

# KIC 003735634

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003735634-01	OBS	3615.01	4.664197	133.669285	7073.0	4.235	1195.9	529.9	1.22	5699	18.66	525.74

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003735634-01	OBS	FP	0.00	0	1	1	1	MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—CENT_RESOLVED_OFFSET—EPHEM_MATCH

**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 003735634-01

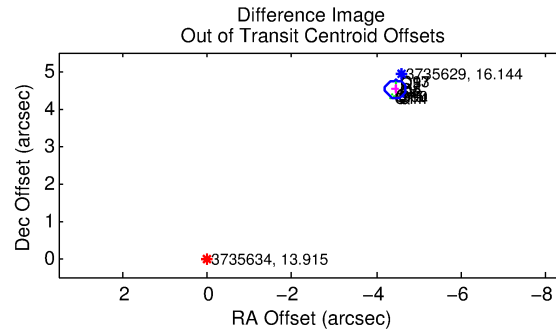
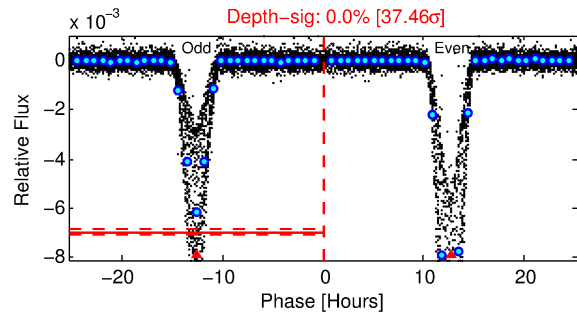
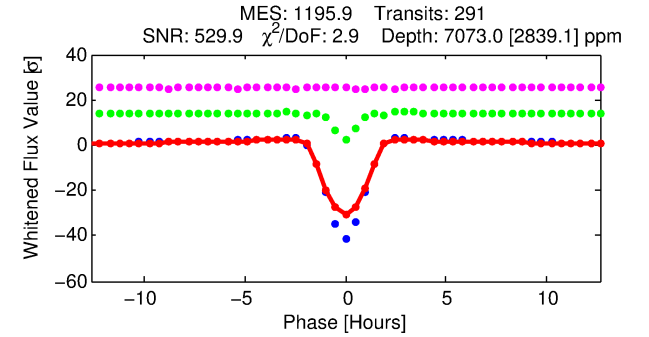
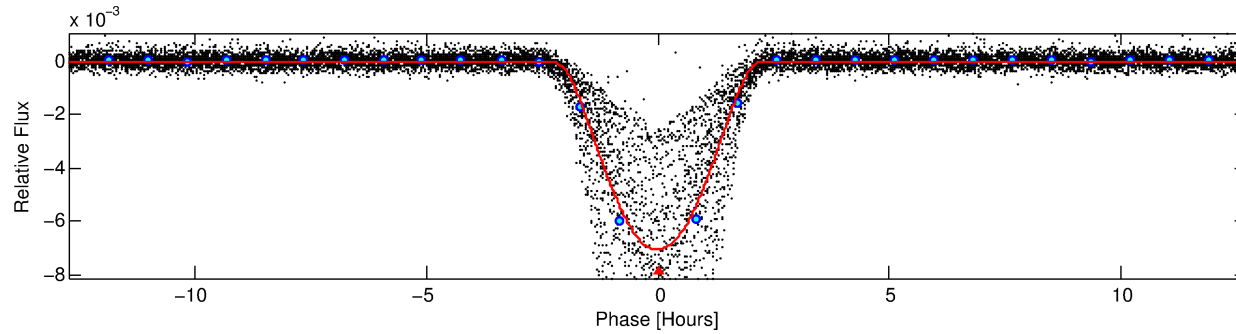
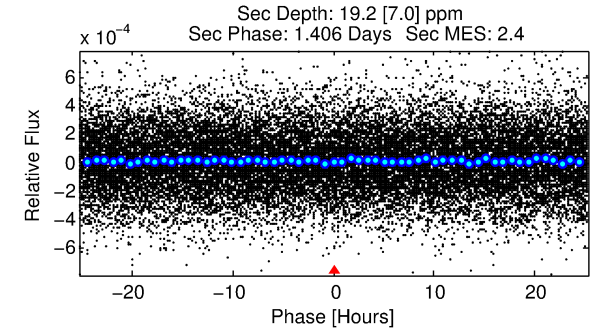
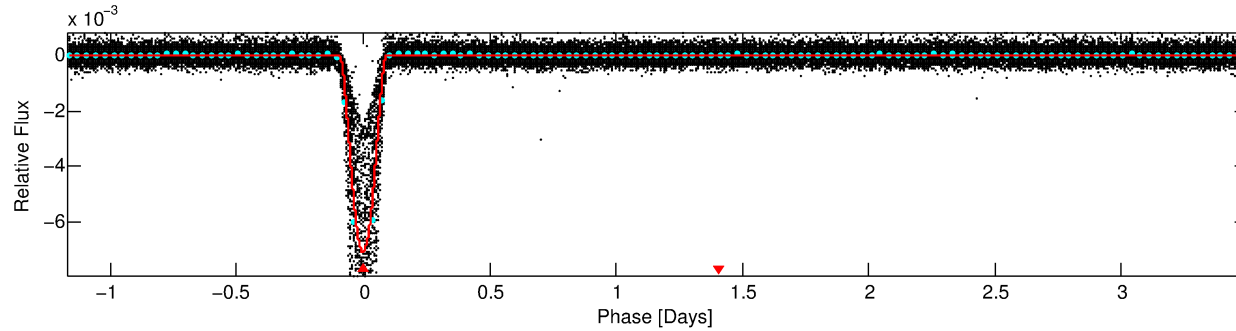
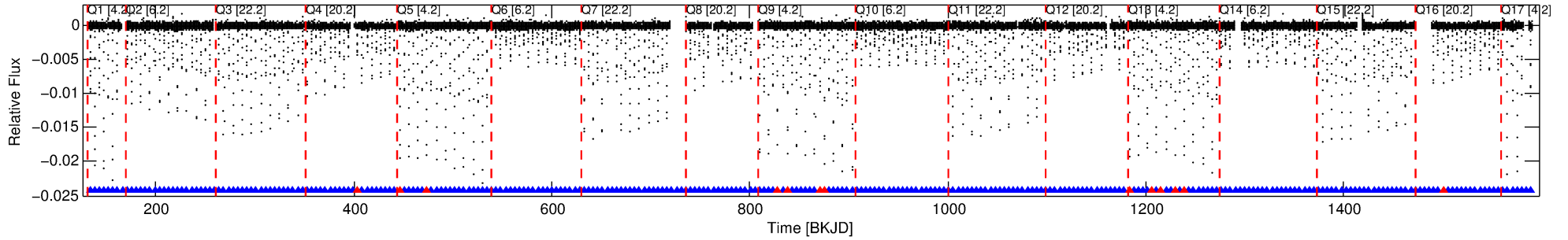
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
003735634-01	3735634	3544.01	3735629	1:1	6.8	0	-2	16.14	13.91	86.15	Direct-PRF	0	0.12	0.07

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 3735634 Candidate: 1 of 1 Period: 4.664 d  
KOI: K03615.01 Corr: 0.990

Kp: 13.91 R\*: 1.22 Rs Teff: 5699.0 K Logg: 4.19 Fe/H: -0.300



## DV Fit Results:

Period = 4.66420 [0.00000] d  
Epoch = 133.6693 [0.0002] BKJD  
Rp/R\* = 0.1407 [0.0147]  
a/R\* = 4.74 [0.07]  
b = 1.00 [0.02]  
Seff = 525.74 [275.86]  
Teq = 1221 [160] K  
Rp = 18.66 [5.93] Re  
a = 0.0515 [0.0159] AU  
Ag = 0.08 [0.05] [-17.21σ]  
Teffp = 1006 [110] K [-1.11σ]

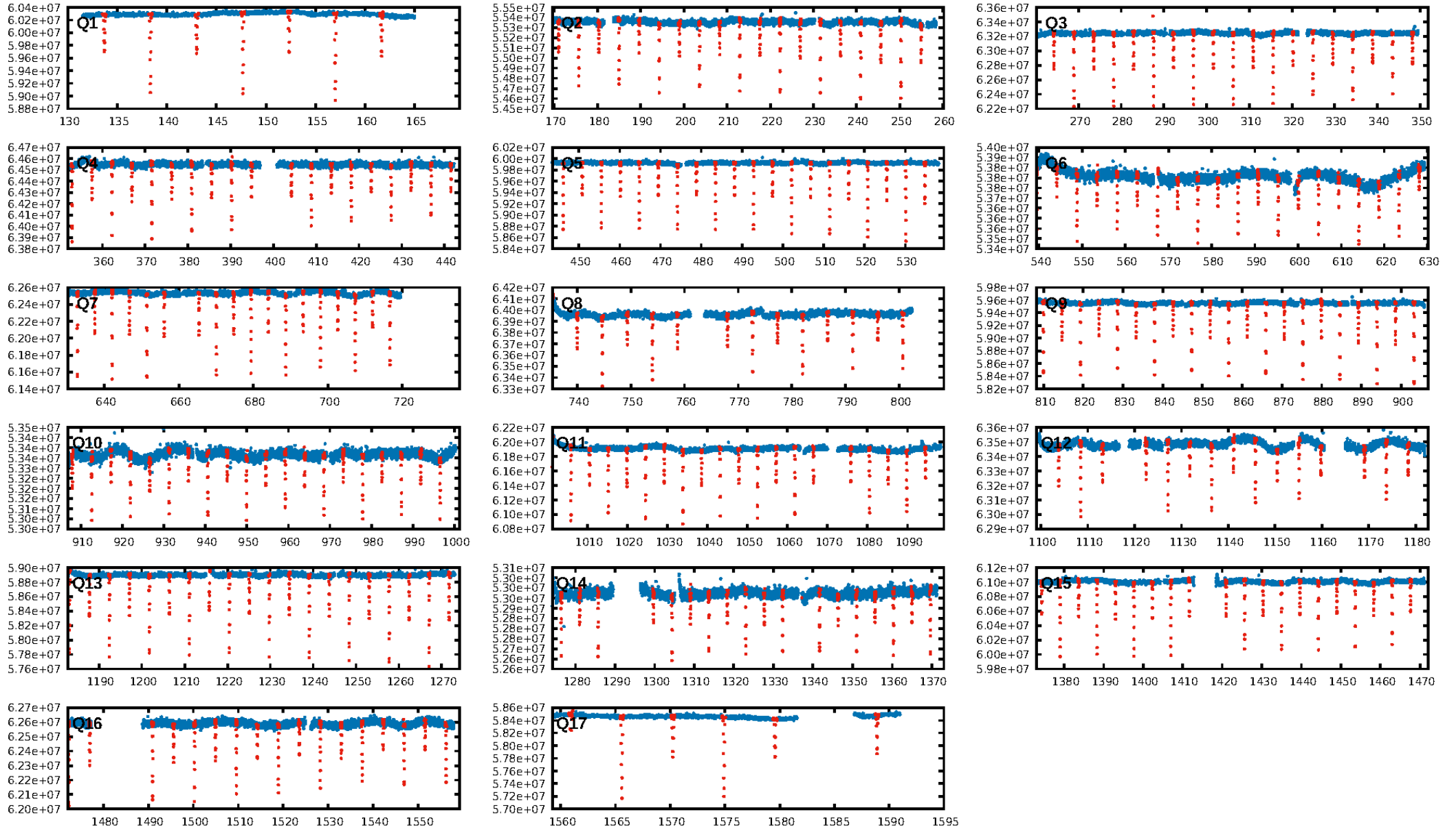
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.95 [265/278]  
GhostDiagnostic-chr: -0.2531  
Centroid-sig: 0.0%  
Centroid-so: 24.321 arcsec [1644.56σ]  
OotOffset-rm: 6.334 arcsec [78.99σ]  
KicOffset-rm: 6.696 arcsec [80.08σ]  
OotOffset-st: 4/4/0/5 [13]  
KicOffset-st: 4/4/0/5 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [17/17]

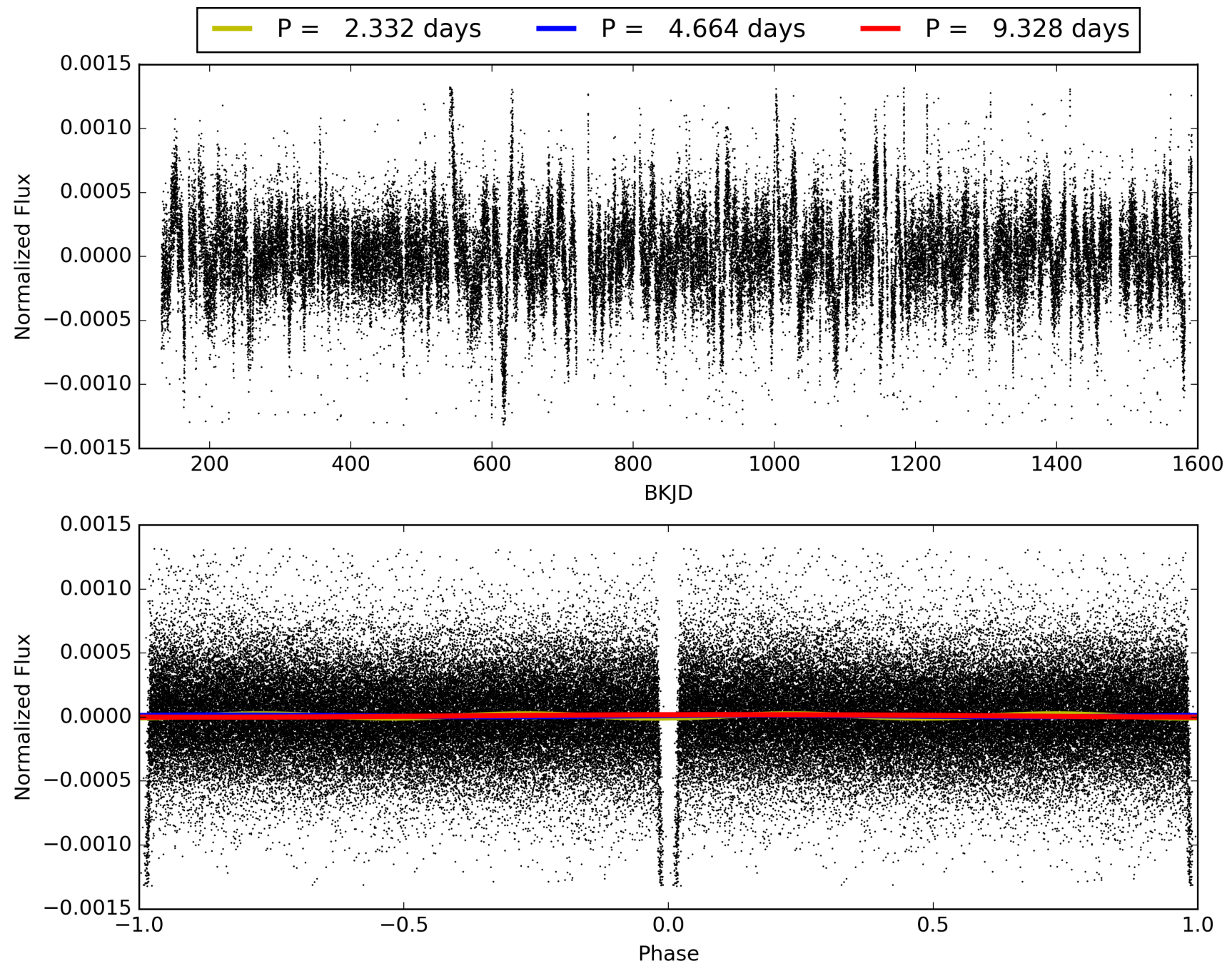
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:31:28 Z

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

# TCE 003735634-01, PDC Light Curves

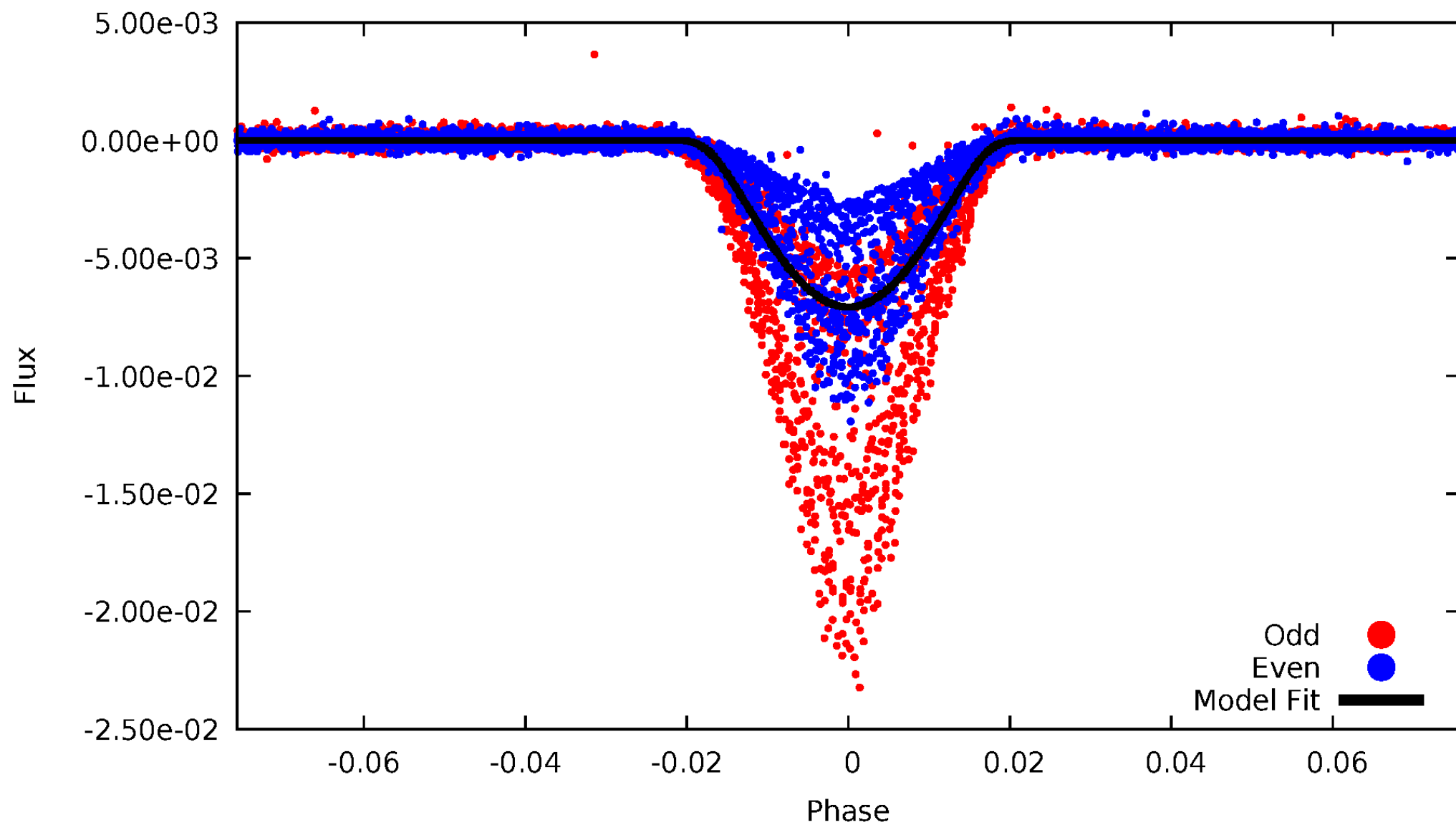


TCE 003735634-01



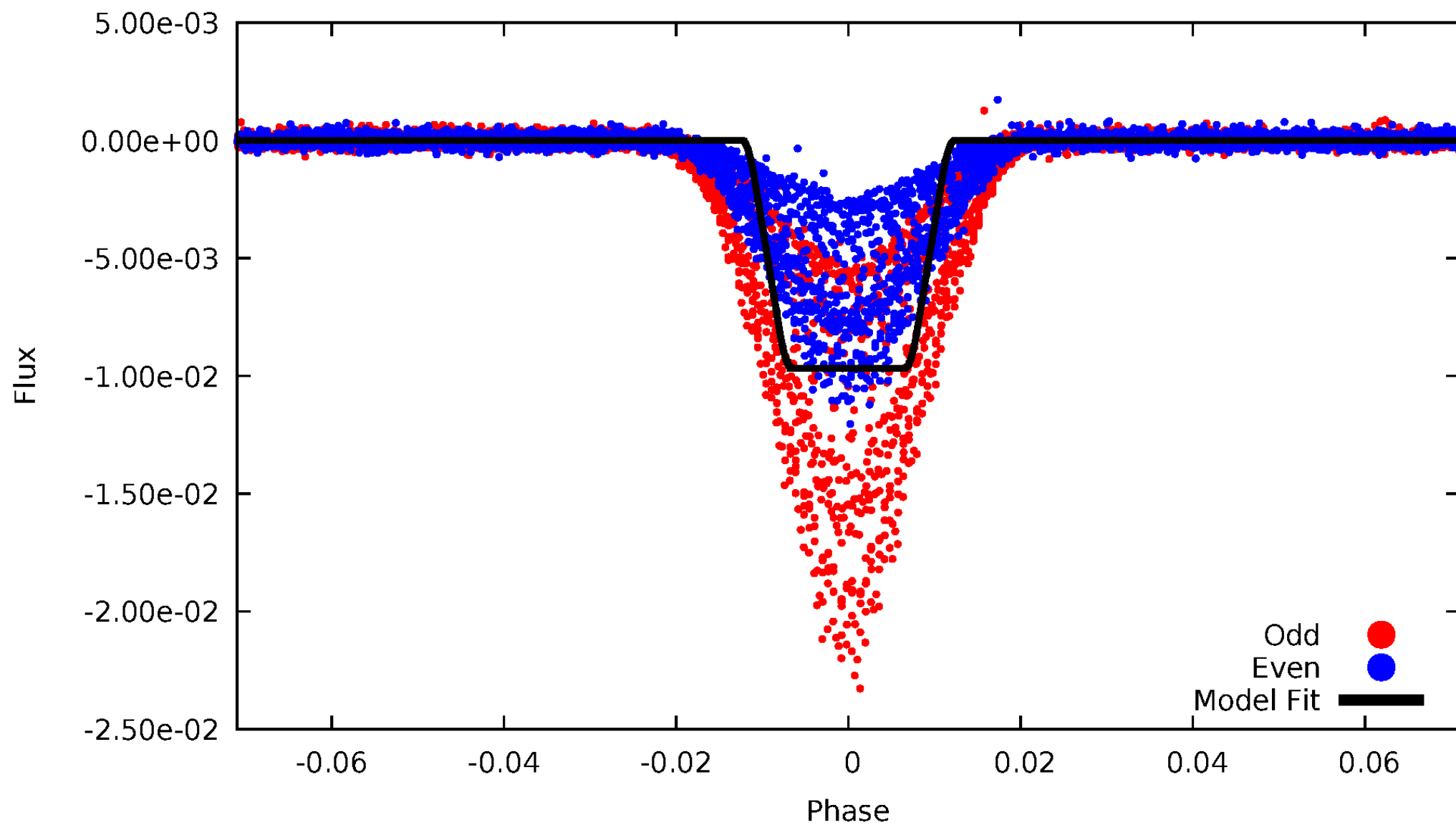
# DV Odd/Even

TCE 003735634-01



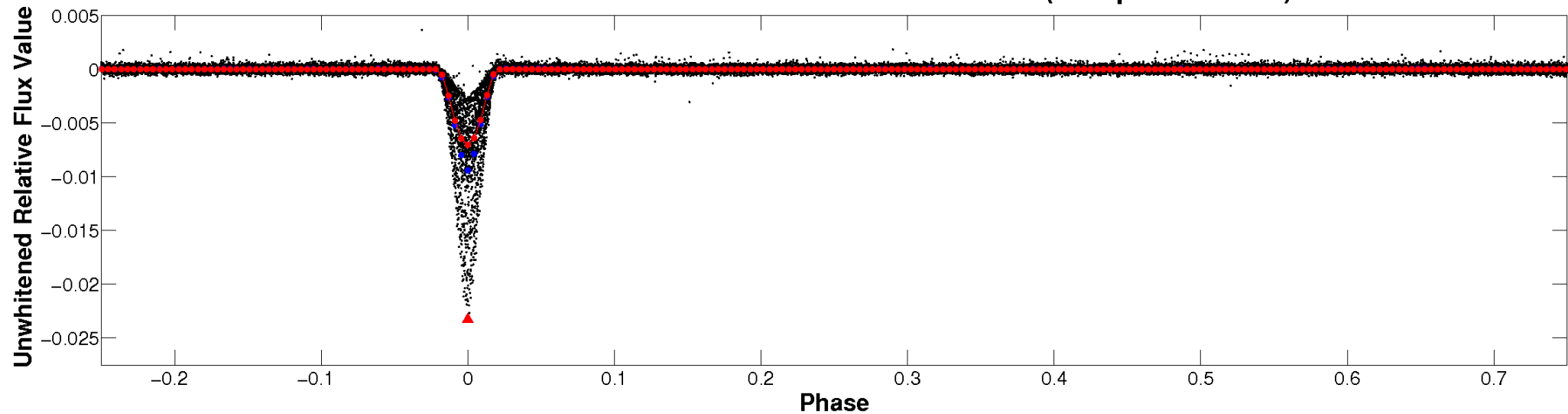
# ALT Odd/Even

TCE 003735634-01

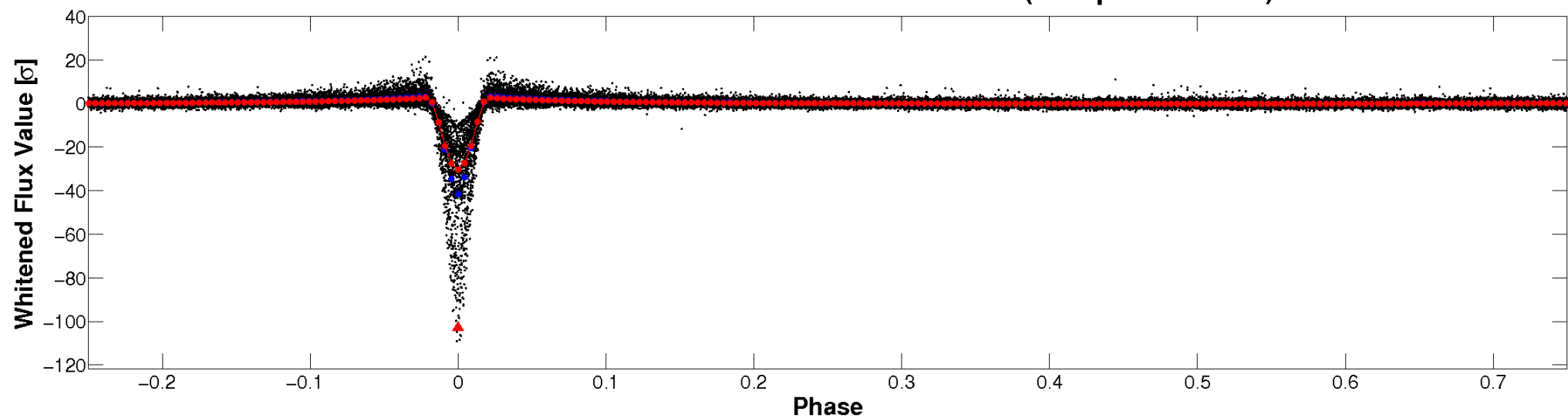


# Non-Whitened Vs. Whitened Light Curve

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



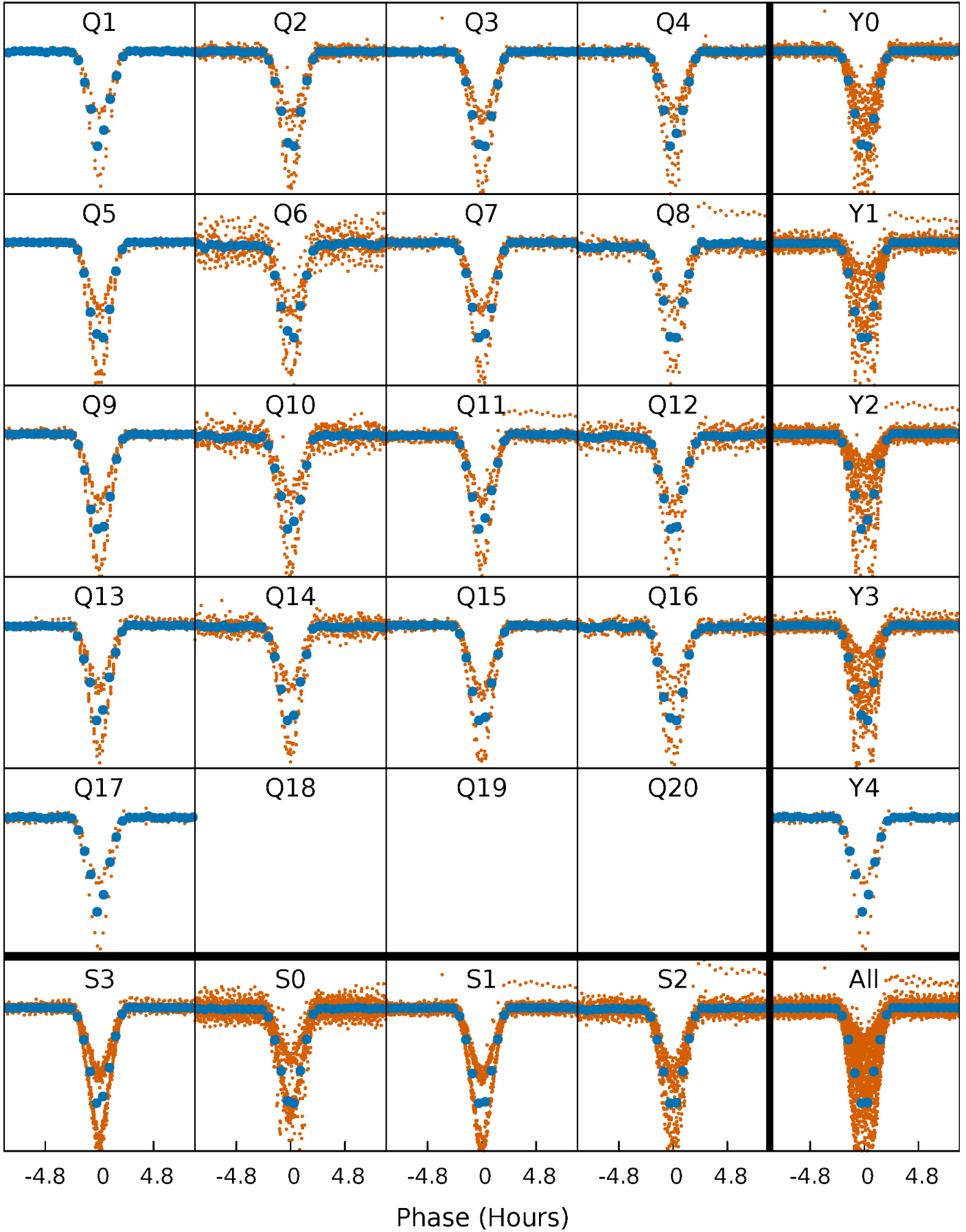
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

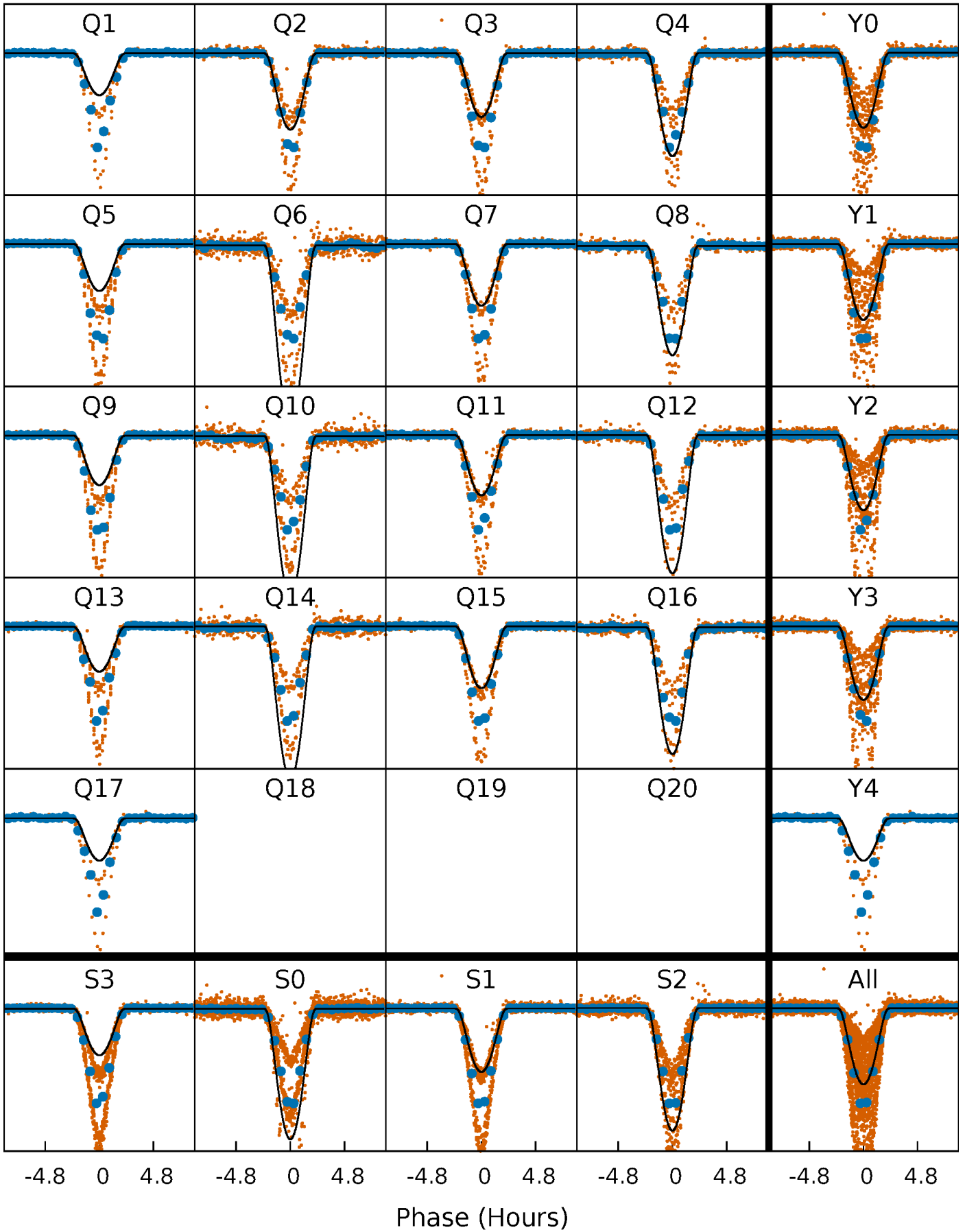
TCE 003735634-01 P= 4.664197 Days  $T_0=133.669285$  (BKJD)





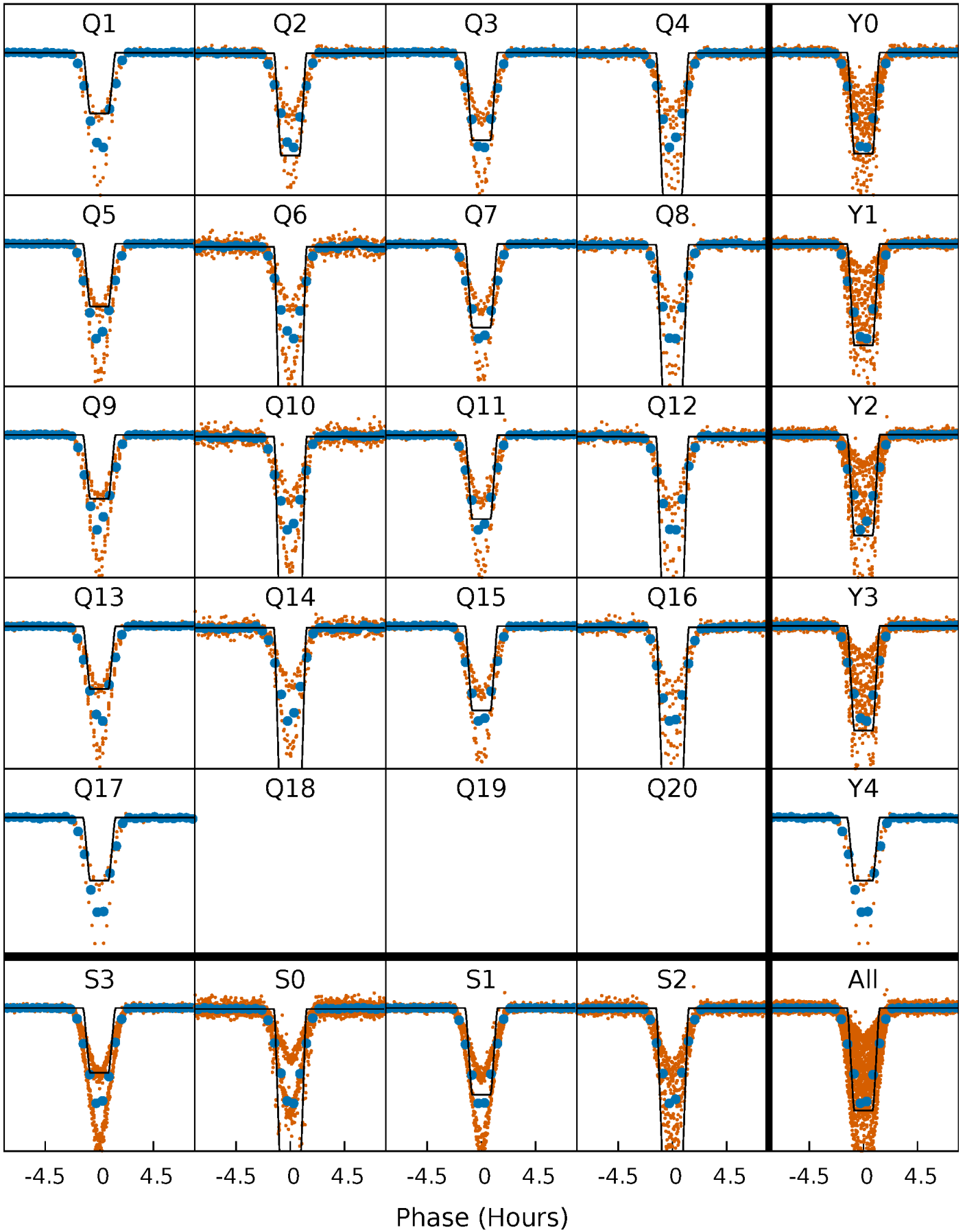
# DV Quarter-Phased Transit Curves

TCE 003735634-01 P= 4.664197 Days  $T_0=133.669285$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

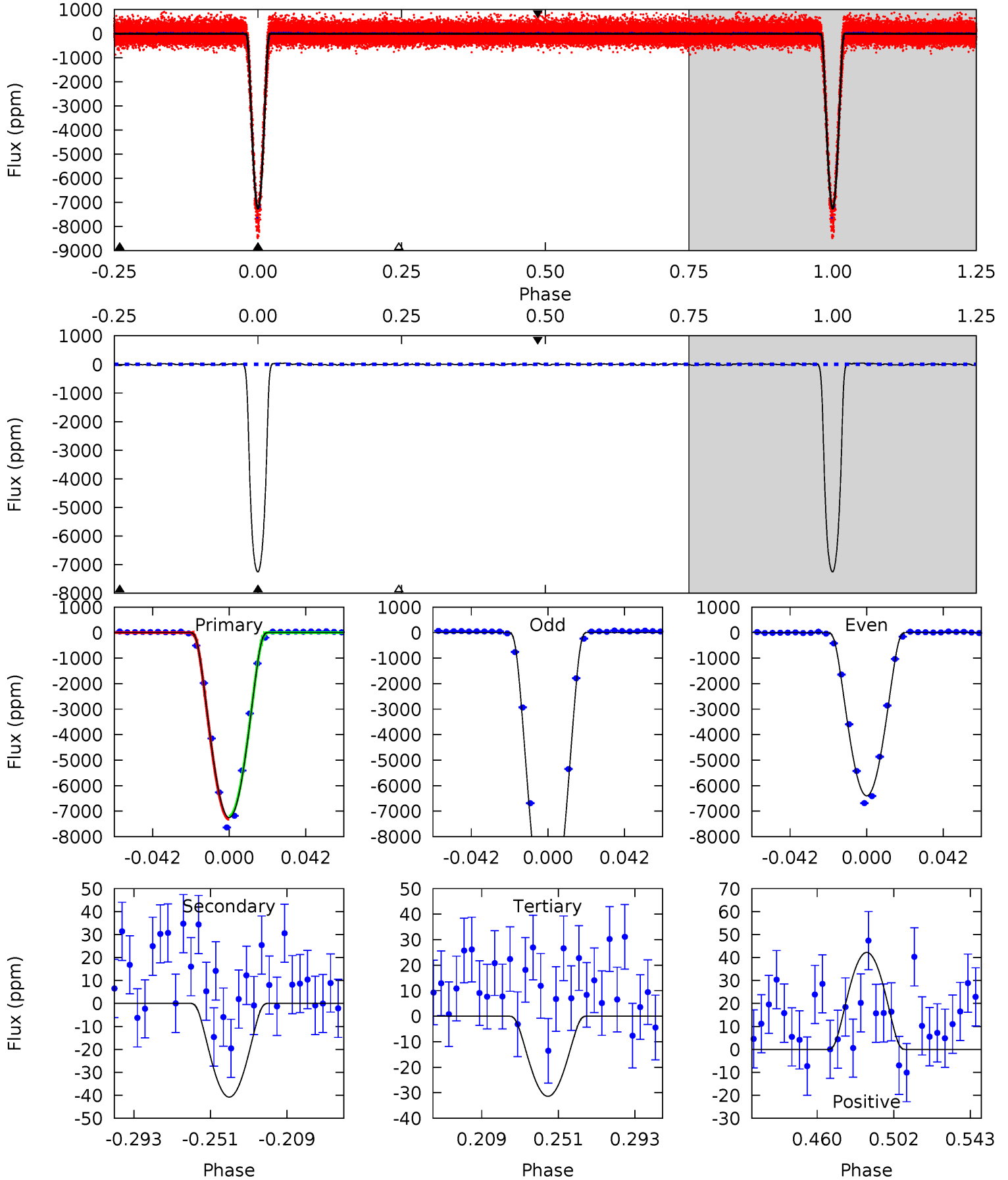
TCE 003735634-01 P= 4.664189 Days  $T_0=133.670133$  (BKJD)



# DV Model-Shift Uniqueness Test

003735634-01, P = 4.664197 Days, E = 129.005088 Days

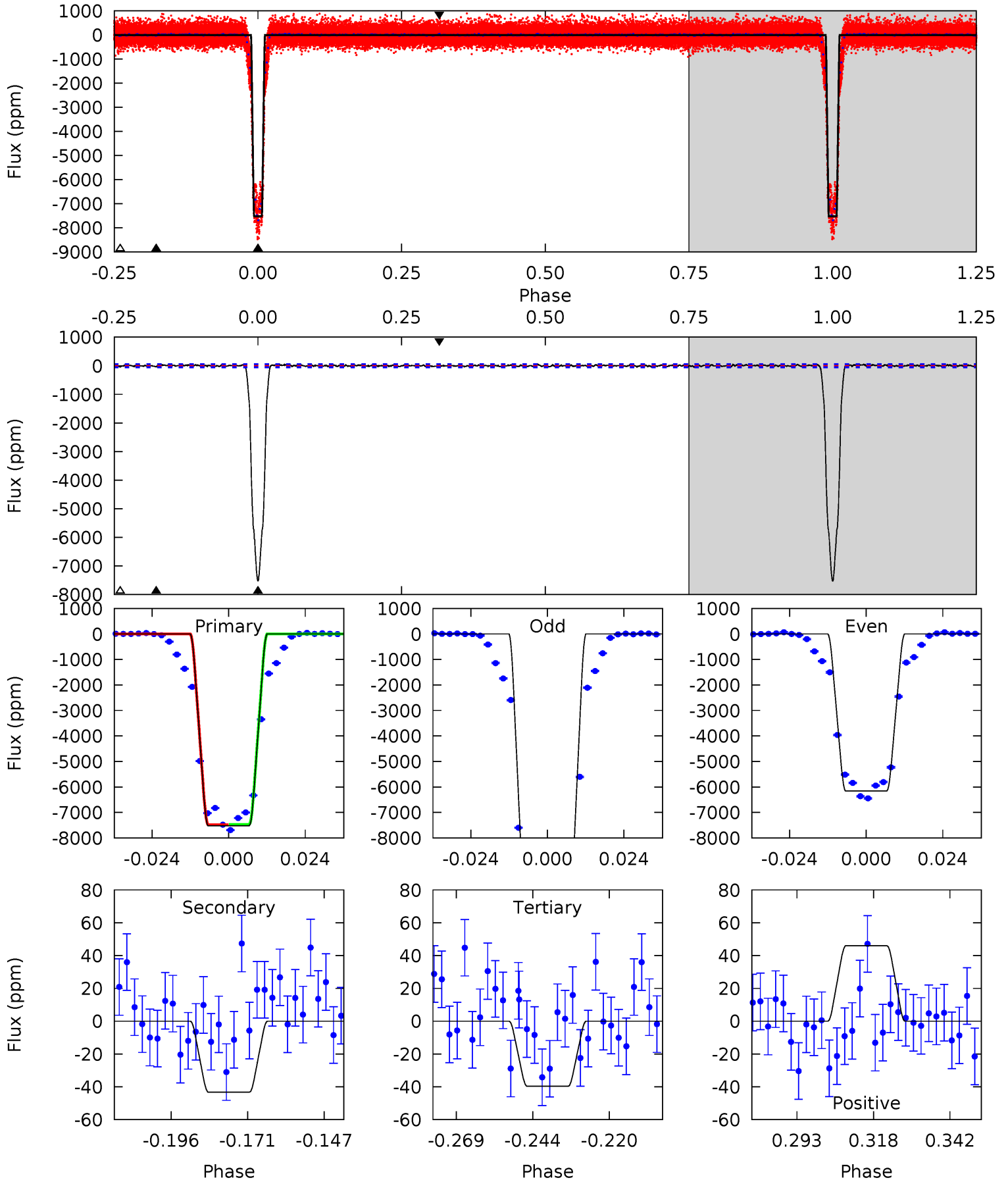
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1237	6.96	5.36	7.20	4.74	2.04	2.48	1232	1230	1.60	-0.24	457.9	1.17	0.01	0



# Alt Model-Shift Uniqueness Test

003735634-01, P = 4.664189 Days, E = 129.005944 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
664.1	3.82	3.50	4.06	4.85	2.25	1.31	660.6	660.0	0.32	-0.24	218.5	1.17	0.01	0.38



### Stellar Parameters For KIC 003735634

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5699^{+172}_{-155}$	$4.192^{+0.306}_{-0.204}$	$-0.300^{+0.300}_{-0.250}$	$1.215^{+0.365}_{-0.365}$	$0.838^{+0.130}_{-0.070}$	$0.658^{+1.254}_{-0.328}$
	+3%/-3%	+7%/-5%	+100%/-83%	+30%/-30%	+16%/-8%	+191%/-50%
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 003735634-01 / KOI 3615.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-41 \pm 6$	$18.52^{+3.74}_{-3.80}$	$1694^{+156}_{-155}$	$-2092^{+368}_{-158}$	$0.176^{+0.100}_{-0.055}$
Alt.	$-43 \pm 11$	$12.90^{+3.25}_{-2.82}$	$1690^{+152}_{-145}$	$1998^{+291}_{-4019}$	$0.383^{+0.263}_{-0.157}$

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

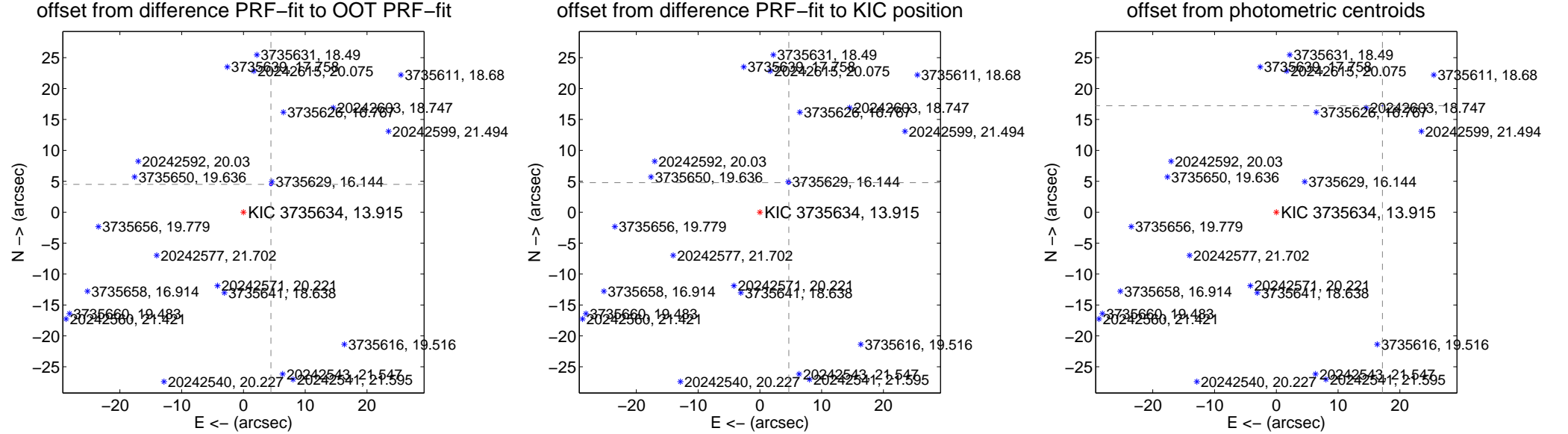
## DV Centroid Data

Supplemental centroid analysis for 003735634-01. Kepler magnitude: 13.91. Transit SNR 529.93

There are 13 quarters with good PRF difference image offsets

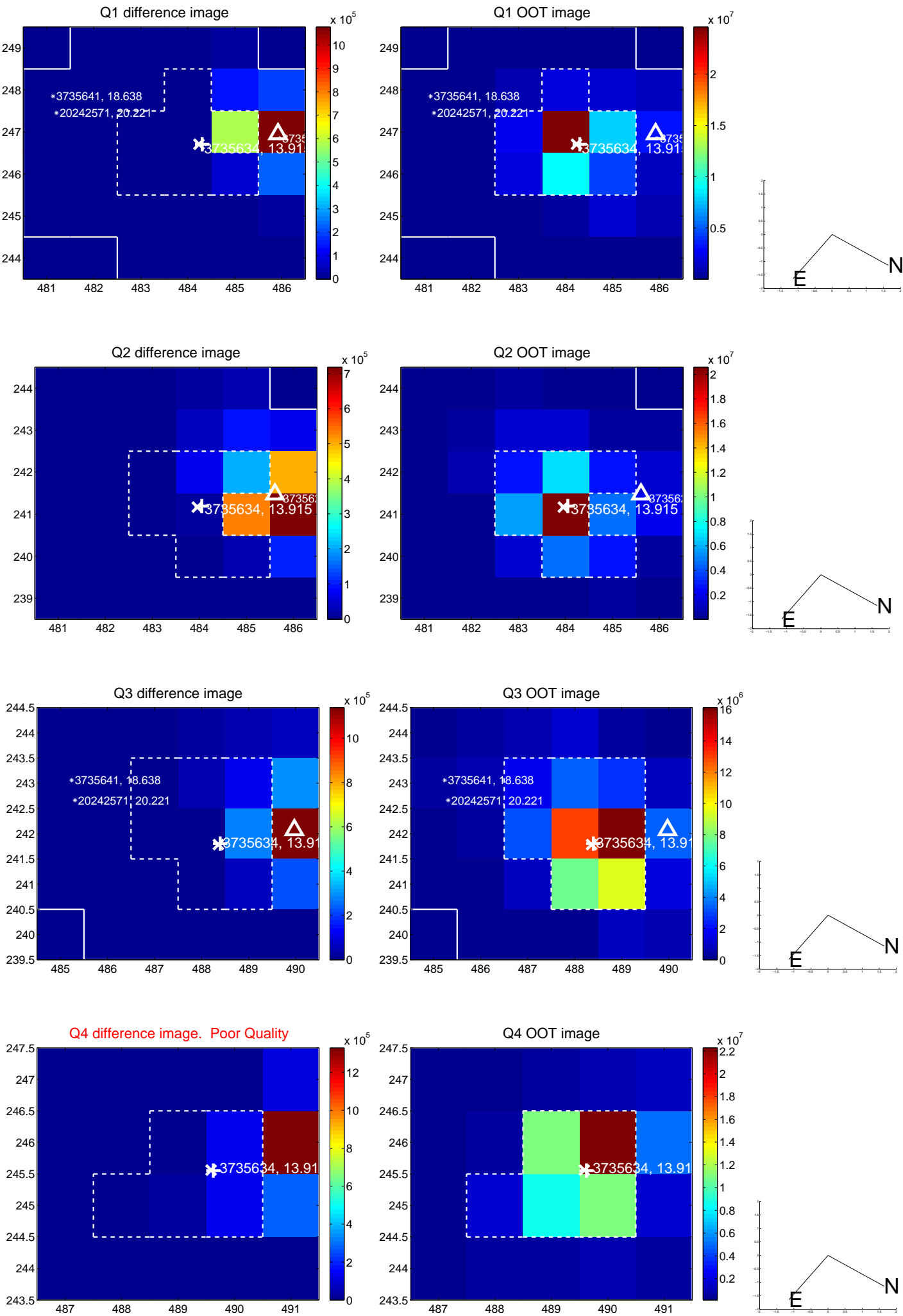
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	6.334 $\pm$ 0.080	78.99	-4.447 $\pm$ 0.067	4.511 $\pm$ 0.091
PRF-fit source offset from KIC position	6.696 $\pm$ 0.084	80.08	-4.681 $\pm$ 0.071	4.788 $\pm$ 0.088
photometric centroid source offset	24.32 $\pm$ 0.01	1644.55	-17.18 $\pm$ 0.01	17.22 $\pm$ 0.02



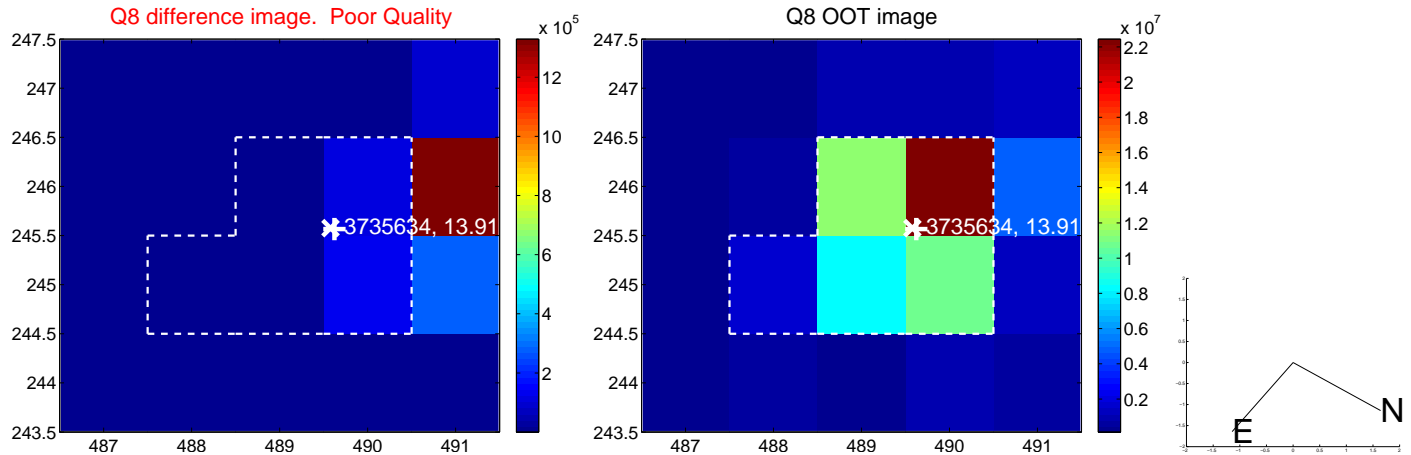
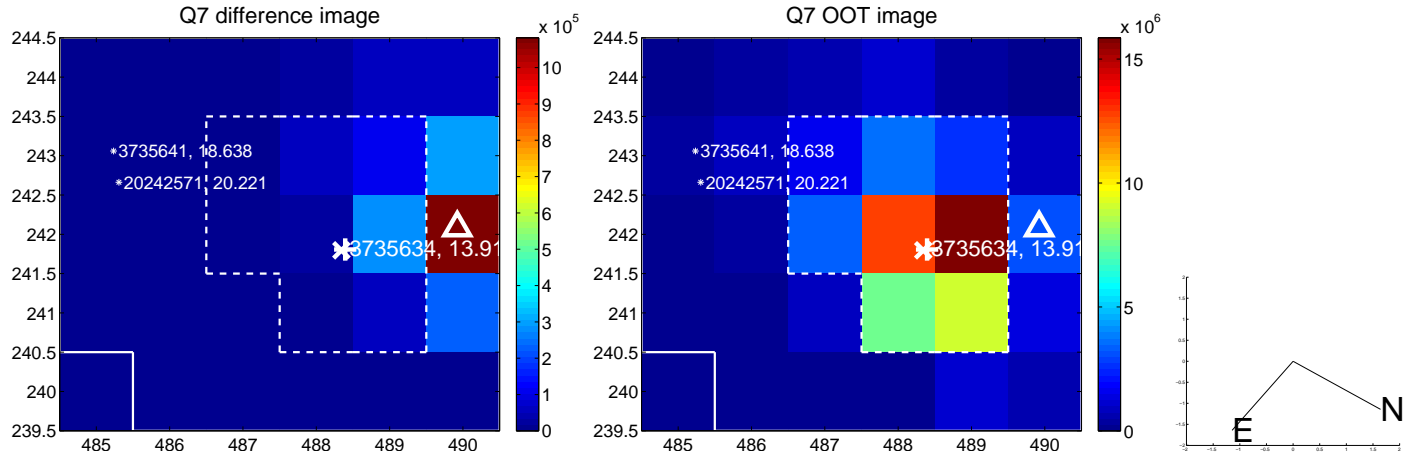
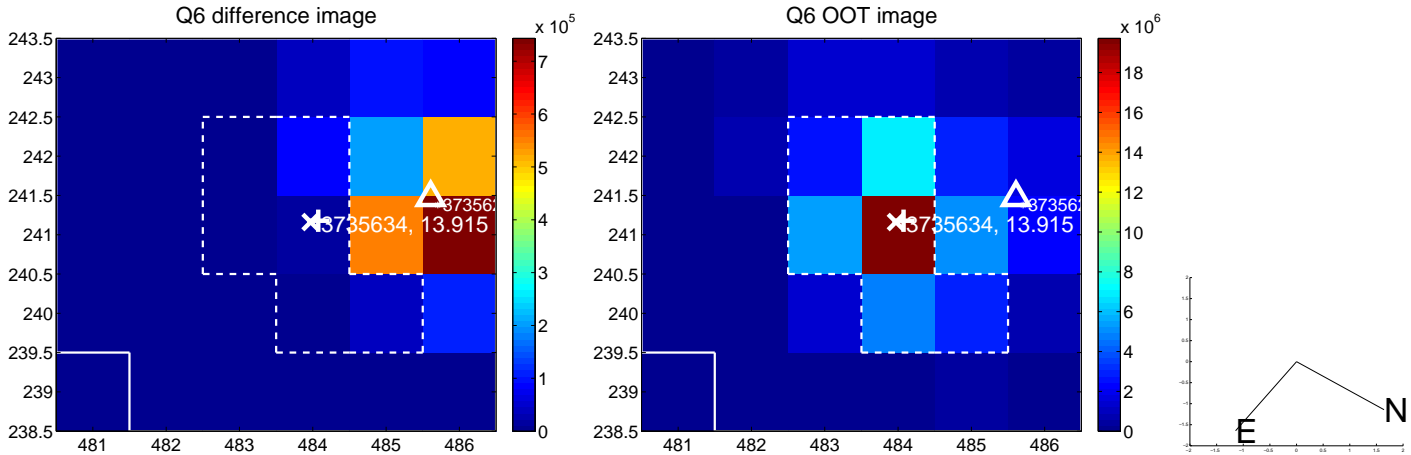
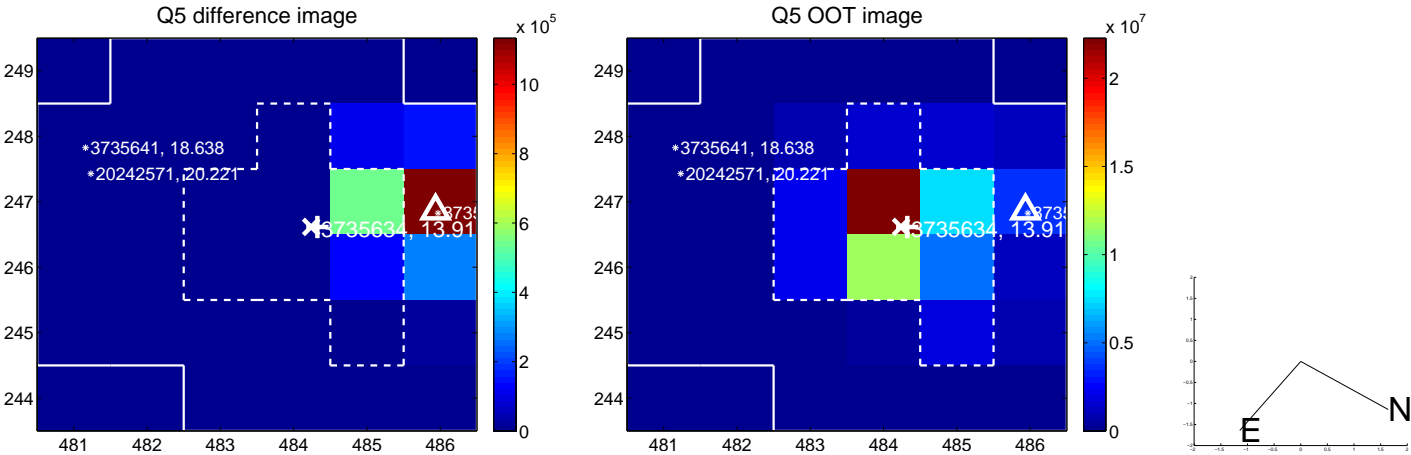
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

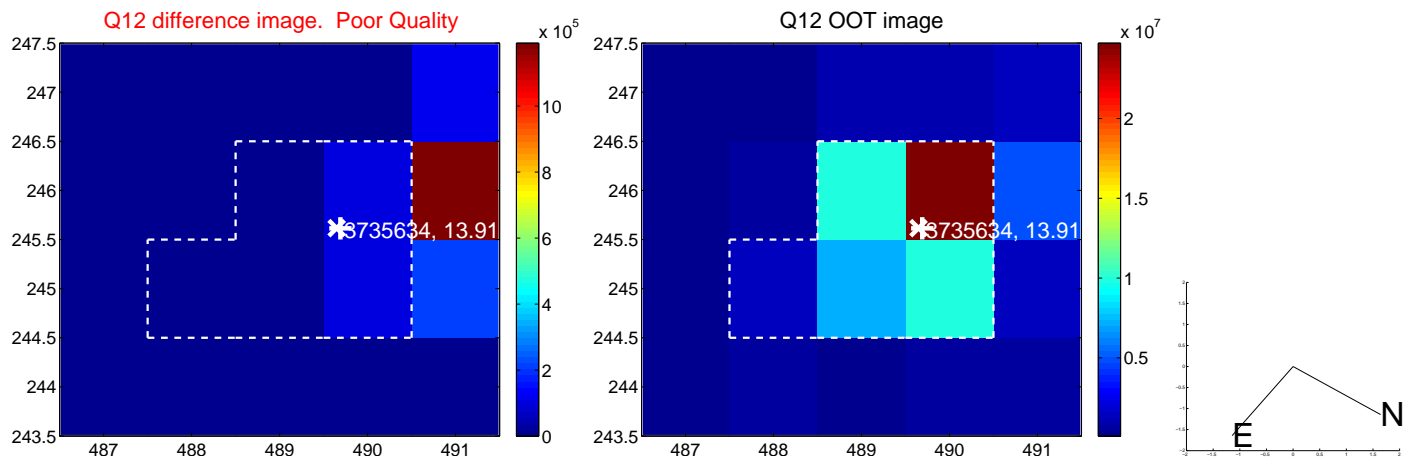
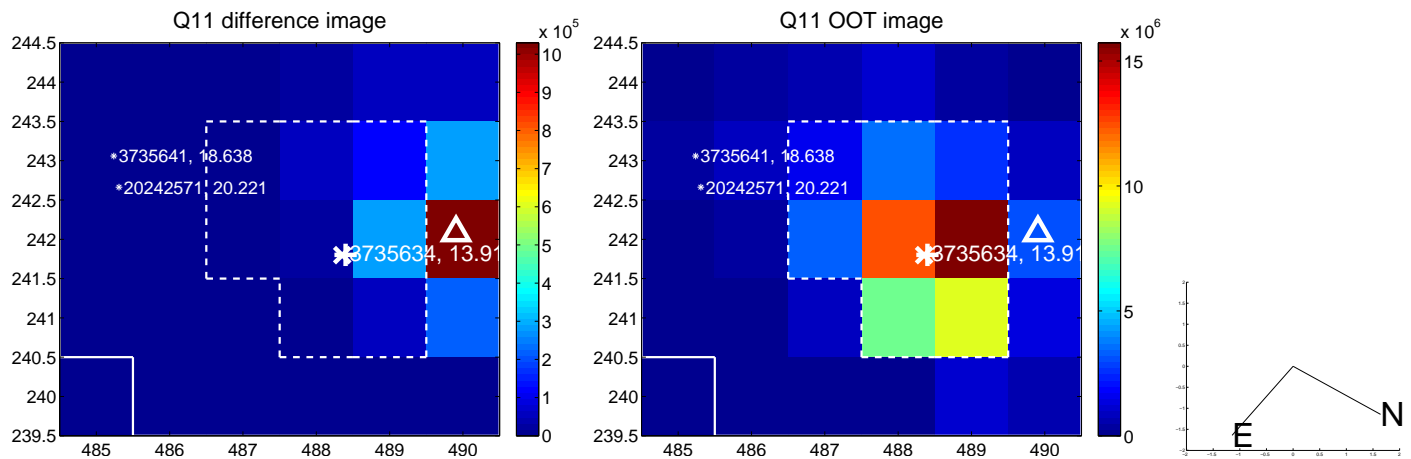
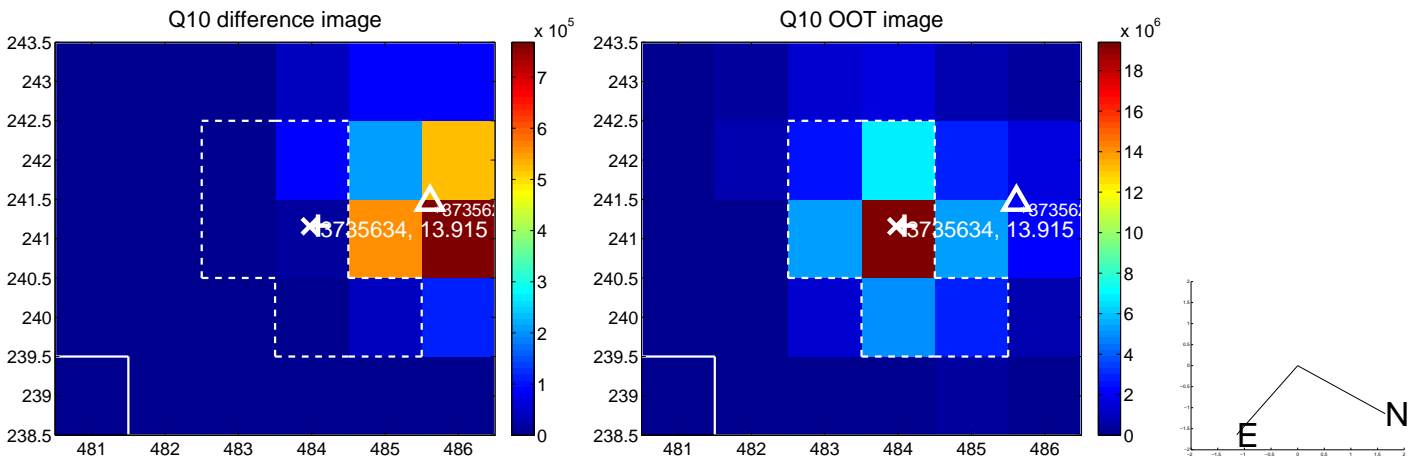
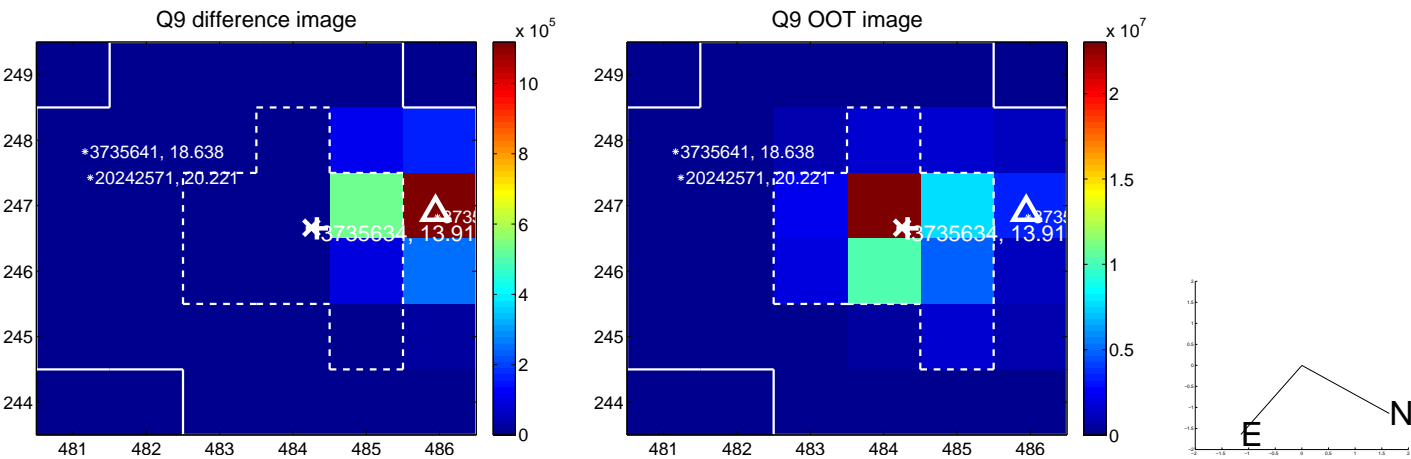




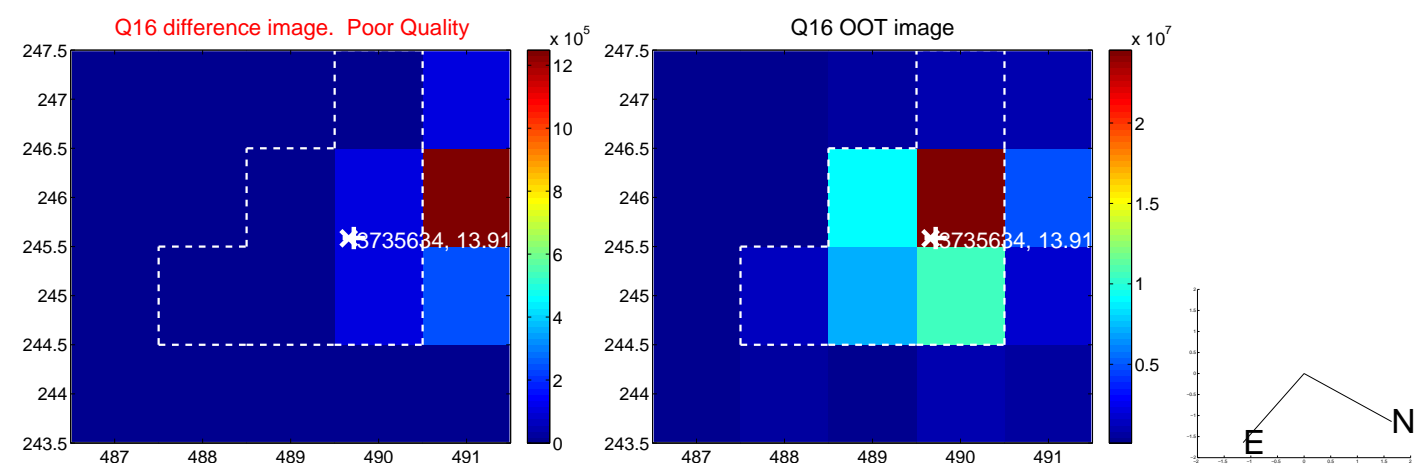
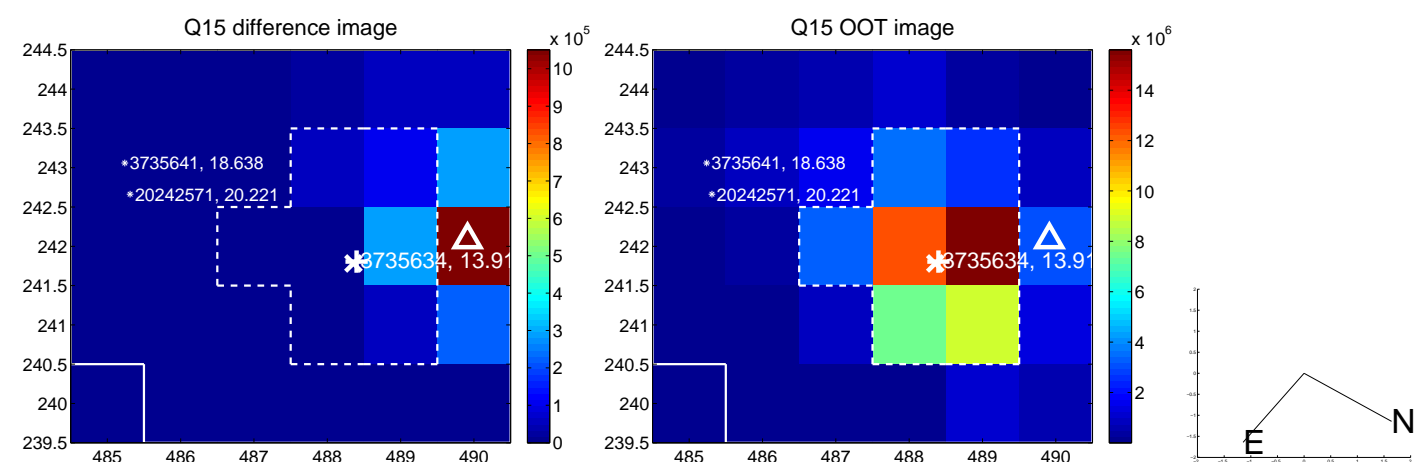
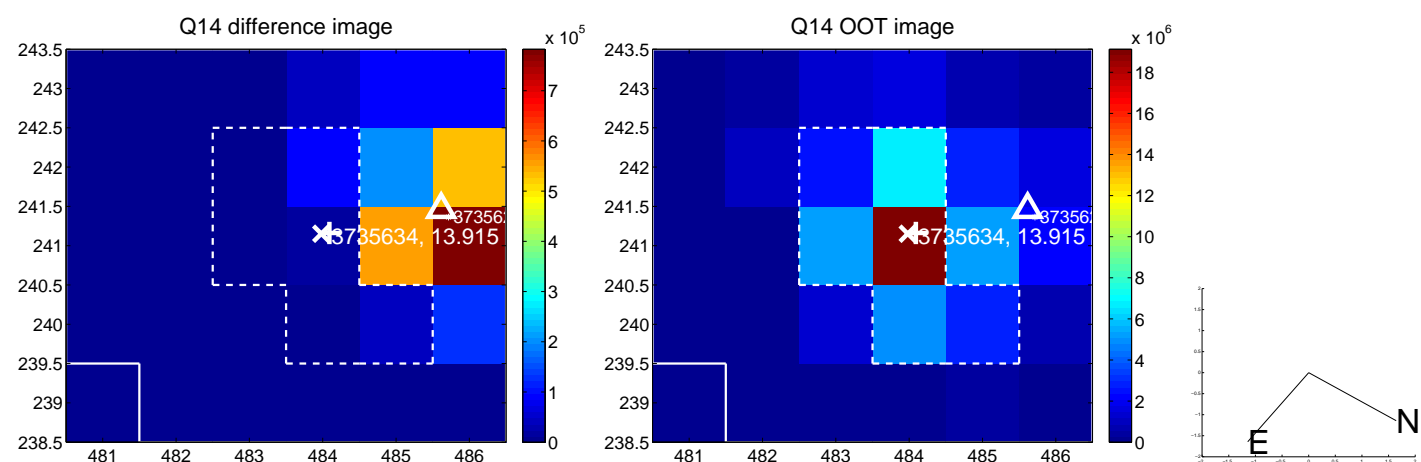
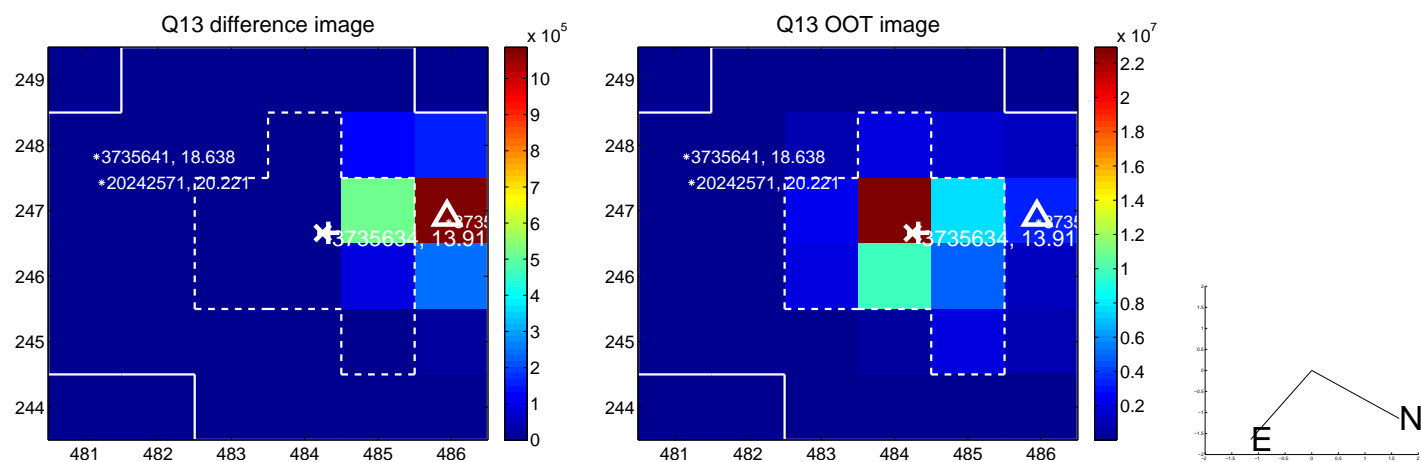
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



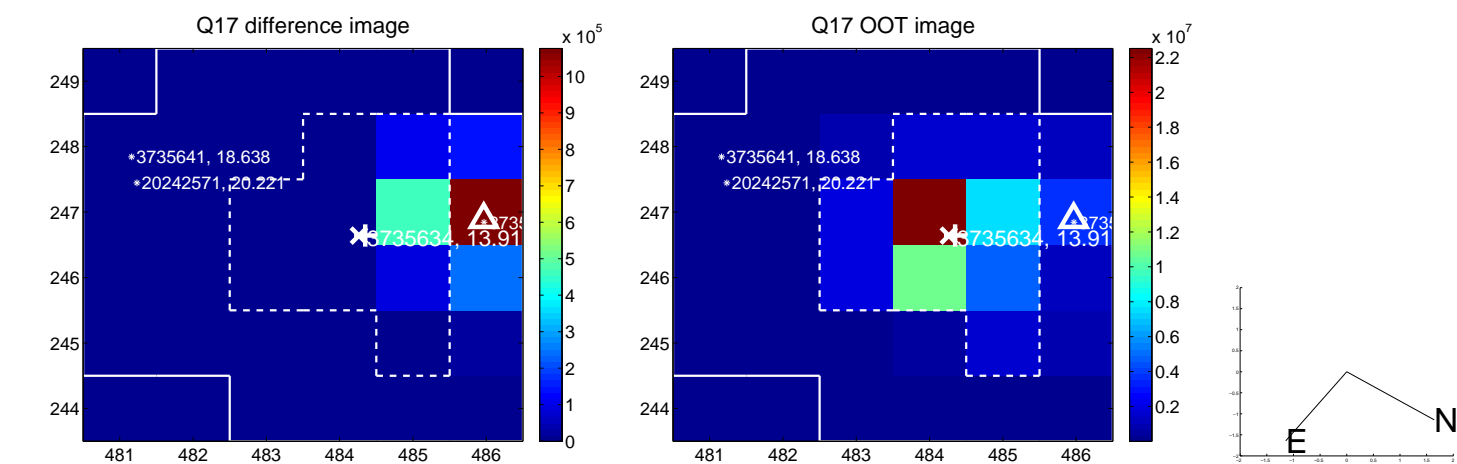
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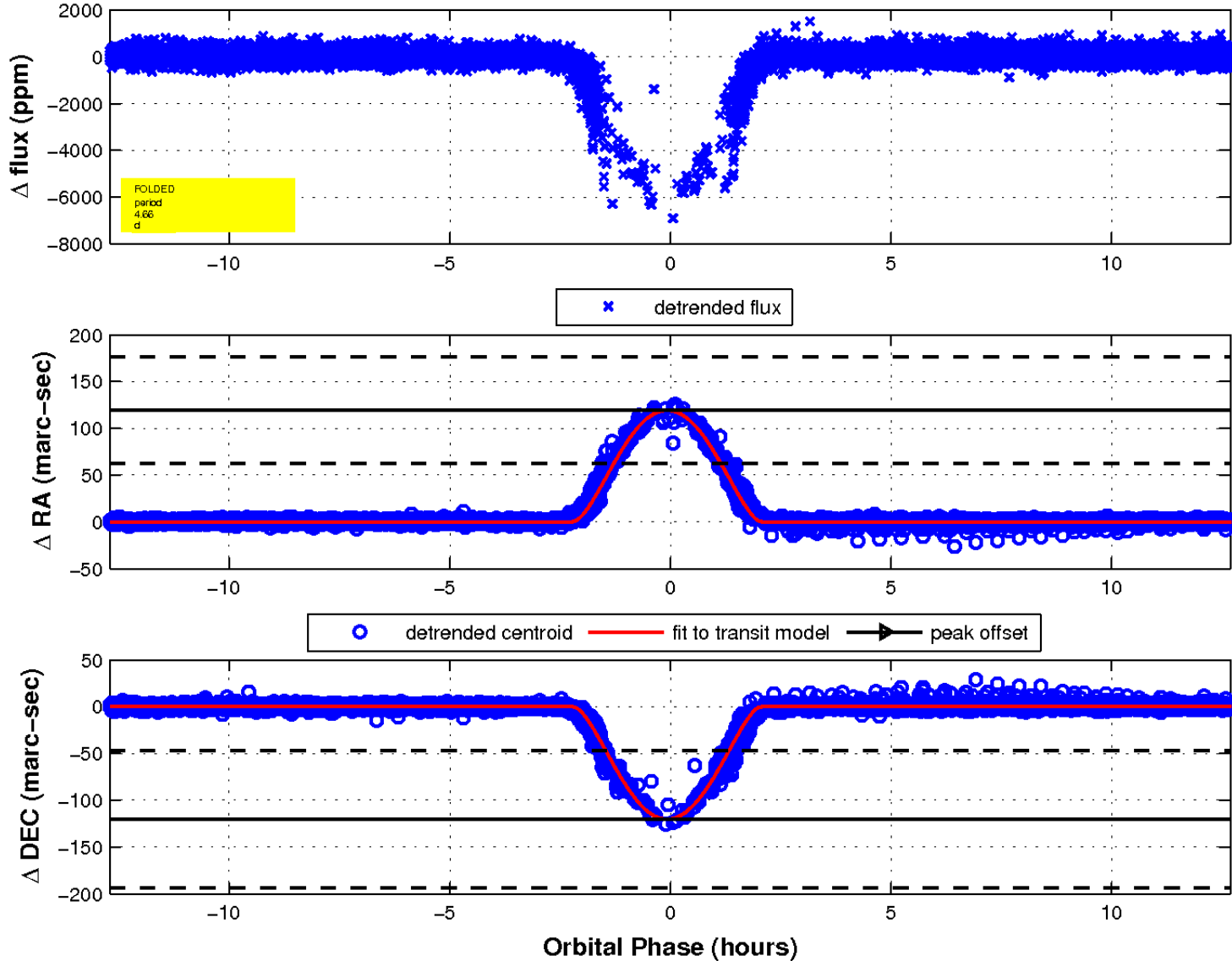
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

