

# KIC 002558370

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002558370-01	OBS	3855.01	0.546242	131.597407	87487.0	1.985	266.6	220.7	1.00	5780	43.50	5844.65

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002558370-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—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.

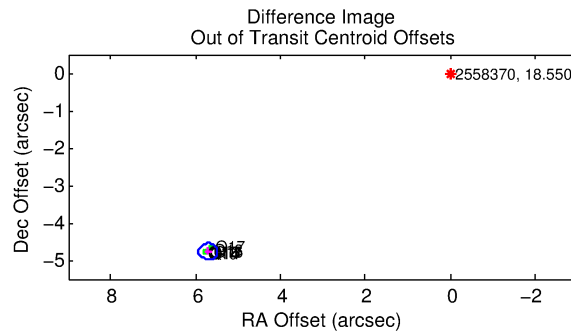
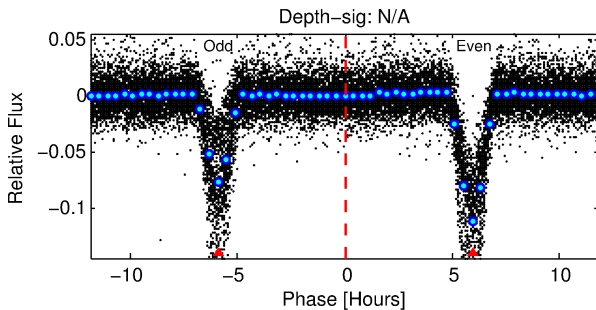
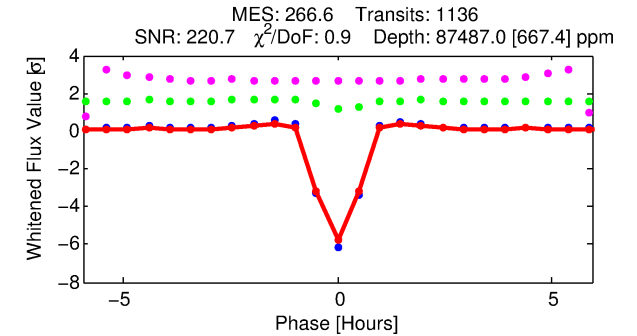
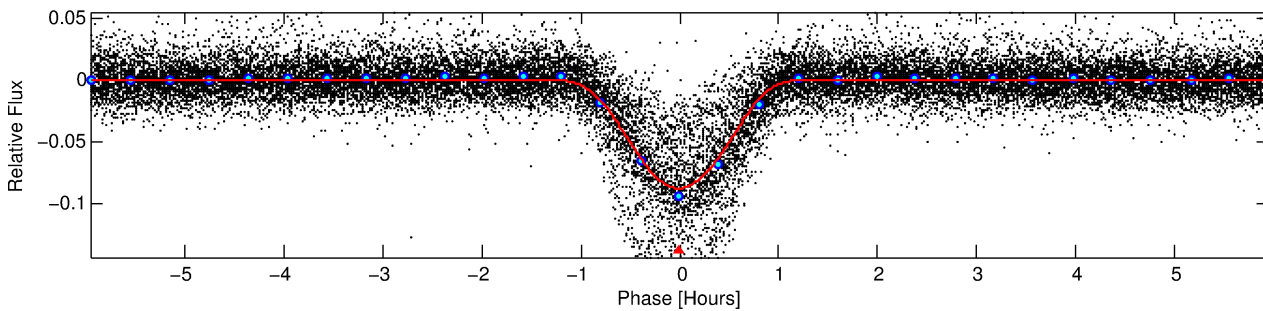
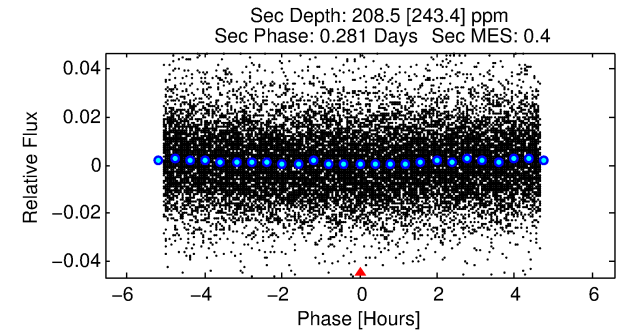
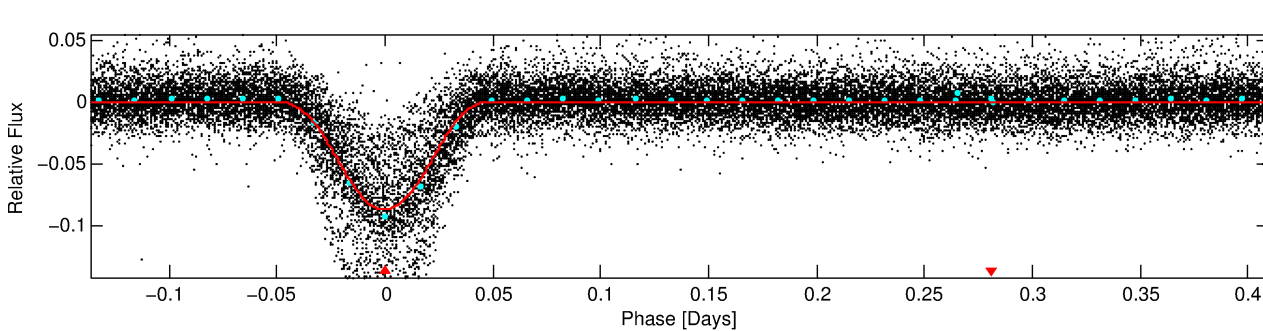
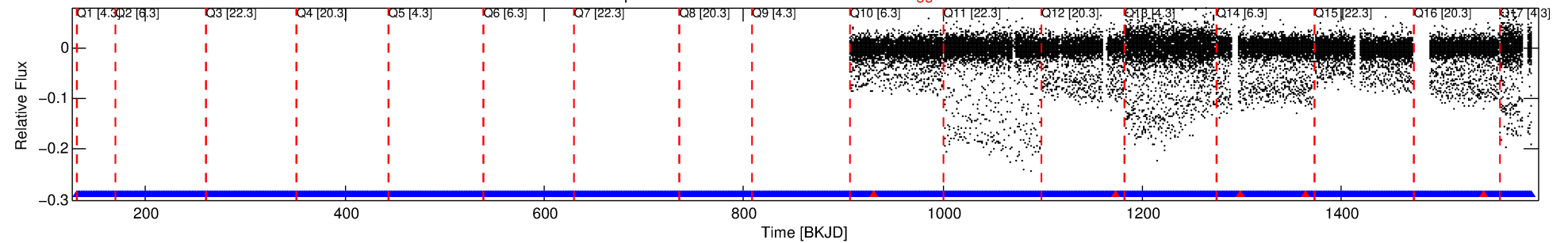
## Ephemeris Match Information For 002558370-01

No Significant Match Found

# DV One-Page Summary

KIC: 2558370 Candidate: 1 of 1 Period: 0.546 d  
KOI: K03855.01 Corr: 0.940

Kp: 18.55 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



## DV Fit Results:

Period = 0.54624 [0.00000] d  
Epoch = 131.5974 [0.0001] BKJD  
Rp/R\* = 0.3986 [0.1747]  
a/R\* = 2.51 [0.10]  
b = 0.90 [0.26]  
Seff = 5844.65 [0.01]  
Teq = 2230 [0] K  
Rp = 43.50 [19.06] Re  
a = 0.0131 [0.0000] AU  
Ag = 0.01 [0.02] [-65.36σ]  
Teffp = 1100 [401] K [-2.81σ]

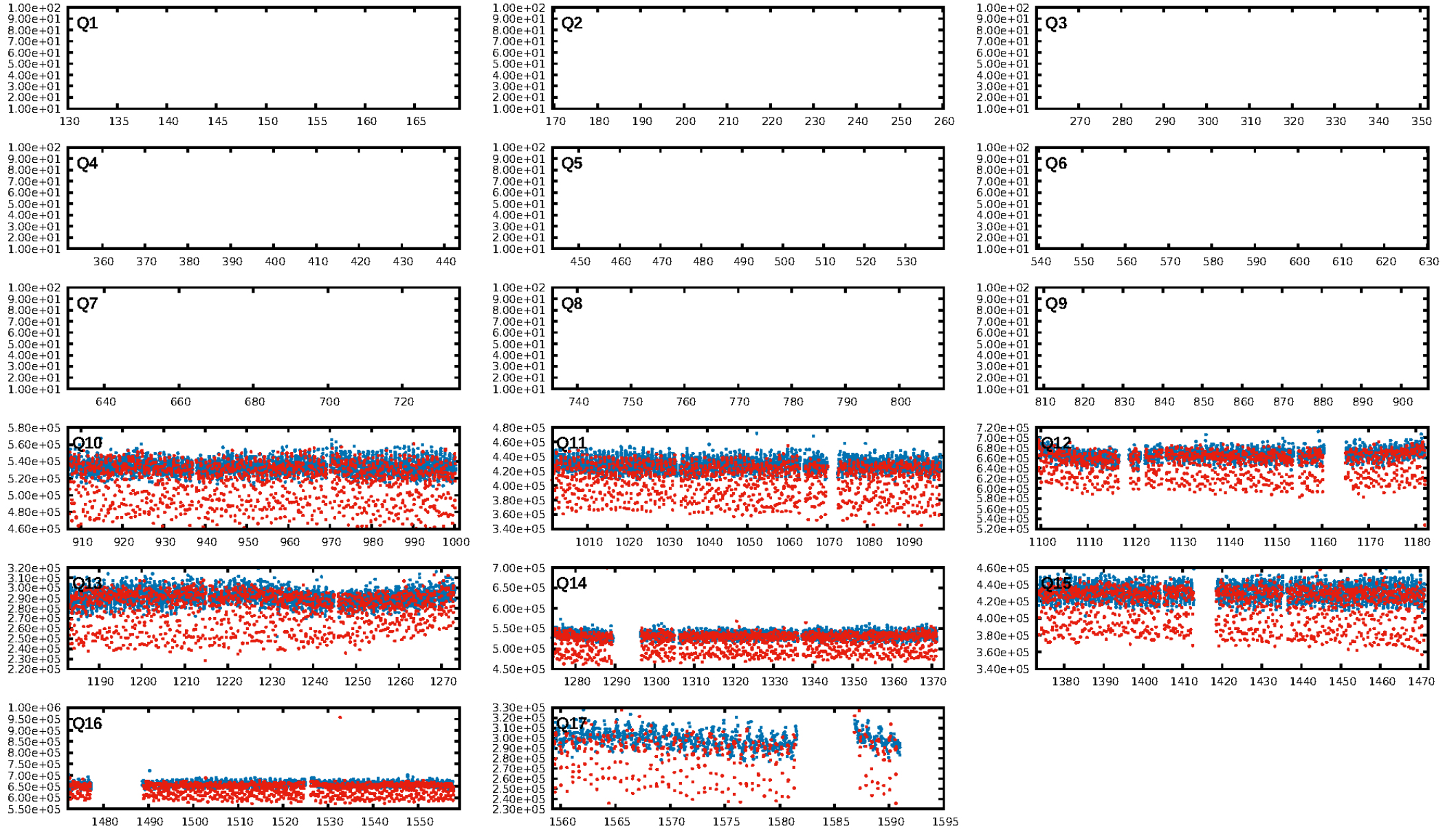
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1081/1087]  
GhostDiagnostic-chr: 4.833  
Centroid-sig: 0.0%  
Centroid-so: 4.964 arcsec [697.79σ]  
OotOffset-rm: 7.431 arcsec [103.11σ]  
KicOffset-rm: 0.767 arcsec [10.38σ]  
OotOffset-st: 2/2/2/2 [8]  
KicOffset-st: 2/2/2/2 [8]  
DiffImageQuality-fgm: 1.00 [8/8]  
DiffImageOverlap-fno: 1.00 [8/8]

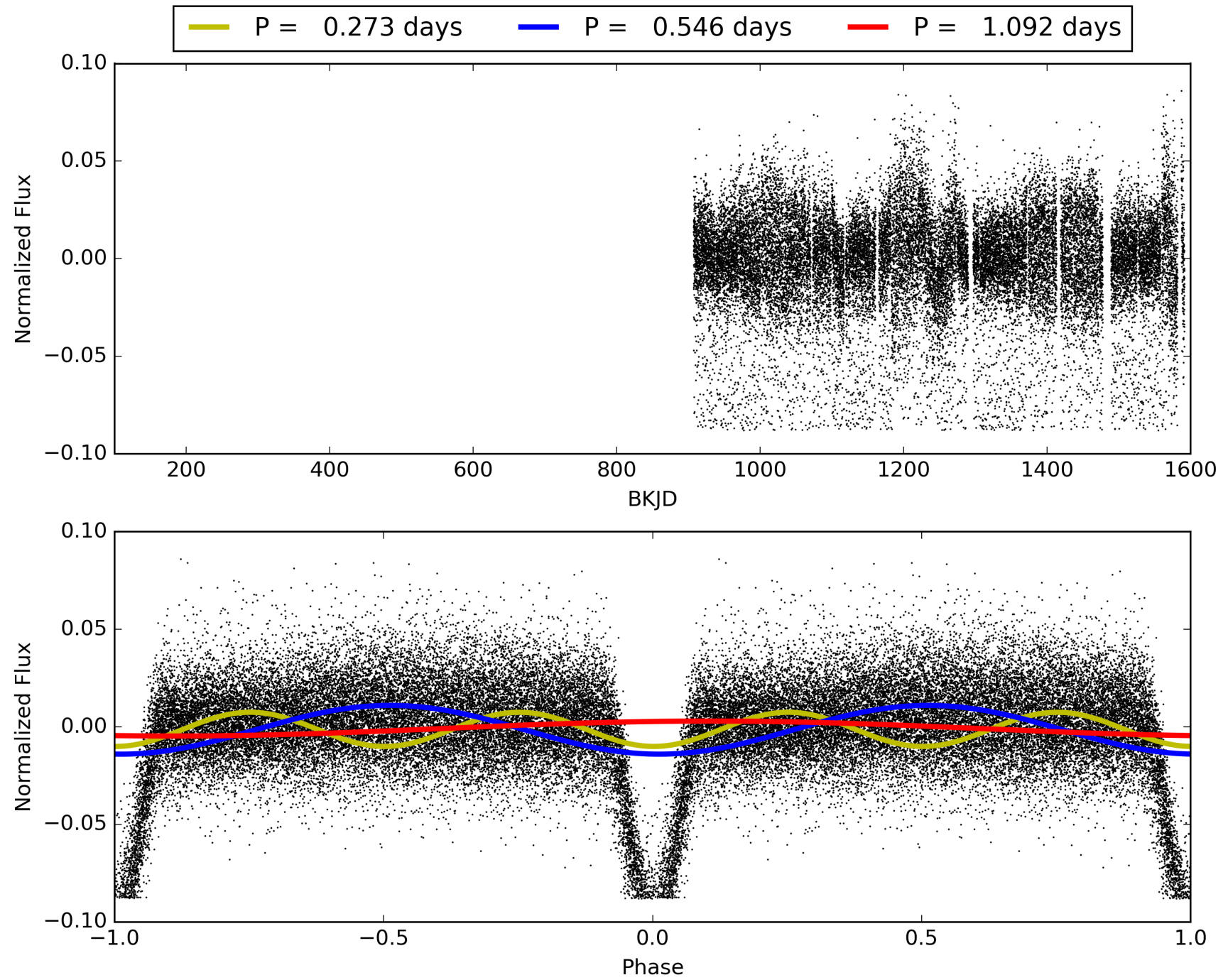
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:54:33 Z

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

# TCE 002558370-01, PDC Light Curves

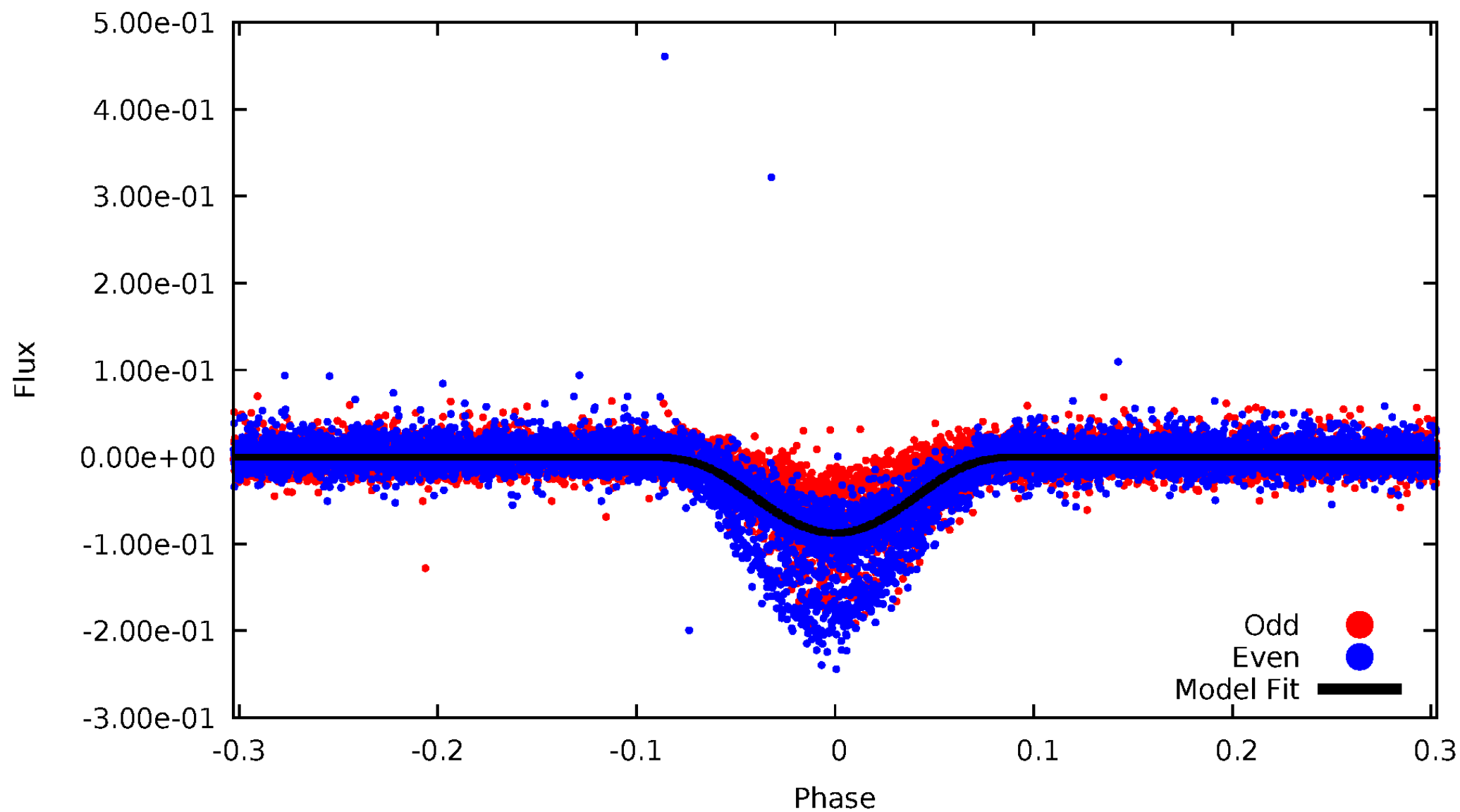


TCE 002558370-01



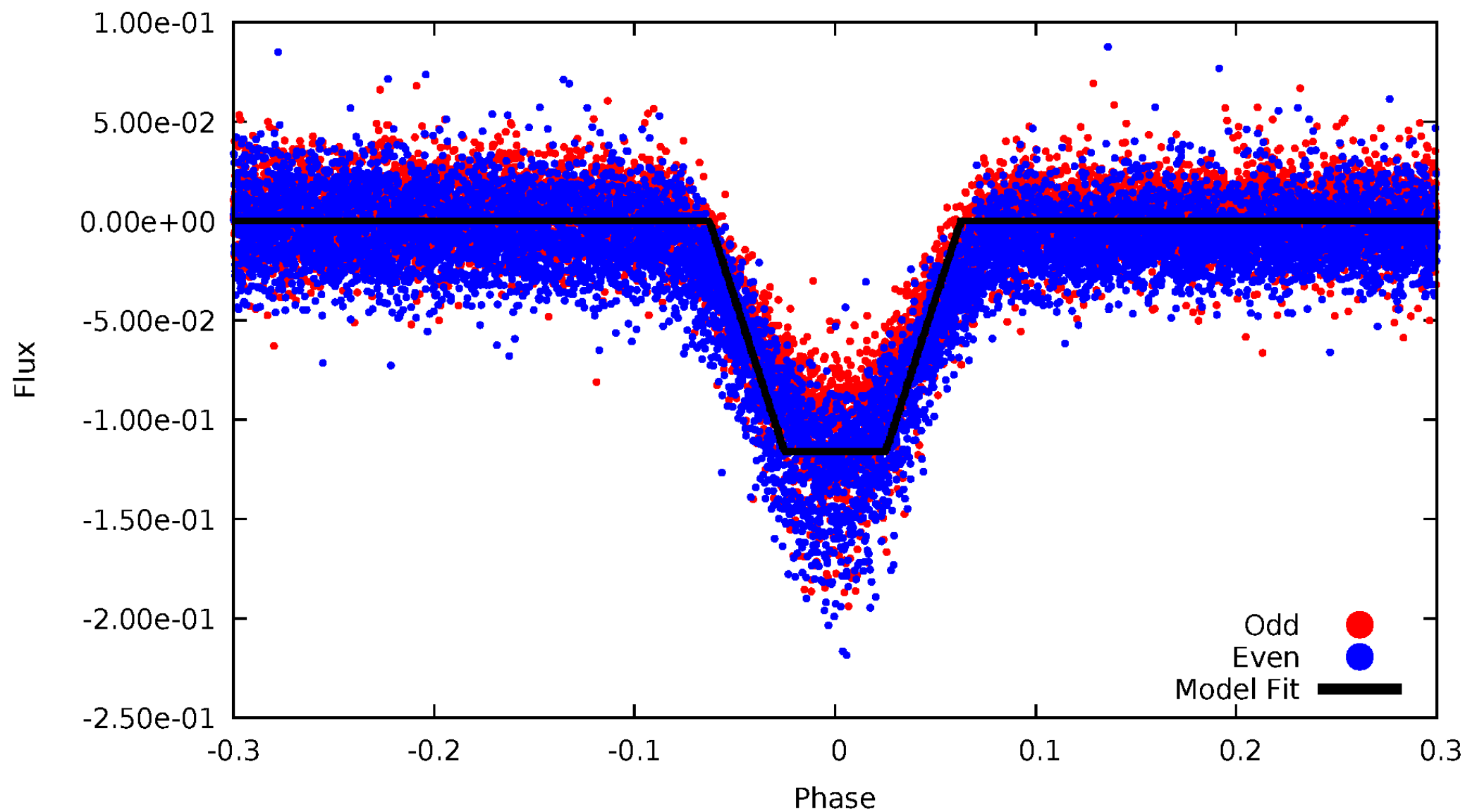
# DV Odd/Even

TCE 002558370-01



# ALT Odd/Even

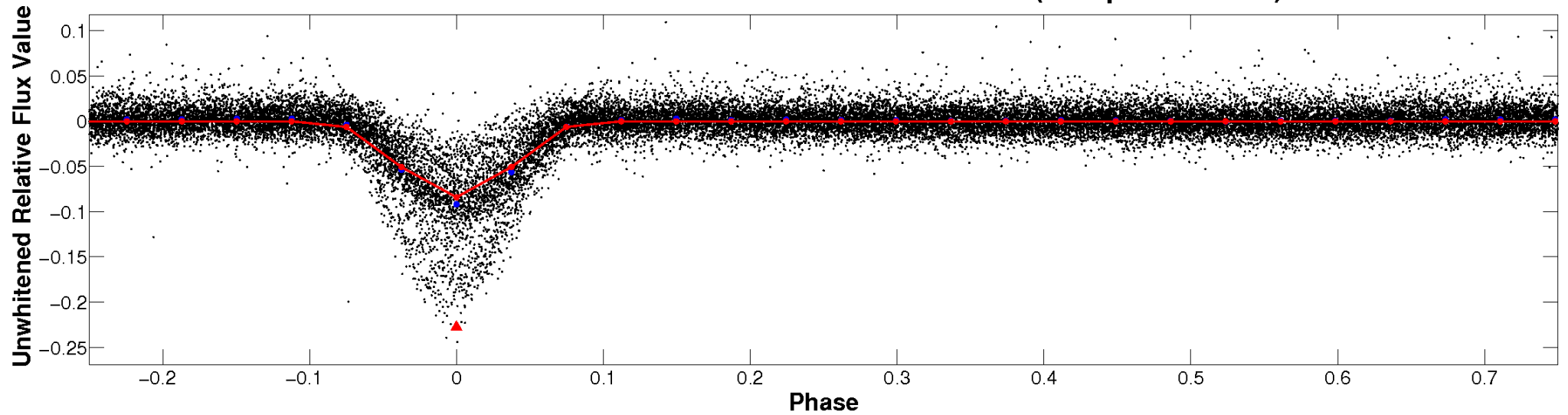
TCE 002558370-01



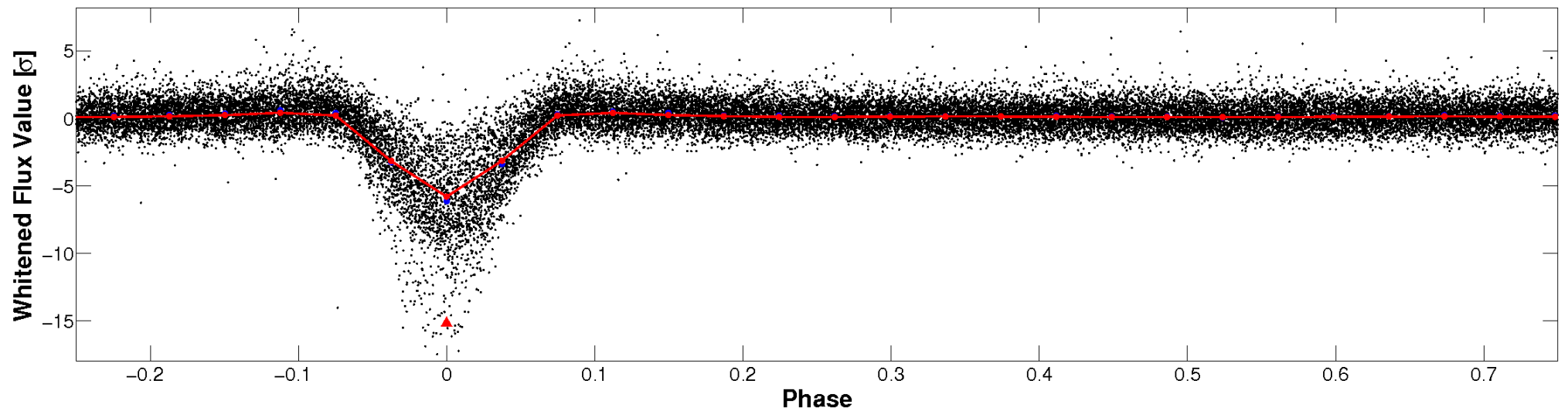


# Non-Whitened Vs. Whitened Light Curve

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

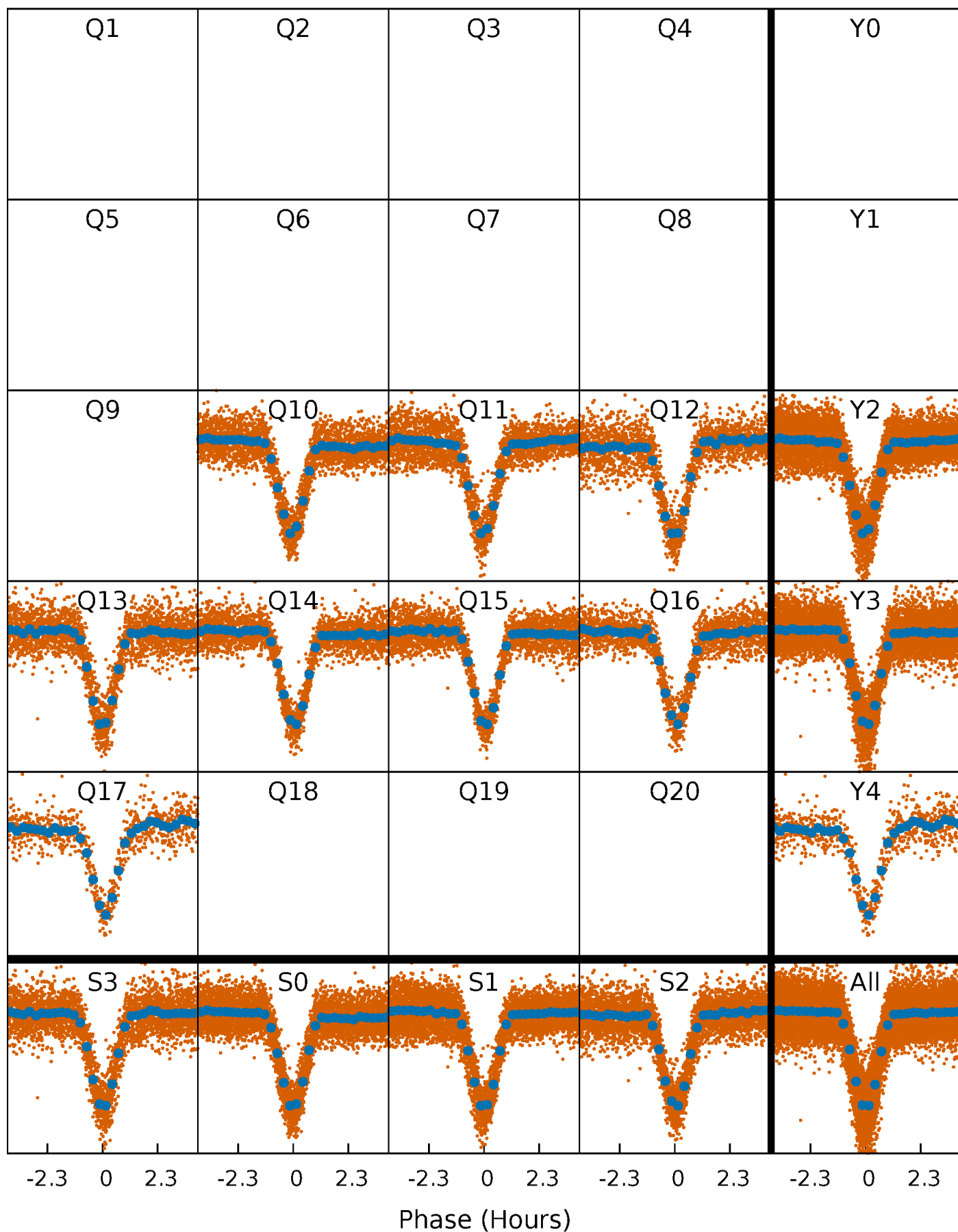


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

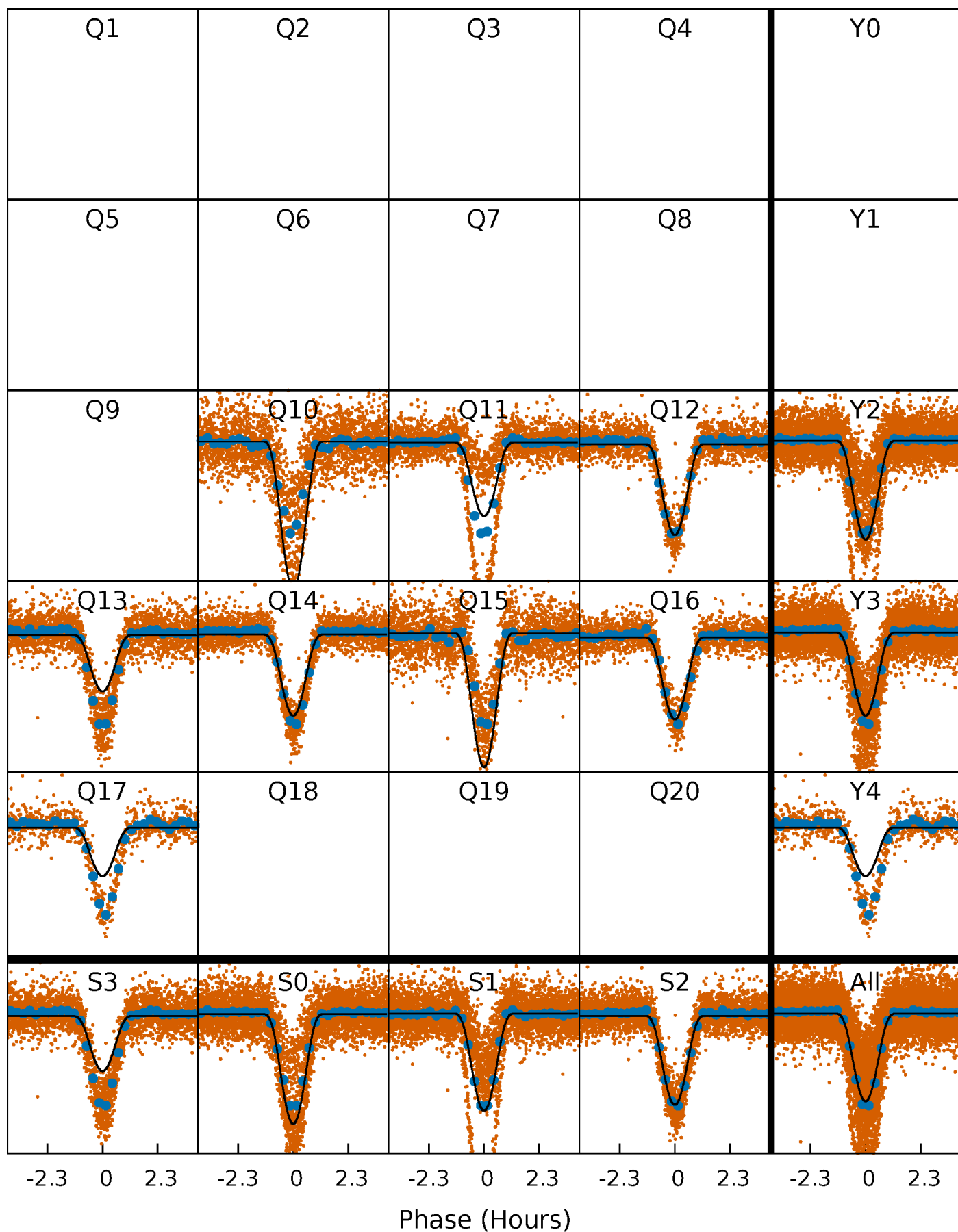
TCE 002558370-01   P= 0.546242 Days    $T_0=131.597407$  (BKJD)





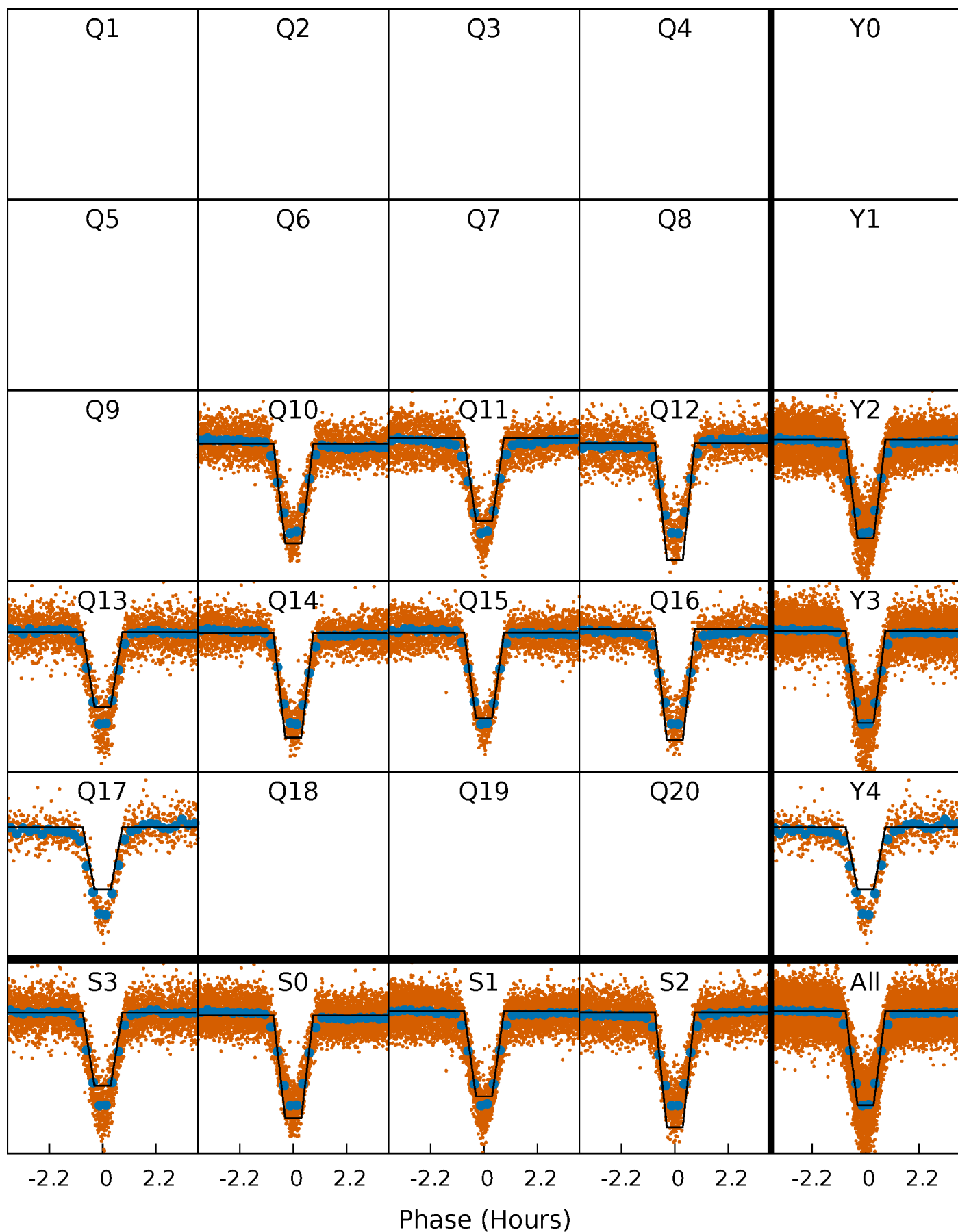
# DV Quarter-Phased Transit Curves

TCE 002558370-01   P= 0.546242 Days    $T_0=131.597407$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

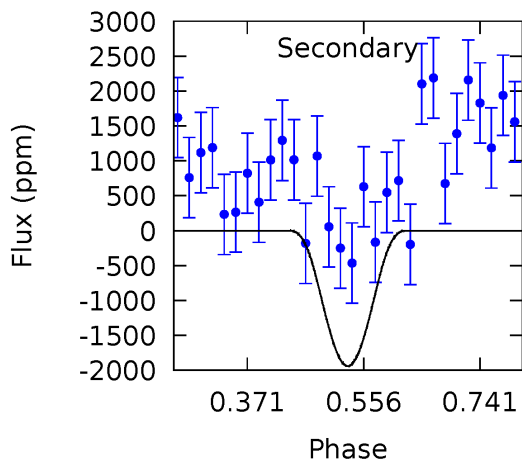
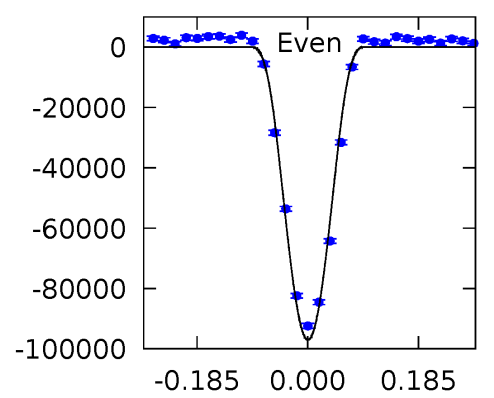
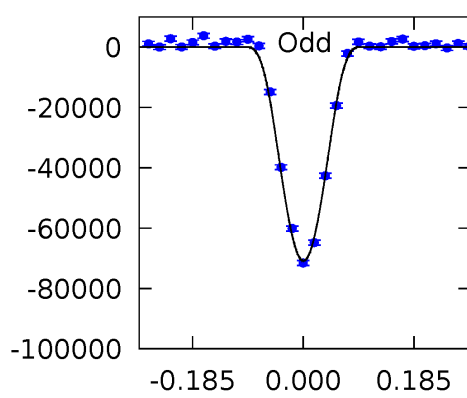
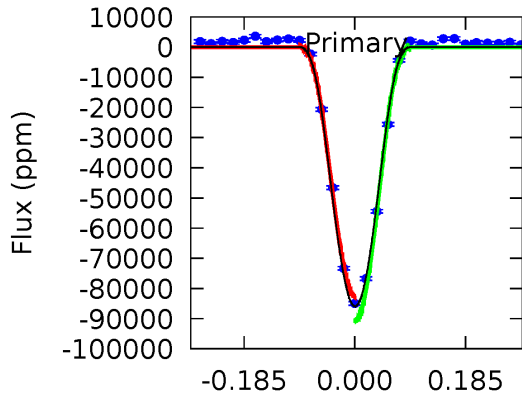
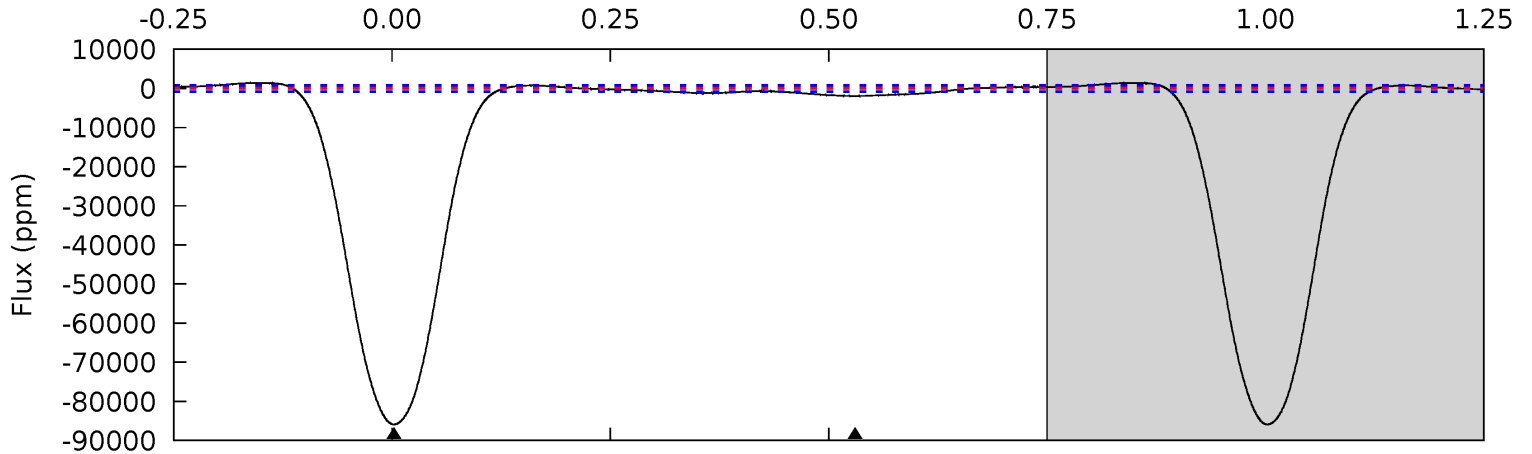
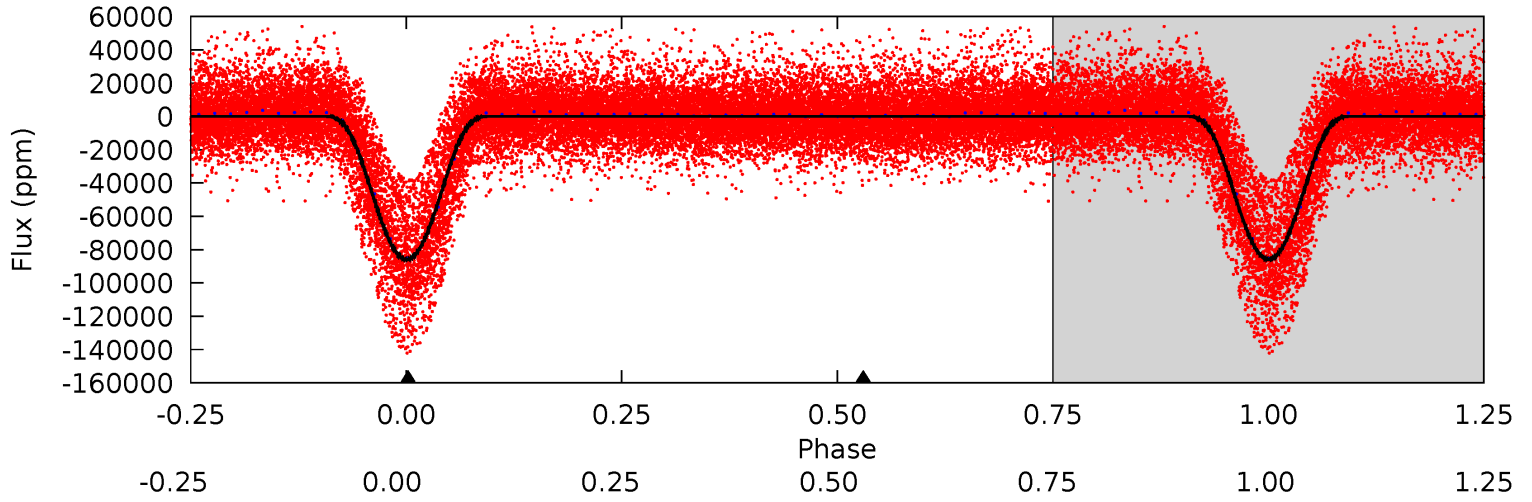
TCE 002558370-01   P= 0.546247 Days    $T_0=131.586861$  (BKJD)



# DV Model-Shift Uniqueness Test

002558370-01, P = 0.546242 Days, E = 131.597407 Days

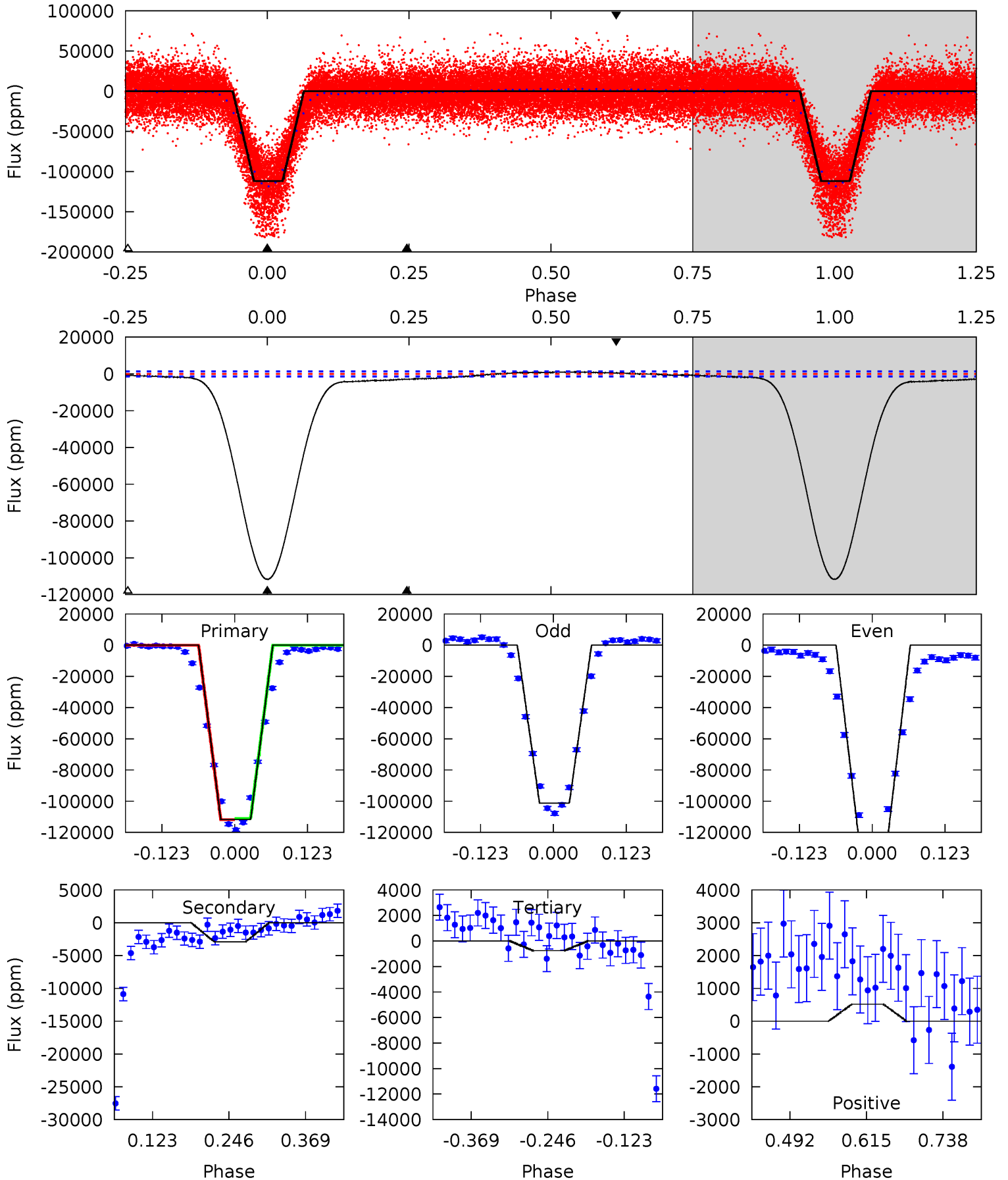
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
462.6	10.4	0	0	4.43	1.32	3.08	462.6	462.6	10.4	10.4	71.5	1.05	0.02	0



# Alt Model-Shift Uniqueness Test

002558370-01, P = 0.546247 Days, E = 131.586861 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
374.3	9.73	2.54	1.73	4.52	1.54	3.20	371.7	372.5	7.20	8.00	35.0	1.04	0.01	1.48



### Stellar Parameters For KIC 002558370

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

### Secondary Eclipse Parameters for KIC 002558370-01 / KOI 3855.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1940 \pm 186$	$44.04^{+19.11}_{-17.60}$	$3112^{+143}_{-146}$	$-2964^{+621}_{-155}$	$0.093^{+0.175}_{-0.048}$
Alt.	$-2906 \pm 298$	$38.29^{+17.75}_{-18.71}$	$3119^{+147}_{-144}$	$-2740^{+6060}_{-288}$	$0.190^{+0.547}_{-0.102}$

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

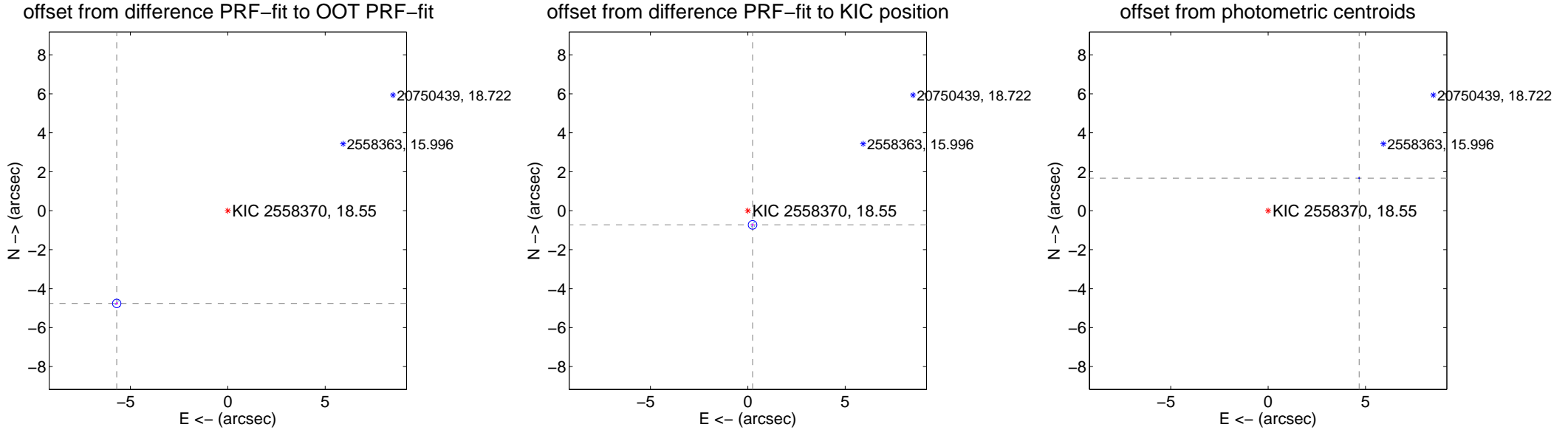
## DV Centroid Data

Supplemental centroid analysis for 002558370-01. Kepler magnitude: 18.55. Transit SNR 220.71

There are 8 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 7.05 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.431 \pm 0.072$	103.11	$5.705 \pm 0.070$	$-4.761 \pm 0.070$
PRF-fit source offset from KIC position	$0.767 \pm 0.074$	10.38	$-0.244 \pm 0.071$	$-0.727 \pm 0.074$
photometric centroid source offset	$4.96 \pm 0.01$	697.79	$-4.67 \pm 0.01$	$1.67 \pm 0.01$



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.



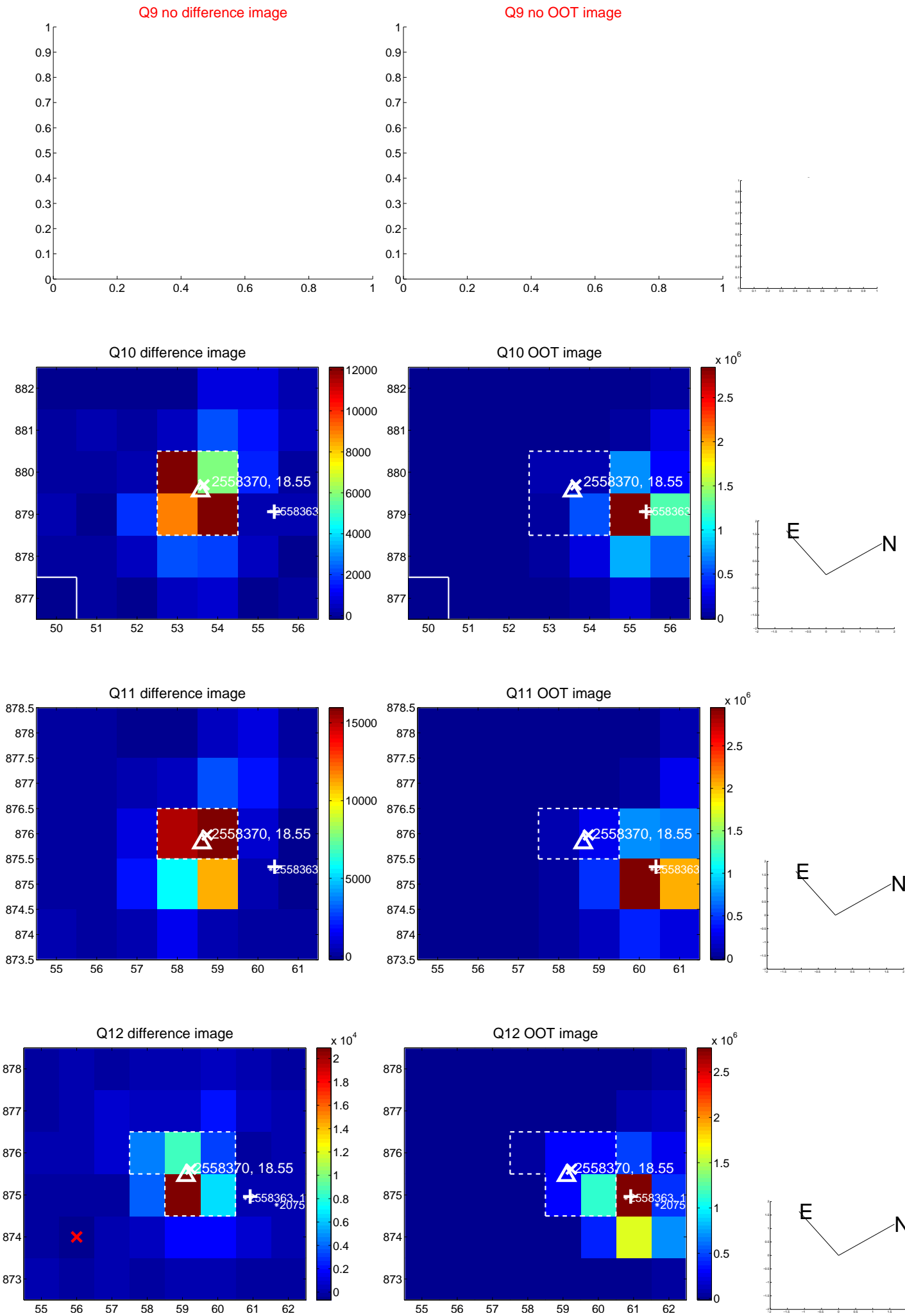
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



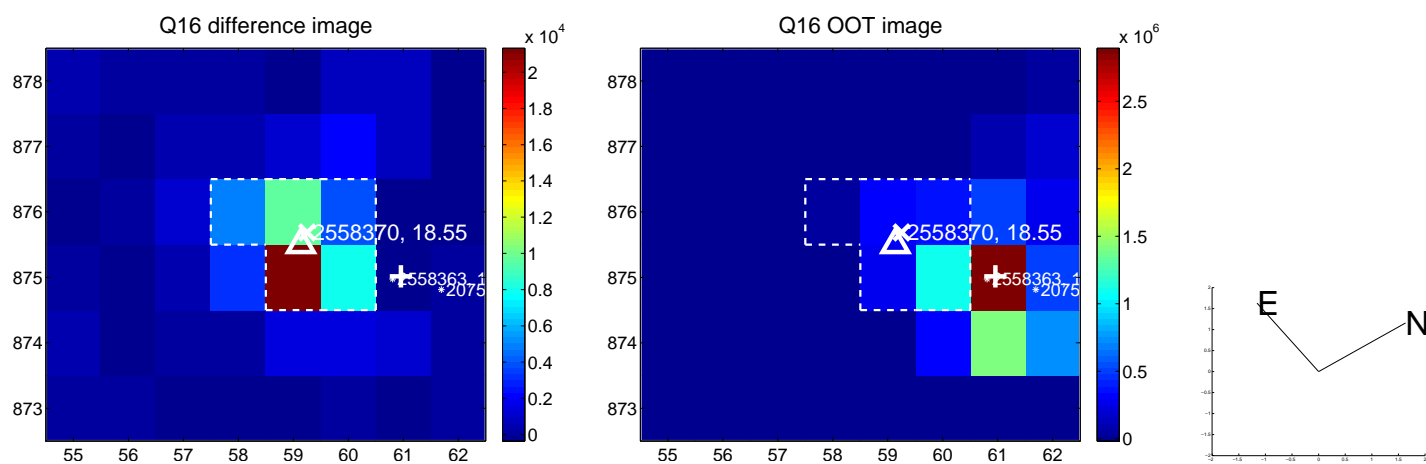
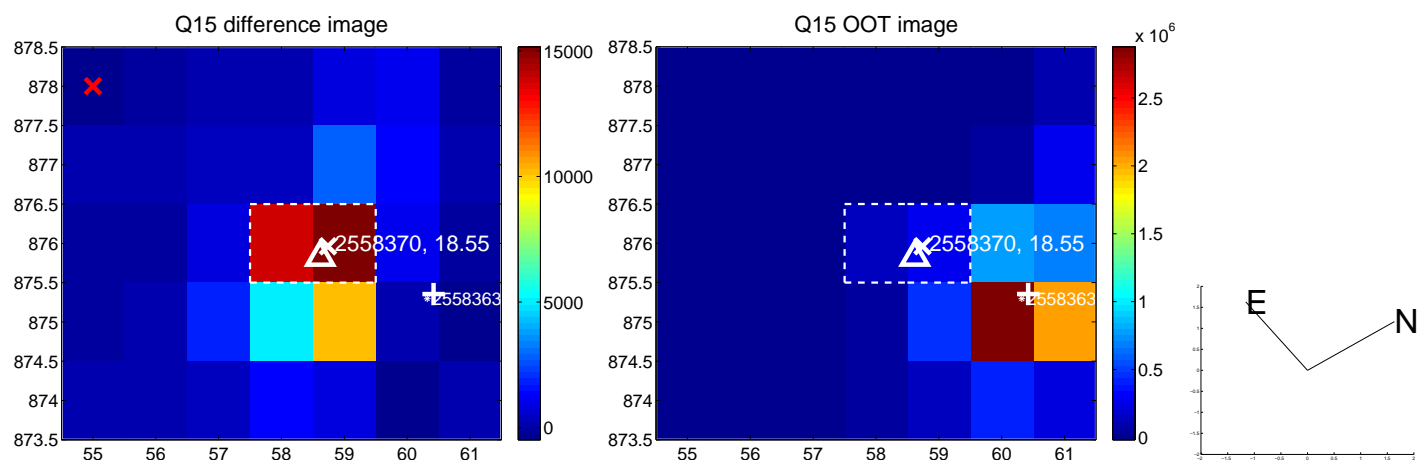
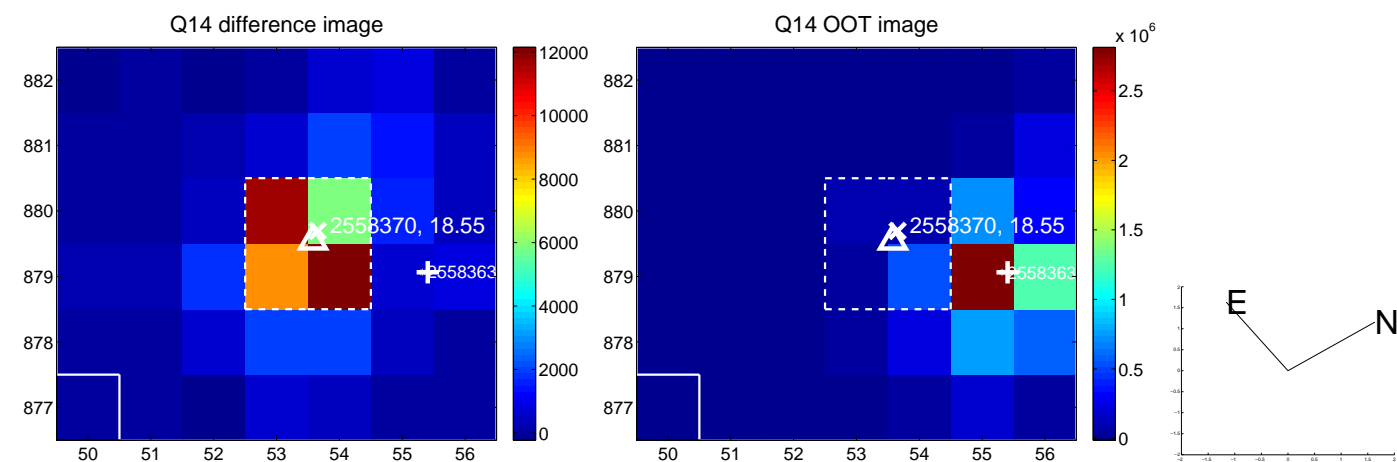
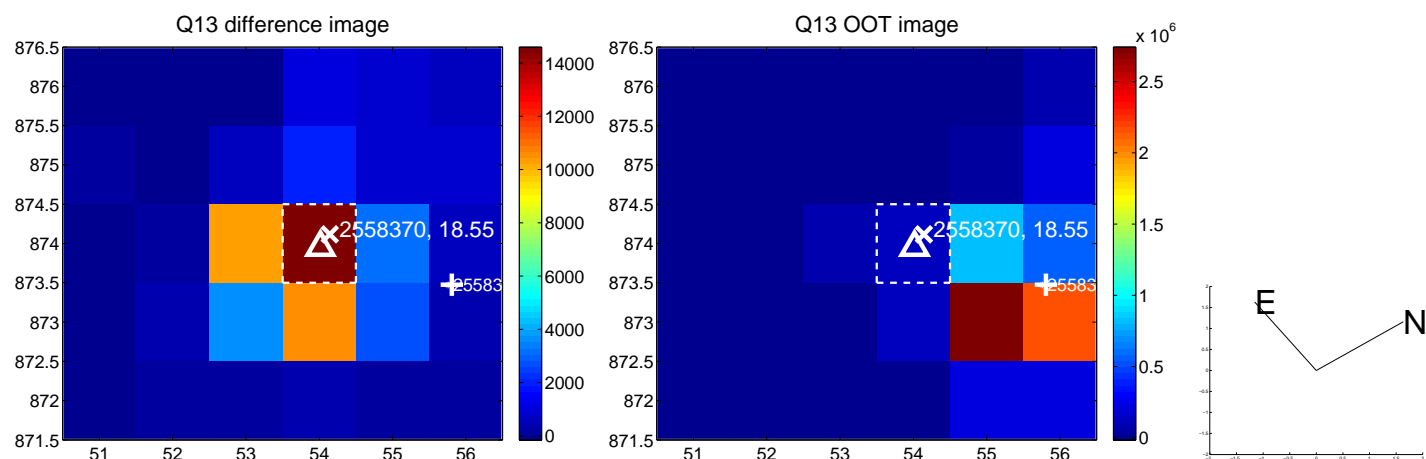
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



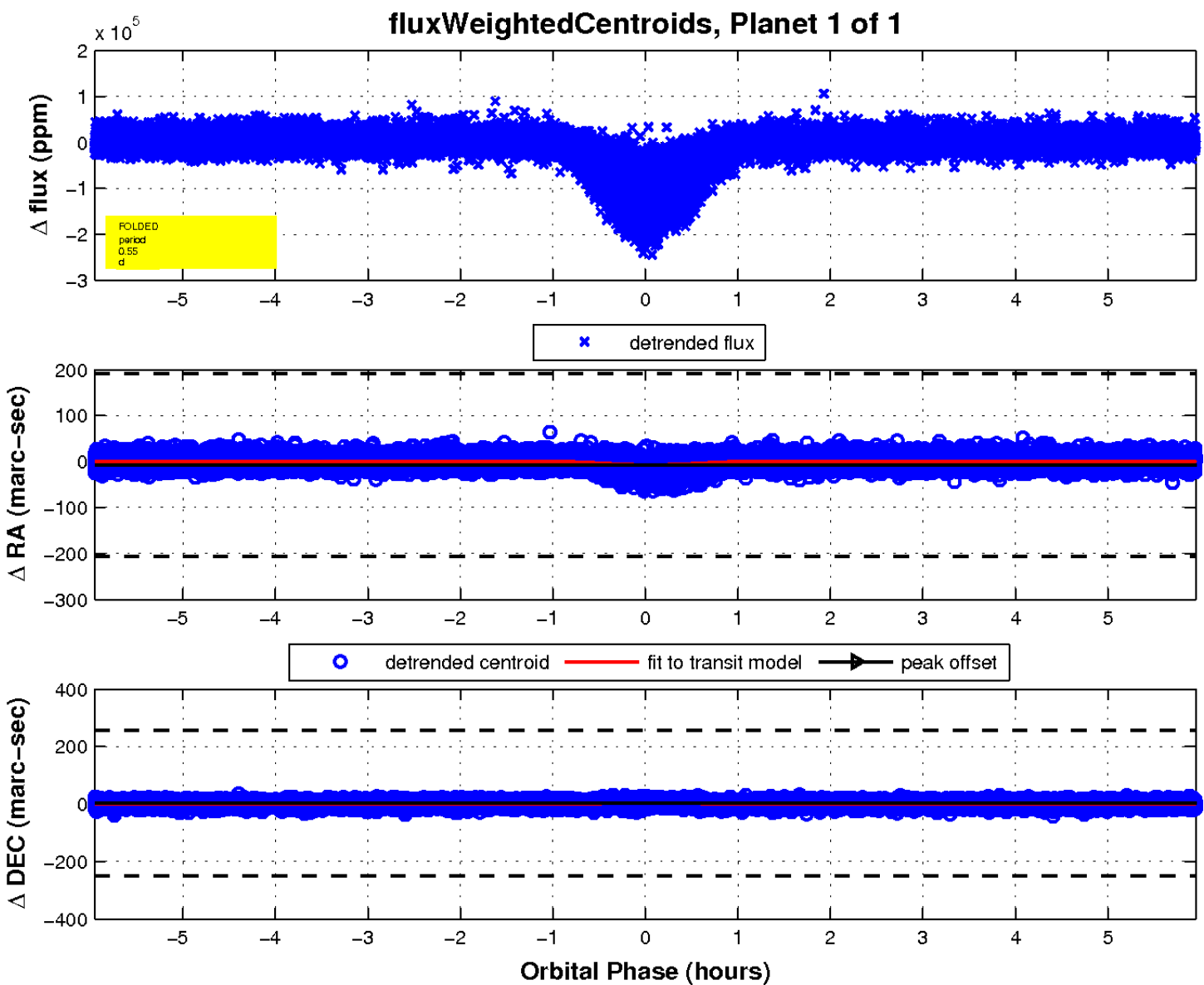
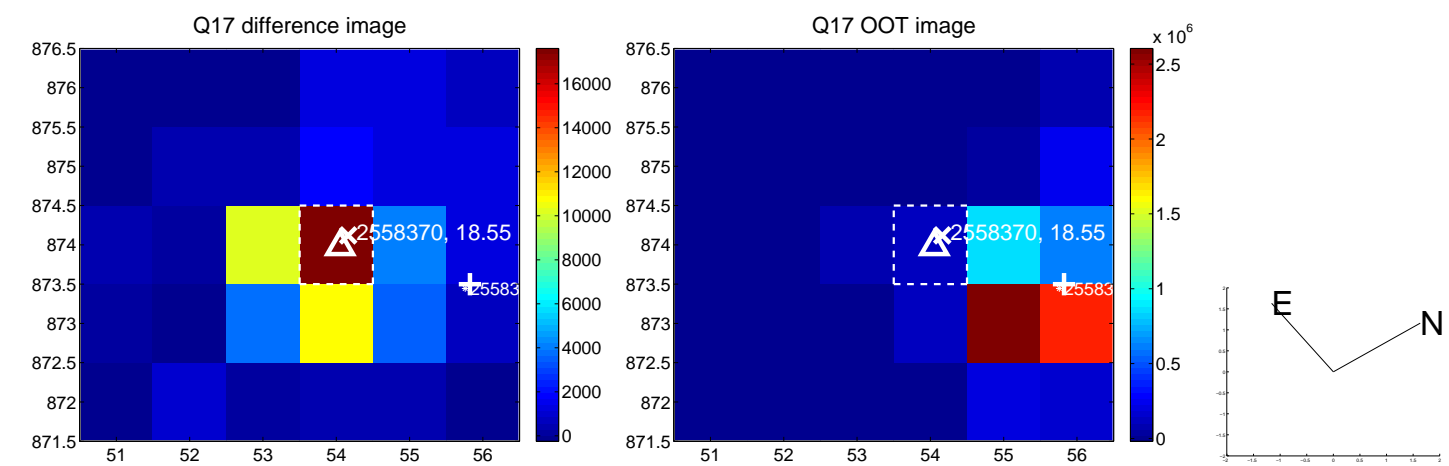
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UKIRT Image

Declination

