

# KIC 010987985

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010987985-01	OBS	0758.01	16.013081	144.335343	1128.0	3.330	31.1	31.0	0.83	5015	3.23	29.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010987985-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

**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.

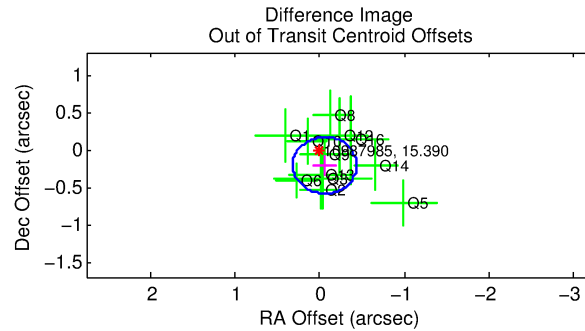
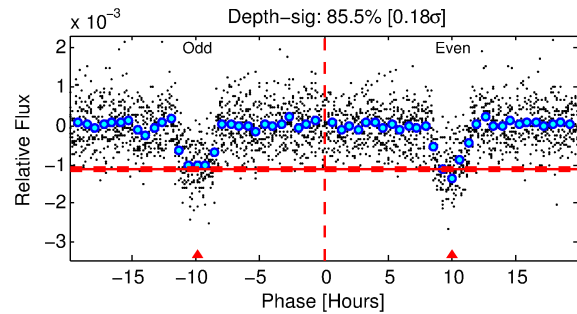
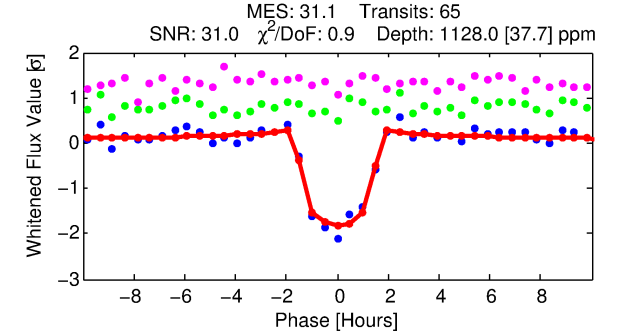
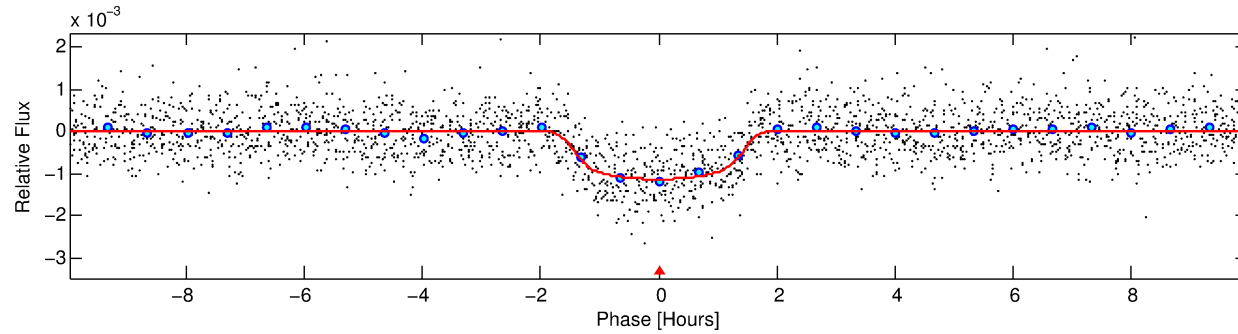
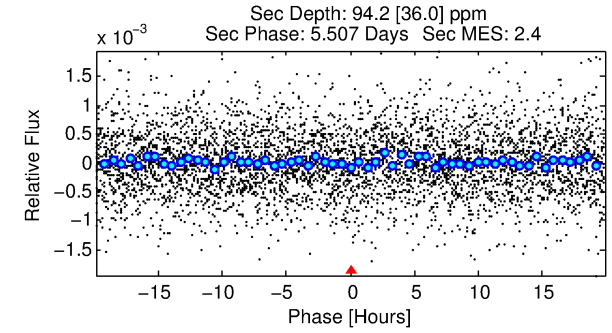
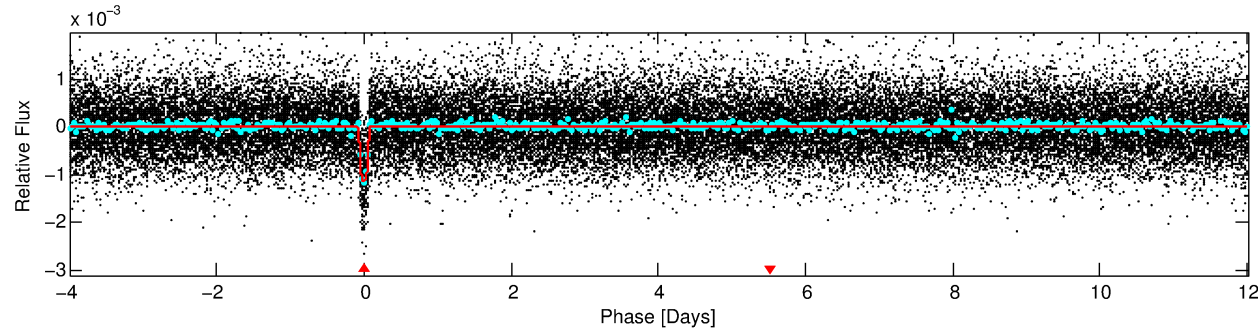
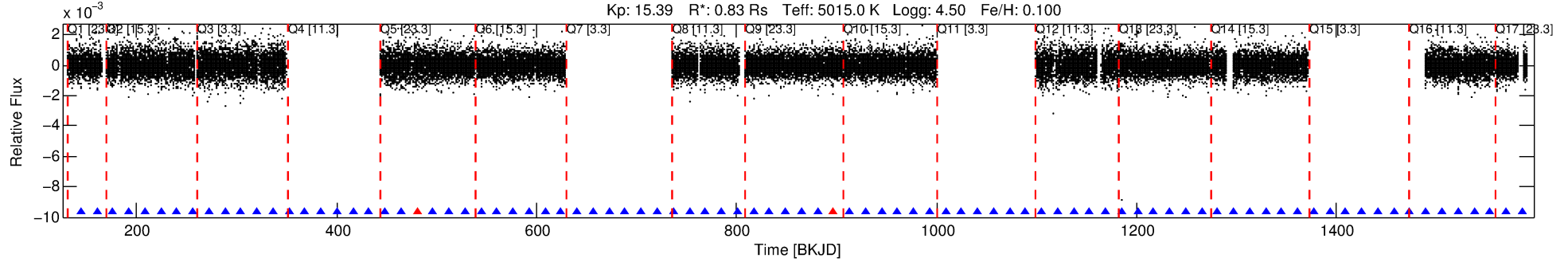
## Ephemeris Match Information For 010987985-01

No Significant Match Found



# DV One-Page Summary

KIC: 10987985 Candidate: 1 of 1 Period: 16.013 d  
KOI: K00758.01 Corr: 0.959



## DV Fit Results:

Period = 16.01308 [0.00005] d  
Epoch = 144.3353 [0.0024] BKJD  
Rp/R\* = 0.0359 [0.0044]  
a/R\* = 21.61 [9.48]  
b = 0.85 [0.14]  
Seff = 29.38 [6.81]  
Teq = 594 [34] K  
Rp = 3.23 [0.53] Re  
a = 0.1147 [0.0132] AU  
Ag = 65.31 [32.21] [2.00σ]  
Teffp = 2609 [309] K [6.49σ]

## DV Diagnostic Results:

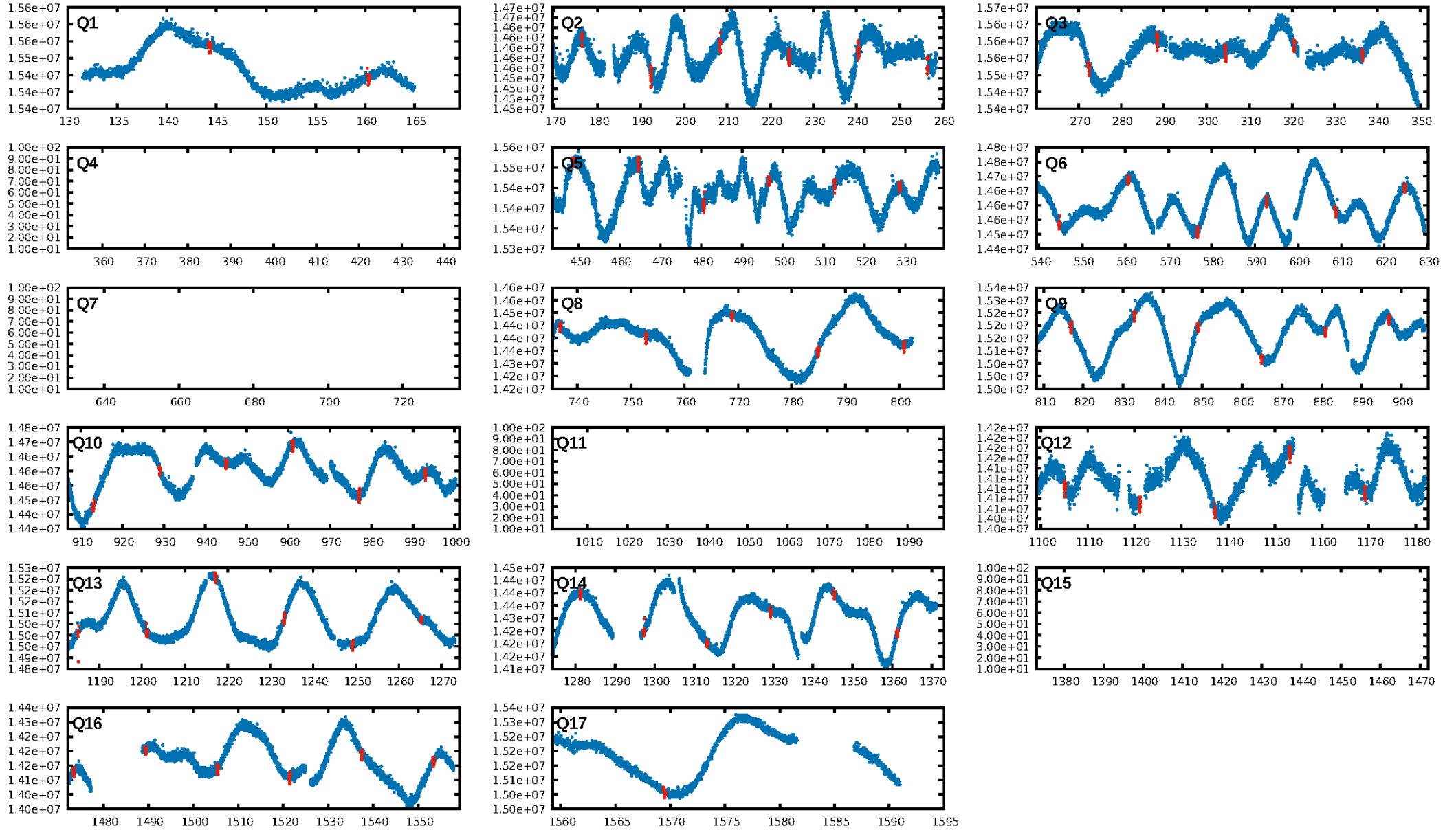
ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 92.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 4.66e-209  
RollingBand-fgt: 0.97 [60/62]  
GhostDiagnostic-chr: 3.338  
Centroid-sig: 16.7%  
Centroid-so: 0.365 arcsec [0.80σ]  
OotOffset-rm: 0.218 arcsec [1.73σ]  
KicOffset-rm: 0.192 arcsec [1.47σ]  
OotOffset-st: 4/1/3/4 [12]  
KicOffset-st: 4/1/3/4 [12]  
DiffImageQuality-fgm: 1.00 [12/12]  
DiffImageOverlap-fno: 1.00 [13/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:41:16 Z

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

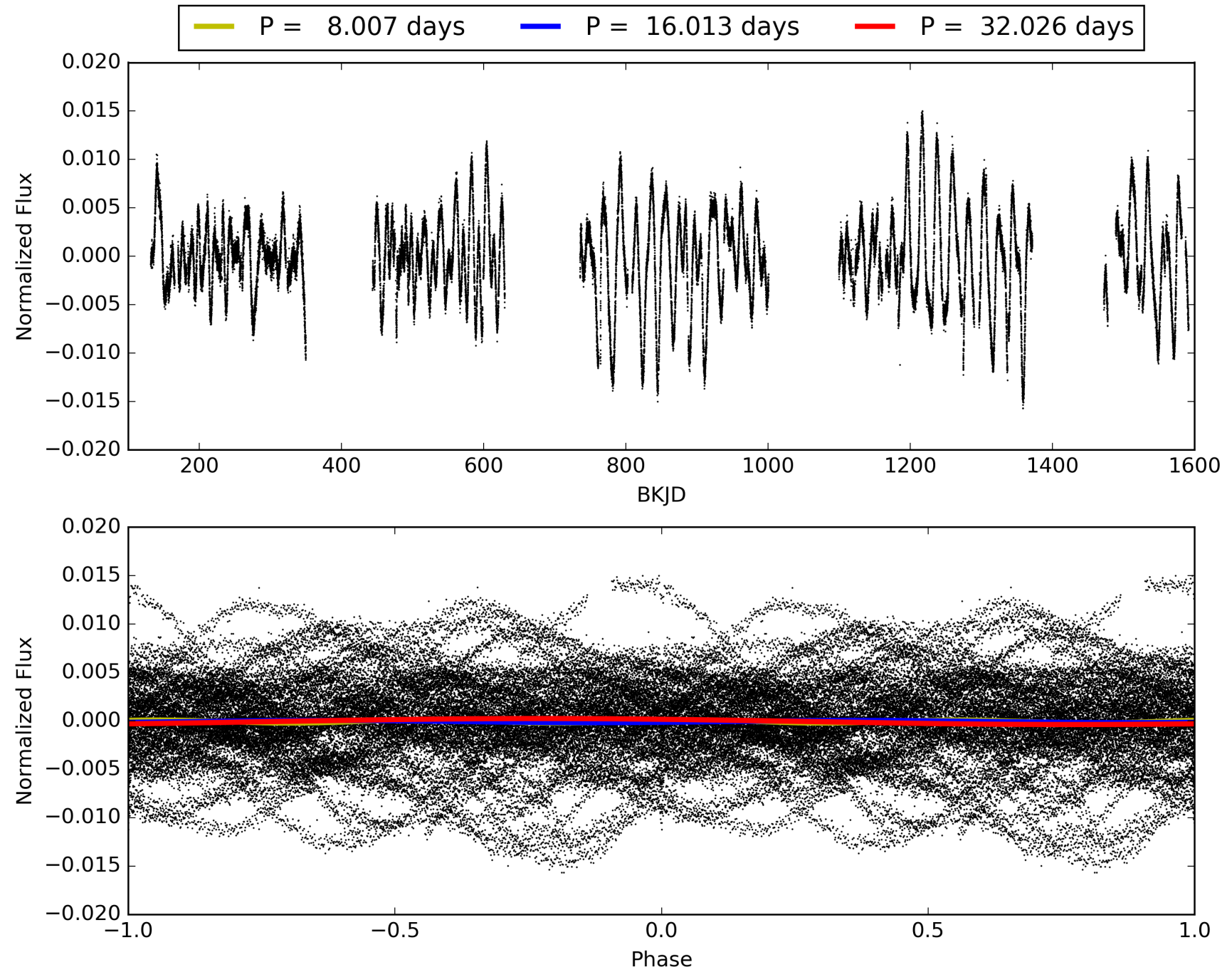


# TCE 010987985-01, PDC Light Curves





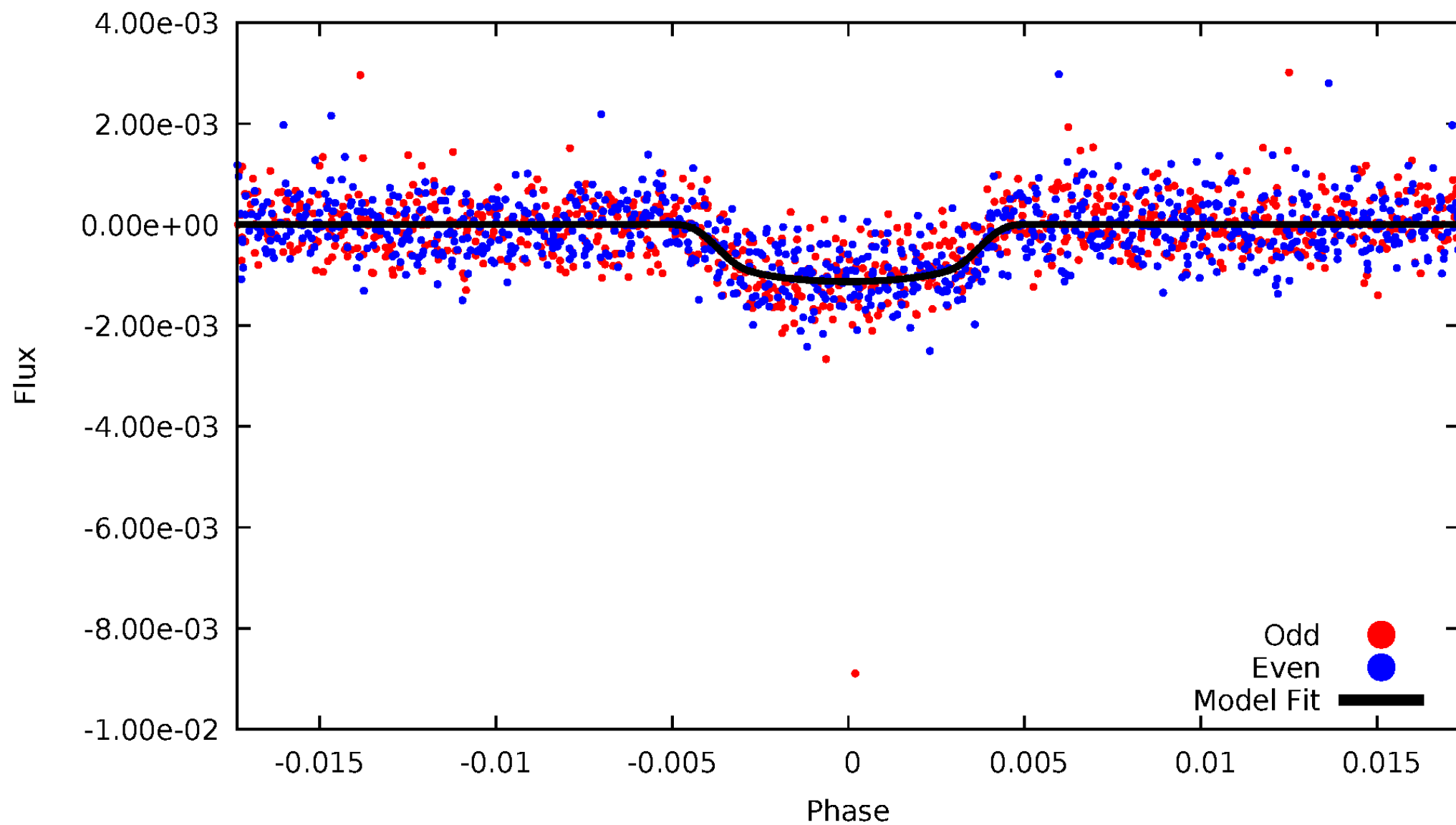
# TCE 010987985-01





# DV Odd/Even

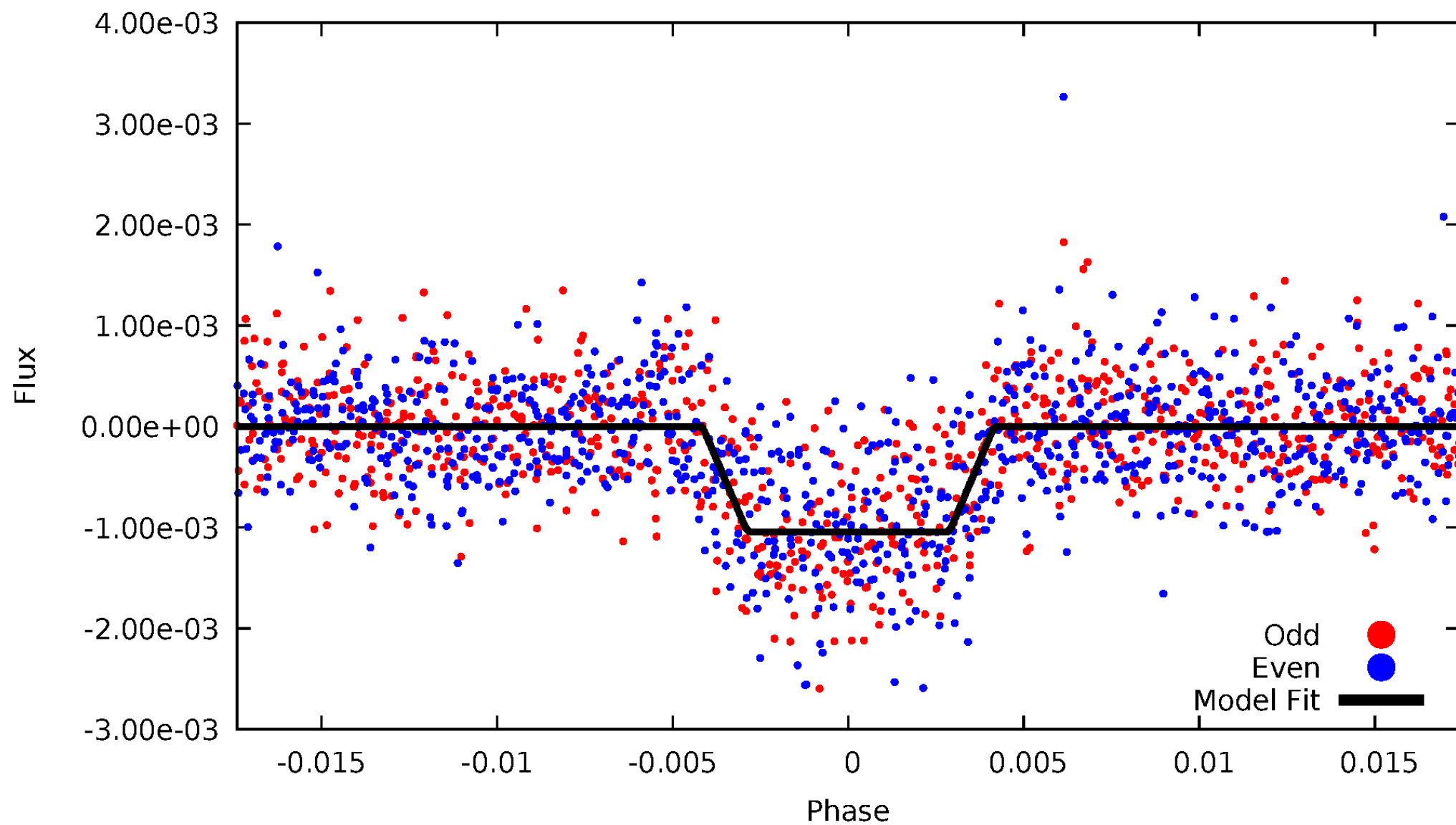
TCE 010987985-01





# ALT Odd/Even

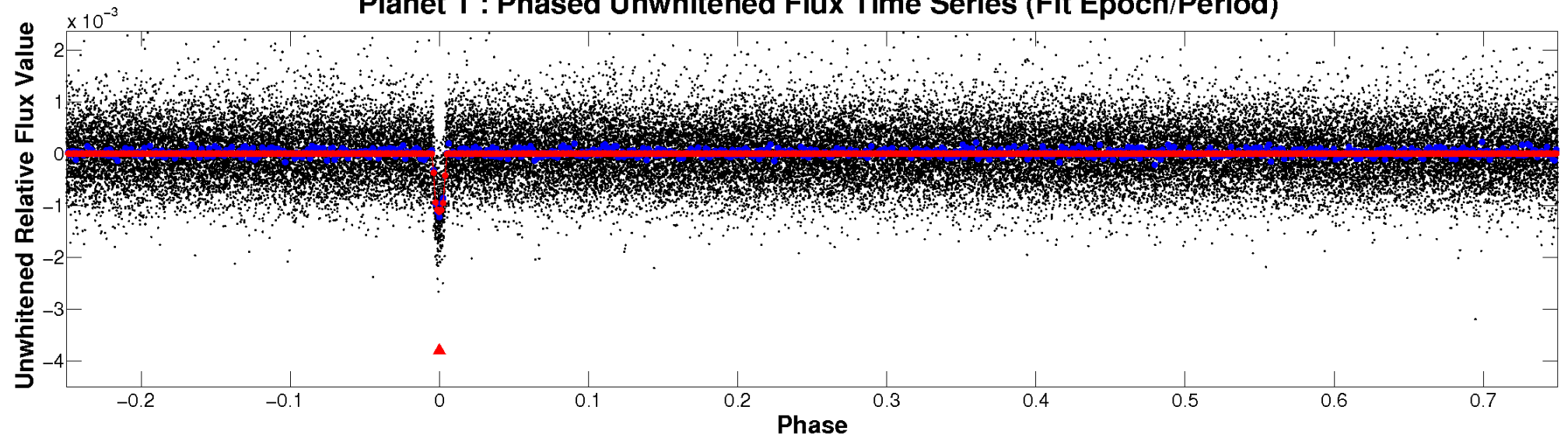
TCE 010987985-01



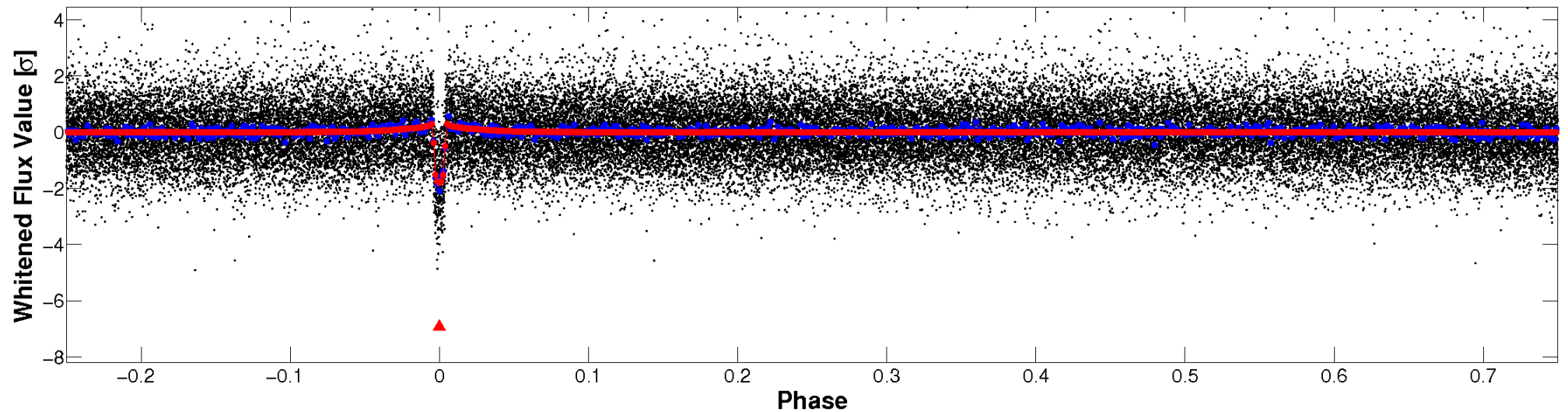


# Non-Whitened Vs. Whitened Light Curve

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



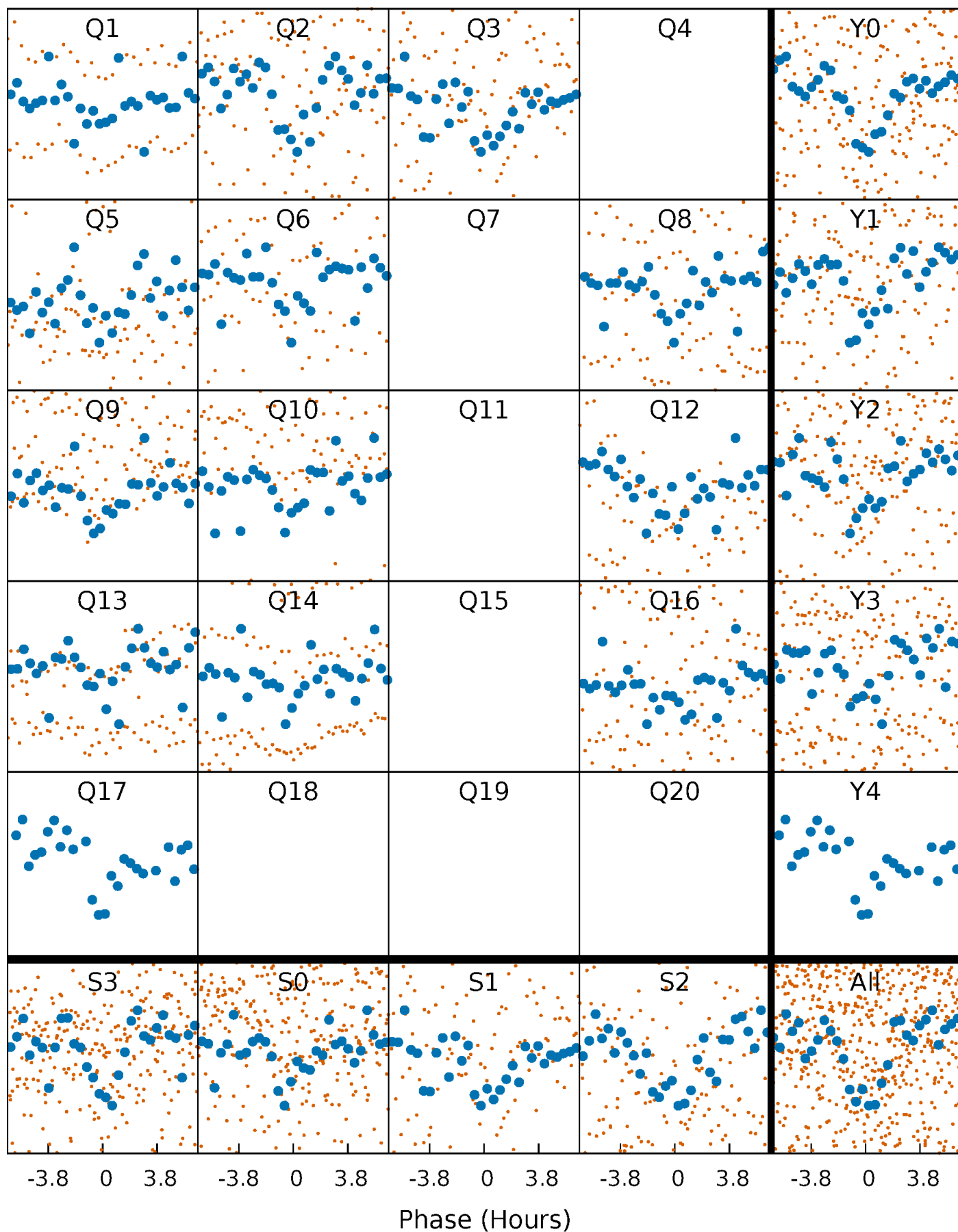
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

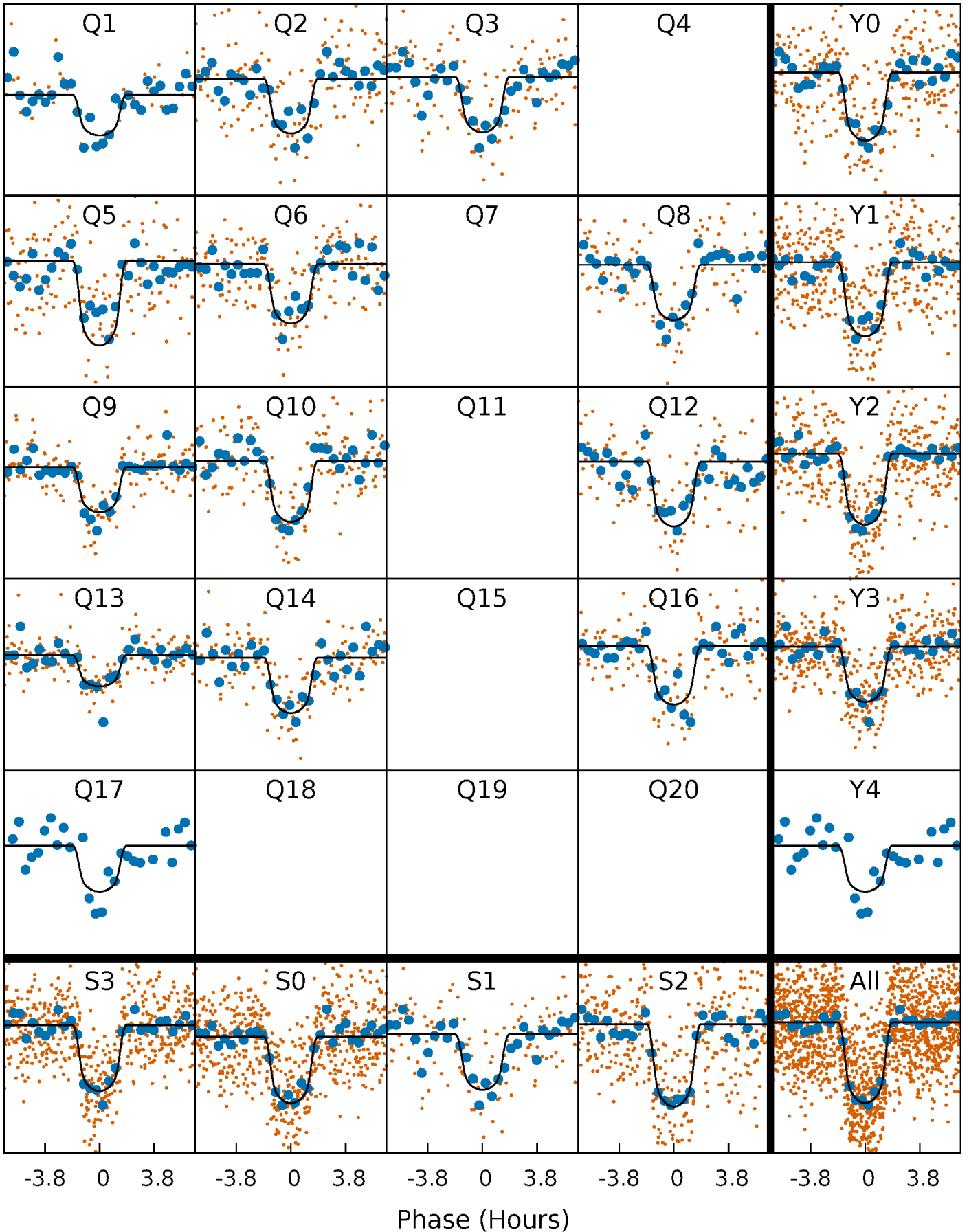
TCE 010987985-01   P= 16.013081 Days    $T_0=144.335343$  (BKJD)





# DV Quarter-Phased Transit Curves

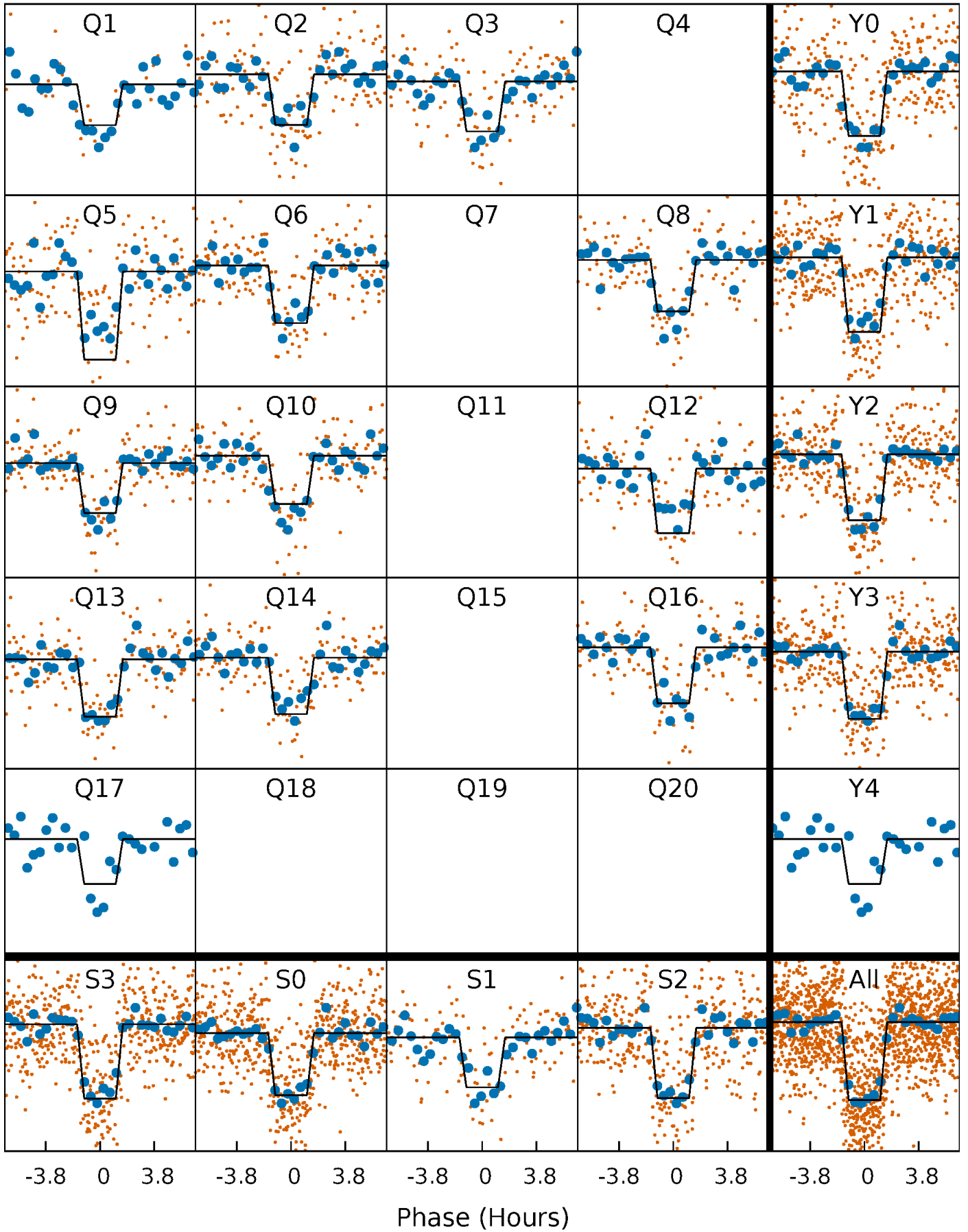
TCE 010987985-01 P= 16.013081 Days  $T_0=144.335343$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 010987985-01 P= 16.012994 Days  $T_0=144.339151$  (BKJD)

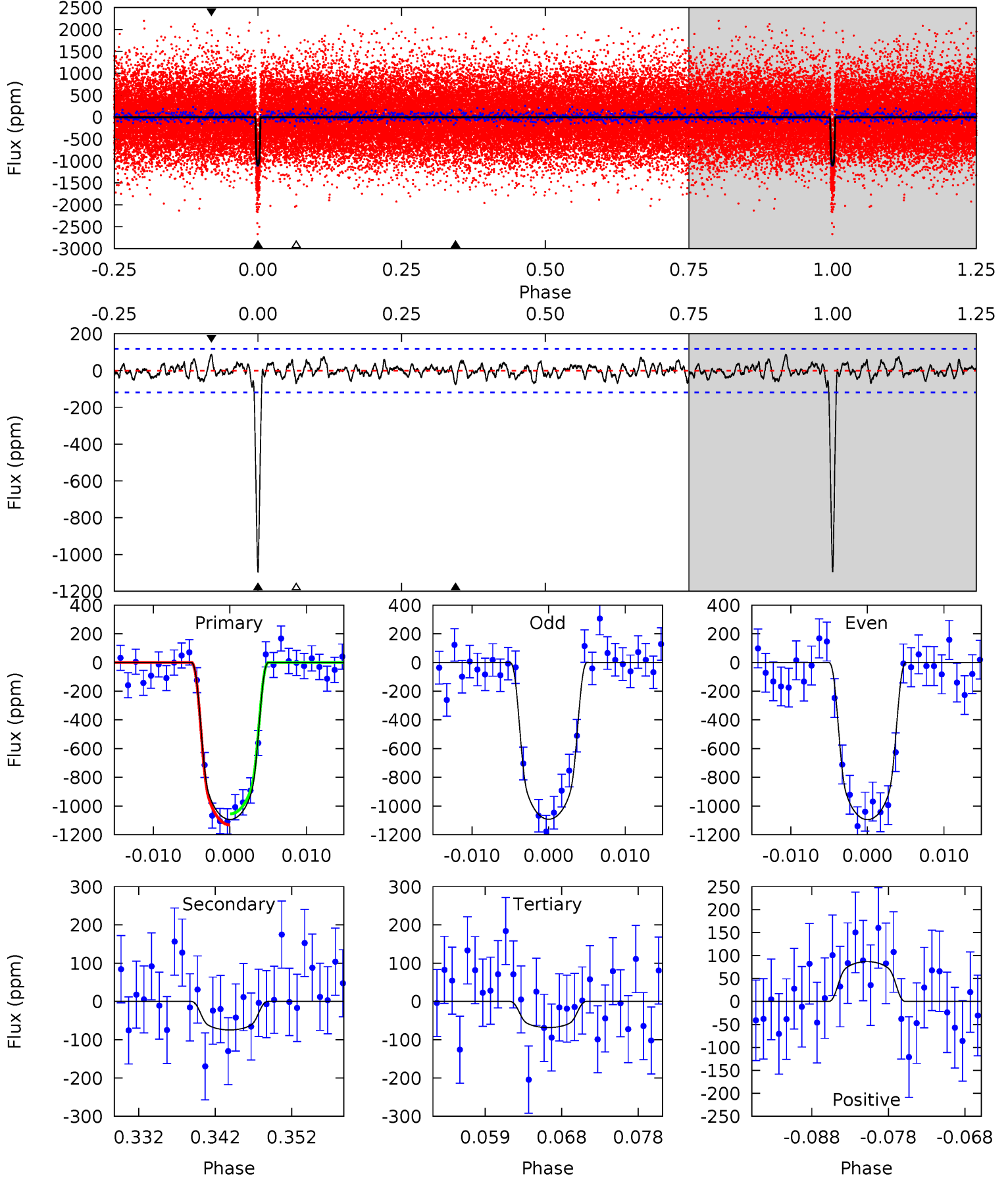




# DV Model-Shift Uniqueness Test

010987985-01,  $P = 16.013081$  Days,  $E = 128.322262$  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
46.6	3.17	2.91	3.69	5.03	2.58	1.16	43.7	42.9	0.26	-0.53	0.06	0.98	0.07	1.64

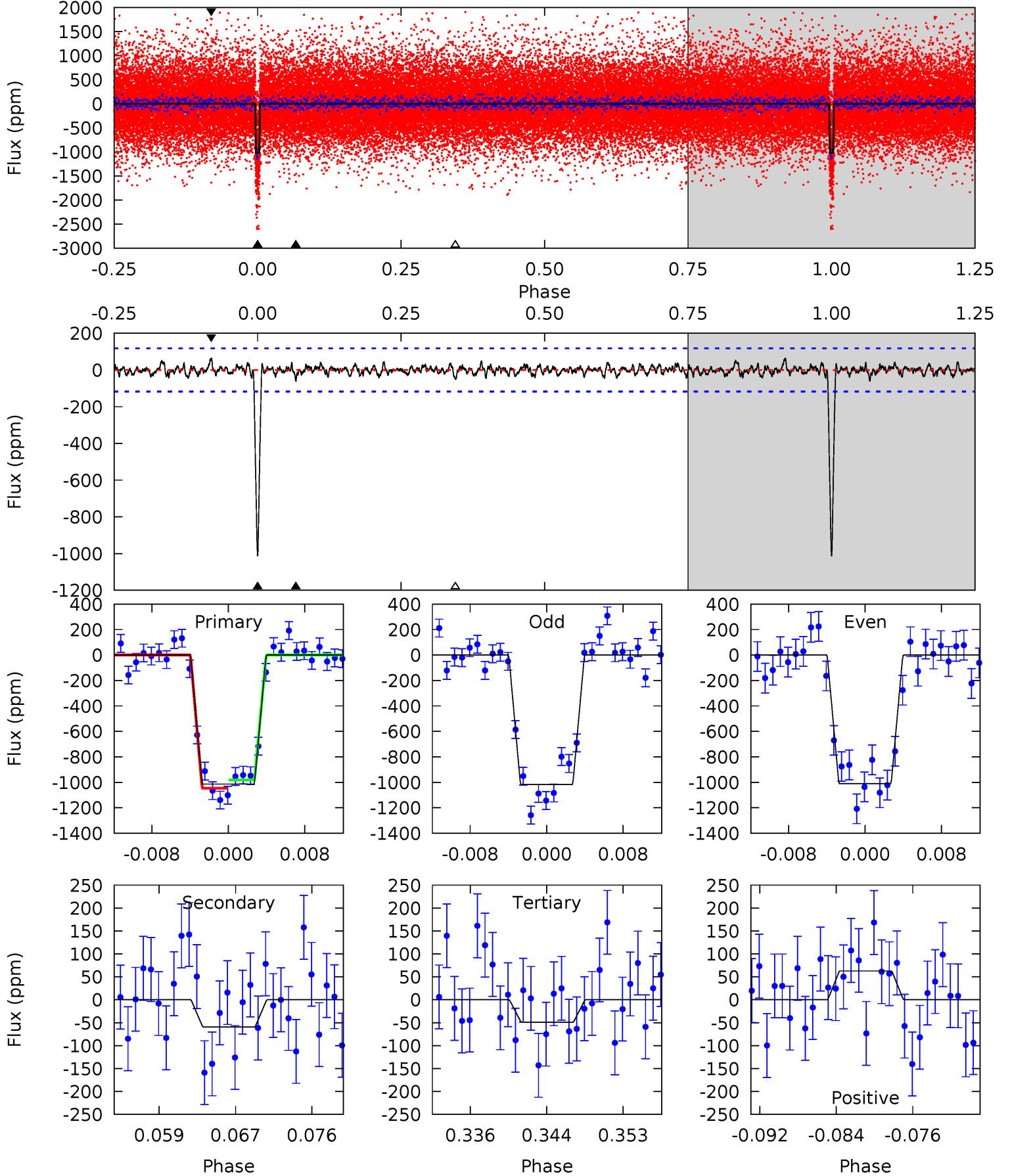




# Alt Model-Shift Uniqueness Test

010987985-01,  $P = 16.012994$  Days,  $E = 128.326157$  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
43.6	2.55	2.11	2.70	5.06	2.64	0.73	41.5	40.9	0.45	-0.15	0.16	1.05	0.06	1.43





### Stellar Parameters For KIC 010987985

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5015^{+164}_{-149}$	$4.499^{+0.092}_{-0.115}$	$0.100^{+0.250}_{-0.250}$	$0.826^{+0.091}_{-0.082}$	$0.785^{+0.085}_{-0.056}$	$1.960^{+0.711}_{-0.565}$
	+3%/-3%	+2%/-3%	+250%/-250%	+11%/-10%	+11%/-7%	+36%/-29%
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 010987985-01 / KOI 0758.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-74 \pm 23$	$3.25^{+0.49}_{-0.44}$	$833^{+41}_{-37}$	$3065^{+175}_{-192}$	$50^{+25}_{-19}$
Alt.	$-59 \pm 23$	$2.94^{+0.45}_{-0.42}$	$832^{+39}_{-33}$	$3052^{+212}_{-236}$	$50^{+28}_{-22}$

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



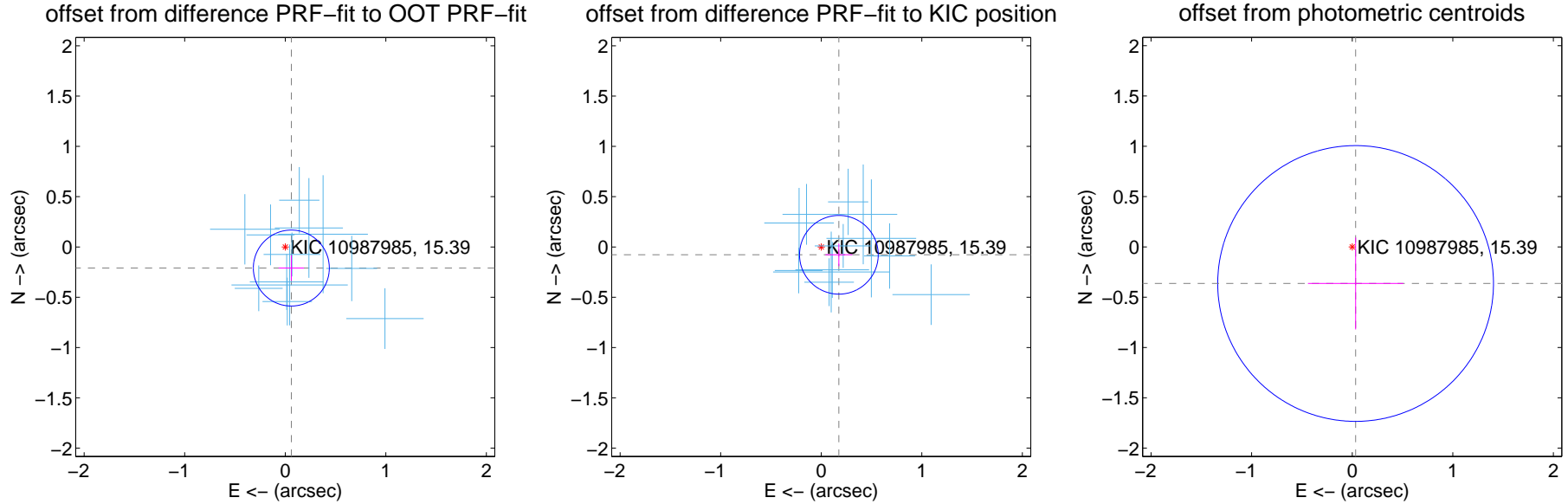
## DV Centroid Data

Supplemental centroid analysis for 010987985-01. Kepler magnitude: 15.39. Transit SNR 30.95

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

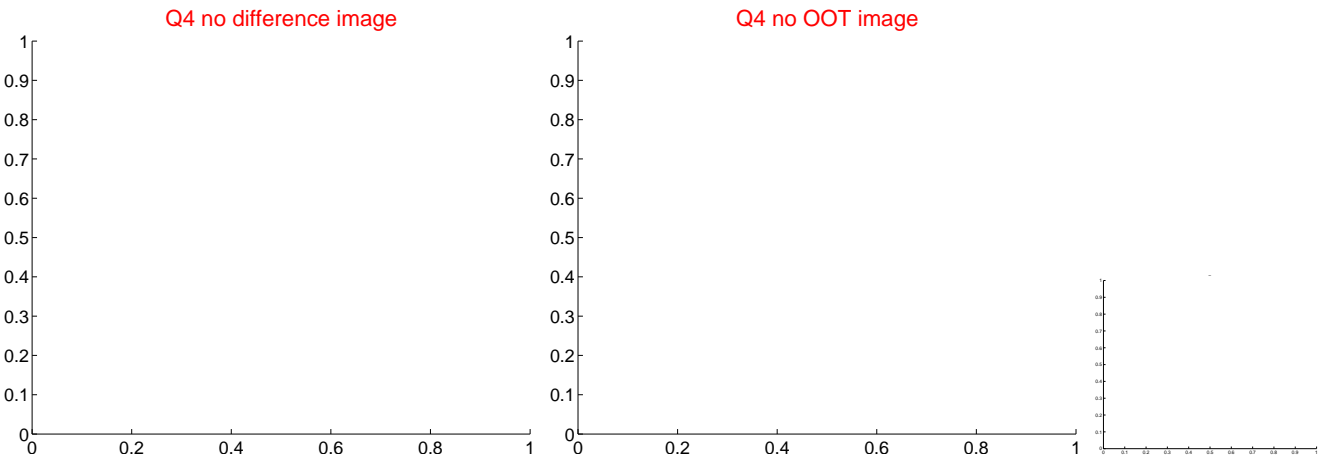
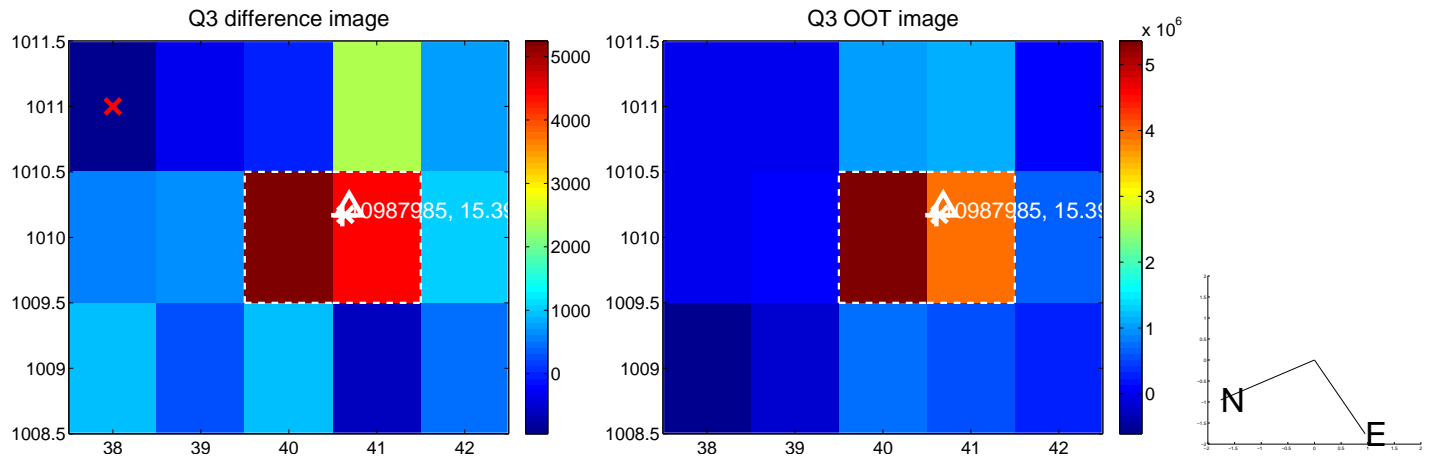
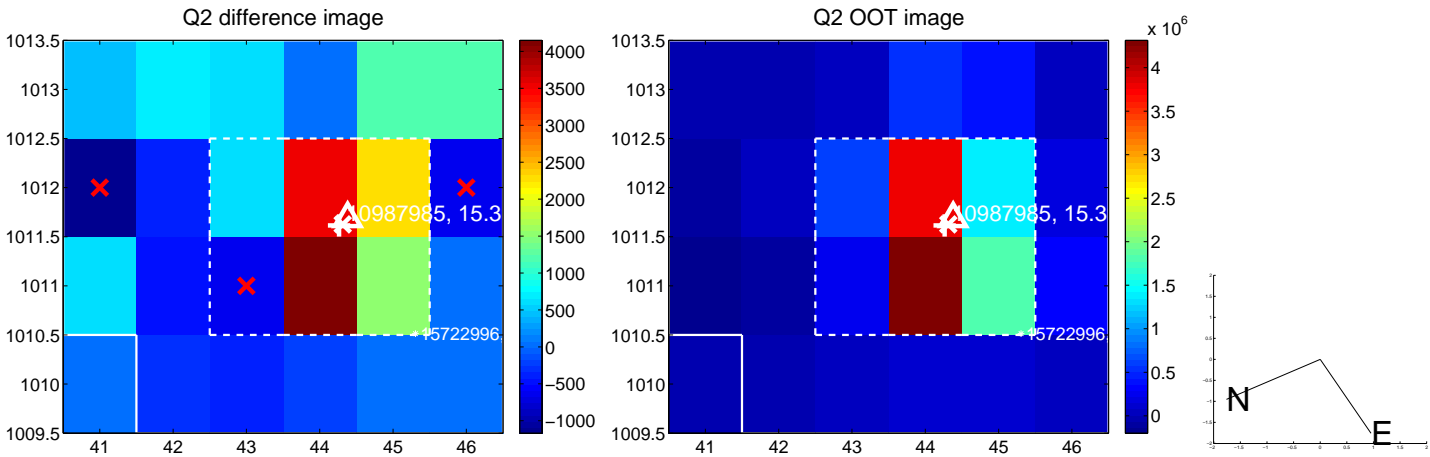
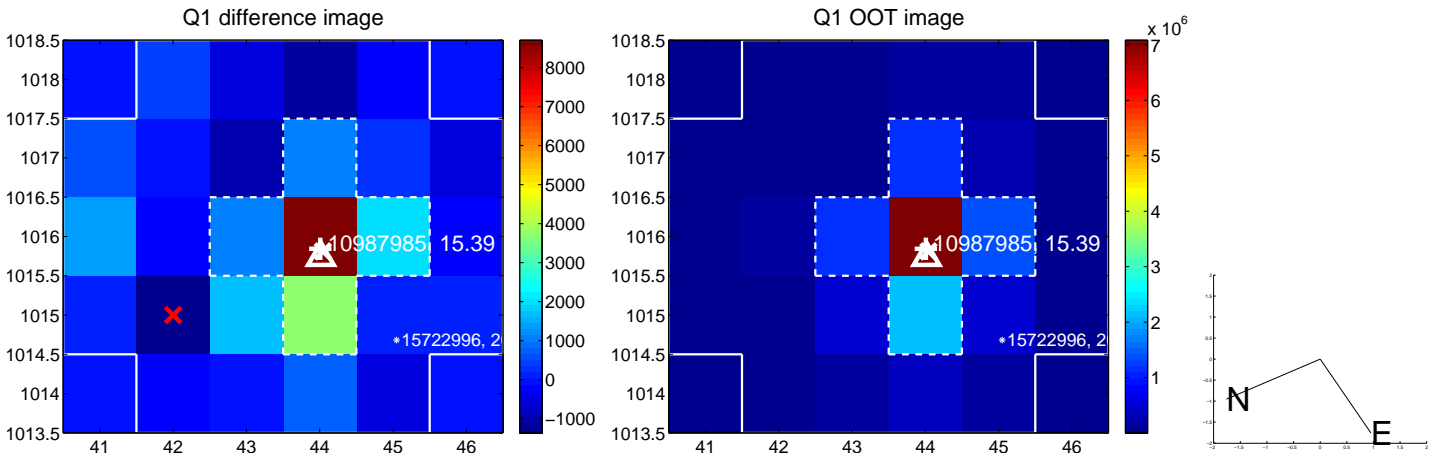
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.218 \pm 0.126$	1.73	$-0.060 \pm 0.126$	$-0.210 \pm 0.126$
PRF-fit source offset from KIC position	$0.192 \pm 0.130$	1.47	$-0.175 \pm 0.134$	$-0.078 \pm 0.113$
photometric centroid source offset	$0.37 \pm 0.46$	0.80	$-0.03 \pm 0.47$	$-0.36 \pm 0.46$



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.

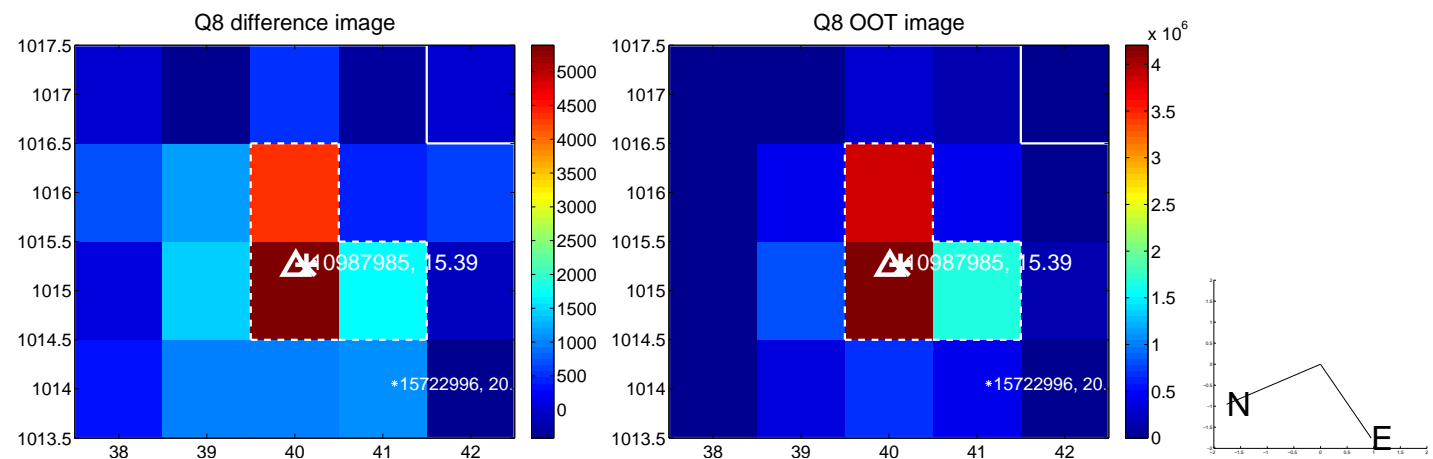
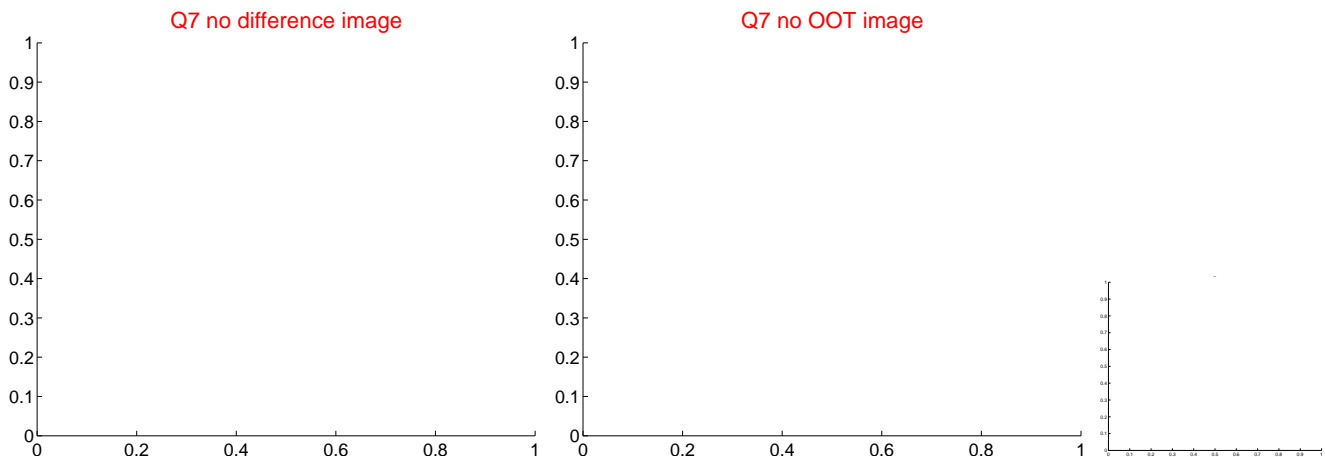
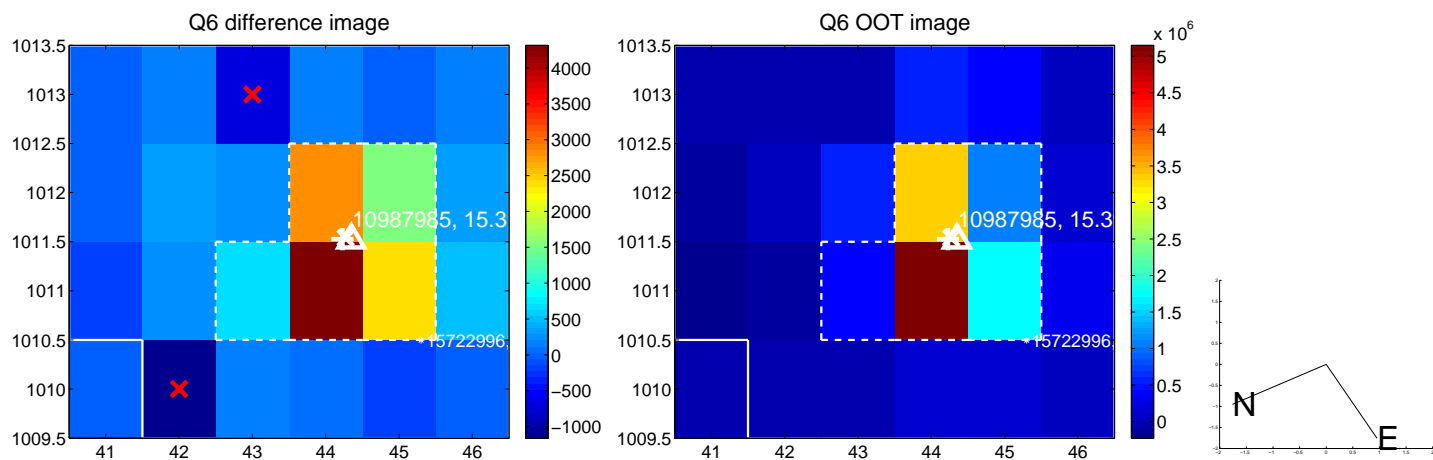
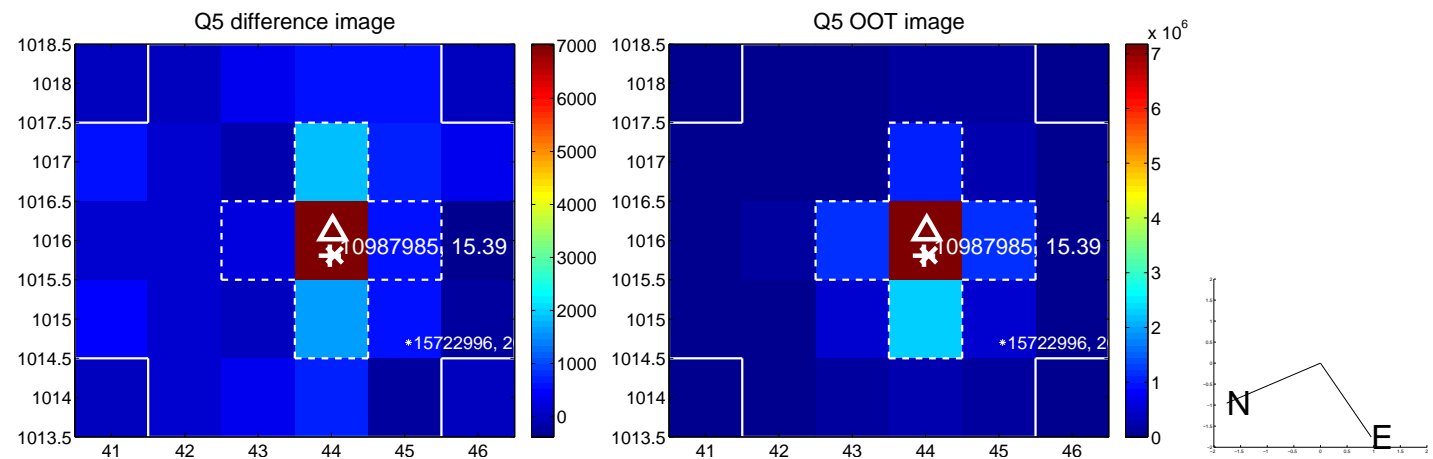


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



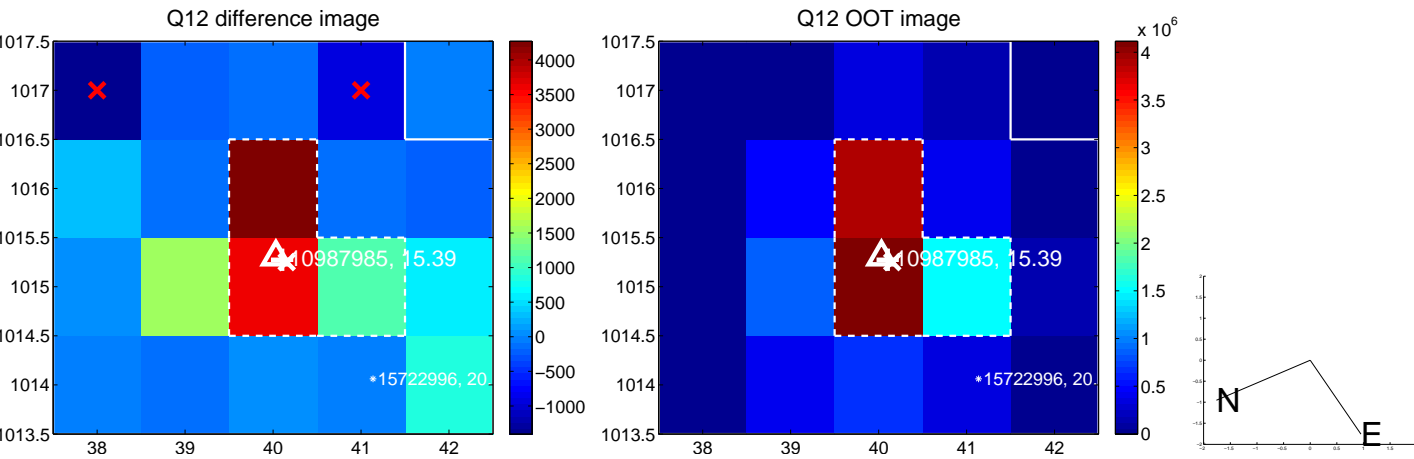
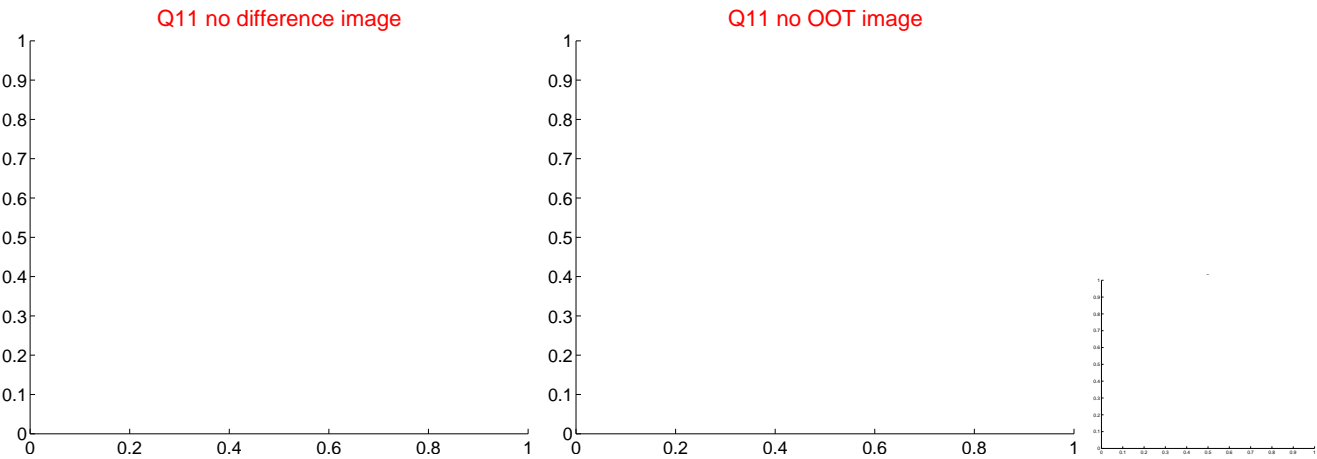
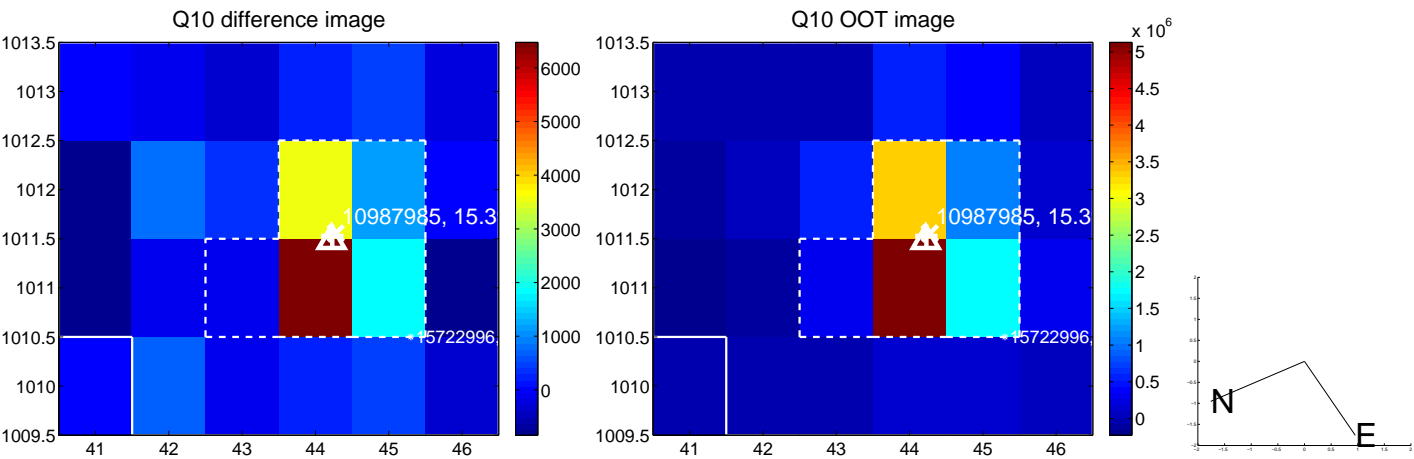
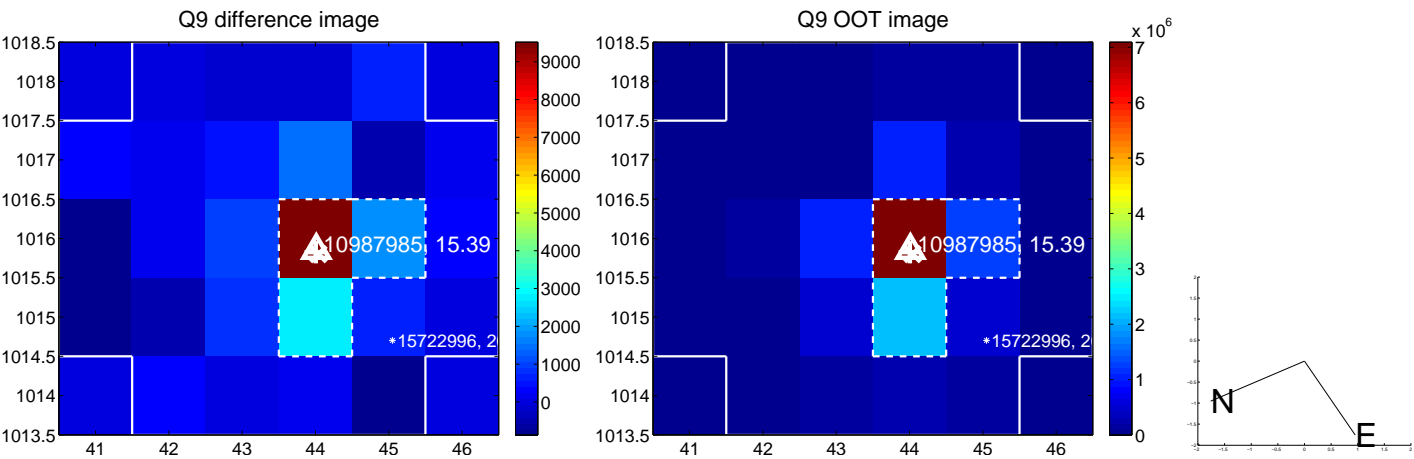


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



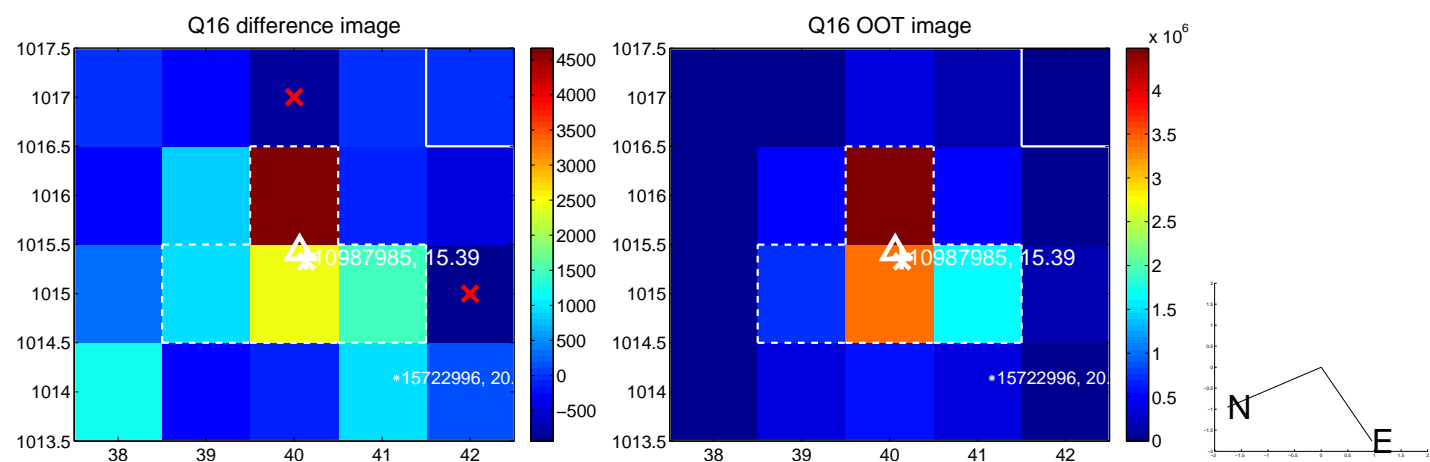
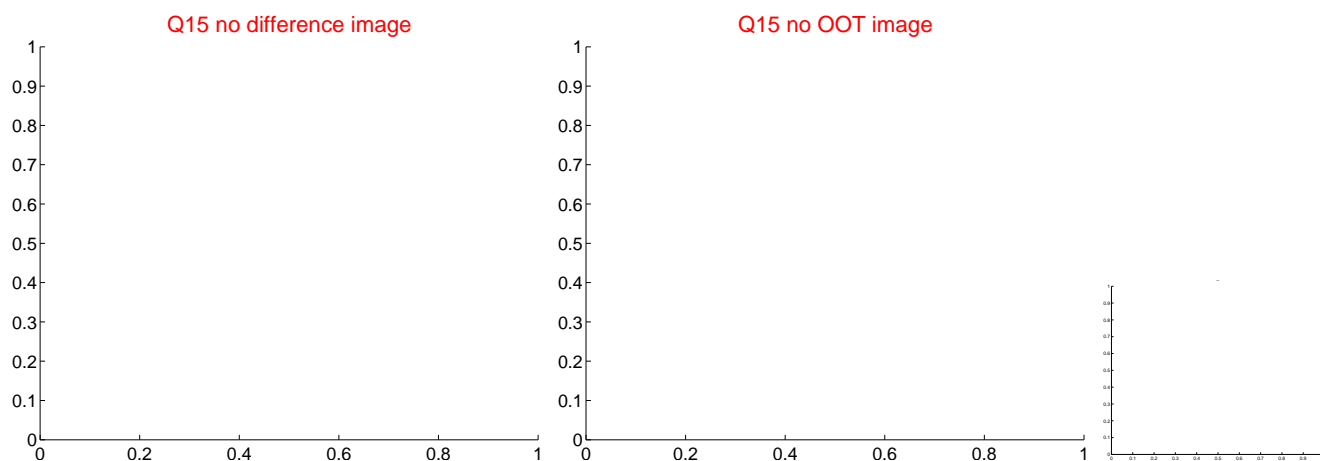
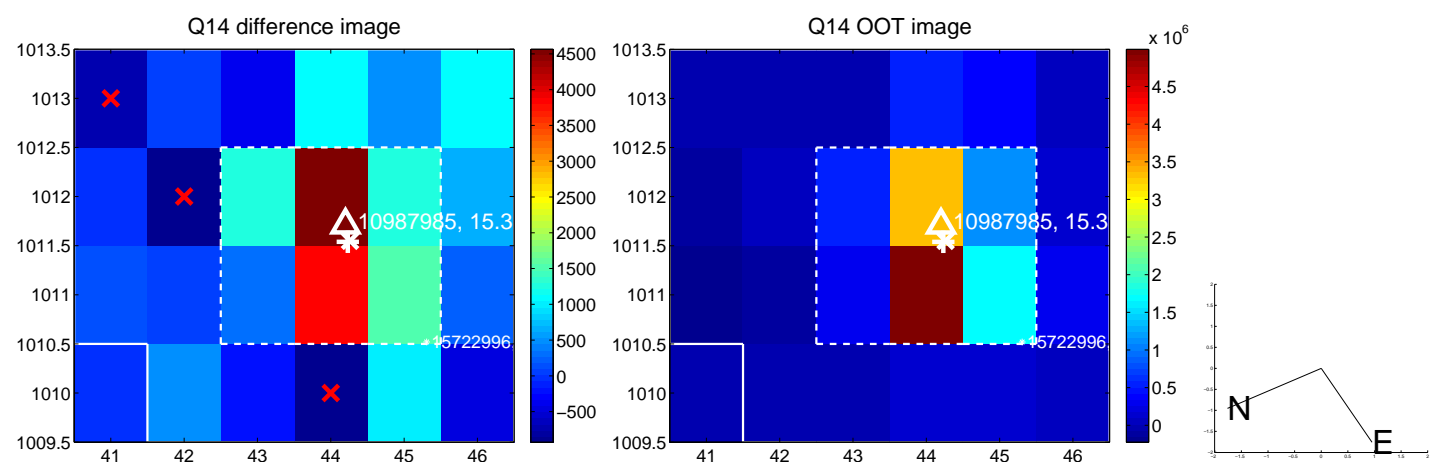
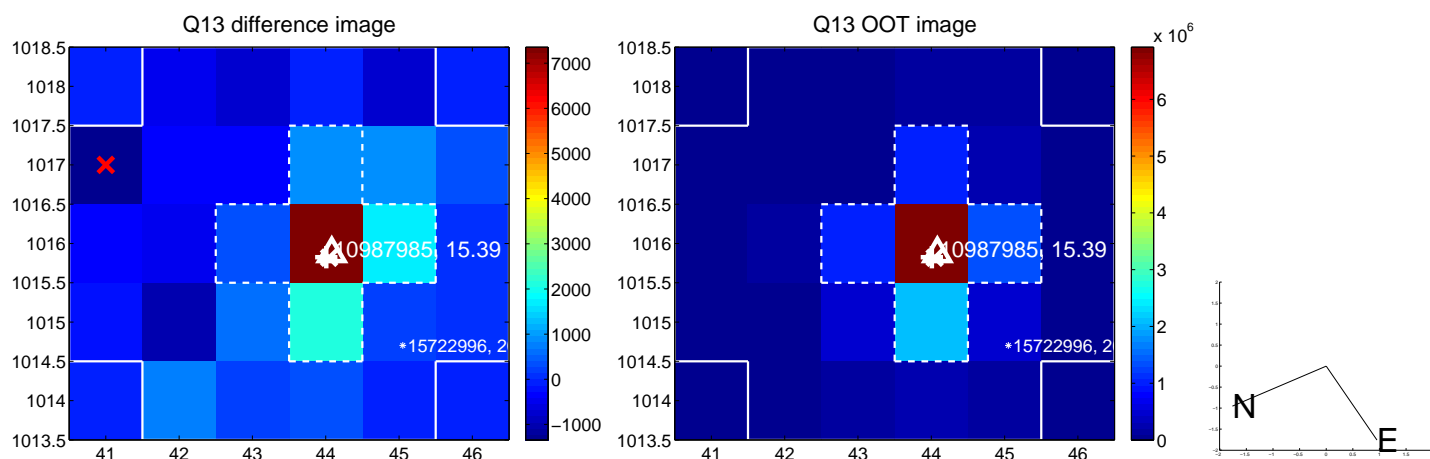


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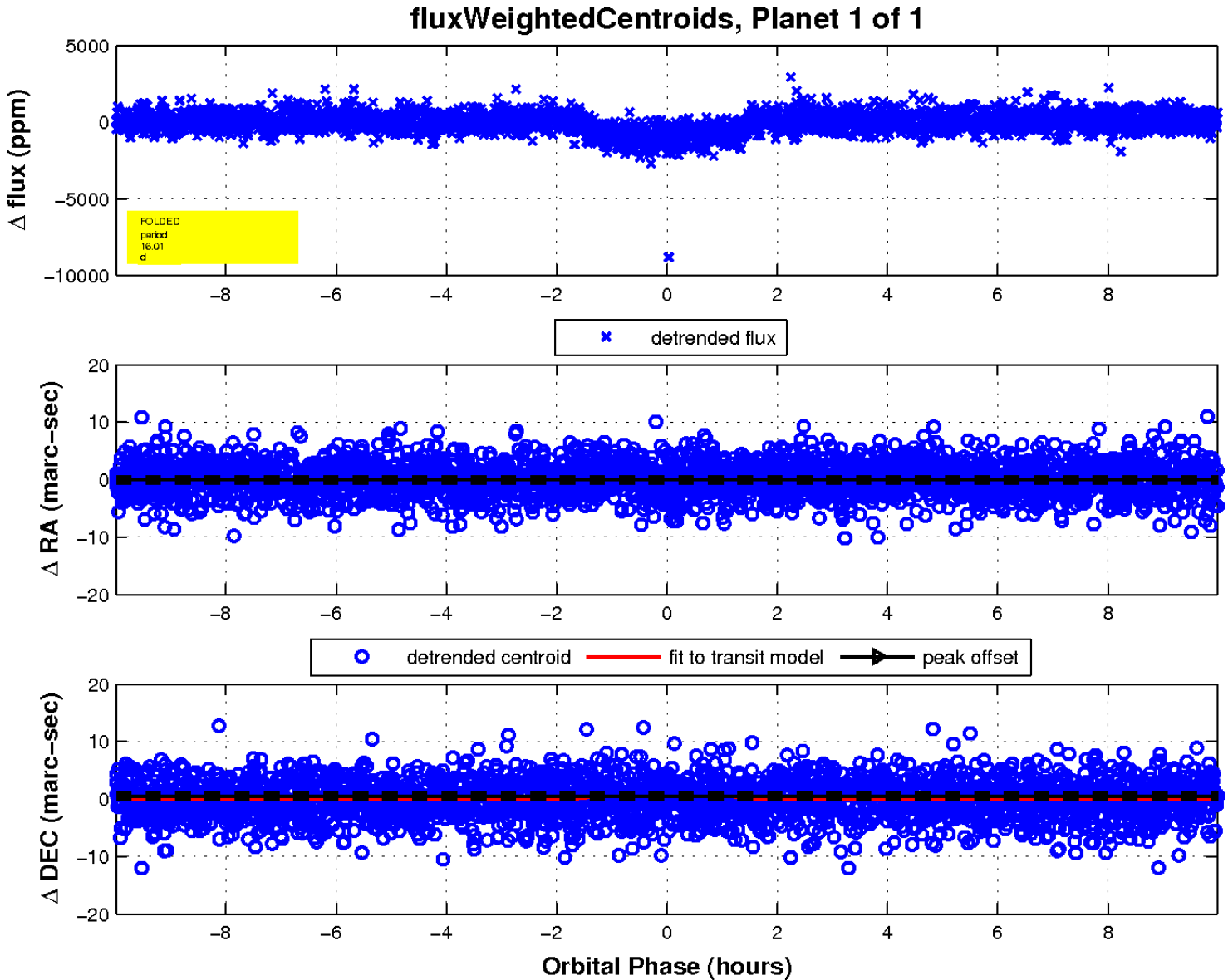
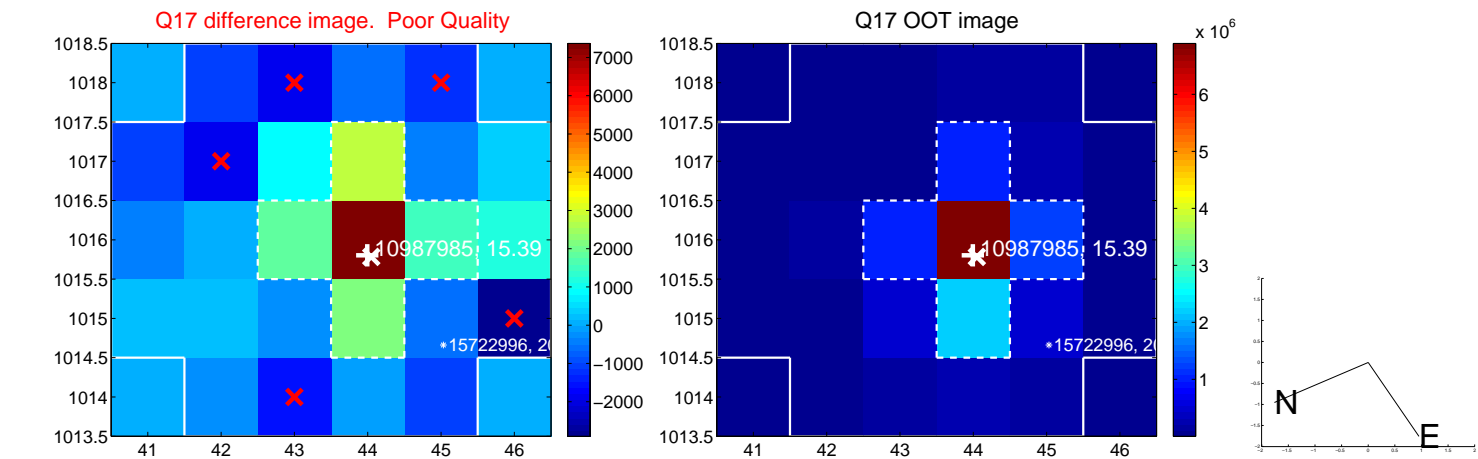


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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination

