

# KIC 004757331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004757331-01	OBS	6446.01	1.181057	132.118359	49512.7	2.552	2079.1	1394.5	0.69	5229	16.67	880.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757331-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_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.

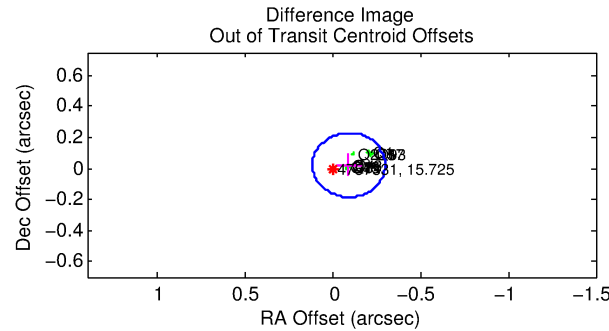
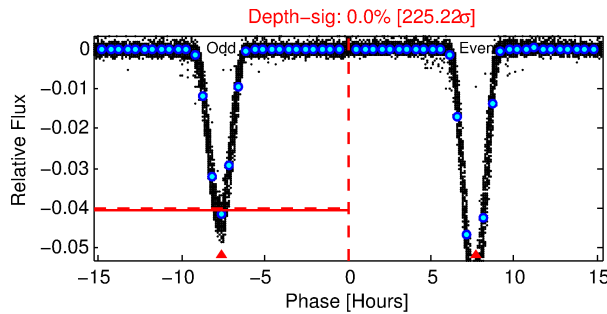
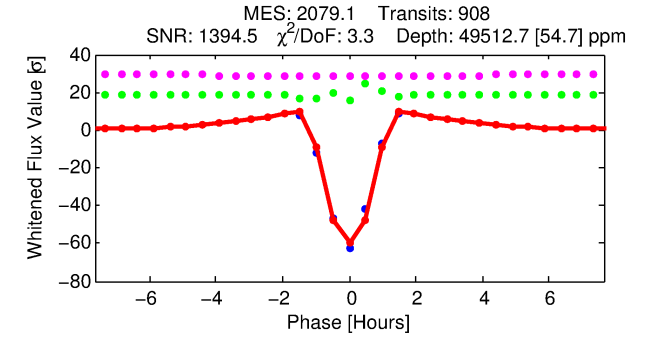
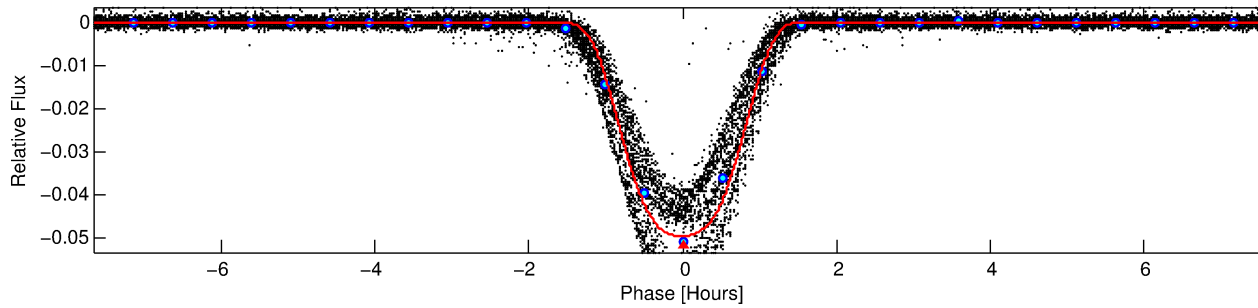
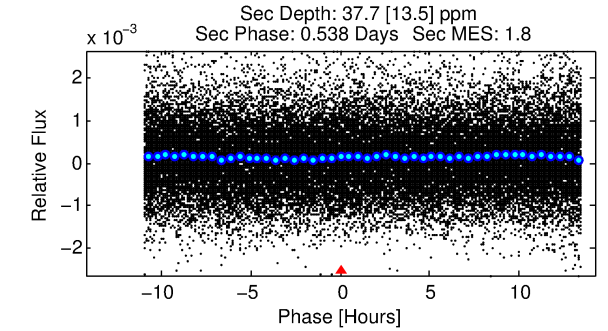
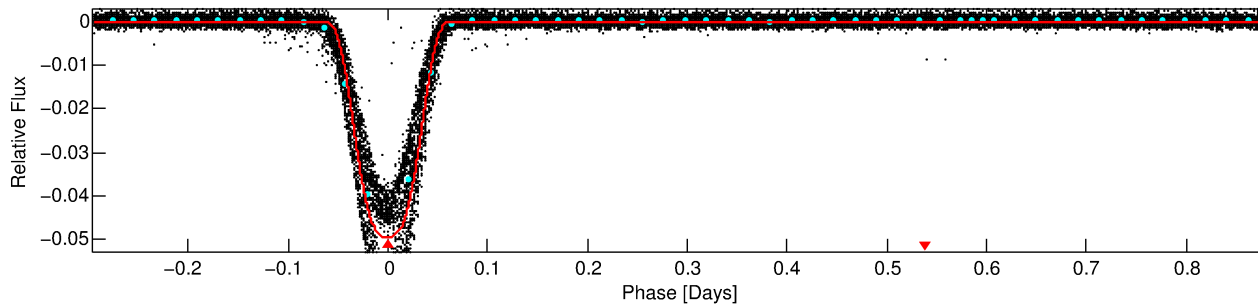
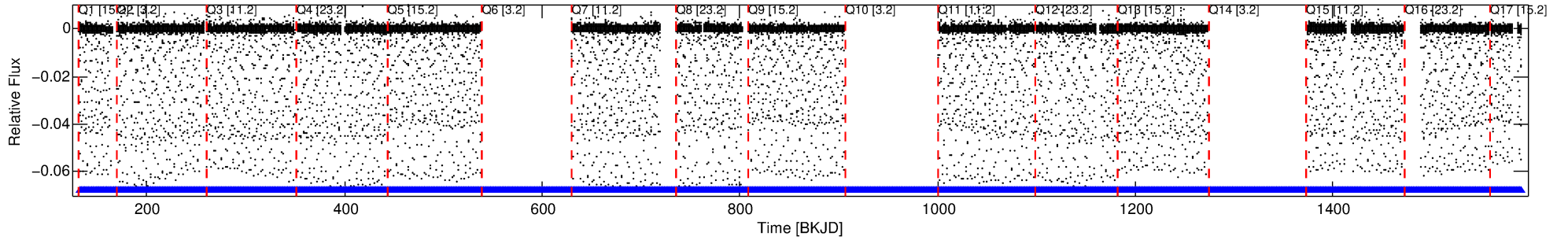
## Ephemeris Match Information For 004757331-01

No Significant Match Found

# DV One-Page Summary

KIC: 4757331 Candidate: 1 of 1 Period: 1.181 d  
KOI: K06446.01 Corr: 0.963

Kp: 15.73 R\*: 0.69 Rs Teff: 5229.0 K Logg: 4.58 Fe/H: -0.660



## DV Fit Results:

Period = 1.18106 [0.00000] d  
Epoch = 132.1184 [0.0000] BKJD  
Rp/R\* = 0.2208 [0.0002]  
a/R\* = 3.65 [0.01]  
b = 0.70 [0.00]  
Seff = 880.94 [162.06]  
Teq = 1389 [64] K  
Rp = 16.67 [1.78] Re  
a = 0.0191 [0.0018] AU  
Ag = 0.03 [0.01] [-92.92σ]  
Teffp = 872 [83] K [-4.95σ]

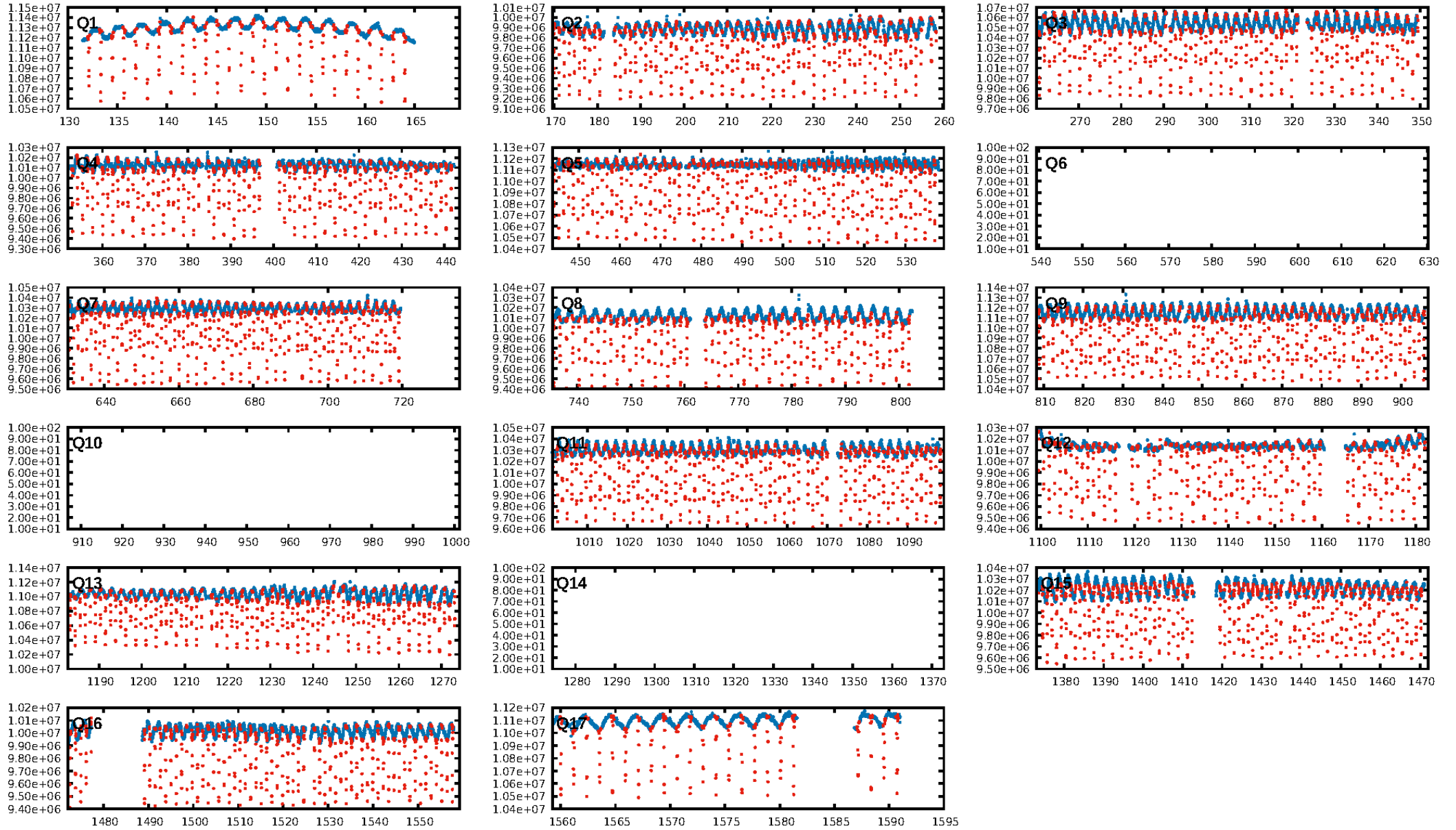
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [857/857]  
GhostDiagnostic-chr: 2.505  
Centroid-sig: 0.0%  
Centroid-so: 0.075 arcsec [20.47σ]  
OotOffset-rm: 0.093 arcsec [1.34σ]  
KicOffset-rm: 0.167 arcsec [2.46σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 1.00 [14/14]  
DiffImageOverlap-fno: 1.00 [14/14]

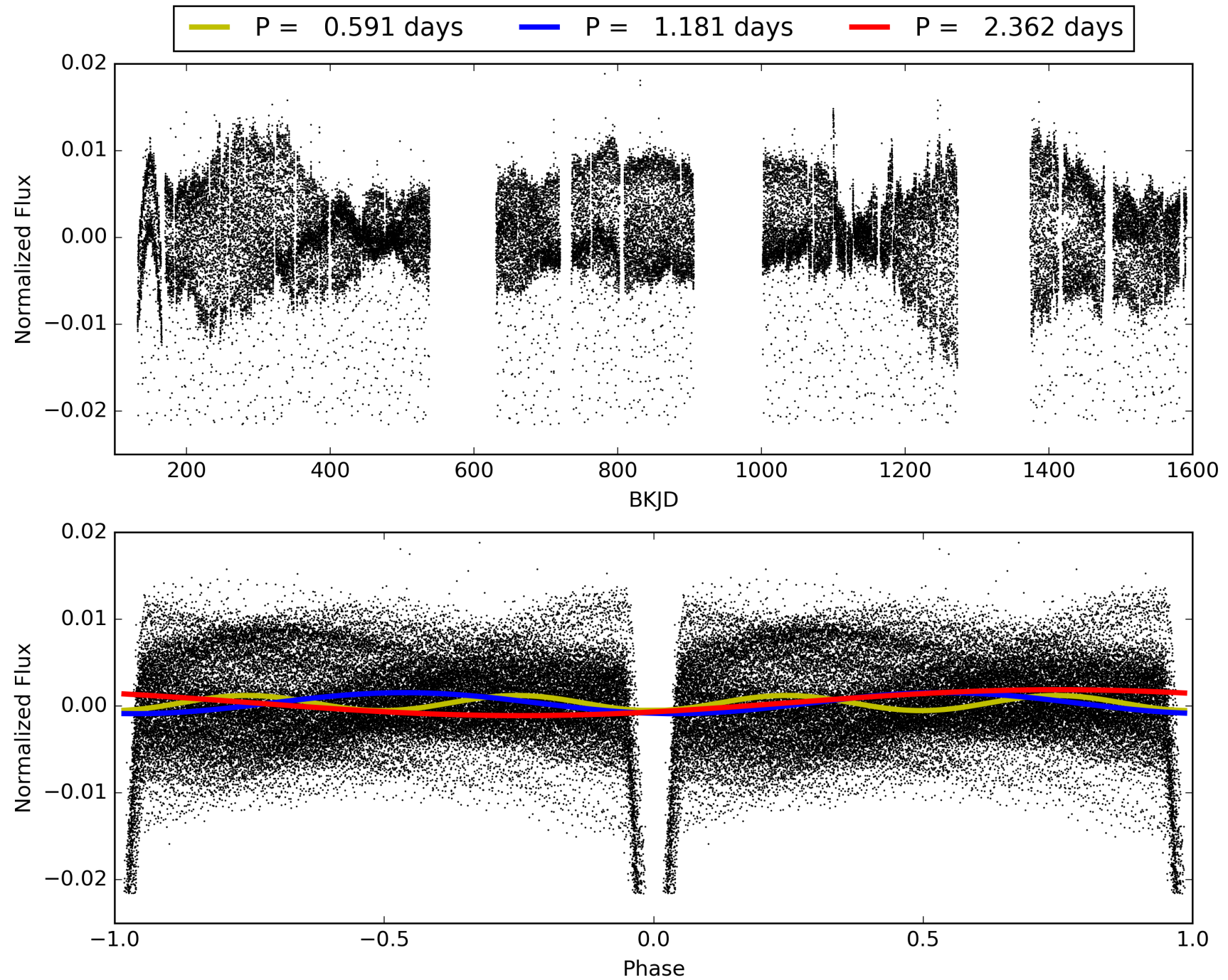
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 21:15:28 Z

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

# TCE 004757331-01, PDC Light Curves

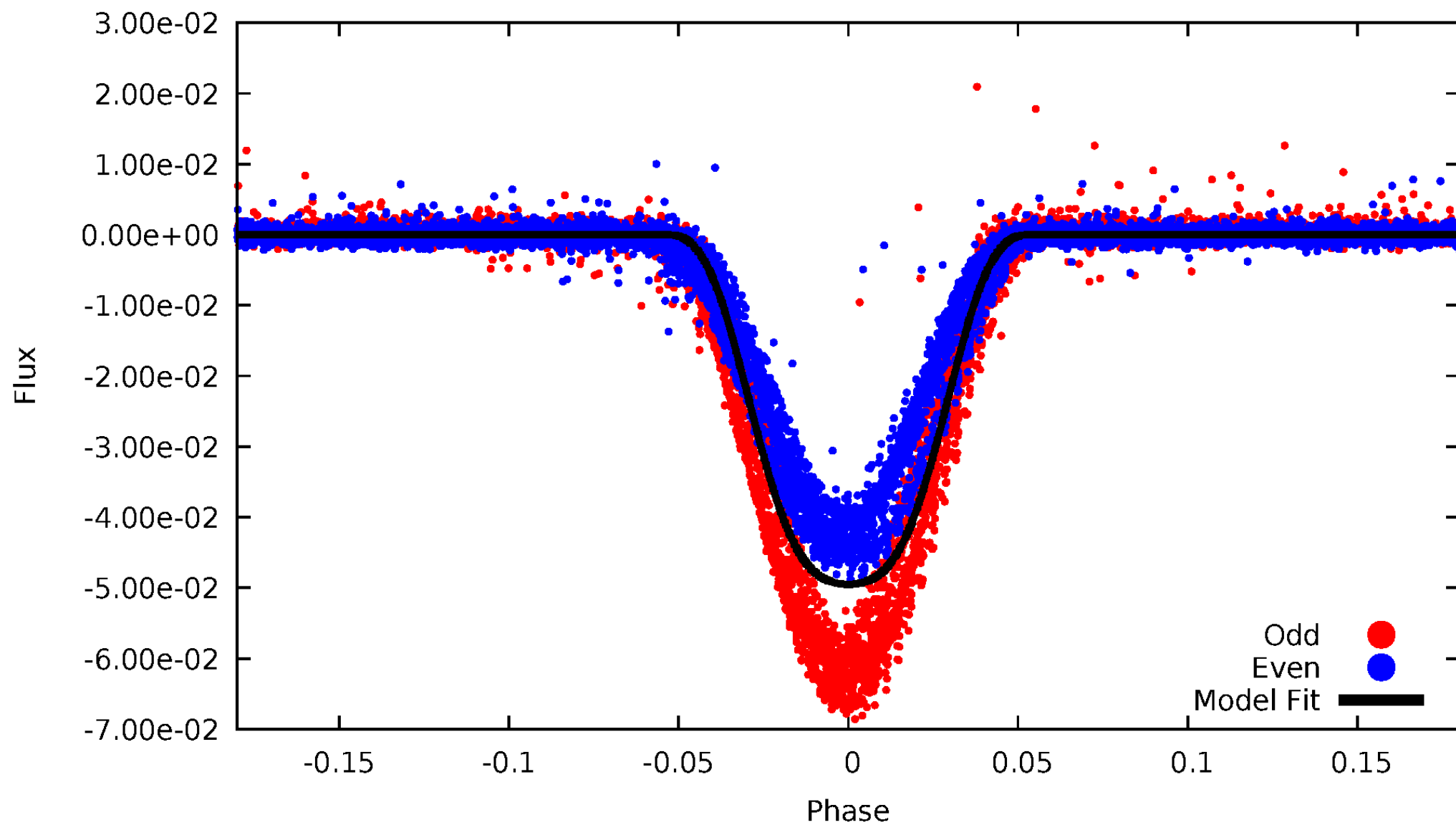


TCE 004757331-01



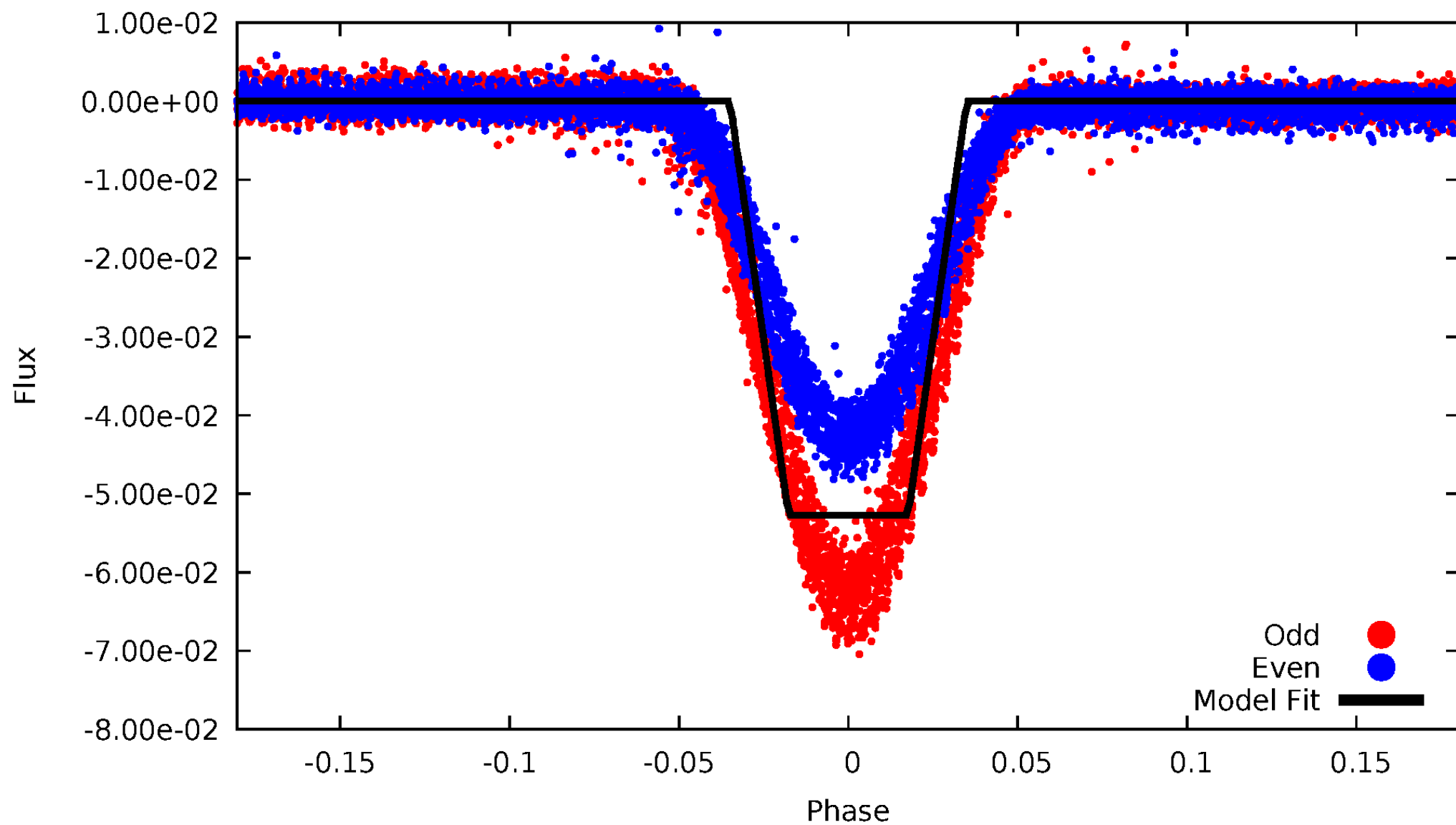
# DV Odd/Even

TCE 004757331-01



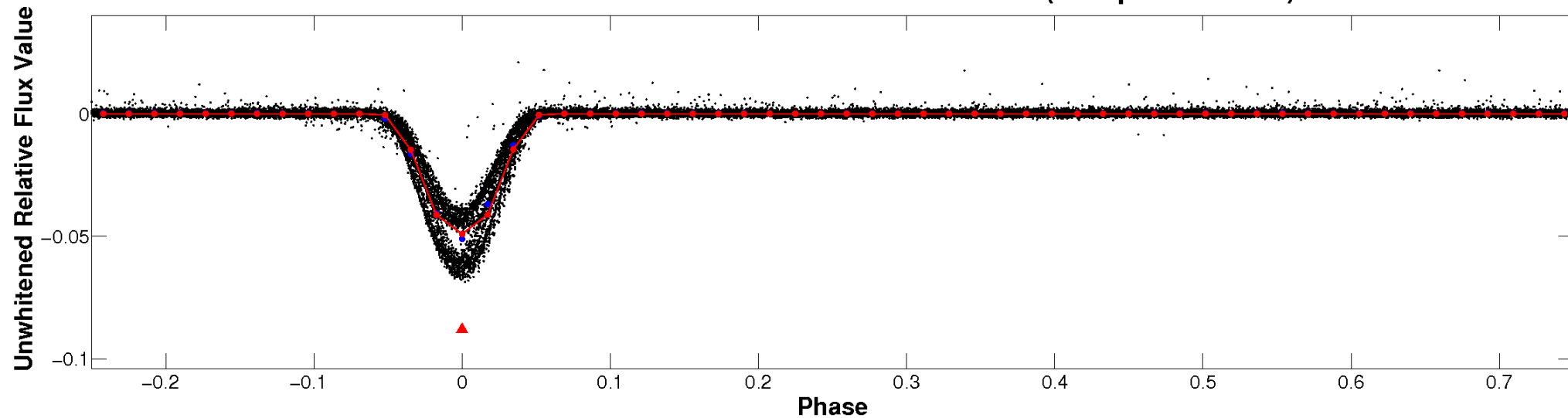
# ALT Odd/Even

TCE 004757331-01

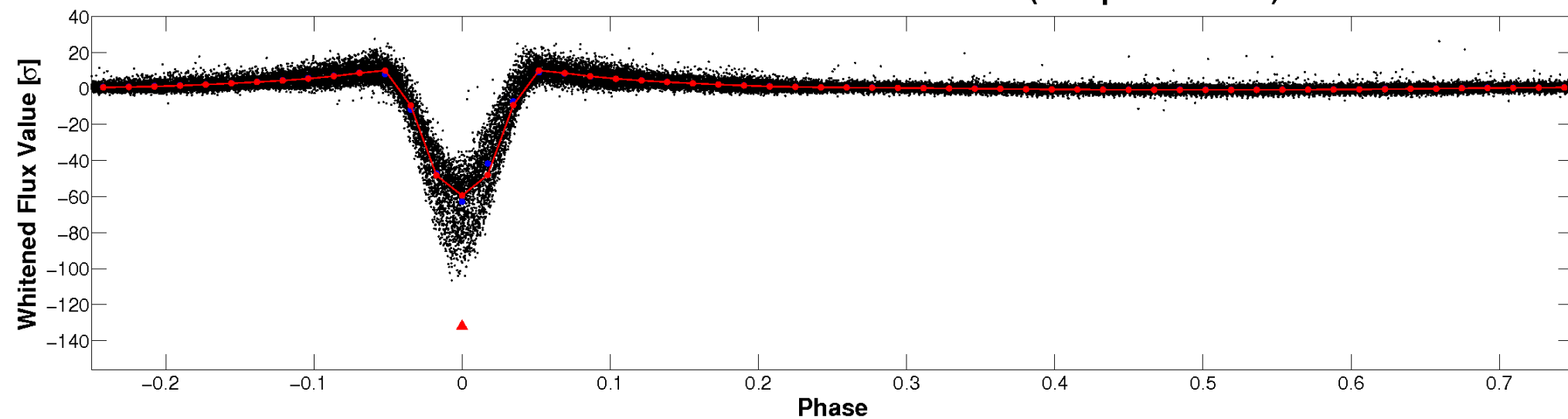


# Non-Whitened Vs. Whitened Light Curve

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



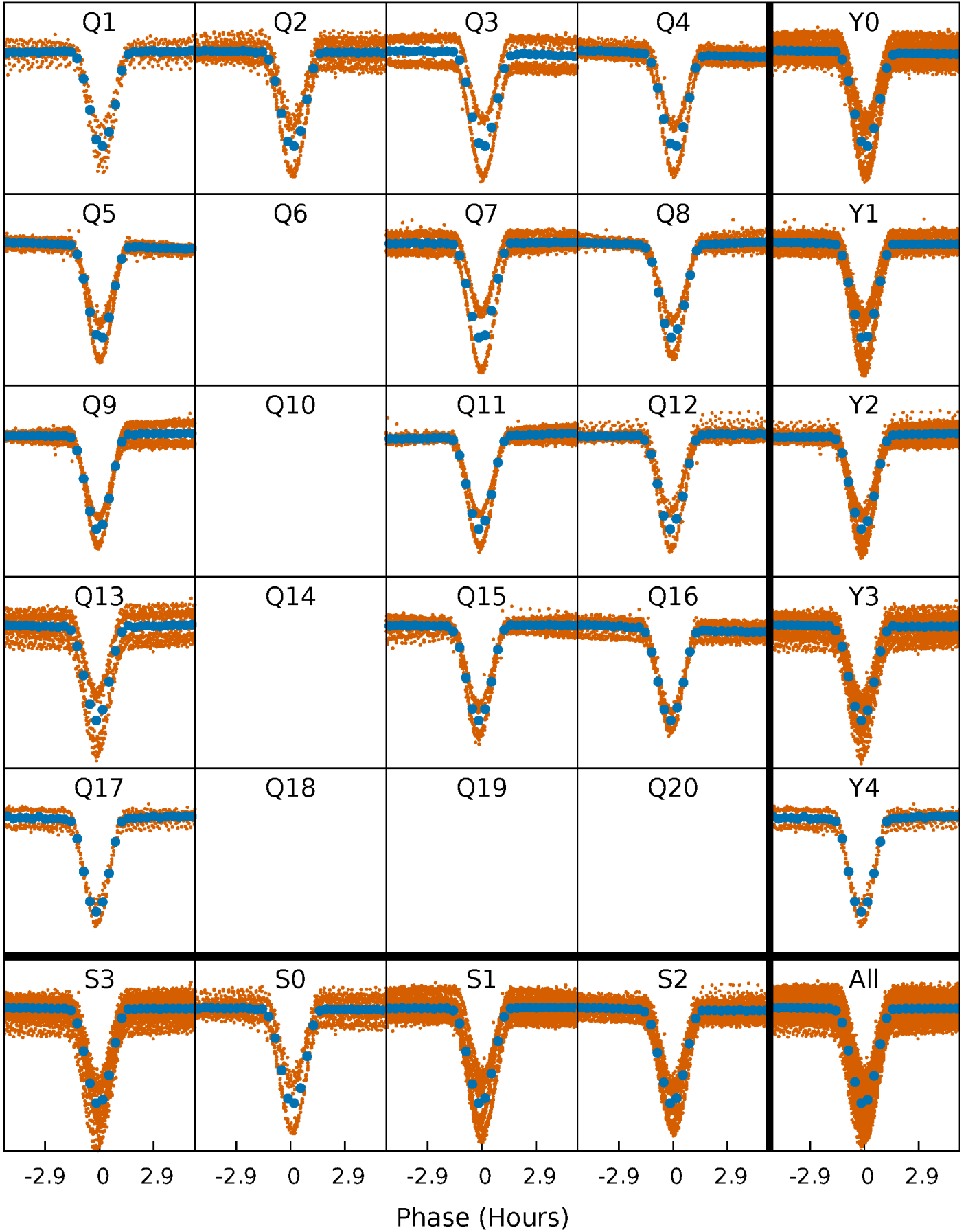
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

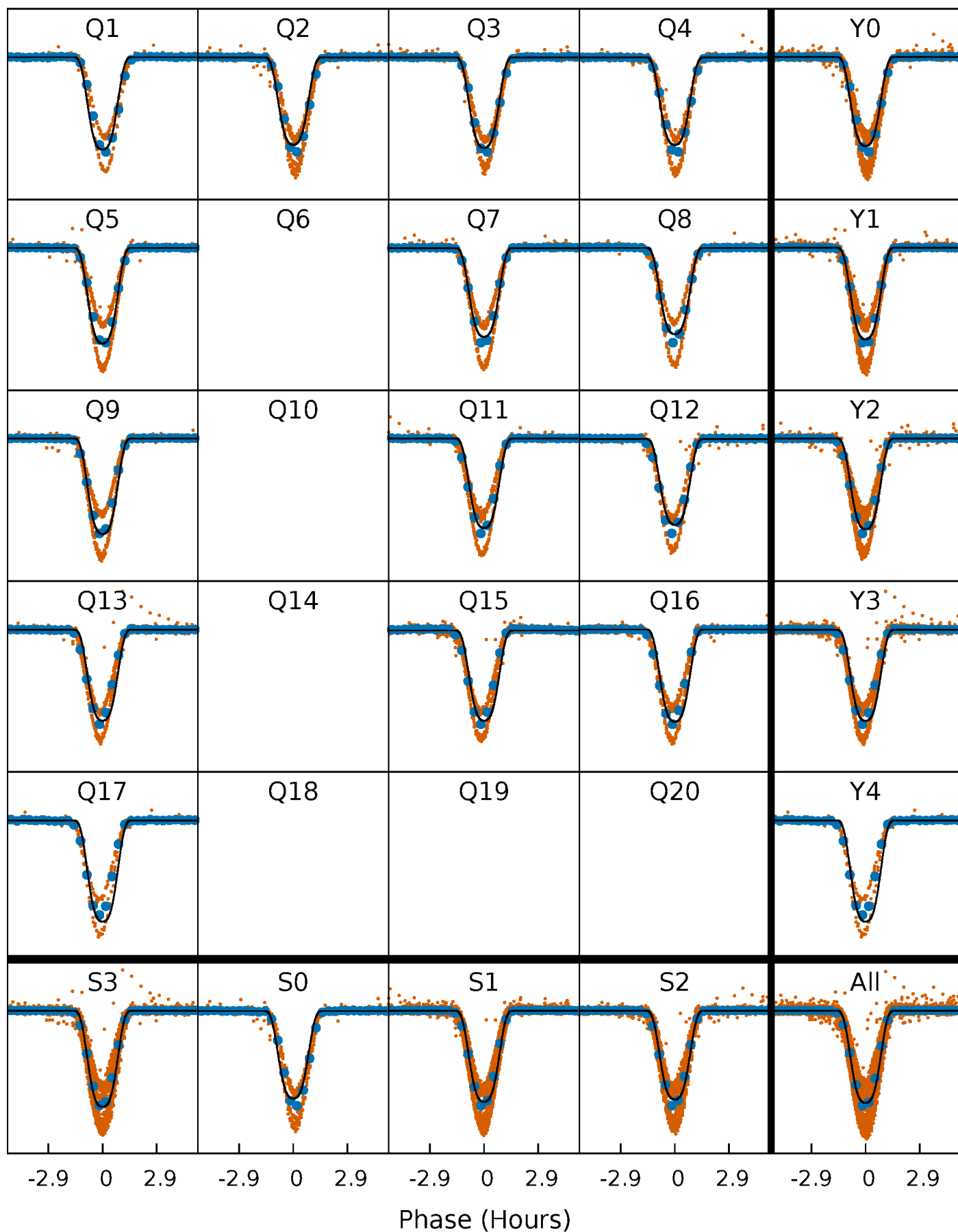
TCE 004757331-01 P= 1.181057 Days  $T_0=132.118359$  (BKJD)





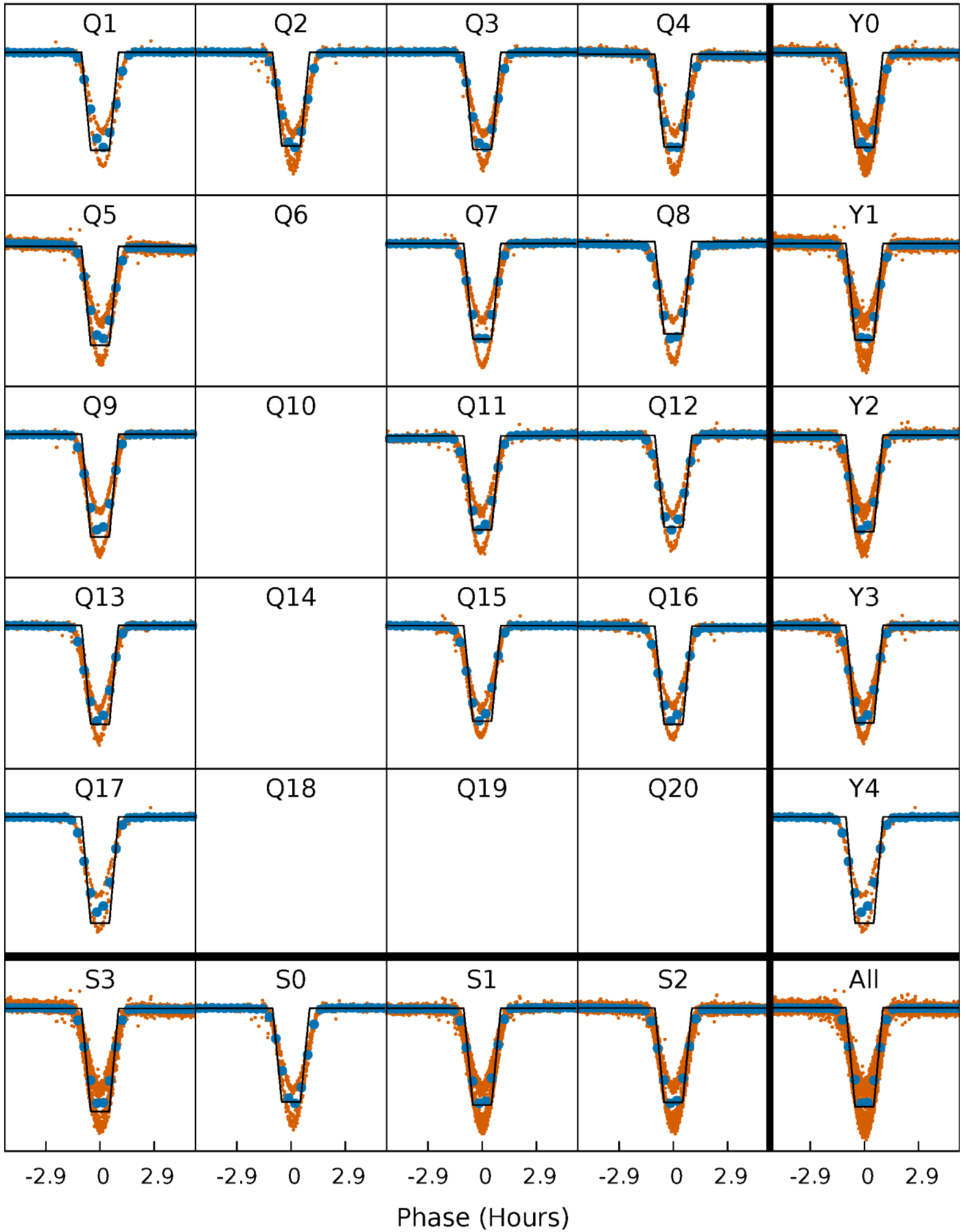
# DV Quarter-Phased Transit Curves

TCE 004757331-01 P= 1.181057 Days  $T_0=132.118359$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

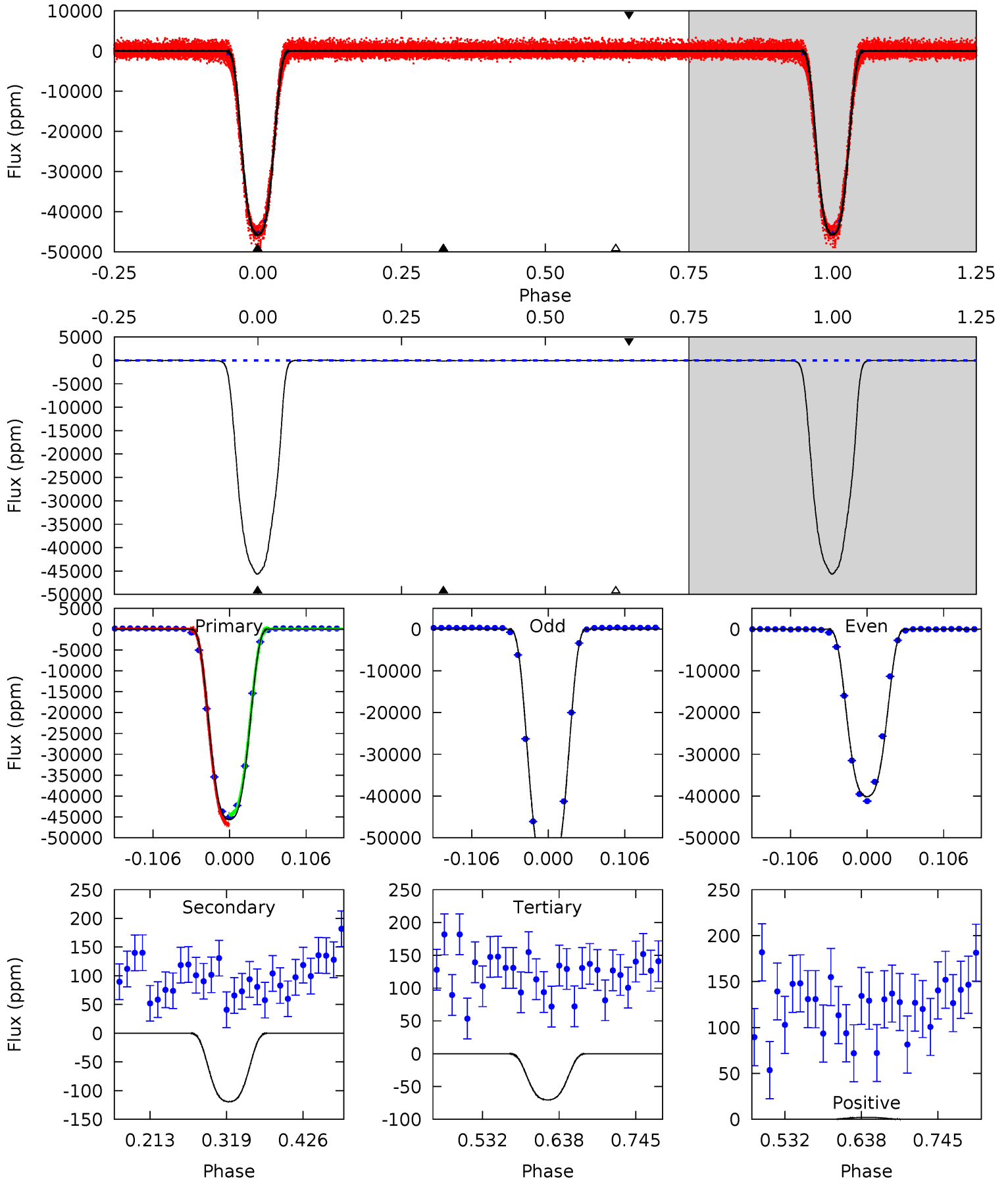
TCE 004757331-01 P= 1.181054 Days  $T_0=132.118385$  (BKJD)



# DV Model-Shift Uniqueness Test

004757331-01, P = 1.181057 Days, E = 130.937302 Days

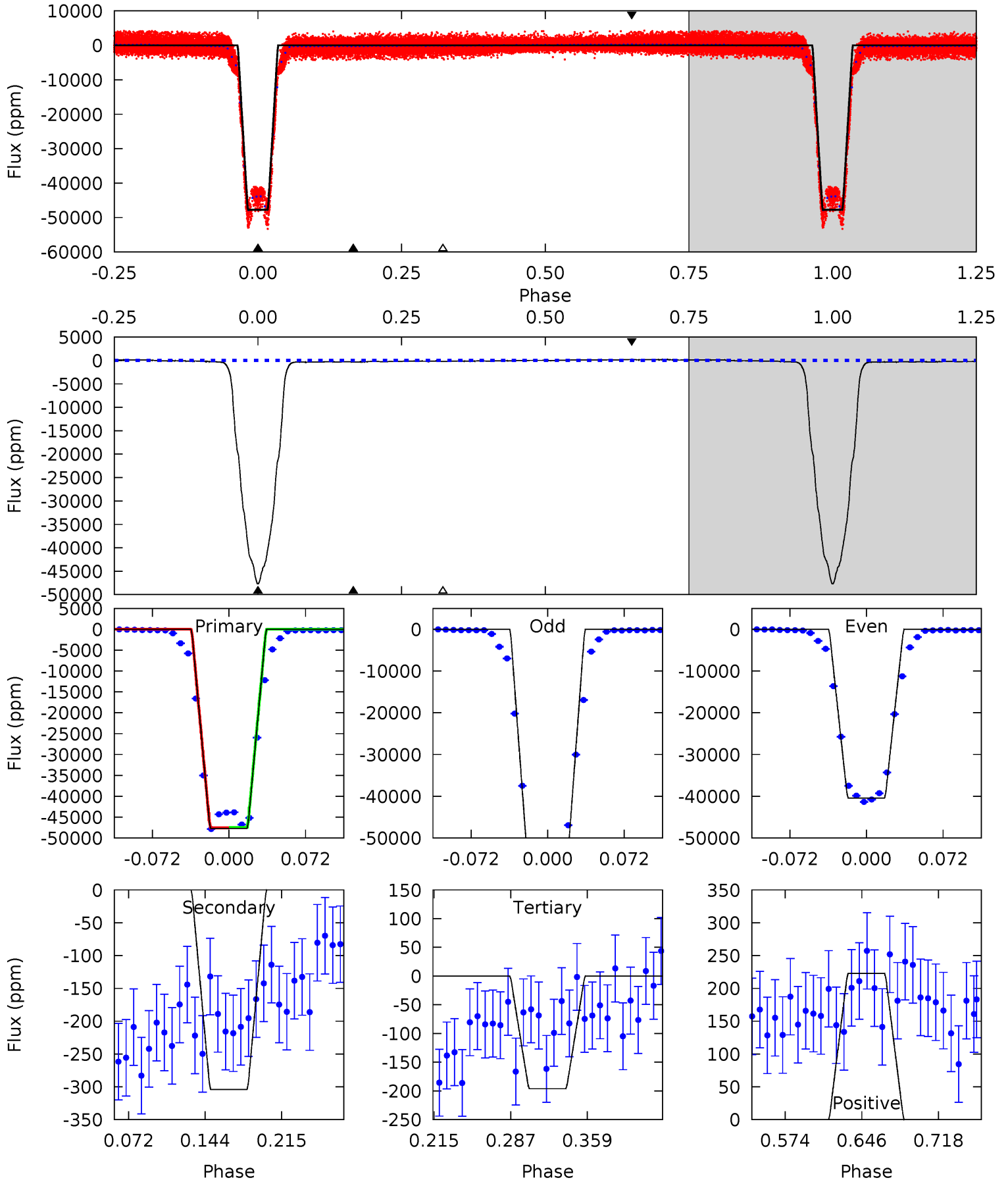
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2907	7.60	4.48	0.13	4.55	1.61	2.00	2902	2907	3.12	7.46	708.9	1.10	0.00	0



# Alt Model-Shift Uniqueness Test

004757331-01, P = 1.181054 Days, E = 130.937331 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
1547	9.86	6.36	7.22	4.63	1.80	4.56	1541	1540	3.50	2.64	375.4	1.08	0.00	0



### Stellar Parameters For KIC 004757331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5229^{+157}_{-157}$	$4.580^{+0.078}_{-0.052}$	$-0.660^{+0.300}_{-0.300}$	$0.692^{+0.074}_{-0.074}$	$0.664^{+0.079}_{-0.034}$	$2.823^{+0.904}_{-0.516}$
	+3%/-3%	+2%/-1%	+45%/-45%	+11%/-11%	+12%/-5%	+32%/-18%
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 004757331-01 / KOI 6446.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-119 \pm 16$	$16.61^{+1.00}_{-0.89}$	$1931^{+73}_{-77}$	$-2343^{+56}_{-53}$	$0.088^{+0.015}_{-0.013}$
Alt.	$-304 \pm 31$	$17.39^{+1.06}_{-0.97}$	$1934^{+71}_{-76}$	$-2144^{+113}_{-83}$	$0.204^{+0.033}_{-0.028}$

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

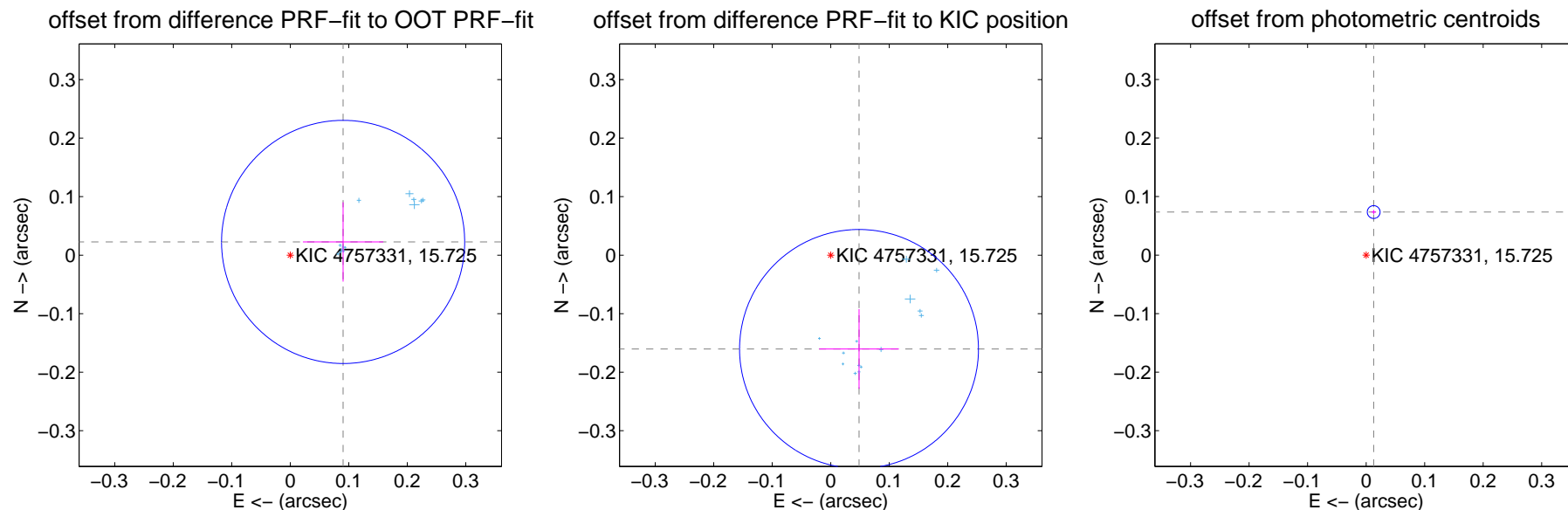
## DV Centroid Data

Supplemental centroid analysis for 004757331-01. Kepler magnitude: 15.72. Transit SNR 1394.49

There are 14 quarters with good PRF difference image offsets

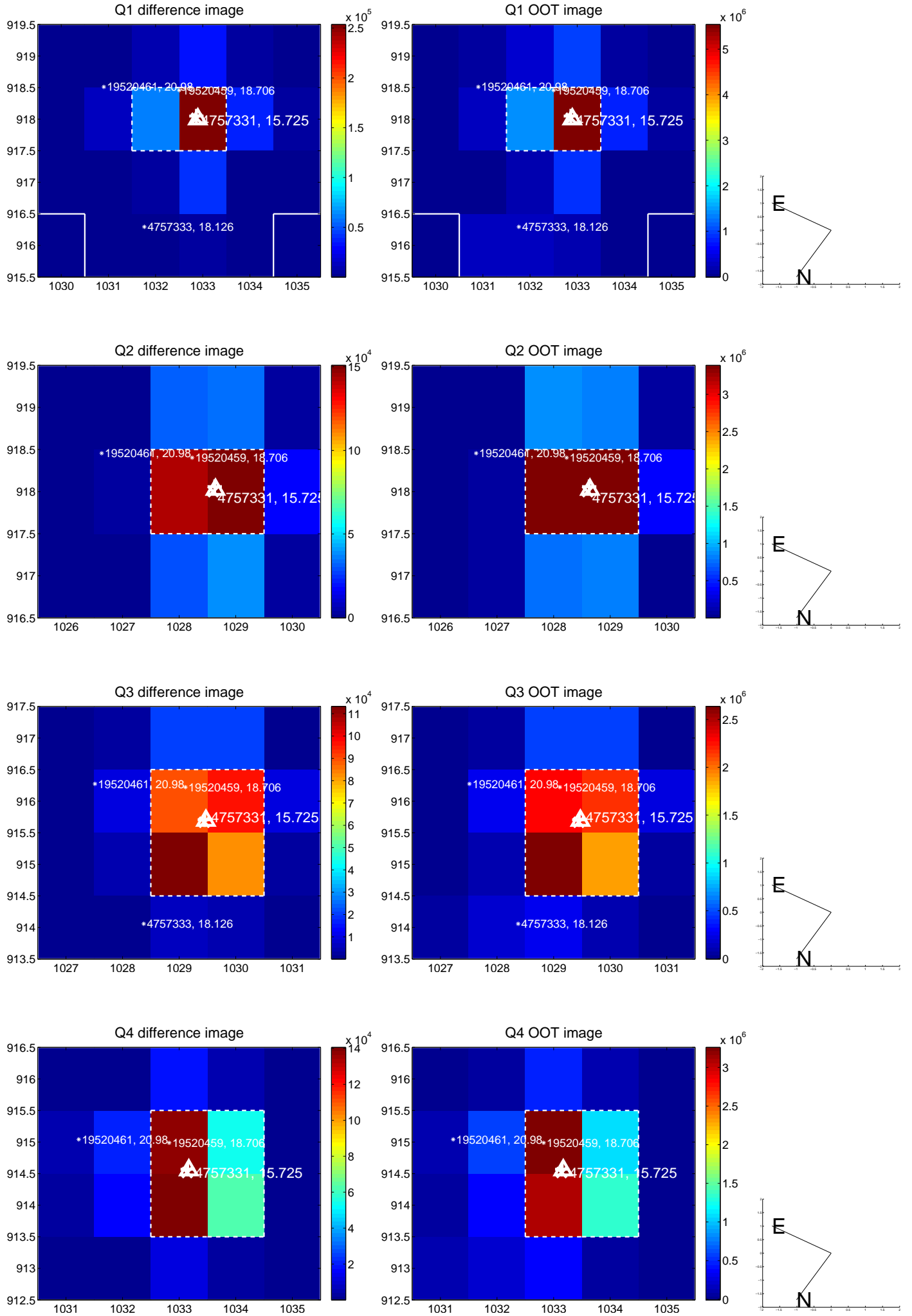
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.093 \pm 0.069$	1.34	$-0.090 \pm 0.069$	$0.023 \pm 0.068$
PRF-fit source offset from KIC position	$0.167 \pm 0.068$	2.46	$-0.048 \pm 0.068$	$-0.160 \pm 0.068$
photometric centroid source offset	$0.07 \pm 0.00$	20.47	$-0.01 \pm 0.00$	$0.07 \pm 0.00$



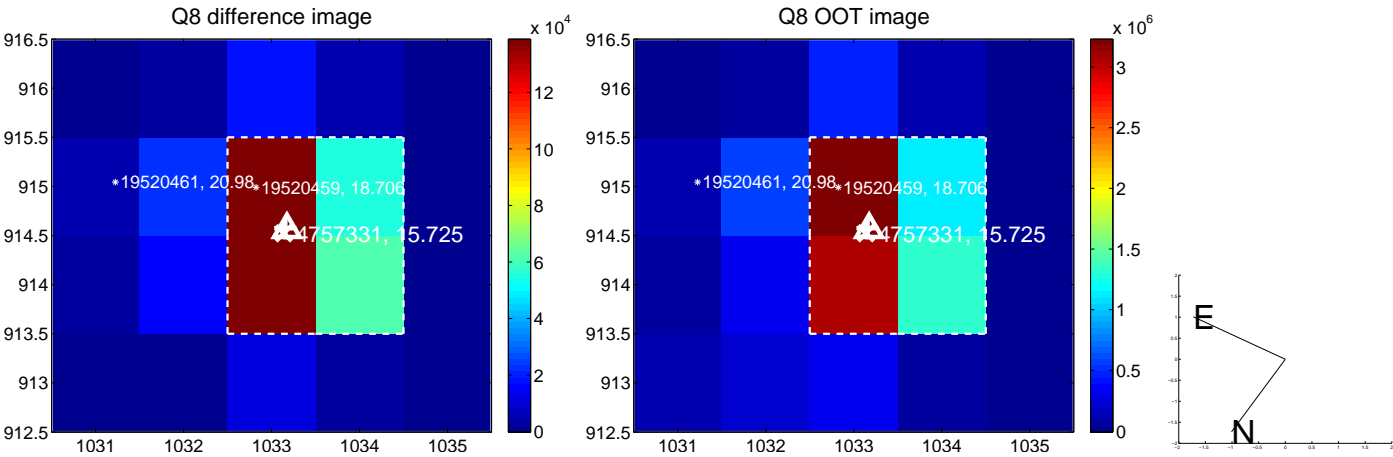
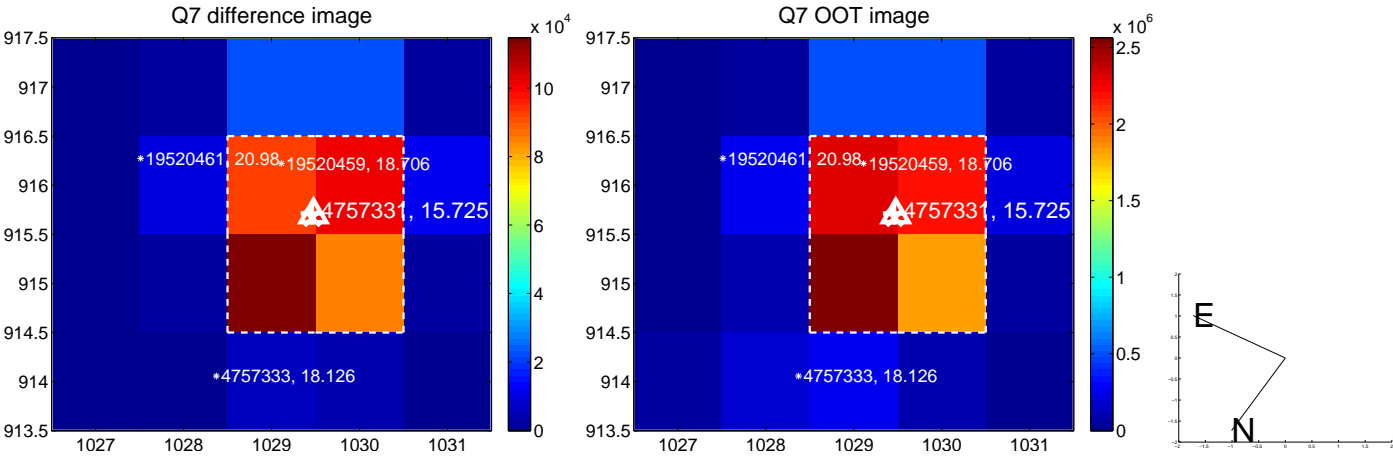
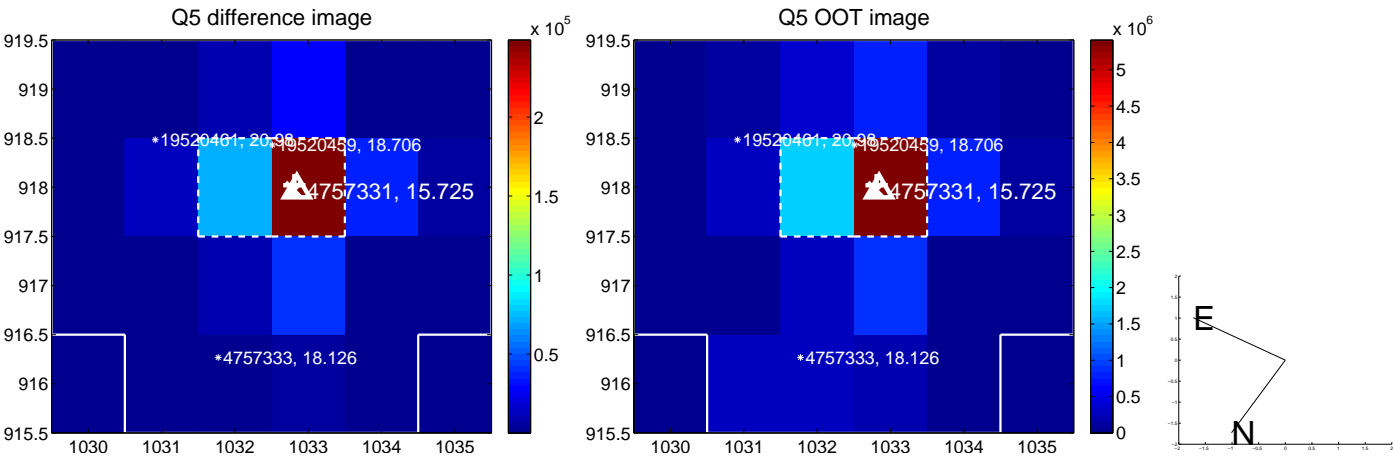
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

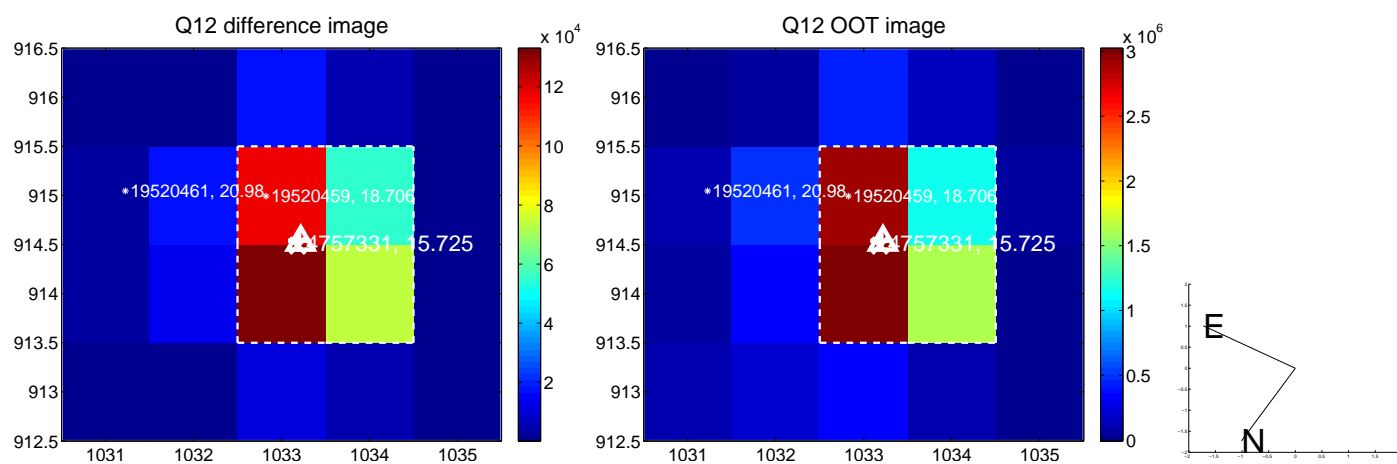
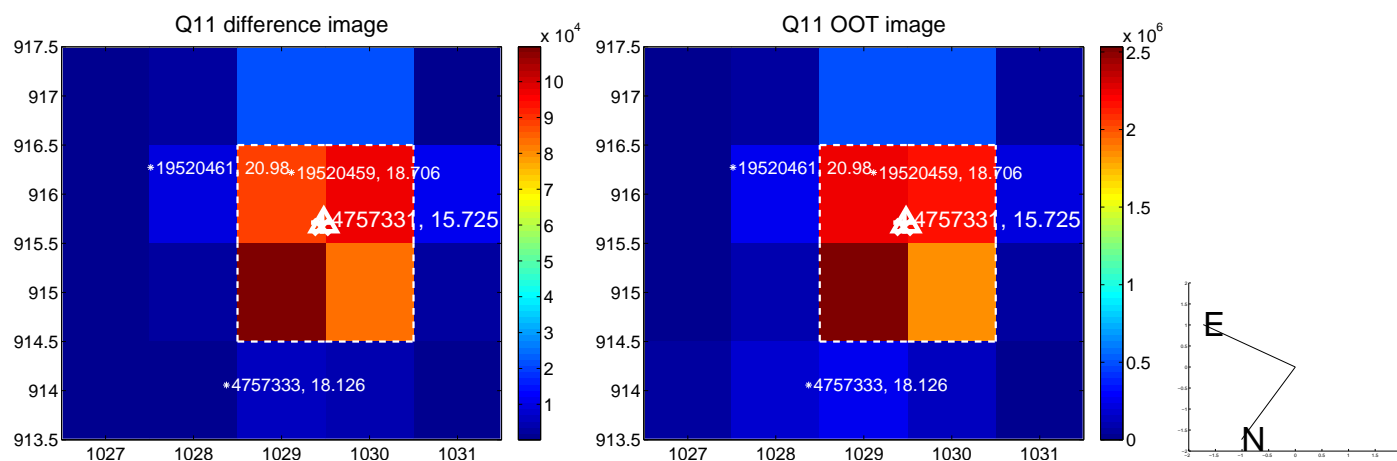
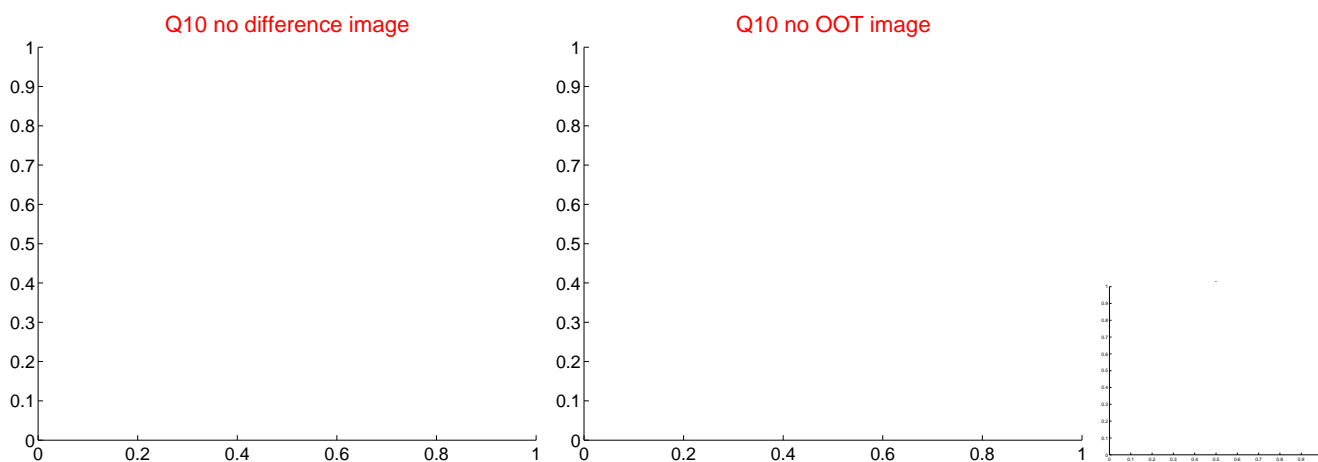
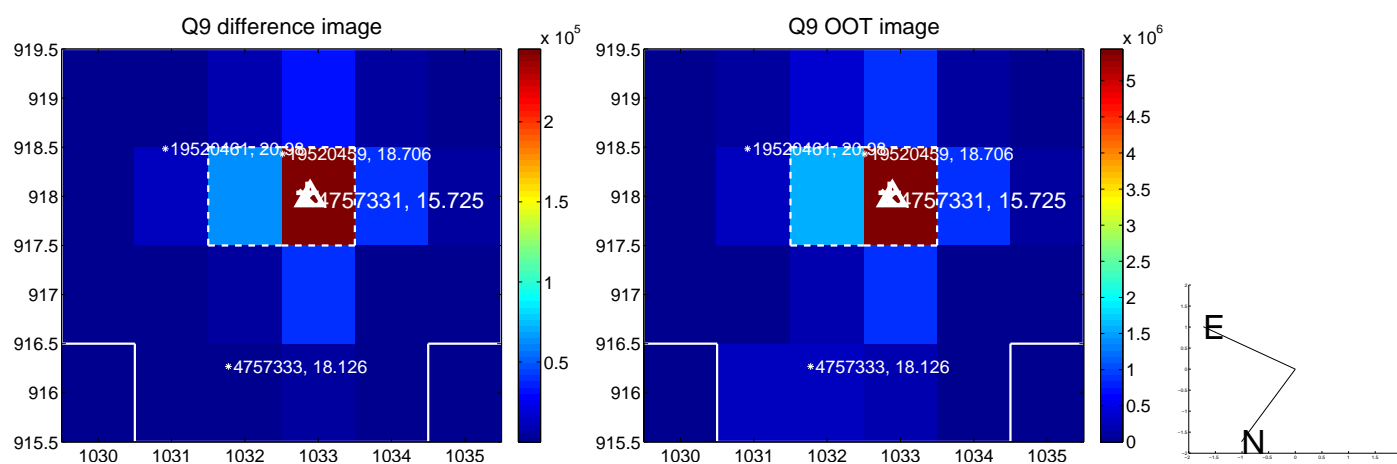




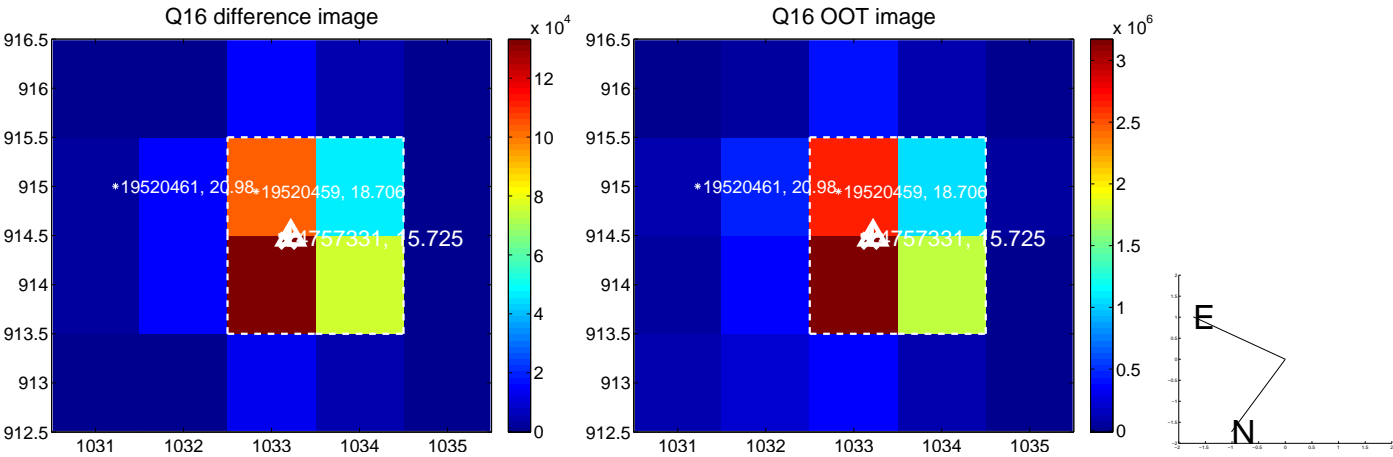
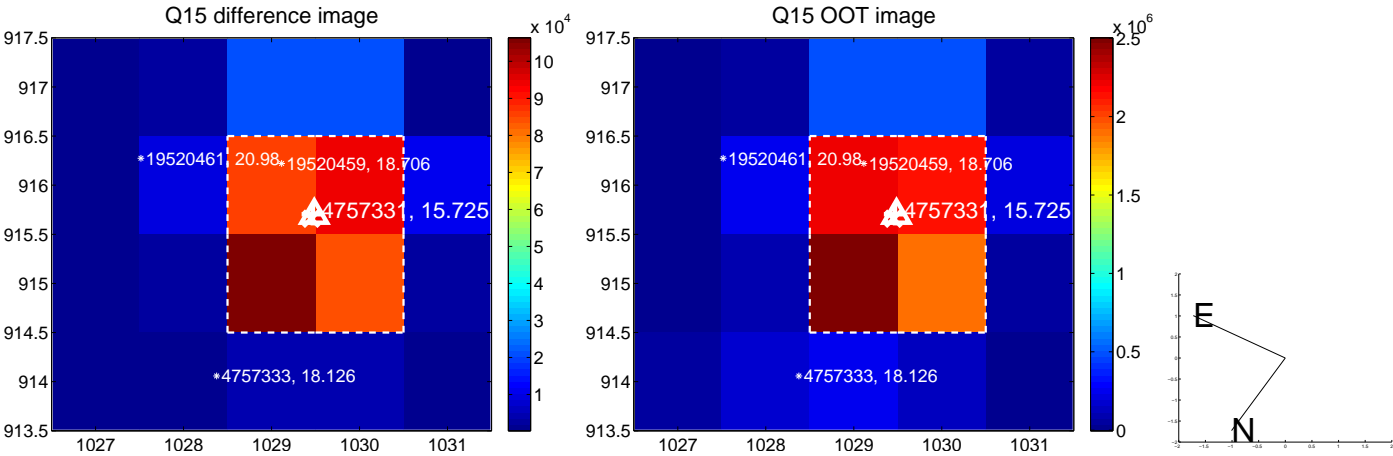
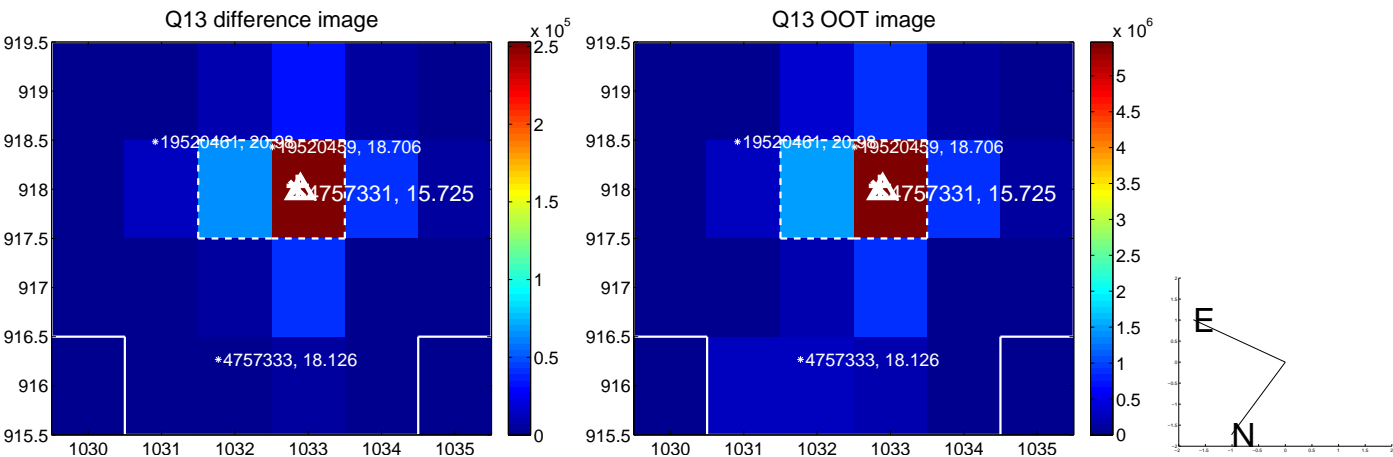
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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UKIRT Image

Declination

