

# KIC 012019440

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
012019440-01	OBS	0186.01	3.243260	133.668959	16465.1	3.066	1636.8	1587.2	1.01	5823	12.99	564.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012019440-01	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.

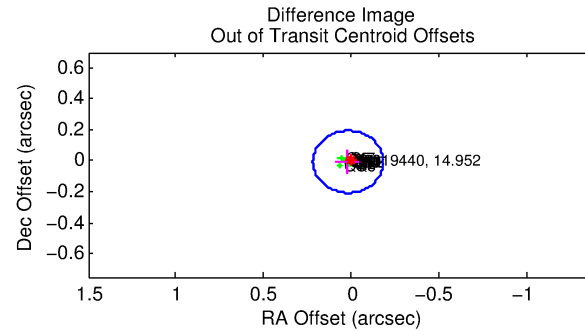
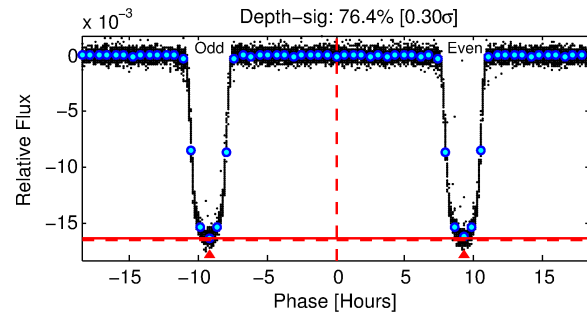
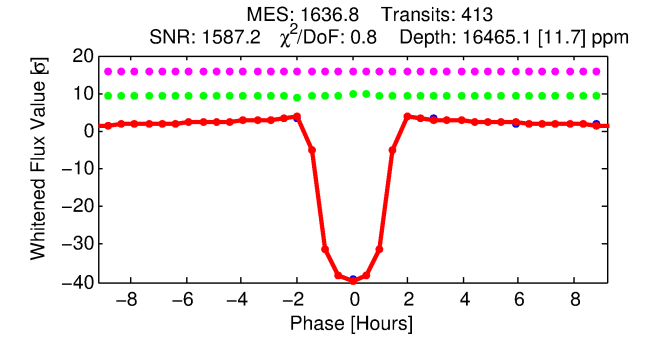
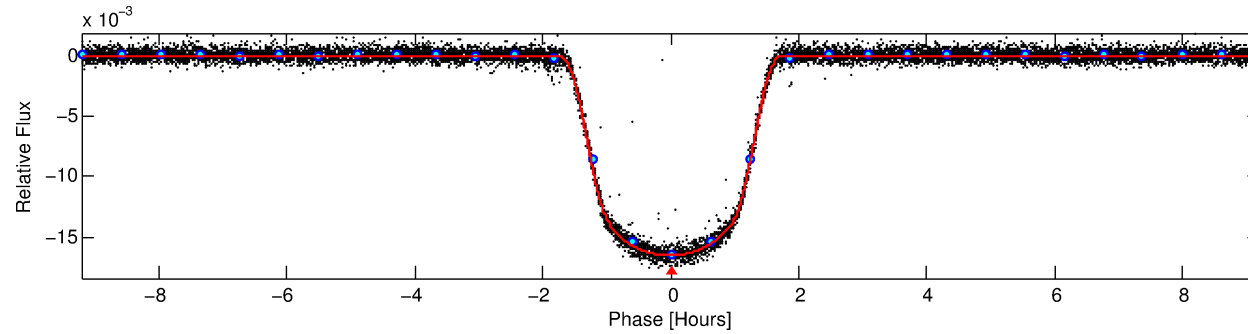
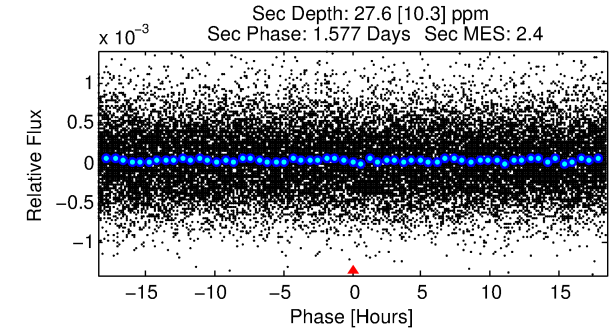
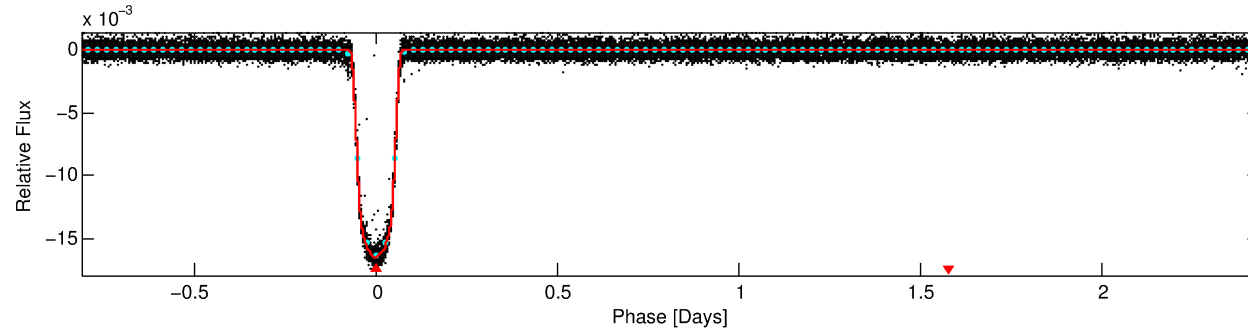
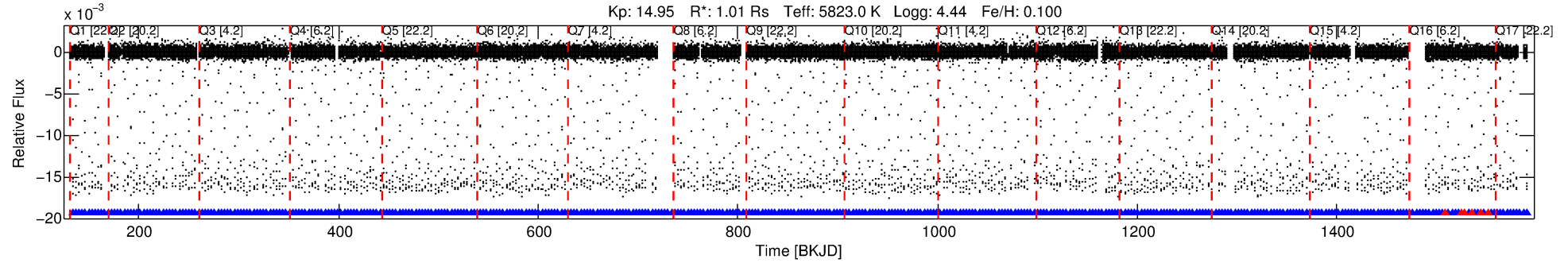
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 012019440-01

No Significant Match Found

# DV One-Page Summary

KIC: 12019440 Candidate: 1 of 1 Period: 3.243 d  
KOI: K00186.01 Corr: 0.995



## DV Fit Results:

Period = 3.24326 [0.00000] d  
Epoch = 133.6690 [0.0000] BKJD  
Rp/R\* = 0.1175 [0.0003]  
a/R\* = 8.80 [0.09]  
b = 0.27 [0.03]  
Seff = 564.82 [130.66]  
Teq = 1243 [72] K  
Rp = 12.99 [2.13] Re  
a = 0.0433 [0.0063] AU  
Ag = 0.17 [0.07] [-11.33 $\sigma$ ]  
Teffp = 1232 [116] K [-0.08 $\sigma$ ]

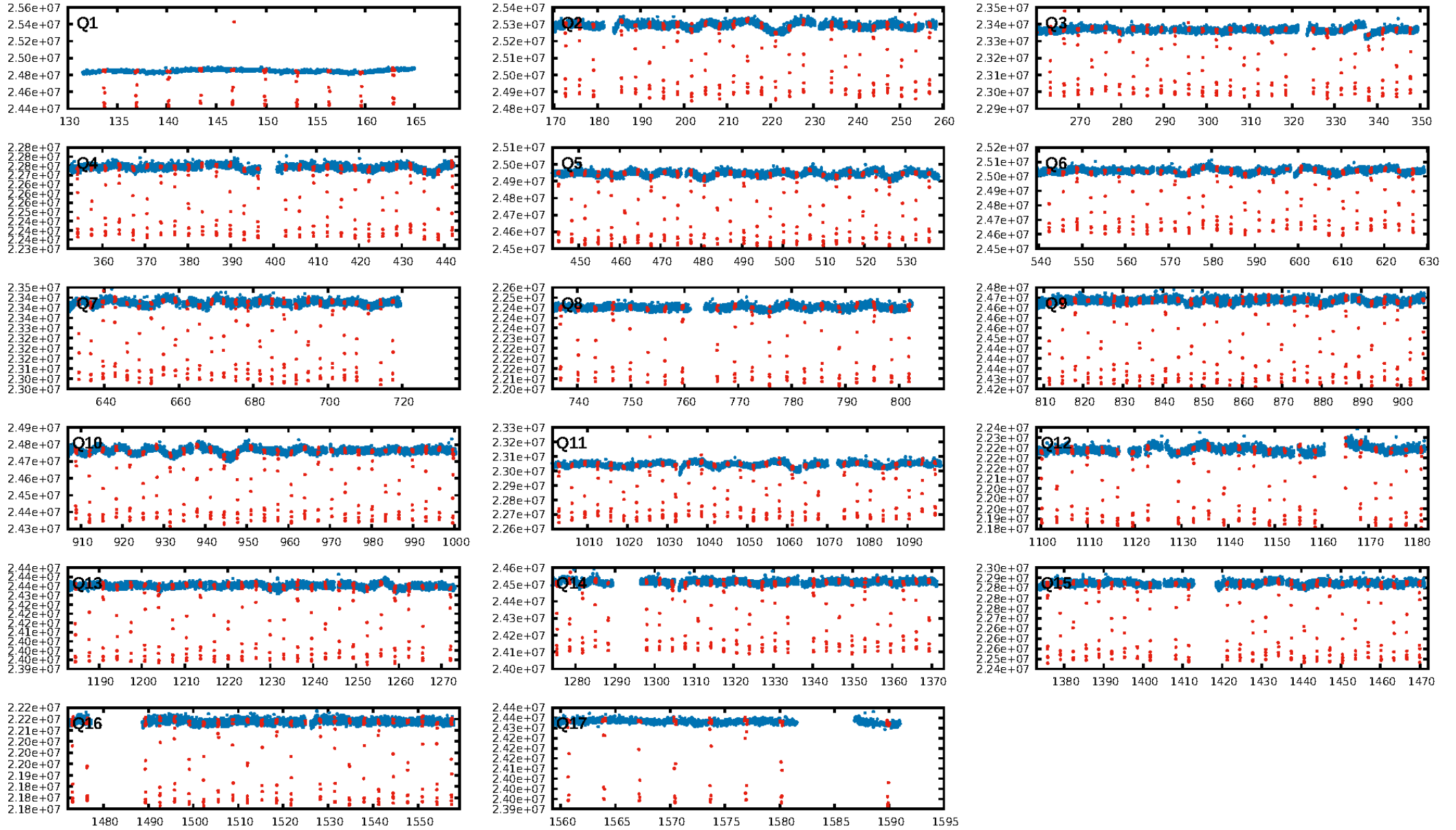
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.98 [389/395]  
GhostDiagnostic-chr: 4.968  
Centroid-sig: 0.0%  
Centroid-so: 0.088 arcsec [10.12 $\sigma$ ]  
OotOffset-rm: 0.021 arcsec [0.32 $\sigma$ ]  
KicOffset-rm: 0.082 arcsec [1.21 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

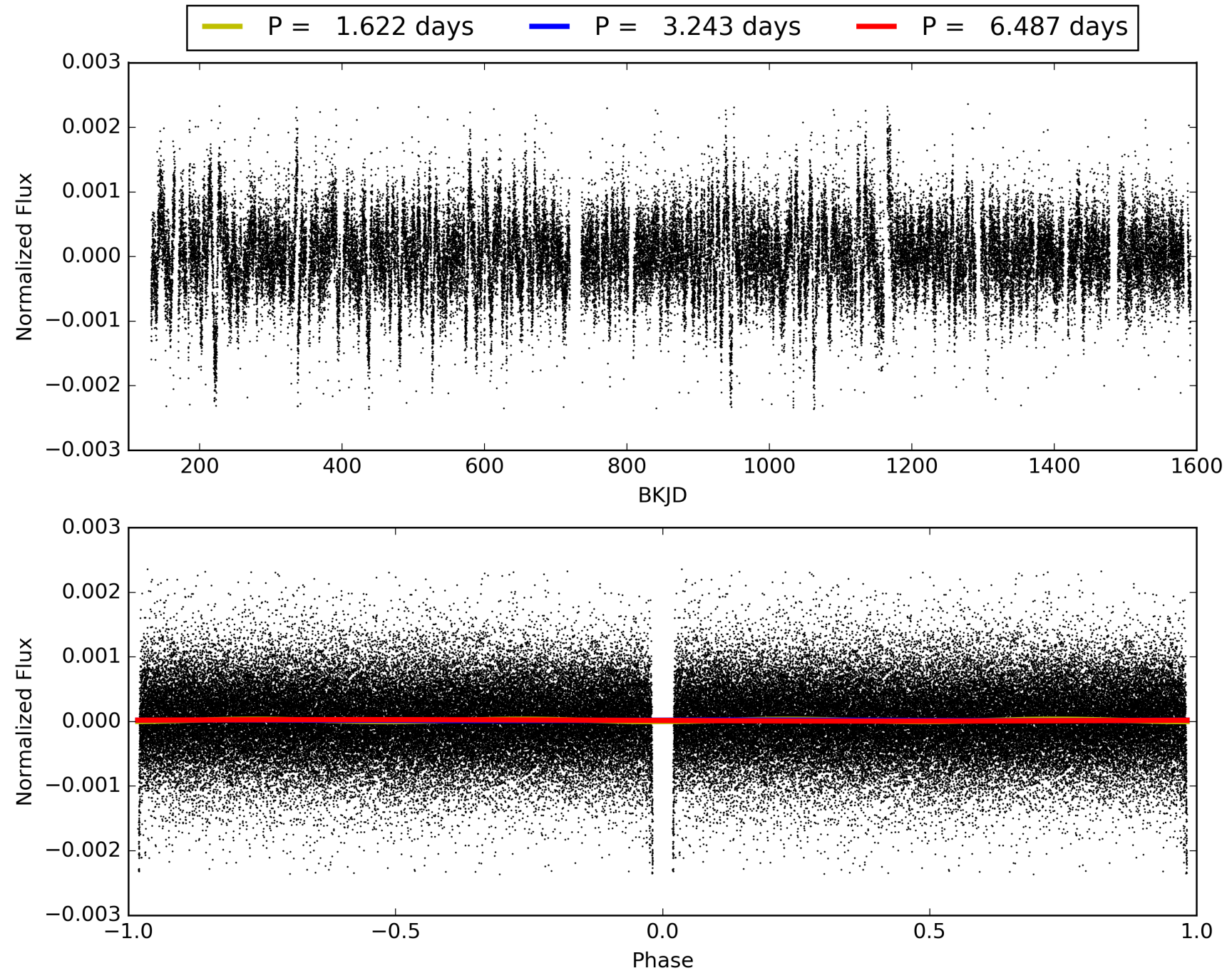
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 10:46:28 Z

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

# TCE 012019440-01, PDC Light Curves

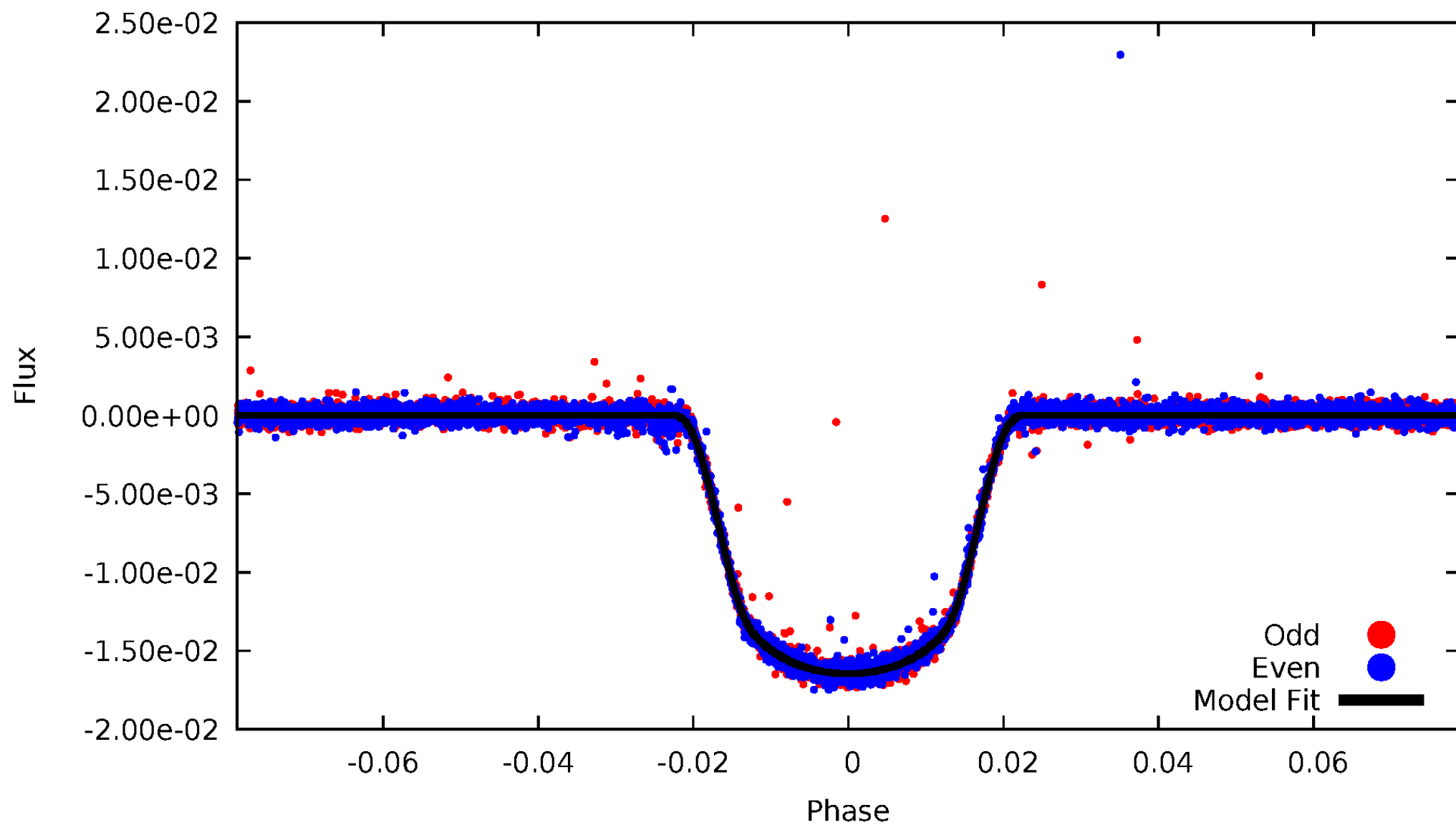


TCE 012019440-01



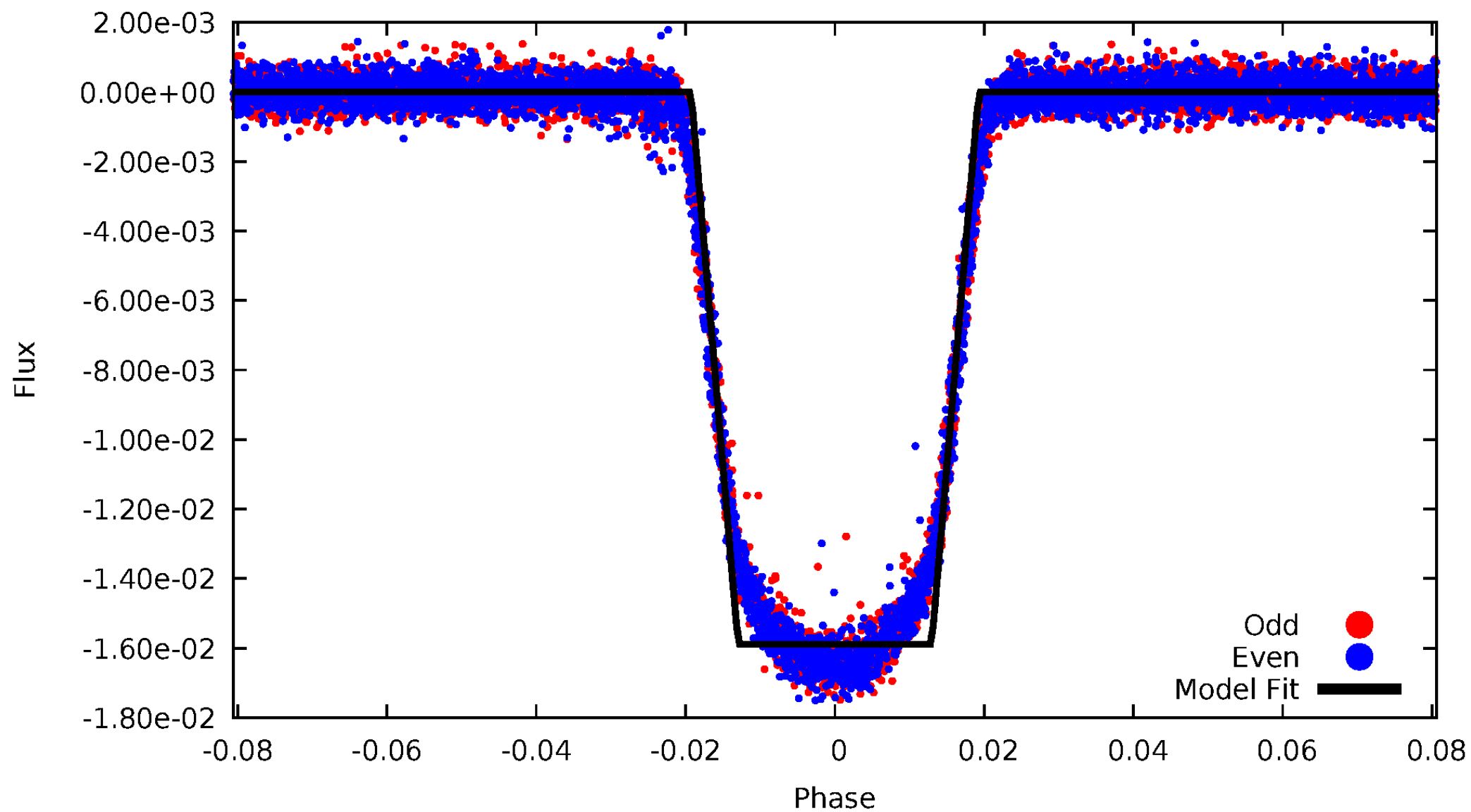
# DV Odd/Even

TCE 012019440-01



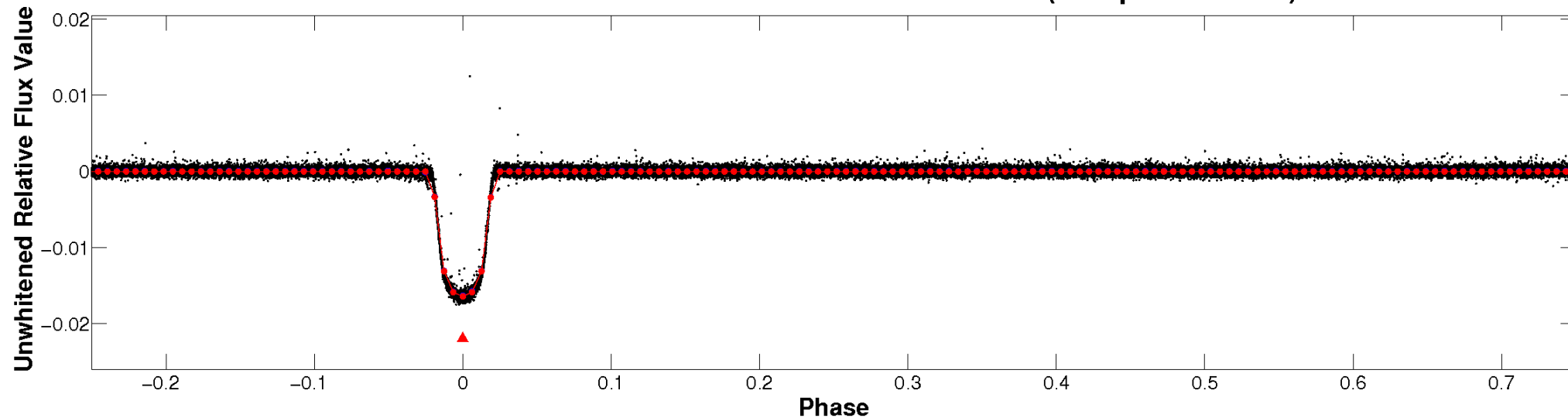
# ALT Odd/Even

TCE 012019440-01

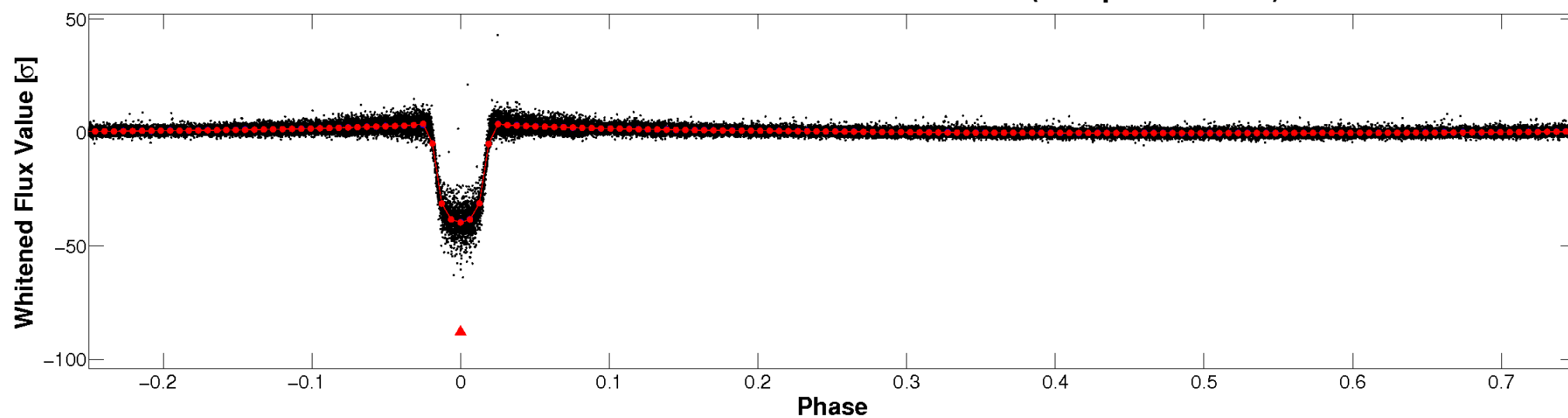


# Non-Whitened Vs. Whitened Light Curve

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

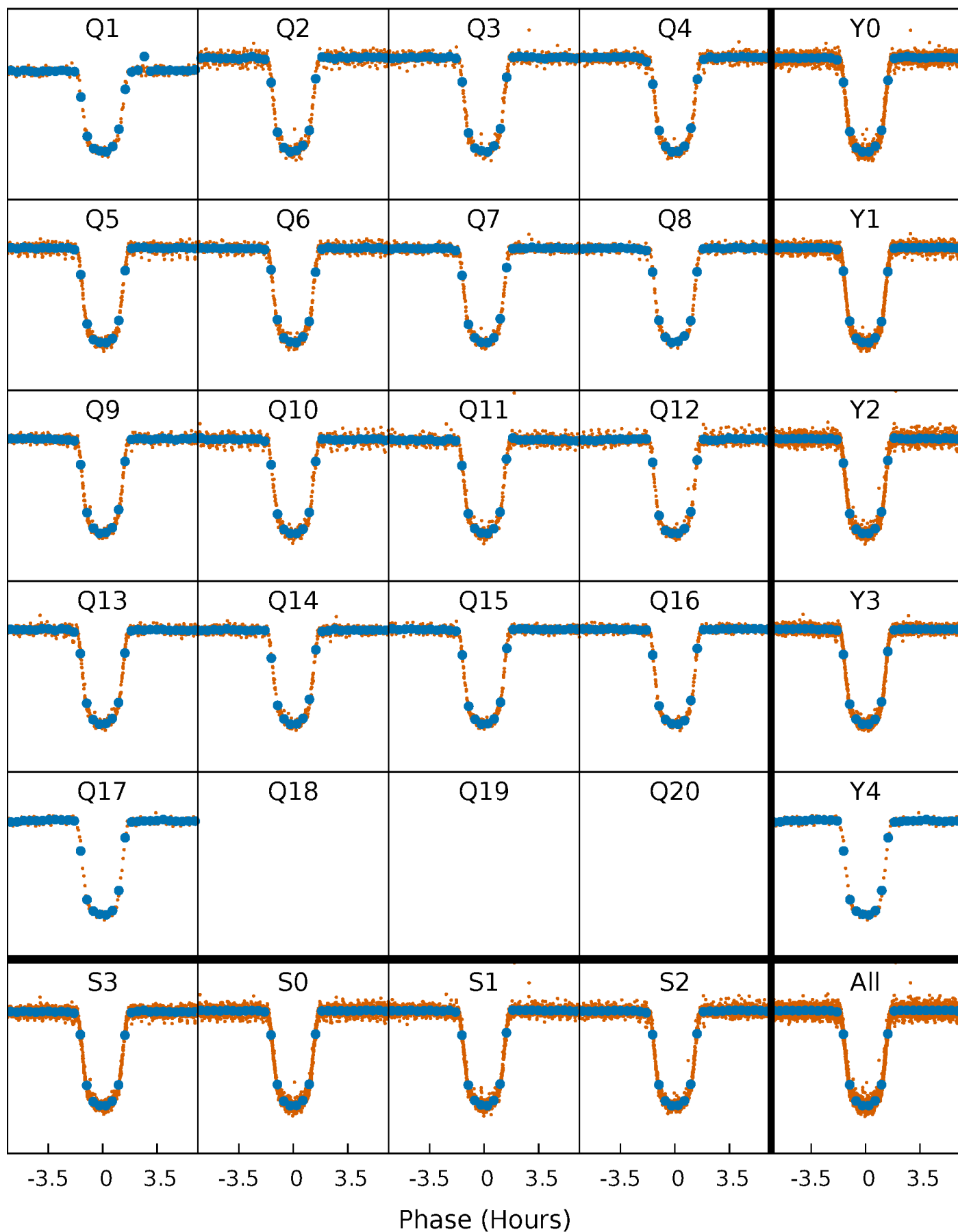


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

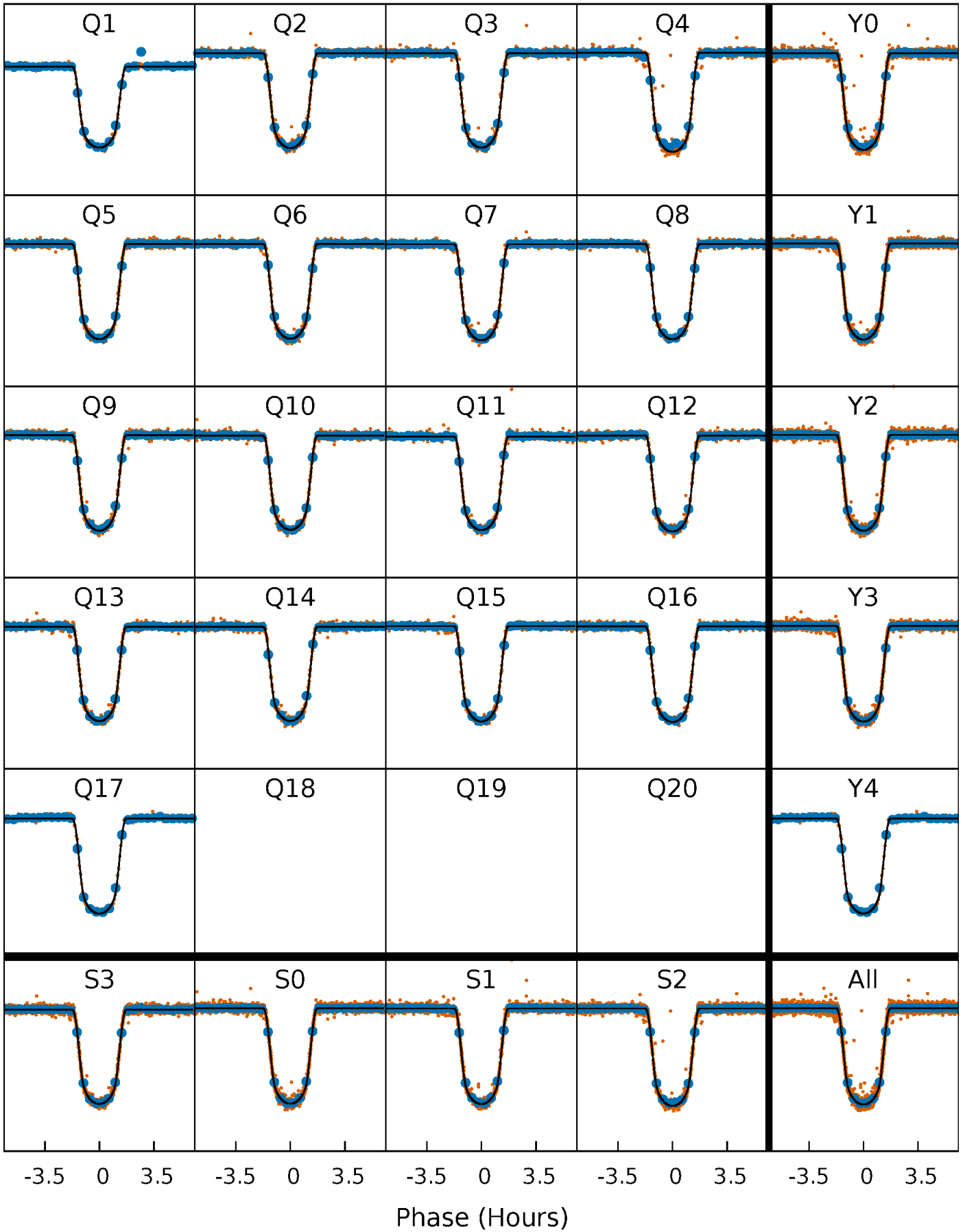
TCE 012019440-01 P= 3.243260 Days  $T_0=133.668959$  (BKJD)





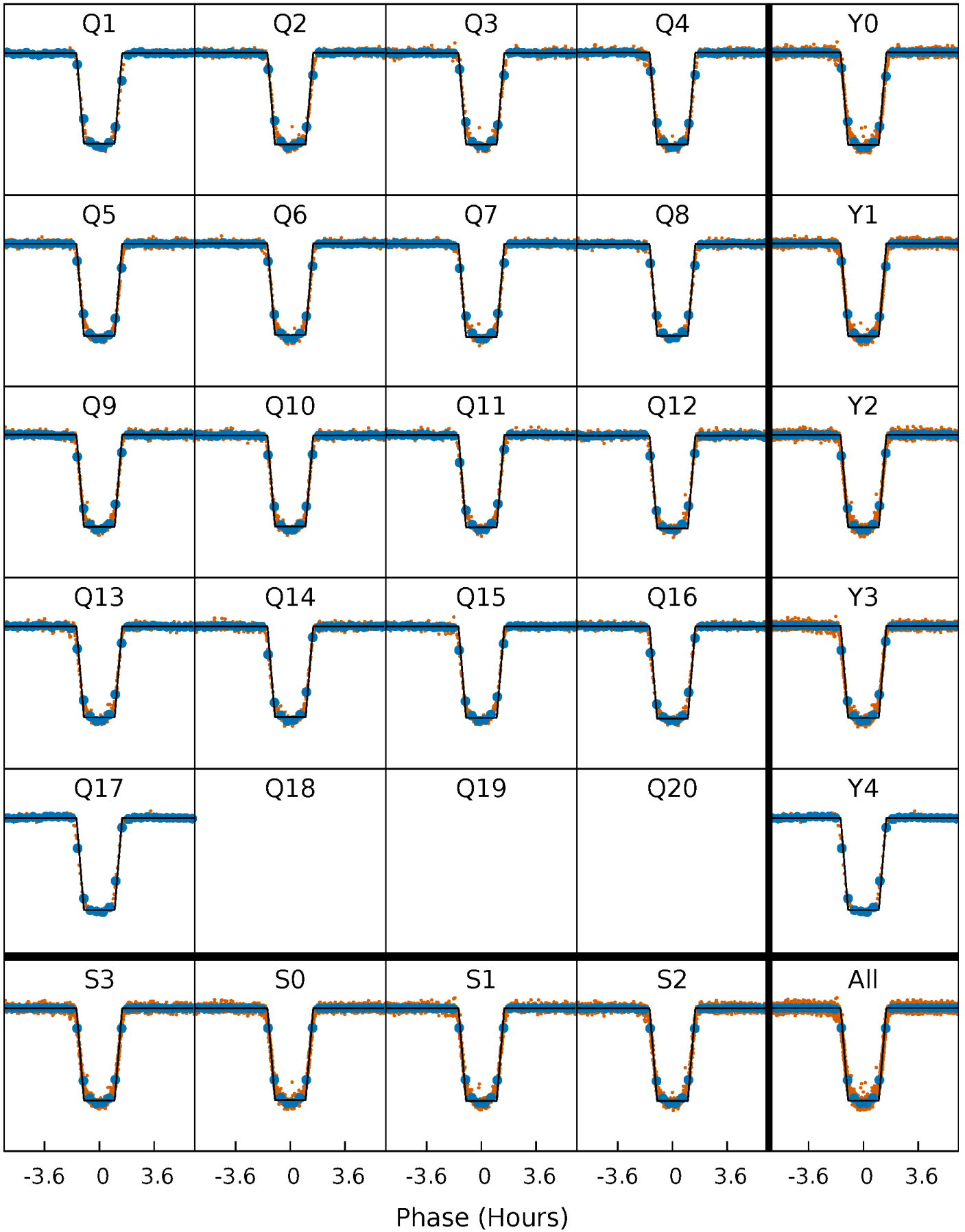
# DV Quarter-Phased Transit Curves

TCE 012019440-01 P= 3.243260 Days  $T_0=133.668959$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

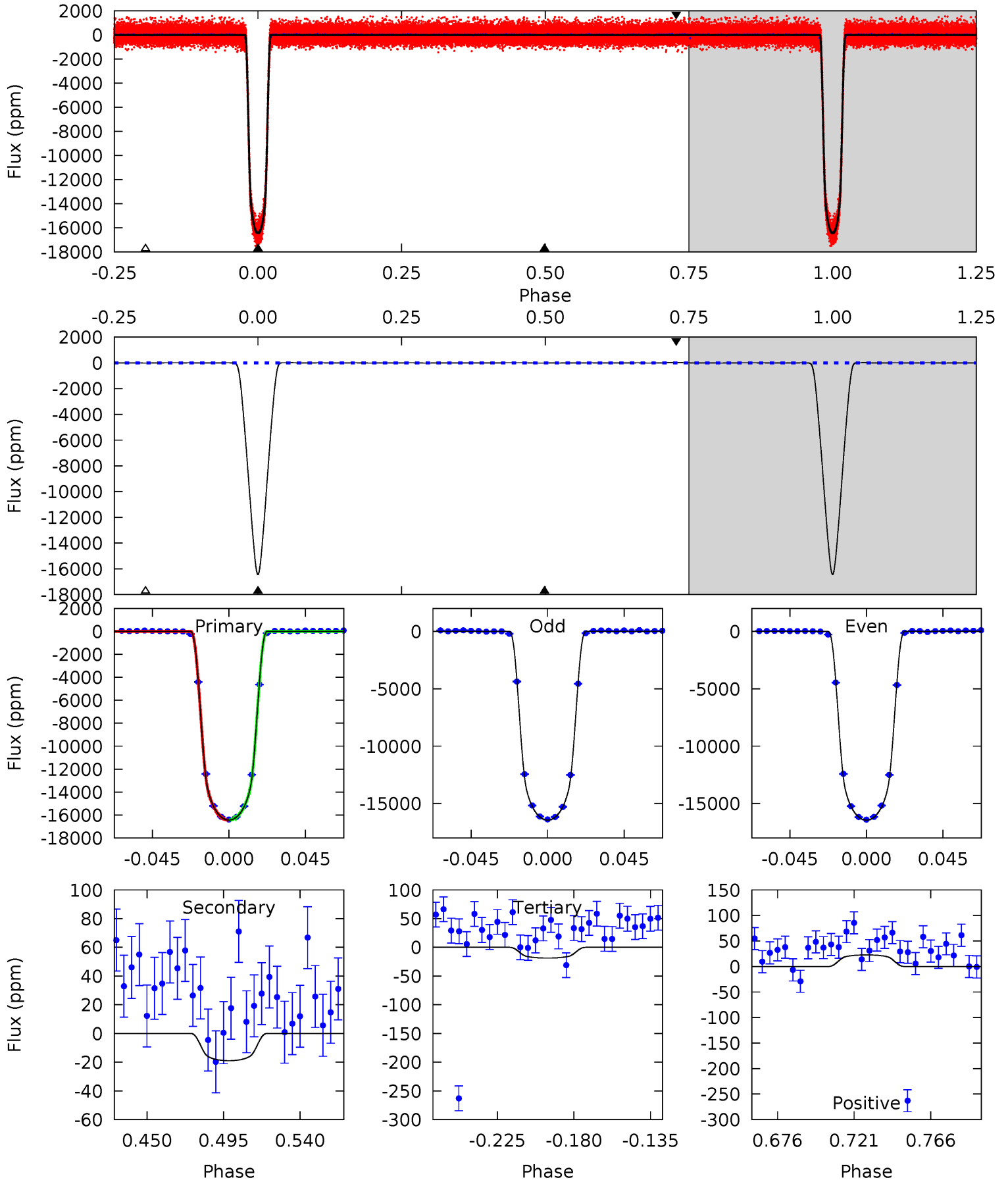
TCE 012019440-01   P= 3.243270 Days    $T_0=133.666803$  (BKJD)



# DV Model-Shift Uniqueness Test

012019440-01, P = 3.243260 Days, E = 130.425699 Days

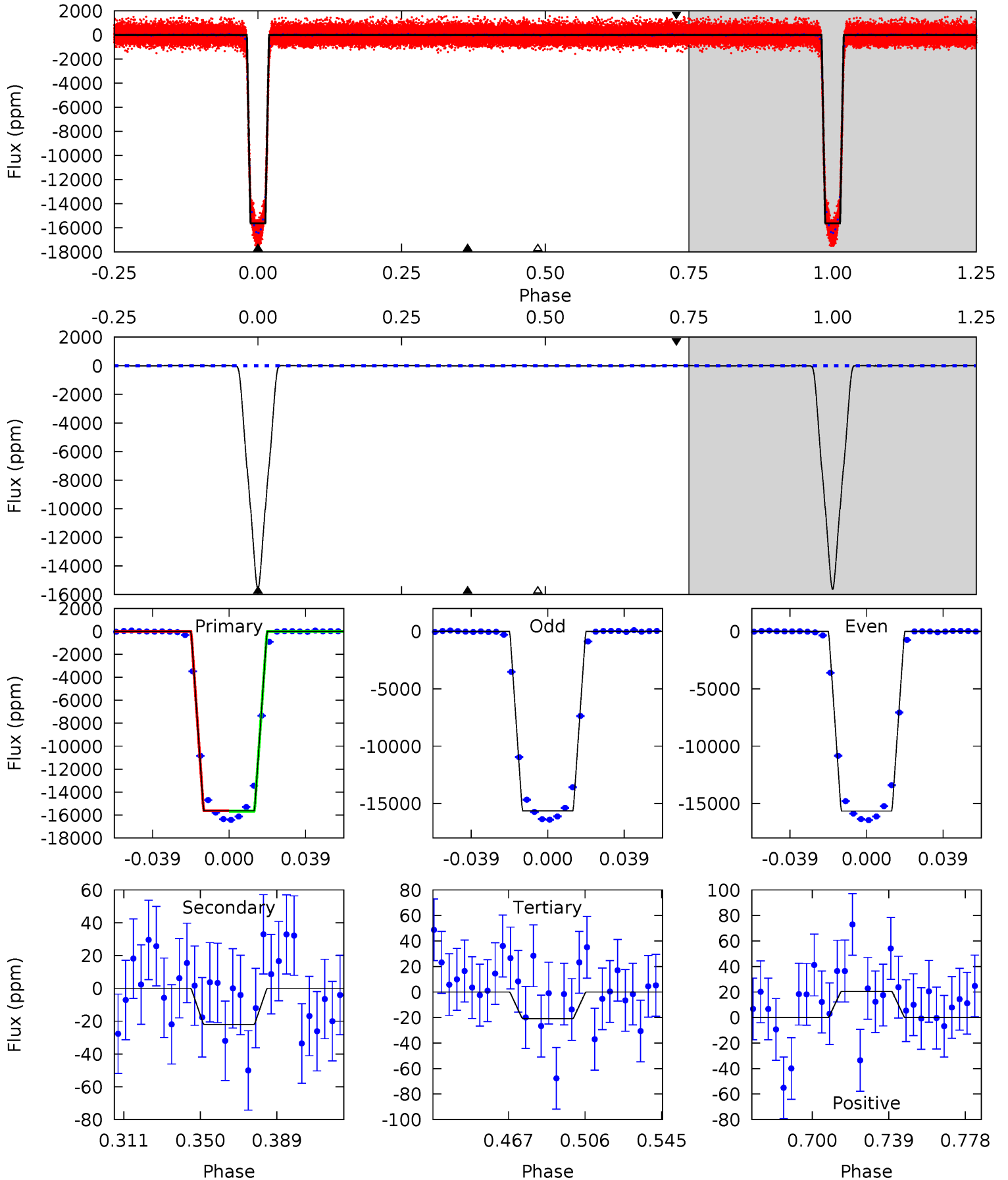
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2354	2.72	2.68	3.25	4.73	2.00	1.22	2351	2351	0.04	-0.53	0.37	1.00	0.00	1.25



# Alt Model-Shift Uniqueness Test

012019440-01, P = 3.243270 Days, E = 130.423533 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
1967	2.77	2.62	2.58	4.76	2.07	1.15	1964	1964	0.15	0.18	0.52	1.00	0.00	2.15



### Stellar Parameters For KIC 012019440

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5823^{+69}_{-87}$	$4.438^{+0.051}_{-0.127}$	$0.100^{+0.150}_{-0.150}$	$1.013^{+0.166}_{-0.071}$	$1.027^{+0.063}_{-0.063}$	$1.390^{+0.285}_{-0.491}$
	+1%/-1%	+1%/-3%	+150%/-150%	+16%/-7%	+6%/-6%	+21%/-35%
Source	SPE90	SPE90	SPE90	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 012019440-01 / KOI 0186.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-19 \pm 7$	$13.12^{+1.17}_{-0.64}$	$1748^{+71}_{-48}$	$-2225^{+85}_{-74}$	$0.111^{+0.046}_{-0.045}$
Alt.	$-22 \pm 8$	$13.99^{+1.29}_{-0.63}$	$1746^{+73}_{-49}$	$-2222^{+77}_{-73}$	$0.111^{+0.043}_{-0.041}$

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

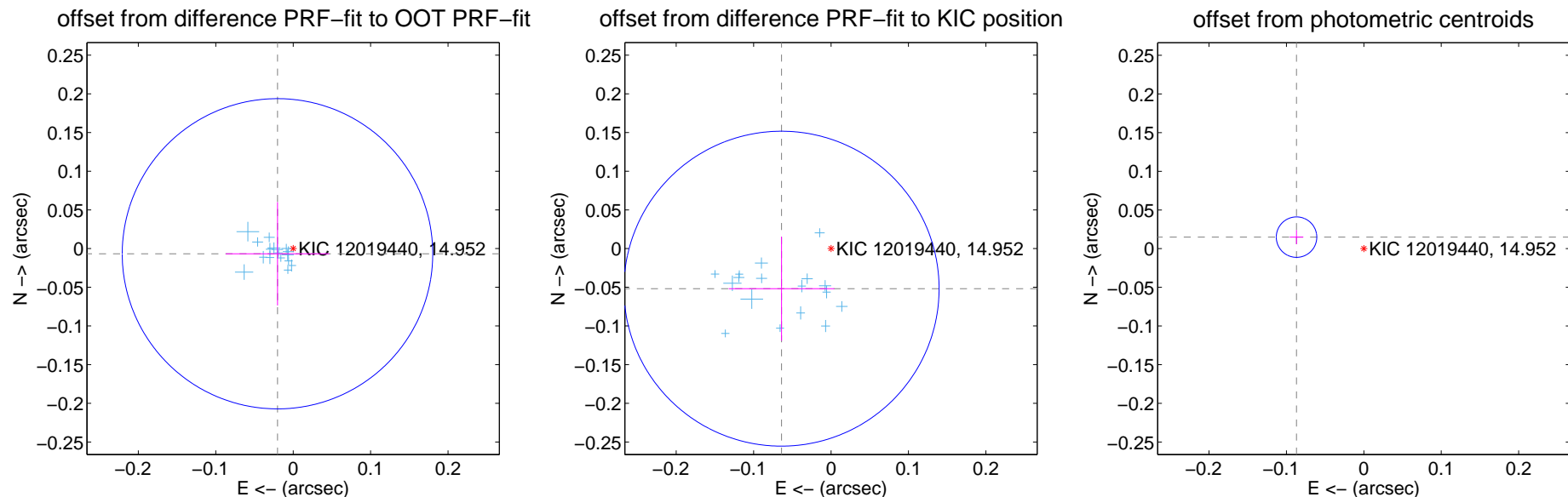
## DV Centroid Data

Supplemental centroid analysis for 012019440-01. Kepler magnitude: 14.95. Transit SNR 1587.16

There are 17 quarters with good PRF difference image offsets

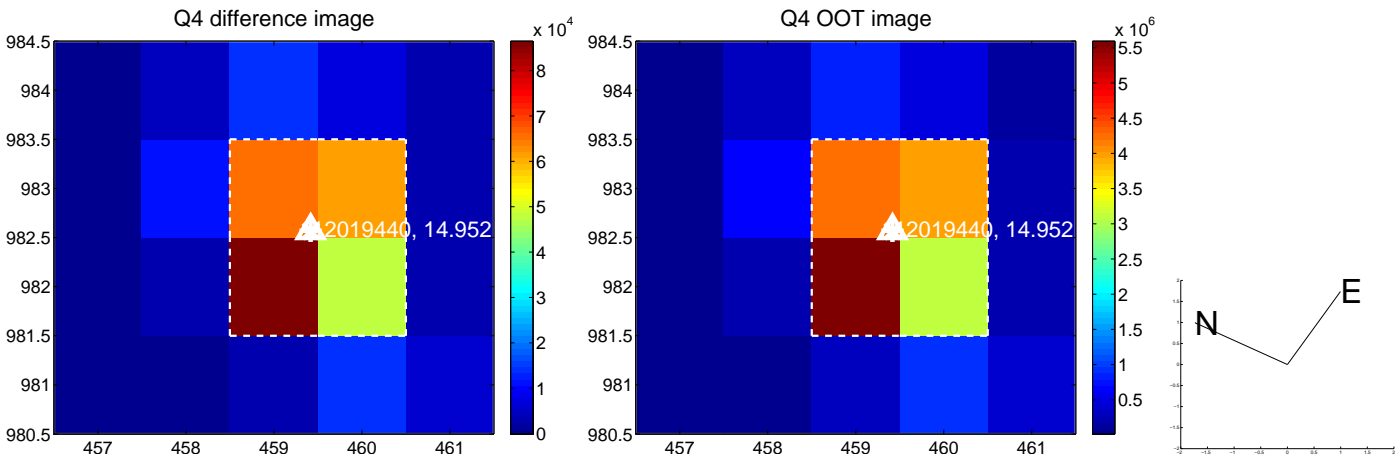
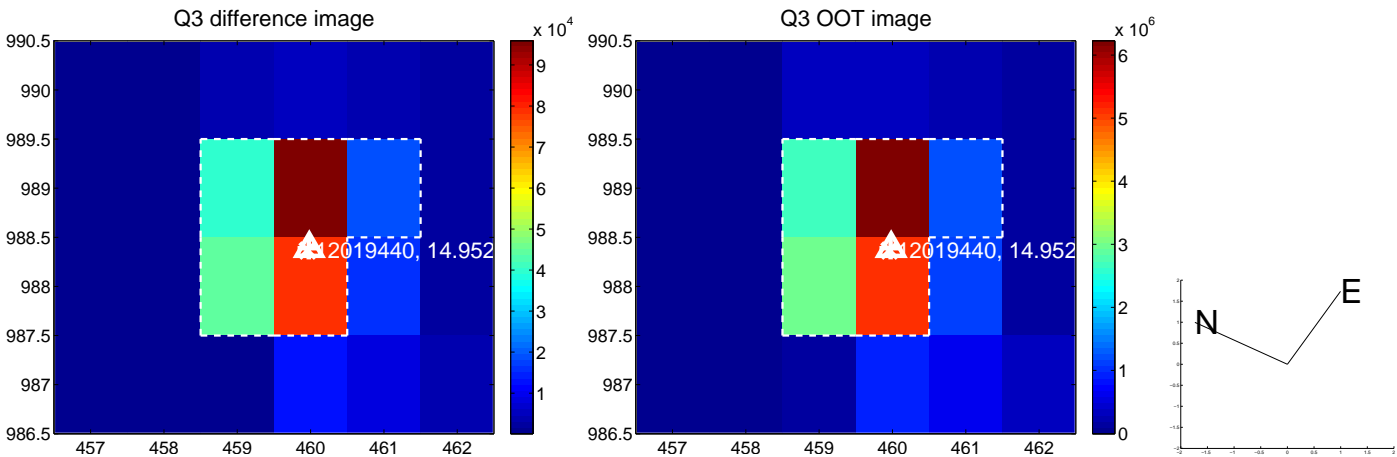
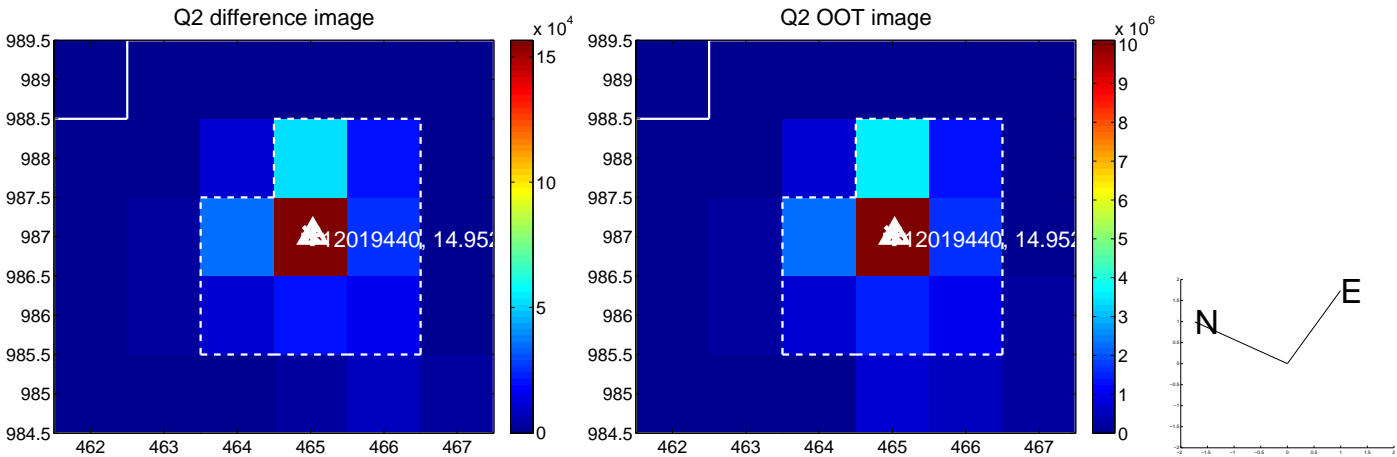
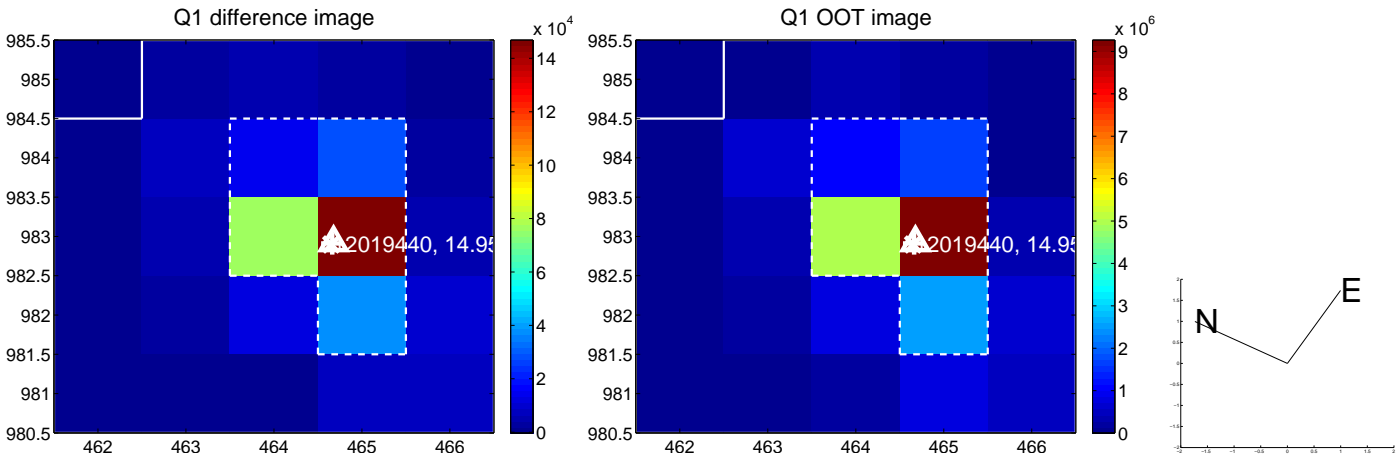
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.021 \pm 0.067$	0.32	$0.020 \pm 0.067$	$-0.007 \pm 0.067$
PRF-fit source offset from KIC position	$0.082 \pm 0.068$	1.21	$0.064 \pm 0.068$	$-0.052 \pm 0.067$
photometric centroid source offset	$0.09 \pm 0.01$	10.12	$0.09 \pm 0.01$	$0.01 \pm 0.01$

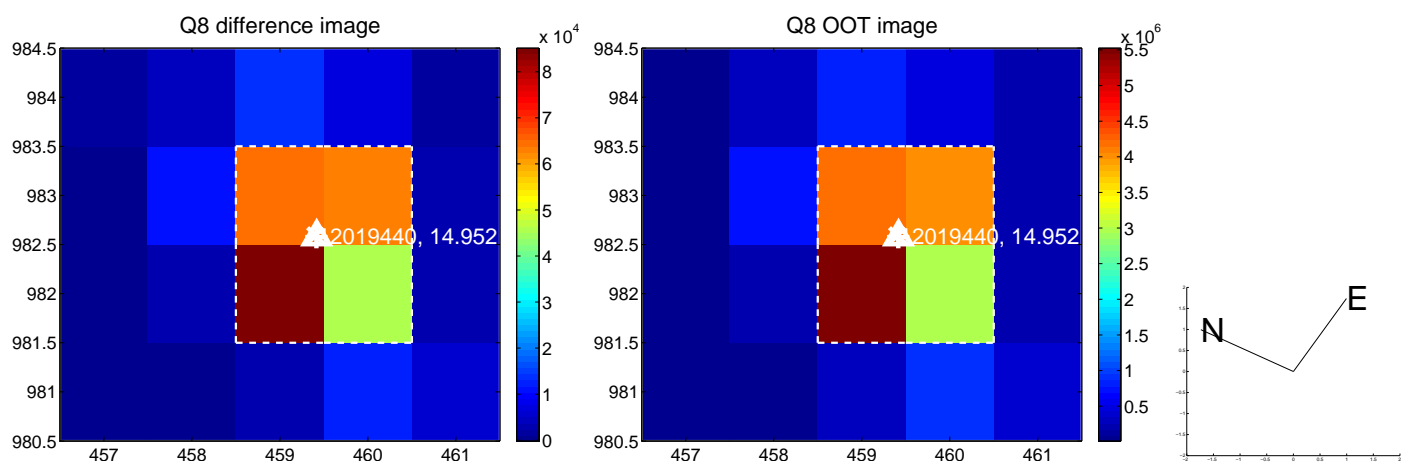
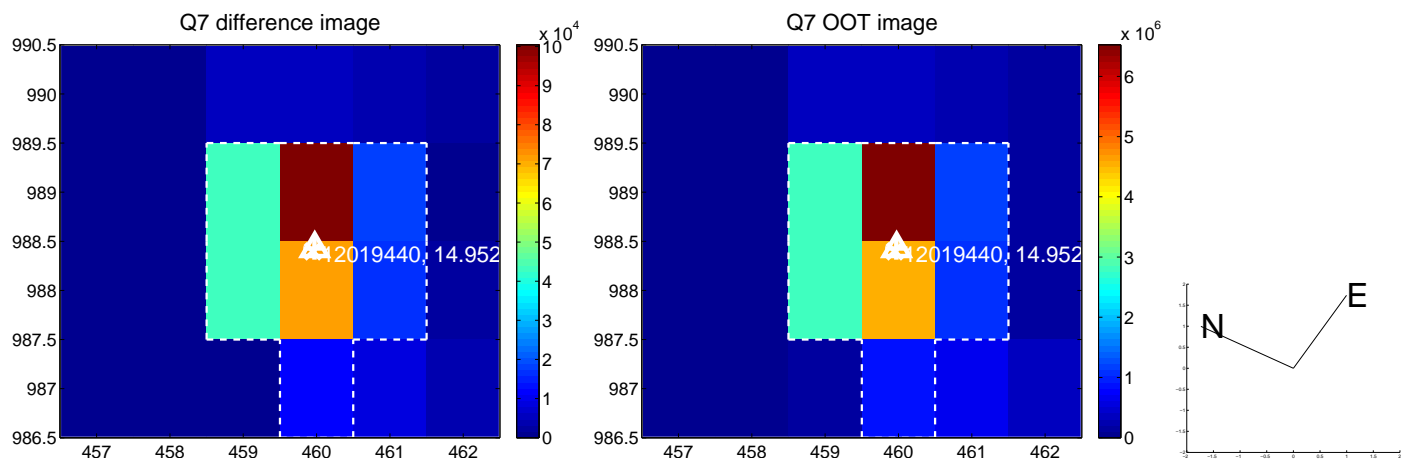
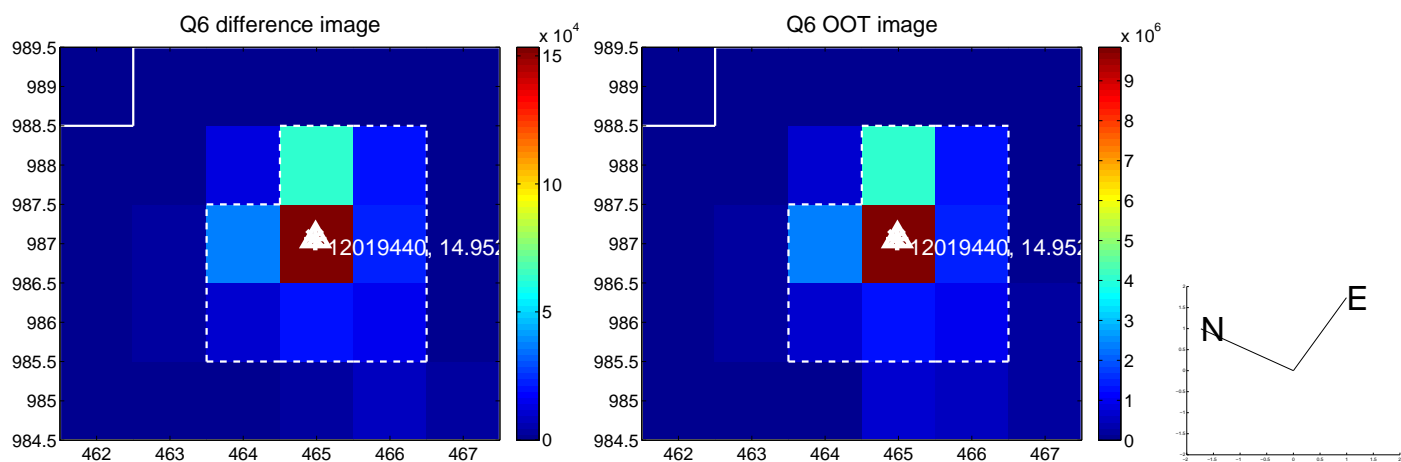
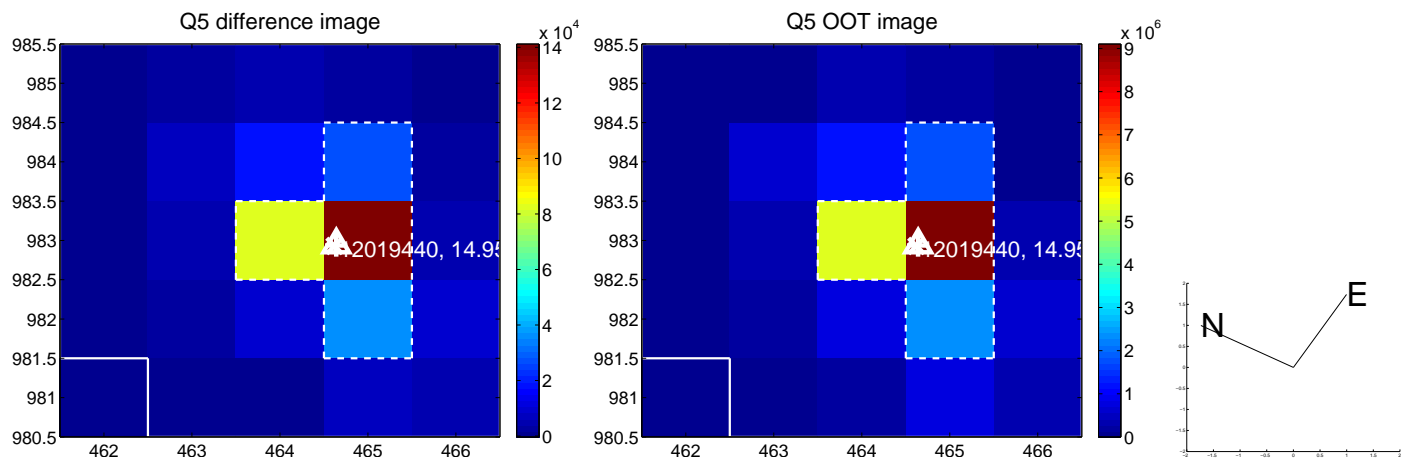


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

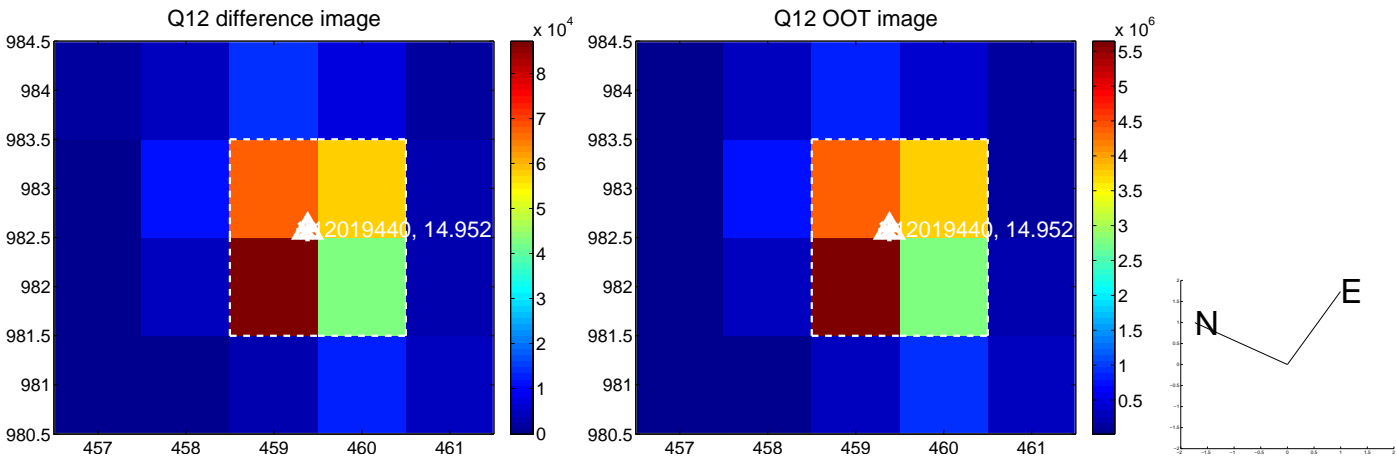
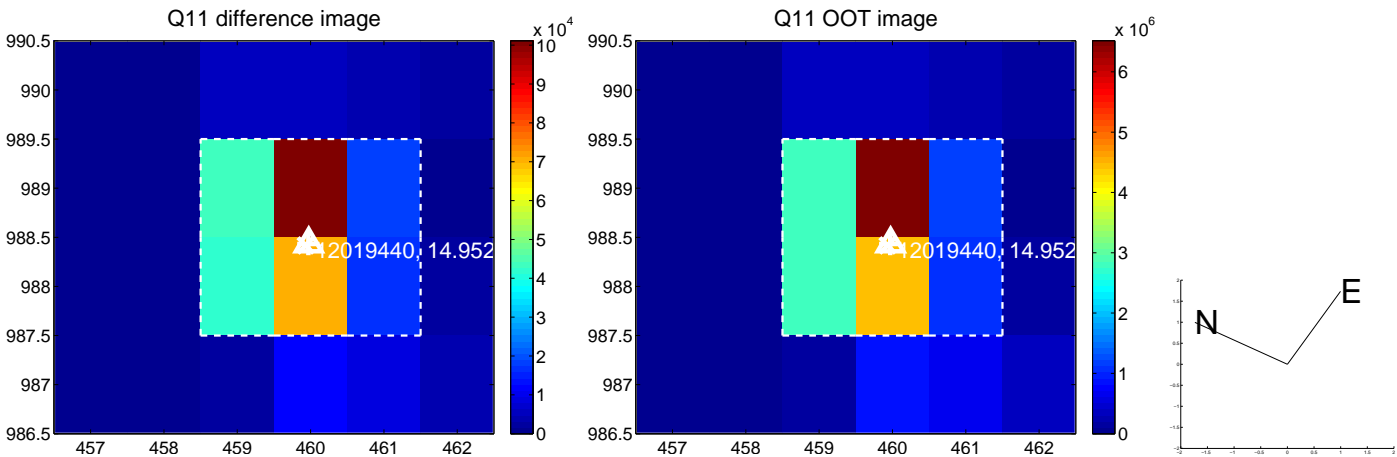
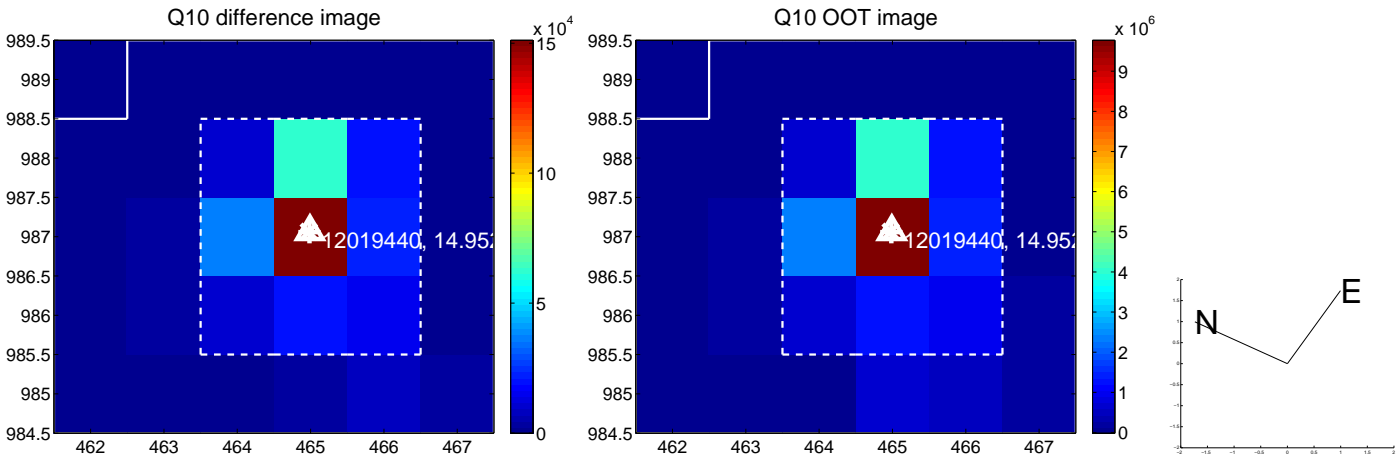
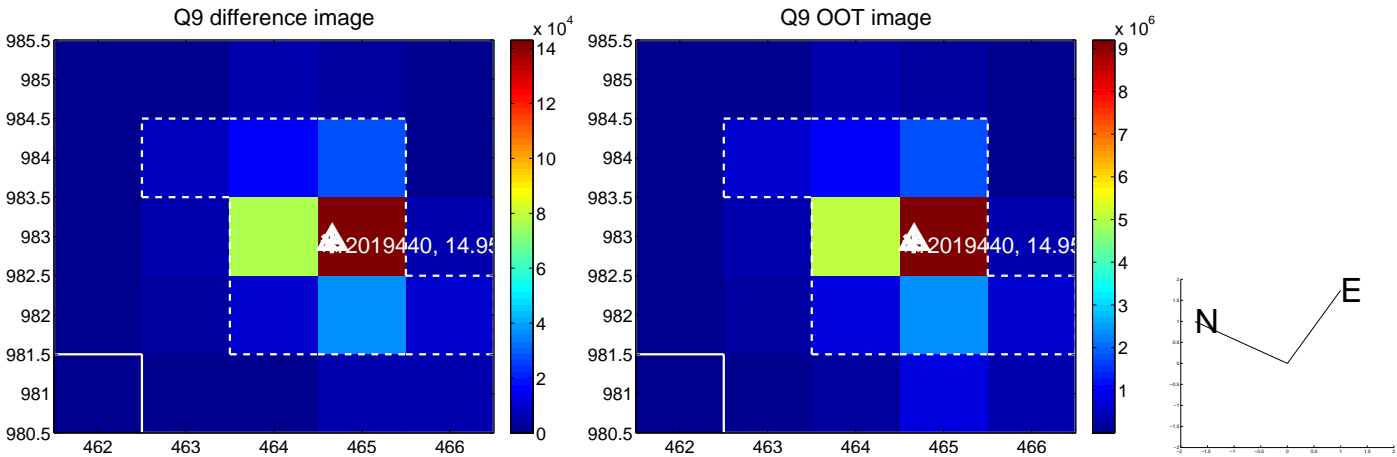


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

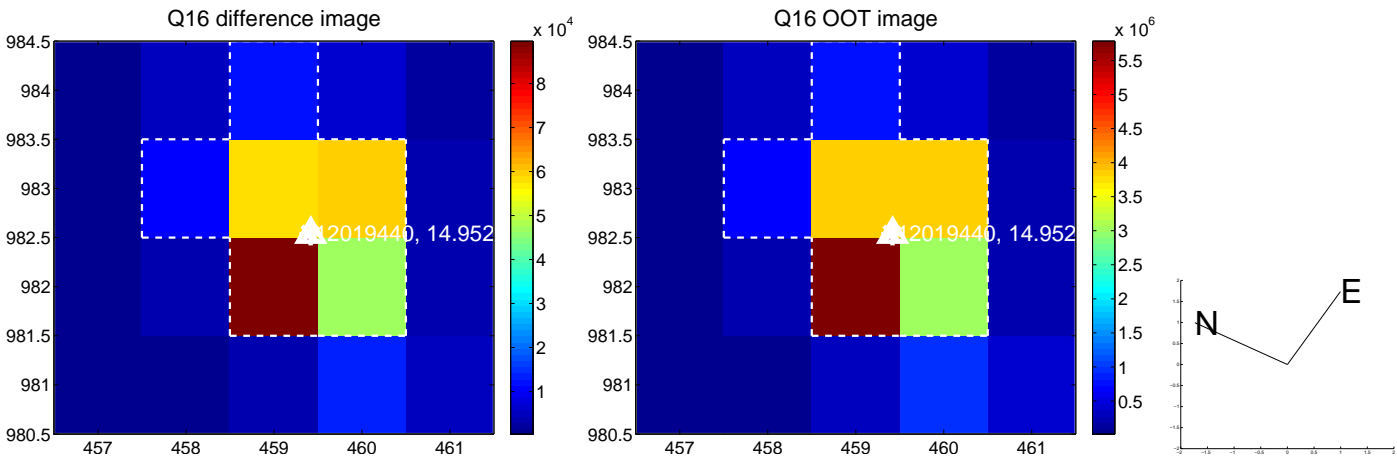
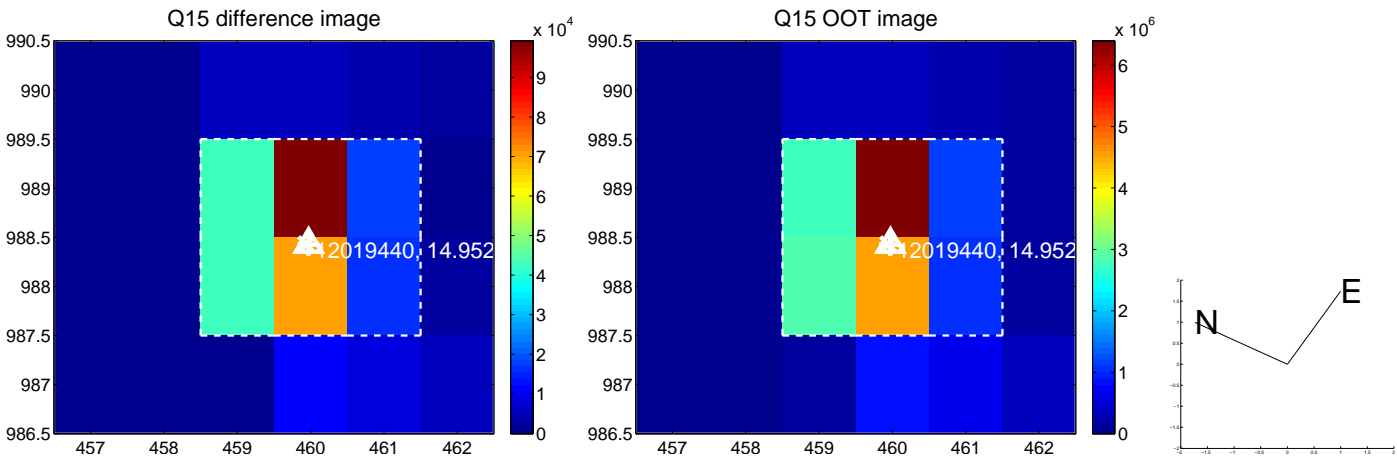
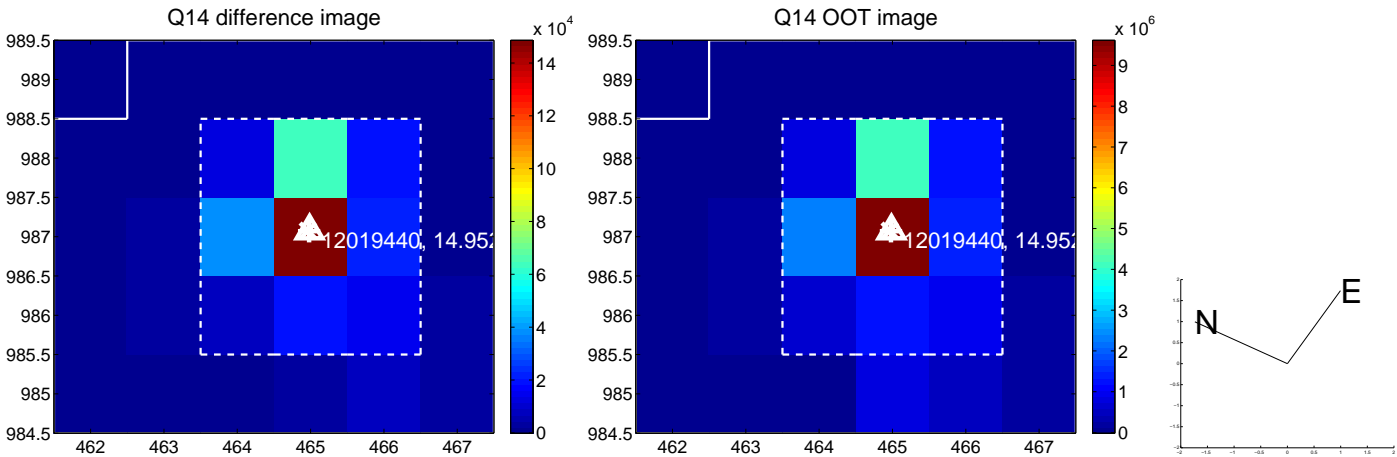
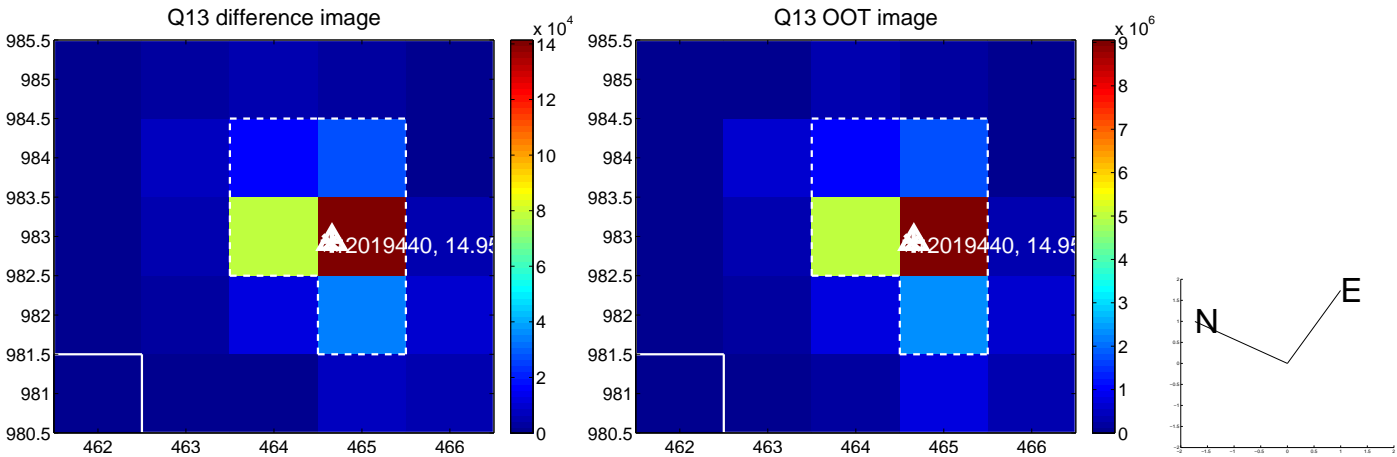




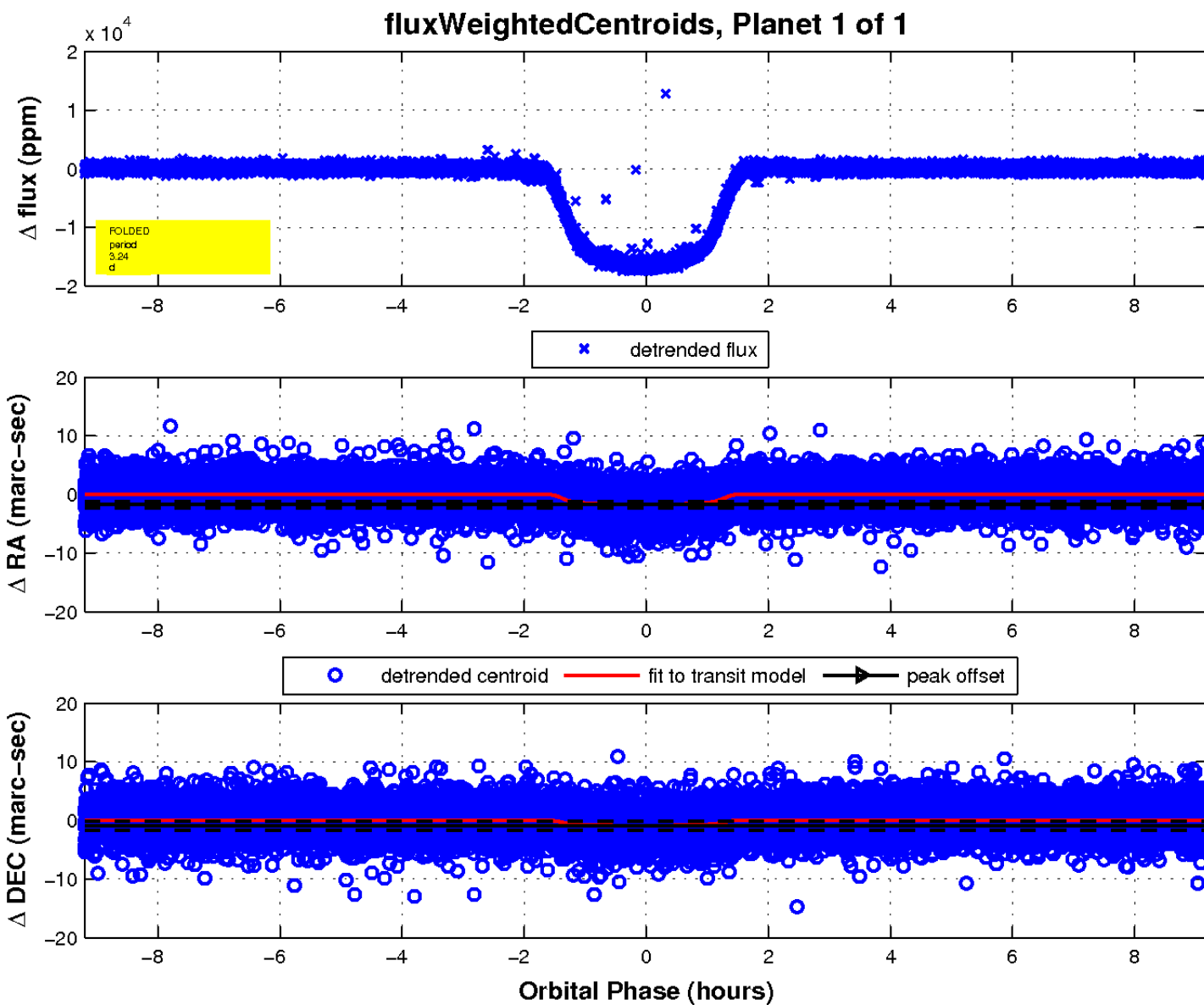
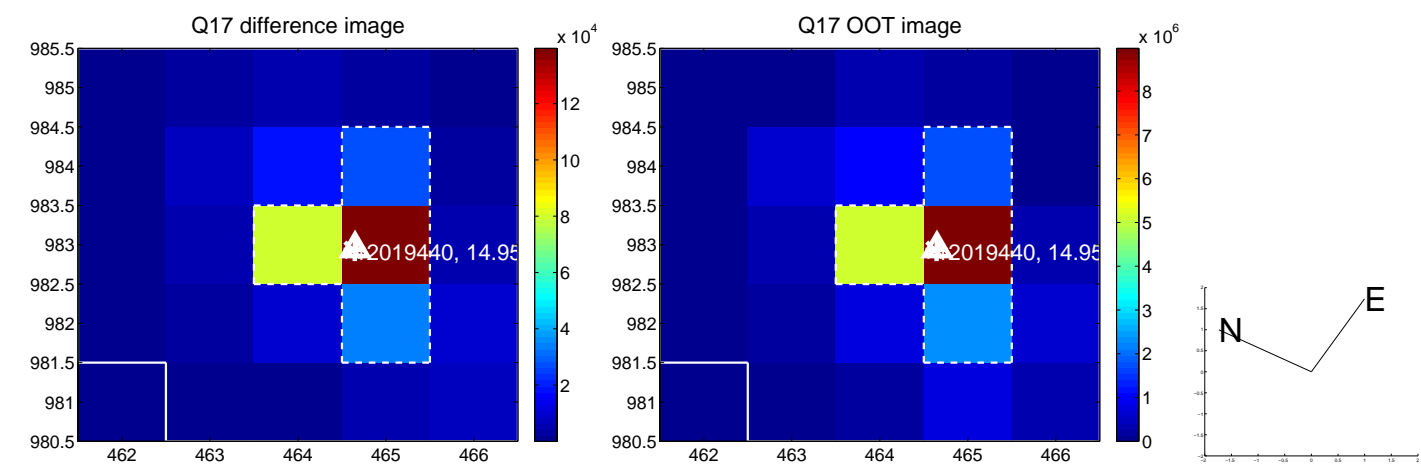
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

