

# KIC 003556229

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003556229-01	OBS	3899.01	0.796721	132.287090	142912.2	3.641	829.7	361.3	1.00	5780	56.44	3533.43

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003556229-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—MOD_SEC_DV—MOD_SEC_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.

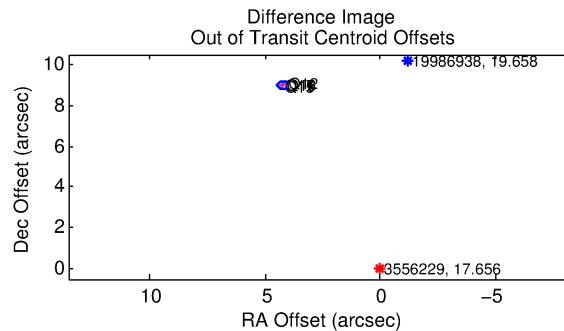
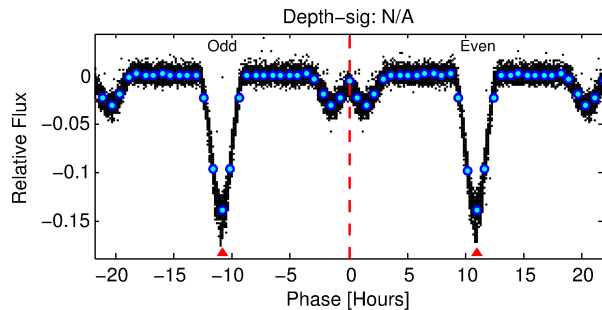
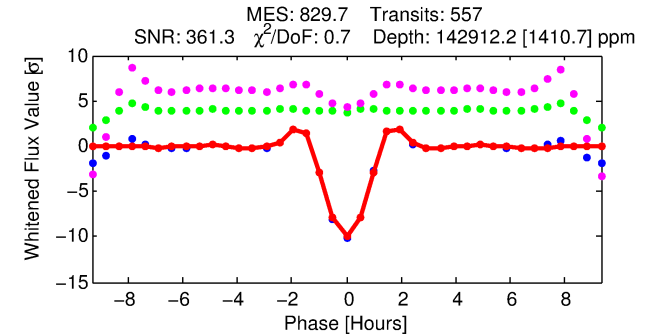
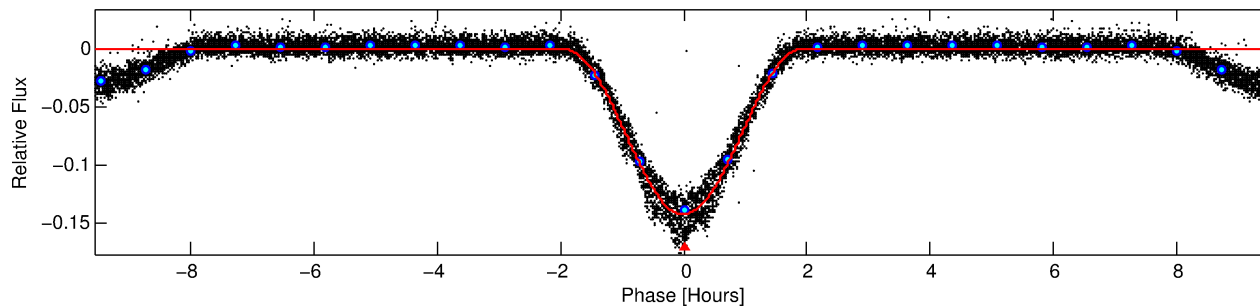
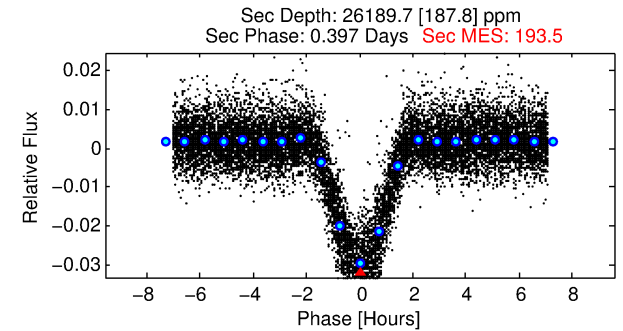
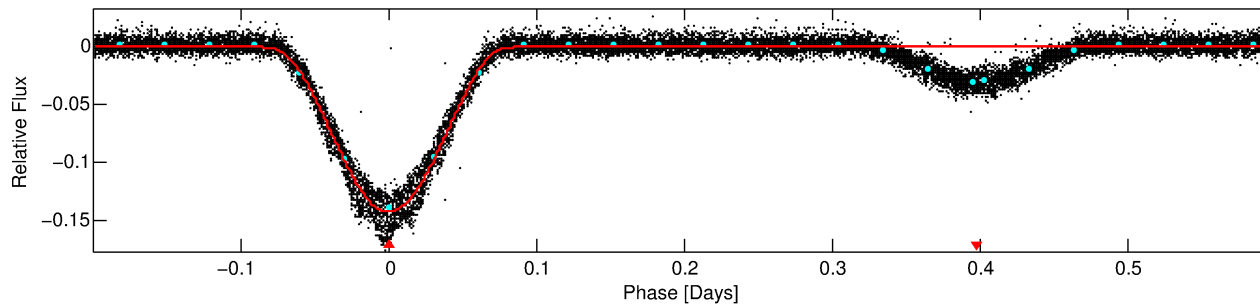
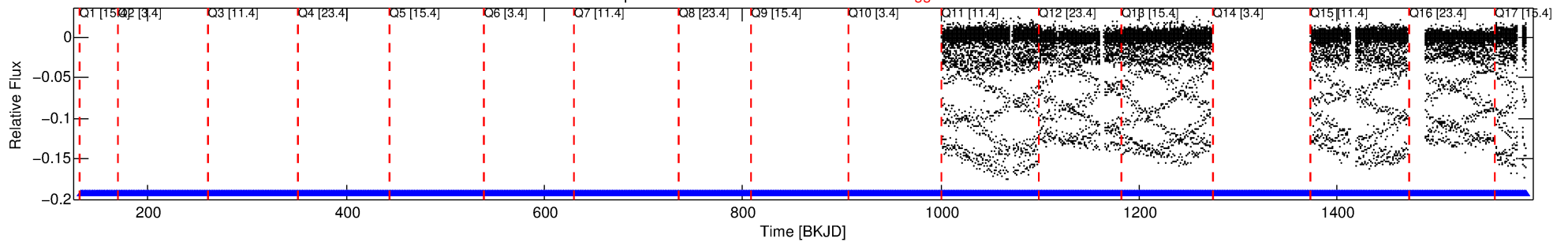
## Ephemeris Match Information For 003556229-01

No Significant Match Found

# DV One-Page Summary

KIC: 3556229 Candidate: 1 of 1 Period: 0.797 d  
KOI: K03899.01 Corr: 0.946

Kp: 17.66 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



## DV Fit Results:

Period = 0.79672 [0.00000] d  
Epoch = 132.2871 [0.0001] BKJD  
Rp/R\* = 0.5172 [0.3597]  
a/R\* = 2.35 [0.32]  
b = 0.90 [0.51]  
Seff = 3533.43 [0.00]  
Teq = 1966 [0] K  
Rp = 56.44 [39.25] Re  
a = 0.0168 [0.0000] AU  
Ag = 1.28 [1.78] [0.16σ]  
Teffp = 3233 [1124] K [1.13σ]

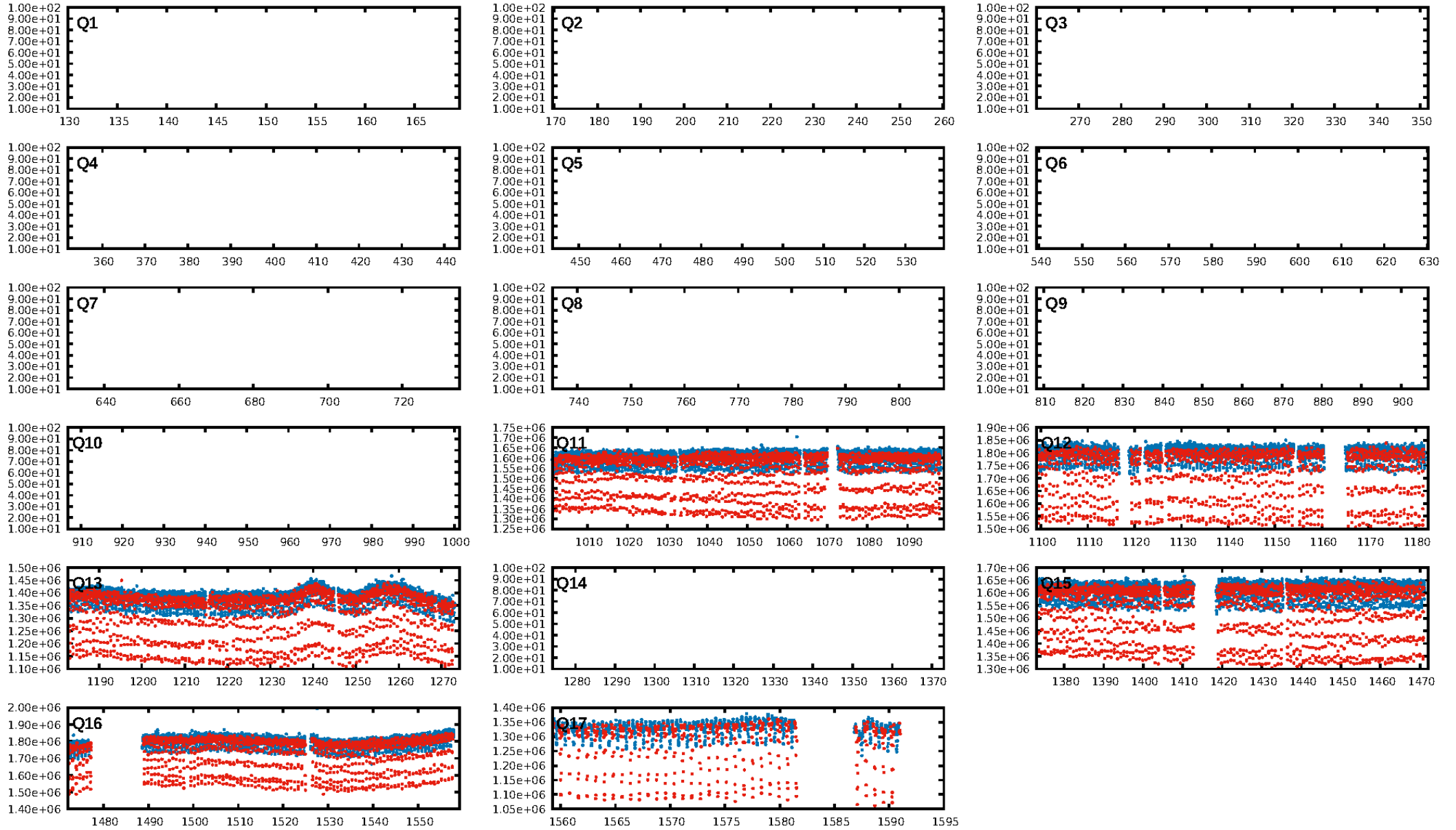
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [522/522]  
GhostDiagnostic-chr: 0.9947  
Centroid-sig: 0.0%  
Centroid-so: 4.603 arcsec [1938.01σ]  
OotOffset-rm: 9.954 arcsec [142.55σ]  
KicOffset-rm: 0.332 arcsec [4.83σ]  
OotOffset-st: 0/2/2/2 [6]  
KicOffset-st: 0/2/2/2 [6]  
DiffImageQuality-fgm: 1.00 [6/6]  
DiffImageOverlap-fno: 1.00 [6/6]

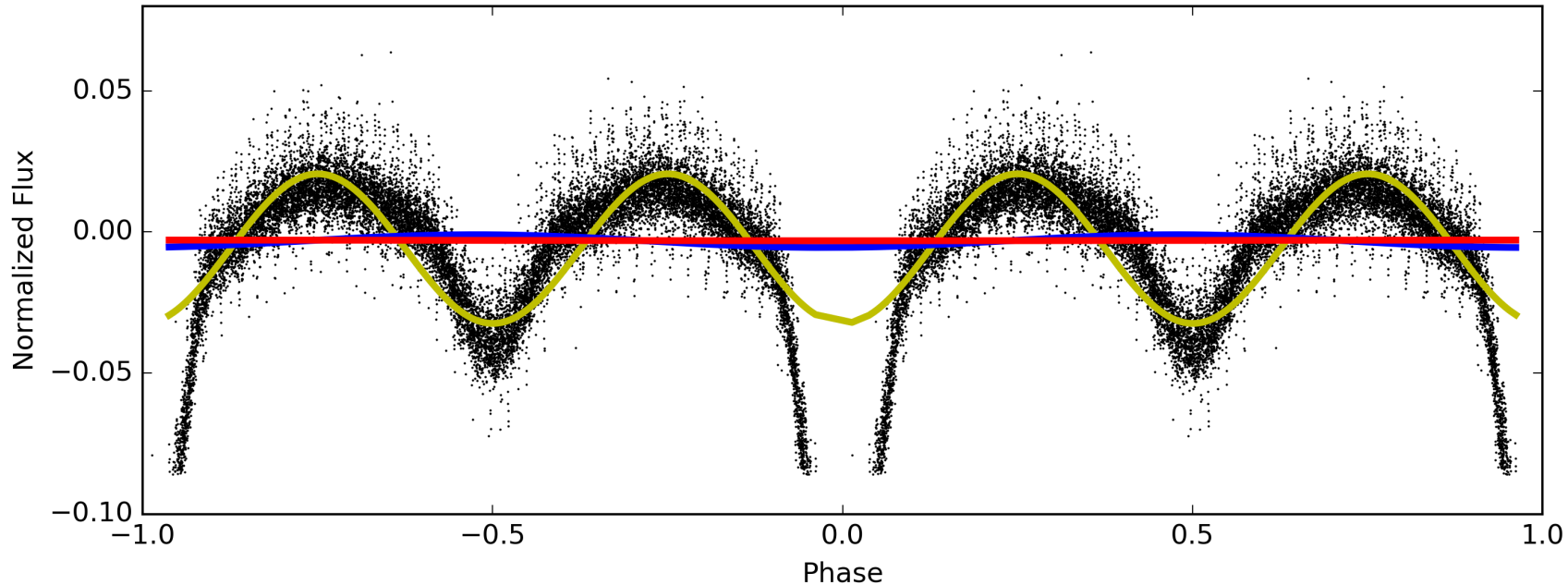
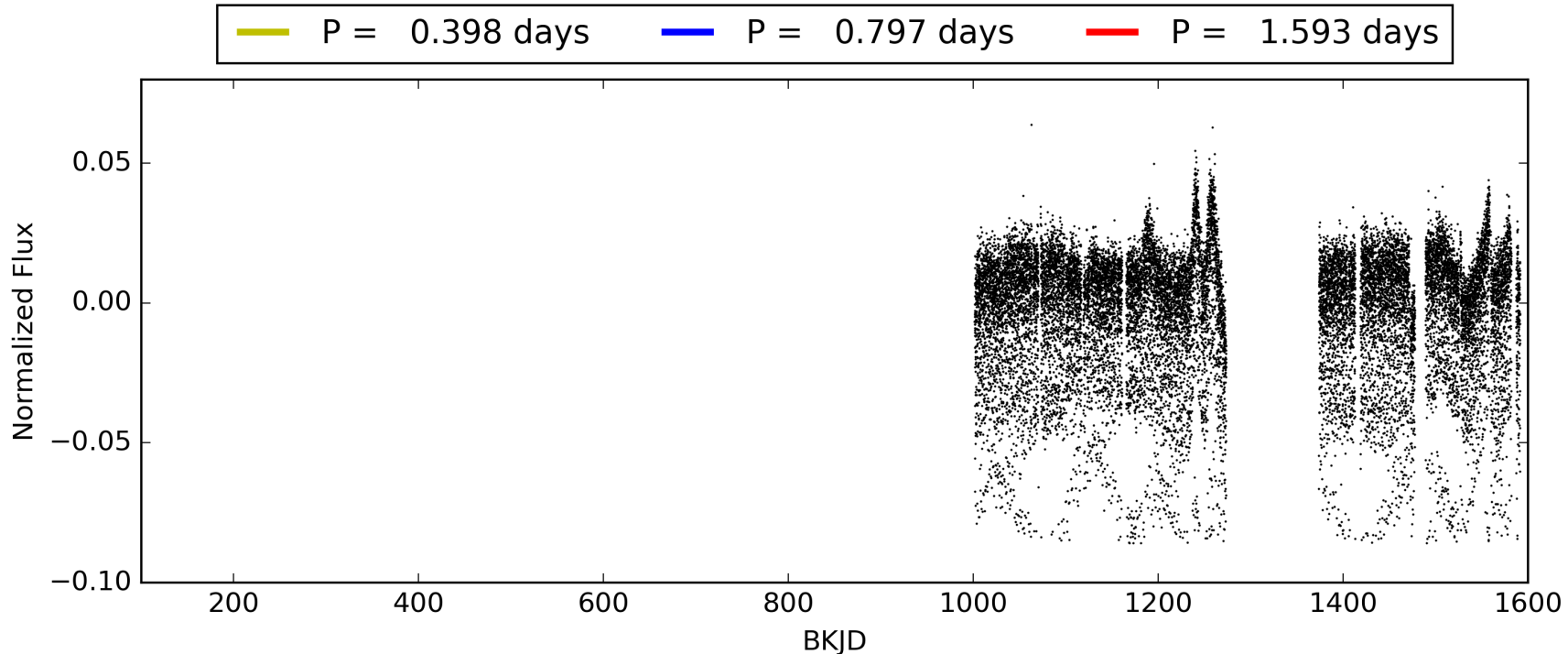
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:03:07 Z

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

# TCE 003556229-01, PDC Light Curves

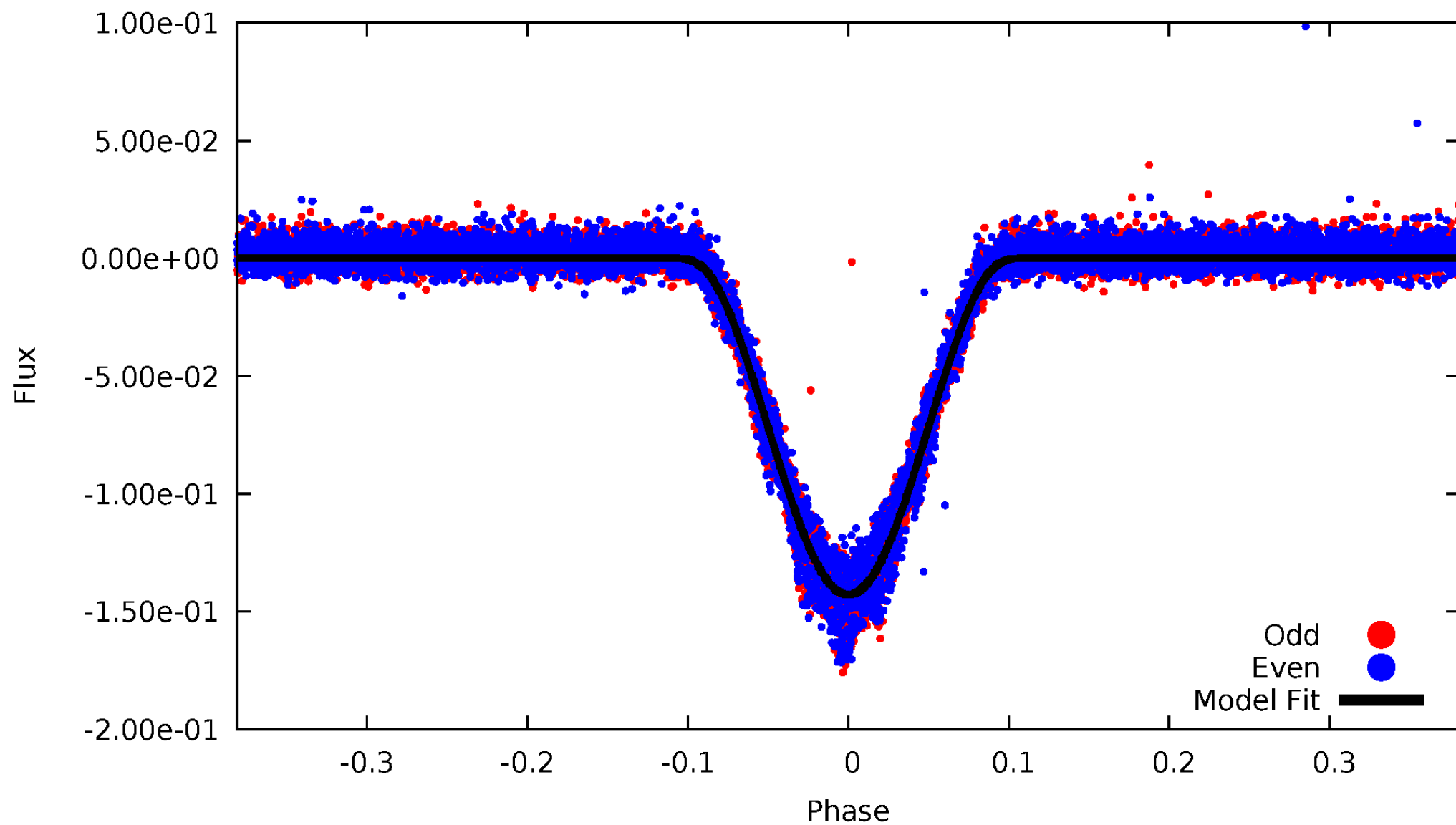


TCE 003556229-01



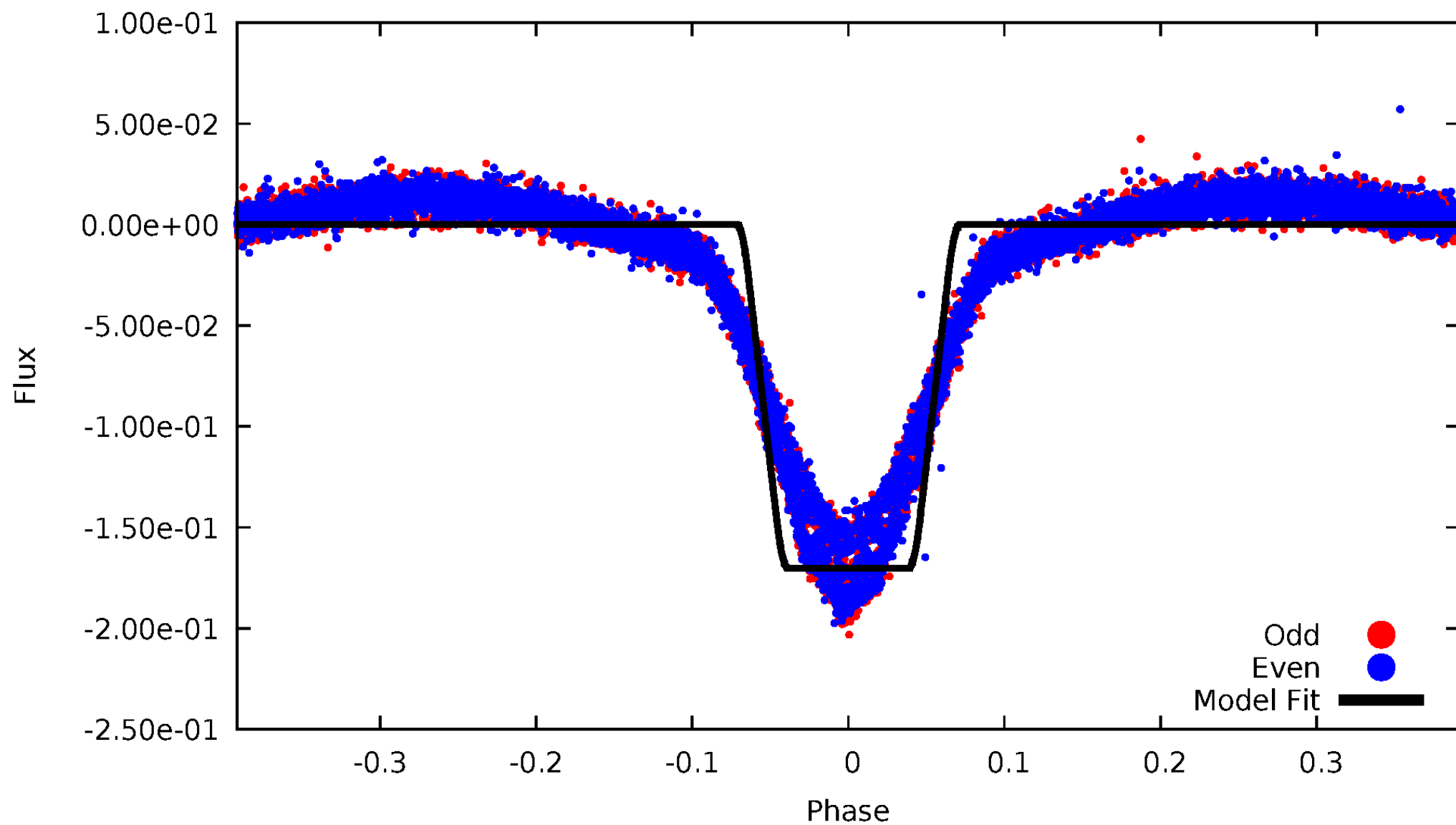
# DV Odd/Even

TCE 003556229-01



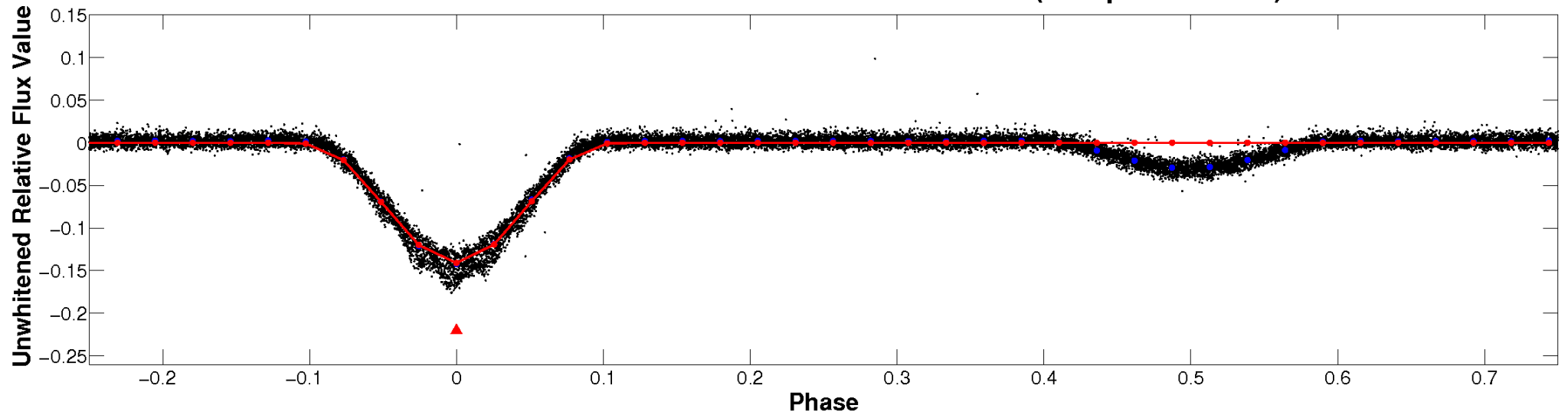
# ALT Odd/Even

TCE 003556229-01

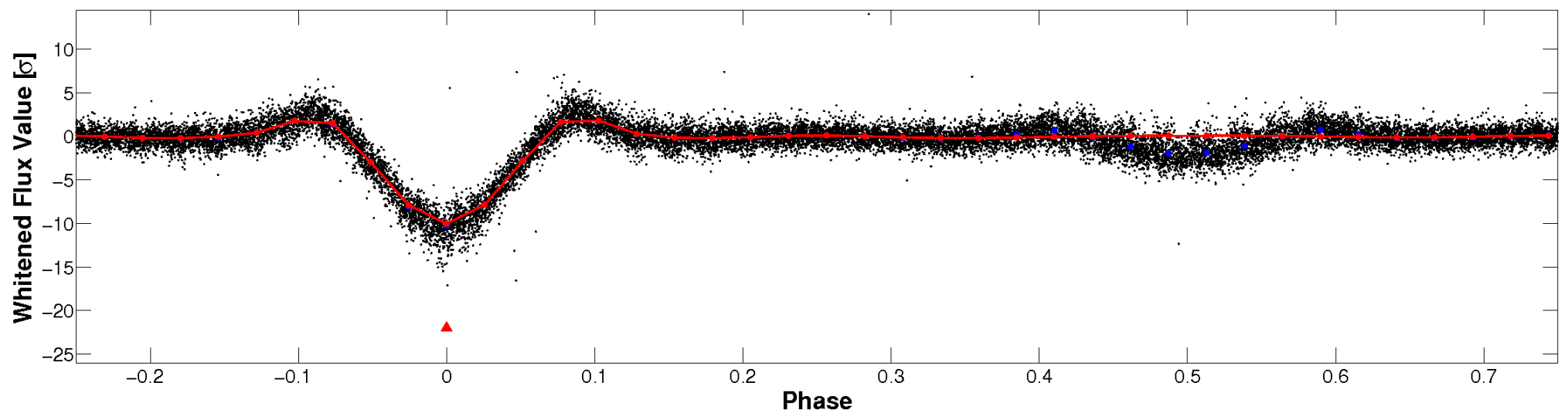


# Non-Whitened Vs. Whitened Light Curve

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

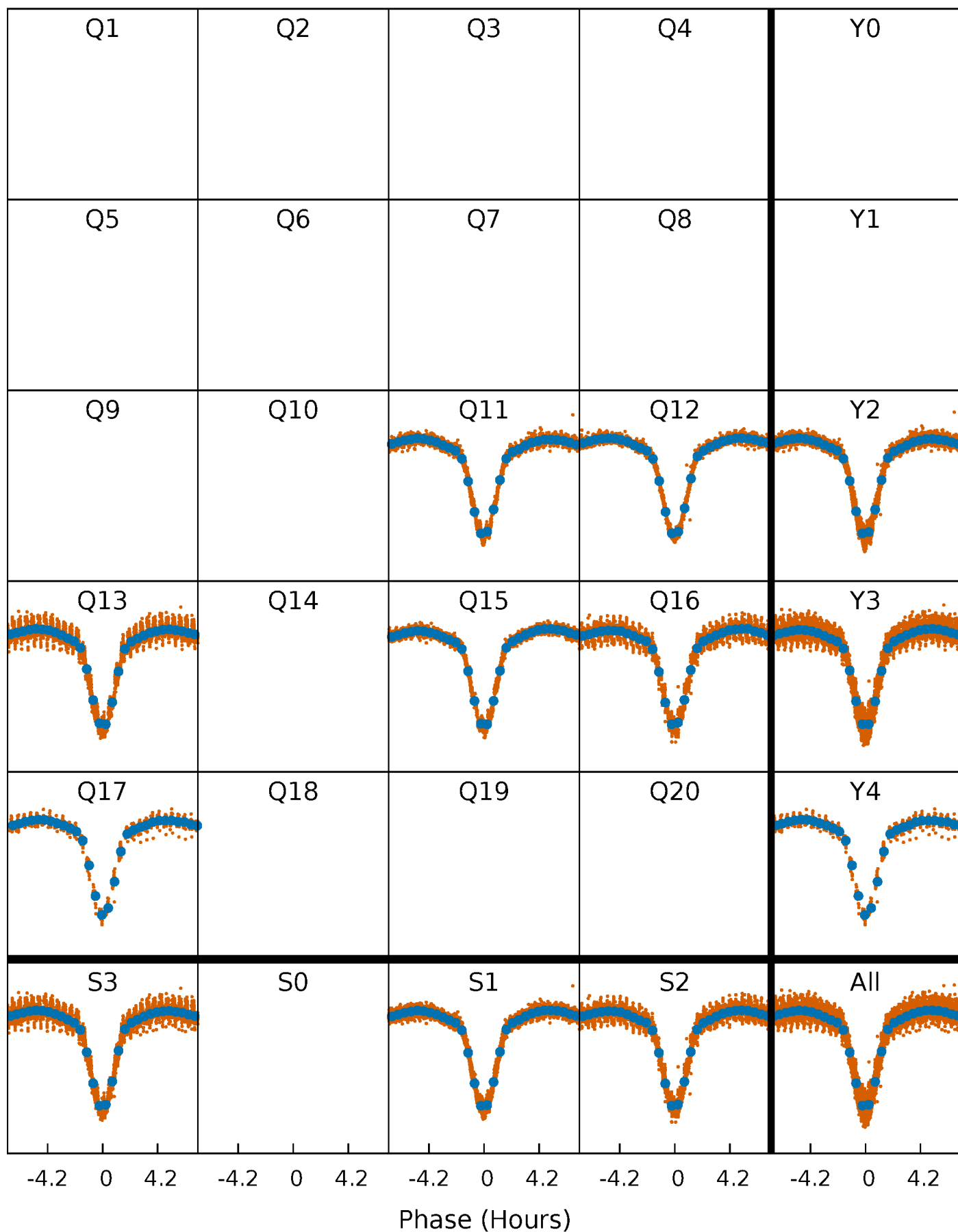


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

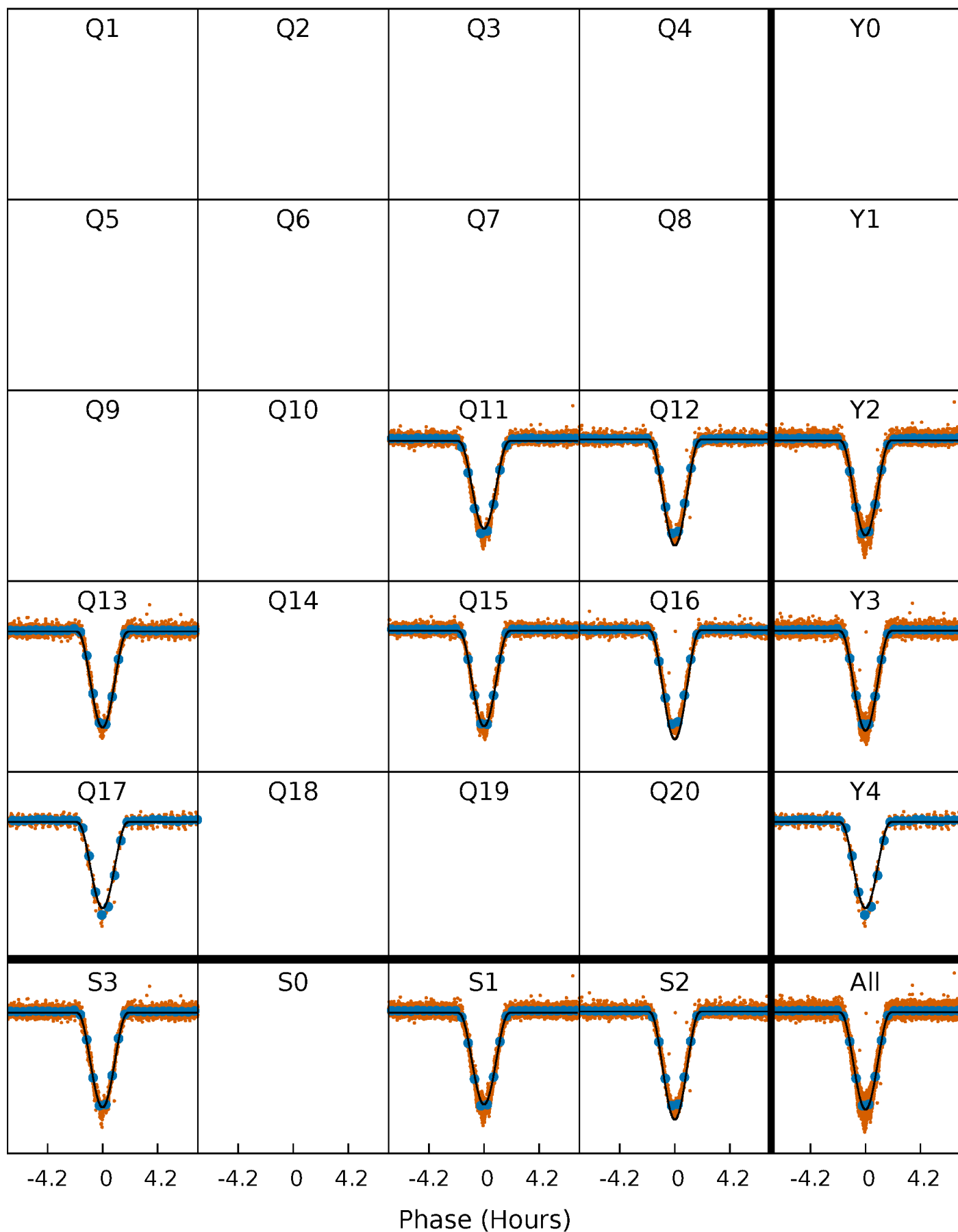
TCE 003556229-01   P= 0.796721 Days    $T_0=132.287090$  (BKJD)





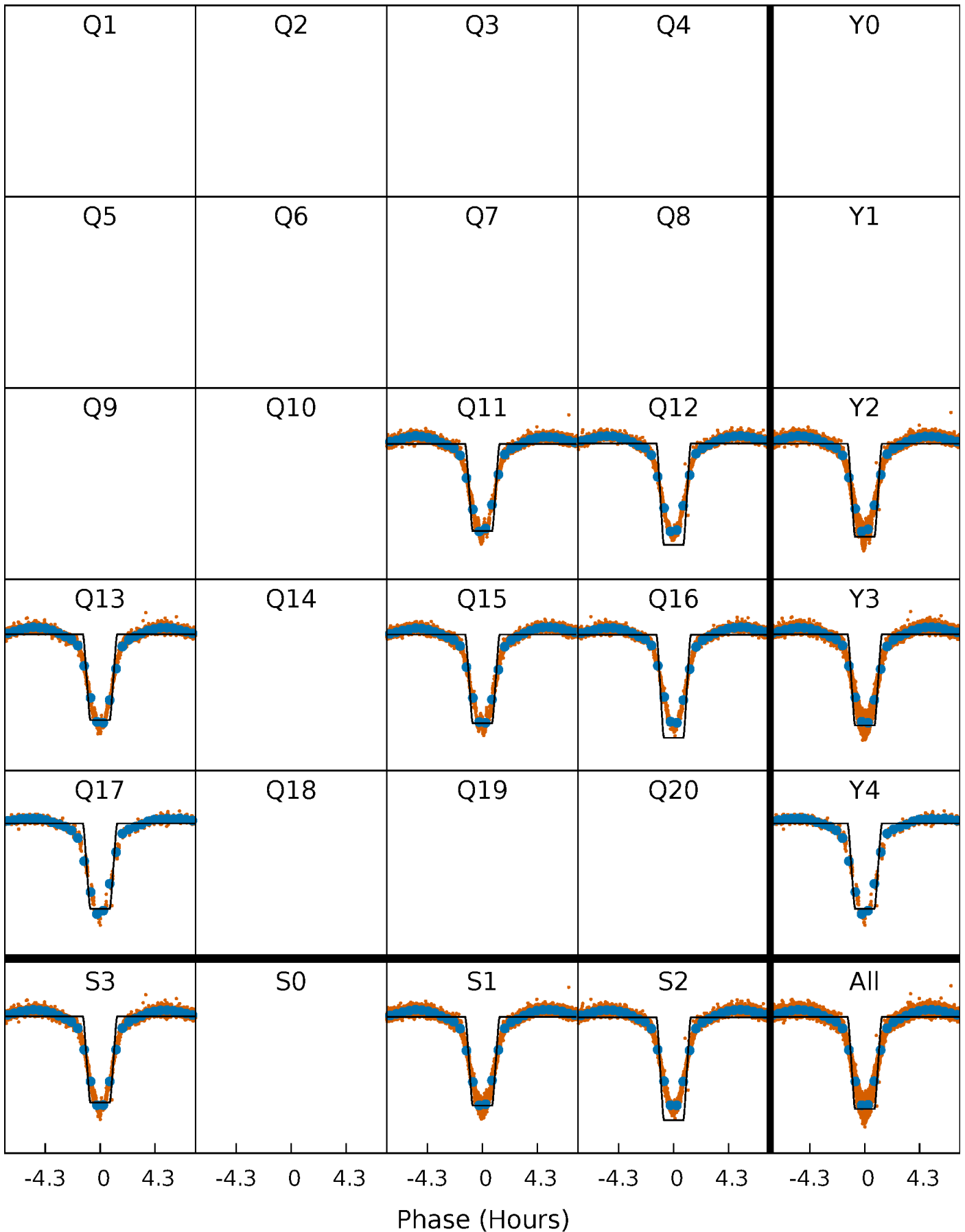
# DV Quarter-Phased Transit Curves

TCE 003556229-01   P= 0.796721 Days    $T_0=132.287090$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

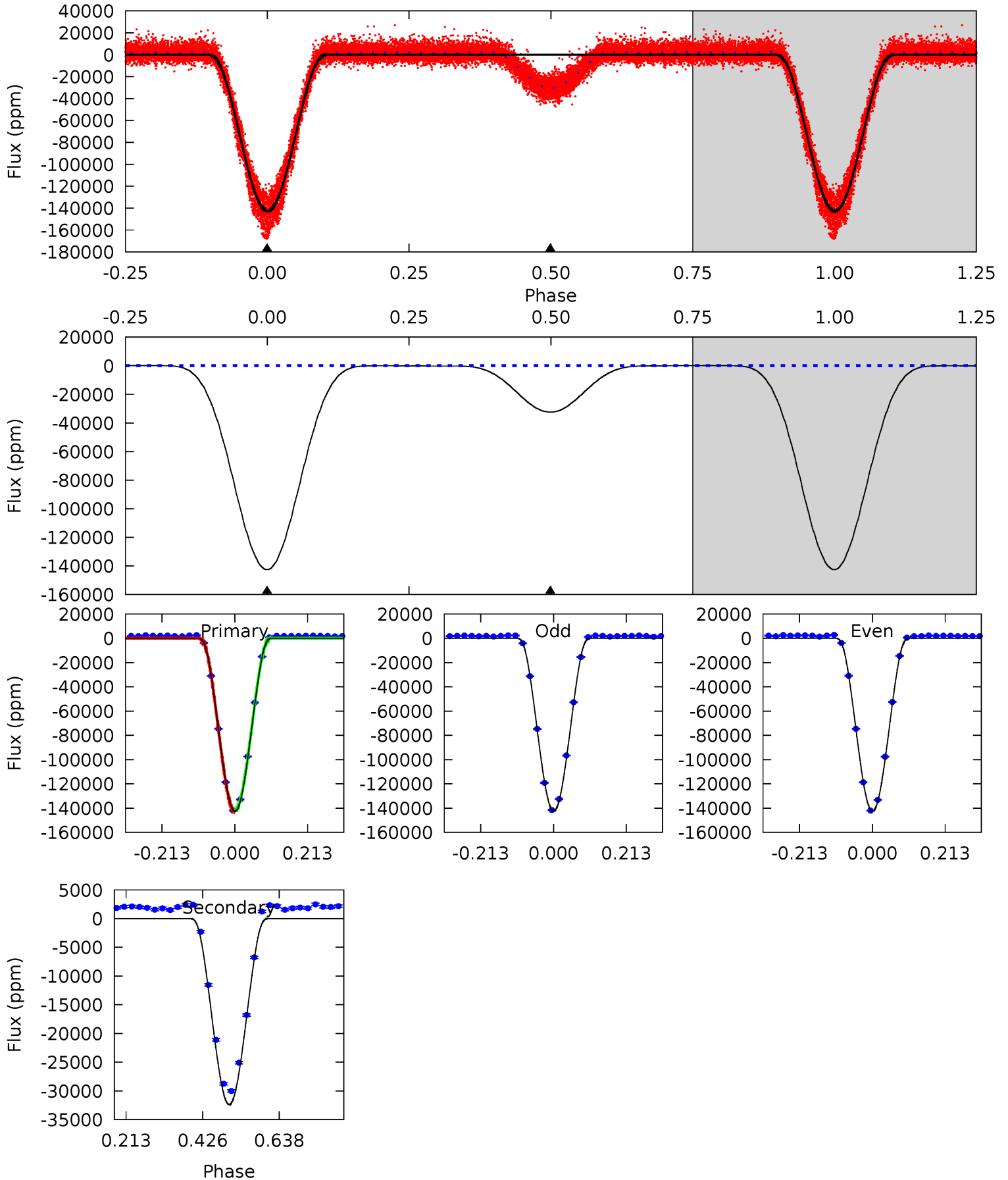
TCE 003556229-01   P= 0.796717 Days    $T_0=132.293102$  (BKJD)



# DV Model-Shift Uniqueness Test

003556229-01, P = 0.796721 Days, E = 132.287090 Days

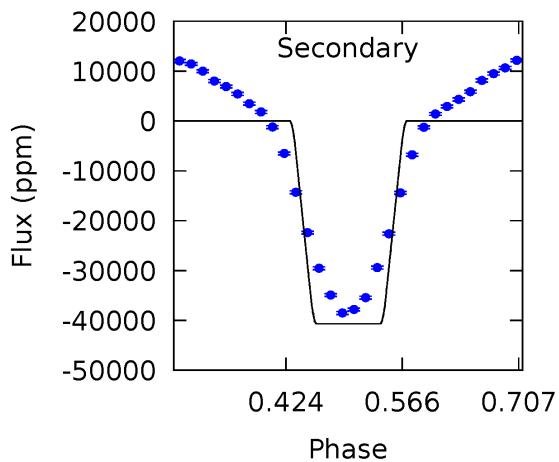
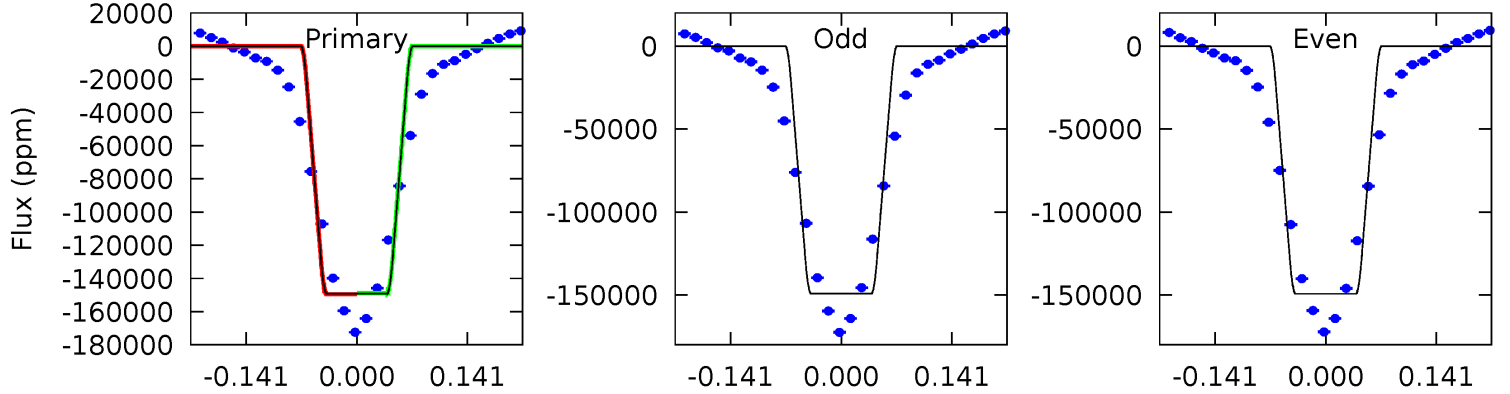
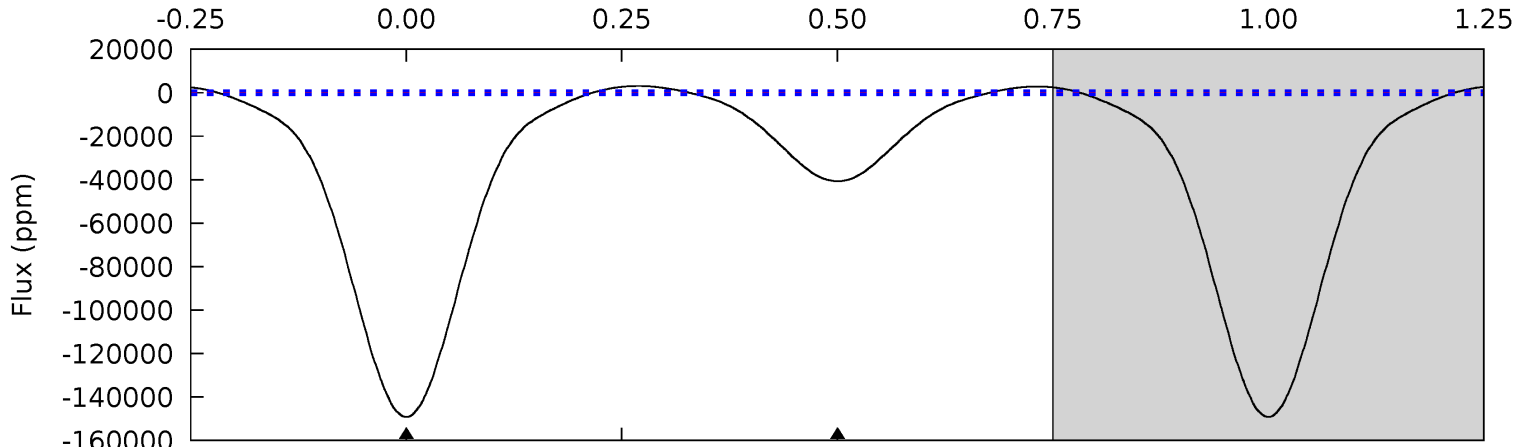
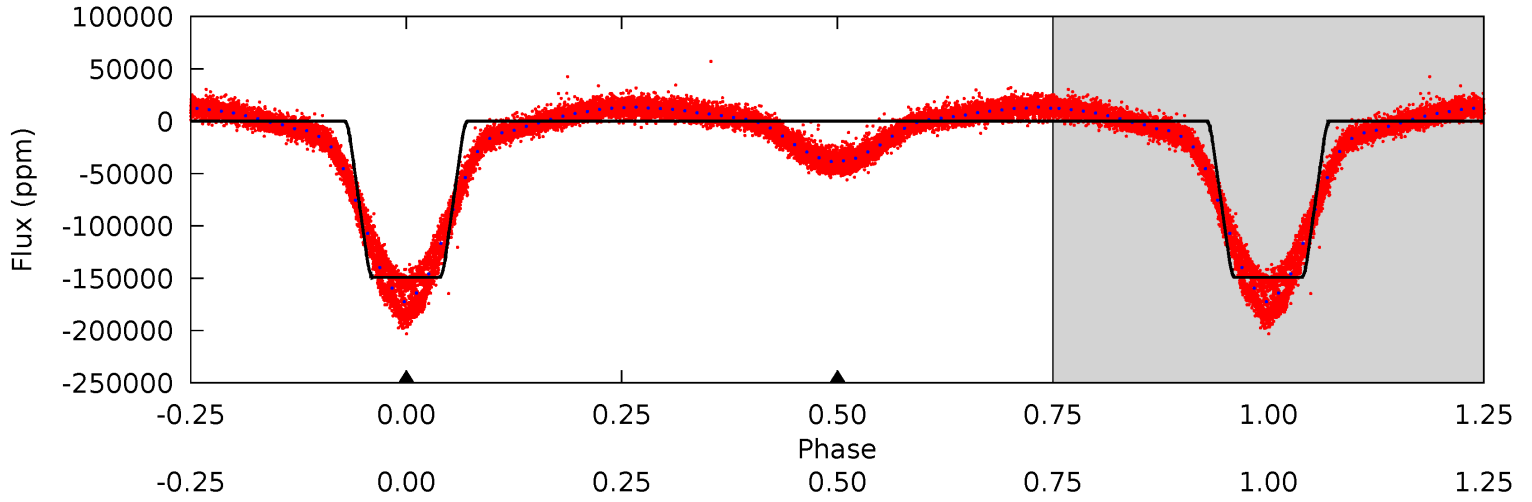
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1817	412.9	0	0	4.40	1.25	1.39	1817	1817	412.9	412.9	0.55	1.01	0.00	11.1



# Alt Model-Shift Uniqueness Test

003556229-01, P = 0.796717 Days, E = 132.293102 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
761.2	207.5	0	0	4.49	1.47	22.9	761.2	761.2	207.5	207.5	0.48	0.98	0.02	1.58



### Stellar Parameters For KIC 003556229

	$T_{\text{eff}}(K)$	$\log(g)$	[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 003556229-01 / KOI 3899.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-32395 \pm 78$	$59.66^{+38.79}_{-33.67}$	$2749^{+122}_{-121}$	$3594^{+1473}_{-745}$	$1.449^{+5.928}_{-0.902}$
Alt.	$-40670 \pm 196$	$51.82^{+36.83}_{-31.16}$	$2738^{+136}_{-132}$	$3994^{+1903}_{-810}$	$2.403^{+12.981}_{-1.554}$

$T_{\text{max}}$  = 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

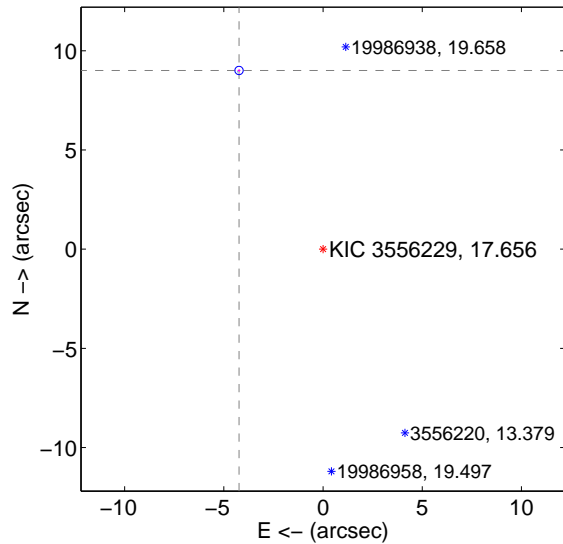
Supplemental centroid analysis for 003556229-01. Kepler magnitude: 17.66. Transit SNR 361.28

There are 6 quarters with good PRF difference image offsets

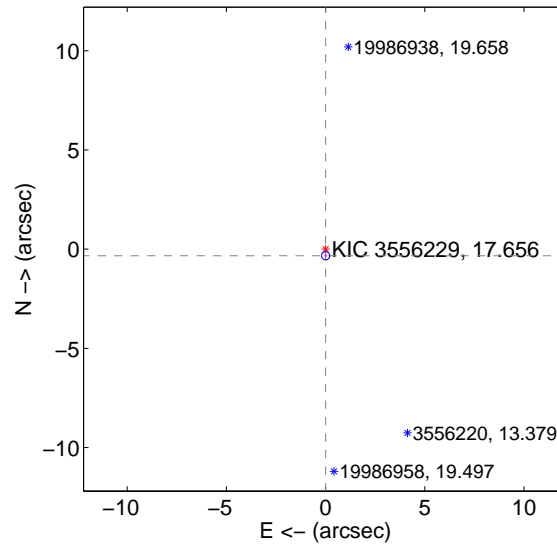
The OOT PRF centroid is offset from the target star catalog position by about 10.29 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$9.954 \pm 0.070$	142.55	$4.235 \pm 0.071$	$9.008 \pm 0.070$
PRF-fit source offset from KIC position	$0.332 \pm 0.069$	4.83	$-0.003 \pm 0.067$	$-0.332 \pm 0.069$
photometric centroid source offset	$4.60 \pm 0.00$	1938.02	$-1.82 \pm 0.00$	$-4.23 \pm 0.00$

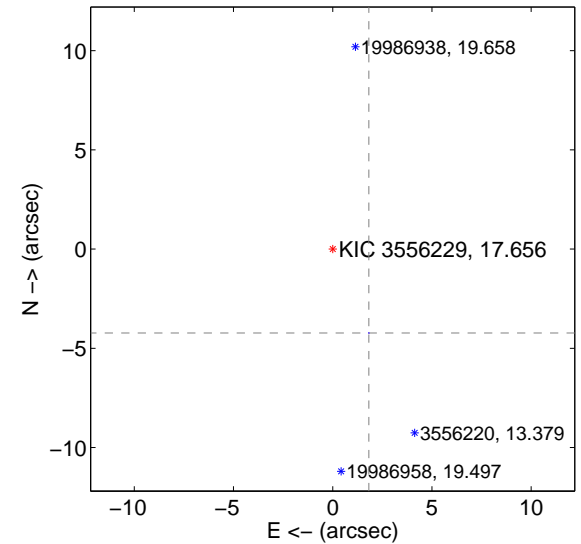
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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.

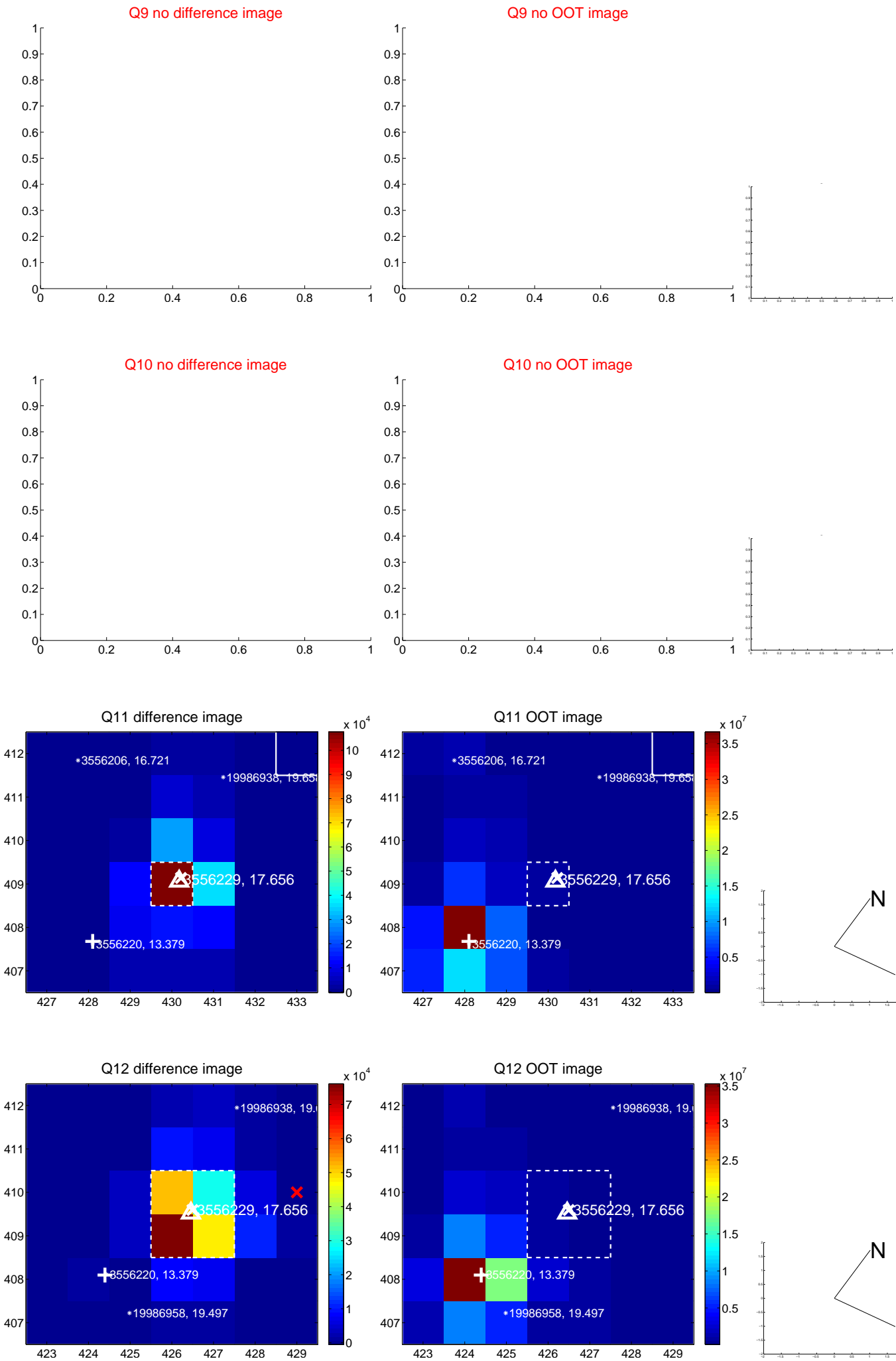


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

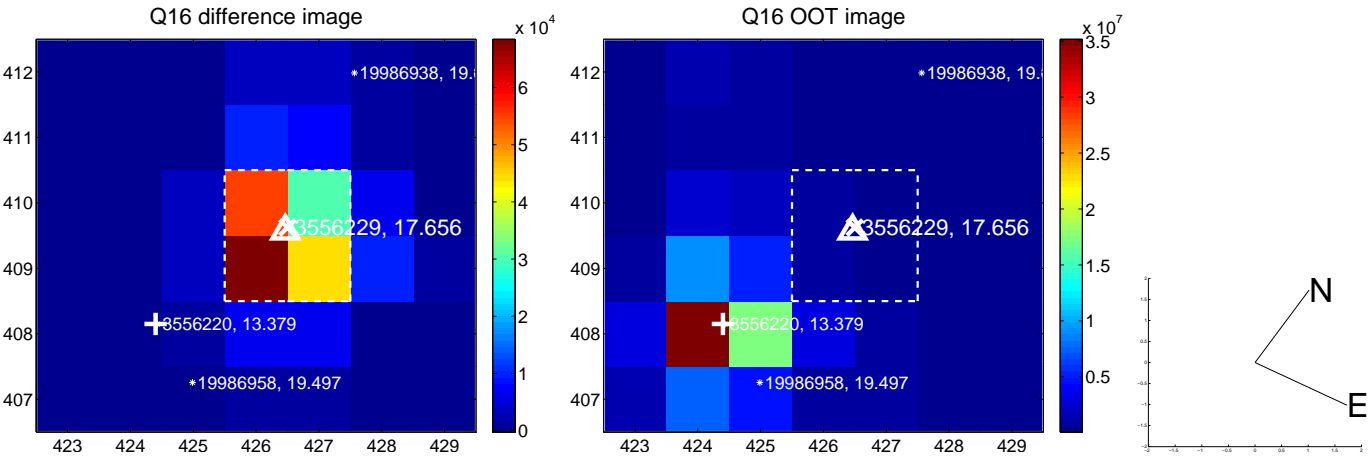
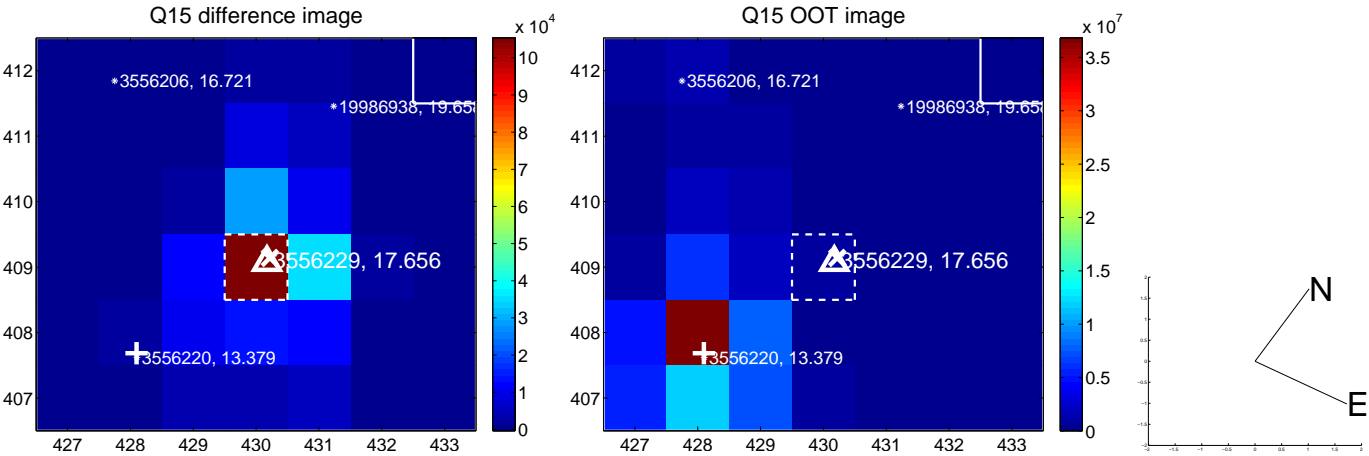
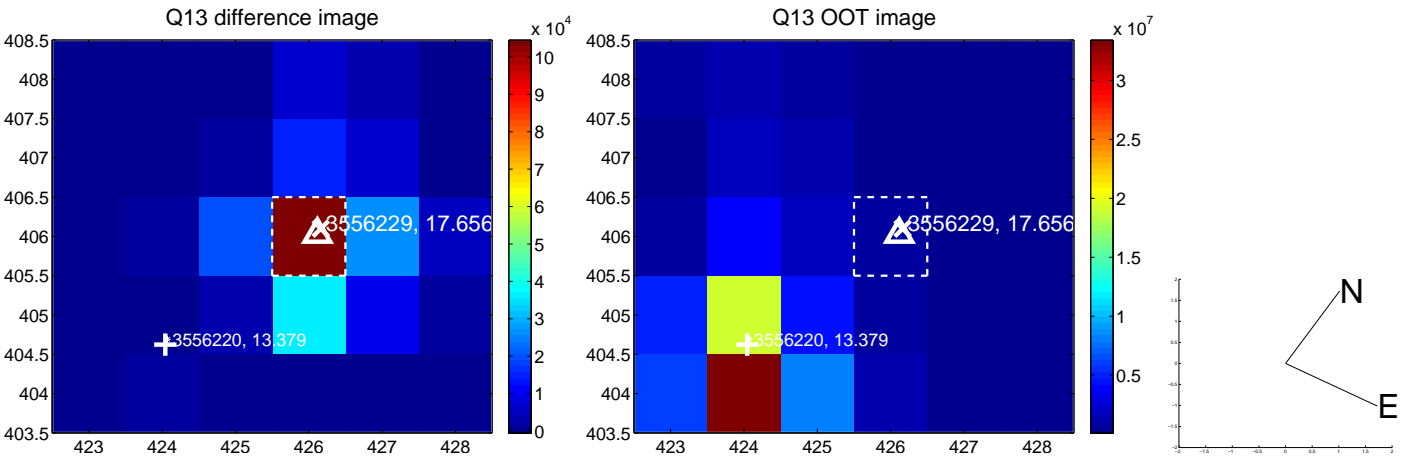




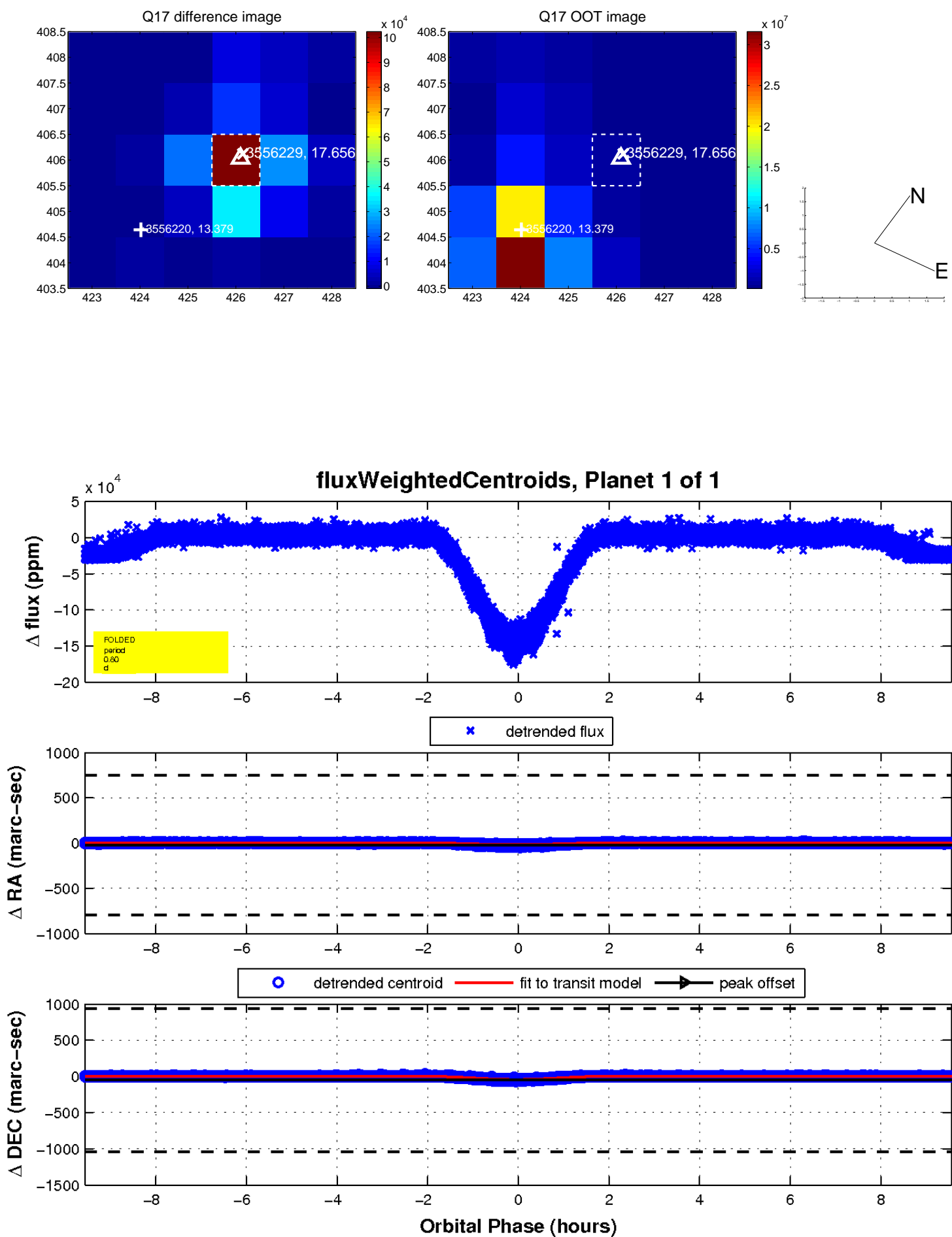
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

