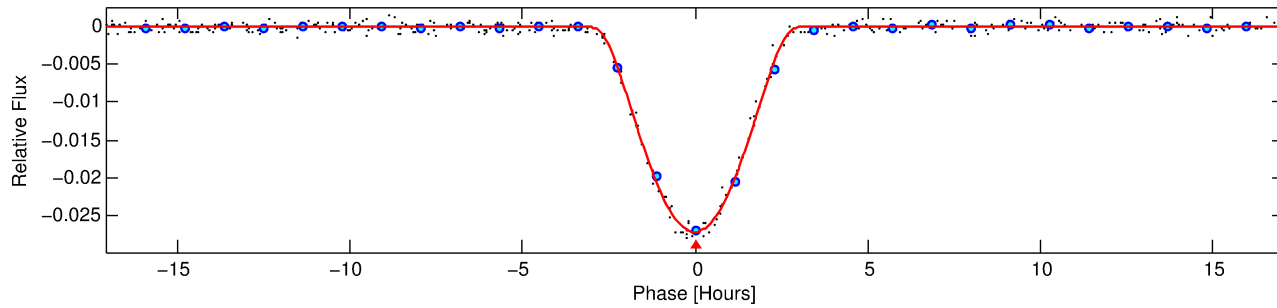
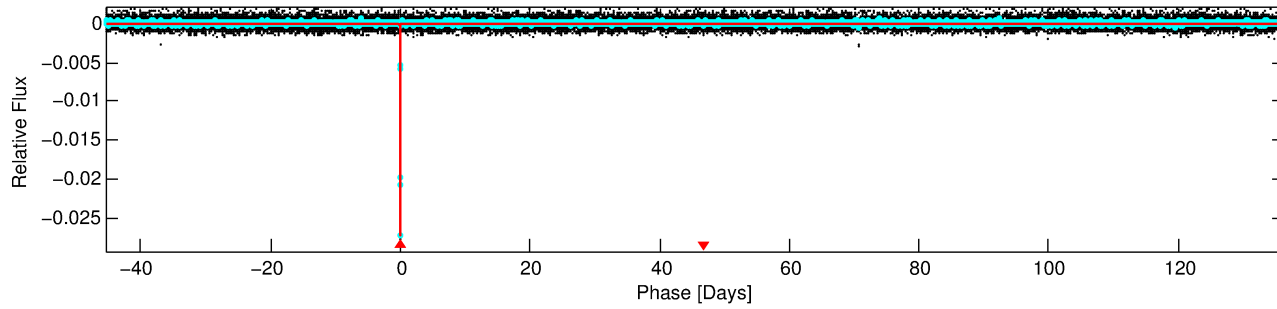
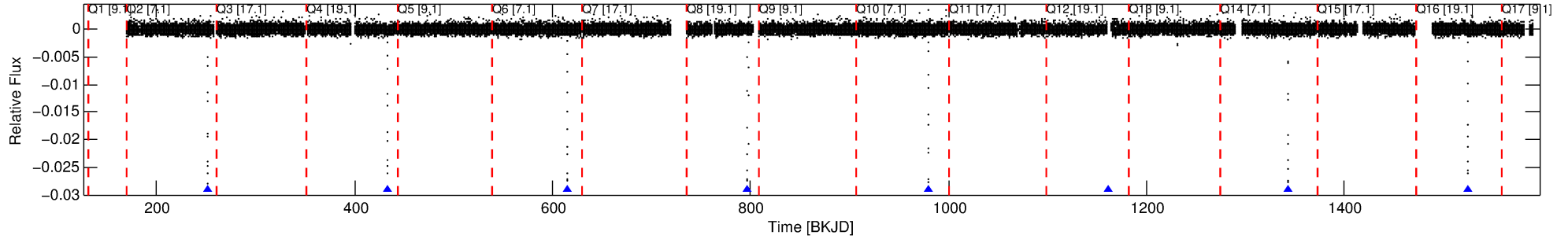
## Ephemeris Match Information For 005435816-01

No Significant Match Found

# DV One-Page Summary

KIC: 5435816 Candidate: 1 of 1 Period: 181.852 d  
KOI: K03696.01 Corr: 0.991

Kp: 15.68 R\*: 1.01 Rs Teff: 6063.0 K Logg: 4.48 Fe/H: 0.070



## DV Fit Results:

Period = 181.85224 [0.00010] d  
Epoch = 251.8778 [0.0004] BKJD  
Rp/R\* = 0.2186 [0.0259]  
a/R\* = 191.08 [3.70]  
b = 0.93 [0.04]  
Seff = 2.92 [1.23]  
Teq = 333 [35] K  
Rp = 24.14 [8.44] Re  
a = 0.6521 [0.1793] AU  
Ag = 113.07 [59.28] [1.89σ]  
Teff = 1680 [155] K [8.48σ]

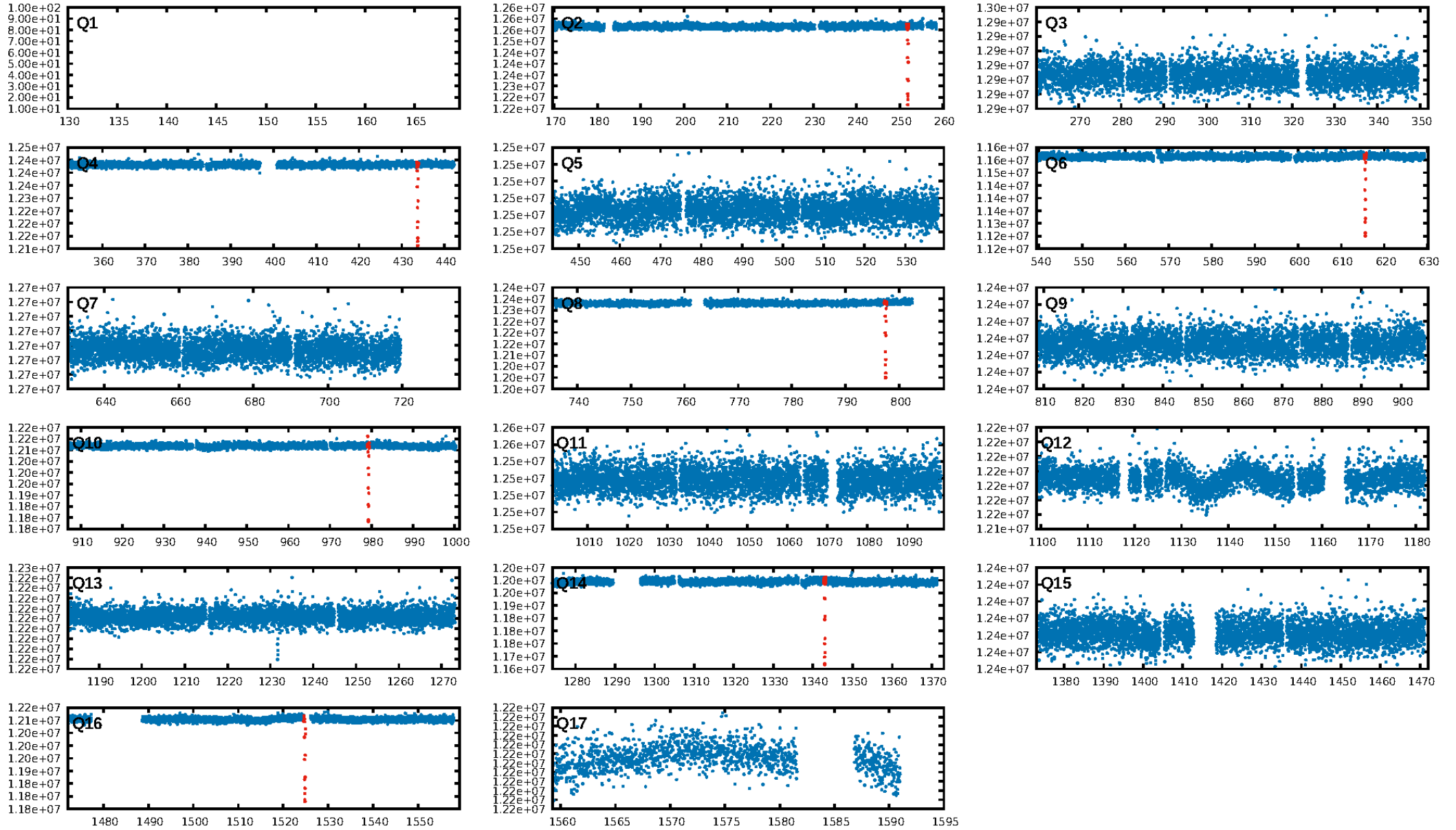
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.6%  
ModelChiSquareGof-sig: 99.5%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 4.981  
Centroid-sig: 17.7%  
Centroid-so: 0.337 arcsec [6.32σ]  
OotOffset-rm: 0.034 arcsec [0.48σ]  
KicOffset-rm: 0.168 arcsec [2.38σ]  
OotOffset-st: 4/0/2/0 [6]  
KicOffset-st: 4/0/2/0 [6]  
DiffImageQuality-fgm: 1.00 [6/6]  
DiffImageOverlap-fno: 1.00 [6/6]

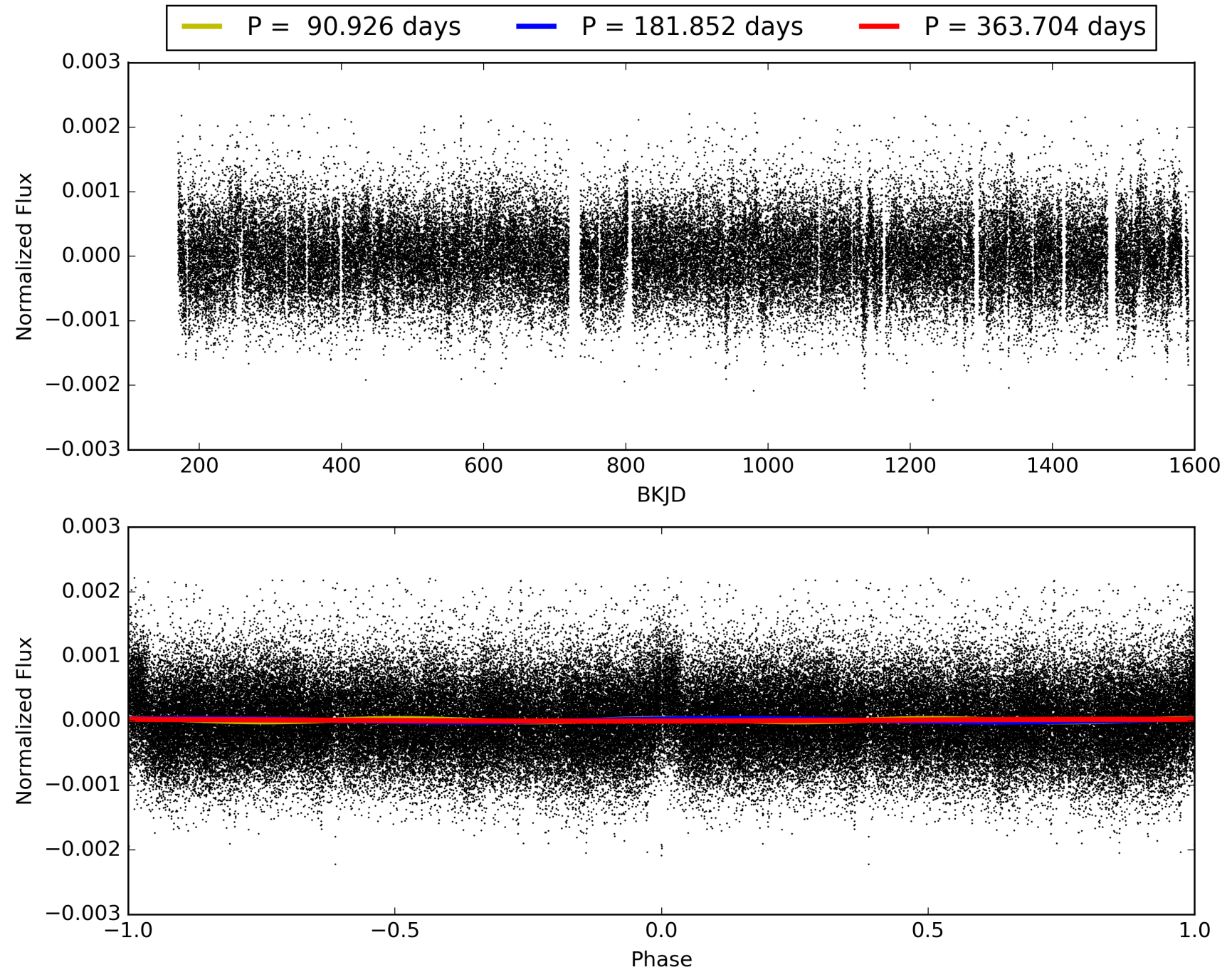
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:13:02 Z

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

# TCE 005435816-01, PDC Light Curves

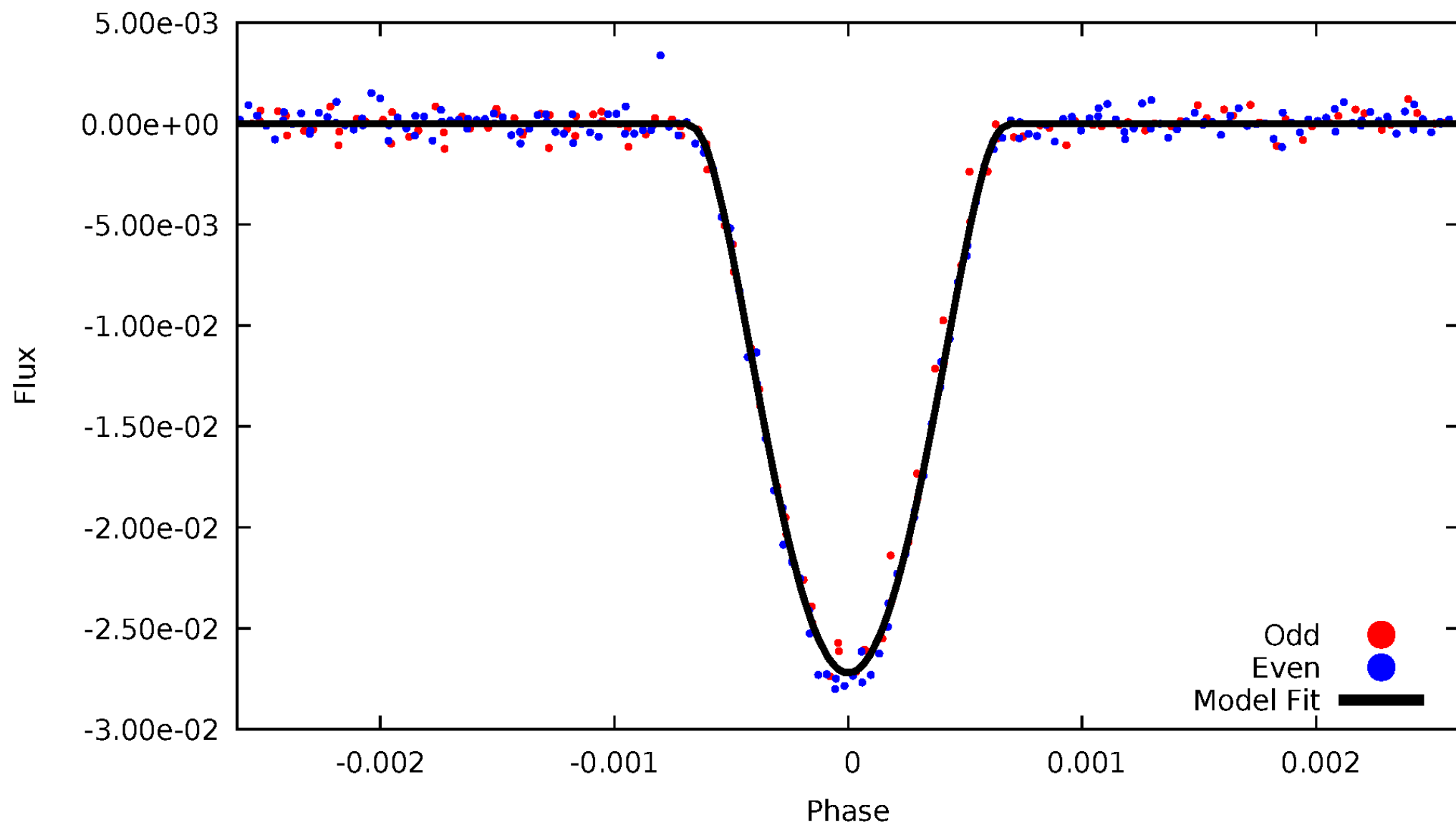


# TCE 005435816-01



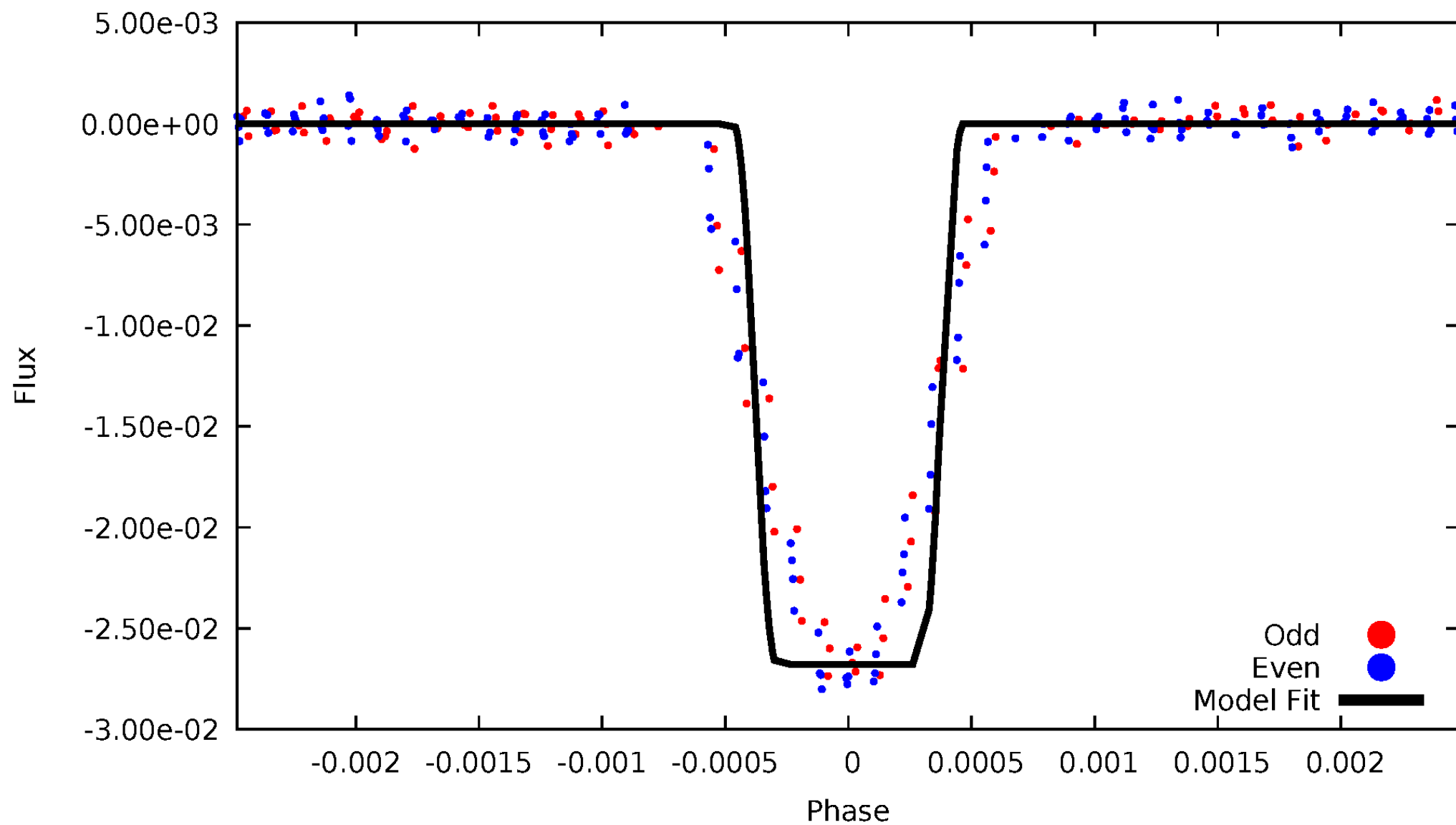
# DV Odd/Even

TCE 005435816-01



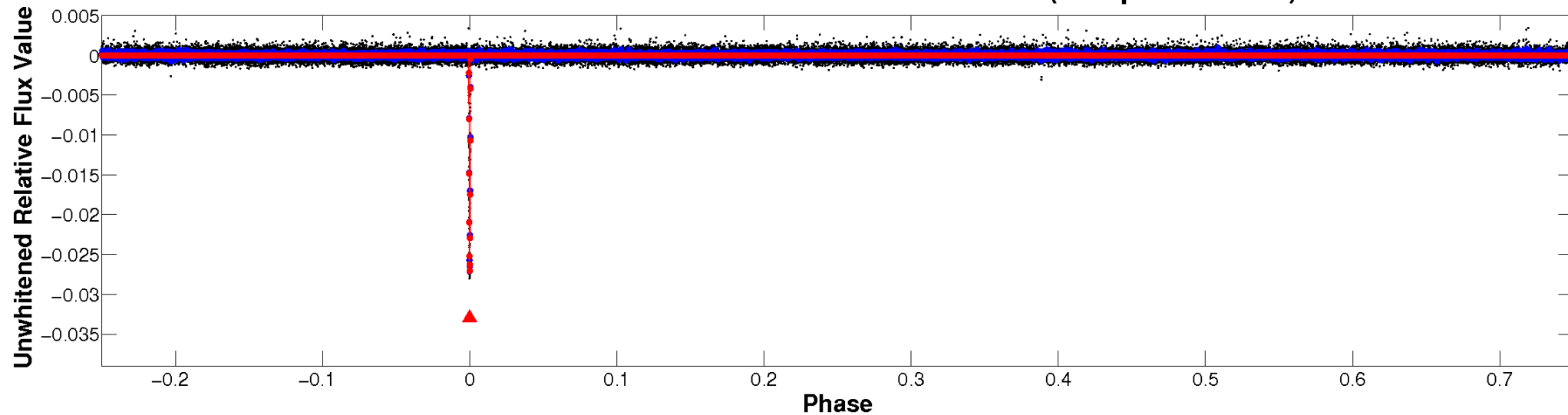
# ALT Odd/Even

TCE 005435816-01

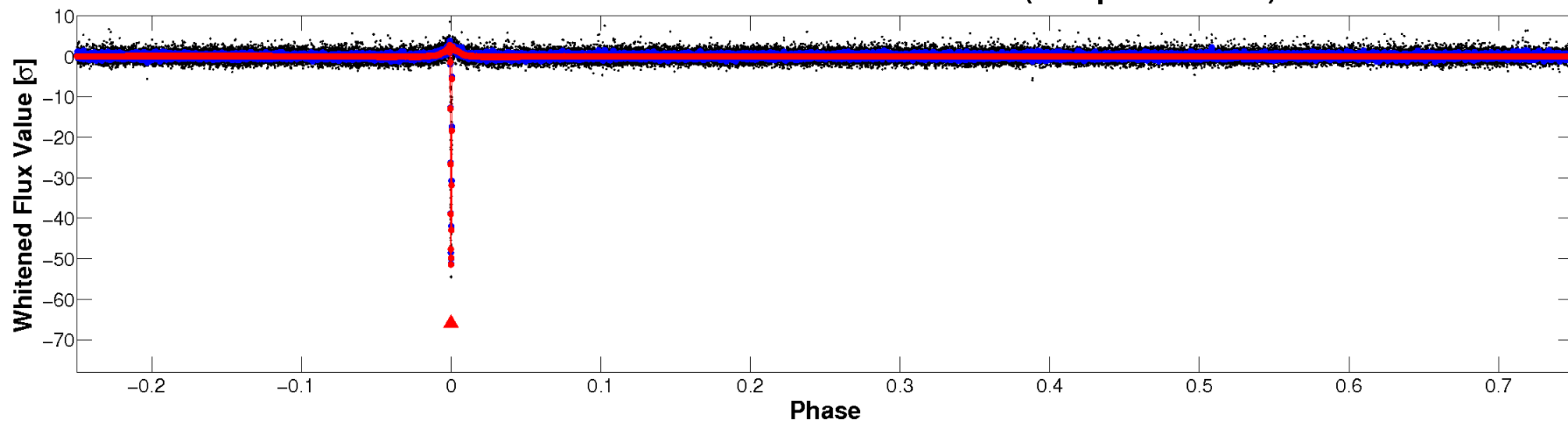


# Non-Whitened Vs. Whitened Light Curve

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

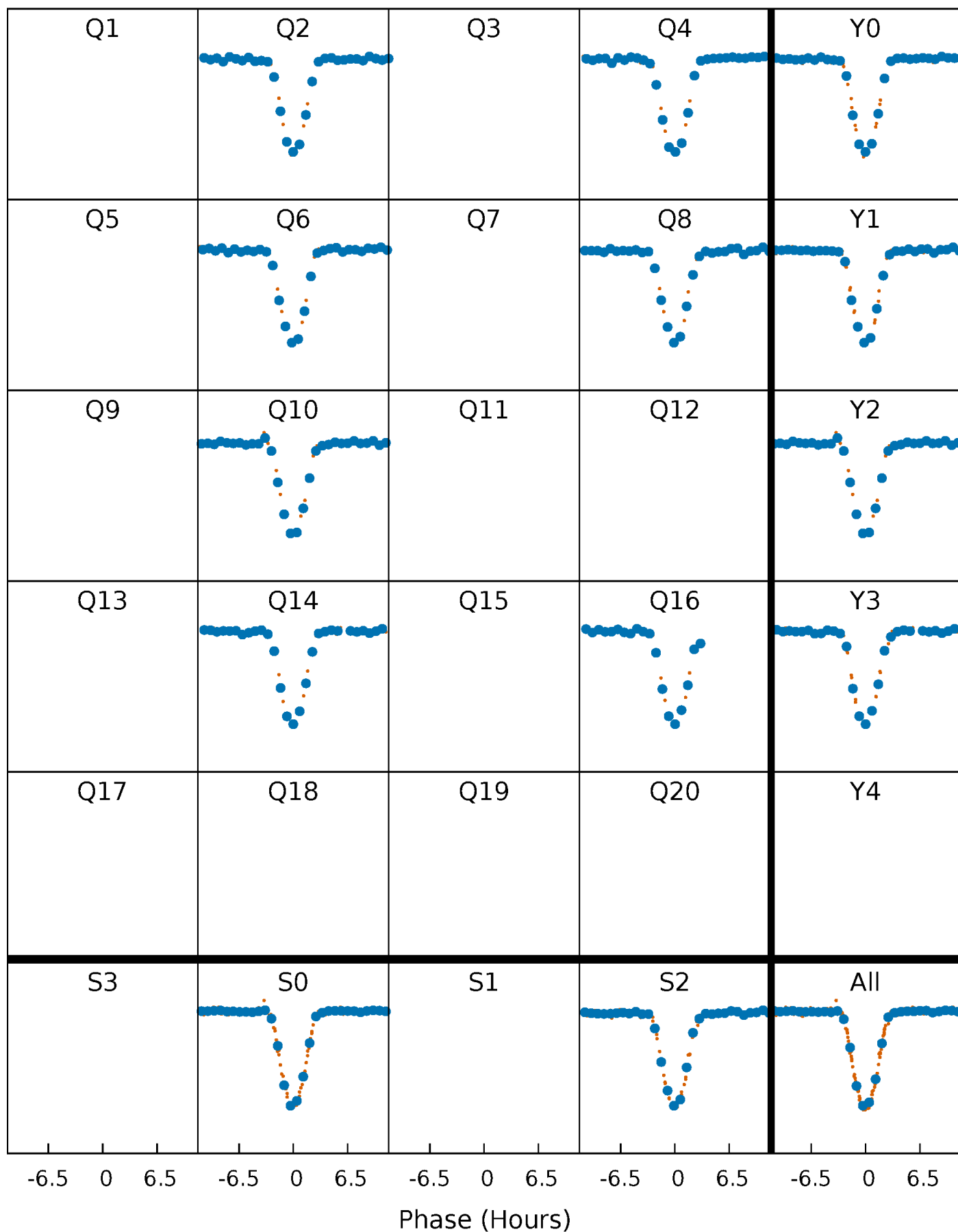


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

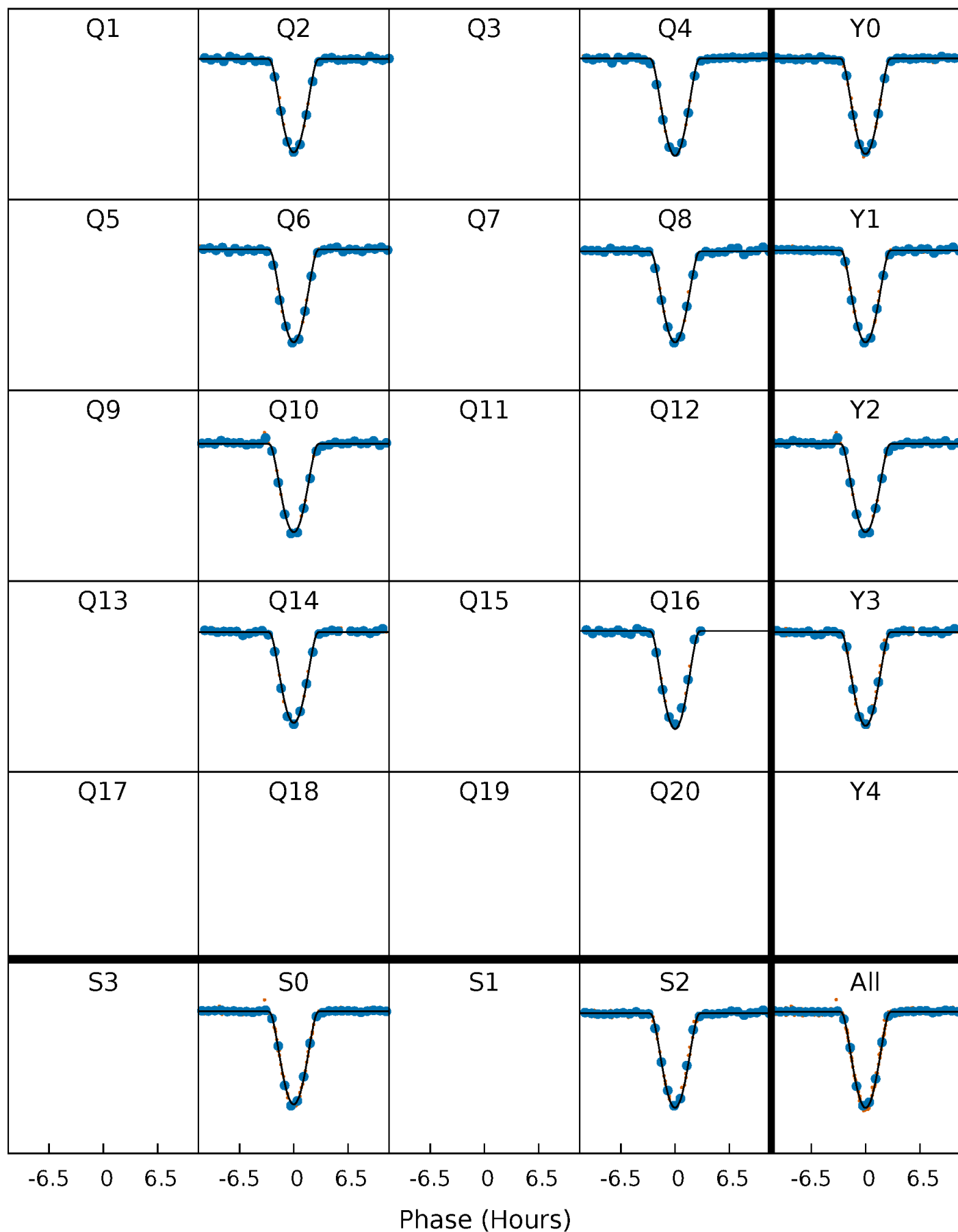
TCE 005435816-01 P=181.852236 Days  $T_0=251.877819$  (BKJD)





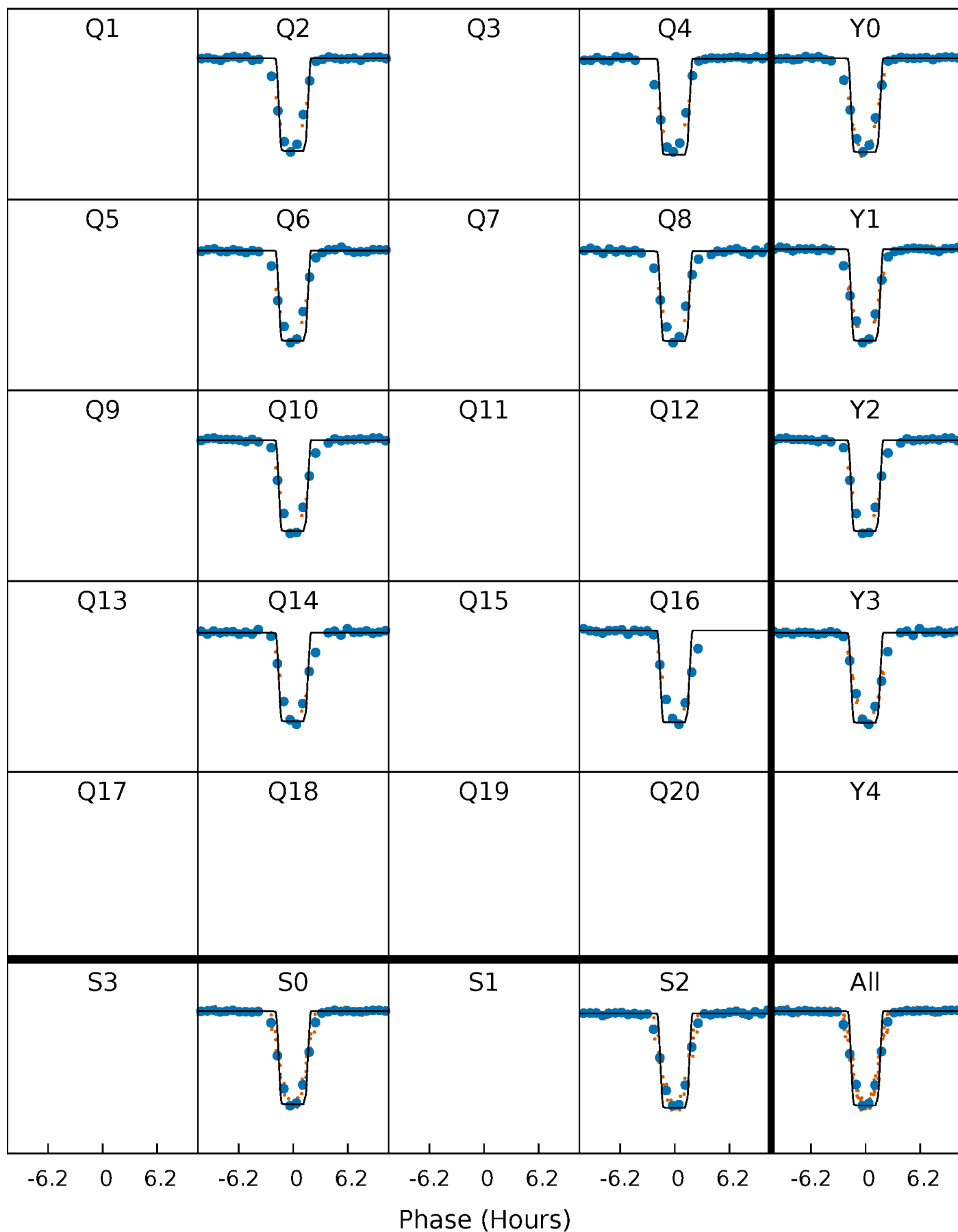
# DV Quarter-Phased Transit Curves

TCE 005435816-01 P=181.852236 Days  $T_0=251.877819$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

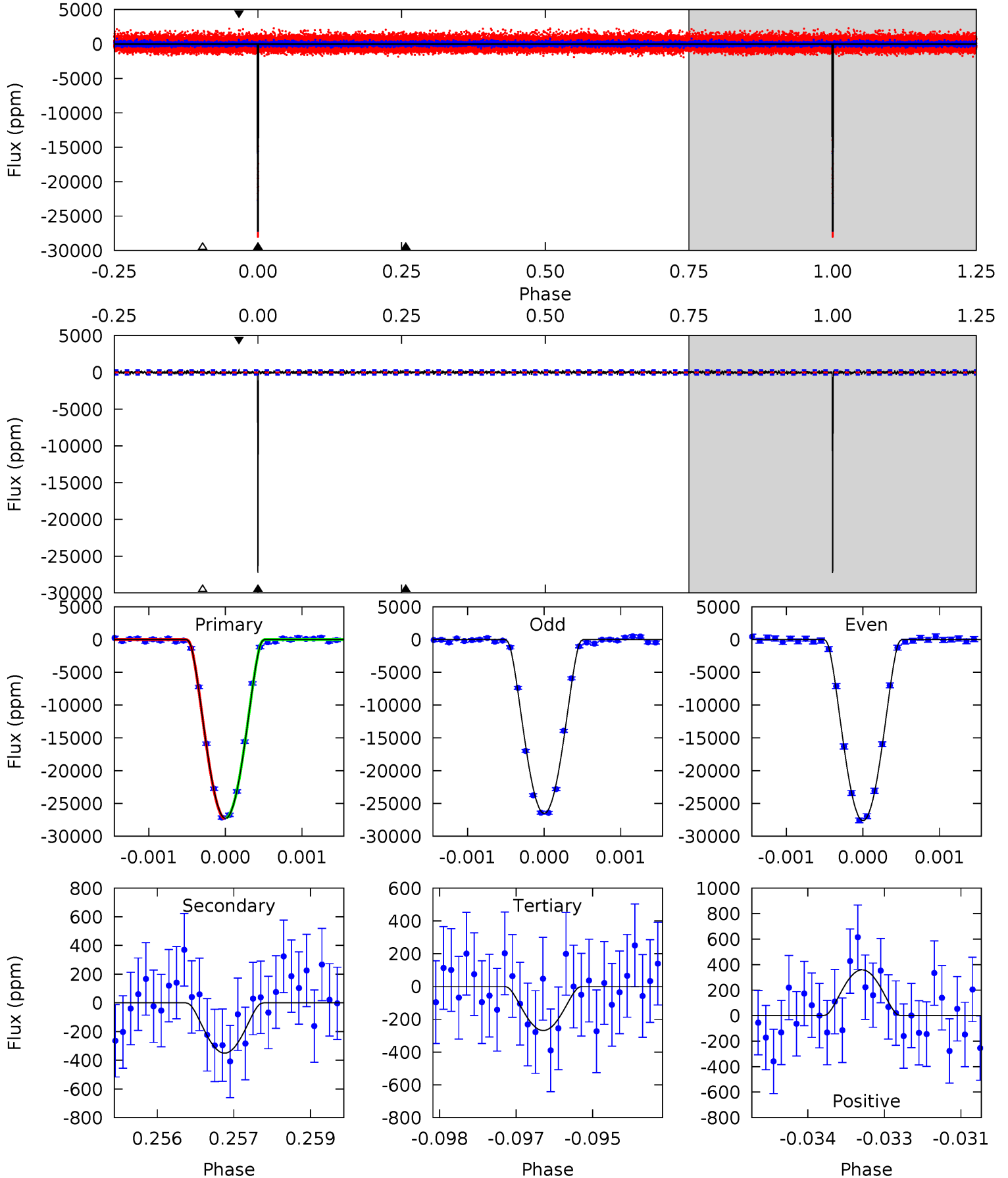
TCE 005435816-01 P=181.849326 Days  $T_0=251.887239$  (BKJD)



# DV Model-Shift Uniqueness Test

005435816-01, P = 181.852236 Days, E = 70.025583 Days

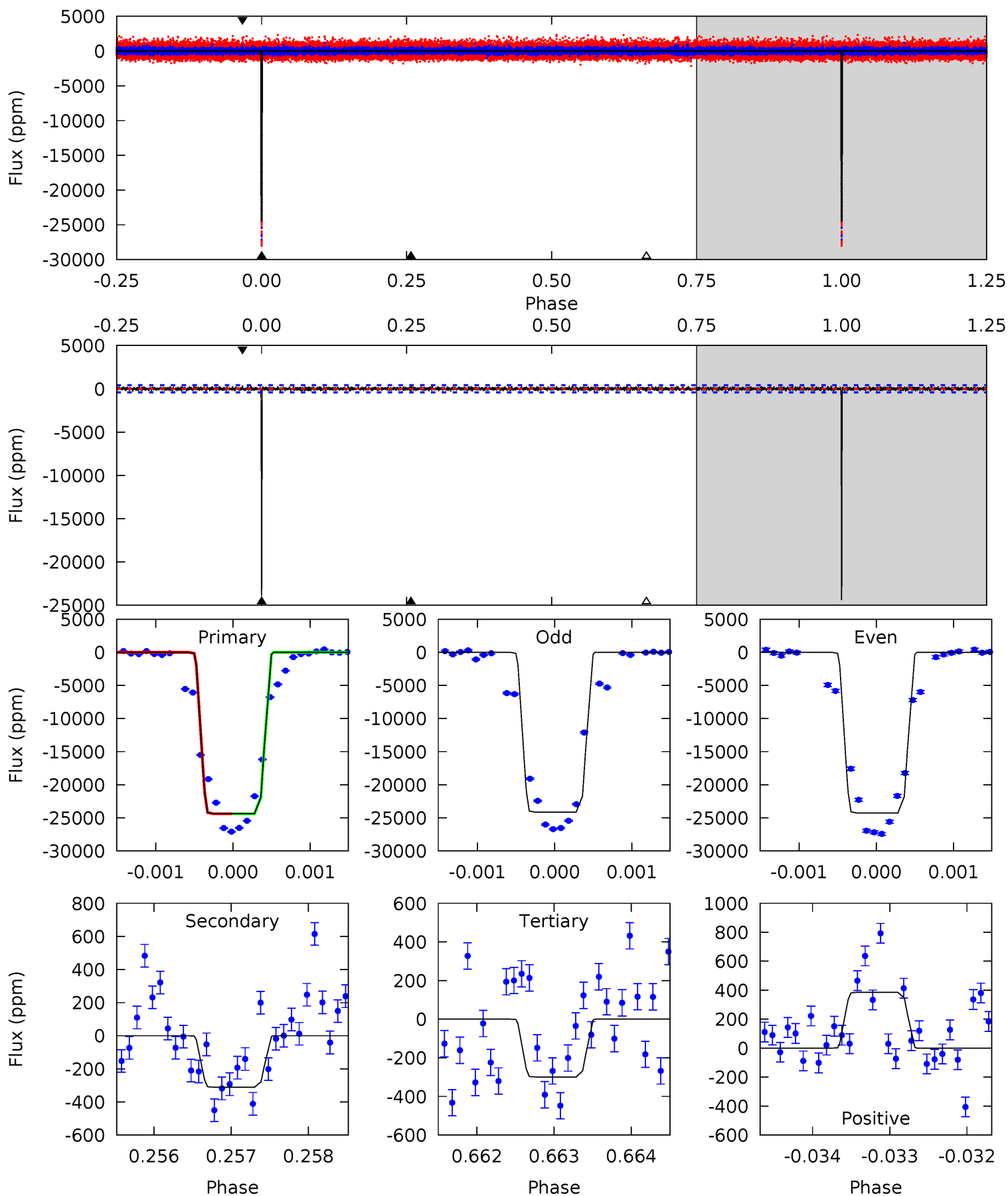
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
486.8	6.25	4.79	6.41	5.40	3.20	1.50	482.0	480.4	1.46	-0.16	10.0	1.00	0.01	1.32



# Alt Model-Shift Uniqueness Test

005435816-01, P = 181.849326 Days, E = 70.037913 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
311.4	3.97	3.82	4.92	5.47	3.32	1.10	307.6	306.5	0.15	-0.95	0.75	1.00	0.02	0.14



### Stellar Parameters For KIC 005435816

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6063^{+190}_{-211}$	$4.476^{+0.054}_{-0.216}$	$0.070^{+0.250}_{-0.300}$	$1.012^{+0.333}_{-0.111}$	$1.117^{+0.130}_{-0.159}$	$1.519^{+0.419}_{-0.816}$
	+3%/-3%	+1%/-5%	+357%/-429%	+33%/-11%	+12%/-14%	+28%/-54%
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 005435816-01 / KOI 3696.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-350 \pm 56$	$25.35^{+4.52}_{-3.71}$	$476^{+34}_{-24}$	$2587^{+101}_{-93}$	$124^{+47}_{-37}$
Alt.	$-311 \pm 78$	$18.89^{+4.67}_{-3.48}$	$477^{+39}_{-26}$	$2747^{+167}_{-152}$	$187^{+124}_{-70}$

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

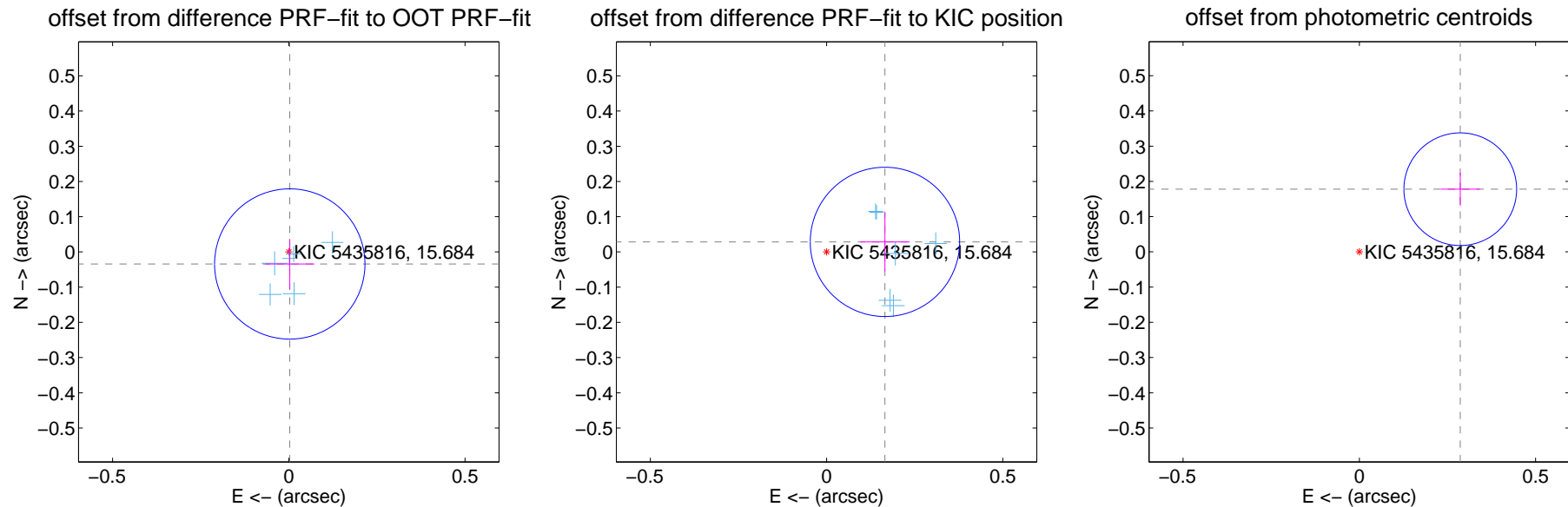
## DV Centroid Data

Supplemental centroid analysis for 005435816-01. Kepler magnitude: 15.68. Transit SNR 273.99

There are 6 quarters with good PRF difference image offsets

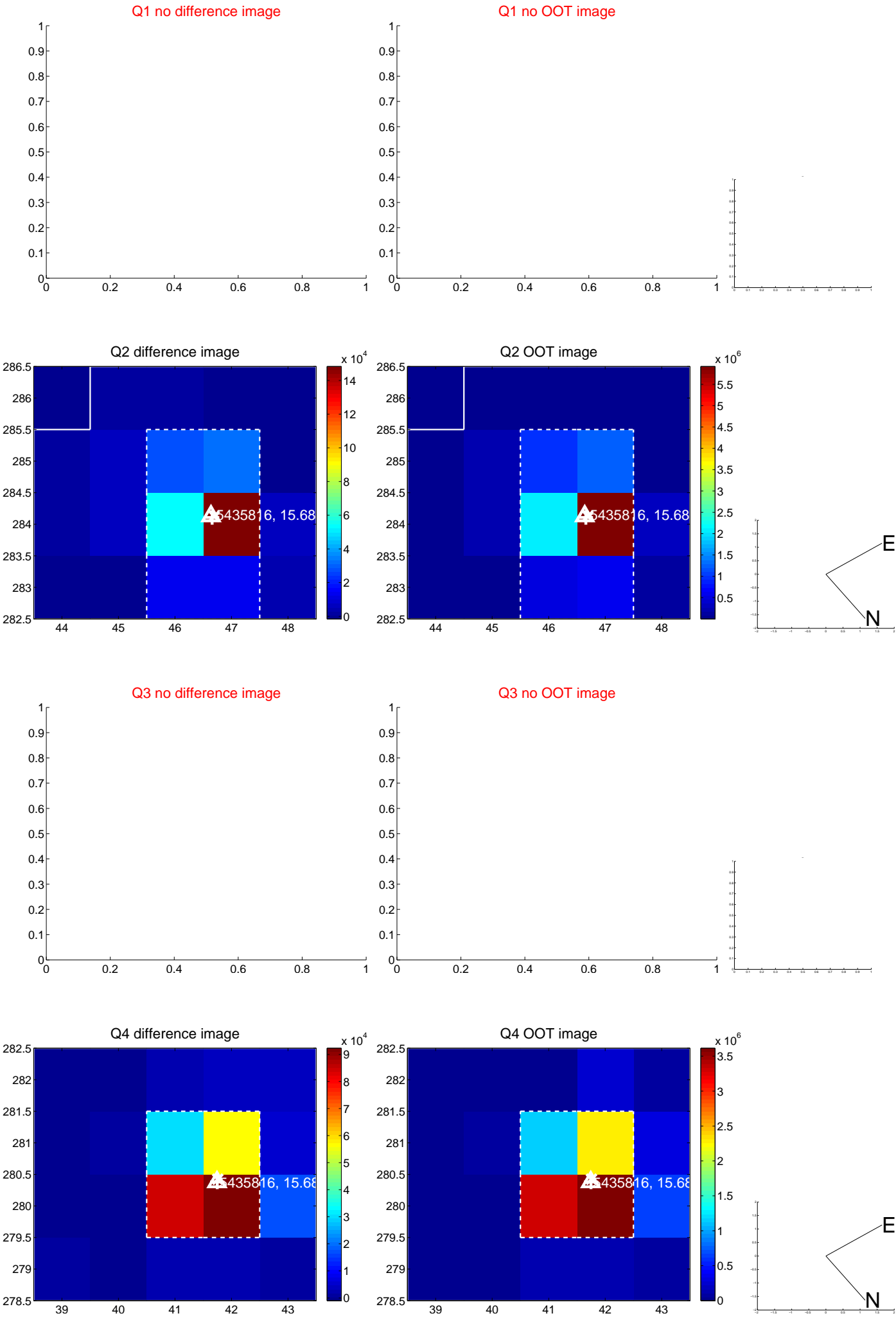
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.034 \pm 0.071$	0.48	$-0.003 \pm 0.070$	$-0.034 \pm 0.071$
PRF-fit source offset from KIC position	$0.168 \pm 0.071$	2.38	$-0.166 \pm 0.070$	$0.028 \pm 0.084$
photometric centroid source offset	$0.34 \pm 0.05$	6.32	$-0.29 \pm 0.06$	$0.18 \pm 0.05$

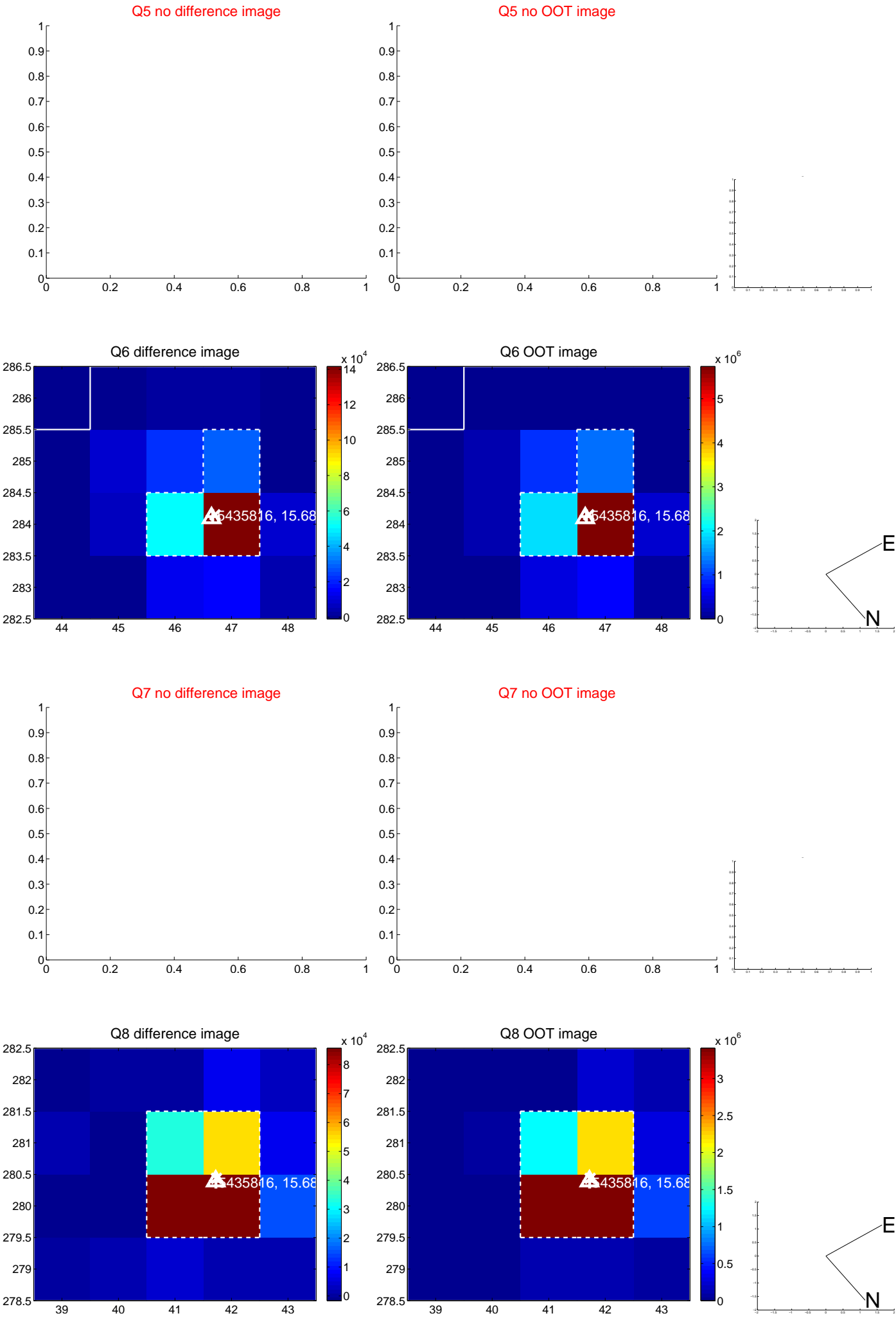


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

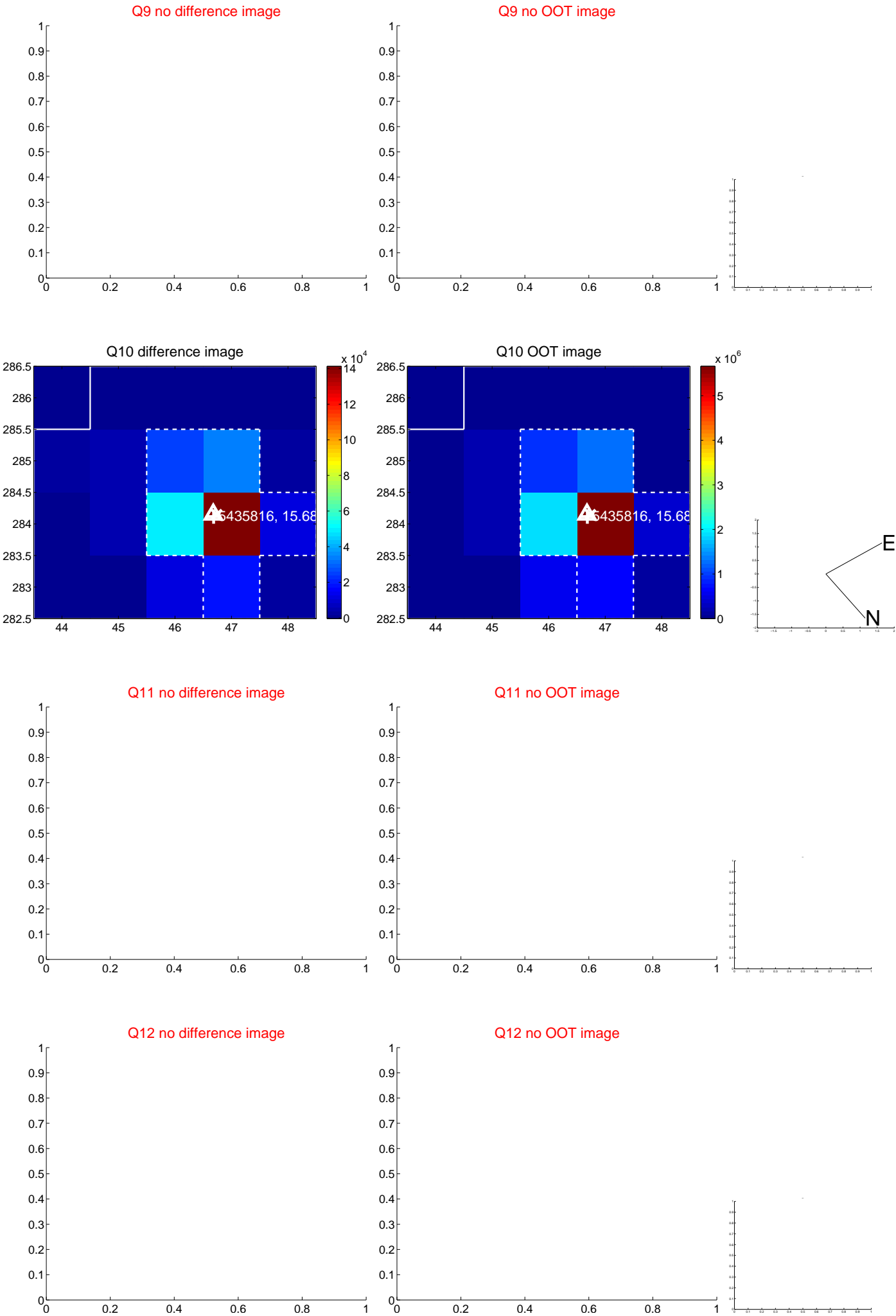


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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.

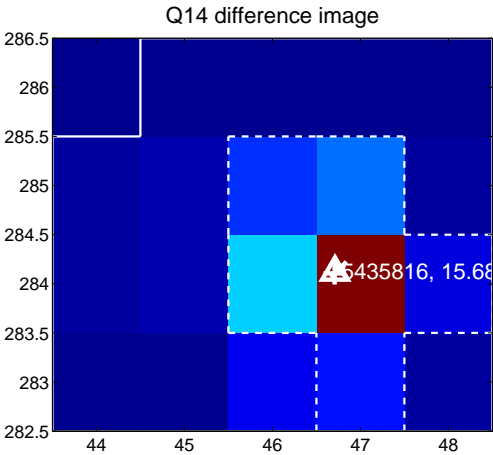
Q13 no difference image



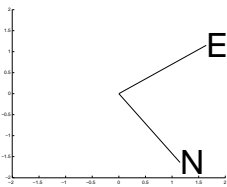
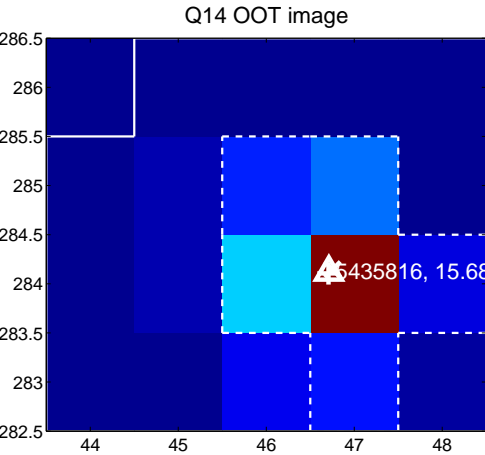
Q13 no OOT image



Q14 difference image



Q14 OOT image



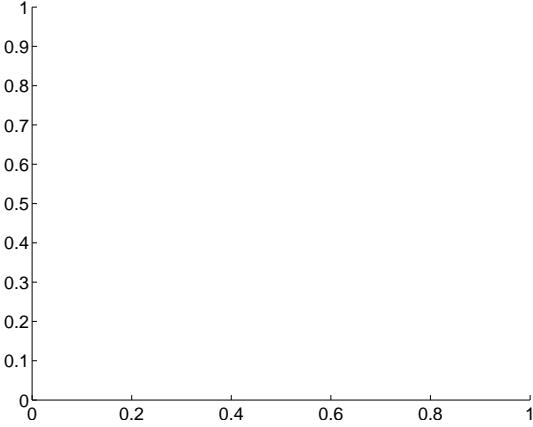
Q15 no difference image



Q15 no OOT image



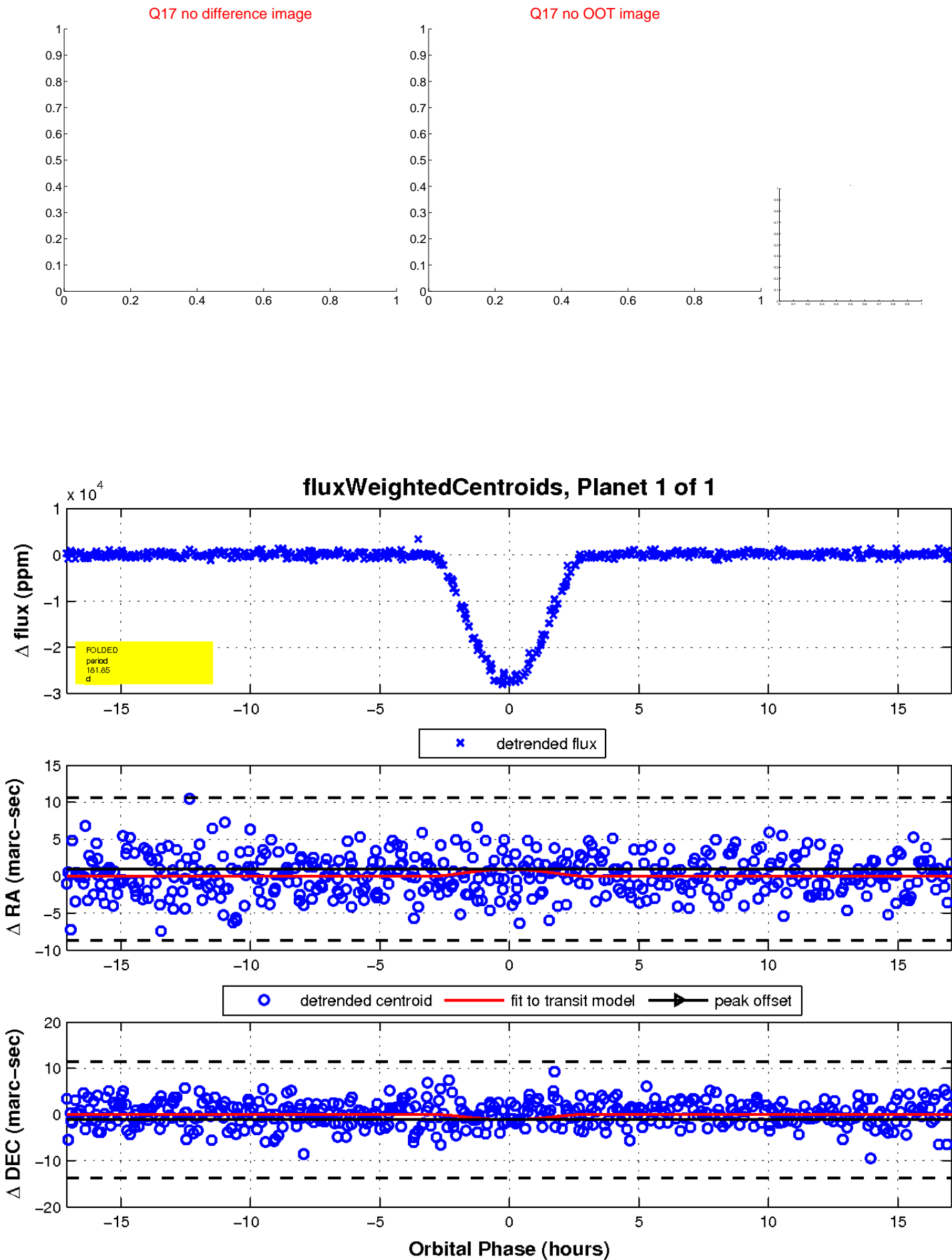
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

