

# KIC 008418129

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008418129-01	OBS	No	556.324700	386.593795	237.0	37.409	7.5	9.1	2.09	9573	5.34	10.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008418129-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—CENT_FEW_DIFFS

**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 008418129-01

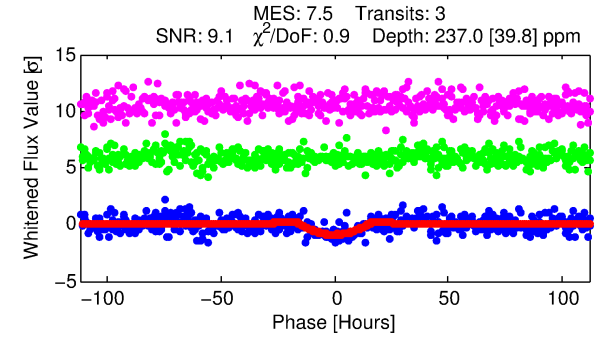
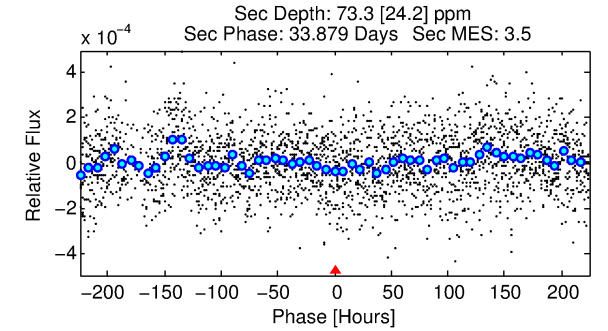
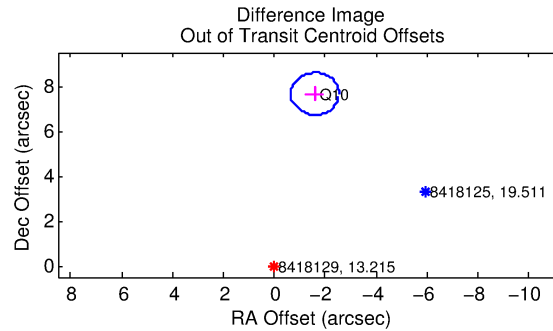
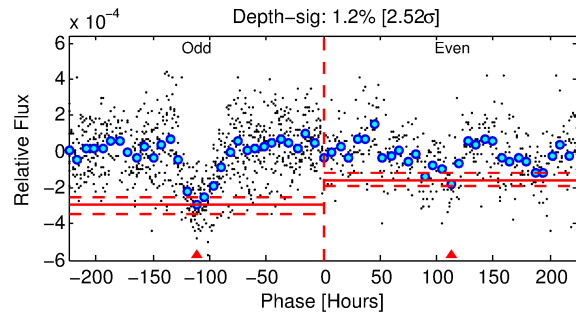
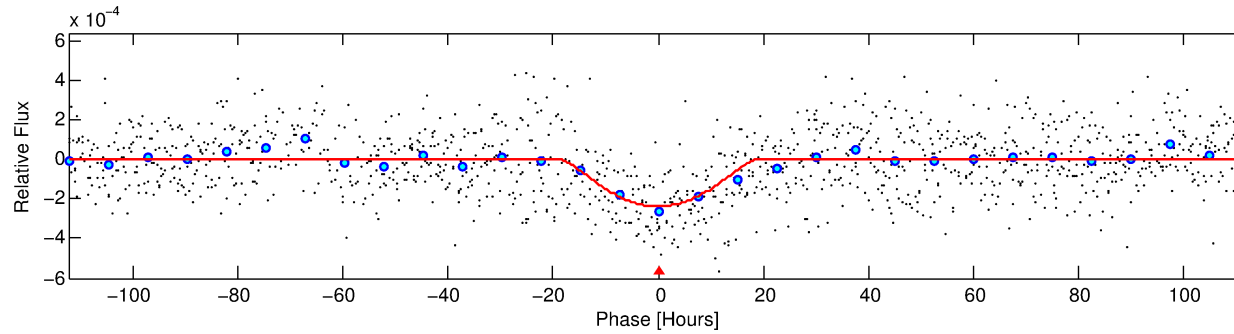
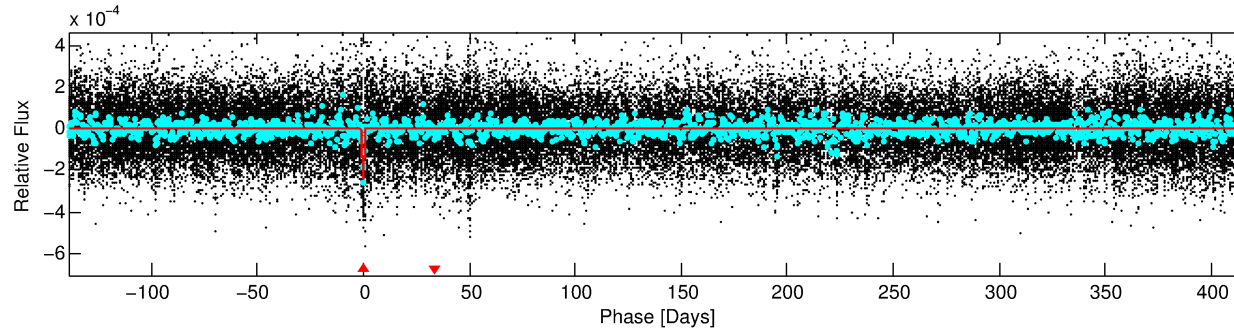
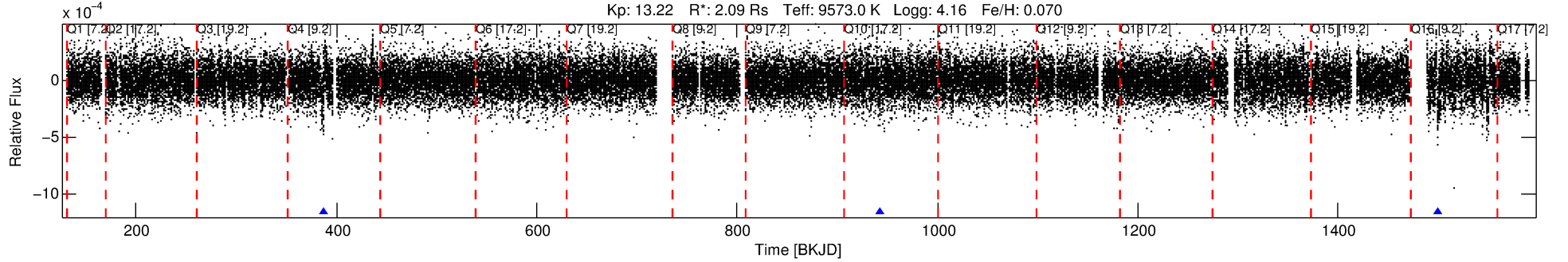
No Significant Match Found

# DV One-Page Summary

KIC: 8418129 Candidate: 1 of 1 Period: 556.325 d

KOI: K02515 Corr: No Ephemeris Match

Kp: 13.22 R\*: 2.09 Rs Teff: 9573.0 K Logg: 4.16 Fe/H: 0.070



## DV Fit Results:

Period = 556.32470 [0.05077] d  
Epoch = 386.5938 [0.0557] BKJD  
Rp/R\* = 0.0235 [0.0311]  
a/R\* = 26.94 [11.59]  
b = 1.00 [0.05]  
Seff = 10.82 [4.79]  
Teq = 462 [51] K  
Rp = 5.34 [7.37] Re  
a = 1.7396 [0.5236] AU  
Ag = 4285.69 [11576.08] [0.37σ]  
Teffp = 5785 [3873] K [1.37σ]

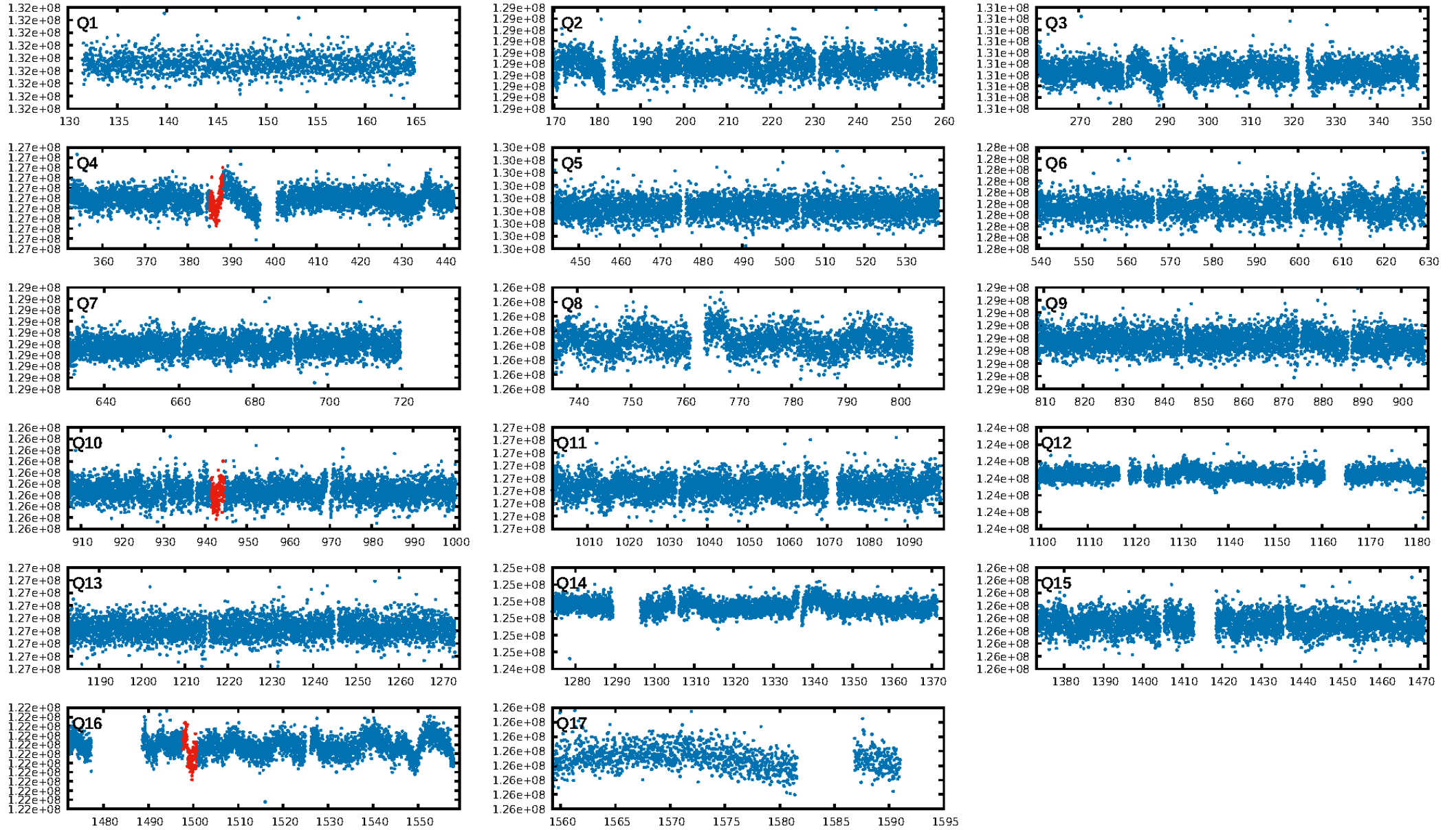
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.3%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 3.46e-11**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.969  
Centroid-sig: 74.5%  
Centroid-so: 0.839 arcsec [0.53σ]  
**OotOffset-rm: 7.820 arcsec [24.91σ]**  
**KicOffset-rm: 7.880 arcsec [25.13σ]**  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [1/1]

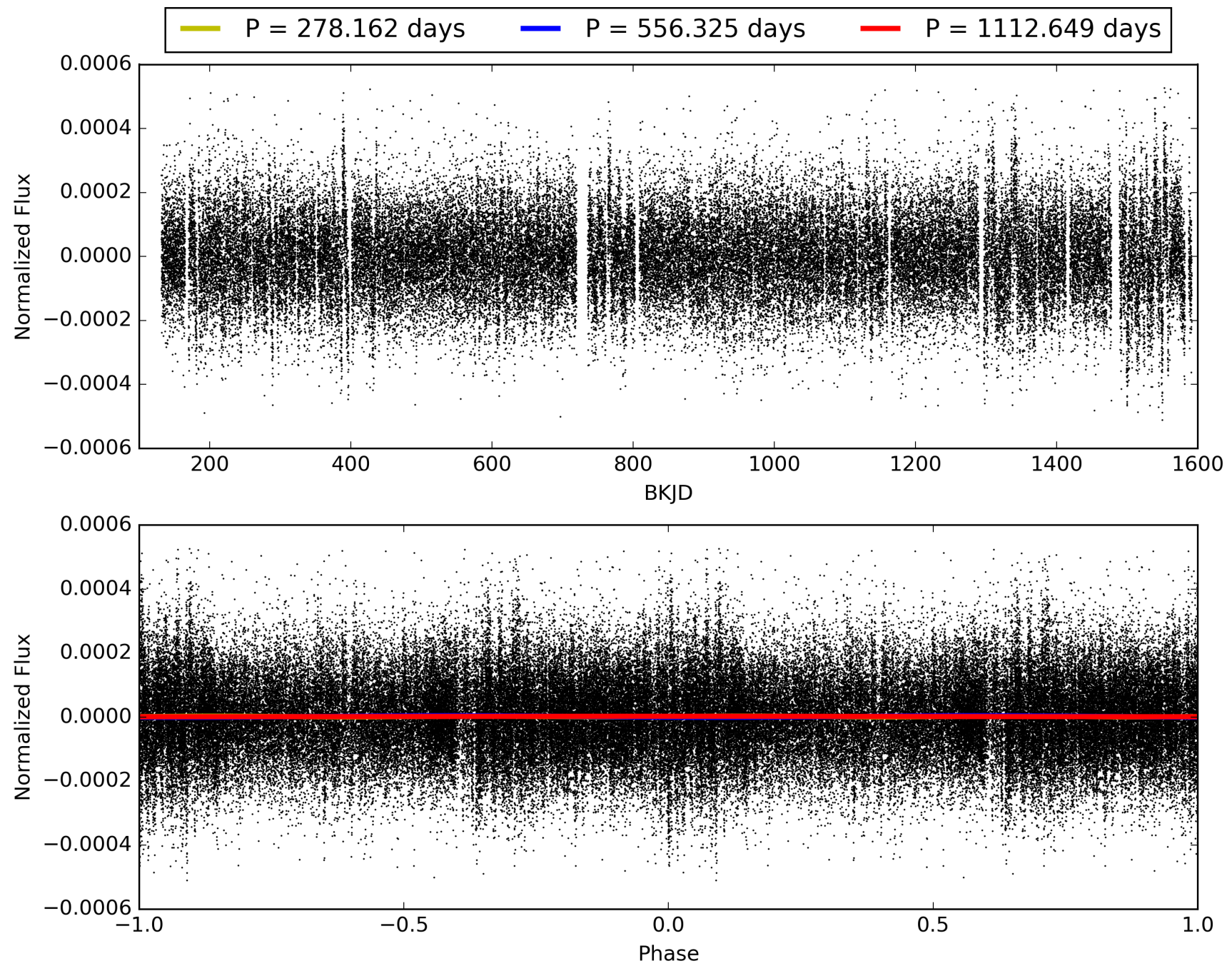
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 22:17:22 Z

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

# TCE 008418129-01, PDC Light Curves

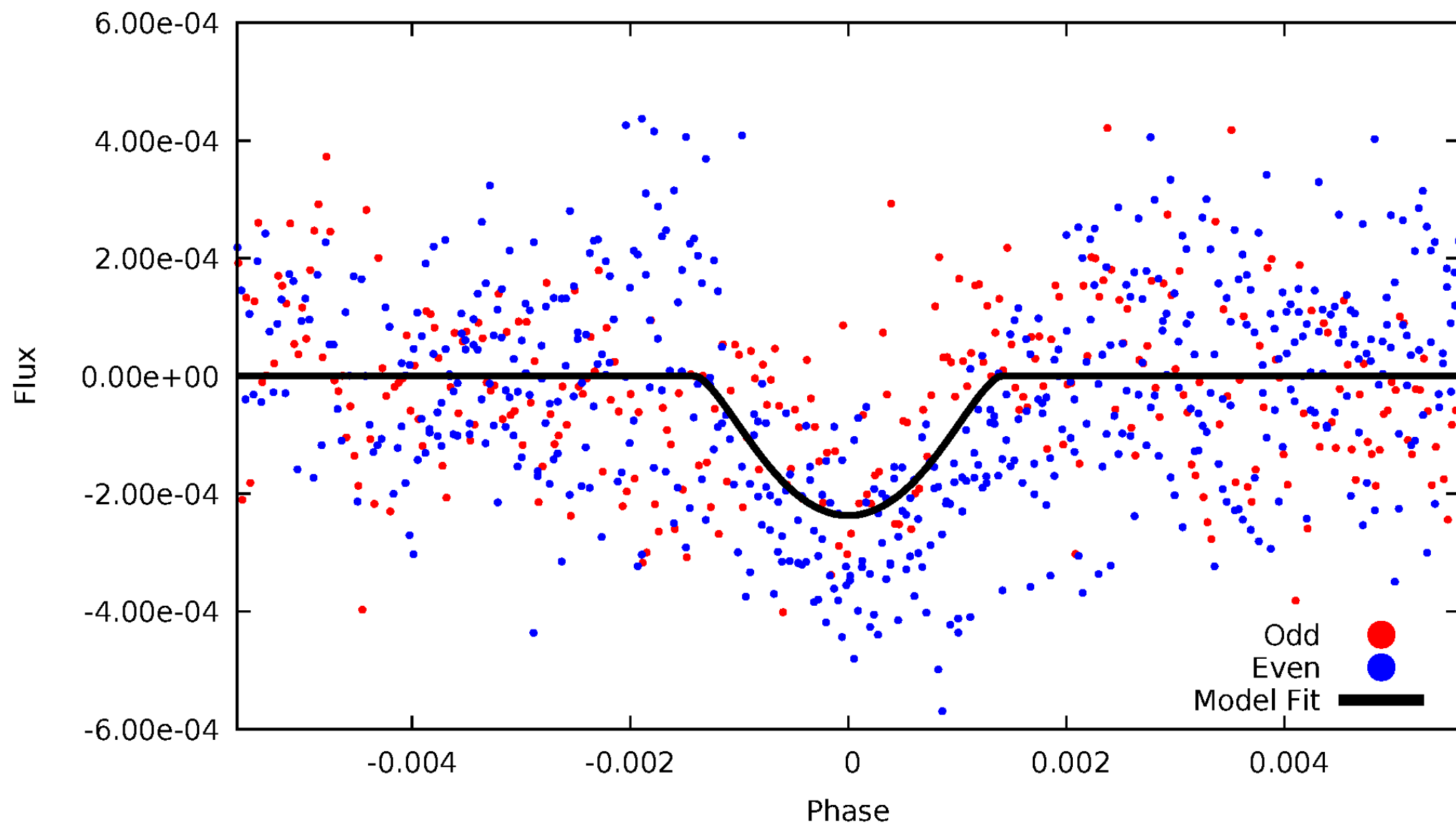


TCE 008418129-01



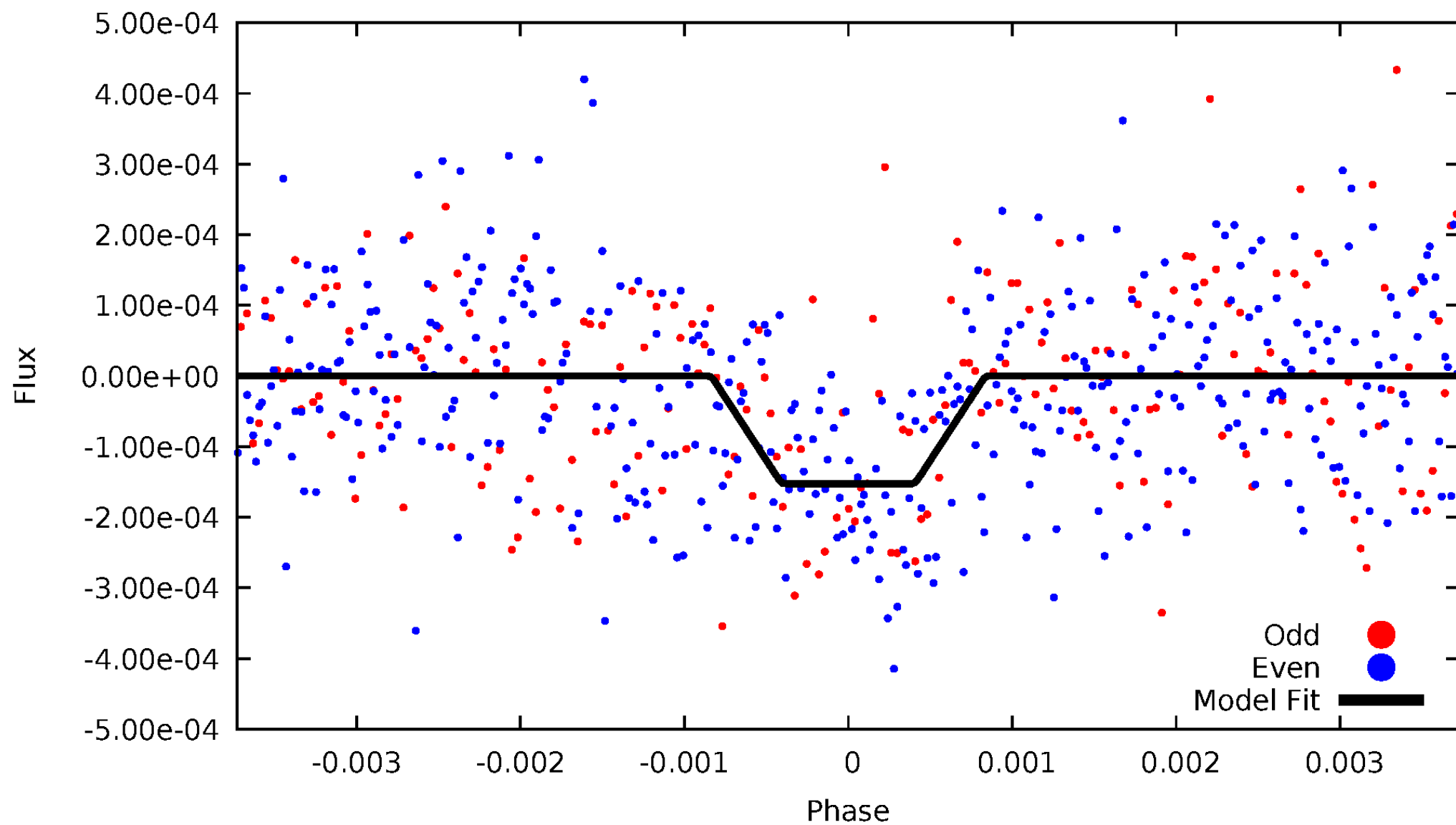
# DV Odd/Even

TCE 008418129-01



# ALT Odd/Even

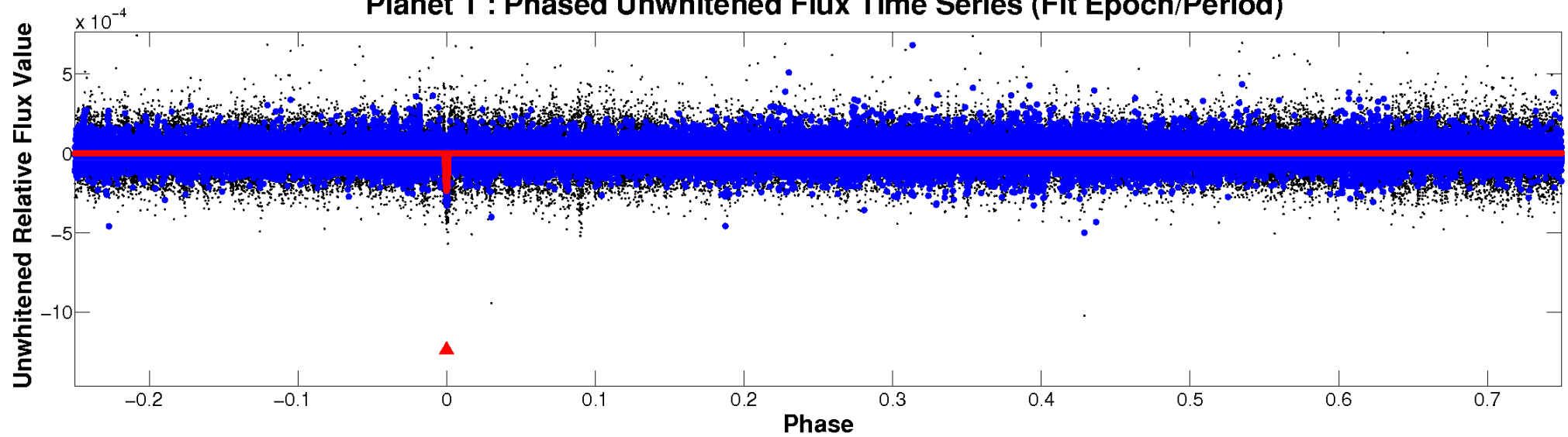
TCE 008418129-01



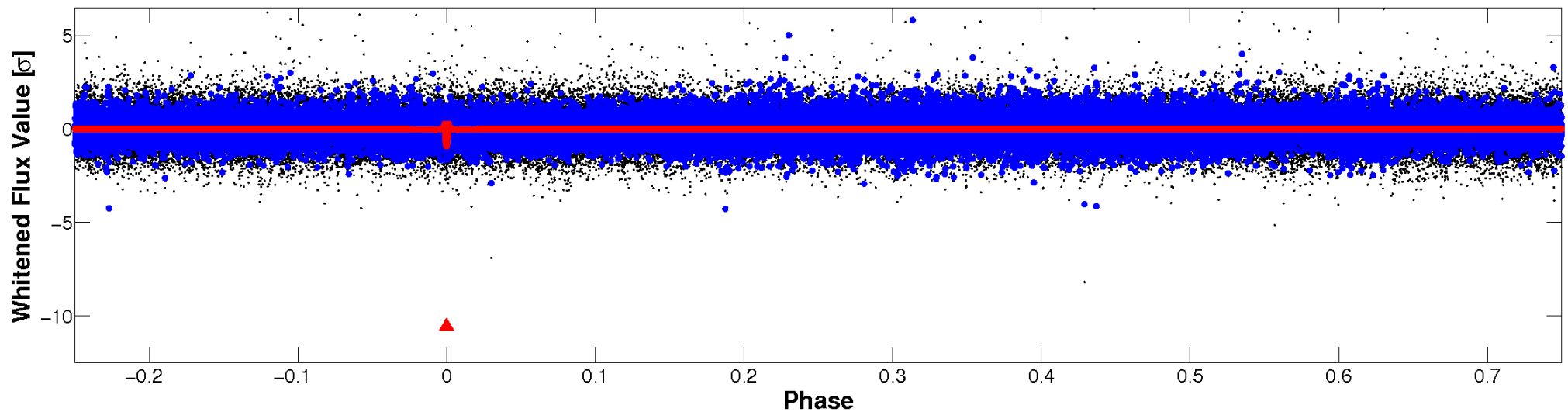


# Non-Whitened Vs. Whitened Light Curve

**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

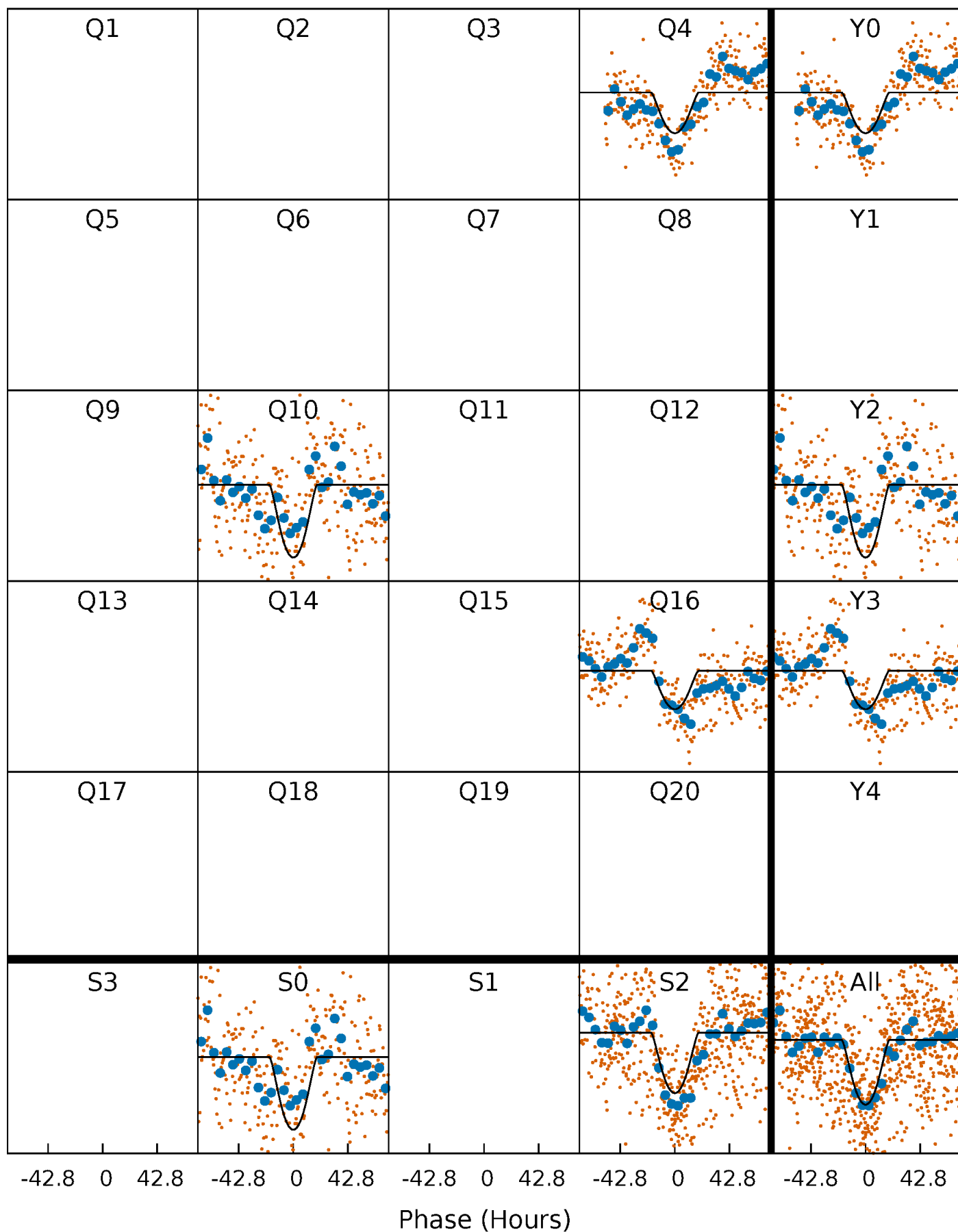
TCE 008418129-01 P=556.324700 Days  $T_0=386.593795$  (BKJD)





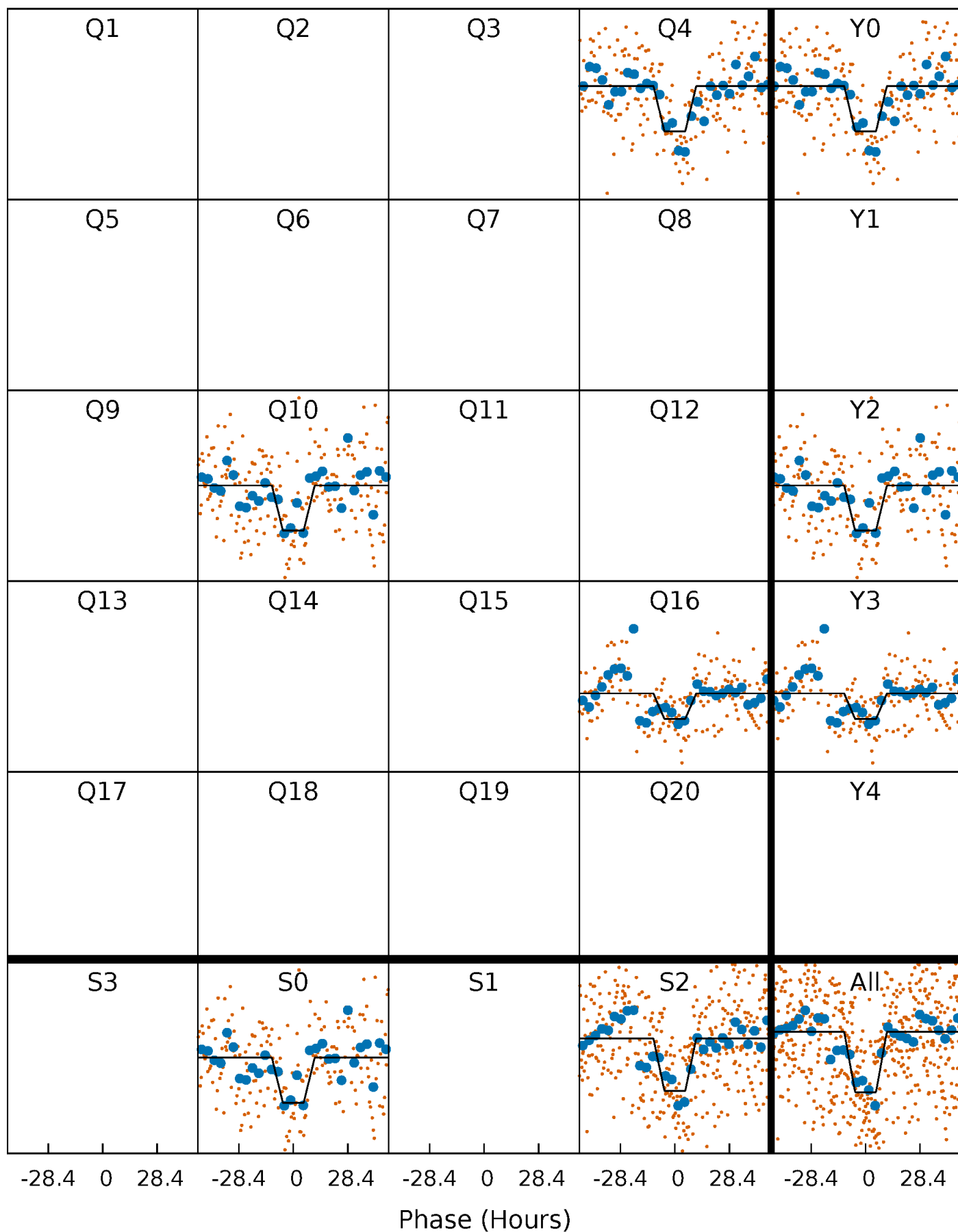
# DV Quarter-Phased Transit Curves

TCE 008418129-01 P=556.324700 Days  $T_0=386.593795$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

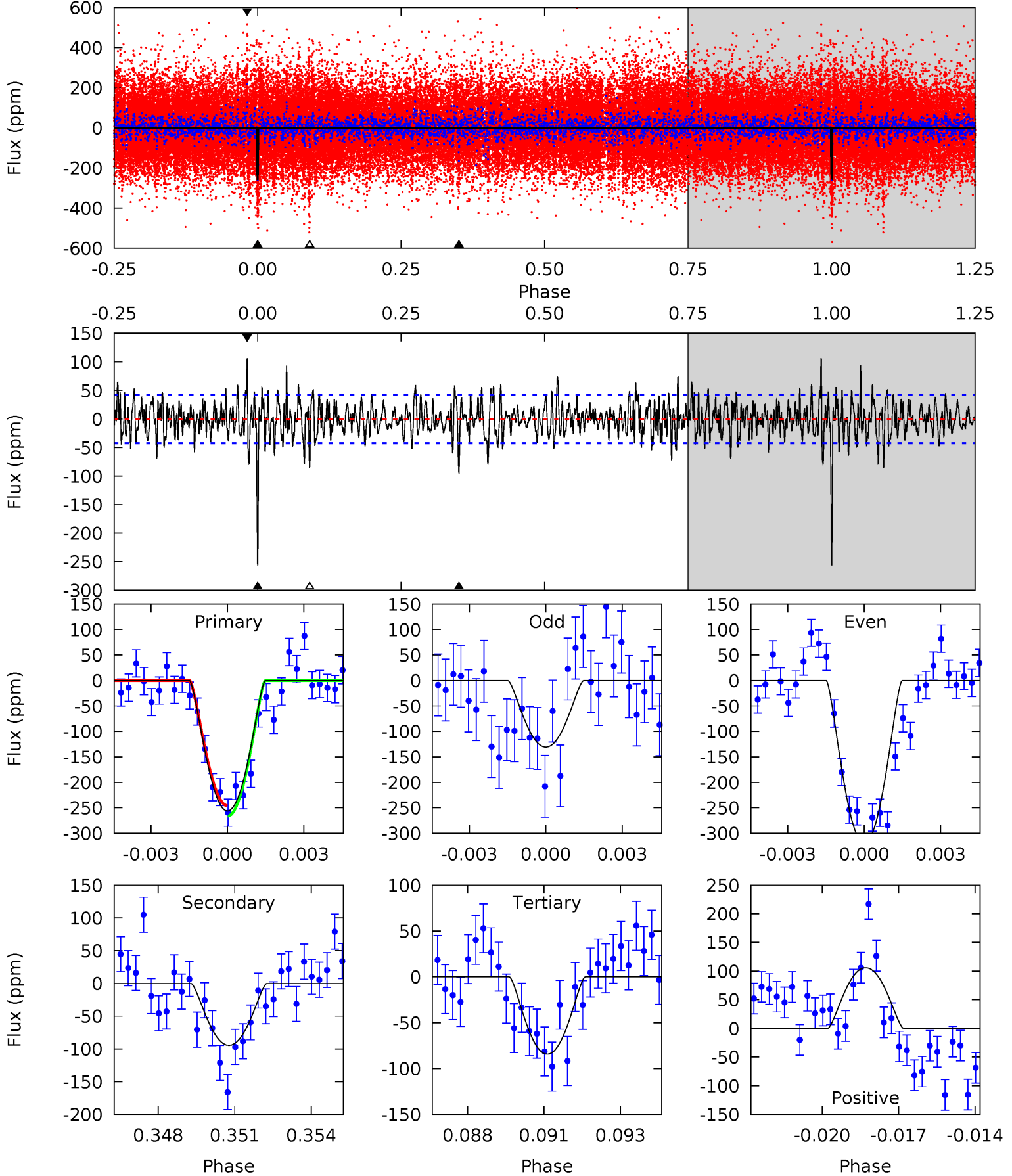
TCE 008418129-01 P=556.555685 Days  $T_0=386.456522$  (BKJD)



# DV Model-Shift Uniqueness Test

008418129-01, P = 556.324700 Days, E = 386.593795 Days

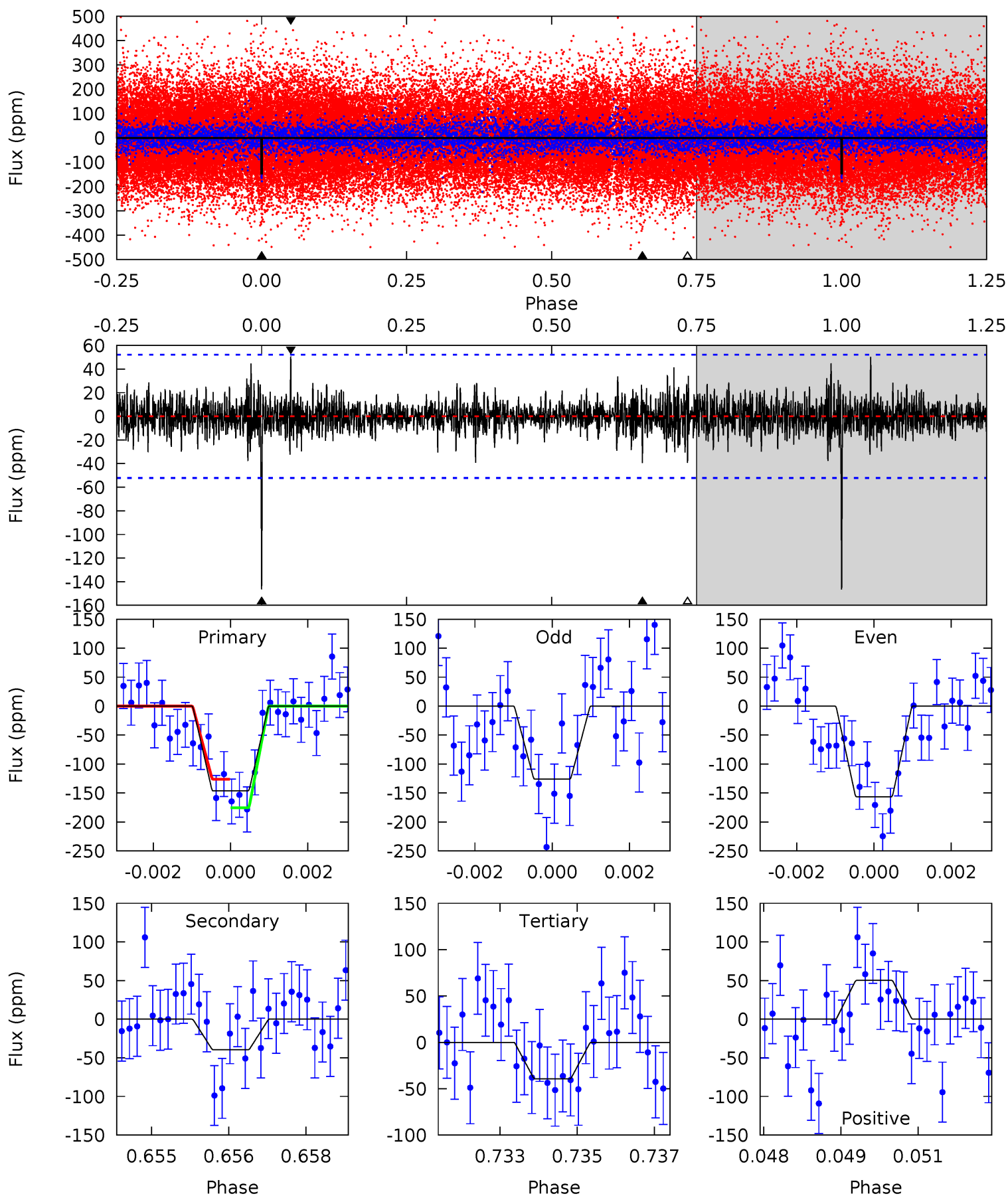
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.7	11.7	10.4	13.1	5.26	2.99	3.05	21.3	18.6	1.27	-1.40	11.2	0.89	0.29	1.29



# Alt Model-Shift Uniqueness Test

008418129-01, P = 556.555685 Days, E = 386.456522 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
15.0	4.05	4.02	5.16	5.36	3.14	1.06	11.0	9.87	0.03	-1.10	1.48	1.03	0.26	2.53



### Stellar Parameters For KIC 008418129

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9573^{+302}_{-454}$	$4.155^{+0.162}_{-0.198}$	$0.070^{+0.150}_{-0.700}$	$2.086^{+0.813}_{-0.609}$	$2.266^{+0.400}_{-0.600}$	$0.352^{+0.332}_{-0.198}$
	+3%/-5%	+4%/-5%	+214%/-1000%	+39%/-29%	+18%/-26%	+94%/-56%
Source	KIC0	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 008418129-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-95 \pm 8$	$7.34^{+6.89}_{-4.98}$	$646^{+57}_{-50}$	$5012^{+3765}_{-1110}$	$2699^{+23684}_{-1922}$
Alt.	$-40 \pm 10$	$6.20^{+6.16}_{-4.26}$	$647^{+56}_{-54}$	$4413^{+3507}_{-928}$	$1633^{+17653}_{-1227}$

$T_{max}$  = 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

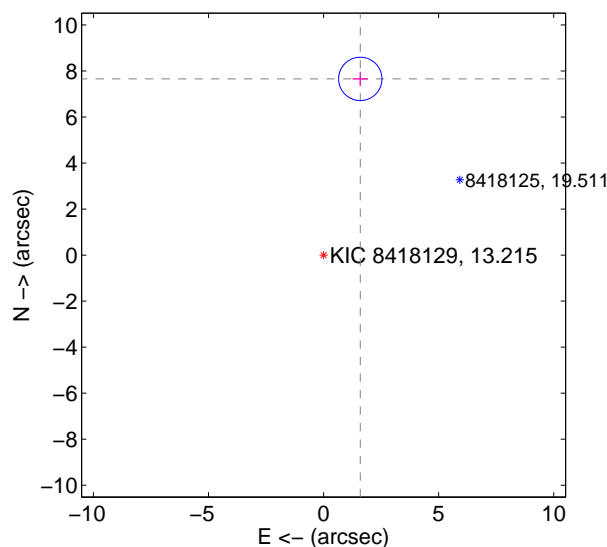
Supplemental centroid analysis for 008418129-01. Kepler magnitude: 13.21. Transit SNR 9.06

There are 0 quarters with good PRF difference image offsets

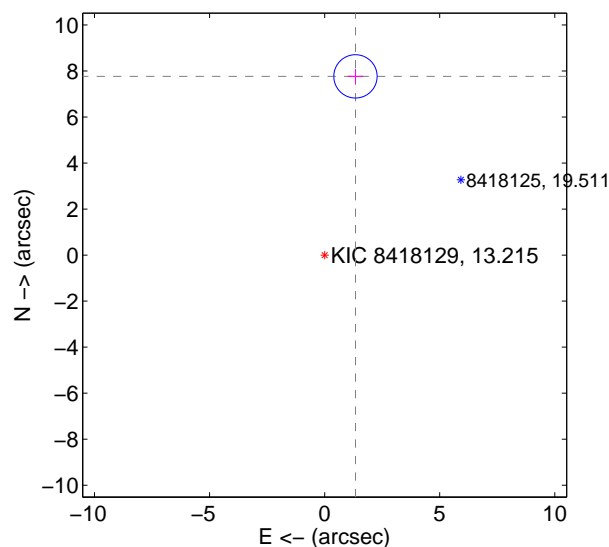
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.820 \pm 0.314$	24.91	$-1.595 \pm 0.336$	$7.655 \pm 0.313$
PRF-fit source offset from KIC position	$7.880 \pm 0.314$	25.13	$-1.339 \pm 0.336$	$7.765 \pm 0.313$
photometric centroid source offset	$0.84 \pm 1.60$	0.53	$0.31 \pm 1.45$	$0.78 \pm 1.62$

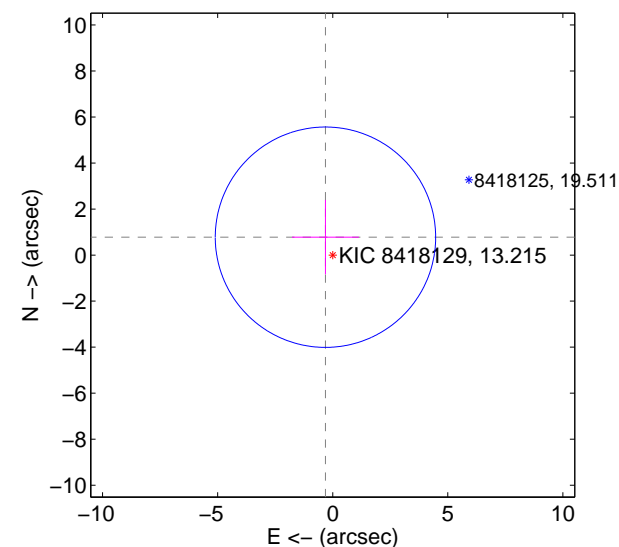
offset from difference PRF-fit to OOT PRF-fit



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.

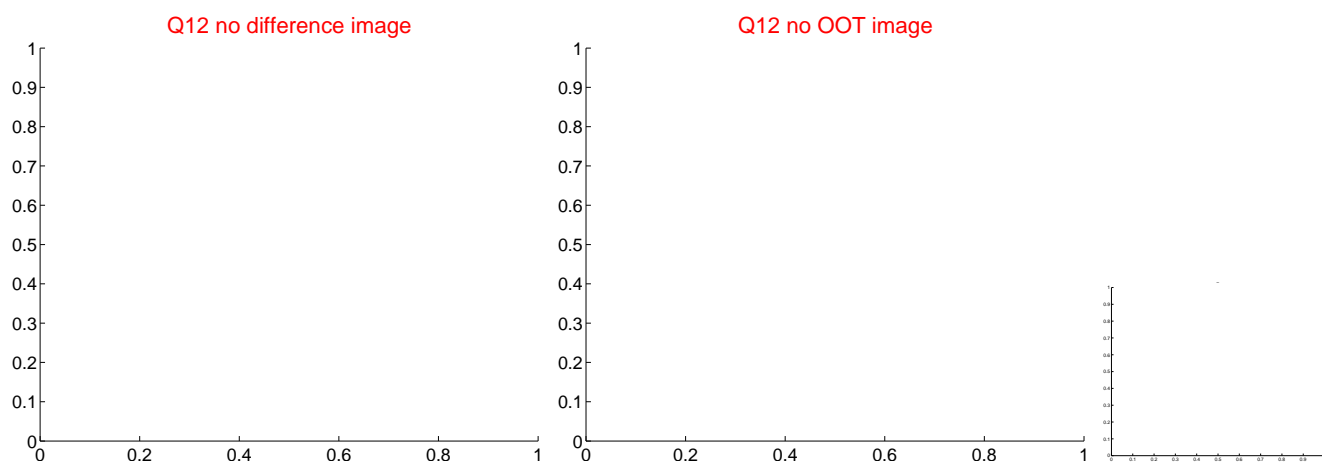
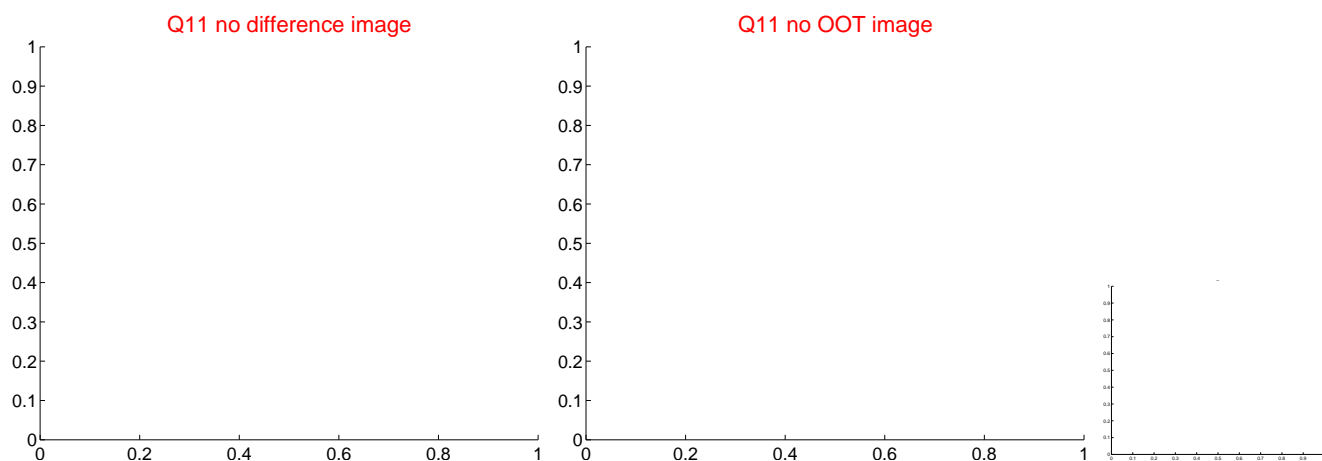
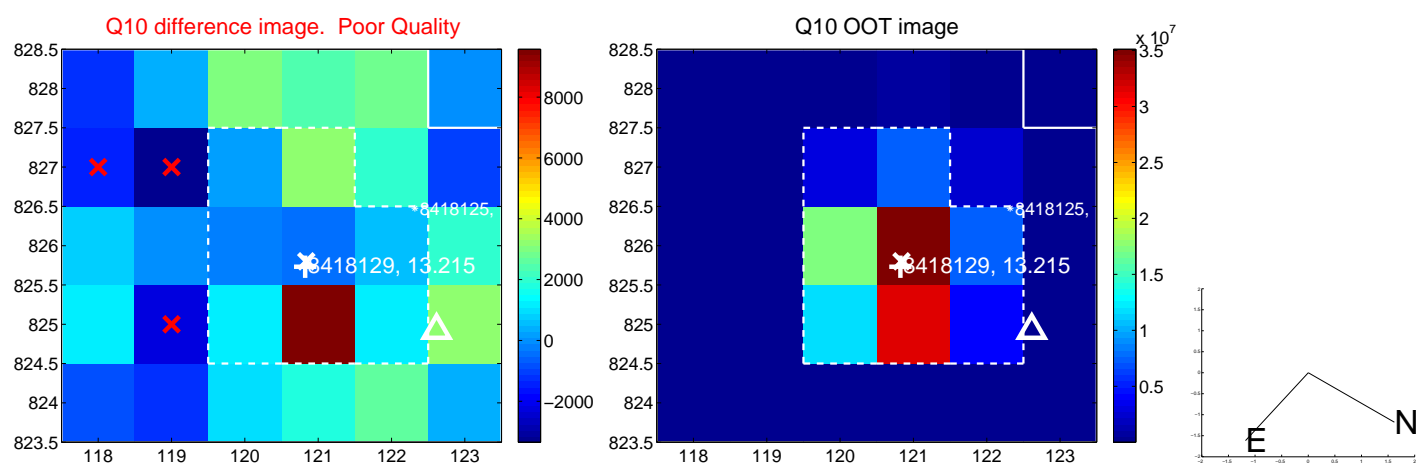
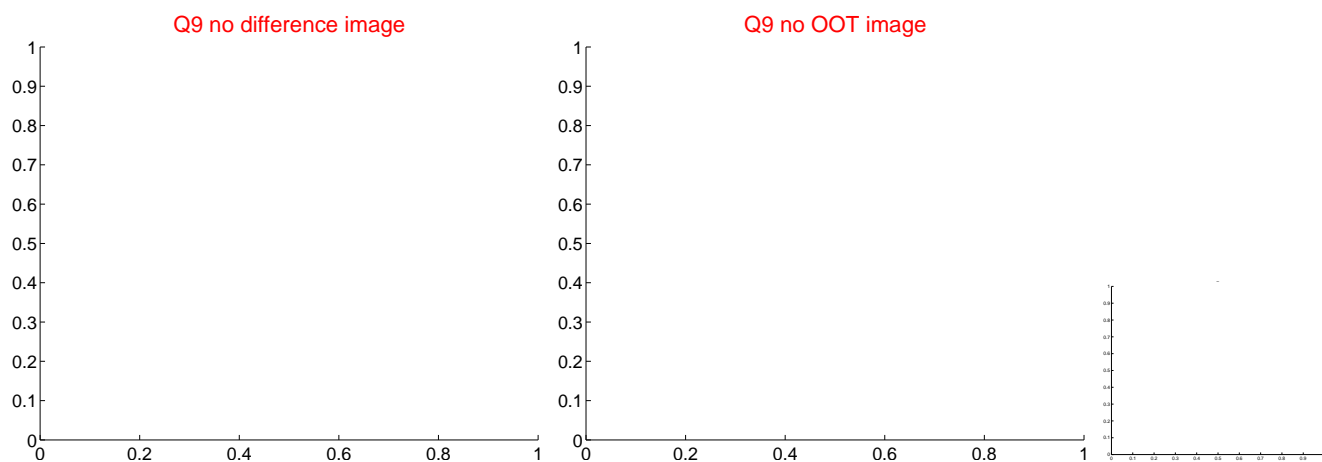




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



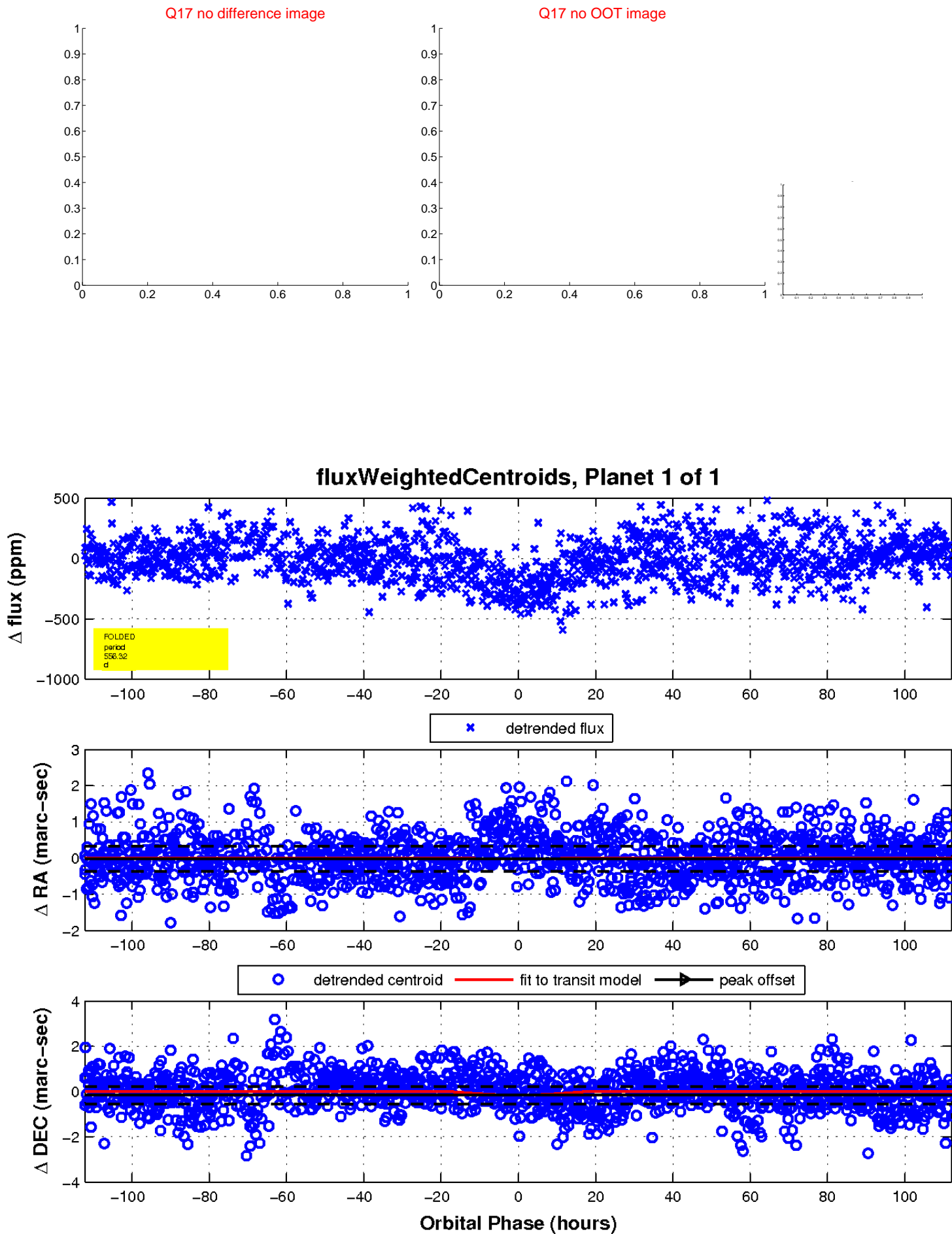
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

