

# KIC 010019763

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010019763-01	OBS	1558.01	32.504564	137.826426	7712.3	2.494	165.3	167.3	0.95	6132	12.60	28.86

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010019763-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED—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.

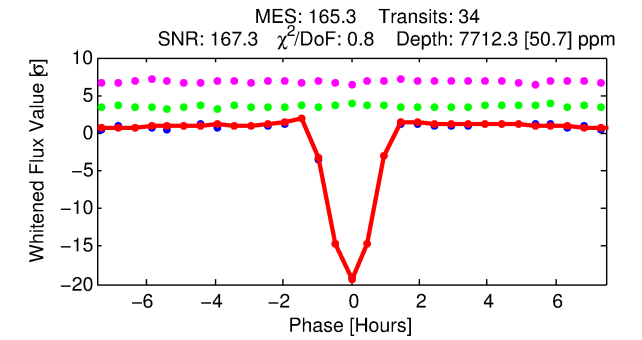
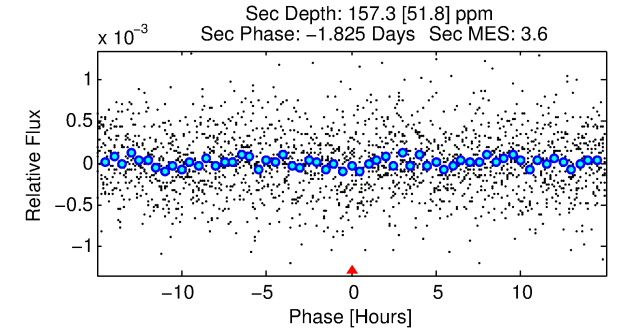
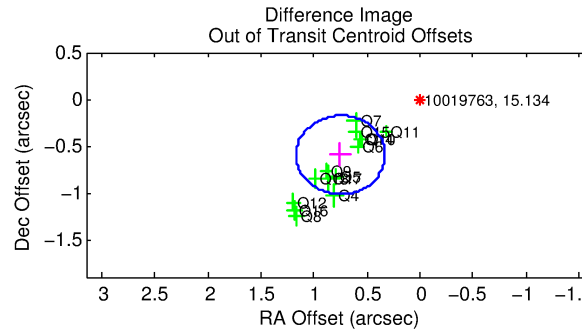
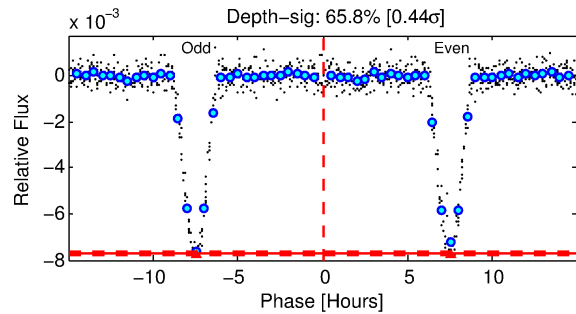
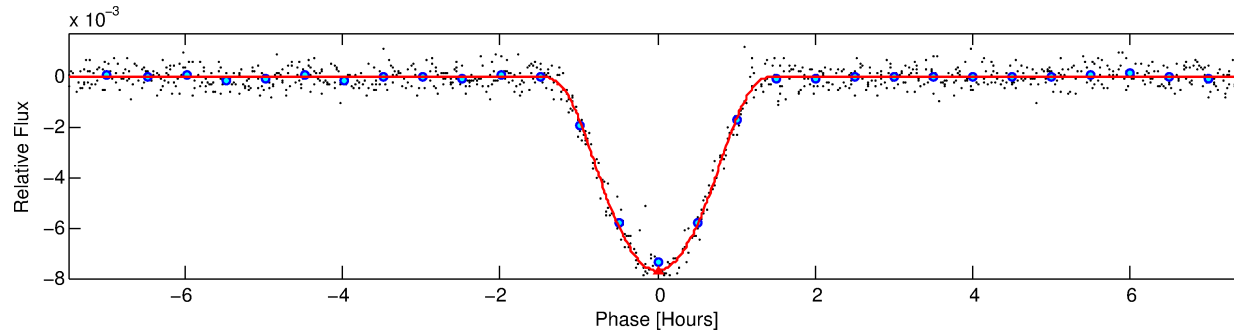
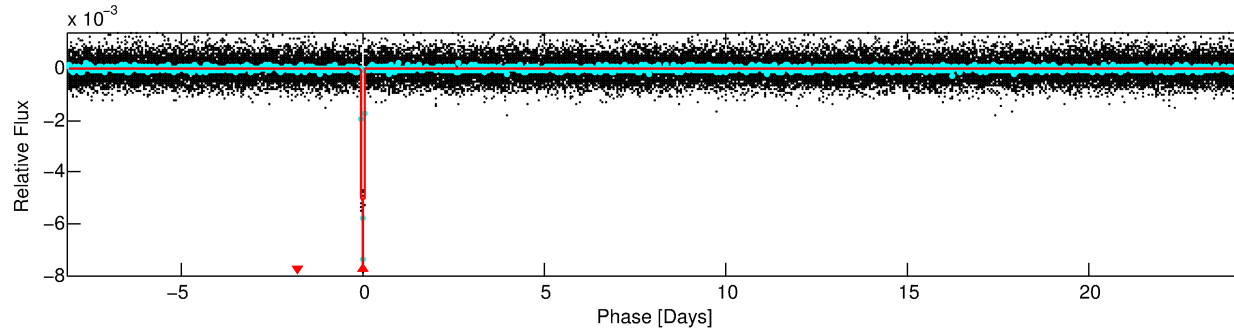
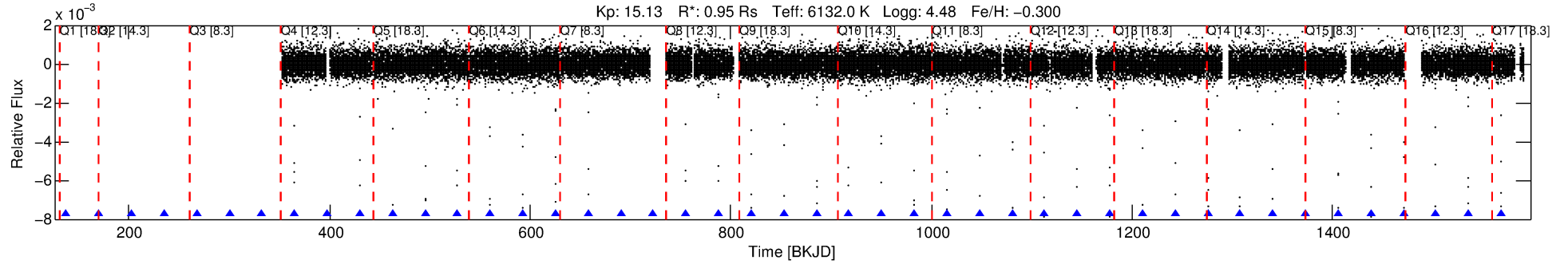
## Ephemeris Match Information For 010019763-01

No Significant Match Found

# DV One-Page Summary

KIC: 10019763 Candidate: 1 of 1 Period: 32.505 d

KOI: K01558.01 Corr: 0.996



## DV Fit Results:

Period = 32.50456 [0.00002] d  
Epoch = 137.8264 [0.0004] BKJD  
Rp/R\* = 0.1219 [0.0184]  
a/R\* = 57.20 [2.24]  
b = 0.96 [0.03]  
Seff = 28.86 [11.62]  
Teff = 591 [59] K  
Rp = 12.60 [4.34] Re  
a = 0.1984 [0.0512] AU  
Ag = 21.47 [12.49] [1.64 $\sigma$ ]  
Teffp = 1967 [232] K [5.74 $\sigma$ ]

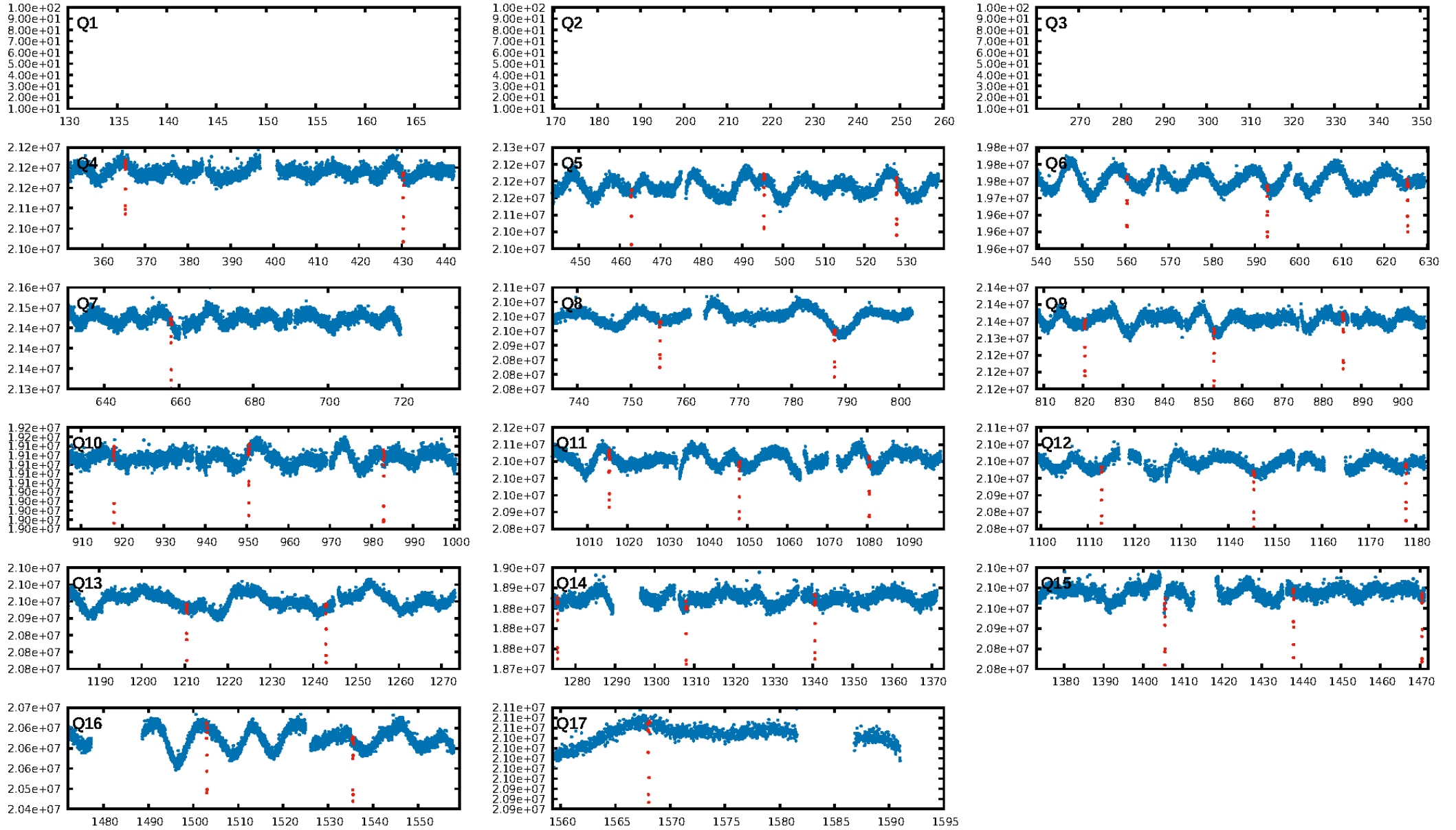
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [33/33]  
GhostDiagnostic-chr: 7.517  
Centroid-sig: 0.0%  
Centroid-so: 0.661 arcsec [12.10 $\sigma$ ]  
OotOffset-rm: 0.959 arcsec [6.85 $\sigma$ ]  
KicOffset-rm: 0.177 arcsec [2.45 $\sigma$ ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

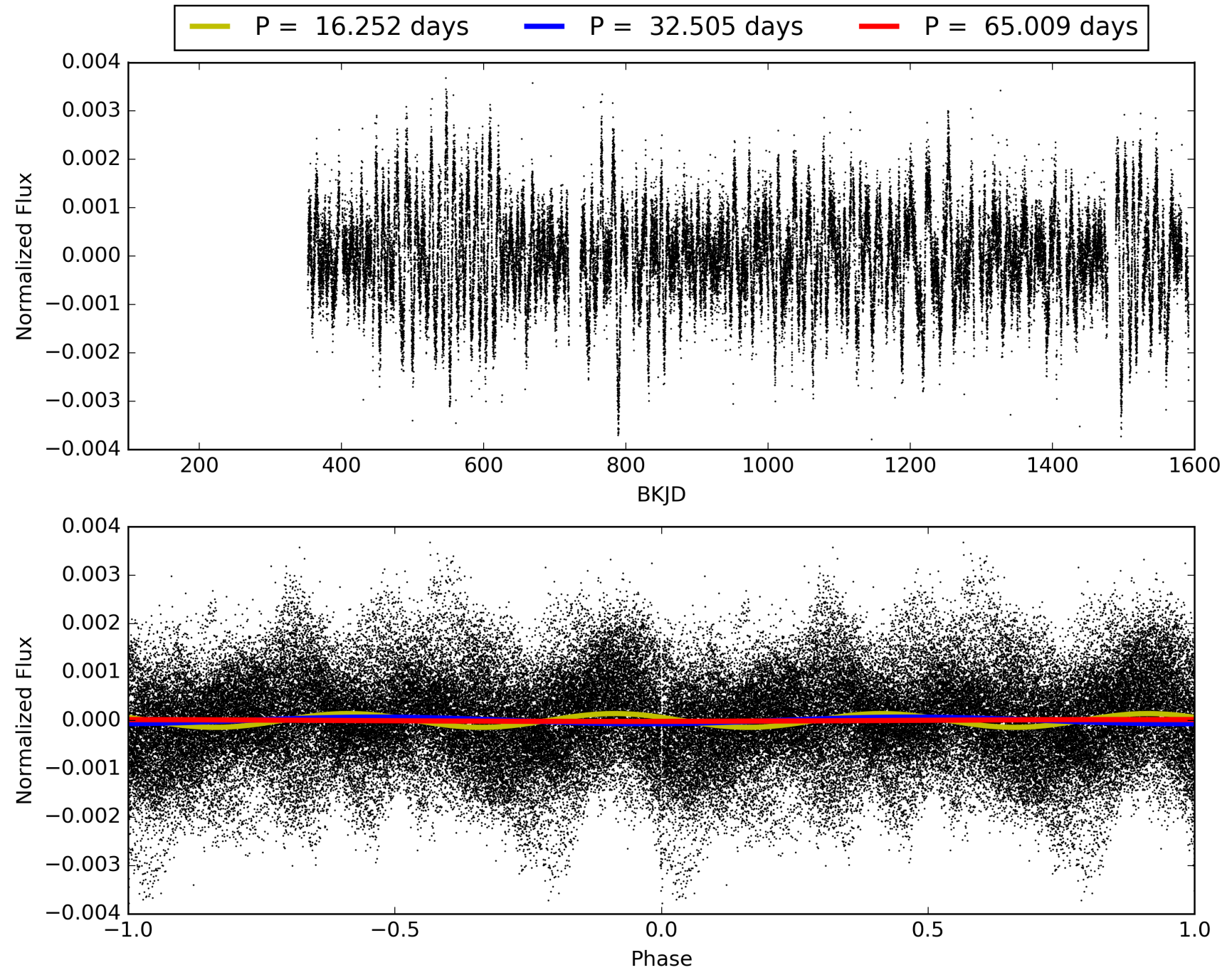
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:03:47 Z

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

# TCE 010019763-01, PDC Light Curves

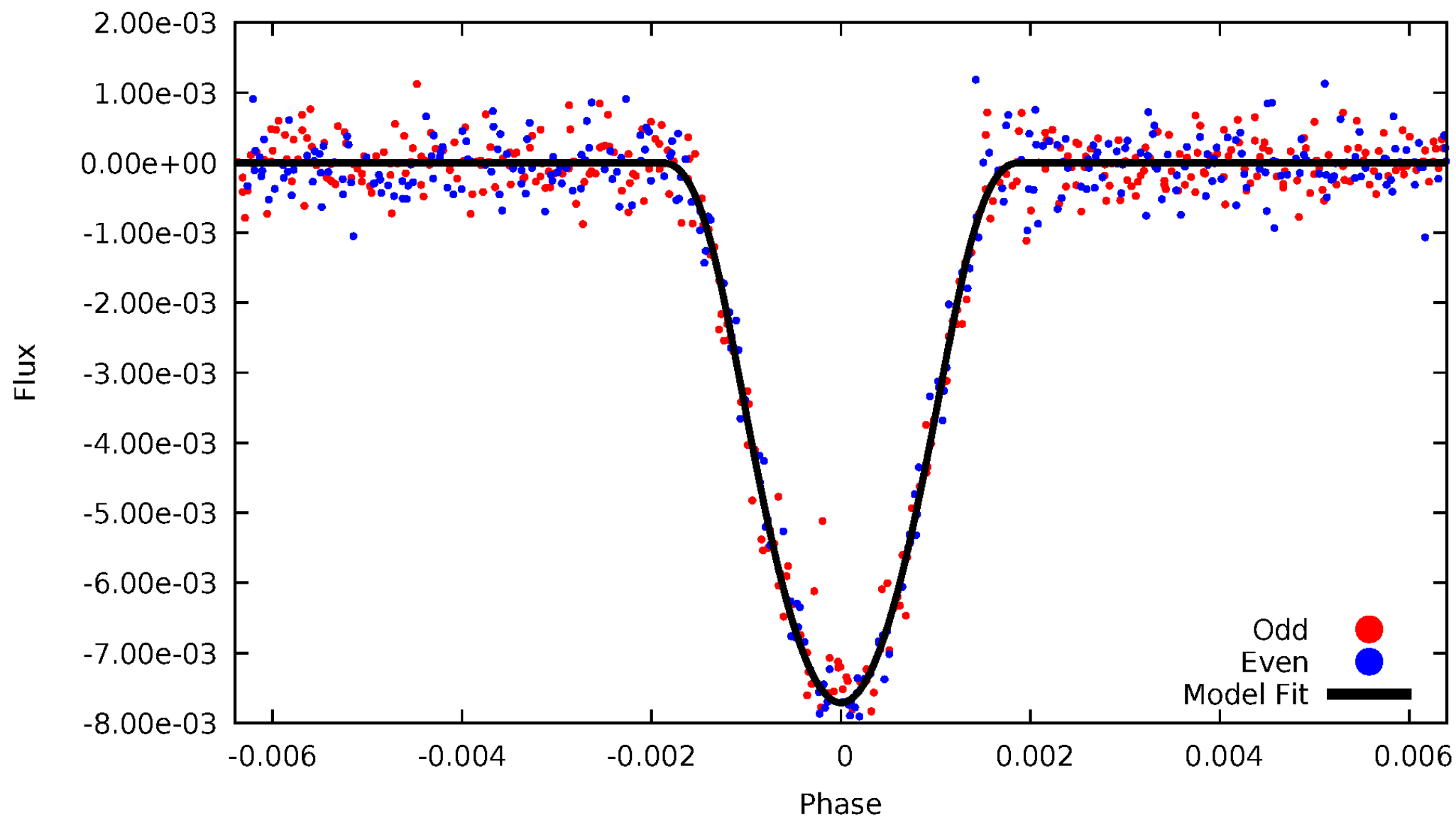


# TCE 010019763-01



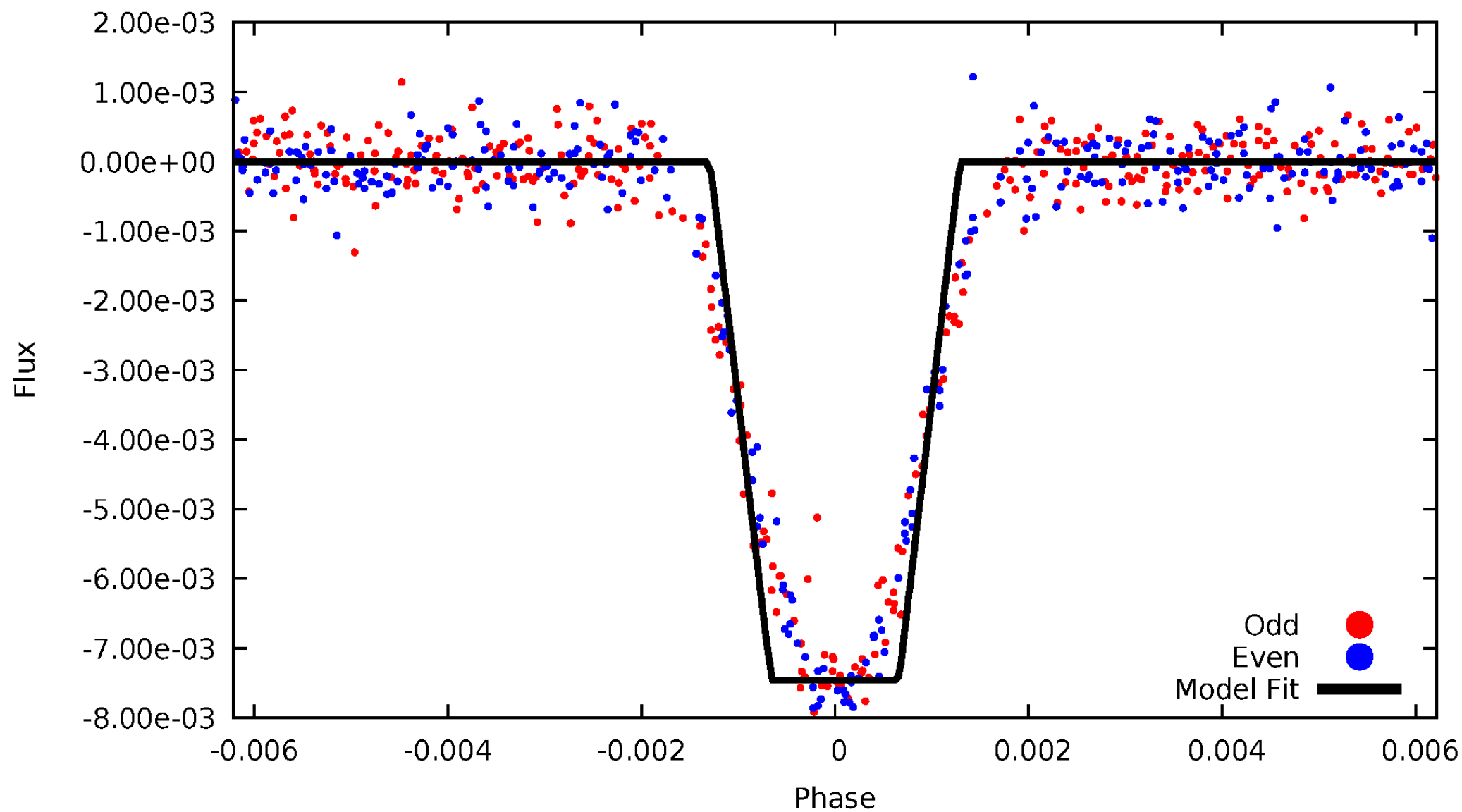
# DV Odd/Even

TCE 010019763-01



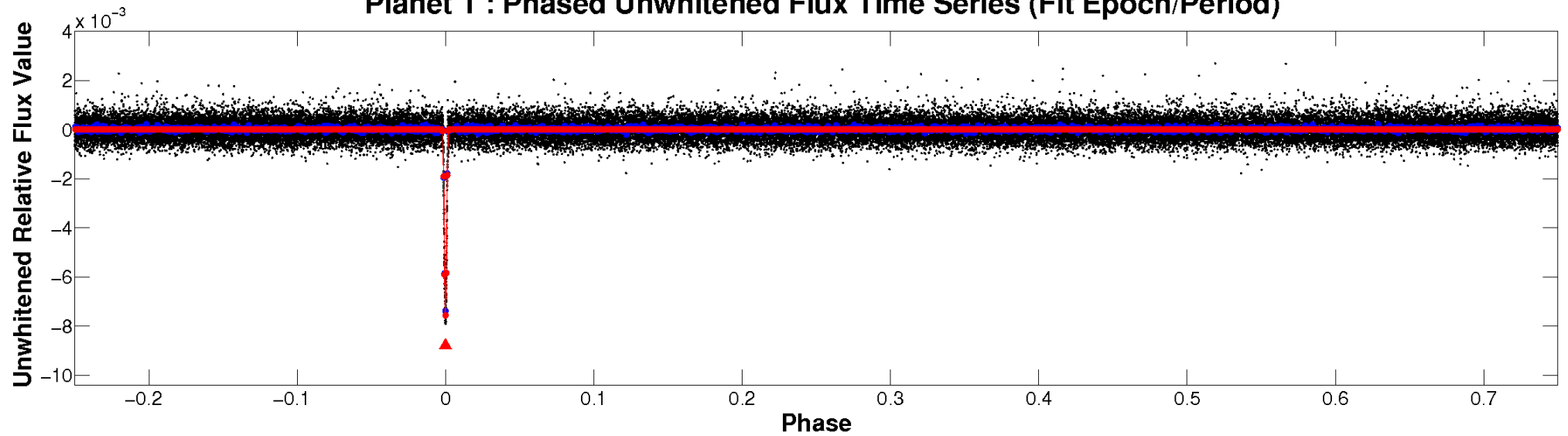
# ALT Odd/Even

TCE 010019763-01

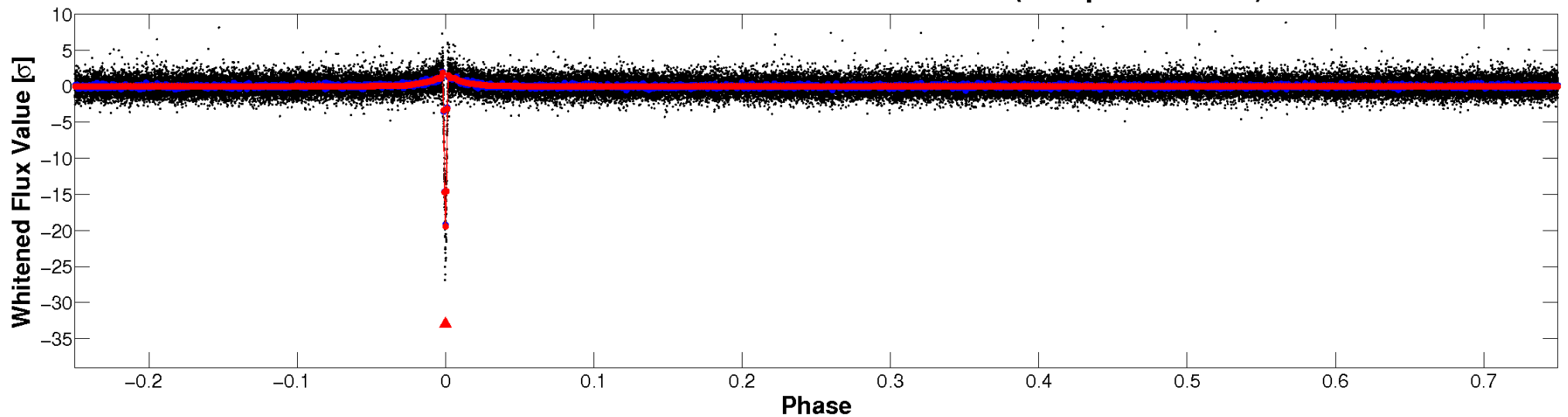


# Non-Whitened Vs. Whitened Light Curve

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

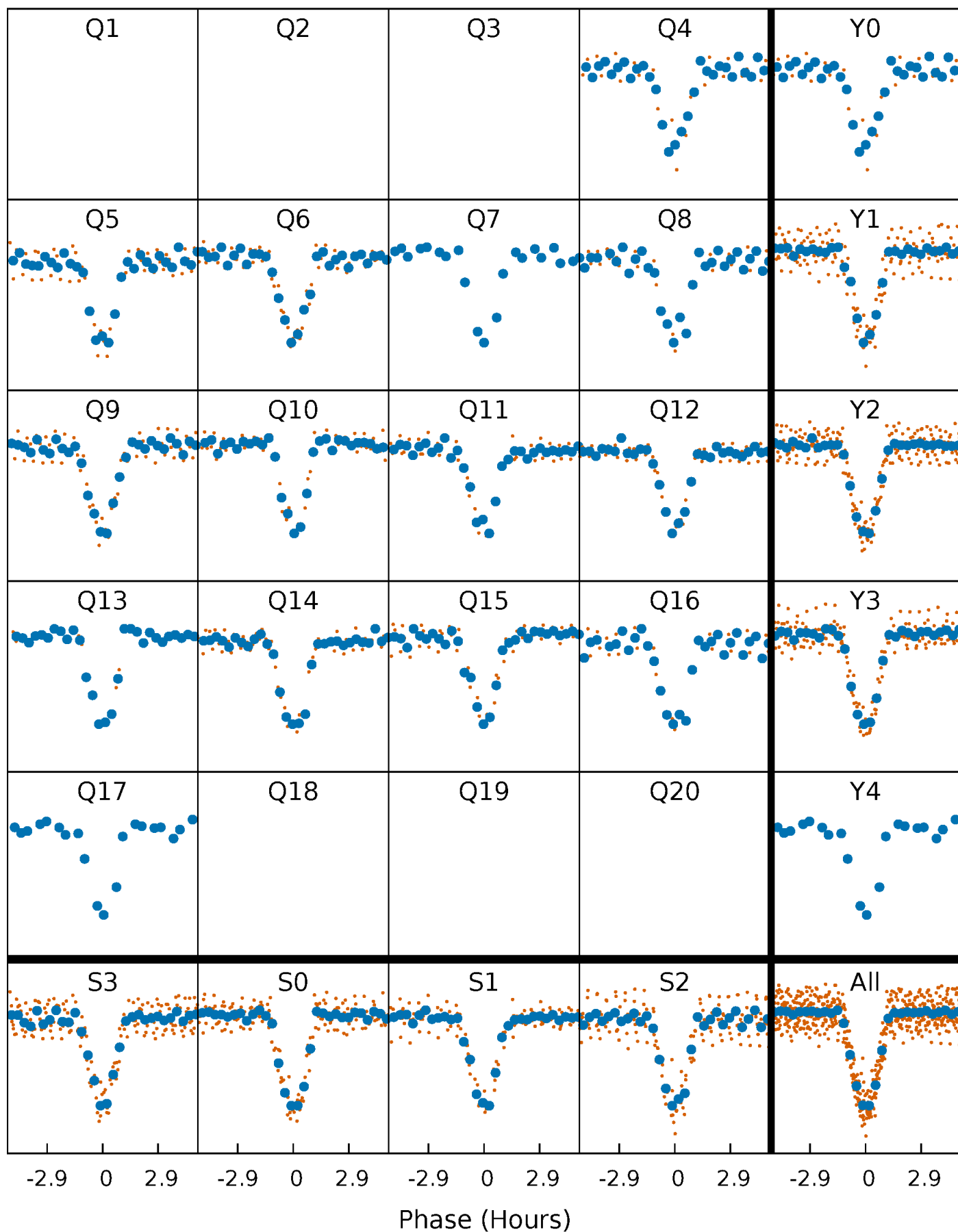


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

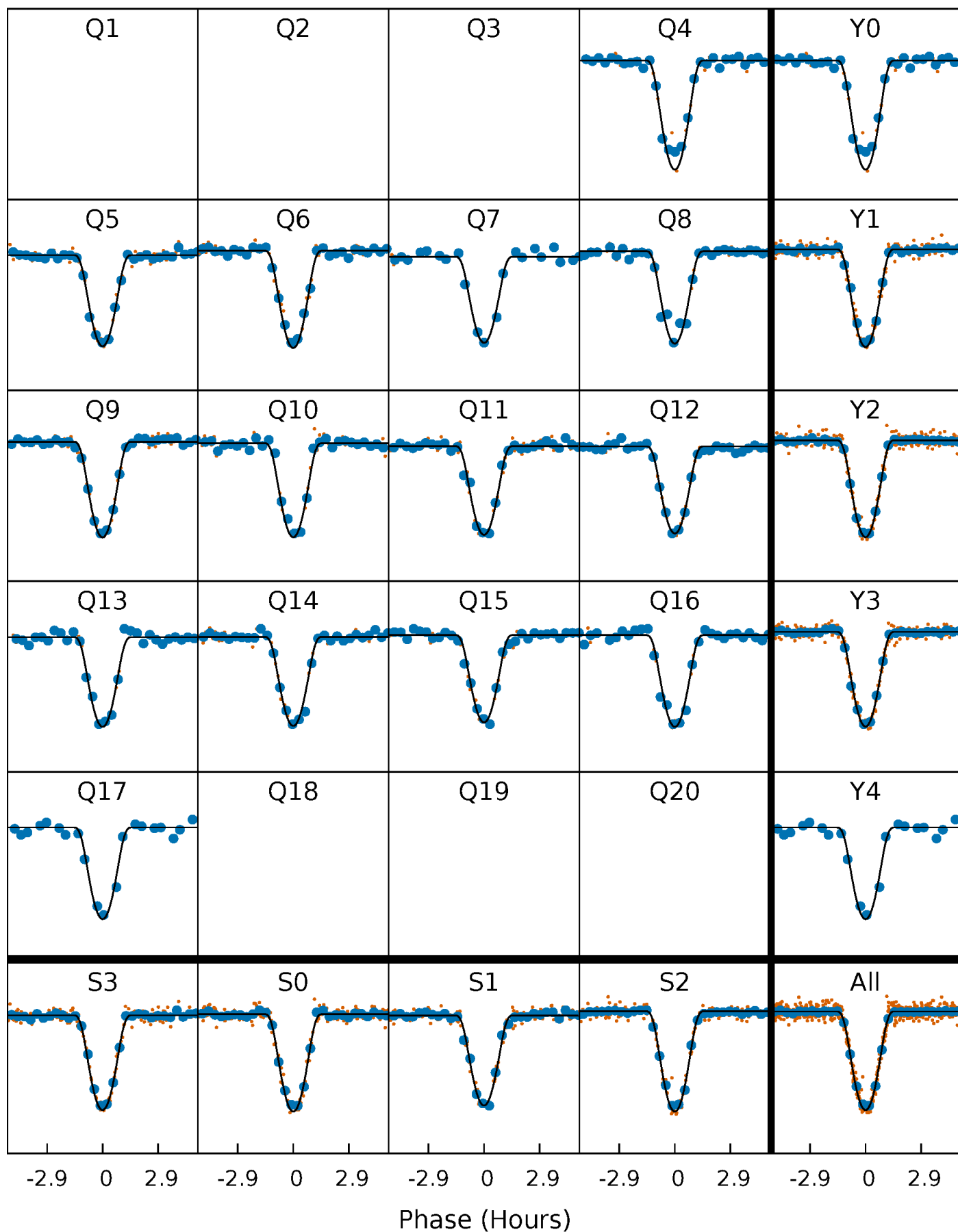
TCE 010019763-01   P= 32.504564 Days    $T_0=137.826426$  (BKJD)





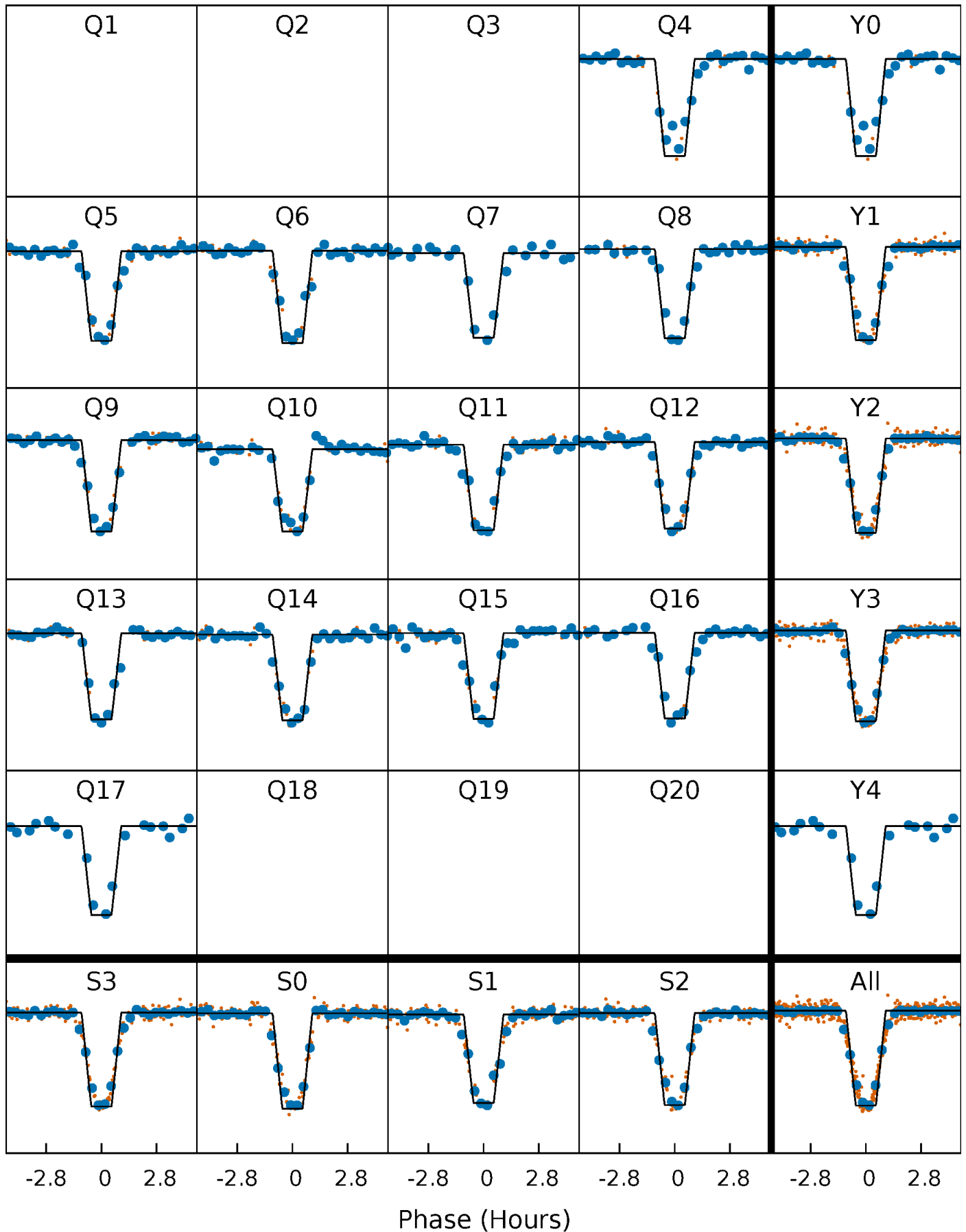
# DV Quarter-Phased Transit Curves

TCE 010019763-01 P= 32.504564 Days  $T_0=137.826426$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

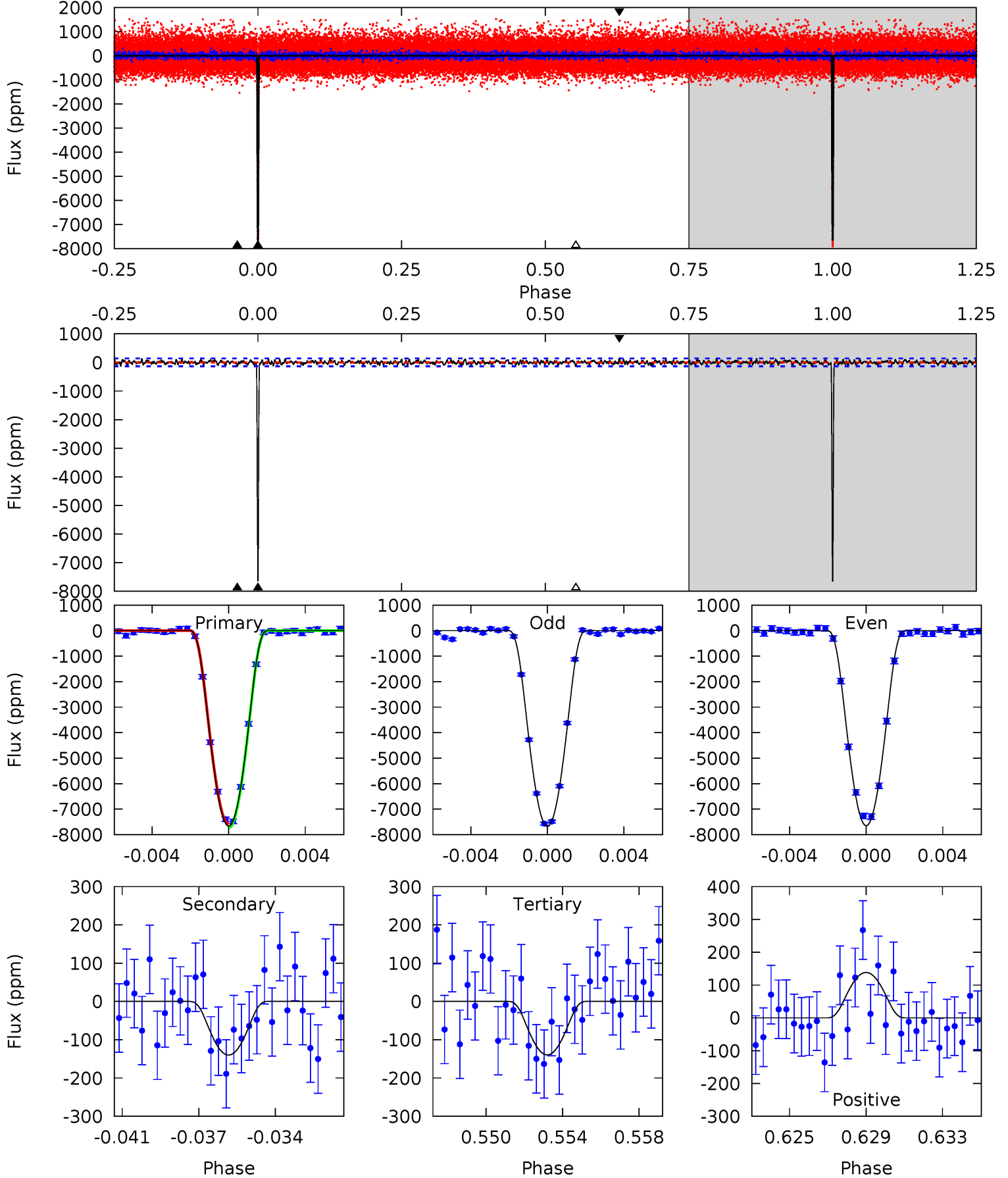
TCE 010019763-01 P= 32.504582 Days  $T_0=137.825942$  (BKJD)



# DV Model-Shift Uniqueness Test

010019763-01, P = 32.504564 Days, E = 137.826426 Days

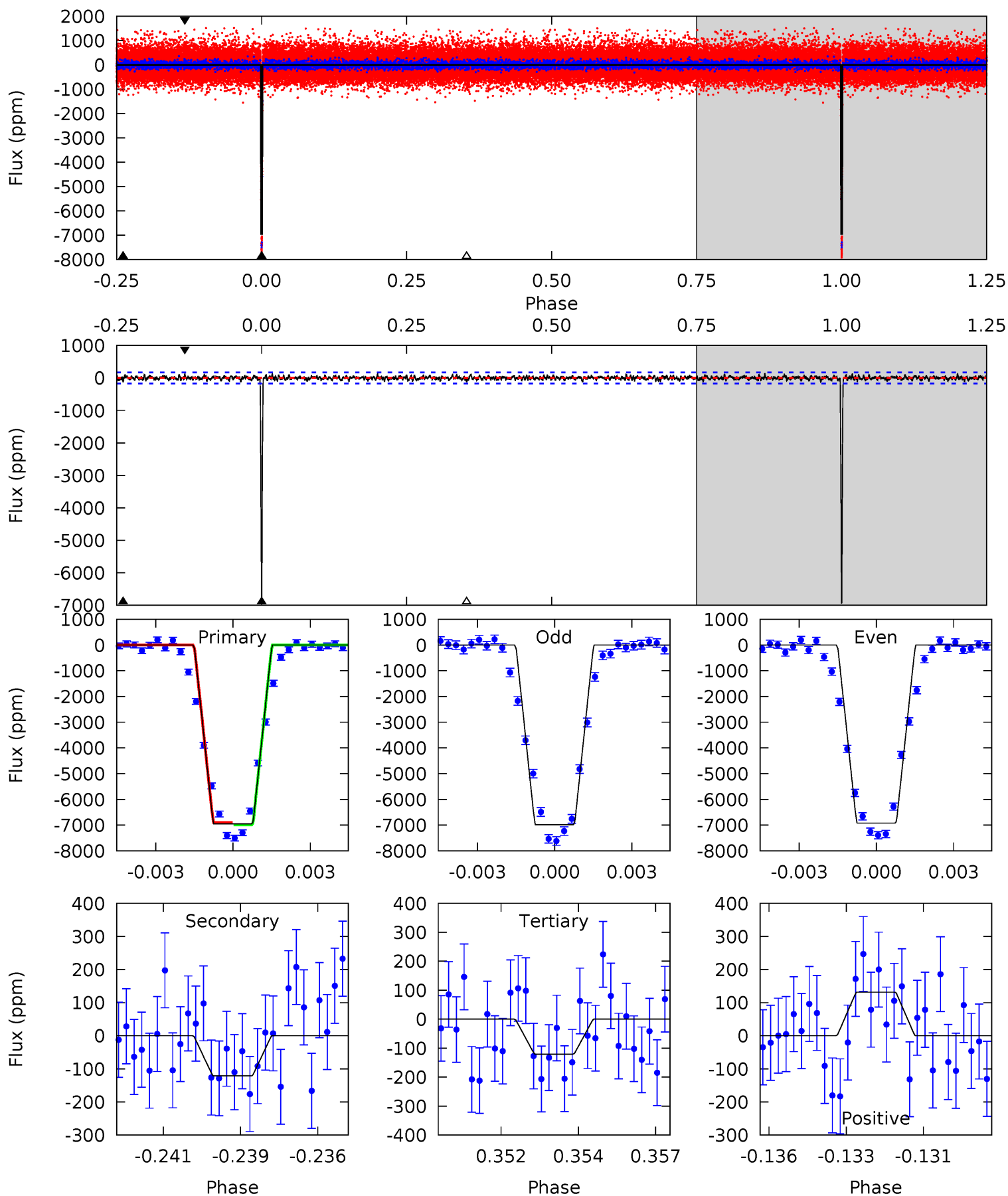
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
286.0	5.23	5.21	5.17	5.21	2.90	1.59	280.8	280.9	0.02	0.06	0.50	1.00	0.02	2.62



# Alt Model-Shift Uniqueness Test

010019763-01, P = 32.504582 Days, E = 137.825942 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
214.9	3.75	3.73	4.07	5.28	3.02	1.19	211.2	210.8	0.02	-0.32	0.89	1.01	0.02	1.34



### Stellar Parameters For KIC 010019763

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6132^{+192}_{-234}$	$4.479^{+0.067}_{-0.202}$	$-0.300^{+0.300}_{-0.300}$	$0.947^{+0.293}_{-0.105}$	$0.980^{+0.141}_{-0.128}$	$1.626^{+0.475}_{-0.878}$
	+3%/-4%	+1%/-5%	+100%/-100%	+31%/-11%	+14%/-13%	+29%/-54%
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 010019763-01 / KOI 1558.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-140 \pm 27$	$12.93^{+2.66}_{-2.09}$	$839^{+62}_{-45}$	$2686^{+147}_{-127}$	$18^{+9}_{-6}$
Alt.	$-121 \pm 32$	$9.20^{+2.52}_{-1.98}$	$836^{+62}_{-43}$	$2870^{+229}_{-179}$	$29^{+21}_{-12}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

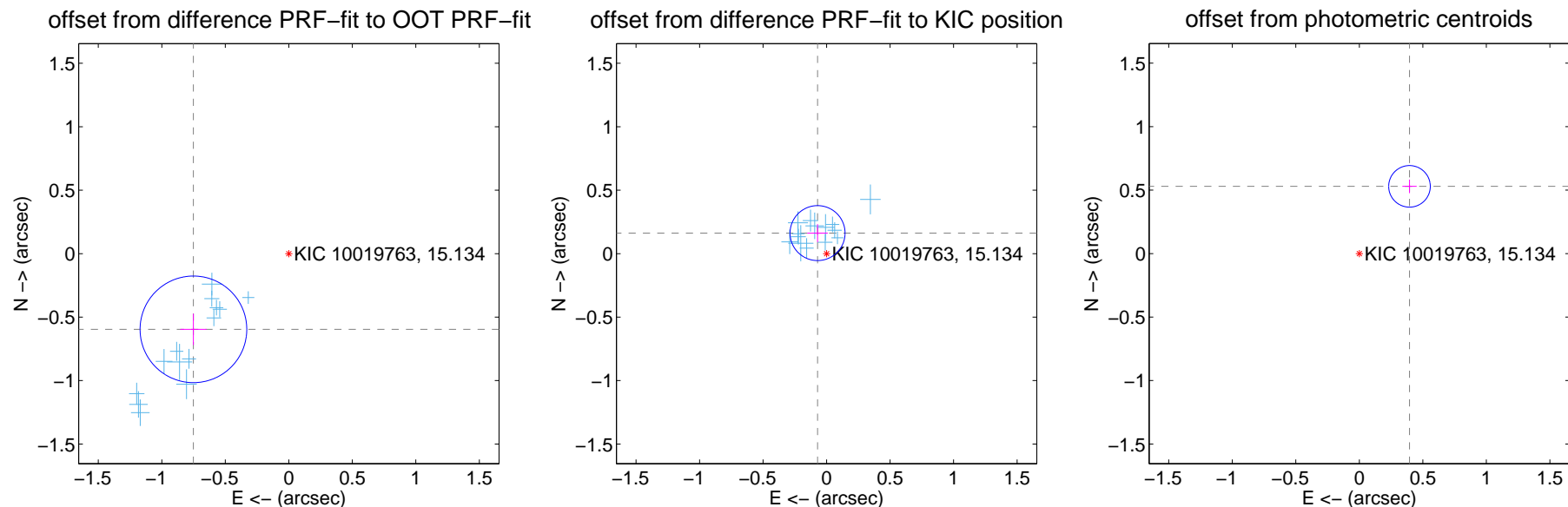
## DV Centroid Data

Supplemental centroid analysis for 010019763-01. Kepler magnitude: 15.13. Transit SNR 167.32

There are 14 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.959 \pm 0.140$	6.85	$0.751 \pm 0.103$	$-0.596 \pm 0.123$
PRF-fit source offset from KIC position	$0.177 \pm 0.072$	2.45	$0.071 \pm 0.081$	$0.162 \pm 0.070$
photometric centroid source offset	$0.66 \pm 0.05$	12.10	$-0.39 \pm 0.06$	$0.53 \pm 0.05$



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.

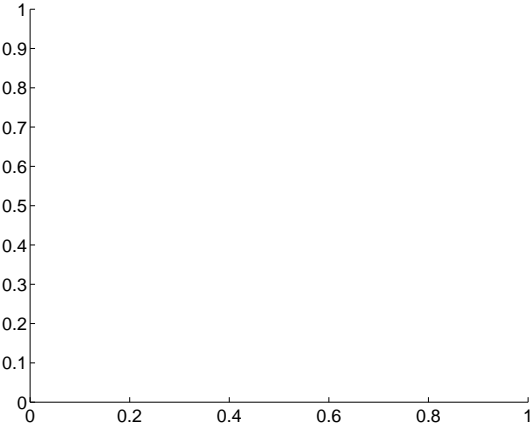
Q1 no difference image



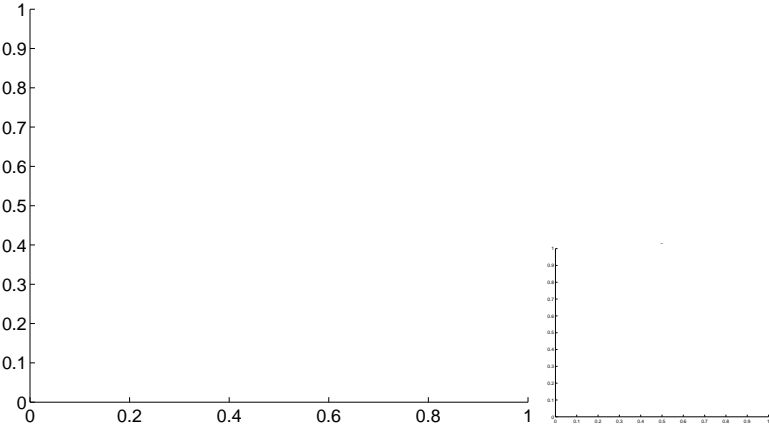
Q1 no OOT image



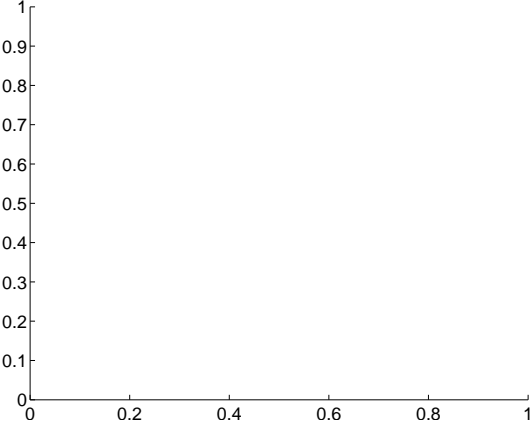
Q2 no difference image



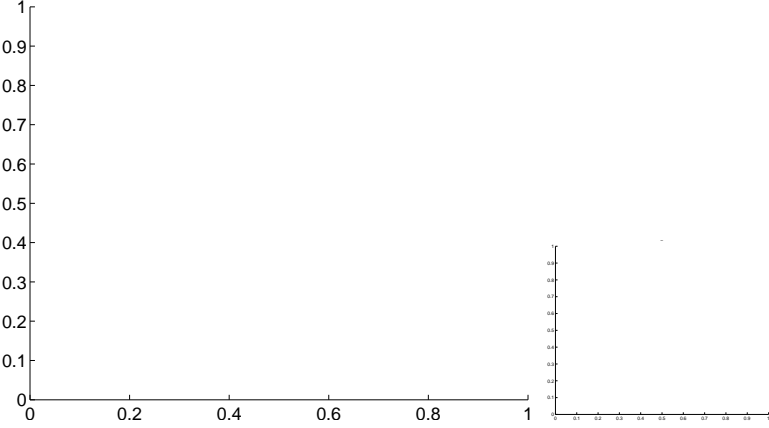
Q2 no OOT image



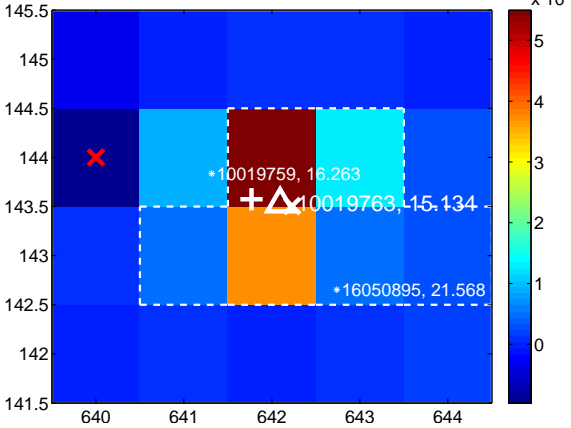
Q3 no difference image



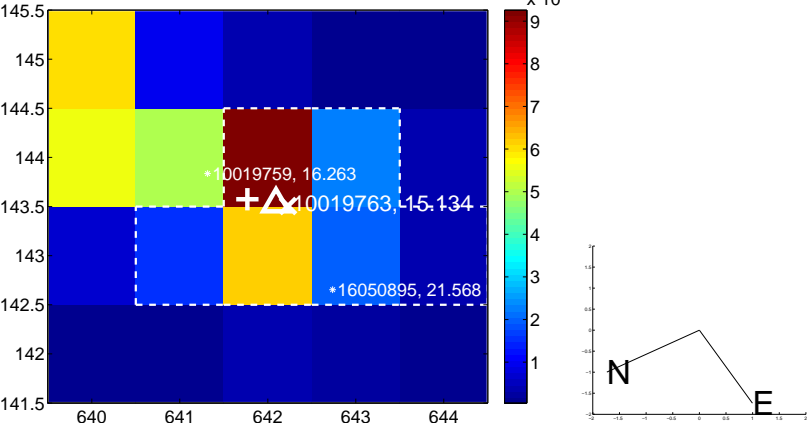
Q3 no OOT image



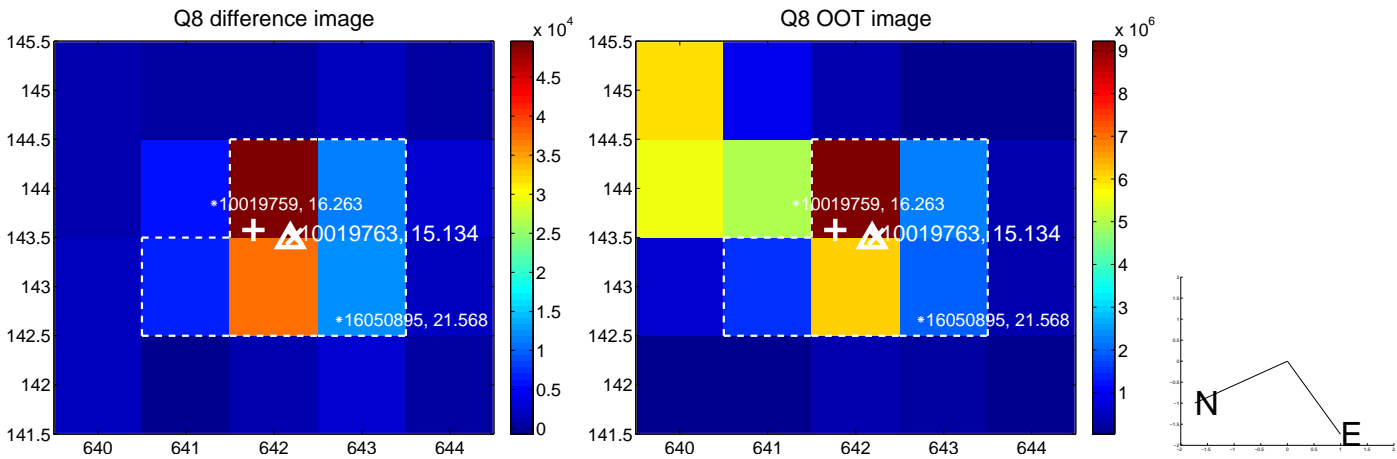
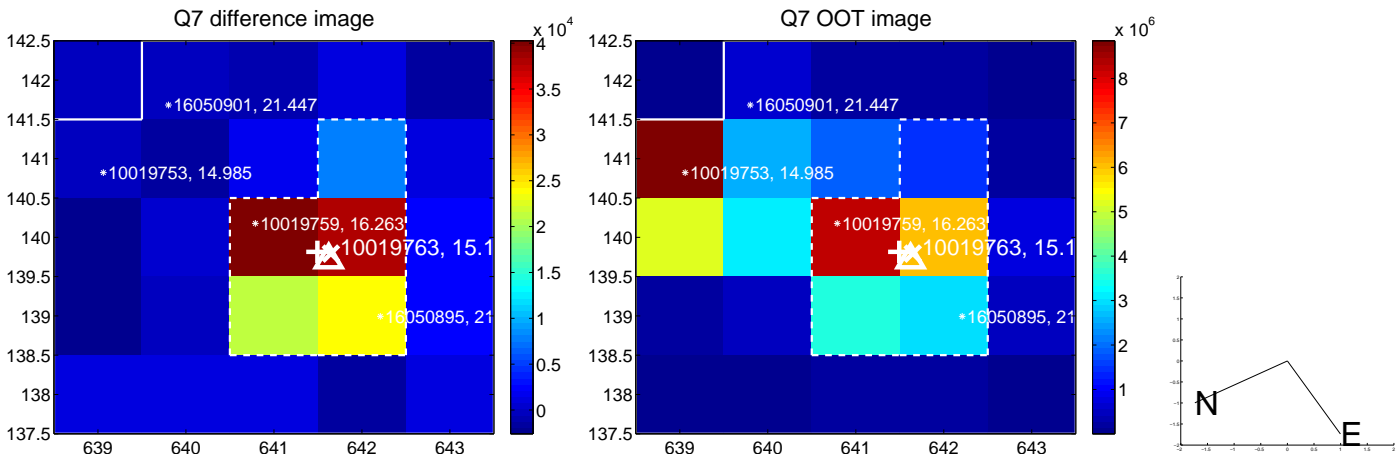
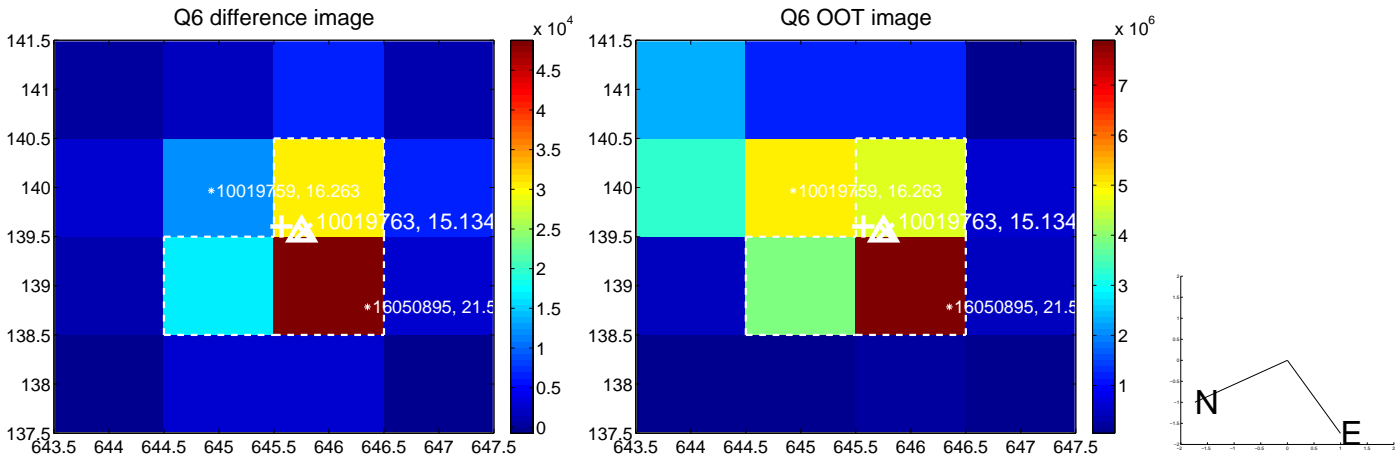
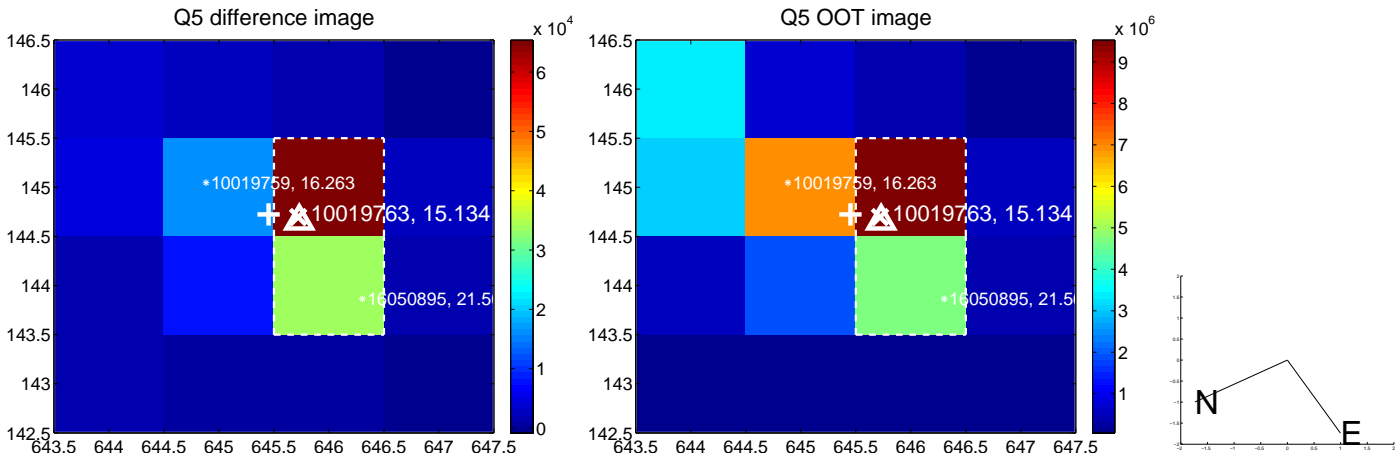
Q4 difference image



Q4 OOT image

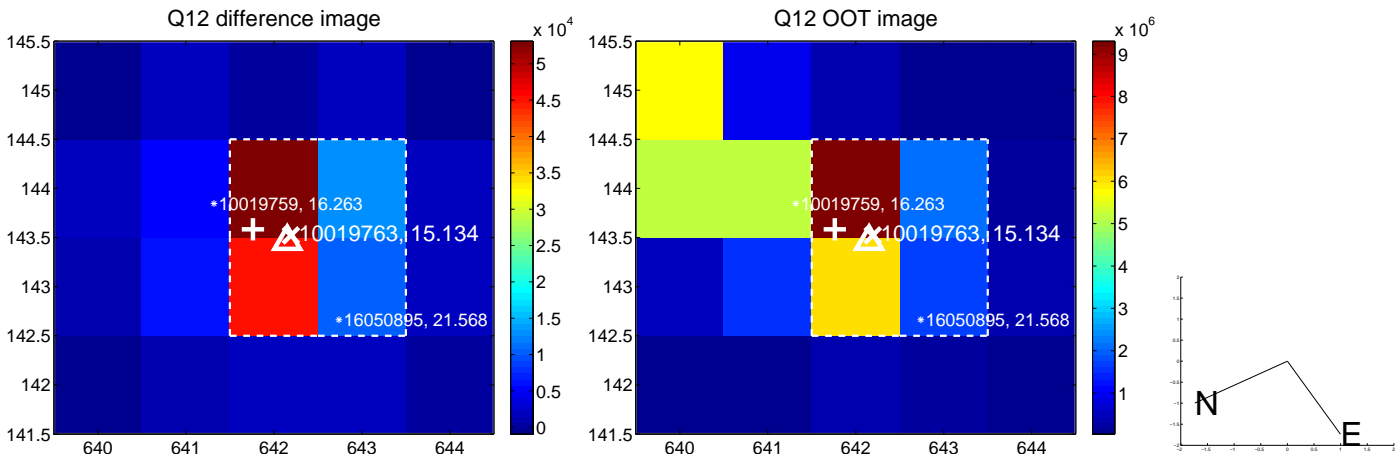
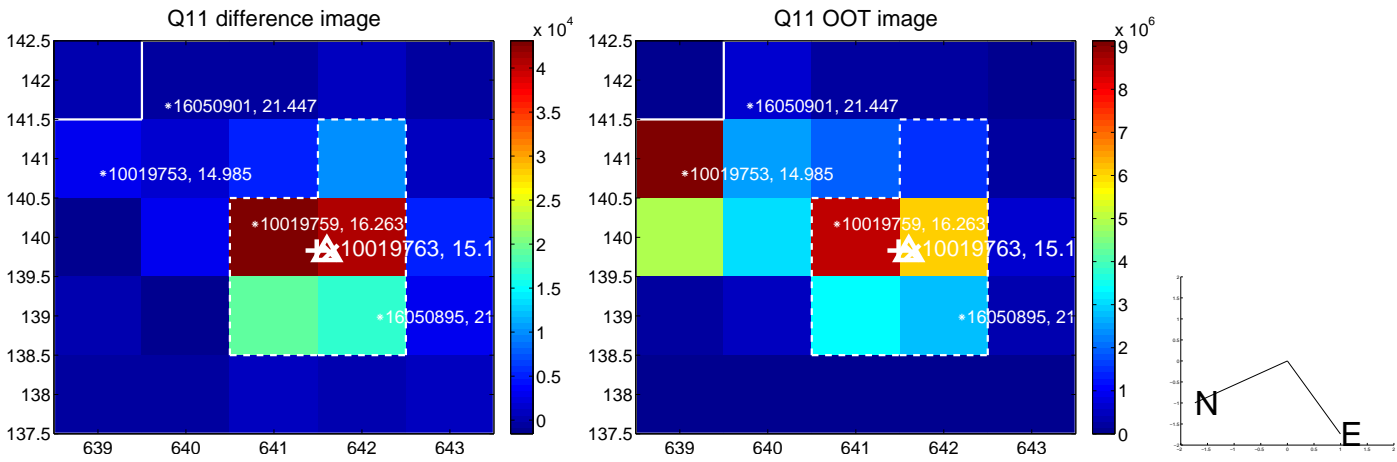
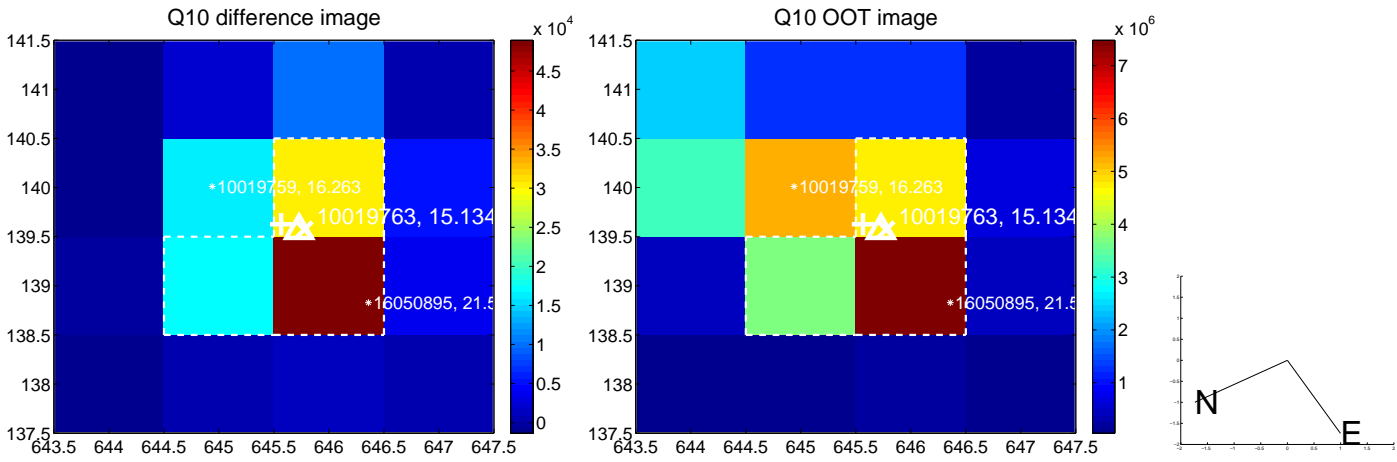
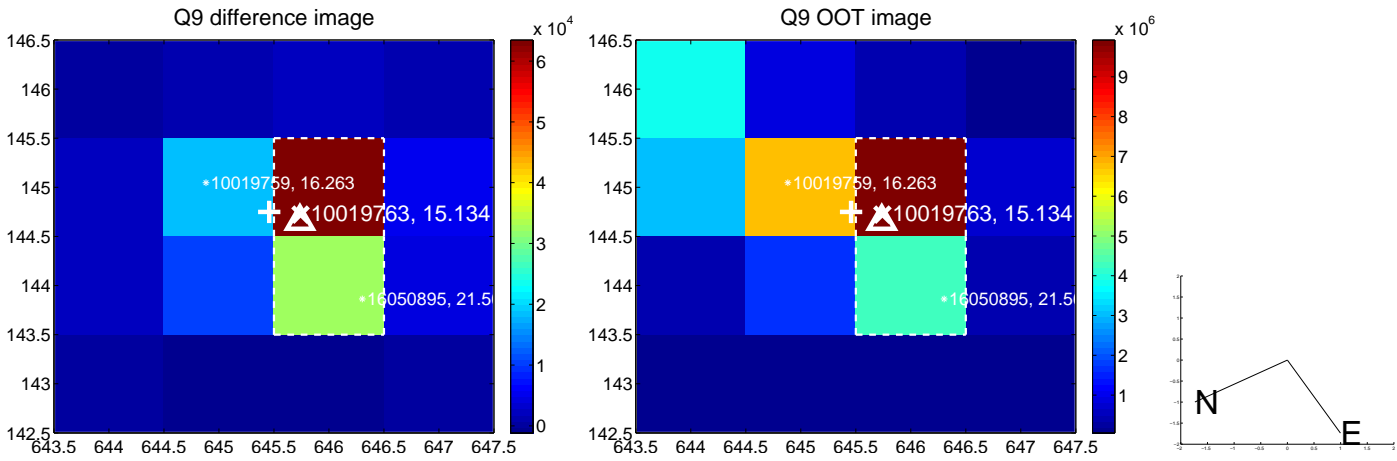


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

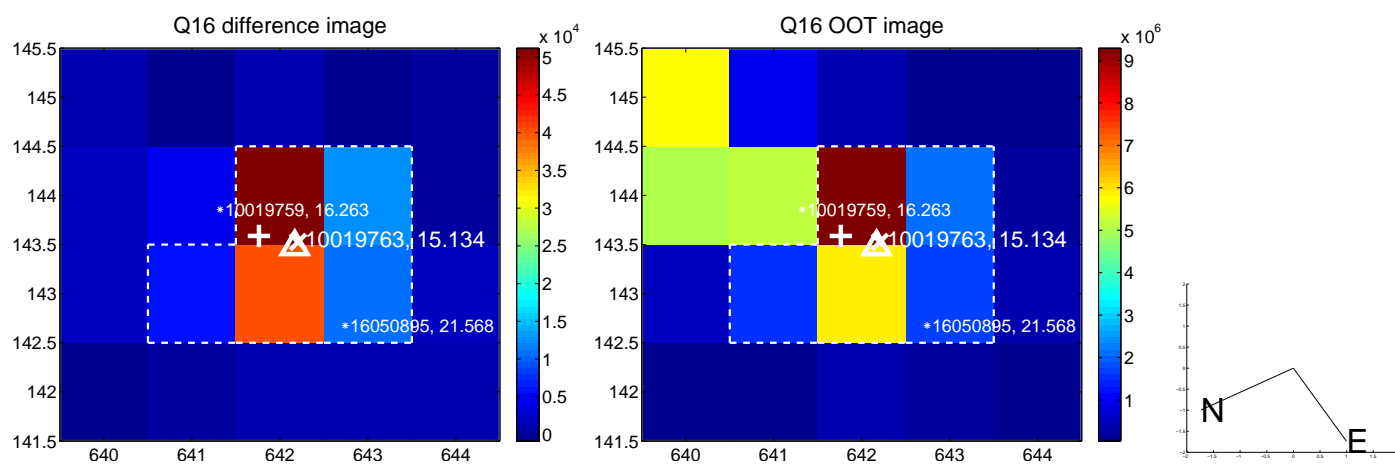
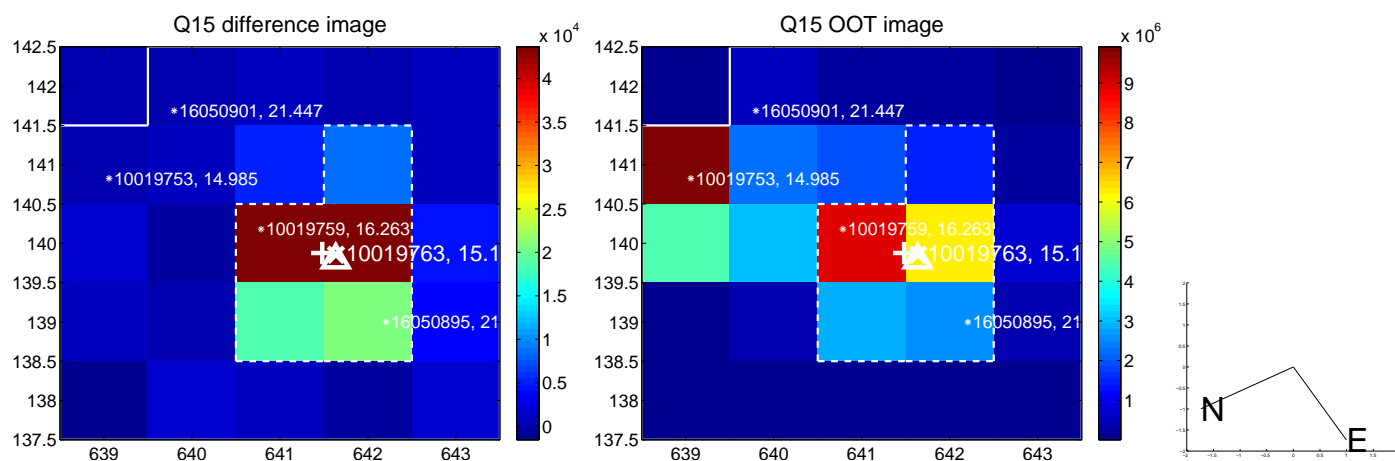
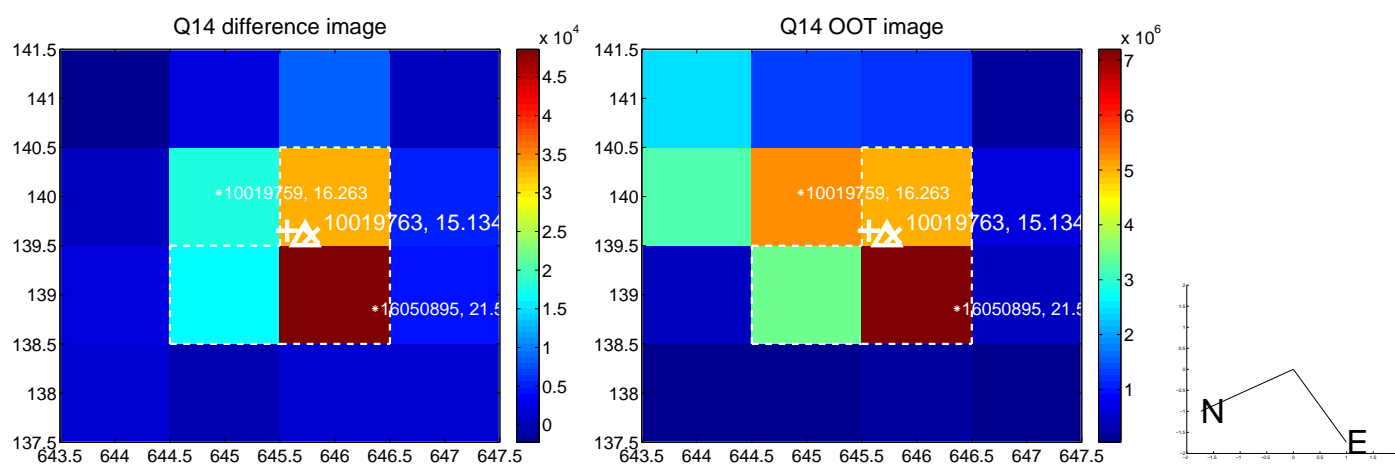
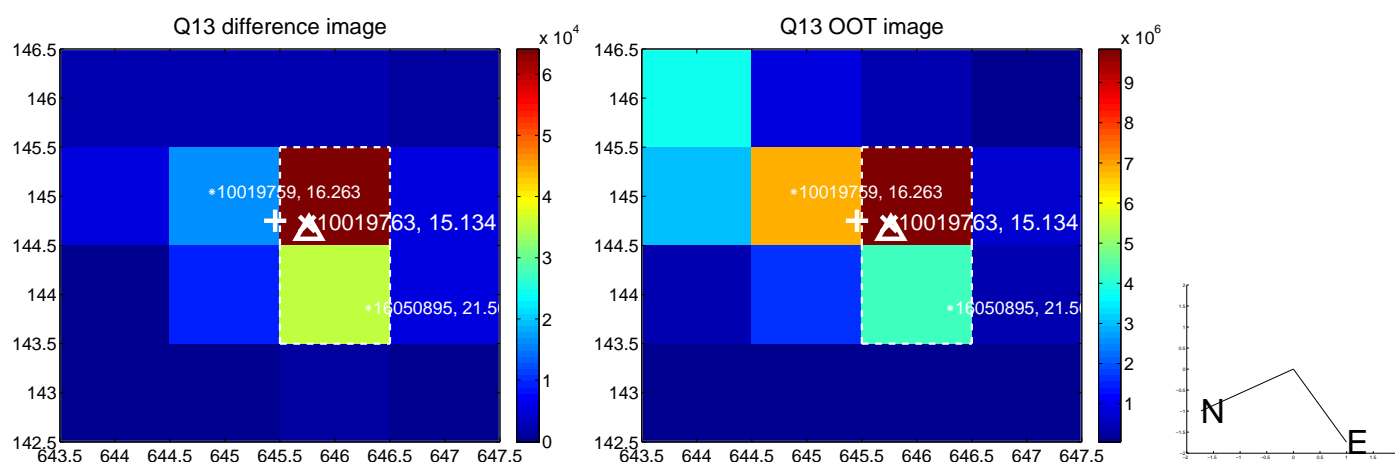




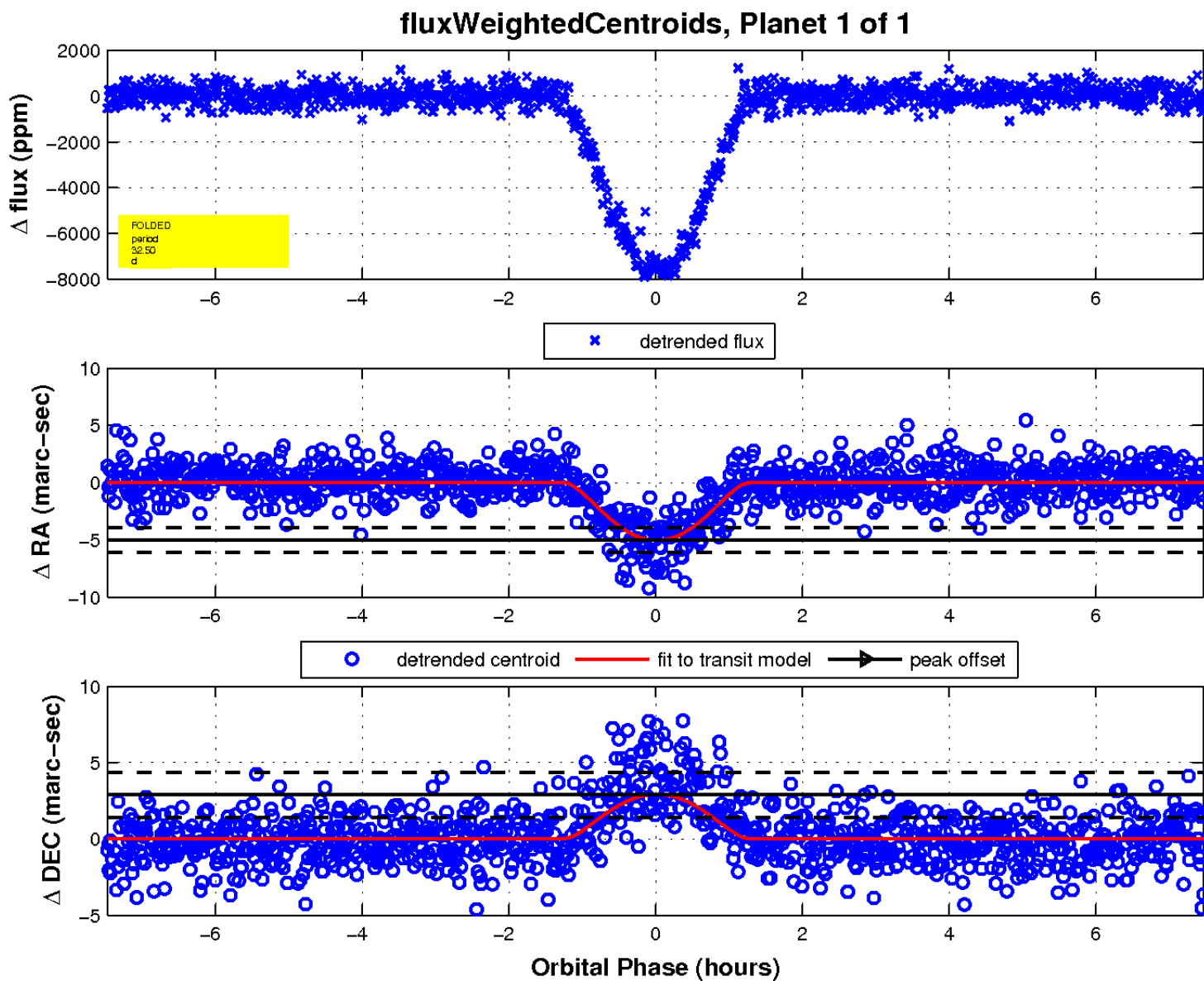
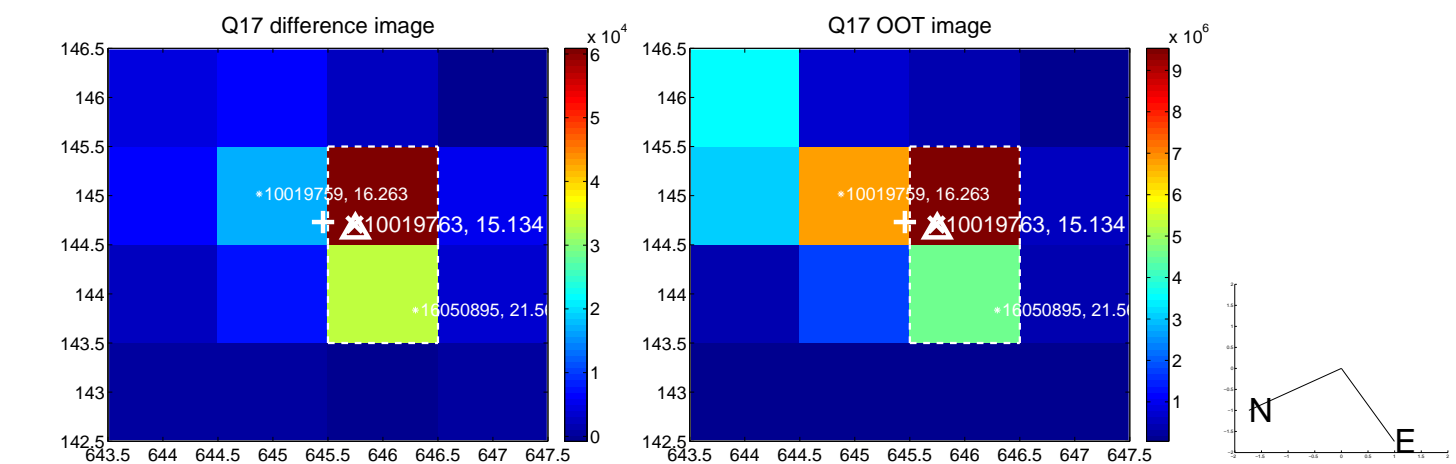
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

