

# KIC 010686876

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010686876-01	OBS	7363.01	2.618414	134.044463	197698.1	4.946	23904.4	15227.5	2.36	8143	108.43	10520.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010686876-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT

**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.

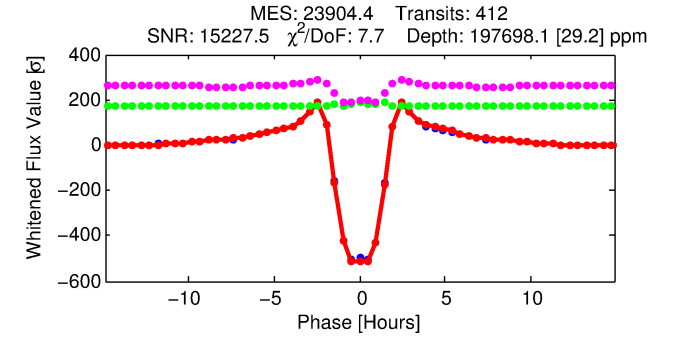
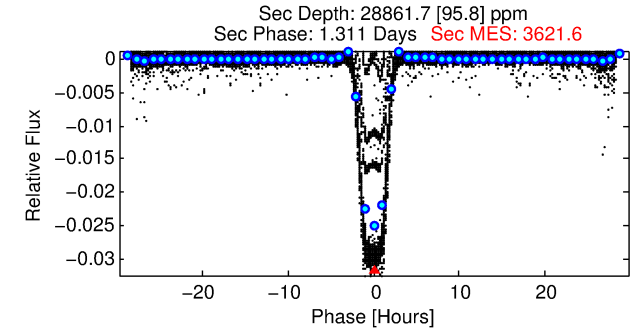
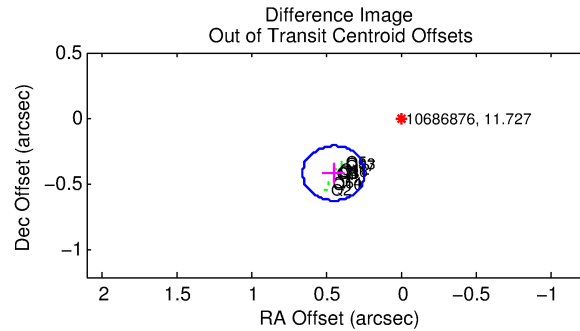
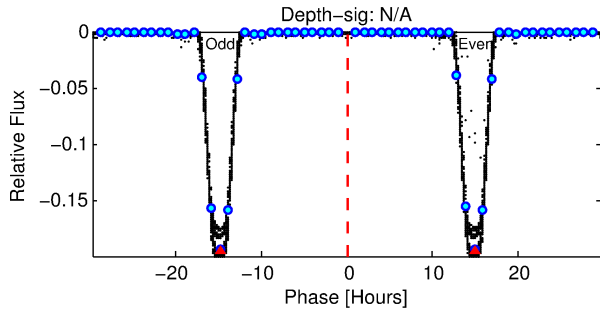
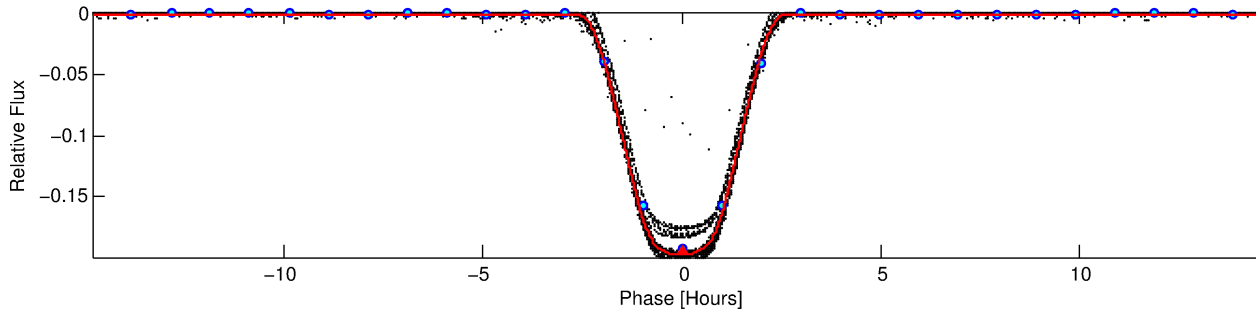
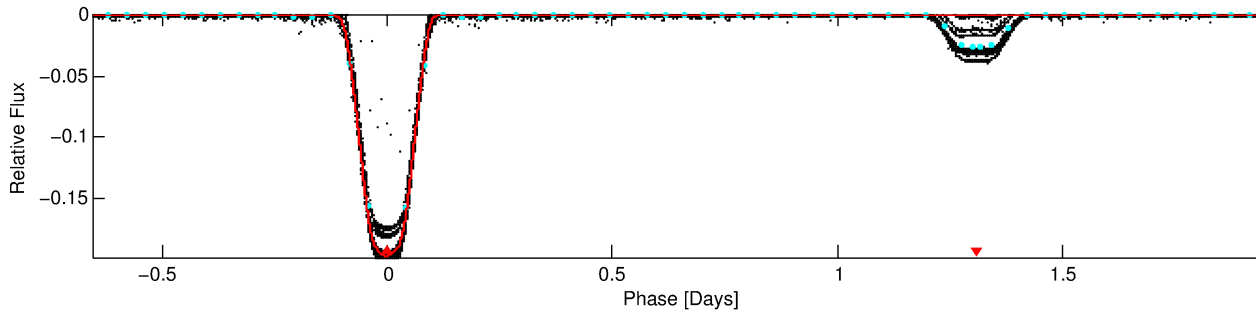
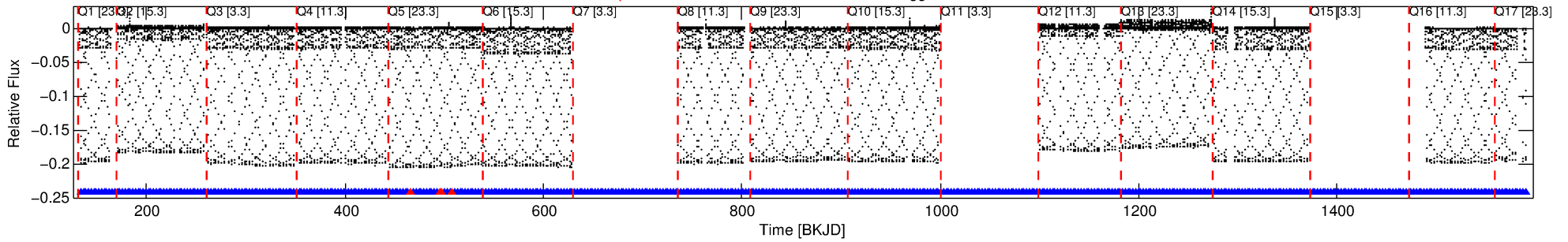
## Ephemeris Match Information For 010686876-01

No Significant Match Found

# DV One-Page Summary

KIC: 10686876 Candidate: 1 of 1 Period: 2.618 d  
KOI: K07363.01 Corr: 0.992

Kp: 11.73 R\*: 2.36 Rs Teff: 8143.0 K Logg: 3.96 Fe/H: -0.200



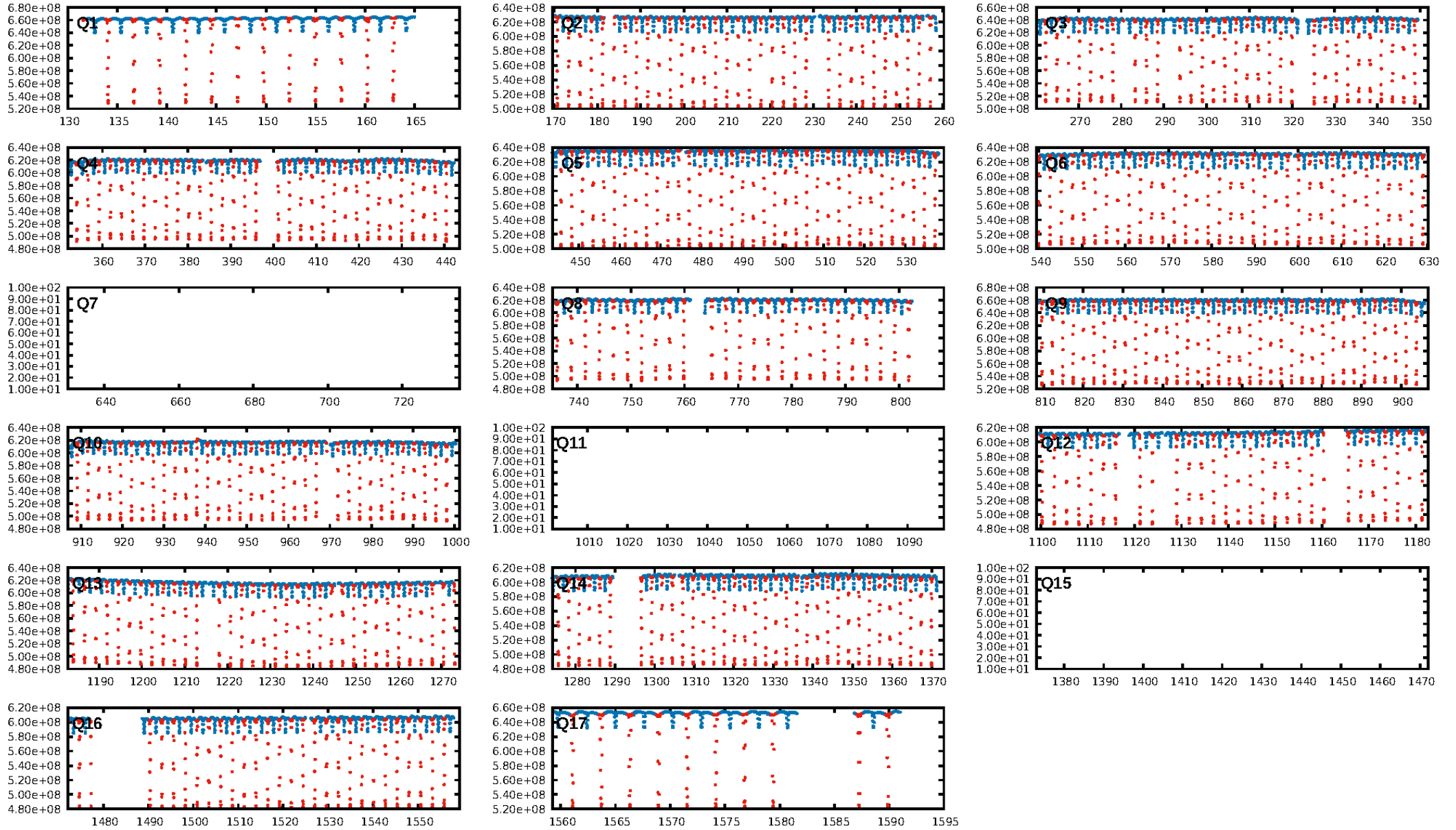
## DV Fit Results:

Period = 2.61841 [0.00000] d  
Epoch = 134.0445 [0.0000] BKJD  
Rp/R\* = 0.4209 [0.0000]  
a/R\* = 5.63 [0.00]  
b = 0.35 [0.00]  
Seff = 10520.71 [5005.65]  
Teq = 2582 [307] K  
Rp = 108.43 [34.49] Re  
a = 0.0457 [0.0133] AU  
Ag = 2.82 [1.27] [1.43σ]  
Teffp = 5174 [198] K [7.09σ]

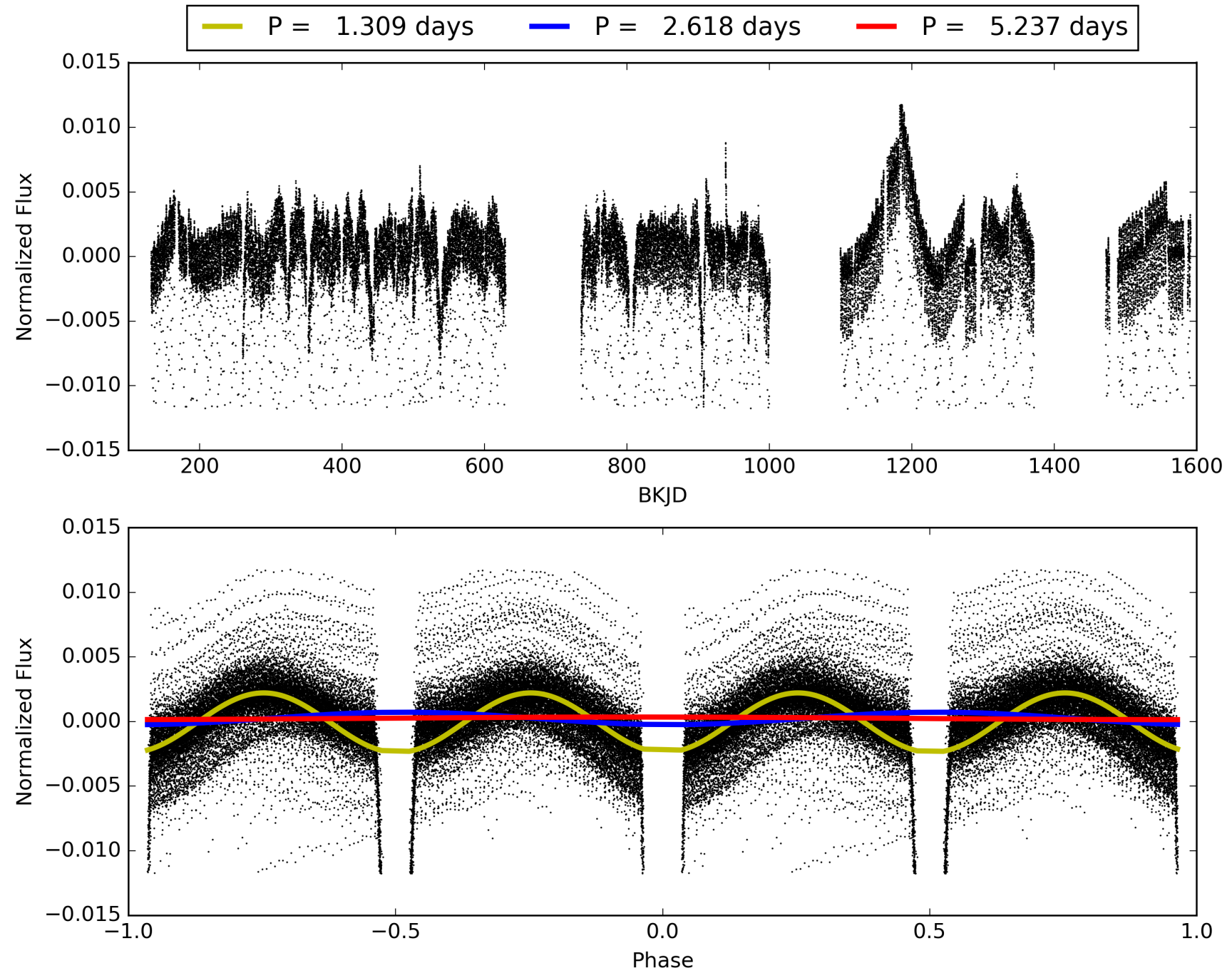
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [385/389]  
GhostDiagnostic-chr: 1.739  
Centroid-sig: 0.0%  
Centroid-so: 0.390 arcsec [1595.72σ]  
OotOffset-rm: 0.610 arcsec [8.85σ]  
KicOffset-rm: 0.195 arcsec [2.84σ]  
OotOffset-st: 4/1/4/5 [14]  
KicOffset-st: 4/1/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 010686876-01, PDC Light Curves

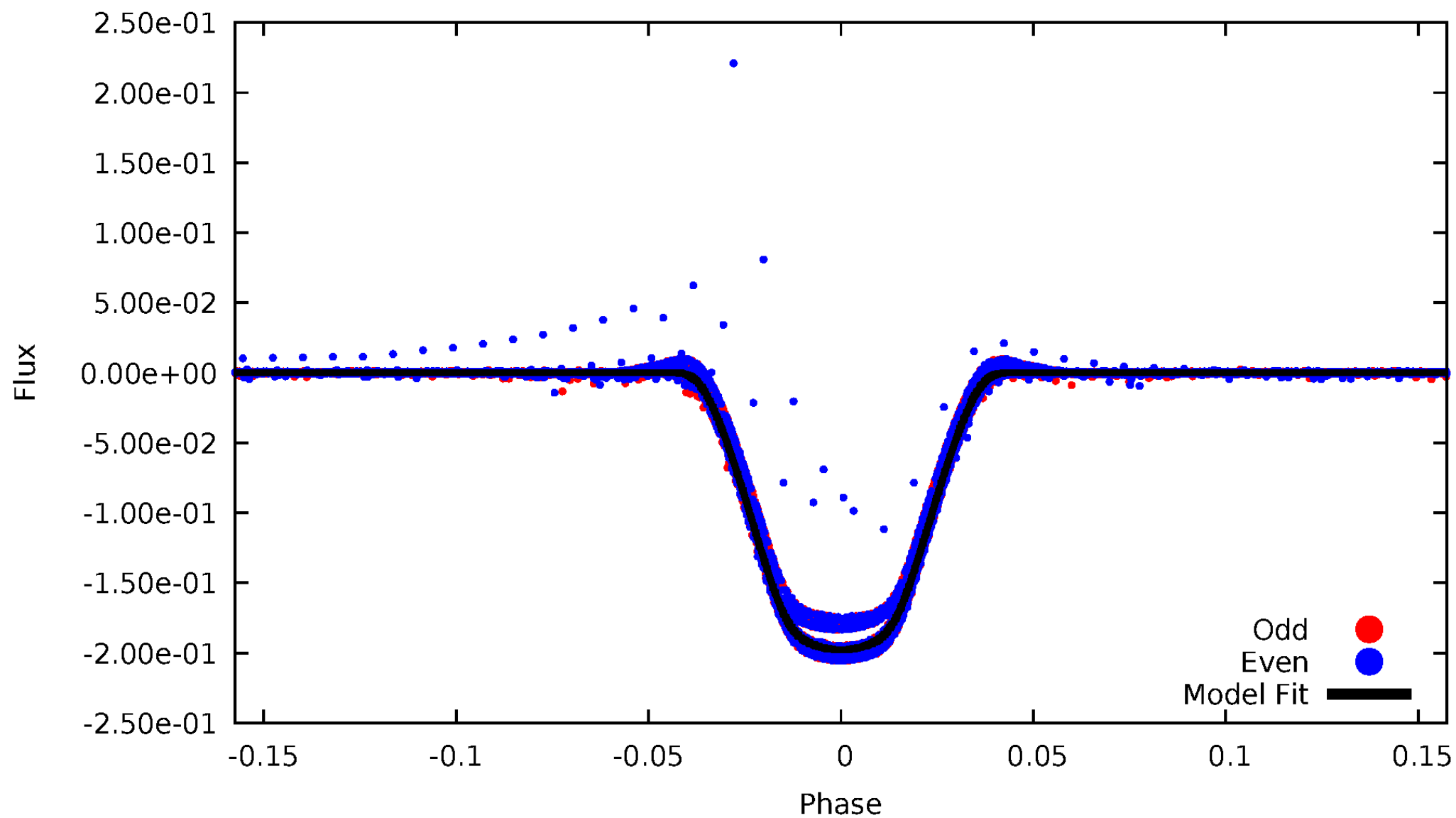


TCE 010686876-01



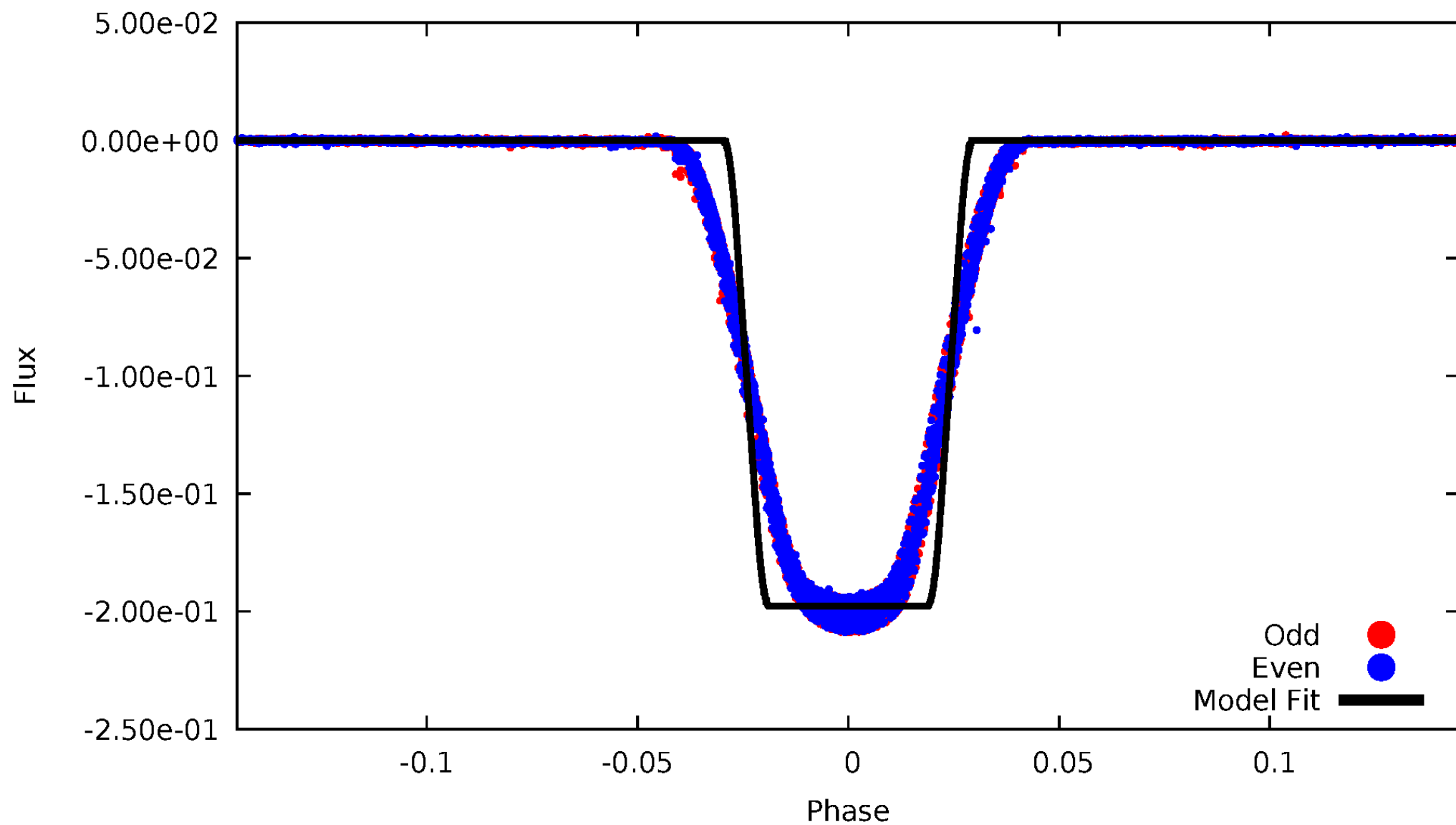
# DV Odd/Even

TCE 010686876-01



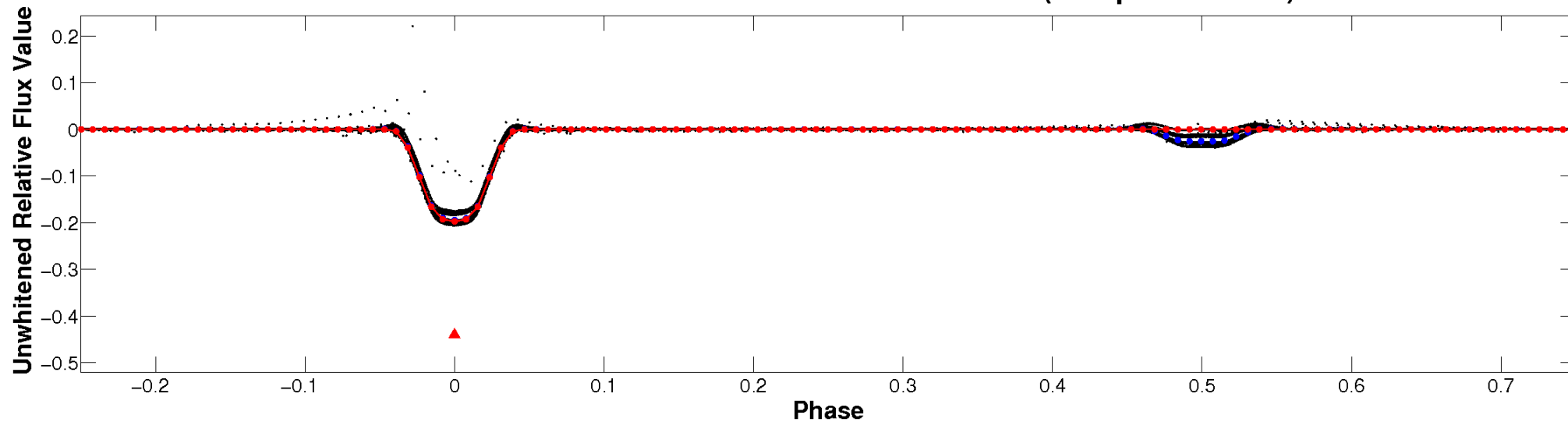
# ALT Odd/Even

TCE 010686876-01

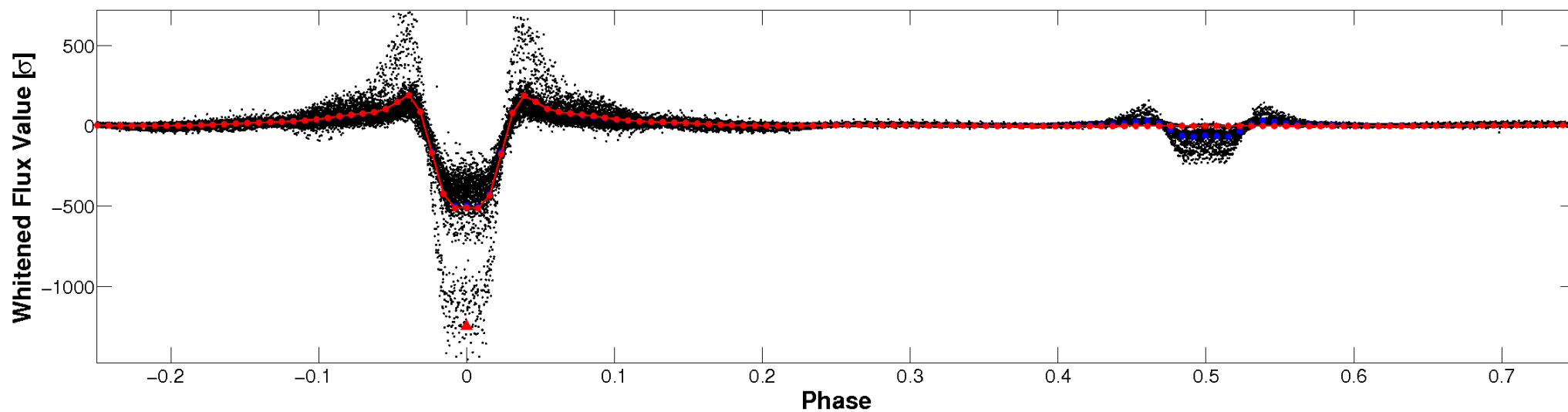


# Non-Whitened Vs. Whitened Light Curve

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

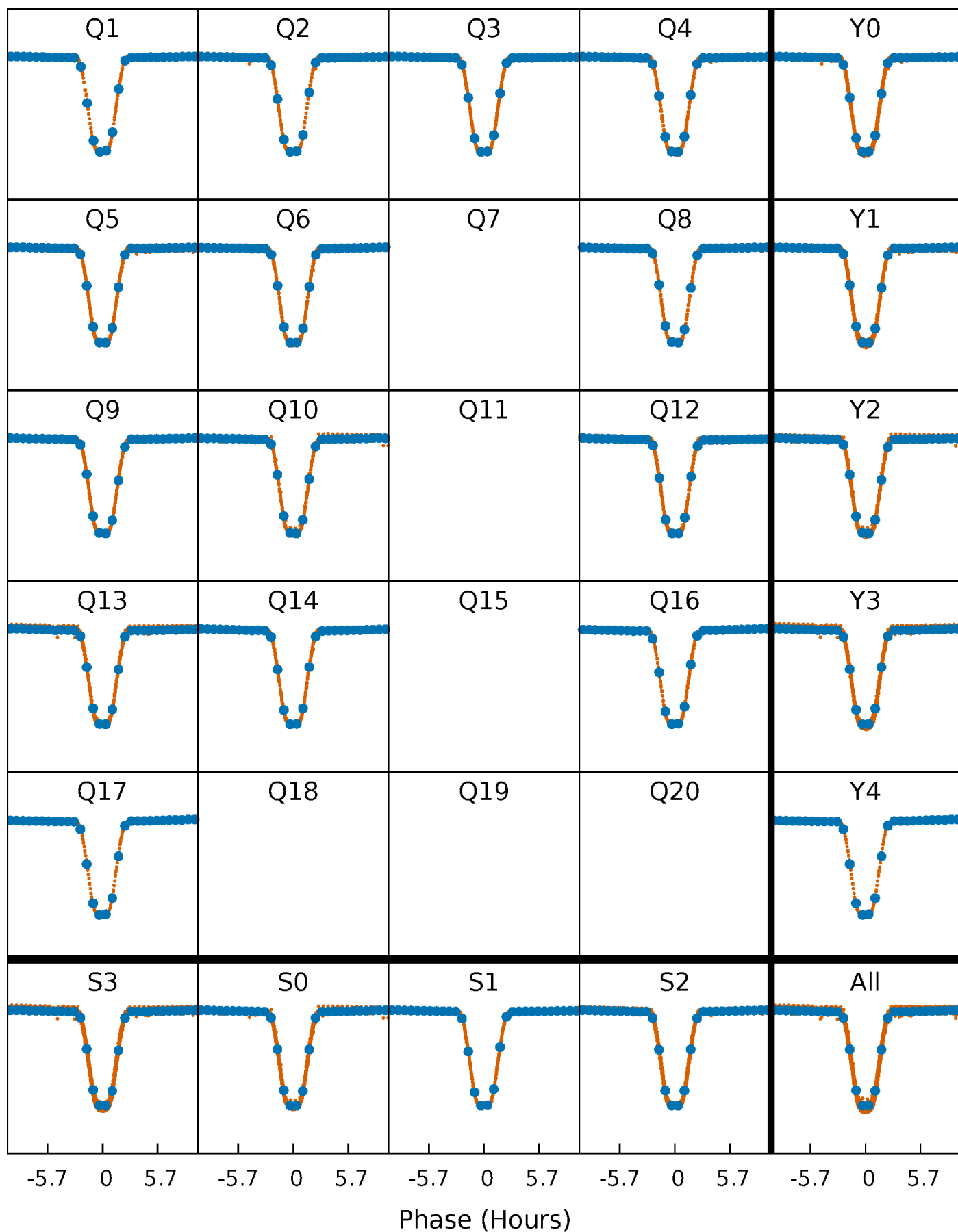


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

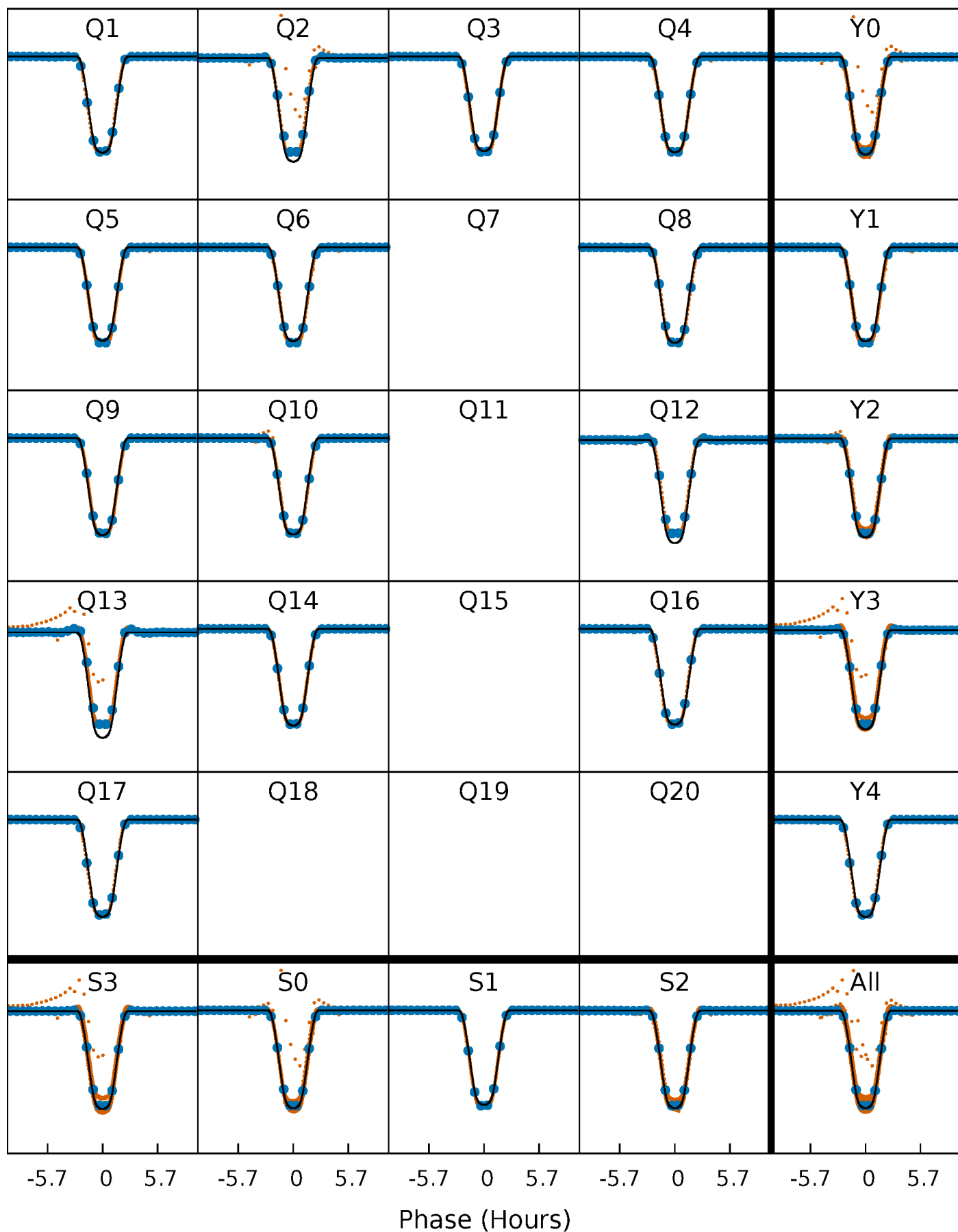
TCE 010686876-01 P= 2.618414 Days  $T_0=134.044463$  (BKJD)





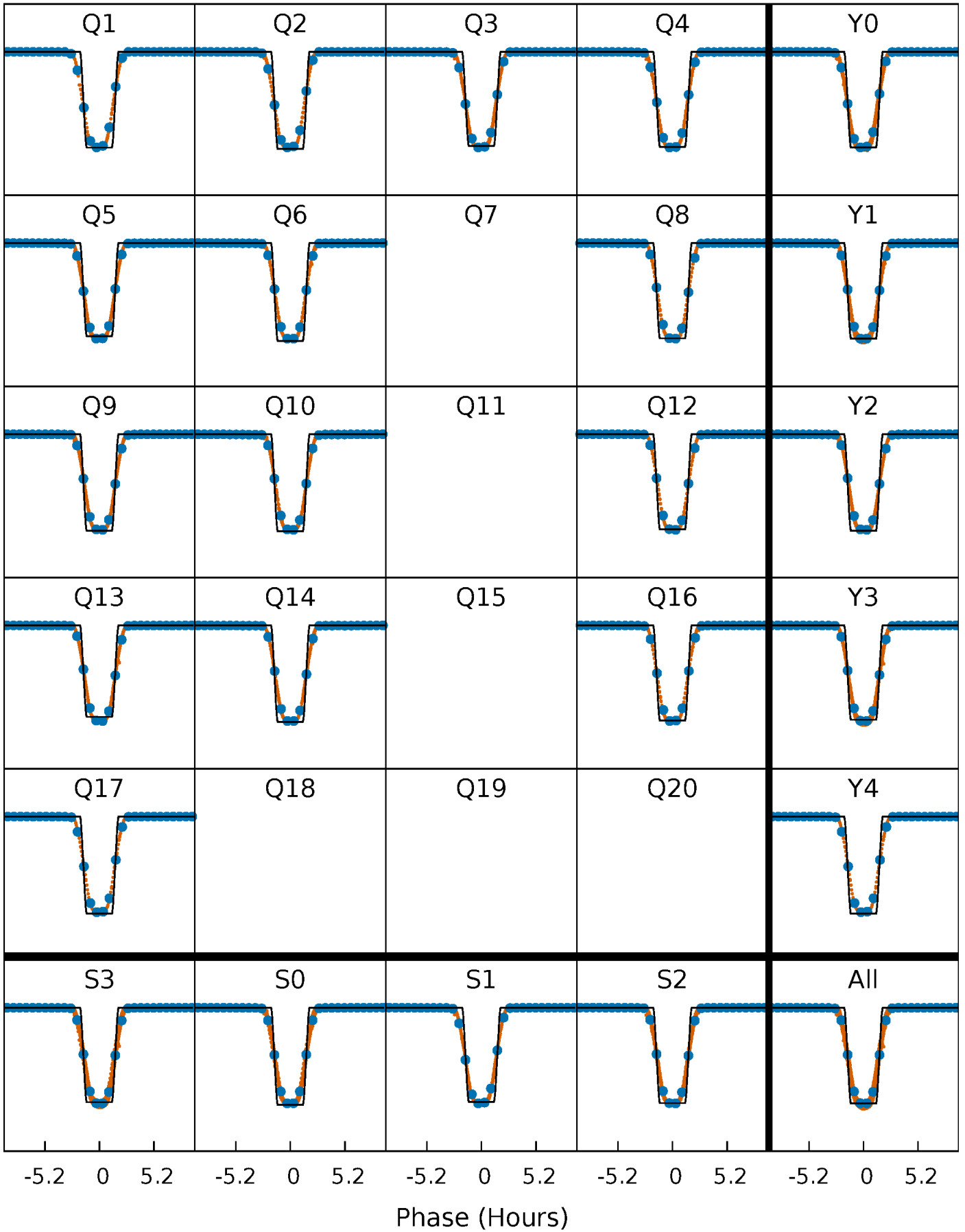
# DV Quarter-Phased Transit Curves

TCE 010686876-01 P= 2.618414 Days  $T_0=134.044463$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

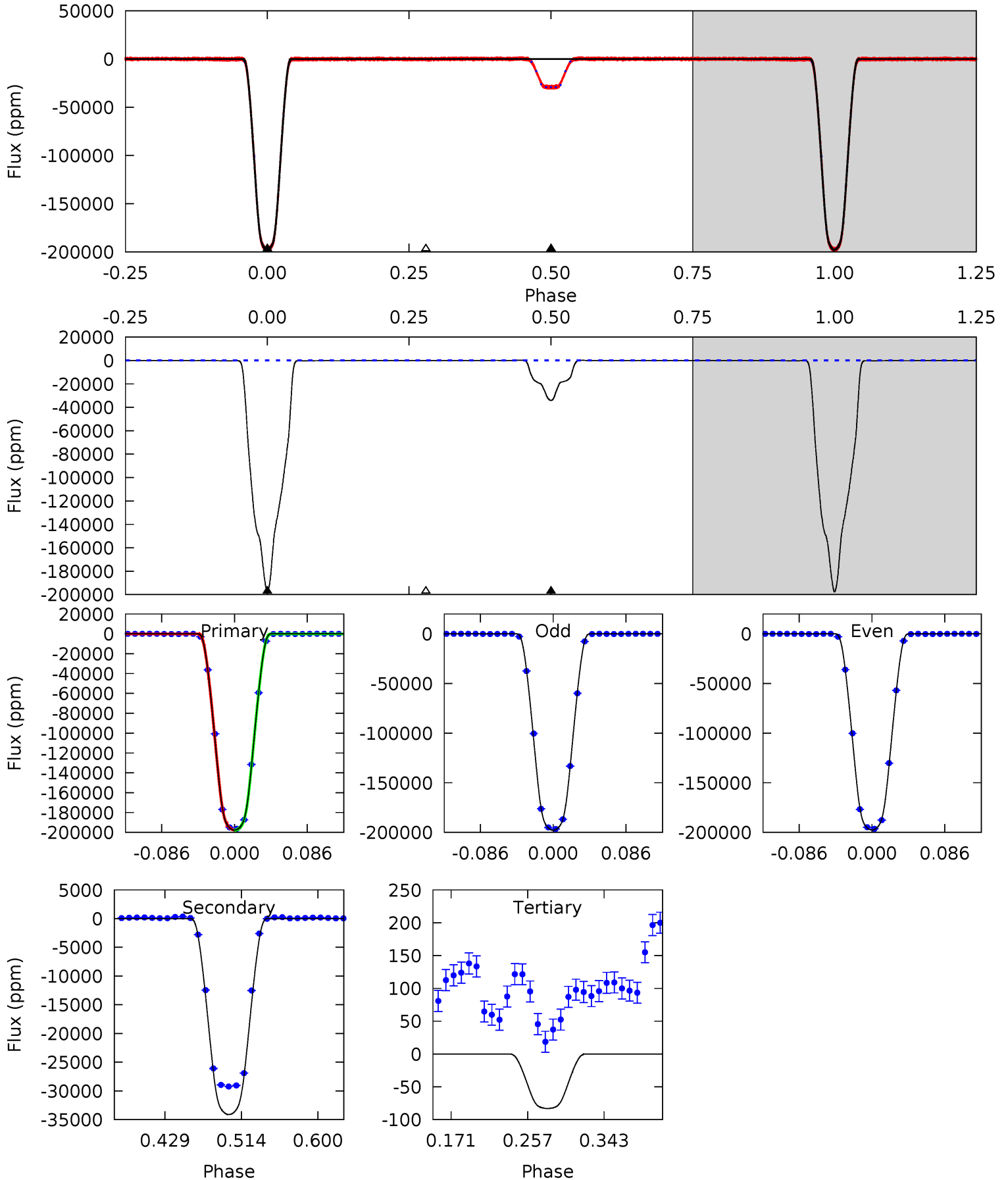
TCE 010686876-01   P= 2.618404 Days    $T_0=134.046908$  (BKJD)



# DV Model-Shift Uniqueness Test

010686876-01, P = 2.618414 Days, E = 131.426049 Days

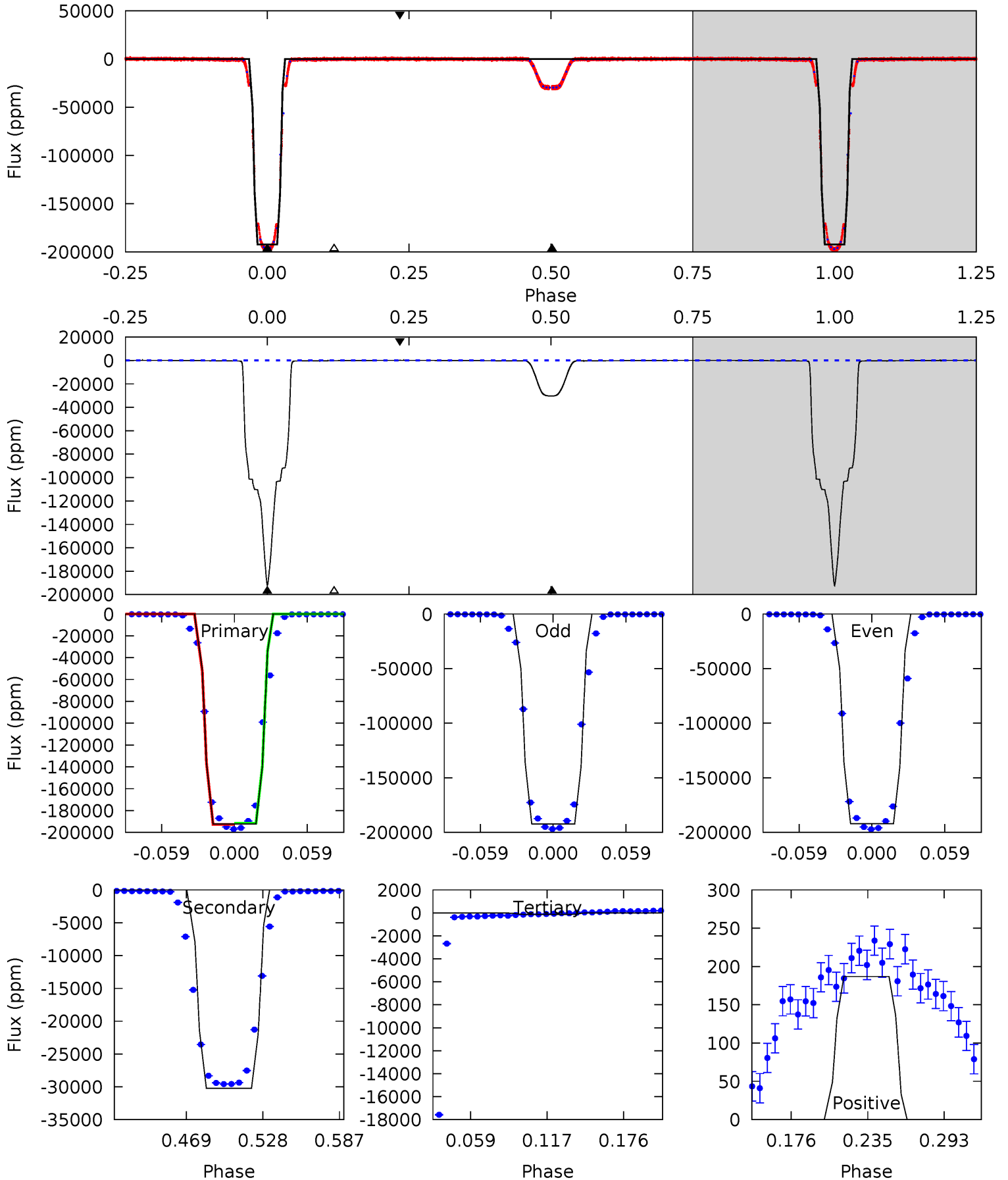
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20621	3558	8.67	0	4.60	1.72	5.50	20612	20621	3549	3558	6.80	0.98	0.00	0



# Alt Model-Shift Uniqueness Test

010686876-01, P = 2.618404 Days, E = 131.428504 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
12942	2035	9.35	12.6	4.68	1.89	10.5	12932	12929	2025	2022	7.85	1.00	0.00	0



### Stellar Parameters For KIC 010686876

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8143^{+226}_{-311}$	$3.960^{+0.259}_{-0.111}$	$-0.200^{+0.200}_{-0.300}$	$2.361^{+0.405}_{-0.751}$	$1.854^{+0.112}_{-0.381}$	$0.198^{+0.317}_{-0.066}$
	+3%/-4%	+7%/-3%	+100%/-150%	+17%/-32%	+6%/-21%	+160%/-33%
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 010686876-01 / KOI 7363.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-34107 \pm 10$	$106.39^{+11.58}_{-17.97}$	$3567^{+205}_{-311}$	$5224^{+110}_{-132}$	$3.556^{+1.402}_{-0.656}$
Alt.	$-30228 \pm 15$	$113.66^{+10.75}_{-19.69}$	$3556^{+230}_{-291}$	$4934^{+105}_{-133}$	$2.778^{+1.063}_{-0.480}$

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

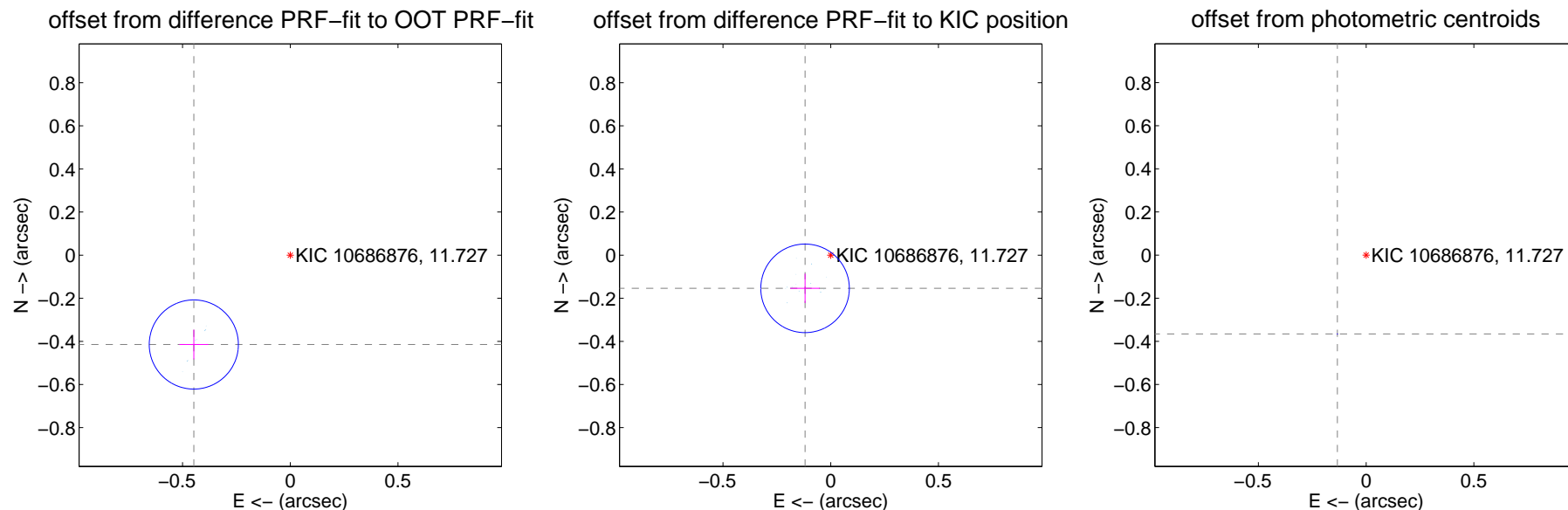
## DV Centroid Data

Supplemental centroid analysis for 010686876-01. **Kepler magnitude: 11.73.** Transit SNR 15227.47

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

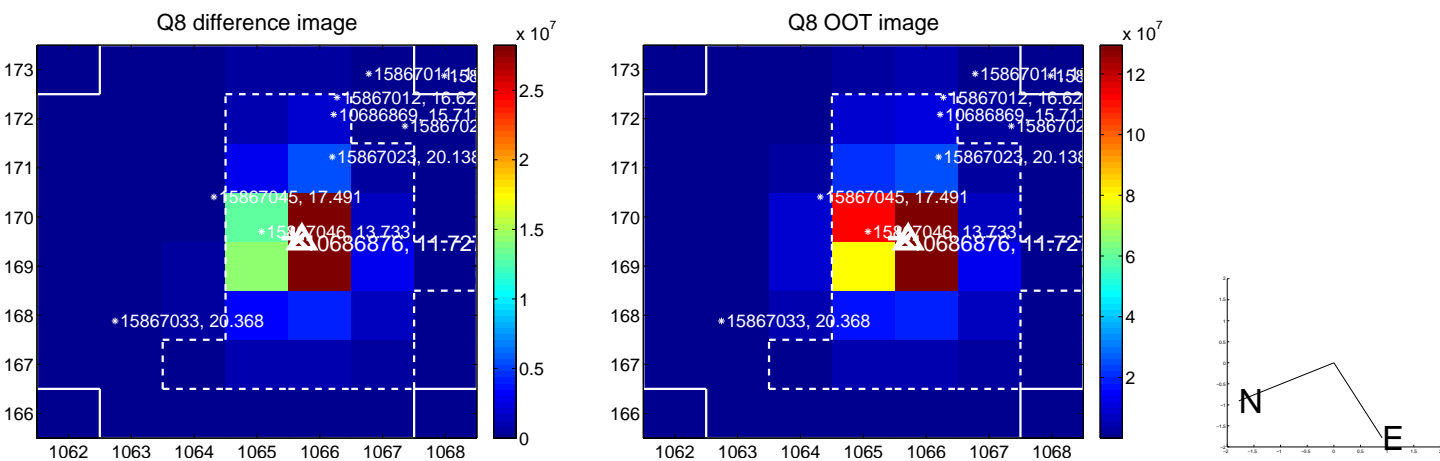
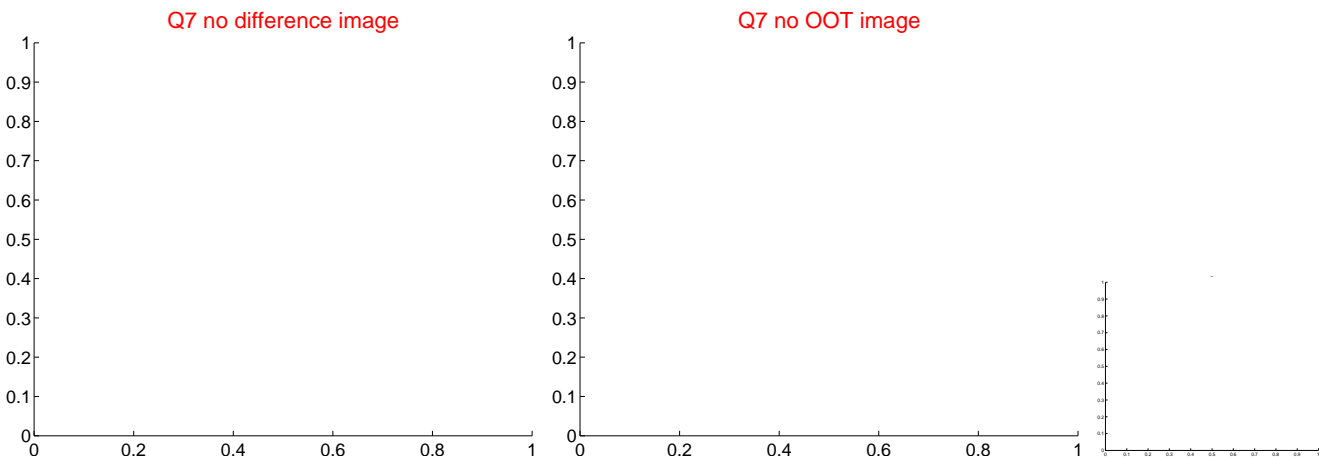
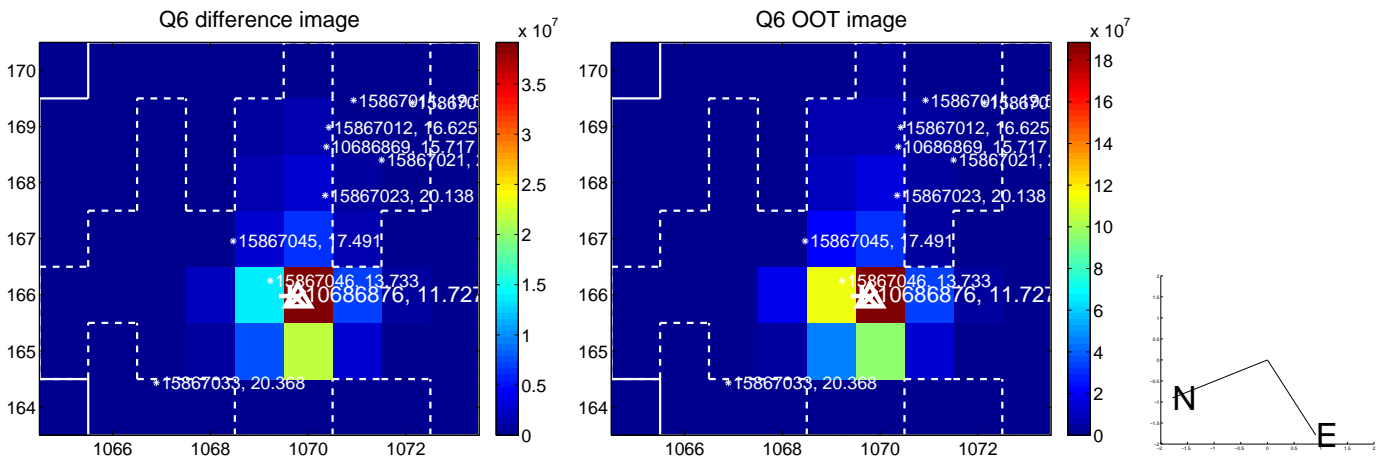
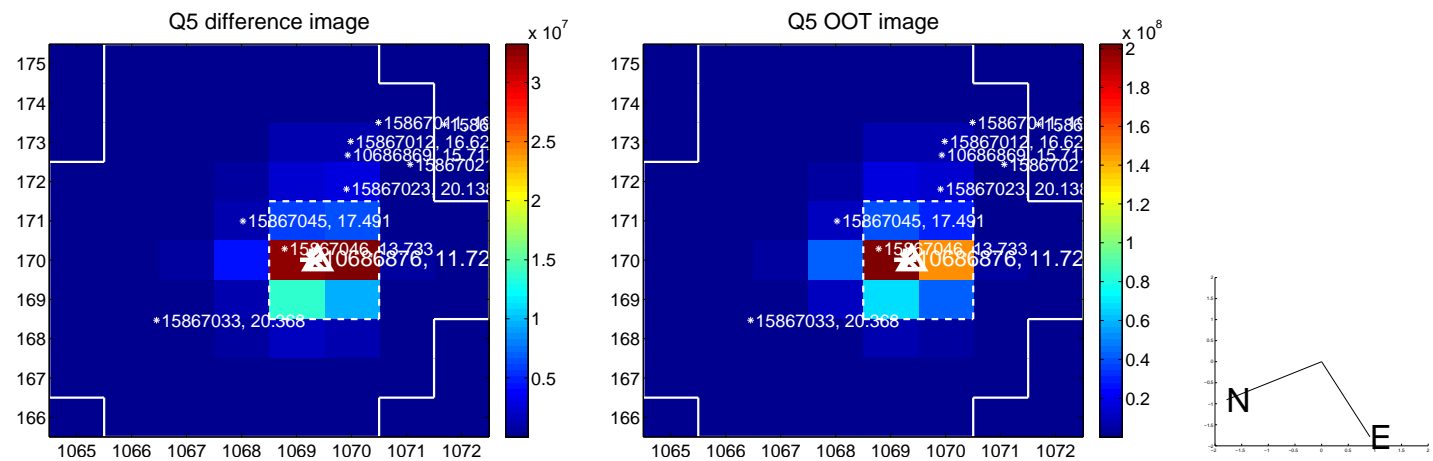
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.610 \pm 0.069</math></b>	<b>8.85</b>	$0.448 \pm 0.067$	$-0.415 \pm 0.069$
PRF-fit source offset from KIC position	$0.195 \pm 0.068$	2.84	$0.119 \pm 0.068$	$-0.154 \pm 0.068$
photometric centroid source offset	<b><math>0.39 \pm 0.00</math></b>	<b>1595.72</b>	$0.13 \pm 0.00$	$-0.37 \pm 0.00$



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.

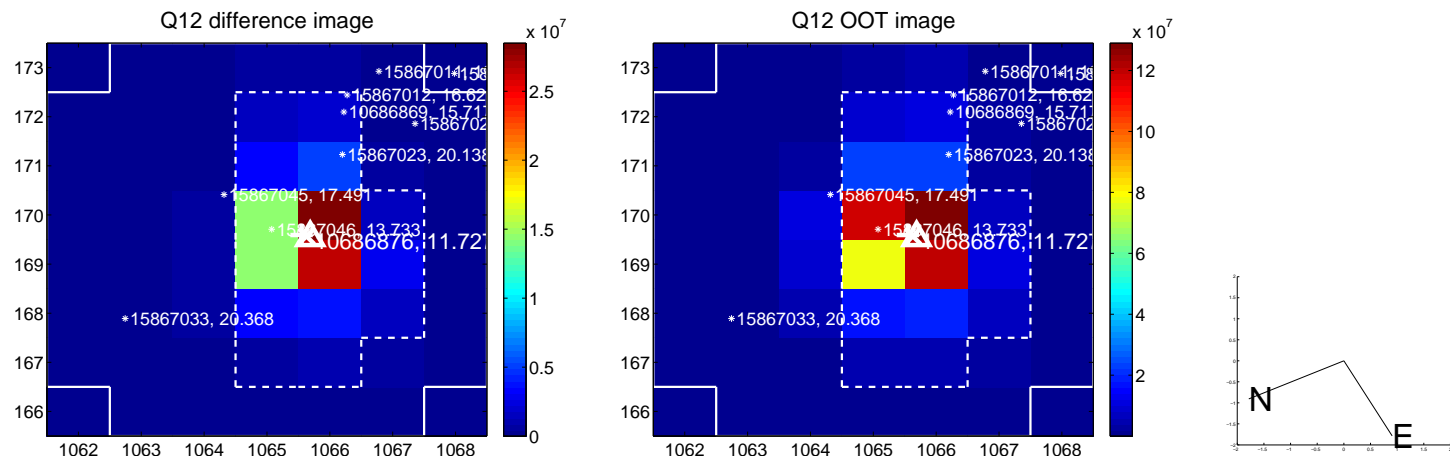
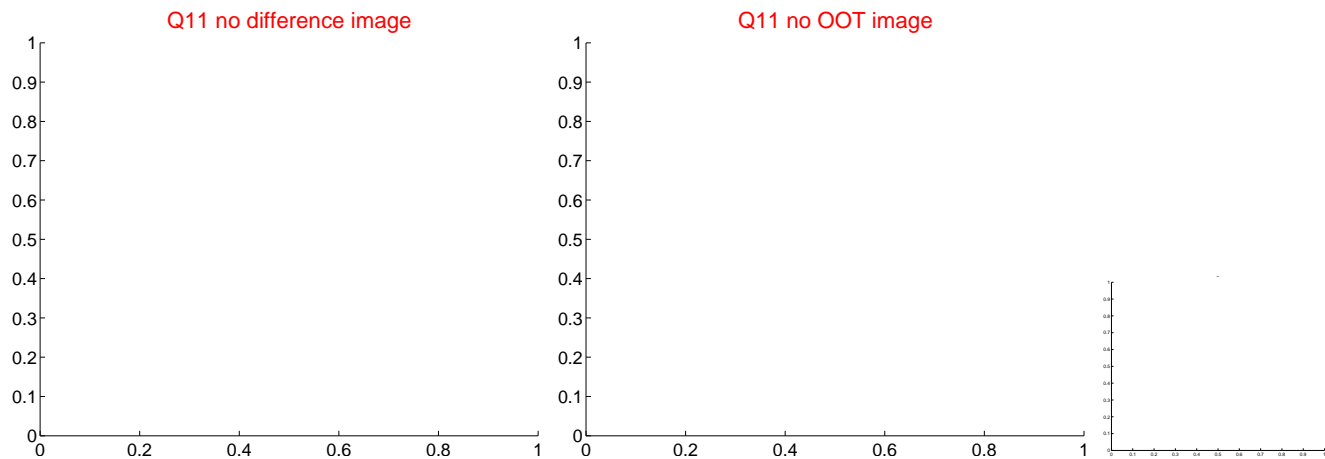
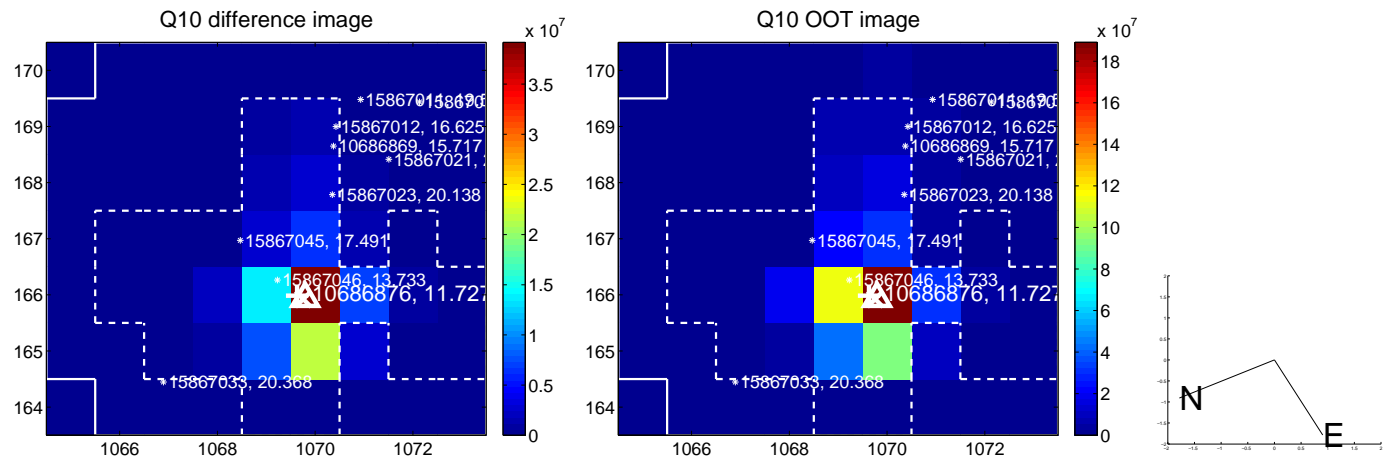
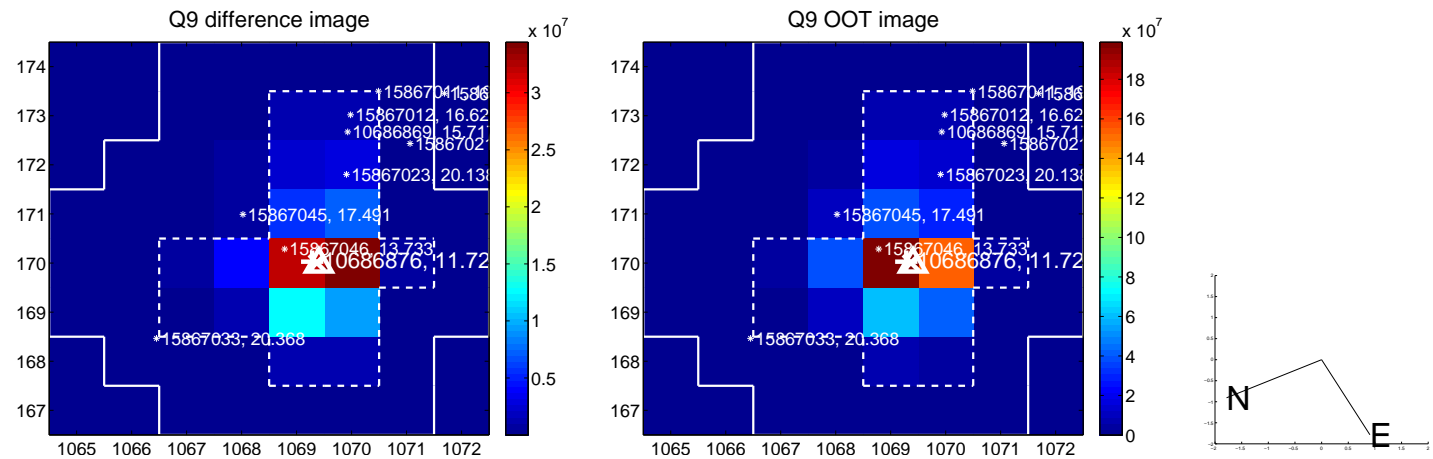


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

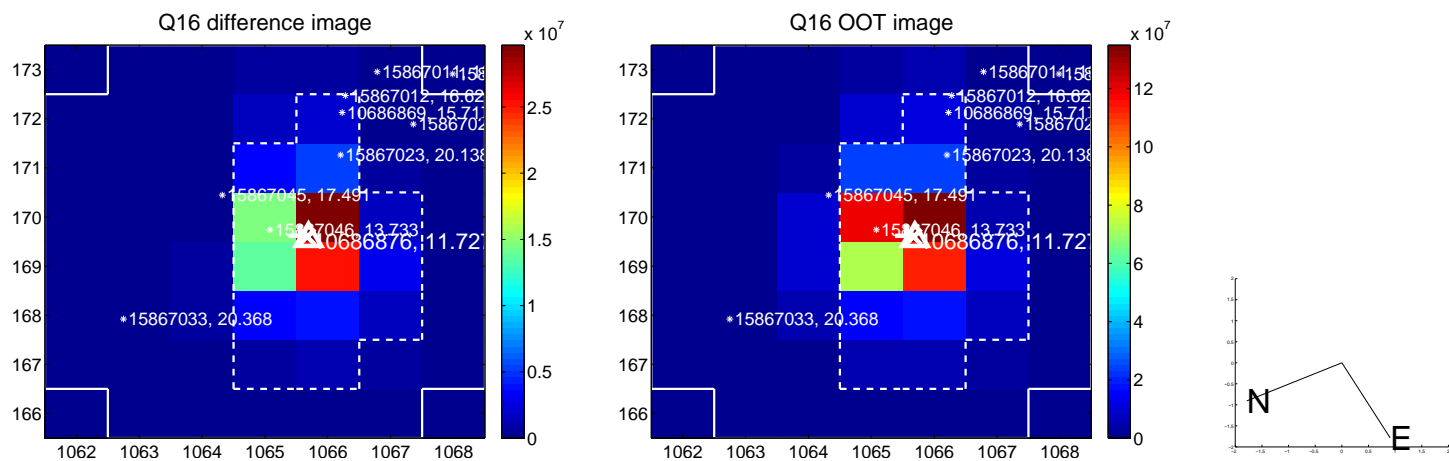
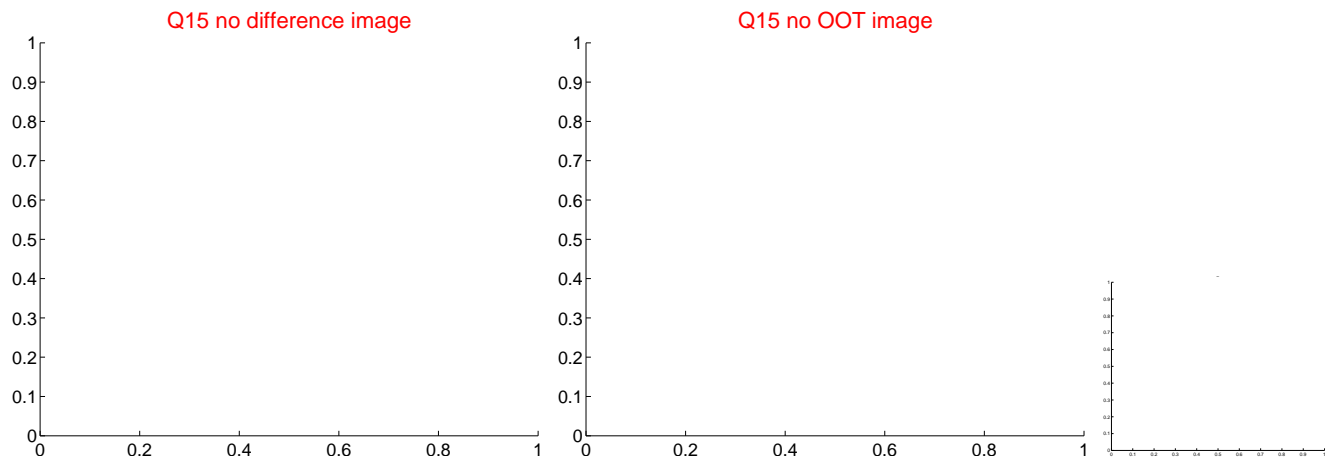
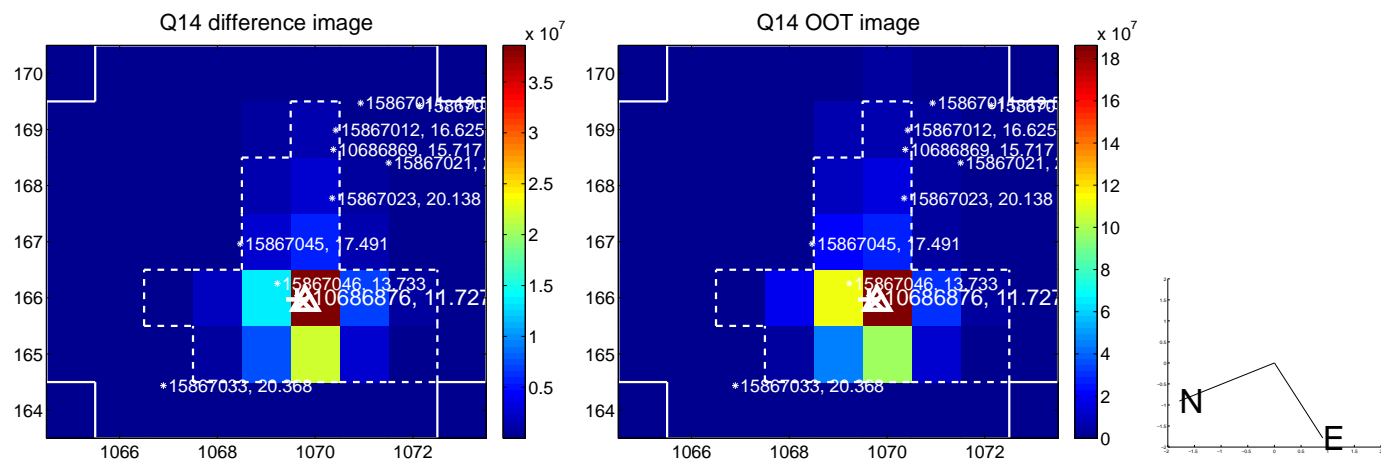
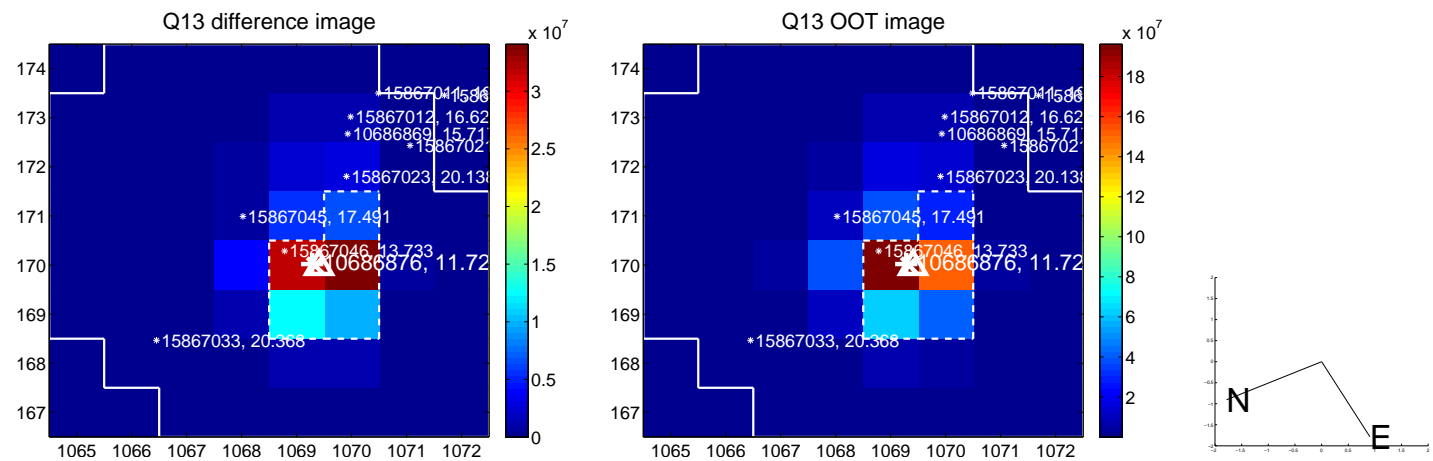




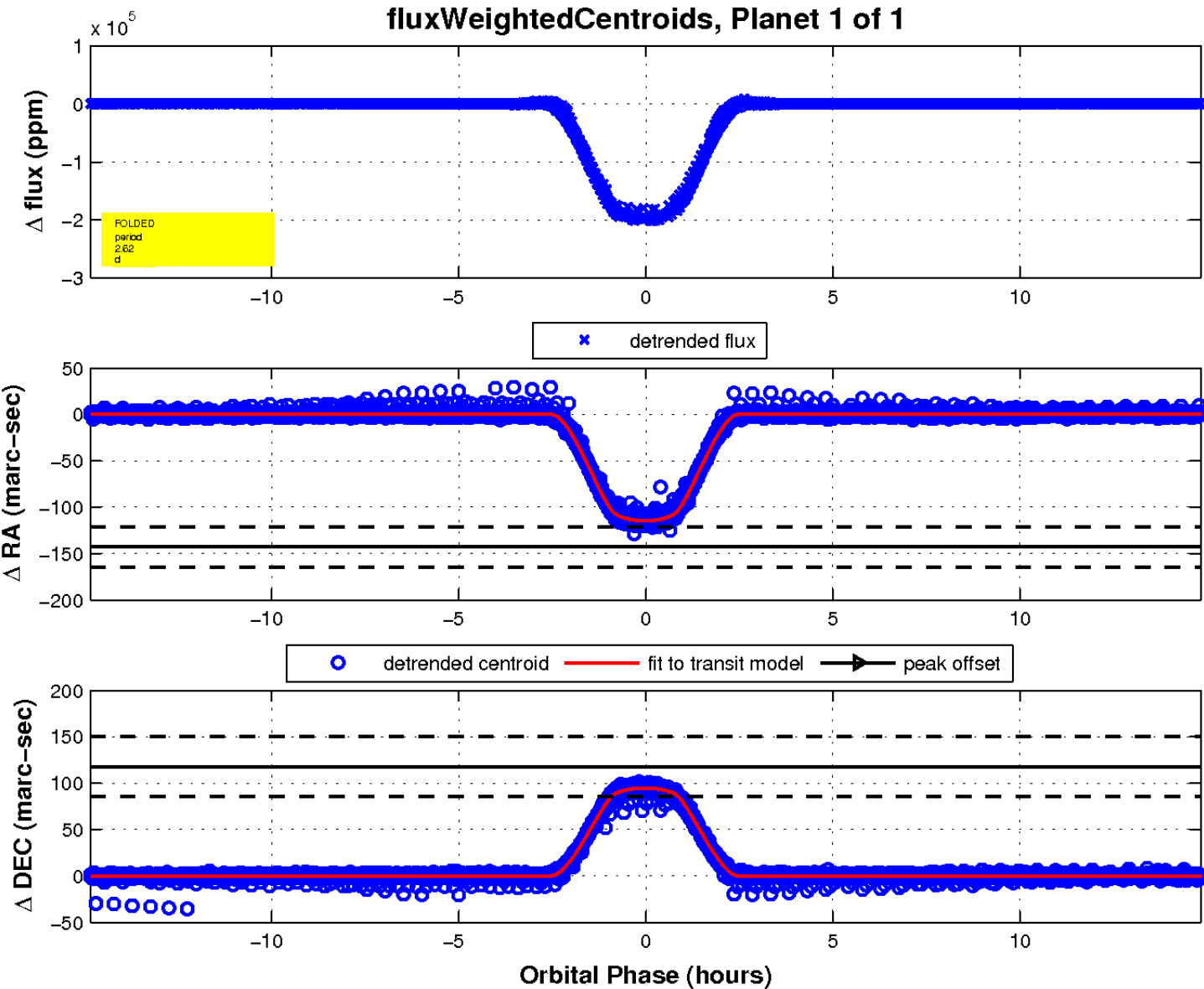
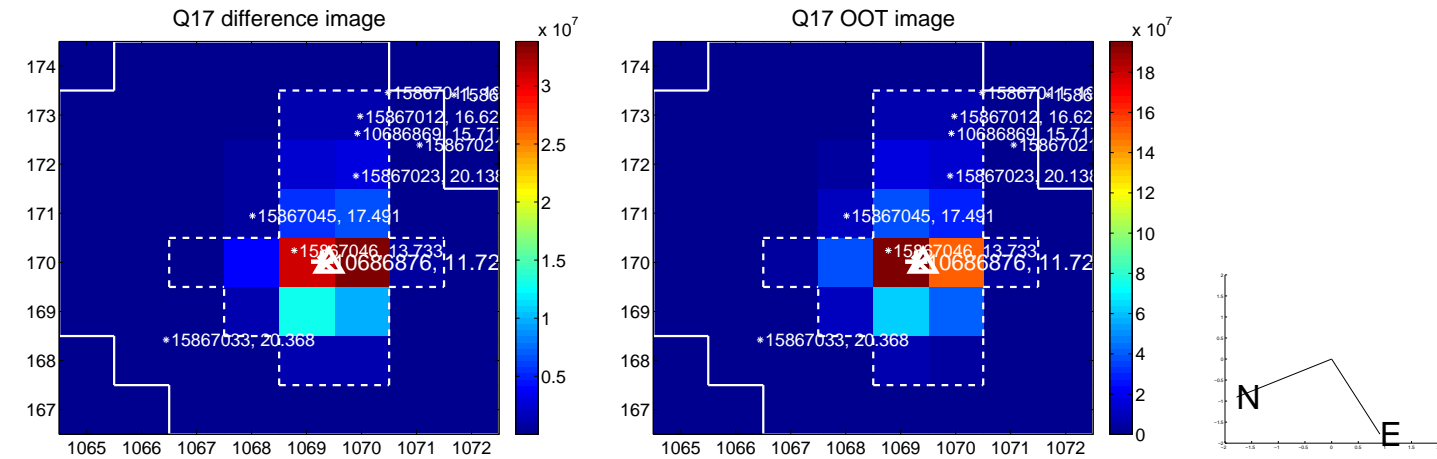
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

